

## APPENDIX A: SAR TEST DATA

# PCTEST

**DUT: BCGA2230; Type: Tablet Device; Serial: DLXZR033P7GG**

Communication System: UID 0, GSM GPRS; 2 Tx slots; Frequency: 824.2 MHz; Duty Cycle: 1:4.15

Medium: 835 MHz Body Medium parameters used (interpolated):

$f = 824.2 \text{ MHz}$ ;  $\sigma = 0.996 \text{ S/m}$ ;  $\epsilon_r = 56.233$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 01-09-2020; Ambient Temp: 22.0°C; Tissue Temp: 19.8°C

Probe: EX3DV4 - SN7416; ConvF(9.71, 9.71, 9.71) @ 824.2 MHz; Calibrated: 6/19/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn701; Calibrated: 6/14/2019

Phantom: Twin-SAM V8.0\_Left; Type: QD 000 P41 AA; Serial: 1935

Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

**Mode: GPRS 850 Antenna 1, Body SAR, Left Edge, Low.ch, 2 Tx Slots**

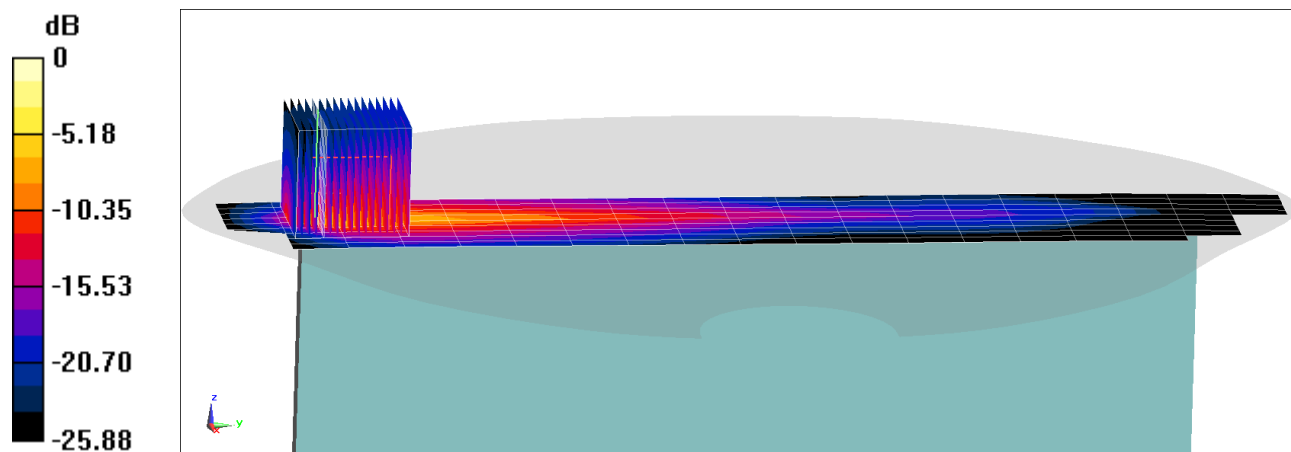
**Area Scan (10x20x1):** Measurement grid:  $dx=5\text{mm}$ ,  $dy=15\text{mm}$

**Zoom Scan (17x17x8)/Cube 0:** Measurement grid:  $dx=1.9\text{mm}$ ,  $dy=1.9\text{mm}$ ,  $dz=1.4\text{mm}$ ; Graded Ratio: 1.4

Reference Value = 24.37 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 22.7 W/kg

**SAR(1 g) = 0.989 W/kg; SAR(10 g) = 0.285 W/kg**



0 dB = 3.78 W/kg = 5.77 dBW/kg

# PCTEST

**DUT: BCGA2230; Type: Tablet Device; Serial: DLXZR033P7GG**

Communication System: UID 0, GSM GPRS; 2 Tx slots; Frequency: 1909.8 MHz; Duty Cycle: 1:4.15

Medium: 1900 MHz Body Medium parameters used:

$f = 1910 \text{ MHz}$ ;  $\sigma = 1.585 \text{ S/m}$ ;  $\epsilon_r = 52.949$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 01-13-2020; Ambient Temp: 21.1°C; Tissue Temp: 19.7°C

Probe: EX3DV4 - SN7421; ConvF(7.6, 7.6, 7.6) @ 1909.8 MHz; Calibrated: 3/18/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn604; Calibrated: 3/13/2019

Phantom: Twin-SAM V4.0; Type: QD 000 P40 CD; Serial: 1736

Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

**Mode: GPRS 1900 Antenna 4a, Body SAR, Back side, High ch, 2 Tx Slots**

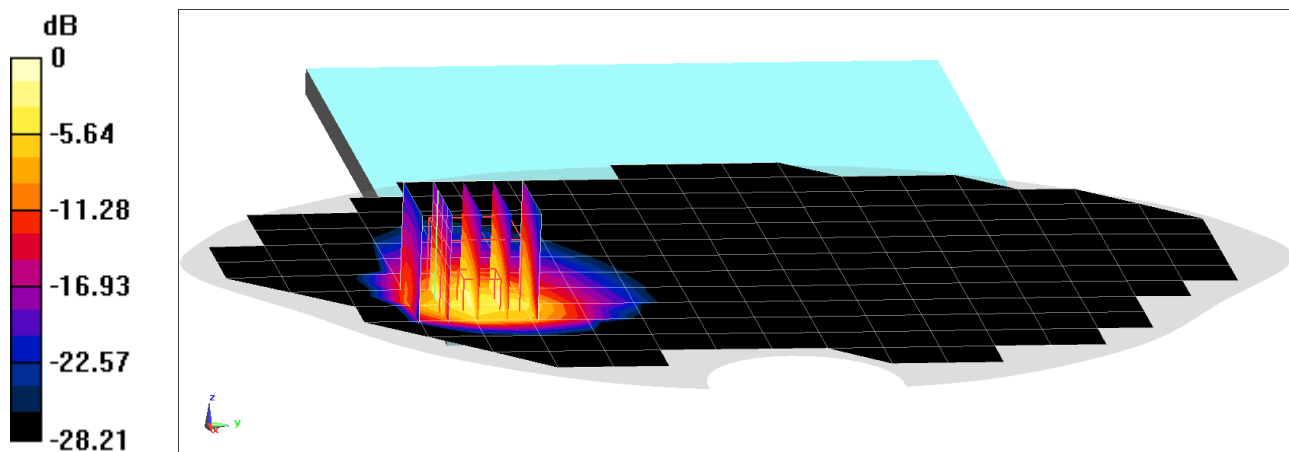
**Area Scan (15x19x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 25.29 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 2.99 W/kg

**SAR(1 g) = 0.998 W/kg; SAR(10 g) = 0.477 W/kg**



0 dB = 1.87 W/kg = 2.72 dBW/kg

# PCTEST

**DUT: BCGA2230; Type: Tablet Device; Serial: DLXZR033P7GG**

Communication System: UID 0, UMTS, Frequency: 826.4 MHz; Duty Cycle: 1:1

Medium: 835 MHz Body Medium parameters used (interpolated):

$f = 826.4 \text{ MHz}$ ;  $\sigma = 0.997 \text{ S/m}$ ;  $\epsilon_r = 56.19$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 01-09-2020; Ambient Temp: 22.0°C; Tissue Temp: 19.8°C

Probe: EX3DV4 - SN7416; ConvF(9.71, 9.71, 9.71) @ 826.4 MHz; Calibrated: 6/19/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn701; Calibrated: 6/14/2019

Phantom: Twin-SAM V8.0\_Left; Type: QD 000 P41 AA; Serial: 1935

Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

**Mode: UMTS 850 Antenna 1, Body SAR, Left Edge, Low.ch**

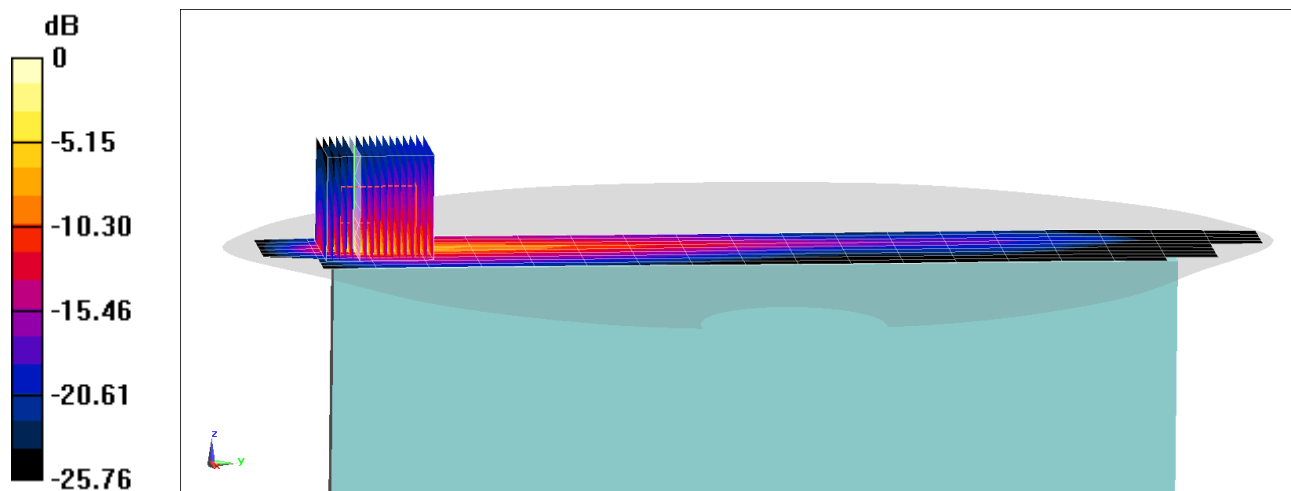
**Area Scan (10x20x1):** Measurement grid: dx=5mm, dy=15mm

**Zoom Scan (17x17x8)/Cube 0:** Measurement grid: dx=1.9mm, dy=1.9mm, dz=1.4mm; Graded Ratio: 1.4

Reference Value = 26.40 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 24.3 W/kg

**SAR(1 g) = 1.1 W/kg; SAR(10 g) = 0.324 W/kg**



0 dB = 4.44 W/kg = 6.47 dBW/kg

# PCTEST

**DUT: BCGA2230; Type: Tablet Device; Serial: DLXZR033P7GG**

Communication System: UID 0, \_UMTS , Frequency: 1752.6 MHz; Duty Cycle: 1:1

Medium: 1750 MHz Body Medium parameters used (interpolated):

$f = 1752.6$  MHz;  $\sigma = 1.528$  S/m;  $\epsilon_r = 52.671$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 12-30-2019; Ambient Temp: 21.4°C; Tissue Temp: 20.0°C

Probe: EX3DV4 - SN3837; ConvF(7.72, 7.72, 7.72) @ 1752.6 MHz; Calibrated: 1/28/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn793; Calibrated: 1/15/2019

Phantom: Twin-SAM V4.0 (20deg probe tilt) SUB use; Type: QD 000 P40 CC; Serial: 1403

Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

**Mode: UMTS 1750 Antenna 2b, Body SAR, Back side, High.ch**

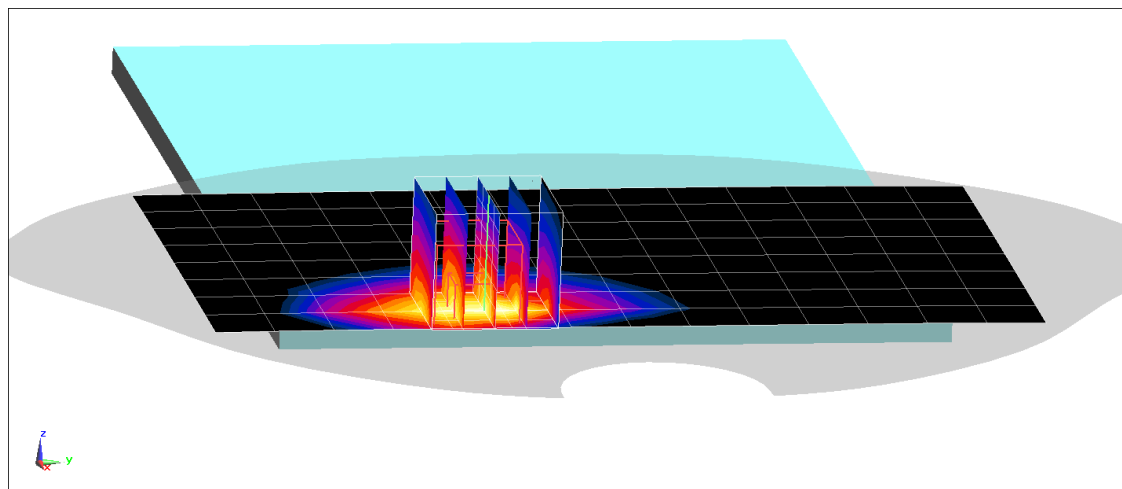
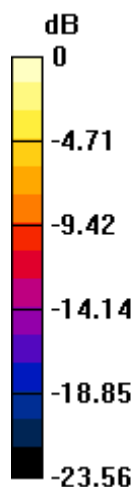
**Area Scan (7x15x1):** Measurement grid: dx=15mm, dy=15mm

**Zoom Scan (9x9x8)/Cube 0:** Measurement grid: dx=3.8mm, dy=3.8mm, dz=1.4mm; Graded Ratio: 1.4

Reference Value = 26.19 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 4.38 W/kg

**SAR(1 g) = 0.988 W/kg; SAR(10 g) = 0.424 W/kg**



0 dB = 2.09 W/kg = 3.20 dBW/kg

# PCTEST

**DUT: BCGA2230; Type: Tablet Device; Serial: DLXZR033P7GG**

Communication System: UID 0, UMTS, Frequency: 1852.4 MHz; Duty Cycle: 1:1

Medium: 1900 MHz Body Medium parameters used (interpolated):

$f = 1852.4 \text{ MHz}$ ;  $\sigma = 1.516 \text{ S/m}$ ;  $\epsilon_r = 52.158$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 01-09-2020; Ambient Temp: 22.7°C; Tissue Temp: 21.1°C

Probe: EX3DV4 - SN7491; ConvF(8.04, 8.04, 8.04) @ 1852.4 MHz; Calibrated: 7/16/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1402; Calibrated: 7/10/2019

Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1936

Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

**Mode: UMTS 1900 Antenna 2b, Body SAR, Back side, Low.ch**

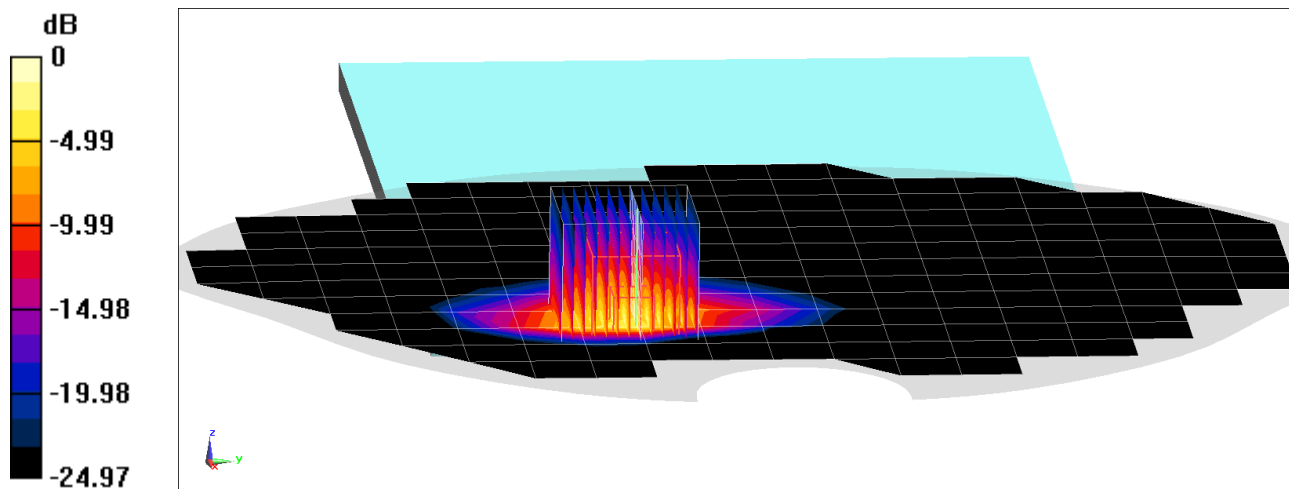
**Area Scan (15x19x1):** Measurement grid: dx=15mm, dy=15mm

**Zoom Scan (13x13x8)/Cube 0:** Measurement grid: dx=2.8mm, dy=2.8mm, dz=1.4mm; Graded Ratio: 1.4

Reference Value = 25.85 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 5.09 W/kg

**SAR(1 g) = 0.945 W/kg; SAR(10 g) = 0.383 W/kg**



0 dB = 2.24 W/kg = 3.50 dBW/kg

# PCTEST

**DUT: BCGA2230; Type: Tablet Device; Serial: DLXZR031P7GG**

Communication System: UID 0, LTE Band 12; Frequency: 707.5 MHz; Duty Cycle: 1:1

Medium: 750 MHz Body Medium parameters used (interpolated):

$f = 707.5 \text{ MHz}$ ;  $\sigma = 0.931 \text{ S/m}$ ;  $\epsilon_r = 55.604$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 01-07-2020; Ambient Temp: 20.5°C; Tissue Temp: 20.5°C

Probe: EX3DV4 - SN7421; ConvF(9.66, 9.66, 9.66) @ 707.5 MHz; Calibrated: 3/18/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn604; Calibrated: 3/13/2019

Phantom: Twin-SAM V4.0; Type: QD 000 P40 CD; Serial: 1736

Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

**Mode: LTE Band 12 Antenna 1, Body SAR, Left Edge, Mid.ch,  
10 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset**

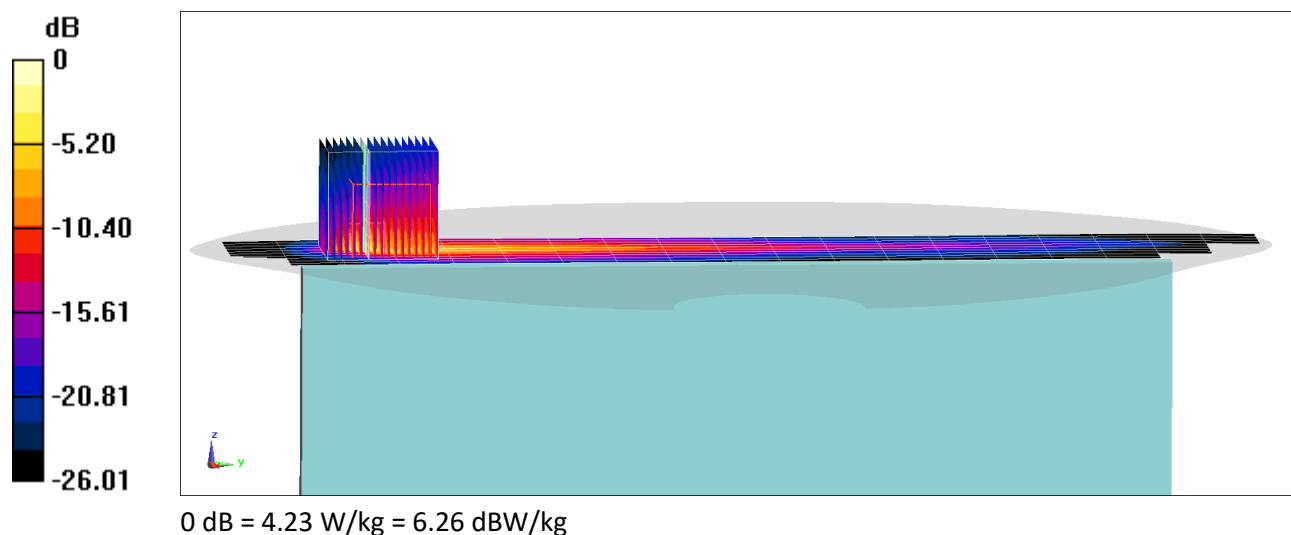
**Area Scan (11x20x1):** Measurement grid: dx=5mm, dy=15mm

**Zoom Scan (17x20x8)/Cube 0:** Measurement grid: dx=1.9mm, dy=1.9mm, dz=1.4mm; Graded Ratio: 1.4

Reference Value = 30.48 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 24.7 W/kg

**SAR(1 g) = 1.05 W/kg; SAR(10 g) = 0.270 W/kg**



# PCTEST

**DUT: BCGA2230; Type: Tablet Device; Serial: DLXZR033P7GG**

Communication System: UID 0, LTE Band 13; Frequency: 782 MHz; Duty Cycle: 1:1

Medium: 750 MHz Body Medium parameters used (interpolated):

$f = 782 \text{ MHz}$ ;  $\sigma = 1.006 \text{ S/m}$ ;  $\epsilon_r = 54.77$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 01-07-2020; Ambient Temp: 20.5°C; Tissue Temp: 20.5°C

Probe: EX3DV4 - SN7421; ConvF(9.66, 9.66, 9.66) @ 782 MHz; Calibrated: 3/18/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn604; Calibrated: 3/13/2019

Phantom: Twin-SAM V4.0; Type: QD 000 P40 CD; Serial: 1736

Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

**Mode: LTE Band 13 Antenna 1, Body SAR, Left Edge, Mid.ch,  
10 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset**

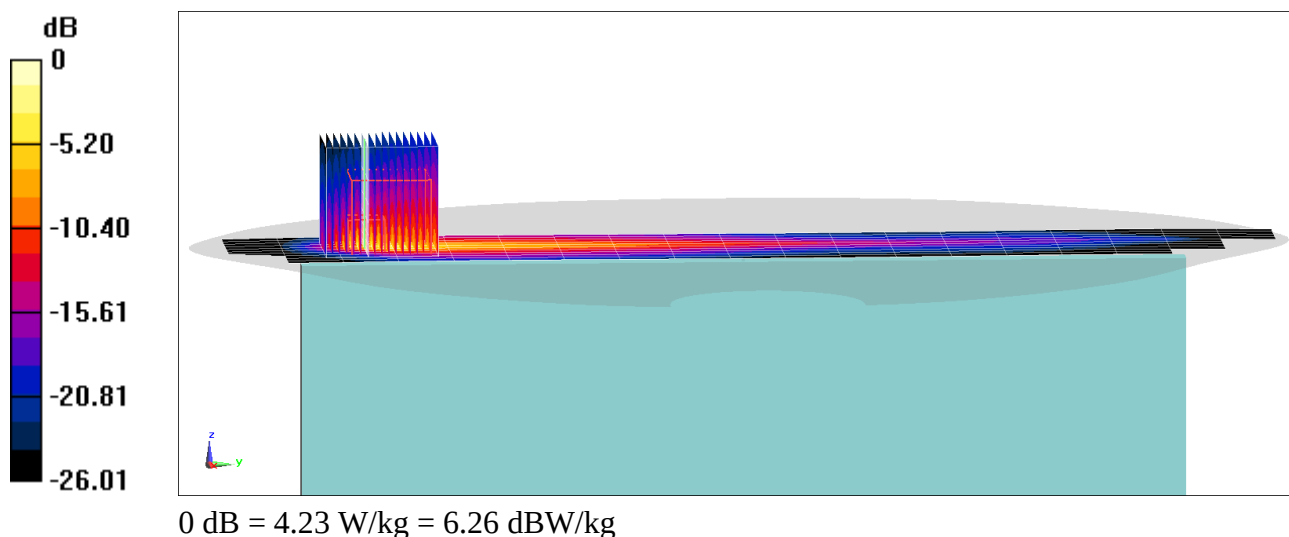
**Area Scan (11x20x1):** Measurement grid: dx=5mm, dy=15mm

**Zoom Scan (17x17x8)/Cube 0:** Measurement grid: dx=1.9mm, dy=1.9mm, dz=1.4mm; Graded Ratio: 1.4

Reference Value = 28.49 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 19.1 W/kg

**SAR(1 g) = 1.09 W/kg; SAR(10 g) = 0.330 W/kg**



# PCTEST

**DUT: BCGA2230; Type: Tablet Device; Serial: DLXZR01LP7GG**

Communication System: UID 0, \_LTE Band 26; Frequency: 819 MHz; Duty Cycle: 1:1

Medium: 835 MHz Body Medium parameters used (interpolated):

$f = 819 \text{ MHz}$ ;  $\sigma = 0.992 \text{ S/m}$ ;  $\epsilon_r = 56.32$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 01-09-2020; Ambient Temp: 22.0°C; Tissue Temp: 19.8°C

Probe: EX3DV4 - SN7416; ConvF(9.71, 9.71, 9.71) @ 819 MHz; Calibrated: 6/19/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn701; Calibrated: 6/14/2019

Phantom: Twin-SAM V8.0\_Left; Type: QD 000 P41 AA; Serial: 1935

Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

**Mode: LTE Band 26 (Cell.) Antenna 1, Body SAR, Left Edge, Low.ch,  
10 MHz Bandwidth, QPSK, 25 RB, 12 RB Offset**

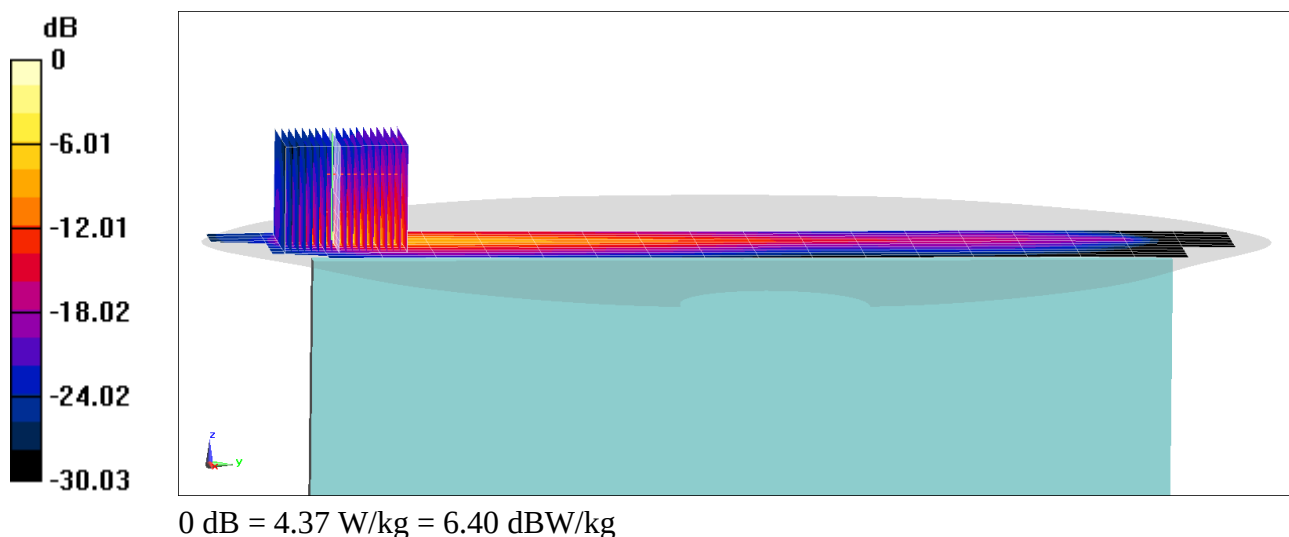
**Area Scan (11x20x1):** Measurement grid: dx=5mm, dy=15mm

**Zoom Scan (20x19x8)/Cube 0:** Measurement grid: dx=1.9mm, dy=1.9mm, dz=1.4mm; Graded Ratio: 1.4

Reference Value = 34.08 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 24.0 W/kg

**SAR(1 g) = 1.1 W/kg; SAR(10 g) = 0.318 W/kg**



# PCTEST

**DUT: BCGA2230; Type: Tablet Device; Serial: DLXZR008P7H9**

Communication System: UID 0, LTE Band 5; Frequency: 836.5 MHz; Duty Cycle: 1:1

Medium: 835 MHz Body Medium parameters used (interpolated):

$f = 836.5 \text{ MHz}$ ;  $\sigma = 1.002 \text{ S/m}$ ;  $\epsilon_r = 56$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 01-09-2020; Ambient Temp: 22.0°C; Tissue Temp: 19.8°C

Probe: EX3DV4 - SN7416; ConvF(9.71, 9.71, 9.71) @ 836.5 MHz; Calibrated: 6/19/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn701; Calibrated: 6/14/2019

Phantom: Twin-SAM V8.0\_Left; Type: QD 000 P41 AA; Serial: 1935

Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

**Mode: LTE Band 5 (Cell.) Antenna 1, Body SAR, Left Edge, Mid.ch,  
10 MHz Bandwidth, QPSK, 50 RB, 0 RB Offset**

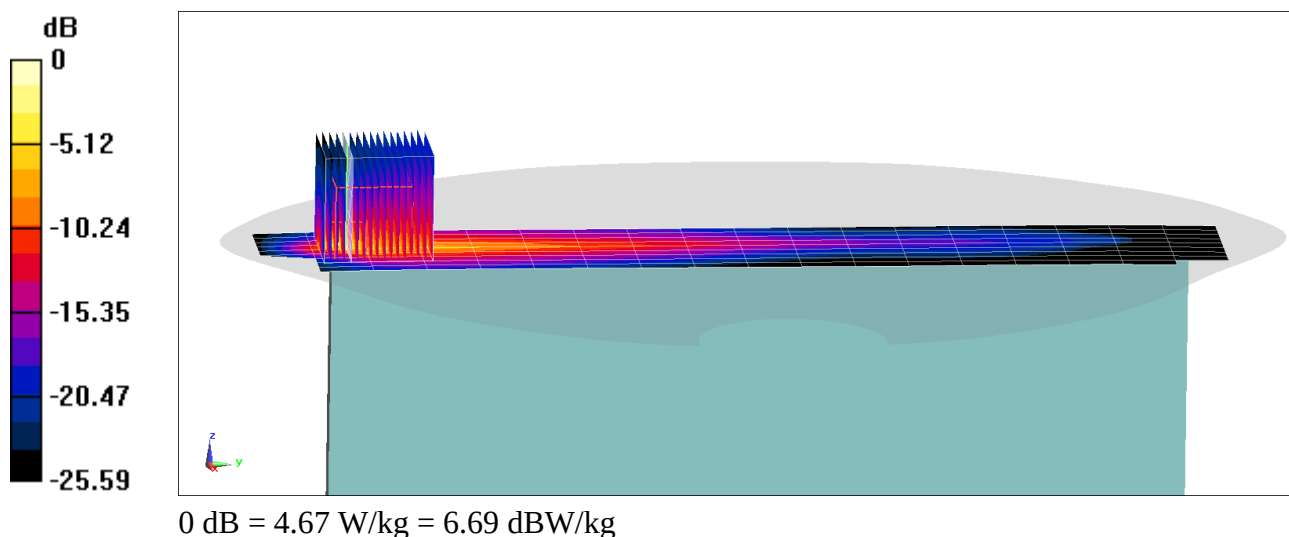
**Area Scan (10x19x1):** Measurement grid: dx=5mm, dy=15mm

**Zoom Scan (17x17x7)/Cube 0:** Measurement grid: dx=1.9mm, dy=1.9mm, dz=1.4mm; Graded Ratio: 1.4

Reference Value = 25.63 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 26.1 W/kg

**SAR(1 g) = 1.16 W/kg; SAR(10 g) = 0.333 W/kg**



# PCTEST

**DUT: BCGA2230; Type: Tablet Device; Serial: DLXZR026P7GG**

Communication System: UID 0, LTE Band 4 (AWS); Frequency: 1732.5 MHz; Duty Cycle: 1:1

Medium: 1750 MHz Body Medium parameters used (interpolated):

$f = 1732.5 \text{ MHz}$ ;  $\sigma = 1.494 \text{ S/m}$ ;  $\epsilon_r = 52.164$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 01-04-2020; Ambient Temp: 19.8°C; Tissue Temp: 19.6°C

Probe: EX3DV4 – SN7416; ConvF(7.89, 7.89, 7.89) @ 1732.5 MHz; Calibrated: 6/19/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn701; Calibrated: 6/14/2019

Phantom: Twin-SAM V8.0\_Left; Type: QD 000 P41 AA; Serial: 1935

Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

**Mode: LTE Band 4 (AWS) Antenna 2a, Body SAR, Back side, Mid.ch,  
20 MHz Bandwidth, QPSK, 50 RB, 0 RB Offset**

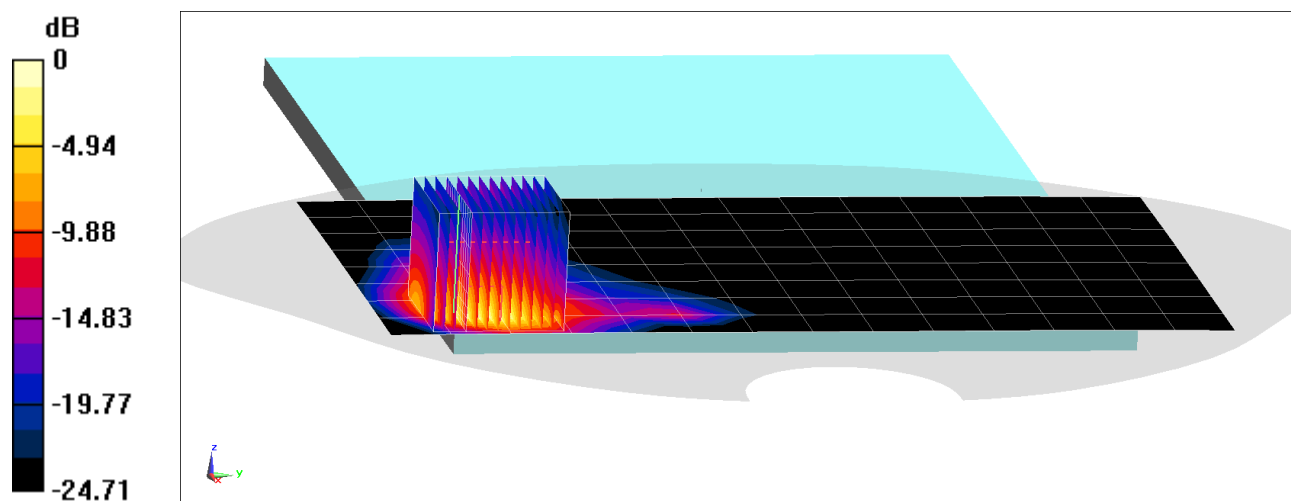
**Area Scan (9x15x1):** Measurement grid: dx=15mm, dy=15mm

**Zoom Scan (13x13x8)/Cube 0:** Measurement grid: dx=2.7mm, dy=2.7mm, dz=1.4mm; Graded Ratio: 1.4

Reference Value = 26.81 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 5.75 W/kg

**SAR(1 g) = 1.02 W/kg; SAR(10 g) = 0.481 W/kg**



0 dB = 2.44 W/kg = 3.87 dBW/kg

# PCTEST

**DUT: BCGA2230; Type: Tablet Device; Serial: DLXZR02YP7GG**

Communication System: UID 0, LTE Band 66 (AWS); Frequency: 1720 MHz; Duty Cycle: 1:1

Medium: 1750 MHz Body Medium parameters used (interpolated):

$f = 1720 \text{ MHz}$ ;  $\sigma = 1.481 \text{ S/m}$ ;  $\epsilon_r = 52.193$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 01-04-2020; Ambient Temp: 19.8°C; Tissue Temp: 19.6°C

Probe: EX3DV4 - SN7416; ConvF(7.89, 7.89, 7.89) @ 1720 MHz; Calibrated: 6/19/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn701; Calibrated: 6/14/2019

Phantom: Twin-SAM V8.0\_Left; Type: QD 000 P41 AA; Serial: 1935

Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

**Mode: LTE Band 66 (AWS) Antenna 2a, Body SAR, Back side, Low.ch,  
20 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset**

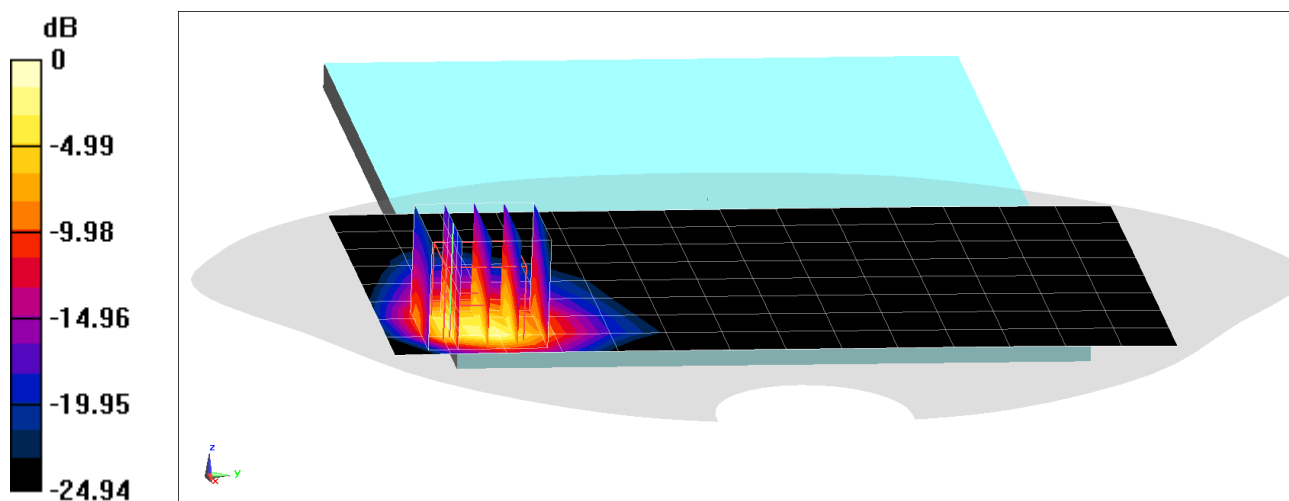
**Area Scan (9x15x1):** Measurement grid: dx=15mm, dy=15mm

**Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 26.17 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 3.54 W/kg

**SAR(1 g) = 1.03 W/kg; SAR(10 g) = 0.486 W/kg**



0 dB = 2.48 W/kg = 3.94 dBW/kg

# PCTEST

**DUT: BCGA2230; Type: Tablet Device; Serial: DLXZR033P7GG**

Communication System: UID 0, LTE Band 2 (PCS), Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: 1900 MHz Body Medium parameters used (interpolated):

$f = 1900 \text{ MHz}$ ;  $\sigma = 1.491 \text{ S/m}$ ;  $\epsilon_r = 51.205$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 12-30-2019; Ambient Temp: 21.7°C; Tissue Temp: 19.0°C

Probe: EX3DV4 - SN7491; ConvF(8.04, 8.04, 8.04) @ 1900 MHz; Calibrated: 7/16/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1402; Calibrated: 7/10/2019

Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1936

Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

**Mode: LTE Band 2 (PCS) Antenna 4a, Body SAR, Back side, High.ch,  
20 MHz Bandwidth, QPSK, 100 RB, 0 RB Offset**

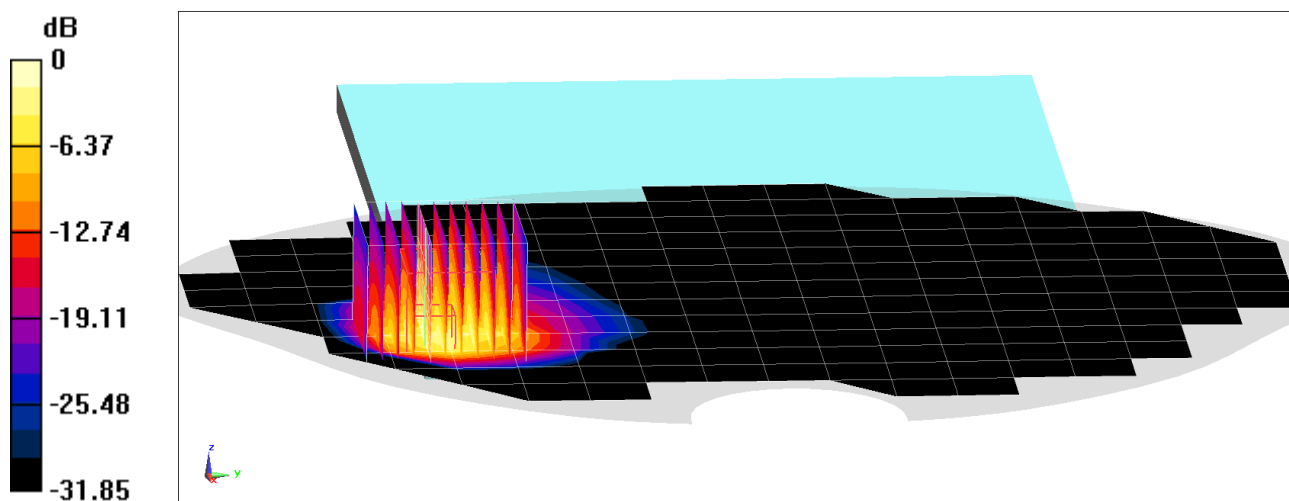
**Area Scan (15x19x1):** Measurement grid: dx=15mm, dy=15mm

**Zoom Scan (11x11x8)/Cube 0:** Measurement grid: dx=3.9mm, dy=3.9mm, dz=1.4mm; Graded Ratio: 1.4

Reference Value = 25.16 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 4.83 W/kg

**SAR(1 g) = 1.04 W/kg; SAR(10 g) = 0.518 W/kg**



0 dB = 2.38 W/kg = 3.77 dBW/kg

# PCTEST

**DUT: BCGA2230; Type: Tablet Device; Serial: DLXZR026P7GG**

Communication System: UID 0, LTE Band 25 (PCS), Frequency: 1905 MHz; Duty Cycle: 1:1

Medium: 1900 MHz Body Medium parameters used (interpolated):

$f = 1905 \text{ MHz}$ ;  $\sigma = 1.497 \text{ S/m}$ ;  $\epsilon_r = 51.177$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 12-30-2019; Ambient Temp: 21.7°C; Tissue Temp: 19.0°C

Probe: EX3DV4 - SN7491; ConvF(8.04, 8.04, 8.04) @ 1905 MHz; Calibrated: 7/16/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1402; Calibrated: 7/10/2019

Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1936

Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

**Mode: LTE Band 25 (PCS) Antenna 2b, Body SAR, Back side, High.ch,  
20 MHz Bandwidth, QPSK, 100 RB, 0 RB Offset**

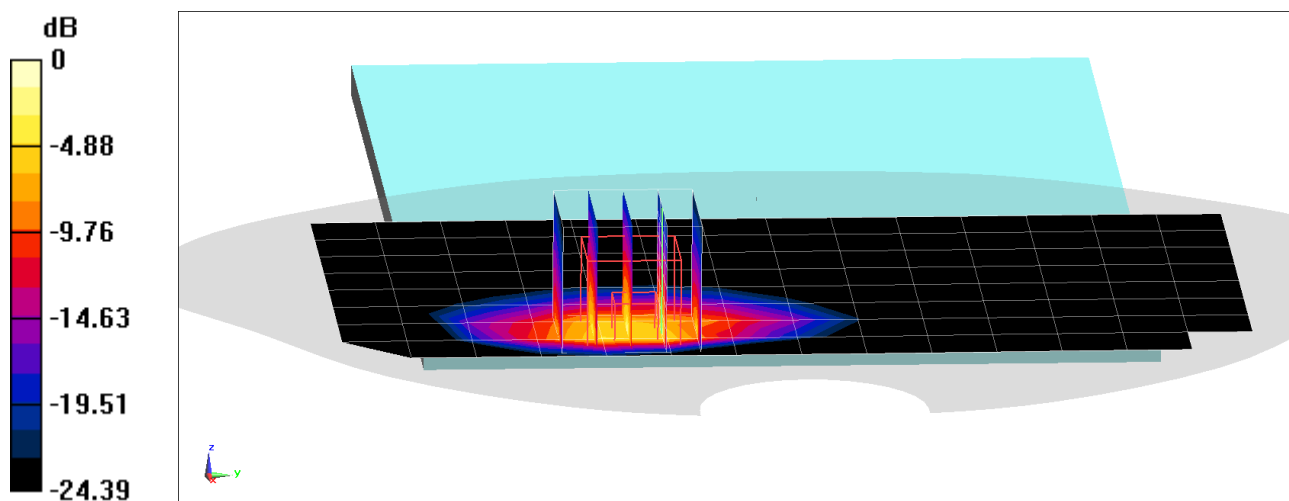
**Area Scan (9x15x1):** Measurement grid: dx=15mm, dy=15mm

**Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 28.00 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 3.44 W/kg

**SAR(1 g) = 1.09 W/kg; SAR(10 g) = 0.435 W/kg**



0 dB = 2.44 W/kg = 3.87 dBW/kg

# PCTEST

**DUT: BCGA2230; Type: Tablet Device; Serial: DLXZR007P7H9**

Communication System: UID 0, LTE Band 30; Frequency: 2310 MHz; Duty Cycle: 1:1

Medium: 2450 MHz Body Medium parameters used:

$f = 2310$  MHz;  $\sigma = 1.845$  S/m;  $\epsilon_r = 52.193$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 01-12-2020; Ambient Temp: 22.1°C; Tissue Temp: 20.1°C

Probe: EX3DV4 - SN7532; ConvF(7.93, 7.93, 7.93) @ 2310 MHz; Calibrated: 4/12/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn501; Calibrated: 4/17/2019

Phantom: Twin-SAM V4.0; Type: QD 000 P40 CC; Serial: 1179

Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

**Mode: LTE Band 30 Antenna 4b, Body SAR, Back side, Mid.ch,  
10 MHz Bandwidth, QPSK, 50 RB, 0 RB Offset**

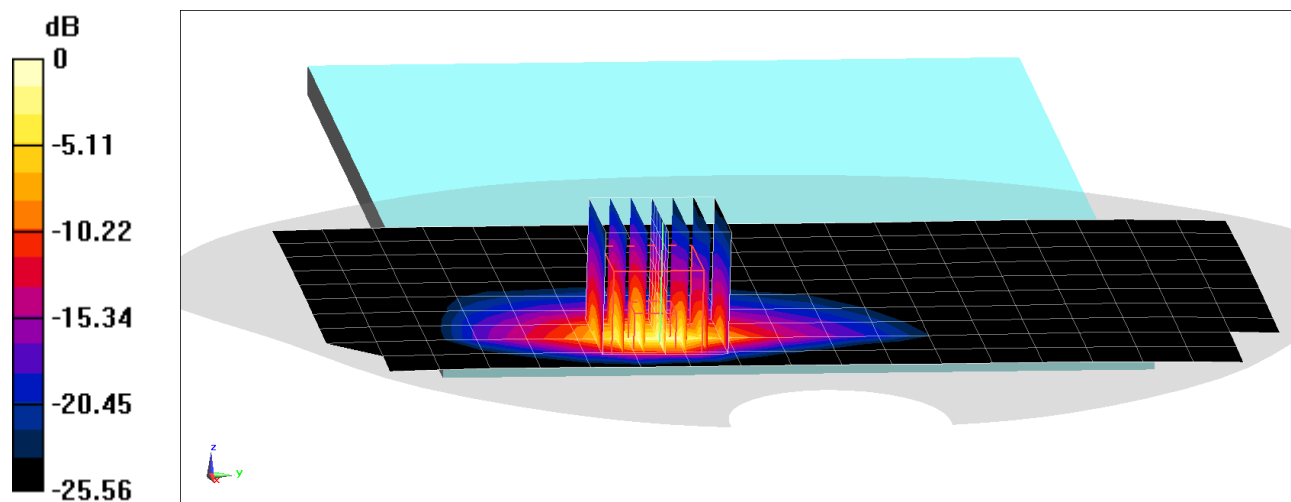
**Area Scan (11x20x1):** Measurement grid: dx=12mm, dy=12mm

**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 22.23 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 3.44 W/kg

**SAR(1 g) = 1.09 W/kg; SAR(10 g) = 0.405 W/kg**



0 dB = 2.51 W/kg = 4.00 dBW/kg

# PCTEST

**DUT: BCGA2230; Type: Tablet Device; Serial: DLXZR02YP7GG**

Communication System: UID 0, LTE Band 7; Frequency: 2510 MHz; Duty Cycle: 1:1

Medium: 2450 MHz Body Medium parameters used (interpolated):

$f = 2510 \text{ MHz}$ ;  $\sigma = 2.066 \text{ S/m}$ ;  $\epsilon_r = 50.841$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 01-13-2020; Ambient Temp: 23.4°C; Tissue Temp: 19.5°C

Probe: EX3DV4 - SN7491; ConvF(7.57, 7.57, 7.57) @ 2510 MHz; Calibrated: 7/16/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1402; Calibrated: 7/10/2019

Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1936

Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

**Mode: LTE Intra-Band ULCA Band 7 Antenna 4b, Body SAR, Back side,**

**PCC: 20 MHz Bandwidth, QPSK, Ch.20850, 50 RB, 50 RB Offset**

**SCC: 20 MHz Bandwidth, QPSK, Ch.21048, 50 RB, 0 RB Offset**

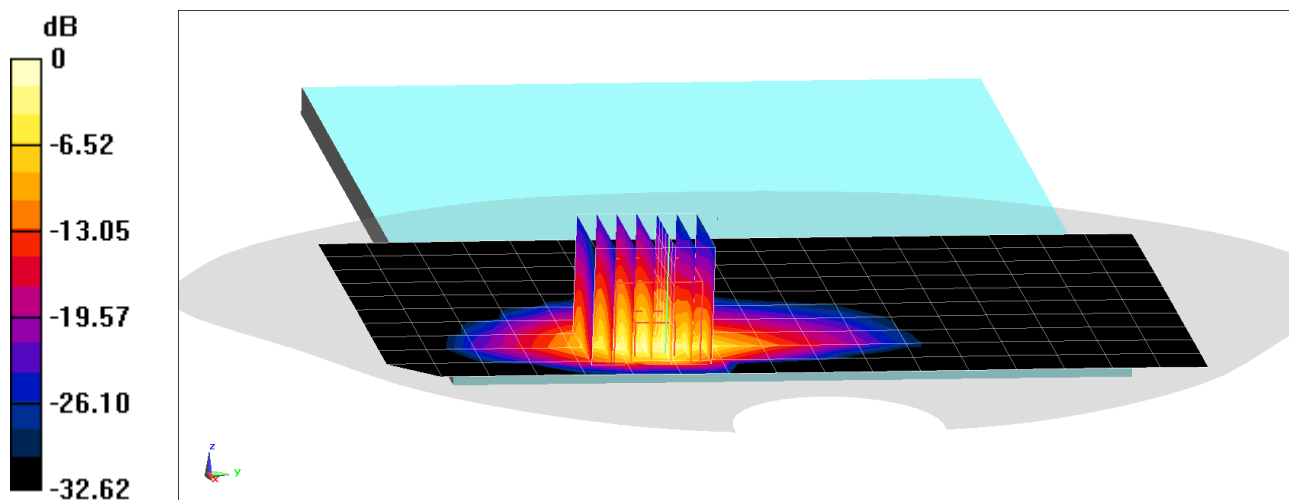
**Area Scan (11x18x1):** Measurement grid:  $dx=12\text{mm}$ ,  $dy=12\text{mm}$

**Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 23.52 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 3.41 W/kg

**SAR(1 g) = 1.1 W/kg; SAR(10 g) = 0.405 W/kg**



0 dB = 2.37 W/kg = 3.75 dBW/kg

# PCTEST

**DUT: BCGA2230; Type: Tablet Device; Serial: DLXZR031P7GG**

Communication System: UID 0, LTE Band 41 (Class 3); Frequency: 2593 MHz; Duty Cycle: 1:1.58

Medium: 2450 MHz Body Medium parameters used (interpolated):

$f = 2593 \text{ MHz}$ ;  $\sigma = 2.252 \text{ S/m}$ ;  $\epsilon_r = 52.442$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 01-01-2020; Ambient Temp: 21.6°C; Tissue Temp: 20.6°C

Probe: EX3DV4 - SN7532; ConvF(7.47, 7.47, 7.47) @ 2593 MHz; Calibrated: 4/12/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn501; Calibrated: 4/17/2019

Phantom: Twin-SAM V4.0; Type: QD 000 P40 CC; Serial: 1179

Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

**Mode: LTE Band 41 Antenna 4b, Body SAR, Back side, Mid.ch,  
20 MHz Bandwidth, QPSK, 50 RB, 25 RB Offset**

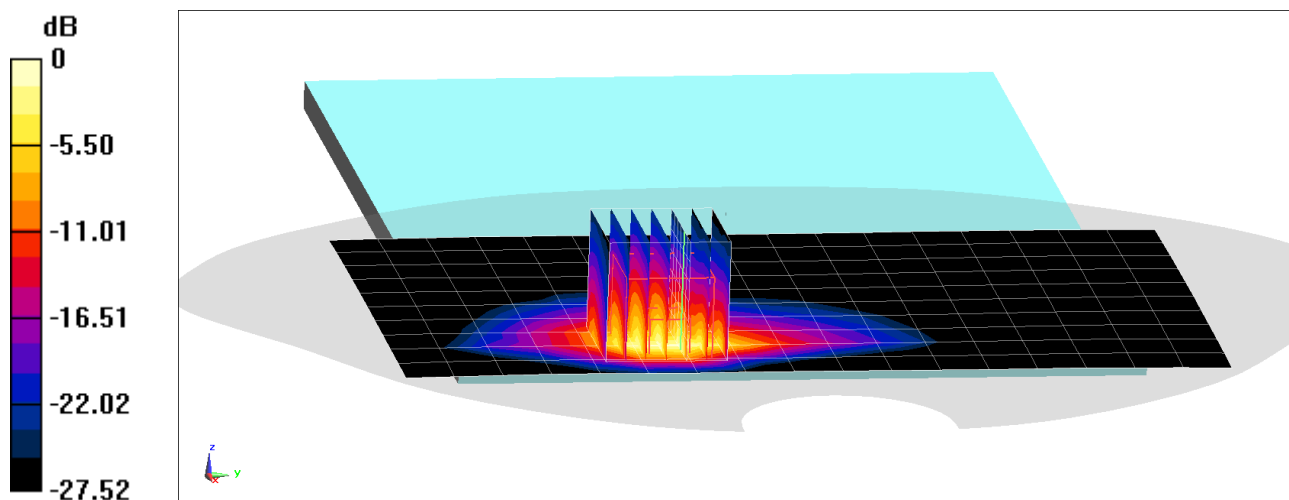
**Area Scan (11x18x1):** Measurement grid: dx=12mm, dy=12mm

**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 23.11 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 4.03 W/kg

**SAR(1 g) = 1.17 W/kg; SAR(10 g) = 0.403 W/kg**



0 dB = 2.58 W/kg = 4.12 dBW/kg

# PCTEST

**DUT: BCGA2230; Type: Tablet Device; Serial: DLXZR033P7GG**

Communication System: UID 0, LTE Band 48; Frequency: 3560 MHz; Duty Cycle: 1:1.58

Medium: 3500 MHz Body Medium parameters used (interpolated):

$f = 3560 \text{ MHz}$ ;  $\sigma = 3.488 \text{ S/m}$ ;  $\epsilon_r = 49.496$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 01-04-2020; Ambient Temp: 23.1°C; Tissue Temp: 21.3°C

Probe: EX3DV4 - SN3949; ConvF(6.88, 6.88, 6.88) @ 3560 MHz; Calibrated: 8/29/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1408; Calibrated: 8/12/2019

Phantom: Twin-SAM V4.0; Type: QD 000 P40 CC; Serial: 1596

Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

**Mode: LTE Band 48 Antenna 2b, Body SAR, Back side, Low.ch,  
20 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset**

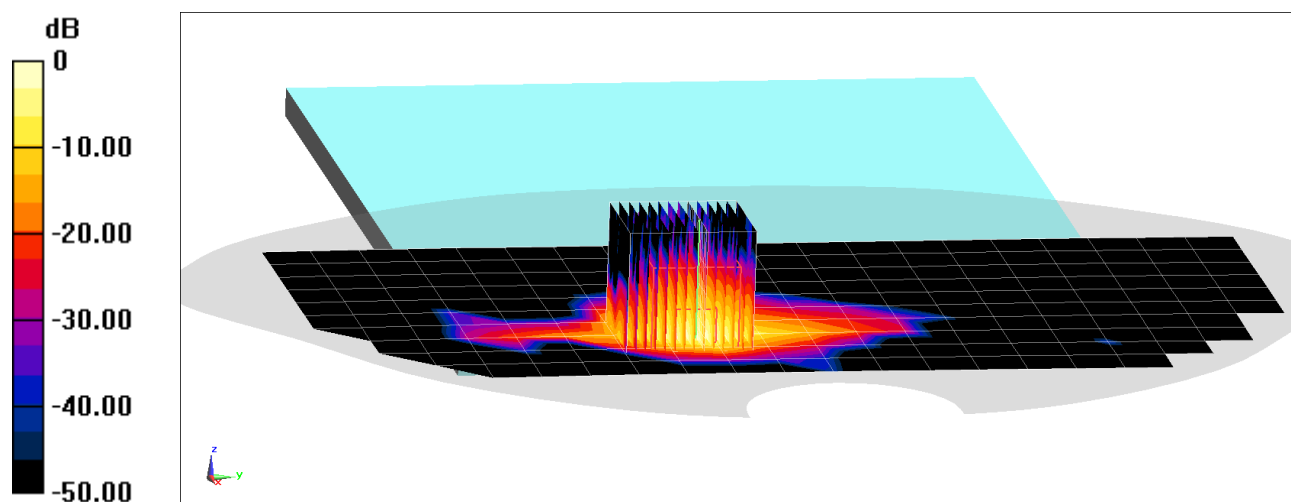
**Area Scan (11x21x1):** Measurement grid: dx=12mm, dy=12mm

**Zoom Scan (13x14x8)/Cube 0:** Measurement grid: dx=2.4mm, dy=2.4mm, dz=1.4mm; Graded Ratio: 1.4

Reference Value = 18.04 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 4.93 W/kg

**SAR(1 g) = 1.09 W/kg; SAR(10 g) = 0.321 W/kg**



# PCTEST

**DUT: BCGA2230; Type: Tablet Device; Serial: DLXZR01PP7GG**

Communication System: UID 0, \_IEEE 802.11b; Frequency: 2437 MHz; Duty Cycle: 1:1

Medium: 2450 MHz Body Medium parameters used (interpolated):

$f = 2437 \text{ MHz}$ ;  $\sigma = 2.007 \text{ S/m}$ ;  $\epsilon_r = 50.72$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 12-18-2019; Ambient Temp: 20.6°C; Tissue Temp: 21.6°C

Probe: EX3DV4 - SN7532; ConvF(7.66, 7.66, 7.66) @ 2437 MHz; Calibrated: 4/12/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn501; Calibrated: 4/17/2019

Phantom: Twin-SAM V4.0; Type: QD 000 P40 CC; Serial: 1179

Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

**Mode: IEEE 802.11b Antenna 4a Variant 2,  
22 MHz Bandwidth, Body SAR, Ch 6, 1 Mbps, Back Side**

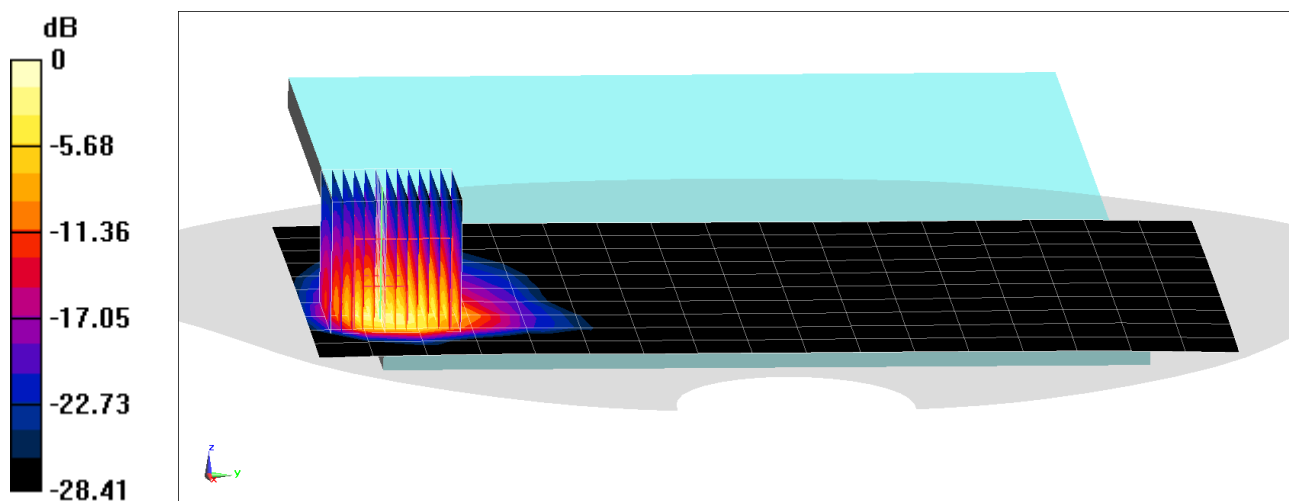
**Area Scan (11x18x1):** Measurement grid: dx=12mm, dy=12mm

**Zoom Scan (13x13x8)/Cube 0:** Measurement grid: dx=2.4mm, dy=2.4mm, dz=1.4mm; Graded Ratio: 1.4

Reference Value = 17.28 V/m; Power Drift = -0.12 dB

Peak SAR (extrapolated) = 4.30 W/kg

**SAR(1 g) = 0.849 W/kg; SAR(10 g) = 0.346 W/kg**



0 dB = 2.35 W/kg = 3.71 dBW/kg

# PCTEST

**DUT: BCGA2230; Type: Tablet Device; Serial: DLXZR01PP7GG**

Communication System: UID 0, \_IEEE 802.11ac; Frequency: 5690 MHz; Duty Cycle: 1:1

Medium: 5 GHz Body Medium parameters used (interpolated):

$f = 5690 \text{ MHz}$ ;  $\sigma = 5.793 \text{ S/m}$ ;  $\epsilon_r = 47.691$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 12-16-2019; Ambient Temp: 22.7°C; Tissue Temp: 19.0°C

Probe: EX3DV4 - SN7491; ConvF(4.32, 4.32, 4.32) @ 5690 MHz; Calibrated: 7/16/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1402; Calibrated: 7/10/2019

Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1936

Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

**Mode: IEEE 802.11ac 5GHz ANTlower Variant 2 , U-NII-2C,  
80 MHz Bandwidth, Body SAR, Ch 138, 29.3 Mbps, Right Edge**

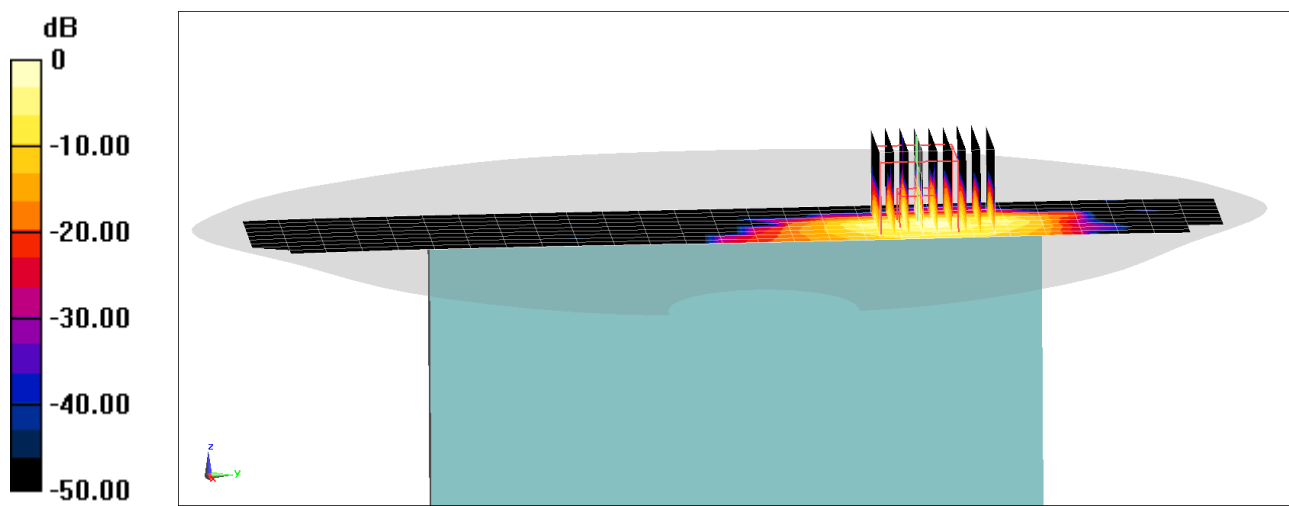
**Area Scan (10x28x1):** Measurement grid: dx=5mm, dy=10mm

**Zoom Scan (9x9x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4

Reference Value = 11.07 V/m; Power Drift = 0.17 dB

Peak SAR (extrapolated) = 5.00 W/kg

**SAR(1 g) = 0.910 W/kg; SAR(10 g) = 0.233 W/kg**



0 dB = 2.73 W/kg = 4.36 dBW/kg

# PCTEST

**DUT: BCGA2230; Type: Tablet Device; Serial: DLXZN001P7GH**

Communication System: UID 0, Bluetooth; Frequency: 2480 MHz; Duty Cycle: 1:1.302

Medium: 2450 MHz Body Medium parameters used (interpolated):

$f = 2480 \text{ MHz}$ ;  $\sigma = 1.992 \text{ S/m}$ ;  $\epsilon_r = 50.709$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 01-14-2020; Ambient Temp: 22.1°C; Tissue Temp: 21.0°C

Probe: EX3DV4 - SN7532; ConvF(7.66, 7.66, 7.66) @ 2480 MHz; Calibrated: 4/12/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn501; Calibrated: 4/17/2019

Phantom: Twin-SAM V4.0; Type: QD 000 P40 CC; Serial: 1179

Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

**Mode: Bluetooth Antenna 2a Variant 1, Body SAR, Ch 78, 1 Mbps, Back Side**

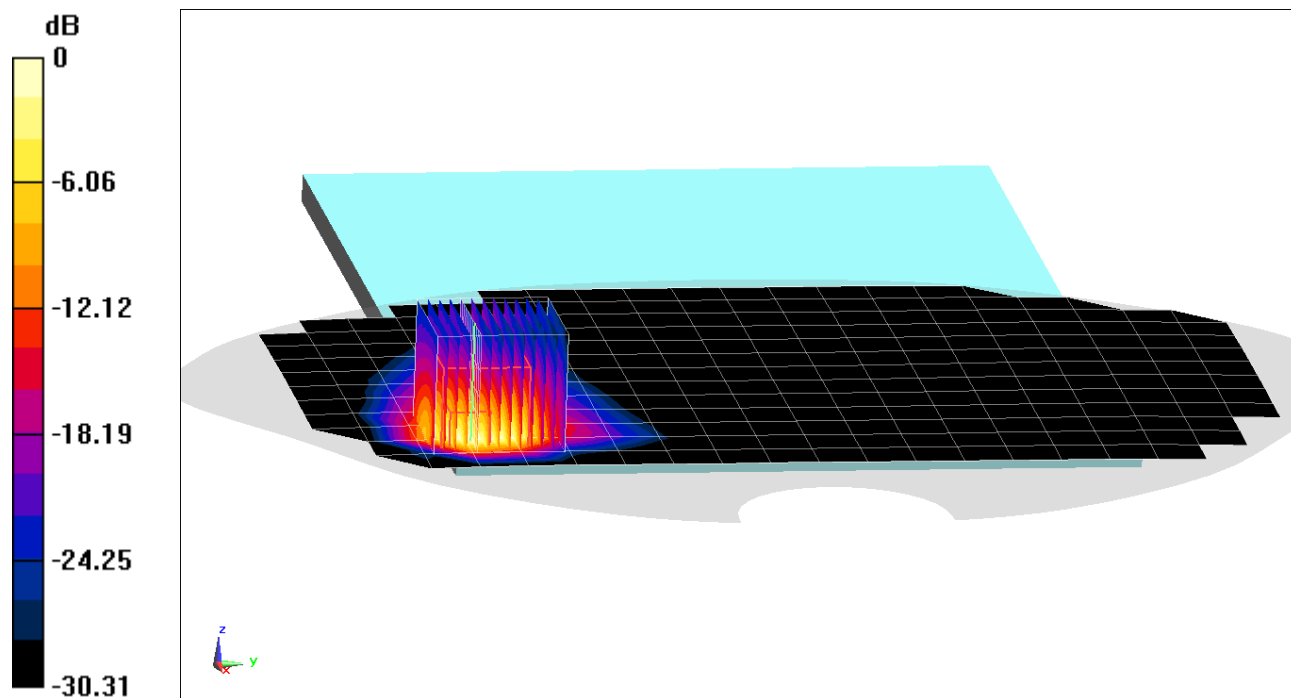
**Area Scan (14x21x1):** Measurement grid:  $dx=12\text{mm}$ ,  $dy=12\text{mm}$

**Zoom Scan (13x13x8)/Cube 0:** Measurement grid:  $dx=2.7\text{mm}$ ,  $dy=2.7\text{mm}$ ,  $dz=1.4\text{mm}$ ; Graded Ratio: 1.4

Reference Value = 20.11 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 4.68 W/kg

**SAR(1 g) = 1.05 W/kg; SAR(10 g) = 0.442 W/kg**



## APPENDIX B: SYSTEM VERIFICATION

# PCTEST

**DUT: Dipole 750 MHz; Type: D750V3; Serial: 1097**

Communication System: UID 0, CW; Frequency: 750 MHz; Duty Cycle: 1:1

Medium: 750 MHz Body Medium parameters used (interpolated):

$f = 750 \text{ MHz}$ ;  $\sigma = 0.976 \text{ S/m}$ ;  $\epsilon_r = 54.862$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 01-07-2020; Ambient Temp: 20.5°C; Tissue Temp: 20.5°C

Probe: EX3DV4 - SN7421; ConvF(9.66, 9.66, 9.66) @ 750 MHz; Calibrated: 3/18/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn604; Calibrated: 3/13/2019

Phantom: Twin-SAM V4.0; Type: QD 000 P40 CD; Serial: 1736

Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

## 750 MHz System Verification at 23.0 dBm (200 mW)

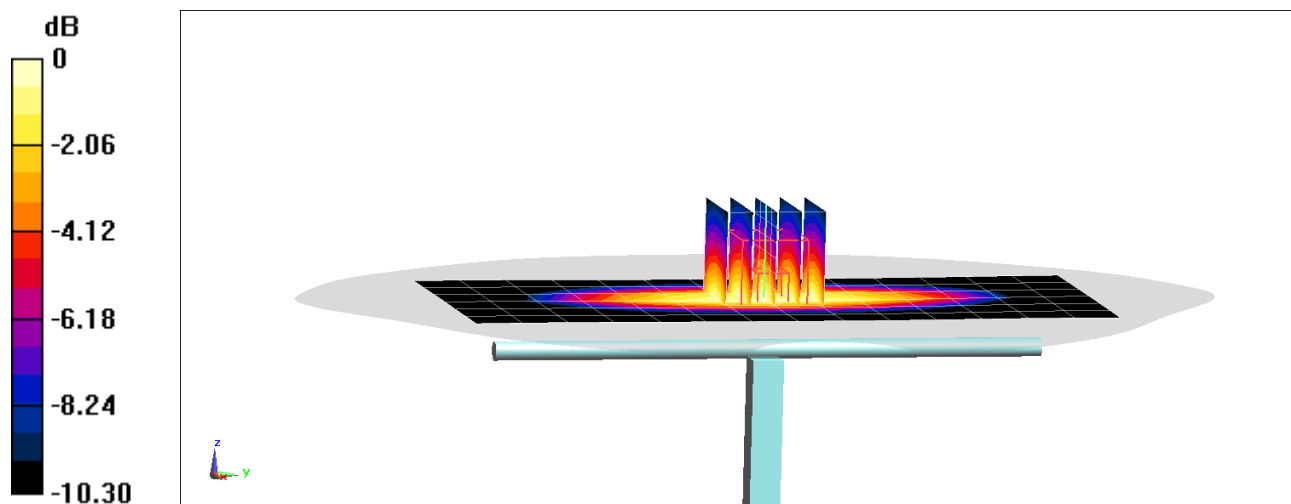
**Area Scan (7x15x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Peak SAR (extrapolated) = 2.65 W/kg

**SAR(1 g) = 1.76 W/kg; SAR(10 g) = 1.16 W/kg**

Deviation(1 g) = 2.80%



0 dB = 2.34 W/kg = 3.69 dBW/kg

# PCTEST

**DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d040**

Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium: 835 MHz Body Medium parameters used:

$f = 835 \text{ MHz}$ ;  $\sigma = 1.001 \text{ S/m}$ ;  $\epsilon_r = 56.021$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 01-09-2020; Ambient Temp: 22.0°C; Tissue Temp: 19.8°C

Probe: EX3DV4 - SN7416; ConvF(9.71, 9.71, 9.71) @ 835 MHz; Calibrated: 6/19/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn701; Calibrated: 6/14/2019

Phantom: Twin-SAM V8.0\_Left; Type: QD 000 P41 AA; Serial: 1935

Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

## 835 MHz System Verification at 23.0 dBm (200 mW)

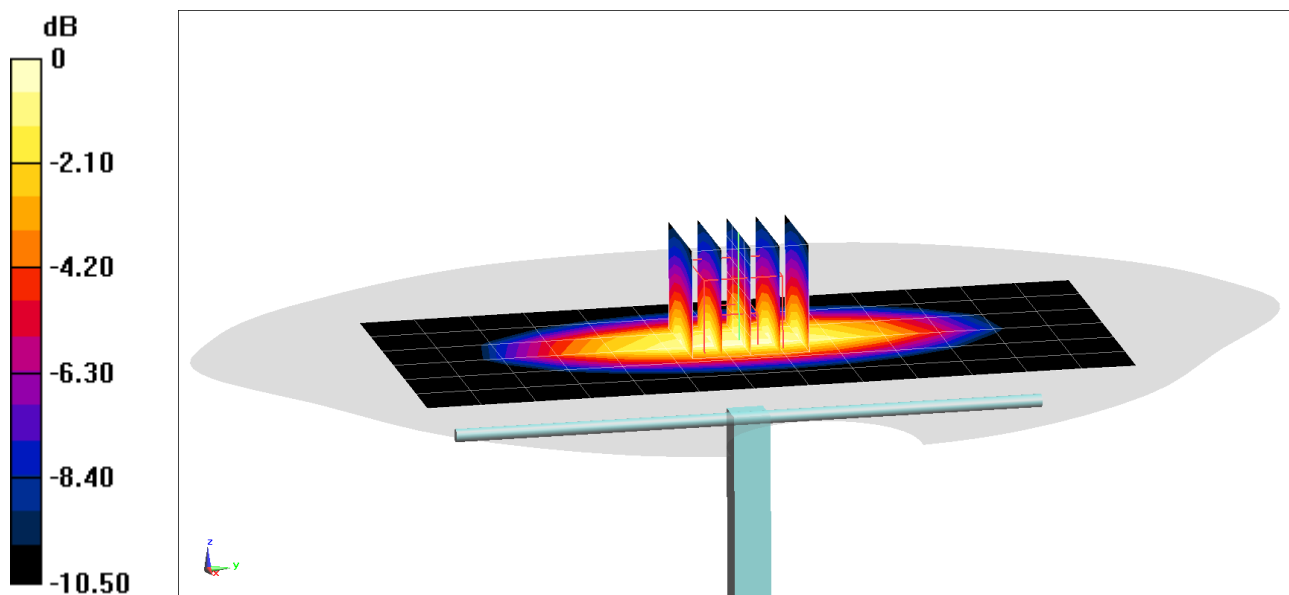
**Area Scan (7x14x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Peak SAR (extrapolated) = 2.85 W/kg

**SAR(1 g) = 1.89 W/kg; SAR(10 g) = 1.24 W/kg**

Deviation(1 g) = -0.84%



0 dB = 2.52 W/kg = 4.01 dBW/kg

# PCTEST

**DUT: Dipole 1750 MHz; Type: D1750V2; Serial: 1092**

Communication System: UID 0, CW; Frequency: 1750 MHz; Duty Cycle: 1:1

Medium: 1750 MHz Body Medium parameters used:

$f = 1750 \text{ MHz}$ ;  $\sigma = 1.525 \text{ S/m}$ ;  $\epsilon_r = 52.685$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-30-2019; Ambient Temp: 21.4°C; Tissue Temp: 20.0°C

Probe: EX3DV4 - SN3837; ConvF(7.72, 7.72, 7.72) @ 1750 MHz; Calibrated: 1/28/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn793; Calibrated: 1/15/2019

Phantom: Twin-SAM V4.0 (20deg probe tilt) SUB use; Type: QD 000 P40 CC; Serial: 1403

Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

## 1750 MHz System Verification at 20.0 dBm (100 mW)

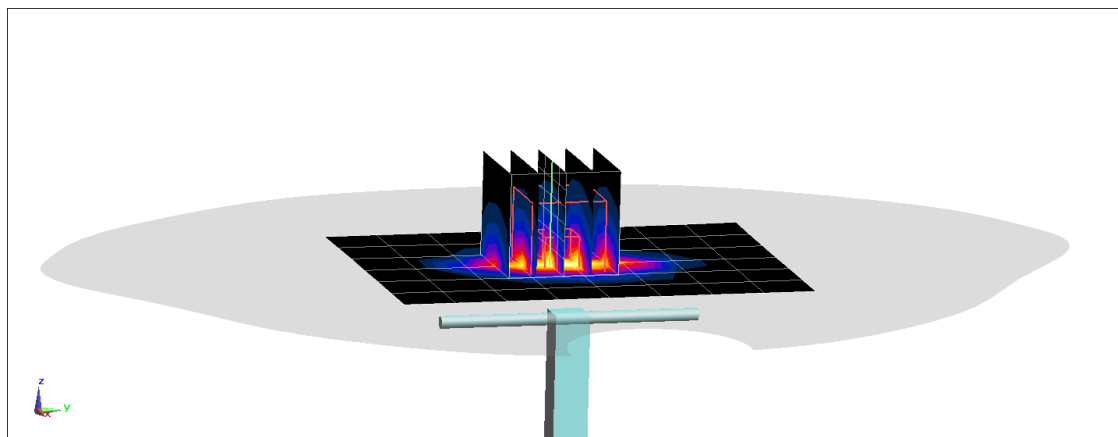
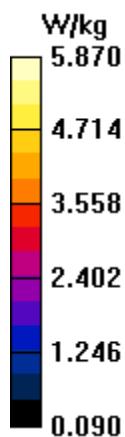
**Area Scan (7x9x1):** Measurement grid: dx=15mm, dy=15mm

**Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Peak SAR (extrapolated) = 7.08 W/kg

**SAR(1 g) = 3.91 W/kg; SAR(10 g) = 2.04 W/kg**

Deviation(1 g) = 7.42%



# PCTEST

**DUT: Dipole 1750 MHz; Type: D1750V2; Serial: 1083**

Communication System: UID 0, CW; Frequency: 1750 MHz; Duty Cycle: 1:1

Medium: 1750 MHz Body Medium parameters used:

$f = 1750 \text{ MHz}$ ;  $\sigma = 1.513 \text{ S/m}$ ;  $\epsilon_r = 52.124$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-04-2020; Ambient Temp: 19.8°C; Tissue Temp: 19.6°C

Probe: EX3DV4 - SN7416; ConvF(7.89, 7.89, 7.89) @ 1750 MHz; Calibrated: 6/19/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn701; Calibrated: 6/14/2019

Phantom: Twin-SAM V8.0\_Left; Type: QD 000 P41 AA; Serial: 1935

Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

## 1750 MHz System Verification at 20.0 dBm (100 mW)

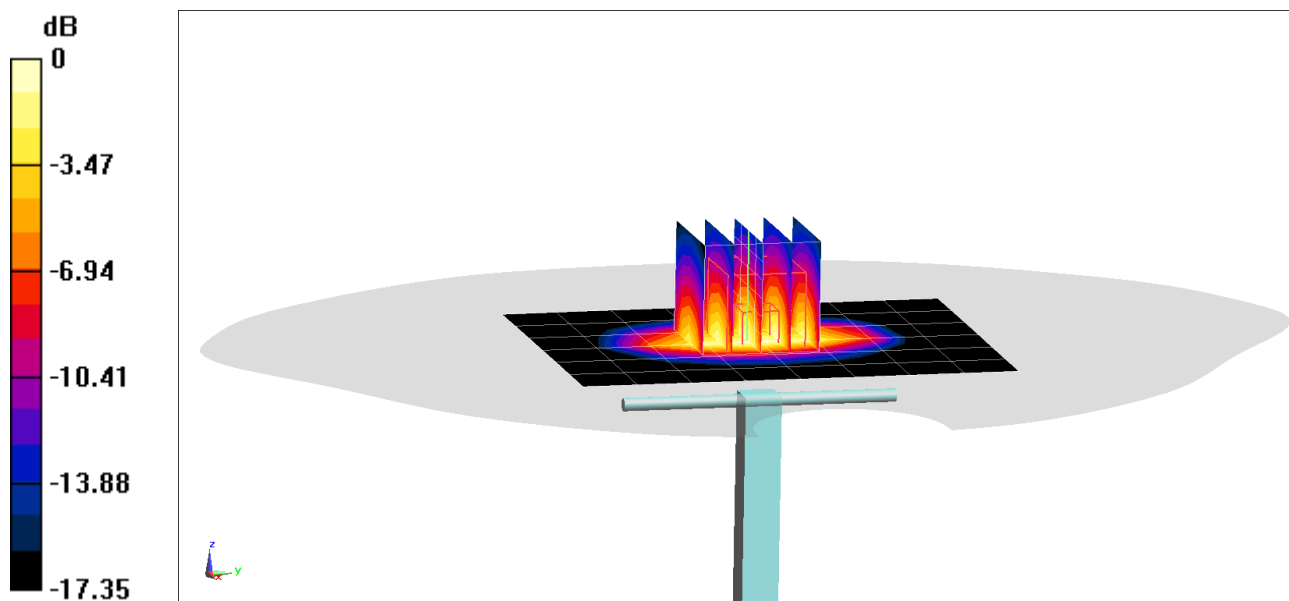
**Area Scan (7x9x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Peak SAR (extrapolated) = 7.12 W/kg

**SAR(1 g) = 3.97 W/kg; SAR(10 g) = 2.11 W/kg**

Deviation(1 g) = 7.01%



0 dB = 5.98 W/kg = 7.77 dBW/kg

# PCTEST

**DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d026**

Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: 1900 MHz Body Medium parameters used (interpolated):

$f = 1900 \text{ MHz}$ ;  $\sigma = 1.491 \text{ S/m}$ ;  $\epsilon_r = 51.205$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-30-2019; Ambient Temp: 21.7°C; Tissue Temp: 19.0°C

Probe: EX3DV4 - SN7491; ConvF(8.04, 8.04, 8.04) @ 1900 MHz; Calibrated: 7/16/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1402; Calibrated: 7/10/2019

Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1936

Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

## 1900 MHz System Verification at 20.0 dBm (100 mW)

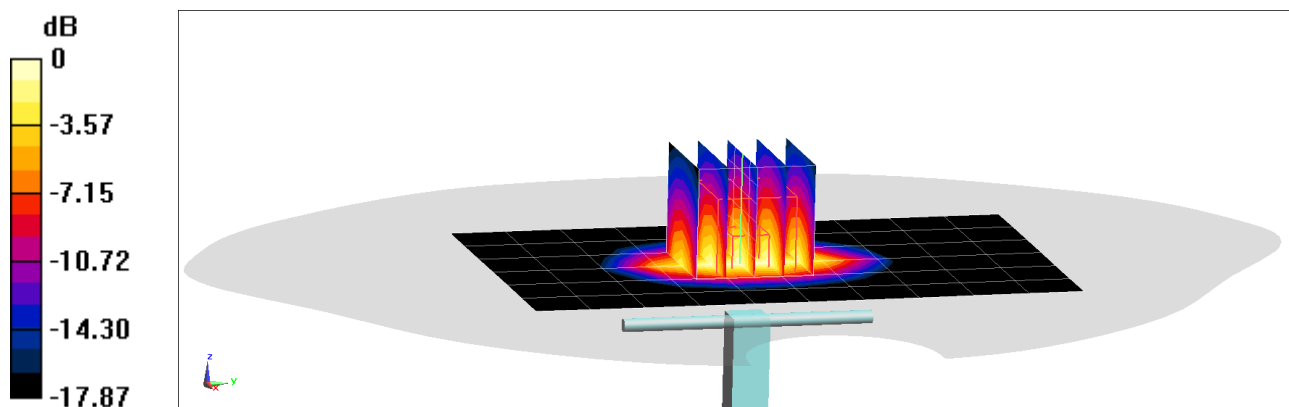
**Area Scan (7x11x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Peak SAR (extrapolated) = 7.60 W/kg

**SAR(1 g) = 4.18 W/kg; SAR(10 g) = 2.17 W/kg**

Deviation(1 g) = 4.76%



0 dB = 6.39 W/kg = 8.06 dBW/kg

# PCTEST

**DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d181**

Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: 1900 MHz Body Medium parameters used (interpolated):

$f = 1900 \text{ MHz}$ ;  $\sigma = 1.574 \text{ S/m}$ ;  $\epsilon_r = 51.734$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-09-2020; Ambient Temp: 22.7°C; Tissue Temp: 21.1°C

Probe: EX3DV4 - SN7491; ConvF(8.04, 8.04, 8.04) @ 1900 MHz; Calibrated: 7/16/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1402; Calibrated: 7/10/2019

Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1936

Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

## 1900 MHz System Verification at 20.0 dBm (100 mW)

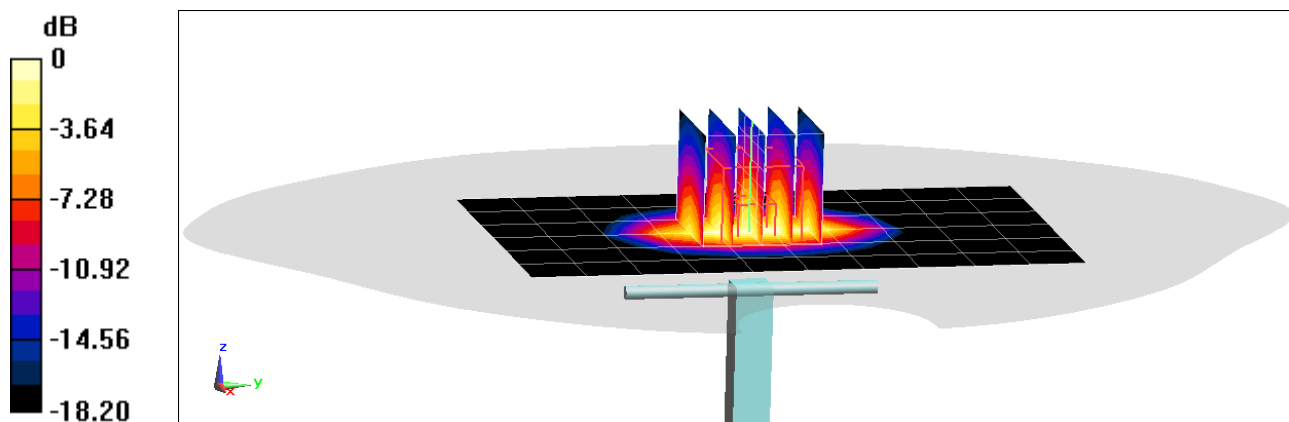
**Area Scan (7x11x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Peak SAR (extrapolated) = 7.45 W/kg

**SAR(1 g) = 3.96 W/kg; SAR(10 g) = 2.04 W/kg**

Deviation(1 g) = 0.25%



0 dB = 6.20 W/kg = 7.92 dBW/kg

# PCTEST

**DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d026**

Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: 1900 MHz Body Medium parameters used (interpolated):

$f = 1900 \text{ MHz}$ ;  $\sigma = 1.575 \text{ S/m}$ ;  $\epsilon_r = 52.977$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-13-2020; Ambient Temp: 21.1°C; Tissue Temp: 19.7°C

Probe: EX3DV4 - SN7421; ConvF(7.6, 7.6, 7.6) @ 1900 MHz; Calibrated: 3/18/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn604; Calibrated: 3/13/2019

Phantom: Twin-SAM V4.0; Type: QD 000 P40 CD; Serial: 1736

Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

## 1900 MHz System Verification at 20.0 dBm (100 mW)

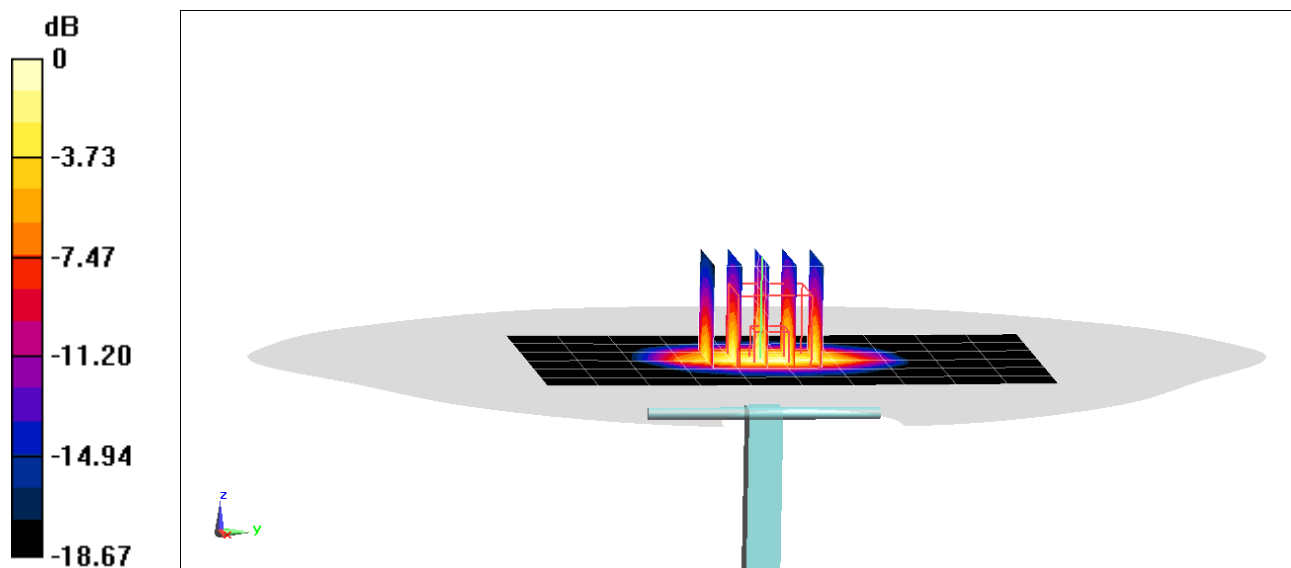
**Area Scan (7x11x1):** Measurement grid: dx=15mm, dy=15mm

**Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Peak SAR (extrapolated) = 7.51 W/kg

**SAR(1 g) = 4.08 W/kg; SAR(10 g) = 2.11 W/kg**

Deviation(1 g) = 2.26%



0 dB = 6.29 W/kg = 7.99 dBW/kg

# PCTEST

**DUT: Dipole 2300 MHz; Type: D2300V3; Serial: 1038**

Communication System: UID 0, CW; Frequency: 2300 MHz; Duty Cycle: 1:1

Medium: 2300 MHz Body Medium parameters used:

$f = 2300 \text{ MHz}$ ;  $\sigma = 1.833 \text{ S/m}$ ;  $\epsilon_r = 52.242$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-12-2020; Ambient Temp: 22.1°C; Tissue Temp: 20.1°C

Probe: EX3DV4 - SN7532; ConvF(7.93, 7.93, 7.93) @ 2300 MHz; Calibrated: 4/12/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn501; Calibrated: 4/17/2019

Phantom: Twin-SAM V4.0; Type: QD 000 P40 CC; Serial: 1179

Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

## 2300 MHz System Verification at 20.0 dBm (100 mW)

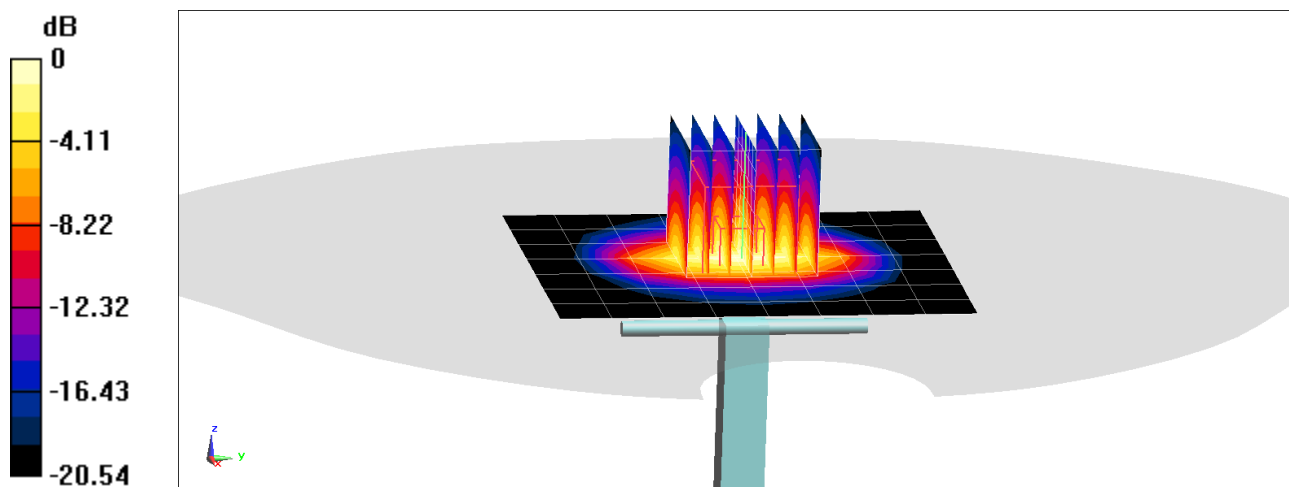
**Area Scan (8x9x1):** Measurement grid: dx=12mm, dy=12mm

**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Peak SAR (extrapolated) = 8.90 W/kg

**SAR(1 g) = 4.47 W/kg; SAR(10 g) = 2.12 W/kg**

Deviation(1 g) = -4.28%



# PCTEST

**DUT: Dipole 2450 MHz; Type: D2450V2; Serial: 921**

Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: 2450 MHz Body Medium parameters used:

$f = 2450 \text{ MHz}$ ;  $\sigma = 2.022 \text{ S/m}$ ;  $\epsilon_r = 50.678$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-18-2019; Ambient Temp: 20.6°C; Tissue Temp: 21.6°C

Probe: EX3DV4 - SN7532; ConvF(7.66, 7.66, 7.66) @ 2450 MHz; Calibrated: 4/12/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn501; Calibrated: 4/17/2019

Phantom: Twin-SAM V4.0; Type: QD 000 P40 CC; Serial: 1179

Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

## 2450 MHz System Verification at 20.0 dBm (100 mW)

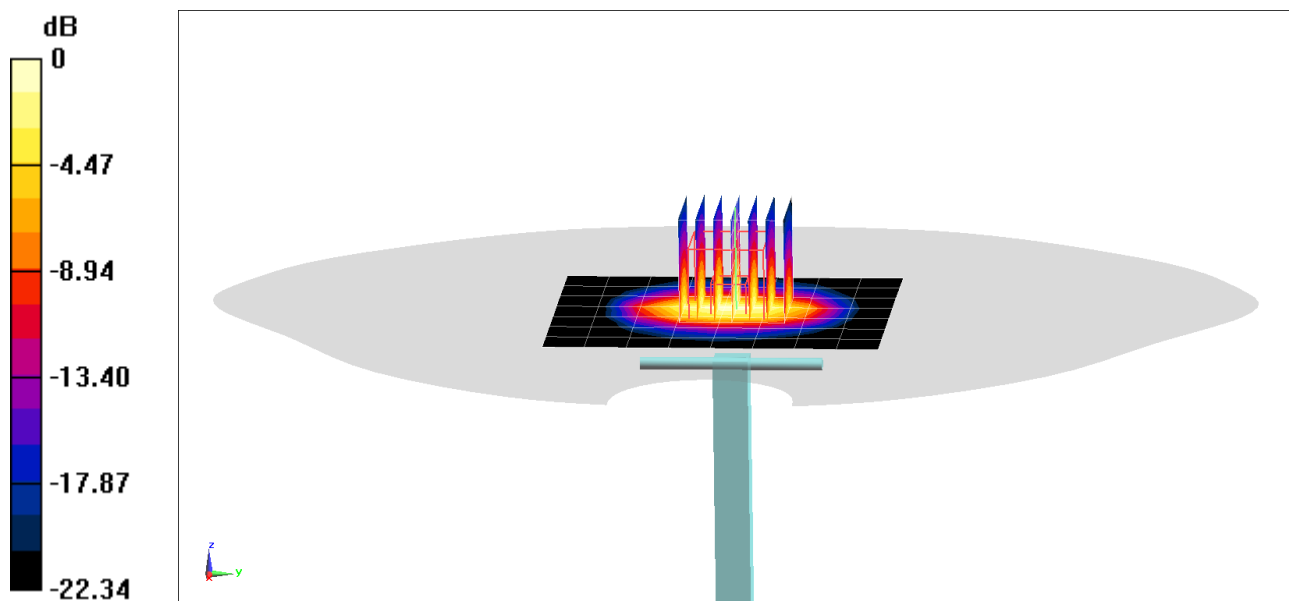
**Area Scan (8x9x1):** Measurement grid: dx=12mm, dy=12mm

**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Peak SAR (extrapolated) = 10.9 W/kg

**SAR(1 g) = 5.32 W/kg; SAR(10 g) = 2.45 W/kg**

Deviation(1 g) = 4.72%



0 dB = 8.82 W/kg = 9.45 dBW/kg

# PCTEST

**DUT: Dipole 2450 MHz; Type: D2450V2; Serial: 945**

Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: 2450 MHz Body Medium parameters used:

$f = 2450 \text{ MHz}$ ;  $\sigma = 2.045 \text{ S/m}$ ;  $\epsilon_r = 53.045$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-01-2020; Ambient Temp: 21.6°C; Tissue Temp: 20.6°C

Probe: EX3DV4 - SN7532; ConvF(7.66, 7.66, 7.66) @ 2450 MHz; Calibrated: 4/12/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn501; Calibrated: 4/17/2019

Phantom: Twin-SAM V4.0; Type: QD 000 P40 CC; Serial: 1179

Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

## 2450 MHz System Verification at 20.0 dBm (100 mW)

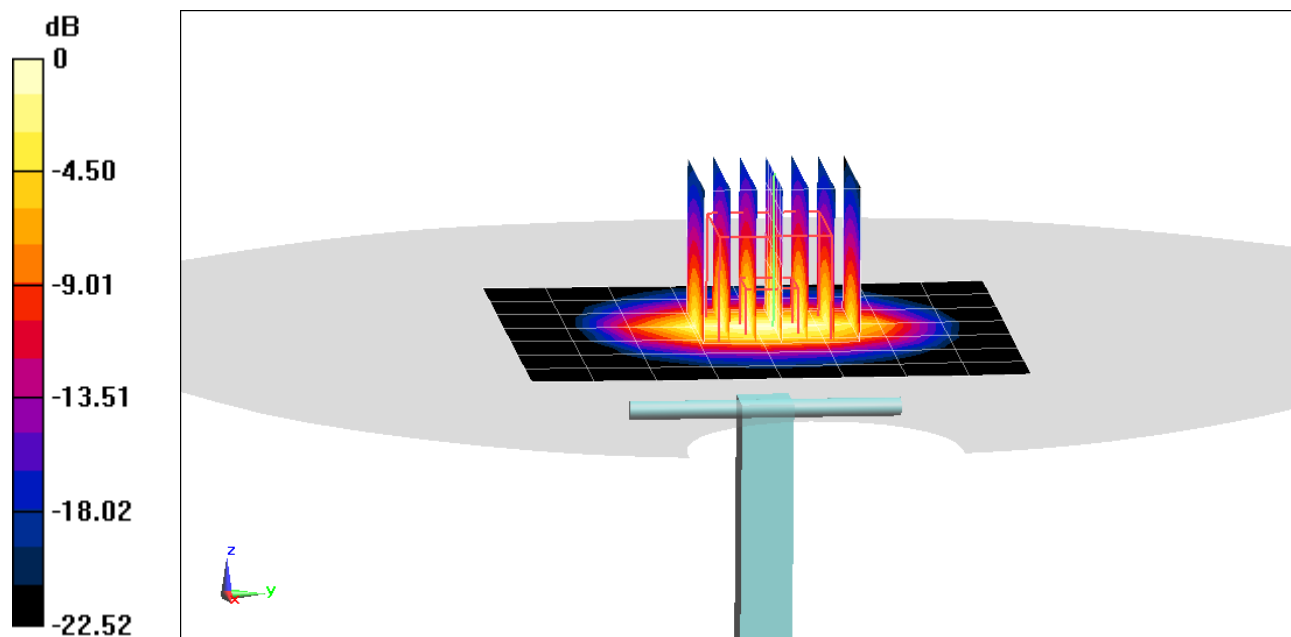
**Area Scan (8x9x1):** Measurement grid:  $dx=12\text{mm}$ ,  $dy=12\text{mm}$

**Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Peak SAR (extrapolated) = 11.0 W/kg

**SAR(1 g) = 5.26 W/kg; SAR(10 g) = 2.4 W/kg**

Deviation(1 g) = 6.48%



0 dB = 8.80 W/kg = 9.44 dBW/kg

# PCTEST

**DUT: Dipole 2450 MHz; Type: D2450V2; Serial: 921**

Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: 2450 MHz Body Medium parameters used:

$f = 2450 \text{ MHz}$ ;  $\sigma = 2.01 \text{ S/m}$ ;  $\epsilon_r = 50.958$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-13-2020; Ambient Temp: 23.4°C; Tissue Temp: 19.5°C

Probe: EX3DV4 - SN7491; ConvF(7.57, 7.57, 7.57) @ 2450 MHz; Calibrated: 7/16/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1402; Calibrated: 7/10/2019

Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1936

Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

## 2450 MHz System Verification at 20.0 dBm (100 mW)

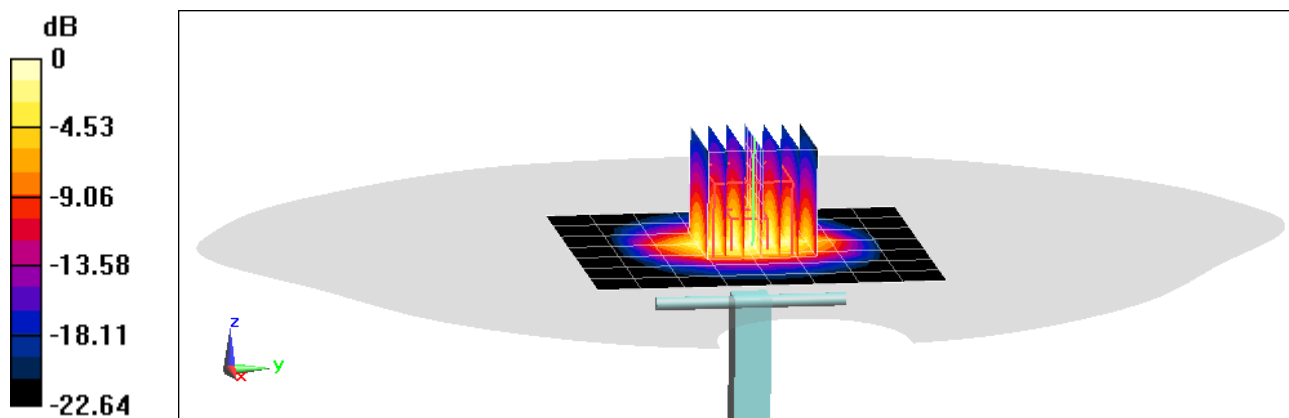
**Area Scan (8x9x1):** Measurement grid:  $dx=12\text{mm}$ ,  $dy=12\text{mm}$

**Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Peak SAR (extrapolated) = 10.7 W/kg

**SAR(1 g) = 5.16 W/kg; SAR(10 g) = 2.37 W/kg**

Deviation(1 g) = 1.57%



0 dB = 8.61 W/kg = 9.35 dBW/kg

# PCTEST

**DUT: Dipole 2450 MHz; Type: D2450V2; Serial: 921**

Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: 2450 MHz Body Medium parameters used:

$f = 2450 \text{ MHz}$ ;  $\sigma = 1.948 \text{ S/m}$ ;  $\epsilon_r = 50.877$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-14-2020; Ambient Temp: 22.1°C; Tissue Temp: 21.0°C

Probe: EX3DV4 - SN7532; ConvF(7.66, 7.66, 7.66) @ 2450 MHz; Calibrated: 4/12/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn501; Calibrated: 4/17/2019

Phantom: Twin-SAM V4.0; Type: QD 000 P40 CC; Serial: 1179

Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

## 2450 MHz System Verification at 20.0 dBm (100 mW)

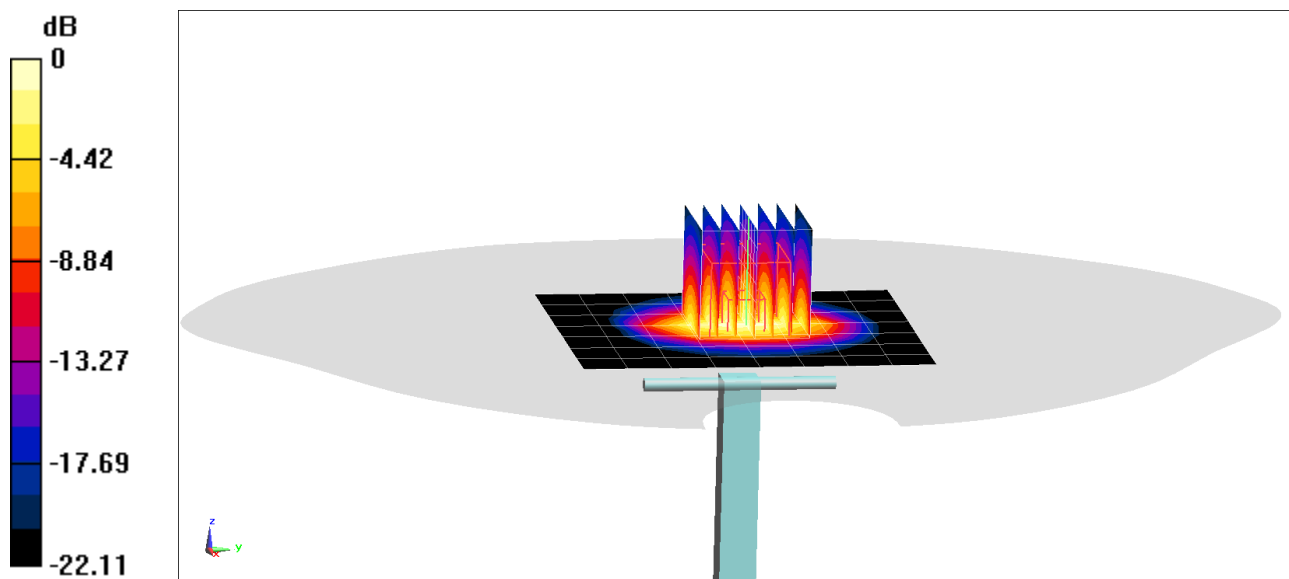
**Area Scan (8x9x1):** Measurement grid: dx=12mm, dy=12mm

**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Peak SAR (extrapolated) = 10.5 W/kg

**SAR(1 g) = 5.12 W/kg; SAR(10 g) = 2.36 W/kg**

Deviation(1 g) = 0.79%



# PCTEST

**DUT: Dipole 2600 MHz; Type: D2600V2; Serial: 1009**

Communication System: UID 0, CW; Frequency: 2600 MHz; Duty Cycle: 1:1

Medium: 2450 MHz Body Medium parameters used:

$f = 2600$  MHz;  $\sigma = 2.263$  S/m;  $\epsilon_r = 52.409$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-01-2020; Ambient Temp: 21.6°C; Tissue Temp: 20.6°C

Probe: EX3DV4 - SN7532; ConvF(7.47, 7.47, 7.47) @ 2600 MHz; Calibrated: 4/12/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn501; Calibrated: 4/17/2019

Phantom: Twin-SAM V4.0; Type: QD 000 P40 CC; Serial: 1179

Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

## 2600 MHz System Verification at 20.0 dBm (100 mW)

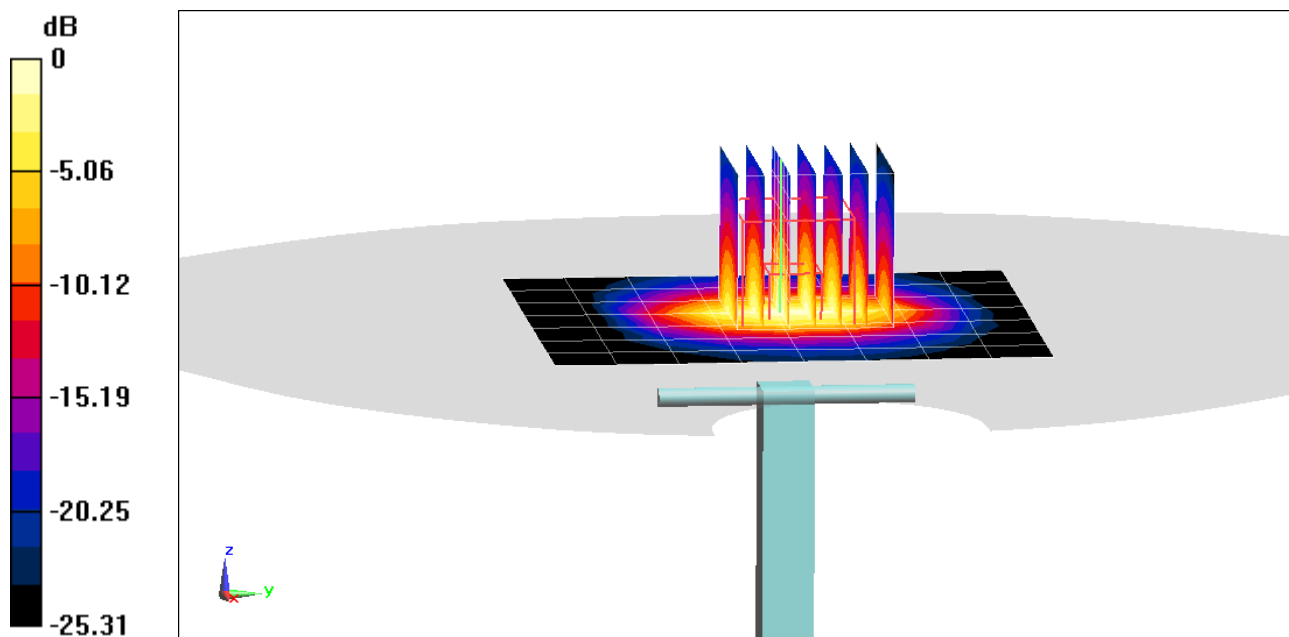
**Area Scan (8x9x1):** Measurement grid: dx=12mm, dy=12mm

**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Peak SAR (extrapolated) = 12.6 W/kg

**SAR(1 g) = 5.53 W/kg; SAR(10 g) = 2.38 W/kg**

Deviation(1 g) = -0.36%



0 dB = 9.65 W/kg = 9.85 dBW/kg

# PCTEST

**DUT: Dipole 2600 MHz; Type: D2600V2; Serial: 1069**

Communication System: UID 0, CW; Frequency: 2600 MHz; Duty Cycle: 1:1

Medium: 2450 MHz Body Medium parameters used:

$f = 2600 \text{ MHz}$ ;  $\sigma = 2.151 \text{ S/m}$ ;  $\epsilon_r = 50.698$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-13-2020; Ambient Temp: 23.4°C; Tissue Temp: 19.5°C

Probe: EX3DV4 - SN7491; ConvF(7.45, 7.45, 7.45) @ 2600 MHz; Calibrated: 7/16/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1402; Calibrated: 7/10/2019

Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1936

Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

## 2600 MHz System Verification at 20.0 dBm (100 mW)

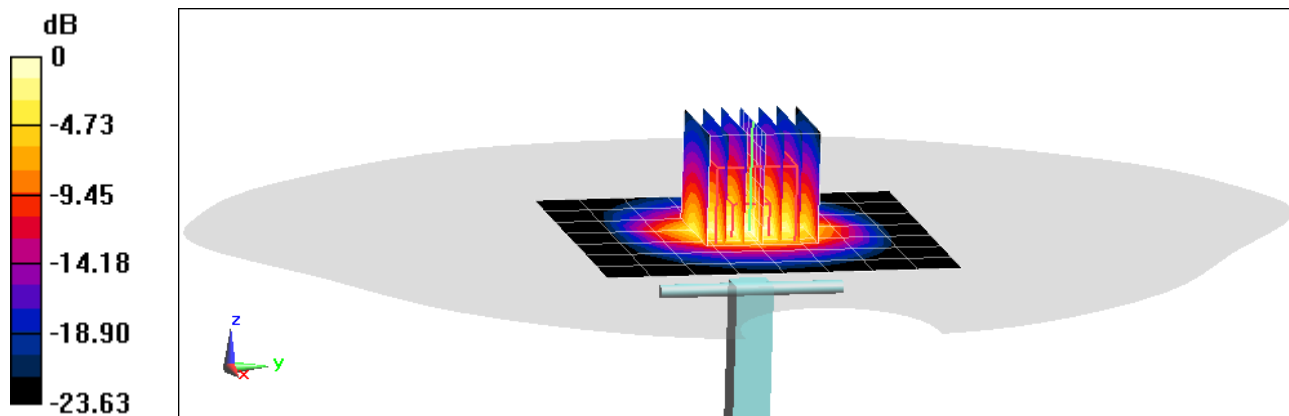
**Area Scan (8x9x1):** Measurement grid:  $dx=12\text{mm}$ ,  $dy=12\text{mm}$

**Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Peak SAR (extrapolated) = 11.9 W/kg

**SAR(1 g) = 5.44 W/kg; SAR(10 g) = 2.4 W/kg**

Deviation(1 g) = -1.63%



0 dB = 9.44 W/kg = 9.75 dBW/kg

# PCTEST

**DUT: Dipole 3500 MHz; Type: D3500V2; Serial: 1068**

Communication System: UID 0, CW; Frequency: 3500 MHz; Duty Cycle: 1:1

Medium: 3500 MHz Body Medium parameters used:

$f = 3500 \text{ MHz}$ ;  $\sigma = 3.403 \text{ S/m}$ ;  $\epsilon_r = 49.675$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-04-2020; Ambient Temp: 23.1°C; Tissue Temp: 21.3°C

Probe: EX3DV4 - SN3949; ConvF(6.88, 6.88, 6.88) @ 3500 MHz; Calibrated: 8/29/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1408; Calibrated: 8/12/2019

Phantom: Twin-SAM V4.0; Type: QD 000 P40 CC; Serial: 1596

Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

## 3500 MHz System Verification at 20.0 dBm (100 mW)

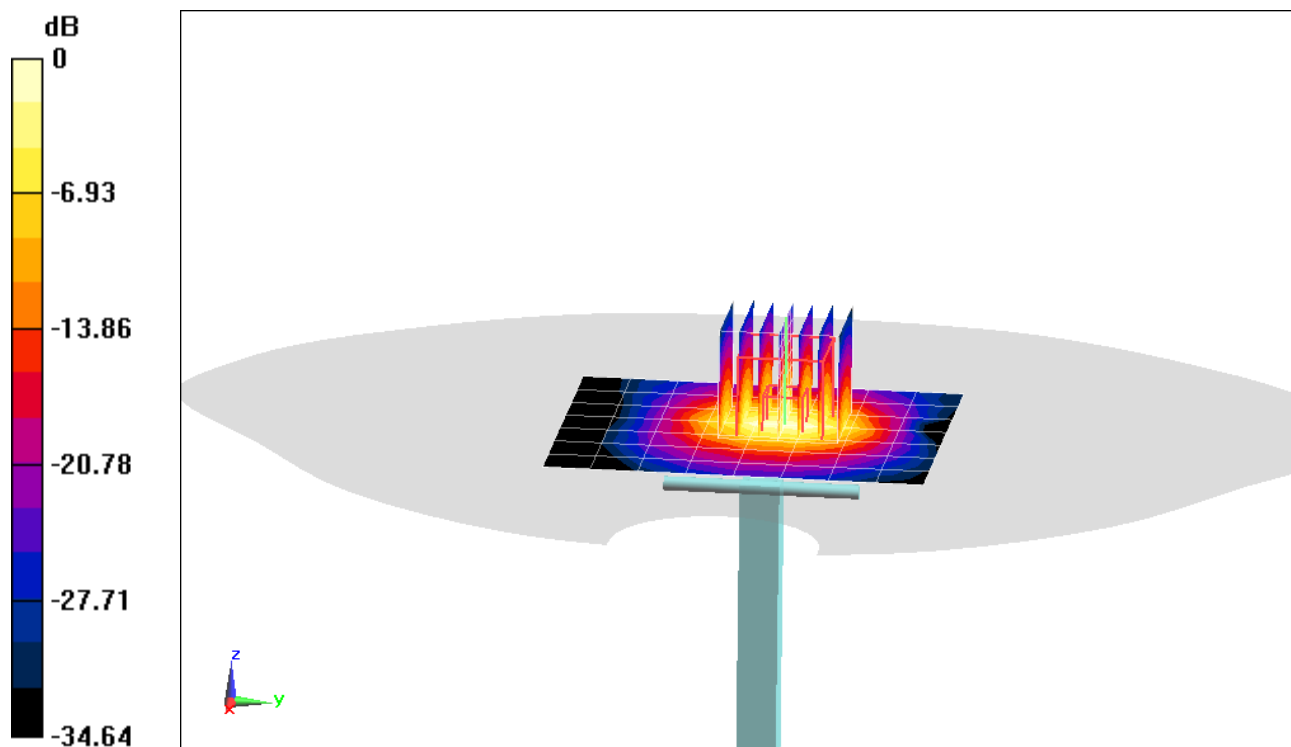
**Area Scan (8x9x1):** Measurement grid: dx=12mm, dy=12mm

**Zoom Scan (7x7x8)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=4mm

Peak SAR (extrapolated) = 16.7 W/kg

**SAR(1 g) = 6.44 W/kg; SAR(10 g) = 2.4 W/kg**

Deviation(1 g) = -1.38%



0 dB = 12.7 W/kg = 11.04 dBW/kg

# PCTEST

**DUT: Dipole 3700 MHz; Type: D3700V2; Serial: 1029**

Communication System: UID 0, CW; Frequency: 3700 MHz; Duty Cycle: 1:1

Medium: 3500 MHz Body Medium parameters used (interpolated):

$f = 3700 \text{ MHz}$ ;  $\sigma = 3.677 \text{ S/m}$ ;  $\epsilon_r = 49.104$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-04-2020; Ambient Temp: 23.1°C; Tissue Temp: 21.3°C

Probe: EX3DV4 - SN3949; ConvF(6.78, 6.78, 6.78) @ 3700 MHz; Calibrated: 8/29/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1408; Calibrated: 8/12/2019

Phantom: Twin-SAM V4.0; Type: QD 000 P40 CC; Serial: 1596

Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

## 3700 MHz System Verification at 20.0 dBm (100 mW)

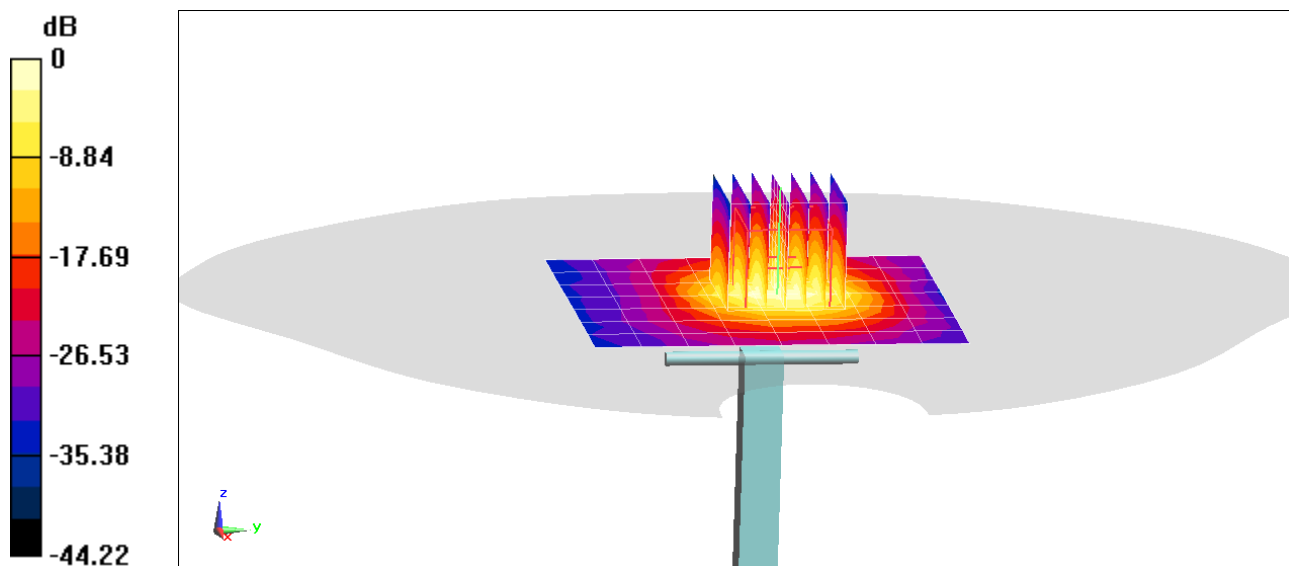
**Area Scan (8x9x1):** Measurement grid:  $dx=12\text{mm}$ ,  $dy=12\text{mm}$

**Zoom Scan (7x7x8)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=4\text{mm}$

Peak SAR (extrapolated) = 17.0 W/kg

**SAR(1 g) = 6.23 W/kg; SAR(10 g) = 2.23 W/kg**

Deviation(1 g) = -4.01%



0 dB = 12.6 W/kg = 11.00 dBW/kg

# PCTEST

**DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1123**

Communication System: UID 0, CW; Frequency: 5250 MHz; Duty Cycle: 1:1

Medium: 5 GHz Body Medium parameters used (interpolated):

$f = 5250 \text{ MHz}$ ;  $\sigma = 5.165 \text{ S/m}$ ;  $\epsilon_r = 48.505$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-16-2019; Ambient Temp: 22.7°C; Tissue Temp: 19.0°C

Probe: EX3DV4 - SN7491; ConvF(4.87, 4.87, 4.87) @ 5250 MHz; Calibrated: 7/16/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1402; Calibrated: 7/10/2019

Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1936

Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

## 5250 MHz System Verification at 17.0 dBm (50 mW)

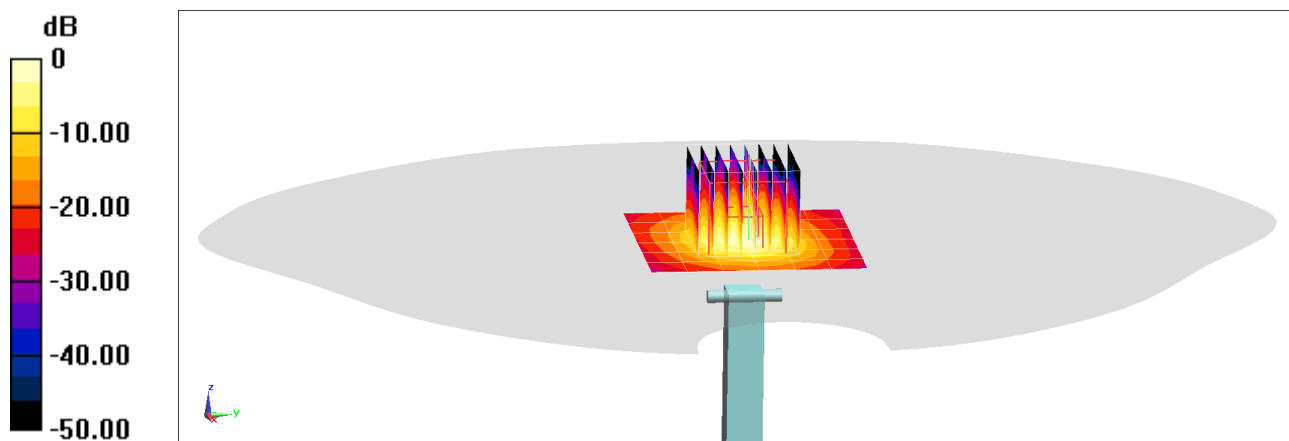
**Area Scan (7x7x1):** Measurement grid: dx=10mm, dy=10mm

**Zoom Scan (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4

Peak SAR (extrapolated) = 13.9 W/kg

**SAR(1 g) = 3.6 W/kg; SAR(10 g) = 0.996 W/kg**

Deviation(1 g) = -2.70%



0 dB = 8.30 W/kg = 9.19 dBW/kg

# PCTEST

**DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1123**

Communication System: UID 0, CW; Frequency: 5600 MHz; Duty Cycle: 1:1

Medium: 5 GHz Body Medium parameters used:

$f = 5600 \text{ MHz}$ ;  $\sigma = 5.653 \text{ S/m}$ ;  $\epsilon_r = 47.862$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-16-2019; Ambient Temp: 22.7°C; Tissue Temp: 19.0°C

Probe: EX3DV4 - SN7491; ConvF(4.23, 4.23, 4.23) @ 5600 MHz; Calibrated: 7/16/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1402; Calibrated: 7/10/2019

Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1936

Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

## 5600 MHz System Verification at 17.0 dBm (50 mW)

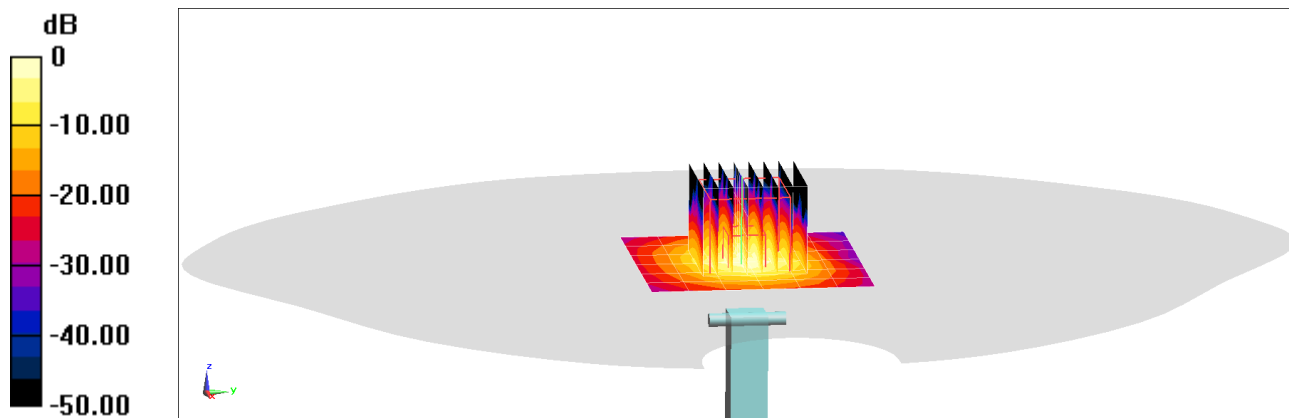
**Area Scan (7x7x1):** Measurement grid: dx=10mm, dy=10mm

**Zoom Scan (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4

Peak SAR (extrapolated) = 16.3 W/kg

**SAR(1 g) = 3.83 W/kg; SAR(10 g) = 1.05 W/kg**

Deviation(1 g) = -1.29%



0 dB = 9.28 W/kg = 9.68 dBW/kg

# PCTEST

**DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1123**

Communication System: UID 0, CW; Frequency: 5750 MHz; Duty Cycle: 1:1

Medium: 5 GHz Body Medium parameters used (interpolated):

$f = 5750 \text{ MHz}$ ;  $\sigma = 5.89 \text{ S/m}$ ;  $\epsilon_r = 47.568$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0cm

Test Date: 12-16-2019; Ambient Temp: 22.7°C; Tissue Temp: 19.0°C

Probe: EX3DV4 - SN7491; ConvF(4.32, 4.32, 4.32) @ 5750 MHz; Calibrated: 7/16/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1402; Calibrated: 7/10/2019

Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1936

Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

## 5750 MHz System Verification at 17.0 dBm (50 mW)

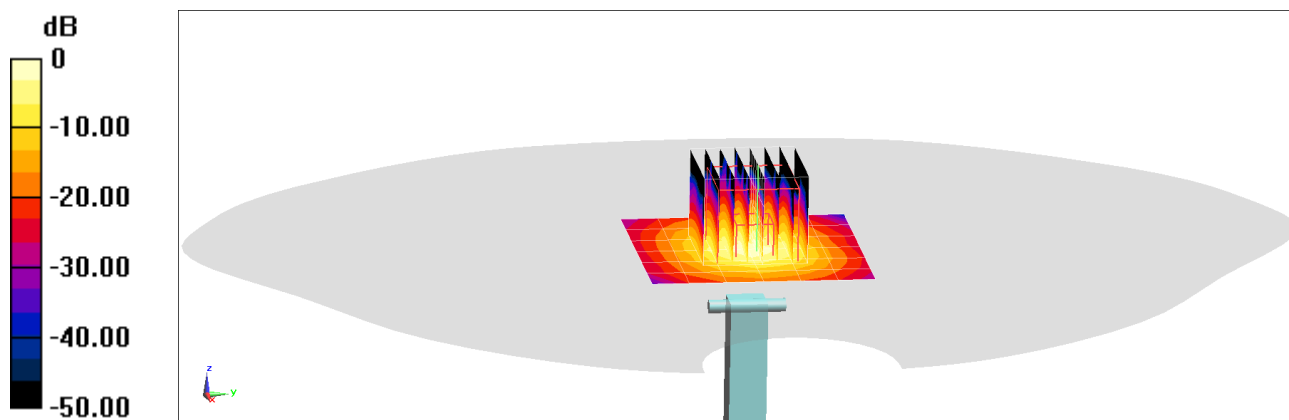
**Area Scan (7x7x1):** Measurement grid: dx=10mm, dy=10mm

**Zoom Scan (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4

Peak SAR (extrapolated) = 15.9 W/kg

**SAR(1 g) = 3.59 W/kg; SAR(10 g) = 0.995 W/kg**

Deviation(1 g) = -3.88%



0 dB = 8.95 W/kg = 9.52 dBW/kg

## APPENDIX C: SAR TISSUE SPECIFICATIONS

|                                               |                                                                                                   |                              |                                        |
|-----------------------------------------------|---------------------------------------------------------------------------------------------------|------------------------------|----------------------------------------|
| <b>FCC ID:</b> BCGA2230                       |  <b>PCTEST</b> | <b>SAR EVALUATION REPORT</b> | <b>Approved by:</b><br>Quality Manager |
| <b>Test Dates:</b><br>12/16/2019 – 01/14/2020 | <b>DUT Type:</b><br>Tablet Device                                                                 |                              | Appendix C:<br>Page 1 of 3             |

Measurement Procedure for Tissue verification:

- 1) The network analyzer and probe system was configured and calibrated.
- 2) The probe was immersed in the tissue. The tissue was placed in a nonmetallic container. Trapped air bubbles beneath the flange were minimized by placing the probe at a slight angle.
- 3) The complex admittance with respect to the probe aperture was measured
- 4) The complex relative permittivity  $\epsilon'$  can be calculated from the below equation (Pournaropoulos and Misra):

$$Y = \frac{j2\omega\epsilon_r\epsilon_0}{[\ln(b/a)]^2} \int_a^b \int_a^b \int_0^\pi \cos\phi' \frac{\exp[-j\omega r(\mu_0\epsilon_r'\epsilon_0)^{1/2}]}{r} d\phi' d\rho' d\rho$$

where  $Y$  is the admittance of the probe in contact with the sample, the primed and unprimed coordinates refer to source and observation points, respectively,  $r^2 = \rho^2 + \rho'^2 - 2\rho\rho' \cos\phi'$ ,  $\omega$  is the angular frequency, and  $j = \sqrt{-1}$ .

### 3 Composition / Information on ingredients

#### 3.2 Mixtures

**Description:** Aqueous solution with surfactants and inhibitors

**Declarable, or hazardous components:**

|                                                                        |                                                                                                                       |           |
|------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|-----------|
| CAS: 107-21-1<br>EINECS: 203-473-3<br>Reg.nr.: 01-2119456816-28-0000   | <b>Ethanedial</b><br>STOT RE 2, H373;<br>Acute Tox. 4, H302                                                           | >1.0-4.9% |
| CAS: 68608-26-4<br>EINECS: 271-781-5<br>Reg.nr.: 01-2119527859-22-0000 | <b>Sodium petroleum sulfonate</b><br>Eye Irrit. 2, H319                                                               | < 2.9%    |
| CAS: 107-41-5<br>EINECS: 203-489-0<br>Reg.nr.: 01-2119539582-35-0000   | <b>Hexylene Glycol / 2-Methyl-pentane-2,4-diol</b><br>Skin Irrit. 2, H315; Eye Irrit. 2, H319                         | < 2.9%    |
| CAS: 68920-66-1<br>NLP: 500-236-9<br>Reg.nr.: 01-2119489407-26-0000    | <b>Alkoxyated alcohol, &gt; C<sub>16</sub></b><br>Aquatic Chronic 2, H411;<br>Skin Irrit. 2, H315; Eye Irrit. 2, H319 | < 2.0%    |

**Additional information:**

For the wording of the listed risk phrases refer to section 16.

Not mentioned CAS-, EINECS- or registration numbers are to be regarded as Proprietary/Confidential.

The specific chemical identity and/or exact percentage concentration of proprietary components is withheld as a trade secret.

**Figure C-1**

Note: Liquid recipes are proprietary SPEAG. Since the composition is approximate to the actual liquids utilized, the manufacturer tissue-equivalent liquid data sheets are provided below.

|                                               |                                                                                                   |                              |                                        |
|-----------------------------------------------|---------------------------------------------------------------------------------------------------|------------------------------|----------------------------------------|
| <b>FCC ID:</b> BCGA2230                       |  <b>PCTEST</b> | <b>SAR EVALUATION REPORT</b> | <b>Approved by:</b><br>Quality Manager |
| <b>Test Dates:</b><br>12/16/2019 – 01/14/2020 | <b>DUT Type:</b><br>Tablet Device                                                                 |                              | Appendix C:<br>Page 2 of 3             |

**Measurement Certificate / Material Test**

Item Name **Body Tissue Simulating Liquid (MBBL600-6000V6)**  
 Product No. SL AAM U16 BC (Batch: 181029-1)  
 Manufacturer SPEAG

**Measurement Method**

TSL dielectric parameters measured using calibrated DAK probe.

**Target Parameters**

Target parameters as defined in the KDB 865864 compliance standard.

**Test Condition**

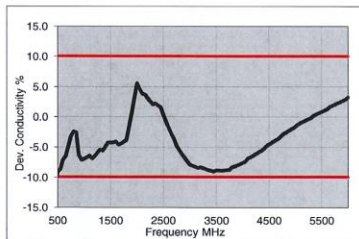
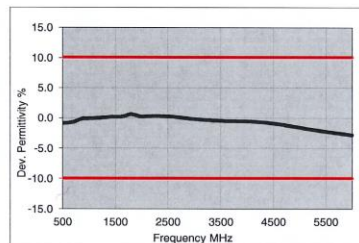
Ambient Condition 22°C ; 30% humidity  
 TSL Temperature 22°C  
 Test Date 30-Oct-18  
 Operator CL

**Additional Information**

TSL Density  
 TSL Heat-capacity

**Results**

| f [MHz] | Measured |      |       | Target |       | Diff.to Target [%] |         |
|---------|----------|------|-------|--------|-------|--------------------|---------|
|         | e'       | e''  | sigma | eps    | sigma | Δ-eps              | Δ-sigma |
| 800     | 55.1     | 21.3 | 0.95  | 55.3   | 0.97  | -0.4               | -2.1    |
| 825     | 55.1     | 20.8 | 0.96  | 55.2   | 0.98  | -0.3               | -2.0    |
| 835     | 55.1     | 20.6 | 0.96  | 55.1   | 0.99  | 0.0                | -2.5    |
| 850     | 55.1     | 20.4 | 0.96  | 55.2   | 0.99  | -0.1               | -3.0    |
| 900     | 55.0     | 19.7 | 0.98  | 55.0   | 1.05  | 0.0                | -6.7    |
| 1400    | 54.2     | 15.6 | 1.22  | 54.1   | 1.28  | 0.2                | -4.7    |
| 1450    | 54.1     | 15.4 | 1.24  | 54.0   | 1.30  | 0.2                | -4.6    |
| 1500    | 54.1     | 15.3 | 1.27  | 53.9   | 1.33  | 0.3                | -4.5    |
| 1550    | 54.0     | 15.1 | 1.30  | 53.9   | 1.36  | 0.2                | -4.4    |
| 1600    | 53.9     | 15.0 | 1.33  | 53.8   | 1.39  | 0.2                | -4.3    |
| 1625    | 53.9     | 14.9 | 1.35  | 53.8   | 1.41  | 0.3                | -4.3    |
| 1640    | 53.9     | 14.9 | 1.36  | 53.7   | 1.42  | 0.3                | -4.2    |
| 1650    | 53.8     | 14.9 | 1.36  | 53.7   | 1.43  | 0.2                | -4.9    |
| 1700    | 53.8     | 14.8 | 1.40  | 53.6   | 1.46  | 0.4                | -4.1    |
| 1750    | 53.7     | 14.7 | 1.43  | 53.4   | 1.49  | 0.5                | -4.0    |
| 1800    | 53.7     | 14.6 | 1.46  | 53.3   | 1.52  | 0.8                | -3.9    |
| 1810    | 53.7     | 14.6 | 1.47  | 53.3   | 1.52  | 0.8                | -3.3    |
| 1825    | 53.7     | 14.6 | 1.48  | 53.3   | 1.52  | 0.8                | -2.6    |
| 1850    | 53.6     | 14.5 | 1.50  | 53.3   | 1.52  | 0.6                | -1.3    |
| 1900    | 53.5     | 14.5 | 1.53  | 53.3   | 1.52  | 0.4                | 0.7     |
| 1950    | 53.5     | 14.5 | 1.57  | 53.3   | 1.52  | 0.4                | 3.3     |
| 2000    | 53.4     | 14.4 | 1.60  | 53.3   | 1.52  | 0.2                | 5.3     |
| 2050    | 53.4     | 14.4 | 1.64  | 53.2   | 1.57  | 0.3                | 4.5     |
| 2100    | 53.3     | 14.4 | 1.68  | 53.2   | 1.62  | 0.2                | 3.7     |
| 2150    | 53.3     | 14.4 | 1.72  | 53.1   | 1.66  | 0.4                | 3.6     |
| 2200    | 53.2     | 14.4 | 1.76  | 53.0   | 1.71  | 0.3                | 2.9     |
| 2250    | 53.1     | 14.4 | 1.81  | 53.0   | 1.76  | 0.2                | 2.8     |
| 2300    | 53.1     | 14.4 | 1.85  | 52.9   | 1.81  | 0.4                | 2.2     |
| 2350    | 53.0     | 14.5 | 1.89  | 52.8   | 1.85  | 0.3                | 2.2     |
| 2400    | 52.9     | 14.5 | 1.94  | 52.8   | 1.90  | 0.2                | 2.1     |
| 2450    | 52.9     | 14.5 | 1.98  | 52.7   | 1.95  | 0.4                | 1.5     |
| 2500    | 52.8     | 14.6 | 2.03  | 52.6   | 2.02  | 0.3                | 0.5     |
| 2550    | 52.7     | 14.6 | 2.07  | 52.6   | 2.09  | 0.2                | -1.0    |
| 2600    | 52.6     | 14.7 | 2.12  | 52.5   | 2.16  | 0.2                | -1.9    |



|      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|
| 3500 | 51.1 | 15.5 | 3.02 | 51.3 | 3.31 | -0.4 | -8.8 |
| 3700 | 50.8 | 15.7 | 3.24 | 51.1 | 3.55 | -0.5 | -8.8 |
| 5200 | 48.1 | 18.2 | 5.27 | 49.0 | 5.30 | -1.8 | -0.6 |
| 5250 | 48.0 | 18.3 | 5.34 | 49.0 | 5.36 | -1.9 | -0.4 |
| 5300 | 47.9 | 18.4 | 5.41 | 48.9 | 5.42 | -2.0 | -0.2 |
| 5500 | 47.5 | 18.6 | 5.70 | 48.6 | 5.65 | -2.2 | 0.8  |
| 5600 | 47.3 | 18.8 | 5.84 | 48.5 | 5.77 | -2.3 | 1.3  |
| 5700 | 47.1 | 18.9 | 5.99 | 48.3 | 5.88 | -2.5 | 1.8  |
| 5800 | 47.0 | 19.0 | 6.14 | 48.2 | 6.00 | -2.6 | 2.3  |

TSL Dielectric Parameters

1

**Figure C-2**  
**600 – 5800 MHz Body Tissue Equivalent Matter**

|                                        |                                                                                     |                       |                                 |
|----------------------------------------|-------------------------------------------------------------------------------------|-----------------------|---------------------------------|
| FCC ID: BCGA2230                       |  | SAR EVALUATION REPORT | Approved by:<br>Quality Manager |
| Test Dates:<br>12/16/2019 – 01/14/2020 | DUT Type:<br>Tablet Device                                                          |                       | Appendix C:<br>Page 3 of 3      |

## APPENDIX D: SAR SYSTEM VALIDATION

|                                               |                                                                                                   |                              |                                        |
|-----------------------------------------------|---------------------------------------------------------------------------------------------------|------------------------------|----------------------------------------|
| <b>FCC ID:</b> BCGA2230                       |  <b>PCTEST</b> | <b>SAR EVALUATION REPORT</b> | <b>Approved by:</b><br>Quality Manager |
| <b>Test Dates:</b><br>12/16/2019 – 01/14/2020 | <b>DUT Type:</b><br>Tablet Device                                                                 |                              | Appendix D:<br>Page 1 of 2             |

Per FCC KDB Publication 865664 D02v01r02, SAR system validation status should be documented to confirm measurement accuracy. The SAR systems (including SAR probes, system components and software versions) used for this device were validated against its performance specifications prior to the SAR measurements. Reference dipoles were used with the required tissue- equivalent media for system validation, according to the procedures outlined in FCC KDB Publication 865664 D01v01r04 and IEEE 1528-2013. Since SAR probe calibrations are frequency dependent, each probe calibration point was validated at a frequency within the valid frequency range of the probe calibration point, using the system that normally operates with the probe for routine SAR measurements and according to the required tissue-equivalent media.

A tabulated summary of the system validation status including the validation date(s), measurement frequencies, SAR probes and tissue dielectric parameters has been included.

**Table D-1**  
**SAR System Validation Summary – 1g**

| SAR SYSTEM # | FREQ. [MHz] | DATE       | PROBE SN | PROBE CAL. POINT |      | COND.        | PERM.            | CW VALIDATION |                 |                | MOD. VALIDATION |             |      |
|--------------|-------------|------------|----------|------------------|------|--------------|------------------|---------------|-----------------|----------------|-----------------|-------------|------|
|              |             |            |          |                  |      | ( $\sigma$ ) | ( $\epsilon_r$ ) | SENSITIVITY   | PROBE LINEARITY | PROBE ISOTROPY | MOD. TYPE       | DUTY FACTOR | PAR  |
| AM1          | 750         | 7/15/2019  | 7421     | 750              | Body | 0.93         | 53.942           | PASS          | PASS            | PASS           | N/A             | N/A         | N/A  |
| AM8          | 835         | 8/2/2019   | 7416     | 835              | Body | 0.994        | 53.524           | PASS          | PASS            | PASS           | GMSK            | PASS        | N/A  |
| AM7          | 1750        | 2/21/2019  | 3837     | 1750             | Body | 1.49         | 52.305           | PASS          | PASS            | PASS           | N/A             | N/A         | N/A  |
| AM8          | 1750        | 8/5/2019   | 7416     | 1750             | Body | 1.495        | 52.93            | PASS          | PASS            | PASS           | N/A             | N/A         | N/A  |
| AM5          | 1900        | 8/13/2019  | 7491     | 1900             | Body | 1.525        | 52.611           | PASS          | PASS            | PASS           | GMSK            | PASS        | N/A  |
| AM1          | 1900        | 7/15/2019  | 7421     | 1900             | Body | 1.548        | 51.802           | PASS          | PASS            | PASS           | GMSK            | PASS        | N/A  |
| AM4          | 2300        | 4/23/2019  | 7532     | 2300             | Body | 1.897        | 50.974           | PASS          | PASS            | PASS           | N/A             | N/A         | N/A  |
| AM4          | 2450        | 4/23/2019  | 7532     | 2450             | Body | 2.027        | 50.762           | PASS          | PASS            | PASS           | OFDM/TDD        | PASS        | PASS |
| AM5          | 2450        | 8/14/2019  | 7491     | 2450             | Body | 1.972        | 51.904           | PASS          | PASS            | PASS           | OFDM/TDD        | PASS        | PASS |
| AM4          | 2600        | 4/23/2019  | 7532     | 2600             | Body | 2.167        | 50.527           | PASS          | PASS            | PASS           | TDD             | PASS        | N/A  |
| AM5          | 2600        | 8/13/2019  | 7491     | 2600             | Body | 2.11         | 51.64            | PASS          | PASS            | PASS           | TDD             | PASS        | N/A  |
| AM3          | 3500        | 12/11/2019 | 3949     | 3500             | Body | 3.448        | 50.786           | PASS          | PASS            | PASS           | TDD             | PASS        | N/A  |
| AM3          | 3700        | 12/11/2019 | 3949     | 3700             | Body | 3.67         | 50.471           | PASS          | PASS            | PASS           | TDD             | PASS        | N/A  |
| AM5          | 5250        | 8/27/2019  | 7491     | 5250             | Body | 5.352        | 47.481           | PASS          | PASS            | PASS           | OFDM            | N/A         | PASS |
| AM5          | 5600        | 8/14/2019  | 7491     | 5600             | Body | 5.897        | 46.808           | PASS          | PASS            | PASS           | OFDM            | N/A         | PASS |
| AM5          | 5750        | 8/14/2019  | 7491     | 5750             | Body | 6.122        | 46.512           | PASS          | PASS            | PASS           | OFDM            | N/A         | PASS |

NOTE: While the probes have been calibrated for both CW and modulated signals, all measurements were performed using communication systems calibrated for CW signals only. Modulations in the table above represent test configurations for which the measurement system has been validated per FCC KDB Publication 865664 D01v01r04 for scenarios when CW probe calibrations are used with other signal types. SAR systems were validated for modulated signals with a periodic duty cycle, such as GMSK, or with a high peak to average ratio (>5 dB), such as OFDM according to FCC KDB Publication 865664 D01v01r04.

|                                        |                                                                                     |                       |                                 |
|----------------------------------------|-------------------------------------------------------------------------------------|-----------------------|---------------------------------|
| FCC ID: BCGA2230                       |  | SAR EVALUATION REPORT | Approved by:<br>Quality Manager |
| Test Dates:<br>12/16/2019 – 01/14/2020 | DUT Type:<br>Tablet Device                                                          |                       | Appendix D:<br>Page 2 of 2      |

# APPENDIX F: DOWNLINK LTE CA RF CONDUCTED POWERS

## 1.1 LTE Downlink Only Carrier Aggregation Test Reduction Methodology

SAR test exclusion for LTE downlink Carrier Aggregation is determined by power measurements according to the number of component carriers (CCs) supported by the product implementation. Per April 2018 TCBC Workshop Notes, the following test reduction methodology was applied to determine the combinations required for conducted power measurements.

### LTE DLCA Test Reduction Methodology:

- The supported combinations were arranged by the number of component carriers in columns.
- Any limitations on the PCC or SCC for each combination were identified alongside the combination (e.g. CA\_2A-2A-4A-12A, but B12 can only be configured as a SCC).
- Power measurements were performed for "supersets" (LTE CA combinations with multiple components carriers) and any "subsets" (LTE CA combinations with fewer component carriers) that were not completely covered by the supersets.
- Only subsets that have the exact same components as a superset were excluded for measurement.
- When there were certain restrictions on component carriers that existed in the superset that were not applied for the subset, the subset configuration was additionally evaluated.
- Both inter-band and intra-band downlink carrier aggregation scenarios were considered.
- Downlink CA combinations for SISO and 4x4 Downlink MIMO operations were measured independently, per May 2017 TCBC Workshop notes.
- The antenna with highest maximum output power for each LTE Band was selected for the PCC configurations of DLCA power measurements.

Table 1 – Example of Exclusion Table for SISO Configurations

| Index   | ACC                                                                                                                                                         | Supported Channel Bandwidth (MHz) | Restriction   | Completely Covered by Measurement Superset |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|---------------|--------------------------------------------|
| 222-41  | CA 2A                                                                                                                                                       | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-42  | CA 2A-2A                                                                                                                                                    | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-43  | CA 2A-2A-2A                                                                                                                                                 | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-44  | CA 2A-2A-2A-2A                                                                                                                                              | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-45  | CA 2A-2A-2A-2A-2A                                                                                                                                           | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-46  | CA 2A-2A-2A-2A-2A-2A                                                                                                                                        | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-47  | CA 2A-2A-2A-2A-2A-2A-2A                                                                                                                                     | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-48  | CA 2A-2A-2A-2A-2A-2A-2A-2A                                                                                                                                  | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-49  | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A                                                                                                                               | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-50  | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A                                                                                                                            | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-51  | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A                                                                                                                         | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-52  | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A                                                                                                                      | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-53  | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A                                                                                                                   | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-54  | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A                                                                                                                | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-55  | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A                                                                                                             | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-56  | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A                                                                                                          | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-57  | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A                                                                                                       | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-58  | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A                                                                                                    | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-59  | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A                                                                                                 | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-60  | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A                                                                                              | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-61  | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A                                                                                           | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-62  | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A                                                                                        | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-63  | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A                                                                                     | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-64  | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A                                                                                  | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-65  | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A                                                                               | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-66  | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A                                                                            | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-67  | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A                                                                         | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-68  | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A                                                                      | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-69  | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A                                                                   | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-70  | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A                                                                | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-71  | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A                                                             | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-72  | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A                                                          | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-73  | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A                                                       | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-74  | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A                                                    | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-75  | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A                                                 | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-76  | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A                                              | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-77  | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A                                           | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-78  | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A                                        | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-79  | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A                                     | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-80  | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A                                  | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-81  | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A                               | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-82  | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A                            | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-83  | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A                         | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-84  | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A                      | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-85  | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A                   | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-86  | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A                | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-87  | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A             | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-88  | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A          | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-89  | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A       | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-90  | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A    | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-91  | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-92  | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A    | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-93  | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-94  | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-95  | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-96  | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-97  | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-98  | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-99  | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-100 | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |

Table 2 – Example of Exclusion Table for 4x4 Downlink MIMO Configurations

| Index   | ACC                                                         | Supported Channel Bandwidth (MHz) | Restriction   | Completely Covered by Measurement Superset |
|---------|-------------------------------------------------------------|-----------------------------------|---------------|--------------------------------------------|
| 222-101 | CA 2A                                                       | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-102 | CA 2A-2A                                                    | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-103 | CA 2A-2A-2A                                                 | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-104 | CA 2A-2A-2A-2A                                              | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-105 | CA 2A-2A-2A-2A-2A                                           | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-106 | CA 2A-2A-2A-2A-2A-2A                                        | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-107 | CA 2A-2A-2A-2A-2A-2A-2A                                     | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-108 | CA 2A-2A-2A-2A-2A-2A-2A-2A                                  | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-109 | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A                               | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-110 | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A                            | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-111 | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A                         | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-112 | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A                      | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-113 | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A                   | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-114 | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A                | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-115 | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A             | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-116 | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A          | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-117 | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A       | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-118 | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A    | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-119 | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-120 | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-121 | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-122 | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |
| 222-123 | CA 2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A-2A | 5, 10, 15, 20                     | 5, 10, 15, 20 | Yes                                        |

## 1.2 LTE Downlink Only Carrier Aggregation Test Selection and Setup

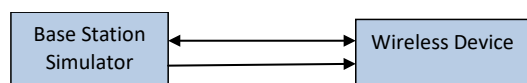
SAR test exclusion for LTE downlink Carrier Aggregation is determined by power measurements according to the number component carriers (CCs) supported by the product implementation. For those configurations required by April 2018 TCBC Workshop Notes, conducted power measurements with LTE Carrier Aggregation (CA) (downlink only) active are made in accordance to KDB Publication 941225 D05Av01r02. The RRC connection is only handled by one cell, the primary component carrier (PCC) for downlink and uplink communications. After making a data connection to the PCC, the UE device adds secondary component carrier(s) (SCC) on the downlink only. All uplink communications and acknowledgements remain identical to specifications when downlink carrier aggregation is inactive on the PCC. Additional conducted output powers are measured with the downlink carrier aggregation active for the configuration with highest measured maximum conducted power with downlink carrier aggregation inactive measured among the channel bandwidth, modulation, and RB combinations in each frequency band.

This device supports LAA with downlink carrier aggregation only. It uses carrier aggregation in the downlink to combine LTE in the unlicensed spectrum (i.e. LTE Band 46) with LTE in the licensed band (served as PCC). All uplink communications and acknowledgements on the PCC remain identical to specifications when downlink carrier aggregation is inactive.

Per FCC KDB Publication 941225 D05Av01r02, no SAR measurements are required for carrier aggregation configurations when the maximum average output power with downlink only carrier aggregation active is not more than 0.25 dB higher than the average output power with downlink only carrier aggregation inactive. All bands required for SAR testing per FCC KDB procedures were considered. Based on the measured maximum powers below, no additional SAR tests were required for DLCA SAR configurations.

General PCC and SCC configuration selection procedure

- PCC uplink channel, channel bandwidth, modulation and RB configurations were selected based on section C)3)b)ii) of KDB 941225 D05 V01r02. The downlink PCC channel was paired with the selected PCC uplink channel according to normal configurations without carrier aggregation.
- To maximize aggregated bandwidth, highest channel bandwidth available for that CA combination was selected for SCC. For inter-band CA, the SCC downlink channels were selected near the middle of their transmission bands. For contiguous intra-band CA, the downlink channel spacing between the component carriers was set to multiple of 300 kHz less than the nominal channel spacing defined in section 5.4.1A of 3GPP TS 36.521. For non-contiguous intra-band CA, the downlink channel spacing between the component carriers was set to be larger than the nominal channel spacing and provided maximum separation between the component carriers.
- All selected PCC and SCC(s) remained fully within the uplink/downlink transmission band of the respective component carrier.



**Figure 1**  
**DL CA Power Measurement Setup**

|                                            |                                                                                                                  |                                        |
|--------------------------------------------|------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| FCC ID: BCGA2230                           |  <b>SAR EVALUATION REPORT</b> | <b>Reviewed by:</b><br>Quality Manager |
| <b>Test Dates:</b><br>12/16/2019-1/14/2020 | <b>DUT Type:</b><br>Tablet Device                                                                                | <b>APPENDIX F:</b><br>Page 2 of 16     |

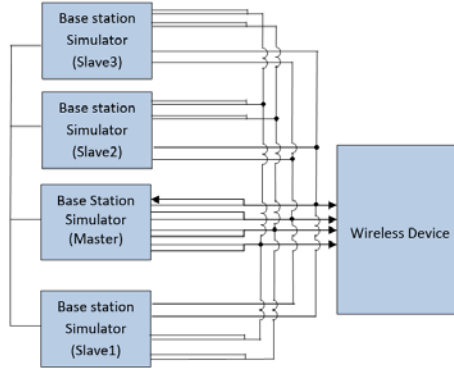


Figure 2  
DL CA with DL 4x4 MIMO Power Measurement Setup

## 1.3 Downlink Carrier Aggregation RF Conducted Powers

### 1.3.1 LTE Band 12 as PCC

Table 1  
Output Powers – Ant 1

| Combination           | PCC Band | PCC BW [MHz] | PCC (UL) Ch. Freq. [MHz] | PCC   |           |                  |                  | SCC 1                |          |              |                  | SCC 2                |          |              |                  | SCC 3                |          |              |                  | SCC 4                |          |              |                  | Power                |                                       |                                   |       |
|-----------------------|----------|--------------|--------------------------|-------|-----------|------------------|------------------|----------------------|----------|--------------|------------------|----------------------|----------|--------------|------------------|----------------------|----------|--------------|------------------|----------------------|----------|--------------|------------------|----------------------|---------------------------------------|-----------------------------------|-------|
|                       |          |              |                          | Mod.  | PCC UL RB | PCC UL RB Offset | PCC (DL) Channel | PCC (DL) Freq. [MHz] | SCC Band | SCC BW [MHz] | SCC (DL) Channel | SCC (DL) Freq. [MHz] | SCC Band | SCC BW [MHz] | SCC (DL) Channel | SCC (DL) Freq. [MHz] | SCC Band | SCC BW [MHz] | SCC (DL) Channel | SCC (DL) Freq. [MHz] | SCC Band | SCC BW [MHz] | SCC (DL) Channel | SCC (DL) Freq. [MHz] | LTE Tx Power with DL CA Enabled (dBm) | LTE Single Carrier Tx Power (dBm) |       |
| CA 2A-12A (1)         | LTE B12  | 5            | 23025                    | 700.5 | 64QAM     | 1                | 7                | 5025                 | 730.5    | LTE B2       | 20               | 900                  | 1960     | -            | -                | -                    | -        | -            | -                | -                    | -        | -            | -                | -                    | 21.46                                 | 21.44                             |       |
| CA 4A-12A (1)         | LTE B12  | 5            | 23025                    | 701.5 | 16QAM     | 1                | 7                | 5025                 | 731.5    | LTE B4       | 20               | 2175                 | 2122.5   | -            | -                | -                    | -        | -            | -                | -                    | -        | -            | -                | -                    | 21.44                                 | 21.44                             |       |
| CA 4A-12A (2)         | LTE B12  | 5            | 23025                    | 700.5 | 64QAM     | 1                | 7                | 5025                 | 730.5    | LTE B4       | 20               | 2175                 | 2122.5   | -            | -                | -                    | -        | -            | -                | -                    | -        | -            | -                | -                    | 21.46                                 | 21.44                             |       |
| CA 12A-2A             | LTE B12  | 5            | 23025                    | 700.5 | 16QAM     | 1                | 24               | 5025                 | 731.5    | LTE B25      | 20               | 6065                 | 1862.5   | -            | -                | -                    | -        | -            | -                | -                    | -        | -            | -                | -                    | 21.44                                 | 21.44                             |       |
| CA 12A-66A            | LTE B12  | 5            | 23025                    | 701.5 | 16QAM     | 1                | 24               | 5025                 | 731.5    | LTE B66      | 20               | 6065                 | 5637.5   | -            | -                | -                    | -        | -            | -                | -                    | -        | -            | -                | -                    | 21.44                                 | 21.44                             |       |
| CA 12A-66A (1)        | LTE B12  | 5            | 23025                    | 700.5 | 16QAM     | 1                | 24               | 5025                 | 731.5    | LTE B66      | 20               | 66785                | 2145     | -            | -                | -                    | -        | -            | -                | -                    | -        | -            | -                | -                    | 21.44                                 | 21.44                             |       |
| CA 12A-66A (2)        | LTE B12  | 5            | 23025                    | 700.5 | 16QAM     | 1                | 7                | 5025                 | 730.5    | LTE B66      | 20               | 66785                | 2145     | -            | -                | -                    | -        | -            | -                | -                    | -        | -            | -                | -                    | 21.46                                 | 21.44                             |       |
| CA 2C-12A             | LTE B12  | 5            | 23025                    | 701.5 | 16QAM     | 1                | 24               | 5025                 | 731.5    | LTE B2       | 20               | 900                  | 1960     | LTE B2       | 20               | 702                  | 1940.2   | -            | -                | -                    | -        | -            | -                | -                    | 21.39                                 | 21.44                             |       |
| CA 2A-2A-12B          | LTE B12  | 5            | 23025                    | 700.5 | 16QAM     | 1                | 24               | 5025                 | 731.5    | LTE B12      | 10               | 5107                 | 738.7    | LTE B2       | 20               | 900                  | 1960     | LTE B2       | 20               | 702                  | 1940     | -            | -                | -                    | 21.37                                 | 21.44                             |       |
| CA 4A-4A-12B          | LTE B12  | 5            | 23025                    | 701.5 | 16QAM     | 1                | 24               | 5025                 | 731.5    | LTE B12      | 10               | 5107                 | 738.7    | LTE B4       | 20               | 2175                 | 2122.5   | LTE B4       | 20               | 2250                 | 2140     | -            | -                | -                    | 21.35                                 | 21.44                             |       |
| CA 2A-2A-12A          | LTE B12  | 5            | 23025                    | 700.5 | 16QAM     | 1                | 24               | 5025                 | 731.5    | LTE B2       | 20               | 900                  | 1960     | LTE B2       | 20               | 702                  | 1940     | LTE B4       | 20               | 2175                 | 2132.5   | -            | -                | -                    | 21.34                                 | 21.44                             |       |
| CA 2A-4A-12A          | LTE B12  | 5            | 23025                    | 701.5 | 16QAM     | 1                | 24               | 5025                 | 731.5    | LTE B2       | 20               | 900                  | 1960     | LTE B4       | 20               | 2175                 | 2122.5   | LTE B4       | 20               | 2175                 | 2132.5   | -            | -                | -                    | 21.31                                 | 21.44                             |       |
| CA 2A-4A-12B          | LTE B12  | 5            | 23025                    | 700.5 | 16QAM     | 1                | 24               | 5025                 | 731.5    | LTE B12      | 10               | 5107                 | 738.7    | LTE B2       | 20               | 900                  | 1960     | LTE B4       | 20               | 2175                 | 2122.5   | -            | -                | -                    | 21.23                                 | 21.44                             |       |
| CA 2A-12A-66C         | LTE B12  | 5            | 23025                    | 700.5 | 16QAM     | 1                | 24               | 5025                 | 731.5    | LTE B2       | 20               | 900                  | 1960     | LTE B66      | 20               | 66785                | 2145     | LTE B66      | 20               | 66785                | 2145     | -            | -                | -                    | 21.27                                 | 21.44                             |       |
| CA 4A-4A-12A-30A      | LTE B12  | 5            | 23025                    | 700.5 | 16QAM     | 1                | 24               | 5025                 | 731.5    | LTE B4       | 20               | 2175                 | 2122.5   | LTE B4       | 20               | 2250                 | 2150     | LTE B30      | 10               | 9620                 | 2395     | -            | -                | -                    | 21.26                                 | 21.44                             |       |
| CA 2A-4A-7A-12A       | LTE B12  | 5            | 23025                    | 700.5 | 16QAM     | 1                | 24               | 5025                 | 731.5    | LTE B2       | 20               | 900                  | 1960     | LTE B4       | 20               | 2175                 | 2122.5   | LTE B7       | 20               | 5000                 | 2665     | -            | -                | -                    | 21.27                                 | 21.44                             |       |
| CA 2A-4A-12A-30A      | LTE B12  | 5            | 23025                    | 701.5 | 16QAM     | 1                | 24               | 5025                 | 731.5    | LTE B2       | 20               | 900                  | 1960     | LTE B4       | 20               | 2175                 | 2122.5   | LTE B30      | 10               | 9620                 | 2395     | -            | -                | -                    | 21.21                                 | 21.44                             |       |
| CA 2A-7A-12A-66A      | LTE B12  | 5            | 23025                    | 701.5 | 16QAM     | 1                | 24               | 5025                 | 731.5    | LTE B2       | 20               | 900                  | 1960     | LTE B7       | 20               | 5100                 | 2655     | LTE B66      | 20               | 66785                | 2145     | -            | -                | -                    | 21.18                                 | 21.44                             |       |
| CA 2A-2A-12A-66A-66A  | LTE B12  | 5            | 23025                    | 701.5 | 16QAM     | 1                | 24               | 5035                 | 731.5    | LTE B2       | 20               | 900                  | 1960     | LTE B2       | 20               | 702                  | 1940     | LTE B66      | 20               | 66785                | 2145     | LTE B66      | 20               | 66785                | 2145                                  | 21.28                             | 21.44 |
| CA 2A-2A-12A-30A-66A  | LTE B12  | 5            | 23025                    | 701.5 | 16QAM     | 1                | 24               | 5035                 | 731.5    | LTE B2       | 20               | 900                  | 1960     | LTE B2       | 20               | 702                  | 1940     | LTE B30      | 10               | 9620                 | 2355     | LTE B66      | 20               | 66785                | 2145                                  | 21.27                             | 21.44 |
| CA 2A-12A-30A-66A-66A | LTE B12  | 5            | 23025                    | 701.5 | 16QAM     | 1                | 24               | 5035                 | 731.5    | LTE B2       | 20               | 900                  | 1960     | LTE B30      | 10               | 9620                 | 2355     | LTE B66      | 20               | 66785                | 2145     | LTE B66      | 20               | 66785                | 2145                                  | 21.26                             | 21.44 |

### 1.3.2 LTE Band 13 as PCC

Table 2  
Output Powers – Ant 1

| Combination       | PCC Band | PCC          |                          |      |           |                  |                  |                      |          | SCC 1        |                  |                      |          | SCC 2        |                  |                      |          | SCC 3        |                  |                      |          | SCC 4        |                  |                      |                                       | Power                             |       |
|-------------------|----------|--------------|--------------------------|------|-----------|------------------|------------------|----------------------|----------|--------------|------------------|----------------------|----------|--------------|------------------|----------------------|----------|--------------|------------------|----------------------|----------|--------------|------------------|----------------------|---------------------------------------|-----------------------------------|-------|
|                   |          | PCC BW [MHz] | PCC (UL) Ch. Freq. [MHz] | Mod. | PCC UL RB | PCC UL RB Offset | PCC (DL) Channel | PCC (DL) Freq. [MHz] | SCC Band | SCC BW [MHz] | SCC (DL) Channel | SCC (DL) Freq. [MHz] | SCC Band | SCC BW [MHz] | SCC (DL) Channel | SCC (DL) Freq. [MHz] | SCC Band | SCC BW [MHz] | SCC (DL) Channel | SCC (DL) Freq. [MHz] | SCC Band | SCC BW [MHz] | SCC (DL) Channel | SCC (DL) Freq. [MHz] | LTE Tx Power with DL CA Enabled (dBm) | LTE Single Carrier Tx Power (dBm) |       |
| CA 4A-4A-13A      | LTE B13  | 10           | 23230                    | 782  | QPSK      | 1                | 0                | 5230                 | 753      | LTE B4       | 20               | 2175                 | 2132.5   | LTE B4       | 20               | 2250                 | 2150     |              |                  |                      |          |              |                  |                      |                                       | 21.07                             | 21.14 |
| CA 2A-4A-13A      | LTE B13  | 10           | 23230                    | 782  | QPSK      | 1                | 0                | 5230                 | 753      | LTE B2       | 20               | 900                  | 1960     | LTE B4       | 20               | 2175                 | 2132.5   |              |                  |                      |          |              |                  |                      |                                       | 21.11                             | 21.14 |
| CA 2A-13A-66A     | LTE B13  | 5            | 23230                    | 782  | 16QAM     | 1                | 24               | 5230                 | 753      | LTE B2       | 20               | 900                  | 1960     | LTE B46      | 20               | 50665                | 5637.5   |              |                  |                      |          |              |                  |                      |                                       | 20.86                             | 21.14 |
| CA 13A-66A-66A    | LTE B13  | 5            | 23230                    | 782  | 16QAM     | 1                | 24               | 5230                 | 753      | LTE B46      | 20               | 50665                | 5637.5   | LTE B46      | 20               | 50665                | 5637.5   |              |                  |                      |          |              |                  |                      |                                       | 20.90                             | 21.14 |
| CA 13A-46A-66A    | LTE B13  | 5            | 23230                    | 782  | 16QAM     | 1                | 24               | 5230                 | 753      | LTE B46      | 20               | 50665                | 5637.5   | LTE B66      | 20               | 66785                | 2145     |              |                  |                      |          |              |                  |                      |                                       | 21.00                             | 21.14 |
| CA 13A-66A-66B    | LTE B13  | 5            | 23230                    | 782  | 16QAM     | 1                | 24               | 5230                 | 753      | LTE B66      | 20               | 66785                | 2145     | LTE B66      | 5                | 67168                | 2183.2   | LTE B66      | 15               | 67235                | 2192.5   |              |                  |                      |                                       | 20.94                             | 21.14 |
| CA 13A-66A-66C    | LTE B13  | 5            | 23230                    | 782  | 16QAM     | 1                | 24               | 5230                 | 753      | LTE B66      | 20               | 66785                | 2145     | LTE B66      | 20               | 66785                | 2145     | LTE B66      | 20               | 66785                | 2145     |              |                  |                      |                                       | 20.88                             | 21.14 |
| CA 2A-2A-13A-66A  | LTE B13  | 5            | 23230                    | 782  | 16QAM     | 1                | 24               | 5230                 | 753      | LTE B2       | 20               | 900                  | 1960     | LTE B2       | 20               | 702                  | 1940     | LTE B66      | 20               | 66785                | 2145     |              |                  |                      |                                       | 20.93                             | 21.14 |
| CA 2A-13A-46C     | LTE B13  | 5            | 23230                    | 782  | 16QAM     | 1                | 24               | 5230                 | 753      | LTE B2       | 20               | 900                  | 1960     | LTE B46      | 20               | 50665                | 5637.5   | LTE B46      | 20               | 50665                | 5637.5   |              |                  |                      |                                       | 20.93                             | 21.14 |
| CA 2A-13A-66A-66A | LTE B13  | 5            | 23230                    | 782  | 16QAM     | 1                | 24               | 5230                 | 753      | LTE B2       | 20               | 900                  | 1960     | LTE B66      | 20               | 66785                | 2145     | LTE B66      | 20               | 66785                | 2145     |              |                  |                      |                                       | 20.91                             | 21.14 |
| CA 2A-13A-66B     | LTE B13  | 5            | 23230                    | 782  | 16QAM     | 1                | 24               | 5230                 | 753      | LTE B2       | 20               | 900                  | 1960     | LTE B66      | 20               | 66785                | 2145     | LTE B66      | 5                | 66875                | 2154.8   |              |                  |                      |                                       | 20.88                             | 21.14 |
| CA 2A-13A-66C     | LTE B13  | 5            | 23230                    | 782  | 16QAM     | 1                | 24               | 5230                 | 753      | LTE B2       | 20               | 900                  | 1960     | LTE B66      | 20               | 66785                | 2145     | LTE B66      | 20               | 66884                | 2164.8   |              |                  |                      |                                       | 20.97                             | 21.14 |
| CA 13A-46C-66A    | LTE B13  | 5            | 23230                    | 782  | 16QAM     | 1                | 24               | 5230                 | 753      | LTE B46      | 20               | 50665                | 5637.5   | LTE B46      | 20               | 50665                | 5637.5   | LTE B66      | 20               | 66785                | 2145     |              |                  |                      |                                       | 20.93                             | 21.14 |
| CA 13A-46C-66B    | LTE B13  | 5            | 23230                    | 782  | 16QAM     | 1                | 24               | 5230                 | 753      | LTE B46      | 20               | 50665                | 5637.5   | LTE B46      | 20               | 50665                | 5637.5   | LTE B66      | 20               | 66785                | 2145     |              |                  |                      |                                       | 21.23                             | 21.14 |
| CA 13A-46C        | LTE B13  | 5            | 23230                    | 782  | 16QAM     | 1                | 24               | 5230                 | 753      | LTE B46      | 20               | 50665                | 5637.5   | LTE B46      | 20               | 50665                | 5637.5   | LTE B46      | 20               | 50665                | 5637.5   |              |                  |                      |                                       | 20.93                             | 21.14 |
| CA 2A-12A-46D     | LTE B13  | 5            | 23230                    | 782  | 16QAM     | 1                | 24               | 5230                 | 753      | LTE B2       | 20               | 900                  | 1960     | LTE B46      | 20               | 50665                | 5637.5   | LTE B46      | 20               | 50665                | 5637.5   | LTE B46      | 20               | 50665                | 5637.5                                | 21.02                             | 21.14 |
| CA 13A-46D-66A    | LTE B13  | 5            | 23230                    | 782  | 16QAM     | 1                | 24               | 5230                 | 753      | LTE B46      | 20               | 50665                | 5637.5   | LTE B46      | 20               | 50665                | 5637.5   | LTE B66      | 20               | 66785                | 2145     |              |                  |                      |                                       | 20.96                             | 21.14 |

|                                     |                                                                                                                         |                       |                                 |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------|-----------------------|---------------------------------|
| FCC ID: BCGA2230                    |  PCTEST<br>Ready to test in a second | SAR EVALUATION REPORT | Reviewed by:<br>Quality Manager |
| Test Dates:<br>12/16/2019-1/14/2020 | DUT Type:<br>Tablet Device                                                                                              |                       | APPENDIX F:<br>Page 3 of 16     |

### 1.3.3

### LTE Band 5 as PCC

**Table 3**  
**Output Powers – Ant 1**

| Combination         | PCC Band | PCC BW [MHz] | PCC (UL) Ch. | PCC   |          |              |                  | PCC UL RB | PCC UL RB Offset | PCC (DL) Channel | PCC (DL) Freq. [MHz] | SCC 1                |          |              |                  | SCC 2                |          |              |                  | SCC 3                |          |              |                  | SCC 4                |       |        |       | LTE Tx Power with DL CA Enabled [dBm] | LTE Single Carrier Tx Power [dBm] |
|---------------------|----------|--------------|--------------|-------|----------|--------------|------------------|-----------|------------------|------------------|----------------------|----------------------|----------|--------------|------------------|----------------------|----------|--------------|------------------|----------------------|----------|--------------|------------------|----------------------|-------|--------|-------|---------------------------------------|-----------------------------------|
|                     |          |              |              | Mod.  | SCC Band | SCC BW [MHz] | SCC (DL) Channel |           |                  |                  |                      | SCC (DL) Freq. [MHz] | SCC Band | SCC BW [MHz] | SCC (DL) Channel | SCC (DL) Freq. [MHz] | SCC Band | SCC BW [MHz] | SCC (DL) Channel | SCC (DL) Freq. [MHz] | SCC Band | SCC BW [MHz] | SCC (DL) Channel | SCC (DL) Freq. [MHz] |       |        |       |                                       |                                   |
| CA 5A-7A            | LTE B5   | 5            | 26025        | B4E.5 | 16QAM    | 1            | 0                | 2625      |                  | 891.5            | LTE B7               | 20                   | 3100     | 2655         | -                | -                    | -        | -            | -                | -                    | -        | -            | -                | -                    | -     | -      | -     | 20.60                                 | 20.60                             |
| CA 5A-25A           | LTE B5   | 5            | 26025        | B4E.5 | 16QAM    | 1            | 0                | 2625      |                  | 891.5            | LTE B25              | 20                   | 8365     | 1962.5       | -                | -                    | -        | -            | -                | -                    | -        | -            | -                | -                    | -     | -      | -     | 20.60                                 | 20.60                             |
| CA 5A-41A           | LTE B5   | 5            | 26025        | B4E.5 | 16QAM    | 1            | 0                | 2625      |                  | 891.5            | LTE B41              | 20                   | 40620    | 2593         | -                | -                    | -        | -            | -                | -                    | -        | -            | -                | -                    | -     | -      | -     | 20.60                                 | 20.60                             |
| CA 5A-46A (1)       | LTE B5   | 5            | 26025        | B4E.5 | 16QAM    | 1            | 0                | 2625      |                  | 891.5            | LTE B46              | 20                   | 50065    | 5537.5       | -                | -                    | -        | -            | -                | -                    | -        | -            | -                | -                    | -     | -      | -     | 20.60                                 | 20.60                             |
| CA 5A-46A           | LTE B5   | 5            | 26025        | B4E.5 | 16QAM    | 1            | 0                | 2625      |                  | 891.5            | LTE B46              | 20                   | 50060    | 5537.5       | -                | -                    | -        | -            | -                | -                    | -        | -            | -                | -                    | -     | -      | -     | 20.60                                 | 20.60                             |
| CA 2C-5A            | LTE B5   | 5            | 26025        | B4E.5 | 16QAM    | 1            | 0                | 2625      |                  | 891.5            | LTE B2               | 20                   | 900      | 1960         | LTE B2           | 20                   | 792      | 1940         | -                | -                    | -        | -            | -                | -                    | -     | -      | -     | 20.35                                 | 20.60                             |
| CA 4A-5B (1)        | LTE B5   | 5            | 26025        | B4E.5 | 16QAM    | 1            | 0                | 2625      |                  | 891.5            | LTE B5               | 5                    | 2577     | 886.7        | LTE B4           | 20                   | 2175     | 2132.5       | -                | -                    | -        | -            | -                | -                    | -     | -      | -     | 20.39                                 | 20.60                             |
| CA 5A-7A-7A         | LTE B5   | 5            | 26025        | B4E.5 | 16QAM    | 1            | 0                | 2625      |                  | 891.5            | LTE B7               | 20                   | 3100     | 2655         | LTE B7           | 20                   | 2850     | 2630         | -                | -                    | -        | -            | -                | -                    | -     | -      | -     | 20.41                                 | 20.60                             |
| CA 5A-7C            | LTE B5   | 5            | 26025        | B4E.5 | 16QAM    | 1            | 0                | 2625      |                  | 891.5            | LTE B7               | 20                   | 3100     | 2655         | LTE B7           | 20                   | 2902     | 2635.2       | -                | -                    | -        | -            | -                | -                    | -     | -      | -     | 20.37                                 | 20.60                             |
| CA 5A-40C (1)       | LTE B5   | 5            | 26025        | B4E.5 | 16QAM    | 1            | 0                | 2625      |                  | 891.5            | LTE B40              | 20                   | 50065    | 5537.5       | LTE B40          | 20                   | 50467    | 5517.7       | -                | -                    | -        | -            | -                | -                    | -     | -      | -     | 20.42                                 | 20.60                             |
| CA 2A-5A-46A        | LTE B5   | 5            | 26025        | B4E.5 | 16QAM    | 1            | 0                | 2625      |                  | 891.5            | LTE B2               | 20                   | 900      | 1960         | LTE B46          | 20                   | 50065    | 5537.5       | -                | -                    | -        | -            | -                | -                    | -     | -      | -     | 20.35                                 | 20.60                             |
| CA 5A-46A-66A       | LTE B5   | 5            | 26025        | B4E.5 | 16QAM    | 1            | 0                | 2625      |                  | 891.5            | LTE B46              | 20                   | 50065    | 5537.5       | LTE B66          | 20                   | 66786    | 2145         | -                | -                    | -        | -            | -                | -                    | -     | -      | -     | 20.34                                 | 20.60                             |
| CA 4A-5B            | LTE B5   | 5            | 26025        | B4E.5 | 16QAM    | 1            | 0                | 2625      |                  | 891.5            | LTE B5               | 10                   | 2553     | 884.3        | LTE B4           | 20                   | 2175     | 2132.5       | LTE B4           | 10                   | 2350     | 2150         | -                | -                    | -     | -      | -     | 20.47                                 | 20.60                             |
| CA 5A-46D (1)       | LTE B5   | 5            | 26025        | B4E.5 | 16QAM    | 1            | 0                | 2625      |                  | 891.5            | LTE B46              | 20                   | 50065    | 5537.5       | LTE B46          | 20                   | 50467    | 5517.7       | LTE B46          | 20                   | 66962    | 2145         | -                | -                    | -     | -      | -     | 20.40                                 | 20.60                             |
| CA 5A-66A-66B       | LTE B5   | 5            | 26025        | B4E.5 | 16QAM    | 1            | 0                | 2625      |                  | 891.5            | LTE B66              | 20                   | 66786    | 2145         | LTE B66          | 5                    | 67169    | 2183.2       | LTE B66          | 15                   | 67261    | 2192.9       | -                | -                    | -     | -      | -     | 20.35                                 | 20.60                             |
| CA 5A-66A-66C       | LTE B5   | 5            | 26025        | B4E.5 | 16QAM    | 1            | 0                | 2625      |                  | 891.5            | LTE B66              | 20                   | 66786    | 2145         | LTE B66          | 20                   | 67038    | 2170.2       | LTE B66          | 20                   | 67236    | 2190         | -                | -                    | -     | -      | -     | 20.46                                 | 20.60                             |
| CA 2A-2A-4A-5A      | LTE B5   | 5            | 26025        | B4E.5 | 16QAM    | 1            | 0                | 2625      |                  | 891.5            | LTE B2               | 20                   | 900      | 1960         | LTE B2           | 20                   | 792      | 1940         | LTE B4           | 20                   | 2175     | 2132.5       | -                | -                    | -     | -      | -     | 20.31                                 | 20.60                             |
| CA 2A-4A-4A-5A      | LTE B5   | 5            | 26025        | B4E.5 | 16QAM    | 1            | 0                | 2625      |                  | 891.5            | LTE B2               | 20                   | 900      | 1960         | LTE B4           | 20                   | 2175     | 2132.5       | LTE B4           | 20                   | 2350     | 2150         | -                | -                    | -     | -      | -     | 20.48                                 | 20.60                             |
| CA 2A-5A            | LTE B5   | 5            | 26025        | B4E.5 | 16QAM    | 1            | 0                | 2625      |                  | 891.5            | LTE B5               | 10                   | 2553     | 884.3        | LTE B2           | 20                   | 900      | 1960         | LTE B4           | 20                   | 2175     | 2132.5       | -                | -                    | -     | -      | -     | 20.45                                 | 20.60                             |
| CA 2A-5A-66C        | LTE B5   | 5            | 26025        | B4E.5 | 16QAM    | 1            | 0                | 2625      |                  | 891.5            | LTE B2               | 20                   | 900      | 1960         | LTE B46          | 20                   | 50065    | 5537.5       | LTE B46          | 20                   | 50467    | 5517.7       | -                | -                    | -     | -      | -     | 20.37                                 | 20.60                             |
| CA 4A-4A-5A-30A     | LTE B5   | 5            | 26025        | B4E.5 | 16QAM    | 1            | 0                | 2625      |                  | 891.5            | LTE B4               | 20                   | 2175     | 2132.5       | LTE B4           | 30                   | 2350     | 2150         | LTE B30          | 10                   | 9820     | 2395         | -                | -                    | -     | -      | -     | 20.36                                 | 20.60                             |
| CA 5A-46C-66A       | LTE B5   | 5            | 26025        | B4E.5 | 16QAM    | 1            | 0                | 2625      |                  | 891.5            | LTE B46              | 20                   | 50065    | 5537.5       | LTE B46          | 20                   | 50467    | 5517.7       | LTE B66          | 20                   | 66786    | 2145         | -                | -                    | -     | -      | -     | 20.49                                 | 20.60                             |
| CA 2A-2A-5A-30A     | LTE B5   | 5            | 26025        | B4E.5 | 16QAM    | 1            | 0                | 2625      |                  | 891.5            | LTE B2               | 20                   | 900      | 1960         | LTE B4           | 20                   | 2175     | 2132.5       | LTE B30          | 10                   | 9820     | 2395         | -                | -                    | -     | -      | -     | 20.27                                 | 20.60                             |
| CA 2A-2A-5A-66B     | LTE B5   | 5            | 26025        | B4E.5 | 16QAM    | 1            | 0                | 2625      |                  | 891.5            | LTE B2               | 20                   | 900      | 1960         | LTE B2           | 20                   | 792      | 1940         | LTE B66          | 20                   | 66786    | 2145         | LTE B66          | 20                   | 67236 | 2190   | 20.43 | 20.60                                 |                                   |
| CA 2A-2A-5A-66C     | LTE B5   | 5            | 26025        | B4E.5 | 16QAM    | 1            | 0                | 2625      |                  | 891.5            | LTE B2               | 20                   | 900      | 1960         | LTE B2           | 20                   | 792      | 1940         | LTE B66          | 15                   | 66786    | 2145         | LTE B66          | 5                    | 66879 | 2154.3 | 20.51 | 20.60                                 |                                   |
| CA 2A-5A-46D        | LTE B5   | 5            | 26025        | B4E.5 | 16QAM    | 1            | 0                | 2625      |                  | 891.5            | LTE B2               | 20                   | 900      | 1960         | LTE B46          | 20                   | 50065    | 5537.5       | LTE B46          | 20                   | 50467    | 5517.7       | -                | -                    | -     | -      | -     | 20.37                                 | 20.60                             |
| CA 2A-5A-66A        | LTE B5   | 5            | 26025        | B4E.5 | 16QAM    | 1            | 0                | 2625      |                  | 891.5            | LTE B2               | 20                   | 900      | 1960         | LTE B4           | 20                   | 2175     | 2132.5       | LTE B30          | 10                   | 9820     | 2395         | -                | -                    | -     | -      | -     | 20.27                                 | 20.60                             |
| CA 2A-2A-5A-66A-66A | LTE B5   | 5            | 26025        | B4E.5 | 16QAM    | 1            | 0                | 2625      |                  | 891.5            | LTE B2               | 20                   | 900      | 1960         | LTE B2           | 20                   | 792      | 1940         | LTE B66          | 20                   | 66786    | 2145         | LTE B66          | 20                   | 67236 | 2190   | 20.43 | 20.60                                 |                                   |
| CA 2A-2A-5A-66B     | LTE B5   | 5            | 26025        | B4E.5 | 16QAM    | 1            | 0                | 2625      |                  | 891.5            | LTE B2               | 20                   | 900      | 1960         | LTE B2           | 20                   | 792      | 1940         | LTE B66          | 15                   | 66786    | 2145         | LTE B66          | 5                    | 66879 | 2154.3 | 20.50 | 20.60                                 |                                   |
| CA 2A-5B-66B        | LTE B5   | 5            | 26025        | B4E.5 | 16QAM    | 1            | 0                | 2625      |                  | 891.5            | LTE B5               | 10                   | 2553     | 884.3        | LTE B2           | 20                   | 900      | 1960         | LTE B66          | 15                   | 66786    | 2145         | LTE B66          | 5                    | 66879 | 2154.3 | 20.50 | 20.60                                 |                                   |
| CA 2A-5B-66C        | LTE B5   | 5            | 26025        | B4E.5 | 16QAM    | 1            | 0                | 2625      |                  | 891.5            | LTE B5               | 10                   | 2553     | 884.3        | LTE B2           | 20                   | 900      | 1960         | LTE B66          | 20                   | 66786    | 2145         | LTE B66          | 20                   | 66964 | 2164.8 | 20.38 | 20.60                                 |                                   |
| CA 5A-46D-66A       | LTE B5   | 5            | 26025        | B4E.5 | 16QAM    | 1            | 0                | 2625      |                  | 891.5            | LTE B46              | 20                   | 50065    | 5537.5       | LTE B46          | 20                   | 50467    | 5517.7       | LTE B46          | 20                   | 50863    | 5557.3       | LTE B66          | 20                   | 66786 | 2145   | 20.49 | 20.60                                 |                                   |
| CA 5B-30A-66A-66A   | LTE B5   | 5            | 26025        | B4E.5 | 16QAM    | 1            | 0                | 2625      |                  | 891.5            | LTE B5               | 10                   | 2553     | 884.3        | LTE B30          | 10                   | 9820     | 2355         | LTE B66          | 20                   | 66786    | 2145         | LTE B66          | 20                   | 67236 | 2190   | 20.36 | 20.60                                 |                                   |
| CA 2A-2A-5A-30A-66A | LTE B5   | 5            | 26025        | B4E.5 | 16QAM    | 1            | 0                | 2625      |                  | 891.5            | LTE B2               | 20                   | 900      | 1960         | LTE B2           | 20                   | 792      | 1940         | LTE B30          | 10                   | 9820     | 2355         | LTE B66          | 20                   | 66786 | 2145   | 20.47 | 20.60                                 |                                   |
| CA 2A-2A-5A-66A-66A | LTE B5   | 5            | 26025        | B4E.5 | 16QAM    | 1            | 0                | 2625      |                  | 891.5            | LTE B2               | 20                   | 900      | 1960         | LTE B30          | 10                   | 9820     | 2355         | LTE B66          | 20                   | 66786    | 2145         | LTE B66          | 20                   | 67236 | 2190   | 20.42 | 20.60                                 |                                   |
| CA 2A-5B-30A-66A    | LTE B5   | 5            | 26025        | B4E.5 | 16QAM    | 1            | 0                | 2625      |                  | 891.5            | LTE B5               | 10                   | 2553     | 884.3        | LTE B2           | 20                   | 900      | 1960         | LTE B30          | 10                   | 9820     | 2355         | LTE B66          | 20                   | 66786 | 2145   | 20.34 | 20.60                                 |                                   |

### 1.3.4

### LTE Band 26 as PCC

**Table 4**  
**Output Powers – Ant 1**

| Combination    | PCC Band | PCC BW [MHz] | PCC (UL) Ch. | PCC   |          |              |                  | PCC (UL) RB | PCC UL RB Offset | PCC (DL) Channel | PCC (DL) Freq. [MHz] | SCC 1                |          |              | SCC 2            |                      |                                       | Power                             |       |       |
|----------------|----------|--------------|--------------|-------|----------|--------------|------------------|-------------|------------------|------------------|----------------------|----------------------|----------|--------------|------------------|----------------------|---------------------------------------|-----------------------------------|-------|-------|
|                |          |              |              | Mod.  | SCC Band | SCC BW [MHz] | SCC (DL) Channel |             |                  |                  |                      | SCC (DL) Freq. [MHz] | SCC Band | SCC BW [MHz] | SCC (DL) Channel | SCC (DL) Freq. [MHz] | LTE Tx Power with DL CA Enabled (dBm) | LTE Single Carrier Tx Power (dBm) |       |       |
| CA 7A-26A      | LTE B26  | 10           | 26990        | 844   | QPSK     | 25           | 25               | 8990        |                  | 889              | LTE B7               | 20                   | 3100     | 2655         | -                | -                    | -                                     | -                                 | 20.59 | 20.60 |
| CA 25A-26A     | LTE B26  | 10           | 26990        | 844   | QPSK     | 25           | 25               | 8990        |                  | 889              | LTE B25              | 20                   | 8365     | 1962.5       | -                | -                    | -                                     | -                                 | 20.52 | 20.60 |
| CA 26A-41A     | LTE B26  | 10           | 26990        | 844   | QPSK     | 25           | 25               | 8990        |                  | 889              | LTE B41              | 20                   | 40620    | 2593         | -                | -                    | -                                     | -                                 | 20.60 | 20.60 |
| CA 7A-7A-26A   | LTE B26  | 10           | 26990        | 844   | QPSK     | 25           | 25               | 8990        |                  | 889              | LTE B7               | 20                   | 3100     | 2655         | LTE B7           | 20                   | 2850                                  | 2630                              | 20.58 | 20.60 |
| CA 25A-25A-26A | LTE B26  | 5            | 26715        | 816.5 | 16QAM    | 1            | 0                | 8715        |                  | 861.5            | LTE B25              | 20                   | 8365     | 1962.5       | LTE B25          | 20                   | 8590                                  | 1985                              | 20.55 | 20.60 |
| CA 26A-41C     | LTE B26  | 10           | 26990        | 844   | QPSK     | 25           | 25               | 8990        |                  | 889              | LTE B41              | 20                   | 40620    | 2593         | LTE B41          | 20                   | 40422                                 | 2573.2                            | 20.60 | 20.60 |

|                                     |                                                                                                                               |                       |                                 |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|-----------------------|---------------------------------|
| FCC ID: BCGA2230                    |  <b>PCTEST</b><br>Ready for your next test | SAR EVALUATION REPORT | Reviewed by:<br>Quality Manager |
| Test Dates:<br>12/16/2019-1/14/2020 | DUT Type:<br>Tablet Device                                                                                                    |                       | APPENDIX F:<br>Page 4 of 16     |

**Table 5**  
**Output Powers – Ant 2B**

|                                     |                                                                                                                                                       |                             |                                 |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|---------------------------------|
| FCC ID: BCGA2230                    |  <b>PCTEST</b><br><small>Passing the point to the customer</small> | SAR EVALUATION REPORT       | Reviewed by:<br>Quality Manager |
| Test Dates:<br>12/16/2019-1/14/2020 | DUT Type:<br>Tablet Device                                                                                                                            | APPENDIX F:<br>Page 5 of 16 |                                 |

## 1.3.6

## LTE Band 25 as PCC

Table 6  
Output Powers – Ant 2A

| Combination    | PCC      |              |              |                      |       |           |                  |                  |                      |          | SCC 1        |                  |                      |          | SCC 2        |                  |                      |          | SCC 3        |                  |                      |          | SCC 4        |                  |                      |                                                | Power                             |       |       |
|----------------|----------|--------------|--------------|----------------------|-------|-----------|------------------|------------------|----------------------|----------|--------------|------------------|----------------------|----------|--------------|------------------|----------------------|----------|--------------|------------------|----------------------|----------|--------------|------------------|----------------------|------------------------------------------------|-----------------------------------|-------|-------|
|                | PCC Band | PCC BW [MHz] | PCC [UL] Ch. | PCC [UL] Freq. [MHz] | Mod.  | PCC UL RB | PCC UL RB Offset | PCC [DL] Channel | PCC [DL] Freq. [MHz] | SCC Band | SCC BW [MHz] | SCC [DL] Channel | SCC [DL] Freq. [MHz] | SCC Band | SCC BW [MHz] | SCC [DL] Channel | SCC [DL] Freq. [MHz] | SCC Band | SCC BW [MHz] | SCC [DL] Channel | SCC [DL] Freq. [MHz] | SCC Band | SCC BW [MHz] | SCC [DL] Channel | SCC [DL] Freq. [MHz] | LTE Tx Power with DL CA Carrier Tx Power (dBm) | LTE Single Carrier Tx Power (dBm) |       |       |
| CA 5A-25A      | LTE B25  | 20           | 26590        | 1905                 | 16QAM | 1         | 99               | 8590             | 1985                 | LTE B5   | 10           | 2525             | 881.5                | -        | -            | -                | -                    | -        | -            | -                | -                    | -        | -            | -                | -                    | -                                              | 15.10                             | 15.10 |       |
| CA 12A-25A     | LTE B7   | 20           | 26590        | 1905                 | 16QAM | 1         | 99               | 8590             | 1985                 | LTE B2   | 10           | 5005             | 737.5                | -        | -            | -                | -                    | -        | -            | -                | -                    | -        | -            | -                | -                    | -                                              | 15.10                             | 15.10 |       |
| CA 25A-26A     | LTE B25  | 20           | 26590        | 1905                 | 16QAM | 1         | 99               | 8590             | 1985                 | LTE B25  | 10           | 8865             | 876.5                | -        | -            | -                | -                    | -        | -            | -                | -                    | -        | -            | -                | -                    | -                                              | 15.10                             | 15.10 |       |
| CA 25A-46A     | LTE B25  | 20           | 26590        | 1905                 | 16QAM | 1         | 99               | 8590             | 1985                 | LTE B46  | 20           | 5005             | 5637.5               | -        | -            | -                | -                    | -        | -            | -                | -                    | -        | -            | -                | -                    | -                                              | 15.10                             | 15.10 |       |
| CA 25A-25A-25A | LTE B25  | 20           | 26590        | 1905                 | 16QAM | 1         | 99               | 8590             | 1985                 | LTE B25  | 20           | 8140             | 1940                 | LTE B26  | 5            | 8865             | 876.5                | -        | -            | -                | -                    | -        | -            | -                | -                    | -                                              | -                                 | 14.84 | 15.10 |
| CA 25A-25A-41A | LTE B25  | 20           | 26590        | 1905                 | 16QAM | 1         | 99               | 8590             | 1985                 | LTE B25  | 20           | 8140             | 1940                 | LTE B41  | 20           | 40020            | 2093                 | -        | -            | -                | -                    | -        | -            | -                | -                    | -                                              | -                                 | 14.94 | 15.10 |
| CA 25A-41C     | LTE B25  | 20           | 26590        | 1905                 | 16QAM | 1         | 99               | 8590             | 1985                 | LTE B41  | 20           | 40020            | 2093                 | LTE B41  | 20           | 40020            | 2093.2               | -        | -            | -                | -                    | -        | -            | -                | -                    | -                                              | -                                 | 14.88 | 15.10 |
| CA 25A-46C     | LTE B25  | 20           | 26590        | 1905                 | 16QAM | 1         | 99               | 8590             | 1985                 | LTE B46  | 20           | 5005             | 5637.5               | LTE B46  | 20           | 50067            | 5617.7               | -        | -            | -                | -                    | -        | -            | -                | -                    | -                                              | -                                 | 14.91 | 15.10 |
| CA 25A-25A-41C | LTE B25  | 20           | 26590        | 1905                 | 16QAM | 1         | 99               | 8590             | 1985                 | LTE B25  | 20           | 8140             | 1940                 | LTE B41  | 20           | 40020            | 2093                 | LTE B41  | 20           | 40020            | 2093                 | LTE B41  | 20           | 40020            | 2093.2               | -                                              | -                                 | 14.71 | 15.10 |
| CA 25A-46C     | LTE B25  | 20           | 26590        | 1905                 | 16QAM | 1         | 99               | 8590             | 1985                 | LTE B46  | 20           | 5005             | 5637.5               | LTE B46  | 20           | 50067            | 5617.7               | LTE B46  | 20           | 50067            | 5617.7               | LTE B46  | 20           | 50067            | 5617.7               | -                                              | -                                 | 14.91 | 15.10 |
| CA 25A-25A-41D | LTE B25  | 20           | 26590        | 1905                 | 16QAM | 1         | 99               | 8590             | 1985                 | LTE B25  | 20           | 8140             | 1940                 | LTE B41  | 20           | 40020            | 2093.2               | LTE B41  | 20           | 40020            | 2093                 | LTE B41  | 20           | 40018            | 2612.8               | -                                              | -                                 | 13.08 | 15.10 |

## 1.3.7

## LTE Band 30 as PCC

Table 7  
Output Powers – Ant 4B

| Combination           | PCC Band | PCC BW [MHz] | PCC [UL] Ch. | PCC [UL] Freq. [MHz] | PCC   |           |                  |                  | SCC 1                |          |              |                  | SCC 2                |          |              |                  | SCC 3                |          |              |                  | SCC 4                |          |              |                  | Power                |                                       |                                   |       |       |
|-----------------------|----------|--------------|--------------|----------------------|-------|-----------|------------------|------------------|----------------------|----------|--------------|------------------|----------------------|----------|--------------|------------------|----------------------|----------|--------------|------------------|----------------------|----------|--------------|------------------|----------------------|---------------------------------------|-----------------------------------|-------|-------|
|                       |          |              |              |                      | Mod.  | PCC UL RB | PCC UL RB Offset | PCC [DL] Channel | PCC [DL] Freq. [MHz] | SCC Band | SCC BW [MHz] | SCC [DL] Channel | SCC [DL] Freq. [MHz] | SCC Band | SCC BW [MHz] | SCC [DL] Channel | SCC [DL] Freq. [MHz] | SCC Band | SCC BW [MHz] | SCC [DL] Channel | SCC [DL] Freq. [MHz] | SCC Band | SCC BW [MHz] | SCC [DL] Channel | SCC [DL] Freq. [MHz] | LTE Tx Power with DL CA Enabled (dBm) | LTE Single Carrier Tx Power (dBm) |       |       |
| CA 2C-30A             | LTE B30  | 10           | 27710        | 2310                 | 16QAM | 1         | 25               | 9820             | 2365                 | LTE B2   | 10           | 900              | 1980                 | LTE B2   | 10           | 900              | 1940.2               | -        | -            | -                | -                    | -        | -            | -                | -                    | -                                     | 13.98                             | 13.98 |       |
| CA 2A-2A-30A-30A      | LTE B30  | 10           | 27710        | 2310                 | 16QAM | 1         | 25               | 9820             | 2365                 | LTE B2   | 10           | 900              | 1980                 | LTE B2   | 10           | 900              | 1940                 | LTE B29  | 10           | 9715             | 722.5                | -        | -            | -                | -                    | -                                     | -                                 | 13.50 | 13.50 |
| CA 4A-4A-30A-30A      | LTE B30  | 10           | 27710        | 2310                 | 16QAM | 1         | 25               | 9820             | 2365                 | LTE B4   | 20           | 2175             | 2132.5               | LTE B4   | 10           | 2050             | 2100                 | LTE B5   | 10           | 2525             | 881.5                | -        | -            | -                | -                    | -                                     | -                                 | 13.48 | 13.50 |
| CA 4A-4A-12A-30A      | LTE B30  | 10           | 27710        | 2310                 | 16QAM | 1         | 25               | 9820             | 2365                 | LTE B4   | 20           | 2175             | 2132.5               | LTE B4   | 10           | 2050             | 2100                 | LTE B12  | 10           | 5005             | 737.5                | -        | -            | -                | -                    | -                                     | -                                 | 13.48 | 13.50 |
| CA 2A-4A-30A-30A      | LTE B30  | 10           | 27710        | 2310                 | 16QAM | 1         | 25               | 9820             | 2365                 | LTE B2   | 10           | 900              | 1980                 | LTE B4   | 20           | 2175             | 2132.5               | LTE B5   | 10           | 2525             | 881.5                | -        | -            | -                | -                    | -                                     | -                                 | 13.48 | 13.50 |
| CA 2A-4A-12A-30A      | LTE B30  | 10           | 27710        | 2310                 | 16QAM | 1         | 25               | 9820             | 2365                 | LTE B2   | 10           | 900              | 1980                 | LTE B4   | 20           | 2175             | 2132.5               | LTE B12  | 10           | 5005             | 737.5                | -        | -            | -                | -                    | -                                     | -                                 | 13.47 | 13.50 |
| CA 2A-4A-30A-30A-66A  | LTE B30  | 10           | 27710        | 2310                 | 16QAM | 1         | 25               | 9820             | 2365                 | LTE B2   | 10           | 900              | 1980                 | LTE B4   | 20           | 2175             | 2132.5               | LTE B29  | 10           | 9715             | 722.5                | -        | -            | -                | -                    | -                                     | -                                 | 13.47 | 13.50 |
| CA 2A-2A-30A-66A      | LTE B30  | 10           | 27710        | 2310                 | 16QAM | 1         | 25               | 9820             | 2365                 | LTE B2   | 10           | 900              | 1980                 | LTE B29  | 10           | 9715             | 722.5                | LTE B66  | 20           | 66786            | 2146                 | -        | -            | -                | -                    | -                                     | -                                 | 13.49 | 13.50 |
| CA 5B-30A-66A-66A     | LTE B30  | 10           | 27710        | 2310                 | 16QAM | 1         | 25               | 9820             | 2365                 | LTE B5   | 10           | 2525             | 881.5                | LTE B5   | 5            | 2403             | 874.3                | LTE B66  | 20           | 66786            | 2145                 | LTE B66  | 20           | 66786            | 2145                 | -                                     | -                                 | 13.48 | 13.50 |
| CA 2A-2A-30A-30A-66A  | LTE B30  | 10           | 27710        | 2310                 | 16QAM | 1         | 25               | 9820             | 2365                 | LTE B2   | 10           | 900              | 1980                 | LTE B12  | 10           | 5005             | 737.5                | LTE B66  | 20           | 66786            | 2145                 | LTE B66  | 20           | 66786            | 2145                 | -                                     | -                                 | 13.49 | 13.50 |
| CA 2A-2A-12A-30A-66A  | LTE B30  | 10           | 27710        | 2310                 | 16QAM | 1         | 25               | 9820             | 2365                 | LTE B2   | 10           | 900              | 1980                 | LTE B5   | 10           | 2525             | 881.5                | LTE B66  | 20           | 66786            | 2145                 | LTE B66  | 20           | 66786            | 2145                 | -                                     | -                                 | 13.50 | 13.50 |
| CA 2A-5B-30A-66A      | LTE B30  | 10           | 27710        | 2310                 | 16QAM | 1         | 25               | 9820             | 2365                 | LTE B2   | 10           | 900              | 1980                 | LTE B5   | 10           | 2525             | 881.5                | LTE B66  | 20           | 66786            | 2145                 | LTE B66  | 20           | 66786            | 2145                 | -                                     | -                                 | 13.48 | 13.50 |
| CA 2A-12A-30A-66A-66A | LTE B30  | 10           | 27710        | 2310                 | 16QAM | 1         | 25               | 9820             | 2365                 | LTE B2   | 10           | 900              | 1980                 | LTE B12  | 10           | 5005             | 737.5                | LTE B66  | 20           | 66786            | 2145                 | LTE B66  | 20           | 66786            | 2145                 | -                                     | -                                 | 13.47 | 13.50 |

## 1.3.8

## LTE Band 7 as PCC

Table 8  
Output Powers – Ant 4B

| Combination      | PCC Band | PCC          |             |                      |      |           |                  |                  |                      |          |              | SCC 1            |                      |          |              | SCC 2            |                      |          |              | SCC 3            |                      |          |              | SCC 4            |                      |                                       |                                   | Power |       |       |
|------------------|----------|--------------|-------------|----------------------|------|-----------|------------------|------------------|----------------------|----------|--------------|------------------|----------------------|----------|--------------|------------------|----------------------|----------|--------------|------------------|----------------------|----------|--------------|------------------|----------------------|---------------------------------------|-----------------------------------|-------|-------|-------|
|                  |          | PCC BW [MHz] | PCC [UL] Ch | PCC [UL] Freq. [MHz] | Mod. | PCC UL RB | PCC UL RB Offset | PCC [DL] Channel | PCC [DL] Freq. [MHz] | SCC Band | SCC BW [MHz] | SCC [DL] Channel | SCC [DL] Freq. [MHz] | SCC Band | SCC BW [MHz] | SCC [DL] Channel | SCC [DL] Freq. [MHz] | SCC Band | SCC BW [MHz] | SCC [DL] Channel | SCC [DL] Freq. [MHz] | SCC Band | SCC BW [MHz] | SCC [DL] Channel | SCC [DL] Freq. [MHz] | LTE Tx Power with DL CA Enabled (dBm) | LTE Single Carrier Tx Power (dBm) |       |       |       |
| CA 7B            | LTE B7   | 15           | 21100       | 2535                 | QPSK | 1         | 74               | 3100             | 2655                 | LTE B7   | 5            | 3007             | 2646.7               | -        | -            | -                | -                    | -        | -            | -                | -                    | -        | -            | -                | -                    | -                                     | 13.07                             | 13.13 |       |       |
| CA 5A-7A         | LTE B7   | 20           | 21100       | 2535                 | QPSK | 50        | 0                | 3100             | 2655                 | LTE B5   | 10           | 2525             | 881.5                | -        | -            | -                | -                    | -        | -            | -                | -                    | -        | -            | -                | -                    | -                                     | 13.19                             | 13.24 |       |       |
| CA 7A-26A        | LTE B7   | 20           | 21100       | 2535                 | QPSK | 50        | 0                | 3100             | 2655                 | LTE B26  | 10           | 8865             | 876.5                | -        | -            | -                | -                    | -        | -            | -                | -                    | -        | -            | -                | -                    | -                                     | 13.22                             | 13.24 |       |       |
| CA 7A-46A (1)    | LTE B7   | 20           | 21100       | 2535                 | QPSK | 50        | 0                | 3100             | 2655                 | LTE B46  | 20           | 5005             | 5637.5               | -        | -            | -                | -                    | -        | -            | -                | -                    | -        | -            | -                | -                    | -                                     | 13.26                             | 13.24 |       |       |
| CA 4A-4A-7A (1)  | LTE B7   | 20           | 21100       | 2535                 | QPSK | 50        | 0                | 3100             | 2655                 | LTE B4   | 20           | 2175             | 2132.5               | LTE B4   | 10           | 2050             | 2100                 | -        | -            | -                | -                    | -        | -            | -                | -                    | -                                     | -                                 | 13.16 | 13.24 |       |
| CA 5A-7A-7A      | LTE B7   | 20           | 21100       | 2535                 | QPSK | 50        | 0                | 3100             | 2655                 | LTE B7   | 20           | 2650             | 2630                 | LTE B5   | 10           | 2525             | 881.5                | -        | -            | -                | -                    | -        | -            | -                | -                    | -                                     | -                                 | 13.20 | 13.24 |       |
| CA 5A-7C         | LTE B7   | 20           | 21100       | 2535                 | QPSK | 50        | 0                | 3100             | 2655                 | LTE B7   | 20           | 2650             | 2630.5               | LTE B5   | 10           | 2525             | 881.5                | -        | -            | -                | -                    | -        | -            | -                | -                    | -                                     | -                                 | 13.26 | 13.24 |       |
| CA 7A-7A-26A     | LTE B7   | 20           | 21100       | 2535                 | QPSK | 50        | 0                | 3100             | 2655                 | LTE B7   | 20           | 2650             | 2630                 | LTE B26  | 10           | 8865             | 876.5                | -        | -            | -                | -                    | -        | -            | -                | -                    | -                                     | -                                 | 13.25 | 13.24 |       |
| CA 7A-46C (1)    | LTE B7   | 20           | 21100       | 2535                 | QPSK | 50        | 0                | 3100             | 2655                 | LTE B46  | 20           | 5005             | 5637.5               | LTE B46  | 20           | 50067            | 5617.7               | -        | -            | -                | -                    | -        | -            | -                | -                    | -                                     | -                                 | 13.26 | 13.24 |       |
| CA 7C-46A        | LTE B7   | 20           | 21100       | 2535                 | QPSK | 50        | 0                | 3100             | 2655                 | LTE B7   | 20           | 2650             | 2630.5               | LTE B46  | 20           | 5005             | 5637.5               | -        | -            | -                | -                    | -        | -            | -                | -                    | -                                     | -                                 | 13.20 | 13.24 |       |
| CA 7A-46D (1)    | LTE B7   | 20           | 21100       | 2535                 | QPSK | 50        | 0                | 3100             | 2655                 | LTE B46  | 20           | 5005             | 5637.5               | LTE B46  | 20           | 50067            | 5617.7               | LTE B46  | 20           | 50065            | 5637.5               | -        | -            | -                | -                    | -                                     | -                                 | 13.23 | 13.24 |       |
| CA 7C-46C        | LTE B7   | 20           | 21100       | 2535                 | QPSK | 50        | 0                | 3100             | 2655                 | LTE B7   | 20           | 2650             | 2630.5               | LTE B46  | 20           | 50065            | 5637.5               | LTE B46  | 20           | 50067            | 5617.7               | -        | -            | -                | -                    | -                                     | -                                 | 13.21 | 13.24 |       |
| CA 2A-4A-7A-7A   | LTE B7   | 20           | 21100       | 2535                 | QPSK | 50        | 0                | 3100             | 2655                 | LTE B7   | 20           | 2650             | 2630                 | LTE B2   | 10           | 900              | 1960                 | LTE B4   | 20           | 2175             | 2132.5               | -        | -            | -                | -                    | -                                     | -                                 | -     | 13.17 | 13.24 |
| CA 2A-4A-7C      | LTE B7   | 20           | 21100       | 2535                 | QPSK | 50        | 0                | 3100             | 2655                 | LTE B7   | 20           | 2650             | 2630.5               | LTE B2   | 10           | 900              | 1960                 | LTE B4   | 20           | 2175             | 2132.5               | -        | -            | -                | -                    | -                                     | -                                 | -     | 13.18 | 13.24 |
| CA 2A-4A-7A-12A  | LTE B7   | 20           | 21100       | 2535                 | QPSK | 50        | 0                | 3100             | 2655                 | LTE B2   | 10           | 900              | 1960                 | LTE B4   | 20           | 2175             | 2132.5               | LTE B12  | 10           | 5005             | 737.5                | -        | -            | -                | -                    | -                                     | -                                 | -     | 13.16 | 13.24 |
| CA 2A-7A-7A-66A  | LTE B7   | 20           | 21100       | 2535                 | QPSK | 50        | 0                | 3100             | 2655                 | LTE B7   | 20           | 2650             | 2630                 | LTE B6   | 10           | 900              | 1960                 | LTE B66  | 20           | 66786            | 2146                 | -        | -            | -                | -                    | -                                     | -                                 | -     | 13.17 | 13.24 |
| CA 2A-7A-12A-66A | LTE B7   | 20           | 21100       | 2535                 | QPSK | 50        | 0                | 3100             | 2655                 | LTE B2   | 10           | 900              | 1960                 | LTE B12  | 10           | 5005             | 737.5                | LTE B66  | 20           | 66786            | 2146                 | -        | -            | -                | -                    | -                                     | -                                 | -     | 13.20 | 13.24 |
| CA 7C-46D        | LTE B7   | 20           | 21100       | 2535                 | QPSK | 50        | 0                | 3100             | 2655                 | LTE B7   | 20           | 2650             | 2630.5               | LTE B46  | 20           | 5005             | 5637.5               | -        | -            | -                | -                    | -        | -            | -                | -                    | -                                     | -                                 | 13.17 | 13.24 |       |

## 1.3.9

## LTE Band 41 as PCC

Table 9  
Output Powers – Ant 4B

| Combination    | PCC Band | PCC BW [MHz] | PCC [U] Ch. | PCC                 |           |           |                  | PCC [U] Freq. [MHz] | Mod. | PCC UL RB | PCC UL RB Offset | PCC [D] Channel | PCC [D] Freq. [MHz] | SCC 1    |              | SCC 2           |                     | SCC 3    |              | SCC 4           |                     | Power    |              |                 |                     |                                          |                                   |   |   |   |       |       |       |       |
|----------------|----------|--------------|-------------|---------------------|-----------|-----------|------------------|---------------------|------|-----------|------------------|-----------------|---------------------|----------|--------------|-----------------|---------------------|----------|--------------|-----------------|---------------------|----------|--------------|-----------------|---------------------|------------------------------------------|-----------------------------------|---|---|---|-------|-------|-------|-------|
|                |          |              |             | PCC [U] Freq. [MHz] | PCC UL RB | PCC UL RB | PCC UL RB Offset |                     |      |           |                  |                 |                     | SCC Band | SCC BW [MHz] | SCC [D] Channel | SCC [D] Freq. [MHz] | SCC Band | SCC BW [MHz] | SCC [D] Channel | SCC [D] Freq. [MHz] | SCC Band | SCC BW [MHz] | SCC [D] Channel | SCC [D] Freq. [MHz] | LTE Tx Power with CA Carrier Power (dBm) | LTE Single Carrier Tx Power (dBm) |   |   |   |       |       |       |       |
| CA 41A-41A (I) | LTE B41  | 20           | 40620       | 2593                | 15QAM     | 1         | 0                | 40620               | 2593 | LTE B41   | 20               | 41490           | 2080                | -        | -            | -               | -                   | -        | -            | -               | -                   | -        | -            | -               | -                   | -                                        | -                                 | - | - | - | 15.80 | 15.80 |       |       |
| CA 5A-41A      | LTE B41  | 20           | 40620       | 2593                | 15QAM     | 1         | 0                | 40620               | 2593 | LTE B5    | 10               | 2520            | 881.5               | -        | -            | -               | -                   | -        | -            | -               | -                   | -        | -            | -               | -                   | -                                        | -                                 | - | - | - | 15.80 | 15.80 |       |       |
| CA 26A-41A     | LTE B41  | 20           | 40620       | 2593                | 15QAM     | 1         | 0                | 40620               | 2593 | LTE B35   | 10               | 8865            | 876.5               | -        | -            | -               | -                   | -        | -            | -               | -                   | -        | -            | -               | -                   | -                                        | -                                 | - | - | - | 15.80 | 15.80 |       |       |
| CA 41A-41C     | LTE B41  | 20           | 40620       | 2593                | 15QAM     | 1         | 0                | 40620               | 2593 | LTE B41   | 20               | 41502           | 2060.2              | LTE B41  | 20           | 41490           | 2080                | -        | -            | -               | -                   | -        | -            | -               | -                   | -                                        | -                                 | - | - | - | -     | 15.87 | 15.80 |       |
| CA 41C-41A     | LTE B41  | 20           | 40620       | 2593                | 15QAM     | 1         | 0                | 40620               | 2593 | LTE B41   | 20               | 40818           | 2612.8              | LTE B41  | 20           | 41490           | 2080                | -        | -            | -               | -                   | -        | -            | -               | -                   | -                                        | -                                 | - | - | - | -     | 15.80 | 15.80 |       |
| CA 26A-26A-41A | LTE B41  | 20           | 40620       | 2593                | 15QAM     | 1         | 0                | 40620               | 2593 | LTE B25   | 20               | 8865            | 1862.5              | LTE B25  | 20           | 8865            | 1865                | -        | -            | -               | -                   | -        | -            | -               | -                   | -                                        | -                                 | - | - | - | -     | 15.80 | 15.80 |       |
| CA 26A-41C     | LTE B41  | 20           | 40620       | 2593                | 15QAM     | 1         | 0                | 40620               | 2593 | LTE B41   | 20               | 40818           | 2612.8              | LTE B25  | 20           | 8865            | 1862.5              | -        | -            | -               | -                   | -        | -            | -               | -                   | -                                        | -                                 | - | - | - | -     | 15.80 | 15.80 |       |
| CA 26A-41C     | LTE B41  | 20           | 40620       | 2593                | 15QAM     | 1         | 0                | 40620               | 2593 | LTE B41   | 20               | 40818           | 2612.8              | LTE B25  | 20           | 8865            | 1865                | -        | -            | -               | -                   | -        | -            | -               | -                   | -                                        | -                                 | - | - | - | -     | 15.80 | 15.80 |       |
| CA 41E         | LTE B41  | 20           | 40620       | 2593                | 15QAM     | 1         | 0                | 40620               | 2593 | LTE B41   | 20               | 40422           | 2573.2              | LTE B41  | 20           | 40818           | 2612.8              | LTE B41  | 20           | 41502           | 2062.2              | LTE B41  | 20           | 41490           | 2080                | -                                        | -                                 | - | - | - | -     | -     | 15.80 | 15.80 |
| CA 41A-41D     | LTE B41  | 20           | 40620       | 2593                | 15QAM     | 1         | 0                | 40620               | 2593 | LTE B41   | 20               | 41094           | 2640.4              | LTE B41  | 20           | 41502           | 2062.2              | LTE B41  | 20           | 41490           | 2080                | -        | -            | -               | -                   | -                                        | -                                 | - | - | - | -     | -     | 15.80 | 15.80 |
| CA 41D-41A     | LTE B41  | 20           | 40620       | 2593                | 15QAM     | 1         | 0                | 40620               | 2593 | LTE B41   | 20               | 40422           | 2573.2              | LTE B41  | 20           | 40818           | 2612.8              | LTE B41  | 20           | 41490           | 2080                | -        | -            | -               | -                   | -                                        | -                                 | - | - | - | -     | -     | 15.80 | 15.80 |
| CA 41C-41C     | LTE B41  | 20           | 40620       | 2593                | 15QAM     | 1         | 0                | 40620               | 2593 | LTE B41   | 20               | 40422           | 2573.2              | LTE B41  | 20           | 41502           | 2062.2              | LTE B41  | 20           | 41490           | 2080                | -        | -            | -               | -                   | -                                        | -                                 | - | - | - | -     | -     | 15.80 | 15.80 |
| CA 26A-26A-41C | LTE B41  | 20           | 40620       | 2593                | 15QAM     | 1         | 0                | 40620               | 2593 | LTE B41   | 20               | 40422           | 2573.2              | LTE B25  | 20           | 8865            | 1862.5              | LTE B25  | 20           | 8865            | 1865                | -        | -            | -               | -                   | -                                        | -                                 | - | - | - | -     | -     | 15.80 | 15.80 |
| CA 41C-41D     | LTE B41  | 20           | 40620       | 2593                | 15QAM     | 1         | 0                | 40620               | 2593 | LTE B41   | 20               | 40422           | 2573.2              | LTE B41  | 20           | 41094           | 2640.4              | LTE B41  | 20           | 41502           | 2062.2              | LTE B41  | 20           | 41490           | 2080                | -                                        | -                                 | - | - | - | -     | -     | 15.80 | 15.80 |
| CA 41D-41C     | LTE B41  | 20           | 40620       | 2593                | 15QAM     | 1         | 0                | 40620               | 2593 | LTE B41   | 20               | 40422           | 2573.2              | LTE B41  | 20           | 40818           | 2612.8              | LTE B41  | 20           | 41292           | 2660.2              | LTE B41  | 20           | 41490           | 2080                | -                                        | -                                 | - | - | - | -     | -     | 15.80 | 15.80 |
| CA 26A-26A-41D | LTE B41  | 20           | 40620       | 2593                | 15QAM     | 1         | 0                | 40620               | 2593 | LTE B41   | 20               | 40422           | 2573.2              | LTE B41  | 20           | 40818           | 2612.8              | LTE B25  | 20           | 8865            | 1862.5              | LTE B25  | 20           | 8865            | 1865                | -                                        | -                                 | - | - | - | -     | -     | 15.80 | 15.80 |

## 1.3.10

## LTE Band 41 PC2 as PCC

Table 10  
Output Powers – Ant 4B

| Combination    | PCC Band    | PCC BW [MHz] | PCC [U] Ch. | PCC                 |            |           |                  | Mod.  | PCC UL RB | PCC UL RB Offset | PCC [D] Channel | PCC [D] Freq. [MHz] | SCC 1    |              | SCC 2           |                     | SCC 3    |              | SCC 4           |                     | Power    |              |                 |                     |                                          |                                   |   |   |   |   |       |       |       |       |
|----------------|-------------|--------------|-------------|---------------------|------------|-----------|------------------|-------|-----------|------------------|-----------------|---------------------|----------|--------------|-----------------|---------------------|----------|--------------|-----------------|---------------------|----------|--------------|-----------------|---------------------|------------------------------------------|-----------------------------------|---|---|---|---|-------|-------|-------|-------|
|                |             |              |             | SCC [U] Freq. [MHz] | SCC [U] RB | SCC UL RB | SCC UL RB Offset |       |           |                  |                 |                     | SCC Band | SCC BW [MHz] | SCC [D] Channel | SCC [D] Freq. [MHz] | SCC Band | SCC BW [MHz] | SCC [D] Channel | SCC [D] Freq. [MHz] | SCC Band | SCC BW [MHz] | SCC [D] Channel | SCC [D] Freq. [MHz] | LTE Tx Power with CA Carrier Power (dBm) | LTE Single Carrier Tx Power (dBm) |   |   |   |   |       |       |       |       |
| CA 41A-41A (I) | LTE B41 PC2 | 20           | 40620       | 2593                | 64QAM      | 1         | 0                | 40620 | 2593      | LTE B41 PC2      | 20              | 41490               | 2080     | -            | -               | -                   | -        | -            | -               | -                   | -        | -            | -               | -                   | -                                        | -                                 | - | - | - | - | 15.80 | 15.80 |       |       |
| CA 5A-41A      | LTE B41 PC2 | 20           | 40620       | 2593                | 64QAM      | 1         | 0                | 40620 | 2593      | LTE B5           | 10              | 2520                | 881.5    | -            | -               | -                   | -        | -            | -               | -                   | -        | -            | -               | -                   | -                                        | -                                 | - | - | - | - | 15.80 | 15.80 |       |       |
| CA 26A-41A     | LTE B41 PC2 | 20           | 40620       | 2593                | 64QAM      | 1         | 0                | 40620 | 2593      | LTE B35          | 10              | 8865                | 876.5    | -            | -               | -                   | -        | -            | -               | -                   | -        | -            | -               | -                   | -                                        | -                                 | - | - | - | - | 15.80 | 15.80 |       |       |
| CA 41A-41C     | LTE B41 PC2 | 20           | 40620       | 2593                | 64QAM      | 1         | 0                | 40620 | 2593      | LTE B41 PC2      | 20              | 41502               | 2060.2   | LTE B41 PC2  | 20              | 41490               | 2080     | -            | -               | -                   | -        | -            | -               | -                   | -                                        | -                                 | - | - | - | - | -     | 15.80 | 15.80 |       |
| CA 41C-41A     | LTE B41 PC2 | 20           | 40620       | 2593                | 64QAM      | 1         | 0                | 40620 | 2593      | LTE B41 PC2      | 20              | 40818               | 2612.8   | LTE B41 PC2  | 20              | 41490               | 2080     | -            | -               | -                   | -        | -            | -               | -                   | -                                        | -                                 | - | - | - | - | -     | 15.80 | 15.80 |       |
| CA 26A-26A-41A | LTE B41 PC2 | 20           | 40620       | 2593                | 64QAM      | 1         | 0                | 40620 | 2593      | LTE B25          | 20              | 8865                | 1862.5   | LTE B25      | 20              | 8865                | 1865     | -            | -               | -                   | -        | -            | -               | -                   | -                                        | -                                 | - | - | - | - | -     | 15.80 | 15.80 |       |
| CA 26A-41C     | LTE B41 PC2 | 20           | 40620       | 2593                | 64QAM      | 1         | 0                | 40620 | 2593      | LTE B41 PC2      | 20              | 40818               | 2612.8   | LTE B25      | 20              | 8865                | 1862.5   | -            | -               | -                   | -        | -            | -               | -                   | -                                        | -                                 | - | - | - | - | -     | 15.80 | 15.80 |       |
| CA 26A-41C     | LTE B41 PC2 | 20           | 40620       | 2593                | 64QAM      | 1         | 0                | 40620 | 2593      | LTE B41 PC2      | 20              | 40818               | 2612.8   | LTE B25      | 20              | 8865                | 1865     | -            | -               | -                   | -        | -            | -               | -                   | -                                        | -                                 | - | - | - | - | -     | 15.80 | 15.80 |       |
| CA 41E         | LTE B41 PC2 | 20           | 40620       | 2593                | 64QAM      | 1         | 0                | 40620 | 2593      | LTE B41 PC2      | 20              | 40422               | 2573.2   | LTE B41 PC2  | 20              | 40818               | 2612.8   | LTE B41 PC2  | 20              | 41502               | 2062.2   | LTE B41 PC2  | 20              | 41490               | 2080                                     | -                                 | - | - | - | - | -     | 15.80 | 15.80 |       |
| CA 41A-41D     | LTE B41 PC2 | 20           | 40620       | 2593                | 64QAM      | 1         | 0                | 40620 | 2593      | LTE B41 PC2      | 20              | 41094               | 2640.4   | LTE B41 PC2  | 20              | 41502               | 2060.2   | LTE B41 PC2  | 20              | 41490               | 2080     | -            | -               | -                   | -                                        | -                                 | - | - | - | - | -     | -     | 15.80 | 15.80 |
| CA 41D-41A     | LTE B41 PC2 | 20           | 40620       | 2593                | 64QAM      | 1         | 0                | 40620 | 2593      | LTE B41 PC2      | 20              | 40422               | 2573.2   | LTE B41 PC2  | 20              | 40818               | 2612.8   | LTE B41 PC2  | 20              | 41490               | 2080     | -            | -               | -                   | -                                        | -                                 | - | - | - | - | -     | -     | 15.80 | 15.80 |
| CA 41C-41C     | LTE B41 PC2 | 20           | 40620       | 2593                | 64QAM      | 1         | 0                | 40620 | 2593      | LTE B41 PC2      | 20              | 40422               | 2573.2   | LTE B41 PC2  | 20              | 41502               | 2062.2   | LTE B41 PC2  | 20              | 41490               | 2080     | -            | -               | -                   | -                                        | -                                 | - | - | - | - | -     | -     | 15.80 | 15.80 |
| CA 26A-26A-41C | LTE B41 PC2 | 20           | 40620       | 2593                | 64QAM      | 1         | 0                | 40620 | 2593      | LTE B41 PC2      | 20              | 40422               | 2573.2   | LTE B25      | 20              | 8865                | 1862.5   | LTE B25      | 20              | 8865                | 1865     | -            | -               | -                   | -                                        | -                                 | - | - | - | - | -     | -     | 15.80 | 15.80 |
| CA 41C-41D     | LTE B41 PC2 | 20           | 40620       | 2593                | 64QAM      | 1         | 0                | 40620 | 2593      | LTE B41 PC2      | 20              | 40422               | 2573.2   | LTE B41 PC2  | 20              | 41094               | 2640.4   | LTE B41 PC2  | 20              | 41502               | 2062.2   | LTE B41 PC2  | 20              | 41490               | 2080                                     | -                                 | - | - | - | - | -     | -     | 15.80 | 15.80 |
| CA 41D-41C     | LTE B41 PC2 | 20           | 40620       | 2593                | 64QAM      | 1         | 0                | 40620 | 2593      | LTE B41 PC2      | 20              | 40422               | 2573.2   | LTE B41 PC2  | 20              | 40818               | 2612.8   | LTE B41 PC2  | 20              | 41292               | 2660.2   | LTE B41 PC2  | 20              | 41490               | 2080                                     | -                                 | - | - | - | - | -     | -     | 15.80 | 15.80 |
| CA 26A-26A-41D | LTE B41 PC2 | 20           | 40620       | 2593                | 64QAM      | 1         | 0                | 40620 | 2593      | LTE B41 PC2      | 20              | 40422               | 2573.2   | LTE B41 PC2  | 20              | 40818               | 2612.8   | LTE B25      | 20              | 8865                | 1862.5   | LTE B25      | 20              | 8865                | 1865                                     | -                                 | - | - | - | - | -     | -     | 15.80 | 15.80 |

## 1.3.11

## LTE Band 48 as PCC

Table 11  
Output Powers – Ant 3

| Combination                                                   | PCC Band | PCC BW [MHz] | PCC          |              |       |                  |           |                  |                      |          |              |                  | SCC 1                |          | SCC 2        |                  | SCC 3                |          | SCC 4        |                  | SCC 5                |          | LTE Tx Power with CA Carrier Power (dBm) | LTE Single Carrier Tx Power (dBm) |              |                  |                      |   |   |   |       |       |       |       |       |
|---------------------------------------------------------------|----------|--------------|--------------|--------------|-------|------------------|-----------|------------------|----------------------|----------|--------------|------------------|----------------------|----------|--------------|------------------|----------------------|----------|--------------|------------------|----------------------|----------|------------------------------------------|-----------------------------------|--------------|------------------|----------------------|---|---|---|-------|-------|-------|-------|-------|
|                                                               |          |              | PCC [DL] Ch. | PCC [UL] Ch. | Mod.  | PCC UL RB Offset | PCC UL RB | PCC [DL] Channel | PCC [DL] Freq. [MHz] | SCC Band | SCC BW [MHz] | SCC [DL] Channel | SCC [DL] Freq. [MHz] | SCC Band | SCC BW [MHz] | SCC [DL] Channel | SCC [DL] Freq. [MHz] | SCC Band | SCC BW [MHz] | SCC [DL] Channel | SCC [DL] Freq. [MHz] | SCC Band |                                          |                                   | SCC BW [MHz] | SCC [DL] Channel | SCC [DL] Freq. [MHz] |   |   |   |       |       |       |       |       |
| CA 5A-48A                                                     | LTE B48  | 20           | 56207        | 3646.7       | 64QAM | 1                | 0         | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | -        | -            | -                | -                    | -        | -            | -                | -                    | -        | -                                        | -                                 | -            | -                | -                    | - | - | - | 16.50 | 16.50 |       |       |       |
| CA 2A-48A-48A                                                 | LTE B48  | 20           | 56207        | 3646.7       | 64QAM | 1                | 0         | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B2   | 20           | 900              | 1860                 | -        | -            | -                | -                    | -        | -                                        | -                                 | -            | -                | -                    | - | - | - | -     | 16.50 | 16.50 |       |       |
| CA 13A-48A-48A                                                | LTE B48  | 20           | 56207        | 3646.7       | 64QAM | 1                | 0         | 56207            | 3646.7               | LTE B13  | 10           | 5230             | 751                  | LTE B56  | 20           | 66766            | 2145                 | LTE B56  | 20           | 66766            | 2145                 | -        | -                                        | -                                 | -            | -                | -                    | - | - | - | -     | 16.50 | 16.50 |       |       |
| CA 48A-48A-48A-48A                                            | LTE B48  | 20           | 56207        | 3646.7       | 64QAM | 1                | 0         | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B56  | 20           | 67226            | 2100                 | -        | -                                        | -                                 | -            | -                | -                    | - | - | - | -     | -     | 16.50 | 16.50 |       |
| CA 48A-48C-48A                                                | LTE B48  | 20           | 56207        | 3646.7       | 64QAM | 1                | 0         | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B56  | 20           | 67226            | 2100                 | -        | -                                        | -                                 | -            | -                | -                    | - | - | - | -     | -     | 16.50 | 16.50 |       |
| CA 48C-48A-48A                                                | LTE B48  | 20           | 56207        | 3646.7       | 64QAM | 1                | 0         | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B56  | 20           | 67226            | 2100                 | -        | -                                        | -                                 | -            | -                | -                    | - | - | - | -     | -     | 16.50 | 16.50 |       |
| CA 48C-48C-48A                                                | LTE B48  | 20           | 56207        | 3646.7       | 64QAM | 1                | 0         | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B56  | 20           | 67226            | 2100                 | -        | -                                        | -                                 | -            | -                | -                    | - | - | - | -     | -     | 16.50 | 16.50 |       |
| CA 13A-48A-48A                                                | LTE B48  | 20           | 56207        | 3646.7       | 64QAM | 1                | 0         | 56207            | 3646.7               | LTE B13  | 10           | 5230             | 751                  | LTE B56  | 20           | 66766            | 2145                 | LTE B56  | 20           | 66766            | 2145                 | -        | -                                        | -                                 | -            | -                | -                    | - | - | - | -     | -     | 16.50 | 16.50 |       |
| CA 2A-48A-48A-48A                                             | LTE B48  | 20           | 56207        | 3646.7       | 64QAM | 1                | 0         | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B56  | 20           | 67226            | 2100                 | -        | -                                        | -                                 | -            | -                | -                    | - | - | - | -     | -     | -     | 16.50 | 16.50 |
| CA 2A-48C                                                     | LTE B48  | 20           | 56207        | 3646.7       | 64QAM | 1                | 0         | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B2   | 20           | 900              | 1860                 | -        | -            | -                | -                    | -        | -                                        | -                                 | -            | -                | -                    | - | - | - | -     | -     | 16.50 | 16.50 |       |
| CA 48C-48C                                                    | LTE B48  | 20           | 56207        | 3646.7       | 64QAM | 1                | 0         | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B2   | 20           | 900              | 1860                 | -        | -            | -                | -                    | -        | -                                        | -                                 | -            | -                | -                    | - | - | - | -     | -     | 16.50 | 16.50 |       |
| CA 13A-48C-48A                                                | LTE B48  | 20           | 56207        | 3646.7       | 64QAM | 1                | 0         | 56207            | 3646.7               | LTE B13  | 10           | 5230             | 751                  | LTE B56  | 20           | 66766            | 2145                 | LTE B56  | 20           | 66766            | 2145                 | -        | -                                        | -                                 | -            | -                | -                    | - | - | - | -     | -     | 16.50 | 16.50 |       |
| CA 2A-48A-48C-48A                                             | LTE B48  | 20           | 56207        | 3646.7       | 64QAM | 1                | 0         | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B56  | 20           | 67226            | 2100                 | -        | -                                        | -                                 | -            | -                | -                    | - | - | - | -     | -     | -     | 16.50 | 16.50 |
| CA 2A-48A-48C-48C                                             | LTE B48  | 20           | 56207        | 3646.7       | 64QAM | 1                | 0         | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B56  | 20           | 67226            | 2100                 | -        | -                                        | -                                 | -            | -                | -                    | - | - | - | -     | -     | -     | 16.50 | 16.50 |
| CA 2A-48A-48C-48A-48A                                         | LTE B48  | 20           | 56207        | 3646.7       | 64QAM | 1                | 0         | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B56  | 20           | 67226            | 2100                 | -        | -                                        | -                                 | -            | -                | -                    | - | - | - | -     | -     | -     | 16.50 | 16.50 |
| CA 2A-48A-48C-48A-48C                                         | LTE B48  | 20           | 56207        | 3646.7       | 64QAM | 1                | 0         | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B56  | 20           | 67226            | 2100                 | -        | -                                        | -                                 | -            | -                | -                    | - | - | - | -     | -     | -     | 16.50 | 16.50 |
| CA 2A-48A-48C-48A-48A-48A                                     | LTE B48  | 20           | 56207        | 3646.7       | 64QAM | 1                | 0         | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B56  | 20           | 67226            | 2100                 | -        | -                                        | -                                 | -            | -                | -                    | - | - | - | -     | -     | -     | 16.50 | 16.50 |
| CA 2A-48A-48C-48A-48A-48C                                     | LTE B48  | 20           | 56207        | 3646.7       | 64QAM | 1                | 0         | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B56  | 20           | 67226            | 2100                 | -        | -                                        | -                                 | -            | -                | -                    | - | - | - | -     | -     | -     | 16.50 | 16.50 |
| CA 2A-48A-48C-48A-48A-48A-48A                                 | LTE B48  | 20           | 56207        | 3646.7       | 64QAM | 1                | 0         | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B56  | 20           | 67226            | 2100                 | -        | -                                        | -                                 | -            | -                | -                    | - | - | - | -     | -     | -     | 16.50 | 16.50 |
| CA 2A-48A-48C-48A-48A-48A-48C                                 | LTE B48  | 20           | 56207        | 3646.7       | 64QAM | 1                | 0         | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B56  | 20           | 67226            | 2100                 | -        | -                                        | -                                 | -            | -                | -                    | - | - | - | -     | -     | -     | 16.50 | 16.50 |
| CA 2A-48A-48C-48A-48A-48A-48A-48A                             | LTE B48  | 20           | 56207        | 3646.7       | 64QAM | 1                | 0         | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B56  | 20           | 67226            | 2100                 | -        | -                                        | -                                 | -            | -                | -                    | - | - | - | -     | -     | -     | 16.50 | 16.50 |
| CA 2A-48A-48C-48A-48A-48A-48A-48C                             | LTE B48  | 20           | 56207        | 3646.7       | 64QAM | 1                | 0         | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B56  | 20           | 67226            | 2100                 | -        | -                                        | -                                 | -            | -                | -                    | - | - | - | -     | -     | -     | 16.50 | 16.50 |
| CA 2A-48A-48C-48A-48A-48A-48A-48A-48A                         | LTE B48  | 20           | 56207        | 3646.7       | 64QAM | 1                | 0         | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B56  | 20           | 67226            | 2100                 | -        | -                                        | -                                 | -            | -                | -                    | - | - | - | -     | -     | -     | 16.50 | 16.50 |
| CA 2A-48A-48C-48A-48A-48A-48A-48A-48C                         | LTE B48  | 20           | 56207        | 3646.7       | 64QAM | 1                | 0         | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B56  | 20           | 67226            | 2100                 | -        | -                                        | -                                 | -            | -                | -                    | - | - | - | -     | -     | -     | 16.50 | 16.50 |
| CA 2A-48A-48C-48A-48A-48A-48A-48A-48A-48A                     | LTE B48  | 20           | 56207        | 3646.7       | 64QAM | 1                | 0         | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B56  | 20           | 67226            | 2100                 | -        | -                                        | -                                 | -            | -                | -                    | - | - | - | -     | -     | -     | 16.50 | 16.50 |
| CA 2A-48A-48C-48A-48A-48A-48A-48A-48A-48C                     | LTE B48  | 20           | 56207        | 3646.7       | 64QAM | 1                | 0         | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B56  | 20           | 67226            | 2100                 | -        | -                                        | -                                 | -            | -                | -                    | - | - | - | -     | -     | -     | 16.50 | 16.50 |
| CA 2A-48A-48C-48A-48A-48A-48A-48A-48A-48A-48A                 | LTE B48  | 20           | 56207        | 3646.7       | 64QAM | 1                | 0         | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B56  | 20           | 67226            | 2100                 | -        | -                                        | -                                 | -            | -                | -                    | - | - | - | -     | -     | -     | 16.50 | 16.50 |
| CA 2A-48A-48C-48A-48A-48A-48A-48A-48A-48A-48C                 | LTE B48  | 20           | 56207        | 3646.7       | 64QAM | 1                | 0         | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B56  | 20           | 67226            | 2100                 | -        | -                                        | -                                 | -            | -                | -                    | - | - | - | -     | -     | -     | 16.50 | 16.50 |
| CA 2A-48A-48C-48A-48A-48A-48A-48A-48A-48A-48A-48A             | LTE B48  | 20           | 56207        | 3646.7       | 64QAM | 1                | 0         | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B56  | 20           | 67226            | 2100                 | -        | -                                        | -                                 | -            | -                | -                    | - | - | - | -     | -     | -     | 16.50 | 16.50 |
| CA 2A-48A-48C-48A-48A-48A-48A-48A-48A-48A-48A-48C             | LTE B48  | 20           | 56207        | 3646.7       | 64QAM | 1                | 0         | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B56  | 20           | 67226            | 2100                 | -        | -                                        | -                                 | -            | -                | -                    | - | - | - | -     | -     | -     | 16.50 | 16.50 |
| CA 2A-48A-48C-48A-48A-48A-48A-48A-48A-48A-48A-48A-48A         | LTE B48  | 20           | 56207        | 3646.7       | 64QAM | 1                | 0         | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B56  | 20           | 67226            | 2100                 | -        | -                                        | -                                 | -            | -                | -                    | - | - | - | -     | -     | -     | 16.50 | 16.50 |
| CA 2A-48A-48C-48A-48A-48A-48A-48A-48A-48A-48A-48A-48C         | LTE B48  | 20           | 56207        | 3646.7       | 64QAM | 1                | 0         | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B56  | 20           | 67226            | 2100                 | -        | -                                        | -                                 | -            | -                | -                    | - | - | - | -     | -     | -     | 16.50 | 16.50 |
| CA 2A-48A-48C-48A-48A-48A-48A-48A-48A-48A-48A-48A-48A-48A     | LTE B48  | 20           | 56207        | 3646.7       | 64QAM | 1                | 0         | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B56  | 20           | 67226            | 2100                 | -        | -                                        | -                                 | -            | -                | -                    | - | - | - | -     | -     | -     | 16.50 | 16.50 |
| CA 2A-48A-48C-48A-48A-48A-48A-48A-48A-48A-48A-48A-48A-48C     | LTE B48  | 20           | 56207        | 3646.7       | 64QAM | 1                | 0         | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B56  | 20           | 67226            | 2100                 | -        | -                                        | -                                 | -            | -                | -                    | - | - | - | -     | -     | -     | 16.50 | 16.50 |
| CA 2A-48A-48C-48A-48A-48A-48A-48A-48A-48A-48A-48A-48A-48A-48A | LTE B48  | 20           | 56207        | 3646.7       | 64QAM | 1                | 0         | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B56  | 20           | 67226            | 2100                 | -        | -                                        | -                                 | -            | -                | -                    | - | - | - | -     | -     | -     | 16.50 | 16.50 |
| CA 2A-48A-48C-48A-48A-48A-48A-48A-48A-48A-48A-48A-48A-48C     | LTE B48  | 20           | 56207        | 3646.7       | 64QAM | 1                | 0         | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B56  | 20           | 67226            | 2100                 | -        | -                                        | -                                 | -            | -                | -                    | - | - | - | -     | -     | -     | 16.50 | 16.50 |
| CA 2A-48A-48C-48A-48A-48A-48A-48A-48A-48A-48A-48A-48A-48A-48A | LTE B48  | 20           | 56207        | 3646.7       | 64QAM | 1                | 0         | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B56  | 20           | 67226            | 2100                 | -        | -                                        | -                                 | -            | -                | -                    | - | - | - | -     | -     | -     | 16.50 | 16.50 |
| CA 2A-48A-48C-48A-48A-48A-48A-48A-48A-48A-48A-48A-48A-48C     | LTE B48  | 20           | 56207        | 3646.7       | 64QAM | 1                | 0         | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B56  | 20           | 67226            | 2100                 | -        | -                                        | -                                 | -            | -                | -                    | - | - | - | -     | -     | -     | 16.50 | 16.50 |
| CA 2A-48A-48C-48A-48A-48A-48A-48A-48A-48A-48A-48A-48A-48A-48A | LTE B48  | 20           | 56207        | 3646.7       | 64QAM | 1                | 0         | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B48  | 20           | 56207            | 3646.7               | LTE B56  | 20           | 67226            | 2100                 | -        | -                                        | -                                 | -            | -                | -                    | - | - | - | -     | -     | -     | 16.50 | 16.50 |
| CA 2A-48A-48C-48A-48A-48A-48A-48A-48A-48A-48A-48A-48A-48C     | LTE B48  | 20           | 56207        | 3646.7       | 64QAM | 1                | 0         | 56207            | 3646.7               |          |              |                  |                      |          |              |                  |                      |          |              |                  |                      |          |                                          |                                   |              |                  |                      |   |   |   |       |       |       |       |       |

## 1.4 DL CA with DL 4x4 MIMO RF Conduction Powers

This device supports downlink 4x4 MIMO operations for some LTE bands. Uplink transmission is limited to a single output stream. When carrier aggregation was applicable, the general test selection and setup procedures described in Section 1.2 were applied.

Per May 2017 TCB Workshop Notes, SAR for 4x4 DL MIMO was not needed since the maximum average output power in 4x4 DL MIMO mode was not more than 0.25 dB higher than the maximum output power with 4x4 DL MIMO inactive. Additionally, SAR for 4x4 MIMO Downlink Carrier Aggregation was not needed since the maximum average output power in 4x4 MIMO Downlink Carrier Aggregation mode was not more than 0.25 dB higher than the maximum output power with 4x4 MIMO Downlink and downlink carrier aggregation inactive.

### 1.4.1 LTE 4x4 MIMO DL Standalone Powers

Table 12  
Output Powers – Ant 3

| LTE Band | Bandwidth [MHz] | Channel | Frequency [MHz] | Modulation | RB Size | RB Offset | 4x4 DL MIMO Tx. Power [dBm] | Single Antenna Tx. Power [dBm] | Maximum Allowed Power [dBm] |
|----------|-----------------|---------|-----------------|------------|---------|-----------|-----------------------------|--------------------------------|-----------------------------|
| 48       | 20              | 56207   | 3646.7          | 64QAM      | 1       | 99        | 16.50                       | 16.50                          | 16.50                       |

Table 13  
Output Powers – Ant 2A

| LTE Band | Bandwidth [MHz] | Channel | Frequency [MHz] | Modulation | RB Size | RB Offset | 4x4 DL MIMO Tx. Power [dBm] | Single Antenna Tx. Power [dBm] | Maximum Allowed Power [dBm] |
|----------|-----------------|---------|-----------------|------------|---------|-----------|-----------------------------|--------------------------------|-----------------------------|
| 25       | 20              | 26590   | 1905            | 16QAM      | 1       | 99        | 14.98                       | 15.10                          | 15.10                       |

Table 14  
Output Powers – Ant 2B

| LTE Band | Bandwidth [MHz] | Channel | Frequency [MHz] | Modulation | RB Size | RB Offset | 4x4 DL MIMO Tx. Power [dBm] | Single Antenna Tx. Power [dBm] | Maximum Allowed Power [dBm] |
|----------|-----------------|---------|-----------------|------------|---------|-----------|-----------------------------|--------------------------------|-----------------------------|
| 66       | 20              | 132072  | 1720            | 16QAM      | 1       | 50        | 14.54                       | 14.60                          | 14.90                       |

|                                     |                                                                                                           |                                 |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: BCGA2230                    |  SAR EVALUATION REPORT | Reviewed by:<br>Quality Manager |
| Test Dates:<br>12/16/2019-1/14/2020 | DUT Type:<br>Tablet Device                                                                                | APPENDIX F:<br>Page 8 of 16     |

**Table 15**  
**Output Powers – Ant 4B**

| LTE Band | Bandwidth [MHz] | Channel | Frequency [MHz] | Modulation | RB Size | RB Offset | 4x4 DL MIMO Tx. Power [dBm] | Single Antenna Tx. Power [dBm] | Maximum Power [dBm] |
|----------|-----------------|---------|-----------------|------------|---------|-----------|-----------------------------|--------------------------------|---------------------|
| 7        | 20              | 21100   | 2535            | QPSK       | 50      | 0         | 13.26                       | 13.24                          | 13.30               |
| 30       | 10              | 27710   | 2310            | 16QAM      | 1       | 25        | 13.47                       | 13.50                          | 13.70               |
| 41       | 20              | 40620   | 2593            | 16QAM      | 1       | 0         | 15.81                       | 15.90                          | 15.90               |
| 41 PC2   | 20              | 40620   | 2593            | 64QAM      | 1       | 0         | 15.78                       | 15.90                          | 15.90               |

|                                            |                                                                                                                                                       |                              |                                        |
|--------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|----------------------------------------|
| FCC ID: BCGA2230                           |  <b>PCTEST</b><br><small>Providing the best test solutions</small> | <b>SAR EVALUATION REPORT</b> | <b>Reviewed by:</b><br>Quality Manager |
| <b>Test Dates:</b><br>12/16/2019-1/14/2020 | <b>DUT Type:</b><br>Tablet Device                                                                                                                     |                              | APPENDIX F:<br>Page 9 of 16            |

## LTE Band 12 as PCC

**Table 16**  
**Output Powers – Ant 1**

[illegible]

## LTE Band 13 as PCC

**Table 17**  
**Output Powers – Ant 1**

| Combination        | PCC Band | PCC BW [MHz] | PCC [DL] Ch. | PCC [UL] Freq. [MHz] | Mod.   | PCC UAR RB | PCC UL RB Offset | PCC [DL] Ch. | PCC [DL] Freq. [MHz] | DL Ant. Config. | SCC 1    |              |              |                 | SCC 2    |              |              |                 | SCC 3    |              |              |                 | SCC 4    |              |              |                 | Power              |                                |
|--------------------|----------|--------------|--------------|----------------------|--------|------------|------------------|--------------|----------------------|-----------------|----------|--------------|--------------|-----------------|----------|--------------|--------------|-----------------|----------|--------------|--------------|-----------------|----------|--------------|--------------|-----------------|--------------------|--------------------------------|
|                    |          |              |              |                      |        |            |                  |              |                      |                 | SCC Band | SCC BW [MHz] | SCC [DL] Ch. | DL Ant. Config. | SCC Band | SCC BW [MHz] | SCC [DL] Ch. | DL Ant. Config. | SCC Band | SCC BW [MHz] | SCC [DL] Ch. | DL Ant. Config. | SCC Band | SCC BW [MHz] | SCC [DL] Ch. | DL Ant. Config. | LTE Tx Power [dBm] | LTE Single Carrier Power (dBm) |
| CA [4A]-[4A]-[13A] | LTE B13  | 10           | 21320        | 782                  | QPSK   | 1          | 0                | 5230         | 751                  | 2x2             | LTE B4   | 20           | 21175        | 2112.5          | 4x4      | LTE B4       | 20           | 2130            | 2150     | 4x4          |              |                 |          |              |              |                 | 21.14              | 21.14                          |
| CA [2A]-[4A]-[13A] | LTE B13  | 10           | 21320        | 782                  | QPSK   | 1          | 0                | 5230         | 751                  | 2x2             | LTE B2   | 20           | 900          | 1380            | 4x4      | LTE B4       | 20           | 2115            | 2132.5   | 4x4          |              |                 |          |              |              |                 | 21.13              | 21.14                          |
| CA [2A]-[4A]-[6A]  | LTE B13  | 10           | 21320        | 782                  | QPSK   | 1          | 0                | 5230         | 751                  | 2x2             | LTE B4   | 20           | 900          | 1380            | 4x4      | LTE B4       | 20           | 2130            | 2150     | 4x4          |              |                 |          |              |              |                 | 21.13              | 21.14                          |
| CA [2A]-[4A]-[6A]  | LTE B13  | 10           | 21320        | 782                  | QPSK   | 1          | 24               | 5230         | 751                  | 2x2             | LTE B4   | 20           | 900          | 1380            | 4x4      | LTE B4       | 20           | 2130            | 2150     | 4x4          |              |                 |          |              |              |                 | 21.13              | 21.14                          |
| CA [3A]-[4A]-[6A]  | LTE B13  | 10           | 21320        | 782                  | QPSK   | 1          | 24               | 5230         | 751                  | 2x2             | LTE B4   | 20           | 900          | 1380            | 4x4      | LTE B4       | 20           | 2130            | 2150     | 4x4          |              |                 |          |              |              |                 | 21.13              | 21.14                          |
| CA [3A]-[4A]-[6A]  | LTE B13  | 10           | 21320        | 782                  | QPSK   | 1          | 24               | 5230         | 751                  | 2x2             | LTE B4   | 20           | 900          | 1380            | 4x4      | LTE B4       | 20           | 2130            | 2150     | 4x4          |              |                 |          |              |              |                 | 21.13              | 21.14                          |
| CA [3A]-[4A]-[6A]  | LTE B13  | 10           | 21320        | 782                  | QPSK   | 1          | 24               | 5230         | 751                  | 2x2             | LTE B4   | 20           | 900          | 1380            | 4x4      | LTE B4       | 20           | 2130            | 2150     | 4x4          |              |                 |          |              |              |                 | 21.13              | 21.14                          |
| CA [3A]-[4A]-[6A]  | LTE B13  | 10           | 21320        | 782                  | QPSK   | 1          | 24               | 5230         | 751                  | 2x2             | LTE B4   | 20           | 900          | 1380            | 4x4      | LTE B4       | 20           | 2130            | 2150     | 4x4          |              |                 |          |              |              |                 | 21.13              | 21.14                          |
| CA [2A]-[2A]-[6A]  | LTE B13  | 10           | 21320        | 782                  | QPSK   | 1          | 0                | 5230         | 751                  | 2x2             | LTE B4   | 20           | 900          | 1380            | 4x4      | LTE B4       | 20           | 2130            | 2150     | 4x4          |              |                 |          |              |              |                 | 21.13              | 21.14                          |
| CA [2A]-[2A]-[6A]  | LTE B13  | 10           | 21320        | 782                  | QPSK   | 1          | 0                | 5230         | 751                  | 2x2             | LTE B4   | 20           | 900          | 1380            | 4x4      | LTE B4       | 20           | 2130            | 2150     | 4x4          |              |                 |          |              |              |                 | 21.13              | 21.14                          |
| CA [2A]-[2A]-[6A]  | LTE B13  | 10           | 21320        | 782                  | QPSK   | 1          | 0                | 5230         | 751                  | 2x2             | LTE B4   | 20           | 900          | 1380            | 4x4      | LTE B4       | 20           | 2130            | 2150     | 4x4          |              |                 |          |              |              |                 | 21.13              | 21.14                          |
| CA [2A]-[2A]-[6A]  | LTE B13  | 10           | 21320        | 782                  | QPSK   | 1          | 0                | 5230         | 751                  | 2x2             | LTE B4   | 20           | 900          | 1380            | 4x4      | LTE B4       | 20           | 2130            | 2150     | 4x4          |              |                 |          |              |              |                 | 21.13              | 21.14                          |
| CA [2A]-[2A]-[6A]  | LTE B13  | 10           | 21320        | 782                  | QPSK   | 1          | 0                | 5230         | 751                  | 2x2             | LTE B4   | 20           | 900          | 1380            | 4x4      | LTE B4       | 20           | 2130            | 2150     | 4x4          |              |                 |          |              |              |                 | 21.13              | 21.14                          |
| CA [2A]-[2A]-[6A]  | LTE B13  | 10           | 21320        | 782                  | QPSK   | 1          | 0                | 5230         | 751                  | 2x2             | LTE B4   | 20           | 900          | 1380            | 4x4      | LTE B4       | 20           | 2130            | 2150     | 4x4          |              |                 |          |              |              |                 | 21.13              | 21.14                          |
| CA [2A]-[2A]-[6A]  | LTE B13  | 10           | 21320        | 782                  | QPSK   | 1          | 0                | 5230         | 751                  | 2x2             | LTE B4   | 20           | 900          | 1380            | 4x4      | LTE B4       | 20           | 2130            | 2150     | 4x4          |              |                 |          |              |              |                 | 21.13              | 21.14                          |
| CA [2A]-[2A]-[6A]  | LTE B13  | 10           | 21320        | 782                  | QPSK   | 1          | 0                | 5230         | 751                  | 2x2             | LTE B4   | 20           | 900          | 1380            | 4x4      | LTE B4       | 20           | 2130            | 2150     | 4x4          |              |                 |          |              |              |                 | 21.13              | 21.14                          |
| CA [2A]-[2A]-[6A]  | LTE B13  | 10           | 21320        | 782                  | QPSK   | 1          | 0                | 5230         | 751                  | 2x2             | LTE B4   | 20           | 900          | 1380            | 4x4      | LTE B4       | 20           | 2130            | 2150     | 4x4          |              |                 |          |              |              |                 | 21.13              | 21.14                          |
| CA [2A]-[2A]-[6A]  | LTE B13  | 10           | 21320        | 782                  | QPSK   | 1          | 0                | 5230         | 751                  | 2x2             | LTE B4   | 20           | 900          | 1380            | 4x4      | LTE B4       | 20           | 2130            | 2150     | 4x4          |              |                 |          |              |              |                 | 21.13              | 21.14                          |
| CA [2A]-[2A]-[6A]  | LTE B13  | 10           | 21320        | 782                  | QPSK   | 1          | 0                | 5230         | 751                  | 2x2             | LTE B4   | 20           | 900          | 1380            | 4x4      | LTE B4       | 20           | 2130            | 2150     | 4x4          |              |                 |          |              |              |                 | 21.13              | 21.14                          |
| CA [2A]-[2A]-[6A]  | LTE B13  | 10           | 21320        | 782                  | QPSK   | 1          | 0                | 5230         | 751                  | 2x2             | LTE B4   | 20           | 900          | 1380            | 4x4      | LTE B4       | 20           | 2130            | 2150     | 4x4          |              |                 |          |              |              |                 | 21.13              | 21.14                          |
| CA [2A]-[2A]-[6A]  | LTE B13  | 10           | 21320        | 782                  | QPSK   | 1          | 0                | 5230         | 751                  | 2x2             | LTE B4   | 20           | 900          | 1380            | 4x4      | LTE B4       | 20           | 2130            | 2150     | 4x4          |              |                 |          |              |              |                 | 21.13              | 21.14                          |
| CA [2A]-[2A]-[6A]  | LTE B13  | 10           | 21320        | 782                  | QPSK   | 1          | 0                | 5230         | 751                  | 2x2             | LTE B4   | 20           | 900          | 1380            | 4x4      | LTE B4       | 20           | 2130            | 2150     | 4x4          |              |                 |          |              |              |                 | 21.13              | 21.14                          |
| CA [2A]-[2A]-[6A]  | LTE B13  | 10           | 21320        | 782                  | QPSK   | 1          | 0                | 5230         | 751                  | 2x2             | LTE B4   | 20           | 900          | 1380            | 4x4      | LTE B4       | 20           | 2130            | 2150     | 4x4          |              |                 |          |              |              |                 | 21.13              | 21.14                          |
| CA [2A]-[2A]-[6A]  | LTE B13  | 10           | 21320        | 782                  | QPSK   | 1          | 0                | 5230         | 751                  | 2x2             | LTE B4   | 20           | 900          | 1380            | 4x4      | LTE B4       | 20           | 2130            | 2150     | 4x4          |              |                 |          |              |              |                 | 21.13              | 21.14                          |
| CA [2A]-[2A]-[6A]  | LTE B13  | 10           | 21320        | 782                  | QPSK   | 1          | 0                | 5230         | 751                  | 2x2             | LTE B4   | 20           | 900          | 1380            | 4x4      | LTE B4       | 20           | 2130            | 2150     | 4x4          |              |                 |          |              |              |                 | 21.13              | 21.14                          |
| CA [2A]-[2A]-[6A]  | LTE B13  | 10           | 21320        | 782                  | QPSK   | 1          | 0                | 5230         | 751                  | 2x2             | LTE B4   | 20           | 900          | 1380            | 4x4      | LTE B4       | 20           | 2130            | 2150     | 4x4          |              |                 |          |              |              |                 | 21.13              | 21.14                          |
| CA [2A]-[2A]-[6A]  | LTE B13  | 10           | 21320        | 782                  | QPSK   | 1          | 0                | 5230         | 751                  | 2x2             | LTE B4   | 20           | 900          | 1380            | 4x4      | LTE B4       | 20           | 2130            | 2150     | 4x4          |              |                 |          |              |              |                 | 21.13              | 21.14                          |
| CA [2A]-[2A]-[6A]  | LTE B13  | 10           | 21320        | 782                  | QPSK   | 1          | 0                | 5230         | 751                  | 2x2             | LTE B4   | 20           | 900          | 1380            | 4x4      | LTE B4       | 20           | 2130            | 2150     | 4x4          |              |                 |          |              |              |                 | 21.13              | 21.14                          |
| CA [2A]-[2A]-[6A]  | LTE B13  | 10           | 21320        | 782                  | QPSK   | 1          | 0                | 5230         | 751                  | 2x2             | LTE B4   | 20           | 900          | 1380            | 4x4      | LTE B4       | 20           | 2130            | 2150     | 4x4          |              |                 |          |              |              |                 | 21.13              | 21.14                          |
| CA [2A]-[2A]-[6A]  | LTE B13  | 10           | 21320        | 782                  | QPSK   | 1          | 0                | 5230         | 751                  | 2x2             | LTE B4   | 20           | 900          | 1380            | 4x4      | LTE B4       | 20           | 2130            | 2150     | 4x4          |              |                 |          |              |              |                 | 21.13              | 21.14                          |
| CA [2A]-[2A]-[6A]  | LTE B13  | 10           | 21320        | 782                  | QPSK   | 1          | 0                | 5230         | 751                  | 2x2             | LTE B4   | 20           | 900          | 1380            | 4x4      | LTE B4       | 20           | 2130            | 2150     | 4x4          |              |                 |          |              |              |                 | 21.13              | 21.14                          |
| CA [2A]-[2A]-[6A]  | LTE B13  | 10           | 21320        | 782                  | QPSK   | 1          | 0                | 5230         | 751                  | 2x2             | LTE B4   | 20           | 900          | 1380            | 4x4      | LTE B4       | 20           | 2130            | 2150     | 4x4          |              |                 |          |              |              |                 | 21.13              | 21.14                          |
| CA [2A]-[2A]-[6A]  | LTE B13  | 10           | 21320        | 782                  | QPSK   | 1          | 0                | 5230         | 751                  | 2x2             | LTE B4   | 20           | 900          | 1380            | 4x4      | LTE B4       | 20           | 2130            | 2150     | 4x4          |              |                 |          |              |              |                 | 21.13              | 21.14                          |
| CA [2A]-[2A]-[6A]  | LTE B13  | 10           | 21320        | 782                  | QPSK   | 1          | 0                | 5230         | 751                  | 2x2             | LTE B4   | 20           | 900          | 1380            | 4x4      | LTE B4       | 20           | 2130            | 2150     | 4x4          |              |                 |          |              |              |                 | 21.13              | 21.14                          |
| CA [2A]-[2A]-[6A]  | LTE B13  | 10           | 21320        | 782                  | QPSK   | 1          | 0                | 5230         | 751                  | 2x2             | LTE B4   | 20           | 900          | 1380            | 4x4      | LTE B4       | 20           | 2130            | 2150     | 4x4          |              |                 |          |              |              |                 | 21.13              | 21.14                          |
| CA [2A]-[2A]-[6A]  | LTE B13  | 10           | 21320        | 782                  | QPSK   | 1          | 0                | 5230         | 751                  | 2x2             | LTE B4   | 20           | 900          | 1380            | 4x4      | LTE B4       | 20           | 2130            | 2150     | 4x4          |              |                 |          |              |              |                 | 21.13              | 21.14                          |
| CA [2A]-[2A]-[6A]  | LTE B13  | 10           | 21320        | 782                  | QPSK   | 1          | 0                | 5230         | 751                  | 2x2             | LTE B4   | 20           | 900          | 1380            | 4x4      | LTE B4       | 20           | 2130            | 2150     | 4x4          |              |                 |          |              |              |                 | 21.13              | 21.14                          |
| CA [2A]-[2A]-[6A]  | LTE B13  | 10           | 21320        | 782                  | QPSK   | 1          | 0                | 5230         | 751                  | 2x2             | LTE B4   | 20           | 900          | 1380            | 4x4      | LTE B4       | 20           | 2130            | 2150     | 4x4          |              |                 |          |              |              |                 | 21.13              | 21.14                          |
| CA [2A]-[2A]-[6A]  | LTE B13  | 10           | 21320        | 782                  | QPSK   | 1          | 0                | 5230         | 751                  | 2x2             | LTE B4   | 20           | 900          | 1380            | 4x4      | LTE B4       | 20           | 2130            | 2150     | 4x4          |              |                 |          |              |              |                 | 21.13              | 21.14                          |
| CA [2A]-[2A]-[6A]  | LTE B13  | 10           | 21320        | 782                  | QPSK   | 1          | 0                | 5230         | 751                  | 2x2             | LTE B4   | 20           | 900          | 1380            | 4x4      | LTE B4       | 20           | 2130            | 2150     | 4x4          |              |                 |          |              |              |                 | 21.13              | 21.14                          |
| CA [2A]-[2A]-[6A]  | LTE B13  | 10           | 21320        | 782                  | QPSK   | 1          | 0                | 5230         | 751                  | 2x2             | LTE B4   | 20           | 900          | 1380            | 4x4      | LTE B4       | 20           | 2130            | 2150     | 4x4          |              |                 |          |              |              |                 | 21.13              | 21.14                          |
| CA [2A]-[2A]-[6A]  | LTE B13  | 10           | 21320        | 782                  | QPSK   | 1          | 0                | 5230         | 751                  | 2x2             | LTE B4   | 20           | 900          | 1380            | 4x4      | LTE B4       | 20           | 2130            | 2150     | 4x4          |              |                 |          |              |              |                 | 21.13              | 21.14                          |
| CA [2A]-[2A]-[6A]  | LTE B13  | 10           | 21320        | 782                  | QPSK   | 1          | 0                | 5230         | 751                  | 2x2             | LTE B4   | 20           | 900          | 1380            | 4x4      | LTE B4       | 20           | 2130            | 2150     | 4x4          |              |                 |          |              |              |                 | 21.13              | 21.14                          |
| CA [2A]-[2A]-[6A]  | LTE B13  | 10           | 21320        | 782                  | QPSK   | 1          | 0                | 5230         | 751                  | 2x2             | LTE B4   | 20           | 900          | 1380            | 4x4      | LTE B4       | 20           | 2130            | 2150     | 4x4          |              |                 |          |              |              |                 | 21.13              | 21.14                          |
| CA [2A]-[2A]-[6A]  | LTE B13  | 10           | 21320        | 782                  | QPSK   | 1          | 0                | 5230         | 751                  | 2x2             | LTE B4   | 20           | 900          | 1380            | 4x4      | LTE B4       | 20           | 2130            | 2150     | 4x4          |              |                 |          |              |              |                 | 21.13              | 21.14                          |
| CA [2A]-[2A]-[6A]  | LTE B13  | 10           | 21320        | 782                  | QPSK   | 1          | 0                | 5230         | 751                  | 2x2             | LTE B4   | 20           | 900          | 1380            | 4x4      | LTE B4       | 20           | 2130            | 2150     | 4x4          |              |                 |          |              |              |                 | 21.13              | 21.14                          |
| CA [2A]-[2A]-[6A]  | LTE B13  | 10           | 21320        | 782                  | QPSK   | 1          | 0                | 5230         | 751                  | 2x2             | LTE B4   | 20           | 900          | 1380            | 4x4      | LTE B4       | 20           | 2130            | 2150     | 4x4          |              |                 |          |              |              |                 | 21.13              | 21.14                          |
| CA [2A]-[2A]-[6A]  | LTE B13  | 10           | 21320        | 782                  | QPSK   | 1          | 0                | 5230         | 751                  | 2x2             | LTE B4   | 20           | 900          | 1380            | 4x4      | LTE B4       | 20           | 2130            | 2150     | 4x4          |              |                 |          |              |              |                 | 21.13              | 21.14                          |
| CA [2A]-[2A]-[6A]  | LTE B13  | 10           | 21320        | 782                  | QPSK   | 1          | 0                | 5230         | 751                  | 2x2             | LTE B4   | 20           | 900          | 1380            | 4x4      | LTE B4       | 20           | 2130            | 2150     | 4x4          |              |                 |          |              |              |                 | 21.13              | 21.14                          |
| CA [2A]-[2A]-[6A]  | LTE B13  | 10           | 21320        | 782                  | QPSK   | 1          | 0                | 5230         | 751                  | 2x2             | LTE B4   | 20           | 900          | 1380            | 4x4      | LTE B4       | 20           | 2130            | 2150     | 4x4          |              |                 |          |              |              |                 | 21.13              | 21.14                          |
| CA [2A]-[2A]-[6A]  | LTE B13  | 10           | 21320        | 782                  | QPSK   | 1          | 0                | 5230         | 751                  | 2x2             | LTE B4   | 20           | 900          | 1380            | 4x4      | LTE B4       | 20           | 2130            | 2150     | 4x4          |              |                 |          |              |              |                 | 21.13              | 21.14                          |
| CA [2A]-[2A]-[6A]  | LTE B13  | 10           | 21320        | 782                  | QPSK   | 1          | 0                | 5230         | 751                  | 2x2             | LTE B4   | 20           | 900          | 1380            | 4x4      | LTE B4       | 20           | 2130            | 2150     | 4x4          |              |                 |          |              |              |                 | 21.13              | 21.14                          |
| CA [2A]-[2A]-[6A]  | LTE B13  | 10           | 21320        | 782                  | QPSK   | 1          | 0                | 5230         | 751                  | 2x2             | LTE B4   | 20           | 900          | 1380            | 4x4      | LTE B4       | 20           | 2130            | 2150     | 4x4          |              |                 |          |              |              |                 | 21.13              | 21.14                          |
| CA [2A]-[2A]-[6A]  | LTE B13  | 10           | 21320        | 782                  | QPSK</ |            |                  |              |                      |                 |          |              |              |                 |          |              |              |                 |          |              |              |                 |          |              |              |                 |                    |                                |

|                                            |                                                                                                                  |                                        |
|--------------------------------------------|------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| FCC ID: BCGA2230                           |  <b>SAR EVALUATION REPORT</b> | <b>Reviewed by:</b><br>Quality Manager |
| <b>Test Dates:</b><br>12/16/2019-1/14/2020 | <b>DUT Type:</b><br>Tablet Device                                                                                | APPENDIX F:<br>Page 10 of 16           |

## LTE Band 5 as PCC

**Table 18**  
**Output Powers – Ant 1**

| Combination           | PCB Band | PCB BW [MHz] | PCC [UL] Ch | PCC [UL] Freq. [MHz] | PCC   |    |                 |         | DL Ant. Config. | SCC 1       |                      |             |                      | DL Ant. Config. | SCC 2    |              |             |                      | DL Ant. Config. | SCC 3    |              |             |                      | DL Ant. Config. | SCC 4    |              |             |                      | DL Ant. Config. | Power    |              |             |
|-----------------------|----------|--------------|-------------|----------------------|-------|----|-----------------|---------|-----------------|-------------|----------------------|-------------|----------------------|-----------------|----------|--------------|-------------|----------------------|-----------------|----------|--------------|-------------|----------------------|-----------------|----------|--------------|-------------|----------------------|-----------------|----------|--------------|-------------|
|                       |          |              |             |                      | Mod.  | RB | PCUL Int Offset | PCUL Ch |                 | PCC [DL] Ch | PCC [DL] Freq. [MHz] | SCC [DL] Ch | SCC [DL] Freq. [MHz] |                 | SCC Band | SCC BW [MHz] | SCC [DL] Ch | SCC [DL] Freq. [MHz] |                 | SCC Band | SCC BW [MHz] | SCC [DL] Ch | SCC [DL] Freq. [MHz] |                 | SCC Band | SCC BW [MHz] | SCC [DL] Ch | SCC [DL] Freq. [MHz] |                 | SCC Band | SCC BW [MHz] | SCC [DL] Ch |
| CA 2A(1)              | LTE BB   | 5            | 2625        | 846.5                | 16QAM | 1  | 0               | 2625    | 891.5           | 2x2         | LTE B7               | 20          | 1100                 | 2695            | 4x4      | LTE B7       | 20          | 1100                 | 2695            | 4x4      | LTE B7       | 20          | 1100                 | 2695            | 4x4      | LTE B7       | 20          | 1100                 | 2695            | 4x4      | 20.18        | 20.60       |
| CA 2A(2)              | LTE BB   | 5            | 2625        | 846.5                | 16QAM | 1  | 0               | 2625    | 891.5           | 2x2         | LTE B7               | 20          | 1100                 | 2695            | 4x4      | LTE B7       | 20          | 1100                 | 2695            | 4x4      | LTE B7       | 20          | 1100                 | 2695            | 4x4      | LTE B7       | 20          | 1100                 | 2695            | 4x4      | 20.18        | 20.60       |
| CA 2A(3A)             | LTE BB   | 5            | 2625        | 846.5                | 16QAM | 1  | 0               | 2625    | 891.5           | 2x2         | LTE B4               | 20          | 8020                 | 3390            | 4x4      | LTE B4       | 20          | 8020                 | 3390            | 4x4      | LTE B4       | 20          | 8020                 | 3390            | 4x4      | LTE B4       | 20          | 8020                 | 3390            | 4x4      | 20.43        | 20.85       |
| CA 2A(3B)             | LTE BB   | 5            | 2625        | 846.5                | 16QAM | 1  | 0               | 2625    | 891.5           | 2x2         | LTE B4               | 20          | 8020                 | 3390            | 4x4      | LTE B4       | 20          | 8020                 | 3390            | 4x4      | LTE B4       | 20          | 8020                 | 3390            | 4x4      | LTE B4       | 20          | 8020                 | 3390            | 4x4      | 20.43        | 20.85       |
| CA 2D(1,5)            | LTE BB   | 5            | 2625        | 846.5                | 16QAM | 1  | 0               | 2625    | 891.5           | 2x2         | LTE B2               | 20          | 900                  | 1960            | 4x4      | LTE B2       | 20          | 900                  | 1960            | 4x4      | LTE B2       | 20          | 900                  | 1960            | 4x4      | LTE B2       | 20          | 900                  | 1960            | 4x4      | 20.51        | 20.93       |
| CA 1A(1) SB (1)       | LTE BB   | 5            | 2625        | 846.5                | 16QAM | 1  | 0               | 2625    | 891.5           | 2x2         | LTE B5               | 5           | 2577                 | 886.7           | 2x2      | LTE B4       | 20          | 2175                 | 2125.5          | 4x4      | LTE B4       | 20          | 2175                 | 2125.5          | 4x4      | LTE B4       | 20          | 2175                 | 2125.5          | 4x4      | 20.39        | 20.60       |
| CA 5A(7A) 7A          | LTE BB   | 5            | 2625        | 846.5                | 16QAM | 1  | 0               | 2625    | 891.5           | 2x2         | LTE B7               | 20          | 3100                 | 2655            | 4x4      | LTE B7       | 20          | 2850                 | 2630            | 4x4      | -            | -           | -                    | -               | -        | -            | -           | -                    | -               | -        | 20.43        | 20.60       |
| CA 5A(7B) 7B          | LTE BB   | 5            | 2625        | 846.5                | 16QAM | 1  | 0               | 2625    | 891.5           | 2x2         | LTE B7               | 20          | 3100                 | 2655            | 4x4      | LTE B7       | 20          | 2850                 | 2630            | 4x4      | -            | -           | -                    | -               | -        | -            | -           | -                    | -               | -        | 20.38        | 20.60       |
| CA 2A(1A)-66A         | LTE BB   | 5            | 2625        | 846.5                | 16QAM | 1  | 0               | 2625    | 891.5           | 2x2         | LTE B7               | 20          | 900                  | 1960            | 4x4      | LTE B4       | 20          | 50665                | 5537.5          | 2x2      | LTE B4       | 20          | 50665                | 5537.5          | 2x2      | LTE B4       | 20          | 50665                | 5537.5          | 2x2      | 20.26        | 20.60       |
| CA 5A(1A)-66A         | LTE BB   | 5            | 2625        | 846.5                | 16QAM | 1  | 0               | 2625    | 891.5           | 2x2         | LTE B4               | 20          | 50665                | 5537.5          | 2x2      | LTE B6       | 20          | 66786                | 2145            | 4x4      | LTE B6       | 20          | 66786                | 2145            | 4x4      | LTE B6       | 20          | 66786                | 2145            | 4x4      | 20.40        | 20.60       |
| CA 1A(1A)-66B         | LTE BB   | 5            | 2625        | 846.5                | 16QAM | 1  | 0               | 2625    | 891.5           | 2x2         | LTE B5               | 5           | 2577                 | 886.7           | 2x2      | LTE B4       | 20          | 2175                 | 2125.5          | 4x4      | LTE B4       | 20          | 2175                 | 2125.5          | 4x4      | LTE B4       | 20          | 2175                 | 2125.5          | 4x4      | 20.25        | 20.60       |
| CA 2A(1A)-66B         | LTE BB   | 5            | 2625        | 846.5                | 16QAM | 1  | 0               | 2625    | 891.5           | 2x2         | LTE B5               | 5           | 2577                 | 886.7           | 2x2      | LTE B4       | 20          | 2175                 | 2125.5          | 4x4      | LTE B4       | 20          | 2175                 | 2125.5          | 4x4      | LTE B4       | 20          | 2175                 | 2125.5          | 4x4      | 20.25        | 20.60       |
| CA 5A(66A)-66C        | LTE BB   | 5            | 2625        | 846.5                | 16QAM | 1  | 0               | 2625    | 891.5           | 2x2         | LTE B6               | 20          | 66786                | 2145            | 4x4      | LTE B6       | 20          | 67038                | 2102.7          | 4x4      | LTE B6       | 20          | 67236                | 2100            | 4x4      | LTE B6       | 20          | 67236                | 2100            | 4x4      | 20.37        | 20.60       |
| CA 2A(2A)-44A-50A     | LTE BB   | 5            | 2625        | 846.5                | 16QAM | 1  | 0               | 2625    | 891.5           | 2x2         | LTE B2               | 20          | 900                  | 1960            | 4x4      | LTE B2       | 20          | 900                  | 1960            | 4x4      | LTE B4       | 20          | 2175                 | 2135            | 4x4      | LTE B4       | 20          | 2175                 | 2135            | 4x4      | 20.12        | 20.60       |
| CA 2A(2A)-44A-50A     | LTE BB   | 5            | 2625        | 846.5                | 16QAM | 1  | 0               | 2625    | 891.5           | 2x2         | LTE B2               | 20          | 900                  | 1960            | 4x4      | LTE B2       | 20          | 900                  | 1960            | 4x4      | LTE B4       | 20          | 2175                 | 2135            | 4x4      | LTE B4       | 20          | 2175                 | 2135            | 4x4      | 20.12        | 20.60       |
| CA 2A(2A)-50A-50A     | LTE BB   | 5            | 2625        | 846.5                | 16QAM | 1  | 0               | 2625    | 891.5           | 2x2         | LTE B2               | 20          | 900                  | 1960            | 4x4      | LTE B2       | 20          | 900                  | 1960            | 4x4      | LTE B4       | 20          | 2175                 | 2135            | 4x4      | LTE B4       | 20          | 2175                 | 2135            | 4x4      | 20.12        | 20.60       |
| CA 2A(2A)-50A-50A     | LTE BB   | 5            | 2625        | 846.5                | 16QAM | 1  | 0               | 2625    | 891.5           | 2x2         | LTE B2               | 20          | 900                  | 1960            | 4x4      | LTE B2       | 20          | 900                  | 1960            | 4x4      | LTE B4       | 20          | 2175                 | 2135            | 4x4      | LTE B4       | 20          | 2175                 | 2135            | 4x4      | 20.12        | 20.60       |
| CA 2A(1A)-44A-50A     | LTE BB   | 5            | 2625        | 846.5                | 16QAM | 1  | 0               | 2625    | 891.5           | 2x2         | LTE B2               | 20          | 900                  | 1960            | 4x4      | LTE B4       | 20          | 2175                 | 2125.5          | 4x4      | LTE B4       | 20          | 2175                 | 2125.5          | 4x4      | LTE B4       | 20          | 2175                 | 2125.5          | 4x4      | 20.37        | 20.60       |
| CA 2A(1A)-44A-50A     | LTE BB   | 5            | 2625        | 846.5                | 16QAM | 1  | 0               | 2625    | 891.5           | 2x2         | LTE B2               | 20          | 900                  | 1960            | 4x4      | LTE B4       | 20          | 2175                 | 2125.5          | 4x4      | LTE B4       | 20          | 2175                 | 2125.5          | 4x4      | LTE B4       | 20          | 2175                 | 2125.5          | 4x4      | 20.37        | 20.60       |
| CA 2A(1A)-44C         | LTE BB   | 5            | 2625        | 846.5                | 16QAM | 1  | 0               | 2625    | 891.5           | 2x2         | LTE B2               | 20          | 900                  | 1960            | 4x4      | LTE B4       | 20          | 2175                 | 2125.5          | 4x4      | LTE B4       | 20          | 2175                 | 2125.5          | 4x4      | LTE B4       | 20          | 2175                 | 2125.5          | 4x4      | 20.37        | 20.60       |
| CA 2A(1A)-66B(1)      | LTE BB   | 5            | 2625        | 846.5                | 16QAM | 1  | 0               | 2625    | 891.5           | 2x2         | LTE B2               | 20          | 900                  | 1960            | 4x4      | LTE B4       | 20          | 50665                | 5537.5          | 2x2      | LTE B4       | 20          | 50667                | 5517.7          | 2x2      | LTE B4       | 20          | 50667                | 5517.7          | 2x2      | 20.11        | 20.60       |
| CA 2A(1A)-66B(1)      | LTE BB   | 5            | 2625        | 846.5                | 16QAM | 1  | 0               | 2625    | 891.5           | 2x2         | LTE B2               | 20          | 900                  | 1960            | 4x4      | LTE B6       | 20          | 66786                | 2145            | 4x4      | LTE B6       | 20          | 67236                | 2100            | 4x4      | LTE B6       | 20          | 67236                | 2100            | 4x4      | 20.10        | 20.60       |
| CA 2A(1A)-66B(2)      | LTE BB   | 5            | 2625        | 846.5                | 16QAM | 1  | 0               | 2625    | 891.5           | 2x2         | LTE B2               | 20          | 900                  | 1960            | 4x4      | LTE B4       | 20          | 50665                | 5537.5          | 2x2      | LTE B4       | 20          | 50667                | 5517.7          | 2x2      | LTE B4       | 20          | 50667                | 5517.7          | 2x2      | 20.11        | 20.60       |
| CA 4A(1A)-44A-50A-30A | LTE BB   | 5            | 2625        | 846.5                | 16QAM | 1  | 0               | 2625    | 891.5           | 2x2         | LTE B2               | 20          | 900                  | 1960            | 4x4      | LTE B4       | 20          | 2175                 | 2135            | 4x4      | LTE B4       | 20          | 2175                 | 2135            | 4x4      | LTE B4       | 20          | 2175                 | 2135            | 4x4      | 20.42        | 20.60       |
| CA 4A(1A)-44A-50A-30A | LTE BB   | 5            | 2625        | 846.5                | 16QAM | 1  | 0               | 2625    | 891.5           | 2x2         | LTE B2               | 20          | 900                  | 1960            | 4x4      | LTE B4       | 20          | 2175                 | 2135            | 4x4      | LTE B4       | 20          | 2175                 | 2135            | 4x4      | LTE B4       | 20          | 2175                 | 2135            | 4x4      | 20.42        | 20.60       |
| CA 5A(1A)-66A(1)      | LTE BB   | 5            | 2625        | 846.5                | 16QAM | 1  | 0               | 2625    | 891.5           | 2x2         | LTE B3               | 10          | 8820                 | 2355            | 4x4      | LTE B6       | 20          | 66786                | 2145            | 4x4      | LTE B6       | 20          | 67236                | 2100            | 4x4      | LTE B6       | 20          | 67236                | 2100            | 4x4      | 20.32        | 20.60       |
| CA 5A(1A)-66A(1)      | LTE BB   | 5            | 2625        | 846.5                | 16QAM | 1  | 0               | 2625    | 891.5           | 2x2         | LTE B3               | 10          | 8820                 | 2355            | 4x4      | LTE B6       | 20          | 66786                | 2145            | 4x4      | LTE B6       | 20          | 67236                | 2100            | 4x4      | LTE B6       | 20          | 67236                | 2100            | 4x4      | 20.32        | 20.60       |
| CA 5A(1A)-66A(2)      | LTE BB   | 5            | 2625        | 846.5                | 16QAM | 1  | 0               | 2625    | 891.5           | 2x2         | LTE B3               | 10          | 8820                 | 2355            | 4x4      | LTE B6       | 20          | 66786                | 2145            | 4x4      | LTE B6       | 20          | 67236                | 2100            | 4x4      | LTE B6       | 20          | 67236                | 2100            | 4x4      | 20.32        | 20.60       |
| CA 2A(1A)-44A-50A-30A | LTE BB   | 5            | 2625        | 846.5                | 16QAM | 1  | 0               | 2625    | 891.5           | 2x2         | LTE B2               | 20          | 900                  | 1960            | 4x4      | LTE B4       | 20          | 2175                 | 2125.5          | 4x4      | LTE B3       | 10          | 8820                 | 2355            | 4x4      | LTE B3       | 10          | 8820                 | 2355            | 4x4      | 20.33        | 20.60       |
| CA 2A(1A)-44A-50A-30A | LTE BB   | 5            | 2625        | 846.5                | 16QAM | 1  | 0               | 2625    | 891.5           | 2x2         | LTE B2               | 20          | 900                  | 1960            | 4x4      | LTE B4       | 20          | 2175                 | 2125.5          | 4x4      | LTE B3       | 10          | 8820                 | 2355            | 4x4      | LTE B3       | 10          | 8820                 | 2355            | 4x4      | 20.33        | 20.60       |
| CA 2A(1A)-44A-50A-30A | LTE BB   | 5            | 2625        | 846.5                | 16QAM | 1  | 0               | 2625    | 891.5           | 2x2         | LTE B2               | 20          | 900                  | 1960            | 4x4      | LTE B4       | 20          | 2175                 | 2125.5          | 4x4      | LTE B3       | 10          | 8820                 | 2355            | 4x4      | LTE B3       | 10          | 8820                 | 2355            | 4x4      | 20.33        | 20.60       |
| CA 2A(1A)-44A-50A-30A | LTE BB   | 5            | 2625        | 846.5                | 16QAM | 1  | 0               | 2625    | 891.5           | 2x2         | LTE B2               | 20          | 900                  | 1960            | 4x4      | LTE B4       | 20          | 2175                 | 2125.5          | 4x4      | LTE B3       | 10          | 8820                 | 2355            | 4x4      | LTE B3       | 10          | 8820                 | 2355            | 4x4      | 20.33        | 20.60       |
| CA 2A(1A)-44A-50A-30A | LTE BB   | 5            | 2625        | 846.5                | 16QAM | 1  | 0               | 2625    | 891.5           | 2x2         | LTE B2               | 20          | 900                  | 1960            | 4x4      | LTE B4       | 20          | 2175                 | 2125.5          | 4x4      | LTE B3       | 10          | 8820                 | 2355            | 4x4      | LTE B3       | 10          | 8820                 | 2355            | 4x4      | 20.33        | 20.60       |
| CA 2A(1A)-44A-50A-30A | LTE BB   | 5            | 2625        | 846.5                | 16QAM | 1  | 0               | 2625    | 891.5           | 2x2         | LTE B2               | 20          | 900                  | 1960            | 4x4      | LTE B4       | 20          | 2175                 | 2125.5          | 4x4      | LTE B3       | 10          | 8820                 | 2355            | 4x4      | LTE B3       | 10          | 8820                 | 2355            | 4x4      | 20.33        | 20.60       |
| CA 2A(1A)-44A-50A-30A | LTE BB   | 5            | 2625        | 846.5                | 16QAM | 1  | 0               | 2625    | 891.5           | 2x2         | LTE B2               | 20          | 900                  | 1960            | 4x4      | LTE B4       | 20          | 2175                 | 2125.5          | 4x4      | LTE B3       | 10          | 8820                 | 2355            | 4x4      | LTE B3       | 10          | 8820                 | 2355            | 4x4      | 20.33        | 20.60       |
| CA 2A(1A)-44A-50A-30A | LTE BB   | 5            | 2625        | 846.5                | 16QAM | 1  | 0               | 2625    | 891.5           | 2x2         | LTE B2               | 20          | 900                  | 1960            | 4x4      | LTE B4       | 20          | 2175                 | 2125.5          | 4x4      | LTE B3       | 10          | 8820                 | 2355            | 4x4      | LTE B3       | 10          | 8820                 | 2355            | 4x4      | 20.33        | 20.60       |
| CA 2A(1A)-44A-50A-30A | LTE BB   | 5            | 2625        | 846.5                | 16QAM | 1  | 0               | 2625    | 891.5           | 2x2         | LTE B2               | 20          | 900                  | 1960            | 4x4      | LTE B4       | 20          | 2175                 | 2125.5          | 4x4      | LTE B3       | 10          | 8820                 | 2355            | 4x4      | LTE B3       | 10          | 8820                 | 2355            | 4x4      | 20.33        | 20.60       |
| CA 2A(1A)-44A-50A-30A | LTE BB   | 5            | 2625        | 846.5                | 16QAM | 1  | 0               | 2625    | 891.5           | 2x2         | LTE B2               | 20          | 900                  | 1960            | 4x4      | LTE B4       | 20          | 2175                 | 2125.5          | 4x4      | LTE B3       | 10          | 8820                 | 2355            | 4x4      | LTE B3       | 10          | 8820                 | 2355            | 4x4      | 20.33        | 20.60       |
| CA 2A(1A)-44A-50A-30A | LTE BB   | 5            | 2625        | 846.5                | 16QAM | 1  | 0               | 2625    | 891.5           | 2x2         | LTE B2               | 20          | 900                  | 1960            | 4x4      | LTE B4       | 20          | 2175                 | 2125.5          | 4x4      | LTE B3       | 10          | 8820                 | 2355            | 4x4      | LTE B3       | 10          | 8820                 | 2355            | 4x4      | 20.33        | 20.60       |
| CA 2A(1A)-44A-50A-30A | LTE BB   | 5            | 2625        | 846.5                | 16QAM | 1  | 0               | 2625    | 891.5           | 2x2         | LTE B2               | 20          | 900                  | 1960            | 4x4      | LTE B4       | 20          | 2175                 | 2125.5          | 4x4      | LTE B3       | 10          | 8820                 | 2355            | 4x4      | LTE B3       | 10          | 8820                 | 2355            | 4x4      | 20.33        | 20.60       |
| CA 2A(1A)-44A-50A-30A | LTE BB   | 5            | 2625        | 846.5                | 16QAM | 1  | 0               | 2625    | 891.5           | 2x2         | LTE B2               | 20          | 900                  | 1960            | 4x4      | LTE B4       | 20          | 2175                 | 2125.5          | 4x4      | LTE B3       | 10          | 8820                 | 2355            | 4x4      | LTE B3       | 10          | 8820                 | 2355            | 4x4      | 20.33        | 20.60       |
| CA 2A(1A)-44A-50A-30A | LTE BB   | 5            | 2625        | 846.5                | 16QAM | 1  | 0               | 2625    | 891.5           |             |                      |             |                      |                 |          |              |             |                      |                 |          |              |             |                      |                 |          |              |             |                      |                 |          |              |             |

## LTE Band 26 as PCC

**Table 19**  
**Output Powers – Ant 1**

| Combination        | PCC Band | PCC          |              |                      |       |             |                  |              |                      |                 |          | SCC 1        |              |                      |                 | SCC 2    |              |              |                      | Power           |                                       |                                   |
|--------------------|----------|--------------|--------------|----------------------|-------|-------------|------------------|--------------|----------------------|-----------------|----------|--------------|--------------|----------------------|-----------------|----------|--------------|--------------|----------------------|-----------------|---------------------------------------|-----------------------------------|
|                    |          | PCC BW [MHz] | PCC [UL] Ch. | PCC [UL] Freq. [MHz] | Mod.  | PCC UL#1 RB | PCC UL RB Offset | PCC [DL] Ch. | PCC [DL] Freq. [MHz] | DL Ant. Config. | SCC Band | SCC BW [MHz] | SCC [DL] Ch. | SCC [DL] Freq. [MHz] | DL Ant. Config. | SCC Band | SCC BW [MHz] | SCC [DL] Ch. | SCC [DL] Freq. [MHz] | DL Ant. Config. | LTE Tx.Power with DL CA Enabled (dBm) | LTE Single Carrier Tx Power (dBm) |
| CA [7A]-26A        | LTE B26  | 10           | 26990        | 844                  | QPSK  | 25          | 25               | 8990         | 889                  | 2x2             | LTE B7   | 20           | 3100         | 2655                 | 4x4             | -        | -            | -            | -                    | -               | 20.57                                 | 20.60                             |
| CA [25A]-26A       | LTE B26  | 10           | 26990        | 844                  | QPSK  | 25          | 25               | 8990         | 889                  | 2x2             | LTE B25  | 20           | 8365         | 1962.5               | 4x4             | -        | -            | -            | -                    | -               | 20.55                                 | 20.60                             |
| CA 26A-[41A]       | LTE B26  | 10           | 26990        | 844                  | QPSK  | 25          | 25               | 8990         | 889                  | 2x2             | LTE B41  | 20           | 40620        | 2593                 | 4x4             | -        | -            | -            | -                    | -               | 20.60                                 | 20.60                             |
| CA [7A]-[7A]-26A   | LTE B26  | 10           | 26990        | 844                  | QPSK  | 25          | 25               | 8990         | 889                  | 2x2             | LTE B7   | 20           | 3100         | 2655                 | 4x4             | LTE B7   | 20           | 2850         | 2630                 | 4x4             | 20.58                                 | 20.60                             |
| CA [25A]-[25A]-26A | LTE B26  | 5            | 26715        | 816.5                | 16QAM | 1           | 0                | 8715         | 861.5                | 2x2             | LTE B25  | 20           | 8365         | 1962.5               | 4x4             | LTE B25  | 20           | 8590         | 1985                 | 4x4             | 20.27                                 | 20.60                             |
| CA 26A-[41A]       | LTE B26  | 10           | 26990        | 844                  | QPSK  | 25          | 25               | 8990         | 889                  | 2x2             | LTE B41  | 20           | 40620        | 2593                 | 4x4             | LTE B41  | 20           | 40422        | 2573.2               | 4x4             | 20.58                                 | 20.60                             |

|                                     |                                                                                                                                                               |                              |                                 |
|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|---------------------------------|
| FCC ID: BCGA2230                    |  <b>PCTEST</b><br><small>Power to the people in the test equipment</small> | SAR EVALUATION REPORT        | Reviewed by:<br>Quality Manager |
| Test Dates:<br>12/16/2019-1/14/2020 | DUT Type:<br>Tablet Device                                                                                                                                    | APPENDIX F:<br>Page 11 of 16 |                                 |

## LTE Band 66 as PCC

**Table 20**  
**Output Powers – Ant 2B**

| Combination |  | Mod |  |  |  |  |  |  |  |  |  | DC1 |  |  |  | DC2 |  |  |  | DC3 |  |  |  | DC4 |  |  |  | DC5 |  |  |  | DC6 |  |  |  | DC7 |  |  |  | DC8 |  |  |  | DC9 |  |  |  | DC10 |  |  |  | DC11 |  |  |  | DC12 |  |  |  | DC13 |  |  |  | DC14 |  |  |  | DC15 |  |  |  | DC16 |  |  |  | DC17 |  |  |  | DC18 |  |  |  | DC19 |  |  |  | DC20 |  |  |  | DC21 |  |  |  | DC22 |  |  |  | DC23 |  |  |  | DC24 |  |  |  | DC25 |  |  |  | DC26 |  |  |  | DC27 |  |  |  | DC28 |  |  |  | DC29 |  |  |  | DC30 |  |  |  | DC31 |  |  |  | DC32 |  |  |  | DC33 |  |  |  | DC34 |  |  |  | DC35 |  |  |  | DC36 |  |  |  | DC37 |  |  |  | DC38 |  |  |  | DC39 |  |  |  | DC40 |  |  |  | DC41 |  |  |  | DC42 |  |  |  | DC43 |  |  |  | DC44 |  |  |  | DC45 |  |  |  | DC46 |  |  |  | DC47 |  |  |  | DC48 |  |  |  | DC49 |  |  |  | DC50 |  |  |  | DC51 |  |  |  | DC52 |  |  |  | DC53 |  |  |  | DC54 |  |  |  | DC55 |  |  |  | DC56 |  |  |  | DC57 |  |  |  | DC58 |  |  |  | DC59 |  |  |  | DC60 |  |  |  | DC61 |  |  |  | DC62 |  |  |  | DC63 |  |  |  | DC64 |  |  |  | DC65 |  |  |  | DC66 |  |  |  | DC67 |  |  |  | DC68 |  |  |  | DC69 |  |  |  | DC70 |  |  |  | DC71 |  |  |  | DC72 |  |  |  | DC73 |  |  |  | DC74 |  |  |  | DC75 |  |  |  | DC76 |  |  |  | DC77 |  |  |  | DC78 |  |  |  | DC79 |  |  |  | DC80 |  |  |  | DC81 |  |  |  | DC82 |  |  |  | DC83 |  |  |  | DC84 |  |  |  | DC85 |  |  |  | DC86 |  |  |  | DC87 |  |  |  | DC88 |  |  |  | DC89 |  |  |  | DC90 |  |  |  | DC91 |  |  |  | DC92 |  |  |  | DC93 |  |  |  | DC94 |  |  |  | DC95 |  |  |  | DC96 |  |  |  | DC97 |  |  |  | DC98 |  |  |  | DC99 |  |  |  | DC100 |  |  |  | DC101 |  |  |  | DC102 |  |  |  | DC103 |  |  |  | DC104 |  |  |  | DC105 |  |  |  | DC106 |  |  |  | DC107 |  |  |  | DC108 |  |  |  | DC109 |  |  |  | DC110 |  |  |  | DC111 |  |  |  | DC112 |  |  |  | DC113 |  |  |  | DC114 |  |  |  | DC115 |  |  |  | DC116 |  |  |  | DC117 |  |  |  | DC118 |  |  |  | DC119 |  |  |  | DC120 |  |  |  | DC121 |  |  |  | DC122 |  |  |  | DC123 |  |  |  | DC124 |  |  |  | DC125 |  |  |  | DC126 |  |  |  | DC127 |  |  |  | DC128 |  |  |  | DC129 |  |  |  | DC130 |  |  |  | DC131 |  |  |  | DC132 |  |  |  | DC133 |  |  |  | DC134 |  |  |  | DC135 |  |  |  | DC136 |  |  |  | DC137 |  |  |  | DC138 |  |  |  | DC139 |  |  |  | DC140 |  |  |  | DC141 |  |  |  | DC142 |  |  |  | DC143 |  |  |  | DC144 |  |  |  | DC145 |  |  |  | DC146 |  |  |  | DC147 |  |  |  | DC148 |  |  |  | DC149 |  |  |  | DC150 |  |  |  | DC151 |  |  |  | DC152 |  |  |  | DC153 |  |  |  | DC154 |  |  |  | DC155 |  |  |  | DC156 |  |  |  | DC157 |  |  |  | DC158 |  |  |  | DC159 |  |  |  | DC160 |  |  |  | DC161 |  |  |  | DC162 |  |  |  | DC163 |  |  |  | DC164 |  |  |  | DC165 |  |  |  | DC166 |  |  |  | DC167 |  |  |  | DC168 |  |  |  | DC169 |  |  |  | DC170 |  |  |  | DC171 |  |  |  | DC172 |  |  |  | DC173 |  |  |  | DC174 |  |  |  | DC175 |  |  |  | DC176 |  |  |  | DC177 |  |  |  | DC178 |  |  |  | DC179 |  |  |  | DC180 |  |  |  | DC181 |  |  |  | DC182 |  |  |  | DC183 |  |  |  | DC184 |  |  |  | DC185 |  |  |  | DC186 |  |  |  | DC187 |  |  |  | DC188 |  |  |  | DC189 |  |  |  | DC190 |  |  |  | DC191 |  |  |  | DC192 |  |  |  | DC193 |  |  |  | DC194 |  |  |  | DC195 |  |  |  | DC196 |  |  |  | DC197 |  |  |  | DC198 |  |  |  | DC199 |  |  |  | DC200 |  |  |  | DC201 |  |  |  | DC202 |  |  |  | DC203 |  |  |  | DC204 |  |  |  | DC205 |  |  |  | DC206 |  |  |  | DC207 |  |  |  | DC208 |  |  |  | DC209 |  |  |  | DC210 |  |  |  | DC211 |  |  |  | DC212 |  |  |  | DC213 |  |  |  | DC214 |  |  |  | DC215 |  |  |  | DC216 |  |  |  | DC217 |  |  |  | DC218 |  |  |  | DC219 |  |  |  | DC220 |  |  |  | DC221 |  |  |  | DC222 |  |  |  | DC223 |  |  |  | DC224 |  |  |  | DC225 |  |  |  | DC226 |  |  |  | DC227 |  |  |  | DC228 |  |  |  | DC229 |  |  |  | DC230 |  |  |  | DC231 |  |  |  | DC232 |  |  |  | DC233 |  |  |  | DC234 |  |  |  | DC235 |  |  |  | DC236 |  |  |  | DC237 |  |  |  | DC238 |  |  |  | DC239 |  |  |  | DC240 |  |  |  | DC241 |  |  |  | DC242 |  |  |  | DC243 |  |  |  | DC244 |  |  |  | DC245 |  |  |  | DC246 |  |  |  | DC247 |  |  |  | DC248 |  |  |  | DC249 |  |  |  | DC250 |  |  |  | DC251 |  |  |  | DC252 |  |  |  | DC253 |  |  |  | DC254 |  |  |  | DC255 |  |  |  | DC256 |  |  |  | DC257 |  |  |  | DC258 |  |  |  | DC259 |  |  |  | DC260 |  |  |  | DC261 |  |  |  | DC262 |  |  |  | DC263 |  |  |  | DC264 |  |  |  | DC265 |  |  |  | DC266 |  |  |  | DC267 |  |  |  | DC268 |  |  |  | DC269 |  |  |  | DC270 |  |  |  | DC271 |  |  |  | DC272 |  |  |  | DC273 |  |  |  | DC274 |  |  |  | DC275 |  |  |  | DC276 |  |  |  | DC277 |  |  |  | DC278 |  |  |  | DC279 |  |  |  | DC280 |  |  |  | DC281 |  |  |  | DC282 |  |  |  | DC283 |  |  |  | DC284 |  |  |  | DC285 |  |  |  | DC286 |  |  |  | DC287 |  |  |  | DC288 |  |  |  | DC289 |  |  |  | DC290 |  |  |  | DC291 |  |  |  | DC292 |  |  |  | DC293 |  |  |  | DC294 |  |  |  | DC295 |  |  |  | DC296 |  |  |  | DC297 |  |  |  | DC298 |  |  |  | DC299 |  |  |  | DC300 |  |  |  | DC301 |  |  |  | DC302 |  |  |  | DC303 |  |  |  | DC304 |  |  |  | DC305 |  |  |  | DC306 |  |  |  | DC307 |  |  |  | DC308 |  |  |  | DC309 |  |  |  | DC310 |  |  |  | DC311 |  |  |  | DC312 |  |  |  | DC313 |  |  |  | DC314 |  |  |  | DC315 |  |  |  | DC316 |  |  |  | DC317 |  |  |  | DC318 |  |  |  | DC319 |  |  |  | DC320 |  |  |  | DC321 |  |  |  | DC322 |  |  |  | DC323 |  |  |  | DC324 |  |  |  | DC325 |  |  |  | DC326 |  |  |  | DC327 |  |  |  | DC328 |  |  |  | DC329 |  |  |  | DC330 |  |  |  | DC331 |  |  |  | DC332 |  |  |  | DC333 |  |  |  | DC334 |  |  |  | DC335 |  |  |  | DC336 |  |  |  | DC337 |  |  |  | DC338 |  |  |  | DC339 |  |  |  | DC340 |  |  |  | DC341 |  |  |  | DC342 |  |  |  | DC343 |  |  |  | DC344 |  |  |  | DC345 |  |  |  | DC346 |  |  |  | DC347 |  |  |  | DC348 |  |  |  | DC349 |  |  |  | DC350 |  |  |  | DC351 |  |  |  | DC352 |  |  |  | DC353 |  |  |  | DC354 |  |  |  | DC355 |  |  |  | DC356 |  |  |  | DC357 |  |  |  | DC358 |  |  |  | DC359 |  |  |  | DC360 |  |  |  | DC361 |  |  |  | DC362 |  |  |  | DC363 |  |  |  | DC364 |  |  |  | DC365 |  |  |  | DC366 |  |  |  | DC367 |  |  |  | DC368 |  |  |  | DC369 |  |  |  | DC370 |  |  |  | DC371 |  |  |  | DC372 |  |  |  | DC373 |  |  |  | DC374 |  |  |  | DC375 |  |  |  | DC376 |  |  |  | DC377 |  |  |  | DC378 |  |  |  | DC379 |  |  |  | DC380 |  |  |  | DC381 |  |  |  | DC382 |  |  |  | DC383 |  |  |  | DC384 |  |  |  | DC385 |  |  |  | DC386 |  |  |  | DC387 |  |  |  | DC388 |  |  |  | DC389 |  |  |  | DC390 |  |  |  | DC391 |  |  |  | DC392 |  |  |  | DC393 |  |  |  | DC394 |  |  |  | DC395 |  |  |  | DC396 |  |  |  | DC397 |  |  |  | DC398 |  |  |  | DC399 |  |  |  | DC400 |  |  |  | DC401 |  |  |  | DC402 |  |  |  | DC403 |  |  |  | DC404 |  |  |  | DC405 |  |  |  | DC406 |  |  |  | DC407 |  |  |  | DC408 |  |  |  | DC409 |  |  |  | DC410 |  |  |  | DC411 |  |  |  | DC412 |  |  |  | DC413 |  |  |  | DC414 |  |  |  | DC415 |  |  |  | DC416 |  |  |  | DC417 |  |  |  | DC418 |  |  |  | DC419 |  |  |  | DC420 |  |  |  | DC421 |  |  |  | DC422 |  |  |  | DC423 |  |  |  | DC424 |  |  |  | DC425 |  |  |  | DC426 |  |  |  | DC427 |  |  |  | DC428 |  |  |  | DC429 |  |  |  | DC430 |  |  |  | DC431 |  |  |  | DC432 |  |  |  | DC433 |  |  |  | DC434 |  |  |  | DC435 |  |  |  | DC436 |  |  |  | DC437 |  |  |  | DC438 |  |  |  | DC439 |  |  |  | DC440 |  |  |  | DC441 |  |  |  | DC442 |  |  |  | DC443 |  |  |  | DC444 |  |  |  | DC445 |  |  |  | DC446 |  |  |  | DC447 |  |  |  | DC448 |  |  |  | DC449 |  |  |  | DC450 |  |  |  | DC451 |  |  |  | DC452 |  |  |  | DC453 |  |  |  | DC454 |  |  |  | DC455 |  |  |  | DC456 |  |  |  | DC457 |  |  |  | DC458 |  |  |  | DC459 |  |  |  | DC460 |  |  |  | DC461 |  |  |  | DC462 |  |  |  | DC463 |  |  |  | DC464 |  |  |  | DC465 |  |  |  | DC466 |  |  |  | DC467 |  |  |  | DC468 |  |  |  | DC469 |  |  |  | DC470 |  |  |  | DC471 |  |  |  | DC472 |  |  |  | DC473 |  |  |  | DC474 |  |  |  | DC475 |  |  |  | DC476 |  |  |  | DC477 |  |  |  | DC478 |  |  |  | DC479 |  |  |  | DC480 |  |  |  | DC481 |  |  |  | DC482 |  |  |  | DC483 |  |  |  | DC484 |  |  |  | DC485 |  |  |  | DC486 |  |  |  | DC487 |  |  |  | DC488 |  |  |  | DC489 |  |  |  | DC490 |  |  |  | DC491 |  |  |  | DC492 |  |  |  | DC493 |  |  |  | DC494 |  |  |  | DC495 |  |  |  | DC496 |  |  |  | DC497 |  |  |  | DC498 |  |  |  | DC499 |  |  |  | DC500 |  |  |  | DC501 |  |  |  | DC502 |  |  |  | DC503 |  |  |  | DC504 |  |  |  | DC505 |  |  |  | DC506 |  |  |  | DC507 |  |  |  | DC508 |  |  |  | DC509 |  |  |  | DC510 |  |  |  | DC511 |  |  |  | DC512 |  |  |  | DC513 |  |  |  | DC514 |  |  |  | DC515 |  |  |  | DC516 |  |  |  | DC517 |  |  |  | DC518 |  |  |  | DC519 |  |  |  | DC520 |  |  |  | DC521 |  |  |  | DC522 |  |  |  | DC523 |  |  |  | DC524 |  |  |  | DC525 |  |  |  | DC526 |  |  |  | DC527 |  |  |  | DC528 |  |  |  | DC529 |  |  |  | DC530 |  |  |  | DC531 |  |  |  | DC532 |  |  |  | DC533 |  |  |  | DC534 |  |  |  | DC535 |  |  |  | DC536 |  |  |  | DC537 |  |  |  | DC538 |  |  |  | DC539 |  |  |  | DC540 |  |  |  | DC541 |  |  |  | DC542 |  |  |  | DC543 |  |  |  | DC544 |  |  |  | DC545 |  |  |  | DC546 |  |  |  | DC547 |  |  |  | DC548 |  |  |  | DC549 |  |  |  | DC550 |  |  |  | DC551 |  |  |  | DC552 |  |  |  | DC553 |  |  |  | DC554 |  |  |  | DC555 |  |  |  | DC556 |  |  |  | DC557 |  |  |  | DC558 |  |  |  | DC559 |  |  |  | DC560 |  |  |  | DC561 |  |  |  | DC562 |  |  |  | DC563 |  |  |  | DC564 |  |  |  | DC565 |  |  |  | DC566 |  |  |  | DC567 |  |  |  | DC568 |  |  |  | DC569 |  |  |  | DC570 |  |  |  | DC571 |  |  |  | DC572 |  |  |  | DC573 |  |  |  | DC574 |  |  |  | DC575 |  |  |  | DC576 |  |  |  | DC577 |  |  |  | DC578 |  |  |  | DC579 |  |  |  | DC580 |  |  |  | DC581 |  |  |  | DC582 |  |  |  | DC583 |  |  |  | DC584 |  |  |  | DC585 |  |  |  | DC586 |  |  |  | DC587 |  |  |  | DC588 |  |  |  | DC589 |  |  |  | DC590 |  |  |  | DC591 |  |  |  | DC592 |  |  |  | DC593 |  |  |  | DC594 |  |  |  | DC595 |  |  |  | DC596 |  |  |  | DC597 |  |  |  | DC598 |  |  |  | DC599 |  |  |  | DC600 |  |  |  | DC601 |  |  |  | DC602 |  |  |  | DC603 |  |  |  | DC604 |  |  |  | DC605 |  |  |  | DC606 |  |  |  | DC607 |  |  |  | DC608 |  |  |  | DC609 |  |  |  | DC610 |  |  |  | DC611 |  |  |  | DC612 |  |  |  | DC613 |  |  |  | DC614 |  |  |  | DC615 |  |  |  | DC616 |  |  |  | DC617 |  |  |  | DC618 |  |  |  | DC619 |  |  |  | DC620 |  |  |  | DC621 |  |  |  | DC622 |  |  |  | DC623 |  |  |  | DC624 |  |  |  | DC625 |  |  |  | DC626 |  |  |  | DC627 |  |  |  | DC628 |  |  |  | DC629 |  |  |  | DC630 |  |  |  | DC631 |  |  |  | DC632 |  |  |  | DC633 |  |  |  | DC634 |  |  |  | DC635 |  |  |  | DC636 |  |  |  | DC637 |  |  |  | DC638 |  |  |  | DC639 |  |  |  | DC640 |  |  |  | DC641 |  |  |  | DC642 |  |  |  | DC643 |  |  |  | DC644 |  |  |  | DC645 |  |  |  | DC646 |  |  |  | DC647 |  |  |  | DC648 |  |  |  | DC649 |  |  |  | DC650 |  |  |  | DC651 |  |  |  | DC652 |  |  |  | DC653 |  |  |  | DC654 |  |  |  | DC655 |  |  |  | DC656 |  |  |  | DC657 |  |  |  | DC658 |  |  |  | DC659 |  |  |  | DC660 |  |  |  | DC661 |  |  |  | DC662 |  |  |  | DC663 |  |  |  | DC664 |  |  |  | DC665 |  |  |  | DC666 |  |  |  | DC667 |  |  |  | DC668 |  |  |  | DC669 |  |  |  | DC670 |  |  |  | DC671 |  |  |  | DC672 |  |  |  | DC673 |  |  |  | DC674 |  |  |  | DC675 |  |  |  | DC676 |  |  |  | DC677 |  |  |  | DC678 |  |  |  | DC679 |  |  |  | DC680 |  |  |  | DC681 |  |  |  | DC682 |  |  |  | DC683 |  |  |  | DC684 |  |  |  | DC685 |  |  |  | DC686 |  |  |  | DC687 |  |  |  | DC688 |  |  |  | DC689 |  |  |  | DC690 |  |  |  | DC691 |  |  |  | DC692 |  |  |  | DC693 |  |  |  | DC694 |  |  |  | DC695 |  |  |  | DC696 |  |  |  | DC697 |  |  |  | DC698 |  |  |  | DC699 |  |  |  | DC700 |  |  |  | DC701 |  |  |  | DC702 |  |  |  | DC703 |  |  |  | DC704 |  |  |  | DC705 |  |  |  | DC706 |  |  |  | DC707 |  |  |  | DC708 |  |  |  | DC709 |  |  |  | DC710 |  |  |  | DC711 |  |  |  | DC712 |  |  |  | DC713 |  |  |  | DC714 |  |  |  | DC715 |  |  |  | DC716 |  |  |  | DC717 |  |  |  | DC718 |  |  |  | DC719 |  |  |  | DC720 |  |  |  | DC721 |  |  |  | DC722 |  |  |  | DC723 |  |  |  | DC724 |  |  |  | DC725 |  |  |  | DC726 |  |  |  | DC727 |  |  |  | DC728 |  |  |  | DC729 |  |  |  | DC730 |  |  |  | DC731 |  |  |  | DC732 |  |  |  | DC733 |  |  |  | DC734 |  |  |  | DC735 |  |  |  | DC736 |  |  |  | DC737 |  |  |  | DC738 |  |  |  | DC739 |  |  |  | DC740 |  |  |  | DC741 |  |  |  | DC742 |  |  |  | DC743 |  |  |  | DC744 |  |  |  | DC745 |  |  |  | DC746 |  |  |  | DC747 |  |  |  | DC748 |  |  |  | DC749 |  |  |  | DC750 |  |  |  | DC751 |  |  |  | DC752 |  |  |  | DC753 |  |  |  | DC754 |  |  |  | DC755 |  |  |  | DC756 |  |  |  | DC757 |  |  |  | DC758 |  |  |  | DC759 |  |  |  | DC760 |  |  |  | DC761 |  |  |  | DC762 |  |  |  | DC763 |  |  |  | DC764 |  |  |  | DC765 |  |  |  | DC766 |  |  |  | DC767 |  |  |  | DC768 |  |  |  | DC769 |  |  |  | DC770 |  |  |  | DC771 |  |  |  | DC772 |  |  |  | DC773 |  |  |  | DC774 |  |  |  | DC775 |  |  |  | DC776 |  |  |  | DC777 |  |  |  | DC778 |  |  |  | DC779 |  |  |  | DC780 |  |  |  | DC781 |  |  |  | DC782 |  |  |  | DC783 |  |  |  | DC784 |  |  |  | DC785 |  |  |  | DC786 |  |  |  | DC787 |  |  |  | DC788 |  |  |  | DC789 |  |  |  | DC790 |  |  |  | DC791 |  |  |  | DC792 |  |  |  | DC793 |  |  |  | DC794 |  |  |  | DC795 |  |  |  | DC796 |  |  |  | DC797 |  |  |  | DC798 |  |  |  | DC799 |  |  |  | DC800 |  |  |  | DC801 |  |  |  | DC802 |  |  |  | DC803 |  |  |  | DC804 |  |  |  | DC805 |  |  |  | DC806 |  |  |  | DC807 |  |  |  | DC808 |  |  |  | DC809 |  |  |  | DC810 |  |  |  | DC811 |  |  |  | DC812 |  |  |  | DC813 |  |  |  | DC814 |  |  |  | DC815 |  |  |  | DC816 |  |  |  | DC817 |  |  |  | DC818 |  |  |  | DC819 |  |  |  | DC820 |  |  |  | DC821 |  |  |  | DC822 |  |  |  | DC823 |  |  |  | DC824 |  |  |  | DC825 |  |  |  | DC826 |  |  |  | DC827 |  |  |  | DC828 |  |  |  | DC829 |  |  |  | DC830 |  |  |  | DC831 |  |  |  | DC832 |  |  |  | DC833 |  |  |  | DC834 |  |  |  | DC835 |  |  |  | DC836 |  |  |  | DC837 |  |  |  | DC838 |  |  |  | DC839 |  |  |  | DC840 |  |  |  | DC841 |  |  |  | DC842 |  |  |  | DC843 |  |  |  | DC844 |  |  |  | DC845 |  |  |  | DC846 |  |  |  | DC847 |  |  |  | DC848 |  |  |  | DC849 |  |  |  | DC850 |  |  |  | DC851 |  |  |  | DC852 |  |  |  | DC853 |  |  |  | DC854 |  |  |  | DC855 |  |  |  | DC856 |  |  |  | DC857 |  |  |  | DC858 |  |  |  | DC859 |  |  |  | DC860 |  |  |  | DC861 |  |  |  | DC862 |  |  |  | DC863 |  |  |  | DC864 |  |  |  | DC865 |  |  |  | DC866 |  |  |  | DC867 |  |  |  | DC868 |  |  |  | DC869 |  |  |  | DC870 |  |  |  | DC871 |  |  |  | DC872 |  |  |  | DC873 |  |  |  | DC874 |  |  |  | DC875 |  |  |  | DC876 |  |  |  | DC877 |  |  |  | DC878 |  |  |  | DC879 |  |  |  | DC880 |  |  |  | DC881 |  |  |  | DC882 |  |  |  | DC883 |  |  |  | DC884 |  |  |  | DC885 |  |  |  | DC886 |  |  |  | DC887 |  |  |  | DC888 |  |  |  | DC889 |  |  |  | DC890 |  |  |  | DC891 |  |  |  | DC892 |  |  |  | DC893 |  |  |  | DC894 |  |  |  | DC895 |  |  |  | DC896 |  |  |  | DC897 |  |  |  | DC898 |  |  |  | DC899 |  |  |  | DC900 |  |  |  | DC901 |  |  |  | DC902 |  |  |  | DC903 |  |  |  | DC904 |  |  |  | DC905 |  |  |  | DC906 |  |  |  | DC907 |  |  |  | DC908 |  |  |  | DC909 |  |  |  | DC910 |  |  |  | DC911 |  |  |  | DC912 |  |  |  | DC913 |  |  |  | DC914 |  |  |  | DC915 |  |  |  | DC916 |  |  |  | DC917 |  |  |  | DC918 |  |  |  | DC919 |  |  |  | DC920 |  |  |  | DC921 |  |  |  | DC922 |  |  |  | DC923 |  |  |  | DC924 |  |  |  | DC925 |  |  |  | DC926 |  |  |  | DC927 |  |  |  | DC928 |  |  |  | DC929 |  |  |  | DC930 |  |  |  | DC931 |  |  |  | DC932 |  |  |  | DC933 |  |  |  | DC934 |  |  |  | DC935 |  |  |  | DC936 |  |  |  | DC937 |  |  |  | DC938 |  |  |  | DC939 |  |  |  | DC940 |  |  |  | DC941 |  |  |  | DC942 |  |  |  | DC943 |  |  |  | DC944 |  |  |  | DC945 |  |  |  | DC946 |  |  |  | DC947 |  |  |  | DC948 |  |  |  | DC949 |  |  |  | DC950 |  |  |  | DC951 |  |  |  | DC952 |  |  |  | DC953 |  |  |  | DC954 |  |  |  | DC955 |  |  |  | DC956 |  |  |  | DC957 |  |  |  | DC958 |  |  |  | DC959 |  |  |  | DC960 |  |  |  | DC961 |  |  |  | DC962 |  |  |  | DC963 |  |  |  | DC964 |  |  |  | DC965 |  |  |  | DC966 |  |  |  | DC967 |  |  |  | DC968 |  |  |  | DC969 |  |  |  | DC970 |  |  |  | DC971 |  |  |  | DC972 |  |  |  | DC973 |  |  |  | DC974 |  |  |  | DC975 |  |  |  | DC976 |  |  |  | DC977 |  |  |  | DC978 |  |  |  | DC979 |  |  |  | DC980 |  |  |  | DC981 |  |  |  | DC982 |  |  |  | DC983 |  |  |  | DC984 |  |  |  | DC985 |  |  |  | DC986 |  |  |  | DC987 |  |  |  | DC988 |  |  |  | DC989 |  |  |  | DC990 |  |  |  | DC991 |  |  |  | DC992 |  |  |  | DC993 |  |  |  | DC994 |  |  |  | DC995 |  |  |  | DC996 |  |  |  | DC997 |  |  |  | DC998 |  |  |  | DC999 |  |  |  | DC1000 |  |  |  | DC1001 |  |  |  | DC1002 |  |  |  | DC1003 |  |  |  | DC1004 |  |  |  | DC1005 |  |  |  | DC1006 |  |  |  | DC1007 |  |  |  | DC1008 |  |  |  | DC1009 |  |  |  | DC1010 |  |  |  | DC1011 |  |  |  | DC1012 |  |  |  | DC1013 |  |  |  | DC1014 |  |  |  | DC1015 |  |  |  | DC1016 |  |  |  | DC1017 |  |  |  | DC1018 |  |  |  | DC1019 |  |  |  | DC1020 |  |  |  | DC1021 |  |  |  | DC1022 |  |  |  | DC1023 |  |  |  | DC1024 |  |  |  | DC1025 |  |  |  | DC1026 |  |  |  | DC1027 |  |  |  | DC1028 |  |  |  | DC1029 |  |  |  | DC1030 |  |  |  | DC1031 |  |  |  | DC1032 |  |  |  | DC1033 |  |  |  | DC1034 |  |  |  | DC1035 |  |  |  | DC1036 |  |  |  |
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|                                     |                                                                                                                  |                                 |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: BCGA2230                    |  <b>SAR EVALUATION REPORT</b> | Reviewed by:<br>Quality Manager |
| Test Dates:<br>12/16/2019-1/14/2020 | DUT Type:<br>Tablet Device                                                                                       | APPENDIX F:<br>Page 12 of 16    |

## LTE Band 25 as PCC

**Table 21**  
**Output Powers – Ant 2A**

[illegible]

## LTE Band 30 as PCC

**Table 22**  
**Output Powers – Ant 4B**

| Combination         | PCB Band | PCB BW [MHz] | PCC [kHz] | PCC       |       |           |            | PCC UL RB | PCC UL RB Offset | PCC [kHz] | PCC (UL) Freq. [MHz] | DL Ant. Config. | S-CB Band | SCS 1     |                 |           |                 | SCS 2     |                 |           |                 | SCS 3     |                 |           |                 | SCS 4              |                                   |   |   | Power |       |
|---------------------|----------|--------------|-----------|-----------|-------|-----------|------------|-----------|------------------|-----------|----------------------|-----------------|-----------|-----------|-----------------|-----------|-----------------|-----------|-----------------|-----------|-----------------|-----------|-----------------|-----------|-----------------|--------------------|-----------------------------------|---|---|-------|-------|
|                     |          |              |           | FCC [kHz] | Mod.  | PCC UL RB | PCC DL Ch. |           |                  |           |                      |                 |           | SCC [kHz] | DL Ant. Config. | SCC [kHz] | DL Ant. Config. | SCC [kHz] | DL Ant. Config. | SCC [kHz] | DL Ant. Config. | SCC [kHz] | DL Ant. Config. | SCC [kHz] | DL Ant. Config. | LTE Tx Power [dBm] | LTE Single Carrier Tx Power [dBm] |   |   |       |       |
| CA (CA12-CA24)      | LTE E20  | 10           | 27720     | 2310      | 16QAM | 1         | 25         | 9820      | 2355             | 444       | LTE B2               | 25              | 900       | 1860      | 444             | LTE B2    | 25              | 700       | 1960            | 444       | LTE B3          | 10        | 2525            | 881.5     | 2x2             | -                  | -                                 | - | - | 13.95 | 13.95 |
| CA (2A12-CA14-2A24) | LTE E20  | 10           | 27720     | 2310      | 16QAM | 1         | 25         | 9820      | 2355             | 444       | LTE B2               | 25              | 900       | 1860      | 444             | LTE B2    | 25              | 700       | 1960            | 444       | LTE B12         | 10        | 5095            | 733.5     | 2x2             | -                  | -                                 | - | - | 13.95 | 13.95 |
| CA (2A12-CA14-2A24) | LTE E20  | 10           | 27720     | 2310      | 16QAM | 1         | 25         | 9820      | 2355             | 444       | LTE B2               | 25              | 900       | 1860      | 444             | LTE B2    | 25              | 700       | 1960            | 444       | LTE B12         | 10        | 5095            | 733.5     | 2x2             | -                  | -                                 | - | - | 13.95 | 13.95 |
| CA (2A12-CA14-2A24) | LTE E20  | 10           | 27720     | 2310      | 16QAM | 1         | 25         | 9820      | 2355             | 444       | LTE B2               | 25              | 900       | 1860      | 444             | LTE B2    | 25              | 700       | 1960            | 444       | LTE B66         | 10        | 66396           | 2145      | 444             | -                  | -                                 | - | - | 13.95 | 13.95 |
| CA (2A12-CA14-2A24) | LTE E20  | 10           | 27720     | 2310      | 16QAM | 1         | 25         | 9820      | 2355             | 444       | LTE B2               | 25              | 900       | 1860      | 444             | LTE B2    | 25              | 700       | 1960            | 444       | LTE B66         | 10        | 66396           | 2145      | 444             | -                  | -                                 | - | - | 13.95 | 13.95 |
| CA (2A12-CA14-2A24) | LTE E20  | 10           | 27720     | 2310      | 16QAM | 1         | 25         | 9820      | 2355             | 444       | LTE B2               | 25              | 900       | 1860      | 444             | LTE B2    | 25              | 700       | 1960            | 444       | LTE B66         | 10        | 66396           | 2145      | 444             | -                  | -                                 | - | - | 13.95 | 13.95 |
| CA (2A12-CA14-2A24) | LTE E20  | 10           | 27720     | 2310      | 16QAM | 1         | 25         | 9820      | 2355             | 444       | LTE B2               | 25              | 900       | 1860      | 444             | LTE B2    | 25              | 700       | 1960            | 444       | LTE B66         | 10        | 66396           | 2145      | 444             | -                  | -                                 | - | - | 13.95 | 13.95 |
| CA (2A12-CA14-2A24) | LTE E20  | 10           | 27720     | 2310      | 16QAM | 1         | 25         | 9820      | 2355             | 444       | LTE B2               | 25              | 900       | 1860      | 444             | LTE B2    | 25              | 700       | 1960            | 444       | LTE B66         | 10        | 66396           | 2145      | 444             | -                  | -                                 | - | - | 13.95 | 13.95 |
| CA (2A12-CA14-2A24) | LTE E20  | 10           | 27720     | 2310      | 16QAM | 1         | 25         | 9820      | 2355             | 444       | LTE B2               | 25              | 900       | 1860      | 444             | LTE B2    | 25              | 700       | 1960            | 444       | LTE B66         | 10        | 66396           | 2145      | 444             | -                  | -                                 | - | - | 13.95 | 13.95 |
| CA (2A12-CA14-2A24) | LTE E20  | 10           | 27720     | 2310      | 16QAM | 1         | 25         | 9820      | 2355             | 444       | LTE B2               | 25              | 900       | 1860      | 444             | LTE B2    | 25              | 700       | 1960            | 444       | LTE B66         | 10        | 66396           | 2145      | 444             | -                  | -                                 | - | - | 13.95 | 13.95 |
| CA (2A12-CA14-2A24) | LTE E20  | 10           | 27720     | 2310      | 16QAM | 1         | 25         | 9820      | 2355             | 444       | LTE B2               | 25              | 900       | 1860      | 444             | LTE B2    | 25              | 700       | 1960            | 444       | LTE B66         | 10        | 66396           | 2145      | 444             | -                  | -                                 | - | - | 13.95 | 13.95 |
| CA (2A12-CA14-2A24) | LTE E20  | 10           | 27720     | 2310      | 16QAM | 1         | 25         | 9820      | 2355             | 444       | LTE B2               | 25              | 900       | 1860      | 444             | LTE B2    | 25              | 700       | 1960            | 444       | LTE B66         | 10        | 66396           | 2145      | 444             | -                  | -                                 | - | - | 13.95 | 13.95 |
| CA (2A12-CA14-2A24) | LTE E20  | 10           | 27720     | 2310      | 16QAM | 1         | 25         | 9820      | 2355             | 444       | LTE B2               | 25              | 900       | 1860      | 444             | LTE B2    | 25              | 700       | 1960            | 444       | LTE B66         | 10        | 66396           | 2145      | 444             | -                  | -                                 | - | - | 13.95 | 13.95 |
| CA (2A12-CA14-2A24) | LTE E20  | 10           | 27720     | 2310      | 16QAM | 1         | 25         | 9820      | 2355             | 444       | LTE B2               | 25              | 900       | 1860      | 444             | LTE B2    | 25              | 700       | 1960            | 444       | LTE B66         | 10        | 66396           | 2145      | 444             | -                  | -                                 | - | - | 13.95 | 13.95 |
| CA (2A12-CA14-2A24) | LTE E20  | 10           | 27720     | 2310      | 16QAM | 1         | 25         | 9820      | 2355             | 444       | LTE B2               | 25              | 900       | 1860      | 444             | LTE B2    | 25              | 700       | 1960            | 444       | LTE B66         | 10        | 66396           | 2145      | 444             | -                  | -                                 | - | - | 13.95 | 13.95 |
| CA (2A12-CA14-2A24) | LTE E20  | 10           | 27720     | 2310      | 16QAM | 1         | 25         | 9820      | 2355             | 444       | LTE B2               | 25              | 900       | 1860      | 444             | LTE B2    | 25              | 700       | 1960            | 444       | LTE B66         | 10        | 66396           | 2145      | 444             | -                  | -                                 | - | - | 13.95 | 13.95 |
| CA (2A12-CA14-2A24) | LTE E20  | 10           | 27720     | 2310      | 16QAM | 1         | 25         | 9820      | 2355             | 444       | LTE B2               | 25              | 900       | 1860      | 444             | LTE B2    | 25              | 700       | 1960            | 444       | LTE B66         | 10        | 66396           | 2145      | 444             | -                  | -                                 | - | - | 13.95 | 13.95 |
| CA (2A12-CA14-2A24) | LTE E20  | 10           | 27720     | 2310      | 16QAM | 1         | 25         | 9820      | 2355             | 444       | LTE B2               | 25              | 900       | 1860      | 444             | LTE B2    | 25              | 700       | 1960            | 444       | LTE B66         | 10        | 66396           | 2145      | 444             | -                  | -                                 | - | - | 13.95 | 13.95 |
| CA (2A12-CA14-2A24) | LTE E20  | 10           | 27720     | 2310      | 16QAM | 1         | 25         | 9820      | 2355             | 444       | LTE B2               | 25              | 900       | 1860      | 444             | LTE B2    | 25              | 700       | 1960            | 444       | LTE B66         | 10        | 66396           | 2145      | 444             | -                  | -                                 | - | - | 13.95 | 13.95 |
| CA (2A12-CA14-2A24) | LTE E20  | 10           | 27720     | 2310      | 16QAM | 1         | 25         | 9820      | 2355             | 444       | LTE B2               | 25              | 900       | 1860      | 444             | LTE B2    | 25              | 700       | 1960            | 444       | LTE B66         | 10        | 66396           | 2145      | 444             | -                  | -                                 | - | - | 13.95 | 13.95 |
| CA (2A12-CA14-2A24) | LTE E20  | 10           | 27720     | 2310      | 16QAM | 1         | 25         | 9820      | 2355             | 444       | LTE B2               | 25              | 900       | 1860      | 444             | LTE B2    | 25              | 700       | 1960            | 444       | LTE B66         | 10        | 66396           | 2145      | 444             | -                  | -                                 | - | - | 13.95 | 13.95 |
| CA (2A12-CA14-2A24) | LTE E20  | 10           | 27720     | 2310      | 16QAM | 1         | 25         | 9820      | 2355             | 444       | LTE B2               | 25              | 900       | 1860      | 444             | LTE B2    | 25              | 700       | 1960            | 444       | LTE B66         | 10        | 66396           | 2145      | 444             | -                  | -                                 | - | - | 13.95 | 13.95 |
| CA (2A12-CA14-2A24) | LTE E20  | 10           | 27720     | 2310      | 16QAM | 1         | 25         | 9820      | 2355             | 444       | LTE B2               | 25              | 900       | 1860      | 444             | LTE B2    | 25              | 700       | 1960            | 444       | LTE B66         | 10        | 66396           | 2145      | 444             | -                  | -                                 | - | - | 13.95 | 13.95 |
| CA (2A12-CA14-2A24) | LTE E20  | 10           | 27720     | 2310      | 16QAM | 1         | 25         | 9820      | 2355             | 444       | LTE B2               | 25              | 900       | 1860      | 444             | LTE B2    | 25              | 700       | 1960            | 444       | LTE B66         | 10        | 66396           | 2145      | 444             | -                  | -                                 | - | - | 13.95 | 13.95 |
| CA (2A12-CA14-2A24) | LTE E20  | 10           | 27720     | 2310      | 16QAM | 1         | 25         | 9820      | 2355             | 444       | LTE B2               | 25              | 900       | 1860      | 444             | LTE B2    | 25              | 700       | 1960            | 444       | LTE B66         | 10        | 66396           | 2145      | 444             | -                  | -                                 | - | - | 13.95 | 13.95 |
| CA (2A12-CA14-2A24) | LTE E20  | 10           | 27720     | 2310      | 16QAM | 1         | 25         | 9820      | 2355             | 444       | LTE B2               | 25              | 900       | 1860      | 444             | LTE B2    | 25              | 700       | 1960            | 444       | LTE B66         | 10        | 66396           | 2145      | 444             | -                  | -                                 | - | - | 13.95 | 13.95 |
| CA (2A12-CA14-2A24) | LTE E20  | 10           | 27720     | 2310      | 16QAM | 1         | 25         | 9820      | 2355             | 444       | LTE B2               | 25              | 900       | 1860      | 444             | LTE B2    | 25              | 700       | 1960            | 444       | LTE B66         | 10        | 66396           | 2145      | 444             | -                  | -                                 | - | - | 13.95 | 13.95 |
| CA (2A12-CA14-2A24) | LTE E20  | 10           | 27720     | 2310      | 16QAM | 1         | 25         | 9820      | 2355             | 444       | LTE B2               | 25              | 900       | 1860      | 444             | LTE B2    | 25              | 700       | 1960            | 444       | LTE B66         | 10        | 66396           | 2145      | 444             | -                  | -                                 | - | - | 13.95 | 13.95 |
| CA (2A12-CA14-2A24) | LTE E20  | 10           | 27720     | 2310      | 16QAM | 1         | 25         | 9820      | 2355             | 444       | LTE B2               | 25              | 900       | 1860      | 444             | LTE B2    | 25              | 700       | 1960            | 444       | LTE B66         | 10        | 66396           | 2145      | 444             | -                  | -                                 | - | - | 13.95 | 13.95 |
| CA (2A12-CA14-2A24) | LTE E20  | 10           | 27720     | 2310      | 16QAM | 1         | 25         | 9820      | 2355             | 444       | LTE B2               | 25              | 900       | 1860      | 444             | LTE B2    | 25              | 700       | 1960            | 444       | LTE B66         | 10        | 66396           | 2145      | 444             | -                  | -                                 | - | - | 13.95 | 13.95 |
| CA (2A12-CA14-2A24) | LTE E20  | 10           | 27720     | 2310      | 16QAM | 1         | 25         | 9820      | 2355             | 444       | LTE B2               | 25              | 900       | 1860      | 444             | LTE B2    | 25              | 700       | 1960            | 444       | LTE B66         | 10        | 66396           | 2145      | 444             | -                  | -                                 | - | - | 13.95 | 13.95 |
| CA (2A12-CA14-2A24) | LTE E20  | 10           | 27720     | 2310      | 16QAM | 1         | 25         | 9820      | 2355             | 444       | LTE B2               | 25              | 900       | 1860      | 444             | LTE B2    | 25              | 700       | 1960            | 444       | LTE B66         | 10        | 66396           | 2145      | 444             | -                  | -                                 | - | - | 13.95 | 13.95 |
| CA (2A12-CA14-2A24) | LTE E20  | 10           | 27720     | 2310      | 16QAM | 1         | 25         | 9820      | 2355             | 444       | LTE B2               | 25              | 900       | 1860      | 444             | LTE B2    | 25              | 700       | 1960            | 444       | LTE B66         | 10        | 66396           | 2145      | 444             | -                  | -                                 | - | - | 13.95 | 13.95 |
| CA (2A12-CA14-2A24) | LTE E20  | 10           | 27720     | 2310      | 16QAM | 1         | 25         | 9820      | 2355             | 444       | LTE B2               | 25              | 900       | 1860      | 444             | LTE B2    | 25              | 700       | 1960            | 444       | LTE B66         | 10        | 66396           | 2145      | 444             | -                  | -                                 | - | - | 13.95 | 13.95 |
| CA (2A12-CA14-2A24) | LTE E20  | 10           | 27720     | 2310      | 16QAM | 1         | 25         | 9820      | 2355             | 444       | LTE B2               | 25              | 900       | 1860      | 444             | LTE B2    | 25              | 700       | 1960            | 444       | LTE B66         | 10        | 66396           | 2145      | 444             | -                  | -                                 | - | - | 13.95 | 13.95 |
| CA (2A12-CA14-2A24) | LTE E20  | 10           | 27720     | 2310      | 16QAM | 1         | 25         | 9820      | 2355             | 444       | LTE B2               | 25              | 900       | 1860      | 444             | LTE B2    | 25              | 700       | 1960            | 444       | LTE B66         | 10        | 66396           | 2145      | 444             | -                  | -                                 | - | - | 13.95 | 13.95 |
| CA (2A12-CA14-2A24) | LTE E20  | 10           | 27720     | 2310      | 16QAM | 1         | 25         | 9820      | 2355             | 444       | LTE B2               | 25              | 900       | 1860      | 444             | LTE B2    | 25              | 700       | 1960            | 444       | LTE B66         | 10        | 66396           | 2145      | 444             | -                  | -                                 | - | - | 13.95 | 13.95 |
| CA (2A12-CA14-2A24) | LTE E20  | 10           | 27720     | 2310      | 16QAM | 1         | 25         | 9820      | 2355             | 444       | LTE B2               | 25              | 900       | 1860      | 444             | LTE B2    | 25              | 700       | 1960            | 444       | LTE B66         | 10        | 66396           | 2145      | 444             | -                  | -                                 | - | - | 13.95 | 13.95 |
| CA (2A12-CA14-2A24) | LTE E20  | 10           | 27720     | 2310      | 16QAM | 1         | 25         | 9820      | 2355             | 444       | LTE B2               | 25              | 900       | 1860      | 444             | LTE B2    | 25              | 700       | 1960            | 444       | LTE B66         | 10        | 66396           | 2145      | 444             | -                  | -                                 | - | - | 13.95 | 13.95 |
| CA (2A12-CA14-2A24) | LTE E20  | 10           | 27720     | 2310      | 16QAM | 1         | 25         | 9820      | 2355             | 444       | LTE B2               | 25              | 900       | 1860      | 444             | LTE B2    | 25              | 700       | 1960            | 444       | LTE B66         | 10        | 66396           | 2145      | 444             | -                  | -                                 | - | - | 13.95 | 13.95 |
| CA (2A12-CA14-2A24) | LTE E20  | 10           | 27720     | 2310      | 16QAM | 1         | 25         | 9820      | 2355             | 444       | LTE B2               | 25              | 900       | 1860      | 444             | LTE B2    | 25              | 700       | 1960            | 444       | LTE B66         | 10        | 66396           | 2145      | 444             | -                  | -                                 | - | - | 13.95 | 13.95 |
| CA (2A12-CA14-2A24) | LTE E20  | 10           | 27720     | 2310      | 16QAM | 1         | 25         | 9820      | 2355             | 444       | LTE B2               | 25              | 900       | 1860      | 444             | LTE B2    | 25              | 700       | 1960            | 444       | LTE B66         | 10        | 66396           | 2145      | 444             | -                  | -                                 | - | - | 13.95 | 13.95 |
| CA (2A12-CA14-2A24) | LTE E20  | 10           | 27720     | 2310      | 16QAM | 1         | 25         | 9820      | 2355             | 444       | LTE B2               | 25              | 900       | 1860      | 444             | LTE B2    | 25              | 700       | 1960            | 444       | LTE B66         | 10        | 66396           | 2145      | 444             | -                  | -                                 | - | - | 13.95 | 13.95 |
| CA (2A12-CA14-2A24) | LTE E20  | 10           | 27720     | 2310      | 16QAM | 1         | 25         | 9820      | 2355             | 444       | LTE B2               | 25              | 900       | 1860      | 444             | LTE B2    | 25              | 700       | 1960            | 444       | LTE B66         | 10        | 66396           | 2145      | 444             | -                  | -                                 | - | - | 13.95 | 13.95 |
| CA (2A12-CA14-2A24) | LTE E20  | 10           | 27720     | 2310      | 16QAM | 1         | 25         | 9820      | 2355             | 444       | LTE B2               | 25              | 900       | 1860      | 444             | L         |                 |           |                 |           |                 |           |                 |           |                 |                    |                                   |   |   |       |       |

## LTE Band 7 as PCC

**Table 23**  
**Output Powers – Ant 4B**

| Combination       | PCB Band | PCC          |              |                      |      |           |                  |              |                      |                 |          | SC1          |              | SC2                  |                 | SC3      |              | SC4          |                      | Power           |          |              |              |                      |                 |                                     |                                   |
|-------------------|----------|--------------|--------------|----------------------|------|-----------|------------------|--------------|----------------------|-----------------|----------|--------------|--------------|----------------------|-----------------|----------|--------------|--------------|----------------------|-----------------|----------|--------------|--------------|----------------------|-----------------|-------------------------------------|-----------------------------------|
|                   |          | PCB BW [MHz] | PCC [UL] Ch. | PCC [UL] Freq. [MHz] | Mod. | PCC UL RB | PCC UL RB Offset | PCC [DL] Ch. | PCC [DL] Freq. [MHz] | DL Ant. Config. | SCC Band | SCC BW [MHz] | SCC [DL] Ch. | SCC [DL] Freq. [MHz] | DL Ant. Config. | SCC Band | SCC BW [MHz] | SCC [DL] Ch. | SCC [DL] Freq. [MHz] | DL Ant. Config. | SCC Band | SCC BW [MHz] | SCC [DL] Ch. | SCC [DL] Freq. [MHz] | DL Ant. Config. | LTE Tx Power with CLC A Enb'd [dBm] | LTE Single Carrier Tx Power [dBm] |
| CA [T8]           | LTE B7   | 15           | 21100        | 2535                 | QPSK | 50        | 0                | 1100         | 2655                 | 4x4             | LTE B87  | 5            | 2007         | 2685.2               | 4x4             |          |              |              |                      |                 |          |              |              |                      |                 | 13.21                               | 13.24                             |
| CA SA/TA [7A]     | LTE B7   | 20           | 21100        | 2535                 | QPSK | 50        | 0                | 1100         | 2655                 | 4x4             | LTE B85  | 10           | 2525         | 881.5                | 2x2             |          |              |              |                      |                 |          |              |              |                      |                 | 13.18                               | 13.24                             |
| CA [TA] 26A [1]   | LTE B7   | 20           | 21100        | 2535                 | QPSK | 50        | 0                | 1100         | 2655                 | 4x4             | LTE B20  | 10           | 8905         | 876.5                | 2x2             |          |              |              |                      |                 |          |              |              |                      |                 | 13.18                               | 13.24                             |
| CA [TA] 26A [2]   | LTE B7   | 20           | 21100        | 2535                 | QPSK | 50        | 0                | 1100         | 2655                 | 4x4             | LTE B46  | 20           | 50665        | 5537.2               | 2x2             |          |              |              |                      |                 |          |              |              |                      |                 | 13.23                               | 13.24                             |
| CA [TA] 26A [3]   | LTE B7   | 20           | 21100        | 2535                 | QPSK | 50        | 0                | 1100         | 2655                 | 4x4             | LTE B12  | 20           | 900          | 1960                 | 4x4             | LTE B82  | 20           | 900          | 1960                 | 4x4             |          |              |              |                      |                 | 13.13                               | 13.18                             |
| CA [AA] 14A [1]   | LTE B7   | 20           | 21100        | 2535                 | QPSK | 50        | 0                | 1100         | 2655                 | 4x4             | LTE B4   | 20           | 2175         | 2122.5               | 4x4             | LTE B4   | 10           | 2310         | 2150                 | 2x2             |          |              |              |                      |                 | 13.16                               | 13.24                             |
| CA SA/TA [TA] 26A | LTE B7   | 20           | 21100        | 2535                 | QPSK | 50        | 0                | 1100         | 2655                 | 4x4             | LTE B7   | 20           | 2850         | 2830                 | 4x4             | LTE B85  | 10           | 2525         | 881.5                | 2x2             |          |              |              |                      |                 | 13.16                               | 13.24                             |
| CA [TA] 26A [4]   | LTE B7   | 20           | 21100        | 2535                 | QPSK | 50        | 0                | 1100         | 2655                 | 4x4             | LTE B7   | 20           | 2850         | 2832                 | 4x4             | LTE B85  | 10           | 2525         | 881.5                | 2x2             |          |              |              |                      |                 | 13.16                               | 13.24                             |
| CA [TA] 26A [5]   | LTE B7   | 20           | 21100        | 2535                 | QPSK | 50        | 0                | 1100         | 2655                 | 4x4             | LTE B7   | 20           | 2850         | 2830                 | 4x4             | LTE B20  | 10           | 8905         | 876.5                | 2x2             |          |              |              |                      |                 | 13.18                               | 13.24                             |
| CA [TA] 40C [1]   | LTE B7   | 20           | 21100        | 2535                 | QPSK | 50        | 0                | 1100         | 2655                 | 4x4             | LTE B46  | 20           | 50665        | 5537.5               | 2x2             | LTE B46  | 20           | 50667        | 5537.2               | 2x2             |          |              |              |                      |                 | 13.23                               | 13.24                             |
| CA [TA] 40C [2]   | LTE B7   | 20           | 21100        | 2535                 | QPSK | 50        | 0                | 1100         | 2655                 | 4x4             | LTE B7   | 20           | 2852         | 2832.5               | 4x4             | LTE B46  | 20           | 50665        | 5537.5               | 2x2             |          |              |              |                      |                 | 13.23                               | 13.24                             |
| CA [TA] 40C [3]   | LTE B7   | 20           | 21100        | 2535                 | QPSK | 50        | 0                | 1100         | 2655                 | 4x4             | LTE B7   | 20           | 2850         | 2832                 | 4x4             | LTE B46  | 20           | 50667        | 5537.2               | 2x2             |          |              |              |                      |                 | 13.23                               | 13.24                             |
| CA [TA] 40C [4]   | LTE B7   | 20           | 21100        | 2535                 | QPSK | 50        | 0                | 1100         | 2655                 | 4x4             | LTE B46  | 20           | 50668        | 5537.5               | 2x2             | LTE B46  | 20           | 50667        | 5537.2               | 2x2             |          |              |              |                      |                 | 13.23                               | 13.24                             |
| CA [TA] 40C [5]   | LTE B7   | 20           | 21100        | 2535                 | QPSK | 50        | 0                | 1100         | 2655                 | 4x4             | LTE B7   | 20           | 2852         | 2832.5               | 4x4             | LTE B46  | 20           | 50665        | 5537.5               | 2x2             |          |              |              |                      |                 | 13.23                               | 13.24                             |
| CA [TA] 40C [6]   | LTE B7   | 20           | 21100        | 2535                 | QPSK | 50        | 0                | 1100         | 2655                 | 4x4             | LTE B7   | 20           | 2850         | 2832                 | 4x4             | LTE B46  | 20           | 50667        | 5537.2               | 2x2             |          |              |              |                      |                 | 13.23                               | 13.24                             |
| CA [TA] 40C [7]   | LTE B7   | 20           | 21100        | 2535                 | QPSK | 50        | 0                | 1100         | 2655                 | 4x4             | LTE B7   | 20           | 2850         | 2832                 | 4x4             | LTE B46  | 20           | 50667        | 5537.2               | 2x2             |          |              |              |                      |                 | 13.23                               | 13.24                             |
| CA [TA] 40C [8]   | LTE B7   | 20           | 21100        | 2535                 | QPSK | 50        | 0                | 1100         | 2655                 | 4x4             | LTE B7   | 20           | 2850         | 2832                 | 4x4             | LTE B46  | 20           | 50667        | 5537.2               | 2x2             |          |              |              |                      |                 | 13.23                               | 13.24                             |
| CA [TA] 40C [9]   | LTE B7   | 20           | 21100        | 2535                 | QPSK | 50        | 0                | 1100         | 2655                 | 4x4             | LTE B7   | 20           | 2850         | 2832                 | 4x4             | LTE B46  | 20           | 50667        | 5537.2               | 2x2             |          |              |              |                      |                 | 13.23                               | 13.24                             |
| CA [TA] 40C [10]  | LTE B7   | 20           | 21100        | 2535                 | QPSK | 50        | 0                | 1100         | 2655                 | 4x4             | LTE B7   | 20           | 2850         | 2832                 | 4x4             | LTE B46  | 20           | 50667        | 5537.2               | 2x2             |          |              |              |                      |                 | 13.23                               | 13.24                             |
| CA [TA] 40C [11]  | LTE B7   | 20           | 21100        | 2535                 | QPSK | 50        | 0                | 1100         | 2655                 | 4x4             | LTE B7   | 20           | 2850         | 2832                 | 4x4             | LTE B46  | 20           | 50667        | 5537.2               | 2x2             |          |              |              |                      |                 | 13.23                               | 13.24                             |
| CA [TA] 40C [12]  | LTE B7   | 20           | 21100        | 2535                 | QPSK | 50        | 0                | 1100         | 2655                 | 4x4             | LTE B7   | 20           | 2850         | 2832                 | 4x4             | LTE B46  | 20           | 50667        | 5537.2               | 2x2             |          |              |              |                      |                 | 13.23                               | 13.24                             |
| CA [TA] 40C [13]  | LTE B7   | 20           | 21100        | 2535                 | QPSK | 50        | 0                | 1100         | 2655                 | 4x4             | LTE B7   | 20           | 2850         | 2832                 | 4x4             | LTE B46  | 20           | 50667        | 5537.2               | 2x2             |          |              |              |                      |                 | 13.23                               | 13.24                             |
| CA [TA] 40C [14]  | LTE B7   | 20           | 21100        | 2535                 | QPSK | 50        | 0                | 1100         | 2655                 | 4x4             | LTE B7   | 20           | 2850         | 2832                 | 4x4             | LTE B46  | 20           | 50667        | 5537.2               | 2x2             |          |              |              |                      |                 | 13.23                               | 13.24                             |
| CA [TA] 40C [15]  | LTE B7   | 20           | 21100        | 2535                 | QPSK | 50        | 0                | 1100         | 2655                 | 4x4             | LTE B7   | 20           | 2850         | 2832                 | 4x4             | LTE B46  | 20           | 50667        | 5537.2               | 2x2             |          |              |              |                      |                 | 13.23                               | 13.24                             |
| CA [TA] 40C [16]  | LTE B7   | 20           | 21100        | 2535                 | QPSK | 50        | 0                | 1100         | 2655                 | 4x4             | LTE B7   | 20           | 2850         | 2832                 | 4x4             | LTE B46  | 20           | 50667        | 5537.2               | 2x2             |          |              |              |                      |                 | 13.23                               | 13.24                             |
| CA [TA] 40C [17]  | LTE B7   | 20           | 21100        | 2535                 | QPSK | 50        | 0                | 1100         | 2655                 | 4x4             | LTE B7   | 20           | 2850         | 2832                 | 4x4             | LTE B46  | 20           | 50667        | 5537.2               | 2x2             |          |              |              |                      |                 | 13.23                               | 13.24                             |
| CA [TA] 40C [18]  | LTE B7   | 20           | 21100        | 2535                 | QPSK | 50        | 0                | 1100         | 2655                 | 4x4             | LTE B7   | 20           | 2850         | 2832                 | 4x4             | LTE B46  | 20           | 50667        | 5537.2               | 2x2             |          |              |              |                      |                 | 13.23                               | 13.24                             |
| CA [TA] 40C [19]  | LTE B7   | 20           | 21100        | 2535                 | QPSK | 50        | 0                | 1100         | 2655                 | 4x4             | LTE B7   | 20           | 2850         | 2832                 | 4x4             | LTE B46  | 20           | 50667        | 5537.2               | 2x2             |          |              |              |                      |                 | 13.23                               | 13.24                             |
| CA [TA] 40C [20]  | LTE B7   | 20           | 21100        | 2535                 | QPSK | 50        | 0                | 1100         | 2655                 | 4x4             | LTE B7   | 20           | 2850         | 2832                 | 4x4             | LTE B46  | 20           | 50667        | 5537.2               | 2x2             |          |              |              |                      |                 | 13.23                               | 13.24                             |
| CA [TA] 40C [21]  | LTE B7   | 20           | 21100        | 2535                 | QPSK | 50        | 0                | 1100         | 2655                 | 4x4             | LTE B7   | 20           | 2850         | 2832                 | 4x4             | LTE B46  | 20           | 50667        | 5537.2               | 2x2             |          |              |              |                      |                 | 13.23                               | 13.24                             |
| CA [TA] 40C [22]  | LTE B7   | 20           | 21100        | 2535                 | QPSK | 50        | 0                | 1100         | 2655                 | 4x4             | LTE B7   | 20           | 2850         | 2832                 | 4x4             | LTE B46  | 20           | 50667        | 5537.2               | 2x2             |          |              |              |                      |                 | 13.23                               | 13.24                             |
| CA [TA] 40C [23]  | LTE B7   | 20           | 21100        | 2535                 | QPSK | 50        | 0                | 1100         | 2655                 | 4x4             | LTE B7   | 20           | 2850         | 2832                 | 4x4             | LTE B46  | 20           | 50667        | 5537.2               | 2x2             |          |              |              |                      |                 | 13.23                               | 13.24                             |
| CA [TA] 40C [24]  | LTE B7   | 20           | 21100        | 2535                 | QPSK | 50        | 0                | 1100         | 2655                 | 4x4             | LTE B7   | 20           | 2850         | 2832                 | 4x4             | LTE B46  | 20           | 50667        | 5537.2               | 2x2             |          |              |              |                      |                 | 13.23                               | 13.24                             |
| CA [TA] 40C [25]  | LTE B7   | 20           | 21100        | 2535                 | QPSK | 50        | 0                | 1100         | 2655                 | 4x4             | LTE B7   | 20           | 2850         | 2832                 | 4x4             | LTE B46  | 20           | 50667        | 5537.2               | 2x2             |          |              |              |                      |                 | 13.23                               | 13.24                             |
| CA [TA] 40C [26]  | LTE B7   | 20           | 21100        | 2535                 | QPSK | 50        | 0                | 1100         | 2655                 | 4x4             | LTE B7   | 20           | 2850         | 2832                 | 4x4             | LTE B46  | 20           | 50667        | 5537.2               | 2x2             |          |              |              |                      |                 | 13.23                               | 13.24                             |
| CA [TA] 40C [27]  | LTE B7   | 20           | 21100        | 2535                 | QPSK | 50        | 0                | 1100         | 2655                 | 4x4             | LTE B7   | 20           | 2850         | 2832                 | 4x4             | LTE B46  | 20           | 50667        | 5537.2               | 2x2             |          |              |              |                      |                 | 13.23                               | 13.24                             |
| CA [TA] 40C [28]  | LTE B7   | 20           | 21100        | 2535                 | QPSK | 50        | 0                | 1100         | 2655                 | 4x4             | LTE B7   | 20           | 2850         | 2832                 | 4x4             | LTE B46  | 20           | 50667        | 5537.2               | 2x2             |          |              |              |                      |                 | 13.23                               | 13.24                             |
| CA [TA] 40C [29]  | LTE B7   | 20           | 21100        | 2535                 | QPSK | 50        | 0                | 1100         | 2655                 | 4x4             | LTE B7   | 20           | 2850         | 2832                 | 4x4             | LTE B46  | 20           | 50667        | 5537.2               | 2x2             |          |              |              |                      |                 | 13.23                               | 13.24                             |
| CA [TA] 40C [30]  | LTE B7   | 20           | 21100        | 2535                 | QPSK | 50        | 0                | 1100         | 2655                 | 4x4             | LTE B7   | 20           | 2850         | 2832                 | 4x4             | LTE B46  | 20           | 50667        | 5537.2               | 2x2             |          |              |              |                      |                 | 13.23                               | 13.24                             |
| CA [TA] 40C [31]  | LTE B7   | 20           | 21100        | 2535                 | QPSK | 50        | 0                | 1100         | 2655                 | 4x4             | LTE B7   | 20           | 2850         | 2832                 | 4x4             | LTE B46  | 20           | 50667        | 5537.2               | 2x2             |          |              |              |                      |                 | 13.23                               | 13.24                             |
| CA [TA] 40C [32]  | LTE B7   | 20           | 21100        | 2535                 | QPSK | 50        | 0                | 1100         | 2655                 | 4x4             | LTE B7   | 20           | 2850         | 2832                 | 4x4             | LTE B46  | 20           | 50667        | 5537.2               | 2x2             |          |              |              |                      |                 | 13.23                               | 13.24                             |
| CA [TA] 40C [33]  | LTE B7   | 20           | 21100        | 2535                 | QPSK | 50        | 0                | 1100         | 2655                 | 4x4             | LTE B7   | 20           | 2850         | 2832                 | 4x4             | LTE B46  | 20           | 50667        | 5537.2               | 2x2             |          |              |              |                      |                 | 13.23                               | 13.24                             |
| CA [TA] 40C [34]  | LTE B7   | 20           | 21100        | 2535                 | QPSK | 50        | 0                | 1100         | 2655                 | 4x4             | LTE B7   | 20           | 2850         | 2832                 | 4x4             | LTE B46  | 20           | 50667        | 5537.2               | 2x2             |          |              |              |                      |                 | 13.23                               | 13.24                             |
| CA [TA] 40C [35]  | LTE B7   | 20           | 21100        | 2535                 | QPSK | 50        | 0                | 1100         | 2655                 | 4x4             | LTE B7   | 20           | 2850         | 2832                 | 4x4             | LTE B46  | 20           | 50667        | 5537.2               | 2x2             |          |              |              |                      |                 | 13.23                               | 13.24                             |
| CA [TA] 40C [36]  | LTE B7   | 20           | 21100        | 2535                 | QPSK | 50        | 0                | 1100         | 2655                 | 4x4             | LTE B7   | 20           | 2850         | 2832                 | 4x4             | LTE B46  | 20           | 50667        | 5537.2               | 2x2             |          |              |              |                      |                 | 13.23                               | 13.24                             |
| CA [TA] 40C [37]  | LTE B7   | 20           | 21100        | 2535                 | QPSK | 50        | 0                | 1100         | 2655                 | 4x4             | LTE B7   | 20           | 2850         | 2832                 | 4x4             | LTE B46  | 20           | 50667        | 5537.2               | 2x2             |          |              |              |                      |                 | 13.23                               | 13.24                             |
| CA [TA] 40C [38]  | LTE B7   | 20           | 21100        | 2535                 | QPSK | 50        | 0                | 1100         | 2655                 | 4x4             | LTE B7   | 20           | 2850         | 2832                 | 4x4             | LTE B46  | 20           | 50667        | 5537.2               | 2x2             |          |              |              |                      |                 | 13.23                               | 13.24                             |
| CA [TA] 40C [39]  | LTE B7   | 20           | 21100        | 2535                 | QPSK | 50        | 0                | 1100         | 2655                 | 4x4             | LTE B7   | 20           | 2850         | 2832                 | 4x4             | LTE B46  | 20           | 50667        | 5537.2               | 2x2             |          |              |              |                      |                 | 13.23                               | 13.24                             |
| CA [TA] 40C [40]  | LTE B7   | 20           | 21100        | 2535                 | QPSK | 50        | 0                | 1100         | 2655                 | 4x4             | LTE B7   | 20           | 2850         | 2832                 | 4x4             | LTE B46  | 20           | 50667        | 5537.2               | 2x2             |          |              |              |                      |                 | 13.23                               | 13.24                             |
| CA [TA] 40C [41]  | LTE B7   | 20           | 21100        | 2535                 | QPSK | 50        | 0                | 1100         | 2655                 | 4x4             | LTE B7   | 20           | 2850         | 2832                 | 4x4             | LTE B46  | 20           | 50667        | 5537.2               | 2x2             |          |              |              |                      |                 | 13.23                               | 13.24                             |
| CA [TA] 40C [42]  | LTE B7   | 20           | 21100        | 2535                 | QPSK | 50        | 0                | 1100         | 2655                 | 4x4             | LTE B7   | 20           | 2850         | 2832                 | 4x4             | LTE B46  | 20           | 50667        | 5537.2               | 2x2             |          |              |              |                      |                 | 13.23                               | 13.24                             |
| CA [TA] 40C [43]  | LTE B7   | 20           | 21100        | 2535                 | QPSK | 50        | 0                | 1100         | 2655                 | 4x4             | LTE B7   | 20           | 2850         | 2832                 | 4x4             | LTE B46  | 20           | 50667        | 5537.2               | 2x2             |          |              |              |                      |                 | 13.23                               | 13.24                             |
| CA [TA] 40C [44]  | LTE B7   | 20           | 21100        | 2535                 | QPSK | 50        | 0                | 1100         | 2655                 | 4x4             | LTE B7   | 20           | 2850         | 2832                 | 4x4             | LTE B46  | 20           | 50667        | 5537.2               | 2x2             |          |              |              |                      |                 | 13.23                               | 13.24                             |
| CA [TA] 40C [45]  | LTE B7   | 20           | 21100        | 2535                 | QPSK | 50        | 0                | 1100         | 2655                 | 4x4             |          |              |              |                      |                 |          |              |              |                      |                 |          |              |              |                      |                 |                                     |                                   |

|                                            |                                                                                                                  |                                        |
|--------------------------------------------|------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| FCC ID: BCGA2230                           |  <b>SAR EVALUATION REPORT</b> | <b>Reviewed by:</b><br>Quality Manager |
| <b>Test Dates:</b><br>12/16/2019-1/14/2020 | <b>DUT Type:</b><br>Tablet Device                                                                                | APPENDIX F:<br>Page 13 of 16           |

## LTE Band 41 as PCC

**Table 24**  
**Output Powers – Ant 4B**

| Combination       | PCB Band | PCB BW [MHz] | PCB (CA) Freq [MHz] | Mod. | PCB User RB | PCB UL NB Offset | PCB (CA) Freq [MHz] | DL Ant. Config. | SCC Band | SCC BW [MHz] | SCC 1               |                 |                     | SCC Band | SCC BW [MHz] | SCC 2               |                 |                     | SCC Band | SCC BW [MHz] | SCC 3           |                     |                 | SCC Band | SCC BW [MHz] | SCC 4 |  |  | LTE Tx Power [dBm] | LTE Single Carrier Power [dBm] |       |
|-------------------|----------|--------------|---------------------|------|-------------|------------------|---------------------|-----------------|----------|--------------|---------------------|-----------------|---------------------|----------|--------------|---------------------|-----------------|---------------------|----------|--------------|-----------------|---------------------|-----------------|----------|--------------|-------|--|--|--------------------|--------------------------------|-------|
|                   |          |              |                     |      |             |                  |                     |                 |          |              | SCC (CA) Freq [MHz] | DL Ant. Config. | SCC (CA) Freq [MHz] |          |              | SCC (CA) Freq [MHz] | DL Ant. Config. | SCC (CA) Freq [MHz] |          |              | DL Ant. Config. | SCC (CA) Freq [MHz] | DL Ant. Config. |          |              |       |  |  |                    |                                |       |
| CA 141A-141B (41) | LTE B41  | 20           | 40620               | 2533 | 16QAM       | 1                | 0                   | 40620           | 2533     | 44x          | LTE B41             | 20              | 41460               | 2680     | 44x          |                     |                 |                     |          |              |                 |                     |                 |          |              |       |  |  | 15.80              | 15.80                          |       |
| CA 141A-141C      | LTE B41  | 20           | 40620               | 2533 | 16QAM       | 1                | 0                   | 40620           | 2533     | 44x          | LTE B18             | 18              | 41261               | 2611.5   | 22x          |                     |                 |                     |          |              |                 |                     |                 |          |              |       |  |  | 15.80              | 15.80                          |       |
| CA 141A-141D      | LTE B41  | 20           | 40620               | 2533 | 16QAM       | 1                | 0                   | 40620           | 2533     | 44x          | LTE B18             | 18              | 41261               | 2611.5   | 22x          |                     |                 |                     |          |              |                 |                     |                 |          |              |       |  |  | 15.80              | 15.80                          |       |
| CA 141A-41A       | LTE B41  | 20           | 40620               | 2533 | 16QAM       | 1                | 0                   | 40620           | 2533     | 44x          | LTE B12             | 12              | 41261               | 2660.2   | 44x          | LTE B41             | 20              | 41460               | 2680     | 44x          |                 |                     |                 |          |              |       |  |  |                    | 15.80                          | 15.80 |
| CA 141A-41B       | LTE B41  | 20           | 40620               | 2533 | 16QAM       | 1                | 0                   | 40620           | 2533     | 44x          | LTE B12             | 12              | 41261               | 2660.2   | 44x          | LTE B41             | 20              | 41460               | 2680     | 44x          |                 |                     |                 |          |              |       |  |  |                    | 15.80                          | 15.80 |
| CA 141A-41C       | LTE B41  | 20           | 40620               | 2533 | 16QAM       | 1                | 0                   | 40620           | 2533     | 44x          | LTE B12             | 12              | 41261               | 2660.2   | 44x          | LTE B41             | 20              | 41460               | 2680     | 44x          |                 |                     |                 |          |              |       |  |  |                    | 15.80                          | 15.80 |
| CA 141A-41D       | LTE B41  | 20           | 40620               | 2533 | 16QAM       | 1                | 0                   | 40620           | 2533     | 44x          | LTE B12             | 12              | 41261               | 2660.2   | 44x          | LTE B41             | 20              | 41460               | 2680     | 44x          |                 |                     |                 |          |              |       |  |  |                    | 15.80                          | 15.80 |
| CA 141A-41E (41A) | LTE B41  | 20           | 40620               | 2533 | 16QAM       | 1                | 0                   | 40620           | 2533     | 44x          | LTE B25             | 25              | 41861               | 1962.5   | 44x          | LTE B25             | 25              | 41861               | 1962.5   | 44x          |                 |                     |                 |          |              |       |  |  |                    | 15.80                          | 15.80 |
| CA 141A-41E       | LTE B41  | 20           | 40620               | 2533 | 16QAM       | 1                | 0                   | 40620           | 2533     | 44x          | LTE B25             | 25              | 41861               | 1962.5   | 44x          | LTE B25             | 25              | 41861               | 1962.5   | 44x          |                 |                     |                 |          |              |       |  |  |                    | 15.80                          | 15.80 |
| CA 141E           | LTE B41  | 20           | 40620               | 2533 | 16QAM       | 1                | 0                   | 40620           | 2533     | 44x          | LTE B25             | 25              | 41861               | 1962.5   | 44x          | LTE B25             | 25              | 41861               | 1962.5   | 44x          |                 |                     |                 |          |              |       |  |  |                    | 15.80                          | 15.80 |
| CA 141E-41E       | LTE B41  | 20           | 40620               | 2533 | 16QAM       | 1                | 0                   | 40620           | 2533     | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          |                 |                     |                 |          |              |       |  |  |                    | 15.80                          | 15.80 |
| CA 141E-41F       | LTE B41  | 20           | 40620               | 2533 | 16QAM       | 1                | 0                   | 40620           | 2533     | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          |                 |                     |                 |          |              |       |  |  |                    | 15.80                          | 15.80 |
| CA 141E-41G       | LTE B41  | 20           | 40620               | 2533 | 16QAM       | 1                | 0                   | 40620           | 2533     | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          |                 |                     |                 |          |              |       |  |  |                    | 15.80                          | 15.80 |
| CA 141E-41H       | LTE B41  | 20           | 40620               | 2533 | 16QAM       | 1                | 0                   | 40620           | 2533     | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          |                 |                     |                 |          |              |       |  |  |                    | 15.80                          | 15.80 |
| CA 141E-41I       | LTE B41  | 20           | 40620               | 2533 | 16QAM       | 1                | 0                   | 40620           | 2533     | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          |                 |                     |                 |          |              |       |  |  |                    | 15.80                          | 15.80 |
| CA 141E-41J       | LTE B41  | 20           | 40620               | 2533 | 16QAM       | 1                | 0                   | 40620           | 2533     | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          |                 |                     |                 |          |              |       |  |  |                    | 15.80                          | 15.80 |
| CA 141E-41K       | LTE B41  | 20           | 40620               | 2533 | 16QAM       | 1                | 0                   | 40620           | 2533     | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          |                 |                     |                 |          |              |       |  |  |                    | 15.80                          | 15.80 |
| CA 141E-41L       | LTE B41  | 20           | 40620               | 2533 | 16QAM       | 1                | 0                   | 40620           | 2533     | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          |                 |                     |                 |          |              |       |  |  |                    | 15.80                          | 15.80 |
| CA 141E-41M       | LTE B41  | 20           | 40620               | 2533 | 16QAM       | 1                | 0                   | 40620           | 2533     | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          |                 |                     |                 |          |              |       |  |  |                    | 15.80                          | 15.80 |
| CA 141E-41N       | LTE B41  | 20           | 40620               | 2533 | 16QAM       | 1                | 0                   | 40620           | 2533     | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          |                 |                     |                 |          |              |       |  |  |                    | 15.80                          | 15.80 |
| CA 141E-41O       | LTE B41  | 20           | 40620               | 2533 | 16QAM       | 1                | 0                   | 40620           | 2533     | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          |                 |                     |                 |          |              |       |  |  |                    | 15.80                          | 15.80 |
| CA 141E-41P       | LTE B41  | 20           | 40620               | 2533 | 16QAM       | 1                | 0                   | 40620           | 2533     | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          |                 |                     |                 |          |              |       |  |  |                    | 15.80                          | 15.80 |
| CA 141E-41Q       | LTE B41  | 20           | 40620               | 2533 | 16QAM       | 1                | 0                   | 40620           | 2533     | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          |                 |                     |                 |          |              |       |  |  |                    | 15.80                          | 15.80 |
| CA 141E-41R       | LTE B41  | 20           | 40620               | 2533 | 16QAM       | 1                | 0                   | 40620           | 2533     | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          |                 |                     |                 |          |              |       |  |  |                    | 15.80                          | 15.80 |
| CA 141E-41S       | LTE B41  | 20           | 40620               | 2533 | 16QAM       | 1                | 0                   | 40620           | 2533     | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          |                 |                     |                 |          |              |       |  |  |                    | 15.80                          | 15.80 |
| CA 141E-41T       | LTE B41  | 20           | 40620               | 2533 | 16QAM       | 1                | 0                   | 40620           | 2533     | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          |                 |                     |                 |          |              |       |  |  |                    | 15.80                          | 15.80 |
| CA 141E-41U       | LTE B41  | 20           | 40620               | 2533 | 16QAM       | 1                | 0                   | 40620           | 2533     | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          |                 |                     |                 |          |              |       |  |  |                    | 15.80                          | 15.80 |
| CA 141E-41V       | LTE B41  | 20           | 40620               | 2533 | 16QAM       | 1                | 0                   | 40620           | 2533     | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          |                 |                     |                 |          |              |       |  |  |                    | 15.80                          | 15.80 |
| CA 141E-41W       | LTE B41  | 20           | 40620               | 2533 | 16QAM       | 1                | 0                   | 40620           | 2533     | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          |                 |                     |                 |          |              |       |  |  |                    | 15.80                          | 15.80 |
| CA 141E-41X       | LTE B41  | 20           | 40620               | 2533 | 16QAM       | 1                | 0                   | 40620           | 2533     | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          |                 |                     |                 |          |              |       |  |  |                    | 15.80                          | 15.80 |
| CA 141E-41Y       | LTE B41  | 20           | 40620               | 2533 | 16QAM       | 1                | 0                   | 40620           | 2533     | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          |                 |                     |                 |          |              |       |  |  |                    | 15.80                          | 15.80 |
| CA 141E-41Z       | LTE B41  | 20           | 40620               | 2533 | 16QAM       | 1                | 0                   | 40620           | 2533     | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          |                 |                     |                 |          |              |       |  |  |                    | 15.80                          | 15.80 |
| CA 141E-41AA      | LTE B41  | 20           | 40620               | 2533 | 16QAM       | 1                | 0                   | 40620           | 2533     | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          |                 |                     |                 |          |              |       |  |  |                    | 15.80                          | 15.80 |
| CA 141E-41AB      | LTE B41  | 20           | 40620               | 2533 | 16QAM       | 1                | 0                   | 40620           | 2533     | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          |                 |                     |                 |          |              |       |  |  |                    | 15.80                          | 15.80 |
| CA 141E-41AC      | LTE B41  | 20           | 40620               | 2533 | 16QAM       | 1                | 0                   | 40620           | 2533     | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          |                 |                     |                 |          |              |       |  |  |                    | 15.80                          | 15.80 |
| CA 141E-41AD      | LTE B41  | 20           | 40620               | 2533 | 16QAM       | 1                | 0                   | 40620           | 2533     | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          |                 |                     |                 |          |              |       |  |  |                    | 15.80                          | 15.80 |
| CA 141E-41AE      | LTE B41  | 20           | 40620               | 2533 | 16QAM       | 1                | 0                   | 40620           | 2533     | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          |                 |                     |                 |          |              |       |  |  |                    | 15.80                          | 15.80 |
| CA 141E-41AF      | LTE B41  | 20           | 40620               | 2533 | 16QAM       | 1                | 0                   | 40620           | 2533     | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          |                 |                     |                 |          |              |       |  |  |                    | 15.80                          | 15.80 |
| CA 141E-41AG      | LTE B41  | 20           | 40620               | 2533 | 16QAM       | 1                | 0                   | 40620           | 2533     | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          |                 |                     |                 |          |              |       |  |  |                    | 15.80                          | 15.80 |
| CA 141E-41AH      | LTE B41  | 20           | 40620               | 2533 | 16QAM       | 1                | 0                   | 40620           | 2533     | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          |                 |                     |                 |          |              |       |  |  |                    | 15.80                          | 15.80 |
| CA 141E-41AI      | LTE B41  | 20           | 40620               | 2533 | 16QAM       | 1                | 0                   | 40620           | 2533     | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          |                 |                     |                 |          |              |       |  |  |                    | 15.80                          | 15.80 |
| CA 141E-41AJ      | LTE B41  | 20           | 40620               | 2533 | 16QAM       | 1                | 0                   | 40620           | 2533     | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          |                 |                     |                 |          |              |       |  |  |                    | 15.80                          | 15.80 |
| CA 141E-41AK      | LTE B41  | 20           | 40620               | 2533 | 16QAM       | 1                | 0                   | 40620           | 2533     | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          |                 |                     |                 |          |              |       |  |  |                    | 15.80                          | 15.80 |
| CA 141E-41AL      | LTE B41  | 20           | 40620               | 2533 | 16QAM       | 1                | 0                   | 40620           | 2533     | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          |                 |                     |                 |          |              |       |  |  |                    | 15.80                          | 15.80 |
| CA 141E-41AM      | LTE B41  | 20           | 40620               | 2533 | 16QAM       | 1                | 0                   | 40620           | 2533     | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          |                 |                     |                 |          |              |       |  |  |                    | 15.80                          | 15.80 |
| CA 141E-41AN      | LTE B41  | 20           | 40620               | 2533 | 16QAM       | 1                | 0                   | 40620           | 2533     | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          |                 |                     |                 |          |              |       |  |  |                    | 15.80                          | 15.80 |
| CA 141E-41AO      | LTE B41  | 20           | 40620               | 2533 | 16QAM       | 1                | 0                   | 40620           | 2533     | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          |                 |                     |                 |          |              |       |  |  |                    | 15.80                          | 15.80 |
| CA 141E-41AP      | LTE B41  | 20           | 40620               | 2533 | 16QAM       | 1                | 0                   | 40620           | 2533     | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          |                 |                     |                 |          |              |       |  |  |                    | 15.80                          | 15.80 |
| CA 141E-41AQ      | LTE B41  | 20           | 40620               | 2533 | 16QAM       | 1                | 0                   | 40620           | 2533     | 44x          | LTE B41             | 20              | 41261               | 2660.2   | 44x          | LTE B41             | 20              | 41261               |          |              |                 |                     |                 |          |              |       |  |  |                    |                                |       |

### 1.4.11

## LTE Band 41 PC2 as PCC

**Table 25**  
**Output Powers – Ant 4B**

[illegible]

### 1.4.12

## LTE Band 48 as PCC

**Table 26**  
**Output Powers – Ant 3**

[illegible]

|                                            |                                                                                                                  |                                        |
|--------------------------------------------|------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| FCC ID: BCGA2230                           |  <b>SAR EVALUATION REPORT</b> | <b>Reviewed by:</b><br>Quality Manager |
| <b>Test Dates:</b><br>12/16/2019-1/14/2020 | <b>DUT Type:</b><br>Tablet Device                                                                                | APPENDIX F:<br>Page 14 of 16           |



**1.5.2.2 LTE Band 41 PC2** **Table 30**

Table 30

### Output Powers – Ant 4B

[illegible]

**1.5.2.3 LTE Band 7**

Table 31

### Output Powers – Ant 4B

|             | PCC      |              |            |                      |      |           |                  |              |                      |                 | SCC 1    |              |              |                      |      |             |                  |              |                      |                 | Power                                                  |                     |       |
|-------------|----------|--------------|------------|----------------------|------|-----------|------------------|--------------|----------------------|-----------------|----------|--------------|--------------|----------------------|------|-------------|------------------|--------------|----------------------|-----------------|--------------------------------------------------------|---------------------|-------|
| Combination | PCC Band | PCC BW [MHz] | PCC UL Ch. | PCC [UL] Freq. [MHz] | Mod. | PCC UL RB | PCC UL RB Offset | PCC [DL] Ch. | PCC [DL] Freq. [MHz] | DL Ant. Config. | SCC Band | SCC BW [MHz] | SCC [UL] Ch. | SCC [UL] Freq. [MHz] | Mod  | SCC UL # RB | SCC UL RB Offset | SCC [DL] Ch. | SCC [DL] Freq. [MHz] | DL Ant. Config. | ULCA Tx Power with add'l CA config. active on DL (dBm) | ULCA Tx Power (dBm) |       |
| CA [7C]     | LTE B7   | 20           | 20850      | 2510                 | QPSK | 50        | 50               | 2850         | 2630                 | 4x4             | LTE B7   | 20           | 21048        | 2529.8               | QPSK | 50          | 0                | 3048         | 2649.8               | 4x4             |                                                        | 13.09               | 13.12 |

|                                     |                                                                                                                                                     |                              |                                 |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|---------------------------------|
| FCC ID: BCGA2230                    |  <b>PCTEST</b><br><small>Power to the people in the test</small> | SAR EVALUATION REPORT        | Reviewed by:<br>Quality Manager |
| Test Dates:<br>12/16/2019-1/14/2020 | DUT Type:<br>Tablet Device                                                                                                                          | APPENDIX F:<br>Page 16 of 16 |                                 |

## APPENDIX G: POWER REDUCTION VERIFICATION

|                                               |                                                                                                   |                              |                                        |
|-----------------------------------------------|---------------------------------------------------------------------------------------------------|------------------------------|----------------------------------------|
| FCC ID BCGA2230                               |  <b>PCTEST</b> | <b>SAR EVALUATION REPORT</b> | <b>Approved by:</b><br>Quality Manager |
| <b>Test Dates:</b><br>12/16/2019 – 01/14/2020 | <b>DUT Type:</b><br>Tablet Device                                                                 |                              | <b>APPENDIX G</b><br>Page 1 of 2       |

The device supports manufacturer's proprietary power reduction mechanism called "Detect Mode" for the Main Cellular Antenna. Details of this mechanism can be found in the Operational Description. When the device is being used "on-body" or "held in hand" by the user, the device will detect motion and reduce the power of the main antenna. Per the manufacturer, the mechanism is agnostic to different cellular air interfaces. Detect Mode operation was verified for two test cases, on-body and held in hand, for each supported cellular band. The power reduction verification results are below.

## 1.1 Main Antenna Power Reduction Verification Summary

**Table G-1**  
**Main Antenna Power Reduction Verification**

| Mode/Band                     | Antenna | Maximum Scenario<br>Maximum Allowed Target<br>Power [dBm] | Reduced Scenario<br>Maximum Allowed<br>Target Power [dBm] | Conducted Power [dBm] |             |             | Verdict |
|-------------------------------|---------|-----------------------------------------------------------|-----------------------------------------------------------|-----------------------|-------------|-------------|---------|
|                               |         |                                                           |                                                           | Maximum               | Test Case 1 | Test Case 2 |         |
| GPRS 850 (2 Tx)               | 1       | 30.00 (± 0.75)                                            | 26.05 (± 0.75)                                            | 29.89                 | 25.73       | 25.70       | PASS    |
|                               | 3       | 31.50 (± 0.75)                                            | 26.55 (± 0.75)                                            | 31.62                 | 25.84       | 25.91       | PASS    |
|                               | 2a      | 26.50 (± 0.75)                                            | 21.05 (± 0.75)                                            | 26.71                 | 20.45       | 20.44       | PASS    |
| GPRS 1900 (2 Tx)              | 2b      | 26.50 (± 0.75)                                            | 19.75 (± 0.75)                                            | 27.25                 | 20.19       | 20.20       | PASS    |
|                               | 4a      | 26.50 (± 0.75)                                            | 20.15 (± 0.75)                                            | 26.85                 | 19.40       | 19.40       | PASS    |
|                               | 4b      | 29.00 (± 0.75)                                            | 20.25 (± 0.75)                                            | 29.33                 | 19.51       | 19.50       | PASS    |
| WCDMA B5                      | 1       | 24.00 (± 0.5)                                             | 20.10 (± 0.5)                                             | 24.50                 | 20.59       | 20.60       | PASS    |
|                               | 3       | 25.20 (± 0.5)                                             | 19.80 (± 0.5)                                             | 25.33                 | 19.95       | 19.98       | PASS    |
|                               | 2a      | 22.50 (± 0.5)                                             | 13.75 (± 1)                                               | 22.70                 | 14.28       | 14.29       | PASS    |
| WCDMA B4                      | 2b      | 22.75 (± 0.5)                                             | 13.90 (± 1)                                               | 23.25                 | 14.31       | 14.32       | PASS    |
|                               | 4a      | 24.50 (± 0.5)                                             | 13.50 (± 1)                                               | 24.52                 | 14.20       | 14.19       | PASS    |
|                               | 4b      | 25.20 (± 0.5)                                             | 13.50 (± 1)                                               | 25.40                 | 14.00       | 13.99       | PASS    |
| WCDMA B2                      | 2a      | 22.50 (± 0.5)                                             | 14.10 (± 1)                                               | 22.70                 | 14.80       | 14.79       | PASS    |
|                               | 2b      | 22.75 (± 0.5)                                             | 13.10 (± 1)                                               | 23.25                 | 14.10       | 14.10       | PASS    |
|                               | 4a      | 24.50 (± 0.5)                                             | 13.90 (± 1)                                               | 24.65                 | 14.55       | 14.50       | PASS    |
| LTE Band 12                   | 4b      | 25.20 (± 0.5)                                             | 13.70 (± 1)                                               | 25.40                 | 14.01       | 14.04       | PASS    |
|                               | 1       | 24.00 (± 0.5)                                             | 21.00 (± 0.5)                                             | 24.50                 | 21.41       | 21.50       | PASS    |
|                               | 3       | 25.20 (± 0.5)                                             | 19.50 (± 0.5)                                             | 25.51                 | 19.53       | 19.50       | PASS    |
| LTE Band 17                   | 1       | 24.00 (± 0.5)                                             | 21.00 (± 0.5)                                             | 24.25                 | 21.30       | 21.27       | PASS    |
|                               | 3       | 25.20 (± 0.5)                                             | 19.50 (± 0.5)                                             | 25.40                 | 19.80       | 19.50       | PASS    |
| LTE Band 13                   | 1       | 24.00 (± 0.5)                                             | 21.00 (± 0.5)                                             | 24.48                 | 21.35       | 21.33       | PASS    |
|                               | 3       | 25.20 (± 0.5)                                             | 19.80 (± 0.5)                                             | 25.68                 | 20.20       | 20.19       | PASS    |
|                               | 1       | 24.00 (± 0.5)                                             | 20.10 (± 0.5)                                             | 24.08                 | 20.16       | 20.09       | PASS    |
| LTE Band 5                    | 3       | 25.20 (± 0.5)                                             | 19.80 (± 0.5)                                             | 25.11                 | 19.77       | 19.79       | PASS    |
|                               | 1       | 24.00 (± 0.5)                                             | 20.10 (± 0.5)                                             | 24.13                 | 20.15       | 20.14       | PASS    |
|                               | 3       | 25.20 (± 0.5)                                             | 19.80 (± 0.5)                                             | 25.28                 | 19.98       | 19.96       | PASS    |
| LTE Band 26                   | 2a      | 22.50 (± 0.5)                                             | 13.75 (± 1)                                               | 22.57                 | 14.04       | 14.10       | PASS    |
|                               | 2b      | 23.00 (± 0.5)                                             | 13.90 (± 1)                                               | 23.20                 | 14.45       | 14.49       | PASS    |
|                               | 4a      | 24.50 (± 0.5)                                             | 13.50 (± 1)                                               | 24.57                 | 13.71       | 13.69       | PASS    |
| LTE Band 4                    | 4b      | 25.20 (± 0.5)                                             | 13.50 (± 1)                                               | 25.23                 | 13.90       | 13.89       | PASS    |
|                               | 2a      | 22.50 (± 0.5)                                             | 13.75 (± 1)                                               | 22.22                 | 13.81       | 13.83       | PASS    |
|                               | 2b      | 23.00 (± 0.5)                                             | 13.90 (± 1)                                               | 23.19                 | 14.46       | 14.41       | PASS    |
| LTE Band 66                   | 4a      | 24.50 (± 0.5)                                             | 13.50 (± 1)                                               | 24.39                 | 13.77       | 13.75       | PASS    |
|                               | 4b      | 25.20 (± 0.5)                                             | 13.50 (± 1)                                               | 25.36                 | 13.98       | 14.00       | PASS    |
|                               | 2a      | 22.50 (± 0.5)                                             | 14.10 (± 1)                                               | 22.64                 | 14.61       | 14.72       | PASS    |
| LTE Band 2                    | 2b      | 23.00 (± 0.5)                                             | 13.10 (± 1)                                               | 23.50                 | 14.06       | 14.10       | PASS    |
|                               | 4a      | 24.50 (± 0.5)                                             | 13.90 (± 1)                                               | 24.43                 | 13.91       | 13.90       | PASS    |
|                               | 4b      | 25.20 (± 0.5)                                             | 13.70 (± 1)                                               | 25.38                 | 13.92       | 13.91       | PASS    |
| LTE Band 25                   | 2a      | 22.50 (± 0.5)                                             | 14.10 (± 1)                                               | 22.70                 | 14.68       | 14.70       | PASS    |
|                               | 2b      | 23.00 (± 0.5)                                             | 13.10 (± 1)                                               | 23.50                 | 14.10       | 14.10       | PASS    |
|                               | 4a      | 24.50 (± 0.5)                                             | 13.90 (± 1)                                               | 24.55                 | 13.92       | 13.90       | PASS    |
| LTE Band 30                   | 4b      | 25.20 (± 0.5)                                             | 13.70 (± 1)                                               | 25.37                 | 13.94       | 13.93       | PASS    |
|                               | 2a      | 22.00 (± 0.5)                                             | 12.00 (± 1)                                               | 22.01                 | 12.01       | 12.00       | PASS    |
|                               | 2b      | 22.75 (± 0.5)                                             | 12.40 (± 1)                                               | 23.25                 | 12.70       | 12.67       | PASS    |
| LTE Band 7                    | 4a      | 23.00 (± 0.5)                                             | 12.20 (± 1)                                               | 22.93                 | 12.21       | 12.20       | PASS    |
|                               | 4b      | 23.50 (± 0.5)                                             | 12.70 (± 1)                                               | 23.59                 | 13.20       | 13.30       | PASS    |
|                               | 2a      | 22.50 (± 0.5)                                             | 11.70 (± 1)                                               | 22.47                 | 11.70       | 11.71       | PASS    |
| LTE Band 41 (PC3)             | 2b      | 22.50 (± 0.5)                                             | 11.30 (± 1)                                               | 22.70                 | 11.92       | 11.95       | PASS    |
|                               | 4a      | 24.50 (± 0.5)                                             | 11.50 (± 1)                                               | 24.18                 | 11.58       | 11.60       | PASS    |
|                               | 4b      | 25.20 (± 0.5)                                             | 12.30 (± 1)                                               | 25.25                 | 12.95       | 12.94       | PASS    |
| LTE Band 41 (PC2)             | 2a      | 22.00 (± 0.5)                                             | 13.70 (± 1)                                               | 22.20                 | 14.02       | 14.01       | PASS    |
|                               | 2b      | 22.50 (± 0.5)                                             | 13.20 (± 1)                                               | 22.97                 | 14.12       | 14.14       | PASS    |
|                               | 4a      | 25.00 (± 0.5)                                             | 13.20 (± 1)                                               | 25.31                 | 13.81       | 13.83       | PASS    |
| LTE Band 48                   | 4b      | 25.20 (± 0.5)                                             | 15.40 (± 0.5)                                             | 25.40                 | 15.60       | 15.57       | PASS    |
|                               | 2a      | 25.00 (± 0.5)                                             | 13.70 (± 1)                                               | 25.20                 | 14.08       | 14.05       | PASS    |
|                               | 2b      | 24.50 (± 0.5)                                             | 13.20 (± 1)                                               | 24.70                 | 13.90       | 13.89       | PASS    |
| LTE B5 Intra-Band ULCA        | 4a      | 27.50 (± 0.5)                                             | 13.20 (± 1)                                               | 27.01                 | 13.71       | 13.73       | PASS    |
|                               | 4b      | 28.20 (± 0.5)                                             | 15.40 (± 0.5)                                             | 28.33                 | 15.60       | 15.59       | PASS    |
|                               | 1       | 21.50 (± 0.5)                                             | 14.30 (± 1)                                               | 22.00                 | 15.30       | 15.30       | PASS    |
| LTE B7 Intra-Band ULCA        | 3       | 24.50 (± 0.5)                                             | 16.00 (± 0.5)                                             | 24.34                 | 15.53       | 15.51       | PASS    |
|                               | 2b      | 21.50 (± 0.5)                                             | 14.30 (± 1)                                               | 21.68                 | 14.97       | 14.95       | PASS    |
|                               | 4b      | 25.20 (± 0.5)                                             | 15.80 (± 0.5)                                             | 25.00                 | 16.30       | 16.30       | PASS    |
| LTE B41 (PC3) Intra-Band ULCA | 1       | 22.50 (± 1)                                               | 19.60 (± 1)                                               | 22.91                 | 19.73       | 19.68       | PASS    |
|                               | 3       | 24.00 (± 1)                                               | 19.30 (± 1)                                               | 24.42                 | 18.30       | 18.32       | PASS    |
|                               | 2a      | 21.00 (± 1)                                               | 11.70 (± 1)                                               | 21.43                 | 10.82       | 10.85       | PASS    |
| LTE B41 (PC2) Intra-Band ULCA | 2b      | 20.50 (± 1)                                               | 11.30 (± 1)                                               | 20.93                 | 10.85       | 10.88       | PASS    |
|                               | 4a      | 23.50 (± 1)                                               | 11.50 (± 1)                                               | 22.81                 | 10.80       | 10.82       | PASS    |
|                               | 4b      | 24.00 (± 1)                                               | 12.30 (± 1)                                               | 23.05                 | 12.20       | 12.17       | PASS    |
| LTE B41 (PC3) Intra-Band ULCA | 2a      | 20.00 (± 1)                                               | 13.70 (± 1)                                               | 20.04                 | 12.82       | 12.85       | PASS    |
|                               | 2b      | 20.50 (± 1)                                               | 13.20 (± 1)                                               | 20.88                 | 13.26       | 13.21       | PASS    |
|                               | 4a      | 23.50 (± 1)                                               | 13.20 (± 1)                                               | 22.51                 | 12.80       | 12.78       | PASS    |
| LTE B41 (PC2) Intra-Band ULCA | 4b      | 24.00 (± 1)                                               | 14.90 (± 1)                                               | 24.53                 | 13.91       | 13.93       | PASS    |
|                               | 2a      | 21.50 (± 1)                                               | 13.70 (± 1)                                               | 22.01                 | 13.57       | 13.55       | PASS    |
|                               | 2b      | 22.50 (± 1)                                               | 13.20 (± 1)                                               | 22.68                 | 13.34       | 13.37       | PASS    |
|                               | 4a      | 25.50 (± 1)                                               | 13.20 (± 1)                                               | 24.50                 | 12.85       | 12.81       | PASS    |
|                               | 4b      | 26.00 (± 1)                                               | 14.90 (± 1)                                               | 25.00                 | 14.24       | 14.26       | PASS    |

Test Case 1: Device Held in Hand

Test Case 2: Device Resting on Lap

Test Cases represent typical scenarios in which the device power would be reduced. In these scenarios detect mode has been verified to identify typical on-body use-cases including when thin objects, such as a magazine or newspaper, are placed between the body and the device. In the absence of detect mode output, the device defaults to the most conservative power.

|                                        |                                                                                                                  |                                 |
|----------------------------------------|------------------------------------------------------------------------------------------------------------------|---------------------------------|
| FCC ID BCGA2230                        |  <b>SAR EVALUATION REPORT</b> | Approved by:<br>Quality Manager |
| Test Dates:<br>12/16/2019 – 01/14/2020 | DUT Type:<br>Tablet Device                                                                                       | APPENDIX G<br>Page 2 of 2       |

## APPENDIX H: IEEE 802.11AX RU SAR EXCLUSION

|                                               |                                                                                                                  |                                        |
|-----------------------------------------------|------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| <b>FCC ID:</b> BCGA2230                       |  <b>SAR EVALUATION REPORT</b> | <b>Reviewed by:</b><br>Quality Manager |
| <b>Test Dates:</b><br>12/16/2019 – 01/14/2020 | <b>DUT Type:</b><br>Tablet Device                                                                                | <b>APPENDIX H:</b><br>Page 1 of 19     |

## 1.1 IEEE 802.11ax RU SAR Exclusion

To make the most efficient use of the additional available subcarriers (data tones), IEEE 802.11ax can utilize Orthogonal Frequency-Division Multiple Access (OFDMA) which divides the existing 802.11 channels into smaller subchannels called Resource Units (RUs). Possible RU sizes are: 26T, 52T, 106T, 242T, 484T, 996T.

Per FCC Guidance, 802.11ax was considered a higher order 802.11 mode when compared to a/b/g/n/ac to apply KDB Publication 248227 D01v02r02 for OFDM mode selection. Therefore, SAR tests were not required for 802.11ax based on the maximum allowed output powers of OFDM modes and the reported SAR values. Per FCC Guidance, maximum conducted powers were performed for each RU size to demonstrate that the output powers would not be higher than the other OFDM 802.11 modes.

## 1.2 IEEE 802.11ax RU Target Powers

### 1.2.1 Maximum 802.11ax RU WLAN Output Power

#### A. Antenna 2A

| Mode/ Band                                                   |                  | Tones   | 26T     |         | 52T     |         | 106T    |         | 242T    |         |
|--------------------------------------------------------------|------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|                                                              |                  | Channel | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal |
| Modulated Average -<br>Single Tx Chain<br>(dBm) - Antenna 2A | 20 MHz Bandwidth | 1       | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   |
|                                                              |                  | 2       | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   |
|                                                              |                  | 3       | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   |
|                                                              |                  | 4       | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   |
|                                                              |                  | 5       | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   |
|                                                              |                  | 6       | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   |
|                                                              |                  | 7       | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   |
|                                                              |                  | 8       | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   |
|                                                              |                  | 9       | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   |
|                                                              |                  | 10      | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   |
|                                                              |                  | 11      | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   |
|                                                              |                  | 12      | 11.00   | 9.50    | 11.00   | 9.50    | 11.00   | 9.50    | 11.00   | 9.50    |
|                                                              |                  | 13      | N/A     | N/A     | N/A     | N/A     | N/A     | N/A     | N/A     | N/A     |

| Mode/ Band                                              |                  | Tones   | 26T     |         | 52T     |         | 106T    |         | 242T    |         |
|---------------------------------------------------------|------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|                                                         |                  | Channel | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal |
| Modulated Average -<br>2 Tx Chain (dBm) -<br>Antenna 2A | 20 MHz Bandwidth | 1       | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |
|                                                         |                  | 2       | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   |
|                                                         |                  | 3       | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   |
|                                                         |                  | 4       | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   |
|                                                         |                  | 5       | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   |
|                                                         |                  | 6       | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   |
|                                                         |                  | 7       | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   |
|                                                         |                  | 8       | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   |
|                                                         |                  | 9       | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   |
|                                                         |                  | 10      | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   |
|                                                         |                  | 11      | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   |
|                                                         |                  | 12      | 8.00    | 6.50    | 8.00    | 6.50    | 8.00    | 6.50    | 8.00    | 6.50    |
|                                                         |                  | 13      | N/A     | N/A     | N/A     | N/A     | N/A     | N/A     | N/A     | N/A     |

|                                        |                                                                                                   |                       |                                 |
|----------------------------------------|---------------------------------------------------------------------------------------------------|-----------------------|---------------------------------|
| FCC ID: BCGA2230                       |  <b>PCTEST</b> | SAR EVALUATION REPORT | Reviewed by:<br>Quality Manager |
| Test Dates:<br>12/16/2019 – 01/14/2020 | DUT Type:<br>Tablet Device                                                                        |                       | APPENDIX H:<br>Page 2 of 19     |

## B. Antenna 4A

| Mode/ Band                                                   |                  | Tones   | 26T     |         | 52T     |         | 106T    |         | 242T    |         |
|--------------------------------------------------------------|------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|                                                              |                  | Channel | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal |
| Modulated Average -<br>Single Tx Chain<br>(dBm) - Antenna 4A | 20 MHz Bandwidth | 1       | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   |
|                                                              |                  | 2       | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   |
|                                                              |                  | 3       | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   |
|                                                              |                  | 4       | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   |
|                                                              |                  | 5       | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   |
|                                                              |                  | 6       | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   |
|                                                              |                  | 7       | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   |
|                                                              |                  | 8       | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   |
|                                                              |                  | 9       | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   |
|                                                              |                  | 10      | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   |
|                                                              |                  | 11      | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   |
|                                                              |                  | 12      | 11.00   | 9.50    | 11.00   | 9.50    | 11.00   | 9.50    | 11.00   | 9.50    |
|                                                              |                  | 13      | N/A     | N/A     | N/A     | N/A     | N/A     | N/A     | N/A     | N/A     |

| Mode/ Band                                              |                  | Tones   | 26T     |         | 52T     |         | 106T    |         | 242T    |         |
|---------------------------------------------------------|------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|                                                         |                  | Channel | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal |
| Modulated Average -<br>2 Tx Chain (dBm) -<br>Antenna 4A | 20 MHz Bandwidth | 1       | 12.00   | 10.50   | 12.00   | 10.50   | 12.00   | 10.50   | 12.00   | 10.50   |
|                                                         |                  | 2       | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   |
|                                                         |                  | 3       | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   |
|                                                         |                  | 4       | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   |
|                                                         |                  | 5       | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   |
|                                                         |                  | 6       | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   |
|                                                         |                  | 7       | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   |
|                                                         |                  | 8       | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   |
|                                                         |                  | 9       | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   |
|                                                         |                  | 10      | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   |
|                                                         |                  | 11      | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   |
|                                                         |                  | 12      | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |
|                                                         |                  | 13      | N/A     | N/A     | N/A     | N/A     | N/A     | N/A     | N/A     | N/A     |

|                                               |                                                                                                   |                              |                                        |
|-----------------------------------------------|---------------------------------------------------------------------------------------------------|------------------------------|----------------------------------------|
| FCC ID: BCGA2230                              |  <b>PCTEST</b> | <b>SAR EVALUATION REPORT</b> | <b>Reviewed by:</b><br>Quality Manager |
| <b>Test Dates:</b><br>12/16/2019 – 01/14/2020 | <b>DUT Type:</b><br>Tablet Device                                                                 |                              | <b>APPENDIX H:</b><br>Page 3 of 19     |

## C. 5GHz ANTlower

| Mode/ Band                                                        |                  | Tones            |         | 26T     |         | 52T     |         | 106T    |         | 242T    |         | 484T    |         | 996T    |      |
|-------------------------------------------------------------------|------------------|------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|------|
|                                                                   |                  | Channel          | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal |      |
| Modulated Average -<br>Single Tx Chain<br>(dBm) - 5GHz<br>ANTower | 20 MHz Bandwidth | 36               | 11.00   | 9.50    | 14.00   | 12.50   | 15.00   | 13.50   | 15.00   | 13.50   |         |         |         |         |      |
|                                                                   |                  | 40               | 11.00   | 9.50    | 14.00   | 12.50   | 16.00   | 14.50   | 16.00   | 14.50   |         |         |         |         |      |
|                                                                   |                  | 44               | 11.00   | 9.50    | 14.00   | 12.50   | 16.00   | 14.50   | 16.00   | 14.50   |         |         |         |         |      |
|                                                                   |                  | 48               | 11.00   | 9.50    | 14.00   | 12.50   | 16.00   | 14.50   | 16.00   | 14.50   |         |         |         |         |      |
|                                                                   |                  | 52               | 11.00   | 9.50    | 14.00   | 12.50   | 16.50   | 15.00   | 16.50   | 15.00   |         |         |         |         |      |
|                                                                   |                  | 56               | 11.00   | 9.50    | 14.00   | 12.50   | 16.50   | 15.00   | 16.50   | 15.00   |         |         |         |         |      |
|                                                                   |                  | 60               | 11.00   | 9.50    | 14.00   | 12.50   | 16.50   | 15.00   | 16.50   | 15.00   |         |         |         |         |      |
|                                                                   |                  | 64               | 11.00   | 9.50    | 14.00   | 12.50   | 14.50   | 13.00   | 14.50   | 13.00   |         |         |         |         |      |
|                                                                   |                  | 100              | 11.00   | 9.50    | 14.00   | 12.50   | 14.00   | 12.50   | 14.00   | 12.50   |         |         |         |         |      |
|                                                                   |                  | 104              | 11.00   | 9.50    | 14.00   | 12.50   | 16.50   | 15.00   | 16.50   | 15.00   |         |         |         |         |      |
|                                                                   |                  | 108              | 11.00   | 9.50    | 14.00   | 12.50   | 16.50   | 15.00   | 16.50   | 15.00   |         |         |         |         |      |
|                                                                   |                  | 112              | 11.00   | 9.50    | 14.00   | 12.50   | 16.50   | 15.00   | 16.50   | 15.00   |         |         |         |         |      |
|                                                                   |                  | 116              | 11.00   | 9.50    | 14.00   | 12.50   | 16.50   | 15.00   | 16.50   | 15.00   |         |         |         |         |      |
|                                                                   |                  | 120              | 11.00   | 9.50    | 14.00   | 12.50   | 16.50   | 15.00   | 16.50   | 15.00   |         |         |         |         |      |
|                                                                   |                  | 124              | 11.00   | 9.50    | 14.00   | 12.50   | 16.50   | 15.00   | 16.50   | 15.00   |         |         |         |         |      |
|                                                                   |                  | 128              | 11.00   | 9.50    | 14.00   | 12.50   | 16.50   | 15.00   | 16.50   | 15.00   |         |         |         |         |      |
|                                                                   |                  | 132              | 11.00   | 9.50    | 14.00   | 12.50   | 16.50   | 15.00   | 16.50   | 15.00   |         |         |         |         |      |
|                                                                   |                  | 136              | 11.00   | 9.50    | 14.00   | 12.50   | 16.50   | 15.00   | 16.50   | 15.00   |         |         |         |         |      |
|                                                                   |                  | 140              | 11.00   | 9.50    | 13.50   | 12.00   | 13.50   | 12.00   | 13.50   | 12.00   |         |         |         |         |      |
|                                                                   |                  | 144              | 11.00   | 9.50    | 14.00   | 12.50   | 16.50   | 15.00   | 16.50   | 15.00   |         |         |         |         |      |
|                                                                   |                  | 149              | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   |         |         |         |         |      |
|                                                                   |                  | 153              | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   |         |         |         |         |      |
|                                                                   |                  | 157              | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   |         |         |         |         |      |
|                                                                   |                  | 161              | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   |         |         |         |         |      |
|                                                                   |                  | 165              | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   |         |         |         |         |      |
|                                                                   | 40 MHz Bandwidth | 38               | 11.00   | 9.50    | 12.00   | 10.50   | 12.00   | 10.50   | 12.00   | 10.50   | 12.00   | 10.50   | 12.00   | 10.50   |      |
|                                                                   |                  | 46               | 11.00   | 9.50    | 14.00   | 12.50   | 16.00   | 14.50   | 16.00   | 14.50   | 16.00   | 14.50   | 16.00   | 14.50   |      |
|                                                                   |                  | 54               | 11.00   | 9.50    | 14.00   | 12.50   | 16.50   | 15.00   | 16.50   | 15.00   | 16.50   | 15.00   | 16.50   | 15.00   |      |
|                                                                   |                  | 62               | 11.00   | 9.50    | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   |      |
|                                                                   |                  | 102              | 11.00   | 9.50    | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   |      |
|                                                                   |                  | 110              | 11.00   | 9.50    | 14.00   | 12.50   | 16.50   | 15.00   | 16.50   | 15.00   | 16.50   | 15.00   | 16.50   | 15.00   |      |
|                                                                   |                  | 118              | 11.00   | 9.50    | 14.00   | 12.50   | 16.50   | 15.00   | 16.50   | 15.00   | 16.50   | 15.00   | 16.50   | 15.00   |      |
|                                                                   |                  | 126              | 11.00   | 9.50    | 14.00   | 12.50   | 16.50   | 15.00   | 16.50   | 15.00   | 16.50   | 15.00   | 16.50   | 15.00   |      |
|                                                                   |                  | 134              | 11.00   | 9.50    | 14.00   | 12.50   | 14.50   | 13.00   | 14.50   | 13.00   | 14.50   | 13.00   | 14.50   | 13.00   |      |
|                                                                   |                  | 142              | 11.00   | 9.50    | 14.00   | 12.50   | 16.50   | 15.00   | 16.50   | 15.00   | 16.50   | 15.00   | 16.50   | 15.00   |      |
|                                                                   |                  | 151              | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   |      |
|                                                                   |                  | 159              | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   |      |
|                                                                   |                  | 80 MHz Bandwidth | 42      | 11.00   | 9.50    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00 |
|                                                                   |                  |                  | 58      | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00 |
|                                                                   | 106              |                  | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    |      |
|                                                                   | 122              |                  | 11.00   | 9.50    | 14.00   | 12.50   | 16.50   | 15.00   | 16.50   | 15.00   | 16.50   | 15.00   | 16.50   | 15.00   |      |
|                                                                   | 138              |                  | 11.00   | 9.50    | 14.00   | 12.50   | 16.50   | 15.00   | 16.50   | 15.00   | 16.50   | 15.00   | 16.50   | 15.00   |      |
|                                                                   | 155              | 15.50            | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   |         |      |

| Mode/ Band                                                        |                  | Tones            |         | 26T     |         | 52T     |         | 106T    |         | 242T    |         | 484T    |         | 996T    |      |
|-------------------------------------------------------------------|------------------|------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|------|
|                                                                   |                  | Channel          | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal |      |
| Modulated Average -<br>2 Tx Chain (dBm)<br>CDD - 5GHz<br>ANTlower | 20 MHz Bandwidth | 36               | 8.00    | 6.50    | 11.00   | 9.50    | 13.50   | 12.00   | 13.50   | 12.00   |         |         |         |         |      |
|                                                                   |                  | 40               | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 16.00   | 14.50   |         |         |         |         |      |
|                                                                   |                  | 44               | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 16.00   | 14.50   |         |         |         |         |      |
|                                                                   |                  | 48               | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 16.00   | 14.50   |         |         |         |         |      |
|                                                                   |                  | 52               | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 16.50   | 15.00   |         |         |         |         |      |
|                                                                   |                  | 56               | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 16.50   | 15.00   |         |         |         |         |      |
|                                                                   |                  | 60               | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 16.50   | 15.00   |         |         |         |         |      |
|                                                                   |                  | 64               | 8.00    | 6.50    | 11.00   | 9.50    | 13.50   | 12.00   | 13.50   | 12.00   |         |         |         |         |      |
|                                                                   |                  | 100              | 7.75    | 6.25    | 10.75   | 9.25    | 13.50   | 12.00   | 13.50   | 12.00   |         |         |         |         |      |
|                                                                   |                  | 104              | 7.75    | 6.25    | 10.75   | 9.25    | 13.75   | 12.25   | 16.50   | 15.00   |         |         |         |         |      |
|                                                                   |                  | 108              | 7.75    | 6.25    | 10.75   | 9.25    | 13.75   | 12.25   | 16.50   | 15.00   |         |         |         |         |      |
|                                                                   |                  | 112              | 7.75    | 6.25    | 10.75   | 9.25    | 13.75   | 12.25   | 16.50   | 15.00   |         |         |         |         |      |
|                                                                   |                  | 116              | 7.75    | 6.25    | 10.75   | 9.25    | 13.75   | 12.25   | 16.50   | 15.00   |         |         |         |         |      |
|                                                                   |                  | 120              | 7.75    | 6.25    | 10.75   | 9.25    | 13.75   | 12.25   | 16.50   | 15.00   |         |         |         |         |      |
|                                                                   |                  | 124              | 7.75    | 6.25    | 10.75   | 9.25    | 13.75   | 12.25   | 16.50   | 15.00   |         |         |         |         |      |
|                                                                   |                  | 128              | 7.75    | 6.25    | 10.75   | 9.25    | 13.75   | 12.25   | 16.50   | 15.00   |         |         |         |         |      |
|                                                                   |                  | 132              | 7.75    | 6.25    | 10.75   | 9.25    | 13.75   | 12.25   | 16.50   | 15.00   |         |         |         |         |      |
|                                                                   |                  | 136              | 7.75    | 6.25    | 10.75   | 9.25    | 13.50   | 12.00   | 13.50   | 12.00   |         |         |         |         |      |
|                                                                   |                  | 140              | 7.75    | 6.25    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |         |         |      |
|                                                                   |                  | 144              | 7.75    | 6.25    | 10.75   | 9.25    | 13.75   | 12.25   | 16.50   | 15.00   |         |         |         |         |      |
|                                                                   |                  | 149              | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   |         |         |         |         |      |
|                                                                   |                  | 153              | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   |         |         |         |         |      |
|                                                                   |                  | 157              | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   |         |         |         |         |      |
|                                                                   |                  | 161              | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   |         |         |         |         |      |
|                                                                   |                  | 165              | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   |         |         |         |         |      |
|                                                                   | 40 MHz Bandwidth | 38               | 8.00    | 6.50    | 11.00   | 9.50    | 11.00   | 9.50    | 11.00   | 9.50    | 11.00   | 9.50    |         |         |      |
|                                                                   |                  | 46               | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 16.00   | 14.50   | 16.00   | 14.50   |         |         |      |
|                                                                   |                  | 54               | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 16.50   | 15.00   | 16.50   | 15.00   |         |         |      |
|                                                                   |                  | 62               | 8.00    | 6.50    | 10.50   | 9.00    | 10.50   | 9.00    | 10.00   | 8.50    | 10.50   | 9.00    |         |         |      |
|                                                                   |                  | 102              | 7.75    | 6.25    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |      |
|                                                                   |                  | 110              | 7.75    | 6.25    | 10.75   | 9.25    | 13.75   | 12.25   | 16.50   | 15.00   | 16.50   | 15.00   |         |         |      |
|                                                                   |                  | 118              | 7.75    | 6.25    | 10.75   | 9.25    | 13.75   | 12.25   | 16.50   | 15.00   | 16.50   | 15.00   |         |         |      |
|                                                                   |                  | 126              | 7.75    | 6.25    | 10.75   | 9.25    | 13.75   | 12.25   | 16.50   | 15.00   | 16.50   | 15.00   |         |         |      |
|                                                                   |                  | 134              | 7.75    | 6.25    | 10.75   | 9.25    | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   |         |         |      |
|                                                                   |                  | 142              | 7.75    | 6.25    | 10.75   | 9.25    | 13.75   | 12.25   | 10.00   | 8.50    | 16.50   | 15.00   |         |         |      |
|                                                                   |                  | 151              | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   |         |         |      |
|                                                                   |                  | 159              | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   |         |         |      |
|                                                                   |                  | 80 MHz Bandwidth | 42      | 8.00    | 6.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50 |
|                                                                   |                  |                  | 58      | 8.00    | 6.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50 |
|                                                                   | 106              |                  | 7.75    | 6.25    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    |      |
|                                                                   | 122              |                  | 7.75    | 6.25    | 10.75   | 9.25    | 13.75   | 12.25   | 16.50   | 15.00   | 16.50   | 15.00   | 16.50   | 15.00   |      |
|                                                                   | 138              |                  | 7.75    | 6.25    | 10.75   | 9.25    | 13.75   | 12.25   | 10.00   | 8.50    | 13.00   | 11.50   | 16.50   | 15.00   |      |
|                                                                   |                  | 155              | 14.50   | 13.00   | 14.50   | 13.00   | 14.50   | 13.00   | 14.50   | 13.00   | 14.50   | 13.00   | 14.50   | 13.00   |      |

|                                        |                                                                                                   |                       |                                 |
|----------------------------------------|---------------------------------------------------------------------------------------------------|-----------------------|---------------------------------|
| FCC ID: BCGA2230                       |  <b>PCTEST</b> | SAR EVALUATION REPORT | Reviewed by:<br>Quality Manager |
| Test Dates:<br>12/16/2019 – 01/14/2020 | DUT Type:<br>Tablet Device                                                                        |                       | APPENDIX H:<br>Page 4 of 19     |

| Mode/ Band                                                        |                  | Tones   |         | 26T     |         | 52T     |         | 106T    |         | 242T    |         | 484T    |         | 996T    |  |
|-------------------------------------------------------------------|------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--|
|                                                                   |                  | Channel | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal |  |
| Modulated Average -<br>2 Tx Chain (dBm)<br>SDM - 5GHz<br>ANTlower | 20 MHz Bandwidth | 36      | 8.00    | 6.50    | 11.00   | 9.50    | 13.50   | 12.00   | 13.50   | 12.00   |         |         |         |         |  |
|                                                                   |                  | 40      | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 16.00   | 14.50   |         |         |         |         |  |
|                                                                   |                  | 44      | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 16.00   | 14.50   |         |         |         |         |  |
|                                                                   |                  | 48      | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 16.00   | 14.50   |         |         |         |         |  |
|                                                                   |                  | 52      | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 16.50   | 15.00   |         |         |         |         |  |
|                                                                   |                  | 56      | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 16.50   | 15.00   |         |         |         |         |  |
|                                                                   |                  | 60      | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 16.50   | 15.00   |         |         |         |         |  |
|                                                                   |                  | 64      | 8.00    | 6.50    | 11.00   | 9.50    | 13.50   | 12.00   | 13.50   | 12.00   |         |         |         |         |  |
|                                                                   |                  | 100     | 8.00    | 6.50    | 11.00   | 9.50    | 13.50   | 12.00   | 13.50   | 12.00   |         |         |         |         |  |
|                                                                   |                  | 104     | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 16.50   | 15.00   |         |         |         |         |  |
|                                                                   |                  | 108     | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 16.50   | 15.00   |         |         |         |         |  |
|                                                                   |                  | 112     | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 16.50   | 15.00   |         |         |         |         |  |
|                                                                   |                  | 116     | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 16.50   | 15.00   |         |         |         |         |  |
|                                                                   |                  | 120     | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 16.50   | 15.00   |         |         |         |         |  |
|                                                                   |                  | 124     | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 16.50   | 15.00   |         |         |         |         |  |
|                                                                   |                  | 128     | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 16.50   | 15.00   |         |         |         |         |  |
|                                                                   |                  | 132     | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 16.50   | 15.00   |         |         |         |         |  |
|                                                                   |                  | 136     | 8.00    | 6.50    | 11.00   | 9.50    | 13.50   | 12.00   | 13.50   | 12.00   |         |         |         |         |  |
|                                                                   |                  | 140     | 8.00    | 6.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |         |         |  |
|                                                                   |                  | 144     | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 16.50   | 15.00   |         |         |         |         |  |
|                                                                   |                  | 149     | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   |         |         |         |         |  |
|                                                                   |                  | 153     | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   |         |         |         |         |  |
|                                                                   |                  | 157     | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   |         |         |         |         |  |
|                                                                   |                  | 161     | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   |         |         |         |         |  |
|                                                                   |                  | 165     | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   |         |         |         |         |  |
|                                                                   | 40 MHz Bandwidth | 38      | 8.00    | 6.50    | 11.00   | 9.50    | 11.00   | 9.50    | 11.00   | 9.50    | 11.00   | 9.50    | 11.00   | 9.50    |  |
|                                                                   |                  | 46      | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 16.00   | 14.50   | 16.00   | 14.50   |         |         |  |
|                                                                   |                  | 54      | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 16.50   | 15.00   | 16.50   | 15.00   |         |         |  |
|                                                                   |                  | 62      | 8.00    | 6.50    | 10.50   | 9.00    | 10.50   | 9.00    | 10.00   | 8.50    | 10.50   | 9.00    |         |         |  |
|                                                                   |                  | 102     | 8.00    | 6.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |  |
|                                                                   |                  | 110     | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 16.50   | 15.00   | 16.50   | 15.00   |         |         |  |
|                                                                   |                  | 118     | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 16.50   | 15.00   | 16.50   | 15.00   |         |         |  |
|                                                                   |                  | 126     | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 16.50   | 15.00   | 16.50   | 15.00   |         |         |  |
|                                                                   |                  | 134     | 8.00    | 6.50    | 11.00   | 9.50    | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   |         |         |  |
|                                                                   |                  | 142     | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 10.00   | 8.50    | 16.50   | 15.00   |         |         |  |
|                                                                   |                  | 151     | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   |         |         |  |
|                                                                   |                  | 159     | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   |         |         |  |
|                                                                   | 80 MHz Bandwidth | 42      | 8.00    | 6.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    |  |
|                                                                   |                  | 58      | 8.00    | 6.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    |  |
|                                                                   |                  | 106     | 8.00    | 6.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    |  |
|                                                                   |                  | 122     | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 16.50   | 15.00   | 16.50   | 15.00   | 16.50   | 15.00   |  |
|                                                                   |                  | 138     | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 10.00   | 8.50    | 13.00   | 11.50   | 16.50   | 15.00   |  |
|                                                                   |                  | 155     | 14.50   | 13.00   | 14.50   | 13.00   | 14.50   | 13.00   | 14.50   | 13.00   | 14.50   | 13.00   | 14.50   | 13.00   |  |

## D. 5GHz ANTupper

| Mode/ Band                                                         |                  | Tones   |         | 26T     |         | 52T     |         | 106T    |         | 242T    |         | 484T    |         | 996T    |  |
|--------------------------------------------------------------------|------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--|
|                                                                    |                  | Channel | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal |  |
| Modulated Average -<br>Single Tx Chain<br>(dBm) - 5GHz<br>ANTupper | 20 MHz Bandwidth | 36      | 11.00   | 9.50    | 14.00   | 12.50   | 15.00   | 13.50   | 15.00   | 13.50   |         |         |         |         |  |
|                                                                    |                  | 40      | 11.00   | 9.50    | 14.00   | 12.50   | 16.00   | 14.50   | 16.00   | 14.50   |         |         |         |         |  |
|                                                                    |                  | 44      | 11.00   | 9.50    | 14.00   | 12.50   | 16.00   | 14.50   | 16.00   | 14.50   |         |         |         |         |  |
|                                                                    |                  | 48      | 11.00   | 9.50    | 14.00   | 12.50   | 16.00   | 14.50   | 16.00   | 14.50   |         |         |         |         |  |
|                                                                    |                  | 52      | 11.00   | 9.50    | 14.00   | 12.50   | 16.25   | 14.75   | 16.25   | 14.75   |         |         |         |         |  |
|                                                                    |                  | 56      | 11.00   | 9.50    | 14.00   | 12.50   | 16.25   | 14.75   | 16.25   | 14.75   |         |         |         |         |  |
|                                                                    |                  | 60      | 11.00   | 9.50    | 14.00   | 12.50   | 16.25   | 14.75   | 16.25   | 14.75   |         |         |         |         |  |
|                                                                    |                  | 64      | 11.00   | 9.50    | 14.00   | 12.50   | 14.50   | 13.00   | 14.50   | 13.00   |         |         |         |         |  |
|                                                                    |                  | 100     | 11.00   | 9.50    | 14.00   | 12.50   | 14.00   | 12.50   | 14.00   | 12.50   |         |         |         |         |  |
|                                                                    |                  | 104     | 11.00   | 9.50    | 14.00   | 12.50   | 15.00   | 13.50   | 15.00   | 13.50   |         |         |         |         |  |
|                                                                    |                  | 108     | 11.00   | 9.50    | 14.00   | 12.50   | 15.00   | 13.50   | 15.00   | 13.50   |         |         |         |         |  |
|                                                                    |                  | 112     | 11.00   | 9.50    | 14.00   | 12.50   | 15.00   | 13.50   | 15.00   | 13.50   |         |         |         |         |  |
|                                                                    |                  | 116     | 11.00   | 9.50    | 14.00   | 12.50   | 15.00   | 13.50   | 15.00   | 13.50   |         |         |         |         |  |
|                                                                    |                  | 120     | 11.00   | 9.50    | 14.00   | 12.50   | 15.00   | 13.50   | 15.00   | 13.50   |         |         |         |         |  |
|                                                                    |                  | 124     | 11.00   | 9.50    | 14.00   | 12.50   | 15.00   | 13.50   | 15.00   | 13.50   |         |         |         |         |  |
|                                                                    |                  | 128     | 11.00   | 9.50    | 14.00   | 12.50   | 15.00   | 13.50   | 15.00   | 13.50   |         |         |         |         |  |
|                                                                    |                  | 132     | 11.00   | 9.50    | 14.00   | 12.50   | 15.00   | 13.50   | 15.00   | 13.50   |         |         |         |         |  |
|                                                                    |                  | 136     | 11.00   | 9.50    | 14.00   | 12.50   | 15.00   | 13.50   | 15.00   | 13.50   |         |         |         |         |  |
|                                                                    |                  | 140     | 11.00   | 9.50    | 13.50   | 12.00   | 13.50   | 12.00   | 13.50   | 12.00   |         |         |         |         |  |
|                                                                    |                  | 144     | 11.00   | 9.50    | 14.00   | 12.50   | 15.00   | 13.50   | 15.00   | 13.50   |         |         |         |         |  |
|                                                                    |                  | 149     | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   |         |         |         |         |  |
|                                                                    |                  | 153     | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   |         |         |         |         |  |
|                                                                    |                  | 157     | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   |         |         |         |         |  |
|                                                                    |                  | 161     | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   |         |         |         |         |  |
|                                                                    |                  | 165     | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   |         |         |         |         |  |
|                                                                    | 40 MHz Bandwidth | 38      | 11.00   | 9.50    | 12.00   | 10.50   | 12.00   | 10.50   | 12.00   | 10.50   |         | 12.00   | 10.50   |         |  |
|                                                                    |                  | 46      | 11.00   | 9.50    | 14.00   | 12.50   | 16.00   | 14.50   | 16.00   | 14.50   | 16.00   | 14.50   |         |         |  |
|                                                                    |                  | 54      | 11.00   | 9.50    | 14.00   | 12.50   | 16.25   | 14.75   | 16.25   | 14.75   | 16.25   | 14.75   |         |         |  |
|                                                                    |                  | 62      | 11.00   | 9.50    | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   |         |         |  |
|                                                                    |                  | 102     | 11.00   | 9.50    | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   |         |         |  |
|                                                                    |                  | 110     | 11.00   | 9.50    | 14.00   | 12.50   | 15.00   | 13.50   | 15.00   | 13.50   | 15.00   | 13.50   |         |         |  |
|                                                                    |                  | 118     | 11.00   | 9.50    | 14.00   | 12.50   | 15.00   | 13.50   | 15.00   | 13.50   | 15.00   | 13.50   |         |         |  |
|                                                                    |                  | 126     | 11.00   | 9.50    | 14.00   | 12.50   | 15.00   | 13.50   | 15.00   | 13.50   | 15.00   | 13.50   |         |         |  |
|                                                                    |                  | 134     | 11.00   | 9.50    | 14.00   | 12.50   | 14.50   | 13.00   | 14.50   | 13.00   | 14.50   | 13.00   |         |         |  |
|                                                                    |                  | 142     | 11.00   | 9.50    | 14.00   | 12.50   | 15.00   | 13.50   | 13.50   | 12.00   | 15.00   | 13.50   |         |         |  |
|                                                                    |                  | 151     | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   |         |         |  |
|                                                                    |                  | 159     | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   |         |         |  |
|                                                                    | 80 MHz Bandwidth | 42      | 11.00   | 9.50    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    |  |
|                                                                    |                  | 58      | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    |  |
|                                                                    |                  | 106     | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    |  |
|                                                                    |                  | 122     | 11.00   | 9.50    | 14.00   | 12.50   | 15.00   | 13.50   | 15.00   | 13.50   | 15.00   | 13.50   | 15.00   | 13.50   |  |
|                                                                    |                  | 138     | 11.00   | 9.50    | 14.00   | 12.50   | 15.00   | 13.50   | 13.50   | 12.00   | 14.50   | 13.00   | 15.00   | 13.50   |  |
|                                                                    |                  | 155     | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   |  |

|                                        |                                                                                                   |                       |                                 |
|----------------------------------------|---------------------------------------------------------------------------------------------------|-----------------------|---------------------------------|
| FCC ID: BCGA2230                       |  <b>PCTEST</b> | SAR EVALUATION REPORT | Reviewed by:<br>Quality Manager |
| Test Dates:<br>12/16/2019 – 01/14/2020 | DUT Type:<br>Tablet Device                                                                        |                       | APPENDIX H:<br>Page 5 of 19     |

| Mode/ Band                                                        |                  | Tones   |         | 26T     |         | 52T     |         | 106T    |         | 242T    |         | 484T    |         | 996T    |  |
|-------------------------------------------------------------------|------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--|
|                                                                   |                  | Channel | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal |  |
| Modulated Average -<br>2 Tx Chain (dBm)<br>CDD - 5GHz<br>ANtUpper | 20 MHz Bandwidth | 36      | 8.00    | 6.50    | 11.00   | 9.50    | 13.50   | 12.00   | 13.50   | 12.00   |         |         |         |         |  |
|                                                                   |                  | 40      | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 16.00   | 14.50   |         |         |         |         |  |
|                                                                   |                  | 44      | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 16.00   | 14.50   |         |         |         |         |  |
|                                                                   |                  | 48      | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 16.00   | 14.50   |         |         |         |         |  |
|                                                                   |                  | 52      | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 16.25   | 14.75   |         |         |         |         |  |
|                                                                   |                  | 56      | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 16.25   | 14.75   |         |         |         |         |  |
|                                                                   |                  | 60      | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 16.25   | 14.75   |         |         |         |         |  |
|                                                                   |                  | 64      | 8.00    | 6.50    | 11.00   | 9.50    | 13.50   | 12.00   | 13.50   | 12.00   |         |         |         |         |  |
|                                                                   |                  | 100     | 7.75    | 6.25    | 10.75   | 9.25    | 13.50   | 12.00   | 13.50   | 12.00   |         |         |         |         |  |
|                                                                   |                  | 104     | 7.75    | 6.25    | 10.75   | 9.25    | 13.75   | 12.25   | 15.00   | 13.50   |         |         |         |         |  |
|                                                                   |                  | 108     | 7.75    | 6.25    | 10.75   | 9.25    | 13.75   | 12.25   | 15.00   | 13.50   |         |         |         |         |  |
|                                                                   |                  | 112     | 7.75    | 6.25    | 10.75   | 9.25    | 13.75   | 12.25   | 15.00   | 13.50   |         |         |         |         |  |
|                                                                   |                  | 116     | 7.75    | 6.25    | 10.75   | 9.25    | 13.75   | 12.25   | 15.00   | 13.50   |         |         |         |         |  |
|                                                                   |                  | 120     | 7.75    | 6.25    | 10.75   | 9.25    | 13.75   | 12.25   | 15.00   | 13.50   |         |         |         |         |  |
|                                                                   |                  | 124     | 7.75    | 6.25    | 10.75   | 9.25    | 13.75   | 12.25   | 15.00   | 13.50   |         |         |         |         |  |
|                                                                   |                  | 128     | 7.75    | 6.25    | 10.75   | 9.25    | 13.75   | 12.25   | 15.00   | 13.50   |         |         |         |         |  |
|                                                                   |                  | 132     | 7.75    | 6.25    | 10.75   | 9.25    | 13.75   | 12.25   | 15.00   | 13.50   |         |         |         |         |  |
|                                                                   |                  | 136     | 7.75    | 6.25    | 10.75   | 9.25    | 13.50   | 12.00   | 13.50   | 12.00   |         |         |         |         |  |
|                                                                   |                  | 140     | 7.75    | 6.25    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |         |         |  |
|                                                                   |                  | 144     | 7.75    | 6.25    | 10.75   | 9.25    | 13.75   | 12.25   | 15.00   | 13.50   |         |         |         |         |  |
|                                                                   |                  | 149     | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   |         |         |         |         |  |
|                                                                   |                  | 153     | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   |         |         |         |         |  |
|                                                                   |                  | 157     | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   |         |         |         |         |  |
|                                                                   |                  | 161     | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   |         |         |         |         |  |
|                                                                   |                  | 165     | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   |         |         |         |         |  |
|                                                                   | 40 MHz Bandwidth | 38      | 8.00    | 6.50    | 11.00   | 9.50    | 11.00   | 9.50    | 11.00   | 9.50    | 11.00   | 9.50    |         |         |  |
|                                                                   |                  | 46      | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 16.00   | 14.50   | 16.00   | 14.50   |         |         |  |
|                                                                   |                  | 54      | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 16.25   | 14.75   | 16.25   | 14.75   |         |         |  |
|                                                                   |                  | 62      | 8.00    | 6.50    | 10.50   | 9.00    | 10.50   | 9.00    | 10.00   | 8.50    | 10.50   | 9.00    |         |         |  |
|                                                                   |                  | 102     | 7.75    | 6.25    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |  |
|                                                                   |                  | 110     | 7.75    | 6.25    | 10.75   | 9.25    | 13.75   | 12.25   | 15.00   | 13.50   | 15.00   | 13.50   |         |         |  |
|                                                                   |                  | 118     | 7.75    | 6.25    | 10.75   | 9.25    | 13.75   | 12.25   | 15.00   | 13.50   | 15.00   | 13.50   |         |         |  |
|                                                                   |                  | 126     | 7.75    | 6.25    | 10.75   | 9.25    | 13.75   | 12.25   | 15.00   | 13.50   | 15.00   | 13.50   |         |         |  |
|                                                                   |                  | 134     | 7.75    | 6.25    | 10.75   | 9.25    | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   |         |         |  |
|                                                                   |                  | 142     | 7.75    | 6.25    | 10.75   | 9.25    | 13.75   | 12.25   | 10.00   | 8.50    | 15.00   | 13.50   |         |         |  |
|                                                                   |                  | 151     | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   |         |         |  |
|                                                                   |                  | 159     | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   |         |         |  |
|                                                                   | 80 MHz Bandwidth | 42      | 8.00    | 6.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    |  |
|                                                                   |                  | 58      | 8.00    | 6.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    |  |
|                                                                   |                  | 106     | 7.75    | 6.25    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    |  |
|                                                                   |                  | 122     | 7.75    | 6.25    | 10.75   | 9.25    | 13.75   | 12.25   | 15.00   | 13.50   | 15.00   | 13.50   | 15.00   | 13.50   |  |
|                                                                   |                  | 138     | 7.75    | 6.25    | 10.75   | 9.25    | 13.75   | 12.25   | 10.00   | 8.50    | 13.00   | 11.50   | 15.00   | 13.50   |  |
|                                                                   |                  | 155     | 14.50   | 13.00   | 14.50   | 13.00   | 14.50   | 13.00   | 14.50   | 13.00   | 14.50   | 13.00   | 14.50   | 13.00   |  |

| Mode/ Band                                                        |                  | Tones   |         | 26T     |         | 52T     |         | 106T    |         | 242T    |         | 484T    |         | 996T    |  |
|-------------------------------------------------------------------|------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--|
|                                                                   |                  | Channel | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal |  |
| Modulated Average -<br>2 Tx Chain (dBm)<br>SDM - 5GHz<br>ANTupper | 20 MHz Bandwidth | 36      | 8.00    | 6.50    | 11.00   | 9.50    | 13.50   | 12.00   | 13.50   | 12.00   |         |         |         |         |  |
|                                                                   |                  | 40      | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 16.00   | 14.50   |         |         |         |         |  |
|                                                                   |                  | 44      | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 16.00   | 14.50   |         |         |         |         |  |
|                                                                   |                  | 48      | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 16.00   | 14.50   |         |         |         |         |  |
|                                                                   |                  | 52      | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 16.25   | 14.75   |         |         |         |         |  |
|                                                                   |                  | 56      | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 16.25   | 14.75   |         |         |         |         |  |
|                                                                   |                  | 60      | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 16.25   | 14.75   |         |         |         |         |  |
|                                                                   |                  | 64      | 8.00    | 6.50    | 11.00   | 9.50    | 13.50   | 12.00   | 13.50   | 12.00   |         |         |         |         |  |
|                                                                   |                  | 100     | 8.00    | 6.50    | 11.00   | 9.50    | 13.50   | 12.00   | 13.50   | 12.00   |         |         |         |         |  |
|                                                                   |                  | 104     | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 15.00   | 13.50   |         |         |         |         |  |
|                                                                   |                  | 108     | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 15.00   | 13.50   |         |         |         |         |  |
|                                                                   |                  | 112     | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 15.00   | 13.50   |         |         |         |         |  |
|                                                                   |                  | 116     | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 15.00   | 13.50   |         |         |         |         |  |
|                                                                   |                  | 120     | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 15.00   | 13.50   |         |         |         |         |  |
|                                                                   |                  | 124     | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 15.00   | 13.50   |         |         |         |         |  |
|                                                                   |                  | 128     | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 15.00   | 13.50   |         |         |         |         |  |
|                                                                   |                  | 132     | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 15.00   | 13.50   |         |         |         |         |  |
|                                                                   |                  | 136     | 8.00    | 6.50    | 11.00   | 9.50    | 13.50   | 12.00   | 13.50   | 12.00   |         |         |         |         |  |
|                                                                   |                  | 140     | 8.00    | 6.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |         |         |  |
|                                                                   |                  | 144     | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 15.00   | 13.50   |         |         |         |         |  |
|                                                                   |                  | 149     | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   |         |         |         |         |  |
|                                                                   |                  | 153     | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   |         |         |         |         |  |
|                                                                   |                  | 157     | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   |         |         |         |         |  |
|                                                                   |                  | 161     | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   |         |         |         |         |  |
|                                                                   |                  | 165     | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   |         |         |         |         |  |
|                                                                   | 40 MHz Bandwidth | 38      | 8.00    | 6.50    | 11.00   | 9.50    | 11.00   | 9.50    | 11.00   | 9.50    | 11.00   | 9.50    |         |         |  |
|                                                                   |                  | 46      | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 16.00   | 14.50   | 16.00   | 14.50   |         |         |  |
|                                                                   |                  | 54      | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 16.25   | 14.75   | 16.25   | 14.75   |         |         |  |
|                                                                   |                  | 62      | 8.00    | 6.50    | 10.50   | 9.00    | 10.50   | 9.00    | 10.00   | 8.50    | 10.50   | 9.00    |         |         |  |
|                                                                   |                  | 102     | 8.00    | 6.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |  |
|                                                                   |                  | 110     | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 15.00   | 13.50   | 15.00   | 13.50   |         |         |  |
|                                                                   |                  | 118     | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 15.00   | 13.50   | 15.00   | 13.50   |         |         |  |
|                                                                   |                  | 126     | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 15.00   | 13.50   | 15.00   | 13.50   |         |         |  |
|                                                                   |                  | 134     | 8.00    | 6.50    | 11.00   | 9.50    | 13.00   | 11.50   | 13.00   | 11.50   | 13.00   | 11.50   |         |         |  |
|                                                                   |                  | 142     | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 10.00   | 8.50    | 15.00   | 13.50   |         |         |  |
|                                                                   |                  | 151     | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   |         |         |  |
|                                                                   |                  | 159     | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   | 15.50   | 14.00   |         |         |  |
|                                                                   | 80 MHz Bandwidth | 42      | 8.00    | 6.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    |  |
|                                                                   |                  | 58      | 8.00    | 6.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    |  |
|                                                                   |                  | 106     | 8.00    | 6.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    |  |
|                                                                   |                  | 122     | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 15.00   | 13.50   | 15.00   | 13.50   | 15.00   | 13.50   |  |
|                                                                   |                  | 138     | 8.00    | 6.50    | 11.00   | 9.50    | 14.00   | 12.50   | 10.00   | 8.50    | 13.00   | 11.50   | 15.00   | 13.50   |  |
|                                                                   |                  | 155     | 14.50   | 13.00   | 14.50   | 13.00   | 14.50   | 13.00   | 14.50   | 13.00   | 14.50   | 13.00   | 14.50   | 13.00   |  |

|                                        |                                                                                                   |                       |                                 |
|----------------------------------------|---------------------------------------------------------------------------------------------------|-----------------------|---------------------------------|
| FCC ID: BCGA2230                       |  <b>PCTEST</b> | SAR EVALUATION REPORT | Reviewed by:<br>Quality Manager |
| Test Dates:<br>12/16/2019 – 01/14/2020 | DUT Type:<br>Tablet Device                                                                        |                       | APPENDIX H:<br>Page 6 of 19     |

## 1.2.2 Reduced 802.11ax RU WLAN Output Power

### E. Ant 2a

Below table is applicable in the following conditions:

- Simultaneous conditions with Licensed Bands Antenna 2A/2B
- Simultaneous conditions with LTE Inter-band ULCA

| Mode/ Band                                                   |                  | Tones   | 26T     |         | 52T     |         | 106T    |         | 242T    |         |
|--------------------------------------------------------------|------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|                                                              |                  | Channel | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal |
| Modulated Average -<br>Single Tx Chain<br>(dBm) - Antenna 2A | 20 MHz Bandwidth | 1       | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    |
|                                                              |                  | 2       | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    |
|                                                              |                  | 3       | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    |
|                                                              |                  | 4       | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    |
|                                                              |                  | 5       | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    |
|                                                              |                  | 6       | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    |
|                                                              |                  | 7       | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    |
|                                                              |                  | 8       | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    |
|                                                              |                  | 9       | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    |
|                                                              |                  | 10      | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    |
|                                                              |                  | 11      | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    |
|                                                              |                  | 12      | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    |
|                                                              |                  | 13      | N/A     | N/A     | N/A     | N/A     | N/A     | N/A     | N/A     | N/A     |

Below table is applicable in the following conditions:

- Simultaneous conditions with Licensed Bands Antenna 2A/2B
- Simultaneous conditions with LTE Inter-band ULCA

| Mode/ Band                                              |                  | Tones   | 26T     |         | 52T     |         | 106T    |         | 242T    |         |
|---------------------------------------------------------|------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|                                                         |                  | Channel | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal |
| Modulated Average -<br>2 Tx Chain (dBm) -<br>Antenna 2A | 20 MHz Bandwidth | 1       | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    |
|                                                         |                  | 2       | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    |
|                                                         |                  | 3       | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    |
|                                                         |                  | 4       | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    |
|                                                         |                  | 5       | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    |
|                                                         |                  | 6       | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    |
|                                                         |                  | 7       | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    |
|                                                         |                  | 8       | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    |
|                                                         |                  | 9       | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    |
|                                                         |                  | 10      | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    |
|                                                         |                  | 11      | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    |
|                                                         |                  | 12      | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    |
|                                                         |                  | 13      | N/A     | N/A     | N/A     | N/A     | N/A     | N/A     | N/A     | N/A     |

### F. Ant 4a

Below table is applicable in the following conditions:

- Simultaneous conditions with Licensed Bands Antenna 4A/4B
- Simultaneous conditions with LTE Inter-band ULCA

| Mode/ Band                                                   |                  | Tones   | 26T     |         | 52T     |         | 106T    |         | 242T    |         |
|--------------------------------------------------------------|------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|                                                              |                  | Channel | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal |
| Modulated Average -<br>Single Tx Chain<br>(dBm) - Antenna 4A | 20 MHz Bandwidth | 1       | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    |
|                                                              |                  | 2       | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    |
|                                                              |                  | 3       | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    |
|                                                              |                  | 4       | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    |
|                                                              |                  | 5       | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    |
|                                                              |                  | 6       | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    |
|                                                              |                  | 7       | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    |
|                                                              |                  | 8       | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    |
|                                                              |                  | 9       | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    |
|                                                              |                  | 10      | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    |
|                                                              |                  | 11      | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    |
|                                                              |                  | 12      | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    |
|                                                              |                  | 13      | N/A     | N/A     | N/A     | N/A     | N/A     | N/A     | N/A     | N/A     |

|                                               |                                                                                                   |                              |                                        |
|-----------------------------------------------|---------------------------------------------------------------------------------------------------|------------------------------|----------------------------------------|
| FCC ID: BCGA2230                              |  <b>PCTEST</b> | <b>SAR EVALUATION REPORT</b> | <b>Reviewed by:</b><br>Quality Manager |
| <b>Test Dates:</b><br>12/16/2019 – 01/14/2020 | <b>DUT Type:</b><br>Tablet Device                                                                 |                              | <b>APPENDIX H:</b><br>Page 7 of 19     |

Below table is applicable in the following conditions:

- Simultaneous conditions with Licensed Bands Antenna 4A/4B
- Simultaneous conditions with LTE Inter-band ULCA

| Mode/ Band                                              |                  | Tones   | 26T     |         | 52T     |         | 106T    |         | 242T    |         |
|---------------------------------------------------------|------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|                                                         |                  | Channel | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal |
| Modulated Average -<br>2 Tx Chain (dBm) -<br>Antenna 4A | 20 MHz Bandwidth | 1       | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    |
|                                                         |                  | 2       | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    |
|                                                         |                  | 3       | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    |
|                                                         |                  | 4       | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    |
|                                                         |                  | 5       | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    |
|                                                         |                  | 6       | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    |
|                                                         |                  | 7       | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    |
|                                                         |                  | 8       | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    |
|                                                         |                  | 9       | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    |
|                                                         |                  | 10      | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    |
|                                                         |                  | 11      | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    |
|                                                         |                  | 12      | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    | 6.00    | 4.50    |
|                                                         |                  | 13      | N/A     | N/A     | N/A     | N/A     | N/A     | N/A     | N/A     | N/A     |

### G. 5GHz ANTlower

Below table is applicable in the following conditions:

- Simultaneous conditions with Licensed Bands Antenna 2A
- Simultaneous conditions with LTE Inter-band ULCA

| Mode/ Band                                                         |                  | Tones   | 26T     |         | 52T     |         | 106T    |         | 242T    |         | 484T    |         | 996T    |         |
|--------------------------------------------------------------------|------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|                                                                    |                  | Channel | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal |
| Modulated Average -<br>Single Tx Chain<br>(dBm) - 5GHz<br>ANTlower | 20 MHz Bandwidth | 36      | 11.00   | 9.50    | 12.00   | 10.50   | 12.00   | 10.50   | 12.00   | 10.50   |         |         |         |         |
|                                                                    |                  | 40      | 11.00   | 9.50    | 12.00   | 10.50   | 12.00   | 10.50   | 12.00   | 10.50   |         |         |         |         |
|                                                                    |                  | 44      | 11.00   | 9.50    | 12.00   | 10.50   | 12.00   | 10.50   | 12.00   | 10.50   |         |         |         |         |
|                                                                    |                  | 48      | 11.00   | 9.50    | 12.00   | 10.50   | 12.00   | 10.50   | 12.00   | 10.50   |         |         |         |         |
|                                                                    |                  | 52      | 11.00   | 9.50    | 12.50   | 11.00   | 12.50   | 11.00   | 12.50   | 11.00   |         |         |         |         |
|                                                                    |                  | 56      | 11.00   | 9.50    | 12.50   | 11.00   | 12.50   | 11.00   | 12.50   | 11.00   |         |         |         |         |
|                                                                    |                  | 60      | 11.00   | 9.50    | 12.50   | 11.00   | 12.50   | 11.00   | 12.50   | 11.00   |         |         |         |         |
|                                                                    |                  | 64      | 11.00   | 9.50    | 12.50   | 11.00   | 12.50   | 11.00   | 12.50   | 11.00   |         |         |         |         |
|                                                                    |                  | 100     | 11.00   | 9.50    | 12.50   | 11.00   | 12.50   | 11.00   | 12.50   | 11.00   |         |         |         |         |
|                                                                    |                  | 104     | 11.00   | 9.50    | 12.50   | 11.00   | 12.50   | 11.00   | 12.50   | 11.00   |         |         |         |         |
|                                                                    |                  | 108     | 11.00   | 9.50    | 12.50   | 11.00   | 12.50   | 11.00   | 12.50   | 11.00   |         |         |         |         |
|                                                                    |                  | 112     | 11.00   | 9.50    | 12.50   | 11.00   | 12.50   | 11.00   | 12.50   | 11.00   |         |         |         |         |
|                                                                    |                  | 116     | 11.00   | 9.50    | 12.50   | 11.00   | 12.50   | 11.00   | 12.50   | 11.00   |         |         |         |         |
|                                                                    |                  | 120     | 11.00   | 9.50    | 12.50   | 11.00   | 12.50   | 11.00   | 12.50   | 11.00   |         |         |         |         |
|                                                                    |                  | 124     | 11.00   | 9.50    | 12.50   | 11.00   | 12.50   | 11.00   | 12.50   | 11.00   |         |         |         |         |
|                                                                    |                  | 128     | 11.00   | 9.50    | 12.50   | 11.00   | 12.50   | 11.00   | 12.50   | 11.00   |         |         |         |         |
|                                                                    |                  | 132     | 11.00   | 9.50    | 12.50   | 11.00   | 12.50   | 11.00   | 12.50   | 11.00   |         |         |         |         |
|                                                                    |                  | 136     | 11.00   | 9.50    | 12.50   | 11.00   | 12.50   | 11.00   | 12.50   | 11.00   |         |         |         |         |
|                                                                    |                  | 140     | 11.00   | 9.50    | 12.50   | 11.00   | 12.50   | 11.00   | 12.50   | 11.00   |         |         |         |         |
|                                                                    | 40 MHz Bandwidth | 144     | 11.00   | 9.50    | 12.50   | 11.00   | 12.50   | 11.00   | 12.50   | 11.00   |         |         |         |         |
|                                                                    |                  | 149     | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   |         |         |         |         |
|                                                                    |                  | 153     | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   |         |         |         |         |
|                                                                    |                  | 157     | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   |         |         |         |         |
|                                                                    |                  | 161     | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   |         |         |         |         |
|                                                                    |                  | 165     | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   |         |         |         |         |
|                                                                    |                  | 38      | 11.00   | 9.50    | 12.00   | 10.50   | 12.00   | 10.50   | 12.00   | 10.50   | 12.00   | 10.50   |         |         |
|                                                                    |                  | 46      | 11.00   | 9.50    | 12.00   | 10.50   | 12.00   | 10.50   | 12.00   | 10.50   | 12.00   | 10.50   |         |         |
|                                                                    |                  | 54      | 11.00   | 9.50    | 12.50   | 11.00   | 12.50   | 11.00   | 12.50   | 11.00   | 12.50   | 11.00   |         |         |
|                                                                    |                  | 62      | 11.00   | 9.50    | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   |         |         |
|                                                                    | 80 MHz Bandwidth | 102     | 11.00   | 9.50    | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   |         |         |
|                                                                    |                  | 110     | 11.00   | 9.50    | 12.50   | 11.00   | 12.50   | 11.00   | 12.50   | 11.00   | 12.50   | 11.00   |         |         |
|                                                                    |                  | 118     | 11.00   | 9.50    | 12.50   | 11.00   | 12.50   | 11.00   | 12.50   | 11.00   | 12.50   | 11.00   |         |         |
|                                                                    |                  | 126     | 11.00   | 9.50    | 12.50   | 11.00   | 12.50   | 11.00   | 12.50   | 11.00   | 12.50   | 11.00   |         |         |
|                                                                    |                  | 134     | 11.00   | 9.50    | 12.50   | 11.00   | 12.50   | 11.00   | 12.50   | 11.00   | 12.50   | 11.00   |         |         |
|                                                                    |                  | 142     | 11.00   | 9.50    | 12.50   | 11.00   | 12.50   | 11.00   | 12.50   | 11.00   | 12.50   | 11.00   |         |         |
|                                                                    |                  | 151     | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   |         |         |
|                                                                    |                  | 159     | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   |         |         |
|                                                                    |                  | 42      | 11.00   | 9.50    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    |
|                                                                    |                  | 58      | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    |
|                                                                    |                  | 106     | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    |
|                                                                    |                  | 122     | 11.00   | 9.50    | 12.50   | 11.00   | 12.50   | 11.00   | 12.50   | 11.00   | 12.50   | 11.00   | 12.50   | 11.00   |
|                                                                    |                  | 138     | 11.00   | 9.50    | 12.50   | 11.00   | 12.50   | 11.00   | 12.50   | 11.00   | 12.50   | 11.00   | 12.50   | 11.00   |
|                                                                    |                  | 155     | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   |

|                                               |                                                                                                   |                              |                                        |
|-----------------------------------------------|---------------------------------------------------------------------------------------------------|------------------------------|----------------------------------------|
| FCC ID: BCGA2230                              |  <b>PCTEST</b> | <b>SAR EVALUATION REPORT</b> | <b>Reviewed by:</b><br>Quality Manager |
| <b>Test Dates:</b><br>12/16/2019 – 01/14/2020 | <b>DUT Type:</b><br>Tablet Device                                                                 |                              | <b>APPENDIX H:</b><br>Page 8 of 19     |

Below table is applicable in the following conditions:

- Simultaneous conditions with Licensed Bands Antenna 2A
- Simultaneous conditions with LTE Inter-band ULCA

| Mode/ Band                                                       |                  | Tones   | 26T     |         | 52T     |         | 106T    |         | 242T    |         | 484T    |         | 996T    |         |
|------------------------------------------------------------------|------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|                                                                  |                  | Channel | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal |
| Modulated Average -<br>2 Tx Chain (dBm)<br>CDD - 5GHz<br>ANTower | 20 MHz Bandwidth | 36      | 8.00    | 6.50    | 11.00   | 9.50    | 12.00   | 10.50   | 12.00   | 10.50   |         |         |         |         |
|                                                                  |                  | 40      | 8.00    | 6.50    | 11.00   | 9.50    | 12.00   | 10.50   | 12.00   | 10.50   |         |         |         |         |
|                                                                  |                  | 44      | 8.00    | 6.50    | 11.00   | 9.50    | 12.00   | 10.50   | 12.00   | 10.50   |         |         |         |         |
|                                                                  |                  | 48      | 8.00    | 6.50    | 11.00   | 9.50    | 12.00   | 10.50   | 12.00   | 10.50   |         |         |         |         |
|                                                                  |                  | 52      | 8.00    | 6.50    | 11.00   | 9.50    | 12.50   | 11.00   | 12.50   | 11.00   |         |         |         |         |
|                                                                  |                  | 56      | 8.00    | 6.50    | 11.00   | 9.50    | 12.50   | 11.00   | 12.50   | 11.00   |         |         |         |         |
|                                                                  |                  | 60      | 8.00    | 6.50    | 11.00   | 9.50    | 12.50   | 11.00   | 12.50   | 11.00   |         |         |         |         |
|                                                                  |                  | 64      | 8.00    | 6.50    | 11.00   | 9.50    | 12.50   | 11.00   | 12.50   | 11.00   |         |         |         |         |
|                                                                  |                  | 100     | 7.75    | 6.25    | 10.75   | 9.25    | 12.50   | 11.00   | 12.50   | 11.00   |         |         |         |         |
|                                                                  |                  | 104     | 7.75    | 6.25    | 10.75   | 9.25    | 12.50   | 11.00   | 12.50   | 11.00   |         |         |         |         |
|                                                                  |                  | 108     | 7.75    | 6.25    | 10.75   | 9.25    | 12.50   | 11.00   | 12.50   | 11.00   |         |         |         |         |
|                                                                  |                  | 112     | 7.75    | 6.25    | 10.75   | 9.25    | 12.50   | 11.00   | 12.50   | 11.00   |         |         |         |         |
|                                                                  |                  | 116     | 7.75    | 6.25    | 10.75   | 9.25    | 12.50   | 11.00   | 12.50   | 11.00   |         |         |         |         |
|                                                                  |                  | 120     | 7.75    | 6.25    | 10.75   | 9.25    | 12.50   | 11.00   | 12.50   | 11.00   |         |         |         |         |
|                                                                  |                  | 124     | 7.75    | 6.25    | 10.75   | 9.25    | 12.50   | 11.00   | 12.50   | 11.00   |         |         |         |         |
|                                                                  |                  | 128     | 7.75    | 6.25    | 10.75   | 9.25    | 12.50   | 11.00   | 12.50   | 11.00   |         |         |         |         |
|                                                                  |                  | 132     | 7.75    | 6.25    | 10.75   | 9.25    | 12.50   | 11.00   | 12.50   | 11.00   |         |         |         |         |
|                                                                  |                  | 136     | 7.75    | 6.25    | 10.75   | 9.25    | 12.50   | 11.00   | 12.50   | 11.00   |         |         |         |         |
|                                                                  |                  | 140     | 7.75    | 6.25    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |         |         |
|                                                                  |                  | 144     | 7.75    | 6.25    | 10.75   | 9.25    | 12.50   | 11.00   | 12.50   | 11.00   |         |         |         |         |
|                                                                  |                  | 149     | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   |         |         |         |         |
|                                                                  |                  | 153     | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   |         |         |         |         |
|                                                                  |                  | 157     | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   |         |         |         |         |
|                                                                  |                  | 161     | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   |         |         |         |         |
|                                                                  |                  | 165     | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   |         |         |         |         |
|                                                                  | 40 MHz Bandwidth | 38      | 8.00    | 6.50    | 11.00   | 9.50    | 11.00   | 9.50    | 11.00   | 9.50    | 11.00   | 9.50    |         |         |
|                                                                  |                  | 46      | 8.00    | 6.50    | 11.00   | 9.50    | 12.00   | 10.50   | 12.00   | 10.50   | 12.00   | 10.50   |         |         |
|                                                                  |                  | 54      | 8.00    | 6.50    | 11.00   | 9.50    | 12.50   | 11.00   | 12.50   | 11.00   | 12.50   | 11.00   |         |         |
|                                                                  |                  | 62      | 8.00    | 6.50    | 10.50   | 9.00    | 10.50   | 9.00    | 10.00   | 8.50    | 10.50   | 9.00    |         |         |
|                                                                  |                  | 102     | 7.75    | 6.25    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |
|                                                                  |                  | 110     | 7.75    | 6.25    | 10.75   | 9.25    | 12.50   | 11.00   | 12.50   | 11.00   | 12.50   | 11.00   |         |         |
|                                                                  |                  | 118     | 7.75    | 6.25    | 10.75   | 9.25    | 12.50   | 11.00   | 12.50   | 11.00   | 12.50   | 11.00   |         |         |
|                                                                  |                  | 126     | 7.75    | 6.25    | 10.75   | 9.25    | 12.50   | 11.00   | 12.50   | 11.00   | 12.50   | 11.00   |         |         |
|                                                                  |                  | 134     | 7.75    | 6.25    | 10.75   | 9.25    | 12.50   | 11.00   | 12.50   | 11.00   | 12.50   | 11.00   |         |         |
|                                                                  |                  | 142     | 7.75    | 6.25    | 10.75   | 9.25    | 12.50   | 11.00   | 10.00   | 8.50    | 12.50   | 11.00   |         |         |
|                                                                  |                  | 151     | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   |         |         |
|                                                                  |                  | 159     | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   |         |         |
|                                                                  | 80 MHz Bandwidth | 42      | 8.00    | 6.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    |
|                                                                  |                  | 58      | 8.00    | 6.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    |
|                                                                  |                  | 106     | 7.75    | 6.25    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    |
|                                                                  |                  | 122     | 7.75    | 6.25    | 10.75   | 9.25    | 12.50   | 11.00   | 12.50   | 11.00   | 12.50   | 11.00   | 12.50   | 11.00   |
|                                                                  |                  | 138     | 7.75    | 6.25    | 10.75   | 9.25    | 12.50   | 11.00   | 10.00   | 8.50    | 12.50   | 11.00   | 12.50   | 11.00   |
|                                                                  |                  | 155     | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   |

|                                               |                                                                                                   |                              |                                        |
|-----------------------------------------------|---------------------------------------------------------------------------------------------------|------------------------------|----------------------------------------|
| FCC ID: BCGA2230                              |  <b>PCTEST</b> | <b>SAR EVALUATION REPORT</b> | <b>Reviewed by:</b><br>Quality Manager |
| <b>Test Dates:</b><br>12/16/2019 – 01/14/2020 | <b>DUT Type:</b><br>Tablet Device                                                                 |                              | <b>APPENDIX H:</b><br>Page 9 of 19     |

Below table is applicable in the following conditions:

- Simultaneous conditions with Licensed Bands Antenna 2A
- Simultaneous conditions with LTE Inter-band ULCA

| Mode/ Band                                                       |                  | Tones   | 26T     |         | 52T     |         | 106T    |         | 242T    |         | 484T    |         | 996T    |         |
|------------------------------------------------------------------|------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|                                                                  |                  | Channel | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal |
| Modulated Average -<br>2 Tx Chain (dBm)<br>SDM - 5GHz<br>ANTower | 20 MHz Bandwidth | 36      | 8.00    | 6.50    | 11.00   | 9.50    | 12.00   | 10.50   | 12.00   | 10.50   |         |         |         |         |
|                                                                  |                  | 40      | 8.00    | 6.50    | 11.00   | 9.50    | 12.00   | 10.50   | 12.00   | 10.50   |         |         |         |         |
|                                                                  |                  | 44      | 8.00    | 6.50    | 11.00   | 9.50    | 12.00   | 10.50   | 12.00   | 10.50   |         |         |         |         |
|                                                                  |                  | 48      | 8.00    | 6.50    | 11.00   | 9.50    | 12.00   | 10.50   | 12.00   | 10.50   |         |         |         |         |
|                                                                  |                  | 52      | 8.00    | 6.50    | 11.00   | 9.50    | 12.50   | 11.00   | 12.50   | 11.00   |         |         |         |         |
|                                                                  |                  | 56      | 8.00    | 6.50    | 11.00   | 9.50    | 12.50   | 11.00   | 12.50   | 11.00   |         |         |         |         |
|                                                                  |                  | 60      | 8.00    | 6.50    | 11.00   | 9.50    | 12.50   | 11.00   | 12.50   | 11.00   |         |         |         |         |
|                                                                  |                  | 64      | 8.00    | 6.50    | 11.00   | 9.50    | 12.50   | 11.00   | 12.50   | 11.00   |         |         |         |         |
|                                                                  |                  | 100     | 8.00    | 6.50    | 11.00   | 9.50    | 12.50   | 11.00   | 12.50   | 11.00   |         |         |         |         |
|                                                                  |                  | 104     | 8.00    | 6.50    | 11.00   | 9.50    | 12.50   | 11.00   | 12.50   | 11.00   |         |         |         |         |
|                                                                  |                  | 108     | 8.00    | 6.50    | 11.00   | 9.50    | 12.50   | 11.00   | 12.50   | 11.00   |         |         |         |         |
|                                                                  |                  | 112     | 8.00    | 6.50    | 11.00   | 9.50    | 12.50   | 11.00   | 12.50   | 11.00   |         |         |         |         |
|                                                                  |                  | 116     | 8.00    | 6.50    | 11.00   | 9.50    | 12.50   | 11.00   | 12.50   | 11.00   |         |         |         |         |
|                                                                  |                  | 120     | 8.00    | 6.50    | 11.00   | 9.50    | 12.50   | 11.00   | 12.50   | 11.00   |         |         |         |         |
|                                                                  |                  | 124     | 8.00    | 6.50    | 11.00   | 9.50    | 12.50   | 11.00   | 12.50   | 11.00   |         |         |         |         |
|                                                                  |                  | 128     | 8.00    | 6.50    | 11.00   | 9.50    | 12.50   | 11.00   | 12.50   | 11.00   |         |         |         |         |
|                                                                  |                  | 132     | 8.00    | 6.50    | 11.00   | 9.50    | 12.50   | 11.00   | 12.50   | 11.00   |         |         |         |         |
|                                                                  |                  | 136     | 8.00    | 6.50    | 11.00   | 9.50    | 12.50   | 11.00   | 12.50   | 11.00   |         |         |         |         |
|                                                                  |                  | 140     | 8.00    | 6.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |         |         |
|                                                                  |                  | 144     | 8.00    | 6.50    | 11.00   | 9.50    | 12.50   | 11.00   | 12.50   | 11.00   |         |         |         |         |
|                                                                  |                  | 149     | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   |         |         |         |         |
|                                                                  |                  | 153     | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   |         |         |         |         |
|                                                                  |                  | 157     | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   |         |         |         |         |
|                                                                  |                  | 161     | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   |         |         |         |         |
|                                                                  |                  | 165     | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   |         |         |         |         |
|                                                                  | 40 MHz Bandwidth | 38      | 8.00    | 6.50    | 11.00   | 9.50    | 11.00   | 9.50    | 11.00   | 9.50    | 11.00   | 9.50    |         |         |
|                                                                  |                  | 46      | 8.00    | 6.50    | 11.00   | 9.50    | 12.00   | 10.50   | 12.00   | 10.50   | 12.00   | 10.50   |         |         |
|                                                                  |                  | 54      | 8.00    | 6.50    | 11.00   | 9.50    | 12.50   | 11.00   | 12.50   | 11.00   | 12.50   | 11.00   |         |         |
|                                                                  |                  | 62      | 8.00    | 6.50    | 10.50   | 9.00    | 10.50   | 9.00    | 10.00   | 8.50    | 10.50   | 9.00    |         |         |
|                                                                  |                  | 102     | 8.00    | 6.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |
|                                                                  |                  | 110     | 8.00    | 6.50    | 11.00   | 9.50    | 12.50   | 11.00   | 12.50   | 11.00   | 12.50   | 11.00   |         |         |
|                                                                  |                  | 118     | 8.00    | 6.50    | 11.00   | 9.50    | 12.50   | 11.00   | 12.50   | 11.00   | 12.50   | 11.00   |         |         |
|                                                                  |                  | 126     | 8.00    | 6.50    | 11.00   | 9.50    | 12.50   | 11.00   | 12.50   | 11.00   | 12.50   | 11.00   |         |         |
|                                                                  |                  | 134     | 8.00    | 6.50    | 11.00   | 9.50    | 12.50   | 11.00   | 12.50   | 11.00   | 12.50   | 11.00   |         |         |
|                                                                  |                  | 142     | 8.00    | 6.50    | 11.00   | 9.50    | 12.50   | 11.00   | 10.00   | 8.50    | 12.50   | 11.00   |         |         |
|                                                                  |                  | 151     | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   |         |         |
|                                                                  |                  | 159     | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   |         |         |
|                                                                  | 80 MHz Bandwidth | 42      | 8.00    | 6.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    |
|                                                                  |                  | 58      | 8.00    | 6.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    |
|                                                                  |                  | 106     | 8.00    | 6.50    | 8.50    | 7.00    | 8.50    | 7.00    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    |
|                                                                  |                  | 122     | 8.00    | 6.50    | 11.00   | 9.50    | 12.50   | 11.00   | 12.50   | 11.00   | 12.50   | 11.00   | 12.50   | 11.00   |
|                                                                  |                  | 138     | 8.00    | 6.50    | 11.00   | 9.50    | 12.50   | 11.00   | 10.00   | 8.50    | 12.50   | 11.00   | 12.50   | 11.00   |
|                                                                  |                  | 155     | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   | 11.50   | 10.00   |

|                                               |                                                                                                   |                              |                                        |
|-----------------------------------------------|---------------------------------------------------------------------------------------------------|------------------------------|----------------------------------------|
| FCC ID: BCGA2230                              |  <b>PCTEST</b> | <b>SAR EVALUATION REPORT</b> | <b>Reviewed by:</b><br>Quality Manager |
| <b>Test Dates:</b><br>12/16/2019 – 01/14/2020 | <b>DUT Type:</b><br>Tablet Device                                                                 |                              | <b>APPENDIX H:</b><br>Page 10 of 19    |

## H. 5GHz ANTupper

Below table is applicable in the following conditions:

-Simultaneous conditions with Licensed Bands Antenna 3

-Simultaneous conditions with LTE Inter-band ULCA

| Mode/ Band                                                         |                  | Tones            |         | 26T     |         | 52T     |         | 106T    |         | 242T    |         | 484T    |         | 996T    |       |       |      |
|--------------------------------------------------------------------|------------------|------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-------|-------|------|
|                                                                    |                  | Channel          | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal |       |       |      |
| Modulated Average -<br>Single Tx Chain<br>(dBm) - 5GHz<br>ANTupper | 20 MHz Bandwidth | 36               | 11.00   | 9.50    | 11.00   | 9.50    | 11.00   | 9.50    | 11.00   | 9.50    | 11.00   | 9.50    |         |         |       |       |      |
|                                                                    |                  | 40               | 11.00   | 9.50    | 11.00   | 9.50    | 11.00   | 9.50    | 11.00   | 9.50    | 11.00   | 9.50    |         |         |       |       |      |
|                                                                    |                  | 44               | 11.00   | 9.50    | 11.00   | 9.50    | 11.00   | 9.50    | 11.00   | 9.50    | 11.00   | 9.50    |         |         |       |       |      |
|                                                                    |                  | 48               | 11.00   | 9.50    | 11.00   | 9.50    | 11.00   | 9.50    | 11.00   | 9.50    | 11.00   | 9.50    |         |         |       |       |      |
|                                                                    |                  | 52               | 11.00   | 9.50    | 11.25   | 9.75    | 11.25   | 9.75    | 11.25   | 9.75    | 11.25   | 9.75    |         |         |       |       |      |
|                                                                    |                  | 56               | 11.00   | 9.50    | 11.25   | 9.75    | 11.25   | 9.75    | 11.25   | 9.75    | 11.25   | 9.75    |         |         |       |       |      |
|                                                                    |                  | 60               | 11.00   | 9.50    | 11.25   | 9.75    | 11.25   | 9.75    | 11.25   | 9.75    | 11.25   | 9.75    |         |         |       |       |      |
|                                                                    |                  | 64               | 11.00   | 9.50    | 11.25   | 9.75    | 11.25   | 9.75    | 11.25   | 9.75    | 11.25   | 9.75    |         |         |       |       |      |
|                                                                    |                  | 100              | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |       |       |      |
|                                                                    |                  | 104              | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |       |       |      |
|                                                                    |                  | 108              | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |       |       |      |
|                                                                    |                  | 112              | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |       |       |      |
|                                                                    |                  | 116              | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |       |       |      |
|                                                                    |                  | 120              | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |       |       |      |
|                                                                    |                  | 124              | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |       |       |      |
|                                                                    |                  | 128              | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |       |       |      |
|                                                                    |                  | 132              | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |       |       |      |
|                                                                    |                  | 136              | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |       |       |      |
|                                                                    |                  | 140              | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |       |       |      |
|                                                                    |                  | 144              | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |       |       |      |
|                                                                    |                  | 149              | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    |         |         |       |       |      |
|                                                                    |                  | 153              | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    |         |         |       |       |      |
|                                                                    |                  | 157              | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    |         |         |       |       |      |
|                                                                    |                  | 161              | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    |         |         |       |       |      |
|                                                                    |                  | 165              | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    |         |         |       |       |      |
|                                                                    | 40 MHz Bandwidth | 38               | 11.00   | 9.50    | 11.00   | 9.50    | 11.00   | 9.50    | 11.00   | 9.50    | 11.00   | 9.50    | 11.00   | 9.50    |       |       |      |
|                                                                    |                  | 46               | 11.00   | 9.50    | 11.00   | 9.50    | 11.00   | 9.50    | 11.00   | 9.50    | 11.00   | 9.50    | 11.00   | 9.50    |       |       |      |
|                                                                    |                  | 54               | 11.00   | 9.50    | 11.25   | 9.75    | 11.25   | 9.75    | 11.25   | 9.75    | 11.25   | 9.75    | 11.25   | 9.75    |       |       |      |
|                                                                    |                  | 62               | 11.00   | 9.50    | 11.25   | 9.75    | 11.25   | 9.75    | 11.25   | 9.75    | 11.25   | 9.75    | 11.25   | 9.75    |       |       |      |
|                                                                    |                  | 102              | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |       |       |      |
|                                                                    |                  | 110              | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |       |       |      |
|                                                                    |                  | 118              | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |       |       |      |
|                                                                    |                  | 126              | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |       |       |      |
|                                                                    |                  | 134              | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |       |       |      |
|                                                                    |                  | 142              | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |       |       |      |
|                                                                    |                  | 151              | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    |       |       |      |
|                                                                    |                  | 159              | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    |       |       |      |
|                                                                    |                  | 80 MHz Bandwidth | 42      | 11.00   | 9.50    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00  | 10.50 | 9.00 |
|                                                                    |                  |                  | 58      | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00  | 10.50 | 9.00 |
|                                                                    |                  |                  | 106     | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50  | 10.00 | 8.50 |
|                                                                    | 122              |                  | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00 | 8.50  |      |
|                                                                    | 138              |                  | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00 | 8.50  |      |
|                                                                    |                  | 155              | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50 | 9.00  |      |

|                                               |                                                                                                   |                              |                                        |
|-----------------------------------------------|---------------------------------------------------------------------------------------------------|------------------------------|----------------------------------------|
| FCC ID: BCGA2230                              |  <b>PCTEST</b> | <b>SAR EVALUATION REPORT</b> | <b>Reviewed by:</b><br>Quality Manager |
| <b>Test Dates:</b><br>12/16/2019 – 01/14/2020 | <b>DUT Type:</b><br>Tablet Device                                                                 |                              | <b>APPENDIX H:</b><br>Page 11 of 19    |

Below table is applicable in the following conditions:

- Simultaneous conditions with Licensed Bands Antenna 3
- Simultaneous conditions with LTE Inter-band ULCA

| Mode/ Band                                                        |                  | Tones   | 26T     |         | 52T     |         | 106T    |         | 242T    |         | 484T    |         | 996T    |         |
|-------------------------------------------------------------------|------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|                                                                   |                  | Channel | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal |
| Modulated Average -<br>2 Tx Chain (dBm)<br>CDD - 5GHz<br>ANTupper | 20 MHz Bandwidth | 36      | 8.00    | 6.50    | 11.00   | 9.50    | 11.00   | 9.50    | 11.00   | 9.50    |         |         |         |         |
|                                                                   |                  | 40      | 8.00    | 6.50    | 11.00   | 9.50    | 11.00   | 9.50    | 11.00   | 9.50    |         |         |         |         |
|                                                                   |                  | 44      | 8.00    | 6.50    | 11.00   | 9.50    | 11.00   | 9.50    | 11.00   | 9.50    |         |         |         |         |
|                                                                   |                  | 48      | 8.00    | 6.50    | 11.00   | 9.50    | 11.00   | 9.50    | 11.00   | 9.50    |         |         |         |         |
|                                                                   |                  | 52      | 8.00    | 6.50    | 11.00   | 9.50    | 11.25   | 9.75    | 11.25   | 9.75    |         |         |         |         |
|                                                                   |                  | 56      | 8.00    | 6.50    | 11.00   | 9.50    | 11.25   | 9.75    | 11.25   | 9.75    |         |         |         |         |
|                                                                   |                  | 60      | 8.00    | 6.50    | 11.00   | 9.50    | 11.25   | 9.75    | 11.25   | 9.75    |         |         |         |         |
|                                                                   |                  | 64      | 8.00    | 6.50    | 11.00   | 9.50    | 11.25   | 9.75    | 11.25   | 9.75    |         |         |         |         |
|                                                                   |                  | 100     | 7.75    | 6.25    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |         |         |
|                                                                   |                  | 104     | 7.75    | 6.25    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |         |         |
|                                                                   |                  | 108     | 7.75    | 6.25    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |         |         |
|                                                                   |                  | 112     | 7.75    | 6.25    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |         |         |
|                                                                   |                  | 116     | 7.75    | 6.25    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |         |         |
|                                                                   |                  | 120     | 7.75    | 6.25    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |         |         |
|                                                                   |                  | 124     | 7.75    | 6.25    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |         |         |
|                                                                   |                  | 128     | 7.75    | 6.25    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |         |         |
|                                                                   |                  | 132     | 7.75    | 6.25    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |         |         |
|                                                                   |                  | 136     | 7.75    | 6.25    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |         |         |
|                                                                   |                  | 140     | 7.75    | 6.25    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |         |         |
|                                                                   |                  | 144     | 7.75    | 6.25    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |         |         |
|                                                                   |                  | 149     | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    |         |         |         |         |
|                                                                   |                  | 153     | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    |         |         |         |         |
|                                                                   |                  | 157     | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    |         |         |         |         |
|                                                                   |                  | 161     | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    |         |         |         |         |
|                                                                   |                  | 165     | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    |         |         |         |         |
|                                                                   | 40 MHz Bandwidth | 38      | 8.00    | 6.50    | 11.00   | 9.50    | 11.00   | 9.50    | 11.00   | 9.50    | 11.00   | 9.50    |         |         |
|                                                                   |                  | 46      | 8.00    | 6.50    | 11.00   | 9.50    | 11.00   | 9.50    | 11.00   | 9.50    | 11.00   | 9.50    |         |         |
|                                                                   |                  | 54      | 8.00    | 6.50    | 11.00   | 9.50    | 11.25   | 9.75    | 11.25   | 9.75    | 11.25   | 9.75    |         |         |
|                                                                   |                  | 62      | 8.00    | 6.50    | 10.50   | 9.00    | 10.50   | 9.00    | 10.00   | 8.50    | 10.50   | 9.00    |         |         |
|                                                                   |                  | 102     | 7.75    | 6.25    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |
|                                                                   |                  | 110     | 7.75    | 6.25    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |
|                                                                   |                  | 118     | 7.75    | 6.25    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |
|                                                                   |                  | 126     | 7.75    | 6.25    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |
|                                                                   |                  | 134     | 7.75    | 6.25    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |
|                                                                   |                  | 142     | 7.75    | 6.25    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |
|                                                                   |                  | 151     | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    |         |         |
|                                                                   |                  | 159     | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    |         |         |
|                                                                   | 80 MHz Bandwidth | 42      | 8.00    | 6.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    |
|                                                                   |                  | 58      | 8.00    | 6.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    |
|                                                                   |                  | 106     | 7.75    | 6.25    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    |
|                                                                   |                  | 122     | 7.75    | 6.25    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |
|                                                                   |                  | 138     | 7.75    | 6.25    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |
|                                                                   |                  | 155     | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    |

|                                               |                                                                                                   |                              |                                        |
|-----------------------------------------------|---------------------------------------------------------------------------------------------------|------------------------------|----------------------------------------|
| FCC ID: BCGA2230                              |  <b>PCTEST</b> | <b>SAR EVALUATION REPORT</b> | <b>Reviewed by:</b><br>Quality Manager |
| <b>Test Dates:</b><br>12/16/2019 – 01/14/2020 | <b>DUT Type:</b><br>Tablet Device                                                                 |                              | <b>APPENDIX H:</b><br>Page 12 of 19    |

Below table is applicable in the following conditions:

- Simultaneous conditions with Licensed Bands Antenna 3
- Simultaneous conditions with LTE Inter-band ULCA

| Mode/ Band                                                        |                  | Tones   | 26T     |         | 52T     |         | 106T    |         | 242T    |         | 484T    |         | 996T    |         |
|-------------------------------------------------------------------|------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|                                                                   |                  | Channel | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal |
| Modulated Average -<br>2 Tx Chain (dBm)<br>SDM - 5GHz<br>ANTupper | 20 MHz Bandwidth | 36      | 8.00    | 6.50    | 11.00   | 9.50    | 11.00   | 9.50    | 11.00   | 9.50    |         |         |         |         |
|                                                                   |                  | 40      | 8.00    | 6.50    | 11.00   | 9.50    | 11.00   | 9.50    | 11.00   | 9.50    |         |         |         |         |
|                                                                   |                  | 44      | 8.00    | 6.50    | 11.00   | 9.50    | 11.00   | 9.50    | 11.00   | 9.50    |         |         |         |         |
|                                                                   |                  | 48      | 8.00    | 6.50    | 11.00   | 9.50    | 11.00   | 9.50    | 11.00   | 9.50    |         |         |         |         |
|                                                                   |                  | 52      | 8.00    | 6.50    | 11.00   | 9.50    | 11.25   | 9.75    | 11.25   | 9.75    |         |         |         |         |
|                                                                   |                  | 56      | 8.00    | 6.50    | 11.00   | 9.50    | 11.25   | 9.75    | 11.25   | 9.75    |         |         |         |         |
|                                                                   |                  | 60      | 8.00    | 6.50    | 11.00   | 9.50    | 11.25   | 9.75    | 11.25   | 9.75    |         |         |         |         |
|                                                                   |                  | 64      | 8.00    | 6.50    | 11.00   | 9.50    | 11.25   | 9.75    | 11.25   | 9.75    |         |         |         |         |
|                                                                   |                  | 100     | 8.00    | 6.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |         |         |
|                                                                   |                  | 104     | 8.00    | 6.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |         |         |
|                                                                   |                  | 108     | 8.00    | 6.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |         |         |
|                                                                   |                  | 112     | 8.00    | 6.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |         |         |
|                                                                   |                  | 116     | 8.00    | 6.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |         |         |
|                                                                   |                  | 120     | 8.00    | 6.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |         |         |
|                                                                   |                  | 124     | 8.00    | 6.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |         |         |
|                                                                   |                  | 128     | 8.00    | 6.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |         |         |
|                                                                   |                  | 132     | 8.00    | 6.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |         |         |
|                                                                   |                  | 136     | 8.00    | 6.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |         |         |
|                                                                   |                  | 140     | 8.00    | 6.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |         |         |
|                                                                   |                  | 144     | 8.00    | 6.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |         |         |
|                                                                   |                  | 149     | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    |         |         |         |         |
|                                                                   |                  | 153     | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    |         |         |         |         |
|                                                                   |                  | 157     | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    |         |         |         |         |
|                                                                   |                  | 161     | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    |         |         |         |         |
|                                                                   |                  | 165     | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    |         |         |         |         |
|                                                                   | 40 MHz Bandwidth | 38      | 8.00    | 6.50    | 11.00   | 9.50    | 11.00   | 9.50    | 11.00   | 9.50    | 11.00   | 9.50    |         |         |
|                                                                   |                  | 46      | 8.00    | 6.50    | 11.00   | 9.50    | 11.00   | 9.50    | 11.00   | 9.50    | 11.00   | 9.50    |         |         |
|                                                                   |                  | 54      | 8.00    | 6.50    | 11.00   | 9.50    | 11.25   | 9.75    | 11.25   | 9.75    | 11.25   | 9.75    |         |         |
|                                                                   |                  | 62      | 8.00    | 6.50    | 10.50   | 9.00    | 10.50   | 9.00    | 10.00   | 8.50    | 10.50   | 9.00    |         |         |
|                                                                   |                  | 102     | 8.00    | 6.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |
|                                                                   |                  | 110     | 8.00    | 6.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |
|                                                                   |                  | 118     | 8.00    | 6.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |
|                                                                   |                  | 126     | 8.00    | 6.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |
|                                                                   |                  | 134     | 8.00    | 6.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |
|                                                                   |                  | 142     | 8.00    | 6.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |         |         |
|                                                                   |                  | 151     | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    |         |         |
|                                                                   |                  | 159     | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    |         |         |
|                                                                   | 80 MHz Bandwidth | 42      | 8.00    | 6.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    |
|                                                                   |                  | 58      | 8.00    | 6.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    |
|                                                                   |                  | 106     | 8.00    | 6.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    | 9.00    | 7.50    |
|                                                                   |                  | 122     | 8.00    | 6.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |
|                                                                   |                  | 138     | 8.00    | 6.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    | 10.00   | 8.50    |
|                                                                   |                  | 155     | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    | 10.50   | 9.00    |

|                                               |                                                                                                   |                              |                                        |
|-----------------------------------------------|---------------------------------------------------------------------------------------------------|------------------------------|----------------------------------------|
| FCC ID: BCGA2230                              |  <b>PCTEST</b> | <b>SAR EVALUATION REPORT</b> | <b>Reviewed by:</b><br>Quality Manager |
| <b>Test Dates:</b><br>12/16/2019 – 01/14/2020 | <b>DUT Type:</b><br>Tablet Device                                                                 |                              | <b>APPENDIX H:</b><br>Page 13 of 19    |

### 1.3 IEEE 802.11ax Measured Powers

**Table 1**  
**Maximum 2.4 GHz 802.11ax RU Output Power – Ant 2a**

| Freq [MHz] | Channel | Tones | RU Index | Avg Conducted Powers (dBm) | Freq [MHz] | Channel | Tones | RU Index | Avg Conducted Powers (dBm) |
|------------|---------|-------|----------|----------------------------|------------|---------|-------|----------|----------------------------|
| 2412       | 1       | 26T   | 0        | 11.72                      | 2412       | 1       | 52T   | 37       | 11.54                      |
|            |         |       | 4        | 12.12                      |            |         |       | 38       | 12.12                      |
|            |         |       | 8        | 12.50                      |            |         |       | 40       | 12.98                      |
| 2417       | 2       | 26T   | 0        | 12.16                      | 2417       | 2       | 52T   | 37       | 11.55                      |
|            |         |       | 4        | 12.30                      |            |         |       | 38       | 12.02                      |
|            |         |       | 8        | 12.50                      |            |         |       | 40       | 12.36                      |
| 2437       | 6       | 26T   | 0        | 12.36                      | 2437       | 6       | 52T   | 37       | 12.97                      |
|            |         |       | 4        | 12.50                      |            |         |       | 38       | 12.38                      |
|            |         |       | 8        | 12.16                      |            |         |       | 40       | 12.29                      |
| 2462       | 11      | 26T   | 0        | 12.39                      | 2462       | 11      | 52T   | 37       | 12.34                      |
|            |         |       | 4        | 12.37                      |            |         |       | 38       | 12.46                      |
|            |         |       | 8        | 12.50                      |            |         |       | 40       | 12.33                      |
| 2467       | 12      | 26T   | 0        | 10.36                      | 2467       | 12      | 52T   | 37       | 10.67                      |
|            |         |       | 4        | 10.94                      |            |         |       | 38       | 10.98                      |
|            |         |       | 8        | 9.83                       |            |         |       | 40       | 9.14                       |

| Freq [MHz] | Channel | Tones | RU Index | Avg Conducted Powers (dBm) | Freq [MHz] | Channel | Tones | RU Index | Avg Conducted Powers (dBm) |
|------------|---------|-------|----------|----------------------------|------------|---------|-------|----------|----------------------------|
| 2412       | 1       | 106T  | 53       | 11.78                      | 2412       | 1       | 242T  | 61       | 13.00                      |
|            |         |       | 54       | 12.78                      |            |         |       |          |                            |
| 2417       | 2       | 106T  | 53       | 11.65                      | 2417       | 2       | 242T  | 61       | 13.00                      |
|            |         |       | 54       | 12.47                      |            |         |       |          |                            |
| 2437       | 6       | 106T  | 53       | 12.53                      | 2437       | 6       | 242T  | 61       | 12.95                      |
|            |         |       | 54       | 12.13                      |            |         |       |          |                            |
| 2462       | 11      | 106T  | 53       | 12.49                      | 2462       | 11      | 242T  | 61       | 12.87                      |
|            |         |       | 54       | 12.23                      |            |         |       |          |                            |
| 2467       | 12      | 106T  | 53       | 10.98                      | 2467       | 12      | 242T  | 61       | 10.92                      |
|            |         |       | 54       | 9.66                       |            |         |       |          |                            |

|                                        |                                                                                                                  |                                 |
|----------------------------------------|------------------------------------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: BCGA2230                       |  <b>SAR EVALUATION REPORT</b> | Reviewed by:<br>Quality Manager |
| Test Dates:<br>12/16/2019 – 01/14/2020 | DUT Type:<br>Tablet Device                                                                                       | APPENDIX H:<br>Page 14 of 19    |

**Table 2**  
**Maximum 2.4 GHz 802.11ax RU Output Power – Ant 4a**

| Freq [MHz] | Channel | Tones | RU Index | Avg Conducted Powers (dBm) | Freq [MHz] | Channel | Tones | RU Index | Avg Conducted Powers (dBm) |
|------------|---------|-------|----------|----------------------------|------------|---------|-------|----------|----------------------------|
| 2412       | 1       | 26T   | 0        | 12.05                      | 2412       | 1       | 52T   | 37       | 12.23                      |
|            |         |       | 4        | 12.36                      |            |         |       | 38       | 12.46                      |
|            |         |       | 8        | 12.93                      |            |         |       | 40       | 12.92                      |
| 2417       | 2       | 26T   | 0        | 11.76                      | 2417       | 2       | 52T   | 37       | 12.41                      |
|            |         |       | 4        | 12.32                      |            |         |       | 38       | 12.39                      |
|            |         |       | 8        | 12.77                      |            |         |       | 40       | 12.73                      |
| 2437       | 6       | 26T   | 0        | 12.53                      | 2437       | 6       | 52T   | 37       | 12.66                      |
|            |         |       | 4        | 12.70                      |            |         |       | 38       | 12.58                      |
|            |         |       | 8        | 12.85                      |            |         |       | 40       | 12.68                      |
| 2462       | 11      | 26T   | 0        | 13.00                      | 2462       | 11      | 52T   | 37       | 12.70                      |
|            |         |       | 4        | 12.60                      |            |         |       | 38       | 12.57                      |
|            |         |       | 8        | 12.30                      |            |         |       | 40       | 12.45                      |
| 2467       | 12      | 26T   | 0        | 10.74                      | 2467       | 12      | 52T   | 37       | 10.75                      |
|            |         |       | 4        | 10.97                      |            |         |       | 38       | 10.90                      |
|            |         |       | 8        | 9.55                       |            |         |       | 40       | 9.01                       |

| Freq [MHz] | Channel | Tones | RU Index | Avg Conducted Powers (dBm) |  | Freq [MHz] | Channel | Tones | RU Index | Avg Conducted Powers (dBm) |
|------------|---------|-------|----------|----------------------------|--|------------|---------|-------|----------|----------------------------|
| 2412       | 1       | 106T  | 53       | 12.02                      |  |            |         |       |          |                            |
|            |         |       | 54       | 12.55                      |  |            |         |       |          |                            |
| 2417       | 2       | 106T  | 53       | 11.96                      |  |            |         |       |          |                            |
|            |         |       | 54       | 12.19                      |  |            |         |       |          |                            |
| 2437       | 6       | 106T  | 53       | 12.32                      |  |            |         |       |          |                            |
|            |         |       | 54       | 12.44                      |  |            |         |       |          |                            |
| 2462       | 11      | 106T  | 53       | 12.35                      |  |            |         |       |          |                            |
|            |         |       | 54       | 12.17                      |  |            |         |       |          |                            |
| 2467       | 12      | 106T  | 53       | 10.63                      |  |            |         |       |          |                            |
|            |         |       | 54       | 9.19                       |  |            |         |       |          |                            |
|            |         |       |          |                            |  | 2412       | 1       | 242T  | 61       | 12.81                      |
|            |         |       |          |                            |  | 2417       | 2       | 242T  | 61       | 13.00                      |
|            |         |       |          |                            |  | 2437       | 6       | 242T  | 61       | 12.89                      |
|            |         |       |          |                            |  | 2462       | 11      | 242T  | 61       | 12.95                      |
|            |         |       |          |                            |  | 2467       | 12      | 242T  | 61       | 10.95                      |

|                                        |                                                                                                                  |                                 |
|----------------------------------------|------------------------------------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: BCGA2230                       |  <b>SAR EVALUATION REPORT</b> | Reviewed by:<br>Quality Manager |
| Test Dates:<br>12/16/2019 – 01/14/2020 | DUT Type:<br>Tablet Device                                                                                       | APPENDIX H:<br>Page 15 of 19    |

**Table 3**  
**Maximum 5 GHz 802.11ax RU Output Power – 5GHz ANTlower**

| 20MHz BW | Band | Freq [MHz] | Channel | Tones | Avg Conducted Power (dBm) |       |       | 20MHz BW | Band | Freq [MHz] | Channel | Tones | Avg Conducted Power (dBm) |       |       |
|----------|------|------------|---------|-------|---------------------------|-------|-------|----------|------|------------|---------|-------|---------------------------|-------|-------|
|          |      |            |         |       | RU Index                  |       |       |          |      |            |         |       | RU Index                  |       |       |
|          |      |            |         |       | 0                         | 4     | 8     |          |      |            |         |       | 37                        | 39    | 40    |
|          | 1    | 5180       | 36      | 26T   | 10.91                     | 11.00 | 11.00 |          | 1    | 5180       | 36      | 52T   | 13.27                     | 13.81 | 13.71 |
| 5200     |      | 40         | 26T     | 10.86 | 11.00                     | 11.00 | 5200  | 40       |      | 52T        | 13.86   | 13.92 | 13.84                     |       |       |
| 5240     |      | 48         | 26T     | 10.81 | 11.00                     | 11.00 | 5240  | 48       |      | 52T        | 13.35   | 13.71 | 13.57                     |       |       |
| 2A       | 5260 | 52         | 26T     | 10.75 | 11.00                     | 11.00 | 2A    | 5260     | 52   | 52T        | 13.25   | 13.67 | 13.61                     |       |       |
|          | 5300 | 60         | 26T     | 10.85 | 11.00                     | 11.00 |       | 5300     | 60   | 52T        | 13.40   | 13.79 | 13.72                     |       |       |
|          | 5320 | 64         | 26T     | 10.91 | 11.00                     | 11.00 |       | 5320     | 64   | 52T        | 13.45   | 13.91 | 13.85                     |       |       |
| 2C       | 5500 | 100        | 26T     | 10.80 | 11.00                     | 11.00 | 2C    | 5500     | 100  | 52T        | 13.23   | 13.47 | 13.40                     |       |       |
|          | 5520 | 104        | 26T     | 11.00 | 11.00                     | 11.00 |       | 5520     | 104  | 52T        | 13.07   | 13.59 | 13.52                     |       |       |
|          | 5580 | 116        | 26T     | 10.97 | 11.00                     | 11.00 |       | 5580     | 116  | 52T        | 13.49   | 13.65 | 13.38                     |       |       |
|          | 5660 | 132        | 26T     | 11.00 | 11.00                     | 11.00 |       | 5660     | 132  | 52T        | 13.24   | 13.41 | 13.26                     |       |       |
|          | 5680 | 136        | 26T     | 10.98 | 11.00                     | 11.00 |       | 5680     | 136  | 52T        | 13.14   | 13.39 | 13.43                     |       |       |
|          | 5700 | 140        | 26T     | 10.92 | 11.00                     | 11.00 |       | 5700     | 140  | 52T        | 12.84   | 13.14 | 13.00                     |       |       |
|          | 5720 | 144        | 26T     | 10.80 | 11.00                     | 11.00 |       | 5720     | 144  | 52T        | 12.97   | 13.22 | 13.27                     |       |       |
|          | 5745 | 149        | 26T     | 14.91 | 15.21                     | 15.19 |       | 5745     | 149  | 52T        | 14.53   | 14.92 | 14.91                     |       |       |
| 3        | 5785 | 157        | 26T     | 14.93 | 15.32                     | 15.22 | 3     | 5785     | 157  | 52T        | 14.53   | 14.80 | 14.72                     |       |       |
|          | 5825 | 165        | 26T     | 14.86 | 15.30                     | 15.23 |       | 5825     | 165  | 52T        | 14.84   | 15.22 | 15.11                     |       |       |

| 20MHz BW | Band | Freq [MHz] | Channel | Tones | Avg Conducted Power (dBm) |       |     | 20MHz BW | Band | Freq [MHz] | Channel | Tones | Avg Conducted Power (dBm) |     |     |
|----------|------|------------|---------|-------|---------------------------|-------|-----|----------|------|------------|---------|-------|---------------------------|-----|-----|
|          |      |            |         |       | RU Index                  |       |     |          |      |            |         |       | RU Index                  |     |     |
|          |      |            |         |       | 53                        | 54    | N/A |          |      |            |         |       | 61                        | N/A | N/A |
|          | 1    | 5180       | 36      | 106T  | 15.00                     | 15.00 |     |          | 1    | 5180       | 36      | 242T  | 15.00                     |     |     |
|          | 5200 | 40         | 106T    | 16.00 | 16.00                     |       |     | 5200     | 40   | 242T       | 16.00   |       |                           |     |     |
|          | 5240 | 48         | 106T    | 16.00 | 16.00                     |       |     | 5240     | 48   | 242T       | 16.00   |       |                           |     |     |
| 2A       | 5260 | 52         | 106T    | 16.31 | 16.50                     |       |     | 5260     | 52   | 242T       | 16.47   |       |                           |     |     |
|          | 5300 | 60         | 106T    | 16.33 | 16.50                     |       |     | 5300     | 60   | 242T       | 16.50   |       |                           |     |     |
|          | 5320 | 64         | 106T    | 14.41 | 14.50                     |       |     | 5320     | 64   | 242T       | 14.50   |       |                           |     |     |
| 2C       | 5500 | 100        | 106T    | 13.96 | 14.00                     |       |     | 5500     | 100  | 242T       | 14.00   |       |                           |     |     |
|          | 5520 | 104        | 106T    | 16.31 | 16.50                     |       |     | 5520     | 104  | 242T       | 16.50   |       |                           |     |     |
|          | 5580 | 116        | 106T    | 15.50 | 16.50                     |       |     | 5580     | 116  | 242T       | 16.49   |       |                           |     |     |
|          | 5660 | 132        | 106T    | 16.44 | 16.50                     |       |     | 5660     | 132  | 242T       | 16.46   |       |                           |     |     |
|          | 5680 | 136        | 106T    | 16.35 | 16.50                     |       |     | 5680     | 136  | 242T       | 16.34   |       |                           |     |     |
|          | 5700 | 140        | 106T    | 13.38 | 13.50                     |       |     | 5700     | 140  | 242T       | 13.50   |       |                           |     |     |
|          | 5720 | 144        | 106T    | 16.17 | 16.32                     |       |     | 5720     | 144  | 242T       | 16.50   |       |                           |     |     |
|          | 5745 | 149        | 106T    | 15.50 | 15.50                     |       |     | 5745     | 149  | 242T       | 15.50   |       |                           |     |     |
| 3        | 5785 | 157        | 106T    | 15.50 | 15.50                     |       |     | 5785     | 157  | 242T       | 15.50   |       |                           |     |     |
|          | 5825 | 165        | 106T    | 15.50 | 15.50                     |       |     | 5825     | 165  | 242T       | 15.50   |       |                           |     |     |

| 40MHz BW | Band | Freq [MHz] | Channel | Tones | Avg Conducted Power (dBm) |       |       | 40MHz BW | Band | Freq [MHz] | Channel | Tones | Avg Conducted Power (dBm) |       |       |
|----------|------|------------|---------|-------|---------------------------|-------|-------|----------|------|------------|---------|-------|---------------------------|-------|-------|
|          |      |            |         |       | RU Index                  |       |       |          |      |            |         |       | RU Index                  |       |       |
|          |      |            |         |       | 0                         | 8     | 17    |          |      |            |         |       | 37                        | 40    | 44    |
|          |      |            |         |       |                           |       |       |          |      |            |         |       |                           |       |       |
|          | 1    | 5190       | 38      | 26T   | 10.50                     | 11.00 | 10.78 |          | 1    | 5190       | 38      | 52T   | 11.19                     | 11.91 | 11.41 |
|          |      | 5230       | 46      | 26T   | 10.88                     | 11.00 | 11.00 |          |      | 5230       | 46      | 52T   | 13.19                     | 13.29 | 13.07 |
|          | 2A   | 5270       | 54      | 26T   | 10.75                     | 11.00 | 11.00 |          | 2A   | 5270       | 54      | 52T   | 13.34                     | 13.76 | 13.46 |
|          |      | 5310       | 62      | 26T   | 10.50                     | 10.96 | 11.00 |          |      | 5310       | 62      | 52T   | 11.08                     | 11.25 | 11.08 |
|          | 2C   | 5510       | 102     | 26T   | 10.74                     | 10.82 | 11.00 |          | 2C   | 5510       | 102     | 52T   | 10.64                     | 10.71 | 10.61 |
|          |      | 5550       | 110     | 26T   | 10.93                     | 11.00 | 11.00 |          |      | 5550       | 110     | 52T   | 13.41                     | 13.17 | 13.37 |
|          |      | 5590       | 118     | 26T   | 10.97                     | 10.96 | 11.00 |          |      | 5590       | 118     | 52T   | 13.64                     | 13.19 | 13.35 |
|          |      | 5670       | 134     | 26T   | 11.00                     | 11.00 | 11.00 |          |      | 5670       | 134     | 52T   | 13.53                     | 13.51 | 13.44 |
|          |      | 5710       | 142     | 26T   | 10.99                     | 11.00 | 11.00 |          |      | 5710       | 142     | 52T   | 13.34                     | 13.49 | 13.22 |
|          | 3    | 5755       | 151     | 26T   | 15.20                     | 15.49 | 15.50 |          | 3    | 5755       | 151     | 52T   | 14.90                     | 15.09 | 15.03 |
|          |      | 5795       | 159     | 26T   | 15.50                     | 15.50 | 15.50 |          |      | 5795       | 159     | 52T   | 15.05                     | 15.13 | 15.09 |

|                                        |                                                                                                           |                                 |
|----------------------------------------|-----------------------------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: BCGA2230                       |  SAR EVALUATION REPORT | Reviewed by:<br>Quality Manager |
| Test Dates:<br>12/16/2019 – 01/14/2020 | DUT Type:<br>Tablet Device                                                                                | APPENDIX H:<br>Page 16 of 19    |

| 40MHz BW | Band | Freq [MHz] | Channel | Tones | Avg Conducted Power (dBm) |       |       | 40MHz BW | Band | Freq [MHz] | Channel | Tones | Avg Conducted Power (dBm) |       |     |
|----------|------|------------|---------|-------|---------------------------|-------|-------|----------|------|------------|---------|-------|---------------------------|-------|-----|
|          |      |            |         |       | RU Index                  |       |       |          |      |            |         |       | RU Index                  |       |     |
|          |      |            |         |       | 53                        | 54    | 56    |          |      |            |         |       | 61                        | 62    | N/A |
|          |      |            |         |       |                           |       |       |          |      |            |         |       |                           |       |     |
| 1        | 2A   | 5190       | 38      | 106T  | 11.43                     | 11.92 | 11.62 | 1        | 2A   | 5190       | 38      | 242T  | 12.00                     | 12.00 |     |
|          |      | 5230       | 46      | 106T  | 15.25                     | 15.81 | 15.91 |          |      | 5230       | 46      | 242T  | 15.99                     | 16.00 |     |
|          |      | 5270       | 54      | 106T  | 16.07                     | 16.25 | 16.33 |          |      | 5270       | 54      | 242T  | 16.50                     | 16.50 |     |
| 2C       | 2C   | 5310       | 62      | 106T  | 10.95                     | 11.27 | 11.28 | 2C       | 2C   | 5310       | 62      | 242T  | 11.42                     | 11.50 |     |
|          |      | 5510       | 102     | 106T  | 10.58                     | 10.72 | 10.75 |          |      | 5510       | 102     | 242T  | 11.50                     | 11.50 |     |
|          |      | 5550       | 110     | 106T  | 16.19                     | 16.28 | 16.18 |          |      | 5550       | 110     | 242T  | 16.50                     | 16.50 |     |
|          |      | 5590       | 118     | 106T  | 16.25                     | 16.15 | 16.11 |          |      | 5590       | 118     | 242T  | 16.41                     | 16.50 |     |
|          |      | 5670       | 134     | 106T  | 13.92                     | 13.87 | 14.03 |          |      | 5670       | 134     | 242T  | 14.50                     | 14.50 |     |
|          |      | 5710       | 142     | 106T  | 15.93                     | 15.82 | 16.11 |          |      | 5710       | 142     | 242T  | 13.37                     | 13.50 |     |
| 3        | 3    | 5755       | 151     | 106T  | 14.82                     | 15.04 | 15.10 | 3        | 3    | 5755       | 151     | 242T  | 15.48                     | 15.43 |     |
|          |      | 5795       | 159     | 106T  | 14.92                     | 15.09 | 15.22 |          |      | 5795       | 159     | 242T  | 15.50                     | 15.50 |     |

| 40MHz BW | Band | Freq [MHz] | Channel | Tones | Avg Conducted Power (dBm) |     |     |
|----------|------|------------|---------|-------|---------------------------|-----|-----|
|          |      |            |         |       | RU Index                  |     |     |
|          |      |            |         |       | 65                        | N/A | N/A |
|          |      |            |         |       |                           |     |     |
| 1        | 2A   | 5190       | 38      | 484T  | 12.00                     |     |     |
|          |      | 5230       | 46      | 484T  | 16.00                     |     |     |
|          |      | 5270       | 54      | 484T  | 16.50                     |     |     |
| 2C       | 2C   | 5310       | 62      | 484T  | 11.46                     |     |     |
|          |      | 5510       | 102     | 484T  | 11.50                     |     |     |
|          |      | 5550       | 110     | 484T  | 16.50                     |     |     |
|          |      | 5590       | 118     | 484T  | 16.45                     |     |     |
|          |      | 5670       | 134     | 484T  | 14.50                     |     |     |
|          |      | 5710       | 142     | 484T  | 16.50                     |     |     |
| 3        | 3    | 5755       | 151     | 484T  | 15.50                     |     |     |
|          |      | 5795       | 159     | 484T  | 15.50                     |     |     |

| 80MHz BW | Band | Freq [MHz] | Channel | Tones | Avg Conducted Power (dBm) |       |       | 80MHz BW | Band | Freq [MHz] | Channel | Tones | Avg Conducted Power (dBm) |       |       |
|----------|------|------------|---------|-------|---------------------------|-------|-------|----------|------|------------|---------|-------|---------------------------|-------|-------|
|          |      |            |         |       | RU Index                  |       |       |          |      |            |         |       | RU Index                  |       |       |
|          |      |            |         |       | 0                         | 18    | 36    |          |      |            |         |       | 37                        | 44    | 52    |
|          |      |            |         |       |                           |       |       |          |      |            |         |       |                           |       |       |
|          | 1    | 5210       | 42      | 26T   | 10.79                     | 11.00 | 10.89 |          | 1    | 5210       | 42      | 52T   | 10.29                     | 10.50 | 10.33 |
|          | 2A   | 5290       | 58      | 26T   | 10.47                     | 10.50 | 10.50 |          | 2A   | 5290       | 58      | 52T   | 10.03                     | 10.43 | 10.15 |
|          |      | 5530       | 106     | 26T   | 10.24                     | 10.50 | 10.23 |          |      | 2A         | 5530    | 106   | 52T                       | 10.08 | 10.50 |
|          | 2C   | 5610       | 122     | 26T   | 10.95                     | 11.00 | 11.00 |          | 2C   |            | 5610    | 122   | 52T                       | 13.76 | 13.86 |
|          |      | 5690       | 138     | 26T   | 11.00                     | 11.00 | 11.00 |          |      | 2C         | 5690    | 138   | 52T                       | 13.90 | 14.00 |
|          | 3    | 5775       | 155     | 26T   | 15.34                     | 15.50 | 15.50 |          | 3    |            | 5775    | 155   | 52T                       | 15.45 | 15.50 |

| 80MHz BW | Band | Freq [MHz] | Channel | Tones | Avg Conducted Power (dBm) |       |       | 80MHz BW | Band | Freq [MHz] | Channel | Tones | Avg Conducted Power (dBm) |       |       |
|----------|------|------------|---------|-------|---------------------------|-------|-------|----------|------|------------|---------|-------|---------------------------|-------|-------|
|          |      |            |         |       | RU Index                  |       |       |          |      |            |         |       | RU Index                  |       |       |
|          |      |            |         |       | 53                        | 56    | 60    |          |      |            |         |       | 61                        | 62    | 64    |
|          | 1    | 5210       | 42      | 106T  | 10.41                     | 10.50 | 10.36 |          | 1    | 5210       | 42      | 242T  | 10.50                     | 10.50 | 10.30 |
| 2C       | 2A   | 5290       | 58      | 106T  | 10.50                     | 10.48 | 10.50 | 2A       | 5290 | 58         | 242T    | 10.42 | 10.50                     | 10.22 |       |
|          |      | 5530       | 106     | 106T  | 10.19                     | 10.50 | 10.46 |          | 5530 | 106        | 242T    | 10.13 | 10.47                     | 10.03 |       |
|          |      | 5610       | 122     | 106T  | 16.41                     | 16.44 | 16.23 |          | 5610 | 122        | 242T    | 16.15 | 16.26                     | 16.15 |       |
|          |      | 5690       | 138     | 106T  | 16.50                     | 16.50 | 16.47 |          | 5690 | 138        | 242T    | 13.32 | 13.50                     | 13.09 |       |
|          | 3    | 5775       | 155     | 106T  | 15.45                     | 15.50 | 15.31 |          | 3    | 5775       | 155     | 242T  | 15.33                     | 15.50 | 15.23 |

| 80MHz BW | Band | Freq [MHz] | Channel | Tones | Avg Conducted Power (dBm) |       |     | 80MHz BW | Band | Freq [MHz] | Channel | Tones | Avg Conducted Power (dBm) |     |     |
|----------|------|------------|---------|-------|---------------------------|-------|-----|----------|------|------------|---------|-------|---------------------------|-----|-----|
|          |      |            |         |       | RU Index                  |       |     |          |      |            |         |       | RU Index                  |     |     |
|          |      |            |         |       | 65                        | 66    | N/A |          |      |            |         |       | 67                        | N/A | N/A |
|          | 1    | 5210       | 42      | 484T  | 10.50                     | 10.27 |     |          | 1    | 5210       | 42      | 996T  | 10.50                     |     |     |
| 2A       | 5290 | 58         | 484T    | 10.50 | 10.50                     |       | 2A  | 5290     | 58   | 996T       | 10.50   |       |                           |     |     |
|          | 5530 | 106        | 484T    | 10.50 | 10.50                     |       |     | 5530     | 106  | 996T       | 10.48   |       |                           |     |     |
| 2C       | 5610 | 122        | 484T    | 16.42 | 16.50                     |       | 2C  | 5610     | 122  | 996T       | 16.46   |       |                           |     |     |
|          | 5690 | 138        | 484T    | 14.50 | 14.50                     |       |     | 5690     | 138  | 996T       | 16.46   |       |                           |     |     |
|          | 5775 | 155        | 484T    | 15.50 | 15.50                     |       | 3   | 5775     | 155  | 996T       | 15.16   |       |                           |     |     |

|                                        |                                                                                                   |                       |                                 |
|----------------------------------------|---------------------------------------------------------------------------------------------------|-----------------------|---------------------------------|
| FCC ID: BCGA2230                       |  <b>PCTEST</b> | SAR EVALUATION REPORT | Reviewed by:<br>Quality Manager |
| Test Dates:<br>12/16/2019 – 01/14/2020 | DUT Type:<br>Tablet Device                                                                        |                       | APPENDIX H:<br>Page 17 of 19    |

**Table 4**  
**Maximum 5 GHz 802.11ax RU Output Power – 5GHz ANTupper**

| 20MHz BW | Band | Freq [MHz] | Channel | Tones | Avg Conducted Power (dBm) |       |       | 20MHz BW | Band | Freq [MHz] | Channel | Tones | Avg Conducted Power (dBm) |       |       |
|----------|------|------------|---------|-------|---------------------------|-------|-------|----------|------|------------|---------|-------|---------------------------|-------|-------|
|          |      |            |         |       | RU Index                  |       |       |          |      |            |         |       | RU Index                  |       |       |
|          |      |            |         |       | 0                         | 4     | 8     |          |      |            |         |       | 37                        | 39    | 40    |
|          | 1    | 5180       | 36      | 26T   | 10.46                     | 10.86 | 10.78 |          | 1    | 5180       | 36      | 52T   | 13.19                     | 13.73 | 13.75 |
|          |      | 5200       | 40      | 26T   | 10.56                     | 10.97 | 10.91 |          |      | 5200       | 40      | 52T   | 13.33                     | 13.90 | 13.91 |
|          |      | 5240       | 48      | 26T   | 10.81                     | 11.00 | 10.96 |          |      | 5240       | 48      | 52T   | 13.31                     | 13.78 | 13.73 |
|          | 2A   | 5260       | 52      | 26T   | 10.87                     | 11.00 | 11.00 |          | 2A   | 5260       | 52      | 52T   | 13.38                     | 13.82 | 13.80 |
|          |      | 5300       | 60      | 26T   | 10.92                     | 11.00 | 11.00 |          |      | 5300       | 60      | 52T   | 13.18                     | 13.63 | 13.27 |
|          |      | 5320       | 64      | 26T   | 10.97                     | 11.00 | 11.00 |          |      | 5320       | 64      | 52T   | 12.92                     | 13.26 | 13.17 |
|          | 2C   | 5500       | 100     | 26T   | 10.73                     | 11.00 | 10.72 |          | 2C   | 5500       | 100     | 52T   | 13.18                     | 13.44 | 13.24 |
| 5520     |      | 104        | 26T     | 11.00 | 11.00                     | 10.99 | 5520  | 104      |      | 52T        | 13.08   | 13.43 | 13.31                     |       |       |
| 5580     |      | 116        | 26T     | 10.84 | 11.00                     | 11.00 | 5580  | 116      |      | 52T        | 13.29   | 13.45 | 13.35                     |       |       |
| 5660     |      | 132        | 26T     | 10.81 | 11.00                     | 11.00 | 5660  | 132      |      | 52T        | 13.22   | 13.53 | 13.39                     |       |       |
| 5680     |      | 136        | 26T     | 10.82 | 11.00                     | 11.10 | 5680  | 136      |      | 52T        | 13.18   | 13.56 | 13.64                     |       |       |
| 5700     |      | 140        | 26T     | 10.79 | 11.00                     | 11.00 | 5700  | 140      |      | 52T        | 12.96   | 13.28 | 13.27                     |       |       |
| 5720     |      | 144        | 26T     | 10.90 | 11.00                     | 11.00 | 5720  | 144      |      | 52T        | 12.97   | 13.25 | 13.19                     |       |       |
| 3        | 5745 | 149        | 26T     | 15.28 | 15.50                     | 15.50 | 3     | 5745     | 149  | 52T        | 14.56   | 14.92 | 14.92                     |       |       |
|          | 5785 | 157        | 26T     | 15.29 | 15.50                     | 15.50 |       | 5785     | 157  | 52T        | 15.24   | 15.45 | 15.50                     |       |       |
|          | 5825 | 165        | 26T     | 15.27 | 15.50                     | 15.50 |       | 5825     | 165  | 52T        | 14.75   | 15.05 | 15.08                     |       |       |

| 20MHz BW | Band | Freq [MHz] | Channel | Tones | Avg Conducted Power (dBm) |       |     |
|----------|------|------------|---------|-------|---------------------------|-------|-----|
|          |      |            |         |       | RU Index                  |       |     |
|          |      |            |         |       | 53                        | 54    | N/A |
|          | 1    | 5180       | 36      | 106T  | 14.79                     | 15.00 |     |
|          |      | 5200       | 40      | 106T  | 15.56                     | 15.92 |     |
|          |      | 5240       | 48      | 106T  | 15.87                     | 15.98 |     |
|          | 2A   | 5260       | 52      | 106T  | 16.17                     | 16.25 |     |
|          |      | 5300       | 60      | 106T  | 16.25                     | 16.25 |     |
|          |      | 5320       | 64      | 106T  | 14.50                     | 14.50 |     |
|          | 2C   | 5500       | 100     | 106T  | 14.00                     | 14.00 |     |
| 5520     |      | 104        | 106T    | 15.00 | 15.00                     |       |     |
| 5580     |      | 116        | 106T    | 14.89 | 15.00                     |       |     |
| 5660     |      | 132        | 106T    | 14.95 | 15.00                     |       |     |
| 5680     |      | 136        | 106T    | 15.00 | 15.00                     |       |     |
| 5700     |      | 140        | 106T    | 13.47 | 13.50                     |       |     |
| 5720     |      | 144        | 106T    | 14.00 | 14.00                     |       |     |
| 3        | 5745 | 149        | 106T    | 15.37 | 15.50                     |       |     |
|          | 5785 | 157        | 106T    | 15.46 | 15.50                     |       |     |
|          | 5825 | 165        | 106T    | 15.50 | 15.50                     |       |     |

| 20MHz BW | Band | Freq [MHz] | Channel | Tones | Avg Conducted Power (dBm) |     |     |
|----------|------|------------|---------|-------|---------------------------|-----|-----|
|          |      |            |         |       | RU Index                  |     |     |
|          |      |            |         |       | 61                        | N/A | N/A |
|          | 1    | 5180       | 36      | 242T  | 14.60                     |     |     |
|          |      | 5200       | 40      | 242T  | 15.99                     |     |     |
|          |      | 5240       | 48      | 242T  | 16.00                     |     |     |
|          | 2A   | 5260       | 52      | 242T  | 16.25                     |     |     |
|          |      | 5300       | 60      | 242T  | 16.25                     |     |     |
|          |      | 5320       | 64      | 242T  | 14.50                     |     |     |
|          | 2C   | 5500       | 100     | 242T  | 14.00                     |     |     |
| 5520     |      | 104        | 242T    | 14.95 |                           |     |     |
| 5580     |      | 116        | 242T    | 15.00 |                           |     |     |
| 5660     |      | 132        | 242T    | 14.92 |                           |     |     |
| 5680     |      | 136        | 242T    | 15.00 |                           |     |     |
| 5700     |      | 140        | 242T    | 13.50 |                           |     |     |
| 5720     |      | 144        | 242T    | 15.00 |                           |     |     |
| 3        | 5745 | 149        | 242T    | 15.50 |                           |     |     |
|          | 5785 | 157        | 242T    | 15.50 |                           |     |     |
|          | 5825 | 165        | 242T    | 15.50 |                           |     |     |

| 40MHz BW | Band | Freq [MHz] | Channel | Tones | Avg Conducted Power (dBm) |       |       | 40MHz BW | Band | Freq [MHz] | Channel | Tones | Avg Conducted Power (dBm) |       |       |
|----------|------|------------|---------|-------|---------------------------|-------|-------|----------|------|------------|---------|-------|---------------------------|-------|-------|
|          |      |            |         |       | RU Index                  |       |       |          |      |            |         |       | RU Index                  |       |       |
|          |      |            |         |       | 0                         | 8     | 17    |          |      |            |         |       | 37                        | 40    | 44    |
|          | 1    | 5190       | 38      | 26T   | 9.78                      | 10.91 | 10.10 |          | 1    | 5190       | 38      | 52T   | 10.88                     | 11.65 | 11.47 |
|          |      | 5230       | 46      | 26T   | 10.43                     | 11.00 | 10.94 |          |      | 5230       | 46      | 52T   | 13.23                     | 13.70 | 13.94 |
|          | 2A   | 5270       | 54      | 26T   | 11.00                     | 11.00 | 11.00 |          | 2A   | 5270       | 54      | 52T   | 13.22                     | 13.45 | 13.52 |
|          |      | 5310       | 62      | 26T   | 10.75                     | 11.00 | 11.00 |          |      | 5310       | 62      | 52T   | 11.00                     | 11.20 | 11.36 |
|          | 2C   | 5510       | 102     | 26T   | 10.92                     | 11.00 | 11.00 |          | 2C   | 5510       | 102     | 52T   | 11.11                     | 11.06 | 11.17 |
|          |      | 5550       | 110     | 26T   | 10.95                     | 11.00 | 11.00 |          |      | 5550       | 110     | 52T   | 13.33                     | 13.40 | 13.60 |
|          |      | 5590       | 118     | 26T   | 10.98                     | 10.93 | 11.00 |          |      | 5590       | 118     | 52T   | 13.39                     | 13.47 | 13.59 |
|          |      | 5670       | 134     | 26T   | 11.00                     | 11.00 | 11.00 |          |      | 5670       | 134     | 52T   | 13.28                     | 13.27 | 13.54 |
|          |      | 5710       | 142     | 26T   | 10.93                     | 11.00 | 11.00 |          |      | 5710       | 142     | 52T   | 13.40                     | 13.07 | 13.75 |
|          | 3    | 5755       | 151     | 26T   | 15.09                     | 15.31 | 15.50 |          | 3    | 5755       | 151     | 52T   | 15.08                     | 15.27 | 15.49 |
|          |      | 5795       | 159     | 26T   | 15.25                     | 15.28 | 15.50 |          |      | 5795       | 159     | 52T   | 15.18                     | 15.33 | 15.50 |

|                                        |                                                                                                   |                       |                                 |
|----------------------------------------|---------------------------------------------------------------------------------------------------|-----------------------|---------------------------------|
| FCC ID: BCGA2230                       |  <b>PCTEST</b> | SAR EVALUATION REPORT | Reviewed by:<br>Quality Manager |
| Test Dates:<br>12/16/2019 – 01/14/2020 | DUT Type:<br>Tablet Device                                                                        |                       | APPENDIX H:<br>Page 18 of 19    |

| 40MHz BW | Band | Freq [MHz] | Channel | Tones | Avg Conducted Power (dBm) |       |       | 40MHz BW | Band | Freq [MHz] | Channel | Tones | Avg Conducted Power (dBm) |       |     |
|----------|------|------------|---------|-------|---------------------------|-------|-------|----------|------|------------|---------|-------|---------------------------|-------|-----|
|          |      |            |         |       | RU Index                  |       |       |          |      |            |         |       | RU Index                  |       |     |
|          |      |            |         |       | 53                        | 54    | 56    |          |      |            |         |       | 61                        | 62    | N/A |
|          | 1    | 5190       | 38      | 106T  | 11.25                     | 11.97 | 11.47 |          | 1    | 5190       | 38      | 242T  | 11.90                     | 11.95 |     |
| 5230     |      | 46         | 106T    | 14.89 | 15.27                     | 15.06 | 5230  | 46       |      | 242T       | 16.00   | 16.00 |                           |       |     |
| 2A       | 5270 | 54         | 106T    | 15.74 | 16.10                     | 15.79 | 2A    | 5270     | 54   | 242T       | 16.07   | 15.99 |                           |       |     |
|          | 5310 | 62         | 106T    | 11.17 | 11.41                     | 11.26 |       | 5310     | 62   | 242T       | 11.48   | 11.50 |                           |       |     |
| 2C       | 5510 | 102        | 106T    | 11.32 | 11.24                     | 11.15 | 2C    | 5510     | 102  | 242T       | 11.50   | 11.50 |                           |       |     |
|          | 5550 | 110        | 106T    | 14.86 | 14.96                     | 14.64 |       | 5550     | 110  | 242T       | 15.00   | 14.98 |                           |       |     |
|          | 5590 | 118        | 106T    | 14.84 | 14.83                     | 14.76 |       | 5590     | 118  | 242T       | 14.93   | 14.94 |                           |       |     |
|          | 5670 | 134        | 106T    | 14.40 | 14.46                     | 14.21 |       | 5670     | 134  | 242T       | 14.49   | 14.50 |                           |       |     |
|          | 5710 | 142        | 106T    | 14.84 | 14.91                     | 14.79 |       | 5710     | 142  | 242T       | 13.30   | 13.46 |                           |       |     |
|          | 5755 | 151        | 106T    | 15.33 | 15.43                     | 15.19 |       | 5755     | 151  | 242T       | 15.31   | 15.41 |                           |       |     |
| 3        | 5795 | 159        | 106T    | 15.01 | 15.37                     | 15.18 | 3     | 5795     | 159  | 242T       | 15.50   | 15.50 |                           |       |     |

| 40MHz BW | Band | Freq [MHz] | Channel | Tones | Avg Conducted Power (dBm) |     |     |
|----------|------|------------|---------|-------|---------------------------|-----|-----|
|          |      |            |         |       | RU Index                  |     |     |
|          |      |            |         |       | 65                        | N/A | N/A |
|          |      |            |         |       |                           |     |     |
|          | 1    | 5190       | 38      | 484T  | 11.90                     |     |     |
|          |      | 5230       | 46      | 484T  | 16.00                     |     |     |
|          | 2A   | 5270       | 54      | 484T  | 16.25                     |     |     |
|          |      | 5310       | 62      | 484T  | 11.50                     |     |     |
|          | 2C   | 5510       | 102     | 484T  | 11.50                     |     |     |
|          |      | 5550       | 110     | 484T  | 15.00                     |     |     |
|          |      | 5590       | 118     | 484T  | 15.00                     |     |     |
|          |      | 5670       | 134     | 484T  | 14.50                     |     |     |
|          |      | 5710       | 142     | 484T  | 15.00                     |     |     |
|          |      | 5755       | 151     | 484T  | 15.50                     |     |     |
|          | 3    | 5795       | 159     | 484T  | 15.50                     |     |     |

| 80MHz BW | Band | Freq [MHz] | Channel | Tones | Avg Conducted Power (dBm) |       |       | 80MHz BW | Band | Freq [MHz] | Channel | Tones | Avg Conducted Power (dBm) |       |       |
|----------|------|------------|---------|-------|---------------------------|-------|-------|----------|------|------------|---------|-------|---------------------------|-------|-------|
|          |      |            |         |       | RU Index                  |       |       |          |      |            |         |       | RU Index                  |       |       |
|          |      |            |         |       | 0                         | 18    | 36    |          |      |            |         |       | 37                        | 44    | 52    |
|          |      |            |         |       |                           |       |       |          |      |            |         |       |                           |       |       |
|          | 1    | 5210       | 42      | 26T   | 10.63                     | 11.00 | 10.50 |          | 1    | 5210       | 42      | 52T   | 9.72                      | 10.32 | 10.10 |
|          | 2A   | 5290       | 58      | 26T   | 10.24                     | 10.40 | 9.97  |          | 2A   | 5290       | 58      | 52T   | 9.84                      | 10.25 | 10.17 |
|          |      | 5530       | 106     | 26T   | 10.28                     | 10.45 | 10.23 |          |      | 5530       | 106     | 52T   | 10.08                     | 10.33 | 10.21 |
|          | 2C   | 5610       | 122     | 26T   | 11.00                     | 10.88 | 11.00 |          | 2C   | 5610       | 122     | 52T   | 13.44                     | 13.54 | 13.33 |
|          |      | 5690       | 138     | 26T   | 10.92                     | 11.00 | 10.93 |          |      | 5690       | 138     | 52T   | 13.67                     | 13.99 | 13.66 |
|          | 3    | 5775       | 155     | 26T   | 15.20                     | 15.39 | 15.01 |          | 3    | 5775       | 155     | 52T   | 14.94                     | 15.24 | 15.18 |

| 80MHz BW | Band | Freq [MHz] | Channel | Tones | Avg Conducted Power (dBm) |       |       | 80MHz BW | Band | Freq [MHz] | Channel | Tones | Avg Conducted Power (dBm) |       |       |
|----------|------|------------|---------|-------|---------------------------|-------|-------|----------|------|------------|---------|-------|---------------------------|-------|-------|
|          |      |            |         |       | RU Index                  |       |       |          |      |            |         |       | RU Index                  |       |       |
|          |      |            |         |       | 53                        | 56    | 60    |          |      |            |         |       | 61                        | 62    | 64    |
|          |      |            |         |       |                           |       |       |          |      |            |         |       |                           |       |       |
|          | 1    | 5210       | 42      | 106T  | 9.96                      | 10.30 | 10.19 |          | 1    | 5210       | 42      | 242T  | 10.12                     | 10.46 | 9.98  |
|          | 2A   | 5290       | 58      | 106T  | 10.02                     | 10.30 | 10.26 |          | 2A   | 5290       | 58      | 242T  | 10.07                     | 10.50 | 9.95  |
|          |      | 5530       | 106     | 106T  | 10.22                     | 10.43 | 10.31 |          |      | 5530       | 106     | 242T  | 10.07                     | 10.44 | 10.01 |
|          | 2C   | 5610       | 122     | 106T  | 14.54                     | 14.61 | 14.43 |          | 2C   | 5610       | 122     | 242T  | 14.36                     | 14.71 | 14.24 |
|          |      | 5690       | 138     | 106T  | 14.78                     | 14.98 | 14.77 |          |      | 5690       | 138     | 242T  | 13.15                     | 13.44 | 13.03 |
|          | 3    | 5775       | 155     | 106T  | 15.06                     | 15.30 | 15.25 |          | 3    | 5775       | 155     | 242T  | 15.01                     | 15.04 | 14.87 |

| 80MHz BW | Band | Freq [MHz] | Channel | Tones | Avg Conducted Power (dBm) |       |     |
|----------|------|------------|---------|-------|---------------------------|-------|-----|
|          |      |            |         |       | RU Index                  |       |     |
|          |      |            |         |       | 65                        | 66    | N/A |
|          | 1    | 5210       | 42      | 484T  | 10.49                     | 10.50 |     |
| 2A       | 5290 | 58         | 484T    | 10.45 | 10.50                     |       |     |
|          | 5530 | 106        | 484T    | 10.31 | 10.49                     |       |     |
| 2C       | 5610 | 122        | 484T    | 14.88 | 14.91                     |       |     |
|          | 5690 | 138        | 484T    | 14.46 | 14.50                     |       |     |
|          | 5775 | 155        | 484T    | 15.47 | 15.46                     |       |     |

| 80MHz BW | Band | Freq [MHz] | Channel | Tones | Avg Conducted Power (dBm) |     |     |
|----------|------|------------|---------|-------|---------------------------|-----|-----|
|          |      |            |         |       | RU Index                  |     |     |
|          |      |            |         |       | 67                        | N/A | N/A |
|          | 1    | 5210       | 42      | 996T  | 10.42                     |     |     |
| 2A       | 5290 | 58         | 996T    | 10.50 |                           |     |     |
|          | 5530 | 106        | 996T    | 10.50 |                           |     |     |
| 2C       | 5610 | 122        | 996T    | 14.96 |                           |     |     |
|          | 5690 | 138        | 996T    | 15.00 |                           |     |     |
|          | 5775 | 155        | 996T    | 15.48 |                           |     |     |

|                                        |                                                                                                   |                       |                                 |
|----------------------------------------|---------------------------------------------------------------------------------------------------|-----------------------|---------------------------------|
| FCC ID: BCGA2230                       |  <b>PCTEST</b> | SAR EVALUATION REPORT | Reviewed by:<br>Quality Manager |
| Test Dates:<br>12/16/2019 – 01/14/2020 | DUT Type:<br>Tablet Device                                                                        |                       | APPENDIX H:<br>Page 19 of 19    |

## APPENDIX I: DIPOLE CALIBRATION

**Calibration Laboratory of  
Schmid & Partner  
Engineering AG**  
Zeughausstrasse 43, 8004 Zurich, Switzerland



**S** Schweizerischer Kalibrierdienst  
**C** Service suisse d'étalonnage  
**S** Servizio svizzero di taratura  
**S** Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)  
The Swiss Accreditation Service is one of the signatories to the EA  
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Client: **PG-Test**

Certificate No.: **D750V3-1097\_Sep17**

## CALIBRATION CERTIFICATE

Object: **D750V3 - SN:1097**

Calibration procedure(s): **QA-CAL-05.v9**  
**Calibration procedure for dipole validation kits above 700 MHz**

Calibration date: **September 08, 2017**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).  
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature  $(22 \pm 3)^\circ\text{C}$  and humidity  $< 70\%$ .

Calibration Equipment used (M&TE critical for calibration)

| Primary Standards           | ID #               | Cal Date (Certificate No.)      | Scheduled Calibration |
|-----------------------------|--------------------|---------------------------------|-----------------------|
| Power meter NRP             | SN: 104778         | 04-Apr-17 (No. 217-02521/02522) | Apr-18                |
| Power sensor NRP-Z91        | SN: 103244         | 04-Apr-17 (No. 217-02521)       | Apr-18                |
| Power sensor NRP-Z91        | SN: 103245         | 04-Apr-17 (No. 217-02522)       | Apr-18                |
| Reference 20 dB Attenuator  | SN: 5058 (20k)     | 07-Apr-17 (No. 217-02528)       | Apr-18                |
| Type-N mismatch combination | SN: 5047.2 / 06327 | 07-Apr-17 (No. 217-02529)       | Apr-18                |
| Reference Probe EX3DV4      | SN: 7349           | 31-May-17 (No. EX3-7349_May17)  | May-18                |
| DAE4                        | SN: 601            | 28-Mar-17 (No. DAE4-601_Mar17)  | Mar-18                |

| Secondary Standards       | ID #           | Check Date (in house)             | Scheduled Check        |
|---------------------------|----------------|-----------------------------------|------------------------|
| Power meter EPM-442A      | SN: GB37480704 | 07-Oct-15 (in house check Oct-16) | In house check: Oct-18 |
| Power sensor HP 8481A     | SN: US37292763 | 07-Oct-15 (in house check Oct-16) | In house check: Oct-18 |
| Power sensor HP 8481A     | SN: MY41092317 | 07-Oct-15 (in house check Oct-16) | In house check: Oct-18 |
| RF generator R&S SMT-06   | SN: 100972     | 15-Jun-15 (in house check Oct-16) | In house check: Oct-18 |
| Network Analyzer HP 8753E | SN: US37390585 | 18-Oct-01 (in house check Oct-16) | In house check: Oct-17 |

Calibrated by: **Claudio Leubler** Function: **Laboratory Technician**

Approved by: **Katja Pokóvic** Technical Manager

Signature:

Issued: September 8, 2017

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.



Accredited by the Swiss Accreditation Service (SAS)  
The Swiss Accreditation Service is one of the signatories to the EA  
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

**Glossary:**

|       |                                 |
|-------|---------------------------------|
| TSL   | tissue simulating liquid        |
| ConvF | sensitivity in TSL / NORM x,y,z |
| N/A   | not applicable or not measured  |

**Calibration is Performed According to the Following Standards:**

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
- IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

**Additional Documentation:**

- DASY4/5 System Handbook

**Methods Applied and Interpretation of Parameters:**

- Measurement Conditions:** Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL:** The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss:** These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay:** One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- SAR measured:** SAR measured at the stated antenna input power.
- SAR normalized:** SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters:** The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor  $k=2$ , which for a normal distribution corresponds to a coverage probability of approximately 95%.

## Measurement Conditions

DASY system configuration, as far as not given on page 1.

|                              |                        |             |
|------------------------------|------------------------|-------------|
| DASY Version                 | DASY5                  | V52.10.0    |
| Extrapolation                | Advanced Extrapolation |             |
| Phantom                      | Modular Flat Phantom   |             |
| Distance Dipole Center - TSL | 15 mm                  | with Spacer |
| Zoom Scan Resolution         | dx, dy, dz = 5 mm      |             |
| Frequency                    | 750 MHz $\pm$ 1 MHz    |             |

## Head TSL parameters

The following parameters and calculations were applied.

|                                         | Temperature         | Permittivity   | Conductivity         |
|-----------------------------------------|---------------------|----------------|----------------------|
| Nominal Head TSL parameters             | 22.0 °C             | 41.9           | 0.89 mho/m           |
| Measured Head TSL parameters            | (22.0 $\pm$ 0.2) °C | 41.2 $\pm$ 6 % | 0.90 mho/m $\pm$ 6 % |
| Head TSL temperature change during test | < 0.5 °C            | ----           | ----                 |

## SAR result with Head TSL

|                                                             |                    |                                                |
|-------------------------------------------------------------|--------------------|------------------------------------------------|
| <b>SAR averaged over 1 cm<sup>3</sup> (1 g) of Head TSL</b> | Condition          |                                                |
| SAR measured                                                | 250 mW input power | 2.08 W/kg                                      |
| SAR for nominal Head TSL parameters                         | normalized to 1W   | <b>8.22 W/kg <math>\pm</math> 17.0 % (k=2)</b> |

|                                                               |                    |                                                |
|---------------------------------------------------------------|--------------------|------------------------------------------------|
| <b>SAR averaged over 10 cm<sup>3</sup> (10 g) of Head TSL</b> | condition          |                                                |
| SAR measured                                                  | 250 mW input power | 1.36 W/kg                                      |
| SAR for nominal Head TSL parameters                           | normalized to 1W   | <b>5.39 W/kg <math>\pm</math> 16.5 % (k=2)</b> |

## Body TSL parameters

The following parameters and calculations were applied.

|                                         | Temperature         | Permittivity   | Conductivity         |
|-----------------------------------------|---------------------|----------------|----------------------|
| Nominal Body TSL parameters             | 22.0 °C             | 55.5           | 0.96 mho/m           |
| Measured Body TSL parameters            | (22.0 $\pm$ 0.2) °C | 55.5 $\pm$ 6 % | 0.96 mho/m $\pm$ 6 % |
| Body TSL temperature change during test | < 0.5 °C            | ----           | ----                 |

## SAR result with Body TSL

|                                                             |                    |                                                |
|-------------------------------------------------------------|--------------------|------------------------------------------------|
| <b>SAR averaged over 1 cm<sup>3</sup> (1 g) of Body TSL</b> | Condition          |                                                |
| SAR measured                                                | 250 mW input power | 2.14 W/kg                                      |
| SAR for nominal Body TSL parameters                         | normalized to 1W   | <b>8.56 W/kg <math>\pm</math> 17.0 % (k=2)</b> |

|                                                               |                    |                                                |
|---------------------------------------------------------------|--------------------|------------------------------------------------|
| <b>SAR averaged over 10 cm<sup>3</sup> (10 g) of Body TSL</b> | condition          |                                                |
| SAR measured                                                  | 250 mW input power | 1.42 W/kg                                      |
| SAR for nominal Body TSL parameters                           | normalized to 1W   | <b>5.68 W/kg <math>\pm</math> 16.5 % (k=2)</b> |

## Appendix (Additional assessments outside the scope of SCS 0108)

### Antenna Parameters with Head TSL

|                                      |                                |
|--------------------------------------|--------------------------------|
| Impedance, transformed to feed point | 54.4 $\Omega$ - 0.6 j $\Omega$ |
| Return Loss                          | - 27.5 dB                      |

### Antenna Parameters with Body TSL

|                                      |                                |
|--------------------------------------|--------------------------------|
| Impedance, transformed to feed point | 50.0 $\Omega$ - 3.6 j $\Omega$ |
| Return Loss                          | - 28.8 dB                      |

### General Antenna Parameters and Design

|                                  |          |
|----------------------------------|----------|
| Electrical Delay (one direction) | 1.034 ns |
|----------------------------------|----------|

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

### Additional EUT Data

|                 |               |
|-----------------|---------------|
| Manufactured by | SPEAG         |
| Manufactured on | July 05, 2013 |

## DASY5 Validation Report for Head TSL

Date: 08.09.2017

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 - SN:1097**

Communication System: UID 0 - CW; Frequency: 750 MHz

Medium parameters used:  $f = 750 \text{ MHz}$ ;  $\sigma = 0.9 \text{ S/m}$ ;  $\epsilon_r = 41.2$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(10.49, 10.49, 10.49); Calibrated: 31.05.2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 28.03.2017
- Phantom: Flat Phantom 4.9 (front); Type: QD 00L P49 AA; Serial: 1001
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

### **Dipole Calibration for Head Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:**

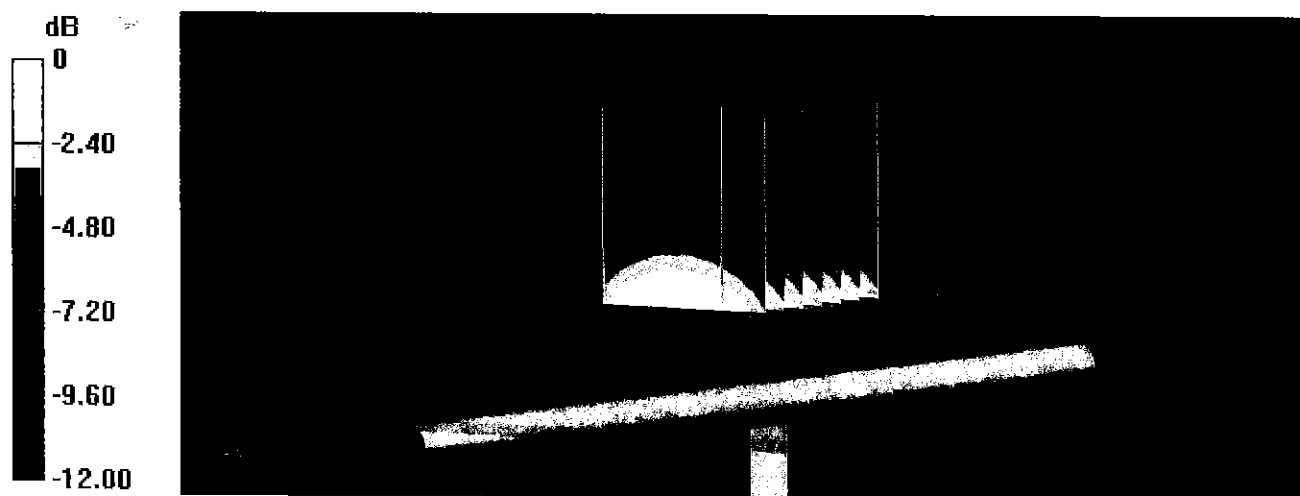
Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 58.59 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 3.19 W/kg

**SAR(1 g) = 2.08 W/kg; SAR(10 g) = 1.36 W/kg**

Maximum value of SAR (measured) = 2.80 W/kg



0 dB = 2.80 W/kg = 4.47 dBW/kg

# Impedance Measurement Plot for Head TSL

8 Sep 2017 13:09:24  
 CH1 S11 1 U FS 1: 54.383  $\Omega$  -552.73 m $\Omega$  383.92 pF 750.000 000 MHz

\*

De1

CA

Avg  
16

H1d

CH2 S11 LOG 5 dB/REF -20 dB 1:-27.463 dB 750.000 000 MHz

CA

Avg  
16

H1d

START 550.000 000 MHz

STOP 950.000 000 MHz

## DASY5 Validation Report for Body TSL

Date: 08.09.2017

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 - SN:1097**

Communication System: UID 0 - CW; Frequency: 750 MHz

Medium parameters used:  $f = 750 \text{ MHz}$ ;  $\sigma = 0.96 \text{ S/m}$ ;  $\epsilon_r = 55.5$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(10.35, 10.35, 10.35); Calibrated: 31.05.2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 28.03.2017
- Phantom: Flat Phantom 4.9 (Back); Type: QD 00R P49 AA; Serial: 1005
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

### Dipole Calibration for Body Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:

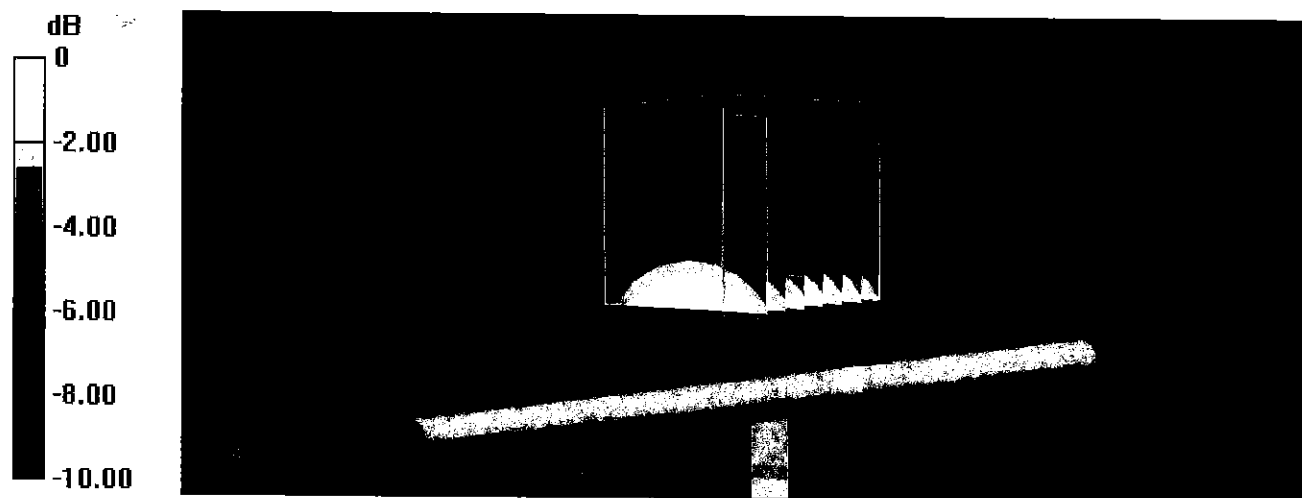
Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 56.96 V/m; Power Drift = -0.00 dB

Peak SAR (extrapolated) = 3.16 W/kg

**SAR(1 g) = 2.14 W/kg; SAR(10 g) = 1.42 W/kg**

Maximum value of SAR (measured) = 2.81 W/kg



0 dB = 2.81 W/kg = 4.49 dBW/kg

# Impedance Measurement Plot for Body TSL

8 Sep 2017 13:08:43  
[CH1] S11 1 U FS 1: 49.951  $\Omega$  -3.6172  $\Omega$  58.666 pF 750.000 000 MHz

\*

De1

CA

Avg  
15

H1d

CH2 S11 LOG 5 dB/REF -20 dB 1: -28.833 dB 750.000 000 MHz

CA

Avg  
16

H1d

START 550.000 000 MHz

STOP 950.000 000 MHz

# Certification of Calibration

Object D750V3 – SN: 1097

Calibration procedure(s) Procedure for Calibration Extension for SAR Dipoles.

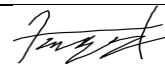
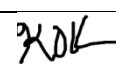
Extended Calibration date: September 08, 2018

Description: SAR Validation Dipole at 750 MHz.

## Calibration Equipment used:

| Manufacturer          | Model     | Description                                             | Cal Date   | Cal Interval | Cal Due    | Serial Number |
|-----------------------|-----------|---------------------------------------------------------|------------|--------------|------------|---------------|
| Agilent               | 8753ES    | S-Parameter Network Analyzer                            | 9/14/2017  | Annual       | 9/14/2018  | US39170118    |
| Agilent               | N5182A    | MXG Vector Signal Generator                             | 3/19/2018  | Annual       | 3/19/2019  | US46240505    |
| Amplifier Research    | 15S1G6    | Amplifier                                               | CBT        | N/A          | CBT        | 343972        |
| Anritsu               | ML2496A   | Power Meter                                             | 10/9/2017  | Annual       | 10/9/2018  | 1138001       |
| Anritsu               | MA2411B   | Pulse Power Sensor                                      | 11/15/2017 | Annual       | 11/15/2018 | 1339007       |
| Anritsu               | MA2411B   | Pulse Power Sensor                                      | 11/22/2017 | Annual       | 11/22/2018 | 1339008       |
| Control Company       | 4040      | Temperature / Humidity Monitor                          | 2/28/2018  | Biennial     | 2/28/2020  | 150761911     |
| Control Company       | 4352      | Ultra Long Stem Thermometer                             | 2/14/2017  | Biennial     | 2/14/2019  | 170112507     |
| Keysight              | 772D      | Dual Directional Coupler                                | CBT        | N/A          | CBT        | MY52180215    |
| Keysight Technologies | 85033E    | Standard Mechanical Calibration Kit (DC to 9GHz, 3.5mm) | 6/4/2018   | Annual       | 6/4/2019   | MY53401181    |
| Mini-Circuits         | BW-N20W5+ | DC to 18 GHz Precision Fixed 20 dB Attenuator           | CBT        | N/A          | CBT        | N/A           |
| Mini-Circuits         | NLP-2950+ | Low Pass Filter DC to 2700 MHz                          | CBT        | N/A          | CBT        | N/A           |
| Narda                 | 4772-3    | Attenuator (3dB)                                        | CBT        | N/A          | CBT        | 9406          |
| Pasternack            | PE2209-10 | Bidirectional Coupler                                   | CBT        | N/A          | CBT        | N/A           |
| Pasternack            | PE5011-1  | Torque Wrench                                           | 7/19/2017  | Biennial     | 7/19/2019  | N/A           |
| SPEAG                 | DAK-3.5   | Dielectric Assessment Kit                               | 5/15/2018  | Annual       | 5/15/2019  | 1070          |
| SPEAG                 | ES3DV3    | SAR Probe                                               | 9/18/2017  | Annual       | 9/18/2018  | 3287          |
| SPEAG                 | DAE4      | Data Acquisition Electronics                            | 1/26/2018  | Annual       | 1/26/2019  | 1533          |
| SPEAG                 | EX3DV4    | SAR Probe                                               | 7/20/2018  | Annual       | 7/20/2019  | 7416          |
| SPEAG                 | DAE4      | Dasy Data Acquisition Electronics                       | 1/18/2018  | Annual       | 1/18/2019  | 793           |

Measurement Uncertainty =  $\pm 23\%$  (k=2)

|                | Name            | Function                 | Signature                                                                             |
|----------------|-----------------|--------------------------|---------------------------------------------------------------------------------------|
| Calibrated By: | Sangmin Cha     | Team Lead Engineer       |  |
| Approved By:   | Kaitlin O'Keefe | Senior Technical Manager |  |

# DIPOLE CALIBRATION EXTENSION

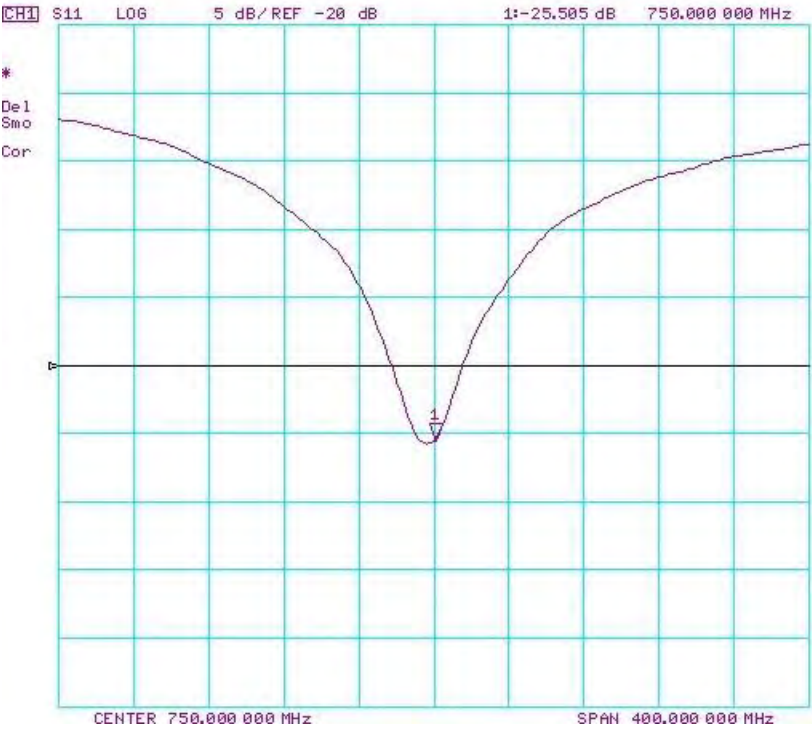
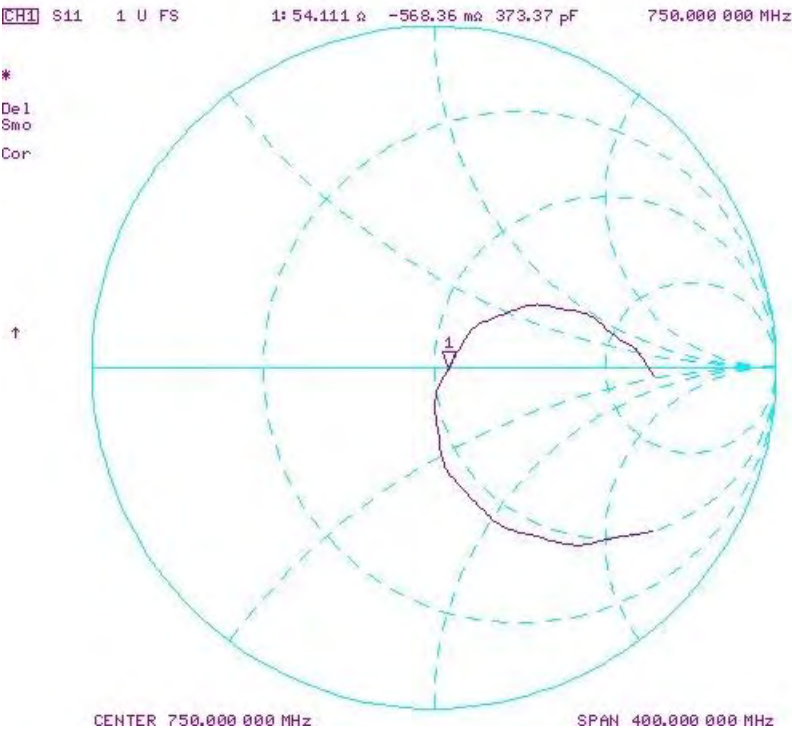
Per KDB 865664 D01, calibration intervals of up to three years may be considered for reference dipoles when it is demonstrated that the SAR target, impedance and return loss of a dipole have remained stable according to the following requirements:

1. The measured SAR does not deviate more than 10% from the target on the calibration certificate.
2. The return-loss does not deviate more than 20% from the previous measurement and meets the required 20dB minimum return-loss requirement.
3. The measurement of real or imaginary parts of impedance does not deviate more than 5Ω from the previous measurement.

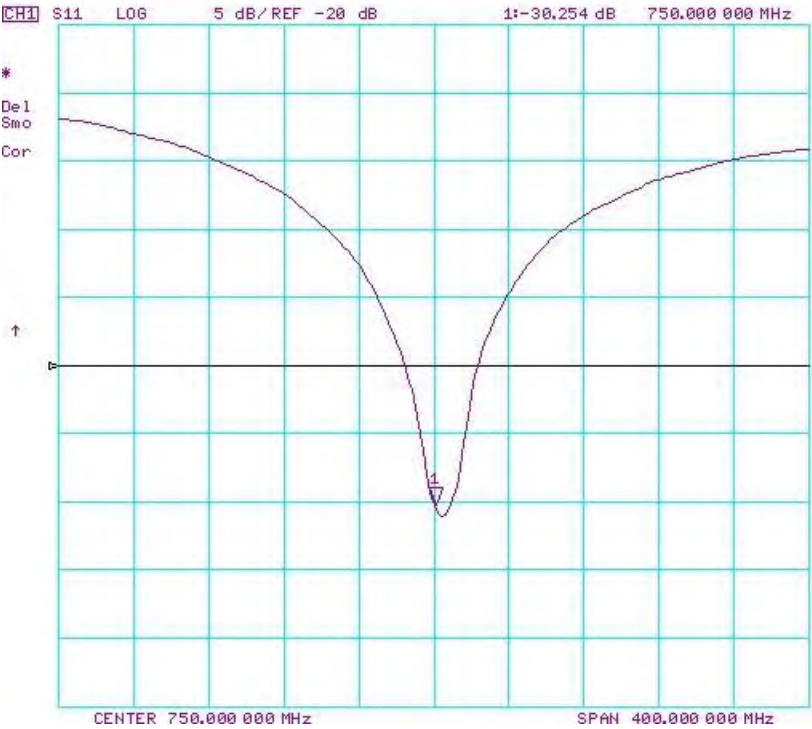
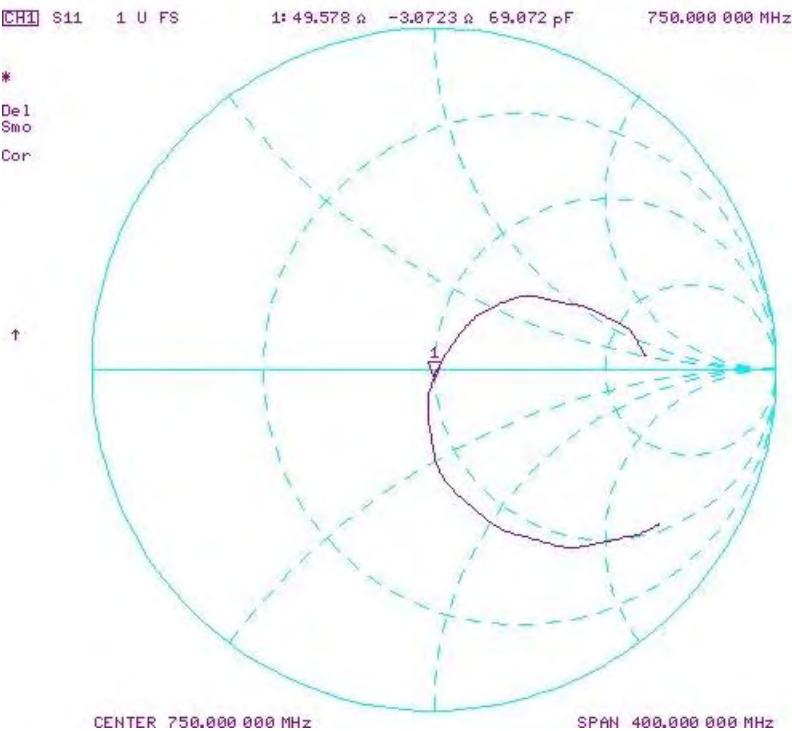
The following dipole was checked to pass the above 3 requirements to have 2-year calibration period from the calibration date:

| Calibration Date | Extension Date | Certificate Electrical Delay (ns) | Certificate SAR Target Head (1g) W/kg @ 23.0 dBm | Measured Head SAR (1g) W/kg @ 23.0 dBm | Deviation 1g (%) | Certificate SAR Target Body (10g) W/kg @ 23.0 dBm | Measured Body SAR (10g) W/kg @ 23.0 dBm | Deviation 10g (%) | Certificate Impedance Head (Ohm) Real | Measured Impedance Head (Ohm) Real | Difference (Ohm) Real | Certificate Impedance Head (Ohm) Imaginary | Measured Impedance Head (Ohm) Imaginary | Difference (Ohm) Imaginary | Certificate Return Loss Head (dB) | Measured Return Loss Head (dB) | Deviation (%) | PASS/FAIL |
|------------------|----------------|-----------------------------------|--------------------------------------------------|----------------------------------------|------------------|---------------------------------------------------|-----------------------------------------|-------------------|---------------------------------------|------------------------------------|-----------------------|--------------------------------------------|-----------------------------------------|----------------------------|-----------------------------------|--------------------------------|---------------|-----------|
| 9/8/2017         | 9/8/2018       | 1.034                             | 1.644                                            | 1.7                                    | 3.41%            | 1.078                                             | 1.12                                    | 3.90%             | 54.4                                  | 54.1                               | 0.3                   | -0.6                                       | -0.6                                    | 0                          | -27.5                             | -25.5                          | 7.30%         | PASS      |
| Calibration Date | Extension Date | Certificate Electrical Delay (ns) | Certificate SAR Target Body (1g) W/kg @ 23.0 dBm | Measured Body SAR (1g) W/kg @ 23.0 dBm | Deviation 1g (%) | Certificate SAR Target Body (10g) W/kg @ 23.0 dBm | Measured Body SAR (10g) W/kg @ 23.0 dBm | Deviation 10g (%) | Certificate Impedance Body (Ohm) Real | Measured Impedance Body (Ohm) Real | Difference (Ohm) Real | Certificate Impedance Body (Ohm) Imaginary | Measured Impedance Body (Ohm) Imaginary | Difference (Ohm) Imaginary | Certificate Return Loss Body (dB) | Measured Return Loss Body (dB) | Deviation (%) | PASS/FAIL |
| 9/8/2017         | 9/8/2018       | 1.034                             | 1.712                                            | 1.78                                   | 3.97%            | 1.136                                             | 1.17                                    | 2.99%             | 50                                    | 49.6                               | 0.4                   | -3.6                                       | -3.1                                    | 0.5                        | -28.8                             | -30.3                          | -5.20%        | PASS      |

Impedance & Return-Loss Measurement Plot for Head TSL



Impedance & Return-Loss Measurement Plot for Body TSL



# Certification of Calibration

Object: D750V3 – SN: 1097

Calibration procedure(s): Procedure for Calibration Extension for SAR Dipoles.

Extended Calibration date: September 8, 2019

Description: SAR Validation Dipole at 750 MHz.

## Calibration Equipment used:

| Manufacturer          | Model     | Description                                             | Cal Date   | Cal Interval | Cal Due    | Serial Number |
|-----------------------|-----------|---------------------------------------------------------|------------|--------------|------------|---------------|
| Agilent               | 8753ES    | S-Parameter Network Analyzer                            | 10/2/2018  | Annual       | 10/2/2019  | US39170118    |
| Agilent               | E4438C    | ESG Vector Signal Generator                             | 6/27/2019  | Annual       | 6/27/2020  | MY45093852    |
| Amplifier Research    | 15S1G6    | Amplifier                                               | CBT        | N/A          | CBT        | 343972        |
| Anritsu               | ML2495A   | Power Meter                                             | 10/21/2018 | Annual       | 10/21/2019 | 941001        |
| Anritsu               | MA2411B   | Pulse Power Sensor                                      | 10/30/2018 | Annual       | 10/30/2019 | 1207470       |
| Anritsu               | MA2411B   | Pulse Power Sensor                                      | 11/20/2018 | Annual       | 11/20/2019 | 1339007       |
| Control Company       | 4040      | Temperature / Humidity Monitor                          | 2/28/2018  | Biennial     | 2/28/2020  | 150761911     |
| Control Company       | 4352      | Ultra Long Stem Thermometer                             | 2/28/2018  | Biennial     | 2/28/2020  | 170330160     |
| Keysight Technologies | 85033E    | Standard Mechanical Calibration Kit (DC to 9GHz, 3.5mm) | 7/2/2019   | Annual       | 7/2/2020   | MY53401181    |
| Keysight              | 772D      | Dual Directional Coupler                                | CBT        | N/A          | CBT        | MY52180215    |
| Mini-Circuits         | BW-N20W5+ | DC to 18 GHz Precision Fixed 20 dB Attenuator           | CBT        | N/A          | CBT        | N/A           |
| Mini-Circuits         | NLP-2950+ | Low Pass Filter DC to 2700 MHz                          | CBT        | N/A          | CBT        | N/A           |
| Narda                 | 4772-3    | Attenuator (3dB)                                        | CBT        | N/A          | CBT        | 9406          |
| Pasternack            | PE2208-6  | Bidirectional Coupler                                   | CBT        | N/A          | CBT        | N/A           |
| Pasternack            | NC-100    | Torque Wrench                                           | 11/1/2017  | Biennial     | 11/1/2019  | N/A           |
| SPEAG                 | DAK-3.5   | Dielectric Assessment Kit                               | 5/7/2019   | Annual       | 5/7/2020   | 1070          |
| SPEAG                 | EX3DV4    | SAR Probe                                               | 1/24/2019  | Annual       | 1/24/2020  | 7490          |
| SPEAG                 | DAE4      | Data Acquisition Electronics                            | 1/15/2019  | Annual       | 1/15/2020  | 1532          |

Measurement Uncertainty =  $\pm 23\%$  (k=2)

|                | Name            | Function                 | Signature           |
|----------------|-----------------|--------------------------|---------------------|
| Calibrated By: | Parker Jones    | Team Lead Engineer       | <i>Parker Jones</i> |
| Approved By:   | Kaitlin O'Keefe | Senior Technical Manager | <i>KOK</i>          |

# DIPOLE CALIBRATION EXTENSION

Per KDB 865664 D01, calibration intervals of up to three years may be considered for reference dipoles when it is demonstrated that the SAR target, impedance and return loss of a dipole have remained stable according to the following requirements:

1. The measured SAR does not deviate more than 10% from the target on the calibration certificate.
2. The return-loss does not deviate more than 20% from the previous measurement and meets the required 20dB minimum return-loss requirement.
3. The measurement of real or imaginary parts of impedance does not deviate more than 5Ω from the previous measurement.

The following dipole was checked to pass the above 3 requirements to have 3-year calibration period from the calibration date:

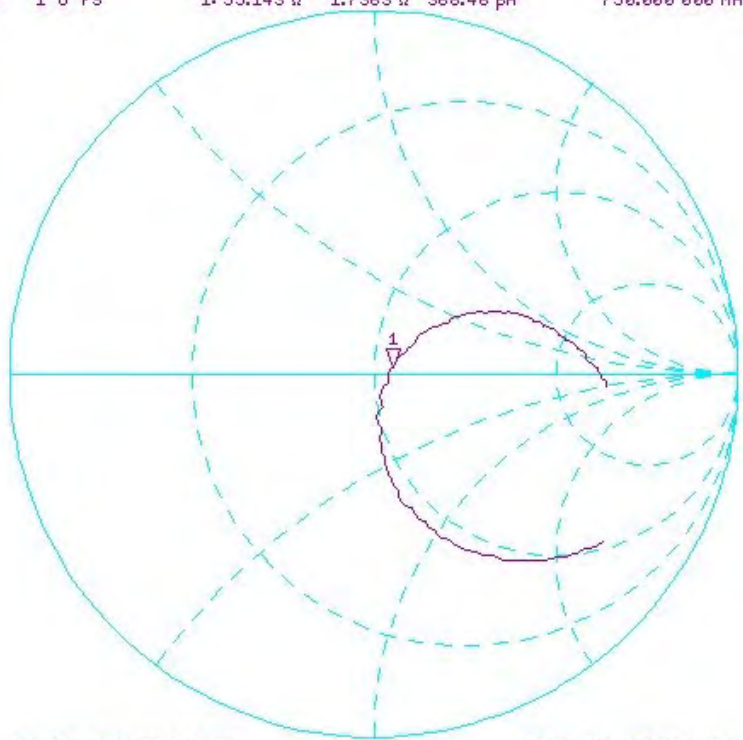
| Calibration Date | Extension Date | Certificate Electrical Delay (ns) | Certificate SAR Target Head (1g) W/kg @ 23.0 dBm | Measured Head SAR (1g) W/kg @ 23.0 dBm | Deviation 1g (%) | Certificate SAR Target Body (10g) W/kg @ 23.0 dBm | Measured Body SAR (10g) W/kg @ 23.0 dBm | Deviation 10g (%) | Certificate Impedance Head (Ohm) Real | Measured Impedance Head (Ohm) Real | Difference (Ohm) Real | Certificate Impedance Head (Ohm) Imaginary | Measured Impedance Head (Ohm) Imaginary | Difference (Ohm) Imaginary | Certificate Return Loss Head (dB) | Measured Return Loss Head (dB) | Deviation (%) | PASS/FAIL |
|------------------|----------------|-----------------------------------|--------------------------------------------------|----------------------------------------|------------------|---------------------------------------------------|-----------------------------------------|-------------------|---------------------------------------|------------------------------------|-----------------------|--------------------------------------------|-----------------------------------------|----------------------------|-----------------------------------|--------------------------------|---------------|-----------|
| 9/8/2017         | 9/8/2019       | 1.034                             | 1.644                                            | 1.55                                   | -5.11%           | 1.078                                             | 1.03                                    | -4.45%            | 54.4                                  | 55.1                               | 0.7                   | -0.6                                       | 1.7                                     | 2.3                        | -27.5                             | -25                            | 5.50%         | PASS      |
| Calibration Date | Extension Date | Certificate Electrical Delay (ns) | Certificate SAR Target Body (1g) W/kg @ 23.0 dBm | Measured Body SAR (1g) W/kg @ 23.0 dBm | Deviation 1g (%) | Certificate SAR Target Body (10g) W/kg @ 23.0 dBm | Measured Body SAR (10g) W/kg @ 23.0 dBm | Deviation 10g (%) | Certificate Impedance Body (Ohm) Real | Measured Impedance Body (Ohm) Real | Difference (Ohm) Real | Certificate Impedance Body (Ohm) Imaginary | Measured Impedance Body (Ohm) Imaginary | Difference (Ohm) Imaginary | Certificate Return Loss Body (dB) | Measured Return Loss Body (dB) | Deviation (%) | PASS/FAIL |
| 9/8/2017         | 9/8/2019       | 1.034                             | 1.712                                            | 1.65                                   | -3.62%           | 1.136                                             | 1.1                                     | -3.17%            | 50                                    | 51                                 | 1                     | -3.6                                       | -1.3                                    | 2.3                        | -28.8                             | -31.9                          | -10.80%       | PASS      |

Impedance & Return-Loss Measurement Plot for Head TSL

CH1 S11 1 U FS 1: 55.143  $\Omega$  1.7363  $\Omega$  368.46 pF 750.000 000 MHz

\*  
De1  
Cor

↑

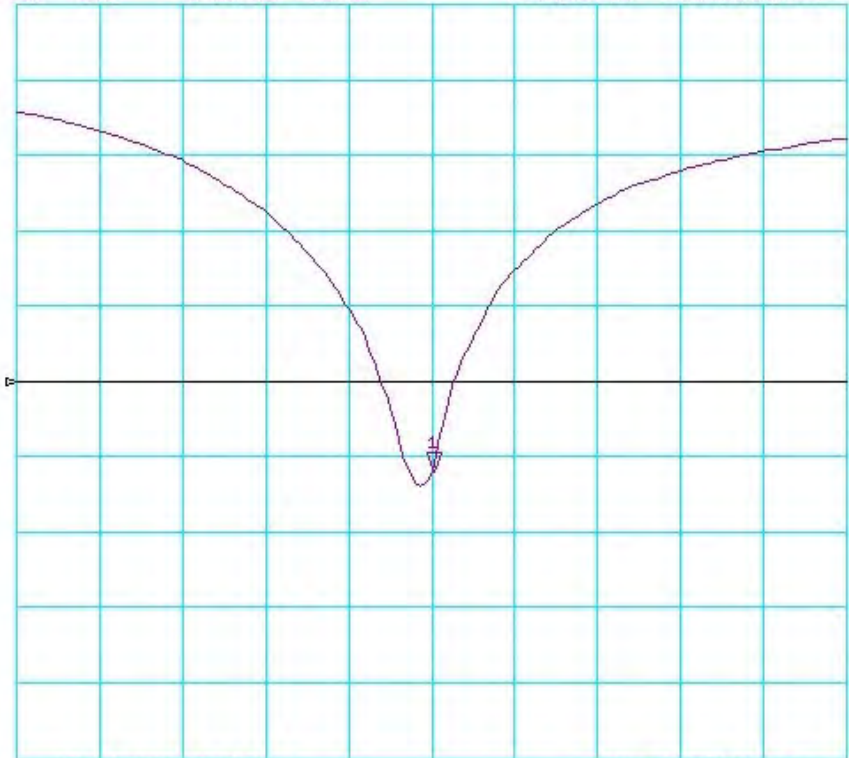


CENTER 750.000 000 MHz SPAN 400.000 000 MHz

CH1 S11 LOG 5 dB/REF -20 dB 1:-26.011 dB 750.000 000 MHz

\*  
De1  
Smo  
Cor

↑



CENTER 750.000 000 MHz SPAN 400.000 000 MHz

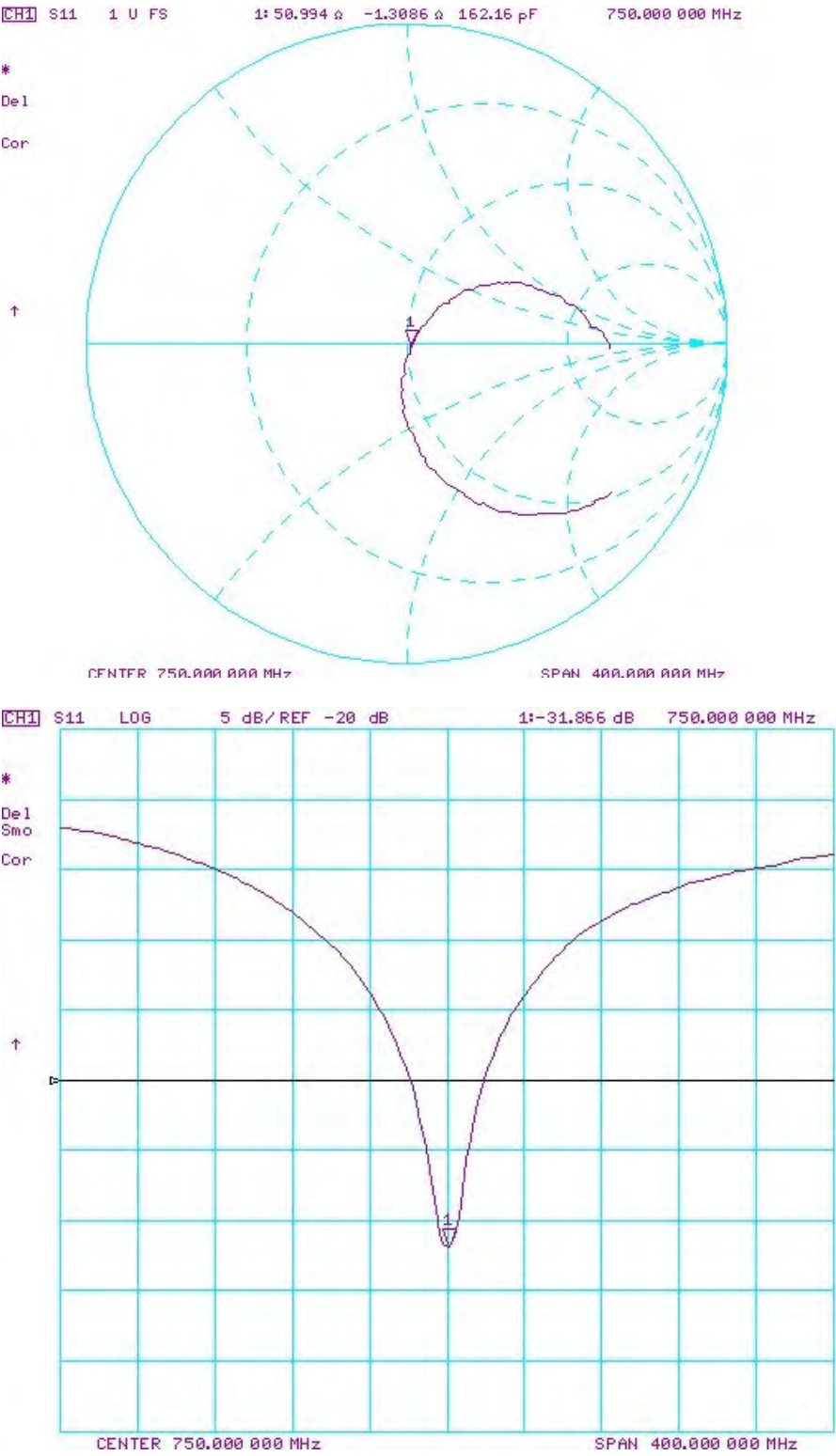
Object:

D750V3 – SN: 1097

Date Issued:

09/08/2019

Impedance & Return-Loss Measurement Plot for Body TSL





Accredited by the Swiss Accreditation Service (SAS)  
 The Swiss Accreditation Service is one of the signatories to the EA  
 Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Client **PC Test**

Certificate No: **D835V2-4d040\_Jun19**

## CALIBRATION CERTIFICATE

Object **D835V2 - SN:4d040**

Calibration procedure(s) **QA CAL-05.v11**  
**Calibration Procedure for SAR Validation Sources between 0.7-3 GHz**

✓  
 ATM  
 6/28/19

Calibration date: **June 20, 2019**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).  
 The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature  $(22 \pm 3)^\circ\text{C}$  and humidity  $< 70\%$ .

Calibration Equipment used (M&TE critical for calibration)

| Primary Standards               | ID #               | Cal Date (Certificate No.)        | Scheduled Calibration  |
|---------------------------------|--------------------|-----------------------------------|------------------------|
| Power meter NRP                 | SN: 104778         | 03-Apr-19 (No. 217-02892/02893)   | Apr-20                 |
| Power sensor NRP-Z91            | SN: 103244         | 03-Apr-19 (No. 217-02892)         | Apr-20                 |
| Power sensor NRP-Z91            | SN: 103245         | 03-Apr-19 (No. 217-02893)         | Apr-20                 |
| Reference 20 dB Attenuator      | SN: 5058 (20k)     | 04-Apr-19 (No. 217-02894)         | Apr-20                 |
| Type-N mismatch combination     | SN: 5047.2 / 06327 | 04-Apr-19 (No. 217-02895)         | Apr-20                 |
| Reference Probe EX3DV4          | SN: 7349           | 29-May-19 (No. EX3-7349_May19)    | May-20                 |
| DAE4                            | SN: 601            | 30-Apr-19 (No. DAE4-601_Apr19)    | Apr-20                 |
| Secondary Standards             | ID #               | Check Date (in house)             | Scheduled Check        |
| Power meter E4419B              | SN: GB39512475     | 30-Oct-14 (in house check Feb-19) | In house check: Oct-20 |
| Power sensor HP 8481A           | SN: US37292783     | 07-Oct-15 (in house check Oct-18) | In house check: Oct-20 |
| Power sensor HP 8481A           | SN: MY41092317     | 07-Oct-15 (in house check Oct-18) | In house check: Oct-20 |
| RF generator R&S SMT-06         | SN: 100972         | 15-Jun-15 (in house check Oct-18) | In house check: Oct-20 |
| Network Analyzer Agilent E8358A | SN: US41080477     | 31-Mar-14 (in house check Oct-18) | In house check: Oct-19 |

Calibrated by: **Manu Seitz** **Laboratory Technician**

*[Signature]*

Approved by: **Katja Pokovic** **Technical Manager**

*[Signature]*

Issued: June 21, 2019

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.



Accredited by the Swiss Accreditation Service (SAS)

Accreditation No.: **SCS 0108**

The Swiss Accreditation Service is one of the signatories to the EA  
Multilateral Agreement for the recognition of calibration certificates

### Glossary:

|       |                                 |
|-------|---------------------------------|
| TSL   | tissue simulating liquid        |
| ConvF | sensitivity in TSL / NORM x,y,z |
| N/A   | not applicable or not measured  |

### Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
- IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

### Additional Documentation:

- DASY4/5 System Handbook

### Methods Applied and Interpretation of Parameters:

- Measurement Conditions:** Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL:** The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss:** These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay:** One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- SAR measured:** SAR measured at the stated antenna input power.
- SAR normalized:** SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters:** The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor  $k=2$ , which for a normal distribution corresponds to a coverage probability of approximately 95%.

## Measurement Conditions

DASY system configuration, as far as not given on page 1.

|                                     |                        |             |
|-------------------------------------|------------------------|-------------|
| <b>DASY Version</b>                 | DASY5                  | V52.10.2    |
| <b>Extrapolation</b>                | Advanced Extrapolation |             |
| <b>Phantom</b>                      | Modular Flat Phantom   |             |
| <b>Distance Dipole Center - TSL</b> | 15 mm                  | with Spacer |
| <b>Zoom Scan Resolution</b>         | dx, dy, dz = 5 mm      |             |
| <b>Frequency</b>                    | 835 MHz $\pm$ 1 MHz    |             |

## Head TSL parameters

The following parameters and calculations were applied.

|                                                | Temperature         | Permittivity   | Conductivity         |
|------------------------------------------------|---------------------|----------------|----------------------|
| <b>Nominal Head TSL parameters</b>             | 22.0 °C             | 41.5           | 0.90 mho/m           |
| <b>Measured Head TSL parameters</b>            | (22.0 $\pm$ 0.2) °C | 41.8 $\pm$ 6 % | 0.91 mho/m $\pm$ 6 % |
| <b>Head TSL temperature change during test</b> | < 0.5 °C            | ----           | ----                 |

## SAR result with Head TSL

|                                                             |                    |                                                |
|-------------------------------------------------------------|--------------------|------------------------------------------------|
| <b>SAR averaged over 1 cm<sup>3</sup> (1 g) of Head TSL</b> | Condition          |                                                |
| SAR measured                                                | 250 mW input power | 2.39 W/kg                                      |
| SAR for nominal Head TSL parameters                         | normalized to 1W   | <b>9.50 W/kg <math>\pm</math> 17.0 % (k=2)</b> |

|                                                               |                    |                                                |
|---------------------------------------------------------------|--------------------|------------------------------------------------|
| <b>SAR averaged over 10 cm<sup>3</sup> (10 g) of Head TSL</b> | condition          |                                                |
| SAR measured                                                  | 250 mW input power | 1.54 W/kg                                      |
| SAR for nominal Head TSL parameters                           | normalized to 1W   | <b>6.13 W/kg <math>\pm</math> 16.5 % (k=2)</b> |

## Body TSL parameters

The following parameters and calculations were applied.

|                                                | Temperature         | Permittivity   | Conductivity         |
|------------------------------------------------|---------------------|----------------|----------------------|
| <b>Nominal Body TSL parameters</b>             | 22.0 °C             | 55.2           | 0.97 mho/m           |
| <b>Measured Body TSL parameters</b>            | (22.0 $\pm$ 0.2) °C | 55.4 $\pm$ 6 % | 0.98 mho/m $\pm$ 6 % |
| <b>Body TSL temperature change during test</b> | < 0.5 °C            | ----           | ----                 |

## SAR result with Body TSL

|                                                             |                    |                                                |
|-------------------------------------------------------------|--------------------|------------------------------------------------|
| <b>SAR averaged over 1 cm<sup>3</sup> (1 g) of Body TSL</b> | Condition          |                                                |
| SAR measured                                                | 250 mW input power | 2.40 W/kg                                      |
| SAR for nominal Body TSL parameters                         | normalized to 1W   | <b>9.53 W/kg <math>\pm</math> 17.0 % (k=2)</b> |

|                                                               |                    |                                                |
|---------------------------------------------------------------|--------------------|------------------------------------------------|
| <b>SAR averaged over 10 cm<sup>3</sup> (10 g) of Body TSL</b> | condition          |                                                |
| SAR measured                                                  | 250 mW input power | 1.57 W/kg                                      |
| SAR for nominal Body TSL parameters                           | normalized to 1W   | <b>6.24 W/kg <math>\pm</math> 16.5 % (k=2)</b> |

## Appendix (Additional assessments outside the scope of SCS 0108)

### Antenna Parameters with Head TSL

|                                      |                                |
|--------------------------------------|--------------------------------|
| Impedance, transformed to feed point | 49.6 $\Omega$ - 4.1 j $\Omega$ |
| Return Loss                          | - 27.7 dB                      |

### Antenna Parameters with Body TSL

|                                      |                                |
|--------------------------------------|--------------------------------|
| Impedance, transformed to feed point | 46.6 $\Omega$ - 6.5 j $\Omega$ |
| Return Loss                          | - 22.4 dB                      |

### General Antenna Parameters and Design

|                                  |          |
|----------------------------------|----------|
| Electrical Delay (one direction) | 1.393 ns |
|----------------------------------|----------|

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

### Additional EUT Data

|                 |       |
|-----------------|-------|
| Manufactured by | SPEAG |
|-----------------|-------|

## DASY5 Validation Report for Head TSL

Date: 20.06.2019

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:4d040**

Communication System: UID 0 - CW; Frequency: 835 MHz

Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.91 \text{ S/m}$ ;  $\epsilon_r = 41.8$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(9.89, 9.89, 9.89) @ 835 MHz; Calibrated: 29.05.2019
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.04.2019
- Phantom: Flat Phantom 4.9 (front); Type: QD 00L P49 AA; Serial: 1001
- DASY52 52.10.2(1504); SEMCAD X 14.6.12(7470)

### Dipole Calibration for Head Tissue/ $P_{in}=250 \text{ mW}$ , $d=15\text{mm}$ /Zoom Scan (7x7x7)/Cube 0:

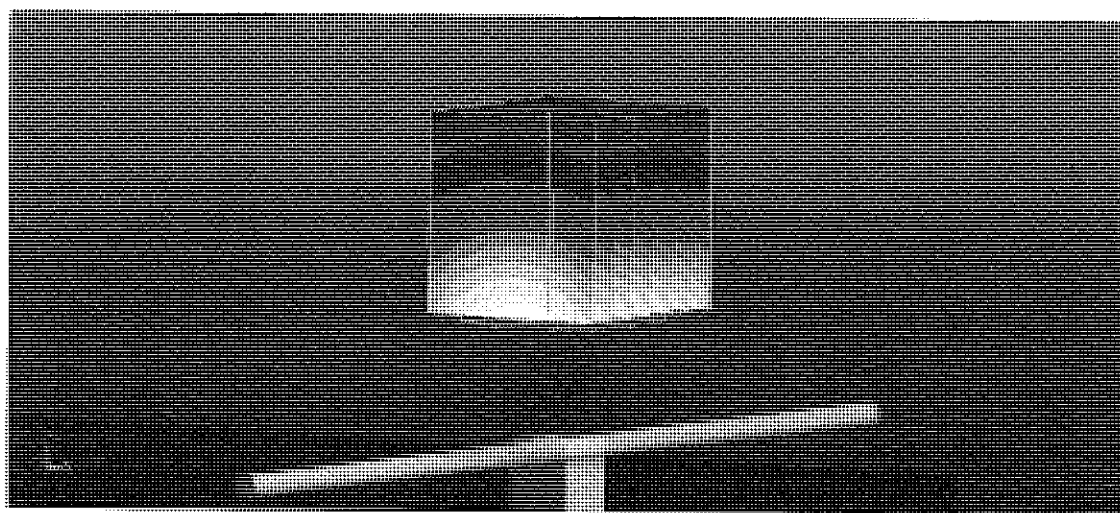
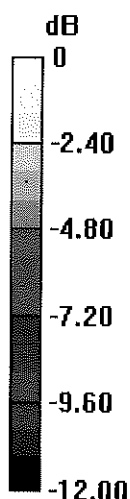
Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value =  $63.05 \text{ V/m}$ ; Power Drift =  $-0.08 \text{ dB}$

Peak SAR (extrapolated) =  $3.60 \text{ W/kg}$

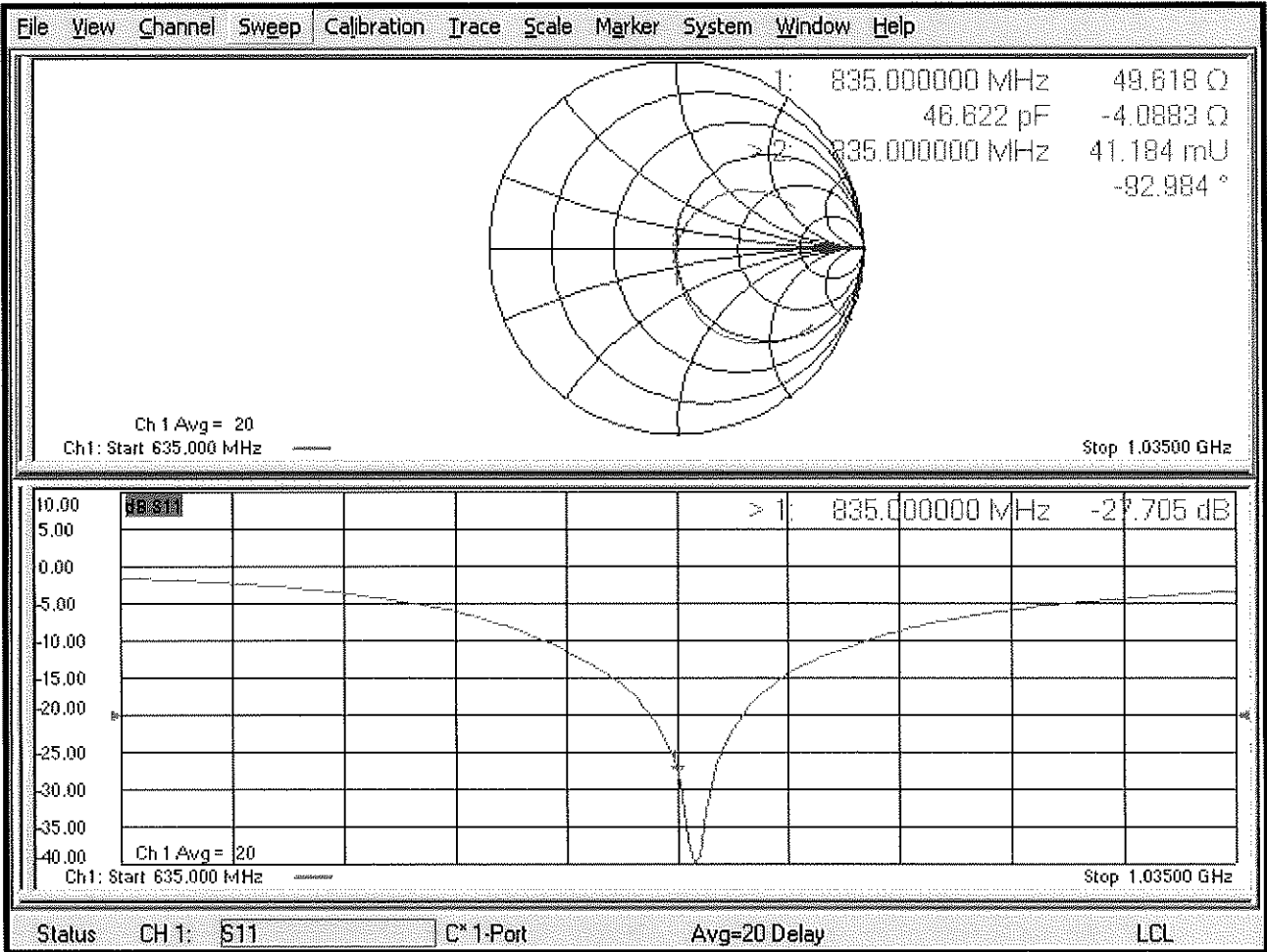
**SAR(1 g) =  $2.39 \text{ W/kg}$ ; SAR(10 g) =  $1.54 \text{ W/kg}$**

Maximum value of SAR (measured) =  $3.19 \text{ W/kg}$



0 dB =  $3.19 \text{ W/kg}$  =  $5.04 \text{ dBW/kg}$

Impedance Measurement Plot for Head TSL



## DASY5 Validation Report for Body TSL

Date: 13.06.2019

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:4d040**

Communication System: UID 0 - CW; Frequency: 835 MHz

Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.98 \text{ S/m}$ ;  $\epsilon_r = 55.4$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(10.16, 10.16, 10.16) @ 835 MHz; Calibrated: 29.05.2019
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.04.2019
- Phantom: Flat Phantom 4.9 (Back); Type: QD 00R P49 AA; Serial: 1005
- DASY52 52.10.2(1504); SEMCAD X 14.6.12(7470)

### Dipole Calibration for Body Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:

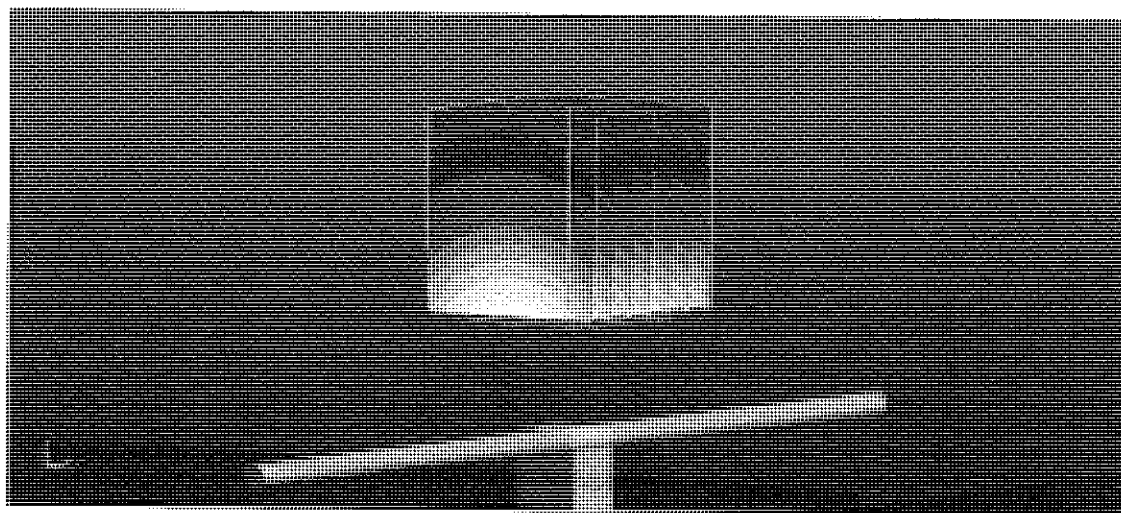
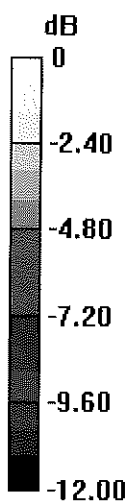
Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 57.73 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 3.59 W/kg

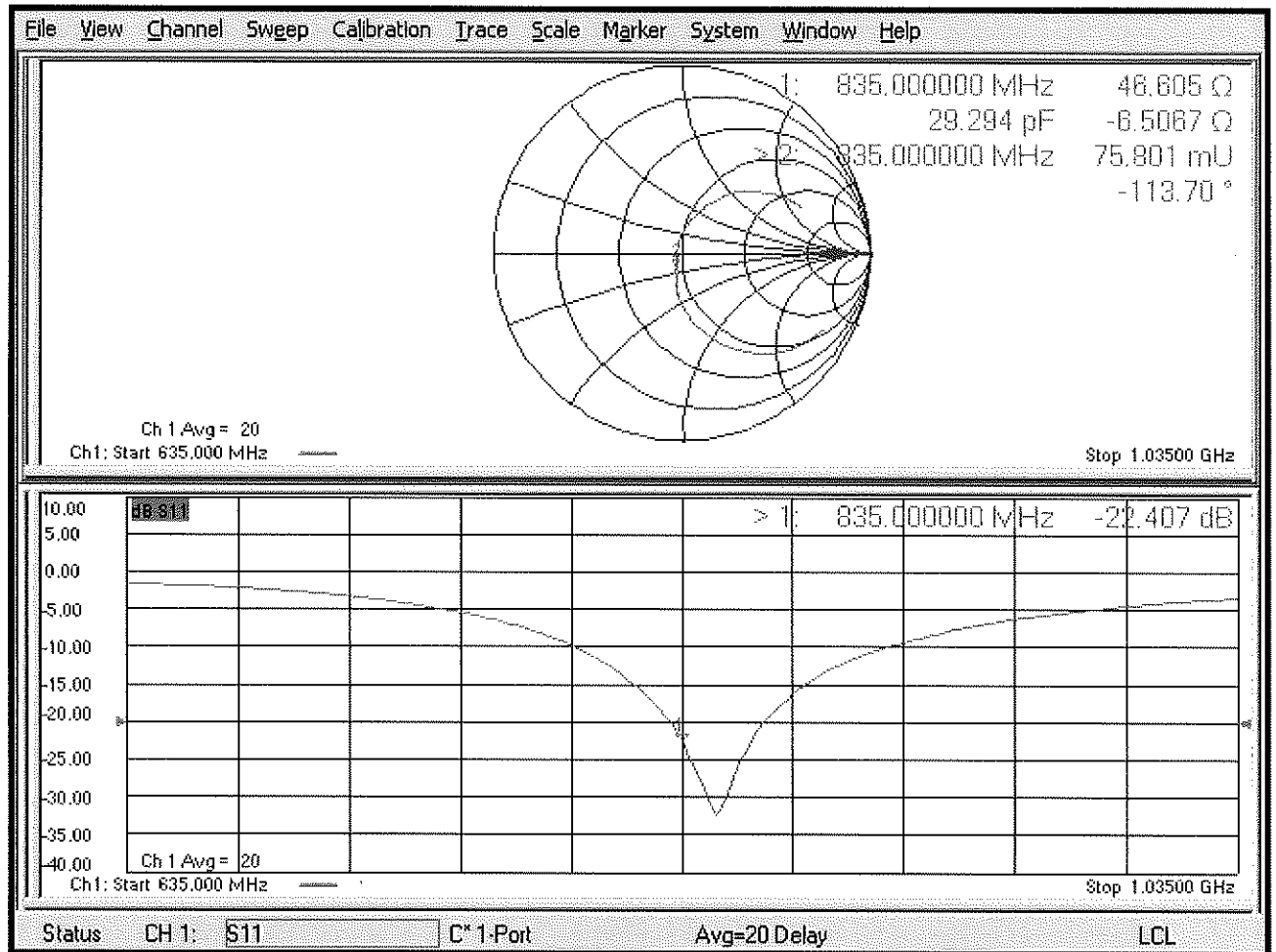
**SAR(1 g) = 2.4 W/kg; SAR(10 g) = 1.57 W/kg**

Maximum value of SAR (measured) = 3.21 W/kg



0 dB = 3.21 W/kg = 5.07 dBW/kg

## Impedance Measurement Plot for Body TSL





Accredited by the Swiss Accreditation Service (SAS)

Accreditation No.: **SCS 0108**

The Swiss Accreditation Service is one of the signatories to the EA  
Multilateral Agreement for the recognition of calibration certificates

Client **PC Test**

Certificate No: **D1750V2-1083\_Jun19**

## CALIBRATION CERTIFICATE

Object **D1750V2 - SN:1083**

Calibration procedure(s) **QA CAL-05.v11  
Calibration Procedure for SAR Validation Sources between 0.7-3 GHz**

Calibration date: **June 19, 2019**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).  
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature ( $22 \pm 3$ )°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

| Primary Standards           | ID #               | Cal Date (Certificate No.)      | Scheduled Calibration |
|-----------------------------|--------------------|---------------------------------|-----------------------|
| Power meter NRP             | SN: 104778         | 03-Apr-19 (No. 217-02892/02893) | Apr-20                |
| Power sensor NRP-Z91        | SN: 103244         | 03-Apr-19 (No. 217-02892)       | Apr-20                |
| Power sensor NRP-Z91        | SN: 103245         | 03-Apr-19 (No. 217-02893)       | Apr-20                |
| Reference 20 dB Attenuator  | SN: 5058 (20k)     | 04-Apr-19 (No. 217-02894)       | Apr-20                |
| Type-N mismatch combination | SN: 5047.2 / 06327 | 04-Apr-19 (No. 217-02895)       | Apr-20                |
| Reference Probe EX3DV4      | SN: 7349           | 29-May-19 (No. EX3-7349_May19)  | May-20                |
| DAE4                        | SN: 601            | 30-Apr-19 (No. DAE4-601_Apr19)  | Apr-20                |

| Secondary Standards             | ID #           | Check Date (in house)             | Scheduled Check        |
|---------------------------------|----------------|-----------------------------------|------------------------|
| Power meter E4419B              | SN: GB39512475 | 30-Oct-14 (in house check Feb-19) | In house check: Oct-20 |
| Power sensor HP 8481A           | SN: US37292783 | 07-Oct-15 (in house check Oct-18) | In house check: Oct-20 |
| Power sensor HP 8481A           | SN: MY41092317 | 07-Oct-15 (in house check Oct-18) | In house check: Oct-20 |
| RF generator R&S SMT-06         | SN: 100972     | 15-Jun-15 (in house check Oct-18) | In house check: Oct-20 |
| Network Analyzer Agilent E8358A | SN: US41080477 | 31-Mar-14 (in house check Oct-18) | In house check: Oct-19 |

Calibrated by: **Claudio Leubler** **Laboratory Technician**

Signature

Approved by: **Katja Pokovic** **Technical Manager**

Issued: June 20, 2019

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Accredited by the Swiss Accreditation Service (SAS)

Accreditation No.: **SCS 0108**

The Swiss Accreditation Service is one of the signatories to the EA  
Multilateral Agreement for the recognition of calibration certificates

### Glossary:

|       |                                 |
|-------|---------------------------------|
| TSL   | tissue simulating liquid        |
| ConvF | sensitivity in TSL / NORM x,y,z |
| N/A   | not applicable or not measured  |

### Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
- IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

### Additional Documentation:

- DASY4/5 System Handbook

### Methods Applied and Interpretation of Parameters:

- Measurement Conditions:** Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL:** The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss:** These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay:** One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- SAR measured:** SAR measured at the stated antenna input power.
- SAR normalized:** SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters:** The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor  $k=2$ , which for a normal distribution corresponds to a coverage probability of approximately 95%.

## Measurement Conditions

DASY system configuration, as far as not given on page 1.

|                                     |                        |             |
|-------------------------------------|------------------------|-------------|
| <b>DASY Version</b>                 | DASY5                  | V52.10.2    |
| <b>Extrapolation</b>                | Advanced Extrapolation |             |
| <b>Phantom</b>                      | Modular Flat Phantom   |             |
| <b>Distance Dipole Center - TSL</b> | 10 mm                  | with Spacer |
| <b>Zoom Scan Resolution</b>         | dx, dy, dz = 5 mm      |             |
| <b>Frequency</b>                    | 1750 MHz $\pm$ 1 MHz   |             |

## Head TSL parameters

The following parameters and calculations were applied.

|                                                | Temperature         | Permittivity   | Conductivity         |
|------------------------------------------------|---------------------|----------------|----------------------|
| <b>Nominal Head TSL parameters</b>             | 22.0 °C             | 40.1           | 1.37 mho/m           |
| <b>Measured Head TSL parameters</b>            | (22.0 $\pm$ 0.2) °C | 40.0 $\pm$ 6 % | 1.34 mho/m $\pm$ 6 % |
| <b>Head TSL temperature change during test</b> | < 0.5 °C            | ----           | ----                 |

## SAR result with Head TSL

| <b>SAR averaged over 1 cm<sup>3</sup> (1 g) of Head TSL</b> | Condition          |                                                |
|-------------------------------------------------------------|--------------------|------------------------------------------------|
| SAR measured                                                | 250 mW input power | 8.91 W/kg                                      |
| SAR for nominal Head TSL parameters                         | normalized to 1W   | <b>36.1 W/kg <math>\pm</math> 17.0 % (k=2)</b> |

| <b>SAR averaged over 10 cm<sup>3</sup> (10 g) of Head TSL</b> | condition          |                                                |
|---------------------------------------------------------------|--------------------|------------------------------------------------|
| SAR measured                                                  | 250 mW input power | 4.70 W/kg                                      |
| SAR for nominal Head TSL parameters                           | normalized to 1W   | <b>19.0 W/kg <math>\pm</math> 16.5 % (k=2)</b> |

## Body TSL parameters

The following parameters and calculations were applied.

|                                                | Temperature         | Permittivity   | Conductivity         |
|------------------------------------------------|---------------------|----------------|----------------------|
| <b>Nominal Body TSL parameters</b>             | 22.0 °C             | 53.4           | 1.49 mho/m           |
| <b>Measured Body TSL parameters</b>            | (22.0 $\pm$ 0.2) °C | 53.9 $\pm$ 6 % | 1.46 mho/m $\pm$ 6 % |
| <b>Body TSL temperature change during test</b> | < 0.5 °C            | ----           | ----                 |

## SAR result with Body TSL

| <b>SAR averaged over 1 cm<sup>3</sup> (1 g) of Body TSL</b> | Condition          |                                                |
|-------------------------------------------------------------|--------------------|------------------------------------------------|
| SAR measured                                                | 250 mW input power | 9.14 W/kg                                      |
| SAR for nominal Body TSL parameters                         | normalized to 1W   | <b>37.1 W/kg <math>\pm</math> 17.0 % (k=2)</b> |

| <b>SAR averaged over 10 cm<sup>3</sup> (10 g) of Body TSL</b> | condition          |                                                |
|---------------------------------------------------------------|--------------------|------------------------------------------------|
| SAR measured                                                  | 250 mW input power | 4.88 W/kg                                      |
| SAR for nominal Body TSL parameters                           | normalized to 1W   | <b>19.7 W/kg <math>\pm</math> 16.5 % (k=2)</b> |

## Appendix (Additional assessments outside the scope of SCS 0108)

### Antenna Parameters with Head TSL

|                                      |                                |
|--------------------------------------|--------------------------------|
| Impedance, transformed to feed point | 50.6 $\Omega$ - 1.1 j $\Omega$ |
| Return Loss                          | - 38.0 dB                      |

### Antenna Parameters with Body TSL

|                                      |                                |
|--------------------------------------|--------------------------------|
| Impedance, transformed to feed point | 46.1 $\Omega$ - 2.4 j $\Omega$ |
| Return Loss                          | - 28.0 dB                      |

### General Antenna Parameters and Design

|                                  |          |
|----------------------------------|----------|
| Electrical Delay (one direction) | 1.220 ns |
|----------------------------------|----------|

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

### Additional EUT Data

|                 |       |
|-----------------|-------|
| Manufactured by | SPEAG |
|-----------------|-------|

## DASY5 Validation Report for Head TSL

Date: 19.06.2019

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 1750 MHz; Type: D1750V2; Serial: D1750V2 - SN:1083**

Communication System: UID 0 - CW; Frequency: 1750 MHz

Medium parameters used:  $f = 1750$  MHz;  $\sigma = 1.34$  S/m;  $\epsilon_r = 40$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(8.67, 8.67, 8.67) @ 1750 MHz; Calibrated: 29.05.2019
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.04.2019
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.10.2(1504); SEMCAD X 14.6.12(7470)

### **Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:**

Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 105.8 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 16.7 W/kg

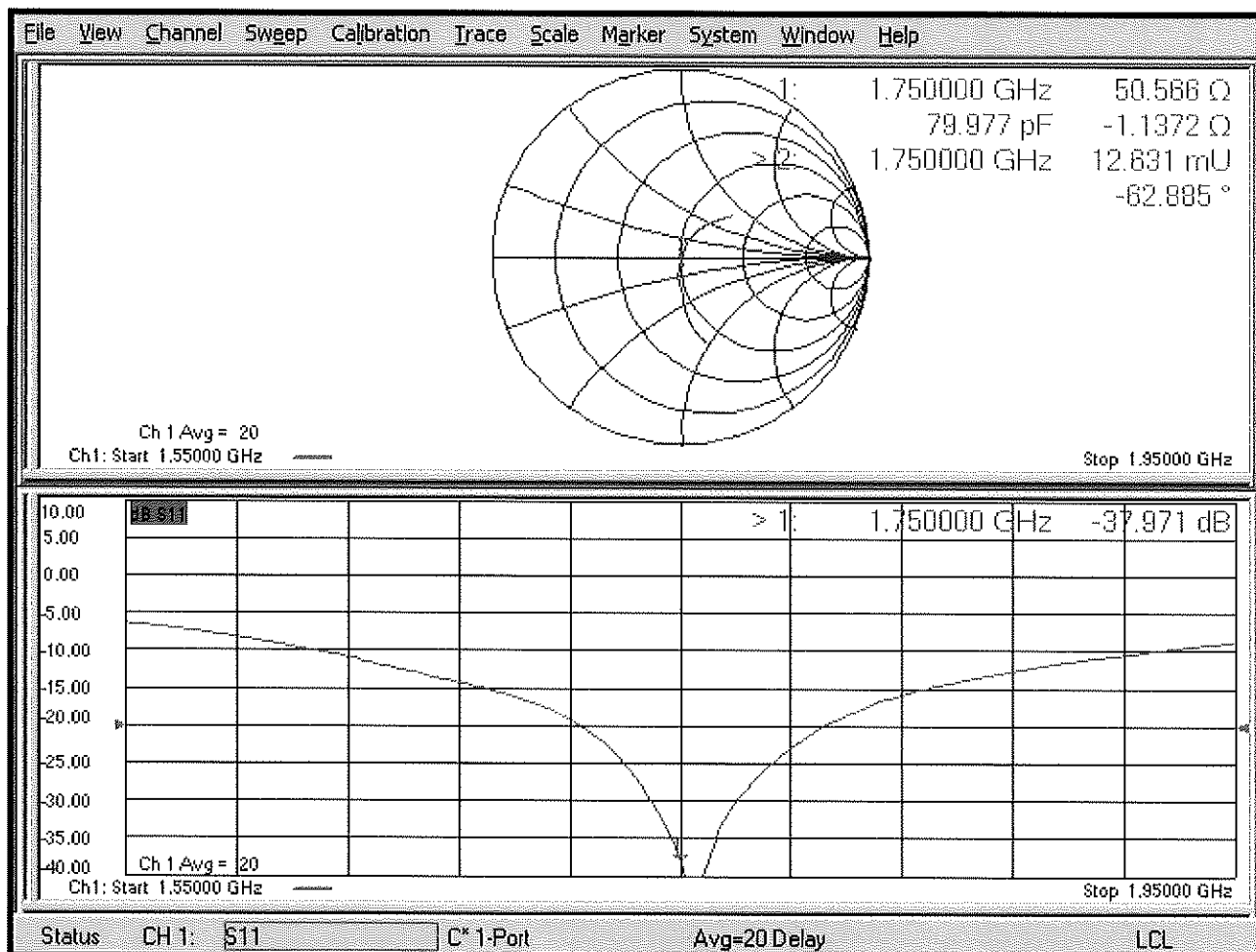
**SAR(1 g) = 8.91 W/kg; SAR(10 g) = 4.7 W/kg**

Maximum value of SAR (measured) = 13.9 W/kg



0 dB = 13.9 W/kg = 11.43 dBW/kg

## Impedance Measurement Plot for Head TSL



## DASY5 Validation Report for Body TSL

Date: 13.06.2019

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 1750 MHz; Type: D1750V2; Serial: D1750V2 - SN:1083**

Communication System: UID 0 - CW; Frequency: 1750 MHz

Medium parameters used:  $f = 1750$  MHz;  $\sigma = 1.46$  S/m;  $\epsilon_r = 53.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(8.45, 8.45, 8.45) @ 1750 MHz; Calibrated: 29.05.2019
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.04.2019
- Phantom: Flat Phantom 5.0 (back); Type: QD 000 P50 AA; Serial: 1002
- DASY52 52.10.2(1504); SEMCAD X 14.6.12(7470)

### Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

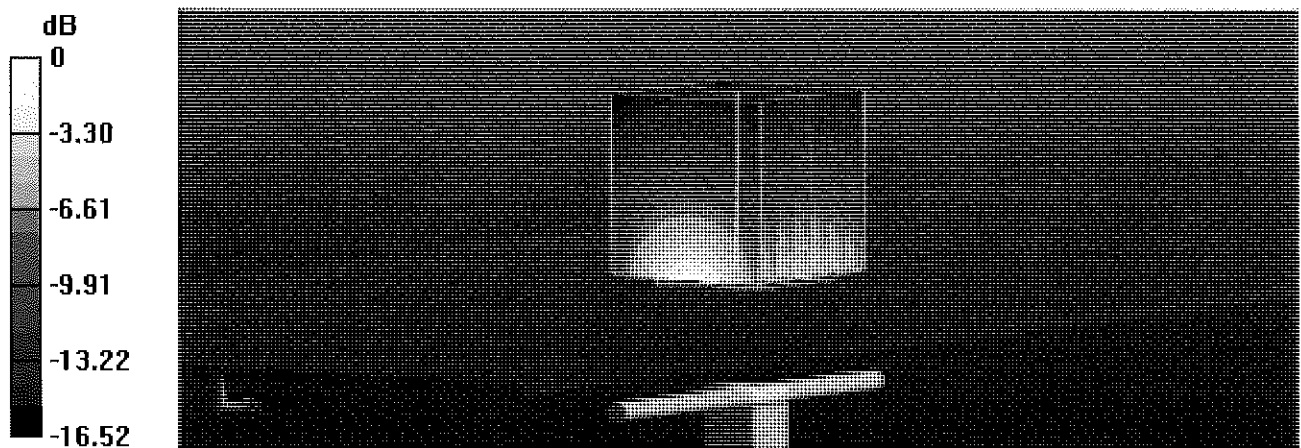
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 101.8 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 16.2 W/kg

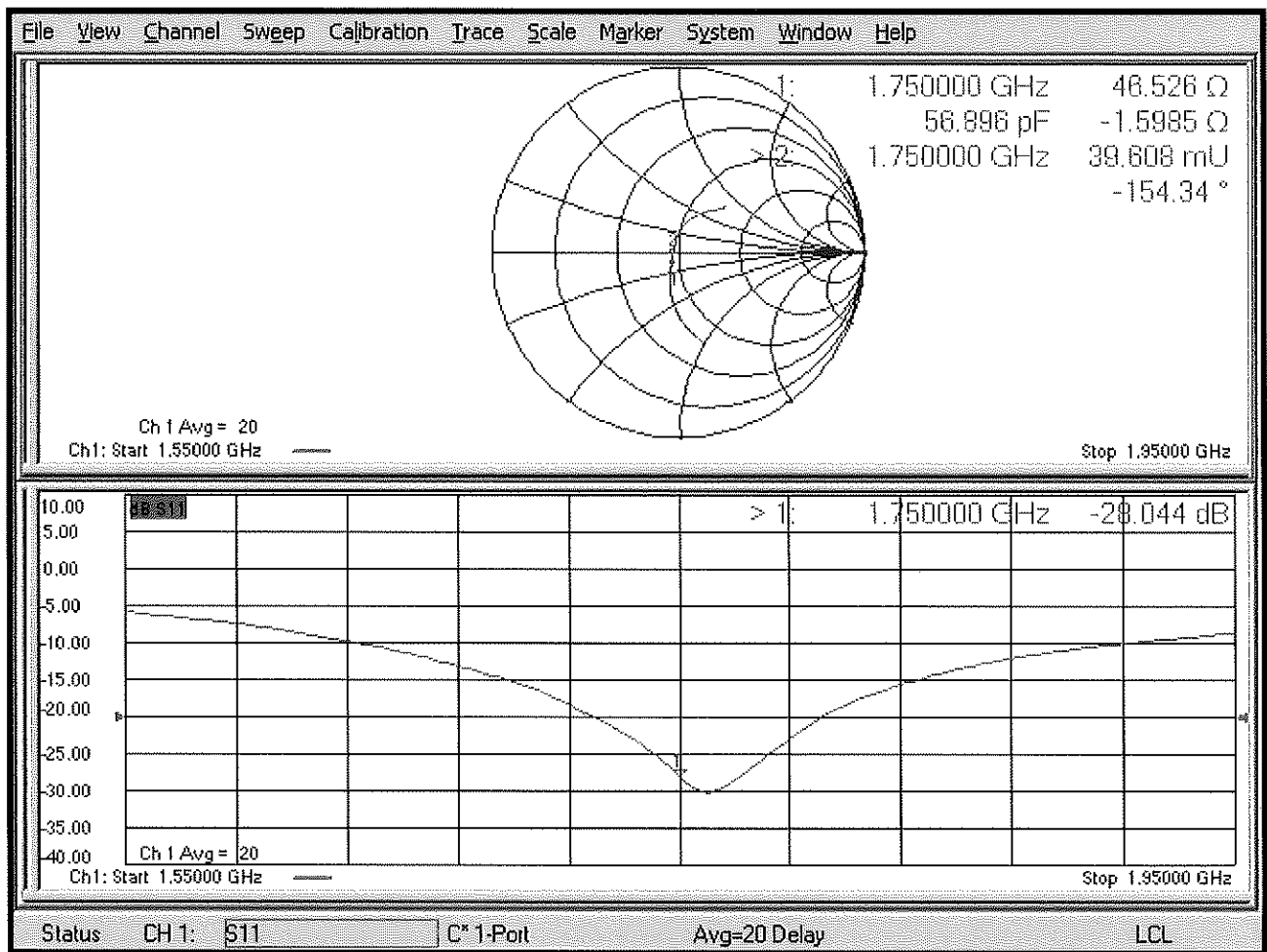
**SAR(1 g) = 9.14 W/kg; SAR(10 g) = 4.88 W/kg**

Maximum value of SAR (measured) = 13.7 W/kg



0 dB = 13.7 W/kg = 11.37 dBW/kg

## Impedance Measurement Plot for Body TSL





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 Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Client **PC Test**

Certificate No.: **D1750V2-1092\_May18**

## CALIBRATION CERTIFICATE

Object **D1750V2 - SN:1092**

Calibration procedure(s) **CA CAL 05 V10**  
 Calibration procedure for double verification with known test items

Calibration date: **May 15, 2018**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).  
 The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature  $(22 \pm 3)^\circ\text{C}$  and humidity  $< 70\%$ .

Calibration Equipment used (M&TE critical for calibration)

| Primary Standards           | ID #               | Cal Date (Certificate No.)      | Scheduled Calibration |
|-----------------------------|--------------------|---------------------------------|-----------------------|
| Power meter NRP             | SN: 104778         | 04-Apr-18 (No. 217-02672/02673) | Apr-19                |
| Power sensor NRP-Z91        | SN: 103244         | 04-Apr-18 (No. 217-02672)       | Apr-19                |
| Power sensor NRP-Z91        | SN: 103245         | 04-Apr-18 (No. 217-02673)       | Apr-19                |
| Reference 20 dB Attenuator  | SN: 5058 (20k)     | 04-Apr-18 (No. 217-02682)       | Apr-19                |
| Type-N mismatch combination | SN: 5047.2 / 06327 | 04-Apr-18 (No. 217-02683)       | Apr-19                |
| Reference Probe EX3DV4      | SN: 7349           | 30-Dec-17 (No. EX3-7349_Dec17)  | Dec-18                |
| DAE4                        | SN: 601            | 26-Oct-17 (No. DAE4-601_Oct17)  | Oct-18                |

| Secondary Standards       | ID #           | Check Date (in house)             | Scheduled Check        |
|---------------------------|----------------|-----------------------------------|------------------------|
| Power meter EPM-442A      | SN: GB37480704 | 07-Oct-15 (in house check Oct-16) | In house check: Oct-18 |
| Power sensor HP 8481A     | SN: US37292783 | 07-Oct-15 (in house check Oct-16) | In house check: Oct-18 |
| Power sensor HP 8481A     | SN: MY41092317 | 07-Oct-15 (in house check Oct-16) | In house check: Oct-18 |
| RF generator R&S SMT-05   | SN: 100972     | 15-Jun-15 (in house check Oct-16) | In house check: Oct-18 |
| Network Analyzer HP 8753E | SN: US37390585 | 18-Oct-01 (in house check Oct-17) | In house check: Oct-18 |

|                |               |                       |                  |
|----------------|---------------|-----------------------|------------------|
|                | <b>Name</b>   | <b>Function</b>       | <b>Signature</b> |
| Calibrated by: | Manu Seltz    | Laboratory Technician |                  |
| Approved by:   | Katja Pokovic | Technical Manager     |                  |

Issued: May 17, 2018

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Accreditation No.: **SCS 0108**

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Multilateral Agreement for the recognition of calibration certificates

**Glossary:**

|       |                                 |
|-------|---------------------------------|
| TSL   | tissue simulating liquid        |
| ConvF | sensitivity in TSL / NORM x,y,z |
| N/A   | not applicable or not measured  |

**Calibration is Performed According to the Following Standards:**

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
- IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

**Additional Documentation:**

- DASY4/5 System Handbook

**Methods Applied and Interpretation of Parameters:**

- Measurement Conditions:** Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL:** The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss:** These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay:** One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- SAR measured:** SAR measured at the stated antenna input power.
- SAR normalized:** SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters:** The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor  $k=2$ , which for a normal distribution corresponds to a coverage probability of approximately 95%.

## Measurement Conditions

DASY system configuration, as far as not given on page 1.

|                                     |                        |             |
|-------------------------------------|------------------------|-------------|
| <b>DASY Version</b>                 | DASY5                  | V52.10.1    |
| <b>Extrapolation</b>                | Advanced Extrapolation |             |
| <b>Phantom</b>                      | Modular Flat Phantom   |             |
| <b>Distance Dipole Center - TSL</b> | 10 mm                  | with Spacer |
| <b>Zoom Scan Resolution</b>         | dx, dy, dz = 5 mm      |             |
| <b>Frequency</b>                    | 1750 MHz $\pm$ 1 MHz   |             |

## Head TSL parameters

The following parameters and calculations were applied.

|                                                | Temperature         | Permittivity   | Conductivity         |
|------------------------------------------------|---------------------|----------------|----------------------|
| <b>Nominal Head TSL parameters</b>             | 22.0 °C             | 40.1           | 1.37 mho/m           |
| <b>Measured Head TSL parameters</b>            | (22.0 $\pm$ 0.2) °C | 39.0 $\pm$ 6 % | 1.34 mho/m $\pm$ 6 % |
| <b>Head TSL temperature change during test</b> | < 0.5 °C            | ----           | ----                 |

## SAR result with Head TSL

|                                                             |                    |                                                |
|-------------------------------------------------------------|--------------------|------------------------------------------------|
| <b>SAR averaged over 1 cm<sup>3</sup> (1 g) of Head TSL</b> | Condition          |                                                |
| SAR measured                                                | 250 mW input power | 8.95 W/kg                                      |
| SAR for nominal Head TSL parameters                         | normalized to 1W   | <b>36.1 W/kg <math>\pm</math> 17.0 % (k=2)</b> |

|                                                               |                    |                                                |
|---------------------------------------------------------------|--------------------|------------------------------------------------|
| <b>SAR averaged over 10 cm<sup>3</sup> (10 g) of Head TSL</b> | condition          |                                                |
| SAR measured                                                  | 250 mW input power | 4.73 W/kg                                      |
| SAR for nominal Head TSL parameters                           | normalized to 1W   | <b>19.0 W/kg <math>\pm</math> 16.5 % (k=2)</b> |

## Body TSL parameters

The following parameters and calculations were applied.

|                                                | Temperature         | Permittivity   | Conductivity         |
|------------------------------------------------|---------------------|----------------|----------------------|
| <b>Nominal Body TSL parameters</b>             | 22.0 °C             | 53.4           | 1.49 mho/m           |
| <b>Measured Body TSL parameters</b>            | (22.0 $\pm$ 0.2) °C | 53.2 $\pm$ 6 % | 1.46 mho/m $\pm$ 6 % |
| <b>Body TSL temperature change during test</b> | < 0.5 °C            | ----           | ----                 |

## SAR result with Body TSL

|                                                             |                    |                                                |
|-------------------------------------------------------------|--------------------|------------------------------------------------|
| <b>SAR averaged over 1 cm<sup>3</sup> (1 g) of Body TSL</b> | Condition          |                                                |
| SAR measured                                                | 250 mW input power | 8.99 W/kg                                      |
| SAR for nominal Body TSL parameters                         | normalized to 1W   | <b>36.4 W/kg <math>\pm</math> 17.0 % (k=2)</b> |

|                                                               |                    |                                                |
|---------------------------------------------------------------|--------------------|------------------------------------------------|
| <b>SAR averaged over 10 cm<sup>3</sup> (10 g) of Body TSL</b> | condition          |                                                |
| SAR measured                                                  | 250 mW input power | 4.81 W/kg                                      |
| SAR for nominal Body TSL parameters                           | normalized to 1W   | <b>19.4 W/kg <math>\pm</math> 16.5 % (k=2)</b> |

## Appendix (Additional assessments outside the scope of SCS 0108)

### Antenna Parameters with Head TSL

|                                      |                                |
|--------------------------------------|--------------------------------|
| Impedance, transformed to feed point | 49.2 $\Omega$ - 1.0 j $\Omega$ |
| Return Loss                          | - 37.8 dB                      |

### Antenna Parameters with Body TSL

|                                      |                                |
|--------------------------------------|--------------------------------|
| Impedance, transformed to feed point | 44.8 $\Omega$ - 0.6 j $\Omega$ |
| Return Loss                          | - 25.2 dB                      |

### General Antenna Parameters and Design

|                                  |          |
|----------------------------------|----------|
| Electrical Delay (one direction) | 1.217 ns |
|----------------------------------|----------|

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

### Additional EUT Data

|                 |                   |
|-----------------|-------------------|
| Manufactured by | SPEAG             |
| Manufactured on | November 07, 2012 |

## DASY5 Validation Report for Head TSL

Date: 15.05.2018

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 1750 MHz; Type: D1750V2; Serial: D1750V2 - SN:1092**

Communication System: UID 0 - CW; Frequency: 1750 MHz

Medium parameters used:  $f = 1750$  MHz;  $\sigma = 1.34$  S/m;  $\epsilon_r = 39$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(8.5, 8.5, 8.5) @ 1750 MHz; Calibrated: 30.12.2017
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 26.10.2017
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

### **Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:**

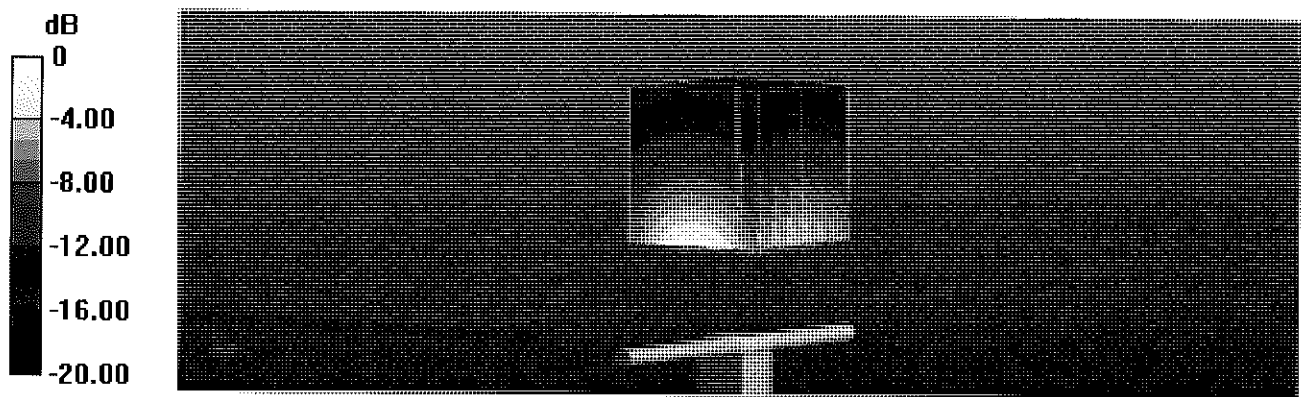
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 106.8 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 16.3 W/kg

**SAR(1 g) = 8.95 W/kg; SAR(10 g) = 4.73 W/kg**

Maximum value of SAR (measured) = 13.8 W/kg



0 dB = 13.8 W/kg = 11.40 dBW/kg

# Impedance Measurement Plot for Head TSL

15 May 2018 11:09:26  
 [CH1] S11 1 U FS 1: 49.203  $\Omega$  -1.0117  $\Omega$  89.892 pF 1 750.000 000 MHz

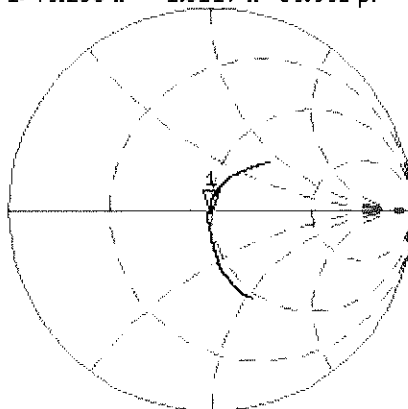
\*

Del

CA

Avg  
16

H1d

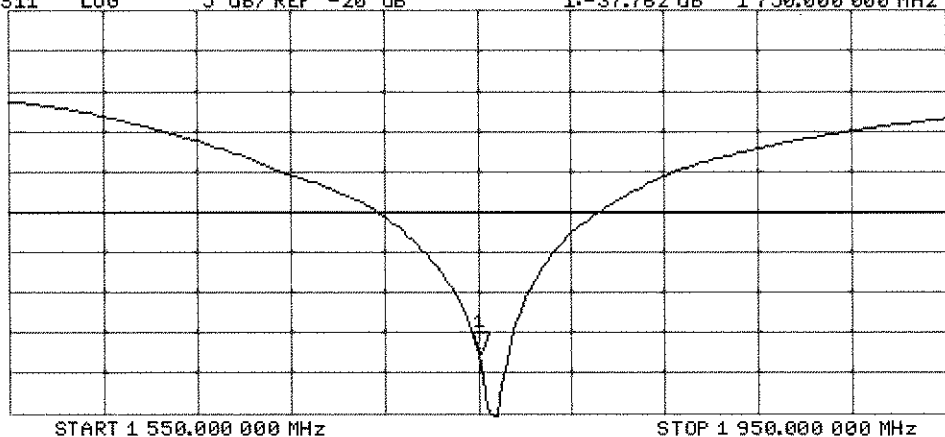


CH2 S11 LOG 5 dB/REF -20 dB 1: -37.762 dB 1 750.000 000 MHz

CA

Avg  
16

H1d



## DASY5 Validation Report for Body TSL

Date: 15.05.2018

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 1750 MHz; Type: D1750V2; Serial: D1750V2 - SN:1092**

Communication System: UID 0 - CW; Frequency: 1750 MHz

Medium parameters used:  $f = 1750$  MHz;  $\sigma = 1.46$  S/m;  $\epsilon_r = 53.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(8.35, 8.35, 8.35) @ 1750 MHz; Calibrated: 30.12.2017
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 26.10.2017
- Phantom: Flat Phantom 5.0 (back); Type: QD 000 P50 AA; Serial: 1002
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

### Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

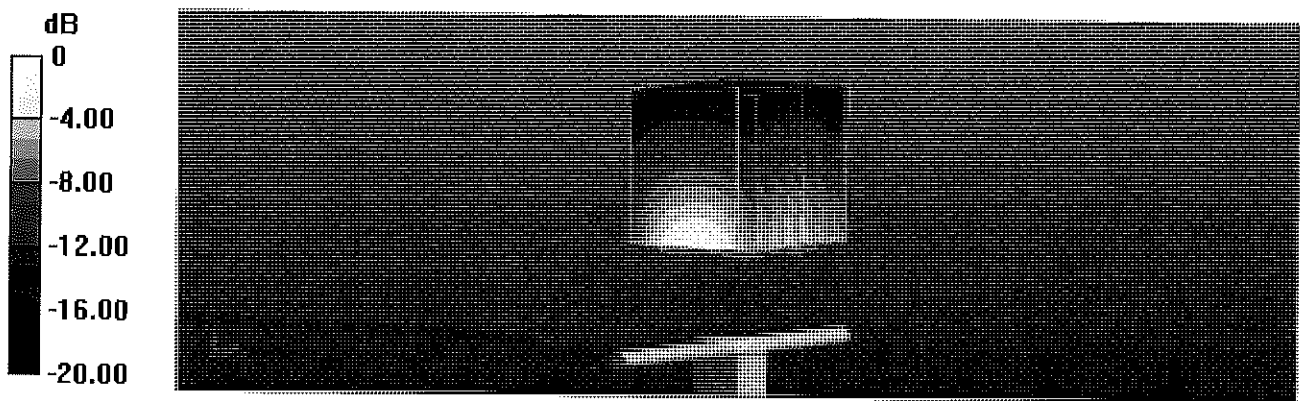
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 101.4 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 15.8 W/kg

**SAR(1 g) = 8.99 W/kg; SAR(10 g) = 4.81 W/kg**

Maximum value of SAR (measured) = 13.4 W/kg



0 dB = 13.4 W/kg = 11.27 dBW/kg

## Impedance Measurement Plot for Body TSL

15 May 2018 11:08:25  
[CH1] S11 1 U F8 1: 44.846  $\Omega$  -589.84 m $\Omega$  154.19 pF 1 750.000 000 MHz

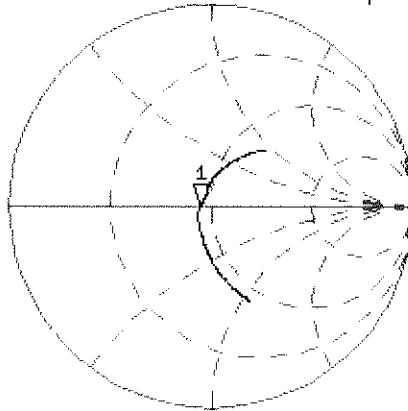
\*

De1

CA

Avg  
16

H1d

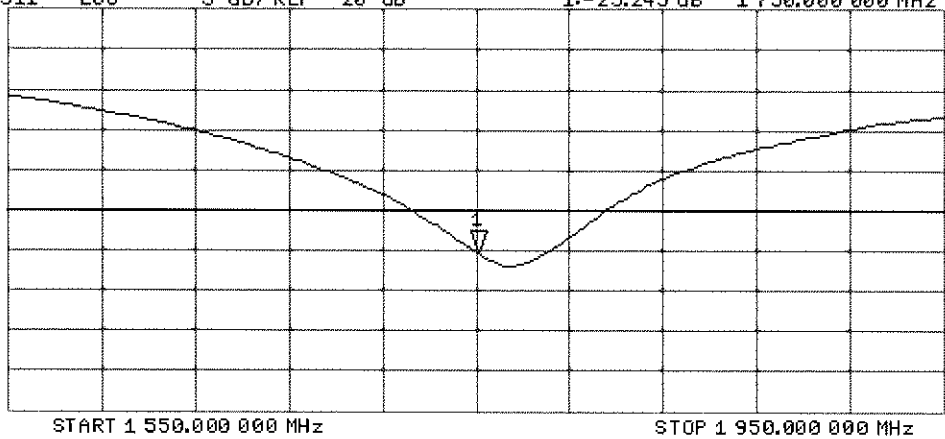


CH2 S11 LOG 5 dB/REF -20 dB 1:-25.245 dB 1 750.000 000 MHz

CA

Avg  
16

H1d



# Certification of Calibration

Object D1750V2 – SN: 1092

Calibration procedure(s) Procedure for Calibration Extension for SAR Dipoles.

Extended Calibration date: May 15, 2019

Description: SAR Validation Dipole at 1750 MHz.

## Calibration Equipment used:

| Manufacturer          | Model     | Description                                             | Cal Date   | Cal Interval | Cal Due    | Serial Number |
|-----------------------|-----------|---------------------------------------------------------|------------|--------------|------------|---------------|
| Agilent               | 8753ES    | S-Parameter Network Analyzer                            | 10/2/2018  | Annual       | 10/2/2019  | US39170118    |
| Agilent               | N5182A    | MXG Vector Signal Generator                             | 6/15/2018  | Annual       | 6/15/2019  | MY47420837    |
| Amplifier Research    | 15S1G6    | Amplifier                                               | CBT        | N/A          | CBT        | 343972        |
| Anritsu               | ML2495A   | Power Meter                                             | 10/21/2018 | Annual       | 10/21/2019 | 941001        |
| Anritsu               | MA2411B   | Pulse Power Sensor                                      | 10/30/2018 | Annual       | 10/30/2019 | 1207470       |
| Anritsu               | MA2411B   | Pulse Power Sensor                                      | 11/20/2018 | Annual       | 11/20/2019 | 1339007       |
| Control Company       | 4040      | Temperature / Humidity Monitor                          | 2/28/2018  | Biennial     | 2/28/2020  | 150761911     |
| Control Company       | 4352      | Ultra Long Stem Thermometer                             | 2/28/2018  | Biennial     | 2/28/2020  | 170330160     |
| Keysight              | 772D      | Dual Directional Coupler                                | CBT        | N/A          | CBT        | MY52180215    |
| Keysight Technologies | 85033E    | Standard Mechanical Calibration Kit (DC to 9GHz, 3.5mm) | 6/4/2018   | Annual       | 6/4/2019   | MY53401181    |
| Mini-Circuits         | BW-N20W5+ | DC to 18 GHz Precision Fixed 20 dB Attenuator           | CBT        | N/A          | CBT        | N/A           |
| Mini-Circuits         | NLP-2950+ | Low Pass Filter DC to 2700 MHz                          | CBT        | N/A          | CBT        | N/A           |
| Narda                 | 4772-3    | Attenuator (3dB)                                        | CBT        | N/A          | CBT        | 9406          |
| Pasternack            | PE2209-10 | Bidirectional Coupler                                   | CBT        | N/A          | CBT        | N/A           |
| Pasternack            | PE5011-1  | Torque Wrench                                           | 7/19/2017  | Biennial     | 7/19/2019  | N/A           |
| SPEAG                 | DAKS-3.5  | Portable DAK                                            | 9/11/2018  | Annual       | 9/11/2019  | 1045          |
| SPEAG                 | EX3DV4    | SAR Probe                                               | 7/20/2018  | Annual       | 7/20/2019  | 7416          |
| SPEAG                 | DAE4      | Dasy Data Acquisition Electronics                       | 7/10/2018  | Annual       | 7/10/2019  | 1402          |

Measurement Uncertainty =  $\pm 23\%$  (k=2)

|                | Name            | Function                 | Signature           |
|----------------|-----------------|--------------------------|---------------------|
| Calibrated By: | Parker Jones    | Team Lead Engineer       | <i>Parker Jones</i> |
| Approved By:   | Kaitlin O'Keefe | Senior Technical Manager | <i>KOK</i>          |

# DIPOLE CALIBRATION EXTENSION

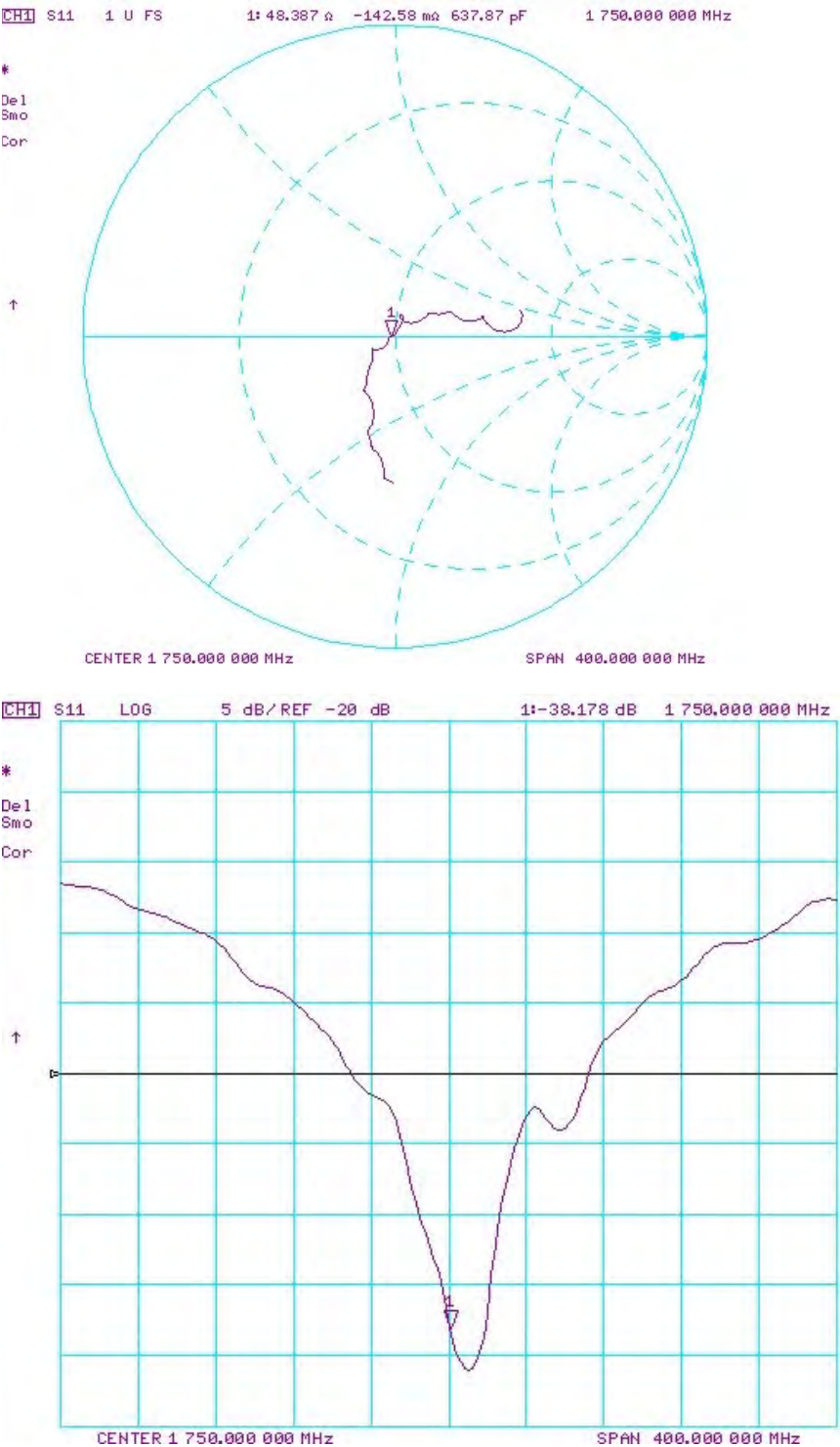
Per KDB 865664 D01, calibration intervals of up to three years may be considered for reference dipoles when it is demonstrated that the SAR target, impedance and return loss of a dipole have remained stable according to the following requirements:

1. The measured SAR does not deviate more than 10% from the target on the calibration certificate.
2. The return-loss does not deviate more than 20% from the previous measurement and meets the required 20dB minimum return-loss requirement.
3. The measurement of real or imaginary parts of impedance does not deviate more than 5Ω from the previous measurement.

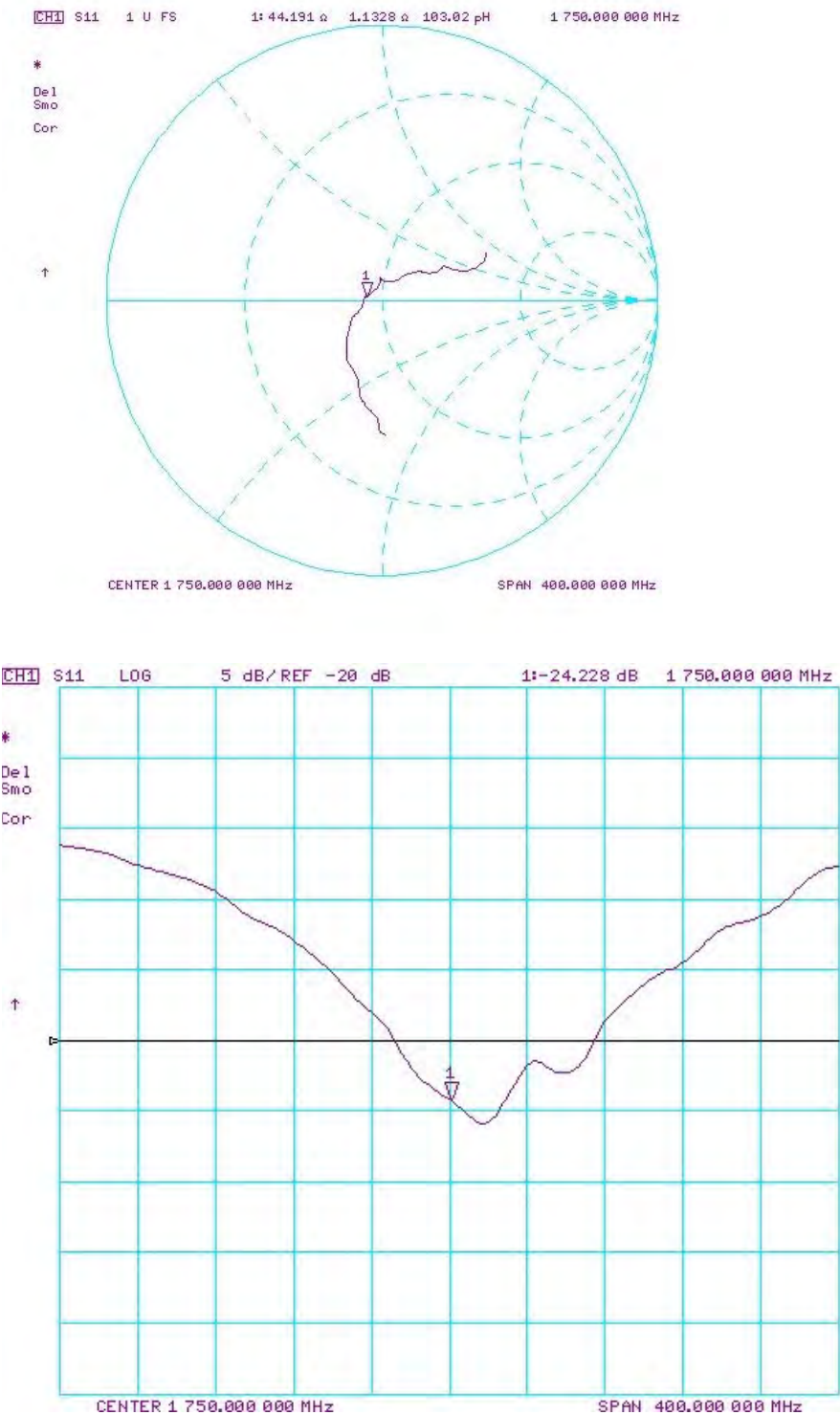
The following dipole was checked to pass the above 3 requirements to have 2-year calibration period from the calibration date:

| Calibration Date | Extension Date | Certificate Electrical Delay (ns) | Certificate SAR Target Head (1g) W/kg @ 20.0 dBm | Measured Head SAR (1g) W/kg @ 20.0 dBm | Deviation 1g (%) | Certificate SAR Target Body (10g) W/kg @ 20.0 dBm | Measured Body SAR (10g) W/kg @ 20.0 dBm | Deviation 10g (%) | Certificate Impedance Head (Ohm) Real | Measured Impedance Head (Ohm) Real | Difference (Ohm) Real | Certificate Impedance Head (Ohm) Imaginary | Measured Impedance Head (Ohm) Imaginary | Difference (Ohm) Imaginary | Certificate Return Loss Head (dB) | Measured Return Loss Head (dB) | Deviation (%) | PASS/FAIL |
|------------------|----------------|-----------------------------------|--------------------------------------------------|----------------------------------------|------------------|---------------------------------------------------|-----------------------------------------|-------------------|---------------------------------------|------------------------------------|-----------------------|--------------------------------------------|-----------------------------------------|----------------------------|-----------------------------------|--------------------------------|---------------|-----------|
| 5/15/2018        | 5/15/2019      | 1.217                             | 3.61                                             | 3.59                                   | -0.55%           | 1.9                                               | 1.89                                    | -0.53%            | 49.2                                  | 48.4                               | 0.8                   | -1                                         | -0.1                                    | 0.9                        | -37.8                             | -38.2                          | -1.00%        | PASS      |
| Calibration Date | Extension Date | Certificate Electrical Delay (ns) | Certificate SAR Target Body (1g) W/kg @ 20.0 dBm | Measured Body SAR (1g) W/kg @ 20.0 dBm | Deviation 1g (%) | Certificate SAR Target Body (10g) W/kg @ 20.0 dBm | Measured Body SAR (10g) W/kg @ 20.0 dBm | Deviation 10g (%) | Certificate Impedance Body (Ohm) Real | Measured Impedance Body (Ohm) Real | Difference (Ohm) Real | Certificate Impedance Body (Ohm) Imaginary | Measured Impedance Body (Ohm) Imaginary | Difference (Ohm) Imaginary | Certificate Return Loss Body (dB) | Measured Return Loss Body (dB) | Deviation (%) | PASS/FAIL |
| 5/15/2018        | 5/15/2019      | 1.217                             | 3.64                                             | 3.62                                   | -0.55%           | 1.94                                              | 1.91                                    | -1.59%            | 44.8                                  | 44.2                               | 0.6                   | -0.6                                       | 1.1                                     | 1.7                        | -25.2                             | -24.2                          | 3.90%         | PASS      |

Impedance & Return-Loss Measurement Plot for Head TSL



Impedance & Return-Loss Measurement Plot for Body TSL





Accredited by the Swiss Accreditation Service (SAS)  
 The Swiss Accreditation Service is one of the signatories to the EA  
 Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Client **PC Test**

Certificate No: **D1900V2-5d026\_May18**

## CALIBRATION CERTIFICATE

Object **D1900V2 - SN:5d026**

Calibration procedure(s) **Cal. Cal-15 v10  
 Calibration procedure for cable validation with above 700 MHz**

Calibration date: **May 14, 2018**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).  
 The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature ( $22 \pm 3$ )°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

| Primary Standards           | ID #               | Cal Date (Certificate No.)        | Scheduled Calibration  |
|-----------------------------|--------------------|-----------------------------------|------------------------|
| Power meter NRP             | SN: 104778         | 04-Apr-18 (No. 217-02672/02673)   | Apr-19                 |
| Power sensor NRP-Z91        | SN: 103244         | 04-Apr-18 (No. 217-02672)         | Apr-19                 |
| Power sensor NRP-Z91        | SN: 103245         | 04-Apr-18 (No. 217-02673)         | Apr-19                 |
| Reference 20 dB Attenuator  | SN: 5058 (20k)     | 04-Apr-18 (No. 217-02682)         | Apr-19                 |
| Type-N mismatch combination | SN: 5047.2 / 06327 | 04-Apr-18 (No. 217-02683)         | Apr-19                 |
| Reference Probe EX3DV4      | SN: 7349           | 30-Dec-17 (No. EX3-7349_Dec17)    | Dec-18                 |
| DAE4                        | SN: 601            | 26-Oct-17 (No. DAE4-601_Oct17)    | Oct-18                 |
| Secondary Standards         | ID #               | Check Date (in house)             | Scheduled Check        |
| Power meter EPM-442A        | SN: GB37480704     | 07-Oct-15 (in house check Oct-16) | In house check: Oct-18 |
| Power sensor HP 8481A       | SN: US37292783     | 07-Oct-15 (in house check Oct-16) | In house check: Oct-18 |
| Power sensor HP 8481A       | SN: MY41092317     | 07-Oct-15 (in house check Oct-16) | In house check: Oct-18 |
| RF generator R&S SMT-06     | SN: 100972         | 15-Jun-15 (in house check Oct-16) | In house check: Oct-18 |
| Network Analyzer HP 8753E   | SN: US37390585     | 18-Oct-01 (in house check Oct-17) | In house check: Oct-18 |

Calibrated by: **Jeton Kastrati** Name **Laboratory Technician** Function **[Signature]** Signature

Approved by: **Katja Pokovic** Name **Technical Manager** Function **[Signature]** Signature

Issued: May 14, 2018

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.



Accredited by the Swiss Accreditation Service (SAS)

The Swiss Accreditation Service is one of the signatories to the EA  
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

**Glossary:**

|       |                                 |
|-------|---------------------------------|
| TSL   | tissue simulating liquid        |
| ConvF | sensitivity in TSL / NORM x,y,z |
| N/A   | not applicable or not measured  |

**Calibration is Performed According to the Following Standards:**

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
- IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

**Additional Documentation:**

- DASY4/5 System Handbook

**Methods Applied and Interpretation of Parameters:**

- Measurement Conditions:** Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL:** The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss:** These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay:** One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- SAR measured:** SAR measured at the stated antenna input power.
- SAR normalized:** SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters:** The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor  $k=2$ , which for a normal distribution corresponds to a coverage probability of approximately 95%.

## Measurement Conditions

DASY system configuration, as far as not given on page 1.

|                              |                        |             |
|------------------------------|------------------------|-------------|
| DASY Version                 | DASY5                  | V52.10.1    |
| Extrapolation                | Advanced Extrapolation |             |
| Phantom                      | Modular Flat Phantom   |             |
| Distance Dipole Center - TSL | 10 mm                  | with Spacer |
| Zoom Scan Resolution         | dx, dy, dz = 5 mm      |             |
| Frequency                    | 1900 MHz $\pm$ 1 MHz   |             |

## Head TSL parameters

The following parameters and calculations were applied.

|                                         | Temperature         | Permittivity   | Conductivity         |
|-----------------------------------------|---------------------|----------------|----------------------|
| Nominal Head TSL parameters             | 22.0 °C             | 40.0           | 1.40 mho/m           |
| Measured Head TSL parameters            | (22.0 $\pm$ 0.2) °C | 41.2 $\pm$ 6 % | 1.35 mho/m $\pm$ 6 % |
| Head TSL temperature change during test | < 0.5 °C            | ----           | ----                 |

## SAR result with Head TSL

|                                                       |                    |                              |
|-------------------------------------------------------|--------------------|------------------------------|
| SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL | Condition          |                              |
| SAR measured                                          | 250 mW input power | 9.78 W/kg                    |
| SAR for nominal Head TSL parameters                   | normalized to 1W   | 40.2 W/kg $\pm$ 17.0 % (k=2) |

|                                                         |                    |                              |
|---------------------------------------------------------|--------------------|------------------------------|
| SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL | condition          |                              |
| SAR measured                                            | 250 mW input power | 5.19 W/kg                    |
| SAR for nominal Head TSL parameters                     | normalized to 1W   | 21.1 W/kg $\pm$ 16.5 % (k=2) |

## Body TSL parameters

The following parameters and calculations were applied.

|                                         | Temperature         | Permittivity   | Conductivity         |
|-----------------------------------------|---------------------|----------------|----------------------|
| Nominal Body TSL parameters             | 22.0 °C             | 53.3           | 1.52 mho/m           |
| Measured Body TSL parameters            | (22.0 $\pm$ 0.2) °C | 55.3 $\pm$ 6 % | 1.46 mho/m $\pm$ 6 % |
| Body TSL temperature change during test | < 0.5 °C            | ----           | ----                 |

## SAR result with Body TSL

|                                                       |                    |                              |
|-------------------------------------------------------|--------------------|------------------------------|
| SAR averaged over 1 cm <sup>3</sup> (1 g) of Body TSL | Condition          |                              |
| SAR measured                                          | 250 mW input power | 9.65 W/kg                    |
| SAR for nominal Body TSL parameters                   | normalized to 1W   | 39.9 W/kg $\pm$ 17.0 % (k=2) |

|                                                         |                    |                              |
|---------------------------------------------------------|--------------------|------------------------------|
| SAR averaged over 10 cm <sup>3</sup> (10 g) of Body TSL | condition          |                              |
| SAR measured                                            | 250 mW input power | 5.19 W/kg                    |
| SAR for nominal Body TSL parameters                     | normalized to 1W   | 21.2 W/kg $\pm$ 16.5 % (k=2) |

## Appendix (Additional assessments outside the scope of SCS 0108)

### Antenna Parameters with Head TSL

|                                      |                             |
|--------------------------------------|-----------------------------|
| Impedance, transformed to feed point | $53.0 \Omega + 8.0 j\Omega$ |
| Return Loss                          | - 21.6 dB                   |

### Antenna Parameters with Body TSL

|                                      |                             |
|--------------------------------------|-----------------------------|
| Impedance, transformed to feed point | $47.1 \Omega + 7.4 j\Omega$ |
| Return Loss                          | - 21.8 dB                   |

### General Antenna Parameters and Design

|                                  |          |
|----------------------------------|----------|
| Electrical Delay (one direction) | 1.199 ns |
|----------------------------------|----------|

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

### Additional EUT Data

|                 |                   |
|-----------------|-------------------|
| Manufactured by | SPEAG             |
| Manufactured on | December 17, 2002 |

## DASY5 Validation Report for Head TSL

Date: 14.05.2018

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d026**

Communication System: UID 0 - CW; Frequency: 1900 MHz

Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.35$  S/m;  $\epsilon_r = 41.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(8.18, 8.18, 8.18) @ 1900 MHz; Calibrated: 30.12.2017
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 26.10.2017
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

### **Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:**

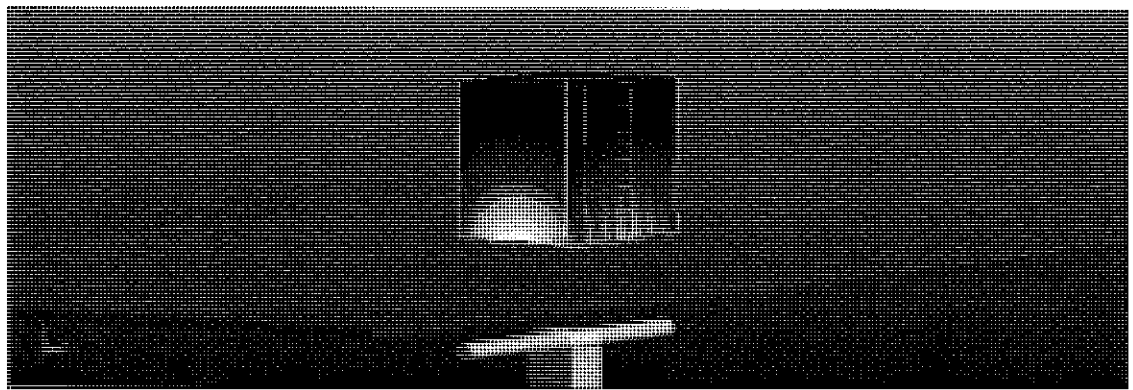
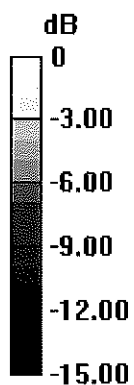
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 109.9 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 17.8 W/kg

**SAR(1 g) = 9.78 W/kg; SAR(10 g) = 5.19 W/kg**

Maximum value of SAR (measured) = 15.0 W/kg

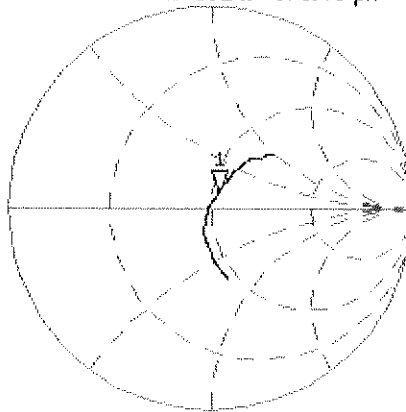


0 dB = 15.0 W/kg = 11.76 dBW/kg

# Impedance Measurement Plot for Head TSL

14 May 2018 09:14:41  
 [CH1] S11 1 U FS 1: 52.955  $\Omega$  8.0391  $\Omega$  673.40  $\mu$ H 1 900.000 000 MHz

\*  
 Del  
 CA



Avg  
 16

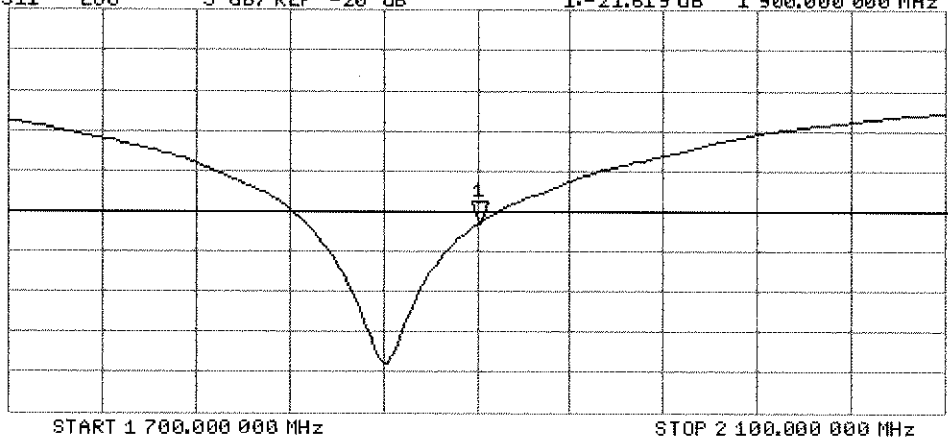
H1d

CH2 S11 LOG 5 dB/REF -20 dB 1:-21.619 dB 1 900.000 000 MHz

CA

Avg  
 16

H1d



## DASY5 Validation Report for Body TSL

Date: 14.05.2018

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d026**

Communication System: UID 0 - CW; Frequency: 1900 MHz

Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.46$  S/m;  $\epsilon_r = 55.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(8.15, 8.15, 8.15) @ 1900 MHz; Calibrated: 30.12.2017
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 26.10.2017
- Phantom: Flat Phantom 5.0 (back); Type: QD 000 P50 AA; Serial: 1002
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

### **Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:**

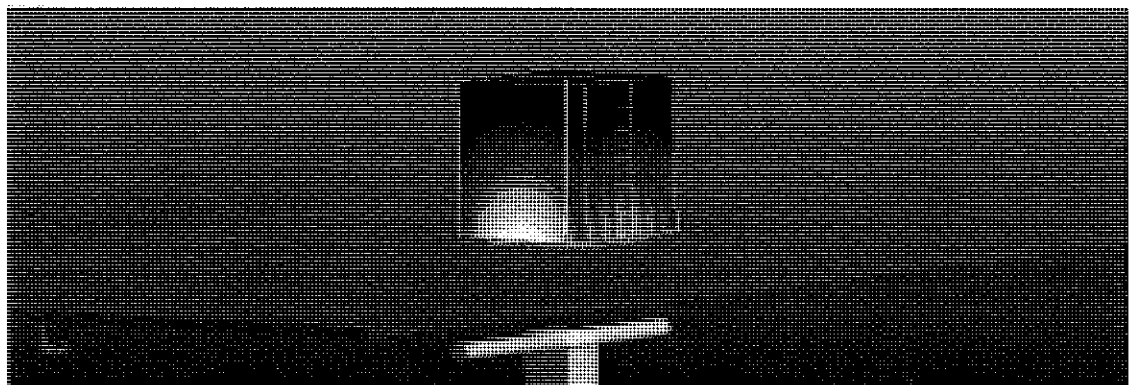
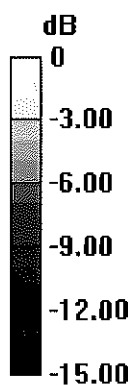
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 104.5 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 16.7 W/kg

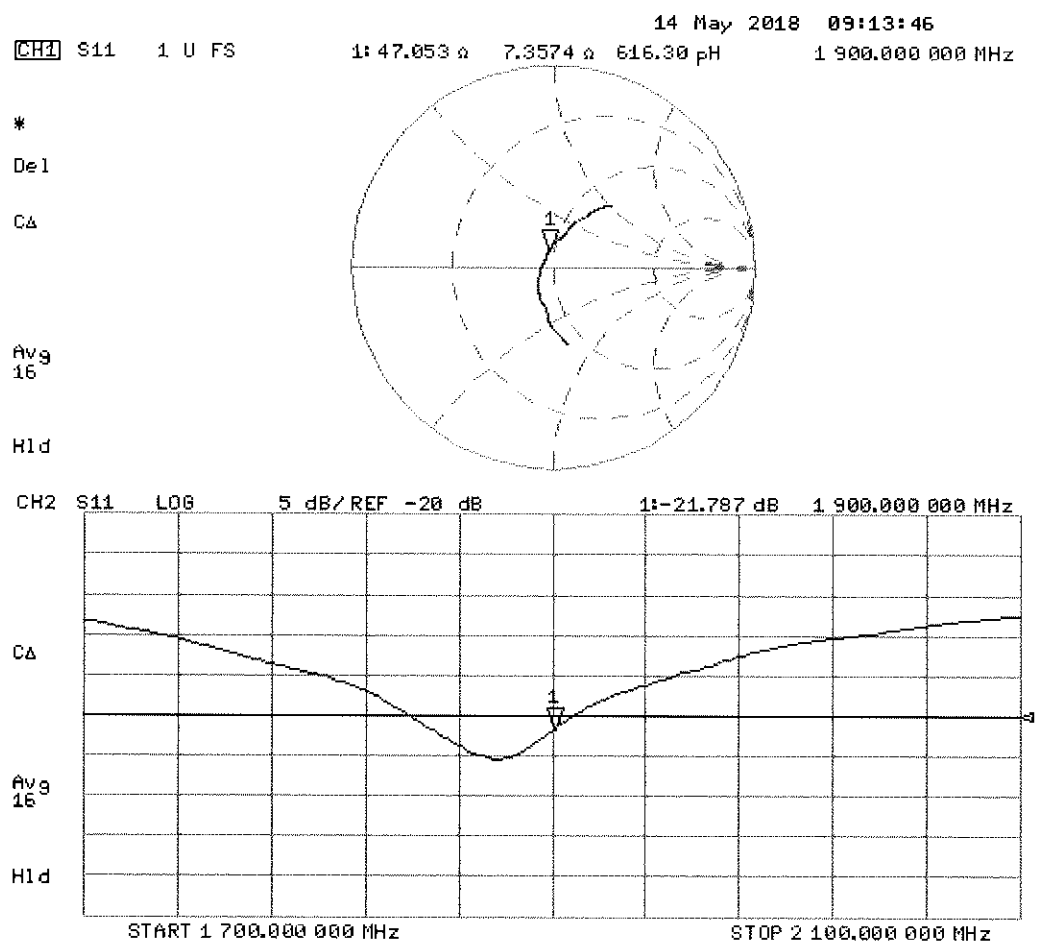
**SAR(1 g) = 9.65 W/kg; SAR(10 g) = 5.19 W/kg**

Maximum value of SAR (measured) = 14.4 W/kg



0 dB = 14.4 W/kg = 11.58 dBW/kg

# Impedance Measurement Plot for Body TSL



# Certification of Calibration

Object D1900V2 – SN: 5d026

Calibration procedure(s) Procedure for Calibration Extension for SAR Dipoles.

Extended Calibration date: May 14, 2019

Description: SAR Validation Dipole at 1900 MHz.

## Calibration Equipment used:

| Manufacturer          | Model     | Description                                             | Cal Date   | Cal Interval | Cal Due    | Serial Number |
|-----------------------|-----------|---------------------------------------------------------|------------|--------------|------------|---------------|
| Agilent               | 8753ES    | S-Parameter Network Analyzer                            | 10/2/2018  | Annual       | 10/2/2019  | US39170118    |
| Agilent               | N5182A    | MXG Vector Signal Generator                             | 6/15/2018  | Annual       | 6/15/2019  | MY47420837    |
| Amplifier Research    | 15S1G6    | Amplifier                                               | CBT        | N/A          | CBT        | 343972        |
| Anritsu               | ML2495A   | Power Meter                                             | 10/21/2018 | Annual       | 10/21/2019 | 941001        |
| Anritsu               | MA2411B   | Pulse Power Sensor                                      | 10/30/2018 | Annual       | 10/30/2019 | 1207470       |
| Anritsu               | MA2411B   | Pulse Power Sensor                                      | 11/20/2018 | Annual       | 11/20/2019 | 1339007       |
| Control Company       | 4040      | Temperature / Humidity Monitor                          | 2/28/2018  | Biennial     | 2/28/2020  | 150761911     |
| Control Company       | 4352      | Ultra Long Stem Thermometer                             | 2/28/2018  | Biennial     | 2/28/2020  | 170330160     |
| Keysight              | 772D      | Dual Directional Coupler                                | CBT        | N/A          | CBT        | MY52180215    |
| Keysight Technologies | 85033E    | Standard Mechanical Calibration Kit (DC to 9GHz, 3.5mm) | 6/4/2018   | Annual       | 6/4/2019   | MY53401181    |
| Mini-Circuits         | BW-N20W5+ | DC to 18 GHz Precision Fixed 20 dB Attenuator           | CBT        | N/A          | CBT        | N/A           |
| Mini-Circuits         | NLP-2950+ | Low Pass Filter DC to 2700 MHz                          | CBT        | N/A          | CBT        | N/A           |
| Narda                 | 4772-3    | Attenuator (3dB)                                        | CBT        | N/A          | CBT        | 9406          |
| Pasternack            | PE2209-10 | Bidirectional Coupler                                   | CBT        | N/A          | CBT        | N/A           |
| Pasternack            | PE5011-1  | Torque Wrench                                           | 7/19/2017  | Biennial     | 7/19/2019  | N/A           |
| SPEAG                 | DAKS-3.5  | Portable DAK                                            | 9/11/2018  | Annual       | 9/11/2019  | 1045          |
| SPEAG                 | EX3DV4    | SAR Probe                                               | 7/20/2018  | Annual       | 7/20/2019  | 7416          |
| SPEAG                 | DAE4      | Dasy Data Acquisition Electronics                       | 7/10/2018  | Annual       | 7/10/2019  | 1402          |

Measurement Uncertainty =  $\pm 23\%$  (k=2)

|                | Name            | Function                 | Signature           |
|----------------|-----------------|--------------------------|---------------------|
| Calibrated By: | Parker Jones    | Team Lead Engineer       | <i>Parker Jones</i> |
| Approved By:   | Kaitlin O'Keefe | Senior Technical Manager | <i>KOK</i>          |

# DIPOLE CALIBRATION EXTENSION

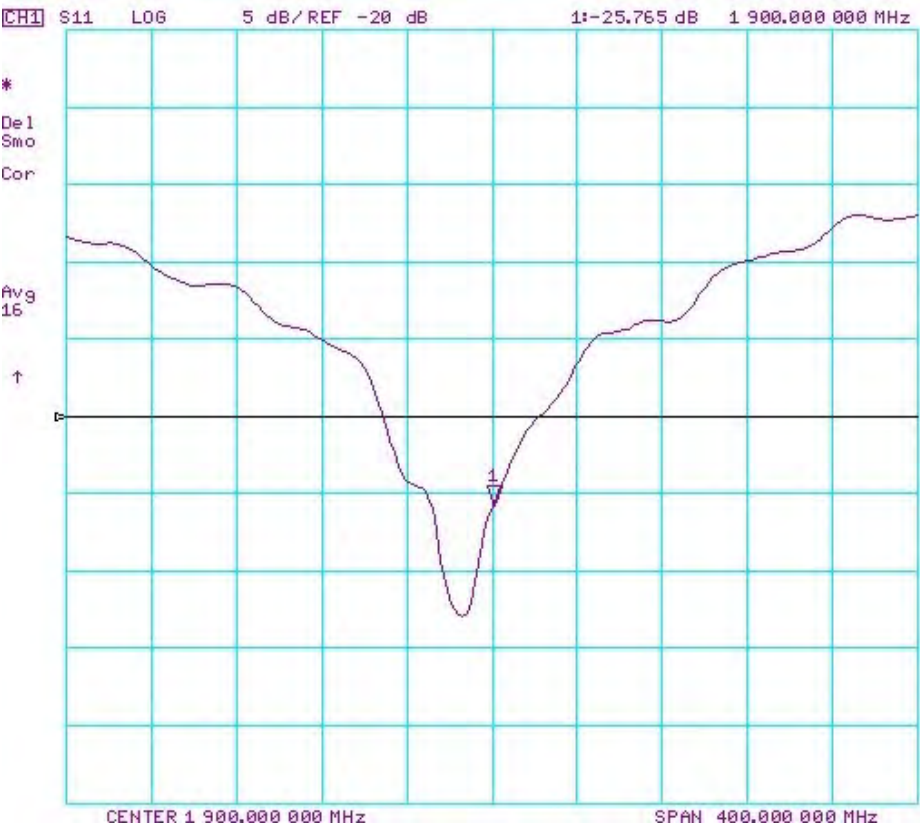
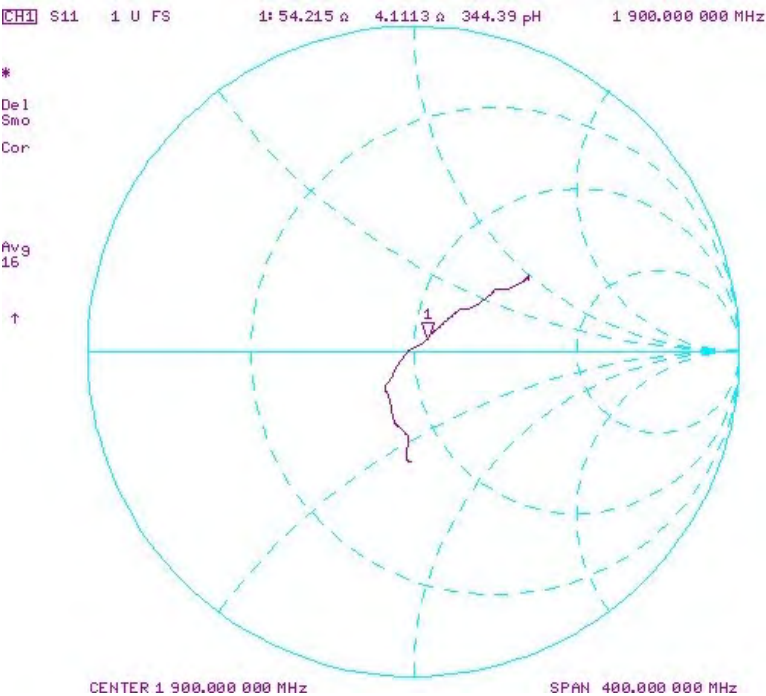
Per KDB 865664 D01, calibration intervals of up to three years may be considered for reference dipoles when it is demonstrated that the SAR target, impedance and return loss of a dipole have remained stable according to the following requirements:

1. The measured SAR does not deviate more than 10% from the target on the calibration certificate.
2. The return-loss does not deviate more than 20% from the previous measurement and meets the required 20dB minimum return-loss requirement.
3. The measurement of real or imaginary parts of impedance does not deviate more than 5Ω from the previous measurement.

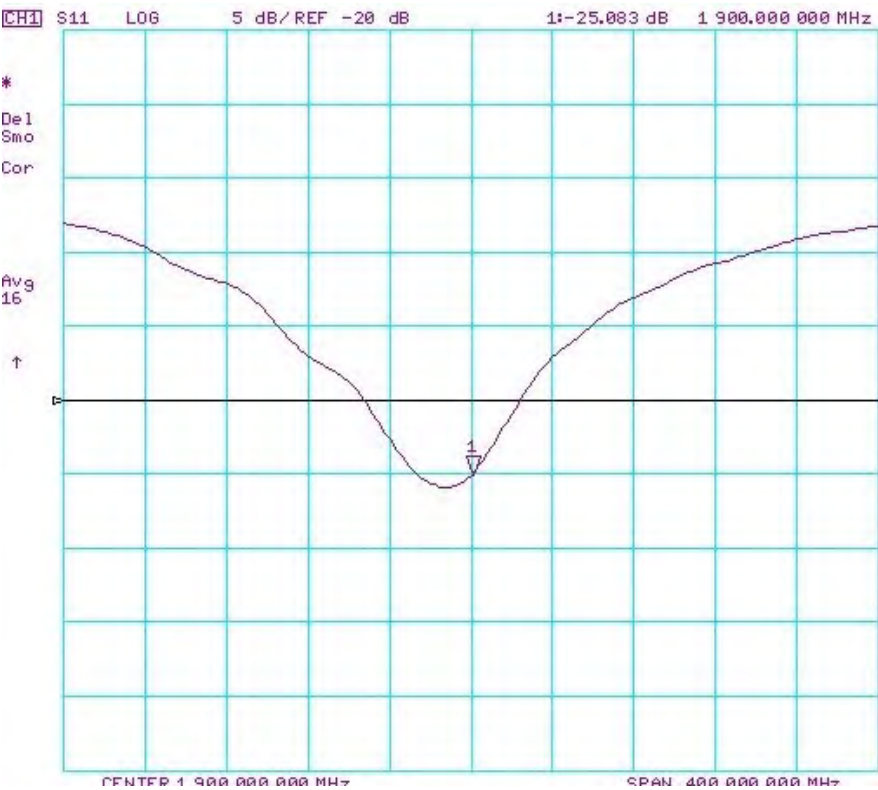
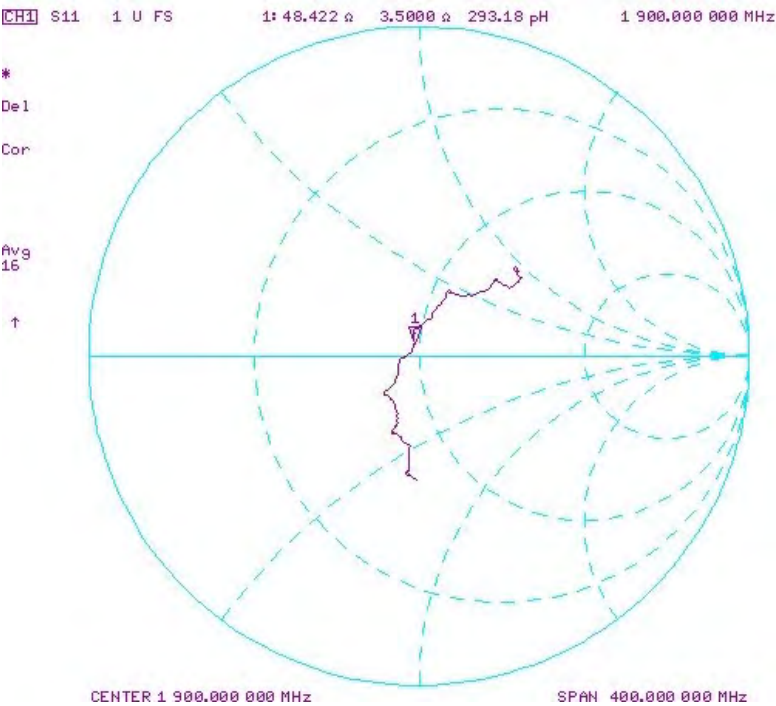
The following dipole was checked to pass the above 3 requirements to have 2-year calibration period from the calibration date:

| Calibration Date | Extension Date | Certificate Electrical Delay (ns) | Certificate SAR Target Head (1g) W/kg @ 20.0 dBm | Measured Head SAR (1g) W/kg @ 20.0 dBm | Deviation 1g (%) | Certificate SAR Target Head (10g) W/kg @ 20.0 dBm | Measured Head SAR (10g) W/kg @ 20.0 dBm | Deviation 10g (%) | Certificate Impedance Head (Ohm) Real | Measured Impedance Head (Ohm) Real | Difference (Ohm) Real | Certificate Impedance Head (Ohm) Imaginary | Measured Impedance Head (Ohm) Imaginary | Difference (Ohm) Imaginary | Certificate Return Loss Head (dB) | Measured Return Loss Head (dB) | Deviation (%) | PASS/FAIL |
|------------------|----------------|-----------------------------------|--------------------------------------------------|----------------------------------------|------------------|---------------------------------------------------|-----------------------------------------|-------------------|---------------------------------------|------------------------------------|-----------------------|--------------------------------------------|-----------------------------------------|----------------------------|-----------------------------------|--------------------------------|---------------|-----------|
| 5/14/2018        | 5/14/2019      | 1.199                             | 4.02                                             | 3.98                                   | -1.00%           | 2.11                                              | 2.05                                    | -2.84%            | 53                                    | 54.2                               | 1.2                   | 8                                          | 4.1                                     | 3.9                        | -21.6                             | -25.8                          | -19.30%       | PASS      |
| Calibration Date | Extension Date | Certificate Electrical Delay (ns) | Certificate SAR Target Body (1g) W/kg @ 20.0 dBm | Measured Body SAR (1g) W/kg @ 20.0 dBm | Deviation 1g (%) | Certificate SAR Target Body (10g) W/kg @ 20.0 dBm | Measured Body SAR (10g) W/kg @ 20.0 dBm | Deviation 10g (%) | Certificate Impedance Body (Ohm) Real | Measured Impedance Body (Ohm) Real | Difference (Ohm) Real | Certificate Impedance Body (Ohm) Imaginary | Measured Impedance Body (Ohm) Imaginary | Difference (Ohm) Imaginary | Certificate Return Loss Body (dB) | Measured Return Loss Body (dB) | Deviation (%) | PASS/FAIL |
| 5/14/2018        | 5/14/2019      | 1.199                             | 3.99                                             | 3.97                                   | -0.50%           | 2.12                                              | 2.04                                    | -3.77%            | 47.1                                  | 46.4                               | -1.3                  | 7.4                                        | 3.5                                     | 3.9                        | -21.8                             | -25.1                          | -15.10%       | PASS      |

Impedance & Return-Loss Measurement Plot for Head TSL



Impedance & Return-Loss Measurement Plot for Body TSL



**Calibration Laboratory of  
Schmid & Partner  
Engineering AG**  
Zeughausstrasse 43, 8004 Zurich, Switzerland



**S** Schweizerischer Kalibrierdienst  
**C** Service suisse d'étalonnage  
**S** Servizio svizzero di taratura  
**S** Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)  
The Swiss Accreditation Service is one of the signatories to the EA  
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Client **PC Test**

Certificate No: **D1900V2-5d181\_Sep17**

## CALIBRATION CERTIFICATE

Object **D1900V2 - SN:5d181**

Calibration procedure(s) **QA CAL-05.v9  
Calibration procedure for dipole validation kits above 700 MHz**

Calibration date: **September 07, 2017**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).  
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature  $(22 \pm 3)^{\circ}\text{C}$  and humidity  $< 70\%$ .

Calibration Equipment used (M&TE critical for calibration)

| Primary Standards           | ID #               | Cal Date (Certificate No.)        | Scheduled Calibration  |
|-----------------------------|--------------------|-----------------------------------|------------------------|
| Power meter NRP             | SN: 104778         | 04-Apr-17 (No. 217-02521/02522)   | Apr-18                 |
| Power sensor NRP-Z91        | SN: 103244         | 04-Apr-17 (No. 217-02521)         | Apr-18                 |
| Power sensor NRP-Z91        | SN: 103245         | 04-Apr-17 (No. 217-02522)         | Apr-18                 |
| Reference 20 dB Attenuator  | SN: 5058 (20k)     | 07-Apr-17 (No. 217-02526)         | Apr-18                 |
| Type-N mismatch combination | SN: 5047.2 / 06327 | 07-Apr-17 (No. 217-02529)         | Apr-18                 |
| Reference Probe EX3DV4      | SN: 7349           | 31-May-17 (No. EX3-7349_May17)    | May-18                 |
| DAE4                        | SN: 601            | 28-Mar-17 (No. DAE4-601_Mar17)    | Mar-18                 |
| Secondary Standards         | ID #               | Check Date (in house)             | Scheduled Check        |
| Power meter EPM-442A        | SN: GB37480704     | 07-Oct-15 (in house check Oct-16) | In house check: Oct-18 |
| Power sensor HP 8481A       | SN: US37292783     | 07-Oct-15 (in house check Oct-16) | In house check: Oct-18 |
| Power sensor HP 8481A       | SN: MY41092317     | 07-Oct-15 (in house check Oct-16) | In house check: Oct-18 |
| RF generator R&S SMT-06     | SN: 100972         | 15-Jun-15 (in house check Oct-16) | In house check: Oct-18 |
| Network Analyzer HP 8753E   | SN: US37390585     | 18-Oct-01 (in house check Oct-16) | In house check: Oct-17 |

Calibrated by: **Jeton Kastrali** Function: **Laboratory Technician**

Approved by: **Katja Pokovic** Technical Manager

Signature

Issued: September 7, 2017

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.



Accredited by the Swiss Accreditation Service (SAS)  
The Swiss Accreditation Service is one of the signatories to the EA  
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

**Glossary:**

|       |                                 |
|-------|---------------------------------|
| TSL   | tissue simulating liquid        |
| ConvF | sensitivity in TSL / NORM x,y,z |
| N/A   | not applicable or not measured  |

**Calibration is Performed According to the Following Standards:**

- a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- b) IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
- c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
- d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

**Additional Documentation:**

- e) DASY4/5 System Handbook

**Methods Applied and Interpretation of Parameters:**

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor  $k=2$ , which for a normal distribution corresponds to a coverage probability of approximately 95%.

## Measurement Conditions

DASY system configuration, as far as not given on page 1.

|                                     |                        |             |
|-------------------------------------|------------------------|-------------|
| <b>DASY Version</b>                 | DASY5                  | V52.10.0    |
| <b>Extrapolation</b>                | Advanced Extrapolation |             |
| <b>Phantom</b>                      | Modular Flat Phantom   |             |
| <b>Distance Dipole Center - TSL</b> | 10 mm                  | with Spacer |
| <b>Zoom Scan Resolution</b>         | dx, dy, dz = 5 mm      |             |
| <b>Frequency</b>                    | 1900 MHz $\pm$ 1 MHz   |             |

## Head TSL parameters

The following parameters and calculations were applied.

|                                                | Temperature         | Permittivity   | Conductivity         |
|------------------------------------------------|---------------------|----------------|----------------------|
| <b>Nominal Head TSL parameters</b>             | 22.0 °C             | 40.0           | 1.40 mho/m           |
| <b>Measured Head TSL parameters</b>            | (22.0 $\pm$ 0.2) °C | 39.0 $\pm$ 6 % | 1.38 mho/m $\pm$ 6 % |
| <b>Head TSL temperature change during test</b> | < 0.5 °C            | ----           | ----                 |

## SAR result with Head TSL

|                                                             |                    |                                                |
|-------------------------------------------------------------|--------------------|------------------------------------------------|
| <b>SAR averaged over 1 cm<sup>3</sup> (1 g) of Head TSL</b> | Condition          |                                                |
| SAR measured                                                | 250 mW input power | 9.85 W/kg                                      |
| SAR for nominal Head TSL parameters                         | normalized to 1W   | <b>39.5 W/kg <math>\pm</math> 17.0 % (k=2)</b> |

|                                                               |                    |                                                |
|---------------------------------------------------------------|--------------------|------------------------------------------------|
| <b>SAR averaged over 10 cm<sup>3</sup> (10 g) of Head TSL</b> | condition          |                                                |
| SAR measured                                                  | 250 mW input power | 5.15 W/kg                                      |
| SAR for nominal Head TSL parameters                           | normalized to 1W   | <b>20.6 W/kg <math>\pm</math> 16.5 % (k=2)</b> |

## Body TSL parameters

The following parameters and calculations were applied.

|                                                | Temperature         | Permittivity   | Conductivity         |
|------------------------------------------------|---------------------|----------------|----------------------|
| <b>Nominal Body TSL parameters</b>             | 22.0 °C             | 53.3           | 1.52 mho/m           |
| <b>Measured Body TSL parameters</b>            | (22.0 $\pm$ 0.2) °C | 54.3 $\pm$ 6 % | 1.47 mho/m $\pm$ 6 % |
| <b>Body TSL temperature change during test</b> | < 0.5 °C            | ----           | ----                 |

## SAR result with Body TSL

|                                                             |                    |                                                |
|-------------------------------------------------------------|--------------------|------------------------------------------------|
| <b>SAR averaged over 1 cm<sup>3</sup> (1 g) of Body TSL</b> | Condition          |                                                |
| SAR measured                                                | 250 mW input power | 9.65 W/kg                                      |
| SAR for nominal Body TSL parameters                         | normalized to 1W   | <b>39.5 W/kg <math>\pm</math> 17.0 % (k=2)</b> |

|                                                               |                    |                                                |
|---------------------------------------------------------------|--------------------|------------------------------------------------|
| <b>SAR averaged over 10 cm<sup>3</sup> (10 g) of Body TSL</b> | condition          |                                                |
| SAR measured                                                  | 250 mW input power | 5.14 W/kg                                      |
| SAR for nominal Body TSL parameters                           | normalized to 1W   | <b>20.9 W/kg <math>\pm</math> 16.5 % (k=2)</b> |

## Appendix (Additional assessments outside the scope of SCS 0108)

### Antenna Parameters with Head TSL

|                                      |                             |
|--------------------------------------|-----------------------------|
| Impedance, transformed to feed point | $53.7 \Omega + 4.6 j\Omega$ |
| Return Loss                          | - 24.9 dB                   |

### Antenna Parameters with Body TSL

|                                      |                             |
|--------------------------------------|-----------------------------|
| Impedance, transformed to feed point | $49.2 \Omega + 5.6 j\Omega$ |
| Return Loss                          | - 24.8 dB                   |

### General Antenna Parameters and Design

|                                  |          |
|----------------------------------|----------|
| Electrical Delay (one direction) | 1.200 ns |
|----------------------------------|----------|

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

### Additional EUT Data

|                 |                 |
|-----------------|-----------------|
| Manufactured by | SPEAG           |
| Manufactured on | August 23, 2013 |

## DASY5 Validation Report for Head TSL

Date: 07.09.2017

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d181**

Communication System: UID 0 - CW; Frequency: 1900 MHz

Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.38$  S/m;  $\epsilon_r = 39$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(8.43, 8.43, 8.43); Calibrated: 31.05.2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 28.03.2017
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

### Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 106.8 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 18.5 W/kg

**SAR(1 g) = 9.85 W/kg; SAR(10 g) = 5.15 W/kg**

Maximum value of SAR (measured) = 14.8 W/kg

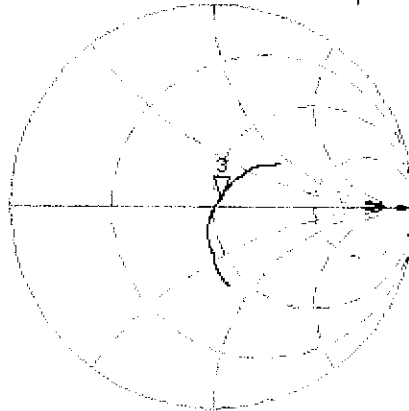


0 dB = 14.8 W/kg = 11.70 dBW/kg

# Impedance Measurement Plot for Head TSL

7 Sep 2017 09:10:32  
 CH1 S11 1 U FS 3: 53.668  $\Omega$  4.5957  $\Omega$  384.96  $\mu\text{H}$  1 900.000 000 MHz

\*  
 Del  
 CA



Avg  
 16

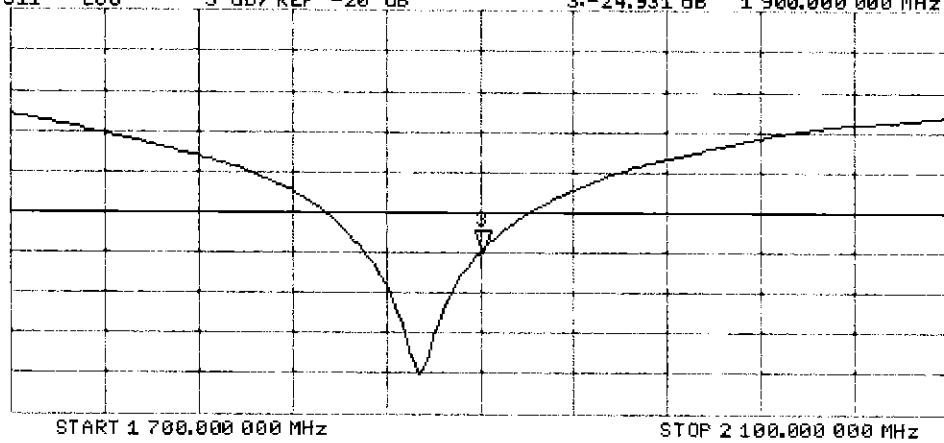
H1d

CH2 S11 LOG 5 dB/REF -20 dB 3:-24.931 dB 1 900.000 000 MHz

CA

Avg  
 16

H1d



## DASY5 Validation Report for Body TSL

Date: 07.09.2017

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d181**

Communication System: UID 0 - CW; Frequency: 1900 MHz

Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.47$  S/m;  $\epsilon_r = 54.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(8.2, 8.2, 8.2); Calibrated: 31.05.2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 28.03.2017
- Phantom: Flat Phantom 5.0 (back); Type: QD 000 P50 AA; Serial: 1002
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

### Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

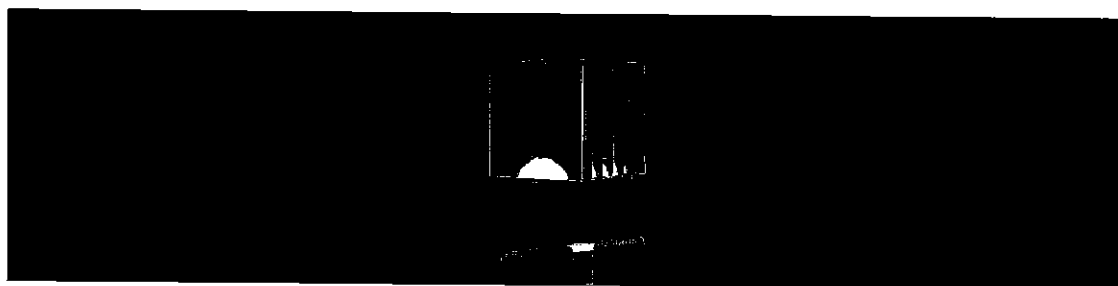
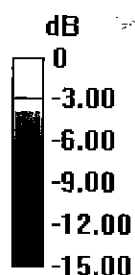
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 101.4 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 17.0 W/kg

**SAR(1 g) = 9.65 W/kg; SAR(10 g) = 5.14 W/kg**

Maximum value of SAR (measured) = 13.8 W/kg

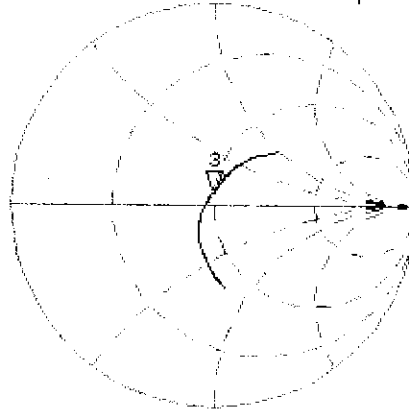


0 dB = 13.8 W/kg = 11.40 dBW/kg

# Impedance Measurement Plot for Body TSL

7 Sep 2017 09:09:41  
CH1 S11 1 U FS 3: 49.201  $\Omega$  5.6484  $\Omega$  473.15 pF 1 900.000 000 MHz

\*  
De1  
CA

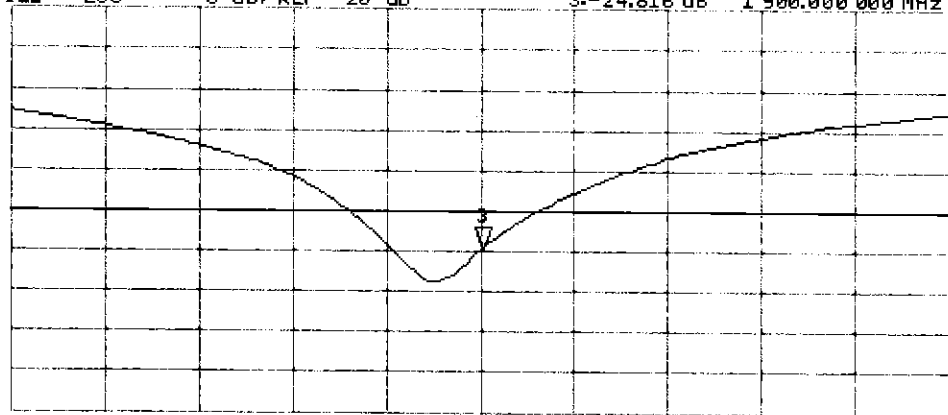


Avg  
16  
H1d

CH2 S11 LOG 5 dB/REF -20 dB 3: -24.816 dB 1 900.000 000 MHz

CA

Avg  
16  
H1d



START 1 700.000 000 MHz

STOP 2 100.000 000 MHz

# Certification of Calibration

Object D1900V2 – SN: 5d181

Calibration procedure(s) Procedure for Calibration Extension for SAR Dipoles.

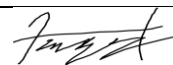
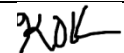
Extended Calibration date: September 07, 2018

Description: SAR Validation Dipole at 1900 MHz.

## Calibration Equipment used:

| Manufacturer          | Model     | Description                                             | Cal Date   | Cal Interval | Cal Due    | Serial Number |
|-----------------------|-----------|---------------------------------------------------------|------------|--------------|------------|---------------|
| Agilent               | 8753ES    | S-Parameter Network Analyzer                            | 9/14/2017  | Annual       | 9/14/2018  | US39170118    |
| Agilent               | N5182A    | MXG Vector Signal Generator                             | 3/19/2018  | Annual       | 3/19/2019  | US46240505    |
| Amplifier Research    | 15S1G6    | Amplifier                                               | CBT        | N/A          | CBT        | 343972        |
| Anritsu               | ML2496A   | Power Meter                                             | 10/9/2017  | Annual       | 10/9/2018  | 1138001       |
| Anritsu               | MA2411B   | Pulse Power Sensor                                      | 11/15/2017 | Annual       | 11/15/2018 | 1339007       |
| Anritsu               | MA2411B   | Pulse Power Sensor                                      | 11/22/2017 | Annual       | 11/22/2018 | 1339008       |
| Control Company       | 4040      | Temperature / Humidity Monitor                          | 2/28/2018  | Biennial     | 2/28/2020  | 150761911     |
| Control Company       | 4352      | Ultra Long Stem Thermometer                             | 2/14/2017  | Biennial     | 2/14/2019  | 170112507     |
| Keysight              | 772D      | Dual Directional Coupler                                | CBT        | N/A          | CBT        | MY52180215    |
| Keysight Technologies | 85033E    | Standard Mechanical Calibration Kit (DC to 9GHz, 3.5mm) | 6/4/2018   | Annual       | 6/4/2019   | MY53401181    |
| Mini-Circuits         | BW-N20W5+ | DC to 18 GHz Precision Fixed 20 dB Attenuator           | CBT        | N/A          | CBT        | N/A           |
| Mini-Circuits         | NLP-2950+ | Low Pass Filter DC to 2700 MHz                          | CBT        | N/A          | CBT        | N/A           |
| Narda                 | 4772-3    | Attenuator (3dB)                                        | CBT        | N/A          | CBT        | 9406          |
| Pasternack            | PE2209-10 | Bidirectional Coupler                                   | CBT        | N/A          | CBT        | N/A           |
| Pasternack            | PE5011-1  | Torque Wrench                                           | 7/19/2017  | Biennial     | 7/19/2019  | N/A           |
| SPEAG                 | DAK-3.5   | Dielectric Assessment Kit                               | 5/15/2018  | Annual       | 5/15/2019  | 1070          |
| SPEAG                 | ES3DV3    | SAR Probe                                               | 9/18/2017  | Annual       | 9/18/2018  | 3287          |
| SPEAG                 | DAE4      | Data Acquisition Electronics                            | 1/26/2018  | Annual       | 1/26/2019  | 1533          |
| SPEAG                 | ES3DV3    | SAR Probe                                               | 3/13/2018  | Annual       | 3/13/2019  | 3131          |
| SPEAG                 | DAE4      | Dasy Data Acquisition Electronics                       | 3/7/2018   | Annual       | 3/7/2019   | 604           |

Measurement Uncertainty =  $\pm 23\%$  (k=2)

|                | Name            | Function                 | Signature                                                                             |
|----------------|-----------------|--------------------------|---------------------------------------------------------------------------------------|
| Calibrated By: | Sangmin Cha     | Team Lead Engineer       |  |
| Approved By:   | Kaitlin O'Keefe | Senior Technical Manager |  |

# DIPOLE CALIBRATION EXTENSION

Per KDB 865664 D01, calibration intervals of up to three years may be considered for reference dipoles when it is demonstrated that the SAR target, impedance and return loss of a dipole have remained stable according to the following requirements:

1. The measured SAR does not deviate more than 10% from the target on the calibration certificate.
2. The return-loss does not deviate more than 20% from the previous measurement and meets the required 20dB minimum return-loss requirement.
3. The measurement of real or imaginary parts of impedance does not deviate more than 5Ω from the previous measurement.

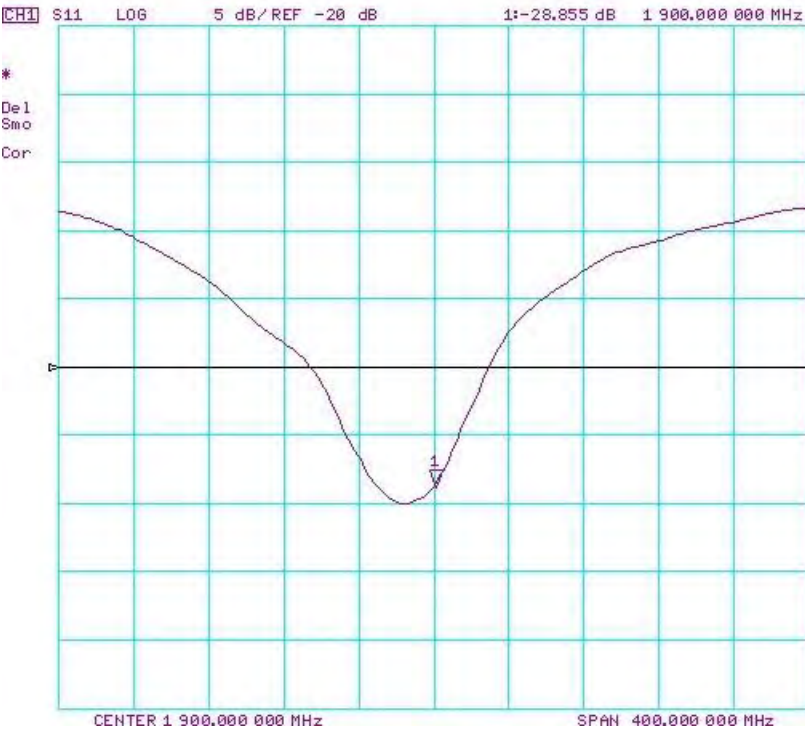
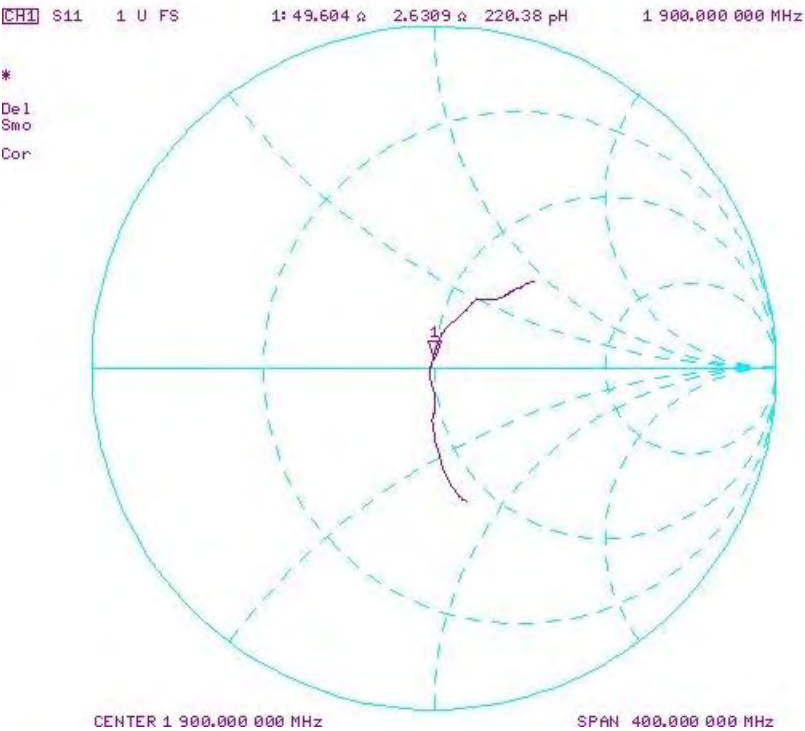
The following dipole was checked to pass the above 3 requirements to have 2-year calibration period from the calibration date:

| Calibration Date | Extension Date | Certificate Electrical Delay (ns) | Certificate SAR Target Head (1g) W/kg @ 20.0 dBm | Measured Head SAR (1g) W/kg @ 20.0 dBm | Deviation 1g (%) | Certificate SAR Target Head (10g) W/kg @ 20.0 dBm | Measured Head SAR (10g) W/kg @ 20.0 dBm | Deviation 10g (%) | Certificate Impedance Head (Ohm) Real | Measured Impedance Head (Ohm) Real | Difference (Ohm) Real | Certificate Impedance Head (Ohm) Imaginary | Measured Impedance Head (Ohm) Imaginary | Difference (Ohm) Imaginary | Certificate Return Loss Head (dB) | Measured Return Loss Head (dB) | Deviation (%) | PASS/FAIL |
|------------------|----------------|-----------------------------------|--------------------------------------------------|----------------------------------------|------------------|---------------------------------------------------|-----------------------------------------|-------------------|---------------------------------------|------------------------------------|-----------------------|--------------------------------------------|-----------------------------------------|----------------------------|-----------------------------------|--------------------------------|---------------|-----------|
| 9/7/2017         | 9/7/2018       | 1.2                               | 3.95                                             | 3.99                                   | 1.01%            | 2.06                                              | 2.07                                    | 0.49%             | 53.7                                  | 49.6                               | 4.1                   | 4.6                                        | 2.6                                     | 2                          | -24.9                             | -28.9                          | -16.10%       | PASS      |

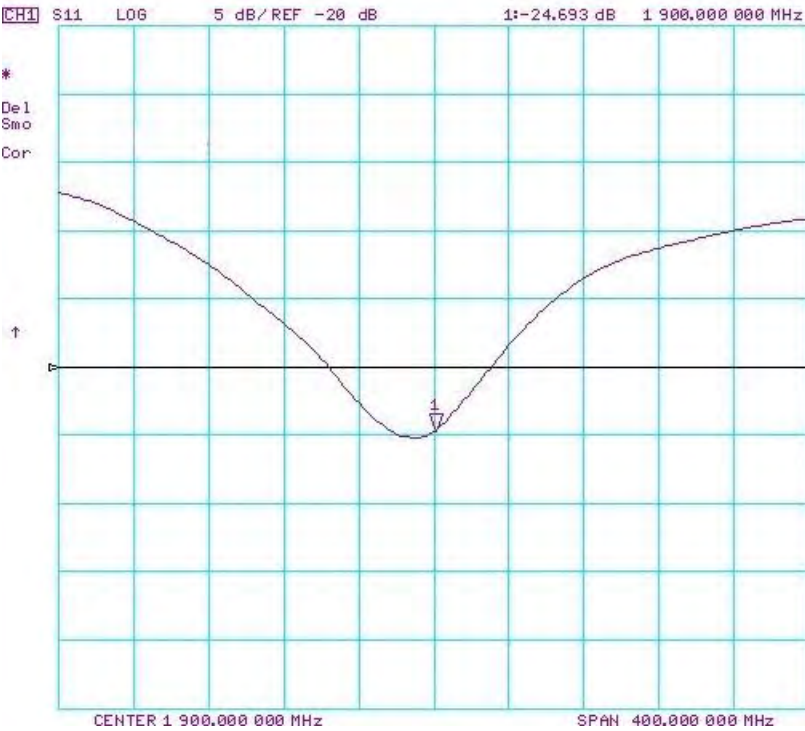
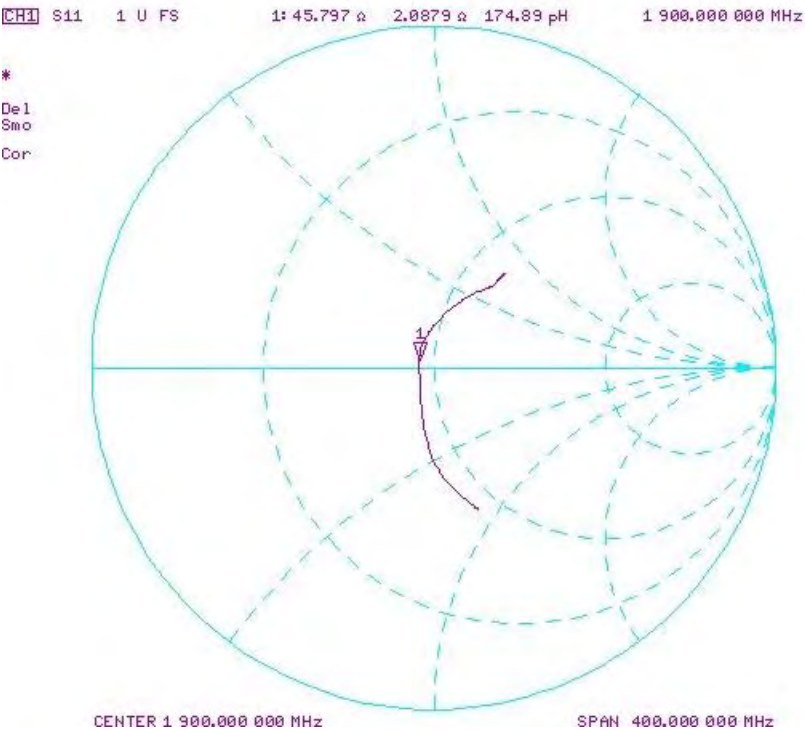
  

| Calibration Date | Extension Date | Certificate Electrical Delay (ns) | Certificate SAR Target Body (1g) W/kg @ 20.0 dBm | Measured Body SAR (1g) W/kg @ 20.0 dBm | Deviation 1g (%) | Certificate SAR Target Body (10g) W/kg @ 20.0 dBm | Measured Body SAR (10g) W/kg @ 20.0 dBm | Deviation 10g (%) | Certificate Impedance Body (Ohm) Real | Measured Impedance Body (Ohm) Real | Difference (Ohm) Real | Certificate Impedance Body (Ohm) Imaginary | Measured Impedance Body (Ohm) Imaginary | Difference (Ohm) Imaginary | Certificate Return Loss Body (dB) | Measured Return Loss Body (dB) | Deviation (%) | PASS/FAIL |
|------------------|----------------|-----------------------------------|--------------------------------------------------|----------------------------------------|------------------|---------------------------------------------------|-----------------------------------------|-------------------|---------------------------------------|------------------------------------|-----------------------|--------------------------------------------|-----------------------------------------|----------------------------|-----------------------------------|--------------------------------|---------------|-----------|
| 9/7/2017         | 9/7/2018       | 1.2                               | 3.95                                             | 4.13                                   | 4.56%            | 2.09                                              | 2.14                                    | 2.39%             | 49.2                                  | 45.8                               | 3.4                   | 5.6                                        | 2.1                                     | 3.5                        | -24.8                             | -24.7                          | 0.40%         | PASS      |

Impedance & Return-Loss Measurement Plot for Head TSL



Impedance & Return-Loss Measurement Plot for Body TSL



# Certification of Calibration

Object D1900V2 – SN: 5d181

Calibration procedure(s) Procedure for Calibration Extension for SAR Dipoles.

Extended Calibration date: September 7, 2019

Description: SAR Validation Dipole at 1900 MHz.

## Calibration Equipment used:

| Manufacturer          | Model     | Description                                             | Cal Date   | Cal Interval | Cal Due    | Serial Number |
|-----------------------|-----------|---------------------------------------------------------|------------|--------------|------------|---------------|
| Agilent               | 8753ES    | S-Parameter Network Analyzer                            | 10/2/2018  | Annual       | 10/2/2019  | US39170118    |
| Agilent               | E4438C    | ESG Vector Signal Generator                             | 6/27/2019  | Annual       | 6/27/2020  | MY45093852    |
| Amplifier Research    | 15S1G6    | Amplifier                                               | CBT        | N/A          | CBT        | 343972        |
| Anritsu               | ML2495A   | Power Meter                                             | 10/21/2018 | Annual       | 10/21/2019 | 941001        |
| Anritsu               | MA2411B   | Pulse Power Sensor                                      | 10/30/2018 | Annual       | 10/30/2019 | 1207470       |
| Anritsu               | MA2411B   | Pulse Power Sensor                                      | 11/20/2018 | Annual       | 11/20/2019 | 1339007       |
| Control Company       | 4040      | Temperature / Humidity Monitor                          | 2/28/2018  | Biennial     | 2/28/2020  | 150761911     |
| Control Company       | 4352      | Ultra Long Stem Thermometer                             | 2/28/2018  | Biennial     | 2/28/2020  | 170330160     |
| Keysight Technologies | 85033E    | Standard Mechanical Calibration Kit (DC to 9GHz, 3.5mm) | 7/2/2019   | Annual       | 7/2/2020   | MY53401181    |
| Keysight              | 772D      | Dual Directional Coupler                                | CBT        | N/A          | CBT        | MY52180215    |
| Mini-Circuits         | BW-N20W5+ | DC to 18 GHz Precision Fixed 20 dB Attenuator           | CBT        | N/A          | CBT        | N/A           |
| Mini-Circuits         | NLP-2950+ | Low Pass Filter DC to 2700 MHz                          | CBT        | N/A          | CBT        | N/A           |
| Narda                 | 4772-3    | Attenuator (3dB)                                        | CBT        | N/A          | CBT        | 9406          |
| Pasternack            | PE2208-6  | Bidirectional Coupler                                   | CBT        | N/A          | CBT        | N/A           |
| Pasternack            | NC-100    | Torque Wrench                                           | 11/1/2017  | Biennial     | 11/1/2019  | N/A           |
| SPEAG                 | DAK-3.5   | Dielectric Assessment Kit                               | 5/7/2019   | Annual       | 5/7/2020   | 1070          |
| SPEAG                 | EX3DV4    | SAR Probe                                               | 1/24/2019  | Annual       | 1/24/2020  | 7490          |
| SPEAG                 | DAE4      | Data Acquisition Electronics                            | 1/15/2019  | Annual       | 1/15/2020  | 1532          |

Measurement Uncertainty =  $\pm 23\%$  (k=2)

|                | Name            | Function                 | Signature           |
|----------------|-----------------|--------------------------|---------------------|
| Calibrated By: | Parker Jones    | Team Lead Engineer       | <i>Parker Jones</i> |
| Approved By:   | Kaitlin O'Keefe | Senior Technical Manager | <i>KOK</i>          |

# DIPOLE CALIBRATION EXTENSION

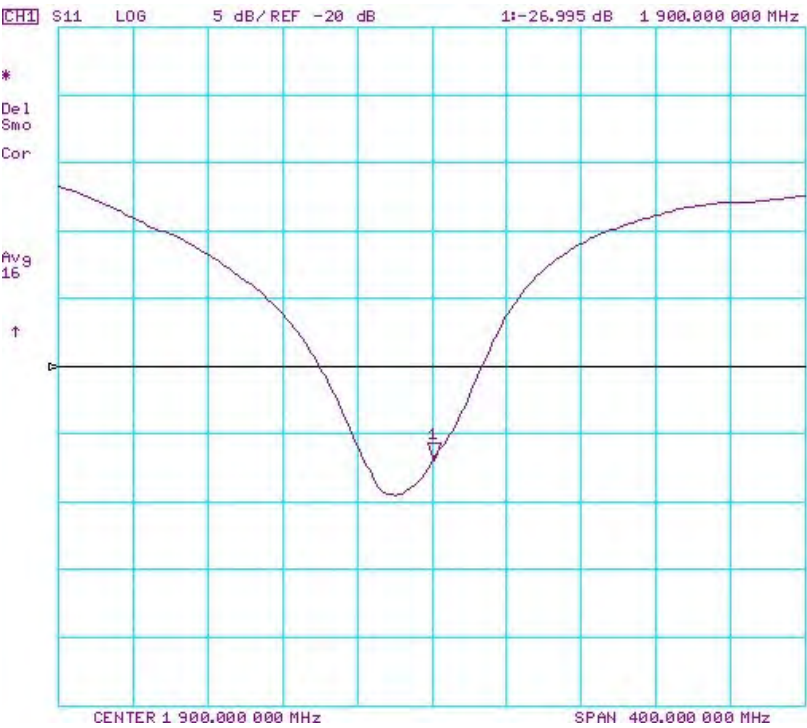
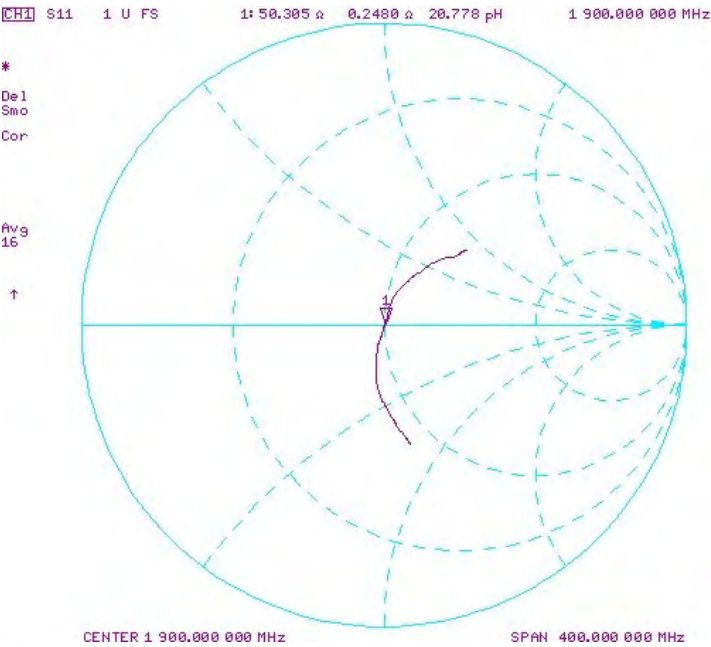
Per KDB 865664 D01, calibration intervals of up to three years may be considered for reference dipoles when it is demonstrated that the SAR target, impedance and return loss of a dipole have remained stable according to the following requirements:

1. The measured SAR does not deviate more than 10% from the target on the calibration certificate.
2. The return-loss does not deviate more than 20% from the previous measurement and meets the required 20dB minimum return-loss requirement.
3. The measurement of real or imaginary parts of impedance does not deviate more than 5Ω from the previous measurement.

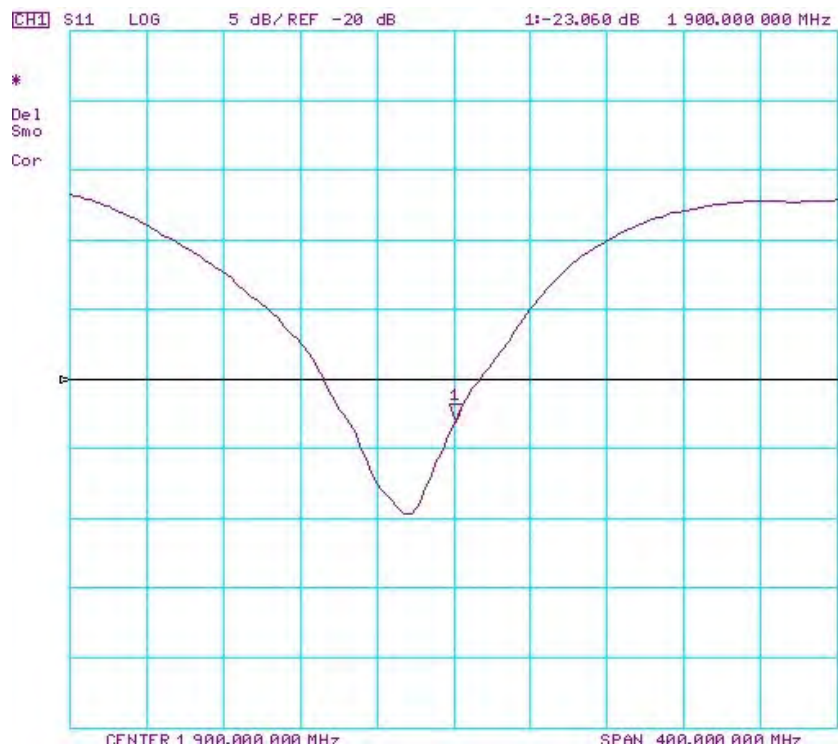
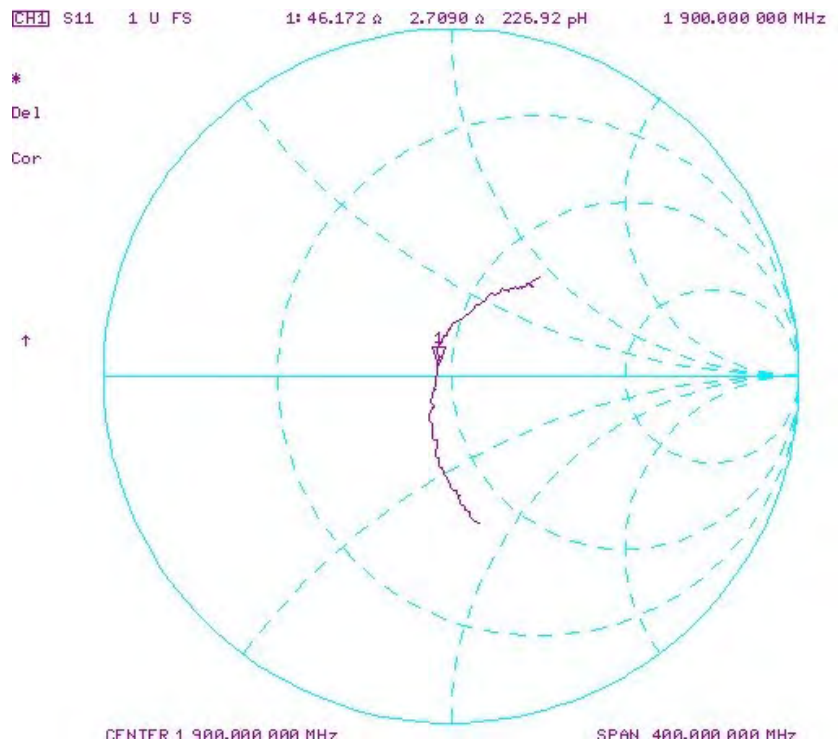
The following dipole was checked to pass the above 3 requirements to have 3-year calibration period from the calibration date:

| Calibration Date | Extension Date | Certificate Electrical Delay (ns) | Certificate SAR Target Head (1g) W/kg @ 20.0 dBm | Measured Head SAR (1g) W/kg @ 20.0 dBm | Deviation 1g (%) | Certificate SAR Target Body (10g) W/kg @ 20.0 dBm | Measured Body SAR (10g) W/kg @ 20.0 dBm | Deviation 10g (%) | Certificate Impedance Head (Ohm) Real | Measured Impedance Head (Ohm) Real | Difference (Ohm) Real | Certificate Impedance Head (Ohm) Imaginary | Measured Impedance Head (Ohm) Imaginary | Difference (Ohm) Imaginary | Certificate Return Loss Head (dB) | Measured Return Loss Head (dB) | Deviation (%) | PASS/FAIL |
|------------------|----------------|-----------------------------------|--------------------------------------------------|----------------------------------------|------------------|---------------------------------------------------|-----------------------------------------|-------------------|---------------------------------------|------------------------------------|-----------------------|--------------------------------------------|-----------------------------------------|----------------------------|-----------------------------------|--------------------------------|---------------|-----------|
| 9/7/2017         | 9/7/2019       | 1.2                               | 3.95                                             | 3.92                                   | -0.76%           | 2.06                                              | 2.04                                    | -0.97%            | 53.7                                  | 50.3                               | -3.4                  | 4.6                                        | 0.2                                     | -4.4                       | -24.9                             | -27                            | -8.40%        | PASS      |
| Calibration Date | Extension Date | Certificate Electrical Delay (ns) | Certificate SAR Target Body (1g) W/kg @ 20.0 dBm | Measured Body SAR (1g) W/kg @ 20.0 dBm | Deviation 1g (%) | Certificate SAR Target Body (10g) W/kg @ 20.0 dBm | Measured Body SAR (10g) W/kg @ 20.0 dBm | Deviation 10g (%) | Certificate Impedance Body (Ohm) Real | Measured Impedance Body (Ohm) Real | Difference (Ohm) Real | Certificate Impedance Body (Ohm) Imaginary | Measured Impedance Body (Ohm) Imaginary | Difference (Ohm) Imaginary | Certificate Return Loss Body (dB) | Measured Return Loss Body (dB) | Deviation (%) | PASS/FAIL |
| 9/7/2017         | 9/7/2019       | 1.2                               | 3.95                                             | 4.05                                   | 2.53%            | 2.09                                              | 2.1                                     | 0.48%             | 49.2                                  | 46.2                               | -3                    | 5.6                                        | 2.7                                     | -2.9                       | -24.8                             | -23.1                          | 6.90%         | PASS      |

Impedance & Return-Loss Measurement Plot for Head TSL



## Impedance & Return-Loss Measurement Plot for Body TSL





Accredited by the Swiss Accreditation Service (SAS)  
 The Swiss Accreditation Service is one of the signatories to the EA  
 Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Client **PC Test**

Certificate No: **D2300V2-1038\_Mar18**

## CALIBRATION CERTIFICATE

Object **D2300V2 - SN:1038**

Calibration procedure(s) **QA CAL-05.v10**  
**Calibration procedure for dipole validation kits above 700 MHz**

Calibration date: **March 07, 2018**

SC ✓  
 3/21/18  
 SC ✓  
 4/25/19

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).  
 The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature ( $22 \pm 3$ )°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

| Primary Standards           | ID #               | Cal Date (Certificate No.)        | Scheduled Calibration  |
|-----------------------------|--------------------|-----------------------------------|------------------------|
| Power meter NRP             | SN: 104778         | 04-Apr-17 (No. 217-02521/02522)   | Apr-18                 |
| Power sensor NRP-Z91        | SN: 103244         | 04-Apr-17 (No. 217-02521)         | Apr-18                 |
| Power sensor NRP-Z91        | SN: 103245         | 04-Apr-17 (No. 217-02522)         | Apr-18                 |
| Reference 20 dB Attenuator  | SN: 5058 (20k)     | 07-Apr-17 (No. 217-02528)         | Apr-18                 |
| Type-N mismatch combination | SN: 5047.2 / 06327 | 07-Apr-17 (No. 217-02529)         | Apr-18                 |
| Reference Probe EX3DV4      | SN: 7349           | 30-Dec-17 (No. EX3-7349_Dec17)    | Dec-18                 |
| DAE4                        | SN: 601            | 26-Oct-17 (No. DAE4-601_Oct17)    | Oct-18                 |
| Secondary Standards         | ID #               | Check Date (in house)             | Scheduled Check        |
| Power meter EPM-442A        | SN: GB37480704     | 07-Oct-15 (in house check Oct-16) | In house check: Oct-18 |
| Power sensor HP 8481A       | SN: US37292783     | 07-Oct-15 (in house check Oct-16) | In house check: Oct-18 |
| Power sensor HP 8481A       | SN: MY41092317     | 07-Oct-15 (in house check Oct-16) | In house check: Oct-18 |
| RF generator R&S SMT-06     | SN: 100972         | 15-Jun-15 (in house check Oct-16) | In house check: Oct-18 |
| Network Analyzer HP 8753E   | SN: US37390585     | 18-Oct-01 (in house check Oct-17) | In house check: Oct-18 |

Calibrated by: **Claudio Leubler** **Laboratory Technician**

Signature

Approved by: **Katja Pokovic** **Technical Manager**

Issued: March 9, 2018

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.



Accredited by the Swiss Accreditation Service (SAS)  
The Swiss Accreditation Service is one of the signatories to the EA  
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

**Glossary:**

|       |                                 |
|-------|---------------------------------|
| TSL   | tissue simulating liquid        |
| ConvF | sensitivity in TSL / NORM x,y,z |
| N/A   | not applicable or not measured  |

**Calibration is Performed According to the Following Standards:**

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
- IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

**Additional Documentation:**

- DASY4/5 System Handbook

**Methods Applied and Interpretation of Parameters:**

- Measurement Conditions:** Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL:** The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss:** These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay:** One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- SAR measured:** SAR measured at the stated antenna input power.
- SAR normalized:** SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters:** The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor  $k=2$ , which for a normal distribution corresponds to a coverage probability of approximately 95%.

## Measurement Conditions

DASY system configuration, as far as not given on page 1.

|                              |                        |             |
|------------------------------|------------------------|-------------|
| DASY Version                 | DASY5                  | V52.10.0    |
| Extrapolation                | Advanced Extrapolation |             |
| Phantom                      | Modular Flat Phantom   |             |
| Distance Dipole Center - TSL | 10 mm                  | with Spacer |
| Zoom Scan Resolution         | dx, dy, dz = 5 mm      |             |
| Frequency                    | 2300 MHz $\pm$ 1 MHz   |             |

## Head TSL parameters

The following parameters and calculations were applied.

|                                         | Temperature         | Permittivity   | Conductivity         |
|-----------------------------------------|---------------------|----------------|----------------------|
| Nominal Head TSL parameters             | 22.0 °C             | 39.5           | 1.67 mho/m           |
| Measured Head TSL parameters            | (22.0 $\pm$ 0.2) °C | 38.6 $\pm$ 6 % | 1.70 mho/m $\pm$ 6 % |
| Head TSL temperature change during test | < 0.5 °C            | ----           | ----                 |

## SAR result with Head TSL

|                                                       |                    |                              |
|-------------------------------------------------------|--------------------|------------------------------|
| SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL | Condition          |                              |
| SAR measured                                          | 250 mW input power | 12.5 W/kg                    |
| SAR for nominal Head TSL parameters                   | normalized to 1W   | 49.3 W/kg $\pm$ 17.0 % (k=2) |

|                                                         |                    |                              |
|---------------------------------------------------------|--------------------|------------------------------|
| SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL | condition          |                              |
| SAR measured                                            | 250 mW input power | 5.94 W/kg                    |
| SAR for nominal Head TSL parameters                     | normalized to 1W   | 23.6 W/kg $\pm$ 16.5 % (k=2) |

## Body TSL parameters

The following parameters and calculations were applied.

|                                         | Temperature         | Permittivity   | Conductivity         |
|-----------------------------------------|---------------------|----------------|----------------------|
| Nominal Body TSL parameters             | 22.0 °C             | 52.9           | 1.81 mho/m           |
| Measured Body TSL parameters            | (22.0 $\pm$ 0.2) °C | 51.6 $\pm$ 6 % | 1.86 mho/m $\pm$ 6 % |
| Body TSL temperature change during test | < 0.5 °C            | ----           | ----                 |

## SAR result with Body TSL

|                                                       |                    |                              |
|-------------------------------------------------------|--------------------|------------------------------|
| SAR averaged over 1 cm <sup>3</sup> (1 g) of Body TSL | Condition          |                              |
| SAR measured                                          | 250 mW input power | 11.9 W/kg                    |
| SAR for nominal Body TSL parameters                   | normalized to 1W   | 46.7 W/kg $\pm$ 17.0 % (k=2) |

|                                                         |                    |                              |
|---------------------------------------------------------|--------------------|------------------------------|
| SAR averaged over 10 cm <sup>3</sup> (10 g) of Body TSL | condition          |                              |
| SAR measured                                            | 250 mW input power | 5.69 W/kg                    |
| SAR for nominal Body TSL parameters                     | normalized to 1W   | 22.5 W/kg $\pm$ 16.5 % (k=2) |

## Appendix (Additional assessments outside the scope of SCS 0108)

### Antenna Parameters with Head TSL

|                                      |                                |
|--------------------------------------|--------------------------------|
| Impedance, transformed to feed point | 47.8 $\Omega$ - 4.9 j $\Omega$ |
| Return Loss                          | - 25.2 dB                      |

### Antenna Parameters with Body TSL

|                                      |                                |
|--------------------------------------|--------------------------------|
| Impedance, transformed to feed point | 45.9 $\Omega$ - 3.4 j $\Omega$ |
| Return Loss                          | - 25.0 dB                      |

### General Antenna Parameters and Design

|                                  |          |
|----------------------------------|----------|
| Electrical Delay (one direction) | 1.170 ns |
|----------------------------------|----------|

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

### Additional EUT Data

|                 |               |
|-----------------|---------------|
| Manufactured by | SPEAG         |
| Manufactured on | July 02, 2013 |

## DASY5 Validation Report for Head TSL

Date: 07.03.2018

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 2300 MHz; Type: D2300V2; Serial: D2300V2 - SN:1038**

Communication System: UID 0 - CW; Frequency: 2300 MHz

Medium parameters used:  $f = 2300$  MHz;  $\sigma = 1.7$  S/m;  $\epsilon_r = 38.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(8.08, 8.08, 8.08); Calibrated: 30.12.2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 26.10.2017
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

### **Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:**

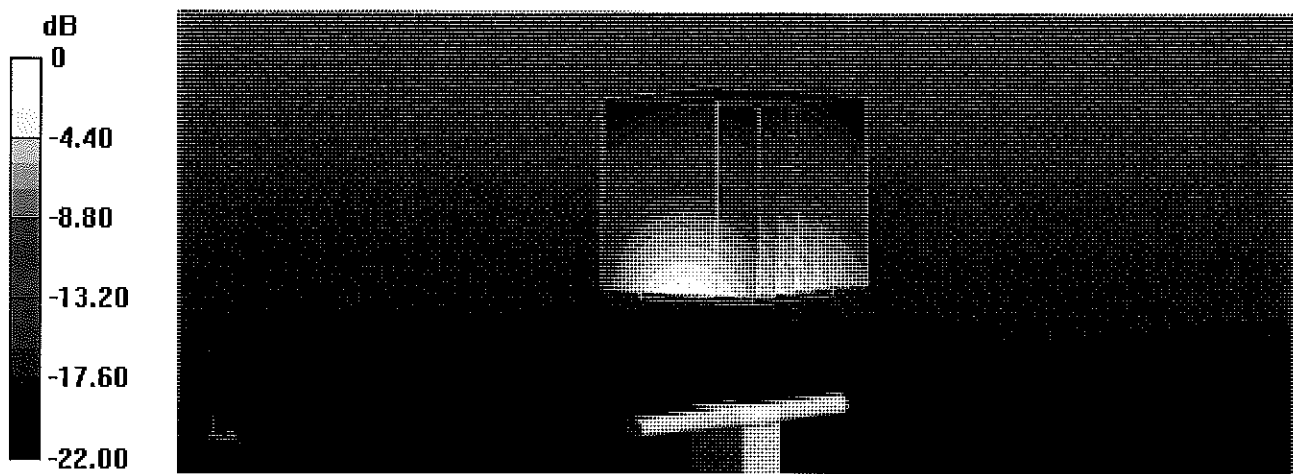
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 112.4 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 24.5 W/kg

**SAR(1 g) = 12.5 W/kg; SAR(10 g) = 5.94 W/kg**

Maximum value of SAR (measured) = 19.6 W/kg

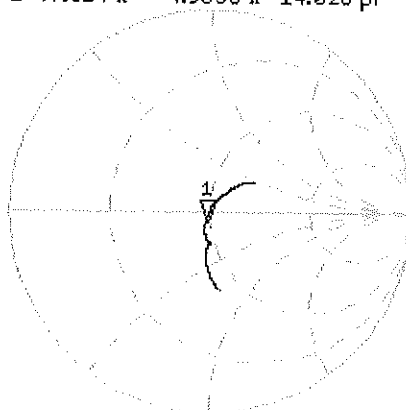


0 dB = 19.6 W/kg = 12.92 dBW/kg

# Impedance Measurement Plot for Head TSL

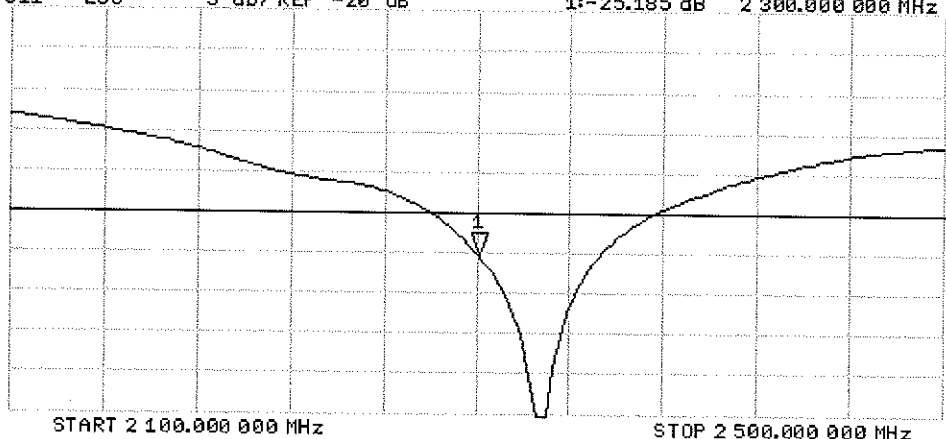
7 Mar 2018 13:16:07  
 CH1 S11 1 U FS 1: 47.824  $\Omega$  -4.9336  $\Omega$  14.026 pF 2 300.000 000 MHz

\*  
 Del  
 Cor  
 Avg  
 16  
 H1d



CH2 S11 LOG 5 dB/REF -20 dB 1:-25.185 dB 2 300.000 000 MHz

Cor  
 Avg  
 16  
 H1d



## DASY5 Validation Report for Body TSL

Date: 07.03.2018

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 2300 MHz; Type: D2300V2; Serial: D2300V2 - SN:1038**

Communication System: UID 0 - CW; Frequency: 2300 MHz

Medium parameters used:  $f = 2300$  MHz;  $\sigma = 1.86$  S/m;  $\epsilon_r = 51.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(8.08, 8.08, 8.08); Calibrated: 30.12.2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 26.10.2017
- Phantom: Flat Phantom 5.0 (back); Type: QD 000 P50 AA; Serial: 1002
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

**Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:**

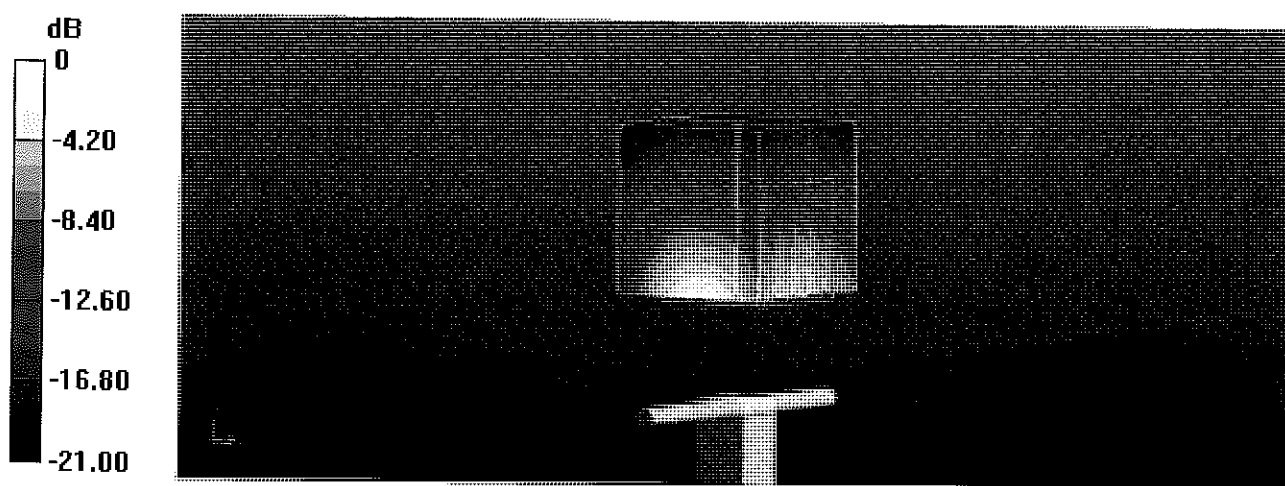
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 104.5 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 23.0 W/kg

**SAR(1 g) = 11.9 W/kg; SAR(10 g) = 5.69 W/kg**

Maximum value of SAR (measured) = 18.2 W/kg

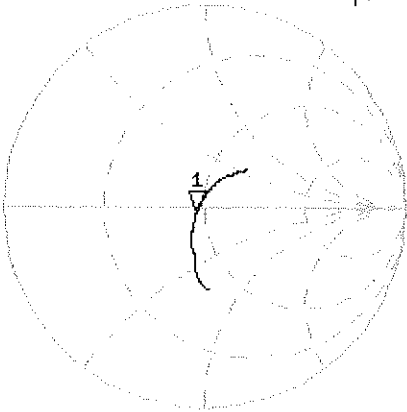


0 dB = 18.2 W/kg = 12.60 dBW/kg

Impedance Measurement Plot for Body TSL

7 Mar 2018 13:11:08  
CH1 S11 1 U FS 1: 45.861  $\Omega$  -3.4160  $\Omega$  20.257 pF 2 300.000 000 MHz

\*  
De1  
Cor

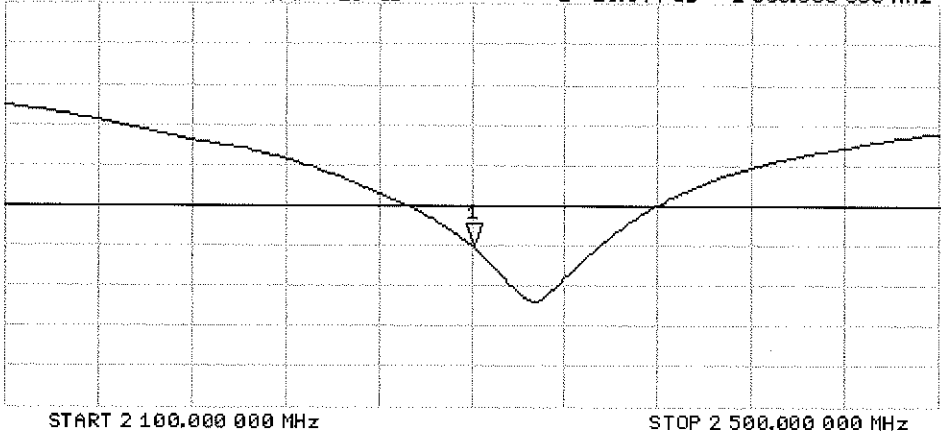


Avg  
16  
H1d

CH2 S11 LOG 5 dB/REF -20 dB 1:-25.044 dB 2 300.000 000 MHz

Cor

Avg  
16  
H1d



# Certification of Calibration

Object D2300V2 – SN: 1038

Calibration procedure(s) Procedure for Calibration Extension for SAR Dipoles.

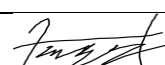
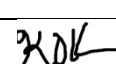
Extended Calibration date: February 25, 2019

Description: SAR Validation Dipole at 2300 MHz.

## Calibration Equipment used:

| Manufacturer       | Model     | Description                                   | Cal Date   | Cal Interval | Cal Due    | Serial Number |
|--------------------|-----------|-----------------------------------------------|------------|--------------|------------|---------------|
| Agilent            | 8753ES    | S-Parameter Network Analyzer                  | 10/2/2018  | Annual       | 10/2/2019  | US39170118    |
| Agilent            | N5182A    | MXG Vector Signal Generator                   | 6/15/2018  | Annual       | 6/15/2019  | MY47420837    |
| Amplifier Research | 15S1G6    | Amplifier                                     | CBT        | N/A          | CBT        | 343972        |
| Anritsu            | MA2411B   | Pulse Power Sensor                            | 10/30/2018 | Annual       | 10/30/2019 | 1207470       |
| Anritsu            | MA2411B   | Pulse Power Sensor                            | 11/20/2018 | Annual       | 11/20/2019 | 1339007       |
| Anritsu            | ML2496A   | Power Meter                                   | 10/21/2018 | Annual       | 10/21/2019 | 1138001       |
| Control Company    | 4040      | Therm./Clock/Humidity Monitor                 | 3/31/2017  | Biennial     | 3/31/2019  | 170232394     |
| Control Company    | 4352      | Ultra Long Stem Thermometer                   | 5/2/2017   | Biennial     | 5/2/2019   | 170330156     |
| Keysight           | 772D      | Dual Directional Coupler                      | CBT        | N/A          | CBT        | MY52180215    |
| Agilent            | 85033E    | 3.5mm Standard Calibration Kit                | 8/13/2018  | Annual       | 8/13/2019  | MY53402352    |
| MiniCircuits       | VLF-6000+ | Low Pass Filter                               | CBT        | N/A          | CBT        | N/A           |
| Mini-Circuits      | BW-N20W5+ | DC to 18 GHz Precision Fixed 20 dB Attenuator | CBT        | N/A          | CBT        | N/A           |
| Narda              | 4772-3    | Attenuator (3dB)                              | CBT        | N/A          | CBT        | 9406          |
| Seekonk            | NC-100    | Torque Wrench                                 | 7/11/2018  | Annual       | 7/11/2019  | N/A           |
| SPEAG              | DAE4      | Dasy Data Acquisition Electronics             | 4/12/2018  | Annual       | 4/12/2019  | 501           |
| SPEAG              | DAE4      | Dasy Data Acquisition Electronics             | 10/18/2018 | Annual       | 10/18/2019 | 1364          |
| SPEAG              | DAK-3.5   | Dielectric Assessment Kit                     | 5/15/2018  | Annual       | 5/15/2019  | 1070          |
| SPEAG              | ES3DV3    | SAR Probe                                     | 4/12/2018  | Annual       | 4/12/2019  | 3275          |
| SPEAG              | EX3DV4    | SAR Probe                                     | 7/20/2018  | Annual       | 7/20/2019  | 7491          |

Measurement Uncertainty =  $\pm 23\%$  (k=2)

|                | Name            | Function           | Signature                                                                             |
|----------------|-----------------|--------------------|---------------------------------------------------------------------------------------|
| Calibrated By: | Sangmin Cha     | Team Lead Engineer |  |
| Approved By:   | Kaitlin O'Keefe | Managing Director  |  |

# DIPOLE CALIBRATION EXTENSION

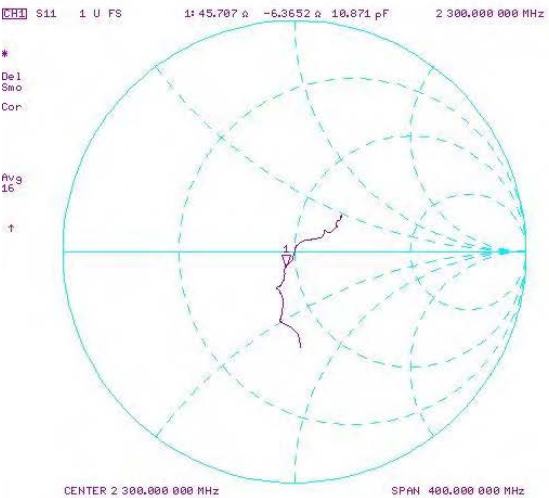
Per KDB 865664 D01, calibration intervals of up to three years may be considered for reference dipoles when it is demonstrated that the SAR target, impedance and return loss of a dipole have remained stable according to the following requirements:

1. The measured SAR does not deviate more than 10% from the target on the calibration certificate.
2. The return-loss does not deviate more than 20% from the previous measurement and meets the required 20dB minimum return-loss requirement.
3. The measurement of real or imaginary parts of impedance does not deviate more than 5Ω from the previous measurement.

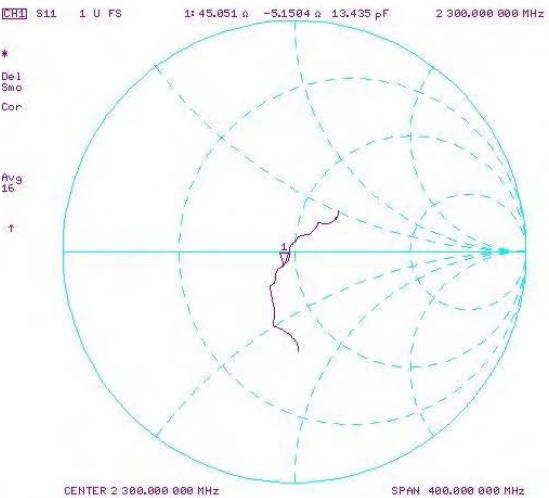
The following dipole was checked to pass the above 3 requirements to have 2-year calibration period from the calibration date:

| Calibration Date | Extension Date | Certificate Electrical Delay (ns) | Certificate SAR Target Head (1g) W/kg @ 20.0 dBm | Measured Head SAR (1g) W/kg @ 20.0 dBm | Deviation 1g (%) | Certificate SAR Target Head (10g) W/kg @ 20.0 dBm | Measured Head SAR (10g) W/kg @ 20.0 dBm | Deviation 10g (%) | Certificate Impedance Head (Ohm) Real | Measured Impedance Head (Ohm) Real | Difference (Ohm) Real | Certificate Impedance Head (Ohm) Imaginary | Measured Impedance Head (Ohm) Imaginary | Difference (Ohm) Imaginary | Certificate Return Loss Head (dB) | Measured Return Loss Head (dB) | Deviation (%) | PASS/FAIL |
|------------------|----------------|-----------------------------------|--------------------------------------------------|----------------------------------------|------------------|---------------------------------------------------|-----------------------------------------|-------------------|---------------------------------------|------------------------------------|-----------------------|--------------------------------------------|-----------------------------------------|----------------------------|-----------------------------------|--------------------------------|---------------|-----------|
| 3/7/2018         | 2/25/2019      | 1.17                              | 4.93                                             | 4.77                                   | -3.25%           | 2.36                                              | 2.29                                    | -2.97%            | 47.8                                  | 45.7                               | 2.1                   | -4.9                                       | -6.4                                    | 1.5                        | -25.2                             | -22.1                          | 12.30%        | PASS      |
| Calibration Date | Extension Date | Certificate Electrical Delay (ns) | Certificate SAR Target Body (1g) W/kg @ 20.0 dBm | Measured Body SAR (1g) W/kg @ 20.0 dBm | Deviation 1g (%) | Certificate SAR Target Body (10g) W/kg @ 20.0 dBm | Measured Body SAR (10g) W/kg @ 20.0 dBm | Deviation 10g (%) | Certificate Impedance Body (Ohm) Real | Measured Impedance Body (Ohm) Real | Difference (Ohm) Real | Certificate Impedance Body (Ohm) Imaginary | Measured Impedance Body (Ohm) Imaginary | Difference (Ohm) Imaginary | Certificate Return Loss Body (dB) | Measured Return Loss Body (dB) | Deviation (%) | PASS/FAIL |
| 3/7/2018         | 2/25/2019      | 1.17                              | 4.67                                             | 4.82                                   | 3.21%            | 2.25                                              | 2.27                                    | 0.89%             | 45.9                                  | 45.1                               | 0.8                   | -3.4                                       | -5.2                                    | 1.8                        | -25                               | -22.7                          | 9.20%         | PASS      |

Impedance & Return-Loss Measurement Plot for Head TSL



Impedance & Return-Loss Measurement Plot for Body TSL





Accredited by the Swiss Accreditation Service (SAS)  
 The Swiss Accreditation Service is one of the signatories to the EA  
 Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Client **PC Test**

Certificate No: **D2450V2-921 Nov18**

## CALIBRATION CERTIFICATE

Object **D2450V2 - SN:921**

Calibration procedure(s) **QA CAL-05.v10**  
**Calibration procedure for dipole validation kits above 700 MHz**

Calibration date: **November 12, 2018**

SC ✓  
 12/11/2018  
 BNV ✓  
 12/31/2019

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).  
 The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature  $(22 \pm 3)^{\circ}\text{C}$  and humidity  $< 70\%$ .

Calibration Equipment used (M&TE critical for calibration)

| Primary Standards               | ID #               | Cal Date (Certificate No.)        | Scheduled Calibration  |
|---------------------------------|--------------------|-----------------------------------|------------------------|
| Power meter NRP                 | SN: 104778         | 04-Apr-18 (No. 217-02672/02673)   | Apr-19                 |
| Power sensor NRP-Z91            | SN: 103244         | 04-Apr-18 (No. 217-02672)         | Apr-19                 |
| Power sensor NRP-Z91            | SN: 103245         | 04-Apr-18 (No. 217-02673)         | Apr-19                 |
| Reference 20 dB Attenuator      | SN: 5058 (20k)     | 04-Apr-18 (No. 217-02682)         | Apr-19                 |
| Type-N mismatch combination     | SN: 5047.2 / 06327 | 04-Apr-18 (No. 217-02683)         | Apr-19                 |
| Reference Probe EX3DV4          | SN: 7349           | 30-Dec-17 (No. EX3-7349_Dec17)    | Dec-18                 |
| DAE4                            | SN: 601            | 04-Oct-18 (No. DAE4-601_Oct18)    | Oct-19                 |
| Secondary Standards             | ID #               | Check Date (in house)             | Scheduled Check        |
| Power meter EPM-442A            | SN: GB37480704     | 07-Oct-15 (in house check Oct-18) | In house check: Oct-20 |
| Power sensor HP 8481A           | SN: US37292783     | 07-Oct-15 (in house check Oct-18) | In house check: Oct-20 |
| Power sensor HP 8481A           | SN: MY41092317     | 07-Oct-15 (in house check Oct-18) | In house check: Oct-20 |
| RF generator R&S SMT-06         | SN: 100972         | 15-Jun-15 (in house check Oct-18) | In house check: Oct-20 |
| Network Analyzer Agilent E8358A | SN: US41080477     | 31-Mar-14 (in house check Oct-18) | In house check: Oct-19 |

Calibrated by: **Manu Seitz** **Laboratory Technician**

Approved by: **Katja Pokovic** **Technical Manager**

Signature

Issued: November 12, 2018

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.



Accredited by the Swiss Accreditation Service (SAS)

Accreditation No.: **SCS 0108**

The Swiss Accreditation Service is one of the signatories to the EA  
Multilateral Agreement for the recognition of calibration certificates

### Glossary:

|       |                                 |
|-------|---------------------------------|
| TSL   | tissue simulating liquid        |
| ConvF | sensitivity in TSL / NORM x,y,z |
| N/A   | not applicable or not measured  |

### Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
- IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

### Additional Documentation:

- DASY4/5 System Handbook

### Methods Applied and Interpretation of Parameters:

- Measurement Conditions:** Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL:** The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss:** These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay:** One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- SAR measured:** SAR measured at the stated antenna input power.
- SAR normalized:** SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters:** The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor  $k=2$ , which for a normal distribution corresponds to a coverage probability of approximately 95%.

## Measurement Conditions

DASY system configuration, as far as not given on page 1.

|                                     |                        |             |
|-------------------------------------|------------------------|-------------|
| <b>DASY Version</b>                 | DASY5                  | V52.10.2    |
| <b>Extrapolation</b>                | Advanced Extrapolation |             |
| <b>Phantom</b>                      | Modular Flat Phantom   |             |
| <b>Distance Dipole Center - TSL</b> | 10 mm                  | with Spacer |
| <b>Zoom Scan Resolution</b>         | dx, dy, dz = 5 mm      |             |
| <b>Frequency</b>                    | 2450 MHz $\pm$ 1 MHz   |             |

## Head TSL parameters

The following parameters and calculations were applied.

|                                                | <b>Temperature</b>  | <b>Permittivity</b> | <b>Conductivity</b>  |
|------------------------------------------------|---------------------|---------------------|----------------------|
| <b>Nominal Head TSL parameters</b>             | 22.0 °C             | 39.2                | 1.80 mho/m           |
| <b>Measured Head TSL parameters</b>            | (22.0 $\pm$ 0.2) °C | 37.9 $\pm$ 6 %      | 1.86 mho/m $\pm$ 6 % |
| <b>Head TSL temperature change during test</b> | < 0.5 °C            | ----                | ----                 |

## SAR result with Head TSL

|                                                             |                    |                                                |
|-------------------------------------------------------------|--------------------|------------------------------------------------|
| <b>SAR averaged over 1 cm<sup>3</sup> (1 g) of Head TSL</b> | Condition          |                                                |
| SAR measured                                                | 250 mW input power | 13.6 W/kg                                      |
| SAR for nominal Head TSL parameters                         | normalized to 1W   | <b>53.1 W/kg <math>\pm</math> 17.0 % (k=2)</b> |

|                                                               |                    |                                                |
|---------------------------------------------------------------|--------------------|------------------------------------------------|
| <b>SAR averaged over 10 cm<sup>3</sup> (10 g) of Head TSL</b> | condition          |                                                |
| SAR measured                                                  | 250 mW input power | 6.28 W/kg                                      |
| SAR for nominal Head TSL parameters                           | normalized to 1W   | <b>24.8 W/kg <math>\pm</math> 16.5 % (k=2)</b> |

## Body TSL parameters

The following parameters and calculations were applied.

|                                                | <b>Temperature</b>  | <b>Permittivity</b> | <b>Conductivity</b>  |
|------------------------------------------------|---------------------|---------------------|----------------------|
| <b>Nominal Body TSL parameters</b>             | 22.0 °C             | 52.7                | 1.95 mho/m           |
| <b>Measured Body TSL parameters</b>            | (22.0 $\pm$ 0.2) °C | 51.4 $\pm$ 6 %      | 2.02 mho/m $\pm$ 6 % |
| <b>Body TSL temperature change during test</b> | < 0.5 °C            | ----                | ----                 |

## SAR result with Body TSL

|                                                             |                    |                                                |
|-------------------------------------------------------------|--------------------|------------------------------------------------|
| <b>SAR averaged over 1 cm<sup>3</sup> (1 g) of Body TSL</b> | Condition          |                                                |
| SAR measured                                                | 250 mW input power | 13.0 W/kg                                      |
| SAR for nominal Body TSL parameters                         | normalized to 1W   | <b>50.8 W/kg <math>\pm</math> 17.0 % (k=2)</b> |

|                                                               |                    |                                                |
|---------------------------------------------------------------|--------------------|------------------------------------------------|
| <b>SAR averaged over 10 cm<sup>3</sup> (10 g) of Body TSL</b> | condition          |                                                |
| SAR measured                                                  | 250 mW input power | 6.03 W/kg                                      |
| SAR for nominal Body TSL parameters                           | normalized to 1W   | <b>23.8 W/kg <math>\pm</math> 16.5 % (k=2)</b> |

## Appendix (Additional assessments outside the scope of SCS 0108)

### Antenna Parameters with Head TSL

|                                      |                             |
|--------------------------------------|-----------------------------|
| Impedance, transformed to feed point | $54.7 \Omega + 6.5 j\Omega$ |
| Return Loss                          | - 22.3 dB                   |

### Antenna Parameters with Body TSL

|                                      |                             |
|--------------------------------------|-----------------------------|
| Impedance, transformed to feed point | $50.7 \Omega + 7.8 j\Omega$ |
| Return Loss                          | - 22.2 dB                   |

### General Antenna Parameters and Design

|                                  |          |
|----------------------------------|----------|
| Electrical Delay (one direction) | 1.157 ns |
|----------------------------------|----------|

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

### Additional EUT Data

|                 |                    |
|-----------------|--------------------|
| Manufactured by | SPEAG              |
| Manufactured on | September 26, 2013 |

## DASY5 Validation Report for Head TSL

Date: 12.11.2018

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:921**

Communication System: UID 0 - CW; Frequency: 2450 MHz

Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.86$  S/m;  $\epsilon_r = 37.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(7.88, 7.88, 7.88) @ 2450 MHz; Calibrated: 30.12.2017
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.10.2018
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

### Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

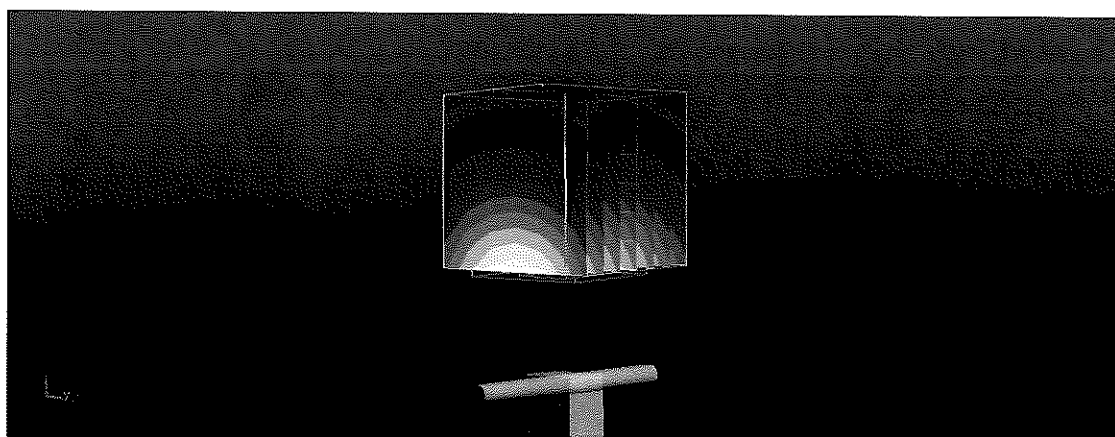
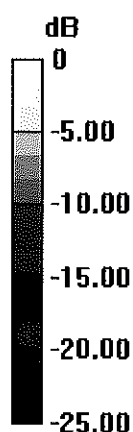
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 117.7 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 27.4 W/kg

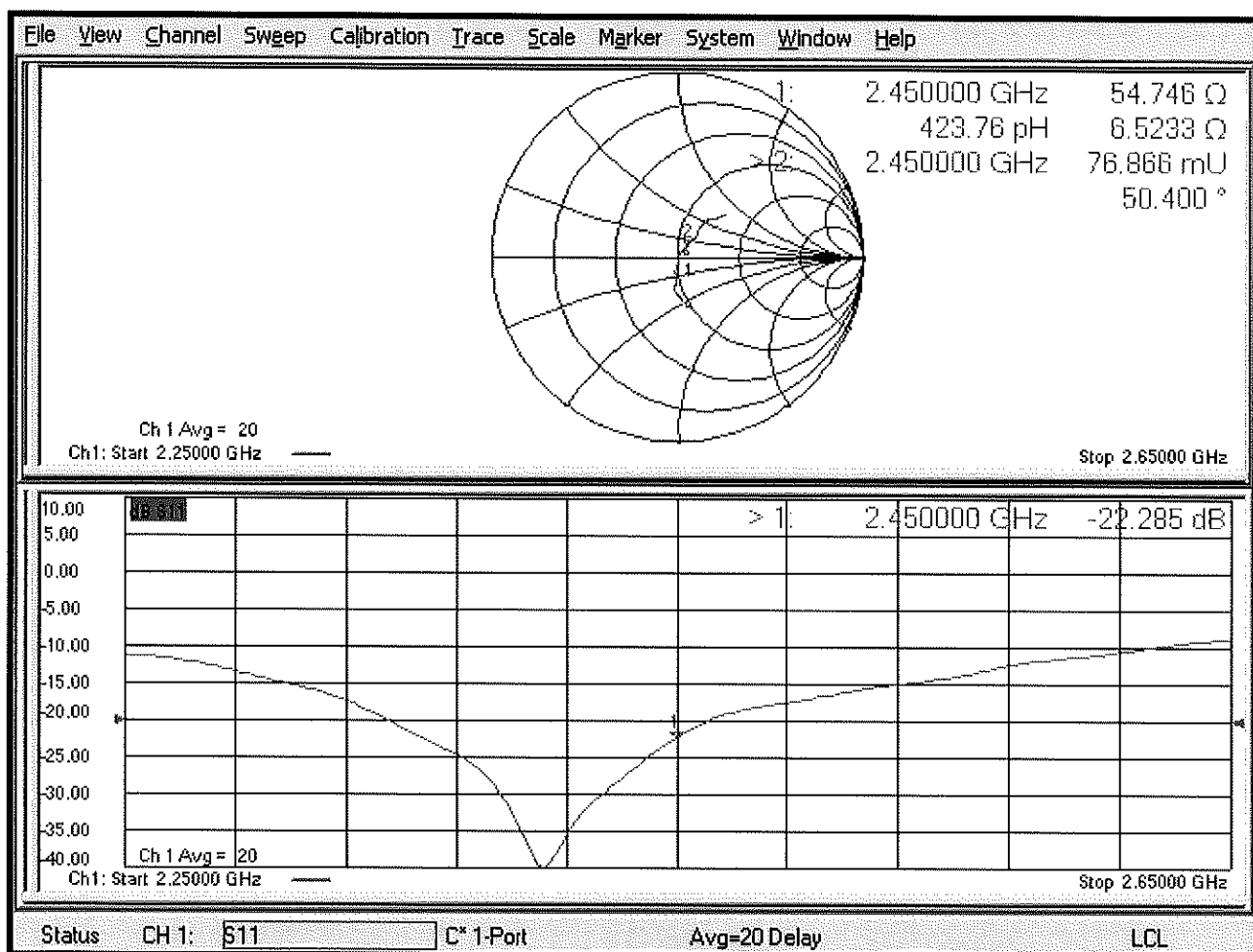
**SAR(1 g) = 13.6 W/kg; SAR(10 g) = 6.28 W/kg**

Maximum value of SAR (measured) = 22.4 W/kg



0 dB = 22.4 W/kg = 13.50 dBW/kg

## Impedance Measurement Plot for Head TSL



## DASY5 Validation Report for Body TSL

Date: 12.11.2018

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:921**

Communication System: UID 0 - CW; Frequency: 2450 MHz

Medium parameters used:  $f = 2450$  MHz;  $\sigma = 2.02$  S/m;  $\epsilon_r = 51.4$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(8.01, 8.01, 8.01) @ 2450 MHz; Calibrated: 30.12.2017
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.10.2018
- Phantom: Flat Phantom 5.0 (back); Type: QD 000 P50 AA; Serial: 1002
- DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

### **Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:**

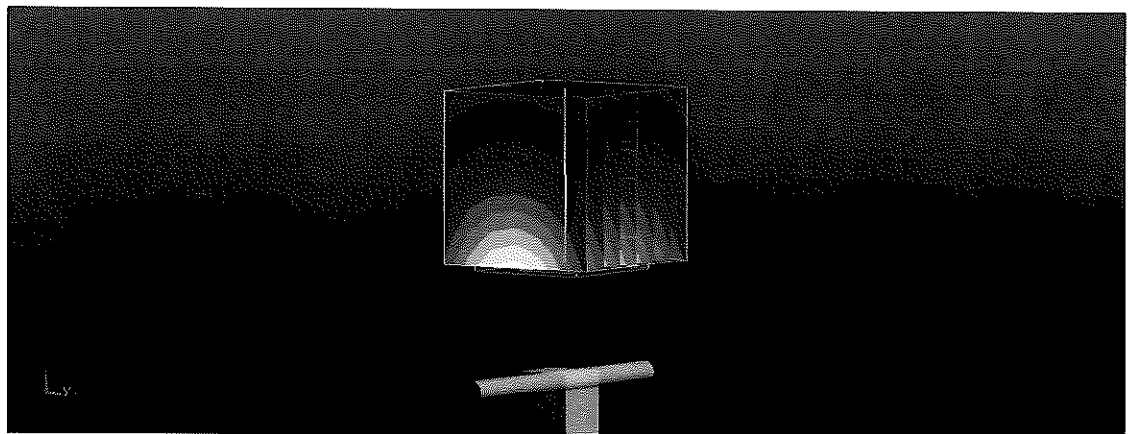
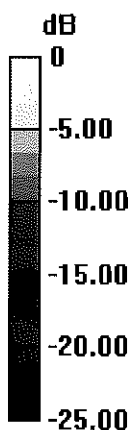
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 108.6 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 26.1 W/kg

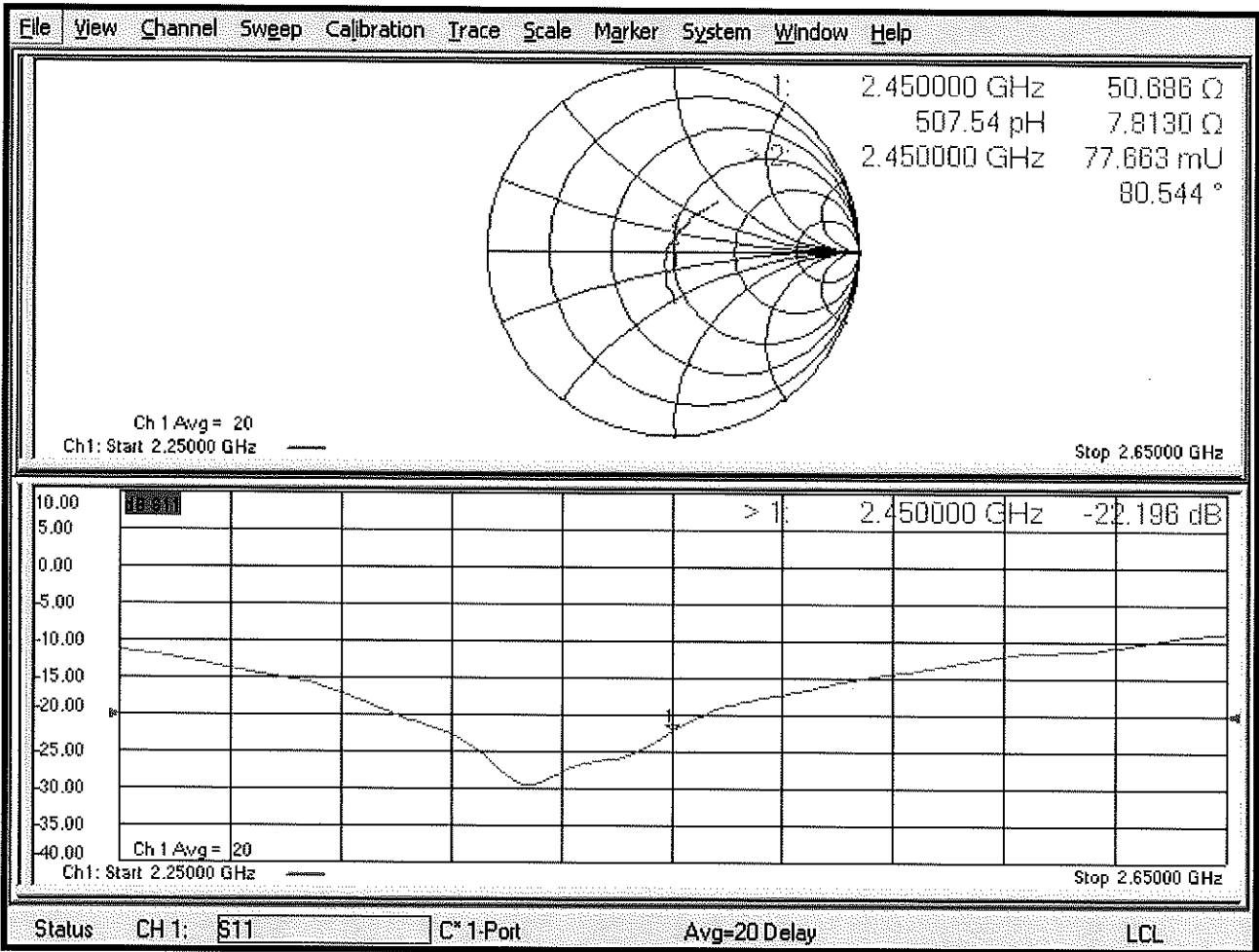
**SAR(1 g) = 13 W/kg; SAR(10 g) = 6.03 W/kg**

Maximum value of SAR (measured) = 21.3 W/kg



0 dB = 21.3 W/kg = 13.28 dBW/kg

Impedance Measurement Plot for Body TSL



# Certification of Calibration

Object D2450V2 – SN: 921

Calibration procedure(s) Procedure for Calibration Extension for SAR Dipoles.

Extended Calibration date: November 11, 2019

Description: SAR Validation Dipole at 2450 MHz.

## Calibration Equipment used:

| Manufacturer          | Model     | Description                                             | Cal Date   | Cal Interval | Cal Due    | Serial Number |
|-----------------------|-----------|---------------------------------------------------------|------------|--------------|------------|---------------|
| Agilent               | 8753ES    | S-Parameter Network Analyzer                            | 8/26/2019  | Annual       | 8/26/2020  | MY40000670    |
| Agilent               | E4438C    | ESG Vector Signal Generator                             | 6/27/2019  | Annual       | 6/27/2020  | MY45093852    |
| Amplifier Research    | 15S1G6    | Amplifier                                               | CBT        | N/A          | CBT        | 343972        |
| Anritsu               | ML2495A   | Power Meter                                             | 11/20/2018 | Annual       | 11/20/2019 | 1039008       |
| Anritsu               | MA2411B   | Pulse Power Sensor                                      | 11/20/2018 | Annual       | 11/20/2019 | 1027293       |
| Anritsu               | MA2411B   | Pulse Power Sensor                                      | 11/20/2018 | Annual       | 11/20/2019 | 1339007       |
| Control Company       | 4040      | Temperature / Humidity Monitor                          | 2/28/2018  | Biennial     | 2/28/2020  | 150761911     |
| Control Company       | 4352      | Ultra Long Stem Thermometer                             | 2/28/2018  | Biennial     | 2/28/2020  | 170330160     |
| Keysight Technologies | 85033E    | Standard Mechanical Calibration Kit (DC to 9GHz, 3.5mm) | 7/2/2019   | Annual       | 7/2/2020   | MY53401181    |
| Keysight              | 772D      | Dual Directional Coupler                                | CBT        | N/A          | CBT        | MY52180215    |
| Mini-Circuits         | BW-N20W5+ | DC to 18 GHz Precision Fixed 20 dB Attenuator           | CBT        | N/A          | CBT        | N/A           |
| Mini-Circuits         | NLP-2950+ | Low Pass Filter DC to 2700 MHz                          | CBT        | N/A          | CBT        | N/A           |
| Narda                 | 4772-3    | Attenuator (3dB)                                        | CBT        | N/A          | CBT        | 9406          |
| Pasternack            | PE2209-10 | Bidirectional Coupler                                   | CBT        | N/A          | CBT        | N/A           |
| Seekonk               | NC-100    | Torque Wrench                                           | 5/4/2018   | Biennial     | 5/4/2020   | 22216         |
| SPEAG                 | DAK-3.5   | Dielectric Assessment Kit                               | 5/7/2019   | Annual       | 5/7/2020   | 1070          |
| SPEAG                 | EX3DV4    | SAR Probe                                               | 1/24/2019  | Annual       | 1/24/2020  | 7490          |
| SPEAG                 | DAE4      | Data Acquisition Electronics                            | 1/15/2019  | Annual       | 1/15/2020  | 1532          |

Measurement Uncertainty =  $\pm 23\%$  (k=2)

|                | Name            | Function                 | Signature           |
|----------------|-----------------|--------------------------|---------------------|
| Calibrated By: | Parker Jones    | Team Lead Engineer       | <i>Parker Jones</i> |
| Approved By:   | Kaitlin O'Keefe | Senior Technical Manager | <i>KOL</i>          |

# DIPOLE CALIBRATION EXTENSION

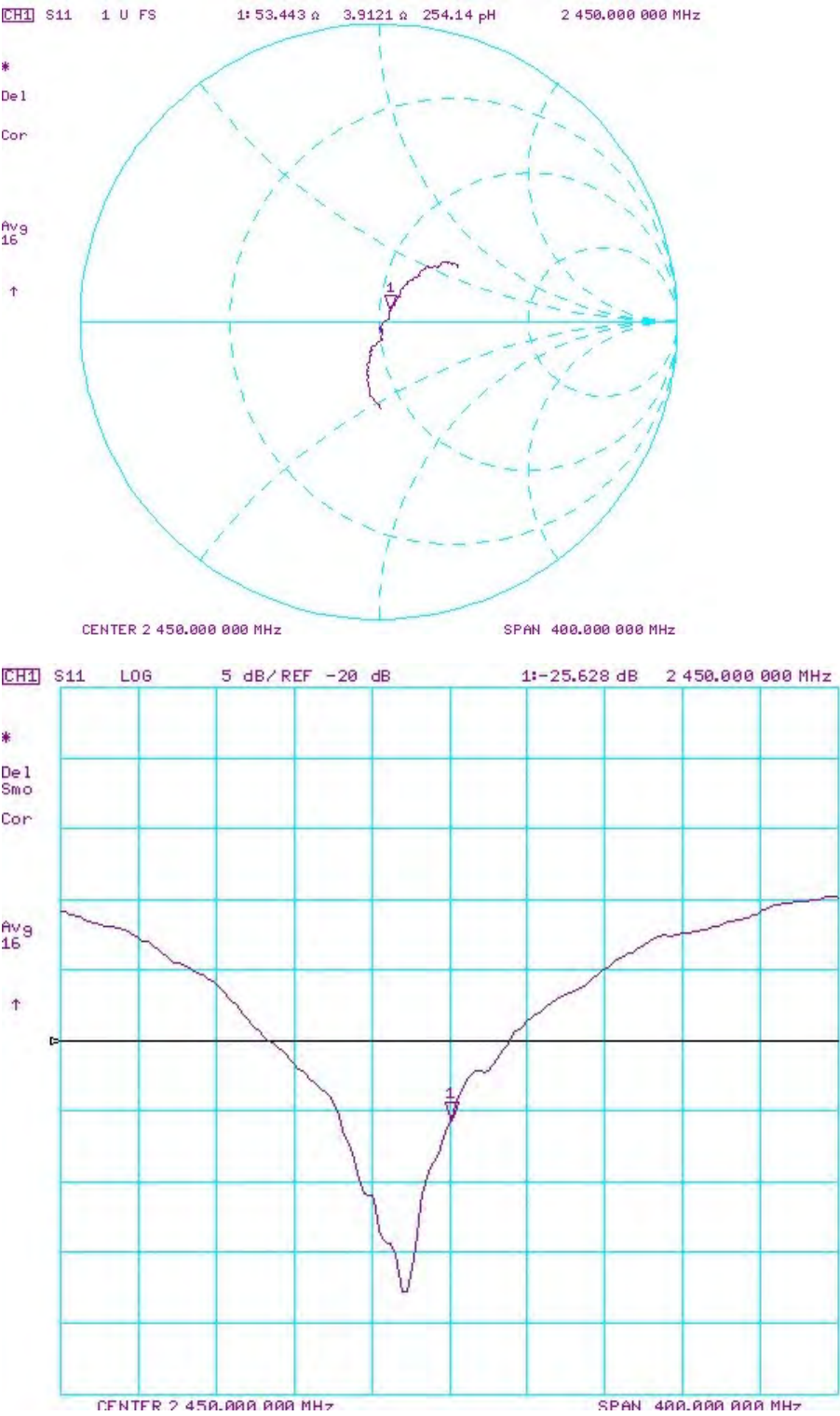
Per KDB 865664 D01, calibration intervals of up to three years may be considered for reference dipoles when it is demonstrated that the SAR target, impedance and return loss of a dipole have remained stable according to the following requirements:

1. The measured SAR does not deviate more than 10% from the target on the calibration certificate.
2. The return-loss does not deviate more than 20% from the previous measurement and meets the required 20dB minimum return-loss requirement.
3. The measurement of real or imaginary parts of impedance does not deviate more than 5Ω from the previous measurement.

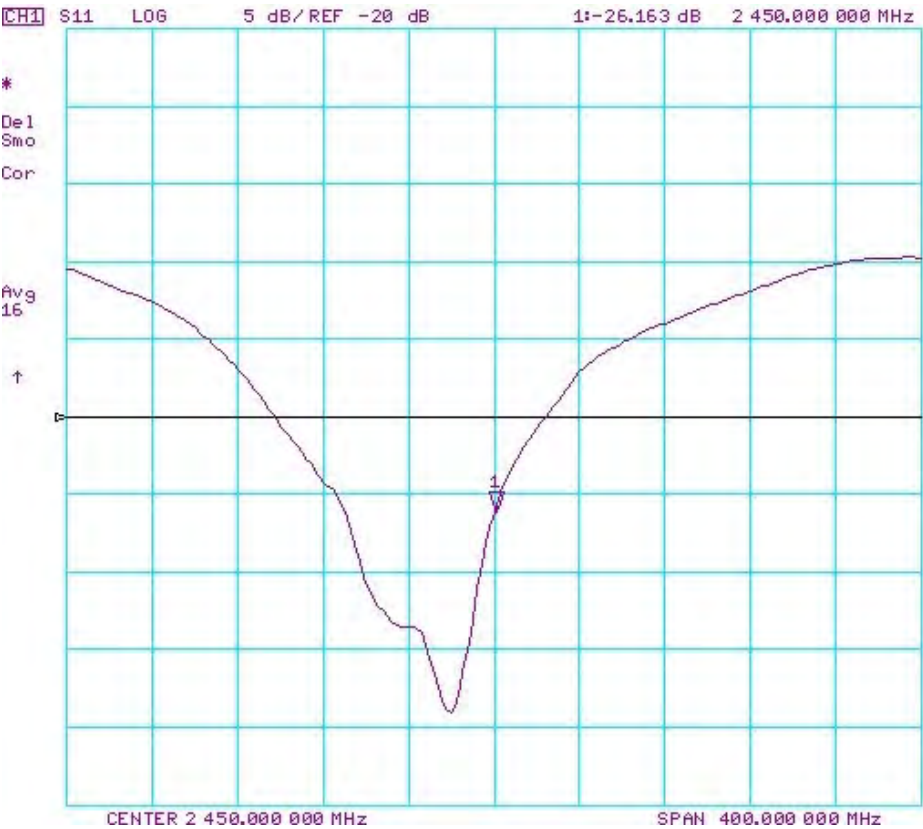
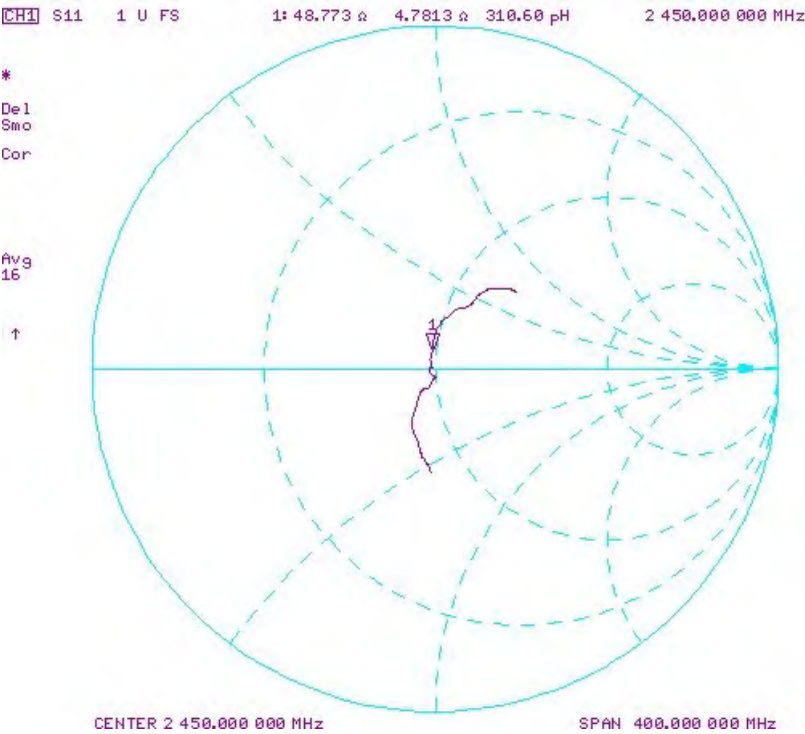
The following dipole was checked to pass the above 3 requirements to have 2-year calibration period from the calibration date:

| Calibration Date | Extension Date | Certificate Electrical Delay (ns) | Certificate SAR Target Head (1g) W/kg @ 20.0 dBm | Measured Head SAR (1g) W/kg @ 20.0 dBm | Deviation 1g (%) | Certificate SAR Target Body (10g) W/kg @ 20.0 dBm | Measured Body SAR (10g) W/kg @ 20.0 dBm | Deviation 10g (%) | Certificate Impedance Head (Ohm) Real | Measured Impedance Head (Ohm) Real | Difference (Ohm) Real | Certificate Impedance Head (Ohm) Imaginary | Measured Impedance Head (Ohm) Imaginary | Difference (Ohm) Imaginary | Certificate Return Loss Head (dB) | Measured Return Loss Head (dB) | Deviation (%) | PASS/FAIL |
|------------------|----------------|-----------------------------------|--------------------------------------------------|----------------------------------------|------------------|---------------------------------------------------|-----------------------------------------|-------------------|---------------------------------------|------------------------------------|-----------------------|--------------------------------------------|-----------------------------------------|----------------------------|-----------------------------------|--------------------------------|---------------|-----------|
| 11/12/2018       | 11/11/2019     | 1.157                             | 5.31                                             | 5.28                                   | -0.56%           | 2.48                                              | 2.38                                    | -4.03%            | 54.7                                  | 53.4                               | 1.3                   | 6.5                                        | 3.9                                     | 2.6                        | -22.3                             | -25.6                          | -14.80%       | PASS      |
| Calibration Date | Extension Date | Certificate Electrical Delay (ns) | Certificate SAR Target Body (1g) W/kg @ 20.0 dBm | Measured Body SAR (1g) W/kg @ 20.0 dBm | Deviation 1g (%) | Certificate SAR Target Body (10g) W/kg @ 20.0 dBm | Measured Body SAR (10g) W/kg @ 20.0 dBm | Deviation 10g (%) | Certificate Impedance Body (Ohm) Real | Measured Impedance Body (Ohm) Real | Difference (Ohm) Real | Certificate Impedance Body (Ohm) Imaginary | Measured Impedance Body (Ohm) Imaginary | Difference (Ohm) Imaginary | Certificate Return Loss Body (dB) | Measured Return Loss Body (dB) | Deviation (%) | PASS/FAIL |
| 11/12/2018       | 11/11/2019     | 1.157                             | 5.08                                             | 5.41                                   | 6.50%            | 2.38                                              | 2.47                                    | 3.78%             | 50.7                                  | 48.8                               | 1.9                   | 7.8                                        | 4.8                                     | 3                          | -22.2                             | -26.2                          | -18.00%       | PASS      |

Impedance & Return-Loss Measurement Plot for Head TSL



Impedance & Return-Loss Measurement Plot for Body TSL





Accredited by the Swiss Accreditation Service (SAS)  
 The Swiss Accreditation Service is one of the signatories to the EA  
 Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Client **PC Test**

Certificate No: **D2450V2-945\_May18**

## CALIBRATION CERTIFICATE

Object **D2450V2 - SN:945**

Calibration procedure(s) **QA CAL-05.v10**  
**Calibration procedure for dipole validation kits above 700 MHz**

Calibration date: **May 16, 2018**

*SCW*  
*5/31/2018*  
*BNV*  
*06/01/2019*

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).  
 The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature ( $22 \pm 3$ )°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

| Primary Standards           | ID #               | Cal Date (Certificate No.)      | Scheduled Calibration |
|-----------------------------|--------------------|---------------------------------|-----------------------|
| Power meter NRP             | SN: 104778         | 04-Apr-18 (No. 217-02672/02673) | Apr-19                |
| Power sensor NRP-Z91        | SN: 103244         | 04-Apr-18 (No. 217-02672)       | Apr-19                |
| Power sensor NRP-Z91        | SN: 103245         | 04-Apr-18 (No. 217-02673)       | Apr-19                |
| Reference 20 dB Attenuator  | SN: 5058 (20k)     | 04-Apr-18 (No. 217-02682)       | Apr-19                |
| Type-N mismatch combination | SN: 5047.2 / 06327 | 04-Apr-18 (No. 217-02683)       | Apr-19                |
| Reference Probe EX3DV4      | SN: 7349           | 30-Dec-17 (No. EX3-7349_Dec17)  | Dec-18                |
| DAE4                        | SN: 601            | 26-Oct-17 (No. DAE4-601_Oct17)  | Oct-18                |

| Secondary Standards       | ID #           | Check Date (in house)             | Scheduled Check        |
|---------------------------|----------------|-----------------------------------|------------------------|
| Power meter EPM-442A      | SN: GB37480704 | 07-Oct-15 (in house check Oct-16) | In house check: Oct-18 |
| Power sensor HP 8481A     | SN: US37292783 | 07-Oct-15 (in house check Oct-16) | In house check: Oct-18 |
| Power sensor HP 8481A     | SN: MY41092317 | 07-Oct-15 (in house check Oct-16) | In house check: Oct-18 |
| RF generator R&S SMT-06   | SN: 100972     | 15-Jun-15 (in house check Oct-16) | In house check: Oct-18 |
| Network Analyzer HP 8753E | SN: US37390585 | 18-Oct-01 (in house check Oct-17) | In house check: Oct-18 |

|                |               |                       |                    |
|----------------|---------------|-----------------------|--------------------|
|                | Name          | Function              | Signature          |
| Calibrated by: | Manu Seltz    | Laboratory Technician | <i>[Signature]</i> |
| Approved by:   | Katja Pokovic | Technical Manager     | <i>[Signature]</i> |

Issued: May 17, 2018

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.



Accredited by the Swiss Accreditation Service (SAS)

The Swiss Accreditation Service is one of the signatories to the EA  
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

**Glossary:**

|       |                                 |
|-------|---------------------------------|
| TSL   | tissue simulating liquid        |
| ConvF | sensitivity in TSL / NORM x,y,z |
| N/A   | not applicable or not measured  |

**Calibration is Performed According to the Following Standards:**

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
- IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

**Additional Documentation:**

- DASY4/5 System Handbook

**Methods Applied and Interpretation of Parameters:**

- Measurement Conditions:** Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL:** The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss:** These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay:** One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- SAR measured:** SAR measured at the stated antenna input power.
- SAR normalized:** SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters:** The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor  $k=2$ , which for a normal distribution corresponds to a coverage probability of approximately 95%.

## Measurement Conditions

DASY system configuration, as far as not given on page 1.

|                                     |                        |             |
|-------------------------------------|------------------------|-------------|
| <b>DASY Version</b>                 | DASY5                  | V52.10.1    |
| <b>Extrapolation</b>                | Advanced Extrapolation |             |
| <b>Phantom</b>                      | Modular Flat Phantom   |             |
| <b>Distance Dipole Center - TSL</b> | 10 mm                  | with Spacer |
| <b>Zoom Scan Resolution</b>         | dx, dy, dz = 5 mm      |             |
| <b>Frequency</b>                    | 2450 MHz $\pm$ 1 MHz   |             |

## Head TSL parameters

The following parameters and calculations were applied.

|                                                | Temperature         | Permittivity   | Conductivity         |
|------------------------------------------------|---------------------|----------------|----------------------|
| <b>Nominal Head TSL parameters</b>             | 22.0 °C             | 39.2           | 1.80 mho/m           |
| <b>Measured Head TSL parameters</b>            | (22.0 $\pm$ 0.2) °C | 38.2 $\pm$ 6 % | 1.85 mho/m $\pm$ 6 % |
| <b>Head TSL temperature change during test</b> | < 0.5 °C            | ----           | ----                 |

## SAR result with Head TSL

|                                                             |                    |                                                |
|-------------------------------------------------------------|--------------------|------------------------------------------------|
| <b>SAR averaged over 1 cm<sup>3</sup> (1 g) of Head TSL</b> | Condition          |                                                |
| SAR measured                                                | 250 mW input power | 13.0 W/kg                                      |
| SAR for nominal Head TSL parameters                         | normalized to 1W   | <b>51.0 W/kg <math>\pm</math> 17.0 % (k=2)</b> |

|                                                               |                    |                                                |
|---------------------------------------------------------------|--------------------|------------------------------------------------|
| <b>SAR averaged over 10 cm<sup>3</sup> (10 g) of Head TSL</b> | condition          |                                                |
| SAR measured                                                  | 250 mW input power | 6.02 W/kg                                      |
| SAR for nominal Head TSL parameters                           | normalized to 1W   | <b>23.8 W/kg <math>\pm</math> 16.5 % (k=2)</b> |

## Body TSL parameters

The following parameters and calculations were applied.

|                                                | Temperature         | Permittivity   | Conductivity         |
|------------------------------------------------|---------------------|----------------|----------------------|
| <b>Nominal Body TSL parameters</b>             | 22.0 °C             | 52.7           | 1.95 mho/m           |
| <b>Measured Body TSL parameters</b>            | (22.0 $\pm$ 0.2) °C | 52.3 $\pm$ 6 % | 1.99 mho/m $\pm$ 6 % |
| <b>Body TSL temperature change during test</b> | < 0.5 °C            | ----           | ----                 |

## SAR result with Body TSL

|                                                             |                    |                                                |
|-------------------------------------------------------------|--------------------|------------------------------------------------|
| <b>SAR averaged over 1 cm<sup>3</sup> (1 g) of Body TSL</b> | Condition          |                                                |
| SAR measured                                                | 250 mW input power | 12.5 W/kg                                      |
| SAR for nominal Body TSL parameters                         | normalized to 1W   | <b>49.4 W/kg <math>\pm</math> 17.0 % (k=2)</b> |

|                                                               |                    |                                                |
|---------------------------------------------------------------|--------------------|------------------------------------------------|
| <b>SAR averaged over 10 cm<sup>3</sup> (10 g) of Body TSL</b> | condition          |                                                |
| SAR measured                                                  | 250 mW input power | 5.83 W/kg                                      |
| SAR for nominal Body TSL parameters                           | normalized to 1W   | <b>23.2 W/kg <math>\pm</math> 16.5 % (k=2)</b> |

## Appendix (Additional assessments outside the scope of SCS 0108)

### Antenna Parameters with Head TSL

|                                      |                               |
|--------------------------------------|-------------------------------|
| Impedance, transformed to feed point | $56.1\ \Omega + 3.7\ j\Omega$ |
| Return Loss                          | - 23.5 dB                     |

### Antenna Parameters with Body TSL

|                                      |                               |
|--------------------------------------|-------------------------------|
| Impedance, transformed to feed point | $51.9\ \Omega + 5.0\ j\Omega$ |
| Return Loss                          | - 25.7 dB                     |

### General Antenna Parameters and Design

|                                  |          |
|----------------------------------|----------|
| Electrical Delay (one direction) | 1.157 ns |
|----------------------------------|----------|

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

### Additional EUT Data

|                 |                |
|-----------------|----------------|
| Manufactured by | SPEAG          |
| Manufactured on | March 15, 2014 |

## DASY5 Validation Report for Head TSL

Date: 16.05.2018

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:945**

Communication System: UID 0 - CW; Frequency: 2450 MHz

Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.85$  S/m;  $\epsilon_r = 38.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(7.88, 7.88, 7.88) @ 2450 MHz; Calibrated: 30.12.2017
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 26.10.2017
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

### **Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:**

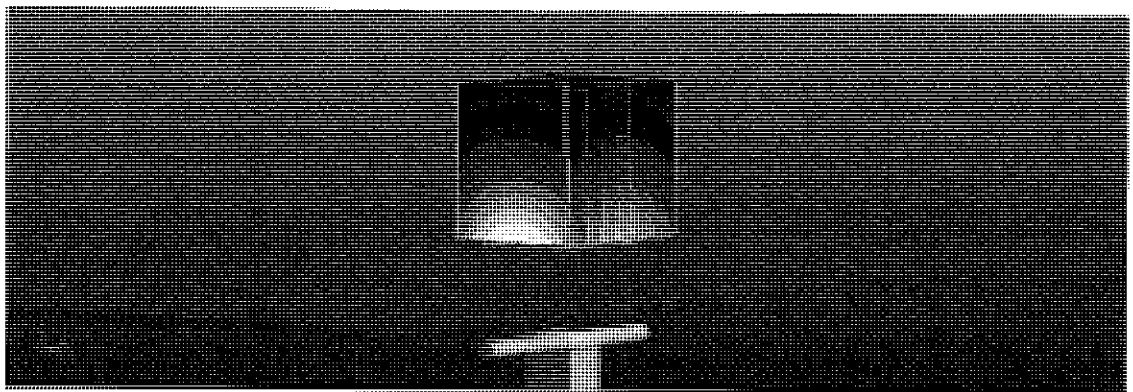
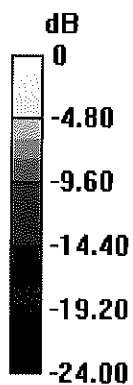
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 114.8 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 25.9 W/kg

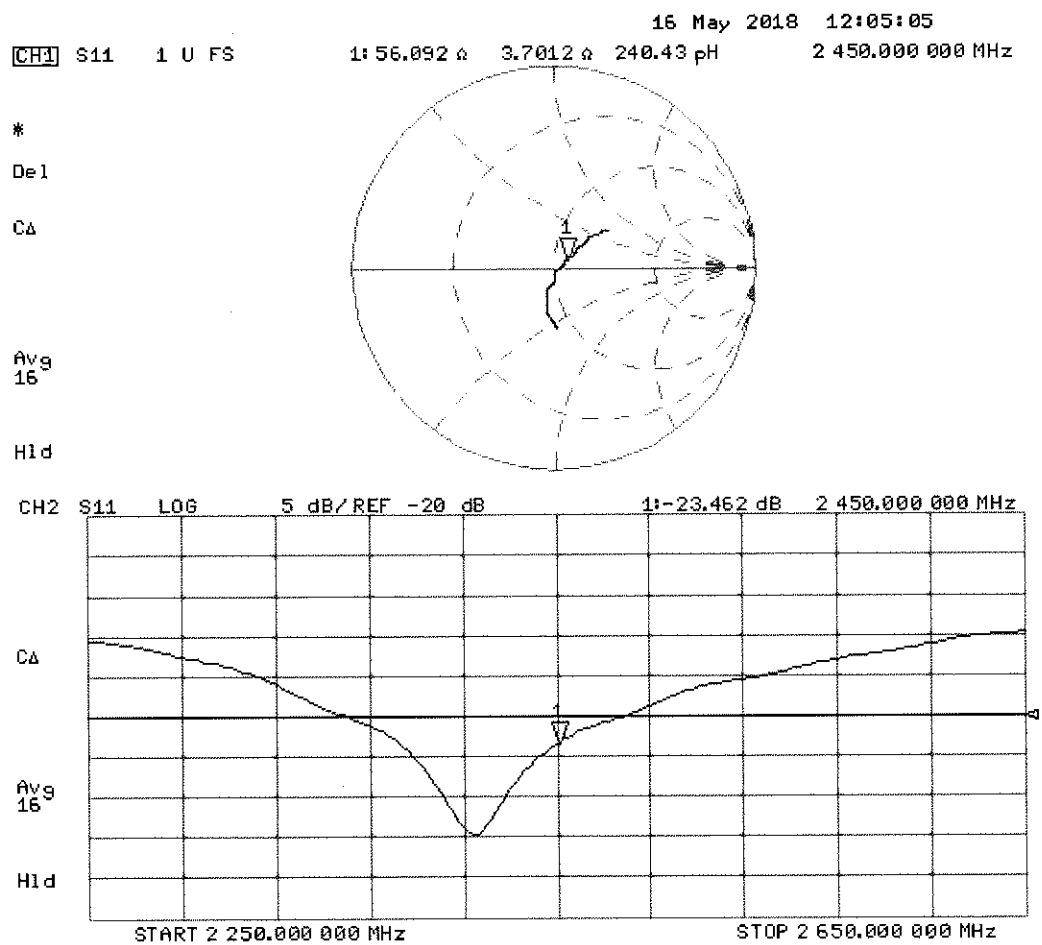
**SAR(1 g) = 13 W/kg; SAR(10 g) = 6.02 W/kg**

Maximum value of SAR (measured) = 21.4 W/kg



0 dB = 21.4 W/kg = 13.30 dBW/kg

# Impedance Measurement Plot for Head TSL



## DASY5 Validation Report for Body TSL

Date: 16.05.2018

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:945**

Communication System: UID 0 - CW; Frequency: 2450 MHz

Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.99$  S/m;  $\epsilon_r = 52.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(8.01, 8.01, 8.01) @ 2450 MHz; Calibrated: 30.12.2017
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 26.10.2017
- Phantom: Flat Phantom 5.0 (back); Type: QD 000 P50 AA; Serial: 1002
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

### **Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:**

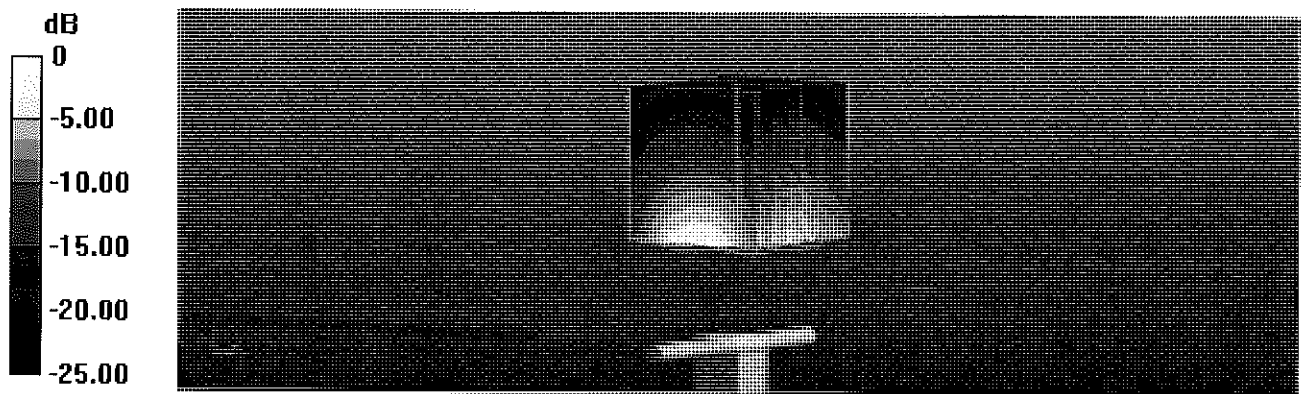
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 106.8 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 25.0 W/kg

**SAR(1 g) = 12.5 W/kg; SAR(10 g) = 5.83 W/kg**

Maximum value of SAR (measured) = 20.2 W/kg

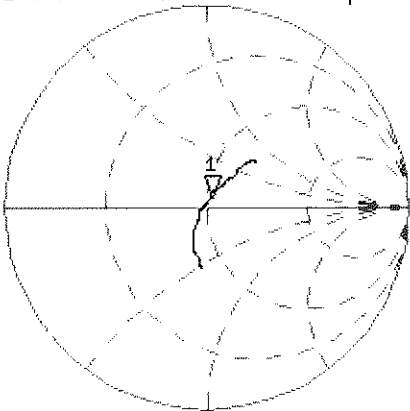


0 dB = 20.2 W/kg = 13.05 dBW/kg

Impedance Measurement Plot for Body TSL

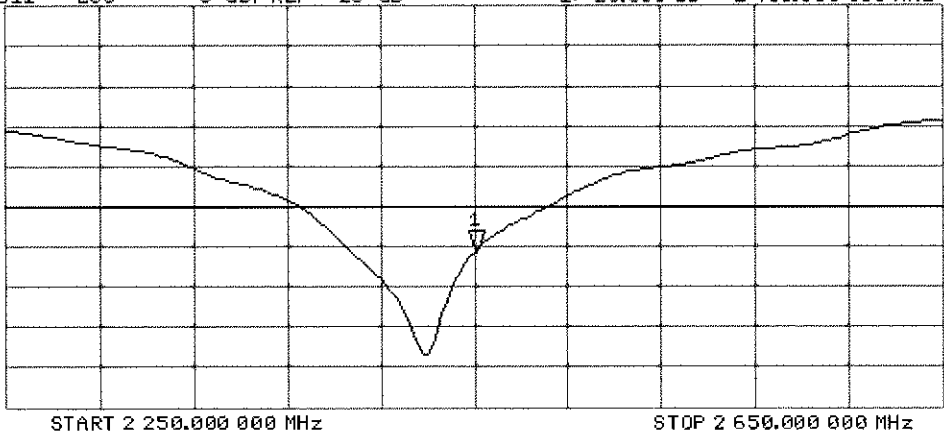
16 May 2018 12:03:43  
[CH1] S11 1 U FS 1: 51.910  $\Omega$  4.9629  $\Omega$  322.40  $\mu$ H 2 450.000 000 MHz

\*  
De1  
CA  
Avg  
16  
H1d



CH2 S11 LOG 5 dB/REF -20 dB 1:-25.659 dB 2 450.000 000 MHz

CA  
Avg  
16  
H1d



# Certification of Calibration

Object D2450V2 – SN: 945

Calibration procedure(s) Procedure for Calibration Extension for SAR Dipoles.

Extended Calibration date: May 16, 2019

Description: SAR Validation Dipole at 2450 MHz.

## Calibration Equipment used:

| Manufacturer          | Model     | Description                                             | Cal Date   | Cal Interval | Cal Due    | Serial Number |
|-----------------------|-----------|---------------------------------------------------------|------------|--------------|------------|---------------|
| Agilent               | 8753ES    | S-Parameter Network Analyzer                            | 10/2/2018  | Annual       | 10/2/2019  | US39170118    |
| Agilent               | N5182A    | MXG Vector Signal Generator                             | 6/15/2018  | Annual       | 6/15/2019  | MY47420837    |
| Amplifier Research    | 15S1G6    | Amplifier                                               | CBT        | N/A          | CBT        | 343972        |
| Anritsu               | ML2495A   | Power Meter                                             | 10/21/2018 | Annual       | 10/21/2019 | 941001        |
| Anritsu               | MA2411B   | Pulse Power Sensor                                      | 10/30/2018 | Annual       | 10/30/2019 | 1207470       |
| Anritsu               | MA2411B   | Pulse Power Sensor                                      | 11/20/2018 | Annual       | 11/20/2019 | 1339007       |
| Control Company       | 4040      | Temperature / Humidity Monitor                          | 2/28/2018  | Biennial     | 2/28/2020  | 150761911     |
| Control Company       | 4352      | Ultra Long Stem Thermometer                             | 2/28/2018  | Biennial     | 2/28/2020  | 170330160     |
| Keysight              | 772D      | Dual Directional Coupler                                | CBT        | N/A          | CBT        | MY52180215    |
| Keysight Technologies | 85033E    | Standard Mechanical Calibration Kit (DC to 9GHz, 3.5mm) | 6/4/2018   | Annual       | 6/4/2019   | MY53401181    |
| Mini-Circuits         | BW-N20W5+ | DC to 18 GHz Precision Fixed 20 dB Attenuator           | CBT        | N/A          | CBT        | N/A           |
| Mini-Circuits         | NLP-2950+ | Low Pass Filter DC to 2700 MHz                          | CBT        | N/A          | CBT        | N/A           |
| Narda                 | 4772-3    | Attenuator (3dB)                                        | CBT        | N/A          | CBT        | 9406          |
| Pasternack            | PE2209-10 | Bidirectional Coupler                                   | CBT        | N/A          | CBT        | N/A           |
| Pasternack            | PE5011-1  | Torque Wrench                                           | 7/19/2017  | Biennial     | 7/19/2019  | N/A           |
| SPEAG                 | DAKS-3.5  | Portable DAK                                            | 9/11/2018  | Annual       | 9/11/2019  | 1045          |
| SPEAG                 | EX3DV4    | SAR Probe                                               | 7/20/2018  | Annual       | 7/20/2019  | 7416          |
| SPEAG                 | DAE4      | Dasy Data Acquisition Electronics                       | 7/10/2018  | Annual       | 7/10/2019  | 1402          |

Measurement Uncertainty =  $\pm 23\%$  (k=2)

|                | Name            | Function                 | Signature           |
|----------------|-----------------|--------------------------|---------------------|
| Calibrated By: | Parker Jones    | Team Lead Engineer       | <i>Parker Jones</i> |
| Approved By:   | Kaitlin O'Keefe | Senior Technical Manager | <i>KOK</i>          |

# DIPOLE CALIBRATION EXTENSION

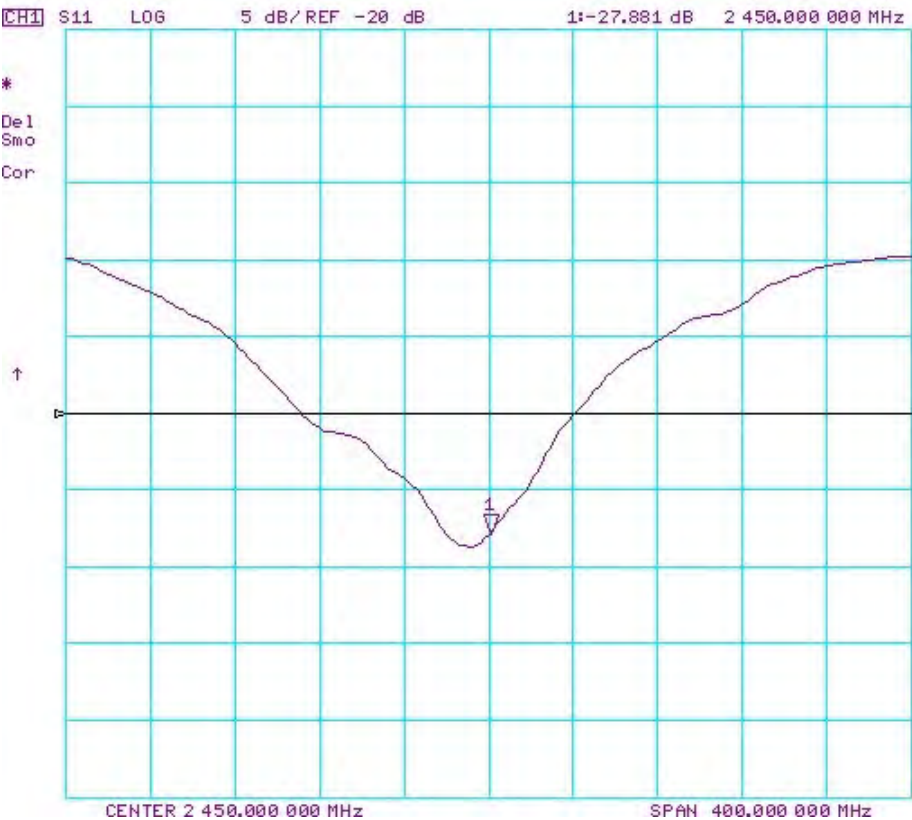
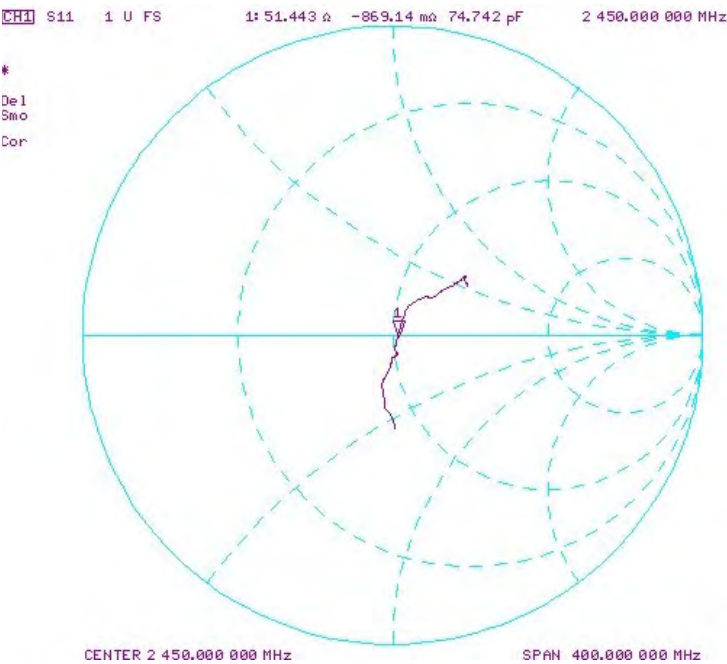
Per KDB 865664 D01, calibration intervals of up to three years may be considered for reference dipoles when it is demonstrated that the SAR target, impedance and return loss of a dipole have remained stable according to the following requirements:

1. The measured SAR does not deviate more than 10% from the target on the calibration certificate.
2. The return-loss does not deviate more than 20% from the previous measurement and meets the required 20dB minimum return-loss requirement.
3. The measurement of real or imaginary parts of impedance does not deviate more than 5Ω from the previous measurement.

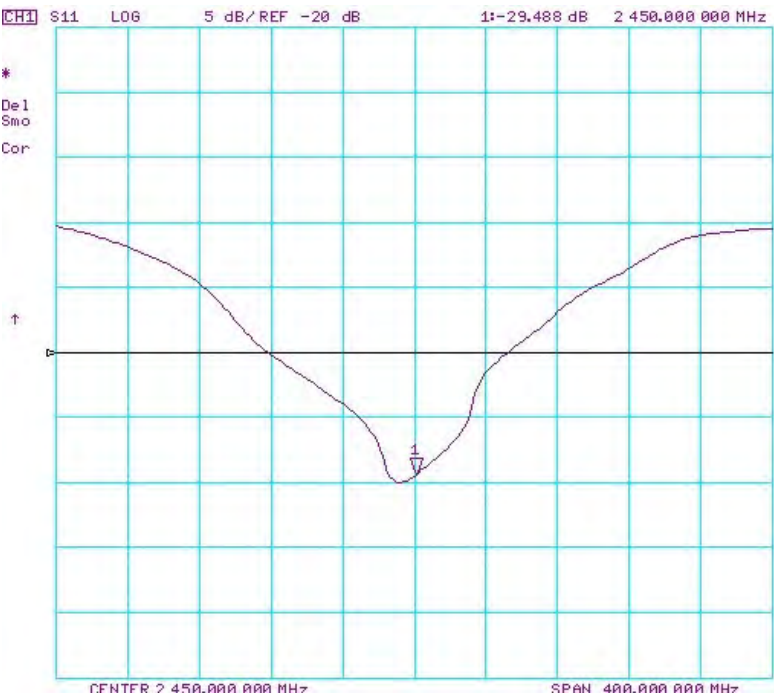
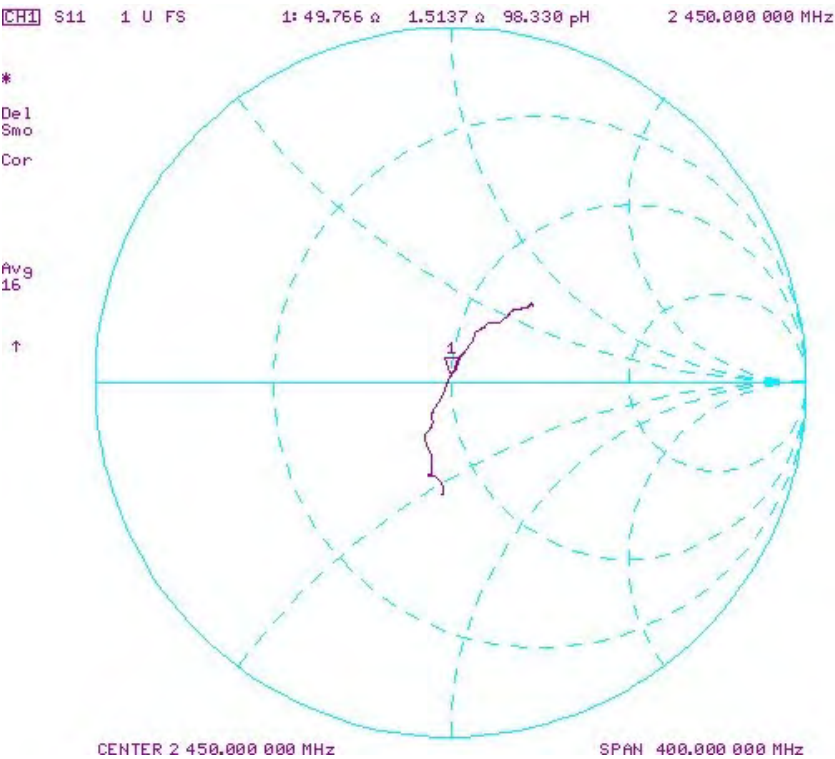
The following dipole was checked to pass the above 3 requirements to have 2-year calibration period from the calibration date:

| Calibration Date | Extension Date | Certificate Electrical Delay (ns) | Certificate SAR Target Head (1g) W/kg @ 20.0 dBm | Measured Head SAR (1g) W/kg @ 20.0 dBm | Deviation 1g (%) | Certificate SAR Target Body (10g) W/kg @ 20.0 dBm | Measured Body SAR (10g) W/kg @ 20.0 dBm | Deviation 10g (%) | Certificate Impedance Head (Ohm) Real | Measured Impedance Head (Ohm) Real | Difference (Ohm) Real | Certificate Impedance Head (Ohm) Imaginary | Measured Impedance Head (Ohm) Imaginary | Difference (Ohm) Imaginary | Certificate Return Loss Head (dB) | Measured Return Loss Head (dB) | Deviation (%) | PASS/FAIL |
|------------------|----------------|-----------------------------------|--------------------------------------------------|----------------------------------------|------------------|---------------------------------------------------|-----------------------------------------|-------------------|---------------------------------------|------------------------------------|-----------------------|--------------------------------------------|-----------------------------------------|----------------------------|-----------------------------------|--------------------------------|---------------|-----------|
| 5/16/2018        | 5/16/2019      | 1.157                             | 5.1                                              | 5.23                                   | 3.73%            | 2.38                                              | 2.44                                    | 2.52%             | 56.1                                  | 51.4                               | 4.7                   | 3.7                                        | -0.9                                    | 4.6                        | -23.5                             | -27.9                          | -18.60%       | PASS      |
| Calibration Date | Extension Date | Certificate Electrical Delay (ns) | Certificate SAR Target Body (1g) W/kg @ 20.0 dBm | Measured Body SAR (1g) W/kg @ 20.0 dBm | Deviation 1g (%) | Certificate SAR Target Body (10g) W/kg @ 20.0 dBm | Measured Body SAR (10g) W/kg @ 20.0 dBm | Deviation 10g (%) | Certificate Impedance Body (Ohm) Real | Measured Impedance Body (Ohm) Real | Difference (Ohm) Real | Certificate Impedance Body (Ohm) Imaginary | Measured Impedance Body (Ohm) Imaginary | Difference (Ohm) Imaginary | Certificate Return Loss Body (dB) | Measured Return Loss Body (dB) | Deviation (%) | PASS/FAIL |
| 5/16/2018        | 5/16/2019      | 1.157                             | 4.94                                             | 5.21                                   | 5.47%            | 2.32                                              | 2.38                                    | 2.59%             | 51.9                                  | 49.8                               | 2.1                   | 5                                          | 1.5                                     | 3.5                        | -25.7                             | -29.5                          | -14.70%       | PASS      |

Impedance & Return-Loss Measurement Plot for Head TSL



Impedance & Return-Loss Measurement Plot for Body TSL





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 Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Client **PG Test**

Certificate No: **D2600V2-1009 Jun18**

## CALIBRATION CERTIFICATE

Object **D2600V2 - SN:1009**

Calibration procedure(s) **QA CAL-05.v10**  
**Calibration procedure for dipole validation kits above 700 MHz**

Calibration date: **June 19, 2018**

SC ✓  
 6/28/18

BN ✓  
 7/01/18

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).  
 The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature ( $22 \pm 3$ )°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

| Primary Standards           | ID #               | Cal Date (Certificate No.)      | Scheduled Calibration |
|-----------------------------|--------------------|---------------------------------|-----------------------|
| Power meter NRP             | SN: 104778         | 04-Apr-18 (No. 217-02672/02673) | Apr-19                |
| Power sensor NRP-Z91        | SN: 103244         | 04-Apr-18 (No. 217-02672)       | Apr-19                |
| Power sensor NRP-Z91        | SN: 103245         | 04-Apr-18 (No. 217-02673)       | Apr-19                |
| Reference 20 dB Attenuator  | SN: 5058 (20k)     | 04-Apr-18 (No. 217-02682)       | Apr-19                |
| Type-N mismatch combination | SN: 5047.2 / 06327 | 04-Apr-18 (No. 217-02683)       | Apr-19                |
| Reference Probe EX3DV4      | SN: 7349           | 30-Dec-17 (No. EX3-7349_Dec17)  | Dec-18                |
| DAE4                        | SN: 601            | 26-Oct-17 (No. DAE4-601_Oct17)  | Oct-18                |

| Secondary Standards       | ID #           | Check Date (in house)             | Scheduled Check        |
|---------------------------|----------------|-----------------------------------|------------------------|
| Power meter EPM-442A      | SN: GB37480704 | 07-Oct-15 (in house check Oct-16) | In house check: Oct-18 |
| Power sensor HP 8481A     | SN: US37292783 | 07-Oct-15 (in house check Oct-16) | In house check: Oct-18 |
| Power sensor HP 8481A     | SN: MY41092317 | 07-Oct-15 (in house check Oct-16) | In house check: Oct-18 |
| RF generator R&S SMT-06   | SN: 100972     | 15-Jun-15 (in house check Oct-16) | In house check: Oct-18 |
| Network Analyzer HP 8753E | SN: US37390585 | 18-Oct-01 (in house check Oct-17) | In house check: Oct-18 |

Calibrated by: **Claudio Leubler** **Laboratory Technician**

Approved by: **Katja Pokovic** **Technical Manager**

Signature

Issued: June 21, 2018

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.



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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

**Glossary:**

|       |                                 |
|-------|---------------------------------|
| TSL   | tissue simulating liquid        |
| ConvF | sensitivity in TSL / NORM x,y,z |
| N/A   | not applicable or not measured  |

**Calibration is Performed According to the Following Standards:**

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
- IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

**Additional Documentation:**

- DASY4/5 System Handbook

**Methods Applied and Interpretation of Parameters:**

- Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- SAR measured:* SAR measured at the stated antenna input power.
- SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor  $k=2$ , which for a normal distribution corresponds to a coverage probability of approximately 95%.