

Plot: 8#

DUT: Guard Tour System; Type: WM-5000P4D; Serial: 33BC-1

Communication System: UID 0, Generic FDD-LTE (0); Frequency: 1880 MHz;Duty Cycle: 1:1

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.361$ S/m; $\epsilon_r = 40.69$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7896; ConvF(6.96, 7.29, 7.3) @ 1880 MHz; Calibrated: 11/7/2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1325; Calibrated: 10/8/2024
- Phantom: SAM-Twin V8.0 P1aP2a; Type: QD 000 P41 AA ;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

Head Right Tilt/LTE Band 2 50%RB Mid/Area Scan (8x10x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.123 W/kg

Head Right Tilt/LTE Band 2 50%RB Mid/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 5.420 V/m; Power Drift = 0.09 dB

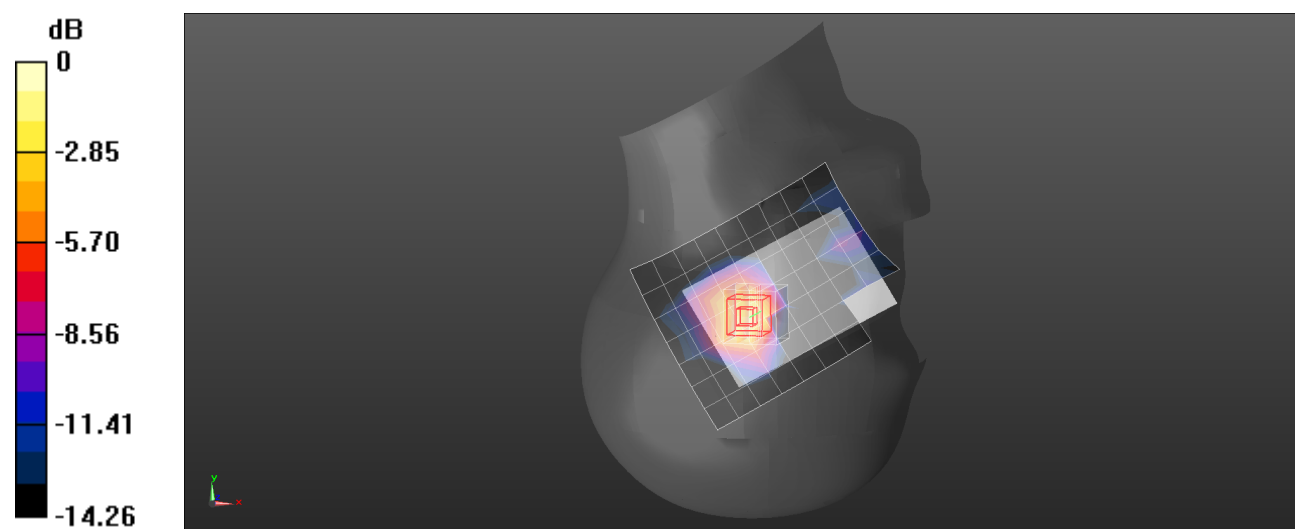
Peak SAR (extrapolated) = 0.159 W/kg

SAR(1 g) = 0.124 W/kg; SAR(10 g) = 0.079 W/kg

Smallest distance from peaks to all points 3 dB below = 12.8 mm

Ratio of SAR at M2 to SAR at M1 = 80%

Maximum value of SAR (measured) = 0.147 W/kg



0 dB = 0.147 W/kg = -8.33 dBW/kg

Plot: 9#**DUT: Guard Tour System; Type: WM-5000P4D; Serial: 33BC-1**

Communication System: UID 0, Generic FDD-LTE (0); Frequency: 1880 MHz;Duty Cycle: 1:1

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.361$ S/m; $\epsilon_r = 40.69$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7896; ConvF(6.96, 7.29, 7.3) @ 1880 MHz; Calibrated: 11/7/2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1325; Calibrated: 10/8/2024
- Phantom: SAM-Twin V8.0 P1aP2a; Type: QD 000 P41 AA ;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

Body Front/LTE Band 2 1RB Mid/Area Scan (9x12x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.147 W/kg

Body Front/LTE Band 2 1RB Mid/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 4.930 V/m; Power Drift = 0.08 dB

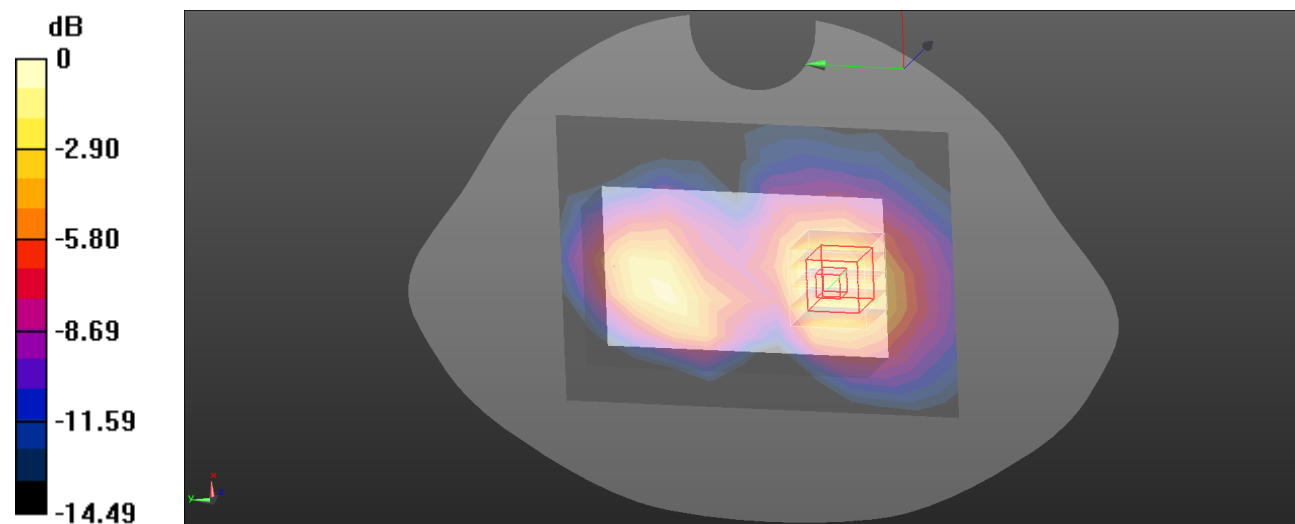
Peak SAR (extrapolated) = 0.203 W/kg

SAR(1 g) = 0.151 W/kg; SAR(10 g) = 0.099 W/kg

Smallest distance from peaks to all points 3 dB below = 15.2 mm

Ratio of SAR at M2 to SAR at M1 = 74.4%

Maximum value of SAR (measured) = 0.184 W/kg



0 dB = 0.184 W/kg = -7.35 dBW/kg

Plot: 10#

DUT: Guard Tour System; Type: WM-5000P4D; Serial: 33BC-1

Communication System: UID 0, Generic FDD-LTE (0); Frequency: 1880 MHz;Duty Cycle: 1:1

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.361$ S/m; $\epsilon_r = 40.69$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7896; ConvF(6.96, 7.29, 7.3) @ 1880 MHz; Calibrated: 11/7/2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1325; Calibrated: 10/8/2024
- Phantom: SAM-Twin V8.0 P1aP2a; Type: QD 000 P41 AA ;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

Body Front/LTE Band 2 50%RB Mid/Area Scan (9x12x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.140 W/kg

Body Front/LTE Band 2 50%RB Mid/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 4.498 V/m; Power Drift = -0.12 dB

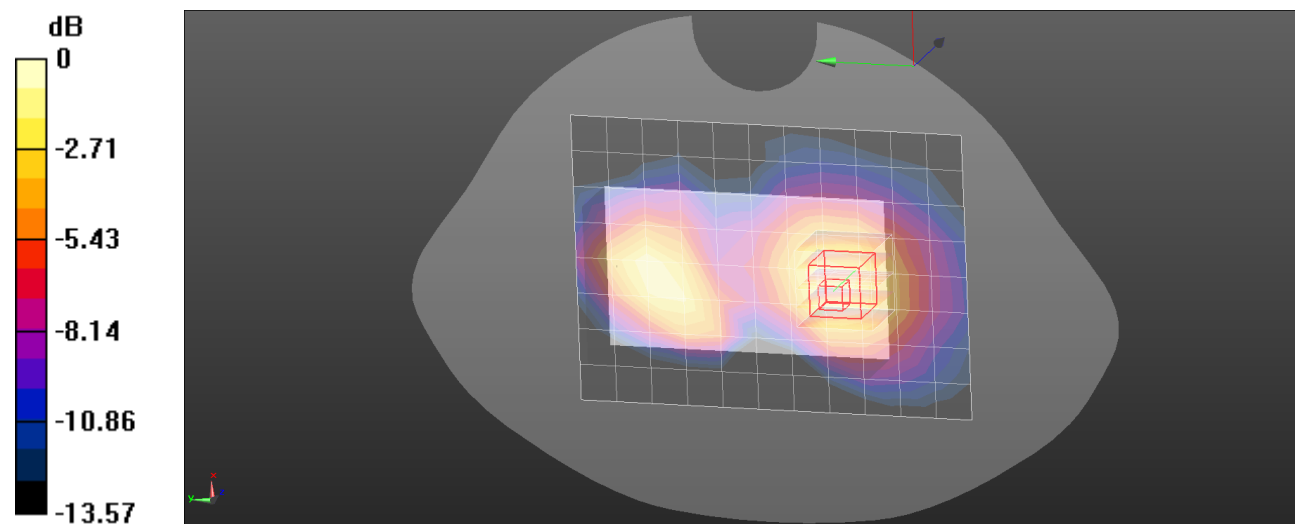
Peak SAR (extrapolated) = 0.154 W/kg

SAR(1 g) = 0.114 W/kg; SAR(10 g) = 0.075 W/kg

Smallest distance from peaks to all points 3 dB below = 14.8 mm

Ratio of SAR at M2 to SAR at M1 = 72.7%

Maximum value of SAR (measured) = 0.139 W/kg



0 dB = 0.139 W/kg = -8.57 dBW/kg

Plot: 11#**DUT: Guard Tour System; Type: WM-5000P4D; Serial: 33BC-1**

Communication System: UID 0, Generic FDD-LTE (0); Frequency: 1860 MHz;Duty Cycle: 1:1

Medium parameters used: $f = 1860$ MHz; $\sigma = 1.36$ S/m; $\epsilon_r = 40.717$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7896; ConvF(6.96, 7.29, 7.3) @ 1860 MHz; Calibrated: 11/7/2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1325; Calibrated: 10/8/2024
- Phantom: SAM-Twin V8.0 P1aP2a; Type: QD 000 P41 AA ;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

Body Back/LTE Band 2 1RB Low/Area Scan (9x12x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.982 W/kg

Body Back/LTE Band 2 1RB Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 21.97 V/m; Power Drift = -0.05 dB

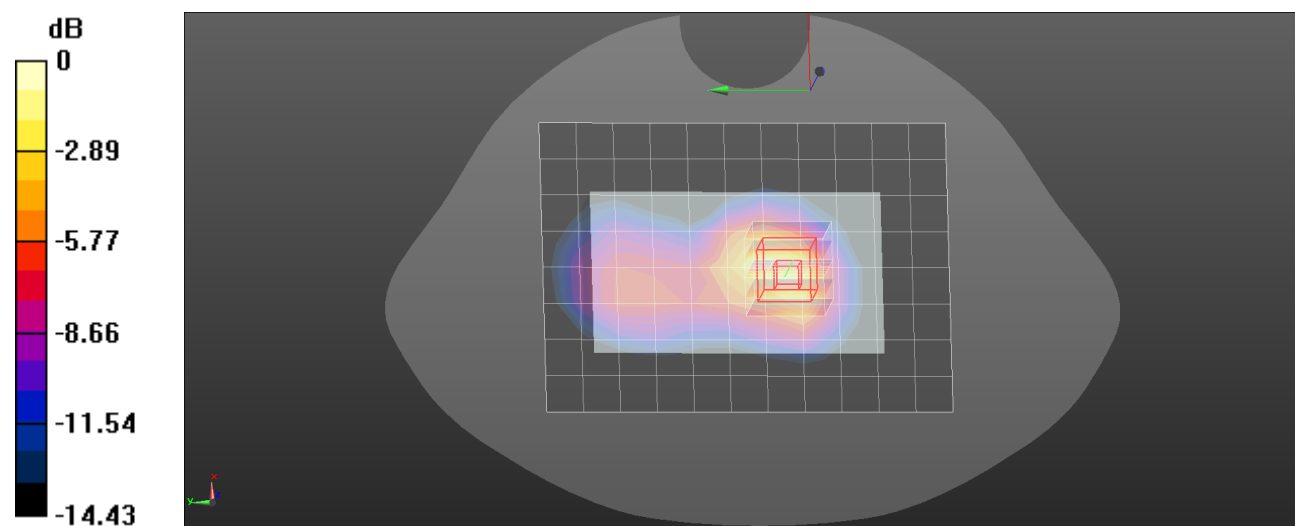
Peak SAR (extrapolated) = 1.36 W/kg

SAR(1 g) = 0.899 W/kg; SAR(10 g) = 0.508 W/kg

Smallest distance from peaks to all points 3 dB below = 11.5 mm

Ratio of SAR at M2 to SAR at M1 = 66.5%

Maximum value of SAR (measured) = 1.22 W/kg



0 dB = 1.22 W/kg = 0.86 dBW/kg

Plot: 12#**DUT: Guard Tour System; Type: WM-5000P4D; Serial: 33BC-1**

Communication System: UID 0, Generic FDD-LTE (0); Frequency: 1880 MHz;Duty Cycle: 1:1

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.361$ S/m; $\epsilon_r = 40.69$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7896; ConvF(6.96, 7.29, 7.3) @ 1880 MHz; Calibrated: 11/7/2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1325; Calibrated: 10/8/2024
- Phantom: SAM-Twin V8.0 P1aP2a; Type: QD 000 P41 AA ;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

Body Back/LTE Band 2 1RB Mid/Area Scan (9x12x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.904 W/kg

Body Back/LTE Band 2 1RB Mid/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 21.53 V/m; Power Drift = -0.19 dB

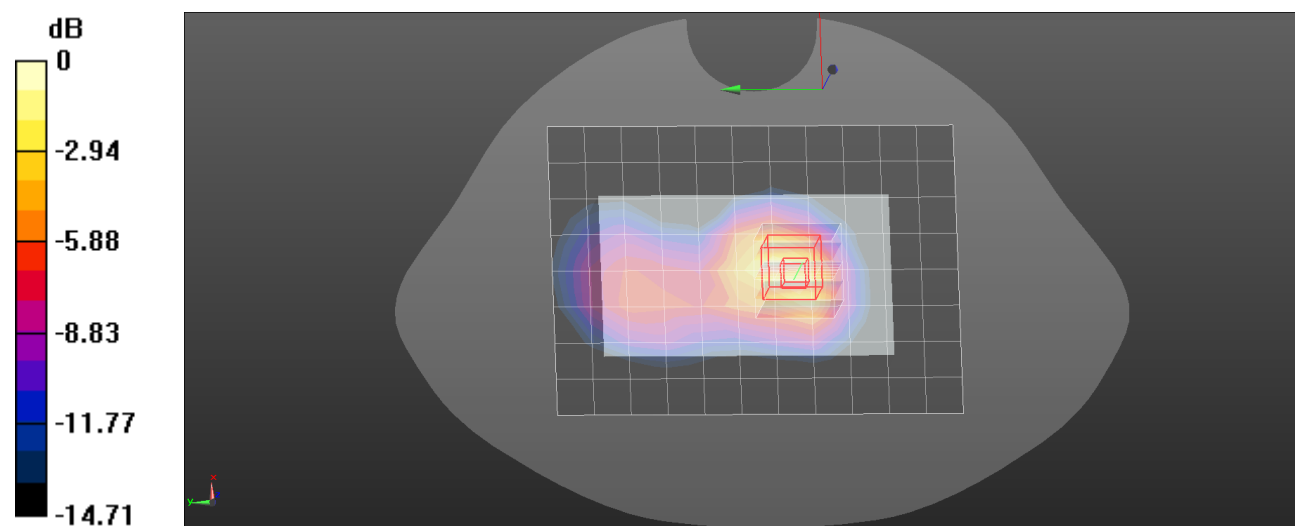
Peak SAR (extrapolated) = 1.25 W/kg

SAR(1 g) = 0.794 W/kg; SAR(10 g) = 0.449 W/kg

Smallest distance from peaks to all points 3 dB below = 10.2 mm

Ratio of SAR at M2 to SAR at M1 = 64.4%

Maximum value of SAR (measured) = 1.10 W/kg



0 dB = 1.10 W/kg = 0.41 dBW/kg

Plot: 13#**DUT: Guard Tour System; Type: WM-5000P4D; Serial: 33BC-1**

Communication System: UID 0, Generic FDD-LTE (0); Frequency: 1900 MHz;Duty Cycle: 1:1

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.362$ S/m; $\epsilon_r = 40.663$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7896; ConvF(6.96, 7.29, 7.3) @ 1900 MHz; Calibrated: 11/7/2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1325; Calibrated: 10/8/2024
- Phantom: SAM-Twin V8.0 P1aP2a; Type: QD 000 P41 AA ;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

Body Back/LTE Band 2 1RB High/Area Scan (9x12x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.770 W/kg

Body Back/LTE Band 2 1RB High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.016 V/m; Power Drift = -0.09 dB

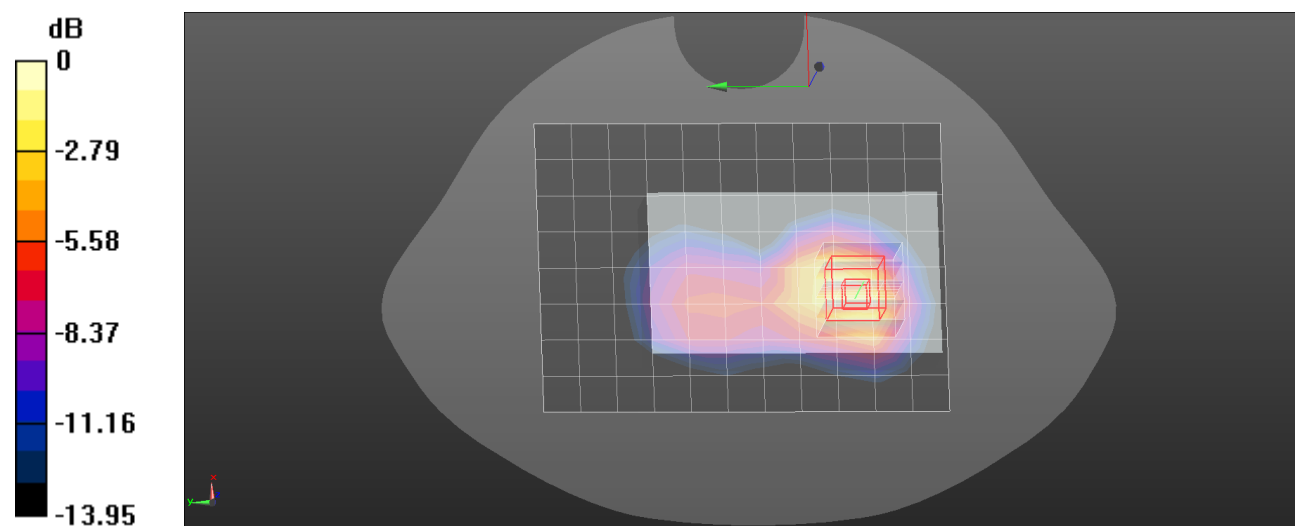
Peak SAR (extrapolated) = 1.09 W/kg

SAR(1 g) = 0.720 W/kg; SAR(10 g) = 0.421 W/kg

Smallest distance from peaks to all points 3 dB below = 12.5 mm

Ratio of SAR at M2 to SAR at M1 = 65.4%

Maximum value of SAR (measured) = 0.962 W/kg



0 dB = 0.962 W/kg = -0.17 dBW/kg

Plot: 14#**DUT: Guard Tour System; Type: WM-5000P4D; Serial: 33BC-1**

Communication System: UID 0, Generic FDD-LTE (0); Frequency: 1860 MHz;Duty Cycle: 1:1

Medium parameters used: $f = 1860$ MHz; $\sigma = 1.36$ S/m; $\epsilon_r = 40.717$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7896; ConvF(6.96, 7.29, 7.3) @ 1860 MHz; Calibrated: 11/7/2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1325; Calibrated: 10/8/2024
- Phantom: SAM-Twin V8.0 P1aP2a; Type: QD 000 P41 AA ;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

Body Back/LTE Band 2 50%RB Low/Area Scan (8x11x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.875 W/kg

Body Back/LTE Band 2 50%RB Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 17.28 V/m; Power Drift = 0.13 dB

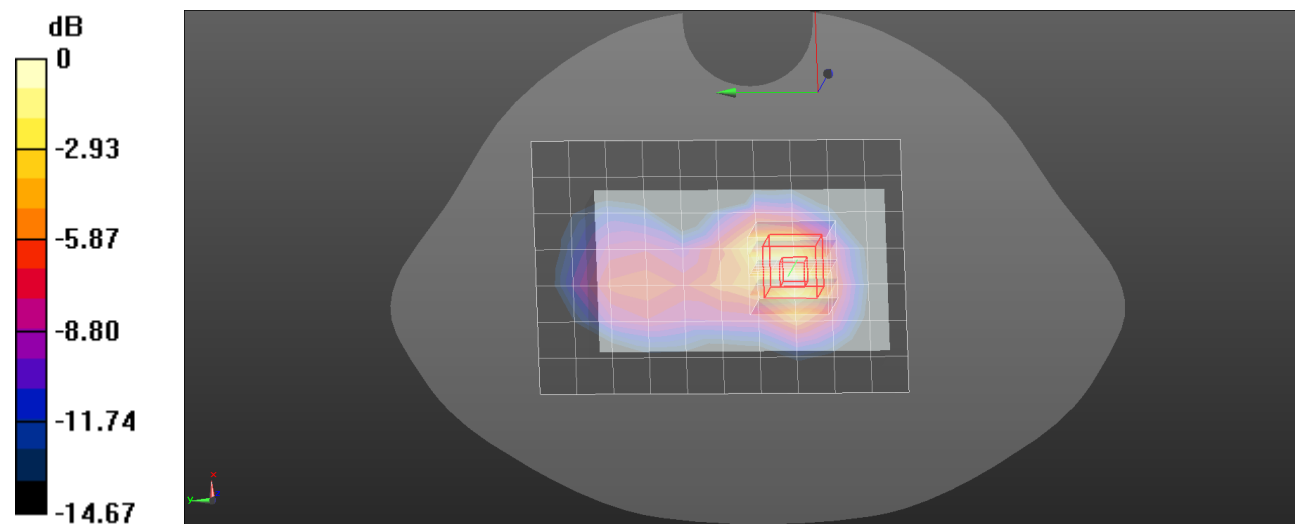
Peak SAR (extrapolated) = 1.02 W/kg

SAR(1 g) = 0.661 W/kg; SAR(10 g) = 0.372 W/kg

Smallest distance from peaks to all points 3 dB below = 11.3 mm

Ratio of SAR at M2 to SAR at M1 = 63.9%

Maximum value of SAR (measured) = 0.910 W/kg



0 dB = 0.910 W/kg = -0.41 dBW/kg

Plot: 15#**DUT: Guard Tour System; Type: WM-5000P4D; Serial: 33BC-1**

Communication System: UID 0, Generic FDD-LTE (0); Frequency: 1880 MHz;Duty Cycle: 1:1

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.361$ S/m; $\epsilon_r = 40.69$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7896; ConvF(6.96, 7.29, 7.3) @ 1880 MHz; Calibrated: 11/7/2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1325; Calibrated: 10/8/2024
- Phantom: SAM-Twin V8.0 P1aP2a; Type: QD 000 P41 AA ;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

Body Back/LTE Band 2 50%RB Mid/Area Scan (8x11x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.784 W/kg

Body Back/LTE Band 2 50%RB Mid/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 19.79 V/m; Power Drift = -0.14 dB

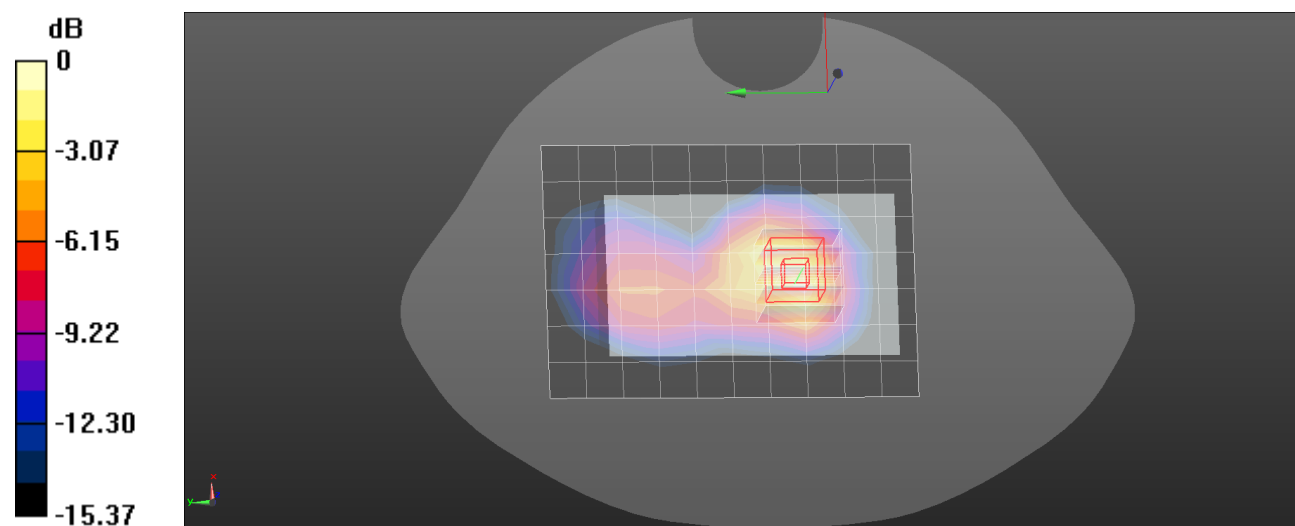
Peak SAR (extrapolated) = 0.995 W/kg

SAR(1 g) = 0.643 W/kg; SAR(10 g) = 0.364 W/kg

Smallest distance from peaks to all points 3 dB below = 11.3 mm

Ratio of SAR at M2 to SAR at M1 = 64.6%

Maximum value of SAR (measured) = 0.866 W/kg



0 dB = 0.866 W/kg = -0.62 dBW/kg

Plot: 16#**DUT: Guard Tour System; Type: WM-5000P4D; Serial: 33BC-1**

Communication System: UID 0, Generic FDD-LTE (0); Frequency: 1900 MHz;Duty Cycle: 1:1

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.362$ S/m; $\epsilon_r = 40.663$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7896; ConvF(6.96, 7.29, 7.3) @ 1900 MHz; Calibrated: 11/7/2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1325; Calibrated: 10/8/2024
- Phantom: SAM-Twin V8.0 P1aP2a; Type: QD 000 P41 AA ;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

Body Back/LTE Band 2 50%RB High/Area Scan (8x11x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.712 W/kg

Body Back/LTE Band 2 50%RB High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 19.54 V/m; Power Drift = -0.07 dB

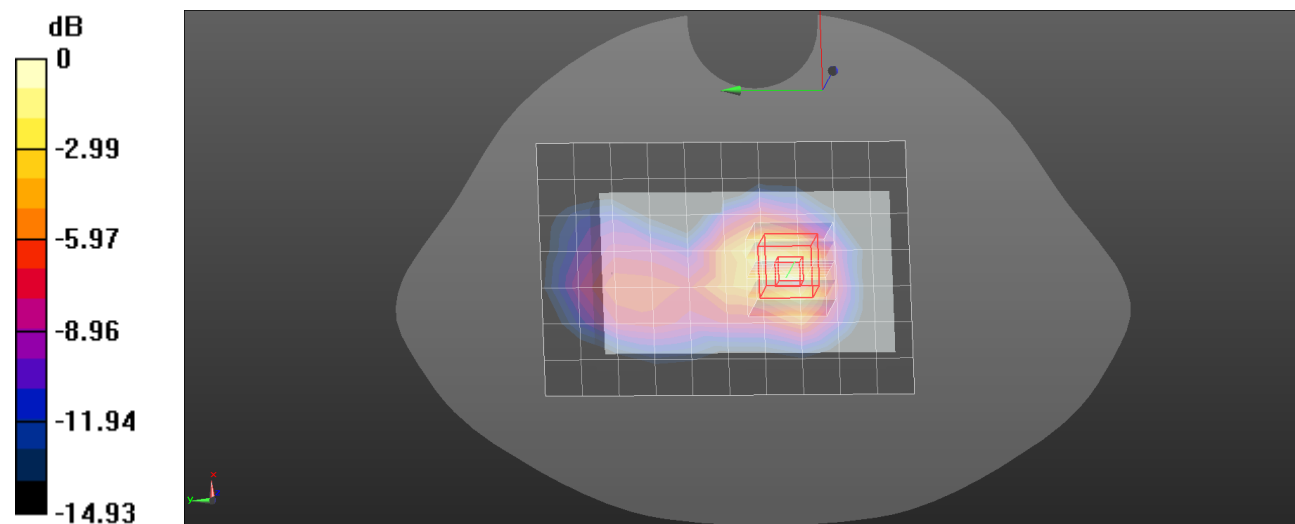
Peak SAR (extrapolated) = 0.956 W/kg

SAR(1 g) = 0.612 W/kg; SAR(10 g) = 0.343 W/kg

Smallest distance from peaks to all points 3 dB below = 10.2 mm

Ratio of SAR at M2 to SAR at M1 = 63.5%

Maximum value of SAR (measured) = 0.840 W/kg



0 dB = 0.840 W/kg = -0.76 dBW/kg

Plot: 17#**DUT: Guard Tour System; Type: WM-5000P4D; Serial: 33BC-1**

Communication System: UID 0, Generic FDD-LTE (0); Frequency: 1860 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1860$ MHz; $\sigma = 1.36$ S/m; $\epsilon_r = 40.717$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7896; ConvF(6.96, 7.29, 7.3) @ 1860 MHz; Calibrated: 11/7/2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1325; Calibrated: 10/8/2024
- Phantom: SAM-Twin V8.0 P1aP2a; Type: QD 000 P41 AA ;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

Body Back/LTE Band 2 100%RB Low/Area Scan (8x11x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.753 W/kg

Body Back/LTE Band 2 100%RB Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 19.75 V/m; Power Drift = -0.06 dB

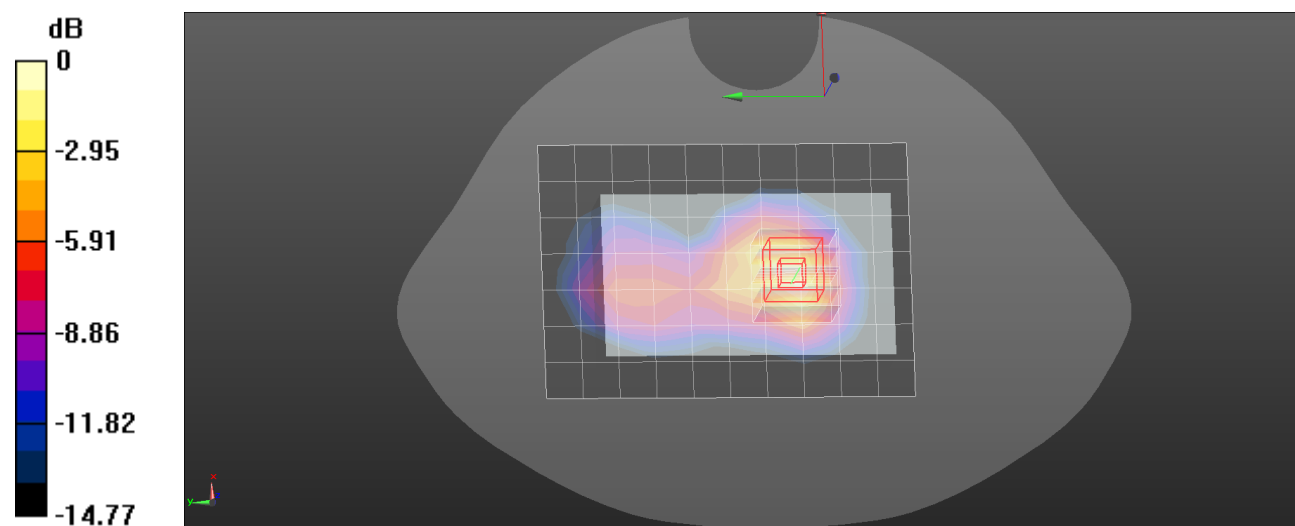
Peak SAR (extrapolated) = 0.988 W/kg

SAR(1 g) = 0.643 W/kg; SAR(10 g) = 0.362 W/kg

Smallest distance from peaks to all points 3 dB below = 11.5 mm

Ratio of SAR at M2 to SAR at M1 = 65.2%

Maximum value of SAR (measured) = 0.864 W/kg



0 dB = 0.864 W/kg = -0.63 dBW/kg

Plot: 18#

DUT: Guard Tour System; Type: WM-5000P4D; Serial: 33BC-1

Communication System: UID 0, Generic FDD-LTE (0); Frequency: 1880 MHz;Duty Cycle: 1:1

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.361$ S/m; $\epsilon_r = 40.69$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7896; ConvF(6.96, 7.29, 7.3) @ 1880 MHz; Calibrated: 11/7/2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1325; Calibrated: 10/8/2024
- Phantom: SAM-Twin V8.0 P1aP2a; Type: QD 000 P41 AA ;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

Body Back/LTE Band 2 100%RB Mid/Area Scan (9x12x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.649 W/kg

Body Back/LTE Band 2 100%RB Mid/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 7.714 V/m; Power Drift = -0.10 dB

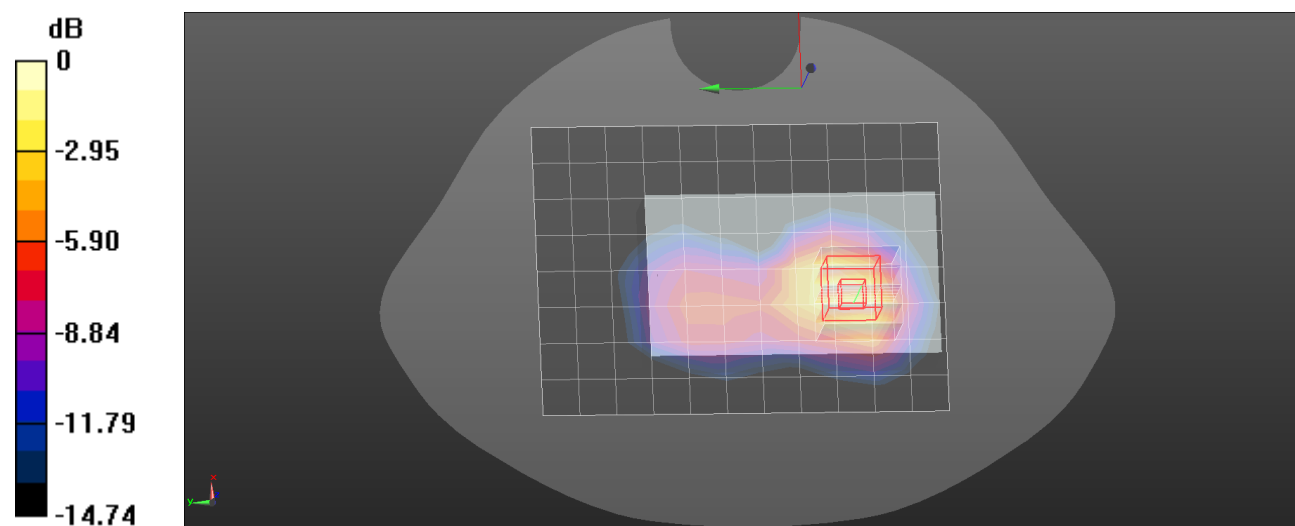
Peak SAR (extrapolated) = 0.919 W/kg

SAR(1 g) = 0.591 W/kg; SAR(10 g) = 0.338 W/kg

Smallest distance from peaks to all points 3 dB below = 10.7 mm

Ratio of SAR at M2 to SAR at M1 = 64.7%

Maximum value of SAR (measured) = 0.807 W/kg



0 dB = 0.807 W/kg = -0.93 dBW/kg

Plot: 19#

DUT: Guard Tour System; Type: WM-5000P4D; Serial: 33BC-1

Communication System: UID 0, Generic FDD-LTE (0); Frequency: 1900 MHz;Duty Cycle: 1:1

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.362$ S/m; $\epsilon_r = 40.663$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7896; ConvF(6.96, 7.29, 7.3) @ 1900 MHz; Calibrated: 11/7/2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1325; Calibrated: 10/8/2024
- Phantom: SAM-Twin V8.0 P1aP2a; Type: QD 000 P41 AA ;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

Body Back/LTE Band 2 100%RB High/Area Scan (8x11x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.663 W/kg

Body Back/LTE Band 2 100%RB High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 18.58 V/m; Power Drift = -0.12 dB

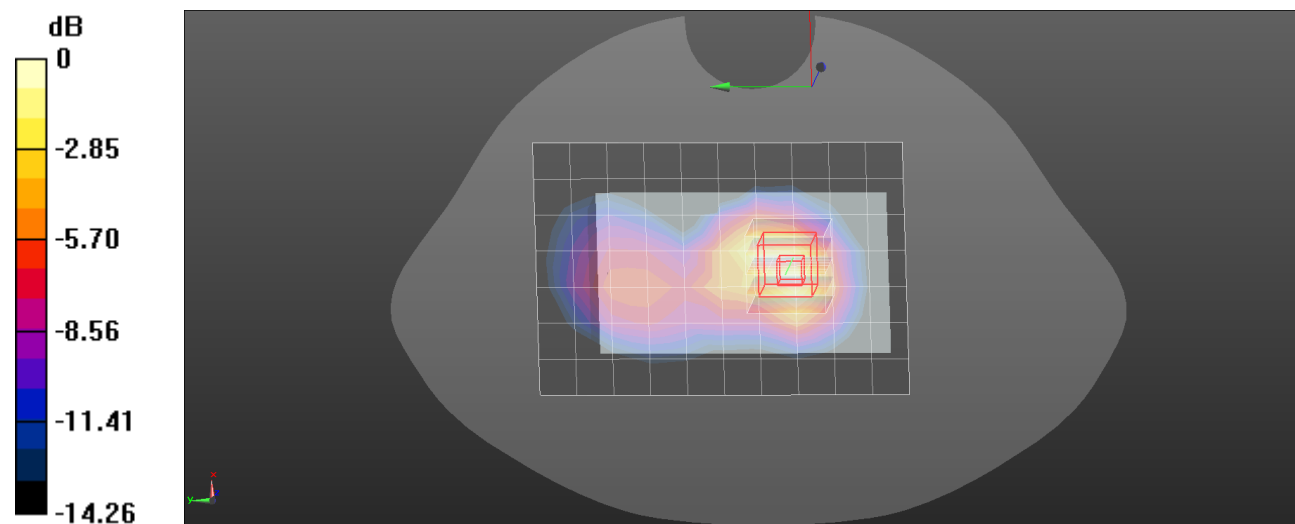
Peak SAR (extrapolated) = 0.752 W/kg

SAR(1 g) = 0.479 W/kg; SAR(10 g) = 0.271 W/kg

Smallest distance from peaks to all points 3 dB below = 10.2 mm

Ratio of SAR at M2 to SAR at M1 = 62.5%

Maximum value of SAR (measured) = 0.666 W/kg



0 dB = 0.666 W/kg = -1.77 dBW/kg

Plot: 20#

DUT: Guard Tour System; Type: WM-5000P4D; Serial: 33BC-1

Communication System: UID 0, Generic FDD-LTE (0); Frequency: 1860 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1860$ MHz; $\sigma = 1.36$ S/m; $\epsilon_r = 40.717$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7896; ConvF(6.96, 7.29, 7.3) @ 1860 MHz; Calibrated: 11/7/2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1325; Calibrated: 10/8/2024
- Phantom: SAM-Twin V8.0 P1aP2a; Type: QD 000 P41 AA ;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

Body Back/LTE Band 2 1RB Low Repeated/Area Scan (8x11x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 1.01 W/kg

Body Back/LTE Band 2 1RB Low Repeated/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 22.93 V/m; Power Drift = -0.10 dB

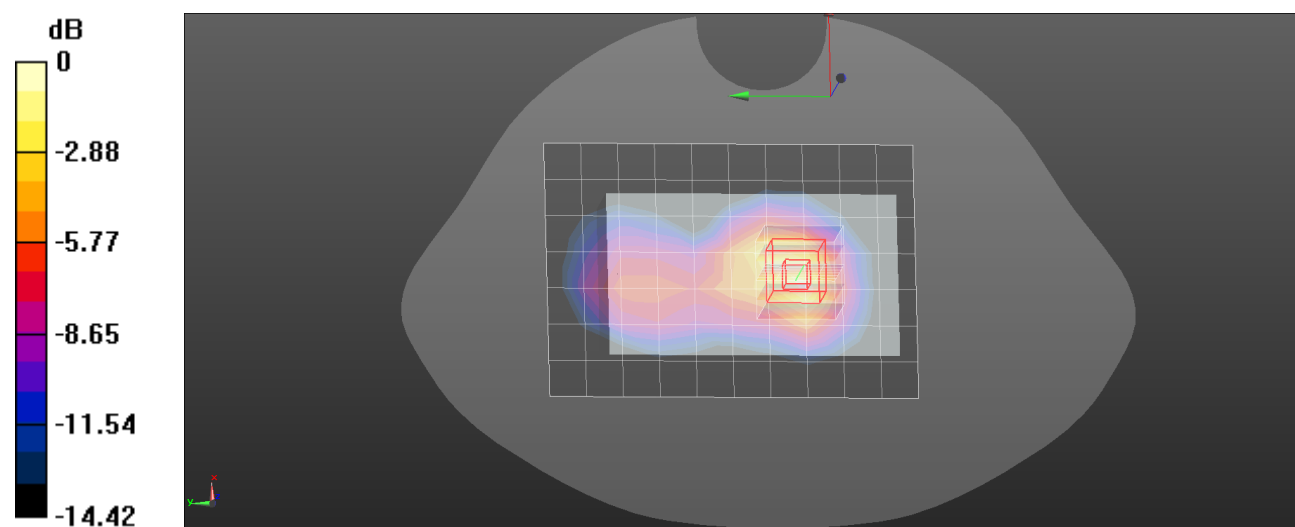
Peak SAR (extrapolated) = 1.29 W/kg

SAR(1 g) = 0.848 W/kg; SAR(10 g) = 0.482 W/kg

Smallest distance from peaks to all points 3 dB below = 11.3 mm

Ratio of SAR at M2 to SAR at M1 = 66.1%

Maximum value of SAR (measured) = 1.15 W/kg



0 dB = 1.15 W/kg = 0.61 dBW/kg

APPENDIX A MEASUREMENT UNCERTAINTY

The uncertainty budget has been determined for the measurement system and is given in the following Table.

Measurement uncertainty evaluation for IEEE1528-2013 SAR test

Source of uncertainty	Tolerance/ Uncertainty ± %	Probability distribution	Divisor	ci (1 g)	ci (10 g)	Standard Uncertainty ± %, (1 g)	Standard Uncertainty ± %, (10 g)
Measurement system							
Probe calibration	13.9	N	1	1	1	13.9	13.9
Axial Isotropy	4.7	R	$\sqrt{3}$	1	1	2.7	2.7
Hemispherical Isotropy	9.6	R	$\sqrt{3}$	0	0	0.0	0.0
Boundary effect	1.0	R	$\sqrt{3}$	1	1	0.6	0.6
Linearity	4.7	R	$\sqrt{3}$	1	1	2.7	2.7
Detection limits	1.0	R	$\sqrt{3}$	1	1	0.6	0.6
Modulation response	4.0	R	$\sqrt{3}$	1	1	2.3	2.3
Readout electronics	0.3	N	1	1	1	0.3	0.3
Response time	0.0	R	$\sqrt{3}$	1	1	0.0	0.0
Integration time	0.0	R	$\sqrt{3}$	1	1	0.0	0.0
RF ambient conditions – noise	1.0	R	$\sqrt{3}$	1	1	0.6	0.6
RF ambient conditions–reflections	1.0	R	$\sqrt{3}$	1	1	0.6	0.6
Probe positioner mech. Restrictions	0.8	R	$\sqrt{3}$	1	1	0.5	0.5
Probe positioning with respect to phantom shell	6.7	R	$\sqrt{3}$	1	1	3.9	3.9
Extrapolation, interpolation, and integrations algorithms for max. SAR evaluation	3.9	R	$\sqrt{3}$	1	1	2.3	2.3
Test sample related							
Test sample positioning	2.8	N	1	1	1	2.8	2.8
Device holder uncertainty	6.3	N	1	1	1	6.3	6.3
Drift of output power	5.0	R	$\sqrt{3}$	1	1	2.9	2.9
SAR scaling	2.0	R	$\sqrt{3}$	1	1	1.2	1.2
Phantom and tissue parameters							
Phantom uncertainty (shape and thickness tolerances)	4.0	R	$\sqrt{3}$	1	1	2.3	2.3
Uncertainty in SAR correction for deviations in permittivity and conductivity	1.9	N	1	1	0.84	1.9	1.6
Liquid conductivity measurement	5.5	N	1	0.78	0.71	4.3	3.9
Liquid permittivity measurement	2.9	N	1	0.23	0.26	0.7	0.8
Liquid conductivity—temperature uncertainty	1.7	R	$\sqrt{3}$	0.78	0.71	0.8	0.7
Liquid permittivity—temperature uncertainty	2.7	R	$\sqrt{3}$	0.23	0.26	0.4	0.4
Combined standard uncertainty		RSS				12.2	12.0
Expanded uncertainty 95 % confidence interval)						24.3	23.9

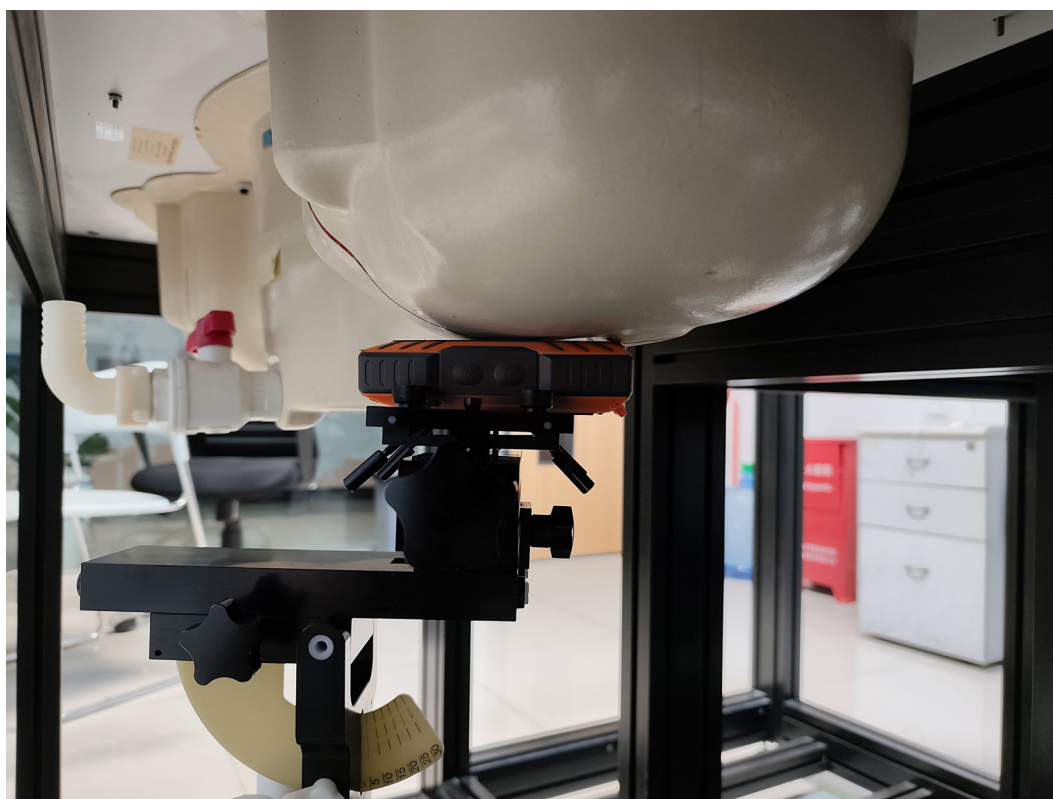
APPENDIX B EUT TEST POSITION PHOTOS

Liquid depth $\geq 15\text{cm}$

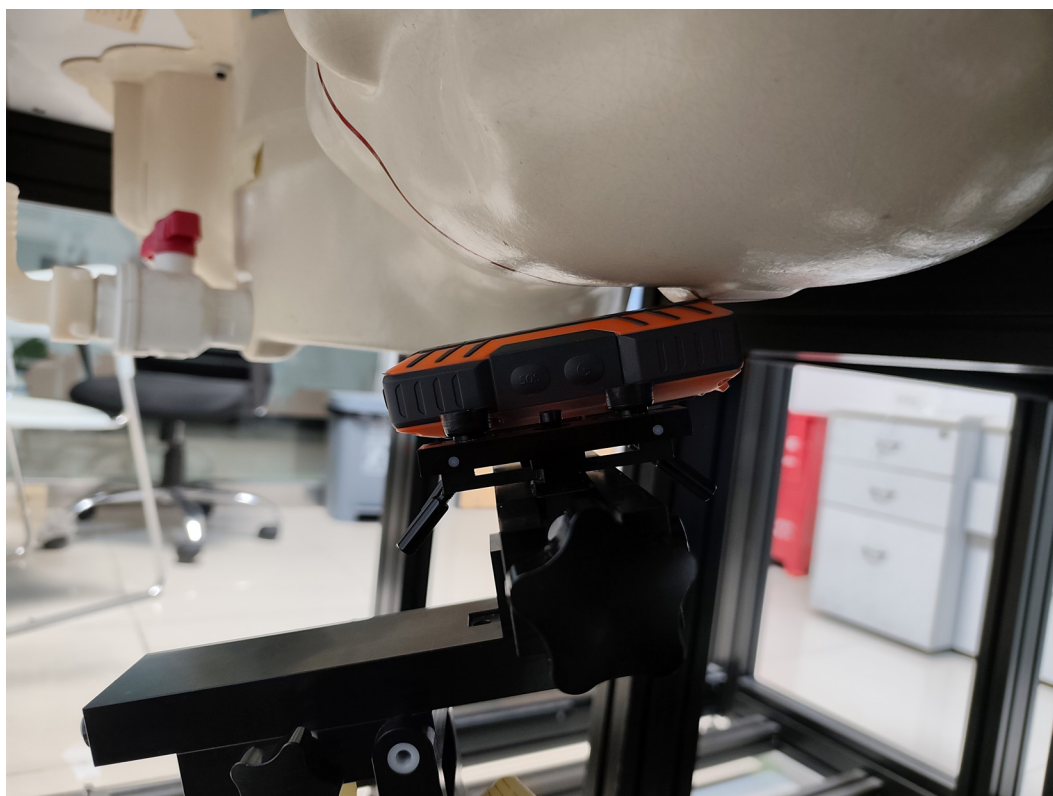
Phantom: SAM-Twin V8.0 P1aP2a; Type: QD 000 P41 AA ; Serial: 1962



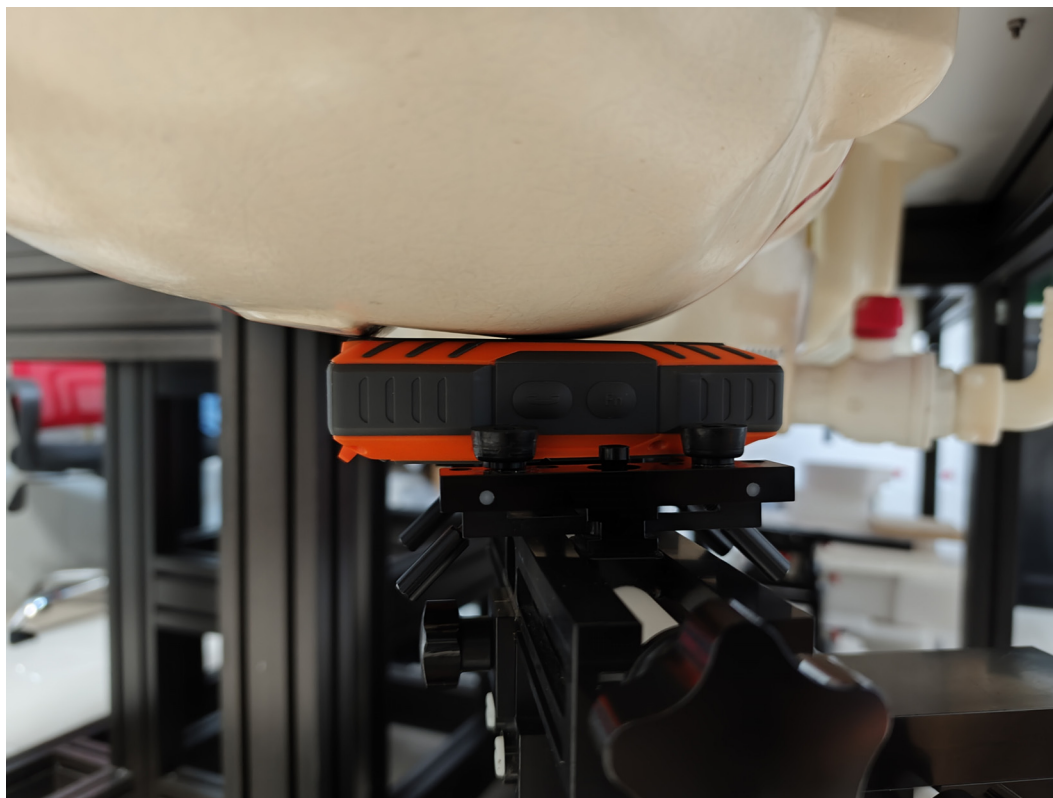
Head Left Cheek Setup Photo (0 mm)



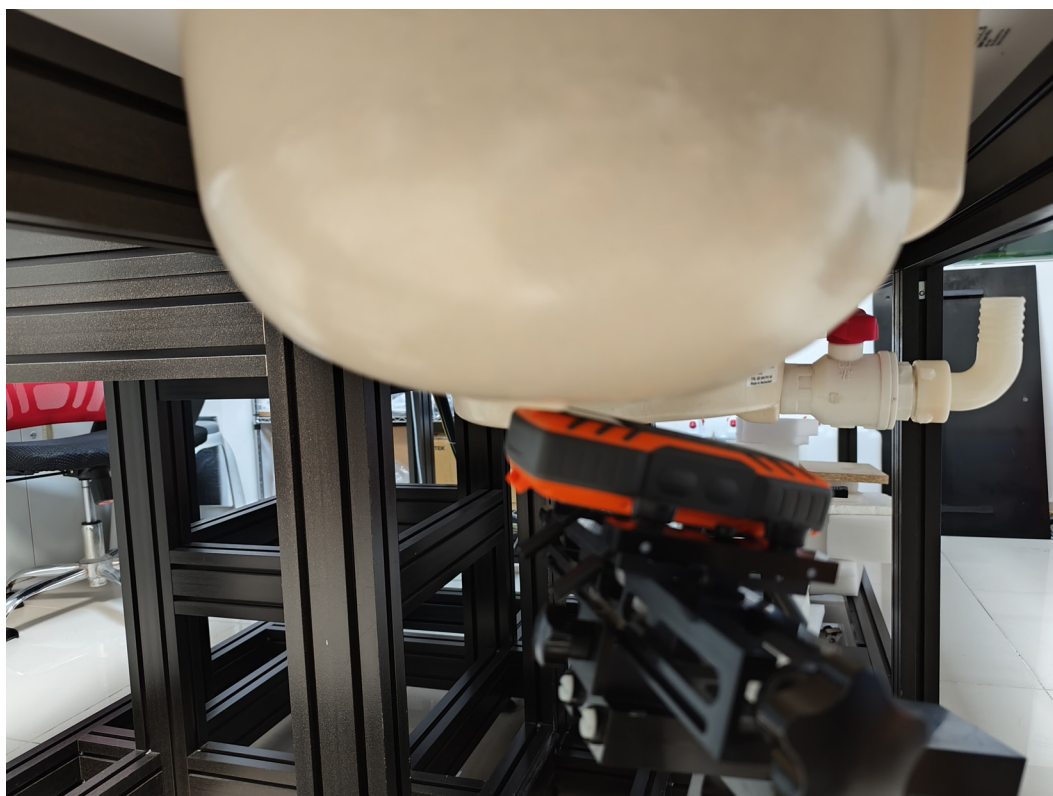
Head Left Tilt Setup Photo (0 mm)



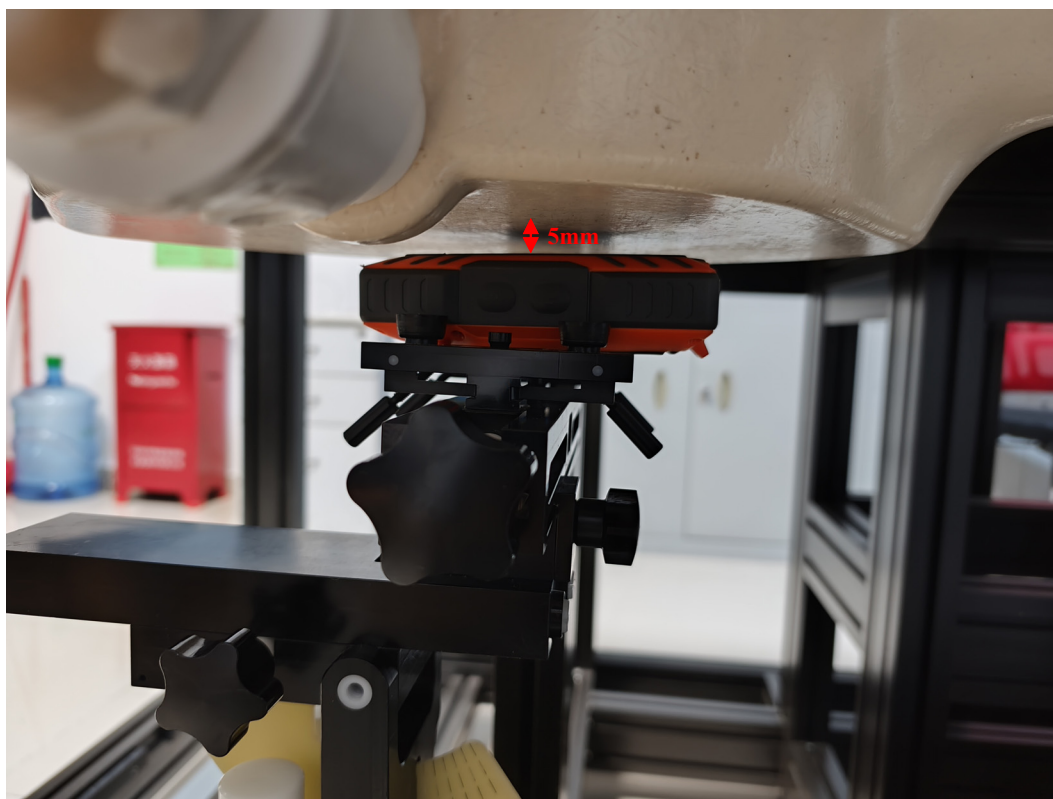
Head Right Cheek Setup Photo (0 mm)



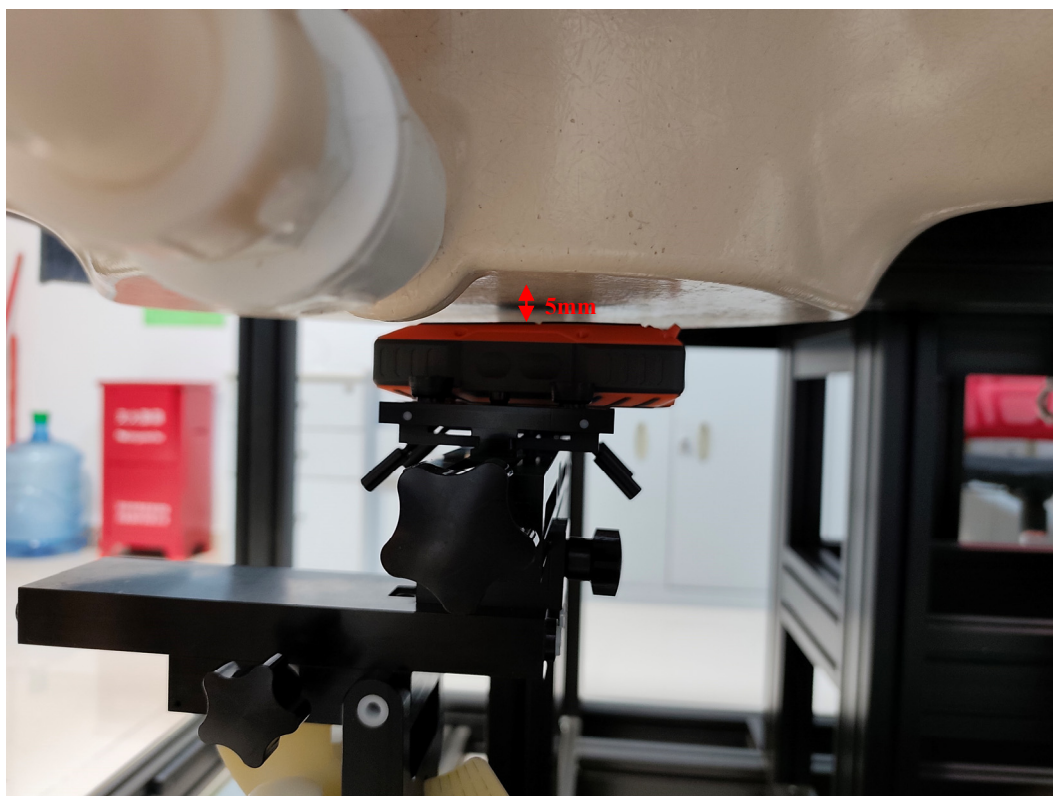
Head Right Tilt Setup Photo (0 mm)



Body Front Setup Photo (5 mm)



Body Back Setup Photo (5 mm)



APPENDIX C CALIBRATION CERTIFICATES**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

BACL
Sunnyvale, USA

Certificate No.

EX-7896_Nov24**CALIBRATION CERTIFICATE**

Object

EX3DV4 - SN:7896

Calibration procedure(s)

QA CAL-01.v10, QA CAL-12.v10, QA CAL-14.v7, QA CAL-23.v6,
QA CAL-25.v8
Calibration procedure for dosimetric E-field probes

Calibration date

November 07, 2024

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 ± 3) °C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP2	SN: 104778	26-Mar-24 (No. 217-04036/04037)	Mar-25
Power sensor NRP-Z91	SN: 103244	26-Mar-24 (No. 217-04036)	Mar-25
OCP DAK-3.5 (weighted)	SN: 1249	23-Sep-24 (OCP-DAK3.5-1249_Sep24)	Sep-25
OCP DAK-12	SN: 1016	24-Sep-24 (OCP-DAK12-1016_Sep24)	Sep-25
Reference 20 dB Attenuator	SN: CC2552 (20x)	26-Mar-24 (No. 217-04046)	Mar-25
DAE4	SN: 660	23-Feb-24 (No. DAE4-660_Feb24)	Feb-25
Reference Probe EX3DV4	SN: 7349	03-Jun-24 (No. EX3-7349_Jun24)	Jun-25

Secondary Standards	ID	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB41293874	06-Apr-16 (in house check Jun-24)	In house check: Jun-26
Power sensor E4412A	SN: MY41498087	06-Apr-16 (in house check Jun-24)	In house check: Jun-26
Power sensor E4412A	SN: 000110210	06-Apr-16 (in house check Jun-24)	In house check: Jun-26
RF generator HP 8648C	SN: US3642U01700	04-Aug-99 (in house check Jun-24)	In house check: Jun-26
Network Analyzer E8358A	SN: US41080477	31-Mar-14 (in house check Sep-24)	In house check: Sep-26

	Name	Function	Signature
Calibrated by	Joanna Lleshaj	Laboratory Technician	
Approved by	Sven Kühn	Technical Manager	
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Issued: November 08, 2024

Certificate No: EX-7896_Nov24

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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 0108

Glossary

TSL	tissue simulating liquid
NORM _{x,y,z}	sensitivity in free space
ConvF	sensitivity in TSL / NORM _{x,y,z}
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C, D	modulation dependent linearization parameters
Polarization φ	φ rotation around probe axis
Polarization θ	θ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., $\theta = 0$ is normal to probe axis
Connector Angle	information used in DASY system to align probe sensor X to the robot coordinate system

Calibration is Performed According to the Following Standards:

- IEC/IEEE 62209-1528, "Measurement Procedure For The Assessment Of Specific Absorption Rate Of Human Exposure To Radio Frequency Fields From Hand-Held And Body-Worn Wireless Communication Devices – Part 1528: Human Models, Instrumentation And Procedures (Frequency Range of 4 MHz to 10 GHz)", October 2020.
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Methods Applied and Interpretation of Parameters:

- NORM_{x,y,z}**: Assessed for E-field polarization $\theta = 0$ ($f \leq 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). NORM_{x,y,z} are only intermediate values, i.e., the uncertainties of NORM_{x,y,z} does not affect the E²-field uncertainty inside TSL (see below ConvF).
- NORM(f)_{x,y,z} = NORM_{x,y,z} * frequency_response** (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of ConvF.
- DCP_{x,y,z}**: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal. DCP does not depend on frequency nor media.
- PAR**: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- A_{x,y,z}; B_{x,y,z}; C_{x,y,z}; D_{x,y,z}; VR_{x,y,z}**: A, B, C, D are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- ConvF and Boundary Effect Parameters**: Assessed in flat phantom using E-field (or Temperature Transfer Standard for $f \leq 800$ MHz) and inside waveguide using analytical field distributions based on power measurements for $f > 800$ MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORM_{x,y,z} * ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- Spherical isotropy (3D deviation from isotropy)**: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- Sensor Offset**: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- Connector Angle**: The angle is assessed using the information gained by determining the NORM_x (no uncertainty required).

EX3DV4 - SN:7896

November 07, 2024

Parameters of Probe: EX3DV4 - SN:7896

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k = 2)
Norm ($\mu\text{V}/(\text{V}/\text{m})^2$) ^A	0.67	0.58	0.62	±10.1%
DCP (mV) ^B	106.2	106.2	106.0	±4.7%

Calibration Results for Modulation Response

UID	Communication System Name		A dB	B dB $\sqrt{\mu\text{V}}$	C	D dB	VR mV	Max dev.	Max Unc ^E k = 2
0	CW	X	0.00	0.00	1.00	0.00	125.1	±1.5%	±4.7%
		Y	0.00	0.00	1.00		132.2		
		Z	0.00	0.00	1.00		120.5		

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%.

^A The uncertainties of Norm X,Y,Z do not affect the E²-field uncertainty inside TSL (see Pages 5 and 6).
^B Linearization parameter uncertainty for maximum specified field strength.
^E Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

EX3DV4 - SN:7896

November 07, 2024

Parameters of Probe: EX3DV4 - SN:7896**Other Probe Parameters**

Sensor Arrangement	Triangular
Connector Angle	28.7°
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	9 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	1.4 mm

Note: Measurement distance from surface can be increased to 3–4 mm for an *Area Scan* job.

EX3DV4 - SN:7896

November 07, 2024

Parameters of Probe: EX3DV4 - SN:7896**Calibration Parameter Determined in Head Tissue Simulating Media**

f (MHz) ^C	Relative Permittivity ^F	Conductivity ^F (S/m)	ConvF X	ConvF Y	ConvF Z	Alpha ^G	Depth ^G (mm)	Unc ^H (k = 2)
750	41.9	0.89	8.72	9.14	9.15	0.35	1.27	±11.0%
900	41.5	0.97	8.08	8.47	8.48	0.35	1.27	±11.0%
1750	40.1	1.37	7.20	7.55	7.56	0.35	1.27	±11.0%
1900	40.0	1.40	6.96	7.29	7.30	0.35	1.27	±11.0%
2300	39.5	1.67	6.79	7.12	7.13	0.35	1.27	±11.0%
2450	39.2	1.80	6.54	6.85	6.86	0.35	1.27	±11.0%
2600	39.0	1.96	6.60	6.92	6.93	0.35	1.27	±11.0%
3300	38.2	2.71	5.83	6.12	6.12	0.36	1.27	±13.1%
3500	37.9	2.91	5.91	6.19	6.20	0.36	1.27	±13.1%
3700	37.7	3.12	5.92	6.20	6.21	0.36	1.27	±13.1%
3900	37.5	3.32	5.79	6.07	6.07	0.36	1.27	±13.1%
5250	35.9	4.71	4.86	5.09	5.09	0.32	1.27	±13.1%
5600	35.5	5.07	4.52	4.74	4.74	0.28	1.27	±13.1%
5800	35.3	5.27	4.56	4.78	4.78	0.27	1.27	±13.1%

^C Frequency validity above 300 MHz of ±100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ±50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ±10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Validity of ConvF assessed at 6 MHz is 4–9 MHz, and ConvF assessed at 13 MHz is 9–19 MHz. Above 5 GHz frequency validity can be extended to ±110 MHz.

^F The probes are calibrated using tissue simulating liquids (TSL) that deviate for ϵ and σ by less than ±5% from the target values (typically better than ±3%) and are valid for TSL with deviations of up to ±10% if SAR correction is applied.

^G Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ±1% for frequencies below 3 GHz and below ±2% for frequencies between 3–6 GHz at any distance larger than half the probe tip diameter from the boundary.

^H The stated uncertainty is the total calibration uncertainty (k = 2) of Norm-ConvF. This is equivalent to the uncertainty component with the symbol CF in Table 9 of IEC/IEEE 62209-1528:2020.

EX3DV4 - SN:7896

November 07, 2024

Parameters of Probe: EX3DV4 - SN:7896**Calibration Parameter Determined in Head Tissue Simulating Media**

f (MHz) ^C	Relative Permittivity ^F	Conductivity ^F (S/m)	ConvF X	ConvF Y	ConvF Z	Alpha ^G	Depth ^G (mm)	Unc ^H (k = 2)
6500	34.5	6.07	4.74	4.96	4.97	0.20	1.27	±18.6%

^C Frequency validity at 6.5 GHz is -600/+700 MHz, and ±700 MHz at or above 7 GHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

^F The probes are calibrated using tissue simulating liquids (TSL) that deviate for ϵ and σ by less than ±10% from the target values (typically better than ±6%) and are valid for TSL with deviations of up to ±10%.

^G Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ±1% for frequencies below 3 GHz; below ±2% for frequencies between 3–6 GHz; and below ±4% for frequencies between 6–10 GHz at any distance larger than half the probe tip diameter from the boundary.

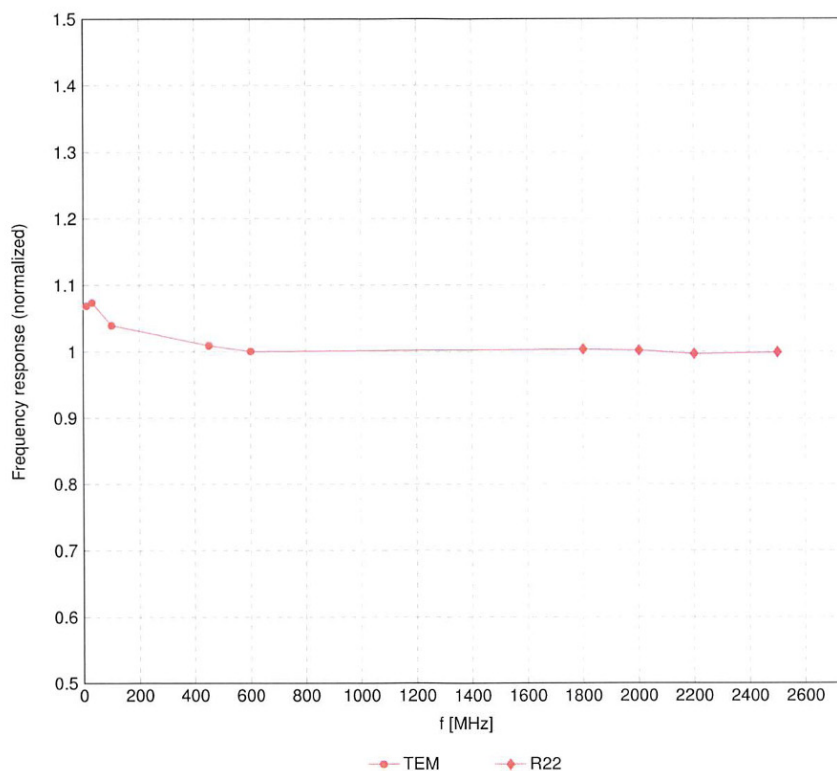
^H The stated uncertainty is the total calibration uncertainty (k = 2) of Norm-ConvF. This is equivalent to the uncertainty component with the symbol CF in Table 9 of IEC/IEEE 62209-1528:2020.

EX3DV4 - SN:7896

November 07, 2024

Frequency Response of E-Field

(TEM-Cell:ifi110 EXX, Waveguide:R22)

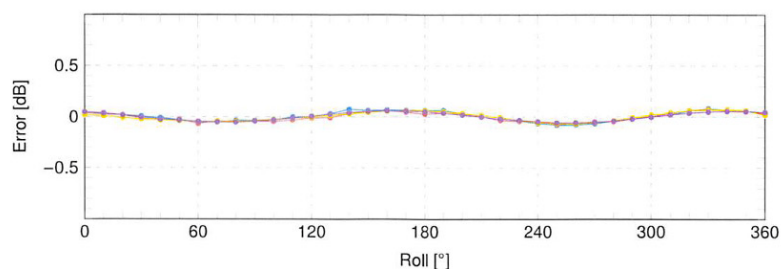
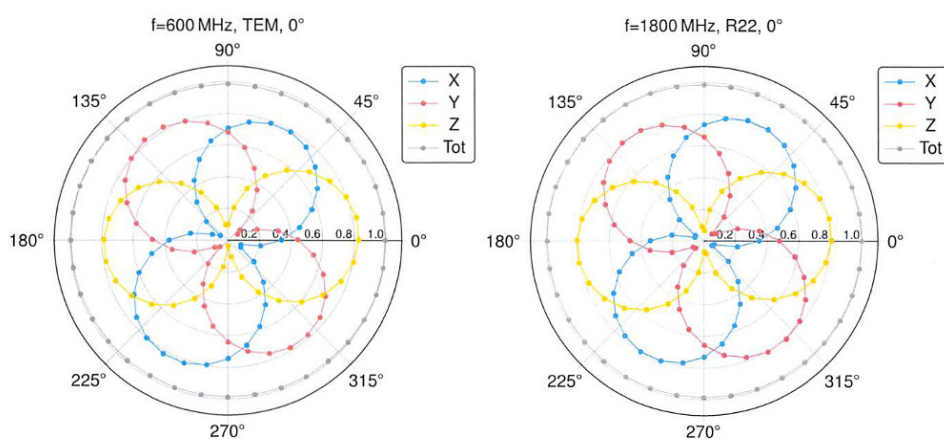


Uncertainty of Frequency Response of E-field: $\pm 6.3\%$ ($k=2$)

EX3DV4 - SN:7896

November 07, 2024

Receiving Pattern (ϕ), $\vartheta = 0^\circ$

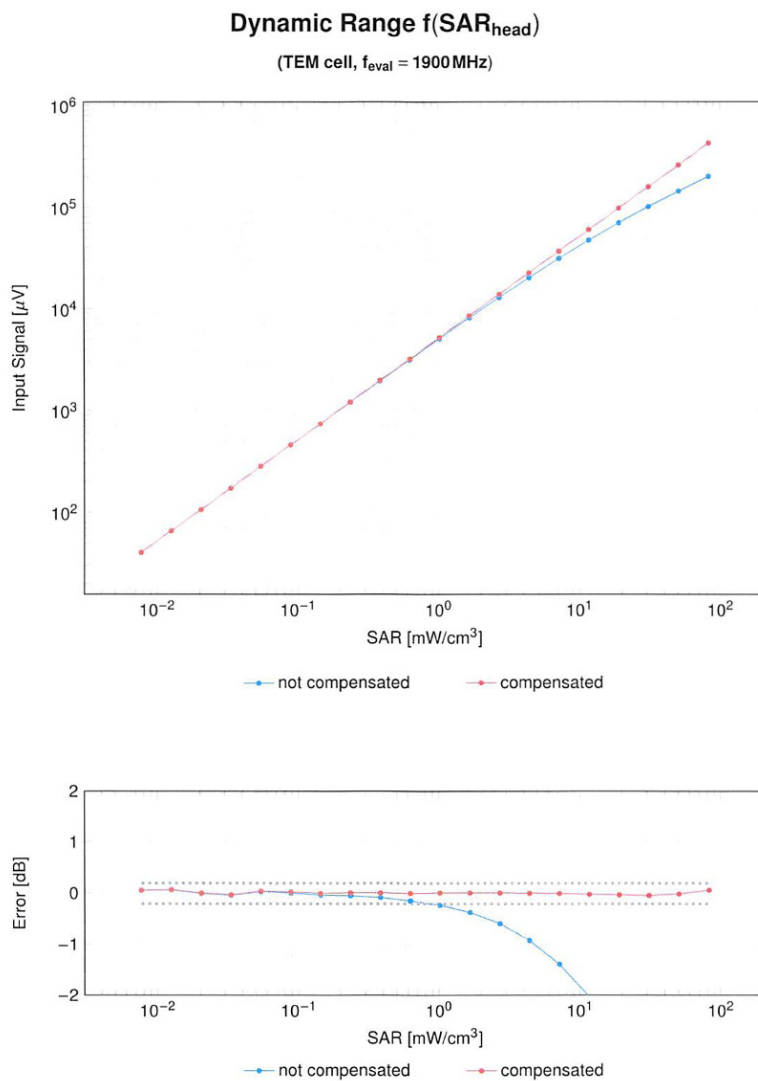


Legend: 100 MHz (blue), 600 MHz (red), 1800 MHz (yellow), 2500 MHz (purple).

Uncertainty of Axial Isotropy Assessment: $\pm 0.5\%$ ($k=2$)

EX3DV4 - SN:7896

November 07, 2024

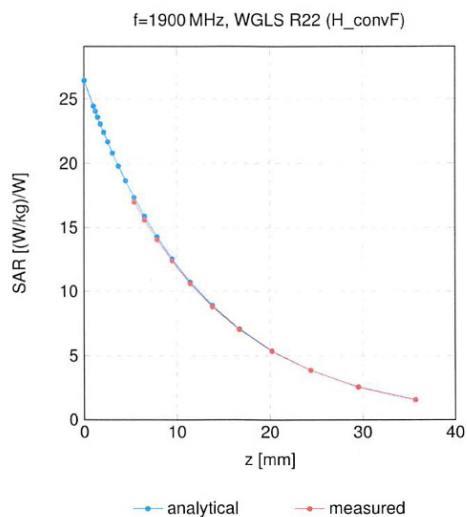


Uncertainty of Linearity Assessment: ±0.6% (k=2)

EX3DV4 - SN:7896

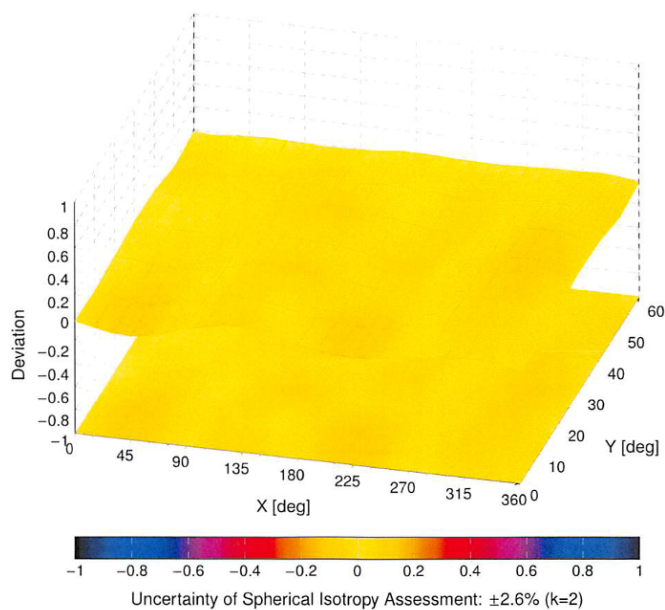
November 07, 2024

Conversion Factor Assessment



Deviation from Isotropy in Liquid

Error (ϕ, θ), f = 900 MHz





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 CNAS L0570

Client **BACL**Certificate No: **Z23-60084****CALIBRATION CERTIFICATE**Object **D1900V2 - SN: 5d231**

Calibration Procedure(s) **FF-Z11-003-01**
 Calibration Procedures for dipole validation kits

Calibration date: **February 17, 2023**

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±3)°C and humidity<70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power Meter NRP2	106276	10-May-22 (CTTL, No.J22X03103)	May-23
Power sensor NRP6A	101369	10-May-22 (CTTL, No.J22X03103)	May-23
Reference Probe EX3DV4	SN 7464	19-Jan-23 (CTTL-SPEAG, No.Z22-60565)	Jan-24
DAE4	SN 1556	11-Jan-23(CTTL-SPEAG, No.Z23-60034)	Jan-24
Secondary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Signal Generator E4438C	MY49070393	17-May-23 (CTTL, No.J22X03157)	May-24
NetworkAnalyzer E5071C	MY46110673	10-Jan-23 (CTTL, No. J23X00104)	Jan-24

	Name	Function	Signature
Calibrated by:	Zhao Jing	SAR Test Engineer	
Reviewed by:	Lin Hao	SAR Test Engineer	
Approved by:	Qi Dianyuan	SAR Project Leader	

Issued: February 24, 2023

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

Certificate No: Z23-60084

Page 1 of 6



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E-mail: cttl@chinattl.com <http://www.caict.ac.cn>

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) IEC/IEEE 62209-1528, "Measurement Procedure for The Assessment of Specific Absorption Rate of Human Exposure to Radio Frequency Fields from Hand-held and Body-mounted Wireless Communication Devices- Part 1528: Human Models, Instrumentation and Procedures (Frequency range of 4 MHz to 10 GHz)", October 2020
- b) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

- c) 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%.



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Measurement Conditions

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

DASY Version	DASY52	52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Triple Flat Phantom 5.1C	
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	39.0 $\pm$ 6 %	1.39 mho/m $\pm$ 6 %
Head TSL temperature change during test	<1.0 °C	---	---

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	10.0 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	39.9 W/kg $\pm$ 18.8 % (k=2)
SAR averaged over 10 cm^3 (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	5.21 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	20.8 W/kg $\pm$ 18.7 % (k=2)



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Appendix (Additional assessments outside the scope of CNAS L0570)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	50.3Ω+ 4.99jΩ
Return Loss	- 26.1dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.105 ns
----------------------------------	----------

After long term use with 100W radiated power, only a slight warming of the dipole near the feed-point 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 feed-point may be damaged.

Additional EUT Data

Manufactured by	SPEAG
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DASY5 Validation Report for Head TSL

Date: 2023-02-17

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d231

Communication System: UID 0, CW; Frequency: 1900 MHz

Medium parameters used: $f = 1900 \text{ MHz}$; $\sigma = 1.393 \text{ S/m}$; $\epsilon_r = 38.96$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7464; ConvF(8.13, 8.13, 8.13) @ 1900 MHz; Calibrated: 2023-01-19
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1556; Calibrated: 2023-01-11
- Phantom: MFP_V5.1C (20deg probe tilt); Type: QD 000 P51 Cx; Serial: 1062
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

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

Reference Value = 100.8 V/m; Power Drift = -0.04 dB

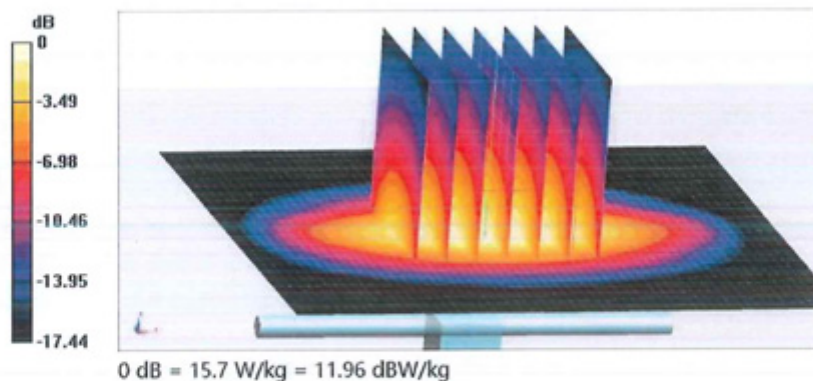
Peak SAR (extrapolated) = 18.9 W/kg

SAR(1 g) = 10 W/kg; SAR(10 g) = 5.21 W/kg

Smallest distance from peaks to all points 3 dB below = 10 mm

Ratio of SAR at M2 to SAR at M1 = 53.6%

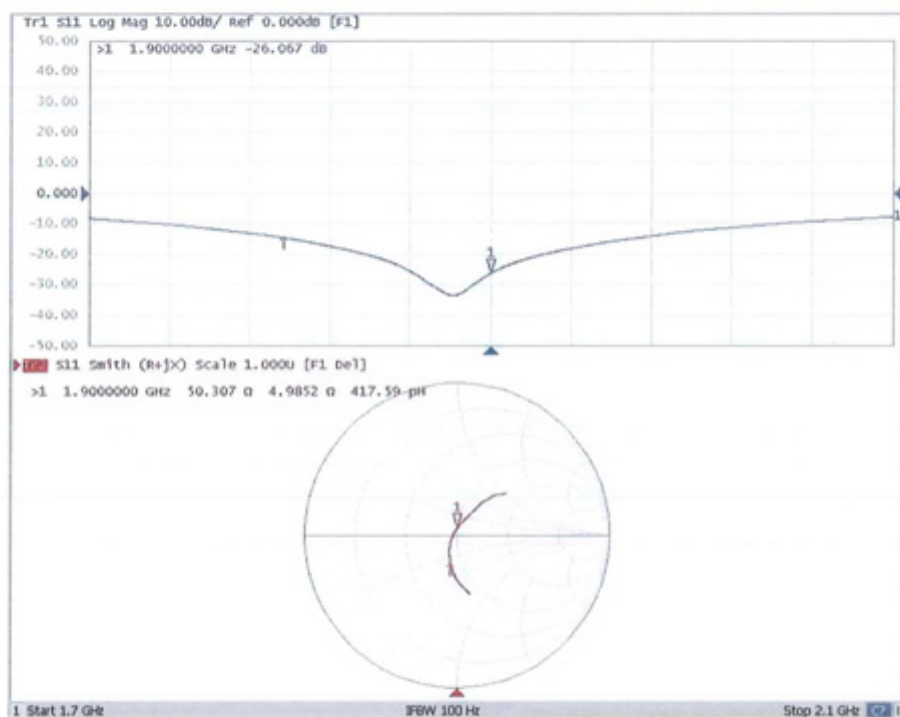
Maximum value of SAR (measured) = 15.7 W/kg





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Impedance Measurement Plot for Head TSL



APPENDIX D RETURN LOSS&IMPEDANCE MEASUREMENT

Equipment Details:

Description: Dipole
Manufacturer: Speag
Model Number: D1900V2
Serial Number: 5d231
Calibration Date: 2024/02/01
Calibrated By: Bob Lu
Signature: Bob Lu

All Calibration have been conducted in the closed laboratory facility: Lab Temperature 18°C-25°C and humidity < 70%

Calibrated Equipment:

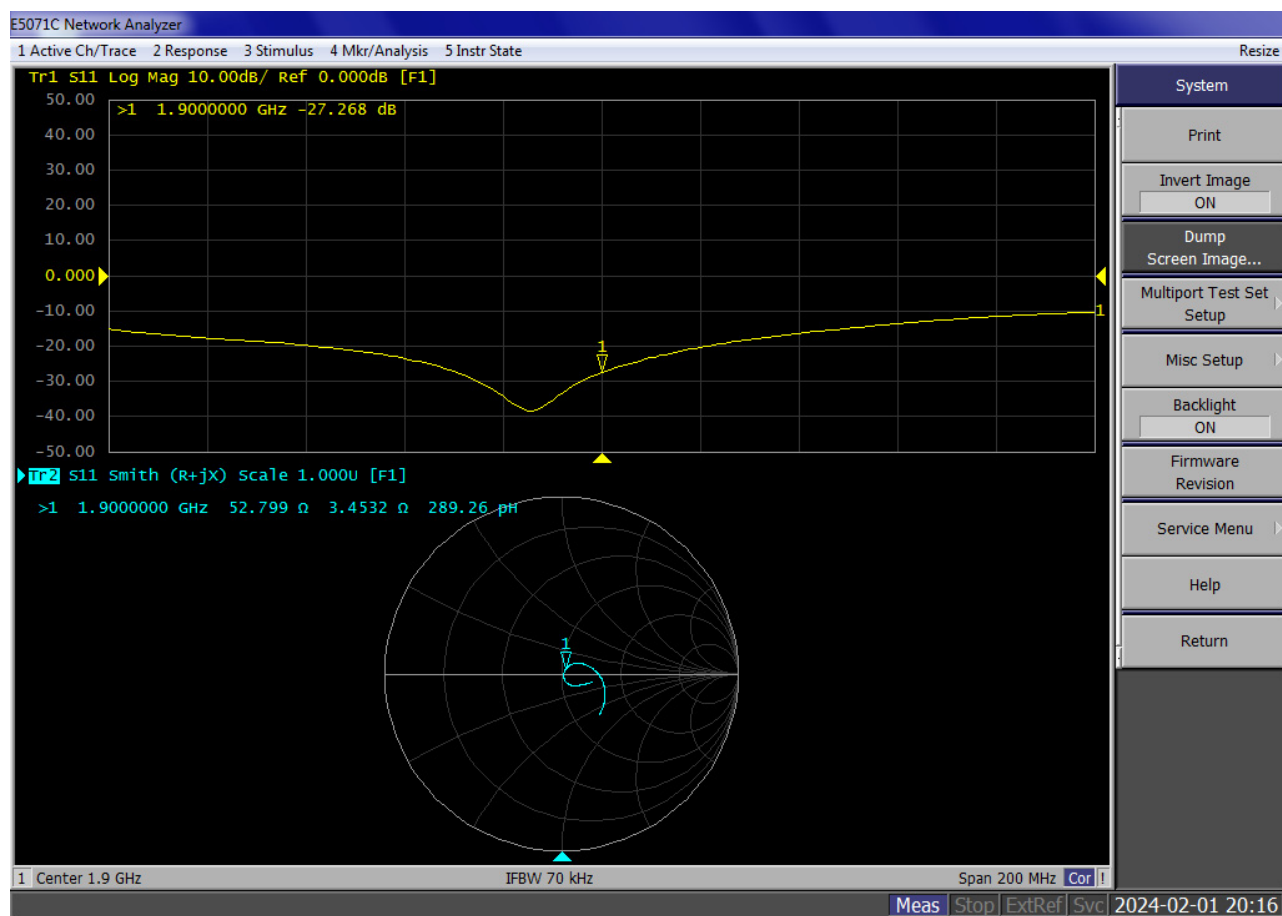
Equipment	Model	S/N	Calibration Date	Calibration Due Date
Simulated Tissue Liquid Head	HBBL600-10000V6	2200808-2	Each Time	
SAM Twin Phantom	SAM-Twin V8.0	1962	NCR	NCR
Network Analyzer	E5071C	SER MY46519680	2023/06/08	2024/06/07
Network Analyzer Calibration Kit	50 Ω	51026	NCR	NCR

Test Data:

Frequency (MHz)	Simulated Liquid	Parameter	Measured Value	Target Value	Deviation	Reference Range	Results
1900	Head	Return Loss	27.268 dB	26.067 dB	4.607 %	±20%; ≥20dB	Pass
		Real Impedance	52.799 Ω	50.307 Ω	2.492 Ω	≤ 5 Ω	Pass
		Imaginary Impedance	3.453 Ω	4.985 Ω	-1.532 Ω	≤ 5 Ω	Pass

Note: Return Loss Deviation = (Measured-Target)/Target×100%

Dipole, 1900MHz, 5d231



Equipment Details:

Description: Dipole
 Manufacturer: Speag
 Model Number: D1900V2
 Serial Number: 5d231
 Calibration Date: 2025/02/01
 Calibrated By: Bob Lu
 Signature: Bob Lu

All Calibration have been conducted in the closed laboratory facility: Lab Temperature 18°C-25°C and humidity < 70%

Calibrated Equipment:

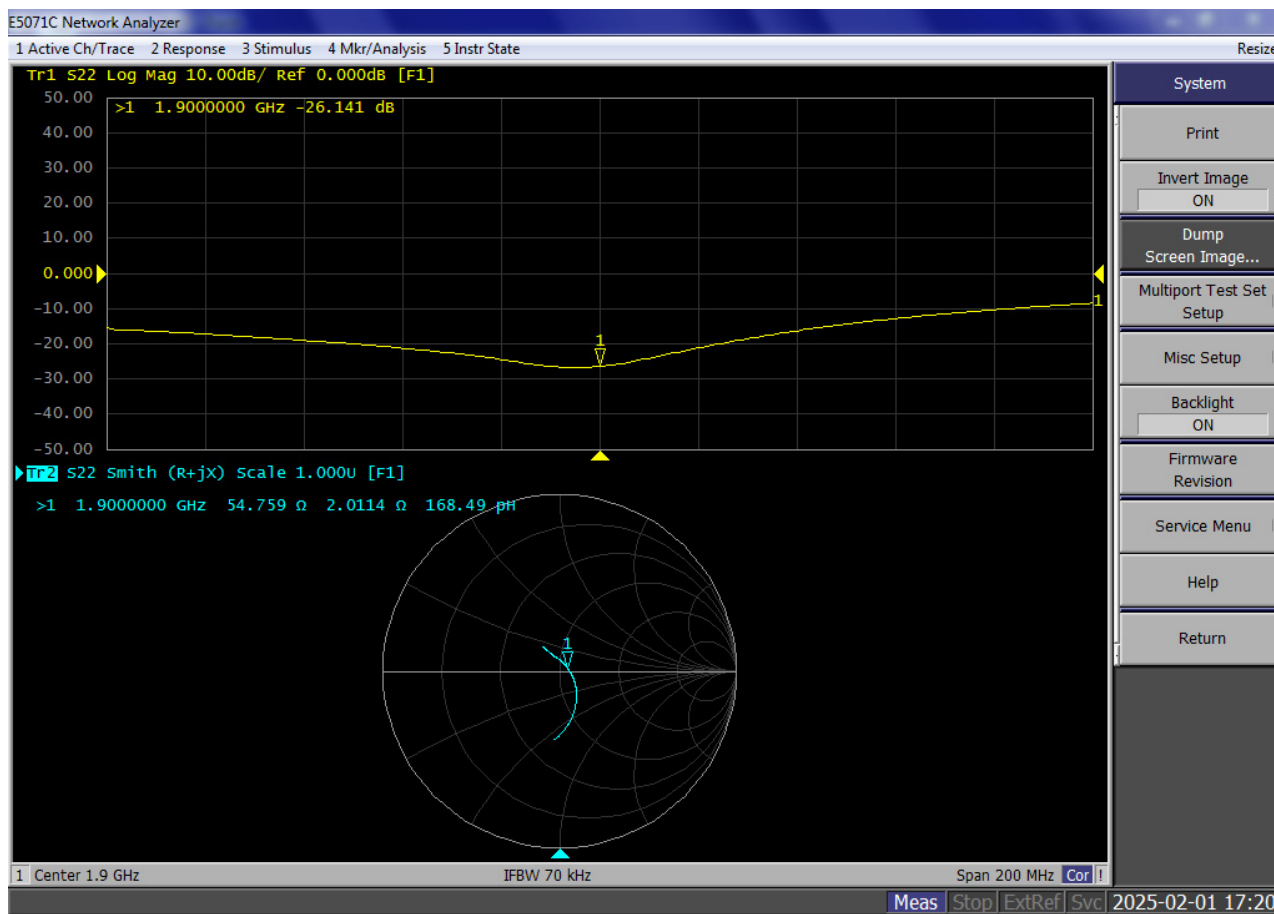
Equipment	Model	S/N	Calibration Date	Calibration Due Date
Simulated Tissue Liquid Head	HBBL600-10000V6	2200808-2	Each Time	
SAM Twin Phantom	SAM-Twin V8.0	1962	NCR	NCR
Network Analyzer	E5071C	SER MY46519680	2024/05/21	2025/05/20
Network Analyzer Calibration Kit	50 Ω	51026	NCR	NCR

Test Data:

Frequency (MHz)	Simulated Liquid	Parameter	Measured Value	Target Value	Deviation	Reference Range	Results
1900	Head	Return Loss	26.141 dB	26.067 dB	0.284 %	±20%; ≥20dB	Pass
		Real Impedance	54.759 Ω	50.307 Ω	4.452 Ω	≤ 5 Ω	Pass
		Imaginary Impedance	2.011 Ω	4.985 Ω	-2.974 Ω	≤ 5 Ω	Pass

Note: Return Loss Deviation = (Measured-Target)/Target×100%

Dipole, 1900MHz, 5d231



**** END OF REPORT ****