

SAR Test Report

Part 2 of 3

Project Number: 4942239**Quotation Number:** SUW-202112002041**Report Number:** 4942239EMC05.2**Revision Level:** 1**Client:** Riskband LLC**Equipment Under Test:** Wearable Emergency Device**Host Model Name:** ARIES**Host Model Number:** RBD30060**Host FCC ID:** 2AHZ7-300602022**Host IC:** 21986-300602022**Module FCC ID:** 2AHZ7-R20082B00**Module IC:** 21986-R20082B00**Applicable Standards:** IEC 62209-1528**Report issued on:** 15 November 2022**Test Result:** Compliant

FOR THE SCOPE OF ACCREDITATION UNDER CERTIFICATE NUMBER: 3212.01

This report must not be used by the client to claim product certification, approval, or endorsement by A2LA, NIST, or any agency of the Federal Government.

Tested / Evaluated by:

A handwritten signature in blue ink, appearing to read 'P. Lorenzo'.

Paul Lorenzo, Senior EMC Technician

Reviewed by:

A handwritten signature in blue ink, appearing to read 'Stephen C. Whalen'.

Stephen C. Whalen, EMC/RF Exposure Manager

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APPENDIX A - PHOTOS OF EUT AND TEST POSITION(S)

EUT Standalone

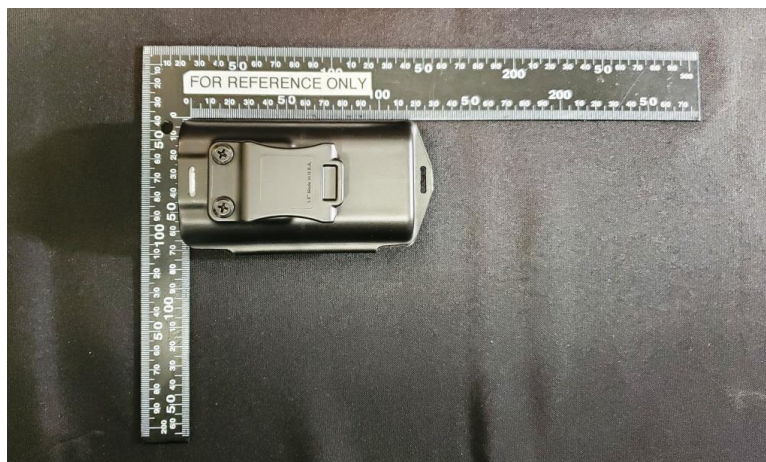
Front



Side



Back



EUT Test Position



EUT with holster clip against flat area of phantom with 0mm spacing

APPENDIX B - LTE DATA

Test Laboratory: SGS SAR Laboratory North America

Date/Time: 10/14/2022 12:33:49 PM

Plot #1

DUT: Risk Band RBD30060

DASY5 Configuration:

- Communication System: UID 10169 - CAE, LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK); Frequency: 1880 MHz;
- Probe: ES3DV3 - SN3272; ConvF(5, 5, 5) @ 1880 MHz; Calibrated: 3/1/2022
- Medium parameters used: $f = 1880$ MHz; $\sigma = 1.398$ S/m; $\epsilon_r = 36.265$; $\rho = 1000$ kg/m³; Phantom: ELI v5.0; Phantom section: Flat Section
- Electronics: DAE4 Sn1287; Calibrated: 2/23/2022
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Below 2GHz Body/Body Scan/Area Scan (61x101x1):

Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Reference Value = 18.17 V/m; Power Drift = -0.39 dB

Below 2GHz Body/Body Scan/Zoom Scan 2 (5x5x7)/Cube 0:

Measurement grid: $dx=7.5$ mm, $dy=7.5$ mm, $dz=5$ mm

Reference Value = 18.17 V/m; Power Drift = -0.39 dB

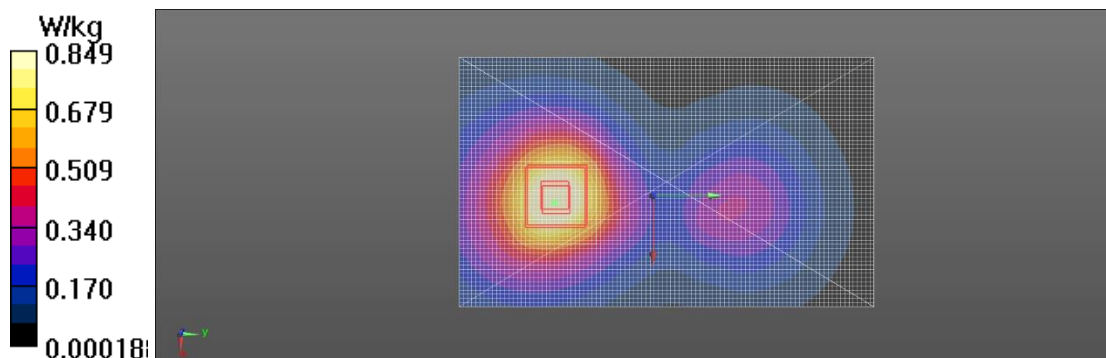
Peak SAR (extrapolated) = 1.14 W/kg

SAR(1 g) = 0.716 W/kg; SAR(10 g) = 0.439 W/kg (SAR corrected for target medium)

Smallest distance from peaks to all points 3 dB below = 22.9 mm

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

Maximum value of SAR (measured) = 0.859 W/kg



Test Laboratory: SGS SAR Laboratory North America

Date/Time: 10/17/2022 11:39:37 AM

Plot #2

DUT: Risk Band RBD30060

DASY5 Configuration:

- Communication System: UID 10169 - CAE, LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK); Frequency: 1754.3 MHz;
- Probe: ES3DV3 - SN3272; ConvF(5.13, 5.13, 5.13) @ 1754.3 MHz; Calibrated: 3/1/2022
- Medium parameters used (interpolated): $f = 1754.3$ MHz; $\sigma = 1.309$ S/m; $\epsilon_r = 36.362$; $\rho = 1000$ kg/m³ ; Phantom: ELI v5.0; Phantom section: Flat Section
- Electronics: DAE4 Sn1287; Calibrated: 2/23/2022
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Below 2GHz Body/Body Scan/Area Scan (61x101x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm

Reference Value = 18.03 V/m; Power Drift = -0.25 dB

Below 2GHz Body/Body Scan/Zoom Scan 2 (5x5x7)/Cube 0:

Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 18.03 V/m; Power Drift = -0.25 dB

Peak SAR (extrapolated) = 0.794 W/kg

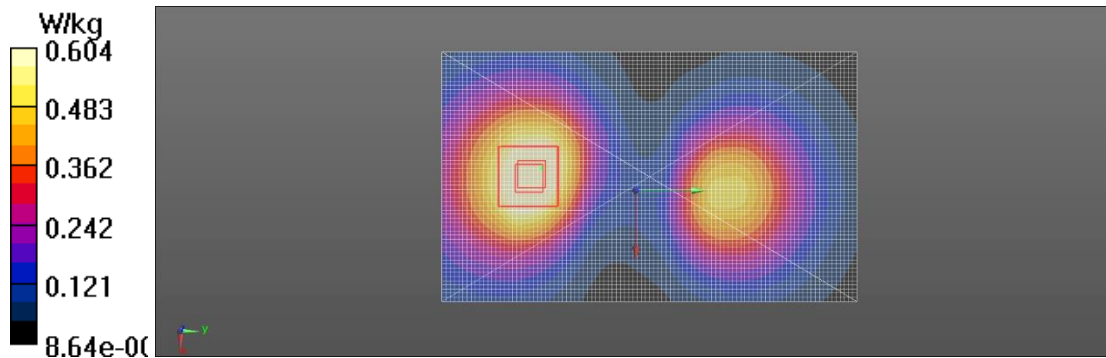
SAR(1 g) = 0.546 W/kg; SAR(10 g) = 0.348 W/kg (SAR corrected for target medium)

Smallest distance from peaks to all points 3 dB below = 19 mm

Ratio of SAR at M2 to SAR at M1 = 66.6%

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 0.617 W/kg



Test Laboratory: SGS SAR Laboratory North America

Date/Time: 10/17/2022 1:57:14 PM

Plot #3

DUT: Risk Band RBD30060

DASY5 Configuration:

- Communication System: UID 10154 - CAG, LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK); Frequency: 848.3 MHz;
- Probe: ES3DV3 - SN3272; ConvF(5.82, 5.82, 5.82) @ 848.3 MHz; Calibrated: 3/1/2022
- Medium parameters used (interpolated): $f = 848.3$ MHz; $\sigma = 0.903$ S/m; $\epsilon_r = 38.193$; $\rho = 1000$ kg/m³ ; Phantom: ELI v5.0; Phantom section: Flat Section
- Electronics: DAE4 Sn1287; Calibrated: 2/23/2022
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Below 2GHz Body/Body Scan/Area Scan (61x101x1):

Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Reference Value = 19.73 V/m; Power Drift = -0.04 dB

Below 2GHz Body/Body Scan/Zoom Scan 2 (5x5x7)/Cube 0:

Measurement grid: $dx=7.5$ mm, $dy=7.5$ mm, $dz=5$ mm

Reference Value = 19.73 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.406 W/kg

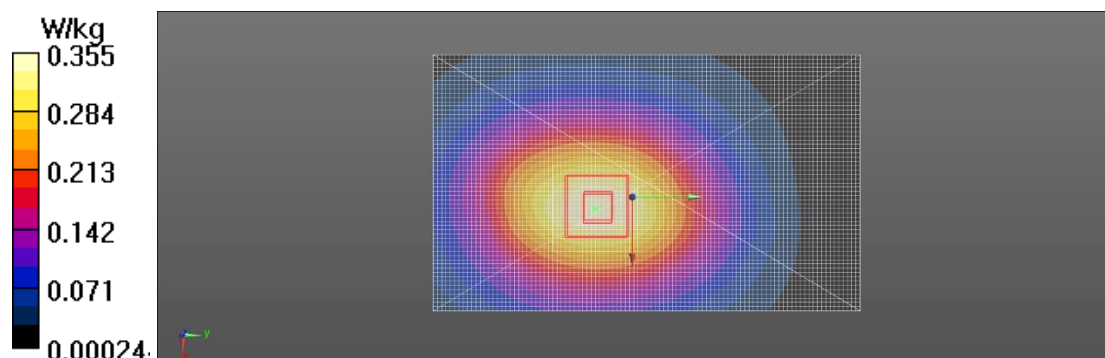
SAR(1 g) = 0.310 W/kg; SAR(10 g) = 0.223 W/kg (SAR corrected for target medium)

Smallest distance from peaks to all points 3 dB below: Larger than measurement grid

Ratio of SAR at M2 to SAR at M1 = 75.2%

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.349 W/kg



Test Laboratory: SGS SAR Laboratory North America

Date/Time: 10/18/2022 10:36:13 AM

Plot #4

DUT: Risk Band RBD30060

DASY5 Configuration:

- Communication System: UID 10154 - CAG, LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK); Frequency: 715.3 MHz;
- Probe: ES3DV3 - SN3272; ConvF(6.23, 6.23, 6.23) @ 715.3 MHz; Calibrated: 3/1/2022
- Medium parameters used (interpolated): $f = 715.3$ MHz; $\sigma = 0.882$ S/m; $\epsilon_r = 39.392$; $\rho = 1000$ kg/m³ ; Phantom: ELI v5.0; Phantom section: Flat Section
- Electronics: DAE4 Sn1287; Calibrated: 2/23/2022
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Below 2GHz Body/Body Scan/Area Scan (61x101x1):

Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Reference Value = 21.80 V/m; Power Drift = 0.06 dB

Below 2GHz Body/Body Scan/Zoom Scan 2 (5x5x7)/Cube 0:

Measurement grid: $dx=7.5$ mm, $dy=7.5$ mm, $dz=5$ mm

Reference Value = 21.80 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 0.484 W/kg

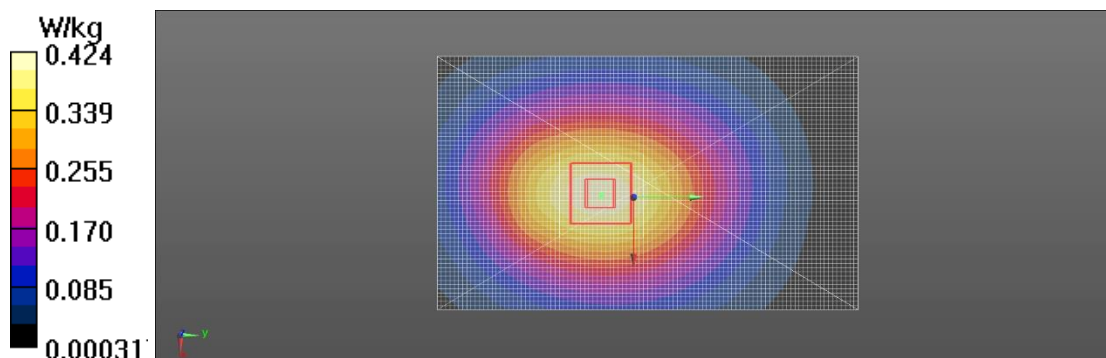
SAR(1 g) = 0.371 W/kg; SAR(10 g) = 0.270 W/kg (SAR corrected for target medium)

Smallest distance from peaks to all points 3 dB below: Larger than measurement grid

Ratio of SAR at M2 to SAR at M1 = 75.8%

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.419 W/kg



Test Laboratory: SGS SAR Laboratory North America

Date/Time: 10/20/2022 12:17:31 PM

Plot 5

DUT: Risk Band RBD30060

DASY5 Configuration:

- Communication System: UID 10012 - CAB, IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps); Frequency: 2412 MHz;
- Probe: ES3DV3 - SN3272; ConvF(4.59, 4.59, 4.59) @ 2412 MHz; Calibrated: 3/1/2022
- Medium parameters used: $f = 2412$ MHz; $\sigma = 1.716$ S/m; $\epsilon_r = 36.001$; $\rho = 1000$ kg/m³; Phantom: ELI v5.0; Phantom section: Flat Section
- Electronics: DAE4 Sn1287; Calibrated: 2/23/2022
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

2-3GHz Body/Body Scan/Area Scan (71x121x1):

Interpolated grid: $dx=1.200$ mm, $dy=1.200$ mm

Reference Value = 1.081 V/m; Power Drift = -0.89 dB

2-3GHz Body/Body Scan/Zoom Scan (6x6x7)/Cube 0:

Measurement grid: $dx=7.5$ mm, $dy=7.5$ mm, $dz=5$ mm

Reference Value = 1.081 V/m; Power Drift = -0.89 dB

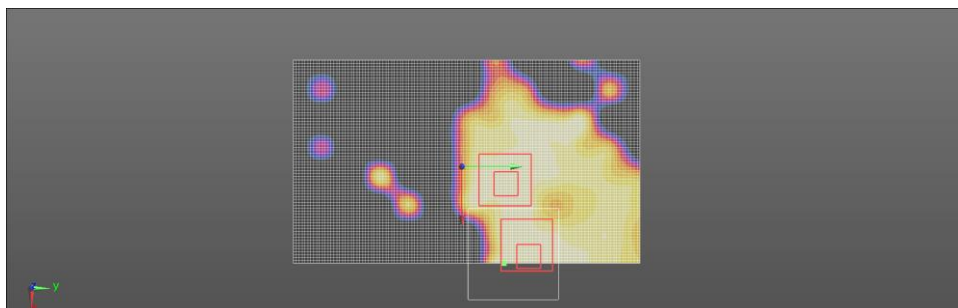
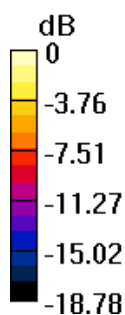
Peak SAR (extrapolated) = 0.0120 W/kg

SAR(1 g) = 0.00246 W/kg; SAR(10 g) = 0.000962 W/kg (SAR corrected for target medium)

Smallest distance from peaks to all points 3 dB below: Larger than measurement grid

Ratio of SAR at M2 to SAR at M1 = 48.3%

Maximum value of SAR (measured) = 0.00324 W/kg



Test Laboratory: SGS SAR Laboratory North America

Date/Time: 10/20/2022 2:01:16 PM

Plot #6

DUT: Risk Band RBD30060

DASY5 Configuration:

- Communication System: UID 10038 - CAA, IEEE 802.15.1 Bluetooth (8-DPSK, DH5); Frequency: 2480 MHz;
- Probe: ES3DV3 - SN3272; ConvF(4.59, 4.59, 4.59) @ 2480 MHz; Calibrated: 3/1/2022
- Medium parameters used: $f = 2480$ MHz; $\sigma = 1.764$ S/m; $\epsilon_r = 35.901$; $\rho = 1000$ kg/m³; Phantom: ELI v5.0; Phantom section: Flat Section
- Electronics: DAE4 Sn1287; Calibrated: 2/23/2022
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

2-3GHz Body/Body Scan/Area Scan (71x121x1):

Interpolated grid: $dx=1.200$ mm, $dy=1.200$ mm

Reference Value = 0.6430 V/m; Power Drift = -5.04 dB

2-3GHz Body/Body Scan/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=7.5$ mm, $dy=7.5$ mm, $dz=5$ mm

Reference Value = 0.6430 V/m; Power Drift = -5.04 dB

Peak SAR (extrapolated) = 0.00171 W/kg

SAR(1 g) = 7.96e-005 W/kg; SAR(10 g) = 9.15e-006 W/kg (SAR corrected for target medium)

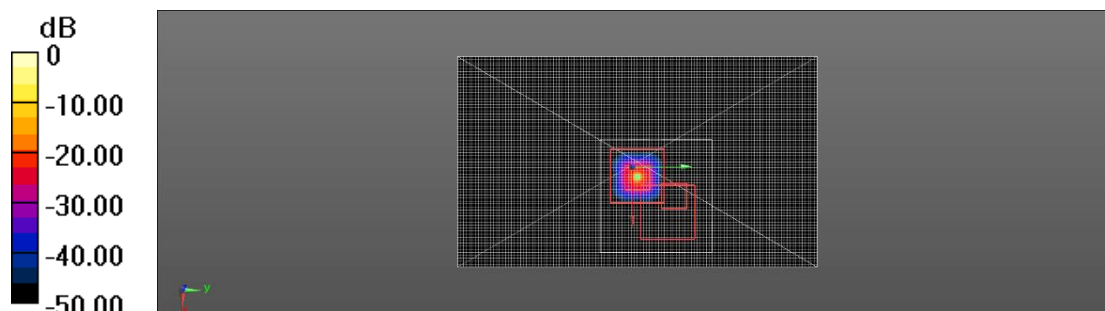
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid

Ratio of SAR at M2 to SAR at M1 = 14.2%

Maximum value of SAR (measured) = 0.00171 W/kg

Comments:

Signal was verified and monitored during testing using a spectrum analyzer.



APPENDIX D – SYSTEM VERIFICATIONS

Test Laboratory: SGS SAR Laboratory North America

Date/Time: 10/14/2022 9:48:56 AM

DUT: Dipole 1900 MHz D1900V2

DASY5 Configuration:

- Communication System: UID 0, CW (0); Frequency: 1900 MHz;
- Probe: ES3DV3 - SN3272; ConvF(5, 5, 5) @ 1900 MHz; Calibrated: 3/1/2022
- Medium parameters used: $f = 1900$ MHz; $\sigma = 1.409$ S/m; $\epsilon_r = 36.237$; $\rho = 1000$ kg/m³; Phantom: ELI v5.0; Phantom section: Flat Section
- Electronics: DAE4 Sn1287; Calibrated: 2/23/2022
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

System validation below 2GHz/System verification/Dipole Area Scan 2 (31x121x1): Interpolated grid:
dx=1.500 mm, dy=1.500 mm

Reference Value = 43.64 V/m; Power Drift = 0.12 dB

System validation below 2GHz/System verification/0 degree Zoom Scan (5x5x7)/Cube 0:

Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 43.64 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 3.65 W/kg

SAR(1 g) = 1.94 W/kg; SAR(10 g) = 1.01 W/kg (SAR corrected for target medium)

Smallest distance from peaks to all points 3 dB below = 10.5 mm

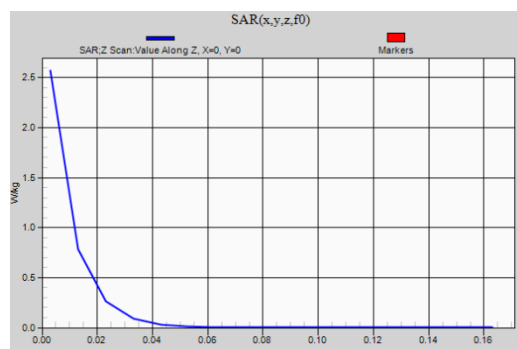
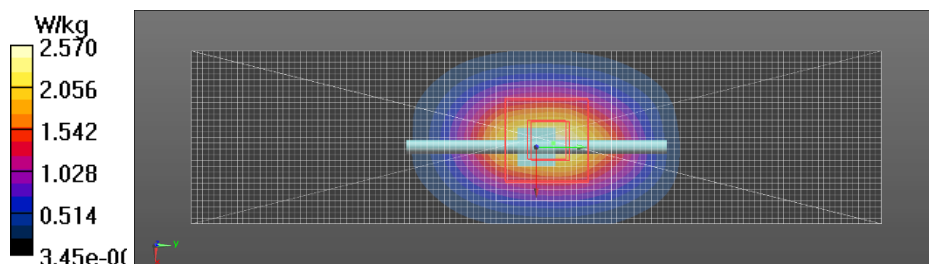
Ratio of SAR at M2 to SAR at M1 = 54.7%

Maximum value of SAR (measured) = 2.54 W/kg

System validation below 2GHz/System verification/Z Scan (1x1x17):

Measurement grid: dx=20mm, dy=20mm, dz=10mm

Maximum value of SAR (measured) = 2.57 W/kg



Test Laboratory: SGS SAR Laboratory North America

Date/Time: 10/17/2022 10:54:28 AM

DUT: Dipole 1750 MHz D1750V2

DASY5 Configuration:

- Communication System: UID 0, CW (0); Frequency: 1750 MHz;
- Probe: ES3DV3 - SN3272; ConvF(5.13, 5.13, 5.13) @ 1750 MHz; Calibrated: 3/1/2022
- Medium parameters used: $f = 1750$ MHz; $\sigma = 1.307$ S/m; $\epsilon_r = 36.369$; $\rho = 1000$ kg/m³; Phantom: ELI v5.0; Phantom section: Flat Section
- Electronics: DAE4 Sn1287; Calibrated: 2/23/2022
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

System validation below 2GHz/System verification/Dipole Area Scan 2 (31x121x1): Interpolated grid:

$dx=1.500$ mm, $dy=1.500$ mm

Reference Value = 43.30 V/m; Power Drift = -0.04 dB

System validation below 2GHz/System verification/0 degree Zoom Scan (5x5x7)/Cube 0:

Measurement grid: $dx=7.5$ mm, $dy=7.5$ mm, $dz=5$ mm

Reference Value = 43.30 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 3.14 W/kg

SAR(1 g) = 1.79 W/kg; SAR(10 g) = 0.950 W/kg (SAR corrected for target medium)

Smallest distance from peaks to all points 3 dB below = 10.5 mm

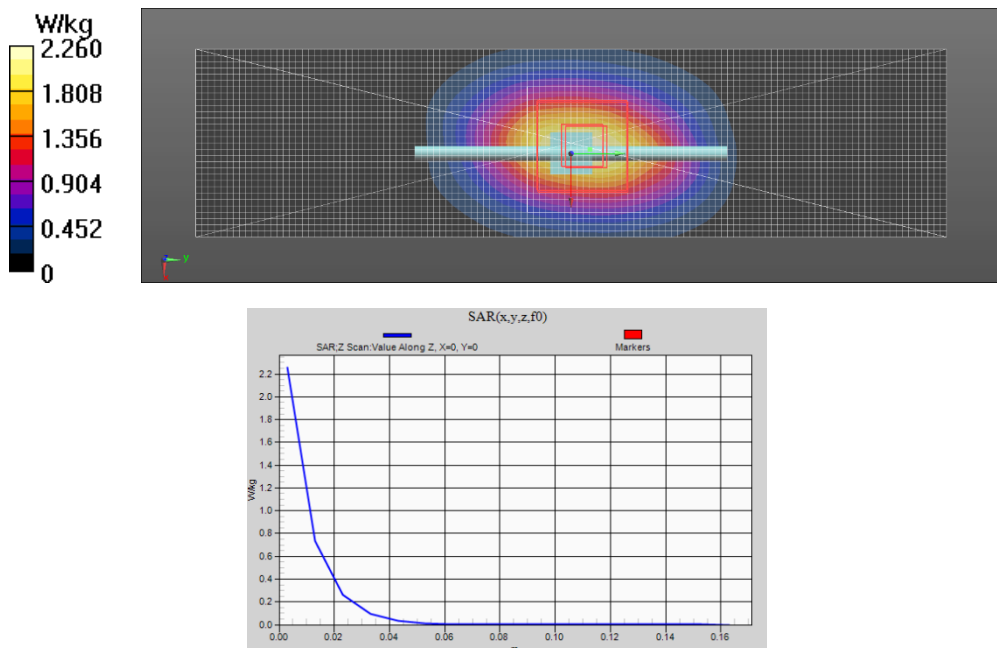
Ratio of SAR at M2 to SAR at M1 = 56.6%

Maximum value of SAR (measured) = 2.24 W/kg

System validation below 2GHz/System verification/Z Scan (1x1x17): Measurement grid: $dx=20$ mm,

$dy=20$ mm, $dz=10$ mm

Maximum value of SAR (measured) = 2.26 W/kg



Test Laboratory: SGS SAR Laboratory North America

Date/Time: 10/17/2022 12:47:04 PM

DUT: Dipole 835 MHz D835V2

DASY5 Configuration:

- Communication System: UID 0, CW (0); Frequency: 835 MHz;
- Probe: ES3DV3 - SN3272; ConvF(5.82, 5.82, 5.82) @ 835 MHz; Calibrated: 3/1/2022
- Medium parameters used: $f = 835$ MHz; $\sigma = 0.898$ S/m; $\epsilon_r = 38.234$; $\rho = 1000$ kg/m³; Phantom: ELI v5.0; Phantom section: Flat Section
- Electronics: DAE4 Sn1287; Calibrated: 2/23/2022
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

System validation below 2GHz/System verification/Dipole Area Scan 2 (31x121x1): Interpolated grid:

$dx=1.500$ mm, $dy=1.500$ mm

Reference Value = 26.15 V/m; Power Drift = 0.02 dB

System validation below 2GHz/System verification/0 degree Zoom Scan (5x5x7)/Cube 0:

Measurement grid: $dx=7.5$ mm, $dy=7.5$ mm, $dz=5$ mm

Reference Value = 26.15 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.723 W/kg

SAR(1 g) = 0.492 W/kg; SAR(10 g) = 0.322 W/kg (SAR corrected for target medium)

Smallest distance from peaks to all points 3 dB below: Larger than measurement grid

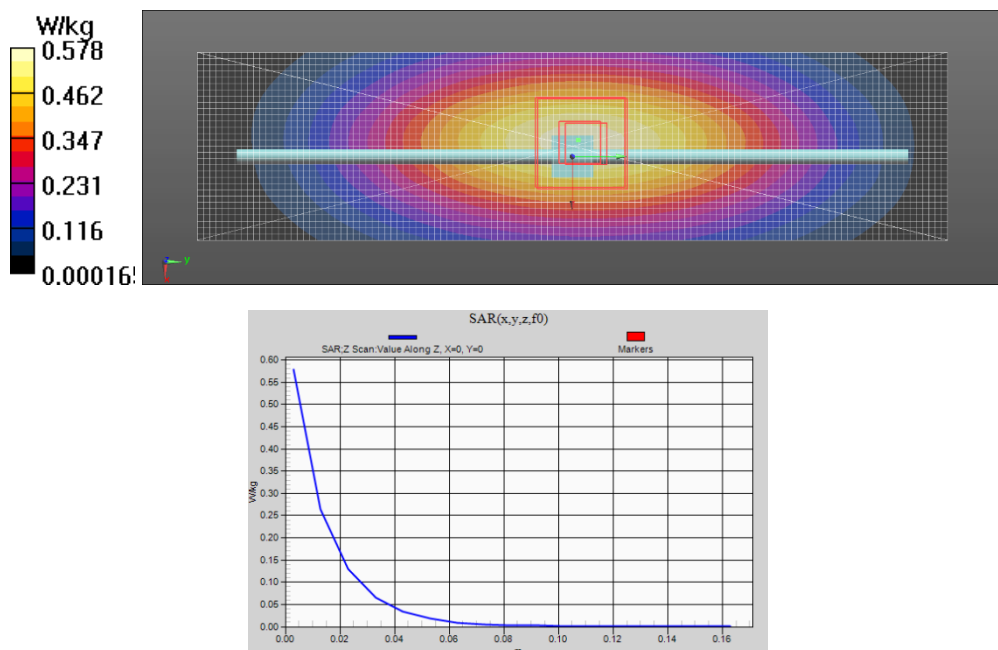
Ratio of SAR at M2 to SAR at M1 = 67.6%

Maximum value of SAR (measured) = 0.578 W/kg

System validation below 2GHz/System verification/Z Scan (1x1x17):

Measurement grid: $dx=20$ mm, $dy=20$ mm, $dz=10$ mm

Maximum value of SAR (measured) = 0.578 W/kg



Test Laboratory: SGS SAR Laboratory North America

Date/Time: 10/18/2022 9:22:23 AM

DUT: Dipole 750 MHz D750V3

DASY5 Configuration:

- Communication System: UID 0, CW (0); Frequency: 750 MHz;
- Probe: ES3DV3 - SN3272; ConvF(6.23, 6.23, 6.23) @ 750 MHz; Calibrated: 3/1/2022
- Medium parameters used: $f = 750$ MHz; $\sigma = 0.894$ S/m; $\epsilon_r = 39.234$; $\rho = 1000$ kg/m³; Phantom: ELI v5.0; Phantom section: Flat Section
- Electronics: DAE4 Sn1287; Calibrated: 2/23/2022
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

System validation below 2GHz/System verification/Dipole Area Scan 2 (31x121x1):

Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm
Reference Value = 24.42 V/m; Power Drift = 0.02 dB

System validation below 2GHz/System verification/0 degree Zoom Scan (5x5x7)/Cube 0:

Measurement grid: $dx=7.5$ mm, $dy=7.5$ mm, $dz=5$ mm
Reference Value = 24.42 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.625 W/kg

SAR(1 g) = 0.416 W/kg; SAR(10 g) = 0.274 W/kg (SAR corrected for target medium)

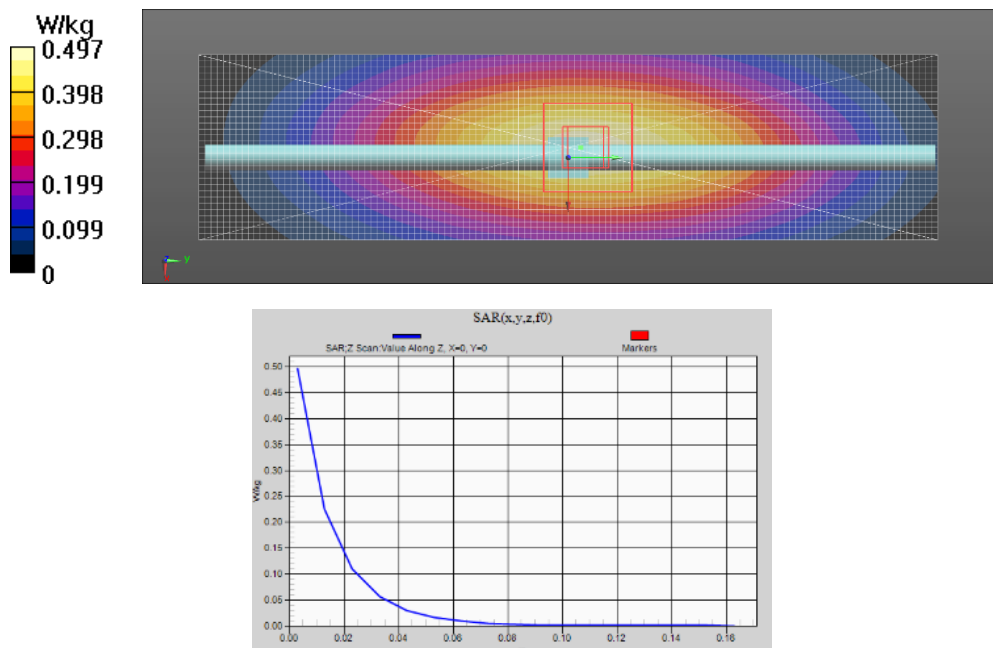
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid

Ratio of SAR at M2 to SAR at M1 = 67.2%

Maximum value of SAR (measured) = 0.497 W/kg

System validation below 2GHz/System verification/Z Scan (1x1x17):

Measurement grid: $dx=20$ mm, $dy=20$ mm, $dz=10$ mm
Maximum value of SAR (measured) = 0.497 W/kg



Test Laboratory: SGS SAR Laboratory North America

Date/Time: 10/20/2022 10:37:15 AM

DUT: Dipole 2450 MHz D2450V2

DASY5 Configuration:

- Communication System: UID 0, CW (0); Frequency: 2450 MHz;
- Probe: ES3DV3 - SN3272; ConvF(4.59, 4.59, 4.59) @ 2450 MHz; Calibrated: 3/1/2022
- Medium parameters used: $f = 2450$ MHz; $\sigma = 1.743$ S/m; $\epsilon_r = 35.947$; $\rho = 1000$ kg/m³; Phantom: ELI v5.0; Phantom section: Flat Section
- Electronics: DAE4 Sn1287; Calibrated: 2/23/2022
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

System validation 2-3GHz rev1/System verification/Dipole Area Scan 2 (41x71x1): Interpolated grid:

$dx=1.200$ mm, $dy=1.200$ mm

Reference Value = 47.70 V/m; Power Drift = 0.03 dB

System validation 2-3GHz rev1/System verification/0 degree Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 47.70 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 5.63 W/kg

SAR(1 g) = 2.78 W/kg; SAR(10 g) = 1.3 W/kg (SAR corrected for target medium)

Smallest distance from peaks to all points 3 dB below = 9.5 mm

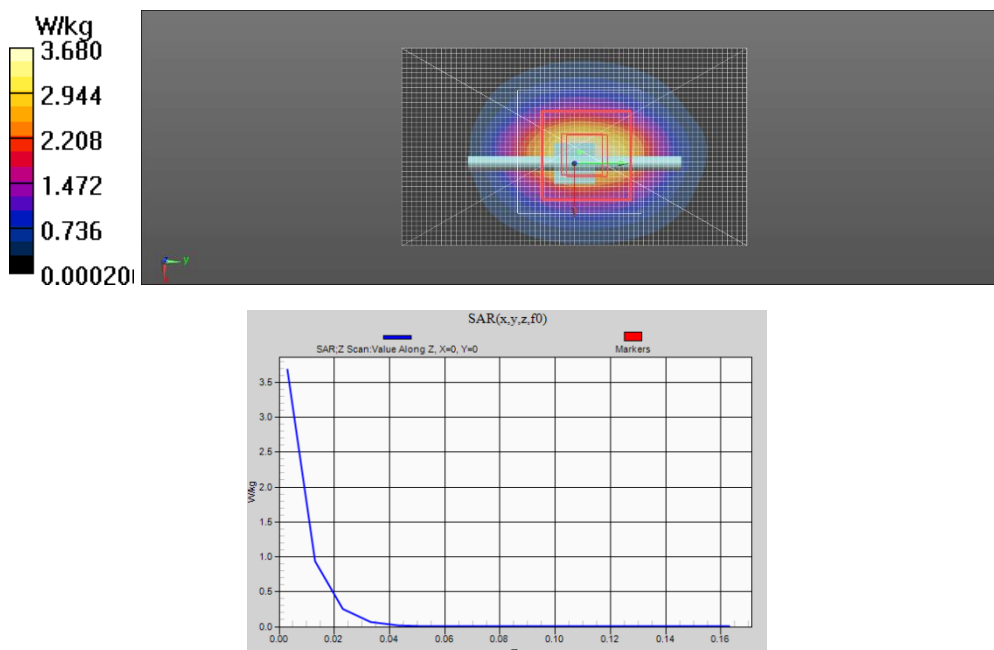
Ratio of SAR at M2 to SAR at M1 = 50.4%

Maximum value of SAR (measured) = 3.66 W/kg

System validation 2-3GHz rev1/System verification/Z Scan (1x1x17):

Measurement grid: $dx=20$ mm, $dy=20$ mm, $dz=10$ mm

Maximum value of SAR (measured) = 3.68 W/kg



REVISION HISTORY

Revision Level	Description of changes	Revision Date
0	Initial release	15 November 2022
1	Cover Page - Module FCC/IC IDs were added.	26 January 2023