

APPENDIX A. SAR System Verification Data

The plots for system verification with largest deviation for each SAR system combination are shown as follows.

Date/Time: 20/03/2017

Test Laboratory: CERPASS TECH

Dipole Calibration for Body Tissue Pin=250mW, dist=10mm, f=2450 MHz

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

Communication System: CW; Frequency: 2450 MHz

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.92$ S/m; $\epsilon_r = 52.46$; $\rho = 1000$ kg/m³

Phantom section: Flat Section;

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

DASY Configuration:

- Probe: EX3DV4 - SN3927; ConvF(7.68, 7.68, 7.68); Calibrated: 2016/5/25;
- Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 1.0, 31.0$
- Electronics: DAE4 Sn1379; Calibrated: 2016/5/23
- Phantom: ELI v5.0; Type: QDOVA002AA;
- DASYS 52.8.8(1222); SEMCAD X 14.6.10(7331)

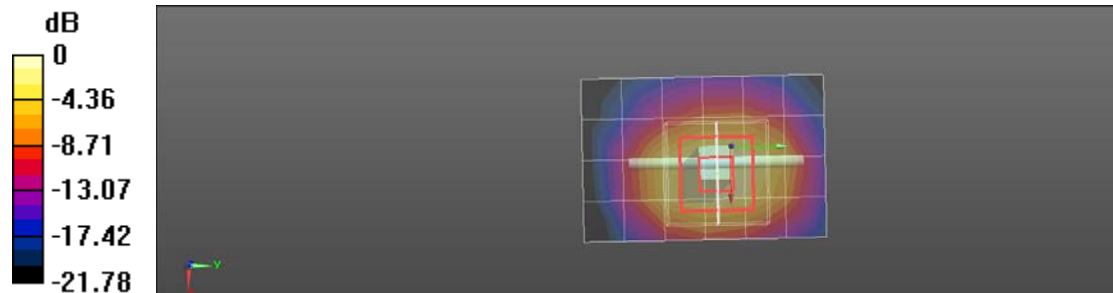
Configuration/SystemPerformanceCheck-D2450 Body/Area Scan (5x7x1):

Measurement grid: $dx=12$ mm, $dy=12$ mm, Maximum value of SAR (measured) = 11.5 W/kg

Configuration/SystemPerformanceCheck-D2450 Body/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm, Reference Value = 78.36 V/m; Power Drift = 0.01 dB, Peak SAR (extrapolated) = 25.5 W/kg

SAR(1 g) = 12.3 W/kg; SAR(10 g) = 5.83 W/kg Maximum value of SAR (measured) = 14.2 W/kg



0 dB = 14.2 W/kg = 11.52 dBW/kg

Date/Time: 20/03/2017

Test Laboratory: CERPASS TECH

Dipole Calibration for Body Tissue Pin=100mW, dist=10mm, f=5300 MHz

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2

Communication System: CW; Frequency: 5300 MHz

Medium parameters used: $f = 5300$ MHz; $\sigma = 5.38$ S/m; $\epsilon_r = 49.08$; $\rho = 1000$ kg/m³

Phantom section: Flat Section;

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

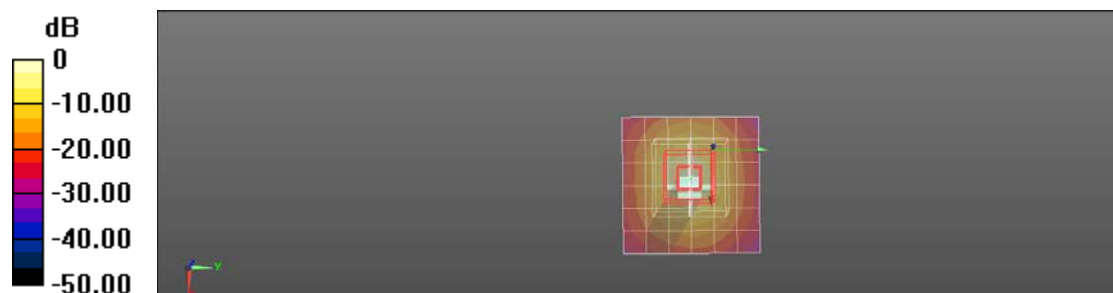
DASY Configuration:

- Probe: EX3DV4 - SN3927; ConvF(4.28, 4.28, 4.28); Calibrated: 2016/5/25;
- Sensor-Surface: 2mm (Mechanical Surface Detection), $z = 1.0, 31.0$
- Electronics: DAE4 Sn1379; Calibrated: 2016/5/23
- Phantom: ELI v5.0 (20deg probe tilt); Type: QDOVA002AA;
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Configuration/Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5300 MHz/Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm, Maximum value of SAR (measured) = 14.1 W/kg

Configuration/Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5300 MHz/Zoom Scan (9x9x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm, Reference Value = 39.26 V/m; Power Drift = 0.13 dB, Peak SAR (extrapolated) = 30.5 W/kg

SAR(1 g) = 7.46 W/kg; SAR(10 g) = 2.12 W/kg Maximum value of SAR (measured) = 15.9 W/kg



0 dB = 15.9 W/kg = 12.01 dBW/kg

Date/Time: 20/03/2017

Test Laboratory: CERPASS TECH

Dipole Calibration for Body Tissue Pin=100mW, dist=10mm, f=5600 MHz

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2

Communication System: CW; Frequency: 5600 MHz

Medium parameters used: $f = 5600$ MHz; $\sigma = 5.74$ S/m; $\epsilon_r = 48.47$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3927; ConvF(3.8, 3.8, 3.8); Calibrated: 2016/5/25;
- Sensor-Surface: 2mm (Mechanical Surface Detection), $z = 1.0, 31.0$
- Electronics: DAE4 Sn1379; Calibrated: 2016/5/23
- Phantom: ELI v5.0 (20deg probe tilt); Type: QDOVA002AA;
- DASYS 52.8.8(1222); SEMCAD X 14.6.10(7331)

Configuration/Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5600 MHz/Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm, Maximum value of SAR (measured) = 13.8 W/kg

Configuration/Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5600 MHz/Zoom Scan (9x9x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm, Reference Value = 37.21 V/m; Power Drift = 0.02 dB, Peak SAR (extrapolated) = 33.2 W/kg

SAR(1 g) = 8.10 W/kg; SAR(10 g) = 2.24 W/kg Maximum value of SAR (measured) = 17.3 W/kg



0 dB = 17.3 W/kg = 12.38 dBW/kg

Date/Time: 21/03/2017

Test Laboratory: CERPASS TECH

Dipole Calibration for Body Tissue Pin=100mW, dist=10mm, f=5800 MHz

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2

Communication System: CW; Frequency: 5800 MHz

Medium parameters used: $f = 5800$ MHz; $\sigma = 5.92$ S/m; $\epsilon_r = 48.21$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3927; ConvF(3.8, 3.8, 3.8); Calibrated: 2016/5/25;
- Sensor-Surface: 2mm (Mechanical Surface Detection), $z = 1.0, 31.0$
- Electronics: DAE4 Sn1379; Calibrated: 2016/5/23
- Phantom: ELI v5.0 (20deg probe tilt); Type: QDOVA002AA;
- DASYS 52.8.8(1222); SEMCAD X 14.6.10(7331)

Configuration/Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5800 MHz/Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm, Maximum value of SAR (measured) = 13.0 W/kg

Configuration/Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5800 MHz/Zoom Scan (9x9x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm, Reference Value = 35.26 V/m; Power Drift = 0.18 dB, Peak SAR (extrapolated) = 30.8 W/kg

SAR(1 g) = 7.34 W/kg; SAR(10 g) = 2.02 W/kg Maximum value of SAR (measured) = 15.9 W/kg



0 dB = 15.9 W/kg = 12.01 dBW/kg

APPENDIX B. SAR measurement Data

The SAR plots for highest measured SAR in each exposure configuration, wireless mode and frequency band combination, and measured SAR > 1.5 W/kg are shown as follows.

Plot1

Date/Time: 20/03/2017

Test Laboratory: CERPASS TECH

802.11b 2437MHz Back of laptop-main

DUT: ideapad 520-15IKB; Type: QCNFA435; (Speed Ant)

Communication System: 2.4GHz Wi-Fi; Frequency: 2437 MHz

Medium parameters used: $f = 2437$ MHz; $\sigma = 1.90$ S/m; $\epsilon_r = 52.48$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3927; ConvF(7.68, 7.68, 7.68); Calibrated: 2016/5/25;
- Sensor-Surface: 2mm (Mechanical Surface Detection), $z = 1.0, 31.0$
- Electronics: DAE4 Sn1379; Calibrated: 2016/5/23
- Phantom: ELI v5.0 (20deg probe tilt); Type: QDOVA002AA;
- DASYS 52.8.8(1222); SEMCAD X 14.6.10(7331)

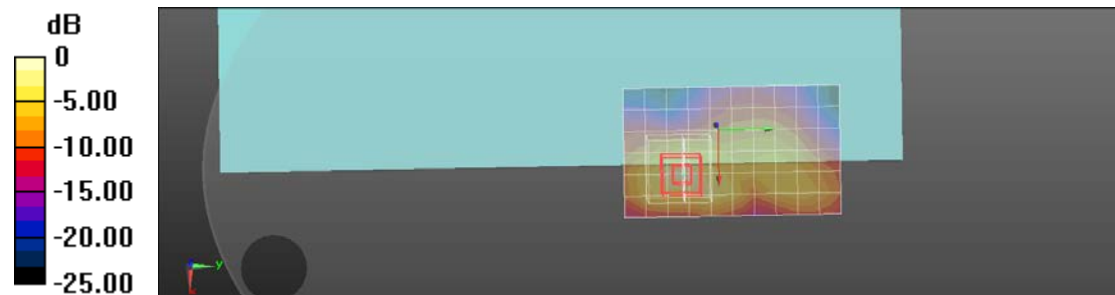
Configuration/802.11b 2437MHz Back of laptop-main/Area Scan (7x11x1):

Measurement grid: $dx=12$ mm, $dy=12$ mm, Maximum value of SAR (measured) = 0.504 W/kg

Configuration/802.11b 2437MHz Back of laptop-main/Zoom Scan (8x8x6)/Cube 0:

Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=2$ mm, Reference Value = 8.476 V/m; Power Drift = -0.05 dB, Peak SAR (extrapolated) = 0.837 W/kg

SAR(1 g) = 0.319 W/kg; SAR(10 g) = 0.130 W/kg Maximum value of SAR (measured) = 0.535 W/kg



0 dB = 0.535 W/kg = -2.72 dBW/kg

Test Laboratory: CERPASS TECH

802.11a 5300MHz Back of laptop-main

DUT: ideapad 520-15IKB; Type: QCNFA435; (Speed Ant)

Communication System: 5GHz Wi-Fi; Frequency: 5300 MHz

Medium parameters used: $f = 5300$ MHz; $\sigma = 5.39$ S/m; $\epsilon_r = 49.08$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3927; ConvF(4.28, 4.28, 4.28); Calibrated: 2016/5/25;
- Sensor-Surface: 2mm (Mechanical Surface Detection), $z = 1.0, 31.0$
- Electronics: DAE4 Sn1379; Calibrated: 2016/5/23
- Phantom: ELI v5.0 (20deg probe tilt); Type: QDOVA002AA;
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

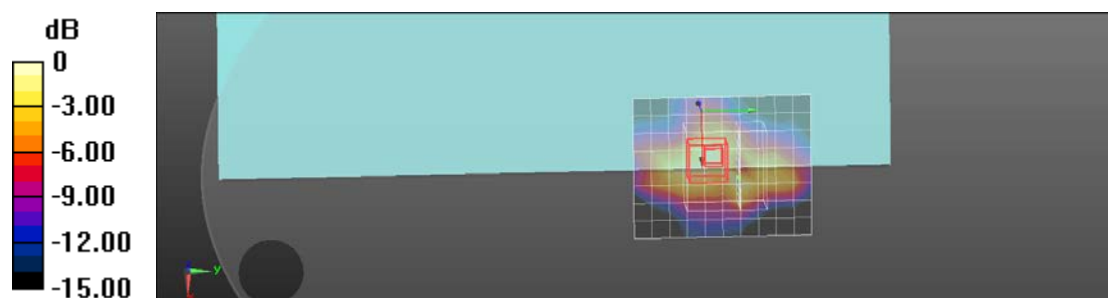
Configuration/802.11a 5300MHz Back of laptop-main/Area Scan (9x11x1):

Measurement grid: $dx=10$ mm, $dy=10$ mm, Maximum value of SAR (measured) = 1.19 W/kg

Configuration/802.11a 5300MHz Back of laptop-main/Zoom Scan (10x10x6)/Cube 0:

Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=2$ mm, Reference Value = 11.43 V/m; Power Drift = 0.17 dB, Peak SAR (extrapolated) = 2.43 W/kg

SAR(1 g) = 0.653 W/kg; SAR(10 g) = 0.248 W/kg Maximum value of SAR (measured) = 1.22 W/kg



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

Test Laboratory: CERPASS TECH

802.11a 5580MHz Back of laptop-main

DUT: ideapad 520-15IKB; Type: QCNFA435; (Speed Ant)

Communication System: 5GHz Wi-Fi; Frequency: 5580 MHz

Medium parameters used: $f = 5580$ MHz; $\sigma = 5.72$ S/m; $\epsilon_r = 48.53$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3927; ConvF(3.8, 3.8, 3.8); Calibrated: 2016/5/25;
- Sensor-Surface: 2mm (Mechanical Surface Detection), $z = 1.0, 31.0$
- Electronics: DAE4 Sn1379; Calibrated: 2016/5/23
- Phantom: ELI v5.0 (20deg probe tilt); Type: QDOVA002AA;
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

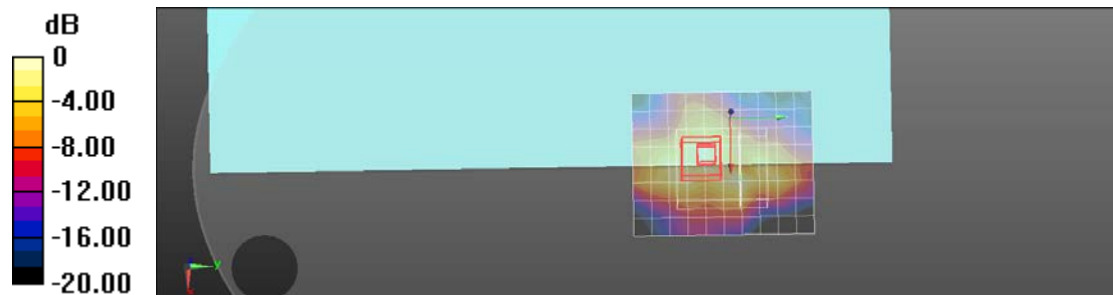
Configuration/802.11a 5580MHz Back of laptop-main/Area Scan (9x11x1):

Measurement grid: $dx=10$ mm, $dy=10$ mm, Maximum value of SAR (measured) = 0.752 W/kg

Configuration/802.11a 5580MHz Back of laptop-main/Zoom Scan (9x11x6)/Cube 0:

Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=2$ mm, Reference Value = 10.13 V/m; Power Drift = 0.12 dB, Peak SAR (extrapolated) = 1.33 W/kg

SAR(1 g) = 0.418 W/kg; SAR(10 g) = 0.161 W/kg Maximum value of SAR (measured) = 0.776 W/kg



0 dB = 0.776 W/kg = -1.10 dBW/kg

Test Laboratory: CERPASS TECH

802.11a 5785MHz Back of laptop-main

DUT: ideapad 520-15IKB; Type: QCNFA435; (Speed Ant)

Communication System: 5GHz Wi-Fi; Frequency: 5785 MHz

Medium parameters used: $f = 5785$ MHz; $\sigma = 5.89$ S/m; $\epsilon_r = 48.24$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3927; ConvF((3.8, 3.8, 3.8); Calibrated: 2016/5/25;
- Sensor-Surface: 2mm (Mechanical Surface Detection), $z = 1.0, 31.0$
- Electronics: DAE4 Sn1379; Calibrated: 2016/5/23
- Phantom: ELI v5.0 (20deg probe tilt); Type: QDOVA002AA;
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

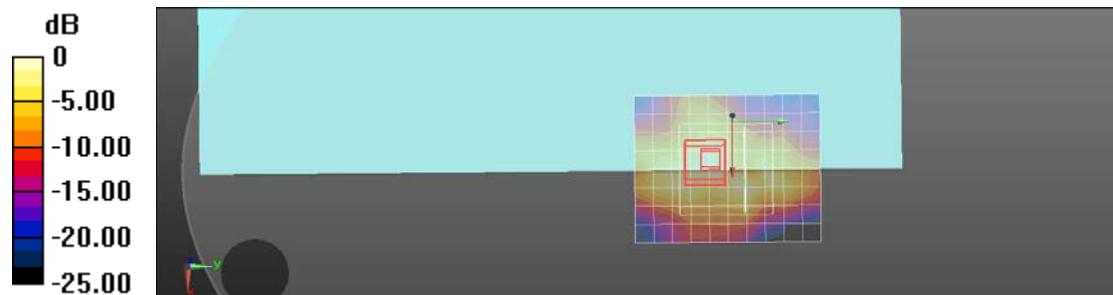
Configuration/802.11a 5785MHz Back of laptop-aux/Area Scan (9x11x1):

Measurement grid: $dx=10$ mm, $dy=10$ mm, Maximum value of SAR (measured) = 0.419 W/kg

Configuration/802.11a 5785MHz Back of laptop-aux/Zoom Scan (10x11x6)/Cube 0:

Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=2$ mm, Reference Value = 8.28 V/m; Power Drift = 0.08 dB, Peak SAR (extrapolated) = 0.708 W/kg

SAR(1 g) = 0.233 W/kg; SAR(10 g) = 0.090 W/kg Maximum value of SAR (measured) = 0.431 W/kg



0 dB = 0.431 W/kg = -3.66 dBW/kg

APPENDIX C. Calibration Data for Probe, Dipole and DAE

Please refer to attached files.

APPENDIX D. Photographs of EUT and Setup

Please refer to attached files.