

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: 07/11/2018

Test Laboratory: Cerpass Lab

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; $\sigma = 1.95$ S/m; $\epsilon_r = 52.63$; $\rho = 1000$ kg/m³

Phantom section: Flat Section; Meas. Ambient Temp (celsius) -22°C; Input power-250mW

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

DASY Configuration:

- Probe: EX3DV4 - SN3927; ConvF(7.61, 7.61,7.61); Calibrated: 2018/8/25;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1379; Calibrated: 2018/06/22
- Phantom: ELI v5.0; Type: QDOVA002AA
- DASYS 52.8.8(1222); SEMCAD X 14.6.10(7331)

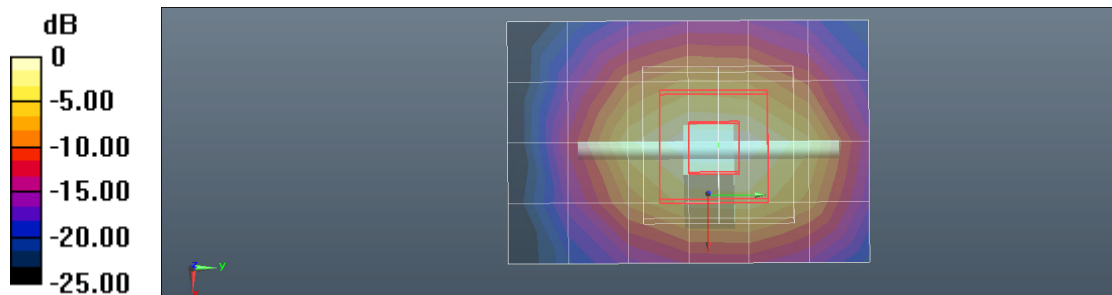
Configuration/SystemPerformanceCheck-D2450 Body/Area Scan (7x7x1):

Measurement grid: dx=12mm, dy=12mm, Maximum value of SAR (measured) = 14.7 W/kg

Configuration/SystemPerformanceCheck-D2450 Body/Zoom Scan (9x9x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm, Reference Value = 104.45 V/m; Power Drift = 0.01 dB, Peak SAR (extrapolated) = 25.8 W/kg

SAR(1 g) = 12.9 W/kg; SAR(10 g) = 5.6W/kg Maximum value of SAR (measured) = 16.1 W/kg



0 dB = 16.1 W/kg = 12.07 dBW/kg

Date/Time: 07/11/2018

Test Laboratory: Cerpass Lab

Dipole Calibration for Body Tissue Pin=100mW, dist=10mm, f=5250 MHz

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

Communication System: CW; Frequency: 5250 MHz

Medium parameters used: $f = 5250$ MHz; $\sigma = 5.46$ S/m; $\epsilon_r = 48.95$; $\rho = 1000$ kg/m³

Phantom section: Flat Section; Meas. Ambient Temp (celsius) -22°C; Input power-100mW

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

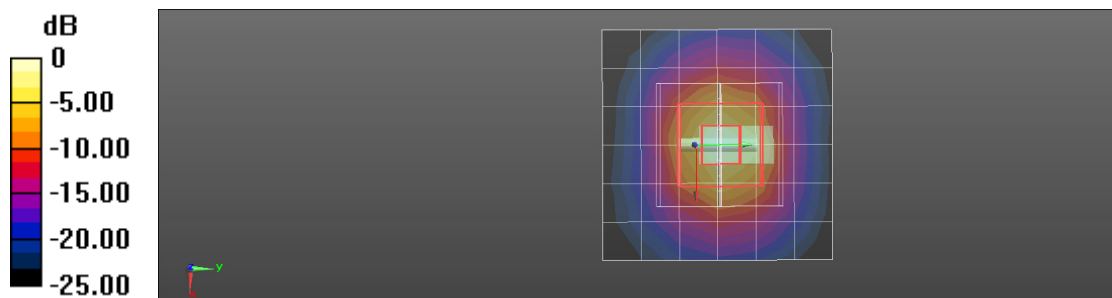
DASY Configuration:

- Probe: EX3DV4 - SN3927; ConvF(544, 5.44, 5.44); Calibrated: 2018/8/25;
- Sensor-Surface: 2mm (Mechanical Surface Detection), $z = 1.0, 31.0$
- Electronics: DAE4 Sn1379; Calibrated: 2018/06/22
- Phantom: ELI v5.0; Type: QDOVA002AA
- DASYS5 52.8.8(1222); SEMCAD X 14.6.10(7331)

Configuration/Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5250 MHz/Area Scan (7x7x1): Measurement grid: $dx=10$ mm, $dy=10$ mm, Maximum value of SAR (measured) = 16.1 W/kg

Configuration/Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5250 MHz/Zoom Scan (9x9x7)/Cube 0: Measurement grid: $dx=4$ mm, $dy=4$ mm, $dz=2$ mm, Reference Value = 55.85 V/m; Power Drift = 0.04 dB, Peak SAR (extrapolated) = 33.3 W/kg

SAR(1 g) = 7.98 W/kg; SAR(10 g) = 2.27 W/kg Maximum value of SAR (measured) = 16.8 W/kg



0 dB = 16.8 W/kg = 12.25 dBW/kg

Date/Time: 07/11/2018

Test Laboratory: Cerpass Lab

Dipole Calibration for Body Tissue Pin=100mW, dist=10mm, f=5750 MHz

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

Communication System: CW; Frequency: 5750 MHz

Medium parameters used: $f = 5750$ MHz; $\sigma = 5.90$ S/m; $\epsilon_r = 48.35$; $\rho = 1000$ kg/m³

Phantom section: Flat Section; Meas. Ambient Temp (celsius) -22°C; Input power-100mW

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

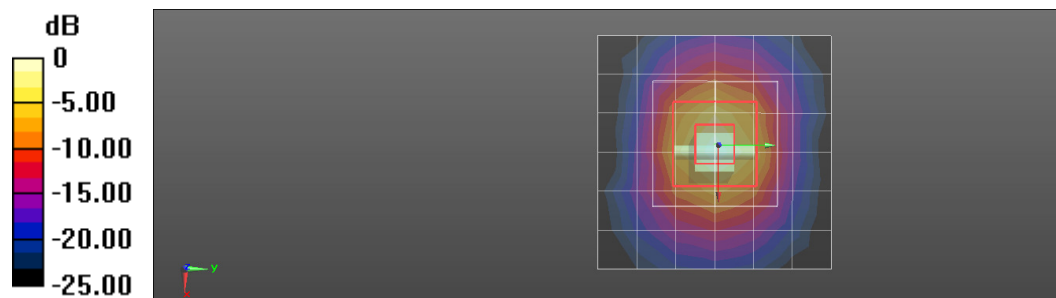
DASY Configuration:

- Probe: EX3DV4 - SN3927; ConvF(4.55, 4.55, 4.55); Calibrated: 2018/8/25;
- Sensor-Surface: 2mm (Mechanical Surface Detection), $z = 1.0, 31.0$
- Electronics: DAE4 Sn1379; Calibrated: 2018/06/22
- Phantom: ELI v5.0; Type: QDOVA002AA
- DASYS 52.8.8(1222); SEMCAD X 14.6.10(7331)

Configuration/Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5750 MHz/Area Scan (7x7x1): Measurement grid: $dx=10$ mm, $dy=10$ mm, Maximum value of SAR (measured) = 16.9 W/kg

Configuration/Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5750 MHz/Zoom Scan (9x9x7)/Cube 0: Measurement grid: $dx=4$ mm, $dy=4$ mm, $dz=2$ mm, Reference Value = 66.49 V/m; Power Drift = 0.02 dB, Peak SAR (extrapolated) = 32.3 W/kg

SAR(1 g) = 8.08 W/kg; SAR(10 g) = 2.36 W/kg Maximum value of SAR (measured) = 17.5 W/kg



0 dB = 17.5 W/kg = 12.43 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.

Date/Time: 14/11/2018

Test Laboratory: Cerpass Lab

DUT: BenQ Wireless Dongle; Type: WDR02U

Procedure Name: 802.11g 2412MHz Horizontal-Up(Ant 1)

Communication System: UID 0, 2.4GHz Wi-Fi (0); Frequency: 2412MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 2412$ MHz; $\sigma = 1.89$ S/m; $\epsilon_r = 52.67$; $\rho = 1000$ kg/m³

Phantom section: Flat Section; Tissue Temp(celsius) - 21 °C

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3927; ConvF(7.6, 7.6, 7.6); Calibrated: 2018/6/22;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1379; Calibrated: 2018/6/6
- Phantom: ELI v5.0 (20deg probe tilt); Type: QDOVA002AA; Serial: TP:xxxx
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/802.11g 2412MHz Horizontal-Up(Ant 1)/Area Scan (11x5x1):

Measurement grid: dx=12mm, dy=12mm

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

Configuration/802.11g 2412MHz Horizontal-Up(Ant 1)/Zoom Scan (7x7x7)/Cube 0:

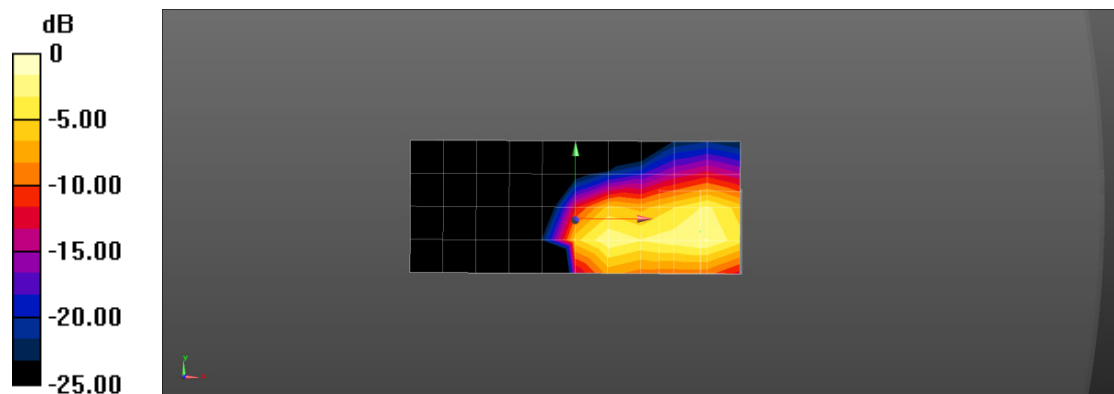
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.181 V/m; Power Drift = -2.33 dB

Peak SAR (extrapolated) = 2.97 W/kg

SAR(1 g) = 1.23 W/kg; SAR(10 g) = 0.566 W/kg

Maximum value of SAR (measured) = 1.45 W/kg



0 dB = 1.45 W/kg = 1.61dBW/kg

Date/Time: 14/11/2018

Test Laboratory: Cerpass Lab

DUT: BenQ Wireless Dongle; Type: WDR02U

Procedure Name: 802.11g 2462MHz Horizontal-Up(Ant 1)

Communication System: UID 0, 2.4GHz Wi-Fi (0); Frequency: 2462MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 2462$ MHz; $\sigma = 1.97$ S/m; $\epsilon_r = 52.59$; $\rho = 1000$ kg/m³

Phantom section: Flat Section; Tissue Temp(celsius) - 21 °C

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3927; ConvF(7.6, 7.6, 7.6); Calibrated: 2018/6/22;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1379; Calibrated: 2018/6/6
- Phantom: ELI v5.0 (20deg probe tilt); Type: QDOVA002AA; Serial: TP:xxxx
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/802.11g 2462MHz Horizontal-Up(Ant 1)/Area Scan (11x5x1):

Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (measured) = 1.11 W/kg

Configuration/802.11g 2462MHz Horizontal-Up(Ant 1)/Zoom Scan (7x7x7)/Cube 0:

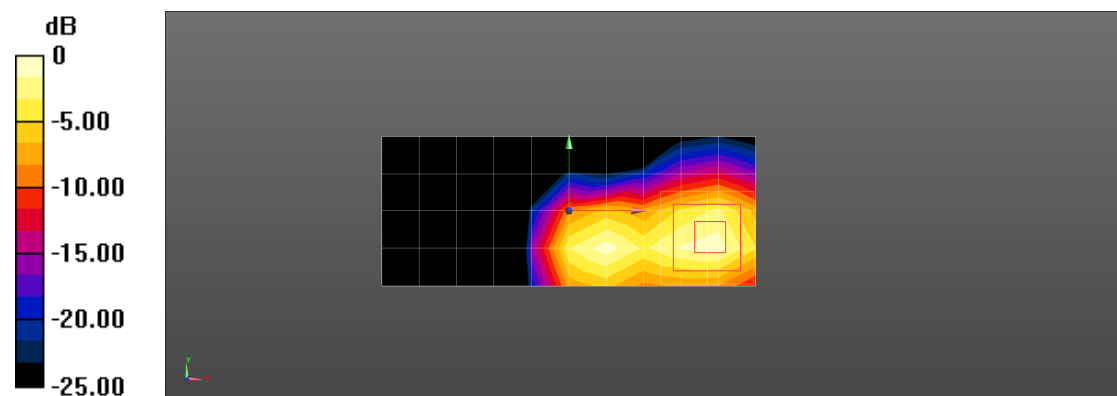
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 11.54 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 2.86 W/kg

SAR(1 g) = 1.18 W/kg; SAR(10 g) = 0.680 W/kg

Maximum value of SAR (measured) = 1.73 W/kg



0 dB = 1.73W/kg = 2.38dBW/kg

Date/Time: 14/11/2018

Test Laboratory: Cerpass Lab

DUT: BenQ Wireless Dongle; Type: WDR02U

Procedure Name: 802.11g 2437MHz Horizontal-Up(Ant 2)

Communication System: UID 0, 2.4GHz Wi-Fi (0); Frequency: 2437MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 2437$ MHz; $\sigma = 1.92$ S/m; $\epsilon_r = 52.64$; $\rho = 1000$ kg/m³

Phantom section: Flat Section; Tissue Temp(celsius) - 21 °C

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3927; ConvF(7.6, 7.6, 7.6); Calibrated: 2018/6/22;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1379; Calibrated: 2018/6/6
- Phantom: ELI v5.0 (20deg probe tilt); Type: QDOVA002AA; Serial: TP:xxxx
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/802.11g 2437MHz Horizontal-Up(Ant 2)/Area Scan (11x5x1):

Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (measured) = 0.929 W/kg

Configuration/802.11g 2437MHz Horizontal-Up(Ant 2)/Zoom Scan (7x7x7)/Cube 0:

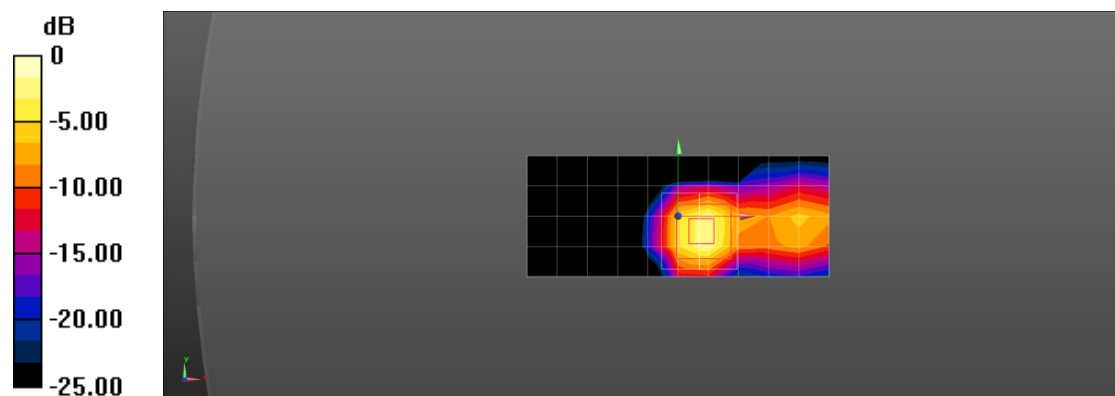
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 15.28 V/m; Power Drift = -0.28 dB

Peak SAR (extrapolated) = 2.94W/kg

SAR(1 g) = 1.1W/kg; SAR(10 g) = 0.402W/kg

Maximum value of SAR (measured) = 1.35 W/kg



0 dB = 1.45 W/kg = 1.30dBW/kg

Date/Time: 16/11/2018

Test Laboratory: Cerpass Lab

DUT: BenQ Wireless Dongle; Type: WDR02U

Procedure Name: 802.11a 5180MHz Horizontal-Up(Ant 1)

Communication System: UID 0, 5GHz Wi-Fi (0); Frequency: 5180MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 5180$ MHz; $\sigma = 5.26$ S/m; $\epsilon_r = 49.11$; $\rho = 1000$ kg/m³

Phantom section: Flat Section; Tissue Temp(celsius) - 21 °C

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3927; ConvF(5.41, 5.41, 5.41); Calibrated: 2018/6/22;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1379; Calibrated: 2018/6/6
- Phantom: ELI v5.0 (20deg probe tilt); Type: QDOVA002AA; Serial: TP:xxxx
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/802.11a 5180MHz Horizontal-Up(Ant 1)/Area Scan (11x11x1):

Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (measured) =1.04W/kg

Configuration/802.11a 5180MHz Horizontal-Up(Ant 1)/Zoom Scan (7x7x7)/Cube 0:

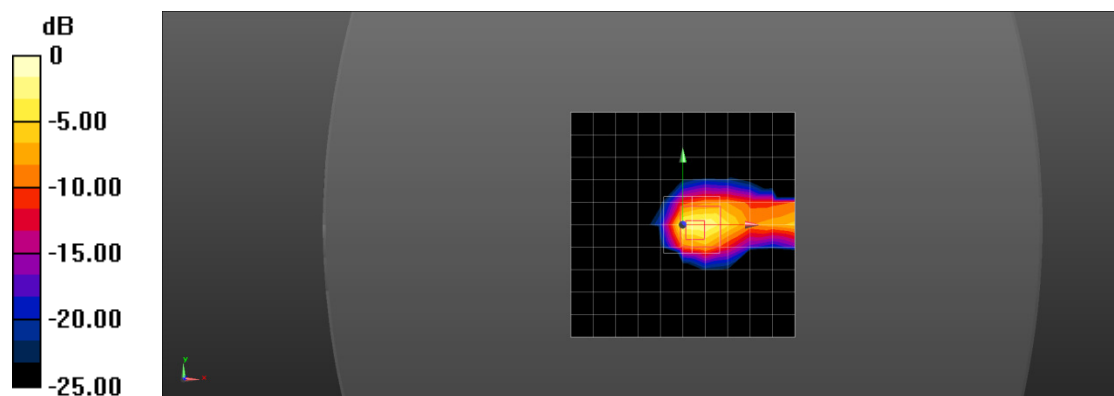
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 14.96 V/m; Power Drift = -0.42 dB

Peak SAR (extrapolated) = 10.9W/kg

SAR(1 g) = 1.52W/kg; SAR(10 g) = 0.391W/kg

Maximum value of SAR (measured) =1.47 W/kg



0 dB = 1.47 W/kg = 1.67dBW/kg

Date/Time: 16/11/2018

Test Laboratory: Cerpass Lab

DUT: BenQ Wireless Dongle; Type: WDR02U

Procedure Name: 802.11a 5240MHz Horizontal-Up(Ant 1)

Communication System: UID 0, 5GHz Wi-Fi (0); Frequency: 5180MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 5240$ MHz; $\sigma = 5.45$ S/m; $\epsilon_r = 48.99$; $\rho = 1000$ kg/m³

Phantom section: Flat Section; Tissue Temp(celsius) - 21 °C

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3927; ConvF(5.41, 5.41, 5.41); Calibrated: 2018/6/22;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1379; Calibrated: 2018/6/6
- Phantom: ELI v5.0 (20deg probe tilt); Type: QDOVA002AA; Serial: TP:xxxx
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/802.11a 5240MHz Horizontal-Up(Ant 1)/Area Scan (11x11x1):

Measurement grid: dx=12mm, dy=12mm

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

Configuration/802.11a 5240MHz Horizontal-Up(Ant 1)/Zoom Scan (7x7x7)/Cube 0:

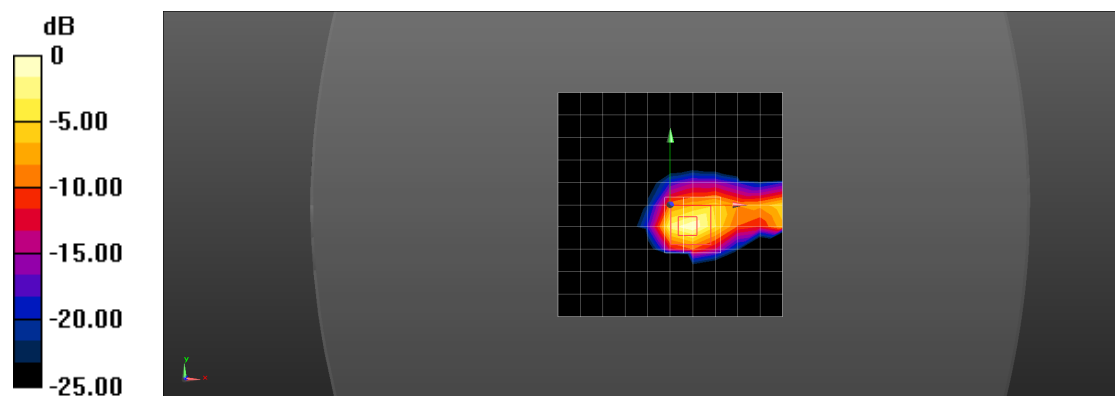
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.74 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 7.47W/kg

SAR(1 g) = 1.21W/kg; SAR(10 g) = 0.326W/kg

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



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

Date/Time: 17/11/2018

Test Laboratory: Cerpass Lab

DUT: BenQ Wireless Dongle; Type: WDR02U

Procedure Name: 802.11ac-VHT20 5825MHz Horizontal-Down(Ant 1)

Communication System: UID 0, 5GHz Wi-Fi (0); Frequency: 5825MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 5825$ MHz; $\sigma = 6.03$ S/m; $\epsilon_r = 47.94$; $\rho = 1000$ kg/m³

Phantom section: Flat Section; Tissue Temp(celsius) - 21 °C

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3927; ConvF(4.99, 4.99, 4.99); Calibrated: 2018/6/22;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1379; Calibrated: 2018/6/6
- Phantom: ELI v5.0 (20deg probe tilt); Type: QDOVA002AA; Serial: TP:xxxx
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/802.11ac-VHT20 5825MHz Horizontal-Down(Ant 1)/Area Scan

(11x11x1): Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (measured) =1.62W/kg

Configuration/802.11ac-VHT20 5825MHz Horizontal-Down(Ant 1)/Zoom Scan

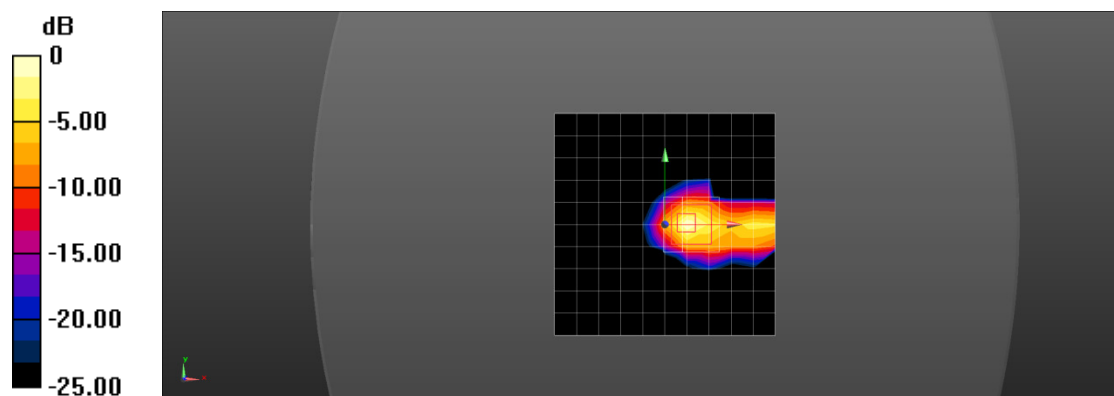
(7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.942 V/m; Power Drift = -0.53 dB

Peak SAR (extrapolated) =8.50W/kg

SAR(1 g) = 1.45W/kg; SAR(10 g) = 0.374W/kg

Maximum value of SAR (measured) =1.55 W/kg



0 dB = 1.55 W/kg =1.90dBW/kg

Date/Time: 17/11/2018

Test Laboratory: Cerpass Lab

DUT: BenQ Wireless Dongle; Type: WDR02U

Procedure Name: 802.11ac-VHT20 5825MHz Vertical-Back(Ant 1)

Communication System: UID 0, 5GHz Wi-Fi (0); Frequency: 5825MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 5825 \text{ MHz}$; $\sigma = 6.03 \text{ S/m}$; $\epsilon_r = 47.94$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Tissue Temp(celsius) - 21 °C

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3927; ConvF(4.99, 4.99, 4.99); Calibrated: 2018/6/22;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1379; Calibrated: 2018/6/6
- Phantom: ELI v5.0 (20deg probe tilt); Type: QDOVA002AA; Serial: TP:xxxx
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/802.11ac-VHT20 5825MHz Vertical-Back(Ant 1)/Area Scan (11x11x1):

Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (measured) =1.36W/kg

Configuration/802.11ac-VHT20 5825MHz Vertical-Back(Ant 1)/Zoom Scan

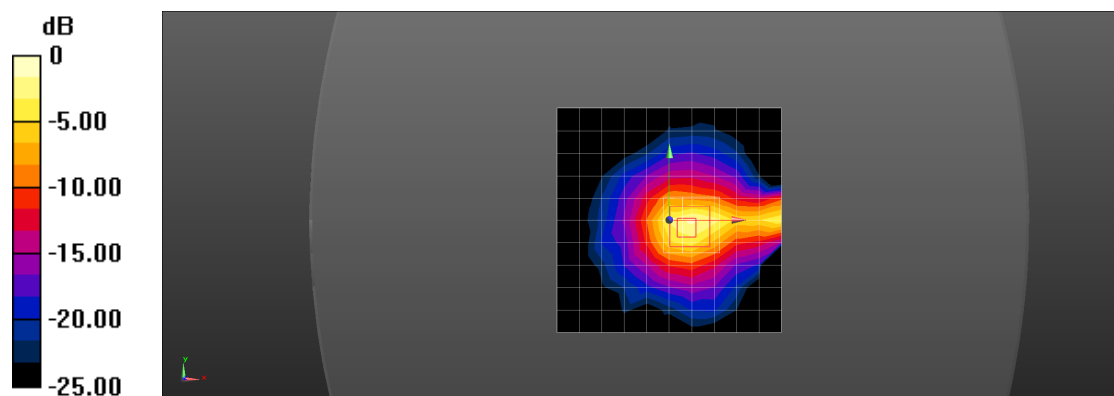
(7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 13.49V/m; Power Drift = -0.29 dB

Peak SAR (extrapolated) =5.41W/kg

SAR(1 g) = 1.45W/kg; SAR(10 g) = 0.480W/kg

Maximum value of SAR (measured) =1.85 W/kg



0 dB = 1.85 W/kg =2.67dBW/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.