

57_LTE Band 12_10M QPSK_1RB_0Offset_Back_5mm_Ch23095

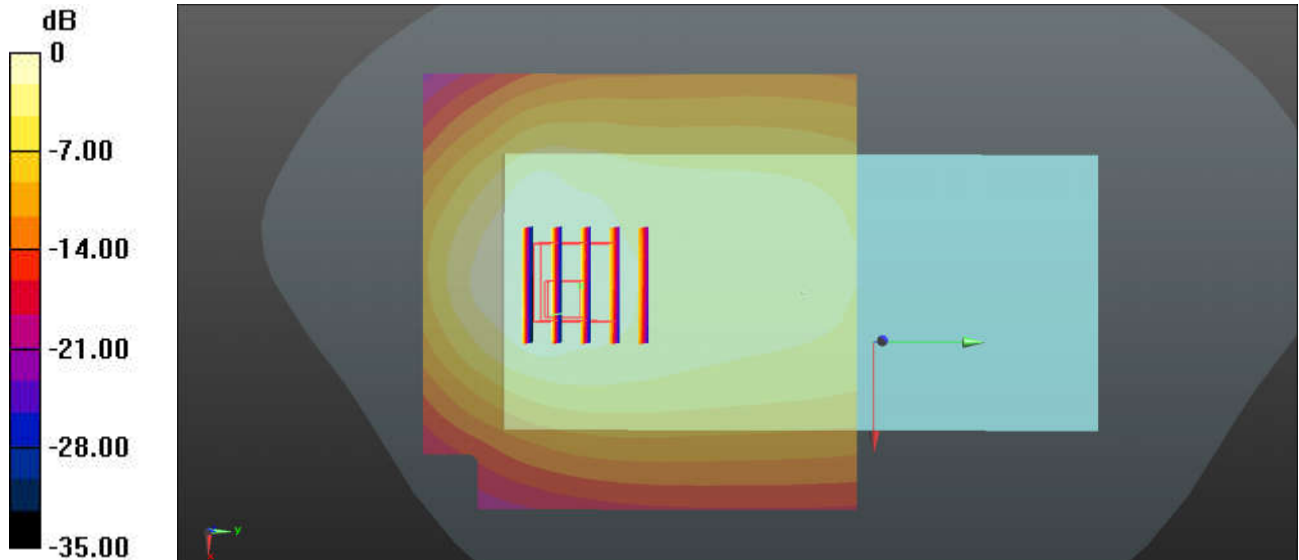
Communication System: UID 0, LTE-FDD (0); Frequency: 707.5 MHz; Duty Cycle: 1:1
Medium: HSL_750 Medium parameters used: $f = 707.5$ MHz; $\sigma = 0.866$ S/m; $\epsilon_r = 42.37$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.2 °C; Liquid Temperature : 22.7 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3935; ConvF(10.83, 10.83, 10.83); Calibrated: 2018.11.26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019.1.23
- Phantom: SAM2; Type: SAM; Serial: TP-1754
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch23095/Area Scan (81x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.831 W/kg

Ch23095/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 19.81 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 1.53 W/kg
SAR(1 g) = 0.732 W/kg; SAR(10 g) = 0.425 W/kg
Maximum value of SAR (measured) = 0.924 W/kg



0 dB = 0.831 W/kg = -0.80 dBW/kg

58_LTE Band 13_10M QPSK_1RB_0Offset_Back_5mm_Ch23230

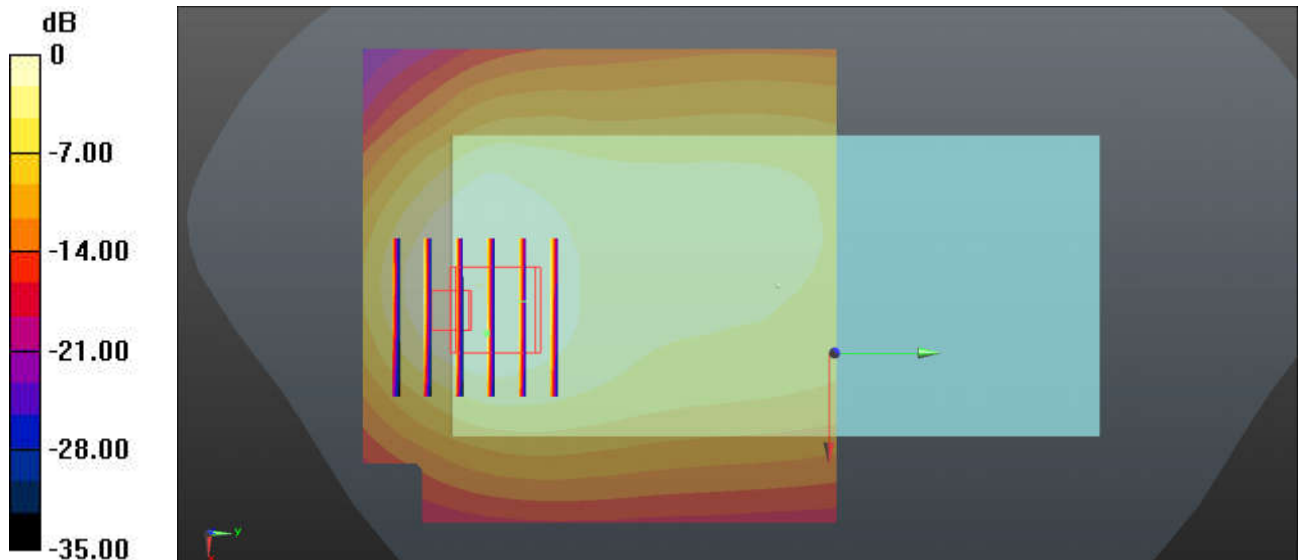
Communication System: UID 0, LTE-FDD (0); Frequency: 782 MHz; Duty Cycle: 1:1
Medium: HSL_750 Medium parameters used: $f = 782 \text{ MHz}$; $\sigma = 0.929 \text{ S/m}$; $\epsilon_r = 41.366$; $\rho = 1000 \text{ kg/m}^3$
Ambient Temperature : $23.2 \text{ }^\circ\text{C}$; Liquid Temperature : $22.7 \text{ }^\circ\text{C}$

DASY5 Configuration:

- Probe: EX3DV4 - SN3935; ConvF(10.83, 10.83, 10.83); Calibrated: 2018.11.26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019.1.23
- Phantom: SAM2; Type: SAM; Serial: TP-1754
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch23230/Area Scan (81x81x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$
Maximum value of SAR (interpolated) = 0.917 W/kg

Ch23230/Zoom Scan (6x6x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 19.04 V/m ; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 1.56 W/kg
SAR(1 g) = 0.727 W/kg ; SAR(10 g) = 0.415 W/kg
Maximum value of SAR (measured) = 0.924 W/kg



0 dB = 0.917 W/kg = -0.38 dBW/kg

59_LTE Band 14_10M QPSK_1RB_0Offset_Back_5mm_Ch23330

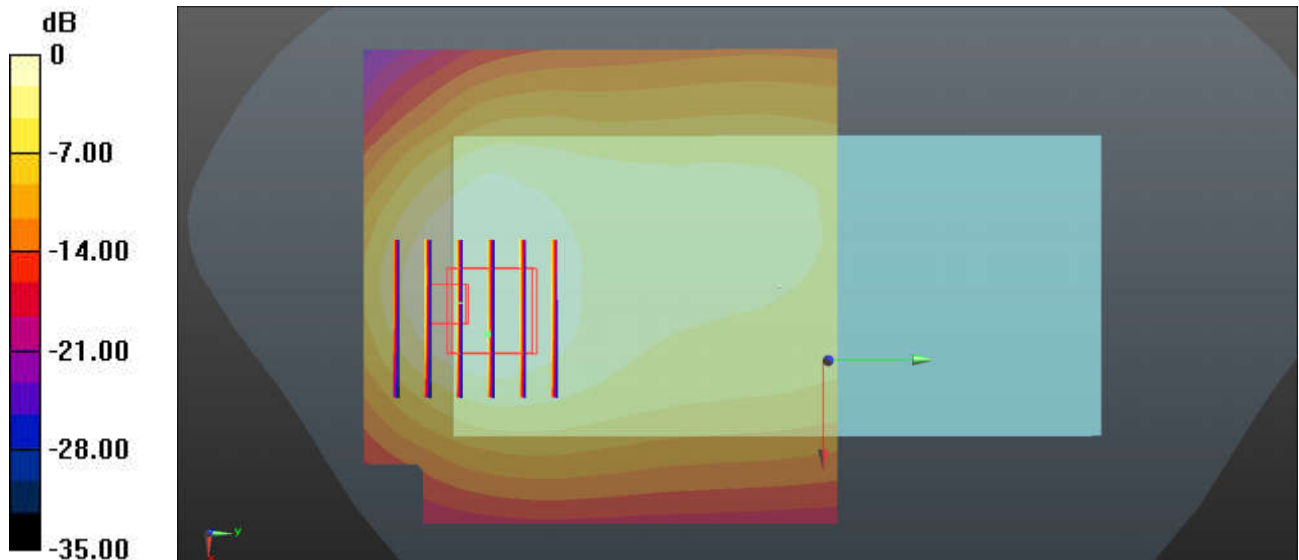
Communication System: UID 0, LTE-FDD (0); Frequency: 793 MHz; Duty Cycle: 1:1
Medium: HSL_750 Medium parameters used: $f = 793$ MHz; $\sigma = 0.941$ S/m; $\epsilon_r = 41.254$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.2 °C; Liquid Temperature : 22.7 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3935; ConvF(10.83, 10.83, 10.83); Calibrated: 2018.11.26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019.1.23
- Phantom: SAM2; Type: SAM; Serial: TP-1754
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch23330/Area Scan (81x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.05 W/kg

Ch23330/Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.04 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 1.81 W/kg
SAR(1 g) = 0.857 W/kg; SAR(10 g) = 0.479 W/kg
Maximum value of SAR (measured) = 1.09 W/kg



0 dB = 1.05 W/kg = 0.21 dBW/kg

60_LTE Band 26_15M QPSK_1RB_0Offset_Back_5mm_Ch26865

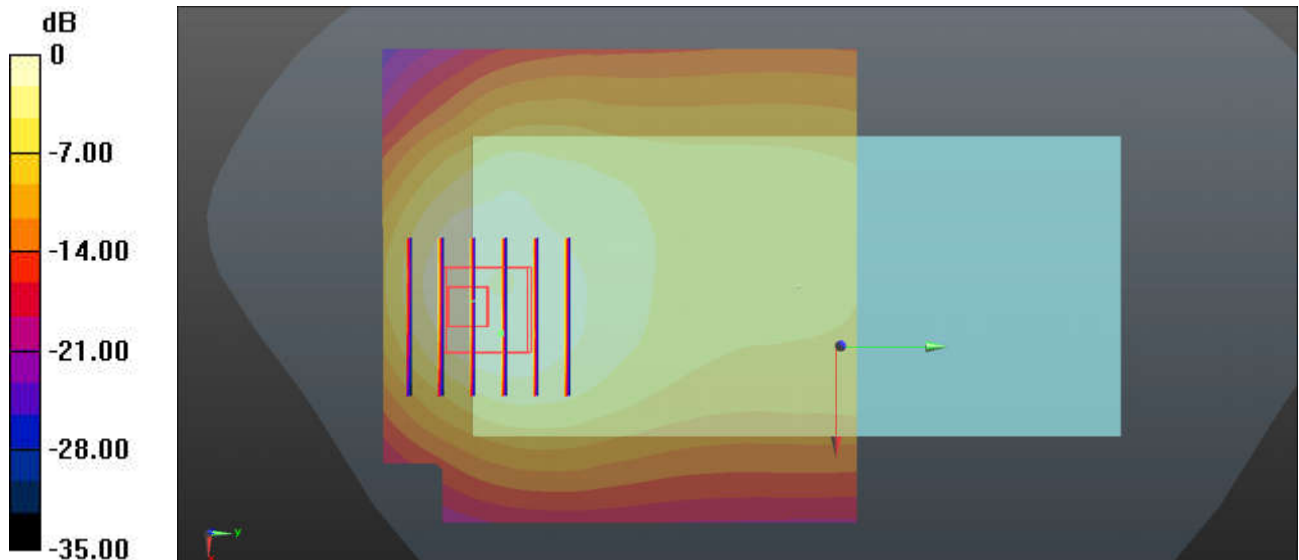
Communication System: UID 0, LTE-FDD (0); Frequency: 831.5 MHz; Duty Cycle: 1:1
Medium: HSL_850 Medium parameters used: $f = 831.5$ MHz; $\sigma = 0.925$ S/m; $\epsilon_r = 42.258$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.2 °C; Liquid Temperature : 22.9 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3935; ConvF(10.48, 10.48, 10.48); Calibrated: 2018.11.26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019.1.23
- Phantom: SAM2; Type: SAM; Serial: TP-1754
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch26865/Area Scan (81x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.43 W/kg

Ch26865/Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 19.08 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 2.43 W/kg
SAR(1 g) = 1.18 W/kg; SAR(10 g) = 0.637 W/kg
Maximum value of SAR (measured) = 1.56 W/kg



0 dB = 1.43 W/kg = 1.55 dBW/kg

61_LTE Band 66_20M QPSK_50RB_0Offset_Back_5mm_Ch132572

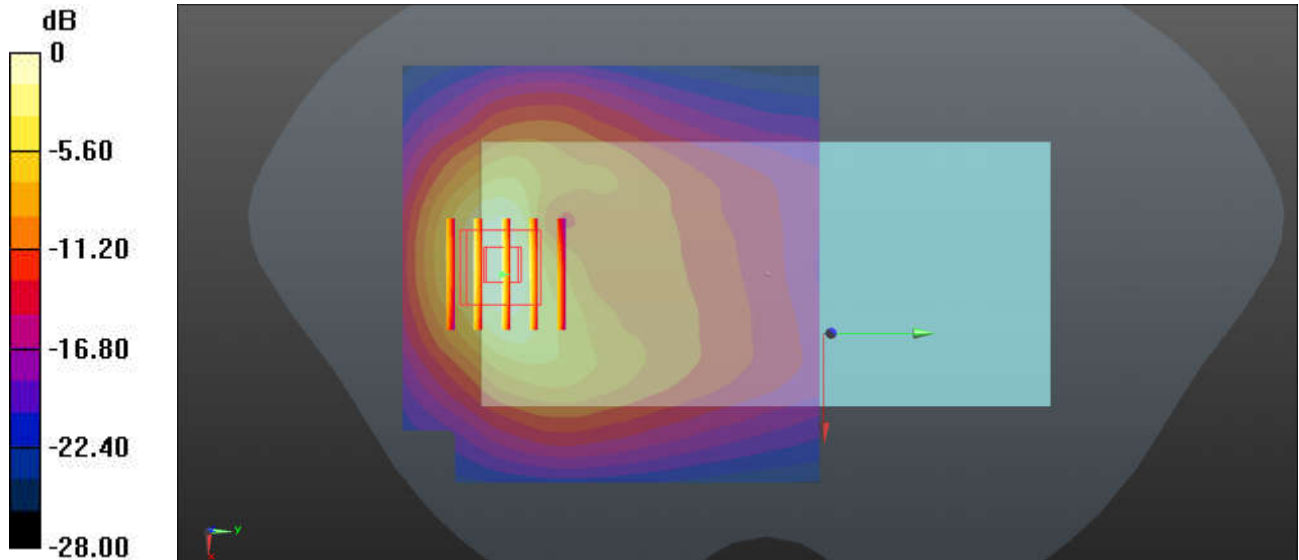
Communication System: UID 0, LTE-FDD (0); Frequency: 1770 MHz; Duty Cycle: 1:1
Medium: HSL_1750 Medium parameters used: $f = 1770$ MHz; $\sigma = 1.401$ S/m; $\epsilon_r = 39.629$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.2 °C; Liquid Temperature : 22.9 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3935; ConvF(8.91, 8.91, 8.91); Calibrated: 2018.11.26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019.1.23
- Phantom: SAM2; Type: SAM; Serial: TP-1754
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch132572/Area Scan (81x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.20 W/kg

Ch132572/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.015 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 1.68 W/kg
SAR(1 g) = 0.985 W/kg; SAR(10 g) = 0.519 W/kg
Maximum value of SAR (measured) = 1.21 W/kg



0 dB = 1.20 W/kg = 0.79 dBW/kg

62_LTE Band 25_20M QPSK_50RB_24Offset_Back_5mm_Ch26590

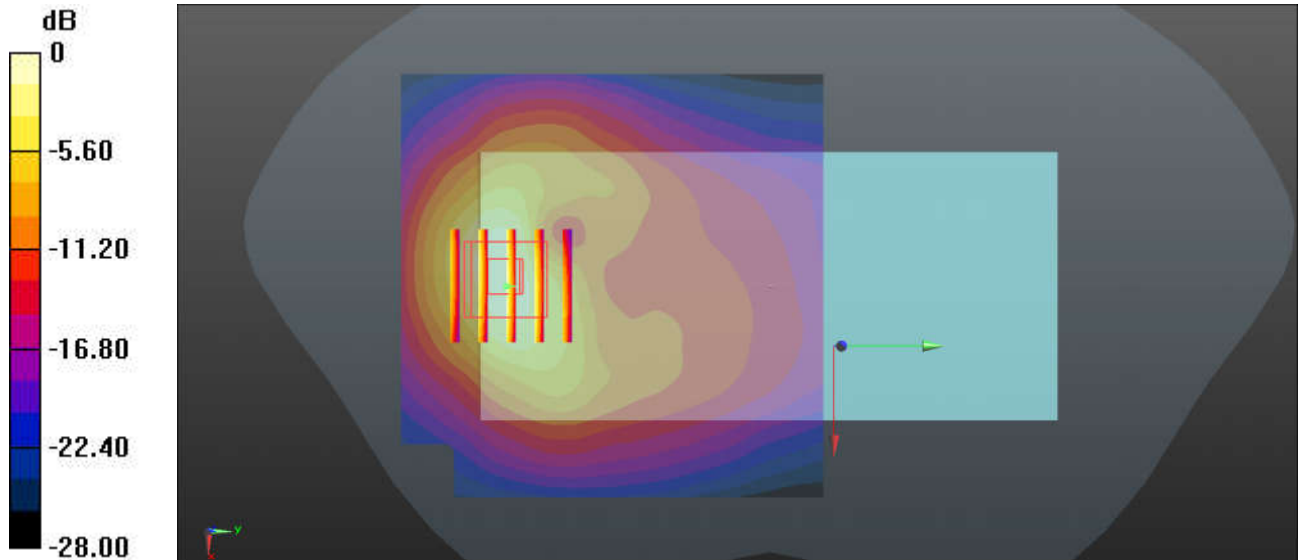
Communication System: UID 0, LTE-FDD (0); Frequency: 1905 MHz; Duty Cycle: 1:1
Medium: HSL_1900 Medium parameters used: $f = 1905$ MHz; $\sigma = 1.432$ S/m; $\epsilon_r = 38.705$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.3 °C; Liquid Temperature : 22.9 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3935; ConvF(8.5, 8.5, 8.5); Calibrated: 2018.11.26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019.1.23
- Phantom: SAM2; Type: SAM; Serial: TP-1754
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch26590/Area Scan (81x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.18 W/kg

Ch26590/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.269 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 1.71 W/kg
SAR(1 g) = 0.955 W/kg; SAR(10 g) = 0.491 W/kg
Maximum value of SAR (measured) = 1.18 W/kg



0 dB = 1.18 W/kg = 0.72 dBW/kg

63_LTE Band 30_10M QPSK_1RB_0Offset_Back_5mm_Ch27710

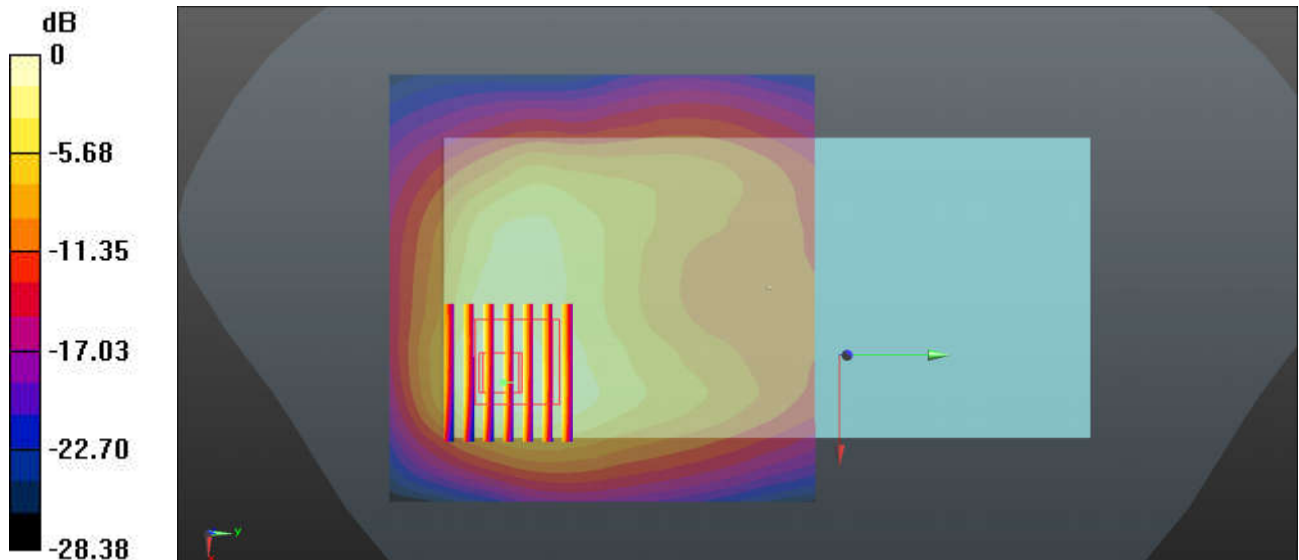
Communication System: UID 0, LTE-FDD (0); Frequency: 2310 MHz; Duty Cycle: 1:1
Medium: HSL_2300 Medium parameters used: $f = 2310$ MHz; $\sigma = 1.692$ S/m; $\epsilon_r = 38.988$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.3 °C; Liquid Temperature : 22.7 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3935; ConvF(7.99, 7.99, 7.99); Calibrated: 2018.11.26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019.1.23
- Phantom: SAM1; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch27710/Area Scan (91x91x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 2.09 W/kg

Ch27710/Zoom Scan (8x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.07 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 2.41 W/kg
SAR(1 g) = 1.15 W/kg; SAR(10 g) = 0.599 W/kg
Maximum value of SAR (measured) = 1.90 W/kg



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

64_LTE Band 7_20M QPSK_50RB_0Offset_Back_5mm_Ch21350

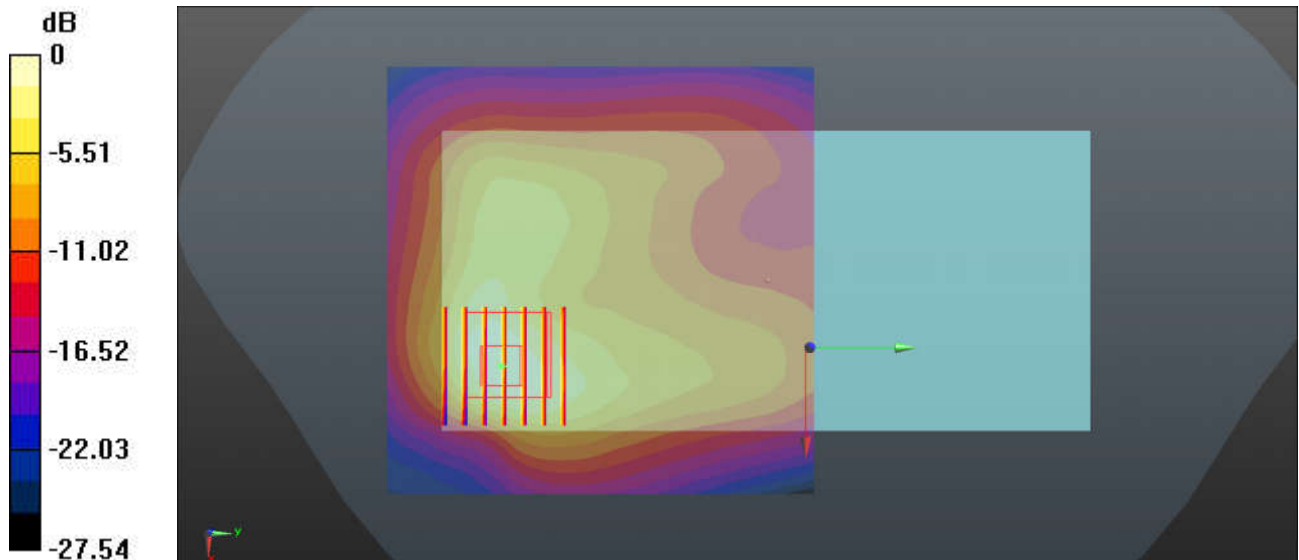
Communication System: UID 0, LTE-FDD (0); Frequency: 2560 MHz; Duty Cycle: 1:1
Medium: HSL_2600 Medium parameters used: $f = 2560$ MHz; $\sigma = 1.978$ S/m; $\epsilon_r = 37.943$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.3 °C; Liquid Temperature : 22.6 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3935; ConvF(7.38, 7.38, 7.38); Calibrated: 2018.11.26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019.1.23
- Phantom: SAM1; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch21350/Area Scan (91x91x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 2.17 W/kg

Ch21350/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.247 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 2.97 W/kg
SAR(1 g) = 1.16 W/kg; SAR(10 g) = 0.519 W/kg
Maximum value of SAR (measured) = 2.15 W/kg



0 dB = 2.17 W/kg = 3.36 dBW/kg

65_LTE Band 41_20M QPSK_1RB_0Offset_Back_5mm_Ch41055

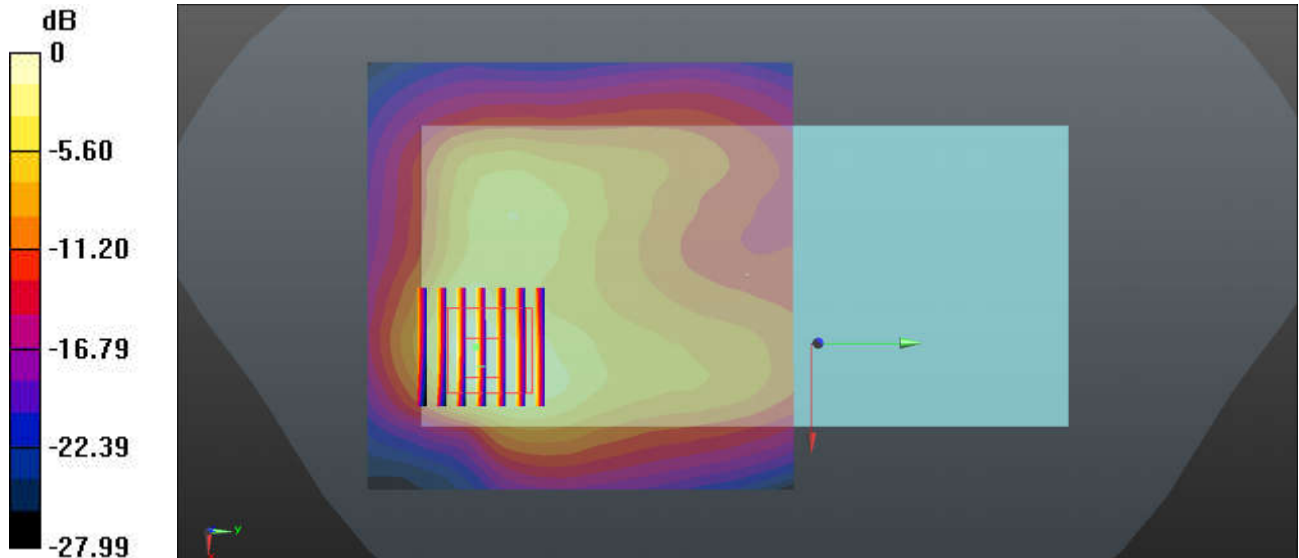
Communication System: UID 0, LTE-TDD (0); Frequency: 2636.5 MHz; Duty Cycle: 1:1.59
Medium: HSL_2600 Medium parameters used: $f = 2636.5$ MHz; $\sigma = 2.066$ S/m; $\epsilon_r = 37.634$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.3 °C; Liquid Temperature : 22.6 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3935; ConvF(7.38, 7.38, 7.38); Calibrated: 2018.11.26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019.1.23
- Phantom: SAM1; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch41055/Area Scan (91x91x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 1.98 W/kg

Ch41055/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.004 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 2.82 W/kg
SAR(1 g) = 1.07 W/kg; SAR(10 g) = 0.462 W/kg
Maximum value of SAR (measured) = 2.05 W/kg



0 dB = 1.98 W/kg = 2.97 dBW/kg

66_LTE Band 41(HPUE)_20M QPSK_1RB_0Offset_Back_5mm_Ch40185

Communication System: UID 0, LTE-TDD (0); Frequency: 2549.5 MHz; Duty Cycle: 1:2.311
 Medium: HSL_2600 Medium parameters used: $f = 2549.5$ MHz; $\sigma = 1.965$ S/m; $\epsilon_r = 37.975$; $\rho = 1000$ kg/m³
 Ambient Temperature : 23.3 °C; Liquid Temperature : 22.6 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3935; ConvF(7.38, 7.38, 7.38); Calibrated: 2018.11.26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019.1.23
- Phantom: SAM1; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch40185/Area Scan (91x91x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 1.84 W/kg

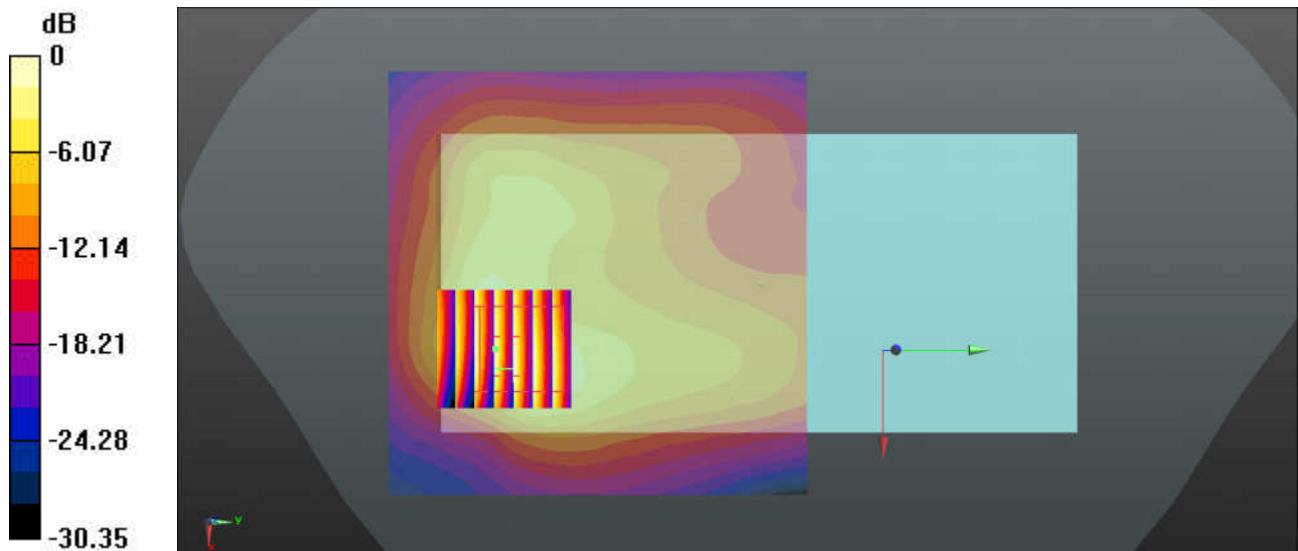
Ch40185/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.170 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 2.46 W/kg

SAR(1 g) = 0.949 W/kg; SAR(10 g) = 0.422 W/kg

Maximum value of SAR (measured) = 1.69 W/kg



0 dB = 1.69 W/kg = 2.28 dBW/kg

67_WLAN 2.4GHz_802.11b 1Mbps_Back_5mm_Ant 1_Ch6

Communication System: UID 0, 802.11b (0); Frequency: 2437 MHz; Duty Cycle: 1:1
Medium: HSL_2450 Medium parameters used: $f = 2437$ MHz; $\sigma = 1.767$ S/m; $\epsilon_r = 40.709$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.2 °C ; Liquid Temperature : 22.8 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3857; ConvF(7.5, 7.5, 7.5) @ 2437 MHz; Calibrated: 2019.5.27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019.1.23
- Phantom: SAM1; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch6/Area Scan (91x71x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 1.19 W/kg

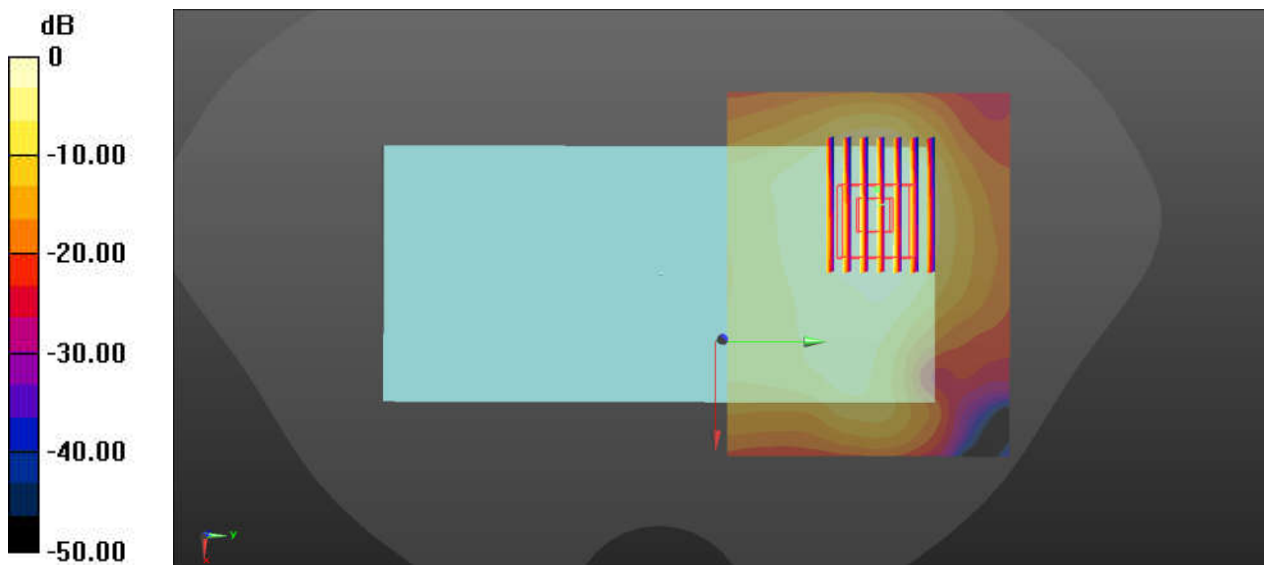
Ch6/Zoom Scan (9x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.644 V/m; Power Drift = -0.18 dB

Peak SAR (extrapolated) = 1.31 W/kg

SAR(1 g) = 0.704 W/kg; SAR(10 g) = 0.373 W/kg

Maximum value of SAR (measured) = 1.09 W/kg



0 dB = 1.19 W/kg = 0.76 dBW/kg

68_WLAN5.2GHz_802.11n-HT40 MCS0_Back_5mm_Ant 1_Ch38

Communication System: UID 0, 802.11n (0); Frequency: 5190 MHz; Duty Cycle: 1:1.038
Medium: HSL_5000 Medium parameters used: $f = 5190$ MHz; $\sigma = 4.521$ S/m; $\epsilon_r = 36.525$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.2 °C ; Liquid Temperature : 22.8 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3857; ConvF(5.19, 5.19, 5.19); Calibrated: 2019.5.27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019.1.23
- Phantom: SAM1; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch38/Area Scan (101x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 2.01 W/kg

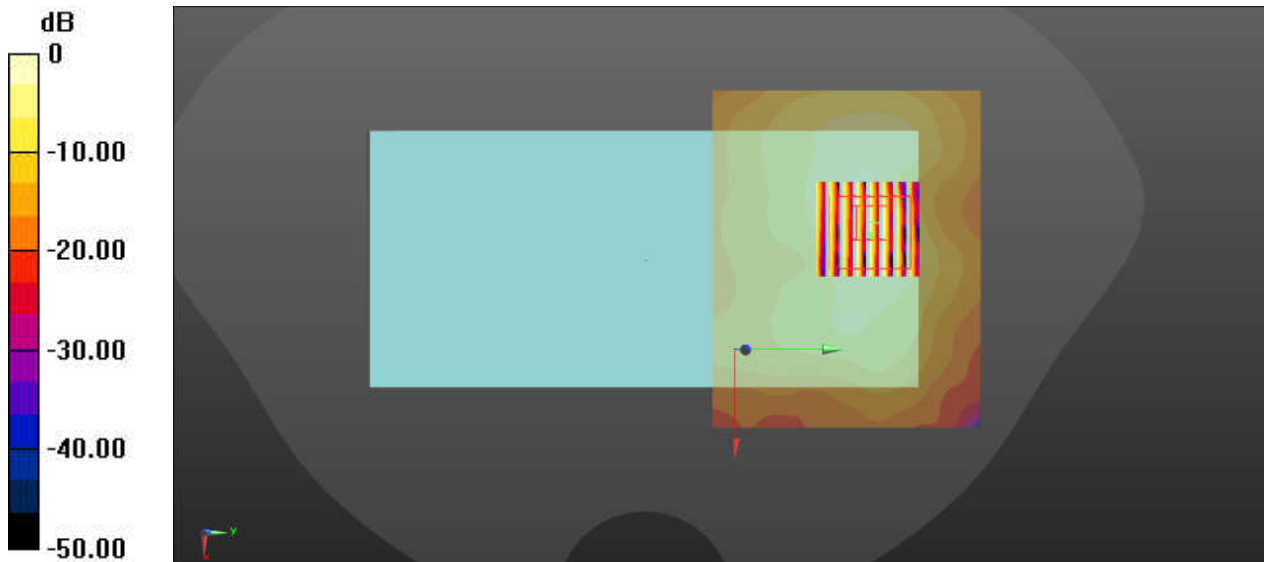
Ch38/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 0 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 2.90 W/kg

SAR(1 g) = 0.829 W/kg; SAR(10 g) = 0.314 W/kg

Maximum value of SAR (measured) = 1.80 W/kg



0 dB = 2.01 W/kg = 3.03 dBW/kg

69_WLAN5.3GHz_802.11n-HT40 MCS0_Back_5mm_Ant 1_Ch54

Communication System: UID 0, 802.11n (0); Frequency: 5270 MHz; Duty Cycle: 1:1.038
Medium: HSL_5000 Medium parameters used: $f = 5270$ MHz; $\sigma = 4.623$ S/m; $\epsilon_r = 36.391$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.2 °C ; Liquid Temperature : 22.8 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3857; ConvF(5.19, 5.19, 5.19); Calibrated: 2019.5.27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019.1.23
- Phantom: SAM1; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch54/Area Scan (101x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 2.33 W/kg

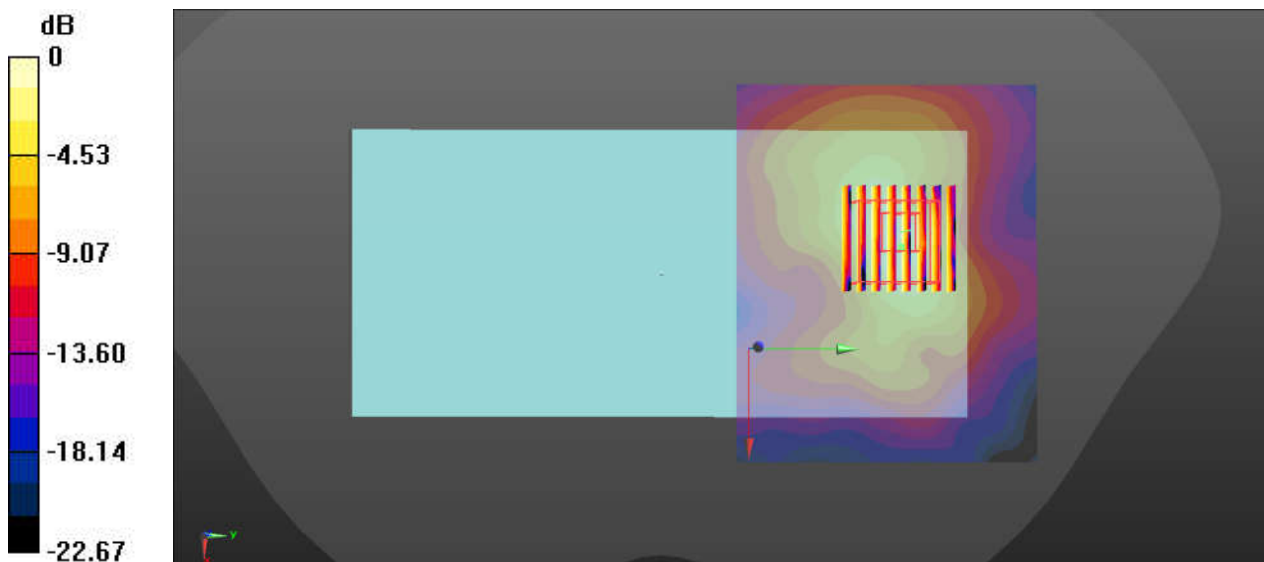
Ch54/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 2.644 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 3.52 W/kg

SAR(1 g) = 0.954 W/kg; SAR(10 g) = 0.353 W/kg

Maximum value of SAR (measured) = 2.18 W/kg



0 dB = 2.33 W/kg = 3.67 dBW/kg

70_WLAN5.5GHz_802.11n-HT40 MCS0_Back_5mm_Ant 1_Ch134

Communication System: UID 0, 802.11n (0); Frequency: 5670 MHz; Duty Cycle: 1:1.038
Medium: HSL_5000 Medium parameters used: $f = 5670$ MHz; $\sigma = 5.075$ S/m; $\epsilon_r = 35.726$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.3 °C ; Liquid Temperature : 22.7 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3857; ConvF(4.92, 4.92, 4.92); Calibrated: 2019.5.27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019.1.23
- Phantom: SAM1; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch134/Area Scan (101x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 1.92 W/kg

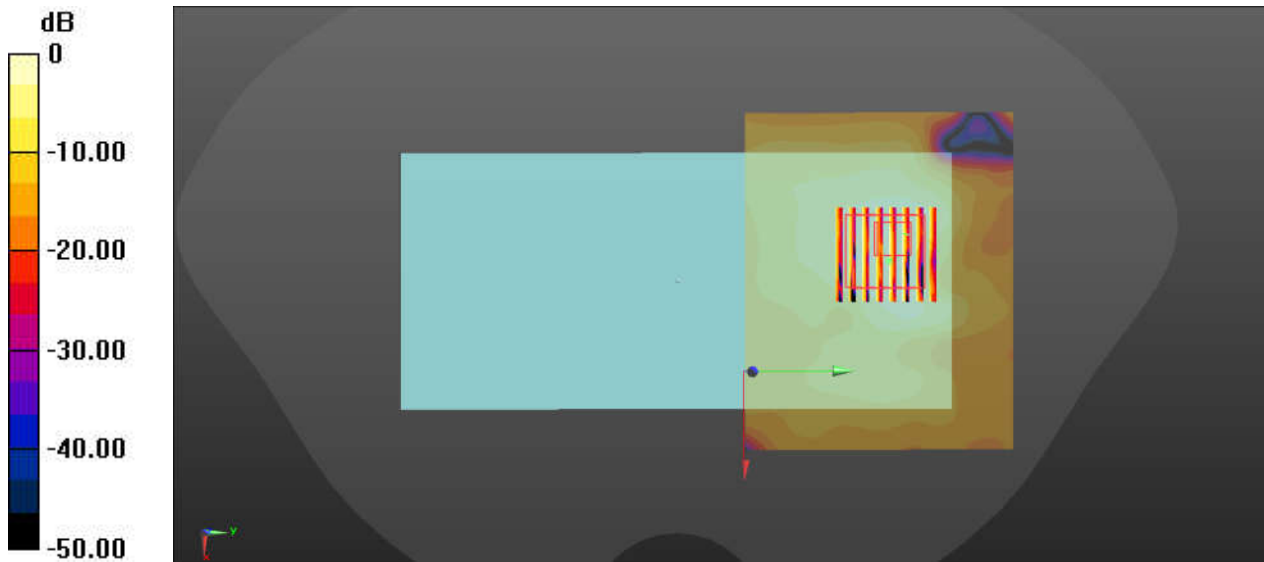
Ch134/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 3.530 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 3.78 W/kg

SAR(1 g) = 0.856 W/kg; SAR(10 g) = 0.328 W/kg

Maximum value of SAR (measured) = 2.09 W/kg



0 dB = 1.92 W/kg = 2.83 dBW/kg

71_WLAN5.8GHz_802.11n-HT20 MCS0_Back_5mm_Ant 1_Ch151

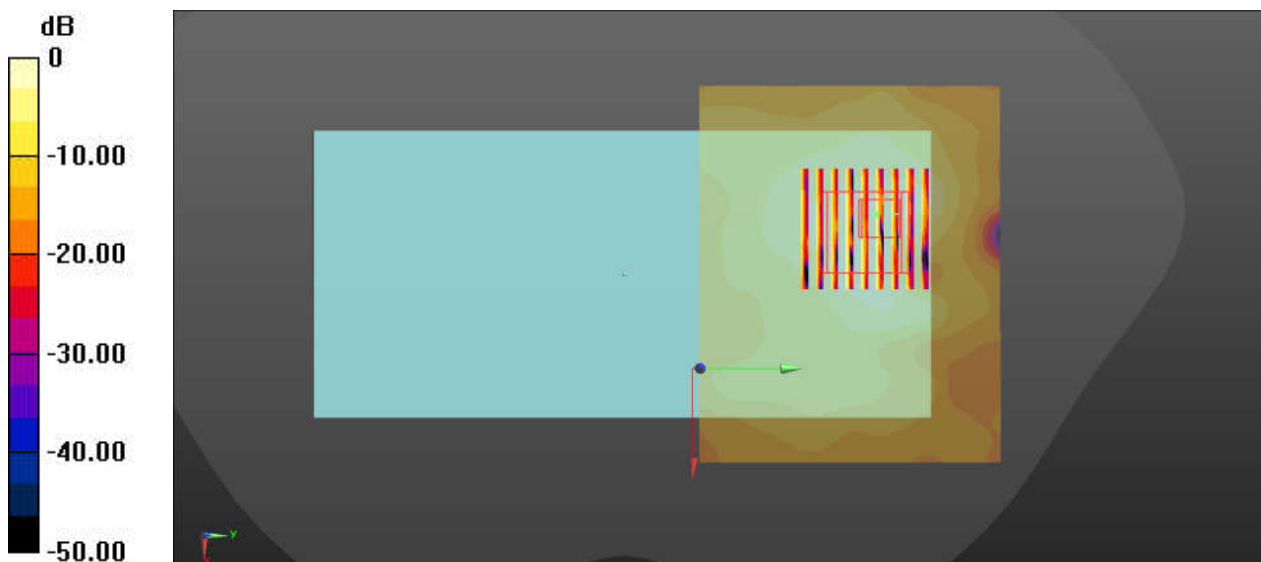
Communication System: UID 0, 802.11n (0); Frequency: 5795 MHz; Duty Cycle: 1:1.038
Medium: HSL_5000 Medium parameters used: $f = 5795 \text{ MHz}$; $\sigma = 5.207 \text{ S/m}$; $\epsilon_r = 35.516$; $\rho = 1000 \text{ kg/m}^3$
Ambient Temperature : $23.3 \text{ }^\circ\text{C}$; Liquid Temperature : $22.8 \text{ }^\circ\text{C}$

DASY5 Configuration:

- Probe: EX3DV4 - SN3857; ConvF(5.17, 5.17, 5.17); Calibrated: 2019.5.27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019.1.23
- Phantom: SAM1; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch159/Area Scan (101x81x1): Interpolated grid: $dx=1.000 \text{ mm}$, $dy=1.000 \text{ mm}$
Maximum value of SAR (interpolated) = 1.78 W/kg

Ch159/Zoom Scan (9x9x7)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=1.4\text{mm}$
Reference Value = 3.204 V/m ; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 3.75 W/kg
SAR(1 g) = 0.772 W/kg ; SAR(10 g) = 0.292 W/kg
Maximum value of SAR (measured) = 2.00 W/kg



0 dB = 1.78 W/kg = 2.50 dBW/kg

72_ Bluetooth_1Mbps_Back_5mm_Ant_1_Ch39

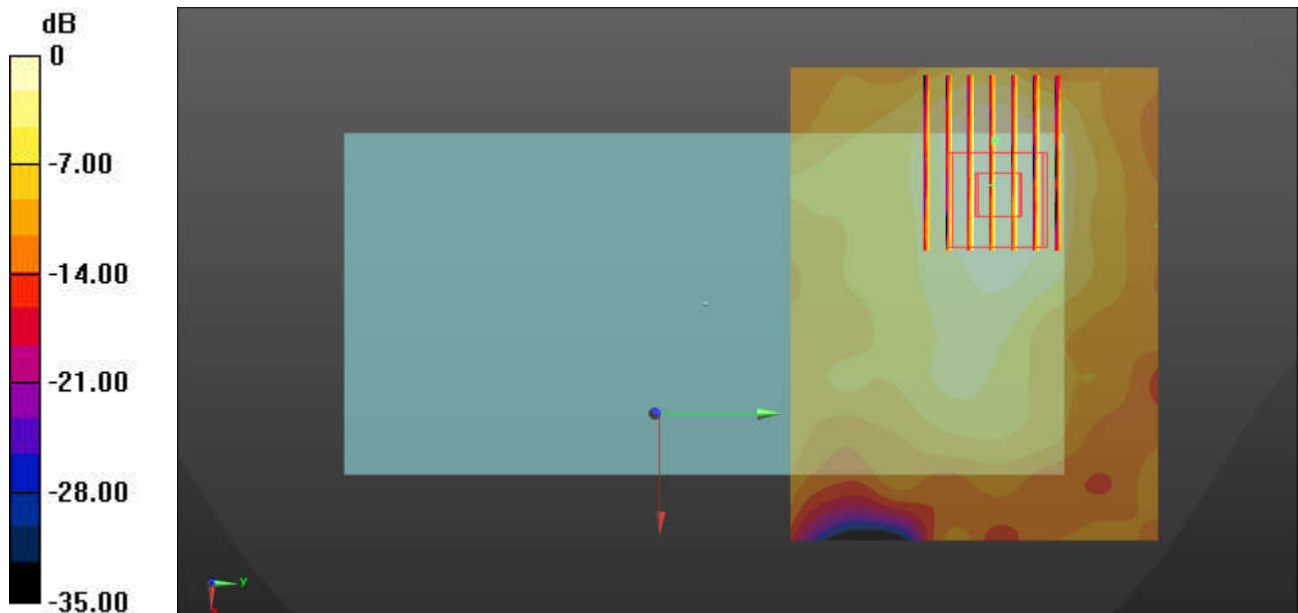
Communication System: UID 0, Bluetooth (0); Frequency: 2441 MHz; Duty Cycle: 1:1.305
 Medium: HSL_2450 Medium parameters used: $f = 2441$ MHz; $\sigma = 1.771$ S/m; $\epsilon_r = 40.697$; $\rho = 1000$ kg/m³
 Ambient Temperature : 23.2 °C; Liquid Temperature : 22.8 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3857; ConvF(7.5, 7.5, 7.5); Calibrated: 2019/5/27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019.1.23
- Phantom: SAM1; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch39/Area Scan (91x71x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
 Maximum value of SAR (interpolated) = 0.0562 W/kg

Ch39/Zoom Scan (9x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 1.640 V/m; Power Drift = -0.01 dB
 Peak SAR (extrapolated) = 0.0630 W/kg
SAR(1 g) = 0.03 W/kg; SAR(10 g) = 0.016 W/kg
 Maximum value of SAR (measured) = 0.0511 W/kg



0 dB = 0.0562 W/kg = -12.50 dBW/kg

73_GSM850_GPRS 4 Tx slots_Front_0mm_Ch128

Communication System: UID 0, GSM850-4UP (0); Frequency: 824.2 MHz; Duty Cycle: 1:2.08
 Medium: HSL_850 Medium parameters used: $f = 824.2$ MHz; $\sigma = 0.918$ S/m; $\epsilon_r = 42.339$; $\rho = 1000$ kg/m³
 Ambient Temperature : 23.2 °C; Liquid Temperature : 22.9 °C

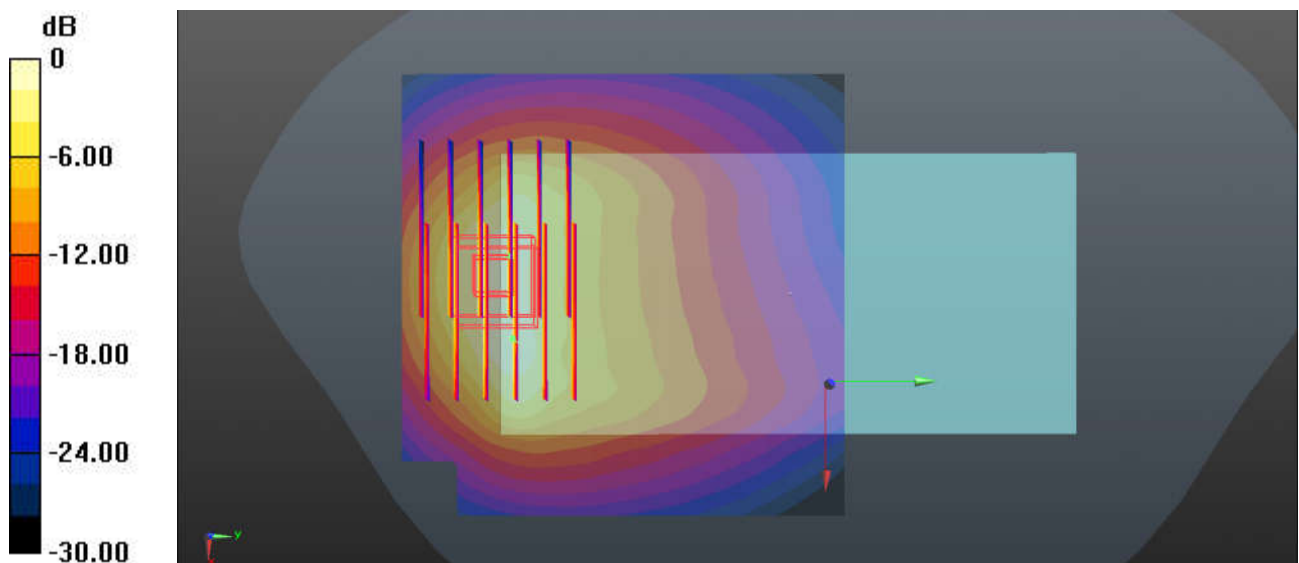
DASY5 Configuration:

- Probe: EX3DV4 - SN3935; ConvF(10.48, 10.48, 10.48); Calibrated: 2018.11.26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019.1.23
- Phantom: SAM2; Type: SAM; Serial: TP-1754
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch128/Area Scan (81x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
 Maximum value of SAR (interpolated) = 4.14 W/kg

Ch128/Zoom Scan (7x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
 Reference Value = 8.781 V/m; Power Drift = 0.03 dB
 Peak SAR (extrapolated) = 5.72 W/kg
SAR(1 g) = 2.33 W/kg; SAR(10 g) = 1.21 W/kg
 Maximum value of SAR (measured) = 4.01 W/kg

Ch128/Zoom Scan (7x6x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
 Reference Value = 8.781 V/m; Power Drift = 0.03 dB
 Peak SAR (extrapolated) = 5.80 W/kg
SAR(1 g) = 2.39 W/kg; SAR(10 g) = 1.22 W/kg
 Maximum value of SAR (measured) = 4.23 W/kg



0 dB = 4.14 W/kg = 6.17 dBW/kg

74_GSM1900_GPRS 3 Tx slots_Bottom Side_0mm_Ch512

Communication System: UID 0, PCS-3UP (0); Frequency: 1850.2 MHz; Duty Cycle: 1:2.77
Medium: HSL_1900 Medium parameters used: $f = 1850.2$ MHz; $\sigma = 1.377$ S/m; $\epsilon_r = 38.955$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.3 °C; Liquid Temperature : 22.9 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3935; ConvF(8.5, 8.5, 8.5); Calibrated: 2018.11.26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019.1.23
- Phantom: SAM2; Type: SAM; Serial: TP-1754
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch512/Area Scan (41x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 8.11 W/kg

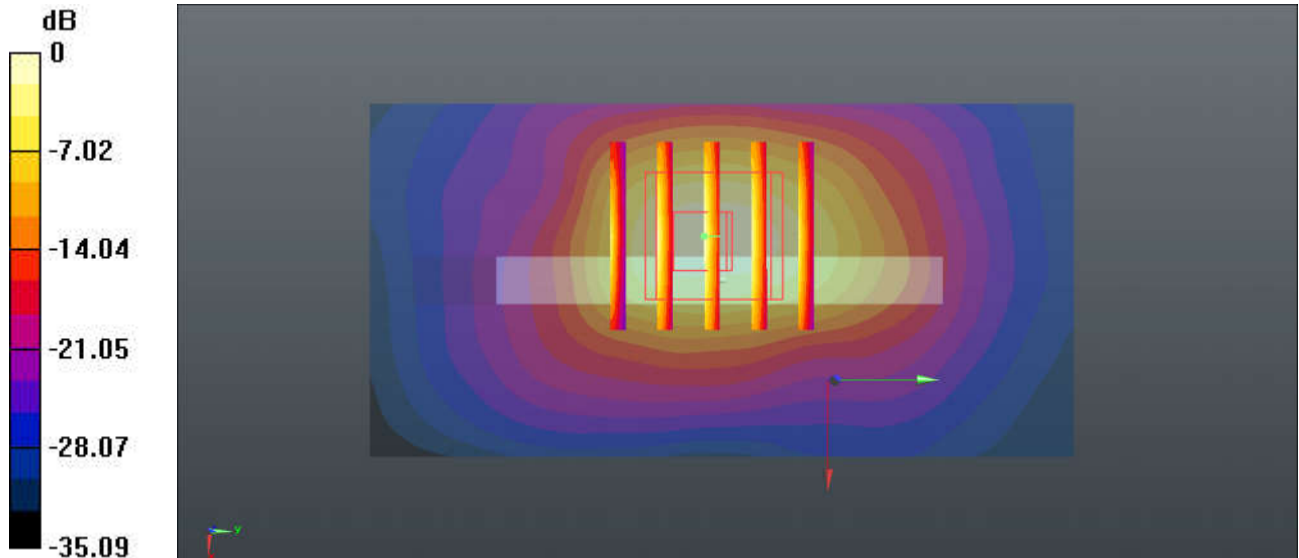
Ch512/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 0.9690 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 13.0 W/kg

SAR(1 g) = 5.82 W/kg; SAR(10 g) = 2.49 W/kg

Maximum value of SAR (measured) = 8.25 W/kg



0 dB = 8.11 W/kg = 9.09 dBW/kg

75_WCDMA V_RMC 12.2Kbps_Back_0mm_Ch4182

Communication System: UID 0, WCDMA (0); Frequency: 836.4 MHz; Duty Cycle: 1:1
Medium: HSL_850 Medium parameters used: $f = 836.4$ MHz; $\sigma = 0.93$ S/m; $\epsilon_r = 42.205$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.2 °C; Liquid Temperature : 22.9 °C

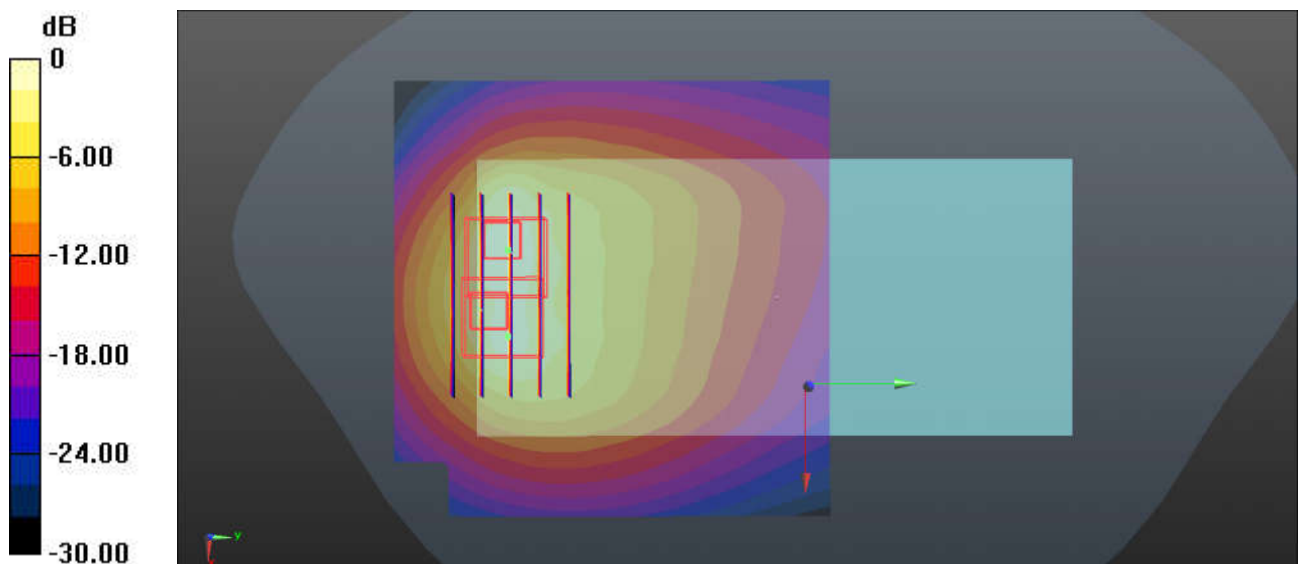
DASY5 Configuration:

- Probe: EX3DV4 - SN3935; ConvF(10.48, 10.48, 10.48); Calibrated: 2018.11.26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019.1.23
- Phantom: SAM2; Type: SAM; Serial: TP-1754
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch4182/Area Scan (81x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 5.13 W/kg

Ch4182/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 0.5960 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 8.67 W/kg
SAR(1 g) = 3.35 W/kg; SAR(10 g) = 1.64 W/kg
Maximum value of SAR (measured) = 4.28 W/kg

Ch4182/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 0.5960 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 6.66 W/kg
SAR(1 g) = 2.88 W/kg; SAR(10 g) = 1.52 W/kg
Maximum value of SAR (measured) = 3.74 W/kg



0 dB = 5.13 W/kg = 7.10 dBW/kg

76_WCDMA IV_RMC 12.2Kbps_Bottom Side_0mm_Ch1312

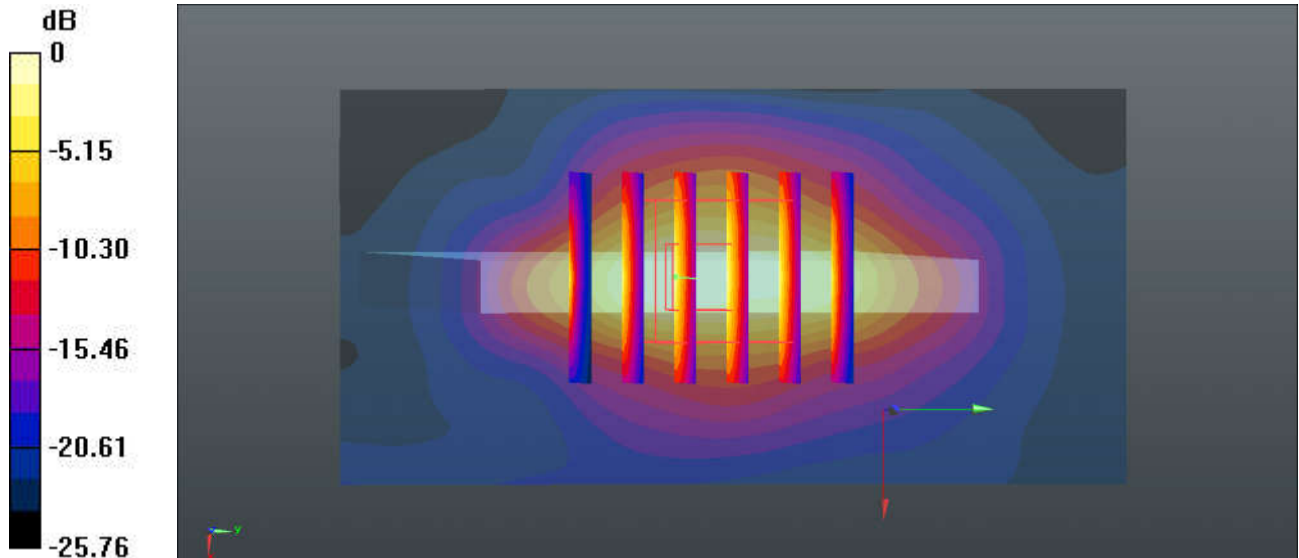
Communication System: UID 0, WCDMA (0); Frequency: 1712.4 MHz; Duty Cycle: 1:1
Medium: HSL_1750 Medium parameters used: $f = 1712.4$ MHz; $\sigma = 1.342$ S/m; $\epsilon_r = 39.889$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.2 °C; Liquid Temperature : 22.9 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3935; ConvF(8.91, 8.91, 8.91); Calibrated: 2018.11.26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019.1.23
- Phantom: SAM2; Type: SAM; Serial: TP-1754
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch1312/Area Scan (41x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 7.78 W/kg

Ch1312/Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 69.02 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 10.2 W/kg
SAR(1 g) = 4.56 W/kg; SAR(10 g) = 2.25 W/kg
Maximum value of SAR (measured) = 6.48 W/kg



0 dB = 7.78 W/kg = 8.91 dBW/kg

77_WCDMA II_RMC 12.2Kbps_Bottom Side_0mm_Ch9262

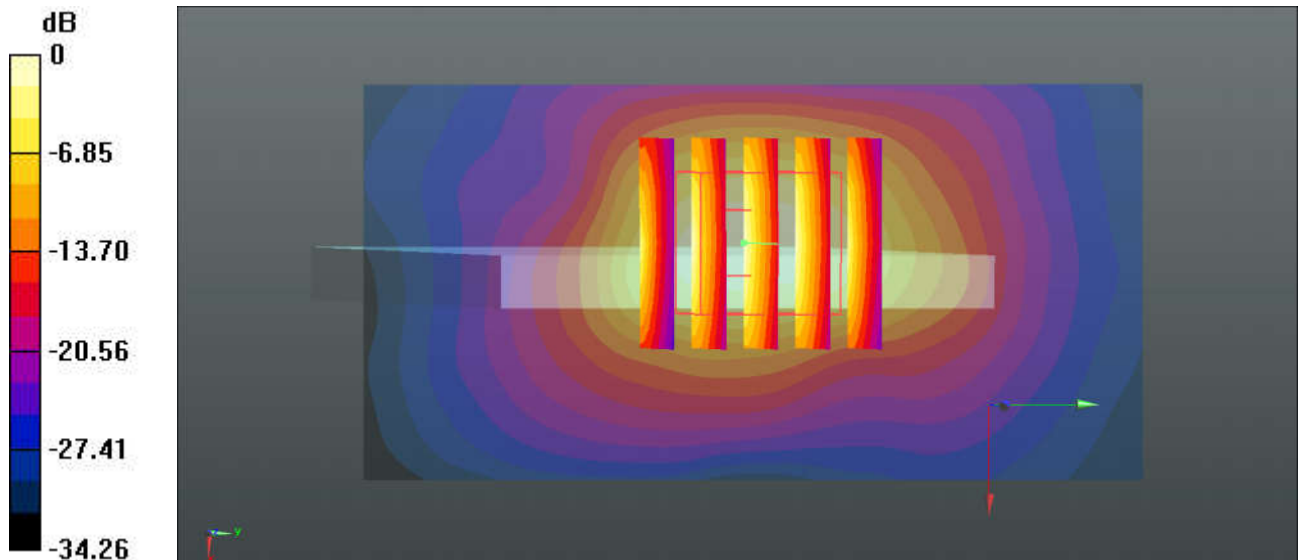
Communication System: UID 0, WCDMA (0); Frequency: 1852.4 MHz; Duty Cycle: 1:1
Medium: HSL_1900 Medium parameters used: $f = 1852.4$ MHz; $\sigma = 1.379$ S/m; $\epsilon_r = 38.946$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.3 °C; Liquid Temperature : 22.9 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3935; ConvF(8.5, 8.5, 8.5); Calibrated: 2018.11.26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019.1.23
- Phantom: SAM2; Type: SAM; Serial: TP-1754
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch9262/Area Scan (41x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 6.89 W/kg

Ch9262/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.418 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 11.9 W/kg
SAR(1 g) = 5.12 W/kg; SAR(10 g) = 2.18 W/kg
Maximum value of SAR (measured) = 7.27 W/kg



0 dB = 6.89 W/kg = 8.38 dBW/kg

78_CDMA2000 BC10_RTAP 153.6Kbps_Back_0mm_Ch580

Communication System: UID 0, CDMA (0); Frequency: 820.5 MHz; Duty Cycle: 1:1
 Medium: HSL_850 Medium parameters used: $f = 820.5$ MHz; $\sigma = 0.914$ S/m; $\epsilon_r = 42.388$; $\rho = 1000$ kg/m³
 Ambient Temperature : 23.2 °C; Liquid Temperature : 22.9 °C

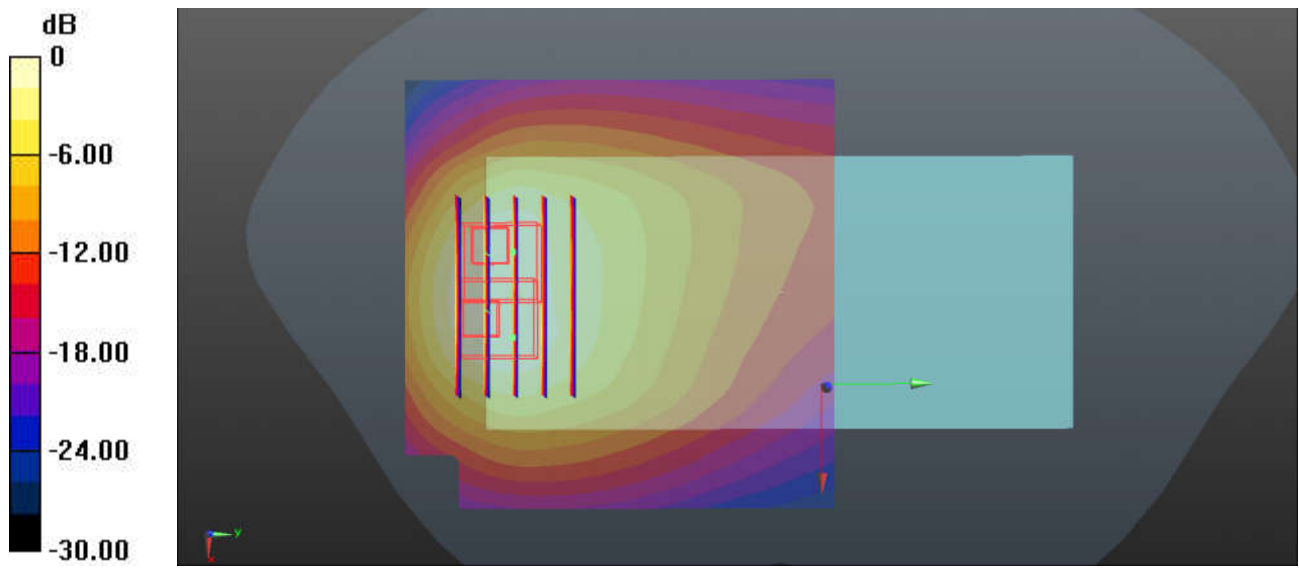
DASY5 Configuration:

- Probe: EX3DV4 - SN3935; ConvF(10.48, 10.48, 10.48); Calibrated: 2018.11.26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019.1.23
- Phantom: SAM2; Type: SAM; Serial: TP-1754
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch580/Area Scan (81x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
 Maximum value of SAR (interpolated) = 2.81 W/kg

Ch580/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
 Reference Value = 13.55 V/m; Power Drift = 0.06 dB
 Peak SAR (extrapolated) = 7.08 W/kg
SAR(1 g) = 2.79 W/kg; SAR(10 g) = 1.42 W/kg
 Maximum value of SAR (measured) = 3.73 W/kg

Ch580/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
 Reference Value = 13.55 V/m; Power Drift = 0.06 dB
 Peak SAR (extrapolated) = 6.86 W/kg
SAR(1 g) = 2.69 W/kg; SAR(10 g) = 1.36 W/kg
 Maximum value of SAR (measured) = 3.67 W/kg



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

79_CDMA2000 BC0_RTAP 153.6Kbps_Back_0mm_Ch384

Communication System: UID 0, CDMA (0); Frequency: 836.52 MHz; Duty Cycle: 1:1
 Medium: HSL_850 Medium parameters used: $f = 836.52$ MHz; $\sigma = 0.931$ S/m; $\epsilon_r = 42.2$; $\rho = 1000$ kg/m³
 Ambient Temperature : 23.2 °C ; Liquid Temperature : 22.9 °C

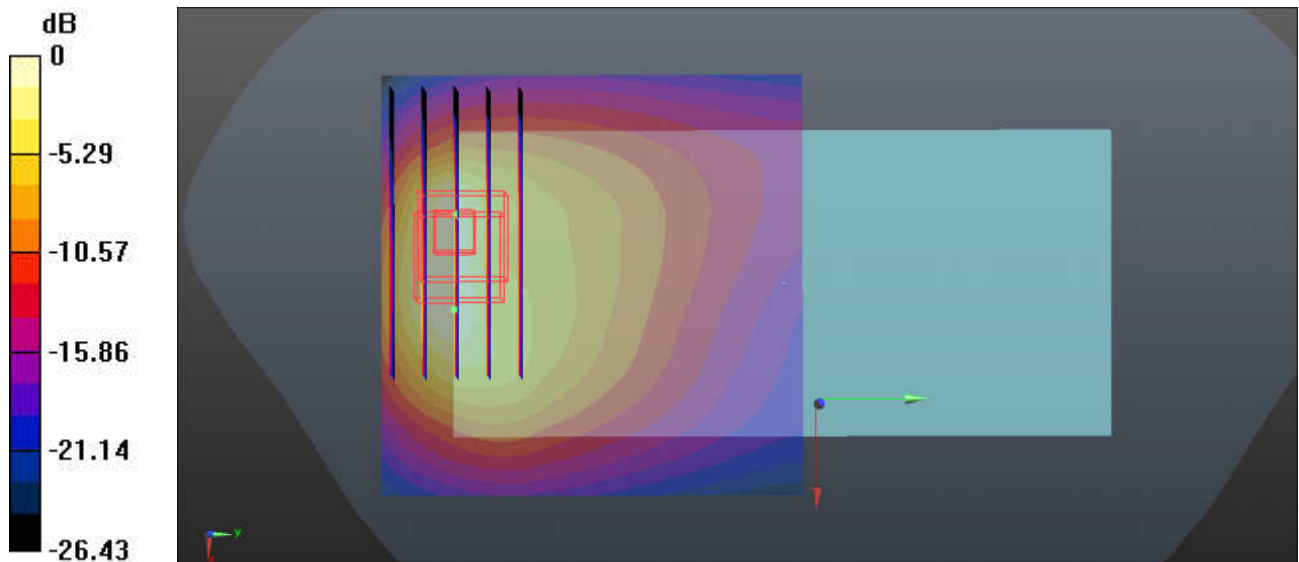
DASY5 Configuration:

- Probe: EX3DV4 - SN3935; ConvF(10.48, 10.48, 10.48); Calibrated: 2018.11.26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019.1.23
- Phantom: SAM2; Type: SAM; Serial: TP-1754
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch384/Area Scan (71x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
 Maximum value of SAR (interpolated) = 5.80 W/kg

Ch384/Zoom Scan (7x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
 Reference Value = 13.07 V/m; Power Drift = -0.01 dB
 Peak SAR (extrapolated) = 8.83 W/kg
SAR(1 g) = 2.86 W/kg; SAR(10 g) = 1.36 W/kg
 Maximum value of SAR (measured) = 6.21 W/kg

Ch384/Zoom Scan (7x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
 Reference Value = 13.07 V/m; Power Drift = -0.01 dB
 Peak SAR (extrapolated) = 8.42 W/kg
SAR(1 g) = 2.81 W/kg; SAR(10 g) = 1.32 W/kg
 Maximum value of SAR (measured) = 6.03 W/kg



0 dB = 5.80 W/kg = 7.63 dBW/kg

80_CDMA2000 BC1_RTAP 153.6Kbps_Bottom Side_0mm_Ch25

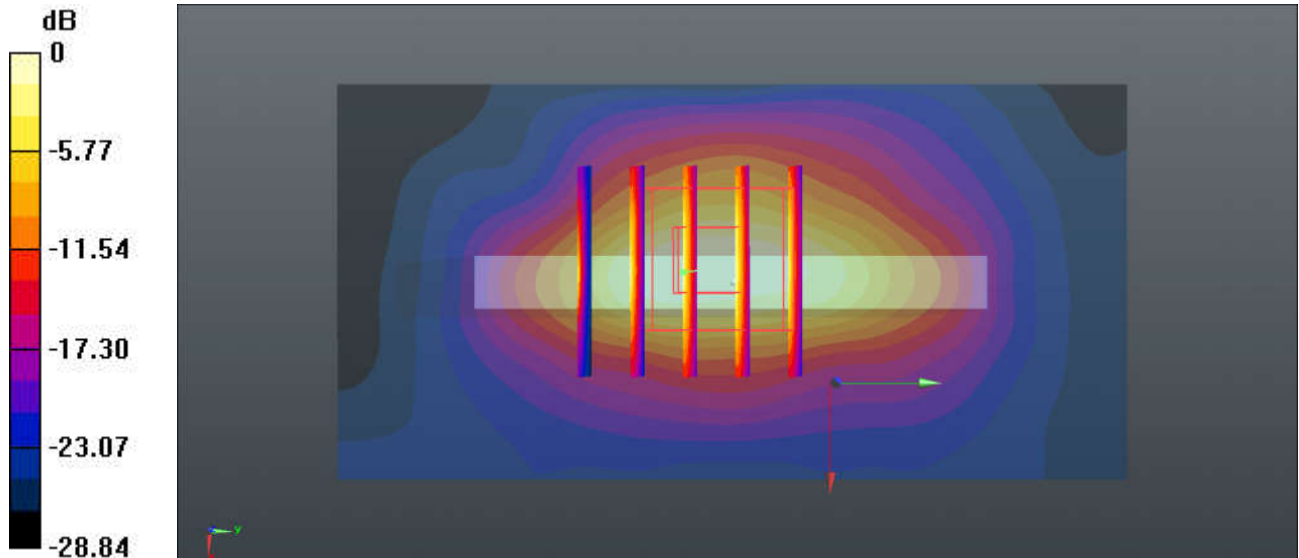
Communication System: UID 0, CDMA (0); Frequency: 1851.25 MHz; Duty Cycle: 1:1
Medium: HSL_1900 Medium parameters used: $f = 1851.25$ MHz; $\sigma = 1.378$ S/m; $\epsilon_r = 38.95$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.3 °C; Liquid Temperature : 22.9 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3935; ConvF(8.5, 8.5, 8.5); Calibrated: 2018.11.26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019.1.23
- Phantom: SAM2; Type: SAM; Serial: TP-1754
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch25/Area Scan (41x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 11.9 W/kg

Ch25/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 89.39 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 15.7 W/kg
SAR(1 g) = 6.21 W/kg; SAR(10 g) = 2.62 W/kg
Maximum value of SAR (measured) = 12.0 W/kg



0 dB = 11.9 W/kg = 10.76 dBW/kg

81_LTE Band 26_15M QPSK_1RB_0Offset_Back_0mm_Ch26865

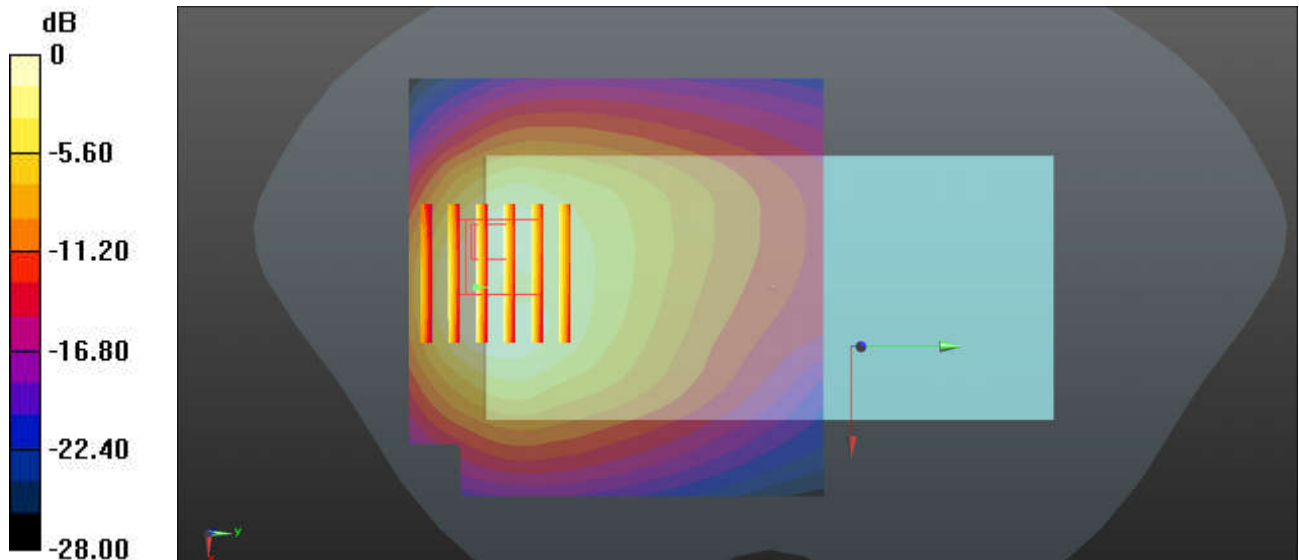
Communication System: UID 0, LTE-FDD (0); Frequency: 831.5 MHz; Duty Cycle: 1:1
Medium: HSL_850 Medium parameters used: $f = 831.5$ MHz; $\sigma = 0.925$ S/m; $\epsilon_r = 42.258$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.2 °C; Liquid Temperature : 22.9 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3935; ConvF(10.48, 10.48, 10.48); Calibrated: 2018.11.26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019.1.23
- Phantom: SAM2; Type: SAM; Serial: TP-1754
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch26865/Area Scan (81x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 2.90 W/kg

Ch26865/Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.70 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 5.85 W/kg
SAR(1 g) = 2.56 W/kg; SAR(10 g) = 1.35 W/kg
Maximum value of SAR (measured) = 3.37 W/kg



0 dB = 2.90 W/kg = 4.62 dBW/kg

82_LTE Band 66_20M QPSK_50RB_0Offset_Bottom Side_0mm_Ch132072

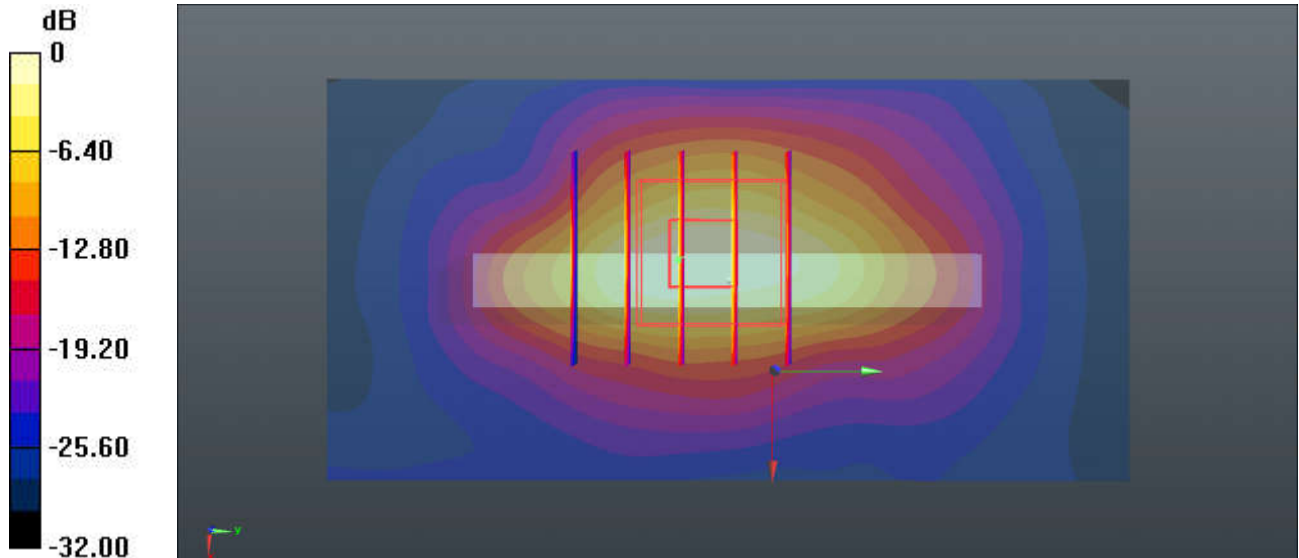
Communication System: UID 0, LTE-FDD (0); Frequency: 1720 MHz; Duty Cycle: 1:1
Medium: HSL_1750 Medium parameters used: $f = 1720$ MHz; $\sigma = 1.349$ S/m; $\epsilon_r = 39.854$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.2 °C; Liquid Temperature : 22.9 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3935; ConvF(8.91, 8.91, 8.91); Calibrated: 2018.11.26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019.1.23
- Phantom: SAM2; Type: SAM; Serial: TP-1754
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch132072/Area Scan (41x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 10.7 W/kg

Ch132072/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 79.32 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 14.0 W/kg
SAR(1 g) = 5.72 W/kg; SAR(10 g) = 2.44 W/kg
Maximum value of SAR (measured) = 11.3 W/kg



0 dB = 10.7 W/kg = 10.29 dBW/kg

83_LTE Band 25_20M QPSK_1RB_0Offset_Bottom Side_0mm_Ch26140

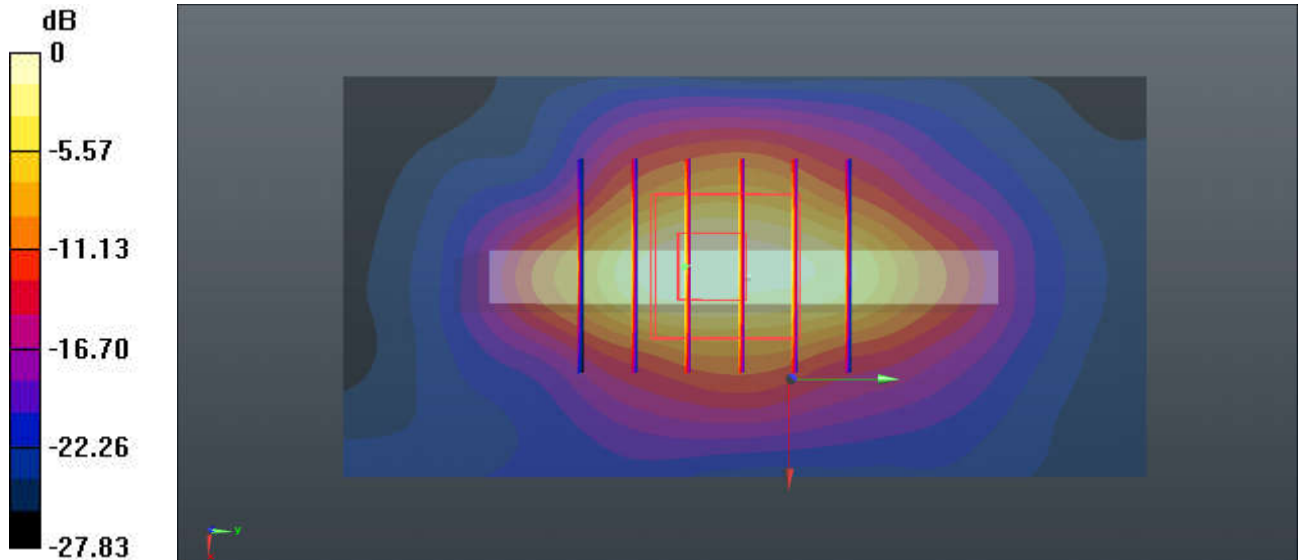
Communication System: UID 0, LTE-FDD (0); Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: HSL_1900 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.387$ S/m; $\epsilon_r = 38.92$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.3 °C; Liquid Temperature : 22.9 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3935; ConvF(8.5, 8.5, 8.5); Calibrated: 2018.11.26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019.1.23
- Phantom: SAM2; Type: SAM; Serial: TP-1754
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch26340/Area Scan (41x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 11.1 W/kg

Ch26340/Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 82.27 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 14.8 W/kg
SAR(1 g) = 6.57 W/kg; SAR(10 g) = 2.91 W/kg
Maximum value of SAR (measured) = 9.25 W/kg



0 dB = 11.1 W/kg = 10.45 dBW/kg

84_LTE Band 30_10M QPSK_1RB_0Offset_Back_0mm_Ch27710

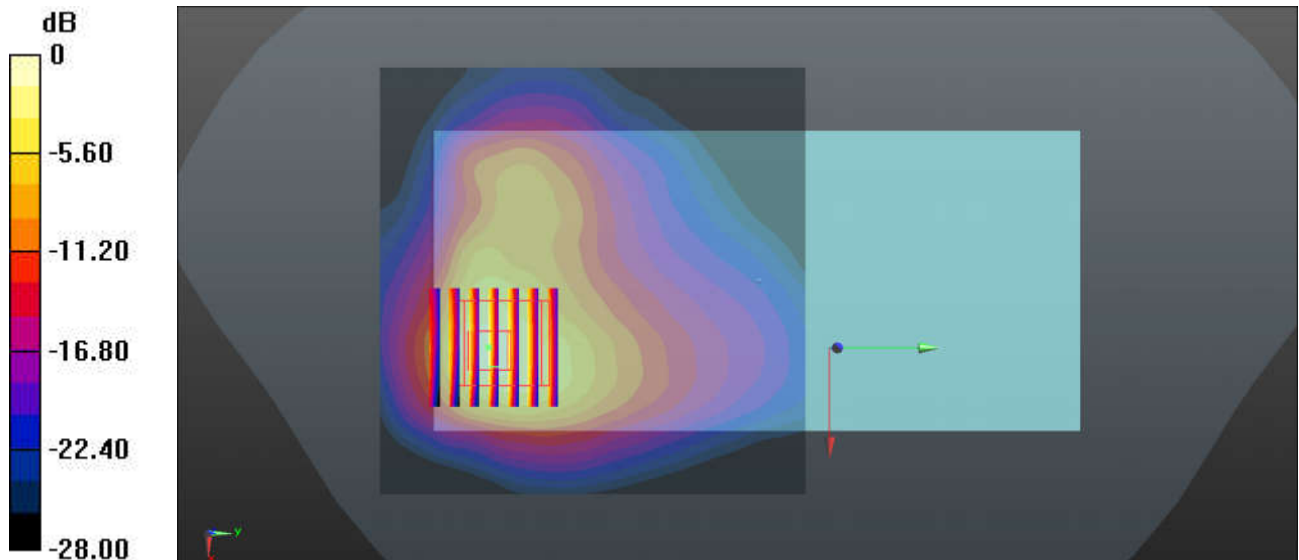
Communication System: UID 0, LTE-FDD (0); Frequency: 2310 MHz; Duty Cycle: 1:1
Medium: HSL_2300 Medium parameters used: $f = 2310$ MHz; $\sigma = 1.692$ S/m; $\epsilon_r = 38.988$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.3 °C; Liquid Temperature : 22.7 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3935; ConvF(7.99, 7.99, 7.99); Calibrated: 2018.11.26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019.1.23
- Phantom: SAM1; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch27710/Area Scan (91x91x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 10.4 W/kg

Ch27710/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.295 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 12.6 W/kg
SAR(1 g) = 5.11 W/kg; SAR(10 g) = 2.26 W/kg
Maximum value of SAR (measured) = 8.73 W/kg



0 dB = 10.4 W/kg = 10.17 dBW/kg

85_LTE Band 7_20M QPSK_1RB_0Offset_Back_0mm_Ch21100

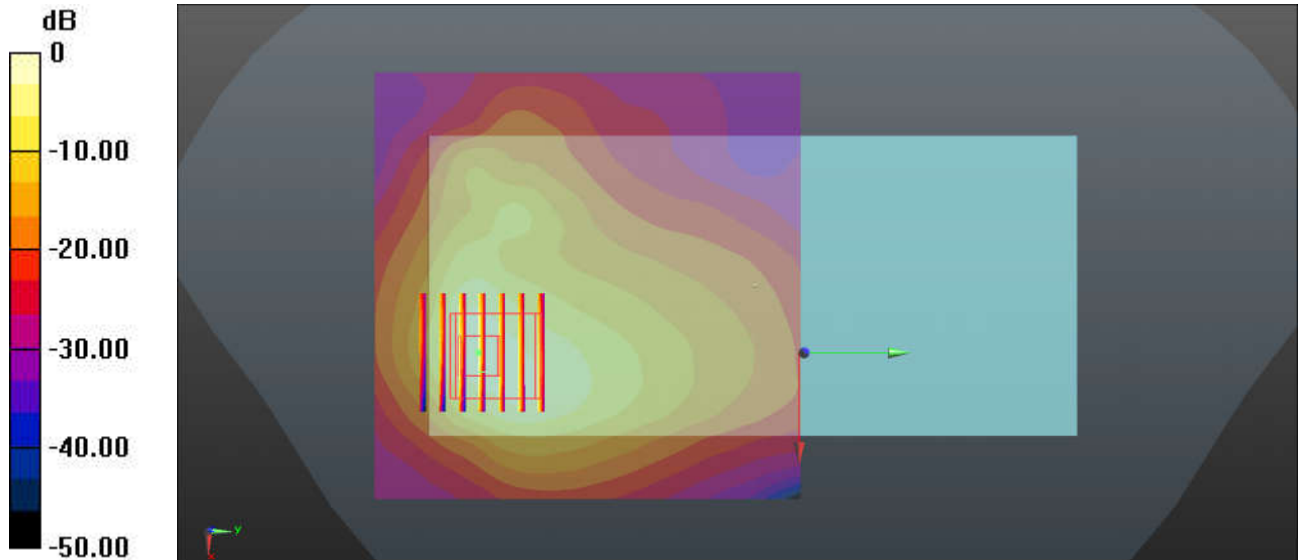
Communication System: UID 0, LTE-FDD (0); Frequency: 2535 MHz; Duty Cycle: 1:1
Medium: HSL_2600 Medium parameters used: $f = 2535$ MHz; $\sigma = 1.946$ S/m; $\epsilon_r = 38.035$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.3 °C; Liquid Temperature : 22.6 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3935; ConvF(7.38, 7.38, 7.38); Calibrated: 2018.11.26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019.1.23
- Phantom: SAM1; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch21100/Area Scan (91x91x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 10.3 W/kg

Ch21100/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.648 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 13.6 W/kg
SAR(1 g) = 4.86 W/kg; SAR(10 g) = 2.09 W/kg
Maximum value of SAR (measured) = 9.35 W/kg



0 dB = 10.3 W/kg = 10.13 dBW/kg

86_LTE Band 41_20M QPSK_1RB_0Offset_Back_0mm_Ch39750

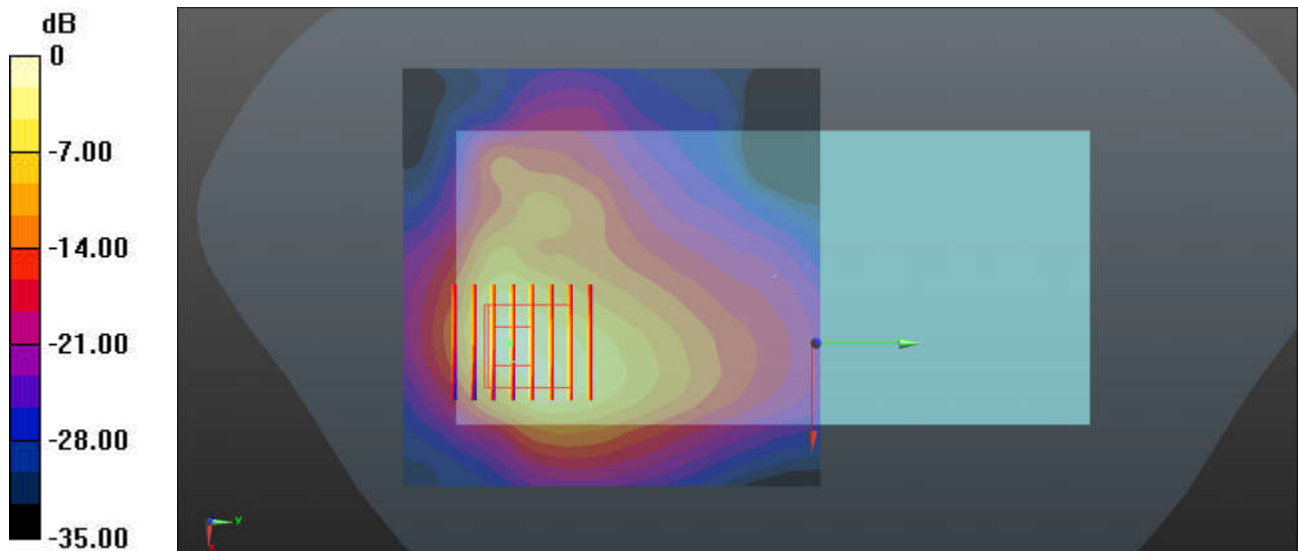
Communication System: UID 0, LTE-TDD (0); Frequency: 2506 MHz; Duty Cycle: 1:1.59
 Medium: HSL_2600 Medium parameters used: $f = 2506$ MHz; $\sigma = 1.913$ S/m; $\epsilon_r = 38.164$; $\rho = 1000$ kg/m³
 Ambient Temperature : 23.3 °C; Liquid Temperature : 22.6 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3935; ConvF(7.38, 7.38, 7.38); Calibrated: 2018.11.26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019.1.23
- Phantom: SAM2; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch39750/Area Scan (91x91x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
 Maximum value of SAR (interpolated) = 8.80 W/kg

Ch39750/Zoom Scan (7x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 1.868 V/m; Power Drift = 0.06 dB
 Peak SAR (extrapolated) = 11.9 W/kg
SAR(1 g) = 4.18 W/kg; SAR(10 g) = 1.79 W/kg
 Maximum value of SAR (measured) = 8.04 W/kg



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

87_LTE Band 41(HPUE)_20M QPSK_1RB_0Offset_Back_0mm_Ch40185

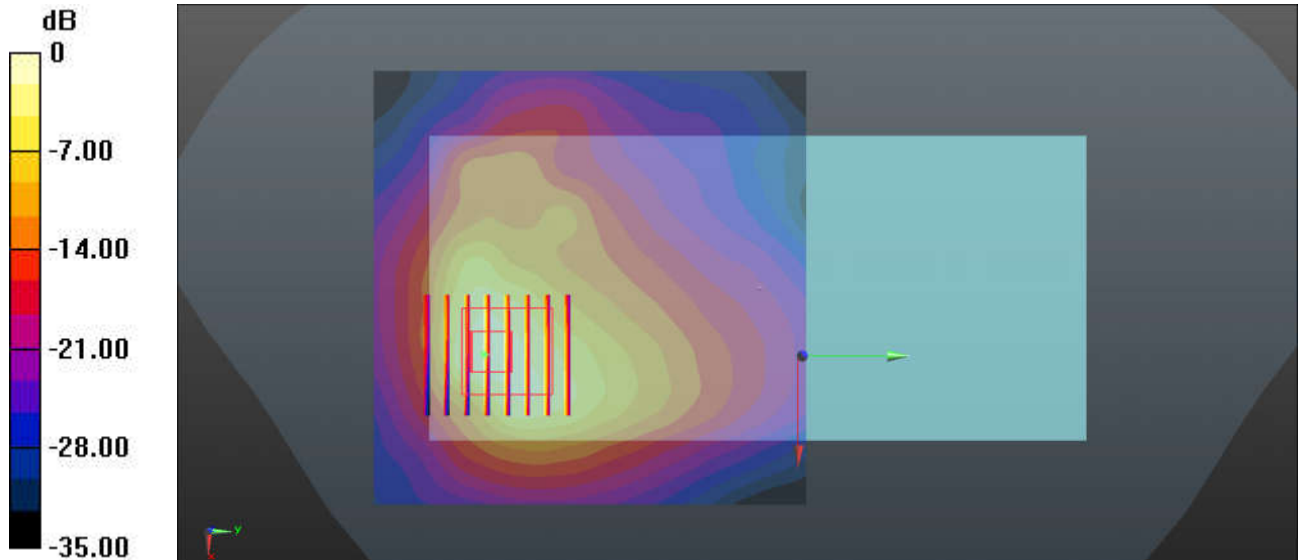
Communication System: UID 0, LTE-TDD (0); Frequency: 2549.5 MHz; Duty Cycle: 1:1.2.331
Medium: HSL_2600 Medium parameters used: $f = 2549.5$ MHz; $\sigma = 1.965$ S/m; $\epsilon_r = 37.975$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.3 °C; Liquid Temperature : 22.6 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3935; ConvF(7.38, 7.38, 7.38); Calibrated: 2018.11.26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019.1.23
- Phantom: SAM1; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch40185/Area Scan (91x91x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 11.7 W/kg

Ch40185/Zoom Scan (7x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.509 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 17.4 W/kg
SAR(1 g) = 6.26 W/kg; SAR(10 g) = 2.73 W/kg
Maximum value of SAR (measured) = 11.4 W/kg



0 dB = 11.7 W/kg = 10.68 dBW/kg

88_WLAN 2.4GHz_802.11b 1Mbps_Top Side_0mm_Ch6

Communication System: UID 0, 802.11b (0); Frequency: 2437 MHz; Duty Cycle: 1:1
Medium: HSL_2450 Medium parameters used: $f = 2437$ MHz; $\sigma = 1.681$ S/m; $\epsilon_r = 40.234$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.2 °C; Liquid Temperature : 22.8 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3857; ConvF(7.5, 7.5, 7.5); Calibrated: 2019.5.27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019.1.23
- Phantom: SAM1; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch6/Area Scan (51x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 4.71 W/kg

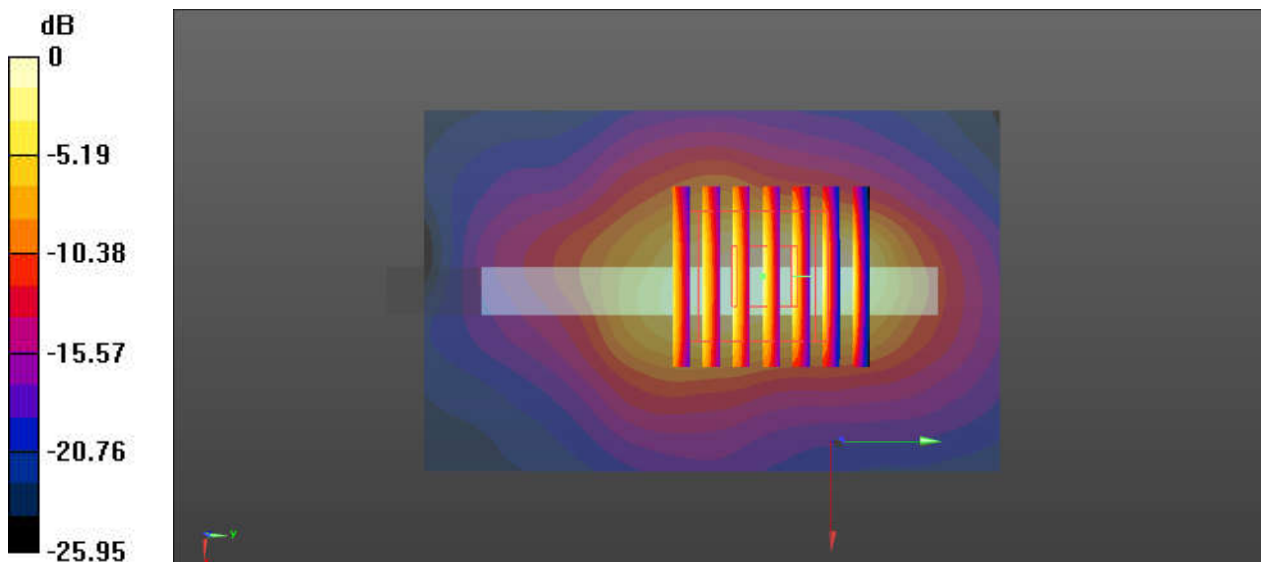
Ch6/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 49.07 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 7.20 W/kg

SAR(1 g) = 2.98 W/kg; SAR(10 g) = 1.32 W/kg

Maximum value of SAR (measured) = 5.45 W/kg



0 dB = 4.71 W/kg = 6.73 dBW/kg

89_WLAN5.2GHz_802.11n-HT40 MCS0_Back_0mm_Ant 1_Ch46

Communication System: UID 0, 802.11n (0); Frequency: 5230 MHz; Duty Cycle: 1:1.038
Medium: HSL_5000 Medium parameters used: $f = 5230$ MHz; $\sigma = 4.569$ S/m; $\epsilon_r = 36.451$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.2 °C ; Liquid Temperature : 22.8 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3857; ConvF(5.19, 5.19, 5.19); Calibrated: 2019.5.27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019.1.23
- Phantom: SAM1; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch46/Area Scan (101x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 14.8 W/kg

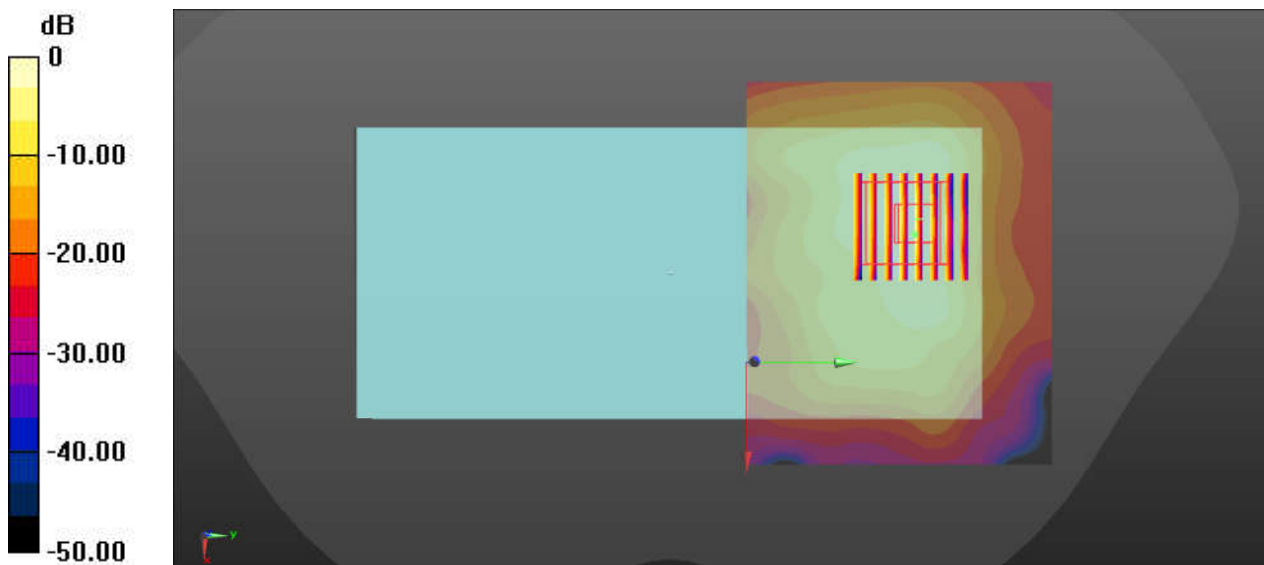
Ch46/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 2.588 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 40.1 W/kg

SAR(1 g) = 7.97 W/kg; SAR(10 g) = 2.47 W/kg

Maximum value of SAR (measured) = 19.7 W/kg



0 dB = 14.8 W/kg = 11.70 dBW/kg

90_WLAN5.3GHz_802.11n-HT40 MCS0_Back_0mm_Ant 1_Ch62

Communication System: UID 0, 802.11n (0); Frequency: 5310 MHz; Duty Cycle: 1:1.038
 Medium: HSL_5000 Medium parameters used: $f = 5310 \text{ MHz}$; $\sigma = 4.663 \text{ S/m}$; $\epsilon_r = 36.308$; $\rho = 1000 \text{ kg/m}^3$
 Ambient Temperature : $23.2 \text{ }^\circ\text{C}$; Liquid Temperature : $22.8 \text{ }^\circ\text{C}$

DASY5 Configuration:

- Probe: EX3DV4 - SN3857; ConvF(5.19, 5.19, 5.19); Calibrated: 2019.5.27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019.1.23
- Phantom: SAM1; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch62/Area Scan (101x81x1): Interpolated grid: $dx=1.000 \text{ mm}$, $dy=1.000 \text{ mm}$

Maximum value of SAR (interpolated) = 22.7 W/kg

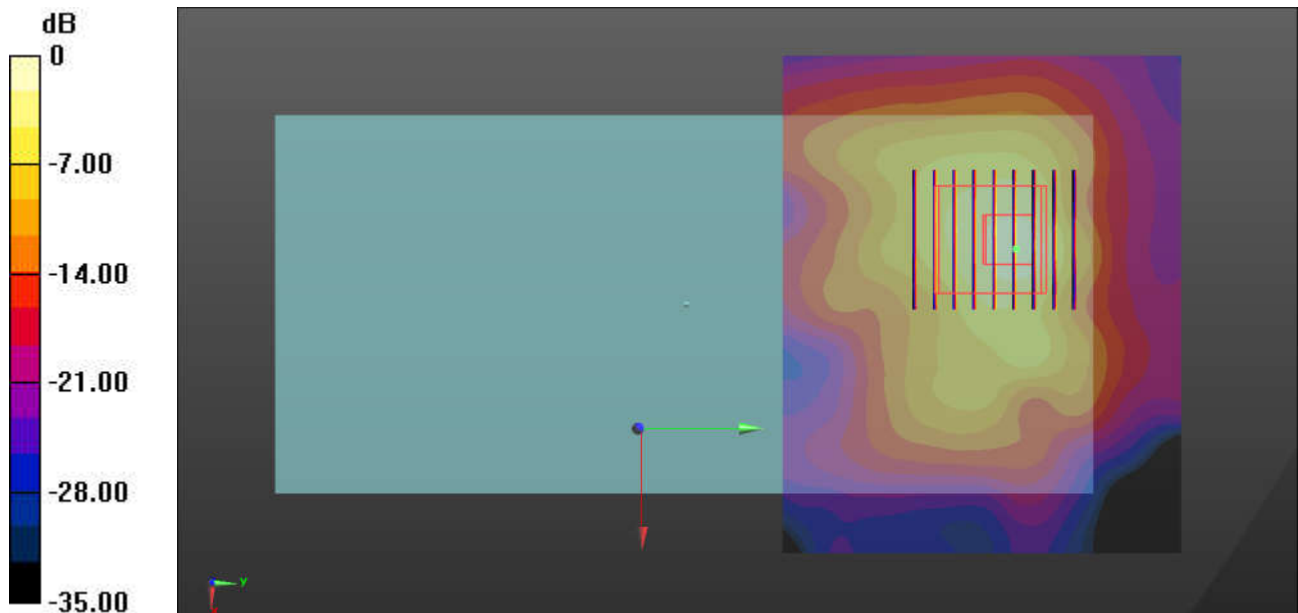
Ch62/Zoom Scan (8x9x7)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=1.4\text{mm}$

Reference Value = 2.492 V/m ; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 46.8 W/kg

SAR(1 g) = 8.52 W/kg ; SAR(10 g) = 2.53 W/kg

Maximum value of SAR (measured) = 21.7 W/kg



0 dB = $21.7 \text{ W/kg} = 13.36 \text{ dBW/kg}$

91_WLAN5.5GHz_802.11n-HT40 MCS0_Back_0mm_Ant 1_Ch134

Communication System: UID 0, 802.11n (0); Frequency: 5670 MHz; Duty Cycle: 1:1.038
 Medium: HSL_5000 Medium parameters used: $f = 5670$ MHz; $\sigma = 5.075$ S/m; $\epsilon_r = 35.726$; $\rho = 1000$ kg/m³
 Ambient Temperature : 23.3 °C; Liquid Temperature : 22.7 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3857; ConvF(4.92, 4.92, 4.92); Calibrated: 2019.5.27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019.1.23
- Phantom: SAM1; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch134/Area Scan (101x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 18.4 W/kg

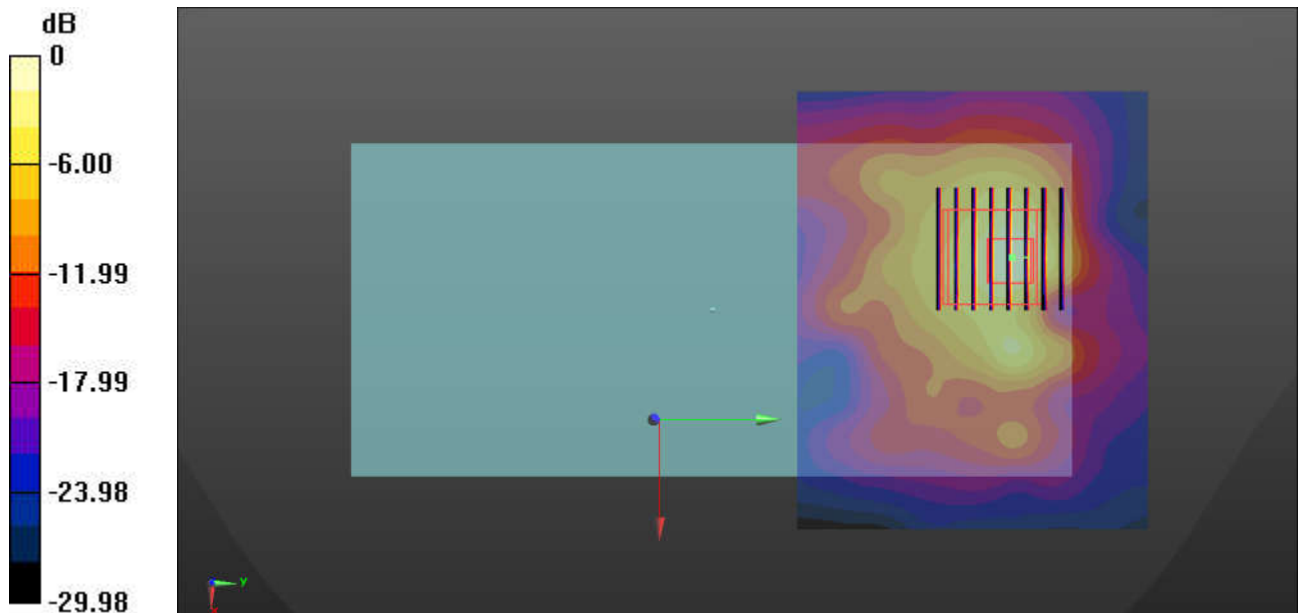
Ch134/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 1.680 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 39.3 W/kg

SAR(1 g) = 6.68 W/kg; SAR(10 g) = 1.98 W/kg

Maximum value of SAR (measured) = 17.8 W/kg



0 dB = 18.4 W/kg = 12.65 dBW/kg

92_WLAN5GHz_802.11n-HT40 MCS0_Back_0mm_Ant 1_Ch159

Communication System: UID 0, 802.11n (0); Frequency: 5795 MHz; Duty Cycle: 1:1.038
Medium: HSL_5000 Medium parameters used: $f = 5795$ MHz; $\sigma = 5.206$ S/m; $\epsilon_r = 35.517$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.3 °C; Liquid Temperature : 22.8 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3857; ConvF(5.17, 5.17, 5.17); Calibrated: 2019.5.27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2019.1.23
- Phantom: SAM1; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Ch159/Area Scan (101x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 19.8 W/kg

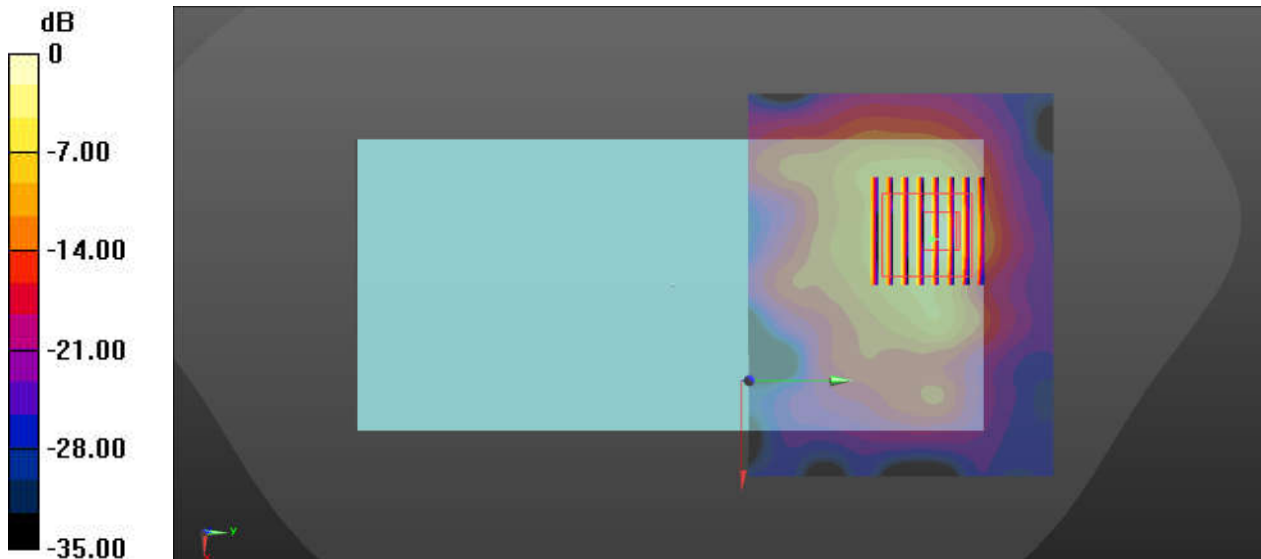
Ch159/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 1.685 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 42.7 W/kg

SAR(1 g) = 6.67 W/kg; SAR(10 g) = 1.84 W/kg

Maximum value of SAR (measured) = 18.9 W/kg



0 dB = 19.8 W/kg = 12.97 dBW/kg



Appendix C. Supplemental Tuner Head & Body SAR Results

The results are shown as follows.

Head (Antenna #0, Slave ID=6)

| Mode | Service/Modulation | Channel | Frequency (MHz) | RB Size | RB Offset | Test Position | Spacing | Measured 1g SAR (W/kg) | Average Value of Time Sweep (W/kg) | | | | | | | | | | |
|---------------|--------------------|---------|-----------------|---------|-----------|---------------|---------|------------------------|------------------------------------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|
| | | | | | | | | | Auto-Tune | 0 | 15 | 30 | 45 | 60 | 75 | 90 | 105 | 120 | 135 |
| GSM850 | GPRS 4 Tx slots | 251 | 848.8 | N/A | N/A | Right Cheek | 0mm | 0.288 | 0.254 | 0.0282 | 0.387 | 0.273 | 0.023 | 0.317 | 0.052 | 0.007 | 0.214 | 0.035 | 0.005 |
| GSM1900 | GPRS 3 Tx slots | 810 | 1909.8 | N/A | N/A | Left Cheek | 0mm | 0.128 | 0.179 | 0.038 | 0.095 | 0.094 | 0.097 | 0.088 | 0.097 | 0.061 | 0.096 | 0.072 | 0.063 |
| WCDMA V | RMC 12.2Kbps | 4233 | 846.6 | N/A | N/A | Right Cheek | 0mm | 0.342 | 0.296 | 0.036 | 0.341 | 0.259 | 0.137 | 0.361 | 0.164 | 0.033 | 0.362 | 0.128 | 0.057 |
| WCDMA IV | RMC 12.2Kbps | 1513 | 1752.6 | N/A | N/A | Left Cheek | 0mm | 0.192 | 0.259 | 0.14 | 0.095 | 0.202 | 0.165 | 0.213 | 0.177 | 0.156 | 0.071 | 0.067 | 0.073 |
| WCDMA II | RMC 12.2Kbps | 9538 | 1907.6 | N/A | N/A | Left Cheek | 0mm | 0.224 | 0.317 | 0.122 | 0.0754 | 0.194 | 0.021 | 0.204 | 0.208 | 0.19 | 0.114 | 0.161 | 0.148 |
| CDMA2000 BC10 | RC3 SO55 | 580 | 820.5 | N/A | N/A | Right Cheek | 0mm | 0.302 | 0.353 | 0.12 | 0.049 | 0.308 | 0.221 | 0.187 | 0.293 | 0.132 | 0.014 | 0.109 | 0.091 |
| CDMA2000 BC0 | RC3 SO55 | 384 | 836.52 | N/A | N/A | Right Cheek | 0mm | 0.393 | 0.475 | 0.178 | 0.106 | 0.026 | 0.351 | 0.232 | 0.043 | 0.252 | 0.049 | 0.017 | 0.186 |
| CDMA2000 BC1 | RC3 SO55 | 1175 | 1908.75 | N/A | N/A | Left Cheek | 0mm | 0.169 | 0.224 | 0.127 | 0.111 | 0.116 | 0.213 | 0.208 | 0.176 | 0.193 | 0.181 | 0.106 | 0.152 |
| LTE Band 71 | QPSK | 133322 | 683 | 1 | 0 | Right Cheek | 0mm | 0.219 | 0.250 | 0.104 | 0.158 | 0.198 | 0.013 | 0.052 | 0.017 | 0.015 | 0.016 | 0.110 | 0.003 |
| LTE Band 12 | QPSK | 23095 | 707.5 | 1 | 0 | Right Cheek | 0mm | 0.245 | 0.265 | 0.009 | 0.146 | 0.067 | 0.184 | 0.037 | 0.131 | 0.002 | 0.015 | 0.035 | |
| LTE Band 13 | QPSK | 23230 | 782 | 1 | 0 | Right Cheek | 0mm | 0.254 | 0.277 | 0.233 | 0.132 | 0.112 | 0.039 | 0.087 | 0.101 | 0.178 | 0.036 | 0.028 | |
| LTE Band 14 | QPSK | 23330 | 793 | 1 | 0 | Right Cheek | 0mm | 0.288 | 0.313 | 0.286 | 0.193 | 0.122 | 0.045 | 0.081 | 0.097 | 0.176 | 0.066 | 0.031 | |
| LTE Band 26 | QPSK | 26865 | 831.5 | 1 | 0 | Right Cheek | 0mm | 0.272 | 0.314 | 0.163 | 0.071 | 0.219 | 0.087 | 0.013 | 0.219 | 0.138 | 0.015 | 0.124 | |
| LTE Band 66 | QPSK | 132072 | 1720 | 1 | 0 | Left Cheek | 0mm | 0.206 | 0.255 | 0.135 | 0.161 | 0.129 | 0.120 | 0.072 | 0.051 | 0.052 | 0.043 | 0.041 | |
| LTE Band 25 | QPSK | 26590 | 1905 | 1 | 0 | Left Cheek | 0mm | 0.219 | 0.279 | 0.170 | 0.168 | 0.178 | 0.159 | 0.132 | 0.186 | 0.187 | 0.134 | 0.190 | |

Body (Antenna #0, Slave ID=6)

| Mode | Service/Modulation | Channel | Frequency (MHz) | RB Size | RB Offset | Test Position | Spacing | Measured 1g SAR (W/kg) | Average Value of Time Sweep (W/kg) | | | | | | | | | | | | |
|---------------|--------------------|---------|-----------------|---------|-----------|---------------|---------|------------------------|------------------------------------|-------|-------|-------|-------|-------|-------|-------|--------|-------|-------|--|--|
| | | | | | | | | | Auto-Tune | 0 | 15 | 30 | 45 | 60 | 75 | 90 | 105 | 120 | 135 | | |
| GSM850 | GPRS 4 Tx slots | 251 | 848.8 | N/A | N/A | Back | 5mm | 1.15 | 1.71 | 0.056 | 1.63 | 1.212 | 0.092 | 1.62 | 0.255 | 0.04 | 1.156 | 0.16 | 0.027 | | |
| GSM1900 | GPRS 3 Tx slots | 810 | 1909.8 | N/A | N/A | Bottom Side | 5mm | 1.05 | 1.52 | 0.387 | 0.878 | 0.865 | 0.853 | 0.836 | 0.823 | 0.561 | 0.744 | 0.497 | 0.482 | | |
| WCDMA V | RMC 12.2Kbps | 4233 | 846.6 | N/A | N/A | Back | 5mm | 1.16 | 1.46 | 0.214 | 0.968 | 0.823 | 1.217 | 0.623 | 0.200 | 0.753 | 0.7674 | 0.701 | 0.061 | | |
| WCDMA IV | RMC 12.2Kbps | 1513 | 1752.6 | N/A | N/A | Bottom Side | 5mm | 1.13 | 1.58 | 0.994 | 0.857 | 1.05 | 0.956 | 1.185 | 0.992 | 0.967 | 0.715 | 0.639 | 0.66 | | |
| WCDMA II | RMC 12.2Kbps | 9538 | 1907.6 | N/A | N/A | Bottom Side | 5mm | 1.16 | 1.7 | 0.818 | 0.613 | 1.141 | 1.21 | 1.187 | 1.23 | 1.118 | 0.755 | 0.85 | 0.836 | | |
| CDMA2000 BC10 | RTAP 153.6Kbps | 476 | 817.9 | N/A | N/A | Back | 5mm | 1.11 | 1.41 | 0.473 | 0.171 | 1.401 | 1.071 | 0.708 | 1.405 | 0.633 | 0.056 | 0.61 | 0.379 | | |
| CDMA2000 BC0 | RTAP 153.6Kbps | 1013 | 824.7 | N/A | N/A | Back | 5mm | 1.18 | 2.12 | 0.896 | 0.509 | 0.107 | 1.579 | 0.971 | 0.147 | 1.102 | 0.182 | 0.046 | 0.72 | | |
| CDMA2000 BC1 | RC3 S032 (F+SCH) | 1175 | 1908.75 | N/A | N/A | Bottom Side | 5mm | 1.03 | 1.51 | 0.801 | 0.645 | 0.75 | 1.471 | 1.343 | 1.09 | 1.37 | 0.878 | 0.465 | 0.678 | | |
| LTE Band 71 | QPSK | 133322 | 683 | 1 | 0 | Back | 5mm | 0.757 | 0.945 | 0.024 | 0.725 | 0.635 | 0.047 | 0.198 | 0.074 | 0.126 | 0.058 | 0.475 | 0.049 | | |
| LTE Band 12 | QPSK | 23095 | 707.5 | 1 | 0 | Back | 5mm | 0.732 | 0.831 | 0.067 | 0.812 | 0.339 | 0.093 | 0.206 | 0.696 | 0.029 | 0.126 | 0.160 | | | |
| LTE Band 13 | QPSK | 23230 | 782 | 1 | 0 | Back | 5mm | 0.727 | 0.917 | 0.914 | 0.758 | 0.543 | 0.217 | 0.607 | 0.601 | 0.744 | 0.264 | 0.194 | | | |
| LTE Band 14 | QPSK | 23330 | 793 | 1 | 0 | Back | 5mm | 0.857 | 1.050 | 1.042 | 0.997 | 0.712 | 0.241 | 0.547 | 0.558 | 0.705 | 0.993 | 0.199 | | | |
| LTE Band 26 | QPSK | 26865 | 831.5 | 1 | 0 | Back | 5mm | 1.18 | 1.430 | 0.718 | 0.030 | 1.009 | 0.417 | 0.059 | 0.887 | 0.483 | 0.052 | 0.463 | | | |
| LTE Band 66 | QPSK | 132072 | 1720 | 1 | 0 | Bottom Side | 5mm | 1.08 | 1.500 | 1.079 | 1.248 | 0.788 | 0.786 | 0.658 | 0.507 | 0.518 | 0.499 | 0.481 | | | |
| LTE Band 25 | QPSK | 26590 | 1905 | 1 | 0 | Bottom Side | 5mm | 0.946 | 1.370 | 0.728 | 0.708 | 0.753 | 0.673 | 0.548 | 1.010 | 0.632 | 0.457 | 0.410 | | | |



Appendix D. DASYS Calibration Certificate

The DASYS calibration certificates are shown as follows.



In Collaboration with
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CALIBRATION LABORATORY



中国认可
国际互认
校准
CALIBRATION
CNAS L0570

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

Client **Sporton**

Certificate No: **Z19-60081**

CALIBRATION CERTIFICATE

Object: **D750V3 - SN: 1087**

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

Calibration date: **March 27, 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±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 | 106277 | 20-Aug-18 (CTTL, No.J18X06862) | Aug-19 |
| Power sensor NRP8S | 104291 | 20-Aug-18 (CTTL, No.J18X06862) | Aug-19 |
| Reference Probe EX3DV4 | SN 3617 | 31-Jan-19(SPEAG,No.EX3-3617_Jan19) | Jan-20 |
| DAE4 | SN 1331 | 06-Feb-19(SPEAG,No.DAE4-1331_Feb19) | Feb-20 |
| Secondary Standards | ID # | Cal Date(Calibrated by, Certificate No.) | Scheduled Calibration |
| Signal Generator E4438C | MY49071430 | 23-Jan-19 (CTTL, No.J19X00336) | Jan-20 |
| NetworkAnalyzer E5071C | MY46110673 | 24-Jan-19 (CTTL, No.J19X00547) | Jan-20 |

| | 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: March 29, 2019

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



In Collaboration with

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CALIBRATION LABORATORY

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E-mail: cttl@chinattl.com http://www.chinattl.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:

- 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 assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices- Part 1: Device used next to the ear (Frequency range of 300MHz to 6GHz)", July 2016
- IEC 62209-2, "Procedure to measure the Specific Absorption Rate (SAR) For wireless communication devices used in close proximity to the human body (frequency range of 30MHz to 6GHz)", March 2010
- KDB865664, 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%.



Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

Measurement Conditions

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

| | | |
|------------------------------|--------------------------|--------------|
| DASY Version | DASY52 | 52.10.2.1495 |
| Extrapolation | Advanced Extrapolation | |
| Phantom | Triple Flat Phantom 5.1C | |
| 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 | 43.0 \pm 6 % | 0.90 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 | 2.10 W/kg |
| SAR for nominal Head TSL parameters | normalized to 1W | 8.36 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 | 1.42 W/kg |
| SAR for nominal Head TSL parameters | normalized to 1W | 5.65 W/kg \pm 18.7 % (k=2) |

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 | 56.9 \pm 6 % | 0.94 mho/m \pm 6 % |
| Body TSL temperature change during test | <1.0 °C | ---- | ---- |

SAR result with Body TSL

| | | |
|--|--------------------|--|
| SAR averaged over 1 cm^3 (1 g) of Body TSL | Condition | |
| SAR measured | 250 mW input power | 2.09 W/kg |
| SAR for nominal Body TSL parameters | normalized to 1W | 8.58 W/kg \pm 18.8 % (k=2) |
| SAR averaged over 10 cm^3 (10 g) of Body TSL | Condition | |
| SAR measured | 250 mW input power | 1.41 W/kg |
| SAR for nominal Body TSL parameters | normalized to 1W | 5.75 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 | 52.4Ω- 2.59jΩ |
| Return Loss | - 29.3dB |

Antenna Parameters with Body TSL

| | |
|--------------------------------------|---------------|
| Impedance, transformed to feed point | 51.6Ω- 3.86jΩ |
| Return Loss | - 27.7dB |

General Antenna Parameters and Design

| | |
|----------------------------------|----------|
| Electrical Delay (one direction) | 0.898 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 |
|-----------------|-------|



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DASY5 Validation Report for Head TSL

Date: 03.26.2019

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 - SN: 1087

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

Medium parameters used: $f = 750$ MHz; $\sigma = 0.903$ S/m; $\epsilon_r = 43.01$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3617; ConvF(10.03, 10.03, 10.03) @ 750 MHz; Calibrated: 1/31/2019
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1331; Calibrated: 2/6/2019
- Phantom: MFP_V5.1C ; Type: QD 000 P51CA; Serial: 1062
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

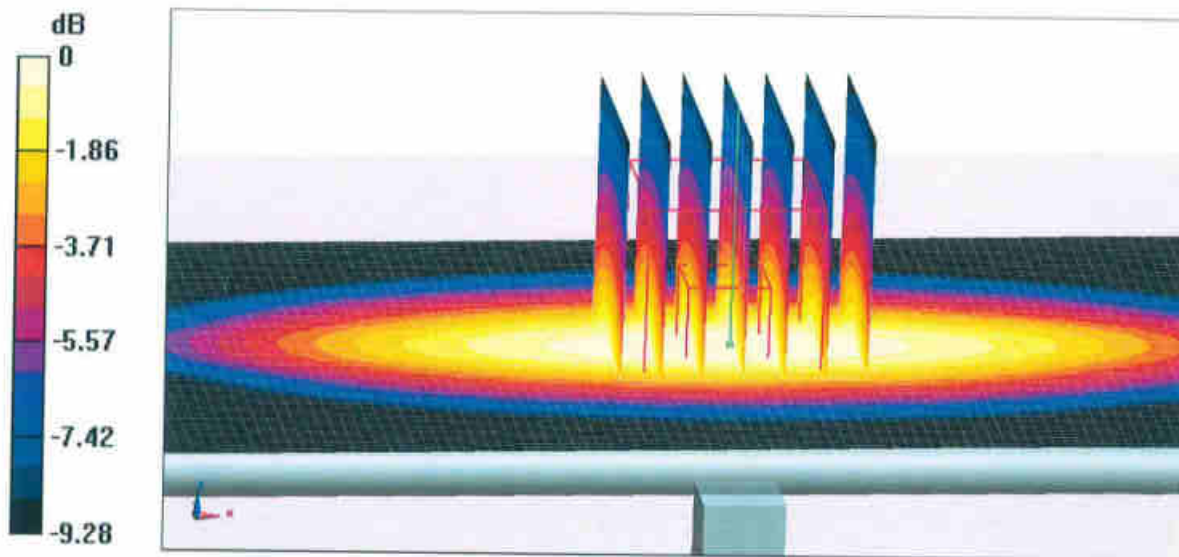
Dipole Calibration/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 55.05 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 3.00 W/kg

SAR(1 g) = 2.1 W/kg; SAR(10 g) = 1.42 W/kg

Maximum value of SAR (measured) = 2.72 W/kg

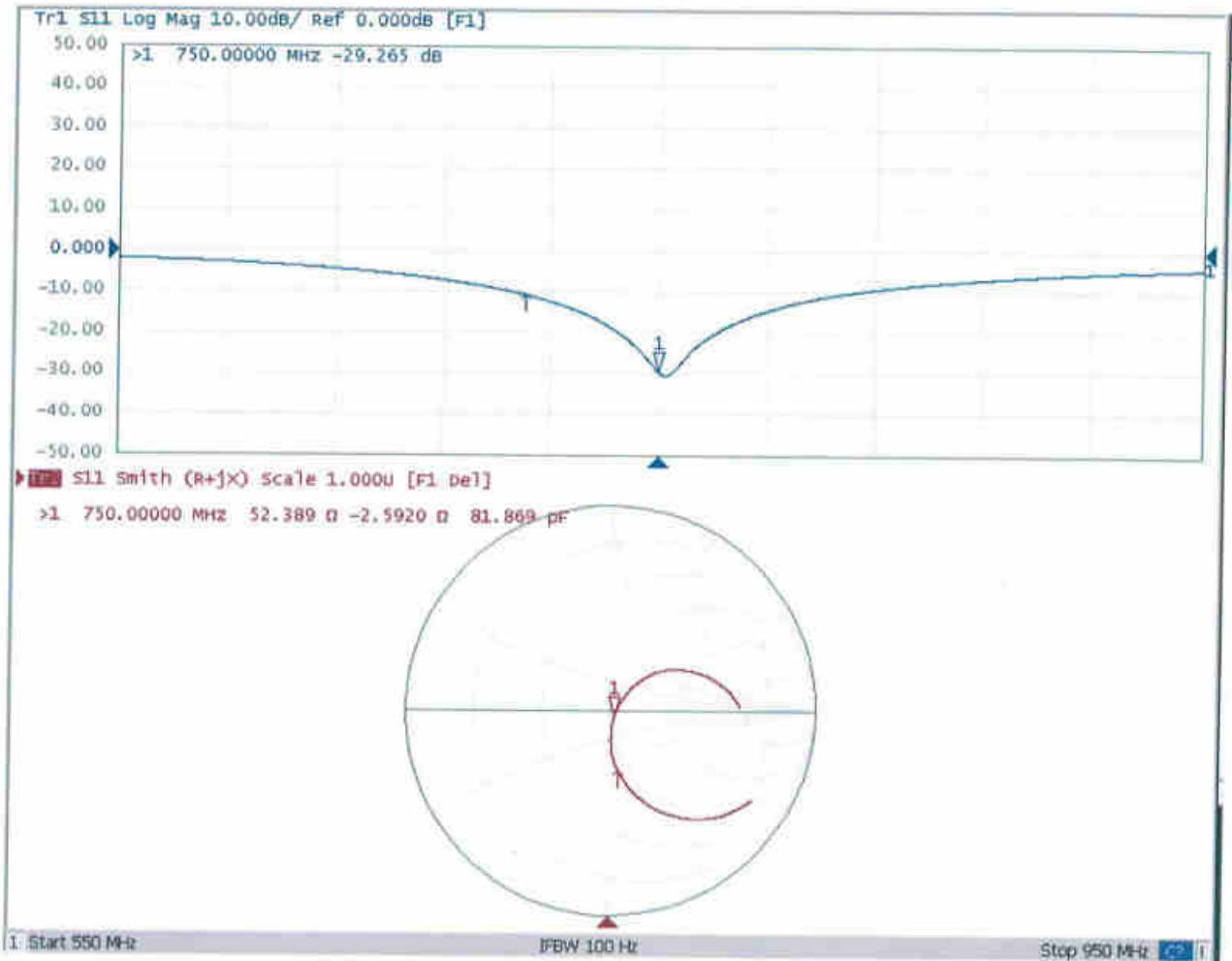


0 dB = 2.72 W/kg = 4.35 dBW/kg



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Impedance Measurement Plot for Head TSL





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DASY5 Validation Report for Body TSL

Date: 03.26.2019

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 - SN: 1087

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

Medium parameters used: $f = 750$ MHz; $\sigma = 0.935$ S/m; $\epsilon_r = 56.85$; $\rho = 1000$ kg/m³

Phantom section: Center Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3617; ConvF(9.85, 9.85, 9.85) @ 750 MHz; Calibrated: 1/31/2019
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1331; Calibrated: 2/6/2019
- Phantom: MFP_V5.1C ; Type: QD 000 P51CA; Serial: 1062
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

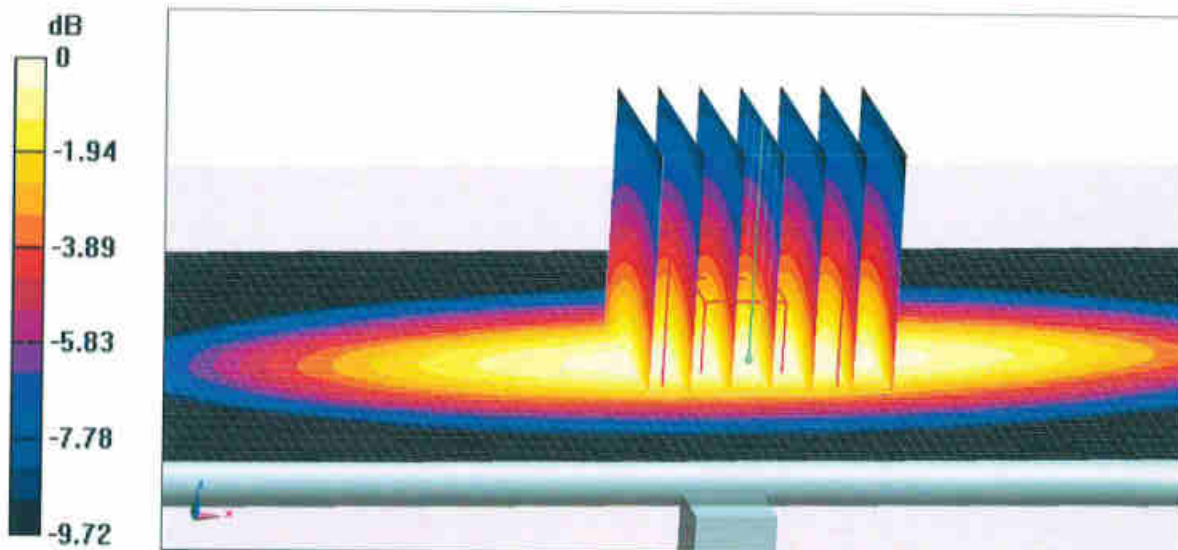
Dipole Calibration/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 53.71 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 3.08 W/kg

SAR(1 g) = 2.09 W/kg; SAR(10 g) = 1.41 W/kg

Maximum value of SAR (measured) = 2.75 W/kg

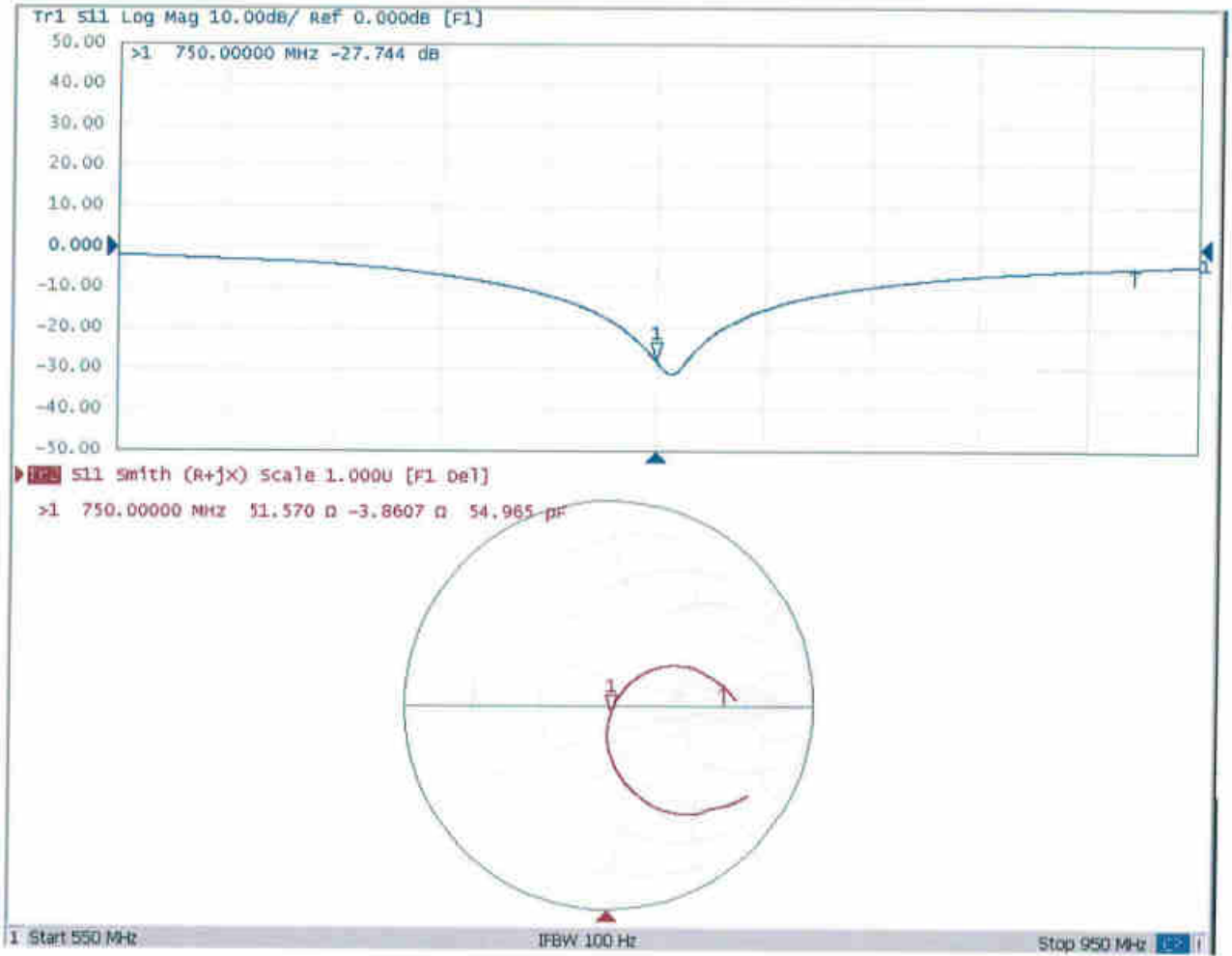


0 dB = 2.75 W/kg = 4.39 dBW/kg



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Impedance Measurement Plot for Body TSL





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Client

Sporton

Certificate No:

Z19-60082

CALIBRATION CERTIFICATE

Object **D835V2 - SN: 4d151**

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

Calibration date: **March 27, 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±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 | 106277 | 20-Aug-18 (CTTL, No.J18X06862) | Aug-19 |
| Power sensor NRP8S | 104291 | 20-Aug-18 (CTTL, No.J18X06862) | Aug-19 |
| Reference Probe EX3DV4 | SN 3617 | 31-Jan-19(SPEAG,No.EX3-3617_Jan19) | Jan-20 |
| DAE4 | SN 1331 | 06-Feb-19(SPEAG,No.DAE4-1331_Feb19) | Feb-20 |
| Secondary Standards | ID # | Cal Date(Calibrated by, Certificate No.) | Scheduled Calibration |
| Signal Generator E4438C | MY49071430 | 23-Jan-19 (CTTL, No.J19X00336) | Jan-20 |
| NetworkAnalyzer E5071C | MY46110673 | 24-Jan-19 (CTTL, No.J19X00547) | Jan-20 |

| | 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: March 30, 2019

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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 assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices- Part 1: Device used next to the ear (Frequency range of 300MHz to 6GHz)", July 2016
- IEC 62209-2, "Procedure to measure the Specific Absorption Rate (SAR) For wireless communication devices used in close proximity to the human body (frequency range of 30MHz to 6GHz)", March 2010
- KDB865664, 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%.



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Measurement Conditions

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

| | | |
|------------------------------|--------------------------|--------------|
| DASY Version | DASY52 | 52.10.2.1495 |
| Extrapolation | Advanced Extrapolation | |
| Phantom | Triple Flat Phantom 5.1C | |
| Distance Dipole Center - TSL | 15 mm | with Spacer |
| Zoom Scan Resolution | dx, dy, dz = 5 mm | |
| Frequency | 835 MHz ± 1 MHz | |

Head TSL parameters

The following parameters and calculations were applied.

| | Temperature | Permittivity | Conductivity |
|---|-----------------|--------------|------------------|
| Nominal Head TSL parameters | 22.0 °C | 41.5 | 0.90 mho/m |
| Measured Head TSL parameters | (22.0 ± 0.2) °C | 42.7 ± 6 % | 0.93 mho/m ± 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 | 2.36 W/kg |
| SAR for nominal Head TSL parameters | normalized to 1W | 9.30 W/kg ± 18.8 % (k=2) |
| SAR averaged over 10 cm ³ (10 g) of Head TSL | Condition | |
| SAR measured | 250 mW input power | 1.56 W/kg |
| SAR for nominal Head TSL parameters | normalized to 1W | 6.16 W/kg ± 18.7 % (k=2) |

Body TSL parameters

The following parameters and calculations were applied.

| | Temperature | Permittivity | Conductivity |
|---|-----------------|--------------|------------------|
| Nominal Body TSL parameters | 22.0 °C | 55.2 | 0.97 mho/m |
| Measured Body TSL parameters | (22.0 ± 0.2) °C | 56.7 ± 6 % | 0.94 mho/m ± 6 % |
| Body TSL temperature change during test | <1.0 °C | ---- | ---- |

SAR result with Body TSL

| | | |
|---|--------------------|----------------------------------|
| SAR averaged over 1 cm ³ (1 g) of Body TSL | Condition | |
| SAR measured | 250 mW input power | 2.32 W/kg |
| SAR for nominal Body TSL parameters | normalized to 1W | 9.53 W /kg ± 18.8 % (k=2) |
| SAR averaged over 10 cm ³ (10 g) of Body TSL | Condition | |
| SAR measured | 250 mW input power | 1.52 W/kg |
| SAR for nominal Body TSL parameters | normalized to 1W | 6.20 W/kg ± 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 | 50.8Ω- 3.28jΩ |
| Return Loss | - 29.5dB |

Antenna Parameters with Body TSL

| | |
|--------------------------------------|---------------|
| Impedance, transformed to feed point | 46.7Ω- 3.98jΩ |
| Return Loss | - 25.5dB |

General Antenna Parameters and Design

| | |
|----------------------------------|----------|
| Electrical Delay (one direction) | 1.253 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 |
|-----------------|-------|



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DASY5 Validation Report for Head TSL

Date: 03.26.2019

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d151

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

Medium parameters used: $f = 835$ MHz; $\sigma = 0.925$ S/m; $\epsilon_r = 42.68$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3617; ConvF(9.75, 9.75, 9.75) @ 835 MHz; Calibrated: 1/31/2019
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1331; Calibrated: 2/6/2019
- Phantom: MFP_V5.1C ; Type: QD 000 P51CA; Serial: 1062
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

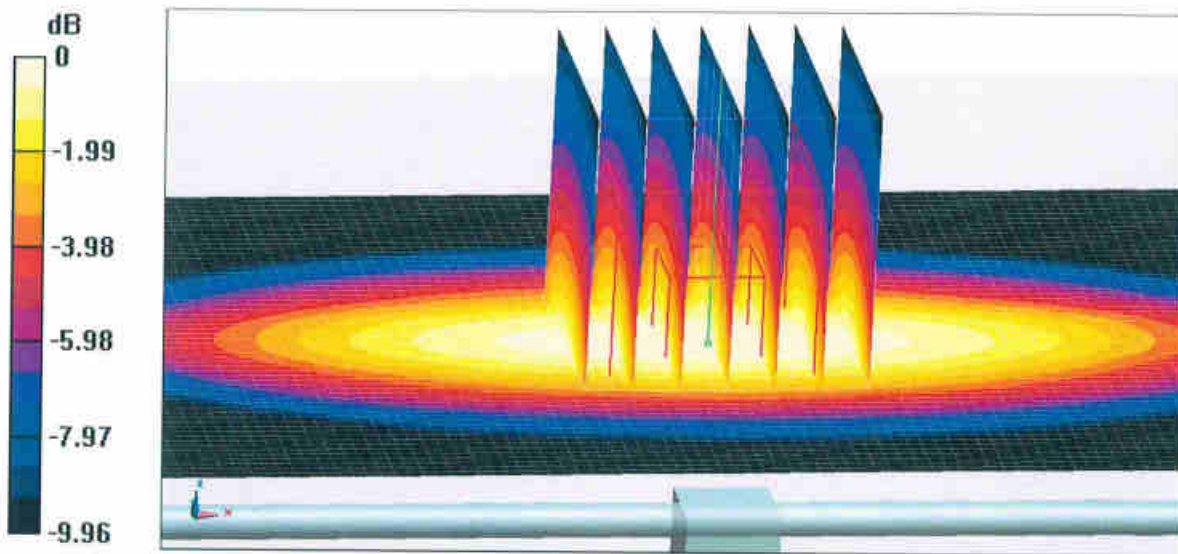
Dipole Calibration/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 57.34 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 3.55 W/kg

SAR(1 g) = 2.36 W/kg; SAR(10 g) = 1.56 W/kg

Maximum value of SAR (measured) = 3.14 W/kg

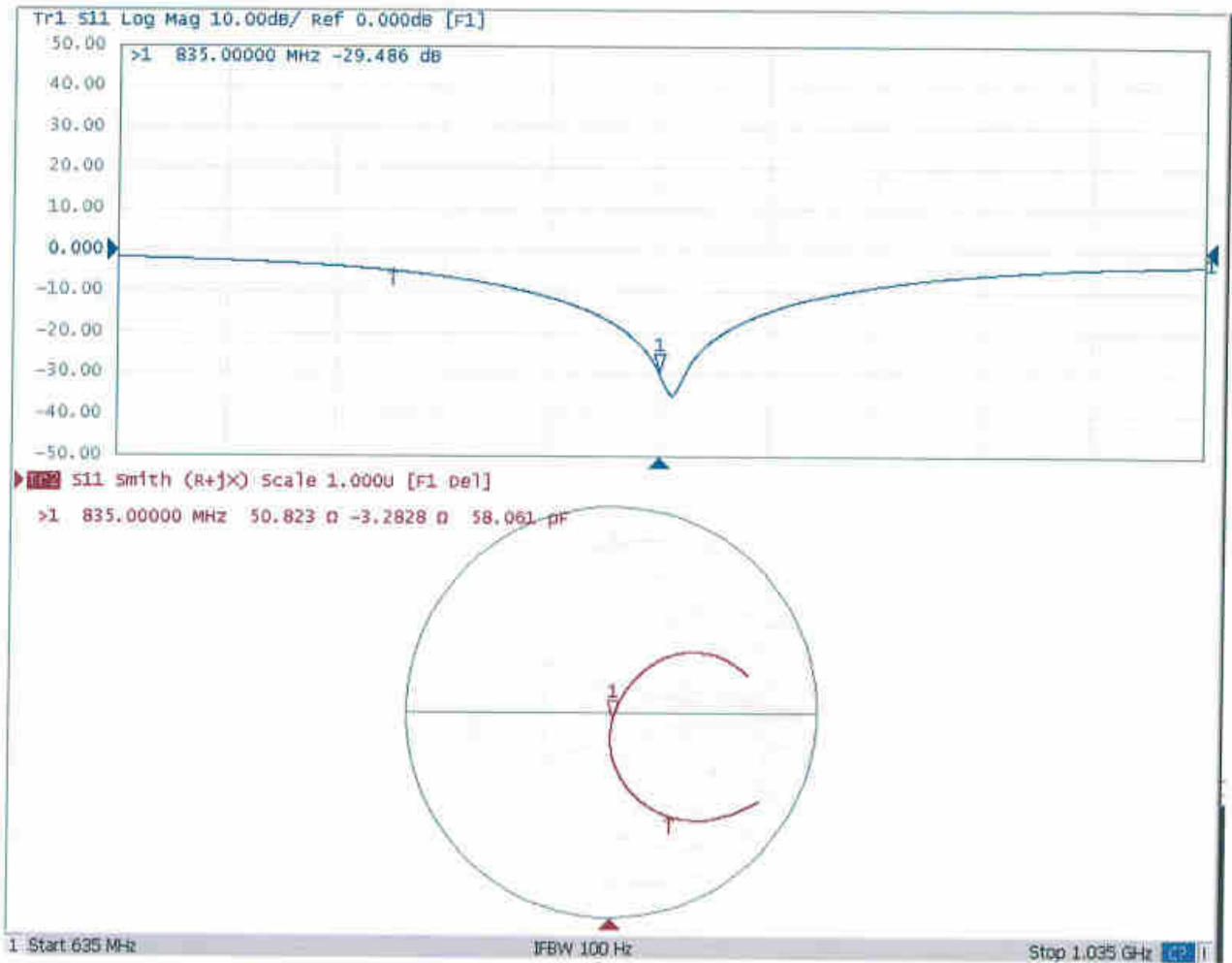


0 dB = 3.14 W/kg = 4.97 dBW/kg



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Impedance Measurement Plot for Head TSL





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DASY5 Validation Report for Body TSL

Date: 03.26.2019

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d151

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

Medium parameters used: $f = 835$ MHz; $\sigma = 0.944$ S/m; $\epsilon_r = 56.66$; $\rho = 1000$ kg/m³

Phantom section: Center Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3617; ConvF(9.61, 9.61, 9.61) @ 835 MHz; Calibrated: 1/31/2019
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1331; Calibrated: 2/6/2019
- Phantom: MFP_V5.1C ; Type: QD 000 P51CA; Serial: 1062
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

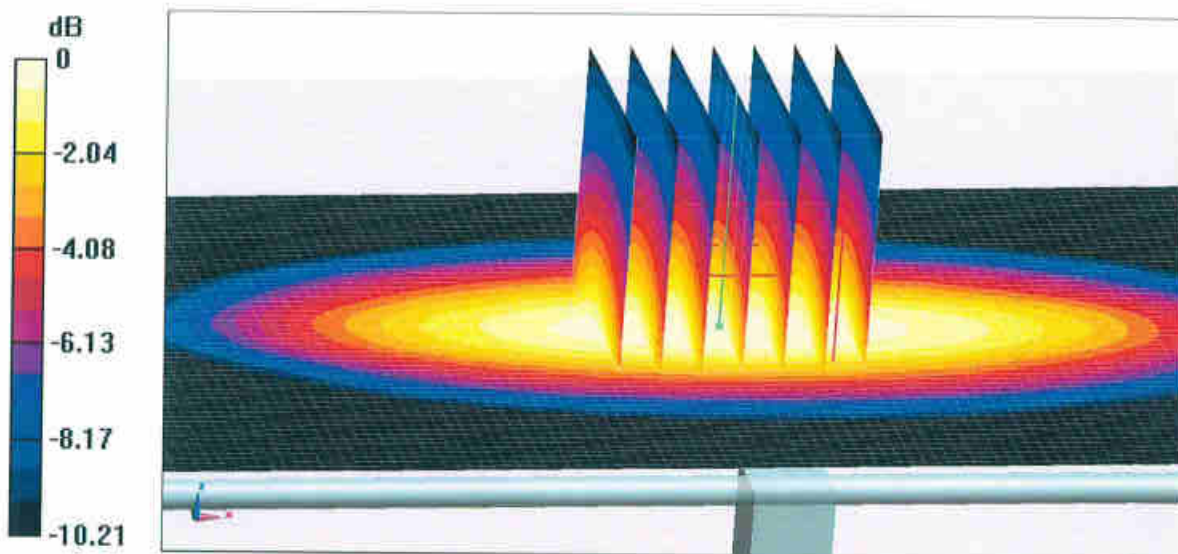
Dipole Calibration/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 56.03 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 3.53 W/kg

SAR(1 g) = 2.32 W/kg; SAR(10 g) = 1.52 W/kg

Maximum value of SAR (measured) = 3.12 W/kg

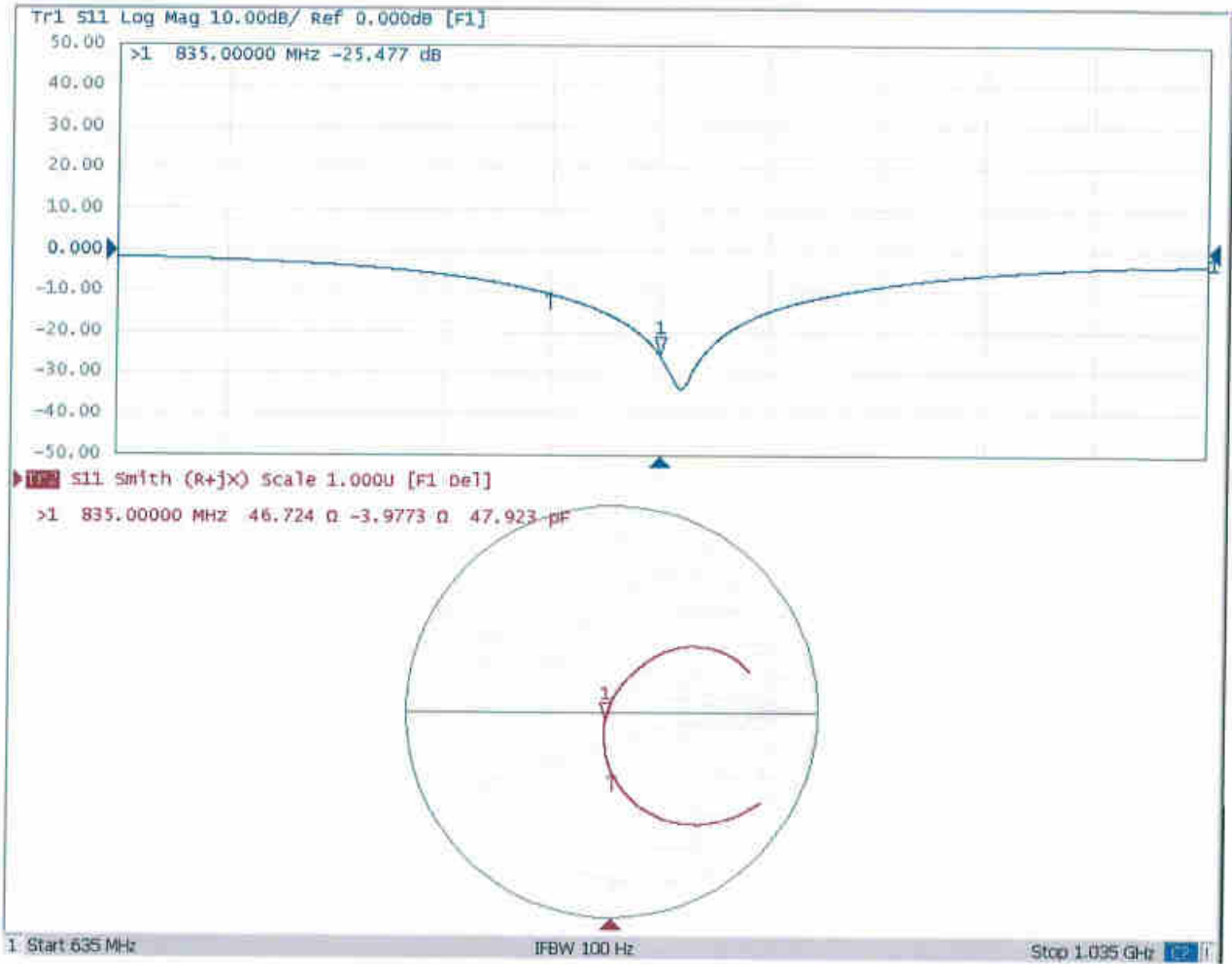


0 dB = 3.12 W/kg = 4.94 dBW/kg



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Impedance Measurement Plot for Body TSL





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Client **Sporton**

Certificate No: **Z19-60084**

CALIBRATION CERTIFICATE

Object **D1750V2 - SN: 1090**

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

Calibration date: **March 27, 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±3)℃ 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 | 106277 | 20-Aug-18 (CTTL, No.J18X06862) | Aug-19 |
| Power sensor NRP8S | 104291 | 20-Aug-18 (CTTL, No.J18X06862) | Aug-19 |
| Reference Probe EX3DV4 | SN 3617 | 31-Jan-19(SPEAG,No.EX3-3617_Jan19) | Jan-20 |
| DAE4 | SN 1331 | 06-Feb-19(SPEAG,No.DAE4-1331_Feb19) | Feb-20 |
| Secondary Standards | ID # | Cal Date(Calibrated by, Certificate No.) | Scheduled Calibration |
| Signal Generator E4438C | MY49071430 | 23-Jan-19 (CTTL, No.J19X00336) | Jan-20 |
| NetworkAnalyzer E5071C | MY46110673 | 24-Jan-19 (CTTL, No.J19X00547) | Jan-20 |

| | 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: March 29, 2019

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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 assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices- Part 1: Device used next to the ear (Frequency range of 300MHz to 6GHz)", July 2016
- IEC 62209-2, "Procedure to measure the Specific Absorption Rate (SAR) For wireless communication devices used in close proximity to the human body (frequency range of 30MHz to 6GHz)", March 2010
- KDB865664, 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 | DASY52 | 52.10.2.1495 |
| 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 | 1750 MHz \pm 1 MHz | |

Head TSL parameters

The following parameters and calculations were applied.

| | Temperature | Permittivity | Conductivity |
|---|---------------------|----------------|----------------------|
| Nominal Head TSL parameters | 22.0 °C | 40.1 | 1.37 mho/m |
| Measured Head TSL parameters | (22.0 \pm 0.2) °C | 41.3 \pm 6 % | 1.37 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 | 9.04 W/kg |
| SAR for nominal Head TSL parameters | normalized to 1W | 36.4 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 | 4.79 W/kg |
| SAR for nominal Head TSL parameters | normalized to 1W | 19.2 W/kg \pm 18.7 % (k=2) |

Body TSL parameters

The following parameters and calculations were applied.

| | Temperature | Permittivity | Conductivity |
|---|---------------------|----------------|----------------------|
| Nominal Body TSL parameters | 22.0 °C | 53.4 | 1.49 mho/m |
| Measured Body TSL parameters | (22.0 \pm 0.2) °C | 55.0 \pm 6 % | 1.45 mho/m \pm 6 % |
| Body TSL temperature change during test | <1.0 °C | --- | --- |

SAR result with Body TSL

| | | |
|--|--------------------|--|
| SAR averaged over 1 cm^3 (1 g) of Body TSL | Condition | |
| SAR measured | 250 mW input power | 9.21 W/kg |
| SAR for nominal Body TSL parameters | normalized to 1W | 37.7 W/kg \pm 18.8 % (k=2) |
| SAR averaged over 10 cm^3 (10 g) of Body TSL | Condition | |
| SAR measured | 250 mW input power | 4.89 W/kg |
| SAR for nominal Body TSL parameters | normalized to 1W | 19.9 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 | 47.5Ω- 2.34 jΩ |
| Return Loss | - 29.2 dB |

Antenna Parameters with Body TSL

| | |
|--------------------------------------|----------------|
| Impedance, transformed to feed point | 43.9Ω- 2.19 jΩ |
| Return Loss | - 23.2 dB |

General Antenna Parameters and Design

| | |
|----------------------------------|----------|
| Electrical Delay (one direction) | 1.085 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 |
|-----------------|-------|



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DASY5 Validation Report for Head TSL

Date: 03.26.2019

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 1750 MHz; Type: D1750V2; Serial: D1750V2 - SN: 1090

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

Medium parameters used: $f = 1750$ MHz; $\sigma = 1.37$ S/m; $\epsilon_r = 41.27$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3617; ConvF(8.38, 8.38, 8.38) @ 1750 MHz; Calibrated: 1/31/2019
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1331; Calibrated: 2/6/2019
- Phantom: MFP_V5.1C ; Type: QD 000 P51CA; Serial: 1062
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

System Performance Check/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

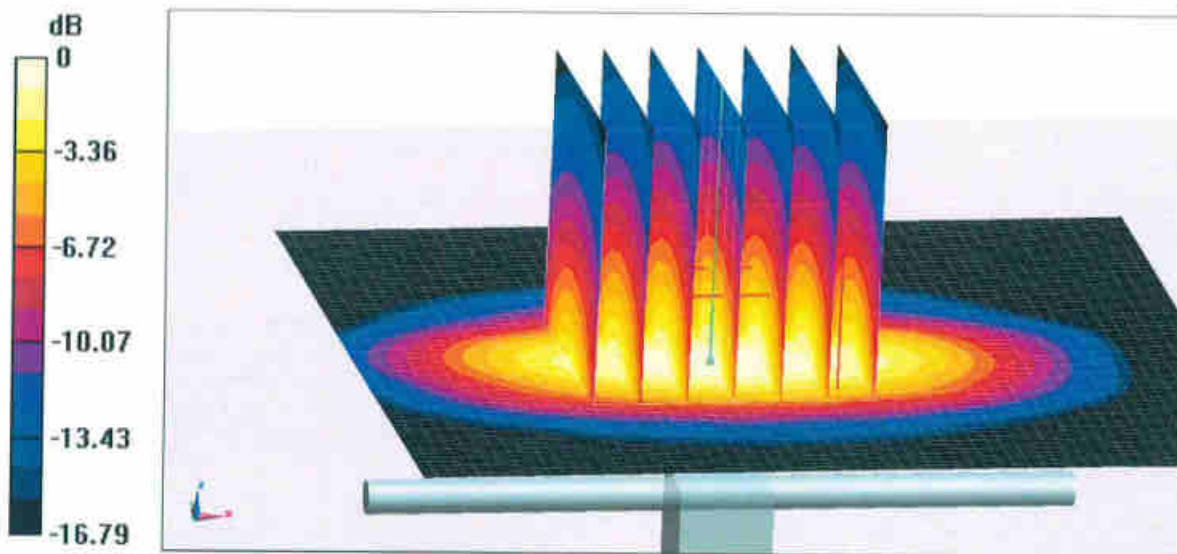
$dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 89.03 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 17.1 W/kg

SAR(1 g) = 9.04 W/kg; SAR(10 g) = 4.79 W/kg

Maximum value of SAR (measured) = 14.2 W/kg

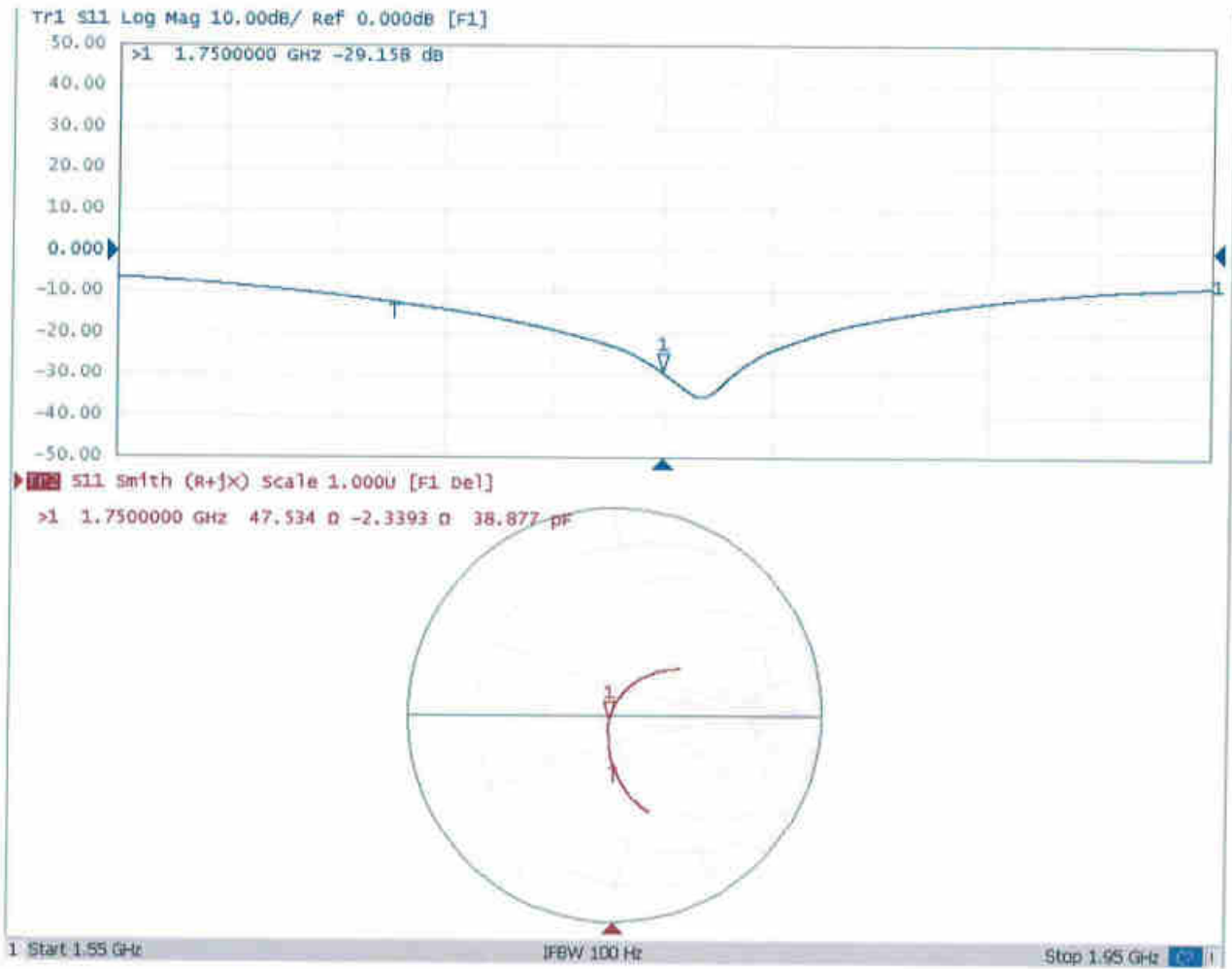


0 dB = 14.2 W/kg = 11.52 dBW/kg



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Impedance Measurement Plot for Head TSL





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DASY5 Validation Report for Body TSL

Date: 03.26.2019

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 1750 MHz; Type: D1750V2; Serial: D1750V2 - SN: 1090

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

Medium parameters used: $f = 1750$ MHz; $\sigma = 1.449$ S/m; $\epsilon_r = 54.97$; $\rho = 1000$ kg/m³

Phantom section: Center Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3617; ConvF(8.03, 8.03, 8.03) @ 1750 MHz; Calibrated: 1/31/2019
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1331; Calibrated: 2/6/2019
- Phantom: MFP_V5.1C ; Type: QD 000 P51CA; Serial: 1062
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

System Performance Check/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

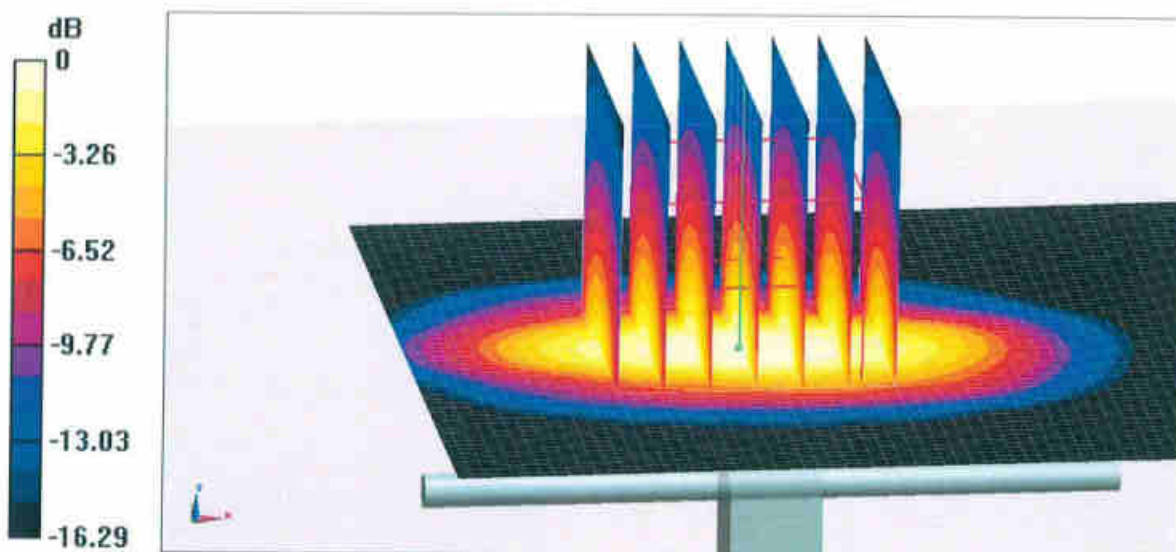
$dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 93.13 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 16.8 W/kg

SAR(1 g) = 9.21 W/kg; SAR(10 g) = 4.89 W/kg

Maximum value of SAR (measured) = 14.2 W/kg



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



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Impedance Measurement Plot for Body TSL

