

84_FR1 n2_20M_BPSK_50RB_28Offset_DFT-15_Back_15mm_Ch376000

Communication System: UID 0, N2 (0); Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: HSL_1900_220411 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.418$ S/m; $\epsilon_r = 40.128$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.6 °C; Liquid Temperature : 22.6 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3282; ConvF(5.10, 5.10, 5.10); Calibrated: 2021/11/4
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn 910; Calibrated: 2021/7/15
- Phantom: Twin-SAM1(P1aP2a20); Type: QD 000 P40 CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

Ch376000/Area Scan (71x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.242 W/kg

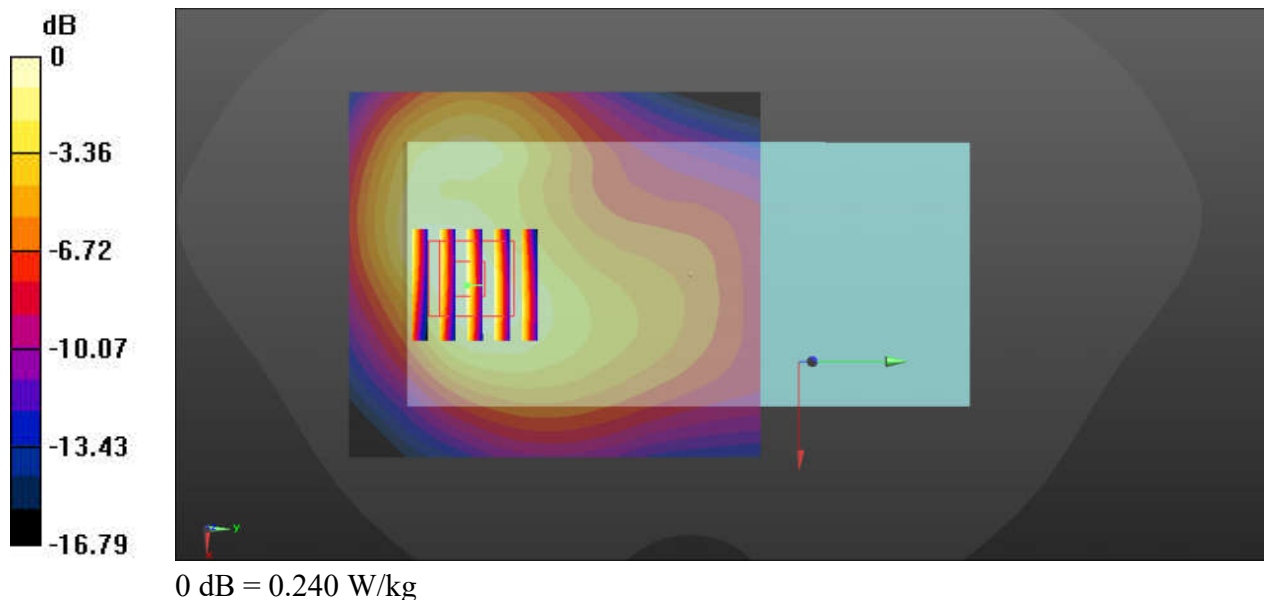
Ch376000/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 3.028 V/m; Power Drift = -0.17 dB

Peak SAR (extrapolated) = 0.320 W/kg

SAR(1 g) = 0.201 W/kg; SAR(10 g) = 0.123 W/kg

Maximum value of SAR (measured) = 0.240 W/kg



85_WLAN2.4GHz_802.11b 1Mbps_Back_15mm_Ch1

Communication System: UID 0, WIFI (0); Frequency: 2412 MHz; Duty Cycle: 1:1

Medium: HSL_2450_220412 Medium parameters used: $f = 2412$ MHz; $\sigma = 1.768$ S/m; $\epsilon_r = 37.788$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5 °C; Liquid Temperature : 22.2 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3282; ConvF(4.65, 4.65, 4.65); Calibrated: 2021/11/4
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn 910; Calibrated: 2021/7/15
- Phantom: Twin-SAM1(P1aP2a20); Type: QD 000 P40 CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

Ch1/Area Scan (91x81x1): Interpolated grid: $dx=1.200$ mm, $dy=1.200$ mm

Maximum value of SAR (interpolated) = 0.117 W/kg

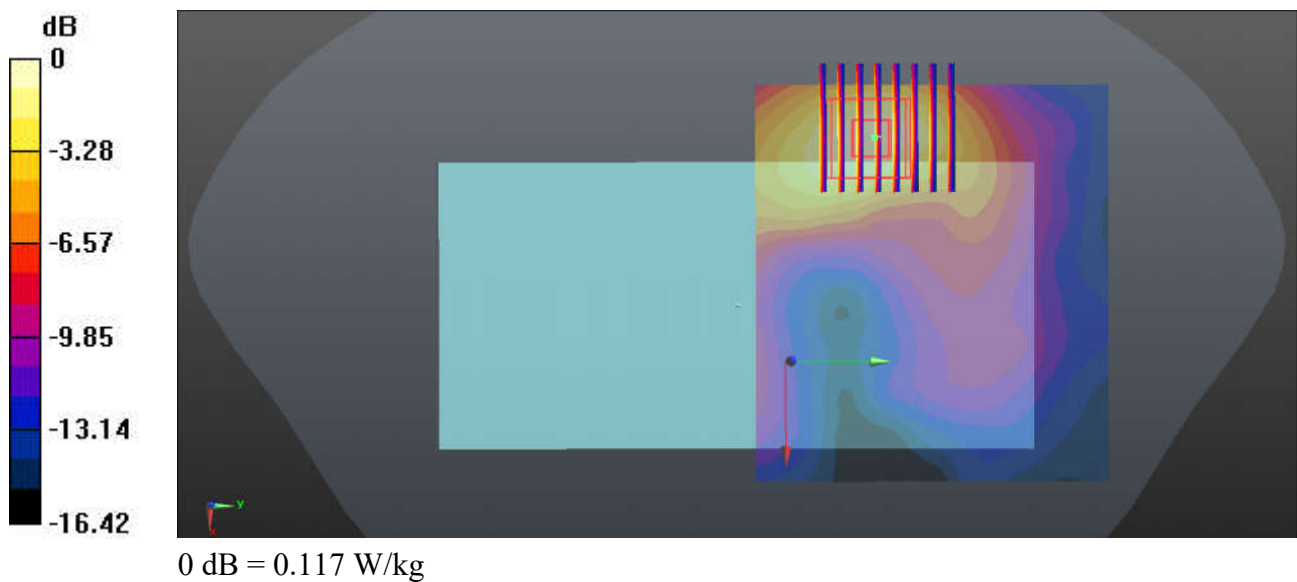
Ch1/Zoom Scan (8x8x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 3.325 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.140 W/kg

SAR(1 g) = 0.076 W/kg; SAR(10 g) = 0.041 W/kg

Maximum value of SAR (measured) = 0.117 W/kg



86_Bluetooth_DH5 1Mbps_Back_15mm_Ch39

Communication System: UID 0, Bluetooth (0); Frequency: 2441 MHz; Duty Cycle: 1:1.302

Medium: HSL_2450_220412 Medium parameters used: $f = 2441$ MHz; $\sigma = 1.799$ S/m; $\epsilon_r = 37.658$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5 °C; Liquid Temperature : 22.2 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3282; ConvF(4.65, 4.65, 4.65); Calibrated: 2021/11/4
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn 910; Calibrated: 2021/7/15
- Phantom: Twin-SAM1(P1aP2a20); Type: QD 000 P40 CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

Ch39/Area Scan (81x81x1): Interpolated grid: $dx=1.200$ mm, $dy=1.200$ mm

Maximum value of SAR (interpolated) = 0.0194 W/kg

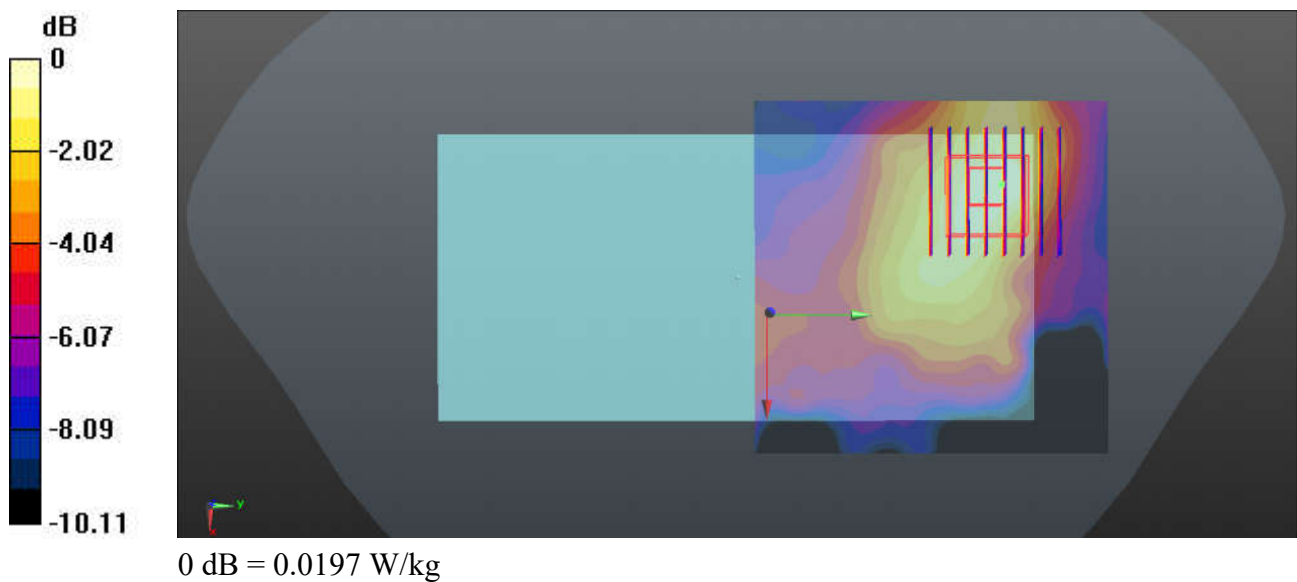
Ch39/Zoom Scan (8x8x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 1.521 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 0.0310 W/kg

SAR(1 g) = 0.013 W/kg; SAR(10 g) = 0.00557 W/kg

Maximum value of SAR (measured) = 0.0197 W/kg



87_LTE Band 7_20M_QPSK_1RB_0Offset_Front_15mm_Ch21100

Communication System: UID 0, Generic LTE (0); Frequency: 2535 MHz; Duty Cycle: 1:1
Medium: HSL_2600_220413 Medium parameters used: $f = 2535$ MHz; $\sigma = 1.978$ S/m; $\epsilon_r = 38.261$;
 $\rho = 1000$ kg/m³
Ambient Temperature : 23.4 °C; Liquid Temperature : 22.1 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3282; ConvF(4.48, 4.48, 4.48); Calibrated: 2021/11/4
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn 910; Calibrated: 2021/7/15
- Phantom: Twin-SAM1(P1aP2a20); Type: QD 000 P40 CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

Ch21100/Area Scan (91x91x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.395 W/kg

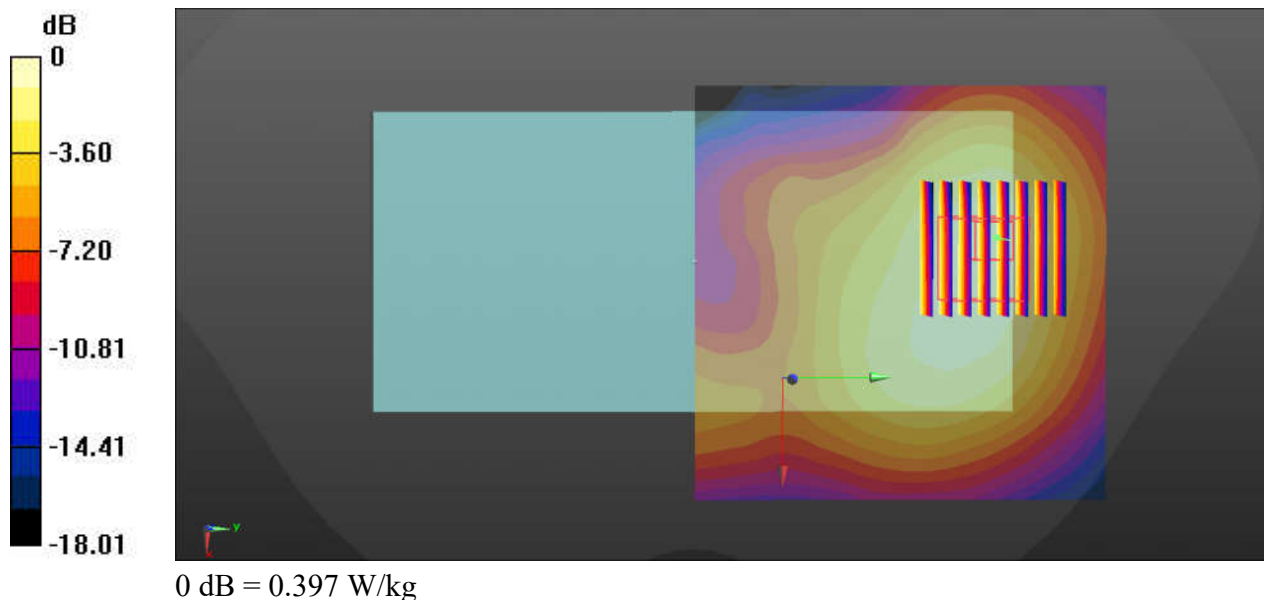
Ch21100/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 4.515 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 0.478 W/kg

SAR(1 g) = 0.265 W/kg; SAR(10 g) = 0.157 W/kg

Maximum value of SAR (measured) = 0.397 W/kg



88_LTE Band 38_20M_QPSK_1RB_0Offset_Back_15mm_Ch38000

Communication System: UID 0, Generic LTE (0); Frequency: 2595 MHz; Duty Cycle: 1:1.59
Medium: HSL_2600_220413 Medium parameters used: $f = 2595$ MHz; $\sigma = 2.047$ S/m; $\epsilon_r = 38.013$;
 $\rho = 1000$ kg/m³
Ambient Temperature : 23.4 °C; Liquid Temperature : 22.1 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3282; ConvF(4.48, 4.48, 4.48); Calibrated: 2021/11/4
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn 910; Calibrated: 2021/7/15
- Phantom: Twin-SAM1(P1aP2a20); Type: QD 000 P40 CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

Ch38000/Area Scan (91x91x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.339 W/kg

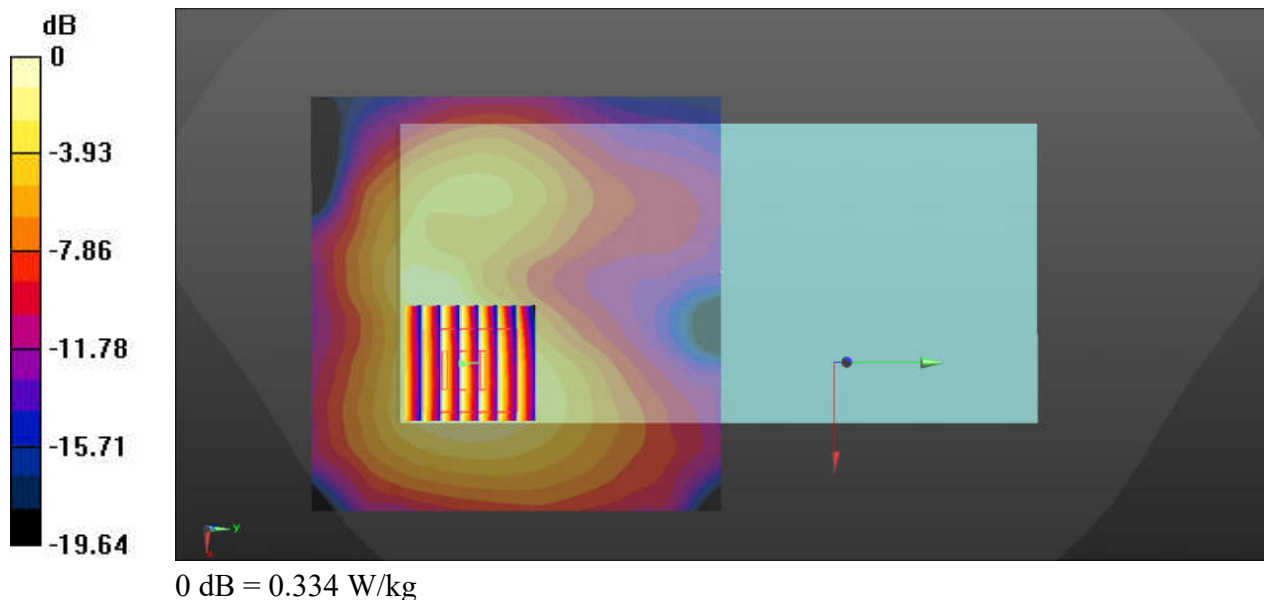
Ch38000/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 1.946 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 0.400 W/kg

SAR(1 g) = 0.228 W/kg; SAR(10 g) = 0.131 W/kg

Maximum value of SAR (measured) = 0.334 W/kg



89_LTE Band 41_20M_QPSK_1RB_0Offset_Back_15mm_Ch40620

Communication System: UID 0, Generic LTE (0); Frequency: 2593 MHz; Duty Cycle: 1:1.59
Medium: HSL_2600_220413 Medium parameters used: $f = 2593$ MHz; $\sigma = 2.044$ S/m; $\epsilon_r = 38.026$;
 $\rho = 1000$ kg/m³
Ambient Temperature : 23.4 °C; Liquid Temperature : 22.1 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3282; ConvF(4.48, 4.48, 4.48); Calibrated: 2021/11/4
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn 910; Calibrated: 2021/7/15
- Phantom: Twin-SAM1(P1aP2a20); Type: QD 000 P40 CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

Ch40620/Area Scan (91x91x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.344 W/kg

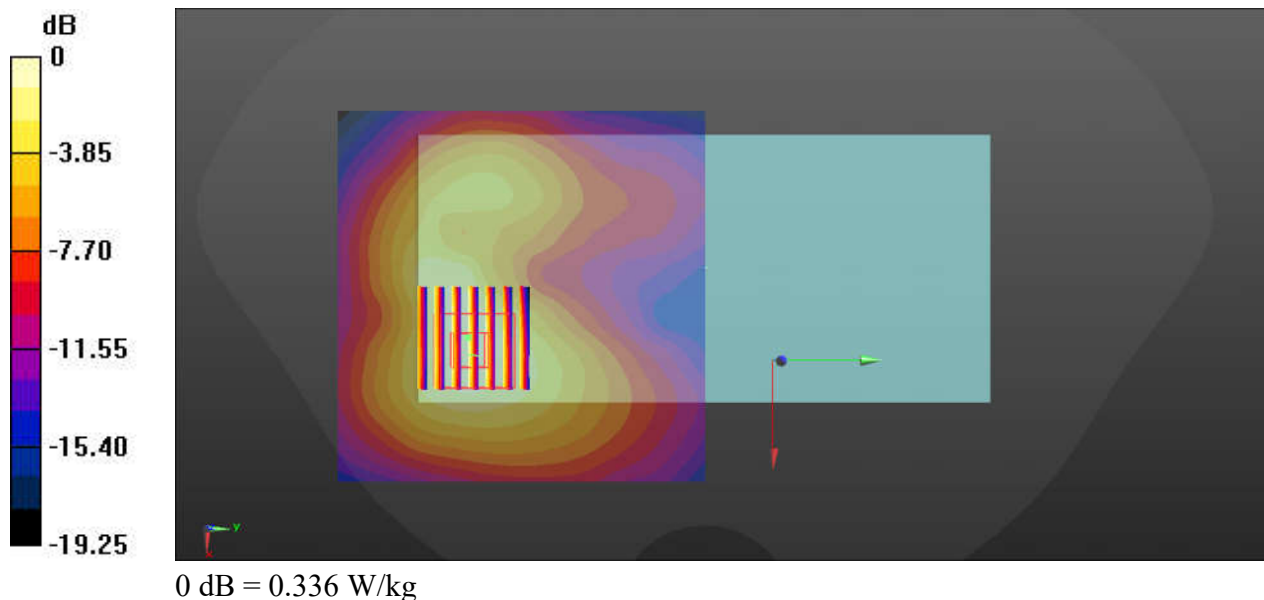
Ch40620/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 2.172 V/m; Power Drift = -0.12 dB

Peak SAR (extrapolated) = 0.404 W/kg

SAR(1 g) = 0.228 W/kg; SAR(10 g) = 0.131 W/kg

Maximum value of SAR (measured) = 0.336 W/kg



90_FR1 n7_20M_BPSK_50RB_28Offset_DFT-15_Back_15mm_Ch507000

Communication System: UID 0, N7 (0); Frequency: 2535 MHz; Duty Cycle: 1:1

Medium: HSL_2600_220413 Medium parameters used: $f = 2535$ MHz; $\sigma = 1.978$ S/m; $\epsilon_r = 38.261$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.4 °C; Liquid Temperature : 22.1 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3282; ConvF(4.48, 4.48, 4.48); Calibrated: 2021/11/4
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn 910; Calibrated: 2021/7/15
- Phantom: Twin-SAM1(P1aP2a20); Type: QD 000 P40 CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

Ch507000/Area Scan (81x101x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.281 W/kg

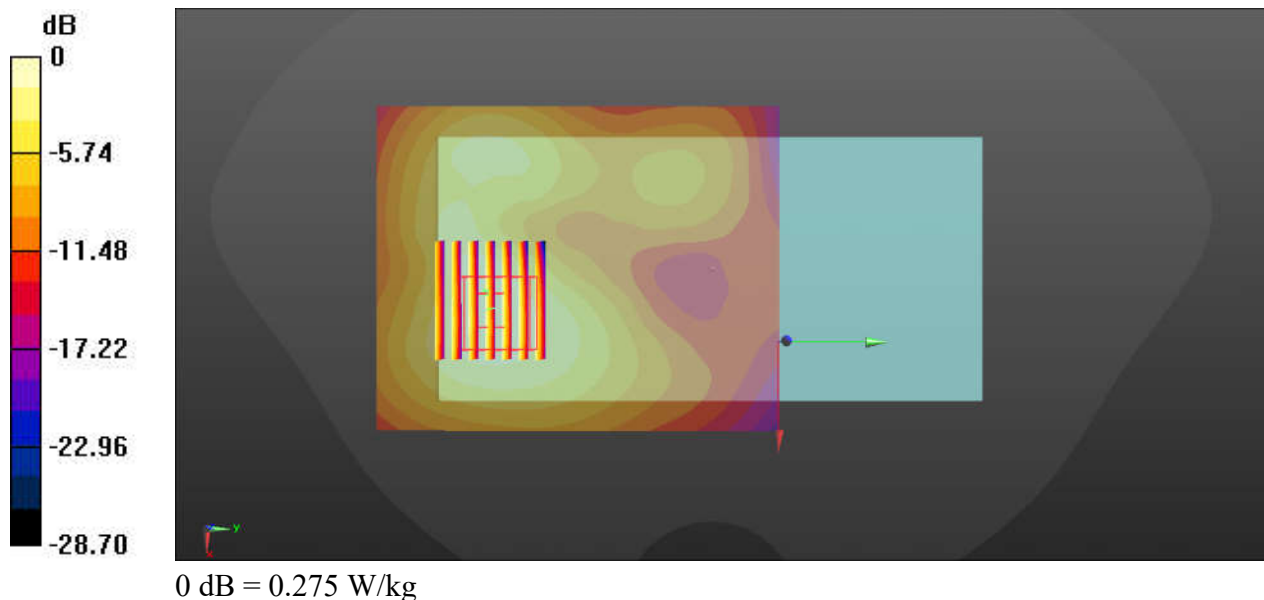
Ch507000/Zoom Scan (8x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 2.423 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.424 W/kg

SAR(1 g) = 0.225 W/kg; SAR(10 g) = 0.122 W/kg

Maximum value of SAR (measured) = 0.275 W/kg



91_FR1 n38_40M_BPSK_1RB_1Offset_DFT-30_Back_15mm_Ch519000

Communication System: UID 0, 5G NR (0); Frequency: 2595 MHz; Duty Cycle: 1:1
Medium: HSL_2600_220413 Medium parameters used: $f = 2595$ MHz; $\sigma = 2.047$ S/m; $\epsilon_r = 38.013$;
 $\rho = 1000$ kg/m³
Ambient Temperature : 23.4 °C; Liquid Temperature : 22.1 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3282; ConvF(4.48, 4.48, 4.48); Calibrated: 2021/11/4
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn 910; Calibrated: 2021/7/15
- Phantom: Twin-SAM1(P1aP2a20); Type: QD 000 P40 CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

Ch519000/Area Scan (81x101x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.296 W/kg

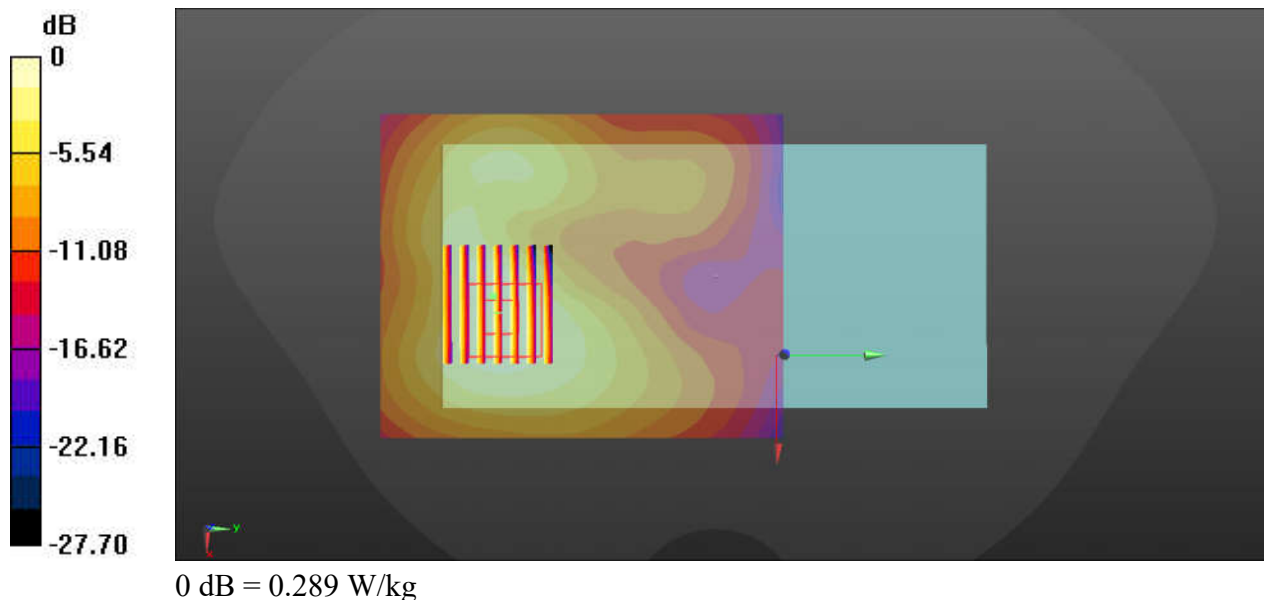
Ch519000/Zoom Scan (8x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 2.200 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 0.438 W/kg

SAR(1 g) = 0.235 W/kg; SAR(10 g) = 0.127 W/kg

Maximum value of SAR (measured) = 0.289 W/kg



92_FR1 n41_100M_BPSK_1RB_1Offset_DFT-30_Back_15mm_Ch518598

Communication System: UID 0, 5G NR (0); Frequency: 2592.99 MHz; Duty Cycle: 1:1
Medium: HSL_2600_220413 Medium parameters used: $f = 2593$ MHz; $\sigma = 2.044$ S/m; $\epsilon_r = 38.026$;
 $\rho = 1000$ kg/m³
Ambient Temperature : 23.4 °C; Liquid Temperature : 22.1 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3282; ConvF(4.48, 4.48, 4.48); Calibrated: 2021/11/4
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn 910; Calibrated: 2021/7/15
- Phantom: Twin-SAM1(P1aP2a20); Type: QD 000 P40 CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

Ch518598/Area Scan (91x161x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.261 W/kg

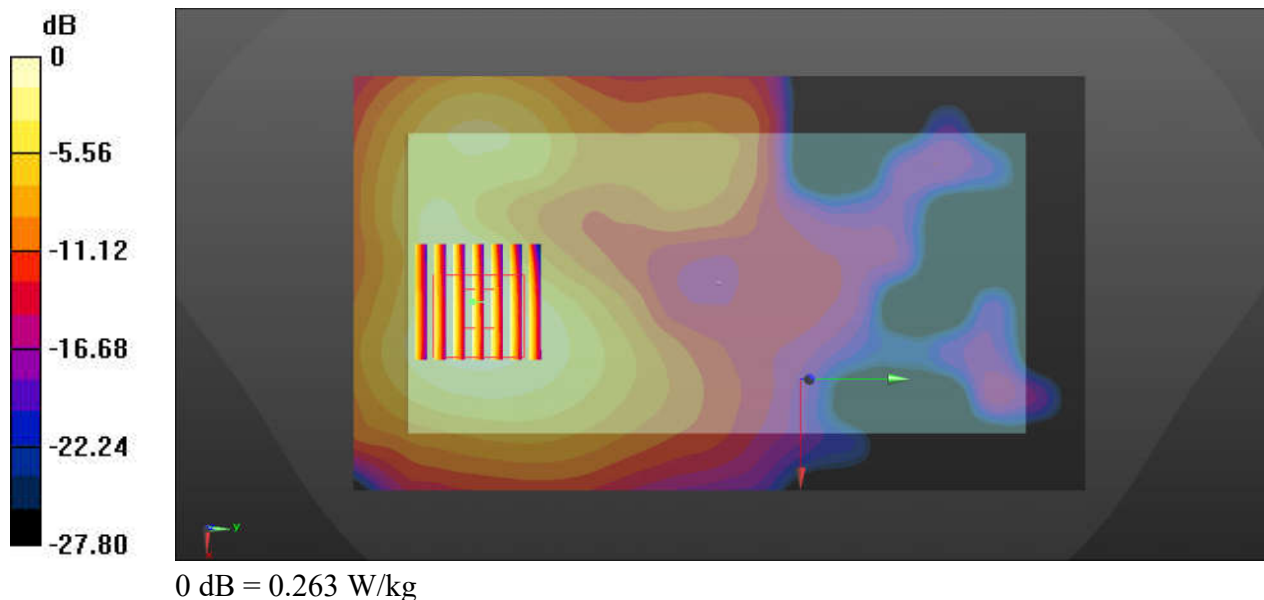
Ch518598/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 1.314 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.398 W/kg

SAR(1 g) = 0.213 W/kg; SAR(10 g) = 0.115 W/kg

Maximum value of SAR (measured) = 0.263 W/kg



93_LTE Band 42_20M_QPSK_1RB_0Offset_Back_15mm_Ch42590

Communication System: UID 0, Generic LTE (0); Frequency: 3500 MHz; Duty Cycle: 1:1.59
Medium: HSL_3500_220414 Medium parameters used: $f = 3500$ MHz; $\sigma = 2.887$ S/m; $\epsilon_r = 38.379$;
 $\rho = 1000$ kg/m³
Ambient Temperature : 23.8 °C; Liquid Temperature : 22.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(6.77, 6.77, 6.77); Calibrated: 2021/4/30
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn 715; Calibrated: 2021/12/29
- Phantom: Twin-SAM1(P1aP2a20); Type: QD 000 P40 CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

Ch42590/Area Scan (101x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.900 W/kg

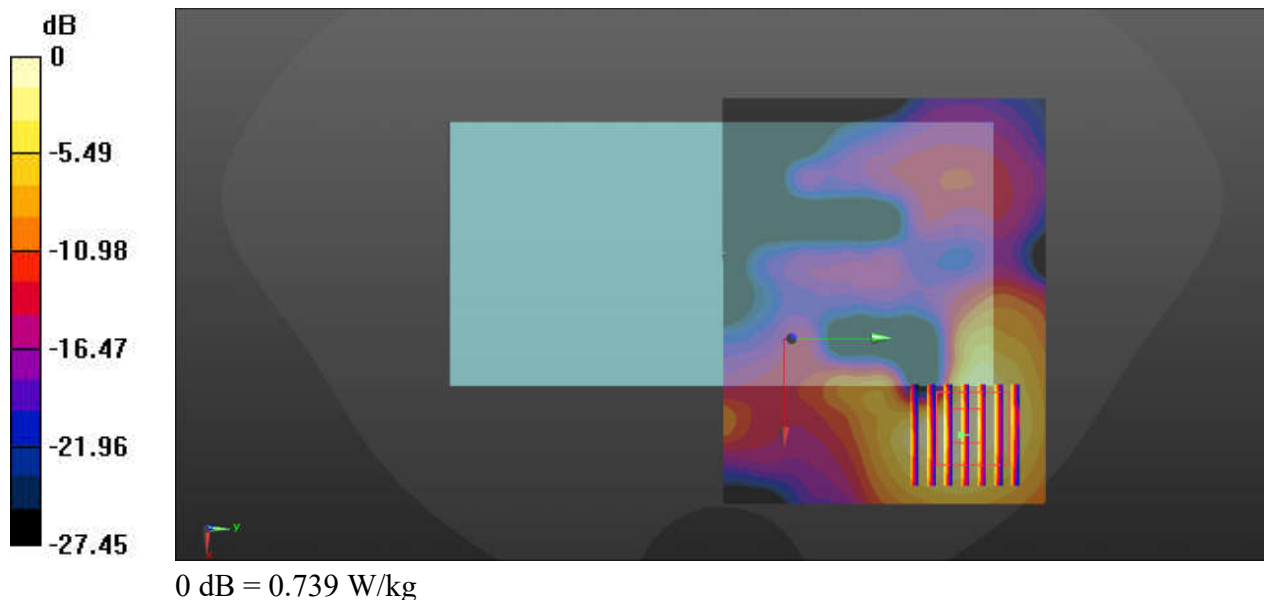
Ch42590/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=1.4mm

Reference Value = 0.9720 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 1.02 W/kg

SAR(1 g) = 0.428 W/kg; SAR(10 g) = 0.187 W/kg

Maximum value of SAR (measured) = 0.739 W/kg



94_FR1 n77_100M_BPSK_135RB_69Offset_DFT-30_Back_15mm_Ch656000

Communication System: UID 0, 5GNR (0); Frequency: 3840 MHz; Duty Cycle: 1:1

Medium: HSL_3900_220416 Medium parameters used: $f = 3840$ MHz; $\sigma = 3.186$ S/m; $\epsilon_r = 39.189$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.6 °C; Liquid Temperature : 22.2 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(6.48, 6.48, 6.48); Calibrated: 2021/4/30
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn 715; Calibrated: 2021/12/29
- Phantom: Twin-SAM1(P1aP2a20); Type: QD 000 P40 CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

Ch656000/Area Scan (91x161x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.0868 W/kg

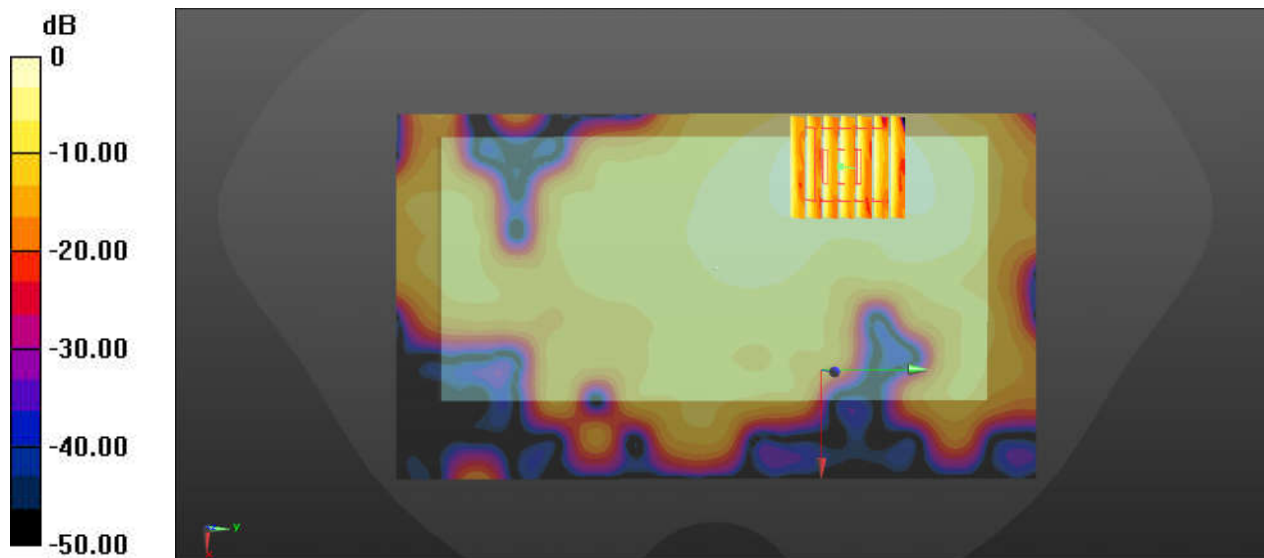
Ch656000/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=1.4mm

Reference Value = 0.4860 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 0.117 W/kg

SAR(1 g) = 0.048 W/kg; SAR(10 g) = 0.020 W/kg

Maximum value of SAR (measured) = 0.0864 W/kg



95_FR1 n78_100M_BPSK_1RB_1Offset_DFT-30_Back_15mm_Ch633334

Communication System: UID 0, 5GNR (0); Frequency: 3500.01 MHz; Duty Cycle: 1:1
Medium: HSL_3500_220414 Medium parameters used: $f = 3500.01$ MHz; $\sigma = 2.892$ S/m; $\epsilon_r = 36.653$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.8 °C; Liquid Temperature : 22.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(6.77, 6.77, 6.77); Calibrated: 2021/4/30
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn 715; Calibrated: 2021/12/29
- Phantom: Twin-SAM1(P1aP2a20); Type: QD 000 P40 CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

Ch633334/Area Scan (91x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.124 W/kg

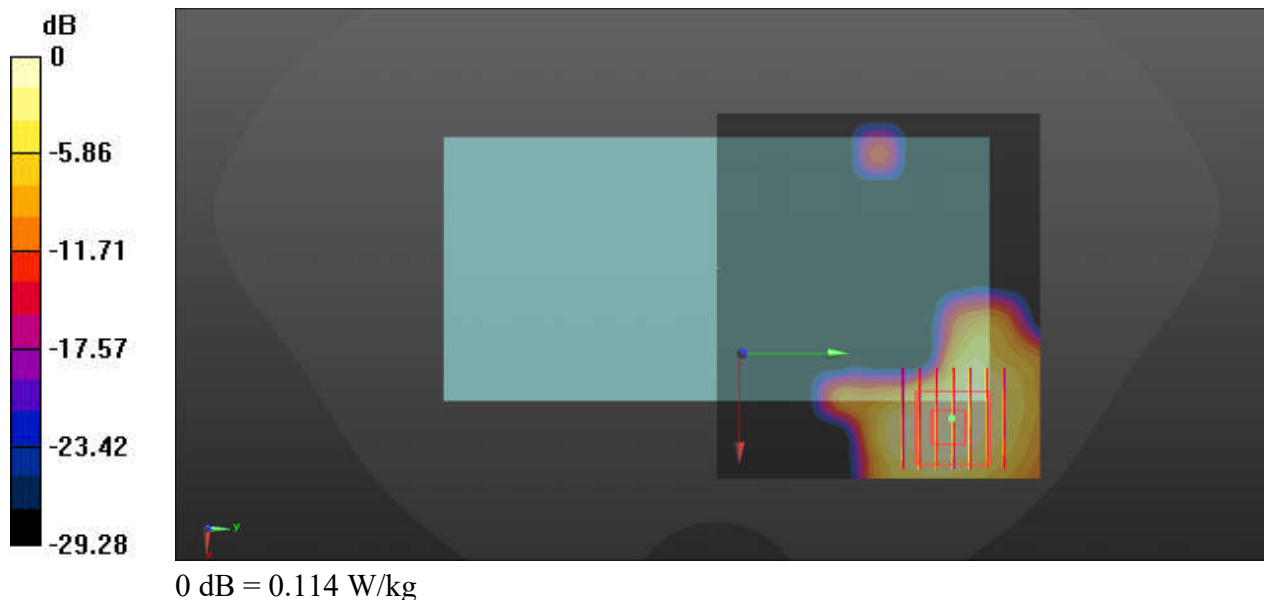
Ch633334/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=1.4mm

Reference Value = 0 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 0.152 W/kg

SAR(1 g) = 0.068 W/kg; SAR(10 g) = 0.031 W/kg

Maximum value of SAR (measured) = 0.114 W/kg



96_WLAN5GHz_802.11a 6Mbps_Back_15mm_Ch52

Communication System: UID 0, WIFI (0); Frequency: 5260 MHz; Duty Cycle: 1:1.01

Medium: HSL_5250_220417 Medium parameters used: $f = 5260$ MHz; $\sigma = 4.862$ S/m; $\epsilon_r = 35.403$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.7 °C; Liquid Temperature : 22.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(5.02, 5.02, 5.02); Calibrated: 2021/4/30
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn 715; Calibrated: 2021/12/29
- Phantom: Twin-SAM1(P1aP2a20); Type: QD 000 P40 CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

Ch52/Area Scan (101x111x1): Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 0.594 W/kg

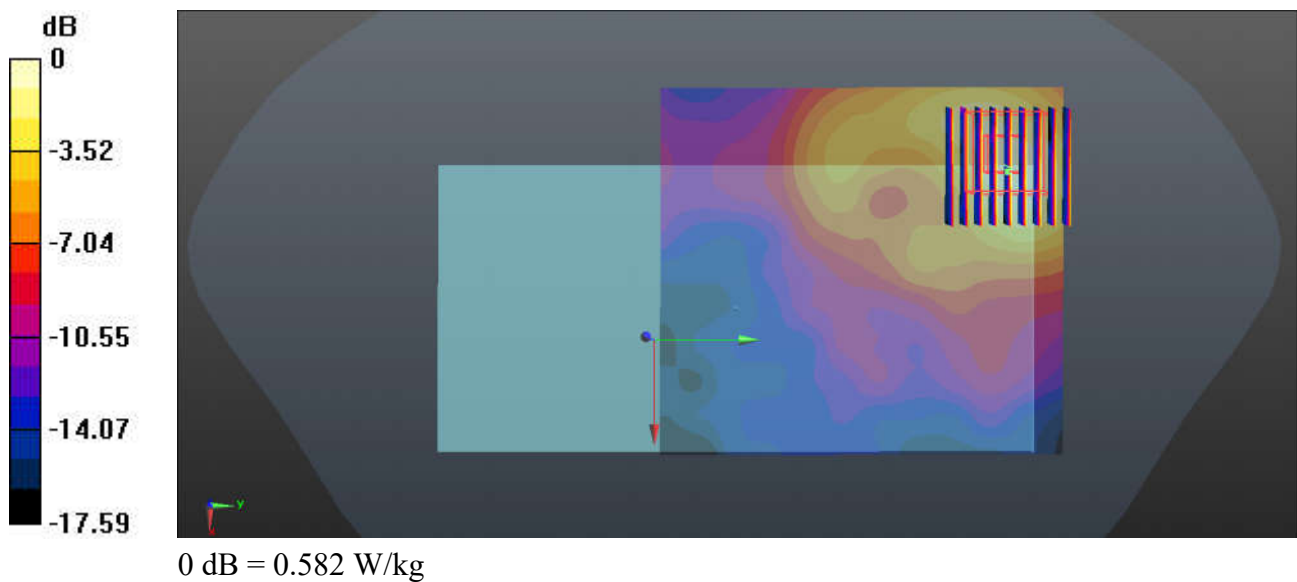
Ch52/Zoom Scan (9x9x7)/Cube 0: Measurement grid: $dx=4$ mm, $dy=4$ mm, $dz=1.4$ mm

Reference Value = 2.431 V/m; Power Drift = -0.16 dB

Peak SAR (extrapolated) = 0.794 W/kg

SAR(1 g) = 0.281 W/kg; SAR(10 g) = 0.115 W/kg

Maximum value of SAR (measured) = 0.582 W/kg



97_WLAN5GHz_802.11a 6Mbps_Back_15mm_Ch116

Communication System: UID 0, WIFI (0); Frequency: 5580 MHz; Duty Cycle: 1:1.01

Medium: HSL_5600_220418 Medium parameters used: $f = 5580$ MHz; $\sigma = 5.21$ S/m; $\epsilon_r = 34.766$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.1 °C; Liquid Temperature : 22.1 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(4.51, 4.51, 4.51); Calibrated: 2021/4/30
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn 715; Calibrated: 2021/12/29
- Phantom: Twin-SAM1(P1aP2a20); Type: QD 000 P40 CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

Ch116/Area Scan (111x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.557 W/kg

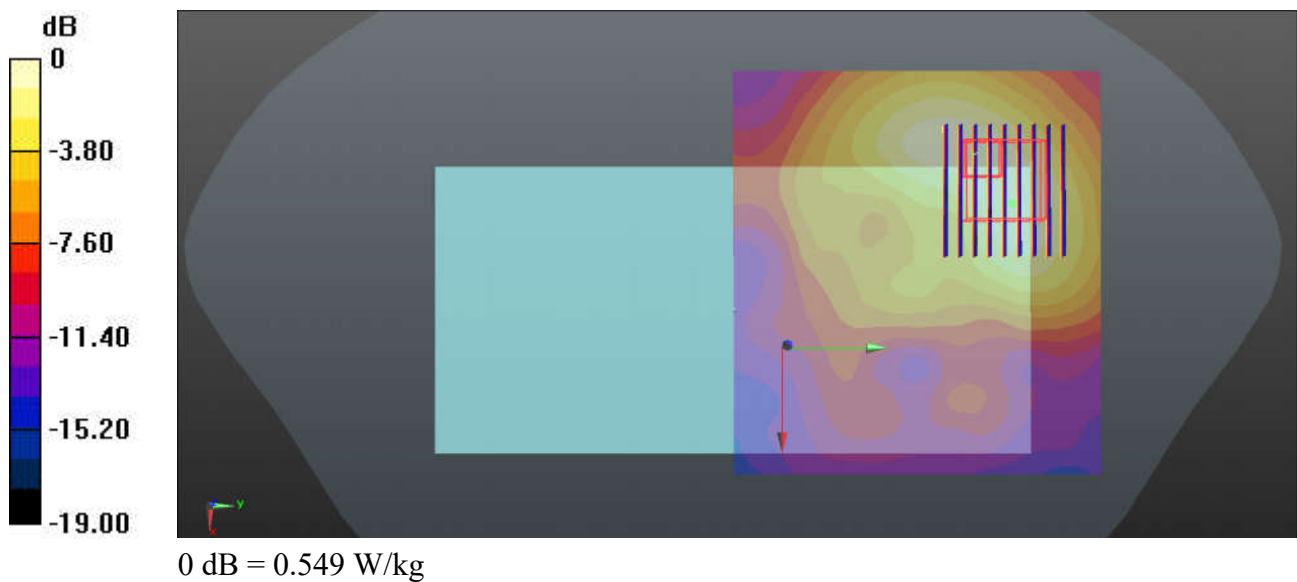
Ch116/Zoom Scan (10x9x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 2.951 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 0.849 W/kg

SAR(1 g) = 0.264 W/kg; SAR(10 g) = 0.122 W/kg

Maximum value of SAR (measured) = 0.549 W/kg



98_WLAN5GHz_802.11ac-VHT80 MCS0_Back_15mm_Ch155

Communication System: UID 0, WIFI (0); Frequency: 5775 MHz; Duty Cycle: 1:1

Medium: HSL_5750_220419 Medium parameters used: $f = 5775$ MHz; $\sigma = 5.405$ S/m; $\epsilon_r = 34.39$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.7 °C; Liquid Temperature : 22.7 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(4.62, 4.62, 4.62); Calibrated: 2021/4/30
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn 715; Calibrated: 2021/12/29
- Phantom: Twin-SAM1(P1aP2a20); Type: QD 000 P40 CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

Ch155/Area Scan (101x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.135 W/kg

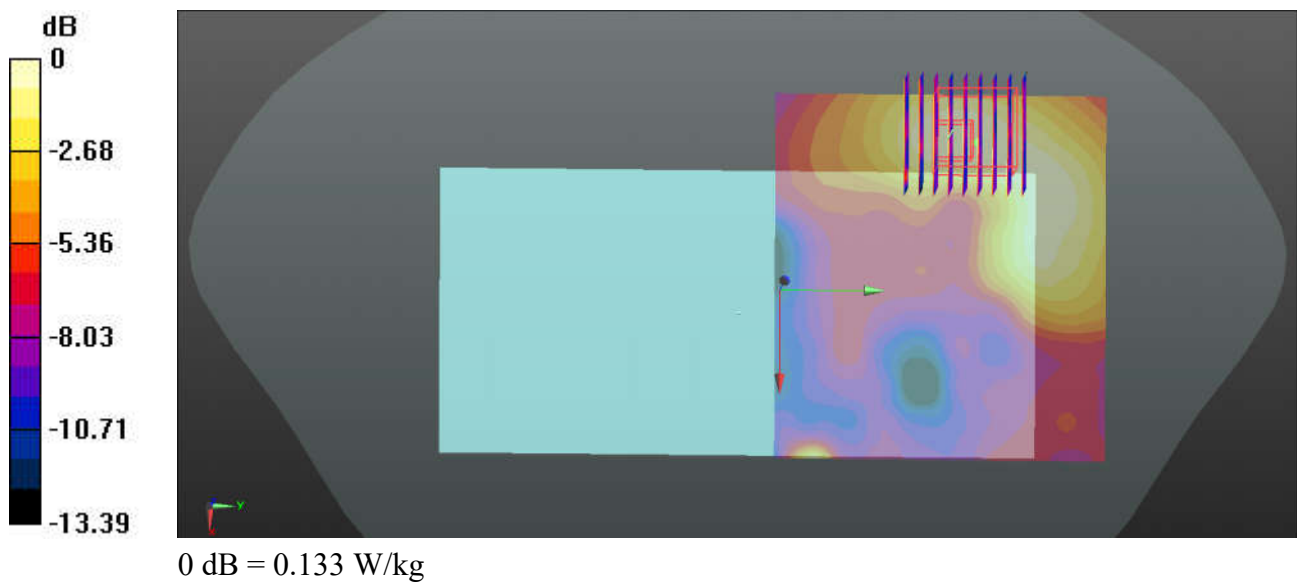
Ch155/Zoom Scan (9x9x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 1.236 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 0.243 W/kg

SAR(1 g) = 0.067 W/kg; SAR(10 g) = 0.034 W/kg

Maximum value of SAR (measured) = 0.133 W/kg



99_WCDMA IV_RMC 12.2Kbps_Top Side_0mm_Ch1413

Communication System: UID 0, UMTS (0); Frequency: 1732.6 MHz; Duty Cycle: 1:1
Medium: HSL_1750_220328 Medium parameters used: $f = 1733$ MHz; $\sigma = 1.387$ S/m; $\epsilon_r = 41.785$;
 $\rho = 1000$ kg/m³
Ambient Temperature : 23.4 °C; Liquid Temperature : 22.5 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3282; ConvF(5.33, 5.33, 5.33); Calibrated: 2021/11/4
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn 910; Calibrated: 2021/7/15
- Phantom: Twin-SAM1(P1aP2a20); Type: QD 000 P40 CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

Ch1413/Area Scan (41x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 2.53 W/kg

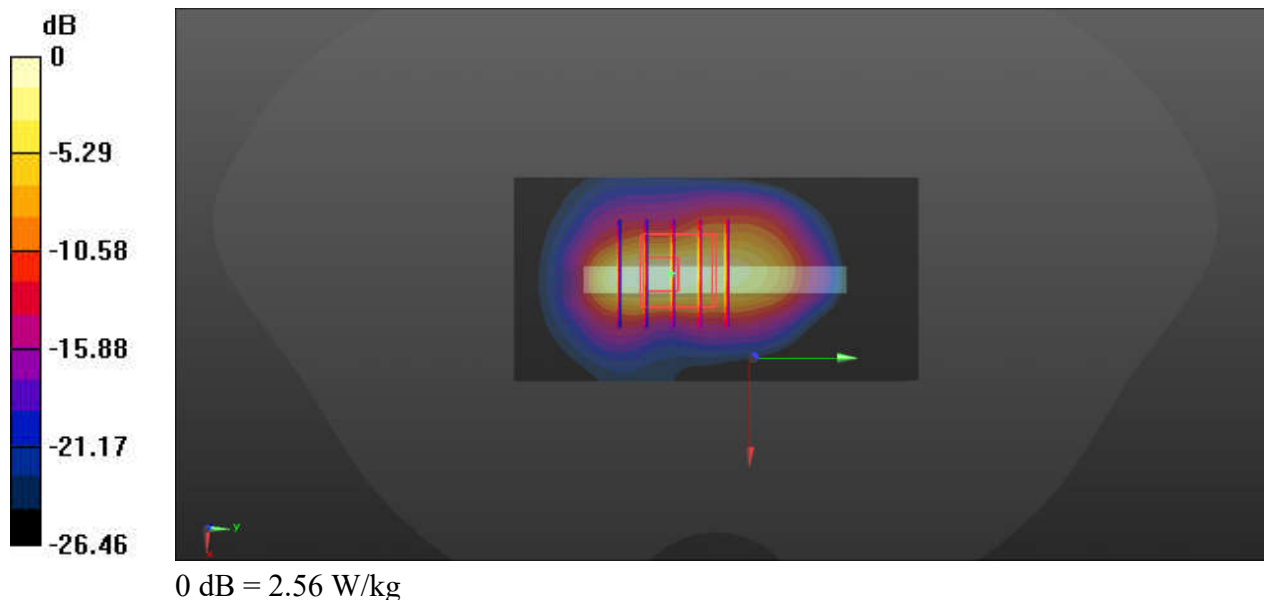
Ch1413/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 34.82 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 4.44 W/kg

SAR(1 g) = 1.59 W/kg; SAR(10 g) = 0.616 W/kg

Maximum value of SAR (measured) = 2.56 W/kg



100_LTE Band 4_20M_QPSK_50RB_0Offset_Top Side_0mm_Ch20175

Communication System: UID 0, LTE (0); Frequency: 1732.5 MHz; Duty Cycle: 1:1
Medium: HSL_1750_220328 Medium parameters used: $f = 1732.5$ MHz; $\sigma = 1.386$ S/m; $\epsilon_r = 41.788$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.4 °C; Liquid Temperature : 22.5 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3282; ConvF(5.33, 5.33, 5.33); Calibrated: 2021/11/4
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn 910; Calibrated: 2021/7/15
- Phantom: Twin-SAM1(P1aP2a20); Type: QD 000 P40 CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

Ch20175/Area Scan (41x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 3.46 W/kg

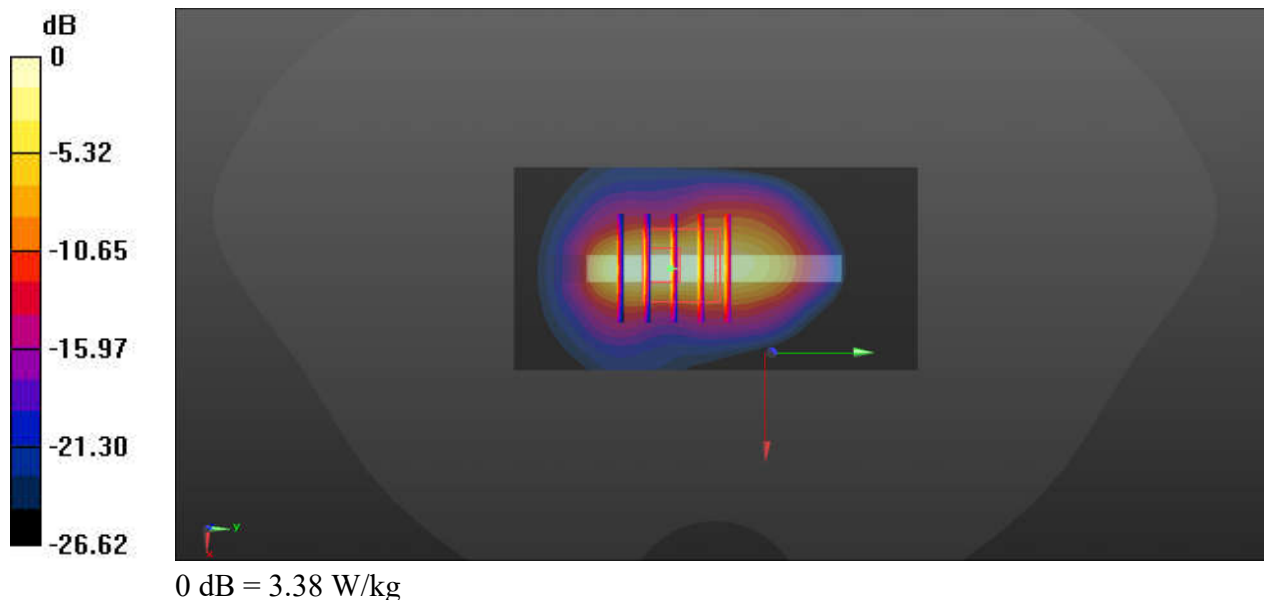
Ch20175/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 42.01 V/m; Power Drift = 0.16 dB

Peak SAR (extrapolated) = 5.77 W/kg

SAR(1 g) = 2.1 W/kg; SAR(10 g) = 0.822 W/kg

Maximum value of SAR (measured) = 3.38 W/kg



101_LTE Band 66_20M_QPSK_50RB_0Offset_Top Side_0mm_Ch132322

Communication System: UID 0, LTE (0); Frequency: 1745 MHz; Duty Cycle: 1:1

Medium: HSL_1750_220328 Medium parameters used: $f = 1745$ MHz; $\sigma = 1.401$ S/m; $\epsilon_r = 41.733$;

$\rho = 1000$ kg/m³

Ambient Temperature : 23.4 °C; Liquid Temperature : 22.5 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3282; ConvF(5.33, 5.33, 5.33); Calibrated: 2021/11/4
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn 910; Calibrated: 2021/7/15
- Phantom: Twin-SAM1(P1aP2a20); Type: QD 000 P40 CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

Ch132322/Area Scan (41x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.81 W/kg

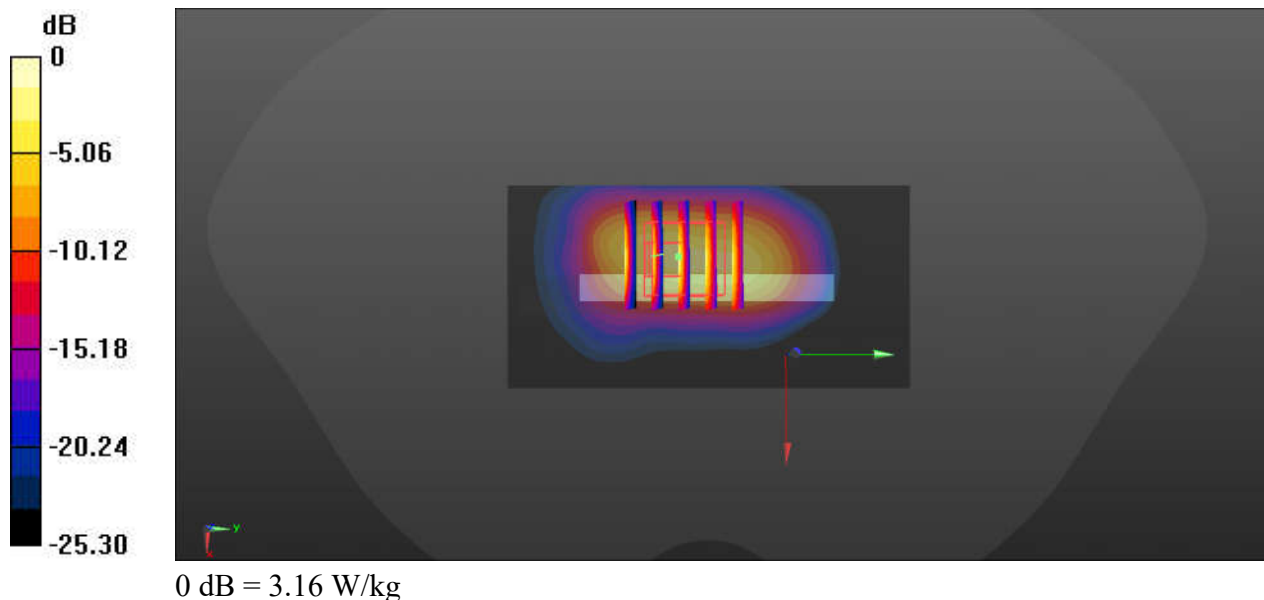
Ch132322/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 25.92 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 5.26 W/kg

SAR(1 g) = 1.98 W/kg; SAR(10 g) = 0.781 W/kg

Maximum value of SAR (measured) = 3.16 W/kg



102_GSM1900_EDGE(4 Tx slots)_Top Side_0mm_Ch661

Communication System: UID 0, GPRS/EDGE12 (0); Frequency: 1880 MHz; Duty Cycle: 1:2.77
Medium: HSL_1900_220411 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.418$ S/m; $\epsilon_r = 40.128$;
 $\rho = 1000$ kg/m³
Ambient Temperature : 23.6 °C; Liquid Temperature : 22.6 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3282; ConvF(5.10, 5.10, 5.10); Calibrated: 2021/11/4
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn 910; Calibrated: 2021/7/15
- Phantom: Twin-SAM1(P1aP2a20); Type: QD 000 P40 CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

Ch661/Area Scan (41x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.66 W/kg

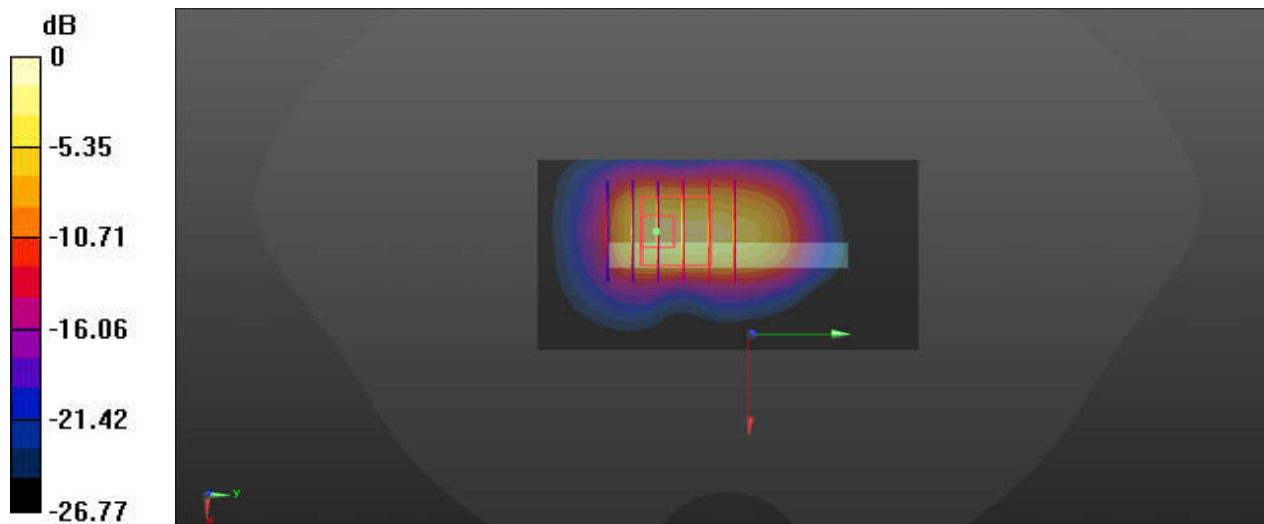
Ch661/Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 23.20 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 5.52 W/kg

SAR(1 g) = 1.69 W/kg; SAR(10 g) = 0.624 W/kg

Maximum value of SAR (measured) = 2.71 W/kg



0 dB = 2.71 W/kg

103_WCDMA II_RMC 12.2Kbps_Top Side_0mm_Ch9400

Communication System: UID 0, UMTS (0); Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: HSL_1900_220411 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.418$ S/m; $\epsilon_r = 40.128$;
 $\rho = 1000$ kg/m³
Ambient Temperature : 23.6 °C; Liquid Temperature : 22.6 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3282; ConvF(5.10, 5.10, 5.10); Calibrated: 2021/11/4
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn 910; Calibrated: 2021/7/15
- Phantom: Twin-SAM1(P1aP2a20); Type: QD 000 P40 CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

Ch9400/Area Scan (41x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.31 W/kg

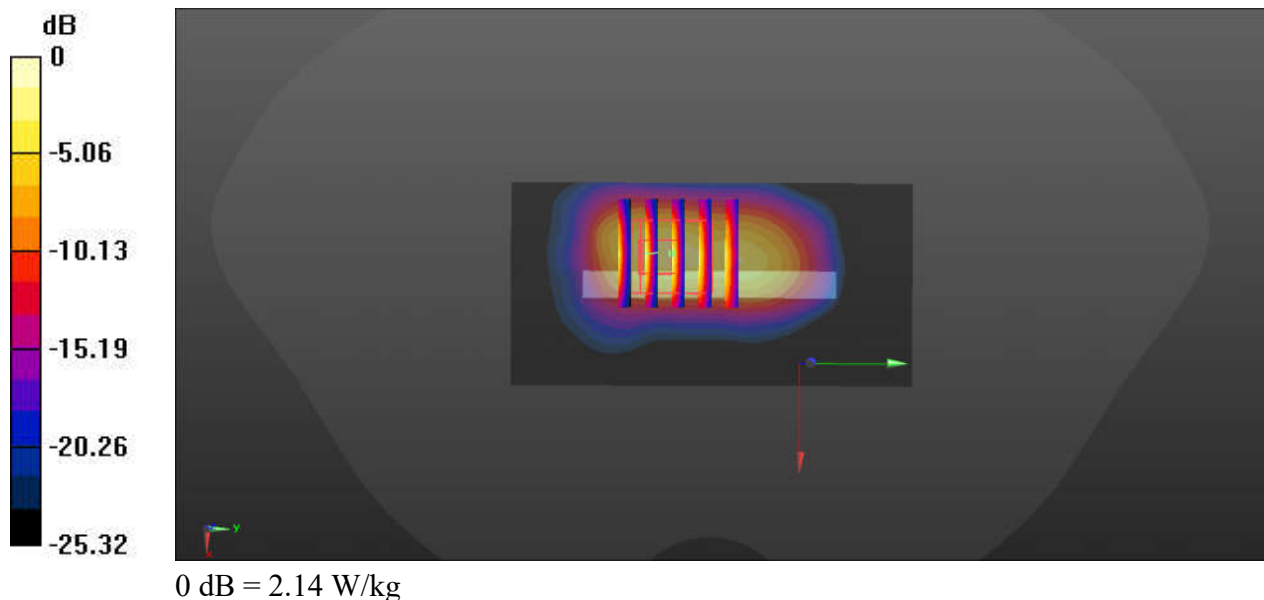
Ch9400/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 19.96 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 3.83 W/kg

SAR(1 g) = 1.39 W/kg; SAR(10 g) = 0.520 W/kg

Maximum value of SAR (measured) = 2.14 W/kg



104_LTE Band 2_20M_QPSK_50RB_0Offset_Top Side_0mm_Ch18900

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

Medium: HSL_1900_220411 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.418$ S/m; $\epsilon_r = 40.128$;
 $\rho = 1000$ kg/m³

Ambient Temperature : 23.6 °C; Liquid Temperature : 22.6 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3282; ConvF(5.10, 5.10, 5.10); Calibrated: 2021/11/4
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn 910; Calibrated: 2021/7/15
- Phantom: Twin-SAM1(P1aP2a20); Type: QD 000 P40 CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

Ch18900/Area Scan (41x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 2.77 W/kg

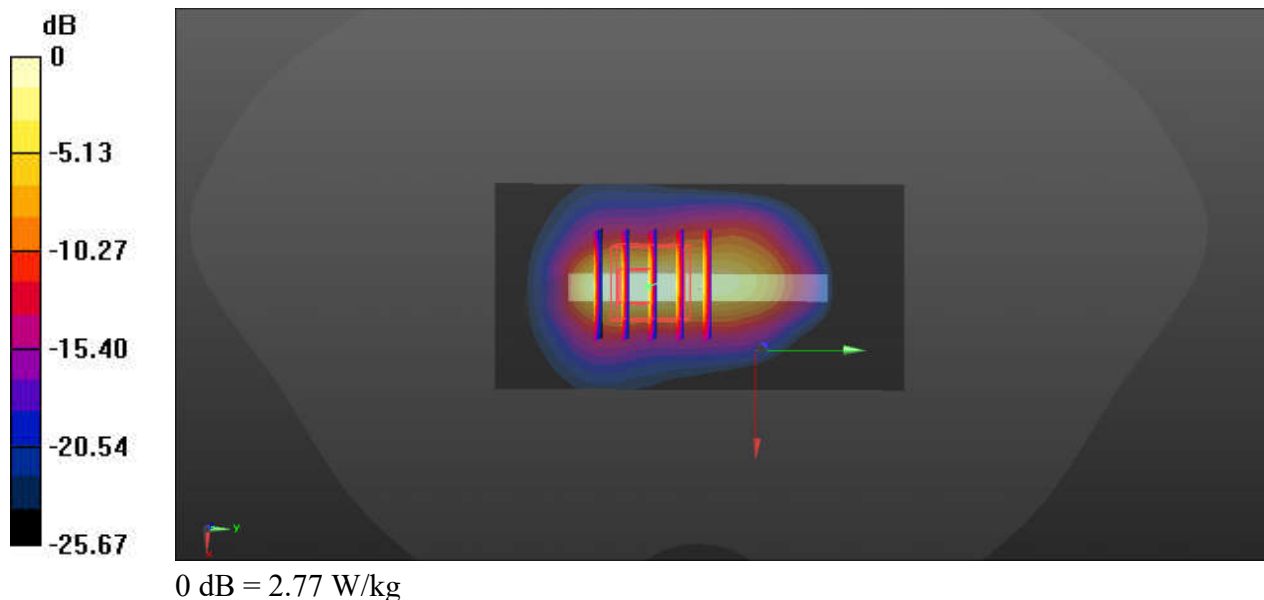
Ch18900/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 36.13 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 5.11 W/kg

SAR(1 g) = 1.82 W/kg; SAR(10 g) = 0.678 W/kg

Maximum value of SAR (measured) = 2.77 W/kg



105_FR1 n2_20M_BPSK_50RB_28Offset_DFT-15_Top Side_0mm_Ch376000

Communication System: UID 0, 5GNR (0); Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: HSL_1900_220411 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.418$ S/m; $\epsilon_r = 40.128$;
 $\rho = 1000$ kg/m³
Ambient Temperature : 23.6 °C; Liquid Temperature : 22.6 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3282; ConvF(5.10, 5.10, 5.10); Calibrated: 2021/11/4
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn 910; Calibrated: 2021/7/15
- Phantom: Twin-SAM1(P1aP2a20); Type: QD 000 P40 CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

Ch376000/Area Scan (41x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 2.81 W/kg

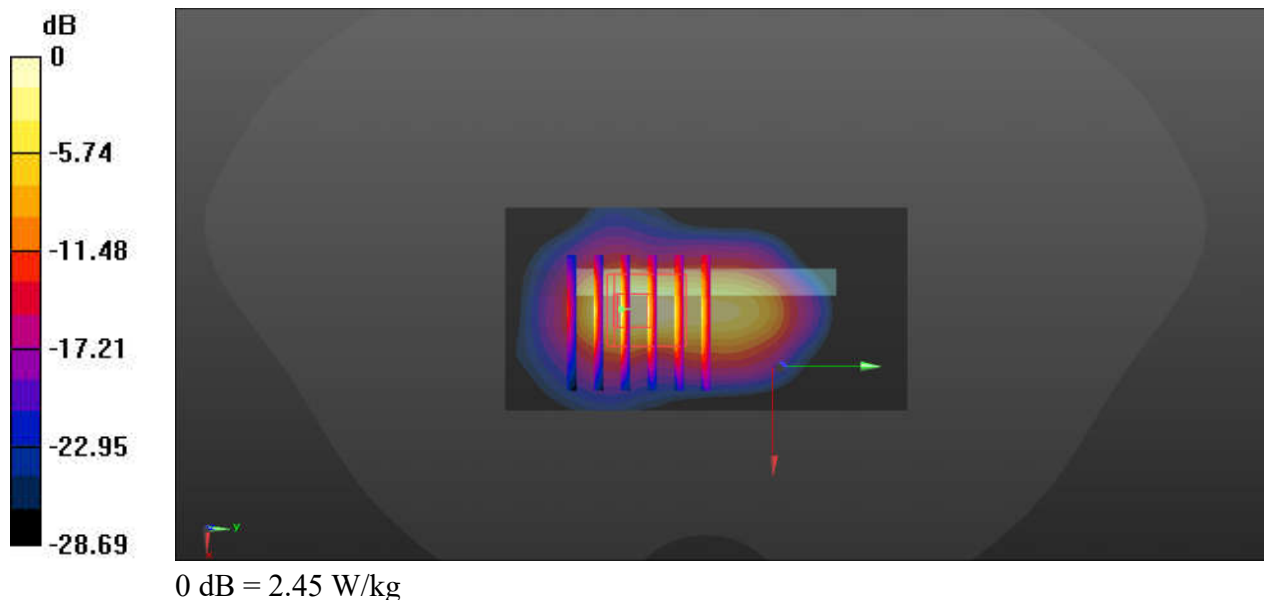
Ch376000/Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 30.61 V/m; Power Drift = -0.13 dB

Peak SAR (extrapolated) = 3.34 W/kg

SAR(1 g) = 1.17 W/kg; SAR(10 g) = 0.455 W/kg

Maximum value of SAR (measured) = 2.45 W/kg



106_LTE Band 7_20M_QPSK_50RB_0Offset_Top Side_0mm_Ch21100

Communication System: UID 0, LTE (0); Frequency: 2535 MHz; Duty Cycle: 1:1

Medium: HSL_2600_220413 Medium parameters used: $f = 2535$ MHz; $\sigma = 1.978$ S/m; $\epsilon_r = 38.261$;

$\rho = 1000$ kg/m³

Ambient Temperature : 23.4 °C; Liquid Temperature : 22.1 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3282; ConvF(4.48, 4.48, 4.48); Calibrated: 2021/11/4
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn 910; Calibrated: 2021/7/15
- Phantom: Twin-SAM1(P1aP2a20); Type: QD 000 P40 CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

Ch21100/Area Scan (51x101x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 5.59 W/kg

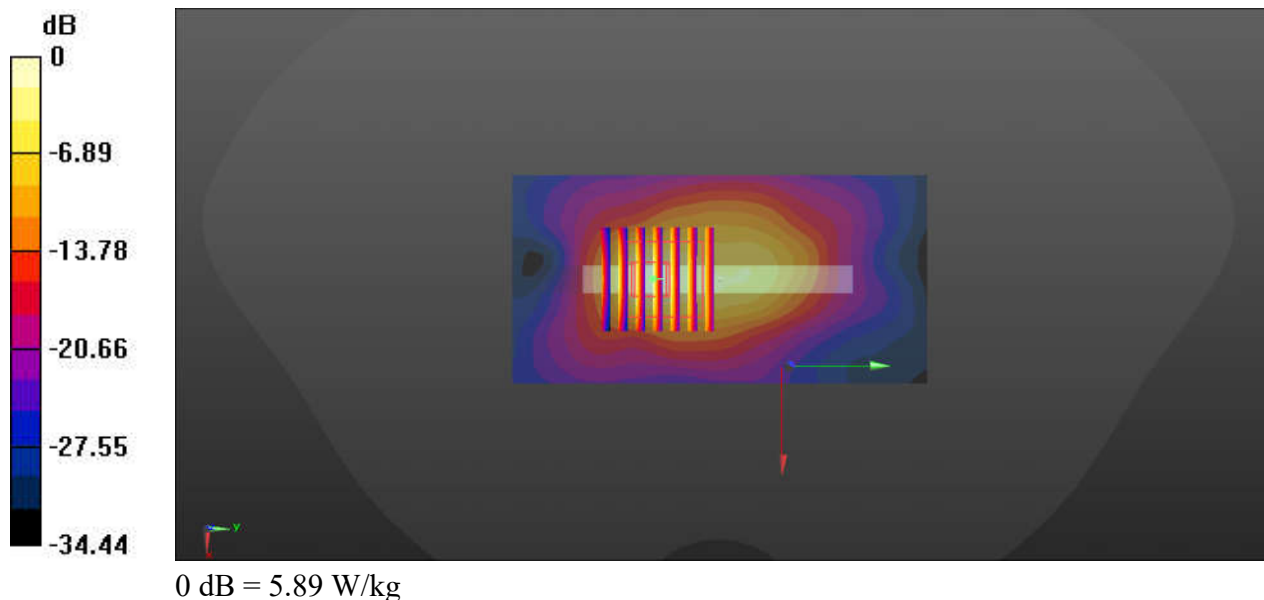
Ch21100/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 34.78 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 13.0 W/kg

SAR(1 g) = 3.87 W/kg; SAR(10 g) = 1.32 W/kg

Maximum value of SAR (measured) = 5.89 W/kg



107_FR1 n38_40M_BPSK_1RB_1Offset_DFT-30_Top Side_0mm_Ch519000

Communication System: UID 0, 5GNR (0); Frequency: 2595 MHz; Duty Cycle: 1:1

Medium: HSL_2600_220413 Medium parameters used: $f = 2595$ MHz; $\sigma = 2.047$ S/m; $\epsilon_r = 38.013$;
 $\rho = 1000$ kg/m³

Ambient Temperature : 23.4 °C; Liquid Temperature : 22.1 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3282; ConvF(4.48, 4.48, 4.48); Calibrated: 2021/11/4
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn 910; Calibrated: 2021/7/15
- Phantom: Twin-SAM1(P1aP2a20); Type: QD 000 P40 CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

Ch519000/Area Scan (51x101x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm Maximum value of SAR (interpolated) = 6.13 W/kg

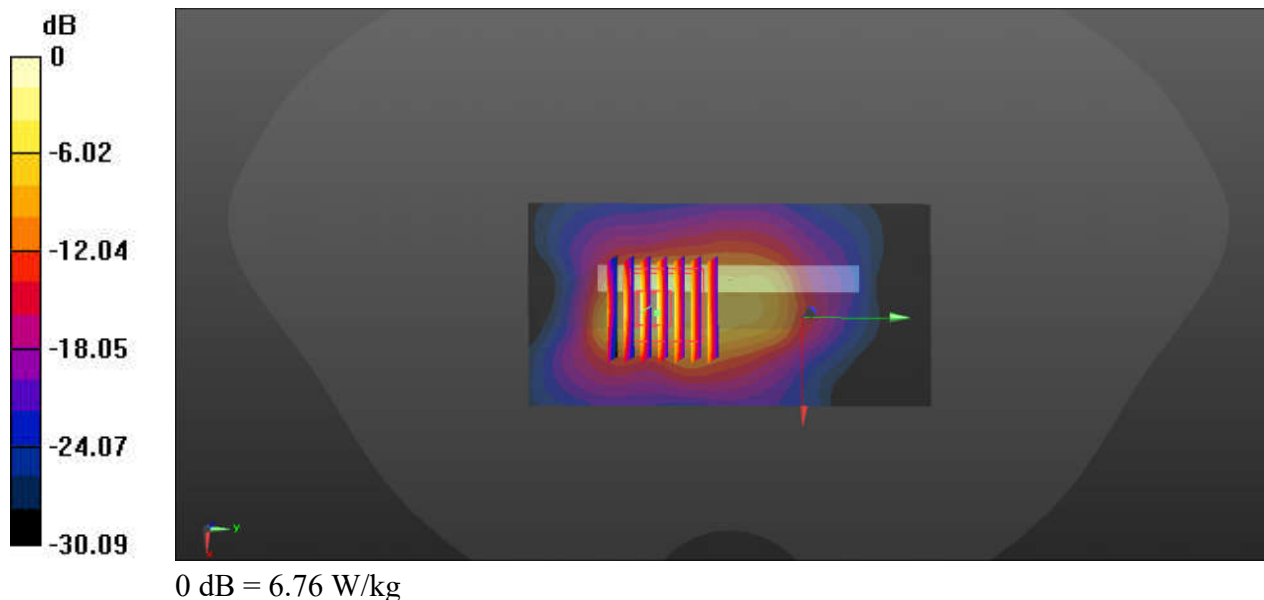
Ch519000/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 31.27 V/m; Power Drift = -0.15 dB

Peak SAR (extrapolated) = 9.72 W/kg

SAR(1 g) = 3.29 W/kg; SAR(10 g) = 1.21 W/kg

Maximum value of SAR (measured) = 6.76 W/kg



108_LTE Band 42_20M_QPSK_50RB_0Offset_Left Side_0mm_Ch42590

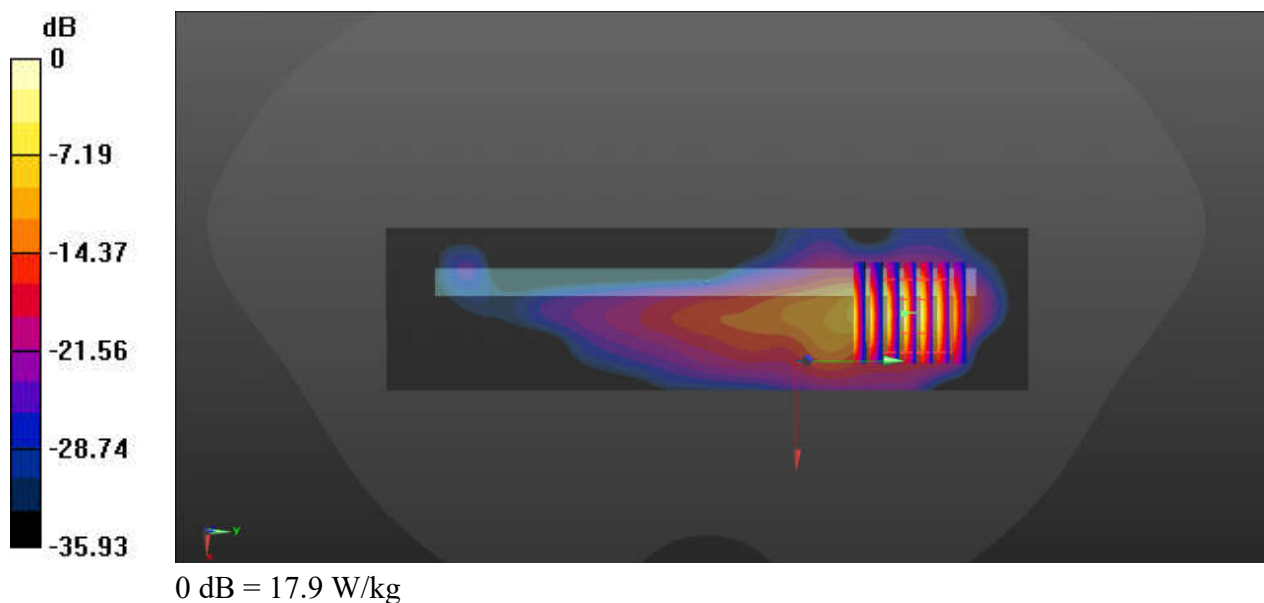
Communication System: UID 0, Generic LTE (0); Frequency: 3500 MHz; Duty Cycle: 1:1.59
Medium: HSL_3500_220414 Medium parameters used: $f = 3500$ MHz; $\sigma = 2.887$ S/m; $\epsilon_r = 38.379$;
 $\rho = 1000$ kg/m³
Ambient Temperature : 23.8 °C; Liquid Temperature : 22.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(6.77, 6.77, 6.77); Calibrated: 2021/4/30
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn 715; Calibrated: 2021/12/29
- Phantom: Twin-SAM1(P1aP2a20); Type: QD 000 P40 CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

Ch42590/Area Scan (41x161x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 15.6 W/kg

Ch42590/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=1.4mm
Reference Value = 13.90 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 32.4 W/kg
SAR(1 g) = 6.62 W/kg; SAR(10 g) = 1.79 W/kg
Maximum value of SAR (measured) = 17.9 W/kg



109_FR1 n77_100M_BPSK_1RB_1Offset_DFT-30_Left Side_0mm_Ch633334

Communication System: UID 0, 5GNR (0); Frequency: 3500.01 MHz; Duty Cycle: 1:1
Medium: HSL_3500_220414 Medium parameters used: $f = 3500.01$ MHz; $\sigma = 2.892$ S/m; $\epsilon_r = 36.653$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.8 °C; Liquid Temperature : 22.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(6.77, 6.77, 6.77); Calibrated: 2021/4/30
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn 715; Calibrated: 2021/12/29
- Phantom: Twin-SAM1(P1aP2a20); Type: QD 000 P40 CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

Ch633334/Area Scan (51x161x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 4.39 W/kg

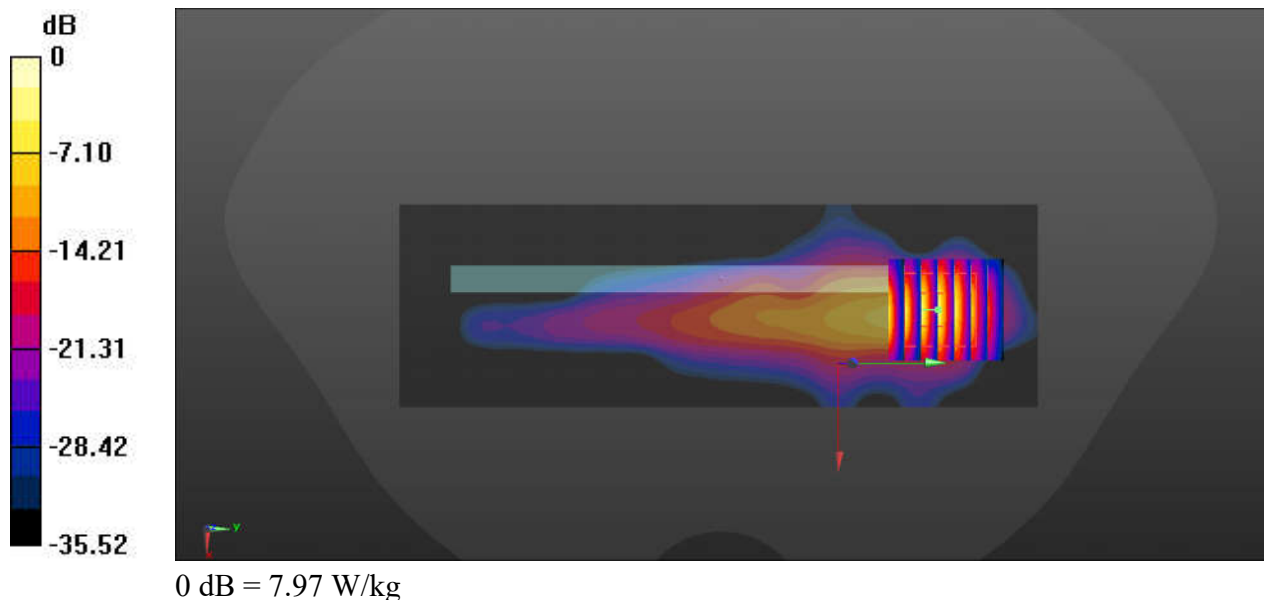
Ch633334/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=1.4mm

Reference Value = 10.83 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 13.9 W/kg

SAR(1 g) = 2.89 W/kg; SAR(10 g) = 0.784 W/kg

Maximum value of SAR (measured) = 7.97 W/kg



110_FR1 n78_100M_BPSK_135RB_69Offset_DFT-30_Left Side_0mm_Ch633334

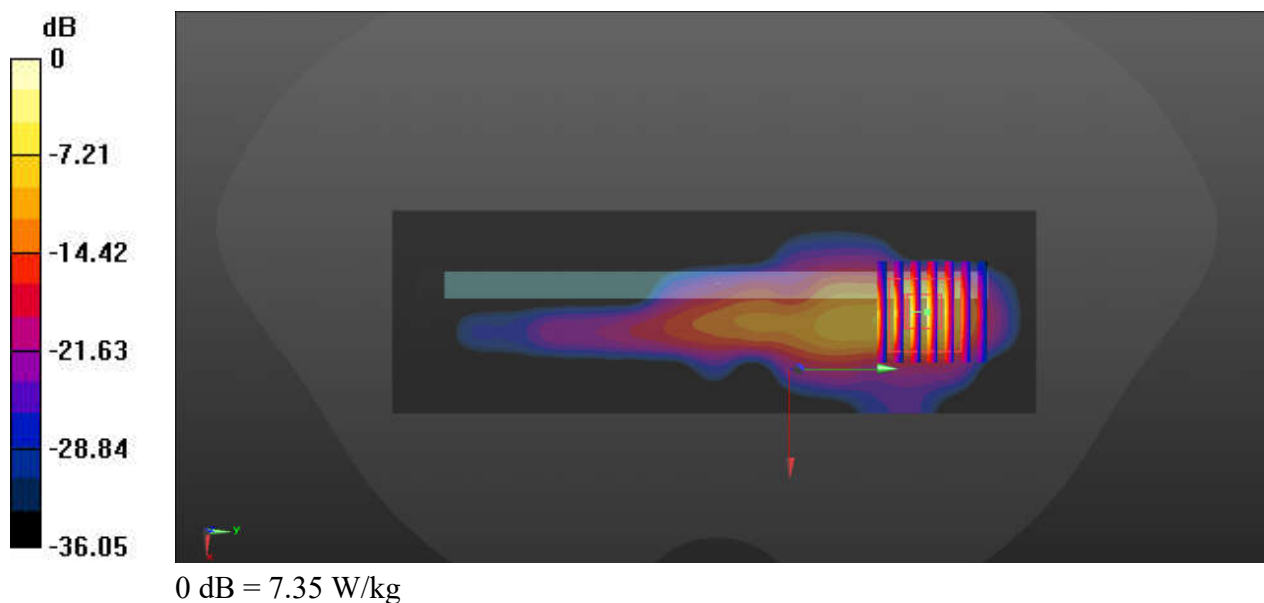
Communication System: UID 0, 5GNR (0); Frequency: 3500.01 MHz; Duty Cycle: 1:1
Medium: HSL_3500_220414 Medium parameters used: $f = 3500.01$ MHz; $\sigma = 2.892$ S/m; $\epsilon_r = 36.653$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.8 °C; Liquid Temperature : 22.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(6.77, 6.77, 6.77); Calibrated: 2021/4/30
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn 715; Calibrated: 2021/12/29
- Phantom: Twin-SAM1(P1aP2a20); Type: QD 000 P40 CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

Ch633334/Area Scan (51x161x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 3.76 W/kg

Ch633334/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=1.4mm
Reference Value = 9.895 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 13.1 W/kg
SAR(1 g) = 2.64 W/kg; SAR(10 g) = 0.710 W/kg
Maximum value of SAR (measured) = 7.35 W/kg



111_WLAN5GHz_802.11a 6Mbps_Right Side_0mm_Ch52

Communication System: UID 0, WIFI (0); Frequency: 5260 MHz; Duty Cycle: 1:1.01
Medium: HSL_5250_220417 Medium parameters used: $f = 5260$ MHz; $\sigma = 4.862$ S/m; $\epsilon_r = 35.403$;
 $\rho = 1000$ kg/m³
Ambient Temperature : 23.7 °C; Liquid Temperature : 22.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(5.02, 5.02, 5.02); Calibrated: 2021/4/30
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn 715; Calibrated: 2021/12/29
- Phantom: Twin-SAM1(P1aP2a20); Type: QD 000 P40 CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

Ch52/Area Scan (41x181x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 16.2 W/kg

Ch52/Zoom Scan (9x10x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 1.402 V/m; Power Drift = -0.14 dB

Peak SAR (extrapolated) = 52.6 W/kg

SAR(1 g) = 6.79 W/kg; SAR(10 g) = 1.75 W/kg

Maximum value of SAR (measured) = 27.4 W/kg

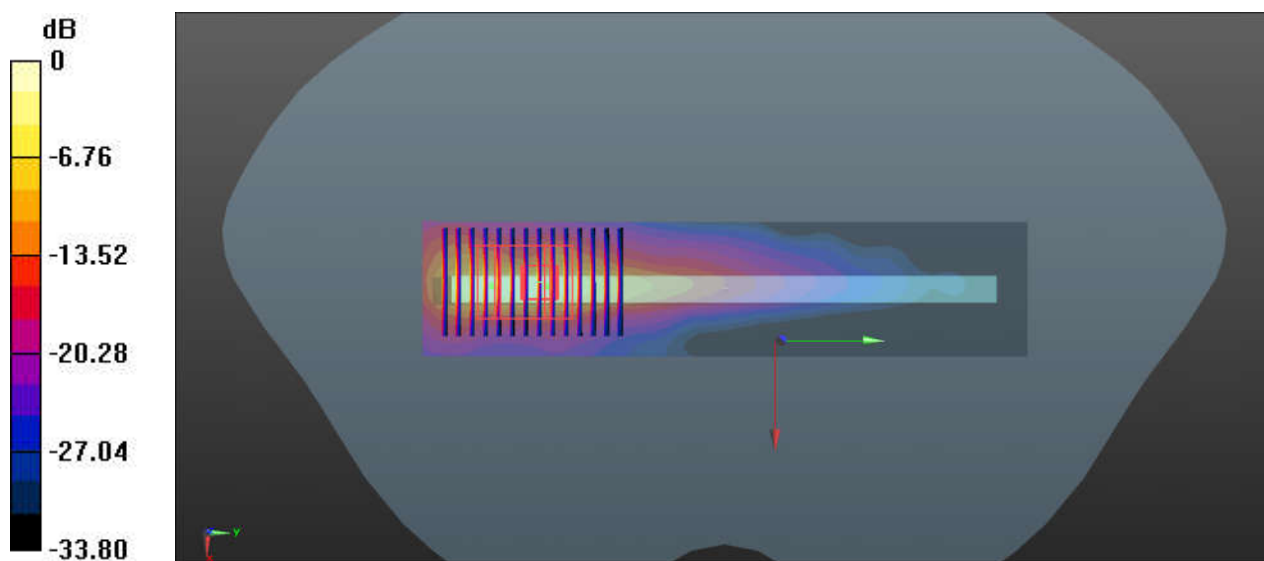
Ch52/Zoom Scan (9x10x7)/Cube 1: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 1.402 V/m; Power Drift = -0.14 dB

Peak SAR (extrapolated) = 54.0 W/kg

SAR(1 g) = 6.82 W/kg; SAR(10 g) = 1.65 W/kg

Maximum value of SAR (measured) = 28.0 W/kg



0 dB = 28.0 W/kg

112_WLAN5GHz_802.11a 6Mbps_Right Side_0mm_Ch116

Communication System: UID 0, WIFI (0); Frequency: 5580 MHz; Duty Cycle: 1:1.01

Medium: HSL_5600_220418 Medium parameters used: $f = 5580$ MHz; $\sigma = 5.21$ S/m; $\epsilon_r = 34.766$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.1 °C; Liquid Temperature : 22.1 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(4.51, 4.51, 4.51); Calibrated: 2021/4/30
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn 715; Calibrated: 2021/12/29
- Phantom: Twin-SAM1(P1aP2a20); Type: QD 000 P40 CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

Ch116/Area Scan (41x181x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 20.0 W/kg

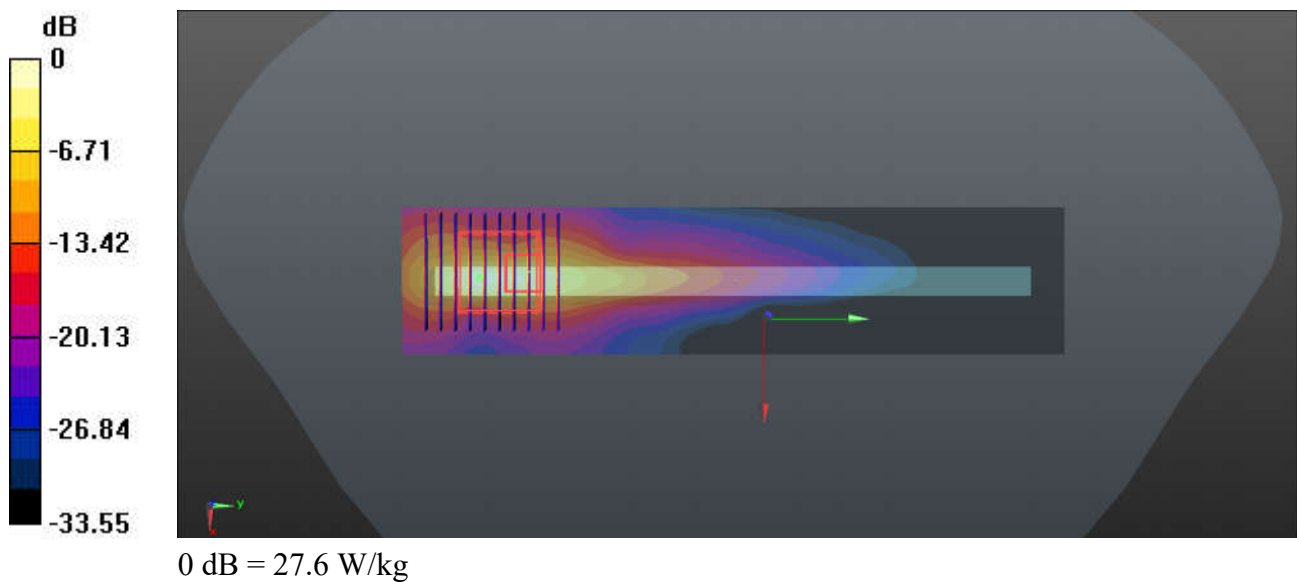
Ch116/Zoom Scan (9x10x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 0.3850 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 53.7 W/kg

SAR(1 g) = 6.81 W/kg; SAR(10 g) = 1.81 W/kg

Maximum value of SAR (measured) = 27.6 W/kg



113_FR1 n66_30M_BPSK_80RB_40Offset_DFT-15_Top Side_0mm_Ch349000

Communication System: UID 0, 5G NR (0); Frequency: 1745 MHz; Duty Cycle: 1:1

Medium: HSL_1750_220328 Medium parameters used: $f = 1745$ MHz; $\sigma = 1.401$ S/m; $\epsilon_r = 41.733$;
 $\rho = 1000$ kg/m³

Ambient Temperature : 23.4 °C; Liquid Temperature : 22.5 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3282; ConvF(5.33, 5.33, 5.33); Calibrated: 2021/11/4
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn 910; Calibrated: 2021/7/15
- Phantom: Twin-SAM1(P1aP2a20); Type: QD 000 P40 CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

Ch349000/Area Scan (41x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 2.14 W/kg

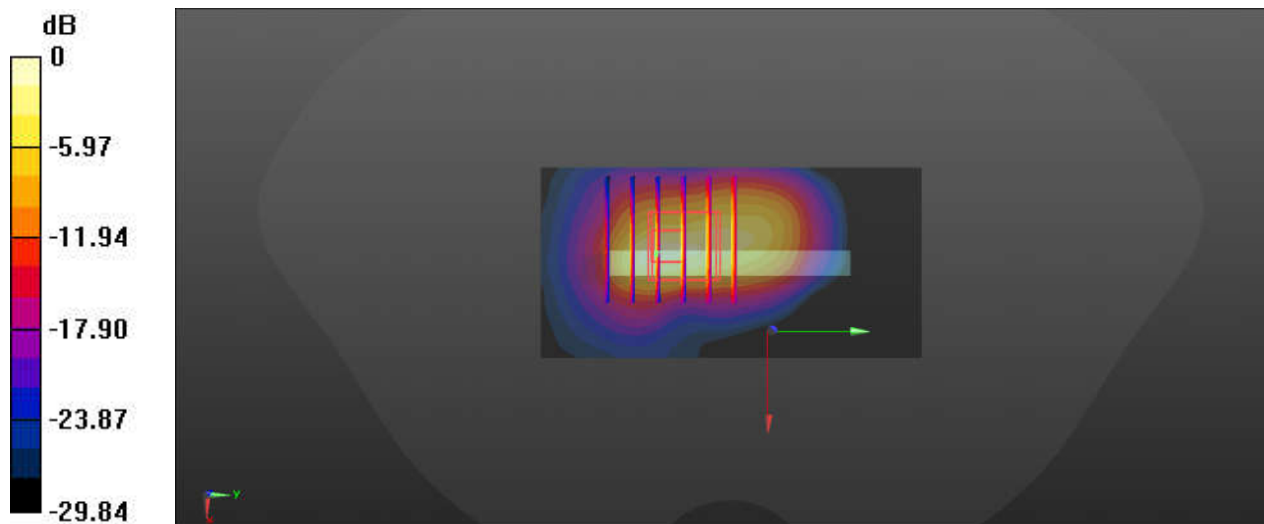
Ch349000/Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 25.24 V/m; Power Drift = -0.15 dB

Peak SAR (extrapolated) = 5.54 W/kg

SAR(1 g) = 1.81 W/kg; SAR(10 g) = 0.684 W/kg

Maximum value of SAR (measured) = 2.67 W/kg



0 dB = 2.67 W/kg



Appendix C. DASYS Calibration Certificate

The DASYS calibration certificates are shown as follows.



In Collaboration with
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CALIBRATION LABORATORY



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CALIBRATION
CNAS L0570

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Client

Sporton

Certificate No: Z21-60550

CALIBRATION CERTIFICATE

Object

D750V3 - SN: 1099

Calibration Procedure(s)

FF-Z11-003-01

Calibration Procedures for dipole validation kits

Calibration date:

December 15, 2021

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	24-Sep-21 (CTTL, No.J21X08326)	Sep-22
Power sensor NRP8S	104291	24-Sep-21 (CTTL, No.J21X08326)	Sep-22
Reference Probe EX3DV4	SN 7307	26-May-21(SPEAG,No.EX3-7307_May21)	May-22
DAE4	SN 1556	15-Jan-21(SPEAG,No.DAE4-1556_Jan21)	Jan-22
Secondary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Signal Generator E4438C	MY49071430	01-Feb-21 (CTTL, No.J21X00593)	Jan-22
NetworkAnalyzer E5071C	MY46110673	14-Jan-21 (CTTL, No.J21X00232)	Jan-22

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

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

Issued: December 24, 2021

Certificate No: Z21-60550

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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	V52.10.4
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	42.0	0.90 mho/m
Measured Head TSL parameters	(22.0 $\pm$ 0.2) °C	41.1 $\pm$ 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	2.17 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	8.54 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	1.43 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	5.65 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	55.0Ω+ 0.78jΩ
Return Loss	- 26.4dB

General Antenna Parameters and Design

Electrical Delay (one direction)	0.942 ns
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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: 2021-12-15

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 - SN: 1099

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

Medium parameters used: $f = 750 \text{ MHz}$; $\sigma = 0.904 \text{ S/m}$; $\epsilon_r = 41.1$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN7307; ConvF(10.31, 10.31, 10.31) @ 750 MHz; Calibrated: 2021-05-26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1556; Calibrated: 2021-01-15
- Phantom: MFP_V5.1C (20deg probe tilt); Type: QD 000 P51 Cx; Serial: 1062
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

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

Reference Value = 56.18 V/m; Power Drift = -0.01 dB

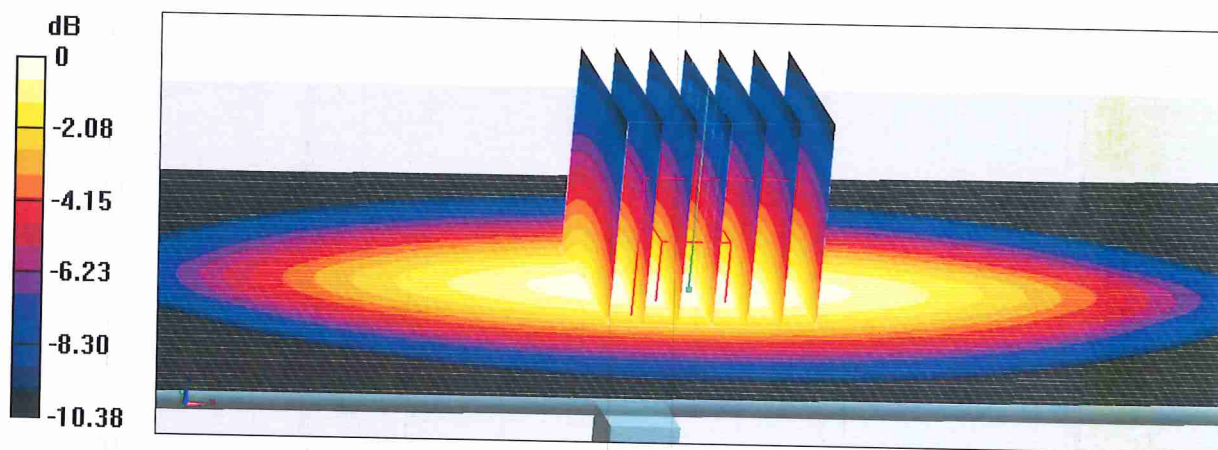
Peak SAR (extrapolated) = 3.25 W/kg

SAR(1 g) = 2.17 W/kg; SAR(10 g) = 1.43 W/kg

Smallest distance from peaks to all points 3 dB below: Larger than measurement grid (> 15 mm)

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

Maximum value of SAR (measured) = 2.89 W/kg



0 dB = 2.89 W/kg = 4.61 dBW/kg



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Impedance Measurement Plot for Head TSL

