

P69 BT_GFSK_Rear Face_1.5cm_Ch39_Ant8

Communication System: BT; Frequency: 2441 MHz; Duty Cycle: 1:1.31

Medium: HSL2450_1208 Medium parameters used: $f = 2441$ MHz; $\sigma = 1.781$ S/m; $\epsilon_r = 39.589$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5°C; Liquid Temperature : 22.5°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(7.59, 7.59, 7.59) @ 2441 MHz; Calibrated: 2022/8/31
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1389; Calibrated: 2022/11/9
- Phantom: SAM (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1781
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- **Area Scan (91x81x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.0172 W/kg

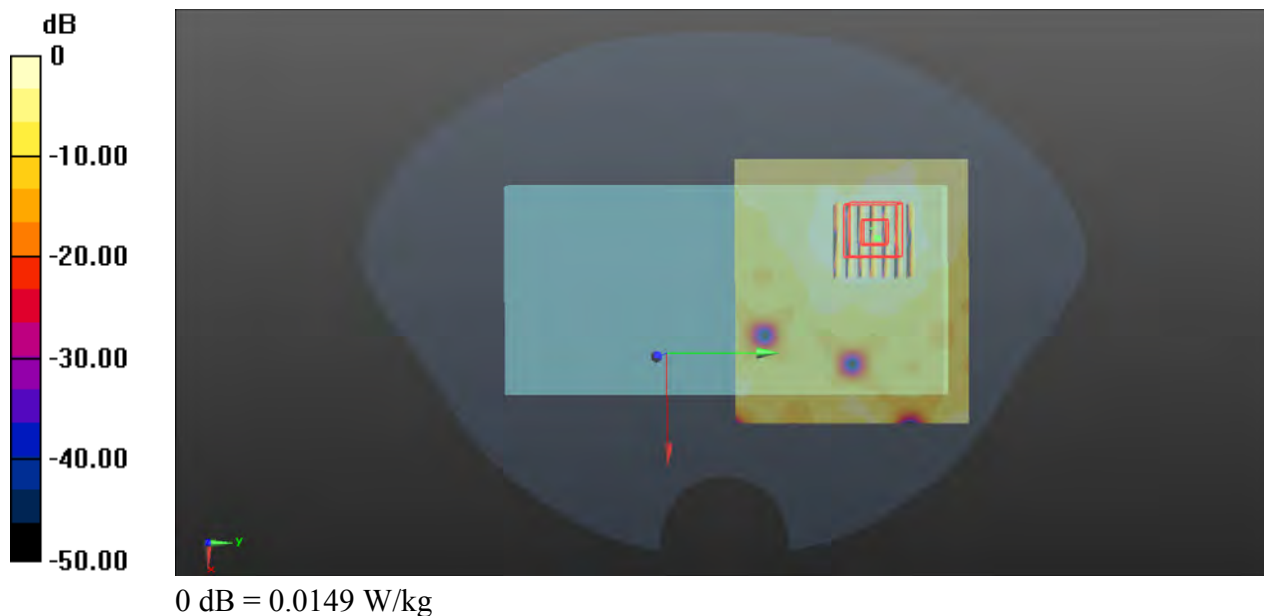
- **Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 0.7770 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 0.0230 W/kg

SAR(1 g) = 0.010 W/kg; SAR(10 g) = 0.00462 W/kg

Maximum value of SAR (measured) = 0.0149 W/kg



P70 BLE_S8_Rear Face_1.5cm_Ch19_Ant8

Communication System: 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1.21

Medium: HSL2450_1208 Medium parameters used: $f = 2462$ MHz; $\sigma = 1.796$ S/m; $\epsilon_r = 39.562$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5°C; Liquid Temperature : 22.5°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(7.59, 7.59, 7.59) @ 2462 MHz; Calibrated: 2022/8/31
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1389; Calibrated: 2022/11/9
- Phantom: SAM (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1781
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

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

Maximum value of SAR (interpolated) = 0.0323 W/kg

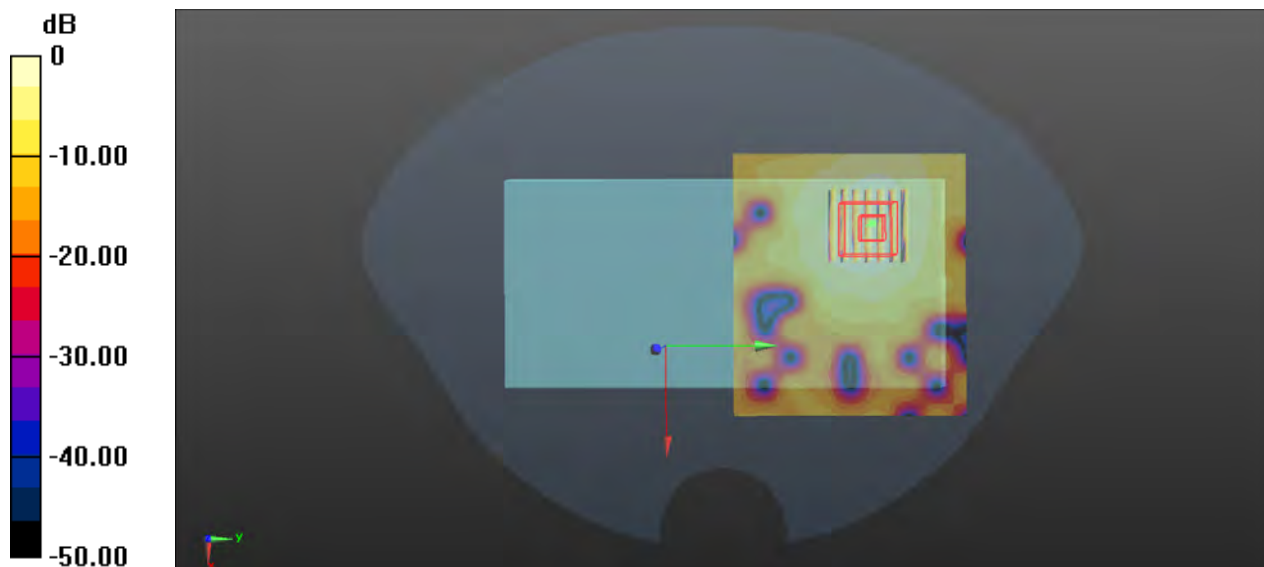
- **Zoom Scan (7x7x7)/Cube 0:** Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 1.105 V/m; Power Drift = -0.00 dB

Peak SAR (extrapolated) = 0.0430 W/kg

SAR(1 g) = 0.023 W/kg; SAR(10 g) = 0.012 W/kg

Maximum value of SAR (measured) = 0.0331 W/kg



P71 GSM850_GPRS 3Tx slot _Front Face_1cm_Ch128_Ant2

Communication System: GPRS 3Tx-slot; Frequency: 824.2 MHz; Duty Cycle: 1:2.77

Medium: HSL835_1216 Medium parameters used: $f = 824.2$ MHz; $\sigma = 0.909$ S/m; $\epsilon_r = 43.294$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(9.4, 9.4, 9.4) @ 824.2 MHz; Calibrated: 2022/8/31
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1389; Calibrated: 2022/11/9
- Phantom: SAM (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1781
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- **Area Scan (81x131x1):** Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

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

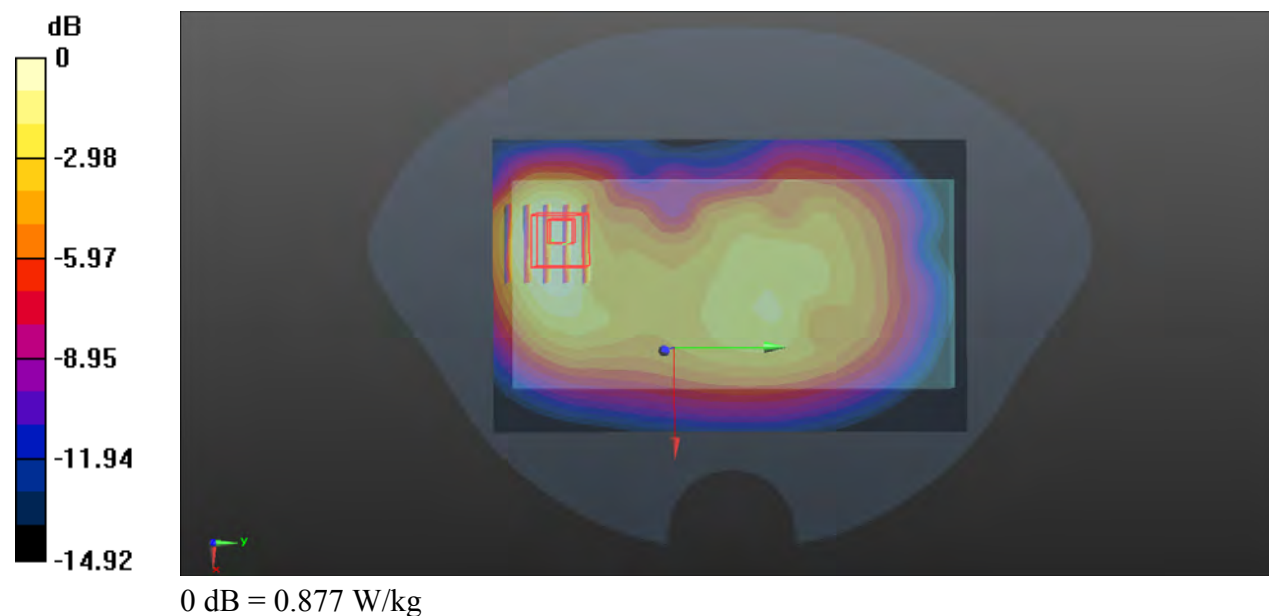
- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 22.62 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 1.03 W/kg

SAR(1 g) = 0.658 W/kg; SAR(10 g) = 0.398 W/kg

Maximum value of SAR (measured) = 0.877 W/kg



P72 GSM1900_GPRS 3Tx slot _Rear Face_1cm_Ch661_Ant1

Communication System: GPRS 3Tx-slot; Frequency: 1880 MHz; Duty Cycle: 1:2.77

Medium: HSL1900_0109 Medium parameters used: $f = 1880.1$ MHz; $\sigma = 1.379$ S/m; $\epsilon_r = 39.407$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.3°C; Liquid Temperature : 22.5°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(8.02, 8.02, 8.02) @ 1880 MHz; Calibrated: 2022/8/31
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1389; Calibrated: 2022/11/9
- Phantom: SAM (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1781
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- **Area Scan (81x71x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.519 W/kg

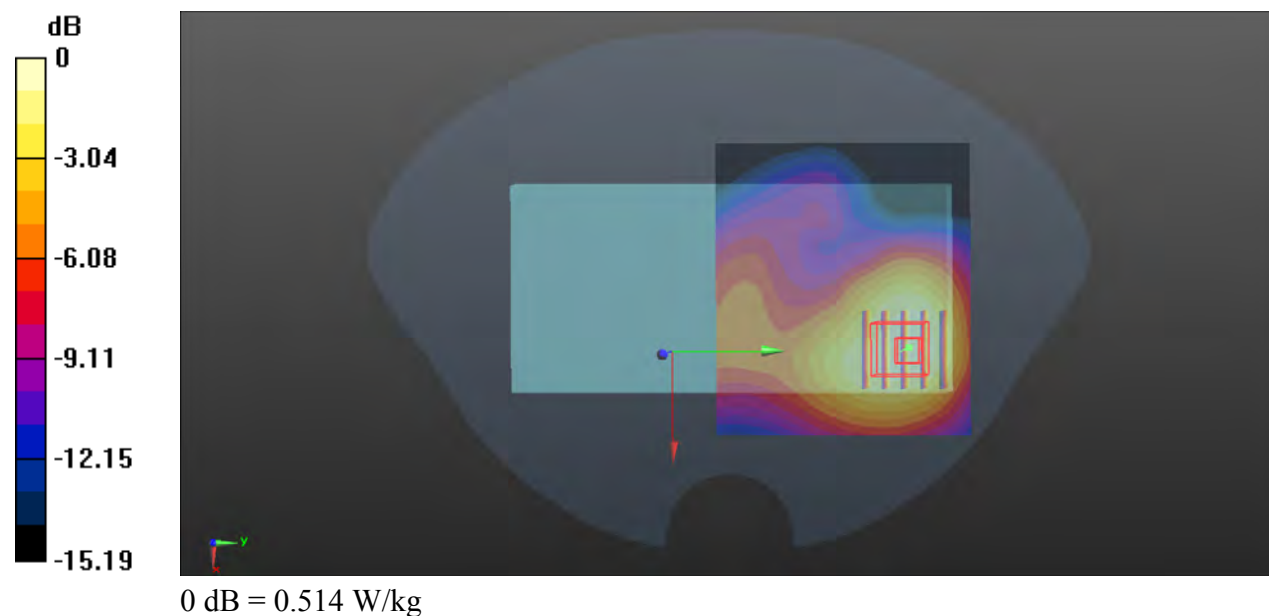
- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 8.777 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 0.624 W/kg

SAR(1 g) = 0.394 W/kg; SAR(10 g) = 0.248 W/kg

Maximum value of SAR (measured) = 0.514 W/kg



P73 WCDMA II_RMC12.2K_Rear Face_1cm_Ch9262_Ant1

Communication System: WCDMA; Frequency: 1852.4 MHz; Duty Cycle: 1:1

Medium: HSL1900_0109 Medium parameters used: $f = 1852.4$ MHz; $\sigma = 1.351$ S/m; $\epsilon_r = 39.52$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.3°C; Liquid Temperature : 22.5°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(8.02, 8.02, 8.02) @ 1852.4 MHz; Calibrated: 2022/8/31
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1389; Calibrated: 2022/11/9
- Phantom: SAM (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1781
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- **Area Scan (81x71x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.274 W/kg

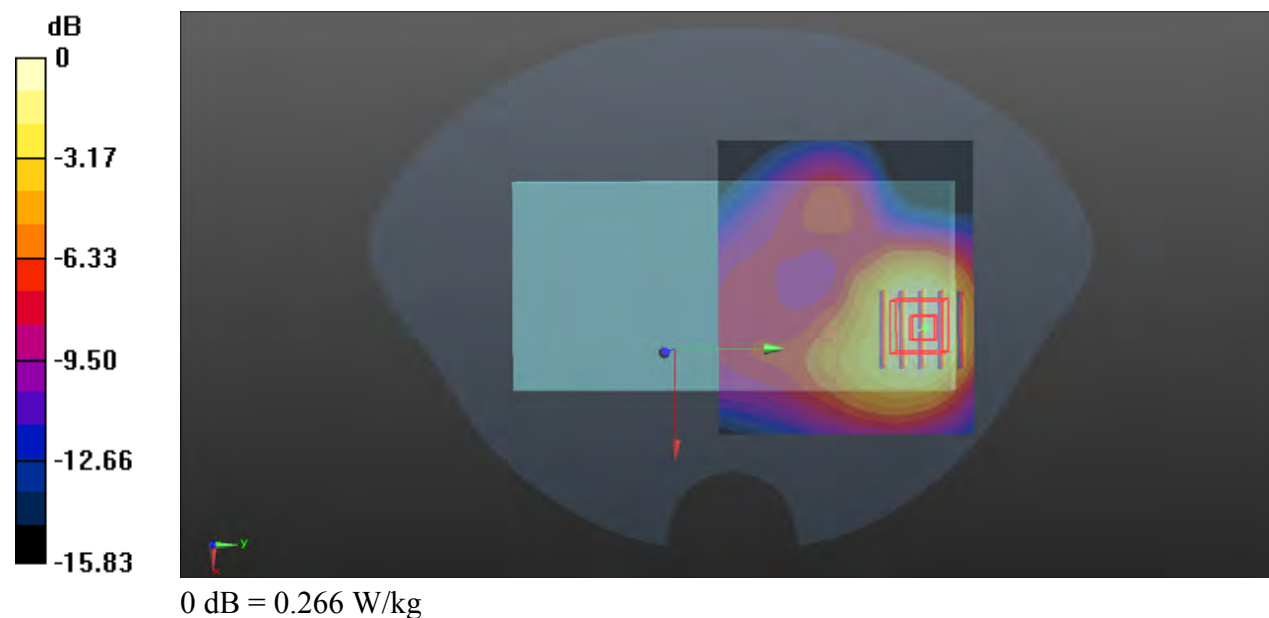
- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 5.138 V/m; Power Drift = -0.17 dB

Peak SAR (extrapolated) = 0.319 W/kg

SAR(1 g) = 0.203 W/kg; SAR(10 g) = 0.125 W/kg

Maximum value of SAR (measured) = 0.266 W/kg



P74 WCDMA IV_RMC12.2K_Rear Face_1cm_Ch1413_Ant1

Communication System: WCDMA; Frequency: 1732.6 MHz; Duty Cycle: 1:1

Medium: HSL1750_0108 Medium parameters used: $f = 1733$ MHz; $\sigma = 1.397$ S/m; $\epsilon_r = 41.413$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(8.25, 8.25, 8.25) @ 1732.6 MHz; Calibrated: 2022/8/31
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1389; Calibrated: 2022/11/9
- Phantom: SAM (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1781
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- **Area Scan (81x71x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.112 W/kg

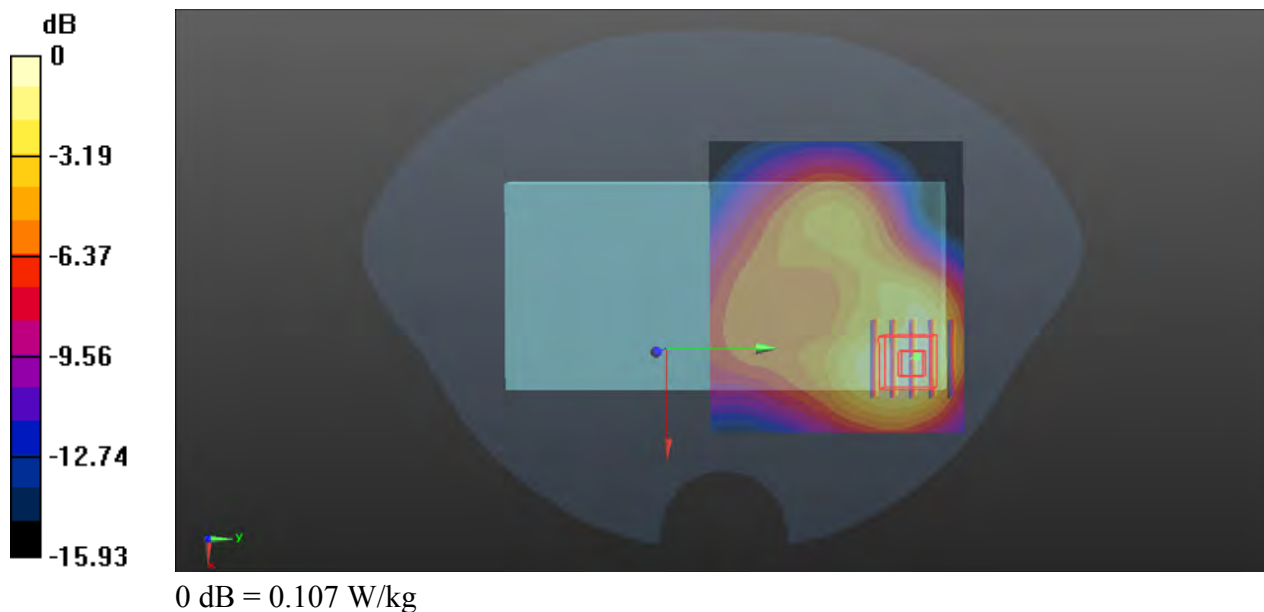
- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 3.606 V/m; Power Drift = 0.18 dB

Peak SAR (extrapolated) = 0.130 W/kg

SAR(1 g) = 0.081 W/kg; SAR(10 g) = 0.048 W/kg

Maximum value of SAR (measured) = 0.107 W/kg



P75 WCDMA V_RMC12.2K _Rear Face_1cm_Ch4132_Ant2

Communication System: WCDMA; Frequency: 826.4 MHz; Duty Cycle: 1:1

Medium: HSL835_1216 Medium parameters used: $f = 826.4$ MHz; $\sigma = 0.912$ S/m; $\epsilon_r = 43.262$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(9.4, 9.4, 9.4) @ 826.4 MHz; Calibrated: 2022/8/31
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1389; Calibrated: 2022/11/9
- Phantom: SAM (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1781
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- **Area Scan (81x71x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.416 W/kg

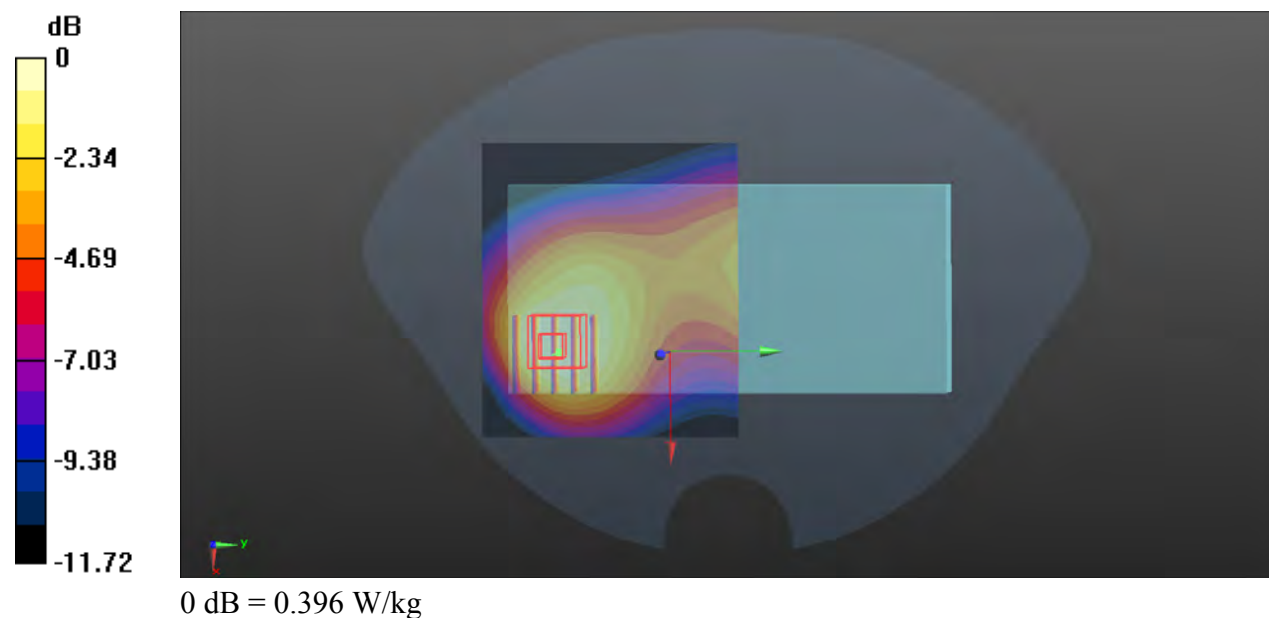
- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 13.96 V/m; Power Drift = -0.14 dB

Peak SAR (extrapolated) = 0.472 W/kg

SAR(1 g) = 0.330 W/kg; SAR(10 g) = 0.226 W/kg

Maximum value of SAR (measured) = 0.396 W/kg



P76 LTE 5_QPSK10M_Front Face_1cm_Ch20450_1RB_OS0_Ant2

Communication System: LTE; Frequency: 829 MHz; Duty Cycle: 1:1

Medium: HSL835_1216 Medium parameters used: $f = 829$ MHz; $\sigma = 0.915$ S/m; $\epsilon_r = 43.229$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(9.4, 9.4, 9.4) @ 829 MHz; Calibrated: 2022/8/31
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1389; Calibrated: 2022/11/9
- Phantom: SAM (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1781
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- **Area Scan (81x131x1):** Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.435 W/kg

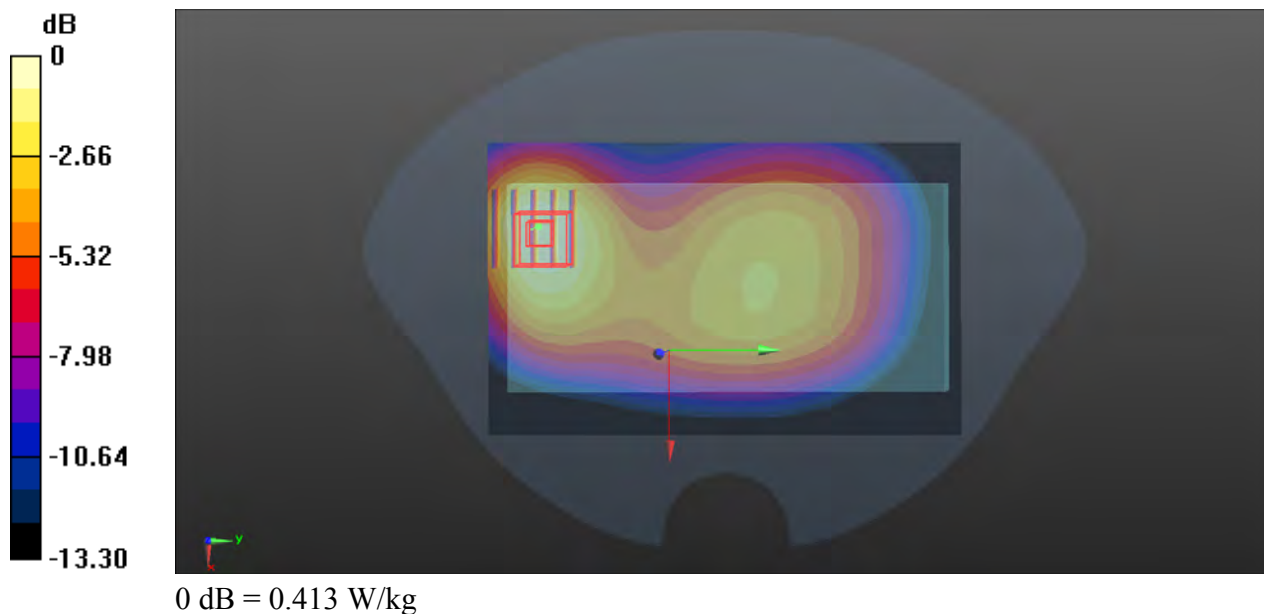
- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 14.66 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.490 W/kg

SAR(1 g) = 0.330 W/kg; SAR(10 g) = 0.218 W/kg

Maximum value of SAR (measured) = 0.413 W/kg



P77 LTE 7_QPSK20M_Rear Face_1cm_Ch21100_1RB_OS99_Ant1

Communication System: LTE; Frequency: 2535 MHz; Duty Cycle: 1:1

Medium: HSL2600_0107 Medium parameters used: $f = 2535$ MHz; $\sigma = 1.914$ S/m; $\epsilon_r = 37.682$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.4°C; Liquid Temperature : 22.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(7.47, 7.47, 7.47) @ 2535 MHz; Calibrated: 2022/8/31
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1389; Calibrated: 2022/11/9
- Phantom: SAM (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1781
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- **Area Scan (101x91x1):** Interpolated grid: $dx=1.200$ mm, $dy=1.200$ mm

Maximum value of SAR (interpolated) = 1.13 W/kg

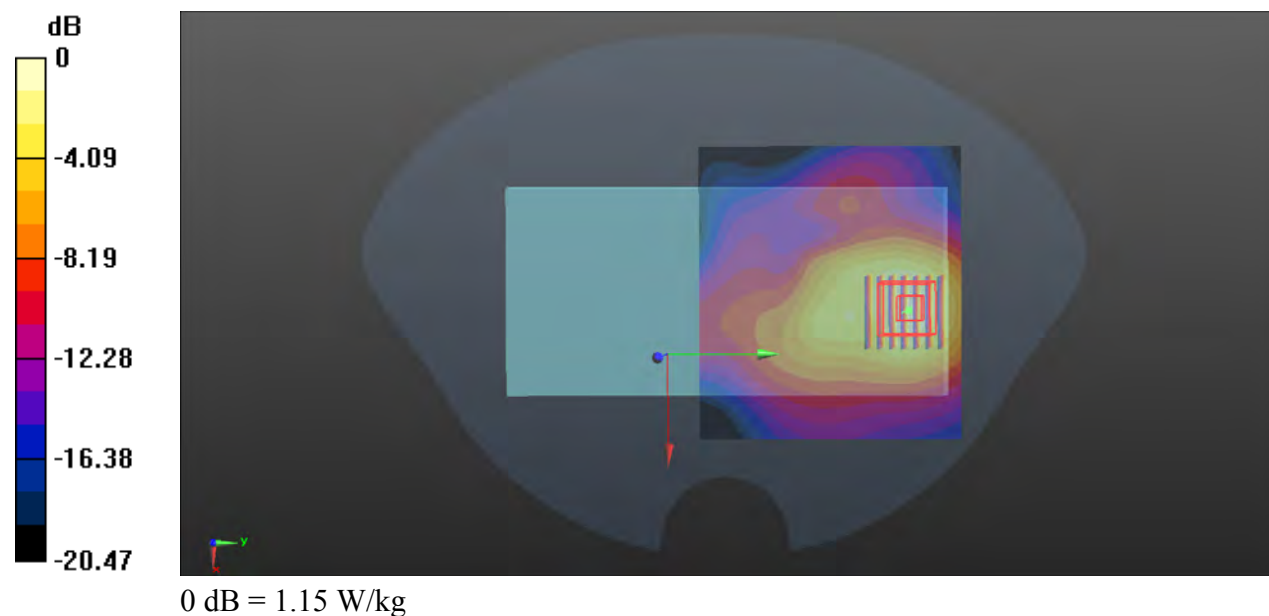
- **Zoom Scan (7x7x7)/Cube 0:** Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 6.395 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 1.47 W/kg

SAR(1 g) = 0.815 W/kg; SAR(10 g) = 0.427 W/kg

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



P78 LTE 12_QPSK10M_Front Face_1cm_Ch23060_1RB_OS49_Ant2

Communication System: LTE; Frequency: 704 MHz; Duty Cycle: 1:1

Medium: HSL750_1215 Medium parameters used: $f = 704 \text{ MHz}$; $\sigma = 0.85 \text{ S/m}$; $\epsilon_r = 40.737$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature : 23.1°C ; Liquid Temperature : 22.7°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(9.59, 9.59, 9.59) @ 704 MHz; Calibrated: 2022/8/31
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1389; Calibrated: 2022/11/9
- Phantom: SAM (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1781
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- **Area Scan (81x131x1)**: Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 0.205 W/kg

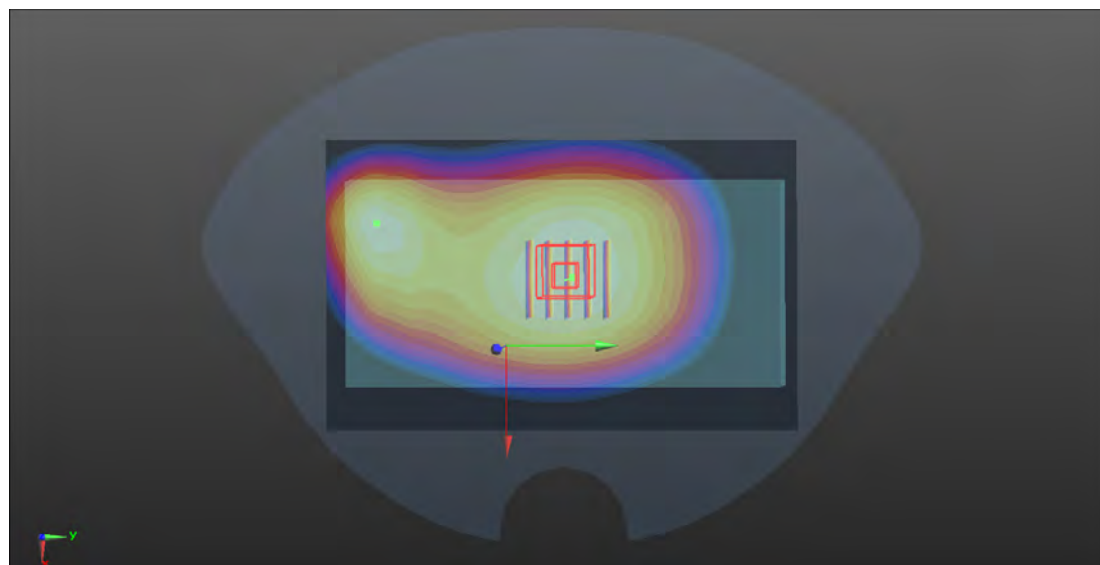
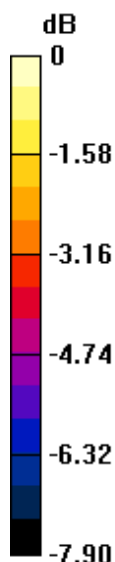
- **Zoom Scan (5x5x7)/Cube 0**: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 15.78 V/m ; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 0.223 W/kg

SAR(1 g) = 0.179 W/kg ; SAR(10 g) = 0.138 W/kg

Maximum value of SAR (measured) = 0.204 W/kg



0 dB = 0.204 W/kg

P79 LTE 13_QPSK10M_Front Face_1cm_Ch23230_1RB_OS24_Ant2

Communication System: LTE; Frequency: 782 MHz; Duty Cycle: 1:1

Medium: HSL750_1215 Medium parameters used: $f = 782 \text{ MHz}$; $\sigma = 0.908 \text{ S/m}$; $\epsilon_r = 39.96$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature : 23.1°C ; Liquid Temperature : 22.7°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(9.59, 9.59, 9.59) @ 782 MHz; Calibrated: 2022/8/31
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1389; Calibrated: 2022/11/9
- Phantom: SAM (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1781
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- **Area Scan (81x131x1):** Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 0.303 W/kg

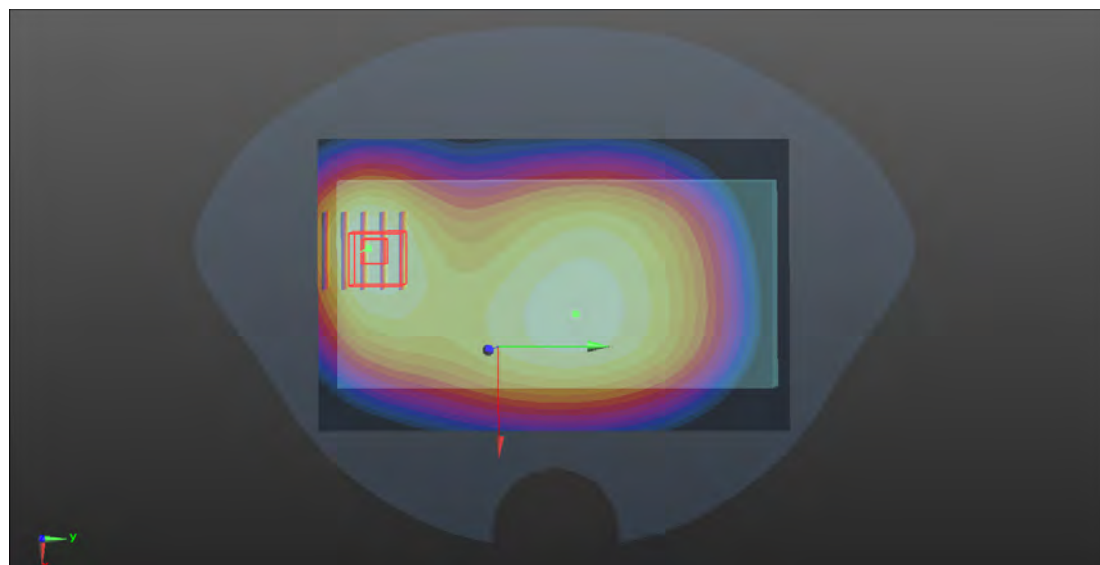
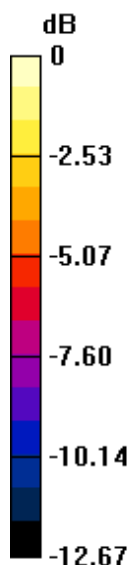
- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 16.21 V/m ; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 0.349 W/kg

SAR(1 g) = 0.238 W/kg ; SAR(10 g) = 0.159 W/kg

Maximum value of SAR (measured) = 0.297 W/kg



0 dB = 0.297 W/kg

P80 LTE 14_QPSK10M_Front Face_1cm_Ch23330_1RB_OS24_Ant2

Communication System: LTE; Frequency: 793 MHz; Duty Cycle: 1:1

Medium: HSL750_1215 Medium parameters used: $f = 793$ MHz; $\sigma = 0.912$ S/m; $\epsilon_r = 39.848$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.1°C; Liquid Temperature : 22.7°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(9.59, 9.59, 9.59) @ 793 MHz; Calibrated: 2022/8/31
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1389; Calibrated: 2022/11/9
- Phantom: SAM (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1781
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- **Area Scan (81x131x1):** Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.324 W/kg

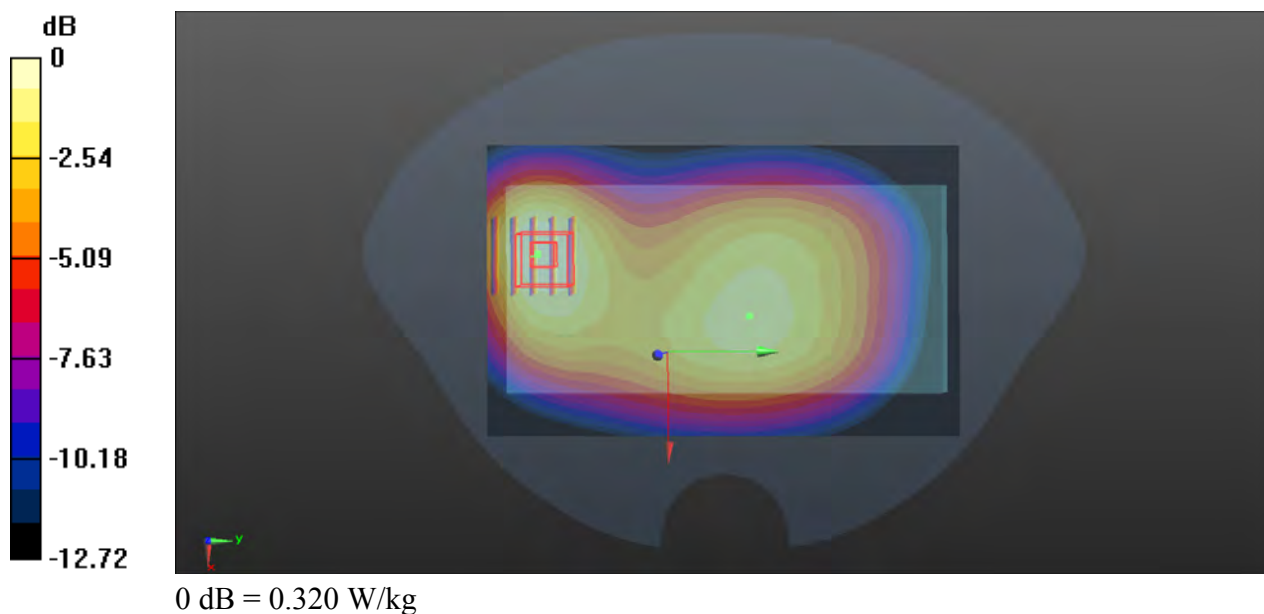
- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 15.05 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.376 W/kg

SAR(1 g) = 0.257 W/kg; SAR(10 g) = 0.171 W/kg

Maximum value of SAR (measured) = 0.320 W/kg



P81 LTE 25_QPSK20M_Rear Face_1cm_Ch26140_1RB_OS0_Ant1

Communication System: LTE; Frequency: 1860 MHz; Duty Cycle: 1:1

Medium: HSL1900_0109 Medium parameters used: $f = 1860$ MHz; $\sigma = 1.358$ S/m; $\epsilon_r = 39.49$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.3°C; Liquid Temperature : 22.5°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(8.02, 8.02, 8.02) @ 1860 MHz; Calibrated: 2022/8/31
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1389; Calibrated: 2022/11/9
- Phantom: SAM (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1781
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- **Area Scan (81x131x1):** Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.657 W/kg

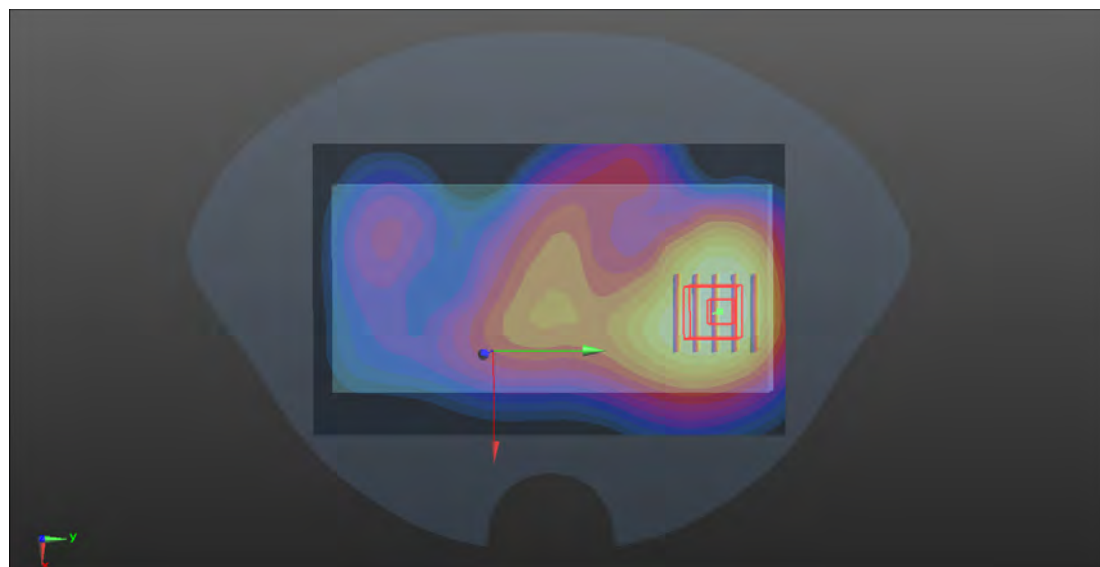
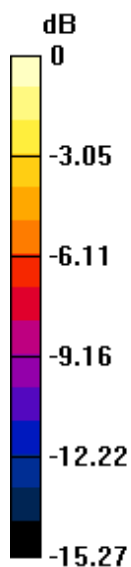
- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 11.22 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.801 W/kg

SAR(1 g) = 0.500 W/kg; SAR(10 g) = 0.308 W/kg

Maximum value of SAR (measured) = 0.654 W/kg



0 dB = 0.654 W/kg

P82 LTE 26_QPSK15M_Front Face_1cm_Ch26865_1RB_OS37_Ant2

Communication System: LTE; Frequency: 831.5 MHz; Duty Cycle: 1:1

Medium: HSL835_1216 Medium parameters used: $f = 831.5$ MHz; $\sigma = 0.918$ S/m; $\epsilon_r = 43.193$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(9.4, 9.4, 9.4) @ 831.5 MHz; Calibrated: 2022/8/31
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1389; Calibrated: 2022/11/9
- Phantom: SAM (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1781
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- **Area Scan (81x131x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.364 W/kg

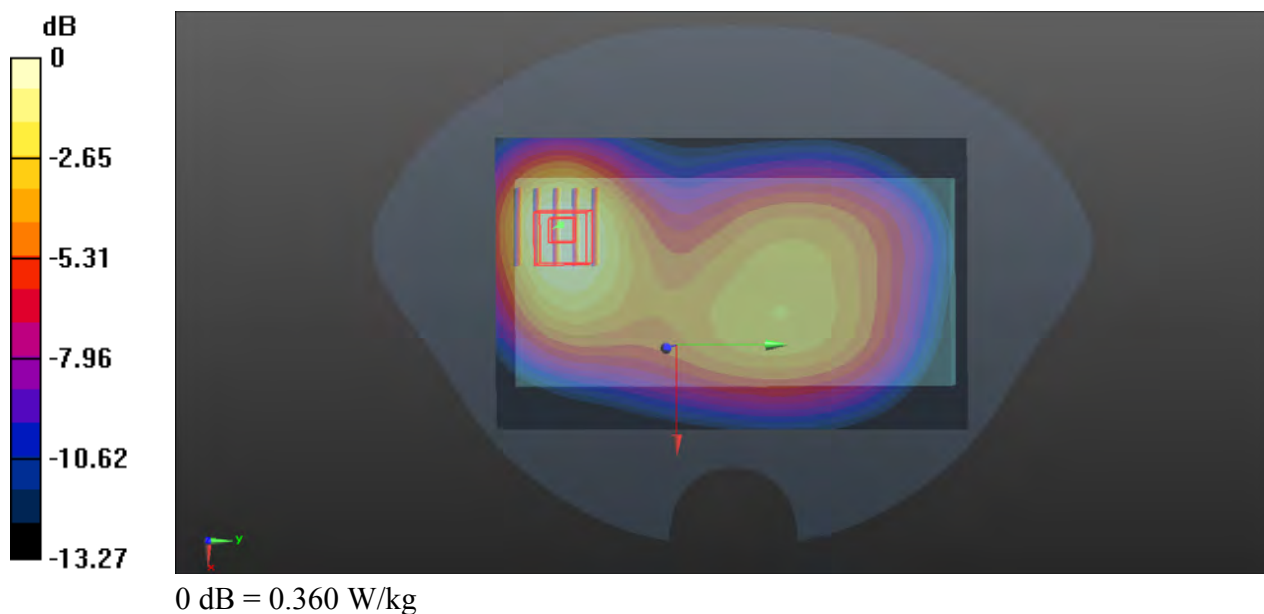
- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 12.69 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 0.426 W/kg

SAR(1 g) = 0.287 W/kg; SAR(10 g) = 0.189 W/kg

Maximum value of SAR (measured) = 0.360 W/kg



P83 LTE 30_QPSK10M_Rear Face_1cm_Ch27710_1RB_OS0_Ant1

Communication System: LTE; Frequency: 2310 MHz; Duty Cycle: 1:1

Medium: HSL2300_1217 Medium parameters used: $f = 2310$ MHz; $\sigma = 1.682$ S/m; $\epsilon_r = 38.704$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(8.01, 8.01, 8.01) @ 2310 MHz; Calibrated: 2022/8/31
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1389; Calibrated: 2022/11/9
- Phantom: SAM (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1781
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- **Area Scan (101x91x1):** Interpolated grid: $dx=1.200$ mm, $dy=1.200$ mm

Maximum value of SAR (interpolated) = 0.533 W/kg

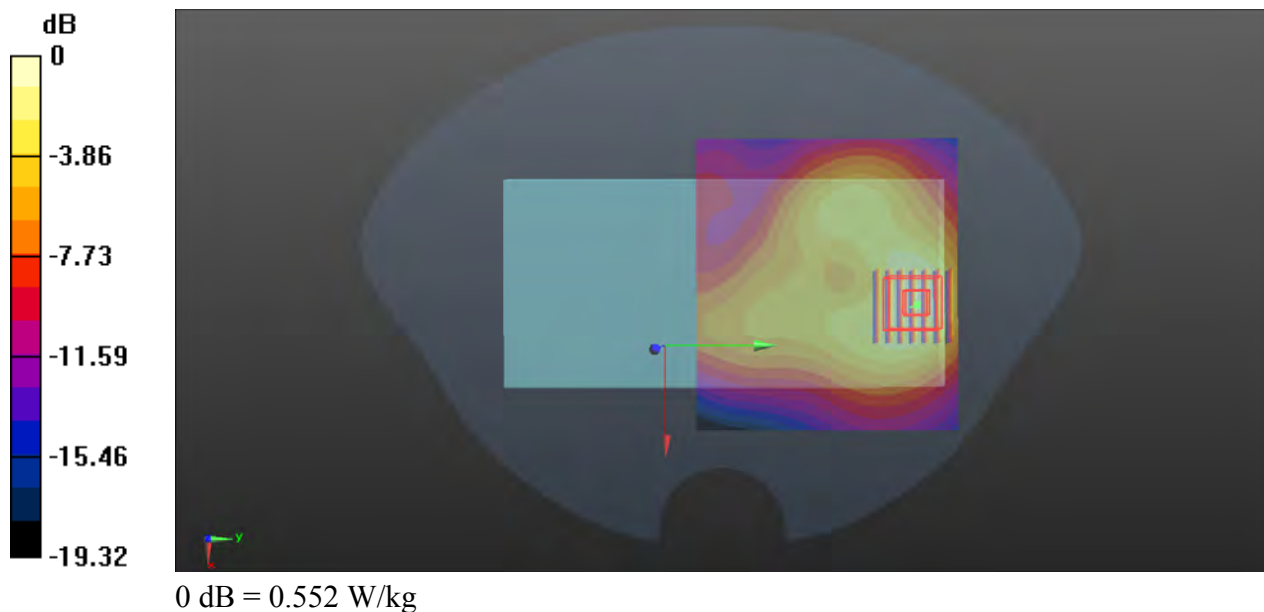
- **Zoom Scan (7x7x7)/Cube 0:** Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 6.478 V/m; Power Drift = 0.17 dB

Peak SAR (extrapolated) = 0.706 W/kg

SAR(1 g) = 0.394 W/kg; SAR(10 g) = 0.215 W/kg

Maximum value of SAR (measured) = 0.552 W/kg



P84 LTE 41_QPSK20M_Rear Face_1cm_Ch40185_1RB_OS0_Ant1

Communication System: LTE TDD; Frequency: 2549.5 MHz; Duty Cycle: 1:1.59

Medium: HSL2600_0107 Medium parameters used: $f = 2549.5$ MHz; $\sigma = 1.93$ S/m; $\epsilon_r = 37.624$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.4°C; Liquid Temperature : 22.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(7.47, 7.47, 7.47) @ 2549.5 MHz; Calibrated: 2022/8/31
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1389; Calibrated: 2022/11/9
- Phantom: SAM (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1781
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- **Area Scan (101x91x1):** Interpolated grid: $dx=1.200$ mm, $dy=1.200$ mm

Maximum value of SAR (interpolated) = 0.645 W/kg

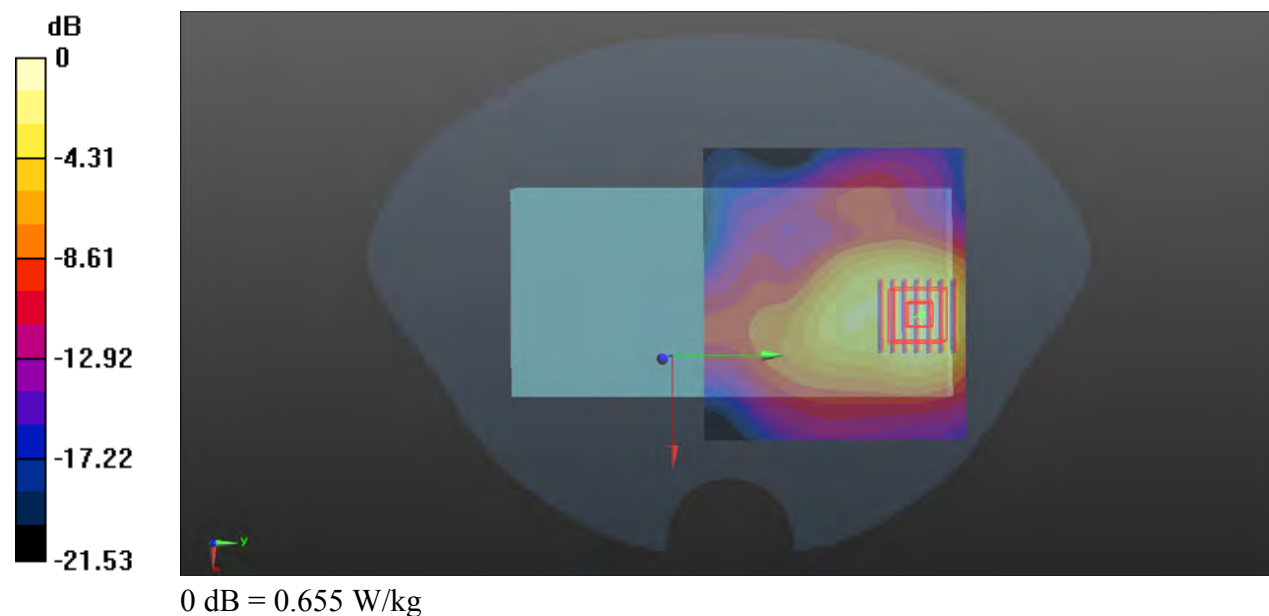
- **Zoom Scan (7x7x7)/Cube 0:** Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 4.503 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 0.843 W/kg

SAR(1 g) = 0.466 W/kg; SAR(10 g) = 0.245 W/kg

Maximum value of SAR (measured) = 0.655 W/kg



P85 LTE 42_QPSK20M_Top Side_1cm_Ch42190_1RB_OS0_Ant7

Communication System: LTE TDD; Frequency: 3460 MHz; Duty Cycle: 1:1.59

Medium: HSL3500_1219 Medium parameters used: $f = 3460$ MHz; $\sigma = 2.982$ S/m; $\epsilon_r = 39.725$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.6°C; Liquid Temperature : 22.3°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(6.77, 6.77, 6.77) @ 3460 MHz; Calibrated: 2022/8/31
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1389; Calibrated: 2022/11/9
- Phantom: SAM (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1781
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- **Area Scan (51x101x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.764 W/kg

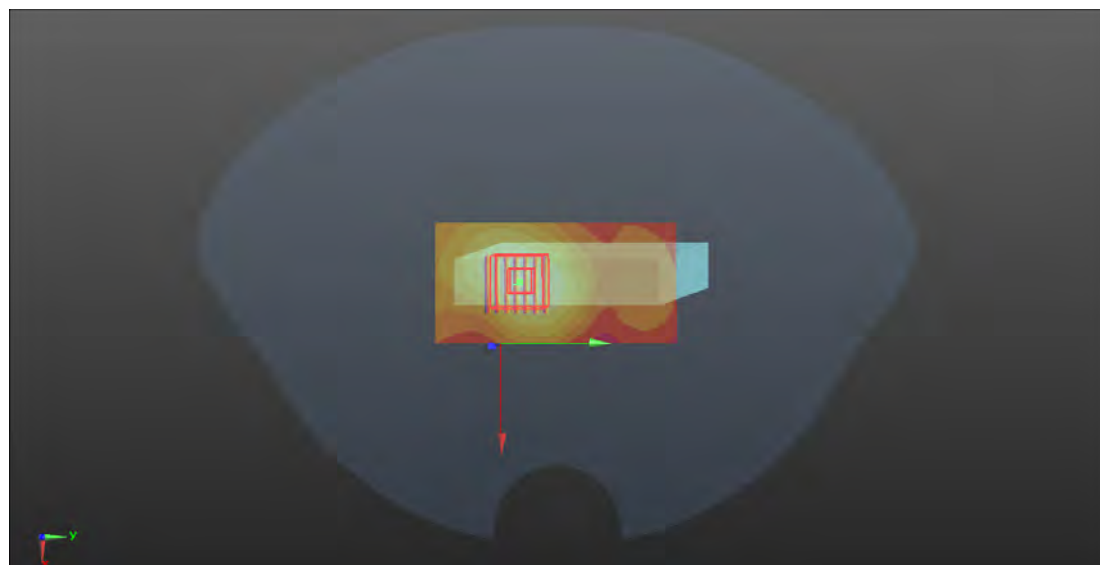
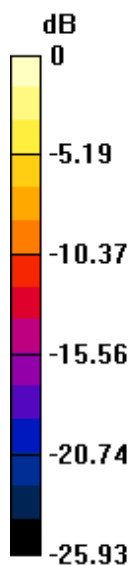
- **Zoom Scan (7x7x12)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 10.86 V/m; Power Drift = -0.00 dB

Peak SAR (extrapolated) = 1.06 W/kg

SAR(1 g) = 0.486 W/kg; SAR(10 g) = 0.223 W/kg

Maximum value of SAR (measured) = 0.752 W/kg



0 dB = 0.752 W/kg

P86 LTE 48_QPSK20M_Left Side_1cm_Ch55830_1RB_OS0_Ant7

Communication System: LTE TDD; Frequency: 3609 MHz; Duty Cycle: 1:1.59

Medium: HSL3700_1219 Medium parameters used: $f = 3609$ MHz; $\sigma = 2.919$ S/m; $\epsilon_r = 39.451$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(6.61, 6.61, 6.61) @ 3609 MHz; Calibrated: 2022/8/31
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1389; Calibrated: 2022/11/9
- Phantom: SAM (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1781
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- **Area Scan (51x131x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.887 W/kg

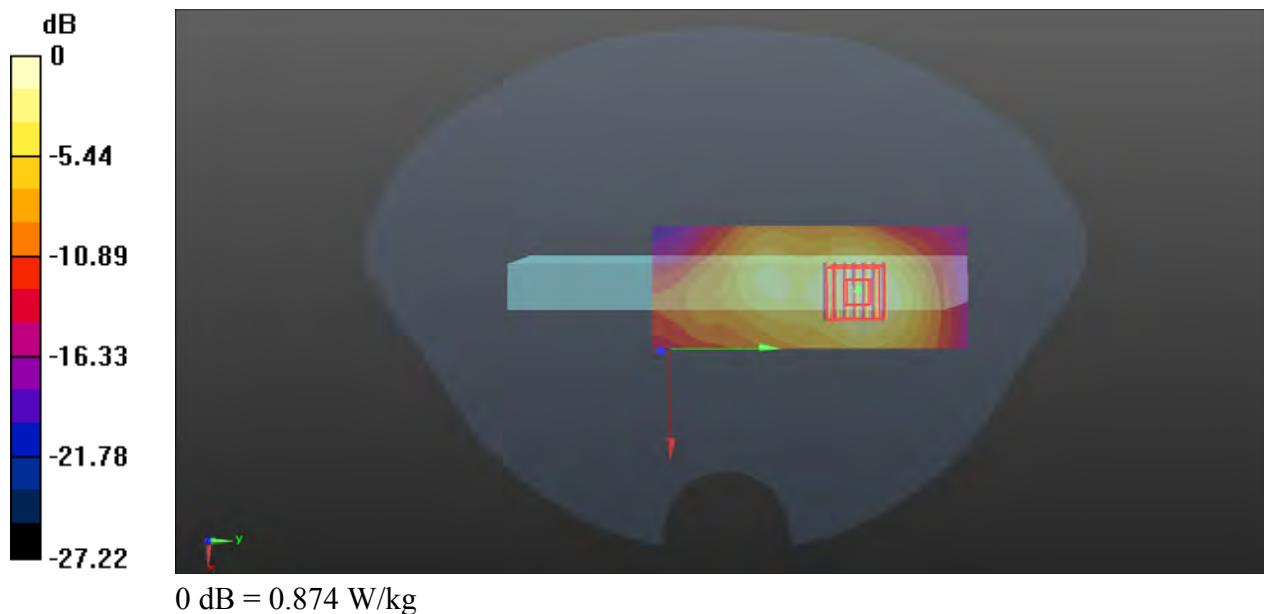
- **Zoom Scan (7x7x12)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 6.520 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 1.36 W/kg

SAR(1 g) = 0.551 W/kg; SAR(10 g) = 0.247 W/kg

Maximum value of SAR (measured) = 0.874 W/kg



P87 LTE 66_QPSK20M_Rear Face_1cm_Ch132572_1RB_OS99_Ant1

Communication System: LTE; Frequency: 1770 MHz; Duty Cycle: 1:1

Medium: HSL1750_0108 Medium parameters used: $f = 1770$ MHz; $\sigma = 1.366$ S/m; $\epsilon_r = 41.78$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(8.25, 8.25, 8.25) @ 1770 MHz; Calibrated: 2022/8/31
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1389; Calibrated: 2022/11/9
- Phantom: SAM (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1781
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- **Area Scan (81x71x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.722 W/kg

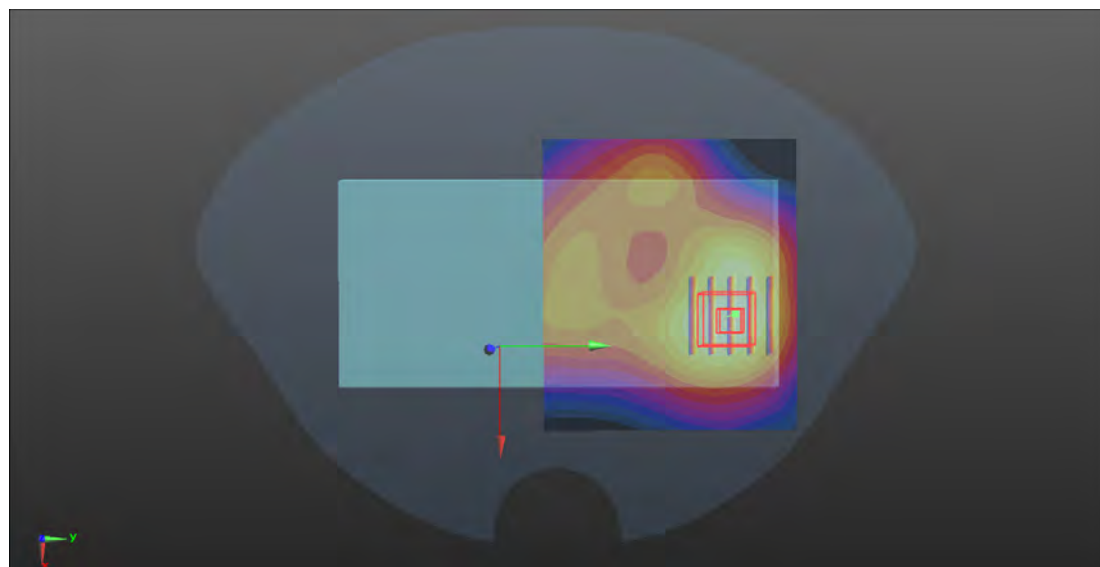
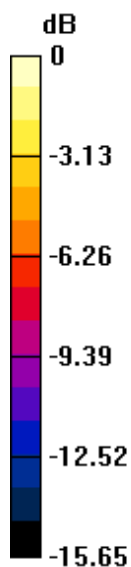
- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 12.19 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 0.938 W/kg

SAR(1 g) = 0.578 W/kg; SAR(10 g) = 0.350 W/kg

Maximum value of SAR (measured) = 0.755 W/kg



0 dB = 0.755 W/kg

P88 LTE 71_QPSK20M_Front Face_1cm_Ch133322_1RB_OS99_Ant2

Communication System: LTE; Frequency: 683 MHz; Duty Cycle: 1:1

Medium: HSL750_1215 Medium parameters used: $f = 683 \text{ MHz}$; $\sigma = 0.863 \text{ S/m}$; $\epsilon_r = 41.074$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature : 23.1°C ; Liquid Temperature : 22.7°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(9.59, 9.59, 9.59) @ 683 MHz; Calibrated: 2022/8/31
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1389; Calibrated: 2022/11/9
- Phantom: SAM (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1781
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- **Area Scan (81x131x1):** Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 0.234 W/kg

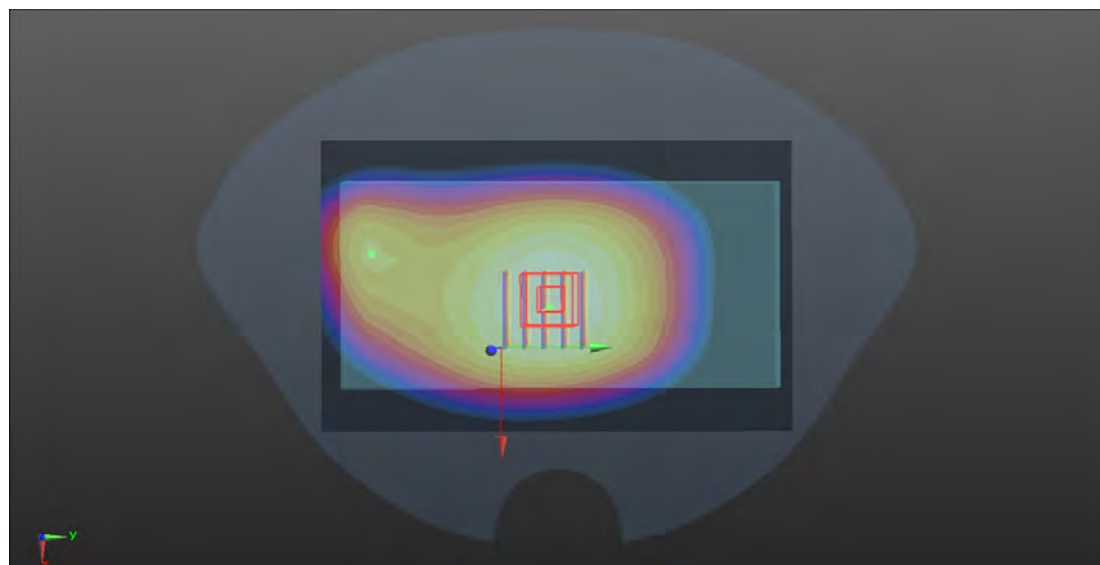
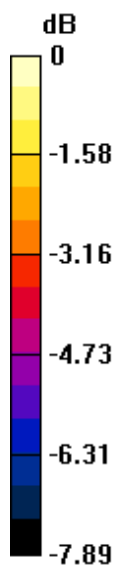
- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 15.93 V/m ; Power Drift = -0.00 dB

Peak SAR (extrapolated) = 0.254 W/kg

SAR(1 g) = 0.205 W/kg ; SAR(10 g) = 0.159 W/kg

Maximum value of SAR (measured) = 0.233 W/kg



0 dB = 0.233 W/kg

P89 n5_DFT-s-OFDM_QPSK20M_Front Face_1cm_Ch167300_1RB_OS1_Ant2

Communication System: NR; Frequency: 836.5 MHz; Duty Cycle: 1:1

Medium: HSL835_1216 Medium parameters used: $f = 836.5$ MHz; $\sigma = 0.924$ S/m; $\epsilon_r = 43.135$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(9.4, 9.4, 9.4) @ 836.5 MHz; Calibrated: 2022/8/31
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1389; Calibrated: 2022/11/9
- Phantom: SAM (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1781
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- **Area Scan (81x131x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.414 W/kg

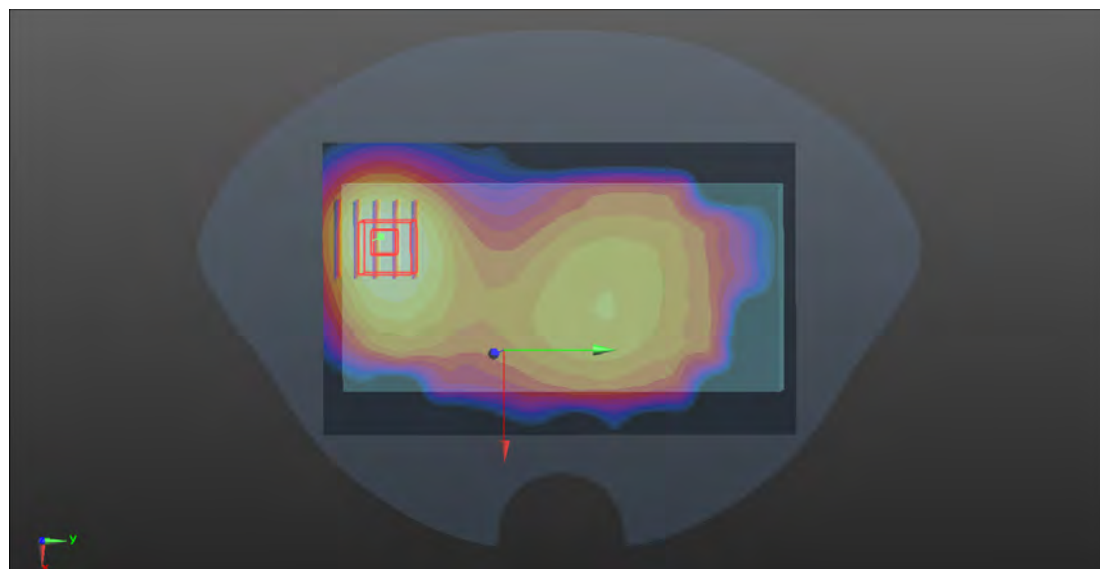
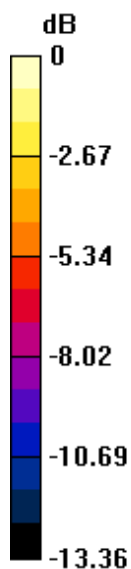
- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 13.19 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 0.486 W/kg

SAR(1 g) = 0.318 W/kg; SAR(10 g) = 0.215 W/kg

Maximum value of SAR (measured) = 0.411 W/kg



0 dB = 0.411 W/kg

P90 n7_DFT-s-OFDM_QPSK20M_Rear Face_1cm_Ch512000_1RB_OS1_Ant1

Communication System: NR; Frequency: 2560 MHz; Duty Cycle: 1:1

Medium: HSL2600_0107 Medium parameters used: $f = 2560$ MHz; $\sigma = 1.942$ S/m; $\epsilon_r = 37.581$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.4°C; Liquid Temperature : 22.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(7.47, 7.47, 7.47) @ 2560 MHz; Calibrated: 2022/8/31
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1389; Calibrated: 2022/11/9
- Phantom: SAM (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1781
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- **Area Scan (91x81x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 1.12 W/kg

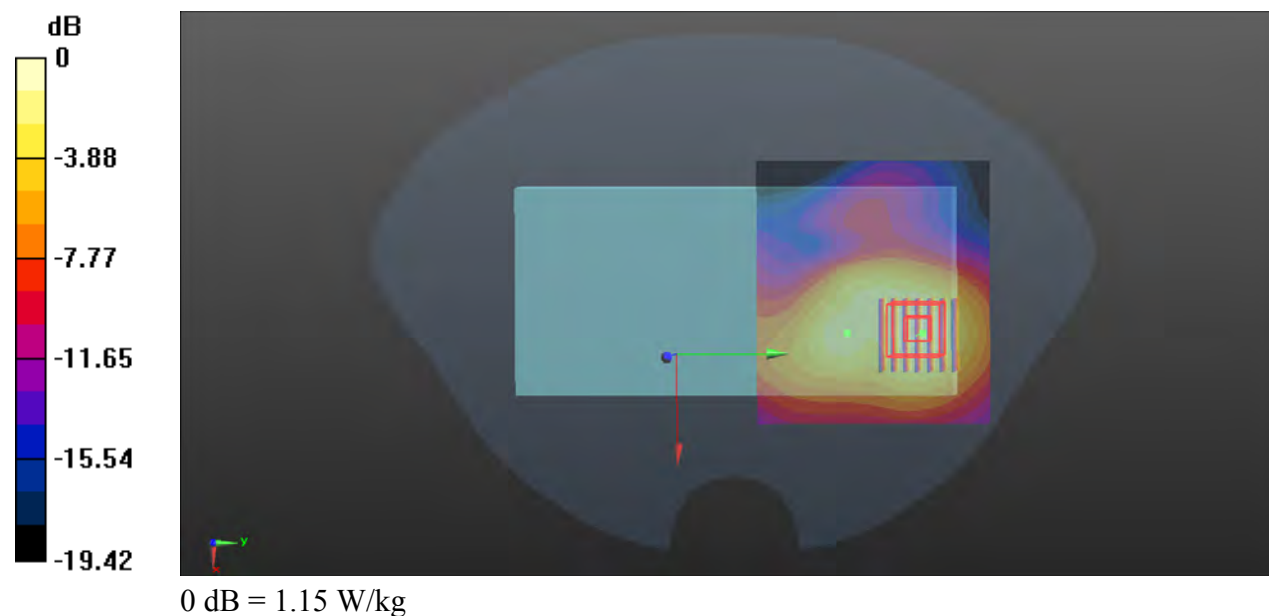
- **Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.365 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 1.45 W/kg

SAR(1 g) = 0.835 W/kg; SAR(10 g) = 0.455 W/kg

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



P91 n12_DFT-s-OFDM_QPSK15M_Front Face_1cm_Ch141300_1RB_OS1_Ant2

Communication System: NR; Frequency: 706.5 MHz; Duty Cycle: 1:1

Medium: HSL750_1215 Medium parameters used: $f = 706.5$ MHz; $\sigma = 0.851$ S/m; $\epsilon_r = 40.682$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.1°C; Liquid Temperature : 22.7°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(9.59, 9.59, 9.59) @ 706.5 MHz; Calibrated: 2022/8/31
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1389; Calibrated: 2022/11/9
- Phantom: SAM (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1781
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- **Area Scan (81x131x1):** Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.215 W/kg

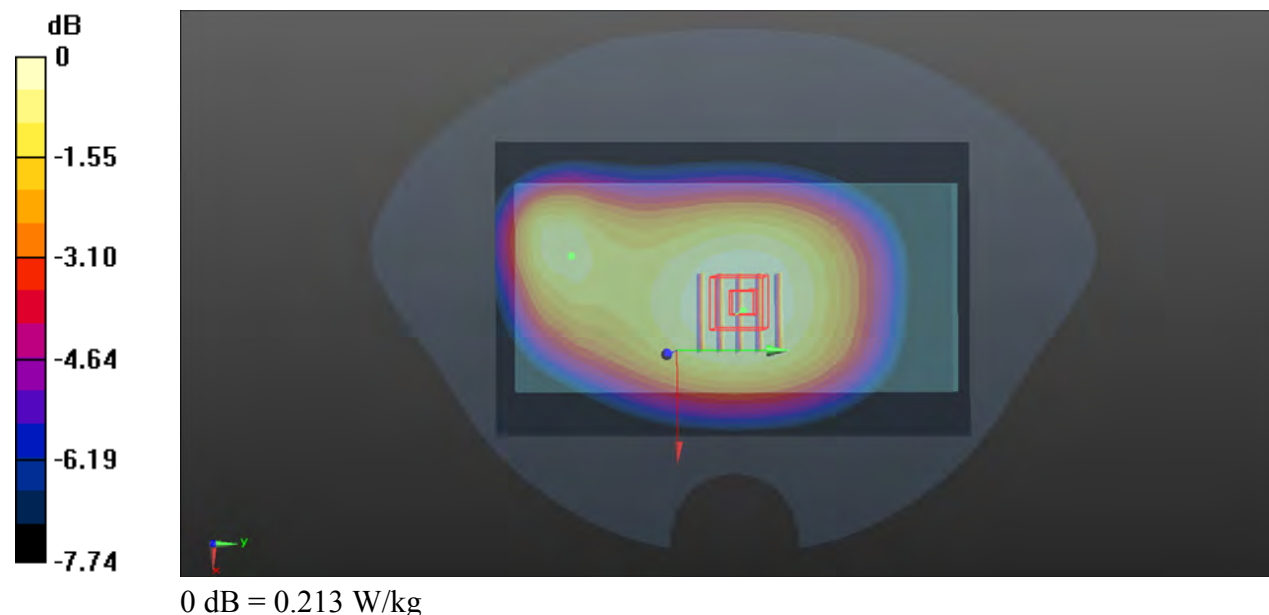
- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 15.13 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 0.233 W/kg

SAR(1 g) = 0.189 W/kg; SAR(10 g) = 0.145 W/kg

Maximum value of SAR (measured) = 0.213 W/kg



P92 n25_DFT-s-OFDM_QPSK40M_Rear Face_1cm_Ch374000_1RB_OS1_Ant1

Communication System: NR; Frequency: 1870 MHz; Duty Cycle: 1:1

Medium: HSL1900_0109 Medium parameters used: $f = 1870.3$ MHz; $\sigma = 1.369$ S/m; $\epsilon_r = 39.448$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.3°C; Liquid Temperature : 22.5°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(8.02, 8.02, 8.02) @ 1870 MHz; Calibrated: 2022/8/31
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1389; Calibrated: 2022/11/9
- Phantom: SAM (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1781
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- **Area Scan (81x71x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.722 W/kg

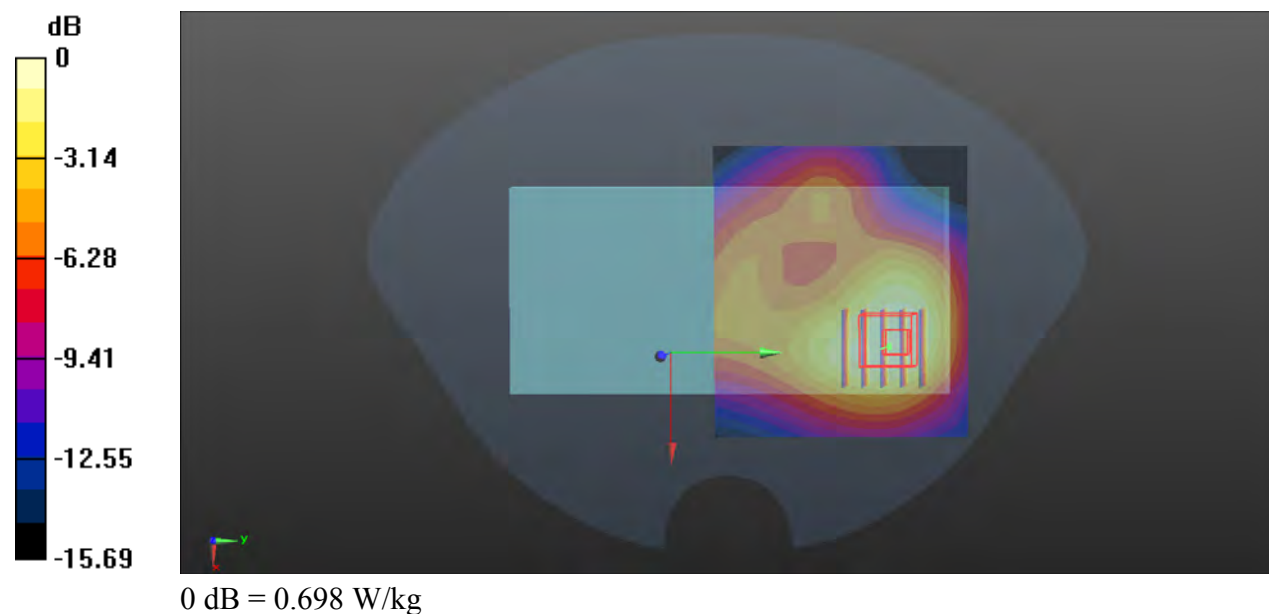
- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 11.35 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.887 W/kg

SAR(1 g) = 0.536 W/kg; SAR(10 g) = 0.324 W/kg

Maximum value of SAR (measured) = 0.698 W/kg



P93 n30_DFT-s-OFDM_QPSK10M_Rear Face_1cm_Ch462000_25RB_OS14_Ant1

Communication System: NR; Frequency: 2310 MHz; Duty Cycle: 1:1

Medium: HSL2300_1217 Medium parameters used: $f = 2310$ MHz; $\sigma = 1.682$ S/m; $\epsilon_r = 38.704$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(8.01, 8.01, 8.01) @ 2310 MHz; Calibrated: 2022/8/31
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1389; Calibrated: 2022/11/9
- Phantom: SAM (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1781
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- **Area Scan (91x161x1):** Interpolated grid: $dx=1.200$ mm, $dy=1.200$ mm
Maximum value of SAR (interpolated) = 0.574 W/kg

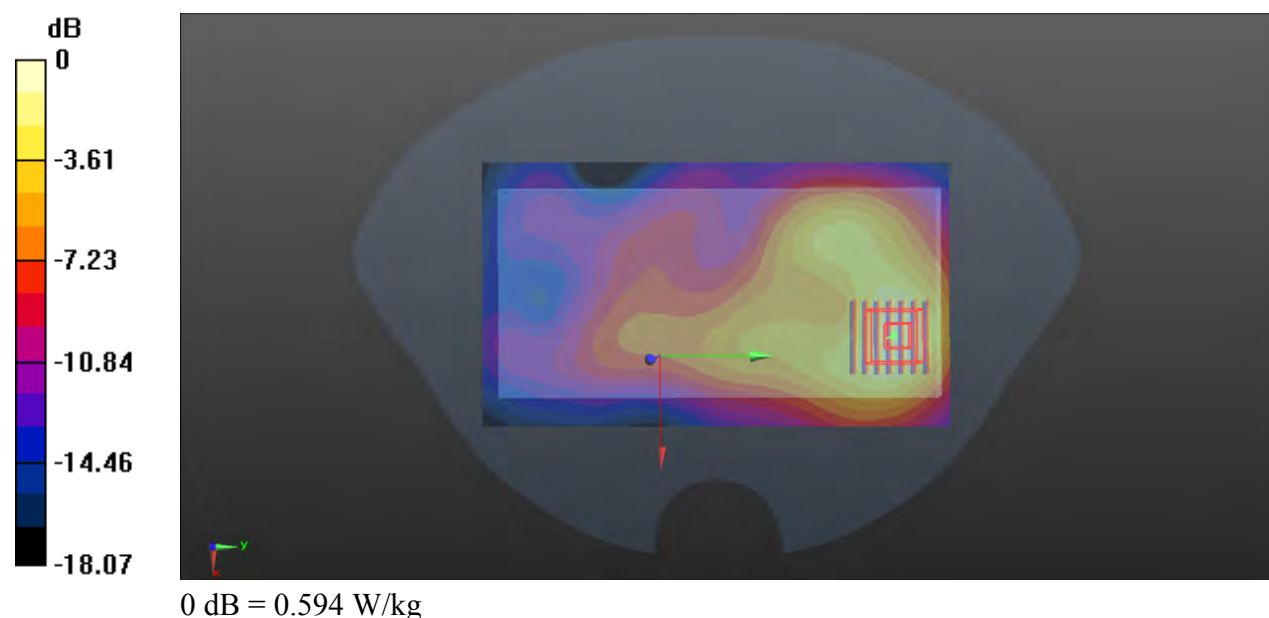
- **Zoom Scan (7x7x7)/Cube 0:** Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 6.690 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 0.761 W/kg

SAR(1 g) = 0.427 W/kg; SAR(10 g) = 0.234 W/kg

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



P94 n41_DFT-s-OFDM_QPSK100M_Rear Face_1cm_Ch509202_135RB_OS69_Ant1

Communication System: NR TDD; Frequency: 2546.01 MHz; Duty Cycle: 1:2.5

Medium: HSL2600_0107 Medium parameters used: $f = 2546.01$ MHz; $\sigma = 1.926$ S/m; $\epsilon_r = 37.637$;

$\rho = 1000$ kg/m³

Ambient Temperature : 23.4°C; Liquid Temperature : 22.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(7.47, 7.47, 7.47) @ 2546.01 MHz; Calibrated: 2022/8/31
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1389; Calibrated: 2022/11/9
- Phantom: SAM (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1781
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

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

Maximum value of SAR (interpolated) = 0.528 W/kg

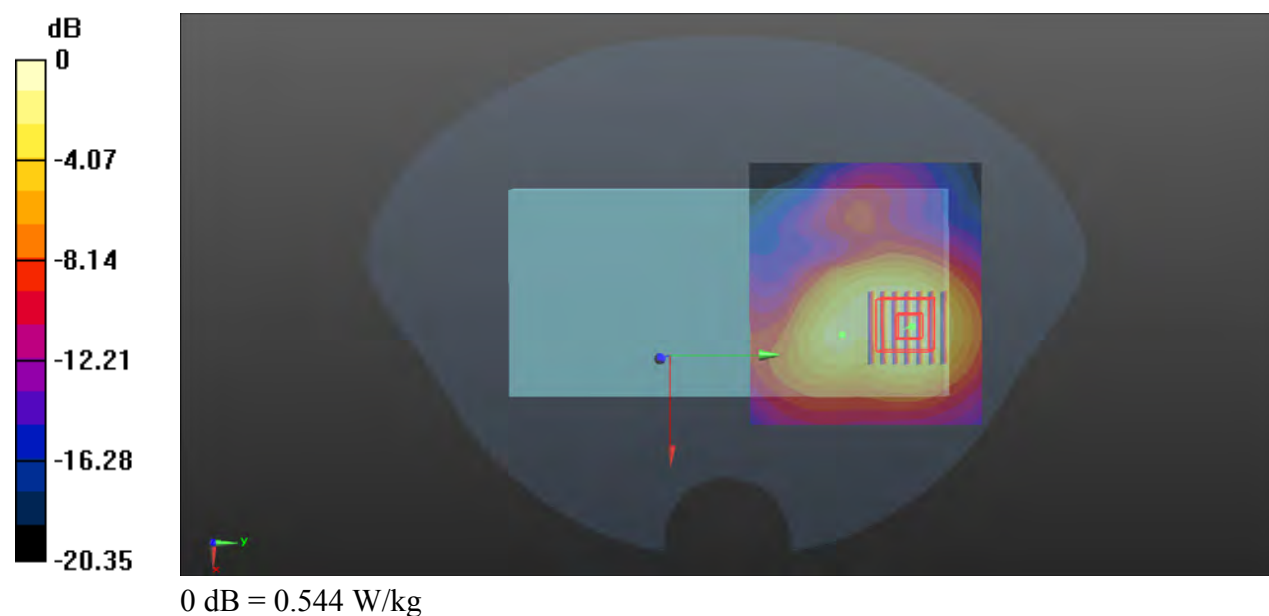
- **Zoom Scan (7x7x7)/Cube 0:** Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 3.500 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.697 W/kg

SAR(1 g) = 0.383 W/kg; SAR(10 g) = 0.202 W/kg

Maximum value of SAR (measured) = 0.544 W/kg



P95 n48_DFT-s-OFDM_QPSK40M_Left Side_1cm_Ch645332_50RB_OS28_Ant7

Communication System: NR TDD; Frequency: 3679.98 MHz; Duty Cycle: 1:2.5

Medium: HSL3700_1219 Medium parameters used: $f = 3680$ MHz; $\sigma = 2.989$ S/m; $\epsilon_r = 39.329$; $\rho = 1000$ kg/m³

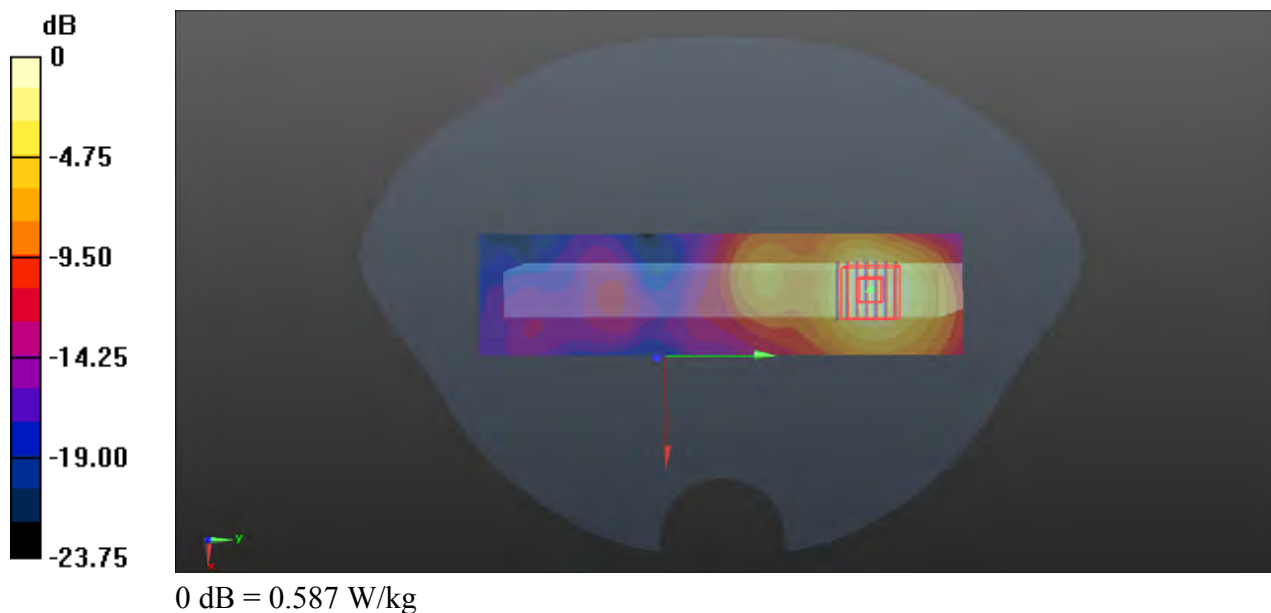
Ambient Temperature : 23.4°C; Liquid Temperature : 22.5°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(6.61, 6.61, 6.61) @ 3679.98 MHz; Calibrated: 2022/8/31
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1389; Calibrated: 2022/11/9
- Phantom: SAM (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1781
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- **Area Scan (51x201x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.601 W/kg

- **Zoom Scan (7x7x12)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 3.202 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 0.877 W/kg
SAR(1 g) = 0.366 W/kg; SAR(10 g) = 0.164 W/kg
Maximum value of SAR (measured) = 0.587 W/kg



P96 n66_DFT-s-OFDM_QPSK40M_Rear Face_1cm_Ch346000_108RB_OS54_Ant1

Communication System: NR; Frequency: 1730 MHz; Duty Cycle: 1:1

Medium: HSL1750_0108 Medium parameters used: $f = 1730$ MHz; $\sigma = 1.394$ S/m; $\epsilon_r = 41.425$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(8.25, 8.25, 8.25) @ 1730 MHz; Calibrated: 2022/8/31
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1389; Calibrated: 2022/11/9
- Phantom: SAM (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1781
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- **Area Scan (81x71x1):** Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.733 W/kg

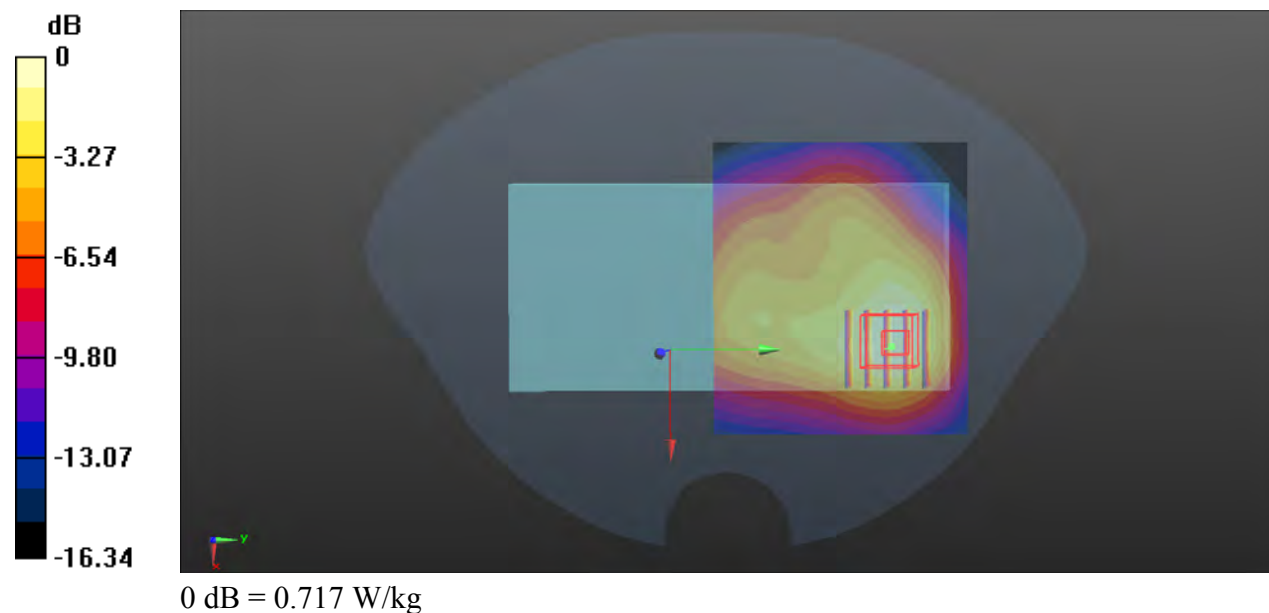
- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 11.91 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 0.893 W/kg

SAR(1 g) = 0.548 W/kg; SAR(10 g) = 0.329 W/kg

Maximum value of SAR (measured) = 0.717 W/kg



P97 n71_DFT-s-OFDM_QPSK15M_Front Face_1cm_Ch136100_36RB_OS19_Ant2

Communication System: NR; Frequency: 680.5 MHz; Duty Cycle: 1:1

Medium: HSL750_1215 Medium parameters used: $f = 680.5$ MHz; $\sigma = 0.861$ S/m; $\epsilon_r = 41.111$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.1°C; Liquid Temperature : 22.7°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(9.59, 9.59, 9.59) @ 680.5 MHz; Calibrated: 2022/8/31
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1389; Calibrated: 2022/11/9
- Phantom: SAM (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1781
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- **Area Scan (81x131x1):** Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.210 W/kg

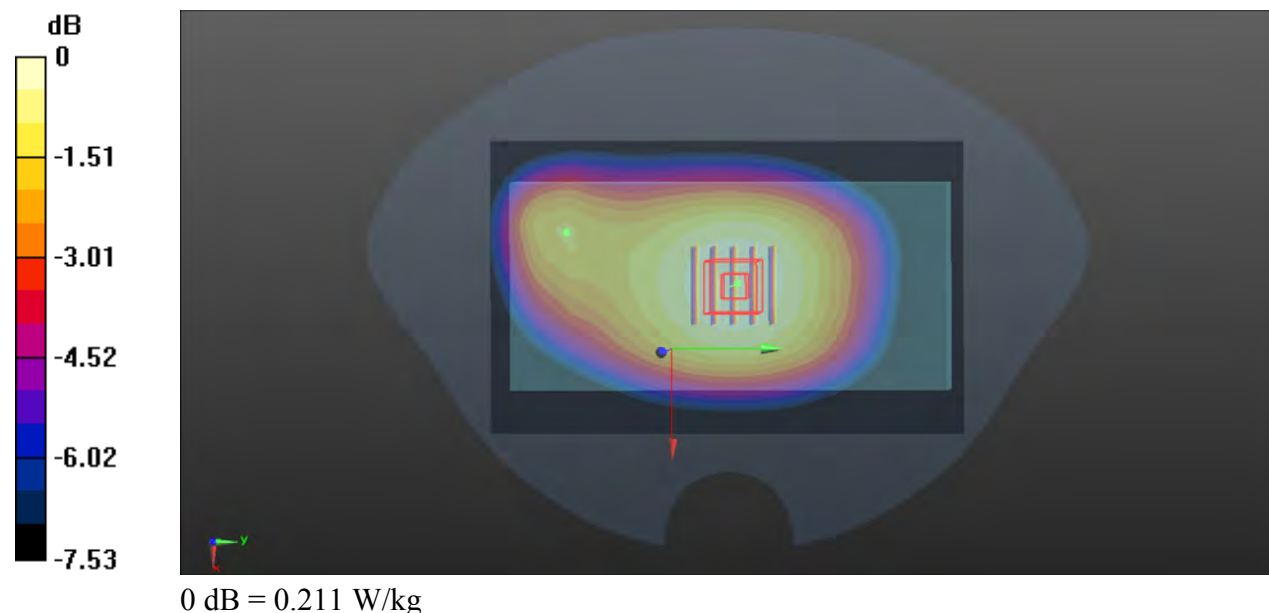
- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 15.11 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.230 W/kg

SAR(1 g) = 0.182 W/kg; SAR(10 g) = 0.142 W/kg

Maximum value of SAR (measured) = 0.211 W/kg



P98 n77_DFT-s-OFDM_QPSK100M_Top Side_1cm_Ch633334_1RB_OS1_Ant7

Communication System: NR TDD; Frequency: 3500.01 MHz; Duty Cycle: 1:2.5

Medium: HSL3500_1219 Medium parameters used: $f = 3500.01$ MHz; $\sigma = 3.013$ S/m; $\epsilon_r = 39.686$;

$\rho = 1000$ kg/m³

Ambient Temperature : 23.6°C; Liquid Temperature : 22.3°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(6.77, 6.77, 6.77) @ 3500.01 MHz; Calibrated: 2022/8/31
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1389; Calibrated: 2022/11/9
- Phantom: SAM (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1781
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- **Area Scan (51x101x1)**: Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.564 W/kg

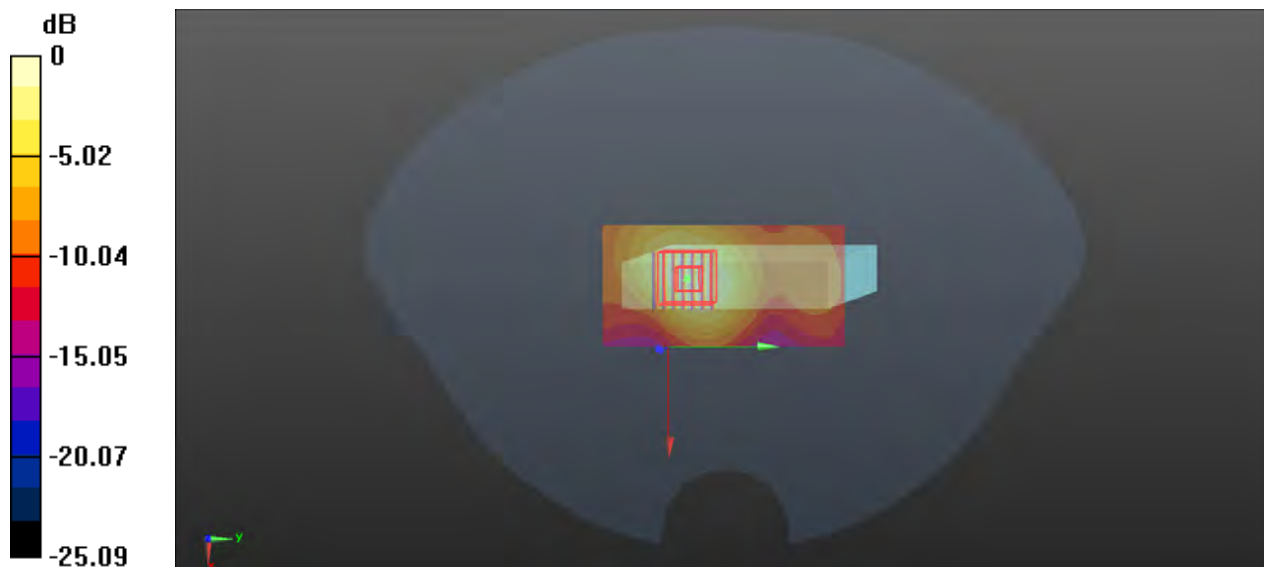
- **Zoom Scan (7x7x12)/Cube 0**: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 8.926 V/m; Power Drift = 0.18 dB

Peak SAR (extrapolated) = 0.780 W/kg

SAR(1 g) = 0.360 W/kg; SAR(10 g) = 0.163 W/kg

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



0 dB = 0.557 W/kg

P99 n77_DFT-s-OFDM_QPSK100M_Left Side_1cm_Ch650000_1RB_OS1_Ant7

Communication System: NR TDD; Frequency: 3750 MHz; Duty Cycle: 1:2.5

Medium: HSL3700_1219 Medium parameters used: $f = 3750$ MHz; $\sigma = 3.054$ S/m; $\epsilon_r = 39.198$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(6.61, 6.61, 6.61) @ 3750 MHz; Calibrated: 2022/8/31
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1389; Calibrated: 2022/11/9
- Phantom: SAM (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1781
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- **Area Scan (51x121x1)**: Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.556 W/kg

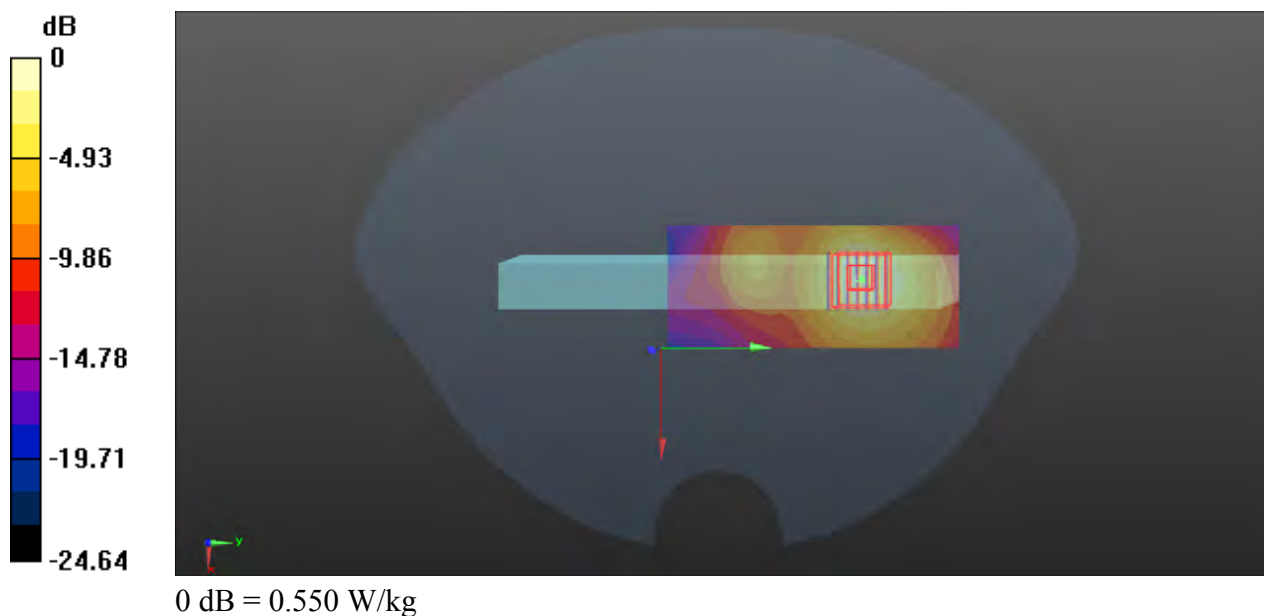
- **Zoom Scan (7x7x12)/Cube 0**: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 3.016 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 0.825 W/kg

SAR(1 g) = 0.346 W/kg; SAR(10 g) = 0.154 W/kg

Maximum value of SAR (measured) = 0.550 W/kg



P100 WLAN2.4G_802.11b_Rear Face_1cm_Ch6_Ant8+9

Communication System: 802.11b; Frequency: 2437 MHz; Duty Cycle: 1:1.02

Medium: HSL2450_1218 Medium parameters used: $f = 2437$ MHz; $\sigma = 1.808$ S/m; $\epsilon_r = 37.666$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(7.59, 7.59, 7.59) @ 2437 MHz; Calibrated: 2022/8/31
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1389; Calibrated: 2022/11/9
- Phantom: SAM (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1781
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- **Area Scan (91x81x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.565 W/kg

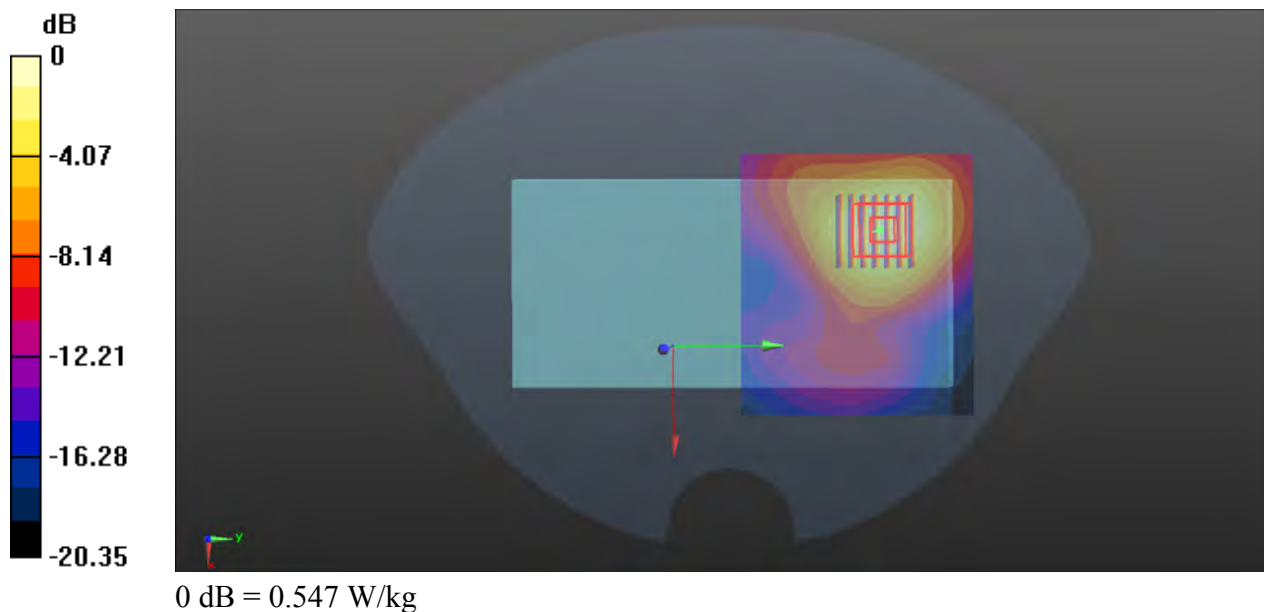
- **Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 2.214 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.706 W/kg

SAR(1 g) = 0.395 W/kg; SAR(10 g) = 0.214 W/kg

Maximum value of SAR (measured) = 0.547 W/kg



P101 WLAN5G_802.11a_Top Side_1cm_Ch40_Ant8

Communication System: 802.11a; Frequency: 5200 MHz; Duty Cycle: 1:1.03

Medium: HSL5G_1220 Medium parameters used: $f = 5200$ MHz; $\sigma = 4.647$ S/m; $\epsilon_r = 36.202$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5°C; Liquid Temperature : 22.6°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(4.75, 4.75, 4.75) @ 5200 MHz; Calibrated: 2022/8/31
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1389; Calibrated: 2022/11/9
- Phantom: SAM (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1781
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- Area Scan (51x101x1): Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 0.330 W/kg

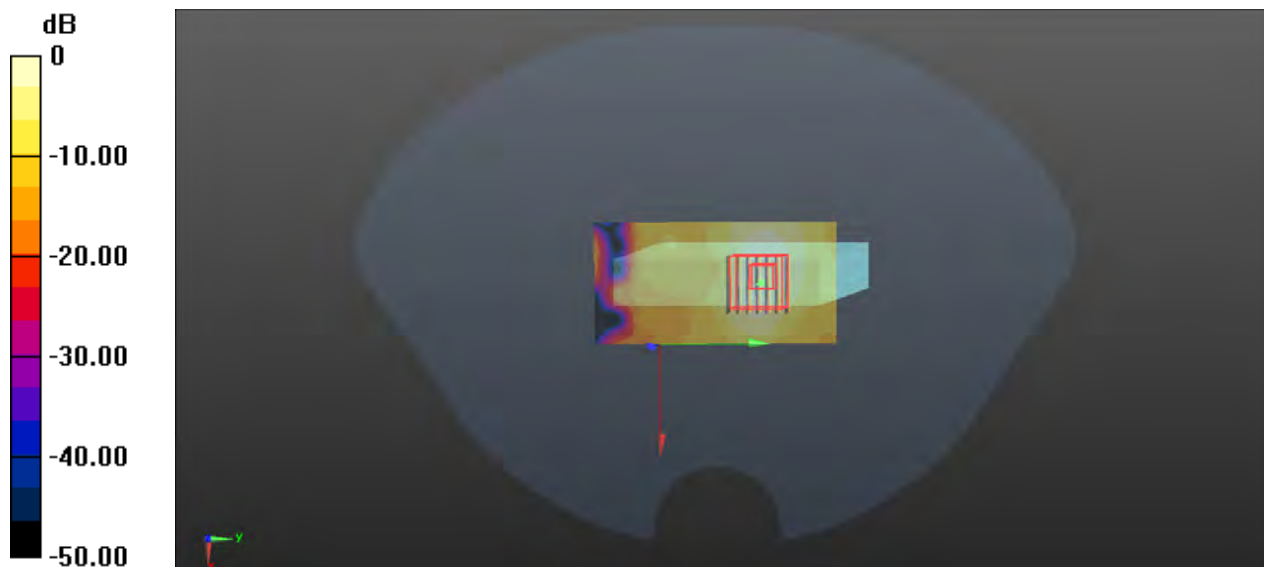
- Zoom Scan (7x7x12)/Cube 0: Measurement grid: $dx=4$ mm, $dy=4$ mm, $dz=2$ mm

Reference Value = 2.109 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 0.591 W/kg

SAR(1 g) = 0.172 W/kg; SAR(10 g) = 0.060 W/kg

Maximum value of SAR (measured) = 0.315 W/kg



0 dB = 0.315 W/kg

P102 WLAN5G_802.11a_Rear Face_1cm_Ch149_Ant8+9

Communication System: 802.11a; Frequency: 5745 MHz; Duty Cycle: 1:1.02

Medium: HSL5G_1222 Medium parameters used: $f = 5745$ MHz; $\sigma = 5.296$ S/m; $\epsilon_r = 35.227$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(4.48, 4.48, 4.48) @ 5745 MHz; Calibrated: 2022/8/31
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1389; Calibrated: 2022/11/9
- Phantom: SAM (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1781
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- **Area Scan (111x101x1):** Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 0.283 W/kg

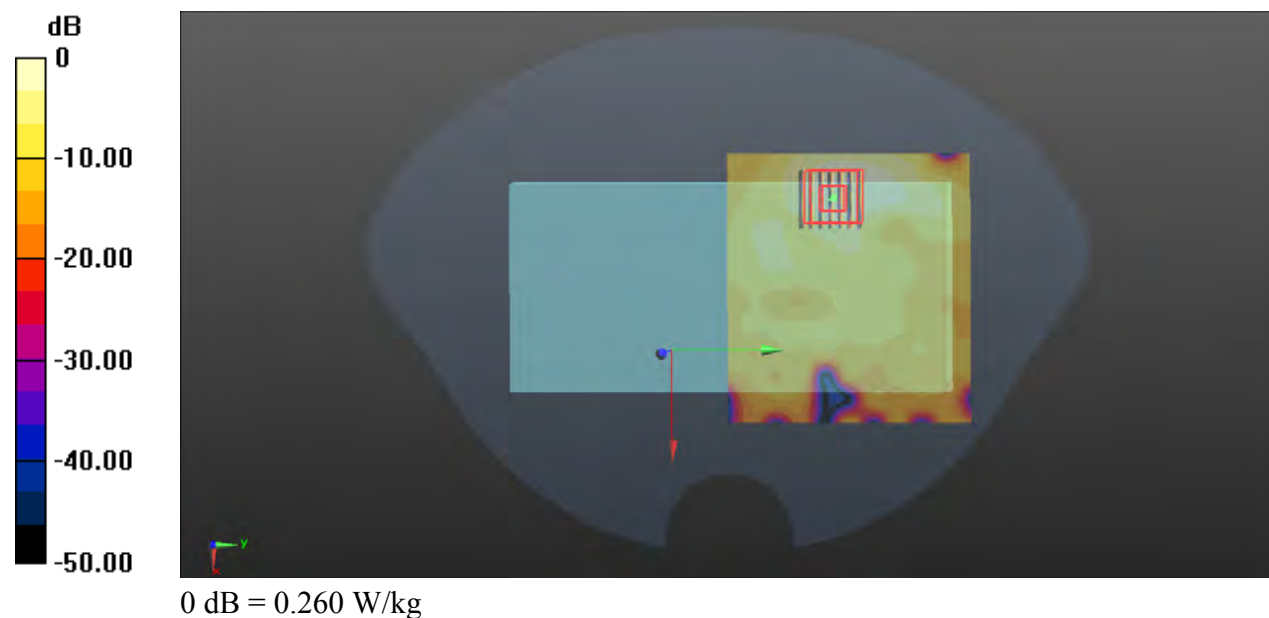
- **Zoom Scan (7x7x12)/Cube 0:** Measurement grid: $dx=4$ mm, $dy=4$ mm, $dz=2$ mm

Reference Value = 1.660 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.480 W/kg

SAR(1 g) = 0.134 W/kg; SAR(10 g) = 0.049 W/kg

Maximum value of SAR (measured) = 0.260 W/kg



P103 BT_GFSK_Rear Face_1cm_Ch39_Ant8

Communication System: BT; Frequency: 2441 MHz; Duty Cycle: 1:1.31

Medium: HSL2450_1218 Medium parameters used: $f = 2441$ MHz; $\sigma = 1.812$ S/m; $\epsilon_r = 37.644$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(7.59, 7.59, 7.59) @ 2441 MHz; Calibrated: 2022/8/31
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1389; Calibrated: 2022/11/9
- Phantom: SAM (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1781
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- **Area Scan (91x81x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.0254 W/kg

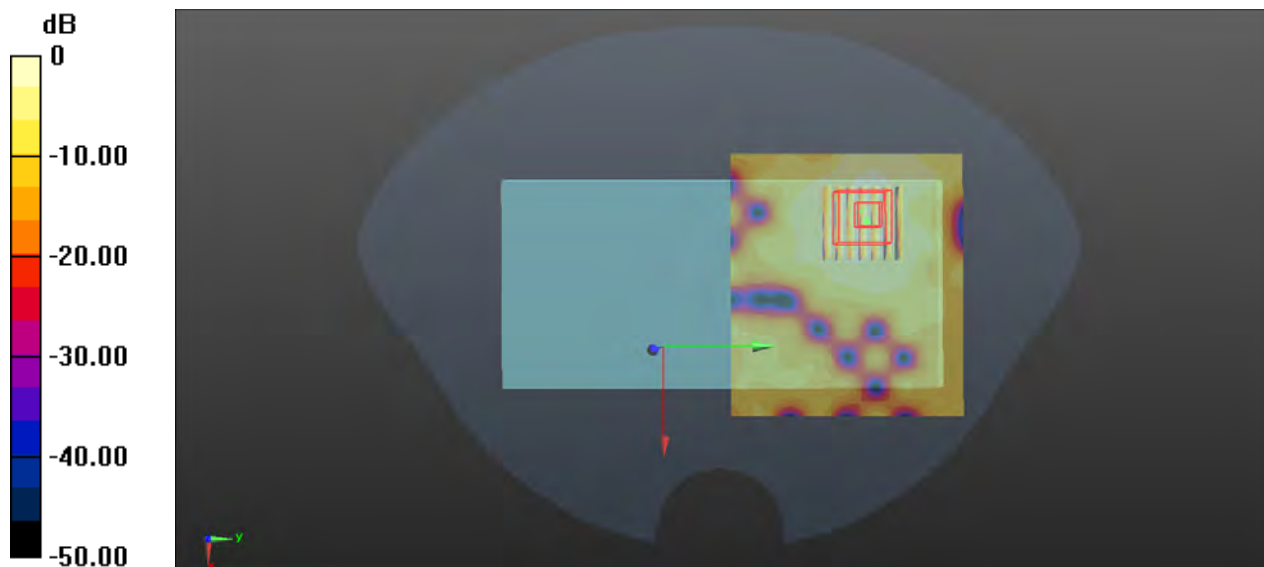
- **Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 1.152 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 0.0320 W/kg

SAR(1 g) = 0.017 W/kg; SAR(10 g) = 0.00789 W/kg

Maximum value of SAR (measured) = 0.0243 W/kg



0 dB = 0.0243 W/kg

P104 BLE_S8_Rear Face_1cm_Ch19_Ant8

Communication System: BT; Frequency: 2440 MHz; Duty Cycle: 1:1.21

Medium: HSL2450_1218 Medium parameters used: $f = 2440$ MHz; $\sigma = 1.811$ S/m; $\epsilon_r = 37.65$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(7.59, 7.59, 7.59) @ 2440 MHz; Calibrated: 2022/8/31
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1389; Calibrated: 2022/11/9
- Phantom: SAM (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1781
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- **Area Scan (91x81x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.0607 W/kg

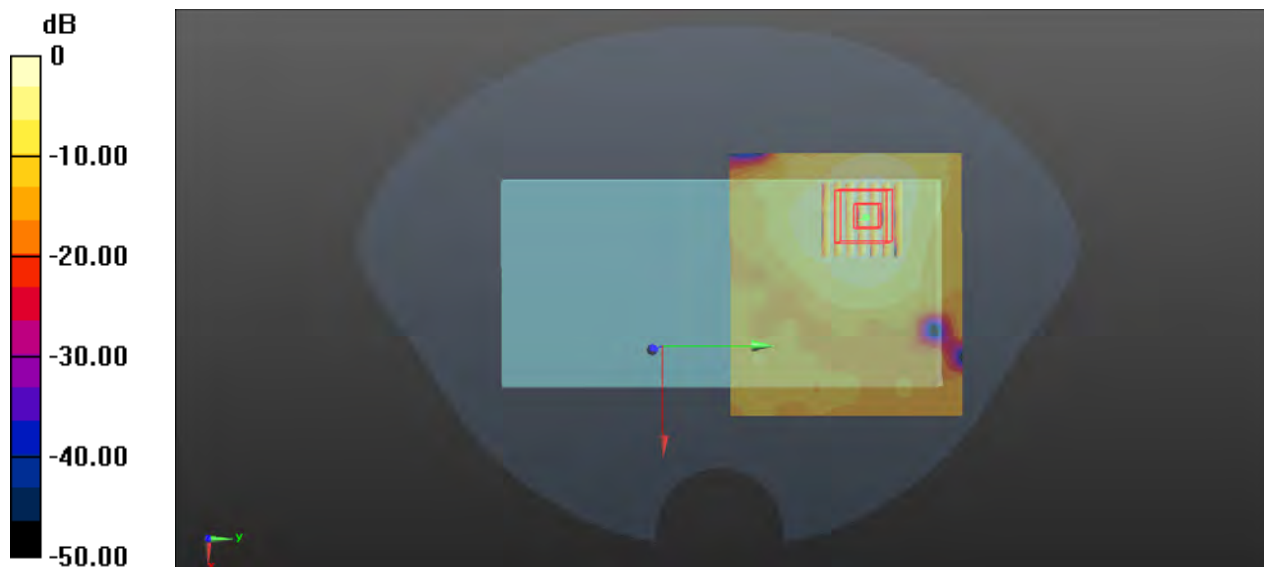
- **Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 1.438 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 0.0750 W/kg

SAR(1 g) = 0.040 W/kg; SAR(10 g) = 0.020 W/kg

Maximum value of SAR (measured) = 0.0578 W/kg



0 dB = 0.0578 W/kg

P105 WLAN5G_802.11a_Top Side_0cm_Ch52_Ant8

Communication System: 802.11a; Frequency: 5260 MHz; Duty Cycle: 1:1.03

Medium: HSL5G_1220 Medium parameters used: $f = 5260$ MHz; $\sigma = 4.718$ S/m; $\epsilon_r = 36.099$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5°C; Liquid Temperature : 22.6°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(4.75, 4.75, 4.75) @ 5260 MHz; Calibrated: 2022/8/31
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1389; Calibrated: 2022/11/9
- Phantom: SAM (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1781
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- **Area Scan (51x101x1):** Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 1.34 W/kg

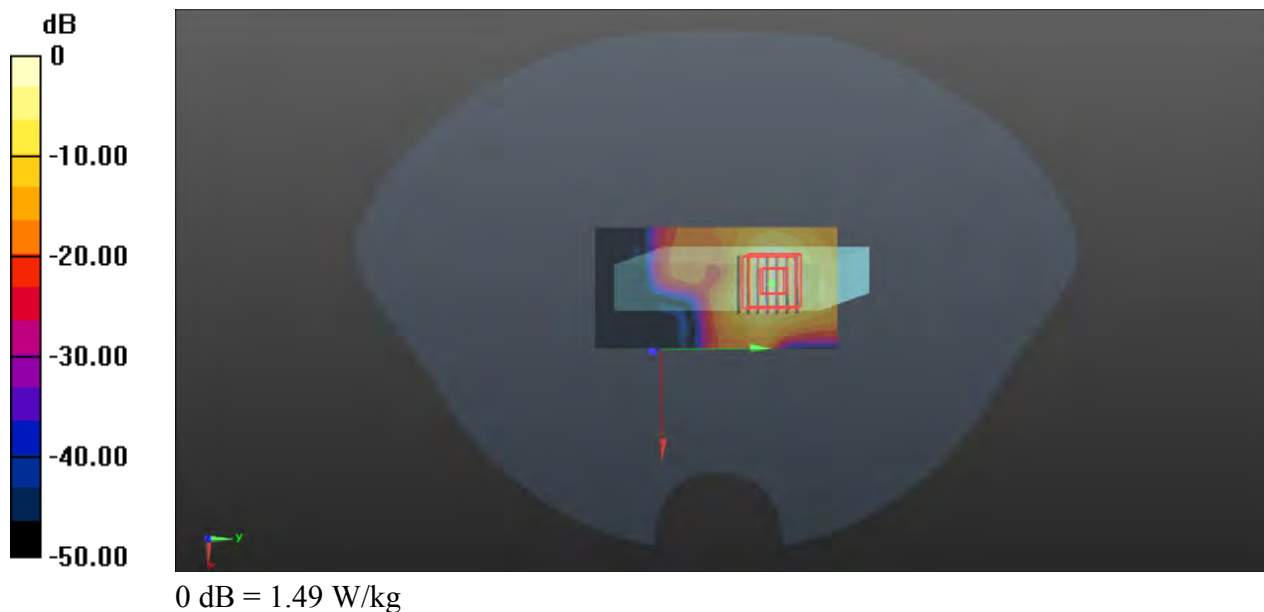
- **Zoom Scan (7x7x12)/Cube 0:** Measurement grid: $dx=4$ mm, $dy=4$ mm, $dz=2$ mm

Reference Value = 1.566 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 2.84 W/kg

SAR(1 g) = 0.727 W/kg; SAR(10 g) = 0.209 W/kg

Maximum value of SAR (measured) = 1.49 W/kg



P106 WLAN5G_802.11a_Rear Face_0cm_Ch132_Ant8+9

Communication System: 802.11a; Frequency: 5660 MHz; Duty Cycle: 1:1.03

Medium: HSL5G_1221 Medium parameters used: $f = 5660$ MHz; $\sigma = 5.197$ S/m; $\epsilon_r = 35.405$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.7°C; Liquid Temperature : 22.4°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(4.47, 4.47, 4.47) @ 5660 MHz; Calibrated: 2022/8/31
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1389; Calibrated: 2022/11/9
- Phantom: SAM (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1781
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- **Area Scan (111x101x1):** Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 1.78 W/kg

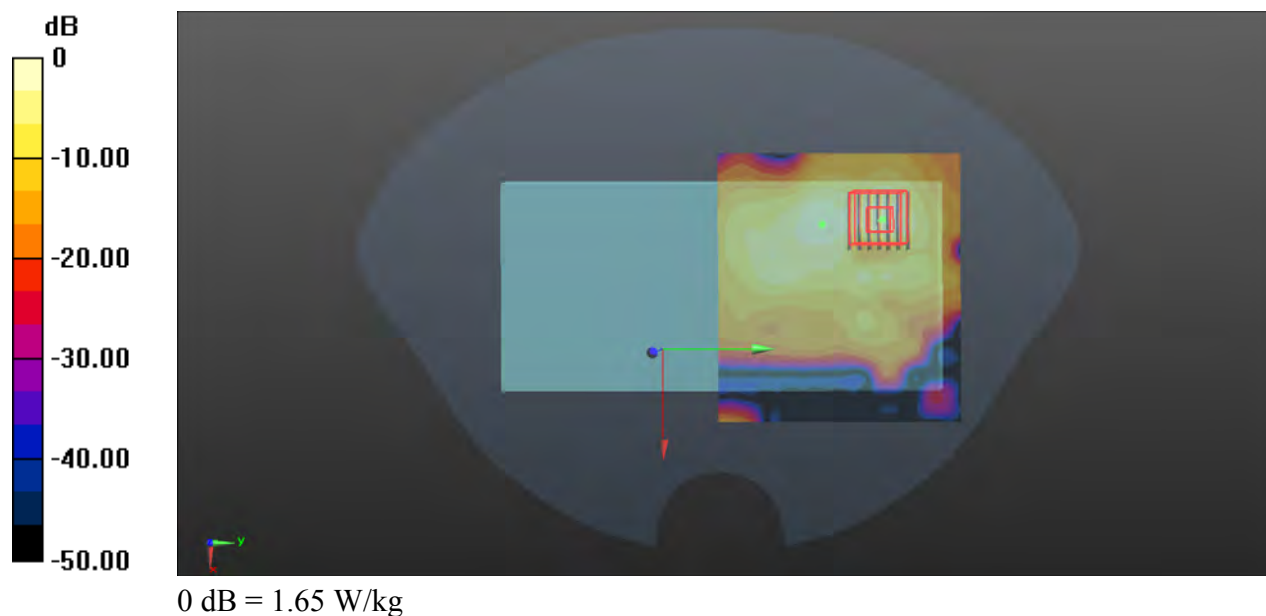
- **Zoom Scan (7x7x12)/Cube 0:** Measurement grid: $dx=4$ mm, $dy=4$ mm, $dz=2$ mm

Reference Value = 7.084 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 3.32 W/kg

SAR(1 g) = 0.787 W/kg; SAR(10 g) = 0.229 W/kg

Maximum value of SAR (measured) = 1.65 W/kg





Appendix C. Calibration Certificate for Probe and Dipole

The SPEAG calibration certificates are shown as follows.



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CNAS L0570

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Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

Client

B.V.ADT

Certificate No: **Z21-60332**

CALIBRATION CERTIFICATE

Object **D750V3 - SN: 1067**

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

Calibration date: **September 16, 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 $(22\pm3)^{\circ}\text{C}$ 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	23-Sep-20 (CTTL, No.J20X08336)	Sep-21
Power sensor NRP8S	104291	23-Sep-20 (CTTL, No.J20X08336)	Sep-21
Reference Probe EX3DV4	SN 7517	03-Feb-21(CTTL-SPEAG,No.Z21-60001)	Feb-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	

Issued: September 21, 2021

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



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Add: No.52 HuanYuanBei Road, Haidian District, Beijing, 100191, China

Tel: +86-10-62304633-2079

Fax: +86-10-62304633-2504

E-mail: ctl@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%.



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Add: No.52 HuanYuanBei 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	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	42.1 $\pm$ 6 %	0.87 mho/m $\pm$ 6 %
Head TSL temperature change during test	<1.0 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.05 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	8.34 W/kg $\pm$ 18.8 % (k=2)
SAR averaged over 10 cm³ (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	1.34 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	5.43 W/kg $\pm$ 18.7 % (k=2)



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Fax: +86-10-62304633-2504

E-mail: cttl@chinattl.com

http://www.chinattl.cn

Appendix (Additional assessments outside the scope of CNAS L0570)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	55.7Ω- 1.83jΩ
Return Loss	- 25.0dB

General Antenna Parameters and Design

Electrical Delay (one direction)	0.939 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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Add: No.52 HuanYuanBei 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

DASY5 Validation Report for Head TSL

Date: 09.16.2021

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 - SN: 1067

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

Medium parameters used: $f = 750$ MHz; $\sigma = 0.872$ S/m; $\epsilon_r = 42.14$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7517; ConvF(9.81, 9.81, 9.81) @ 750 MHz; Calibrated: 2021-02-03
- 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
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

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

Reference Value = 55.23 V/m; Power Drift = -0.01 dB

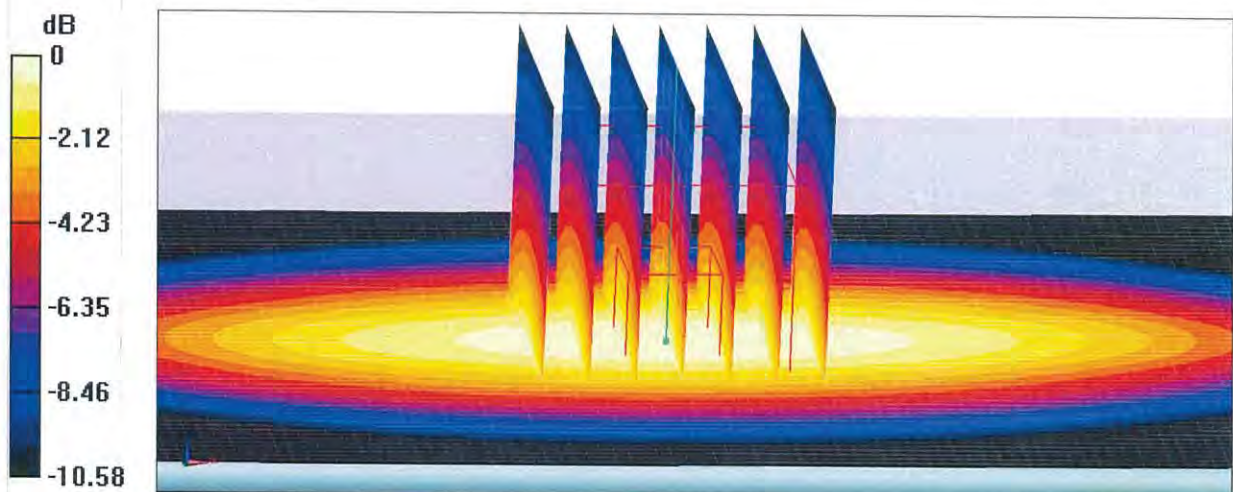
Peak SAR (extrapolated) = 3.22 W/kg

SAR(1 g) = 2.05 W/kg; SAR(10 g) = 1.34 W/kg

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

Ratio of SAR at M2 to SAR at M1 = 63.9%

Maximum value of SAR (measured) = 2.79 W/kg



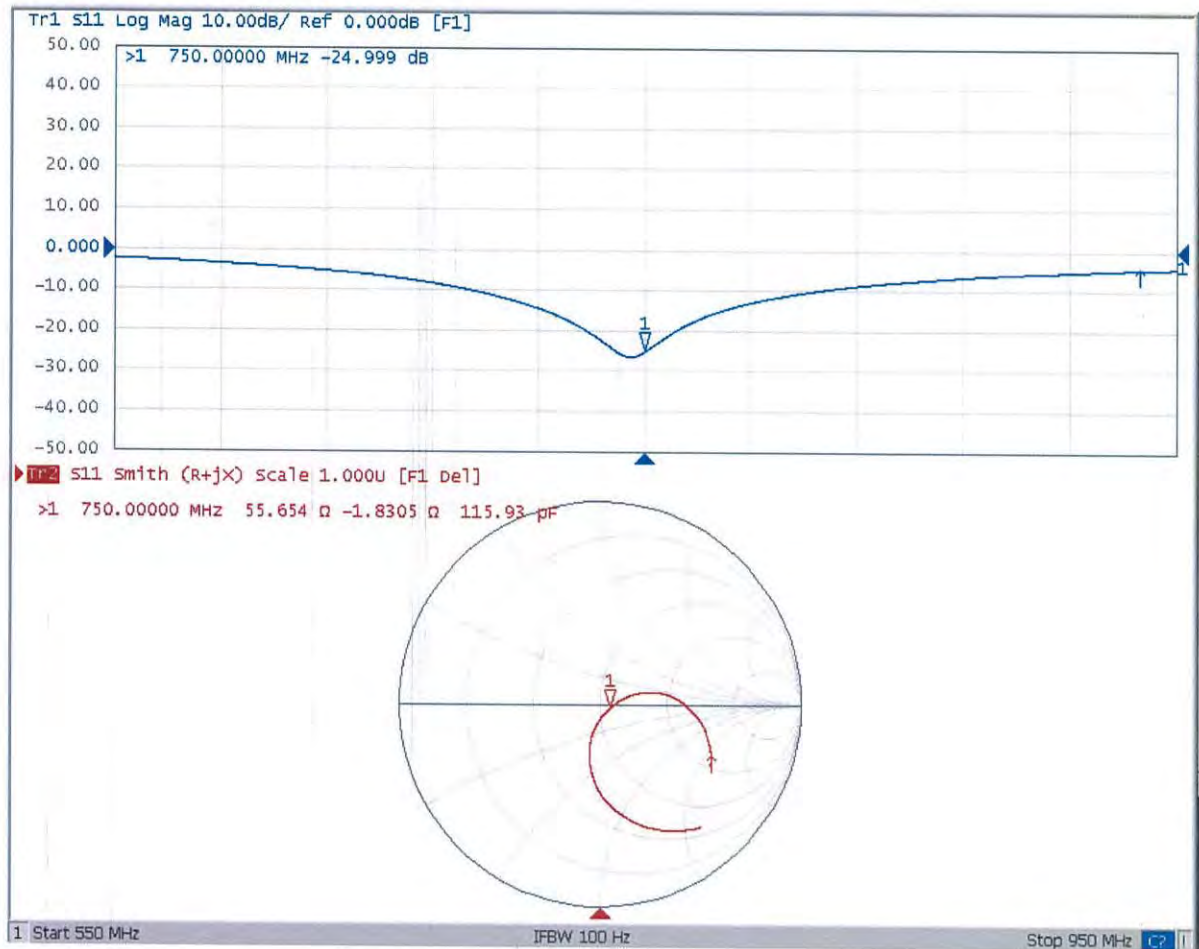
0 dB = 2.79 W/kg = 4.46 dBW/kg



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Impedance Measurement Plot for Head TSL



D750V3 - SN: 1067 Extended Dipole Calibrations

Referring to KDB 865664 D01, if dipoles are verified in return loss ($< -20\text{dB}$, within 20% of prior calibration), and in impedance (within 5 ohm of prior calibration), the annual calibration is not necessary and the calibration interval can be extended.

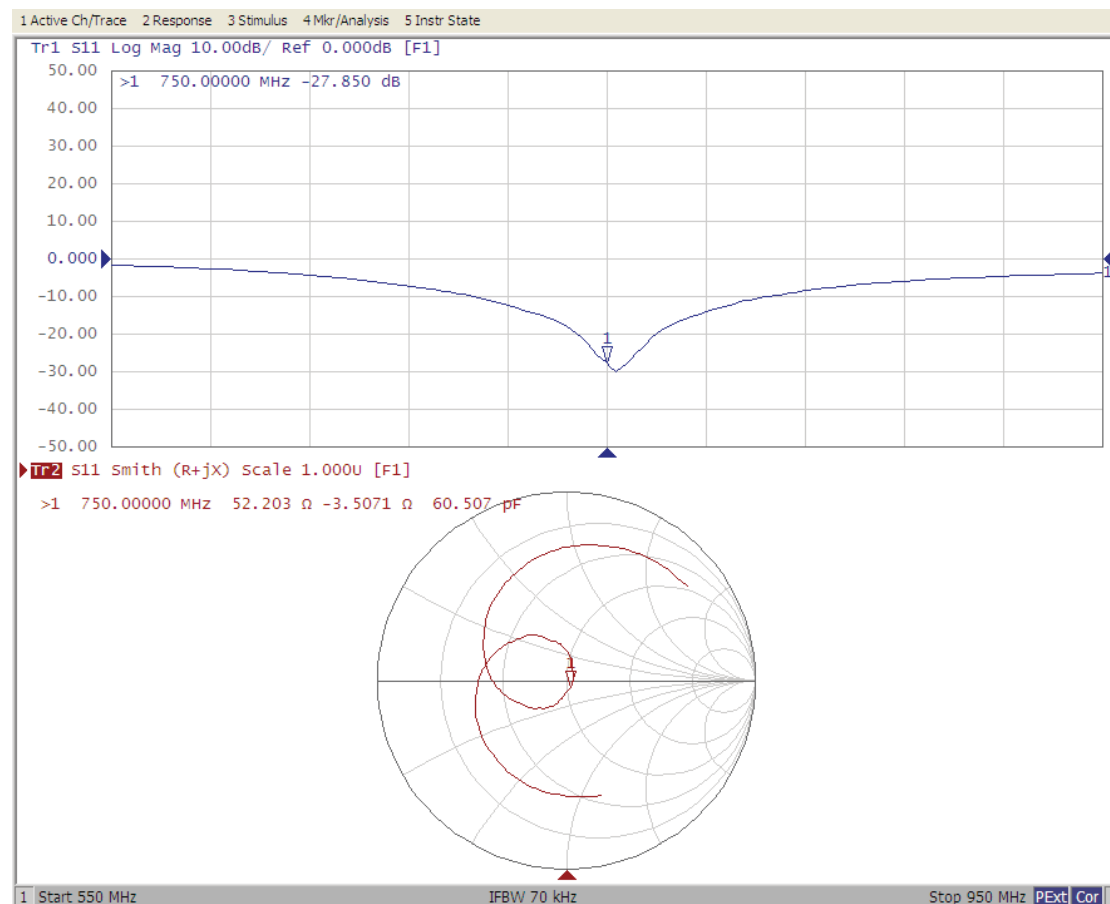
D750V3 - SN: 1067						
750 Head						
Date of Measurement	Return-loss (dB)	Delta (%)	Real Impedance (ohm)	Delta (ohm)	Imaginary Impedance (ohm)	Delta (ohm)
2021.09.16	-25.0		55.7		-1.8	
2022.09.16	-27.8	-11.2	52.2	-3.5	-3.5	-1.7

<Justification of the extended calibration>

The return loss is $< -20\text{dB}$, within 20% of prior calibration, and the impedance is within 5 ohm of prior calibration. Therefore the verification result should support extended calibration.

<Dipole Verification Data>

Head 750MHz _2022.0916





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

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Certificate No: **Z21-60333**

CALIBRATION CERTIFICATE

Object **D835V2 - SN: 4d139**

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

Calibration date: **September 17, 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	23-Sep-20 (CTTL, No.J20X08336)	Sep-21
Power sensor NRP8S	104291	23-Sep-20 (CTTL, No.J20X08336)	Sep-21
Reference Probe EX3DV4	SN 7517	03-Feb-21(CTTL-SPEAG,No.Z21-60001)	Feb-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	

Issued: September 22, 2021

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



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.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504
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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	835 MHz $\pm$ 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	41.5	0.90 mho/m
Measured Head TSL parameters	(22.0 $\pm$ 0.2) °C	41.2 $\pm$ 6 %	0.91 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	2.39 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	9.47 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	1.55 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	6.15 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	51.4Ω- 2.93jΩ
Return Loss	- 29.9dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.302 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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Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

DASY5 Validation Report for Head TSL

Date: 09.17.2021

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d139

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

Medium parameters used: $f = 835$ MHz; $\sigma = 0.91$ S/m; $\epsilon_r = 41.23$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7517; ConvF(9.81, 9.81, 9.81) @ 835 MHz; Calibrated: 2021-02-03
- 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
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

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

Reference Value = 58.58 V/m; Power Drift = 0.00 dB

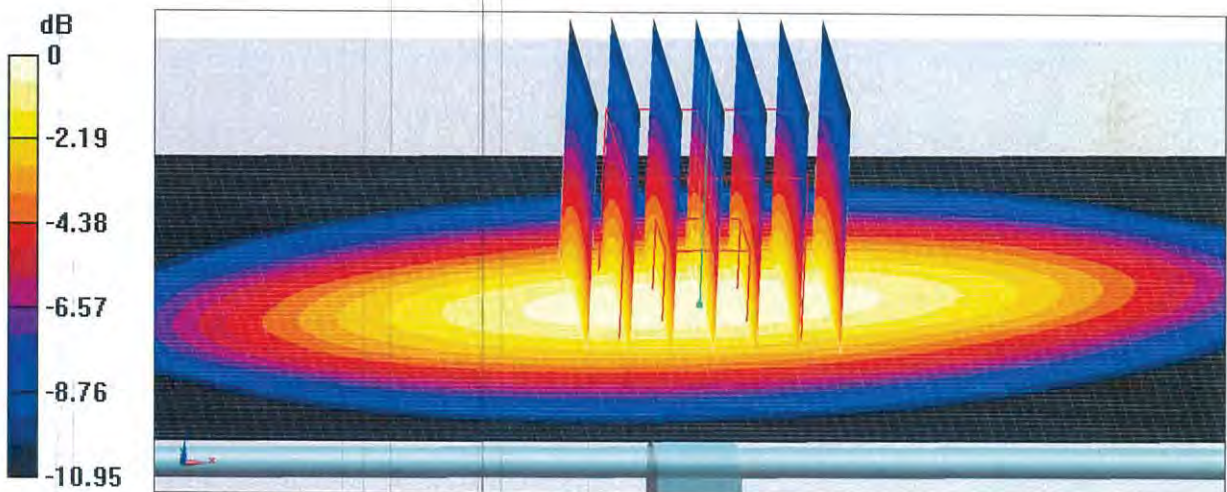
Peak SAR (extrapolated) = 3.75 W/kg

SAR(1 g) = 2.39 W/kg; SAR(10 g) = 1.55 W/kg

Smallest distance from peaks to all points 3 dB below = 17.5 mm

Ratio of SAR at M2 to SAR at M1 = 63.9%

Maximum value of SAR (measured) = 3.27 W/kg



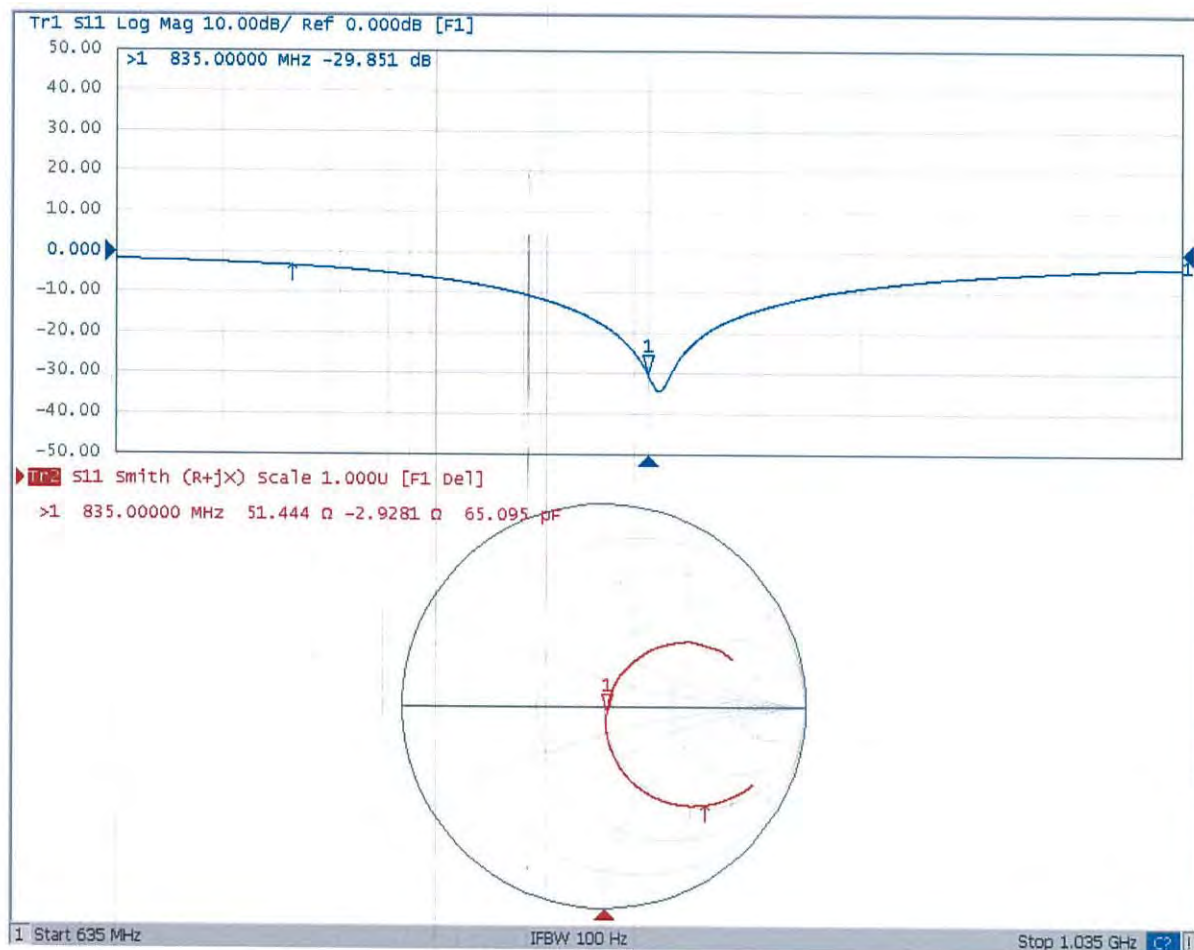
0 dB = 3.27 W/kg = 5.15 dBW/kg



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Impedance Measurement Plot for Head TSL



D835V2 - SN: 4d139 Extended Dipole Calibrations

Referring to KDB 865664 D01, if dipoles are verified in return loss ($< -20\text{dB}$, within 20% of prior calibration), and in impedance (within 5 ohm of prior calibration), the annual calibration is not necessary and the calibration interval can be extended.

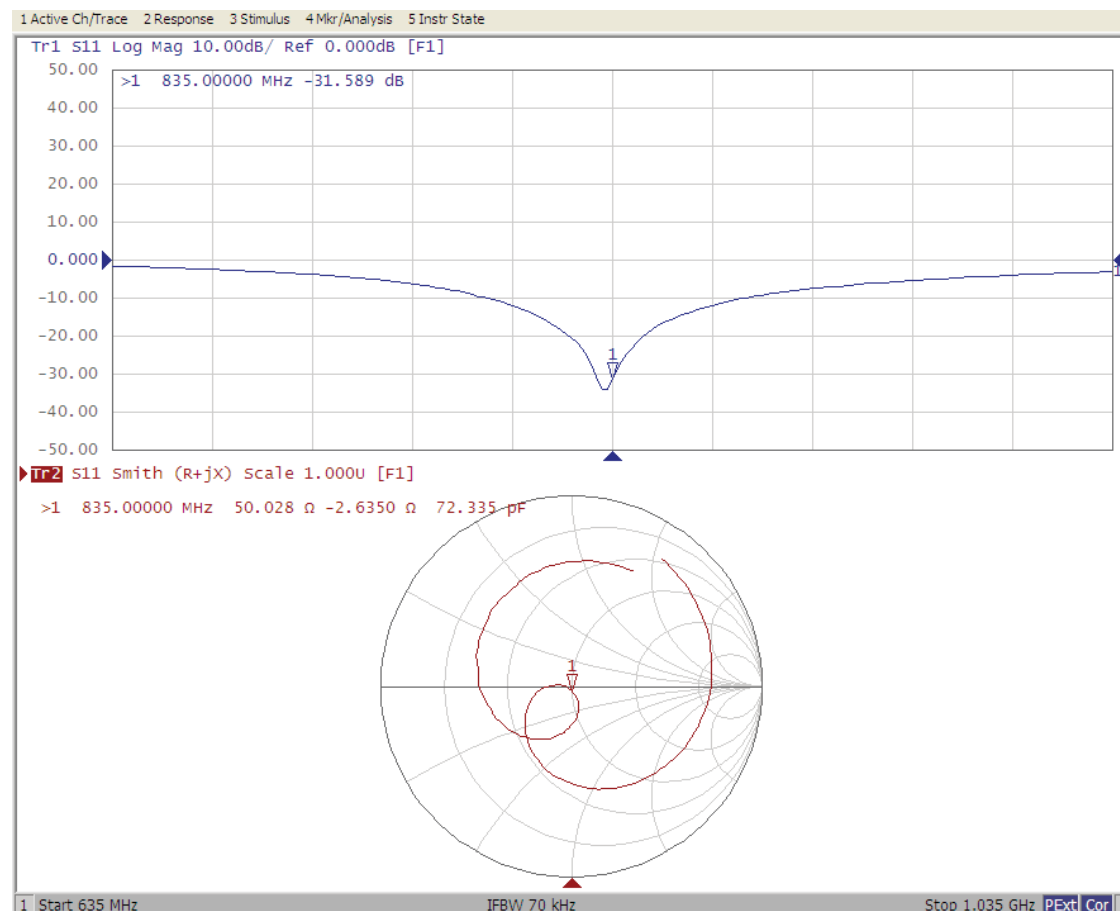
D835V2 - SN: 4d139						
835 Head						
Date of Measurement	Return-loss (dB)	Delta (%)	Real Impedance (ohm)	Delta (ohm)	Imaginary Impedance (ohm)	Delta (ohm)
2021.09.17	-29.8		51.4		-2.9	
2022.09.17	-31.6	-6.0	50.0	-1.4	-2.6	0.3

<Justification of the extended calibration>

The return loss is $< -20\text{dB}$, within 20% of prior calibration, and the impedance is within 5 ohm of prior calibration. Therefore the verification result should support extended calibration.

<Dipole Verification Data>

Head 835MHz _2022.0917





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Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

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Certificate No: Z21-60335

CALIBRATION CERTIFICATE

Object D1750V2 - SN: 1071

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

Calibration date: September 18, 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	23-Sep-20 (CTTL, No.J20X08336)	Sep-21
Power sensor NRP8S	104291	23-Sep-20 (CTTL, No.J20X08336)	Sep-21
Reference Probe EX3DV4	SN 7517	03-Feb-21(CTTL-SPEAG,No.Z21-60001)	Feb-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	

Issued: September 26, 2021

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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	V52.10.4
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	40.3 $\pm$ 6 %	1.36 mho/m $\pm$ 6 %
Head TSL temperature change during test	<1.0 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	9.09 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	36.6 W/kg $\pm$ 18.8 % (k=2)
SAR averaged over 10 cm³ (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	4.75 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	19.1 W/kg $\pm$ 18.7 % (k=2)



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Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

Appendix (Additional assessments outside the scope of CNAS L0570)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	49.0Ω- 1.69jΩ
Return Loss	- 34.2 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.122 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: 09.18.2021

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 1750 MHz; Type: D1750V2; Serial: D1750V2 - SN: 1071

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

Medium parameters used: $f = 1750$ MHz; $\sigma = 1.36$ S/m; $\epsilon_r = 40.28$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7517; ConvF(8.22, 8.22, 8.22) @ 1750 MHz; Calibrated: 2021-02-03
- 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
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

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

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

Reference Value = 98.87 V/m; Power Drift = 0.00 dB

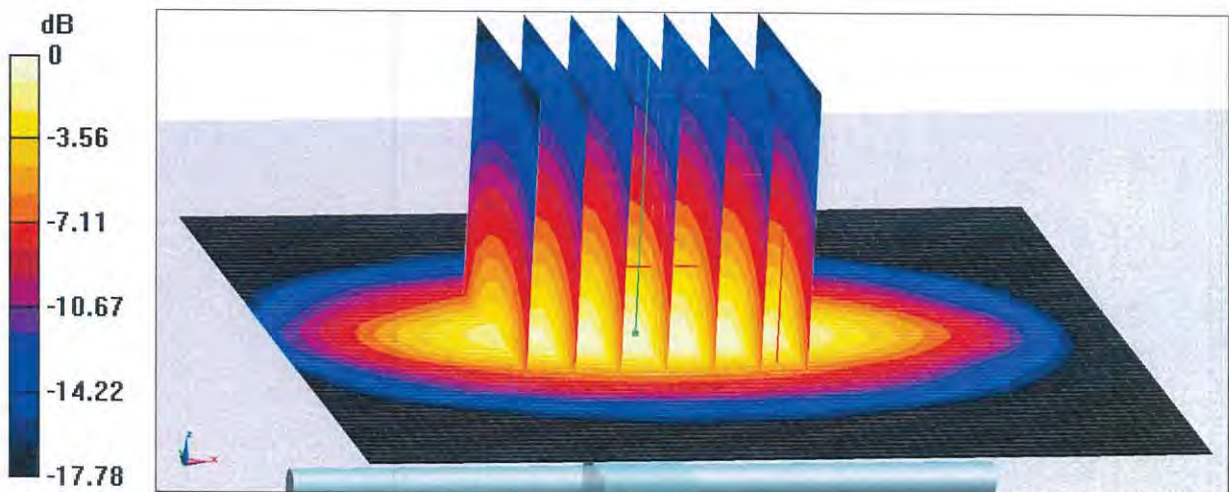
Peak SAR (extrapolated) = 17.4 W/kg

SAR(1 g) = 9.09 W/kg; SAR(10 g) = 4.75 W/kg

Smallest distance from peaks to all points 3 dB below = 10 mm

Ratio of SAR at M2 to SAR at M1 = 52.5%

Maximum value of SAR (measured) = 14.3 W/kg



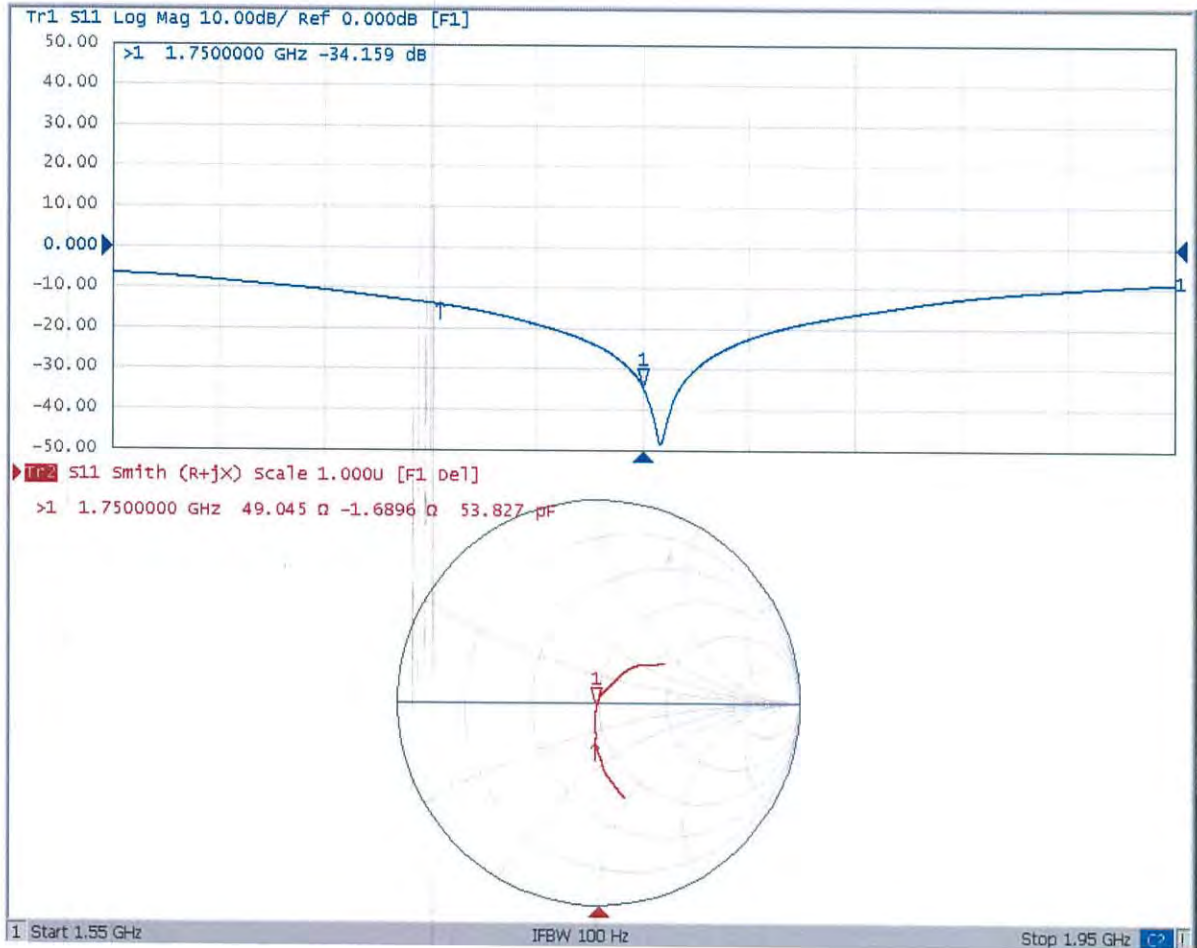
0 dB = 14.3 W/kg = 11.55 dBW/kg



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Impedance Measurement Plot for Head TSL



D1750V2 - SN: 1071 Extended Dipole Calibrations

Referring to KDB 865664 D01, if dipoles are verified in return loss ($< -20\text{dB}$, within 20% of prior calibration), and in impedance (within 5 ohm of prior calibration), the annual calibration is not necessary and the calibration interval can be extended.

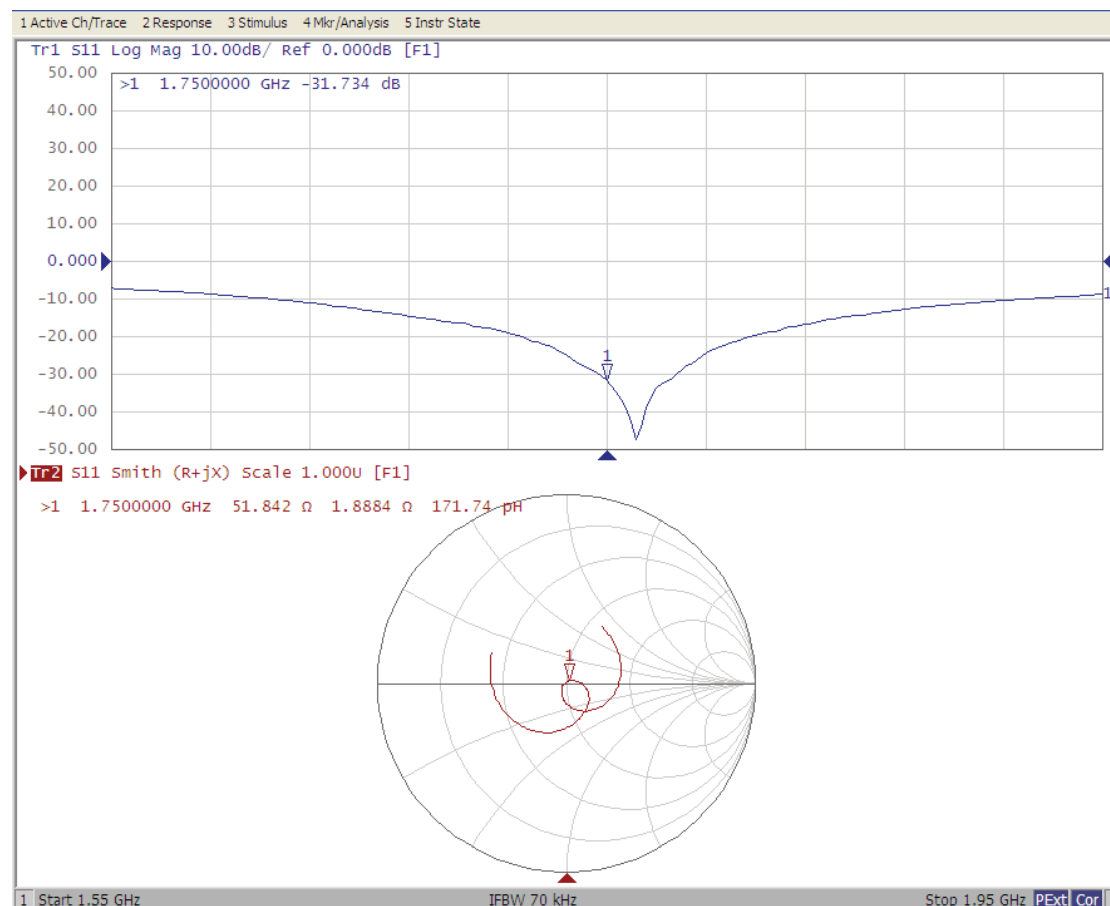
D1750V2 - SN: 1071						
1750 Head						
Date of Measurement	Return-loss (dB)	Delta (%)	Real Impedance (ohm)	Delta (ohm)	Imaginary Impedance (ohm)	Delta (ohm)
2021.09.18	-34.2		49		-1.7	
2022.09.18	-31.7	7.3	51.8	2.18	1.9	3.6

<Justification of the extended calibration>

The return loss is $< -20\text{dB}$, within 20% of prior calibration, and the impedance is within 5 ohm of prior calibration. Therefore the verification result should support extended calibration.

<Dipole Verification Data>

Head 1750MHz _2022.09.18





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Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

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Certificate No: **Z21-60336**

CALIBRATION CERTIFICATE

Object **D1900V2 - SN: 5d159**

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

Calibration date: **September 16, 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	23-Sep-20 (CTTL, No.J20X08336)	Sep-21
Power sensor NRP8S	104291	23-Sep-20 (CTTL, No.J20X08336)	Sep-21
Reference Probe EX3DV4	SN 7517	03-Feb-21(CTTL-SPEAG,No.Z21-60001)	Feb-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	

Issued: September 21, 2021

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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%.