

P03 WLAN5G_802.11ac20_Left Cheek_Ch132_Ant1+2

Communication System: 802.11ac20; Frequency: 5660 MHz; Duty Cycle: 1:1.06

Medium: HSL5G_0916 Medium parameters used: $f = 5660$ MHz; $\sigma = 5.13$ S/m; $\epsilon_r = 36.756$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5°C; Liquid Temperature : 22.4°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7515; ConvF(4.85, 4.85, 4.85); Calibrated: 2020/11/30;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2021/6/22
- Phantom: SAM (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1781
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

- **Area Scan (101x191x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 1.56 W/kg

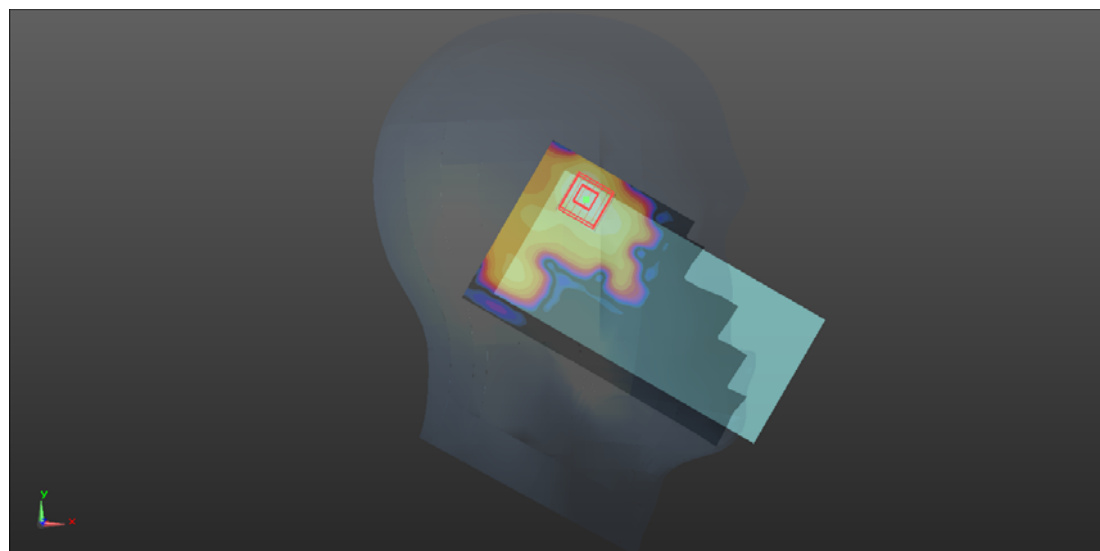
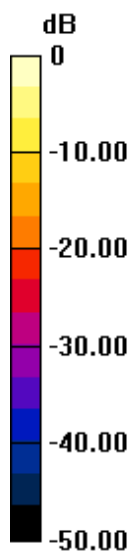
- **Zoom Scan (7x7x12)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 2.653 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 2.56 W/kg

SAR(1 g) = 0.648 W/kg; SAR(10 g) = 0.193 W/kg

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



0 dB = 1.66 W/kg

P04 WLAN5G_802.11a_Left Cheek_Ch165_Ant2

Communication System: 802.11a; Frequency: 5825 MHz; Duty Cycle: 1:1.07

Medium: HSL5G_0918 Medium parameters used: $f = 5825$ MHz; $\sigma = 5.293$ S/m; $\epsilon_r = 36.534$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.4°C; Liquid Temperature : 22.2°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7515; ConvF(4.86, 4.86, 4.86); Calibrated: 2020/11/30;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2021/6/22
- Phantom: SAM (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1781
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

- Area Scan (101x191x1): Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 1.37 W/kg

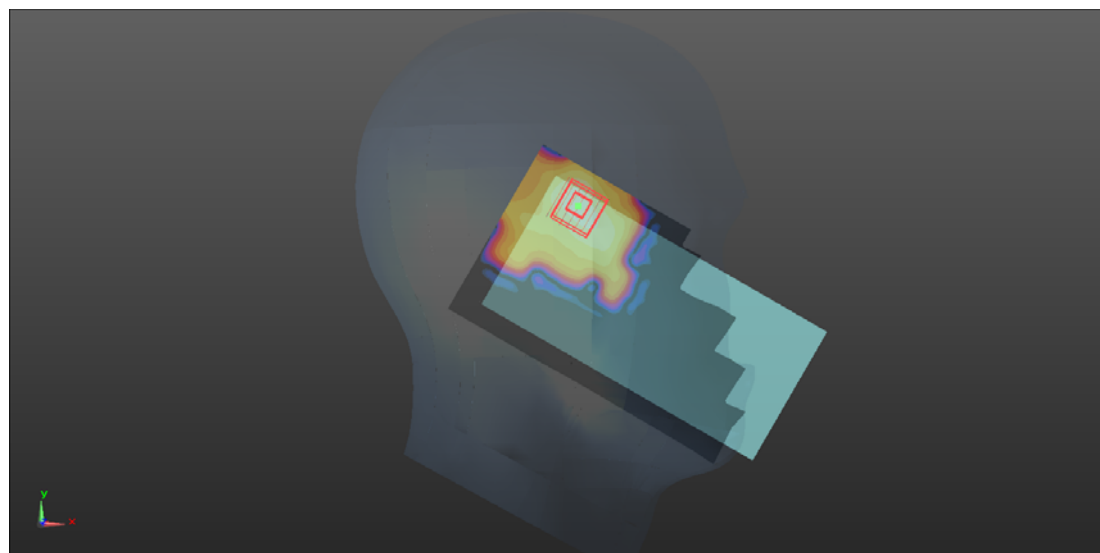
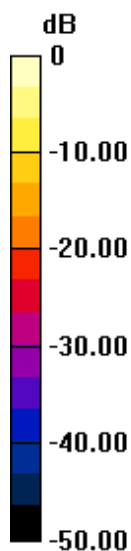
- Zoom Scan (7x7x12)/Cube 0: Measurement grid: $dx=4$ mm, $dy=4$ mm, $dz=2$ mm

Reference Value = 2.214 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 2.23 W/kg

SAR(1 g) = 0.545 W/kg; SAR(10 g) = 0.165 W/kg

Maximum value of SAR (measured) = 1.42 W/kg



0 dB = 1.42 W/kg

P05 BT_GFSK_Right Cheek_Ch78

Communication System: BT; Frequency: 2480 MHz; Duty Cycle: 1:1.3

Medium: HSL2450_0912 Medium parameters used: $f = 2480$ MHz; $\sigma = 1.82$ S/m; $\epsilon_r = 39.084$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5°C; Liquid Temperature : 22.3°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7515; ConvF(7.34, 7.34, 7.34); Calibrated: 2020/11/30;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2021/6/22
- Phantom: SAM (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1781
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

- **Area Scan (91x161x1)**: Interpolated grid: $dx=1.200$ mm, $dy=1.200$ mm

Maximum value of SAR (interpolated) = 0.0610 W/kg

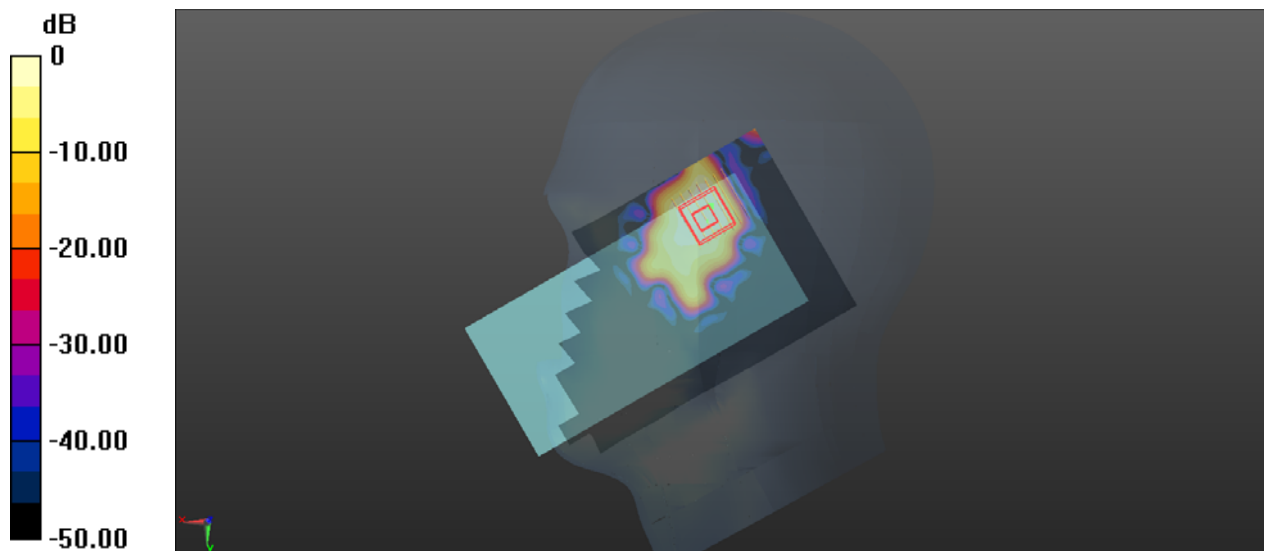
- **Zoom Scan (7x7x7)/Cube 0**: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 0.589 V/m; Power Drift = -0.00 dB

Peak SAR (extrapolated) = 0.0850 W/kg

SAR(1 g) = 0.025 W/kg; SAR(10 g) = 0.00824 W/kg

Maximum value of SAR (measured) = 0.0403 W/kg



0 dB = 0.0403 W/kg

P06 WLAN2.4G_802.11b_Rear Face_1.5cm_Ch6_Ant2

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

Medium: HSL2450_0912 Medium parameters used: $f = 2437$ MHz; $\sigma = 1.775$ S/m; $\epsilon_r = 39.236$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5°C; Liquid Temperature : 22.3°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7515; ConvF(7.34, 7.34, 7.34); Calibrated: 2020/11/30;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2021/6/22
- Phantom: SAM (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1781
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

- **Area Scan (91x161x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.206 W/kg

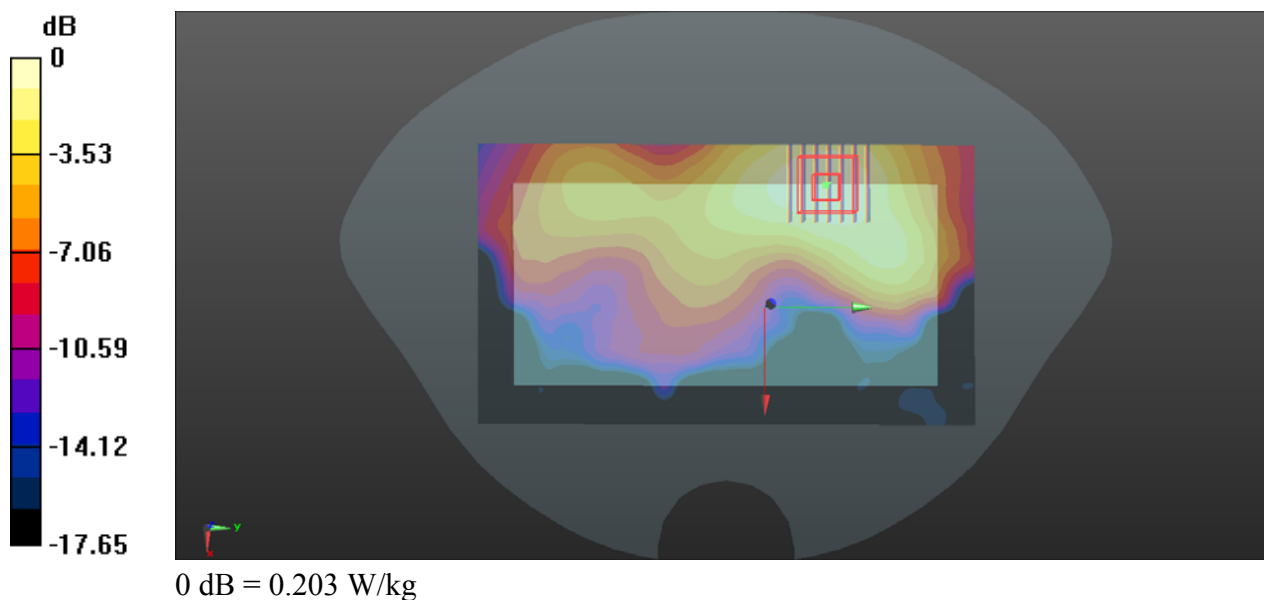
- **Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 4.603 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 0.243 W/kg

SAR(1 g) = 0.138 W/kg; SAR(10 g) = 0.077 W/kg

Maximum value of SAR (measured) = 0.203 W/kg



P07 WLAN5G_802.11a_Rear Face_1.5cm_Ch64_Ant1

Communication System: 802.11a; Frequency: 5320 MHz; Duty Cycle: 1:1.07

Medium: HSL5G_0914 Medium parameters used: $f = 5320$ MHz; $\sigma = 4.797$ S/m; $\epsilon_r = 37.219$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN7515; ConvF(5.54, 5.54, 5.54); Calibrated: 2020/11/30;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2021/6/22
- Phantom: SAM (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1781
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

- Area Scan (101x81x1): Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 0.651 W/kg

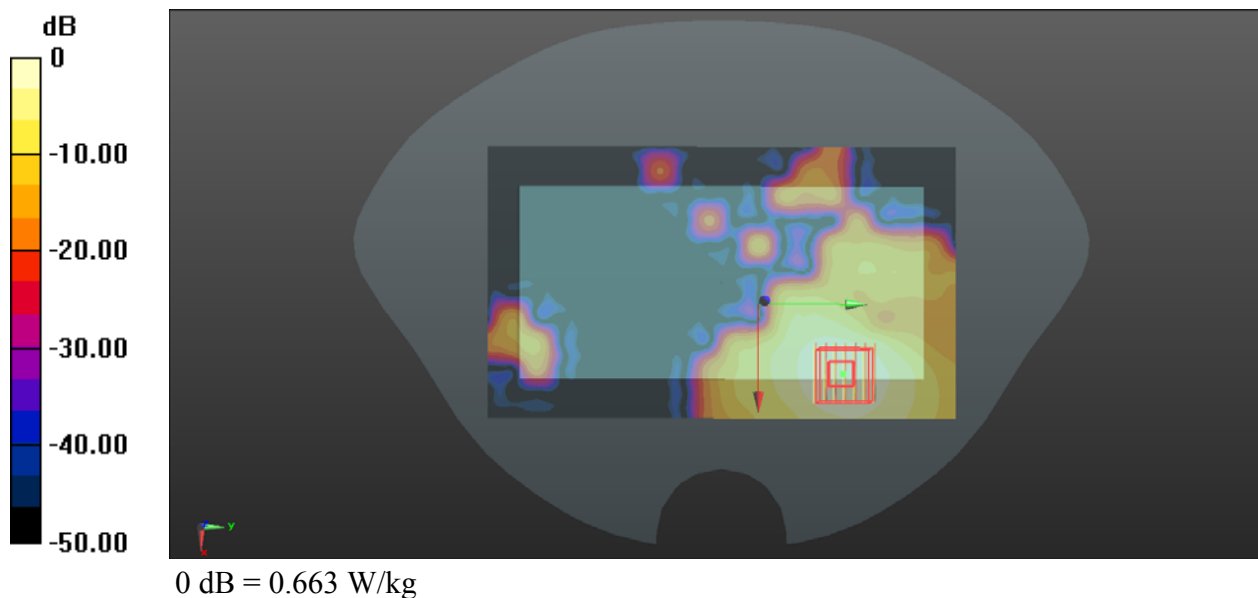
- Zoom Scan (7x7x12)/Cube 0: Measurement grid: $dx=4$ mm, $dy=4$ mm, $dz=2$ mm

Reference Value = 1.090 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 1.01 W/kg

SAR(1 g) = 0.314 W/kg; SAR(10 g) = 0.129 W/kg

Maximum value of SAR (measured) = 0.663 W/kg



P08 WLAN5G_802.11a_Rear Face_1.5cm_Ch132_Ant1

Communication System: 802.11a; Frequency: 5660 MHz; Duty Cycle: 1:1.07

Medium: HSL5G_0916 Medium parameters used: $f = 5660$ MHz; $\sigma = 5.13$ S/m; $\epsilon_r = 36.756$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5°C; Liquid Temperature : 22.4°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7515; ConvF(4.85, 4.85, 4.85); Calibrated: 2020/11/30;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2021/6/22
- Phantom: SAM (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1781
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

- Area Scan (111x191x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.779 W/kg

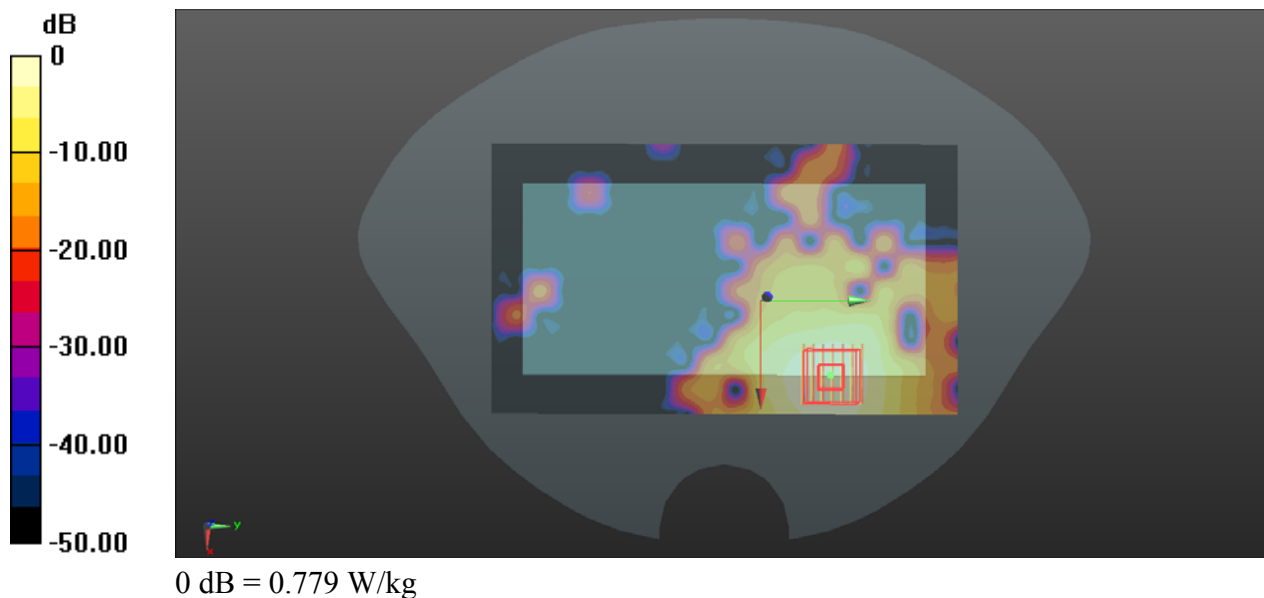
- Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 0 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 1.16 W/kg

SAR(1 g) = 0.345 W/kg; SAR(10 g) = 0.137 W/kg

Maximum value of SAR (measured) = 0.757 W/kg



P09 WLAN5G_802.11a_Rear Face_1.5cm_Ch165_Ant2

Communication System: 802.11a; Frequency: 5825 MHz; Duty Cycle: 1:1.07

Medium: HSL5G_0918 Medium parameters used: $f = 5825$ MHz; $\sigma = 5.293$ S/m; $\epsilon_r = 36.534$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.4°C; Liquid Temperature : 22.2°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7515; ConvF(4.86, 4.86, 4.86); Calibrated: 2020/11/30;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2021/6/22
- Phantom: SAM (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1781
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

- Area Scan (111x191x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.363 W/kg

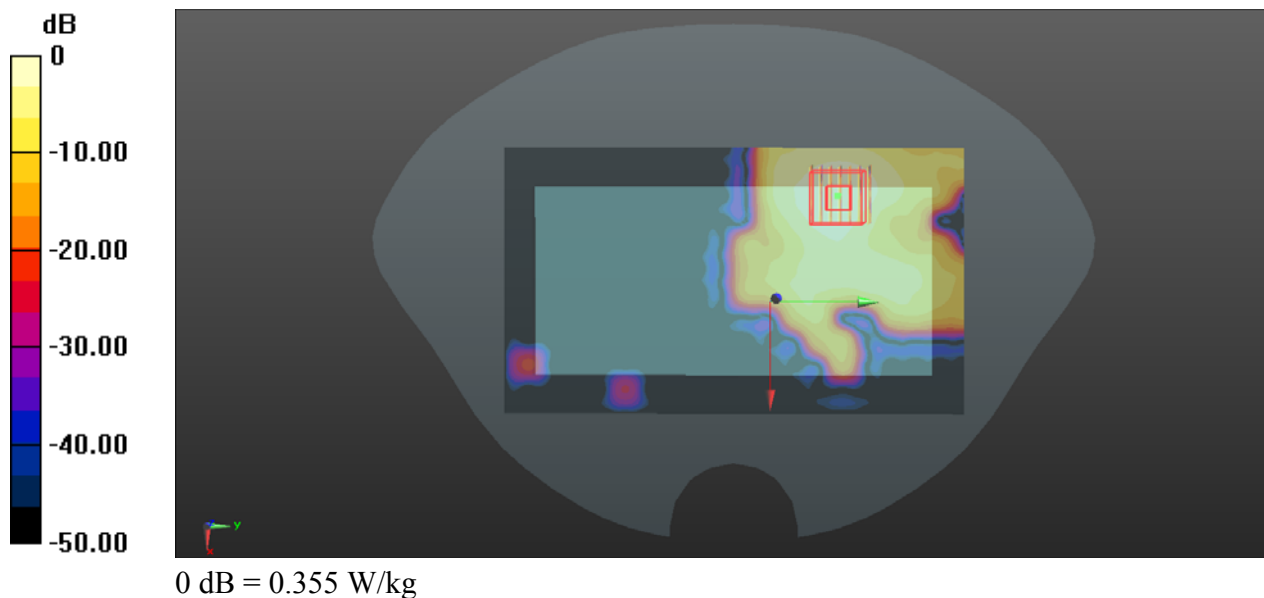
- Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 1.038 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 0.560 W/kg

SAR(1 g) = 0.147 W/kg; SAR(10 g) = 0.054 W/kg

Maximum value of SAR (measured) = 0.355 W/kg



P10 BT_GFSK_Front Face_1.5cm_Ch78

Communication System: BT; Frequency: 2480 MHz; Duty Cycle: 1:1.3

Medium: HSL2450_0912 Medium parameters used: $f = 2480$ MHz; $\sigma = 1.82$ S/m; $\epsilon_r = 39.084$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5°C; Liquid Temperature : 22.3°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7515; ConvF(7.34, 7.34, 7.34); Calibrated: 2020/11/30;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2021/6/22
- Phantom: SAM (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1781
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

- **Area Scan (91x161x1):** Interpolated grid: $dx=1.200$ mm, $dy=1.200$ mm

Maximum value of SAR (interpolated) = 0.0266 W/kg

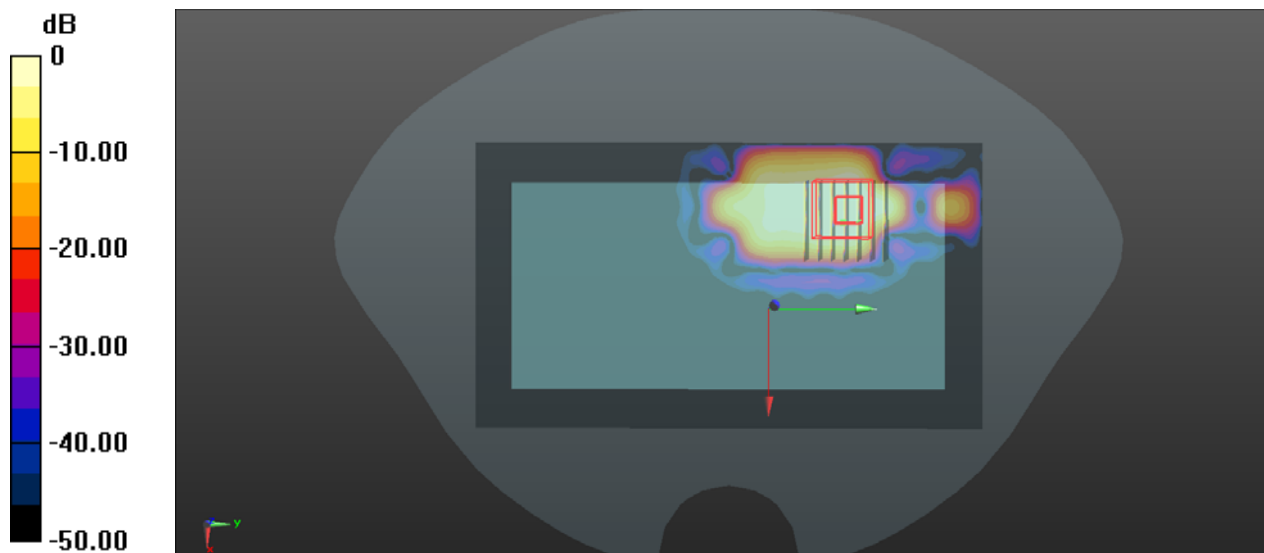
- **Zoom Scan (7x7x7)/Cube 0:** Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 0.606 V/m; Power Drift = -0.00 dB

Peak SAR (extrapolated) = 0.0250 W/kg

SAR(1 g) = 0.00766 W/kg; SAR(10 g) = 0.0024 W/kg

Maximum value of SAR (measured) = 0.0158 W/kg



P11 WLAN2.4G_802.11b_Right Side_0cm_Ch6_Ant2

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

Medium: HSL2450_0912 Medium parameters used: $f = 2437$ MHz; $\sigma = 1.775$ S/m; $\epsilon_r = 39.236$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5°C; Liquid Temperature : 22.3°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7515; ConvF(7.34, 7.34, 7.34); Calibrated: 2020/11/30;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2021/6/22
- Phantom: SAM (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1781
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

- **Area Scan (41x161x1):** Interpolated grid: $dx=1.200$ mm, $dy=1.200$ mm

Maximum value of SAR (interpolated) = 2.69 W/kg

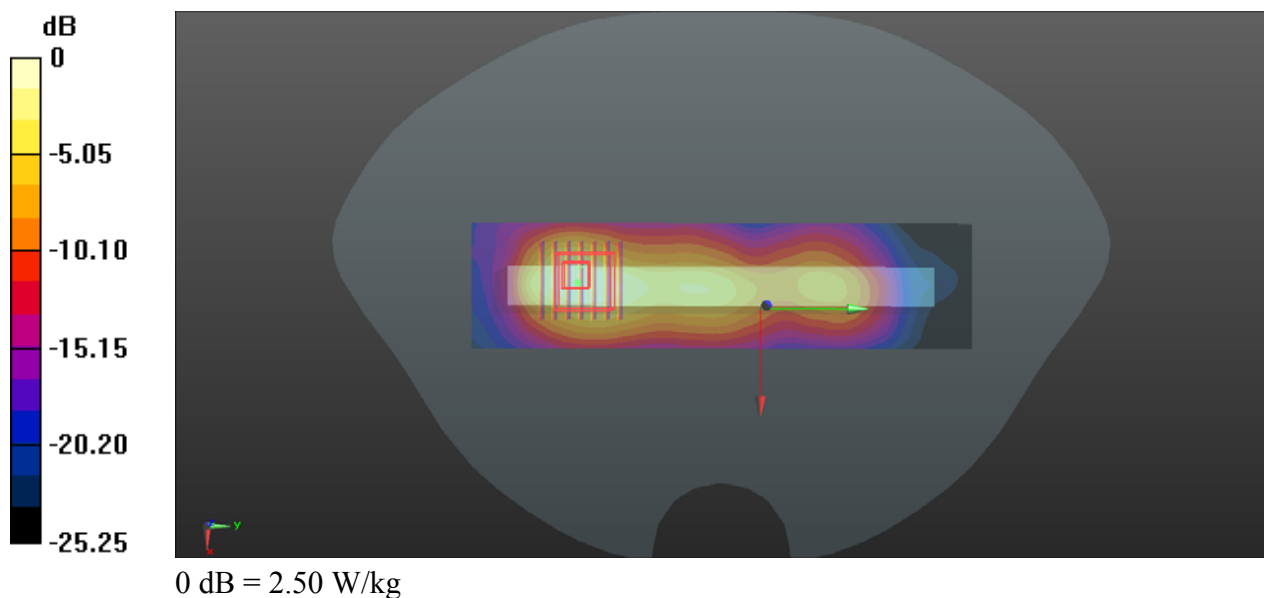
- **Zoom Scan (7x7x7)/Cube 0:** Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 19.876 V/m; Power Drift = -0.16 dB

Peak SAR (extrapolated) = 3.25 W/kg

SAR(1 g) = 1.52 W/kg; SAR(10 g) = 0.727 W/kg

Maximum value of SAR (measured) = 2.50 W/kg



P12 WLAN5G_802.11a_Left Side_0cm_Ch52_Ant1

Communication System: 802.11a; Frequency: 5260 MHz; Duty Cycle: 1:1.07

Medium: HSL5G_0914 Medium parameters used: $f = 5260$ MHz; $\sigma = 4.734$ S/m; $\epsilon_r = 37.29$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN7515; ConvF(5.54, 5.54, 5.54); Calibrated: 2020/11/30;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2021/6/22
- Phantom: SAM (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1781
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

- **Area Scan (51x191x1):** Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 5.48 W/kg

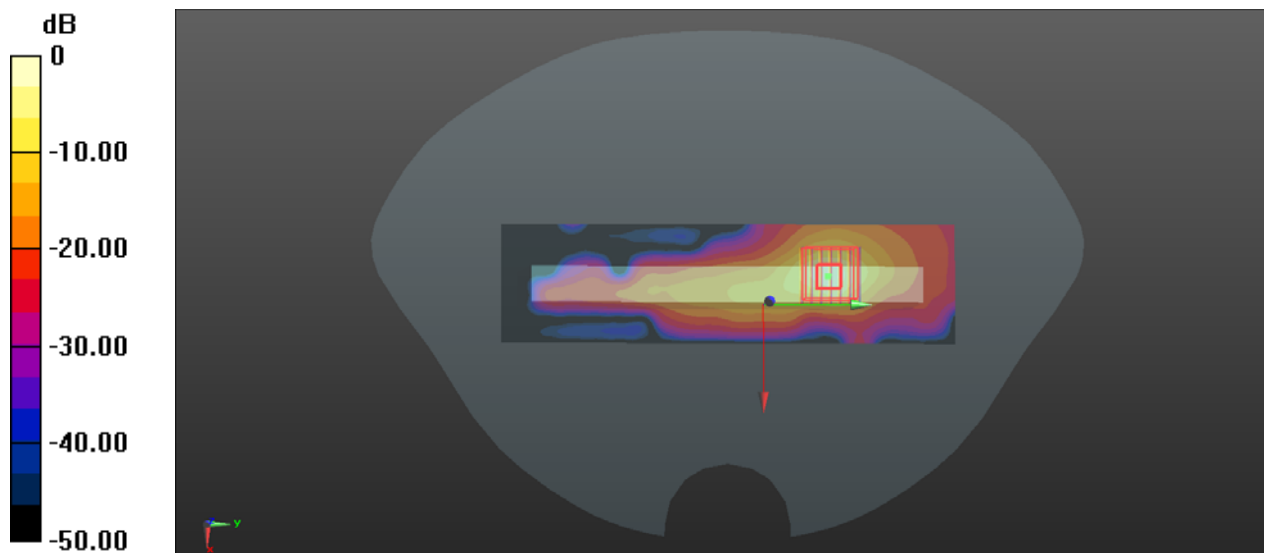
- **Zoom Scan (7x7x12)/Cube 0:** Measurement grid: $dx=4$ mm, $dy=4$ mm, $dz=2$ mm

Reference Value = 4.757 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 11.6 W/kg

SAR(1 g) = 2.6 W/kg; SAR(10 g) = 0.628 W/kg

Maximum value of SAR (measured) = 6.98 W/kg



0 dB = 6.98 W/kg

P13 WLAN5G_802.11a_Left Side_0cm_Ch132_Ant1

Communication System: 802.11a; Frequency: 5660 MHz; Duty Cycle: 1:1.07

Medium: HSL5G_0916 Medium parameters used: $f = 5660$ MHz; $\sigma = 5.13$ S/m; $\epsilon_r = 36.756$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5°C; Liquid Temperature : 22.4°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7515; ConvF(4.85, 4.85, 4.85); Calibrated: 2020/11/30;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2021/6/22
- Phantom: SAM (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1781
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

- **Area Scan (51x191x1):** Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 7.64 W/kg

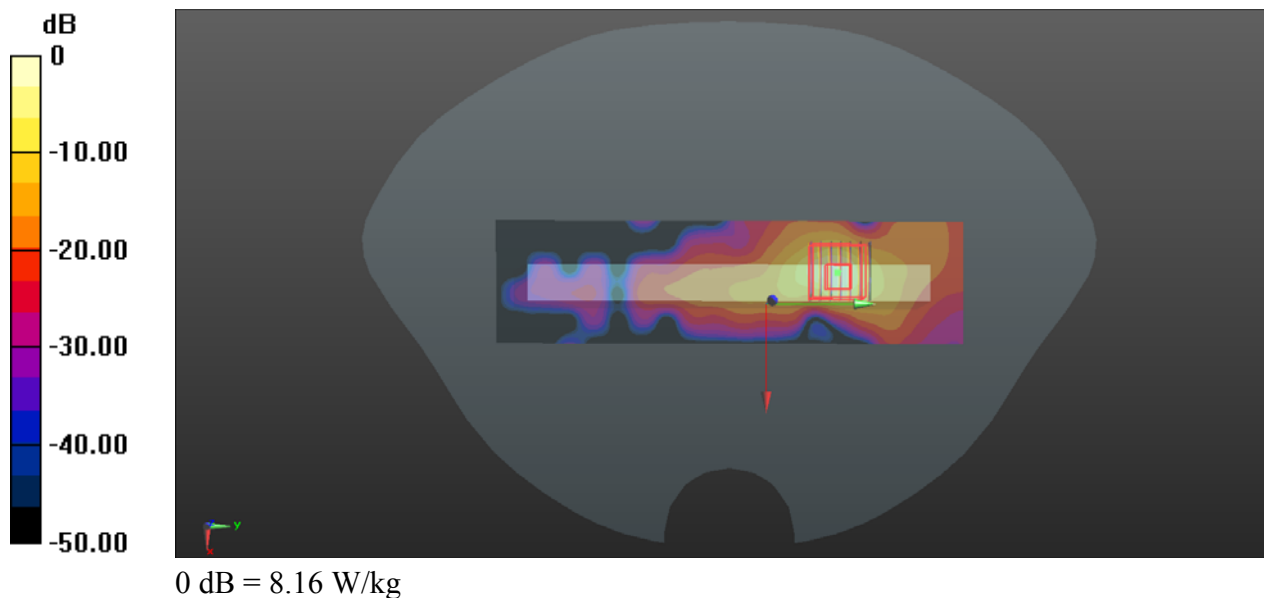
- **Zoom Scan (7x7x12)/Cube 0:** Measurement grid: $dx=4$ mm, $dy=4$ mm, $dz=2$ mm

Reference Value = 3.877 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 15.0 W/kg

SAR(1 g) = 3.11 W/kg; SAR(10 g) = 0.694 W/kg

Maximum value of SAR (measured) = 8.16 W/kg



P14 WLAN5G_802.11a_Rear Face_0cm_Ch165_Ant2

Communication System: 802.11a; Frequency: 5825 MHz; Duty Cycle: 1:1.07

Medium: HSL5G_0918 Medium parameters used: $f = 5825$ MHz; $\sigma = 5.293$ S/m; $\epsilon_r = 36.534$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.4°C; Liquid Temperature : 22.2°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7515; ConvF(4.86, 4.86, 4.86); Calibrated: 2020/11/30;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2021/6/22
- Phantom: SAM (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1781
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

- **Area Scan (111x191x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 4.60 W/kg

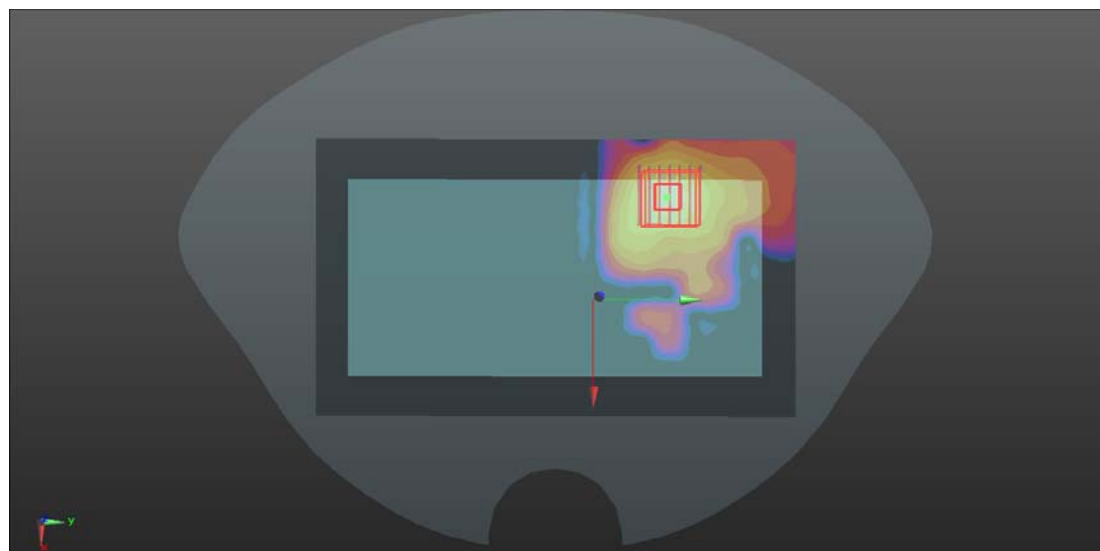
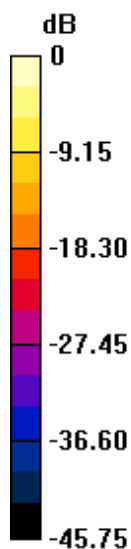
- **Zoom Scan (7x7x12)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 0.181 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 7.92 W/kg

SAR(1 g) = 1.83 W/kg; SAR(10 g) = 0.491 W/kg

Maximum value of SAR (measured) = 4.90 W/kg



0 dB = 4.90 W/kg

P15 BT_GFSK_Left Side_0cm_Ch78

Communication System: BT; Frequency: 2480 MHz; Duty Cycle: 1:1.3

Medium: HSL2450_0912 Medium parameters used: $f = 2480$ MHz; $\sigma = 1.82$ S/m; $\epsilon_r = 39.084$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5°C; Liquid Temperature : 22.3°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7515; ConvF(7.34, 7.34, 7.34); Calibrated: 2020/11/30;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2021/6/22
- Phantom: SAM (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1781
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

- **Area Scan (51x161x1)**: Interpolated grid: $dx=1.200$ mm, $dy=1.200$ mm

Maximum value of SAR (interpolated) = 0.131 W/kg

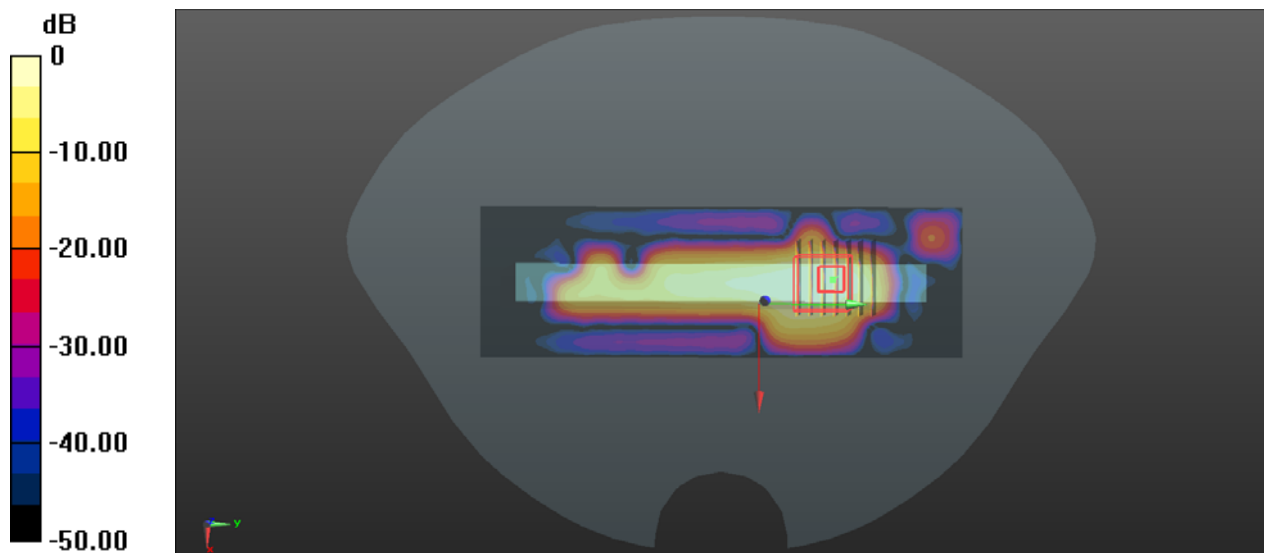
- **Zoom Scan (7x7x7)/Cube 0**: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 2.833 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 0.124 W/kg

SAR(1 g) = 0.047 W/kg; SAR(10 g) = 0.016 W/kg

Maximum value of SAR (measured) = 0.0887 W/kg



Appendix C. Calibration Certificate for Probe and Dipole

The SPEAG calibration certificates are shown as follows.



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CALIBRATION LABORATORY



中国认可
国际互认
校准
CALIBRATION
CNAS L0570

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

Client

AUDEN

Certificate No: Z20-60485

CALIBRATION CERTIFICATE

Object

D2450V2 - SN: 735

Calibration Procedure(s)

FF-Z11-003-01

Calibration Procedures for dipole validation kits

Calibration date:

December 22, 2020

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	106276	12-May-20 (CTTL, No.J20X02965)	May-21
Power sensor NRP6A	101369	12-May-20 (CTTL, No.J20X02965)	May-21
ReferenceProbe EX3DV4	SN 3617	30-Jan-20(SPEAG,No.EX3-3617_Jan20)	Jan-21
DAE4	SN 771	10-Feb-20(CTTL-SPEAG,No.Z20-60017)	Feb-21
Secondary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Signal Generator E4438C	MY49071430	25-Feb-20 (CTTL, No.J20X00516)	Feb-21
NetworkAnalyzer E5071C	MY46110673	10-Feb-20 (CTTL, No.J20X00515)	Feb-21

Calibrated by:

Name

Function

Signature

Zhao Jing

SAR Test Engineer

Reviewed by:

Lin Hao

SAR Test Engineer

Approved by:

Qi Dianyuan

SAR Project Leader

Issued: December 27, 2020

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

Certificate No: Z20-60485

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CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China

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Fax: +86-10-62304633-2504

E-mail: cttl@chinattl.com

http://www.chinattl.cn

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM _{x,y,z}
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-1, "Measurement procedure for assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices- Part 1: Device used next to the ear (Frequency range of 300MHz to 6GHz)", July 2016
- IEC 62209-2, "Procedure to measure the Specific Absorption Rate (SAR) For wireless communication devices used in close proximity to the human body (frequency range of 30MHz to 6GHz)", March 2010
- KDB865664, SAR Measurement Requirements for 100 MHz to 6 GHz

Additional Documentation:

- DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- Measurement Conditions:** Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL:** The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss:** These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay:** One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- SAR measured:** SAR measured at the stated antenna input power.
- SAR normalized:** SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters:** The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of Measurement multiplied by the coverage factor $k=2$, which for a normal distribution Corresponds to a coverage probability of approximately 95%.



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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	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2450 MHz $\pm$ 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	39.2	1.80 mho/m
Measured Head TSL parameters	(22.0 $\pm$ 0.2) °C	39.0 $\pm$ 6 %	1.79 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	13.1 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	52.5 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	6.03 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	24.1 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	54.9Ω+ 5.02jΩ
Return Loss	- 23.5dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.058 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

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