

P19 802.11a_Top Side_0cm_Ch157_Ant 0**DUT: 510861**

Communication System: WLAN_5G; Frequency: 5785 MHz; Duty Cycle: 1:1

Medium: B5G_150122 Medium parameters used: $f = 5785$ MHz; $\sigma = 6.167$ S/m; $\epsilon_r = 48.003$; $\rho = 1000$ kg/m³**Ambient Temperature : 22.8 °C; Liquid Temperature : 22.3 °C**

DASY5 Configuration:

- Probe: EX3DV4 - SN3976; ConvF(4.26, 4.26, 4.26); Calibrated: 2014/2/17;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1424; Calibrated: 2014/2/11
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1238
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch157/Area Scan (81x301x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 1.96 W/kg

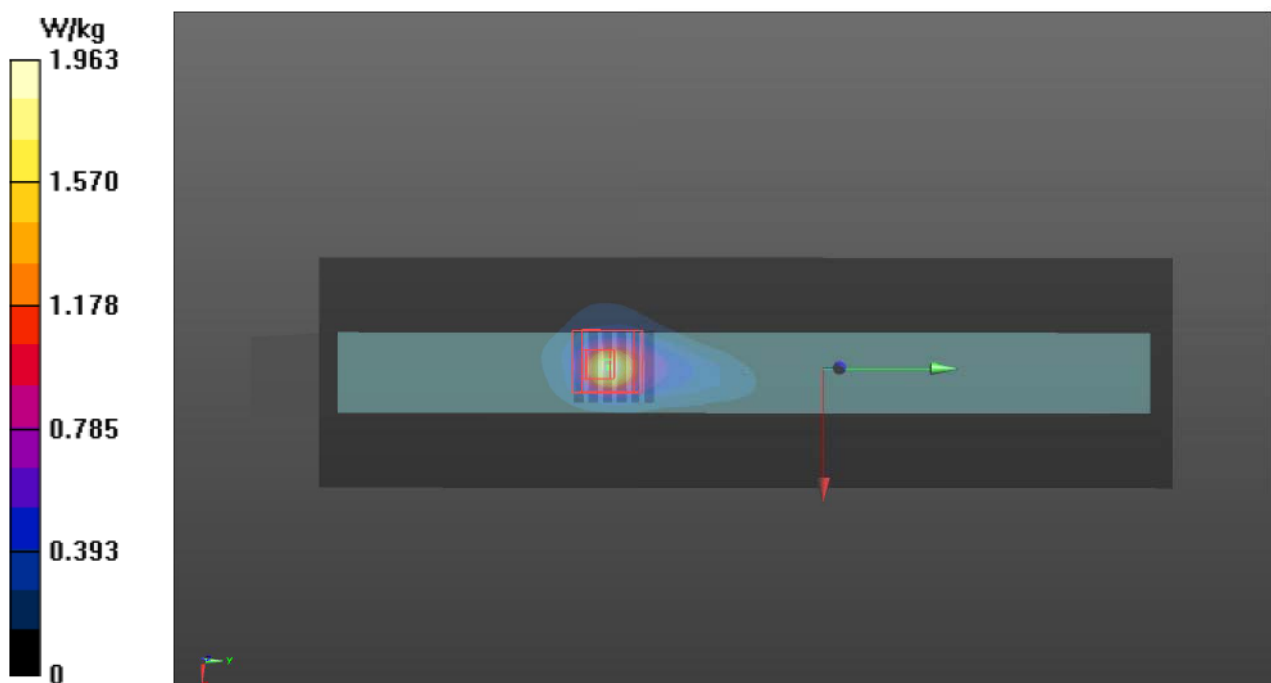
Ch157/Zoom Scan (6x6x12)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=2mm

Reference Value = 19.16 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 9.13 W/kg

SAR(1 g) = 1.31 W/kg; SAR(10 g) = 0.326 W/kg

Maximum value of SAR (measured) = 2.66 W/kg



P20 802.11a_Bottom Side_0cm_Ch157_Ant 0**DUT: 510861**

Communication System: WLAN_5G; Frequency: 5785 MHz; Duty Cycle: 1:1

Medium: B5G_150123 Medium parameters used: $f = 5785$ MHz; $\sigma = 5.972$ S/m; $\epsilon_r = 46.856$; $\rho = 1000$ kg/m³**Ambient Temperature : 22.7 °C; Liquid Temperature : 21.9 °C**

DASY5 Configuration:

- Probe: EX3DV4 - SN3976; ConvF(4.26, 4.26, 4.26); Calibrated: 2014/2/17;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1424; Calibrated: 2014/2/11
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1238
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch157/Area Scan (81x301x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.0215 W/kg

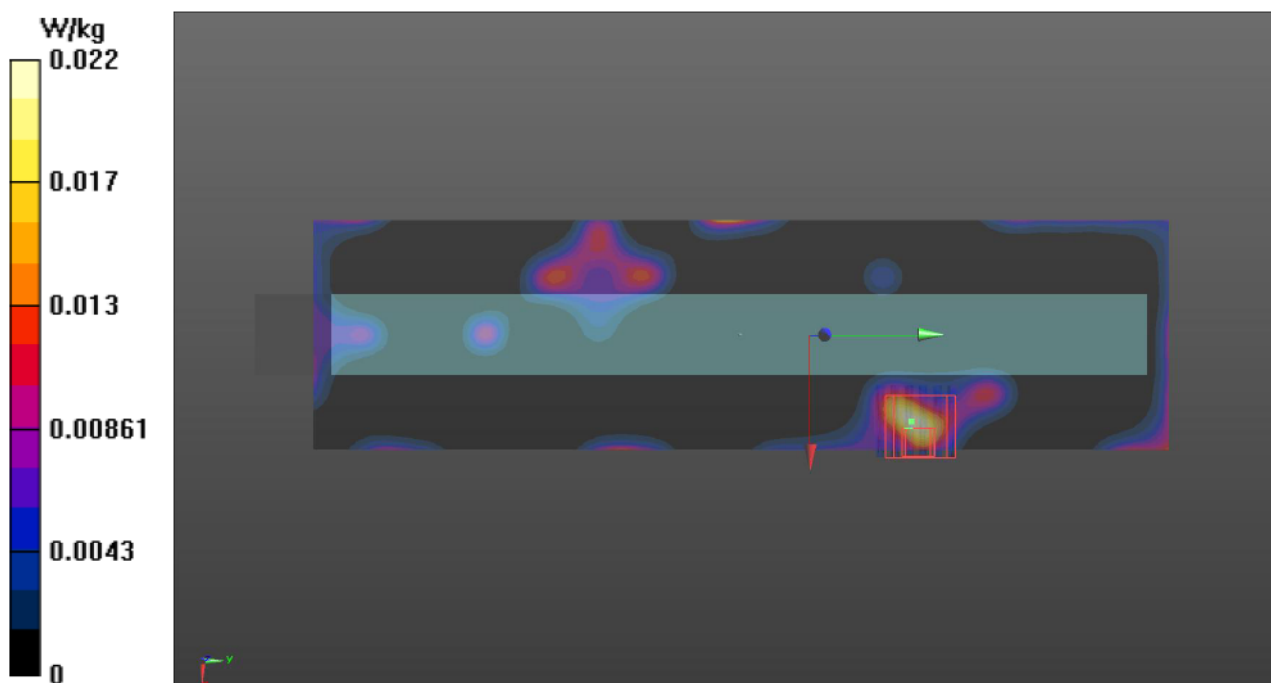
Ch157/Zoom Scan (6x6x12)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=2mm

Reference Value = 1.042 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 0.0180 W/kg

SAR(1 g) = 0.00156 W/kg; SAR(10 g) = 0.000709 W/kg

Maximum value of SAR (measured) = 0.00962 W/kg



P31 802.11a_Top Side_0cm_Ch149_Ant 0**DUT: 510861**

Communication System: WLAN_5G; Frequency: 5745 MHz; Duty Cycle: 1:1

Medium: B5G_150122 Medium parameters used: $f = 5745$ MHz; $\sigma = 6.115$ S/m; $\epsilon_r = 48.057$; $\rho = 1000$ kg/m³**Ambient Temperature : 22.8 °C; Liquid Temperature : 22.3 °C**

DASY5 Configuration:

- Probe: EX3DV4 - SN3976; ConvF(4.26, 4.26, 4.26); Calibrated: 2014/2/17;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1424; Calibrated: 2014/2/11
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1238
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch149/Area Scan (81x301x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 1.96 W/kg

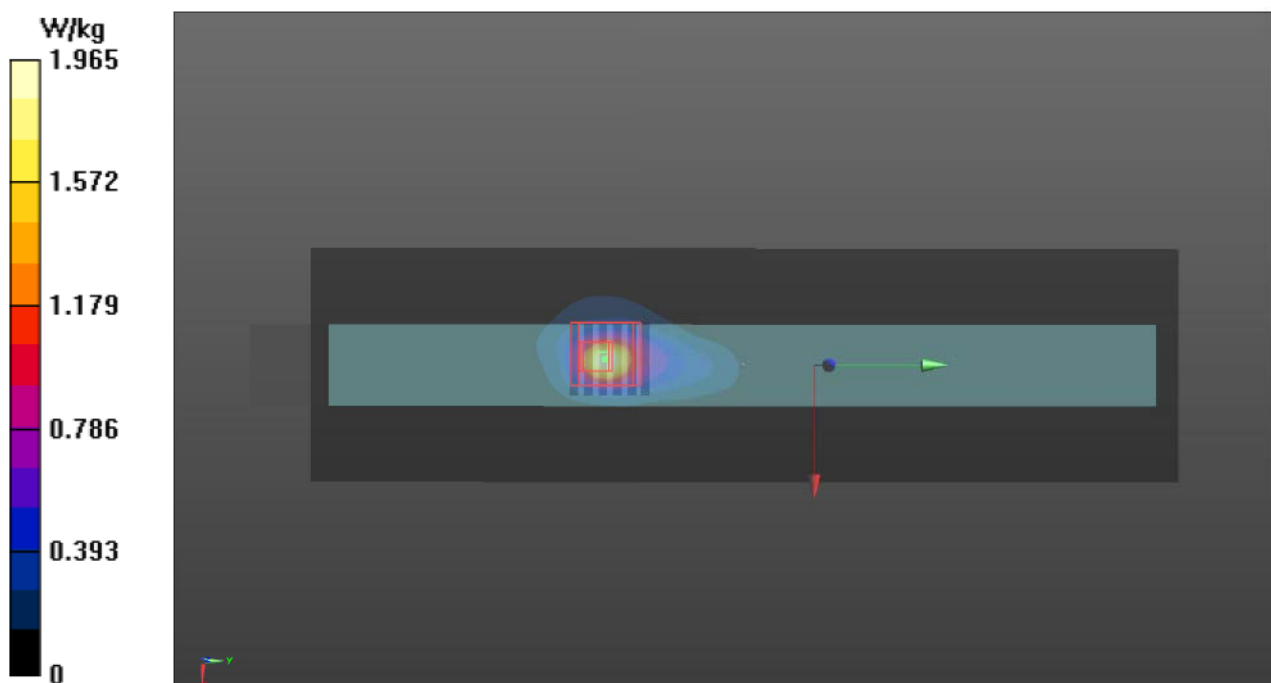
Ch149/Zoom Scan (6x6x12)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=2mm

Reference Value = 19.13 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 6.89 W/kg

SAR(1 g) = 1.13 W/kg; SAR(10 g) = 0.296 W/kg

Maximum value of SAR (measured) = 2.43 W/kg



P32 802.11a_Top Side_0cm_Ch165_Ant 0**DUT: 510861**

Communication System: WLAN_5G; Frequency: 5825 MHz; Duty Cycle: 1:1

Medium: B5G_150122 Medium parameters used: $f = 5825$ MHz; $\sigma = 6.229$ S/m; $\epsilon_r = 47.932$; $\rho = 1000$ kg/m³**Ambient Temperature : 22.8 °C; Liquid Temperature : 22.3 °C**

DASY5 Configuration:

- Probe: EX3DV4 - SN3976; ConvF(4.26, 4.26, 4.26); Calibrated: 2014/2/17;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1424; Calibrated: 2014/2/11
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1238
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch165/Area Scan (81x301x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 2.15 W/kg

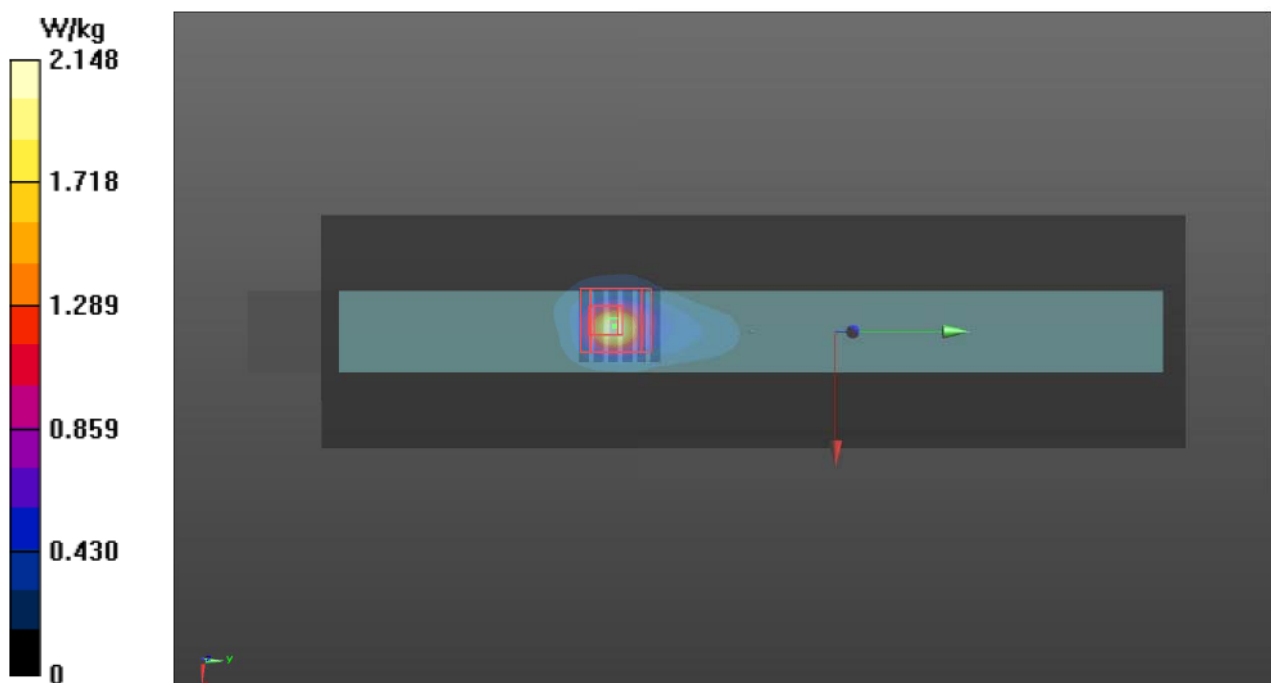
Ch165/Zoom Scan (6x6x12)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=2mm

Reference Value = 20.13 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 8.13 W/kg

SAR(1 g) = 1.35 W/kg; SAR(10 g) = 0.330 W/kg

Maximum value of SAR (measured) = 3.09 W/kg



P33 802.11a_Top Side_0cm_Ch157_Ant 0**DUT: 510861**

Communication System: WLAN_5G; Frequency: 5785 MHz; Duty Cycle: 1:1

Medium: B5G_150122 Medium parameters used: $f = 5785$ MHz; $\sigma = 6.167$ S/m; $\epsilon_r = 48.003$; $\rho = 1000$ kg/m³**Ambient Temperature : 22.8 °C; Liquid Temperature : 22.3 °C**

DASY5 Configuration:

- Probe: EX3DV4 - SN3976; ConvF(4.26, 4.26, 4.26); Calibrated: 2014/2/17;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1424; Calibrated: 2014/2/11
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1238
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch157/Area Scan (81x301x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 1.96 W/kg

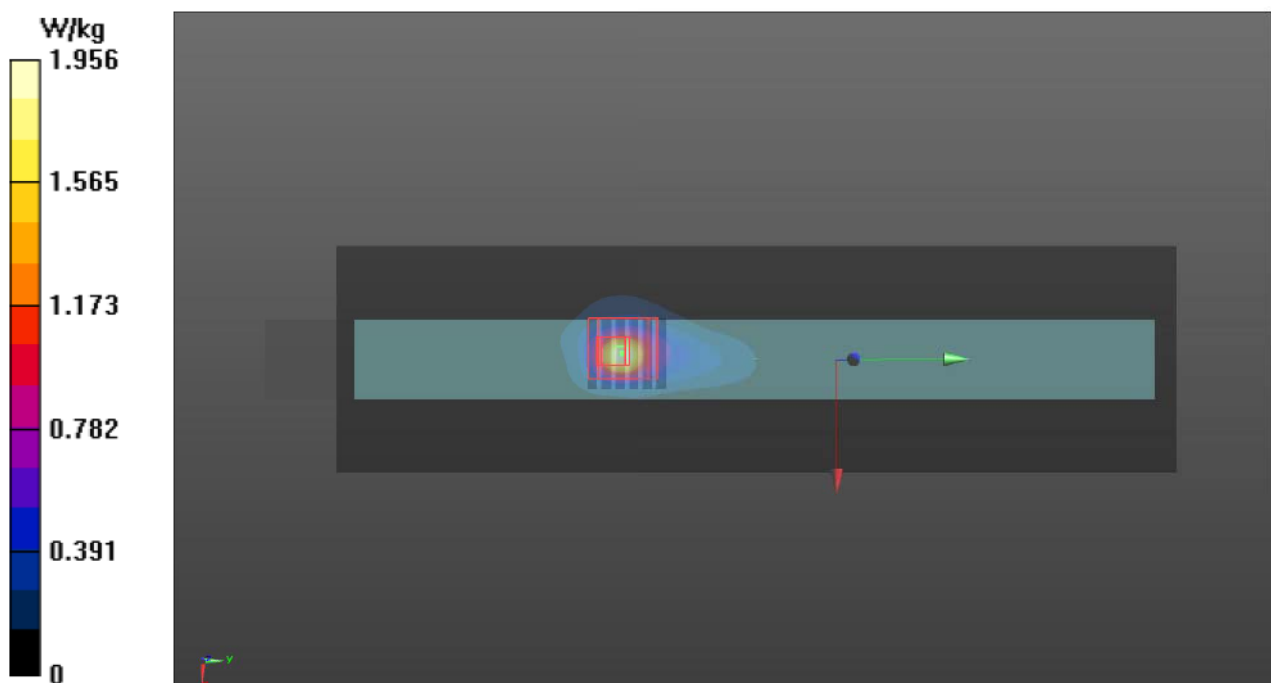
Ch157/Zoom Scan (6x6x12)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=2mm

Reference Value = 19.08 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 7.25 W/kg

SAR(1 g) = 1.22 W/kg; SAR(10 g) = 0.305 W/kg

Maximum value of SAR (measured) = 2.86 W/kg



P26 802.11n_Rear Face_0cm_Ch159_Ant 0+1**DUT: 510861**

Communication System: WLAN_5G; Frequency: 5795 MHz; Duty Cycle: 1:1.128

Medium: B5G_150122 Medium parameters used: $f = 5795$ MHz; $\sigma = 6.182$ S/m; $\epsilon_r = 47.983$; $\rho = 1000$ kg/m³**Ambient Temperature : 22.8 °C; Liquid Temperature : 22.3 °C**

DASY5 Configuration:

- Probe: EX3DV4 - SN3976; ConvF(4.26, 4.26, 4.26); Calibrated: 2014/2/17;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1424; Calibrated: 2014/2/11
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1238
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch159/Area Scan (221x301x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.427 W/kg

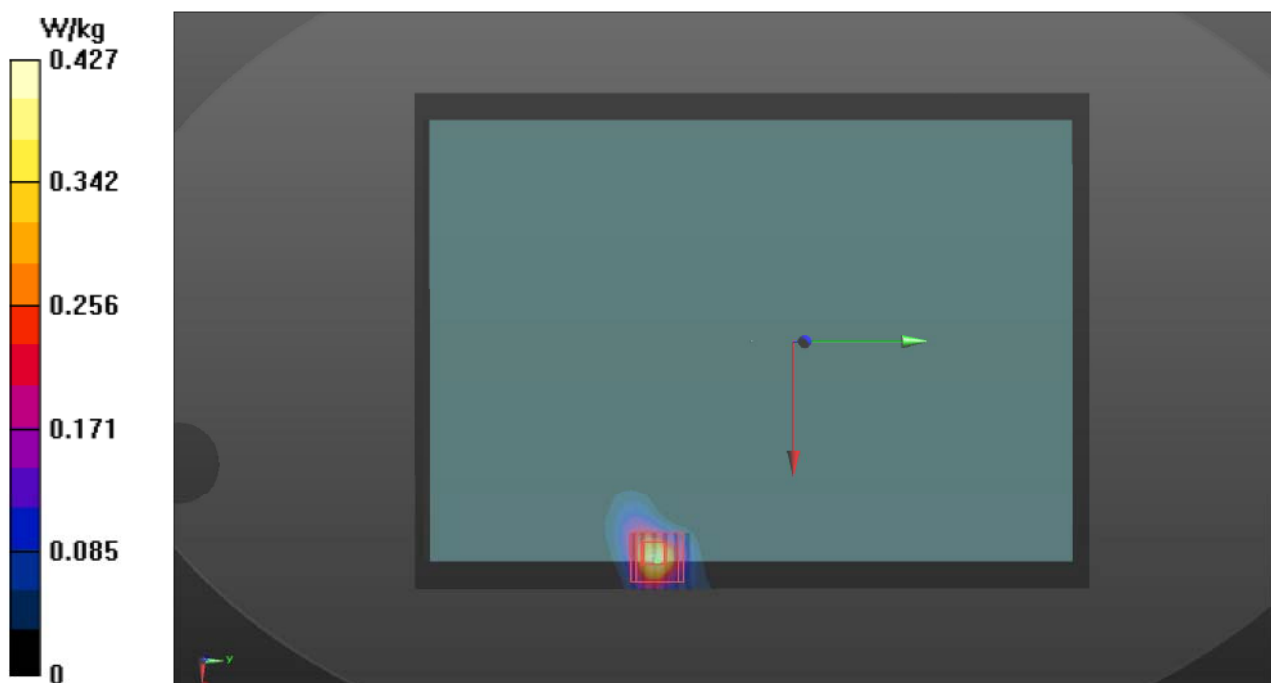
Ch159/Zoom Scan (6x6x12)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=2mm

Reference Value = 7.262 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 1.31 W/kg

SAR(1 g) = 0.262 W/kg; SAR(10 g) = 0.075 W/kg

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



P27 802.11n_Left Side_0cm_Ch159_Ant 0+1**DUT: 510861**

Communication System: WLAN_5G; Frequency: 5795 MHz; Duty Cycle: 1:1.128

Medium: B5G_150123 Medium parameters used: $f = 5795$ MHz; $\sigma = 5.986$ S/m; $\epsilon_r = 46.847$; $\rho = 1000$ kg/m³**Ambient Temperature : 22.7 °C; Liquid Temperature : 21.9 °C**

DASY5 Configuration:

- Probe: EX3DV4 - SN3976; ConvF(4.26, 4.26, 4.26); Calibrated: 2014/2/17;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1424; Calibrated: 2014/2/11
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1238
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch159/Area Scan (81x241x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.0145 W/kg

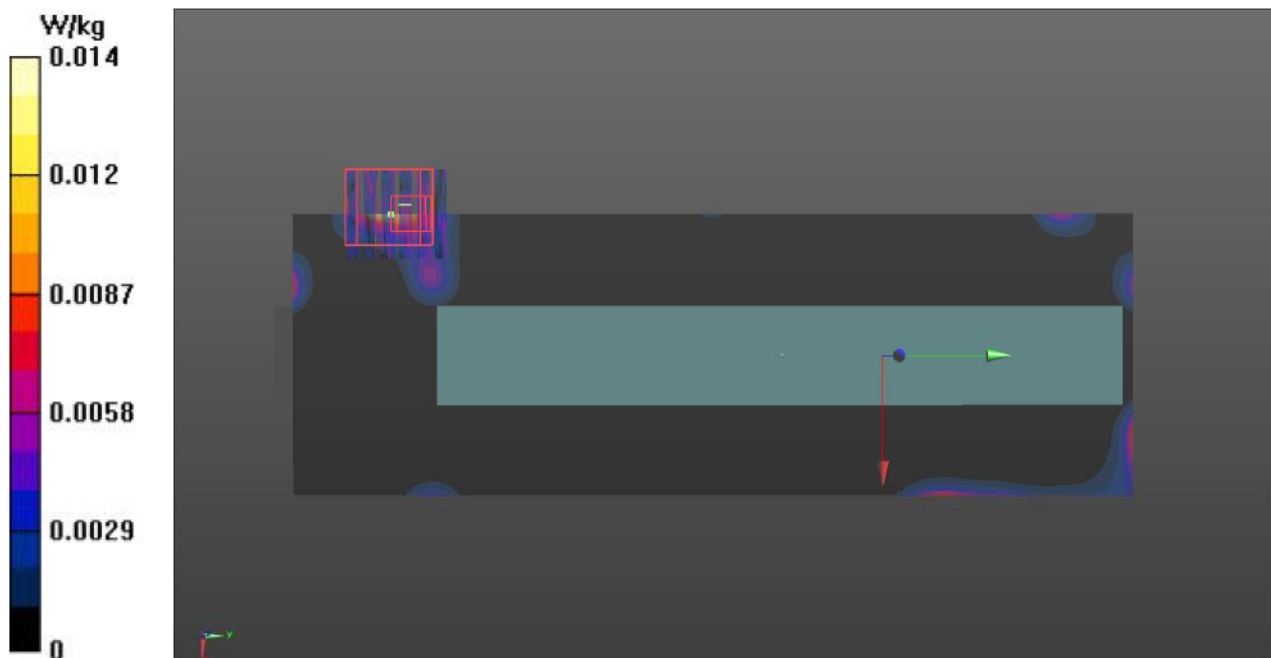
Ch159/Zoom Scan (6x6x12)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=2mm

Reference Value = 0.9930 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.0230 W/kg

SAR(1 g) = 0.0016 W/kg; SAR(10 g) = 0.000788 W/kg

Maximum value of SAR (measured) = 0.00972 W/kg



P28 802.11n_Right Side_0cm_Ch159_Ant 0+1**DUT: 510861**

Communication System: WLAN_5G; Frequency: 5795 MHz; Duty Cycle: 1:1.128

Medium: B5G_150123 Medium parameters used: $f = 5795$ MHz; $\sigma = 5.986$ S/m; $\epsilon_r = 46.847$; $\rho = 1000$ kg/m³**Ambient Temperature : 22.7 °C; Liquid Temperature : 21.9 °C**

DASY5 Configuration:

- Probe: EX3DV4 - SN3976; ConvF(4.26, 4.26, 4.26); Calibrated: 2014/2/17;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1424; Calibrated: 2014/2/11
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1238
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch159/Area Scan (81x241x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.0205 W/kg

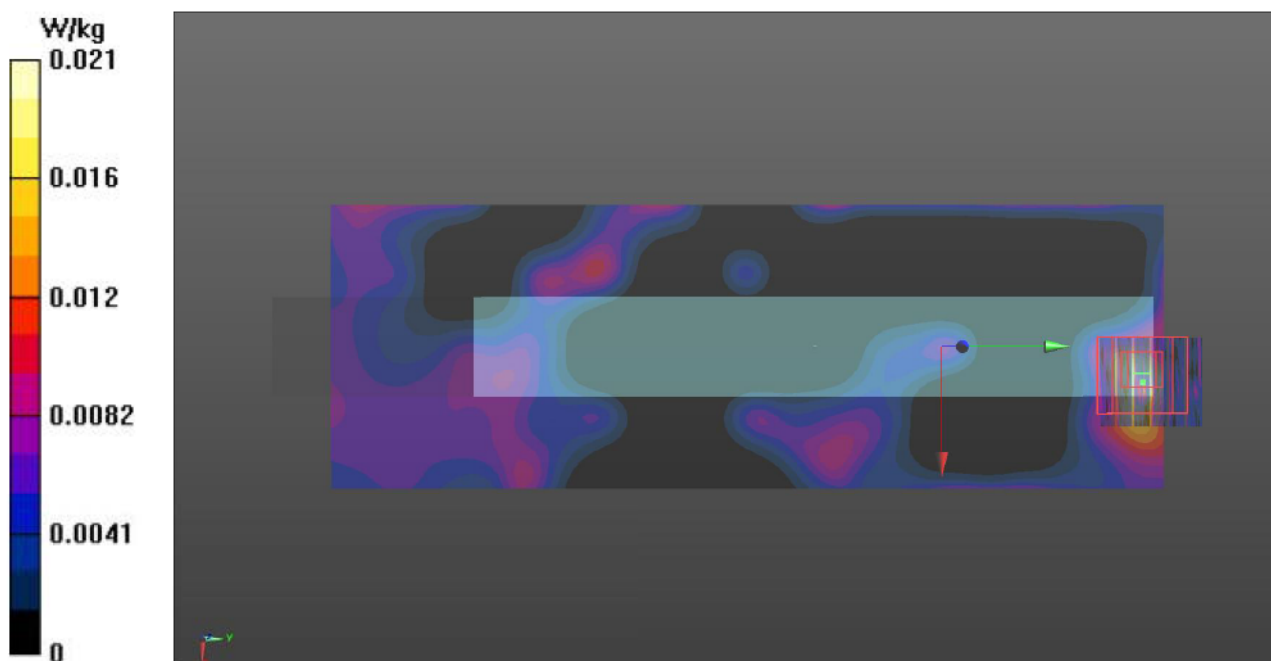
Ch159/Zoom Scan (6x6x12)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=2mm

Reference Value = 1.220 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 0.0480 W/kg

SAR(1 g) = 0.0065 W/kg; SAR(10 g) = 0.00264 W/kg

Maximum value of SAR (measured) = 0.0164 W/kg



P29 802.11n_Top Side_0cm_Ch159_Ant 0+1**DUT: 510861**

Communication System: WLAN_5G; Frequency: 5795 MHz; Duty Cycle: 1:1.128

Medium: B5G_150122 Medium parameters used: $f = 5795$ MHz; $\sigma = 6.182$ S/m; $\epsilon_r = 47.983$; $\rho = 1000$ kg/m³**Ambient Temperature : 22.8 °C; Liquid Temperature : 22.3 °C**

DASY5 Configuration:

- Probe: EX3DV4 - SN3976; ConvF(4.26, 4.26, 4.26); Calibrated: 2014/2/17;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1424; Calibrated: 2014/2/11
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1238
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch159/Area Scan (81x301x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.867 W/kg

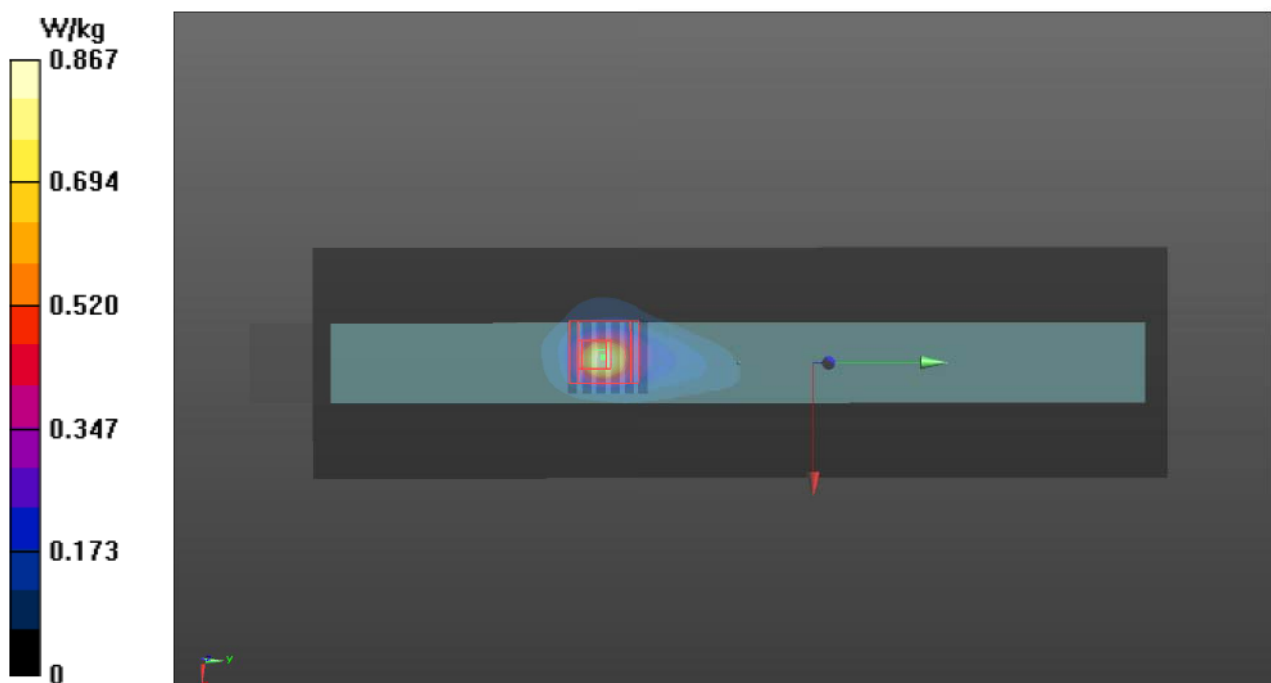
Ch159/Zoom Scan (6x6x12)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=2mm

Reference Value = 14.02 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 4.19 W/kg

SAR(1 g) = 0.636 W/kg; SAR(10 g) = 0.158 W/kg

Maximum value of SAR (measured) = 1.38 W/kg



P30 802.11n_Bottom Side_0cm_Ch159_Ant 0+1**DUT: 510861**

Communication System: WLAN_5G; Frequency: 5795 MHz; Duty Cycle: 1:1.128

Medium: B5G_150123 Medium parameters used: $f = 5795$ MHz; $\sigma = 5.986$ S/m; $\epsilon_r = 46.847$; $\rho = 1000$ kg/m³**Ambient Temperature : 22.7 °C; Liquid Temperature : 21.9 °C**

DASY5 Configuration:

- Probe: EX3DV4 - SN3976; ConvF(4.26, 4.26, 4.26); Calibrated: 2014/2/17;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1424; Calibrated: 2014/2/11
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1238
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch159/Area Scan (81x301x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.155 W/kg

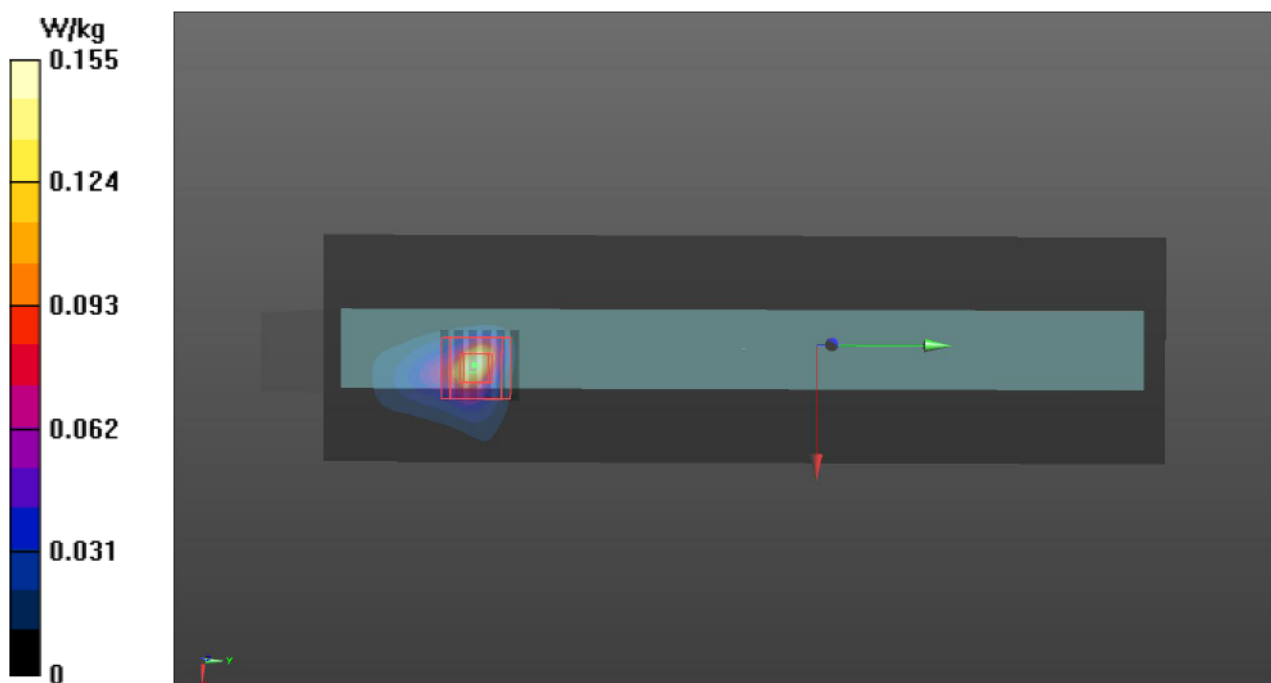
Ch159/Zoom Scan (6x6x12)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=2mm

Reference Value = 4.297 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 0.251 W/kg

SAR(1 g) = 0.057 W/kg; SAR(10 g) = 0.018 W/kg

Maximum value of SAR (measured) = 0.121 W/kg





Appendix C. DASY Calibration Certificate

IMPORTANT NOTICE

USAGE OF THE DAE 4

The DAE unit is a delicate, high precision instrument and requires careful treatment by the user. There are no serviceable parts inside the DAE. Special attention shall be given to the following points:

Battery Exchange: The battery cover of the DAE4 unit is closed using a screw, over tightening the screw may cause the threads inside the DAE to wear out.

Shipping of the DAE: Before shipping the DAE to SPEAG for calibration, remove the batteries and pack the DAE in an antistatic bag. This antistatic bag shall then be packed into a larger box or container which protects the DAE from impacts during transportation. The package shall be marked to indicate that a fragile instrument is inside.

E-Stop Failures: Touch detection may be malfunctioning due to broken magnets in the E-stop. Rough handling of the E-stop may lead to damage of these magnets. Touch and collision errors are often caused by dust and dirt accumulated in the E-stop. To prevent E-stop failure, the customer shall always mount the probe to the DAE carefully and keep the DAE unit in a non-dusty environment if not used for measurements.

Repair: Minor repairs are performed at no extra cost during the annual calibration. However, SPEAG reserves the right to charge for any repair especially if rough unprofessional handling caused the defect.

DASY Configuration Files: Since the exact values of the DAE input resistances, as measured during the calibration procedure of a DAE unit, are not used by the DASY software, a nominal value of 200 MOhm is given in the corresponding configuration file.

Important Note:

Warranty and calibration is void if the DAE unit is disassembled partly or fully by the Customer.

Important Note:

Never attempt to grease or oil the E-stop assembly. Cleaning and readjusting of the E-stop assembly is allowed by certified SPEAG personnel only and is part of the annual calibration procedure.

Important Note:

To prevent damage of the DAE probe connector pins, use great care when installing the probe to the DAE. Carefully connect the probe with the connector notch oriented in the mating position. Avoid any rotational movement of the probe body versus the DAE while turning the locking nut of the connector. The same care shall be used when disconnecting the probe from the DAE.



Accredited by the Swiss Accreditation Service (SAS)

Accreditation No.: **SCS 108**

The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Client **Sporton TW (Auden)**

Certificate No: **DAE4-1424_Feb14**

CALIBRATION CERTIFICATE

Object **DAE4 - SD 000 D04 BM - SN: 1424**

Calibration procedure(s) **QA CAL-06.v26**
Calibration procedure for the data acquisition electronics (DAE)

Calibration date: **February 11, 2014**

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 (Certificate No.)	Scheduled Calibration
Keithley Multimeter Type 2001	SN: 0810278	01-Oct-13 (No:13976)	Oct-14
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Auto DAE Calibration Unit	SE UWS 053 AA 1001	07-Jan-14 (in house check)	In house check: Jan-15
Calibrator Box V2.1	SE UMS 006 AA 1002	07-Jan-14 (in house check)	In house check: Jan-15

Calibrated by:	Name	Function	Signature
	R.Mayoraz	Technician	

Approved by:	Name	Function
	Fin Bomholt	Deputy Technical Manager

Issued: February 11, 2014

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