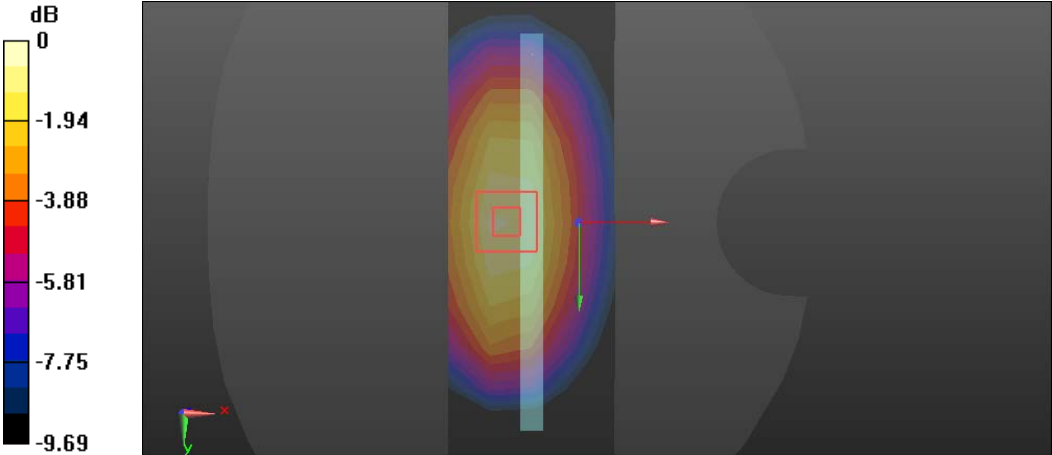
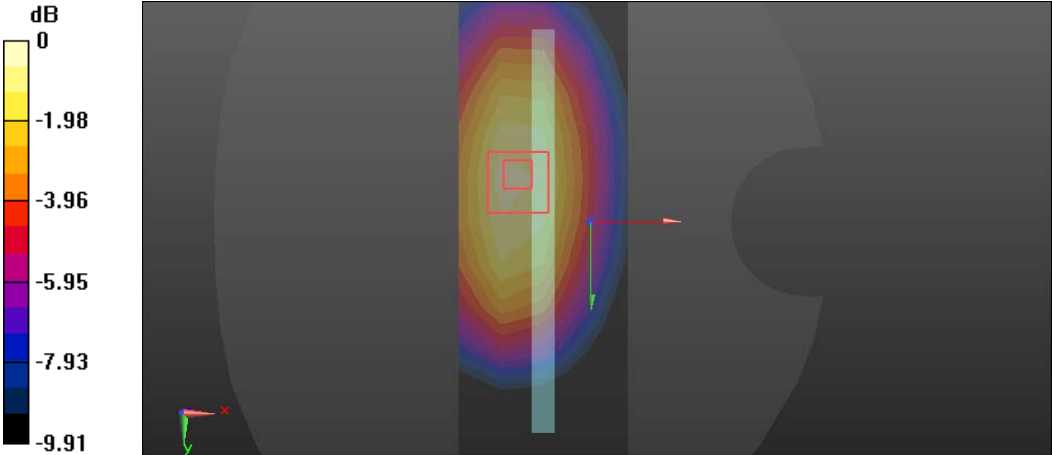
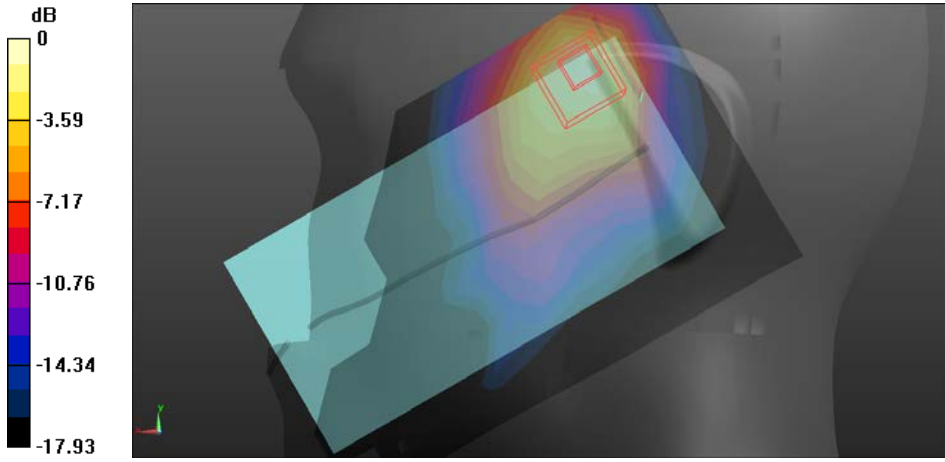
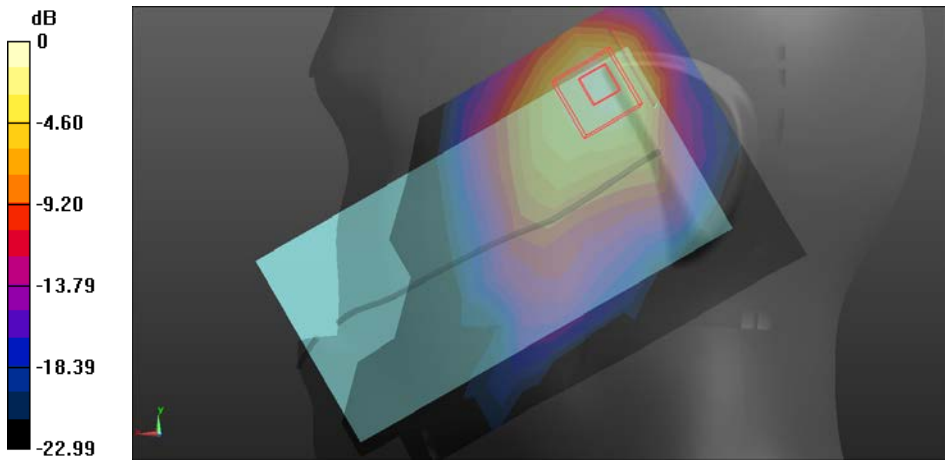


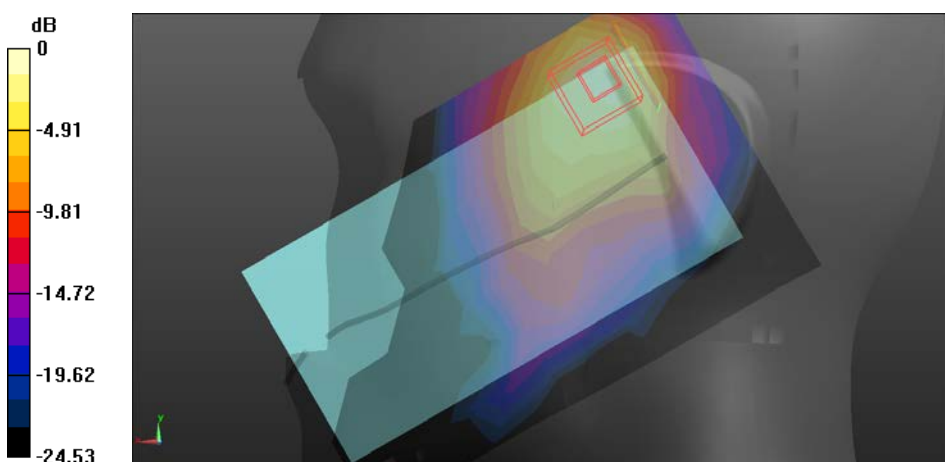
FLAT	EDGE3
Communication System: UID 0, LTE Band 13 (0); Frequency: 782 MHz;Duty Cycle: 1:1 Medium parameters used (interpolated): $f = 782 \text{ MHz}$; $\sigma = 0.926 \text{ S/m}$; $\epsilon_r = 41.412$; $\rho = 1000 \text{ kg/m}^3$ Phantom section: Flat Section DASY5 Configuration: - Probe: ES3DV3 - SN3127; ConvF(6.55, 6.55, 6.55); Calibrated: 2016/8/29; - Sensor-Surface: 4mm (Mechanical Surface Detection) - Electronics: DAE4 Sn546; Calibrated: 2016/8/22 - Phantom: Twin-SAM 1559; Type: QD 000 P40 CD; Serial: 1559 - Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373) Flat-Section MSL LTE band13 HOT/LTE Band13 edge3/Area Scan (5x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.149 W/kg Flat-Section MSL LTE band13 HOT/LTE Band13 edge3/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 12.49 V/m; Power Drift = 0.10 dB Peak SAR (extrapolated) = 0.225 W/kg SAR(1 g) = 0.153 W/kg; SAR(10 g) = 0.102 W/kg Maximum value of SAR (measured) = 0.168 W/kg  0 dB = 0.168 W/kg = -7.75 dBW/kg	

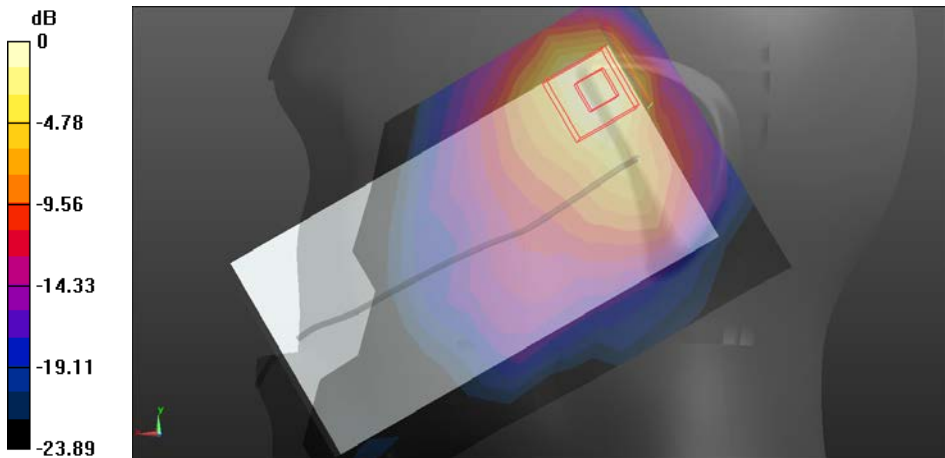
FLAT	EDGE4
Communication System: UID 0, LTE Band 13 (0); Frequency: 782 MHz;Duty Cycle: 1:1 Medium parameters used (interpolated): $f = 782 \text{ MHz}$; $\sigma = 0.926 \text{ S/m}$; $\epsilon_r = 41.412$; $\rho = 1000 \text{ kg/m}^3$ Phantom section: Flat Section DASY5 Configuration: - Probe: ES3DV3 - SN3127; ConvF(6.55, 6.55, 6.55); Calibrated: 2016/8/29; - Sensor-Surface: 4mm (Mechanical Surface Detection) - Electronics: DAE4 Sn546; Calibrated: 2016/8/22 - Phantom: Twin-SAM 1559; Type: QD 000 P40 CD; Serial: 1559 - Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373) Flat-Section MSL LTE band13 HOT/LTE Band13 edge4/Area Scan (5x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.0982 W/kg Flat-Section MSL LTE band13 HOT/LTE Band13 edge4/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 9.578 V/m; Power Drift = 0.07 dB Peak SAR (extrapolated) = 0.144 W/kg SAR(1 g) = 0.099 W/kg; SAR(10 g) = 0.067 W/kg Maximum value of SAR (measured) = 0.106 W/kg  0 dB = 0.106 W/kg = -9.75 dBW/kg	

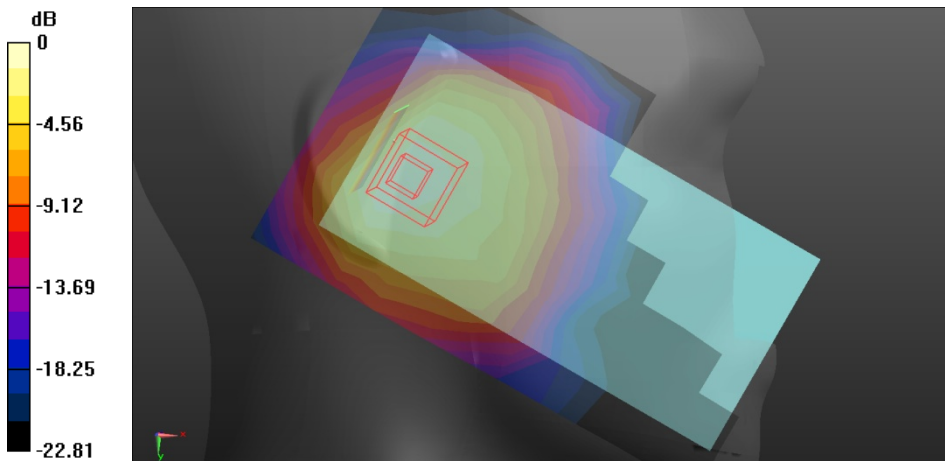
WIFI (802.11B/Head)

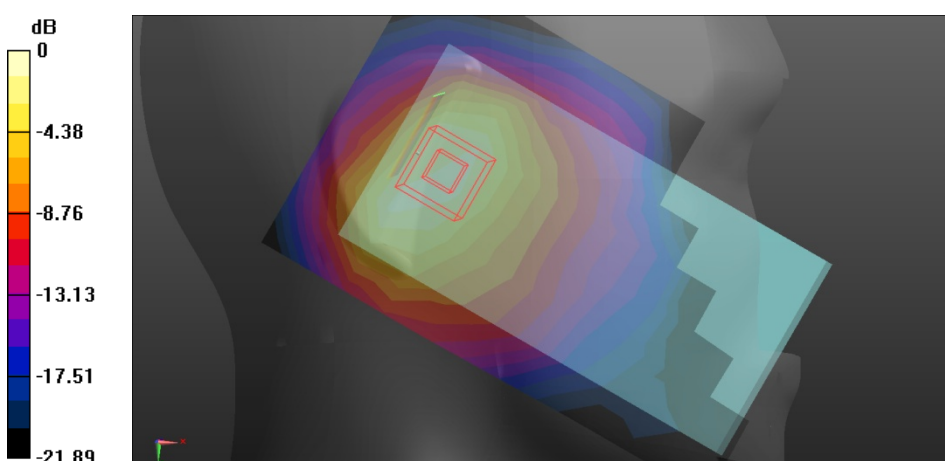
Left Side	Cheek
Communication System: UID 10012 – CAB, IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps); Frequency: 2412 MHz;Duty Cycle: 1:1.53815 Medium parameters used (interpolated): $f = 2412 \text{ MHz}$; $\sigma = 1.738 \text{ S/m}$; $\epsilon_r = 39.289$; $\rho = 1000 \text{ kg/m}^3$ Phantom section: Left Section DASY5 Configuration: - Probe: ES3DV3 – SN3127; ConvF(4.61, 4.61, 4.61); Calibrated: 2016/8/29; - Sensor-Surface: 4mm (Mechanical Surface Detection) - Electronics: DAE4 Sn546; Calibrated: 2016/8/22 - Phantom: 1660; Type: QD 000 P40 CD; Serial: xxxx - Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373) Head-Section Left HSL WIFI/WIFI touch L new 2/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.322 W/kg Head-Section Left HSL WIFI/WIFI touch L new 2/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 5.819 V/m; Power Drift = -0.01 dB Peak SAR (extrapolated) = 0.638 W/kg SAR(1 g) = 0.296 W/kg; SAR(10 g) = 0.148 W/kg Maximum value of SAR (measured) = 0.321 W/kg  0 dB = 0.321 W/kg = -4.93 dBW/kg	

Left Side	Cheek
Communication System: UID 10012 – CAB, IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps); Frequency: 2437 MHz;Duty Cycle: 1:1.53815 Medium parameters used (interpolated): $f = 2437 \text{ MHz}$; $\sigma = 1.782 \text{ S/m}$; $\epsilon_r = 39.236$; $\rho = 1000 \text{ kg/m}^3$ Phantom section: Left Section DASY5 Configuration: - Probe: ES3DV3 – SN3127; ConvF(4.61, 4.61, 4.61); Calibrated: 2016/8/29; - Sensor-Surface: 4mm (Mechanical Surface Detection) - Electronics: DAE4 Sn546; Calibrated: 2016/8/22 - Phantom: 1660; Type: QD 000 P40 CD; Serial: xxxx - Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373) Head-Section Left HSL WIFI/WIFI touch M new/Area Scan (8x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.605 W/kg Head-Section Left HSL WIFI/WIFI touch M new/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 7.959 V/m; Power Drift = 0.19 dB Peak SAR (extrapolated) = 1.32 W/kg SAR(1 g) = 0.603 W/kg; SAR(10 g) = 0.295 W/kg Maximum value of SAR (measured) = 0.660 W/kg  0 dB = 0.660 W/kg = -1.80 dBW/kg	

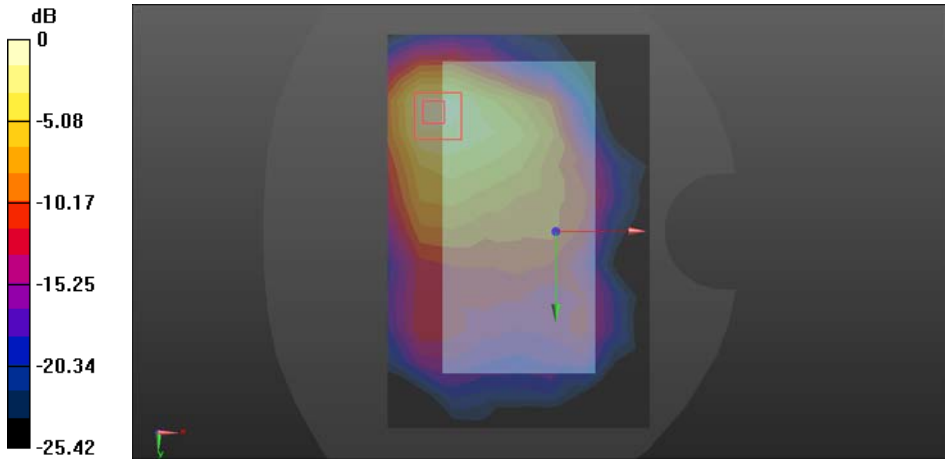
Left Side	Cheek
Communication System: UID 10012 – CAB, IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps); Frequency: 2462 MHz;Duty Cycle: 1:1.53815 Medium parameters used (interpolated): $f = 2462$ MHz; $\sigma = 1.791$ S/m; $\epsilon_r = 39.17$; $\rho = 1000$ kg/m³ Phantom section: Left Section DASY5 Configuration: - Probe: ES3DV3 – SN3127; ConvF(4.61, 4.61, 4.61); Calibrated: 2016/8/29; - Sensor-Surface: 4mm (Mechanical Surface Detection) - Electronics: DAE4 Sn546; Calibrated: 2016/8/22 - Phantom: 1660; Type: QD 000 P40 CD; Serial: xxxx - Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373) Head-Section Left HSL WIFI/WIFI touch H new 2 2/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.377 W/kg Head-Section Left HSL WIFI/WIFI touch H new 2 2/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 6.133 V/m; Power Drift = 0.08 dB Peak SAR (extrapolated) = 0.782 W/kg SAR(1 g) = 0.360 W/kg; SAR(10 g) = 0.176 W/kg Maximum value of SAR (measured) = 0.394 W/kg  0 dB = 0.394 W/kg = -4.05 dBW/kg	

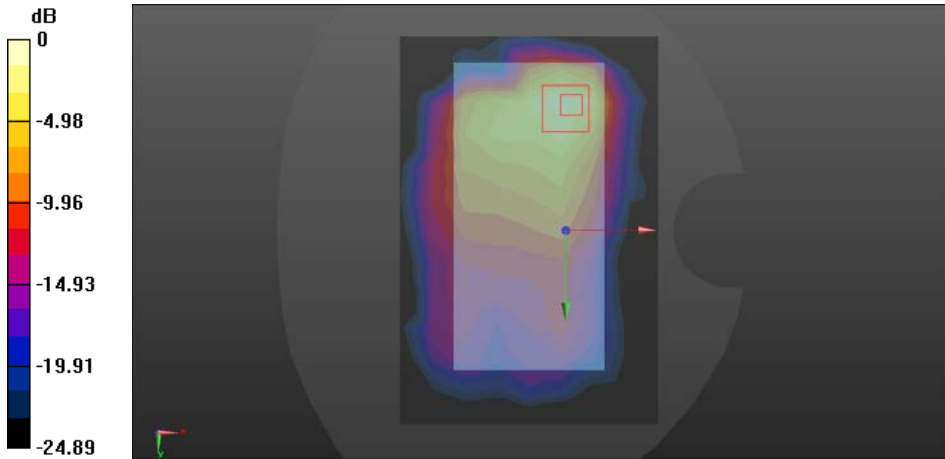
Left Side	Tilt
Communication System: UID 10012 – CAB, IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps); Frequency: 2437 MHz;Duty Cycle: 1:1.53815 Medium parameters used (interpolated): $f = 2437 \text{ MHz}$; $\sigma = 1.782 \text{ S/m}$; $\epsilon_r = 39.236$; $\rho = 1000 \text{ kg/m}^3$ Phantom section: Left Section DASY5 Configuration: - Probe: ES3DV3 – SN3127; ConvF(4.61, 4.61, 4.61); Calibrated: 2016/8/29; - Sensor-Surface: 4mm (Mechanical Surface Detection) - Electronics: DAE4 Sn546; Calibrated: 2016/8/22 - Phantom: 1660; Type: QD 000 P40 CD; Serial: xxxx - Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373) Head-Section Left HSL WIFI/WIFI tilt M/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.451 W/kg Head-Section Left HSL WIFI/WIFI tilt M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 11.44 V/m; Power Drift = -0.01 dB Peak SAR (extrapolated) = 1.17 W/kg SAR(1 g) = 0.517 W/kg; SAR(10 g) = 0.232 W/kg Maximum value of SAR (measured) = 0.573 W/kg  dB 0 -4.78 -9.56 -14.33 -19.11 -23.89 0 dB = 0.573 W/kg = -2.42 dBW/kg	

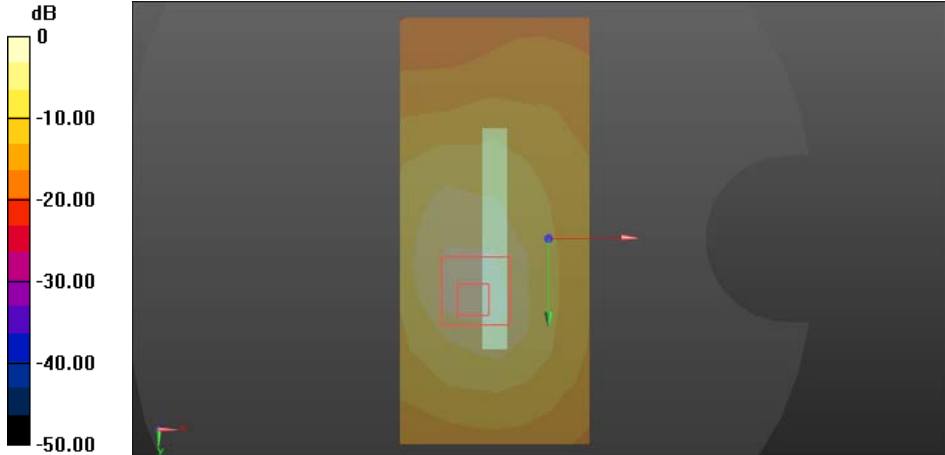
Right Side	Cheek
Communication System: UID 10012 – CAB, IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps); Frequency: 2437 MHz;Duty Cycle: 1:1.53815 Medium parameters used (interpolated): $f = 2437 \text{ MHz}$; $\sigma = 1.782 \text{ S/m}$; $\epsilon_r = 39.236$; $\rho = 1000 \text{ kg/m}^3$ Phantom section: Right Section DASY5 Configuration: - Probe: ES3DV3 – SN3127; ConvF(4.61, 4.61, 4.61); Calibrated: 2016/8/29; - Sensor-Surface: 4mm (Mechanical Surface Detection) - Electronics: DAE4 Sn546; Calibrated: 2016/8/22 - Phantom: 1660; Type: QD 000 P40 CD; Serial: xxxx - Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373) Head-Section Right HSL WIFI/WIFI touch M/Area Scan (8x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.315 W/kg Head-Section Right HSL WIFI/WIFI touch M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 10.55 V/m; Power Drift = 0.17 dB Peak SAR (extrapolated) = 0.618 W/kg SAR(1 g) = 0.325 W/kg; SAR(10 g) = 0.172 W/kg Maximum value of SAR (measured) = 0.359 W/kg  0 dB = 0.359 W/kg = -4.45 dBW/kg	

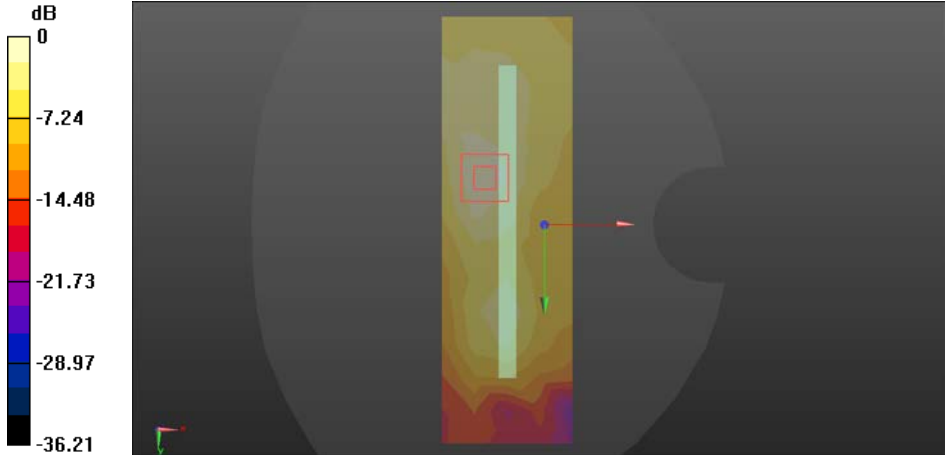
Right Side	Tilt
Communication System: UID 10012 – CAB, IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps); Frequency: 2437 MHz;Duty Cycle: 1:1.53815 Medium parameters used (interpolated): $f = 2437 \text{ MHz}$; $\sigma = 1.782 \text{ S/m}$; $\epsilon_r = 39.236$; $\rho = 1000 \text{ kg/m}^3$ Phantom section: Right Section DASY5 Configuration: - Probe: ES3DV3 – SN3127; ConvF(4.61, 4.61, 4.61); Calibrated: 2016/8/29; - Sensor-Surface: 4mm (Mechanical Surface Detection) - Electronics: DAE4 Sn546; Calibrated: 2016/8/22 - Phantom: 1660; Type: QD 000 P40 CD; Serial: xxxx - Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373) Head-Section Right HSL WIFI/WIFI tilt M/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.237 W/kg Head-Section Right HSL WIFI/WIFI tilt M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 11.00 V/m; Power Drift = 0.10 dB Peak SAR (extrapolated) = 0.530 W/kg SAR(1 g) = 0.261 W/kg; SAR(10 g) = 0.133 W/kg Maximum value of SAR (measured) = 0.292 W/kg  0 dB = 0.292 W/kg = -5.35 dBW/kg	

WIFI (802.11B/Flat)

FLAT	Towards phantom
Communication System: UID 10012 – CAB, IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps); Frequency: 2437 MHz;Duty Cycle: 1:1.53815 Medium parameters used (interpolated): $f = 2437 \text{ MHz}$; $\sigma = 1.883 \text{ S/m}$; $\epsilon_r = 38.021$; $\rho = 1000 \text{ kg/m}^3$ Phantom section: Flat Section DASY5 Configuration: - Probe: ES3DV3 – SN3127; ConvF(4.61, 4.61, 4.61); Calibrated: 2016/8/29; - Sensor-Surface: 4mm (Mechanical Surface Detection) - Electronics: DAE4 Sn546; Calibrated: 2016/8/22 - Phantom: 1660; Type: QD 000 P40 CD; Serial: xxxx - Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373) Flat-Section MSL WIFI TP/WIFI TP M/Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.259 W/kg Flat-Section MSL WIFI TP/WIFI TP M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 4.243 V/m; Power Drift = 0.16 dB Peak SAR (extrapolated) = 0.651 W/kg SAR(1 g) = 0.297 W/kg; SAR(10 g) = 0.146 W/kg Maximum value of SAR (measured) = 0.326 W/kg  0 dB = 0.326 W/kg = -4.87 dBW/kg	

FLAT	Towards ground
Communication System: UID 10012 – CAB, IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps); Frequency: 2437 MHz;Duty Cycle: 1:1.53815 Medium parameters used (interpolated): $f = 2437 \text{ MHz}$; $\sigma = 1.883 \text{ S/m}$; $\epsilon_r = 38.021$; $\rho = 1000 \text{ kg/m}^3$ Phantom section: Flat Section DASY5 Configuration: - Probe: ES3DV3 – SN3127; ConvF(4.61, 4.61, 4.61); Calibrated: 2016/8/29; - Sensor-Surface: 4mm (Mechanical Surface Detection) - Electronics: DAE4 Sn546; Calibrated: 2016/8/22 - Phantom: 1660; Type: QD 000 P40 CD; Serial: xxxx - Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373) Flat-Section MSLWIFI TG/WIF TG M/Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.337 W/kg Flat-Section MSLWIFI TG/WIF TG M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 4.549 V/m; Power Drift = 0.10 dB Peak SAR (extrapolated) = 0.846 W/kg SAR(1 g) = 0.345 W/kg; SAR(10 g) = 0.153 W/kg Maximum value of SAR (measured) = 0.385 W/kg  0 dB = 0.385 W/kg = -4.15 dBW/kg	

FLAT	EDGE1
Communication System: UID 10012 – CAB, IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps); Frequency: 2437 MHz;Duty Cycle: 1:1.53815 Medium parameters used (interpolated): $f = 2437$ MHz; $\sigma = 1.883$ S/m; $\epsilon_r = 38.021$; $\rho = 1000$ kg/m³ Phantom section: Flat Section DASY5 Configuration: - Probe: ES3DV3 – SN3127; ConvF(4.61, 4.61, 4.61); Calibrated: 2016/8/29; - Sensor-Surface: 4mm (Mechanical Surface Detection) - Electronics: DAE4 Sn546; Calibrated: 2016/8/22 - Phantom: 1660; Type: QD 000 P40 CD; Serial: xxxx - Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373) Flat-Section MSL WIFI HOTSPOT/WIF M edge 1/Area Scan (5x10x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.120 W/kg Flat-Section MSL WIFI HOTSPOT/WIF M edge 1/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 5.704 V/m; Power Drift = 0.05 dB Peak SAR (extrapolated) = 0.315 W/kg SAR(1 g) = 0.142 W/kg; SAR(10 g) = 0.064 W/kg Maximum value of SAR (measured) = 0.162 W/kg  0 dB = 0.162 W/kg = -7.90 dBW/kg	

FLAT	EDGE4
Communication System: UID 10012 – CAB, IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps); Frequency: 2437 MHz;Duty Cycle: 1:1.53815 Medium parameters used (interpolated): $f = 2437 \text{ MHz}$; $\sigma = 1.883 \text{ S/m}$; $\epsilon_r = 38.021$; $\rho = 1000 \text{ kg/m}^3$ Phantom section: Flat Section DASY5 Configuration: - Probe: ES3DV3 – SN3127; ConvF(4.61, 4.61, 4.61); Calibrated: 2016/8/29; - Sensor-Surface: 4mm (Mechanical Surface Detection) - Electronics: DAE4 Sn546; Calibrated: 2016/8/22 - Phantom: 1660; Type: QD 000 P40 CD; Serial: xxxx - Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373) Flat-Section MSL WIFI HOTSPOT/WIF M edge 4/Area Scan (5x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.0285 W/kg Flat-Section MSL WIFI HOTSPOT/WIF M edge 4/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 2.570 V/m; Power Drift = 0.13 dB Peak SAR (extrapolated) = 0.0600 W/kg SAR(1 g) = 0.029 W/kg; SAR(10 g) = 0.015 W/kg Maximum value of SAR (measured) = 0.0327 W/kg  0 dB = 0.0327 W/kg = -14.85 dBW/kg	

ANNEX B - RELEVANT PAGES FROM CALIBRATION REPORTS

DAE4 Sn:546

Calibration Laboratory of
Schmid & Partner
Engineering AG
Bühlstrasse 10, 8004 Zurich, Switzerland

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Client: **SRTC (YH4)** Certificate No.: **DAE4-546_Aug16**

CALIBRATION CERTIFICATE

Object: **DAE4 - SD-001 D04 (Sn: SRQ-546)**

Calibration procedure(s): **GA-CAL-06.v09**
Calibration procedure for the data acquisition electronics (DAE)

Calibration date: **August 22, 2016**

This calibration certificate documents the conformity to national standards, which define the physical units of mass elements (SI).
The measurement and the associated self-validation probability are given in the following pages and are part of this certificate.

All calibrations have been conducted in the calibration laboratory facility environment (temperature 22 ± 0.5 °C and humidity < 10%).

Calibration equipment used (EN 15183 criteria for calibration):

Primary Standards	2014	Cal Date (Certificate No.)	Secondary Calibration
Frequency standards: Type 2011	2014	08-Nov-15 (No. 17112)	2014-16

Additional Standards:

Standard	2014	Cal Date (Certificate No.)	Secondary Calibration
Active DAE Calibration unit	2014	08-Nov-15 (No. 17112)	2014-16

Expiry date: **August 22, 2017**

Approved by: **For Schmid** **Quality Technical Manager**

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

Certificate No: DAE4-546_Aug16 Page 1 of 5

Calibration Laboratory of
Schmid & Partner
Engineering AG
Bühlstrasse 10, 8004 Zurich, Switzerland

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Client: **SRTC (YH4)** Certificate No.: **DAE4-546_Aug16**

Glossary

DAE: data acquisition electronics
Connector angle: information used in DASY system to align probe sensor X to the robot coordinate system.

Methods Applied and Interpretation of Parameters

- DC Voltage Measurement: Calibration Factor assessed for use in DASY system by comparison with a calibrated instrument traceable to national standards. The figure given corresponds to the full scale range of the voltmeter in the respective range.
- Connector angle: The angle of the connector is assessed measuring the angle mechanically by a tool inserted. Uncertainty is not required.
- The following parameters as documented in the Appendix contain technical information as a result from the performance test and require no uncertainty.
- DC Voltage Measurement Linearity: Verification of the Linearity at +10% and -10% of the nominal calibration voltage. Influence of offset voltage is included in this measurement.
- Common mode sensitivity: Influence of a positive or negative common mode voltage on the differential measurement.
- Channel separation: Influence of a voltage on the neighbor channels not subject to an input voltage.
- AD Converter Values with inputs shorted: Values on the internal AD converter corresponding to zero input voltage.
- Input Offset Measurement: Output voltage and statistical results over a large number of zero voltage measurements.
- Input Offset Current: Typical value for information; Maximum channel input offset current, not considering the input resistance.
- Input resistance: Typical value for information; DAE input resistance at the connector, during internal auto-zeroing and during measurement.
- Low Battery Alarm Voltage: Typical value for information. Below this voltage, a battery alarm signal is generated.
- Power consumption: Typical value for information. Supply currents in various operating modes.

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Appendix (Additional assessments outside the scope of SCS0108)

1. DC Voltage Linearity

High Range	Reading (µV)	Difference (µV)	Error (%)
Channel X + Input	200031.74	-2.15	-0.00
Channel X + Input	20003.66	-0.75	-0.00
Channel X - Input	-20001.68	3.77	-0.02
Channel Y + Input	200021.10	-12.53	-0.01
Channel Y + Input	20002.25	-2.13	-0.01
Channel Y - Input	-20003.78	1.68	-0.01
Channel Z + Input	200025.91	-7.99	-0.00
Channel Z + Input	19999.97	-4.36	-0.02
Channel Z - Input	-20005.55	0.07	-0.00

Low Range	Reading (µV)	Difference (µV)	Error (%)
Channel X + Input	2000.82	-0.12	-0.01
Channel X + Input	201.00	0.23	0.11
Channel X - Input	-198.76	0.38	-0.19
Channel Y + Input	2000.36	-0.29	-0.01
Channel Y + Input	200.22	-0.57	-0.29
Channel Y - Input	-200.24	-0.93	0.47
Channel Z + Input	2000.61	0.13	0.01
Channel Z + Input	199.06	-1.52	-0.76
Channel Z - Input	-201.43	-1.99	1.00

2. Common mode sensitivity

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Common mode Input Voltage (mV)	High Range Average Reading (µV)	Low Range Average Reading (µV)
Channel X	200	1.49	0.15
	-200	1.41	-0.23
Channel Y	200	-0.40	-0.13
	-200	-1.08	-1.50
Channel Z	200	2.19	2.17
	-200	-4.93	-4.90

3. Channel separation

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Input Voltage (mV)	Channel X (µV)	Channel Y (µV)	Channel Z (µV)
Channel X	200	-	-3.01	-3.43
Channel Y	200	9.77	-	-1.00
Channel Z	200	5.39	7.00	-

Certificate No: DAE4-546_Aug16

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4. AD-Converter Values with inputs shorted

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	High Range (LSB)	Low Range (LSB)
Channel X	15845	16442
Channel Y	16150	14493
Channel Z	15907	16531

5. Input Offset Measurement

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Input (VDD)	Average (µV)	min. Offset (µV)	max. Offset (µV)	Std. Deviation (µV)
Channel X	1.22	0.21	1.94	0.35
Channel Y	0.27	-1.07	1.43	0.50
Channel Z	-0.65	-1.46	0.11	0.35

6. Input Offset Current

Nominal input circuitry offset current on all channels: <251A

7. Input Resistance (Typical values for information)

	Zeroing (kOhm)	Measuring (kOhm)
Channel X	200	200
Channel Y	200	200
Channel Z	200	200

8. Low Battery Alarm Voltage (Typical values for information)

Typical values	Alarm Level (VDC)
Supply (+ Vcc)	+7.9
Supply (- Vcc)	-7.6

9. Power Consumption (Typical values for information)

Typical values	Switched off (mA)	Stand by (mA)	Transmitting (mA)
Supply (+ Vcc)	<0.01	+6	+14
Supply (- Vcc)	<0.01	-8	-9

Certificate No: DAE4-546_Aug16

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DAE4 Sn:546

4. AD-Converter Values with inputs shorted

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	High Range (LSB)	Low Range (LSB)
Channel X	15045	16442
Channel Y	16150	14493
Channel Z	15907	16531

5. Input Offset Measurement

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Input 10M Ω

	Average (μV)	min. Offset (μV)	max. Offset (μV)	Std. Deviation (μV)
Channel X	1.22	0.21	1.94	0.35
Channel Y	0.27	-1.07	1.43	0.50
Channel Z	-0.65	-1.46	0.11	0.35

6. Input Offset Current

Input Offset Current
Nominal input circuitry offset current on all channels: $<25\text{fA}$

7. Input Resistance (Typical values for information)

Input Resistance (typical values for information)		
	Zeroing (kOhm)	Measuring (MOhm)
Channel X	200	200
Channel Y	200	200
Channel Z	200	200

8. Low Battery Alarm Voltage (Typical values for information)

Typical values	Alarm Level (VDC)
Supply (+ Vcc)	+7.9
Supply (- Vcc)	-7.6

9. Power Consumption (Typical values for information)

Typical values	Switched off (mA)	Stand by (mA)	Transmitting (mA)
Supply (+ Vcc)	+0.01	+6	+14
Supply (- Vcc)	-0.01	-8	-9

Certificate No: DAE4-546_Aug16

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DAE4 Sn:720

Calibration Laboratory of Sofnol & Partner Engineering AG Neuhofstrasse 10, 8060 Zurich, Switzerland		 		International Accreditation Service Institute of Metrology National Institute of Standards Swiss Calibration Service	
Issued by the Swiss Accreditation Service (SAC) The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates			Accreditation No.: SCS 0108		
(Date: SR15 (V16))			Certificate No.: DAE-720_0116		
CALIBRATION CERTIFICATE					
Item: DAE101 SD-200 D04 BM - 330 700					
Calibration procedure: GS CAL 06109 Calibration procedure for the data acquisition electronics (DAE)					
Calibration date: October 31, 2016					
This calibration certificate documents the traceability to national standards, which ensure the physical units of measurements (SI). The measurements and the uncertainties with confidence intervals are given on the calibration targets and are not part of the certificate.					
An calibration has been conducted in the climate chamber facility, environmental temperature (20 ± 0.1) °C and humidity at 70%.					
Calibration by equipment used (EMV77) verified for calibration					
Primary Standard:	U10	Qty (Date Calibration Rec):	Expected Calibration		
Calibration Standard:	SD 200 D04 BM	SD 200 D04 BM	Reg 17		
Secondary Standard:	U10	Qty (Date Calibration Rec):	Expected Calibration		
Calibration Certificate (DAE)	SD 200 D04 BM 1001	SD 200 D04 BM 1001	Reg 17		
Calibration Test (U1)	SD 200 D04 BM 1002	SD 200 D04 BM 1002	Reg 17		
Name:		Position:	Signature:		
Calibration by: Development Engineer		Position: Technician			
Approved by: For Supplier		Signed: Technical Manager			
This calibration certificate shall not be reproduced without or left without written approval of the laboratory.					
Issued: October 31, 2016					

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Figure 3.10.1

DAE4 Sn:720

Calibration Laboratory of
Schmid & Partner
Engineering AG
Bühlstrasse 10, 800 Zurich, Switzerland

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The Swiss Accreditation Service is one of the signatories to the IAF
Mutual Recognition Agreement for the recognition of calibration certificates

Accreditation No.: SCS 0108

Glossary
DAE: data acquisition electronics
Connector angle: Information used in DASY system to align probe sensor X to the robot coordinate system.

Methods Applied and Interpretation of Parameters

- **DC Voltage Measurement:** Calibration Factor assessed for use in DASY system by comparison with a calibrated instrument traceable to national standards. The figure given corresponds to the full scale range of the voltmeter in the respective range.
- **Connector angle:** The angle of the connector is assessed measuring the angle mechanically by a tool inserted. Uncertainty is not required.
- The following parameters as documented in the Appendix contain technical information as a result from the performance test and require no uncertainty.
 - **DC Voltage Measurement Linearity:** Verification of the Linearity at +10% and -10% of the nominal calibration voltage. Influence of offset voltage is included in this measurement.
 - **Common mode sensitivity:** Influence of a positive or negative common mode voltage on the differential measurement.
 - **Channel separation:** Influence of a voltage on the neighbor channels not subject to an input voltage.
 - **AD Converter Values with inputs shorted:** Values on the internal AD converter corresponding to zero input voltage.
 - **Input Offset Measurement:** Output voltage and statistical results over a large number of zero voltage measurements.
 - **Input Offset Current:** Typical value for information. Maximum channel input offset current, not considering the input resistance.
 - **Input resistance:** Typical value for information. GAE input resistance at the connector, during internal auto-zeroing and during measurement.
 - **Low Battery Alarm Voltage:** Typical value for information. Below this voltage, a battery alarm signal is generated.
 - **Power consumption:** Typical value for information. Supply currents in various operating modes.

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DC Voltage Measurement

ADC - Conversion Resolution: nominal
High Range: 15.88 mV 5 µV/V full range: -100...+200 mV
Low Range: 15.88 mV 5 µV/V full range: -10...+20 mV
DASY measurement parameters: Auto Zero Time: 3 sec. Measuring time: 3 sec.

Calibration Factors	X	Y	Z
High Range	905.000 ± 0.02% (3σ)	404.780 ± 0.02% (3σ)	499.298 ± 0.02% (3σ)
Low Range	9.05000 ± 0.02% (3σ)	4.04780 ± 0.02% (3σ)	4.99298 ± 0.02% (3σ)

Connector Angle

Connector Angle to be used in DASY system	23.6 ° ± 1 °
---	--------------

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Appendix (Additional assessments outside the scope of SCS0108)

1. DC Voltage Linearity

High Range	Reading (µV)	Difference (µV)	Error (%)
Channel X + Input	200030.00	-2.83	-0.00
Channel X + Input	20005.59	1.21	0.01
Channel X - Input	-20002.63	2.74	-0.01
Channel Y + Input	200031.45	-1.44	-0.00
Channel Y + Input	20003.49	-0.90	-0.00
Channel Y - Input	-20003.62	1.72	-0.01
Channel Z + Input	200030.86	-1.43	-0.00
Channel Z + Input	20001.58	-2.67	-0.01
Channel Z - Input	-20009.93	-4.50	0.02

Low Range	Reading (µV)	Difference (µV)	Error (%)
Channel X + Input	1999.86	-0.99	-0.05
Channel X + Input	200.42	-0.42	-0.21
Channel X - Input	-199.45	-0.24	0.12
Channel Y + Input	2000.78	-0.01	-0.00
Channel Y + Input	200.66	-0.06	-0.03
Channel Y - Input	-199.50	-0.28	0.14
Channel Z + Input	2000.45	-0.29	-0.01
Channel Z + Input	199.41	-1.33	-0.66
Channel Z - Input	-200.21	-0.92	0.46

2. Common mode sensitivity

DASY measurement parameters: Auto Zero Time: 3 sec. Measuring time: 3 sec

	Common mode Input Voltage (mV)	High Range Average Reading (µV)	Low Range Average Reading (µV)
Channel X	200	-2.59	-3.72
	-200	7.16	5.57
Channel Y	200	15.89	15.62
	-200	-16.62	-17.01
Channel Z	200	-16.19	-16.08
	-200	14.56	14.81

3. Channel separation

DASY measurement parameters: Auto Zero Time: 3 sec. Measuring time: 3 sec

	Input Voltage (mV)	Channel X (µV)	Channel Y (µV)	Channel Z (µV)
Channel X	200	0.26	-3.89	-
Channel Y	200	8.74	9.77	-
Channel Z	200	6.36	7.07	-

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4. AD-Converter Values with inputs shorted

DASY measurement parameters: Auto Zero Time: 3 sec. Measuring time: 3 sec

	High Range (LSB)	Low Range (LSB)
Channel X	16156	16521
Channel Y	16178	16048
Channel Z	16424	15774

5. Input Offset Measurement

DASY measurement parameters: Auto Zero Time: 3 sec. Measuring time: 3 sec

	Average (µV)	min. Offset (µV)	max. Offset (µV)	Std. Deviation (µV)
Channel X	0.75	-1.14	2.77	0.69
Channel Y	-0.03	-1.04	0.90	0.43
Channel Z	-0.18	-2.07	1.75	0.69

6. Input Offset Current

Nominal input circuitry offset current on all channels: <25nA

7. Input Resistance (Typical values for information)

	Zeroing (kOhm)	Measuring (MOhm)
Channel X	200	200
Channel Y	200	200
Channel Z	200	200

8. Low Battery Alarm Voltage (Typical values for information)

Typical values	Alarm Level (VDC)
Supply (+ Vcc)	+7.9
Supply (- Vcc)	-7.6

9. Power Consumption (Typical values for information)

Typical values	Switched off (mA)	Stand by (mA)	Transmitting (mA)
Supply (+ Vcc)	+0.01	+6	+14
Supply (- Vcc)	-0.01	-8	-9

Certificate No: DAE4-720_0016

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ES3DV3 Sn:3127

ES3DV3-SN:3127

August 29, 2016

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3127

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) ^c	Relative Permittivity ^d	Conductivity (S/m) ^e	Const X	Const Y	Const Z	Alpha ^g	Depth ^h (mm)	Unc (k=2)
450	43.5	0.87	6.74	6.74	6.74	0.21	2.30	± 13.3 %
750	41.9	0.89	6.55	6.55	6.55	0.62	1.37	± 12.0 %
900	41.5	0.97	6.20	6.20	6.20	0.54	1.41	± 12.0 %
1450	40.5	1.20	5.44	5.44	5.44	0.80	1.06	± 12.0 %
1810	40.0	1.40	5.15	5.15	5.15	0.80	1.16	± 12.0 %
2000	40.0	1.40	5.11	5.11	5.11	0.68	1.28	± 12.0 %
2300	39.5	1.67	4.83	4.83	4.83	0.80	1.19	± 12.0 %
2450	39.2	1.80	4.61	4.61	4.61	0.67	1.38	± 12.0 %
2600	39.0	1.96	4.40	4.40	4.40	0.70	1.36	± 12.0 %

^c Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the Const^d uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 20, 40, 50 and 70 MHz for Const^d assessments at 30, 60, 100, 150 and 200 MHz respectively. Above 5 GHz frequency validity can be extended to ± 100 MHz.
^d At frequencies below 3 GHz, the validity of tissue parameters (i) and (ii) can be related to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (i) and (ii) is restricted to ± 5%. The uncertainty is the RSS of the Const^d uncertainty for indicated target tissue parameters.
^e AlphaDepth are determined during calibration. SPLAC warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

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ES3DV3-SN:3127

August 29, 2016

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3127

Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) ^c	Relative Permittivity ^d	Conductivity (S/m) ^e	Const X	Const Y	Const Z	Alpha ^g	Depth ^h (mm)	Unc (k=2)
450	56.7	0.94	6.99	6.99	6.99	0.12	2.10	± 13.3 %
750	55.5	0.96	6.12	6.12	6.12	0.80	1.14	± 12.0 %
900	55.0	1.05	6.16	6.16	6.16	0.66	1.53	± 12.0 %
1450	54.0	1.30	5.29	5.29	5.29	0.74	1.21	± 12.0 %
1810	53.3	1.52	4.90	4.90	4.90	0.43	1.69	± 12.0 %
2000	53.3	1.52	4.92	4.92	4.92	0.55	1.48	± 12.0 %
2300	52.9	1.81	4.63	4.63	4.63	0.80	1.24	± 12.0 %
2450	52.7	1.95	4.36	4.36	4.36	0.71	1.22	± 12.0 %
2600	52.5	2.16	4.17	4.17	4.17	0.80	1.11	± 12.0 %

^c Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the Const^d uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 20, 40, 50 and 70 MHz for Const^d assessments at 30, 60, 100, 150 and 200 MHz respectively. Above 5 GHz frequency validity can be extended to ± 100 MHz.
^d At frequencies below 3 GHz, the validity of tissue parameters (i) and (ii) can be related to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (i) and (ii) is restricted to ± 5%. The uncertainty is the RSS of the Const^d uncertainty for indicated target tissue parameters.
^e AlphaDepth are determined during calibration. SPLAC warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

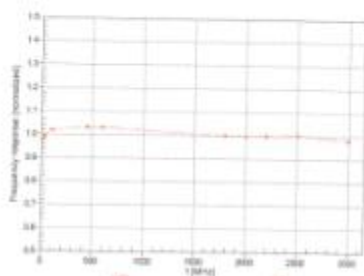
Certificate No: ES3-3127_Aug16

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August 29, 2016

Frequency Response of E-Field (TEM-Gal:0119 EXA, Waveguide: R22)



Uncertainty of Frequency Response of E-Field: ± 0.05 (5%) (k=2)

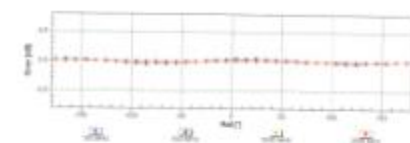
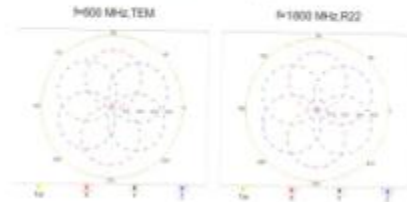
Certificate No: ES3-3127_Aug16

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August 29, 2016

Receiving Pattern (φ), θ = 0°

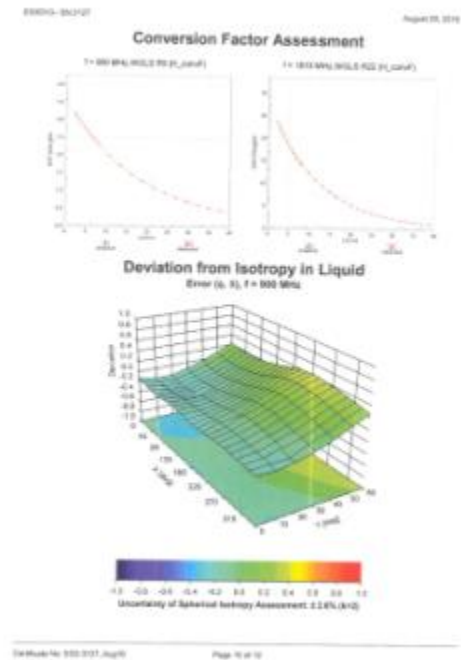
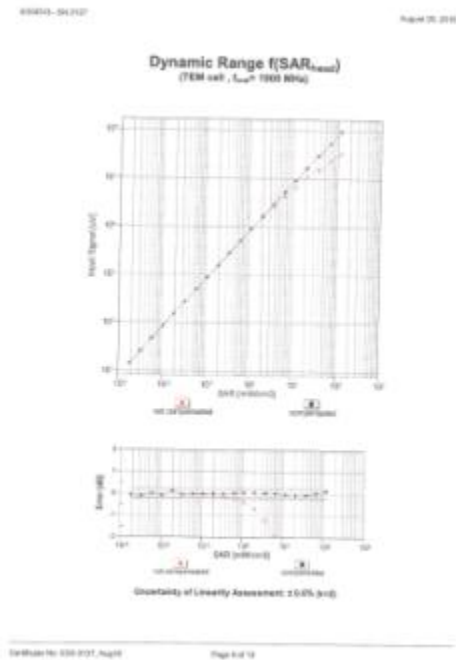


Uncertainty of Field Intensity Assessment: ± 0.25 (2.5%) (k=2)

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ES3DV3 Sn:3127



ES3DV3-SN:3127 August 29, 2016

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3127

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	-15.8
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	10 mm
Tip Diameter	4 mm
Probe Tip to Sensor X Calibration Point	2 mm
Probe Tip to Sensor Y Calibration Point	2 mm
Probe Tip to Sensor Z Calibration Point	2 mm
Recommended Measurement Distance from Surface	3 mm

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ES3DV3-SN:3127 August 29, 2016

Appendix: Modulation Calibration Parameters

Mod	Communication System Name	A dB	B dB-μV	C	D dB	VR mV	Unc (k=2)
0	CW	X 0.0	0.0	1.0	0.00	209.2	±3.3 %
		Y 0.0	0.0	1.0		213.8	
		Z 0.0	0.0	1.0		202.7	
10012-CIS	IEEE 802.11b WP1 2.4 GHz (DSSS, 1 Mbps)	X 3.29	71.4	20.2	1.87	125.8	±0.7 %
		Y 2.75	67.3	17.9		129.9	
		Z 3.10	70.4	19.7		120.2	
10108-CAC	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	X 6.43	67.7	20.1	5.80	137.8	±1.4 %
		Y 6.43	67.5	19.7		144.6	
		Z 6.26	67.6	20.0		137.5	
10115-CAC	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	X 6.17	67.4	20.0	5.75	134.4	±1.4 %
		Y 6.14	67.0	19.6		141.5	
		Z 6.02	67.0	19.7		128.3	
10154-CAC	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	X 6.13	67.3	19.9	5.75	133.5	±1.2 %
		Y 6.10	67.3	19.8		140.3	
		Z 6.04	67.1	19.8		128.2	
10168-CIS	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	X 5.00	66.8	19.8	5.73	117.2	±0.9 %
		Y 5.04	66.9	19.7		120.3	
		Z 4.89	66.5	19.7		111.8	
10175-CAC	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	X 4.97	66.8	19.7	5.72	117.2	±0.9 %
		Y 4.95	66.3	19.4		120.2	
		Z 4.87	66.5	19.6		111.6	
10267-AAS	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	X 6.51	68.0	20.3	5.81	137.1	±1.4 %
		Y 6.46	67.6	19.9		140.9	
		Z 6.37	67.6	20.0		130.4	

* Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

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EX3DV4 S_n:3708[illegible][illegible]

EX3DV4 – SN:3708

Bismuthum 4/3 1998

Probe EX3DV4

SN:3708

Manufactured: July 21, 2009
Calibrated: November 10, 2016

Calibrated for DASY/EASY Systems
(Note: non-compatible with DASY2 system!)

资料来源：根据《中国统计年鉴》整理。

DOI: 10.1002/for

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3708

[illegible]

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%.

² The interpretation of Steps 4, 5, 6, and 7 is not affected by the χ^2 -tests concerning model fit (see Table 1, upper part).

EX3DV4 Sn:3708

EX3DV4 - SN:3708 November 10, 2016

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3708

Calibration Parameter Determined in Head Tissue Simulating Media

1 MHz ¹	Relative Permittivity ²	Conductivity (S/m)	Coef ³ X	Coef ³ Y	Coef ³ Z	Alpha ⁴	Equip ⁵ (dBm)	Unc. (dB)
300	47.0	0.87	0.00	0.00	0.00	0.44	0.00	± 0.0 %
1000	49.0	1.40	7.04	7.04	7.04	0.36	0.00	± 0.0 %
3000	49.0	1.40	7.04	7.04	7.04	0.31	0.00	± 0.0 %
10000	49.0	1.38	7.11	7.11	7.11	0.28	0.00	± 0.0 %
30000	50.0	4.58	5.83	5.83	5.83	0.34	1.00	± 0.0 %
100000	50.0	4.78	5.80	5.80	5.80	0.34	1.00	± 0.0 %
300000	50.0	4.89	5.80	5.80	5.80	0.40	1.00	± 0.0 %
1000000	50.0	5.07	5.81	5.81	5.81	0.40	1.00	± 0.0 %
3000000	50.0	5.27	5.81	5.81	5.81	0.40	1.00	± 0.0 %

¹Frequency spans from 50 MHz to 3 GHz only apply for (SAR) not a single use Page (2). Also it is necessary to > 10 MHz. The uncertainty is the RMS of the Coef³ parameters at calibration frequencies and the uncertainty for the indicated frequency range. Frequency values below 300 MHz, 0.1, 0.3, 0.5, 1.0, 3.0, 10, 30, 100 and 300 MHz for Coef³ parameters at 0.04, 0.08, 0.16 and 0.32 dBm respectively. Above 3 GHz frequency points only are for reference at > 10 MHz.

²At frequencies below 3 GHz, the values of tissue parameters are not used to calculate the SAR. At frequencies above 3 GHz, the values of tissue parameters are used to calculate the SAR. The uncertainty is the RMS of the Coef³ parameters for reference target tissue parameters.

³At frequencies below 3 GHz, the values of tissue parameters are not used to calculate the SAR. At frequencies above 3 GHz, the values of tissue parameters are used to calculate the SAR. The uncertainty is the RMS of the Coef³ parameters for reference target tissue parameters.

⁴At frequencies below 3 GHz, the values of tissue parameters are not used to calculate the SAR. At frequencies above 3 GHz, the values of tissue parameters are used to calculate the SAR. The uncertainty is the RMS of the Coef³ parameters for reference target tissue parameters.

⁵At frequencies below 3 GHz, the values of tissue parameters are not used to calculate the SAR. At frequencies above 3 GHz, the values of tissue parameters are used to calculate the SAR. The uncertainty is the RMS of the Coef³ parameters for reference target tissue parameters.

Certificate No: E00-0708, Item 10

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EX3DV4 - SN:3708 November 10, 2016

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3708

Calibration Parameter Determined in Body Tissue Simulating Media

1 MHz ¹	Relative Permittivity ²	Conductivity (S/m)	Coef ³ X	Coef ³ Y	Coef ³ Z	Alpha ⁴	Equip ⁵ (dBm)	Unc. (dB)
300	53.0	1.00	0.00	0.00	0.00	0.44	0.00	± 0.0 %
1000	53.0	1.50	7.79	7.79	7.79	0.44	0.00	± 0.0 %
3000	53.0	1.50	7.71	7.71	7.71	0.43	0.00	± 0.0 %
10000	52.0	1.38	7.07	7.07	7.07	0.40	0.00	± 0.0 %
30000	49.0	4.58	4.82	4.82	4.82	0.46	1.00	± 0.0 %
100000	49.0	4.60	4.81	4.81	4.81	0.46	1.00	± 0.0 %
300000	49.0	4.80	4.87	4.87	4.87	0.50	1.00	± 0.0 %
1000000	49.0	5.07	4.86	4.86	4.86	0.50	1.00	± 0.0 %
3000000	49.0	5.27	4.86	4.86	4.86	0.50	1.00	± 0.0 %

¹Frequency spans from 50 MHz to 3 GHz only apply for (SAR) not a single use Page (2). Also it is necessary to > 10 MHz. The uncertainty is the RMS of the Coef³ parameters at calibration frequencies and the uncertainty for the indicated frequency range. Frequency values below 300 MHz, 0.1, 0.3, 0.5, 1.0, 3.0, 10, 30, 100 and 300 MHz for Coef³ parameters at 0.04, 0.08, 0.16 and 0.32 dBm respectively. Above 3 GHz frequency points only are for reference at > 10 MHz.

²At frequencies below 3 GHz, the values of tissue parameters are not used to calculate the SAR. At frequencies above 3 GHz, the values of tissue parameters are used to calculate the SAR. The uncertainty is the RMS of the Coef³ parameters for reference target tissue parameters.

³At frequencies below 3 GHz, the values of tissue parameters are not used to calculate the SAR. At frequencies above 3 GHz, the values of tissue parameters are used to calculate the SAR. The uncertainty is the RMS of the Coef³ parameters for reference target tissue parameters.

⁴At frequencies below 3 GHz, the values of tissue parameters are not used to calculate the SAR. At frequencies above 3 GHz, the values of tissue parameters are used to calculate the SAR. The uncertainty is the RMS of the Coef³ parameters for reference target tissue parameters.

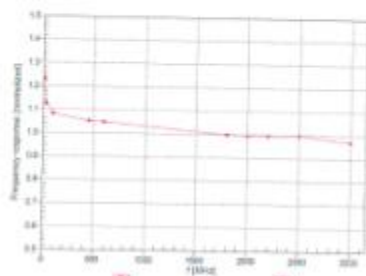
⁵At frequencies below 3 GHz, the values of tissue parameters are not used to calculate the SAR. At frequencies above 3 GHz, the values of tissue parameters are used to calculate the SAR. The uncertainty is the RMS of the Coef³ parameters for reference target tissue parameters.

Certificate No: E00-0708, Item 10

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EX3DV4 - SN:3708 November 10, 2016

Frequency Response of E-Field
(TEM-Cell 8110 EXX, Waveguide: R22)



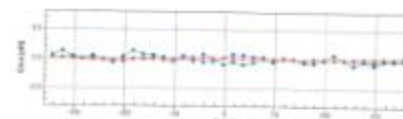
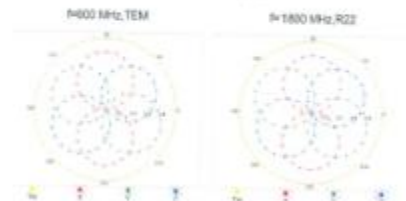
Uncertainty of Frequency Response of E-Field: ± 0.2% (k=2)

Certificate No: E00-0708, Item 10

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EX3DV4 - SN:3708 November 10, 2016

Receiving Pattern (θ), θ = 0°

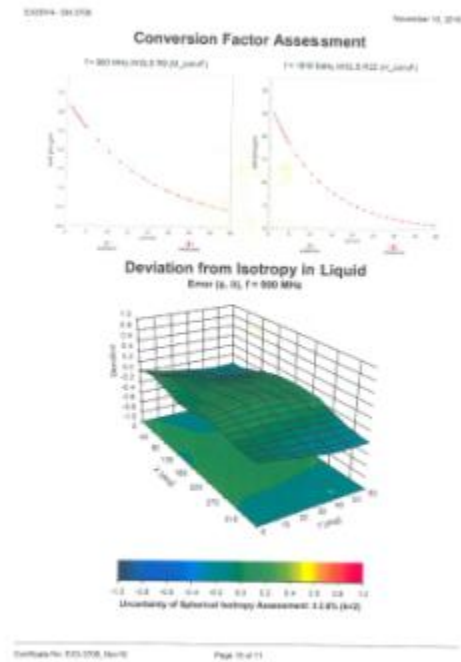
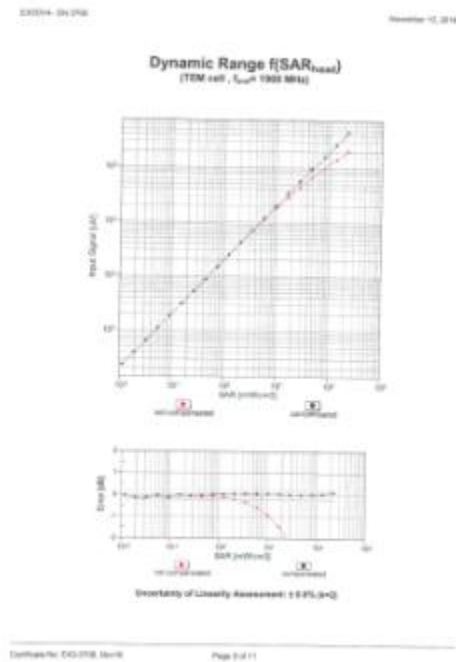


Uncertainty of Receiving Pattern Assessment: ± 0.2% (k=2)

Certificate No: E00-0708, Item 10

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EX3DV4 Sn:3708



EX3DV4 - SN:3708 November 10, 2016

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3708

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	-1.9
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	9 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	1.4 mm

Certificate No: EX3-3708_Nov16 Page 11 of 11

D750V3 Sn:1101

Calibration Laboratory of
Schmidt & Partner
Engineering AG
Bergstrasse 40, 8034 Zurich, Switzerland

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is an official signatory to the IAF
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 0108

Client: **SRTC (VME)** Certificate No.: **D750V3-1101_0018**

CALIBRATION CERTIFICATE

Report: **D750V3 - SRQ 1101**

Calibration requested: **GA-CA-05 v6
Calibration procedure for dipole validation kits above 700 MHz**

Calibration date: **October 24, 2018**

This calibration certificate documents the capability to perform calibrations, which include the use of good units of measurement (GUM).
The measurement and the uncertainty with coverage probability are given in the following pages which are part of the certificate.

All calibrations have been conducted in the clean laboratory facility (environment temperature: 20 ± 0.5 °C, air humidity < 50%).

Calibration equipment used (90%): official for calibration:

Primary Standards	Unit	Cal Date (Certificate No.)	Expiry date (Calibration)
Power meter NRP	SW: 70075	24-Apr-18 (No. 211-00000000)	Apr-17
Power meter NRP (2)	SW: 70074	24-Apr-18 (No. 211-000000)	Apr-17
Power meter NRP (3)	SW: 70074	24-Apr-18 (No. 211-000000)	Apr-17
Reference (30 dB Attenuator)	SW: 3008 (200)	24-Apr-18 (No. 211-000000)	Apr-17
Specific impedance calibration	SW: 3007 (2) - 3007	24-Apr-18 (No. 211-000000)	Apr-17
Reference Plane (20 dB)	SW: 7007	15-Jul-18 (No. 210-1000_0018)	Jul-17
SWR	SW: 3007	24-Apr-18 (No. 211-000000)	Apr-17

Secondary Standards	Unit	Check Date (Certificate No.)	Expiry date (Check)
Power meter (10 dB)	SW: 70075/001	24-Apr-18 (No. 211-000000)	10-Mar-19 (No. 211-000000)
Power meter (10 dB)	SW: 70075/002	24-Apr-18 (No. 211-000000)	10-Mar-19 (No. 211-000000)
Power meter (10 dB)	SW: 70075/003	24-Apr-18 (No. 211-000000)	10-Mar-19 (No. 211-000000)
Reference Plane (20 dB)	SW: 7007	15-Jul-18 (No. 210-1000_0018)	10-Mar-19 (No. 211-000000)
Reference Plane (20 dB)	SW: 7007	15-Jul-18 (No. 210-1000_0018)	10-Mar-19 (No. 211-000000)

Customer: **SRTC (VME)** Name: **Schmidt & Partner Engineering AG**

Representative: **Stephane** Technical Manager

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Certificate No.: D750V3-1101_0018 Page 1 of 8

Calibration Laboratory of
Schmidt & Partner
Engineering AG
Bergstrasse 40, 8034 Zurich, Switzerland

Accredited by the Swiss Accreditation Service (SAS)
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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 0108

Client: **SRTC (VME)** Certificate No.: **D750V3-1101_0018**

CALIBRATION CERTIFICATE

Report: **D750V3 - SRQ 1101**

Calibration requested: **GA-CA-05 v6
Calibration procedure for dipole validation kits above 700 MHz**

Calibration date: **October 24, 2018**

This calibration certificate documents the capability to perform calibrations, which include the use of good units of measurement (GUM).
The measurement and the uncertainty with coverage probability are given in the following pages which are part of the certificate.

All calibrations have been conducted in the clean laboratory facility (environment temperature: 20 ± 0.5 °C, air humidity < 50%).

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Power meter NRP (2)	SW: 70074	24-Apr-18 (No. 211-000000)	Apr-17
Power meter NRP (3)	SW: 70074	24-Apr-18 (No. 211-000000)	Apr-17
Reference (30 dB Attenuator)	SW: 3008 (200)	24-Apr-18 (No. 211-000000)	Apr-17
Specific impedance calibration	SW: 3007 (2) - 3007	24-Apr-18 (No. 211-000000)	Apr-17
Reference Plane (20 dB)	SW: 7007	15-Jul-18 (No. 210-1000_0018)	Jul-17
SWR	SW: 3007	24-Apr-18 (No. 211-000000)	Apr-17

Secondary Standards	Unit	Check Date (Certificate No.)	Expiry date (Check)
Power meter (10 dB)	SW: 70075/001	24-Apr-18 (No. 211-000000)	10-Mar-19 (No. 211-000000)
Power meter (10 dB)	SW: 70075/002	24-Apr-18 (No. 211-000000)	10-Mar-19 (No. 211-000000)
Power meter (10 dB)	SW: 70075/003	24-Apr-18 (No. 211-000000)	10-Mar-19 (No. 211-000000)
Reference Plane (20 dB)	SW: 7007	15-Jul-18 (No. 210-1000_0018)	10-Mar-19 (No. 211-000000)
Reference Plane (20 dB)	SW: 7007	15-Jul-18 (No. 210-1000_0018)	10-Mar-19 (No. 211-000000)

Customer: **SRTC (VME)** Name: **Schmidt & Partner Engineering AG**

Representative: **Stephane** Technical Manager

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Certificate No.: D750V3-1101_0018 Page 2 of 8

Measurement Conditions

Calibration equipment used (90%): official for calibration:

Primary Standards	Unit	Cal Date (Certificate No.)	Expiry date (Calibration)
Power meter NRP	SW: 70075	24-Apr-18 (No. 211-00000000)	Apr-17
Power meter NRP (2)	SW: 70074	24-Apr-18 (No. 211-000000)	Apr-17
Power meter NRP (3)	SW: 70074	24-Apr-18 (No. 211-000000)	Apr-17
Reference (30 dB Attenuator)	SW: 3008 (200)	24-Apr-18 (No. 211-000000)	Apr-17
Specific impedance calibration	SW: 3007 (2) - 3007	24-Apr-18 (No. 211-000000)	Apr-17
Reference Plane (20 dB)	SW: 7007	15-Jul-18 (No. 210-1000_0018)	Jul-17
SWR	SW: 3007	24-Apr-18 (No. 211-000000)	Apr-17

Secondary Standards	Unit	Check Date (Certificate No.)	Expiry date (Check)
Power meter (10 dB)	SW: 70075/001	24-Apr-18 (No. 211-000000)	10-Mar-19 (No. 211-000000)
Power meter (10 dB)	SW: 70075/002	24-Apr-18 (No. 211-000000)	10-Mar-19 (No. 211-000000)
Power meter (10 dB)	SW: 70075/003	24-Apr-18 (No. 211-000000)	10-Mar-19 (No. 211-000000)
Reference Plane (20 dB)	SW: 7007	15-Jul-18 (No. 210-1000_0018)	10-Mar-19 (No. 211-000000)
Reference Plane (20 dB)	SW: 7007	15-Jul-18 (No. 210-1000_0018)	10-Mar-19 (No. 211-000000)

Customer: **SRTC (VME)** Name: **Schmidt & Partner Engineering AG**

Representative: **Stephane** Technical Manager

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Certificate No.: D750V3-1101_0018 Page 3 of 8

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Parameter	Value
Impedance, normalized to feed point	33.4 ± 0.2 (J)
Return Loss	13.8 ± 0.2

Antenna Parameters with Body TSL

Parameter	Value
Impedance, normalized to feed point	33.4 ± 0.2 (J)
Return Loss	13.8 ± 0.2

General Antenna Parameters and Design

Parameter	Value
Electromagnetic Delay (one-direction)	1.024 ns

After long term use with 100W incident power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard serrated copper 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 wire caps are soldered to the dipole arms in order to improve matching when needed 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 operations have been applied to the dipole arms, because they might lead to the adapted connectors near the feedpoint may be damaged.

Additional EUT Data

Parameter	Value
Manufacturer	SPTAG
Manufactured on	July 05, 2018

Certificate No.: D750V3-1101_0018 Page 4 of 8

D750V3 Sn:1101

DASY5 Validation Report for Head TSL

Date: 24.10.2016

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 750 MHz, Type: D750V3, Serial: D750V3-SN:1101

Communication System: UTD-G-CW, Frequency: 750 MHz

Medium parameters used: $f = 750 \text{ MHz}$, $n = 0.92$ (Air), $\mu = 41.1$, $\rho = 0.0004 \text{ g/cm}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY5 Configuration:

- Probe: EXDPV4 - SNT446, CoreF10057, 1007, 10075, Calibration: 11.06.2016
- Sensor Surface: 1 Area (Mechanical Surface Detection)
- Electronics: DA24 3x601, Calibration: 30.12.2015
- Phantom: Flat Phantom 4 HL, Type: Q0000P00AA, Serial: 1001
- DASY52 52.8.9.1.2501, SEMCAD X 14.4.097372

Dipole Calibration for Head Tissue/Pos:200 mW, d=15mm/Zero Scan (7x7x7)/Cube 0:

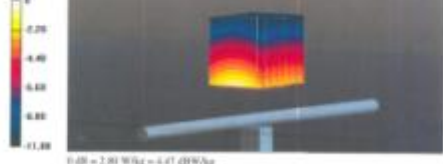
Measurement grid: dx=1mm, dy=1mm, dz=1mm

Reference Value = 50.00 V/m, Power Dens = 0.00 dB

Peak SAR (integrated) = 2.14 W/kg

SAR(1g) = 2.11 W/kg, SAR(10g) = 1.38 W/kg

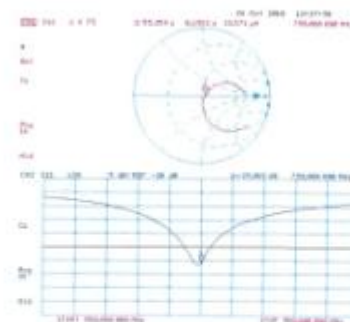
Maximum value of SAR (measured) = 2.80 W/kg



Certificate No: D750V3-1101_2016

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Impedance Measurement Plot for Head TSL



Certificate No: D750V3-1101_2016

Page 5 of 8

DASY5 Validation Report for Body TSL

Date: 24.10.2016

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 750 MHz, Type: D750V3, Serial: D750V3-SN:1101

Communication System: UTD-G-CW, Frequency: 750 MHz

Medium parameters used: $f = 750 \text{ MHz}$, $n = 0.97$ (Air), $\mu = 25.4$, $\rho = 0.0004 \text{ g/cm}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY5 Configuration:

- Probe: EXDPV4 - SNT446, CoreF10057, 9.09, 9.095, Calibration: 11.06.2016
- Sensor Surface: 1 Area (Mechanical Surface Detection)
- Electronics: DA24 3x601, Calibration: 30.12.2015
- Phantom: Flat Phantom 4 HL, Type: Q0000P00AA, Serial: 1001
- DASY52 52.8.9.1.2501, SEMCAD X 14.4.097372

Dipole Calibration for Body Tissue/Pos:200 mW, d=15mm/Zero Scan (7x7x7)/Cube 0:

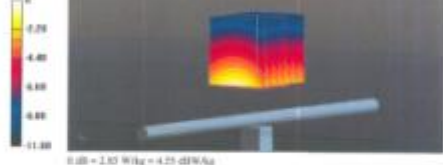
Measurement grid: dx=1mm, dy=1mm, dz=1mm

Reference Value = 50.00 V/m, Power Dens = 0.00 dB

Peak SAR (integrated) = 2.19 W/kg

SAR(1g) = 2.07 W/kg, SAR(10g) = 1.44 W/kg

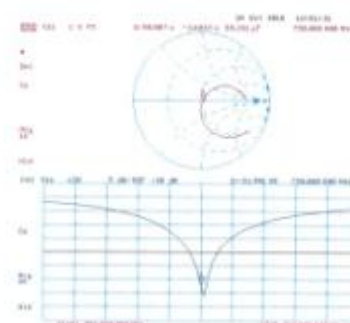
Maximum value of SAR (measured) = 2.80 W/kg



Certificate No: D750V3-1101_2016

Page 7 of 8

Impedance Measurement Plot for Body TSL



Certificate No: D750V3-1101_2016

Page 9 of 9

D835V2 Sn:4d023

Calibration Laboratory of
Schmid & Partner
Engineering AG
Aargaustrasse 15, 8000 Zurich, Switzerland

  S
Schmid & Partner
Service center international
Service center of Switzerland
Service Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 0108

Client: **SRTC (FHE)** Certificate No.: **D835V2-40023_Oct16**

CALIBRATION CERTIFICATE

Product: **D835V2 - SR-40023**

Calibration procedure(s): **QA-CAL-05.01**
Calibration procedure for dipole calibration kits above 700 MHz

Calibration date: **October 24, 2016**

This calibration certificate documents the traceability to national standards, which states the amount of measurement (2).
The measurement and the uncertainty with confidence intervals are given in the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility, environmental temperature 22 ± 0.2 °C and humidity < 50%.

Calibration Equipment used (MUT) unless for calibration:

Primary Standards	UT	UT Date (if applicable)	Expiry Date (if applicable)
Power meter NIST 170-1	170-1	04-Apr-16 (No. 170-1000000000)	Apr-17
Power meter NIST 170-2	170-2	04-Apr-16 (No. 170-1000000000)	Apr-17
Power meter NIST 170-3	170-3	04-Apr-16 (No. 170-1000000000)	Apr-17
Reference (10-dB Attenuator)	10-dB	04-Apr-16 (No. 170-1000000000)	Apr-17
Type of frequency generator	10-dB	04-Apr-16 (No. 170-1000000000)	Apr-17
Reference Plane (S1/S2)	170-1	04-Apr-16 (No. 170-1000000000)	Apr-17
UT	170-1	04-Apr-16 (No. 170-1000000000)	Apr-17

Secondary Standards	UT	UT Date (if applicable)	Expiry Date (if applicable)
Power meter NIST 170-1	170-1	04-Apr-16 (No. 170-1000000000)	Apr-17
Power meter NIST 170-2	170-2	04-Apr-16 (No. 170-1000000000)	Apr-17
Power meter NIST 170-3	170-3	04-Apr-16 (No. 170-1000000000)	Apr-17
Reference Plane (S1/S2)	170-1	04-Apr-16 (No. 170-1000000000)	Apr-17
UT	170-1	04-Apr-16 (No. 170-1000000000)	Apr-17

Calibration by: **Andreas Schmid** Calibration Technician

Reviewed by: **Andreas Schmid** Technical Manager

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Certificate No. D835V2-40023_Oct16 Page 1 of 3

Calibration Laboratory of
Schmid & Partner
Engineering AG
Aargaustrasse 15, 8000 Zurich, Switzerland

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Schmid & Partner
Service center international
Service center of Switzerland
Service Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the IAF
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 0108

Client: **SRTC (FHE)** Certificate No.: **D835V2-40023_Oct16**

CALIBRATION CERTIFICATE

Product: **D835V2 - SR-40023**

Calibration procedure(s): **QA-CAL-05.01**
Calibration procedure for dipole calibration kits above 700 MHz

Calibration date: **October 24, 2016**

This calibration certificate documents the traceability to national standards, which states the amount of measurement (2).
The measurement and the uncertainty with confidence intervals are given in the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility, environmental temperature 22 ± 0.2 °C and humidity < 50%.

Calibration Equipment used (MUT) unless for calibration:

Primary Standards	UT	UT Date (if applicable)	Expiry Date (if applicable)
Power meter NIST 170-1	170-1	04-Apr-16 (No. 170-1000000000)	Apr-17
Power meter NIST 170-2	170-2	04-Apr-16 (No. 170-1000000000)	Apr-17
Power meter NIST 170-3	170-3	04-Apr-16 (No. 170-1000000000)	Apr-17
Reference (10-dB Attenuator)	10-dB	04-Apr-16 (No. 170-1000000000)	Apr-17
Type of frequency generator	10-dB	04-Apr-16 (No. 170-1000000000)	Apr-17
Reference Plane (S1/S2)	170-1	04-Apr-16 (No. 170-1000000000)	Apr-17
UT	170-1	04-Apr-16 (No. 170-1000000000)	Apr-17

Secondary Standards	UT	UT Date (if applicable)	Expiry Date (if applicable)
Power meter NIST 170-1	170-1	04-Apr-16 (No. 170-1000000000)	Apr-17
Power meter NIST 170-2	170-2	04-Apr-16 (No. 170-1000000000)	Apr-17
Power meter NIST 170-3	170-3	04-Apr-16 (No. 170-1000000000)	Apr-17
Reference Plane (S1/S2)	170-1	04-Apr-16 (No. 170-1000000000)	Apr-17
UT	170-1	04-Apr-16 (No. 170-1000000000)	Apr-17

Calibration by: **Andreas Schmid** Calibration Technician

Reviewed by: **Andreas Schmid** Technical Manager

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

Certificate No. D835V2-40023_Oct16 Page 2 of 3

Measurement Conditions

DUT subject configuration as for the test given in page 1.

Parameter	Value	Unit
DUT Version	0.0.0.0	Version
Exposure	Antenna Exposure	W/kg
Phantom	Modular Pig Phantom	W/kg
Distance Dipole Center - TSL	10 cm	cm
Distance Scan Resolution	10 cm	cm
Frequency	200 MHz ± 1 MHz	MHz

Head TSL parameters

The following parameters and calculations were applied:

Parameter	Value	Unit
Measured Head TSL parameters	0.0 ± 0.0	W/kg
Measured Head TSL parameters	0.0 ± 0.0	W/kg
Head TSL temperature change during test	± 0.2 °C	°C

SAR result with Head TSL

Parameter	Value	Unit
SAR averaged over 1 cm² (1 g) of Head TSL	0.0	W/kg
SAR measured	0.0 mW input power	W/kg
SAR for nominal Head TSL parameters	0.0 mW input power	W/kg

Body TSL parameters

The following parameters and calculations were applied:

Parameter	Value	Unit
Measured Body TSL parameters	0.0 ± 0.0	W/kg
Measured Body TSL parameters	0.0 ± 0.0	W/kg
Body TSL temperature change during test	± 0.2 °C	°C

SAR result with Body TSL

Parameter	Value	Unit
SAR averaged over 1 cm² (10 g) of Body TSL	0.0	W/kg
SAR measured	0.0 mW input power	W/kg
SAR for nominal Body TSL parameters	0.0 mW input power	W/kg

Certificate No. D835V2-40023_Oct16 Page 3 of 3

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Parameter	Value	Unit
Impedance, transformed to feed point	53.4 Ω ± 1.9 Ω	Ω
Return Loss	-29.4 dB	dB

Antenna Parameters with Body TSL

Parameter	Value	Unit
Impedance, transformed to feed point	49.3 Ω ± 5.1 Ω	Ω
Return Loss	-25.8 dB	dB

General Antenna Parameters and Design

Parameter	Value	Unit
Electrical Delay (one direction)	1.389 ns	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

Parameter	Value	Unit
Manufactured by	SPEAG	
Manufactured on	December 17, 2004	

Certificate No. D835V2-40023_Oct16 Page 4 of 3

D835V2 Sn:4d023

DASY5 Validation Report for Head TSL

Date: 26.10.2016

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN-4d023

Communication System: UED 0 - CW; Frequency: 835 MHz

Medium parameters used: $f = 835$ MHz; $n = 0.95$ Mm; $\epsilon_r = 40.8$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C39.2011)

DASY5 Configuration:

- Probe: EXCDV4 - INT448; Coax F0.12, 9.73, 9.73; Calibration: 13.06.2016
- Sensor Surface: 1 Area (Mechanical Surface Detection)
- Electronics: DAB4 Soft1; Calibration: 30.12.2015
- Phantom: Flat Phantom A.R.; Type: Q000P95AA; Serial: 1001
- DASY52 52.8.901291; SEMCAD X 14.6.10(7372)

Dipole Calibration for Head Tissue/Plan=250 mW, d=15mm/Zoom Scan (7x7x7/Cube 8)

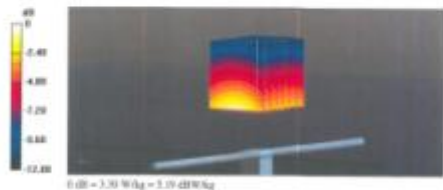
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 61.72 Vm; Power Dens = 0.03 dB

Peak SAR (extrapolated) = 3.72 W/kg

SAR(1g) = 3.47 W/kg; SAR(10g) = 1.09 W/kg

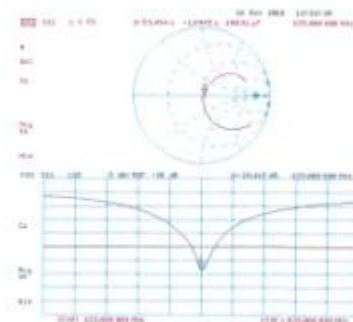
Maximum value of SAR (measured) = 3.10 W/kg



Certificate No.: D835V2-4d023_0016

Page 3 of 8

Impedance Measurement Plot for Head TSL



Certificate No.: D835V2-4d023_0016

Page 6 of 8

DASY5 Validation Report for Body TSL

Date: 24.10.2016

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN-4d023

Communication System: UED 0 - CW; Frequency: 835 MHz

Medium parameters used: $f = 835$ MHz; $n = 0.99$ Mm; $\epsilon_r = 15.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C39.2011)

DASY5 Configuration:

- Probe: EXCDV4 - INT448; Coax F0.12, 9.73, 9.73; Calibration: 13.06.2016
- Sensor Surface: 1 Area (Mechanical Surface Detection)
- Electronics: DAB4 Soft1; Calibration: 30.12.2015
- Phantom: Flat Phantom A.R.; Type: Q000P95AA; Serial: 1001
- DASY52 52.8.901291; SEMCAD X 14.6.10(7372)

Dipole Calibration for Body Tissue/Plan=250 mW, d=15mm/Zoom Scan (7x7x7/Cube 8)

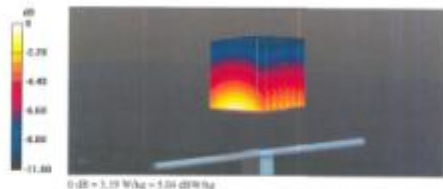
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 39.07 Vm; Power Dens = 0.03 dB

Peak SAR (extrapolated) = 3.79 W/kg

SAR(1g) = 2.44 W/kg; SAR(10g) = 1.8 W/kg

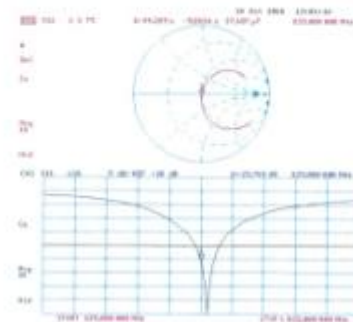
Maximum value of SAR (measured) = 3.19 W/kg



Certificate No.: D835V2-4d023_0016

Page 7 of 8

Impedance Measurement Plot for Body TSL



Certificate No.: D835V2-4d023_0016

Page 8 of 8

D1900V2 Sn:5d113

Calibration Laboratory of
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Engineering AG
Ingenieurstrasse 16, 8000 Zurich, Switzerland

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the IAF
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 0108

Certificate No.: D1900V2-5d113, Oct18

Client: BITE (VHM)

CALIBRATION CERTIFICATE

Object: D1900V2 - SN:5d113

Customer provided: QA CAL-05-v5
Calibration procedure for dipole antenna kit above 730 MHz

Calibration date: October 31, 2018

This calibration certificate documents the conformity to reference standards, which makes the physical units of measurement (SI).
The measurements and the uncertainties with confidence probability and given in the following pages are part of the certificate.

All calibrations have been conducted in the climate laboratory facility: environmental temperature (20 ± 0.5) °C; humidity < 10%.

Calibration equipment used (MPE/C) used for calibration:

Accessories	Model	Serial Number	Calibration Date	Calibration Certificate
Power meter HPN	991	180178	06-Apr-18 (No. 211-020800000)	Apr-17
Power sensor HPN-20	991	180184	06-Apr-18 (No. 211-020800000)	Apr-17
Power sensor HPN-200	991	180185	06-Apr-18 (No. 211-020800000)	Apr-17
Reference (10 dB Attenuator)	991	180186	06-Apr-18 (No. 211-020800000)	Apr-17
Type B impedance contribution	991	20001-0-00007	06-Apr-18 (No. 211-020800000)	Apr-17
Calibration media (D1900V2)	991	180188	06-Apr-18 (No. 211-020800000)	Apr-17
Labels	991	180189	06-Apr-18 (No. 211-020800000)	Apr-17

Accessories provided:

Accessories	Model	Serial Number	Calibration Date	Calibration Certificate
Power meter HPN-200	991	180187	06-Apr-18 (No. 211-020800000)	Apr-17
Power sensor HPN-20	991	180184	06-Apr-18 (No. 211-020800000)	Apr-17
Power sensor HPN-200	991	180185	06-Apr-18 (No. 211-020800000)	Apr-17
Reference (10 dB Attenuator)	991	180186	06-Apr-18 (No. 211-020800000)	Apr-17
Type B impedance contribution	991	20001-0-00007	06-Apr-18 (No. 211-020800000)	Apr-17
Calibration media (D1900V2)	991	180188	06-Apr-18 (No. 211-020800000)	Apr-17
Labels	991	180189	06-Apr-18 (No. 211-020800000)	Apr-17

Calibrated by: Hans-Joachim Schmid

Approved by: Hans-Joachim Schmid

Technical Manager: Hans-Joachim Schmid

Issue Date: October 31, 2018

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

Certificate No.: D1900V2-5d113, Oct18

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Calibration Laboratory of
Schmid & Partner
Engineering AG
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Certificate No.: D1900V2-5d113, Oct18

Client: BITE (VHM)

CALIBRATION CERTIFICATE

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Calibrated by: Hans-Joachim Schmid

Approved by: Hans-Joachim Schmid

Technical Manager: Hans-Joachim Schmid

Issue Date: October 31, 2018

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Certificate No.: D1900V2-5d113, Oct18

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Measurement Conditions

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

DASY Version	DASY Version	V52.8.0
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1900 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied:

Parameter	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	40.0	1.40 mho/m
Measured Head TSL parameters	(22.0 ± 0.5) °C	40.6 ± 6 %	1.39 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	---	---

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	10.1 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	40.7 W/kg ± 17.0 % (k=2)

SAR averaged over 10 cm³ (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	5.30 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	21.3 W/kg ± 16.5 % (k=2)

Body TSL parameters

The following parameters and calculations were applied:

Parameter	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	53.3	1.52 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	53.2 ± 6 %	1.48 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	---	---

SAR result with Body TSL

SAR averaged over 1 cm³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	9.80 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	39.8 W/kg ± 17.0 % (k=2)

SAR averaged over 10 cm³ (10 g) of Body TSL	Condition	
SAR measured	250 mW input power	5.23 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	21.1 W/kg ± 16.5 % (k=2)

Certificate No.: D1900V2-5d113, Oct18

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Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	(1) 1.0 ± 0.1 Ω
Return Loss	> 20 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	47.0 Ω ± 7.2 Ω
Return Loss	> 15 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.00 ns
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After long term use with 1000W reflected power, only a slight warping of the dipole loop (the feedpoint) can be measured.

The dipole is made of stainless steel (AISI 304). The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore also suitable for DC signals. On some of the dipole arms, small end caps are attached to the dipole arms in order to improve matching when heated according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The central dipole length is still according to the standard.

No preventive 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
Manufactured on	July 24, 2018

Certificate No.: D1900V2-5d113, Oct18

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D1900V2 Sn:5d113

DASY5 Validation Report for Head TSL

Date: 31.10.2016

Test Laboratory: SP/AG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2-SN-5d113

Communication System: UTD 0 - CW; Frequency: 1900 MHz

Medium parameters used: $\epsilon = 1000$ MHz; $\sigma = 1.59$ S/m; $\mu = 40.6$; $\rho = 1000$ kg/m³

Phantom section: Flat Surface

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EXCDIV4 - SN7948; Core: P7 95, 7.95, 7.95; Calibration: 15.06.2016;
- Sensor Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DA04 Sat01; Calibration: 30.12.2015
- Phantom: Flat Phantom 5.0 (flat); Type: QD000P90AA; Serial: 1001
- DASY52: 52.8.6/120; SEMCAD X 14.6.00/7372

Dipole Calibration for Head Tissue/ $\rho = 250$ gW, $d = 10$ mm/Zoom Scan (7x7x7)/Cube R:

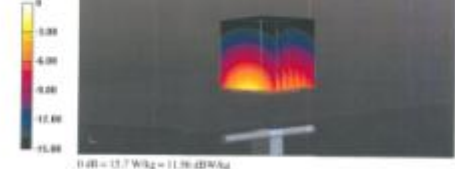
Measurement grid: $d_x = 10$ mm, $d_y = 10$ mm, $d_z = 5$ mm

Reference Value = 104.5 V/m; Power Dens = 410 dB

Peak SAR (extrapolated) = 19.0 W/kg

SAR(10) $\rho = 10.1$ W/kg; SAR(10) $\rho = 5.3$ W/kg

Maximum value of SAR (measured) = 15.7 W/kg

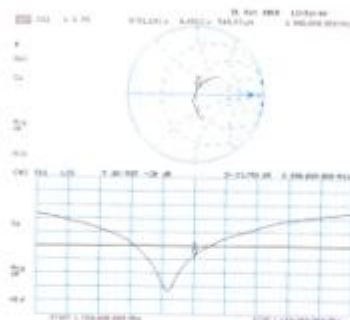


0 dB = 12.7 W/kg = 11.36 dBW/kg

Certificate No: 0100003-00115_C0106

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Impedance Measurement Plot for Head TSL



Certificate No: 0100003-00115_C0106

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DASY5 Validation Report for Body TSL

Date: 31.10.2016

Test Laboratory: SP/AG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2-SN-5d113

Communication System: UTD 0 - CW; Frequency: 1900 MHz

Medium parameters used: $\epsilon = 1000$ MHz; $\sigma = 1.44$ S/m; $\mu = 55.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Surface

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EXCDIV4 - SN7948; Core: P7 10, 8.10, 8.10; Calibration: 15.06.2016;
- Sensor Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DA04 Sat01; Calibration: 30.12.2015
- Phantom: Flat Phantom 5.0 (flat); Type: QD000P90AA; Serial: 1002
- DASY52: 52.8.6/120; SEMCAD X 14.6.00/7372

Dipole Calibration for Body Tissue/ $\rho = 250$ gW, $d = 10$ mm/Zoom Scan (7x7x7)/Cube R:

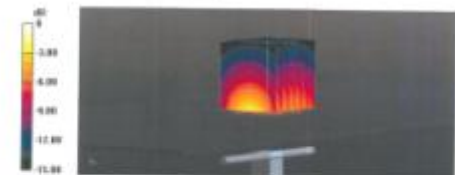
Measurement grid: $d_x = 10$ mm, $d_y = 10$ mm, $d_z = 5$ mm

Reference Value = 104.5 V/m; Power Dens = 410 dB

Peak SAR (extrapolated) = 17.2 W/kg

SAR(10) $\rho = 9.8$ W/kg; SAR(10) $\rho = 5.23$ W/kg

Maximum value of SAR (measured) = 14.7 W/kg

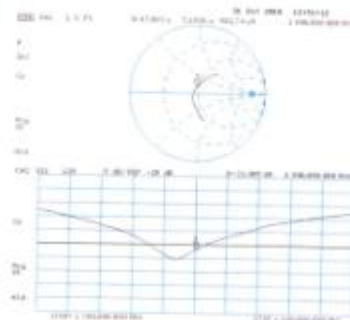


0 dB = 14.7 W/kg = 11.87 dBW/kg

Certificate No: 0100003-00115_C0106

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Impedance Measurement Plot for Body TSL



Certificate No: 0100003-00115_C0106

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D2450V2 Sn:738

Calibration Laboratory of
Schmid & Partner
Engineering AG
Fengenhofstrasse 15, 8904 Sulz, Switzerland

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EU
Multilateral Agreement for the recognition of calibration certificates

Accreditation No. SCS 0108

Client: **SRTC (H&M)** Certificate No. **D2450V2-738, Oct16**

CALIBRATION CERTIFICATE

Report: **D2450V2-738**

Calibration procedure: **ISA CAL-05-V9**
Calibration procedure for dipole antenna (H&M) for above 700 MHz

Calibration date: **October 25, 2016**

This calibration certificate documents the conformity to national standards which makes the physical units of measurements (24)
The measurements and the uncertainty with confidence probability are given in the following pages which are part of the certificate.

All calibration facilities considered in the stated uncertainty budget documented independently (25) ± 0.1% and uncertainty ± 0.1%

Calibration equipment used (26) (27) (28) (29) (30) (31) (32) (33) (34) (35) (36) (37) (38) (39) (40) (41) (42) (43) (44) (45) (46) (47) (48) (49) (50) (51) (52) (53) (54) (55) (56) (57) (58) (59) (60) (61) (62) (63) (64) (65) (66) (67) (68) (69) (70) (71) (72) (73) (74) (75) (76) (77) (78) (79) (80) (81) (82) (83) (84) (85) (86) (87) (88) (89) (90) (91) (92) (93) (94) (95) (96) (97) (98) (99) (100) (101) (102) (103) (104) (105) (106) (107) (108) (109) (110) (111) (112) (113) (114) (115) (116) (117) (118) (119) (120) (121) (122) (123) (124) (125) (126) (127) (128) (129) (130) (131) (132) (133) (134) (135) (136) (137) (138) (139) (140) (141) (142) (143) (144) (145) (146) (147) (148) (149) (150) (151) (152) (153) (154) (155) (156) (157) (158) (159) (160) (161) (162) (163) (164) (165) (166) (167) (168) (169) (170) (171) (172) (173) (174) (175) (176) (177) (178) (179) (180) (181) (182) (183) (184) (185) (186) (187) (188) (189) (190) (191) (192) (193) (194) (195) (196) (197) (198) (199) 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D2450V2 Sn:738

DASY5 Validation Report for Head TSL

Date: 25.10.2016

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2-SN:738

Communication System: UED 0 - CW; Frequency: 2450 MHz
Medium parameters used: $f = 2450$ MHz, $\sigma = 1.87$ S/m, $\epsilon = 36.2$, $\rho = 1000$ kg/m³
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C93.29-2011)

DASY5 Configuration:

- Probe: EX3DP4 - BNT500; Gain(P): 7.72, 7.72, 7.72; Calibrated: 15.06.2016;
- Sensor Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DA69 sat01; Calibrated: 30.12.2015
- Phantom: Flat Phantom 1.0 (bent); Type: QD00P50AA; Serial: 1001
- DASY5: S2.8.8(129); SEMCAD X 14.4.10(7372)

Dipole Calibration for Head Tissue/Flat=200 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

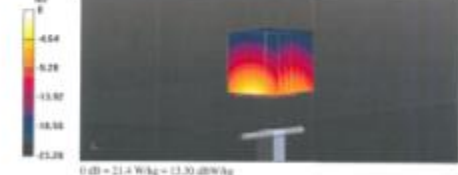
Measurement grid: d_x=5mm, d_y=5mm, d_z=5mm

Reference Value = 13.7 V/m; Power Delt = -0.00 dB

Peak SAR (uncompressed) = 26.4 W/kg

SAR(1 g) = 13.1 W/kg; SAR(10 g) = 6.87 W/kg

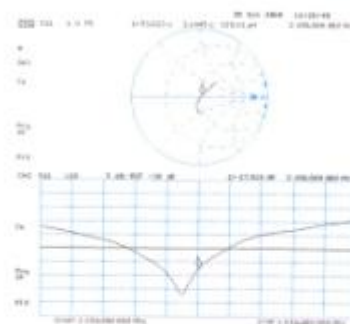
Maximum value of SAR (measured) = 21.4 W/kg



Certificate No: 20160907-738_2nd16

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Impedance Measurement Plot for Head TSL



Certificate No: 20160907-738_2nd16

Page 6 of 9

DASY5 Validation Report for Body TSL

Date: 25.10.2016

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2-SN:738

Communication System: UED 0 - CW; Frequency: 2450 MHz
Medium parameters used: $f = 2450$ MHz, $\sigma = 2.00$ S/m, $\epsilon = 51.3$, $\rho = 1000$ kg/m³
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C93.29-2011)

DASY5 Configuration:

- Probe: EX3DP4 - BNT500; Gain(P): 7.76, 7.76, 7.76; Calibrated: 15.06.2016;
- Sensor Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DA69 sat01; Calibrated: 30.12.2015
- Phantom: Flat Phantom 1.0 (bent); Type: QD00P50AA; Serial: 1001
- DASY5: S2.8.8(129); SEMCAD X 14.4.10(7372)

Dipole Calibration for Body Tissue/Flat=200 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

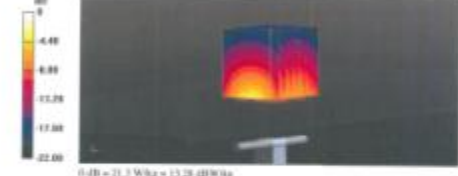
Measurement grid: d_x=5mm, d_y=5mm, d_z=5mm

Reference Value = 107.3 V/m; Power Delt = -0.00 dB

Peak SAR (uncompressed) = 26.0 W/kg

SAR(1 g) = 13.7 W/kg; SAR(10 g) = 6.86 W/kg

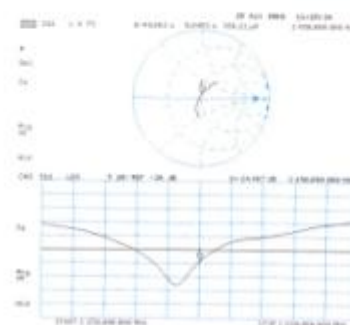
Maximum value of SAR (measured) = 21.3 W/kg



Certificate No: 20160907-738_2nd16

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Impedance Measurement Plot for Body TSL



Certificate No: 20160907-738_2nd16

Page 8 of 9

D2600V2 S_n:1089[illegible]

Calibration Laboratory of Schmid & Partner Engineering AG Zöggenstrasse 42, 8034 Zürich, Switzerland		S Schweizerischer Versuchsservice S Service suisse d'Essais S Swiss Institute of Testing S Swiss Calibration Service						
Accredited by the Swiss Accreditation Service (SAS) The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates		Accreditation No.: SCS 0108						
Glossary: <table border="0"> <tr> <td>TSL</td> <td>issue simulating liquid</td> </tr> <tr> <td>Conf/F</td> <td>sensitivity in TSL: HORIM x,y,z</td> </tr> <tr> <td>N/A</td> <td>not applicable or not measured</td> </tr> </table>			TSL	issue simulating liquid	Conf/F	sensitivity in TSL: HORIM x,y,z	N/A	not applicable or not measured
TSL	issue simulating liquid							
Conf/F	sensitivity in TSL: HORIM x,y,z							
N/A	not applicable or not measured							
Calibration is Performed According to the Following Standards: a) 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 b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 5 GHz)", February 2005 c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010 d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"								
Additional Documentation: a) DASY4/S 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 standard 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 standard 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 Version	DA5015	Ver. 3.8	
Extrapolation	Adjusted Extrapolation		
Phantom	Modular Flat Phantom		
Distance Dipole Center - TSL	10 mm	with Headset	
Zoom Scan Resolution	(x, y, z) = (5 mm)		
Frequency	2800 MHz ± 1 MHz		

Head TSL parameters			
The following parameters and calculations were applied:			
	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	59.0	1.95 nS/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	37.5 ± 6 %	2.02 nS/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL			
SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition		
SAR measured	250 mW input power		14.6 W/kg
SAR for nominal Head TSL parameters	normalized to 100		57.1 W/kg ± 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL			
SAR measured	250 mW input power		6.46 W/kg
SAR for nominal Head TSL parameters	normalized to 100		25.5 W/kg ± 16.5 % (k=2)

Body TSL parameters			
The following parameters and calculations were applied:			
	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	52.0	2.16 nS/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	51.4 ± 6 %	2.20 nS/m ± 6 %
Body TSL temperature change during test	< 0.5 °C		

SAR result with Body TSL			
SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition		
SAR measured	250 mW input power		13.6 W/kg
SAR for nominal Body TSL parameters	normalized to 100		53.7 W/kg ± 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL			
SAR measured	250 mW input power		6.46 W/kg
SAR for nominal Body TSL parameters	normalized to 100		26.1 W/kg ± 16.5 % (k=2)

Appendix (Additional assessments outside the scope of SCS 0100)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	48.5 Ω - 6.9 jΩ
Return Loss	- 23.8 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	45.8 Ω - 6.0 jΩ
Return Loss	- 22.5 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.146 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 55" according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend if the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	March 15, 2014

D2600V2 Sn:1089

DASY5 Validation Report for Head TSL

Date: 15/07/2016

Test Laboratory: SP/AGL Zurich, Switzerland

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: D2600V2 - SN: 1089

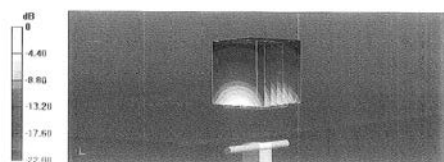
Communication System: UTD 0 - CW; Frequency: 2600 MHz
Medium parameters used: $f = 2600$ MHz; $n = 2.02$ S/m; $\epsilon_r = 37.5$; $\rho = 1000$ kg/m³
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/EC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF:7.56, 7.56, 7.56; Calibrated: 15.06.2016
- Sensor Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.12.2015
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7372)

Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

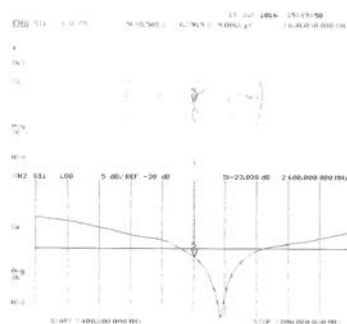
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value ≈ 17.2 V/m; Power Drift ≈ 0.01 dB
Peak SAR (extrapolated) ≈ 71.2 W/kg
NAR(1 g) ≈ 14.6 W/kg; SAR(10 g) ≈ 6.46 W/kg
Maximum value of SAR (measured) ≈ 25.0 W/kg



Cartesian (dx: 1000.000, dy: 1000.000)

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Impedance Measurement Plot for Head TSL



Cartesian (dx: 1000.000, dy: 1000.000)

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DASY5 Validation Report for Body TSL

Date: 07/07/2016

Test Laboratory: SP/AGL Zurich, Switzerland

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: D2600V2 - SN: 1089

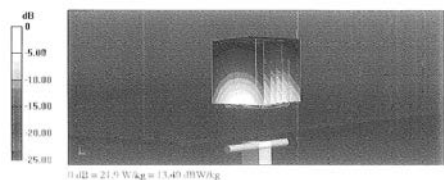
Communication System: UTD 0 - CW; Frequency: 2600 MHz
Medium parameters used: $f = 2600$ MHz; $n = 2.2$ S/m; $\epsilon_r = 51.4$; $\rho = 1000$ kg/m³
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/EC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF:7.48, 7.48, 7.48; Calibrated: 15.06.2016
- Sensor Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.12.2015
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7372)

Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

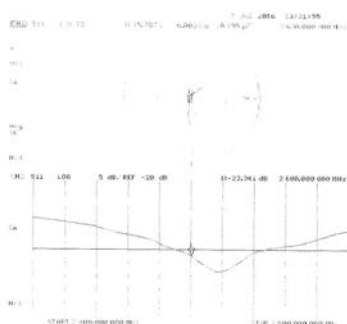
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value ≈ 105.3 V/m; Power Drift ≈ -0.07 dB
Peak SAR (extrapolated) ≈ 27.8 W/kg
NAR(1 g) ≈ 13.6 W/kg; SAR(10 g) ≈ 6.06 W/kg
Maximum value of SAR (measured) ≈ 21.9 W/kg



Cartesian (dx: 1000.000, dy: 1000.000)

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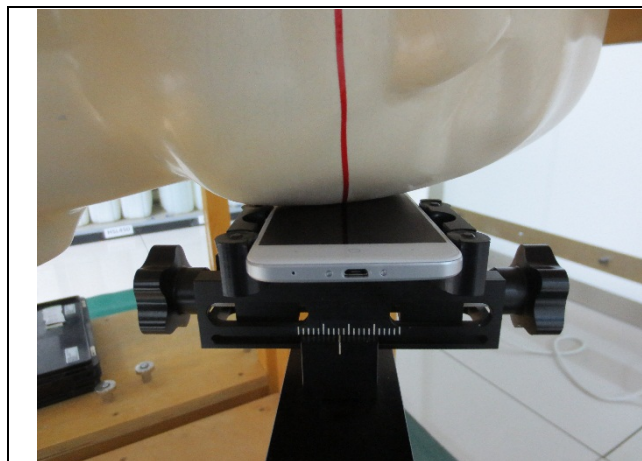
Impedance Measurement Plot for Body TSL



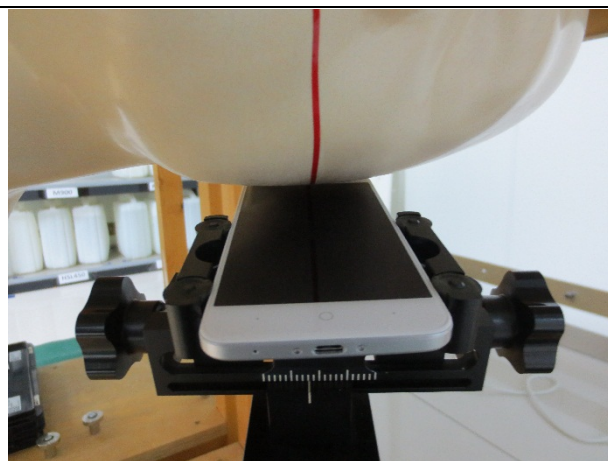
Cartesian (dx: 1000.000, dy: 1000.000)

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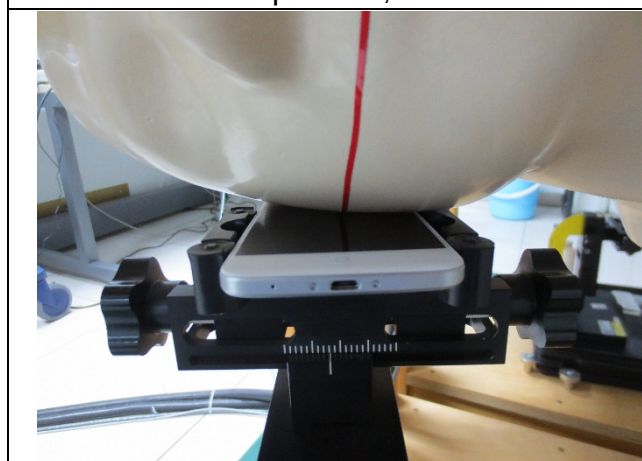
ANNEX C - PHOTOGRAPH



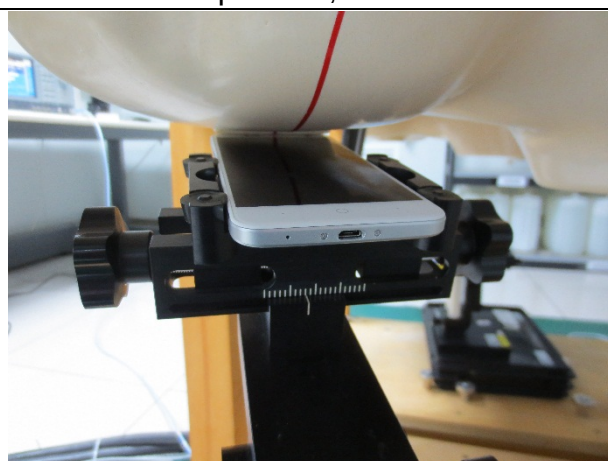
Cheek position, left side



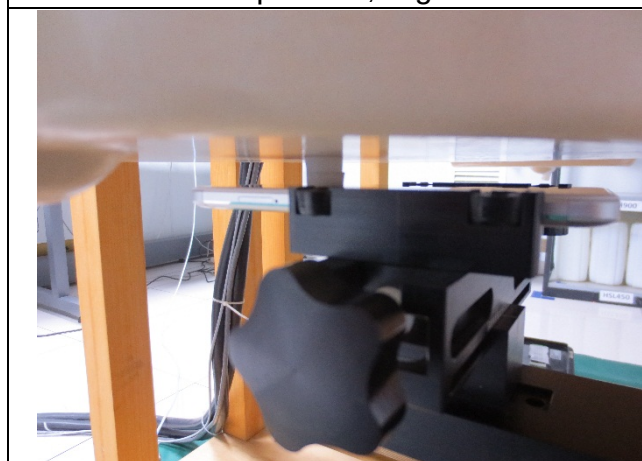
Tilt position, left side



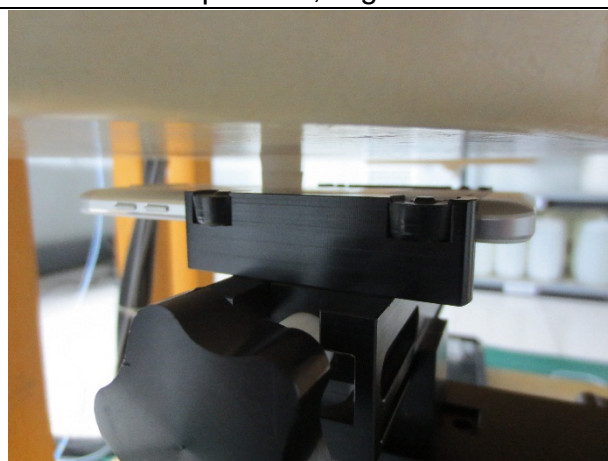
Cheek position, Right side



Tilt position, Right side



FLAT position, Towards phantom



FLAT position, Towards ground



---End of Test Report---