



TEST REPORT FOR SAR TESTING

Report No.: SRTC2015-9004(F)-0028

Product Name: GSM/GPRS/EGPRS/UMTS/LTE Digital Mobile Phone
with Bluetooth and WiFi

Product Model: Philips S616

Applicant: Shenzhen Sang Fei Consumer Communications Co.,Ltd.

Manufacturer: Shenzhen Sang Fei Consumer Communications Co.,Ltd.

Specification: FCC Part 2.1093

IEEE Std 1528-2013

FCC RF Exposure KDB Procedures

FCC ID: VQRCTS616

The State Radio_monitoring_center Testing Center (SRTC)

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1. GENERAL INFORMATION

1.1 Notes of the test report

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The test results relate only to individual items of the samples which have been tested.

1.2 Information about the testing laboratory

Company:	The State Radio_monitoring_center Testing Center (SRTC)
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1.3 Applicant's details

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1.4 Manufacturer's details

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Fax:	010-68300097
Email:	linda.zhang@sangfei.com

1.5 Test Environment

Date of Receipt of test sample at SRTC:	2015.10.14
Testing Start Date:	2015.11.04
Testing End Date:	2015.12.11

Environmental Data:	Temperature (°C)	Humidity (%)
Ambient	25	38

Normal Supply Voltage (V d.c.):	3.8
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2. DESCRIPTION OF THE DEVICE UNDER TEST

2.1 Final Equipment Build Status

Wireless Technology and Frequency Bands	GSM Band : GSM850/PCS1900 WCDMA Band: FDD2/FDD5 LTE Band: FDD2/FDD3/FDD4/FDD7 Wi-Fi Band: 2.4GHz~2.4835GHz Bluetooth Band: 2.4GHz~2.4835GHz
Mode	GSM <input checked="" type="checkbox"/> Voice (GMSK) <input checked="" type="checkbox"/> GPRS (GMSK) <input checked="" type="checkbox"/> EGPRS (GMSK) WCDMA <input checked="" type="checkbox"/> UMTS Rel. 99 (Voice & Data) <input checked="" type="checkbox"/> HSDPA (Rel. 5) <input checked="" type="checkbox"/> HSUPA (Rel. 6) <input type="checkbox"/> HSPA+ (Rel.) <input type="checkbox"/> DC-HSDPA (Rel.) Wi-Fi 2.4GHz (802.11b/g/n) <input checked="" type="checkbox"/> 802.11b <input checked="" type="checkbox"/> 802.11g <input checked="" type="checkbox"/> 802.11n (20MHz) <input checked="" type="checkbox"/> 802.11n (40MHz) Bluetooth <input checked="" type="checkbox"/> BR(GFSK) <input checked="" type="checkbox"/> EDR($\pi/4$ DQPSK , 8-DPSK) <input checked="" type="checkbox"/> BLE(GFSK)
Duty Cycle	GSM Voice: 12.5%; GPRS: 12.5% (1 Slot), 25% (2 Slots), 37.5% (3 Slots), 50% (4 Slots) WCDMA: 100% Wi-Fi 802.11b/g/n: 100% Bluetooth: 32.25% (DH1), 66.68% (DH3), 77.52% (DH5)
GPRS Multi-Slot Class	<input type="checkbox"/> Class 8 - One Up <input type="checkbox"/> Class 10 - Two Up <input checked="" type="checkbox"/> Class 12 - Four Up
Mobile Phone Capability	<input type="checkbox"/> Class A - Mobile phones can be connected to both GPRS and GSM services simultaneously. <input checked="" type="checkbox"/> Class B - Mobile phones can be attached to both GPRS and GSM services, using one service at a time. <input type="checkbox"/> Class C - Mobile phones are attached to either GPRS or GSM voice service. You need to switch manually between services
DTM (Dual Transfer Mode)	Not Supported

2.2 Support Equipment

The following support equipment was used to exercise the DUT during testing:

State of sample	Production unit
Headset	TJ101156/Dong Guan Tenji Technology Industrial Co Ltd.
Batteries	AB3000GWMT /Shenzhen cyclelong power-tech Co., Ltd.
H/W Version	WMDKa
S/W Version	Philips_S616_1539_V01_AG
IMEI	868044020011531
Notes	-----

3. REFERENCE SPECIFICATION

Specification	Version	Title
Part 2.1093	June 23, 2015	Radiofrequency radiation exposure evaluation: portable devices.
IEEE Std 1528	2013	IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques
IEEE Std 1528a	2005	IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques Amendment 1: CAD File for Human Head Model (SAM Phantom)
KDB 447498 D01	v06	General RF Exposure Guidance
KDB 648474 D04	v01r03	Handset SAR
KDB 941225 D01	v03r01	3G SAR Procedures
KDB 941225 D06	v02r01	Hotspot Mode
KDB 248227 D01	v02r02	SAR meas for 802.11 a b g
KDB 865664 D01	v01r04	SAR Measurement 100 MHz to 6 GHz
KDB 865664 D02	v01r02	RF Exposure Reporting

4. TEST CONDITIONS

4.1 Picture to demonstrate the required liquid depth

The liquid depth in the used SAM phantoms



Liquid depth for SAR Measurement

4.2 Test Signal, Frequencies and Output Power

The device was put into operation by using a call tester. Communication between the device and the call tester was established by air link.

The device output power was set to maximum power level for all tests; a fully charged battery was used for every test sequence.

In all operating bands the measurements were performed on lowest, middle and highest channels.

4.3 SAR Measurement Set-up

The system is based on a high precision robot (working range greater than 0.9m), which positions the probes with a positional repeatability of better than $\pm 0.02\text{mm}$. Special E- and H-field probes have been developed for measurements close to material discontinuity, the sensors of which are directly loaded with a Schottky diode and connected via highly resistive lines (length =300mm) to the data acquisition unit. A cell controller system contains the power supply, robot controller, teaches pendant (Joystick), and remote control, is used to drive the robot motors.

The PC consists of the Micron Pentium IV computer with Win7 system and SAR Measurement Software DASY5 Professional, A/D interface card, monitor, mouse, and keyboard. The Stäubli Robot is connected to the cell controller to allow software manipulation of the robot.

A data acquisition electronic (DAE) circuit performs the signal amplification, signal

multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. is connected to the Electro-optical coupler (EOC). The EOC performs the conversion from the optical into digital electric signal of the DAE and transfers data to the PC plug-in card. The DAE consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder and control logic unit. Transmission to the PC-card is accomplished through an optical downlink for data and status information and an optical uplink for commands and clock lines.

The mechanical probe mounting device includes two different sensor systems for frontal and sidewise probe contacts. They are also used for mechanical surface detection and probe collision detection

The robot uses its own controller with a built in VME-bus computer.

4.4 Phantoms

The phantom used for all tests i.e. for both system checks and device testing, was the twin headed "SAM Phantom", manufactured by SPEAG. The phantom conforms to the requirements of IEEE 1528 - 2013.

System checking was performed using the flat section, whilst Head SAR tests used the left and right head profile sections. Body SAR testing also used the flat section between the head profiles.

The SPEAG device holder (see Section 5.1) was used to position the device in all tests whilst a tripod was used to position the validation dipoles against the flat section of phantom.

4.5 Tissue Simulants

Recommended values for the dielectric parameters of the tissue simulants are given in IEEE 1528 - 2013 and FCC Supplement C to OET Bulletin 65. All tests were carried out using simulants whose dielectric parameters were within $\pm 5\%$ of the recommended values. All tests were carried out within 24 hours of measuring the dielectric parameters.

The depth of the tissue simulant was 15.0 ± 0.5 cm measured from the ear reference point during system checking and device measurements.

4.5.1 Tissue Simulant Recipes

The following recipe(s) were used for Head and Body tissue stimulant(s):

835MHz band

Ingredient	Head (% by weight)	Body (% by weight)
Water	41.45	52.50
Sugar	56.00	45.0
Nacl	1.45	1.40
Cellulose	1.00	1.00
Preventol	0.10	0.10

1900MHz band

Ingredient	Head (% by weight)	Body (% by weight)
Water	44.45	70.17
DGBE	55.24	29.44
Nacl	0.31	0.39

2450MHz band

Ingredient	Head (% by weight)	Body (% by weight)
Water	55.00	68.64
DGBE	45.00	31.37
Nacl	0.00	0.00

4.6 DESCRIPTION OF THE TEST PROCEDURE

4.6.1 Device Holder

The device was placed in the device holder (illustrated below) that is supplied by SPEAG as an integral part of the Dasy system.



Device holder supplied by SPEAG

4.6.2 Test positions

4.6.2.1 Against Phantom Head

Measurements were made in “cheek” and “tilt” positions on both the left hand and right hand sides of the phantom.

The positions used in the measurements were according to IEEE 1528 - 2013 "IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques".

4.6.2.2 Body Worn Configuration

The device was placed in the SPEAG holder below the flat section of the phantom. The distance between the device and the phantom was kept at the separation distance using a separate flat spacer that was removed before the start of the measurements. And the distance is 10mm. The device was oriented with its antenna facing the phantom since this orientation gives higher results.

4.6.3 Scan Procedure

First, area scans were used for determination of the field distribution and the approximate location of the local peak SAR values. The SAR distribution is scanned along the inside surface, at least for an area larger than the projection of the handset and antenna. The angle between the probe axis and the surface normal line is recommended but not required to be less than 30°. The SAR distribution is first measured on a 2-D coarse grid. The scan region should cover all areas that are exposed and encompassed by the projection of the handset. It is a 15 mm × 15 mm measurement grid used when two staggered one-dimensional cubic splines are used to estimate the maximum SAR location. Next, a zoom scan, a minimum of 7 × 7x7 points covering a volume of at least 30x30x30mm, was performed around the highest E-field value to determine the averaged SAR value. Drift was determined by measuring the same point at the start of the area scan and again at the end of the zoom scan.

4.6.4 SAR Averaging Methods

The maximum SAR value was averaged over a cube of tissue using interpolation and extrapolation.

The interpolation, extrapolation and maximum search routines within DASY5 are all based on the modified Quadratic Shepard's method (Robert J. Renka, "Multivariate Interpolation of Large Sets of Scattered Data", University of North Texas ACM Transactions on Mathematical Software, vol. 14, no. 2, June 1988, pp. 139-148).

The interpolation scheme combines a least-square fitted function method with a weighted average method. A trivariate 3-D / bivariate 2-D quadratic function is computed for each measurement point and fitted to neighbouring points by a least-square method. For the zoom scan, inverse distance weighting is incorporated to fit distant points more accurately. The interpolating function is finally calculated as a weighted average of the quadratics. In the zoom scan, the interpolation function is used to extrapolate the Peak SAR from the deepest measurement points to the inner surface of the phantom.

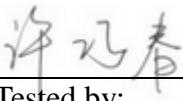
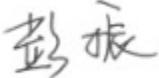
5 RESULT SUMMARY

The maximum reported SAR values for Head configuration and Body Worn configuration are given as follows. The device conforms to the requirements of the standard(s) when the maximum reported SAR value is less than or equal to the limit.

Exposure Position	Frequency Band	1g-SAR Reported Result (W/kg)	Highest 1g-SAR Reported Result (W/kg)	Limit (W/kg)/1g	Result
Head	GSM 850	0.428	1.114	1.6	PASS
	GSM 1900	0.130			
	WCDMA Band 2	0.276			
	WCDMA Band 5	0.371			
	WLAN 2.4GHz Band	0.130			
	LTE Band 2	0.496			
	LTE Band 3	0.315			
	LTE Band 4	0.285			
	LTE Band 7	0.233			
Body (10mm Gap)	GSM 850	1.108			
	GSM 1900	0.324			
	WCDMA Band 2	0.520			
	WCDMA Band 5	0.526			
	WLAN 2.4GHz Band	0.086			
	LTE Band 2	0.653			
	LTE Band 3	0.941			
	LTE Band 4	1.114			
	LTE Band 7	0.392			

Simultaneous Transmission Summary

Exposure Position	Frequency Band	10g-SAR Result(W/kg)	Highest 10g-SAR Result(W/kg)	Limit (W/kg)/1g	Result
Head	GSM & Wi-Fi	0.501	1.280	1.6	PASS
	WCDMA & Wi-Fi	0.500			
	LTE& Wi-Fi	0.482			
	GSM & Bluetooth	0.558			
	WCDMA & Bluetooth	0.501			
	LTE& Bluetooth	0.599			
Body (Gap 10mm)	GSM & Wi-Fi	1.152			
	WCDMA & Wi-Fi	0.599			
	LTE& Wi-Fi	1.153			
	GSM & Bluetooth	1.238			
	WCDMA & Bluetooth	0.656			
	LTE& Bluetooth	1.280			

This Test Report Is Issued by: Ms. Xu Qiaochun 	Checked by: Deputy Director of International Certification Mr. PengZhen 
Tested by: Test Engineer Ms. Zhang Liangcheng 	Issued date: 20151214

6 TEST RESULT

6.1 Manufacturing Tolerance

GSM

GSM 850			
Channel	Channel 128	Channel 189	Channel 251
Tolerance (dBm)	30.0~34.0	30.0~34.0	30.0~34.0
GSM 1900			
Channel	Channel 512	Channel 661	Channel 810
Tolerance (dBm)	27.0~31.0	27.0~31.0	27.0~31.0

GSM 850 GPRS

Channel		128	189	251
1 Txslot	Tolerance (dBm)	30.0~34.5	30.0~34.5	30.0~34.5
2 Txslot	Tolerance (dBm)	28.0~32.5	28.0~32.5	28.0~32.5
3 Txslot	Tolerance (dBm)	26.0~31.5	26.0~31.5	26.0~31.5
4 Txslot	Tolerance (dBm)	24.0~30.5	24.0~30.5	24.0~30.5

GSM 850 EGPRS (GMSK)

Channel		128	189	251
1 Txslot	Tolerance (dBm)	30.0~34.5	30.0~34.5	30.0~34.5
2 Txslot	Tolerance (dBm)	28.0~32.5	28.0~32.5	28.0~32.5
3 Txslot	Tolerance (dBm)	26.0~31.5	26.0~31.5	26.0~31.5
4 Txslot	Tolerance (dBm)	24.0~30.5	24.0~30.5	24.0~30.5

GSM 1900 GPRS

Channel		512	661	810
1 Txslot	Tolerance (dBm)	27.0~31.5	27.0~31.5	27.0~31.5
2 Txslot	Tolerance (dBm)	26.0~30.0	26.0~30.0	26.0~30.0
3 Txslot	Tolerance (dBm)	25.0~29.0	25.0~29.0	25.0~29.0
4 Txslot	Tolerance (dBm)	24.0~27.0	24.0~27.0	24.0~27.0

GSM 1900 EGPRS (GMSK)

Channel		512	661	810
1 Txslot	Tolerance (dBm)	27.0~31.5	27.0~31.5	27.0~31.5
2 Txslot	Tolerance (dBm)	26.0~30.0	26.0~30.0	26.0~30.0
3 Txslot	Tolerance (dBm)	25.0~29.0	25.0~29.0	25.0~29.0
4 Txslot	Tolerance (dBm)	24.0~27.0	24.0~27.0	24.0~27.0

WCDMA

WCDMA Band2			
Channel	9662	9800	9938
Tolerance (dBm)	21.0~24.5	21.0~24.5	21.0~24.5
WCDMA Bands5			
Channel	4357	4408	4458
Tolerance (dBm)	21.0~24.0	21.0~24.0	21.0~24.0

HSDPA Band2

Channel		9662	9800	9938
Sub test 1	Tolerance (dBm)	18.0~22.0	18.0~22.0	18.0~22.0
Sub test 2	Tolerance (dBm)	18.0~22.0	18.0~22.0	18.0~22.0
Sub test 3	Tolerance (dBm)	18.0~22.0	18.0~22.0	18.0~22.0
Sub test 4	Tolerance (dBm)	18.0~22.0	18.0~22.0	18.0~22.0
HSDPA Band5				
Channel		4357	4408	4458
Sub test 1	Tolerance (dBm)	18.0~22.0	18.0~22.0	18.0~22.0
Sub test 2	Tolerance (dBm)	18.0~22.0	18.0~22.0	18.0~22.0
Sub test 3	Tolerance (dBm)	18.0~22.0	18.0~22.0	18.0~22.0
Sub test 4	Tolerance (dBm)	18.0~22.0	18.0~22.0	18.0~22.0

HSUPA Band2

Channel		9662	9800	9938
Sub test 1	Tolerance (dBm)	18.0~22.0	18.0~22.0	18.0~22.0
Sub test 2	Tolerance (dBm)	18.0~22.0	18.0~22.0	18.0~22.0
Sub test 3	Tolerance (dBm)	18.0~22.0	18.0~22.0	18.0~22.0
Sub test 4	Tolerance (dBm)	17.0~21.0	17.0~21.0	17.0~21.0
Sub test 5	Tolerance (dBm)	19.0~23.0	19.0~23.0	19.0~23.0

HSUPA Band5

Channel		4357	4408	4458
Sub test 1	Tolerance (dBm)	18.0~22.0	18.0~22.0	18.0~22.0
Sub test 2	Tolerance (dBm)	18.0~22.0	18.0~22.0	18.0~22.0
Sub test 3	Tolerance (dBm)	18.0~22.0	18.0~22.0	18.0~22.0
Sub test 4	Tolerance (dBm)	17.0~21.0	17.0~21.0	17.0~21.0
Sub test 5	Tolerance (dBm)	19.0~23.0	19.0~23.0	19.0~23.0

Bluetooth

GFSK			
Channel	0	39	78
Tolerance (dBm)	4.0~8.0	4.0~8.0	4.0~8.0
$\pi/4$ DQPSK			
Channel	0	39	78
Tolerance (dBm)	3.0~7.0	3.0~7.0	3.0~7.0
8DPSK			
Channel	0	39	78
Tolerance (dBm)	3.0~7.0	3.0~7.0	3.0~7.0

Bluetooth (BLE)

GFSK			
Channel	0	39	78
Tolerance (dBm)	-3.0~1.0	-3.0~1.0	-3.0~1.0

Wi-Fi

802.11b			
Channel	1	6	11
Tolerance (dBm)	13.0~17.0	13.0~17.0	13.0~17.0
802.11g			
Channel	1	6	11
Tolerance (dBm)	7.0~13.5	7.0~13.5	7.0~13.5
802.11n HT20 (MCS0~MCS3)			
Channel	1	6	11
Tolerance (dBm)	7.0~13.5	7.0~13.5	7.0~13.5
802.11n HT20 (MCS4~MCS7)			
Channel	1	6	11
Tolerance (dBm)	7.0~13.5	7.0~13.5	7.0~13.5
802.11n HT40 (MCS0~MCS3)			
Channel	1	6	11
Tolerance (dBm)	5.5~13.0	5.5~13.0	5.5~13.0
802.11n HT40 (MCS4~MCS7)			
Channel	1	6	11
Tolerance (dBm)	5.5~13.0	5.5~13.0	5.5~13.0

LTE

Band 2

20BW 100%RB			
Channel	Channel 18700	Channel 18900	Channel 19100
Tolerance (dBm)	20.0~24.5	20.0~24.5	20.0~24.5
20BW 50%RB			
Channel	Channel 18700	Channel 18900	Channel 19100
Tolerance (dBm)	20.0~24.5	20.0~24.5	20.0~24.5
20BW 1RB			
Channel	Channel 18700	Channel 18900	Channel 19100
Tolerance (dBm)	20.0~24.5	20.0~24.5	20.0~24.5
15BW 100%RB			
Channel	Channel 18675	Channel 18900	Channel 19125
Tolerance (dBm)	20.0~24.5	20.0~24.5	20.0~24.5
15BW 50%RB			
Channel	Channel 18675	Channel 18900	Channel 19125
Tolerance (dBm)	20.0~24.5	20.0~24.5	20.0~24.5
15BW 1RB			
Channel	Channel 18675	Channel 18900	Channel 19125
Tolerance (dBm)	20.0~24.5	20.0~24.5	20.0~24.5
10BW 100%RB			
Channel	Channel 18650	Channel 18900	Channel 19150
Tolerance (dBm)	20.0~24.5	20.0~24.5	20.0~24.5
10BW 50%RB			
Channel	Channel 18650	Channel 18900	Channel 19150
Tolerance (dBm)	20.0~24.5	20.0~24.5	20.0~24.5
10BW 1RB			
Channel	Channel 18650	Channel 18900	Channel 19150
Tolerance (dBm)	20.0~24.5	20.0~24.5	20.0~24.5
5BW 100%RB			
Channel	Channel 18625	Channel 18900	Channel 19175
Tolerance (dBm)	20.0~24.5	20.0~24.5	20.0~24.5
5BW 50%RB			
Channel	Channel 18625	Channel 18900	Channel 19175
Tolerance (dBm)	20.0~24.5	20.0~24.5	20.0~24.5
5BW 1RB			
Channel	Channel 18625	Channel 18900	Channel 19175
Tolerance (dBm)	20.0~24.5	20.0~24.5	20.0~24.5
3BW 100%RB			
Channel	Channel 18615	Channel 18900	Channel 19185
Tolerance (dBm)	20.0~24.5	20.0~24.5	20.0~24.5
3BW 50%RB			
Channel	Channel 18615	Channel 18900	Channel 19185
Tolerance (dBm)	20.0~24.5	20.0~24.5	20.0~24.5
3BW 1RB			

Channel	Channel 18615	Channel 18900	Channel 19185
Tolerance (dBm)	20.0~24.5	20.0~24.5	20.0~24.5
1.4BW 100%RB			
Channel	Channel 18607	Channel 18900	Channel 19193
Tolerance (dBm)	20.0~24.5	20.0~24.5	20.0~24.5
1.4BW 50%RB			
Channel	Channel 18607	Channel 18900	Channel 19193
Tolerance (dBm)	20.0~24.5	20.0~24.5	20.0~24.5
1.4BW 1RB			
Channel	Channel 18607	Channel 18900	Channel 19193
Tolerance (dBm)	20.0~24.5	20.0~24.5	20.0~24.5

Band 3

20BW 100%RB			
Channel	Channel 19300	Channel 19575	Channel 19850
Tolerance (dBm)	20.0~24.0	20.0~24.0	20.0~24.0
20BW 50%RB			
Channel	Channel 19300	Channel 19575	Channel 19850
Tolerance (dBm)	20.0~24.0	20.0~24.0	20.0~24.0
20BW 1RB			
Channel	Channel 19300	Channel 19575	Channel 19850
Tolerance (dBm)	20.0~24.0	20.0~24.0	20.0~24.0
15BW 100%RB			
Channel	Channel 19275	Channel 19575	Channel 19875
Tolerance (dBm)	20.0~24.0	20.0~24.0	20.0~24.0
15BW 50%RB			
Channel	Channel 19275	Channel 19575	Channel 19875
Tolerance (dBm)	20.0~24.0	20.0~24.0	20.0~24.0
15BW 1RB			
Channel	Channel 19275	Channel 19575	Channel 19875
Tolerance (dBm)	20.0~24.0	20.0~24.0	20.0~24.0
10BW 100%RB			
Channel	Channel 19250	Channel 19575	Channel 19900
Tolerance (dBm)	20.0~24.0	20.0~24.0	20.0~24.0
10BW 50%RB			
Channel	Channel 19250	Channel 19575	Channel 19900
Tolerance (dBm)	20.0~24.0	20.0~24.0	20.0~24.0
10BW 1RB			
Channel	Channel 19250	Channel 19575	Channel 19900
Tolerance (dBm)	20.0~24.0	20.0~24.0	20.0~24.0
5BW 100%RB			

Channel	Channel 19225	Channel 19575	Channel 19925
Tolerance (dBm)	20.0~24.0	20.0~24.0	20.0~24.0
5BW 50%RB			
Channel	Channel 19225	Channel 19575	Channel 19925
Tolerance (dBm)	20.0~24.0	20.0~24.0	20.0~24.0
5BW 1RB			
Channel	Channel 19225	Channel 19575	Channel 19925
Tolerance (dBm)	20.0~24.0	20.0~24.0	20.0~24.0
3BW 100%RB			
Channel	Channel 19215	Channel 19575	Channel 19935
Tolerance (dBm)	20.0~24.0	20.0~24.0	20.0~24.0
3BW 50%RB			
Channel	Channel 19215	Channel 19575	Channel 19935
Tolerance (dBm)	20.0~24.0	20.0~24.0	20.0~24.0
3BW 1RB			
Channel	Channel 19215	Channel 19575	Channel 19935
Tolerance (dBm)	20.0~24.0	20.0~24.0	20.0~24.0
1.4BW 100%RB			
Channel	Channel 19207	Channel 19575	Channel 19943
Tolerance (dBm)	20.0~24.0	20.0~24.0	20.0~24.0
1.4BW 50%RB			
Channel	Channel 19207	Channel 19575	Channel 19943
Tolerance (dBm)	20.0~24.0	20.0~24.0	20.0~24.0
1.4BW 1RB			
Channel	Channel 19207	Channel 19575	Channel 19943
Tolerance (dBm)	20.0~24.0	20.0~24.0	20.0~24.0

Band 4

20BW 100%RB			
Channel	Channel 20050	Channel 20175	Channel 20300
Tolerance (dBm)	20.0~24.5	20.0~24.5	20.0~24.5
20BW 50%RB			
Channel	Channel 20050	Channel 20175	Channel 20300
Tolerance (dBm)	20.0~24.5	20.0~24.5	20.0~24.5
20BW 1RB			
Channel	Channel 20050	Channel 20175	Channel 20300
Tolerance (dBm)	20.0~24.5	20.0~24.5	20.0~24.5
15BW 100%RB			
Channel	Channel 20250	Channel 20175	Channel 20325

Tolerance (dBm)	20.0~24.5	20.0~24.5	20.0~24.5
15BW 50%RB			
Channel	Channel 20250	Channel 20175	Channel 20325
Tolerance (dBm)	20.0~24.5	20.0~24.5	20.0~24.5
15BW 1RB			
Channel	Channel 20250	Channel 20175	Channel 20325
Tolerance (dBm)	20.0~24.5	20.0~24.5	20.0~24.5
10BW 100%RB			
Channel	Channel 20000	Channel 20175	Channel 20350
Tolerance (dBm)	20.0~24.5	20.0~24.5	20.0~24.5
10BW 50%RB			
Channel	Channel 20000	Channel 20175	Channel 20350
Tolerance (dBm)	20.0~24.5	20.0~24.5	20.0~24.5
10BW 1RB			
Channel	Channel 20000	Channel 20175	Channel 20350
Tolerance (dBm)	20.0~24.5	20.0~24.5	20.0~24.5
5BW 100%RB			
Channel	Channel 19975	Channel 20175	Channel 20375
Tolerance (dBm)	20.0~24.5	20.0~24.5	20.0~24.5
5BW 50%RB			
Channel	Channel 19975	Channel 20175	Channel 20375
Tolerance (dBm)	20.0~24.5	20.0~24.5	20.0~24.5
5BW 1RB			
Channel	Channel 19975	Channel 20175	Channel 20375
Tolerance (dBm)	20.0~24.5	20.0~24.5	20.0~24.5
3BW 100%RB			
Channel	Channel 19965	Channel 20175	Channel 20385
Tolerance (dBm)	20.0~24.5	20.0~24.5	20.0~24.5
3BW 50%RB			
Channel	Channel 19965	Channel 20175	Channel 20385
Tolerance (dBm)	20.0~24.5	20.0~24.5	20.0~24.5
3BW 1RB			
Channel	Channel 19965	Channel 20175	Channel 20385
Tolerance (dBm)	20.0~24.5	20.0~24.5	20.0~24.5
1.4BW 100%RB			
Channel	Channel 19957	Channel 20175	Channel 20393
Tolerance (dBm)	20.0~24.5	20.0~24.5	20.0~24.5
1.4BW 50%RB			
Channel	Channel 19957	Channel 20175	Channel 20393

Tolerance (dBm)	20.0~24.5	20.0~24.5	20.0~24.5
1.4BW 1RB			
Channel	Channel 19957	Channel 20175	Channel 20393
Tolerance (dBm)	20.0~24.5	20.0~24.5	20.0~24.5

Band7

20BW 100%RB			
Channel	Channel 20850	Channel 21100	Channel 21350
Tolerance (dBm)	20.0~25.0	20.0~25.0	20.0~25.0
20BW 50%RB			
Channel	Channel 20850	Channel 21100	Channel 21350
Tolerance (dBm)	20.0~25.0	20.0~25.0	20.0~25.0
20BW 1RB			
Channel	Channel 20850	Channel 21100	Channel 21350
Tolerance (dBm)	20.0~25.0	20.0~25.0	20.0~25.0
15BW 100%RB			
Channel	Channel 20825	Channel 21100	Channel 21375
Tolerance (dBm)	20.0~25.0	20.0~25.0	20.0~25.0
15BW 50%RB			
Channel	Channel 20825	Channel 21100	Channel 21375
Tolerance (dBm)	20.0~25.0	20.0~25.0	20.0~25.0
15BW 1RB			
Channel	Channel 20825	Channel 21100	Channel 21375
Tolerance (dBm)	20.0~25.0	20.0~25.0	20.0~25.0
10BW 100%RB			
Channel	Channel 20800	Channel 21100	Channel 21400
Tolerance (dBm)	20.0~25.0	20.0~25.0	20.0~25.0
10BW 50%RB			
Channel	Channel 20800	Channel 21100	Channel 21400
Tolerance (dBm)	20.0~25.0	20.0~25.0	20.0~25.0
10BW 1RB			
Channel	Channel 20800	Channel 21100	Channel 21400
Tolerance (dBm)	20.0~25.0	20.0~25.0	20.0~25.0
5BW 100%RB			
Channel	Channel 20775	Channel 21100	Channel 21425
Tolerance (dBm)	20.0~25.0	20.0~25.0	20.0~25.0
5BW 50%RB			
Channel	Channel 20775	Channel 21100	Channel 21425
Tolerance (dBm)	20.0~25.0	20.0~25.0	20.0~25.0

5BW 1RB			
Channel	Channel 20775	Channel 21100	Channel 21425
Tolerance (dBm)	20.0~25.0	20.0~25.0	20.0~25.0

6.2 GSM Measurement result

GSM Measured Power

Mode	GSM850			GSM1900		
Channel	128	189	251	512	661	810
Frequency(MHz)	824.2	836.4	848.8	1850.2	1880.0	1909.8
Measured Power(dBm)	32.03	32.11	32.15	29.27	29.39	29.51

GPRS Measured Power

Mode	GPRS850			GPRS1900		
Channel	128	189	251	512	661	810
Frequency(MHz)	824.2	836.4	848.8	1850.2	1880.0	1909.8
4Downlink1uplinkPower(dBm)	32.07	32.08	32.15	29.25	29.39	29.48
3Downlink2uplinkPower(dBm)	31.48	31.51	32.59	28.53	28.81	28.96
2Downlink3uplinkPower(dBm)	29.99	30.03	30.13	26.61	27.10	27.53
1Downlink4uplinkPower(dBm)	28.96	29.01	29.07	25.39	25.94	26.44

GPRS Averaged Power

Mode	GPRS850			GPRS1900		
Channel	128	189	251	512	661	810
Frequency(MHz)	824.2	836.4	848.8	1850.2	1880.0	1909.8
4Downlink1uplinkPower(dBm)	23.04	23.05	23.12	20.22	20.36	20.45
3Downlink2uplinkPower(dBm)	25.46	25.49	26.57	22.51	22.79	22.94
2Downlink3uplinkPower(dBm)	25.73	25.77	25.87	22.35	22.84	23.27
1Downlink4uplinkPower(dBm)	25.95	26.00	26.06	22.38	22.93	23.43

Division Factors (for Measured Power and Averaged Power):

To average the power, the division factor is as follows:

1TX-slot (4Downlink1uplink) = 1 transmit time slot out of 8 time slots=> conducted power divided by (8/1) => -9.03dB

2TX-slots(3Downlink2uplink) = 2 transmit time slots out of 8 time slots=> conducted power divided by (8/2) => -6.02dB

3TX-slots (2Downlink3uplink)= 3 transmit time slots out of 8 time slots=> conducted power divided by (8/3) => -4.26dB

4TX-slots (1Downlink4uplink)= 4 transmit time slots out of 8 time slots=> conducted power divided by (8/4) => -3.01dB

According to the conducted power as above, the body measurements are performed with 4Txslots (1Downlink4uplink) for GPRS.

EGPRS Measured Power

Mode	EGPRS850 (GMSK)			EGPRS1900 (GMSK)		
	EGPRS850 (8PSK)			EGPRS1900 (8PSK)		
Channel	128	189	251	512	661	810
Frequency(MHz)	824.2	836.4	848.8	1850.2	1880.0	1909.8
4Downlink1uplinkPower(dBm)	32.01	32.11	32.12	29.24	29.34	29.48
	32.01	32.09	32.11	29.58	29.83	29.90
3Downlink2uplinkPower(dBm)	31.42	31.54	31.56	28.52	28.75	28.96
	31.51	31.55	31.53	28.75	29.12	29.32
2Downlink3uplinkPower(dBm)	29.94	30.04	30.11	26.61	27.07	27.54
	30.04	30.07	30.11	26.68	27.16	27.64
1Downlink4uplinkPower(dBm)	28.93	29.01	29.06	25.38	25.93	26.43
	29.03	29.05	29.05	25.42	25.95	26.49

EGPRS Averaged Power

Mode	EGPRS850 (GMSK)			EGPRS1900 (GMSK)		
	EGPRS850 (8PSK)			EGPRS1900 (8PSK)		
Channel	128	189	251	512	661	810
Frequency(MHz)	824.2	836.4	848.8	1850.2	1880.0	1909.8
4Downlink1uplinkPower(dBm)	22.98	23.08	23.09	20.21	20.31	20.45
	22.98	23.06	23.08	20.55	20.80	20.87
3Downlink2uplinkPower(dBm)	25.40	25.52	25.54	22.50	22.73	22.94
	25.49	25.53	25.51	22.73	23.10	23.30
2Downlink3uplinkPower(dBm)	25.68	25.78	25.85	22.35	22.81	23.28
	25.78	25.81	25.85	22.42	22.90	23.38
1Downlink4uplinkPower(dBm)	25.92	26.00	26.05	22.37	22.92	23.42
	26.02	26.04	26.04	22.41	22.94	23.48

Division Factors (for Measured Power and Averaged Power):

To average the power, the division factor is as follows:

1TX-slot (4Downlink1uplink) = 1 transmit time slot out of 8 time slots=> conducted power divided by (8/1) => -9.03dB

2TX-slots(3Downlink2uplink) = 2 transmit time slots out of 8 time slots=> conducted power divided by (8/2) => -6.02dB

3TX-slots (2Downlink3uplink) = 3 transmit time slots out of 8 time slots=> conducted power divided by (8/3) => -4.26dB

4TX-slots (1Downlink4uplink) = 4 transmit time slots out of 8 time slots=> conducted power divided by (8/4) => -3.01dB

According to the conducted power as above, the body measurements are performed with 4Txslots (1Downlink4uplink) for EGPRS (GMSK).

6.3 WCDMA Measurement result

The following procedures are according to FCC KDB Publication 941225 D01.

Release 99

The following tests were completed according to the test requirements outlined in section 5.2 of the 3GPP TS34.121-1 specification. The DUT supports power Class 3, which has a nominal maximum output power of 24 dBm (+1.7/-3.7).

Mode	Subtest	Rel99
WCDMA General Settings	Loopback Mode	Test Mode 1
	Rel99 RMC	12.2kbps RMC
	Power Control Algorithm	Algorithm2
	β_c/β_d	8/15

Measured Results

Mode	Band2			Band5		
	9262	9400	9538	4132	4183	4233
Channel	9262	9400	9538	4132	4183	4233
Frequency(MHz)	1852.4	1880	1907.6	826.4	836.4	846.6
RB test mode1+64kRMC(dBm)	22.86	22.93	22.96	22.18	22.34	22.31
RB test mode1+12.2kRMC(dBm)	22.93	22.94	22.96	22.17	22.35	22.34
RB test mode1+144kRMC(dBm)	22.88	22.87	22.99	22.20	22.35	22.36
RB test mode1+384kRMC(dBm)	22.91	22.95	22.99	22.17	22.37	22.37
AMR Voice test mode+12.2kRMC(dBm)	22.83	22.87	22.97	22.16	22.33	22.32

HSDPA

The following 4 Sub-tests were completed according to Release 5 procedures in section 5.2 of 3GPP TS34.121.

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	$\beta_{hs}^{(1)}$	CM(dB) ⁽²⁾
1	2/15	15/15	64	2/15	4/15	0.0
2	12/15 ⁽³⁾	15/15 ⁽³⁾	64	12/15 ⁽³⁾	24/15	1.0
3	15/15	8/15	64	15/18	30/15	1.5
4	15/15	4/15	64	15/4	30/15	1.5

Note1: Δ_{ACK} , Δ_{NACK} and $\Delta_{CQI}=8 \Leftrightarrow A_{hs}=\beta_{hs}/\beta_c=30/15 \Leftrightarrow \beta_{hs}=30/15 * \beta_c$.

Note2:CM=1 for $\beta_c/\beta_d=12/15$, $\beta_{hs}/\beta_c=24/15$.

Note3:For subtest 2 the β_c/β_d ratio of 12/15 for the TFC during the measurement period(TF1,TF0) is achieved by setting the signaled gain factors for the reference TFC(TF1,TF1) to $\beta_c=11/15$ and $\beta_d=15/15$.

Measured Results

Mode	HSDPA Band 2			HSDPA Band 5		
	9262	9400	9538	4132	4183	4233
Channel	9262	9400	9538	4132	4183	4233
Frequency(MHz)	1852.4	1880	1907.6	826.4	836.4	846.6
sub-test1(dBm)	21.20	21.10	21.20	20.80	20.90	21.00
sub-test2(dBm)	21.20	21.10	21.20	20.90	20.90	21.00
sub-test3(dBm)	20.70	20.60	20.80	20.30	20.50	20.50
sub-test4(dBm)	20.70	20.60	20.70	20.40	20.50	20.50

HSPA (HSDPA & HSUPA)

The following 5 Sub-tests were completed according to Release 6 procedures in section 5.2 of 3GPP TS34.121.

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	$\beta_{hs}^{(1)}$	β_{ec}	β_{ed}	β_{ed} (SF)	β_{ed} (codes)	CM ⁽²⁾ (dB)	MPR (dB)	AG ⁽⁴⁾ Index	E-TFCI
1	11/15 ⁽³⁾	15/15 ⁽³⁾	64	11/15 ⁽³⁾	22/15	209/225	1039/225	4	1	1.0	2.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	$\beta_{ed1}:47/15$ $\beta_{ed2}:47/15$	4	2	2.0	2.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15 ⁽⁴⁾	15/15 ⁽⁴⁾	64	15/15 ⁽⁴⁾	30/15	24/15	134/15	4	1	1.0	2.0	21	81

Note1: $\Delta ACK, \Delta NACK$ and $\Delta COI = 8 \Leftrightarrow A_{hs} = \beta_{hs}/\beta_c = 30/15 \Leftrightarrow \beta_{hs} = 30/15 * \beta_c$.

Note2: CM=1 for $\beta_c/\beta_d = 12/15, \beta_{hs}/\beta_c = 24/15$. For all other combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.

Note3: For subtest 1 the β_c/β_d ratio of 11/15 for the TFC during the measurement period(TF1,TF0) is achieved by setting the signaled gain factors for the reference TFC(TF1,TF1) to $\beta_c=10/15$ and $\beta_d=15/15$.

Note4: For subtest 5 the β_c/β_d ratio of 15/15 for the TFC during the measurement period(TF1,TF0) is achieved by setting the signaled gain factors for the reference TFC(TF1,TF1) to $\beta_c=14/15$ and $\beta_d=15/15$.

NOTE5: Testing UE using E-DPDCH Physical layer category 1 Sub-test 3 is not required according to TS 25.306 Table 5.1g.

NOTE6: β_{ed} can not be set directly; it is set by Absolute Grant Value.

Measured Results

Mode	HSUPA Band 2			HSUPA Band 5		
Channel	9262	9400	9538	4132	4183	4233
Frequency(MHz)	1852.4	1880	1907.6	826.4	836.4	846.6
sub-test1(dBm)	19.20	19.20	19.20	18.90	19.00	18.40
sub-test2(dBm)	19.10	19.10	19.20	18.90	19.00	18.40
sub-test3(dBm)	19.20	19.20	19.20	18.90	19.00	18.50
sub-test4(dBm)	18.60	18.60	18.70	18.40	18.40	18.00
sub-test5(dBm)	21.10	21.20	21.10	20.80	20.40	20.90

UMTS SAR was tested under RMC 12.2 kbps with HSPA Inactive per KDB Publication 941225 D01.

HSPA SAR was not required since the average output power of the HSPA subtests was not more than 0.25 dB higher than the RMC level and SAR was less than 1.2 W/kg.

6.4 LTE Measurement result

Band 2

Test Frequency ID	Bandwidth (MHz)	N _{UL}	Frequency of Uplink(MHz)	Modulation	RB Size	RB Offset	Test results (dBm)
Low Range	1.4	18607	1850.7	QPSK	1	Low	22.32
						Mid	22.46
						High	22.29
					50%	Low	22.31
						Mid	22.03
						High	22.21
					100%	---	21.30
				16QAM	1	Low	21.13
						Mid	21.51
						High	21.09
					50%	Low	21.14
						Mid	20.82
						High	21.04
					100%	---	20.30
	3	18615	1851.5	QPSK	1	Low	22.26
						Mid	23.00
						High	22.29
					50%	Low	21.25
						Mid	21.34
						High	21.27
					100%	---	21.32
				16QAM	1	Low	21.09
						Mid	22.00
						High	21.09
					50%	Low	20.26
						Mid	20.32
						High	20.29
					100%	---	20.31

Test Frequency ID	Bandwidth (MHz)	N _{UL}	Frequency of Uplink(MHz)	Modulation	RB Size	RB Offset	Test results (dBm)	
Low Range	5	18625	1852.5	QPSK	1	Low	22.37	
						Mid	22.99	
						High	22.34	
				50%	Low	21.34		
					Mid	21.30		
					High	2135		
				100%	---	21.21		
					1	Low	21.16	
	10	18650	1855	16QAM		Mid	21.99	
						High	21.12	
				50%	Low	20.26		
					Mid	20.23		
					High	20.26		
				100%	---	20.27		
				QPSK	Low	22.37		
					Mid	22.48		
					High	22.38		
				16QAM	Low	21.27		
					Mid	21.18		
					High	21.26		
					---	21.20		
				1	Low	21.17		
					Mid	21.55		
					High	21.20		
					Low	20.29		
				50%	Mid	20.20		
					High	20.26		
					---	20.24		

Test Frequency ID	Bandwidth (MHz)	N _{UL}	Frequency of Uplink(MHz)	Modulation	RB Size	RB Offset	Test results (dBm)		
Low Range	15	18675	1857.5	QPSK	1	Low	22.40		
						Mid	22.19		
						High	22.44		
					50%	Low	21.22		
						Mid	21.23		
						High	21.25		
					100%	---	21.27		
				16QAM	1	Low	21.19		
						Mid	21.32		
						High	21.20		
					50%	Low	20.28		
	20	18700	1860			Mid	20.29		
						High	20.35		
						100%	---		
			QPSK	1	Low	22.52			
					Mid	22.53			
					High	22.44			
				50%	Low	21.30			
					Mid	21.31			
					High	21.33			
			16QAM	100%	---	21.28			
				1	Low	21.27			
					Mid	21.68			
					High	21.29			
				50%	Low	20.31			
					Mid	20.35			
					High	20.35			
				100%	---	20.36			

Test Frequency ID	Bandwidth (MHz)	N _{UL}	Frequency of Uplink(MHz)	Modulation	RB Size	RB Offset	Test results (dBm)
Mid Range	1.4	18900	1880	QPSK	1	Low	22.34
						Mid	22.34
						High	22.33
				50%	50%	Low	22.38
						Mid	22.06
						High	22.27
				100%	100%	---	21.22
						Low	21.23
Mid Range	3	18900	1880	16QAM	1	Mid	21.66
						High	21.25
						Low	21.28
						Mid	20.94
					50%	High	21.16
						100%	---
						Low	20.34
				QPSK	1	Mid	22.83
						High	22.26
						Low	21.15
					50%	Mid	21.21
						High	21.15
						100%	---
	3	18900	1880	16QAM	1	Low	21.11
						Mid	21.19
						High	21.93
						Low	21.17
					50%	Mid	20.26
						High	20.28
						100%	---
						Low	20.30
						Mid	20.20

Test Frequency ID	Bandwidth (MHz)	N _{UL}	Frequency of Uplink(MHz)	Modulation	RB Size	RB Offset	Test results (dBm)
Mid Range	5	18900	1880	QPSK	1	Low	22.41
						Mid	22.81
						High	22.32
					50%	Low	21.20
						Mid	21.14
						High	21.18
					100%	---	21.09
				16QAM	1	Low	21.28
						Mid	22.04
						High	21.18
					50%	Low	20.21
						Mid	20.14
						High	20.16
					100%	---	20.22
	10	18900	1880	QPSK	1	Low	21.78
						Mid	21.72
						High	21.72
					50%	Low	20.45
						Mid	20.39
						High	20.44
					100%	---	20.57
				16QAM	1	Low	20.64
						Mid	20.97
						High	20.51
					50%	Low	19.59
						Mid	19.55
						High	19.57
					100%	---	19.64

Test Frequency ID	Bandwidth (MHz)	N _{UL}	Frequency of Uplink(MHz)	Modulation	RB Size	RB Offset	Test results (dBm)
Mid Range	15	18900	1880	QPSK	1	Low	21.90
						Mid	21.51
						High	21.77
				50%	Low	20.72	
						Mid	20.66
						High	20.64
				100%	---	20.61	
						Low	20.72
	20	18900	1880	16QAM	1	Mid	20.70
						High	20.60
				50%	Low	19.79	
						Mid	19.77
						High	19.73
				100%	---	19.70	
						Low	22.53
						Mid	22.30
	QPSK	18900	1880	1	High	22.35	
						Low	21.24
						Mid	21.19
				50%	High	21.19	
						---	21.22
						Low	21.37
				16QAM	1	Mid	21.57
						High	21.17
						Low	20.35
				50%	Mid	20.27	
						High	20.28
						---	20.37

Test Frequency ID	Bandwidth (MHz)	N _{UL}	Frequency of Uplink(MHz)	Modulation	RB Size	RB Offset	Test results (dBm)
High Range	1.4	19193	1909.3	QPSK	1	Low	21.71
						Mid	21.80
						High	21.70
					50%	Low	21.68
						Mid	21.42
						High	21.62
					100%	---	20.67
				16QAM	1	Low	20.54
						Mid	20.92
						High	20.50
					50%	Low	20.52
						Mid	20.25
						High	20.45
					100%	---	19.67
	3	19185	1908.5	QPSK	1	Low	21.67
						Mid	22.27
						High	21.68
					50%	Low	20.60
						Mid	20.70
						High	20.61
					100%	---	20.64
				16QAM	1	Low	20.52
						Mid	21.34
						High	20.49
					50%	Low	19.65
						Mid	19.76
						High	19.73
					100%	---	19.66

Test Frequency ID	Bandwidth (MHz)	N _{UL}	Frequency of Uplink(MHz)	Modulation	RB Size	RB Offset	Test results (dBm)
High Range	5	19175	1907.5	QPSK	1	Low	21.73
						Mid	22.26
						High	21.69
					50%	Low	20.59
						Mid	20.58
						High	20.61
					100%	---	20.49
				16QAM	1	Low	20.53
						Mid	21.36
						High	20.50
					50%	Low	19.60
						Mid	19.54
						High	19.60
					100%	---	19.61
	10	19150	1905	QPSK	1	Low	21.76
						Mid	21.79
						High	21.78
					50%	Low	20.50
						Mid	20.48
						High	20.53
					100%	---	20.62
				16QAM	1	Low	20.57
						Mid	20.90
						High	20.61
					50%	Low	19.63
						Mid	19.61
						High	19.63
					100%	---	19.67

Test Frequency ID	Bandwidth (MHz)	N _{UL}	Frequency of Uplink(MHz)	Modulation	RB Size	RB Offset	Test results (dBm)		
High Range	15	19125	1902.5	QPSK	1	Low	22.37		
						Mid	22.07		
						High	22.38		
					50%	Low	21.22		
						Mid	21.21		
						High	21.20		
					100%	---	21.19		
				16QAM	1	Low	21.20		
						Mid	21.27		
						High	21.17		
					50%	Low	20.30		
	20	19100	1900			Mid	20.33		
						High	20.32		
						100%	---		
			QPSK	1	Low	22.62			
					Mid	22.45			
					High	22.57			
				50%	Low	21.39			
					Mid	21.38			
					High	21.37			
			16QAM	100%	---	21.35			
				1	Low	21.35			
					Mid	21.70			
					High	21.30			
				50%	Low	20.39			
					Mid	20.40			
					High	20.42			
				100%	---	20.44			

Band 3

Test Frequency ID	Bandwidth (MHz)	N _{UL}	Frequency of Uplink(MHz)	Modulation	RB Size	RB Offset	Test results (dBm)
Low Range	1.4	19207	1710.7	QPSK	1	Low	22.44
						Mid	22.61
						High	22.40
				50%	Low	22.38	
					Mid	22.08	
					High	22.34	
				100%	---	21.44	
				16QAM	1	Low	21.30
						Mid	21.67
						High	21.26
				50%	Low	21.23	
					Mid	20.94	
					High	21.21	
				100%	---	20.44	
	3	19215	1711.5	QPSK	1	Low	22.40
						Mid	23.15
						High	22.39
				50%	Low	21.36	
					Mid	21.45	
					High	21.35	
				100%	---	21.39	
				16QAM	1	Low	21.23
						Mid	22.08
						High	21.23
					50%	Low	20.37
						Mid	20.44
						High	20.39
				100%	---	20.41	

Test Frequency ID	Bandwidth (MHz)	N _{UL}	Frequency of Uplink(MHz)	Modulation	RB Size	RB Offset	Test results (dBm)		
Low Range	5	19225	1712.5	QPSK	1	Low	22.43		
						Mid	23.08		
						High	22.36		
					50%	Low	21.38		
						Mid	21.31		
						High	21.30		
					100%	---	21.28		
				16QAM	1	Low	21.27		
						Mid	22.09		
						High	21.19		
					50%	Low	20.32		
	10	19250	1715			Mid	20.25		
						High	20.26		
						100%	---		
			QPSK	1	Low	22.50			
					Mid	22.52			
					High	22.36			
				50%	Low	21.30			
					Mid	21.25			
					High	21.33			
			16QAM	100%	---	21.20			
				1	Low	21.30			
					Mid	21.61			
					High	21.17			
				50%	Low	20.34			
					Mid	20.29			
					High	20.33			
				100%	---	20.28			

Test Frequency ID	Bandwidth (MHz)	N _{UL}	Frequency of Uplink(MHz)	Modulation	RB Size	RB Offset	Test results (dBm)		
Low Range	15	19275	1717.5	QPSK	1	Low	22.54		
						Mid	22.22		
						High	22.45		
					50%	Low	21.37		
						Mid	21.29		
						High	21.28		
					100%	---	21.32		
				16QAM	1	Low	21.34		
						Mid	21.37		
						High	21.33		
					50%	Low	20.35		
	20	19300	1720			Mid	20.33		
						High	20.32		
						100%	---		
			QPSK	1	Low	22.51			
					Mid	22.38			
					High	22.34			
				50%	Low	21.29			
					Mid	21.25			
					High	21.19			
			16QAM	100%	---	21.22			
				1	Low	21.32			
					Mid	21.53			
					High	21.17			
				50%	Low	20.29			
					Mid	20.23			
					High	20.21			
				100%	---	20.28			

Test Frequency ID	Bandwidth (MHz)	N _{UL}	Frequency of Uplink(MHz)	Modulation	RB Size	RB Offset	Test results (dBm)	
Mid Range	1.4	19575	1747.5	QPSK	1	Low	22.20	
						Mid	22.30	
						High	22.19	
				50%	100%	Low	22.20	
						Mid	21.90	
						High	22.12	
				16QAM	1	---	21.10	
						Low	21.08	
						Mid	21.46	
					50%	High	21.06	
						Low	21.02	
						Mid	20.78	
	3	19575	1747.5		100%	High	20.98	
			QPSK			---	20.13	
						Low	22.14	
			50%	Mid	22.71			
				High	22.15			
				Low	21.06			
	1.4	19575	1747.5	16QAM	1	Mid	21.14	
						High	21.09	
						---	21.12	
				16QAM	1	Low	21.03	
						Mid	21.79	
						High	21.04	
	3	19575	1747.5		50%	Low	20.09	
						Mid	20.20	
						High	20.16	
					100%	---	20.11	

Test Frequency ID	Bandwidth (MHz)	N _{UL}	Frequency of Uplink(MHz)	Modulation	RB Size	RB Offset	Test results (dBm)
Mid Range	5	19575	1747.5	QPSK	1	Low	22.23
						Mid	21.91
						High	22.16
				50%	100%	Low	21.10
						Mid	21.06
						High	21.10
				16QAM	1	---	21.00
						Low	21.03
						Mid	21.94
						High	21.01
					50%	Low	20.07
						Mid	19.95
						High	20.04
	10	19575	1747.5	QPSK	100%	---	20.11
						Low	22.23
						Mid	22.28
						High	22.23
				50%	100%	Low	21.05
						Mid	21.00
						High	21.05
				16QAM	1	---	21.06
						Low	21.10
						Mid	21.43
						High	21.04
					50%	Low	20.11
						Mid	20.06
						High	20.12
					100%	---	20.05

Test Frequency ID	Bandwidth (MHz)	N _{UL}	Frequency of Uplink(MHz)	Modulation	RB Size	RB Offset	Test results (dBm)
Mid Range	15	19575	1747.5	QPSK	1	Low	22.31
						Mid	21.95
						High	21.90
				50%	100%	Low	21.09
						Mid	21.07
						High	21.02
						---	21.05
				16QAM	1	Low	21.15
						Mid	21.16
						High	21.11
					50%	Low	20.12
						Mid	20.13
						High	20.06
						---	20.08
	20	19575	1747.5	QPSK	1	Low	22.28
						Mid	22.30
						High	22.26
				50%	100%	Low	21.11
						Mid	21.07
						High	21.06
						---	21.07
				16QAM	1	Low	21.13
						Mid	21.44
						High	21.09
					50%	Low	20.12
						Mid	20.08
						High	20.07
						---	20.16

Test Frequency ID	Bandwidth (MHz)	N _{UL}	Frequency of Uplink(MHz)	Modulation	RB Size	RB Offset	Test results (dBm)
High Range	1.4	19943	1784.3	QPSK	1	Low	22.42
						Mid	22.53
						High	22.44
					50%	Low	22.36
						Mid	22.07
						High	22.33
					100%	---	21.40
				16QAM	1	Low	21.26
						Mid	21.63
						High	21.24
					50%	Low	21.23
						Mid	20.92
						High	21.10
					100%	---	20.39
	3	19935	1783.5	QPSK	1	Low	22.36
						Mid	23.20
						High	22.38
					50%	Low	21.35
						Mid	21.49
						High	21.38
					100%	---	21.42
				16QAM	1	Low	21.19
						Mid	22.15
						High	21.19
					50%	Low	20.32
						Mid	20.41
						High	20.40
					100%	---	20.42

Test Frequency ID	Bandwidth (MHz)	N _{UL}	Frequency of Uplink(MHz)	Modulation	RB Size	RB Offset	Test results (dBm)		
High Range	5	19925	1782.5	QPSK	1	Low	22.48		
						Mid	23.22		
						High	22.45		
					50%	Low	21.40		
						Mid	21.39		
						High	21.48		
					100%	---	21.38		
				16QAM	1	Low	21.30		
						Mid	22.19		
						High	21.24		
					50%	Low	20.37		
	10	19900	1780			Mid	20.31		
						High	20.38		
						100%	---		
			QPSK	1	Low	22.41			
					Mid	22.50			
					High	22.47			
				50%	Low	21.26			
					Mid	21.26			
					High	21.33			
			16QAM	100%	---	21.28			
				1	Low	21.25			
					Mid	21.62			
					High	21.25			
				50%	Low	20.30			
					Mid	20.34			
					High	20.36			
				100%	---	20.32			

Test Frequency ID	Bandwidth (MHz)	N _{UL}	Frequency of Uplink(MHz)	Modulation	RB Size	RB Offset	Test results (dBm)		
High Range	15	19875	1777.5	QPSK	1	Low	22.53		
						Mid	22.25		
						High	22.56		
					50%	Low	21.34		
						Mid	21.70		
						High	21.65		
					100%	---	21.76		
				16QAM	1	Low	21.91		
						Mid	21.79		
						High	21.53		
					50%	Low	20.85		
	20	19850	1775			Mid	20.75		
						High	20.68		
						100%	---		
			QPSK	1	Low	23.12			
					Mid	23.00			
					High	22.74			
				50%	Low	21.86			
					Mid	21.79			
					High	21.70			
			16QAM	100%	---	21.84			
				1	Low	21.93			
					Mid	22.01			
					High	21.47			
				50%	Low	20.84			
					Mid	20.73			
					High	20.64			
				100%	---	20.80			

Band 4

Test Frequency ID	Bandwidth (MHz)	N _{UL}	Frequency of Uplink(MHz)	Modulation	RB Size	RB Offset	Test results (dBm)
Low Range	1.4	19957	1710.7	QPSK	1	Low	22.36
						Mid	22.48
						High	22.32
					50%	Low	22.31
						Mid	21.99
						High	22.22
					100%	---	21.29
				16QAM	1	Low	21.17
						Mid	21.57
						High	21.15
					50%	Low	21.10
						Mid	20.81
						High	21.03
					100%	---	20.25
	3	19965	1711.5	QPSK	1	Low	22.31
						Mid	22.98
						High	22.28
					50%	Low	21.23
						Mid	21.31
						High	21.23
					100%	---	21.22
				16QAM	1	Low	21.15
						Mid	21.98
						High	21.11
					50%	Low	20.21
						Mid	20.30
						High	20.26
					100%	---	20.26

Test Frequency ID	Bandwidth (MHz)	N _{UL}	Frequency of Uplink(MHz)	Modulation	RB Size	RB Offset	Test results (dBm)	
Low Range	5	19975	1712.5	QPSK	1	Low	22.38	
						Mid	22.90	
						High	22.28	
					50%	Low	21.23	
						Mid	21.19	
						High	21.21	
				16QAM	100%	---	21.13	
	10	20000	1715		1	Low	21.17	
						Mid	22.00	
						High	21.13	
			50%	Low	20.19			
				Mid	20.12			
				High	20.16			
			16QAM	100%	---	20.19		
				1	Low	22.40		
					Mid	22.32		
					High	22.32		
	10	20000	1715	QPSK	50%	Low	21.15	
						Mid	21.08	
						High	21.10	
				16QAM	100%	---	21.14	
					1	Low	21.17	
						Mid	21.57	
						High	21.14	
					50%	Low	20.21	
						Mid	20.15	
						High	20.18	
					100%	---	20.13	

Test Frequency ID	Bandwidth (MHz)	N _{UL}	Frequency of Uplink(MHz)	Modulation	RB Size	RB Offset	Test results (dBm)
Low Range	15	20025	1717.5	QPSK	1	Low	22.42
						Mid	22.10
						High	22.30
					50%	Low	21.15
						Mid	21.15
						High	21.13
					100%	---	21.18
				16QAM	1	Low	21.22
						Mid	21.26
						High	21.17
					50%	Low	20.18
						Mid	20.21
						High	20.16
					100%	---	20.19
	20	20050	1720	QPSK	1	Low	22.40
						Mid	22.33
						High	22.20
					50%	Low	21.09
						Mid	21.07
						High	21.02
					100%	---	21.03
				16QAM	1	Low	21.21
						Mid	21.50
						High	20.99
					50%	Low	20.12
						Mid	20.10
						High	20.06
					100%	---	20.12

Test Frequency ID	Bandwidth (MHz)	N _{UL}	Frequency of Uplink(MHz)	Modulation	RB Size	RB Offset	Test results (dBm)
Mid Range	1.4	20175	1732.5	QPSK	1	Low	21.80
						Mid	22.00
						High	21.79
					50%	Low	21.74
						Mid	21.46
						High	21.68
					100%	---	20.84
				16QAM	1	Low	20.60
						Mid	21.07
						High	20.59
					50%	Low	20.54
						Mid	20.29
						High	20.49
					100%	---	19.78
	3	20175	1732.5	QPSK	1	Low	21.90
						Mid	22.50
						High	21.74
					50%	Low	20.80
						Mid	20.85
						High	20.82
				16QAM	100%	---	20.83
					1	Low	20.54
						Mid	21.39
						High	20.50
					50%	Low	19.72
						Mid	19.80
						High	19.78
					100%	---	19.76

Test Frequency ID	Bandwidth (MHz)	N _{UL}	Frequency of Uplink(MHz)	Modulation	RB Size	RB Offset	Test results (dBm)
Mid Range	5	20175	1732.5	QPSK	1	Low	22.02
						Mid	22.70
						High	21.93
				50%	Low	20.97	
						Mid	20.93
						High	20.97
				100%	---	20.88	
						Low	20.79
	10	20175	1732.5	16QAM	1	Mid	21.76
						High	20.73
				50%	Low	19.88	
						Mid	19.81
						High	19.85
				100%	---	19.86	
						Low	21.97
						Mid	22.12
	Mid Range	20175	1732.5	QPSK	1	High	21.96
						Low	20.89
						Mid	20.85
				50%	High	20.90	
						100%	20.81
				16QAM	1	Low	20.82
						Mid	21.19
						High	20.75
				50%	Low	19.87	
						Mid	19.84
						High	19.86
				100%	---	19.77	

Test Frequency ID	Bandwidth (MHz)	N _{UL}	Frequency of Uplink(MHz)	Modulation	RB Size	RB Offset	Test results (dBm)	
Mid Range	15	20175	1732.5	QPSK	1	Low	22.04	
						Mid	21.78	
						High	21.97	
				50%	Low	20.80		
						Mid	20.83	
						High	20.81	
				100%	---	20.84		
						Low	20.91	
	20	20175	1732.5	16QAM	1	Mid	20.89	
						High	20.75	
				50%	Low	19.81		
						Mid	19.80	
						High	19.79	
				100%	---	19.81		
						Low	22.10	
				QPSK		Mid	22.13	
						High	22.06	
				50%	Low	20.89		
						Mid	20.87	
						High	20.88	
				16QAM	1	100%	---	
						Low	20.95	
						Mid	21.15	
						High	20.85	
				50%	Low	19.86		
						Mid	19.81	
						High	19.82	
				100%	---	19.86		

Test Frequency ID	Bandwidth (MHz)	N _{UL}	Frequency of Uplink(MHz)	Modulation	RB Size	RB Offset	Test results (dBm)	
High Range	1.4	20393	1754.3	QPSK	1	Low	22.01	
						Mid	22.19	
						High	21.99	
				50%	1	Low	21.93	
						Mid	21.66	
						High	21.91	
				100%	1	---	20.91	
						Low	20.86	
High Range	3	20385	1753.5	16QAM		Mid	21.22	
						High	20.86	
				50%	1	Low	20.81	
						Mid	20.53	
				100%	1	High	20.80	
						---	19.92	
				QPSK	1	Low	21.98	
						Mid	22.59	
						High	22.00	
High Range	3	20385	1753.5	16QAM	1	Low	20.89	
						Mid	20.97	
						High	20.87	
				100%	1	---	20.84	
						Low	20.88	
						Mid	21.69	
						High	20.86	
				50%	1	Low	19.90	
						Mid	19.99	
						High	19.92	
				100%	1	---	19.91	

Test Frequency ID	Bandwidth (MHz)	N _{UL}	Frequency of Uplink(MHz)	Modulation	RB Size	RB Offset	Test results (dBm)		
High Range	5	20375	1752.5	QPSK	1	Low	22.09		
						Mid	22.62		
						High	21.98		
					50%	Low	20.94		
						Mid	20.87		
						High	20.92		
					100%	---	20.88		
				16QAM	1	Low	20.92		
						Mid	21.76		
						High	20.85		
					50%	Low	19.90		
	10	20350	1750			Mid	19.83		
						High	19.84		
						100%	---		
			QPSK	1	Low	22.09			
					Mid	22.17			
					High	22.07			
				50%	Low	20.91			
			16QAM		Mid	20.88			
					High	20.89			
					100%	---			
			16QAM	1	Low	20.92			
					Mid	21.32			
					High	20.90			
				50%	Low	19.95			

Test Frequency ID	Bandwidth (MHz)	N _{UL}	Frequency of Uplink(MHz)	Modulation	RB Size	RB Offset	Test results (dBm)
High Range	15	20325	1747.5	QPSK	1	Low	22.12
						Mid	21.87
						High	22.08
					50%	Low	20.90
						Mid	20.93
						High	20.91
					100%	---	20.93
				16QAM	1	Low	20.89
						Mid	21.01
						High	20.92
					50%	Low	19.89
						Mid	19.92
						High	19.90
					100%	---	19.93
	20	20300	1745	QPSK	1	Low	22.05
						Mid	22.10
						High	22.09
					50%	Low	20.92
						Mid	20.90
						High	20.87
					100%	---	20.90
				16QAM	1	Low	20.82
						Mid	21.11
						High	20.75
					50%	Low	19.76
						Mid	19.78
						High	19.70
					100%	---	19.79

Band 7

Test Frequency ID	Bandwidth (MHz)	N _{UL}	Frequency of Uplink(MHz)	Modulation	RB Size	RB Offset	Test results (dBm)
Low Range	1.4	20757	2500.7	QPSK	1	Low	22.89
						Mid	22.96
						High	22.87
					50%	Low	22.84
						Mid	22.80
						High	22.82
					100%	---	21.88
				16QAM	1	Low	21.77
						Mid	21.83
						High	21.74
					50%	Low	21.83
						Mid	21.79
						High	21.80
					100%	---	20.83
	3	20765	2501.5	QPSK	1	Low	22.90
						Mid	22.94
						High	22.80
					50%	Low	21.88
						Mid	21.86
						High	21.88
				16QAM	100%	---	21.81
					1	Low	21.74
						Mid	21.83
						High	21.71
					50%	Low	20.82
						Mid	20.79
						High	20.81
					100%	---	20.80

Test Frequency ID	Bandwidth (MHz)	NUL	Frequency of Uplink(MHz)	Modulation	RB Size	RB Offset	Test results (dBm)
Low Range	5	20775	2502.5	QPSK	1	Low	22.89
						Mid	23.41
						High	22.80
					50%	Low	21.76
						Mid	21.73
						High	21.80
					100%	---	21.74
				16QAM	1	Low	21.68
						Mid	22.47
						High	21.65
					50%	Low	20.73
						Mid	20.67
						High	20.72
					100%	---	20.74
	10	20800	2505	QPSK	1	Low	22.96
						Mid	23.04
						High	22.99
					50%	Low	21.88
						Mid	21.77
						High	21.80
				16QAM	100%	---	21.78
					1	Low	21.78
						Mid	22.18
						High	21.84
					50%	Low	20.83
						Mid	20.77
						High	20.78
					100%	---	20.72

Test Frequency ID	Bandwidth (MHz)	NUL	Frequency of Uplink(MHz)	Modulation	RB Size	RB Offset	Test results (dBm)
Low Range	15	20825	2507.5	QPSK	1	Low	22.94
						Mid	22.67
						High	22.98
					50%	Low	21.69
						Mid	21.68
						High	21.72
					100%	---	21.75
				16QAM	1	Low	21.76
						Mid	21.82
						High	21.89
					50%	Low	20.65
						Mid	20.67
						High	20.73
					100%	---	20.72
	20	20850	2510	QPSK	1	Low	22.95
						Mid	22.91
						High	23.04
					50%	Low	21.74
						Mid	21.70
						High	21.76
					100%	---	21.81
				16QAM	1	Low	21.82
						Mid	22.11
						High	21.80
					50%	Low	20.71
						Mid	20.69
						High	20.77
					100%	---	20.73

Test Frequency ID	Bandwidth (MHz)	N _{UL}	Frequency of Uplink(MHz)	Modulation	RB Size	RB Offset	Test results (dBm)
Mid Range	1.4	21100	2535	QPSK	1	Low	22.62
						Mid	22.76
						High	22.60
					50%	Low	22.45
						Mid	22.36
						High	22.43
					100%	---	21.76
				16QAM	1	Low	21.63
						Mid	21.72
						High	21.64
					50%	Low	21.72
						Mid	21.69
						High	21.71
					100%	---	20.70
	3	21100	2535	QPSK	1	Low	22.67
						Mid	22.81
						High	22.69
					50%	Low	21.70
						Mid	21.73
						High	21.72
					100%	---	21.69
				16QAM	1	Low	21.58
						Mid	21.67
						High	21.61
					50%	Low	20.67
						Mid	20.69
						High	20.68
					100%	---	20.63

Test Frequency ID	Bandwidth (MHz)	NUL	Frequency of Uplink(MHz)	Modulation	RB Size	RB Offset	Test results (dBm)	
Mid Range	5	21100	2535	QPSK	1	Low	23.09	
						Mid	23.61	
						High	23.05	
				50%	Low	22.00		
					Mid	21.94		
					High	22.00		
				100%	---	21.94		
					1	Low	21.95	
	10	21100	2535	16QAM		Mid	22.70	
						High	21.88	
				50%	Low	20.96		
					Mid	20.87		
					High	20.86		
				100%	---	20.96		
				QPSK	Low	23.11		
					Mid	23.12		
					High	23.11		
				50%	Low	21.93		
					Mid	21.87		
					High	21.97		
				100%	---	21.88		
	10	21100	2535	16QAM	1	Low	21.93	
						Mid	22.30	
						High	21.99	
				50%	Low	20.97		
					Mid	20.88		
					High	21.06		
					100%	---	20.87	

Test Frequency ID	Bandwidth (MHz)	NUL	Frequency of Uplink(MHz)	Modulation	RB Size	RB Offset	Test results (dBm)
Mid Range	15	21100	2535	QPSK	1	Low	23.15
						Mid	22.83
						High	23.16
					50%	Low	21.90
						Mid	21.86
						High	21.90
					100%	---	21.91
				16QAM	1	Low	22.01
						Mid	21.97
						High	22.00
					50%	Low	20.88
						Mid	20.82
						High	20.88
					100%	---	20.89
	20	21100	2535	QPSK	1	Low	23.23
						Mid	23.12
						High	23.08
					50%	Low	21.97
						Mid	21.88
						High	21.94
				16QAM	100%	---	21.93
					1	Low	22.05
						Mid	22.29
						High	21.98
					50%	Low	20.92
						Mid	20.86
						High	21.02
					100%	---	20.94

Test Frequency ID	Bandwidth (MHz)	N _{UL}	Frequency of Uplink(MHz)	Modulation	RB Size	RB Offset	Test results (dBm)
High Range	1.4	21443	2569.3	QPSK	1	Low	22.92
						Mid	22.80
						High	22.64
					50%	Low	22.76
						Mid	22.63
						High	22.65
					100%	---	21.91
				16QAM		Low	21.90
				1	Mid	21.84	
					High	21.85	
				50%	Low	21.96	
					Mid	21.93	
					High	21.96	
				100%	---	20.92	
	3	21435	2568.5	QPSK	1	Low	22.85
						Mid	22.75
						High	22.56
					50%	Low	21.97
						Mid	21.95
						High	21.93
					100%	---	21.96
				16QAM		Low	21.85
				1	Mid	21.93	
					High	21.87	
				50%	Low	20.94	
					Mid	20.92	
					High	20.94	
					---	20.92	

Test Frequency ID	Bandwidth (MHz)	NUL	Frequency of Uplink(MHz)	Modulation	RB Size	RB Offset	Test results (dBm)
High Range	5	21425	2567.5	QPSK	1	Low	22.74
						Mid	23.09
						High	22.60
					50%	Low	21.63
						Mid	21.54
						High	21.52
					100%	---	21.53
				16QAM		Low	21.54
				1	Mid	22.32	
					High	21.36	
				50%	Low	20.51	
					Mid	20.42	
					High	20.41	
				100%	---	20.51	
	10	21400	2565		QPSK		Low
				1	Mid	22.83	
					High	22.70	
				50%	Low	21.72	
					Mid	21.64	
					High	21.60	
				100%	---	21.64	
					16QAM		Low
				1	Mid	22.03	
					High	21.52	
				50%	Low	20.80	
					Mid	20.68	
					High	20.62	
				100%	---	20.61	

Test Frequency ID	Bandwidth (MHz)	NUL	Frequency of Uplink(MHz)	Modulation	RB Size	RB Offset	Test results (dBm)
High Range	15	21375	2562.5	QPSK	1	Low	23.09
						Mid	22.58
						High	22.60
				50%	100%	Low	21.79
						Mid	21.66
						High	21.54
						---	21.66
				16QAM	1	Low	21.95
						Mid	21.88
						High	21.40
					50%	Low	20.80
						Mid	20.67
						High	20.56
						---	20.67
	20	21350	2560	QPSK	1	Low	23.29
						Mid	22.92
						High	22.62
				50%	100%	Low	21.82
						Mid	21.71
						High	21.57
						---	21.70
				16QAM	1	Low	22.02
						Mid	22.13
						High	21.38
					50%	Low	20.85
						Mid	20.71
						High	20.56
					100%	---	20.70

6.5 Bluetooth Measurement result

Modulation type	Test Result (mW)		
	2402MHz(Ch0)	2441MHz(Ch39)	2480MHz(Ch78)
GFSK	5.38	3.88	4.18
$\pi/4$ DQPSK	3.99	3.25	3.48
8DPSK	4.23	3.30	3.70
GFSK(BLE)	2402MHz(Ch0)	2440MHz(Ch19)	2480MHz(Ch39)
	0.95	1.01	0.83

Modulation type	Test Result (dBm)		
	2402MHz(Ch0)	2441MHz(Ch39)	2480MHz(Ch78)
GFSK	7.31	5.89	6.21
$\pi/4$ DQPSK	6.01	5.12	5.42
8DPSK	6.26	5.18	5.68
GFSK(BLE)	2402MHz(Ch0)	2440MHz(Ch19)	2480MHz(Ch39)
	-0.23	0.04	-0.81

6.6 Wi-Fi Measurement result

Test Mode	Data Rate (Mbps)	Test Result (mW)		
		2412MHz (Ch1)	2437MHz (Ch6)	2462MHz (Ch11)
802.11b	1	34.59	41.88	37.24
	2	32.43	39.63	35.56
	5.5	31.33	37.24	34.04
	11	30.55	35.97	33.42
802.11g	6	12.30	21.68	10.38
	9	11.09	20.04	9.93
	12	10.09	19.14	9.04
	18	9.95	18.07	8.41
	24	9.29	16.56	7.74
	36	8.61	15.14	7.03
	48	7.71	13.77	6.32
	54	6.84	12.56	5.81
802.11n (HT20)	6.5	12.76	22.13	10.07
	13	12.25	19.91	9.46
	19.5	11.38	18.03	8.75
	26	10.02	15.56	7.98
	39 s	9.27	14.00	7.71
	52	7.96	12.53	7.06
	58.5	7.38	11.67	6.25
	65	6.85	10.84	5.70
Test Mode	Data Rate (Mbps)	Test Result (mW)		
		2422MHz (Ch3)	2437MHz (Ch6)	2462MHz (Ch11)
802.11n (HT40)	13.5	8.02	18.11	14.39
	27	7.73	16.26	12.62
	40.5	6.84	15.14	11.12
	54	6.11	11.94	8.85
	81	5.14	9.75	7.74
	108	4.74	7.98	6.62
	121.5	4.21	7.18	5.70
	135	3.96	6.47	4.85

Test Mode	Data Rate (Mbps)	Test Result (dBm)		
		2412MHz (Ch1)	2437MHz (Ch6)	2462MHz (Ch11)
802.11b	1	15.39	16.22	15.71
	2	15.11	15.98	15.51
	5.5	14.96	15.71	15.32
	11	14.85	15.56	15.24
802.11g	6	10.90	13.36	10.16
	9	10.45	13.02	9.97
	12	10.04	12.82	9.56
	18	9.98	12.57	9.25
	24	9.68	12.19	8.89
	36	9.35	11.80	8.47
	48	8.87	11.39	8.01
	54	8.35	10.99	7.64
	6.5	11.06	13.45	10.03
802.11n (HT20)	13	10.88	12.99	9.76
	19.5	10.56	12.56	9.42
	26	10.01	11.92	9.02
	39	9.67	11.46	8.87
	52	9.01	10.98	8.49
	58.5	8.68	10.67	7.96
	65	8.36	10.35	7.56
	13.5	9.04	12.58	11.58
802.11n (HT40)	27	8.88	12.11	11.01
	40.5	8.35	11.80	10.46
	54	7.86	10.77	9.47
	81	7.11	9.89	8.89
	108	6.76	9.02	8.21
	121.5	6.24	8.56	7.56
	135	5.98	8.11	6.86

6.7 Standalone SAR Test Exclusion Considerations

Standalone 1-g head or body SAR evaluation by measurement or numerical simulation is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied. The 1-g SAR test exclusion threshold for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0 \text{ for 1-g SAR, where}$$

$f(\text{GHz})$ is the RF channel transmit frequency in GHz Power and distance are rounded to the nearest mW and mm before calculation The result is rounded to one decimal place for comparison According to the KDB447498 appendix A, the SAR test exclusion threshold for 2450MHz at 5 mm test separation distances is 10 mW.

SAR Test Exclusion Thresholds for 100 MHz – 6 GHz and ≤ 50 mm

Approximate SAR Test Exclusion Power Thresholds at Selected Frequencies and Test Separation Distances are illustrated in the following Table.

MHz	5	10	15	20	25	mm
150	39	77	116	155	194	SAR Test Exclusion Threshold (mW)
300	27	55	82	110	137	
450	22	45	67	89	112	
835	16	33	49	66	82	
900	16	32	47	63	79	
1500	12	24	37	49	61	
1900	11	22	33	44	54	
2450	10	19	29	38	48	
3600	8	16	24	32	40	
5200	7	13	20	26	33	
5400	6	13	19	26	32	
5800	6	12	19	25	31	

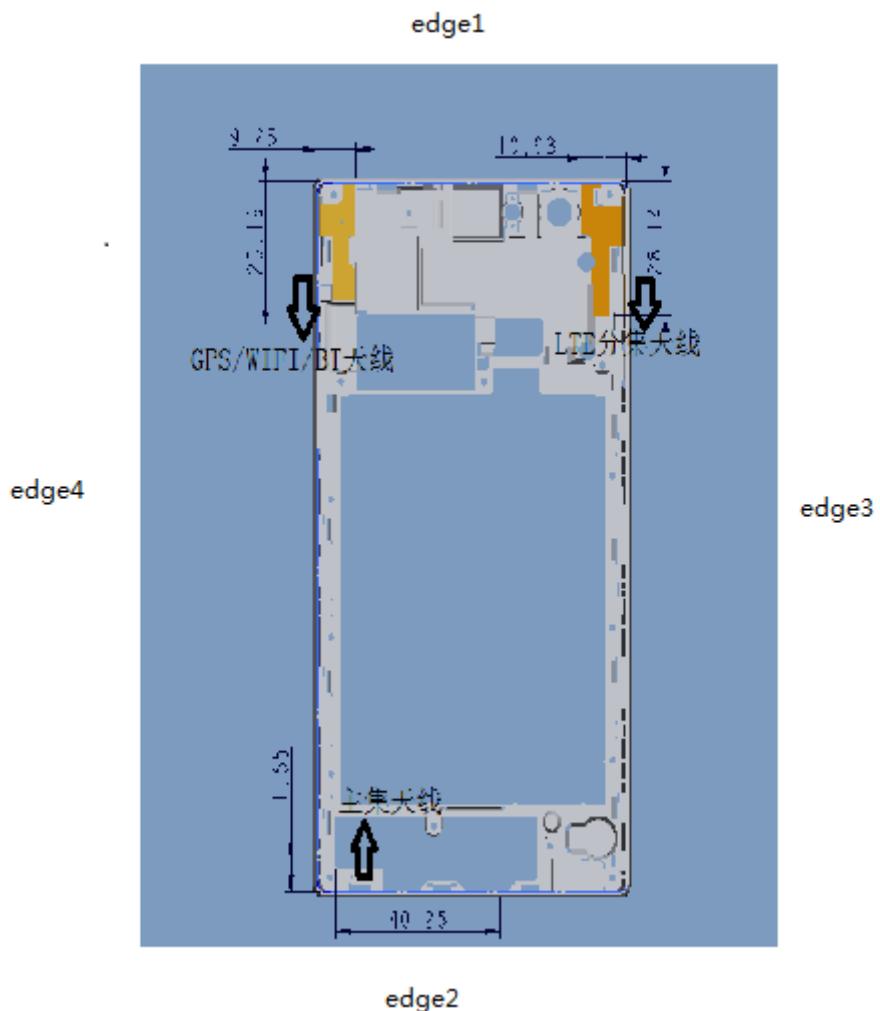
Summary of Transmitters

Band/Mode	SAR test exclusion threshold (mW)	RF output power (mW)
Bluetooth	19	5.38
2.4GHz WLAN 802.11 b	19	41.88

According to the conducted power measurement results, we can draw the conclusion that: stand-alone SAR for WiFi should be performed. Then, simultaneous transmission SAR for WiFi is considered with measurement results of Cell and WiFi. Stand-alone SAR and simultaneous transmission SAR for Bluetooth should not be performed.

6.8 RF exposure conditions

Refer to the follow picture“Antenna Locations & Separation Distances” for the specific details of the antenna-to-antenna and antenna-to-edge(s) distances.



6.8.1 Head Exposure Conditions

For WWAN,

Test Configurations	SAR Required	Note
Left Touch	yes	/
Left Tilt (15°)	yes	/
Right Touch	yes	/
Right Tilt (15°)	yes	/

6.8.2 Body-worn Accessory Exposure conditions

For WWAN

Test Configurations	SAR Required	Note
Rear	yes	/
Front	yes	/

For WiFi

Test Configurations	SAR Required	Note
Rear	yes	/
Front	yes	/

6.8.3 Hotspot Exposure Conditions

For WWAN

Test Configurations	Antenna-to-edge/surface	SAR Required
Rear	<25 mm	Yes
Front	<25 mm	Yes
Edge 1 (top)	134 mm	No
Edge 2 (Bottom)	0 mm	Yes
Edge 3(Right)	30 mm	No
Edge 4(Left)	6 mm	Yes

For Wi-Fi

Test Configurations	Antenna-to-edge/surface	SAR Required
Rear	<25 mm	Yes
Front	<25 mm	Yes
Edge 1 (top)	0 mm	Yes
Edge 2 (Bottom)	126 mm	No
Edge 3(Right)	68mm	No
Edge 4(Left)	0mm	Yes

6.9 System Checking

The manufacturer calibrates the probes annually. Dielectric parameters of the tissue simulants were measured every day using the dielectric probe kit and the network analyser. A system check measurement was made following the determination of the dielectric parameters of the simulant, using the dipole validation kit. A power level of 250 mW was supplied to the dipole antenna, which was placed under the flat section of the twin SAM phantom. The system checking results (dielectric parameters and SAR values) are given in the table below.

Date Tested	System dipole	T.S. Liquid	SAR measured (normalized to 1W)	Target (Ref.Value)	Delta (%)	Tolerance (%)	
2015.11.04	D835V2	Head	1g	9.32	9.24	0.87	± 10
2015.11.06	D835V2	Head	1g	9.28	9.24	0.43	± 10
2015.12.08	D835V2	Body	1g	9.36	9.38	0.21	± 10
2015.12.10	D835V2	Body	1g	9.40	9.38	0.21	± 10
2015.11.09	D1900V2	Head	1g	39.24	39.40	0.41	± 10
2015.11.11	D1900V2	Head	1g	39.28	39.40	0.30	± 10
2015.11.15	D1900V2	Body	1g	39.36	39.50	0.35	± 10
2015.12.11	D1900V2	Body	1g	39.40	39.50	0.25	± 10
2015.11.21	D2450V2	Head	1g	52.60	52.70	0.19	± 10
2015.11.23	D2450V2	Head	1g	52.52	52.70	0.34	± 10
2015.11.28	D2450V2	Body	1g	51.72	51.90	0.35	± 10
2015.11.30	D2450V2	Body	1g	51.04	51.90	1.66	± 10

Plots of the system checking scans are given in Appendix A.

Tissue Simulants used in the Measurements

For the measurement of the following parameters the SPEAG DAKS-3.5 dielectric parameter probe is used, representing the open-ended coaxial probe measurement procedure.

Date Tested	Freq.(MHz)	Liquid parameters	measured	Target	Delta(%)	Tolerance(%)
2015.11.04	Head 835	ϵ_r	42.11	41.50	1.47	± 5
		$\sigma[\text{S/m}]$	0.91	0.90	1.1	± 5
2015.12.08	Body 835	ϵ_r	53.85	55.20	2.45	± 5
		$\sigma[\text{S/m}]$	0.98	0.97	1.03	± 5
2015.11.09	Head 1900	ϵ_r	40.84	40.00	2.10	± 5
		$\sigma[\text{S/m}]$	1.41	1.40	0.71	± 5
2015.11.15	Body 1900	ϵ_r	52.18	53.30	2.10	± 5
		$\sigma[\text{S/m}]$	1.53	1.52	0.66	± 5
2015.11.21	Head 2450	ϵ_r	39.21	39.20	0.03	± 5
		$\sigma[\text{S/m}]$	1.79	1.80	0.56	± 5
2015.11.28	Body 2450	ϵ_r	52.04	52.70	1.25	± 5
		$\sigma[\text{S/m}]$	1.97	1.95	1.03	± 5

6.10 SAR TEST RESULT

In order to determine the largest value of the peak spatial-average SAR of a handset, all device positions, configurations, and operational modes should be tested for each frequency band according to Steps 1 to 3 below.

Step 1: The tests should be performed at the channel that is closest to the center of the transmit frequency band.

- a) All device positions (cheek and tilt, for both left and right sides of the SAM phantom),
- b) All configurations for each device position in a), e.g., antenna extended and retracted, and
- c) All operational modes for each device position in item a) and configuration in item b) in each frequency band, e.g., analog and digital, If more than three frequencies need to be tested (i.e., $N_c > 3$), then all frequencies, configurations and modes shall be tested for all of the above test conditions.

Step 2: For the condition providing the highest peak spatial-average SAR determined in Step 1 for each frequency, perform all tests at all other test frequency channels, e.g., lowest and highest frequencies. In addition, for all other conditions (device position, configuration, and operational mode) where the peak spatial-average SAR value determined in Step 1 is within 3 dB of the applicable SAR limit, it is recommended that all other test frequencies should be tested as well.

Step 3: Examine all data to determine the largest value of the peak.

Note:

1. Per KDB 447498 D01v05, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.

Scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.

Reported SAR (W/kg) = Measured SAR (W/kg) * Scaling Factor

2. Per KDB 447498 D01v05, for each exposure position, if the highest output channel reported SAR $\leq 0.8\text{W/kg}$, other channels SAR testing are not necessary.

3. In the report the test position "Mobile phone screen Towards Ground" abbreviated as "TG", and "Mobile phone screen Towards Phantom" abbreviated as "TP".

The measured and reported Head/body SAR values for the test device are tabulated below:

Mode: GSM 850

fL(MHz)=824.2MHz fM(MHz)=836.5MHz fH(MHz)= 848.8MHz

SAR Values (Head, 850MHz Band)

Limit of SAR (W/kg) : <1.6W/kg (1g Average)

Test Case		Ch	Measure Conducted Power (dBm)	Tune-up limit (dBm)	Scaling Factor	Measure Results (W/kg)	Reported Results (W/kg)	
position	mode					1g Average	1g Average	
Left cheek	GSM	L	32.03	34.0	----	----	----	
		M	32.11	34.0	1.55	0.198	0.306	
		H	32.15	34.0	----	----	----	
Left Tilted		L	32.03	34.0	----	----	----	
		M	32.11	34.0	1.55	0.142	0.219	
		H	32.15	34.0	----	----	----	
Right cheek		L	32.03	34.0	----	----	----	
		M	32.11	34.0	1.55	0.277	0.428	
		H	32.15	34.0	----	----	----	
Right Tilted		L	32.03	34.0	----	----	----	
		M	32.11	34.0	1.55	0.127	0.196	
		H	32.15	34.0	----	----	----	

Mode: GSM850 (GSM/GPRS)

fL(MHz)=824.2MHz fM(MHz)=836.5MHz fH(MHz)= 848.8MHz

SAR Values (body, 850MHz Band

Limit of SAR (W/kg) : <1.6W/kg (1g Average)

Test Case		Ch	Measure Conducted Power (dBm)	Tune-up limit (dBm)	Scaling Factor	Measure Results (W/kg)	Reported Results (W/kg)
position	mode					1 g Average	1g Average
TG	GSM With headset	L	32.03	34.0	----	----	----
		M	32.11	34.0	1.55	0.340	0.525
		H	32.15	34.0	----	----	----
	GPRS	L	28.96	30.5	----	----	----
		M	29.01	30.5	1.41	0.754	1.063
		H	29.07	30.5	----	----	----
	EGPRS	L	28.93	30.5	----	----	----
		M	29.01	30.5	1.41	0.756	1.065
		H	29.06	30.5	----	----	----
TP	GSM With headset	L	32.03	34.0	----	----	----
		M	32.11	34.0	1.55	0.308	0.476
		H	32.15	34.0	----	----	----
	GPRS	L	28.96	30.5	----	----	----
		M	29.01	30.5	1.41	0.705	0.994
		H	29.07	30.5	----	----	----
	EGPRS	L	28.93	30.5	----	----	----
		M	29.01	30.5	1.41	0.786	1.108
		H	29.06	30.5	----	----	----
EDGE 2	GPRS	M	29.01	30.5	1.41	0.411	0.579
EDGE 4	GPRS	M	29.01	30.5	1.41	0.356	0.502

Note: The distance between the EUT and the phantom bottom is 10mm.

Mode: GSM1900

fL(MHz)=1850.2MHz fM(MHz)=1880.0MHz fH(MHz)=1909.8MHz

SAR Values (Head, 1900MHz Band)

Limit of SAR (W/kg) : <1.6W/kg(1g Average)

Test Case		CH	Measure Conducted Power (dBm)	Tune-up limit (dBm)	Scaling Factor	Measure Results (W/kg)	Reported Results (W/kg)
position	mode					1g Average	1g Average
Left cheek		L	29.27	31.0	----	----	----
		M	29.39	31.0	1.45	0.090	0.130
		H	29.51	31.0	----	----	----
Left Tilted		L	29.27	31.0	----	----	----
		M	29.39	31.0	1.45	0.044	0.064
		H	29.51	31.0	----	----	----
Right cheek		L	29.27	31.0	----	----	----
		M	29.39	31.0	1.45	0.066	0.096
		H	29.51	31.0	----	----	----
Right Tilted		L	29.27	31.0	----	----	----
		M	29.39	31.0	1.45	0.033	0.048
		H	29.51	31.0	----	----	----

Mode: GSM1900 (GSM/GPRS)

fL(MHz)=1850.2MHz fM(MHz)=1880.0MHz fH(MHz)=1909.8MHz

SAR Values (body, 1900MHz Band)

Limit of SAR (W/kg) :<1.6W/kg(1g Average)

Test Case		CH	Measure Conducted Power (dBm)	Tune-up limit (dBm)	Scaling Factor	Measure Results (W/kg)	Reported Results (W/kg)
position	mode					1 g Average	1g Average
TG	GSM With headset	L	29.27	31.0	----	----	----
		M	29.39	31.0	1.45	0.121	0.175
		H	29.51	31.0	----	----	----
	GPRS	L	25.39	27.0	----	----	----
		M	25.94	27.0	1.06	0.131	0.167
		H	26.44	27.0	----	----	----
	EGPRS	L	25.38	27.0	----	----	----
		M	25.93	27.0	1.07	0.044	0.056
		H	26.43	27.0	----	----	----
TP	GSM With headset	L	29.27	31.0	----	----	----
		M	29.39	31.0	1.45	0.188	0.272
		H	29.51	31.0	----	----	----
	GPRS	L	25.39	27.0	----	----	----
		M	25.94	27.0	1.06	0.193	0.246
		H	26.44	27.0	----	----	----
	EGPRS	L	25.38	27.0	----	----	----
		M	25.93	27.0	1.07	0.075	0.096
		H	26.43	27.0	----	----	----
EDGE 2	GPRS	M	25.94	27.0	1.06	0.254	0.324
EDGE 3	GPRS	M	25.94	27.0	1.06	0.125	0.160

Note: The distance between the EUT and the phantom bottom is 10mm.

Mode: WCDMA BAND2

fL(MHz)=1852.4MHz fM(MHz)=1880MHz fH(MHz)= 1907.6MHz

SAR Values (Head, WCDMA BAND2)

Limit of SAR (W/kg):<1.6W/kg(1g Average)

Test Case		CH	Measure Conducted Power (dBm)	Tune-up limit (dBm)	Scaling Factor	Measure Results (W/kg)	Reported Results (W/kg)	
position	mode					1 g Average	1g Average	
Left cheek	RB test mode1+12.2kRMC	L	22.93	24.5	---	---	---	
		M	22.94	24.5	1.56	0.193	0.276	
		H	22.96	24.5	---	---	---	
Left Tilted		L	22.93	24.5	---	---	---	
		M	22.94	24.5	1.56	0.090	0.129	
		H	22.96	24.5	---	---	---	
Right cheek		L	22.93	24.5	---	---	---	
		M	22.94	24.5	1.56	0.142	0.203	
		H	22.96	24.5	---	---	---	
Right Tilted		L	22.93	24.5	---	---	---	
		M	22.94	24.5	1.56	0.068	0.097	
		H	22.96	24.5	---	---	---	

Mode: WCDMA BAND2

fL(MHz)=1852.4MHz fM(MHz)=1880MHz fH(MHz)= 1907.6MHz

SAR Values (body, WCDMA BAND2)

Limit of SAR (W/kg): <1.6W/kg(1g Average)

Test Case		CH	Measure Conducted Power (dBm)	Tune-up limit (dBm)	Scaling Factor	Measure Results (W/kg)	Reported Results (W/kg)
Position	mode					1 g Average	1g Average
TG	RB test mode1+12.2kRMC with headset	L	22.93	24.5	---	---	---
		M	22.94	24.5	1.43	0.231	0.331
		H	22.96	24.5	---	---	---
TP	RB test mode1+12.2kRMC with headset	L	22.93	24.5	---	---	---
		M	22.94	24.5	1.43	0.363	0.520
		H	22.96	24.5	---	---	---
EDGE2	RB test mode1+12.2kRMC	M	22.94	24.5	1.43	0.344	0.493
EDGE4	RB test mode1+12.2kRMC	M	22.94	24.5	1.43	0.149	0.213

Note: The distance between the EUT and the phantom bottom is 10mm.

Mode: WCDMA BAND5

$f_L(\text{MHz})=826.4\text{MHz}$ $f_M(\text{MHz})=836.4\text{MHz}$ $f_H(\text{MHz})= 846.6\text{MHz}$

SAR Values (Head, WCDMA BAND5)

Limit of SAR (W/kg): <1.6W/kg(1g Average)

Test Case		CH	Measure Conducted Power (dBm)	Tune-uplimit (dBm)	Scaling Factor	Measure Results (W/kg)	Reported Results (W/kg)	
Position	mode					1 g Average	1g Average	
Left cheek	RB test mode1+ 12.2kRMC	L	22.17	24.0	---	---	---	
		M	22.35	24.0	1.46	0.162	0.237	
		H	22.34	24.0	---	---	---	
Left Tilted		L	22.17	24.0	---	---	---	
		M	22.35	24.0	1.46	0.115	0.168	
		H	22.34	24.0	---	---	---	
Right cheek		L	22.17	24.0	---	---	---	
		M	22.35	24.0	1.46	0.254	0.371	
		H	22.34	24.0	---	---	---	
Right Tilted		L	22.17	24.0	---	---	---	
		M	22.35	24.0	1.46	0.253	0.370	
		H	22.34	24.0	---	---	---	

Mode: WCDMA BAND5

$f_L(\text{MHz})=826.4\text{MHz}$ $f_M(\text{MHz})=836.5\text{MHz}$ $f_H(\text{MHz})= 846.6\text{MHz}$

SAR Values (body, WCDMA BAND5)

Limit of SAR (W/kg): <1.6W/kg(1g Average)

Test Case		CH	Measure Conducted Power (dBm)	Tune-up limit (dBm)	Scaling Factor	Measure Results (W/kg)	Reported Results (W/kg)
Position	mode					1 g Average	1g Average
TG	RB test mode1+12.2kRMC with headset	L	22.17	24.0	---	---	---
		M	22.35	24.0	1.46	0.351	0.513
		H	22.34	24.0	---	---	---
TP	RB test mode1+12.2kRMC with headset	L	22.17	24.0	---	---	---
		M	22.35	24.0	1.46	0.360	0.526
		H	22.34	24.0	---	---	---
EDGE 2	RB test mode1+12.2kRMC	M	22.35	24.0	1.46	0.159	0.232
EDGE 4		M	22.35	24.0	1.46	0.073	0.107

Note: The distance between the EUT and the phantom bottom is 10mm.

Mode: WiFi
SAR Values (WIFI 802.11b - Head)
Limit of SAR (W/kg):<1.6W/kg(1g Average)

Test Case		CH	Measure Conducted Power (dBm)	Tune-up limit (dBm)	Scaling Factor	Measure Result (W/kg)	Reported Result (W/kg)
Position	mode					1 g Average	1g Average
Leftcheek	1Mbps	1	15.39	17.0	---	---	---
		6	16.22	17.0	1.20	0.011	0.013
		11	15.71	17.0	---	---	---
Left Tilt	1Mbps	1	15.39	17.0	---	---	---
		6	16.22	17.0	1.20	0.031	0.037
		11	15.71	17.0	---	---	---
Rightcheek	1Mbps	1	15.39	17.0	---	---	---
		6	16.22	17.0	1.20	0.061	0.073
		11	15.71	17.0	---	---	---
Right tilt	1Mbps	1	15.39	17.0	---	---	---
		6	16.22	17.0	1.20	0.109	0.130
		11	15.71	17.0	---	---	---

SAR Values (WIFI 802.11b - Body)
Limit of SAR (W/kg):<1.6W/kg(1g Average)

Test Case		CH	Measure Conducted Power (dBm)	Tune-up limit (dBm)	Scaling Factor	Measure Result (W/kg)	Reported Result (W/kg)
Position	mode					1 g Average	1g Average
TG	1Mbps	1	15.39	17.0	---	---	---
		6	16.22	17.0	1.20	0.072	0.169
		11	15.71	17.0	---	---	---
TP	1Mbps	1	15.39	17.0	---	---	---
		6	16.22	17.0	1.20	0.032	0.177
		11	15.71	17.0	---	---	---
Edge 1	1Mbps	1	15.39	17.0	---	---	---
		6	16.22	17.0	1.20	0.021	0.227
		11	15.71	17.0	---	---	---
Edge 4	1Mbps	1	15.39	17.0	---	---	---
		6	16.22	17.0	1.20	0.050	0.138
		11	15.71	17.0	---	---	---

Note: The distance between the EUT and the phantom bottom is 10mm.

Mode: LTE BAND2- 1.4BW-50%RB (1800MHz/Head)

fL(MHz)=1850.7MHz fM(MHz)=1800MHz fH(MHz)= 1909.3MHz

SAR Values (Head, LTE BAND2)

Limit of SAR (W/kg): <1.6W/kg(1g Average)

Test Case		CH	Measure Conducted Power (dBm)	Tune-uplimit (dBm)	Scaling Factor	Measure Results (W/kg)	Reported Results (W/kg)	
Position	mode					1 g Average	1g Average	
Left cheek	1.4 BW 50%RB	L	22.38	24.0	---	---	---	
		M	22.38	24.0	1.45	0.323	0.469	
		H	22.38	24.0	---	---	---	
Left Tilted		L	22.38	24.0	---	---	---	
		M	22.38	24.0	1.45	0.115	0.167	
		H	22.38	24.0	---	---	---	
Right cheek		L	22.38	24.0	---	---	---	
		M	22.38	24.0	1.45	0.150	0.218	
		H	22.38	24.0	---	---	---	
Right Tilted		L	22.38	24.0	---	---	---	
		M	22.38	24.0	1.45	0.078	0.113	
		H	22.38	24.0	---	---	---	

Mode: LTE BAND2- 1.4BW-50%RB (1800MHz/Flat)

fL(MHz)=1850.7MHz fM(MHz)=1800MHz fH(MHz)= 1909.3MHz

SAR Values (body, LTE BAND2)

Limit of SAR (W/kg): <1.6W/kg(1g Average)

Test Case		CH	Measure Conducted Power (dBm)	Tune-up limit (dBm)	Scaling Factor	Measure Results (W/kg)	Reported Results (W/kg)
Position	mode					1 g Average	1g Average
TG	1.4 BW 50%RB	L	22.38	24.0	---	---	---
		M	22.38	24.0	1.45	0.285	0.414
		H	22.38	24.0	---	---	---
TP	1.4 BW 50%RB	L	22.38	24.0	---	---	---
		M	22.38	24.0	1.45	0.412	0.598
		H	22.38	24.0	---	---	---

Note: The distance between the EUT and the phantom bottom is 10mm.

Mode: LTE BAND2- 5BW-1RB (1800MHz/Head)

fL(MHz)=1852.5MHz fM(MHz)=1800MHz fH(MHz)= 1907.5MHz

SAR Values (Head, LTE BAND2)

Limit of SAR (W/kg): <1.6W/kg(1g Average)

Test Case		CH	Measure Conducted Power (dBm)	Tune-uplimit (dBm)	Scaling Factor	Measure Results (W/kg)	Reported Results (W/kg)	
Position	mode					1 g Average	1g Average	
Left cheek	5 BW 1RB	L	22.81	24.5	---	---	---	
		M	22.81	24.5	1.48	0.302	0.446	
		H	22.81	24.5	---	---	---	
Left Tilted		L	22.81	24.5	---	---	---	
		M	22.81	24.5	1.48	0.114	0.168	
		H	22.81	24.5	---	---	---	
Right cheek		L	22.81	24.5	---	---	---	
		M	22.81	24.5	1.48	0.195	0.288	
		H	22.81	24.5	---	---	---	
Right Tilted		L	22.81	24.5	---	---	---	
		M	22.81	24.5	1.48	0.122	0.180	
		H	22.81	24.5	---	---	---	

Mode: LTE BAND2- 5BW-1RB (1800MHz/Flat)

fL(MHz)=1852.5MHz fM(MHz)=1800MHz fH(MHz)= 1907.5MHz

SAR Values (body, LTE BAND2)

Limit of SAR (W/kg): <1.6W/kg(1g Average)

Test Case		CH	Measure Conducted Power (dBm)	Tune-up limit (dBm)	Scaling Factor	Measure Results (W/kg)	Reported Results (W/kg)
Position	mode					1 g Average	1g Average
TG	5 BW 1RB	L	22.81	24.5	---	---	---
		M	22.81	24.5	1.48	0.289	0.426
		H	22.81	24.5	---	---	---
TP	5 BW 1RB	L	22.81	24.5	---	---	---
		M	22.81	24.5	1.48	0.428	0.632
		H	22.81	24.5	---	---	---

Note: The distance between the EUT and the phantom bottom is 10mm.

Mode: LTE BAND2- 20BW-1RB (1800MHz/Head)

fL(MHz)=1860MHz fM(MHz)=1800MHz fH(MHz)= 1900MHz

SAR Values (Head, LTE BAND2)

Limit of SAR (W/kg): <1.6W/kg(1g Average)

Test Case		CH	Measure Conducted Power (dBm)	Tune-uplimit (dBm)	Scaling Factor	Measure Results (W/kg)	Reported Results (W/kg)	
Position	mode					1 g Average	1g Average	
Left cheek	20 BW 1RB	L	22.53	24.5	---	---	---	
		M	22.53	24.5	1.57	0.315	0.496	
		H	22.53	24.5	---	---	---	
Left Tilted		L	22.53	24.5	---	---	---	
		M	22.53	24.5	1.57	0.113	0.178	
		H	22.53	24.5	---	---	---	
Right cheek		L	22.53	24.5	---	---	---	
		M	22.53	24.5	1.57	0.220	0.346	
		H	22.53	24.5	---	---	---	
Right Tilted		L	22.53	24.5	---	---	---	
		M	22.53	24.5	1.57	0.071	0.112	
		H	22.53	24.5	---	---	---	

Mode: LTE BAND2- 20BW-1RB (1800MHz/ Flat)

fL(MHz)=1860MHz fM(MHz)=1800MHz fH(MHz)= 1900MHz

SAR Values (body, LTE BAND2)

Limit of SAR (W/kg): <1.6W/kg(1g Average)

Test Case		CH	Measure Conducted Power (dBm)	Tune-up limit (dBm)	Scaling Factor	Measure Results (W/kg)	Reported Results (W/kg)
Position	mode					1 g Average	1g Average
TG	20 BW 1RB	L	22.53	24.5	---	---	---
		M	22.53	24.5	1.57	0.278	0.438
		H	22.53	24.5	---	---	---
TP	20 BW 1RB	L	22.53	24.5	---	---	---
		M	22.53	24.5	1.57	0.415	0.653
		H	22.53	24.5	---	---	---

Note: The distance between the EUT and the phantom bottom is 10mm.

Mode: LTE BAND2- 20BW-50%RB (1800MHz/Head)

fL(MHz)=1860MHz fM(MHz)=1800MHz fH(MHz)= 1900MHz

SAR Values (Head, LTE BAND2)

Limit of SAR (W/kg): <1.6W/kg(1g Average)

Test Case		CH	Measure Conducted Power (dBm)	Tune-uplimit (dBm)	Scaling Factor	Measure Results (W/kg)	Reported Results (W/kg)	
Position	mode					1 g Average	1g Average	
Left cheek	20 BW 50%RB	L	21.24	23.0	---	---	---	
		M	21.24	23.0	1.50	0.243	0.364	
		H	21.24	23.0	---	---	---	
Left Tilted		L	21.24	23.0	---	---	---	
		M	21.24	23.0	1.50	0.093	0.139	
		H	21.24	23.0	---	---	---	
Right cheek		L	21.24	23.0	---	---	---	
		M	21.24	23.0	1.50	0.142	0.213	
		H	21.24	23.0	---	---	---	
Right Tilted		L	21.24	23.0	---	---	---	
		M	21.24	23.0	1.50	0.069	0.103	
		H	21.24	23.0	---	---	---	

Mode: LTE BAND2- 20BW-50%RB (1800MHz/ Flat)

fL(MHz)=1860MHz fM(MHz)=1800MHz fH(MHz)= 1900MHz

SAR Values (body, LTE BAND2)

Limit of SAR (W/kg): <1.6W/kg(1g Average)

Test Case		CH	Measure Conducted Power (dBm)	Tune-up limit (dBm)	Scaling Factor	Measure Results (W/kg)	Reported Results (W/kg)
Position	mode					1 g Average	1g Average
TG	20 BW 50%RB	L	21.24	23.0	---	---	---
		M	21.24	23.0	1.50	0.213	0.319
		H	21.24	23.0	---	---	---
TP	20 BW 50%RB	L	21.24	23.0	---	---	---
		M	21.24	23.0	1.50	0.300	0.450
		H	21.24	23.0	---	---	---

Note: The distance between the EUT and the phantom bottom is 10mm.

Mode: LTE BAND3- 1.4BW-50%RB (1747.5MHz/Head)

fL(MHz)=1710.7MHz fM(MHz)=1747.5MHz fH(MHz)= 1784.3MHz

SAR Values (Head, LTE BAND3)

Limit of SAR (W/kg): <1.6W/kg(1g Average)

Test Case		CH	Measure Conducted Power (dBm)	Tune-uplimit (dBm)	Scaling Factor	Measure Results (W/kg)	Reported Results (W/kg)	
Position	mode					1 g Average	1g Average	
Left cheek	1.4 BW 50%RB	L	22.20	24.0	---	---	---	
		M	22.20	24.0	1.51	0.208	0.315	
		H	22.20	24.0	---	---	---	
Left Tilted		L	22.20	24.0	---	---	---	
		M	22.20	24.0	1.51	0.103	0.156	
		H	22.20	24.0	---	---	---	
Right cheek		L	22.20	24.0	---	---	---	
		M	22.20	24.0	1.51	0.168	0.254	
		H	22.20	24.0	---	---	---	
Right Tilted		L	22.20	24.0	---	---	---	
		M	22.20	24.0	1.51	0.091	0.138	
		H	22.20	24.0	---	---	---	

Mode: LTE BAND3- 1.4BW-50%RB (1747.5MHz/Flat)

fL(MHz)=1710.7MHz fM(MHz)=1747.5MHz fH(MHz)= 1784.3MHz

SAR Values (body, LTE BAND3)

Limit of SAR (W/kg): <1.6W/kg(1g Average)

Test Case		CH	Measure Conducted Power (dBm)	Tune-up limit (dBm)	Scaling Factor	Measure Results (W/kg)	Reported Results (W/kg)
Position	mode					1 g Average	1g Average
TG	1.4 BW 50%RB	L	22.20	24.0	---	---	---
		M	22.20	24.0	1.51	0.506	0.766
		H	22.20	24.0	---	---	---
TP	1.4 BW 50%RB	L	22.20	24.0	---	---	---
		M	22.20	24.0	1.51	0.622	0.941
		H	22.20	24.0	---	---	---

Note: The distance between the EUT and the phantom bottom is 10mm.

Mode: LTE BAND3- 20BW-1RB (1747.5MHz/Head)

fL(MHz)=1720MHz fM(MHz)=1747.5MHz fH(MHz)= 1775MHz

SAR Values (Head, LTE BAND3)

Limit of SAR (W/kg): <1.6W/kg(1g Average)

Test Case		CH	Measure Conducted Power (dBm)	Tune-uplimit (dBm)	Scaling Factor	Measure Results (W/kg)	Reported Results (W/kg)	
Position	mode					1 g Average	1g Average	
Left cheek	20 BW 1RB	L	22.30	24.0	---	---	---	
		M	22.30	24.0	1.48	0.179	0.265	
		H	22.30	24.0	---	---	---	
Left Tilted		L	22.30	24.0	---	---	---	
		M	22.30	24.0	1.48	0.102	0.151	
		H	22.30	24.0	---	---	---	
Right cheek		L	22.30	24.0	---	---	---	
		M	22.30	24.0	1.48	0.158	0.234	
		H	22.30	24.0	---	---	---	
Right Tilted		L	22.30	24.0	---	---	---	
		M	22.30	24.0	1.48	0.096	0.142	
		H	22.30	24.0	---	---	---	

Mode: LTE BAND3- 20BW-1RB (1747.5MHz/ Flat)

fL(MHz)=1720MHz fM(MHz)=1747.5MHz fH(MHz)= 1775MHz

SAR Values (body, LTE BAND3)

Limit of SAR (W/kg): <1.6W/kg(1g Average)

Test Case		CH	Measure Conducted Power (dBm)	Tune-up limit (dBm)	Scaling Factor	Measure Results (W/kg)	Reported Results (W/kg)
Position	mode					1 g Average	1g Average
TG	20 BW 1RB	L	22.30	24.0	---	---	---
		M	22.30	24.0	1.48	0.365	0.540
		H	22.30	24.0	---	---	---
TP	20 BW 1RB	L	22.30	24.0	---	---	---
		M	22.30	24.0	1.48	0.554	0.819
		H	22.30	24.0	---	---	---

Note: The distance between the EUT and the phantom bottom is 10mm.

Mode: LTE BAND3- 20BW-50%RB (1747.5MHz/Head)

fL(MHz)=1720MHz fM(MHz)=1747.5MHz fH(MHz)= 1775MHz

SAR Values (Head, LTE BAND3)

Limit of SAR (W/kg): <1.6W/kg(1g Average)

Test Case		CH	Measure Conducted Power (dBm)	Tune-uplimit (dBm)	Scaling Factor	Measure Results (W/kg)	Reported Results (W/kg)	
Position	mode					1 g Average	1g Average	
Left cheek	20 BW 50%RB	L	21.11	23.0	---	---	---	
		M	21.11	23.0	1.55	0.172	0.266	
		H	21.11	23.0	---	---	---	
Left Tilted		L	21.11	23.0	---	---	---	
		M	21.11	23.0	1.55	0.083	0.128	
		H	21.11	23.0	---	---	---	
Right cheek		L	21.11	23.0	---	---	---	
		M	21.11	23.0	1.55	0.125	0.193	
		H	21.11	23.0	---	---	---	
Right Tilted		L	21.11	23.0	---	---	---	
		M	21.11	23.0	1.55	0.074	0.114	
		H	21.11	23.0	---	---	---	

Mode: LTE BAND3- 20BW-50%RB (1747.5MHz/ Flat)

fL(MHz)=1720MHz fM(MHz)=1747.5MHz fH(MHz)= 1775MHz

SAR Values (body, LTE BAND3)

Limit of SAR (W/kg): <1.6W/kg(1g Average)

Test Case		CH	Measure Conducted Power (dBm)	Tune-up limit (dBm)	Scaling Factor	Measure Results (W/kg)	Reported Results (W/kg)
Position	mode					1 g Average	1g Average
TG	20 BW 50%RB	L	21.11	23.0	---	---	---
		M	21.11	23.0	1.55	0.296	0.457
		H	21.11	23.0	---	---	---
TP	20 BW 50%RB	L	21.11	23.0	---	---	---
		M	21.11	23.0	1.55	0.596	0.921
		H	21.11	23.0	---	---	---

Note: The distance between the EUT and the phantom bottom is 10mm

Mode: LTE BAND4- 1.4BW-50%RB (1732.5MHz/Head)

fL(MHz)=1710.7MHz fM(MHz)=1732.5MHz fH(MHz)= 1754.3MHz

SAR Values (Head, LTE BAND4)

Limit of SAR (W/kg): <1.6W/kg(1g Average)

Test Case		CH	Measure Conducted Power (dBm)	Tune-uplimit (dBm)	Scaling Factor	Measure Results (W/kg)	Reported Results (W/kg)	
Position	mode					1 g Average	1g Average	
Left cheek	1.4 BW 50%RB	L	21.74	23.5	---	---	---	
		M	21.74	23.5	1.50	0.190	0.285	
		H	21.74	23.5	---	---	---	
Left Tilted		L	21.74	23.5	---	---	---	
		M	21.74	23.5	1.50	0.082	0.123	
		H	21.74	23.5	---	---	---	
Right cheek		L	21.74	23.5	---	---	---	
		M	21.74	23.5	1.50	0.154	0.231	
		H	21.74	23.5	---	---	---	
Right Tilted		L	21.74	23.5	---	---	---	
		M	21.74	23.5	1.50	0.081	0.121	
		H	21.74	23.5	---	---	---	

Mode: LTE BAND4- 1.4BW-50%RB (1732.5MHz/Head)

fL(MHz)=1710.7MHz fM(MHz)=1732.5MHz fH(MHz)= 1754.3MHz

SAR Values (body, LTE BAND4)

Limit of SAR (W/kg): <1.6W/kg(1g Average)

Test Case		CH	Measure Conducted Power (dBm)	Tune-up limit (dBm)	Scaling Factor	Measure Results (W/kg)	Reported Results (W/kg)
Position	mode					1 g Average	1g Average
TG	1.4 BW 50%RB	L	21.74	23.5	---	---	---
		M	21.74	23.5	1.50	0.413	0.619
		H	21.74	23.5	---	---	---
TP	1.4 BW 50%RB	L	21.74	23.5	---	---	---
		M	21.74	23.5	1.50	0.743	1.114
		H	21.74	23.5	---	---	---
EDGE 2	20 BW 1RB	M	21.74	23.5	1.50	0.515	0.772
EDGE 4		M	21.74	23.5	1.50	0.116	0.174

Note: The distance between the EUT and the phantom bottom is 10mm.

Mode: LTE BAND4- 5BW-1RB (1732.5MHz/Head)

fL(MHz)=1712.5 MHz fM(MHz)=1747.5MHz fH(MHz)= 1752.5MHz

SAR Values (Head, LTE BAND4)

Limit of SAR (W/kg): <1.6W/kg(1g Average)

Test Case		CH	Measure Conducted Power (dBm)	Tune-uplimit (dBm)	Scaling Factor	Measure Results (W/kg)	Reported Results (W/kg)	
Position	mode					1 g Average	1g Average	
Left cheek	5 BW 1RB	L	22.70	24.5	---	---	---	
		M	22.70	24.5	1.51	0.172	0.260	
		H	22.70	24.5	---	---	---	
Left Tilted		L	22.70	24.5	---	---	---	
		M	22.70	24.5	1.51	0.075	0.114	
		H	22.70	24.5	---	---	---	
Right cheek		L	22.70	24.5	---	---	---	
		M	22.70	24.5	1.51	0.158	0.239	
		H	22.70	24.5	---	---	---	
Right Tilted		L	22.70	24.5	---	---	---	
		M	22.70	24.5	1.51	0.080	0.121	
		H	22.70	24.5	---	---	---	

Mode: LTE BAND4- 5BW-1RB (1732.5MHz/Head)

fL(MHz)=1712.5 MHz fM(MHz)=1747.5MHz fH(MHz)= 1752.5MHz

SAR Values (body, LTE BAND4)

Limit of SAR (W/kg): <1.6W/kg(1g Average)

Test Case		CH	Measure Conducted Power (dBm)	Tune-up limit (dBm)	Scaling Factor	Measure Results (W/kg)	Reported Results (W/kg)
Position	mode					1 g Average	1g Average
TG	5 BW 1RB	L	22.70	24.5	---	---	---
		M	22.70	24.5	1.51	0.283	0.428
		H	22.70	24.5	---	---	---
TP	5 BW 1RB	L	22.70	24.5	---	---	---
		M	22.70	24.5	1.51	0.526	0.796
		H	22.70	24.5	---	---	---

Note: The distance between the EUT and the phantom bottom is 10mm.

Mode: LTE BAND4- 20BW-1RB (1732.5MHz/Head)

fL(MHz)=1720 MHz fM(MHz)=1747.5MHz fH(MHz)= 1745MHz

SAR Values (Head, LTE BAND4)

Limit of SAR (W/kg): <1.6W/kg(1g Average)

Test Case		CH	Measure Conducted Power (dBm)	Tune-uplimit (dBm)	Scaling Factor	Measure Results (W/kg)	Reported Results (W/kg)	
Position	mode					1 g Average	1g Average	
Left cheek	20 BW 1RB	L	22.13	24.0	---	---	---	
		M	22.13	24.0	1.54	0.169	0.260	
		H	22.13	24.0	---	---	---	
Left Tilted		L	22.13	24.0	---	---	---	
		M	22.13	24.0	1.54	0.077	0.118	
		H	22.13	24.0	---	---	---	
Right cheek		L	22.13	24.0	---	---	---	
		M	22.13	24.0	1.54	0.148	0.228	
		H	22.13	24.0	---	---	---	
Right Tilted		L	22.13	24.0	---	---	---	
		M	22.13	24.0	1.54	0.080	0.123	
		H	22.13	24.0	---	---	---	

Mode: LTE BAND4- 20BW-1RB (1732.5MHz/Head)

fL(MHz)=1720 MHz fM(MHz)=1747.5MHz fH(MHz)= 1745MHz

SAR Values (body, LTE BAND4)

Limit of SAR (W/kg): <1.6W/kg(1g Average)

Test Case		CH	Measure Conducted Power (dBm)	Tune-up limit (dBm)	Scaling Factor	Measure Results (W/kg)	Reported Results (W/kg)
Position	mode					1 g Average	1g Average
TG	20 BW 1RB	L	22.13	24.0	---	---	---
		M	22.13	24.0	1.54	0.291	0.448
		H	22.13	24.0	---	---	---
TP	20 BW 1RB	L	22.13	24.0	---	---	---
		M	22.13	24.0	1.54	0.533	0.820
		H	22.13	24.0	---	---	---

Note: The distance between the EUT and the phantom bottom is 10mm.

Mode: LTE BAND4- 20BW-50%RB (1732.5MHz/Head)

fL(MHz)=1720 MHz fM(MHz)=1747.5MHz fH(MHz)= 1745MHz

SAR Values (Head, LTE BAND4)

Limit of SAR (W/kg): <1.6W/kg(1g Average)

Test Case		CH	Measure Conducted Power (dBm)	Tune-uplimit (dBm)	Scaling Factor	Measure Results (W/kg)	Reported Results (W/kg)	
Position	mode					1 g Average	1g Average	
Left cheek	20 BW 50%RB	L	20.88	22.5	---	---	---	
		M	20.88	22.5	1.45	0.140	0.203	
		H	20.88	22.5	---	---	---	
Left Tilted		L	20.88	22.5	---	---	---	
		M	20.88	22.5	1.45	0.063	0.091	
		H	20.88	22.5	---	---	---	
Right cheek		L	20.88	22.5	---	---	---	
		M	20.88	22.5	1.45	0.117	0.170	
		H	20.88	22.5	---	---	---	
Right Tilted		L	20.88	22.5	---	---	---	
		M	20.88	22.5	1.45	0.061	0.089	
		H	20.88	22.5	---	---	---	

Mode: LTE BAND4- 20BW-50%RB (1732.5MHz/Head)

fL(MHz)=1720 MHz fM(MHz)=1747.5MHz fH(MHz)= 1745MHz

SAR Values (body, LTE BAND4)

Limit of SAR (W/kg): <1.6W/kg(1g Average)

Test Case		CH	Measure Conducted Power (dBm)	Tune-up limit (dBm)	Scaling Factor	Measure Results (W/kg)	Reported Results (W/kg)
Position	mode					1 g Average	1g Average
TG	20 BW 50%RB	L	20.88	22.5	---	---	---
		M	20.88	22.5	1.45	0.231	0.335
		H	20.88	22.5	---	---	---
TP	20 BW 50%RB	L	20.88	22.5	---	---	---
		M	20.88	22.5	1.45	0.434	0.630
		H	20.88	22.5	---	---	---

Note: The distance between the EUT and the phantom bottom is 10mm.

Mode: LTE BAND7- 20BW-1RB (2535MHz/Head)

fL(MHz)=2510 MHz fM(MHz)=2535MHz fH(MHz)= 2560MHz

SAR Values (Head, LTE BAND7)

Limit of SAR (W/kg): <1.6W/kg(1g Average)

Test Case		CH	Measure Conducted Power (dBm)	Tune-uplimit (dBm)	Scaling Factor	Measure Results (W/kg)	Reported Results (W/kg)	
Position	mode					1 g Average	1g Average	
Left cheek	20 BW 1RB	L	23.23	25.0	---	---	---	
		M	23.23	25.0	1.77	0.155	0.233	
		H	23.23	25.0	---	---	---	
Left Tilted		L	23.23	25.0	---	---	---	
		M	23.23	25.0	1.77	0.046	0.069	
		H	23.23	25.0	---	---	---	
Right cheek		L	23.23	25.0	---	---	---	
		M	23.23	25.0	1.77	0.062	0.093	
		H	23.23	25.0	---	---	---	
Right Tilted		L	23.23	25.0	---	---	---	
		M	23.23	25.0	1.77	0.071	0.107	
		H	23.23	25.0	---	---	---	

Mode: LTE BAND7- 20BW-1RB (2535MHz/Head)

fL(MHz)=2510 MHz fM(MHz)=2535MHz fH(MHz)= 2560MHz

SAR Values (body, LTE BAND7)

Limit of SAR (W/kg): <1.6W/kg(1g Average)

Test Case		CH	Measure Conducted Power (dBm)	Tune-up limit (dBm)	Scaling Factor	Measure Results (W/kg)	Reported Results (W/kg)
Position	mode					1 g Average	1g Average
TG	20 BW 1RB	L	23.23	25.0	---	---	---
		M	23.23	25.0	1.77	0.261	0.392
		H	23.23	25.0	---	---	---
TP	20 BW 1RB	L	23.23	25.0	---	---	---
		M	23.23	25.0	1.77	0.225	0.338
		H	23.23	25.0	---	---	---
EDGE 2	20 BW 1RB	M	23.23	25.0	---	0.308	0.463
EDGE 3		M	23.23	25.0	1.77	0.373	0.561

Note: The distance between the EUT and the phantom bottom is 10mm.

Mode: LTE BAND7- 20BW-50%RB (2535MHz/Head)

fL(MHz)=2510 MHz fM(MHz)=2535MHz fH(MHz)= 2560MHz

SAR Values (Head, LTE BAND7)

Limit of SAR (W/kg): <1.6W/kg(1g Average)

Test Case		CH	Measure Conducted Power (dBm)	Tune-uplimit (dBm)	Scaling Factor	Measure Results (W/kg)	Reported Results (W/kg)	
Position	mode					1 g Average	1g Average	
Left cheek	20 BW 50%RB	L	21.97	23.5	---	---	---	
		M	21.97	23.5	1.53	0.115	0.164	
		H	21.97	23.5	---	---	---	
Left Tilted		L	21.97	23.5	---	---	---	
		M	21.97	23.5	1.53	0.041	0.058	
		H	21.97	23.5	---	---	---	
Right cheek		L	21.97	23.5	---	---	---	
		M	21.97	23.5	1.53	0.046	0.065	
		H	21.97	23.5	---	---	---	
Right Tilted		L	21.97	23.5	---	---	---	
		M	21.97	23.5	1.53	0.055	0.078	
		H	21.97	23.5	---	---	---	

Mode: LTE BAND7- 20BW-50%RB (2535MHz/Head)

fL(MHz)=2510 MHz fM(MHz)=2535MHz fH(MHz)= 2560MHz

SAR Values (body, LTE BAND7)

Limit of SAR (W/kg): <1.6W/kg(1g Average)

Test Case		CH	Measure Conducted Power (dBm)	Tune-up limit (dBm)	Scaling Factor	Measure Results (W/kg)	Reported Results (W/kg)
Position	mode					1 g Average	1g Average
TG	20 BW 50%RB	L	21.97	23.5	---	---	---
		M	21.97	23.5	1.53	0.192	0.273
		H	21.97	23.5	---	---	---
TP	20 BW 50%RB	L	21.97	23.5	---	---	---
		M	21.97	23.5	1.53	0.171	0.243
		H	21.97	23.5	---	---	---

Note: The distance between the EUT and the phantom bottom is 10mm.

6.11 SAR Measurement Variability

SAR measurement variability must be assessed for each frequency band, which is determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements. When both head and body tissue-equivalent media are required for SAR measurements in a frequency band, the variability measurement procedures should be applied to the tissue medium with the highest measured SAR, using the highest measured SAR configuration for that tissue-equivalent medium.

The following procedures are applied to determine if repeated measurements are required.

- 1) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg; steps 2) through 4) do not apply.
- 2) When the original highest measured SAR is ≥ 0.80 W/kg, repeat that measurement once.
- 3) Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is ≥ 1.45 W/kg (~ 10% from the 1-g SAR limit).
- 4) Perform a third repeated measurement only if the original, first or second repeated measurement is ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20 .

6.11.1 The Highest Measured SAR configuration in Each Frequency Band

Frequency band(MHz)	Air interface	Head(w/kg)	Body(w/kg)
850	GSM 850 WCDMA Band 5	<0.8	<0.8
1900	WCDMA Band 2 LTE Band 3 LTE Band 4 LTE Band 7	<0.8	<0.8
1950	LTE Band 2	<0.8	<0.8
2450	WiFi 802.11b/g/n	<0.8	<0.8

6.11.2 Repeated Measurement Results

SAR Measurement Variability

Frequency		Test Position	Original SAR (W/kg)	First Repeated SAR (W/kg)	The Ratio	Second Repeated SAR(W/kg)
MHz	Ch.					
/	/	/	/	/	/	/

6.12 Simultaneous Transmission SAR Analysis

The sum of SAR values for GSM & WiFi (Hotspot)

	MAXIMUM SAR VALUE FOR HEAD	MAXIMUM SAR VALUE FOR BODY
GSM	0.428	1.065
WiFi	0.073	0.086
Sum	0.501	1.151

According to the above tables, the sum of SAR values for GSM and WiFi <1.6W/kg. So simultaneous transmission SAR are not required for WiFi transmitter.

The sum of SAR values for WCDMA & WiFi (Hotspot)

	MAXIMUM SAR VALUE FOR HEAD	MAXIMUM SAR VALUE FOR BODY
WCDMA	0.370	0.513
WiFi	0.130	0.086
Sum	0.500	0.599

According to the above tables, the sum of SAR values for WCDMA and WiFi <1.6W/kg. So simultaneous transmission SAR are not required for WiFi transmitter.

The sum of SAR values for LTE & WiFi (Hotspot)

	MAXIMUM SAR VALUE FOR HEAD	MAXIMUM SAR VALUE FOR BODY
LTE	0.469	1.114
WiFi	0.013	0.038
Sum	0.482	1.152

According to the above tables, the sum of SAR values for LTE and WiFi <1.6W/kg. So simultaneous transmission SAR are not required for WiFi transmitter.

According to the formula (KDB447498 4.3.2) the Bluetooth SAR as follow:

$[(\text{max.power of channel, including tune-up tolerance,mw}) / (\text{min.test separation distance,mm})]$

$[\sqrt{f(\text{GHz})/x}] \text{ W/kg}$ for test separation distances $\leq 50\text{mm}$.

Head:

min. test separation distance = 5mm

Body:

min. test separation distance = 10mm

Where $x=7.5$ for 1-g SAR, and $x=18.75$ for 10-g SAR.

The sum of SAR values for GSM & Bluetooth

	MAXIMUM SAR VALUE FOR HEAD	MAXIMUM SAR VALUE FOR BODY
GSM	0.428	1.108
Bluetooth	0.130	0.130
Sum	0.558	1.238

According to the above tables, the sum of SAR values for GSM and Bluetooth $< 1.6\text{W/kg}$. So simultaneous transmission SAR are not required for Bluetooth transmitter.

The sum of SAR values for WCDMA & Bluetooth

	MAXIMUM SAR VALUE FOR HEAD	MAXIMUM SAR VALUE FOR BODY
WCDMA	0.371	0.526
Bluetooth	0.130	0.130
Sum	0.501	0.656

According to the above tables, the sum of SAR values for WCDMA and Bluetooth $< 1.6\text{W/kg}$. So simultaneous transmission SAR are not required for Bluetooth transmitter.

The sum of SAR values for LTE & Bluetooth

	MAXIMUM SAR VALUE FOR HEAD	MAXIMUM SAR VALUE FOR BODY
LTE	0.469	1.150
Bluetooth	0.130	0.130
Sum	0.599	1.280

According to the above tables, the sum of SAR values for LTE and Bluetooth $< 1.6\text{W/kg}$. So simultaneous transmission SAR are not required for Bluetooth transmitter.

7 MEASUREMENT UNCERTAINTY

DASY5 Uncertainty Budget

Error description	Uncertainty value	Prob. Dist.	Div.	(c_i) 1g	(c_i) 10g	Std.Unc (1g).	Std.Unc. (10g)	(vi) V_{eff}
Measurement system								
Probe calibration	$\pm 6.0\%$	N	1	1	1	$\pm 6.0\%$	$\pm 6.0\%$	∞
Axial isotropy	$\pm 4.7\%$	R	$\sqrt{3}$	0.7	0.7	$\pm 1.9\%$	$\pm 1.9\%$	∞
Hemispherical isotropy	$\pm 9.6\%$	R	$\sqrt{3}$	0.7	0.7	$\pm 3.9\%$	$\pm 3.9\%$	∞
Boundary Effects	$\pm 1.0\%$	R	$\sqrt{3}$	1	1	$\pm 0.6\%$	$\pm 0.6\%$	∞
Linearity	$\pm 4.7\%$	R	$\sqrt{3}$	1	1	$\pm 2.7\%$	$\pm 2.7\%$	∞
System detection limits	$\pm 1.0\%$	R	$\sqrt{3}$	1	1	$\pm 0.6\%$	$\pm 0.6\%$	∞
Readout electronics	$\pm 0.3\%$	N	1	1	1	$\pm 0.3\%$	$\pm 0.3\%$	∞
Response time	$\pm 0.8\%$	R	$\sqrt{3}$	1	1	$\pm 0.5\%$	$\pm 0.5\%$	∞
Integration time	$\pm 2.6\%$	R	$\sqrt{3}$	1	1	$\pm 1.5\%$	$\pm 1.5\%$	∞
RF ambient noise	$\pm 3.0\%$	R	$\sqrt{3}$	1	1	$\pm 1.7\%$	$\pm 1.7\%$	∞
RF ambient reflections	$\pm 3.0\%$	R	$\sqrt{3}$	1	1	$\pm 1.7\%$	$\pm 1.7\%$	∞
Probe positioner	$\pm 0.4\%$	R	$\sqrt{3}$	1	1	$\pm 0.2\%$	$\pm 0.2\%$	∞
Probe positioning	$\pm 2.9\%$	R	$\sqrt{3}$	1	1	$\pm 1.7\%$	$\pm 1.7\%$	∞
Max.SAR Eval.	$\pm 1.0\%$	R	$\sqrt{3}$	1	1	$\pm 0.6\%$	$\pm 0.6\%$	∞
Test Sample Related								
Device holder	$\pm 3.6\%$	N	1	1	1	$\pm 3.6\%$	$\pm 3.6\%$	5
Device Positioning	$\pm 2.9\%$	N	1	1	1	$\pm 2.9\%$	$\pm 2.9\%$	145
Power drift	$\pm 5.0\%$	R	$\sqrt{3}$	1	1	$\pm 2.9\%$	$\pm 2.9\%$	∞
Phantom and Setup								
Phantom uncertainty	$\pm 4.0\%$	R	$\sqrt{3}$	1	1	$\pm 2.3\%$	$\pm 2.3\%$	∞
Liquid conductivity (target.)	$\pm 5.0\%$	R	$\sqrt{3}$	0.64	0.43	$\pm 1.8\%$	$\pm 1.2\%$	∞
Liquid conductivity (mea.)	$\pm 2.5\%$	R	$\sqrt{3}$	0.64	0.43	$\pm 0.9\%$	$\pm 0.6\%$	∞
Liquid Permittivity (target.)	$\pm 5.0\%$	R	$\sqrt{3}$	0.60	0.49	$\pm 1.7\%$	$\pm 1.4\%$	∞
Liquid Permittivity (mea.)	$\pm 2.5\%$	R	$\sqrt{3}$	0.60	0.49	$\pm 0.9\%$	$\pm 0.7\%$	∞
Combined std. Uncertainty						$\pm 10.9\%$	$\pm 10.7\%$	387
Expanded STD Uncertainty								
						$\pm 21.7\%$	$\pm 21.4\%$	

8 TEST EQUIPMENTS

The measurements were performed using an automated near-field scanning system, DASY5, manufactured by Schmid & Partner Engineering AG (SPEAG) in Switzerland. The SAR extrapolation algorithm used in all measurements was the 'advanced extrapolation' algorithm.

The following table lists calibration dates of SPEAG components:

Test Equipment	Serial Number	Calibration interval	Calibration expiry
DAE4	546	1 year	2016.08.19
DAE4	720	1 year	2016.10.29
Dosimetric E-field Probe ES3DV3	3127	1 year	2016.08.21
Dosimetric E-field Probe EX3DV4	3708	1 year	2016.10.26
Dipole Validation Kit D835V2	4d023	1 year	2016.10.20
Dipole Validation Kit D1900V2	5d113	1 year	2016.10.19
Dipole Validation Kit D2450V2	738	1 year	2016.10.21

Additional test equipment used in testing:

Test Equipment	Model	Serial Number	Calibration interval	Calibration expiry
Signal Generator	E4428C	MY45280865	1 year	2016.08.20
Signal Generator	SML 03	103514	1 year	2016.08.20
Amplifier	5S1G4	0323472	N/A	2016.08.20
Amplifier	5S1G4	301305	N/A	2016.08.20
Power meter	E4417A	MY45101182	1 year	2016.08.20
Power Sensor	E4412A	MY41502214	1 year	2016.08.20
Power Sensor	E4412A	MY41502130	1 year	2016.08.20
Power meter	E4417A	MY45101004	1 year	2016.08.20
Power Sensor	E9300B	MY41496001	1 year	2016.08.20
Power Sensor	E9300B	MY41496003	1 year	2016.08.20
Communications Test Set	8960	GB43194054	1 year	2016.08.20
Communication Tester	CMU200	114666	1 year	2016.08.20
Vector Network Analyzer	VNAR140	0011213	1 year	2016.07.31
Dielectric Parameter Probe	DAKS-3.5	1042	1 year	2016.08.26

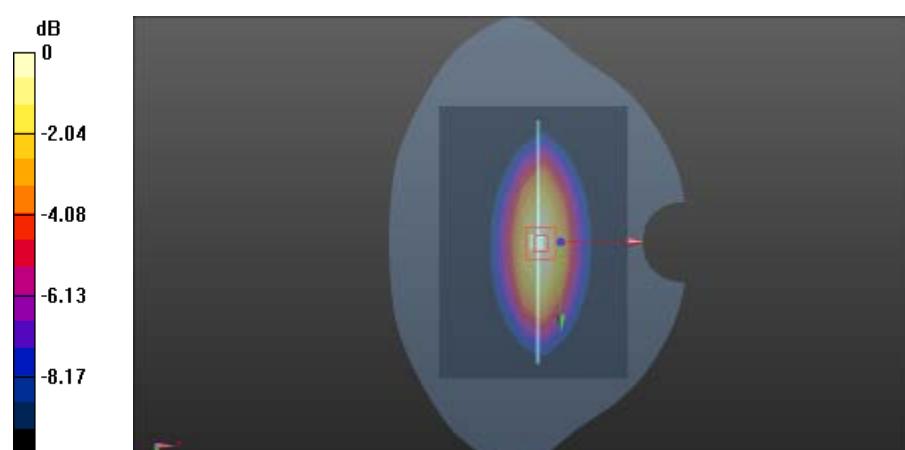
Detailed information of Isotropic E-field Probe Type ES3DV3

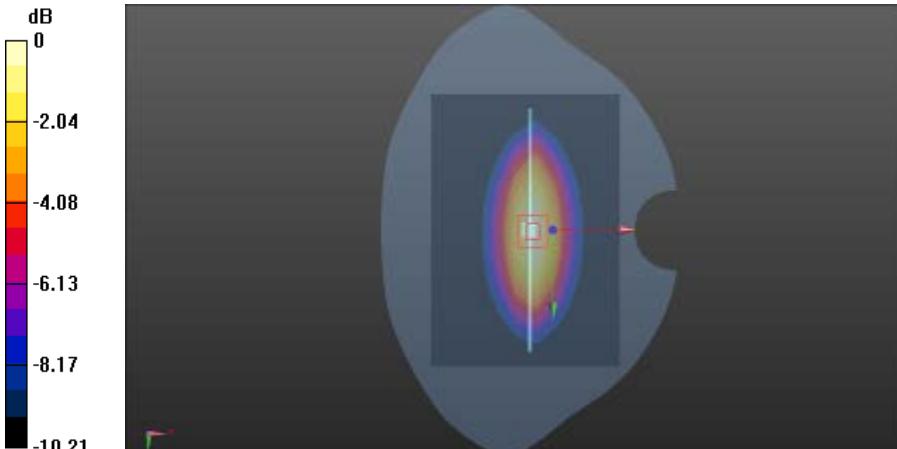
Construction	Symmetrical design with triangular core Interleaved sensors Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Calibration	Calibration certificate in Appendix C
Frequency	10 MHz to 4 GHz; Linearity: ± 0.2 dB (30 MHz to 4 GHz)
Optical Surface Detection	± 0.2 mm repeatability in air and clear liquids over diffuse reflecting surfaces
Dimensions	Overall length: 337 mm (Tip: 20 mm) Tip diameter: 3.9 mm (Body: 12 mm) Distance from probe tip to dipole centers: 2.0 mm
Dynamic Range	5 μ W/g to > 100 W/kg; Linearity: ± 0.2 dB
Application	General dosimetry up to 4 GHz Dosimetry in strong gradient fields Compliance tests of mobile phones

Detailed information of Isotropic E-field Probe Type EX3DV4

Construction	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Calibration	Calibration certificate in Appendix C
Frequency	10 MHz to > 6 GHz Linearity: ± 0.2 dB (30 MHz to 6 GHz)
Optical Surface Detection	± 0.3 mm repeatability in air and clear liquids over diffuse reflecting surfaces
Dimensions	Overall length: 337 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm
Dynamic Range	10 μ W/g to > 100 W/kg Linearity: ± 0.2 dB (noise: typically < 1 μ W/g)
Application	High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields); the only probe that enables compliance testing for frequencies up to 6 GHz with precision of better 30%.

APPENDIX A: SYSTEM CHECKING SCANS

SYSTEM CHECKING SCANS	835MHz Head
Communication System: UID 0, CW (0); Frequency: 835 MHz	
Medium parameters used (extrapolated): $f = 835 \text{ MHz}$; $\sigma = 0.909 \text{ S/m}$; $\epsilon_r = 42.108$; $\rho = 1000 \text{ kg/m}^3$	
Phantom section: Flat Section	
Measurement Standard:DASY5 (IEEE 1528-2013)	
DASY Configuration:	
<ul style="list-style-type: none"> • Probe: ES3DV3 - SN3127; ConvF(5.97, 5.97, 5.97); Calibrated: 8/21/2015; • Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.0, 32.0$ • Electronics: DAE4 Sn546; Calibrated: 8/19/2015 • Phantom: SAM 1559; Type: SAM; Serial: 1559 • DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) 	
System Performance Check at Frequencies 835MHz Head/d=15mm, Pin=250 mW, dist=2.0mm (EX-Probe)/Area Scan (10x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 2.98 W/kg	
System Performance Check at Frequencies 835MHz Head/d=15mm, Pin=250 mW, dist=2.0mm (EX-Probe)/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 54.113 V/m; Power Drift = -0.03 dB Peak SAR (extrapolated) = 3.55 W/kg SAR(1 g) = 2.33 W/kg; SAR(10 g) = 1.59 W/kg Maximum value of SAR (measured) = 2.98 W/kg	
	

SYSTEM CHECKING SCANS	835MHz Head
Communication System: UID 0, CW (0); Frequency: 835 MHz	
Medium parameters used (extrapolated): $f = 835 \text{ MHz}$; $\sigma = 0.909 \text{ S/m}$; $\epsilon_r = 42.108$; $\rho = 1000 \text{ kg/m}^3$	
Phantom section: Flat Section	
Measurement Standard:DASY5 (IEEE 1528-2013)	
DASY Configuration:	
<ul style="list-style-type: none"> • Probe: ES3DV3 - SN3127; ConvF(5.97, 5.97, 5.97); Calibrated: 8/21/2015; • Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.0, 32.0$ • Electronics: DAE4 Sn546; Calibrated: 8/19/2015 • Phantom: SAM 1559; Type: SAM; Serial: 1559 • DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) 	
System Performance Check at Frequencies 835MHz Head/d=15mm, Pin=250 mW, dist=2.0mm (EX-Probe)/Area Scan (10x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 2.95 W/kg	
System Performance Check at Frequencies 835MHz Head/d=15mm, Pin=250 mW, dist=2.0mm (EX-Probe)/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 54.092V/m; Power Drift = -0.05 dB Peak SAR (extrapolated) = 3.53 W/kg SAR(1 g) = 2.32 W/kg; SAR(10 g) = 1.55 W/kg Maximum value of SAR (measured) = 2.95 W/kg	
	

SYSTEM CHECKING SCANS

835MHz Flat

Communication System: UID 0, CW (0); Frequency: 835 MHz

Medium parameters used (extrapolated): $f = 835 \text{ MHz}$; $\sigma = 0.978 \text{ S/m}$; $\epsilon_r = 53.846$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE 1528-2013)

DASY Configuration:

- Probe: ES3DV3 - SN3127; ConvF(5.88, 5.88, 5.88); Calibrated: 8/21/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection), $z = -18.0, 32.0$
- Electronics: DAE4 Sn546; Calibrated: 8/19/2015
- Phantom: SAM 1559; Type: SAM; Serial: 1559
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

System Performance Check at Frequencies 835MHz Flat/d=15mm,

Pin=250 mW, dist=3.0mm (ES-Probe)/Area Scan (7x12x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 2.55 W/kg

System Performance Check at Frequencies 835MHz Flat/d=15mm,

Pin=250 mW, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x1) (7x7x7)/Cube

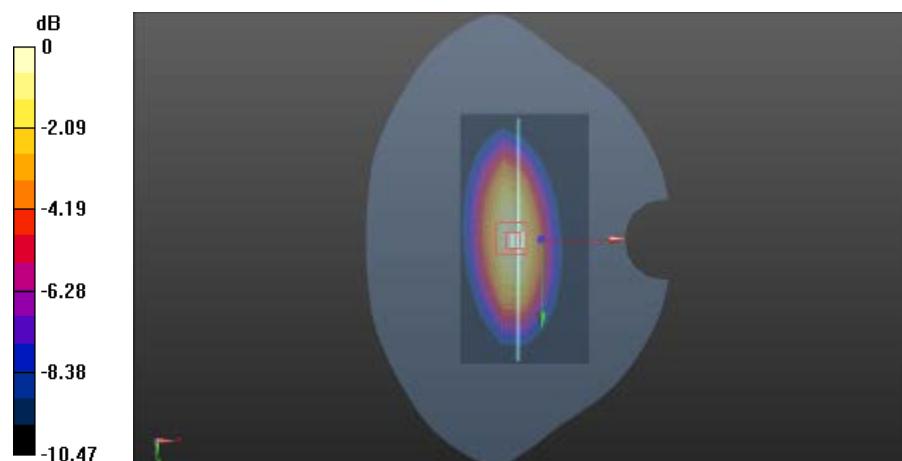
0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 53.044 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 3.54 W/kg

SAR(1 g) = 2.34 W/kg; SAR(10 g) = 1.53 W/kg

Maximum value of SAR (measured) = 2.87 W/kg



SYSTEM CHECKING SCANS

835MHz Flat

Communication System: UID 0, CW (0); Frequency: 835 MHz

Medium parameters used (extrapolated): $f = 835 \text{ MHz}$; $\sigma = 0.978 \text{ S/m}$; $\epsilon_r = 53.846$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE 1528-2013)

DASY Configuration:

- Probe: ES3DV3 - SN3127; ConvF(5.88, 5.88, 5.88); Calibrated: 8/21/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection), $z = -18.0, 32.0$
- Electronics: DAE4 Sn546; Calibrated: 8/19/2015
- Phantom: SAM 1559; Type: SAM; Serial: 1559
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

System Performance Check at Frequencies 835MHz Flat/d=15mm,

Pin=250 mW, dist=3.0mm (ES-Probe)/Area Scan (7x12x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 2.51 W/kg

System Performance Check at Frequencies 835MHz Flat/d=15mm,

Pin=250 mW, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x1) (7x7x7)/Cube

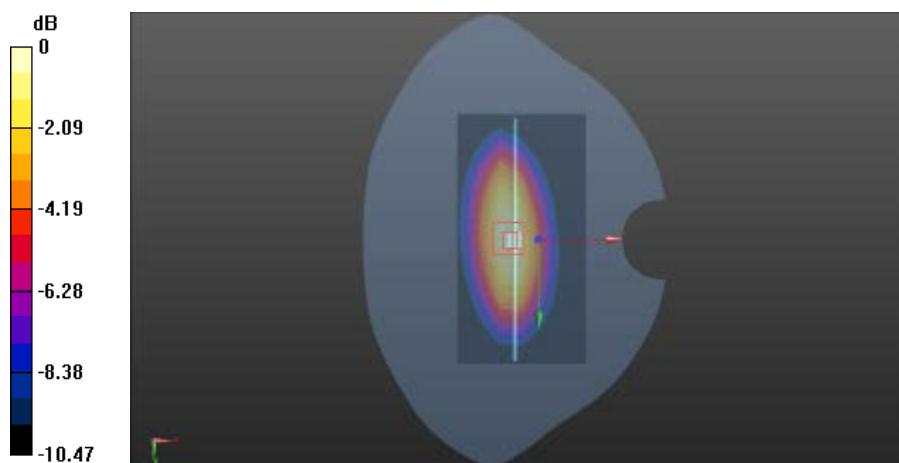
0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 52.991 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 3.52 W/kg

SAR(1 g) = 2.35 W/kg; SAR(10 g) = 1.52 W/kg

Maximum value of SAR (measured) = 2.84 W/kg



SYSTEM CHECKING SCANS

1900MHz Head

Communication System: UID 0, CW (0); Frequency: 1900 MHz

Medium parameters used: $f = 1900 \text{ MHz}$; $\sigma = 1.41 \text{ S/m}$; $\epsilon_r = 40.84$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard:DASY5 (IEEE 1528-2013)

DASY Configuration:

- Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 8/21/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.0, 32.0$
- Electronics: DAE4 Sn546; Calibrated: 8/19/2015
- Phantom: SAM 1560; Type: SAM; Serial: 1560
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

System Performance Check at Frequencies 1900MHz Head/d=10mm,

Pin=250mW, dist=2.0mm (EX-Probe)/Area Scan (9x12x1): Measurement

grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 14.0 W/kg

System Performance Check at Frequencies 1900MHz Head/d=10mm,

Pin=250mW, dist=2.0mm (EX-Probe)/Zoom Scan (7x7x7) (7x7x7)/Cube

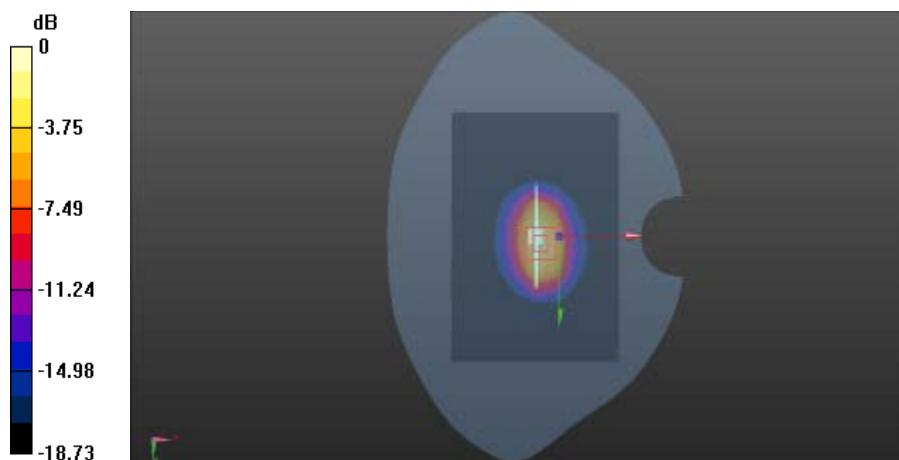
0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 95.996 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 20.8 W/kg

SAR(1 g) = 9.81 W/kg; SAR(10 g) = 5.47 W/kg

Maximum value of SAR (measured) = 15.9 W/kg



SYSTEM CHECKING SCANS

1900MHz Head

Communication System: UID 0, CW (0); Frequency: 1900 MHz

Medium parameters used: $f = 1900 \text{ MHz}$; $\sigma = 1.41 \text{ S/m}$; $\epsilon_r = 40.84$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard:DASY5 (IEEE 1528-2013)

DASY Configuration:

- Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 8/21/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.0, 32.0$
- Electronics: DAE4 Sn546; Calibrated: 8/19/2015
- Phantom: SAM 1560; Type: SAM; Serial: 1560
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

System Performance Check at Frequencies 1900MHz Head/d=10mm,

Pin=250mW, dist=2.0mm (EX-Probe)/Area Scan (9x12x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 14.1 W/kg

System Performance Check at Frequencies 1900MHz Head/d=10mm,

Pin=250mW, dist=2.0mm (EX-Probe)/Zoom Scan (7x7x7) (7x7x7)/Cube

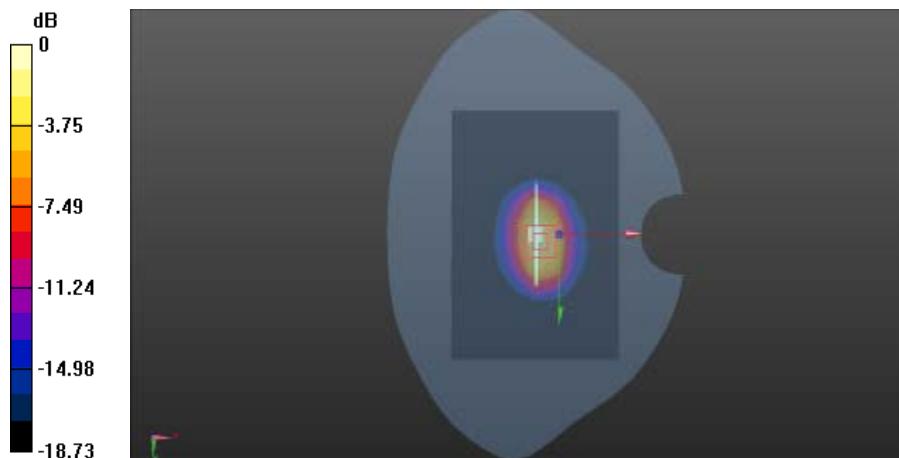
0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 96.020 V/m; Power Drift = 0.04dB

Peak SAR (extrapolated) = 20.9 W/kg

SAR(1 g) = 9.82W/kg; SAR(10 g) = 5.46 W/kg

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



SYSTEM CHECKING SCANS

1900MHz Flat

Communication System: UID 0, CW (0); Frequency: 1900 MHz

Medium parameters used: $f = 1900 \text{ MHz}$; $\sigma = 1.53 \text{ S/m}$; $\epsilon_r = 52.184$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard:DASY5 (IEEE 1528-2013)

DASY Configuration:

- Probe: ES3DV3 - SN3127; ConvF(4.67, 4.67, 4.67); Calibrated: 8/21/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.0, 32.0$
- Electronics: DAE4 Sn546; Calibrated: 8/19/2015
- Phantom: SAM 1560; Type: SAM; Serial: 1560
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

System Performance Check at Frequencies 1900MHz Flat/d=10mm,

Pin=250 mW, dist=2.0mm (EX-Probe)/Area Scan (9x11x1): Measurement

grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

System Performance Check at Frequencies 1900MHz Flat/d=10mm,

Pin=250 mW, dist=2.0mm (EX-Probe)/Zoom Scan (7x7x7) (7x7x7)/Cube

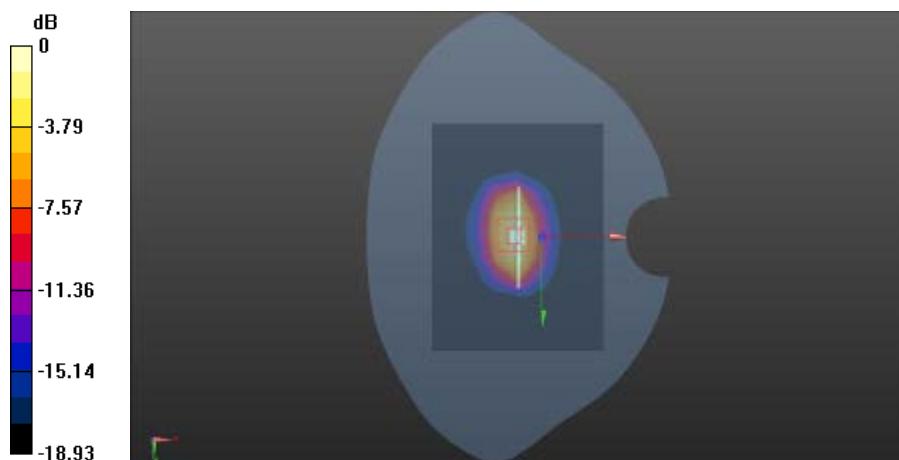
0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 91.541 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 19.2 W/kg

SAR(1 g) = 9.84 W/kg; SAR(10 g) = 5.64 W/kg

Maximum value of SAR (measured) = 14.5 W/kg



SYSTEM CHECKING SCANS

1900MHz Flat

Communication System: UID 0, CW (0); Frequency: 1900 MHz

Medium parameters used: $f = 1900 \text{ MHz}$; $\sigma = 1.53 \text{ S/m}$; $\epsilon_r = 52.184$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard:DASY5 (IEEE 1528-2013)

DASY Configuration:

- Probe: ES3DV3 - SN3127; ConvF(4.67, 4.67, 4.67); Calibrated: 8/21/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.0, 32.0$
- Electronics: DAE4 Sn546; Calibrated: 8/19/2015
- Phantom: SAM 1560; Type: SAM; Serial: 1560
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

System Performance Check at Frequencies 1900MHz Flat/d=10mm,

Pin=250 mW, dist=2.0mm (EX-Probe)/Area Scan (9x11x1): Measurement

grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 14.6 W/kg

System Performance Check at Frequencies 1900MHz Flat/d=10mm,

Pin=250 mW, dist=2.0mm (EX-Probe)/Zoom Scan (7x7x7) (7x7x7)/Cube

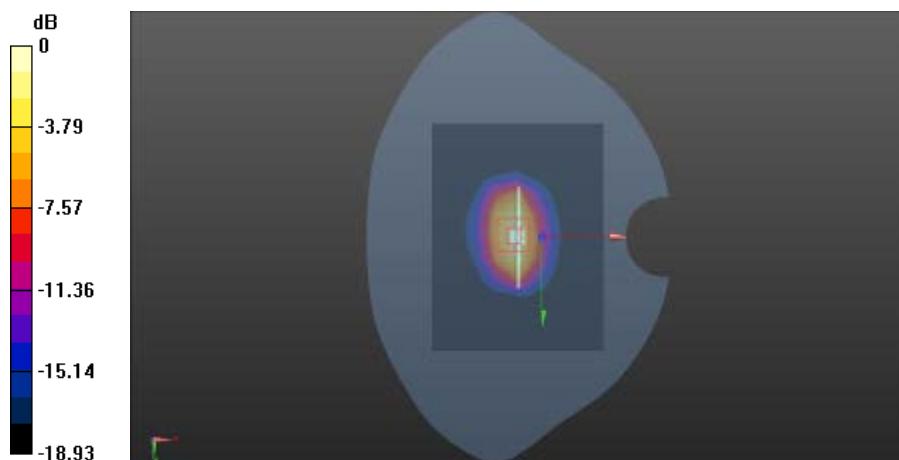
0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 91.122 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 19.1 W/kg

SAR(1 g) = 9.85 W/kg; SAR(10 g) = 5.63 W/kg

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



SYSTEM CHECKING SCANS

2450 MHz Head

Communication System: UID 0, CW (0); Frequency: 2450 MHz; Duty Cycle: 1:1
 Medium parameters used: $f = 2450 \text{ MHz}$; $\sigma = 1.79 \text{ S/m}$; $\epsilon_r = 39.208$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3127; ConvF(4.35, 4.35, 4.35); Calibrated: 2015/8/21;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn546; Calibrated: 2015/8/19
- Phantom: SAM 1659; Type: QD000P40CD; Serial: TP:1659
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

System Performance Check at Frequencies 2450MHz Head/d=10mm,

Pin=250 mW, dist=3.0mm (ES-Probe)/Area Scan (5x7x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 17.1 W/kg

System Performance Check at Frequencies 2450MHz Head/d=10mm,

Pin=250 mW, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) (7x7x7)/Cube

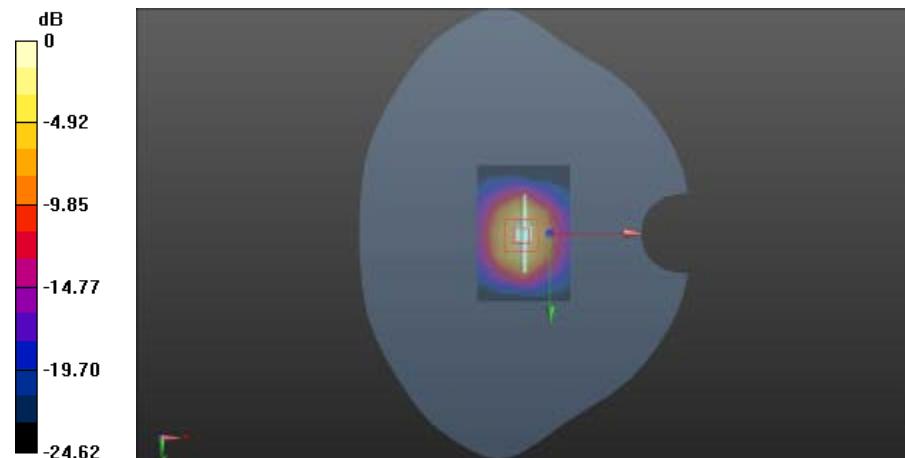
0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 102.2 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 28.8 W/kg

SAR(1 g) = 13.15 W/kg; SAR(10 g) = 5.92 W/kg

Maximum value of SAR (measured) = 17.0 W/kg



SYSTEM CHECKING SCANS

2450 MHz Head

Communication System: UID 0, CW (0); Frequency: 2450 MHz; Duty Cycle: 1:1
 Medium parameters used: $f = 2450 \text{ MHz}$; $\sigma = 1.79 \text{ S/m}$; $\epsilon_r = 39.208$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3127; ConvF(4.35, 4.35, 4.35); Calibrated: 2015/8/21;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn546; Calibrated: 2015/8/19
- Phantom: SAM 1659; Type: QD000P40CD; Serial: TP:1659
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

System Performance Check at Frequencies 2450MHz Head/d=10mm,

Pin=250 mW, dist=3.0mm (ES-Probe)/Area Scan (5x7x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 17.0 W/kg

**System Performance Check at Frequencies 2450MHz Head/d=10mm,
Pin=250 mW, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) (7x7x7)/Cube**

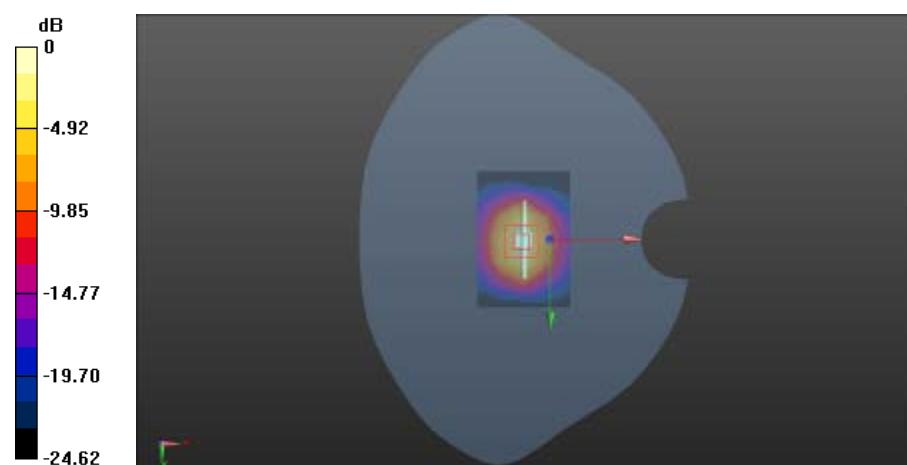
0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 102.121 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 28.8 W/kg

SAR(1 g) = 13.13 W/kg; SAR(10 g) = 5.94 W/kg

Maximum value of SAR (measured) = 17.1 W/kg



SYSTEM CHECKING SCANS

2450MHz Flat

Communication System: UID 0, CW (0); Frequency: 2450 MHz; Duty Cycle: 1:1
 Medium parameters used: $f = 2450 \text{ MHz}$; $\sigma = 1.965 \text{ S/m}$; $\epsilon_r = 52.042$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3127; ConvF(4.19, 4.19, 4.19); Calibrated: 2015/8/21;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn546; Calibrated: 2015/8/19
- Phantom: SAM 1659; Type: QD000P40CD; Serial: TP:1659
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

System Performance Check at Frequencies 2450MHz Flat/d=10mm,

Pin=250 mW, dist=3.0mm (ES-Probe)/Area Scan (5x7x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 17.1 W/kg

System Performance Check at Frequencies 2450MHz Flat/d=10mm,

Pin=250 mW, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) (7x7x7)/Cube

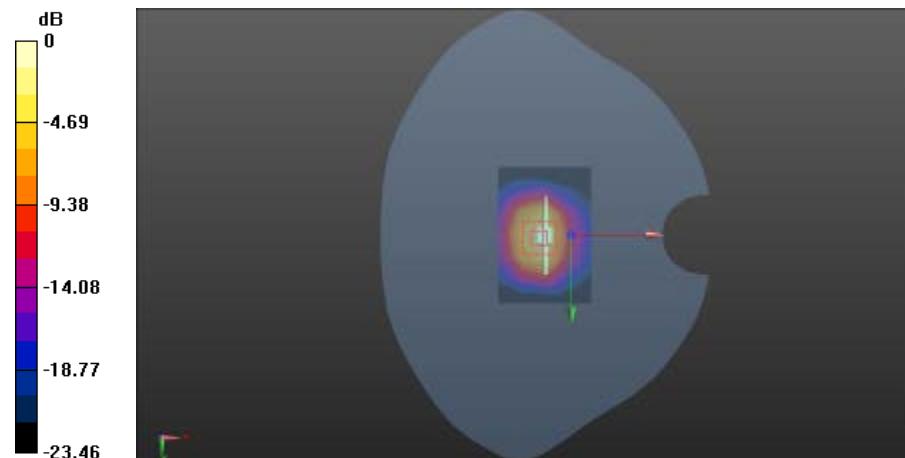
0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 104.3 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 28.0 W/kg

SAR(1 g) = 12.93 W/kg; SAR(10 g) = 5.78 W/kg

Maximum value of SAR (measured) = 17.4 W/kg



SYSTEM CHECKING SCANS

2450MHz Flat

Communication System: UID 0, CW (0); Frequency: 2450 MHz; Duty Cycle: 1:1
 Medium parameters used: $f = 2450 \text{ MHz}$; $\sigma = 1.965 \text{ S/m}$; $\epsilon_r = 52.042$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3127; ConvF(4.19, 4.19, 4.19); Calibrated: 2015/8/21;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn546; Calibrated: 2015/8/19
- Phantom: SAM 1659; Type: QD000P40CD; Serial: TP:1659
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

System Performance Check at Frequencies 2450MHz Flat/d=10mm,

Pin=250 mW, dist=3.0mm (ES-Probe)/Area Scan (5x7x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 16.8 W/kg

System Performance Check at Frequencies 2450MHz Flat/d=10mm,

Pin=250 mW, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) (7x7x7)/Cube

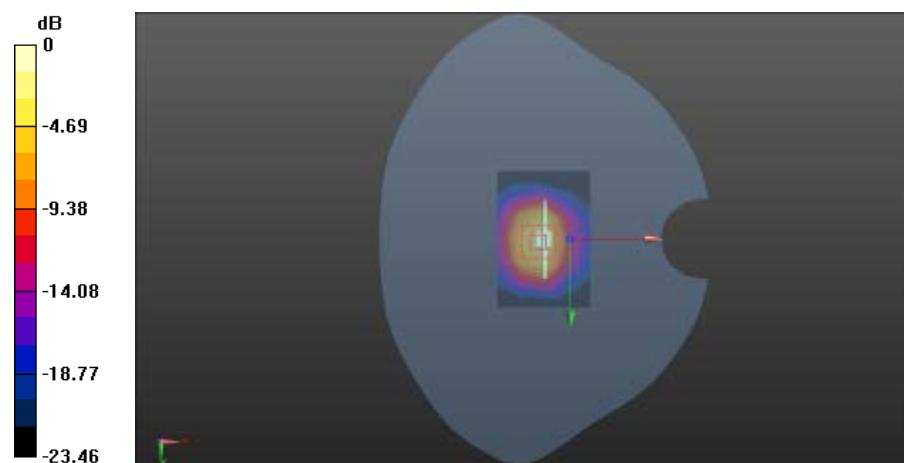
0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 104.002 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 27.8 W/kg

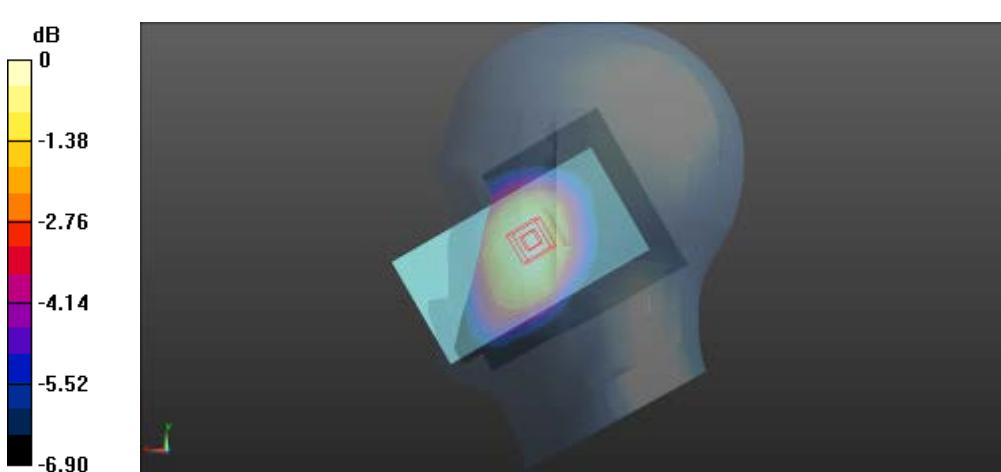
SAR(1 g) = 12.76 W/kg; SAR(10 g) = 5.74 W/kg

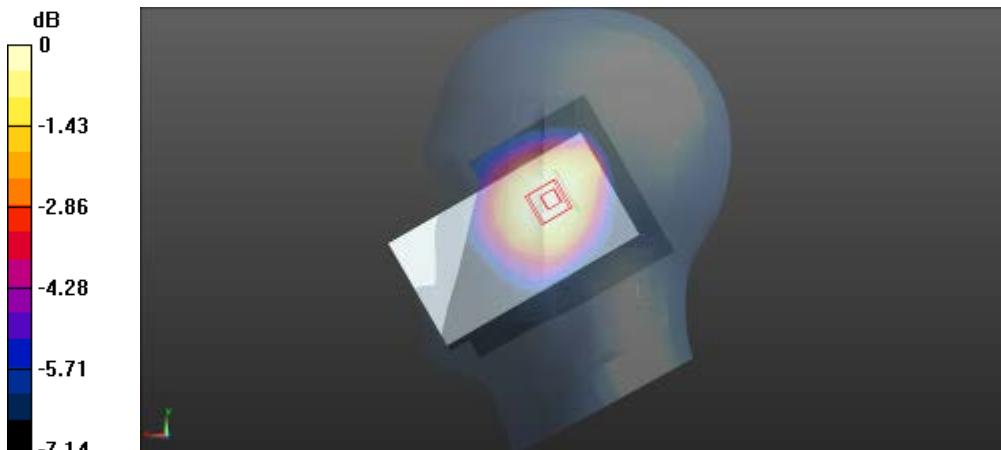
Maximum value of SAR (measured) = 17.1 W/kg

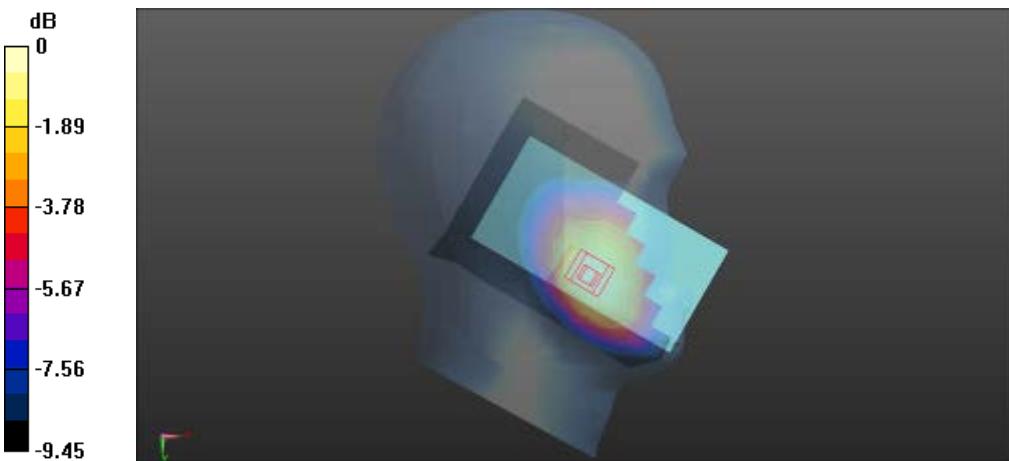


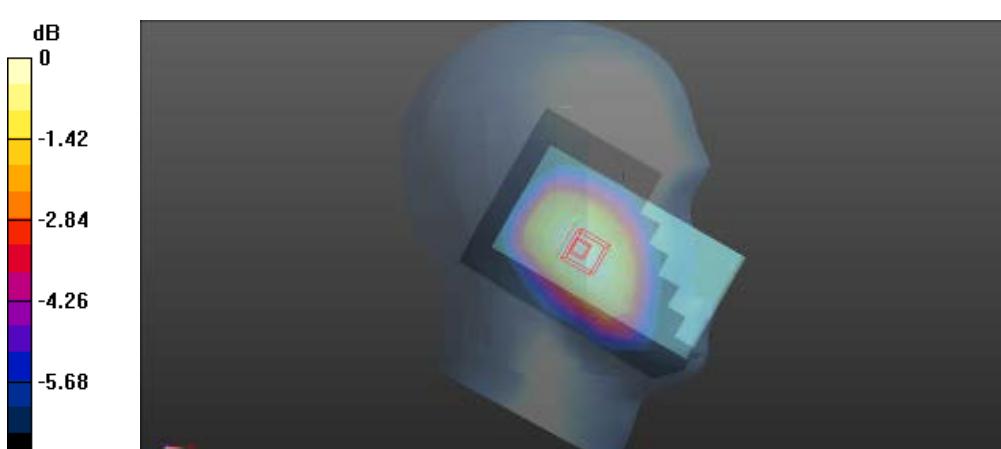
APPENDIX B: MEASUREMENT SCANS

GSM (850MHz/Head)

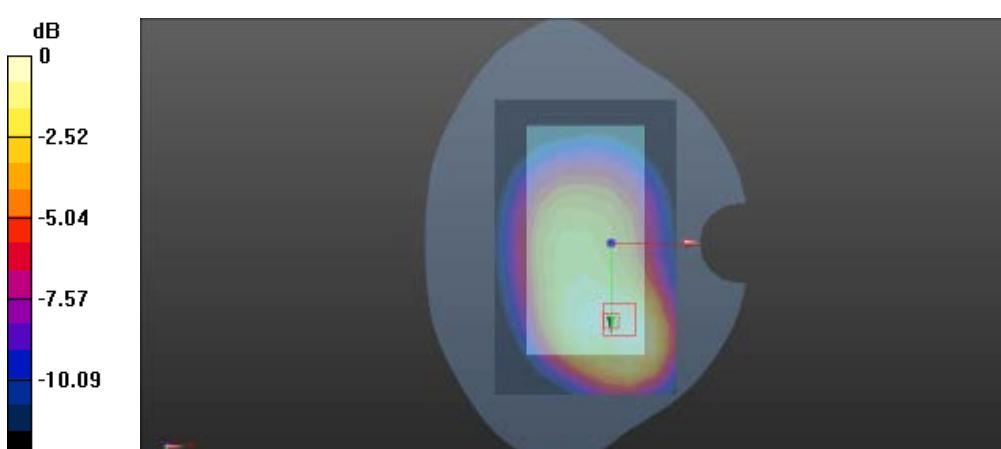
Left Side	Cheek	836.6 MHz
Communication System: UID 0, Generic GSM (0); Frequency: 836.6 MHz		
Medium parameters used (interpolated): $f = 836.6 \text{ MHz}$; $\sigma = 0.89 \text{ S/m}$; $\epsilon_r = 41.478$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Left Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(5.97, 5.97, 5.97); Calibrated: 8/21/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.0, 32.0$ Electronics: DAE4 Sn546; Calibrated: 8/19/2015 Phantom: SAM 1559; Type: SAM; Serial: 1559 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) 		
Head-Section Left HSL 850/850GSM Hsl touch M/Area Scan (9x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.203 W/kg		
Head-Section Left HSL 850/850GSM Hsl touch M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 5.674 V/m; Power Drift = -0.15 dB Peak SAR (extrapolated) = 0.237 W/kg SAR(1 g) = 0.198 W/kg; SAR(10 g) = 0.155 W/kg Maximum value of SAR (measured) = 0.209 W/kg		
 $0 \text{ dB} = 0.209 \text{ W/kg} = -6.80 \text{ dBW/kg}$		

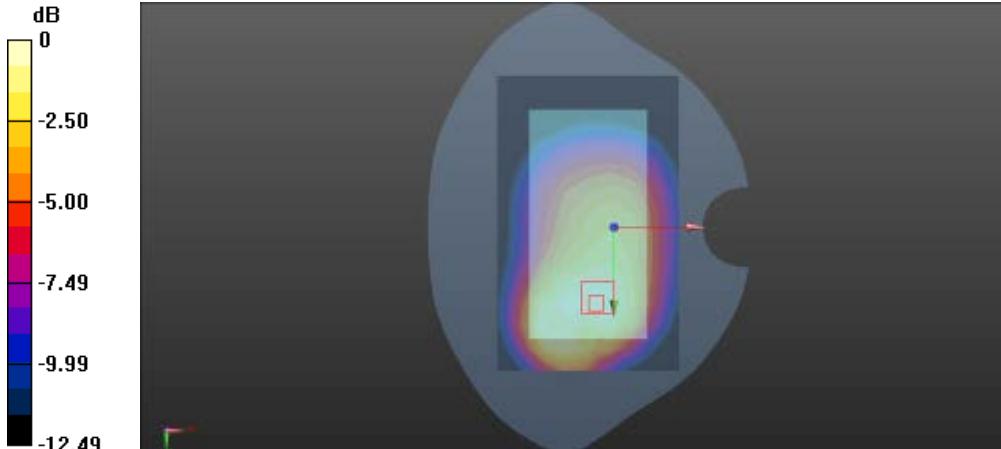
Left Side	Tilt	836.6 MHz
Communication System: UID 0, Generic GSM (0); Frequency: 836.6 MHz		
Medium parameters used (interpolated): $f = 836.6 \text{ MHz}$; $\sigma = 0.89 \text{ S/m}$; $\epsilon_r = 41.478$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Left Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(5.97, 5.97, 5.97); Calibrated: 8/21/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.0, 32.0$ Electronics: DAE4 Sn546; Calibrated: 8/19/2015 Phantom: SAM 1559; Type: SAM; Serial: 1559 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) 		
Head-Section Left HSL 850/850GSM Hsl tilt M/Area Scan (9x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.145 W/kg		
Head-Section Left HSL 850/850GSM Hsl tilt M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 9.950 V/m; Power Drift = -0.00 dB Peak SAR (extrapolated) = 0.168 W/kg SAR(1 g) = 0.142 W/kg; SAR(10 g) = 0.112 W/kg Maximum value of SAR (measured) = 0.148 W/kg		
 $0 \text{ dB} = 0.148 \text{ W/kg} = -8.30 \text{ dBW/kg}$		

Right Side	Cheek	836.6 MHz
Communication System: UID 0, Generic GSM (0); Frequency: 836.6 MHz		
Medium parameters used (interpolated): $f = 836.6 \text{ MHz}$; $\sigma = 0.89 \text{ S/m}$; $\epsilon_r = 41.478$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Right Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(5.97, 5.97, 5.97); Calibrated: 8/21/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.0, 32.0$ Electronics: DAE4 Sn546; Calibrated: 8/19/2015 Phantom: SAM 1559; Type: SAM; Serial: 1559 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) 		
Head-Section Right HSL 850/850GSM HSL touch M/Area Scan (9x13x1):		
Measurement grid: $dx=15\text{mm}, dy=15\text{mm}$		
Maximum value of SAR (measured) = 0.272 W/kg		
Head-Section Right HSL 850/850GSM HSL touch M/Zoom Scan (7x7x7)/Cube 0:		
Measurement grid: $dx=5\text{mm}, dy=5\text{mm}, dz=5\text{mm}$		
Reference Value = 5.062 V/m; Power Drift = 0.16 dB		
Peak SAR (extrapolated) = 0.346 W/kg		
SAR(1 g) = 0.277 W/kg; SAR(10 g) = 0.211 W/kg		
Maximum value of SAR (measured) = 0.294 W/kg		
 <p>0 dB = 0.294 W/kg = -5.32 dBW/kg</p>		

Right Side	Tilt	836.6 MHz
Communication System: UID 0, Generic GSM (0); Frequency: 836.6 MHz		
Medium parameters used (interpolated): $f = 836.6 \text{ MHz}$; $\sigma = 0.89 \text{ S/m}$; $\epsilon_r = 41.478$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Right Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(5.97, 5.97, 5.97); Calibrated: 8/21/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.0, 32.0$ Electronics: DAE4 Sn546; Calibrated: 8/19/2015 Phantom: SAM 1559; Type: SAM; Serial: 1559 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) 		
Head-Section Right HSL 850/850GSM HSL tilt M/Area Scan (9x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.133 W/kg Head-Section Right HSL 850/850GSM HSL tilt M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 8.975 V/m; Power Drift = -0.17 dB Peak SAR (extrapolated) = 0.151 W/kg SAR(1 g) = 0.127 W/kg; SAR(10 g) = 0.101 W/kg		
 $0 \text{ dB} = 0.133 \text{ W/kg} = -8.76 \text{ dBW/kg}$		

GSM with headset (850MHz/Flat)

FLAT	TP	836.6 MHz
Communication System: UID 0, Generic GSM (0); Frequency: 836.6 MHz		
Medium parameters used (extrapolated): $f = 836.6 \text{ MHz}$; $\sigma = 0.979 \text{ S/m}$; $\epsilon_r = 53.843$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Flat Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(5.88, 5.88, 5.88); Calibrated: 8/21/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = -18.0, 32.0$ Electronics: DAE4 Sn546; Calibrated: 8/19/2015 Phantom: SAM 1559; Type: SAM; Serial: 1559 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) 		
Flat-Section MSL 850 TP/850GSM TP M/Area Scan (9x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$		
Maximum value of SAR (measured) = 0.331 W/kg		
Flat-Section MSL 850 TP/850GSM TP M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$		
Reference Value = 14.412 V/m; Power Drift = -0.07 dB		
Peak SAR (extrapolated) = 0.497 W/kg		
SAR(1 g) = 0.308 W/kg; SAR(10 g) = 0.203 W/kg		
Maximum value of SAR (measured) = 0.332 W/kg		
 <p>0 dB = 0.332 W/kg = -4.79 dBW/kg</p>		

FLAT	TG	836.6 MHz
Communication System: UID 0, Generic GSM (0); Frequency: 836.6 MHz		
Medium parameters used (extrapolated): $f = 836.6 \text{ MHz}$; $\sigma = 0.979 \text{ S/m}$; $\epsilon_r = 53.843$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Flat Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> • Probe: ES3DV3 - SN3127; ConvF(5.88, 5.88, 5.88); Calibrated: 8/21/2015; • Sensor-Surface: 4mm (Mechanical Surface Detection), $z = -8.0, 32.0$ • Electronics: DAE4 Sn546; Calibrated: 8/19/2015 • Phantom: SAM 1559; Type: SAM; Serial: 1559 • DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) 		
Flat-Section MSL 850 TG/850GSM TG M/Area Scan (9x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.358 W/kg		
Flat-Section MSL 850 TG/850GSM TG M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 13.732 V/m; Power Drift = -0.00 dB Peak SAR (extrapolated) = 0.509 W/kg SAR(1 g) = 0.340 W/kg; SAR(10 g) = 0.238 W/kg Maximum value of SAR (measured) = 0.361 W/kg		
 <p>0 dB = 0.361 W/kg = -4.42 dBW/kg</p>		

GSM (850MHz with GPRS/Flat)

FLAT	TP	836.6 MHz
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Communication System: UID 0, Generic GSM (0); Frequency: 836.6 MHz

Medium parameters used (extrapolated): $f = 836.6 \text{ MHz}$; $\sigma = 0.979 \text{ S/m}$; $\epsilon_r = 53.843$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY Configuration:

- Probe: ES3DV3 - SN3127; ConvF(5.88, 5.88, 5.88); Calibrated: 8/21/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection), $z = -18.0, 32.0$
- Electronics: DAE4 Sn546; Calibrated: 8/19/2015
- Phantom: SAM 1559; Type: SAM; Serial: 1559
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Flat-Section MSL 850 TP/850GPRS TP M/Area Scan (9x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 0.704 W/kg

Flat-Section MSL 850 TP/850GPRS TP M/Zoom Scan (7x7x7)/Cube

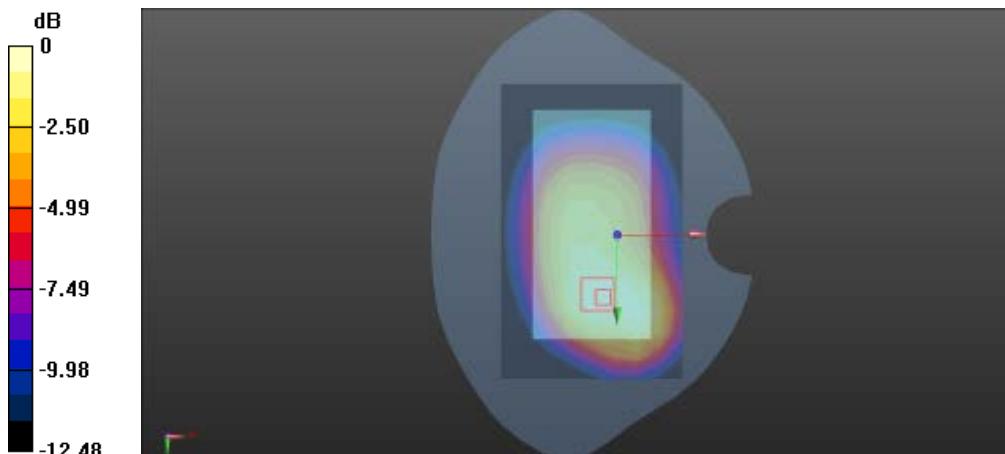
0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

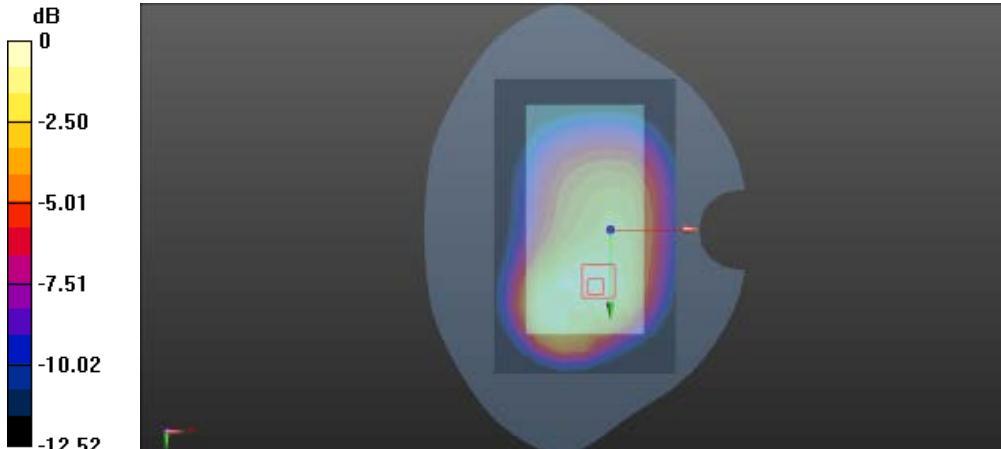
Reference Value = 22.994 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 1.06 W/kg

SAR(1 g) = 0.705 W/kg; SAR(10 g) = 0.486 W/kg

Maximum value of SAR (measured) = 0.754 W/kg



FLAT	TG	836.6 MHz
Communication System: UID 0, Generic GSM (0); Frequency: 836.6 MHz		
Medium parameters used (extrapolated): $f = 836.6 \text{ MHz}$; $\sigma = 0.979 \text{ S/m}$; $\epsilon_r = 53.843$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Flat Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> • Probe: ES3DV3 - SN3127; ConvF(5.88, 5.88, 5.88); Calibrated: 8/21/2015; • Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.0, 32.0$ • Electronics: DAE4 Sn546; Calibrated: 8/19/2015 • Phantom: SAM 1559; Type: SAM; Serial: 1559 • DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) 		
Flat-Section MSL 850 TG/850GPRS TG M/Area Scan (9x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.788 W/kg		
Flat-Section MSL 850 TG/850GPRS TG M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 21.146 V/m; Power Drift = -0.03 dB Peak SAR (extrapolated) = 1.15 W/kg SAR(1 g) = 0.754 W/kg; SAR(10 g) = 0.519 W/kg Maximum value of SAR (measured) = 0.801 W/kg		
 $0 \text{ dB} = 0.801 \text{ W/kg} = -0.96 \text{ dBW/kg}$		

GSM (850MHz with EGPRS/Flat)

FLAT	TP	836.6 MHz
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Communication System: UID 0, Generic GSM (0); Frequency: 836.6 MHz

Medium parameters used (extrapolated): $f = 836.6 \text{ MHz}$; $\sigma = 0.979 \text{ S/m}$; $\epsilon_r = 53.843$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY Configuration:

- Probe: ES3DV3 - SN3127; ConvF(5.88, 5.88, 5.88); Calibrated: 8/21/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection), $z = -18.0, 32.0$
- Electronics: DAE4 Sn546; Calibrated: 8/19/2015
- Phantom: SAM 1559; Type: SAM; Serial: 1559
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Flat-Section MSL 850 TP/850EGPRS TP M/Area Scan (9x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 0.821 W/kg

Flat-Section MSL 850 TP/850EGPRS TP M/Zoom Scan (7x7x7)/Cube

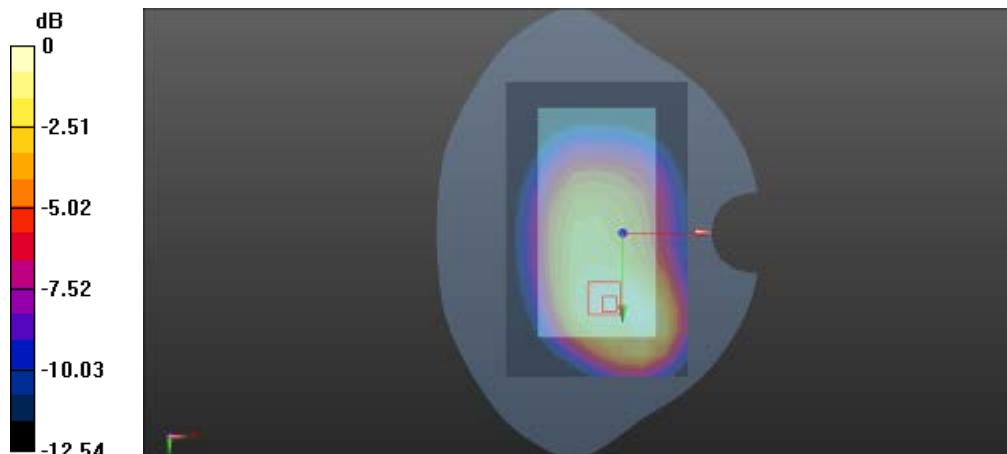
0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

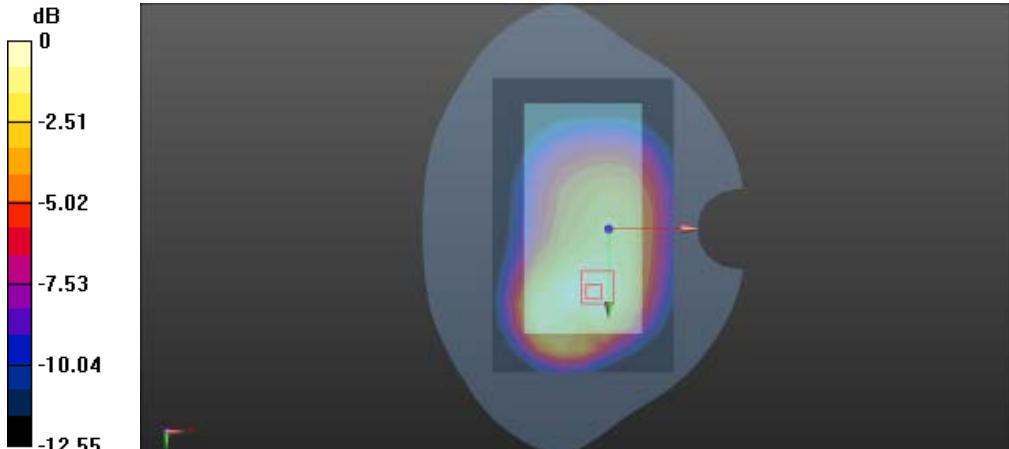
Reference Value = 23.420 V/m; Power Drift = 0.01 dB

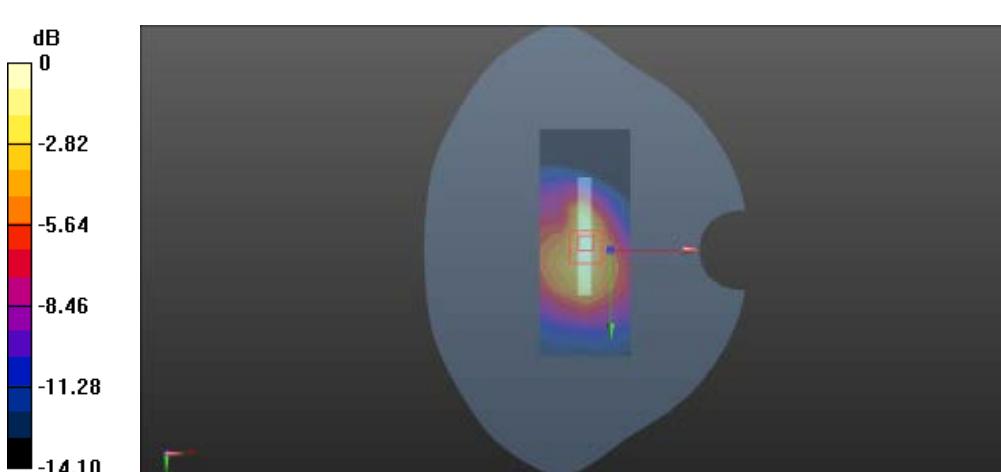
Peak SAR (extrapolated) = 1.20 W/kg

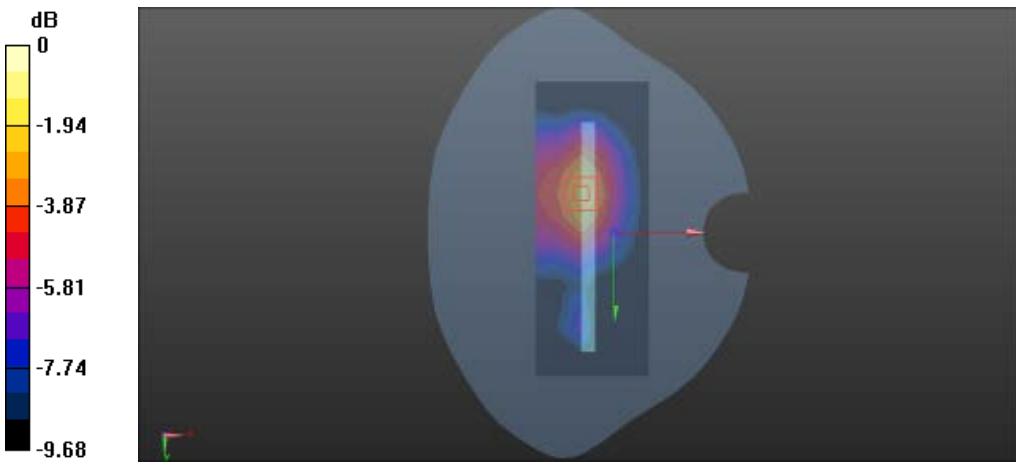
SAR(1 g) = 0.786 W/kg; SAR(10 g) = 0.539 W/kg

Maximum value of SAR (measured) = 0.846 W/kg

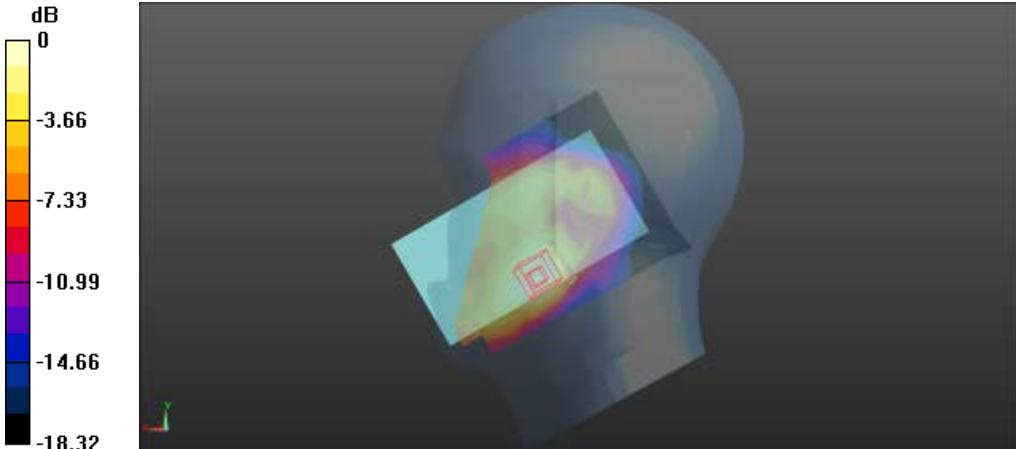


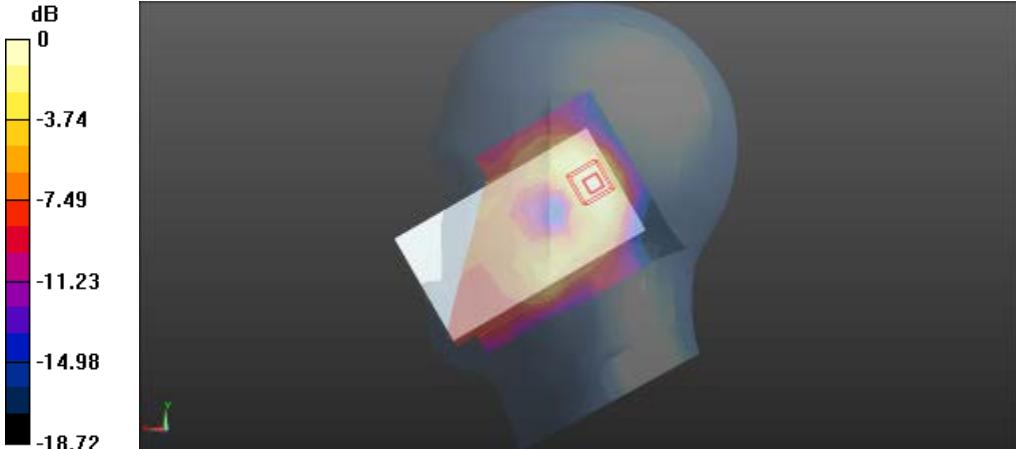
FLAT	TG	836.6 MHz
Communication System: UID 0, Generic GSM (0); Frequency: 836.6 MHz		
Medium parameters used (extrapolated): $f = 836.6 \text{ MHz}$; $\sigma = 0.979 \text{ S/m}$; $\epsilon_r = 53.843$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Flat Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> • Probe: ES3DV3 - SN3127; ConvF(5.88, 5.88, 5.88); Calibrated: 8/21/2015; • Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.0, 32.0$ • Electronics: DAE4 Sn546; Calibrated: 8/19/2015 • Phantom: SAM 1559; Type: SAM; Serial: 1559 • DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) 		
Flat-Section MSL 850 TG/850EGPRS TG M/Area Scan (9x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.748 W/kg		
Flat-Section MSL 850 TG/850EGPRS TG M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 20.674 V/m; Power Drift = 0.03 dB Peak SAR (extrapolated) = 1.15 W/kg SAR(1 g) = 0.756 W/kg; SAR(10 g) = 0.520 W/kg Maximum value of SAR (measured) = 0.809 W/kg		
 $0 \text{ dB} = 0.809 \text{ W/kg} = -0.92 \text{ dBW/kg}$		

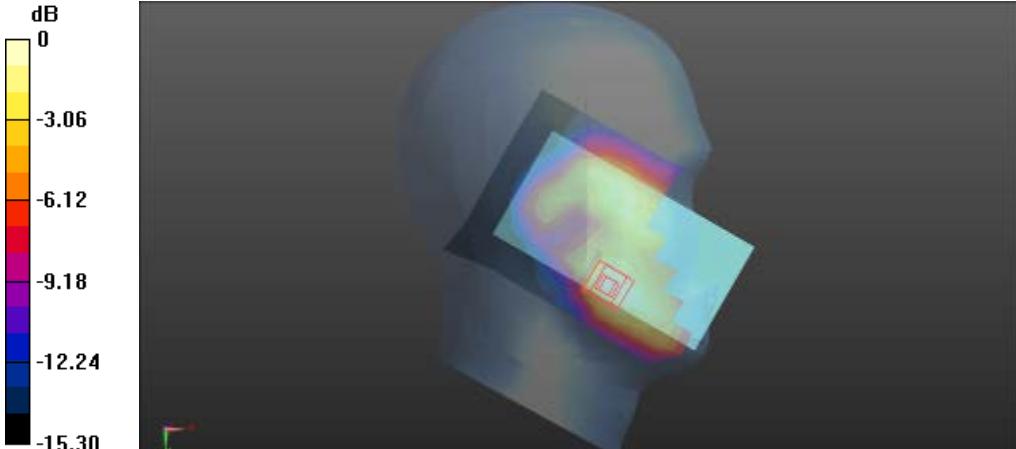
FLAT	Edge2	836.6 MHz
Communication System: UID 0, Generic GSM (0); Frequency: 836.6 MHz		
Medium parameters used (extrapolated): $f = 836.6 \text{ MHz}$; $\sigma = 0.979 \text{ S/m}$; $\epsilon_r = 53.843$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Flat Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(5.88, 5.88, 5.88); Calibrated: 8/21/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = -18.0, 32.0$ Electronics: DAE4 Sn546; Calibrated: 8/19/2015 Phantom: SAM 1559; Type: SAM; Serial: 1559 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) 		
Flat-Section MSL 850 HOT/850EGPRS edge 2/Area Scan (5x11x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.469 W/kg		
Flat-Section MSL 850 HOT/850EGPRS edge 2/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 21.958 V/m; Power Drift = -0.06 dB Peak SAR (extrapolated) = 0.757 W/kg SAR(1 g) = 0.411 W/kg; SAR(10 g) = 0.227 W/kg Maximum value of SAR (measured) = 0.460 W/kg		
 <p>0 dB = 0.460 W/kg = -3.37 dBW/kg</p>		

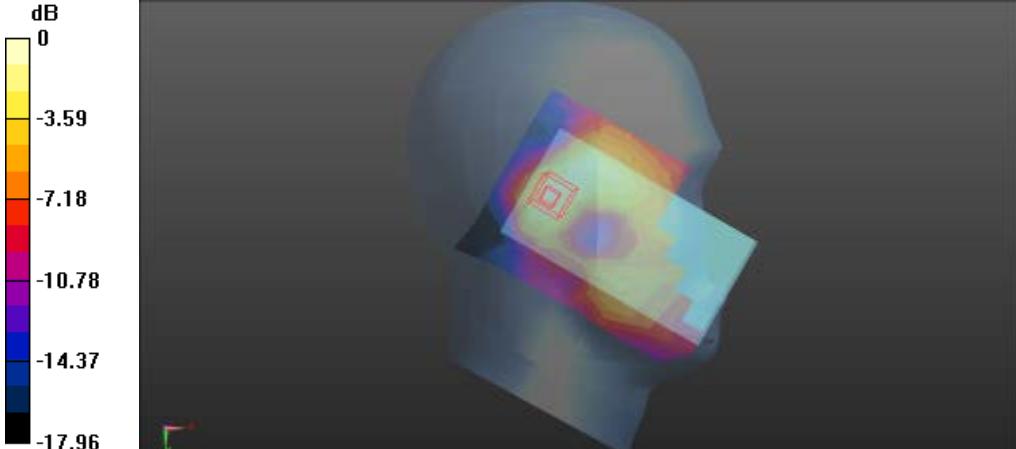
FLAT	Edge4	836.6 MHz
Communication System: UID 0, Generic GSM (0); Frequency: 836.6 MHz		
Medium parameters used (extrapolated): $f = 836.6 \text{ MHz}$; $\sigma = 0.979 \text{ S/m}$; $\epsilon_r = 53.843$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Flat Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> • Probe: ES3DV3 - SN3127; ConvF(5.88, 5.88, 5.88); Calibrated: 8/21/2015; • Sensor-Surface: 4mm (Mechanical Surface Detection), $z = -18.0, 32.0$ • Electronics: DAE4 Sn546; Calibrated: 8/19/2015 • Phantom: SAM 1559; Type: SAM; Serial: 1559 • DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) 		
Flat-Section MSL 850 HOT/850EGPRS edge 4/Area Scan (6x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.222 W/kg		
Flat-Section MSL 850 HOT/850EGPRS edge 4/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 12.931 V/m; Power Drift = 0.14 dB Peak SAR (extrapolated) = 0.510 W/kg SAR(1 g) = 0.356 W/kg; SAR(10 g) = 0.241 W/kg Maximum value of SAR (measured) = 0.381 W/kg		
 <p>0 dB = 0.381 W/kg = -4.19 dBW/kg</p>		

GSM (1900MHz/Head)

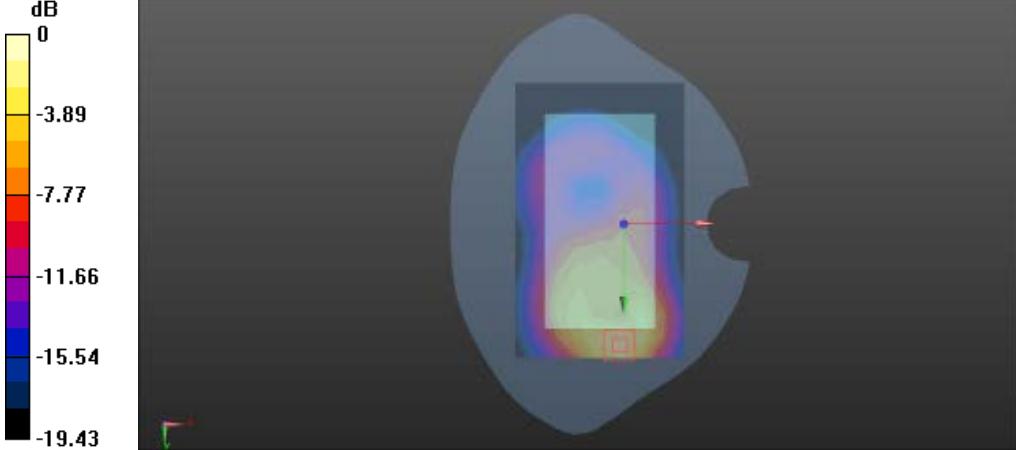
Left Side	Cheek	1880.0 MHz
Communication System: UID 0, Generic GSM (0); Frequency: 1880 MHz		
Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.45 \text{ S/m}$; $\epsilon_r = 39.74$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Left Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 8/21/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.0, 32.0$ Electronics: DAE4 Sn546; Calibrated: 8/19/2015 Phantom: SAM 1560; Type: SAM; Serial: 1560 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) 		
Head-Section Left HSL 1900/1900GSM touch M/Area Scan (9x13x1):		
Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$		
Maximum value of SAR (measured) = 0.0938 W/kg		
Head-Section Left HSL 1900/1900GSM touch M/Zoom Scan (7x7x7)/Cube 0:		
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$		
Reference Value = 4.635 V/m; Power Drift = -1.14 dB		
Peak SAR (extrapolated) = 0.142 W/kg		
SAR(1 g) = 0.090 W/kg; SAR(10 g) = 0.054 W/kg		
Maximum value of SAR (measured) = 0.0993 W/kg		
		
0 dB = 0.0993 W/kg = -10.03 dBW/kg		

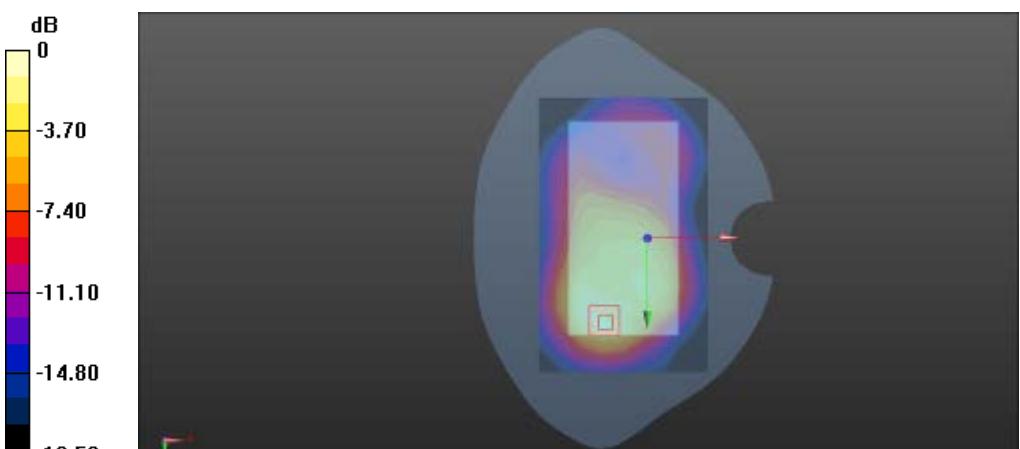
Left Side	tilt	1880 MHz
Communication System: UID 0, Generic GSM (0); Frequency: 1880 MHz		
Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.45 \text{ S/m}$; $\epsilon_r = 39.74$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Left Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> • Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 8/21/2015; • Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.0, 32.0$ • Electronics: DAE4 Sn546; Calibrated: 8/19/2015 • Phantom: SAM 1560; Type: SAM; Serial: 1560 • DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) 		
Head-Section Left HSL 1900/1900GSM tilt M/Area Scan (9x13x1):		
Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$		
Maximum value of SAR (measured) = 0.0484 W/kg		
Head-Section Left HSL 1900/1900GSM tilt M/Zoom Scan (7x7x7)/Cube 0:		
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$		
Reference Value = 5.582 V/m; Power Drift = 0.20 dB		
Peak SAR (extrapolated) = 0.0750 W/kg		
SAR(1 g) = 0.044 W/kg; SAR(10 g) = 0.025 W/kg		
Maximum value of SAR (measured) = 0.0492 W/kg		
 <p>0 dB = 0.0492 W/kg = -13.08 dBW/kg</p>		

Right Side	Cheek	1880 MHz
Communication System: UID 0, Generic GSM (0); Frequency: 1880 MHz		
Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.45 \text{ S/m}$; $\epsilon_r = 39.74$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Right Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> • Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 8/21/2015; • Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.0, 32.0$ • Electronics: DAE4 Sn546; Calibrated: 8/19/2015 • Phantom: SAM 1560; Type: SAM; Serial: 1560 • DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) 		
Head-Section Right HSL 1900/1900GSM touch M/Area Scan (9x13x1):		
Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$		
Maximum value of SAR (measured) = 0.0724 W/kg		
Head-Section Right HSL 1900/1900GSM touch M/Zoom Scan (7x7x7)/Cube		
0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$		
Reference Value = 2.801 V/m; Power Drift = 1.54 dB		
Peak SAR (extrapolated) = 0.104 W/kg		
SAR(1 g) = 0.066 W/kg; SAR(10 g) = 0.039 W/kg		
Maximum value of SAR (measured) = 0.0701 W/kg		
 <p>0 dB = 0.0701 W/kg = -11.54 dBW/kg</p>		

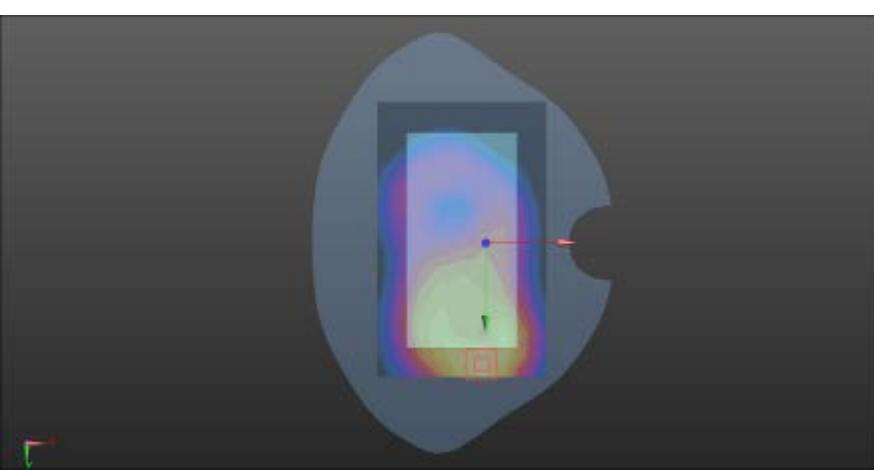
Right Side	tilt	1880.0 MHz
Communication System: UID 0, Generic GSM (0); Frequency: 1880 MHz		
Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.45 \text{ S/m}$; $\epsilon_r = 39.74$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Right Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> • Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 8/21/2015; • Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.0, 32.0$ • Electronics: DAE4 Sn546; Calibrated: 8/19/2015 • Phantom: SAM 1560; Type: SAM; Serial: 1560 • DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) 		
Head-Section Right HSL 1900/1900GSM tilt M/Area Scan (9x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.0298 W/kg		
Head-Section Right HSL 1900/1900GSM tilt M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 4.530 V/m; Power Drift = -0.02 dB Peak SAR (extrapolated) = 0.0590 W/kg SAR(1 g) = 0.033 W/kg; SAR(10 g) = 0.018 W/kg Maximum value of SAR (measured) = 0.0367 W/kg		
 $0 \text{ dB} = 0.0367 \text{ W/kg} = -14.35 \text{ dBW/kg}$		

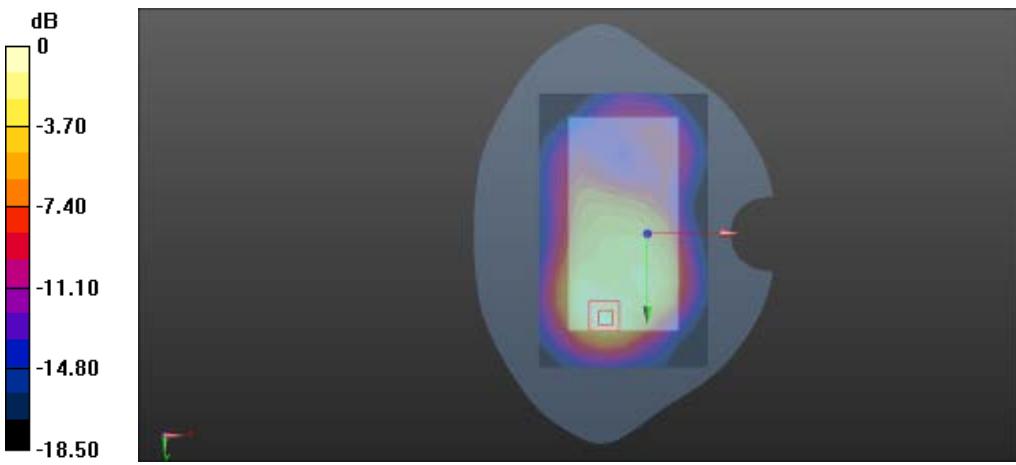
GSM with headset (1900MHz/Flat)

FLAT	TP	1880 MHz
<p>Communication System: UID 0, Generic GSM (0); Frequency: 1880 MHz Medium parameters used: $f = 1880$ MHz; $\sigma = 1.57$ S/m; $\epsilon_r = 51.14$; $\rho = 1000$ kg/m3 Phantom section: Flat Section Measurement Standard: DASY5 (IEEE1528-2013)</p> <p>DASY Configuration:</p> <ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.67, 4.67, 4.67); Calibrated: 8/21/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.0, 32.0 Electronics: DAE4 Sn546; Calibrated: 8/19/2015 Phantom: SAM 1560; Type: SAM; Serial: 1560 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) <p>Flat-Section MSL 1900 TP/1900GPRS TP M 12-11-1/Area Scan (9x14x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.165 W/kg</p> <p>Flat-Section MSL 1900 TP/1900GPRS TP M 12-11-1/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 3.010 V/m; Power Drift = 0.01 dB Peak SAR (extrapolated) = 0.324 W/kg SAR(1 g) = 0.188 W/kg; SAR(10 g) = 0.092 W/kg Maximum value of SAR (measured) = 0.198 W/kg</p>  <p>0 dB = 0.198 W/kg = -7.03 dBW/kg</p>		

FLAT	TG	1880 MHz
Communication System: UID 0, Generic GSM (0); Frequency: 1880 MHz		
Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.57 \text{ S/m}$; $\epsilon_r = 51.14$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Flat Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> • Probe: ES3DV3 - SN3127; ConvF(4.67, 4.67, 4.67); Calibrated: 8/21/2015; • Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.0, 32.0$ • Electronics: DAE4 Sn546; Calibrated: 8/19/2015 • Phantom: SAM 1560; Type: SAM; Serial: 1560 • DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) 		
Flat-Section MSL 1900 TG/1900GPRS TG M 12-11-2/Area Scan (9x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.115 W/kg		
Flat-Section MSL 1900 TG/1900GPRS TG M 12-11-2/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 6.198 V/m; Power Drift = 0.10 dB Peak SAR (extrapolated) = 0.216 W/kg SAR(1 g) = 0.121 W/kg; SAR(10 g) = 0.061 W/kg Maximum value of SAR (measured) = 0.131 W/kg		
 <p>0 dB = 0.131 W/kg = -8.83 dBW/kg</p>		

GSM (1900MHz with GPRS/Flat)

FLAT	TP	1880 MHz
Communication System: UID 0, Generic GSM (0); Frequency: 1880 MHz		
Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.57 \text{ S/m}$; $\epsilon_r = 51.14$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Flat Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.67, 4.67, 4.67); Calibrated: 8/21/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.0, 32.0$ Electronics: DAE4 Sn546; Calibrated: 8/19/2015 Phantom: SAM 1560; Type: SAM; Serial: 1560 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) 		
Flat-Section MSL 1900 TP/1900GPRS TP M 12-11-1/Area Scan (9x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.171 W/kg		
Flat-Section MSL 1900 TP/1900GPRS TP M 12-11-1/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 3.920 V/m; Power Drift = 0.05 dB Peak SAR (extrapolated) = 0.369 W/kg SAR(1 g) = 0.193 W/kg; SAR(10 g) = 0.097 W/kg Maximum value of SAR (measured) = 0.221 W/kg		
 $0 \text{ dB} = 0.221 \text{ W/kg} = -6.56 \text{ dBW/kg}$		

FLAT	TG	1880 MHz
Communication System: UID 0, Generic GSM (0); Frequency: 1880 MHz		
Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.57 \text{ S/m}$; $\epsilon_r = 51.14$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Flat Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.67, 4.67, 4.67); Calibrated: 8/21/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.0, 32.0$ Electronics: DAE4 Sn546; Calibrated: 8/19/2015 Phantom: SAM 1560; Type: SAM; Serial: 1560 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) 		
Flat-Section MSL 1900 TG/1900GPRS TG M 12-11-2/Area Scan (9x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.124 W/kg		
Flat-Section MSL 1900 TG/1900GPRS TG M 12-11-2/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 6.497 V/m; Power Drift = 0.03 dB Peak SAR (extrapolated) = 0.228 W/kg SAR(1 g) = 0.131 W/kg; SAR(10 g) = 0.071 W/kg Maximum value of SAR (measured) = 0.144 W/kg		
 <p>A heatmap showing SAR distribution in a flat section of a phantom. The color scale on the left indicates SAR values in dB, ranging from -18.50 (dark blue) to 0 (yellow). The heatmap shows a high-intensity region (yellow/orange) centered around a rectangular area, representing the device under test. A small red square is also visible near the bottom center. A legend at the bottom provides the conversion: $0 \text{ dB} = 0.144 \text{ W/kg} = -8.42 \text{ dBW/kg}$.</p>		

GSM (1900MHz with EGPRS/Flat)

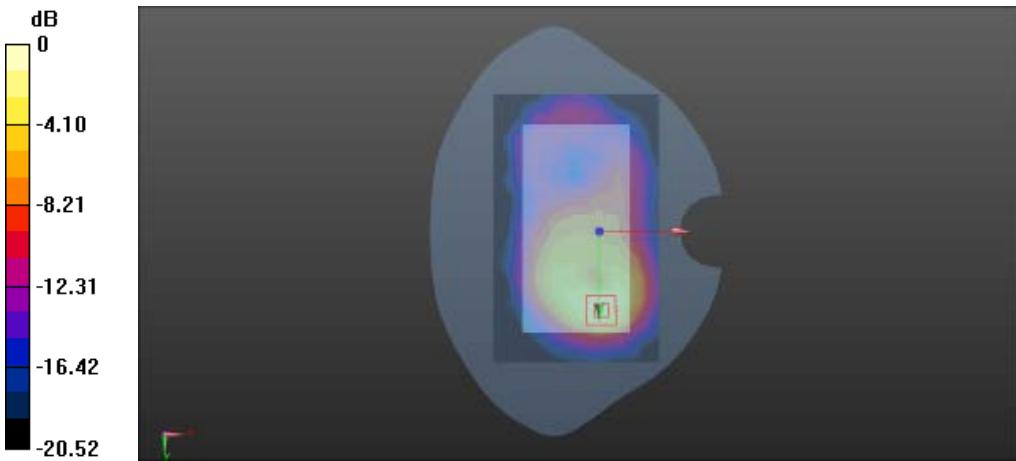
FLAT	TP	1880 MHz
<p>Communication System: UID 0, Generic GSM (0); Frequency: 1880 MHz Medium parameters used: $f = 1880$ MHz; $\sigma = 1.57$ S/m; $\epsilon_r = 51.14$; $\rho = 1000$ kg/m³ Phantom section: Flat Section Measurement Standard: DASY5 (IEEE1528-2013)</p>		

DASY Configuration:

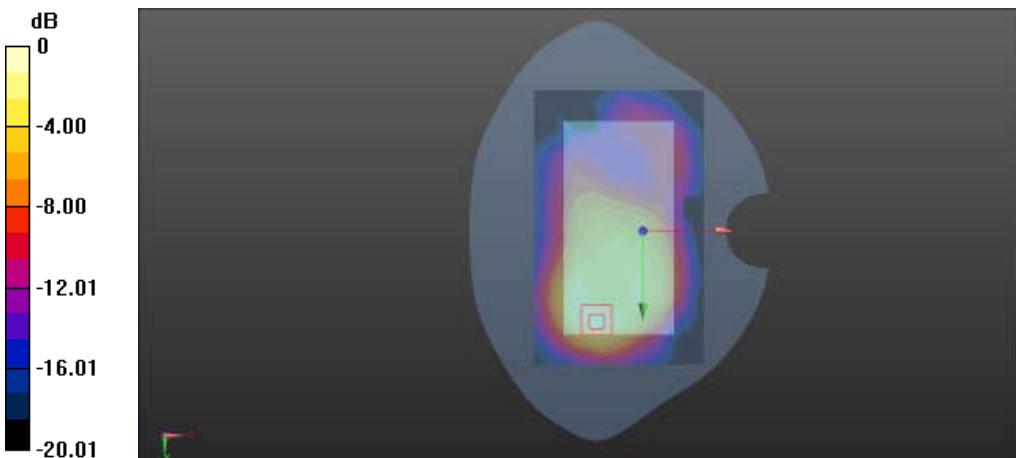
- Probe: ES3DV3 - SN3127; ConvF(4.67, 4.67, 4.67); Calibrated: 8/21/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection), $z = -18.0, 32.0$
- Electronics: DAE4 Sn546; Calibrated: 8/19/2015
- Phantom: SAM 1560; Type: SAM; Serial: 1560
- DASY5 52.8.7(1137); SEMCAD X 14.6.10(7164)

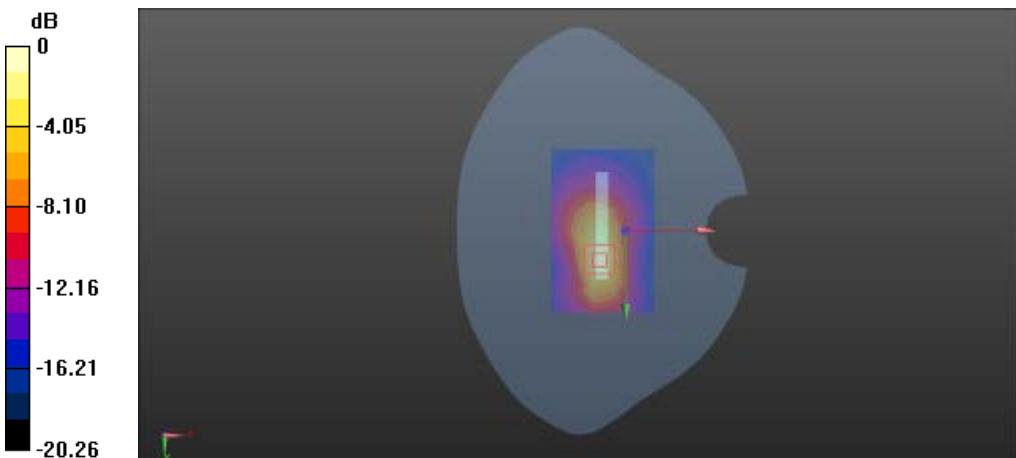
Flat-Section MSL 1900 TP/1900EGPRS TP M 12-11-1/Area Scan (9x14x1): Measurement grid: $dx=15$ mm, $dy=15$ mm
Maximum value of SAR (measured) = 0.0574 W/kg

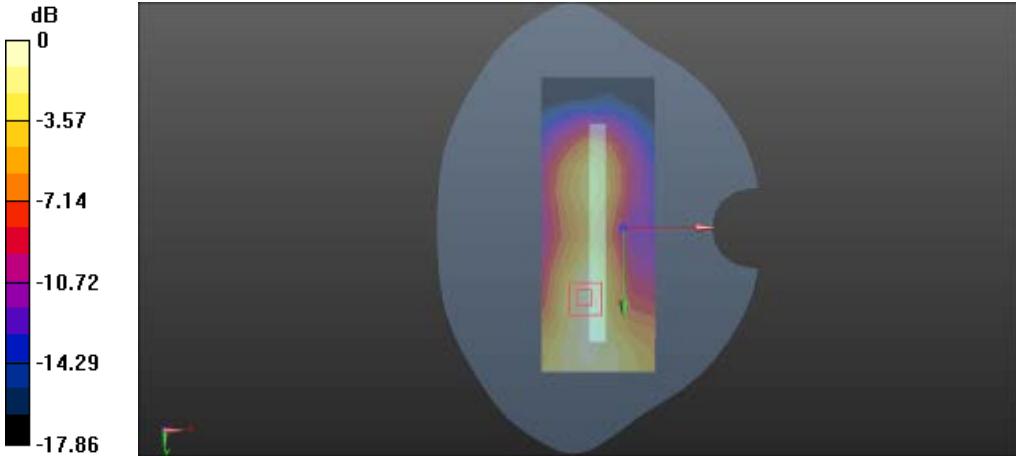
Flat-Section MSL 1900 TP/1900EGPRS TP M 12-11-1/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm
Reference Value = 3.584 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.142 W/kg
SAR(1 g) = 0.075 W/kg; SAR(10 g) = 0.037 W/kg
Maximum value of SAR (measured) = 0.0856 W/kg



A heatmap showing SAR distribution in a flat section. The color scale on the left indicates power density in dB, ranging from -20.52 (dark blue) to 0 (yellow). The heatmap shows a high-power region (red/orange) centered in a rectangular phantom, with a color bar at the bottom indicating $0 \text{ dB} = 0.0856 \text{ W/kg} = -10.68 \text{ dBW/kg}$.

FLAT	TG	1880 MHz
Communication System: UID 0, Generic GSM (0); Frequency: 1880 MHz		
Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.57 \text{ S/m}$; $\epsilon_r = 51.14$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Flat Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.67, 4.67, 4.67); Calibrated: 8/21/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = -18.0, 32.0$ Electronics: DAE4 Sn546; Calibrated: 8/19/2015 Phantom: SAM 1560; Type: SAM; Serial: 1560 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) 		
Flat-Section MSL 1900 TG/1900EGPRS TG M 12-11-1/Area Scan		
(9x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$		
Maximum value of SAR (measured) = 0.0489 W/kg		
Flat-Section MSL 1900 TG/1900EGPRS TG M 12-11-1/Zoom Scan (7x7x7)/Cube		
0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$		
Reference Value = 3.490 V/m; Power Drift = 0.04 dB		
Peak SAR (extrapolated) = 0.0800 W/kg		
SAR(1 g) = 0.044 W/kg; SAR(10 g) = 0.024 W/kg		
Maximum value of SAR (measured) = 0.0499 W/kg		
 <p>A 3D SAR heatmap showing power density distribution within a phantom model. A color scale on the left indicates power density in dB, ranging from -20.01 (dark blue) to 0 (yellow). The heatmap shows a high-power region (red/orange) centered around a rectangular volume, representing the mobile phone body. A small red cube at the bottom right indicates the measurement point.</p> <p>0 dB = 0.0499 W/kg = -13.02 dBW/kg</p>		

FLAT	EDGE2	1880 MHz
Communication System: UID 0, Generic GSM (0); Frequency: 1880 MHz		
Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.57 \text{ S/m}$; $\epsilon_r = 51.14$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Flat Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.67, 4.67, 4.67); Calibrated: 8/21/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.0, 32.0$ Electronics: DAE4 Sn546; Calibrated: 8/19/2015 Phantom: SAM 1560; Type: SAM; Serial: 1560 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) 		
Flat-Section MSL hotspot/1900GPRS edge 2 H 12-11-2/Area Scan (6x9x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.224 W/kg		
Flat-Section MSL hotspot/1900GPRS edge 2 H 12-11-2/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 9.400 V/m; Power Drift = 0.12 dB Peak SAR (extrapolated) = 0.506 W/kg SAR(1 g) = 0.254 W/kg; SAR(10 g) = 0.122 W/kg Maximum value of SAR (measured) = 0.289 W/kg		
 <p>0 dB = 0.289 W/kg = -5.39 dBW/kg</p>		

FLAT	EDGE4	1880 MHz
Communication System: UID 0, Generic GSM (0); Frequency: 1880 MHz		
Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.57 \text{ S/m}$; $\epsilon_r = 51.14$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Flat Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.67, 4.67, 4.67); Calibrated: 8/21/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = -18.0, 32.0$ Electronics: DAE4 Sn546; Calibrated: 8/19/2015 Phantom: SAM 1560; Type: SAM; Serial: 1560 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) 		
Flat-Section MSL hotspot/1900GPRS edge 4/Area Scan (6x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.133 W/kg		
Flat-Section MSL hotspot/1900GPRS edge 4/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 5.592 V/m; Power Drift = 0.10 dB Peak SAR (extrapolated) = 0.229 W/kg SAR(1 g) = 0.125 W/kg; SAR(10 g) = 0.069 W/kg Maximum value of SAR (measured) = 0.138 W/kg		
 <p>0 dB = 0.138 W/kg = -8.60 dBW/kg</p>		

WCDMA BAND2 (Head)

Left Side	Cheek	1880 MHz
<p>Communication System: UID 0, band 2 (0); Frequency: 1880 MHz Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.45 \text{ S/m}$; $\epsilon_r = 39.74$; $\rho = 1000 \text{ kg/m}^3$ Phantom section: Left Section Measurement Standard: DASY5 (IEEE1528-2013)</p>		

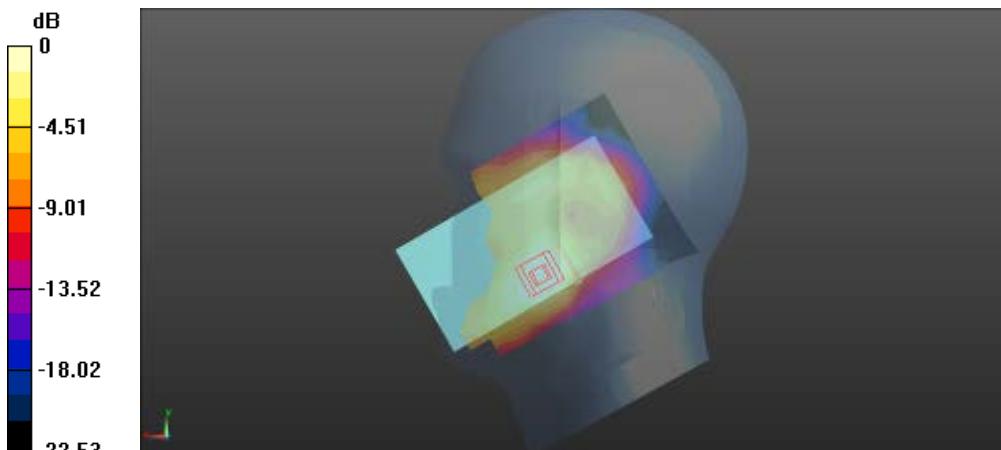
DASY Configuration:

- Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 8/21/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.0, 32.0$
- Electronics: DAE4 Sn546; Calibrated: 8/19/2015
- Phantom: SAM 1560; Type: SAM; Serial: 1560
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

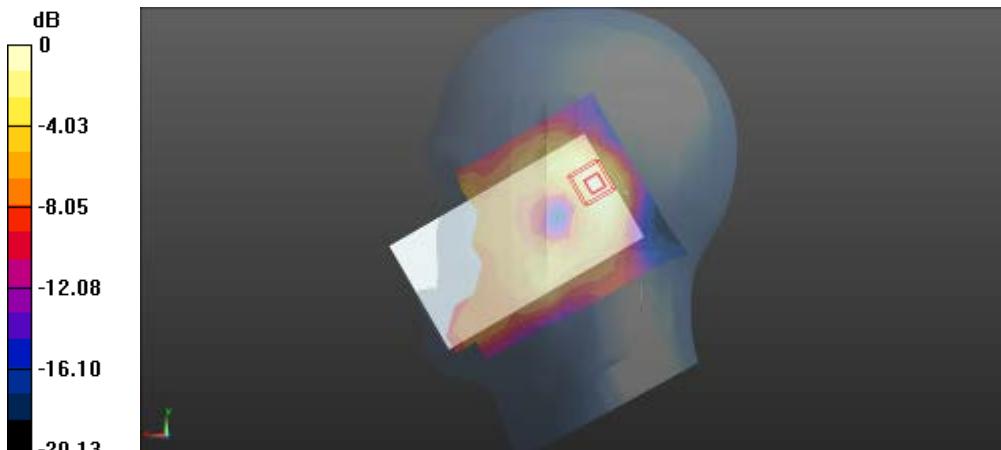
Head-Section Left HSL Band 2/WCDMA Band 2 touch M/Area Scan (9x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (measured) = 0.217 W/kg

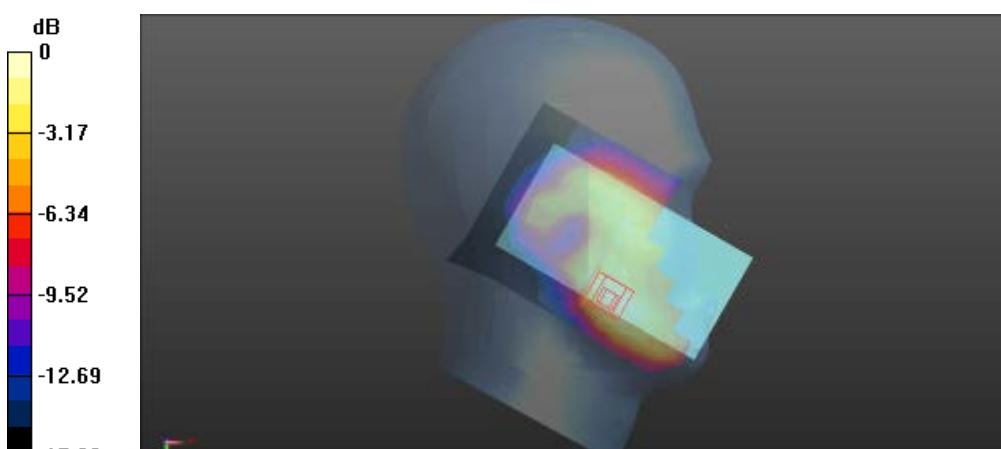
Head-Section Left HSL Band 2/WCDMA Band 2 touch M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
Reference Value = 7.235 V/m; Power Drift = -0.19 dB
Peak SAR (extrapolated) = 0.307 W/kg

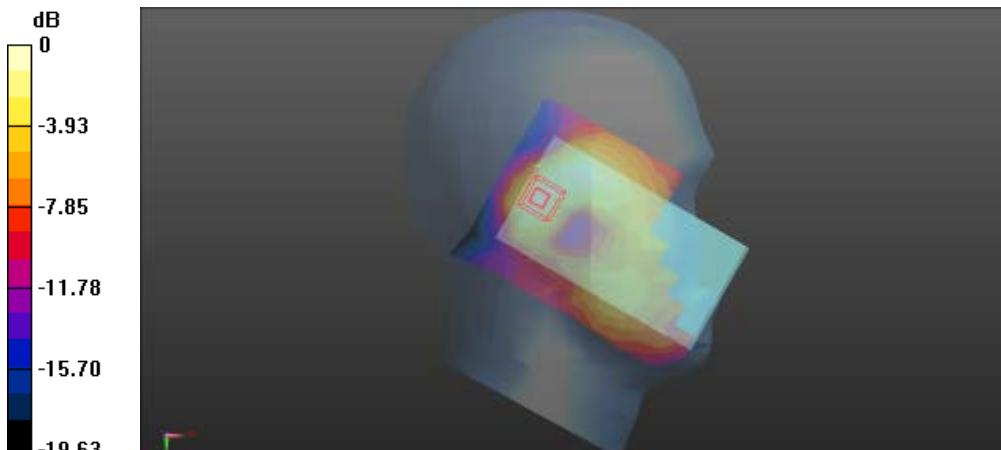
SAR(1 g) = 0.193 W/kg; SAR(10 g) = 0.116 W/kg
Maximum value of SAR (measured) = 0.208 W/kg



0 dB = 0.208 W/kg = -6.82 dBW/kg

Left Side	Tilt	1880 MHz
Communication System: UID 0, band 2 (0); Frequency: 1880 MHz		
Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.45 \text{ S/m}$; $\epsilon_r = 39.74$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Left Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 8/21/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.0, 32.0$ Electronics: DAE4 Sn546; Calibrated: 8/19/2015 Phantom: SAM 1560; Type: SAM; Serial: 1560 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) 		
Head-Section Left HSL Band 2/WCDMA Band 2 tilt M/Area Scan (9x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.0944 W/kg		
Head-Section Left HSL Band 2/WCDMA Band 2 tilt M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 8.217 V/m; Power Drift = 0.05 dB Peak SAR (extrapolated) = 0.156 W/kg SAR(1 g) = 0.090 W/kg; SAR(10 g) = 0.050 W/kg Maximum value of SAR (measured) = 0.100 W/kg		
 $0 \text{ dB} = 0.100 \text{ W/kg} = -10.00 \text{ dBW/kg}$		

Right Side	Cheek	1880 MHz
Communication System: UID 0, band 2 (0); Frequency: 1880 MHz		
Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.45 \text{ S/m}$; $\epsilon_r = 39.74$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Right Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 8/21/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.0, 32.0$ Electronics: DAE4 Sn546; Calibrated: 8/19/2015 Phantom: SAM 1560; Type: SAM; Serial: 1560 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) 		
Head-Section Right HSL Band 2/WCDMA Band 2 touch M/Area Scan (9x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.152 W/kg		
Head-Section Right HSL Band 2/WCDMA Band 2 touch M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 5.916 V/m; Power Drift = -0.12 dB Peak SAR (extrapolated) = 0.227 W/kg SAR(1 g) = 0.142 W/kg; SAR(10 g) = 0.086 W/kg		
 <p>0 dB = 0.152 W/kg = -8.18 dBW/kg</p>		

Right Side	Tilt	1880 MHz
Communication System: UID 0, band 2 (0); Frequency: 1880 MHz		
Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.45 \text{ S/m}$; $\epsilon_r = 39.74$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Right Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 8/21/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.0, 32.0$ Electronics: DAE4 Sn546; Calibrated: 8/19/2015 Phantom: SAM 1560; Type: SAM; Serial: 1560 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) 		
Head-Section Right HSL Band 2/WCDMA Band 2 tilt M/Area Scan (9x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.0744 W/kg		
Head-Section Right HSL Band 2/WCDMA Band 2 tilt M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 7.154 V/m; Power Drift = 0.01 dB Peak SAR (extrapolated) = 0.123 W/kg SAR(1 g) = 0.068 W/kg; SAR(10 g) = 0.037 W/kg Maximum value of SAR (measured) = 0.0754 W/kg		
 <p>0 dB = 0.0754 W/kg = -11.23 dBW/kg</p>		

WCDMA BAND2 (Flat)

FLAT	Towards phantom	1880 MHz
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Communication System: UID 0, band 2 (0); Frequency: 1880 MHz

Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.57 \text{ S/m}$; $\epsilon_r = 51.14$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY Configuration:

- Probe: ES3DV3 - SN3127; ConvF(4.67, 4.67, 4.67); Calibrated: 8/21/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection), $z = -18.0, 32.0$
- Electronics: DAE4 Sn546; Calibrated: 8/19/2015
- Phantom: SAM 1560; Type: SAM; Serial: 1560
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Flat-Section MSL Band 2 TP/WCDMA Band 2 TP M 2 2 2/Area Scan (9x14x1):

Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 0.376 W/kg

Flat-Section MSL Band 2 TP/WCDMA Band 2 TP M 2 2 2/Zoom Scan

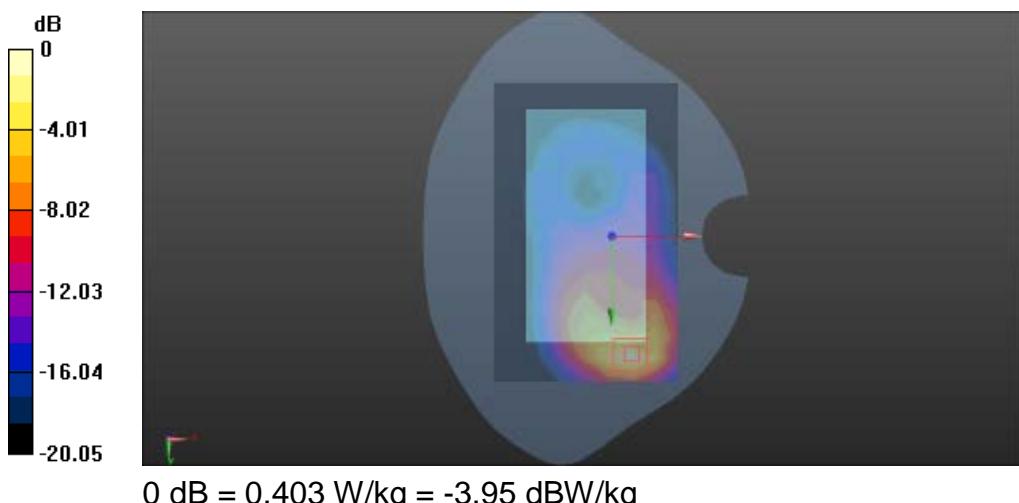
(7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

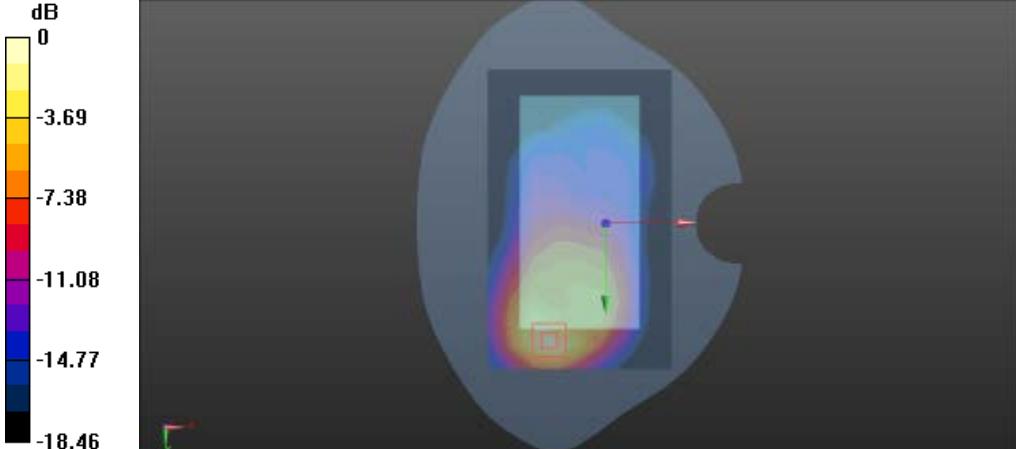
Reference Value = 3.915 V/m; Power Drift = 0.10 dB

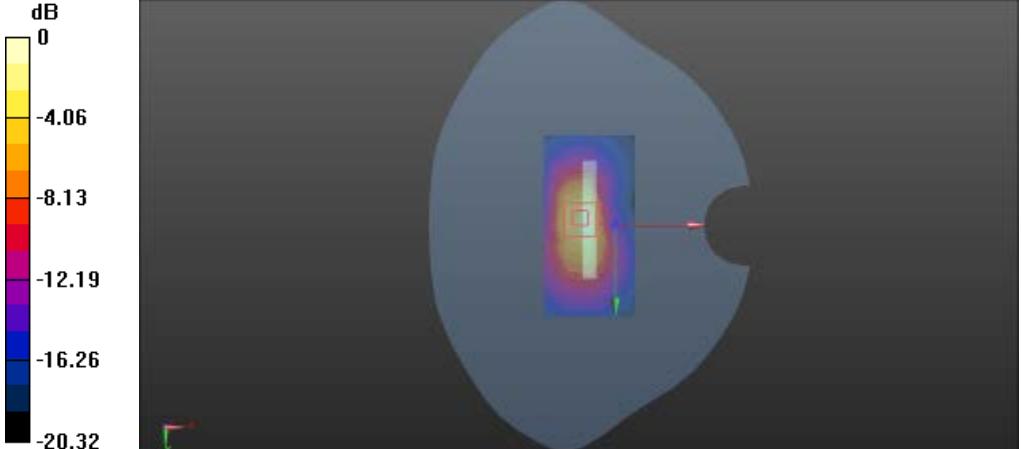
Peak SAR (extrapolated) = 0.718 W/kg

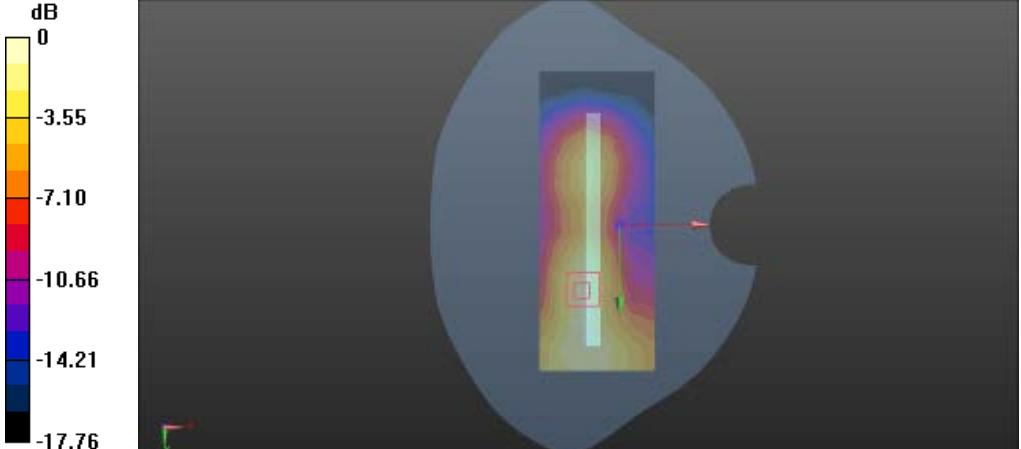
SAR(1 g) = 0.363 W/kg; SAR(10 g) = 0.171 W/kg

Maximum value of SAR (measured) = 0.403 W/kg

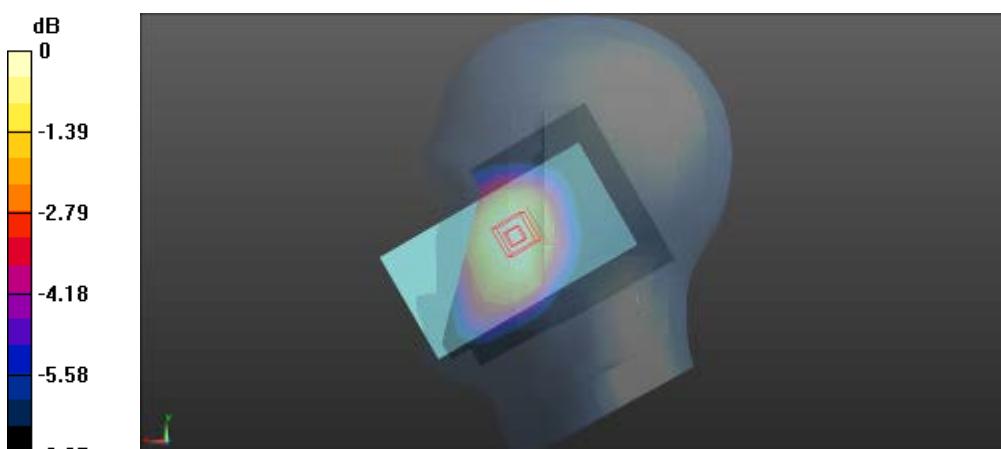


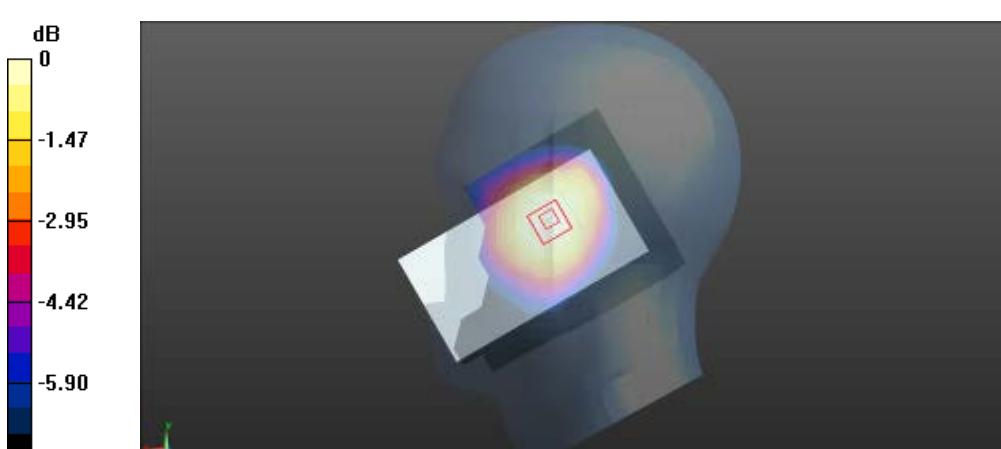
FLAT	Towards ground	1880 MHz
Communication System: UID 0, band 2 (0); Frequency: 1880 MHz		
Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.57 \text{ S/m}$; $\epsilon_r = 51.14$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Flat Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.67, 4.67, 4.67); Calibrated: 8/21/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = -18.0, 32.0$ Electronics: DAE4 Sn546; Calibrated: 8/19/2015 Phantom: SAM 1560; Type: SAM; Serial: 1560 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) 		
Flat-Section MSL Band 2 TG/WCDMA Band 2 TG M 2/Area Scan (9x14x1):		
Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$		
Maximum value of SAR (measured) = 0.235 W/kg		
Flat-Section MSL Band 2 TG/WCDMA Band 2 TG M 2/Zoom Scan (7x7x7)/Cube 0:		
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$		
Reference Value = 4.576 V/m; Power Drift = 0.05 dB		
Peak SAR (extrapolated) = 0.414 W/kg		
SAR(1 g) = 0.231 W/kg; SAR(10 g) = 0.119 W/kg		
Maximum value of SAR (measured) = 0.260 W/kg		
 <p>A 2D heatmap showing SAR distribution in a rectangular phantom. A color scale on the left indicates SAR values from -18.46 dB to 0 dB. The highest SAR values are concentrated in the center of the phantom, with a maximum measured value of 0.235 W/kg.</p> <p>0 dB = 0.260 W/kg = -5.85 dBW/kg</p>		

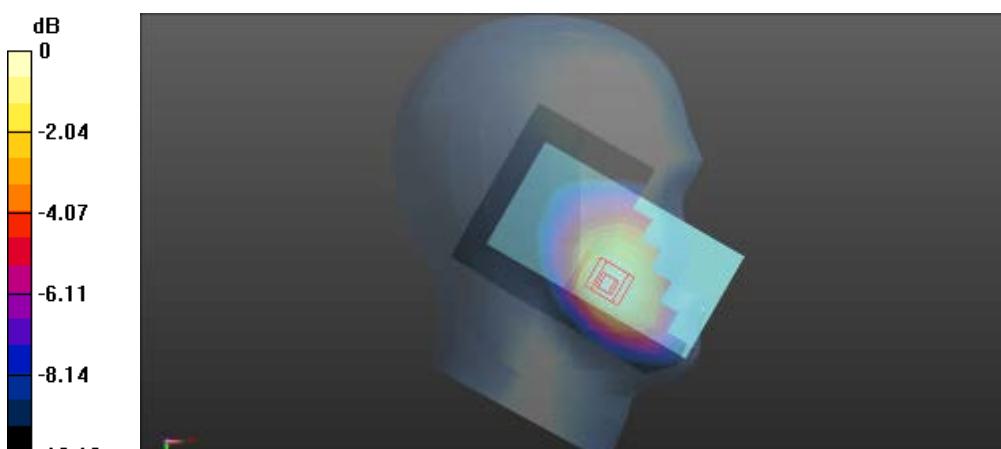
FLAT	Edge2	1880 MHz
Communication System: UID 0, band 2 (0); Frequency: 1880 MHz		
Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.57 \text{ S/m}$; $\epsilon_r = 51.14$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Flat Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.67, 4.67, 4.67); Calibrated: 8/21/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = -18.0, 32.0$ Electronics: DAE4 Sn546; Calibrated: 8/19/2015 Phantom: SAM 1560; Type: SAM; Serial: 1560 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) 		
Flat-Section MSL hotspot/WCDMA Band 2 edge 2 M 3 2 2 2/Area Scan (5x9x1):		
Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$		
Maximum value of SAR (measured) = 0.277 W/kg		
Flat-Section MSL hotspot/WCDMA Band 2 edge 2 M 3 2 2 2/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$		
Reference Value = 13.447 V/m; Power Drift = 0.18 dB		
Peak SAR (extrapolated) = 0.665 W/kg		
SAR(1 g) = 0.344 W/kg; SAR(10 g) = 0.164 W/kg		
Maximum value of SAR (measured) = 0.397 W/kg		
 <p>0 dB = 0.397 W/kg = -4.01 dBW/kg</p>		

FLAT	Edge4	1880 MHz
Communication System: UID 0, band 2 (0); Frequency: 1880 MHz		
Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.57 \text{ S/m}$; $\epsilon_r = 51.14$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Flat Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.67, 4.67, 4.67); Calibrated: 8/21/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = -18.0, 32.0$ Electronics: DAE4 Sn546; Calibrated: 8/19/2015 Phantom: SAM 1560; Type: SAM; Serial: 1560 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) 		
Flat-Section MSL hotspot/WCDMA Band 2 edge 4 M/Area Scan (6x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.153 W/kg		
Flat-Section MSL hotspot/WCDMA Band 2 edge 4 M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 5.813 V/m; Power Drift = 0.16 dB Peak SAR (extrapolated) = 0.263 W/kg SAR(1 g) = 0.149 W/kg; SAR(10 g) = 0.081 W/kg Maximum value of SAR (measured) = 0.164 W/kg		
 <p>0 dB = 0.164 W/kg = -7.85 dBW/kg</p>		

WCDMA BAND 5 (Head)

Left Side	Cheek	836.5 MHz
<p>Communication System: UID 0, band 5 (0); Frequency: 836.6 MHz Medium parameters used (interpolated): $f = 836.6 \text{ MHz}$; $\sigma = 0.89 \text{ S/m}$; $\epsilon_r = 41.478$; $\rho = 1000 \text{ kg/m}^3$ Phantom section: Left Section Measurement Standard: DASY5 (IEEE1528-2013)</p> <p>DASY Configuration:</p> <ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(5.97, 5.97, 5.97); Calibrated: 8/21/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.0, 32.0$ Electronics: DAE4 Sn546; Calibrated: 8/19/2015 Phantom: SAM 1559; Type: SAM; Serial: 1559 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) <p>Head-Section Left HSL Band 5/WCDMA Band 5 touch M/Area Scan (9x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.167 W/kg</p> <p>Head-Section Left HSL Band 5/WCDMA Band 5 touch M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 4.234 V/m; Power Drift = 0.06 dB Peak SAR (extrapolated) = 0.192 W/kg</p> <p>SAR(1 g) = 0.162 W/kg; SAR(10 g) = 0.128 W/kg Maximum value of SAR (measured) = 0.170 W/kg</p>  <p>0 dB = 0.170 W/kg = -7.70 dBW/kg</p>		

Left Side	Tilt	836.6 MHz
Communication System: UID 0, band 5 (0); Frequency: 836.6 MHz		
Medium parameters used (interpolated): $f = 836.6 \text{ MHz}$; $\sigma = 0.89 \text{ S/m}$; $\epsilon_r = 41.478$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Left Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> • Probe: ES3DV3 - SN3127; ConvF(5.97, 5.97, 5.97); Calibrated: 8/21/2015; • Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.0, 32.0$ • Electronics: DAE4 Sn546; Calibrated: 8/19/2015 • Phantom: SAM 1559; Type: SAM; Serial: 1559 • DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) 		
Head-Section Left HSL Band 5/WCDMA Band 5 tilt M/Area Scan (9x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.118 W/kg		
Head-Section Left HSL Band 5/WCDMA Band 5 tilt M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 8.071 V/m; Power Drift = 0.10 dB Peak SAR (extrapolated) = 0.136 W/kg SAR(1 g) = 0.115 W/kg; SAR(10 g) = 0.091 W/kg Maximum value of SAR (measured) = 0.120 W/kg		
 $0 \text{ dB} = 0.120 \text{ W/kg} = -9.21 \text{ dBW/kg}$		

Right Side	Cheek	836.5 MHz
Communication System: UID 0, band 5 (0); Frequency: 836.6 MHz		
Medium parameters used (interpolated): $f = 836.6 \text{ MHz}$; $\sigma = 0.89 \text{ S/m}$; $\epsilon_r = 41.478$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Right Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(5.97, 5.97, 5.97); Calibrated: 8/21/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.0, 32.0$ Electronics: DAE4 Sn546; Calibrated: 8/19/2015 Phantom: SAM 1559; Type: SAM; Serial: 1559 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) 		
Head-Section Right HSL Band 5/WCDMA Band 5 touch M/Area Scan (9x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.250 W/kg		
Head-Section Right HSL Band 5/WCDMA Band 5 touch M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 4.338 V/m; Power Drift = 0.14 dB Peak SAR (extrapolated) = 0.329 W/kg SAR(1 g) = 0.254 W/kg; SAR(10 g) = 0.191 W/kg Maximum value of SAR (measured) = 0.268 W/kg		
 $0 \text{ dB} = 0.268 \text{ W/kg} = -5.72 \text{ dBW/kg}$		

Right Side	Tilt	836.5 MHz
Communication System: UID 0, band 5 (0); Frequency: 836.6 MHz		
Medium parameters used (interpolated): $f = 836.6 \text{ MHz}$; $\sigma = 0.89 \text{ S/m}$; $\epsilon_r = 41.478$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Right Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> • Probe: ES3DV3 - SN3127; ConvF(5.97, 5.97, 5.97); Calibrated: 8/21/2015; • Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.0, 32.0$ • Electronics: DAE4 Sn546; Calibrated: 8/19/2015 • Phantom: SAM 1559; Type: SAM; Serial: 1559 • DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) 		
Head-Section Right HSL Band 5/WCDMA Band 5 tilt M/Area Scan (9x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.250 W/kg		
Head-Section Right HSL Band 5/WCDMA Band 5 tilt M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 4.199 V/m; Power Drift = 0.08 dB Peak SAR (extrapolated) = 0.329 W/kg SAR(1 g) = 0.253 W/kg; SAR(10 g) = 0.191 W/kg Maximum value of SAR (measured) = 0.268 W/kg		
 $0 \text{ dB} = 0.268 \text{ W/kg} = -5.72 \text{ dBW/kg}$		

WCDMA BAND 5 (Flat)

FLAT	Towards phantom	836.5 MHz
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Communication System: UID 0, band 5 (0); Frequency: 836.6 MHz

Medium parameters used (extrapolated): $f = 836.6 \text{ MHz}$; $\sigma = 0.979 \text{ S/m}$; $\epsilon_r = 53.843$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY Configuration:

- Probe: ES3DV3 - SN3127; ConvF(5.88, 5.88, 5.88); Calibrated: 8/21/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection), $z = -18.0, 32.0$
- Electronics: DAE4 Sn546; Calibrated: 8/19/2015
- Phantom: SAM 1559; Type: SAM; Serial: 1559
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Flat-Section MSL Band 5 TP/WCDMA Band 5 TP M/Area Scan

(9x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 0.377 W/kg

Flat-Section MSL Band 5 TP/WCDMA Band 5 TP M/Zoom Scan (7x7x7)/Cube

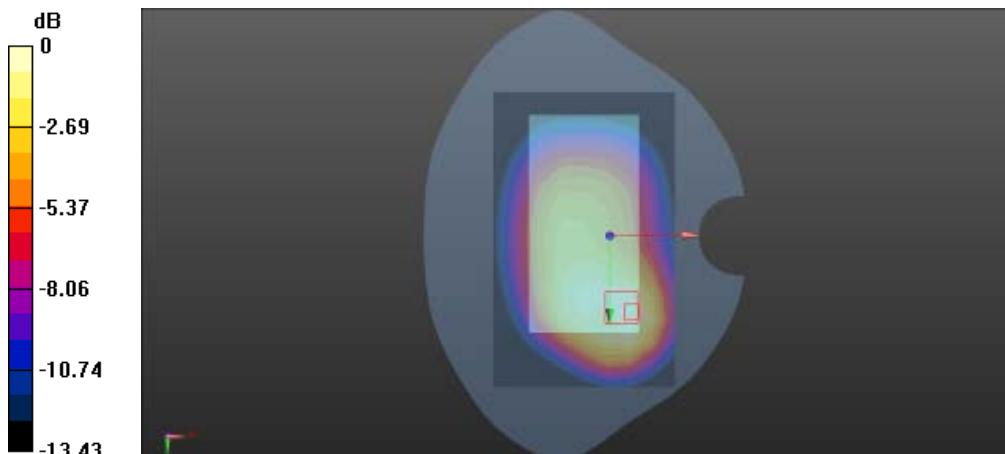
0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

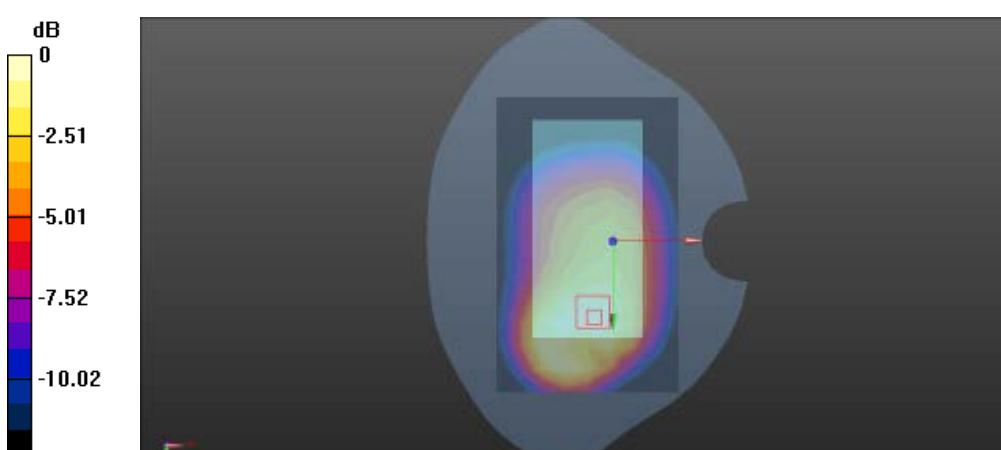
Reference Value = 15.272 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 0.603 W/kg

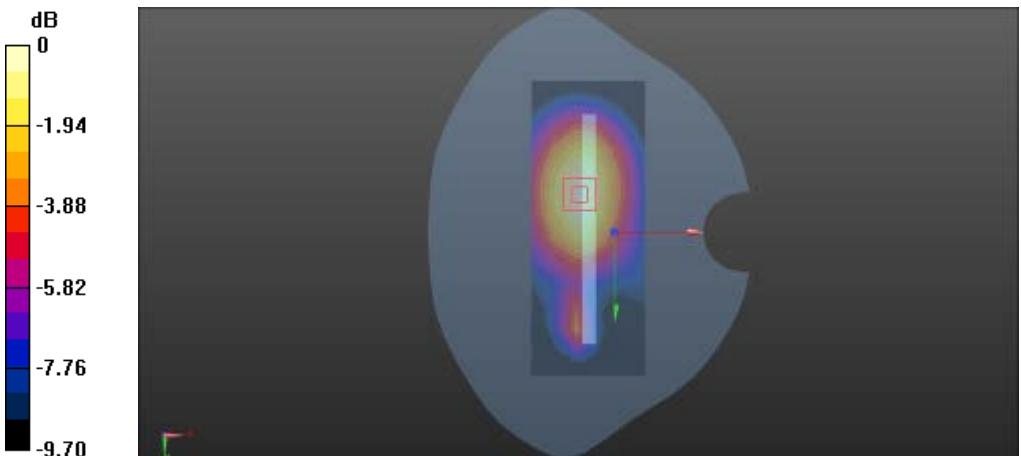
SAR(1 g) = 0.360 W/kg; SAR(10 g) = 0.225 W/kg

Maximum value of SAR (measured) = 0.392 W/kg



FLAT	Towards ground	836.5 MHz
<p>Communication System: UID 0, band 5 (0); Frequency: 836.6 MHz Medium parameters used (extrapolated): $f = 836.6 \text{ MHz}$; $\sigma = 0.979 \text{ S/m}$; $\epsilon_r = 53.843$; $\rho = 1000 \text{ kg/m}^3$ Phantom section: Flat Section Measurement Standard: DASY5 (IEEE1528-2013)</p> <p>DASY Configuration:</p> <ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(5.88, 5.88, 5.88); Calibrated: 8/21/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = -18.0, 32.0$ Electronics: DAE4 Sn546; Calibrated: 8/19/2015 Phantom: SAM 1559; Type: SAM; Serial: 1559 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) <p>Flat-Section MSL Band 5 TG/WCDMA Band 5 TG M/Area Scan (9x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.361 W/kg</p> <p>Flat-Section MSL Band 5 TG/WCDMA Band 5 TG M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 13.968 V/m; Power Drift = 0.01 dB Peak SAR (extrapolated) = 0.544 W/kg SAR(1 g) = 0.351 W/kg; SAR(10 g) = 0.243 W/kg Maximum value of SAR (measured) = 0.375 W/kg</p>  <p>0 dB = 0.375 W/kg = -4.26 dBW/kg</p>		

FLAT	Edge2	836.5 MHz
<p>Communication System: UID 0, band 5 (0); Frequency: 836.6 MHz Medium parameters used (extrapolated): $f = 836.6 \text{ MHz}$; $\sigma = 0.979 \text{ S/m}$; $\epsilon_r = 53.843$; $\rho = 1000 \text{ kg/m}^3$ Phantom section: Flat Section Measurement Standard: DASY5 (IEEE1528-2013)</p> <p>DASY Configuration:</p> <ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(5.88, 5.88, 5.88); Calibrated: 8/21/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = -18.0, 32.0$ Electronics: DAE4 Sn546; Calibrated: 8/19/2015 Phantom: SAM 1559; Type: SAM; Serial: 1559 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) <p>Flat-Section MSL Band 5 hot/WCDMA Band 5 edge 2/Area Scan (5x10x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.163 W/kg</p> <p>Flat-Section MSL Band 5 hot/WCDMA Band 5 edge 2/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 13.003 V/m; Power Drift = -0.03 dB Peak SAR (extrapolated) = 0.275 W/kg</p> <p>SAR(1 g) = 0.159 W/kg; SAR(10 g) = 0.091 W/kg Maximum value of SAR (measured) = 0.177 W/kg</p>  <p>0 dB = 0.177 W/kg = -7.52 dBW/kg</p>		

FLAT	Edge4	836.5 MHz
Communication System: UID 0, band 5 (0); Frequency: 836.6 MHz		
Medium parameters used (extrapolated): $f = 836.6 \text{ MHz}$; $\sigma = 0.979 \text{ S/m}$; $\epsilon_r = 53.843$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Flat Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> • Probe: ES3DV3 - SN3127; ConvF(5.88, 5.88, 5.88); Calibrated: 8/21/2015; • Sensor-Surface: 4mm (Mechanical Surface Detection), $z = -18.0, 32.0$ • Electronics: DAE4 Sn546; Calibrated: 8/19/2015 • Phantom: SAM 1559; Type: SAM; Serial: 1559 • DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) 		
Flat-Section MSL Band 5 hot/WCDMA Band 5 edge 4/Area Scan (6x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.0772 W/kg		
Flat-Section MSL Band 5 hot/WCDMA Band 5 edge 4/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 7.229 V/m; Power Drift = 0.49 dB Peak SAR (extrapolated) = 0.103 W/kg SAR(1 g) = 0.073 W/kg; SAR(10 g) = 0.050 W/kg Maximum value of SAR (measured) = 0.0786 W/kg		
 <p>0 dB = 0.0786 W/kg = -11.05 dBW/kg</p>		

Wi-Fi (Head)

Left Side	Cheek	2437MHz
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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; $\sigma = 1.782$ S/m; $\epsilon_r = 39.236$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3127; ConvF(4.35, 4.35, 4.35); Calibrated: 2015/8/21;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn546; Calibrated: 2015/8/19
- Phantom: SAM 1659; Type: QD000P40CD; Serial: TP:1659
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Head-Section Left HSL WIFI/WIFI touch M/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.0112 W/kg

Head-Section Left HSL WIFI/WIFI touch M/Zoom Scan (7x7x7)/Cube 0:

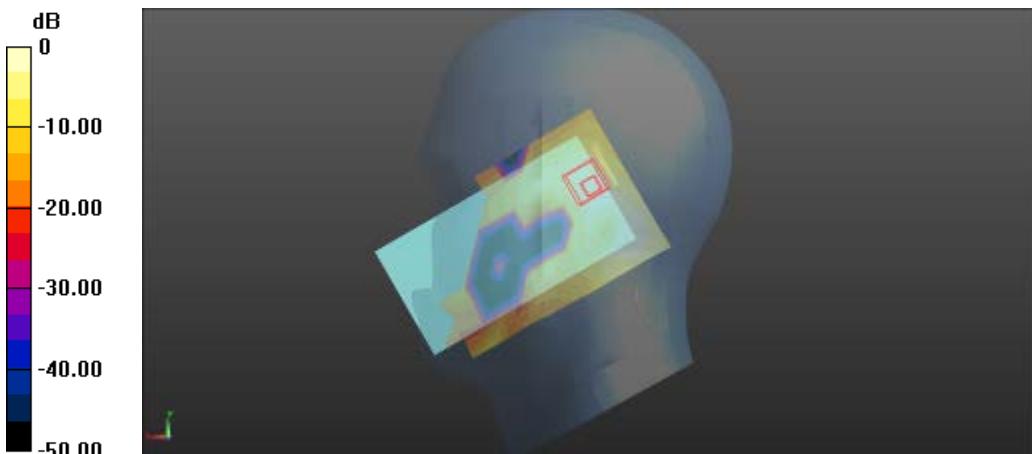
Measurement grid: dx=5mm, dy=5mm, dz=5mm

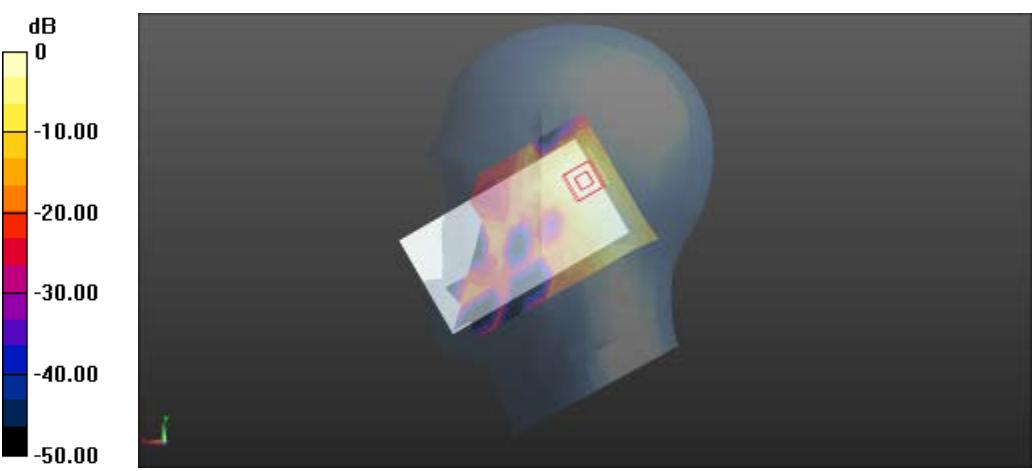
Reference Value = 2.577 V/m; Power Drift = -0.61 dB

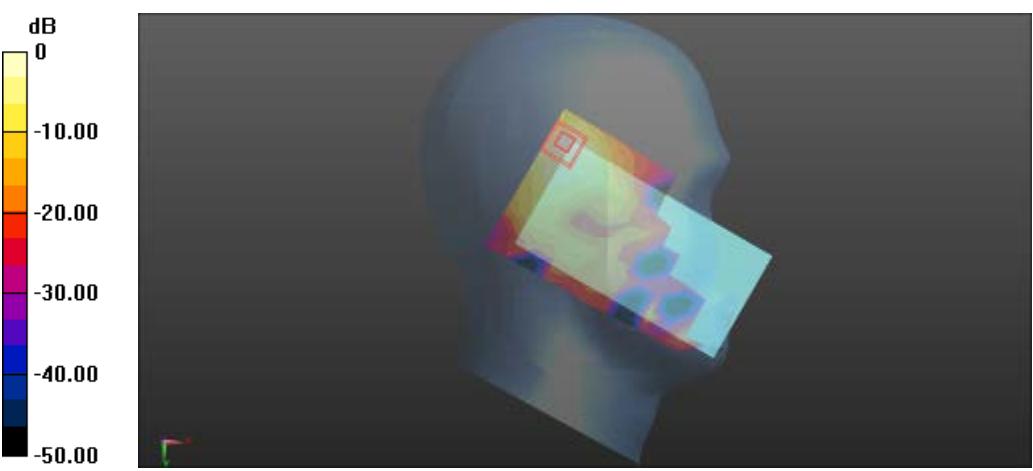
Peak SAR (extrapolated) = 0.0230 W/kg

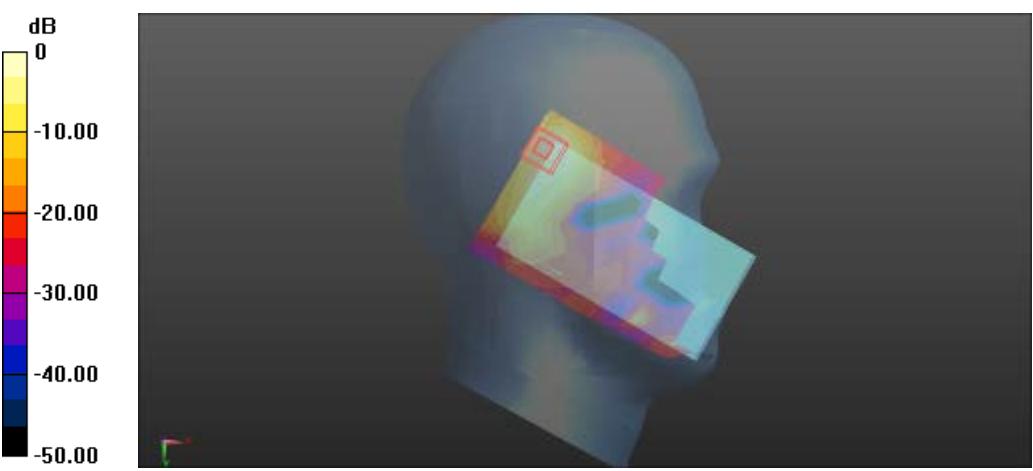
SAR(1 g) = 0.011 W/kg; SAR(10 g) = 0.00476 W/kg

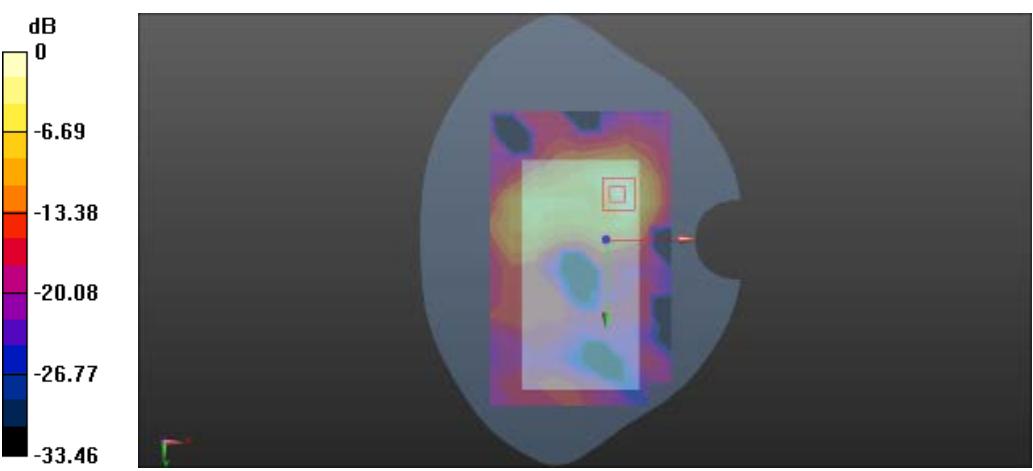
Maximum value of SAR (measured) = 0.0128 W/kg

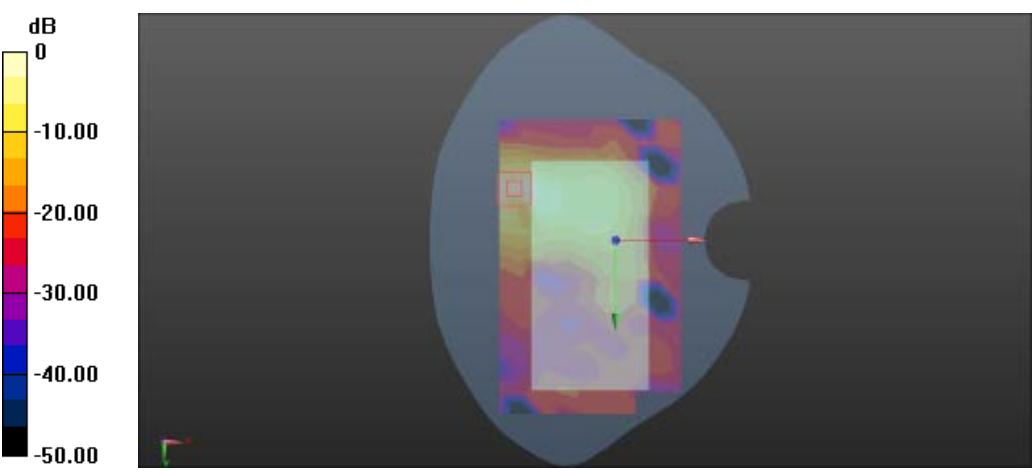


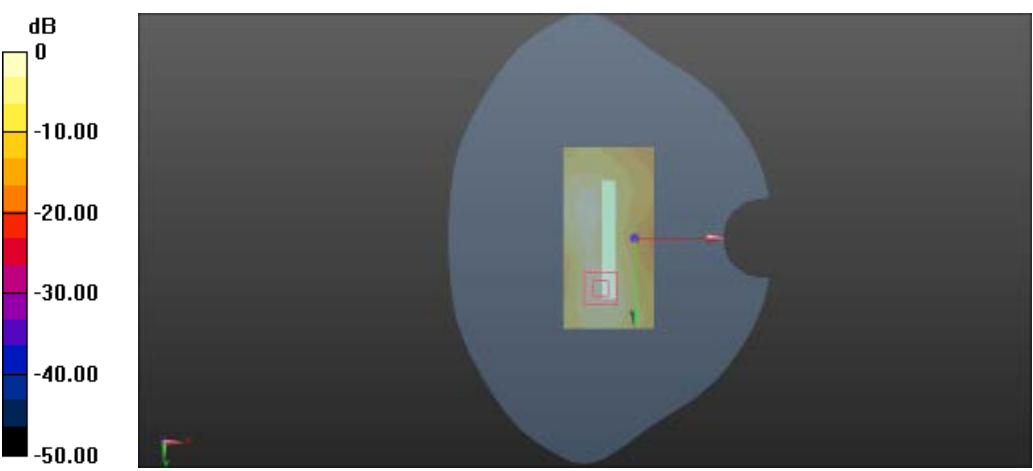
Left Side	Tilt	2437MHz
Communication System: UID 10012 - CAB, IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps); Frequency: 2437 MHz; Duty Cycle: 1:1.53815		
Medium parameters used (interpolated): $f = 2437 \text{ MHz}$; $\sigma = 1.782 \text{ S/m}$; $\epsilon_r = 39.236$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Left Section		
DASY5 Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.35, 4.35, 4.35); Calibrated: 2015/8/21; Sensor-Surface: 4mm (Mechanical Surface Detection) Electronics: DAE4 Sn546; Calibrated: 2015/8/19 Phantom: SAM 1659; Type: QD000P40CD; Serial: TP:1659 Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164) <p>Head-Section Left HSL WIFI/WIFI tilt M/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.0278 W/kg</p> <p>Head-Section Left HSL WIFI/WIFI tilt M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 3.960 V/m; Power Drift = 0.01 dB Peak SAR (extrapolated) = 0.0650 W/kg SAR(1 g) = 0.031 W/kg; SAR(10 g) = 0.014 W/kg Maximum value of SAR (measured) = 0.0352 W/kg</p>		
 <p>0 dB = 0.0352 W/kg = -14.53 dBW/kg</p>		

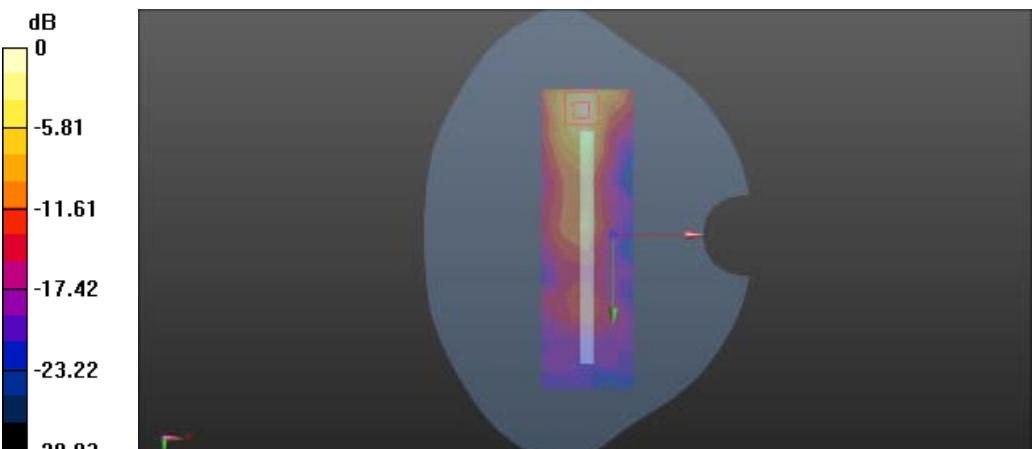
Right Side	Cheek	2437MHz
Communication System: UID 10012 - CAB, IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps);		
Frequency: 2437 MHz; Duty Cycle: 1:1.53815		
Medium parameters used (interpolated): $f = 2437 \text{ MHz}$; $\sigma = 1.782 \text{ S/m}$; $\epsilon_r = 39.236$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Right Section		
DASY5 Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.35, 4.35, 4.35); Calibrated: 2015/8/21; Sensor-Surface: 4mm (Mechanical Surface Detection) Electronics: DAE4 Sn546; Calibrated: 2015/8/19 Phantom: SAM 1659; Type: QD000P40CD; Serial: TP:1659 Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164) <p>Head-Section Right HSL WIFI/WIFI touch M/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.0639 W/kg</p> <p>Head-Section Right HSL WIFI/WIFI touch M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 2.531 V/m; Power Drift = -0.74 dB Peak SAR (extrapolated) = 0.161 W/kg SAR(1 g) = 0.061 W/kg; SAR(10 g) = 0.024 W/kg Maximum value of SAR (measured) = 0.0701 W/kg</p>		
 <p>0 dB = 0.0701 W/kg = -11.54 dBW/kg</p>		

Right Side	Tilt	2437MHz
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:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.35, 4.35, 4.35); Calibrated: 2015/8/21; Sensor-Surface: 4mm (Mechanical Surface Detection) Electronics: DAE4 Sn546; Calibrated: 2015/8/19 Phantom: SAM 1659; Type: QD000P40CD; Serial: TP:1659 Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164) <p>Head-Section Right HSL WIFI/WIFI tilt M/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.0975 W/kg</p> <p>Head-Section Right HSL WIFI/WIFI tilt M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 3.551 V/m; Power Drift = 0.20 dB Peak SAR (extrapolated) = 0.306 W/kg SAR(1 g) = 0.109 W/kg; SAR(10 g) = 0.040 W/kg Maximum value of SAR (measured) = 0.128 W/kg</p>		
 <p>0 dB = 0.128 W/kg = -8.93 dBW/kg</p>		

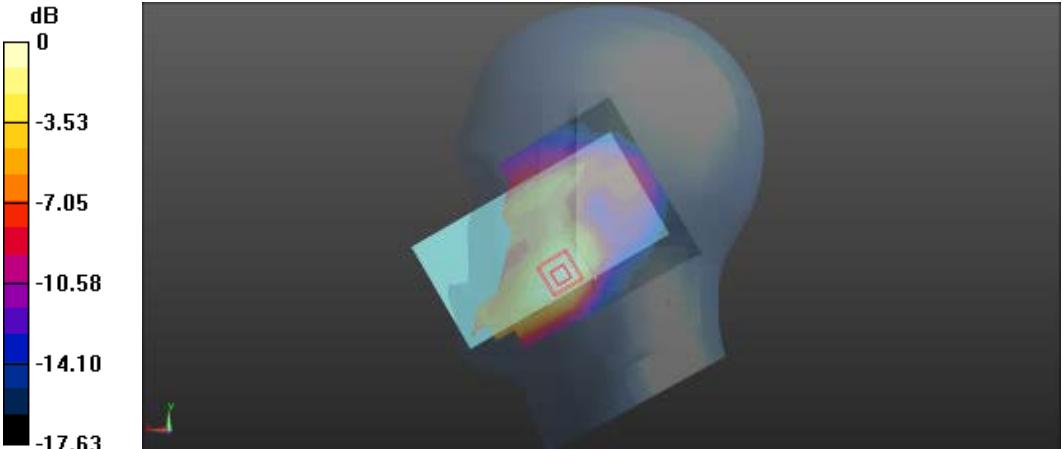
FLAT	Towards phantom	2437MHz
Communication System: UID 10012 - CAB, IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps);		
Frequency: 2437 MHz; Duty Cycle: 1:1.53815		
Medium parameters used (interpolated): $f = 2437 \text{ MHz}$; $\sigma = 1.955 \text{ S/m}$; $\epsilon_r = 52.085$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Flat Section		
DASY5 Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.19, 4.19, 4.19); Calibrated: 2015/8/21; Sensor-Surface: 4mm (Mechanical Surface Detection) Electronics: DAE4 Sn546; Calibrated: 2015/8/19 Phantom: SAM 1659; Type: QD000P40CD; Serial: TP:1659 Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164) 		
Flat-Section MSL WIFI TP/WIFI TP M/Area Scan (9x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.0299 W/kg		
Flat-Section MSL WIFI TP/WIFI TP M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 0.967 V/m; Power Drift = 1.23 dB Peak SAR (extrapolated) = 0.0760 W/kg SAR(1 g) = 0.032 W/kg; SAR(10 g) = 0.014 W/kg Maximum value of SAR (measured) = 0.0358 W/kg		
 <p>0 dB = 0.0358 W/kg = -14.46 dBW/kg</p>		

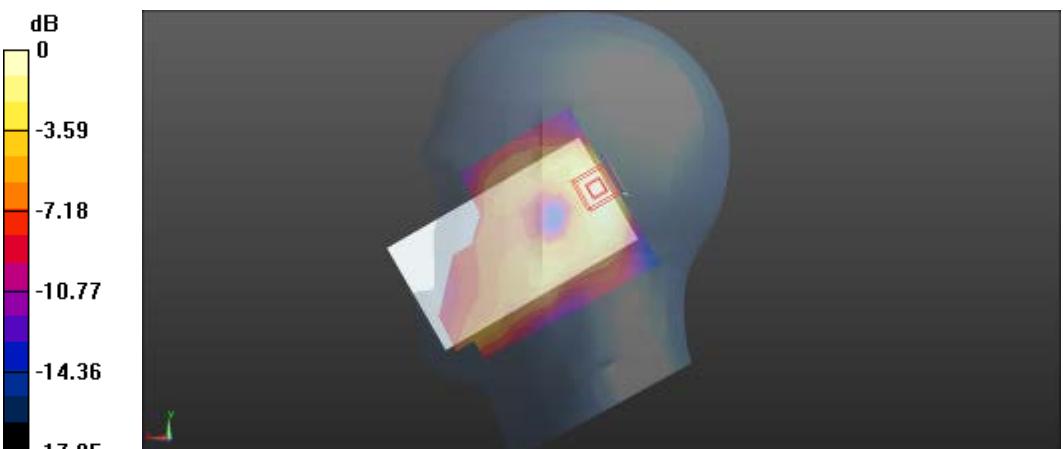
FLAT	Towards ground	2437MHz
Communication System: UID 10012 - CAB, IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps);		
Frequency: 2437 MHz; Duty Cycle: 1:1.53815		
Medium parameters used (interpolated): $f = 2437 \text{ MHz}$; $\sigma = 1.955 \text{ S/m}$; $\epsilon_r = 52.085$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Flat Section		
DASY5 Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.19, 4.19, 4.19); Calibrated: 2015/8/21; Sensor-Surface: 4mm (Mechanical Surface Detection) Electronics: DAE4 Sn546; Calibrated: 2015/8/19 Phantom: SAM 1659; Type: QD000P40CD; Serial: TP:1659 Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164) 		
Flat-Section MSLWIFI TG/WIF TG M/Area Scan (9x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.0742 W/kg		
Flat-Section MSLWIFI TG/WIF TG M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 1.738 V/m; Power Drift = 1.11 dB Peak SAR (extrapolated) = 0.181 W/kg SAR(1 g) = 0.072 W/kg; SAR(10 g) = 0.028 W/kg Maximum value of SAR (measured) = 0.0837 W/kg		
 <p>0 dB = 0.0837 W/kg = -10.77 dBW/kg</p>		

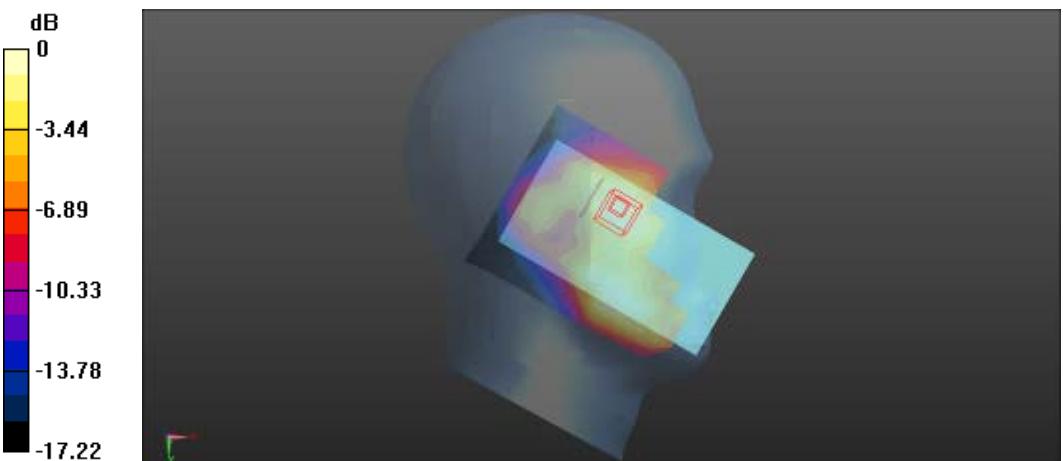
FLAT	Edge1	2437MHz
Communication System: UID 10012 - CAB, IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps);		
Frequency: 2437 MHz; Duty Cycle: 1:1.53815		
Medium parameters used (interpolated): $f = 2437 \text{ MHz}$; $\sigma = 1.955 \text{ S/m}$; $\epsilon_r = 52.085$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Flat Section		
DASY5 Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.19, 4.19, 4.19); Calibrated: 2015/8/21; Sensor-Surface: 4mm (Mechanical Surface Detection) Electronics: DAE4 Sn546; Calibrated: 2015/8/19 Phantom: SAM 1659; Type: QD000P40CD; Serial: TP:1659 Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164) 		
Flat-Section MSLWIFI HOT/WIF M edge 1/Area Scan (5x9x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.0179 W/kg		
Flat-Section MSLWIFI HOT/WIF M edge 1/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 2.027 V/m; Power Drift = 0.48 dB Peak SAR (extrapolated) = 0.0480 W/kg SAR(1 g) = 0.021 W/kg; SAR(10 g) = 0.00948 W/kg Maximum value of SAR (measured) = 0.0232 W/kg		
 <p>0 dB = 0.0232 W/kg = -16.35 dBW/kg</p>		

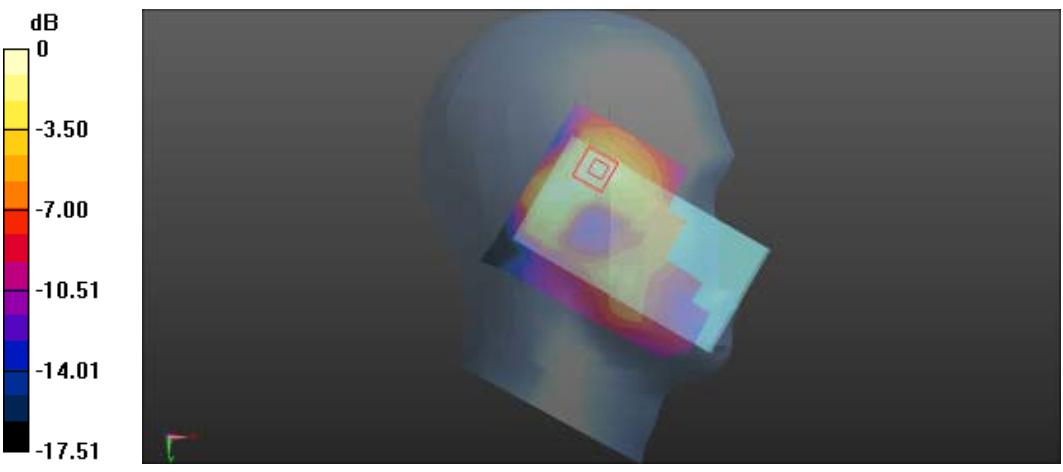
FLAT	Edge4	2437 MHz
<p>Communication System: UID 10012 - CAB, IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps); Frequency: 2437 MHz; Duty Cycle: 1:1.53815 Medium parameters used (interpolated): $f = 2437$ MHz; $\sigma = 1.955$ S/m; $\epsilon_r = 52.085$; $\rho = 1000$ kg/m³ Phantom section: Flat Section</p> <p>DASY5 Configuration:</p> <ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.19, 4.19, 4.19); Calibrated: 2015/8/21; Sensor-Surface: 4mm (Mechanical Surface Detection) Electronics: DAE4 Sn546; Calibrated: 2015/8/19 Phantom: SAM 1659; Type: QD000P40CD; Serial: TP:1659 Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164) <p>Flat-Section MSLWIFI HOT/WIF M edge 4/Area Scan (5x14x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.0500 W/kg</p> <p>Flat-Section MSLWIFI HOT/WIF M edge 4/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 1.826 V/m; Power Drift = -0.21 dB Peak SAR (extrapolated) = 0.117 W/kg SAR(1 g) = 0.050 W/kg; SAR(10 g) = 0.020 W/kg Maximum value of SAR (measured) = 0.0565 W/kg</p>  <p>0 dB = 0.0565 W/kg = -12.48 dBW/kg</p>		

LTE BAND2- 1.4BW-50%RB (Head)

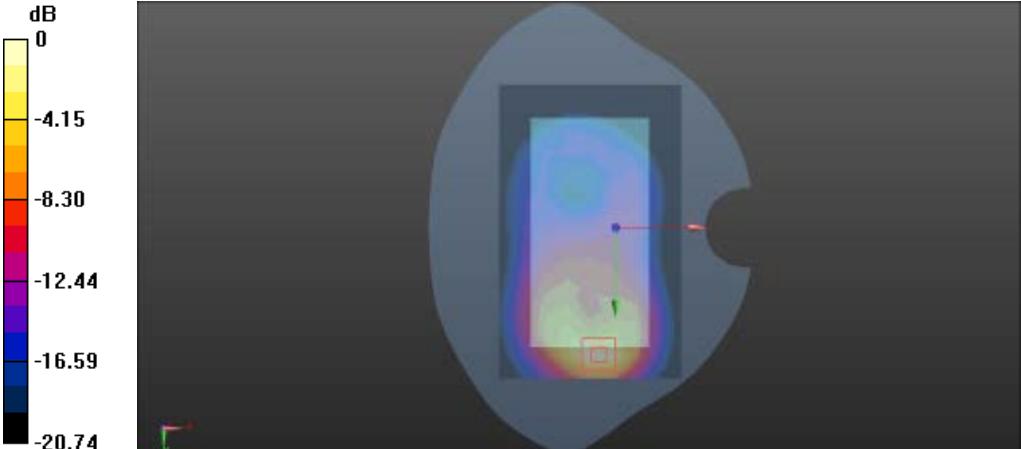
Left Side	Check	1880MHz
Communication System: UID 0, Generic LTE (0); Frequency: 1880 MHz; Duty Cycle: 1:1		
Medium parameters used (extrapolated): $f = 1880 \text{ MHz}$; $\sigma = 1.374 \text{ S/m}$; $\epsilon_r = 40.457$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Left Section		
DASY5 Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 2015/8/21; Sensor-Surface: 4mm (Mechanical Surface Detection) Electronics: DAE4 Sn546; Calibrated: 2015/8/19 Phantom: SAM 1660; Type: QD000P40CD; Serial: TP:1660 Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164) <p>Head-Section Left HSL Band 2/LTE Band 2 touch M/Area Scan (9x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.347 W/kg</p> <p>Head-Section Left HSL Band 2/LTE Band 2 touch M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 7.528 V/m; Power Drift = 0.02 dB Peak SAR (extrapolated) = 0.531 W/kg SAR(1 g) = 0.323 W/kg; SAR(10 g) = 0.186 W/kg Maximum value of SAR (measured) = 0.353 W/kg</p>		
 <p>0 dB = 0.353 W/kg = -4.52 dBW/kg</p>		

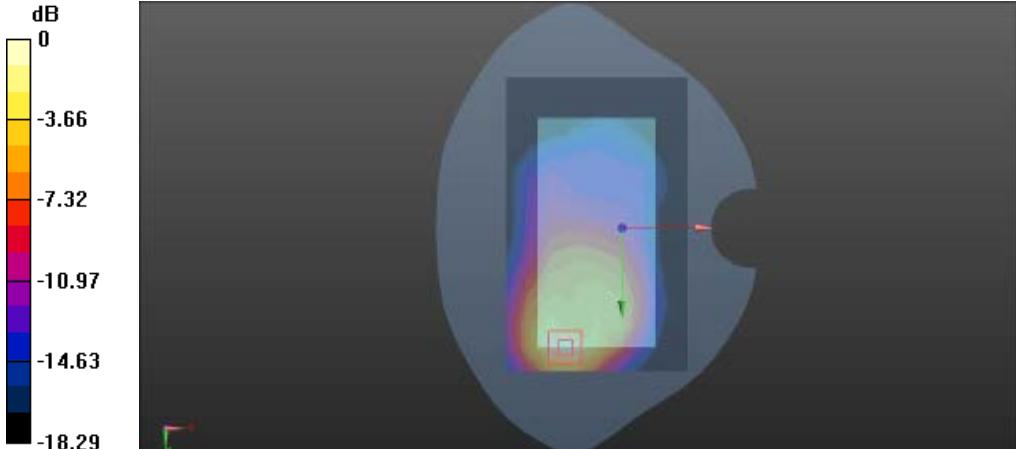
Left Side	Tilt	1880MHz
Communication System: UID 0, Generic LTE (0); Frequency: 1880 MHz; Duty Cycle: 1:1		
Medium parameters used (extrapolated): $f = 1880 \text{ MHz}$; $\sigma = 1.374 \text{ S/m}$; $\epsilon_r = 40.457$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Left Section		
DASY5 Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 2015/8/21; Sensor-Surface: 4mm (Mechanical Surface Detection) Electronics: DAE4 Sn546; Calibrated: 2015/8/19 Phantom: SAM 1660; Type: QD000P40CD; Serial: TP:1660 Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164) <p>Head-Section Left HSL Band 2/LTE Band 2 tilt M/Area Scan (9x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.119 W/kg</p> <p>Head-Section Left HSL Band 2/LTE Band 2 tilt M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 9.330 V/m; Power Drift = -0.07 dB Peak SAR (extrapolated) = 0.201 W/kg SAR(1 g) = 0.115 W/kg; SAR(10 g) = 0.064 W/kg Maximum value of SAR (measured) = 0.128 W/kg</p>		
 <p>0 dB = 0.128 W/kg = -8.93 dBW/kg</p>		

Right Side	Check	1880MHz
Communication System: UID 0, Generic LTE (0); Frequency: 1880 MHz; Duty Cycle: 1:1		
Medium parameters used (extrapolated): $f = 1880 \text{ MHz}$; $\sigma = 1.374 \text{ S/m}$; $\epsilon_r = 40.457$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Right Section		
DASY5 Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 2015/8/21; Sensor-Surface: 4mm (Mechanical Surface Detection) Electronics: DAE4 Sn546; Calibrated: 2015/8/19 Phantom: SAM 1660; Type: QD000P40CD; Serial: TP:1660 Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164) <p>Head-Section Right HSL Band 2/LTE Band 2 touch M/Area Scan (9x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.157 W/kg</p> <p>Head-Section Right HSL Band 2/LTE Band 2 touch M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 5.973 V/m; Power Drift = 0.12 dB Peak SAR (extrapolated) = 0.242 W/kg SAR(1 g) = 0.150 W/kg; SAR(10 g) = 0.090 W/kg Maximum value of SAR (measured) = 0.165 W/kg</p>		
 <p>0 dB = 0.165 W/kg = -7.83 dBW/kg</p>		

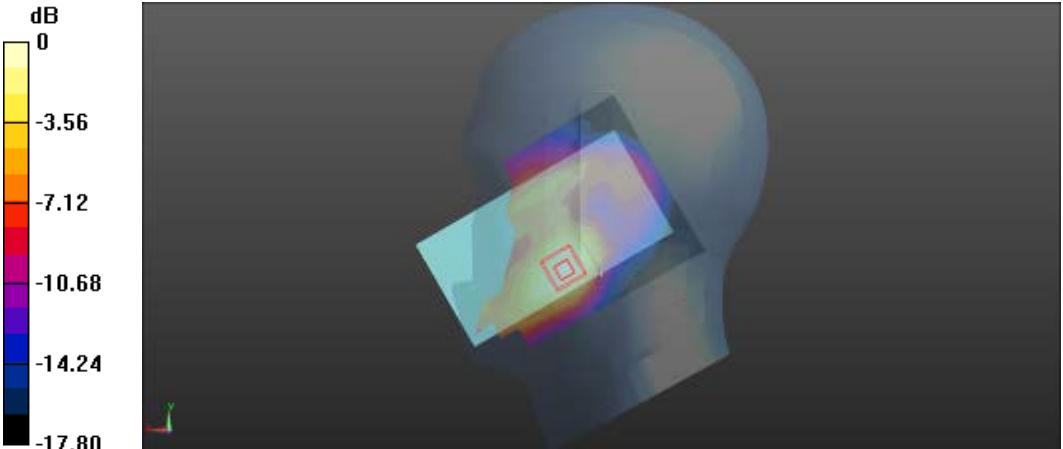
Right Side	Tilt	1880MHz
Communication System: UID 0, Generic LTE (0); Frequency: 1880 MHz; Duty Cycle: 1:1		
Medium parameters used (extrapolated): $f = 1880 \text{ MHz}$; $\sigma = 1.374 \text{ S/m}$; $\epsilon_r = 40.457$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Right Section		
DASY5 Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 2015/8/21; Sensor-Surface: 4mm (Mechanical Surface Detection) Electronics: DAE4 Sn546; Calibrated: 2015/8/19 Phantom: SAM 1660; Type: QD000P40CD; Serial: TP:1660 Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164) <p>Head-Section Right HSL Band 2/LTE Band 2 tilt M/Area Scan (9x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.0728 W/kg</p> <p>Head-Section Right HSL Band 2/LTE Band 2 tilt M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 7.412 V/m; Power Drift = 0.05 dB Peak SAR (extrapolated) = 0.129 W/kg</p> <p>SAR(1 g) = 0.078 W/kg; SAR(10 g) = 0.044 W/kg Maximum value of SAR (measured) = 0.0918 W/kg</p>		
 <p>0 dB = 0.0918 W/kg = -10.37 dBW/kg</p>		

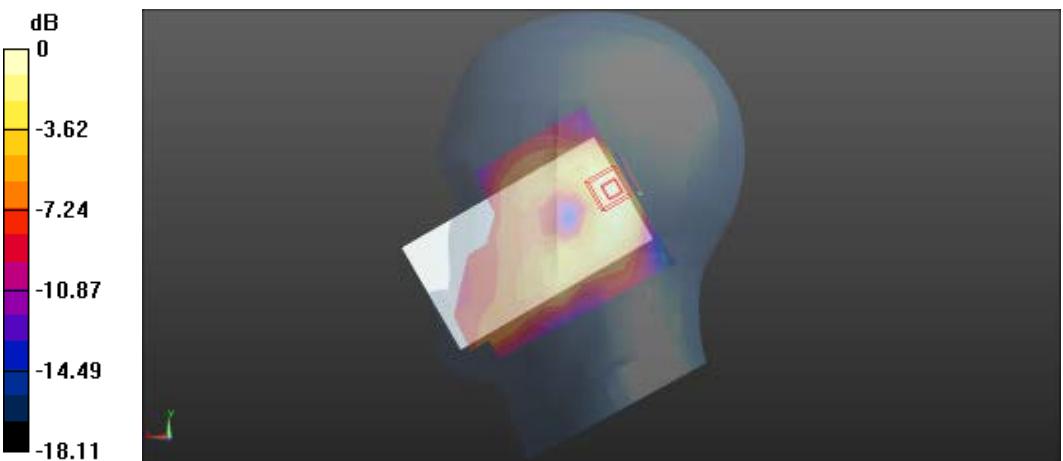
LTE BAND2- 1.4BW-50%RB (Flat)

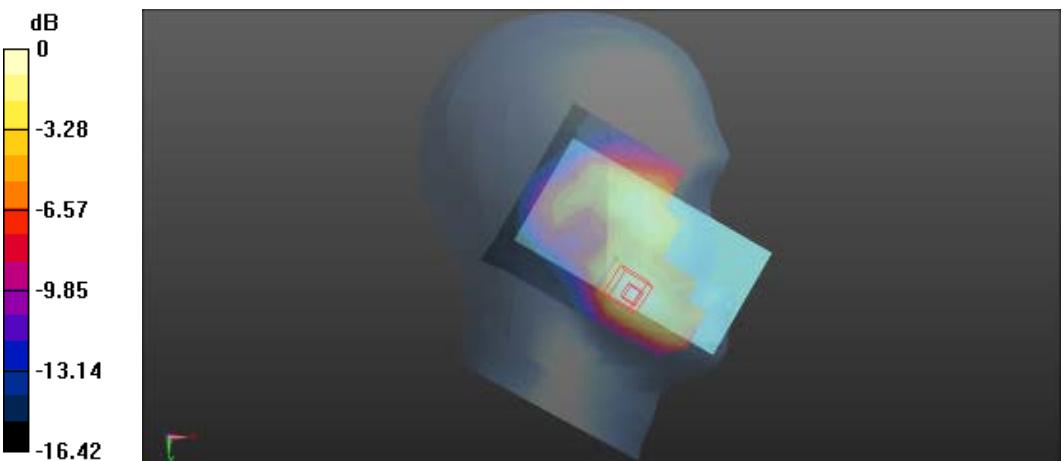
FLAT	Towards phantom	1880MHz
Communication System: UID 0, LTE band 2 (0); Frequency: 1880 MHz		
Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.553 \text{ S/m}$; $\epsilon_r = 52.635$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Flat Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.67, 4.67, 4.67); Calibrated: 8/21/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = -18.0, 32.0$ Electronics: DAE4 Sn546; Calibrated: 8/19/2015 Phantom: SAM 1560; Type: SAM; Serial: 1560 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) 		
Flat-Section MSL Band 2 TP/LTE Band 2 TP M 2 2/Area Scan (9x14x1):		
Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$		
Maximum value of SAR (measured) = 0.414 W/kg		
Flat-Section MSL Band 2 TP/LTE Band 2 TP M 2 2/Zoom Scan (7x7x7)/Cube 0:		
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$		
Reference Value = 4.246 V/m; Power Drift = 0.03 dB		
Peak SAR (extrapolated) = 0.798 W/kg		
SAR(1 g) = 0.412 W/kg; SAR(10 g) = 0.199 W/kg		
Maximum value of SAR (measured) = 0.462 W/kg		
 <p>0 dB = 0.462 W/kg = -3.35 dBW/kg</p>		

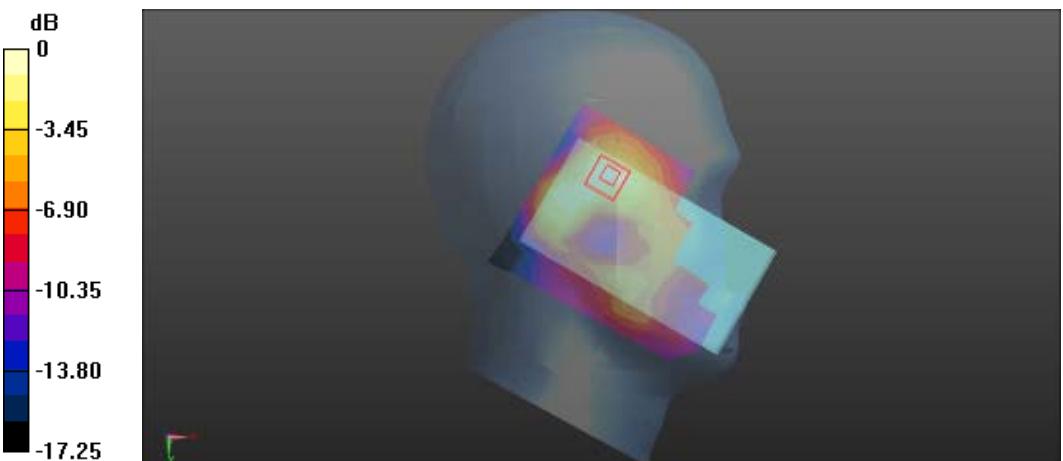
FLAT	Towards ground	1880MHz
Communication System: UID 0, Generic LTE (0); Frequency: 1880 MHz		
Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.553 \text{ S/m}$; $\epsilon_r = 52.635$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Flat Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> • Probe: ES3DV3 - SN3127; ConvF(4.67, 4.67, 4.67); Calibrated: 8/21/2015; • Sensor-Surface: 3mm (Mechanical Surface Detection), Sensor-Surface: 4mm (Mechanical Surface Detection), $z = -18.0, 32.0$ • Electronics: DAE4 Sn546; Calibrated: 8/19/2015 • Phantom: SAM 1560; Type: SAM; Serial: 1560 • DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) 		
Flat-Section MSL Band 2 TG/LTE Band 2 TG M 2/Area Scan (9x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.339 W/kg		
Flat-Section MSL Band 2 TG/LTE Band 2 TG M 2/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 5.173 V/m; Power Drift = 0.09 dB Peak SAR (extrapolated) = 0.510 W/kg SAR(1 g) = 0.285 W/kg; SAR(10 g) = 0.148 W/kg Maximum value of SAR (measured) = 0.319 W/kg		
 <p>0 dB = 0.319 W/kg = -4.96 dBW/kg</p>		

LTE BAND2- 3BW-1RB (Head)

Left Side	Check	1880MHz
Communication System: UID 0, Generic LTE (0); Frequency: 1880 MHz; Duty Cycle: 1:1		
Medium parameters used (extrapolated): $f = 1880 \text{ MHz}$; $\sigma = 1.374 \text{ S/m}$; $\epsilon_r = 40.457$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Left Section		
DASY5 Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 2015/8/21; Sensor-Surface: 4mm (Mechanical Surface Detection) Electronics: DAE4 Sn546; Calibrated: 2015/8/19 Phantom: SAM 1660; Type: QD000P40CD; Serial: TP:1660 Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164) <p>Head-Section Left HSL Band 2/LTE Band 2 touch M/Area Scan (9x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.317 W/kg</p> <p>Head-Section Left HSL Band 2/LTE Band 2 touch M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 7.259 V/m; Power Drift = 0.02 dB Peak SAR (extrapolated) = 0.517 W/kg SAR(1 g) = 0.313 W/kg; SAR(10 g) = 0.178 W/kg Maximum value of SAR (measured) = 0.345 W/kg</p>		
 <p>0 dB = 0.345 W/kg = -4.62 dBW/kg</p>		

Left Side	Tilt	1880MHz
Communication System: UID 0, Generic LTE (0); Frequency: 1880 MHz; Duty Cycle: 1:1		
Medium parameters used (extrapolated): $f = 1880 \text{ MHz}$; $\sigma = 1.374 \text{ S/m}$; $\epsilon_r = 40.457$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Left Section		
DASY5 Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 2015/8/21; Sensor-Surface: 4mm (Mechanical Surface Detection) Electronics: DAE4 Sn546; Calibrated: 2015/8/19 Phantom: SAM 1660; Type: QD000P40CD; Serial: TP:1660 Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164) 		
Head-Section Left HSL Band 2/LTE Band 2 tilt M/Area Scan (9x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.121 W/kg		
Head-Section Left HSL Band 2/LTE Band 2 tilt M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 9.622 V/m; Power Drift = -0.07 dB Peak SAR (extrapolated) = 0.206 W/kg SAR(1 g) = 0.117 W/kg; SAR(10 g) = 0.064 W/kg Maximum value of SAR (measured) = 0.129 W/kg		
 <p>0 dB = 0.129 W/kg = -8.89 dBW/kg</p>		

Right Side	Check	1880MHz
Communication System: UID 0, Generic LTE (0); Frequency: 1880 MHz; Duty Cycle: 1:1		
Medium parameters used (extrapolated): $f = 1880 \text{ MHz}$; $\sigma = 1.374 \text{ S/m}$; $\epsilon_r = 40.457$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Right Section		
DASY5 Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 2015/8/21; Sensor-Surface: 4mm (Mechanical Surface Detection) Electronics: DAE4 Sn546; Calibrated: 2015/8/19 Phantom: SAM 1660; Type: QD000P40CD; Serial: TP:1660 Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164) <p>Head-Section Right HSL Band 2/LTE Band 2 touch M/Area Scan (9x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.193 W/kg</p> <p>Head-Section Right HSL Band 2/LTE Band 2 touch M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 6.189 V/m; Power Drift = -0.01 dB Peak SAR (extrapolated) = 0.305 W/kg</p> <p>SAR(1 g) = 0.183 W/kg; SAR(10 g) = 0.107 W/kg Maximum value of SAR (measured) = 0.197 W/kg</p>		
 <p>0 dB = 0.197 W/kg = -7.06 dBW/kg</p>		

Right Side	Tilt	1880MHz
Communication System: UID 0, Generic LTE (0); Frequency: 1880 MHz; Duty Cycle: 1:1		
Medium parameters used (extrapolated): $f = 1880 \text{ MHz}$; $\sigma = 1.374 \text{ S/m}$; $\epsilon_r = 40.457$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Right Section		
DASY5 Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 2015/8/21; Sensor-Surface: 4mm (Mechanical Surface Detection) Electronics: DAE4 Sn546; Calibrated: 2015/8/19 Phantom: SAM 1660; Type: QD000P40CD; Serial: TP:1660 Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164) 		
Head-Section Right HSL Band 2/LTE Band 2 tilt M/Area Scan (9x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.0897 W/kg		
Head-Section Right HSL Band 2/LTE Band 2 tilt M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 7.578 V/m; Power Drift = 0.05 dB Peak SAR (extrapolated) = 0.137 W/kg SAR(1 g) = 0.087 W/kg; SAR(10 g) = 0.050 W/kg Maximum value of SAR (measured) = 0.0979 W/kg		
 $0 \text{ dB} = 0.0979 \text{ W/kg} = -10.09 \text{ dBW/kg}$		

LTE BAND2- 3BW-1RB (Flat)

FLAT	Towards phantom	1880MHz
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Communication System: UID 0, LTE band 2 (0); Frequency: 1880 MHz
 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.553$ S/m; $\epsilon_r = 52.635$; $\rho = 1000$ kg/m³
 Phantom section: Flat Section
 Measurement Standard: DASY5 (IEEE1528-2013)

DASY Configuration:

- Probe: ES3DV3 - SN3127; ConvF(4.67, 4.67, 4.67); Calibrated: 8/21/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection), $z = -18.0, 32.0$
- Electronics: DAE4 Sn546; Calibrated: 8/19/2015
- Phantom: SAM 1560; Type: SAM; Serial: 1560
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Flat-Section MSL Band 2 TP/LTE Band 2 TP M 2 2/Area Scan (9x14x1):

Measurement grid: $dx=15$ mm, $dy=15$ mm

Maximum value of SAR (measured) = 0.486 W/kg

Flat-Section MSL Band 2 TP/LTE Band 2 TP M 2 2/Zoom Scan (7x7x7)/Cube 0:

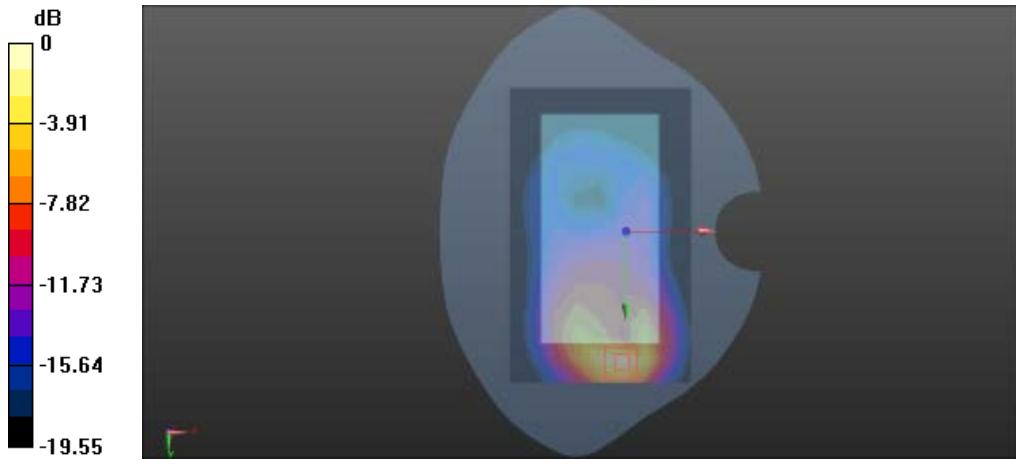
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

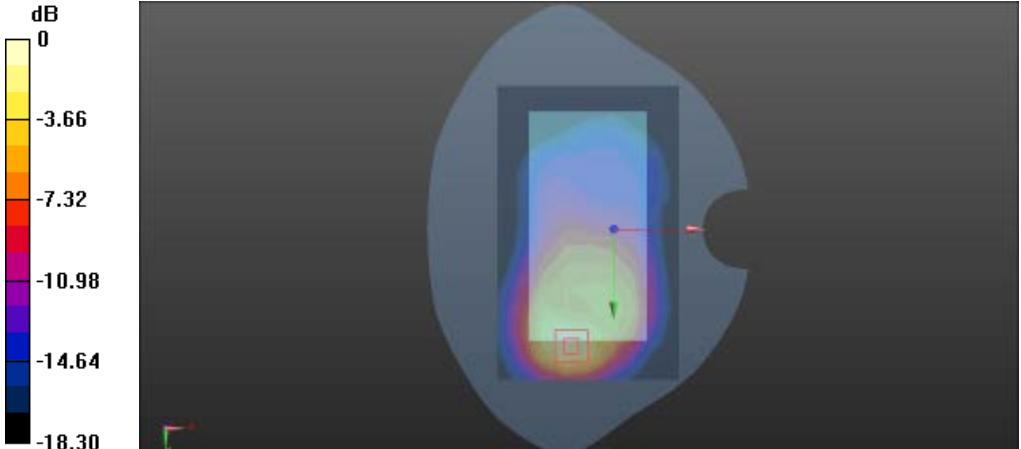
Reference Value = 3.802 V/m; Power Drift = 0.24 dB

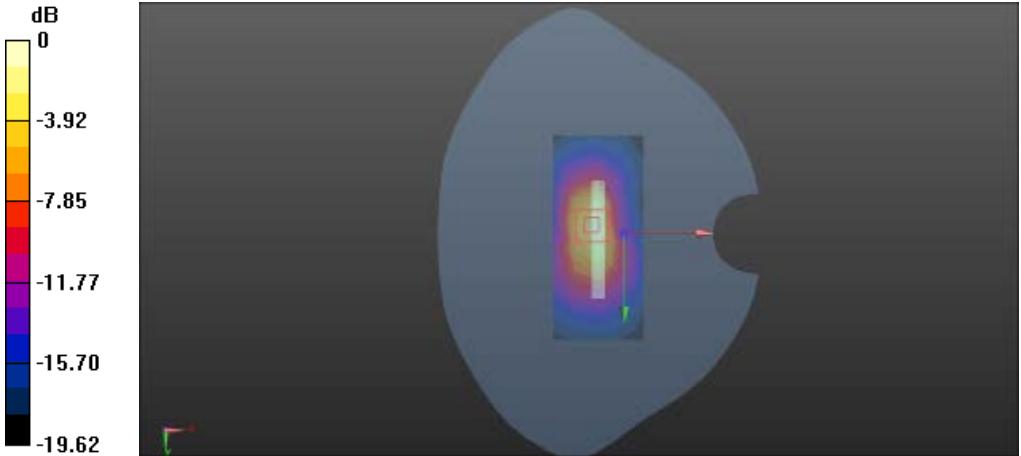
Peak SAR (extrapolated) = 0.840 W/kg

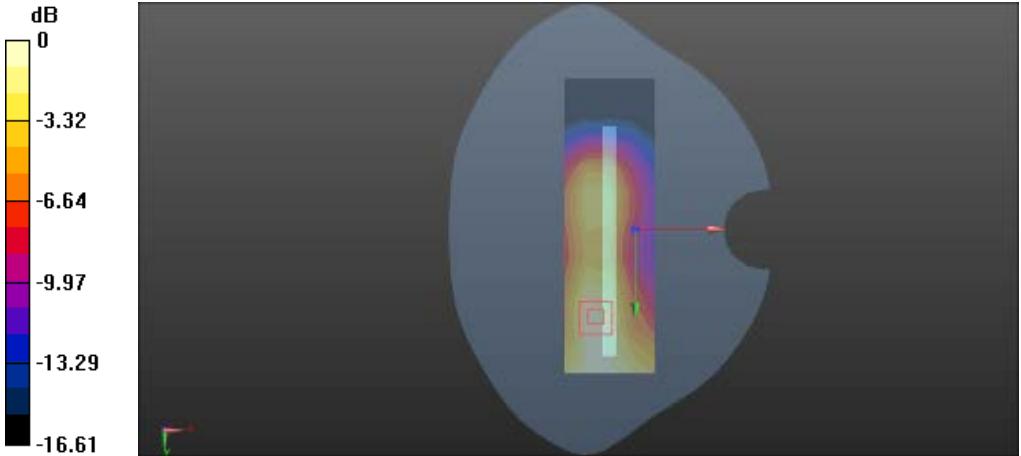
SAR(1 g) = 0.432 W/kg; SAR(10 g) = 0.206 W/kg

Maximum value of SAR (measured) = 0.497 W/kg

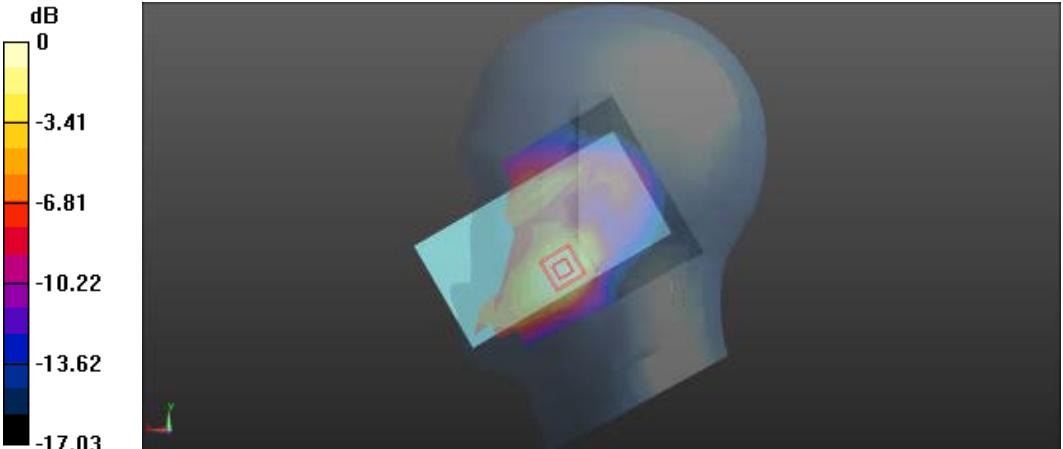


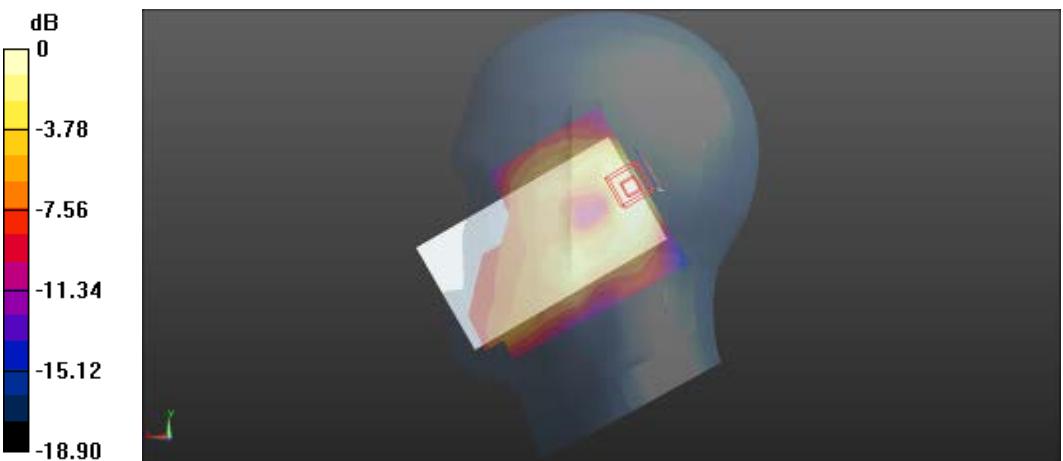
FLAT	Towards ground	1880MHz
Communication System: UID 0, LTE band 2 (0); Frequency: 1880 MHz		
Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.553 \text{ S/m}$; $\epsilon_r = 52.635$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Flat Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> • Probe: ES3DV3 - SN3127; ConvF(4.67, 4.67, 4.67); Calibrated: 8/21/2015; • Sensor-Surface: 3mm (Mechanical Surface Detection), Sensor-Surface: 4mm (Mechanical Surface Detection), $z = -18.0, 32.0$ • Electronics: DAE4 Sn546; Calibrated: 8/19/2015 • Phantom: SAM 1560; Type: SAM; Serial: 1560 • DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) 		
Flat-Section MSL Band 2 TG/LTE Band 2 TG M/Area Scan (9x14x1):		
Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$		
Maximum value of SAR (measured) = 0.279 W/kg		
Flat-Section MSL Band 2 TG/LTE Band 2 TG M/Zoom Scan (7x7x7)/Cube 0:		
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$		
Reference Value = 5.681 V/m; Power Drift = 0.01 dB		
Peak SAR (extrapolated) = 0.537 W/kg		
SAR(1 g) = 0.300 W/kg; SAR(10 g) = 0.155 W/kg		
Maximum value of SAR (measured) = 0.341 W/kg		
 <p>0 dB = 0.341 W/kg = -4.67 dBW/kg</p>		

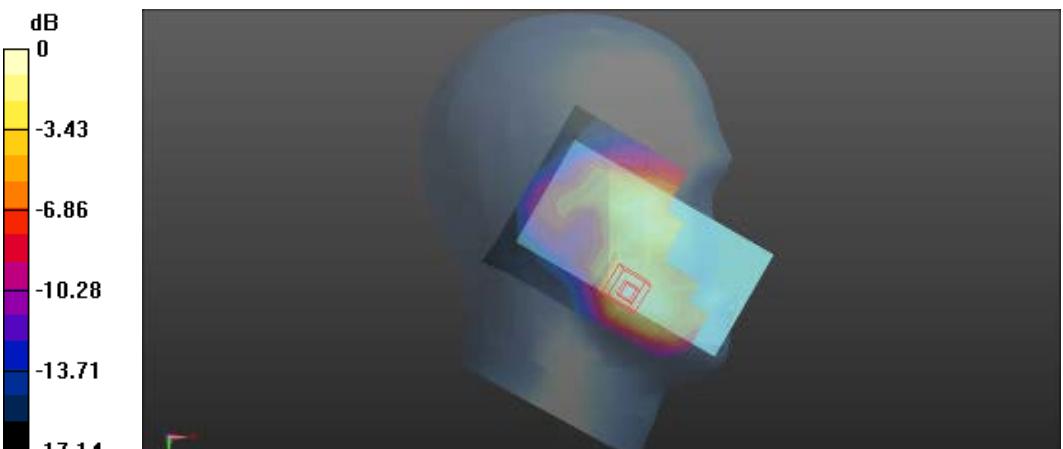
FLAT	Edge2	1880MHz
Communication System: UID 0, LTE band 2 (0); Frequency: 1880 MHz		
Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.553 \text{ S/m}$; $\epsilon_r = 52.635$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Flat Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.67, 4.67, 4.67); Calibrated: 8/21/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.0, 32.0$ Electronics: DAE4 Sn546; Calibrated: 8/19/2015 Phantom: SAM 1560; Type: SAM; Serial: 1560 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) 		
Flat-Section MSL Band 2 HOT/LTE Band 2 edge 2/Area Scan (5x10x1):		
Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$		
Maximum value of SAR (measured) = 0.426 W/kg		
Flat-Section MSL Band 2 HOT/LTE Band 2 edge 2/Zoom Scan (7x7x7)/Cube 0:		
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$		
Reference Value = 16.227 V/m; Power Drift = 0.16 dB		
Peak SAR (extrapolated) = 0.855 W/kg		
SAR(1 g) = 0.444 W/kg; SAR(10 g) = 0.213 W/kg		
Maximum value of SAR (measured) = 0.512 W/kg		
 <p>A heatmap showing the Specific Absorption Rate (SAR) distribution. The color scale on the left indicates SAR values in dB, ranging from -19.62 (black) to 0 (yellow). The heatmap shows a central bright area (high SAR) surrounded by a darker region (lower SAR). A red arrow points to a specific point on the heatmap, and a small coordinate system is visible at the bottom left.</p> <p>0 dB = 0.512 W/kg = -2.91 dBW/kg</p>		

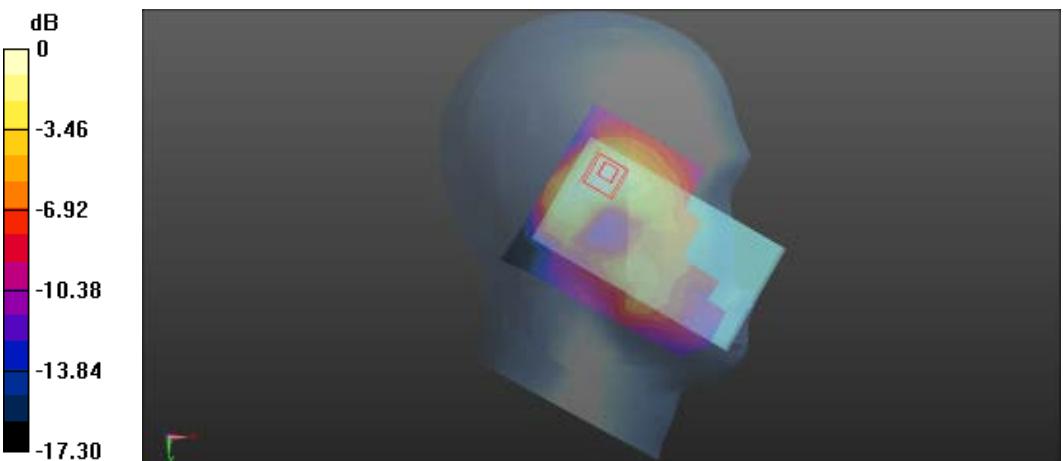
FLAT	Edge4	1880MHz
Communication System: UID 0, LTE band 2 (0); Frequency: 1880 MHz		
Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.553 \text{ S/m}$; $\epsilon_r = 52.635$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Flat Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.67, 4.67, 4.67); Calibrated: 8/21/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = -18.0, 32.0$ Electronics: DAE4 Sn546; Calibrated: 8/19/2015 Phantom: SAM 1560; Type: SAM; Serial: 1560 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) 		
Flat-Section MSL Band 2 HOT/LTE Band 2 edge 4/Area Scan (5x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.129 W/kg		
Flat-Section MSL Band 2 HOT/LTE Band 2 edge 4/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 6.626 V/m; Power Drift = 0.19 dB Peak SAR (extrapolated) = 0.236 W/kg SAR(1 g) = 0.137 W/kg; SAR(10 g) = 0.078 W/kg Maximum value of SAR (measured) = 0.150 W/kg		
 <p>0 dB = 0.150 W/kg = -8.24 dBW/kg</p>		

LTE BAND2- 5BW-1RB (Head)

Left Side	Check	1880MHz
Communication System: UID 0, Generic LTE (0); Frequency: 1880 MHz; Duty Cycle: 1:1		
Medium parameters used (extrapolated): $f = 1880 \text{ MHz}$; $\sigma = 1.374 \text{ S/m}$; $\epsilon_r = 40.457$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Left Section		
DASY5 Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 2015/8/21; Sensor-Surface: 4mm (Mechanical Surface Detection) Electronics: DAE4 Sn546; Calibrated: 2015/8/19 Phantom: SAM 1660; Type: QD000P40CD; Serial: TP:1660 Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164) <p>Head-Section Left HSL Band 2/LTE Band 2 touch M/Area Scan (9x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.290 W/kg</p> <p>Head-Section Left HSL Band 2/LTE Band 2 touch M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 6.945 V/m; Power Drift = 0.10 dB Peak SAR (extrapolated) = 0.507 W/kg SAR(1 g) = 0.302 W/kg; SAR(10 g) = 0.171 W/kg Maximum value of SAR (measured) = 0.336 W/kg</p>		
 <p>0 dB = 0.336 W/kg = -4.74 dBW/kg</p>		

Left Side	Tilt	1880MHz
Communication System: UID 0, Generic LTE (0); Frequency: 1880 MHz; Duty Cycle: 1:1		
Medium parameters used (extrapolated): $f = 1880 \text{ MHz}$; $\sigma = 1.374 \text{ S/m}$; $\epsilon_r = 40.457$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Left Section		
DASY5 Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 2015/8/21; Sensor-Surface: 4mm (Mechanical Surface Detection) Electronics: DAE4 Sn546; Calibrated: 2015/8/19 Phantom: SAM 1660; Type: QD000P40CD; Serial: TP:1660 Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164) 		
Head-Section Left HSL Band 2/LTE Band 2 tilt M/Area Scan (9x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.0992 W/kg		
Head-Section Left HSL Band 2/LTE Band 2 tilt M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 8.479 V/m; Power Drift = -0.19 dB Peak SAR (extrapolated) = 0.200 W/kg SAR(1 g) = 0.114 W/kg; SAR(10 g) = 0.063 W/kg Maximum value of SAR (measured) = 0.124 W/kg		
 <p>0 dB = 0.124 W/kg = -9.07 dBW/kg</p>		

Right Side	Check	1880MHz
Communication System: UID 0, Generic LTE (0); Frequency: 1880 MHz; Duty Cycle: 1:1		
Medium parameters used (extrapolated): $f = 1880 \text{ MHz}$; $\sigma = 1.374 \text{ S/m}$; $\epsilon_r = 40.457$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Right Section		
DASY5 Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 2015/8/21; Sensor-Surface: 4mm (Mechanical Surface Detection) Electronics: DAE4 Sn546; Calibrated: 2015/8/19 Phantom: SAM 1660; Type: QD000P40CD; Serial: TP:1660 Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164) <p>Head-Section Right HSL Band 2/LTE Band 2 touch M/Area Scan (9x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.204 W/kg</p> <p>Head-Section Right HSL Band 2/LTE Band 2 touch M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 6.321 V/m; Power Drift = -0.08 dB Peak SAR (extrapolated) = 0.332 W/kg</p> <p>SAR(1 g) = 0.195 W/kg; SAR(10 g) = 0.109 W/kg Maximum value of SAR (measured) = 0.214 W/kg</p>		
 <p>0 dB = 0.214 W/kg = -6.70 dBW/kg</p>		

Right Side	Tilt	1880MHz
Communication System: UID 0, Generic LTE (0); Frequency: 1880 MHz; Duty Cycle: 1:1		
Medium parameters used (extrapolated): $f = 1880 \text{ MHz}$; $\sigma = 1.374 \text{ S/m}$; $\epsilon_r = 40.457$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Right Section		
DASY5 Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 2015/8/21; Sensor-Surface: 4mm (Mechanical Surface Detection) Electronics: DAE4 Sn546; Calibrated: 2015/8/19 Phantom: SAM 1660; Type: QD000P40CD; Serial: TP:1660 Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164) 		
Head-Section Right HSL Band 2/LTE Band 2 tilt M/Area Scan (9x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.115 W/kg Head-Section Right HSL Band 2/LTE Band 2 tilt M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 9.361 V/m; Power Drift = 0.12 dB Peak SAR (extrapolated) = 0.202 W/kg SAR(1 g) = 0.122 W/kg; SAR(10 g) = 0.071 W/kg Maximum value of SAR (measured) = 0.135 W/kg		
 $0 \text{ dB} = 0.135 \text{ W/kg} = -8.70 \text{ dBW/kg}$		

LTE BAND2- 5BW-1RB (Flat)

FLAT	Towards phantom	1880MHz
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Communication System: UID 0, LTE band 2 (0); Frequency: 1880 MHz
 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.553$ S/m; $\epsilon_r = 52.635$; $\rho = 1000$ kg/m³
 Phantom section: Flat Section
 Measurement Standard: DASY5 (IEEE1528-2013)

DASY Configuration:

- Probe: ES3DV3 - SN3127; ConvF(4.67, 4.67, 4.67); Calibrated: 8/21/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection), $z = -18.0, 32.0$
- Electronics: DAE4 Sn546; Calibrated: 8/19/2015
- Phantom: SAM 1560; Type: SAM; Serial: 1560
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Flat-Section MSL Band 2 TP/LTE Band 2 TP M 2/Area Scan (9x14x1):

Measurement grid: $dx=15$ mm, $dy=15$ mm

Maximum value of SAR (measured) = 0.389 W/kg

Flat-Section MSL Band 2 TP/LTE Band 2 TP M 2/Zoom Scan (7x7x7)/Cube 0:

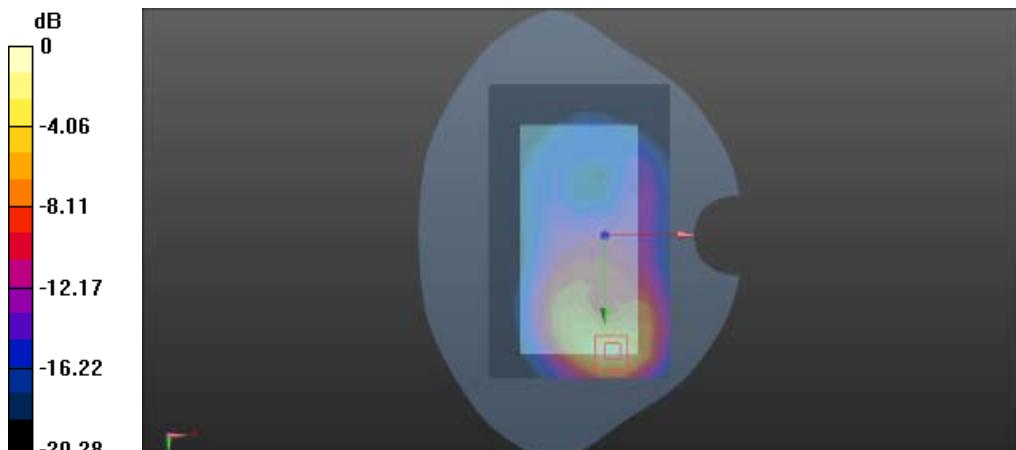
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

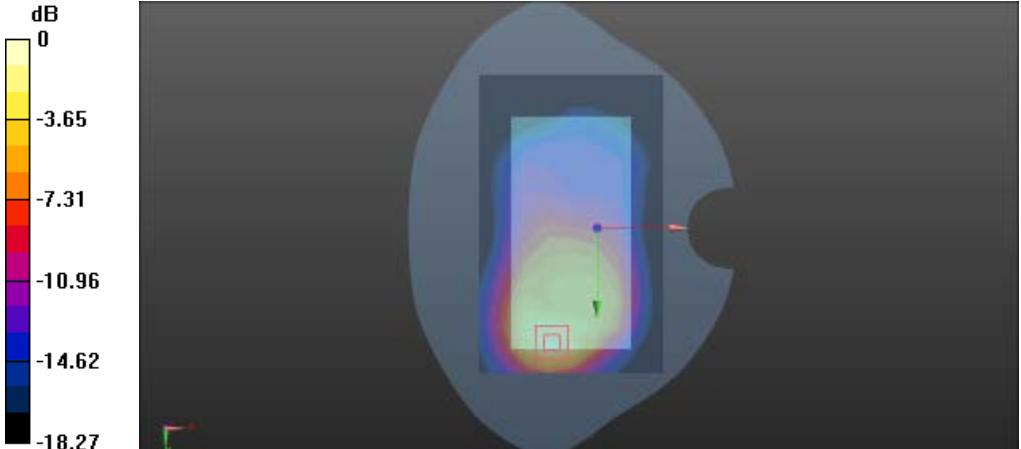
Reference Value = 4.729 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.829 W/kg

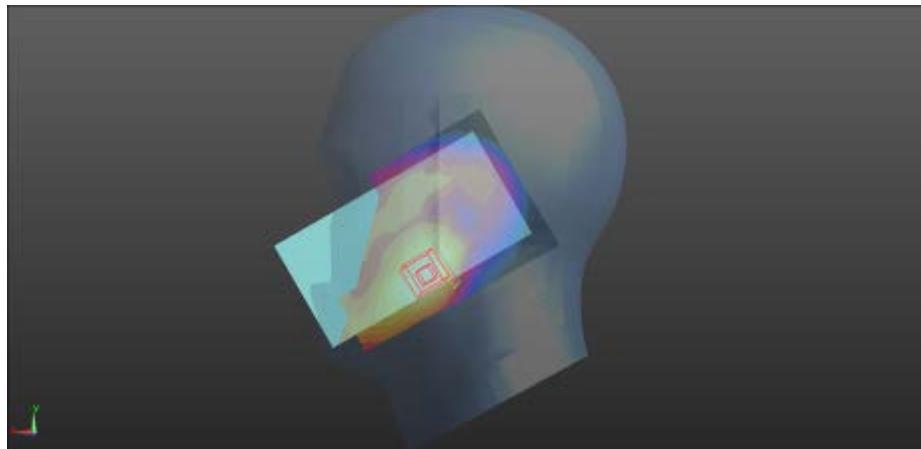
SAR(1 g) = 0.428 W/kg; SAR(10 g) = 0.206 W/kg

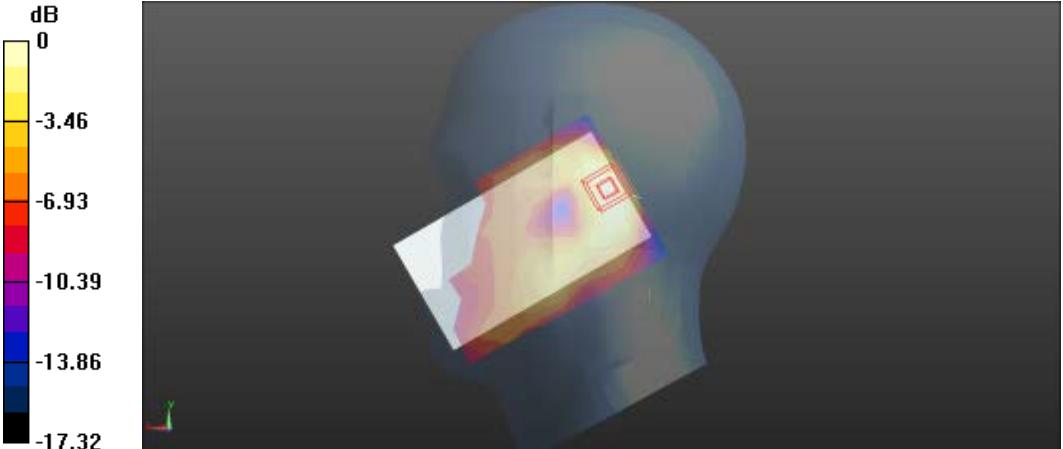
Maximum value of SAR (measured) = 0.475 W/kg

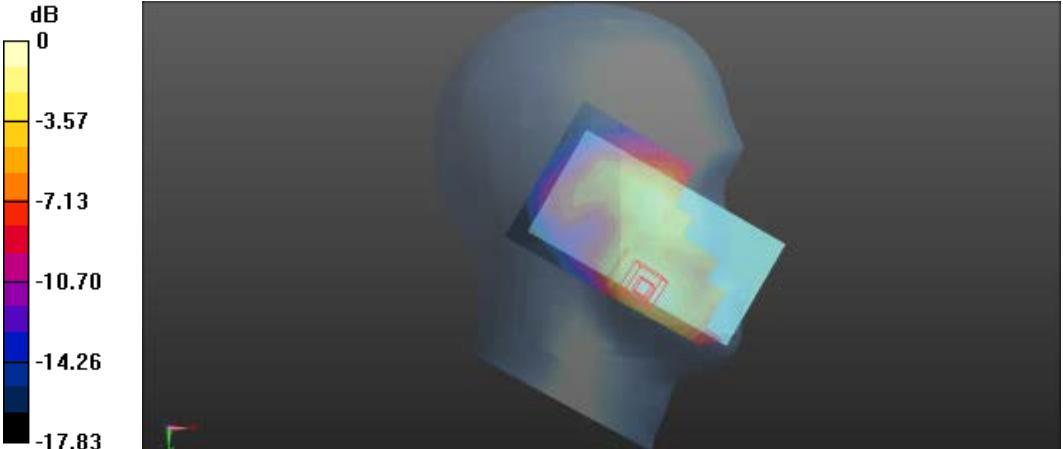


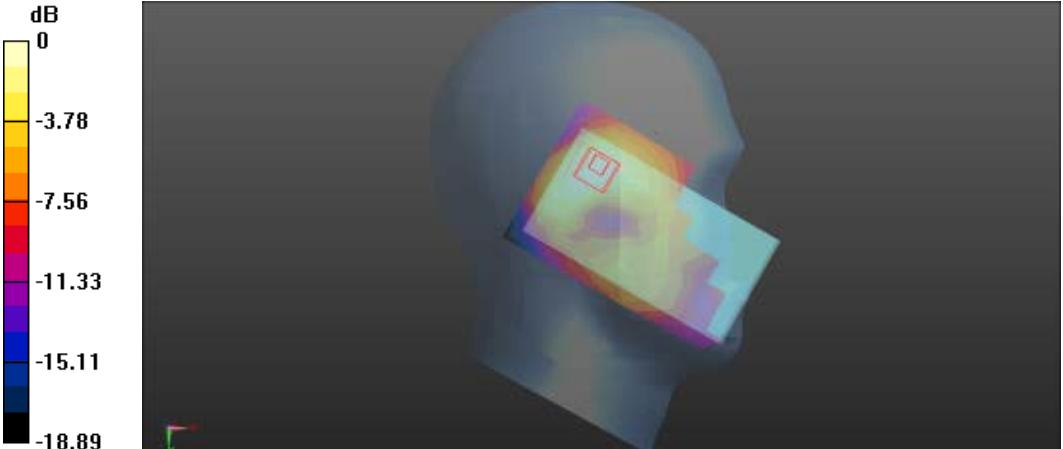
FLAT	Towards ground	1880MHz
Communication System: UID 0, LTE band 2 (0); Frequency: 1880 MHz		
Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.553 \text{ S/m}$; $\epsilon_r = 52.635$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Flat Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> • Probe: ES3DV3 - SN3127; ConvF(4.67, 4.67, 4.67); Calibrated: 8/21/2015; • Sensor-Surface: 3mm (Mechanical Surface Detection), Sensor-Surface: 4mm (Mechanical Surface Detection), $z = -18.0, 32.0$ • Electronics: DAE4 Sn546; Calibrated: 8/19/2015 • Phantom: SAM 1560; Type: SAM; Serial: 1560 • DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) 		
Flat-Section MSL Band 2 TG/LTE Band 2 TG M 2/Area Scan (9x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.288 W/kg		
Flat-Section MSL Band 2 TG/LTE Band 2 TG M 2/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 5.883 V/m; Power Drift = -0.04 dB Peak SAR (extrapolated) = 0.514 W/kg SAR(1 g) = 0.289 W/kg; SAR(10 g) = 0.150 W/kg Maximum value of SAR (measured) = 0.322 W/kg		
 $0 \text{ dB} = 0.322 \text{ W/kg} = -4.92 \text{ dBW/kg}$		

LTE BAND2- 20BW-1RB (Head)

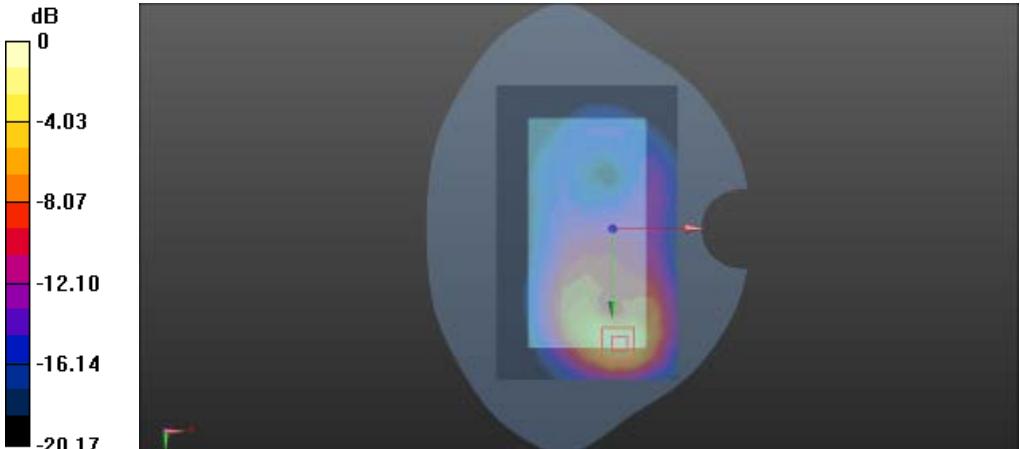
Left Side	Check	1880MHz
<p>Communication System: UID 10169 - CAB, LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK); Frequency: 1880 MHz; Duty Cycle: 1:3.74111 Medium parameters used (extrapolated): $f = 1880 \text{ MHz}$; $\sigma = 1.374 \text{ S/m}$; $\epsilon_r = 40.457$; $\rho = 1000 \text{ kg/m}^3$ Phantom section: Left Section</p> <p>DASY5 Configuration:</p> <ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 2015/8/21; Sensor-Surface: 4mm (Mechanical Surface Detection) Electronics: DAE4 Sn546; Calibrated: 2015/8/19 Phantom: SAM 1660; Type: QD000P40CD; Serial: TP:1660 Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164) <p>Head-Section Left HSL Band 2/LTE Band 2 touch M/Area Scan (8x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.329 W/kg</p> <p>Head-Section Left HSL Band 2/LTE Band 2 touch M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 7.059 V/m; Power Drift = 0.02 dB Peak SAR (extrapolated) = 0.501 W/kg SAR(1 g) = 0.315 W/kg; SAR(10 g) = 0.185 W/kg Maximum value of SAR (measured) = 0.340 W/kg</p>  <p>0 dB = 0.340 W/kg = -4.69 dBW/kg</p>		

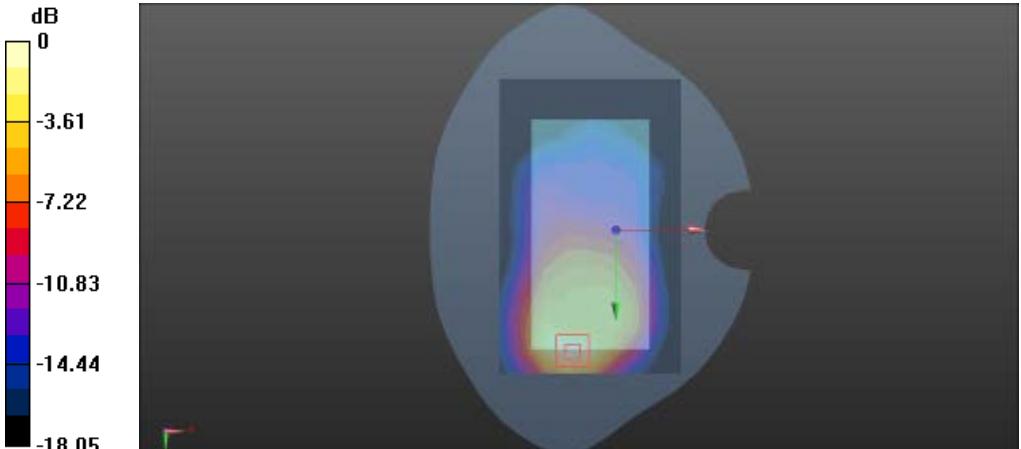
Left Side	Tilt	1880MHz
Communication System: UID 10169 - CAB, LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK); Frequency: 1880 MHz; Duty Cycle: 1:3.74111		
Medium parameters used (extrapolated): $f = 1880 \text{ MHz}$; $\sigma = 1.374 \text{ S/m}$; $\epsilon_r = 40.457$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Left Section		
DASY5 Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 2015/8/21; Sensor-Surface: 4mm (Mechanical Surface Detection) Electronics: DAE4 Sn546; Calibrated: 2015/8/19 Phantom: SAM 1660; Type: QD000P40CD; Serial: TP:1660 Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164) <p>Head-Section Left HSL Band 2/LTE Band 2 tilt M/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.121 W/kg</p> <p>Head-Section Left HSL Band 2/LTE Band 2 tilt M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 9.680 V/m; Power Drift = -0.06 dB Peak SAR (extrapolated) = 0.198 W/kg SAR(1 g) = 0.113 W/kg; SAR(10 g) = 0.063 W/kg Maximum value of SAR (measured) = 0.125 W/kg</p>		
 <p>0 dB = 0.125 W/kg = -9.03 dBW/kg</p>		

Right Side	Check	1880MHz
<p>Communication System: UID 10169 - CAB, LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK); Frequency: 1880 MHz; Duty Cycle: 1:3.74111 Medium parameters used (extrapolated): $f = 1880 \text{ MHz}$; $\sigma = 1.374 \text{ S/m}$; $\epsilon_r = 40.457$; $\rho = 1000 \text{ kg/m}^3$ Phantom section: Right Section</p> <p>DASY5 Configuration:</p> <ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 2015/8/21; Sensor-Surface: 4mm (Mechanical Surface Detection) Electronics: DAE4 Sn546; Calibrated: 2015/8/19 Phantom: SAM 1660; Type: QD000P40CD; Serial: TP:1660 Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164) <p>Head-Section Right HSL Band 2/LTE Band 2 touch M/Area Scan (8x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.231 W/kg</p> <p>Head-Section Right HSL Band 2/LTE Band 2 touch M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 6.108 V/m; Power Drift = -0.07 dB Peak SAR (extrapolated) = 0.361 W/kg SAR(1 g) = 0.220 W/kg; SAR(10 g) = 0.129 W/kg Maximum value of SAR (measured) = 0.242 W/kg</p>  <p>0 dB = 0.242 W/kg = -6.16 dBW/kg</p>		

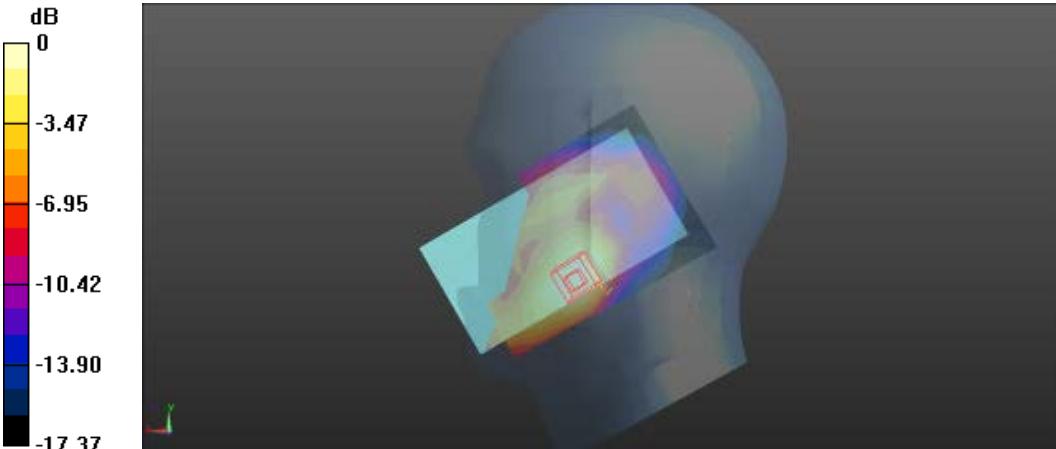
Right Side	Tilt	1880MHz
<p>Communication System: UID 10169 - CAB, LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK); Frequency: 1880 MHz; Duty Cycle: 1:3.74111 Medium parameters used (extrapolated): $f = 1880$ MHz; $\sigma = 1.374$ S/m; $\epsilon_r = 40.457$; $\rho = 1000$ kg/m³ Phantom section: Right Section</p> <p>DASY5 Configuration:</p> <ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 2015/8/21; Sensor-Surface: 4mm (Mechanical Surface Detection) Electronics: DAE4 Sn546; Calibrated: 2015/8/19 Phantom: SAM 1660; Type: QD000P40CD; Serial: TP:1660 Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164) <p>Head-Section Right HSL Band 2/LTE Band 2 tilt M/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.0793 W/kg</p> <p>Head-Section Right HSL Band 2/LTE Band 2 tilt M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 7.556 V/m; Power Drift = 0.13 dB Peak SAR (extrapolated) = 0.117 W/kg SAR(1 g) = 0.071 W/kg; SAR(10 g) = 0.042 W/kg Maximum value of SAR (measured) = 0.0782 W/kg</p>  <p>0 dB = 0.0782 W/kg = -11.07 dBW/kg</p>		

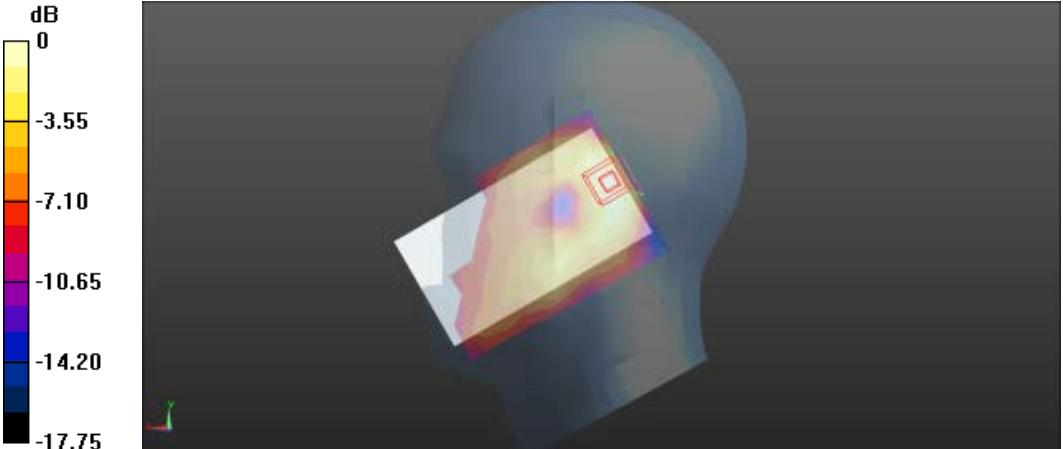
LTE BAND2- 20BW-1RB (Flat)

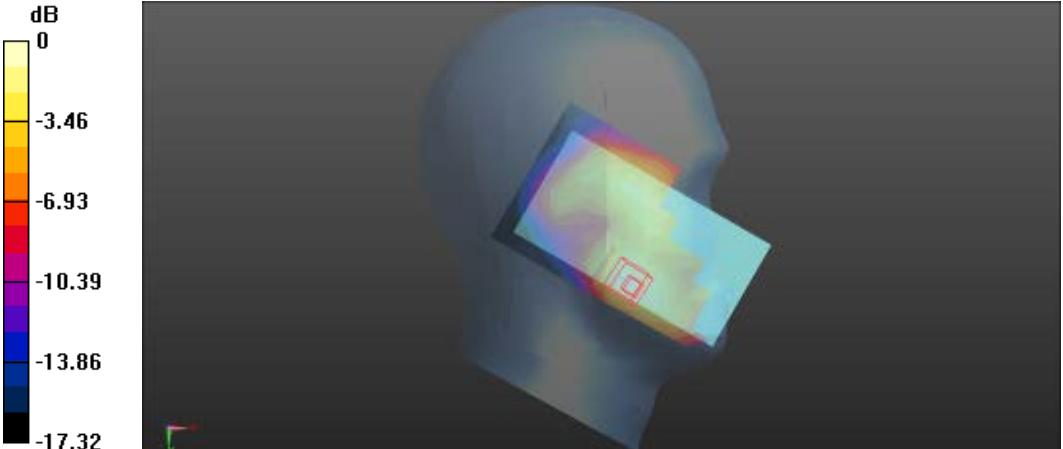
FLAT	Towards phantom	1880MHz
Communication System: UID 10169 - CAB, LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK);		
Frequency: 1880 MHz		
Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.553 \text{ S/m}$; $\epsilon_r = 52.635$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Flat Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.67, 4.67, 4.67); Calibrated: 8/21/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = -18.0, 32.0$ Electronics: DAE4 Sn546; Calibrated: 8/19/2015 Phantom: SAM 1560; Type: SAM; Serial: 1560 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) 		
Flat-Section MSL Band 2 TP/LTE Band 2 TP M 2/Area Scan (9x14x1):		
Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$		
Maximum value of SAR (measured) = 0.342 W/kg		
Flat-Section MSL Band 2 TP/LTE Band 2 TP M 2/Zoom Scan (7x7x7)/Cube 0:		
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$		
Reference Value = 4.678 V/m; Power Drift = 0.22 dB		
Peak SAR (extrapolated) = 0.797 W/kg		
SAR(1 g) = 0.415 W/kg; SAR(10 g) = 0.201 W/kg		
Maximum value of SAR (measured) = 0.479 W/kg		
 <p>0 dB = 0.479 W/kg = -3.20 dBW/kg</p>		

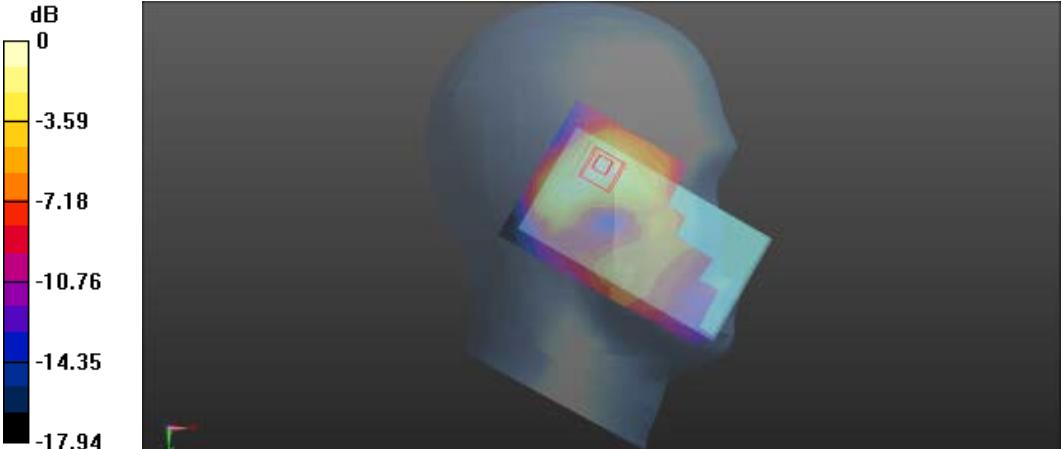
FLAT	Towards ground	1880MHz
Communication System: UID 10169 - CAB, LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK); Frequency: 1880 MHz		
Medium parameters used: $f = 1880$ MHz; $\sigma = 1.553$ S/m; $\epsilon_r = 52.635$; $\rho = 1000$ kg/m 3		
Phantom section: Flat Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.67, 4.67, 4.67); Calibrated: 8/21/2015; Sensor-Surface: 3mm (Mechanical Surface Detection), Sensor-Surface: 4mm (Mechanical Surface Detection), $z = -18.0, 32.0$ Electronics: DAE4 Sn546; Calibrated: 8/19/2015 Phantom: SAM 1560; Type: SAM; Serial: 1560 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) 		
Flat-Section MSL Band 2 TG/LTE Band 2 TG M 2/Area Scan (9x14x1):		
Measurement grid: $dx=15$ mm, $dy=15$ mm		
Maximum value of SAR (measured) = 0.337 W/kg		
Flat-Section MSL Band 2 TG/LTE Band 2 TG M 2/Zoom Scan (7x7x7)/Cube 0:		
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm		
Reference Value = 5.202 V/m; Power Drift = 0.03 dB		
Peak SAR (extrapolated) = 0.493 W/kg		
SAR(1 g) = 0.278 W/kg; SAR(10 g) = 0.145 W/kg		
Maximum value of SAR (measured) = 0.313 W/kg		
 <p>0 dB = 0.313 W/kg = -5.04 dBW/kg</p>		

LTE BAND2- 20BW-50%RB (Head)

Left Side	Check	1880MHz
Communication System: UID 10297 - AAA, LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK); Frequency: 1880 MHz; Duty Cycle: 1:3.81066		
Medium parameters used (extrapolated): $f = 1880 \text{ MHz}$; $\sigma = 1.374 \text{ S/m}$; $\epsilon_r = 40.457$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Left Section		
DASY5 Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 2015/8/21; Sensor-Surface: 4mm (Mechanical Surface Detection) Electronics: DAE4 Sn546; Calibrated: 2015/8/19 Phantom: SAM 1660; Type: QD000P40CD; Serial: TP:1660 Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164) <p>Head-Section Left HSL Band 2/LTE Band 2 touch M/Area Scan (8x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.255 W/kg</p> <p>Head-Section Left HSL Band 2/LTE Band 2 touch M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 6.601 V/m; Power Drift = -0.06 dB Peak SAR (extrapolated) = 0.388 W/kg SAR(1 g) = 0.243 W/kg; SAR(10 g) = 0.143 W/kg Maximum value of SAR (measured) = 0.263 W/kg</p>		
 <p>0 dB = 0.263 W/kg = -5.80 dBW/kg</p>		

Left Side	Tilt	1880MHz
Communication System: UID 10297 - AAA, LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK); Frequency: 1880 MHz; Duty Cycle: 1:3.81066		
Medium parameters used (extrapolated): $f = 1880 \text{ MHz}$; $\sigma = 1.374 \text{ S/m}$; $\epsilon_r = 40.457$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Left Section		
DASY5 Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 2015/8/21; Sensor-Surface: 4mm (Mechanical Surface Detection) Electronics: DAE4 Sn546; Calibrated: 2015/8/19 Phantom: SAM 1660; Type: QD000P40CD; Serial: TP:1660 Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164) <p>Head-Section Left HSL Band 2/LTE Band 2 tilt M/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.0983 W/kg</p> <p>Head-Section Left HSL Band 2/LTE Band 2 tilt M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 8.715 V/m; Power Drift = 0.01 dB Peak SAR (extrapolated) = 0.164 W/kg SAR(1 g) = 0.093 W/kg; SAR(10 g) = 0.052 W/kg Maximum value of SAR (measured) = 0.103 W/kg</p>		
 <p>0 dB = 0.103 W/kg = -9.87 dBW/kg</p>		

Right Side	Check	1880MHz
<p>Communication System: UID 10297 - AAA, LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK); Frequency: 1880 MHz; Duty Cycle: 1:3.81066 Medium parameters used (extrapolated): $f = 1880 \text{ MHz}$; $\sigma = 1.374 \text{ S/m}$; $\epsilon_r = 40.457$; $\rho = 1000 \text{ kg/m}^3$ Phantom section: Right Section</p> <p>DASY5 Configuration:</p> <ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 2015/8/21; Sensor-Surface: 4mm (Mechanical Surface Detection) Electronics: DAE4 Sn546; Calibrated: 2015/8/19 Phantom: SAM 1660; Type: QD000P40CD; Serial: TP:1660 Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164) <p>Head-Section Right HSL Band 2/LTE Band 2 touch M/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.140 W/kg</p> <p>Head-Section Right HSL Band 2/LTE Band 2 touch M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 5.782 V/m; Power Drift = -0.09 dB Peak SAR (extrapolated) = 0.237 W/kg SAR(1 g) = 0.142 W/kg; SAR(10 g) = 0.082 W/kg Maximum value of SAR (measured) = 0.159 W/kg</p>  <p>0 dB = 0.159 W/kg = -7.99 dBW/kg</p>		

Right Side	Tilt	1880MHz
<p>Communication System: UID 10297 - AAA, LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK); Frequency: 1880 MHz; Duty Cycle: 1:3.81066 Medium parameters used (extrapolated): $f = 1880 \text{ MHz}$; $\sigma = 1.374 \text{ S/m}$; $\epsilon_r = 40.457$; $\rho = 1000 \text{ kg/m}^3$ Phantom section: Right Section</p> <p>DASY5 Configuration:</p> <ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 2015/8/21; Sensor-Surface: 4mm (Mechanical Surface Detection) Electronics: DAE4 Sn546; Calibrated: 2015/8/19 Phantom: SAM 1660; Type: QD000P40CD; Serial: TP:1660 Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164) <p>Head-Section Right HSL Band 2/LTE Band 2 tilt M/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.0658 W/kg</p> <p>Head-Section Right HSL Band 2/LTE Band 2 tilt M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 6.697 V/m; Power Drift = 0.03 dB Peak SAR (extrapolated) = 0.115 W/kg SAR(1 g) = 0.069 W/kg; SAR(10 g) = 0.040 W/kg Maximum value of SAR (measured) = 0.0763 W/kg</p>  <p>0 dB = 0.0763 W/kg = -11.17 dBW/kg</p>		

LTE BAND2- 20BW-50%RB (Flat)

FLAT	Towards phantom	1880MHz
Communication System: UID 10297 - AAA, LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK);		
Frequency: 1880 MHz		
Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.553 \text{ S/m}$; $\epsilon_r = 52.635$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Flat Section		
Measurement Standard: DASY5 (IEEE1528-2013)		

DASY Configuration:

- Probe: ES3DV3 - SN3127; ConvF(4.67, 4.67, 4.67); Calibrated: 8/21/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection), $z = -18.0, 32.0$
- Electronics: DAE4 Sn546; Calibrated: 8/19/2015
- Phantom: SAM 1560; Type: SAM; Serial: 1560
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Flat-Section MSL Band 2 TP/LTE Band 2 TP M 2 2/Area Scan (9x14x1):

Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 0.217 W/kg

Flat-Section MSL Band 2 TP/LTE Band 2 TP M 2 2/Zoom Scan (7x7x7)/Cube 0:

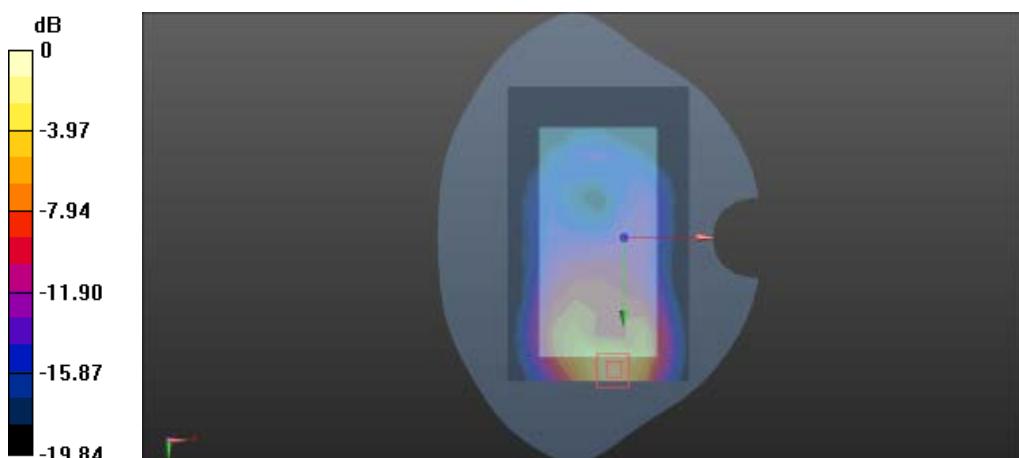
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

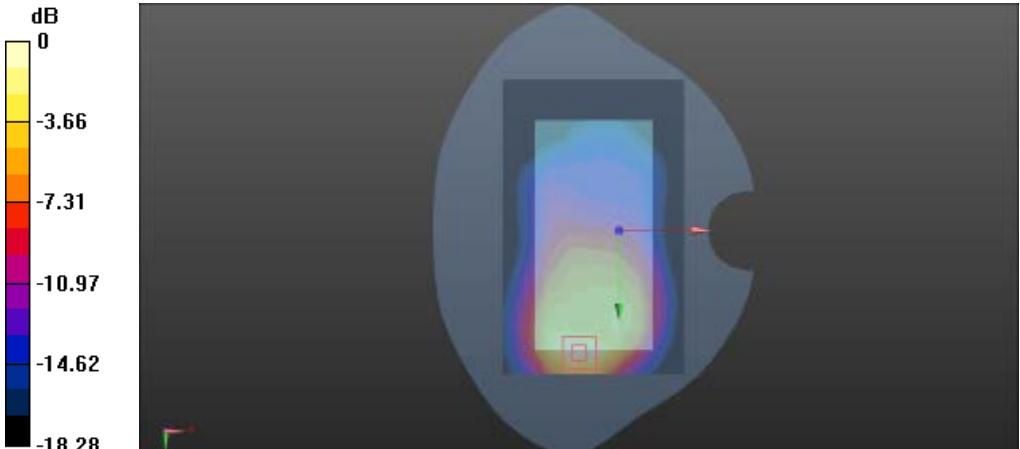
Reference Value = 3.263 V/m; Power Drift = 0.20 dB

Peak SAR (extrapolated) = 0.573 W/kg

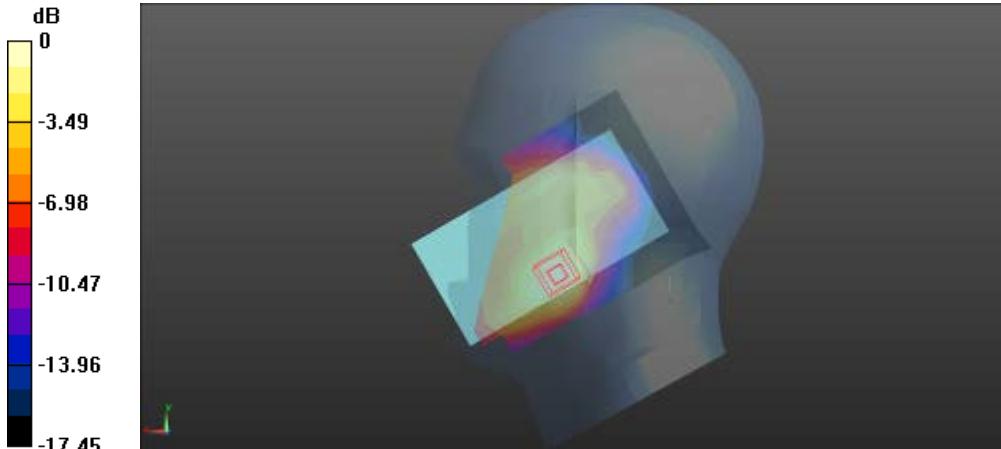
SAR(1 g) = 0.300 W/kg; SAR(10 g) = 0.146 W/kg

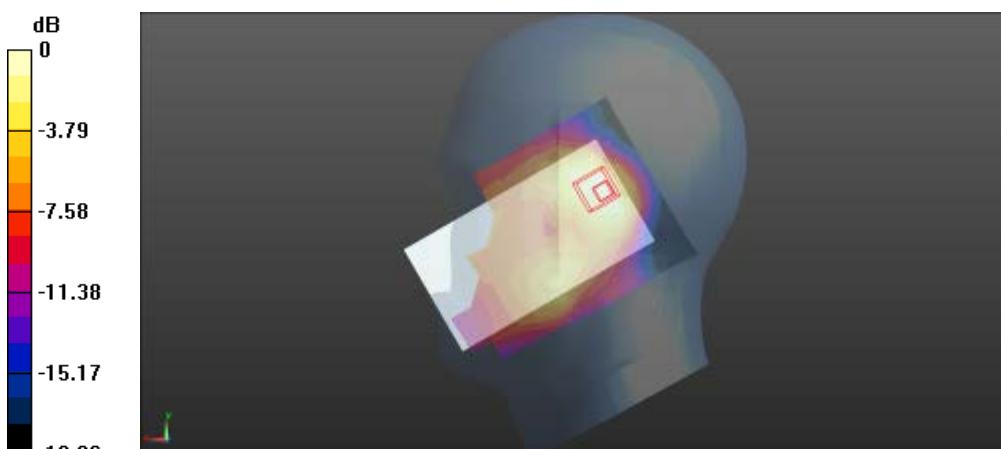
Maximum value of SAR (measured) = 0.340 W/kg



FLAT	Towards ground	1880MHz
<p>Communication System: UID 10297 - AAA, LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK); Frequency: 1880 MHz Medium parameters used: $f = 1880$ MHz; $\sigma = 1.553$ S/m; $\epsilon_r = 52.635$; $\rho = 1000$ kg/m3 Phantom section: Flat Section Measurement Standard: DASY5 (IEEE1528-2013)</p> <p>DASY Configuration:</p> <ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.67, 4.67, 4.67); Calibrated: 8/21/2015; Sensor-Surface: 3mm (Mechanical Surface Detection), Sensor-Surface: 4mm (Mechanical Surface Detection), $z = -18.0, 32.0$ Electronics: DAE4 Sn546; Calibrated: 8/19/2015 Phantom: SAM 1560; Type: SAM; Serial: 1560 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) <p>Flat-Section MSL Band 2 TG/LTE Band 2 TG M 2/Area Scan (9x14x1): Measurement grid: $dx=15$ mm, $dy=15$ mm Maximum value of SAR (measured) = 0.248 W/kg</p> <p>Flat-Section MSL Band 2 TG/LTE Band 2 TG M 2/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm Reference Value = 4.595 V/m; Power Drift = 0.18 dB Peak SAR (extrapolated) = 0.379 W/kg SAR(1 g) = 0.213 W/kg; SAR(10 g) = 0.111 W/kg Maximum value of SAR (measured) = 0.241 W/kg</p>  <p>0 dB = 0.241 W/kg = -6.18 dBW/kg</p>		

LTE BAND3- 1.4BW-50%RB (Head)

Left Side	Check	1747.5MHz
Communication System: UID 0, LTE Band 3 (0); Frequency: 1747.5 MHz		
Medium parameters used (extrapolated): $f = 1747.5 \text{ MHz}$; $\sigma = 1.401 \text{ S/m}$; $\epsilon_r = 41.033$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Left Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 8/21/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.0, 32.0$ Electronics: DAE4 Sn546; Calibrated: 8/19/2015 Phantom: SAM 1560; Type: SAM; Serial: 1560 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) <p>Head-Section Left LTE Band 3/LTE Band 3 touch M/Area Scan (9x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.210 W/kg</p> <p>Head-Section Left LTE Band 3/LTE Band 3 touch M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 5.773 V/m; Power Drift = -0.22 dB Peak SAR (extrapolated) = 0.327 W/kg SAR(1 g) = 0.208 W/kg; SAR(10 g) = 0.127 W/kg Maximum value of SAR (measured) = 0.229 W/kg</p>		
 <p>0 dB = 0.229 W/kg = -6.40 dBW/kg</p>		

Left Side	Tilt	1747.5MHz
Communication System: UID 0, LTE Band 3 (0); Frequency: 1747.5 MHz		
Medium parameters used (extrapolated): $f = 1747.5 \text{ MHz}$; $\sigma = 1.401 \text{ S/m}$; $\epsilon_r = 41.033$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Left Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 8/21/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.0, 32.0$ Electronics: DAE4 Sn546; Calibrated: 8/19/2015 Phantom: SAM 1560; Type: SAM; Serial: 1560 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) 		
Head-Section Left LTE Band 3/LTE Band 3 tilt M/Area Scan (9x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.102 W/kg		
Head-Section Left LTE Band 3/LTE Band 3 tilt M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 8.554 V/m; Power Drift = 0.16 dB Peak SAR (extrapolated) = 0.163 W/kg SAR(1 g) = 0.103 W/kg; SAR(10 g) = 0.062 W/kg Maximum value of SAR (measured) = 0.111 W/kg		
 <p>0 dB = 0.111 W/kg = -9.55 dBW/kg</p>		

Right Side	Check	1747.5MHz
Communication System: UID 0, LTE Band 3 (0); Frequency: 1747.5 MHz		
Medium parameters used (extrapolated): $f = 1747.5 \text{ MHz}$; $\sigma = 1.401 \text{ S/m}$; $\epsilon_r = 41.033$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Right Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 8/21/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.0, 32.0$ Electronics: DAE4 Sn546; Calibrated: 8/19/2015 Phantom: SAM 1560; Type: SAM; Serial: 1560 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) <p>Head-Section Right LTE Band 3/LTE Band 3 touch M/Area Scan (9x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.180 W/kg</p> <p>Head-Section Right LTE Band 3/LTE Band 3 touch M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 5.413 V/m; Power Drift = 0.16 dB Peak SAR (extrapolated) = 0.261 W/kg SAR(1 g) = 0.168 W/kg; SAR(10 g) = 0.103 W/kg Maximum value of SAR (measured) = 0.182 W/kg</p>		
 <p>0 dB = 0.182 W/kg = -7.40 dBW/kg</p>		

Right Side	Tilt	1747.5MHz
Communication System: UID 0, LTE Band 3 (0); Frequency: 1747.5 MHz		
Medium parameters used (extrapolated): $f = 1747.5 \text{ MHz}$; $\sigma = 1.401 \text{ S/m}$; $\epsilon_r = 41.033$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Right Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 8/21/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.0, 32.0$ Electronics: DAE4 Sn546; Calibrated: 8/19/2015 Phantom: SAM 1560; Type: SAM; Serial: 1560 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) 		
Head-Section Right LTE Band 3/LTE Band 3 tilt M/Area Scan (9x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.0788 W/kg		
Head-Section Right LTE Band 3/LTE Band 3 tilt M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 8.105 V/m; Power Drift = 0.05 dB Peak SAR (extrapolated) = 0.147 W/kg SAR(1 g) = 0.091 W/kg; SAR(10 g) = 0.053 W/kg Maximum value of SAR (measured) = 0.0988 W/kg		
 <p>0 dB = 0.0988 W/kg = -10.05 dBW/kg</p>		

LTE BAND3- 1.4BW-50%RB (Flat)

FLAT	Towards phantom	1747.5MHz
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Communication System: UID 0, LTE Band 3 (0); Frequency: 1747.5 MHz

Medium parameters used (interpolated): $f = 1747.5$ MHz; $\sigma = 1.42$ S/m; $\epsilon_r = 51.57$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY Configuration:

- Probe: ES3DV3 - SN3127; ConvF(4.67, 4.67, 4.67); Calibrated: 8/21/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection), $z = -18.0, 32.0$
- Electronics: DAE4 Sn546; Calibrated: 8/19/2015
- Phantom: SAM 1560; Type: SAM; Serial: 1560
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Flat-Section MSL LTE Band 3 TP/LTE Band 3 TP M 3/Area Scan (9x14x1):

Measurement grid: $dx=15$ mm, $dy=15$ mm

Maximum value of SAR (measured) = 0.485 W/kg

Flat-Section MSL LTE Band 3 TP/LTE Band 3 TP M 3/Zoom Scan (7x7x7)/Cube 0:

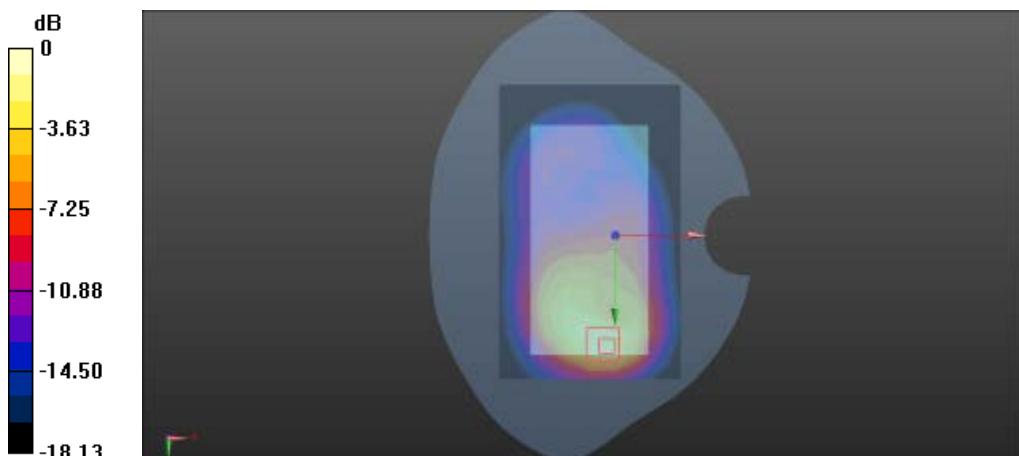
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

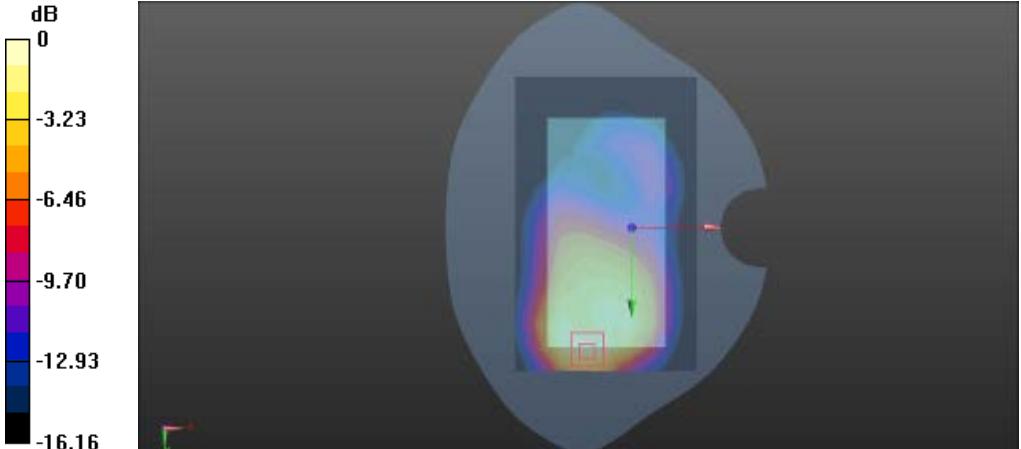
Reference Value = 8.190 V/m; Power Drift = 0.02 dB

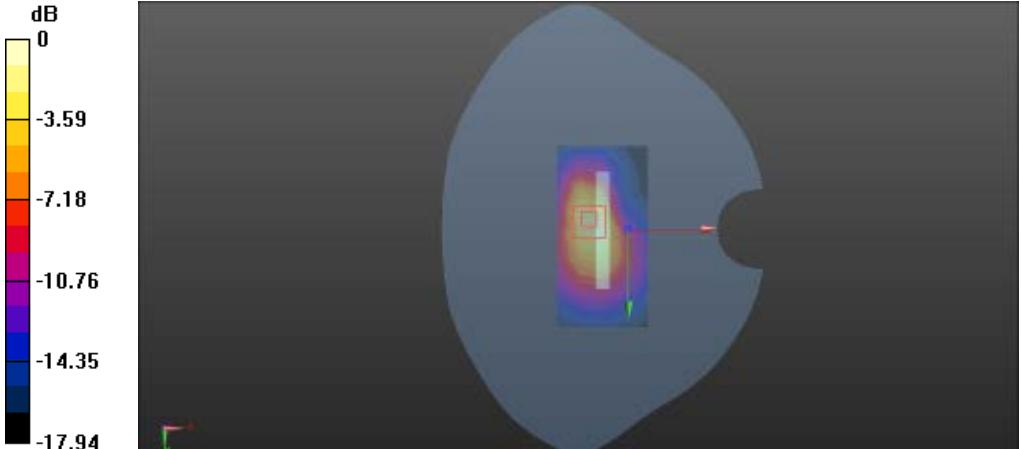
Peak SAR (extrapolated) = 1.11 W/kg

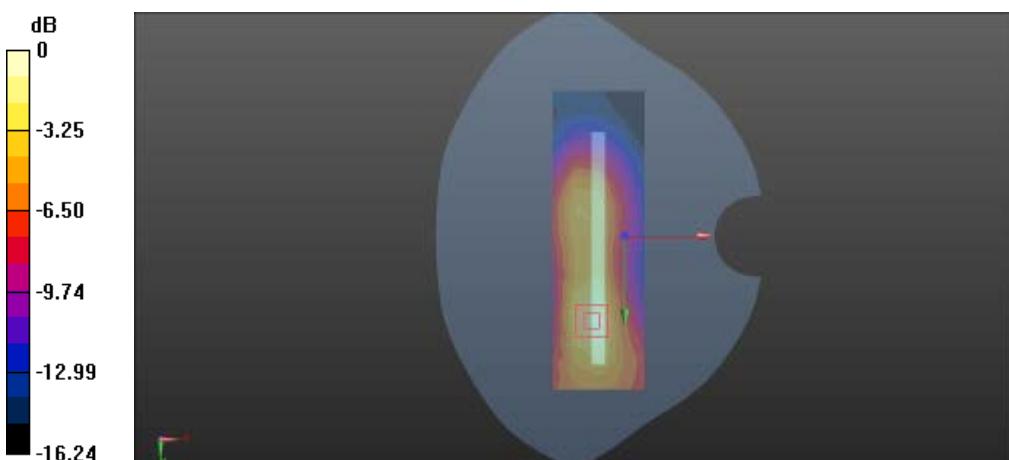
SAR(1 g) = 0.622 W/kg; SAR(10 g) = 0.325 W/kg

Maximum value of SAR (measured) = 0.699 W/kg



FLAT	Towards ground	1747.5MHz
Communication System: UID 0, LTE Band 3 (0); Frequency: 1747.5 MHz		
Medium parameters used (interpolated): $f = 1747.5 \text{ MHz}$; $\sigma = 1.42 \text{ S/m}$; $\epsilon_r = 51.57$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Flat Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.67, 4.67, 4.67); Calibrated: 8/21/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = -18.0, 32.0$ Electronics: DAE4 Sn546; Calibrated: 8/19/2015 Phantom: SAM 1560; Type: SAM; Serial: 1560 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) 		
Flat-Section MSL LTE Band 3 TG/LTE Band 3 TG M/Area Scan (9x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.554 W/kg		
Flat-Section MSL LTE Band 3 TG/LTE Band 3 TG M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 7.869 V/m; Power Drift = 0.05 dB Peak SAR (extrapolated) = 0.829 W/kg SAR(1 g) = 0.506 W/kg; SAR(10 g) = 0.284 W/kg Maximum value of SAR (measured) = 0.564 W/kg		
 <p>0 dB = 0.564 W/kg = -2.49 dBW/kg</p>		

FLAT	EDGE 2	1747.5MHz
Communication System: UID 0, LTE Band 3 (0); Frequency: 1747.5 MHz		
Medium parameters used (interpolated): $f = 1747.5 \text{ MHz}$; $\sigma = 1.42 \text{ S/m}$; $\epsilon_r = 51.57$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Flat Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.67, 4.67, 4.67); Calibrated: 8/21/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = -18.0, 32.0$ Electronics: DAE4 Sn546; Calibrated: 8/13/2014 Phantom: SAM 1560; Type: SAM; Serial: 1560 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) 		
Flat-Section MSL LTE Band 3 HOT/LTE Band 3 edge 2/Area Scan (5x9x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.645 W/kg		
Flat-Section MSL LTE Band 3 HOT/LTE Band 3 edge 2/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 20.292 V/m; Power Drift = -0.20 dB Peak SAR (extrapolated) = 1.37 W/kg SAR(1 g) = 0.760 W/kg; SAR(10 g) = 0.391 W/kg Maximum value of SAR (measured) = 0.864 W/kg		
 <p>0 dB = 0.864 W/kg = -0.63 dBW/kg</p>		

FLAT	EDGE 4	1747.5MHz
Communication System: UID 0, LTE Band 3 (0); Frequency: 1747.5 MHz		
Medium parameters used (interpolated): $f = 1747.5 \text{ MHz}$; $\sigma = 1.42 \text{ S/m}$; $\epsilon_r = 51.57$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Flat Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.67, 4.67, 4.67); Calibrated: 8/21/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = -18.0, 32.0$ Electronics: DAE4 Sn546; Calibrated: 8/13/2014 Phantom: SAM 1560; Type: SAM; Serial: 1560 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) 		
Flat-Section MSL LTE Band 3 HOT/LTE Band 3 edge 4/Area Scan (5x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.134 W/kg		
Flat-Section MSL LTE Band 3 HOT/LTE Band 3 edge 4/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 7.021 V/m; Power Drift = 0.12 dB Peak SAR (extrapolated) = 0.232 W/kg SAR(1 g) = 0.133 W/kg; SAR(10 g) = 0.074 W/kg Maximum value of SAR (measured) = 0.149 W/kg		
 $0 \text{ dB} = 0.149 \text{ W/kg} = -8.27 \text{ dBW/kg}$		

LTE BAND3- 20BW-1RB (Head)

Left Side	Check	1747.5MHz
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Communication System: UID 10169 - CAB, LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK);

Frequency: 1747.5 MHz

Medium parameters used (extrapolated): $f = 1747.5 \text{ MHz}$; $\sigma = 1.401 \text{ S/m}$; $\epsilon_r = 41.033$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY Configuration:

- Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 8/21/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.0, 32.0$
- Electronics: DAE4 Sn546; Calibrated: 8/19/2015
- Phantom: SAM 1560; Type: SAM; Serial: 1560
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Head-Section Left LTE Band 3/LTE Band 3 touch M/Area Scan

(9x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 0.177 W/kg

Head-Section Left LTE Band 3/LTE Band 3 touch M/Zoom Scan (7x7x7)/Cube

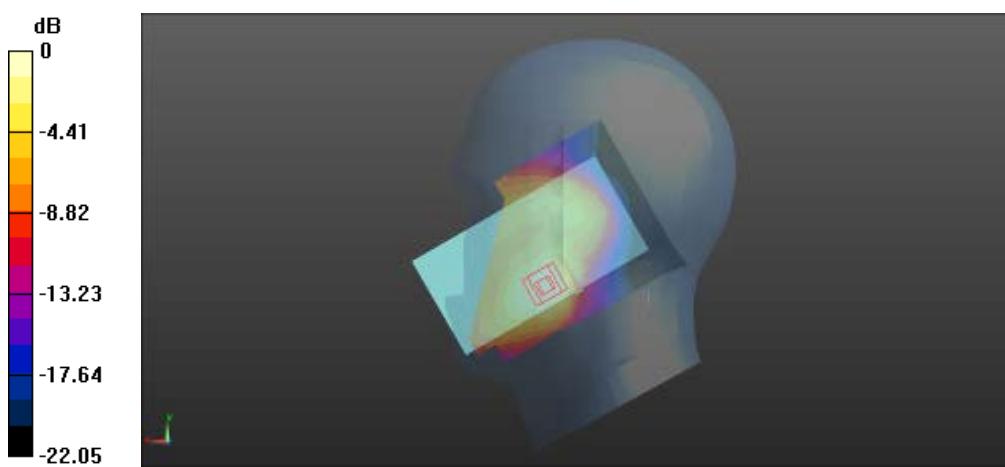
0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

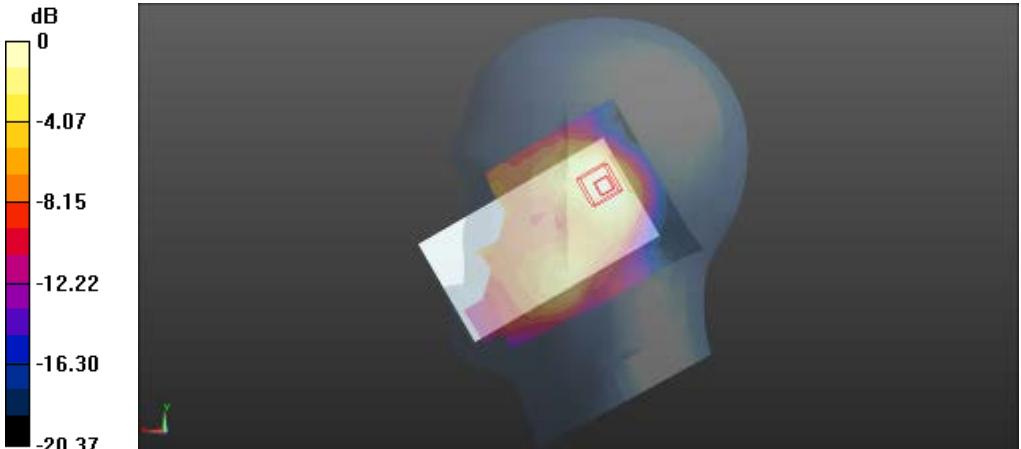
Reference Value = 4.082 V/m; Power Drift = 0.18 dB

Peak SAR (extrapolated) = 0.282 W/kg

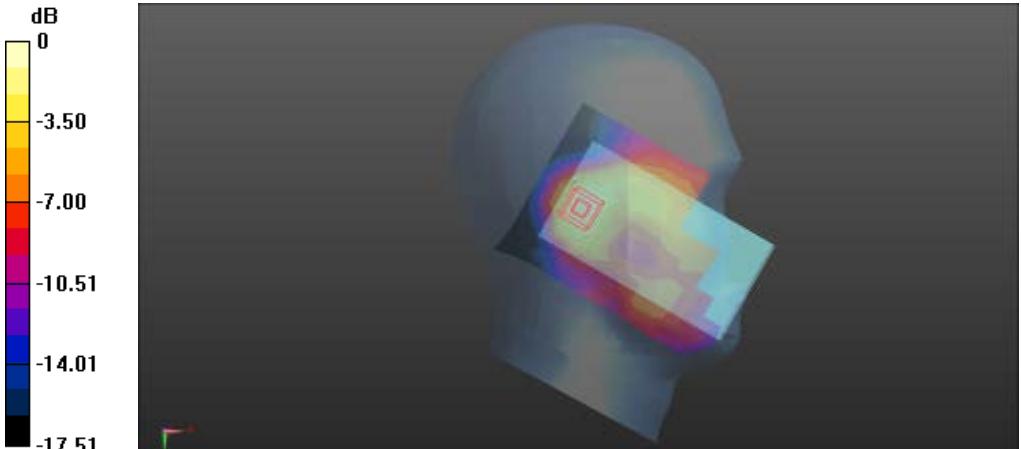
SAR(1 g) = 0.179 W/kg; SAR(10 g) = 0.108 W/kg

Maximum value of SAR (measured) = 0.195 W/kg



Left Side	Tilt	1747.5MHz
Communication System: UID 10169 - CAB, LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK); Frequency: 1747.5 MHz		
Medium parameters used (extrapolated): $f = 1747.5$ MHz; $\sigma = 1.401$ S/m; $\epsilon_r = 41.033$; $\rho = 1000$ kg/m ³		
Phantom section: Left Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 8/21/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.0, 32.0$ Electronics: DAE4 Sn546; Calibrated: 8/19/2015 Phantom: SAM 1560; Type: SAM; Serial: 1560 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) <p>Head-Section Left LTE Band 3/LTE Band 3 tilt M/Area Scan (9x13x1): Measurement grid: $dx=15$ mm, $dy=15$ mm Maximum value of SAR (measured) = 0.0986 W/kg</p> <p>Head-Section Left LTE Band 3/LTE Band 3 tilt M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm Reference Value = 8.418 V/m; Power Drift = 0.13 dB Peak SAR (extrapolated) = 0.161 W/kg SAR(1 g) = 0.102 W/kg; SAR(10 g) = 0.061 W/kg Maximum value of SAR (measured) = 0.112 W/kg</p>		
 <p>0 dB = 0.112 W/kg = -9.51 dBW/kg</p>		

Right Side	Check	1747.5MHz
<p>Communication System: UID 10169 - CAB, LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK); Frequency: 1747.5 MHz Medium parameters used (extrapolated): $f = 1747.5$ MHz; $\sigma = 1.401$ S/m; $\epsilon_r = 41.033$; $\rho = 1000$ kg/m³ Phantom section: Right Section Measurement Standard: DASY5 (IEEE1528-2013)</p> <p>DASY Configuration:</p> <ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 8/21/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.0, 32.0$ Electronics: DAE4 Sn546; Calibrated: 8/19/2015 Phantom: SAM 1560; Type: SAM; Serial: 1560 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) <p>Head-Section Right LTE Band 3/LTE Band 3 touch M/Area Scan (9x13x1): Measurement grid: $dx=15$mm, $dy=15$mm Maximum value of SAR (measured) = 0.156 W/kg</p> <p>Head-Section Right LTE Band 3/LTE Band 3 touch M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$mm, $dy=5$mm, $dz=5$mm Reference Value = 5.965 V/m; Power Drift = 0.13 dB Peak SAR (extrapolated) = 0.245 W/kg SAR(1 g) = 0.158 W/kg; SAR(10 g) = 0.098 W/kg Maximum value of SAR (measured) = 0.172 W/kg</p>  <p>0 dB = 0.172 W/kg = -7.64 dBW/kg</p>		

Right Side	Tilt	1747.5MHz
Communication System: UID 10169 - CAB, LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK); Frequency: 1747.5 MHz		
Medium parameters used (extrapolated): $f = 1747.5$ MHz; $\sigma = 1.401$ S/m; $\epsilon_r = 41.033$; $\rho = 1000$ kg/m ³		
Phantom section: Right Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 8/21/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.0, 32.0$ Electronics: DAE4 Sn546; Calibrated: 8/19/2015 Phantom: SAM 1560; Type: SAM; Serial: 1560 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) <p>Head-Section Right LTE Band 3/LTE Band 3 tilt M/Area Scan (9x13x1): Measurement grid: $dx=15$ mm, $dy=15$ mm Maximum value of SAR (measured) = 0.0825 W/kg</p> <p>Head-Section Right LTE Band 3/LTE Band 3 tilt M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm Reference Value = 8.214 V/m; Power Drift = 0.11 dB Peak SAR (extrapolated) = 0.156 W/kg SAR(1 g) = 0.096 W/kg; SAR(10 g) = 0.055 W/kg Maximum value of SAR (measured) = 0.105 W/kg</p>		
 <p>0 dB = 0.105 W/kg = -9.79 dBW/kg</p>		

LTE BAND3- 20BW-1RB (Flat)

FLAT	Towards phantom	1747.5MHz
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Communication System: UID 10169 - CAB, LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK);

Frequency: 1747.5 MHz

Medium parameters used (interpolated): $f = 1747.5$ MHz; $\sigma = 1.42$ S/m; $\epsilon_r = 51.57$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY Configuration:

- Probe: ES3DV3 - SN3127; ConvF(4.67, 4.67, 4.67); Calibrated: 8/21/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection), $z = -18.0, 32.0$
- Electronics: DAE4 Sn546; Calibrated: 8/19/2015
- Phantom: SAM 1560; Type: SAM; Serial: 1560
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Flat-Section MSL LTE Band 3 TP/LTE Band 3 TP M/Area Scan

(9x14x1): Measurement grid: $dx=15$ mm, $dy=15$ mm

Maximum value of SAR (measured) = 0.440 W/kg

Flat-Section MSL LTE Band 3 TP/LTE Band 3 TP M/Zoom Scan (7x7x7)/Cube

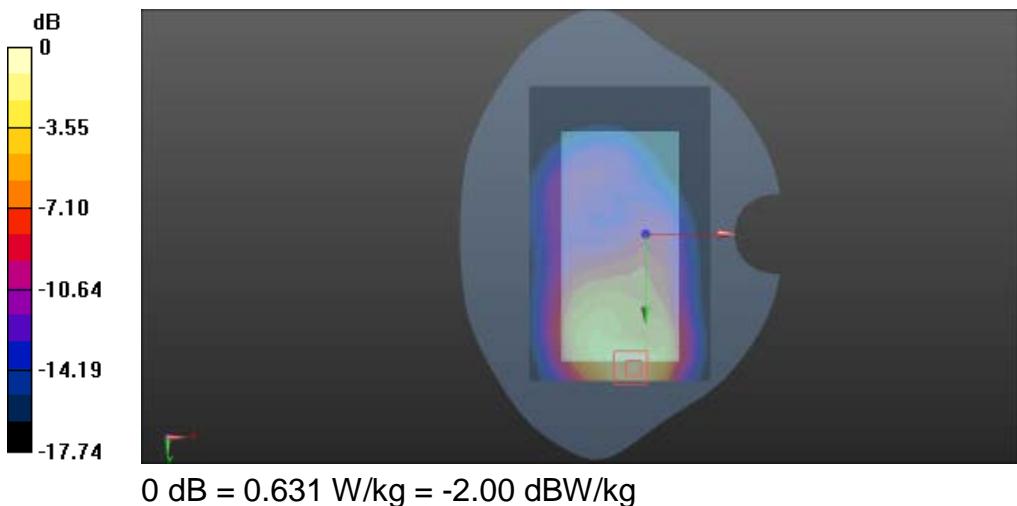
0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

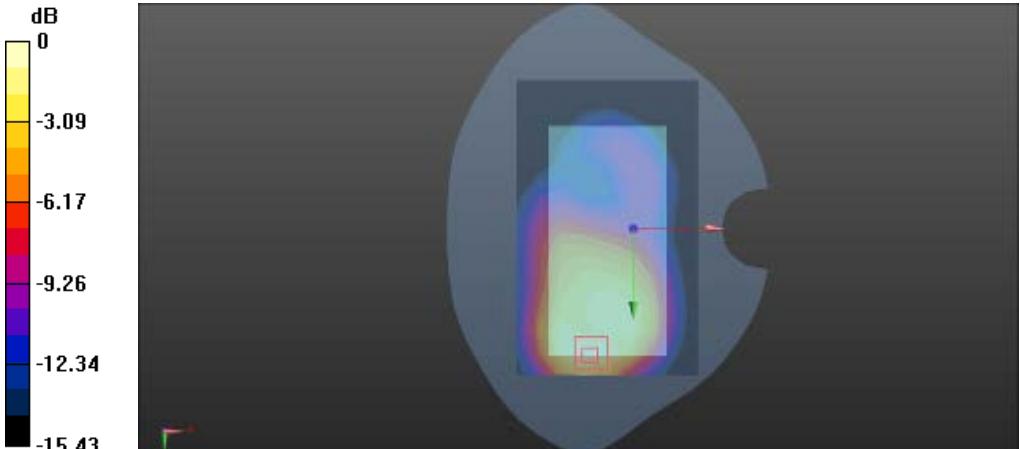
Reference Value = 5.966 V/m; Power Drift = 0.19 dB

Peak SAR (extrapolated) = 0.972 W/kg

SAR(1 g) = 0.554 W/kg; SAR(10 g) = 0.295 W/kg

Maximum value of SAR (measured) = 0.631 W/kg



FLAT	Towards ground	1747.5MHz
<p>Communication System: UID 10169 - CAB, LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK); Frequency: 1747.5 MHz Medium parameters used (interpolated): $f = 1747.5$ MHz; $\sigma = 1.42$ S/m; $\epsilon_r = 51.57$; $\rho = 1000$ kg/m³ Phantom section: Flat Section Measurement Standard: DASY5 (IEEE1528-2013)</p> <p>DASY Configuration:</p> <ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.67, 4.67, 4.67); Calibrated: 8/21/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = -18.0, 32.0$ Electronics: DAE4 Sn546; Calibrated: 8/19/2015 Phantom: SAM 1560; Type: SAM; Serial: 1560 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) <p>Flat-Section MSL LTE Band 3 TG/LTE Band 3 TG M/Area Scan (9x14x1): Measurement grid: $dx=15$mm, $dy=15$mm Maximum value of SAR (measured) = 0.391 W/kg</p> <p>Flat-Section MSL LTE Band 3 TG/LTE Band 3 TG M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$mm, $dy=5$mm, $dz=5$mm Reference Value = 6.870 V/m; Power Drift = 0.07 dB Peak SAR (extrapolated) = 0.580 W/kg SAR(1 g) = 0.365 W/kg; SAR(10 g) = 0.214 W/kg Maximum value of SAR (measured) = 0.404 W/kg</p>  <p>0 dB = 0.404 W/kg = -3.94 dBW/kg</p>		

LTE BAND3- 20BW-50%RB (Flat)

Left Side	Check	1747.5MHz
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Communication System: UID 10297 - AAA, LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK);

Frequency: 1747.5 MHz

Medium parameters used (extrapolated): $f = 1747.5 \text{ MHz}$; $\sigma = 1.401 \text{ S/m}$; $\epsilon_r = 41.033$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY Configuration:

- Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 8/21/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.0, 32.0$
- Electronics: DAE4 Sn546; Calibrated: 8/19/2015
- Phantom: SAM 1560; Type: SAM; Serial: 1560
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Head-Section Left LTE Band 3/LTE Band 3 touch M/Area Scan

(9x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 0.159 W/kg

Head-Section Left LTE Band 3/LTE Band 3 touch M/Zoom Scan (7x7x7)/Cube

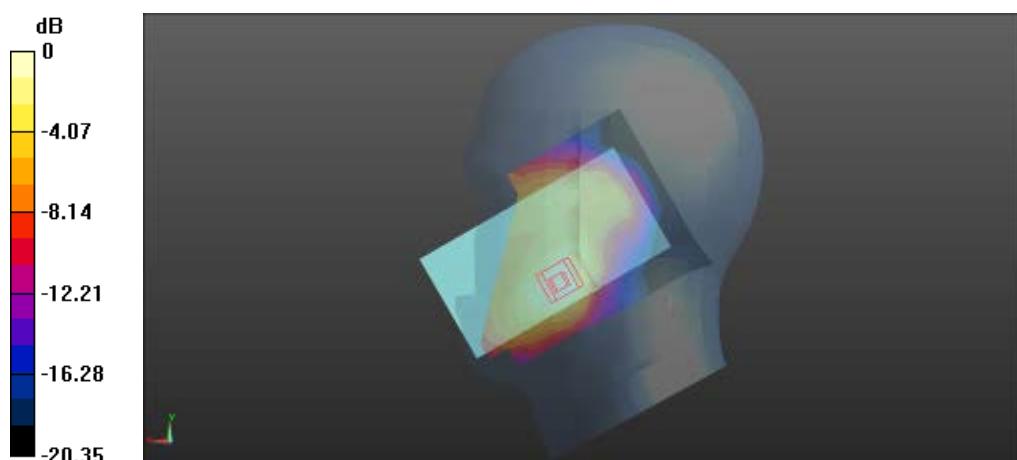
0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 5.735 V/m; Power Drift = -0.19 dB

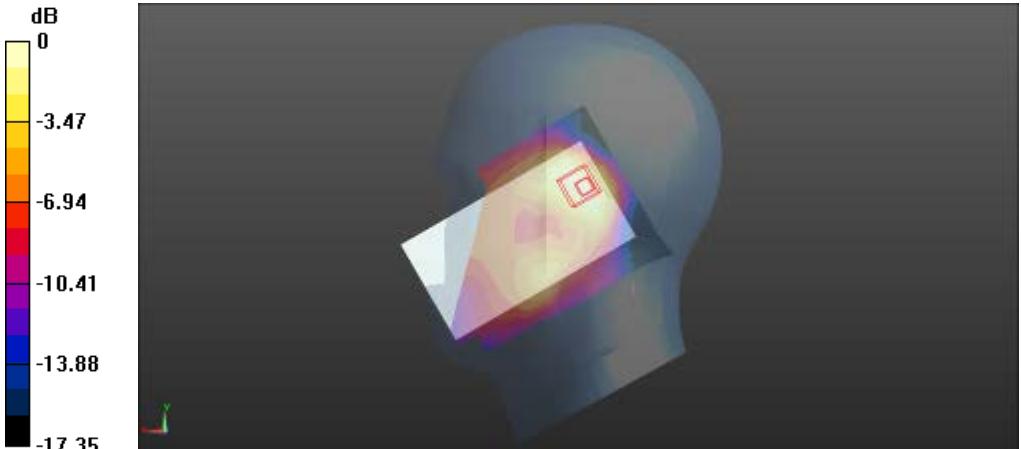
Peak SAR (extrapolated) = 0.273 W/kg

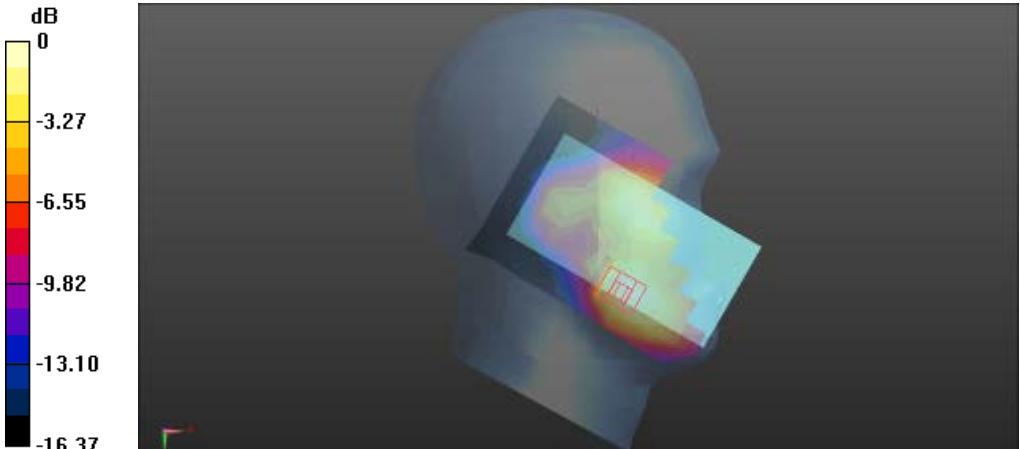
SAR(1 g) = 0.172 W/kg; SAR(10 g) = 0.103 W/kg

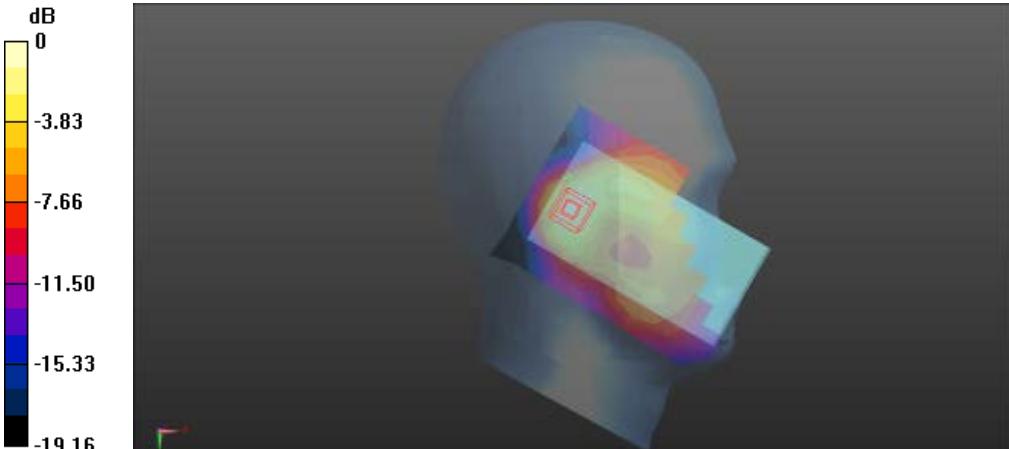
Maximum value of SAR (measured) = 0.186 W/kg



0 dB = 0.186 W/kg = -7.30 dBW/kg

Left Side	Tilt	1747.5MHz
Communication System: UID 10297 - AAA, LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK); Frequency: 1747.5 MHz		
Medium parameters used (extrapolated): $f = 1747.5$ MHz; $\sigma = 1.401$ S/m; $\epsilon_r = 41.033$; $\rho = 1000$ kg/m ³		
Phantom section: Left Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 8/21/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.0, 32.0$ Electronics: DAE4 Sn546; Calibrated: 8/19/2015 Phantom: SAM 1560; Type: SAM; Serial: 1560 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) <p>Head-Section Left LTE Band 3/LTE Band 3 tilt M/Area Scan (9x13x1): Measurement grid: $dx=15$ mm, $dy=15$ mm Maximum value of SAR (measured) = 0.0865 W/kg</p> <p>Head-Section Left LTE Band 3/LTE Band 3 tilt M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm Reference Value = 7.419 V/m; Power Drift = 0.01 dB Peak SAR (extrapolated) = 0.130 W/kg SAR(1 g) = 0.083 W/kg; SAR(10 g) = 0.049 W/kg Maximum value of SAR (measured) = 0.0896 W/kg</p>		
 <p>0 dB = 0.0896 W/kg = -10.48 dBW/kg</p>		

Right Side	Check	1747.5MHz
<p>Communication System: UID 10297 - AAA, LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK); Frequency: 1747.5 MHz Medium parameters used (extrapolated): $f = 1747.5$ MHz; $\sigma = 1.401$ S/m; $\epsilon_r = 41.033$; $\rho = 1000$ kg/m³ Phantom section: Right Section Measurement Standard: DASY5 (IEEE1528-2013)</p> <p>DASY Configuration:</p> <ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 8/21/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.0, 32.0$ Electronics: DAE4 Sn546; Calibrated: 8/19/2015 Phantom: SAM 1560; Type: SAM; Serial: 1560 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) <p>Head-Section Right LTE Band 3/LTE Band 3 touch M/Area Scan (9x13x1): Measurement grid: $dx=15$ mm, $dy=15$ mm Maximum value of SAR (measured) = 0.131 W/kg</p> <p>Head-Section Right LTE Band 3/LTE Band 3 touch M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm Reference Value = 4.677 V/m; Power Drift = 0.18 dB Peak SAR (extrapolated) = 0.193 W/kg SAR(1 g) = 0.125 W/kg; SAR(10 g) = 0.077 W/kg Maximum value of SAR (measured) = 0.135 W/kg</p>  <p>0 dB = 0.135 W/kg = -8.70 dBW/kg</p>		

Right Side	Tilt	1747.5MHz
Communication System: UID 10297 - AAA, LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK); Frequency: 1747.5 MHz		
Medium parameters used (extrapolated): $f = 1747.5$ MHz; $\sigma = 1.401$ S/m; $\epsilon_r = 41.033$; $\rho = 1000$ kg/m ³		
Phantom section: Right Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 8/21/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.0, 32.0$ Electronics: DAE4 Sn546; Calibrated: 8/19/2015 Phantom: SAM 1560; Type: SAM; Serial: 1560 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) <p>Head-Section Right LTE Band 3/LTE Band 3 tilt M/Area Scan (9x13x1): Measurement grid: $dx=15$ mm, $dy=15$ mm Maximum value of SAR (measured) = 0.0772 W/kg</p> <p>Head-Section Right LTE Band 3/LTE Band 3 tilt M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm Reference Value = 7.162 V/m; Power Drift = 0.16 dB Peak SAR (extrapolated) = 0.122 W/kg SAR(1 g) = 0.074 W/kg; SAR(10 g) = 0.042 W/kg Maximum value of SAR (measured) = 0.0810 W/kg</p>		
 <p>0 dB = 0.0810 W/kg = -10.92 dBW/kg</p>		

LTE BAND3- 20BW-50%RB (Flat)

FLAT	Towards phantom	1747.5MHz
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Communication System: UID 10297 - AAA, LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK);

Frequency: 1747.5 MHz

Medium parameters used (interpolated): $f = 1747.5$ MHz; $\sigma = 1.42$ S/m; $\epsilon_r = 51.57$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY Configuration:

- Probe: ES3DV3 - SN3127; ConvF(4.67, 4.67, 4.67); Calibrated: 8/21/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection), $z = -8.0, 32.0$
- Electronics: DAE4 Sn546; Calibrated: 8/19/2015
- Phantom: SAM 1560; Type: SAM; Serial: 1560
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Flat-Section MSL LTE Band 3 TP/LTE Band 3 TP M/Area Scan

(9x14x1): Measurement grid: $dx=15$ mm, $dy=15$ mm

Maximum value of SAR (measured) = 0.555 W/kg

Flat-Section MSL LTE Band 3 TP/LTE Band 3 TP M/Zoom Scan (7x7x7)/Cube

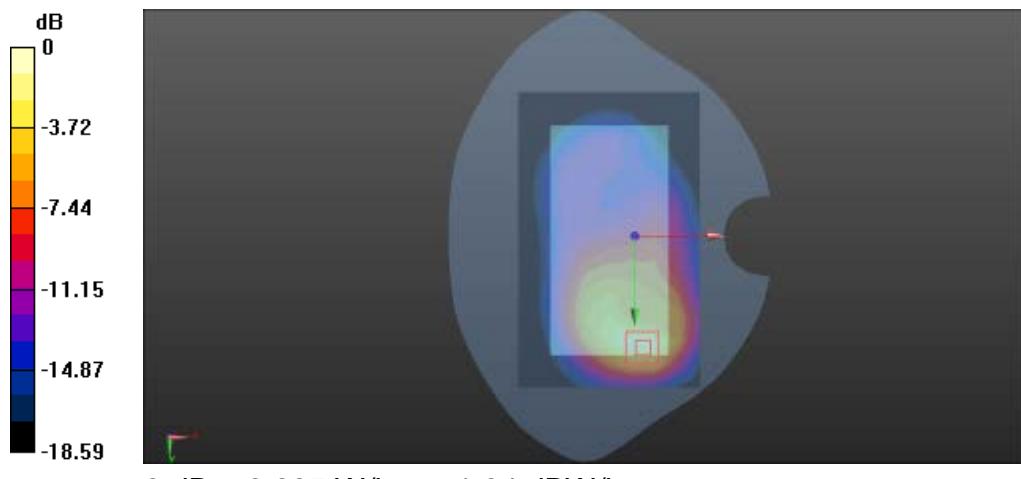
0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

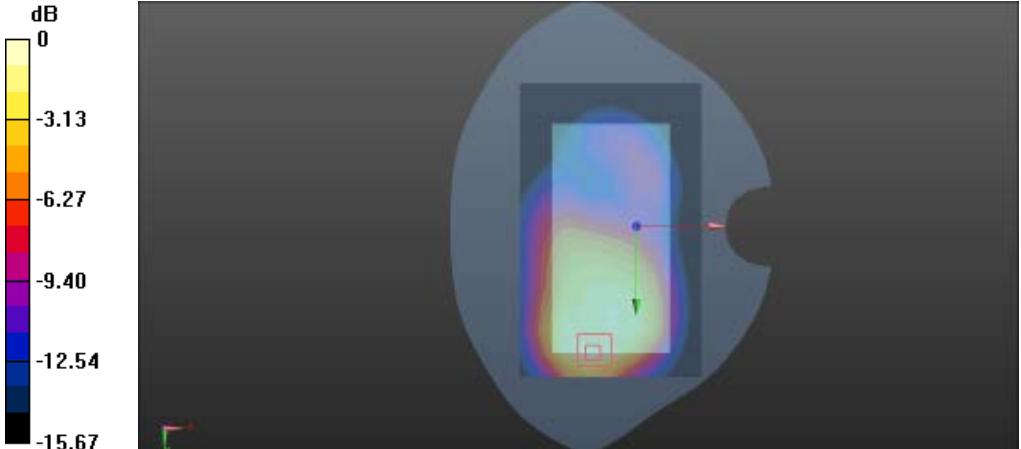
Reference Value = 6.987 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 1.06 W/kg

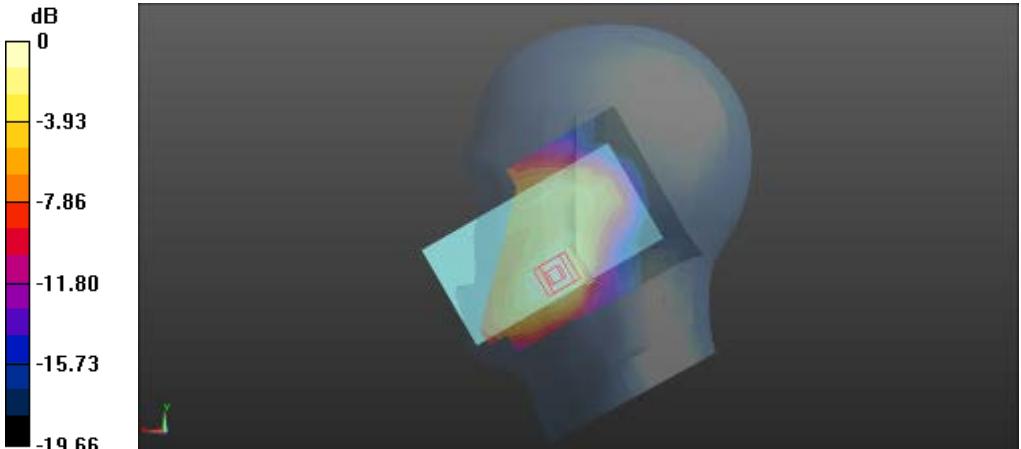
SAR(1 g) = 0.596 W/kg; SAR(10 g) = 0.307 W/kg

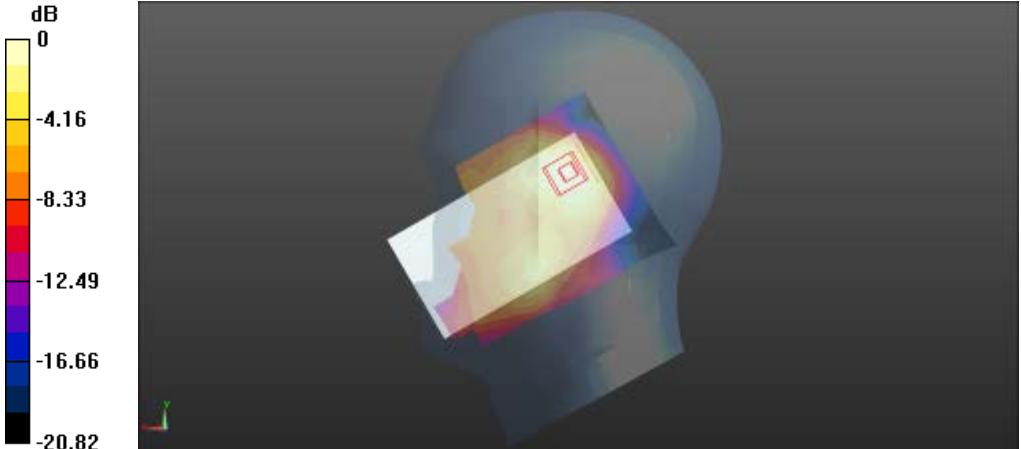
Maximum value of SAR (measured) = 0.685 W/kg

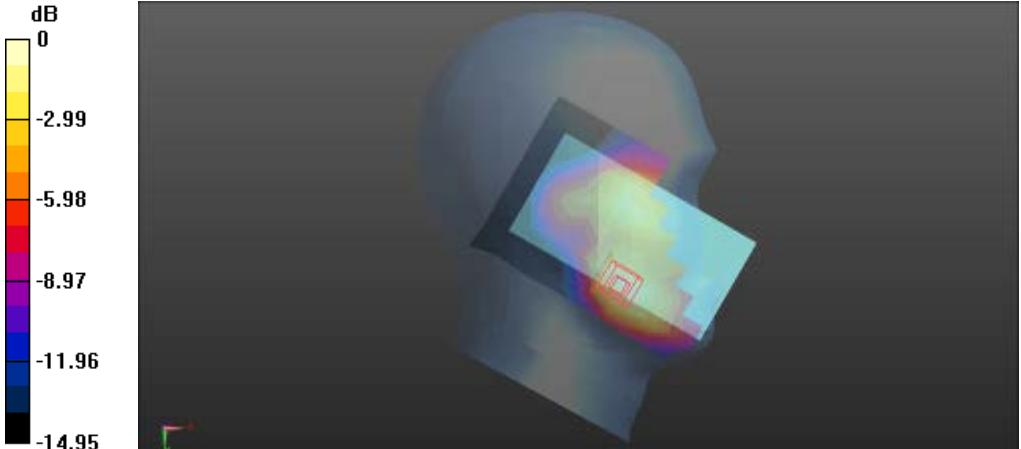


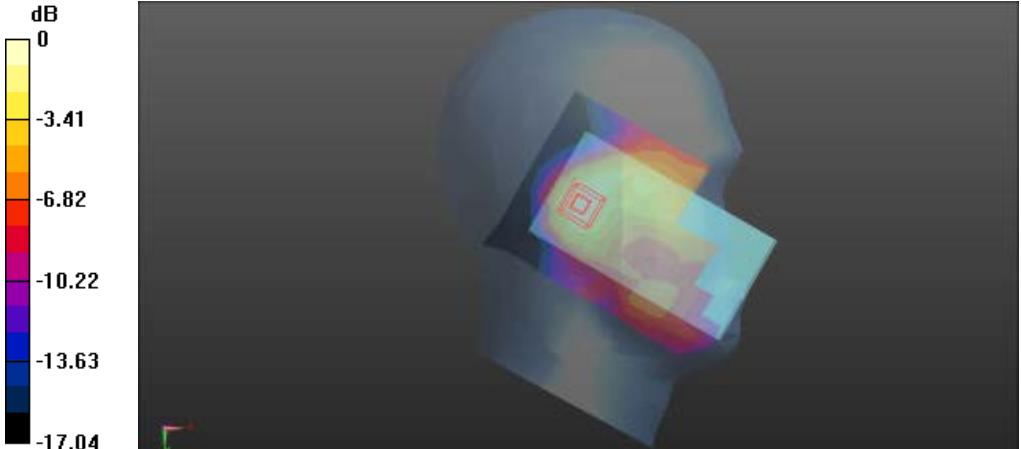
FLAT	Towards ground	1747.5MHz
<p>Communication System: UID 10297 - AAA, LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK); Frequency: 1747.5 MHz Medium parameters used (interpolated): $f = 1747.5$ MHz; $\sigma = 1.42$ S/m; $\epsilon_r = 51.57$; $\rho = 1000$ kg/m³ Phantom section: Flat Section Measurement Standard: DASY5 (IEEE1528-2013)</p> <p>DASY Configuration:</p> <ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.67, 4.67, 4.67); Calibrated: 8/21/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = -8.0, 32.0$ Electronics: DAE4 Sn546; Calibrated: 8/19/2015 Phantom: SAM 1560; Type: SAM; Serial: 1560 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) <p>Flat-Section MSL LTE Band 3 TG/LTE Band 3 TG M/Area Scan (9x14x1): Measurement grid: $dx=15$ mm, $dy=15$ mm Maximum value of SAR (measured) = 0.323 W/kg</p> <p>Flat-Section MSL LTE Band 3 TG/LTE Band 3 TG M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm Reference Value = 6.282 V/m; Power Drift = 0.12 dB Peak SAR (extrapolated) = 0.468 W/kg SAR(1 g) = 0.296 W/kg; SAR(10 g) = 0.174 W/kg</p>  <p>0 dB = 0.323 W/kg = -4.91 dBW/kg</p>		

LTE BAND4- 1.4BW-50%RB (Head)

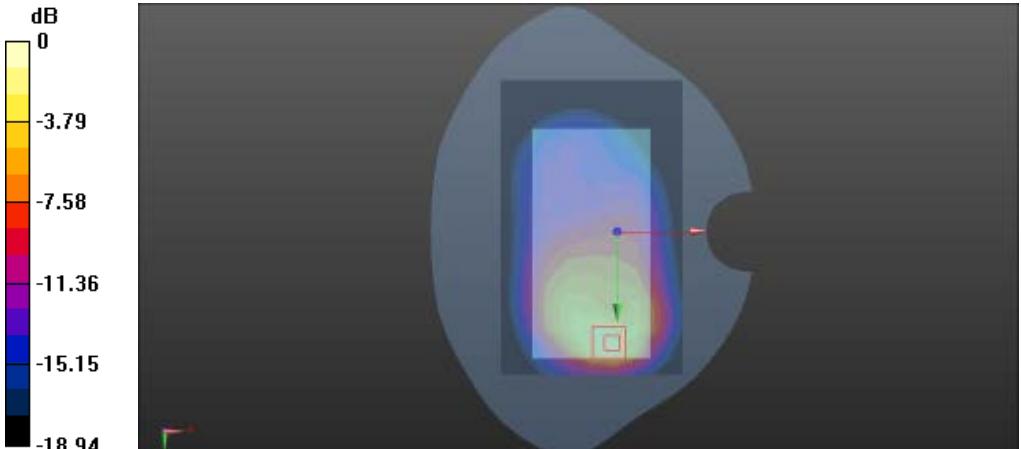
Left Side	Check	1732.5MHz
Communication System: UID 0, LTE band 4 (0); Frequency: 1732.5 MHz		
Medium parameters used (extrapolated): $f = 1732.5 \text{ MHz}$; $\sigma = 1.384 \text{ S/m}$; $\epsilon_r = 41.089$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Left Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 8/21/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.0, 32.0$ Electronics: DAE4 Sn546; Calibrated: 8/19/2015 Phantom: SAM 1560; Type: SAM; Serial: 1560 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) <p>Head-Section Left LTE Band 4/LTE Band 4 touch M/Area Scan (9x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.185 W/kg</p> <p>Head-Section Left LTE Band 4/LTE Band 4 touch M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 5.299 V/m; Power Drift = -0.19 dB Peak SAR (extrapolated) = 0.303 W/kg SAR(1 g) = 0.190 W/kg; SAR(10 g) = 0.116 W/kg Maximum value of SAR (measured) = 0.209 W/kg</p>		
 <p>0 dB = 0.209 W/kg = -6.80 dBW/kg</p>		

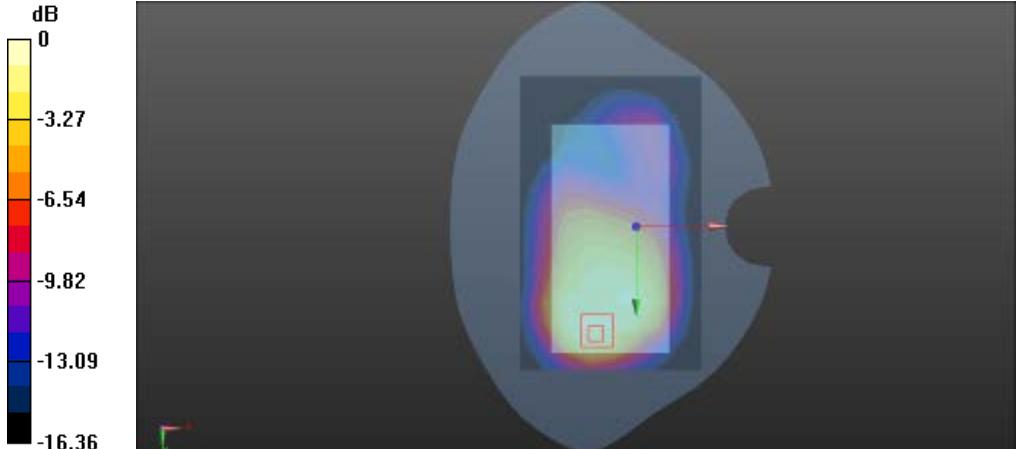
Left Side	Tilt	1732.5MHz
Communication System: UID 0, LTE band 4 (0); Frequency: 1732.5 MHz		
Medium parameters used (extrapolated): $f = 1732.5 \text{ MHz}$; $\sigma = 1.384 \text{ S/m}$; $\epsilon_r = 41.089$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Left Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 8/21/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.0, 32.0$ Electronics: DAE4 Sn546; Calibrated: 8/19/2015 Phantom: SAM 1560; Type: SAM; Serial: 1560 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) 		
Head-Section Left LTE Band 4/LTE Band 4 tilt M/Area Scan (9x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.0782 W/kg		
Head-Section Left LTE Band 4/LTE Band 4 tilt M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 6.859 V/m; Power Drift = 0.13 dB Peak SAR (extrapolated) = 0.127 W/kg SAR(1 g) = 0.082 W/kg; SAR(10 g) = 0.050 W/kg Maximum value of SAR (measured) = 0.0892 W/kg		
 $0 \text{ dB} = 0.0892 \text{ W/kg} = -10.50 \text{ dBW/kg}$		

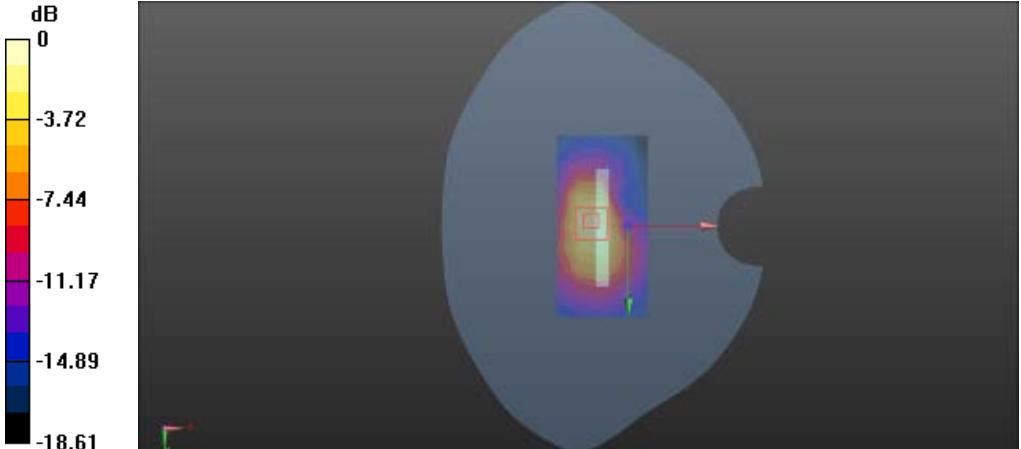
Right Side	Check	1732.5MHz
Communication System: UID 0, LTE band 4 (0); Frequency: 1732.5 MHz		
Medium parameters used (extrapolated): $f = 1732.5 \text{ MHz}$; $\sigma = 1.384 \text{ S/m}$; $\epsilon_r = 41.089$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Right Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 8/21/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.0, 32.0$ Electronics: DAE4 Sn546; Calibrated: 8/19/2015 Phantom: SAM 1560; Type: SAM; Serial: 1560 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) <p>Head-Section Right LTE Band 4/LTE Band 4 touch M/Area Scan (9x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.159 W/kg</p> <p>Head-Section Right LTE Band 4/LTE Band 4 touch M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 4.644 V/m; Power Drift = 0.03 dB Peak SAR (extrapolated) = 0.238 W/kg SAR(1 g) = 0.154 W/kg; SAR(10 g) = 0.095 W/kg Maximum value of SAR (measured) = 0.168 W/kg</p>		
 <p>0 dB = 0.168 W/kg = -7.75 dBW/kg</p>		

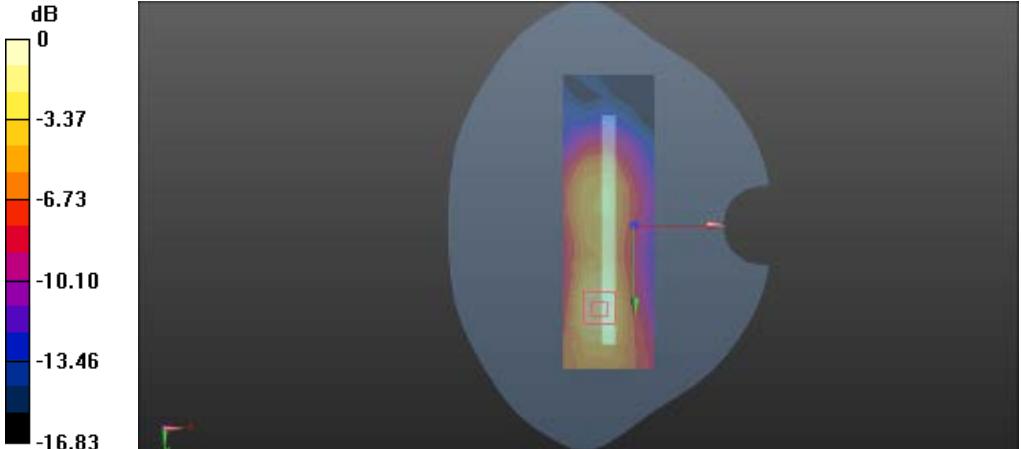
Right Side	Tilt	1732.5MHz
Communication System: UID 0, LTE band 4 (0); Frequency: 1732.5 MHz		
Medium parameters used (extrapolated): $f = 1732.5 \text{ MHz}$; $\sigma = 1.384 \text{ S/m}$; $\epsilon_r = 41.089$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Right Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 8/21/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.0, 32.0$ Electronics: DAE4 Sn546; Calibrated: 8/19/2015 Phantom: SAM 1560; Type: SAM; Serial: 1560 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) 		
Head-Section Right LTE Band 4/LTE Band 4 tilt M/Area Scan (9x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.0869 W/kg		
Head-Section Right LTE Band 4/LTE Band 4 tilt M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 6.864 V/m; Power Drift = 0.19 dB Peak SAR (extrapolated) = 0.127 W/kg SAR(1 g) = 0.081 W/kg; SAR(10 g) = 0.048 W/kg Maximum value of SAR (measured) = 0.0882 W/kg		
 $0 \text{ dB} = 0.0882 \text{ W/kg} = -10.55 \text{ dBW/kg}$		

LTE BAND4- 1.4BW-50%RB (Flat)

FLAT	Towards phantom	1732.5MHz
Communication System: UID 0, LTE band 4 (0); Frequency: 1732.5 MHz		
Medium parameters used (interpolated): $f = 1732.5 \text{ MHz}$; $\sigma = 1.304 \text{ S/m}$; $\epsilon_r = 40.408$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Flat Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 8/21/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = -18.0, 32.0$ Electronics: DAE4 Sn546; Calibrated: 8/19/2015 Phantom: SAM 1560; Type: SAM; Serial: 1560 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) 		
Flat-Section MSL LTE Band 4 TP/LTE Band 4 TP M/Area Scan (9x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.593 W/kg		
Flat-Section MSL LTE Band 4 TP/LTE Band 4 TP M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 8.592 V/m; Power Drift = 0.13 dB Peak SAR (extrapolated) = 1.39 W/kg SAR(1 g) = 0.743 W/kg; SAR(10 g) = 0.371 W/kg Maximum value of SAR (measured) = 0.824 W/kg		
 <p>0 dB = 0.824 W/kg = -0.84 dBW/kg</p>		

FLAT	Towards ground	1732.5MHz
<p>Communication System: UID 0, LTE band 4 (0); Frequency: 1732.5 MHz Medium parameters used (interpolated): $f = 1732.5$ MHz; $\sigma = 1.404$ S/m; $\epsilon_r = 51.622$; $\rho = 1000$ kg/m³ Phantom section: Flat Section Measurement Standard: DASY5 (IEEE1528-2013)</p> <p>DASY Configuration:</p> <ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.67, 4.67, 4.67); Calibrated: 8/21/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = -18.0, 32.0$ Electronics: DAE4 Sn546; Calibrated: 8/19/2015 Phantom: SAM 1560; Type: SAM; Serial: 1560 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) <p>Flat-Section MSL LTE Band 4 TG/LTE Band 4 TG M/Area Scan (9x14x1): Measurement grid: $dx=15$ mm, $dy=15$ mm Maximum value of SAR (measured) = 0.393 W/kg</p> <p>Flat-Section MSL LTE Band 4 TG/LTE Band 4 TG M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm Reference Value = 10.352 V/m; Power Drift = -0.02 dB Peak SAR (extrapolated) = 0.660 W/kg SAR(1 g) = 0.413 W/kg; SAR(10 g) = 0.242 W/kg Maximum value of SAR (measured) = 0.459 W/kg</p>  <p>0 dB = 0.459 W/kg = -3.38 dBW/kg</p>		

FLAT	Edge2	1732.5MHz
Communication System: UID 0, LTE band 4 (0); Frequency: 1732.5 MHz		
Medium parameters used (interpolated): $f = 1732.5 \text{ MHz}$; $\sigma = 1.404 \text{ S/m}$; $\epsilon_r = 51.622$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Flat Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> Probe: EX3DV4 - SN3708; ConvF(7.53, 7.53, 7.53); Calibrated: 10/26/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = -9.0, 31.0$ Electronics: DAE4 Sn720; Calibrated: 10/29/2015 Phantom: SAM 1560; Type: SAM; Serial: 1560 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) 		
Flat-Section MSL LTE Band 4 HOT/LTE Band 3 edge 2/Area Scan (5x9x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.404 W/kg		
Flat-Section MSL LTE Band 4 HOT/LTE Band 3 edge 2/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 16.989 V/m; Power Drift = 0.15 dB Peak SAR (extrapolated) = 0.927 W/kg SAR(1 g) = 0.515 W/kg; SAR(10 g) = 0.266 W/kg Maximum value of SAR (measured) = 0.584 W/kg		
 <p>0 dB = 0.584 W/kg = -2.34 dBW/kg</p>		

FLAT	Edge4	1732.5MHz
<p>Communication System: UID 0, LTE band 4 (0); Frequency: 1732.5 MHz Medium parameters used (interpolated): $f = 1732.5$ MHz; $\sigma = 1.404$ S/m; $\epsilon_r = 51.622$; $\rho = 1000$ kg/m³ Phantom section: Flat Section Measurement Standard: DASY5 (IEEE1528-2013)</p> <p>DASY Configuration:</p> <ul style="list-style-type: none"> Probe: EX3DV4 - SN3708; ConvF(7.53, 7.53, 7.53); Calibrated: 10/26/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 1.0, 31.0$ Electronics: DAE4 Sn720; Calibrated: 10/29/2015 Phantom: SAM 1560; Type: SAM; Serial: 1560 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) <p>Flat-Section MSL LTE Band 4 HOT/LTE Band 3 edge 4/Area Scan (5x14x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.105 W/kg</p> <p>Flat-Section MSL LTE Band 4 HOT/LTE Band 3 edge 4/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 6.383 V/m; Power Drift = 0.19 dB Peak SAR (extrapolated) = 0.202 W/kg SAR(1 g) = 0.116 W/kg; SAR(10 g) = 0.064 W/kg Maximum value of SAR (measured) = 0.129 W/kg</p>  <p>0 dB = 0.129 W/kg = -8.89 dBW/kg</p>		

LTE BAND4- 5BW-1RB (Head)

Left Side	Check	1732.5MHz
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Communication System: UID 0, LTE band 4 (0); Frequency: 1732.5 MHz

Medium parameters used (interpolated): $f = 1732.5 \text{ MHz}$; $\sigma = 1.304 \text{ S/m}$; $\epsilon_r = 40.408$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY Configuration:

- Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 8/21/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.0, 32.0$
- Electronics: DAE4 Sn546; Calibrated: 8/19/2015
- Phantom: SAM 1560; Type: SAM; Serial: 1560
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Head-Section Left LTE Band 4/LTE Band 4 touch M/Area Scan

(9x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 0.171 W/kg

Head-Section Left LTE Band 4/LTE Band 4 touch M/Zoom Scan (7x7x7)/Cube

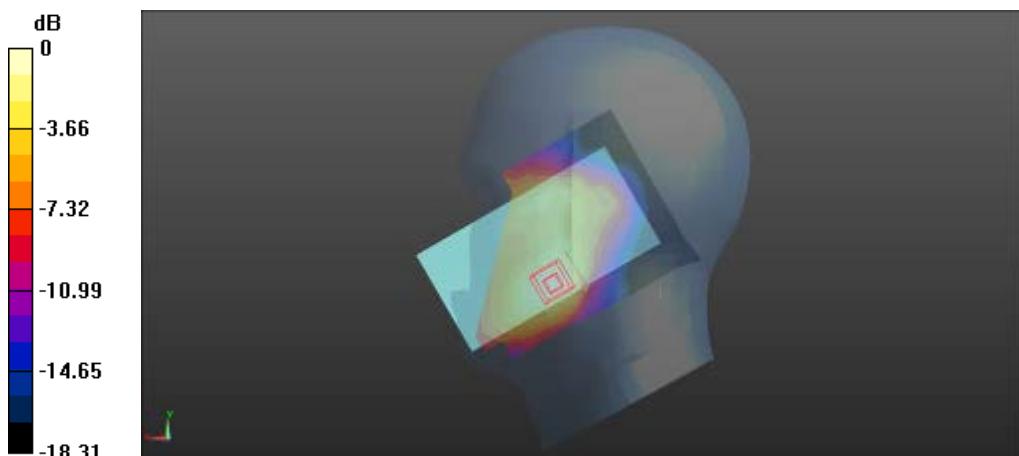
0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

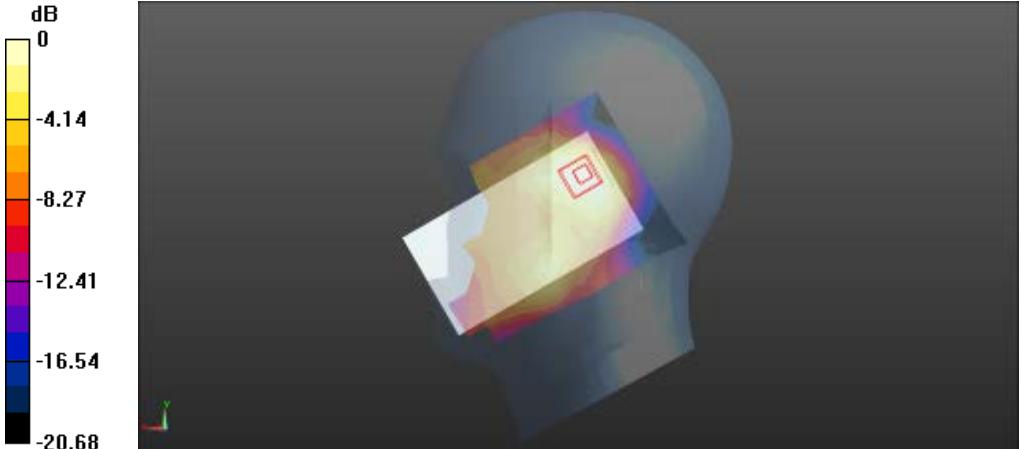
Reference Value = 5.535 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.268 W/kg

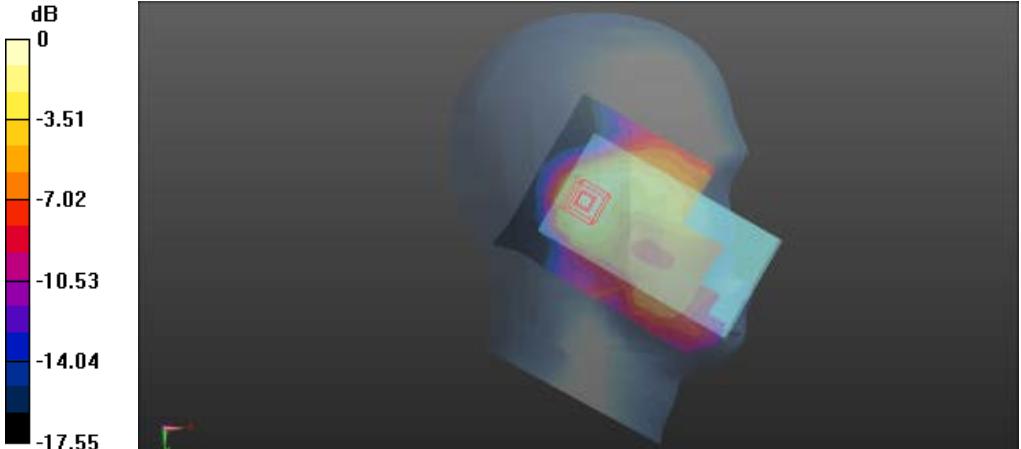
SAR(1 g) = 0.172 W/kg; SAR(10 g) = 0.106 W/kg

Maximum value of SAR (measured) = 0.191 W/kg

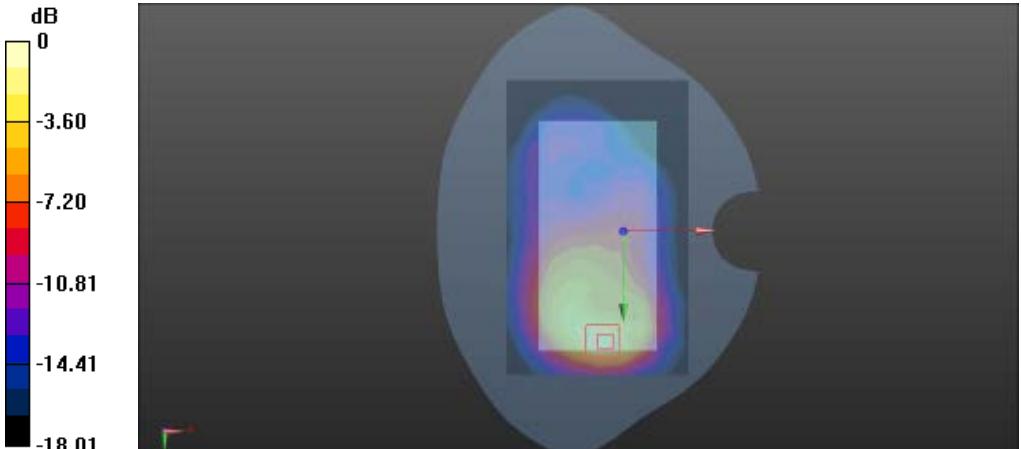


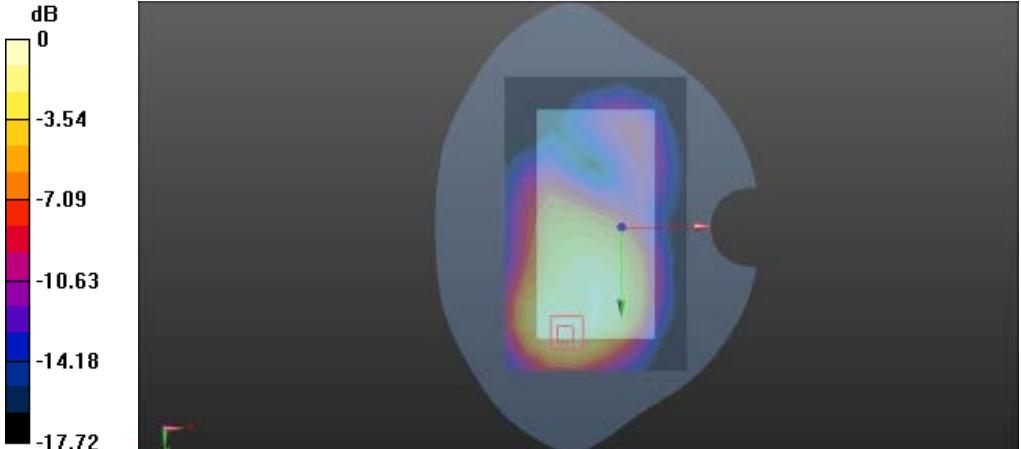
Left Side	Tilt	1732.5MHz
Communication System: UID 0, LTE band 4 (0); Frequency: 1732.5 MHz		
Medium parameters used (interpolated): $f = 1732.5 \text{ MHz}$; $\sigma = 1.304 \text{ S/m}$; $\epsilon_r = 40.408$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Left Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 8/21/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.0, 32.0$ Electronics: DAE4 Sn546; Calibrated: 8/19/2015 Phantom: SAM 1560; Type: SAM; Serial: 1560 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) 		
Head-Section Left LTE Band 4/LTE Band 4 tilt M/Area Scan (9x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.0730 W/kg		
Head-Section Left LTE Band 4/LTE Band 4 tilt M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 7.248 V/m; Power Drift = 0.10 dB Peak SAR (extrapolated) = 0.117 W/kg SAR(1 g) = 0.075 W/kg; SAR(10 g) = 0.046 W/kg Maximum value of SAR (measured) = 0.0807 W/kg		
 <p>0 dB = 0.0807 W/kg = -10.93 dBW/kg</p>		

Right Side	Check	1732.5MHz
Communication System: UID 0, LTE band 4 (0); Frequency: 1732.5 MHz		
Medium parameters used (interpolated): $f = 1732.5 \text{ MHz}$; $\sigma = 1.304 \text{ S/m}$; $\epsilon_r = 40.408$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Right Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 8/21/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.0, 32.0$ Electronics: DAE4 Sn546; Calibrated: 8/19/2015 Phantom: SAM 1560; Type: SAM; Serial: 1560 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) Head-Section Right LTE Band 4/LTE Band 4 touch M/Area Scan (9x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.168 W/kg Head-Section Right LTE Band 4/LTE Band 4 touch M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 5.285 V/m; Power Drift = 0.16 dB Peak SAR (extrapolated) = 0.244 W/kg SAR(1 g) = 0.158 W/kg; SAR(10 g) = 0.097 W/kg Maximum value of SAR (measured) = 0.172 W/kg		
 $0 \text{ dB} = 0.172 \text{ W/kg} = -7.64 \text{ dBW/kg}$		

Right Side	Tilt	1732.5MHz
Communication System: UID 0, LTE band 4 (0); Frequency: 1732.5 MHz		
Medium parameters used (interpolated): $f = 1732.5 \text{ MHz}$; $\sigma = 1.304 \text{ S/m}$; $\epsilon_r = 40.408$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Right Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 8/21/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.0, 32.0$ Electronics: DAE4 Sn546; Calibrated: 8/19/2015 Phantom: SAM 1560; Type: SAM; Serial: 1560 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) 		
Head-Section Right LTE Band 4/LTE Band 4 tilt M/Area Scan (9x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.0774 W/kg		
Head-Section Right LTE Band 4/LTE Band 4 tilt M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 7.803 V/m; Power Drift = 0.10 dB Peak SAR (extrapolated) = 0.127 W/kg SAR(1 g) = 0.080 W/kg; SAR(10 g) = 0.047 W/kg Maximum value of SAR (measured) = 0.0875 W/kg		
 <p>0 dB = 0.0875 W/kg = -10.58 dBW/kg</p>		

LTE BAND4- 5BW-1RB (Flat)

FLAT	Towards phantom	1732.5MHz
Communication System: UID 0, LTE band 4 (0); Frequency: 1732.5 MHz		
Medium parameters used (interpolated): $f = 1732.5$ MHz; $\sigma = 1.404$ S/m; $\epsilon_r = 51.622$; $\rho = 1000$ kg/m ³		
Phantom section: Flat Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> • Probe: EX3DV4 - SN3708; ConvF(7.53, 7.53, 7.53); Calibrated: 10/26/2015; • Sensor-Surface: 4mm (Mechanical Surface Detection), $z = -19.0, 31.0$ • Electronics: DAE4 Sn720; Calibrated: 10/29/2015 • Phantom: SAM 1560; Type: SAM; Serial: 1560 • DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) 		
Flat-Section MSL LTE Band 4 TP/LTE Band 4 TP M/Area Scan (9x14x1): Measurement grid: $dx=15$ mm, $dy=15$ mm Maximum value of SAR (measured) = 0.396 W/kg		
Flat-Section MSL LTE Band 4 TP/LTE Band 4 TP M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm Reference Value = 8.350 V/m; Power Drift = -0.18 dB Peak SAR (extrapolated) = 0.965 W/kg SAR(1 g) = 0.526 W/kg; SAR(10 g) = 0.271 W/kg Maximum value of SAR (measured) = 0.592 W/kg		
 <p>0 dB = 0.592 W/kg = -2.28 dBW/kg</p>		

FLAT	Towards ground	1732.5MHz
<p>Communication System: UID 0, LTE band 4 (0); Frequency: 1732.5 MHz Medium parameters used (interpolated): $f = 1732.5$ MHz; $\sigma = 1.404$ S/m; $\epsilon_r = 51.622$; $\rho = 1000$ kg/m³ Phantom section: Flat Section Measurement Standard: DASY5 (IEEE1528-2013)</p> <p>DASY Configuration:</p> <ul style="list-style-type: none"> Probe: EX3DV4 - SN3708; ConvF(7.53, 7.53, 7.53); Calibrated: 10/26/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = -19.0, 31.0$ Electronics: DAE4 Sn720; Calibrated: 10/29/2015 Phantom: SAM 1560; Type: SAM; Serial: 1560 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) <p>Flat-Section MSL LTE Band 4 TG/LTE Band 4 TG M/Area Scan (9x14x1): Measurement grid: $dx=15$ mm, $dy=15$ mm Maximum value of SAR (measured) = 0.278 W/kg</p> <p>Flat-Section MSL LTE Band 4 TG/LTE Band 4 TG M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm Reference Value = 8.622 V/m; Power Drift = 0.13 dB Peak SAR (extrapolated) = 0.465 W/kg SAR(1 g) = 0.283 W/kg; SAR(10 g) = 0.165 W/kg Maximum value of SAR (measured) = 0.310 W/kg</p>  <p>0 dB = 0.310 W/kg = -5.09 dBW/kg</p>		

LTE BAND4- 20BW-1RB (Head)

Left Side	Check	1732.5MHz
Communication System: UID 10169 - CAB, LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK);		
Frequency: 1732.5 MHz		
Medium parameters used (extrapolated): $f = 1732.5 \text{ MHz}$; $\sigma = 1.384 \text{ S/m}$; $\epsilon_r = 41.089$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Left Section		
Measurement Standard: DASY5 (IEEE1528-2013)		

DASY Configuration:

- Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 8/21/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.0, 32.0$
- Electronics: DAE4 Sn546; Calibrated: 8/19/2015
- Phantom: SAM 1560; Type: SAM; Serial: 1560
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Head-Section Left LTE Band 4/LTE Band 4 touch M/Area Scan

(9x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 0.178 W/kg

Head-Section Left LTE Band 4/LTE Band 4 touch M/Zoom Scan (7x7x7)/Cube

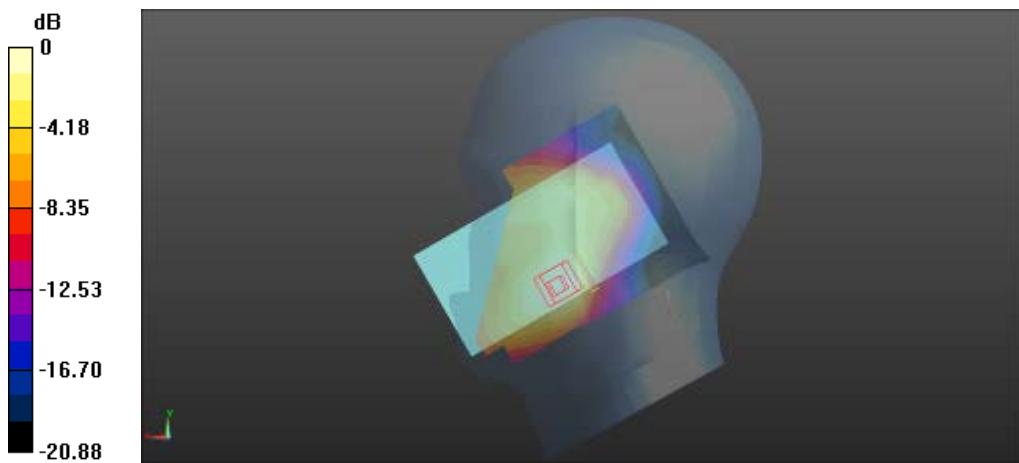
0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

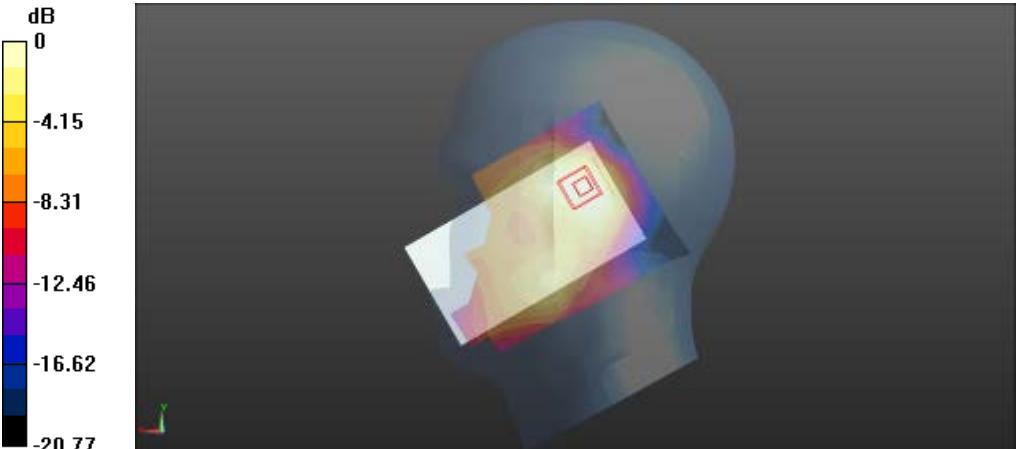
Reference Value = 4.902 V/m; Power Drift = -0.10 dB

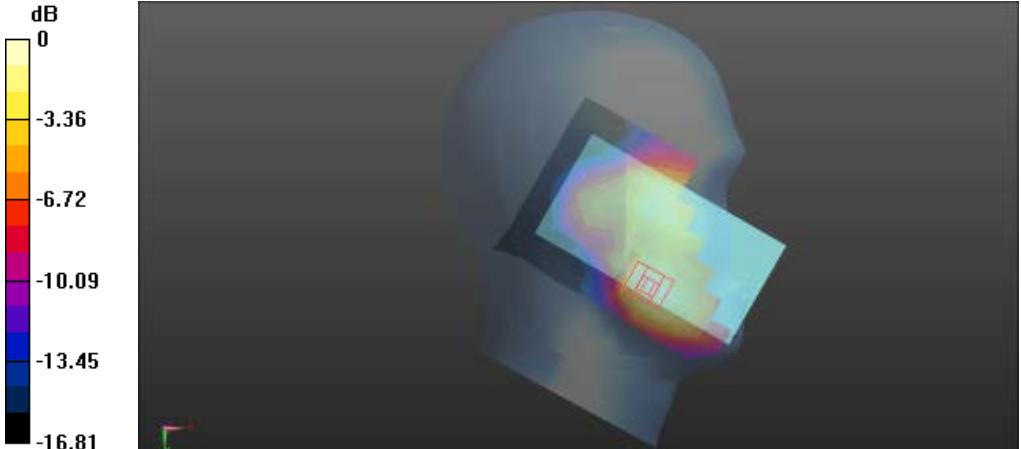
Peak SAR (extrapolated) = 0.262 W/kg

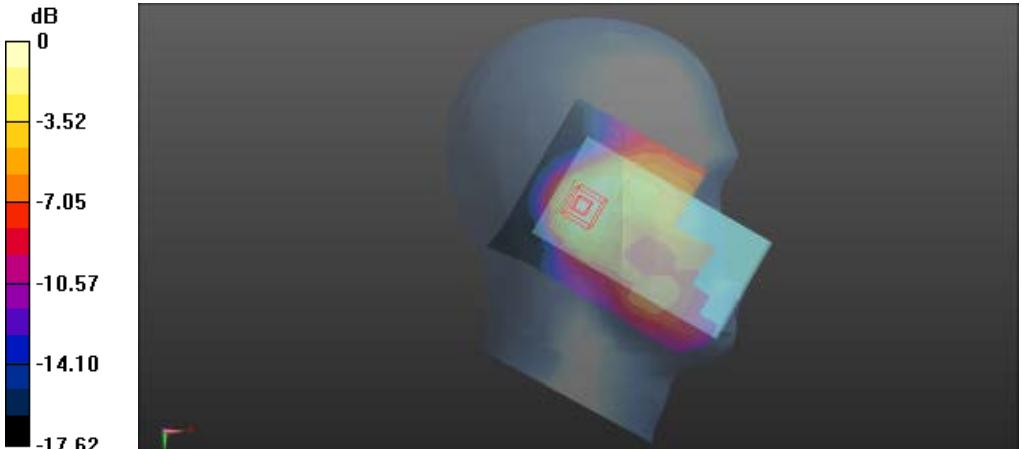
SAR(1 g) = 0.169 W/kg; SAR(10 g) = 0.104 W/kg

Maximum value of SAR (measured) = 0.184 W/kg

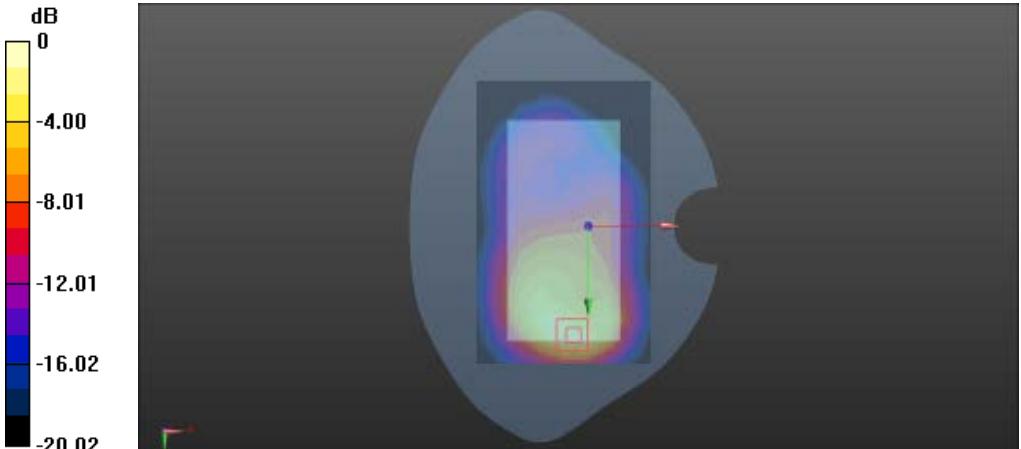


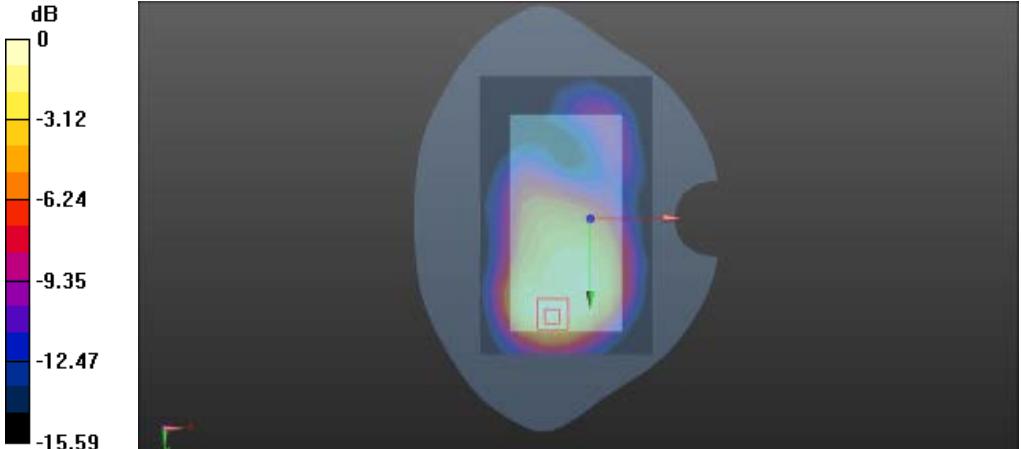
Left Side	Tilt	1732.5MHz
<p>Communication System: UID 10169 - CAB, LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK); Frequency: 1732.5 MHz Medium parameters used (extrapolated): $f = 1732.5$ MHz; $\sigma = 1.384$ S/m; $\epsilon_r = 41.089$; $\rho = 1000$ kg/m³ Phantom section: Left Section Measurement Standard: DASY5 (IEEE1528-2013)</p> <p>DASY Configuration:</p> <ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 8/21/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.0, 32.0$ Electronics: DAE4 Sn546; Calibrated: 8/19/2015 Phantom: SAM 1560; Type: SAM; Serial: 1560 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) <p>Head-Section Left LTE Band 4/LTE Band 4 tilt M/Area Scan (9x13x1): Measurement grid: $dx=15$mm, $dy=15$mm Maximum value of SAR (measured) = 0.0800 W/kg</p> <p>Head-Section Left LTE Band 4/LTE Band 4 tilt M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$mm, $dy=5$mm, $dz=5$mm Reference Value = 6.471 V/m; Power Drift = 0.13 dB Peak SAR (extrapolated) = 0.117 W/kg SAR(1 g) = 0.077 W/kg; SAR(10 g) = 0.048 W/kg Maximum value of SAR (measured) = 0.0833 W/kg</p>  <p>0 dB = 0.0833 W/kg = -10.79 dBW/kg</p>		

Right Side	Check	1732.5MHz
<p>Communication System: UID 10169 - CAB, LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK); Frequency: 1732.5 MHz Medium parameters used (extrapolated): $f = 1732.5$ MHz; $\sigma = 1.384$ S/m; $\epsilon_r = 41.089$; $\rho = 1000$ kg/m³ Phantom section: Right Section Measurement Standard: DASY5 (IEEE1528-2013)</p> <p>DASY Configuration:</p> <ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 8/21/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.0, 32.0$ Electronics: DAE4 Sn546; Calibrated: 8/19/2015 Phantom: SAM 1560; Type: SAM; Serial: 1560 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) <p>Head-Section Right LTE Band 4/LTE Band 4 touch M/Area Scan (9x13x1): Measurement grid: $dx=15$mm, $dy=15$mm Maximum value of SAR (measured) = 0.159 W/kg</p> <p>Head-Section Right LTE Band 4/LTE Band 4 touch M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$mm, $dy=5$mm, $dz=5$mm Reference Value = 4.405 V/m; Power Drift = 0.11 dB Peak SAR (extrapolated) = 0.230 W/kg SAR(1 g) = 0.148 W/kg; SAR(10 g) = 0.091 W/kg</p>  <p>0 dB = 0.159 W/kg = -7.99 dBW/kg</p>		

Right Side	Tilt	1732.5MHz
Communication System: UID 10169 - CAB, LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK); Frequency: 1732.5 MHz		
Medium parameters used (extrapolated): $f = 1732.5 \text{ MHz}$; $\sigma = 1.384 \text{ S/m}$; $\epsilon_r = 41.089$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Right Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 8/21/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.0, 32.0$ Electronics: DAE4 Sn546; Calibrated: 8/19/2015 Phantom: SAM 1560; Type: SAM; Serial: 1560 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) <p>Head-Section Right LTE Band 4/LTE Band 4 tilt M/Area Scan (9x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.0846 W/kg</p> <p>Head-Section Right LTE Band 4/LTE Band 4 tilt M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 6.614 V/m; Power Drift = 0.22 dB Peak SAR (extrapolated) = 0.131 W/kg SAR(1 g) = 0.080 W/kg; SAR(10 g) = 0.047 W/kg Maximum value of SAR (measured) = 0.0875 W/kg</p>		
 <p>0 dB = 0.0875 W/kg = -10.58 dBW/kg</p>		

LTE BAND4- 20BW-1RB (Flat)

FLAT	Towards phantom	1732.5MHz
Communication System: UID 0, LTE band 4 (0); Frequency: 1732.5 MHz		
Medium parameters used (interpolated): $f = 1732.5$ MHz; $\sigma = 1.404$ S/m; $\epsilon_r = 51.622$; $\rho = 1000$ kg/m ³		
Phantom section: Flat Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> • Probe: EX3DV4 - SN3708; ConvF(7.53, 7.53, 7.53); Calibrated: 10/26/2015; • Sensor-Surface: 4mm (Mechanical Surface Detection), $z = -19.0, 31.0$ • Electronics: DAE4 Sn720; Calibrated: 10/29/2015 • Phantom: SAM 1560; Type: SAM; Serial: 1560 • DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) 		
Flat-Section MSL LTE Band 4TP/LTE Band 4 TP M/Area Scan (9x14x1): Measurement grid: $dx=15$ mm, $dy=15$ mm Maximum value of SAR (measured) = 0.491 W/kg		
Flat-Section MSL LTE Band 4TP/LTE Band 4 TP M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm Reference Value = 7.705 V/m; Power Drift = 0.09 dB Peak SAR (extrapolated) = 1.03 W/kg SAR(1 g) = 0.553 W/kg; SAR(10 g) = 0.283 W/kg Maximum value of SAR (measured) = 0.614 W/kg		
 <p>0 dB = 0.614 W/kg = -2.12 dBW/kg</p>		

FLAT	Towards ground	1732.5MHz
<p>Communication System: UID 0, LTE band 4 (0); Frequency: 1732.5 MHz Medium parameters used (interpolated): $f = 1732.5$ MHz; $\sigma = 1.404$ S/m; $\epsilon_r = 51.622$; $\rho = 1000$ kg/m³ Phantom section: Flat Section Measurement Standard: DASY5 (IEEE1528-2013)</p> <p>DASY Configuration:</p> <ul style="list-style-type: none"> Probe: EX3DV4 - SN3708; ConvF(7.53, 7.53, 7.53); Calibrated: 10/26/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = -19.0, 31.0$ Electronics: DAE4 Sn720; Calibrated: 10/29/2015 Phantom: SAM 1560; Type: SAM; Serial: 1560 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) <p>Flat-Section MSL LTE Band 4 TG/LTE Band 4 TG M/Area Scan (9x14x1): Measurement grid: $dx=15$ mm, $dy=15$ mm Maximum value of SAR (measured) = 0.302 W/kg</p> <p>Flat-Section MSL LTE Band 4 TG/LTE Band 4 TG M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm Reference Value = 9.736 V/m; Power Drift = 0.00 dB Peak SAR (extrapolated) = 0.475 W/kg SAR(1 g) = 0.291 W/kg; SAR(10 g) = 0.171 W/kg Maximum value of SAR (measured) = 0.319 W/kg</p>  <p>0 dB = 0.319 W/kg = -4.96 dBW/kg</p>		

LTE BAND4- 20BW-50%RB (Head)

Left Side	Check	1732.5MHz
Communication System: UID 10297 - AAA, LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK);		
Frequency: 1732.5 MHz		
Medium parameters used (extrapolated): $f = 1732.5 \text{ MHz}$; $\sigma = 1.384 \text{ S/m}$; $\epsilon_r = 41.089$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Left Section		
Measurement Standard: DASY5 (IEEE1528-2013)		

DASY Configuration:

- Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 8/21/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.0, 32.0$
- Electronics: DAE4 Sn546; Calibrated: 8/19/2015
- Phantom: SAM 1560; Type: SAM; Serial: 1560
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Head-Section Left LTE Band 4/LTE Band 4 touch M/Area Scan

(9x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 0.141 W/kg

Head-Section Left LTE Band 4/LTE Band 4 touch M/Zoom Scan (7x7x7)/Cube

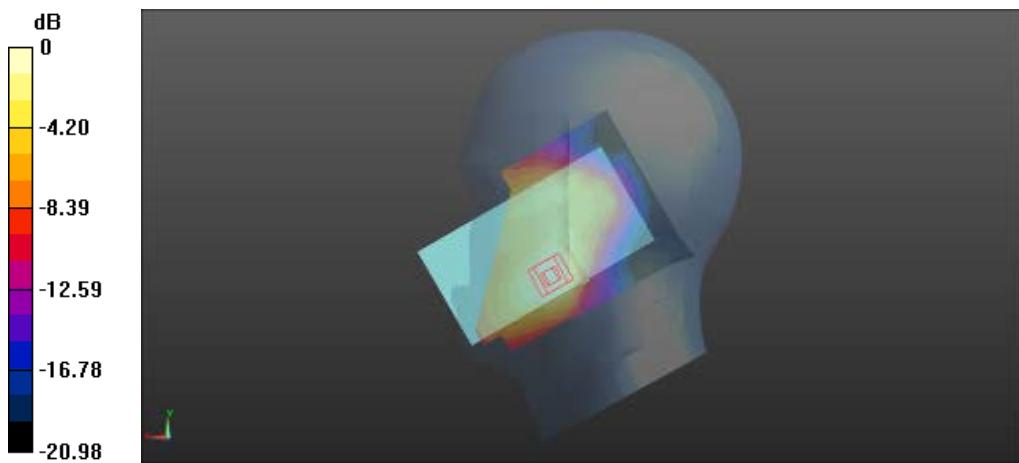
0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 4.417 V/m; Power Drift = -0.11 dB

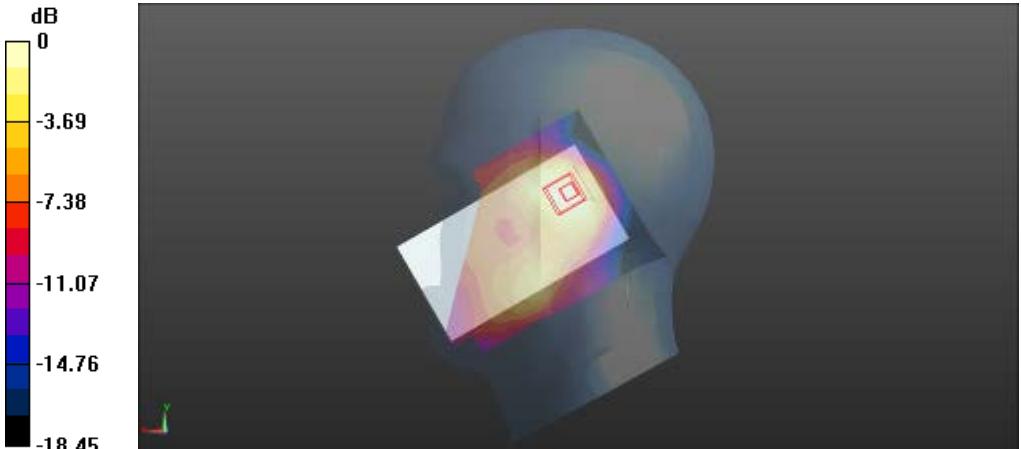
Peak SAR (extrapolated) = 0.220 W/kg

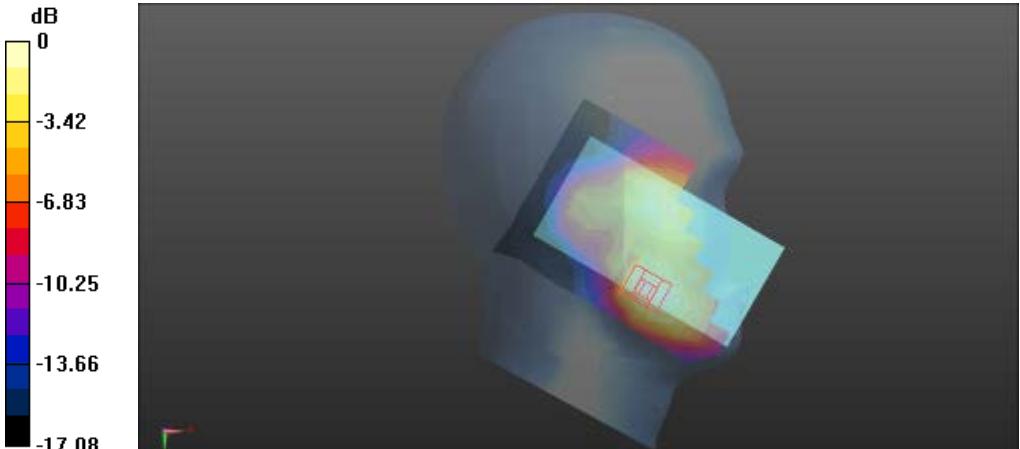
SAR(1 g) = 0.140 W/kg; SAR(10 g) = 0.085 W/kg

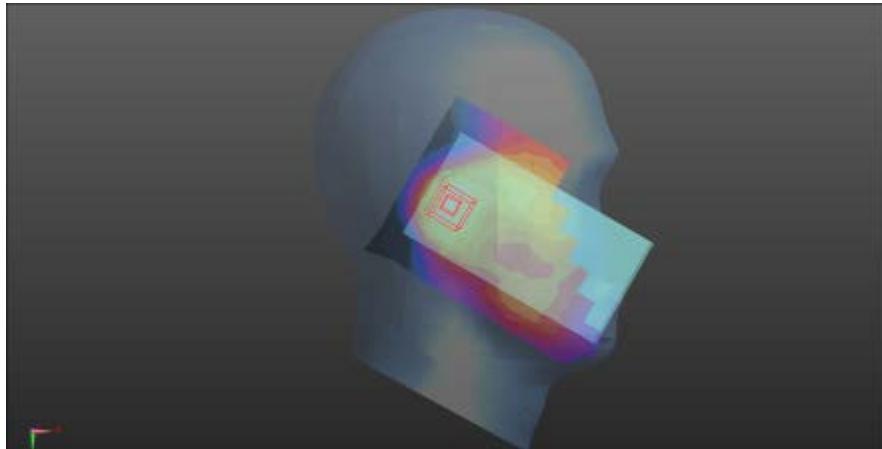
Maximum value of SAR (measured) = 0.153 W/kg



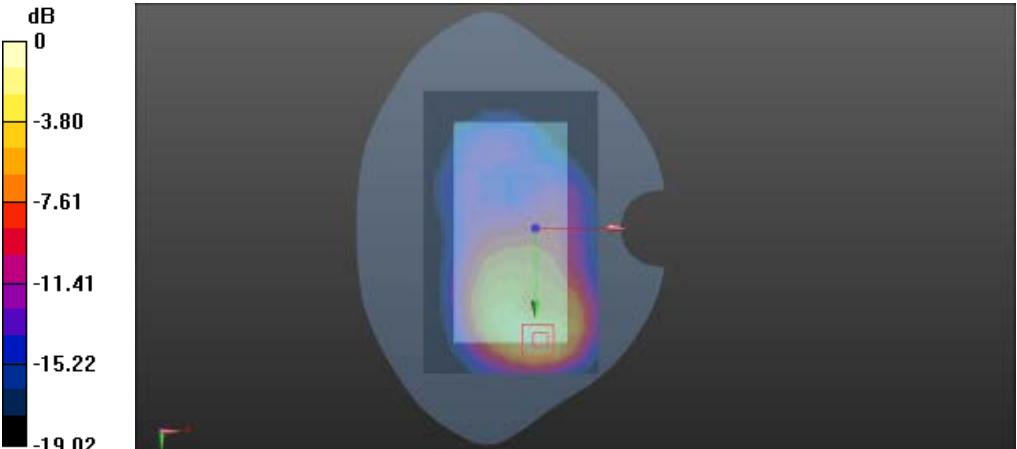
0 dB = 0.153 W/kg = -8.15 dBW/kg

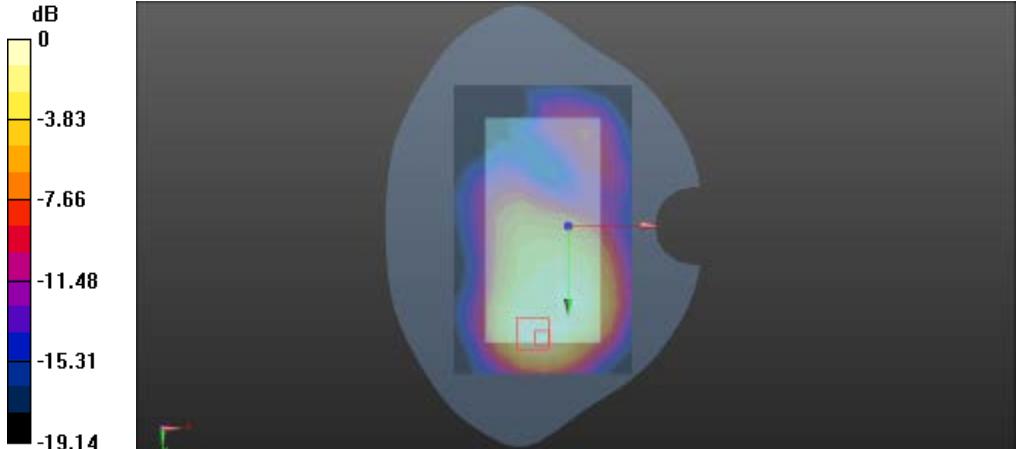
Left Side	Tilt	1732.5MHz
Communication System: UID 10297 - AAA, LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK); Frequency: 1732.5 MHz		
Medium parameters used (extrapolated): $f = 1732.5 \text{ MHz}$; $\sigma = 1.384 \text{ S/m}$; $\epsilon_r = 41.089$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Left Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 8/21/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.0, 32.0$ Electronics: DAE4 Sn546; Calibrated: 8/19/2015 Phantom: SAM 1560; Type: SAM; Serial: 1560 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) <p>Head-Section Left LTE Band 4/LTE Band 4 tilt M/Area Scan (9x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.0602 W/kg</p> <p>Head-Section Left LTE Band 4/LTE Band 4 tilt M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 5.854 V/m; Power Drift = -0.05 dB Peak SAR (extrapolated) = 0.105 W/kg SAR(1 g) = 0.063 W/kg; SAR(10 g) = 0.038 W/kg Maximum value of SAR (measured) = 0.0695 W/kg</p>		
 <p>0 dB = 0.0695 W/kg = -11.58 dBW/kg</p>		

Right Side	Check	1732.5MHz
<p>Communication System: UID 10297 - AAA, LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK); Frequency: 1732.5 MHz Medium parameters used (extrapolated): $f = 1732.5$ MHz; $\sigma = 1.384$ S/m; $\epsilon_r = 41.089$; $\rho = 1000$ kg/m³ Phantom section: Right Section Measurement Standard: DASY5 (IEEE1528-2013)</p> <p>DASY Configuration:</p> <ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 8/21/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.0, 32.0$ Electronics: DAE4 Sn546; Calibrated: 8/19/2015 Phantom: SAM 1560; Type: SAM; Serial: 1560 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) <p>Head-Section Right LTE Band 4/LTE Band 4 touch M/Area Scan (9x13x1): Measurement grid: $dx=15$ mm, $dy=15$ mm Maximum value of SAR (measured) = 0.126 W/kg</p> <p>Head-Section Right LTE Band 4/LTE Band 4 touch M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm Reference Value = 4.483 V/m; Power Drift = 0.00 dB Peak SAR (extrapolated) = 0.180 W/kg SAR(1 g) = 0.117 W/kg; SAR(10 g) = 0.073 W/kg Maximum value of SAR (measured) = 0.127 W/kg</p>  <p>0 dB = 0.127 W/kg = -8.96 dBW/kg</p>		

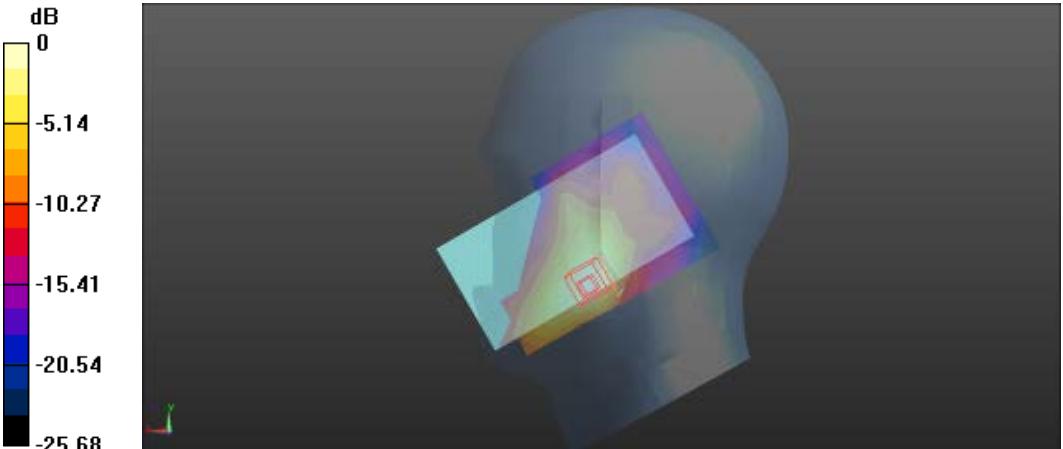
Right Side	Tilt	1732.5MHz
<p>Communication System: UID 10297 - AAA, LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK); Frequency: 1732.5 MHz Medium parameters used (extrapolated): $f = 1732.5$ MHz; $\sigma = 1.384$ S/m; $\epsilon_r = 41.089$; $\rho = 1000$ kg/m³ Phantom section: Right Section Measurement Standard: DASY5 (IEEE1528-2013)</p> <p>DASY Configuration:</p> <ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.94, 4.94, 4.94); Calibrated: 8/21/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.0, 32.0$ Electronics: DAE4 Sn546; Calibrated: 8/19/2015 Phantom: SAM 1560; Type: SAM; Serial: 1560 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) <p>Head-Section Right LTE Band 4/LTE Band 4 tilt M/Area Scan (9x13x1): Measurement grid: $dx=15$ mm, $dy=15$ mm Maximum value of SAR (measured) = 0.0613 W/kg</p> <p>Head-Section Right LTE Band 4/LTE Band 4 tilt M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm Reference Value = 6.146 V/m; Power Drift = 0.13 dB Peak SAR (extrapolated) = 0.0960 W/kg SAR(1 g) = 0.061 W/kg; SAR(10 g) = 0.036 W/kg Maximum value of SAR (measured) = 0.0676 W/kg</p>  <p>0 dB = 0.0676 W/kg = -11.70 dBW/kg</p>		

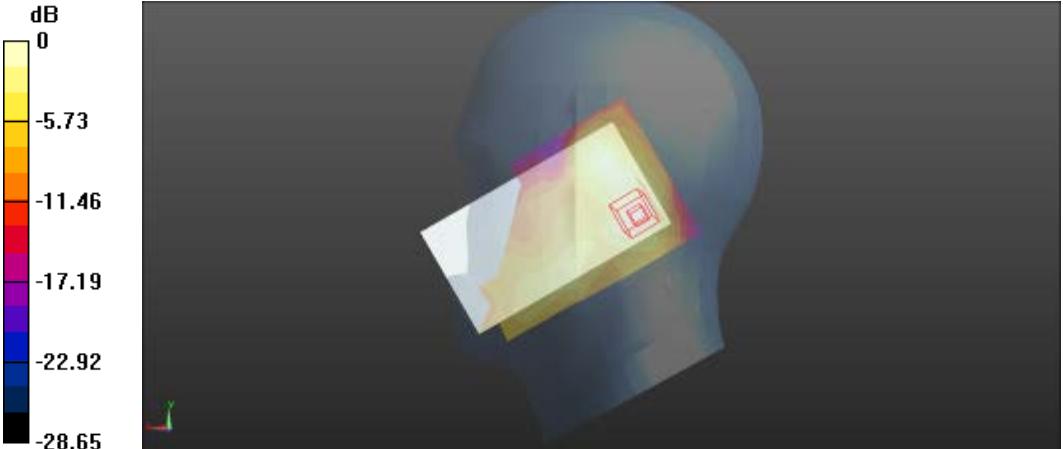
LTE BAND4- 20BW-50%RB (Flat)

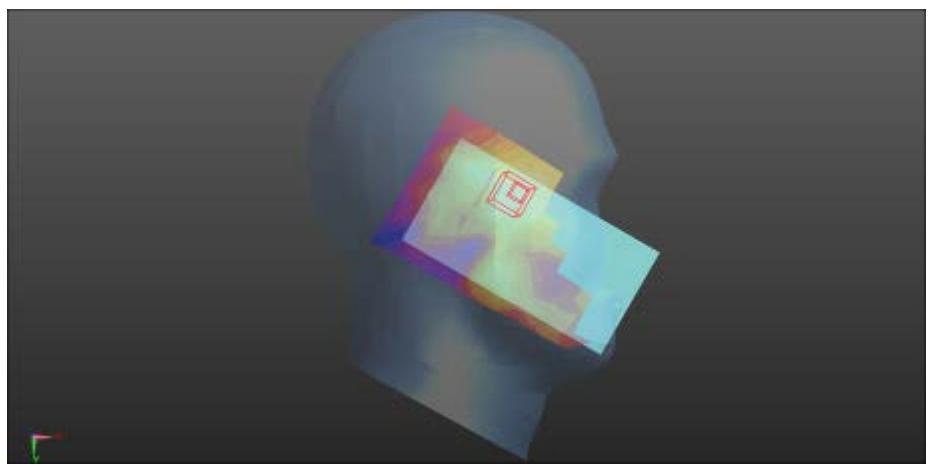
FLAT	Towards phantom	1732.5MHz
Communication System: UID 0, LTE band 4 (0); Frequency: 1732.5 MHz		
Medium parameters used (interpolated): $f = 1732.5 \text{ MHz}$; $\sigma = 1.404 \text{ S/m}$; $\epsilon_r = 51.622$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Flat Section		
Measurement Standard: DASY5 (IEEE1528-2013)		
DASY Configuration:		
<ul style="list-style-type: none"> Probe: EX3DV4 - SN3708; ConvF(7.53, 7.53, 7.53); Calibrated: 10/26/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = -9.0, 31.0$ Electronics: DAE4 Sn720; Calibrated: 10/29/2015 Phantom: SAM 1560; Type: SAM; Serial: 1560 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) 		
Flat-Section MSL LTE Band 4 TP/LTE Band 4 TP M/Area Scan (9x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.322 W/kg		
Flat-Section MSL LTE Band 4 TP/LTE Band 4 TP M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 6.115 V/m; Power Drift = 0.03 dB Peak SAR (extrapolated) = 0.806 W/kg SAR(1 g) = 0.434 W/kg; SAR(10 g) = 0.222 W/kg Maximum value of SAR (measured) = 0.485 W/kg		
 <p>0 dB = 0.485 W/kg = -3.14 dBW/kg</p>		

FLAT	Towards ground	1732.5MHz
<p>Communication System: UID 0, LTE band 4 (0); Frequency: 1732.5 MHz Medium parameters used (interpolated): $f = 1732.5 \text{ MHz}$; $\sigma = 1.404 \text{ S/m}$; $\epsilon_r = 51.622$; $\rho = 1000 \text{ kg/m}^3$ Phantom section: Flat Section Measurement Standard: DASY5 (IEEE1528-2013)</p> <p>DASY Configuration:</p> <ul style="list-style-type: none"> Probe: EX3DV4 - SN3708; ConvF(7.53, 7.53, 7.53); Calibrated: 10/26/2015; Sensor-Surface: 4mm (Mechanical Surface Detection), $z = -9.0, 31.0$ Electronics: DAE4 Sn720; Calibrated: 10/29/2015 Phantom: SAM 1560; Type: SAM; Serial: 1560 DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164) <p>Flat-Section MSL LTE Band 4 TG/LTE Band 4 TG M/Area Scan (9x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.217 W/kg</p> <p>Flat-Section MSL LTE Band 4 TG/LTE Band 4 TG M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 7.545 V/m; Power Drift = 0.21 dB Peak SAR (extrapolated) = 0.380 W/kg SAR(1 g) = 0.231 W/kg; SAR(10 g) = 0.130 W/kg Maximum value of SAR (measured) = 0.250 W/kg</p>  <p>0 dB = 0.250 W/kg = -6.02 dBW/kg</p>		

LTE BAND7- 20BW-1RB (Head)

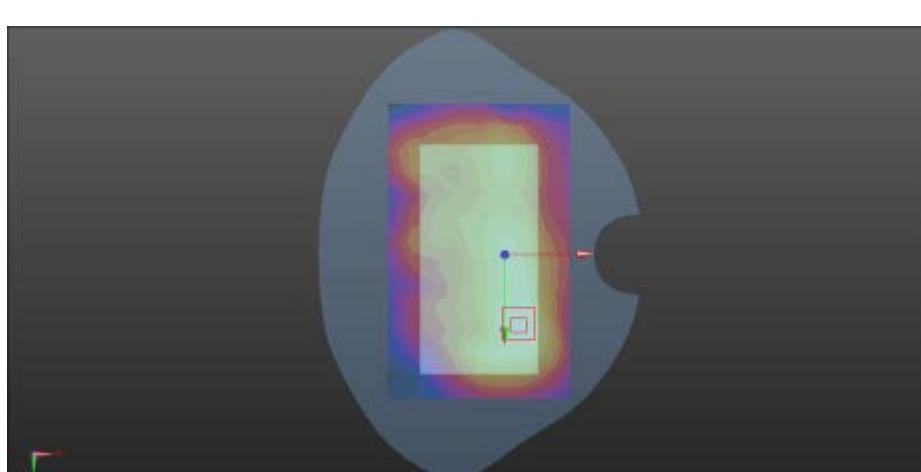
Left Side	Check	2535MHz
Communication System: UID 10169 - CAB, LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK); Frequency: 2535 MHz; Duty Cycle: 1:3.74111		
Medium parameters used (extrapolated): $f = 2535 \text{ MHz}$; $\sigma = 1.869 \text{ S/m}$; $\epsilon_r = 38.76$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Left Section		
DASY5 Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.26, 4.26, 4.26); Calibrated: 2015/8/21; Sensor-Surface: 4mm (Mechanical Surface Detection) Electronics: DAE4 Sn546; Calibrated: 2015/8/19 Phantom: SAM 1659; Type: QD000P40CD; Serial: TP:1659 Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164) <p>Head-Section Left HSL Band 7/LTE Band 7 touch M/Area Scan (8x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.155 W/kg</p> <p>Head-Section Left HSL Band 7/LTE Band 7 touch M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 2.696 V/m; Power Drift = -0.13 dB Peak SAR (extrapolated) = 0.333 W/kg SAR(1 g) = 0.155 W/kg; SAR(10 g) = 0.075 W/kg Maximum value of SAR (measured) = 0.174 W/kg</p>		
 <p>0 dB = 0.174 W/kg = -7.59 dBW/kg</p>		

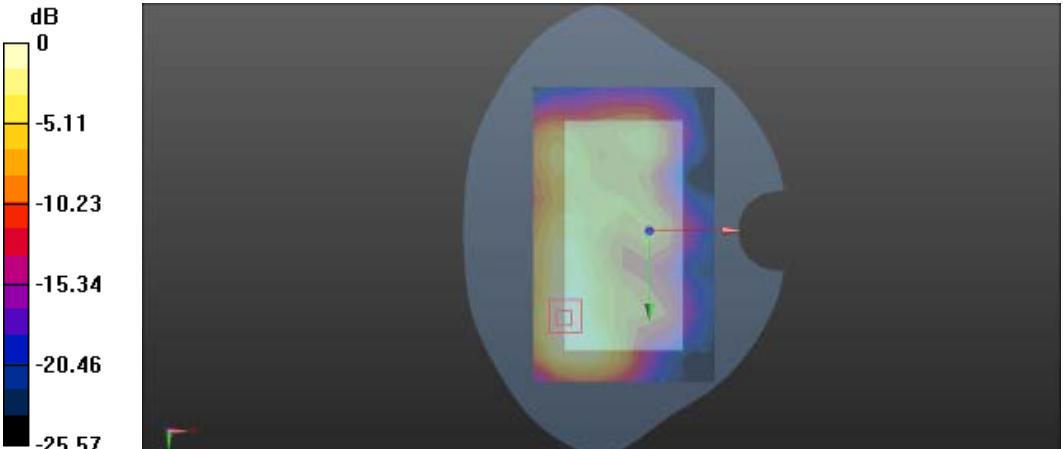
Left Side	Tilt	2535MHz
Communication System: UID 10169 - CAB, LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK); Frequency: 2535 MHz; Duty Cycle: 1:3.74111		
Medium parameters used (extrapolated): $f = 2535 \text{ MHz}$; $\sigma = 1.869 \text{ S/m}$; $\epsilon_r = 38.76$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Left Section		
DASY5 Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.26, 4.26, 4.26); Calibrated: 2015/8/21; Sensor-Surface: 4mm (Mechanical Surface Detection) Electronics: DAE4 Sn546; Calibrated: 2015/8/19 Phantom: SAM 1659; Type: QD000P40CD; Serial: TP:1659 Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164) <p>Head-Section Left HSL Band 7/LTE Band 7 tilt M/Area Scan (8x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.0518 W/kg</p> <p>Head-Section Left HSL Band 7/LTE Band 7 tilt M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 4.277 V/m; Power Drift = 0.02 dB Peak SAR (extrapolated) = 0.0960 W/kg SAR(1 g) = 0.046 W/kg; SAR(10 g) = 0.022 W/kg Maximum value of SAR (measured) = 0.0512 W/kg</p>		
 <p>0 dB = 0.0512 W/kg = -12.91 dBW/kg</p>		

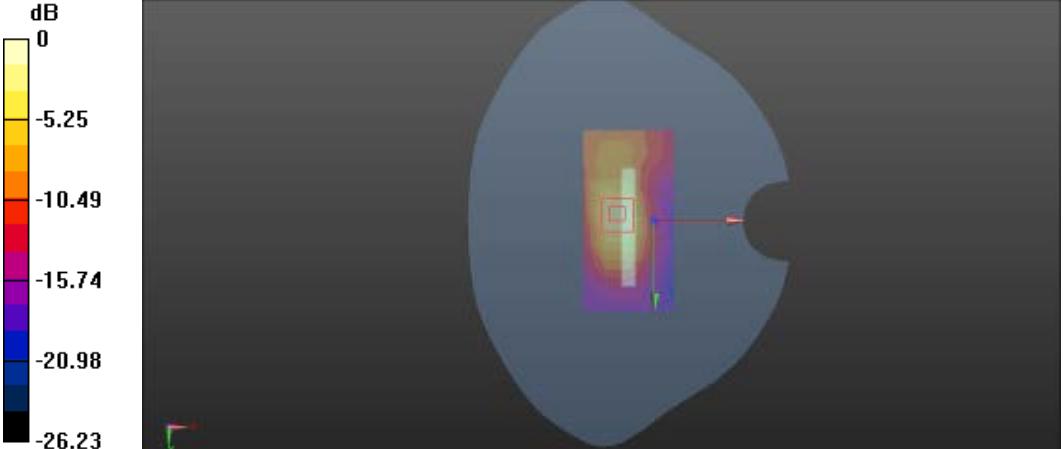
Right Side	Check	2535MHz
<p>Communication System: UID 10169 - CAB, LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK); Frequency: 2535 MHz; Duty Cycle: 1:3.74111 Medium parameters used: $f = 2500$ MHz; $\sigma = 1.837$ S/m; $\epsilon_r = 38.944$; $\rho = 1000$ kg/m3 Phantom section: Right Section</p> <p>DASY5 Configuration:</p> <ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.26, 4.26, 4.26); Calibrated: 2015/8/21; Sensor-Surface: 4mm (Mechanical Surface Detection) Electronics: DAE4 Sn546; Calibrated: 2015/8/19 Phantom: SAM 1659; Type: QD000P40CD; Serial: TP:1659 Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164) <p>Head-Section Right HSL Band 7/LTE Band 7 touch M/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.0619 W/kg</p> <p>Head-Section Right HSL Band 7/LTE Band 7 touch M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 2.623 V/m; Power Drift = 0.10 dB Peak SAR (extrapolated) = 0.126 W/kg SAR(1 g) = 0.062 W/kg; SAR(10 g) = 0.033 W/kg Maximum value of SAR (measured) = 0.0674 W/kg</p>  <p>0 dB = 0.0674 W/kg = -11.71 dBW/kg</p>		

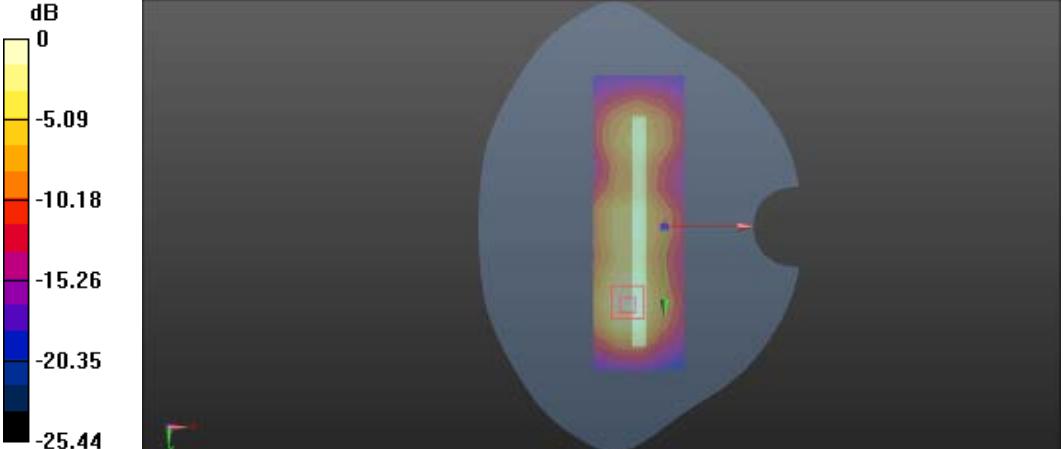
Right Side	Tilt	2535MHz
Communication System: UID 10169 - CAB, LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK); Frequency: 2535 MHz; Duty Cycle: 1:3.74111		
Medium parameters used: $f = 2500$ MHz; $\sigma = 1.837$ S/m; $\epsilon_r = 38.944$; $\rho = 1000$ kg/m ³		
Phantom section: Right Section		
DASY5 Configuration:		
<ul style="list-style-type: none"> • Probe: ES3DV3 - SN3127; ConvF(4.26, 4.26, 4.26); Calibrated: 2015/8/21; • Sensor-Surface: 4mm (Mechanical Surface Detection) • Electronics: DAE4 Sn546; Calibrated: 2015/8/19 • Phantom: SAM 1659; Type: QD000P40CD; Serial: TP:1659 • Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164) <p>Head-Section Right HSL Band 7/LTE Band 7 tilt M/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.0698 W/kg</p> <p>Head-Section Right HSL Band 7/LTE Band 7 tilt M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 3.745 V/m; Power Drift = 0.14 dB Peak SAR (extrapolated) = 0.145 W/kg SAR(1 g) = 0.071 W/kg; SAR(10 g) = 0.033 W/kg Maximum value of SAR (measured) = 0.0778 W/kg</p>		
 <p>0 dB = 0.0778 W/kg = -11.09 dBW/kg</p>		

LTE BAND7- 20BW-1RB (Flat)

FLAT	Towards phantom	2535MHz
<p>Communication System: UID 10169 - CAB, LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK); Frequency: 2535 MHz; Duty Cycle: 1:3.74111 Medium parameters used (extrapolated): $f = 2535 \text{ MHz}$; $\sigma = 2.045 \text{ S/m}$; $\epsilon_r = 50.427$; $\rho = 1000 \text{ kg/m}^3$ Phantom section: Flat Section</p> <p>DASY5 Configuration:</p> <ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.09, 4.09, 4.09); Calibrated: 2015/8/21; Sensor-Surface: 4mm (Mechanical Surface Detection) Electronics: DAE4 Sn546; Calibrated: 2015/8/19 Phantom: SAM 1659; Type: QD000P40CD; Serial: TP:1659 Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164) <p>Flat-Section MSL Band 7 TP/LTE Band 7 TP M/Area Scan (9x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.246 W/kg</p> <p>Flat-Section MSL Band 7 TP/LTE Band 7 TP M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 5.187 V/m; Power Drift = -0.03 dB Peak SAR (extrapolated) = 0.514 W/kg SAR(1 g) = 0.225 W/kg; SAR(10 g) = 0.105 W/kg Maximum value of SAR (measured) = 0.248 W/kg</p>  <p>0 dB = 0.248 W/kg = -6.06 dBW/kg</p>		

FLAT	Towards ground	2535MHz
Communication System: UID 10169 - CAB, LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK); Frequency: 2535 MHz; Duty Cycle: 1:3.74111		
Medium parameters used (extrapolated): $f = 2535 \text{ MHz}$; $\sigma = 2.045 \text{ S/m}$; $\epsilon_r = 50.427$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Flat Section		
DASY5 Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.09, 4.09, 4.09); Calibrated: 2015/8/21; Sensor-Surface: 3mm (Mechanical Surface Detection), Sensor-Surface: 4mm (Mechanical Surface Detection) Electronics: DAE4 Sn546; Calibrated: 2015/8/19 Phantom: SAM 1659; Type: QD000P40CD; Serial: TP:1659 Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164) <p>Flat-Section MSL Band 7 TG/LTE Band 7 TG M/Area Scan (9x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.283 W/kg</p> <p>Flat-Section MSL Band 7 TG/LTE Band 7 TG M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 4.786 V/m; Power Drift = 0.08 dB Peak SAR (extrapolated) = 0.566 W/kg SAR(1 g) = 0.261 W/kg; SAR(10 g) = 0.127 W/kg Maximum value of SAR (measured) = 0.287 W/kg</p>		
 <p>0 dB = 0.287 W/kg = -5.42 dBW/kg</p>		

FLAT	Edge2	2535MHz
<p>Communication System: UID 10169 - CAB, LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK); Frequency: 2535 MHz; Duty Cycle: 1:3.74111 Medium parameters used (extrapolated): $f = 2535 \text{ MHz}$; $\sigma = 2.045 \text{ S/m}$; $\epsilon_r = 50.427$; $\rho = 1000 \text{ kg/m}^3$ Phantom section: Flat Section</p> <p>DASY5 Configuration:</p> <ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.09, 4.09, 4.09); Calibrated: 2015/8/21; Sensor-Surface: 4mm (Mechanical Surface Detection) Electronics: DAE4 Sn546; Calibrated: 2015/8/19 Phantom: SAM 1659; Type: QD000P40CD; Serial: TP:1659 Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164) <p>Flat-Section MSL Band 7 HOT/LTE Band 7 L edge 2/Area Scan (5x9x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.206 W/kg</p> <p>Flat-Section MSL Band 7 HOT/LTE Band 7 L edge 2/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 10.061 V/m; Power Drift = 0.18 dB Peak SAR (extrapolated) = 0.740 W/kg SAR(1 g) = 0.308 W/kg; SAR(10 g) = 0.130 W/kg Maximum value of SAR (measured) = 0.350 W/kg</p>  <p>0 dB = 0.350 W/kg = -4.56 dBW/kg</p>		

FLAT	Edge4	2535MHz
<p>Communication System: UID 10169 - CAB, LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK); Frequency: 2535 MHz; Duty Cycle: 1:3.74111 Medium parameters used (extrapolated): $f = 2535 \text{ MHz}$; $\sigma = 2.045 \text{ S/m}$; $\epsilon_r = 50.427$; $\rho = 1000 \text{ kg/m}^3$ Phantom section: Flat Section</p> <p>DASY5 Configuration:</p> <ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.09, 4.09, 4.09); Calibrated: 2015/8/21; Sensor-Surface: 4mm (Mechanical Surface Detection) Electronics: DAE4 Sn546; Calibrated: 2015/8/19 Phantom: SAM 1659; Type: QD000P40CD; Serial: TP:1659 Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164) <p>Flat-Section MSL Band 7 HOT/LTE Band 7 L edge 4/Area Scan (5x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.315 W/kg</p> <p>Flat-Section MSL Band 7 HOT/LTE Band 7 L edge 4/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 10.341 V/m; Power Drift = 0.11 dB Peak SAR (extrapolated) = 0.837 W/kg SAR(1 g) = 0.373 W/kg; SAR(10 g) = 0.178 W/kg Maximum value of SAR (measured) = 0.407 W/kg</p>  <p>0 dB = 0.407 W/kg = -3.90 dBW/kg</p>		

LTE BAND7- 20BW-50%RB (Head)

Left Side	Check	2535MHz
Communication System: UID 10297 - AAA, LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK);		
Frequency: 2535 MHz; Duty Cycle: 1:3.81066		
Medium parameters used: $f = 2500 \text{ MHz}$; $\sigma = 1.837 \text{ S/m}$; $\epsilon_r = 38.944$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Left Section		

DASY5 Configuration:

- Probe: ES3DV3 - SN3127; ConvF(4.26, 4.26, 4.26); Calibrated: 2015/8/21;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn546; Calibrated: 2015/8/19
- Phantom: SAM 1659; Type: QD000P40CD; Serial: TP:1659
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Head-Section Left HSL Band 7/LTE Band 7 touch M/Area Scan

(8x13x1): Measurement grid: dx=15mm, dy=15mm

Head-Section Left HSL Band 7/LTE Band 7 touch M/Zoom Scan (7x7x7)/Cube

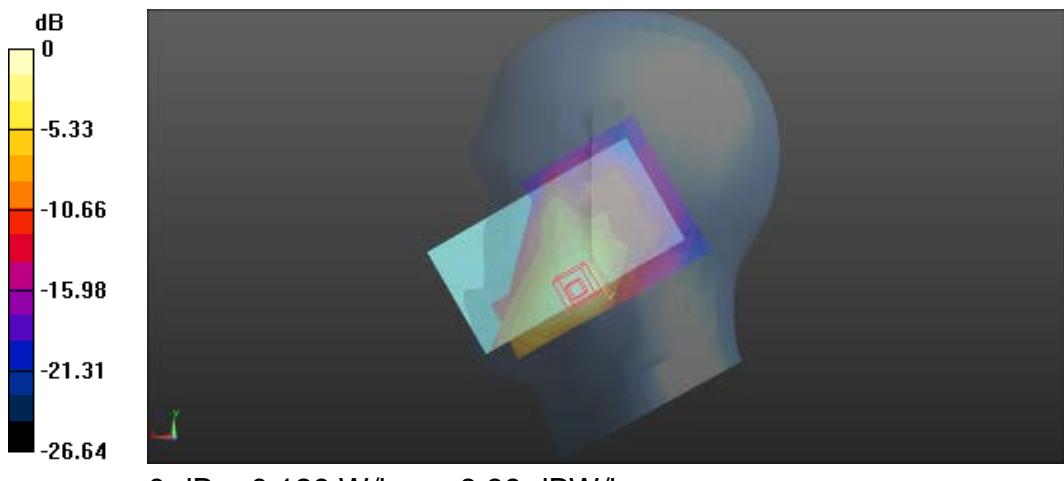
0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

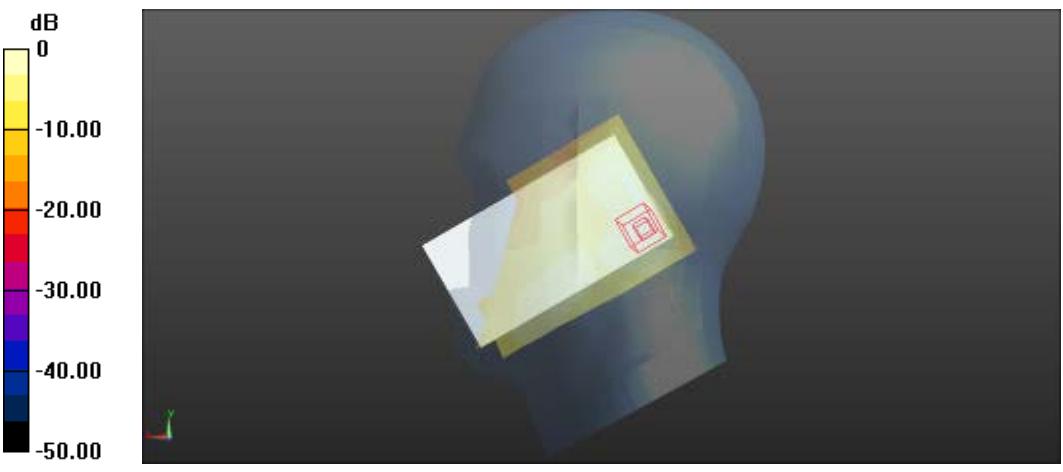
Reference Value = 2.011 V/m; Power Drift = 0.17 dB

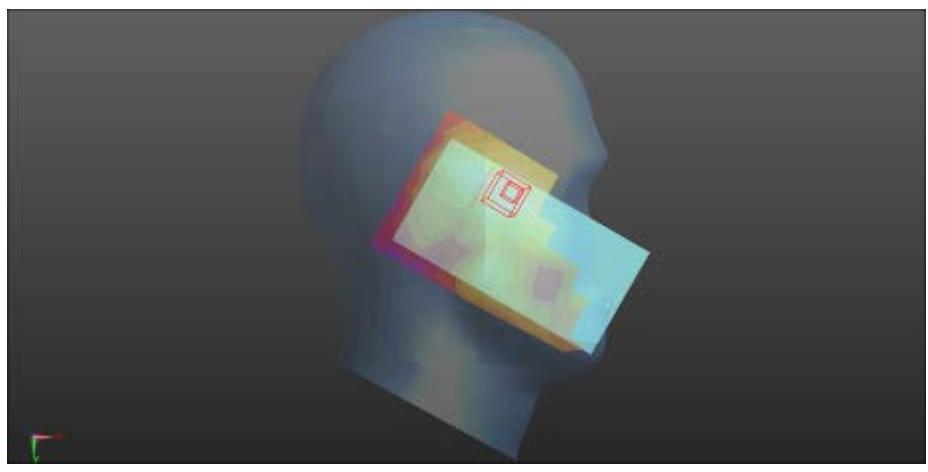
Peak SAR (extrapolated) = 0.252 W/kg

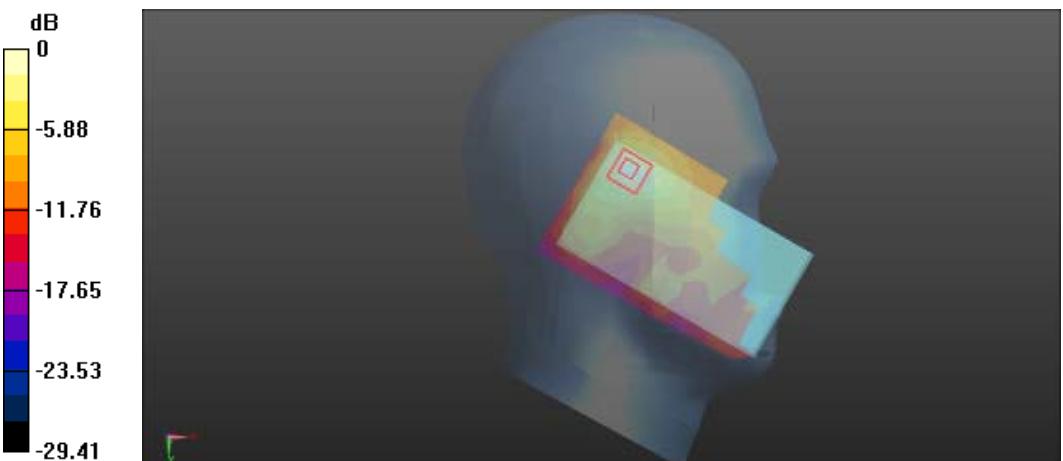
SAR(1 g) = 0.115 W/kg; SAR(10 g) = 0.055 W/kg

Maximum value of SAR (measured) = 0.129 W/kg

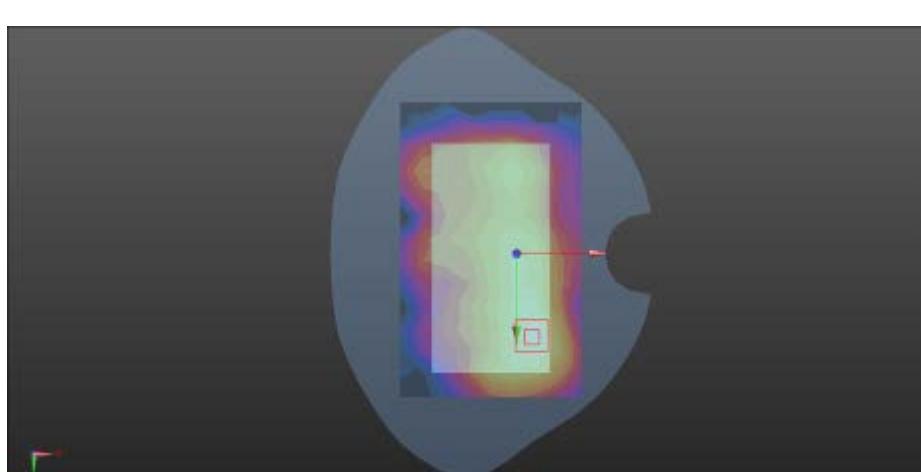


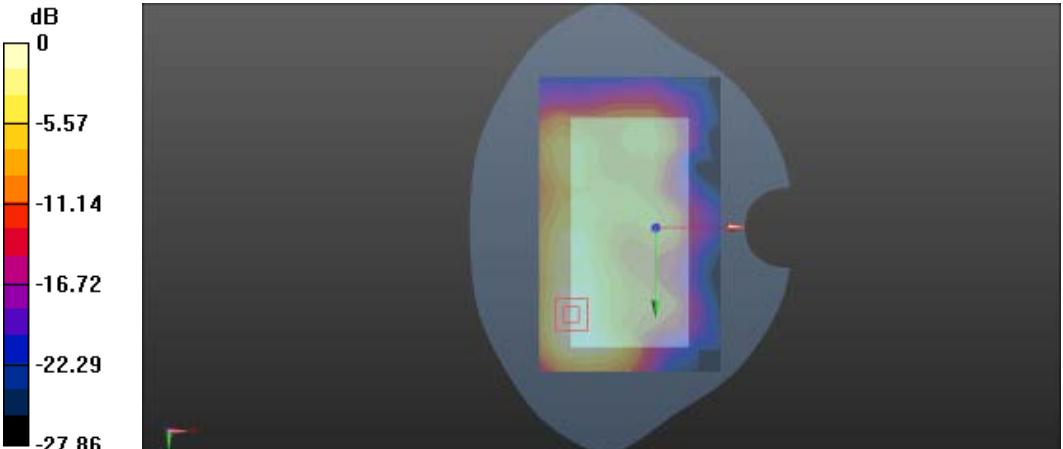
Left Side	Tilt	2535MHz
Communication System: UID 10297 - AAA, LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK); Frequency: 2535 MHz; Duty Cycle: 1:3.81066		
Medium parameters used: $f = 2500$ MHz; $\sigma = 1.837$ S/m; $\epsilon_r = 38.944$; $\rho = 1000$ kg/m 3		
Phantom section: Left Section		
DASY5 Configuration:		
<ul style="list-style-type: none"> • Probe: ES3DV3 - SN3127; ConvF(4.26, 4.26, 4.26); Calibrated: 2015/8/21; • Sensor-Surface: 4mm (Mechanical Surface Detection) • Electronics: DAE4 Sn546; Calibrated: 2015/8/19 • Phantom: SAM 1659; Type: QD000P40CD; Serial: TP:1659 • Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164) <p>Head-Section Left HSL Band 7/LTE Band 7 tilt M/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.0395 W/kg</p> <p>Head-Section Left HSL Band 7/LTE Band 7 tilt M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 3.618 V/m; Power Drift = 0.11 dB Peak SAR (extrapolated) = 0.0890 W/kg SAR(1 g) = 0.041 W/kg; SAR(10 g) = 0.019 W/kg Maximum value of SAR (measured) = 0.0459 W/kg</p>		
 <p>0 dB = 0.0459 W/kg = -13.38 dBW/kg</p>		

Right Side	Check	2535MHz
<p>Communication System: UID 10297 - AAA, LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK); Frequency: 2535 MHz; Duty Cycle: 1:3.81066 Medium parameters used: $f = 2500$ MHz; $\sigma = 1.837$ S/m; $\epsilon_r = 38.944$; $\rho = 1000$ kg/m3 Phantom section: Right Section</p> <p>DASY5 Configuration:</p> <ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.26, 4.26, 4.26); Calibrated: 2015/8/21; Sensor-Surface: 4mm (Mechanical Surface Detection) Electronics: DAE4 Sn546; Calibrated: 2015/8/19 Phantom: SAM 1659; Type: QD000P40CD; Serial: TP:1659 Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164) <p>Head-Section Right HSL Band 7/LTE Band 7 touch M/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.0459 W/kg</p> <p>Head-Section Right HSL Band 7/LTE Band 7 touch M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 2.397 V/m; Power Drift = 0.19 dB Peak SAR (extrapolated) = 0.0940 W/kg SAR(1 g) = 0.046 W/kg; SAR(10 g) = 0.024 W/kg Maximum value of SAR (measured) = 0.0504 W/kg</p>  <p>0 dB = 0.0504 W/kg = -12.98 dBW/kg</p>		

Right Side	Tilt	2535MHz
Communication System: UID 10297 - AAA, LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK); Frequency: 2535 MHz; Duty Cycle: 1:3.81066		
Medium parameters used: $f = 2500$ MHz; $\sigma = 1.837$ S/m; $\epsilon_r = 38.944$; $\rho = 1000$ kg/m 3		
Phantom section: Right Section		
DASY5 Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.26, 4.26, 4.26); Calibrated: 2015/8/21; Sensor-Surface: 4mm (Mechanical Surface Detection) Electronics: DAE4 Sn546; Calibrated: 2015/8/19 Phantom: SAM 1659; Type: QD000P40CD; Serial: TP:1659 Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164) <p>Head-Section Right HSL Band 7/LTE Band 7 tilt M/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.0581 W/kg</p> <p>Head-Section Right HSL Band 7/LTE Band 7 tilt M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 3.321 V/m; Power Drift = 0.10 dB Peak SAR (extrapolated) = 0.112 W/kg SAR(1 g) = 0.055 W/kg; SAR(10 g) = 0.026 W/kg Maximum value of SAR (measured) = 0.0607 W/kg</p>		
 <p>0 dB = 0.0607 W/kg = -12.17 dBW/kg</p>		

LTE BAND7- 20BW-50%RB (Flat)

FLAT	Towards phantom	2535MHz
<p>Communication System: UID 10297 - AAA, LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK); Frequency: 2535 MHz; Duty Cycle: 1:3.81066 Medium parameters used (extrapolated): $f = 2535 \text{ MHz}$; $\sigma = 2.045 \text{ S/m}$; $\epsilon_r = 50.427$; $\rho = 1000 \text{ kg/m}^3$ Phantom section: Flat Section</p> <p>DASY5 Configuration:</p> <ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.09, 4.09, 4.09); Calibrated: 2015/8/21; Sensor-Surface: 4mm (Mechanical Surface Detection) Electronics: DAE4 Sn546; Calibrated: 2015/8/19 Phantom: SAM 1659; Type: QD000P40CD; Serial: TP:1659 Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164) <p>Flat-Section MSL Band 7 TP/LTE Band 7 TP M/Area Scan (9x14x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.169 W/kg</p> <p>Flat-Section MSL Band 7 TP/LTE Band 7 TP M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 5.027 V/m; Power Drift = -0.10 dB Peak SAR (extrapolated) = 0.392 W/kg SAR(1 g) = 0.171 W/kg; SAR(10 g) = 0.081 W/kg Maximum value of SAR (measured) = 0.190 W/kg</p>  <p>0 dB = 0.190 W/kg = -7.21 dBW/kg</p>		

FLAT	Towards ground	2535MHz
Communication System: UID 10297 - AAA, LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK); Frequency: 2535 MHz; Duty Cycle: 1:3.81066		
Medium parameters used (extrapolated): $f = 2535 \text{ MHz}$; $\sigma = 2.045 \text{ S/m}$; $\epsilon_r = 50.427$; $\rho = 1000 \text{ kg/m}^3$		
Phantom section: Flat Section		
DASY5 Configuration:		
<ul style="list-style-type: none"> Probe: ES3DV3 - SN3127; ConvF(4.09, 4.09, 4.09); Calibrated: 2015/8/21; Sensor-Surface: 3mm (Mechanical Surface Detection), Sensor-Surface: 4mm (Mechanical Surface Detection) Electronics: DAE4 Sn546; Calibrated: 2015/8/19 Phantom: SAM 1659; Type: QD000P40CD; Serial: TP:1659 Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164) <p>Flat-Section MSL Band 7 TG/LTE Band 7 TG M/Area Scan (9x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.193 W/kg</p> <p>Flat-Section MSL Band 7 TG/LTE Band 7 TG M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 3.964 V/m; Power Drift = 0.20 dB Peak SAR (extrapolated) = 0.423 W/kg SAR(1 g) = 0.192 W/kg; SAR(10 g) = 0.094 W/kg Maximum value of SAR (measured) = 0.211 W/kg</p>		
 <p>0 dB = 0.211 W/kg = -6.76 dBW/kg</p>		

APPENDIX C: RELEVANT PAGES FROM PROBE CALIBRATION REPORT(S)

EX3DV4 – SN:3708

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland



S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
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**

Client **SRTC (Vitec)**

Certificate No: **EX3-3708_Oct15**

CALIBRATION CERTIFICATE

Object EX3DV4 - SN:3708

Calibration procedure(s) QA CAL-01.v9, QA CAL-14.v4, QA CAL-23.v5, QA CAL-25.v6
Calibration procedure for dosimetric E-field probes

Calibration date: October 26, 2015

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 $(22 \pm 3)^\circ\text{C}$ and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	01-Apr-15 (No. 217-02128)	Mar-16
Power sensor E4412A	MY41498087	01-Apr-15 (No. 217-02128)	Mar-16
Reference 3 dB Attenuator	SN: S5054 (3e)	01-Apr-15 (No. 217-02129)	Mar-16
Reference 20 dB Attenuator	SN: S5277 (20x)	01-Apr-15 (No. 217-02132)	Mar-16
Reference 30 dB Attenuator	SN: S5129 (30b)	01-Apr-15 (No. 217-02133)	Mar-16
Reference Probe ES3DV2	SN: 3013	30-Dec-14 (No. ES3-3013_Dec14)	Dec-15
DAE4	SN: 660	14-Jan-15 (No. DAE4-660_Jan15)	Jan-16
Secondary Standards	ID	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Apr-13)	In house check: Apr-16
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-15)	In house check: Oct-16

Calibrated by:	Name Israël Elhanouq	Function Laboratory Technician	Signature
Approved by:	Katja Pokovic	Technical Manager	

Issued: October 27, 2015

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

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland



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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 0108

Glossary:

TSL	tissue simulating liquid
NORM _{x,y,z}	sensitivity in free space
ConvF	sensitivity in TSL / NORM _{x,y,z}
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C, D	modulation dependent linearization parameters
Polarization ϕ	ϕ rotation around probe axis
Polarization θ	θ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., $\theta = 0$ is normal to probe axis
Connector Angle	information used in DASY system to align probe sensor X to the robot coordinate system

Calibration Is Performed According to the Following Standards:

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-1, "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 3 GHz)", February 2005
- 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
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Methods Applied and Interpretation of Parameters:

- NORM_{x,y,z}: Assessed for E-field polarization $\theta = 0$ ($f \leq 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). NORM_{x,y,z} are only intermediate values, i.e., the uncertainties of NORM_{x,y,z} does not affect the E-field uncertainty inside TSL (see below ConvF).
- NORM(f)x,y,z = NORM_{x,y,z} * frequency_response (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of ConvF.
- DCPx,y,z: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- PAR: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- A_{x,y,z}; B_{x,y,z}; C_{x,y,z}; D_{x,y,z}; VR_{x,y,z}: A, B, C, D are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- ConvF and Boundary Effect Parameters: Assessed in flat phantom using E-field (or Temperature Transfer Standard for $f \leq 800$ MHz) and inside waveguide using analytical field distributions based on power measurements for $f > 800$ MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORM_{x,y,z} * ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- Spherical Isotropy (3D deviation from isotropy): in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- Sensor Offset: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- Connector Angle: The angle is assessed using the information gained by determining the NORMx (no uncertainty required).

EX3DV4 – SN:3708

October 26, 2015

Probe EX3DV4

SN:3708

Manufactured: July 21, 2009
Calibrated: October 26, 2015

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

EX3DV4- SN:3708

October 26, 2015

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

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu\text{V}/(\text{V}/\text{m})^{2,4}$)	0.19	0.35	0.44	$\pm 10.1 \%$
DCP (mV) ⁵	95.9	106.2	104.3	

Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB $\sqrt{\mu\text{V}}$	C	D dB	VR mV	Unc ⁶ (k=2)
0	CW	X	0.0	0.0	1.0	0.00	162.7	$\pm 3.0 \%$
		Y	0.0	0.0	1.0		188.3	
		Z	0.0	0.0	1.0		147.6	
10011-CAB	UMTS-FDD (WCDMA)	X	2.78	62.1	15.2	2.81	125.0	$\pm 0.9 \%$
		Y	3.39	68.0	18.7		107.0	
		Z	3.38	67.4	18.5		114.6	
10021-DAB	GSM-FDD (TDMA, GMSK)	X	0.84	56.0	8.3	9.39	46.5	$\pm 1.4 \%$
		Y	1.79	64.4	12.2		103.4	
		Z	1.87	64.0	12.7		81.8	
10062-CAB	IEEE 802.11a/b WiFi 5 GHz (OFDM, 6 Mbps)	X	9.51	66.2	19.8	8.68	114.5	$\pm 2.5 \%$
		Y	10.21	69.5	21.9		141.3	
		Z	9.59	67.6	20.8		103.5	

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%.

⁴ The uncertainties of Norm X,Y,Z do not affect the E^2 -field uncertainty inside TSL (see Pages 5 and 6).

⁵ Numerical linearization parameter: uncertainty not required.

⁶ Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

EX3DV4- SN:3708

October 26, 2015

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

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) ^c	Relative Permittivity ^c	Conductivity (S/m) ^c	ConvF X	ConvF Y	ConvF Z	Alpha ^d	Depth ^e (mm)	Unc (k=2)
900	41.5	0.97	9.09	9.09	9.09	0.30	1.10	± 12.0 %
1810	40.0	1.40	7.77	7.77	7.77	0.30	0.98	± 12.0 %
2000	40.0	1.40	7.78	7.78	7.78	0.31	0.95	± 12.0 %
5200	36.0	4.66	5.19	5.19	5.19	0.40	1.80	± 13.1 %
5300	35.9	4.76	4.97	4.97	4.97	0.40	1.80	± 13.1 %
5500	35.6	4.96	4.78	4.78	4.78	0.45	1.80	± 13.1 %
5600	35.5	5.07	4.46	4.46	4.46	0.50	1.80	± 13.1 %
5800	35.3	5.27	4.57	4.57	4.57	0.50	1.80	± 13.1 %

^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 ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to ± 110 MHz.

^d At frequencies below 3 GHz, the validity of tissue parameters (ϵ and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ϵ and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

^e Alpha/Depth are determined during calibration. SPEAG 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 3-8 GHz at any distance larger than half the probe tip diameter from the boundary.

EX3DV4- SN:3708

October 26, 2015

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

Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) ^c	Relative Permittivity ^f	Conductivity (S/m) ^f	ConvF X	ConvF Y	ConvF Z	Alpha ^g	Depth ^h (mm)	Unc (k=2)
900	55.0	1.05	8.91	8.91	8.91	0.28	1.05	± 12.0 %
1810	53.3	1.52	7.53	7.53	7.53	0.39	0.80	± 12.0 %
2000	53.3	1.52	7.55	7.55	7.55	0.25	1.18	± 12.0 %
5200	49.0	5.30	4.34	4.34	4.34	0.50	1.90	± 13.1 %
5300	48.9	5.42	4.18	4.18	4.18	0.50	1.90	± 13.1 %
5500	48.6	5.65	3.82	3.82	3.82	0.55	1.90	± 13.1 %
5600	48.5	5.77	3.71	3.71	3.71	0.55	1.90	± 13.1 %
5800	48.2	6.00	3.86	3.86	3.86	0.55	1.90	± 13.1 %

^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 ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to ± 110 MHz.

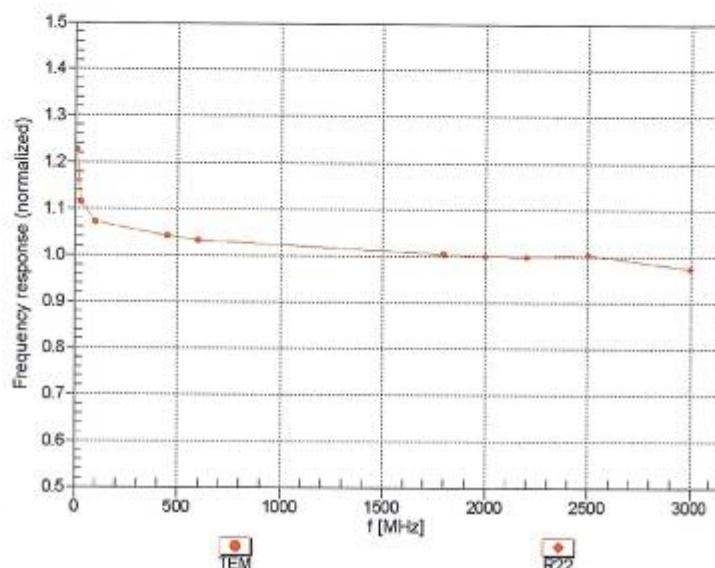
^f At frequencies below 3 GHz, the validity of tissue parameters (ϵ and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ϵ and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

^g Alpha/Depth are determined during calibration. SPEAG 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.

EX3DV4- SN:3708

October 28, 2015

Frequency Response of E-Field
(TEM-Cell:ifi110 EXX, Waveguide: R22)



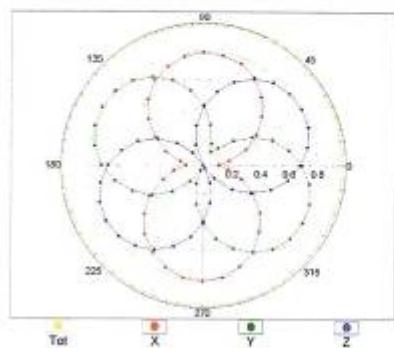
Uncertainty of Frequency Response of E-field: $\pm 6.3\%$ ($k=2$)

EX3DV4- SN:3708

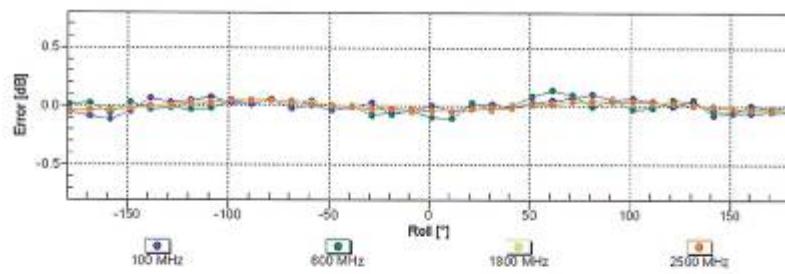
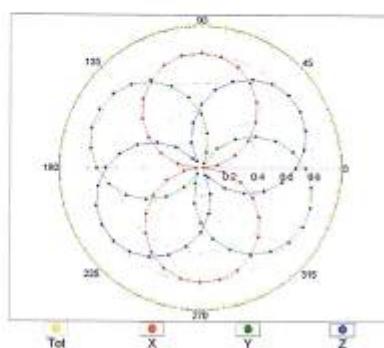
October 26, 2015

Receiving Pattern (ϕ), $\theta = 0^\circ$

f=600 MHz, TEM



f=1800 MHz, R22

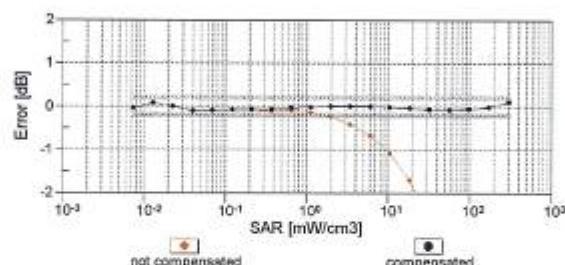
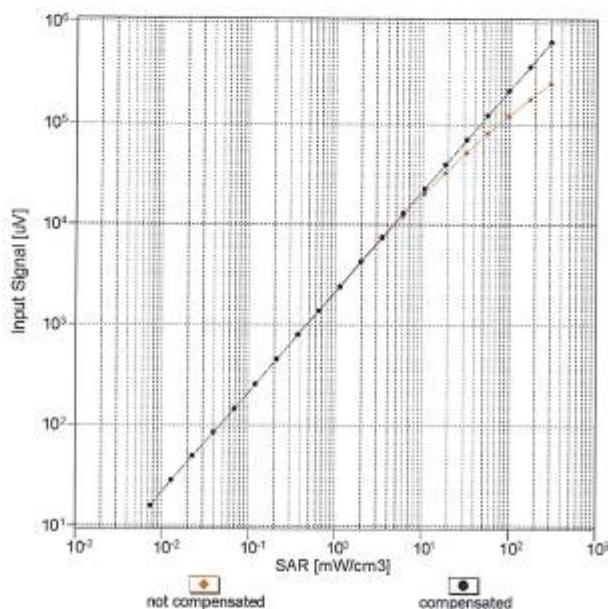


Uncertainty of Axial Isotropy Assessment: $\pm 0.5\%$ ($k=2$)

EX3DV4- SN:3708

October 26, 2015

Dynamic Range f(SAR_{head})
(TEM cell , f_{eval}= 1900 MHz)

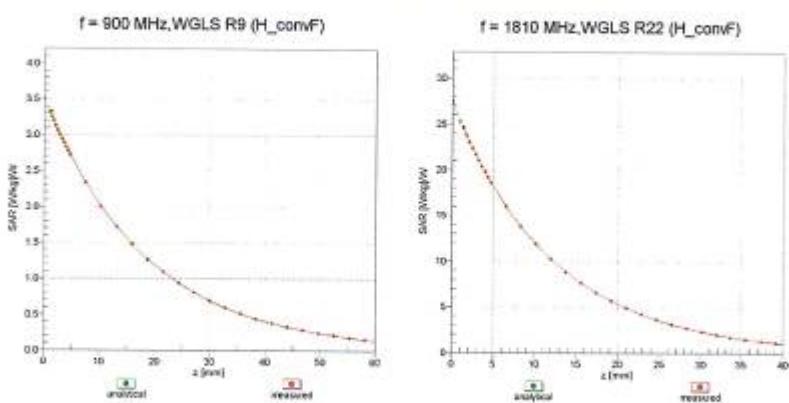


Uncertainty of Linearity Assessment: $\pm 0.6\%$ ($k=2$)

EX3DV4- SN:3708

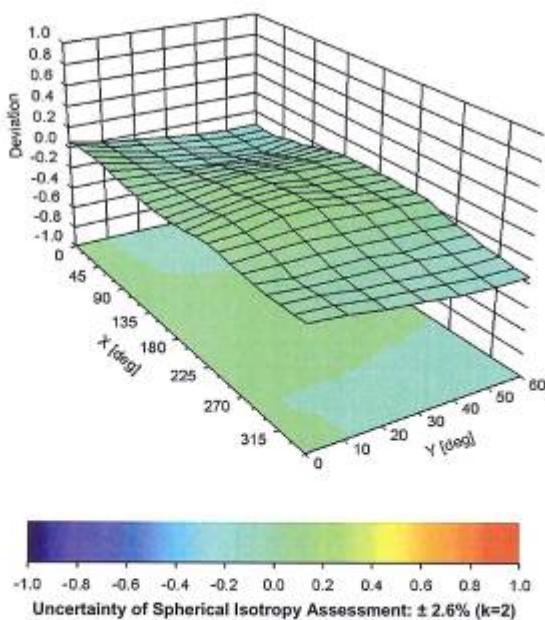
October 26, 2015

Conversion Factor Assessment



Deviation from Isotropy in Liquid

Error (ϕ, θ), $f = 900 \text{ MHz}$



EX3DV4- SN:3708

October 26, 2015

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

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	1.4
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

ES3DV3 – SN:3127

Calibration Laboratory of
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Zeughausstrasse 43, 8004 Zurich, Switzerland



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Accreditation No.: SCS 0108

Client SRTC (Vitec)

Certificate No: ES3-3127_Aug15

CALIBRATION CERTIFICATE

Object	ES3DV3 - SN:3127
Calibration procedure(s)	QA.CAL-01.v9, QA.CAL-12.v9, QA.CAL-23.v5, QA.CAL-25.v6 Calibration procedure for dosimetric E-field probes
Calibration date:	August 21, 2015

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
Power meter E4419B	GB41293874	01-Apr-15 (No. 217-02128)	Mar-16
Power sensor E4412A	MY41498007	01-Apr-15 (No. 217-02128)	Mar-16
Reference 3 dB Attenuator	SN: S5054 (3c)	01-Apr-15 (No. 217-02129)	Mar-16
Reference 20 dB Attenuator	SN: S5277 (20x)	01-Apr-15 (No. 217-02132)	Mar-16
Reference 30 dB Attenuator	SN: S5129 (30b)	01-Apr-15 (No. 217-02133)	Mar-16
Reference Probe ES3DV2	SN: 3013	30-Dec-14 (No. ES3-3013_Dect14)	Dec-15
DAE4	SN: 660	14-Jan-15 (No. DAE4-660_Jan15)	Jan-16

Secondary Standards	ID	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Apr-13)	In house check: Apr-16
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-14)	In house check: Oct-15

Calibrated by:	Name: Claudio Leubler	Function: Laboratory Technician	Signature:
Approved by:	Name: Katja Pokovic	Function: Technical Manager	Signature:

Issued: August 22, 2015

Calibration Laboratory of
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Accreditation No.: SCS 0108

Glossary:

TSL	tissue simulating liquid
NORM _{x,y,z}	sensitivity in free space
ConvF	sensitivity in TSL / NORM _{x,y,z}
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C, D	modulation dependent linearization parameters
Polarization φ	φ rotation around probe axis
Polarization θ	θ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., $\theta = 0$ is normal to probe axis
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Methods Applied and Interpretation of Parameters:

- NORM_{x,y,z}: Assessed for E-field polarization $\theta = 0$ ($f \leq 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). NORM_{x,y,z} are only intermediate values, i.e., the uncertainties of NORM_{x,y,z} does not affect the E²-field uncertainty inside TSL (see below ConvF).
- NORM(f)_{x,y,z} = NORM_{x,y,z} * frequency_response (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of ConvF.
- DCPx,y,z: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- PAR: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- Ax,y,z; Bx,y,z; Cx,y,z; Dx,y,z; VRx,y,z: A, B, C, D are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- ConvF and Boundary Effect Parameters: Assessed in flat phantom using E-field (or Temperature Transfer Standard for $f \leq 800$ MHz) and inside waveguide using analytical field distributions based on power measurements for $f > 800$ MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORM_{x,y,z} * ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- Spherical Isotropy (3D deviation from isotropy): in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- Sensor Offset: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- Connector Angle: The angle is assessed using the information gained by determining the NORM_x (no uncertainty required).

ES3DV3 – SN:3127

August 21, 2015

Probe ES3DV3

SN:3127

Manufactured: July 11, 2006
Calibrated: August 21, 2015

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

ES3DV3- SN:3127

August 21, 2015

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

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu\text{V}/(\text{V}/\text{m})^3$) ^A	1.29	1.26	1.21	$\pm 10.1 \%$
DCP (mV) ^B	101.9	102.4	102.3	

Modulation Calibration Parameters

UID	Communication System Name	X	A dB	B dB $\sqrt{\mu\text{V}}$	C	D dB	VR mV	Unc ^E (k=2)
0	CW	X	0.0	0.0	1.0	0.00	212.8	$\pm 3.5 \%$
		Y	0.0	0.0	1.0		217.6	
		Z	0.0	0.0	1.0		201.8	
10012-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps)	X	3.13	70.1	19.5	1.87	149.4	$\pm 1.2 \%$
		Y	3.22	70.8	19.8		128.9	
		Z	3.05	69.7	19.4		143.4	
10100-CAB	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	X	6.55	68.1	20.1	5.67	140.4	$\pm 1.4 \%$
		Y	6.53	68.0	20.0		143.6	
		Z	6.48	67.7	19.9		138.9	
10108-CAC	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	X	6.42	67.6	20.0	5.80	138.0	$\pm 1.4 \%$
		Y	6.42	67.5	19.9		141.5	
		Z	6.34	67.4	19.9		131.8	
10154-CAC	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	X	6.09	67.0	19.7	5.75	134.4	$\pm 1.2 \%$
		Y	6.05	66.8	19.6		132.2	
		Z	5.98	66.6	19.5		128.3	
10169-CAB	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	X	5.23	67.7	20.3	5.73	139.3	$\pm 1.4 \%$
		Y	5.17	67.5	20.1		142.3	
		Z	4.99	66.8	19.8		131.0	
10175-CAC	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	X	5.14	67.2	20.0	5.72	143.2	$\pm 1.2 \%$
		Y	5.07	67.0	19.9		135.5	
		Z	5.10	67.3	20.1		136.2	
10297-AAA	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	X	6.48	67.8	20.2	5.81	142.2	$\pm 1.4 \%$
		Y	6.41	67.5	19.9		135.3	
		Z	6.35	67.4	19.9		135.2	

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%.

^A The uncertainties of Norm X,Y,Z do not affect the E²-field uncertainty inside TSL (see Pages 5 and 6).

^B Numerical linearization parameter: uncertainty not required.

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

ES3DV3- SN:3127

August 21, 2015

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

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) ^c	Relative Permittivity ^f	Conductivity (S/m) ^g	ConvF X	ConvF Y	ConvF Z	Alpha ^h	Depth ⁱ (mm)	Unc (k=2)
450	43.5	0.87	6.50	6.50	6.50	0.19	2.30	± 13.3 %
750	41.9	0.89	6.25	6.25	6.25	0.38	1.58	± 12.0 %
900	41.5	0.97	5.97	5.97	5.97	0.45	1.57	± 12.0 %
1450	40.5	1.20	5.17	5.17	5.17	0.24	2.18	± 12.0 %
1810	40.0	1.40	4.94	4.94	4.94	0.62	1.35	± 12.0 %
2000	40.0	1.40	4.89	4.89	4.89	0.53	1.45	± 12.0 %
2450	39.2	1.80	4.35	4.35	4.35	0.50	1.71	± 12.0 %
2600	39.0	1.96	4.26	4.26	4.26	0.80	1.26	± 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 ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 160 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to ± 110 MHz.

^f At frequencies below 3 GHz, the validity of tissue parameters (ϵ and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ϵ and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

^g Alpha/Depth are determined during calibration. SPEAG 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.

ES3DV3- SN:3127

August 21, 2015

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) ^d	ConvF X	ConvF Y	ConvF Z	Alpha ^e	Depth ^f (mm)	Unc (k=2)
450	56.7	0.94	6.82	6.82	6.82	0.12	1.50	± 13.3 %
750	55.5	0.96	6.02	6.02	6.02	0.55	1.41	± 12.0 %
900	55.0	1.05	5.88	5.88	5.88	0.67	1.27	± 12.0 %
1450	54.0	1.30	5.02	5.02	5.02	0.39	1.72	± 12.0 %
1810	53.3	1.52	4.67	4.67	4.67	0.57	1.49	± 12.0 %
2000	53.3	1.52	4.66	4.66	4.66	0.41	1.82	± 12.0 %
2450	52.7	1.95	4.19	4.19	4.19	0.80	1.13	± 12.0 %
2600	52.5	2.16	4.09	4.09	4.09	0.80	0.80	± 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 ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to ± 110 MHz.

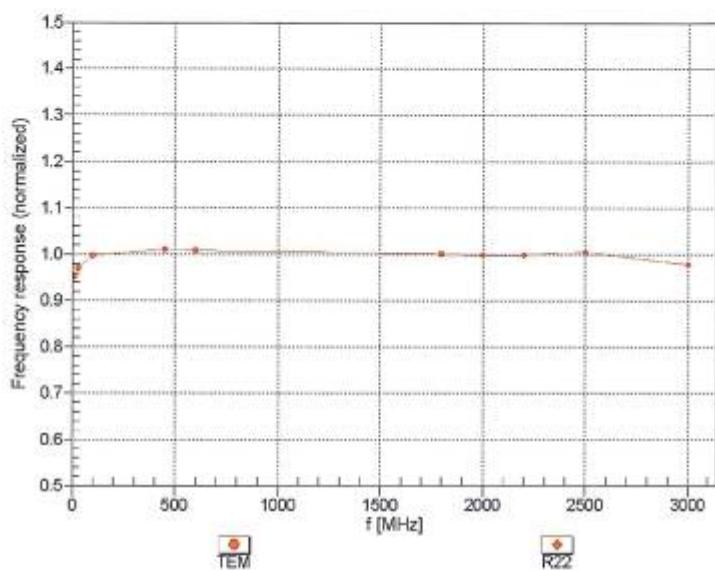
^d At frequencies below 3 GHz, the validity of tissue parameters (ϵ and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ϵ and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

^e Alpha/Depth are determined during calibration. SPEAG 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.

ES3DV3- SN:3127

August 21, 2015

Frequency Response of E-Field
(TEM-Cell:iffl110 EXX, Waveguide: R22)



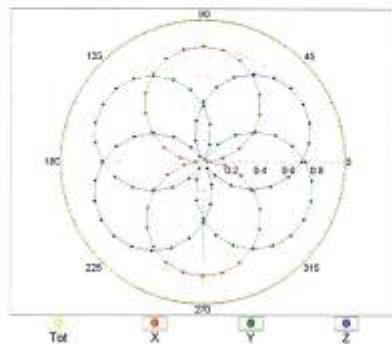
Uncertainty of Frequency Response of E-field: $\pm 6.3\%$ ($k=2$)

ES3DV3- SN:3127

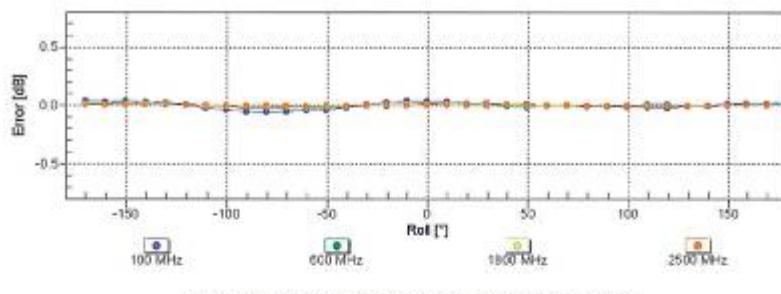
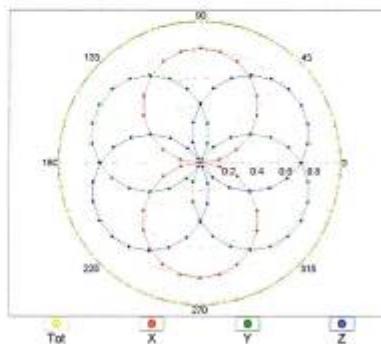
August 21, 2015

Receiving Pattern (ϕ), $\theta = 0^\circ$

f=600 MHz, TEM



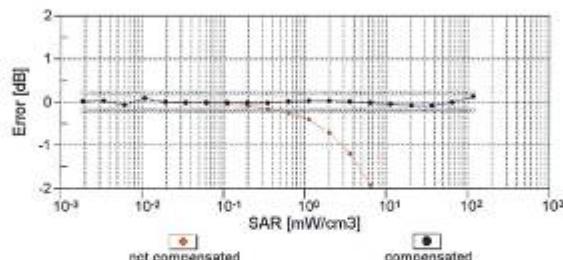
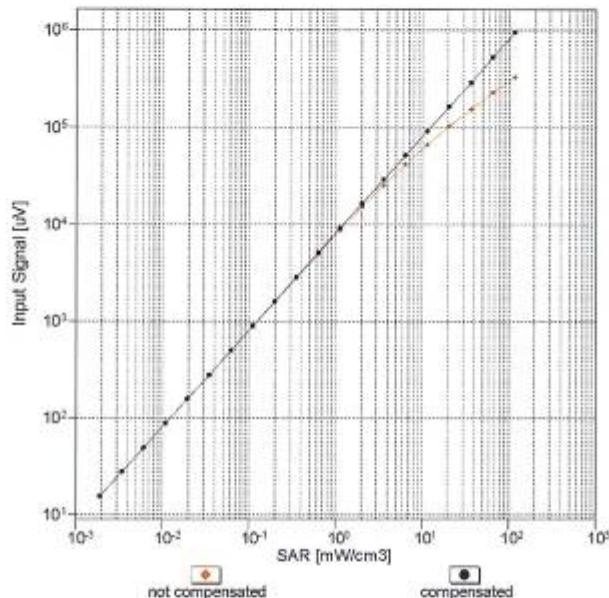
f=1800 MHz, R22



ES3DV3-SN:3127

August 21, 2015

Dynamic Range f(SAR_{head})
(TEM cell , f_{eval}= 1900 MHz)

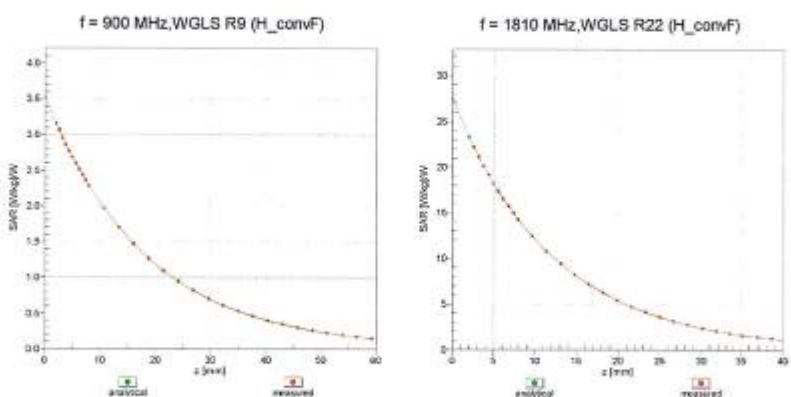


Uncertainty of Linearity Assessment: $\pm 0.6\%$ ($k=2$)

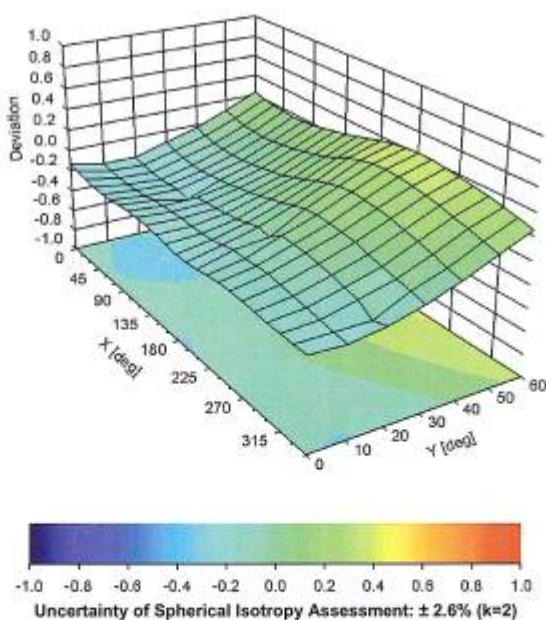
ES3DV3~ SN:3127

August 21, 2015

Conversion Factor Assessment



Deviation from Isotropy in Liquid Error (ϕ, θ), f = 900 MHz



ES3DV3- SN:3127

August 21, 2015

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

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (*)	-20.6
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

APPENDIX D: RELEVANT PAGES FROM DAE REPORT(S)

DAE4 – SN:720

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland



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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**

Client **SRTC (Vitec)**

Certificate No: **DAE4-720_Oct15**

CALIBRATION CERTIFICATE

Object **DAE4 - SD 000 D04 BM - SN: 720**

Calibration procedure(s) **QA CAL-06.v29**
Calibration procedure for the data acquisition electronics (DAE)

Calibration date: **October 29, 2015**

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	09-Sep-15 (No:17153)	Sep-16
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Auto DAE Calibration Unit	SE UWS 053 AA 1001	06-Jan-15 (in house check)	In house check: Jan-16
Calibrator Box V2.1	SE UMS 006 AA 1002	06-Jan-15 (in house check)	In house check: Jan-16

Calibrated by:	Name Dominique Steffen	Function Technician	Signature
Approved by:	Fin Bomholt	Deputy Technical Manager	

Issued: October 29, 2015

Calibration Laboratory of

Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland



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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: 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.

DC Voltage Measurement

A/D - Converter Resolution nominal

High Range: 1LSB = 6.1 μ V, full range = -100...+300 mV

Low Range: 1LSB = 61nV, full range = -1.....+3mV

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

Calibration Factors	X	Y	Z
High Range	$403.371 \pm 0.02\% (k=2)$	$404.803 \pm 0.02\% (k=2)$	$403.221 \pm 0.02\% (k=2)$
Low Range	$3.95418 \pm 1.50\% (k=2)$	$3.95453 \pm 1.50\% (k=2)$	$3.95678 \pm 1.50\% (k=2)$

Connector Angle

Connector Angle to be used in DASY system	$24.5^\circ \pm 1^\circ$
---	--------------------------

Appendix (Additional assessments outside the scope of SCS0108)

1. DC Voltage Linearity

High Range		Reading (μ V)	Difference (μ V)	Error (%)
Channel X	+ Input	200039.17	0.08	0.00
Channel X	+ Input	20007.85	2.88	0.01
Channel X	- Input	-20003.79	1.66	-0.01
Channel Y	+ Input	200038.17	1.27	0.00
Channel Y	+ Input	20005.71	0.94	0.00
Channel Y	- Input	-20005.02	0.65	-0.00
Channel Z	+ Input	200037.58	0.29	0.00
Channel Z	+ Input	20002.16	-2.60	-0.01
Channel Z	- Input	-20009.49	-3.85	0.02

Low Range		Reading (μ V)	Difference (μ V)	Error (%)
Channel X	+ Input	2000.87	-0.43	-0.02
Channel X	+ Input	201.73	0.49	0.25
Channel X	- Input	-197.98	0.71	-0.36
Channel Y	+ Input	2000.71	-0.43	-0.02
Channel Y	+ Input	200.60	-0.47	-0.23
Channel Y	- Input	-199.19	-0.20	0.10
Channel Z	+ Input	2001.53	0.36	0.02
Channel Z	+ Input	200.20	-0.80	-0.40
Channel Z	- Input	-199.10	-0.12	0.06

2. Common mode sensitivity

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

	Common mode Input Voltage (mV)	High Range		Low Range Average Reading (μ V)
		Average Reading (μ V)		
Channel X	200	-6.45		-7.56
	-200	9.03		8.09
Channel Y	200	15.19		15.81
	-200	-16.95		-16.86
Channel Z	200	-16.60		-16.82
	-200	14.86		14.92

3. Channel separation

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

	Input Voltage (mV)	Channel X (μ V)	Channel Y (μ V)	Channel Z (μ V)
Channel X	200	-	0.52	-2.99
Channel Y	200	8.70	-	0.42
Channel Z	200	5.85	6.72	-

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	16154	16284
Channel Y	16181	16307
Channel Z	16425	15796

5. Input Offset Measurement

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec
Input 10MΩ

	Average (μ V)	min. Offset (μ V)	max. Offset (μ V)	Std. Deviation (μ V)
Channel X	-0.59	-1.81	0.44	0.51
Channel Y	0.28	-0.71	1.50	0.42
Channel Z	0.28	-2.44	2.30	0.74

6. Input Offset Current

Nominal Input circuitry offset current on all channels: <25fA

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

APPENDIX E: RELEVANT PAGES FROM DIPOLE VALIDATION KIT REPORT(S)

D835V2 – SN:4d023

Calibration Laboratory of
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Zeughausstrasse 43, 8004 Zurich, Switzerland



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Accreditation No.: SCS 0108

Client **SRTC (Vitec)**

Certificate No: D835V2-4d023_Oct15

CALIBRATION CERTIFICATE

Object D835V2 - SN: 4d023

Calibration procedure(s) QA CAL-05.v9
Calibration procedure for dipole validation kits above 700 MHz

Calibration date: October 20, 2015

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
Power meter EPM-442A	GB37480704	07-Oct-15 (No. 217-02222)	Oct-16
Power sensor HP 8481A	US37292783	07-Oct-15 (No. 217-02222)	Oct-16
Power sensor HP 8481A	MY41092317	07-Oct-15 (No. 217-02223)	Oct-16
Reference 20 dB Attenuator	SN: 5058 (20k)	01-Apr-15 (No. 217-02131)	Mar-16
Type-N mismatch combination	SN: 5047.2 / 06327	01-Apr-15 (No. 217-02134)	Mar-16
Reference Probe EX3DV4	SN: 7349	30-Dec-14 (No. EX3-7349_Dect14)	Dec-15
DAE4	SN: 601	17-Aug-15 (No. DAE4-601_Aug15)	Aug-16

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator R&S SMT-06	100972	15-Jun-15 (in house check Jun-15)	In house check: Jun-18
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-15)	In house check: Oct-16

Calibrated by: Name Function Signature
Leif Klysnar Laboratory Technician

Approved by: Name Function Signature
Katja Pokovic Technical Manager

Issued: October 21, 2015

Certificate No: D835V2-4d023_Oct15

Page 1 of 8

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Accreditation No.: SCS 0108

Glossary:

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

Calibration is Performed According to the Following Standards:

- 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 3 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:

- e) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

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

Measurement Conditions

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

DASY Version	DASY5	V52.8.8
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	835 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	41.5	0.90 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	41.3 ± 6 %	0.94 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	2.39 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	9.24 W/kg ± 17.0 % (k=2)

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.55 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	6.04 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	55.2	0.97 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	53.2 ± 6 %	1.00 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	2.42 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	9.38 W/kg ± 17.0 % (k=2)

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.57 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	6.13 W/kg ± 16.5 % (k=2)

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	53.3 Ω - 3.8 jΩ
Return Loss	- 26.2 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	48.6 Ω - 5.4 jΩ
Return Loss	- 24.9 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.389 ns
----------------------------------	----------

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

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

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

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	December 17, 2004

DASY5 Validation Report for Head TSL

Date: 20.10.2015

Test Laboratory: SPEAG, Zurich, Switzerland

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

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

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.94 \text{ S/m}$; $\epsilon_r = 41.3$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(9.77, 9.77, 9.77); Calibrated: 30.12.2014;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 17.08.2015
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Dipole Calibration for Head Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:

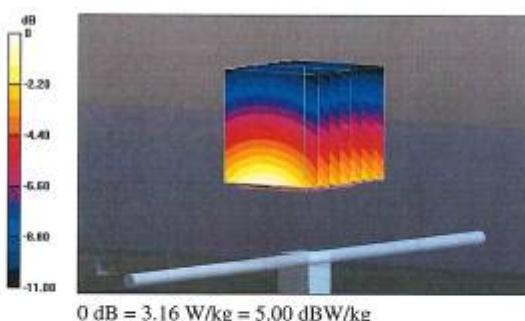
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 61.11 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 3.57 W/kg

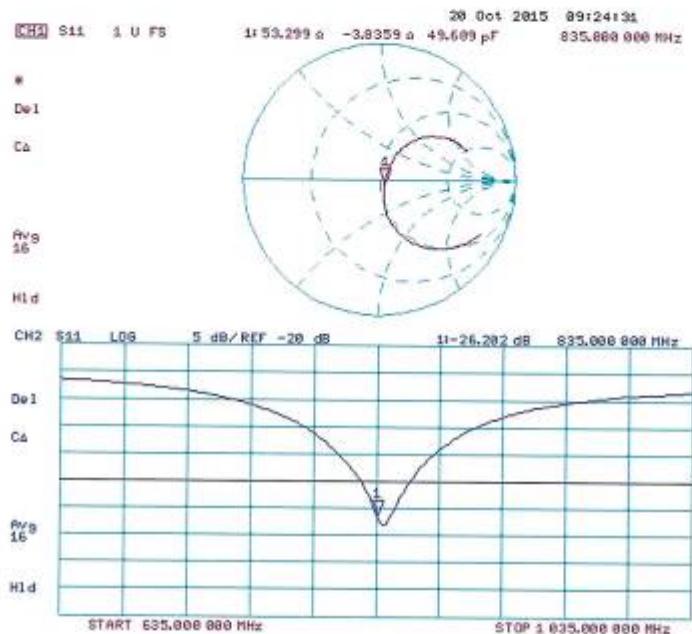
SAR(1 g) = 2.39 W/kg; SAR(10 g) = 1.55 W/kg

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



0 dB = 3.16 W/kg = 5.00 dBW/kg

Impedance Measurement Plot for Head TSL



Certificate No: D835V2-4d023_Oct15

Page 6 of 8

DASY5 Validation Report for Body TSL

Date: 19.10.2015

Test Laboratory: SPEAG, Zurich, Switzerland

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

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

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 1 \text{ S/m}$; $\epsilon_r = 53.2$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(9.72, 9.72, 9.72); Calibrated: 30.12.2014;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 17.08.2015
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Dipole Calibration for Body Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:

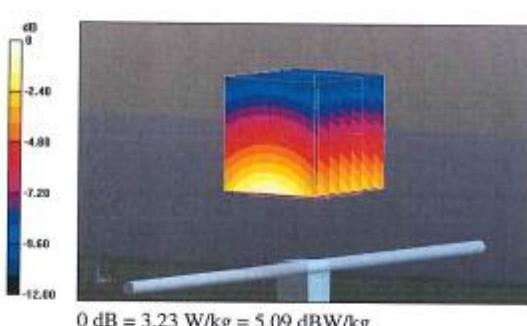
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 60.02 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 3.65 W/kg

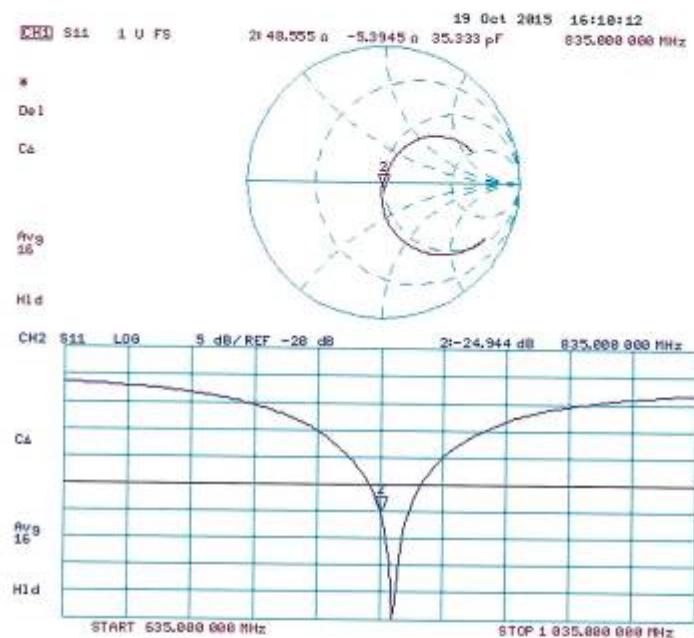
SAR(1 g) = 2.42 W/kg; SAR(10 g) = 1.57 W/kg

Maximum value of SAR (measured) = 3.23 W/kg



0 dB = 3.23 W/kg = 5.09 dBW/kg

Impedance Measurement Plot for Body TSL



Certificate No: D835V2-4d023_Oct15

Page 8 of 8

D1900V2 – SN:5d113

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Accreditation No.: SCS 0108

Client **SRTC (Vitec)**

Certificate No: D1900V2-5d113_Oct15

CALIBRATION CERTIFICATE

Object	D1900V2 - SN: 5d113
Calibration procedure(s)	QA CAL-05.v9 Calibration procedure for dipole validation kits above 700 MHz
Calibration date:	October 19, 2015

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
Power meter EPM-442A	GB37480704	07-Oct-15 (No. 217-02222)	Oct-16
Power sensor HP 8481A	US37292783	07-Oct-15 (No. 217-02222)	Oct-16
Power sensor HP 8481A	MY41092317	07-Oct-15 (No. 217-02223)	Oct-16
Reference 20 dB Attenuator	SN: 5058 (20k)	01-Apr-15 (No. 217-02131)	Mar-16
Type-N mismatch combination	SN: 5047.2 / 06327	01-Apr-15 (No. 217-02134)	Mar-16
Reference Probe EX3DV4	SN: 7349	30-Dec-14 (No. EX3-7349_Dec14)	Dec-15
DAE4	SN: 601	17-Aug-15 (No. DAE4-601_Aug15)	Aug-16

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator R&S SMT-06	100972	15-Jun-15 (in house check Jun-15)	In house check: Jun-18
Network Analyzer HP 8753E	US37390585 54206	18-Oct-01 (in house check Oct-15)	In house check: Oct-16

Calibrated by:	Name Israe Elnacouq	Function Laboratory Technician	Signature
Approved by:	Katja Polovic	Technical Manager	

Issued: October 19, 2015

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Certificate No: D1900V2-5d113_Oct15

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Accreditation No.: SCS 0108

Glossary:

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

Calibration is Performed According to the Following Standards:

- 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 3 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:

- e) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

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

Measurement Conditions

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

DASY Version	DASYS	V52.8.8
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.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	40.0	1.40 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	38.9 ± 6 %	1.38 mho/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	9.82 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	39.4 W/kg ± 17.0 % (k=2)
SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	5.13 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	20.5 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	53.3	1.52 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	52.3 ± 6 %	1.51 mho/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	9.89 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	39.5 W/kg ± 17.0 % (k=2)
SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.21 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	20.8 W/kg ± 16.5 % (k=2)

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	52.7 Ω + 8.3 $j\Omega$
Return Loss	-21.4 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	47.7 Ω + 8.3 $j\Omega$
Return Loss	-21.1 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.200 ns
----------------------------------	----------

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

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

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

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	July 24, 2009

DASY5 Validation Report for Head TSL

Date: 19.10.2015

Test Laboratory: SPEAG, Zurich, Switzerland

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

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

Medium parameters used: $f = 1900 \text{ MHz}$; $\sigma = 1.38 \text{ S/m}$; $\epsilon_r = 38.9$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(8.14, 8.14, 8.14); Calibrated: 30.12.2014;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 17.08.2015
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

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

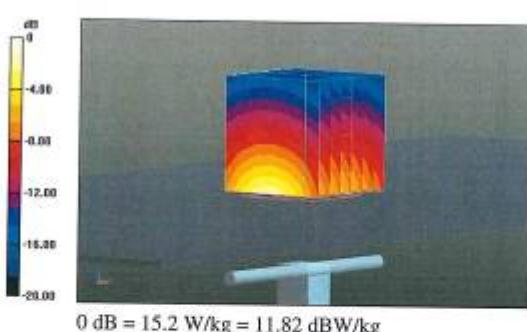
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 108.3 V/m; Power Drift = 0.01 dB

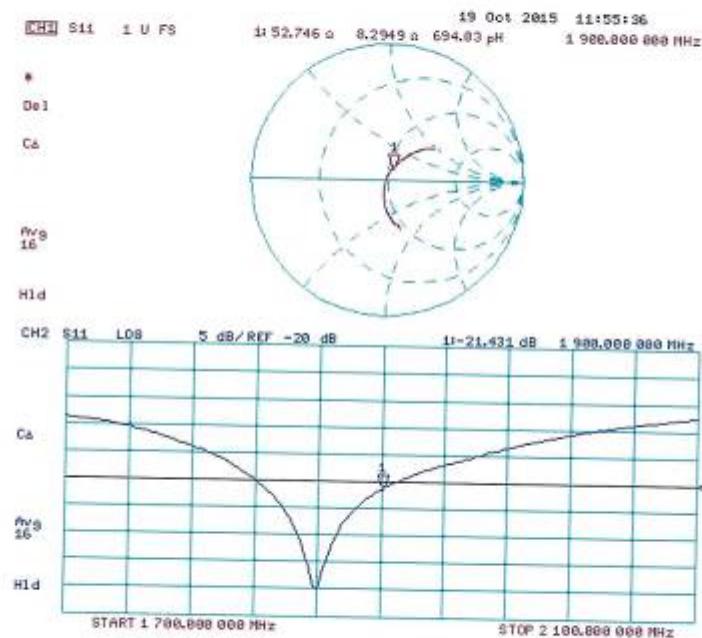
Peak SAR (extrapolated) = 18.5 W/kg

$SAR(1 \text{ g}) = 9.82 \text{ W/kg}$; $SAR(10 \text{ g}) = 5.13 \text{ W/kg}$

Maximum value of SAR (measured) = 15.2 W/kg



Impedance Measurement Plot for Head TSL



Certificate No: D1900V2-5d113_Oct15

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DASY5 Validation Report for Body TSL

Date: 19.10.2015

Test Laboratory: SPEAG, Zurich, Switzerland

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

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

Medium parameters used: $f = 1900 \text{ MHz}$; $\sigma = 1.51 \text{ S/m}$; $\epsilon_r = 52.3$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(7.9, 7.9, 7.9); Calibrated: 30.12.2014;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 17.08.2015
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

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

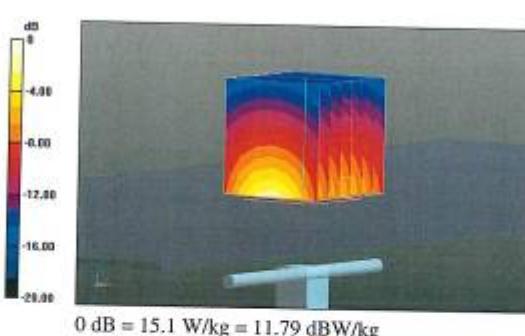
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 104.0 V/m; Power Drift = -0.02 dB

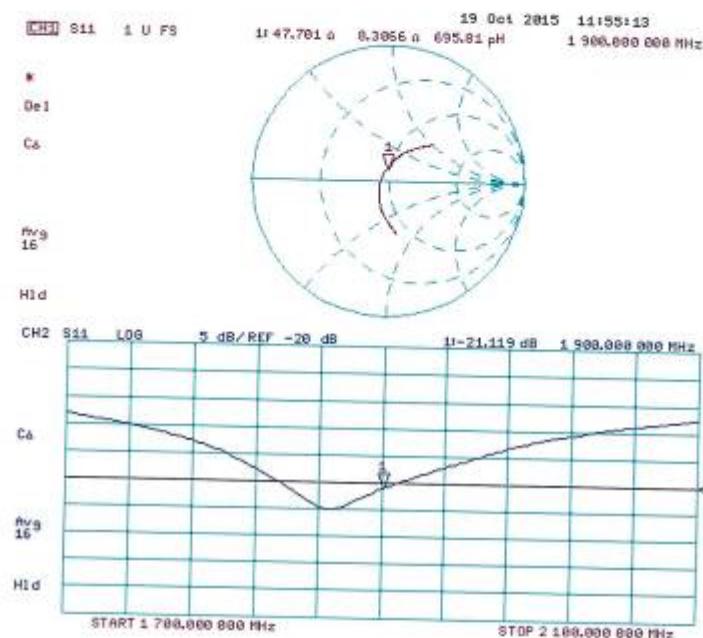
Peak SAR (extrapolated) = 17.7 W/kg

SAR(1 g) = 9.89 W/kg; SAR(10 g) = 5.21 W/kg

Maximum value of SAR (measured) = 15.1 W/kg



Impedance Measurement Plot for Body TSL



Certificate No: D1900V2-5d113_Oct15

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D2450V2 – SN:738

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Accreditation No.: **SCS 0108**Client **SRTC (Vitec)**Certificate No: **D2450V2-738_Oct15****CALIBRATION CERTIFICATE**

Object D2450V2 - SN: 738

Calibration procedure(s) QA CAL-05.v9
Calibration procedure for dipole validation kits above 700 MHz

Calibration date: October 21, 2015

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
Power meter EPM-442A	GB37480704	07-Oct-15 (No. 217-02222)	Oct-16
Power sensor HP 8481A	US37282783	07-Oct-15 (No. 217-02222)	Oct-16
Power sensor HP 8481A	MY41092317	07-Oct-15 (No. 217-02223)	Oct-16
Reference 20 dB Attenuator	SN: 5058 (20k)	01-Apr-15 (No. 217-02131)	Mar-16
Type-N mismatch combination	SN: 5047.2 / 06327	01-Apr-15 (No. 217-02134)	Mar-16
Reference Probe EX3DV4	SN: 7349	30-Dec-14 (No. EX3-7349_Dec14)	Dec-15
DAE4	SN: 601	17-Aug-15 (No. DAE4-601_Aug15)	Aug-16
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator R&S SMT-06	100972	15-Jun-15 (in house check Jun-15)	In house check: Jun-18
Network Analyzer HP 8753E	US37390585 54206	18-Oct-01 (in house check Oct-15)	In house check: Oct-16

Calibrated by:	Name Leif Klynsner	Function Laboratory Technician	Signature
Approved by:	Katja Pokovic	Technical Manager	

Issued: October 22, 2015

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Certificate No: D2450V2-738_Oct15

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Accreditation No.: SCS 0108

Glossary:

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

Calibration is Performed According to the Following Standards:

- 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 3 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:

- e) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

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

Measurement Conditions

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

DASY Version	DASY5	V52.8.8
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2450 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	39.2	1.80 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	38.0 ± 6 %	1.84 mho/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	13.4 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	52.7 W/kg ± 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.17 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	24.4 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	52.7	1.95 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	52.8 ± 6 %	1.99 mho/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	13.1 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	51.9 W/kg ± 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	6.14 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	24.4 W/kg ± 16.5 % (k=2)

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	54.3 Ω + 5.7 $j\Omega$
Return Loss	- 23.3 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	49.7 Ω + 7.1 $j\Omega$
Return Loss	- 23.0 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.157 ns
----------------------------------	----------

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

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

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

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	August 26, 2003

DASY5 Validation Report for Head TSL

Date: 21.10.2015

Test Laboratory: SPEAG, Zurich, Switzerland

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

Communication System: UID 0 - CW; Frequency: 2450 MHz

Medium parameters used: $f = 2450 \text{ MHz}$; $\sigma = 1.84 \text{ S/m}$; $\epsilon_r = 38$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(7.67, 7.67, 7.67); Calibrated: 30.12.2014;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 17.08.2015
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

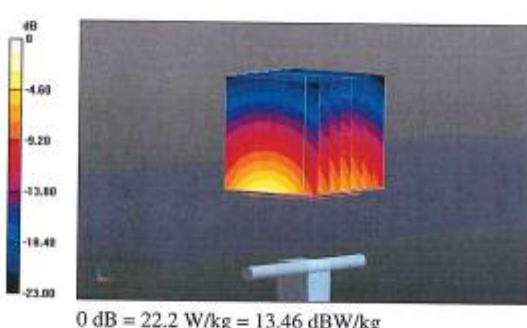
Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 114.5 V/m; Power Drift = 0.04 dB

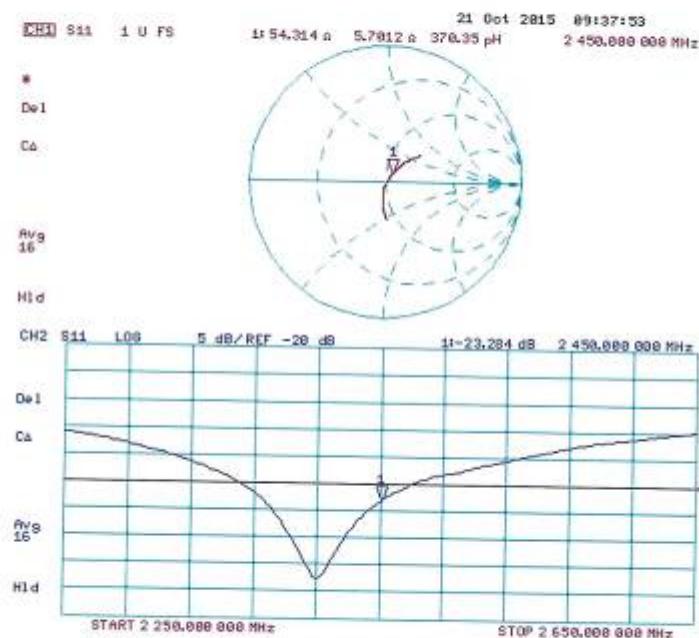
Peak SAR (extrapolated) = 27.8 W/kg

SAR(1 g) = 13.4 W/kg; SAR(10 g) = 6.17 W/kg

Maximum value of SAR (measured) = 22.2 W/kg



Impedance Measurement Plot for Head TSL



Certificate No: D2450V2-738_Oct15

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DASY5 Validation Report for Body TSL

Date: 21.10.2015

Test Laboratory: SPEAG, Zurich, Switzerland

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

Communication System: UID 0 - CW; Frequency: 2450 MHz

Medium parameters used: $f = 2450 \text{ MHz}$; $\sigma = 1.99 \text{ S/m}$; $\epsilon_r = 52.8$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(7.53, 7.53, 7.53); Calibrated: 30.12.2014;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 17.08.2015
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY5 52.8.8(1222); SEMCAD X 14.6.10(7331)

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

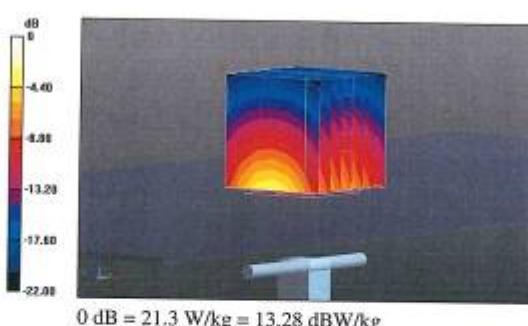
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 108.5 V/m; Power Drift = 0.03 dB

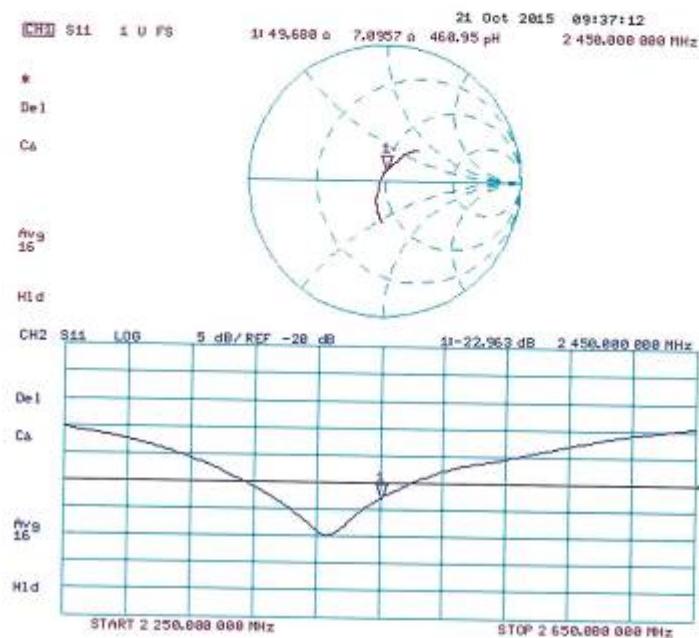
Peak SAR (extrapolated) = 26.0 W/kg

SAR(1 g) = 13.1 W/kg; SAR(10 g) = 6.14 W/kg

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



Impedance Measurement Plot for Body TSL



APPENDIX F: TEST SETUP

Appendix Test Setup

--- End of report---