
TEST REPORT FOR SAR TESTING

Report No.: SRTC2018-9004(F)-18062501(H)

Product Name: Mobile Phone

Product Model: Hisense T965

Applicant: Hisense International Co., Ltd.

Manufacturer: Hisense Communications Co., Ltd.

Specification: FCC Part 2.1093

IEEE Std 1528-2013

FCC RF Exposure KDB Procedures

FCC ID: 2ADOBT965

The State Radio_monitoring_center Testing Center (SRTC)

15th Building, No.30 Shixing Street, Shijingshan District, Beijing, P.R.China

Tel: 86-10-57996183 Fax: 86-10-57996388

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1. GENERAL INFORMATION

1.1 Notes of the test report

The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written permission of The State Radio_monitoring_center Testing Center (SRTC).

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)
Address:	15th Building, No.30 Shixing Street, Shijingshan District, Beijing P.R.China
City:	Beijing
Country or Region:	P.R.China
Contacted person:	Liu Jia
Tel:	+86 10 57996183
Fax:	+86 10 57996388
Email:	liujiaf@srtc.org.cn

1.3 Applicant's details

Company:	Hisense International Co., Ltd.
Address:	Floor 22, Hisense Tower, 17 Donghai Xi Road, Qingdao, 266071, China
City:	Qingdao
Country or Region:	China
Contacted person:	Geng Ruifeng
Tel:	+86-532-80877742
Fax:	---
Email:	gengruifeng@hisense.com

1.4 Manufacturer's details

Company:	Hisense Communications Co., Ltd.
Address:	218 Qianwangang Road, Qingdao Economic & Technological Development Zone, Qingdao, China
City:	Qingdao
Country or Region:	China
Contacted person:	Dai Qingtao
Tel:	+86-532-55753749
Fax:	---
Email:	daiqingtao@hisense.com

1.5 Test Environment

Date of Receipt of test sample at SRTC:	2018.04.23
Testing Start Date:	2018.04.24
Testing End Date:	2018.07.20

Environmental Data:	Temperature (°C)	Humidity (%)
Ambient	21.0-22.0	35.0-45.0

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: FDD2/5 ☐ LTE Band ☒ Bluetooth Band: 2.4GHz ☒ Wi-Fi Band: 2.4GHz
Mode	GSM ☒ Voice (GMSK) ☒ GPRS (GMSK) ☒ EGPRS (GMSK) WCDMA ☒ UMTS Rel. 99 (Voice & Data) ☒ HSDPA (Rel. 5) ☒ HSUPA (Rel. 6) ☒ HSPA+ (Rel.) ☒ DC-HSDPA (Rel.) Wi-Fi (802.11a/b/g/n) ☐ 802.11a ☒ 802.11b ☒ 802.11g ☒ 802.11n (20MHz) ☐ 802.11n (40MHz) ☐ 802.11ac (20MHz) ☐ 802.11ac (40MHz) ☐ 802.11ac (80MHz) Bluetooth ☒ BR(GFSK) ☒ EDR($\pi/4$ DQPSK , 8-DPSK) ☐ BLE(GFSK) LTE ☐ QPSK ☐ 16QAM ☐ 64QAM
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	☐ Class 8 - One Up ☐ Class 10 - Two Up ☒ Class 12 - Four Up
Mobile Phone Capability	☐ Class A - Mobile phones can be connected to both GPRS and GSM services simultaneously. ☒ Class B - Mobile phones can be attached to both GPRS and GSM services, using one service at a time. ☐ 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 for **original product**:

State of sample	Normal
Headset	B1G513A07/Shenzhen Jinchuangju Electronic Technology Co.,Ltd.
Batteries	LIW38210A/Guangdong Teamgiant New Energy Tech Co.,LTD
H/W Version	YK737_V3.0
S/W Version	Hisense U965 10 S03 20180602
IMEI	86769031290622
Notes	As the information described above, we use test sample offered by the customer. The relevant tests have been performed in order to verify in which combination case the EUT would have the worst features.

The following support equipment was used to exercise the DUT during testing for **variant product**:

State of sample	Normal
Headset	B1G513A07/Shenzhen Jinchuangju Electronic Technology Co.,Ltd.
Batteries	LIW38210A/Guangdong Teamgiant New Energy Tech Co.,LTD
H/W Version	YK737_V3.0
S/W Version	Hisense T965 40 S01 20180529
IMEI	First supply:861854039076821 Second supply:861854039076763
Notes	There are two times supply of the DUT, and we test the worst point of each band for these two types.

3. REFERENCE SPECIFICATION

Specification	Version	Title
Part 2.1093	2018	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 GUIDANCE FOR IEEE 802.11 (Wi-Fi) TRANSMITTERS
KDB 865664 D01	v01r04	SAR Measurement from 100 MHz to 6 GHz
KDB 865664 D02	v01r02	RF Exposure Reporting
KDB 941225 D05	v02r05	SAR for LTE Devices

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 middle channel, and few of them were also performed on lowest 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-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 Stimulant Recipes

The following tissue stimulants were used for Head and Body test:

Name	Broadband tissue-equivalent liquid
Type for Head	HBBL600-6000V6 Head Simulating Liquid
Type for Body	MBBL600-6000V6 Body Simulating Liquid

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 Dasy5 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. There are 15 mm × 15 mm (equal or less than 2GHz), 12 mm × 12 mm (from 2GHz~3GHz) and 10mm x 10mm (above 5GHz) 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 x 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

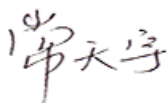
The maximum reported SAR values for Head configuration and Body Worn configuration are given as follows. The device conforms to the requirements of the standard(s) when the maximum reported SAR value is less than or equal to the limit.

Note: The test result of variation product (first & second supply) is better than the original test data. So the original test data retain and adopted as the final test result

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	0.278	0.278	0.744	1.60	pass
	GSM 1900	0.151				
	WCDMA Band 2	0.235				
	WCDMA Band 5	0.188				
	WLAN 2.4GHz Band	0.049				
Body (10mm Gap)	GSM 850	0.744	0.744	0.744	1.60	pass
	GSM 1900	0.576				
	WCDMA Band 2	0.449				
	WCDMA Band 5	0.461				
	WLAN 2.4GHz Band	0.135				

Simultaneous Transmission Summary

Exposure Position	Frequency Band	1g-SAR Result(W/kg)	Highest 1g-SAR Result(W/kg)		Limit (W/kg) /1g	Result
Head	GSM & Wi-Fi	0.323	0.344	0.877	1.60	pass
	WCDMA & Wi-Fi	0.284				
	GSM & Bluetooth	0.344				
	WCDMA & Bluetooth	0.301				
Body (10mm Gap)	GSM & Wi-Fi	0.877	0.877	0.877	1.60	pass
	WCDMA & Wi-Fi	0.594				
	GSM & Bluetooth	0.777				
	WCDMA & Bluetooth	0.494				

This Test Report Is Issued by: Mr. Peng Zhen 	Checked by: Mr. Li Bin 
Tested by: Mr. Chang Tianyu 	Issued date: 20180801

6 TEST RESULT

6.1 Manufacturing Tolerance

GSM (Original product)

GSM 850			
Channel	Channel 128	Channel 189	Channel 251
Tolerance (dBm)	29.0~33.0	29.0~33.0	29.0~33.0
GSM 1900			
Channel	Channel 512	Channel 661	Channel 810
Tolerance (dBm)	26.0~30.0	26.0~30.0	26.0~30.0

GSM 850 GPRS				
Channel		128	189	251
1 Txslot	Tolerance (dBm)	29.0~33.0	29.0~33.0	29.0~33.0
2 Txslot	Tolerance (dBm)	28.0~32.0	28.0~32.0	28.0~32.0
3 Txslot	Tolerance (dBm)	26.0~30.0	26.0~30.0	26.0~30.0
4 Txslot	Tolerance (dBm)	25.0~29.0	25.0~29.0	25.0~29.0
GSM 850 EGPRS (GMSK)				
Channel		128	189	251
1 Txslot	Tolerance (dBm)	29.0~33.0	29.0~33.0	29.0~33.0
2 Txslot	Tolerance (dBm)	28.5~32.5	28.5~32.5	28.5~32.5
3 Txslot	Tolerance (dBm)	27.0~31.0	27.0~31.0	27.0~31.0
4 Txslot	Tolerance (dBm)	26.0~30.0	26.0~30.0	26.0~30.0

GSM 1900 GPRS				
Channel		512	661	810
1 Txslot	Tolerance (dBm)	26.0~30.0	26.0~30.0	26.0~30.0
2 Txslot	Tolerance (dBm)	25.0~29.0	25.0~29.0	25.0~29.0
3 Txslot	Tolerance (dBm)	24.0~28.0	24.0~28.0	24.0~28.0
4 Txslot	Tolerance (dBm)	23.0~27.0	23.0~27.0	23.0~27.0
GSM 1900 EGPRS (GMSK)				
Channel		512	661	810
1 Txslot	Tolerance (dBm)	26.0~30.0	26.0~30.0	26.0~30.0
2 Txslot	Tolerance (dBm)	25.5~29.5	25.5~29.5	25.5~29.5
3 Txslot	Tolerance (dBm)	24.0~28.0	24.0~28.0	24.0~28.0
4 Txslot	Tolerance (dBm)	23.0~27.0	23.0~27.0	23.0~27.0

GSM (Variant product)

GSM 850			
Channel	Channel 128	Channel 189	Channel 251
Tolerance (dBm)	29.0~33.0	29.0~33.0	29.0~33.0
GSM 1900			
Channel	Channel 512	Channel 661	Channel 810
Tolerance (dBm)	26.5~30.5	26.5~30.5	26.5~30.5

GSM 850 GPRS				
Channel		128	189	251
1 Txslot	Tolerance (dBm)	29.0~33.0	29.0~33.0	29.0~33.0
2 Txslot	Tolerance (dBm)	26.5~30.5	26.5~30.5	26.5~30.5
3 Txslot	Tolerance (dBm)	25.0~29.0	25.0~29.0	25.0~29.0
4 Txslot	Tolerance (dBm)	24.0~28.0	24.0~28.0	24.0~28.0
GSM 850 EGPRS (GMSK)				
Channel		128	189	251
1 Txslot	Tolerance (dBm)	29.0~33.0	29.0~33.0	29.0~33.0
2 Txslot	Tolerance (dBm)	26.5~30.5	26.5~30.5	26.5~30.5
3 Txslot	Tolerance (dBm)	25.5~29.5	25.5~29.5	25.5~29.5
4 Txslot	Tolerance (dBm)	24.0~28.0	24.0~28.0	24.0~28.0

GSM 1900 GPRS				
Channel		512	661	810
1 Txslot	Tolerance (dBm)	26.5~30.5	26.5~30.5	26.5~30.5
2 Txslot	Tolerance (dBm)	25.0~29.0	25.0~29.0	25.0~29.0
3 Txslot	Tolerance (dBm)	23.0~27.0	23.0~27.0	23.0~27.0
4 Txslot	Tolerance (dBm)	22.0~26.0	22.0~26.0	22.0~26.0
GSM 1900 EGPRS (GMSK)				
Channel		512	661	810
1 Txslot	Tolerance (dBm)	26.5~30.5	26.5~30.5	26.5~30.5
2 Txslot	Tolerance (dBm)	25.0~29.0	25.0~29.0	25.0~29.0
3 Txslot	Tolerance (dBm)	23.0~27.0	23.0~27.0	23.0~27.0
4 Txslot	Tolerance (dBm)	22.0~26.0	22.0~26.0	22.0~26.0

WCDMA (Both original product & variant product)

WCDMA Band2			
Channel	9262	9400	9538
Tolerance (dBm)	19.0~23.0	19.0~23.0	19.0~23.0
WCDMA Band5			
Channel	4132	4183	4233
Tolerance (dBm)	19.0~23.0	19.0~23.0	19.0~23.0

HSDPA Band2				
Channel		9262	9400	9538
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		4132	4183	4233
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		9262	9400	9538
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
Sub test 5	Tolerance (dBm)	18.0~22.0	18.0~22.0	18.0~22.0

HSUPA Band5				
Channel		4132	4183	4233
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
Sub test 5	Tolerance (dBm)	18.0~22.0	18.0~22.0	18.0~22.0

Bluetooth (Both original product & variant product)

GFSK			
Channel	0	39	78
Tolerance (dBm)	-2.0~2.0	-2.0~2.0	-2.0~2.0
$\pi/4$ DQPSK			
Channel	0	39	78
Tolerance (dBm)	-4.5~-0.5	-4.5~-0.5	-4.5~-0.5
8DPSK			
Channel	0	39	78
Tolerance (dBm)	-4.5~-0.5	-4.5~-0.5	-4.5~-0.5

Wi-Fi (2.4GHz) (Both original product & variant product)

802.11b			
Channel	1	6	11
Tolerance (dBm)	12.5~16.5	12.5~16.5	12.5~16.5
802.11g			
Channel	1	6	11
Tolerance (dBm)	11.0~15.0	11.0~15.0	11.0~15.0
802.11n HT20			
Channel	1	6	11
Tolerance (dBm)	11.0~15.0	11.0~15.0	11.0~15.0

6.2 GSM Measurement result

GSM Measured Power (Original product)

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)	32.77	32.86	32.78	29.74	29.82	29.73

GPRS Measured Power (Original product)

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)	32.75	32.88	32.77	29.84	29.88	29.83
3Downlink2uplinkPower(dBm)	31.72	31.84	31.73	28.67	28.69	28.75
2Downlink3uplinkPower(dBm)	29.79	29.75	29.54	26.68	26.73	26.57
1Downlink4uplinkPower(dBm)	28.48	28.57	28.36	25.32	25.56	25.36

GPRS Averaged Power (Original product)

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)	23.72	23.85	23.74	20.81	20.85	20.80
3Downlink2uplinkPower(dBm)	25.70	25.82	25.71	22.65	22.67	22.73
2Downlink3uplinkPower(dBm)	25.53	25.49	25.28	22.42	22.47	22.31
1Downlink4uplinkPower(dBm)	25.47	25.56	25.35	22.31	22.55	22.35

GSM Measured Power(Variant product)

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)	32.67	32.65	32.63	30.22	30.09	30.08

GPRS Measured Power(Variant product)

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)	32.69	32.68	32.64	30.22	30.14	30.02
3Downlink2uplinkPower(dBm)	30.42	30.37	30.31	28.71	28.68	28.59
2Downlink3uplinkPower(dBm)	28.39	28.30	28.28	26.71	26.74	26.75
1Downlink4uplinkPower(dBm)	27.25	27.16	27.13	25.58	25.57	25.44

GPRS Averaged Power(Variant product)

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)	23.66	23.65	23.61	21.19	21.11	20.99
3Downlink2uplinkPower(dBm)	24.40	24.35	24.29	22.69	22.66	22.57
2Downlink3uplinkPower(dBm)	24.13	24.04	24.02	22.45	22.48	22.49
1Downlink4uplinkPower(dBm)	24.24	24.15	24.12	22.57	22.56	22.43

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 **2Txslots** (3Downlink2uplink) for GPRS.

Note: We notice that both original product and the variant product have maximum average power with 2Txslots (3Downlink2uplink) for GPRS, But the conducted power of Variant product(the power of first supply and second supply are similar to each other) are less than conducted power of original product, So we use new conducted power and new tune-up to calculate the Reported SAR only for GSM850/1900 .

EGPRS Measured Power (Original product)

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)	32.86	32.87	32.92	29.78	29.80	29.76
	---	---	---	---	---	---
3Downlink2uplinkPower(dBm)	32.00	31.87	31.74	29.08	28.68	28.75
	---	---	---	---	---	---
2Downlink3uplinkPower(dBm)	30.55	30.49	30.43	27.69	27.54	27.58
	---	---	---	---	---	---
1Downlink4uplinkPower(dBm)	29.36	29.20	29.13	26.32	26.21	26.36
	---	---	---	---	---	---

EGPRS Averaged Power (Original product)

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)	23.83	23.84	23.89	20.75	20.77	20.73
	---	---	---	---	---	---
3Downlink2uplinkPower(dBm)	25.98	25.85	25.72	23.06	22.66	22.73
	---	---	---	---	---	---
2Downlink3uplinkPower(dBm)	26.29	26.23	26.17	23.43	23.28	23.32
	---	---	---	---	---	---
1Downlink4uplinkPower(dBm)	26.35	26.19	26.12	23.31	23.20	23.35
	---	---	---	---	---	---

EGPRS Measured Power(Variant product)

Mode	EGPRS850 (GMSK)			EGPRS1900 (GMSK)		
Channel	128	189	251	512	661	810
Frequency(MHz)	824.2	836.4	848.8	1850.2	1880.0	1909.8
4Downlink1uplinkPower(dBm)	32.55	32.54	32.48	30.29	30.22	30.07
3Downlink2uplinkPower(dBm)	30.44	30.41	30.38	28.6	28.65	28.49
2Downlink3uplinkPower(dBm)	29.15	29.12	29.08	26.9	26.89	26.84
1Downlink4uplinkPower(dBm)	27.19	27.18	27.15	25.54	25.53	25.38

EGPRS Averaged Power (Variant product)

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)	23.52	23.51	23.45	21.26	21.19	21.04
3Downlink2uplinkPower(dBm)	24.42	24.39	24.36	22.58	22.63	22.47
2Downlink3uplinkPower(dBm)	24.89	24.86	24.82	22.64	22.63	22.58
1Downlink4uplinkPower(dBm)	24.18	24.17	24.14	22.53	22.52	22.37

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 **3Txslots** (2Downlink3uplink) for EGPRS (GMSK).

Note: We notice that both original product and the variant product have maximum average power with 3Txslots (2Downlink3uplink) for EGPRS, But the conducted power of Variant product (the power of first supply and second supply are similar to each other) are less than conducted power of original product, So we use new conducted power and new tune-up to calculate the Reported SAR only for GSM850/1900.

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		
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)	22.62	22.72	22.66	22.72	22.73	22.72
RB test mode1+12.2kRMC(dBm)	22.68	22.74	22.69	22.78	22.83	22.79
RB test mode1+144kRMC(dBm)	22.62	22.69	22.65	22.75	22.82	22.80
RB test mode1+384kRMC(dBm)	22.58	22.64	22.59	22.79	22.82	22.73
AMR Voice test mode+ 12.2kRMC	22.62	22.73	22.62	22.74	22.83	22.75

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		
Channel	9262	9400	9538	4132	4183	4233
Frequency(MHz)	1852.4	1880	1907.6	826.4	836.4	846.6
sub-test1(dBm)	21.30	21.40	21.30	21.70	21.70	21.70
sub-test2(dBm)	21.20	21.20	21.30	21.70	21.80	21.80
sub-test3(dBm)	21.40	21.30	21.20	21.10	21.30	21.30
sub-test4(dBm)	21.40	21.30	21.40	21.30	21.30	21.30

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 (S F)	β_c/β_d	$\beta_{hs}^{(1)}$	β_{ec}	β_{ed}	β_{ed} (S F)	β_{ed} (code s)	CM ⁽²⁾ (dB)	MP R (dB)	AG ⁽⁴⁾ Index	E-TF CI
1	11/15 (3)	15/15 (3)	64	11/15 (3)	22/15	209/25	1039/25	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: 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 $\beta_c/\beta_d = 12/15, \beta_{hs}/\beta_c = 24/15$. 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)	19.90	20.00	19.50	20.20	20.30	20.30
sub-test2(dBm)	19.90	20.00	19.40	20.30	20.30	20.50
sub-test3(dBm)	19.80	20.00	19.70	20.00	20.10	20.10
sub-test4(dBm)	19.40	19.40	19.00	20.10	20.10	20.20
sub-test5(dBm)	20.80	20.80	20.80	20.60	20.70	20.70

Note: 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.

Note: The power between original and variant product are similar, so we remain original product' power and tune-up without any change.

6.4 Bluetooth Measurement result

Modulation type	Test Result (dBm)		
	2402MHz(Ch0)	2441MHz(Ch39)	2480MHz(Ch78)
GFSK	1.82	1.58	0.73
$\pi/4$ DQPSK	-0.76	-1.01	-1.88
8DPSK	-0.78	-1.03	-1.89

Note: The power between original and variant product are similar, so we remain original product' power and tune-up without any change.

6.5 Wi-Fi Measurement result

WIFI 2.4G

Modulation type		Average power output (dBm)		
		2412MHz	2437MHz	2462MHz
11b	1 Mbps	15.74	16.09	16.17
	2 Mbps	15.81	16.07	16.16
	5.5 Mbps	15.85	16.05	16.16
	11 Mbps	15.94	16.02	16.15
11g	6 Mbps	14.64	14.89	14.88
	9 Mbps	14.29	14.54	14.54
	12 Mbps	13.94	14.18	14.21
	18 Mbps	13.59	13.83	13.87
	24 Mbps	13.24	13.48	13.54
	36 Mbps	12.89	13.13	13.20
	48 Mbps	12.54	12.77	12.87
	54 Mbps	12.19	12.42	12.53
11n HT20	6.5 Mbps	14.72	14.88	15.06
	13 Mbps	14.22	14.38	14.55
	19.5 Mbps	13.71	13.87	14.05
	26 Mbps	13.21	13.37	13.54
	39 Mbps	12.70	12.87	13.03
	52 Mbps	12.20	12.37	12.52
	58.5 Mbps	11.69	11.86	12.02
	65 Mbps	11.19	11.36	11.51

Note: The power between original and variant product are similar, so we remain original product' power and tune-up without any change.

6.6 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.

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

According to the KDB447498 4.3.1 (1)

For 100 MHz to 6 GHz and test separation distances ≤ 50 mm, the 1-g and 10-g SAR test exclusion thresholds are determined by the following:

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

- f (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

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm, and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

This is equivalent to $[(\text{max. power of channel, including tune-up tolerance, mW}) / (60 / \sqrt{f} \text{ (GHz)} \text{ mW})] \cdot [20 \text{ mm} / (\text{min. test separation distance, mm})] \leq 1.0$ for 1-g SAR; also see Appendix A for approximate exclusion threshold values at selected frequencies and distances.

According to the KDB447498 appendix A

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	

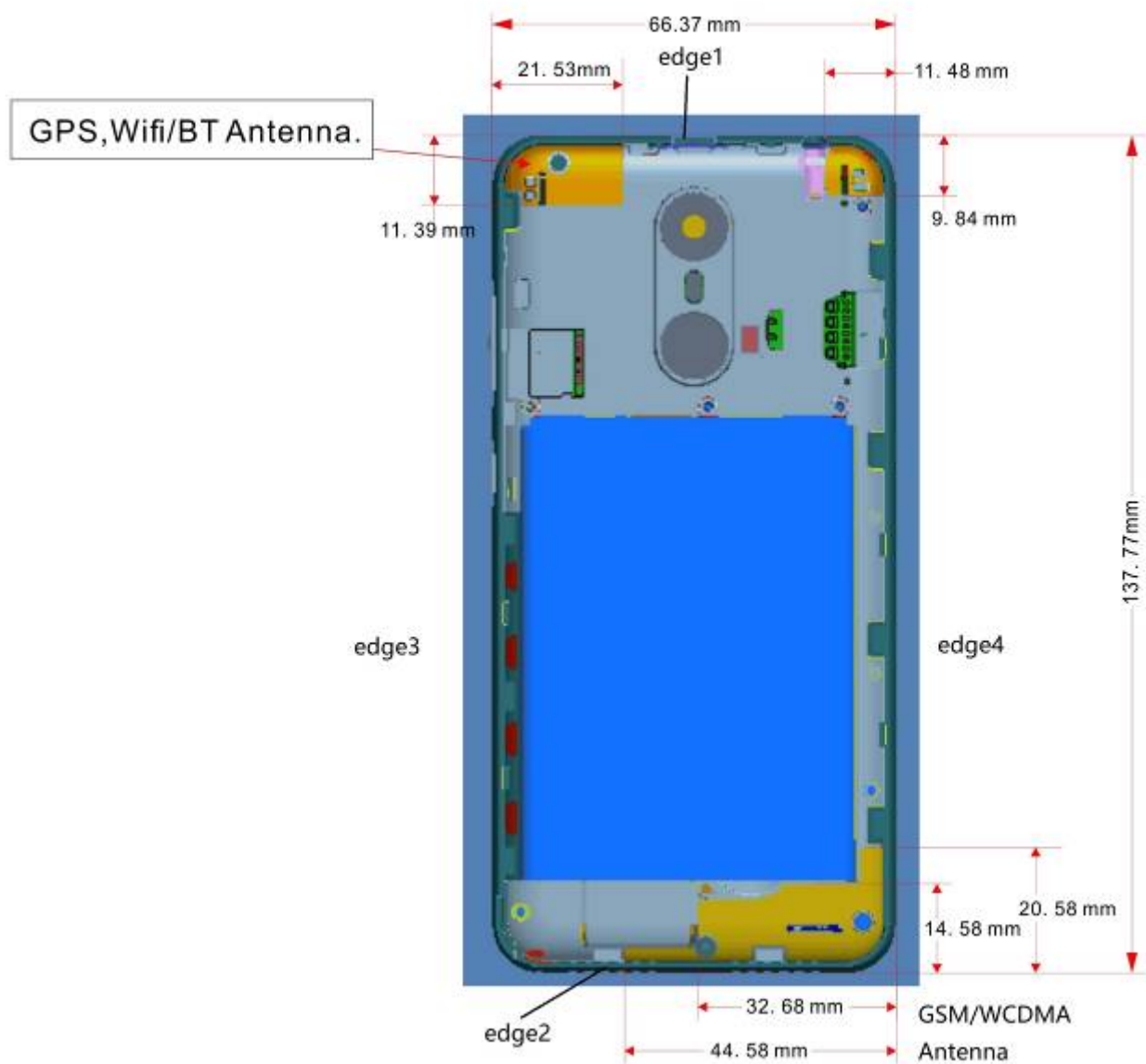
Summary of Transmitters

Band/Mode	Position	Max.RF output power (mW)	SAR test exclusion Threshold (mW)	SAR Required
(2.4~2.4835)GHz Bluetooth	Head	1.82	10	No
	Body	1.82	19	No
(2.4~2.4835)GHz Wifi	Head	16.17	10	Yes
	Body	16.17	19	No*

Note*: For WIFI 2.4GHz, the body SAR satisfy the exclusion criteria, but we also test Body SAR in order the result could be reasonable and reliable other than evaluated SAR just in body position.

6.7 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.



6.7.1 Head Exposure Conditions For WWAN

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

For WLAN

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

6.7.2 Body Exposure conditions For WWAN

Test Configurations	SAR Required	Note
Rear	yes	/
Front	yes	/

For WLAN

Test Configurations	SAR Required	Note
Rear	yes	/
Front	yes	/

6.7.3 Hotspot Exposure Conditions For WWAN

Test Configurations	Antenna-to-edge/surface	SAR Required
Rear	<25 mm	Yes
Front	<25 mm	Yes
Edge 1	>25 mm	No
Edge 2	>25 mm	Yes
Edge 3	>25 mm	Yes
Edge 4	>25 mm	Yes

For WLAN

Test Configurations	Antenna-to-edge/surface	SAR Required
Rear	<25 mm	Yes
Front	<25 mm	Yes
Edge 1	<25 mm	Yes
Edge 2	>25 mm	No
Edge 3	<25 mm	Yes
Edge 4	>25 mm	No

Note: For hotspot mode, it's not necessary test Rear and Front position cause we already test the these position without hotspot mode in Body Exposure conditions ,Normally if the hotspot mode opened, the technology“ power reduction” used for mobile, so we consider the worst condition.

6.8 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.

For Original product

Date Tested	System dipole	T.S. Liquid	SAR measured (normalized to 1W)		Target (Ref.Value)	Delta (%)	Tolerance (%)
2018/4/24	D835V2	Head	1g	9.16	9.37	-2.24	±10
2018/4/26	D1800V2	Head	1g	37.84	38.90	-2.72	±10
2018/4/28	D2450V2	Head	1g	51.20	52.40	-2.29	±10

Date Tested	System dipole	T.S. Liquid	SAR measured (normalized to 1W)		Target (Ref.Value)	Delta (%)	Tolerance (%)
2018/5/02	D835V2	Body	1g	9.12	9.47	-2.67	±10
2018/5/04	D1800V2	Body	1g	38.68	39.00	-0.82	±10
2018/5/08	D2450V2	Body	1g	53.20	52.30	1.72	±10

For Variant product

Date Tested	System dipole	T.S. Liquid	SAR measured (normalized to 1W)		Target (Ref.Value)	Delta (%)	Tolerance (%)
2018/06/30	D835V2	Body	1g	9.28	9.47	-2.01	±10
2018/07/12	D1800V2	Body	1g	39.52	39.00	1.33	±10
2018/07/20	D2450V2	Body	1g	51.60	52.30	-1.34	±10

Note: We check the worst case of each mode by using the first and second supply products, and all the test used body simulants liquid, so we just list the result of system check for body liquid.

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.

For Original product

Date Tested	Freq.(MHz)	Liquid parameters	measured	Target	Delta(%)	Tolerance(%)
2018/4/24	Head 835	ϵ_r	41.114	41.50	-0.93	± 5
		σ [S/m]	0.915	0.90	1.67	± 5
2018/4/26	Head 1800	ϵ_r	40.607	40.00	1.52	± 5
		σ [S/m]	1.411	1.40	0.79	± 5
2018/4/28	Head 2450	ϵ_r	39.583	39.20	0.98	± 5
		σ [S/m]	1.833	1.80	1.83	± 5

Date Tested	Freq.(MHz)	Liquid parameters	measured	Target	Delta(%)	Tolerance(%)
2018/5/02	Body 835	ϵ_r	56.196	55.20	1.80	± 5
		σ [S/m]	0.966	0.97	-0.41	± 5
2018/5/04	Body 1800	ϵ_r	51.717	53.30	-2.97	± 5
		σ [S/m]	1.542	1.52	1.45	± 5
2018/5/08	Body 2450	ϵ_r	51.046	52.70	-3.14	± 5
		σ [S/m]	2.027	1.95	3.95	± 5

For Variant product

Date Tested	Freq.(MHz)	Liquid parameters	measured	Target	Delta(%)	Tolerance(%)
2018/06/30	Body 835	ϵ_r	55.832	55.20	1.14	± 5
		σ [S/m]	0.982	0.97	1.24	± 5
2018/07/12	Body 1800	ϵ_r	52.933	53.30	-0.69	± 5
		σ [S/m]	1.515	1.52	-0.33	± 5
2018/07/20	Body 2450	ϵ_r	52.618	52.70	-0.16	± 5
		σ [S/m]	1.936	1.95	-0.72	± 5

Note: We check the worst case of each mode by using the first and second supply products, all the test used body simulants liquid, so we just list the result of body liquid check.

6.9 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 D01v06, 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 D01v06, for each exposure position, if the highest output channel reported SAR ≤ 0.8 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”.

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

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	32.77	33.00	1.05	---	---
		M	32.86	33.00	1.03	0.266	0.274
		H	32.78	33.00	1.05	---	---
Left Tilted		L	32.77	33.00	1.05	---	---
		M	32.86	33.00	1.03	0.142	0.146
		H	32.78	33.00	1.05	---	---
Right cheek		L	32.77	33.00	1.05	0.247	0.259
		M	32.86	33.00	1.03	0.270	0.278
		H	32.78	33.00	1.05	0.244	0.256
Right Tilted		L	32.77	33.00	1.05	---	---
		M	32.86	33.00	1.03	0.153	0.158
		H	32.78	33.00	1.05	---	---

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					1g Average	1g Average
TG	GSM With headset	L	32.77	33.00	1.05	---	---
		M	32.86	33.00	1.03	0.209	0.215
		H	32.78	33.00	1.05	---	---
	GPRS	L	31.72	32.00	1.07	0.551	0.590
		M	31.84	32.00	1.04	0.677	0.704
		H	31.73	32.00	1.06	0.605	0.641
	EGPRS	L	30.55	31.00	1.11	---	---
		M	30.49	31.00	1.12	0.664	0.744
		M(first supply)	29.12	29.50	1.09	0.651	0.710
		M(second supply)	29.12	29.50	1.09	0.610	0.665
H	30.43	31.00	1.14	---	---		
TP	GSM With headset	L	32.77	33.00	1.05	---	---
		M	32.86	33.00	1.03	0.143	0.147
		H	32.78	33.00	1.05	---	---
	GPRS	L	31.72	32.00	1.07	---	---
		M	31.84	32.00	1.04	0.410	0.426
		H	31.73	32.00	1.06	---	---
	EGPRS	L	30.55	31.00	1.11	---	---
		M	30.49	31.00	1.12	0.410	0.459
H		30.43	31.00	1.14	---	---	
Hotspot EDGE 2	GPRS	L	31.72	32.00	1.07	---	---
Hotspot EDGE 3		M	31.84	32.00	1.04	0.149	0.155
		H	31.73	32.00	1.06	---	---
		L	31.72	32.00	1.07	---	---
Hotspot EDGE 4		M	31.84	32.00	1.04	0.388	0.404
		H	31.73	32.00	1.06	---	---
		L	31.72	32.00	1.07	---	---
M		31.84	32.00	1.04	0.437	0.454	
H	31.73	32.00	1.06	---	---		

Note: The test result of variation product is better than the original test data. So the original test data retain and adopted as the final test result. M is the original test data, M(first supply) and M(second supply) are the new test data(variation).

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	GSM	L	29.74	30.00	1.06	---	---
		M	29.82	30.00	1.04	0.145	0.151
		H	29.73	30.00	1.06	---	---
Left Tilted		L	29.74	30.00	1.06	---	---
		M	29.82	30.00	1.04	0.048	0.050
		H	29.73	30.00	1.06	---	---
Right cheek		L	29.74	30.00	1.06	---	---
		M	29.82	30.00	1.04	0.087	0.090
		H	29.73	30.00	1.06	---	---
Right Tilted		L	29.74	30.00	1.06	---	---
		M	29.82	30.00	1.04	0.062	0.064
		H	29.73	30.00	1.06	---	---

Mode: GSM1900 (GSM/GPRS/EGPRS)

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)		Tun e-up limit (dB m)	Scaling Factor	Measure Results (W/kg)	Reported Results (W/kg)
position	mode						1g Average	1g Average
TG	GSM With headset	L	29.74	30.00	1.06	---	---	
		M	29.82	30.00	1.04	0.175	0.182	
		H	29.73	30.00	1.06	---	---	
	GPRS	L	28.67	29.00	1.08	---	---	
		M	28.69	29.00	1.07	0.220	0.235	
		H	28.75	29.00	1.06	---	---	
	EGPRS	L	27.69	28.00	1.07	---	---	
		M	27.54	28.00	1.11	0.282	0.313	
		H	27.58	28.00	1.10	---	---	
TP	GSM With headset	L	29.74	30.00	1.06	---	---	
		M	29.82	30.00	1.04	0.157	0.163	
		H	29.73	30.00	1.06	---	---	
	GPRS	L	28.67	29.00	1.08	---	---	
		M	28.69	29.00	1.07	0.221	0.236	
		H	28.75	29.00	1.06	---	---	
	EGPRS	L	27.69	28.00	1.07	---	---	
		M	27.54	28.00	1.11	0.287	0.319	
		H	27.58	28.00	1.10	---	---	
Hotspot EDGE 2	EGPRS	L	27.69	28.00	1.07	---	---	
		M	27.54	28.00	1.11	0.519	0.576	
		M(first supply)	26.89	27.00	1.03	0.494	0.509	
		M(second supply)	26.89	27.00	1.03	0.443	0.456	
H		27.58	28.00	1.10	---	---		
Hotspot EDGE 3		L	27.69	28.00	1.07	---	---	
		M	27.54	28.00	1.11	0.076	0.085	
		H	27.58	28.00	1.10	---	---	
Hotspot EDGE 4		L	27.69	28.00	1.07	---	---	
		M	27.54	28.00	1.11	0.122	0.135	
	H	27.58	28.00	1.10	---	---		

Note: The test result of variation product is better than the original test data. So the original test data retain and adopted as the final test result. M is the original test data, M(first supply) and M(second supply) are the new test data(variation).

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					1g Average	1g Average
Left cheek	VOICE	L	22.68	23.00	1.08	---	---
		M	22.74	23.00	1.06	0.222	0.235
		H	22.69	23.00	1.07	---	---
Left Tilted		L	22.68	23.00	1.08	---	---
		M	22.74	23.00	1.06	0.065	0.069
		H	22.69	23.00	1.07	---	---
Right cheek		L	22.68	23.00	1.08	---	---
		M	22.74	23.00	1.06	0.125	0.133
		H	22.69	23.00	1.07	---	---
Right Tilted		L	22.68	23.00	1.08	---	---
		M	22.74	23.00	1.06	0.077	0.082
		H	22.69	23.00	1.07	---	---

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					1g Average	1g Average
TG	VOICE	L	22.68	23.00	1.08	---	---
		M	22.74	23.00	1.06	0.243	0.258
		H	22.69	23.00	1.07	---	---
	DATA	L	22.68	23.00	1.08	---	---
		M	22.74	23.00	1.06	0.233	0.247
		H	22.69	23.00	1.07	---	---
TP	VOICE	L	22.68	23.00	1.08	---	---
		M	22.74	23.00	1.06	0.112	0.119
		H	22.69	23.00	1.07	---	---
	DATA	L	22.68	23.00	1.08	---	---
		M	22.74	23.00	1.06	0.113	0.120
		H	22.69	23.00	1.07	---	---
Hotspot EDGE2	VOICE	L	22.68	23.00	1.08	---	---
		M	22.74	23.00	1.06	0.424	0.449
		M(first supply)	22.74	23.00	1.06	0.415	0.440
		M(second supply)	22.74	23.00	1.06	0.384	0.407
		H	22.69	23.00	1.07	---	---
Hotspot EDGE3		L	22.68	23.00	1.08	---	---
		M	22.74	23.00	1.06	0.137	0.145
		H	22.69	23.00	1.07	---	---
Hotspot EDGE4		L	22.68	23.00	1.08	---	---
		M	22.74	23.00	1.06	0.218	0.231
		H	22.69	23.00	1.07	---	---

Note: The test result of variation product is better than the original test data. So the original test data retain and adopted as the final test result. M is the original test data, M (first supply) and M (second supply) are the new test data(variation).

Mode: WCDMA BAND5

fL (MHz)=826.4MHz fM (MHz)=836.4MHz fH (MHz)= 846.6MHz

SAR Values(Head, 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					1g Average	1g Average
Left cheek	VOICE	L	22.78	23.00	1.05	---	---
		M	22.83	23.00	1.04	0.181	0.188
		H	22.79	23.00	1.05	---	---
Left Tilted		L	22.78	23.00	1.05	---	---
		M	22.83	23.00	1.04	0.078	0.081
		H	22.79	23.00	1.05	---	---
Right cheek		L	22.78	23.00	1.05	---	---
		M	22.83	23.00	1.04	0.174	0.181
		H	22.79	23.00	1.05	---	---
Right Tilted		L	22.78	23.00	1.05	---	---
		M	22.83	23.00	1.04	0.072	0.075
		H	22.79	23.00	1.05	---	---

Mode: WCDMA BAND5

fL (MHz)=826.4MHz fM (MHz)=836.4MHz fH (MHz)= 846.6MHz

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					1g Average	1g Average
TG	VOICE	L	22.78	23.00	1.05	---	---
		M	22.83	23.00	1.04	0.430	0.447
		H	22.79	23.00	1.05	---	---
	DATA	L	22.78	23.00	1.05	---	---
		M	22.83	23.00	1.04	0.443	0.461
		M(first supply)	22.83	23.00	1.04	0.369	0.384
		M(second supply)	22.83	23.00	1.04	0.309	0.321
		H	22.79	23.00	1.05	---	---
TP	VOICE	L	22.78	23.00	1.05	---	---
		M	22.83	23.00	1.04	0.312	0.324
		H	22.79	23.00	1.05	---	---
	DATA	L	22.78	23.00	1.05	---	---
		M	22.83	23.00	1.04	0.311	0.323
		H	22.79	23.00	1.05	---	---
Hotspot EDGE2	DATA	L	22.78	23.00	1.05	---	---
		M	22.83	23.00	1.04	0.147	0.153
		H	22.79	23.00	1.05	---	---
Hotspot EDGE3		L	22.78	23.00	1.05	---	---
		M	22.83	23.00	1.04	0.103	0.107
		H	22.79	23.00	1.05	---	---
Hotspot EDGE4		L	22.78	23.00	1.05	---	---
		M	22.83	23.00	1.04	0.103	0.107
		H	22.79	23.00	1.05	---	---

Note: The test result of variation product is better than the original test data. So the original test data retain and adopted as the final test result. M is the original test data, M (first supply) and M(second supply) are the new test data(variation).

Mode: Wi-Fi 2.4GHz

fL (MHz)=2412MHz fM (MHz)=2437MHz fH (MHz)= 2462MHz

SAR Values (Wi-Fi 802.11b)

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					1g Average	1g Average
Left cheek	802.11b	L	15.74	16.50	1.19	---	---
		M	16.09	16.50	1.10	0.045	0.049
		H	16.17	16.50	1.08	---	---
Left Tilted		L	15.74	16.50	1.19	---	---
		M	16.09	16.50	1.10	0.023	0.025
		H	16.17	16.50	1.08	---	---
Right cheek		L	15.74	16.50	1.19	---	---
		M	16.09	16.50	1.10	0.023	0.025
		H	16.17	16.50	1.08	---	---
Right Tilted		L	15.74	16.50	1.19	---	---
		M	16.09	16.50	1.10	0.028	0.031
		H	16.17	16.50	1.08	---	---

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
TG	802.11b	L	15.74	16.50	1.19	---	---
		M	16.09	16.50	1.10	0.121	0.133
		H	16.17	16.50	1.08	---	---
TP		L	15.74	16.50	1.19	---	---
		M	16.09	16.50	1.10	0.123	0.135
		M(first supply)	16.09	16.50	1.10	0.120	0.132
		M(second supply)	16.09	16.50	1.10	0.118	0.130
		H	16.17	16.50	1.08	---	---
Hotspot EDGE1		L	15.74	16.50	1.19	---	---
		M	16.09	16.50	1.10	0.006	0.006
		H	16.17	16.50	1.08	---	---
Hotspot EDGE3		L	15.74	16.50	1.19	---	---
		M	16.09	16.50	1.10	0.008	0.009
		H	16.17	16.50	1.08	---	---

Note: The test result of variation product is better than the original test data. So the original test data retain and adopted as the final test result. M is the original test data, M (first supply) and M (second supply) are the new test data(variation).

6.10 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 ($\sim 10\%$ 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 .

The Highest Reported SAR configuration in Each Frequency Band

Frequency band	Air interface	Head(w/kg)	Body(w/kg)
850 MHz	GSM850 WCDMA band5	<0.8	<0.8
1800/1900 MHz	GSM1900 WCDMA band2	<0.8	<0.8
2.4 GHz	WIFI 2.4G	<0.8	<0.8

6.11 Simultaneous Transmission SAR Analysis

The sum of SAR values for GSM & WiFi

	MAXIMUM SAR VALUE FOR HEAD	MAXIMUM SAR VALUE FOR BODY
GSM	0.274	0.744
WiFi	0.049	0.133
Sum	0.323	0.877
Note	GSM850+WIFI 2.4G Left cheek	GSM 850+WIFI 2.4G TG

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

	MAXIMUM SAR VALUE FOR HEAD	MAXIMUM SAR VALUE FOR BODY
WCDMA	0.235	0.461
WiFi	0.049	0.133
Sum	0.284	0.594
Note	WCDMA BAND2+WIFI 2.4G Left cheek	WCDMA BAND5+WIFI TG

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.

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.

Estimated SAR Bluetooth

Mode	Position	F(GHz)	Distance(mm)	Estimated
Bluetooth	Head	2.402	5	0.066
	Body	2.402	10	0.033

The sum of SAR values for GSM & Bluetooth

	MAXIMUM SAR VALUE FOR HEAD	MAXIMUM SAR VALUE FOR BODY
GSM	0.278	0.744
Bluetooth	0.066	0.033
Sum	0.344	0.777
Note	GSM850+BT Right cheek	GSM 850+BT TG

According to the above tables, the sum of SAR values for GSM and Bluetooth < 1.6W/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	0.235	0.461
Bluetooth	0.066	0.033
Sum	0.301	0.494
Note	WCDMA BAND2+BT Left cheek	WCDMA BAND5+BT EDGE2

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

7 MEASUREMENT UNCERTAINTY

(0.3 - 3 GHz range)								
Error Description	Uncert. value	Prob. Dist.	Div.	(c_i) 1g	(c_i) 10g	Std. Unc. (1g)	Std. Unc. (10g)	(v_i) v_{eff}
Measurement System								
Probe Calibration	±6.0 %	N	1	1	1	±6.0 %	±6.0 %	∞
Axial Isotropy	±4.7 %	R	√3	0.7	0.7	±1.9 %	±1.9 %	∞
Hemispherical Isotropy	±9.6 %	R	√3	0.7	0.7	±3.9 %	±3.9 %	∞
Boundary Effects	±1.0 %	R	√3	1	1	±0.6 %	±0.6 %	∞
Linearity	±4.7 %	R	√3	1	1	±2.7 %	±2.7 %	∞
System Detection Limits	±1.0 %	R	√3	1	1	±0.6 %	±0.6 %	∞
Modulation Response ^m	±2.4 %	R	√3	1	1	±1.4 %	±1.4 %	∞
Readout Electronics	±0.3 %	N	1	1	1	±0.3 %	±0.3 %	∞
Response Time	±0.8 %	R	√3	1	1	±0.5 %	±0.5 %	∞
Integration Time	±2.6 %	R	√3	1	1	±1.5 %	±1.5 %	∞
RF Ambient Noise	±3.0 %	R	√3	1	1	±1.7 %	±1.7 %	∞
RF Ambient Reflections	±3.0 %	R	√3	1	1	±1.7 %	±1.7 %	∞
Probe Positioner	±0.4 %	R	√3	1	1	±0.2 %	±0.2 %	∞
Probe Positioning	±2.9 %	R	√3	1	1	±1.7 %	±1.7 %	∞
Max. SAR Eval.	±2.0 %	R	√3	1	1	±1.2 %	±1.2 %	∞
Test Sample Related								
Device Positioning	±2.9 %	N	1	1	1	±2.9 %	±2.9 %	145
Device Holder	±3.6 %	N	1	1	1	±3.6 %	±3.6 %	5
Power Drift	±5.0 %	R	√3	1	1	±2.9 %	±2.9 %	∞
Power Scaling ^P	±0 %	R	√3	1	1	±0.0 %	±0.0 %	∞
Phantom and Setup								
Phantom Uncertainty	±6.1 %	R	√3	1	1	±3.5 %	±3.5 %	∞
SAR correction	±1.9 %	R	√3	1	0.84	±1.1 %	±0.9 %	∞
Liquid Conductivity (mea.) ^{DAK}	±2.5 %	R	√3	0.78	0.71	±1.1 %	±1.0 %	∞
Liquid Permittivity (mea.) ^{DAK}	±2.5 %	R	√3	0.26	0.26	±0.3 %	±0.4 %	∞
Temp. unc. - Conductivity ^{BB}	±3.4 %	R	√3	0.78	0.71	±1.5 %	±1.4 %	∞
Temp. unc. - Permittivity ^{BB}	±0.4 %	R	√3	0.23	0.26	±0.1 %	±0.1 %	∞
Combined Std. Uncertainty						±11.2 %	±11.1 %	361
Expanded STD Uncertainty						±22.3 %	±22.2 %	

(3 - 6 GHz range)								
Error Description	Uncert. value	Prob. Dist.	Div.	(c_i) 1g	(c_i) 10g	Std. Unc. (1g)	Std. Unc. (10g)	(v_i) v_{eff}
Measurement System								
Probe Calibration	±6.55 %	N	1	1	1	±6.55 %	±6.55 %	∞
Axial Isotropy	±4.7 %	R	$\sqrt{3}$	0.7	0.7	±1.9 %	±1.9 %	∞
Hemispherical Isotropy	±9.6 %	R	$\sqrt{3}$	0.7	0.7	±3.9 %	±3.9 %	∞
Boundary Effects	±2.0 %	R	$\sqrt{3}$	1	1	±1.2 %	±1.2 %	∞
Linearity	±4.7 %	R	$\sqrt{3}$	1	1	±2.7 %	±2.7 %	∞
System Detection Limits	±1.0 %	R	$\sqrt{3}$	1	1	±0.6 %	±0.6 %	∞
Modulation Response ^m	±2.4 %	R	$\sqrt{3}$	1	1	±1.4 %	±1.4 %	∞
Readout Electronics	±0.3 %	N	1	1	1	±0.3 %	±0.3 %	∞
Response Time	±0.8 %	R	$\sqrt{3}$	1	1	±0.5 %	±0.5 %	∞
Integration Time	±2.6 %	R	$\sqrt{3}$	1	1	±1.5 %	±1.5 %	∞
RF Ambient Noise	±3.0 %	R	$\sqrt{3}$	1	1	±1.7 %	±1.7 %	∞
RF Ambient Reflections	±3.0 %	R	$\sqrt{3}$	1	1	±1.7 %	±1.7 %	∞
Probe Positioner	±0.8 %	R	$\sqrt{3}$	1	1	±0.5 %	±0.5 %	∞
Probe Positioning	±6.7 %	R	$\sqrt{3}$	1	1	±3.9 %	±3.9 %	∞
Max. SAR Eval.	±4.0 %	R	$\sqrt{3}$	1	1	±2.3 %	±2.3 %	∞
Test Sample Related								
Device Positioning	±2.9 %	N	1	1	1	±2.9 %	±2.9 %	145
Device Holder	±3.6 %	N	1	1	1	±3.6 %	±3.6 %	5
Power Drift	±5.0 %	R	$\sqrt{3}$	1	1	±2.9 %	±2.9 %	∞
Power Scaling ^p	±0 %	R	$\sqrt{3}$	1	1	±0.0 %	±0.0 %	∞
Phantom and Setup								
Phantom Uncertainty	±6.6 %	R	$\sqrt{3}$	1	1	±3.8 %	±3.8 %	∞
SAR correction	±1.9 %	R	$\sqrt{3}$	1	0.84	±1.1 %	±0.9 %	∞
Liquid Conductivity (mea.) ^{DAK}	±2.5 %	R	$\sqrt{3}$	0.78	0.71	±1.1 %	±1.0 %	∞
Liquid Permittivity (mea.) ^{DAK}	±2.5 %	R	$\sqrt{3}$	0.26	0.26	±0.3 %	±0.4 %	∞
Temp. unc. - Conductivity ^{BB}	±3.4 %	R	$\sqrt{3}$	0.78	0.71	±1.5 %	±1.4 %	∞
Temp. unc. - Permittivity ^{BB}	±0.4 %	R	$\sqrt{3}$	0.23	0.26	±0.1 %	±0.1 %	∞
Combined Std. Uncertainty						±12.3 %	±12.2 %	748
Expanded STD Uncertainty						±24.6 %	±24.5 %	

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 for **original product**:

Test Equipment	Model	Serial Number	Calibration date	Calibration Due data
DAE	DAE4	546	2017.09.15	2018.09.14
Dosimetric E-field Probe	ES3DV3	3127	2017.10.11	2018.10.10
Dipole Validation Kit	D835V2	4d023	2017.09.13	2018.09.12
Dipole Validation Kit	D1800V2	2d084	2017.09.15	2018.09.14
Dipole Validation Kit	D2450V2	738	2017.09.18	2018.09.17

Additional test equipment used in testing for **original product**:

Test Equipment	Model	Serial Number	Calibration date	Calibration Due data
Signal Generator	E4428C	MY45280865	2017.08.20	2018.08.19
Signal Generator	SML 03	103514	2017.08.20	2018.08.19
Power meter	E4417A	MY45101182	2017.08.20	2018.08.19
Power Sensor	E4412A	MY41502214	2017.08.20	2018.08.19
Power Sensor	E4412A	MY41502130	2017.08.20	2018.08.19
Power meter	E4417A	MY45101004	2017.08.20	2018.08.19
Power Sensor	E9300B	MY41496001	2017.08.20	2018.08.19
Power Sensor	E9300B	MY41496003	2017.08.20	2018.08.19
Communication Tester	8960	GB43194054	2017.08.20	2018.08.19
Vector Network Analyzer	VNA R140	0011213	2017.10.17	2018.10.16
Dielectric Parameter Probe	DAKS-3.5	1042	2017.10.17	2018.10.16

The following table lists calibration dates of SPEAG components for **variant product**:

Test Equipment	Model	Serial Number	Calibration date	Calibration Due data
DAE	DAE4	720	2017.10.24	2018.10.23
Dosimetric E-field Probe	EX3DV4	3708	2017.11.07	2018.11.06
Dipole Validation Kit	D835V2	4d023	2017.09.13	2018.09.12
Dipole Validation Kit	D1800V2	2d084	2017.09.15	2018.09.14
Dipole Validation Kit	D2450V2	738	2017.09.18	2018.09.17

Additional test equipment used in testing for **variant product**:

Test Equipment	Model	Serial Number	Calibration date	Calibration Due data
Signal Generator	SML 03	103514	2017.08.20	2018.08.19
Power meter	E4417A	MY45101182	2017.08.20	2018.08.19
Power Sensor	E4412A	MY41502214	2017.08.20	2018.08.19
Power Sensor	E4412A	MY41502130	2017.08.20	2018.08.19
Communication Tester	8960	GB43194054	2017.08.20	2018.08.19
Vector Network Analyzer	VNA R140	0011213	2017.10.17	2018.10.16
Dielectric Parameter Probe	DAKS-3.5	1042	2017.10.17	2018.10.16

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%.

ANNEX A – TEST PLOTS

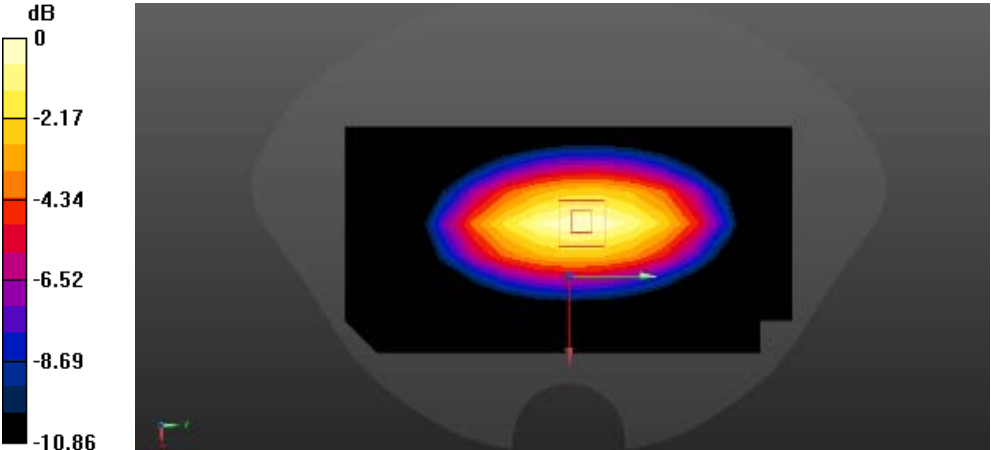
Please refer to the attachment.

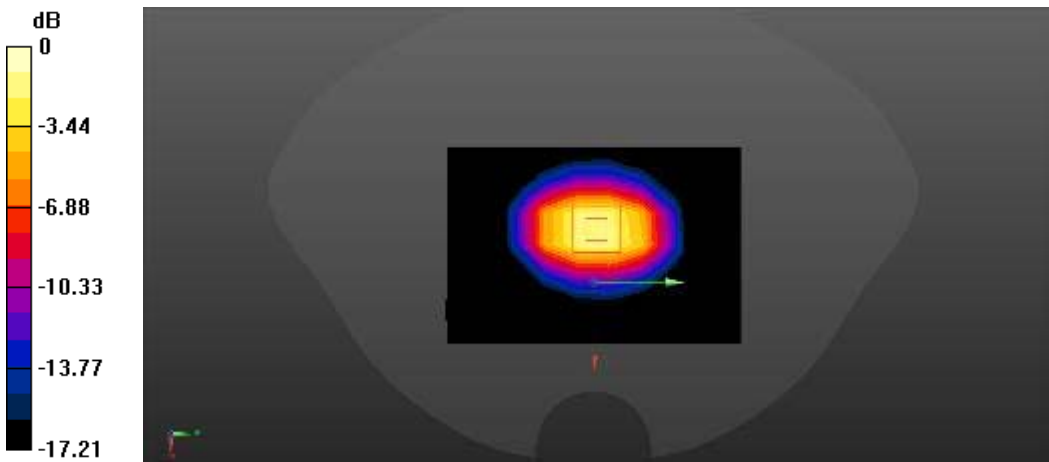
ANNEX B – RELEVANT PAGES FROM CALIBRATION REPORTS

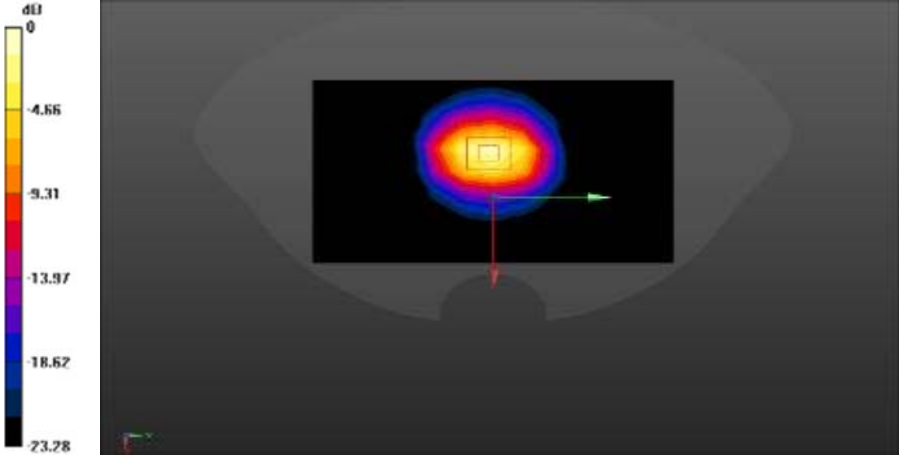
Please refer to the attachment.

ANNEX A – TEST PLOTS

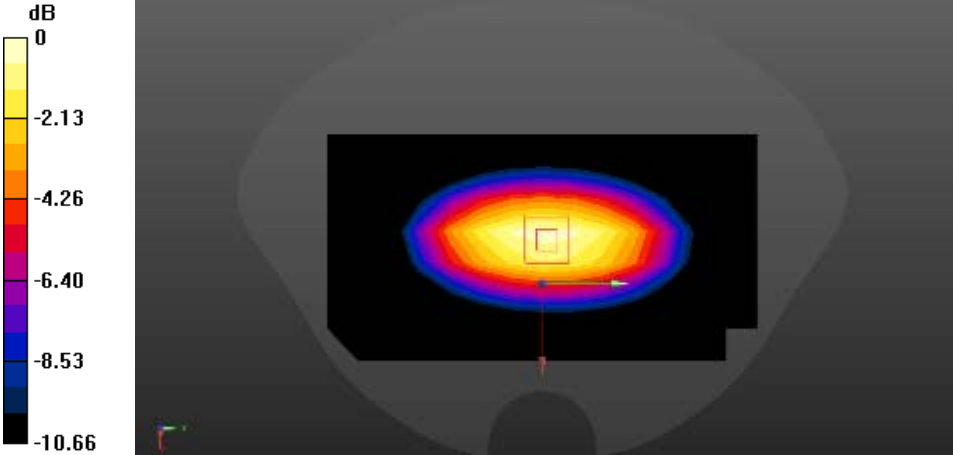
Head liquid

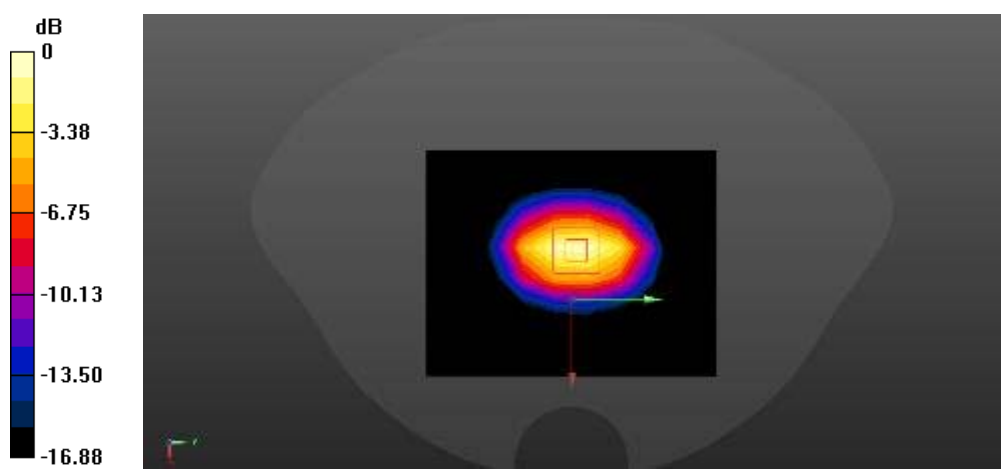
System check	835MHz
Communication System: UID 0, CW (0); Frequency: 835 MHz Medium parameters used (interpolated): $f = 835$ MHz; $\sigma = 0.915$ S/m; $\epsilon_r = 41.114$; $\rho = 1000$ kg/m³ Phantom section: Flat Section DASY5 Configuration: - Probe: ES3DV3 - SN3127; ConvF(6.15, 6.15, 6.15); Calibrated: 2017/10/11; - Sensor-Surface: 3mm (Mechanical Surface Detection) - Electronics: DAE4 Sn546; Calibrated: 2017/9/15 - Phantom: 1660; Type: QD 000 P40 CD; Serial: xxxx - Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373) Configuration 835/835/Area Scan (8x15x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 2.87 W/kg Configuration 835/835/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 52.13 V/m; Power Drift = 0.02 dB Peak SAR (extrapolated) = 3.66 W/kg SAR(1 g) = 2.29 W/kg; SAR(10 g) = 1.55 W/kg Maximum value of SAR (measured) = 2.67 W/kg	
 0 dB = 2.67 W/kg = 4.27 dBW/kg	

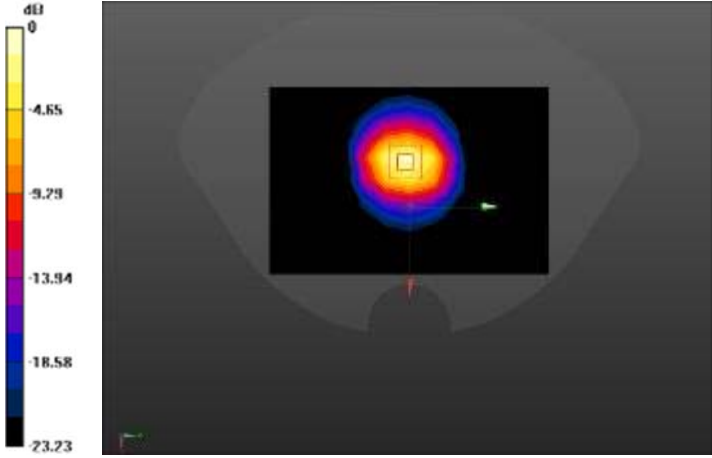
System check	1800MHz
Communication System: UID 0, CW (0); Frequency: 1800 MHz Medium parameters used: $f = 1800 \text{ MHz}$; $\sigma = 1.411 \text{ S/m}$; $\epsilon_r = 40.607$; $\rho = 1000 \text{ kg/m}^3$ Phantom section: Flat Section DASY5 Configuration: - Probe: ES3DV3 - SN3127; ConvF(5.06, 5.06, 5.06); Calibrated: 2017/10/11; - Sensor-Surface: 3mm (Mechanical Surface Detection) - Electronics: DAE4 Sn546; Calibrated: 2017/9/15 - Phantom: 1659; Type: QD 000 P40 CD; Serial: xxxx - Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373) Configuration 1800/1800/Area Scan (7x10x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 8.31 W/kg Configuration 1800/1800/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 76.60 V/m; Power Drift = 0.01 dB Peak SAR (extrapolated) = 17.5 W/kg SAR(1 g) = 9.46 W/kg; SAR(10 g) = 4.96 W/kg Maximum value of SAR (measured) = 12.1 W/kg  0 dB = 12.1 W/kg = 10.83 dBW/kg	

System check	2450MHz
Communication System: UID 0, CW (0); Communication System Band: D2450 (2450.0 MHz); Frequency: 2450 MHz Medium parameters used: $f = 2450$ MHz; $\sigma = 1.833$ S/m; $\epsilon_r = 39.583$; $\rho = 1000$ kg/m³ Phantom section: Flat Section DASY Configuration: - Probe: ES3DV3 - SN3127; ConvF(4.58, 4.58, 4.58); Calibrated: 2017/10/11; - Sensor-Surface: 3mm (Mechanical Surface Detection), $z = 2.0, 32.0$ - Electronics: DAE4 Sn546; Calibrated: 2017/9/15 - Phantom: 1660; Type: QD 000 P40 CD; Serial: xxxx - DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373) System Performance Check at Frequencies 2450MHz Area Scan (9x13x1): Measurement grid: $dx=12$mm, $dy=12$mm Maximum value of SAR (measured) = 21.87 W/kg System Performance Check at Frequencies 2450MHz Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5$mm, $dy=5$mm, $dz=5$mm Reference Value = 98.95 V/m; Power Drift = 0.14 dB Peak SAR (extrapolated) = 27.9 W/kg SAR(1 g) = 12.8 W/kg; SAR(10 g) = 5.96 W/kg Maximum value of SAR (measured) = 12.56 W/kg  0 dB = 12.56 W/kg = 10.99 dBW/kg	

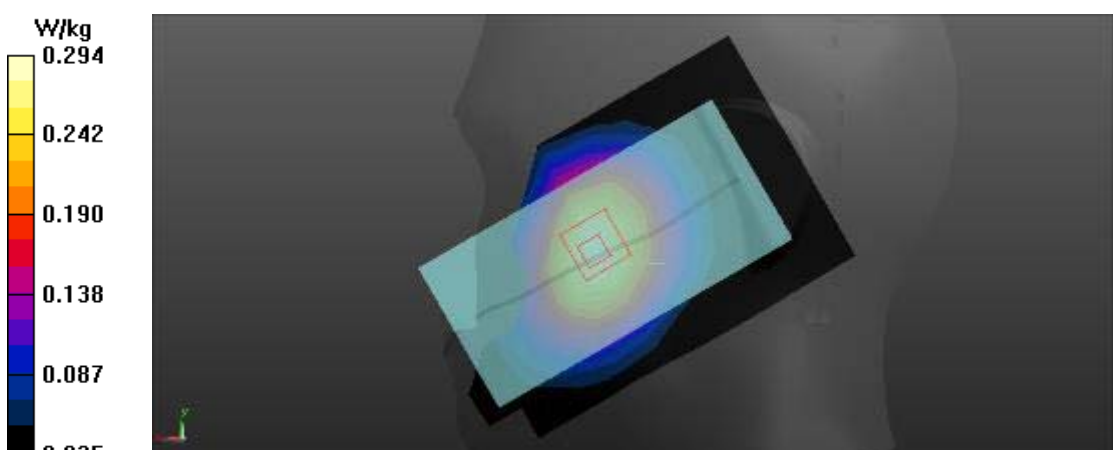
Body liquid

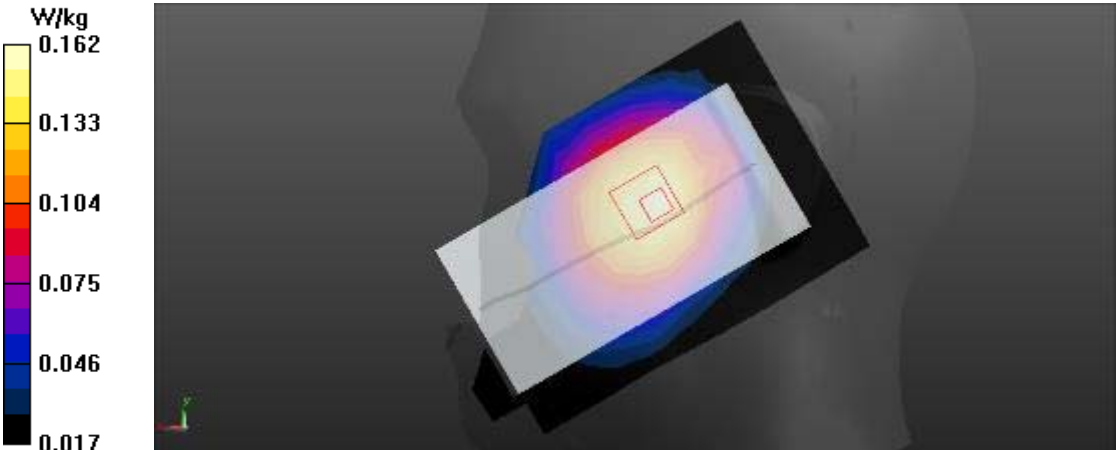
System check	835MHz
Communication System: UID 0, CW (0); Frequency: 835 MHz Medium parameters used (interpolated): $f = 835 \text{ MHz}$; $\sigma = 0.966 \text{ S/m}$; $\epsilon_r = 56.196$; $\rho = 1000 \text{ kg/m}^3$ Phantom section: Flat Section DASY5 Configuration: - Probe: ES3DV3 - SN3127; ConvF(6.06, 6.06, 6.06); Calibrated: 10/11/2017; - Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 3mm (Mechanical Surface Detection) - Electronics: DAE4 Sn546; Calibrated: 10/23/2017 - Phantom: Twin-SAM 1560; Type: QD 000 P40 CD; Serial: 1560 - Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373) Configuration 835/835/Area Scan (8x15x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 2.57 W/kg Configuration 835/835/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 51.34 V/m; Power Drift = 0.12 dB Peak SAR (extrapolated) = 3.26 W/kg SAR(1 g) = 2.28 W/kg; SAR(10 g) = 1.49 W/kg Maximum value of SAR (measured) = 2.58 W/kg	
 0 dB = $2.58 \text{ W/kg} = 4.11 \text{ dBW/kg}$	

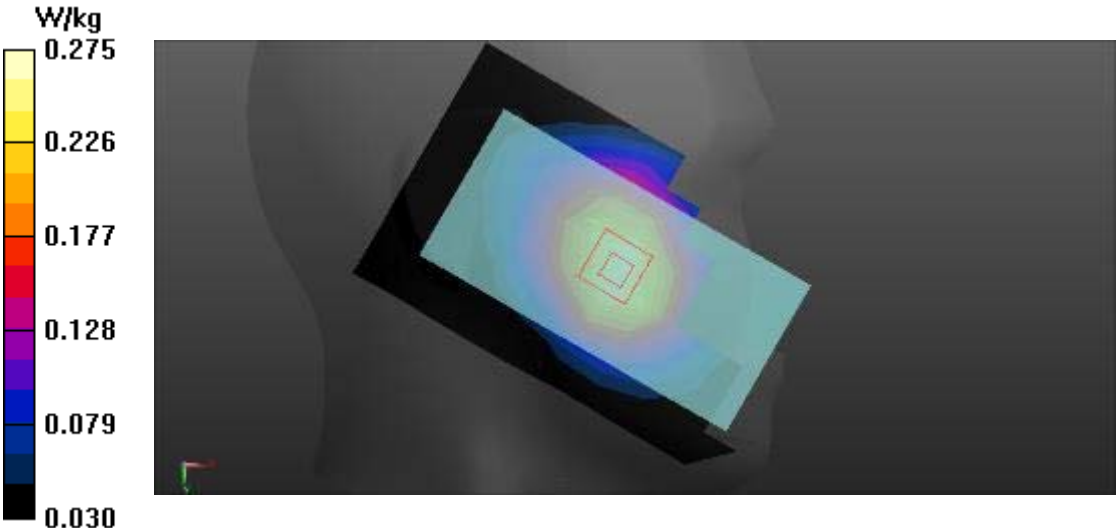
System check	1800MHz
Communication System: UID 0, CW (0); Frequency: 1800 MHz Medium parameters used: $f = 1800 \text{ MHz}$; $\sigma = 1.542 \text{ S/m}$; $\epsilon_r = 51.717$; $\rho = 1000 \text{ kg/m}^3$ Phantom section: Flat Section DASY5 Configuration: - Probe: ES3DV3 - SN3127; ConvF(4.83, 4.83, 4.83); Calibrated: 2017/10/11; - Sensor-Surface: 3mm (Mechanical Surface Detection) - Electronics: DAE4 Sn546; Calibrated: 2017/9/15 - Phantom: 1659; Type: QD 000 P40 CD; Serial: xxxx - Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373) Configuration 1800/1800/Area Scan (8x10x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 11.5 W/kg Configuration 1800/1800/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 80.17 V/m; Power Drift = 0.15 dB Peak SAR (extrapolated) = 17.8 W/kg SAR(1 g) = 9.67 W/kg; SAR(10 g) = 5.03 W/kg Maximum value of SAR (measured) = 12.4 W/kg  0 dB = 12.4 W/kg = 10.93 dBW/kg	

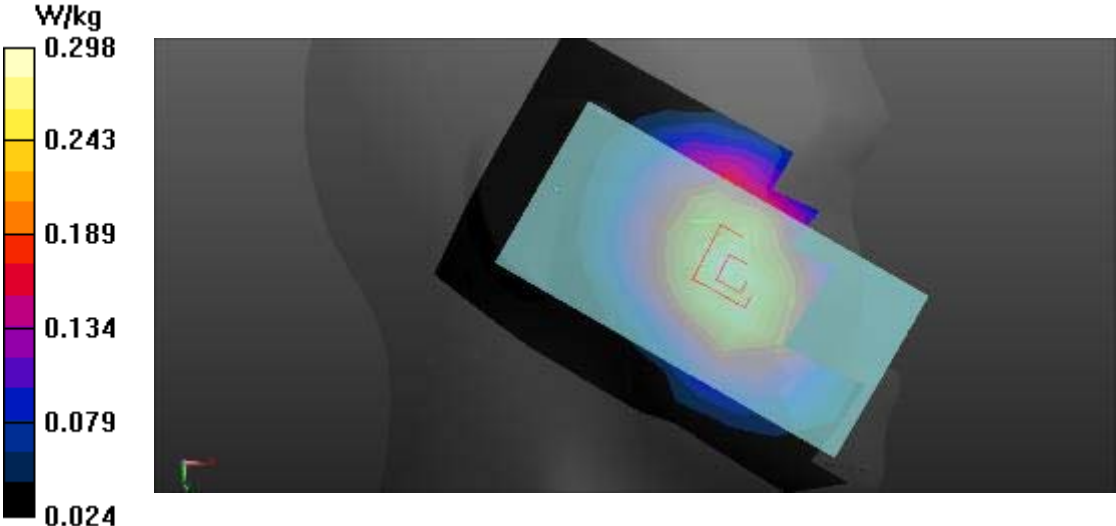
System check	2450MHz
Communication System: UID 0, CW (0); Communication System Band: D2450 (2450.0 MHz); Frequency: 2450 MHz; Medium parameters used: $f = 2450$ MHz; $\sigma = 2.027$ S/m; $\epsilon_r = 51.046$; $\rho = 1000$ kg/m³ Phantom section: Flat Section DASY Configuration: - Probe: ES3DV3 - SN3127; ConvF(4.28, 4.28, 4.28); Calibrated: 2017/10/11; - Sensor-Surface: 3mm (Mechanical Surface Detection), $z = 2.0, 32.0$ - Electronics: DAE4 Sn546; Calibrated: 2017/9/15 - Phantom: 1659; Type: QD 000 P40 CD; Serial: xxxx - DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373) System Performance Check at Frequencies 2450MHz Head/d=10mm, Pin=250 mW, dist=4.0mm (EX-Probe)/Area Scan (9x13x1): Measurement grid: dx=12mm, dy=12mm Maximum value of SAR (measured) = 13.4 W/kg System Performance Check at Frequencies 2450MHz Head/d=10mm, Pin=250 mW, dist=4.0mm (EX-Probe)/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 62.29 V/m; Power Drift = 0.04 dB Peak SAR (extrapolated) = 29.3 W/kg SAR(1 g) = 13.3 W/kg; SAR(10 g) = 6.13 W/kg Maximum value of SAR (measured) = 18.9 W/kg  0 dB = 18.9 W/kg = 12.76 dBW/kg	

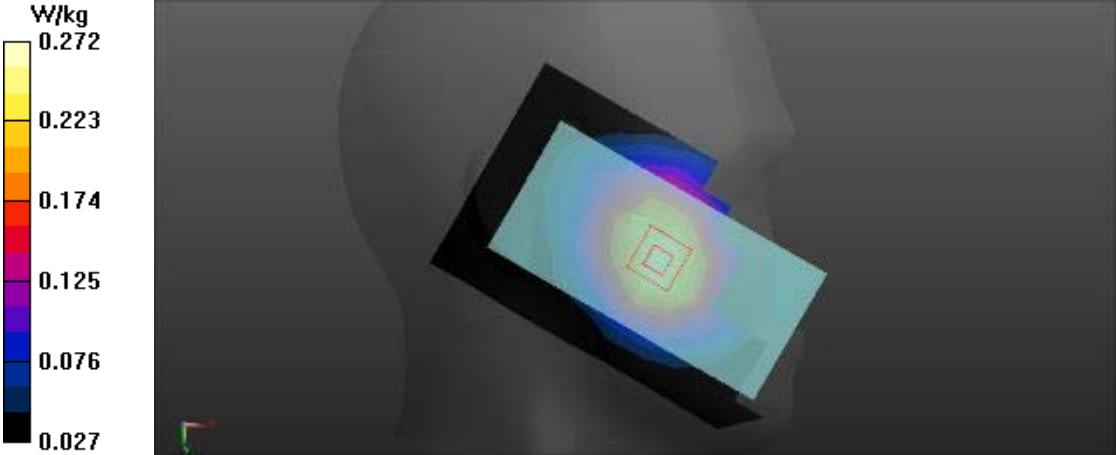
GSM (850MHz/Head)

Left Side	Cheek
Communication System: UID 0, Generic GSM (0); Frequency: 836.6 MHz; Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.915$ S/m; $\epsilon_r = 41.114$; $\rho = 1000$ kg/m³ Phantom section: Left Section DASY5 Configuration: - Probe: ES3DV3 - SN3127; ConvF(6.15, 6.15, 6.15); Calibrated: 2017/10/11; - Sensor-Surface: 3mm (Mechanical Surface Detection) - Electronics: DAE4 Sn546; Calibrated: 2017/9/15 - Phantom: 1660; Type: QD 000 P40 CD; Serial: xxxx - Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373) Head-Section Left HSL 850/850GSM HSL touch M/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.295 W/kg Head-Section Left HSL 850/850GSM HSL touch M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 4.846 V/m; Power Drift = -0.02 dB Peak SAR (extrapolated) = 0.333 W/kg SAR(1 g) = 0.266 W/kg; SAR(10 g) = 0.200 W/kg Maximum value of SAR (measured) = 0.294 W/kg	
	

Left Side	Tilt
Communication System: UID 0, Generic GSM (0); Frequency: 836.6 MHz; Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.915$ S/m; $\epsilon_r = 41.114$; $\rho = 1000$ kg/m³ Phantom section: Left Section DASY5 Configuration: - Probe: ES3DV3 - SN3127; ConvF(6.15, 6.15, 6.15); Calibrated: 2017/10/11; - Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 3mm (Mechanical Surface Detection) - Electronics: DAE4 Sn546; Calibrated: 2017/9/15 - Phantom: 1660; Type: QD 000 P40 CD; Serial: xxxx - Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373) Head-Section Left HSL 850/850GSM HSL tilt M/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.159 W/kg Head-Section Left HSL 850/850GSM HSL tilt M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 7.423 V/m; Power Drift = -0.05 dB Peak SAR (extrapolated) = 0.187 W/kg SAR(1 g) = 0.142 W/kg; SAR(10 g) = 0.107 W/kg Maximum value of SAR (measured) = 0.162 W/kg 	

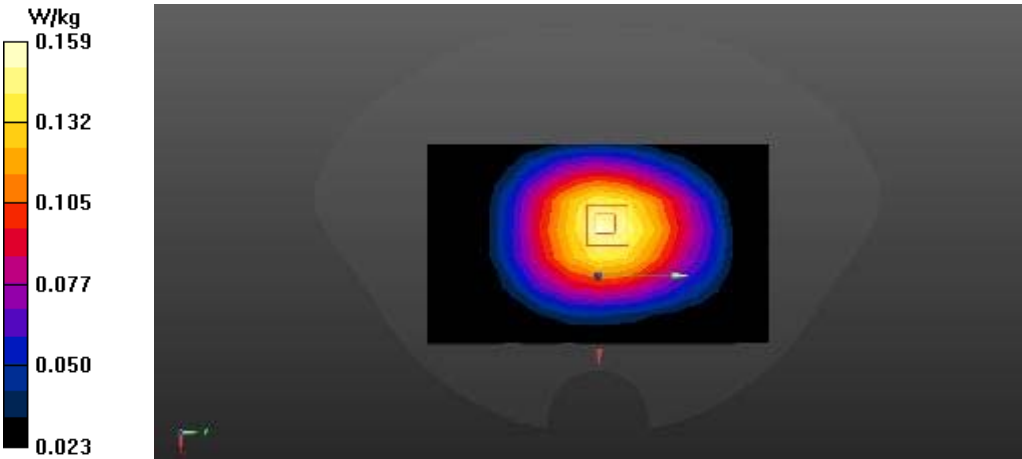
Right Side	Cheek
Communication System: UID 0, Generic GSM (0); Frequency: 824.2 MHz; Medium parameters used (interpolated): $f = 824.2$ MHz; $\sigma = 0.909$ S/m; $\epsilon_r = 42.593$; $\rho = 1000$ kg/m³ Phantom section: Right Section DASY5 Configuration: - Probe: ES3DV3 - SN3127; ConvF(6.15, 6.15, 6.15); Calibrated: 2017/10/11; - Sensor-Surface: 3mm (Mechanical Surface Detection) - Electronics: DAE4 Sn546; Calibrated: 2017/9/15 - Phantom: 1660; Type: QD 000 P40 CD; Serial: xxxx - Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373) Head-Section Right HSL 850/850GSM HSL touch L/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.263 W/kg Head-Section Right HSL 850/850GSM HSL touch L/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 6.718 V/m; Power Drift = 0.05 dB Peak SAR (extrapolated) = 0.321 W/kg SAR(1 g) = 0.247 W/kg; SAR(10 g) = 0.180 W/kg Maximum value of SAR (measured) = 0.275 W/kg 	

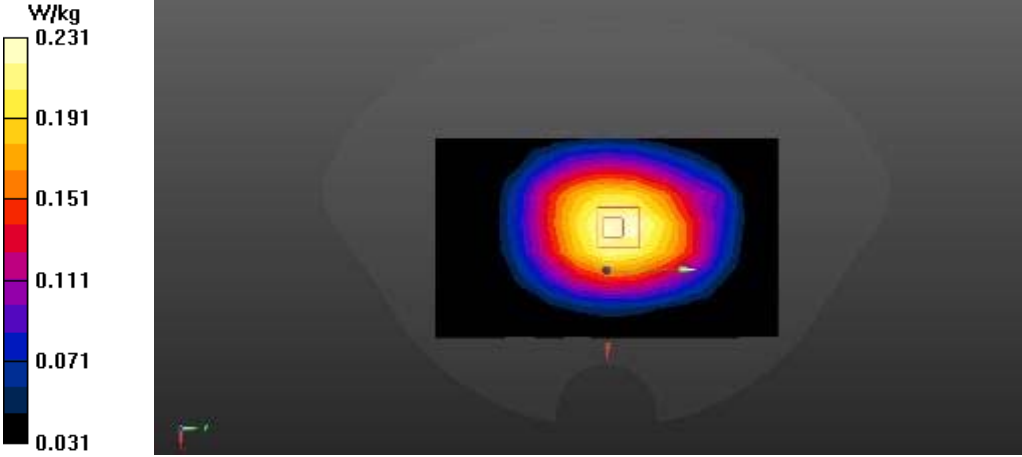
Right Side	Cheek
Communication System: UID 0, Generic GSM (0); Frequency: 836.6 MHz; Medium parameters used (interpolated): $f = 836.6 \text{ MHz}$; $\sigma = 0.915 \text{ S/m}$; $\epsilon_r = 41.114$; $\rho = 1000 \text{ kg/m}^3$ Phantom section: Right Section DASY5 Configuration: - Probe: ES3DV3 - SN3127; ConvF(6.15, 6.15, 6.15); Calibrated: 2017/10/11; - Sensor-Surface: 3mm (Mechanical Surface Detection) - Electronics: DAE4 Sn546; Calibrated: 2017/9/15 - Phantom: 1660; Type: QD 000 P40 CD; Serial: xxxx - Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373) Head-Section Right HSL 850/850GSM HSL touch M/Area Scan (8x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.292 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 = 3.837 V/m; Power Drift = 0.09 dB Peak SAR (extrapolated) = 0.338 W/kg SAR(1 g) = 0.270 W/kg; SAR(10 g) = 0.204 W/kg Maximum value of SAR (measured) = 0.298 W/kg	
	

Right Side	Cheek
Communication System: UID 0, Generic GSM (0); Frequency: 848.6 MHz; Medium parameters used (interpolated): $f = 848.6$ MHz; $\sigma = 0.916$ S/m; $\epsilon_r = 42.449$; $\rho = 1000$ kg/m³ Phantom section: Right Section DASY5 Configuration: - Probe: ES3DV3 - SN3127; ConvF(6.15, 6.15, 6.15); Calibrated: 2017/10/11; - Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 3mm (Mechanical Surface Detection) - Electronics: DAE4 Sn546; Calibrated: 2017/9/15 - Phantom: 1660; Type: QD 000 P40 CD; Serial: xxxx - Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373) Head-Section Right HSL 850/850GSM HSL touch H/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.260 W/kg Head-Section Right HSL 850/850GSM HSL touch H/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 6.300 V/m; Power Drift = -0.07 dB Peak SAR (extrapolated) = 0.316 W/kg SAR(1 g) = 0.244 W/kg; SAR(10 g) = 0.178 W/kg Maximum value of SAR (measured) = 0.272 W/kg	
	

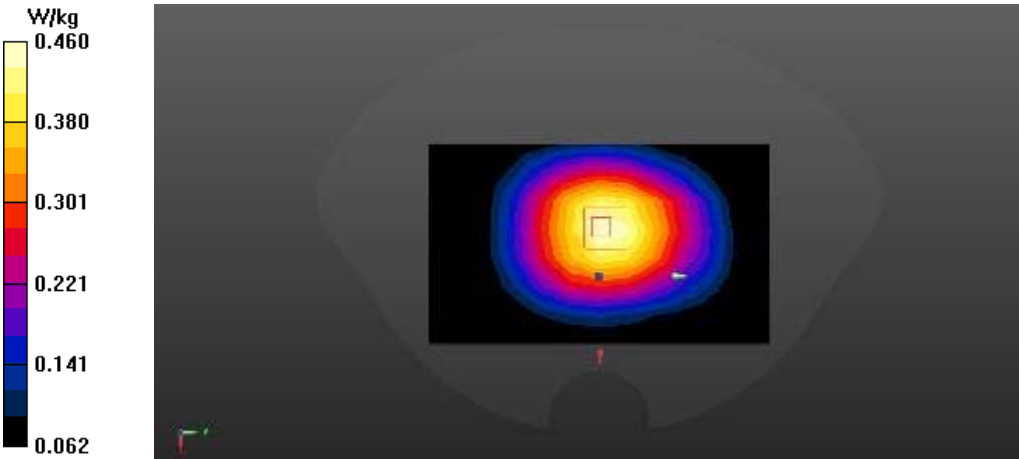
Right Side	Tilt
Communication System: UID 0, Generic GSM (0); Frequency: 836.6 MHz; Medium parameters used (interpolated): $f = 836.6 \text{ MHz}$; $\sigma = 0.915 \text{ S/m}$; $\epsilon_r = 41.114$; $\rho = 1000 \text{ kg/m}^3$ Phantom section: Right Section DASY5 Configuration: - Probe: ES3DV3 - SN3127; ConvF(6.15, 6.15, 6.15); Calibrated: 2017/10/11; - Sensor-Surface: 3mm (Mechanical Surface Detection) - Electronics: DAE4 Sn546; Calibrated: 2017/9/15 - Phantom: 1660; Type: QD 000 P40 CD; Serial: xxxx - Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373) Head-Section Right HSL 850/850GSM HSL tilt M/Area Scan (8x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.167 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 = 8.010 V/m; Power Drift = -0.12 dB Peak SAR (extrapolated) = 0.195 W/kg SAR(1 g) = 0.153 W/kg; SAR(10 g) = 0.115 W/kg Maximum value of SAR (measured) = 0.168 W/kg	

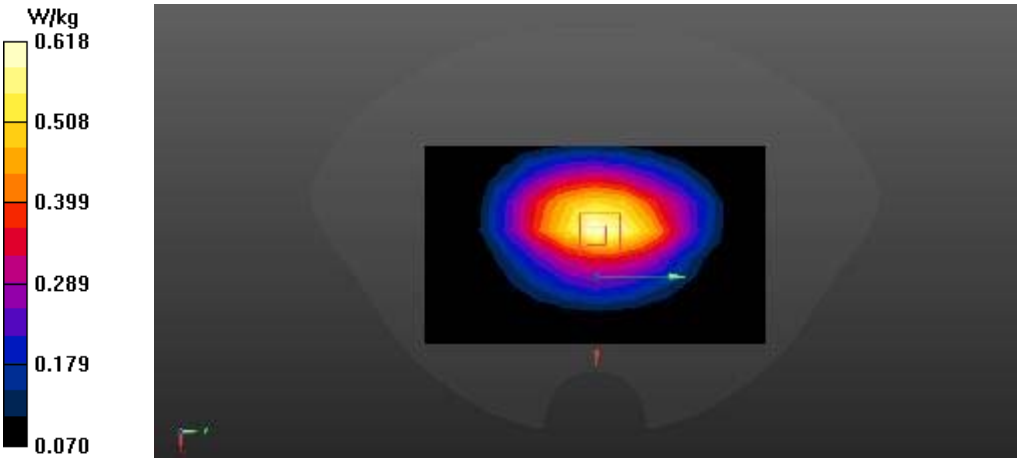
GSM with headset (850MHz/Flat)

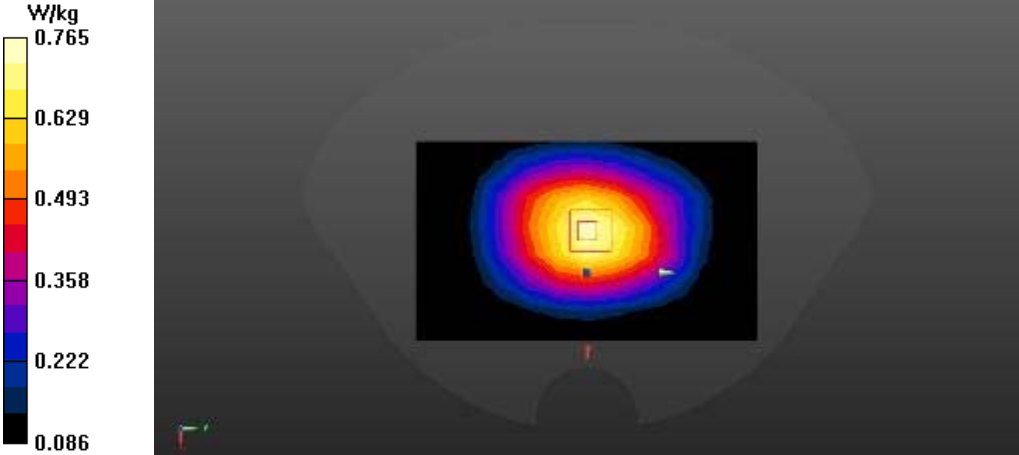
FLAT	Towards phantom
Communication System: UID 0, Generic GSM (0); Frequency: 836.6 MHz; Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.966$ S/m; $\epsilon_r = 56.196$; $\rho = 1000$ kg/m³ Phantom section: Flat Section DASY5 Configuration: - Probe: ES3DV3 - SN3127; ConvF(6.06, 6.06, 6.06); Calibrated: 10/11/2017; - Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 3mm (Mechanical Surface Detection) - Electronics: DAE4 Sn546; Calibrated: 10/23/2017 - Phantom: 1660; Type: QD 000 P40 CD; Serial: xxxx - Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373) Configuration/GSM850 TP M 10mm M 2 2 2/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.155 W/kg Configuration/GSM850 TP M 10mm M 2 2 2/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 12.63 V/m; Power Drift = -0.02 dB Peak SAR (extrapolated) = 0.187 W/kg SAR(1 g) = 0.143 W/kg; SAR(10 g) = 0.105 W/kg Maximum value of SAR (measured) = 0.159 W/kg	
	

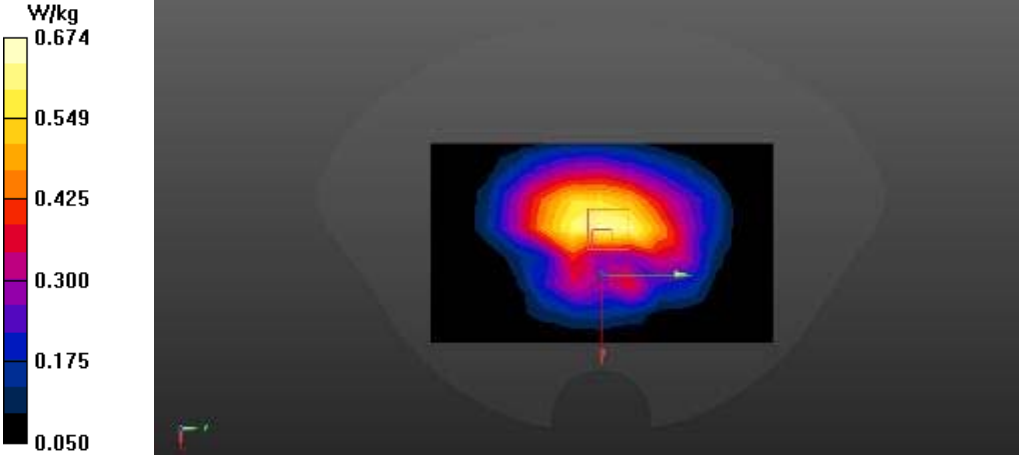
FLAT	Towards ground
Communication System: UID 0, Generic GSM (0); Frequency: 836.6 MHz; Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.966$ S/m; $\epsilon_r = 56.196$; $\rho = 1000$ kg/m³ Phantom section: Flat Section DASY5 Configuration: - Probe: ES3DV3 - SN3127; ConvF(6.06, 6.06, 6.06); Calibrated: 10/11/2017; - Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 3mm (Mechanical Surface Detection) - Electronics: DAE4 Sn546; Calibrated: 10/23/2017 - Phantom: 1660; Type: QD 000 P40 CD; Serial: xxxx - Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373) Configuration/GSM850 TG M 10mm M 2 2/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.228 W/kg Configuration/GSM850 TG M 10mm M 2 2/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 15.53 V/m; Power Drift = 0.05 dB Peak SAR (extrapolated) = 0.270 W/kg SAR(1 g) = 0.209 W/kg; SAR(10 g) = 0.157 W/kg Maximum value of SAR (measured) = 0.231 W/kg 	

GSM (850MHz with GPRS/Flat)

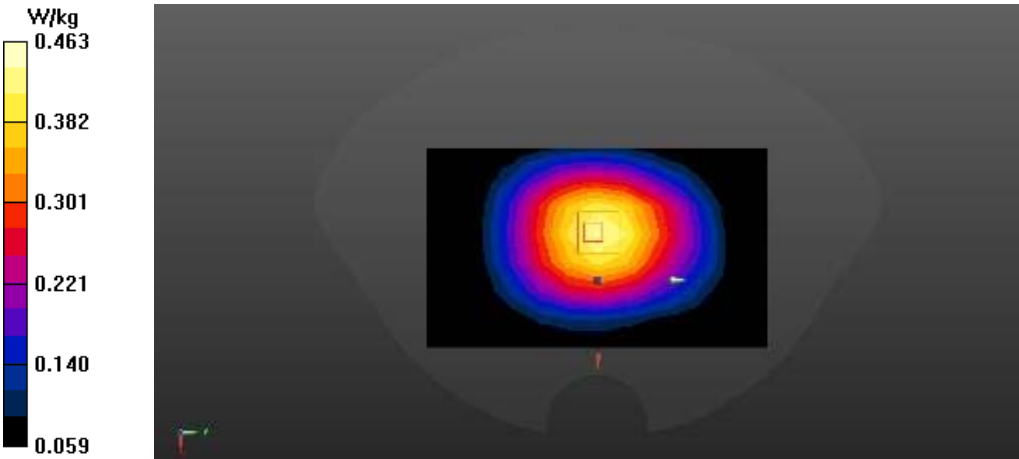
FLAT	Towards phantom
Communication System: UID 0, Generic GSM (0); Frequency: 836.6 MHz; Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.966$ S/m; $\epsilon_r = 56.196$; $\rho = 1000$ kg/m³ Phantom section: Flat Section DASY5 Configuration: - Probe: ES3DV3 - SN3127; ConvF(6.06, 6.06, 6.06); Calibrated: 10/11/2017; - Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 3mm (Mechanical Surface Detection) - Electronics: DAE4 Sn546; Calibrated: 10/23/2017 - Phantom: 1660; Type: QD 000 P40 CD; Serial: xxxx - Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373) Configuration/GPRS850 TP M 10mm M 2/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.469 W/kg Configuration/GPRS850 TP M 10mm M 2/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 21.99 V/m; Power Drift = -0.11 dB Peak SAR (extrapolated) = 0.536 W/kg SAR(1 g) = 0.410 W/kg; SAR(10 g) = 0.301 W/kg Maximum value of SAR (measured) = 0.460 W/kg	
	

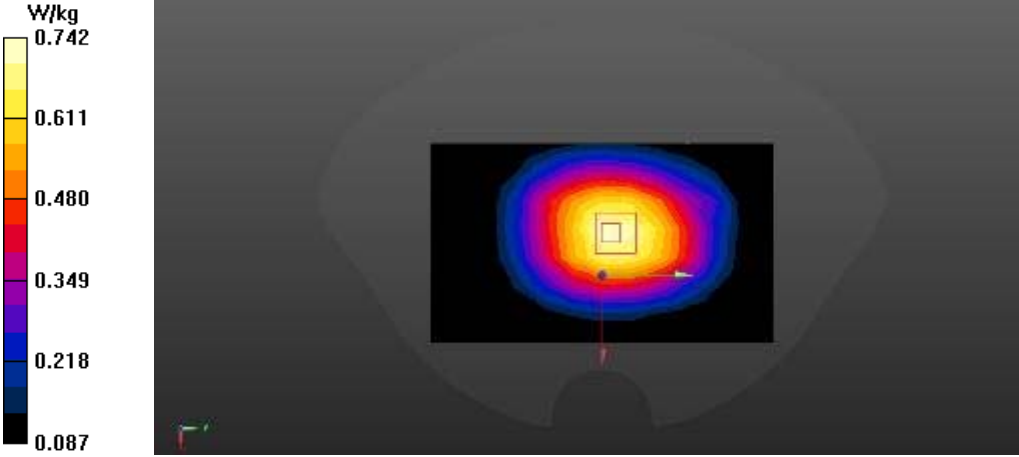
FLAT	Towards ground
Communication System: UID 0, Generic GSM (0); Frequency: 824.2 MHz; Medium parameters used (interpolated): $f = 824.2$ MHz; $\sigma = 0.969$ S/m; $\epsilon_r = 54.581$; $\rho = 1000$ kg/m³ Phantom section: Flat Section DASY5 Configuration: - Probe: ES3DV3 - SN3127; ConvF(6.06, 6.06, 6.06); Calibrated: 10/11/2017; - Sensor-Surface: 3mm (Mechanical Surface Detection) - Electronics: DAE4 Sn546; Calibrated: 10/23/2017 - Phantom: 1660; Type: QD 000 P40 CD; Serial: xxxx - Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373) Configuration/GPRS850 TG M 10mm L/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.622 W/kg Configuration/GPRS850 TG M 10mm L/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 20.46 V/m; Power Drift = 0.03 dB Peak SAR (extrapolated) = 0.744 W/kg SAR(1 g) = 0.551 W/kg; SAR(10 g) = 0.400 W/kg Maximum value of SAR (measured) = 0.618 W/kg 	

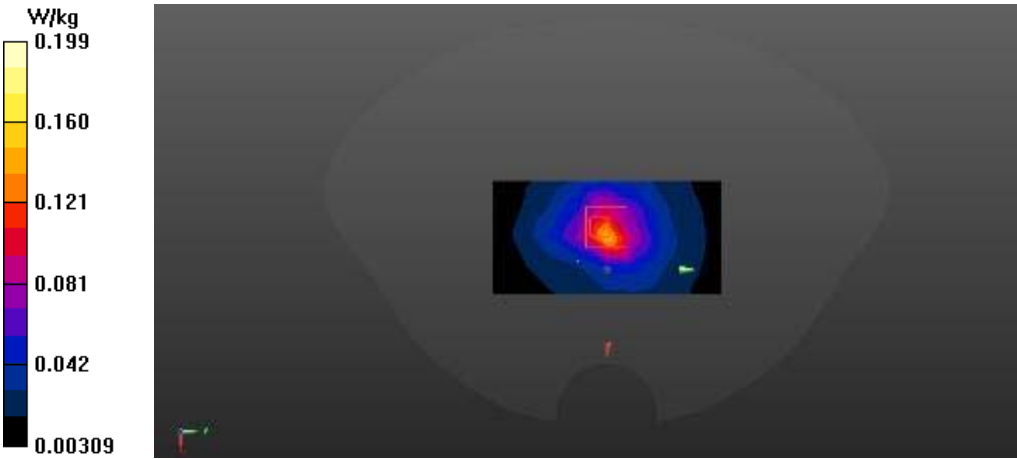
FLAT	Towards ground
Communication System: UID 0, Generic GSM (0); Frequency: 836.6 MHz; Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.966$ S/m; $\epsilon_r = 56.196$; $\rho = 1000$ kg/m³ Phantom section: Flat Section DASY5 Configuration: - Probe: ES3DV3 - SN3127; ConvF(6.06, 6.06, 6.06); Calibrated: 10/11/2017; - Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 3mm (Mechanical Surface Detection) - Electronics: DAE4 Sn546; Calibrated: 10/23/2017 - Phantom: 1660; Type: QD 000 P40 CD; Serial: xxxx - Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373) Configuration/GPRS850 TG M 10mm M/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.750 W/kg Configuration/GPRS850 TG M 10mm M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 28.46 V/m; Power Drift = 0.07 dB Peak SAR (extrapolated) = 0.915 W/kg SAR(1 g) = 0.677 W/kg; SAR(10 g) = 0.491 W/kg Maximum value of SAR (measured) = 0.765 W/kg  W/kg 0.765 0.629 0.493 0.358 0.222 0.086	

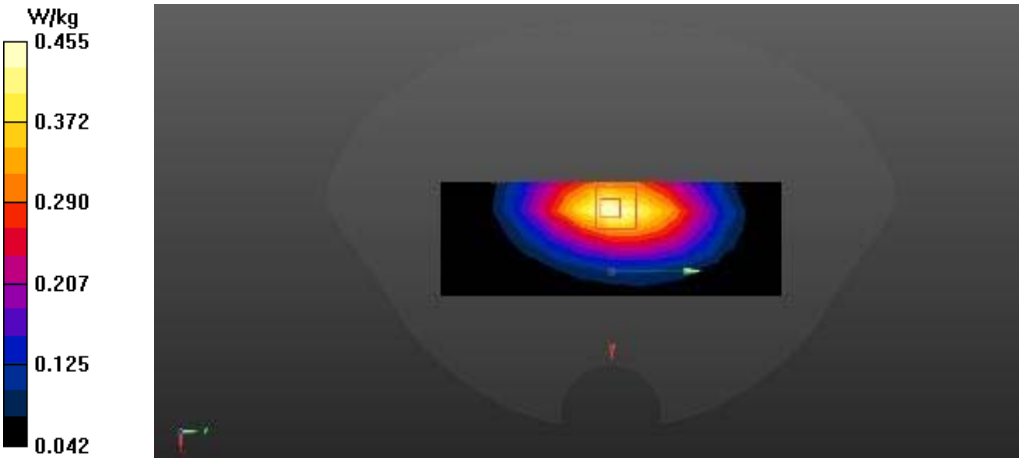
FLAT	Towards ground
Communication System: UID 0, Generic GSM (0); Frequency: 848.6 MHz; Medium parameters used (interpolated): $f = 848.6$ MHz; $\sigma = 0.982$ S/m; $\epsilon_r = 54.49$; $\rho = 1000$ kg/m³ Phantom section: Flat Section DASY5 Configuration: - Probe: ES3DV3 - SN3127; ConvF(6.06, 6.06, 6.06); Calibrated: 10/11/2017; - Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 3mm (Mechanical Surface Detection) - Electronics: DAE4 Sn546; Calibrated: 10/23/2017 - Phantom: 1660; Type: QD 000 P40 CD; Serial: xxxx - Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373) Configuration/GPRS850 TG M 10mm H/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.649 W/kg Configuration/GPRS850 TG M 10mm H/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 17.79 V/m; Power Drift = 0.10 dB Peak SAR (extrapolated) = 1.31 W/kg SAR(1 g) = 0.605 W/kg; SAR(10 g) = 0.432 W/kg Maximum value of SAR (measured) = 0.674 W/kg 	

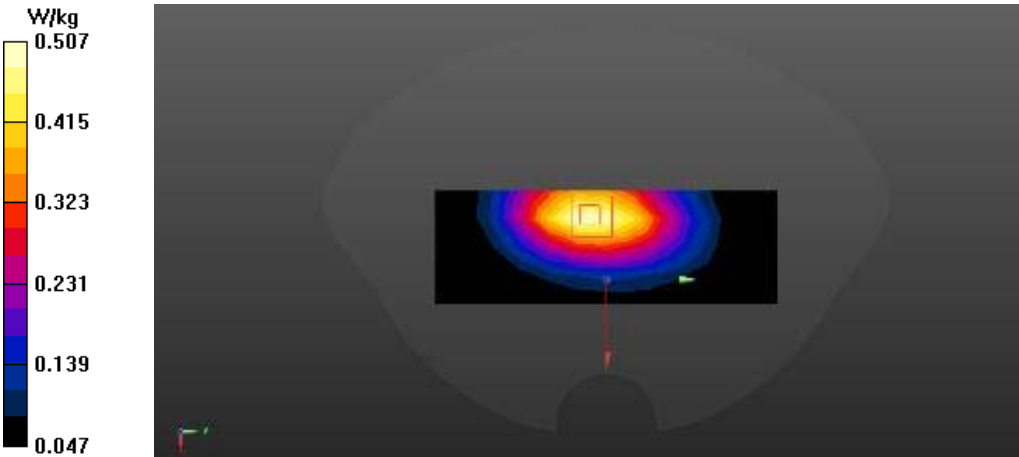
GSM (850MHz with EGPRS/Flat)

FLAT	Towards phantom
Communication System: UID 0, Generic GSM (0); Frequency: 836.6 MHz; Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.966$ S/m; $\epsilon_r = 56.196$; $\rho = 1000$ kg/m³ Phantom section: Flat Section DASY5 Configuration: - Probe: ES3DV3 - SN3127; ConvF(6.06, 6.06, 6.06); Calibrated: 10/11/2017; - Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 3mm (Mechanical Surface Detection) - Electronics: DAE4 Sn546; Calibrated: 10/23/2017 - Phantom: 1660; Type: QD 000 P40 CD; Serial: xxxx - Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373) Configuration/EGPRS850 TP M 10mm M 2 2/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.441 W/kg Configuration/EGPRS850 TP M 10mm M 2 2/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 21.80 V/m; Power Drift = 0.02 dB Peak SAR (extrapolated) = 0.550 W/kg SAR(1 g) = 0.410 W/kg; SAR(10 g) = 0.301 W/kg Maximum value of SAR (measured) = 0.463 W/kg	
	

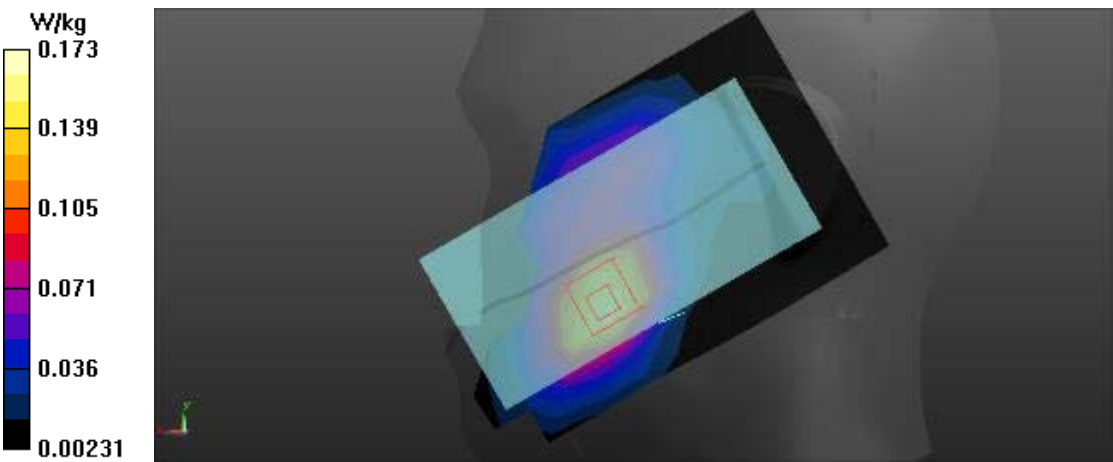
FLAT	Towards ground
Communication System: UID 0, Generic GSM (0); Frequency: 836.6 MHz; Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.966$ S/m; $\epsilon_r = 56.196$; $\rho = 1000$ kg/m³ Phantom section: Flat Section DASY5 Configuration: - Probe: ES3DV3 - SN3127; ConvF(6.06, 6.06, 6.06); Calibrated: 10/11/2017; - Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 3mm (Mechanical Surface Detection) - Electronics: DAE4 Sn546; Calibrated: 10/23/2017 - Phantom: 1660; Type: QD 000 P40 CD; Serial: xxxx - Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373) Configuration/EGPRS850 TG M 10mm M 2/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.739 W/kg Configuration/EGPRS850 TG M 10mm M 2/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 27.94 V/m; Power Drift = 0.02 dB Peak SAR (extrapolated) = 0.905 W/kg SAR(1 g) = 0.664 W/kg; SAR(10 g) = 0.482 W/kg Maximum value of SAR (measured) = 0.742 W/kg	
	

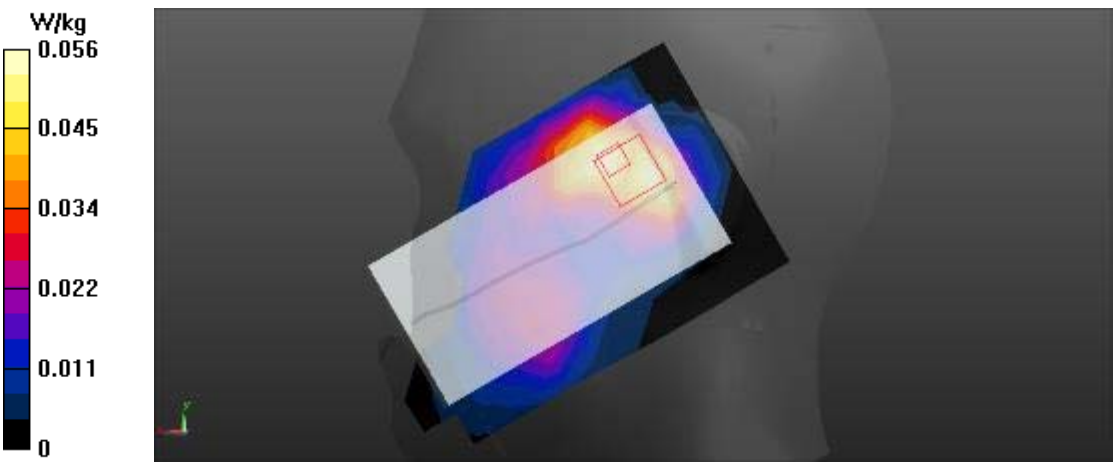
FLAT	EDGE2
Communication System: UID 0, Generic GSM (0); Frequency: 836.6 MHz; Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.966$ S/m; $\epsilon_r = 56.196$; $\rho = 1000$ kg/m³ Phantom section: Flat Section DASY5 Configuration: - Probe: ES3DV3 - SN3127; ConvF(6.06, 6.06, 6.06); Calibrated: 10/11/2017; - Sensor-Surface: 3mm (Mechanical Surface Detection) - Electronics: DAE4 Sn546; Calibrated: 10/23/2017 - Phantom: 1660; Type: QD 000 P40 CD; Serial: xxxx - Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373) HOT/GPRS850 M edge 2/Area Scan (5x9x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.150 W/kg HOT/GPRS850 M edge 2/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 12.87 V/m; Power Drift = -0.08 dB Peak SAR (extrapolated) = 0.495 W/kg SAR(1 g) = 0.149 W/kg; SAR(10 g) = 0.064 W/kg Maximum value of SAR (measured) = 0.199 W/kg 	

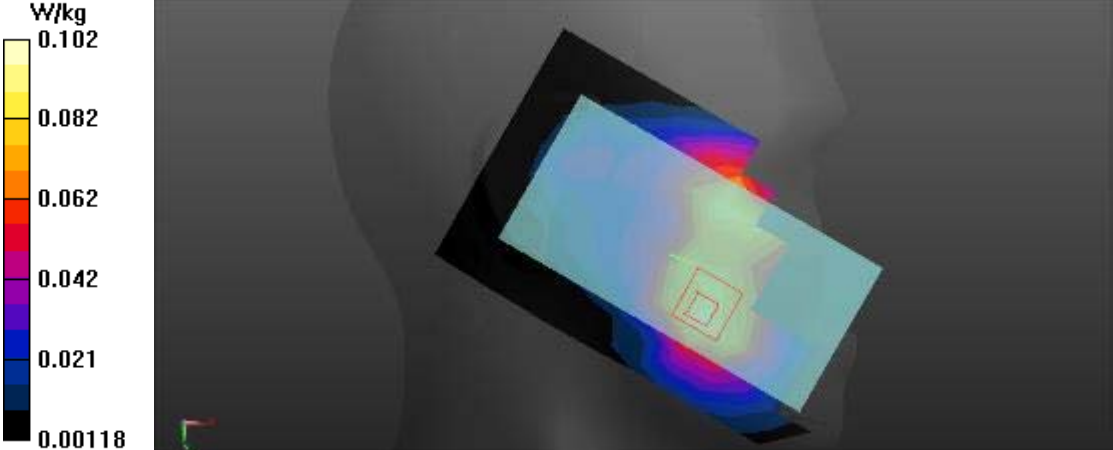
FLAT	EDGE3
Communication System: UID 0, Generic GSM (0); Frequency: 836.6 MHz; Medium parameters used (interpolated): $f = 836.6 \text{ MHz}$; $\sigma = 0.966 \text{ S/m}$; $\epsilon_r = 56.196$; $\rho = 1000 \text{ kg/m}^3$ Phantom section: Flat Section DASY5 Configuration: - Probe: ES3DV3 - SN3127; ConvF(6.06, 6.06, 6.06); Calibrated: 10/11/2017; - Sensor-Surface: 3mm (Mechanical Surface Detection) - Electronics: DAE4 Sn546; Calibrated: 10/23/2017 - Phantom: 1660; Type: QD 000 P40 CD; Serial: xxxx - Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373) HOT/GPRS850 M edge 3 M/Area Scan (5x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.468 W/kg HOT/GPRS850 M edge 3 M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 17.23 V/m; Power Drift = 0.09 dB Peak SAR (extrapolated) = 0.605 W/kg SAR(1 g) = 0.388 W/kg; SAR(10 g) = 0.255 W/kg Maximum value of SAR (measured) = 0.455 W/kg 	

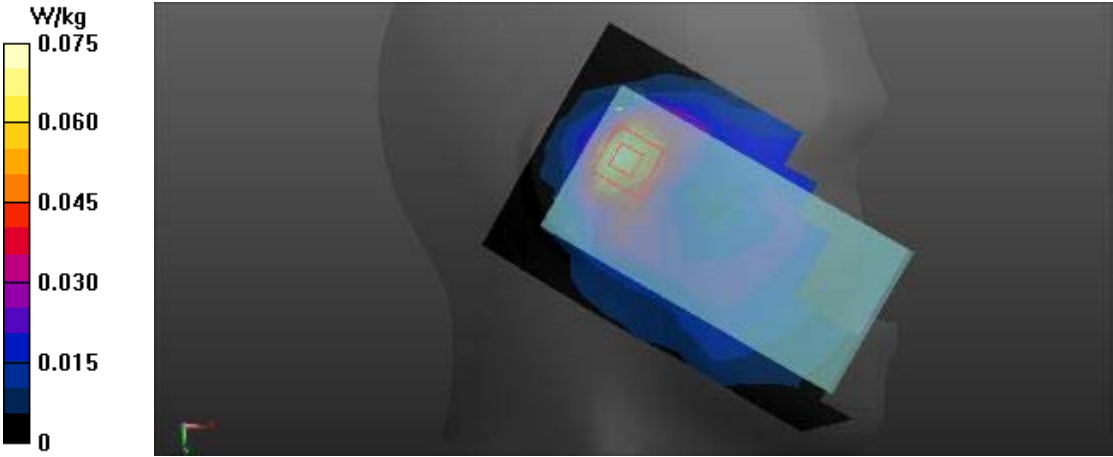
FLAT	EDGE4
Communication System: UID 0, Generic GSM (0); Frequency: 836.6 MHz; Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.966$ S/m; $\epsilon_r = 56.196$; $\rho = 1000$ kg/m³ Phantom section: Flat Section DASY5 Configuration: - Probe: ES3DV3 - SN3127; ConvF(6.06, 6.06, 6.06); Calibrated: 10/11/2017; - Sensor-Surface: 3mm (Mechanical Surface Detection) - Electronics: DAE4 Sn546; Calibrated: 10/23/2017 - Phantom: 1660; Type: QD 000 P40 CD; Serial: xxxx - Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373) HOT/GPRS850 M edge 4 M 2/Area Scan (5x13x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.508 W/kg HOT/GPRS850 M edge 4 M 2/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 18.44 V/m; Power Drift = -0.13 dB Peak SAR (extrapolated) = 0.640 W/kg SAR(1 g) = 0.437 W/kg; SAR(10 g) = 0.294 W/kg Maximum value of SAR (measured) = 0.507 W/kg 	

GSM (1900MHz/Head)

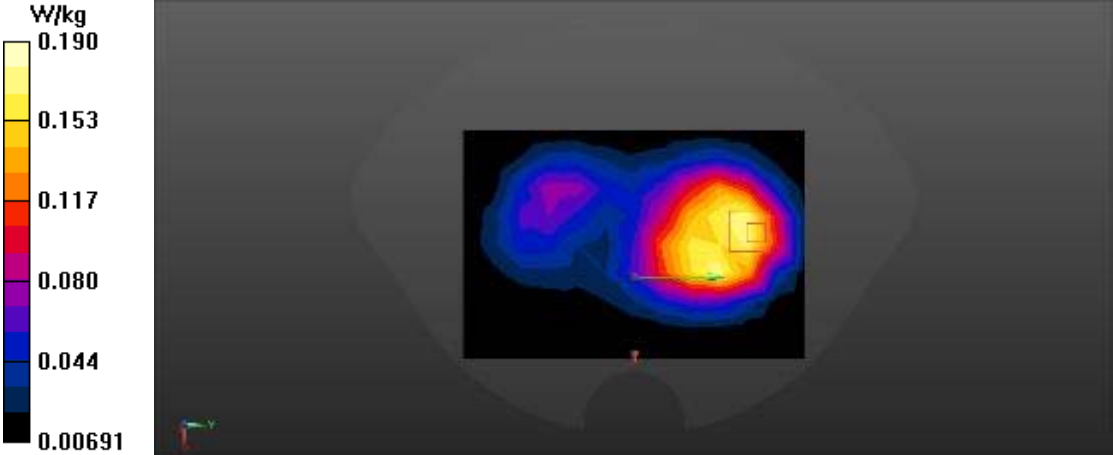
Left Side	Cheek
Communication System: UID 0, Generic GSM (0); Frequency: 1880 MHz; Medium parameters used (interpolated): $f = 1880$ MHz; $\sigma = 1.465$ S/m; $\epsilon_r = 40.422$; $\rho = 1000$ kg/m³ Phantom section: Left Section DASY5 Configuration: - Probe: ES3DV3 - SN3127; ConvF(5.06, 5.06, 5.06); Calibrated: 2017/10/11; - Sensor-Surface: 3mm (Mechanical Surface Detection) - Electronics: DAE4 Sn546; Calibrated: 2017/9/15 - Phantom: 1660; Type: QD 000 P40 CD; Serial: xxxx - Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373) Head-Section Left HSL 1900/1900GSM HSL touch M/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.156 W/kg Head-Section Left HSL 1900/1900GSM HSL touch M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 3.908 V/m; Power Drift = 0.00 dB Peak SAR (extrapolated) = 0.230 W/kg SAR(1 g) = 0.145 W/kg; SAR(10 g) = 0.088 W/kg Maximum value of SAR (measured) = 0.173 W/kg 	

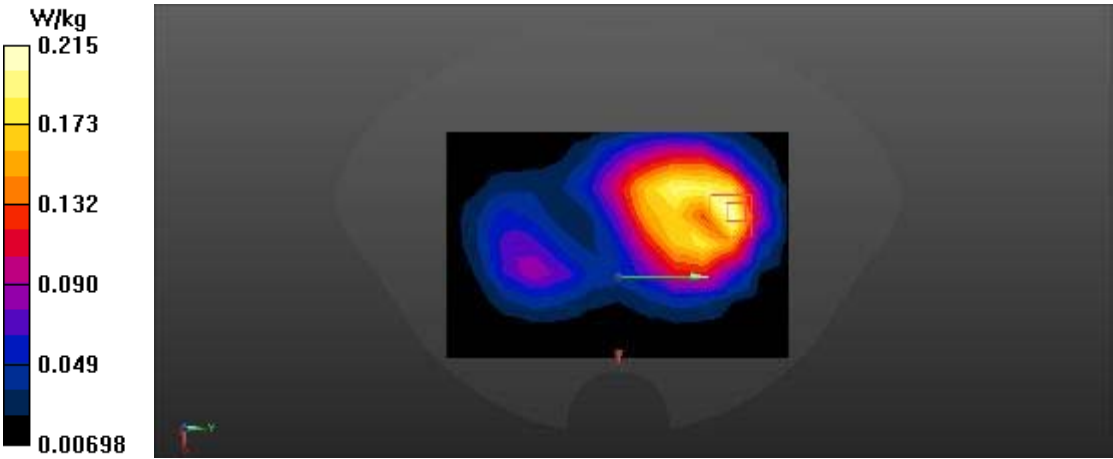
Left Side	Tilt
Communication System: UID 0, Generic GSM (0); Frequency: 1880 MHz; Medium parameters used (interpolated): $f = 1880$ MHz; $\sigma = 1.465$ S/m; $\epsilon_r = 40.422$; $\rho = 1000$ kg/m³ Phantom section: Left Section DASY5 Configuration: - Probe: ES3DV3 - SN3127; ConvF(5.06, 5.06, 5.06); Calibrated: 2017/10/11; - Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 3mm (Mechanical Surface Detection) - Electronics: DAE4 Sn546; Calibrated: 2017/9/15 - Phantom: 1660; Type: QD 000 P40 CD; Serial: xxxx - Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373) Head-Section Left HSL 1900/1900GSM HSL tilt M/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.0571 W/kg Head-Section Left HSL 1900/1900GSM HSL tilt M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 5.634 V/m; Power Drift = 0.10 dB Peak SAR (extrapolated) = 0.120 W/kg SAR(1 g) = 0.049 W/kg; SAR(10 g) = 0.028 W/kg Maximum value of SAR (measured) = 0.0561 W/kg 	

Right Side	Cheek
Communication System: UID 0, Generic GSM (0); Frequency: 1880 MHz; Medium parameters used (interpolated): $f = 1880$ MHz; $\sigma = 1.465$ S/m; $\epsilon_r = 40.422$; $\rho = 1000$ kg/m³ Phantom section: Right Section DASY5 Configuration: - Probe: ES3DV3 - SN3127; ConvF(5.06, 5.06, 5.06); Calibrated: 2017/10/11; - Sensor-Surface: 3mm (Mechanical Surface Detection) - Electronics: DAE4 Sn546; Calibrated: 2017/9/15 - Phantom: 1660; Type: QD 000 P40 CD; Serial: xxxx - Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373) Head-Section Right HSL 1900/1900GSM HSL touch M/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.0945 W/kg Head-Section Right HSL 1900/1900GSM HSL touch M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 3.880 V/m; Power Drift = 0.14 dB Peak SAR (extrapolated) = 0.131 W/kg SAR(1 g) = 0.087 W/kg; SAR(10 g) = 0.055 W/kg Maximum value of SAR (measured) = 0.102 W/kg 	

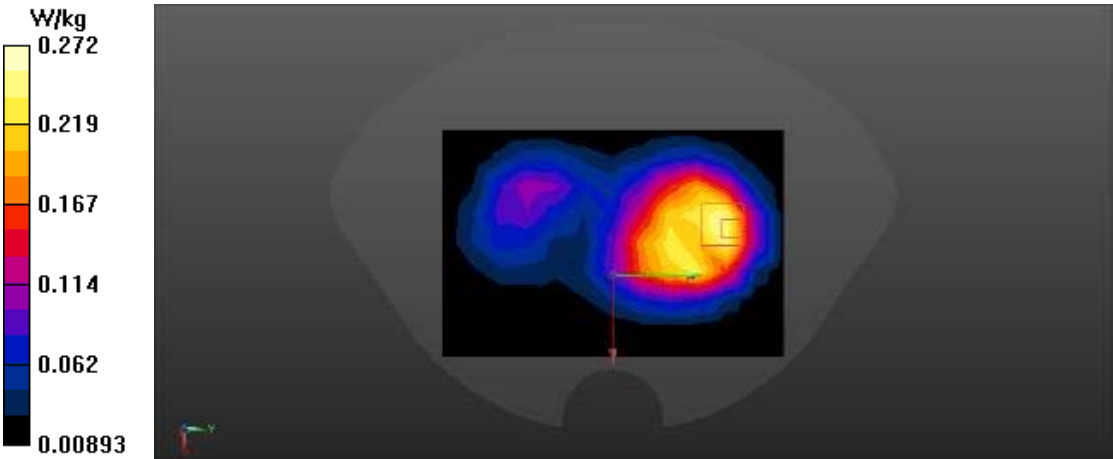
Right Side	Tilt
Communication System: UID 0, Generic GSM (0); Frequency: 1880 MHz; Medium parameters used (interpolated): $f = 1880$ MHz; $\sigma = 1.465$ S/m; $\epsilon_r = 40.422$; $\rho = 1000$ kg/m³ Phantom section: Right Section DASY5 Configuration: - Probe: ES3DV3 - SN3127; ConvF(5.06, 5.06, 5.06); Calibrated: 2017/10/11; - Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 3mm (Mechanical Surface Detection) - Electronics: DAE4 Sn546; Calibrated: 2017/9/15 - Phantom: 1660; Type: QD 000 P40 CD; Serial: xxxx - Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373) Head-Section Right HSL 1900/1900GSM HSL tilt M/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.0747 W/kg Head-Section Right HSL 1900/1900GSM HSL tilt M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 5.946 V/m; Power Drift = -0.06 dB Peak SAR (extrapolated) = 0.107 W/kg SAR(1 g) = 0.062 W/kg; SAR(10 g) = 0.034 W/kg Maximum value of SAR (measured) = 0.0765 W/kg 	

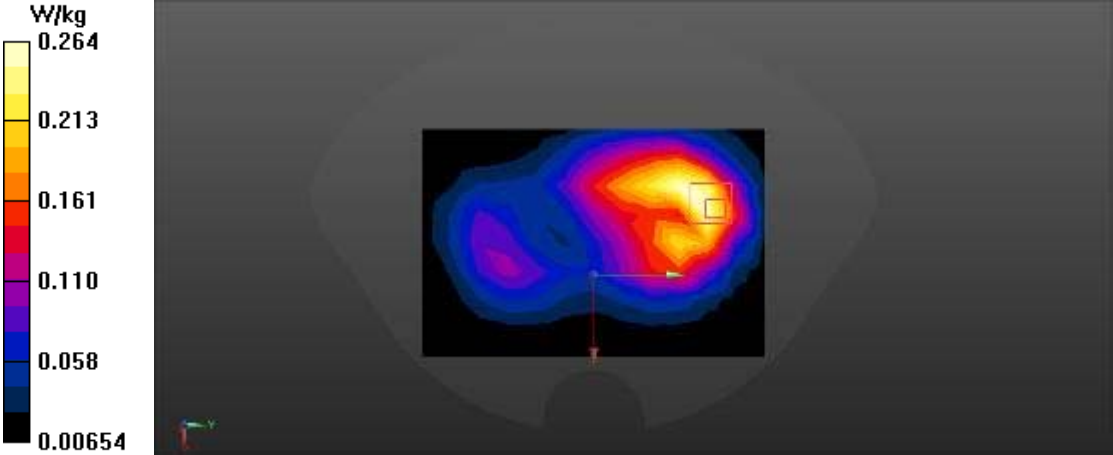
GSM with headset (1900MHz/Flat)

FLAT	Towards phantom
Communication System: UID 0, Generic GSM (0); Frequency: 1880 MHz; Medium parameters used (interpolated): $f = 1880$ MHz; $\sigma = 1.538$ S/m; $\epsilon_r = 52.717$; $\rho = 1000$ kg/m³ Phantom section: Flat Section DASY5 Configuration: - Probe: ES3DV3 - SN3127; ConvF(4.83, 4.83, 4.83); Calibrated: 2017/10/11; - Sensor-Surface: 3mm (Mechanical Surface Detection) - Electronics: DAE4 Sn546; Calibrated: 2017/9/15 - Phantom: 1659; Type: QD 000 P40 CD; Serial: xxxx - Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373) Flat-Section MSL GSM1900 TP/GSM1900 TP M 10mm/Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.173 W/kg Flat-Section MSL GSM1900 TP/GSM1900 TP M 10mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 6.267 V/m; Power Drift = -0.01 dB Peak SAR (extrapolated) = 0.263 W/kg SAR(1 g) = 0.157 W/kg; SAR(10 g) = 0.092 W/kg. Maximum value of SAR (measured) = 0.190 W/kg	
	

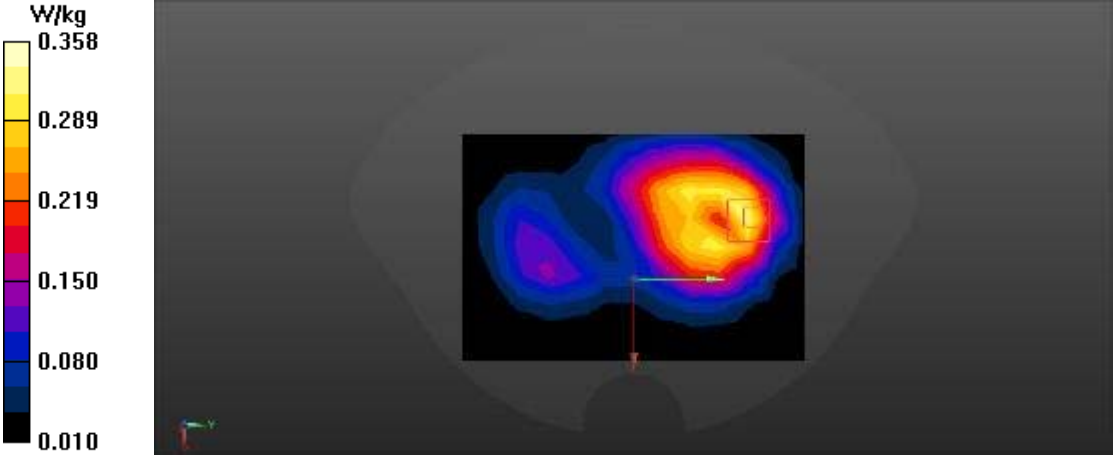
FLAT	Towards ground
Communication System: UID 0, Generic GSM (0); Frequency: 1880 MHz; Medium parameters used (interpolated): $f = 1880 \text{ MHz}$; $\sigma = 1.538 \text{ S/m}$; $\epsilon_r = 52.717$; $\rho = 1000 \text{ kg/m}^3$ Phantom section: Flat Section DASY5 Configuration: - Probe: ES3DV3 - SN3127; ConvF(4.83, 4.83, 4.83); Calibrated: 2017/10/11; - Sensor-Surface: 3mm (Mechanical Surface Detection) - Electronics: DAE4 Sn546; Calibrated: 2017/9/15 - Phantom: 1659; Type: QD 000 P40 CD; Serial: xxxx - Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373) Flat-Section MSL GSM1900 TG/GSM1900 TG M 10mm/Area Scan (9x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.214 W/kg Flat-Section MSL GSM1900 TG/GSM1900 TG M 10mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 6.289 V/m; Power Drift = -0.07 dB Peak SAR (extrapolated) = 0.301 W/kg SAR(1 g) = 0.175 W/kg; SAR(10 g) = 0.100 W/kg Maximum value of SAR (measured) = 0.215 W/kg	
	

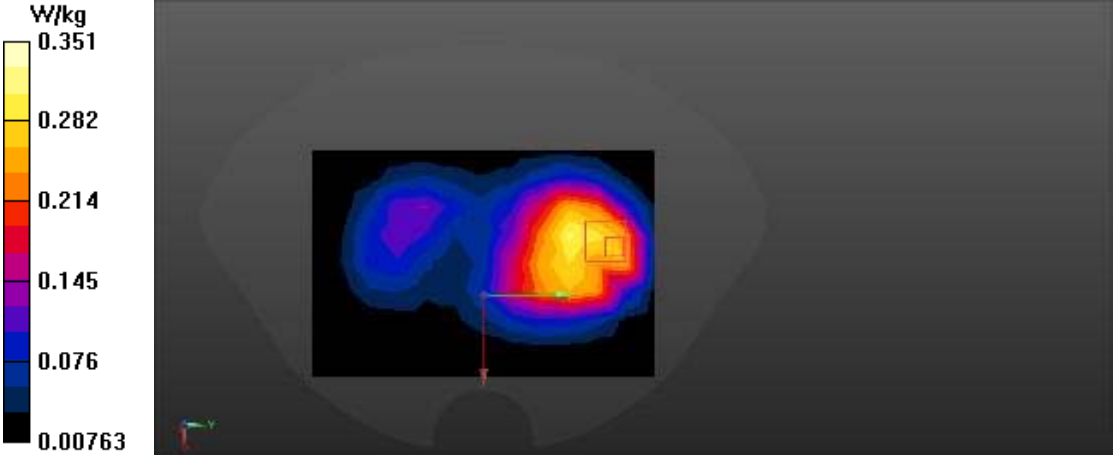
GSM (1900MHz with GPRS/Flat)

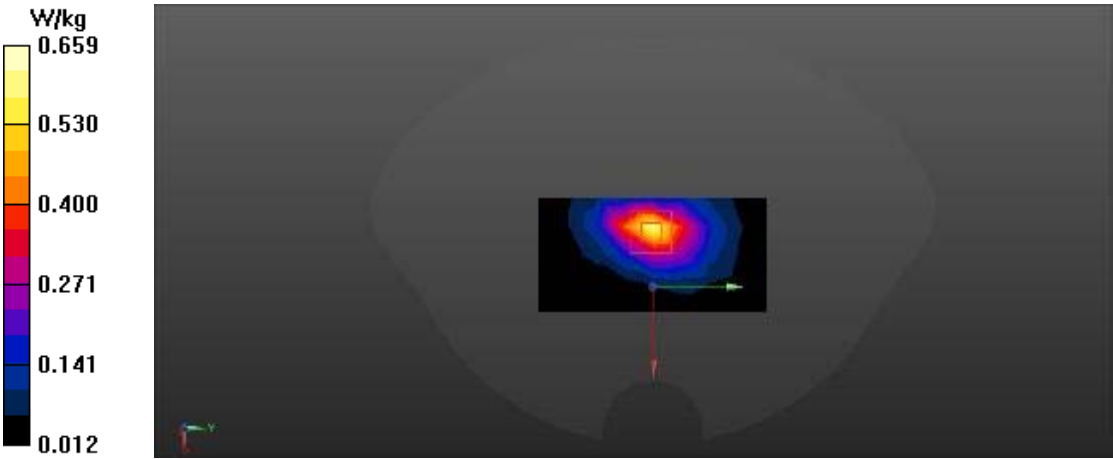
FLAT	Towards phantom
Communication System: UID 0, Generic GSM (0); Frequency: 1880 MHz; Medium parameters used (interpolated): $f = 1880$ MHz; $\sigma = 1.538$ S/m; $\epsilon_r = 52.717$; $\rho = 1000$ kg/m³ Phantom section: Flat Section DASY5 Configuration: - Probe: ES3DV3 - SN3127; ConvF(4.83, 4.83, 4.83); Calibrated: 2017/10/11; - Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 3mm (Mechanical Surface Detection) - Electronics: DAE4 Sn546; Calibrated: 2017/9/15 - Phantom: 1659; Type: QD 000 P40 CD; Serial: xxxx - Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373) Flat-Section MSL GSM1900 TP/GPRS1900 TP M 10mm/Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.248 W/kg Flat-Section MSL GSM1900 TP/GPRS1900 TP M 10mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 7.804 V/m; Power Drift = 0.17 dB Peak SAR (extrapolated) = 0.373 W/kg SAR(1 g) = 0.221 W/kg; SAR(10 g) = 0.129 W/kg Maximum value of SAR (measured) = 0.272 W/kg	
	

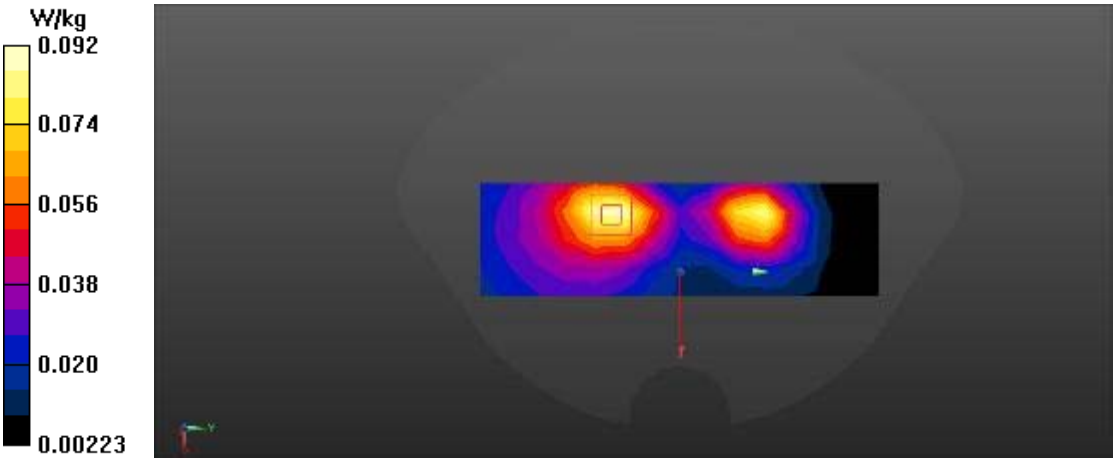
FLAT	Towards ground
Communication System: UID 0, Generic GSM (0); Frequency: 1880 MHz; Medium parameters used (interpolated): $f = 1880$ MHz; $\sigma = 1.538$ S/m; $\epsilon_r = 52.717$; $\rho = 1000$ kg/m³ Phantom section: Flat Section DASY5 Configuration: - Probe: ES3DV3 - SN3127; ConvF(4.83, 4.83, 4.83); Calibrated: 2017/10/11; - Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 3mm (Mechanical Surface Detection) - Electronics: DAE4 Sn546; Calibrated: 2017/9/15 - Phantom: 1659; Type: QD 000 P40 CD; Serial: xxxx - Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373) Flat-Section MSL GSM1900 TG/GPRS1900 TG M 10mm/Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.261 W/kg Flat-Section MSL GSM1900 TG/GPRS1900 TG M 10mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 7.061 V/m; Power Drift = -0.01 dB Peak SAR (extrapolated) = 0.389 W/kg SAR(1 g) = 0.220 W/kg; SAR(10 g) = 0.120 W/kg Maximum value of SAR (measured) = 0.264 W/kg	
	

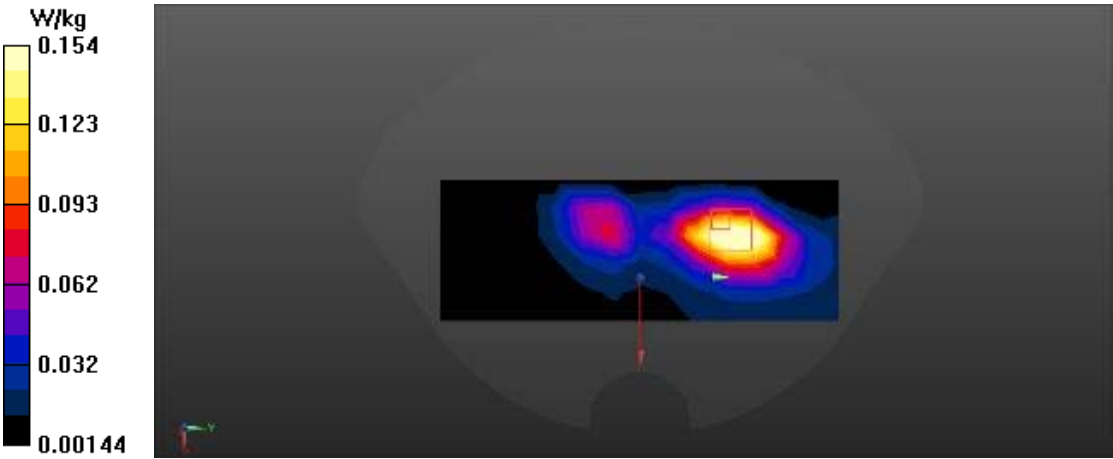
GSM (1900MHz with EGPRS/Flat)

FLAT	Towards phantom
Communication System: UID 0, Generic GSM (0); Frequency: 1880 MHz; Medium parameters used (interpolated): $f = 1880$ MHz; $\sigma = 1.538$ S/m; $\epsilon_r = 52.717$; $\rho = 1000$ kg/m³ Phantom section: Flat Section DASY5 Configuration: - Probe: ES3DV3 - SN3127; ConvF(4.83, 4.83, 4.83); Calibrated: 2017/10/11; - Sensor-Surface: 3mm (Mechanical Surface Detection) - Electronics: DAE4 Sn546; Calibrated: 2017/9/15 - Phantom: 1659; Type: QD 000 P40 CD; Serial: xxxx - Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373) Flat-Section MSL GSM1900 TP/EGPRS1900 TP M 10mm/Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.331 W/kg Flat-Section MSL GSM1900 TP/EGPRS1900 TP M 10mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 7.733 V/m; Power Drift = 0.06 dB Peak SAR (extrapolated) = 0.506 W/kg SAR(1 g) = 0.287 W/kg; SAR(10 g) = 0.161 W/kg Maximum value of SAR (measured) = 0.358 W/kg	
	

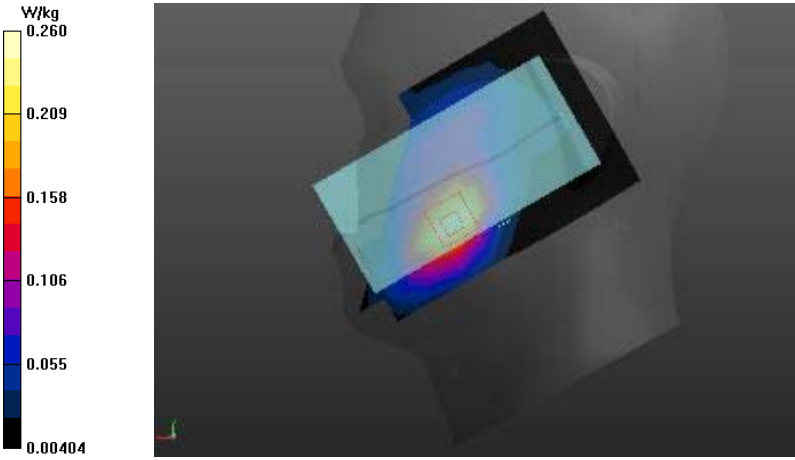
FLAT	Towards ground
Communication System: UID 0, Generic GSM (0); Frequency: 1880 MHz; Medium parameters used (interpolated): $f = 1880$ MHz; $\sigma = 1.538$ S/m; $\epsilon_r = 52.717$; $\rho = 1000$ kg/m³ Phantom section: Flat Section DASY5 Configuration: - Probe: ES3DV3 - SN3127; ConvF(4.83, 4.83, 4.83); Calibrated: 2017/10/11; - Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 3mm (Mechanical Surface Detection) - Electronics: DAE4 Sn546; Calibrated: 2017/9/15 - Phantom: 1659; Type: QD 000 P40 CD; Serial: xxxx - Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373) Flat-Section MSL GSM1900 TG/EGPRS1900 TG M 10mm/Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.312 W/kg Flat-Section MSL GSM1900 TG/EGPRS1900 TG M 10mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 6.581 V/m; Power Drift = 0.06 dB Peak SAR (extrapolated) = 0.483 W/kg SAR(1 g) = 0.282 W/kg; SAR(10 g) = 0.162 W/kg Maximum value of SAR (measured) = 0.351 W/kg	
	

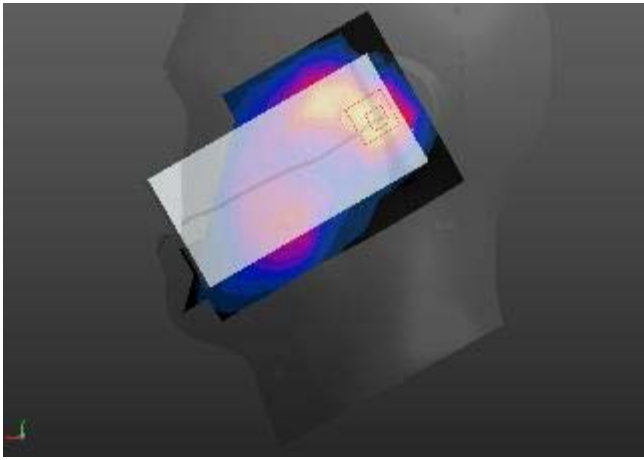
FLAT	EDGE2
Communication System: UID 0, Generic GSM (0); Frequency: 1880 MHz; Medium parameters used (interpolated): $f = 1880 \text{ MHz}$; $\sigma = 1.538 \text{ S/m}$; $\epsilon_r = 52.717$; $\rho = 1000 \text{ kg/m}^3$ Phantom section: Flat Section DASY5 Configuration: - Probe: ES3DV3 - SN3127; ConvF(4.83, 4.83, 4.83); Calibrated: 2017/10/11; - Sensor-Surface: 3mm (Mechanical Surface Detection) - Electronics: DAE4 Sn546; Calibrated: 2017/9/15 - Phantom: 1659; Type: QD 000 P40 CD; Serial: xxxx - Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373) Flat-Section MSL GSM1900 HOT/GSM1900 M edge 2/Area Scan (5x9x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.615 W/kg Flat-Section MSL GSM1900 HOT/GSM1900 M edge 2/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 14.02 V/m; Power Drift = 0.07 dB Peak SAR (extrapolated) = 0.916 W/kg SAR(1 g) = 0.519 W/kg; SAR(10 g) = 0.269 W/kg Maximum value of SAR (measured) = 0.659 W/kg 	

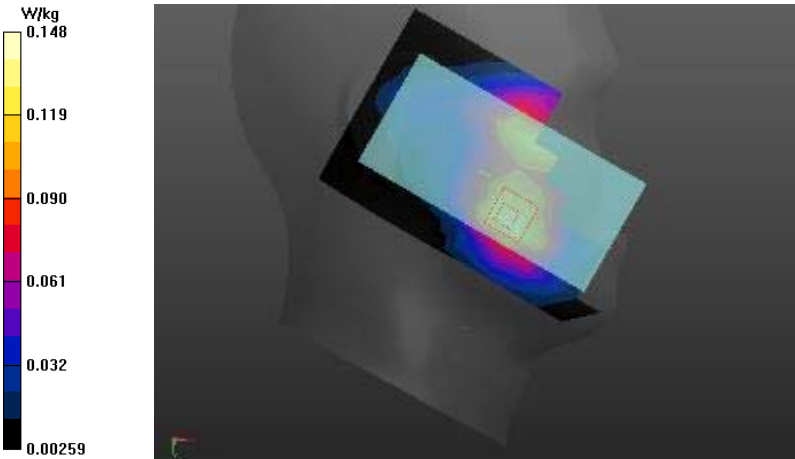
FLAT	EDGE3
Communication System: UID 0, Generic GSM (0); Frequency: 1880 MHz; Medium parameters used (interpolated): $f = 1880 \text{ MHz}$; $\sigma = 1.538 \text{ S/m}$; $\epsilon_r = 52.717$; $\rho = 1000 \text{ kg/m}^3$ Phantom section: Flat Section DASY5 Configuration: - Probe: ES3DV3 - SN3127; ConvF(4.83, 4.83, 4.83); Calibrated: 2017/10/11; - Sensor-Surface: 3mm (Mechanical Surface Detection) - Electronics: DAE4 Sn546; Calibrated: 2017/9/15 - Phantom: 1659; Type: QD 000 P40 CD; Serial: xxxx - Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373) Flat-Section MSL GSM1900 HOT/GSM1900 M edge 3/Area Scan (5x15x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.0926 W/kg Flat-Section MSL GSM1900 HOT/GSM1900 M edge 3/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 4.251 V/m; Power Drift = -0.11 dB Peak SAR (extrapolated) = 0.126 W/kg SAR(1 g) = 0.076 W/kg; SAR(10 g) = 0.045 W/kg Maximum value of SAR (measured) = 0.0924 W/kg 	

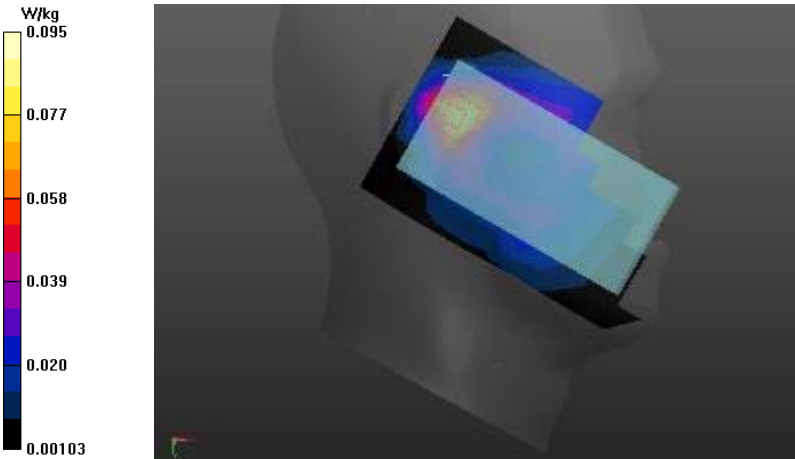
FLAT	EDGE4
Communication System: UID 0, Generic GSM (0); Frequency: 1880 MHz; Medium parameters used (interpolated): $f = 1880 \text{ MHz}$; $\sigma = 1.538 \text{ S/m}$; $\epsilon_r = 52.717$; $\rho = 1000 \text{ kg/m}^3$ Phantom section: Flat Section DASY5 Configuration: - Probe: ES3DV3 - SN3127; ConvF(4.83, 4.83, 4.83); Calibrated: 2017/10/11; - Sensor-Surface: 3mm (Mechanical Surface Detection) - Electronics: DAE4 Sn546; Calibrated: 2017/9/15 - Phantom: 1659; Type: QD 000 P40 CD; Serial: xxxx - Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373) Flat-Section MSL GSM1900 HOT/GSM1900 M edge 4/Area Scan (6x15x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.190 W/kg Flat-Section MSL GSM1900 HOT/GSM1900 M edge 4/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 5.457 V/m; Power Drift = -0.18 dB Peak SAR (extrapolated) = 0.222 W/kg SAR(1 g) = 0.122 W/kg; SAR(10 g) = 0.056 W/kg Maximum value of SAR (measured) = 0.154 W/kg 	

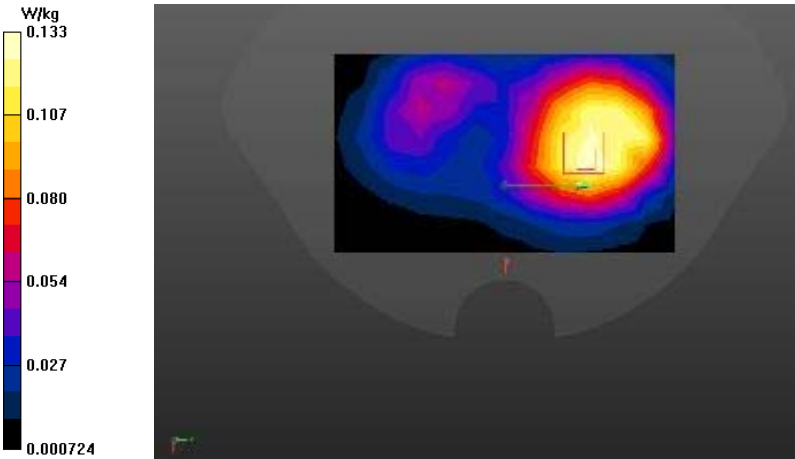
WCDMA Band 2

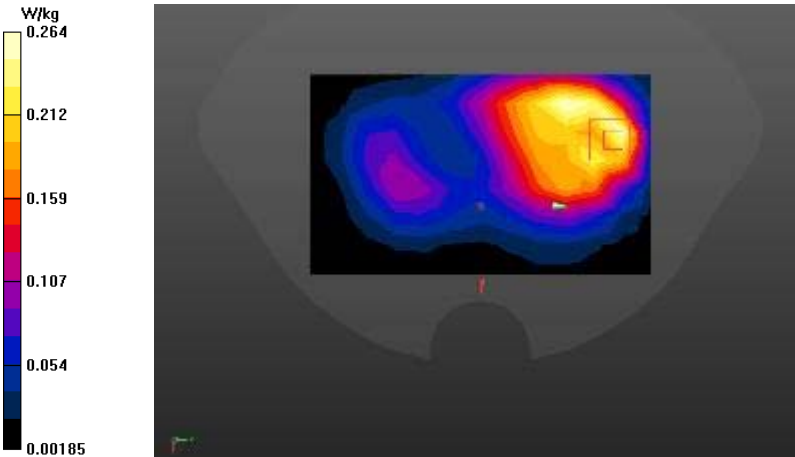
Left Side	Cheek
Communication System: UID 0, WCDMA BAND2 (0); Communication System Band: Exported from older format (data unavailable - please correct).; Frequency: 1880 MHz; Medium parameters used (interpolated): $f = 1880$ MHz; $\sigma = 1.465$ S/m; $\epsilon_r = 40.422$; $\rho = 1000$ kg/m³ Phantom section: Left Section DASY Configuration: - Probe: ES3DV3 - SN3127; ConvF(5.06, 5.06, 5.06); Calibrated: 2017/10/11; - Sensor-Surface: 3mm (Mechanical Surface Detection), $z = 2.0, 32.0$ - Electronics: DAE4 Sn546; Calibrated: 2017/9/15 - Phantom: 1660; Type: QD 000 P40 CD; Serial: xxxx - DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373) Head-Section HSL WCDMA BNAD2 Left Head/WCDMA BAND2 HSL touch M/Area Scan (8x12x1): Measurement grid: $dx=15$mm, $dy=15$mm Maximum value of SAR (measured) = 0.253 W/kg Head-Section HSL WCDMA BNAD2 Left Head/WCDMA BAND2 HSL touch M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$mm, $dy=5$mm, $dz=5$mm Reference Value = 4.419 V/m; Power Drift = 0.10 dB Peak SAR (extrapolated) = 0.358 W/kg SAR(1 g) = 0.222 W/kg; SAR(10 g) = 0.134 W/kg Maximum value of SAR (measured) = 0.260 W/kg 	

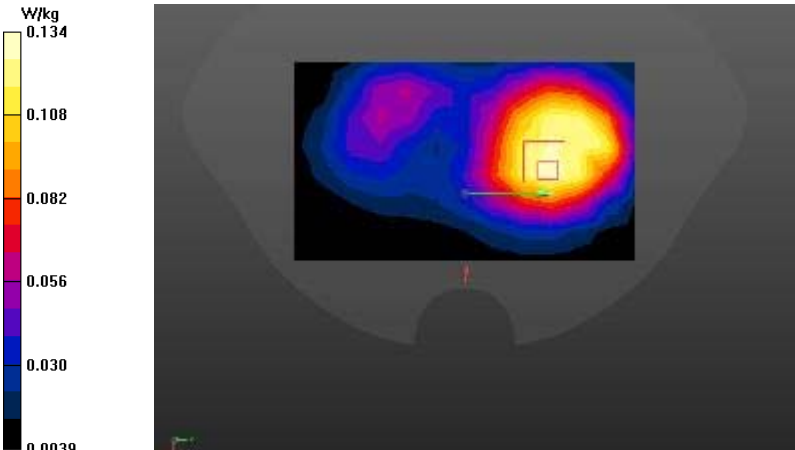
Left Side	Tilt
Communication System: UID 0, WCDMA BAND2 (0); Communication System Band: Exported from older format (data unavailable - please correct).; Frequency: 1880 MHz; Medium parameters used (interpolated): $f = 1880$ MHz; $\sigma = 1.465$ S/m; $\epsilon_r = 40.422$; $\rho = 1000$ kg/m³ Phantom section: Left Section DASY Configuration: - Probe: ES3DV3 - SN3127; ConvF(5.06, 5.06, 5.06); Calibrated: 2017/10/11; - Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 3mm (Mechanical Surface Detection), $z = 2.0, 32.0$ - Electronics: DAE4 Sn546; Calibrated: 2017/9/15 - Phantom: 1660; Type: QD 000 P40 CD; Serial: xxxx - DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373) Head-Section HSL WCDMA BNAD2 Left Head/WCDMA BAND2 HSL tilt M/Area Scan (8x12x1): Measurement grid: $dx=15$mm, $dy=15$mm Maximum value of SAR (measured) = 0.0672 W/kg Head-Section HSL WCDMA BNAD2 Left Head/WCDMA BAND2 HSL tilt M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$mm, $dy=5$mm, $dz=5$mm Reference Value = 6.825 V/m; Power Drift = 0.16 dB Peak SAR (extrapolated) = 0.109 W/kg SAR(1 g) = 0.065 W/kg; SAR(10 g) = 0.037 W/kg Maximum value of SAR (measured) = 0.0798 W/kg 	

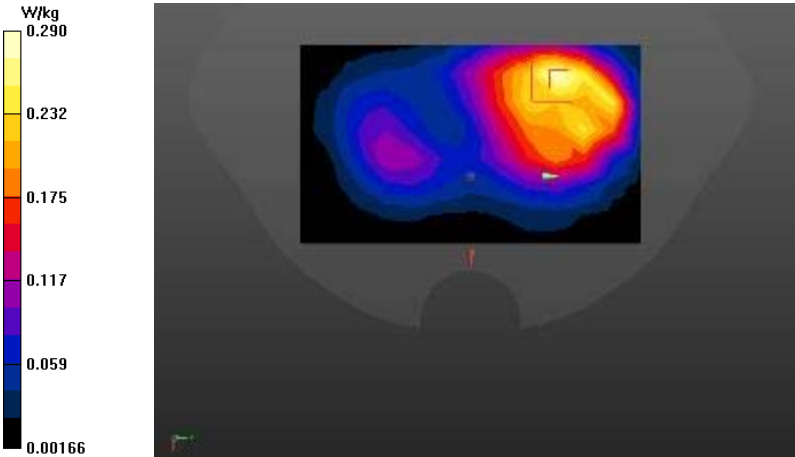
Right Side	Cheek
Communication System: UID 0, WCDMA BAND2 (0); Communication System Band: Exported from older format (data unavailable - please correct).; Frequency: 1880 MHz; Medium parameters used (interpolated): $f = 1880$ MHz; $\sigma = 1.465$ S/m; $\epsilon_r = 40.422$; $\rho = 1000$ kg/m³ Phantom section: Right Section DASY Configuration: - Probe: ES3DV3 - SN3127; ConvF(5.06, 5.06, 5.06); Calibrated: 2017/10/11; - Sensor-Surface: 3mm (Mechanical Surface Detection), $z = -3.0, 32.0$ - Electronics: DAE4 Sn546; Calibrated: 2017/9/15 - Phantom: 1660; Type: QD 000 P40 CD; Serial: xxxx - DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373) Head-Section HSL WCDMA BAND2 Right Head/WCDMA BAND2 HSL touch M/Area Scan (8x12x1): Measurement grid: $dx=15$mm, $dy=15$mm Maximum value of SAR (measured) = 0.134 W/kg Head-Section HSL WCDMA BAND2 Right Head/WCDMA BAND2 HSL touch M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$mm, $dy=5$mm, $dz=5$mm Reference Value = 4.860 V/m; Power Drift = -0.06 dB Peak SAR (extrapolated) = 0.194 W/kg SAR(1 g) = 0.125 W/kg; SAR(10 g) = 0.078 W/kg Maximum value of SAR (measured) = 0.148 W/kg 	

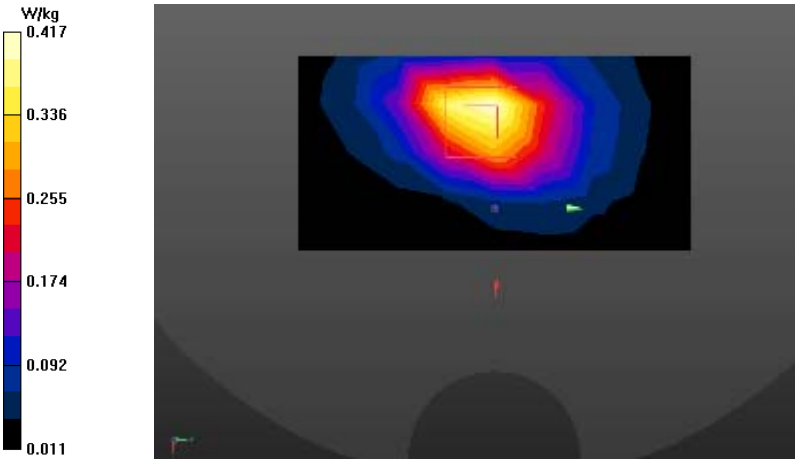
Right Side	Tilt
Communication System: UID 0, WCDMA BAND2 (0); Communication System Band: Exported from older format (data unavailable - please correct).; Frequency: 1880 MHz; Medium parameters used (interpolated): $f = 1880$ MHz; $\sigma = 1.465$ S/m; $\epsilon_r = 40.422$; $\rho = 1000$ kg/m³ Phantom section: Right Section DASY Configuration: - Probe: ES3DV3 - SN3127; ConvF(5.06, 5.06, 5.06); Calibrated: 2017/10/11; - Sensor-Surface: 3mm (Mechanical Surface Detection), $z = -3.0, 32.0$ - Electronics: DAE4 Sn546; Calibrated: 2017/9/15 - Phantom: 1660; Type: QD 000 P40 CD; Serial: xxxx - DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373) Head-Section HSL WCDMA BAND2 Right Head/WCDMA BNAD2 HSL tilt M/Area Scan (8x12x1): Measurement grid: $dx=15$mm, $dy=15$mm Maximum value of SAR (measured) = 0.0858 W/kg Head-Section HSL WCDMA BAND2 Right Head/WCDMA BNAD2 HSL tilt M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$mm, $dy=5$mm, $dz=5$mm Reference Value = 7.046 V/m; Power Drift = 0.07 dB Peak SAR (extrapolated) = 0.133 W/kg SAR(1 g) = 0.077 W/kg; SAR(10 g) = 0.042 W/kg Maximum value of SAR (measured) = 0.0954 W/kg 	

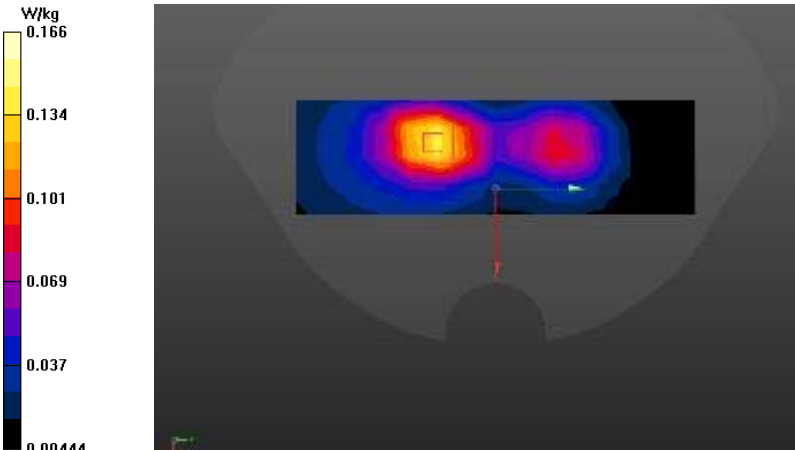
FLAT(VIOCE)	Towards phantom
Communication System: UID 0, WCDMA BAND2 (0); Communication System Band: Exported from older format (data unavailable - please correct).; Frequency: 1880 MHz; Medium parameters used (interpolated): $f = 1880$ MHz; $\sigma = 1.538$ S/m; $\epsilon_r = 52.717$; $\rho = 1000$ kg/m³ Phantom section: Flat Section DASY Configuration: - Probe: ES3DV3 - SN3127; ConvF(4.83, 4.83, 4.83); Calibrated: 2017/10/11; - Sensor-Surface: 3mm (Mechanical Surface Detection), $z = -3.0, 32.0$ - Electronics: DAE4 Sn546; Calibrated: 2017/9/15 - Phantom: 1659; Type: QD 000 P40 CD; Serial: xxxx - DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373) Flat-Section MSL wcdma band2 TP/wcdma band2 TP M 10mm voice/Area Scan (8x13x1): Measurement grid: $dx=15$mm, $dy=15$mm Maximum value of SAR (measured) = 0.133 W/kg Flat-Section MSL wcdma band2 TP/wcdma band2 TP M 10mm voice/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$mm, $dy=5$mm, $dz=5$mm Reference Value = 5.013 V/m; Power Drift = 0.01 dB Peak SAR (extrapolated) = 0.183 W/kg SAR(1 g) = 0.112 W/kg; SAR(10 g) = 0.070 W/kg Maximum value of SAR (measured) = 0.132 W/kg 	

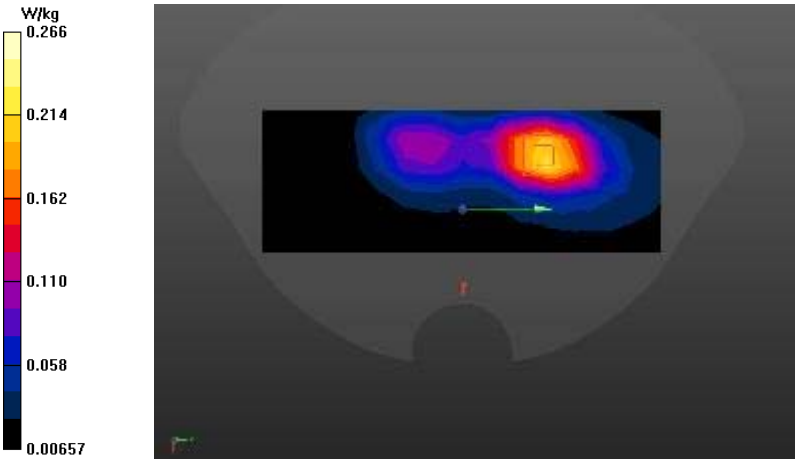
FLAT(VIOCE)	Towards ground
Communication System: UID 0, WCDMA BAND2 (0); Communication System Band: Exported from older format (data unavailable - please correct).; Frequency: 1880 MHz; Medium parameters used (interpolated): $f = 1880$ MHz; $\sigma = 1.538$ S/m; $\epsilon_r = 52.717$; $\rho = 1000$ kg/m³ Phantom section: Flat Section DASY Configuration: - Probe: ES3DV3 - SN3127; ConvF(4.83, 4.83, 4.83); Calibrated: 2017/10/11; - Sensor-Surface: 3mm (Mechanical Surface Detection), $z = -3.0, 32.0$ - Electronics: DAE4 Sn546; Calibrated: 2017/9/15 - Phantom: 1659; Type: QD 000 P40 CD; Serial: xxxx - DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373) Flat-Section MSL wcdma band2 TG/wcdma band2 TG M 10mm voice/Area Scan (8x13x1): Measurement grid: $dx=15$mm, $dy=15$mm Maximum value of SAR (measured) = 0.264 W/kg Flat-Section MSL wcdma band2 TG/wcdma band2 TG M 10mm voice/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$mm, $dy=5$mm, $dz=5$mm Reference Value = 6.473 V/m; Power Drift = -0.10 dB Peak SAR (extrapolated) = 0.403 W/kg SAR(1 g) = 0.233 W/kg; SAR(10 g) = 0.132 W/kg Maximum value of SAR (measured) = 0.286 W/kg 	

FLAT(DATA)	Towards phantom
Communication System: UID 0, WCDMA BAND2 (0); Communication System Band: Exported from older format (data unavailable - please correct).; Frequency: 1880 MHz; Medium parameters used (interpolated): $f = 1880$ MHz; $\sigma = 1.538$ S/m; $\epsilon_r = 52.717$; $\rho = 1000$ kg/m³ Phantom section: Flat Section DASY Configuration: - Probe: ES3DV3 - SN3127; ConvF(4.83, 4.83, 4.83); Calibrated: 2017/10/11; - Sensor-Surface: 3mm (Mechanical Surface Detection), $z = -3.0, 32.0$ - Electronics: DAE4 Sn546; Calibrated: 2017/9/15 - Phantom: 1659; Type: QD 000 P40 CD; Serial: xxxx - DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373) Flat-Section MSL wcdma band2 TP/wcdma band2 TP M 10mm data/Area Scan (8x13x1): Measurement grid: $dx=15$mm, $dy=15$mm Maximum value of SAR (measured) = 0.132 W/kg Flat-Section MSL wcdma band2 TP/wcdma band2 TP M 10mm data/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$mm, $dy=5$mm, $dz=5$mm Reference Value = 4.996 V/m; Power Drift = 0.05 dB Peak SAR (extrapolated) = 0.186 W/kg SAR(1 g) = 0.113 W/kg; SAR(10 g) = 0.071 W/kg Maximum value of SAR (measured) = 0.134 W/kg 	

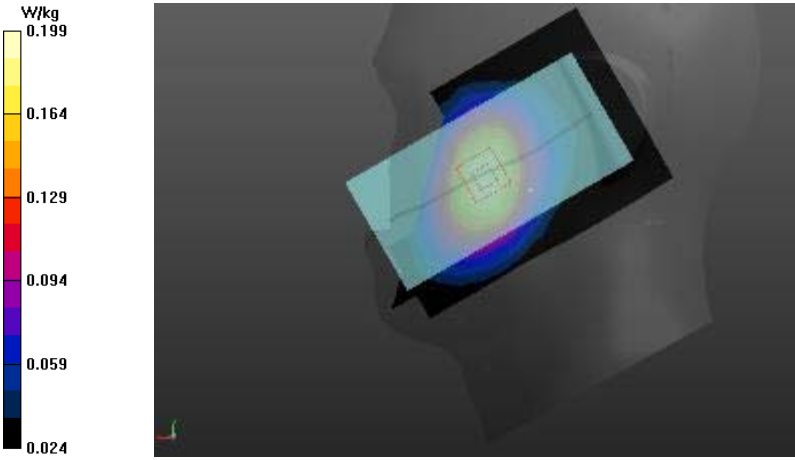
FLAT(DATA)	Towards ground
Communication System: UID 0, WCDMA BAND2 (0); Communication System Band: Exported from older format (data unavailable - please correct).; Frequency: 1880 MHz; Medium parameters used (interpolated): $f = 1880$ MHz; $\sigma = 1.538$ S/m; $\epsilon_r = 52.717$; $\rho = 1000$ kg/m³ Phantom section: Flat Section DASY Configuration: - Probe: ES3DV3 - SN3127; ConvF(4.83, 4.83, 4.83); Calibrated: 2017/10/11; - Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 3mm (Mechanical Surface Detection), $z = -3.0, 32.0$ - Electronics: DAE4 Sn546; Calibrated: 2017/9/15 - Phantom: 1659; Type: QD 000 P40 CD; Serial: xxxx - DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373) Flat-Section MSL wcdma band2 TG/wcdma band2 TG M 10mm data/Area Scan (8x13x1): Measurement grid: $dx=15$mm, $dy=15$mm Maximum value of SAR (measured) = 0.290 W/kg Flat-Section MSL wcdma band2 TG/wcdma band2 TG M 10mm data/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$mm, $dy=5$mm, $dz=5$mm Reference Value = 6.564 V/m; Power Drift = 0.01 dB Peak SAR (extrapolated) = 0.426 W/kg SAR(1 g) = 0.243 W/kg; SAR(10 g) = 0.139 W/kg Maximum value of SAR (measured) = 0.298 W/kg 	

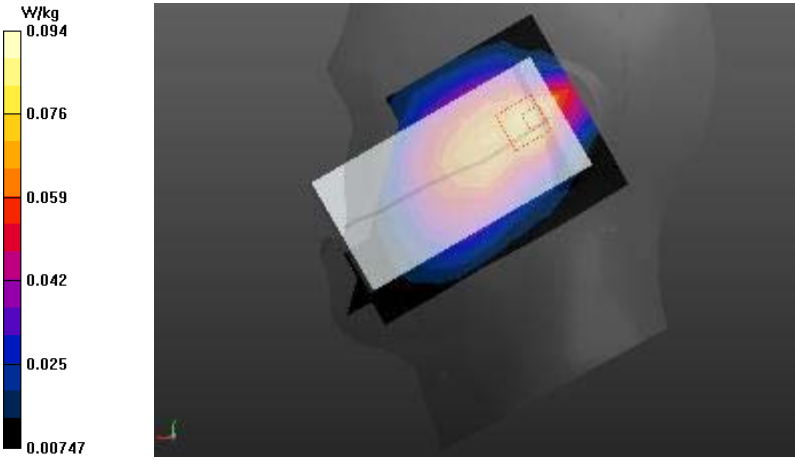
FLAT	EDGE2
Communication System: UID 0, WCDMA BAND2 (0); Communication System Band: Exported from older format (data unavailable - please correct).; Frequency: 1880 MHz; Medium parameters used (interpolated): $f = 1880$ MHz; $\sigma = 1.538$ S/m; $\epsilon_r = 52.717$; $\rho = 1000$ kg/m³ Phantom section: Flat Section DASY Configuration: - Probe: ES3DV3 - SN3127; ConvF(4.83, 4.83, 4.83); Calibrated: 2017/10/11; - Sensor-Surface: 3mm (Mechanical Surface Detection), $z = -3.0, 32.0$ - Electronics: DAE4 Sn546; Calibrated: 2017/9/15 - Phantom: 1659; Type: QD 000 P40 CD; Serial: xxxx - DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373) Flat-Section MSL WCDMA BAND2 HOT/WCDMA BAND2 M edge 2/Area Scan (5x9x1): Measurement grid: $dx=15$mm, $dy=15$mm Maximum value of SAR (measured) = 0.417 W/kg Flat-Section MSL WCDMA BAND2 HOT/WCDMA BAND2 M edge 2/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$mm, $dy=5$mm, $dz=5$mm Reference Value = 14.47 V/m; Power Drift = 0.13 dB Peak SAR (extrapolated) = 0.733 W/kg SAR(1 g) = 0.424 W/kg; SAR(10 g) = 0.222 W/kg Maximum value of SAR (measured) = 0.530 W/kg 	

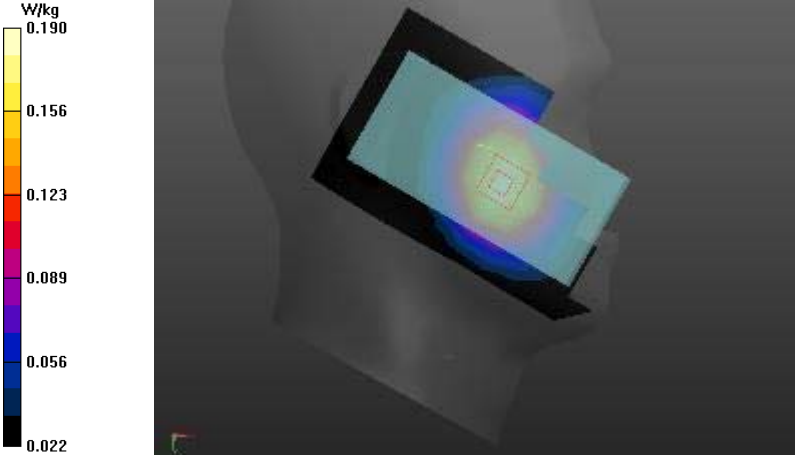
FLAT	EDGE3
Communication System: UID 0, WCDMA BAND2 (0); Communication System Band: Exported from older format (data unavailable - please correct).; Frequency: 1880 MHz; Medium parameters used (interpolated): $f = 1880$ MHz; $\sigma = 1.538$ S/m; $\epsilon_r = 52.717$; $\rho = 1000$ kg/m³ Phantom section: Flat Section DASY Configuration: - Probe: ES3DV3 - SN3127; ConvF(4.83, 4.83, 4.83); Calibrated: 2017/10/11; - Sensor-Surface: 3mm (Mechanical Surface Detection), $z = -3.0, 32.0$ - Electronics: DAE4 Sn546; Calibrated: 2017/9/15 - Phantom: 1659; Type: QD 000 P40 CD; Serial: xxxx - DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373) Flat-Section MSL WCDMA BAND2 HOT/WCDMA BAND2 M edge 3/Area Scan (5x15x1): Measurement grid: $dx=15$mm, $dy=15$mm Maximum value of SAR (measured) = 0.139 W/kg Flat-Section MSL WCDMA BAND2 HOT/WCDMA BAND2 M edge 3/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$mm, $dy=5$mm, $dz=5$mm Reference Value = 6.058 V/m; Power Drift = -0.00 dB Peak SAR (extrapolated) = 0.228 W/kg SAR(1 g) = 0.137 W/kg; SAR(10 g) = 0.080 W/kg Maximum value of SAR (measured) = 0.166 W/kg 	

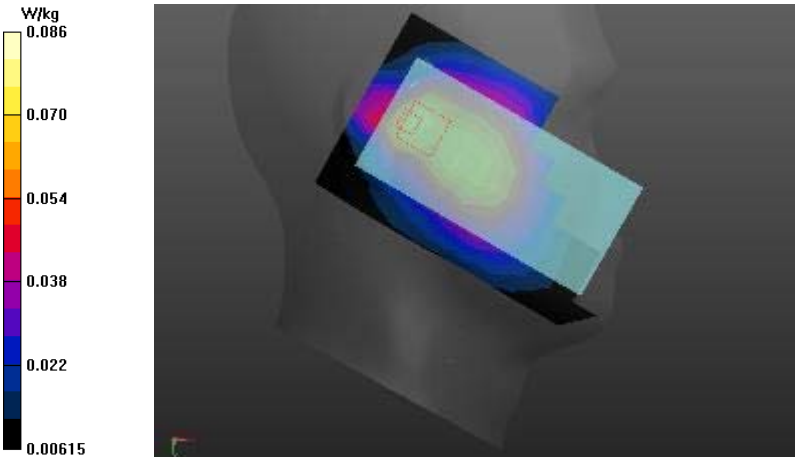
FLAT	EDGE4
Communication System: UID 0, WCDMA BAND2 (0); Communication System Band: Exported from older format (data unavailable - please correct).; Frequency: 1880 MHz; Medium parameters used (interpolated): $f = 1880$ MHz; $\sigma = 1.538$ S/m; $\epsilon_r = 52.717$; $\rho = 1000$ kg/m³ Phantom section: Flat Section DASY Configuration: - Probe: ES3DV3 - SN3127; ConvF(4.83, 4.83, 4.83); Calibrated: 2017/10/11; - Sensor-Surface: 3mm (Mechanical Surface Detection), $z = -3.0, 32.0$ - Electronics: DAE4 Sn546; Calibrated: 2017/9/15 - Phantom: 1659; Type: QD 000 P40 CD; Serial: xxxx - DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373) Flat-Section MSL WCDMA BAND2 HOT/WCDMA BAND2 M edge 4/Area Scan (6x15x1): Measurement grid: $dx=15$mm, $dy=15$mm Maximum value of SAR (measured) = 0.221 W/kg Flat-Section MSL WCDMA BAND2 HOT/WCDMA BAND2 M edge 4/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$mm, $dy=5$mm, $dz=5$mm Reference Value = 6.175 V/m; Power Drift = 0.12 dB Peak SAR (extrapolated) = 0.369 W/kg SAR(1 g) = 0.218 W/kg; SAR(10 g) = 0.124 W/kg Maximum value of SAR (measured) = 0.266 W/kg 	

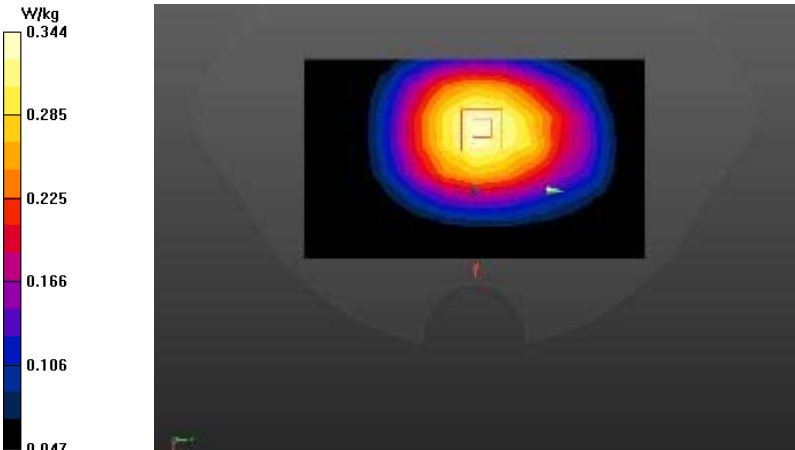
WCDMA Band 5

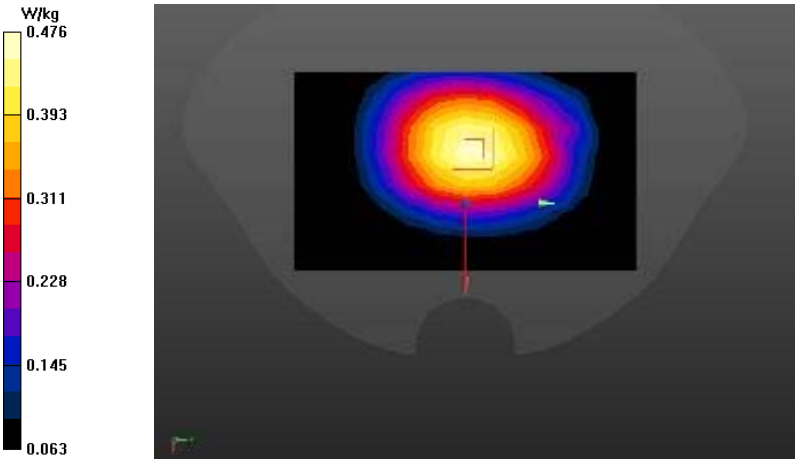
Left Side	Cheek
Communication System: UID 0, WCDMA BAND 5 (0); Communication System Band: WCDMA Band 5; Frequency: 836.6 MHz Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.915$ S/m; $\epsilon_r = 41.114$; $\rho = 1000$ kg/m³ Phantom section: Left Section DASY Configuration: - Probe: ES3DV3 - SN3127; ConvF(6.15, 6.15, 6.15); Calibrated: 2017/10/11; - Sensor-Surface: 3mm (Mechanical Surface Detection), $z = 2.0, 32.0$ - Electronics: DAE4 Sn546; Calibrated: 2017/9/15 - Phantom: 1660; Type: QD 000 P40 CD; Serial: xxxx - DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373) Head-Section HSL WCDMA BNAD5 Left Head/WCDMA BAND5 HSL touch M/Area Scan (8x12x1): Measurement grid: $dx=15$mm, $dy=15$mm Maximum value of SAR (measured) = 0.193 W/kg Head-Section HSL WCDMA BNAD5 Left Head/WCDMA BAND5 HSL touch M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$mm, $dy=5$mm, $dz=5$mm Reference Value = 4.234 V/m; Power Drift = 0.04 dB Peak SAR (extrapolated) = 0.227 W/kg SAR(1 g) = 0.181 W/kg; SAR(10 g) = 0.136 W/kg Maximum value of SAR (measured) = 0.199 W/kg 	

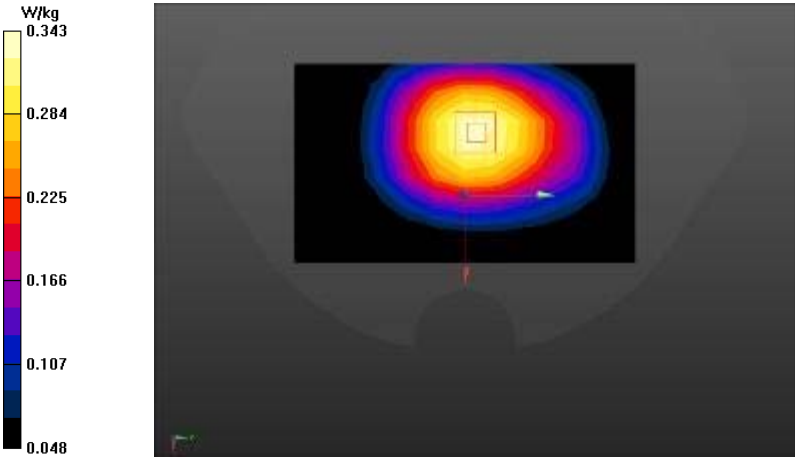
Left Side	Tilt
Communication System: UID 0, WCDMA BAND 5 (0); Communication System Band: WCDMA Band 5; Frequency: 836.6 MHz Medium parameters used (interpolated): $f = 836.6 \text{ MHz}$; $\sigma = 0.915 \text{ S/m}$; $\epsilon_r = 41.114$; $\rho = 1000 \text{ kg/m}^3$ Phantom section: Left Section DASY Configuration: - Probe: ES3DV3 - SN3127; ConvF(6.15, 6.15, 6.15); Calibrated: 2017/10/11; - Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 3mm (Mechanical Surface Detection), $z = 2.0, 32.0$ - Electronics: DAE4 Sn546; Calibrated: 2017/9/15 - Phantom: 1660; Type: QD 000 P40 CD; Serial: xxxx - DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373) Head-Section HSL WCDMA BNAD5 Left Head/WCDMA BAND5 HSL tilt M/Area Scan (8x12x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.0842 W/kg Head-Section HSL WCDMA BNAD5 Left Head/WCDMA BAND5 HSL tilt M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 9.071 V/m; Power Drift = 0.13 dB Peak SAR (extrapolated) = 0.129 W/kg SAR(1 g) = 0.078 W/kg; SAR(10 g) = 0.051 W/kg Maximum value of SAR (measured) = 0.0935 W/kg 	

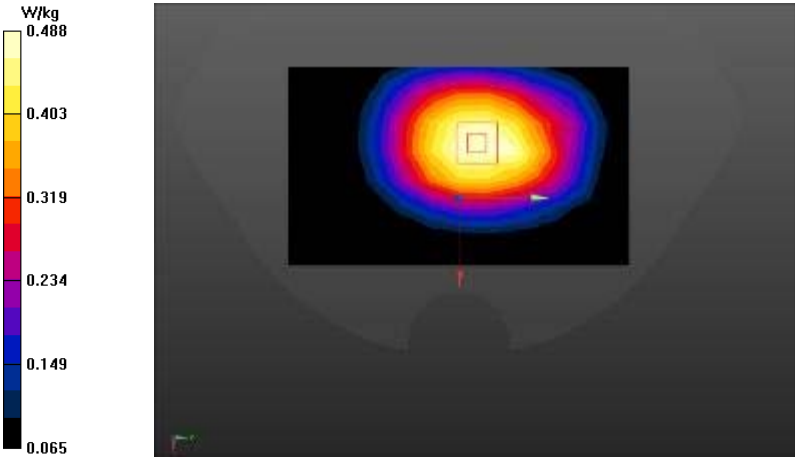
Right Side	Cheek
Communication System: UID 0, WCDMA BAND 5 (0); Communication System Band: WCDMA Band 5; Frequency: 836.6 MHz Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.915$ S/m; $\epsilon_r = 41.114$; $\rho = 1000$ kg/m³ Phantom section: Right Section DASY Configuration: - Probe: ES3DV3 - SN3127; ConvF(6.15, 6.15, 6.15); Calibrated: 2017/10/11; - Sensor-Surface: 3mm (Mechanical Surface Detection), $z = -3.0, 32.0$ - Electronics: DAE4 Sn546; Calibrated: 2017/9/15 - Phantom: 1660; Type: QD 000 P40 CD; Serial: xxxx - DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373) Head-Section HSL WCDMA BAND5 Right Head/WCDMA BNAD5 HSL touch M/Area Scan (8x12x1): Measurement grid: $dx=15$mm, $dy=15$mm Maximum value of SAR (measured) = 0.190 W/kg Head-Section HSL WCDMA BAND5 Right Head/WCDMA BNAD5 HSL touch M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$mm, $dy=5$mm, $dz=5$mm Reference Value = 3.840 V/m; Power Drift = 0.03 dB Peak SAR (extrapolated) = 0.219 W/kg SAR(1 g) = 0.174 W/kg; SAR(10 g) = 0.130 W/kg 	

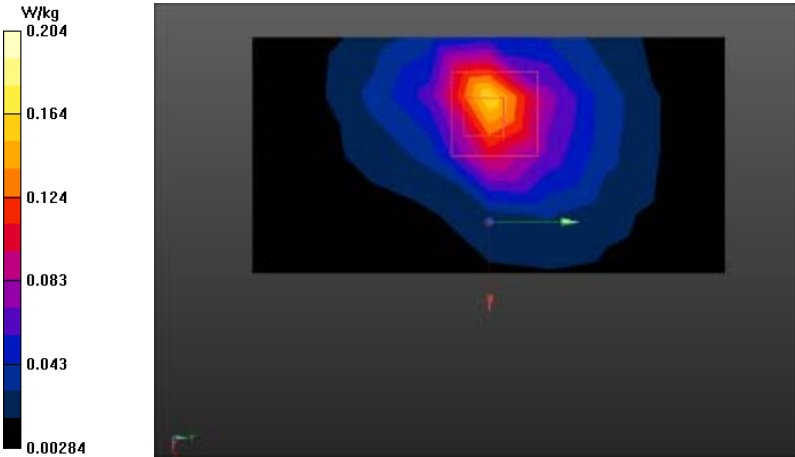
Right Side	Tilt
Communication System: UID 0, WCDMA BAND 5 (0); Communication System Band: WCDMA Band 5; Frequency: 836.6 MHz Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.915$ S/m; $\epsilon_r = 41.114$; $\rho = 1000$ kg/m³ Phantom section: Right Section DASY Configuration: - Probe: ES3DV3 - SN3127; ConvF(6.15, 6.15, 6.15); Calibrated: 2017/10/11; - Sensor-Surface: 3mm (Mechanical Surface Detection), $z = -3.0, 32.0$ - Electronics: DAE4 Sn546; Calibrated: 2017/9/15 - Phantom: 1660; Type: QD 000 P40 CD; Serial: xxxx - DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373) Head-Section HSL WCDMA BAND5 Right Head/WCDMA BAND5 HSL tilt M/Area Scan (8x12x1): Measurement grid: $dx=15$mm, $dy=15$mm Maximum value of SAR (measured) = 0.0764 W/kg Head-Section HSL WCDMA BAND5 Right Head/WCDMA BAND5 HSL tilt M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$mm, $dy=5$mm, $dz=5$mm Reference Value = 8.507 V/m; Power Drift = 0.14 dB Peak SAR (extrapolated) = 0.119 W/kg SAR(1 g) = 0.072 W/kg; SAR(10 g) = 0.048 W/kg Maximum value of SAR (measured) = 0.0857 W/kg 	

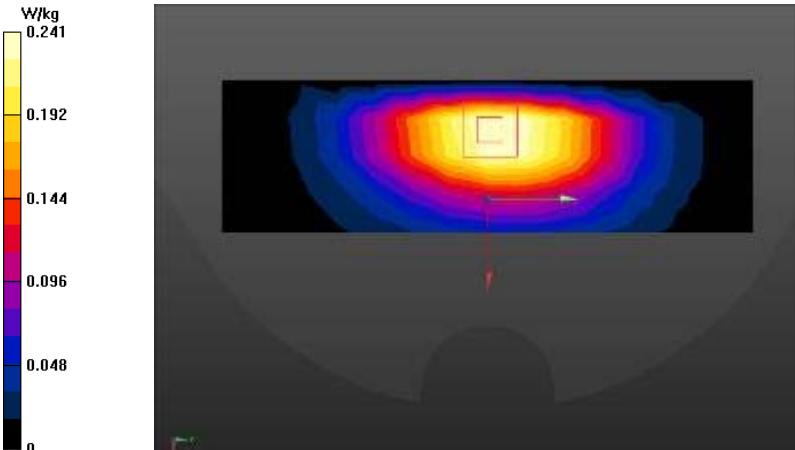
FLAT(VIOCE)	Towards phantom
Communication System: UID 0, WCDMA BAND 5 (0); Communication System Band: WCDMA Band 5; Frequency: 836.6 MHz Medium parameters used (interpolated): $f = 836.6 \text{ MHz}$; $\sigma = 0.966 \text{ S/m}$; $\epsilon_r = 56.196$; $\rho = 1000 \text{ kg/m}^3$ Phantom section: Flat Section DASY Configuration: - Probe: ES3DV3 - SN3127; ConvF(6.06, 6.06, 6.06); Calibrated: 2017/10/11; - Sensor-Surface: 3mm (Mechanical Surface Detection), $z = -3.0, 32.0$ - Electronics: DAE4 Sn546; Calibrated: 2017/9/15 - Phantom: 1659; Type: QD 000 P40 CD; Serial: xxxx - DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373) Flat-Section MSL wcdma band5 TP/wcdma band5 TP M 10mm voice/Area Scan (8x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.336 W/kg Flat-Section MSL wcdma band5 TP/wcdma band5 TP M 10mm voice/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 18.38 V/m; Power Drift = 0.06 dB Peak SAR (extrapolated) = 0.400 W/kg SAR(1 g) = 0.312 W/kg; SAR(10 g) = 0.233 W/kg Maximum value of SAR (measured) = 0.344 W/kg	
	

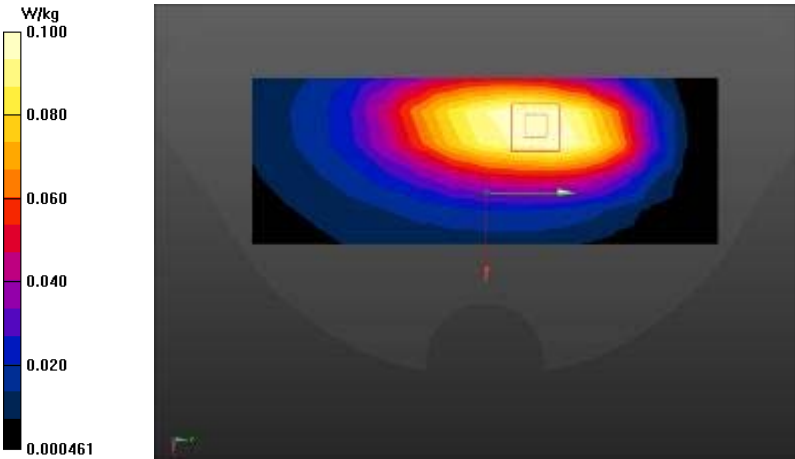
FLAT(VIOCE)	Towards ground
Communication System: UID 0, WCDMA BAND 5 (0); Communication System Band: WCDMA Band 5; Frequency: 836.6 MHz Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.966$ S/m; $\epsilon_r = 56.196$; $\rho = 1000$ kg/m³ Phantom section: Flat Section DASY Configuration: - Probe: ES3DV3 - SN3127; ConvF(6.06, 6.06, 6.06); Calibrated: 2017/10/11; - Sensor-Surface: 3mm (Mechanical Surface Detection), $z = -3.0, 32.0$ - Electronics: DAE4 Sn546; Calibrated: 2017/9/15 - Phantom: 1659; Type: QD 000 P40 CD; Serial: xxxx - DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373) Flat-Section MSL wcdma band5 TG/wcdma band5 TG M 10mm voice/Area Scan (8x13x1): Measurement grid: $dx=15$mm, $dy=15$mm Maximum value of SAR (measured) = 0.466 W/kg Flat-Section MSL wcdma band5 TG/wcdma band5 TG M 10mm voice/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$mm, $dy=5$mm, $dz=5$mm Reference Value = 22.02 V/m; Power Drift = -0.02 dB Peak SAR (extrapolated) = 0.554 W/kg SAR(1 g) = 0.430 W/kg; SAR(10 g) = 0.319 W/kg Maximum value of SAR (measured) = 0.476 W/kg 	

FLAT(DATA)	Towards phantom
Communication System: UID 0, WCDMA BAND 5 (0); Communication System Band: WCDMA Band 5; Frequency: 836.6 MHz Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.966$ S/m; $\epsilon_r = 56.196$; $\rho = 1000$ kg/m³ Phantom section: Flat Section DASY Configuration: - Probe: ES3DV3 - SN3127; ConvF(6.06, 6.06, 6.06); Calibrated: 2017/10/11; - Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 3mm (Mechanical Surface Detection), $z = -3.0, 32.0$ - Electronics: DAE4 Sn546; Calibrated: 2017/9/15 - Phantom: 1659; Type: QD 000 P40 CD; Serial: xxxx - DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373) Flat-Section MSL wcdma band5 TP/wcdma band5 TP M 10mm data/Area Scan (8x13x1): Measurement grid: $dx=15$mm, $dy=15$mm Maximum value of SAR (measured) = 0.331 W/kg Flat-Section MSL wcdma band5 TP/wcdma band5 TP M 10mm data/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$mm, $dy=5$mm, $dz=5$mm Reference Value = 18.24 V/m; Power Drift = 0.08 dB Peak SAR (extrapolated) = 0.398 W/kg SAR(1 g) = 0.311 W/kg; SAR(10 g) = 0.233 W/kg Maximum value of SAR (measured) = 0.343 W/kg  W/kg 0.343 0.284 0.225 0.166 0.107 0.048	

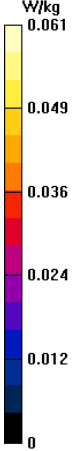
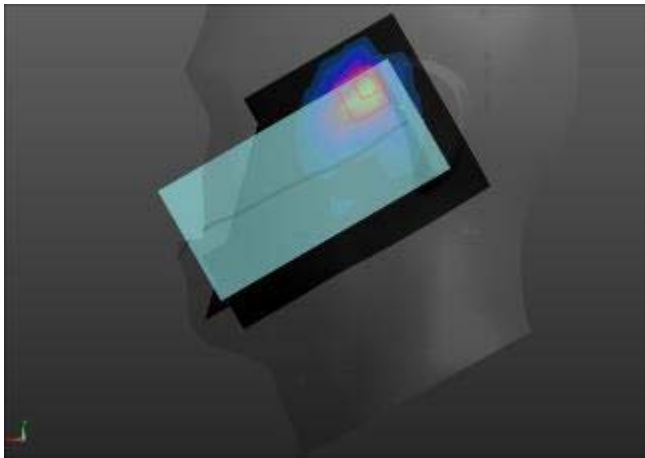
FLAT(DATA)	Towards ground
Communication System: UID 0, WCDMA BAND 5 (0); Communication System Band: WCDMA Band 5; Frequency: 836.6 MHz Medium parameters used (interpolated): $f = 836.6 \text{ MHz}$; $\sigma = 0.966 \text{ S/m}$; $\epsilon_r = 56.196$; $\rho = 1000 \text{ kg/m}^3$ Phantom section: Flat Section DASY Configuration: - Probe: ES3DV3 - SN3127; ConvF(6.06, 6.06, 6.06); Calibrated: 2017/10/11; - Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 3mm (Mechanical Surface Detection), $z = -3.0, 32.0$ - Electronics: DAE4 Sn546; Calibrated: 2017/9/15 - Phantom: 1659; Type: QD 000 P40 CD; Serial: xxxx - DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373) Flat-Section MSL wcdma band5 TG/wcdma band5 TG M 10mm data/Area Scan (8x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.483 W/kg Flat-Section MSL wcdma band5 TG/wcdma band5 TG M 10mm data/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 21.98 V/m; Power Drift = 0.04 dB Peak SAR (extrapolated) = 0.565 W/kg SAR(1 g) = 0.443 W/kg; SAR(10 g) = 0.331 W/kg Maximum value of SAR (measured) = 0.488 W/kg 	

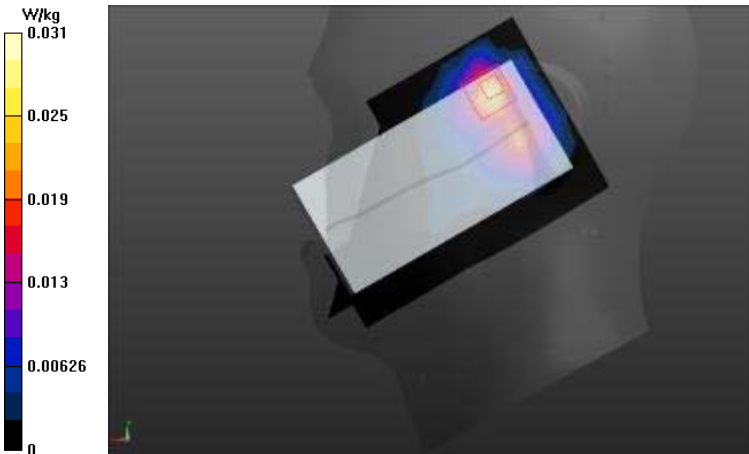
FLAT	EDGE2
Communication System: UID 0, WCDMA BAND 5 (0); Communication System Band: WCDMA Band 5; Frequency: 836.6 MHz Medium parameters used (interpolated): $f = 836.6 \text{ MHz}$; $\sigma = 0.966 \text{ S/m}$; $\epsilon_r = 56.196$; $\rho = 1000 \text{ kg/m}^3$ Phantom section: Flat Section DASY Configuration: - Probe: ES3DV3 - SN3127; ConvF(6.06, 6.06, 6.06); Calibrated: 2017/10/11; - Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 3mm (Mechanical Surface Detection), $z = -3.0, 32.0$ - Electronics: DAE4 Sn546; Calibrated: 2017/9/15 - Phantom: 1659; Type: QD 000 P40 CD; Serial: xxxx - DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373) Flat-Section MSL WCDMA BAND5 HOT/WCDMA BAND5 M edge 2/Area Scan (5x9x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 0.166 W/kg Flat-Section MSL WCDMA BAND5 HOT/WCDMA BAND5 M edge 2/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 9.653 V/m; Power Drift = 0.07 dB Peak SAR (extrapolated) = 0.514 W/kg SAR(1 g) = 0.147 W/kg; SAR(10 g) = 0.061 W/kg Maximum value of SAR (measured) = 0.204 W/kg 	

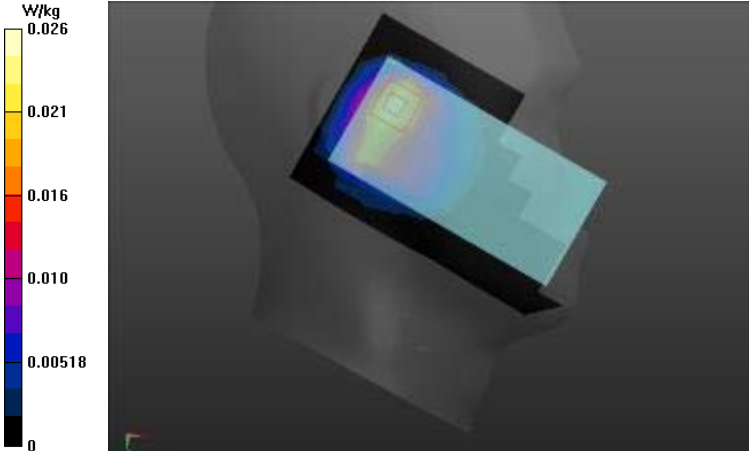
FLAT	EDGE3
Communication System: UID 0, WCDMA BAND 5 (0); Communication System Band: WCDMA Band 5; Frequency: 836.6 MHz Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.966$ S/m; $\epsilon_r = 56.196$; $\rho = 1000$ kg/m³ Phantom section: Flat Section DASY Configuration: - Probe: ES3DV3 - SN3127; ConvF(6.06, 6.06, 6.06); Calibrated: 2017/10/11; - Sensor-Surface: 3mm (Mechanical Surface Detection), $z = -3.0, 32.0$ - Electronics: DAE4 Sn546; Calibrated: 2017/9/15 - Phantom: 1659; Type: QD 000 P40 CD; Serial: xxxx - DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373) Flat-Section MSL WCDMA BAND5 HOT/WCDMA BAND5 M edge 3/Area Scan (5x15x1): Measurement grid: $dx=15$mm, $dy=15$mm Maximum value of SAR (measured) = 0.241 W/kg Flat-Section MSL WCDMA BAND5 HOT/WCDMA BAND5 M edge 3/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$mm, $dy=5$mm, $dz=5$mm Reference Value = 15.83 V/m; Power Drift = -0.07 dB Peak SAR (extrapolated) = 0.148 W/kg SAR(1 g) = 0.103 W/kg; SAR(10 g) = 0.070 W/kg Maximum value of SAR (measured) = 0.119 W/kg 	

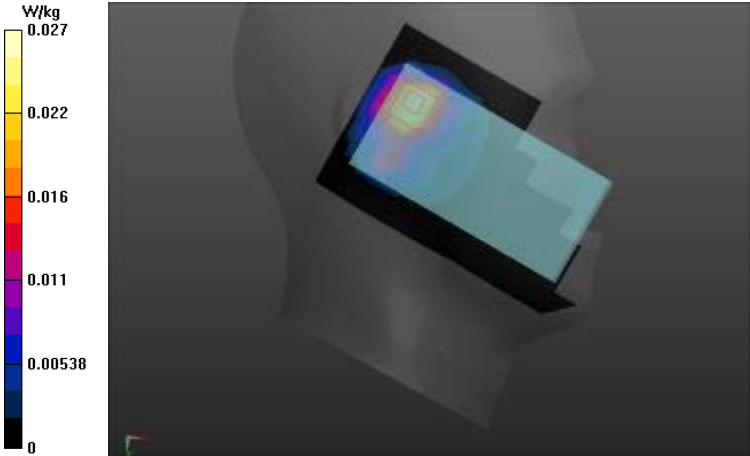
FLAT	EDGE4
Communication System: UID 0, WCDMA BAND 5 (0); Communication System Band: WCDMA Band 5; Frequency: 836.6 MHz Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.966$ S/m; $\epsilon_r = 56.196$; $\rho = 1000$ kg/m³ Phantom section: Flat Section DASY Configuration: - Probe: ES3DV3 - SN3127; ConvF(6.06, 6.06, 6.06); Calibrated: 2017/10/11; - Sensor-Surface: 3mm (Mechanical Surface Detection), $z = -3.0, 32.0$ - Electronics: DAE4 Sn546; Calibrated: 2017/9/15 - Phantom: 1659; Type: QD 000 P40 CD; Serial: xxxx - DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373) Flat-Section MSL WCDMA BAND5 HOT/WCDMA BAND5 M edge 4/Area Scan (6x15x1): Measurement grid: $dx=15$mm, $dy=15$mm Maximum value of SAR (measured) = 0.0998 W/kg Flat-Section MSL WCDMA BAND5 HOT/WCDMA BAND5 M edge 4/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$mm, $dy=5$mm, $dz=5$mm Reference Value = 9.075 V/m; Power Drift = 0.09 dB Peak SAR (extrapolated) = 0.166 W/kg SAR(1 g) = 0.103 W/kg; SAR(10 g) = 0.066 W/kg Maximum value of SAR (measured) = 0.122 W/kg 	

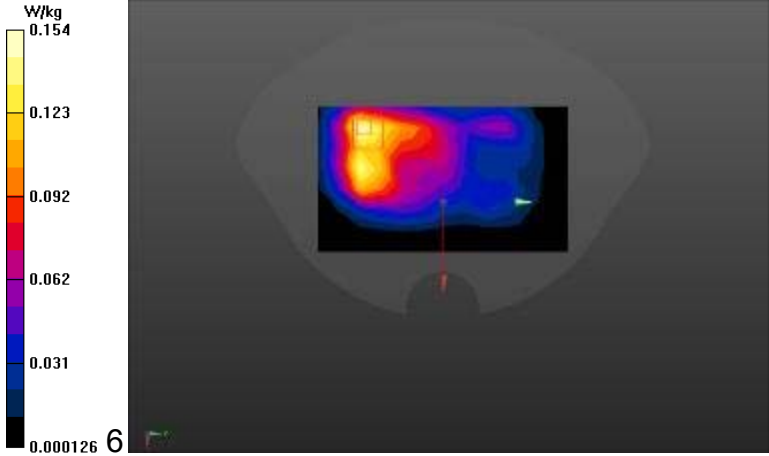
WLAN 2.4GHz

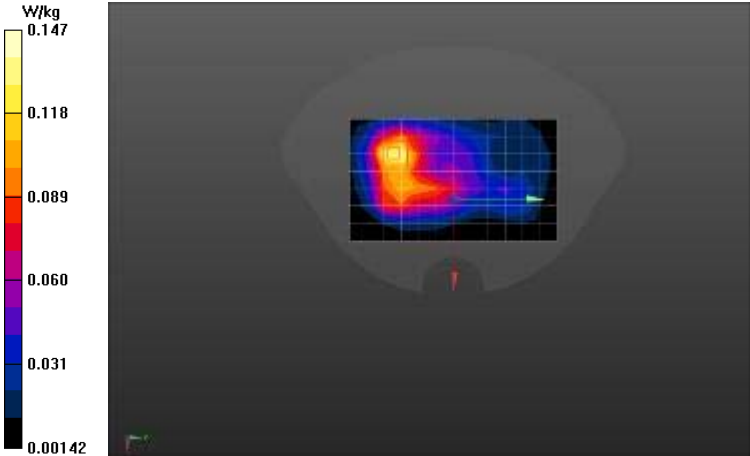
Left Side	Cheek
Communication System: UID 10012 - CAB, IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps); Communication System Band: WLAN 2.4GHz (2412.0 - 2484.0 MHz); Frequency: 2437 MHz; Communication System PAR: 1.87 dB; PMF: 1.04833 Medium parameters used (interpolated): $f = 2437$ MHz; $\sigma = 1.871$ S/m; $\epsilon_r = 39.57$; $\rho = 1000$ kg/m³ Phantom section: Left Section DASY Configuration: - Probe: ES3DV3 - SN3127; ConvF(4.58, 4.58, 4.58); Calibrated: 2017/10/11; - Sensor-Surface: 3mm (Mechanical Surface Detection), $z = 2.0, 32.0$ - Electronics: DAE4 Sn546; Calibrated: 2017/9/15 - Phantom: 1660; Type: QD 000 P40 CD; Serial: xxxx - DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373) Head-Section HSL wifi Left Head/wifi HSL touch M/Area Scan (8x12x1): Measurement grid: $dx=12\text{mm}$, $dy=12\text{mm}$ Maximum value of SAR (measured) = 0.0531 W/kg Head-Section HSL wifi Left Head/wifi HSL touch M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 2.388 V/m; Power Drift = 0.13 dB Peak SAR (extrapolated) = 0.111 W/kg SAR(1 g) = 0.045 W/kg; SAR(10 g) = 0.020 W/kg Maximum value of SAR (measured) = 0.0607 W/kg W/kg  	

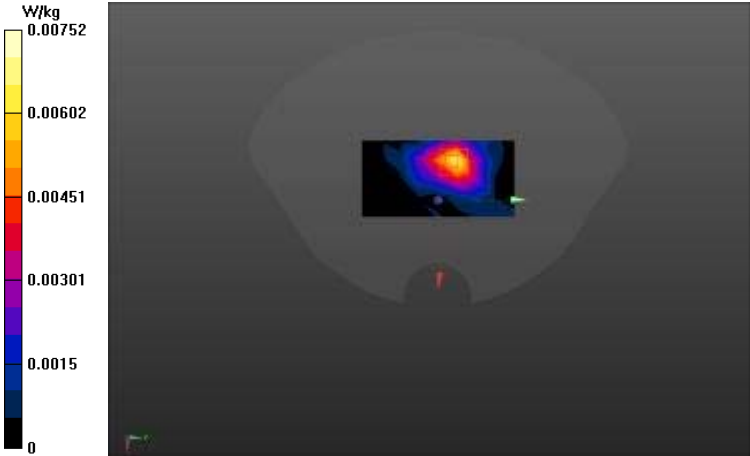
Left Side	Tilt
Communication System: UID 10012 - CAB, IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps); Communication System Band: WLAN 2.4GHz (2412.0 - 2484.0 MHz); Frequency: 2437 MHz;Communication System PAR: 1.87 dB; PMF: 1.04833 Medium parameters used (interpolated): $f = 2437$ MHz; $\sigma = 1.871$ S/m; $\epsilon_r = 39.57$; $\rho = 1000$ kg/m³ Phantom section: Left Section DASY Configuration: - Probe: ES3DV3 - SN3127; ConvF(4.58, 4.58, 4.58); Calibrated: 2017/10/11; - Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 3mm (Mechanical Surface Detection), $z = 2.0, 32.0$ - Electronics: DAE4 Sn546; Calibrated: 2017/9/15 - Phantom: 1660; Type: QD 000 P40 CD; Serial: xxxx - DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373) Head-Section HSL wifi Left Head/wifi HSL tilt M/Area Scan (8x12x1): Measurement grid: $dx=12\text{mm}$, $dy=12\text{mm}$ Maximum value of SAR (measured) = 0.0292 W/kg Head-Section HSL wifi Left Head/wifi HSL tilt M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 2.631 V/m; Power Drift = 0.02 dB Peak SAR (extrapolated) = 0.0550 W/kg SAR(1 g) = 0.022 W/kg; SAR(10 g) = 0.00921 W/kg Maximum value of SAR (measured) = 0.0313 W/kg 	

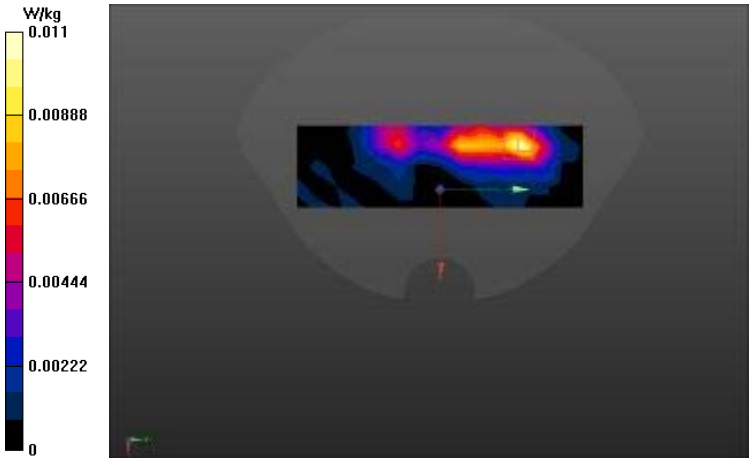
Right Side	Cheek
Communication System: UID 10012 - CAB, IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps); Communication System Band: WLAN 2.4GHz (2412.0 - 2484.0 MHz); Frequency: 2437 MHz; Communication System PAR: 1.87 dB; PMF: 1.04833 Medium parameters used (interpolated): $f = 2437$ MHz; $\sigma = 1.871$ S/m; $\epsilon_r = 39.57$; $\rho = 1000$ kg/m³ Phantom section: Right Section DASY Configuration: - Probe: ES3DV3 - SN3127; ConvF(4.58, 4.58, 4.58); Calibrated: 2017/10/11; - Sensor-Surface: 3mm (Mechanical Surface Detection), $z = -3.0, 32.0$ - Electronics: DAE4 Sn546; Calibrated: 2017/9/15 - Phantom: 1660; Type: QD 000 P40 CD; Serial: xxxx - DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373) Head-Section HSL wifi Right Head/wifi HSL touch M/Area Scan (8x12x1): Measurement grid: $dx=12\text{mm}$, $dy=12\text{mm}$ Maximum value of SAR (measured) = 0.0259 W/kg Head-Section HSL wifi Right Head/wifi HSL touch M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 2.982 V/m; Power Drift = 0.17 dB Peak SAR (extrapolated) = 0.0460 W/kg SAR(1 g) = 0.023 W/kg; SAR(10 g) = 0.012 W/kg Maximum value of SAR (measured) = 0.0296 W/kg  W/kg 0.026 0.021 0.016 0.010 0.00518 0	

Right Side	Tilt
Communication System: UID 10012 - CAB, IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps); Communication System Band: WLAN 2.4GHz (2412.0 - 2484.0 MHz); Frequency: 2437 MHz; Communication System PAR: 1.87 dB; PMF: 1.04833 Medium parameters used (interpolated): $f = 2437$ MHz; $\sigma = 1.871$ S/m; $\epsilon_r = 39.57$; $\rho = 1000$ kg/m³ Phantom section: Right Section DASY Configuration: - Probe: ES3DV3 - SN3127; ConvF(4.58, 4.58, 4.58); Calibrated: 2017/10/11; - Sensor-Surface: 3mm (Mechanical Surface Detection), $z = -3.0, 32.0$ - Electronics: DAE4 Sn546; Calibrated: 2017/9/15 - Phantom: 1660; Type: QD 000 P40 CD; Serial: xxxx - DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373) Head-Section HSL wifi Right Head/wifi HSL tilt M/Area Scan (8x12x1): Measurement grid: $dx=12$mm, $dy=12$mm Maximum value of SAR (measured) = 0.0269 W/kg Head-Section HSL wifi Right Head/wifi HSL tilt M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$mm, $dy=5$mm, $dz=5$mm Reference Value = 3.003 V/m; Power Drift = 0.07 dB Peak SAR (extrapolated) = 0.0570 W/kg SAR(1 g) = 0.028 W/kg; SAR(10 g) = 0.014 W/kg Maximum value of SAR (measured) = 0.0362 W/kg 	

FLAT	Towards phantom
Communication System: UID 10012 - CAB, IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps); Communication System Band: WLAN 2.4GHz (2412.0 - 2484.0 MHz); Frequency: 2437 MHz; Communication System PAR: 1.87 dB; PMF: 1.04833 Medium parameters used (interpolated): $f = 2437$ MHz; $\sigma = 2.053$ S/m; $\epsilon_r = 51.97$; $\rho = 1000$ kg/m³ Phantom section: Flat Section DASY Configuration: - Probe: ES3DV3 - SN3127; ConvF(4.28, 4.28, 4.28); Calibrated: 2017/10/11; - Sensor-Surface: 3mm (Mechanical Surface Detection), $z = -3.0, 32.0$ - Electronics: DAE4 Sn546; Calibrated: 2017/9/15 - Phantom: 1659; Type: QD 000 P40 CD; Serial: xxxx - DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373) Flat-Section MSL WIFI2.4G TG&TP/WIFI TP M 10mm/Area Scan (8x13x1): Measurement grid: $dx=12$mm, $dy=12$mm Maximum value of SAR (measured) = 0.154 W/kg Flat-Section MSL WIFI2.4G TG&TP/WIFI TP M 10mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$mm, $dy=5$mm, $dz=5$mm Reference Value = 5.529 V/m; Power Drift = 0.02 dB Peak SAR (extrapolated) = 0.245 W/kg SAR(1 g) = 0.123 W/kg; SAR(10 g) = 0.067 W/kg	
	

FLAT	Towards ground
Communication System: UID 10012 - CAB, IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps); Communication System Band: WLAN 2.4GHz (2412.0 - 2484.0 MHz); Frequency: 2437 MHz;Communication System PAR: 1.87 dB; PMF: 1.04833 Medium parameters used (interpolated): $f = 2437$ MHz; $\sigma = 2.053$ S/m; $\epsilon_r = 51.97$; $\rho = 1000$ kg/m³ Phantom section: Flat Section DASY Configuration: - Probe: ES3DV3 - SN3127; ConvF(4.28, 4.28, 4.28); Calibrated: 2017/10/11; - Sensor-Surface: 3mm (Mechanical Surface Detection), $z = -3.0, 32.0$ - Electronics: DAE4 Sn546; Calibrated: 2017/9/15 - Phantom: 1659; Type: QD 000 P40 CD; Serial: xxxx - DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373) Flat-Section MSL WIFI2.4G TG&TP/WIFI TG M 10mm/Area Scan (8x13x1): Measurement grid: $dx=12$mm, $dy=12$mm Maximum value of SAR (measured) = 0.139 W/kg Flat-Section MSL WIFI2.4G TG&TP/WIFI TG M 10mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$mm, $dy=5$mm, $dz=5$mm Reference Value = 5.963 V/m; Power Drift = -0.19 dB Peak SAR (extrapolated) = 0.217 W/kg SAR(1 g) = 0.121 W/kg; SAR(10 g) = 0.068 W/kg Maximum value of SAR (measured) = 0.147 W/kg  W/kg 0.147 0.118 0.089 0.060 0.031 0.00142	

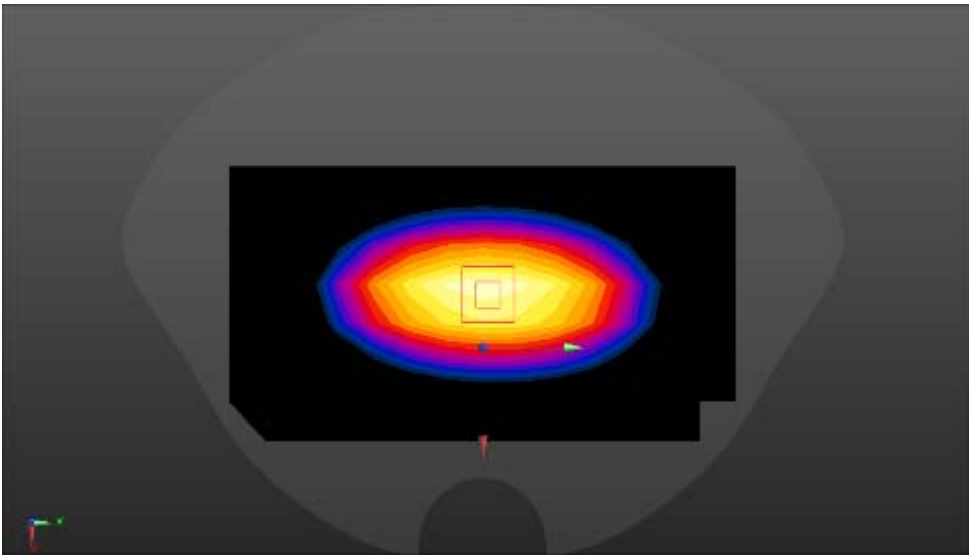
FLAT	EDGE1
Communication System: UID 10012 - CAB, IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps); Communication System Band: WLAN 2.4GHz (2412.0 - 2484.0 MHz); Frequency: 2437 MHz; Communication System PAR: 1.87 dB; PMF: 1.04833 Medium parameters used (interpolated): $f = 2437$ MHz; $\sigma = 2.053$ S/m; $\epsilon_r = 51.97$; $\rho = 1000$ kg/m³ Phantom section: Flat Section DASY Configuration: - Probe: ES3DV3 - SN3127; ConvF(4.28, 4.28, 4.28); Calibrated: 2017/10/11; - Sensor-Surface: 3mm (Mechanical Surface Detection), $z = -3.0, 32.0$ - Electronics: DAE4 Sn546; Calibrated: 2017/9/15 - Phantom: 1659; Type: QD 000 P40 CD; Serial: xxxx - DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373) Flat-Section MSL WIFI HOT/WIFI M edge 1/Area Scan (5x9x1): Measurement grid: $dx=12$mm, $dy=12$mm Maximum value of SAR (measured) = 0.00684 W/kg Flat-Section MSL WIFI HOT/WIFI M edge 1/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$mm, $dy=5$mm, $dz=5$mm Reference Value = 1.175 V/m; Power Drift = 0.09 dB Peak SAR (extrapolated) = 0.0110 W/kg SAR(1 g) = 0.00559 W/kg; SAR(10 g) = 0.00241 W/kg Maximum value of SAR (measured) = 0.00752 W/kg 	

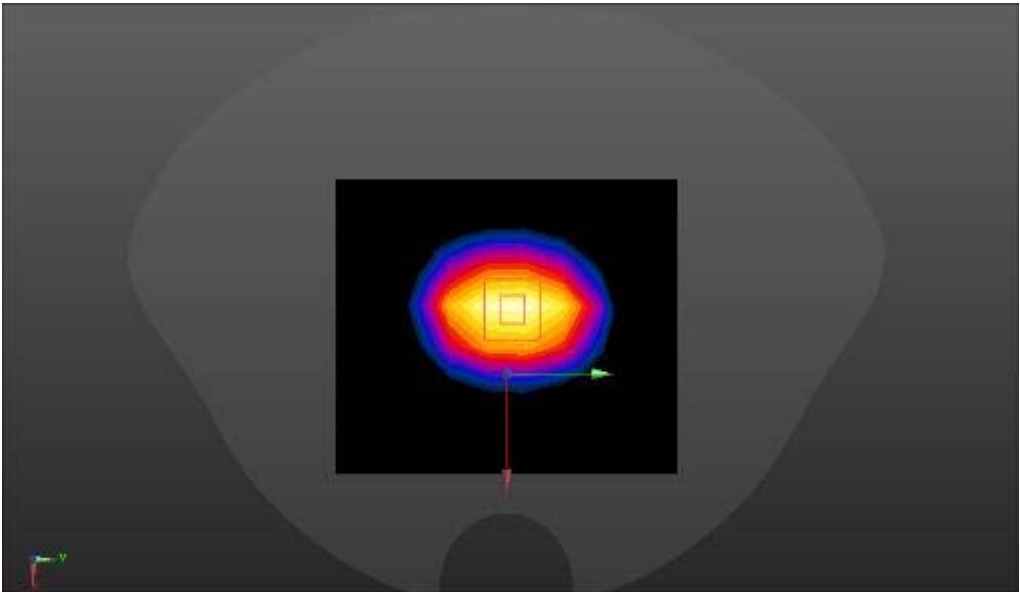
FLAT	EDGE3
Communication System: UID 10012 - CAB, IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps); Communication System Band: WLAN 2.4GHz (2412.0 - 2484.0 MHz); Frequency: 2437 MHz; Communication System PAR: 1.87 dB; PMF: 1.04833 Medium parameters used (interpolated): $f = 2437$ MHz; $\sigma = 2.053$ S/m; $\epsilon_r = 51.97$; $\rho = 1000$ kg/m³ Phantom section: Flat Section DASY Configuration: - Probe: ES3DV3 - SN3127; ConvF(4.28, 4.28, 4.28); Calibrated: 2017/10/11; - Sensor-Surface: 3mm (Mechanical Surface Detection), $z = -3.0, 32.0$ - Electronics: DAE4 Sn546; Calibrated: 2017/9/15 - Phantom: 1659; Type: QD 000 P40 CD; Serial: xxxx - DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373) Flat-Section MSL WIFI HOT/WIFI M edge 3/Area Scan (5x15x1): Measurement grid: $dx=12$mm, $dy=12$mm Maximum value of SAR (measured) = 0.0112 W/kg Flat-Section MSL WIFI HOT/WIFI M edge 3/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$mm, $dy=5$mm, $dz=5$mm Reference Value = 0.8120 V/m; Power Drift = 0.06 dB Peak SAR (extrapolated) = 0.0160 W/kg SAR(1 g) = 0.00844 W/kg; SAR(10 g) = 0.00395 W/kg Maximum value of SAR (measured) = 0.0111 W/kg 	

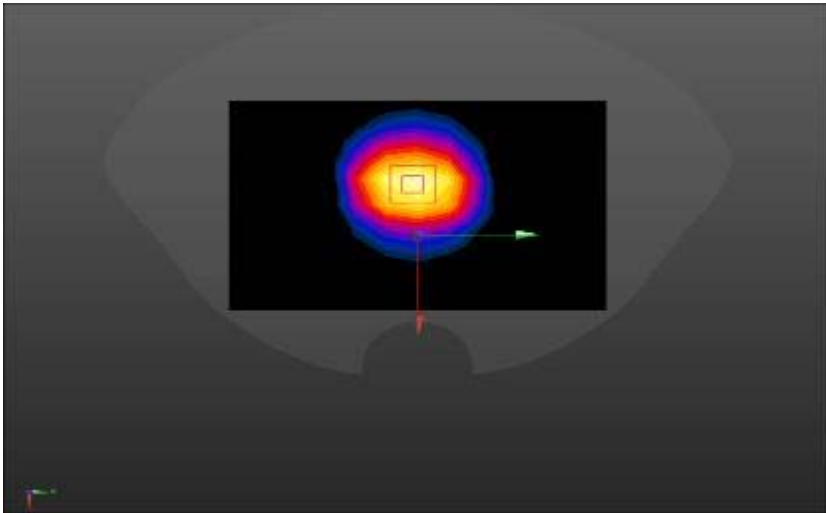
Variant product

System check

Body liquid

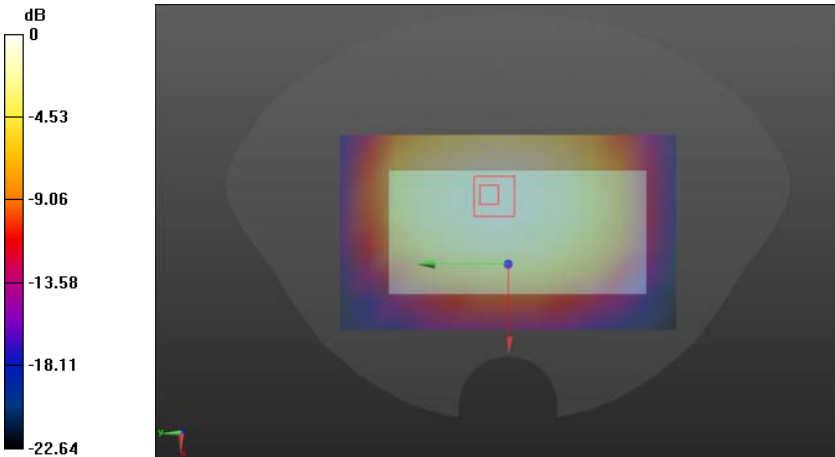
System check	835MHz
Communication System: UID 0, CW (0); Frequency: 835 MHz Medium parameters used (interpolated): $f = 835$ MHz; $\sigma = 0.982$ S/m; $\epsilon_r = 55.832$; $\rho = 1000$ kg/m³ Phantom section: Flat Section DASY5 Configuration: - Probe: EX3DV4 - SN3708; ConvF(9.16, 9.16, 9.16); Calibrated: 2017/11/7; - Sensor-Surface: 1.4mm (Mechanical Surface Detection) - Electronics: DAE4 Sn720; Calibrated: 2017/10/23 - Phantom: 1659; Type: QD 000 P40 CD; Serial: xxxx - Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373) Configuration 835/835/Area Scan (8x15x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 2.61 W/kg Configuration 835/835/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 55.11 V/m; Power Drift = 0.02 dB Peak SAR (extrapolated) = 3.25 W/kg SAR(1 g) = 2.32 W/kg; SAR(10 g) = 1.53 W/kg Maximum value of SAR (measured) = 2.68 W/kg	
	

System check	1800MHz
Communication System: UID 0, CW (0); Frequency: 1800 MHz Medium parameters used: $f = 1800 \text{ MHz}$; $\sigma = 1.515 \text{ S/m}$; $\epsilon_r = 52.933$; $\rho = 1000 \text{ kg/m}^3$ Phantom section: Flat Section DASY5 Configuration: - Probe: EX3DV4 - SN3708; ConvF(7.7, 7.7, 7.7); Calibrated: 2017/11/7; - Sensor-Surface: 1.4mm (Mechanical Surface Detection) - Electronics: DAE4 Sn720; Calibrated: 2017/10/23 - Phantom: 1659; Type: QD 000 P40 CD; Serial: xxxx - Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373) Configuration 1800/1800/Area Scan (8x10x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (measured) = 13.0 W/kg Configuration 1800/1800/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 85.33 V/m; Power Drift = 0.06 dB Peak SAR (extrapolated) = 18.4 W/kg SAR(1 g) = 9.88 W/kg; SAR(10 g) = 5.11 W/kg Maximum value of SAR (measured) = 13.2 W/kg 	

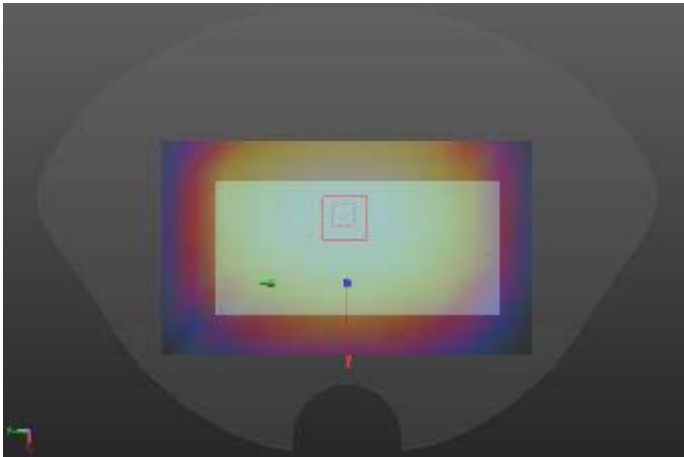
System check	2450MHz
Communication System: UID 0, CW (0); Communication System Band: D2450 (2450.0 MHz); Frequency: 2450 MHz; Medium parameters used: $f = 2450 \text{ MHz}$; $\sigma = 1.936 \text{ S/m}$; $\epsilon_r = 52.618$; $\rho = 1000 \text{ kg/m}^3$ Phantom section: Flat Section DASY Configuration: - Probe: EX3DV4 - SN3708; ConvF(7.3, 7.3, 7.3); Calibrated: 2017/11/7; - Sensor-Surface: 1.4mm (Mechanical Surface Detection) - Electronics: DAE4 Sn720; Calibrated: 2017/10/23 - Phantom: 1659; Type: QD 000 P40 CD; Serial: xxxx - DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373) System Performance Check at Frequencies 2450MHz (EX-Probe)/Area Scan (9x13x1): Measurement grid: $dx=12\text{mm}$, $dy=12\text{mm}$ Maximum value of SAR (measured) = 13.9 W/kg System Performance Check at Frequencies 2450MHz (EX-Probe)/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 65.11 V/m; Power Drift = 0.09 dB Peak SAR (extrapolated) = 32.6 W/kg SAR(1 g) = 12.9 W/kg; SAR(10 g) = 6.10 W/kg Maximum value of SAR (measured) = 18.2 W/kg 	

GSM (850MHz with EGPRS)

First supply

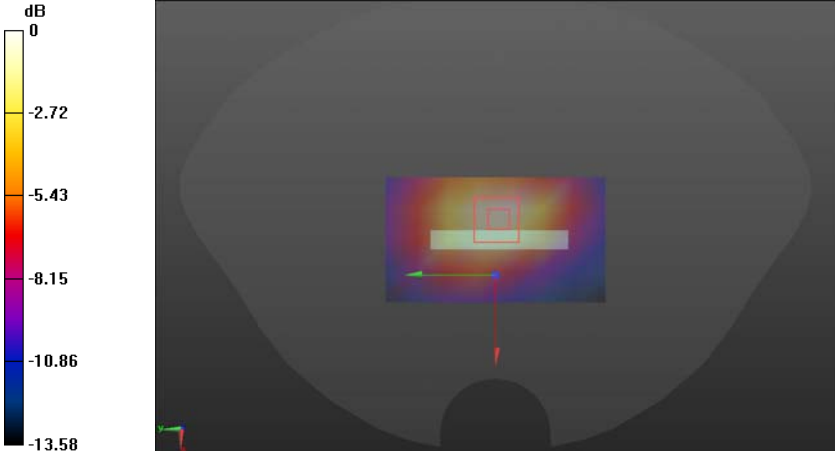
FLAT	Towards Ground
Communication System: UID 10021 - DAB, GSM-FDD (TDMA, GMSK); Frequency: 836.6 MHz Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.982$ S/m; $\epsilon_r = 55.124$; $\rho = 1000$ kg/m³ Phantom section: Flat Section DASY5 Configuration: - Probe: EX3DV4 - SN3708; ConvF(9.16, 9.16, 9.16); Calibrated: 2017/11/7; - Sensor-Surface: 3mm (Mechanical Surface Detection) - Electronics: DAE4 Sn720; Calibrated: 2017/10/23 - Phantom: 1659; Type: QD 000 P40 CD; Serial: xxxx - Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373) 850/EGPRS850 TG M 10mm M/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.689 W/kg 850/EGPRS850 TG M 10mm M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 24.45 V/m; Power Drift = 0.12 dB Peak SAR (extrapolated) = 0.871 W/kg SAR(1 g) = 0.651 W/kg; SAR(10 g) = 0.479 W/kg Maximum value of SAR (measured) = 0.733 W/kg	
 0 dB = 0.689 W/kg = -1.62 dBW/kg	

Second supply

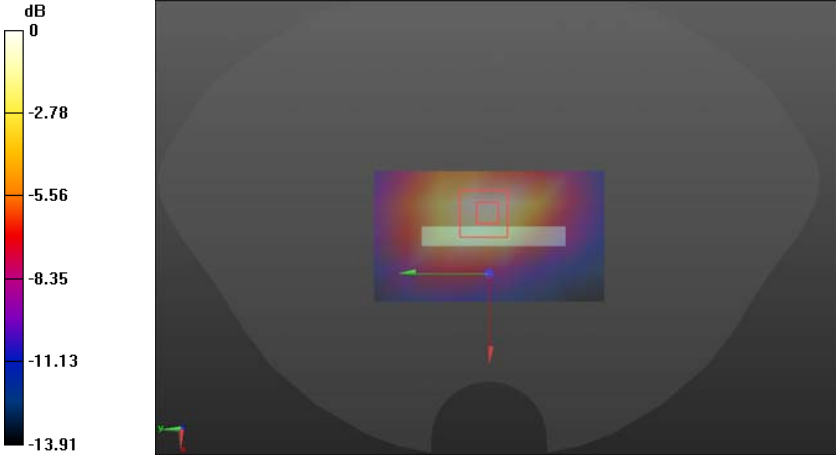
FLAT	Towards Ground
Communication System: UID 10021 - DAB, GSM-FDD (TDMA, GMSK); Frequency: 836.6 MHz Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.982$ S/m; $\epsilon_r = 55.124$; $\rho = 1000$ kg/m³ Phantom section: Flat Section DASY5 Configuration: - Probe: EX3DV4 - SN3708; ConvF(9.16, 9.16, 9.16); Calibrated: 2017/11/7; - Sensor-Surface: 3mm (Mechanical Surface Detection) - Electronics: DAE4 Sn720; Calibrated: 2017/10/23 - Phantom: 1659; Type: QD 000 P40 CD; Serial: xxxx - Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373) Flat-Section MSL TG/EGPRS850 TG M 10mm M/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.654 W/kg Flat-Section MSL TG/EGPRS850 TG M 10mm M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 25.93 V/m; Power Drift = -0.13 dB Peak SAR (extrapolated) = 0.807 W/kg SAR(1 g) = 0.610 W/kg; SAR(10 g) = 0.441 W/kg Maximum value of SAR (measured) = 0.695 W/kg dB 0 -4.38 -8.76 -13.13 -17.51 -21.89  0 dB = 0.654 W/kg = -1.84 dBW/kg	

GSM (1900MHz with EGPRS)

First supply

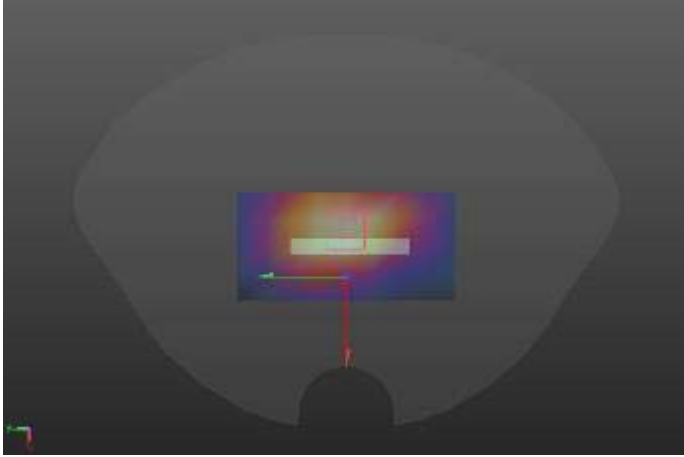
FLAT	EDGE2
Communication System: UID 10021 - DAB, GSM-FDD (TDMA, GMSK); Frequency: 1880 MHz Medium parameters used (interpolated): $f = 1880$ MHz; $\sigma = 1.564$ S/m; $\epsilon_r = 53.185$; $\rho = 1000$ kg/m³ Phantom section: Flat Section DASY5 Configuration: - Probe: EX3DV4 - SN3708; ConvF(7.7, 7.7, 7.7); Calibrated: 2017/11/7; - Sensor-Surface: 3mm (Mechanical Surface Detection) - Electronics: DAE4 Sn720; Calibrated: 2017/10/23 - Phantom: 1659; Type: QD 000 P40 CD; Serial: xxxx - Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373) Configuration/EGPRS1900 edge2 M 10mm M/Area Scan (5x8x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.505 W/kg Configuration/EGPRS1900 edge2 M 10mm M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 16.16 V/m; Power Drift = 0.10 dB Peak SAR (extrapolated) = 0.849 W/kg SAR(1 g) = 0.494 W/kg; SAR(10 g) = 0.270 W/kg Maximum value of SAR (measured) = 0.614 W/kg  0 dB = 0.505 W/kg = -2.97 dBW/kg	

Second supply

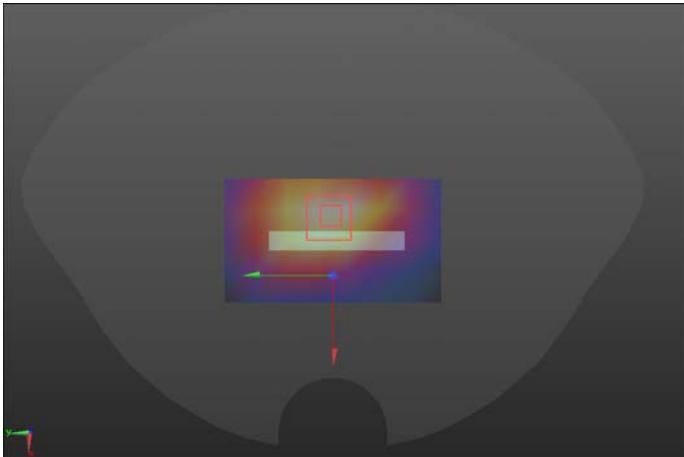
FLAT	EDGE2
Communication System: UID 10021 - DAB, GSM-FDD (TDMA, GMSK); Frequency: 1880 MHz Medium parameters used (interpolated): $f = 1880$ MHz; $\sigma = 1.564$ S/m; $\epsilon_r = 53.185$; $\rho = 1000$ kg/m³ Phantom section: Flat Section DASY5 Configuration: - Probe: EX3DV4 - SN3708; ConvF(7.7, 7.7, 7.7); Calibrated: 2017/11/7; - Sensor-Surface: 3mm (Mechanical Surface Detection) - Electronics: DAE4 Sn720; Calibrated: 2017/10/23 - Phantom: 1659; Type: QD 000 P40 CD; Serial: xxxx - Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373) 1900/EGPRS1900 edge2 10mm M/Area Scan (5x8x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.450 W/kg 1900/EGPRS1900 edge2 10mm M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 13.98 V/m; Power Drift = 0.04 dB Peak SAR (extrapolated) = 0.779 W/kg SAR(1 g) = 0.443 W/kg; SAR(10 g) = 0.234 W/kg Maximum value of SAR (measured) = 0.558 W/kg	
 0 dB = 0.450 W/kg = -3.47 dBW/kg	

WCDMA BAND2

First supply

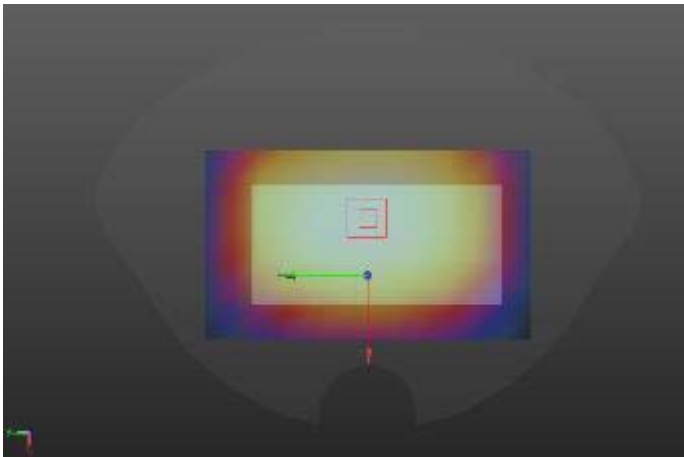
FLAT	EDGE2
Communication System: UID 10011 - CAB, UMTS-FDD (WCDMA); Frequency: 1880 MHz Medium parameters used (interpolated): $f = 1880$ MHz; $\sigma = 1.564$ S/m; $\epsilon_r = 53.185$; $\rho = 1000$ kg/m³ Phantom section: Flat Section DASY Configuration: - Probe: EX3DV4 - SN3708; ConvF(7.7, 7.7, 7.7); Calibrated: 2017/11/7; - Sensor-Surface: 3mm (Mechanical Surface Detection), $z = -4.0, 31.0$ - Electronics: DAE4 Sn720; Calibrated: 2017/10/23 - Phantom: 1659; Type: QD 000 P40 CD; Serial: xxxx - DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373) Flat-Section MSL HOT/WCDMA BAND2 M edge 2 M/Area Scan (5x9x1): Measurement grid: $dx=15$mm, $dy=15$mm Maximum value of SAR (measured) = 0.439 W/kg Flat-Section MSL HOT/WCDMA BAND2 M edge 2 M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$mm, $dy=5$mm, $dz=5$mm Reference Value = 14.35 V/m; Power Drift = 0.11 dB Peak SAR (extrapolated) = 0.708 W/kg SAR(1 g) = 0.415 W/kg; SAR(10 g) = 0.223 W/kg Maximum value of SAR (measured) = 0.515 W/kg dB 0 -2.64 -5.28 -7.92 -10.56 -13.20  0 dB = 0.400 W/kg = -3.98 dBW/kg	

Second supply

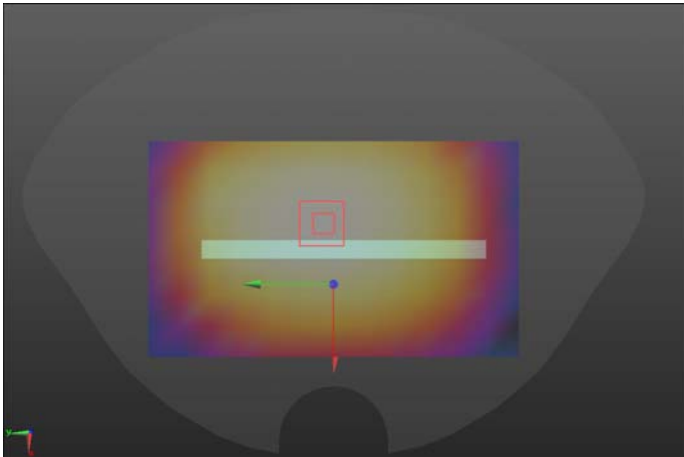
FLAT	EDGE2
Communication System: UID 0, WCDMA BAND2 (0); Frequency: 1880 MHz Medium parameters used (interpolated): $f = 1880$ MHz; $\sigma = 1.564$ S/m; $\epsilon_r = 53.185$; $\rho = 1000$ kg/m³ Phantom section: Flat Section DASY5 Configuration: - Probe: EX3DV4 - SN3708; ConvF(7.7, 7.7, 7.7); Calibrated: 2017/11/7; - Sensor-Surface: 3mm (Mechanical Surface Detection) - Electronics: DAE4 Sn720; Calibrated: 2017/10/23 - Phantom: 1659; Type: QD 000 P40 CD; Serial: xxxx - Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373) Configuration/wcdma band2 edge2 10mm M/Area Scan (5x8x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.457 W/kg Configuration/wcdma band2 edge2 10mm M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 12.70 V/m; Power Drift = -0.05 dB Peak SAR (extrapolated) = 0.647 W/kg SAR(1 g) = 0.384 W/kg; SAR(10 g) = 0.207 W/kg Maximum value of SAR (measured) = 0.473 W/kg dB 0 -2.84 -5.67 -8.51 -11.34 -14.18  0 dB = 0.457 W/kg = -3.40 dBW/kg	

WCDMA BAND5

First supply

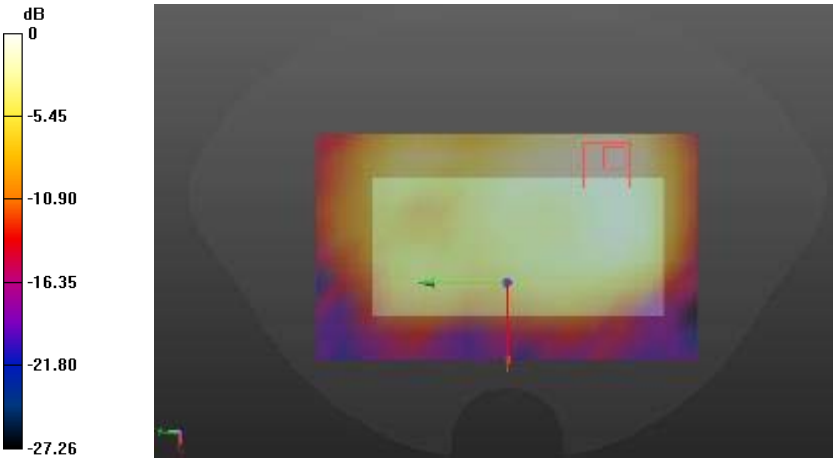
FLAT	Towards Ground
Communication System: UID 10011 - CAB, UMTS-FDD (WCDMA); Frequency: 836.6 MHz Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.982$ S/m; $\epsilon_r = 55.124$; $\rho = 1000$ kg/m³ Phantom section: Flat Section DASY Configuration: - Probe: EX3DV4 - SN3708; ConvF(9.16, 9.16, 9.16); Calibrated: 2017/11/7; - Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 3mm (Mechanical Surface Detection), $z = -4.0, 31.0$ - Electronics: DAE4 Sn720; Calibrated: 2017/10/23 - Phantom: 1659; Type: QD 000 P40 CD; Serial: xxxx - DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373) Flat-Section MSL TG/WCDMA BAND5 TG M 10mm/Area Scan (8x13x1): Measurement grid: $dx=15$mm, $dy=15$mm Maximum value of SAR (measured) = 0.407 W/kg Flat-Section MSL TG/WCDMA BAND5 TG M 10mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$mm, $dy=5$mm, $dz=5$mm Reference Value = 19.63 V/m; Power Drift = 0.12 dB Peak SAR (extrapolated) = 0.472 W/kg SAR(1 g) = 0.369 W/kg; SAR(10 g) = 0.275 W/kg Maximum value of SAR (measured) = 0.408 W/kg dB 0 -4.57 -9.14 -13.71 -18.28 -22.85  0 dB = 0.407 W/kg = -3.90 dBW/kg	

Second supply

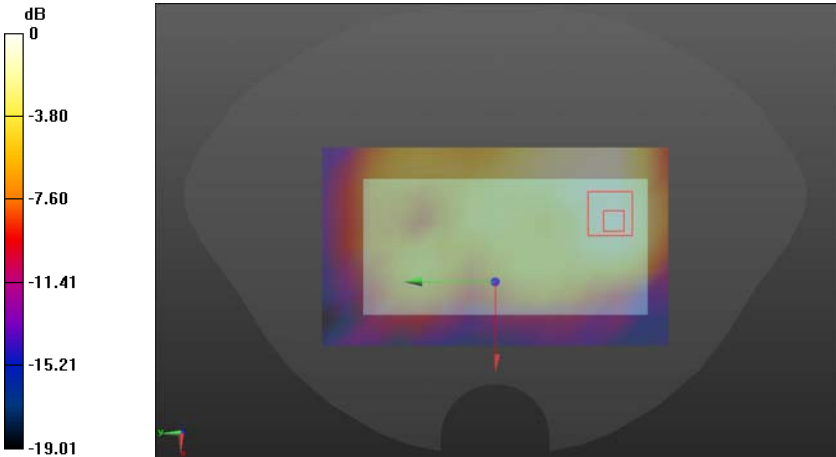
FLAT	Towards Ground
Communication System: UID 0, WCDMA BAND 5 (0); Frequency: 836.6 MHz Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.982$ S/m; $\epsilon_r = 55.124$; $\rho = 1000$ kg/m³ Phantom section: Flat Section DASY5 Configuration: - Probe: EX3DV4 - SN3708; ConvF(9.16, 9.16, 9.16); Calibrated: 2017/11/7; - Sensor-Surface: 3mm (Mechanical Surface Detection) - Electronics: DAE4 Sn720; Calibrated: 2017/10/23 - Phantom: 1659; Type: QD 000 P40 CD; Serial: xxxx - Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373) Configuration/wcdma band5 TG 10mm M/Area Scan (8x13x1): Measurement grid: $dx=15$mm, $dy=15$mm Maximum value of SAR (measured) = 0.340 W/kg Configuration/wcdma band5 TG 10mm M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$mm, $dy=5$mm, $dz=5$mm Reference Value = 17.95 V/m; Power Drift = 0.14 dB Peak SAR (extrapolated) = 0.394 W/kg SAR(1 g) = 0.309 W/kg; SAR(10 g) = 0.230 W/kg Maximum value of SAR (measured) = 0.341 W/kg dB 0 -5.08 -10.15 -15.23 -20.30 -25.38  0 dB = 0.340 W/kg = -4.69 dBW/kg	

WIFI 2.4GHz

First supply

FLAT	Towards phantom
Communication System: UID 0, WIFI 2.4GHz (0); Frequency: 2437 MHz Medium parameters used (interpolated): $f = 2437$ MHz; $\sigma = 1.986$ S/m; $\epsilon_r = 52.33$; $\rho = 1000$ kg/m³ Phantom section: Flat Section DASY Configuration: - Probe: EX3DV4 - SN3708; ConvF(7.3, 7.3, 7.3); Calibrated: 2017/11/7; - Sensor-Surface: 3mm (Mechanical Surface Detection), $z = -4.0, 31.0$ - Electronics: DAE4 Sn720; Calibrated: 2017/10/23 - Phantom: 1659; Type: QD 000 P40 CD; Serial: xxxx - DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373) Flat-Section MSL TP/WIFI TP M 10mm M/Area Scan (10x16x1): Measurement grid: $dx=12$mm, $dy=12$mm Maximum value of SAR (measured) = 0.148 W/kg Flat-Section MSL TP/WIFI TP M 10mm M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$mm, $dy=5$mm, $dz=5$mm Reference Value = 5.600 V/m; Power Drift = -0.18 dB Peak SAR (extrapolated) = 0.230 W/kg SAR(1 g) = 0.120 W/kg; SAR(10 g) = 0.067 W/kg  0 dB = 0.148 W/kg = -8.30 dBW/kg	

Second supply

FLAT	Towards phantom
Communication System: UID 0, WIFI 2.4GHz (0); Frequency: 2437 MHz Medium parameters used (interpolated): $f = 2437 \text{ MHz}$; $\sigma = 1.986 \text{ S/m}$; $\epsilon_r = 52.33$; $\rho = 1000 \text{ kg/m}^3$ Phantom section: Flat Section DASY5 Configuration: - Probe: EX3DV4 - SN3708; ConvF(7.3, 7.3, 7.3); Calibrated: 2017/11/7; - Sensor-Surface: 3mm (Mechanical Surface Detection) - Electronics: DAE4 Sn720; Calibrated: 2017/10/23 - Phantom: 1659; Type: QD 000 P40 CD; Serial: xxxx - Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373) Configuration 2/wifi 2.4G 802.11b TP M/Area Scan (9x15x1): Measurement grid: $dx=12\text{mm}$, $dy=12\text{mm}$ Maximum value of SAR (measured) = 0.168 W/kg Configuration 2/wifi 2.4G 802.11b TP M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 5.812 V/m; Power Drift = 0.01 dB Peak SAR (extrapolated) = 0.253 W/kg SAR(1 g) = 0.118 W/kg; SAR(10 g) = 0.078 W/kg Maximum value of SAR (measured) = 0.167 W/kg	
 0 dB = 0.168 W/kg = -7.75 dBW/kg	

ANNEX B – RELEVANT PAGES FROM CALIBRATION REPORTS

DAE4 Sn:546

TTL In Collaboration with
SPERG CALIBRATION LABORATORY
No. 10-14 Nanyang Road, Pudong District, Shanghai, 201300, China
Tel: +86-21-527996183 Fax: +86-21-527996388
E-mail: info@sperg.com.cn Website: www.sperg.com.cn

Client: **SRTC** Certificate No: **Z17-07141**

CALIBRATION CERTIFICATE

Object: **DAE4-SN:546**

Calibration Procedure(s): **PR-21-002-01**
Calibration Procedure for the Data Acquisition Electronics (DAE4)

Calibration date: **September 15, 2017**

This calibration Certificate documents the traceability to national standards, which include the physical units of measurement(s). The measurements and the uncertainties with associated probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility, environmental temperature(23±2)°C and humidity(50±5)%.

Calibration equipment used (NISTC critical for calibration):

Primary Standards	ID #	Calibration/Issued by Certificate No. /	Scheduled Calibration
Process Calibration No.	1011018	27-Jan-17 (Z17-1102888)	June-18

	Name	Function	Signature
Calibrated by:	Xu Jingyong	SAR Test Engineer	
Reviewed by:	Lin Hai	SAR Test Engineer	
Approved by:	Guo Jianjun	SAR Project Leader	

Valid: September 18, 2017

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No. 10-14 Nanyang Road, Pudong District, Shanghai, 201300, China
Tel: +86-21-527996183 Fax: +86-21-527996388
E-mail: info@sperg.com.cn Website: www.sperg.com.cn

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 this connector is assessed measuring the angle mechanically by a tool inserted. Uncertainty is not required.
- The report provide only calibration results for DAE, it does not contain other performance test results.

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No. 10-14 Nanyang Road, Pudong District, Shanghai, 201300, China
Tel: +86-21-527996183 Fax: +86-21-527996388
E-mail: info@sperg.com.cn Website: www.sperg.com.cn

DC Voltage Measurement

A/D Converter Resolution: nominal

High Range	0.25 ~ 5.1 V	5.1 range	100 ~ 500 mV
Low Range	0.05 mV	0.1 mV	1 ~ 2 mV

DAE4 measurement parameter Auto Zero Time: 2 sec. Measuring time: 3 sec

Calibration Period	X	Y	Z
High Range	408.027 ± 0.15% (k=2)	404.065 ± 0.16% (k=2)	404.218 ± 0.15% (k=2)
Low Range	3.98136 ± 0.17% (k=2)	3.98171 ± 0.17% (k=2)	3.98168 ± 0.17% (k=2)

Connector Angle

Connector Angle to be used in DASY system	736.67 ± 1°
---	-------------

Certificate No: Z17-07141

Page 3 of 3

ES3DV3 Sn:3127



Address: No. 11 Xueyuan Road, Haidian District, Beijing 100190, China
Tel: +86-10-62156111-2218 Fax: +86-10-62156111-2219
E-mail: info@ttdlab.com.cn Website: www.ttdlab.com.cn

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

Calibration Parameter Determined in Head Tissue Simulating Media

f [MHz]	Relative Permittivity ¹⁾	Conductivity [S/m] ²⁾	Const X	Const Y	Const Z	Alpha ³⁾	Depth [mm]	Unc ⁴⁾
750	41.0	0.89	8.39	8.35	8.30	1.93	1.20	±12.1%
900	41.5	0.97	8.19	8.15	8.10	1.97	1.60	±12.1%
1810	45.0	1.40	5.55	5.50	5.05	0.97	1.20	±12.1%
2000	45.0	1.40	5.49	4.98	4.88	0.97	1.20	±12.1%
2300	39.5	1.07	4.71	4.71	4.71	0.90	1.05	±12.1%
2450	39.2	1.05	4.56	4.56	4.68	0.90	1.10	±12.1%
2650	39.0	1.05	4.52	4.52	4.52	0.90	1.39	±12.1%

¹⁾ Frequency validity above 500 MHz of a 100MHz to only applies for DASY and Easy (Page 7), else it is restricted to ±0.0004. The uncertainty is the RMS of Const X, Const Y and Const Z at the indicated frequency and the uncertainty for the indicated frequency band. Frequency validity below 500 MHz is ±1% 20, 40, 80 and 100 MHz for DASY measurements at 30, 60, 120, 180 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to a 10% band.

²⁾ At frequencies below 5 GHz, the validity of tissue parameters (b and c) can be released to ±10% if liquid compensation formula is applied to measured SAR values. At frequencies above 5 GHz, the validity of tissue parameters (b and c) is restricted to ±50%. The uncertainty is the RMS of the Const X, Const Y and Const Z for indicated target tissue parameters.

³⁾ Alpha term are determined during calibration. Alpha term represents the relative deviation due to the boundary effect after compensation is applied, less than ±1% for frequencies below 2 GHz and below ±2% for the frequencies between 2-4 GHz at any distance larger than half the probe tip diameter from the boundary.

Certificate No. 217-07142

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Tel: +86-10-62156111-2218 Fax: +86-10-62156111-2219
E-mail: info@ttdlab.com.cn Website: www.ttdlab.com.cn

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

Calibration Parameter Determined in Body Tissue Simulating Media

f [MHz]	Relative Permittivity ¹⁾	Conductivity [S/m] ²⁾	Const X	Const Y	Const Z	Alpha ³⁾	Depth [mm]	Unc ⁴⁾
750	55.5	0.94	6.76	6.16	6.10	0.66	1.45	±12.1%
900	59.0	1.08	6.06	6.06	6.00	0.68	1.45	±12.1%
1810	53.3	1.52	4.60	4.60	4.60	0.65	1.20	±12.1%
2000	53.3	1.52	4.60	4.60	4.60	0.65	1.20	±12.1%
2200	52.9	1.49	4.20	4.43	4.42	0.60	1.10	±12.1%
2450	50.7	1.39	4.28	4.28	4.34	0.72	1.24	±12.1%
2650	50.0	1.35	4.07	4.07	4.07	0.50	1.12	±12.1%

¹⁾ Frequency validity above 500 MHz of a 100MHz to only applies for DASY and Easy (Page 7), else it is restricted to ±0.0004. The uncertainty is the RMS of Const X, Const Y and Const Z at the indicated frequency and the uncertainty for the indicated frequency band. Frequency validity below 500 MHz is ±1% 20, 40, 80 and 100 MHz for DASY measurements at 30, 60, 120, 180 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to a 10% band.

²⁾ At frequencies below 5 GHz, the validity of tissue parameters (b and c) can be released to ±10% if liquid compensation formula is applied to measured SAR values. At frequencies above 5 GHz, the validity of tissue parameters (b and c) is restricted to ±50%. The uncertainty is the RMS of the Const X, Const Y and Const Z for indicated target tissue parameters.

³⁾ Alpha term are determined during calibration. Alpha term represents the relative deviation due to the boundary effect after compensation is applied, less than ±1% for frequencies below 2 GHz and below ±2% for the frequencies between 2-4 GHz at any distance larger than half the probe tip diameter from the boundary.

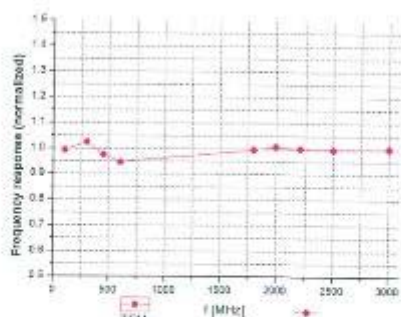
Certificate No. 217-07142

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Frequency Response of E-Field (TEM-Cell: 10110 EXX, Waveguide: R22)



Uncertainty of Frequency Response of E-Field: ±7.4% (k=2)

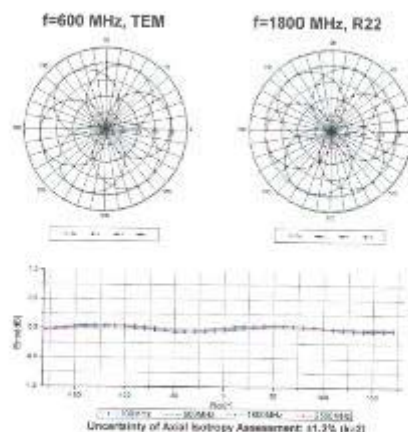
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Receiving Pattern (Φ, θ=0°)

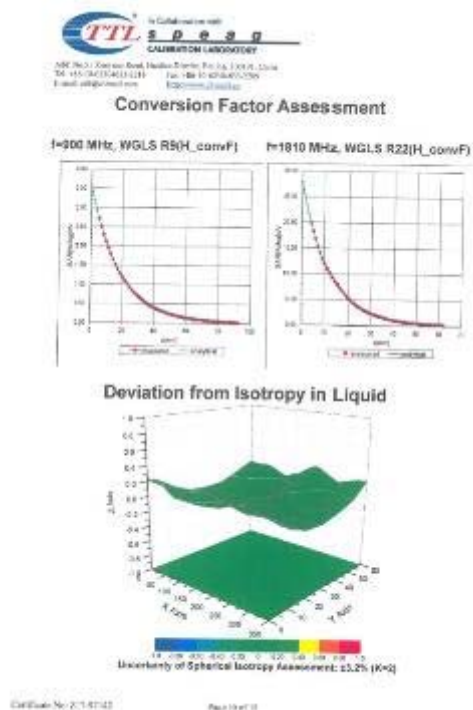
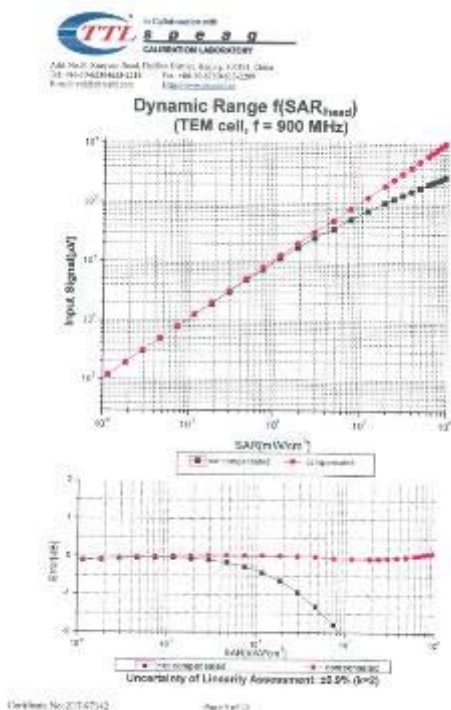


Uncertainty of Axial Isotropy Assessment: ±1.3% (k=2)

Certificate No. 217-07142

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ES3DV3 Sn:3127



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

Other Probe Parameters	
Sensor Arrangement	Triangular
Connector Angle (°)	166.5
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337mm
Probe Body Diameter	10mm
Tip Length	10mm
Tip Diameter	4mm
Probe Tip to Sensor X Calibration Point	2mm
Probe Tip to Sensor Y Calibration Point	2mm
Probe Tip to Sensor Z Calibration Point	2mm
Recommended Measurement Distance from Surface	2mm

In Collaboration with
FTL S P E A K
 CALIBRATION LABORATORY

100127, Xingye Road, Haidian District, Beijing, 100191, China
 Tel: +86 (0)1061211115 Fax: +86 (0)1061211116
 E-mail: cclab@ftl.com.cn ETCB@ftl.com.cn

Appendix: Modulation Calibration Parameters

UID	Communication System Name	PAR	A dB	B dB	C dB	VR mV	Unc (k=2)
8	QW	2.00	X 2.0 2.0 2.0	1.0	282.3	±0.3%	
			Y 2.0 2.0 2.0	1.0	280.9		
			Z 2.0 2.0 2.0	1.0	279.1		
10E12	IEEE 802.11a WiFi 2.4 GHz (QSSS, 1 Mbps)	1.83	X 2.77 68.32 16.45	143.0	±0.8%		
			Y 2.75 68.35 16.32	145.0			
			Z 2.71 67.29 16.25	142.1			
10100	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	5.07	X 6.15 66.4 18.07	141.5	±0.5%		
			Y 6.15 66.49 18.16	144.2			
			Z 6.09 66.32 18.06	140.4			
101E8	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	5.00	X 6.00 66.24 18.07	139.3	±0.3%		
			Y 6.10 66.33 18.15	141.5			
			Z 6.02 66.15 18.05	138.0			
10456	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	5.75	X 5.81 65.85 18.30	135.1	±0.5%		
			Y 5.82 65.82 18.01	137.8			
			Z 5.73 65.84 18.01	134.7			
10160	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	5.75	X 4.81 65.95 19.28	130.8	±0.3%		
			Y 4.82 65.98 19.37	131.3			
			Z 4.80 66.00 19.24	129.1			
10175	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	5.71	X 4.05 66.14 19.41	131.6	±0.5%		
			Y 4.07 66.08 19.35	132.0			
			Z 4.19 66.02 19.29	129.3			
10287	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	5.81	X 5.15 65.61 19.42	141.5	±0.5%		
			Y 5.13 65.41 19.26	140.7			
			Z 5.14 65.52 19.11	139.5			

D835V2 Sn:4d023

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Client: SRTC Certificate No.: Z17-01136

CALIBRATION CERTIFICATE

Model: D835V2 Sn: 4d023

Calibration Procedure: FF 211 (05.01)
Calibration date: September 13, 2017

This calibration Certificate documents the traceability to national standards, which realize the physical units of measurement (SI). The measurement and the associated self-confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the stated laboratory facility environment (temperature/humidity) and humidity (%).

Calibration Equipment used (MUTUAL for calibration)

Primary Standards	Q#	Cal Date/Calibrated by Certificate No.	Expiry Date/Calibrated
Power Meter N9910	122186	02 Mar-17 (TTL No. 1701254)	Mar-18
Power source N9910S	122186	02 Mar-17 (TTL No. 1701254)	Mar-18
Reference Pulse EX3024	SN 1433	26 Mar-16 (TTL No. 1601254)	Mar-17
SWR	SN 1433	26 Mar-16 (TTL No. 1601254)	Mar-17

Secondary Standards	Q#	Cal Date/Calibrated by Certificate No.	Expiry Date/Calibrated
Signal Generator G4430C	M10011492	13 Jan-17 (TTL No. 1701254)	Jan-18
Reference Antenna G4430C	M10011492	13 Jan-17 (TTL No. 1701254)	Jan-18

Calibrated by: Zhao Jing Function: SAR Test Engineer Signature: [Signature]

Reviewed by: Yu Zongying Function: SAR Test Engineer Signature: [Signature]

Approved by: Qi Danyuan Function: SAR Project Leader Signature: [Signature]

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Issued: September 13, 2017

Certificate No: Z17-01136 Page 1 of 3

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Model: D835V2 Sn: 4d023

CALIBRATION CERTIFICATE

Client: SRTC Certificate No.: Z17-01136

CALIBRATION CERTIFICATE

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Calibration Equipment used (MUTUAL for calibration)

Primary Standards	Q#	Cal Date/Calibrated by Certificate No.	Expiry Date/Calibrated
Power Meter N9910	122186	02 Mar-17 (TTL No. 1701254)	Mar-18
Power source N9910S	122186	02 Mar-17 (TTL No. 1701254)	Mar-18
Reference Pulse EX3024	SN 1433	26 Mar-16 (TTL No. 1601254)	Mar-17
SWR	SN 1433	26 Mar-16 (TTL No. 1601254)	Mar-17

Secondary Standards	Q#	Cal Date/Calibrated by Certificate No.	Expiry Date/Calibrated
Signal Generator G4430C	M10011492	13 Jan-17 (TTL No. 1701254)	Jan-18
Reference Antenna G4430C	M10011492	13 Jan-17 (TTL No. 1701254)	Jan-18

Calibrated by: Zhao Jing Function: SAR Test Engineer Signature: [Signature]

Reviewed by: Yu Zongying Function: SAR Test Engineer Signature: [Signature]

Approved by: Qi Danyuan Function: SAR Project Leader Signature: [Signature]

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Client: SRTC Certificate No.: Z17-01136

CALIBRATION CERTIFICATE

Model: D835V2 Sn: 4d023

Calibration Procedure: FF 211 (05.01)
Calibration date: September 13, 2017

This calibration Certificate documents the traceability to national standards, which realize the physical units of measurement (SI). The measurement and the associated self-confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the stated laboratory facility environment (temperature/humidity) and humidity (%).

Calibration Equipment used (MUTUAL for calibration)

Primary Standards	Q#	Cal Date/Calibrated by Certificate No.	Expiry Date/Calibrated
Power Meter N9910	122186	02 Mar-17 (TTL No. 1701254)	Mar-18
Power source N9910S	122186	02 Mar-17 (TTL No. 1701254)	Mar-18
Reference Pulse EX3024	SN 1433	26 Mar-16 (TTL No. 1601254)	Mar-17
SWR	SN 1433	26 Mar-16 (TTL No. 1601254)	Mar-17

Secondary Standards	Q#	Cal Date/Calibrated by Certificate No.	Expiry Date/Calibrated
Signal Generator G4430C	M10011492	13 Jan-17 (TTL No. 1701254)	Jan-18
Reference Antenna G4430C	M10011492	13 Jan-17 (TTL No. 1701254)	Jan-18

Calibrated by: Zhao Jing Function: SAR Test Engineer Signature: [Signature]

Reviewed by: Yu Zongying Function: SAR Test Engineer Signature: [Signature]

Approved by: Qi Danyuan Function: SAR Project Leader Signature: [Signature]

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CALIBRATION CERTIFICATE

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Calibration Procedure: FF 211 (05.01)
Calibration date: September 13, 2017

This calibration Certificate documents the traceability to national standards, which realize the physical units of measurement (SI). The measurement and the associated self-confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the stated laboratory facility environment (temperature/humidity) and humidity (%).

Calibration Equipment used (MUTUAL for calibration)

Primary Standards	Q#	Cal Date/Calibrated by Certificate No.	Expiry Date/Calibrated
Power Meter N9910	122186	02 Mar-17 (TTL No. 1701254)	Mar-18
Power source N9910S	122186	02 Mar-17 (TTL No. 1701254)	Mar-18
Reference Pulse EX3024	SN 1433	26 Mar-16 (TTL No. 1601254)	Mar-17
SWR	SN 1433	26 Mar-16 (TTL No. 1601254)	Mar-17

Secondary Standards	Q#	Cal Date/Calibrated by Certificate No.	Expiry Date/Calibrated
Signal Generator G4430C	M10011492	13 Jan-17 (TTL No. 1701254)	Jan-18
Reference Antenna G4430C	M10011492	13 Jan-17 (TTL No. 1701254)	Jan-18

Calibrated by: Zhao Jing Function: SAR Test Engineer Signature: [Signature]

Reviewed by: Yu Zongying Function: SAR Test Engineer Signature: [Signature]

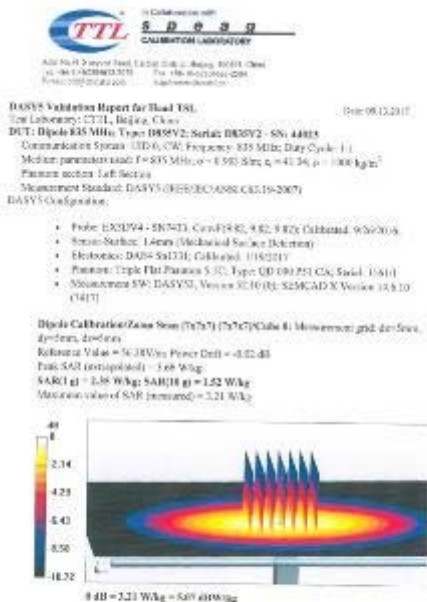
Approved by: Qi Danyuan Function: SAR Project Leader Signature: [Signature]

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Issued: September 13, 2017

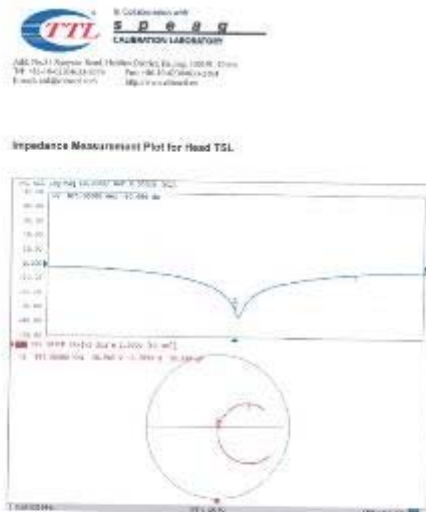
Certificate No: Z17-01136 Page 1 of 3

D835V2 Sn:4d023



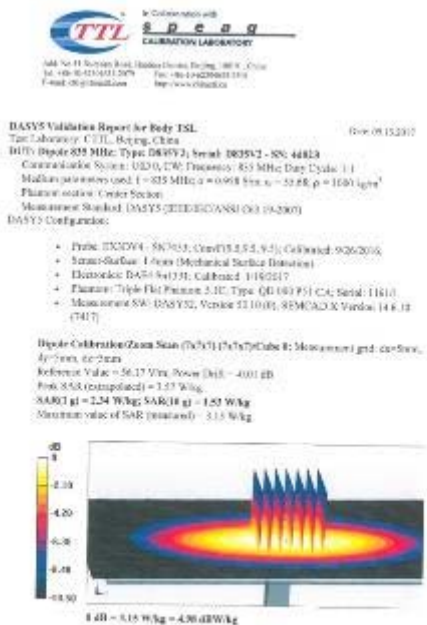
Certificat No: Z1740118

Page: 4 of 6



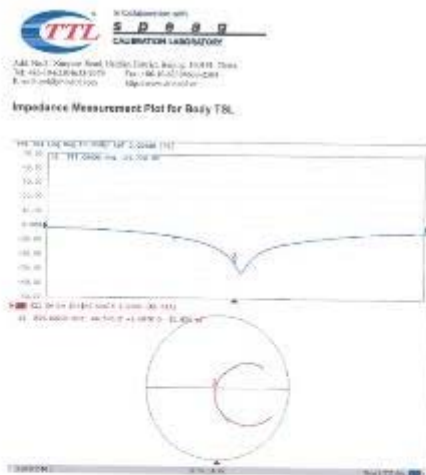
Certificat No: Z1740118

Page: 4 of 6



Certificat No: Z1740118

Page: 4 of 6



Certificat No: Z1740118

Page: 4 of 6

D1800V2 Sn:2d084

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Email: info@ttsl.com.cn http://www.ttsl.com.cn

Client: SRTC **Certificate No.: Z17-07138**

CALIBRATION CERTIFICATE

Client: SRTC
Certificate No.: Z17-07138

Calibration Model/eq: PP-Z17-001-01
Calibration Procedure for dipole calibration kit

Calibration date: September 18, 2017

This calibration Certificate documents the conformity to national standards, which enables the physical value in measurement. The measurement and the uncertainty with coverage probability are given in the following pages and are part of the certificate.

All calibrations have been conducted in the stated laboratory facility, environment, atmosphere, and humidity.

Calibration Equipment used (NIST or other for calibration)

Primary Standards	Q#	Cal Date/Calibrated By	Calibrated Calibration
Power Meter: N9912	100108	30-Mar-17 (JTL, No. J17011014)	Mar-18
Power sensor: N9912B1	100108	30-Mar-17 (JTL, No. J17011014)	Mar-18
Reference Probe: P3000M	SM 1435	26-Sep-16 (SRA/SGS-F&S-T&S, Exp15)	Sep-17
OMPA	SM 1331	19-Jan-17 (JTL, SRA/SGS-F&S-T&S, Exp15)	Jan-18

Secondary Standards

Signal Generator: S4430C	SNV9071528	13-Jun-17 (JTL, No. J17000305)	Scheduled Calibration
Network Analyzer: E5071C <th>SNV9190672</th> <th>13-Jun-17 (JTL, No. J17000305)</th> <th>Jan-18</th>	SNV9190672	13-Jun-17 (JTL, No. J17000305)	Jan-18

Calibrated by: Zhang Jie SAR Test Engineer
Reviewed by: Yu Zhenping SAR Test Engineer
Approved by: G. Danyuan SAR Project Leader

Issued: September 18, 2017
This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

Continue No. Z17-07138

Page 1 of 4

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Email: info@ttsl.com.cn http://www.ttsl.com.cn

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 60529-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 30MHz to 3GHz)", February 2005
- c) IEC 62209-2, "Procedure to measure the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30MHz to 3GHz)", March 2010
- d) IEC 62209-2, SAR Measurement Requirements for 100 MHz to 3 GHz

Additional Documentation:

- a) IAS-418 System Handbook

Methods Applied and Interpretation of Parameters:

- Measurement Conditions: Further details are available from the Variation 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 space to position its feed point exactly below the center marking of the flat phantom section, with the antenna 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 shown is transformed from the measurement of the SMA connector to the feed point. The Return Loss shows a low reflected power. No uncertainty required.
- Electrical Delay: Consistency between the SMA connector and the antenna feed point. No uncertainty required.
- SAR measured SAR: SAR measured at the stated antenna input power.
- SAR measured SAR: SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for normal TSL parameters: The measured TSL parameters are used to calculate the normal 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%.

Continue No. Z17-07138

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Email: info@ttsl.com.cn http://www.ttsl.com.cn

Measurement Conditions

Q#1: SRTC2018-9004(F)-18062501(H)

Q#1: SRTC2018-9004(F)-18062501(H)	Q#1: SRTC2018-9004(F)-18062501(H)	Q#1: SRTC2018-9004(F)-18062501(H)
Q#1: SRTC2018-9004(F)-18062501(H)	Q#1: SRTC2018-9004(F)-18062501(H)	Q#1: SRTC2018-9004(F)-18062501(H)

Head TSL parameters

The following parameters and uncertainties apply:

Parameter	Value	Uncertainty
Head TSL parameters	20.0 °C	±0.5 °C
Measured Head TSL parameters	47.0 ± 0.2 °C	±0.5 °C
Head TSL temperature change during test	±0.5 °C	±0.5 °C

SAR result with Head TSL

Parameter	Value	Uncertainty
SAR averaged over 1 cm ² of Head TSL	0.01 mW/g	±0.01 mW/g
SAR measured	0.01 mW/g	±0.01 mW/g
SAR for normal Head TSL parameters	0.01 mW/g	±0.01 mW/g
SAR averaged over 10 cm ² of Head TSL	0.01 mW/g	±0.01 mW/g
SAR measured	0.01 mW/g	±0.01 mW/g
SAR for normal Head TSL parameters	0.01 mW/g	±0.01 mW/g

Body TSL parameters

The following parameters and uncertainties apply:

Parameter	Value	Uncertainty
Body TSL parameters	20.0 °C	±0.5 °C
Measured Body TSL parameters	47.0 ± 0.2 °C	±0.5 °C
Body TSL temperature change during test	±0.5 °C	±0.5 °C

SAR result with Body TSL

Parameter	Value	Uncertainty
SAR averaged over 1 cm ² of Body TSL	0.01 mW/g	±0.01 mW/g
SAR measured	0.01 mW/g	±0.01 mW/g
SAR for normal Body TSL parameters	0.01 mW/g	±0.01 mW/g
SAR averaged over 10 cm ² of Body TSL	0.01 mW/g	±0.01 mW/g
SAR measured	0.01 mW/g	±0.01 mW/g
SAR for normal Body TSL parameters	0.01 mW/g	±0.01 mW/g

Continue No. Z17-07138

Page 3 of 4

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Appendix (Add) and measurements outside the scope of GNAS 180721

Antenna Parameters with Head TSL

Parameter	Value	Uncertainty
Impedance, transformed to feed point	48.32 ± 1.00 Ω	±1.00 Ω
Return Loss	20.0 dB	±0.5 dB

Antenna Parameters with Body TSL

Parameter	Value	Uncertainty
Impedance, transformed to feed point	48.32 ± 1.00 Ω	±1.00 Ω
Return Loss	20.0 dB	±0.5 dB

General Antenna Parameters and Design

Parameter	Value	Uncertainty
Electrical Delay (one direction)	1.35 ns	±0.05 ns

After being tested with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of stainless steel wire. 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 devices, small metal beads are added to the dipole arms in order to improve matching when used according to the position description in the Measurement Condition. However, the SAR values can be affected by this change. The overall dipole length is 18.7 cm, as specified in the Standard. No excessive force must be applied to the dipole arms, because they might bend or the soldered connection near the feedpoint may be damaged.

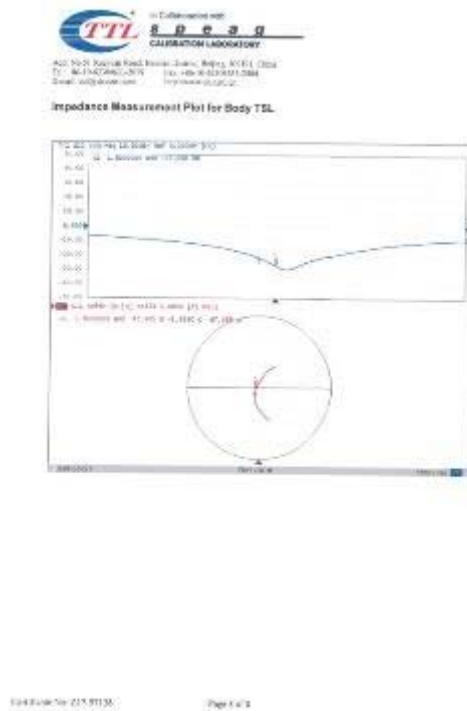
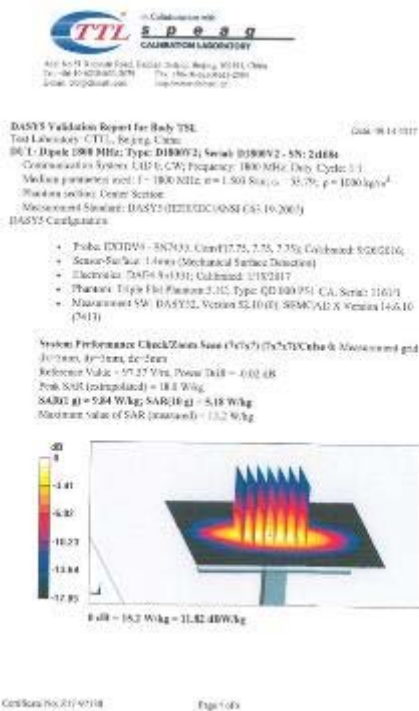
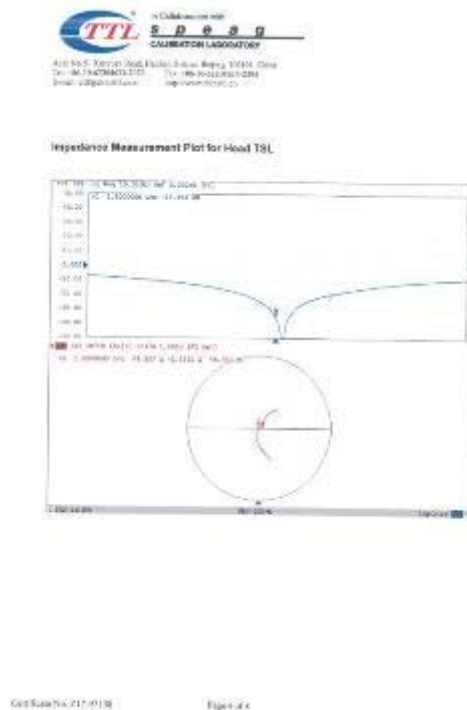
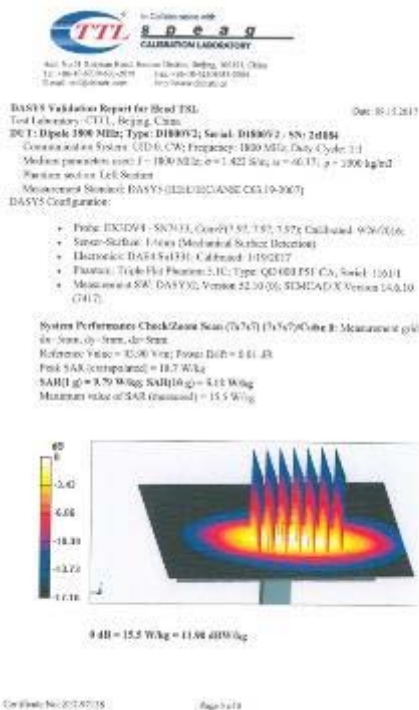
Additional EUT Data

Parameter	Value
Manufacturer	SPKCS

Continue No. Z17-07138

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D1800V2 Sn:2d084



D2450V2 Sn:738

  		中国认可 国际互认 证书 证书编号 20161117															
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Client:	B&B / B&B 730																
Calibration Procedure(s):	PP-211.03.01 Calibration Procedure for Space vibration test																
Calibration date:	September 15, 2017																
This calibration Certificate documents the conformity to national standards, which makes the physical value of measurement(s). The measurement is and the uncertainty with calibration probability are given on the following pages and are part of the certificate.																	
All calibrations have been conducted in the class laboratory facility environment temperature(23±2) and humidity<65%.																	
Calibration Equipment used(MST) critical for calibrating:																	
Primary Standards:	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>ID #</th> <th>Cal Date/Calibrated by Certificate No.</th> <th>Scheduled Date/next</th> </tr> </thead> <tbody> <tr> <td>Power Meter: NRVC</td> <td>12/10/16 12-Mar-17 JCTC No. J17930361</td> <td>Mar-18</td> </tr> <tr> <td>Power sensor: NRV-25</td> <td>10/09/16 12-Mar-17 JCTC No. J17930361</td> <td>Mar-18</td> </tr> <tr> <td>Reference Probe EXDYN</td> <td>SN 7433 26-Sep-16/SPGAGNS 533 MSB Sep16</td> <td>Nov-17</td> </tr> <tr> <td>Data</td> <td>SN 1931 16-Jun-17/CTC SPGAGNS J17-07015</td> <td>Jan-18</td> </tr> </tbody> </table>	ID #	Cal Date/Calibrated by Certificate No.	Scheduled Date/next	Power Meter: NRVC	12/10/16 12-Mar-17 JCTC No. J17930361	Mar-18	Power sensor: NRV-25	10/09/16 12-Mar-17 JCTC No. J17930361	Mar-18	Reference Probe EXDYN	SN 7433 26-Sep-16/SPGAGNS 533 MSB Sep16	Nov-17	Data	SN 1931 16-Jun-17/CTC SPGAGNS J17-07015	Jan-18	
ID #	Cal Date/Calibrated by Certificate No.	Scheduled Date/next															
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Secondary Standards:	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>ID #</th> <th>Cal Date/Calibrated by Certificate No.</th> <th>Scheduled Calibration</th> </tr> </thead> <tbody> <tr> <td>Signal Generator R4480</td> <td>NR48071450 12-Jan-17 JCTC No. J17930308</td> <td>Jan-18</td> </tr> <tr> <td>Reference Probe RST610</td> <td>NR48110675 12-Jan-17 JCTC No. J17930308</td> <td>Jan-18</td> </tr> </tbody> </table>	ID #	Cal Date/Calibrated by Certificate No.	Scheduled Calibration	Signal Generator R4480	NR48071450 12-Jan-17 JCTC No. J17930308	Jan-18	Reference Probe RST610	NR48110675 12-Jan-17 JCTC No. J17930308	Jan-18							
ID #	Cal Date/Calibrated by Certificate No.	Scheduled Calibration															
Signal Generator R4480	NR48071450 12-Jan-17 JCTC No. J17930308	Jan-18															
Reference Probe RST610	NR48110675 12-Jan-17 JCTC No. J17930308	Jan-18															
Calibrated by:	Name: Zhan Li-Bo Position: S&T Test Engineer	Signature: 															
Reviewed by:	Name: Yu Zangping Position: S&T Test Engineer	Signature: 															
Approved by:	Name: Gu Jiaoyan Position: S&T Project Manager	Signature: 															
Issued: September 21, 2017																	
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 TTL Calibration Laboratory 4801 W. 11th Street, Suite 200 Tulsa, OK 74117-0200 Tel: (918) 438-1177 Fax: (918) 438-1178 Email: info@tcalab.com	In Collaboration with:  Seattle Division, 1800 E. Clinton Everett Division, 2200 N. 10th Tel: (206) 461-2200 Email: info@speaq.com
Geometry: TSL Core® N/A	(Please include request for notations in TSL/740/800 or not applicable or not measured)
Calibration is Performed According to the Following Standards:	
① IEEE Std 1499-2015, "IEEE Recommended Practice for Determining the Peak Antenna Factor of Basic Antenna Ranges (GAR) in the Near-Field from Monopole Communication Devices (Wave-current Techniques)", June 2015 ② IEC 62209-1, "Measurement procedure for assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Part 1. Device used next to the ear (Frequency range of 300MHz to 960MHz)", July 2012 ③ IEC 62220-2, "Procedure to measure the Specific Absorption Rate (SAR) for wireless communication devices used close proximity to the human body (frequency range of 300MHz to 10GHz)", March 2010 ④ KDB900004, "SAR Measurement Requirements for 100 MHz to 6 GHz"	
Additional Documentation:	
a) DAS145 System Handbook	
Methods Applied and Interpretation of Parameters:	
① Measurement Condition: Further details are available from the Validation Report at the end of the report. All figures stated in the certificate are valid at the frequency indicated. ② Antenna Positioning with TSL: The dipole is mounted with the aperture position located 20 cm exactly below the center marking of the flat surface section, with the arms oriented parallel to the body axis. ③ Feed Point Impedance and Return Loss: These parameters are measured with the dipole connected under the load fixed shunt resistor. The impedance is transformed from the measurement at the SMA connector to the feed point. The Return Loss results are reflected against the input impedance. ④ Reaction Delay: One-way delay between the SMA connector and the antenna feed point. No uncertainty required. ⑤ SAR measured: SAR, measured at the stated nominal input power. ⑥ SAR normalized: SAR is normalized, normalized to an input power of 1 W at the antenna connector. ⑦ SAR for defined TSL parameters: The measured TSL parameters are used to calculate the normal 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%.	

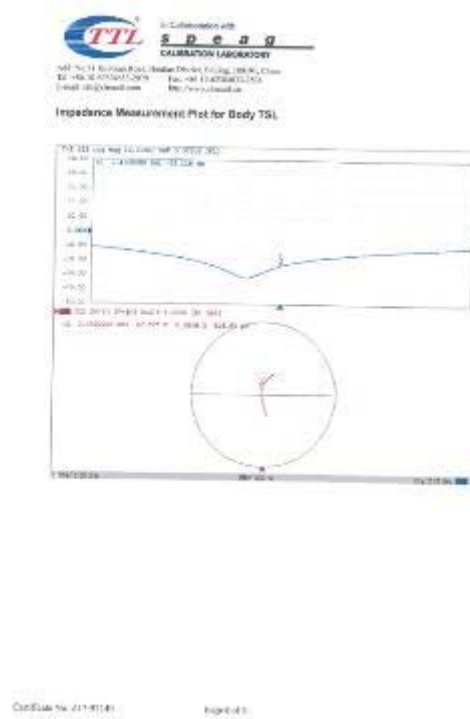
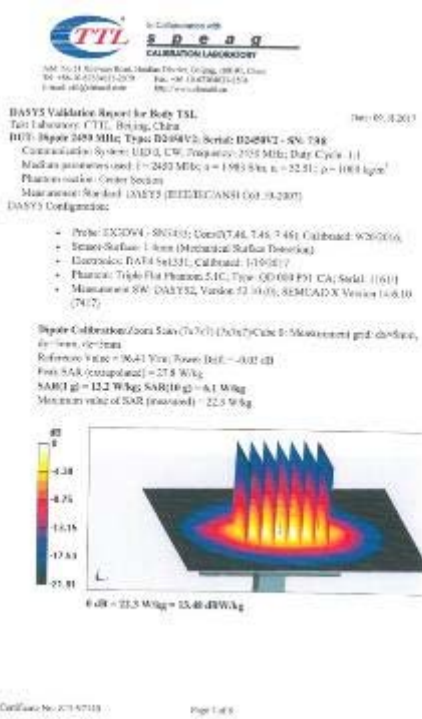
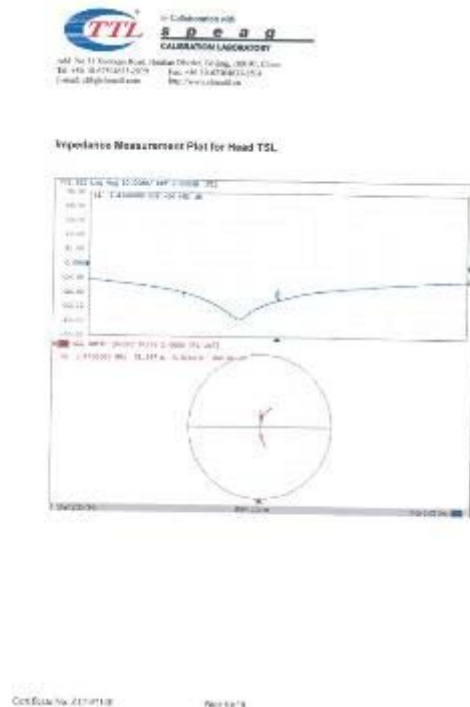
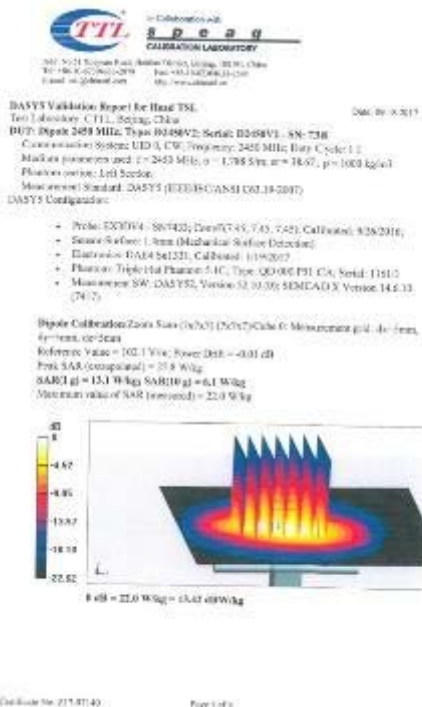
		In Collaboration with Space CALIBRATION LABORATORY			
Add: P-23, Kirti Nagar Post, Sector 15, Noida, Uttar Pradesh Tel: +91 88240 20020 / 88240 20021 Email: info@ttdi.co.in Web: www.ttdi.co.in					
Measurement Conditions GSE system resolution: 30, 36 or 48 bits (page 1)					
DART version	(DA)DTL	52 (13.0) mA/g			
Composited	Advanced Composited				
Platform	Total Filter Parameters = 12				
Distance Digits Center - TSL	50 bits	with Space			
Beam Beam Resolution	36, 48, 60 or 72 bits				
Frequency	2400 MHz to 1 MHz				
Head TSL parameters The following parameters are not fully adjustable with GSE/DA					
	Temperature	Permeability	Conductivity		
Averaged Head TSL parameters	23.0 °C	50.2	1.83 mW/g		
Averaged Head TSL parameters	(23.0 ± 0.2) °C	50.2 ± 4.8	1.75 mW/g ± 0.5		
Head TSL temperature change during test	± 0.2 °C	—	—		
SAR result with Head TSL					
SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition				
SAR measured	320 mW input power	13.1 mW/g			
SAR to normal Head TSL parameters	normalized to 10	52.4 mW/g ± 18.8 % (in 2)			
SAR averaged over 10 cm ³ (10 g) of Head TSL	Condition				
SAR measured	260 mW input power	8.13 mW/g			
SAR to normal Head TSL parameters	normalized to 10	54.8 mW/g ± 16.7 % (in 2)			
Body TSL parameters The following parameters are not fully adjustable with GSE/DA					
	Temperature	Permeability	Conductivity		
Averaged Body TSL parameters	19.0 °C	50.2	1.98 mW/g		
Averaged Body TSL parameters	(19.0 ± 0.2) °C	50.2 ± 4.8	1.95 mW/g ± 0.5		
Body TSL temperature change during test	± 0.2 °C	—	—		
SAR result with Body TSL					
SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition				
SAR measured	320 mW input power	13.2 mW/g			
SAR to normal Body TSL parameters	normalized to 10	52.3 mW/g ± 18.8 % (in 2)			
SAR averaged over 10 cm ³ (10 g) of Body TSL	Condition				
SAR measured	260 mW input power	8.16 mW/g			
SAR to normal Body TSL parameters	normalized to 10	54.3 mW/g ± 16.7 % (in 2)			

Doc: F001 Rev. 21/12/2016

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 In Collaboration with: Special Calibration Laboratory 1000 West 117 Avenue Road, Suite 100, Etobicoke, ON M9W 1L7, Canada Tel: +1-416-671-7111 / 1-877-999-7111 E-mail: info@special.ca http://www.special.ca	
Appendix (Additional assessments outside the scope of CNAS L667)	
Antenna Parameters with Head TR1	
Is an antenna transformer to feed point	01.00 ± 0.00 dB
Return Loss	≥ 24 dB
Antenna Parameters with Body TR1	
Impedance, normalized to load point	17.50 ± 0.25 Ω
Return Loss	≥ 20 dB
General Antenna Parameters and Design	
DACNET Entry (see document)	1.288 W
After long term use with 100W in loaded zones, only a slight warping of the dipole wire in the feedpoint can be observed.	
The dipole is made of standard wrought iron pipe. The inner 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, shield wires are added to the dipole wires in order to improve shielding against radio frequency interference. As explained in the "Measurement Conditions" paragraph, the SWR data are not affected by the change. The diameter of the length is still according to the standard. No insulation layer is to be applied to the dipole arms, because they may in future be under additional mechanical wear the feedpoint if they be damaged.	
Additional EUT Data	
Manufactured to	EN623

D2450V2 Sn:738



DAE4 Sn:720

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E-mail: csl@ttsaall.com.cn Http://www.ttsaall.com

Client: **SRTC** Certificate No: **Z17-97215**

CALIBRATION CERTIFICATE

Object: **DAE4 - Sn: 720**

Calibration Procedure(s): **FF-Z11-002-Q1
Calibration Procedure for the Data Acquisition Electronics (DAEx)**

Calibration date: **October 24, 2017**

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(23±2)°C and humidity<70%.

Calibration Equipment used (M&E critical for calibration)

Primary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Process Calibrator 753	18710-8	27-Jun-17 (CTTL, No.J17X05665)	June-18

Calibrated by: **Yu Zongying** SAR Test Engineer *[Signature]*

Reviewed by: **Lin Hao** SAR Test Engineer *[Signature]*

Approved by: **Qi Danyuan** SAR Project Leader *[Signature]*

Issued: October 26, 2017

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Certificate No: Z17-97215

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E-mail: csl@ttsaall.com.cn Http://www.ttsaall.com

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 report provide only calibration results for DAE, it does not contain other performance test results.

Certificate No: Z17-97215

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E-mail: csl@ttsaall.com.cn Http://www.ttsaall.com

DC Voltage Measurement
A/D - Converter Resistor nominal
High Range: 1LSB = 6.1μV, full range = -100...+300 mV
Low Range: 1LSB = 61mV, full range = -1...+3mV
DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Calibration Factors	X	Y	Z
High Range	403.363 ± 0.15% (k=2)	404.822 ± 0.15% (k=2)	403.251 ± 0.15% (k=2)
Low Range	3.95425 ± 0.7% (k=2)	3.96301 ± 0.7% (k=2)	3.95640 ± 0.7% (k=2)

Connector Angle

Connector Angle to be used in DASY system	24.5° ± 1°
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Certificate No: Z17-97215

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EX3DV4 Sn:3708

TTL In Collaboration with **SPB** CALIBRATION LABORATORY

Add: No.31 Xuyuan Road, Fudan District, Beijing, 100191, China
Tel: +86-10-42304633-2218 Fax: +86-10-42304633-2209
E-mail: cti@ttl.com.cn http://www.ttl.com.cn

Client: SRTC **Certificate No: Z17-97214**

CALIBRATION CERTIFICATE

Object: EX3DV4 - SN:3708

Calibration Procedure(s): FF-Z11-004-01
Calibration Procedures for Dosimetric E-field Probe

Calibration date: November 07, 2017

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(23±3)°C and humidity<70%.

Calibration Equipment used (MATE critical for calibration)

Primary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Power Meter NRP2	101919	27-Jun-17 (CTTL No.J17X05857)	Jun-18
Power sensor NRP-Z91	101547	27-Jun-17 (CTTL No.J17X05857)	Jun-18
Power sensor NRP-Z91	101548	27-Jun-17 (CTTL No.J17X05857)	Jun-18
Reference10dBAttenuator	18N58W-10dB	13-Mar-16(CTTL No.J16X01547)	Mar-18
Reference20dBAttenuator	18N58W-20dB	13-Mar-16(CTTL No.J16X01548)	Mar-18
Reference Probe EX3DV4	SN 3617	25-Jan-17(SPEAG No EX3-3617_Jan17)	Jan-18
DAE4	SN 549	13-Dec-16(SPEAG No DAE4-549_Dec16)	Dec-17

Secondary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
SignalGeneratorMG3700A	620102805	27-Jun-17 (CTTL No.J17X05858)	Jun-18
Network Analyzer E5071C	MY48110673	13-Jan-17 (CTTL No.J17X00285)	Jan-18

Calibrated by: Yu Zongying SAR Test Engineer

Reviewed by: Lin Hui SAR Test Engineer

Approved by: Qi Danyuan SAR Project Leader

Issued: November 09, 2017

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

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Add: No.31 Xuyuan Road, Fudan District, Beijing, 100191, China
Tel: +86-10-42304633-2218 Fax: +86-10-42304633-2209
E-mail: cti@ttl.com.cn http://www.ttl.com.cn

Glossary:

TSL: Tissue simulating liquid
NORM_{x,y,z}: sensitivity in free space
ConvF: sensitivity in TSL / NORM_{x,y,z}
DCP: dose conversion point
CF: crest factor (10 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
θ=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:

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, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
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"

Methods Applied and Interpretation of Parameters:

- NORM_{x,y,z}: Assessed for E-field polarization (θ=0) (300MHz to 1800MHz in TEM-cell; >1800MHz: waveguide). NORM_{x,y,z} are only intermediate values, i.e. the uncertainties of NORM_{x,y,z} does not effect the E² field uncertainty inside TSL (see below ConvF).
- NORM_{x,y,z} = NORM_{x,y,z} * frequency_response (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.3. The uncertainty of the frequency response is included in the stated uncertainty of ConvF.
- DCP_{x,y,z}: DCP are numerical linearization parameters assessed based on the data of power sweep (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}, V₀, y,z,A,B,C 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. V₀ 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 1800MHz) and inside waveguide using analytical field distributions based on power measurements for f > 1800MHz. 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 50MHz to 1800MHz.
- 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 lip (on probe axis). No tolerance required.
- Connector Angle: The angle is assessed using the information gained by determining the NORM_{x,y,z} (no uncertainty required).

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Probe EX3DV4

SN: 3708

Calibrated: November 07, 2017
Calibrated for DASY/EASY Systems
(Note: non-compatible with DASY2 system)

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

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
NORM _{x,y,z} (V/m) ¹	0.19	0.36	0.44	±10.0%
DCP(mV) ¹	95.1	102.7	105.5	

Modulation Calibration Parameters

UID	Communication System Name	A dB	B dB/μV	C	D dB	VR mV	Unc ¹ (k=2)
8	CW	X 0.0	0.0	1.0	0.00	95.9	±3.1%
		Y 0.0	0.0	1.0		149.0	
		Z 0.0	0.0	1.0		169.4	

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%.

¹ The uncertainties of Norm_{x,y,z} do not affect the E² field uncertainty inside TSL (see Page 6 and Page 8).
² Numerical linearization parameter: uncertainty not required.
³ Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

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EX3DV4 Sn:3708



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

Calibration Parameter Determined in Head Tissue Simulating Media

f [MHz]	Relative Permittivity ¹	Conductivity [S/m] ²	ConvF X	ConvF Y	ConvF Z	Alpha ³	Depth ⁴ (mm)	Unc. (k=2)
900	41.5	0.97	9.07	9.07	9.07	0.15	1.37	±12.1%
1810	40.0	1.40	7.77	7.77	7.77	0.24	1.04	±12.1%
2000	40.0	1.40	7.80	7.80	7.80	0.28	0.86	±12.1%
2450	39.2	1.80	7.19	7.19	7.19	0.34	1.03	±12.1%
5200	36.0	4.66	5.64	5.64	5.64	0.40	1.35	±13.3%
5300	35.9	4.78	5.43	5.43	5.43	0.40	1.35	±13.3%
5500	35.6	4.96	5.03	5.03	5.03	0.40	1.50	±13.3%
5600	35.5	5.07	4.89	4.89	4.89	0.40	1.60	±13.3%
5800	35.3	5.27	5.03	5.03	5.03	0.45	1.45	±13.3%

¹ Frequency validity above 300 MHz of a 100MHz only applies for DASY v4.4 and higher (Page 2), else it is restricted to ±50MHz. The uncertainty is the RSS of ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is a 10, 25, 40, 60 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to a 110 MHz.

² At frequency below 3 GHz, the validity of tissue parameters (x and y) 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 (x and y) is restricted to ±5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

³ 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 a 2% for the frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

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

Calibration Parameter Determined in Body Tissue Simulating Media

f [MHz]	Relative Permittivity ¹	Conductivity [S/m] ²	ConvF X	ConvF Y	ConvF Z	Alpha ³	Depth ⁴ (mm)	Unc. (k=2)
900	56.0	1.05	9.16	9.16	9.16	0.17	1.40	±12.1%
1810	53.3	1.52	7.70	7.70	7.70	0.20	1.13	±12.1%
2000	53.3	1.52	7.76	7.76	7.76	0.14	1.60	±12.1%
2450	52.7	1.95	7.30	7.30	7.30	0.68	0.70	±12.1%
5200	49.0	5.30	4.79	4.79	4.79	0.45	1.60	±13.3%
5300	48.9	5.42	4.56	4.56	4.56	0.45	1.80	±13.3%
5500	48.6	5.65	4.17	4.17	4.17	0.50	1.75	±13.3%
5600	48.5	5.77	4.10	4.10	4.10	0.50	1.60	±13.3%
5800	48.2	6.00	4.19	4.19	4.19	0.55	1.85	±13.3%

¹ Frequency validity above 300 MHz of a 100MHz only applies for DASY v4.4 and higher (Page 2), else it is restricted to ±50MHz. The uncertainty is the RSS of ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is a 10, 25, 40, 60 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to a 110 MHz.

² At frequency below 3 GHz, the validity of tissue parameters (x and y) 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 (x and y) is restricted to ±5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

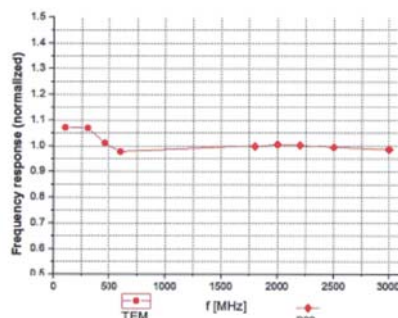
³ Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ±1% for frequencies below 3 GHz and below a 2% for the frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

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Frequency Response of E-Field (TEM-Cell: if1110 EXX, Waveguide: R22)



Uncertainty of Frequency Response of E-field: ±7.4% (k=2)

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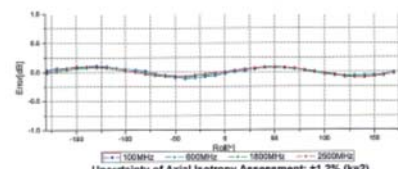
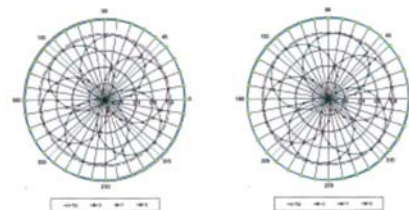
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Receiving Pattern (Φ, θ=0°)

f=600 MHz, TEM

f=1800 MHz, R22



Uncertainty of Axial Isotropy Assessment: ±1.2% (k=2)

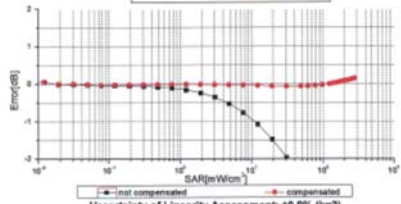
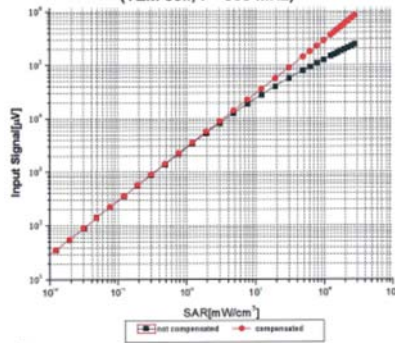
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EX3DV4 Sn:3708



Dynamic Range f(SAR_{head})
(TEM cell, f = 900 MHz)



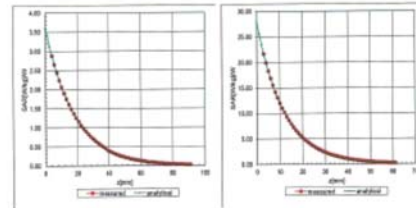
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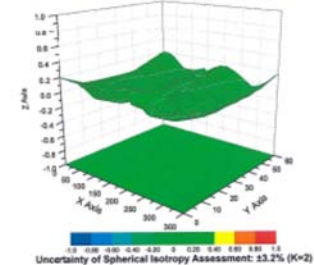


Conversion Factor Assessment

f=900 MHz, WGLS R9(H_convF) f=1810 MHz, WGLS R22(H_convF)



Deviation from Isotropy in Liquid



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

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	177.2
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disable
Probe Overall Length	337mm
Probe Body Diameter	10mm
Tip Length	9mm
Tip Diameter	2.5mm
Probe Tip to Sensor X Calibration Point	1mm
Probe Tip to Sensor Y Calibration Point	1mm
Probe Tip to Sensor Z Calibration Point	1mm
Recommended Measurement Distance from Surface	1.4mm

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Appendix (Additional assessments outside the scope of FCC approved dual-logo scope)

Modulation Calibration Parameters

UID	Communication System Name	PAR	A dB	B dB-μV	C	VR mV	Unc ¹ (k=2)
0	CW	0.00	X 0.0 0.0 0.0	1.0	95.9	±3.1%	
			Y 0.0 0.0 0.0	1.0	149.0		
			Z 0.0 0.0 0.0	1.0	169.4		
10011	UMTS-FDD (WCDMA)	2.91	X 2.97 64.29 16.82	147.4		±1.8%	
			Y 3.15 66.44 17.98	144.1			
			Z 3.21 67.23 18.44	141.7			
10021	GSM-FDD (TDMA GMSK)	9.39	X 0.95 57.62 9.60	48.2		±2.4%	
			Y 1.22 59.57 9.93	44.1			
			Z 1.13 59.66 9.94	43.4			
10062	IEEE 802.11a/h WiFi 5 GHz (OFDM 6 Mbps)	8.68	X 9.01 65.22 19.38	92.1		±2.1%	
			Y 8.26 63.95 18.73	71.9			
			Z 8.53 64.77 19.13	85.3			

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-----End of the test report-----