Registration
No.910917

TEST REPORT

FOR SAR TESTING

Report No.: SRTC2017-9004(F)-0014

Product Name: WCDMA/GSM(GPRS) Dual-Mode Digital Mobile Phone

Product Model: ZTE BLADE L7

Applicant: ZTE Corporation

Manufacturer: ZTE Corporation

Specification: FCC Part 2.1093

IEEE Std 1528-2013

FCC RF Exposure KDB Procedures

FCC ID: SRQ-ZTEBLADEL7

The State Radio_monitoring_center Testing Center (SRTC)

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Contents

1. GENERAL INFORMATION 2

1.1 NOTES OF THE TEST REPORT 2
1.2 INFORMATION ABOUT THE TESTING LABORATORY 2
1.3 APPLICANT'S DETAILS 2
1.4 MANUFACTURER'S DETAILS 2
1.5 TEST ENVIRONMENT 3

2. DESCRIPTION OF THE DEVICE UNDER TEST 4

2.1 FINAL EQUIPMENT BUILD STATUS 4
2.2 SUPPORT EQUIPMENT 5

3. REFERENCE SPECIFICATION 5

4. TEST CONDITIONS 6

4.1 PICTURE TO DEMONSTRATE THE REQUIRED LIQUID DEPTH 6
4.2 TEST SIGNAL, FREQUENCIES AND OUTPUT POWER 6
4.3 SAR MEASUREMENT SET-UP 6
4.4 PHANTOMS 7
4.5 TISSUE SIMULANTS 7
4.6 DESCRIPTION OF THE TEST PROCEDURE 8

5 RESULT SUMMAR 10

6 TEST RESULT 11

6.1 MANUFACTURING TOLERANCE 11
6.2 GSM MEASUREMENT RESULT 14
6.3 WCDMA MEASUREMENT RESULT 16
6.4 BLUETOOTH MEASUREMENT RESULT 18
6.5 WI-FI MEASUREMENT RESULT 19
6.6 STANDALONE SAR TEST EXCLUSION CONSIDERATIONS 21
6.7 RF EXPOSURE CONDITIONS 23
6.8 SYSTEM CHECKING 25
6.10 SAR TEST RESULT 26
6.11 SAR MEASUREMENT VARIABILITY 36
6.12 SIMULTANEOUS TRANSMISSION SAR ANALYSIS 37

7 MEASUREMENT UNCERTAINTY 39

8 TEST EQUIPMENTS 40

ANNEX A – TEST PLOTS 42

ANNEX B – RELEVANT PAGES FROM CALIBRATION REPORTS 41

ANNEX C – PHOTOGRAPH 127

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)
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1.3 Applicant's details

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1.4 Manufacturer's details

Company:	ZTE Corporation
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Country or Region:	P.R.China
Contacted person:	Min Zhang
Tel:	021-68897867
Fax:	---
Email:	zhang.min13@zte.com.cn

1.5 Test Environment

Date of Receipt of test sample at SRTC:	2017.01.24
Testing Start Date:	2017.02.20
Testing End Date:	2017.02.24

Environmental Data:	Temperature (°C)	Humidity (%)
Ambient	25.0	38.0

Normal Supply Voltage (V d.c.):	3.7

2. DESCRIPTION OF THE DEVICE UNDER TEST

2.1 Final Equipment Build Status

Wireless Technology and Frequency Bands	GSM Band : GSM850/PCS1900 WCDMA Band: FDD2/FDD5 Wi-Fi Band: 2400MHz~2483.5MHz Bluetooth Band: 2400MHz~2483.5MHz
Mode	GSM ☒Voice (GMSK) ☒GPRS (GMSK) ☒EGPRS (GMSK/8PSK) WCDMA ☒UMTS Rel. 99 (Voice & Data) ☒HSDPA (Rel. 5) ☒HSUPA (Rel. 6) ☐HSPA+ (Rel.) ☐DC-HSDPA (Rel.) LTE ☐QPSK ☐16QAM Wi-Fi 2.4GHz (802.11a/b/g/n) ☐802.11a ☒802.11b ☒802.11g ☒802.11n (20MHz) ☐802.11n (40MHz) Bluetooth ☒BR(GFSK) ☒EDR(π/4 DQPSK , 8-DPSK) ☒BLE(GFSK)
Duty Cycle	GSM Voice: 12.5%; GPRS: 12.5% (1 Slot), 25% (2 Slots), 37.5% (3 Slots), 50% (4 Slots) WCDMA: 100% Wi-Fi 802.11b/g/n: 100% Bluetooth: 32.25% (DH1), 66.68% (DH3), 77.52% (DH5)
GPRS Multi-Slot Class	☐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:

State of sample	Production unit
Headset	DEM-76
Batteries	Li3822T43P3h716043
H/W Version S/W Version	MB1.0 GEN_GLB_B1258D_BL7V1.0B01
IMEI	863720030004013
Notes	---

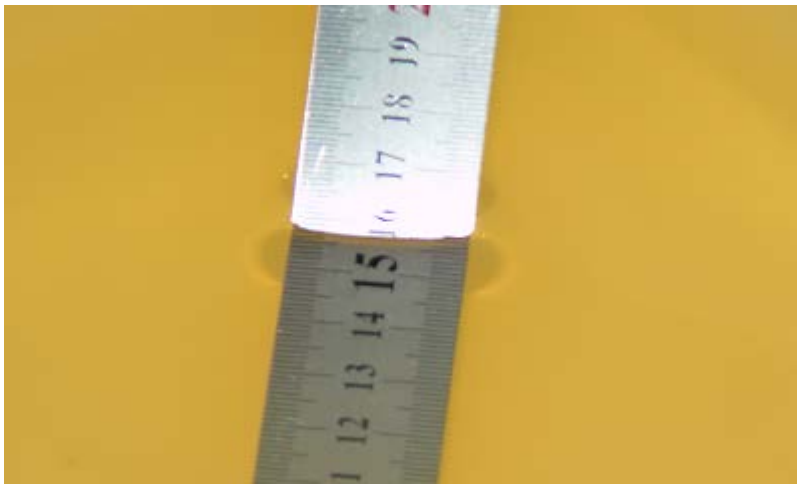
3. REFERENCE SPECIFICATION

Specification	Version	Title
Part 2.1093	June 23, 2015	Radiofrequency radiation exposure evaluation: portable devices.
IEEE Std 1528	2013	IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques
IEEE Std 1528a	2005	IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques Amendment 1: CAD File for Human Head Model (SAM Phantom)
KDB 447498 D01	v06	General RF Exposure Guidance
KDB 648474 D04	v01r03	Handset SAR
KDB 941225 D01	v03r01	3G SAR Procedures
KDB 941225 D06	v02r01	Hotspot Mode
KDB 248227 D01	v02r02	SAR meas for 802 11 a b g
KDB 865664 D01	v01r04	SAR Measurement 100 MHz to 6 GHz
KDB 865664 D02	v01r02	RF Exposure Reporting
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 lowest, middle and highest channels.

4.3 SAR Measurement Set-up

The system is based on a high precision robot (working range greater than 0.9m), which positions the probes with a positional repeatability of better than ± 0.02mm. Special E- and H-field probes have been developed for measurements close to material discontinuity, the sensors of which are directly loaded with a Schottky diode and connected via highly resistive lines (length =300mm) to the data acquisition unit. A cell controller system contains the power supply, robot controller, teaches pendant (Joystick), and remote control, is used to drive the robot motors.
The PC consists of the Micron Pentium IV computer with Win7 system and SAR Measurement Software DASY5 Professional, A/D interface card, monitor, mouse, and keyboard. The Stäubli Robot is connected to the cell controller to allow software

manipulation of the robot.
A data acquisition electronic (DAE) circuit performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. is connected to the Electro-optical coupler
(EOC). The EOC performs the conversion from the optical into digital electric signal of the DAEand 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 ± 5% of the recommended values. All tests were carried out within 24 hours of measuring the dielectric parameters.
The depth of the tissue simulant was 15.0 ± 0.5 cm measured from the ear reference point during system checking and device measurements.

4.5.1 Tissue Simulant Recipes

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

835MHz band

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

1900MHz band

Ingredient	Head (% by weight)	Body (% by weight)
Water	44,45	70.17
DGBE	55.24	29.44
Nacl	0.31	0.39

2450MHz band

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

5GHz band

Ingredient	Head (% by weight)	Body (% by weight)
Water	65.52	---
Triton X-100	17.24	---
Diethylenglycol monohexylether	17.24	---

4.6 DESCRIPTION OF THE TEST PROCEDURE

4.6.1 Device Holder

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

Device holder supplied by SPEAG

4.6.2 Test positions

4.6.2.1 Against Phantom Head

Measurements were made in “cheek” and “tilt” positions on both the left hand and right hand sides of the phantom.
The positions used in the measurements were according to IEEE 1528 - 2013 "IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques".

4.6.2.2 Body Worn Configuration

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

4.6.3 Scan Procedure

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

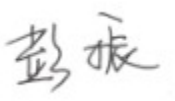
5 RESULT SUMMAR

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

Exposure Posltion	Frequency Band	1g-SAR Reported Result (W/kg)	Highest 1g-SAR Reported Result (W/kg)	Limit (W/kg)/1g	Result
Head	GSM 850	0.145	**0.790**	1.6	PASS
	GSM 1900	0.148			
	WCDMA Band 2	0.199			
	WCDMA Band 5	0.141			
	WLAN 2.4GHz Band	**0.604**			
Body (10mm Gap)	GSM 850	0.474			
	GSM 1900	0.628			
	WCDMA Band 2	**0.790**			
	WCDMA Band 5	0.324			
	WLAN 2.4GHz Band	0.463			

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	0.736	**1.253**	1.6	PASS
	WCDMA & Wi-Fi	0.768			
	GSM & Bluetooth	0.408			
	WCDMA & Bluetooth	0.459			
Body (10mm Gap)	GSM & Wi-Fi	1.091			
	WCDMA & Wi-Fi	**1.253**			
	GSM & Bluetooth	0.888			
	WCDMA & Bluetooth	1.050			

This Test Report Is Issued by: Mr. Peng Zhen 	Checked by: Ms. Liu Jia 
Tested by: Mr. Li Bin 	Issued date: 20170322

6 TEST RESULT

6.1 Manufacturing Tolerance

GSM

GSM 850			
Channel	Channel 128	Channel 189	Channel 251
Tolerance (dBm)	29.5~33.5	29.5~33.5	29.5~33.5
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)	29.5~33.5	29.5~33.5	29.5~33.5
2 Txslot	Tolerance (dBm)	28.0~32.5	28.0~32.5	28.0~32.5
3 Txslot	Tolerance (dBm)	26.0~31.5	26.0~31.5	26.0~31.5
4 Txslot	Tolerance (dBm)	24.0~29.5	24.0~29.5	24.0~29.5
GSM 850 EGPRS (GMSK)				
Channel		128	189	251
1 Txslot	Tolerance (dBm)	29.5~33.5	29.5~33.5	29.5~33.5
2 Txslot	Tolerance (dBm)	28.0~32.5	28.0~32.5	28.0~32.5
3 Txslot	Tolerance (dBm)	26.0~31.5	26.0~31.5	26.0~31.5
4 Txslot	Tolerance (dBm)	24.0~29.5	24.0~29.5	24.0~29.5

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)	26.0~30.0	26.0~30.0	26.0~30.0
3 Txslot	Tolerance (dBm)	25.0~29.0	25.0~29.0	25.0~29.0
4 Txslot	Tolerance (dBm)	24.0~26.5	24.0~26.5	24.0~26.5
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)	26.0~30.0	26.0~30.0	26.0~30.0
3 Txslot	Tolerance (dBm)	25.0~29.0	25.0~29.0	25.0~29.0
4 Txslot	Tolerance (dBm)	24.0~26.5	24.0~26.5	24.0~26.5

WCDMA

WCDMA Band2			
Channel	9662	9800	9938
Tolerance (dBm)	20.0~24.0	20.0~24.0	20.0~24.0
WCDMA Band5			
Channel	4357	4408	4458
Tolerance (dBm)	20.0~24.0	20.0~24.0	20.0~24.0

HSDPA Band2				
Channel		9662	9800	9938
Sub test 1	Tolerance (dBm)	18.0~22.0	18.0~22.0	18.0~22.0
Sub test 2	Tolerance (dBm)	18.0~22.0	18.0~22.0	18.0~22.0
Sub test 3	Tolerance (dBm)	18.0~22.0	18.0~22.0	18.0~22.0
Sub test 4	Tolerance (dBm)	18.0~22.0	18.0~22.0	18.0~22.0
HSDPA Band5				
Channel		4357	4408	4458
Sub test 1	Tolerance (dBm)	18.0~22.0	18.0~22.0	18.0~22.0
Sub test 2	Tolerance (dBm)	18.0~22.0	18.0~22.0	18.0~22.0
Sub test 3	Tolerance (dBm)	18.0~22.0	18.0~22.0	18.0~22.0
Sub test 4	Tolerance (dBm)	18.0~22.0	18.0~22.0	18.0~22.0

HSUPA Band2				
Channel		9662	9800	9938
Sub test 1	Tolerance (dBm)	18.0~22.0	18.0~22.0	18.0~22.0
Sub test 2	Tolerance (dBm)	18.0~22.0	18.0~22.0	18.0~22.0
Sub test 3	Tolerance (dBm)	18.0~22.0	18.0~22.0	18.0~22.0
Sub test 4	Tolerance (dBm)	17.0~21.0	17.0~21.0	17.0~21.0
Sub test 5	Tolerance (dBm)	19.0~23.5	19.0~23.5	19.0~23.5

HSUPA Band5				
Channel		4357	4408	4458
Sub test 1	Tolerance (dBm)	18.0~22.0	18.0~22.0	18.0~22.0
Sub test 2	Tolerance (dBm)	18.0~22.0	18.0~22.0	18.0~22.0
Sub test 3	Tolerance (dBm)	18.0~22.0	18.0~22.0	18.0~22.0
Sub test 4	Tolerance (dBm)	17.0~21.0	17.0~21.0	17.0~21.0
Sub test 5	Tolerance (dBm)	19.0~23.5	19.0~23.5	19.0~23.5

Bluetooth

GFSK			
Channel	0	39	78
Tolerance (dBm)	3.0~8.0	3.0~8.0	3.0~8.0
π/4DQPSK			
Channel	0	39	78
Tolerance (dBm)	2.0~7.0	2.0~7.0	2.0~7.0
8DPSK			
Channel	0	39	78
Tolerance (dBm)	3.0~7.0	3.0~7.0	3.0~7.0

Bluetooth (BLE)

GFSK			
Channel	0	39	78
Tolerance (dBm)	-4.0~1.0	-4.0~1.0	-4.0~1.0

Wi-Fi(2.4GHz)

802.11b			
Channel	1	6	11
Tolerance (dBm)	13.0~17.5	13.0~17.5	13.0~17.5
802.11g			
Channel	1	6	11
Tolerance (dBm)	7.0~13.5	7.0~13.5	7.0~13.5
802.11n HT20			
Channel	1	6	11
Tolerance (dBm)	7.0~13.5	7.0~13.5	7.0~13.5
802.11n HT40			
Channel	3	6	11
Tolerance (dBm)	5.0~13.0	5.0~13.0	5.0~13.0

6.2 GSM Measurement result

GSM Measured Power

Mode	GSM850			GSM1900		
Channel	128	189	251	512	661	810
Frequency(MHz)	824.2	836.4	848.8	1850.2	1880.0	1909.8
Measured Power(dBm)	31.98	32.05	32.09	28.73	29.02	29.07

GPRS Measured Power

Mode	GPRS850			GPRS1900		
Channel	128	189	251	512	661	810
Frequency(MHz)	824.2	836.4	848.8	1850.2	1880.0	1909.8
4Downlink1uplinkPower(dBm)	31.98	32.05	32.09	28.73	29.02	29.07
3Downlink2uplinkPower(dBm)	30.80	30.66	30.61	27.13	27.15	27.22
2Downlink3uplinkPower(dBm)	28.97	28.84	28.79	25.81	25.78	25.81
1Downlink4uplinkPower(dBm)	27.99	27.86	27.80	24.69	24.70	24.68

GPRS Averaged Power

Mode	GPRS850			GPRS1900		
Channel	128	189	251	512	661	810
Frequency(MHz)	824.2	836.4	848.8	1850.2	1880.0	1909.8
4Downlink1uplinkPower(dBm)	22.95	23.02	23.06	19.70	19.99	20.04
3Downlink2uplinkPower(dBm)	24.78	24.64	24.59	21.11	21.13	21.20
2Downlink3uplinkPower(dBm)	24.71	24.58	24.53	21.55	21.52	21.55
1Downlink4uplinkPower(dBm)	**24.98**	**24.85**	**24.79**	**21.68**	**21.69**	**21.67**

Division Factors (for Measured Power and Averaged Power):

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

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

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

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

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

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

EGPRS Measured Power

Mode	EGPRS850 (GMSK) / EGPRS850 (8PSK)			EGPRS1900 (GMSK) / 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)	32.03	32.12	32.16	28.83	28.87	28.94
	25.84	25.76	25.67	25.62	25.37	25.21
3Downlink2uplinkPower(dBm)	30.80	30.66	30.61	27.13	27.15	27.22
	25.15	25.66	25.40	25.25	24.96	25.03
2Downlink3uplinkPower(dBm)	28.97	28.84	28.79	25.81	25.78	25.81
	23.71	23.89	23.94	23.44	23.07	22.81
1Downlink4uplinkPower(dBm)	27.99	27.86	27.80	24.69	24.70	24.68
	21.52	21.47	21.50	20.49	20.32	20.64

EGPRS Averaged Power

Mode	EGPRS850 (GMSK) / EGPRS850 (8PSK)			EGPRS1900 (GMSK) / 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)	23.00	23.09	23.13	19.80	19.84	19.91
	16.81	16.73	16.64	16.59	16.34	16.18
3Downlink2uplinkPower(dBm)	24.78	24.64	24.59	21.11	21.13	21.20
	19.13	19.64	19.38	19.23	18.94	19.01
2Downlink3uplinkPower(dBm)	24.71	24.58	24.53	21.55	21.52	21.55
	19.45	19.63	19.68	19.18	18.81	18.55
1Downlink4uplinkPower(dBm)	**24.98**	**24.85**	**24.79**	**21.68**	**21.69**	**21.67**
	18.51	18.46	18.49	17.48	17.31	17.63

Division Factors (for Measured Power and Averaged Power):

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

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

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

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

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

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

6.3 WCDMA Measurement result

The following procedures are according to FCC KDB Publication 941225 D01.
Release 99
The following tests were completed according to the test requirements outlined in section 5.2 of the 3GPP TS34.121-1 specification. The DUT supports power Class 3, which has a nominal maximum output power of 24 dBm (+1.7/-3.7).

Mode	Subtest	Rel99
WCDMA General Settings	Loopback Mode	Test Mode 1
	Rel99 RMC	12.2kbps RMC
	Power Control Algorithm	Algorithm2
	βc/βd	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)	22.34	22.31	22.34	22.26	22.32	22.39
RB test mode1+12.2kRMC(dBm)	22.41	22.40	22.44	22.35	22.43	22.42
RB test mode1+144kRMC(dBm)	22.36	22.35	22.37	22.28	22.23	22.24
RB test mode1+384kRMC(dBm)	22.29	22.33	22.37	22.25	22.25	22.25
AMR Voice test mode+12.2kRMC(dBm)	22.31	22.35	22.35	22.24	22.21	22.20

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	β_{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 Δ_{CQI} =8⇔A_{hs}=β_{hs}/β_c=30/15⇔β_{hs}=30/15*β_c.
Note2:CM=1 for β_c/β_d=12/15, β_{hs}/β_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 β_c=11/15 and β_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)	21.00	21.00	21.10	20.70	20.80	20.90
sub-test2(dBm)	21.00	21.00	21.10	20.80	20.80	20.90
sub-test3(dBm)	20.50	20.50	20.70	20.20	20.40	20.40
sub-test4(dBm)	20.50	20.50	20.60	20.30	20.40	20.40

HSPA (HSDPA & HSUPA)

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

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{hs}(1)	β_{ec}	β_{ed}	β_{ed} (SF)	β_{ed} (codes)	CM(2) (dB)	MPR (dB)	AG(4) Index	E-TFCI
1	11/15(3)	15/15(3)	64	11/15(3)	22/15	209/225	1039/225	4	1	1.0	2.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	β_{ed1}:47/15 β_{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 Δ_{CQI} =8⇔A_{hs}=β_{hs}/β_c=30/15⇔β_{hs}=30/15*β_c.
Note2: CM=1 for β_c/β_d =12/15,β_{hs}/β_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 β_c=10/15 and β_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 β_c=14/15 and β_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)	19.10	19.10	19.10	18.80	18.90	18.30
sub-test2(dBm)	19.00	19.00	19.10	18.80	18.90	18.30
sub-test3(dBm)	19.10	19.10	19.10	18.80	18.90	18.40
sub-test4(dBm)	18.50	18.50	18.60	18.30	18.30	17.90
sub-test5(dBm)	21.00	21.10	21.00	20.70	20.30	20.80

UMTS SAR was tested under RMC 12.2 kbps with HSPA Inactive per KDB Publication 941225 D01.
HSPA SAR was not required since the average output power of the HSPA subtests was not more than 0.25 dB higher than the RMC level and SAR was less than 1.2 W/kg.

6.4 Bluetooth Measurement result

Modulation type	Test Result (dBm)		
	2402MHz(Ch0)	2441MHz(Ch39)	2480MHz(Ch78)
GFSK	8.78	8.93	9.11
π/4DQPSK	9.23	9.24	10.15
8DPSK	9.16	10.03	10.77
GFSK(BLE)	2402MHz(Ch0)	2440MHz(Ch19)	2480MHz(Ch39)
	-4.21	-3.01	-1.92

Modulation type	Test Result (mW)		
	2402MHz(Ch0)	2441MHz(Ch39)	2480MHz(Ch78)
GFSK	7.55	7.82	8.15
π/4DQPSK	8.38	8.39	10.35
8DPSK	8.24	10.07	11.94
GFSK(BLE)	2402MHz(Ch0)	2440MHz(Ch19)	2480MHz(Ch39)
	0.38	0.50	0.64

6.5 Wi-Fi Measurement result

Modulation type		Average power output (dBm)		
		2412MHz (Ch1)	2437MHz (Ch6)	2462MHz (Ch11)
11b	1 Mbps	15.62	16.32	15.86
	2 Mbps	15.52	15.71	16.01
	5.5 Mbps	15.32	15.67	15.93
	11 Mbps	15.13	15.52	15.82
11g	6 Mbps	13.02	13.04	13.42
	9 Mbps	12.91	12.89	13.04
	12 Mbps	12.75	12.77	12.87
	18 Mbps	12.55	12.57	12.61
	24 Mbps	12.31	12.40	12.44
	36 Mbps	11.99	12.02	12.09
	48 Mbps	11.56	11.78	11.92
	54 Mbps	11.24	11.54	11.77
11n HT20	6.5 Mbps	12.04	11.98	12.33
	13 Mbps	11.88	11.62	12.12
	19.5 Mbps	11.56	11.24	11.81
	26 Mbps	11.36	11.01	11.54
	39 Mbps	11.04	10.79	11.24
	52 Mbps	10.82	10.55	11.03
	58.5 Mbps	10.67	10.51	10.94
	65 Mbps	10.42	10.34	10.73

Modulation type		Average power output (mW)		
		2412MHz (Ch1)	2437MHz (Ch6)	2462MHz (Ch11)
11b	1 Mbps	36.48	42.85	38.55
	2 Mbps	35.65	37.24	39.90
	5.5 Mbps	34.04	36.90	39.17
	11 Mbps	32.58	35.65	38.19
11g	6 Mbps	20.04	20.14	21.98
	9 Mbps	19.54	19.45	20.14
	12 Mbps	18.84	18.92	19.36
	18 Mbps	17.99	18.07	18.24
	24 Mbps	17.02	17.38	17.54
	36 Mbps	15.81	15.92	16.18
	48 Mbps	14.32	15.07	15.56
	54 Mbps	13.30	14.26	15.03
11n HT20	6.5 Mbps	16.00	15.78	17.10
	13 Mbps	15.42	14.52	16.29
	19.5 Mbps	14.32	13.30	15.17
	26 Mbps	13.68	12.62	14.26
	39 Mbps	12.71	11.99	13.30
	52 Mbps	12.08	11.35	12.68
	58.5 Mbps	11.67	11.25	12.42
	65 Mbps	11.02	10.81	11.83

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(a)
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:
[(max. power of channel, including tune-up tolerance, mW) / (min. test separation distance, mm)] ·[√f(GHz)] ≤ 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 according to 4.1 f) is applied to determine SAR test exclusion.

Summary of Transmitters for Head

Band/Mode	Max. power of channel, including tune-up tolerance, (dBm)	Max. power of channel, including tune-up tolerance, (mW)	Min. test separation distance, (mm)	The calculation results (1g)	SAR test exclusion Threshold (1g)	SAR Required
(2.4~2.4835)GHz Bluetooth	11.0	12.59	10	0.81	≤3.0	No
(2.4~2.4835)GHz WLAN	17.5	56.23	10	3.63	≤3.0	Yes

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.

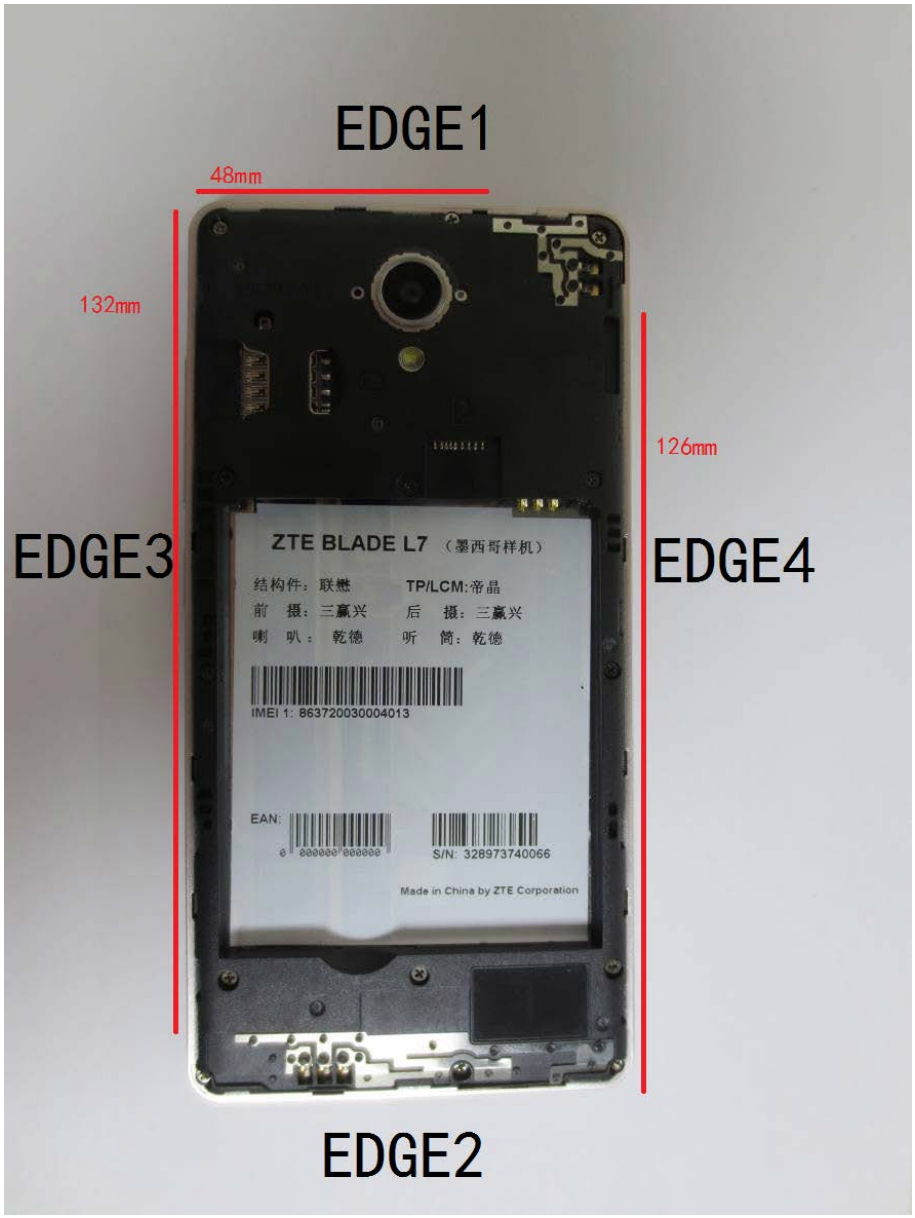
MHz	5	10	15	20	25	mm
150	39	77	116	155	194	*SAR Test Exclusion Threshold* (mW)
300	27	55	82	110	137	
450	22	45	67	89	112	
835	16	33	49	66	82	
900	16	32	47	63	79	
1500	12	24	37	49	61	
1900	11	22	33	44	54	
2450	10	19	29	38	48	
3600	8	16	24	32	40	
5200	7	13	20	26	33	
5400	6	13	19	26	32	
5800	6	12	19	25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

Summary of Transmitters for Body

Band/Mode	Max.RF output power (mW)	SAR test exclusion Threshold (mW)	SAR Required
(2.4~2.4835)GHz Bluetooth	11.94	≤19	No
(2.4~2.4835)GHz WLAN	42.85	≤19	Yes

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	/

6.7.2 Body-worn Accessory Exposure conditions

For WWAN

Test Configurations	SAR Required	Note
Rear	yes	/
Front	yes	/

For Wi-Fi

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 (top)	132 mm	No
Edge 2 (Bottom)	0 mm	Yes
Edge 3(Right)	8 mm	Yes
Edge 4(Left)	4 mm	Yes

For Wi-Fi

Test Configurations	Antenna-to-edge/surface	SAR Required
Rear	<25 mm	Yes
Front	<25 mm	Yes
Edge 1 (top)	0 mm	Yes
Edge 2 (Bottom)	126 mm	No
Edge 3(Right)	48 mm	No
Edge 4(Left)	0 mm	Yes

6.8 System Checking

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

Date Tested	System dipole	T.S. Liquid	SAR measured (normalized to 1W)		Target (Ref.Value)	Delta (%)	Tolerance (%)
2017.2.20	D835V2	Head	1g	9.36	9.45	0.95	±10
2017.2.21	D835V2	Body	1g	9.32	9.62	3.12	±10
2017.2.22	D1900V2	Head	1g	39.28	40.70	3.49	±10
2017.2.23	D1900V2	Body	1g	39.36	39.80	1.11	±10
2017.2.24	D2450V2	Head	1g	52.48	51.20	2.50	±10
2017.2.25	D2450V2	Body	1g	51.72	50.80	1.81	±10

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

Tissue Simulants used in the Measurements

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

Date Tested	Freq.(MHz)	Liquid parameters	measured	Target	Delta(%)	Tolerance(%)
2017.2.20	Head 835	εr	42.11	41.50	1.47	±5
		σ[S/m]	0.91	0.90	1.11	±5
2017.2.21	Body 835	εr	53.85	55.20	2.45	±5
		σ[S/m]	0.98	0.97	1.03	±5
2017.2.22	Head 1900	εr	40.84	40.00	2.10	±5
		σ[S/m]	1.41	1.40	0.71	±5
2017.2.23	Body 1900	εr	52.18	53.30	2.10	±5
		σ[S/m]	1.53	1.52	0.66	±5
2017.2.24	Head 2450	εr	39.21	39.20	0.03	±5
		σ[S/m]	1.79	1.80	0.56	±5
2017.2.25	Body 2450	εr	52.04	52.70	1.25	±5
		σ[S/m]	1.97	1.95	1.03	±5

6.10 SAR TEST RESULT

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

Step 1: The tests should be performed at the channel that is closest to the center of the transmit frequency band.
a) All device positions (cheek and tilt, for both left and right sides of the SAM phantom),
b) All configurations for each device position in a), e.g., antenna extended and retracted, and
c) All operational modes for each device position in item a) and configuration in item b) in each frequency band, e.g., analog and digital, If more than three frequencies need to be tested (i.e., Nc > 3), then all frequencies, configurations and modes shall be tested for all of the above test conditions.
Step 2: For the condition providing the highest peak spatial-average SAR determined in Step 1 for each frequency, perform all tests at all other test frequency channels, e.g., lowest and highest frequencies. In addition, for all other conditions (device position, configuration, and operational mode) where the peak spatial-average SAR value determined in Step 1 is within 3 dB of the applicable SAR limit, it is recommended that all other test frequencies should be tested as well.
Step 3: Examine all data to determine the largest value of the peak.
Note:
1. Per KDB 447498 D01v05, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
Scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
Reported SAR (W/kg) = Measured SAR (W/kg)* Scaling Factor
2. Per KDB 447498 D01v05, for each exposure position, if the highest output channel reported SAR ≤0.8W/kg, other channels SAR testing are not necessary.
3. In the report the test position “Mobile phone screen Towards Ground” abbreviated as “TG”, and “Mobile phone screen Towards Phantom” abbreviated as “TP”.

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

Mode: GSM 850

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

SAR Values（Head，850MHz Band）

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

Test Case		Ch	Measure Conducted Power (dBm)	Tune-up limit (dBm)	Scaling Factor	Measure Results (W/kg)	Reported Results (W/kg)
position	mode					1g Average	1g Average
Left cheek	GSM	L	31.98	33.5	---	---	---
		M	32.05	33.5	1.40	0.104	0.145
		H	32.09	33.5	---	---	---
Left Tilted		L	31.98	33.5	---	---	---
		M	32.05	33.5	1.40	0.054	0.075
		H	32.09	33.5	---	---	---
Right cheek		L	31.98	33.5	---	---	---
		M	32.05	33.5	1.40	0.094	0.131
		H	32.09	33.5	---	---	---
Right Tilted		L	31.98	33.5	---	---	---
		M	32.05	33.5	1.40	0.058	0.081
		H	32.09	33.5	---	---	---

Mode: GSM850 (GSM/GPRS)

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

SAR Values（body，850MHz Band

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

Test Case		Ch	Measure Conducted Power (dBm)	Tune-up limit (dBm)	Scaling Factor	Measure Results (W/kg)	Reported Results (W/kg)
position	mode					1 g Average	1g Average
TG	GSM With headset	L	31.98	33.5	---	---	---
		M	32.05	33.5	1.40	0.302	0.422
		H	32.09	33.5	---	---	---
	GPRS	L	27.99	29.5	---	---	---
		M	27.86	29.5	1.46	0.32	0.467
		H	27.80	29.5	---	---	---
	EGPRS	L	27.99	29.5	---	---	---
		M	27.86	29.5	1.46	0.325	0.474
		H	27.80	29.5	---	---	---
TP	GSM With headset	L	31.98	33.5	---	---	---
		M	32.05	33.5	1.40	0.165	0.230
		H	32.09	33.5	---	---	---
	GPRS	L	27.99	29.5	---	---	---
		M	27.86	29.5	1.46	0.173	0.252
		H	27.80	29.5	---	---	---
	EGPRS	L	27.99	29.5	---	---	---
		M	27.86	29.5	1.46	0.173	0.252
		H	27.80	29.5	---	---	---
EDGE 2	GPRS	M	27.86	29.5	1.46	0.059	0.086
EDGE 3		M	27.86	29.5	1.46	0.125	0.182
EDGE 4		M	27.86	29.5	1.46	0.162	0.236

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

Mode: GSM1900

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

SAR Values（Head，1900MHz Band）

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

Test Case		CH	Measure Conducted Power (dBm)	Tune-up limit (dBm)	Scaling Factor	Measure Results (W/kg)	Reported Results (W/kg)
position	mode					1g Average	1g Average
Left cheek	GSM	L	28.73	30.5	---	---	---
		M	29.02	30.5	1.41	0.105	0.148
		H	29.07	30.5	---	---	---
Left Tilted		L	28.73	30.5	---	---	---
		M	29.02	30.5	1.41	0.052	0.073
		H	29.07	30.5	---	---	---
Right cheek		L	28.73	30.5	---	---	---
		M	29.02	30.5	1.41	0.085	0.120
		H	29.07	30.5	---	---	---
Right Tilted		L	28.73	30.5	---	---	---
		M	29.02	30.5	1.41	0.046	0.065
		H	29.07	30.5	---	---	---

Mode: GSM1900 (GSM/GPRS)

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

SAR Values（body，1900MHz Band）

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

Test Case		CH	Measure Conducted Power (dBm)	Tune-up limit (dBm)	Scaling Factor	Measure Results (W/kg)	Reported Results (W/kg)
position	mode					1 g Average	1g Average
TG	GSM With headset	L	28.73	30.5	---	---	---
		M	29.02	30.5	1.41	0.412	0.579
		H	29.07	30.5	---	---	---
	GPRS	L	24.69	26.5	---	---	---
		M	24.70	26.5	1.51	0.414	0.627
		H	24.68	26.5	---	---	---
	EGPRS	L	24.69	26.5	---	---	---
		M	24.70	26.5	1.51	0.415	0.628
		H	24.68	26.5	---	---	---
TP	GSM With headset	L	28.73	30.5	---	---	---
		M	29.02	30.5	1.41	0.146	0.205
		H	29.07	30.5	---	---	---
	GPRS	L	24.69	26.5	---	---	---
		M	24.70	26.5	1.51	0.147	0.222
		H	24.68	26.5	---	---	---
	EGPRS	L	24.69	26.5	---	---	---
		M	24.70	26.5	1.51	0.143	0.216
		H	24.68	26.5	---	---	---
EDGE 2	GPRS	M	24.70	26.5	1.51	0.263	0.398
EDGE 3		M	24.70	26.5	1.51	0.076	0.115
EDGE 4		M	24.70	26.5	1.51	0.087	0.132

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

Mode: WCDMA BAND2
fL(MHz)=1852.4MHz fM(MHz)=1880MHz fH(MHz)= 1907.6MHz
SAR Values（Head，WCDMA BAND2）
Limit of SAR (W/kg):<1.6W/kg(1g Average)

Test Case		CH	Measure Conducted Power (dBm)	Tune-up limit (dBm)	Scaling Factor	Measure Results (W/kg)	Reported Results (W/kg)
position	mode					1 g Average	1g Average
Left cheek	VOICE	L	22.41	24	---	---	---
		M	22.40	24	1.45	0.138	0.199
		H	22.44	24	---	---	---
Left Tilted		L	22.41	24	---	---	---
		M	22.40	24	1.45	0.079	0.114
		H	22.44	24	---	---	---
Right cheek		L	22.41	24	---	---	---
		M	22.40	24	1.45	0.113	0.163
		H	22.44	24	---	---	---
Right Tilted		L	22.41	24	---	---	---
		M	22.40	24	1.45	0.056	0.081
		H	22.44	24	---	---	---

Mode: WCDMA BAND2

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

SAR Values（body，WCDMA BAND2）

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

Test Case		CH	Measure Conducted Power (dBm)	Tune-up limit (dBm)	Scaling Factor	Measure Results (W/kg)	Reported Results (W/kg)
Position	mode					1 g Average	1g Average
TG	VOICE	L	22.41	24	1.44	0.548	**0.790**
		M	22.40	24	1.45	0.431	0.623
		H	22.44	24	1.43	0.46	0.659
	DATA	L	22.41	24	---	---	---
		M	22.40	24	1.45	0.416	0.601
		H	22.44	24	---	---	---
TP	VOICE	L	22.41	24	---	---	---
		M	22.40	24	1.45	0.186	0.269
		H	22.44	24	---	---	---
	DATA	L	22.41	24	---	---	---
		M	22.40	24	1.45	0.176	0.254
		H	22.44	24	---	---	---
EDGE2	DATA	M	22.41	24	1.45	0.266	0.384
EDGE3	DATA	M	22.41	24	1.45	0.100	0.145
EDGE4	DATA	M	22.41	24	1.45	0.098	0.142

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

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-uplimit (dBm)	Scaling Factor	Measure Results (W/kg)	Reported Results (W/kg)
Position	mode					1 g Average	1g Average
Left cheek	VOICE	L	22.26	24	---	---	---
		M	22.32	24	1.47	0.096	0.141
		H	22.39	24	---	---	---
Left Tilted		L	22.26	24	---	---	---
		M	22.32	24	1.47	0.058	0.085
		H	22.39	24	---	---	---
Right cheek		L	22.26	24	---	---	---
		M	22.32	24	1.47	0.082	0.121
		H	22.39	24	---	---	---
Right Tilted		L	22.26	24	---	---	---
		M	22.32	24	1.47	0.048	0.071
		H	22.39	24	---	---	---

Mode: WCDMA BAND5

fL(MHz)=826.4MHz fM(MHz)=836.5MHz 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					1 g Average	1g Average
TG	VOICE	L	24	1.74	---	---	---
		M	24	1.68	1.47	0.22	0.324
		H	24	1.61	---	---	---
	DATA	L	24	1.74	---	---	---
		M	24	1.68	1.47	0.216	0.318
		H	24	1.61	---	---	---
TP	VOICE	L	24	1.74	---	---	---
		M	24	1.68	1.47	0.112	0.165
		H	24	1.61	---	---	---
	DATA	L	24	1.74	---	---	---
		M	24	1.68	1.47	0.115	0.169
		H	24	1.61	---	---	---
EDGE2	DATA	M	24	1.68	1.47	0.033	0.049
EDGE3	DATA	M	24	1.68	1.47	0.080	0.118
EDGE4	DATA	M	24	1.68	1.47	0.111	0.163

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

Mode: Wi-Fi(2.4GHz)
SAR Values (WIFI 802.11b - Head)
Limit of SAR (W/kg):<1.6W/kg(1g Average)

Test Case		CH	Measure Conducted Power (dBm)	Tune-up limit (dBm)	Scaling Factor	Measure Result (W/kg)	Reported Result (W/kg)
Position	mode					1 g Average	1g Average
Left Cheek	1Mbps	1	15.62	17.5	---	---	---
		6	16.32	17.5	1.31	0.151	0.198
		11	15.86	17.5	---	---	---
Left Tilt	1Mbps	1	15.62	17.5	---	---	---
		6	16.32	17.5	1.31	0.111	0.146
		11	15.86	17.5	---	---	---
Right Cheek	1Mbps	1	15.62	17.5	1.54	0.392	**0.604**
		6	16.32	17.5	1.31	0.371	0.487
		11	15.86	17.5	1.46	0.332	0.484
Right tilt	1Mbps	1	15.62	17.5	---	---	---
		6	16.32	17.5	1.31	0.229	0.300
		11	15.86	17.5	---	---	---

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

Test Case		CH	Measure Conducted Power (dBm)	Tune-up limit (dBm)	Scaling Factor	Measure Result (W/kg)	Reported Result (W/kg)
Position	mode					1 g Average	1g Average
TG	1Mbps	1	15.62	17.5	---	---	---
		6	16.32	17.5	1.31	0.353	0.463
		11	15.86	17.5	---	---	---
TP	1Mbps	1	15.62	17.5	---	---	---
		6	16.32	17.5	1.31	0.153	0.201
		11	15.86	17.5	---	---	---
Edge 1	1Mbps	6	16.32	17.5	1.31	0.039	0.051
Edge 4	1Mbps	6	16.32	17.5	1.31	0.069	0.091

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

6.11 SAR Measurement Variability

SAR measurement variability must be assessed for each frequency band, which is determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements. When both head and body tissue-equivalent media are required for SAR measurements in a frequency band, the variability measurement procedures should be applied to the tissue medium with the highest measured SAR, using the highest measured SAR configuration for that tissue-equivalent medium.
The following procedures are applied to determine if repeated measurements are required.
1) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg; steps 2) through 4) do not apply.
2) When the original highest measured SAR is ≥ 0.80 W/kg, repeat that measurement once.
3) Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is ≥ 1.45 W/kg (~ 10% from the 1-g SAR limit).
4) Perform a third repeated measurement only if the original, first or second repeated measurement is ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.

6.11.1 The Highest Measured SAR configuration in Each Frequency Band

Frequency band(MHz)	Air interface	Head(w/kg)	Body(w/kg)
850	GSM 850 WCDMA Band 5	<0.8	<0.8
1900	WCDMA Band 2	<0.8	<0.8
2450	Wi-Fi 802.11b/g/n	<0.8	<0.8

6.11.2 Repeated Measurement Results

SAR Measurement Variability

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

6.12 Simultaneous Transmission SAR Analysis

According to the formula (KDB447498 4.3.2) the Wi-Fi SAR as follow:
Simultaneous transmission SAR test exclusion is determined for each operating configuration and exposure condition according to the *reported* standalone SAR of each applicable simultaneously transmitting antenna.

The sum of SAR values for GSM & Wi-Fi

	MAXIMUM SAR VALUE FOR HEAD	MAXIMUM SAR VALUE FOR BODY
GSM	0.131	0.628
Wi-Fi	0.604	0.463
Sum	**0.735**	**1.091**
Note	**GSM900+WIFI Right Cheek**	**EGPRS1800+WIFI TG**

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

The sum of SAR values for WCDMA & Wi-Fi

	MAXIMUM SAR VALUE FOR HEAD	MAXIMUM SAR VALUE FOR BODY
WCDMA	0.163	0.790
Wi-Fi	0.604	0.463
Sum	**0.767**	**1.253**
Note	**WCDMA B1+WIFI Right Cheek**	**WCDMA B1+WIFI TG**

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

According to the formula (KDB447498 4.3.2) the Bluetooth SAR as follow:
[(max.power of channel, including tune-up tolerance,mw)/(min.test separation distance,mm)]
[√f(GHz)/x] W/kg for test separation distances≦50mm.
Head:
min. test separation distance = 5mm
Body:
min. test separation distance = 10mm
Where x=7.5 for 1-g SAR, and x=18.75 for 10-g SAR.

The sum of SAR values for GSM & Bluetooth

	MAXIMUM SAR VALUE FOR HEAD	MAXIMUM SAR VALUE FOR BODY
GSM	0.148	0.628
Bluetooth	0.260	0.260
Sum	**0.408**	**0.888**
Note	**GSM900+BT Right Cheek**	**EGPRS1800+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	0.199	0.790
Bluetooth	0.260	0.260
Sum	**0.459**	**1.050**
Note	**WCDMA B1+WIFI Left Cheek**	**WCDMA B1+BT TG**

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

DASY5 Uncertainty Budget								
Error description	Uncertainty value	Prob. Dist.	Div.	(c_i) 1g	(c_i) 10g	Std.Unc (1g).	Std.Unc. (10g)	(vi) Veff
Measurement system								
Probe calibration	±6.0%	N	1	1	1	±6.0%	±6.0%	∞
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	±1.0%	R	$\sqrt{3}$	1	1	±0.6%	±0.6%	∞
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%	∞
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	±0.4%	R	$\sqrt{3}$	1	1	±0.2%	±0.2%	∞
Probe positioning	±2.9%	R	$\sqrt{3}$	1	1	±1.7%	±1.7%	∞
Max.SAR Eval.	±1.0%	R	$\sqrt{3}$	1	1	±0.6%	±0.6%	∞
Test Sample Related								
Device holder	±3.6%	N	1	1	1	±3.6%	±3.6%	5
Device Positioning	±2.9%	N	1	1	1	±2.9%	±2.9%	145
Power drift	±5.0%	R	$\sqrt{3}$	1	1	±2.9%	±2.9%	∞
Phantom and Setup								
Phantom uncertainty	±4.0%	R	$\sqrt{3}$	1	1	±2.3%	±2.3%	∞
Liquid conductivity (target.)	±5.0%	R	$\sqrt{3}$	0.64	0.43	±1.8%	±1.2%	∞
Liquid conductivity (mea.)	±2.5%	R	$\sqrt{3}$	0.64	0.43	±0.9%	±0.6%	∞
Liquid Permittivity (target.)	±5.0%	R	$\sqrt{3}$	0.60	0.49	±1.7%	±1.4%	∞
Liquid Permittivity (mea.)	±2.5%	R	$\sqrt{3}$	0.60	0.49	±0.9%	±0.7%	∞
Combined std. Uncertainty						±10.9%	±10.7%	387
Expanded STD Uncertainty						**±21.7%**	**±21.4%**	

8 TEST EQUIPMENTS

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

The following table lists calibration dates of SPEAG components:

Test Equipment	Model	Serial Number	Calibration date	Calibration Due data
DAE	DAE4	720	2016.10.31	2017.10.30
DAE	DAE4	546	2016.08.22	2017.08.21
Dosimetric E-field Probe	EX3DV4	3708	2016.11.10	2017.11.09
Dosimetric E-field Probe	ES3DV3	3127	2016.08.29	2017.08.28
Dipole Validation Kit	D835V2	4d023	2016.10.24	2017.10.23
Dipole Validation Kit	D1800V2	2d084	2016.08.19	2017.08.18
Dipole Validation Kit	D1900V2	5d113	2016.10.31	2017.10.30
Dipole Validation Kit	D2450V2	738	2016.10.25	2017.10.24

Additional test equipment used in testing:

Test Equipment	Model	Serial Number	Calibration date	Calibration Due data
Signal Generator	E4428C	MY45280865	2016.08.20	2017.08.19
Signal Generator	SML 03	103514	2016.08.20	2017.08.19
Power meter	E4417A	MY45101182	2016.08.20	2017.08.19
Power Sensor	E4412A	MY41502214	2016.08.20	2017.08.19
Power Sensor	E4412A	MY41502130	2016.08.20	2017.08.19
Power meter	E4417A	MY45101004	2016.08.20	2017.08.19
Power Sensor	E9300B	MY41496001	2016.08.20	2017.08.19
Power Sensor	E9300B	MY41496003	2016.08.20	2017.08.19
Communication Tester	8960	GB43194054	2016.08.20	2017.08.19
Communication Tester	CMU200	114666	2016.08.20	2017.08.19
Vector Network Analyzer	VNA R140	0011213	2016.08.20	2017.08.19
Dielectric Parameter Probe	DAKS-3.5	1042	2016.08.20	2017.08.19

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 µW/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 µW/g to > 100 W/kg Linearity: ± 0.2 dB (noise: typically < 1 µW/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 C – PHOTOGRAPH

Please refer to the attachment.

ANNEX A – TEST PLOTS

SYSTEM CHECKING SCANS	835MHz Head

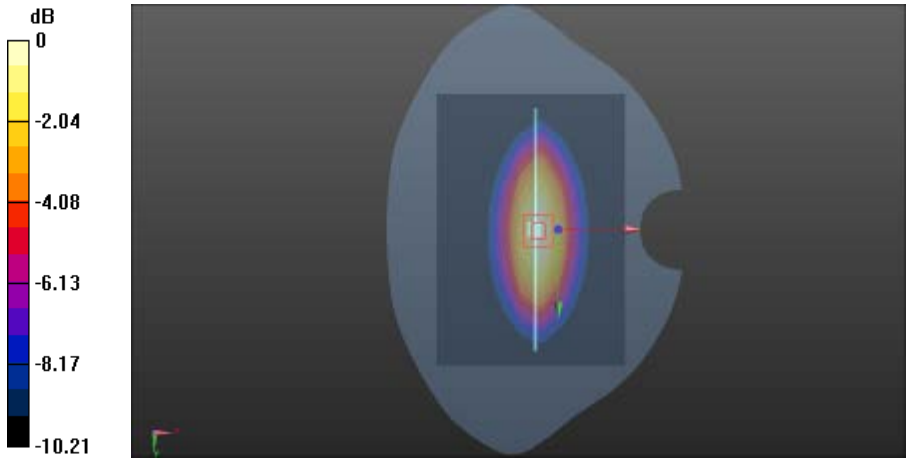
Communication System: UID 0, CW (0); Frequency: 835 MHz
Medium parameters used (extrapolated): f = 835 MHz; σ = 0.909 S/m; ε_r = 42.108; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard:DASY5 (IEEE 1528-2013)

DASY Configuration:

- Probe: ES3DV3 - SN3127; ConvF(5.97, 5.97, 5.97); Calibrated: 8/21/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.0, 32.0
- Electronics: DAE4 Sn546; Calibrated: 8/19/2015
- Phantom: SAM 1559; Type: SAM; Serial: 1559
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

  System Performance Check at Frequencies 835MHz Head/d=15mm, Pin=250 mW, dist=2.0mm (EX-Probe)/Area Scan (10x13x1): Measurement grid: dx=15mm, dy=15mm
  Maximum value of SAR (measured) = 2.98 W/kg

  System Performance Check at Frequencies 835MHz Head/d=15mm, Pin=250 mW, dist=2.0mm (EX-Probe)/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
  Reference Value = 54.113 V/m; Power Drift = -0.05 dB
  Peak SAR (extrapolated) = 3.55 W/kg
  SAR(1 g) = 2.34 W/kg; SAR(10 g) = 1.53 W/kg
  Maximum value of SAR (measured) = 2.98 W/kg



SYSTEM CHECKING SCANS	835MHz Flat

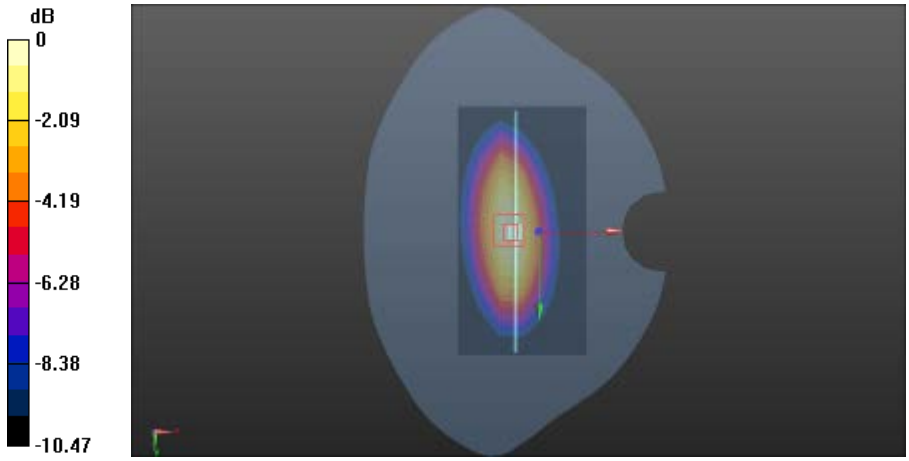
Communication System: UID 0, CW (0); Frequency: 835 MHz
Medium parameters used (extrapolated): f = 835 MHz; σ = 0.978 S/m; ε_r = 53.846; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE 1528-2013)

DASY Configuration:

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

System Performance Check at Frequencies 835MHz Flat/d=15mm, Pin=250 mW, dist=3.0mm (ES-Probe)/Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.55 W/kg

System Performance Check at Frequencies 835MHz Flat/d=15mm, Pin=250 mW, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 53.044 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 3.54 W/kg
SAR(1 g) = 2.33 W/kg; SAR(10 g) = 1.53 W/kg
Maximum value of SAR (measured) = 2.87 W/kg



SYSTEM CHECKING SCANS	1900MHz Head

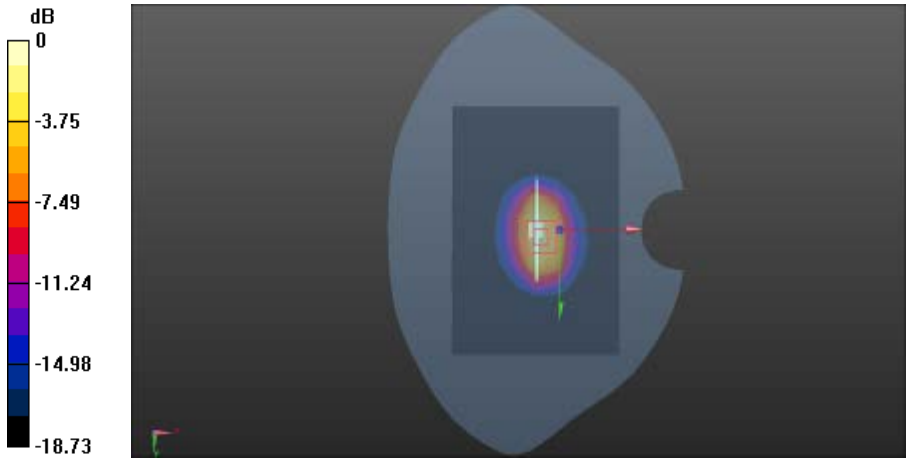
Communication System: UID 0, CW (0); Frequency: 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.41 S/m; ε_r = 40.84; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard:DASY5 (IEEE 1528-2013)

DASY Configuration:

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

System Performance Check at Frequencies 1900MHz Head/d=10mm, Pin=250mW, dist=2.0mm (EX-Probe)/Area Scan (9x12x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 14.0 W/kg

System Performance Check at Frequencies 1900MHz Head/d=10mm, Pin=250mW, dist=2.0mm (EX-Probe)/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 95.996 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 20.8 W/kg
SAR(1 g) = 9.82 W/kg; SAR(10 g) = 5.47 W/kg
Maximum value of SAR (measured) = 15.9 W/kg



SYSTEM CHECKING SCANS	1900MHz Flat

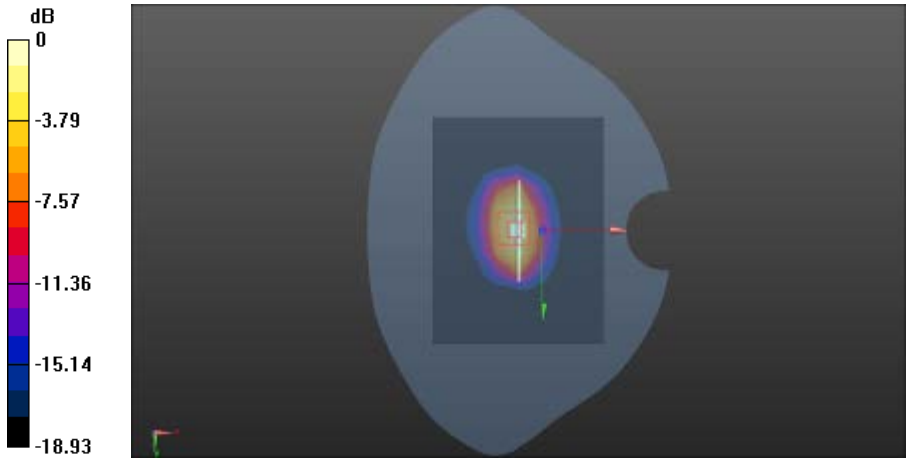
Communication System: UID 0, CW (0); Frequency: 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.53 S/m; ε_r = 52.184; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard:DASY5 (IEEE 1528-2013)

DASY Configuration:

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

System Performance Check at Frequencies 1900MHz Flat/d=10mm, Pin=250 mW, dist=2.0mm (EX-Probe)/Area Scan (9x11x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 14.7 W/kg

System Performance Check at Frequencies 1900MHz Flat/d=10mm, Pin=250 mW, dist=2.0mm (EX-Probe)/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 91.541 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 19.2 W/kg
SAR(1 g) = 9.84 W/kg; SAR(10 g) = 5.64 W/kg
Maximum value of SAR (measured) = 14.5 W/kg



SYSTEM CHECKING SCANS	2450 MHz Head

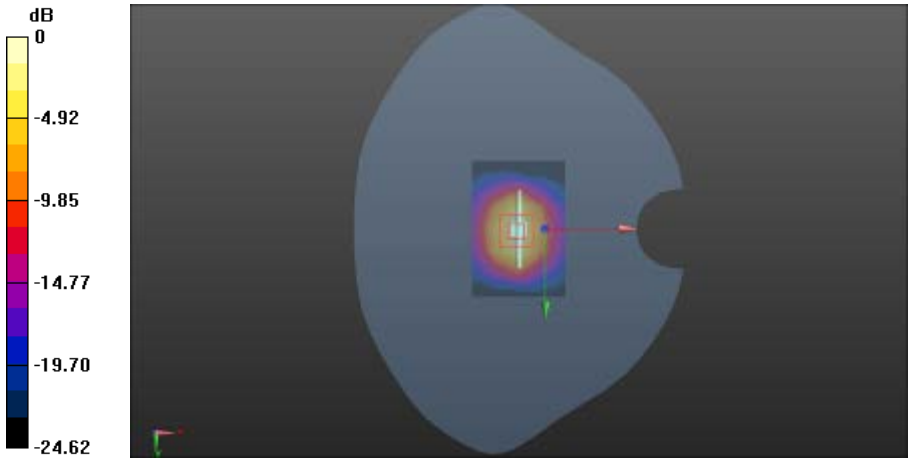
Communication System: UID 0, CW (0); Frequency: 2450 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.79 S/m; ε_r = 39.208; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

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

  System Performance Check at Frequencies 2450MHz Head/d=10mm, Pin=250 mW, dist=3.0mm (ES-Probe)/Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm
  Maximum value of SAR (measured) = 17.1 W/kg

  System Performance Check at Frequencies 2450MHz Head/d=10mm, Pin=250 mW, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
  Reference Value = 102.2 V/m; Power Drift = -0.02 dB
  Peak SAR (extrapolated) = 28.8 W/kg
  SAR(1 g) = 13.12 W/kg; SAR(10 g) = 5.92 W/kg
  Maximum value of SAR (measured) = 17.0 W/kg



SYSTEM CHECKING SCANS	2450MHz Flat

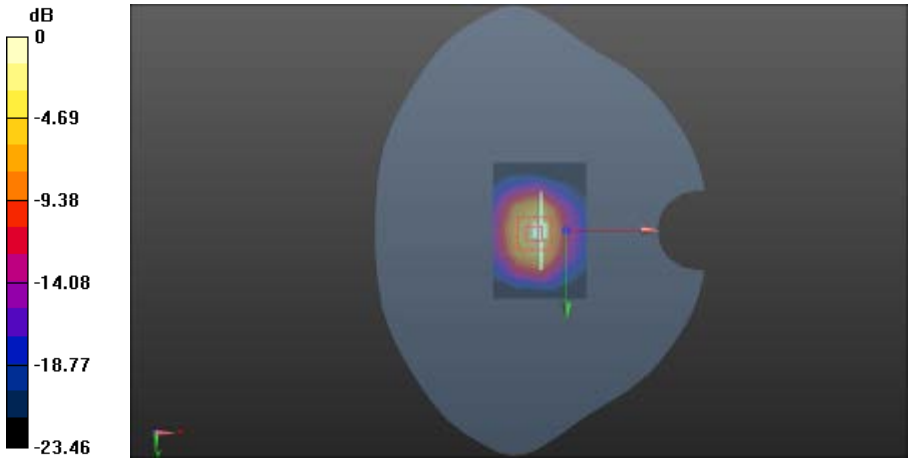
Communication System: UID 0, CW (0); Frequency: 2450 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.965 S/m; ε_r = 52.042; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

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

  System Performance Check at Frequencies 2450MHz Flat/d=10mm, Pin=250 mW, dist=3.0mm (ES-Probe)/Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm
  Maximum value of SAR (measured) = 17.1 W/kg

  System Performance Check at Frequencies 2450MHz Flat/d=10mm, Pin=250 mW, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
  Reference Value = 104.3 V/m; Power Drift = -0.01 dB
  Peak SAR (extrapolated) = 28.0 W/kg
  SAR(1 g) = 12.93 W/kg; SAR(10 g) = 5.78 W/kg
  Maximum value of SAR (measured) = 17.4 W/kg



GSM (850MHz/Head)

Left Side	Cheek

Communication System: UID 10021 - DAB, GSM-FDD (TDMA, GMSK); Frequency: 836.6 MHz;Duty Cycle: 1:8.6896
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.89 S/m; ε_r = 41.478; ρ = 1000 kg/m^3
Phantom section: Left Section

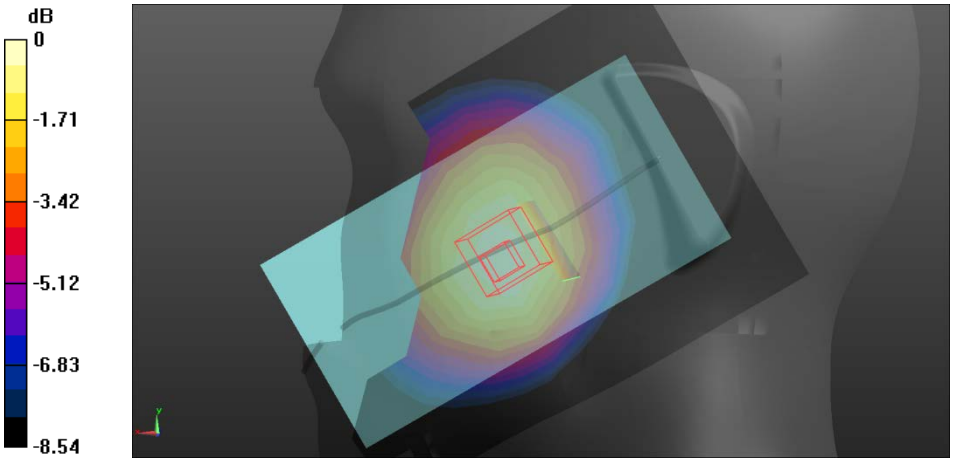
DASY5 Configuration:

- Probe: EX3DV4 - SN3708; ConvF(9.05, 9.05, 9.05); Calibrated: 2016/11/10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn720; Calibrated: 2016/10/31
- Phantom: Twin-SAM 1559; Type: QD 000 P40 CD; Serial: 1559
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373)

Head-Section Left HSL 850/850GSM HSL touch M/Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.109 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 = 2.627 V/m; Power Drift = 0.20 dB
Peak SAR (extrapolated) = 0.134 W/kg
SAR(1 g) = 0.104 W/kg; SAR(10 g) = 0.079 W/kg



0 dB = 0.109 W/kg = -9.63 dBW/kg

Left Side	Tilt

Communication System: UID 10021 - DAB, GSM-FDD (TDMA, GMSK); Frequency: 836.6 MHz;Duty Cycle: 1:8.6896
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.89 S/m; ε_r = 41.478; ρ = 1000 kg/m^3
Phantom section: Left Section

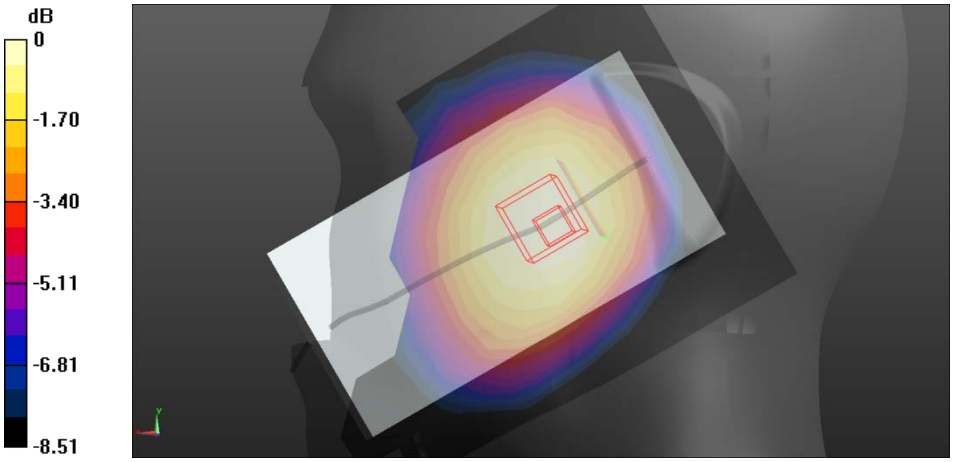
DASY5 Configuration:

- Probe: EX3DV4 - SN3708; ConvF(9.05, 9.05, 9.05); Calibrated: 2016/11/10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn720; Calibrated: 2016/10/31
- Phantom: Twin-SAM 1559; Type: QD 000 P40 CD; Serial: 1559
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373)

Head-Section Left HSL 850/850GSM HSL tilt M/Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.0562 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 = 5.114 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 0.0680 W/kg
SAR(1 g) = 0.054 W/kg; SAR(10 g) = 0.043 W/kg
Maximum value of SAR (measured) = 0.0566 W/kg



0 dB = 0.0566 W/kg = -12.47 dBW/kg

Right Side	Cheek

Communication System: UID 10021 - DAB, GSM-FDD (TDMA, GMSK); Frequency: 836.6 MHz;Duty Cycle: 1:8.6896
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.89 S/m; ε_r = 41.478; ρ = 1000 kg/m^3
Phantom section: Right Section

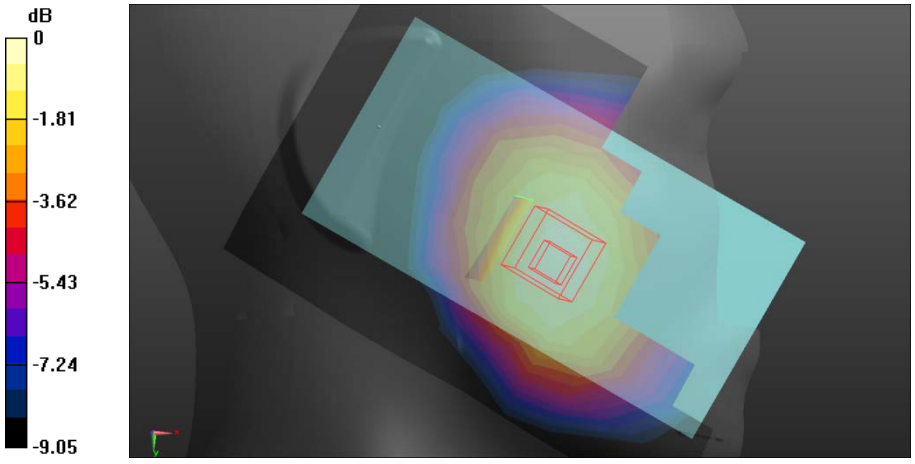
DASY5 Configuration:

- Probe: EX3DV4 - SN3708; ConvF(9.05, 9.05, 9.05); Calibrated: 2016/11/10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn720; Calibrated: 2016/10/31
- Phantom: Twin-SAM 1559; Type: QD 000 P40 CD; Serial: 1559
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373)

Head-Section Right HSL 850/850GSM HSL touch M/Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.0918 W/kg

Head-Section Right HSL 850/850GSM HSL touch M/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.853 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 0.118 W/kg
SAR(1 g) = 0.094 W/kg; SAR(10 g) = 0.073 W/kg
Maximum value of SAR (measured) = 0.0979 W/kg



0 dB = 0.0979 W/kg = -10.09 dBW/kg

Right Side	Tilt

Communication System: UID 10021 - DAB, GSM-FDD (TDMA, GMSK); Frequency: 836.6 MHz;Duty Cycle: 1:8.6896
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.89 S/m; ε_r = 41.478; ρ = 1000 kg/m^3
Phantom section: Right Section

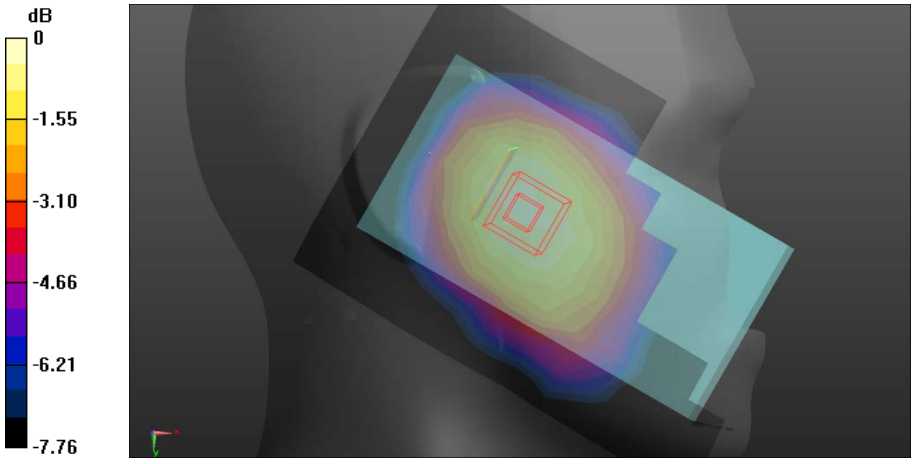
DASY5 Configuration:

- Probe: EX3DV4 - SN3708; ConvF(9.05, 9.05, 9.05); Calibrated: 2016/11/10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn720; Calibrated: 2016/10/31
- Phantom: Twin-SAM 1559; Type: QD 000 P40 CD; Serial: 1559
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373)

Head-Section Right HSL 850/850GSM HSL tilt M/Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.0593 W/kg

Head-Section Right HSL 850/850GSM HSL tilt M/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.160 V/m; Power Drift = 0.30 dB
Peak SAR (extrapolated) = 0.0710 W/kg
SAR(1 g) = 0.058 W/kg; SAR(10 g) = 0.045 W/kg
Maximum value of SAR (measured) = 0.0606 W/kg



0 dB = 0.0606 W/kg = -12.18 dBW/kg

GSM with headset (850MHz/Flat)

FLAT	Towards phantom

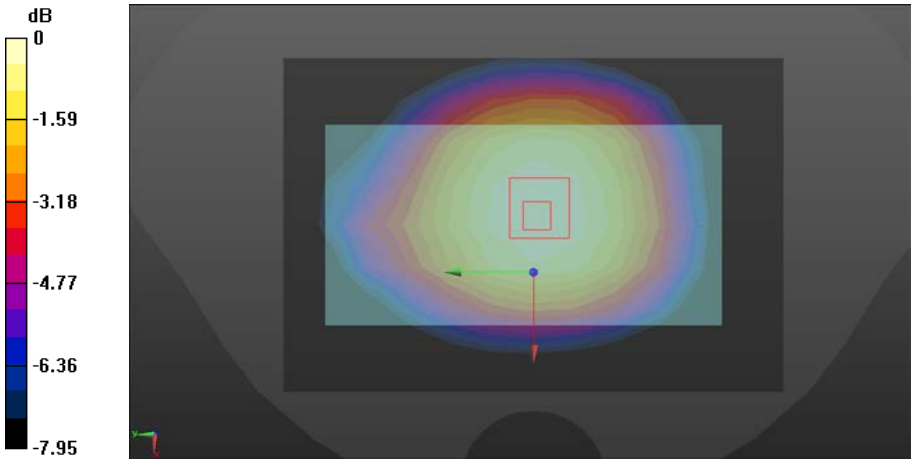
Communication System: UID 10021 - DAB, GSM-FDD (TDMA, GMSK); Frequency: 836.6 MHz;Duty Cycle: 1:8.6896
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.96 S/m; ε_r = 55.858; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3708; ConvF(9.1, 9.1, 9.1); Calibrated: 2016/11/10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn720; Calibrated: 2016/10/31
- Phantom: Twin-SAM 1559; Type: QD 000 P40 CD; Serial: 1559
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373)

Flat-Section MSL 850 TP/850GSM TP M 10mm/Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.171 W/kg

Flat-Section MSL 850 TP/850GSM TP M 10mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.78 V/m; Power Drift = -0.16 dB
Peak SAR (extrapolated) = 0.213 W/kg
SAR(1 g) = 0.165 W/kg; SAR(10 g) = 0.125 W/kg
Maximum value of SAR (measured) = 0.172 W/kg



0 dB = 0.172 W/kg = -7.64 dBW/kg

FLAT	Towards ground

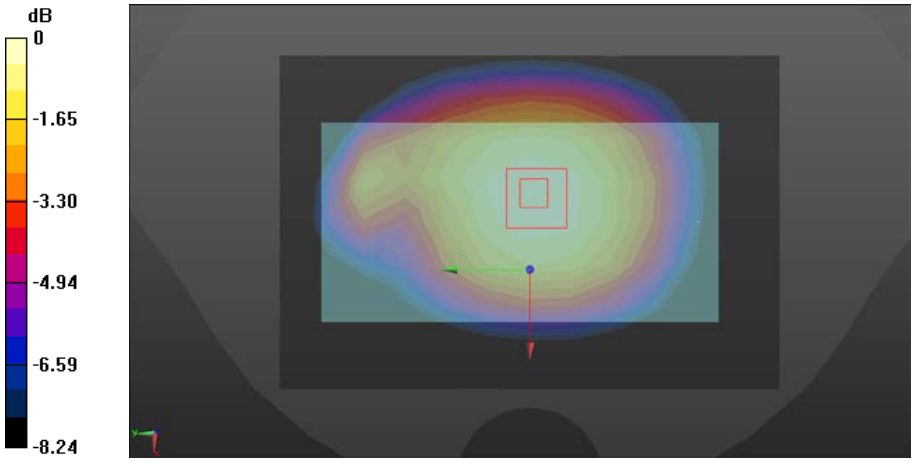
Communication System: UID 10021 - DAB, GSM-FDD (TDMA, GMSK); Frequency: 836.6 MHz;Duty Cycle: 1:8.6896
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.96 S/m; ε_r = 55.858; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3708; ConvF(9.1, 9.1, 9.1); Calibrated: 2016/11/10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn720; Calibrated: 2016/10/31
- Phantom: Twin-SAM 1559; Type: QD 000 P40 CD; Serial: 1559
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373)

Flat-Section MSL 850 TG/850GSM TG M 10mm/Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.312 W/kg

Flat-Section MSL 850 TG/850GSM TG M 10mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 17.87 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.389 W/kg
SAR(1 g) = 0.302 W/kg; SAR(10 g) = 0.227 W/kg
Maximum value of SAR (measured) = 0.316 W/kg



0 dB = 0.316 W/kg = -5.00 dBW/kg

GSM (850MHz with GPRS/Flat)

FLAT	Towards phantom

Communication System: UID 10021 - DAB, GSM-FDD (TDMA, GMSK); Frequency: 836.6 MHz;Duty Cycle: 1:8.6896
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.96 S/m; ε_r = 55.858; ρ = 1000 kg/m^3
Phantom section: Flat Section

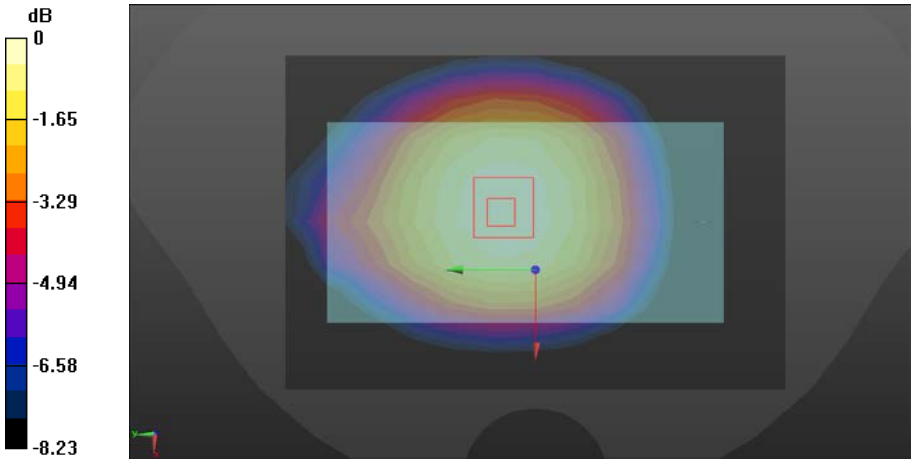
DASY5 Configuration:

- Probe: EX3DV4 - SN3708; ConvF(9.1, 9.1, 9.1); Calibrated: 2016/11/10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn720; Calibrated: 2016/10/31
- Phantom: Twin-SAM 1559; Type: QD 000 P40 CD; Serial: 1559
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373)

Flat-Section MSL 850 TP/850GPRS TP M 10mm/Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.180 W/kg

Flat-Section MSL 850 TP/850GPRS TP M 10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.33 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.225 W/kg
SAR(1 g) = 0.173 W/kg; SAR(10 g) = 0.131 W/kg
Maximum value of SAR (measured) = 0.182 W/kg



0 dB = 0.182 W/kg = -7.40 dBW/kg

FLAT	Towards ground

Communication System: UID 10021 - DAB, GSM-FDD (TDMA, GMSK); Frequency: 836.6 MHz;Duty Cycle: 1:8.6896
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.96 S/m; ε_r = 55.858; ρ = 1000 kg/m^3
Phantom section: Flat Section

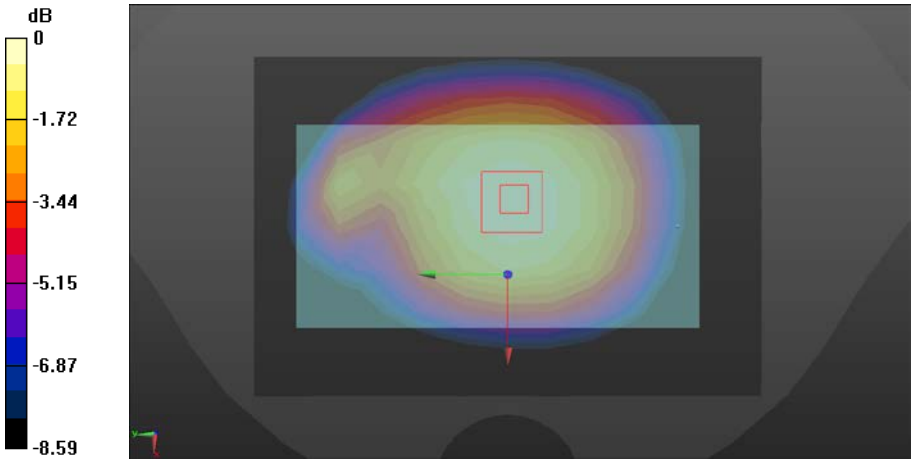
DASY5 Configuration:

- Probe: EX3DV4 - SN3708; ConvF(9.1, 9.1, 9.1); Calibrated: 2016/11/10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn720; Calibrated: 2016/10/31
- Phantom: Twin-SAM 1559; Type: QD 000 P40 CD; Serial: 1559
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373)

Flat-Section MSL 850 TG/850GPRS TG M 10mm/Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.335 W/kg

Flat-Section MSL 850 TG/850GPRS TG M 10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 18.47 V/m; Power Drift = -0.00 dB
Peak SAR (extrapolated) = 0.418 W/kg
SAR(1 g) = 0.320 W/kg; SAR(10 g) = 0.240 W/kg
Maximum value of SAR (measured) = 0.337 W/kg



0 dB = 0.337 W/kg = -4.72 dBW/kg

GSM (850MHz with EGPRS/Flat)

FLAT	Towards phantom

Communication System: UID 10021 - DAB, GSM-FDD (TDMA, GMSK); Frequency: 836.6 MHz;Duty Cycle: 1:8.6896
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.96 S/m; ε_r = 55.858; ρ = 1000 kg/m^3
Phantom section: Flat Section

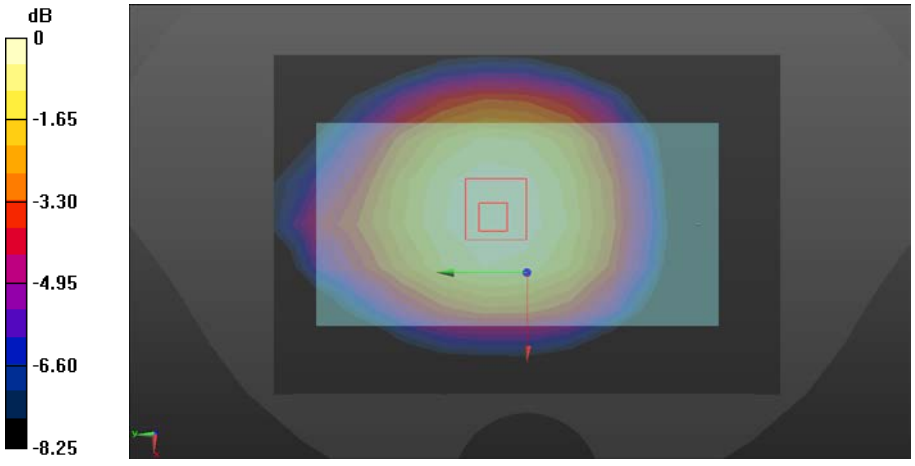
DASY5 Configuration:

- Probe: EX3DV4 - SN3708; ConvF(9.1, 9.1, 9.1); Calibrated: 2016/11/10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn720; Calibrated: 2016/10/31
- Phantom: Twin-SAM 1559; Type: QD 000 P40 CD; Serial: 1559
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373)

Flat-Section MSL 850 TP/850EDGE TP M 10mm/Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.180 W/kg

Flat-Section MSL 850 TP/850EDGE TP M 10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.48 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.225 W/kg
SAR(1 g) = 0.173 W/kg; SAR(10 g) = 0.131 W/kg
Maximum value of SAR (measured) = 0.182 W/kg



0 dB = 0.182 W/kg = -7.40 dBW/kg

FLAT	Towards ground

Communication System: UID 10021 - DAB, GSM-FDD (TDMA, GMSK); Frequency: 836.6 MHz;Duty Cycle: 1:8.6896
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.96 S/m; ε_r = 55.858; ρ = 1000 kg/m^3
Phantom section: Flat Section

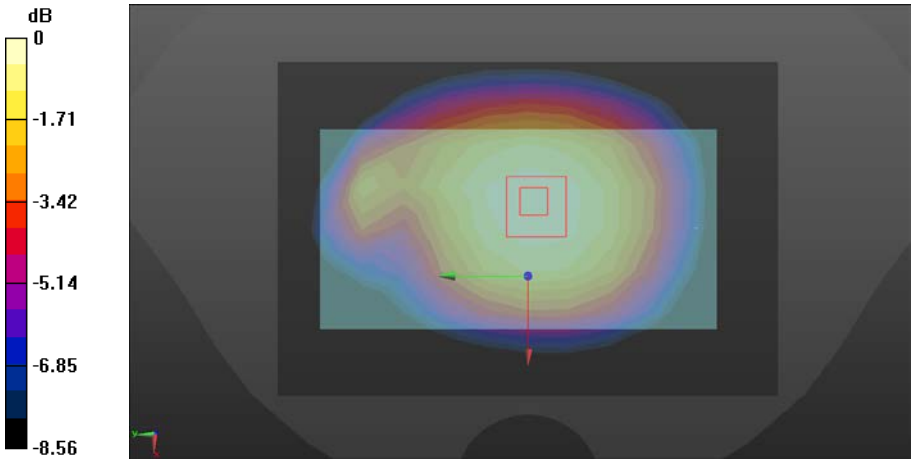
DASY5 Configuration:

- Probe: EX3DV4 - SN3708; ConvF(9.1, 9.1, 9.1); Calibrated: 2016/11/10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn720; Calibrated: 2016/10/31
- Phantom: Twin-SAM 1559; Type: QD 000 P40 CD; Serial: 1559
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373)

Flat-Section MSL 850 TG/850EGPRS TG M 10mm/Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.335 W/kg

Flat-Section MSL 850 TG/850EGPRS TG M 10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 18.57 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.423 W/kg
SAR(1 g) = 0.325 W/kg; SAR(10 g) = 0.243 W/kg
Maximum value of SAR (measured) = 0.341 W/kg



0 dB = 0.341 W/kg = -4.67 dBW/kg

FLAT	EDGE2

Communication System: UID 10021 - DAB, GSM-FDD (TDMA, GMSK); Frequency: 836.6 MHz;Duty Cycle: 1:8.6896
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.96 S/m; ε_r = 55.858; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

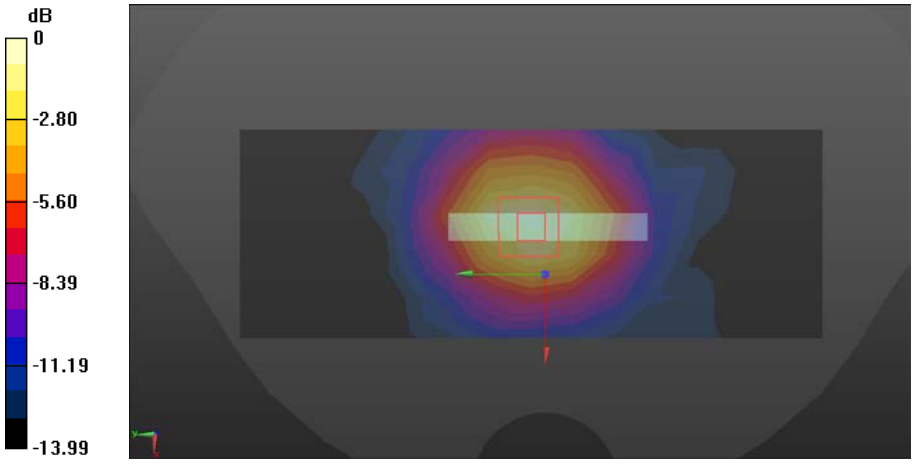
- Probe: EX3DV4 - SN3708; ConvF(9.1, 9.1, 9.1); Calibrated: 2016/11/10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn720; Calibrated: 2016/10/31
- Phantom: Twin-SAM 1559; Type: QD 000 P40 CD; Serial: 1559
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373)

Flat-Section MSL GSM850 HOT/850EGPRS TP H edge 2/Area Scan (6x15x1):

Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.0577 W/kg

Flat-Section MSL GSM850 HOT/850EGPRS TP H edge 2/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.082 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 0.0990 W/kg
SAR(1 g) = 0.059 W/kg; SAR(10 g) = 0.034 W/kg
Maximum value of SAR (measured) = 0.0633 W/kg



0 dB = 0.0633 W/kg = -11.99 dBW/kg

FLAT	EDGE3

Communication System: UID 10021 - DAB, GSM-FDD (TDMA, GMSK); Frequency: 836.6 MHz;Duty Cycle: 1:8.6896
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.96 S/m; ε_r = 55.858; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

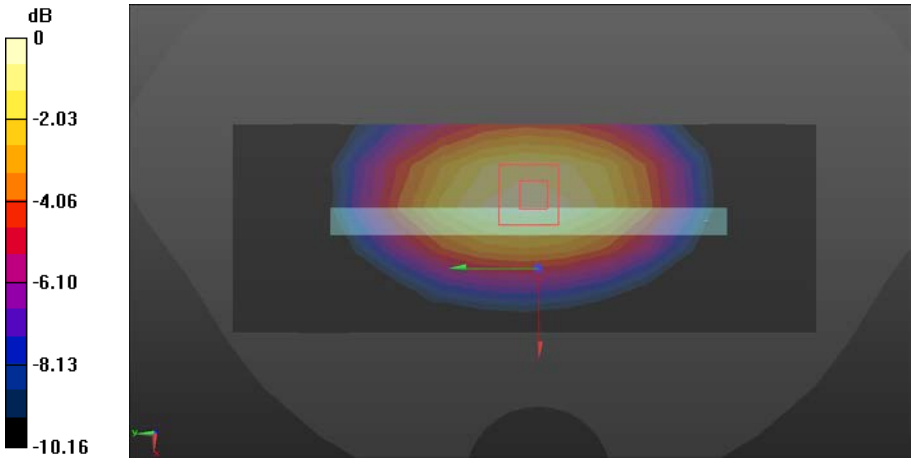
- Probe: EX3DV4 - SN3708; ConvF(9.1, 9.1, 9.1); Calibrated: 2016/11/10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn720; Calibrated: 2016/10/31
- Phantom: Twin-SAM 1559; Type: QD 000 P40 CD; Serial: 1559
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373)

Flat-Section MSL GSM850 HOT/850EGPRS TP H edge 3/Area Scan (6x15x1):

Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.129 W/kg

Flat-Section MSL GSM850 HOT/850EGPRS TP H edge 3/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.97 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.180 W/kg
SAR(1 g) = 0.125 W/kg; SAR(10 g) = 0.084 W/kg
Maximum value of SAR (measured) = 0.134 W/kg



0 dB = 0.134 W/kg = -8.73 dBW/kg

FLAT	EDGE4

Communication System: UID 10021 - DAB, GSM-FDD (TDMA, GMSK); Frequency: 836.6 MHz;Duty Cycle: 1:8.6896
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.96 S/m; ε_r = 55.858; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

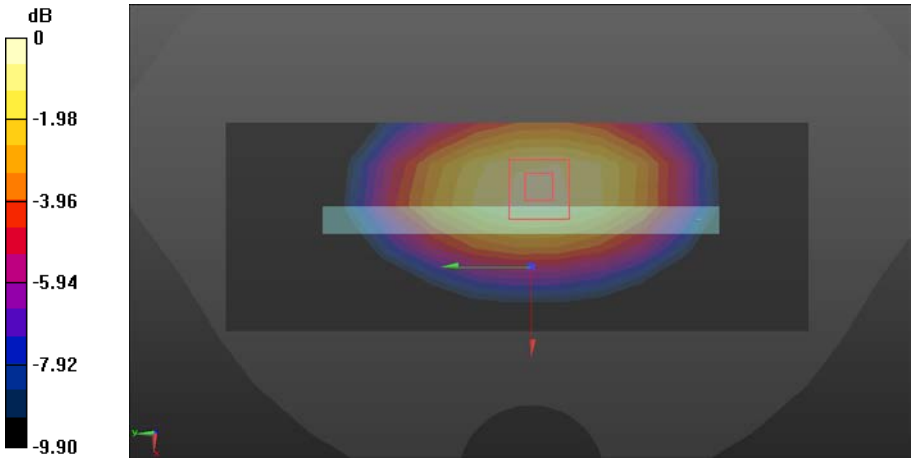
- Probe: EX3DV4 - SN3708; ConvF(9.1, 9.1, 9.1); Calibrated: 2016/11/10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn720; Calibrated: 2016/10/31
- Phantom: Twin-SAM 1559; Type: QD 000 P40 CD; Serial: 1559
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373)

Flat-Section MSL GSM850 HOT/850EGPRS TP H edge 4/Area Scan (6x15x1):

Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.159 W/kg

Flat-Section MSL GSM850 HOT/850EGPRS TP H edge 4/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.97 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 0.236 W/kg
SAR(1 g) = 0.162 W/kg; SAR(10 g) = 0.110 W/kg
Maximum value of SAR (measured) = 0.174 W/kg



0 dB = 0.174 W/kg = -7.59 dBW/kg

GSM (1900MHz/Head)

Left Side	Cheek

Communication System: UID 10021 - DAB, GSM-FDD (TDMA, GMSK); Frequency: 1880 MHz;Duty Cycle: 1:8.6896
Medium parameters used: f = 1880 MHz; σ = 1.45 S/m; ε_r = 39.74; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY5 Configuration:

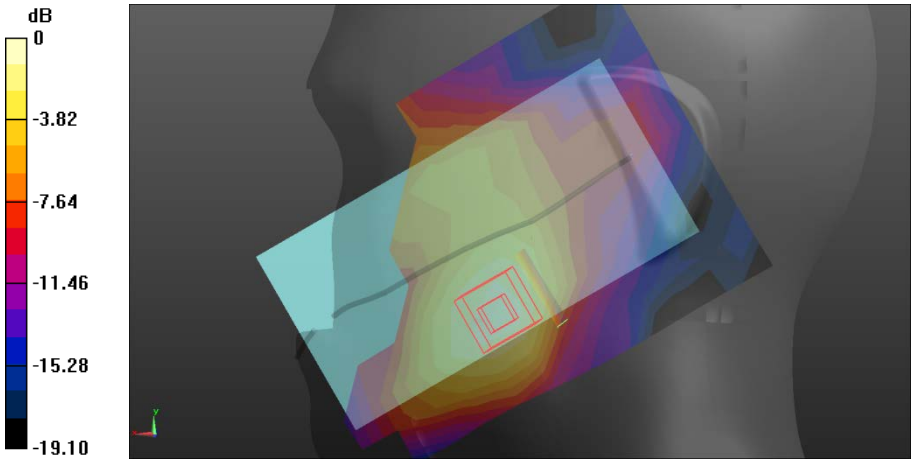
- Probe: EX3DV4 - SN3708; ConvF(7.84, 7.84, 7.84); Calibrated: 2016/11/10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn720; Calibrated: 2016/10/31
- Phantom: Twin-SAM 1560; Type: QD 000 P40 CD; Serial: 1560
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373)

Head-Section Left HSL 1900/1900GSM HSL touch M/Area Scan (9x13x1):

Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.103 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 = 3.813 V/m; Power Drift = 0.20 dB
Peak SAR (extrapolated) = 0.179 W/kg
SAR(1 g) = 0.105 W/kg; SAR(10 g) = 0.062 W/kg
Maximum value of SAR (measured) = 0.116 W/kg



0 dB = 0.116 W/kg = -9.36 dBW/kg

Left Side	Tilt

Communication System: UID 10021 - DAB, GSM-FDD (TDMA, GMSK); Frequency: 1880 MHz;Duty Cycle: 1:8.6896
Medium parameters used: f = 1880 MHz; σ = 1.45 S/m; ε_r = 39.74; ρ = 1000 kg/m^3
Phantom section: Left Section

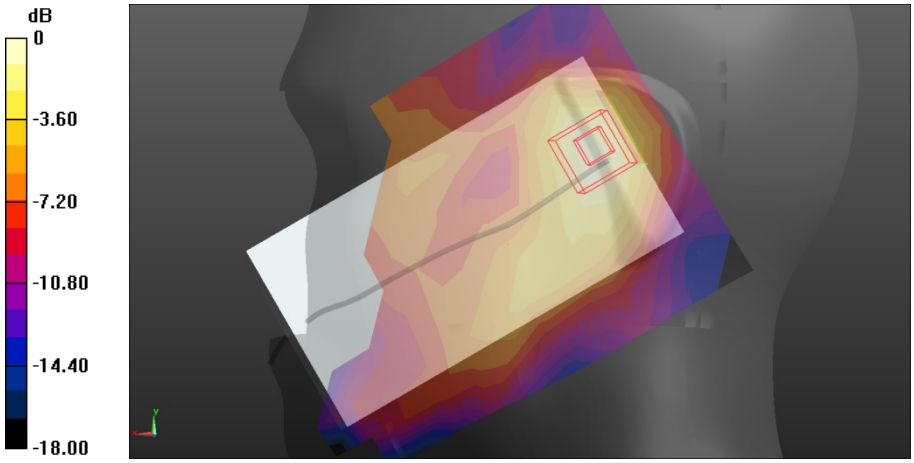
DASY5 Configuration:

- Probe: EX3DV4 - SN3708; ConvF(7.84, 7.84, 7.84); Calibrated: 2016/11/10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn720; Calibrated: 2016/10/31
- 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)

Head-Section Left HSL 1900/1900GSM HSL tilt M/Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.0554 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 = 6.162 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.0910 W/kg
SAR(1 g) = 0.052 W/kg; SAR(10 g) = 0.029 W/kg
Maximum value of SAR (measured) = 0.0567 W/kg



0 dB = 0.0567 W/kg = -12.46 dBW/kg

Right Side	Cheek

Communication System: UID 10021 - DAB, GSM-FDD (TDMA, GMSK); Frequency: 1880 MHz;Duty Cycle: 1:8.6896
Medium parameters used: f = 1880 MHz; σ = 1.45 S/m; ε_r = 39.74; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY5 Configuration:

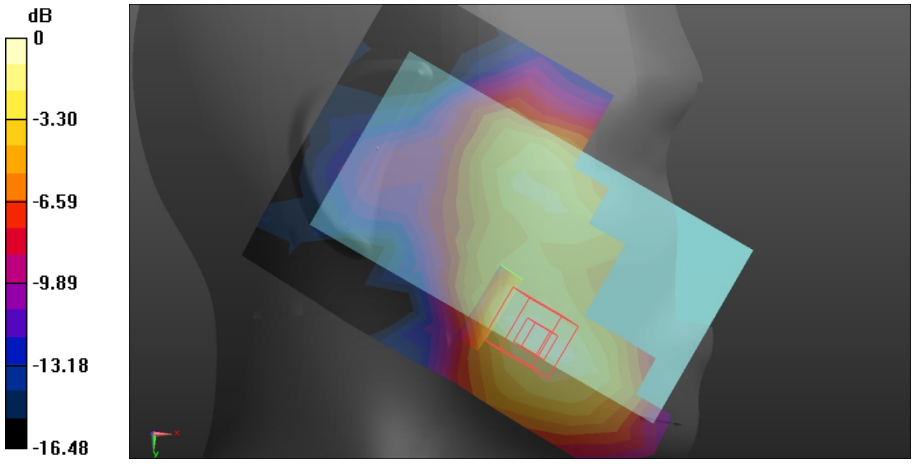
- Probe: EX3DV4 - SN3708; ConvF(7.84, 7.84, 7.84); Calibrated: 2016/11/10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn720; Calibrated: 2016/10/31
- Phantom: Twin-SAM 1560; Type: QD 000 P40 CD; Serial: 1560
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373)

Head-Section Right HSL 1900/1900GSM HSL touch M/Area Scan (9x13x1):

Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.0903 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 = 2.464 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 0.135 W/kg
SAR(1 g) = 0.085 W/kg; SAR(10 g) = 0.052 W/kg
Maximum value of SAR (measured) = 0.0915 W/kg



0 dB = 0.0915 W/kg = -10.39 dBW/kg

Right Side	Tilt

Communication System: UID 10021 - DAB, GSM-FDD (TDMA, GMSK); Frequency: 1880 MHz;Duty Cycle: 1:8.6896
Medium parameters used: f = 1880 MHz; σ = 1.45 S/m; ε_r = 39.74; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY5 Configuration:

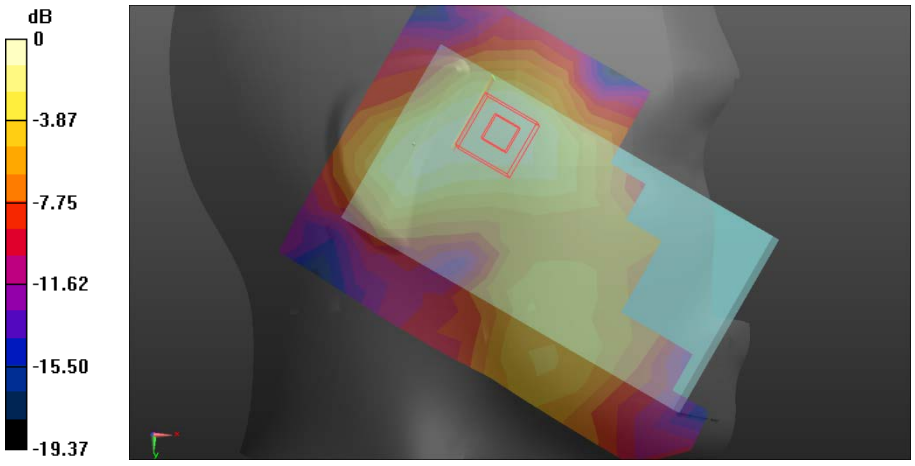
- Probe: EX3DV4 - SN3708; ConvF(7.84, 7.84, 7.84); Calibrated: 2016/11/10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn720; Calibrated: 2016/10/31
- Phantom: Twin-SAM 1560; Type: QD 000 P40 CD; Serial: 1560
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373)

Head-Section Right HSL 1900/1900GSM HSL tilt M/Area Scan (9x13x1):

Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.0488 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 = 5.580 V/m; Power Drift = -0.11 dB
Peak SAR (extrapolated) = 0.0710 W/kg
SAR(1 g) = 0.046 W/kg; SAR(10 g) = 0.029 W/kg
Maximum value of SAR (measured) = 0.0499 W/kg



0 dB = 0.0499 W/kg = -13.02 dBW/kg

GSM with headset (1900MHz/Flat)

FLAT	Towards phantom

Communication System: UID 10021 - DAB, GSM-FDD (TDMA, GMSK); Frequency: 1880 MHz;Duty Cycle: 1:8.6896
Medium parameters used: f = 1880 MHz; σ = 1.57 S/m; ε_r = 51.14; ρ = 1000 kg/m^3
Phantom section: Flat Section

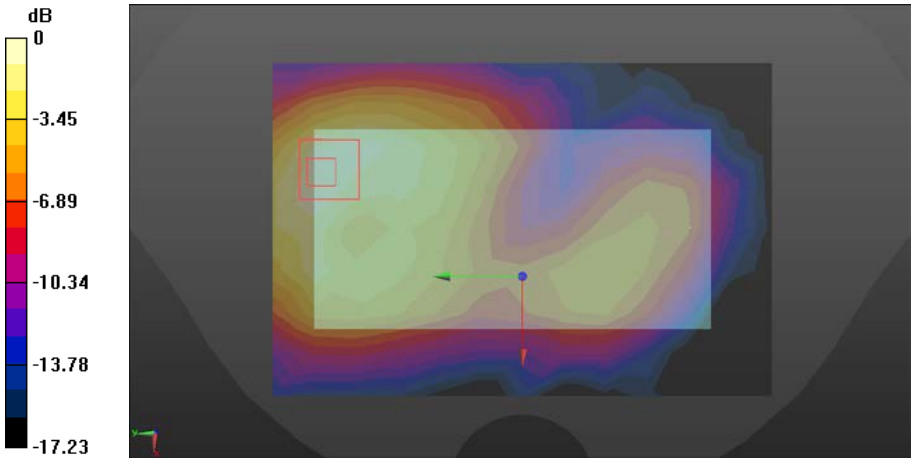
DASY5 Configuration:

- Probe: EX3DV4 - SN3708; ConvF(7.79, 7.79, 7.79); Calibrated: 2016/11/10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn720; Calibrated: 2016/10/31
- 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)

Flat-Section MSL 1900 TP/1900GSM TP M 10mm/Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.153 W/kg

Flat-Section MSL 1900 TP/1900GSM TP M 10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.695 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 0.258 W/kg
SAR(1 g) = 0.146 W/kg; SAR(10 g) = 0.085 W/kg
Maximum value of SAR (measured) = 0.158 W/kg



0 dB = 0.158 W/kg = -8.01 dBW/kg

FLAT	Towards ground

Communication System: UID 10021 - DAB, GSM-FDD (TDMA, GMSK); Frequency: 1880 MHz;Duty Cycle: 1:8.6896
Medium parameters used: f = 1880 MHz; σ = 1.57 S/m; ε_r = 51.14; ρ = 1000 kg/m^3
Phantom section: Flat Section

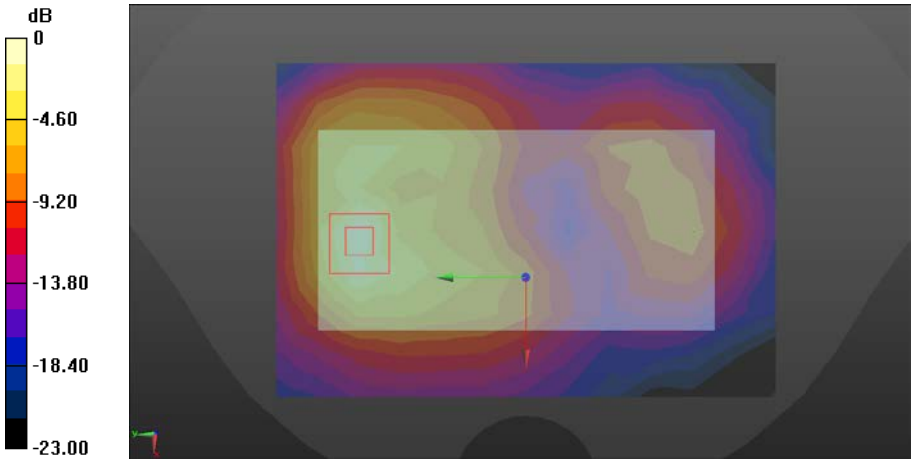
DASY5 Configuration:

- Probe: EX3DV4 - SN3708; ConvF(7.79, 7.79, 7.79); Calibrated: 2016/11/10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn720; Calibrated: 2016/10/31
- 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)

Flat-Section MSL 1900 TG/1900GSM TG M 10mm/Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.447 W/kg

Flat-Section MSL 1900 TG/1900GSM TG M 10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.857 V/m; Power Drift = -0.17 dB
Peak SAR (extrapolated) = 0.773 W/kg
SAR(1 g) = 0.412 W/kg; SAR(10 g) = 0.210 W/kg
Maximum value of SAR (measured) = 0.461 W/kg



0 dB = 0.461 W/kg = -3.36 dBW/kg

GSM (1900MHz with GPRS/Flat)

FLAT	Towards phantom

Communication System: UID 10021 - DAB, GSM-FDD (TDMA, GMSK); Frequency: 1880 MHz;Duty Cycle: 1:8.6896
Medium parameters used: f = 1880 MHz; σ = 1.57 S/m; ε_r = 51.14; ρ = 1000 kg/m^3
Phantom section: Flat Section

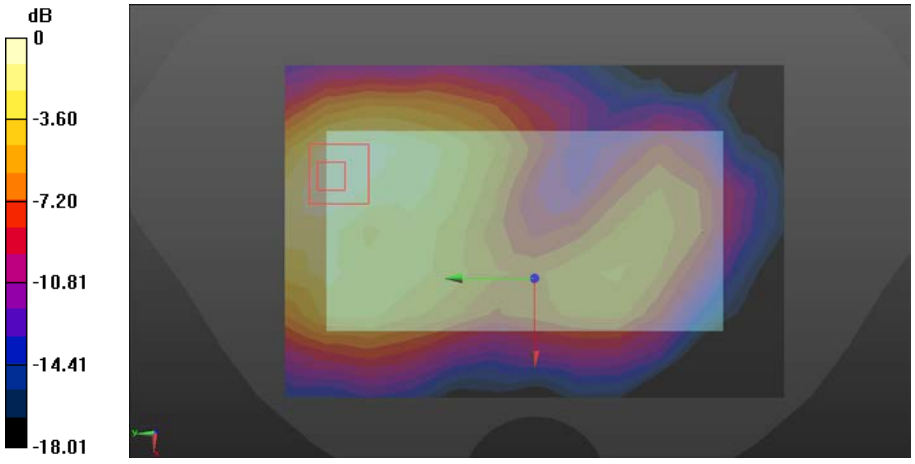
DASY5 Configuration:

- Probe: EX3DV4 - SN3708; ConvF(7.79, 7.79, 7.79); Calibrated: 2016/11/10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn720; Calibrated: 2016/10/31
- 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)

Flat-Section MSL 1900 TP/1900GPRS TP M 10mm/Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.155 W/kg

Flat-Section MSL 1900 TP/1900GPRS TP M 10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.597 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.257 W/kg
SAR(1 g) = 0.147 W/kg; SAR(10 g) = 0.085 W/kg
Maximum value of SAR (measured) = 0.159 W/kg



0 dB = 0.159 W/kg = -7.99 dBW/kg

FLAT	Towards ground

Communication System: UID 10021 - DAB, GSM-FDD (TDMA, GMSK); Frequency: 1880 MHz;Duty Cycle: 1:8.6896
Medium parameters used: f = 1880 MHz; σ = 1.57 S/m; ε_r = 51.14; ρ = 1000 kg/m^3
Phantom section: Flat Section

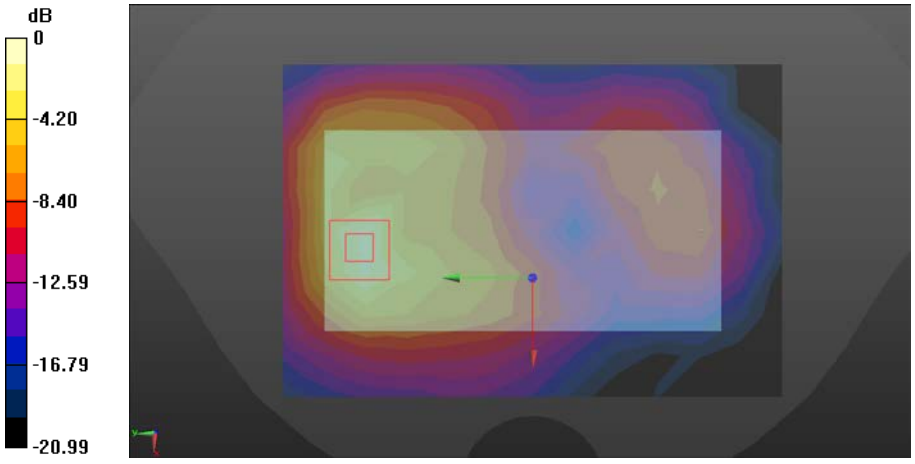
DASY5 Configuration:

- Probe: EX3DV4 - SN3708; ConvF(7.79, 7.79, 7.79); Calibrated: 2016/11/10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn720; Calibrated: 2016/10/31
- 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)

Flat-Section MSL 1900 TG/1900GPRS TG M 10mm/Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.400 W/kg

Flat-Section MSL 1900 TG/1900GPRS TG M 10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.371 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 0.801 W/kg
SAR(1 g) = 0.414 W/kg; SAR(10 g) = 0.209 W/kg
Maximum value of SAR (measured) = 0.472 W/kg



0 dB = 0.472 W/kg = -3.26 dBW/kg

GSM (1900MHz with EGPRS/Flat)

FLAT	Towards phantom

Communication System: UID 10021 - DAB, GSM-FDD (TDMA, GMSK); Frequency: 1880 MHz;Duty Cycle: 1:8.6896
Medium parameters used: f = 1880 MHz; σ = 1.57 S/m; ε_r = 51.14; ρ = 1000 kg/m^3
Phantom section: Flat Section

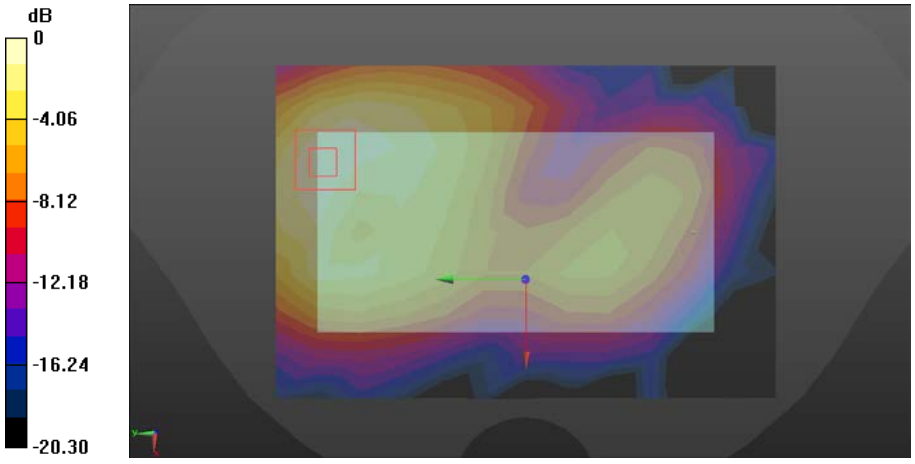
DASY5 Configuration:

- Probe: EX3DV4 - SN3708; ConvF(7.79, 7.79, 7.79); Calibrated: 2016/11/10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn720; Calibrated: 2016/10/31
- 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)

Flat-Section MSL 1900 TP/1900EDGE TP M 10mm/Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.151 W/kg

Flat-Section MSL 1900 TP/1900EDGE TP M 10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.059 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.250 W/kg
SAR(1 g) = 0.143 W/kg; SAR(10 g) = 0.082 W/kg
Maximum value of SAR (measured) = 0.156 W/kg



0 dB = 0.156 W/kg = -8.07 dBW/kg

FLAT	Towards ground

Communication System: UID 10021 - DAB, GSM-FDD (TDMA, GMSK); Frequency: 1880 MHz;Duty Cycle: 1:8.6896
Medium parameters used: f = 1880 MHz; σ = 1.57 S/m; ε_r = 51.14; ρ = 1000 kg/m^3
Phantom section: Flat Section

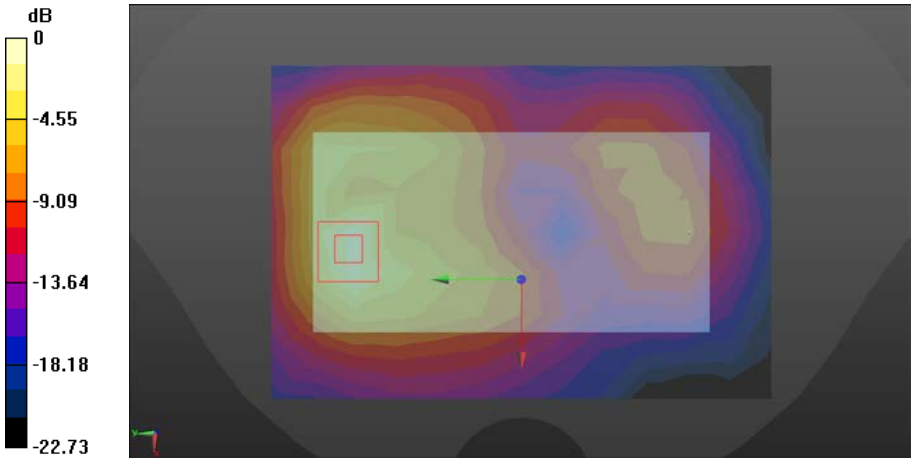
DASY5 Configuration:

- Probe: EX3DV4 - SN3708; ConvF(7.79, 7.79, 7.79); Calibrated: 2016/11/10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn720; Calibrated: 2016/10/31
- 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)

Flat-Section MSL 1900 TG/1900EDGE TG M 10mm/Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.396 W/kg

Flat-Section MSL 1900 TG/1900EDGE TG M 10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.290 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.792 W/kg
SAR(1 g) = 0.415 W/kg; SAR(10 g) = 0.210 W/kg
Maximum value of SAR (measured) = 0.467 W/kg



0 dB = 0.467 W/kg = -3.31 dBW/kg

FLAT	EDGE2

Communication System: UID 10021 - DAB, GSM-FDD (TDMA, GMSK); Frequency: 1880 MHz;Duty Cycle: 1:8.6896
Medium parameters used: f = 1880 MHz; σ = 1.57 S/m; ε_r = 51.14; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3708; ConvF(7.79, 7.79, 7.79); Calibrated: 2016/11/10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn720; Calibrated: 2016/10/31
- 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)

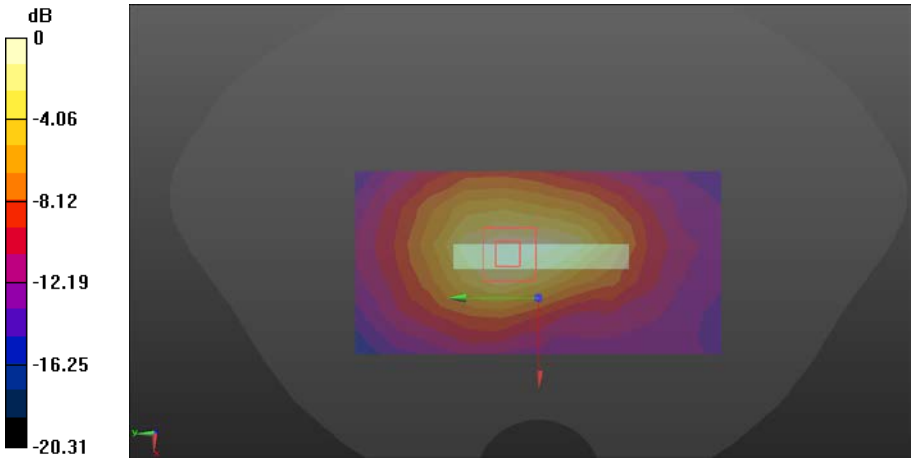
Flat-Section MSL EGPRS1900 HOT/1900GPRS TP H edge 2/Area Scan (6x11x1):

Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.271 W/kg

Flat-Section MSL EGPRS1900 HOT/1900GPRS TP H edge 2/Zoom Scan (7x7x7)/Cube 0:

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

Reference Value = 12.84 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.480 W/kg
SAR(1 g) = 0.263 W/kg; SAR(10 g) = 0.143 W/kg
Maximum value of SAR (measured) = 0.286 W/kg



0 dB = 0.286 W/kg = -5.44 dBW/kg

FLAT	EDGE3

Communication System: UID 10021 - DAB, GSM-FDD (TDMA, GMSK); Frequency: 1880 MHz;Duty Cycle: 1:8.6896
Medium parameters used: f = 1880 MHz; σ = 1.57 S/m; ε_r = 51.14; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

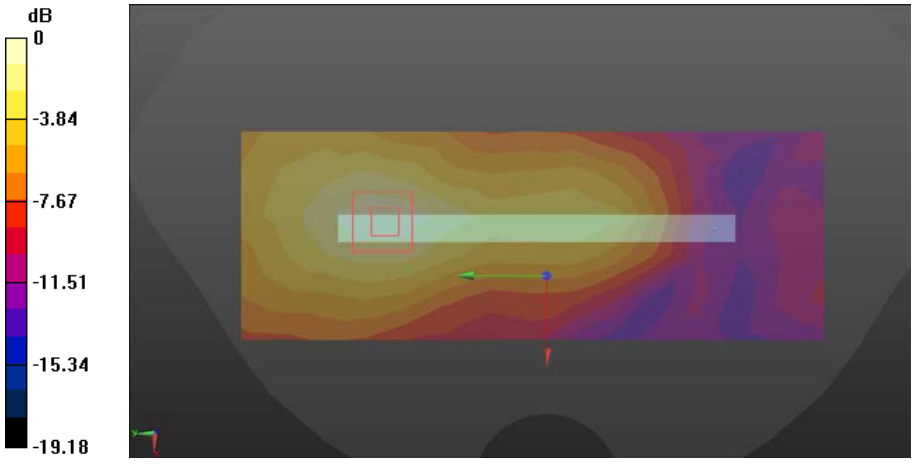
- Probe: EX3DV4 - SN3708; ConvF(7.79, 7.79, 7.79); Calibrated: 2016/11/10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn720; Calibrated: 2016/10/31
- Phantom: Twin-SAM 1560; Type: QD 000 P40 CD; Serial: 1560
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373)

Flat-Section MSL EGPRS1900 HOT/1900EGPRS TP M edge 3/Area Scan (6x15x1):

Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.0802 W/kg

Flat-Section MSL EGPRS1900 HOT/1900EGPRS TP M edge 3/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.214 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 0.134 W/kg
SAR(1 g) = 0.076 W/kg; SAR(10 g) = 0.043 W/kg
Maximum value of SAR (measured) = 0.0824 W/kg



0 dB = 0.0824 W/kg = -10.84 dBW/kg

FLAT	EDGE4

Communication System: UID 10021 - DAB, GSM-FDD (TDMA, GMSK); Frequency: 1880 MHz;Duty Cycle: 1:8.6896
Medium parameters used: f = 1880 MHz; σ = 1.57 S/m; ε_r = 51.14; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

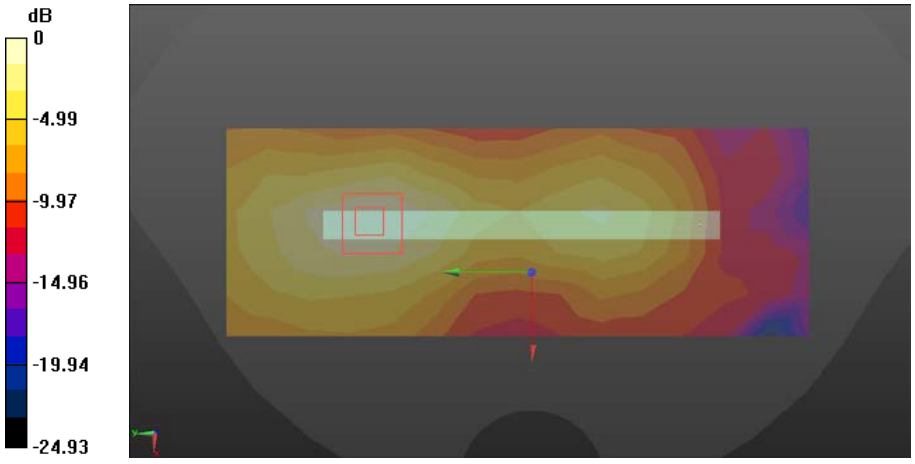
- Probe: EX3DV4 - SN3708; ConvF(7.79, 7.79, 7.79); Calibrated: 2016/11/10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn720; Calibrated: 2016/10/31
- Phantom: Twin-SAM 1560; Type: QD 000 P40 CD; Serial: 1560
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373)

Flat-Section MSL EGPRS1900 HOT/1900EGPRS TP M edge 4/Area Scan (6x15x1):

Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.0866 W/kg

Flat-Section MSL EGPRS1900 HOT/1900EGPRS TP M edge 4/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 4.460 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.155 W/kg
SAR(1 g) = 0.087 W/kg; SAR(10 g) = 0.049 W/kg
Maximum value of SAR (measured) = 0.0942 W/kg



0 dB = 0.0942 W/kg = -10.26 dBW/kg

WCDMA Band 2

Left Side	Cheek

Communication System: UID 10011 - CAB, UMTS-FDD (WCDMA); Frequency: 1880 MHz;Duty Cycle: 1:1.95434
Medium parameters used: f = 1880 MHz; σ = 1.45 S/m; ε_r = 39.74; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3708; ConvF(7.84, 7.84, 7.84); Calibrated: 2016/11/10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn720; Calibrated: 2016/10/31
- 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)

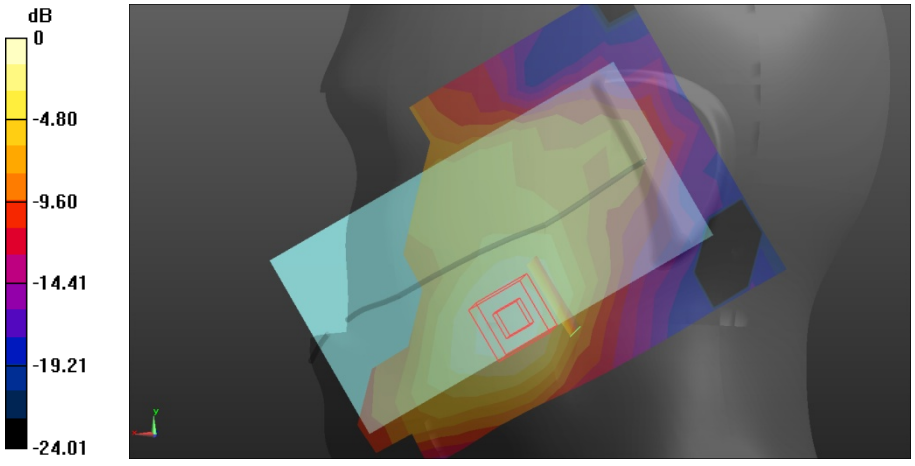
Head-Section Left HSL WbandII/Wband II HSL touch M/Area Scan (9x13x1):

Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.139 W/kg

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

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

Reference Value = 4.098 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 0.220 W/kg
SAR(1 g) = 0.138 W/kg; SAR(10 g) = 0.083 W/kg
Maximum value of SAR (measured) = 0.149 W/kg



0 dB = 0.149 W/kg = -8.27 dBW/kg

Left Side	Tilt

Communication System: UID 10011 - CAB, UMTS-FDD (WCDMA); Frequency: 1880 MHz;Duty Cycle: 1:1.95434
Medium parameters used: f = 1880 MHz; σ = 1.45 S/m; ε_r = 39.74; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY5 Configuration:

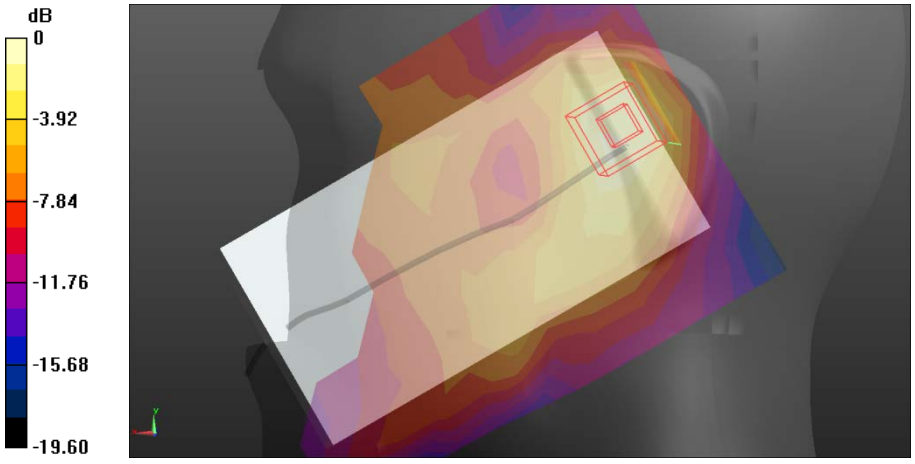
- Probe: EX3DV4 - SN3708; ConvF(7.84, 7.84, 7.84); Calibrated: 2016/11/10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn720; Calibrated: 2016/10/31
- Phantom: Twin-SAM 1560; Type: QD 000 P40 CD; Serial: 1560
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373)

Head-Section Left HSL WbandII/Wband II HSL tilt M/Area Scan (9x13x1):

Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.0720 W/kg

Head-Section Left HSL WbandII/Wband II HSL tilt M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.587 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.147 W/kg
SAR(1 g) = 0.079 W/kg; SAR(10 g) = 0.043 W/kg
Maximum value of SAR (measured) = 0.0873 W/kg



0 dB = 0.0873 W/kg = -10.59 dBW/kg

Right Side	Cheek

Communication System: UID 10011 - CAB, UMTS-FDD (WCDMA); Frequency: 1880 MHz;Duty Cycle: 1:1.95434
Medium parameters used: f = 1880 MHz; σ = 1.45 S/m; ε_r = 39.74; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3708; ConvF(7.84, 7.84, 7.84); Calibrated: 2016/11/10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn720; Calibrated: 2016/10/31
- 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)

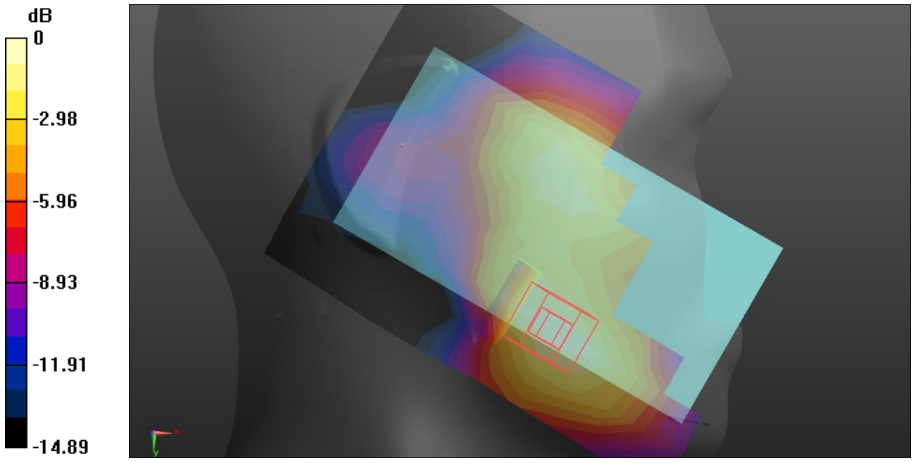
Head-Section Right HSL WbandII/Wband II HSL touch M/Area Scan (9x13x1):

Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.124 W/kg

Head-Section Right HSL WbandII/Wband II HSL touch M/Zoom Scan (7x7x7)/Cube 0:

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

Reference Value = 3.876 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.187 W/kg
SAR(1 g) = 0.113 W/kg; SAR(10 g) = 0.068 W/kg
Maximum value of SAR (measured) = 0.123 W/kg



0 dB = 0.123 W/kg = -9.10 dBW/kg

Right Side	Tilt

Communication System: UID 10011 - CAB, UMTS-FDD (WCDMA); Frequency: 1880 MHz;Duty Cycle: 1:1.95434
Medium parameters used: f = 1880 MHz; σ = 1.45 S/m; ε_r = 39.74; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY5 Configuration:

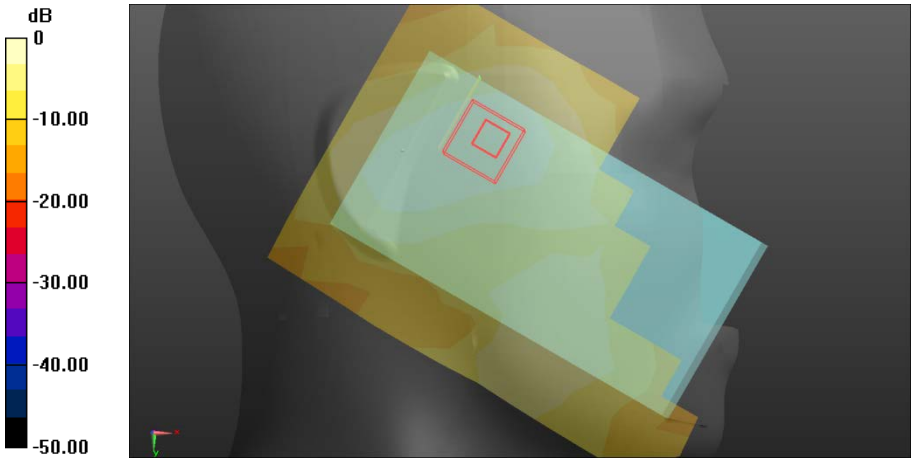
- Probe: EX3DV4 - SN3708; ConvF(7.84, 7.84, 7.84); Calibrated: 2016/11/10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn720; Calibrated: 2016/10/31
- Phantom: Twin-SAM 1560; Type: QD 000 P40 CD; Serial: 1560
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373)

Head-Section Right HSL WbandII/Wband II HSL tilt M/Area Scan (9x13x1):

Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.0572 W/kg

Head-Section Right HSL WbandII/Wband II HSL tilt M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.151 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.0870 W/kg
SAR(1 g) = 0.056 W/kg; SAR(10 g) = 0.035 W/kg
Maximum value of SAR (measured) = 0.0628 W/kg



0 dB = 0.0628 W/kg = -12.02 dBW/kg

FLAT(VIOCE)	Towards phantom

Communication System: UID 10011 - CAB, UMTS-FDD (WCDMA); Frequency: 1880 MHz;Duty Cycle: 1:1.95434
Medium parameters used: f = 1880 MHz; σ = 1.57 S/m; ε_r = 51.14; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

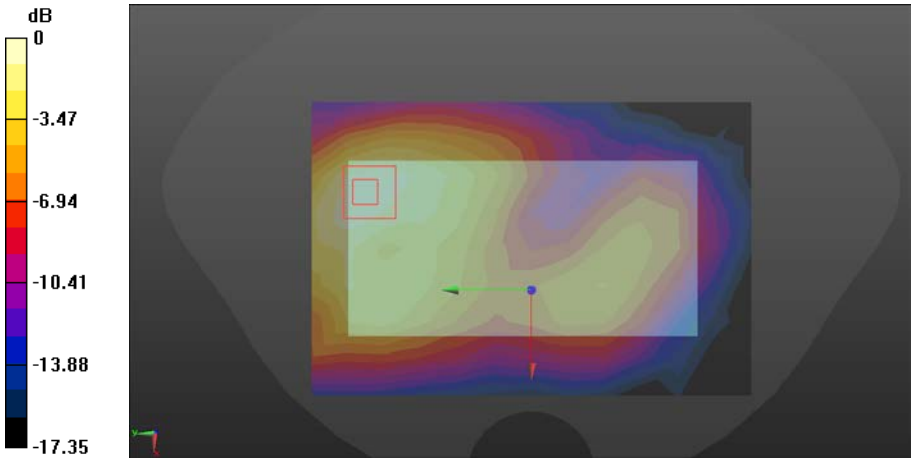
- Probe: EX3DV4 - SN3708; ConvF(7.79, 7.79, 7.79); Calibrated: 2016/11/10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn720; Calibrated: 2016/10/31
- Phantom: Twin-SAM 1560; Type: QD 000 P40 CD; Serial: 1560
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373)

Flat-Section MSL Wband II TP/Wband II TP Voice M 10mm/Area Scan (9x13x1):

Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.197 W/kg

Flat-Section MSL Wband II TP/Wband II TP Voice M 10mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 4.102 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.328 W/kg
SAR(1 g) = 0.186 W/kg; SAR(10 g) = 0.109 W/kg
Maximum value of SAR (measured) = 0.207 W/kg



0 dB = 0.207 W/kg = -6.84 dBW/kg

FLAT(VIOCE)	Towards ground

Communication System: UID 10011 - CAB, UMTS-FDD (WCDMA); Frequency: 1852.4 MHz;Duty Cycle: 1:1.95434
Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.533 S/m; ε_r = 51.233; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

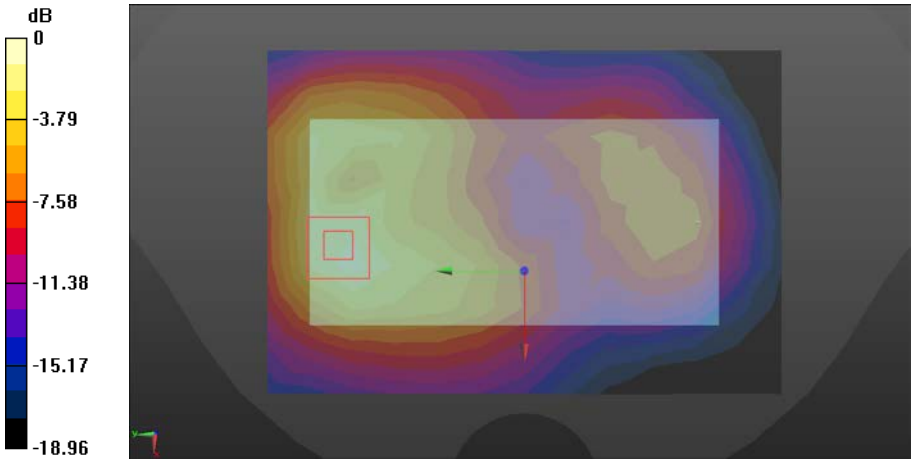
- Probe: EX3DV4 - SN3708; ConvF(7.79, 7.79, 7.79); Calibrated: 2016/11/10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn720; Calibrated: 2016/10/31
- Phantom: Twin-SAM 1560; Type: QD 000 P40 CD; Serial: 1560
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373)

Flat-Section MSL Wband II TG/Wband II TG Voice L 10mm/Area Scan (9x13x1):

Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.536 W/kg

Flat-Section MSL Wband II TG/Wband II TG Voice L 10mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.542 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 1.02 W/kg
SAR(1 g) = 0.548 W/kg; SAR(10 g) = 0.291 W/kg
Maximum value of SAR (measured) = 0.607 W/kg



0 dB = 0.607 W/kg = -2.17 dBW/kg

FLAT(VIOCE)	Towards ground

Communication System: UID 10011 - CAB, UMTS-FDD (WCDMA); Frequency: 1880 MHz;Duty Cycle: 1:1.95434
Medium parameters used: f = 1880 MHz; σ = 1.57 S/m; ε_r = 51.14; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

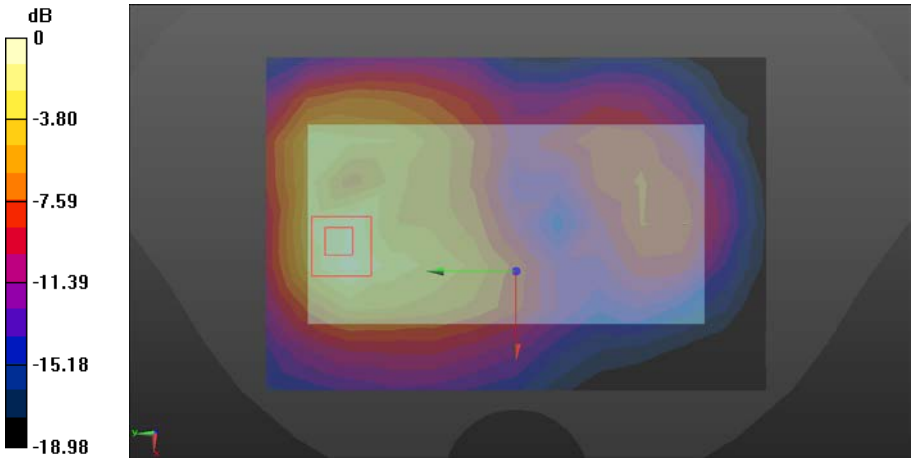
- Probe: EX3DV4 - SN3708; ConvF(7.79, 7.79, 7.79); Calibrated: 2016/11/10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn720; Calibrated: 2016/10/31
- Phantom: Twin-SAM 1560; Type: QD 000 P40 CD; Serial: 1560
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373)

Flat-Section MSL Wband II TG/Wband II TG Voice M 10mm/Area Scan (9x13x1):

Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.430 W/kg

Flat-Section MSL Wband II TG/Wband II TG Voice M 10mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 4.950 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 0.837 W/kg
SAR(1 g) = 0.431 W/kg; SAR(10 g) = 0.225 W/kg
Maximum value of SAR (measured) = 0.488 W/kg



0 dB = 0.488 W/kg = -3.12 dBW/kg

FLAT(VIOCE)	Towards ground

Communication System: UID 10011 - CAB, UMTS-FDD (WCDMA); Frequency: 1907.6 MHz;Duty Cycle: 1:1.95434
Medium parameters used (interpolated): f = 1907.6 MHz; σ = 1.593 S/m; ε_r = 51.042; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

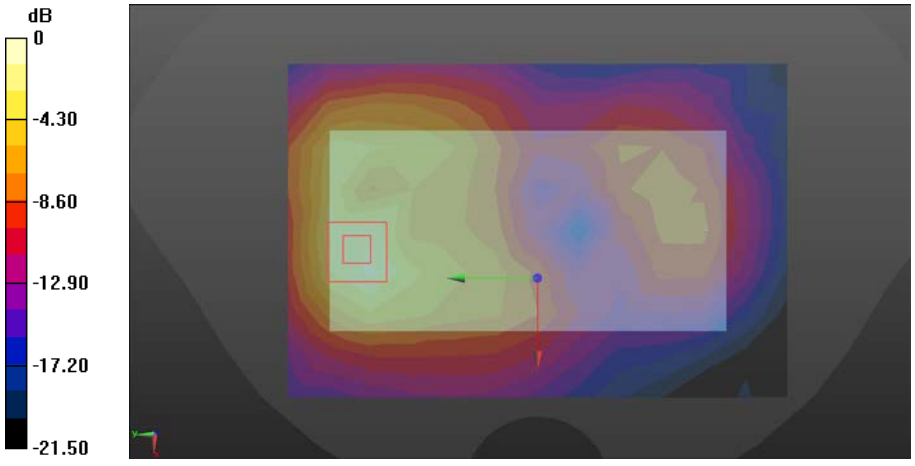
- Probe: EX3DV4 - SN3708; ConvF(7.79, 7.79, 7.79); Calibrated: 2016/11/10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn720; Calibrated: 2016/10/31
- Phantom: Twin-SAM 1560; Type: QD 000 P40 CD; Serial: 1560
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373)

Flat-Section MSL Wband II TG/Wband II TG Voice H 10mm/Area Scan (9x13x1):

Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.429 W/kg

Flat-Section MSL Wband II TG/Wband II TG Voice H 10mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 4.293 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.896 W/kg
SAR(1 g) = 0.460 W/kg; SAR(10 g) = 0.234 W/kg
Maximum value of SAR (measured) = 0.528 W/kg



0 dB = 0.528 W/kg = -2.77 dBW/kg

FLAT(DATA)	Towards phantom

Communication System: UID 10011 - CAB, UMTS-FDD (WCDMA); Frequency: 1880 MHz;Duty Cycle: 1:1.95434
Medium parameters used: f = 1880 MHz; σ = 1.57 S/m; ε_r = 51.14; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

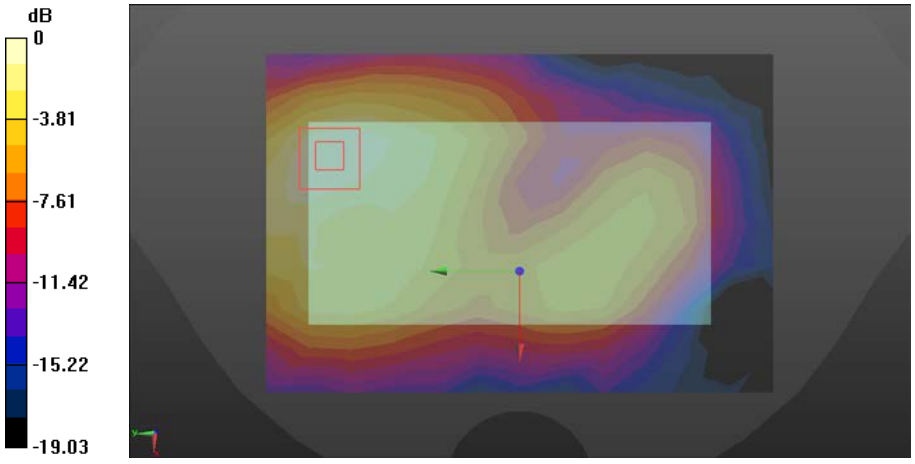
- Probe: EX3DV4 - SN3708; ConvF(7.79, 7.79, 7.79); Calibrated: 2016/11/10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn720; Calibrated: 2016/10/31
- Phantom: Twin-SAM 1560; Type: QD 000 P40 CD; Serial: 1560
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373)

Flat-Section MSL Wband II TP/Wband II TP Data M 10mm/Area Scan (9x13x1):

Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.180 W/kg

Flat-Section MSL Wband II TP/Wband II TP Data M 10mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 4.418 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 0.310 W/kg
SAR(1 g) = 0.176 W/kg; SAR(10 g) = 0.102 W/kg
Maximum value of SAR (measured) = 0.191 W/kg



0 dB = 0.191 W/kg = -7.19 dBW/kg

FLAT(DATA)	Towards ground

Communication System: UID 10011 - CAB, UMTS-FDD (WCDMA); Frequency: 1880 MHz;Duty Cycle: 1:1.95434
Medium parameters used: f = 1880 MHz; σ = 1.57 S/m; ε_r = 51.14; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

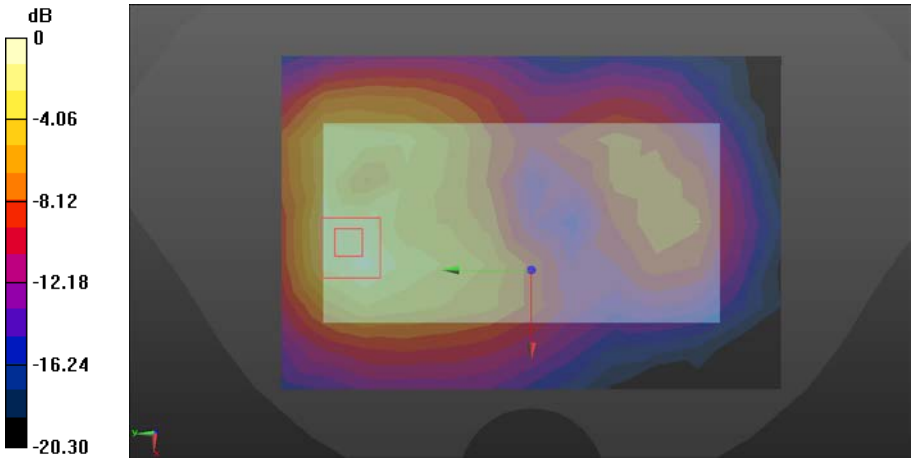
- Probe: EX3DV4 - SN3708; ConvF(7.79, 7.79, 7.79); Calibrated: 2016/11/10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn720; Calibrated: 2016/10/31
- Phantom: Twin-SAM 1560; Type: QD 000 P40 CD; Serial: 1560
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373)

Flat-Section MSL Wband II TG/Wband II TG Data M 10mm/Area Scan (9x13x1):

Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.389 W/kg

Flat-Section MSL Wband II TG/Wband II TG Data M 10mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 4.315 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 0.810 W/kg
SAR(1 g) = 0.416 W/kg; SAR(10 g) = 0.216 W/kg
Maximum value of SAR (measured) = 0.460 W/kg



0 dB = 0.460 W/kg = -3.37 dBW/kg

FLAT	EDGE2

Communication System: UID 10011 - CAB, UMTS-FDD (WCDMA); Frequency: 1880 MHz;Duty Cycle: 1:1.95434
Medium parameters used: f = 1880 MHz; σ = 1.57 S/m; ε_r = 51.14; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

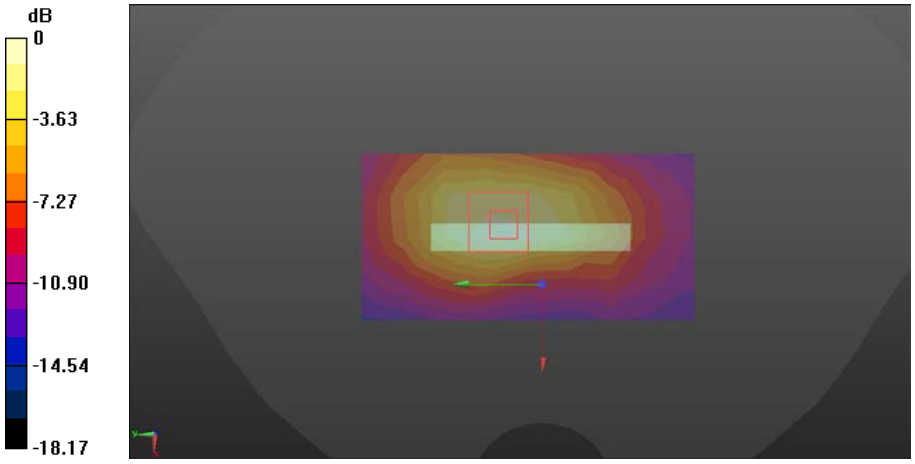
- Probe: EX3DV4 - SN3708; ConvF(7.79, 7.79, 7.79); Calibrated: 2016/11/10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn720; Calibrated: 2016/10/31
- Phantom: Twin-SAM 1560; Type: QD 000 P40 CD; Serial: 1560
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373)

Flat-Section MSL WCDMA Band II HOT/wcdma band2 edge 2/Area Scan (5x9x1):

Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.263 W/kg

Flat-Section MSL WCDMA Band II HOT/wcdma band2 edge 2/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 11.89 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 0.486 W/kg
SAR(1 g) = 0.266 W/kg; SAR(10 g) = 0.146 W/kg
Maximum value of SAR (measured) = 0.293 W/kg



0 dB = 0.293 W/kg = -5.33 dBW/kg

FLAT	EDGE3

Communication System: UID 10011 - CAB, UMTS-FDD (WCDMA); Frequency: 1880 MHz;Duty Cycle: 1:1.95434
Medium parameters used: f = 1880 MHz; σ = 1.57 S/m; ε_r = 51.14; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

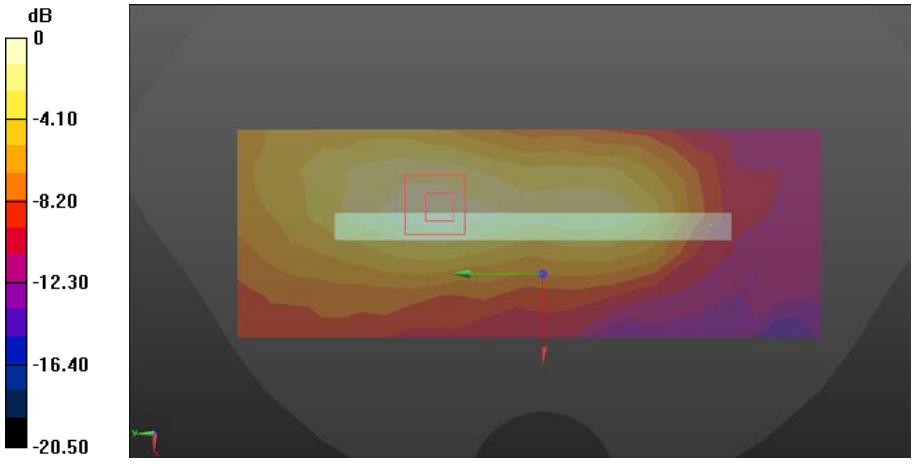
- Probe: EX3DV4 - SN3708; ConvF(7.79, 7.79, 7.79); Calibrated: 2016/11/10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn720; Calibrated: 2016/10/31
- Phantom: Twin-SAM 1560; Type: QD 000 P40 CD; Serial: 1560
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373)

Flat-Section MSL WCDMA Band II HOT/wcdma band2 edge 3/Area Scan (6x15x1):

Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.105 W/kg

Flat-Section MSL WCDMA Band II HOT/wcdma band2 edge 3/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.353 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.184 W/kg
SAR(1 g) = 0.100 W/kg; SAR(10 g) = 0.058 W/kg
Maximum value of SAR (measured) = 0.109 W/kg



0 dB = 0.109 W/kg = -9.63 dBW/kg

FLAT	EDGE4

Communication System: UID 10011 - CAB, UMTS-FDD (WCDMA); Frequency: 1880 MHz;Duty Cycle: 1:1.95434
Medium parameters used: f = 1880 MHz; σ = 1.57 S/m; ε_r = 51.14; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3708; ConvF(7.79, 7.79, 7.79); Calibrated: 2016/11/10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn720; Calibrated: 2016/10/31
- 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)

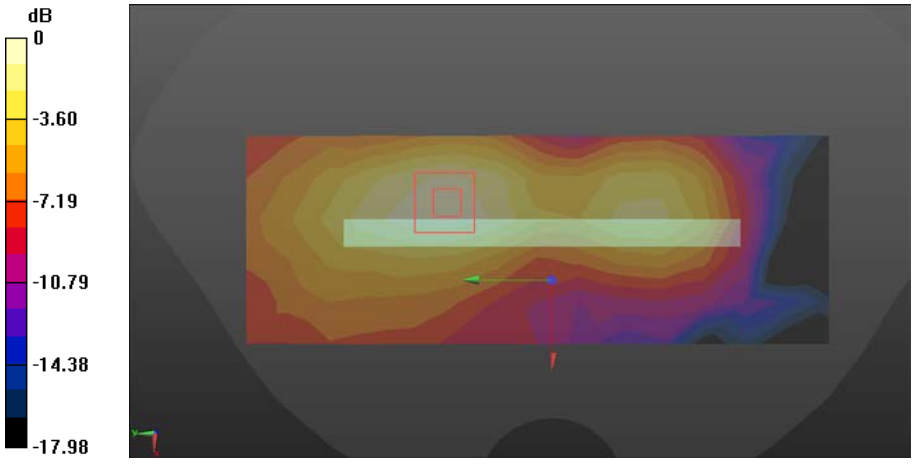
Flat-Section MSL WCDMA Band II HOT/wcdma band2 edge 4/Area Scan (6x15x1):

Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.0961 W/kg

Flat-Section MSL WCDMA Band II HOT/wcdma band2 edge 4/Zoom Scan (7x7x7)/Cube 0:

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

Reference Value = 4.701 V/m; Power Drift = 0.30 dB
Peak SAR (extrapolated) = 0.165 W/kg
SAR(1 g) = 0.098 W/kg; SAR(10 g) = 0.058 W/kg
Maximum value of SAR (measured) = 0.108 W/kg



0 dB = 0.108 W/kg = -9.67 dBW/kg

WCDMA Band 5

Left Side	Cheek

Communication System: UID 10011 - CAB, UMTS-FDD (WCDMA); Frequency: 836.6 MHz;Duty Cycle: 1:1.95434
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.89 S/m; ε_r = 41.478; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY5 Configuration:

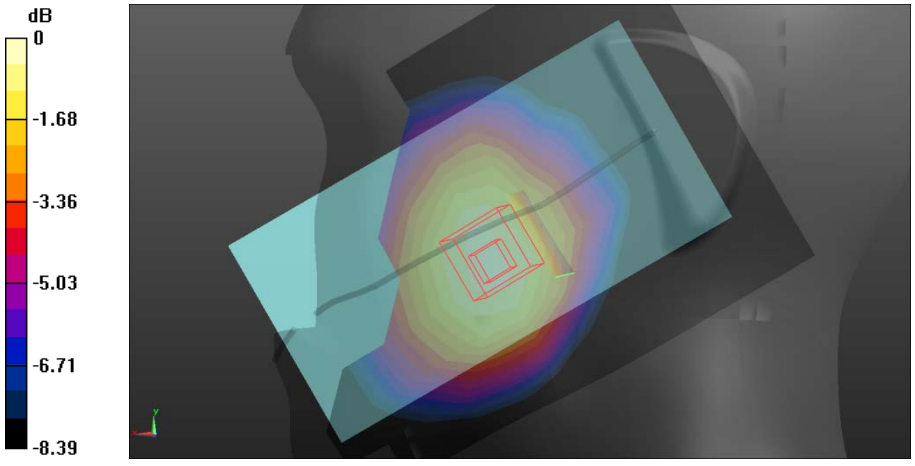
- Probe: EX3DV4 - SN3708; ConvF(9.05, 9.05, 9.05); Calibrated: 2016/11/10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn720; Calibrated: 2016/10/31
- Phantom: Twin-SAM 1559; Type: QD 000 P40 CD; Serial: 1559
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373)

Head-Section Left HSL WbandV/Wband V HSL touch M/Area Scan (9x13x1):

Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.0969 W/kg

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

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.286 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.123 W/kg
SAR(1 g) = 0.096 W/kg; SAR(10 g) = 0.073 W/kg
Maximum value of SAR (measured) = 0.101 W/kg



0 dB = 0.101 W/kg = -9.96 dBW/kg

Left Side	Tilt

Communication System: UID 10011 - CAB, UMTS-FDD (WCDMA); Frequency: 836.6 MHz;Duty Cycle: 1:1.95434
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.89 S/m; ε_r = 41.478; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY5 Configuration:

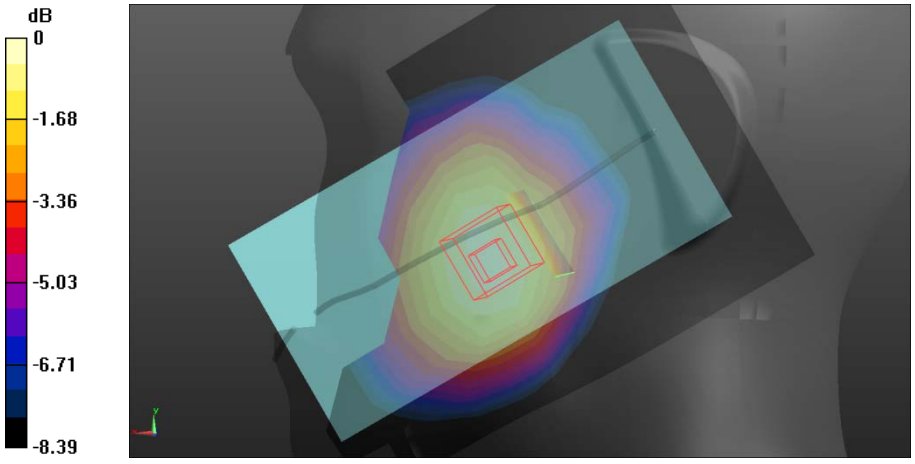
- Probe: EX3DV4 - SN3708; ConvF(9.05, 9.05, 9.05); Calibrated: 2016/11/10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn720; Calibrated: 2016/10/31
- Phantom: Twin-SAM 1559; Type: QD 000 P40 CD; Serial: 1559
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373)

Head-Section Left HSL WbandV/Wband V HSL touch M/Area Scan (9x13x1):

Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.0969 W/kg

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

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.286 V/m; Power Drift = 0.75 dB
Peak SAR (extrapolated) = 0.123 W/kg
SAR(1 g) = 0.096 W/kg; SAR(10 g) = 0.073 W/kg
Maximum value of SAR (measured) = 0.101 W/kg



0 dB = 0.101 W/kg = -9.96 dBW/kg

Right Side	Cheek

Communication System: UID 10011 - CAB, UMTS-FDD (WCDMA); Frequency: 836.6 MHz;Duty Cycle: 1:1.95434
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.89 S/m; ε_r = 41.478; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY5 Configuration:

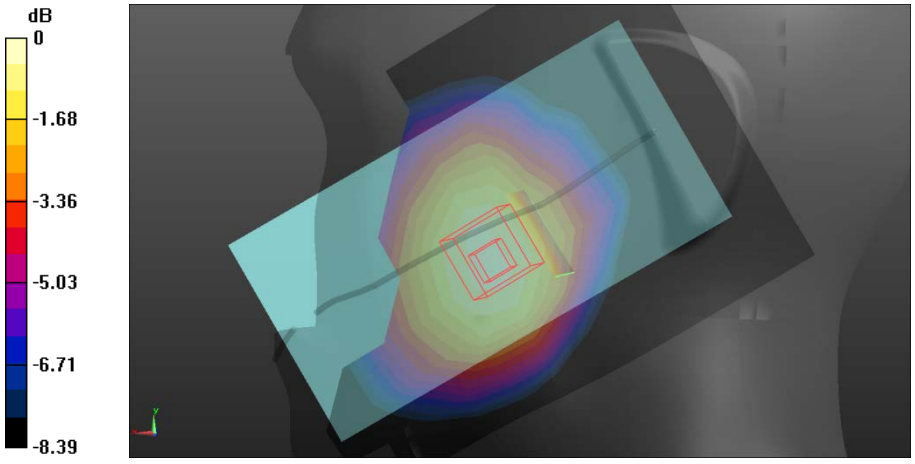
- Probe: EX3DV4 - SN3708; ConvF(9.05, 9.05, 9.05); Calibrated: 2016/11/10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn720; Calibrated: 2016/10/31
- Phantom: Twin-SAM 1559; Type: QD 000 P40 CD; Serial: 1559
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373)

Head-Section Left HSL WbandV/Wband V HSL touch M/Area Scan (9x13x1):

Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.0969 W/kg

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

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.286 V/m; Power Drift = 0.75 dB
Peak SAR (extrapolated) = 0.123 W/kg
SAR(1 g) = 0.096 W/kg; SAR(10 g) = 0.073 W/kg
Maximum value of SAR (measured) = 0.101 W/kg



0 dB = 0.101 W/kg = -9.96 dBW/kg

Right Side	Tilt

Communication System: UID 10011 - CAB, UMTS-FDD (WCDMA); Frequency: 836.6 MHz;Duty Cycle: 1:1.95434
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.89 S/m; ε_r = 41.478; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY5 Configuration:

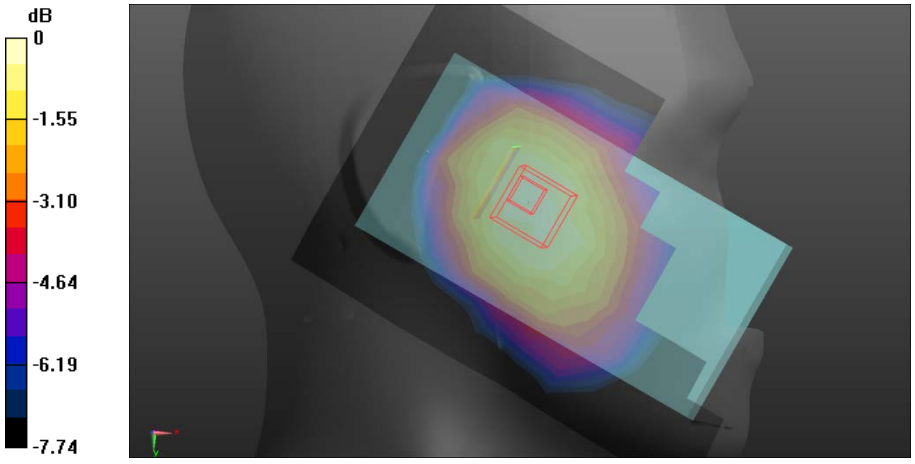
- Probe: EX3DV4 - SN3708; ConvF(9.05, 9.05, 9.05); Calibrated: 2016/11/10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn720; Calibrated: 2016/10/31
- Phantom: Twin-SAM 1559; Type: QD 000 P40 CD; Serial: 1559
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373)

Head-Section Right HSL WbandV/Wband V HSL tilt M/Area Scan (9x13x1):

Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.0489 W/kg

Head-Section Right HSL WbandV/Wband V HSL tilt M/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.682 V/m; Power Drift = 0.83 dB
Peak SAR (extrapolated) = 0.0570 W/kg
SAR(1 g) = 0.048 W/kg; SAR(10 g) = 0.038 W/kg
Maximum value of SAR (measured) = 0.0499 W/kg



0 dB = 0.0499 W/kg = -13.02 dBW/kg

FLAT(VIOCE)	Towards phantom

Communication System: UID 10011 - CAB, UMTS-FDD (WCDMA); Frequency: 836.6 MHz;Duty Cycle: 1:1.95434
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.96 S/m; ε_r = 55.858; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

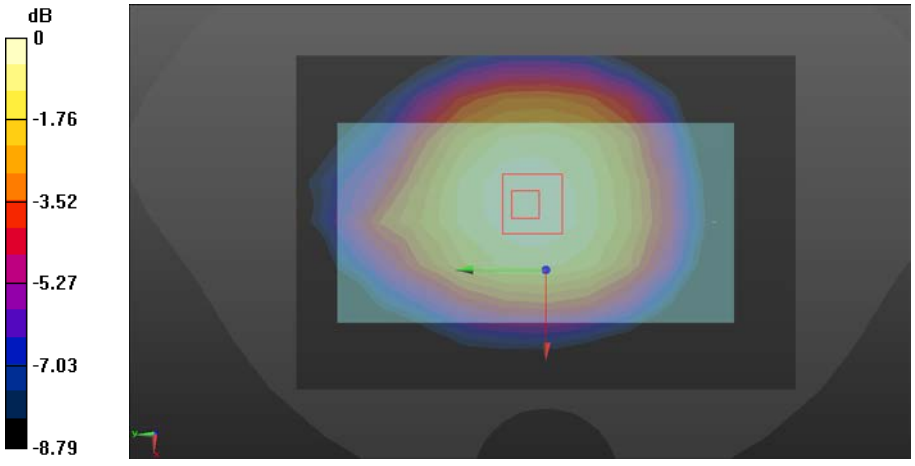
- Probe: EX3DV4 - SN3708; ConvF(9.1, 9.1, 9.1); Calibrated: 2016/11/10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn720; Calibrated: 2016/10/31
- Phantom: Twin-SAM 1559; Type: QD 000 P40 CD; Serial: 1559
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373)

Flat-Section MSL Wband V TP/W band V TP M 10mm VIOCE/Area Scan (9x13x1):

Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.119 W/kg

Flat-Section MSL Wband V TP/W band V TP M 10mm VIOCE/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.98 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 0.144 W/kg
SAR(1 g) = 0.112 W/kg; SAR(10 g) = 0.084 W/kg



0 dB = 0.119 W/kg = -9.24 dBW/kg

FLAT(VIOCE）	Towards ground

Communication System: UID 10011 - CAB, UMTS-FDD (WCDMA); Frequency: 836.6 MHz;Duty Cycle: 1:1.95434
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.96 S/m; ε_r = 55.858; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3708; ConvF(9.1, 9.1, 9.1); Calibrated: 2016/11/10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn720; Calibrated: 2016/10/31
- Phantom: Twin-SAM 1559; Type: QD 000 P40 CD; Serial: 1559
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373)

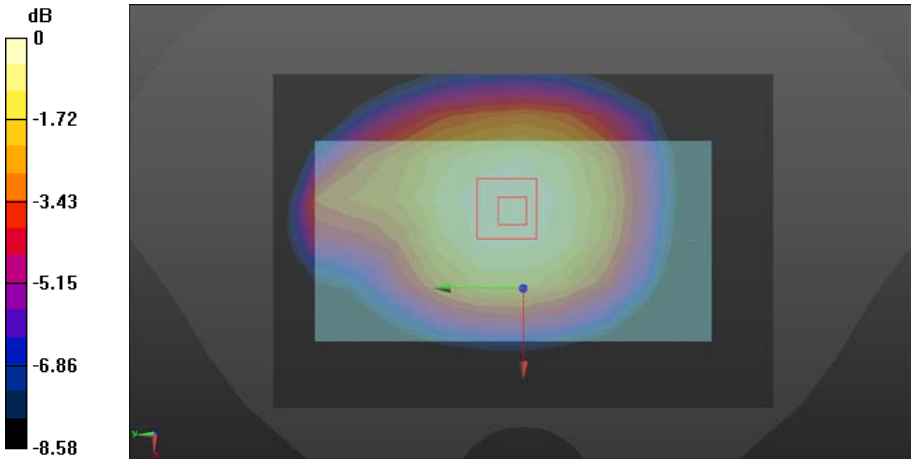
Flat-Section MSL Wband V TG/Wband V TG M 10mm VIOCE/Area Scan (9x13x1):

Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.226 W/kg

Flat-Section MSL Wband V TG/Wband V TG M 10mm VIOCE/Zoom Scan (7x7x7)/Cube 0:

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

Reference Value = 14.98 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.291 W/kg
SAR(1 g) = 0.220 W/kg; SAR(10 g) = 0.166 W/kg
Maximum value of SAR (measured) = 0.230 W/kg



0 dB = 0.230 W/kg = -6.38 dBW/kg

FLAT(DATA)	Towards phantom

Communication System: UID 10011 - CAB, UMTS-FDD (WCDMA); Frequency: 836.6 MHz;Duty Cycle: 1:1.95434
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.96 S/m; ε_r = 55.858; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3708; ConvF(9.1, 9.1, 9.1); Calibrated: 2016/11/10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn720; Calibrated: 2016/10/31
- Phantom: Twin-SAM 1559; Type: QD 000 P40 CD; Serial: 1559
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373)

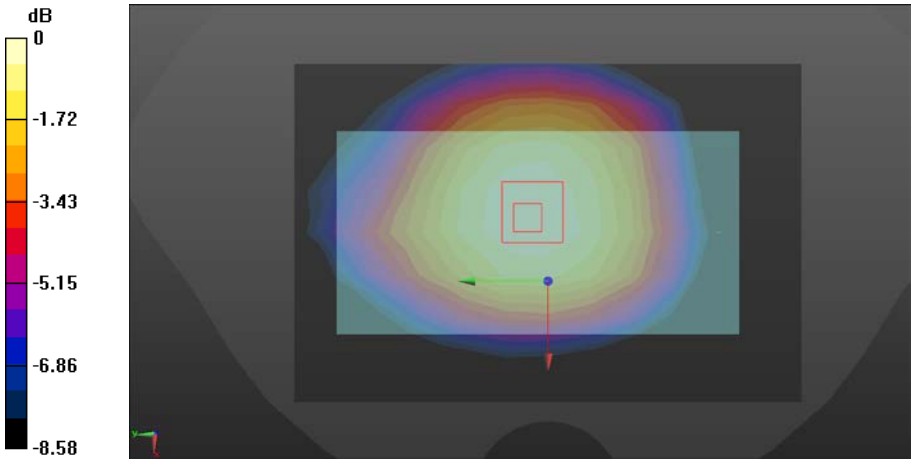
Flat-Section MSL Wband V TP/W band V TP M 10mm DATA/Area Scan (9x13x1):

Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.119 W/kg

Flat-Section MSL Wband V TP/W band V TP M 10mm DATA/Zoom Scan (7x7x7)/Cube 0:

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

Reference Value = 11.05 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.153 W/kg
SAR(1 g) = 0.115 W/kg; SAR(10 g) = 0.087 W/kg
Maximum value of SAR (measured) = 0.121 W/kg



0 dB = 0.121 W/kg = -9.17 dBW/kg

FLAT(DATA)	Towards ground

Communication System: UID 10011 - CAB, UMTS-FDD (WCDMA); Frequency: 836.6 MHz;Duty Cycle: 1:1.95434
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.96 S/m; ε_r = 55.858; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3708; ConvF(9.1, 9.1, 9.1); Calibrated: 2016/11/10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn720; Calibrated: 2016/10/31
- Phantom: Twin-SAM 1559; Type: QD 000 P40 CD; Serial: 1559
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373)

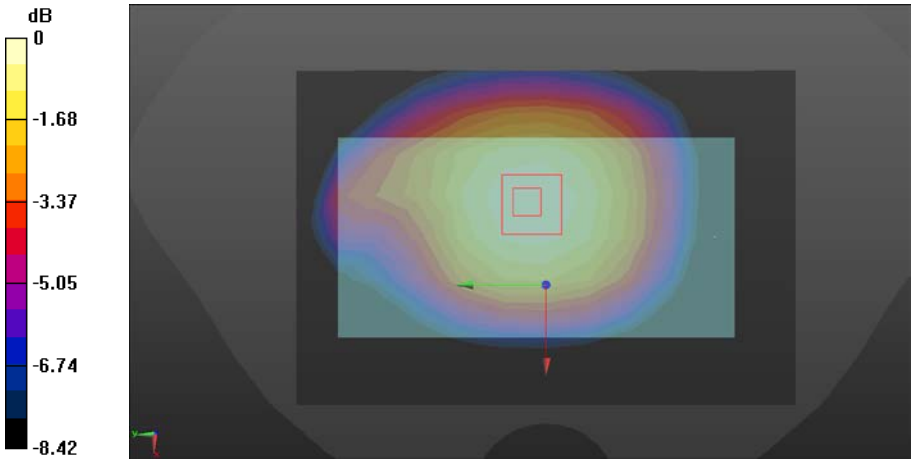
Flat-Section MSL Wband V TG/Wband V TG M 10mm DATA/Area Scan (9x13x1):

Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.223 W/kg

Flat-Section MSL Wband V TG/Wband V TG M 10mm DATA/Zoom Scan (7x7x7)/Cube 0:

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

Reference Value = 15.02 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 0.276 W/kg
SAR(1 g) = 0.216 W/kg; SAR(10 g) = 0.163 W/kg
Maximum value of SAR (measured) = 0.228 W/kg



0 dB = 0.228 W/kg = -6.42 dBW/kg

FLAT	EDGE2

Communication System: UID 10011 - CAB, UMTS-FDD (WCDMA); Frequency: 836.6 MHz;Duty Cycle: 1:1.95434
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.96 S/m; ε_r = 55.858; ρ = 1000 kg/m^3
Phantom section: Flat Section

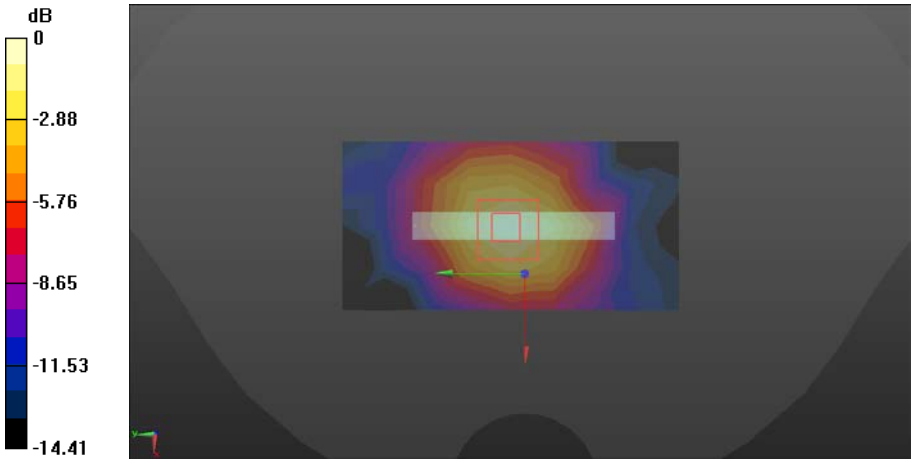
DASY5 Configuration:

- Probe: EX3DV4 - SN3708; ConvF(9.1, 9.1, 9.1); Calibrated: 2016/11/10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn720; Calibrated: 2016/10/31
- Phantom: Twin-SAM 1559; Type: QD 000 P40 CD; Serial: 1559
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373)

Flat-Section MSL GSM850 HOT/wcdma band5 edge 2/Area Scan (5x9x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.0371 W/kg

Flat-Section MSL GSM850 HOT/wcdma band5 edge 2/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.026 V/m; Power Drift = -0.23 dB
Peak SAR (extrapolated) = 0.0550 W/kg
SAR(1 g) = 0.033 W/kg; SAR(10 g) = 0.020 W/kg
Maximum value of SAR (measured) = 0.0362 W/kg



0 dB = 0.0362 W/kg = -14.41 dBW/kg

FLAT	EDGE3

Communication System: UID 10011 - CAB, UMTS-FDD (WCDMA); Frequency: 836.6 MHz;Duty Cycle: 1:1.95434
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.96 S/m; ε_r = 55.858; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

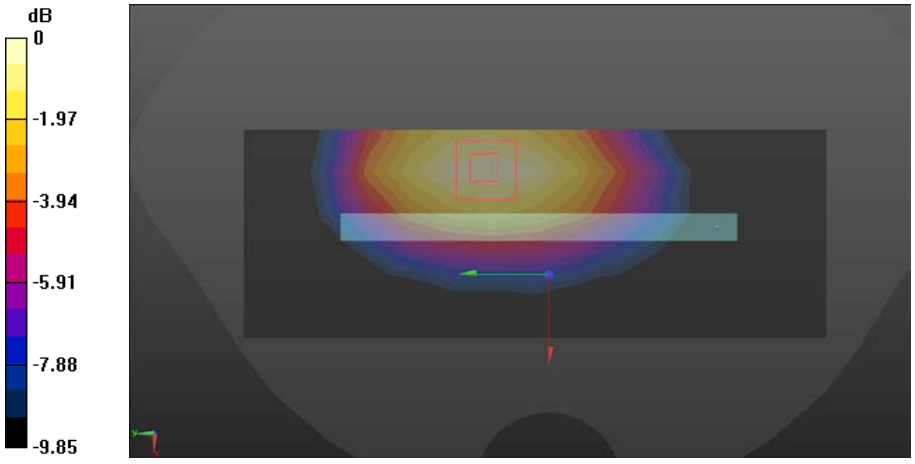
- Probe: EX3DV4 - SN3708; ConvF(9.1, 9.1, 9.1); Calibrated: 2016/11/10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn720; Calibrated: 2016/10/31
- Phantom: Twin-SAM 1559; Type: QD 000 P40 CD; Serial: 1559
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373)

Flat-Section MSL GSM850 HOT/wcdma band5 edge 3/Area Scan (6x15x1):

Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.0849 W/kg

Flat-Section MSL GSM850 HOT/wcdma band5 edge 3/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.388 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.115 W/kg
SAR(1 g) = 0.080 W/kg; SAR(10 g) = 0.054 W/kg
Maximum value of SAR (measured) = 0.0859 W/kg



0 dB = 0.0859 W/kg = -10.66 dBW/kg

FLAT	EDGE4

Communication System: UID 10011 - CAB, UMTS-FDD (WCDMA); Frequency: 836.6 MHz;Duty Cycle: 1:1.95434
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.96 S/m; ε_r = 55.858; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

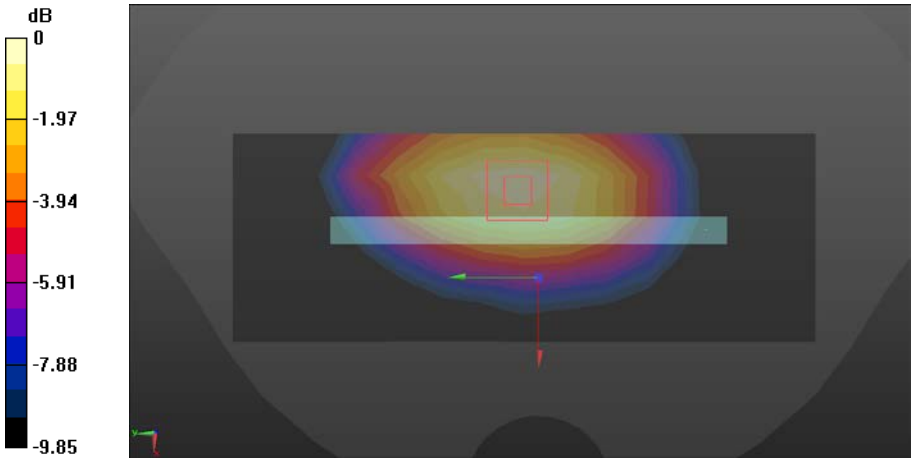
- Probe: EX3DV4 - SN3708; ConvF(9.1, 9.1, 9.1); Calibrated: 2016/11/10;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn720; Calibrated: 2016/10/31
- Phantom: Twin-SAM 1559; Type: QD 000 P40 CD; Serial: 1559
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373)

Flat-Section MSL GSM850 HOT/wcdma band5 edge 4/Area Scan (6x15x1):

Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.115 W/kg

Flat-Section MSL GSM850 HOT/wcdma band5 edge 4/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.276 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 0.159 W/kg
SAR(1 g) = 0.111 W/kg; SAR(10 g) = 0.076 W/kg
Maximum value of SAR (measured) = 0.119 W/kg



0 dB = 0.119 W/kg = -9.24 dBW/kg

WLAN

Left Side	Cheek

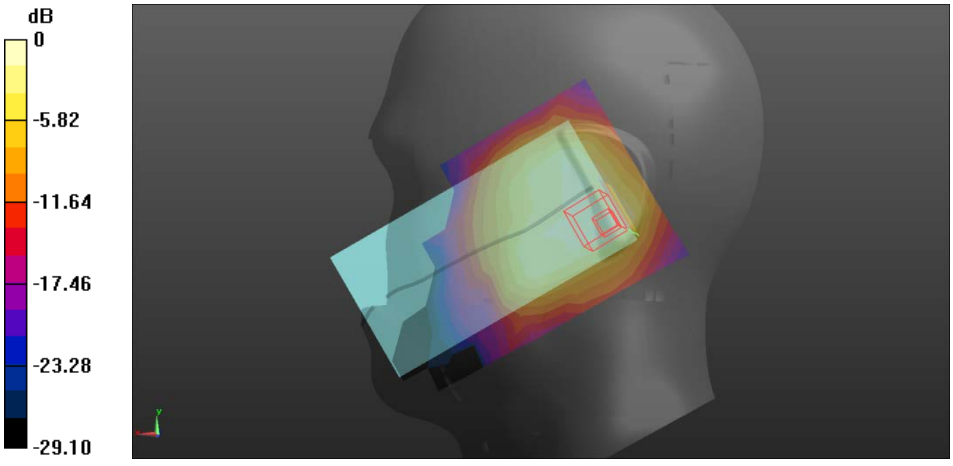
Communication System: UID 10012 - CAB, IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps); Frequency: 2437 MHz;Duty Cycle: 1:1.53815
Medium parameters used (interpolated): f = 2437 MHz; σ = 1.883 S/m; ε_r = 38.021; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3127; ConvF(4.61, 4.61, 4.61); Calibrated: 2016/8/29;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn546; Calibrated: 2015/8/19
- Phantom: Twin-SAM 1659; Type: QD 000 P40 CD; Serial: 1659
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373)

Head-Section Left HSL WIFI/WIFI touch M/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.159 W/kg

Head-Section Left HSL WIFI/WIFI touch M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.149 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 0.322 W/kg
SAR(1 g) = 0.151 W/kg; SAR(10 g) = 0.075 W/kg
Maximum value of SAR (measured) = 0.168 W/kg



0 dB = 0.168 W/kg = -7.75 dBW/kg

Left Side	Tilt

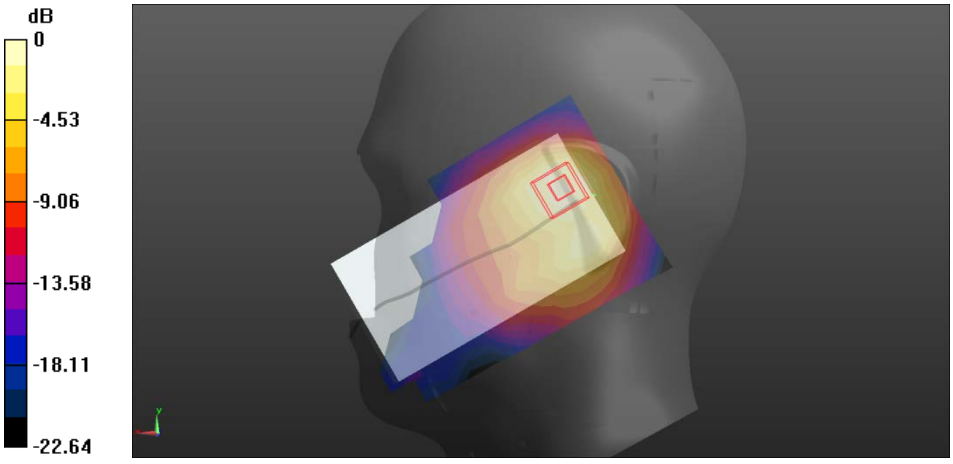
Communication System: UID 10012 - CAB, IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps);
Frequency: 2437 MHz;Duty Cycle: 1:1.53815
Medium parameters used (interpolated): f = 2437 MHz; σ = 1.883 S/m; ε_r = 38.021; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3127; ConvF(4.61, 4.61, 4.61); Calibrated: 2016/8/29;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn546; Calibrated: 2015/8/19
- Phantom: Twin-SAM 1659; Type: QD 000 P40 CD; Serial: 1659
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373)

Head-Section Left HSL WIFI/WIFI tilt M/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.116 W/kg

Head-Section Left HSL WIFI/WIFI tilt M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.891 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 0.208 W/kg
SAR(1 g) = 0.111 W/kg; SAR(10 g) = 0.057 W/kg
Maximum value of SAR (measured) = 0.122 W/kg



0 dB = 0.122 W/kg = -9.14 dBW/kg

Right Side	Cheek

Communication System: UID 10012 - CAB, IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps);
Frequency: 2412 MHz;Duty Cycle: 1:1.53815
Medium parameters used (interpolated): f = 2412 MHz; σ = 1.838 S/m; ε_r = 38.149; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY5 Configuration:

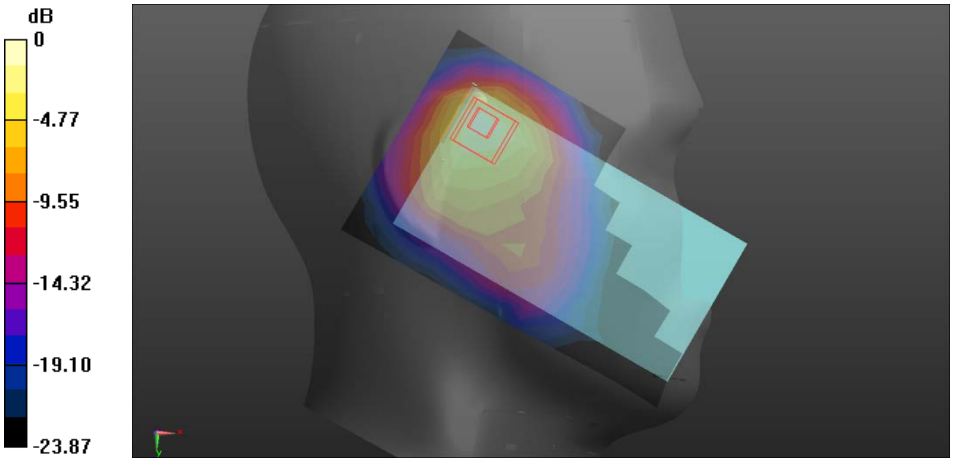
- Probe: ES3DV3 - SN3127; ConvF(4.61, 4.61, 4.61); Calibrated: 2016/8/29;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn546; Calibrated: 2016/8/22
- Phantom: Twin-SAM 1660; Type: QD 000 P40 CD; Serial: 1660
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373)

Head-Section Right HSL WIFI/WIFI touch L/Area Scan (8x13x1): Measurement grid:

dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.404 W/kg

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

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.33 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.895 W/kg
SAR(1 g) = 0.392 W/kg; SAR(10 g) = 0.184 W/kg
Maximum value of SAR (measured) = 0.429 W/kg



0 dB = 0.429 W/kg = -3.68 dBW/kg

Right Side	Cheek

Communication System: UID 10012 - CAB, IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps); Frequency: 2437 MHz;Duty Cycle: 1:1.53815
Medium parameters used (interpolated): f = 2437 MHz; σ = 1.883 S/m; ε_r = 38.021; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY5 Configuration:

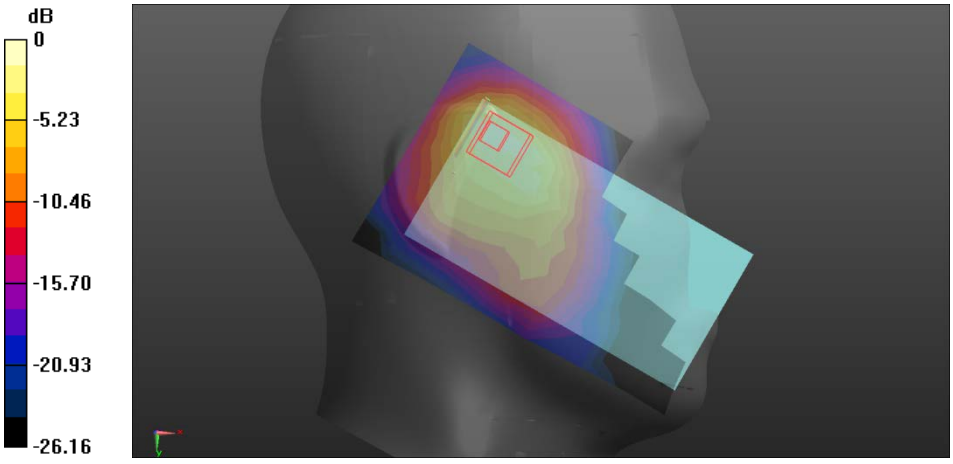
- Probe: ES3DV3 - SN3127; ConvF(4.61, 4.61, 4.61); Calibrated: 2016/8/29;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn546; Calibrated: 2016/8/22
- Phantom: Twin-SAM 1660; Type: QD 000 P40 CD; Serial: 1660
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373)

Head-Section Right HSL WIFI/WIFI touch M/Area Scan (8x13x1): Measurement grid:

dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.430 W/kg

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

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.291 V/m; Power Drift = -0.18 dB
Peak SAR (extrapolated) = 0.848 W/kg
SAR(1 g) = 0.371 W/kg; SAR(10 g) = 0.170 W/kg
Maximum value of SAR (measured) = 0.406 W/kg



0 dB = 0.406 W/kg = -3.91 dBW/kg

Right Side	Cheek

Communication System: UID 10012 - CAB, IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps); Frequency: 2462 MHz;Duty Cycle: 1:1.53815
Medium parameters used (interpolated): f = 2462 MHz; σ = 1.908 S/m; ε_r = 37.862; ρ = 1000 kg/m^3
Phantom section: Right Section

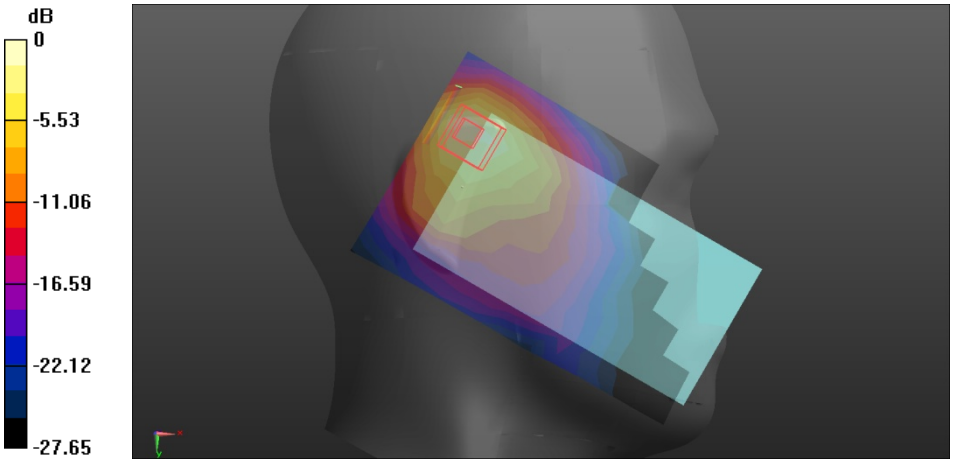
DASY5 Configuration:

- Probe: ES3DV3 - SN3127; ConvF(4.61, 4.61, 4.61); Calibrated: 2016/8/29;
- Sensor-Surface: 3mm (Mechanical Surface Detection), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn546; Calibrated: 2016/8/22
- Phantom: Twin-SAM 1660; Type: QD 000 P40 CD; Serial: 1660
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373)

Head-Section Right HSL WIFI/WIFI touch H/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.415 W/kg

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

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.012 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 0.745 W/kg
SAR(1 g) = 0.332 W/kg; SAR(10 g) = 0.144 W/kg
Maximum value of SAR (measured) = 0.374 W/kg



0 dB = 0.374 W/kg = -4.27 dBW/kg

Right Side	Tilt

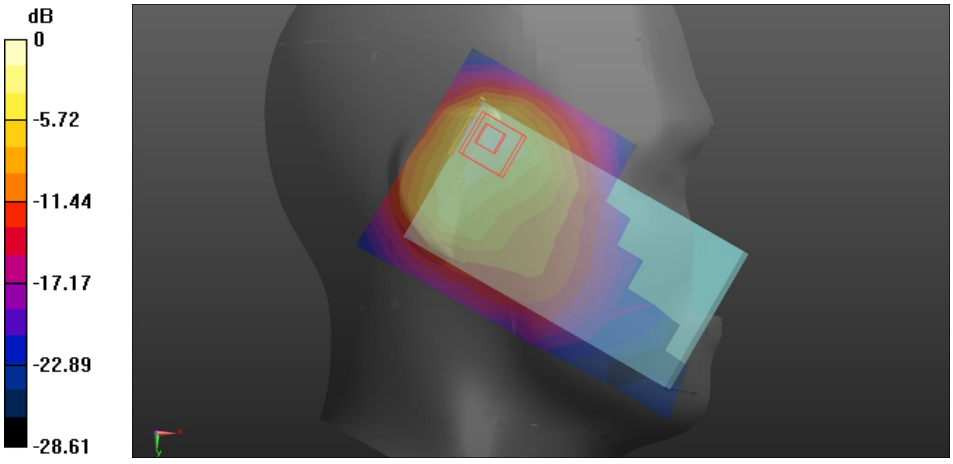
Communication System: UID 10012 - CAB, IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps); Frequency: 2437 MHz;Duty Cycle: 1:1.53815
Medium parameters used (interpolated): f = 2437 MHz; σ = 1.883 S/m; ε_r = 38.021; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3127; ConvF(4.61, 4.61, 4.61); Calibrated: 2016/8/29;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn546; Calibrated: 2016/8/22
- Phantom: Twin-SAM 1660; Type: QD 000 P40 CD; Serial: 1660
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373)

Head-Section Right HSL WIFI/WIFI tilt M/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.251 W/kg

Head-Section Right HSL WIFI/WIFI tilt M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.038 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 0.549 W/kg
SAR(1 g) = 0.229 W/kg; SAR(10 g) = 0.100 W/kg
Maximum value of SAR (measured) = 0.256 W/kg



0 dB = 0.256 W/kg = -5.92 dBW/kg

FLAT	Towards phantom

Communication System: UID 10012 - CAB, IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps);
Frequency: 2437 MHz;Duty Cycle: 1:1.53815
Medium parameters used (interpolated): f = 2437 MHz; σ = 2.013 S/m; ε_r = 50.739; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

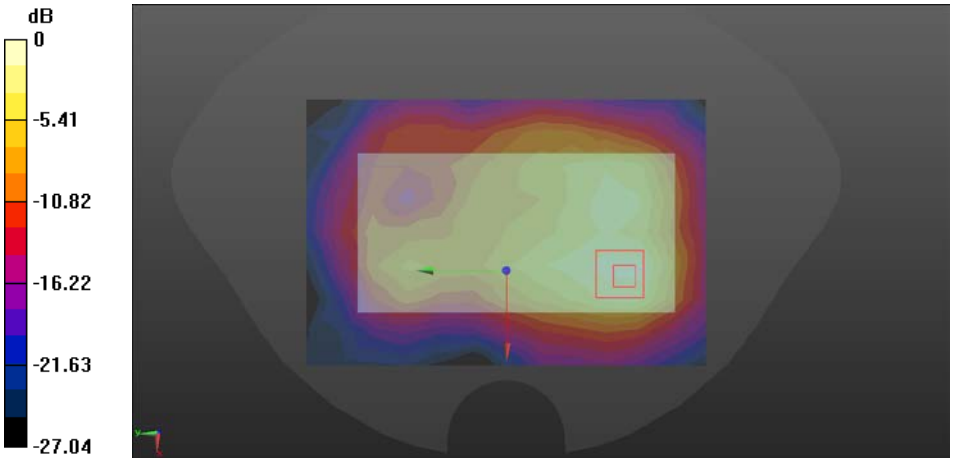
- Probe: ES3DV3 - SN3127; ConvF(4.36, 4.36, 4.36); Calibrated: 2016/8/29;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn546; Calibrated: 2015/8/19
- Phantom: Twin-SAM 1660; Type: QD 000 P40 CD; Serial: 1660
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373)

Flat-Section MSL WIFI TP/WIFI TP M/Area Scan (9x13x1): Measurement grid:

dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.138 W/kg

Flat-Section MSL WIFI TP/WIFI TP M/Zoom Scan (7x7x7)/Cube 0: Measurement grid:

dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.300 V/m; Power Drift = -0.20 dB
Peak SAR (extrapolated) = 0.339 W/kg
SAR(1 g) = 0.153 W/kg; SAR(10 g) = 0.071 W/kg
Maximum value of SAR (measured) = 0.171 W/kg



0 dB = 0.171 W/kg = -7.67 dBW/kg

FLAT	Towards ground

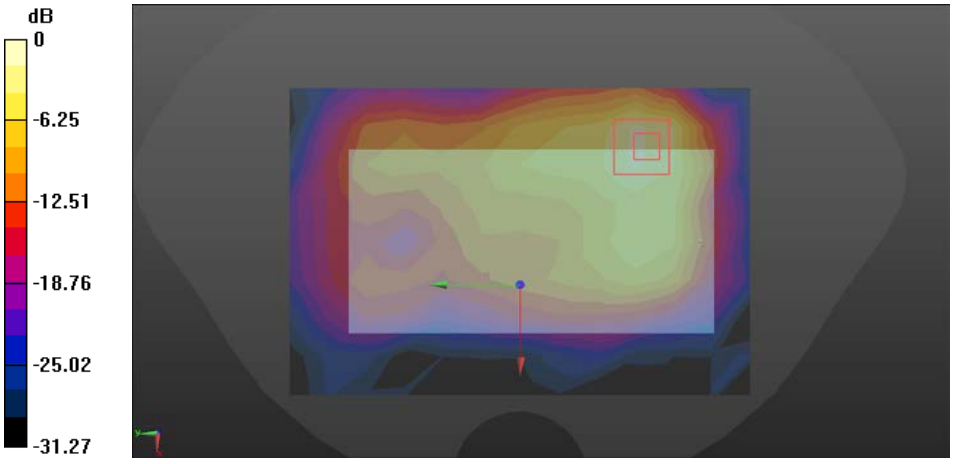
Communication System: UID 10012 - CAB, IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps); Frequency: 2437 MHz;Duty Cycle: 1:1.53815
Medium parameters used (interpolated): f = 2437 MHz; σ = 2.013 S/m; ε_r = 50.739; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3127; ConvF(4.36, 4.36, 4.36); Calibrated: 2016/8/29;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn546; Calibrated: 2015/8/19
- Phantom: Twin-SAM 1660; Type: QD 000 P40 CD; Serial: 1660
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373)

Flat-Section MSLWIFI TG/WIF TG M/Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.270 W/kg

Flat-Section MSLWIFI TG/WIF TG M/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.998 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 0.987 W/kg
SAR(1 g) = 0.353 W/kg; SAR(10 g) = 0.149 W/kg
Maximum value of SAR (measured) = 0.385 W/kg



0 dB = 0.385 W/kg = -4.15 dBW/kg

FLAT	EDGE1

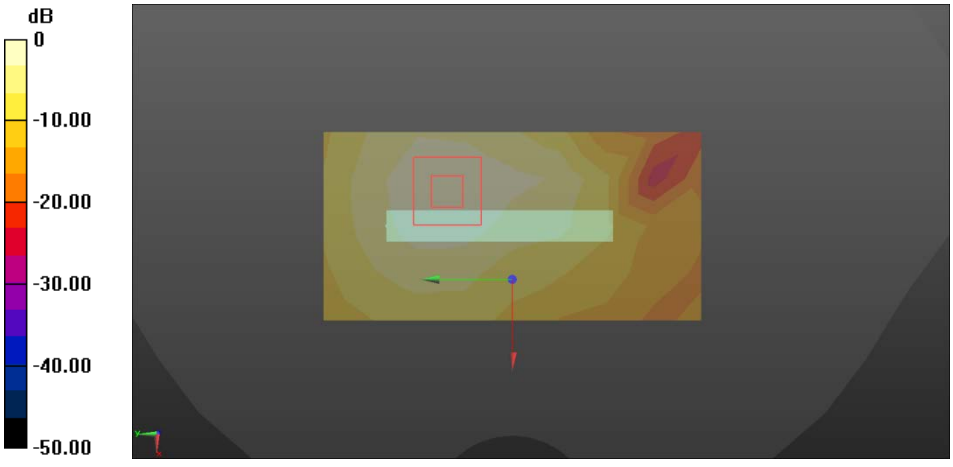
Communication System: UID 10012 - CAB, IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps);
Frequency: 2437 MHz;Duty Cycle: 1:1.53815
Medium parameters used (interpolated): f = 2437 MHz; σ = 2.013 S/m; ε_r = 50.739; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3127; ConvF(4.36, 4.36, 4.36); Calibrated: 2016/8/29;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn546; Calibrated: 2015/8/19
- Phantom: Twin-SAM 1660; Type: QD 000 P40 CD; Serial: 1660
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373)

Flat-Section MSLWIFI HOT/WIF M edge 1/Area Scan (5x9x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.0375 W/kg

Flat-Section MSLWIFI HOT/WIF M edge 1/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.833 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 0.0780 W/kg
SAR(1 g) = 0.039 W/kg; SAR(10 g) = 0.021 W/kg
Maximum value of SAR (measured) = 0.0425 W/kg



0 dB = 0.0425 W/kg = -13.72 dBW/kg

FLAT	EDGE4

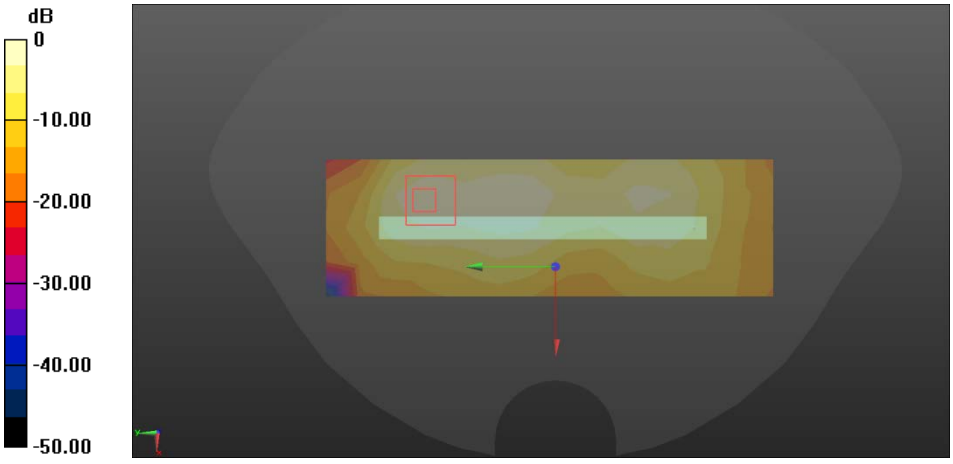
Communication System: UID 10012 - CAB, IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps);
Frequency: 2437 MHz;Duty Cycle: 1:1.53815
Medium parameters used (interpolated): f = 2437 MHz; σ = 2.013 S/m; ε_r = 50.739; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3127; ConvF(4.36, 4.36, 4.36); Calibrated: 2016/8/29;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn546; Calibrated: 2015/8/19
- Phantom: Twin-SAM 1660; Type: QD 000 P40 CD; Serial: 1660
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7373)

Flat-Section MSLWIFI HOT/WIF M edge 4/Area Scan (5x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.0720 W/kg

Flat-Section MSLWIFI HOT/WIF M edge 4/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.619 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 0.153 W/kg
SAR(1 g) = 0.069 W/kg; SAR(10 g) = 0.032 W/kg
Maximum value of SAR (measured) = 0.0781 W/kg



0 dB = 0.0781 W/kg = -11.07 dBW/kg

ANNEX B - RELEVANT PAGES FROM CALIBRATION REPORTS

DAE4 Sn:546

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

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

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

Accreditation No.: SCS 0108

Client SRTC (Vitec)

Certificate No: DAE4-546_Aug16

CALIBRATION CERTIFICATE

Object	DAE4 - SD 000 D04 BM - SN: 546
Calibration procedure(s)	QA CAL-06.v29 Calibration procedure for the data acquisition electronics (DAE)
Calibration date:	August 22, 2016

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Keithley Multimeter Type 2001	SN: 0810278	09-Sep-15 (No:17153)	Sep-16
Secondary Standards	**ID #**	**Check Date (in house)**	**Scheduled Check**
Auto DAE Calibration Unit	SE UWS 053 AA 1001	05-Jan-16 (in house check)	In house check: Jan-17
Calibrator Box V2.1	SE UMS 006 AA 1002	05-Jan-16 (in house check)	In house check: Jan-17

	Name	Function	Signature
Calibrated by:	Dominique Steffen	Technician	
Approved by:	Fin Bomholt	Deputy Technical Manager	

Issued: August 22, 2016

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

Certificate No: DAE4-546_Aug16 Page 1 of 5

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

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C Service suisse d'étalonnage
S Servizio svizzero di taratura
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Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 0108

Glossary

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

Methods Applied and Interpretation of Parameters

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

Certificate No: DAE4-546_Aug16 Page 2 of 5

Appendix (Additional assessments outside the scope of SCS 0108)

1. DC Voltage Linearity

High Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	200031.74	-2.15	-0.00
Channel X	+ Input	20003.66	-0.75	-0.00
Channel X	- Input	-20001.68	3.77	-0.02
Channel Y	+ Input	200021.10	-12.53	-0.01
Channel Y	+ Input	20002.22	-2.13	-0.01
Channel Y	- Input	-20003.78	1.68	-0.01
Channel Z	+ Input	200025.91	-7.99	-0.00
Channel Z	+ Input	19999.97	-4.36	-0.02
Channel Z	- Input	-20005.55	0.07	-0.00

Low Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	2000.62	-0.12	-0.01
Channel X	+ Input	201.00	0.23	0.11
Channel X	- Input	-198.76	0.38	-0.19
Channel Y	+ Input	2000.36	-0.29	-0.01
Channel Y	+ Input	200.22	-0.57	-0.29
Channel Y	- Input	-200.24	-0.93	0.47
Channel Z	+ Input	2000.61	0.13	0.01
Channel Z	+ Input	199.06	-1.52	-0.76
Channel Z	- Input	-201.43	-1.99	1.00

2. Common mode sensitivity
DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

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

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

	Input Voltage (mV)	Channel X (μV)	Channel Y (μV)	Channel Z (μV)
Channel X	200	-	-3.01	-3.43
Channel Y	200	9.77	-	-1.00
Channel Z	200	5.39	7.02	-

Certificate No: DAE4-546_Aug16 Page 4 of 5

4. AD-Converter Values with inputs shorted
DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

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

5. Input Offset Measurement
DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec
Input 10MΩ

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

6. Input Offset Current
Nominal Input circuitry offset current on all channels: <25fA

7. Input Resistance (Typical values for information)

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

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

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

9. Power Consumption (Typical values for information)

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

Certificate No: DAE4-546_Aug16 Page 5 of 5

DAE4 Sn:546

4. AD-Converter Values with inputs shorted

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

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

5. Input Offset Measurement

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec
Input 10MΩ

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

6. Input Offset Current

Nominal Input circuitry offset current on all channels: <25fA

7. Input Resistance (Typical values for information)

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

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

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

9. Power Consumption (Typical values for information)

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

Certificate No: DAE4-546_Aug16 Page 5 of 5

DAE4 Sn:720

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

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

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

Accreditation No.: SCS 0108

Client SRTC (Vitec) Certificate No: DAE4-720_Oct16

CALIBRATION CERTIFICATE

Object	DAE4 - SD 000 D04 BM - SN: 720
Calibration procedure(s)	QA CAL-06.v29 Calibration procedure for the data acquisition electronics (DAE)
Calibration date:	October 31, 2016

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Keithley Multimeter Type 2001	SN: 0810278	09-Sep-16 (No:19065)	Sep-17
Secondary Standards	**ID #**	**Check Date (in house)**	**Scheduled Check**
Auto DAE Calibration Unit	SE UWS 053 AA 1001	05-Jan-16 (in house check)	In house check: Jan-17
Calibrator Box V2.1	SE UMS 006 AA 1002	05-Jan-16 (in house check)	In house check: Jan-17

	Name	Function	Signature
Calibrated by:	Dominique Steffen	Technician	
Approved by:	Fin Bomholt	Deputy Technical Manager	

Issued: October 31, 2016

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Certificate No: DAE4-720_Oct16 Page 1 of 5

DAE4 Sn:720

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

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Accreditation No.: SCS 0108

Glossary

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

Methods Applied and Interpretation of Parameters

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

Certificate No: DAE4-720_Oct16 Page 2 of 5

DC Voltage Measurement

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

Calibration Factors	X	Y	Z
High Range	403.350 ± 0.02% (k=2)	404.780 ± 0.02% (k=2)	403.206 ± 0.02% (k=2)
Low Range	3.95352 ± 1.50% (k=2)	3.95407 ± 1.50% (k=2)	3.95602 ± 1.50% (k=2)

Connector Angle

Connector Angle to be used in DASY system	23.0 ° ± 1 °

Certificate No: DAE4-720_Oct16 Page 3 of 5

Appendix (Additional assessments outside the scope of SCS0108)

1. DC Voltage Linearity

High Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	200030.00	-2.83	-0.00
Channel X	+ Input	20005.59	1.21	0.01
Channel X	- Input	-20002.63	2.74	-0.01
Channel Y	+ Input	200031.46	-1.44	-0.00
Channel Y	+ Input	20003.49	-0.90	-0.00
Channel Y	- Input	-20003.62	1.72	-0.01
Channel Z	+ Input	200030.86	-1.63	-0.00
Channel Z	+ Input	20001.58	-2.67	-0.01
Channel Z	- Input	-20009.93	-4.50	0.02

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

2. Common mode sensitivity

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

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

3. Channel separation

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

	Input Voltage (mV)	Channel X (μV)	Channel Y (μV)	Channel Z (μV)
Channel X	200	-	0.26	-3.89
Channel Y	200	8.74	-	0.77
Channel Z	200	6.36	7.07	-

Certificate No: DAE4-720_Oct16 Page 4 of 5

4. AD-Converter Values with inputs shorted

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

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

5. Input Offset Measurement

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec
Input 10MΩ

	Average (μV)	min. Offset (μV)	max. Offset (μV)	Std. Deviation (μV)
Channel X	0.75	-1.14	2.77	0.62
Channel Y	-0.03	-1.04	0.90	0.43
Channel Z	-0.18	-2.07	1.75	0.69

6. Input Offset Current

Nominal Input circuitry offset current on all channels: <25fA

7. Input Resistance (Typical values for information)

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

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

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

9. Power Consumption (Typical values for information)

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

Certificate No: DAE4-720_Oct16 Page 5 of 5

ES3DV3 Sn:3127

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

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Accreditation No.: SCS 0108

Client SRTC (Vitec)

Certificate No: ES3-3127_Aug16

CALIBRATION CERTIFICATE

Object ES3DV3 - SN:3127

Calibration procedure(s) QA CAL-01.v9, QA CAL-12.v9, QA CAL-23.v5, QA CAL-25.v6
Calibration procedure for dosimetric E-field probes

Calibration date: August 29, 2016

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	06-Apr-16 (No. 217-02288/02289)	Apr-17
Power sensor NRP-Z91	SN: 103244	06-Apr-16 (No. 217-02288)	Apr-17
Power sensor NRP-Z91	SN: 103245	06-Apr-16 (No. 217-02289)	Apr-17
Reference 20 dB Attenuator	SN: 55277 (20x)	05-Apr-16 (No. 217-02293)	Apr-17
Reference Probe ES3DV2	SN: 3013	31-Dec-15 (No. ES3-3013_Dec15)	Dec-16
DAE4	SN: 660	23-Dec-15 (No. DAE4-660_Dec15)	Dec-16
Secondary Standards	ID	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB41293874	06-Apr-16 (in house check Jun-16)	In house check: Jun-18
Power sensor E4412A	SN: MY41498087	06-Apr-16 (in house check Jun-16)	In house check: Jun-18
Power sensor E4412A	SN: 000110210	06-Apr-16 (in house check Jun-16)	In house check: Jun-18
RF generator HP 8648C	SN: US3642U01700	04-Aug-99 (in house check Jun-16)	In house check: Jun-18
Network Analyzer HP 8753E	SN: US37390585	18-Oct-01 (in house check Oct-15)	In house check: Oct-16

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: August 29, 2016

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Accreditation No.: SCS 0108

Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConvF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C, D	modulation dependent linearization parameters
Polarization φ	φ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., 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, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Methods Applied and Interpretation of Parameters:

- *NORMx,y,z*: Assessed for E-field polarization ϑ = 0 (f ≤ 900 MHz in TEM-cell; f > 1800 MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not affect the E^2-field uncertainty inside TSL (see below *ConvF*).
- *NORM(f)x,y,z = NORMx,y,z * frequency_response* (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of *ConvF*.
- *DCPx,y,z*: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- *PAR*: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- *Ax,y,z; Bx,y,z; Cx,y,z; Dx,y,z; VRx,y,z: A, B, C, D* are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. *VR* is the maximum calibration range expressed in RMS voltage across the diode.
- *ConvF and Boundary Effect Parameters*: Assessed in flat phantom using E-field (or Temperature Transfer Standard for f ≤ 800 MHz) and inside waveguide using analytical field distributions based on power measurements for f > 800 MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to *NORMx,y,z * ConvF* whereby the uncertainty corresponds to that given for *ConvF*. A frequency dependent *ConvF* is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- *Spherical isotropy (3D deviation from isotropy)*: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- *Sensor Offset*: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- *Connector Angle*: The angle is assessed using the information gained by determining the *NORMx* (no uncertainty required).

Probe ES3DV3

SN:3127

Manufactured: July 11, 2006
Calibrated: August 29, 2016

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

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

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm (μV/(V/m)^2)[A]	1.26	1.23	1.18	± 10.1 %
DCP (mV)[B]	102.7	101.6	103.7	

Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB$\sqrt{\mu}$V	C	D dB	VR mV	Unc[E] (k=2)
0	CW	X	0.0	0.0	1.0	0.00	209.2	±3.3 %
		Y	0.0	0.0	1.0		213.8	
		Z	0.0	0.0	1.0		202.7	

Note: For details on UID parameters see Appendix.

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

[A] The uncertainties of Norm X,Y,Z do not affect the E^2-field uncertainty inside TSL (see Pages 5 and 6).
[B] Numerical linearization parameter: uncertainty not required.
[E] Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

ES3DV3 Sn:3127

ES3DV3- SN:3127 August 29, 2016

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

Calibration Parameter Determined in Head Tissue Simulating Media

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

[C] Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to ± 110 MHz.
[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.
[G] Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

Certificate No: ES3-3127_Aug16 Page 5 of 12

ES3DV3- SN:3127 August 29, 2016

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

Calibration Parameter Determined in Body Tissue Simulating Media

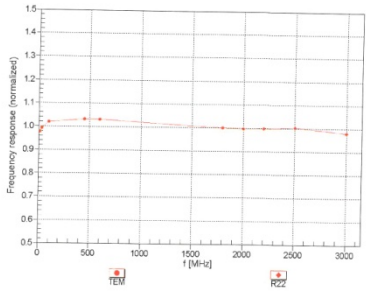
f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha [G]	Depth [H] (mm)	Unc (k=2)
450	56.7	0.94	6.99	6.99	6.99	0.12	2.10	± 13.3 %
750	55.5	0.96	6.12	6.12	6.12	0.80	1.14	± 12.0 %
900	55.0	1.05	6.16	6.16	6.16	0.46	1.53	± 12.0 %
1450	54.0	1.30	5.29	5.29	5.29	0.74	1.21	± 12.0 %
1810	53.3	1.52	4.90	4.90	4.90	0.43	1.69	± 12.0 %
2000	53.3	1.52	4.92	4.92	4.92	0.55	1.48	± 12.0 %
2300	52.9	1.81	4.63	4.63	4.63	0.80	1.24	± 12.0 %
2450	52.7	1.95	4.36	4.36	4.36	0.71	1.22	± 12.0 %
2600	52.5	2.16	4.17	4.17	4.17	0.80	1.11	± 12.0 %

[C] Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to ± 110 MHz.
[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.
[G] Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

Certificate No: ES3-3127_Aug16 Page 6 of 12

ES3DV3- SN:3127 August 29, 2016

Frequency Response of E-Field
(TEM-Cell:ifi110 EXX, Waveguide: R22)

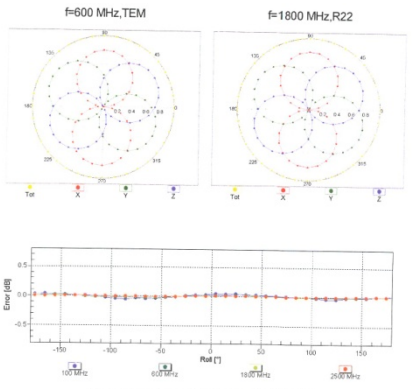


Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

Certificate No: ES3-3127_Aug16 Page 7 of 12

ES3DV3- SN:3127 August 29, 2016

Receiving Pattern (ϕ), ϑ = 0°

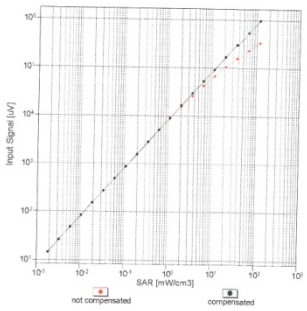


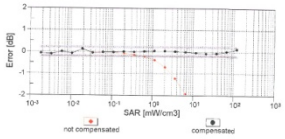
Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

Certificate No: ES3-3127_Aug16 Page 8 of 12

ES3DV3 Sn:3127

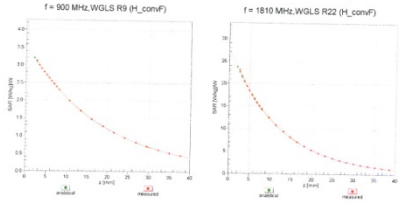
Dynamic Range f(SAR$_{head}$)
(TEM cell , f_{eval}= 1900 MHz)



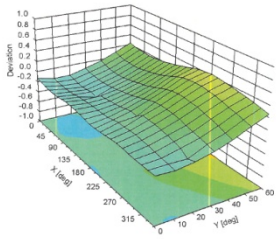


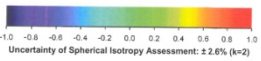
Uncertainty of Linearity Assessment: ± 0.6% (k=2)

Conversion Factor Assessment



Deviation from Isotropy in Liquid
Error (ϕ, ϑ), f = 900 MHz





Uncertainty of Spherical Isotropy Assessment: ± 2.6% (k=2)

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

Other Probe Parameters

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

Appendix: Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB√μV	C	D dB	VR mV	Unc* (k=2)
0	CW	X	0.0	0.0	1.0	0.00	209.2	±3.3 %
		Y	0.0	0.0	1.0		213.8	
		Z	0.0	0.0	1.0		202.7	
10012-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps)	X	3.29	71.4	20.2	1.87	125.8	±0.7 %
		Y	2.75	67.3	17.9		129.9	
		Z	3.10	70.4	19.7		120.2	
10108-CAC	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	X	6.43	67.7	20.1	5.80	137.8	±1.4 %
		Y	6.43	67.5	19.7		144.6	
		Z	6.36	67.6	20.0		131.5	
10110-CAC	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	X	6.17	67.4	20.0	5.75	134.4	±1.4 %
		Y	6.14	67.0	19.6		141.5	
		Z	6.02	67.0	19.7		128.3	
10154-CAC	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	X	6.13	67.3	19.9	5.75	133.5	±1.2 %
		Y	6.19	67.3	19.8		140.3	
		Z	6.04	67.1	19.8		128.2	
10169-CAB	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	X	5.00	66.8	19.8	5.73	117.2	±0.9 %
		Y	5.04	66.9	19.7		120.3	
		Z	4.89	66.5	19.7		111.8	
10175-CAC	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	X	4.97	66.6	19.7	5.72	117.2	±0.9 %
		Y	4.93	66.3	19.4		120.2	
		Z	4.87	66.5	19.8		111.6	
10297-AAA	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	X	6.51	68.0	20.3	5.81	137.1	±1.4 %
		Y	6.46	67.6	19.9		140.9	
		Z	6.37	67.6	20.0		130.4	

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

EX3DV4 Sn:3708

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Zeughausstrasse 43, 8004 Zurich, Switzerland

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Accreditation No.: SCS 0108

Client SRTC (Vitec) Certificate No: EX3-3708_Nov16

CALIBRATION CERTIFICATE

Object EX3DV4 - SN:3708

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

Calibration date: November 10, 2016

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

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Power sensor NRP-Z91	SN: 103245	06-Apr-16 (No. 217-02289)	Apr-17
Reference 20 dB Attenuator	SN: 5277 (20x)	05-Apr-16 (No. 217-02293)	Apr-17
Reference Probe ES3DV2	SN: 3013	31-Dec-15 (No. ES3-3013_Dec15)	Dec-16
DAE4	SN: 660	23-Dec-15 (No. DAE4-660_Dec15)	Dec-16
Secondary Standards	**ID**	**Check Date (in house)**	**Scheduled Check**
Power meter E4419B	SN: GB41293874	06-Apr-16 (in house check Jun-16)	In house check: Jun-18
Power sensor E4412A	SN: MY41498087	06-Apr-16 (in house check Jun-16)	In house check: Jun-18
Power sensor E4412A	SN: 000110210	06-Apr-16 (in house check Jun-16)	In house check: Jun-18
RF generator HP 8648C	SN: US3642U01700	04-Aug-99 (in house check Jun-16)	In house check: Jun-18
Network Analyzer HP 8753E	SN: US37390585	18-Oct-01 (in house check Oct-16)	In house check: Oct-17

	Name	Function	Signature
Calibrated by:	Michael Weber	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: November 12, 2016

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Accreditation No.: SCS 0108

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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:

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b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Methods Applied and Interpretation of Parameters:

- *NORMx,y,z*: Assessed for E-field polarization ϑ = 0 (f ≤ 900 MHz in TEM-cell; f > 1800 MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not affect the E^2-field uncertainty inside TSL (see below *ConvF*).
- *NORM(f)x,y,z = NORMx,y,z * frequency_response* (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of *ConvF*.
- *DCPx,y,z*: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- *PAR*: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- *Ax,y,z; Bx,y,z; Cx,y,z; Dx,y,z; VRx,y,z*: *A, B, C, D* are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. *VR* is the maximum calibration range expressed in RMS voltage across the diode.
- *ConvF and Boundary Effect Parameters:* Assessed in flat phantom using E-field (or Temperature Transfer Standard for f ≤ 800 MHz) and inside waveguide using analytical field distributions based on power measurements for f > 800 MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to *NORMx,y,z * ConvF* whereby the uncertainty corresponds to that given for *ConvF*. A frequency dependent *ConvF* is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- *Spherical isotropy (3D deviation from isotropy)*: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- *Sensor Offset*: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- *Connector Angle*: The angle is assessed using the information gained by determining the *NORMx* (no uncertainty required).

Probe EX3DV4

SN:3708

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

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

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

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	0.19	0.34	0.43	± 10.1 %
DCP (mV)[B]	95.0	101.8	105.0	

Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB√μV	C	D dB	VR mV	Unc[E] (k=2)
0	CW	X	0.0	0.0	1.0	0.00	136.7	±3.8 %
		Y	0.0	0.0	1.0		145.7	
		Z	0.0	0.0	1.0		142.1	
10011-CAB	UMTS-FDD (WCDMA)	X	3.21	65.1	17.7	2.91	139.2	±0.9 %
		Y	3.36	67.0	18.3		136.2	
		Z	3.56	68.8	19.4		129.8	
10021-DAB	GSM-FDD (TDMA, GMSK)	X	3.29	74.9	19.3	9.39	44.3	±1.9 %
		Y	2.15	65.6	13.6		97.3	
		Z	2.11	65.1	13.4		80.9	
10062-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps)	X	9.90	67.0	20.5	8.68	132.1	±3.3 %
		Y	10.02	68.4	21.3		127.5	
		Z	10.28	69.2	21.7		149.7	

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

[A] The uncertainties of Norm X,Y,Z do not affect the E^2-field uncertainty inside TSL (see Pages 5 and 6).
[B] Numerical linearization parameter: uncertainty not required.
[E] Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.