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SAR TEST REPORT

Report No. 2017SAR025

FCC ID:	SRQ-BLADEV8SE
Applicant:	ZTE Corporation
Product:	LTE/WCDMA/GSM (GPRS) Mutil-Mode Digital Mobile Phone
Model:	ZTE BLADE V8 SE /ZTE BLADE V0820 /ZTE BLADE V8 LITE /BLADE V8 SE
HW Version:	uy5A
SW Version:	TEL_MX_P650F10V1.0.0B01
Issue Date:	2017-02-03

Prepared by: Chen Qiang **Reviewed by:** Yin Xiaoming **Approved by:** Sun Guangxu (Technical Manager)

Remark: This report details the results of the testing carried out on the samples specified in this report, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. The report shall not be reproduced except in full, without written approval of the Company.

V2.0

Standards

Applicable Limit Regulations	**ANSI/IEEE C95.1-2005** Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields. 3 kHz to 300 GHz
	ANSI/IEEE C95.3-2002 Recommended Practice For Measurements and Computations of Radio Frequency Electromagnetic Fields with Respect to Human Exposure to such Fields. 100 kHz-300 GHz
Applicable Standards	**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
	KDB865664 D01v01r04: SAR Measurement 100 MHz to 6 GHz
	KDB865664 D02v01r02: Exposure Reporting
	KDB447498 D01v06: General RF Exposure Guidance
	KDB648474 D03v01r04: Handset Wireless Chargers Battery Covers
	KDB648474 D04v01r03: Handset SAR
	KDB248227 D01v02r02: 802 11 Wi-Fi SAR
	KDB941225 D01v03r01: 3G SAR Procedures
	KDB941225 D05v02r05: SAR for LTE Devices
	KDB941225 D06v02: Hotspot Mode

Conclusion

Localized Specific Absorption Rate (SAR) of this equipment has been measured in all cases requested by the relevant standards above. Maximum localized SAR is below exposure limits as well.

Change History

Version	Change Contents	Author	Date
V1.0	First edition	Chen Qiang	2017-01-12
V2.0	Update the calibration report of dipole 1900MHz and few mistakes	Chen Qiang	2017-02-03

Note: The last version will be invalid automatically while the new version is issued.

CONTENTS:

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **ZTE CORPORATION LTE/WCDMA/GSM（GPRS） Mutil-Mode Digital Mobile Phone ZTE BLADE V8 SE /ZTE BLADE V0820 /ZTE BLADE V8 LITE /BLADE V8 SE** are as follows.

Highest standalone SAR Summary:

Exposure Position	Frequency Band	Maximum reported 1g SAR (W/kg)	Highest reported 1g SAR (W/kg)
Head	GSM850(voice)	0.335	0.450
	GSM1900(voice)	0.165	
	WCDMA BAND II	0.330	
	WCDMA BAND V	0.324	
	LTE BAND 2	0.351	
	LTE BAND 4	0.297	
	LTE BAND 7	**0.450**	
	LTE BAND 12	0.131	
	LTE BAND 13	0.165	
	Wi-Fi（2.45G）	0.504	0.504
Body-worn /Hotspot Mode (10mm)	GSM850	0.666	0.780
	GSM1900	0.639	
	WCDMA BAND II	**0.780**	
	WCDMA BAND V	0.369	
	LTE BAND 2	0.746	
	LTE BAND 4	0.775	
	LTE BAND 7	0.770	
	LTE BAND 12	0.225	
	LTE BAND 13	0.323	
	Wi-Fi（2.45G）	0.096	0.096

Evaluation for Simultaneous SAR			
Summation BAND	**Exposure Position**	**Maximum reported 1g SAR (W/kg)**	**Summation SAR(1g) (W/kg)**
WWAN +WiFi	Head	0.450+0.504=0.954	＜1.6
	Body-worn(10mm)	0.780+0.096=0.876	＜1.6
WWAN +BT	Head	0.450+0.180=0.630	＜1.6
	Body-worn(10mm)	0.780+0.091=0.871	＜1.6

This device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits(1.6W/kg) specified in FCC 47 CFR part 2(2.1093) and ANSI/IEEE C95.1-2005,and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528-2013.

2. Administrative Information

2.1 Project Information

Date of start test	2016-12-21
Date of end test:	2016-12-31

2.2 Test Laboratory Information

Company:	Shanghai Tejet Communications Technology Co., Ltd Testing Center
Address:	Room 6205-6208, Building 6, No.399 Cailun Rd. Zhangjiang Hi-Tech Park, Shanghai, China
Post Code:	210203
Tel:	+86-21-61650880
Fax:	+86-21-61650881
Website:	www.tejet.cn

2.3 Test Environment

Temperature:	20℃～25 ℃
Relative Humidity:	20%～70%

3. Client Information

3.1 Applicant information

Company Name:	ZTE Corporation
Address:	ZTE Plaza, Keji Road South, Hi-Tech Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R.China
City:	Shenzhen
Postal Code:	518057
Country:	China
Telephone:	+86-755-86360200
Fax:	+86-755-86360298

3.2 Manufacturer Information

Company Name:	ZTE Corporation
Address:	ZTE Plaza, Keji Road South, Hi-Tech Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R.China
City:	Shenzhen
Postal Code:	518057
Country:	China
Telephone:	+86-755-86360200
Fax:	+86-755-86360298

4. Equipment Under Test (EUT) and Accessory Equipment (AE)

4.1 Information of EUT

Device Type	Portable device
Product	LTE/WCDMA/GSM（GPRS） Mutil-Mode Digital Mobile Phone
Model	ZTE BLADE V8 SE /ZTE BLADE V0820 /ZTE BLADE V8 LITE /BLADE V8 SE
Type	Identical Prototype
Exposure Category	Uncontrolled environment / general population
Device operation configuration:	
Operating Mode(s):	GSM850
	PCS1900
	WCDMA BAND II/V
	LTE BAND 2/4/7/12/13
	802.11b/g/n（20M）
Test Modulation	(GSM/GPRS)GMSK，(EDGE)QPSK/8PSK （WCDMA）QPSK,(LTE)QPSK/16QAM
GPRS Operation Class	B
GPRS Multislot Class	12
EDGE Class	12
DTM Support	N/A
AP Support	Yes
Rated Output Power	GSM 850:33.5dBm
	PCS1900: 30.5dBm
	WCDMA BAND II: 24dBm
	WCDMA BAND V: 24dBm
	LTE BAND 2/4/7/12/13 : 23.5dBm
	802.11b：18dBm 802.11g：14dBm 802.11n(20M)：13dBm
	BT：5.5dBm
Band Width	LTE BAND 2: 1.4,3,5,10,15,20
	LTE BAND 4: 1.4,3,5,10,15,20
	LTE BAND 7: 5,10,15,20
	LTE BAND 12: 1.4,3,5,10
	LTE BAND 13: 5,10

WCDMA category	6（uplink），24（downlink）	
GSM Release version	R4	
WCDMA Release version	R9	
LTE Release version	R10	
Antenna Type:	Internal antenna	
Operating Frequency Range(s):	Band	Tx(MHz)
	GSM850	824.2～848.8
	PCS1900	1850.2～1909.8
	WCDMA BAND II	1852.4～1907.6
	WCDMA BAND V	826.4～846.6
	LTE BAND 2	1850～1910
	LTE BAND 4	1710～1755
	LTE BAND 7	2500～2570
	LTE BAND 12	699～716
	LTE BAND 13	777～787
Power Class	GSM850: 4,test with power level 5	
	PCS1900: 1,test with power level 0	
	WCDMA BAND II/V：3，test with maximum output power	
	LTE BAND 2/4/7/12/13：test with maximum output power	
EUT size	length, width：14.4cm*7cm diagonal length：14.6cm	
Size of display	length, width: 11.1cm *6.2cm diagonal length：12.4cm	

4.2 Identification of EUT

EUT ID	SN or IMEI	HW Version	SW Version	Received Date
TN01	863243030017398	uy5A	TEL_MX_P650F10V1.0.0B01	2016-12-20

*EUT ID: identify the test sample in the lab internally.

4.3 Identification of AE

AE ID*	Description
AE1	Battery
AE2	Travel Adaptor
AE3	Earphone

AE1

Model	Li3925T44P6h765638
Manufacturer	ZTE CORPORATION
Capacitance	2500mAh
Nominal Voltage	3.85V

AE2

Model	STC-A515A-Z
Manufacturer	DOKOCOM
Length of DC line	0cm with USB connector

AE3

Model	HMZ1-CTIA-3.5
Manufacturer	/
Length of DC line	130cm

*AE ID: identify the test sample in the lab internally.

5. Operational Conditions during Test

5.1 General description of test procedures

A communication link is set up with a system simulator by air link， and a call is established. The absolute radio frequency channel is allocated to low, middle and high respectively in the case of each band. The EUT is commanded to operate at maximum transmitting power.

Connection to the EUT is established via air interface with CMU200, and the EUT is set to maximum output power by CMU200. The antenna connected to the output of the base station simulator shall be placed at least 50 cm away from the EUT. The signal transmitted by the simulator to the antenna feeding point shall be lower than the output power level of the EUT by at least 30dB.

The AP is supported，
According to KDB941225 D06,

1. The device size is 14.2 cm x 7.0 cm > 9 cm x 5 cm, so test separation distance was 10mm. The test separation distance is given by user manual
2. SAR must be tested for all surfaces and edges with a transmit antenna within 2.5cm, at a test separation distance of 10mm. And also the worst position of head are tested with Wi-Fi keep transmitting.

5.2 GSM Test Configuration

SAR test for GSM 850/1900, a communication link is set up with a system simulator by air link. Using CMU200 the power level is set to “5” in SAR of GSM850，set to “0” in SAR of GSM 1900，The tests in the band of GSM850/1900 are performed in the mode of voice and data transfer function.

For Class A devices, the SAR evaluation must take into account the maximum CS and PS time slots defined by the DTM multislot class for the device, with respect to head body-worn accessory and other near body operating configurations and exposure conditions. SAR may be evaluated for DTM with the device operating in DTM using one CS plus the number of PS time-slots that result in the highest source-based time-averaged maximum output or by summing the single time-slot CS and highest maximum output multislot PS SAR.38 A communication test set with DTM support is necessary to configure the test device for SAR measurement in DTM mode. Alternatively, the single slot CS GSM/GMSK voice mode SAR for each applicable exposure condition can be added respectively to the PS (E)GPRS multislot data-mode SAR to demonstrate SAR compliance for DTM.

5.3 WCDMA Test Configuration

SAR test for WCDMA BANDII/V, a communication link is set up with a system simulator by air link. Using CMU200 the power level is set to “3” in SAR of WCDMA BAND II/V. The tests in the band of WCDMA BAND II/V are performed in the mode of RMC 12.2kbps transfer function.

SAR for body exposure configurations in voice and data modes is measured using 12.2kbps RMC with TPC bits configured to all “1’s”. SAR for other spreading codes and multiple DPDCHn , when supported by the DYT, are not required when the maximum average output of each RF channel, for each spreading code and DPDCHn configuration, are lessthan 1/4 dB higher than those measured in 12.2 kbps RMC. Otherwise , SAR is measured on the maximum output channel with an applicable RMC configuration for the corresponding spreading code or DPDCHn using the exposure configuration that results in the highest SAR with 12.2 kbps RMC. When more than 2 DPDCHn are supported by the DUT, it may be necessary to configure additional DPDCHn for a DUT using FTM(Factory Test Mode) or other chipset based test approaches with parameters similar to those used in 384kbps and 968 kbps RMC.

HSDPA Test Configuration

Body SAR is also measured for HSDPA when the maximum average output of each RF channel with HSDPA active is at least 1/4 dB higher than that measured without HSDPA using 12.2 kbps RMC or the maximum SAR 12.2 kbps RMC is above75% of the SAR limit. Body SAR is measured using an FRC with H-Set 1 in Sub-test 1 and a 12.2 kbps RMC configured in Test Loop Mode 1 , using the highest body SAR configuration in 12.2 kbps RMC without HSDPA.
HSDPA should be configured according to the UE category of a test device. The number of HS-DSCH/HS-PDSCHs, HARQ processes , minimum inter-TTI interval, transport block sizes and RV coding sequence are defined by the H-set f. To maintain a consistent test configuration and stable transmission condition, QPSK is user in the H-set for SAR testing. HS-DPCCH should be configured with a CQI feedback cycle of 4 ms with a CQI repetition factor of 2 to maintain a constant rate of active CQI slots. DPCCH and DODCH gain factors(β c,β d), and HS_DPCCH power offset parameters(△ACK, △NACK, △CQI) should be set according to values indicated in the Table below. The CQI value is determined by the UE category, transport block size, number of HS_PDSCHs and modulation used in the H-set.

Table 1:Subtest for UMTS Release 5 HSDPA

Sub-set	β c	β d	B d（SF）	B c/β d	β hs	CM(dB)
1	2/15	15/15	64	2/15	4/15	0.0
2	12/15	15/15	64	12/15	24/15	1.0
3	15/15	8/15	64	15/8	30/15	1.5
4	15/15	4/15	64	15/4	30/15	1.5
Note 1: △ACK, △NACK, △CQI=8⇔Ahs=β hs/β c=30/15⇔β hs=30/15c Note 2: CM=1 forβ c/β d=12/15, β hs/β c=24/15 Note 3: For subset 2 theβ cβ d ratio of 12/15 for the TFC during the measurement period(TF1,TF0) is achieved by setting the signaled gain factor for the reference TFC						

(TFC1,TF1) toβ c=11/15 andβ d=15/15.

Table 2:Settings of required H-set 1 QPSK in HSDPA mode

Parameter	Unit	Value
Nominal Avg.Inf.Bit Rate	Kbps	534
Inter-TTI Distance	TTI's	3
Number of HARQ Processes	Processes	2
Information Bit Payload	Bitw	3202
Number Code Blocks	Blocks	1
Binary Channel Bits Per TTI	Bots	4800
Total Avaliable SML's in UE	SML's	19200
Number of SML's per HARQ Proc.	SML's	9600
Coding Rate	/	0.67
Number of Physical Channel Codes	Codes	5
Modulation	/	QPSK

Table 3：HSDPA UE category

HS-DSCH Category	Maximum HS_DSCH Codes Received	Minimum Inter-TTI Interval	Maximum Transport Bits/HS-DSCH	Total Channel
1	5	3	7298	19200
2	5	3	7298	28800
3	5	2	7298	28800
4	5	2	7298	38400
5	5	1	7298	57600
6	5	1	7298	67200
7	10	1	14411	115200
8	10	1	14411	134400
9	15	1	25251	172800
1 2	15	1	27952	172800
1 1	5	2	3630	14400
1 2	5	1	3630	28800
1 3	15	1	34800	259200
1 4	15	1	42196	259200
1 5	15	1	23370	345600
1 6	15	1	27952	345600

HSUPA Test Configuration

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	0.0	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	1.0	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	0.0	21	81

Note 1: Δ_{ACK}, Δ_{NACK} and $\Delta_{CQI} = 8 \Leftrightarrow A_{hs} = \beta_{hs}/\beta_c = 30/15 \Leftrightarrow \beta_{hs} = 30/15 * \beta_c$.
Note 2: 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.
Note 3: 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.
Note 4: 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.
Note 5: Testing UE using E-DPDCH Physical Layer category 1 Sub-test 3 is not required according to TS 25.306 Table 5.1g.
Note 6: β_{ed} can not be set directly; it is set by Absolute Grant Value.

applicable only if Maximum Power Reduction (MPR) is implemented according to Cubic Metric (CM) requirements.[37]

SAR is required for Rel. 8 DC-HSDPA when SAR is required for Rel. 5 HSDPA; otherwise, the 3G SAR test reduction procedure is applied to DC-HSDPA with 12.2 kbps RMC as the primary mode. Power is measured for DC-HSDPA according to the H-Set 12, FRC configuration in Table C.8.1.12 of 3GPP TS 34.121-1 to determine SAR test reduction. A primary and a secondary serving HS-DSCH Cell are required to perform the power measurement and for the results to be acceptable.

5.4 LTE Test Configuration

SAR tests for LTE are performed with a base station simulator, Anritsu MT8820C.
Closed loop power control was used so the UE transmits with maximum output power during SAR testing. All powers were measured with the MT8820C.

Maximum power reduction (MPR)
It must be clearly identified if Maximum Power Reduction (MPR) is implemented and whether it is an optional or permanent feature, i.e., built-in by design. MPR may be considered during SAR testing only when the maximum output power is permanently limited by the MPR implemented within the device, according to the RB (resource block) configurations specified in 3GPP/LTE standards. Regardless of network requirements, only those RB configurations allowed by 3GPP for the channel bandwidth and modulation combinations may be tested with MPR active. Configurations with RB allocations less than the RB thresholds required by 3GPP must be tested without MPR. A-MPR (additional MPR) must be disabled during SAR testing.

The maximum average conducted output power measurd
according to the following configurations, for the required test channels, channel bandwidths and uplink modulations, in each frequency band, are used to support the SAR test reduction and exclusion.

• 100% RB allocation

• 1 RB and also 50% RB allocation, offset to the upper edge, middle and lower edge of the channel bandwidth of each required test channel

According to FCC KDB941225 D05V02r05：

Start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power among RB offsets at the upper edge, middle and lower edge of each required test channel.

QPSK with 50% RB allocation SAR testing follows 1 RB QPSK allocation procedure.

For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations, and the highest reported SAR for 1 RB and 50% RB allocation in 5.2.1 and 5.2.2 are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.

16QAM output power for each RB allocation configuration is not > ½ dB higher than the same configuration in QPSK or when the reported SAR for the QPSK configuration is ≤ 1.45 W/kg. 16QAM SAR testing is not required

Smaller bandwidth output power for each RB allocation configuration is not > ½ dB higher than the same configuration in QPSK or when the reported SAR for the QPSK configuration is ≤ 1.45 W/kg.Smaller bandwidth SAR testing is not required

5.5 Bluetooth Test Configuration

The Bluetooth transmitter of the device under test can be excluded from stand-alone and simultaneous SAR evaluation, per the requirements from FCC KDB 648474, as follows:

1. The separation between the Bluetooth antenna and the main antenna is 12.5cm
2. The maximum conducted output power of Bluetooth is 5.5dBm=3.55mW<P（max）=19mW
   According to FCC KDB648474, stand along SAR and Simultaneous Transmission SAR are not required.
   According to FCC KDB447498v06, Apppendix A

Appendix A

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

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

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

For 2450MHz，10mm test distance, P（max）=19mW

For Simultaneous Transmission analysis, Bluetooth SAR is estimated per KDB 447498 D01v05 based on the formula below.

(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] • [√f(GHz)/x] W/kg for test separation distances ≤ 50 mm;

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

0.4 W/kg for 1-g SAR and 1.0 W/kg for 10-g SAR, when the test separation distances is > 50 mm

Bluetooth	Turn-up Maximum Power(dBm)	Head 0mm gap	Body-worn 10mm gap
Estimated SAR(W/kg)	5.5	0.180	0.090

According to FCC KDB447498v06, Apppendix D

For 2450MHz，10mm test distance ,SAR1g（BT）=0.091W/Kg

5.6 Wi-Fi Test Configuration

The Wi-Fi is set to different data rate and channels by the software.

According to KDB648474:

1. The separation between the Wi-Fi antenna and the main antenna is 12.5cm

2.The maximum conducted output power of Wi-Fi is18dBm=63.10mW＞P（max）=19mW

So stand along SAR is needed。

According to KDB248227 D01 802.11 Wi-Fi SAR v02r02

SAR is measured using the highest measured maximum output power channel for the initial test configuration (see 5.3.2 and 5.3.3). SAR measurement and test reduction for the remaining 802.11 modes and test channels are determined according to measured or specified maximum output power and reported SAR of the initial measurements. The general test reduction and SAR measurement approaches are summarized in the following:

a) The maximum output power specified for production units are determined for all applicable 802.11 transmission modes in each standalone and aggregated frequency band. Maximum output power is measured for the highest maximum output power configuration(s) in each frequency band according to the default power measurement procedures (see Clause 4).

b) For OFDM transmission configurations in the 2.4 GHz and 5 GHz bands, an “initial test configuration” (see 5.3.2) is first determined for each standalone and aggregated frequency band according to the maximum output power and tune-up tolerance specified for production units.

1) When the same maximum power is specified for multiple transmission modes in a frequency band, the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order 802.11a/g/n/ac mode is used for SAR measurement, on the highest measured output power channel in the initial test configuration, for each frequency band.

2) SAR is measured for OFDM configurations using the initial test configuration procedures (see 5.3.3). Additional frequency band specific SAR test reduction may be considered for individual frequency bands (see 5.2.2 and 5.3.1).

3) Depending on the reported SAR of the highest maximum output power channel tested in the initial test configuration, SAR test reduction may apply to subsequent highest output channels in the initial test configuration to reduce the number of SAR measurements.

c) The Initial test configuration does not apply to DSSS. The 2.4 GHz band SAR test requirements (see 3.1) and 802.11b DSSS procedures (see 5.2.1) are used to establish the transmission configurations required for SAR measurement.

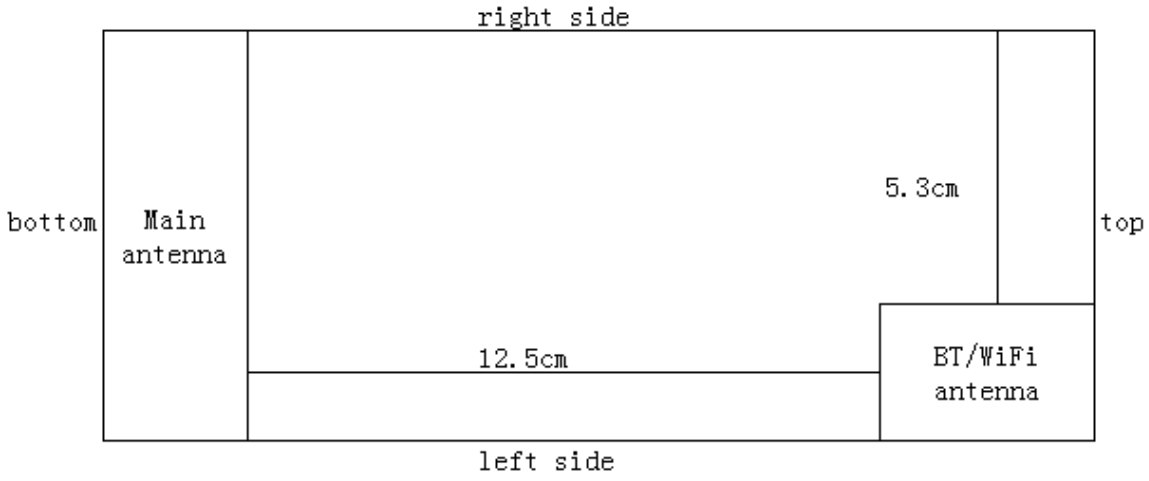
d) An “initial test position” (see 5.1) is applied to further reduce the number of SAR tests for devices operating in next to the ear, UMPC mini-tablet or hotspot mode exposure configurations that require multiple test positions.

1) SAR is measured for 802.11b according to the 2.4 GHz DSSS procedure (see 5.2.1) using the exposure condition established by the initial test position.

2) SAR is measured for 2.4 GHz and 5 GHz OFDM configurations using the initial test configuration.

e) The Initial test position does not apply to devices that require a fixed exposure test position. SAR is measured in a fixed exposure test position for these devices in 802.11b according to the 2.4 GHz DSSS procedure (see 5.2.1) or in 2.4 GHz and 5 GHz OFDM configurations using the initial test configuration procedures (see 5.3.3).

f) The “subsequent test configuration” (see 5.3.4) procedures are applied to determine if additional SAR measurements are required for the remaining OFDM transmission modes that have not been tested in the initial test configuration. SAR test exclusion is determined according to reported SAR in the initial test configuration and maximum output power specified or measured for these other OFDM configurations.



Picture of antennas

SAR is measured for all edges and surfaces of the device with a transmitting antenna located within 25 mm from that surface or edge.

Band	Position for test (yes or n/a)					
	Front	Back	Leftside	Rightside	Top	Bottom
WWAN	yes	yes	yes	yes	n/a 12.5cm>2.5cm	yes
WLAN	yes	yes	yes	n/a 5.3cm>2.5cm	yes	n/a 12.5cm>2.5cm

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Front—toward phantom

Back---towards ground

6. SAR Measurements system configuration

6.1 SAR Measurement set-up

The DASY5 system for performing compliance tests consists of the following items:

·A standard high precision 6-axis robot (Staubli TX=RX family) with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
·An isotropic _field probe optimized and calibrated for the targeted measurement.
·A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
·The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server.
·The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
·The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
·A computer running WinXP and the DASY5 software.
·Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.
·The generic twin phantom enabling the testing of left-hand and right-hand usage.
·The device holder for handheld mobile phones.
·Tissue simulating liquid mixed according to the given recipes.
·System validation dipoles allowing to validate the proper functioning of the system.

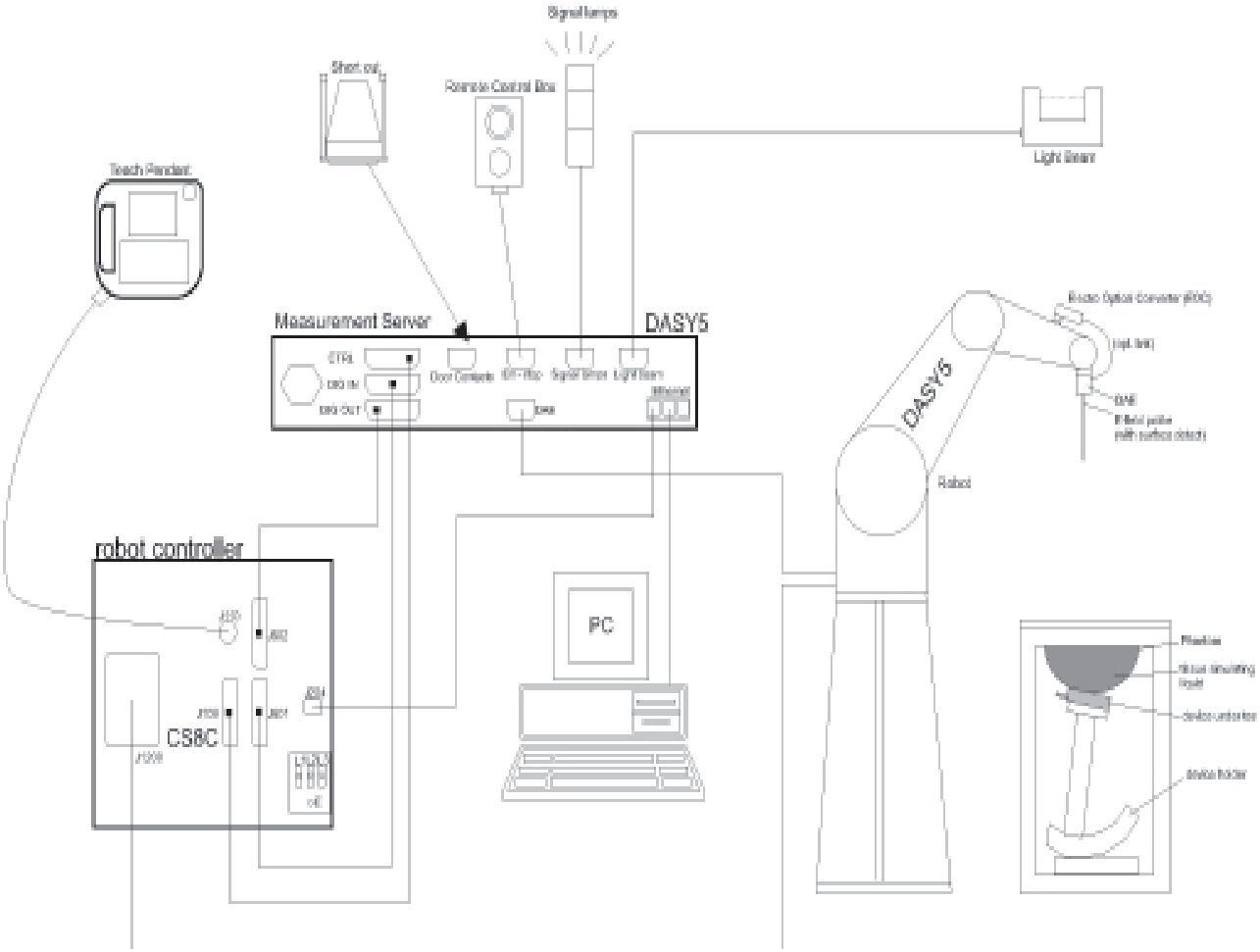

Figure 5-1 SAR Lab Test Measurement Set-up

6.2 DASY5 E-field Probe System

The SAR measurements were conducted with the dosimetric probe ES3DV3 (manufactured by SPEAG), designed in the classical triangular configuration and optimized for dosimetric evaluation.

6.2.1 Ex3DV4 Probe Specification

Construction	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Calibration	Basic Broad Band Calibration in air Conversion Factors (CF) for HSL 850 and HSL 1750 Additional CF for other liquids and frequencies upon request
Frequency	10 MHz to > 6 GHz Linearity: ± 0.2 dB (30 MHz to 6 GHz)
Directivity	± 0.3 dB in HSL (rotation around probe axis) ± 0.5 dB in tissue material (rotation normal to probe axis)
Dynamic Range	10 µW/g to > 100 mW/g Linearity: ± 0.2dB (noise: typically < 1 µW/g)

Dimensions	Overall length: 330 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm
Application	High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields). Only probe which enables compliance testing for frequencies up to 6 GHz with precision of better 30%.

Figure 5-2.Ex3DV4 E-field Probe

Figure 5-3. Ex3DV4 E-field probe

6.2.2 E-field Probe Calibration

Each probe is calibrated according to a dosimetric assessment procedure with accuracy better than ±10%. The spherical isotropy was evaluated and found to be better than ± 0.25dB. The sensitivity parameters (NormX, NormY, NormZ), the diode compression parameter (DCP) and the conversion factor (ConvF) of the probe are tested.

The free space E-field from amplified probe outputs is determined in a test chamber. This is performed in a TEM cell for frequencies bellow 1 GHz, and in a wave guide above 1 GHz for free space. For the free space calibration, the probe is placed in the volumetric center of the cavity and at the proper orientation with the field. The probe is then rotated 360 degrees.

E-field temperature correlation calibration is performed in a flat phantom filled with the appropriate simulated brain tissue. The measured free space E-field in the medium correlates to temperature rise in a dielectric medium. For temperature correlation calibration a RF transparent thermistor-based temperature probe is used in conjunction with the E-field probe.

$$SAR = C\frac{\Delta T}{\Delta t}$$

Where: Δt = Exposure time (30 seconds),
C = Heat capacity of tissue (brain or muscle),
ΔT = Temperature increase due to RF exposure.
Or

$$SAR = \frac{|E|^2 \sigma}{\rho}$$

Where:
σ = Simulated tissue conductivity,
ρ = Tissue density (kg/m3).

6.3 Other Test Equipment

6.3.1 Device Holder for Transmitters

The DASY5 device holder is designed to cope with the die rent positions given in the standard. It has two scales for device rotation (with respect to the body axis) and device inclination (with respect to the line between the ear reference points). The rotation centers for both scales are the ear reference point (ERP). Thus the device needs no repositioning when changing the angles. The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the inference of the clamp on the test results could thus be lowered.

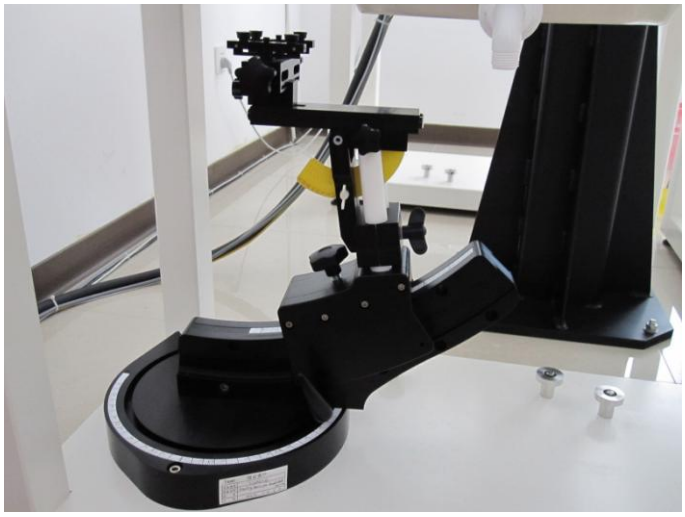

Figure 5-4.Device Holder

6.3.2 Phantom

The Generic Twin Phantom is constructed of a fiberglass shell integrated in a wooden Figure. The shape of the shell is based on data from an anatomical study designed to determine the maximum exposure in at least 90% of all users. It enables the dosimetric evaluation of left and right hand phone usage as well as body mounted usage at the flat phantom region. A cover prevents the evaporation of the liquid. Reference markings on the Phantom allow the complete setup of all predefined phantom positions and measurement grids by manually teaching three points in the robot.

Shell Thickness	2±0.1 mm
Filling Volume	Approx. 20 liters
Dimensions	810 x l000 x 500 mm (H x L x W)

Aailable Special

Figure 5-5.Generic Twin Phantom

6.4 Scanning procedure

The DASY5 installation includes predefined files with recommended procedures for measurements and validation. They are read-only document files and destined as fully defined but unmeasured masks. All test positions (head or body-worn) are tested with the same configuration of test steps differing only in the grid definition for the different test positions.

• The “reference” and “drift” measurements are located at the beginning and end of the batch process. They measure the field drift at one single point in the liquid over the complete procedure. The indicated drift is mainly the variation of the DUT’s output power and should vary max. ±5%.

• The “surface check” measurement tests the optical surface detection system of the DASY5 system by repeatedly detecting the surface with the optical and mechanical surface detector and comparing the results. The output gives the detecting heights of both systems, the difference between the two systems and the standard deviation of the detection repeatability. Air bubbles or refraction in the liquid due to separation of the sugar-water mixture gives poor repeatability (above ± 0.1mm). To prevent wrong results tests are only executed when the liquid is free of air bubbles. The difference between the optical surface detection and the actual surface depends on the probe and is specified with each probe. (It does not depend on the surface reflectivity or the probe angle to the surface within ± 30°.)

• Area Scan

The Area Scan is used as a fast scan in two dimensions to find the area of high field values before running a detailed measurement around the hot spot. Before starting the area scan a grid spacing of 15 mm x 15 mm is set. During the scan the distance of the probe to the phantom remains unchanged.

After finishing area scan, the field maxima within a range of 2 dB will be ascertained.

• Zoom Scan

Zoom Scans are used to estimate the peak spatial SAR values within a cubic averaging volume containing 1 g and 10 g of simulated tissue. The default Zoom Scan is done by 7x7x7 points within a cube whose base is centered around the maxima found in the preceding area scan.

• Spatial Peak Detection

The procedure for spatial peak SAR evaluation has been implemented and can determine values of masses of 1g and 10g, as well as for user-specific masses. The DASY5 system allows evaluations that combine measured data and robot positions, such as:

• maximum search
• extrapolation
• boundary correction
• peak search for averaged SAR

During a maximum search, global and local maxima searches are automatically performed in 2-D after each Area Scan measurement with at least 6 measurement points. It is based on the evaluation of the local SAR gradient calculated by the Quadratic Shepard ‘s method. The algorithm will find the global maximum and all local maxima within -2 dB of the global maxima for all SAR distributions.

Extrapolation routines are used to obtain SAR values between the lowest measurement points and the inner phantom surface. The extrapolation distance is determined by the surface detection distance and the probe sensor offset. Several measurements at different distances are necessary for the extrapolation. Extrapolation routines require at least 10 measurement points in 3-D space.

They are used in the Zoom Scan to obtain SAR values between the lowest measurement points and the inner phantom surface. The routine uses the modified Quadratic Shepard's method for extrapolation. For a grid using 7x7x7 measurement points with 5mm resolution amounting to 343 measurement points, the uncertainty of the extrapolation routines is less than 1% for 1g and 10g cubes.

• A Z-axis scan measures the total SAR value at the x-and y-position of the maximum SAR value found during the cube 7x7x7 scan. The probe is moved away in z-direction from the bottom of the SAM phantom in 5mm steps.

6.5 Data Storage and Evaluation

6.5.1 Data Storage

The DASY5 software stores the acquired data from the data acquisition electronics as raw data (in microvolt readings from the probe sensors), together with all necessary software parameters

for the data evaluation (probe calibration data, liquid parameters and device frequency and modulation data) in measurement files with the extension ".DA4". The software evaluates the desired unit and format for output each time the data is visualized or exported. This allows verification of the complete software setup even after the measurement and allows correction of incorrect parameter settings. For example, if a measurement has been performed with a wrong crest factor parameter in the device setup, the parameter can be corrected afterwards and the data can be re-evaluated. The measured data can be visualized or exported in different units or formats, depending on the selected probe type ([V/m], [A/m], [°C], [mW/g], [mW/cm²], [dBrel], etc.). Some of these units are not available in certain situations or show meaningless results, e.g., a SAR output in a lossless media will always be zero. Raw data can also be exported to perform the evaluation with other software packages.

6.5.2 Data Evaluation by SEMCAD

The SEMCAD software automatically executes the following procedures to calculate the field units from the microvolt readings at the probe connector. The parameters used in the evaluation are stored in the configuration modules of the software:

Probe parameters:	- Sensitivity	Normi, a_{i0}, a_{i1}, a_{i2}
	- Conversion factor	$ConvF_i$
	- Diode compression point	Dcp_i
Device parameters:	- Frequency	f
	- Crest factor	cf
Media parameters:	- Conductivity	
	- Density	

These parameters must be set correctly in the software. They can be found in the component documents or they can be imported into the software from the configuration files issued for the DASY5 components. In the direct measuring mode of the multimeter option, the parameters of the actual system setup are used. In the scan visualization and export modes, the parameters stored in the corresponding document files are used.
The first step of the evaluation is a linearization of the filtered input signal to account for the compression characteristics of the detector diode. The compensation depends on the input signal, the diode type and the DC-transmission factor from the diode to the evaluation electronics.

If the exciting field is pulsed, the crest factor of the signal must be known to correctly compensate for peak power. The formula for each channel can be given as:

$$V_i = U_i + U_i^2 \cdot c f / d c p_i$$

With V_i = compensated signal of channel i (i = x, y, z)

U_i = input signal of channel i (i = x, y, z)

cf = crest factor of exciting field (DASY parameter)

dcpi = diode compression point (DASY parameter)

From the compensated input signals the primary field data for each channel can be evaluated:

E-field probes: $E_i = (V_i / Norm_i \cdot ConvF)^{1/2}$

H-field probes: $H_i = (V_i)^{1/2} \cdot (a_{i0} + a_{i1} f + a_{i2} f_2) / f$

With V_i = compensated signal of channel i (i = x, y, z)

$Norm_i$ = sensor sensitivity of channel i (i = x, y, z)

[mV/(V/m)²] for E-field Probes

ConvF = sensitivity enhancement in solution

a_{ij} = sensor sensitivity factors for H-field probes

f = carrier frequency [GHz]

E_i = electric field strength of channel i in V/m

H_i = magnetic field strength of channel i in A/m

The RSS value of the field components gives the total field strength (Hermitian magnitude):

$E_{tot} = (E_x^2 + E_Y^2 + E_z^2)^{1/2}$

The primary field data are used to calculate the derived field units.

$SAR = (E_{tot}^2 \cdot \quad) \square \ / (\ \cdot 1000)$

with **SAR** = local specific absorption rate in mW/g

E_{tot} = total field strength in V/m

□ = conductivity in [mho/m] or [Siemens/m]

□ = equivalent tissue density in g/cm3

Note that the density is normally set to 1 (or 1.06), to account for actual brain density rather than the density of the simulation liquid. The power flow density is calculated assuming the excitation field to be a free space field.

$P_{pwe} = E_{tot}^2 / 3770$ or $P_{pwe} = H_{tot}^2 \cdot 37.7$

with P_{pwe} = equivalent power density of a plane wave in mW/cm²

E_{tot} = total electric field strength in V/m

H_{tot} = total magnetic field strength in A/m

6.6 System check

The manufacturer calibrates the probes annually. Dielectric parameters of the tissue simulates were measured every day using the dielectric probe kit and the network analyzer. A system check measurement was made following the determination of the dielectric parameters of the simulates, 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 check results (dielectric parameters and SAR values) are given in the 6.2.1 and6.2.2

System check results have to be equal or near the values determined during dipole calibration with the relevant liquids and test system (±10 %).
System check is performed regularly on all frequency bands where tests are performed with the DASY 5 system.

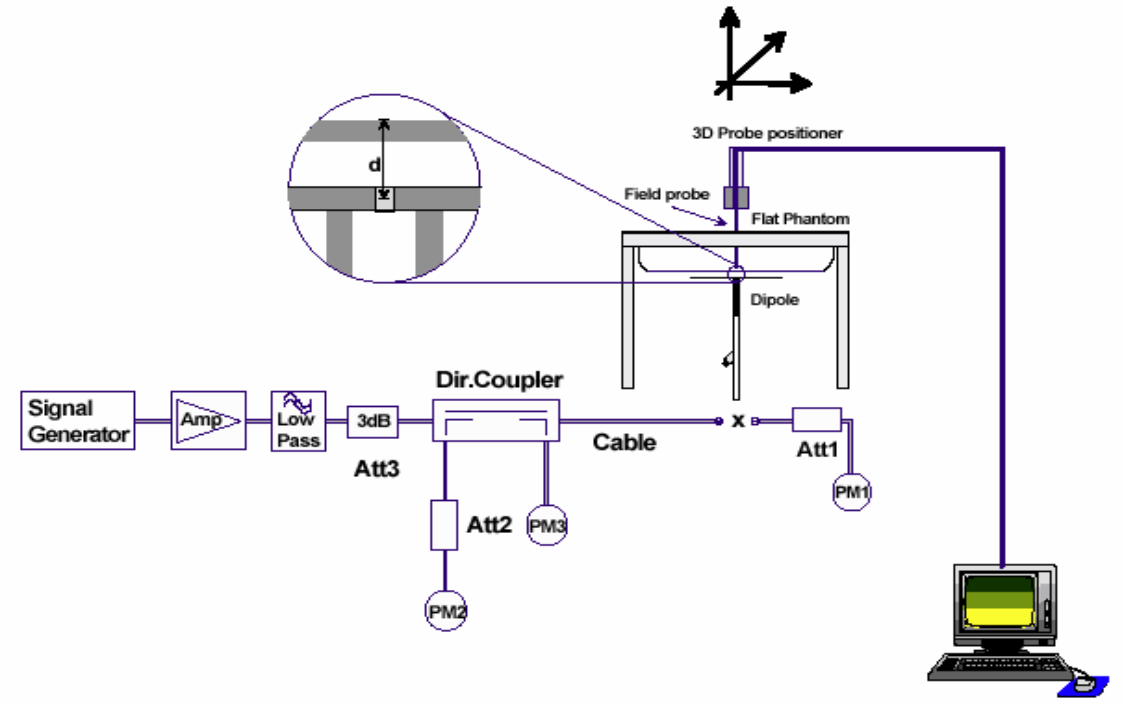

Figure 5-6. System Check Set-up

6.7 Equivalent Tissues

The liquid is consisted of water, salt, Glycol, Sugar, Preventol and Cellulose. The liquid has previously been proven to be suited for worst-case. The Table show the detail solution. It's

satisfying the latest tissue dielectric parameters requirements proposed by the OET 65.

MIXTURE%	FREQUENCY(head) 750MHz
Water	38.82
Sugar	59.01
Salt	1.86
Preventol	0.16
Cellulose	0.16
Dielectric Parameters Target Value	f=750MHz ε=41.9 σ=0.89
MIXTURE%	FREQUENCY(body) 750MHz
Water	50.92
Sugar	48.01
Salt	0.76
Preventol	0.16
Cellulose	0.16
Dielectric Parameters Target Value	f=750MHz ε=55.5 σ=0.96
MIXTURE%	FREQUENCY(head) 835MHz
Water	40.4
Sugar	56
Salt	2.5
Preventol	0.1
Cellulose	1
Dielectric Parameters Target Value	f=835MHz ε=41.5 σ=0.90
MIXTURE%	FREQUENCY(body) 835MHz
Water	52.5
Sugar	45
Salt	1.4
Preventol	0.1
Cellulose	1
Dielectric Parameters Target Value	f=835MHz ε=55.2 σ=0.97
MIXTURE%	FREQUENCY(head)1750MHz
Water	55.242
Glycol monobutyl	44.452
Salt	0.306

Dielectric Parameters Target Value	f=1750MHz ε=40.0 σ=1.40
MIXTURE%	FREQUENCY(body)1750MHz
Water	69.91
Glycol monobutyl	29.96
Salt	0.13
Dielectric Parameters Target Value	f=1750MHz ε=53.4 σ=1.49
MIXTURE%	FREQUENCY(head)1900MHz
Water	55.242
Glycol monobutyl	44.452
Salt	0.306
Dielectric Parameters Target Value	f=1900MHz ε=40.0 σ=1.40
MIXTURE%	FREQUENCY(body)1900MHz
Water	69.91
Glycol monobutyl	29.96
Salt	0.13
Dielectric Parameters Target Value	f=1900MHz ε=53.3 σ=1.52
MIXTURE%	FREQUENCY(head)2450MHz
Water	56
Glycol monobutyl	44
Salt	0
Dielectric Parameters Target Value	f=2450MHz ε=39.2 σ=1.8
MIXTURE%	FREQUENCY(body)2450MHz
Water	70
Glycol monobutyl	30
Salt	0
Dielectric Parameters Target Value	f=2450MHz ε=52.7 σ=1.95
MIXTURE%	FREQUENCY(head)2600MHz
Water	55.49
Glycol monobutyl	44.39

Salt	**0.12**
Dielectric Parameters Target Value	**f=2600MHz ε=39.0 σ=1.96**
MIXTURE%	**FREQUENCY(Body)2600MHz**
Water	**69.5**
Glycol monobutyl	**30.4**
Salt	**0**
Dielectric Parameters Target Value	**f=2600MHz ε=52.5 σ=2.16**

7. Summary of Test Results

7.1 Conducted Output Power Measurement

7.1.1 Summary

The DUT is tested using CMU200/MT8820C communications tester as controller unit to set test channels and maximum output power to the DUT, as well as for measuring the conducted power.
Conducted output power was measured using an integrated RF connector and attached RF cable.
This result contains conducted output power for the EUT.

7.1.2 Conducted Power Results

GSM850		Conducted output power(dBm)						
		low	middle	high				
		CH128	CH189	CH251				
		824.2MHz	836.6MHz	848.8MHz				
GSM		33.1	33.1	**33.2**	(dB)	CH128	CH189	CH251
GPRS	1 TX-slot result	33.1	33.1	33.2	-9.03	24.07	24.07	24.17
	2 TX-slot result	32.1	32.1	32.2	-6.02	26.08	26.08	**26.18**
	3 TX-slot result	30.2	30.2	30.1	-4.26	25.94	25.94	25.84
	4 TX-slot result	29.1	29.0	29.0	-3.01	26.09	25.99	25.99
EDGE (8PSK)	1 TX-slot result	26.7	26.7	26.5	-9.03	17.67	17.67	17.47
	2 TX-slot result	25.6	25.7	25.4	-6.02	19.58	19.68	19.38
	3 TX-slot result	23.5	23.5	23.3	-4.26	19.24	19.24	19.04
	4 TX-slot result	22.3	22.3	22.2	-3.01	19.29	19.29	19.19

GSM1900		Conducted output power(dBm)						
		low	middle	high				
		CH512	CH661	CH810				
		1850.2MHz	1880MHz	1909.8MHz				
GSM		30.3	30.3	**30.4**	(dB)	CH512	CH661	CH810
GPRS	1 TX-slot result	30.3	30.3	30.4	-9.03	21.27	21.27	21.37
	2 TX-slot result	29.4	29.4	29.6	-6.02	23.38	23.38	**23.58**
	3 TX-slot result	27.3	27.3	27.5	-4.26	23.04	23.04	23.24
	4 TX-slot result	26.1	26.1	26.3	-3.01	23.09	23.09	23.29

EDGE (8PSK)	1 TX-slot result	26.0	26.0	26.0	-9.03	16.97	16.97	16.97
	2 TX-slot result	24.8	24.9	24.8	-6.02	18.78	18.88	18.78
	3 TX-slot result	22.6	22.5	22.5	-4.26	18.34	18.24	18.24
	4 TX-slot result	21.3	21.4	21.3	-3.01	18.29	18.39	18.29

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

1 TX-slot =1 transmit time slot of 8 time slots
=>conducted power divided by (8/1) =>-9.03dB
2 TX-slot =2 transmit time slot of 8 time slots
=>conducted power divided by (8/2) =>-6.02dB
3 TX-slot =3 transmit time slot of 8 time slots
=>conducted power divided by (8/3) =>-4.26dB
4 TX-slot =4 transmit time slot of 8 time slots
=>conducted power divided by (8/4) =>-3.01dB

Head of GSM850/1900 are tested with voice.

Body-worn of GSM850/1900 are tested with GMSK GPRS 2 timeslots,testing for GMSK/8PSK EDGE are not required.

WCDMA BAND II		Conducted Output power (dBm)		
		low	middle	high
		CH9262	CH9400	CH9538
		1852.4MHz	1800MHz	1907.6MHz
12.2kbps RMC		23.72	**23.87**	23.84
HSDPA	SUB-TEST 1	22.70	22.74	22.63
	SUB-TEST 2	22.68	22.75	22.62
	SUB-TEST 3	22.68	22.74	22.63
	SUB-TEST 4	22.71	22.76	22.65
HSUPA	SUB-TEST 1	22.68	22.73	22.62
	SUB-TEST 2	22.67	22.74	22.66
	SUB-TEST 3	22.70	22.73	22.62
	SUB-TEST 4	22.70	22.76	22.64
	SUB-TEST 5	22.69	22.72	22.65

WCDMA BAND V		Conducted Output power (dBm)		
		low	middle	high
		CH4132	CH4183	CH4233
		826.4 MHz	836.6MHz	846.6MHz
12.2kbps RMC		23.96	23.87	**23.98**
HSDPA	SUB-TEST 1	22.97	22.86	22.89
	SUB-TEST 2	22.96	22.85	22.87
	SUB-TEST 3	22.97	22.87	22.88

	SUB-TEST 4	23.01	22.89	22.87
HSUPA	SUB-TEST 1	22.98	22.85	22.86
	SUB-TEST 2	22.96	22.84	22.87
	SUB-TEST 3	22.97	22.85	22.86
	SUB-TEST 4	22.95	22.86	22.87
	SUB-TEST 5	22.96	22.85	22.87

Body-worn of WCDMA BAND II/V are tested with 12.2kbps RMC.

Testing for HSDPA/HSUPA are not required.

LTE Band 2				
Bandwidth	RB	Frequency(MHz)	Actual output power(dBm)	
			QPSK	16QAM
1.4MHz	1RB_low	1850.7	22.74	22.29
		1880	22.60	22.17
		1909.3	22.62	22.07
	1RB_mid	1850.7	22.70	22.33
		1880	22.73	21.94
		1909.3	22.58	22.14
	1RB_high	1850.7	22.67	22.31
		1880	22.83	21.87
		1909.3	22.67	22.17
	50%RB_low	1850.7	22.81	21.95
		1880	22.84	21.90
		1909.3	22.87	21.85
	50%RB_mid	1850.7	22.78	21.94
		1880	22.79	21.91
		1909.3	22.85	21.87
	50%RB_high	1850.7	22.82	21.97
		1880	22.88	21.90
		1909.3	22.89	21.89
	100%RB	1850.7	21.84	20.84
		1880	21.84	20.87
		1909.3	21.87	20.87
3MHz	1RB_low	1851.5	22.88	22.33
		1880	22.86	21.98
		1908.5	23.04	21.98
	1RB_mid	1851.5	22.90	22.39
		1880	22.78	21.81
		1908.5	22.84	21.73
	1RB_high	1851.5	22.81	22.32
		1880	22.84	22.03

		1908.5	22.99	21.70
	50%RB_low	1851.5	21.90	20.99
		1880	21.94	21.02
		1908.5	22.02	20.96
	50%RB_mid	1851.5	21.89	21.03
		1880	21.95	21.07
		1908.5	21.92	21.07
	50%RB_high	1851.5	21.86	20.99
		1880	21.92	20.94
		1908.5	21.94	20.81
	100%RB	1851.5	21.91	21.04
		1880	21.96	20.92
		1908.5	21.98	20.97
5MHz	1RB_low	1852.5	22.89	22.03
		1880	22.83	21.94
		1907.5	22.81	21.91
	1RB_mid	1852.5	22.84	22.00
		1880	22.95	22.37
		1907.5	23.00	22.18
	1RB_high	1852.5	22.80	22.19
		1880	22.76	21.74
		1907.5	22.86	22.11
	50%RB_low	1852.5	21.78	20.83
		1880	21.86	20.82
		1907.5	21.93	20.89
	50%RB_mid	1852.5	21.81	20.87
		1880	21.87	20.84
		1907.5	21.91	20.88
	50%RB_high	1852.5	21.82	20.79
		1880	21.89	20.82
		1907.5	21.89	20.85
	100%RB	1852.5	21.80	20.85
		1880	21.85	20.89
		1907.5	21.89	20.80
10MHz	1RB_low	1855	22.80	22.28
		1880	22.93	22.28
		1905	23.03	22.25
	1RB_mid	1855	22.73	21.94
		1880	22.79	22.02
		1905	22.89	22.00
	1RB_high	1855	22.75	21.81
		1880	22.98	22.39
		1905	22.91	22.03

	50%RB_low	1855	21.75	20.82
		1880	21.85	20.85
		1905	21.95	20.98
	50%RB_mid	1855	21.77	20.79
		1880	21.90	20.90
		1905	21.93	20.95
	50%RB_high	1855	21.80	20.85
		1880	21.85	20.90
		1905	21.81	20.76
	100%RB	1855	21.79	20.79
		1880	21.89	20.86
		1905	21.91	20.88
15MHz	1RB_low	1857.5	22.91	22.34
		1880	22.87	22.35
		1902.5	23.03	22.34
	1RB_mid	1857.5	22.72	22.31
		1880	22.87	22.08
		1902.5	22.91	22.13
	1RB_high	1857.5	22.74	22.25
		1880	22.94	22.13
		1902.5	22.91	21.95
	50%RB_low	1857.5	21.81	20.80
		1880	21.92	20.89
		1902.5	21.99	21.00
	50%RB_mid	1857.5	21.78	20.80
		1880	21.92	20.92
		1902.5	22.00	20.99
	50%RB_high	1857.5	21.79	20.79
		1880	21.92	20.86
		1902.5	21.90	20.91
	100%RB	1857.5	21.82	20.82
		1880	21.91	20.90
		1902.5	21.91	20.94
20MHz	1RB_low	1860	23.03	22.13
		1880	22.93	22.11
		1900	**23.16**	22.28
	1RB_mid	1860	22.71	21.99
		1880	22.84	21.99
		1900	23.05	22.26
	1RB_high	1860	22.91	22.03
		1880	23.04	22.54
		1900	22.96	22.09
	50%RB_low	1860	21.77	20.79

		1880	21.97	20.98
		1900	**22.00**	21.03
	50%RB_mid	1860	21.82	20.79
		1880	21.89	20.93
		1900	22.02	21.03
	50%RB_high	1860	21.84	20.77
		1880	21.93	20.91
		1900	21.97	20.99
	100%RB	1860	21.79	20.78
		1880	21.94	20.89
		1900	21.98	20.97

LTE Band 4				
Bandwidth	RB	Frequency(MHz)	Actual output power(dBm)	
			QPSK	16QAM
1.4MHz	1RB_low	1710.7	22.76	22.21
		1732.5	22.84	21.76
		1754.3	22.77	21.98
	1RB_mid	1710.7	22.68	21.94
		1732.5	22.84	22.09
		1754.3	22.77	21.95
	1RB_high	1710.7	22.74	21.95
		1732.5	22.91	22.00
		1754.3	22.59	22.10
	50%RB_low	1710.7	22.81	21.84
		1732.5	22.97	21.94
		1754.3	22.86	21.98
	50%RB_mid	1710.7	22.75	21.77
		1732.5	22.90	21.98
		1754.3	22.83	21.93
	50%RB_high	1710.7	22.80	21.97
		1732.5	22.93	21.85
		1754.3	22.89	21.86
	100%RB	1710.7	21.84	20.85
		1732.5	21.93	20.97
		1754.3	21.89	21.06
3MHz	1RB_low	1711.5	22.95	22.28
		1732.5	22.94	22.54
		1753.5	22.89	22.42
	1RB_mid	1711.5	22.93	22.40
		1732.5	23.01	22.36

		1753.5	22.87	22.44
	1RB_high	1711.5	22.93	22.36
		1732.5	22.97	22.20
		1753.5	22.93	22.43
	50%RB_low	1711.5	21.90	21.01
		1732.5	22.02	21.10
		1753.5	21.99	21.11
	50%RB_mid	1711.5	21.90	20.97
		1732.5	22.02	20.96
		1753.5	21.96	21.05
	50%RB_high	1711.5	21.92	21.04
		1732.5	22.02	21.09
		1753.5	21.96	21.12
	100%RB	1711.5	21.93	20.96
		1732.5	22.02	21.06
		1753.5	21.96	21.02
5MHz	1RB_low	1712.5	22.77	21.90
		1732.5	22.90	22.27
		1752.5	22.91	21.83
	1RB_mid	1712.5	22.88	22.08
		1732.5	22.94	22.17
		1752.5	22.86	22.41
	1RB_high	1712.5	22.87	22.38
		1732.5	22.85	22.49
		1752.5	22.92	22.39
	50%RB_low	1712.5	21.83	20.86
		1732.5	21.92	20.99
		1752.5	21.91	20.99
	50%RB_mid	1712.5	21.88	20.93
		1732.5	21.98	21.01
		1752.5	21.93	20.89
	50%RB_high	1712.5	21.89	20.92
		1732.5	21.96	21.03
		1752.5	21.92	20.96
	100%RB	1712.5	21.83	20.82
		1732.5	21.94	20.95
		1752.5	21.87	20.90
10MHz	1RB_low	1715	22.79	22.30
		1732.5	23.08	22.55
		1750	22.97	21.99
	1RB_mid	1715	22.88	22.47
		1732.5	22.87	22.24
		1750	22.87	22.49

	1RB_high	1715	22.94	22.23
		1732.5	23.02	22.51
		1750	22.82	22.38
	50%RB_low	1715	21.89	20.93
		1732.5	21.94	20.96
		1750	21.97	20.99
	50%RB_mid	1715	21.91	20.95
		1732.5	21.98	21.02
		1750	21.93	20.96
	50%RB_high	1715	21.90	20.84
		1732.5	21.95	21.01
		1750	21.91	20.88
	100%RB	1715	21.91	20.88
		1732.5	21.96	20.93
		1750	21.95	20.95
15MHz	1RB_low	1717.5	22.92	21.99
		1732.5	23.07	22.25
		1747.5	23.00	22.60
	1RB_mid	1717.5	22.88	22.46
		1732.5	22.93	22.47
		1747.5	22.92	22.39
	1RB_high	1717.5	23.01	22.15
		1732.5	22.97	21.92
		1747.5	22.93	21.89
	50%RB_low	1717.5	21.94	20.91
		1732.5	22.03	21.03
		1747.5	22.01	20.98
	50%RB_mid	1717.5	21.96	20.95
		1732.5	22.00	21.01
		1747.5	21.96	21.01
	50%RB_high	1717.5	21.97	20.95
		1732.5	21.99	21.00
		1747.5	21.94	20.96
	100%RB	1717.5	21.94	20.93
		1732.5	21.99	20.99
		1747.5	21.98	20.99
20MHz	1RB_low	1720	22.98	22.51
		1732.5	23.13	22.22
		1745	**23.14**	22.35
	1RB_mid	1720	23.03	22.41
		1732.5	22.96	22.15
		1745	22.96	22.46
	1RB_high	1720	23.01	22.11

		1732.5	23.00	21.95
		1745	22.98	22.43
	50%RB_low	1720	21.99	21.02
		1732.5	22.04	21.08
		1745	**22.05**	21.13
	50%RB_mid	1720	21.96	21.03
		1732.5	22.00	20.99
		1745	21.98	21.02
	50%RB_high	1720	22.01	21.00
		1732.5	21.97	20.96
		1745	21.95	20.98
	100%RB	1720	22.01	21.02
		1732.5	22.04	20.99
		1745	22.03	20.98

LTE Band 7				
Bandwidth	RB	Frequency(MHz)	Actual output power(dBm)	
			QPSK	16QAM
5MHz	1RB_low	2502.5	22.44	21.73
		2535	22.38	21.83
		2567.5	22.67	21.78
	1RB_mid	2502.5	22.38	21.85
		2535	22.55	21.99
		2567.5	22.69	21.84
	1RB_high	2502.5	22.42	21.30
		2535	22.49	21.69
		2567.5	22.70	21.82
	50%RB_low	2502.5	21.35	20.36
		2535	21.49	20.48
		2567.5	21.75	20.70
	50%RB_mid	2502.5	21.48	20.37
		2535	21.55	20.54
		2567.5	21.77	20.74
	50%RB_high	2502.5	21.47	20.41
		2535	21.60	20.55
		2567.5	21.75	20.73
	100%RB	2502.5	21.43	20.37
		2535	21.55	20.43
		2567.5	21.72	20.63
10MHz	1RB_low	2505	22.39	21.43
		2535	22.46	21.60

		2565	22.70	21.88
	1RB_mid	2505	22.37	21.61
		2535	22.50	21.86
		2565	22.71	21.83
	1RB_high	2505	22.58	22.03
		2535	22.54	21.80
		2565	22.69	21.90
	50%RB_low	2505	21.38	20.32
		2535	21.52	20.41
		2565	21.79	20.68
	50%RB_mid	2505	21.49	20.40
		2535	21.58	20.51
		2565	21.80	20.72
	50%RB_high	2505	21.59	20.51
		2535	21.57	20.53
		2565	21.72	20.66
	100%RB	2505	21.50	20.45
		2535	21.56	20.57
		2565	21.78	20.71
15MHz	1RB_low	2507.5	22.52	21.75
		2535	22.60	21.64
		2562.5	22.79	22.15
	1RB_mid	2507.5	22.49	21.38
		2535	22.55	21.90
		2562.5	22.78	21.66
	1RB_high	2507.5	22.67	21.66
		2535	22.70	21.81
		2562.5	22.89	21.89
	50%RB_low	2507.5	21.47	20.47
		2535	21.59	20.52
		2562.5	21.84	20.81
	50%RB_mid	2507.5	21.54	20.50
		2535	21.58	20.56
		2562.5	21.83	20.79
	50%RB_high	2507.5	21.64	20.64
		2535	21.61	20.59
		2562.5	21.78	20.81
	100%RB	2507.5	21.59	20.55
		2535	21.62	20.59
		2562.5	21.80	20.78
20MHz	1RB_low	2510	22.82	21.85
		2535	22.69	22.20
		2560	**23.04**	22.03

	1RB_mid	2510	22.55	21.73
		2535	22.52	21.99
		2560	22.77	22.00
	1RB_high	2510	22.64	21.49
		2535	22.61	21.72
		2560	22.85	21.99
	50%RB_low	2510	21.64	20.58
		2535	21.62	20.57
		2560	**21.87**	20.80
	50%RB_mid	2510	21.51	20.50
		2535	21.63	20.58
		2560	21.83	20.78
	50%RB_high	2510	21.76	20.71
		2535	21.69	20.64
		2560	21.78	20.81
	100%RB	2510	21.61	20.58
		2535	21.64	20.62
		2560	21.80	20.83

LTE Band 12				
Bandwidth	RB	Frequency(MHz)	Actual output power(dBm)	
			QPSK	16QAM
1.4MHz	1RB_low	699.7	22.50	21.95
		707.5	22.68	22.13
		715.3	22.58	21.80
	1RB_mid	699.7	22.55	21.94
		707.5	22.67	21.90
		715.3	22.56	22.00
	1RB_high	699.7	22.64	21.71
		707.5	22.68	21.83
		715.3	22.65	22.18
	50%RB_low	699.7	22.67	21.63
		707.5	22.78	21.95
		715.3	22.71	21.73
	50%RB_mid	699.7	22.66	21.87
		707.5	22.74	22.00
		715.3	22.67	21.90
	50%RB_high	699.7	22.72	21.82
		707.5	22.78	21.85
		715.3	22.76	21.70
	100%RB	699.7	21.77	20.90

		707.5	21.79	21.00
		715.3	21.79	20.88
3MHz	1RB_low	700.5	22.65	21.99
		707.5	22.75	22.00
		714.5	22.76	22.14
	1RB_mid	700.5	22.76	21.99
		707.5	22.77	22.04
		714.5	22.65	22.20
	1RB_high	700.5	22.76	21.94
		707.5	22.75	21.82
		714.5	22.79	22.34
	50%RB_low	700.5	21.84	20.88
		707.5	21.84	20.95
		714.5	21.83	20.92
	50%RB_mid	700.5	21.83	20.93
		707.5	21.86	20.98
		714.5	21.85	20.89
	50%RB_high	700.5	21.81	20.80
		707.5	21.87	20.98
		714.5	21.83	20.99
	100%RB	700.5	21.85	20.80
		707.5	21.85	20.80
		714.5	21.87	20.79
5MHz	1RB_low	701.5	22.69	21.93
		707.5	22.73	22.34
		713.5	22.67	22.10
	1RB_mid	701.5	22.78	21.89
		707.5	22.75	21.85
		713.5	22.79	22.15
	1RB_high	701.5	22.70	22.23
		707.5	22.76	22.00
		713.5	22.66	21.67
	50%RB_low	701.5	21.76	20.78
		707.5	21.69	20.74
		713.5	21.86	20.82
	50%RB_mid	701.5	21.80	20.78
		707.5	21.81	20.88
		713.5	21.80	20.77
	50%RB_high	701.5	21.68	20.73
		707.5	21.91	20.95
		713.5	21.67	20.61
	100%RB	701.5	21.72	20.63
		707.5	21.79	20.79

		713.5	21.84	20.71
10MHz	1RB_low	704	22.75	21.85
		707.5	**22.81**	22.34
		711	22.79	21.66
	1RB_mid	704	22.57	22.11
		707.5	22.66	22.22
		711	22.67	22.27
	1RB_high	704	22.80	22.39
		707.5	22.78	21.66
		711	22.79	22.29
	50%RB_low	704	21.73	20.72
		707.5	**21.98**	20.94
		711	21.54	20.54
	50%RB_mid	704	21.80	20.80
		707.5	21.80	20.75
		711	21.73	20.75
	50%RB_high	704	21.91	20.95
		707.5	21.96	20.94
		711	21.48	20.51
	100%RB	704	22.00	20.93
		707.5	21.91	20.89
		711	21.51	20.51

LTE Band 13				
Bandwidth	RB	Frequency(MHz)	Actual output power(dBm)	
			QPSK	16QAM
5MHz	1RB_low	779.5	22.33	21.51
		782	22.31	21.78
		784.5	22.25	21.44
	1RB_mid	779.5	22.35	21.87
		782	22.39	21.84
		784.5	22.40	21.84
	1RB_high	779.5	22.24	21.47
		782	22.26	21.25
		784.5	22.28	21.30
	50%RB_low	779.5	21.29	20.30
		782	21.31	20.25
		784.5	21.36	20.38
	50%RB_mid	779.5	21.36	20.41
		782	21.36	20.39
		784.5	21.35	20.39

	50%RB_high	779.5	21.35	20.37
		782	21.30	20.3
		784.5	21.34	20.35
	100%RB	779.5	21.29	20.37
		782	21.30	20.32
		784.5	21.35	20.41
10MHz	1RB_low	782	**22.42**	21.88
	1RB_mid	782	22.35	21.52
	1RB_high	782	22.35	21.59
	50%RB_low	782	**21.37**	20.41
	50%RB_mid	782	21.28	20.37
	50%RB_high	782	21.26	20.32
	100%RB	782	21.30	20.36

Largest channel bandwidth standalone SAR test requirements QPSK with 1 RB allocation Start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel. When the reported SAR is ≤ 0.8W/kg, testing of the remaining RB offset configurations and required test channels is not required for 1RB allocation; Otherwise, SAR is required for the remaining required test channels and only for the RB offset configuration with the highest output power for that channel. When the reported SAR of a required test channel is > 1.45 W/kg, SAR is required for all three RB offset configurations for that required test channel.

Maximum Power Reduction (MPR) for Power Class 3

BAND	1.4 MHz (RB)	3 MHz (RB)	5 MHz (RB)	10 MHz (RB)	15 MHz (RB)	20MHz (RB)	MPR（dB）	
							QPSK	16QAM
LTE Band 2	> 5	> 4	> 8	> 12	> 16	> 18	≤1	≤2
LTE Band 4	> 5	> 4	> 8	> 12	> 16	> 18	≤1	≤2
LTE Band 7	/	/	> 8	> 12	> 16	> 18	≤1	≤2
LTE Band 12	> 5	> 4	> 8	> 12	/	/	≤1	≤2
LTE Band 13	/	/	> 8	> 12	/	/	≤1	≤2

For Bluetooth maximum conducted power is 5.5dBm

Wi-Fi
Average Conducted Power

Channel\dFreq.(MHz)			Maximum Conducted Out Power(dBm)		
			802.11b	802.11g	802.11n(HT20)
low	2412MHz	1	15.48	13.45	12.61
middle	2437MHz	6	15.49	12.66	12.64
high	2462MHz	11	14.64	11.75	12.15

The maximum conducted output power of Wi-Fi is 18dBm=63.10mW>P(max)=19mW..
So stand alone SAR is required.
1.Per KDB 248227D01v02.，choose the highest output power channel to test SAR and determine further SAR exclution.
2. Per KDB 248227D01v02.，In the 2.4GHz band,separate SAR procedure are applied to DSSS and OFDM conditions:
1) When KDB Pubication 447498 SAR test exclution applied to the OFDM configuration.
2) When the highest reported SAR for DSSS is adjusted by the radio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤1.2W/kg.

SAR of WLAN should be tested on 802.11b 1Mbps.

band	Fre’	Duty cycle	Duty cycle factor
802.11b 1Mbps.	2412 MHz	99.8%	1.002
	2437 MHz	99.8%	1.002
	2462 MHz	99.8%	1.002

7.2 Test Results

7.2.1. Dielectric Performance

Dielectric Performance of Tissue Simulating Liquid

Frequency	Description	Dielectric Parameters εr	σ(s/m)	temp ℃
750MHz (head)	Target value 5% window	41.9 39.81-44.00	0.89 0.85-0.93	/
	Measurement value 2016-12-28	42.82	0.91	21.9
750MHz (body)	Target value 5% window	55.5 52.73-58.28	0.96 0.91-1.01	/
	Measurement value 2016-12-27	55.27	0.94	21.8
835MHz (head)	Target value 5% window	41.5 39.43-43.58	0.90 0.86- 0.95	/
	Measurement value 2016-12-21	41.31	0.89	21.9
835MHz (body)	Target value 5% window	55.2 52.44-57.96	0.97 0.92-1.02	/
	Measurement value 2016-12-23	54.86	0.95	21.7
1750MHz (head)	Target value 5% window	40.1 38-42	1.37 1.30 -1.44	/
	Measurement value 2016-12-31	39.65	1.38	21.9
1750MHz (body)	Target value 5% window	53.4 50.63-55.96	1.49 1.42 -1.56	/
	Measurement value 2016-12-31	52.28	1.48	21.7
1900MHz (head)	Target value 5% window	40.0 38-42	1.40 1.33 -1.47	/
	Measurement value 2016-12-22	39.55	1.38	21.8
1900MHz (body)	Target value 5% window	53.3 50.63-55.96	1.52 1.44 -1.60	/
	Measurement value 2016-12-26	52.61	1.50	21.7
2450MHz (head)	Target value 5% window	39.2 37.24-41.16	1.8 1.71-1.89	/
	Measurement value 2016-12-30	38.63	1.78	21.9

2450MHz (body)	Target value 5% window	52.7 50.06-55.33	1.95 1.85 -2.05	/
	Measurement value 2016-12-30	51.96	1.93	21.8
2600MHz (head)	Target value 5% window	39.0 37.05-40.95	1.96 1.86-2.06	/
	Measurement value 2016-12-29	38.9	1.97	21.9
2600MHz (body)	Target value 5% window	52.5 49.88-55.13	2.16 2.05 -2.27	/
	Measurement value 2016-12-29	51.93	2.12	21.8

7.2.2. System Check Results

System Check for tissue simulation liquid

Frequency	Description	SAR(W/kg)		Targeted SAR1g（W/kg）	Normalized SAR1g（W/kg）	Deviation（%）
		10g	1g			
750 MHz (head)	Recommended result ±10% window	1.41 1.27-1.55	2.10 1.89-2.31	/	/	/
	Measurement value 2016-12-28（250mW）	1.45	2.15	8.22	8.6	4.42
750 MHz (body)	Recommended result ±10% window	1.50 1.35-1.65	2.21 1.99-2.43	/	/	/
	Measurement value 2016-12-27（250mW）	1.53	2.29	8.92	9.16	2.62
835 MHz (head)	Recommended result ±10% window	1.55 1.40-1.71	2.37 2.13-2.61	/	/	/
	Measurement value 2016-12-21（250mW）	1.54	2.33	9.54	9.32	-2.36
835MHz (body)	Recommended result ±10% window	1.59 1.43-1.75	2.39 2.15-2.63	/	/	/
	Measurement value 2016-12-23（250mW）	1.55	2.39	9.61	9.56	-0.52
1750MHz (head)	Recommended result ±10% window	5.08 4.57-5.59	9.30 8.37-10.23	/	/	/
	Measurement value 2016-12-31（250mW）	4.95	9.47	36.9	37.88	2.59

1750MHz (body)	Recommended result ±10% window	5.15 4.64-5.67	9.32 8.39-10.25	/	/	/
	Measurement value 2016-12-31（250mW）	4.87	9.42	37.1	37.68	1.54
1900MHz (head)	Recommended result ±10% window	5.31 4.78-5.84	10.2 9.18-11.22	/	/	/
	Measurement value 2016-12-22（250mW）	5.14	9.98	41.0	39.92	-2.71
1900MHz (body)	Recommended result ±10% window	5.21 4.69-5.73	9.87 8.08-10.86	/	/	/
	Measurement value 2016-12-26（250mW）	5.12	9.86	39.9	39.44	-1.17
2450MHz (head)	Recommended result ±10% window	6.09 5.48-6.70	13.0 11.70-14.30	/	/	/
	Measurement value 2016-12-30（250mW）	6.15	13.5	52.3	54	3.15
2450MHz (body)	Recommended result ±10% window	5.99 5.39-6.59	12.7 11.43-13.97	/	/	/
	Measurement value 2016-12-30（250mW）	5.86	12.7	51.2	50.8	-0.79
2600MHz (head)	Recommended result ±10% window	6.28 5.65-6.91	14.0 12.60-15.40	/	/	/
	Measurement value 2016-12-29（250mW）	6.39	14.5	56.4	58	2.76
2600MHz (body)	Recommended result ±10% window	6.52 5.87-7.17	14.5 13.05-15.95	/	/	/
	Measurement value 2016-12-29（250mW）	6.42	14.2	57.6	56.8	-1.41

Note: 1. the graph results see ANNEX B.1.

2 .Recommended Values used derive from the calibration certificate and 250 mW is used as feeding power to the calibrated dipole.

7.2.3 Scaling Factor Calculation

Operation Mode	Channel	Output Power(dBm)	Turn-up Limt (dBm)	Duty Cycle Factor	Scaling Factor
GPRS 850(2Tx)	128	32.1	33	/	1.230
	189	32.1	33	/	1.230
	251	**32.2**	33	/	1.202
GPRS 1900(2Tx)	512	29.4	30	/	1.148
	661	29.4	30	/	1.148
	810	**29.6**	30	/	1.096
WCDMA 850	4132	23.96	24	/	1.067
	4183	23.87	24	/	1.030
	4233	**23.98**	24	/	1.038
WCDMA 1900	9262	23.72	24	/	1.009
	9400	**23.87**	24	/	1.030
	9538	23.84	24	/	1.005
LTE B2 20MHz 1RB low	18700	23.03	23.5	/	1.114
	18900	22.93	23.5	/	1.140
	19100	**23.16**	23.5	/	1.081
LTE B2 20MHz 50RB low	18700	21.77	23	/	1.327
	18900	21.97	23	/	1.268
	19100	**22.00**	23	/	1.259
LTE B4 20MHz 1RB low	20050	22.98	23.5	/	1.127
	20175	23.13	23.5	/	1.089
	20300	**23.14**	23.5	/	1.086
LTE B4 20MHz 50RB low	20050	21.99	23	/	1.262
	20175	22.04	23	/	1.247
	20300	**22.05**	23	/	1.245
LTE B7 20MHz 1RB low	20850	22.82	23.5	/	1.169
	21100	22.69	23.5	/	1.205
	21350	**23.04**	23.5	/	1.112
LTE B7 20MHz 50RB low	20850	21.64	23	/	1.368
	21100	21.62	23	/	1.374
	21350	**21.87**	23	/	1.297
LTE B12 10MHz 1RB low	23060	22.75	23.5	/	1.189
	23095	**22.81**	23.5	/	1.172
	23130	22.79	23.5	/	1.178
LTE B12 10MHz 25RB low	23060	21.73	23	/	1.340
	23095	**21.98**	23	/	1.265
	23130	21.54	23	/	1.400
LTE B13 10MHz 1RB low	23230	22.42	23.5	/	1.282

LTE B13 10MHz 25RB low	23230	21.37	23	/	1.455
WiFi802.11b	2412	15.48	18	1.002	1.786
	2437	15.49	18	1.002	1.782
	2462	14.64	18	1.002	2.168

Note: for LTE power tolerance, only QPSK modulation mode was provide here.

7.2.4 Test Results

7.2.4.1 Summary of Measurement Results (GSM850)

SAR Values (GSM850)

Test Case		Measurement Result(W/kg)	Scaled Factor	Scaled 1g SAR(W/Kg)	Note
Different Test Position	Channel	1g SAR Average			
Test position of head					
Left head, Touch cheek	high	0.195	1.072	0.209	
Left head, Tilt 15 Degree	high	0.126	1.072	0.135	
Right head, Touch cheek	high	**0.313**	1.072	**0.335**	max
Right head, Tilt 15 Degree	high	0.113	1.072	0.121	
Test position of Body GPRS(2up) hotspot (Distance 10 mm)					
front	high	0.213	1.202	0.256	
back	high	**0.554**	1.202	**0.666**	max
bottom	high	0.266	1.202	0.320	
left side	high	0.164	1.202	0.197	
right side	high	0.225	1.202	0.271	
back	high	0.502	1.072	0.538	earphone

Note: 1.The value with blue color is the maximum SAR Value of test case of head and body in each test band.

2.When the 1-g SAR for the mid-band channel or the channel with the highest output power satisfy thefollowing conditions, testing of the other channels in the band is not required. (Per KDB 447498 D01 General RF Exposure Guidance v06)

- ≤ 0.8 W/kg, when the transmission band is ≤ 100 MHz
- ≤ 0.6 W/kg, when the transmission band is between 100 MHz and 200 MHz
- ≤ 0.4 W/kg, when the transmission band is ≥ 200 MHz

7.2.4.2 Summary of Measurement Results (PCS1900)

SAR Values (PCS1900)

Test Case		Measurement Result(W/kg)	Scaled Factor	Scaled 1g SAR(W/Kg)	Note
Different Test Position	Channel	1g SAR Average			
Test position of head					
Left head, Touch cheek	high	0.113	1.023	0.116	
Left head, Tilt 15 Degree	high	0.065	1.023	0.066	
Right head, Touch cheek	high	**0.161**	1.023	**0.165**	max
Right head, Tilt 15 Degree	high	0.042	1.023	0.043	
Test position of Body GPRS(2up) hotspot (Distance 10 mm)					
front	high	0.400	1.096	0.439	
back	high	**0.583**	1.096	**0.639**	max
bottom	high	0.522	1.096	0.572	
left side	high	0.226	1.096	0.248	
right side	high	0.154	1.096	0.169	
back	high	0.416	1.023	0.426	earphone

Note: 1.The value with blue color is the maximum SAR Value of test case of head and body in each test band.

2.When the 1-g SAR for the mid-band channel or the channel with the highest output power satisfy thefollowing conditions, testing of the other channels in the band is not required. (Per KDB 447498 D01 General RF Exposure Guidance v06)

- ≤ 0.8 W/kg, when the transmission band is ≤ 100 MHz
- ≤ 0.6 W/kg, when the transmission band is between 100 MHz and 200 MHz
- ≤ 0.4 W/kg, when the transmission band is ≥ 200 MHz

7.2.4.3 Summary of Measurement Results (WCDMA BAND II)

SAR Values (WCDMA BANDII)

Test Case		Measurement Result(W/kg)	Scaled Factor	Scaled 1g SAR(W/Kg)	Note
Different Test Position	Channel	1g SAR Average			
Test position of head					
Left head, Touch cheek	middle	0.237	1.030	0.244	
Left head, Tilt 15 Degree	middle	0.165	1.030	0.170	
Right head, Touch cheek	middle	**0.320**	1.030	**0.330**	max
Right head, Tilt 15 Degree	middle	0.125	1.030	0.129	
Test position of Body hotspot (Distance 10 mm)					
front	middle	0.466	1.030	0.480	
back	middle	0.754	1.030	0.777	
bottom	middle	**0.757**	1.030	**0.780**	max
left side	middle	0.256	1.030	0.264	
right side	middle	0.214	1.030	0.221	
bottom	middle	0.728	1.030	0.750	Earphone

Note: 1.The value with blue color is the maximum SAR Value of test case of head and body in each test band.

2.Per KDB Publication 941225 D01v03r01. RMC 12.2kbps was as primary mode SAR, when the primary modeSAR less than 1.2W/kg, secondary SAR (HSPA) was not requires.

3.When the 1-g SAR for the mid-band channel or the channel with the highest output power satisfy thefollowing conditions, testing of the other channels in the band is not required. (Per KDB 447498 D01 General RF Exposure Guidance v06)

- ≤ 0.8 W/kg, when the transmission band is ≤ 100 MHz
- ≤ 0.6 W/kg, when the transmission band is between 100 MHz and 200 MHz
- ≤ 0.4 W/kg, when the transmission band is ≥ 200 MHz

7.2.4.4 Summary of Measurement Results (WCDMA BAND V)

SAR Values (WCDMA BAND V)

Test Case		Measurement Result(W/kg)	Scaled Factor	Scaled 1g SAR(W/Kg)	Note
Different Test Position	Channel	1g SAR Average			
Test position of head					
Left head, Touch cheek	high	0.207	1.005	0.208	
Left head, Tilt 15 Degree	high	0.110	1.005	0.111	
Right head, Touch cheek	high	**0.323**	1.005	**0.324**	max
Right head, Tilt 15 Degree	high	0.146	1.005	0.147	
Test position of Body hotspot (Distance 10 mm)					
front	high	0.280	1.005	0.281	
back	high	**0.367**	1.005	**0.369**	max
bottom	high	0.150	1.005	0.151	
left side	high	0.122	1.005	0.123	
right side	high	0.313	1.005	0.314	
back	high	0.359	1.005	0.361	earphone

Note: 1.The value with blue color is the maximum SAR Value of test case of head and body in each test band.

2.Per KDB Publication 941225 D01v03r01. RMC 12.2kbps was as primary mode SAR, when the primary modeSAR less than 1.2W/kg, secondary SAR (HSPA) was not requires.

3.When the 1-g SAR for the mid-band channel or the channel with the highest output power satisfy thefollowing conditions, testing of the other channels in the band is not required. (Per KDB 447498 D01 General RF Exposure Guidance v06)

- ≤ 0.8 W/kg, when the transmission band is ≤ 100 MHz
- ≤ 0.6 W/kg, when the transmission band is between 100 MHz and 200 MHz
- ≤ 0.4 W/kg, when the transmission band is ≥ 200 MHz

7.2.4.5 Summary of Measurement Results (LTE BAND 2)

SAR Values (LTE BAND 2)

Test Case			Measurement Result(W/kg)	Scaled Factor	Scaled 1g SAR(W/Kg)	Note
Different Test Position		Channel	1g SAR Average			
Test position of head						
QPSK_20M_1RB low	Left head, Touch cheek	high	0.268	1.081	0.290	
	Left head, Tilt 15 Degree	high	0.169	1.081	0.183	
	Right head, Touch cheek	high	**0.325**	1.081	**0.351**	max
	Right head, Tilt 15 Degree	high	0.126	1.081	0.136	
QPSK_20M_50%RB low	Left head, Touch cheek	high	0.218	1.259	0.274	
	Left head, Tilt 15 Degree	high	0.141	1.259	0.178	
	Right head, Touch cheek	high	0.253	1.259	0.319	
	Right head, Tilt 15 Degree	high	0.103	1.259	0.130	
Test position of Body hotspot (Distance 10 mm)						
QPSK_20M_1RB low	front	high	0.552	1.081	0.597	
	back	high	0.648	1.081	0.701	
	bottom	high	**0.690**	1.081	**0.746**	max
	left side	high	0.289	1.081	0.313	
	right side	high	0.126	1.081	0.136	
QPSK_20M_50%RB low	front	high	0.464	1.259	0.584	
	back	high	0.574	1.259	0.723	
	bottom	high	0.552	1.259	0.695	
	left side	high	0.240	1.259	0.302	
	right side	high	0.103	1.259	0.130	
QPSK_20M_1RB low	bottom	high	0.638	1.081	0.690	earphone

Note: 1.The value with blue color is the maximum SAR Value of test case of head and body in each test band.

2.When the 1-g SAR for the mid-band channel or the channel with the highest output power satisfy thefollowing conditions, testing of the other channels in the band is not required. (Per KDB 447498 D01 General RF Exposure Guidance v06)

- ≤ 0.8 W/kg, when the transmission band is ≤ 100 MHz
- ≤ 0.6 W/kg, when the transmission band is between 100 MHz and 200 MHz
- ≤ 0.4 W/kg, when the transmission band is ≥ 200 MHz

7.2.4.6 Summary of Measurement Results (LTE BAND4)

SAR Values (LTE BAND 4)

Test Case			Measurement Result(W/kg)	Scaled Factor	Scaled 1g SAR(W/Kg)	Note
Different Test Position		Channel	1g SAR Average			
Test position of head						
QPSK_20M_1RB low	Left head, Touch cheek	high	0.172	1.086	0.187	
	Left head, Tilt 15 Degree	high	0.121	1.086	0.131	
	Right head, Touch cheek	high	**0.273**	1.086	**0.297**	max
	Right head, Tilt 15 Degree	high	0.068	1.086	0.074	
QPSK_20M_50%RB low	Left head, Touch cheek	high	0.136	1.245	0.169	
	Left head, Tilt 15 Degree	high	0.095	1.245	0.118	
	Right head, Touch cheek	high	0.226	1.245	0.281	
	Right head, Tilt 15 Degree	high	0.050	1.245	0.063	
Test position of Body hotspot (Distance 10 mm)						
QPSK_20M_1RB low	front	high	0.442	1.086	0.480	
	back	high	**0.713**	1.086	**0.775**	max
	bottom	high	0.697	1.086	0.757	

	left side	high	0.136	1.086	0.148	
	right side	high	0.178	1.086	0.193	
QPSK_20M_50%RB low	front	high	0.350	1.245	0.436	
	back	high	0.569	1.245	0.708	
	bottom	high	0.561	1.245	0.698	
	left side	high	0.117	1.245	0.146	
	right side	high	0.144	1.245	0.179	
QPSK_20M_1RB low	back	high	0.614	1.086	0.667	earphone

Note: 1.The value with blue color is the maximum SAR Value of test case of head and body in each test band.

2.When the 1-g SAR for the mid-band channel or the channel with the highest output power satisfy thefollowing conditions, testing of the other channels in the band is not required. (Per KDB 447498 D01 General RF Exposure Guidance v06)

- ≤ 0.8 W/kg, when the transmission band is ≤ 100 MHz
- ≤ 0.6 W/kg, when the transmission band is between 100 MHz and 200 MHz
- ≤ 0.4 W/kg, when the transmission band is ≥ 200 MHz

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7.2.4.7 Summary of Measurement Results (LTE BAND 7)

SAR Values (LTE BAND 7)

Test Case			Measurement Result(W/kg)	Scaled Factor	Scaled 1g SAR(W/Kg)	Note
Different Test Position		Channel	1g SAR Average			
Test position of head						
QPSK_20M_1RB low	Left head, Touch cheek	high	**0.405**	1.112	**0.450**	max
	Left head, Tilt 15 Degree	high	0.058	1.112	0.064	
	Right head, Touch cheek	high	0.211	1.112	0.235	
	Right head, Tilt 15 Degree	high	0.213	1.112	0.237	

QPSK_20M_50%RB low	Left head, Touch cheek	high	0.381	1.297	0.442	
	Left head, Tilt 15 Degree	high	0.041	1.297	0.053	
	Right head, Touch cheek	high	0.163	1.297	0.211	
	Right head, Tilt 15 Degree	high	0.169	1.297	0.219	
Test position of Body hotspot (Distance 10 mm)						
QPSK_20M_1RB low	front	high	0.479	1.112	0.533	
	back	high	0.473	1.112	0.526	
	bottom	high	**0.693**	1.112	**0.770**	max
	left side	high	0.192	1.112	0.213	
	right side	high	0.129	1.112	0.143	
QPSK_20M_50%RB low	front	high	0.503	1.297	0.652	
	back	high	0.378	1.297	0.490	
	bottom	high	0.559	1.297	0.725	
	left side	high	0.180	1.297	0.233	
	right side	high	0.105	1.297	0.136	
QPSK_20M_1RB low	bottom	high	0.588	1.112	0.654	earphone

Note: 1.The value with blue color is the maximum SAR Value of test case of head and body in each test band.

2.When the 1-g SAR for the mid-band channel or the channel with the highest output power satisfy thefollowing conditions, testing of the other channels in the band is not required. (Per KDB 447498 D01 General RF Exposure Guidance v06)

- ≤ 0.8 W/kg, when the transmission band is ≤ 100 MHz
- ≤ 0.6 W/kg, when the transmission band is between 100 MHz and 200 MHz
- ≤ 0.4 W/kg, when the transmission band is ≥ 200 MHz

7.2.4.8 Summary of Measurement Results (LTE BAND 12)

SAR Values (LTE BAND 12)

Test Case			Measurement Result(W/kg)	Scaled Factor	Scaled 1g SAR(W/Kg)	Note
Different Test Position		Channel	1g SAR Average			
Test position of head						
QPSK_10M_1RB low	Left head, Touch cheek	middle	0.087	1.172	0.101	
	Left head, Tilt 15 Degree	middle	0.028	1.172	0.032	
	Right head, Touch cheek	middle	**0.112**	1.172	**0.131**	max
	Right head, Tilt 15 Degree	middle	0.026	1.172	0.031	
QPSK_10M_50%RB low	Left head, Touch cheek	middle	0.076	1.265	0.096	
	Left head, Tilt 15 Degree	middle	0.024	1.265	0.030	
	Right head, Touch cheek	middle	0.093	1.265	0.117	
	Right head, Tilt 15 Degree	middle	0.023	1.265	0.029	
Test position of Body hotspot (Distance 10 mm)						
QPSK_10M_1RB low	front	middle	0.132	1.172	0.155	
	back	middle	**0.192**	1.172	**0.225**	max
	bottom	middle	0.055	1.172	0.065	
	left side	middle	0.036	1.172	0.043	
	right side	middle	0.169	1.172	0.198	
QPSK_10M_50%RB low	front	middle	0.117	1.265	0.148	
	back	middle	0.166	1.265	0.210	
	bottom	middle	0.048	1.265	0.060	
	left side	middle	0.031	1.265	0.039	
	right side	middle	0.149	1.265	0.188	
QPSK_10M_1RB low	back	middle	0.133	1.172	0.156	earphone

Note: 1.The value with blue color is the maximum SAR Value of test case of head and body in each test band.

2.When the 1-g SAR for the mid-band channel or the channel with the highest output power satisfy thefollowing conditions, testing of the other channels in the band is not required. (Per KDB 447498 D01 General RF Exposure Guidance v06)

- ≤ 0.8 W/kg, when the transmission band is ≤ 100 MHz
- ≤ 0.6 W/kg, when the transmission band is between 100 MHz and 200 MHz
- ≤ 0.4 W/kg, when the transmission band is ≥ 200 MHz

7.2.4.9 Summary of Measurement Results (LTE BAND 13)

SAR Values (LTE BAND 13)

Test Case			Measurement Result(W/kg)	Scaled Factor	Scaled 1g SAR(W/Kg)	Note
Different Test Position		Channel	1g SAR Average			
Test position of head						
QPSK_10M_1RB low	Left head, Touch cheek	middle	0.082	1.282	0.105	
	Left head, Tilt 15 Degree	middle	0.074	1.282	0.095	
	Right head, Touch cheek	middle	**0.129**	1.282	**0.165**	max
	Right head, Tilt 15 Degree	middle	0.051	1.282	0.065	
QPSK_10M_50%RB low	Left head, Touch cheek	middle	0.062	1.455	0.091	
	Left head, Tilt 15 Degree	middle	0.053	1.455	0.077	
	Right head, Touch cheek	middle	0.096	1.455	0.139	
	Right head, Tilt 15 Degree	middle	0.040	1.455	0.057	
Test position of Body hotspot (Distance 10 mm)						
QPSK_10M_1RB low	front	middle	0.161	1.282	0.206	
	back	middle	**0.252**	1.282	**0.323**	max
	bottom	middle	0.064	1.282	0.082	
	left side	middle	0.051	1.282	0.065	
	right side	middle	0.078	1.282	0.100	

QPSK_10M_50%RB low	front	middle	0.123	1.455	0.179	
	back	middle	0.185	1.455	0.269	
	bottom	middle	0.049	1.455	0.071	
	left side	middle	0.042	1.455	0.061	
	right side	middle	0.063	1.455	0.092	
QPSK_10M_1RB low	back	middle	0.158	1.282	0.203	earphone

Note: 1.The value with blue color is the maximum SAR Value of test case of head and body in each test band.

2.When the 1-g SAR for the mid-band channel or the channel with the highest output power satisfy thefollowing conditions, testing of the other channels in the band is not required. (Per KDB 447498 D01 General RF Exposure Guidance v06)

- ≤ 0.8 W/kg, when the transmission band is ≤ 100 MHz
- ≤ 0.6 W/kg, when the transmission band is between 100 MHz and 200 MHz
- ≤ 0.4 W/kg, when the transmission band is ≥ 200 MHz

7.2.4.10 Summary of Measurement Results (802.11b)

SAR Values (802.11b)

Test Case		Measurement Result(W/kg)	Duty Cycle Factor	Scaled Factor	Scaled 1g SAR(W/Kg)	Note
Different Test Position	Channel	1g SAR Average				
Test position of head						
Left head, Touch cheek	middle	0.153	1.002	1.782	0.273	
Left head, Tilt 15 Degree	middle	0.177	1.002	1.782	0.316	
Right head, Touch cheek	middle	0.282	1.002	1.782	**0.504**	max
Right head, Tilt 15 Degree	middle	0.219	1.002	1.782	0.391	

Test position of Body hotspot (Distance 10 mm)						
front	middle	0.042	1.002	1.782	0.075	
back	middle	0.044	1.002	1.782	0.078	
top	middle	**0.054**	1.002	1.782	**0.096**	max
left side	middle	0.024	1.002	1.782	0.043	

Note: 1.The value with blue color is the maximum SAR Value of test case of head and body in each test band.

2.When the 1-g SAR for the mid-band channel or the channel with the highest output power satisfy thefollowing conditions, testing of the other channels in the band is not required. (Per KDB 447498 D01 General RF Exposure Guidance v06)

- ≤ 0.8 W/kg, when the transmission band is ≤ 100 MHz
- ≤ 0.6 W/kg, when the transmission band is between 100 MHz and 200 MHz
- ≤ 0.4 W/kg, when the transmission band is ≥ 200 MHz

7.2.5 Maximum SAR

Band	Worst Position		Channel	Reported 1g SAR (W/kg)
GSM850	Head	Right head, Touch cheek	high	0.335
	Body	Back With GPRS(2up)	high	0.666
GSM1900	Head	Right head, Touch cheek	high	0.165
	Body	Back With GPRS(2up)	high	0.639
WCDMA Band II	Head	Right head, Touch cheek	middle	0.330
	Body	bottom	middle	0.780
WCDMA Band V	Head	Right head, Touch cheek	high	0.324
	Body	back	high	0.369
LTE Band 2	Head	QPSK_20M_1RB low Right head, Touch cheek	high	0.351
	Body	QPSK_20M_1RB low Bottom	high	0.746
LTE Band 4	Head	QPSK_20M_1RB low Right head, Touch cheek	high	0.297
	Body	QPSK_20M_1RB low Back	high	0.775
LTE Band 7	Head	QPSK_20M_1RB low left head, Touch cheek	high	0.450
	Body	QPSK_20M_1RB low Bottom	high	0.770
LTE Band 12	Head	QPSK_10M_1RB low Right head, Touch cheek	middle	0.131
	Body	QPSK_10M_1RB low Back	middle	0.225
LTE Band 13	Head	QPSK_10M_1RB low Right head, Touch cheek	middle	0.165
	Body	QPSK_10M_1RB low Back	middle	0.323
WiFi	Head	Right head, Touch cheek	middle	0.504
	Body	top	middle	0.096

Evaluation for Simultaneous SAR					
Summation BAND	**Exposure Position**	**Maximum reported 1g SAR (W/kg)**	**Summation SAR(1g) (W/kg)**	**SAR –to-peak-location Separation Ratio**	**Simultaneous Measurement Required?**
WWAN +WiFi	Head	0.450+0.504=0.954	＜1.6	/	No
	Body-worn(10mm)	0.780+0.096=0.876	＜1.6	/	No
WWAN+BT	Head	0.450+0.180=0.630	＜1.6	/	No
	Body-worn(10mm)	0.780+0.091=0.871	＜1.6	/	No

General Judgment： PASS

8. Test Equipments Utilized

No.	Name	Type	S/N	Calibration Date	Valid Period
01	Network analyzer	Agilent E5071E	MY46109425	Oct 28th, 2016	One year
02	Dielectric Probe Kit	Agilent 85070E	MY44300524	N/A	
03	Power meter	Agilent E4418B	MY50000852	Oct 28th, 2016	One year
04	Power sensor	Agilent E9200B	MY50300011	Oct 28th, 2016	One year
05	Signal Generator	Agilent N5182A	MY49071248	Oct 28th, 2016	One year
06	Amplifier	ZHL-42W	QA1020005	N/A	
07	BTS	CMU200	121464	Oct 28th, 2016	One year
08	BTS	MT8820C	6201107310	May 31th, 2016	One year
09	E-field Probe	EX3DV4	3717	Oct 19th, 2016	One year
10	DAE	DAE4	1226	Sep 28th, 2016	One year
11	Validation Kit 835MHz	D835V2	4d100	Oct 10th, 2016	One year
12	Validation Kit 1900MHz	D1900V2	5d155	Apr 14th, 2016	One year
13	Validation Kit 2450MHz	D2450V2	845	Oct 12th, 2016	One year
14	Validation Kit 1750MHz	D1750V2	1034	Oct 11th, 2016	One year
15	Validation Kit 2600MHz	D2600V2	1059	Apr 14th, 2016	One year
16	Validation Kit 750MHz	D750V3	1080	Apr 14th, 2016	One year

9. Measurement Uncertainty

No	Source of Uncertainty	Type	Uncertainty value ± %	Probability Distribution	Div.	c_i (1 g)	c_i (10 g)	Standard Unc ± %, (1 g)	Standard Unc ± %, (10 g)	v_i or v_{eff}
1	System repetivity	A	2.7	N	1	1	1	2.7	2.7	9
Measurement System										
2	Probe Calibration	B	5.9	N	1	1	1	5.9	5.9	∞
3	Isotropy	B	4.7	R	$\sqrt{3}$	0.7	0.7	1.9	1.9	∞
4	Boundary Effect	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
5	Linearity	B	4.7	R	$\sqrt{3}$	1	1	2.7	2.7	∞
6	Detection Limits	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
7	Readout Electronics	B	0.3	N	1	1	1	0.3	0.3	∞
8	Response Time	B	0.8	R	$\sqrt{3}$	1	1	0.5	0.5	∞
9	Integration Time	B	2.6	R	$\sqrt{3}$	1	1	1.5	1.5	∞
10	RF ambient conditions – noise	B	0	R	$\sqrt{3}$	1	1	0	0	∞
11	RF ambient conditions – reflections	B	0	R	$\sqrt{3}$	1	1	0	0	∞
12	Probe Positioner Mech. Restrictions	B	0.4	R	$\sqrt{3}$	1	1	0.2	0.2	∞
13	Probe Positioning with respect to Phantom Shell	B	2.9	R	$\sqrt{3}$	1	1	1.7	1.7	∞
14	Post-Processing	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
Test Sample Related										

15	Test Sample Positioning	A	3.3	N	1	1	1	3.3	3.3	*71*
16	Device Holder Uncertainty	A	4.1	N	1	1	1	4.1	4.1	*5*
17	Drift of Output Power	B	5.0	R	$\sqrt{3}$	1	1	2.9	2.9	∞
Phantom and Set-up										
18	Phantom Uncertainty	B	4.0	R	$\sqrt{3}$	1	1	2.3	2.3	∞
19	Liquid Conductivity (target.)	B	5.0	R	$\sqrt{3}$	0.64	0.43	1.8	1.2	∞
20	Liquid Conductivity (meas.)	A	2.06	N	1	0,64	0,43	1.7	1.4	*43*
21	Liquid Permittivity (target.)	B	5.0	R	$\sqrt{3}$	0,6	0,49	1.7	1.4	∞
22	Liquid Permittivity (meas.)	A	1.6	N	1	0,6	0,49	1.0	0.8	521
Combined standard uncertainty		$u_c' = \sqrt{\sum_{i=1}^{21} c_i^2 u_i^2}$						10.54	10.34	
Expanded uncertainty (95 % confidence interval)		k=2						21.08	20.68	

ANNEX A: Detailed Test Results

Annex A.1 System Check Results

System check 750 head

Date/Time: 28/12/2016 08:20:07

Communication System: UID 10000, CW; Communication System Band: D750(750.0 MHz); Frequency: 750 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 750 MHz; σ = 0.913 S/m; ε_r = 42.818; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: EX3DV4 - SN3717; ConvF(9.27, 9.27, 9.27); Calibrated: 19/10/2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 28/09/2016
- Phantom: SAM1; Type: SAM; Serial: TP1576
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

750 head/d=15mm, Pin=250 mW/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 3.25 W/kg

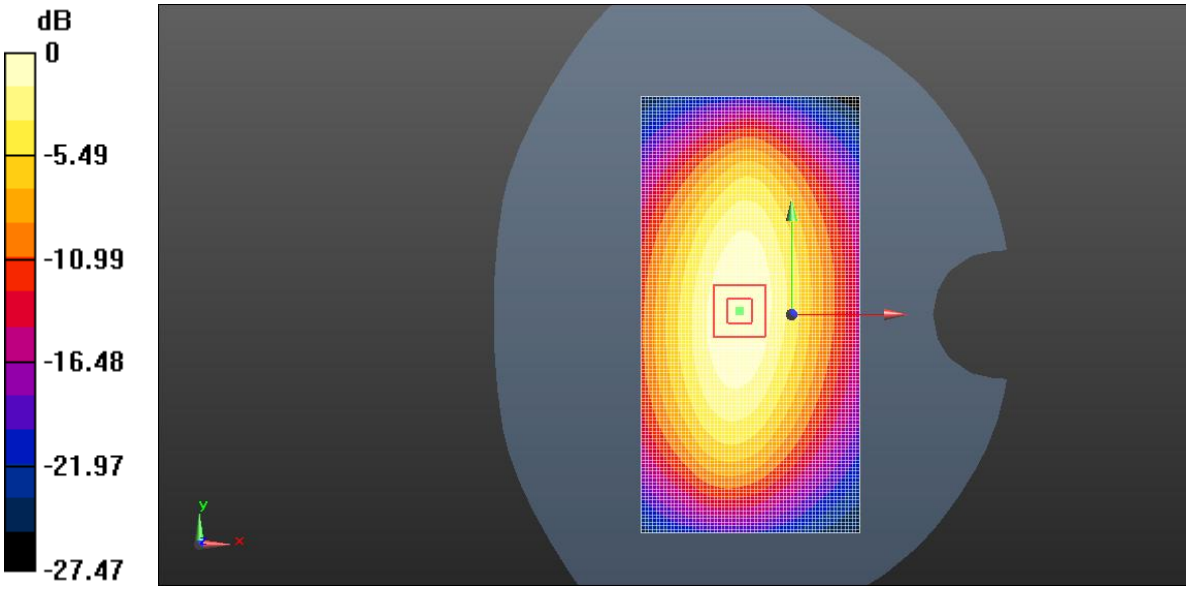
750 head/d=15mm, Pin=250 mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 56.843 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 4.02 W/kg

SAR(1 g) = 2.15 W/kg; SAR(10 g) = 1.45 W/kg

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



0 dB = 3.25 W/kg = 5.12 dBW/kg

System check 750 body

Date/Time: 27/12/2016 08:10:58

Communication System: UID 10000, CW; Communication System Band: D750 (750.0 MHz); Frequency: 750 MHz;Communication System PAR: 0 dB

Medium parameters used (interpolated): f = 750 MHz; σ = 0.942 S/m; ε_r = 55.272; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: EX3DV4 - SN3717; ConvF(9.25, 9.25, 9.25); Calibrated: 19/10/2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 28/09/2016
- Phantom: SAM1; Type: SAM; Serial: TP1576
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

750body/d=15mm, Pin=250 mW/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 2.64 W/kg

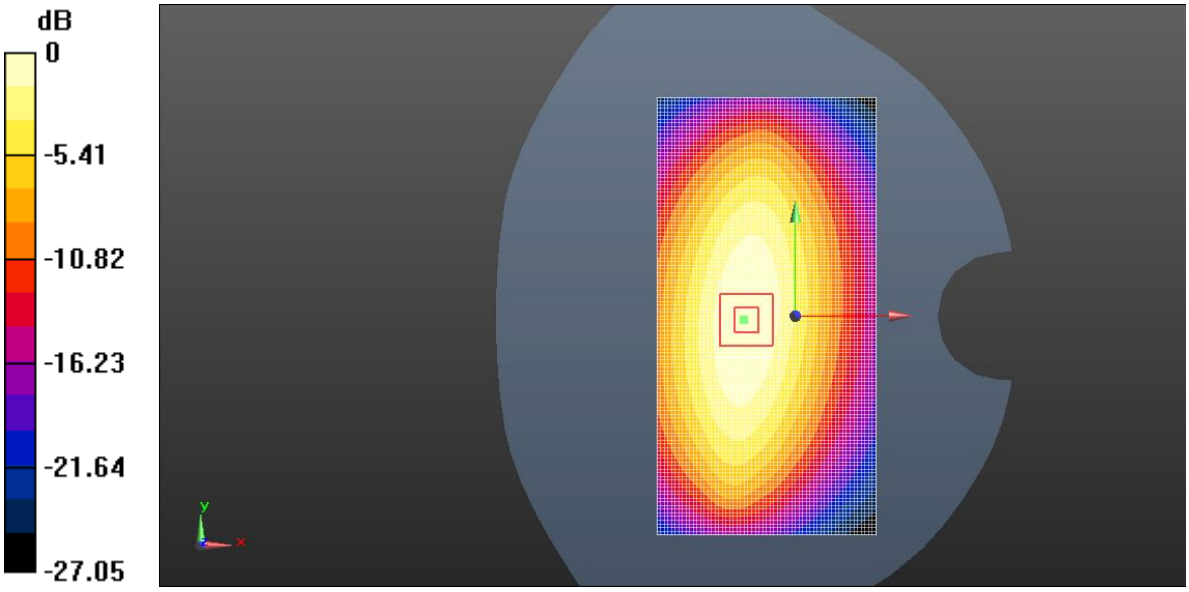
750body/d=15mm, Pin=250 mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 55.873 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 3.43 W/kg

SAR(1 g) = 2.29 W/kg; SAR(10 g) = 1.53 W/kg

Maximum value of SAR (measured) = 2.67 W/kg



0 dB = 2.64 W/kg = 4.22 dBW/kg

System check 835 head

Date/Time: 21/12/2016 08:10:58

Communication System: UID 10000, CW; Communication System Band: D835 (835.0 MHz); Frequency: 835 MHz;Communication System PAR: 0 dB

Medium parameters used (interpolated): f = 835 MHz; σ = 0.891 S/m; ε_r = 41.312; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE 1528-2013)

DASY5 Configuration:

- Probe: EX3DV4 - SN3717; ConvF(8.93, 8.93, 8.93); Calibrated: 19/10/2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 28/09/2016
- Phantom: SAM1; Type: SAM; Serial: TP1576
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

835head/d=15mm, Pin=250 mW/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 2.40 W/kg

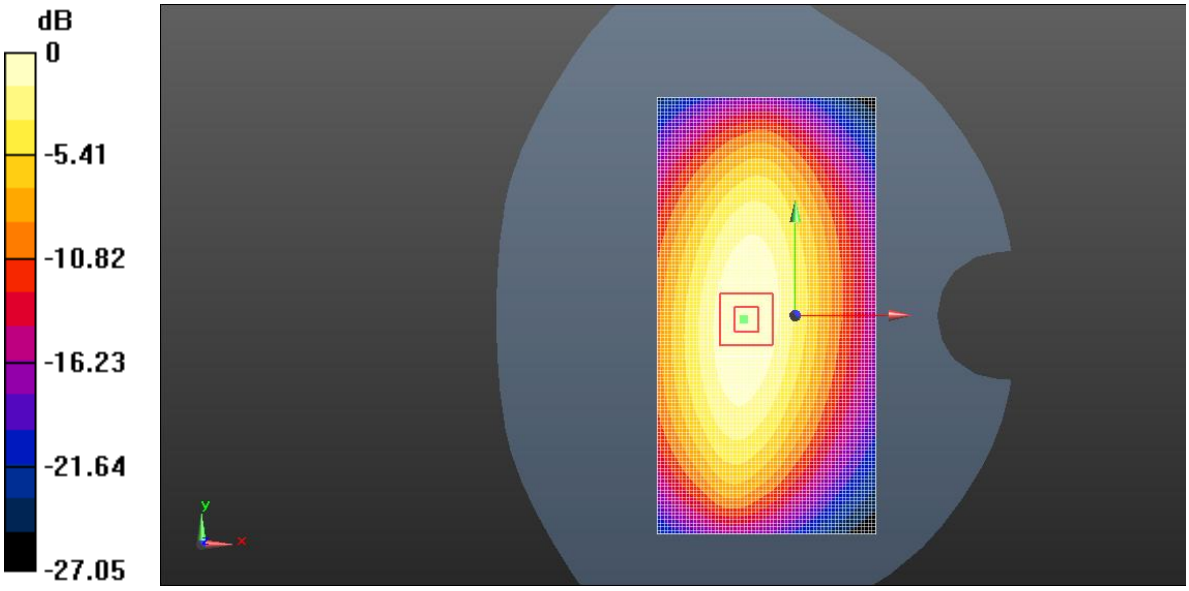
835head/d=15mm, Pin=250 mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 55.873 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 3.43 W/kg

SAR(1 g) = 2.33 W/kg; SAR(10 g) = 1.54 W/kg

Maximum value of SAR (measured) = 2.64 W/kg



0 dB = 2.40 W/kg = 3.80 dBW/kg

System check 835body

Date/Time: 23/12/2016 08:10:45

Communication System: UID 10000, CW; Communication System Band: D835 (835.0 MHz); Frequency: 835 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 835 MHz; σ = 0.946 S/m; ε_r = 54.855; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE 1528-2013)

DASY5 Configuration:

- Probe: EX3DV4 - SN3717; ConvF(8.99, 8.99, 8.99); Calibrated: 19/10/2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 28/09/2016
- Phantom: SAM1; Type: SAM; Serial: TP1576
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

835body/d=15mm, Pin=250 mW/Area Scan (7x13x1): Measurement grid: dx=10mm, dy=10mm

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

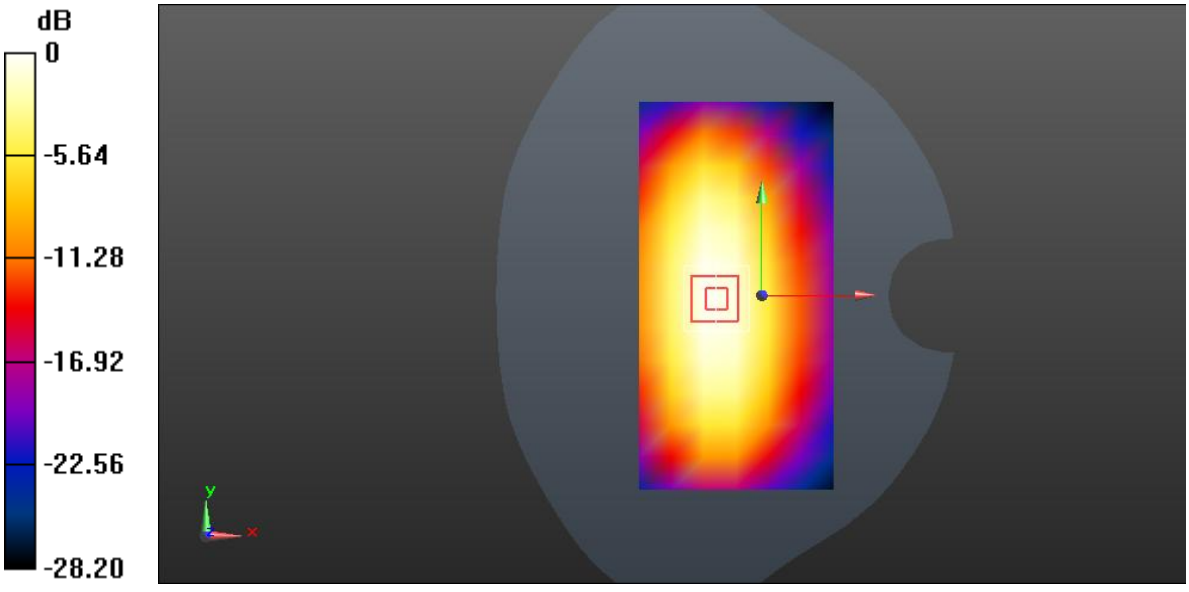
835body/d=15mm, Pin=250 mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 53.557 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 3.69 W/kg

SAR(1 g) = 2.39 W/kg; SAR(10 g) = 1.55 W/kg

Maximum value of SAR (measured) = 2.82 W/kg



0 dB = 2.55 W/kg = 4.07 dBW/kg

System check 1750head

Date/Time: 31/12/2016 07:31:43

Communication System: UID 10000, CW; Communication System Band: D1750 (1750.0 MHz); Frequency: 1750 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 1750 MHz; σ = 1.38 S/m; ε_r = 39.646; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE 1528-2013)

DASY5 Configuration:

- Probe: EX3DV4 - SN3717; ConvF(7.7, 7.7, 7.7); Calibrated: 19/10/2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 28/09/2016
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

1750head/d=10mm, Pin=250 mW/Area Scan (41x61x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 12.2 W/kg

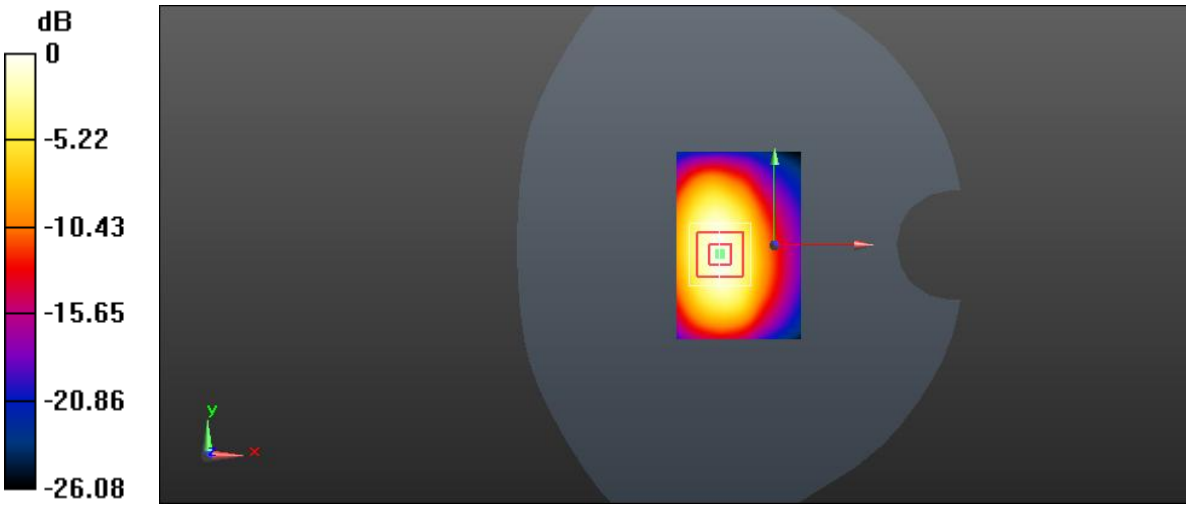
1750head/d=10mm, Pin=250 mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 74.331 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 17.4 W/kg

SAR(1 g) = 9.47 W/kg; SAR(10 g) = 4.95 W/kg

Maximum value of SAR (measured) = 12.0 W/kg



0 dB = 12.2 W/kg = 10.86 dBW/kg

System check 1750body

Date/Time: 31/12/2016 11:21:41

Communication System: UID 10000, CW; Communication System Band: D1750 (17500.0 MHz); Frequency: 1750 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 1750 MHz; σ = 1.483 S/m; ε_r = 52.278; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: EX3DV4 - SN3717; ConvF(7.63, 7.63, 7.63); Calibrated: 19/10/2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 28/09/2016
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

1750 body/d=10mm, Pin=250 mW/Area Scan (41x61x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 11.5 W/kg

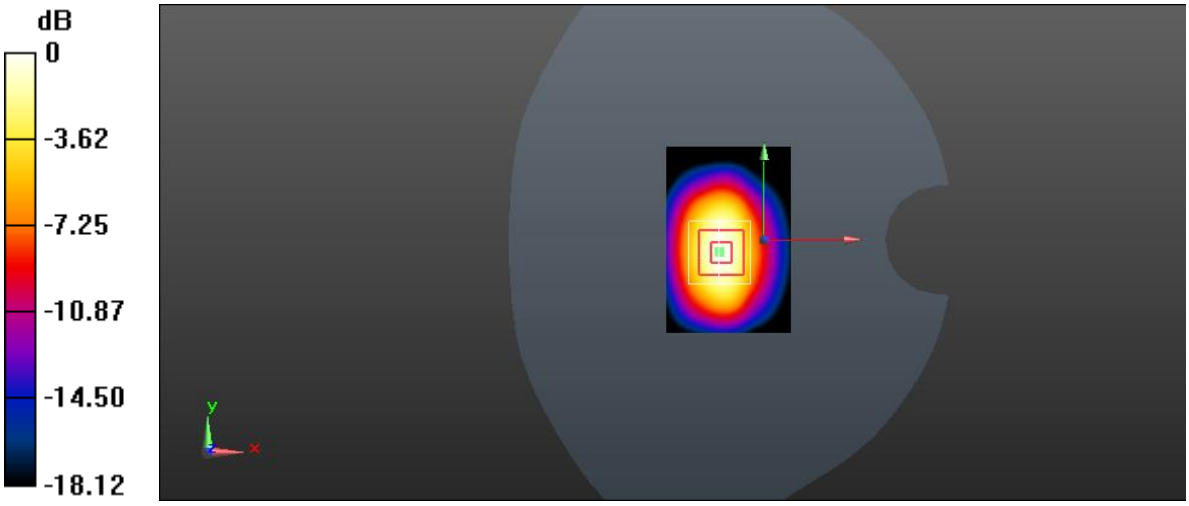
1750 body/d=10mm, Pin=250 mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 57.887 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 18.1 W/kg

SAR(1 g) = 9.42 W/kg; SAR(10 g) = 4.87 W/kg

Maximum value of SAR (measured) = 10.7 W/kg



0 dB = 10.7 W/kg = 10.29 dBW/kg

System check 1900head

Date/Time: 22/12/2016 07:45:27

Communication System: UID 10000, CW; Communication System Band: D1900 (1900.0 MHz); Frequency: 1900 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 1900 MHz; σ = 1.383 S/m; ε_r = 39.548; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE 1528-2013)

DASY5 Configuration:

- Probe: EX3DV4 - SN3717; ConvF(7.65, 7.65, 7.65); Calibrated: 19/10/2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 28/09/2016
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

1900head/d=10mm, Pin=250 mW/Area Scan (41x61x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 12.0 W/kg

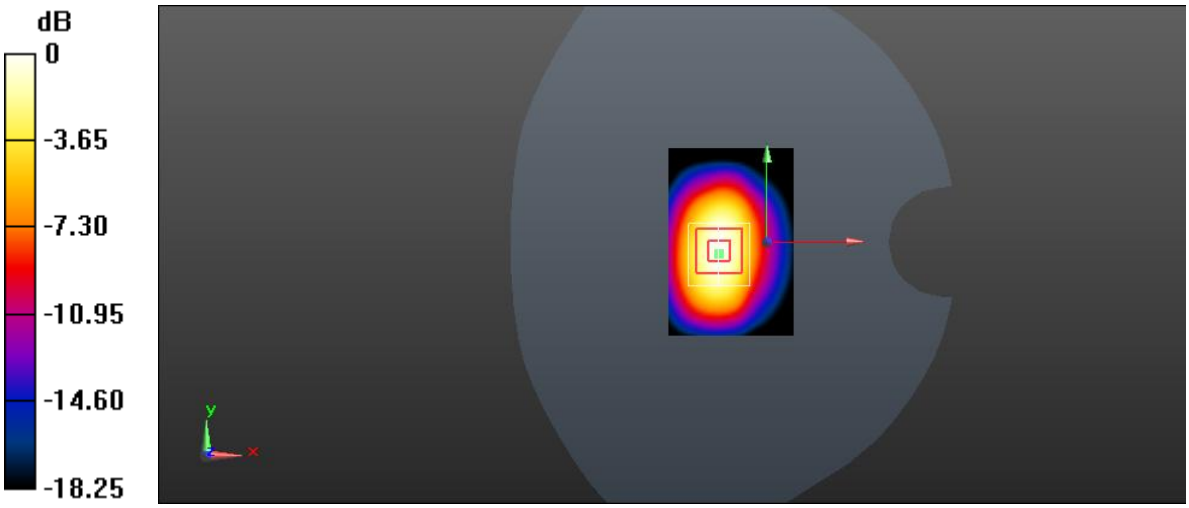
1900head/d=10mm, Pin=250 mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 57.925 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 19.1 W/kg

SAR(1 g) = 9.98 W/kg; SAR(10 g) = 5.14 W/kg

Maximum value of SAR (measured) = 11.3 W/kg



0 dB = 12.0 W/kg = 10.79 dBW/kg

System check 1900body

Date/Time: 26/12/2016 07:58:41

Communication System: UID 0, CW (0); Communication System Band: D1900 (1900.0 MHz); Frequency: 1900 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 1900 MHz; σ = 1.503 S/m; ε_r = 52.614; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: EX3DV4 - SN3717; ConvF(7.44, 7.44, 7.44); Calibrated: 19/10/2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 28/09/2016
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

1900body/d=10mm, Pin=250 mW/Area Scan (61x71x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 11.5 W/kg

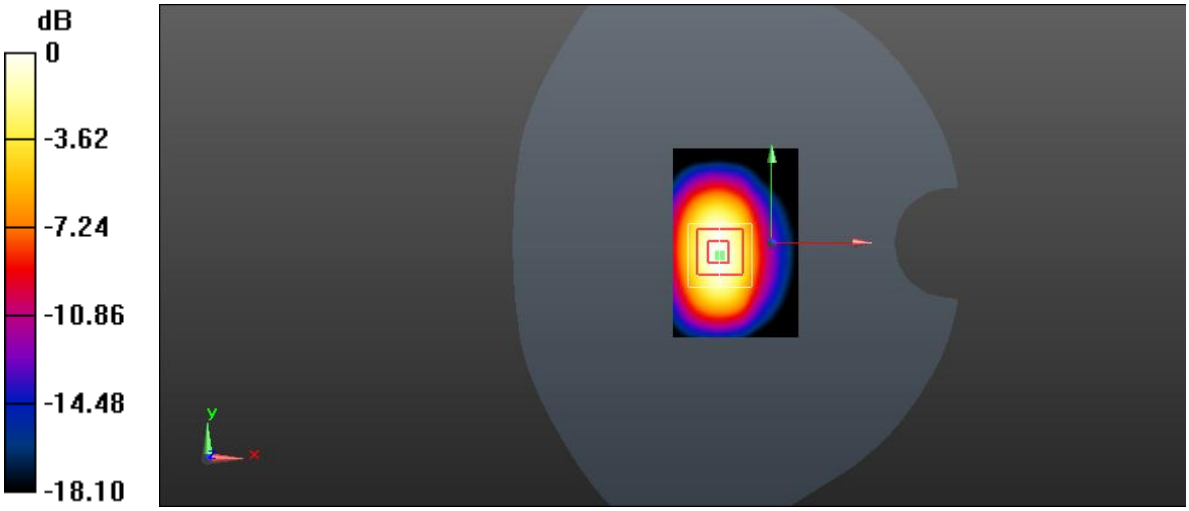
1900body/d=10mm, Pin=250 mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 80.747 V/m; Power Drift = 0.15 dB

Peak SAR (extrapolated) = 16.3 W/kg

SAR(1 g) = 9.86 W/kg; SAR(10 g) = 5.12 W/kg

Maximum value of SAR (measured) = 11.2 W/kg



0 dB = 11.5 W/kg = 10.61 dBW/kg

System check 2450head

Date/Time: 30/12/2016 08:34:20

Communication System: UID 0, CW (0); Communication System Band: D2450 (2450.0 MHz); Frequency: 2450 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 2450 MHz; σ = 1.782 S/m; ε_r = 38.632; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: EX3DV4 - SN3717; ConvF(6.96, 6.96, 6.96); Calibrated: 19/10/2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 28/09/2016
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

2450head/d=10mm, Pin=250 mW/Area Scan (41x61x1): Measurement grid: dx=10mm, dy=10mm

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

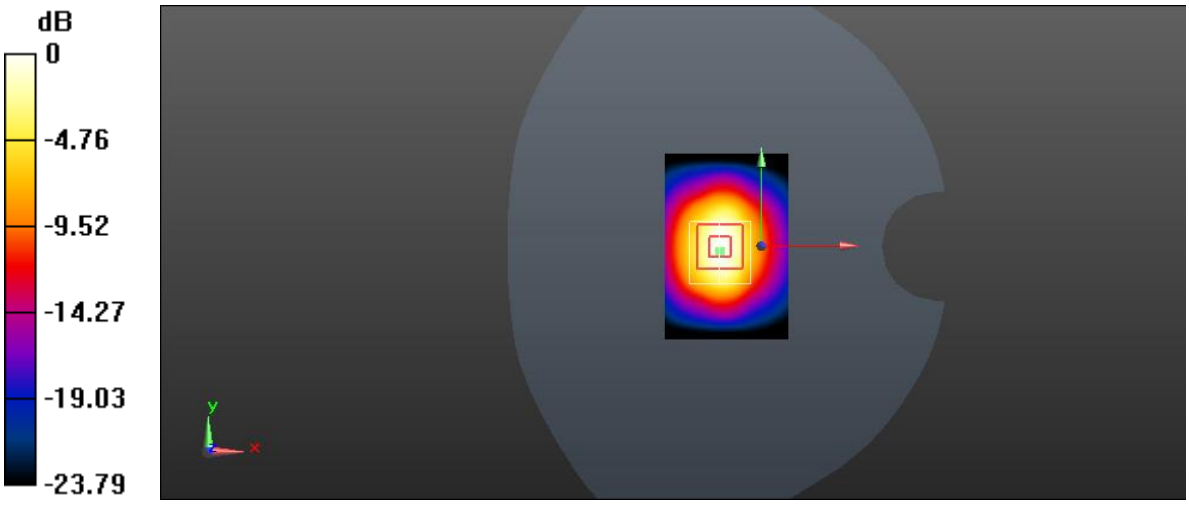
2450head/d=10mm, Pin=250 mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 96.244 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 28.1 W/kg

SAR(1 g) = 13.5 W/kg; SAR(10 g) =6.15W/kg

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



0 dB = 17.0 W/kg = 12.30 dBW/kg

System check 2450 body

Date/Time: 30/12/2016 14:20:12

Communication System: UID 10000, CW; Communication System Band: D2450 (2450.0 MHz); Frequency: 2450 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 2450 MHz; σ = 1.932 S/m; ε_r = 51.964; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: EX3DV4 - SN3717; ConvF(7.04, 7.04, 7.04); Calibrated: 19/10/2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 28/09/2016
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

2450body/d=10mm, Pin=250 mW/Area Scan (41x61x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 16.3 W/kg

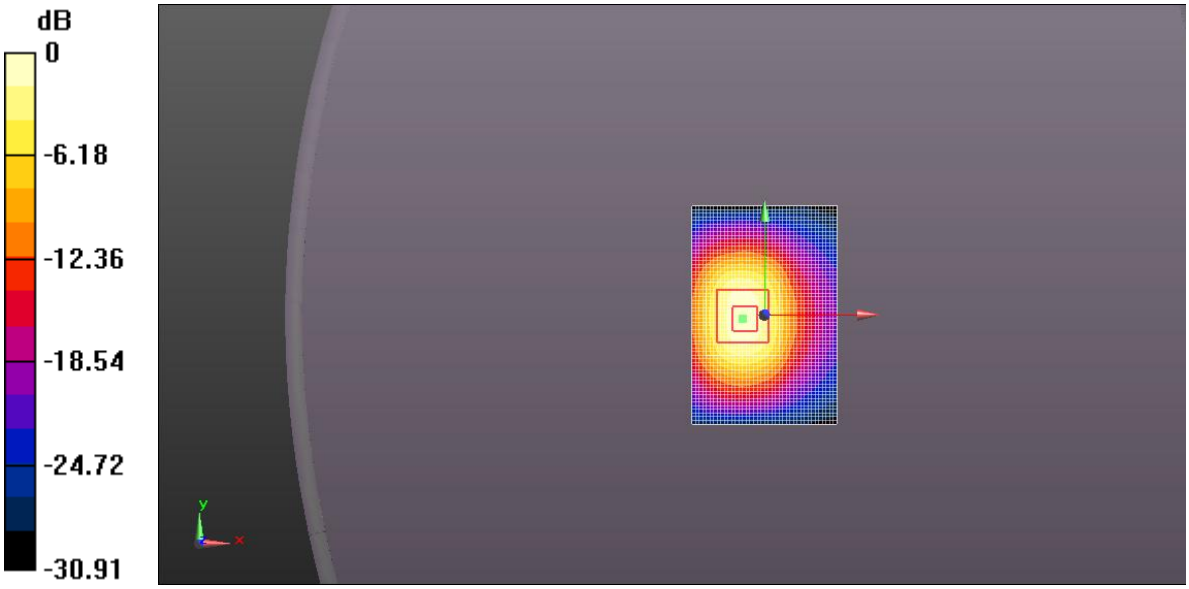
2450body/d=10mm, Pin=250 mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 67.342 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 26.2 W/kg

SAR(1 g) = 12.7 W/kg; SAR(10 g) = 5.86 W/kg

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



0 dB = 16.3 W/kg = 12.12 dBW/kg

System check 2600head

Date/Time: 29/12/2016 16:56:17

Communication System: UID 0, CW; Communication System Band: D2600 (2600.0 MHz); Frequency: 2600 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 2600 MHz; σ =1.971S/m; ε_r = 38.9; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE 1528-2013)

DASY5 Configuration:

- Probe: EX3DV4 - SN3717; ConvF(6.7, 6.7, 6.7); Calibrated: 19/10/2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 28/09/2016
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

2600head/d=10mm, Pin=250 mW/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 18.8 W/kg

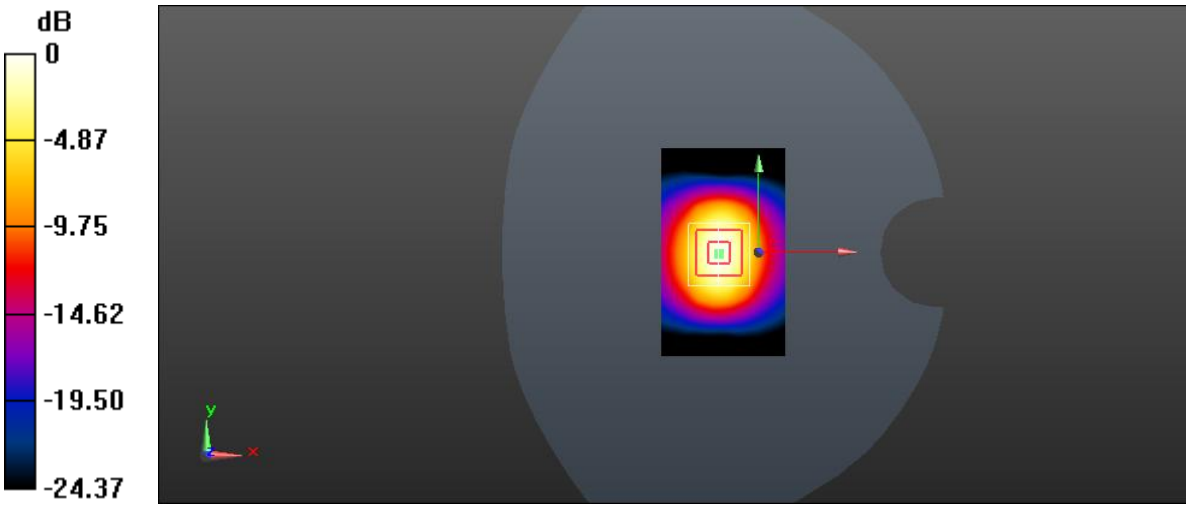
2600head/d=10mm, Pin=250 mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 93.316 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 36.2 W/kg

SAR(1 g) = 14.5 kg; SAR(10 g) = 6.39 W/kg

Maximum value of SAR (measured) = 18.4 W/kg



0 dB = 18.8 W/kg = 12.74 dBW/kg

System check 2600body

Date/Time: 29/12/2016 08:20:12

Communication System: UID 0, CW; Communication System Band: D2600 (2600.0 MHz); Frequency: 2600 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 2600 MHz; σ = 2.121 S/m; ε_r = 51.932; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: EX3DV4 - SN3717; ConvF(6.86, 6.86, 6.86); Calibrated: 19/10/2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 28/09/2016
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

2600body/d=10mm, Pin=250 mW/Area Scan (41x61x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 17.6 W/kg

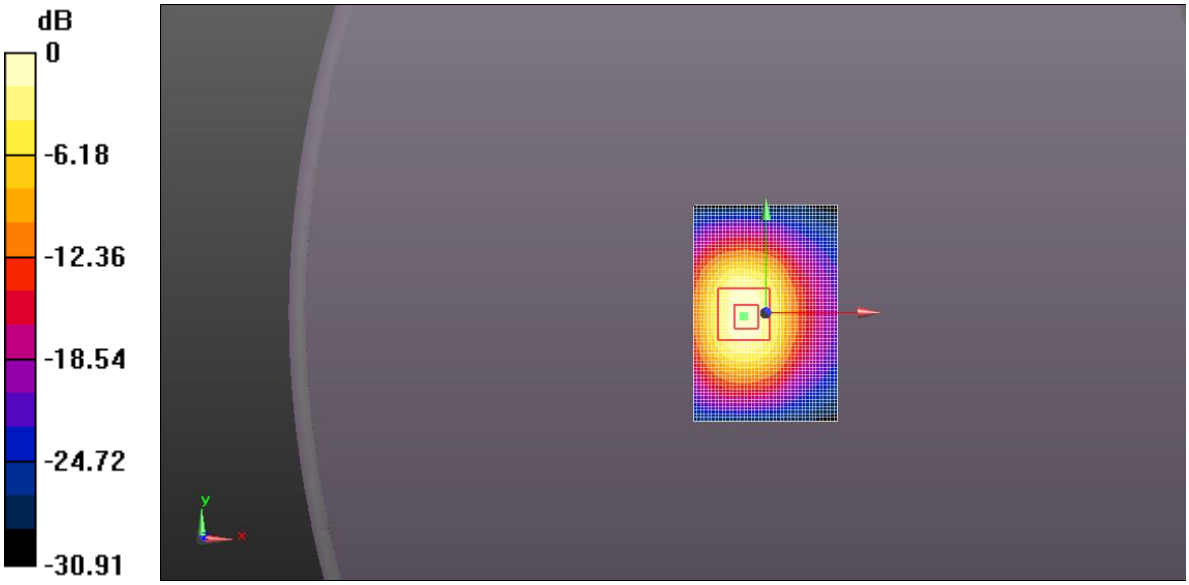
2600body/d=10mm, Pin=250 mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 71.463 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 26.2 W/kg

SAR(1 g) = 14.2 W/kg; SAR(10 g) = 6.42 W/kg

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



0 dB = 17.6 W/kg = 12.46 dBW/kg

Annex A.2 Graph Result

GSM850 Right head Touch high

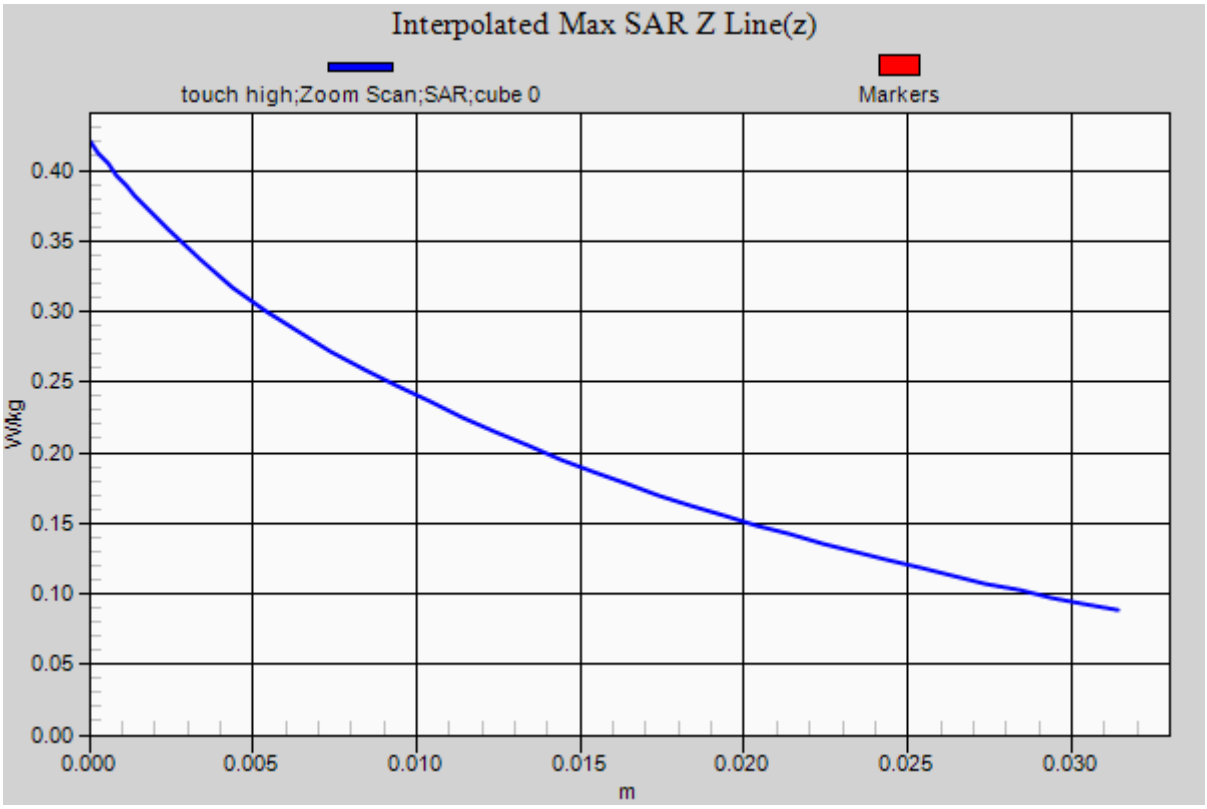
Date/Time: 21/12/2016 11:34:51
Communication System: UID 0, GSM (0); Communication System Band: GSM850(824.0-849.0MHz); Frequency: 848.8 MHz;Communication System PAR: 9.191 dB
Medium parameters used: f = 849 MHz; σ = 0.894 S/m; ε_r = 41.431; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE1528-2013)
DASY5 Configuration:

- Probe: EX3DV4 - SN3717; ConvF(8.93, 8.93, 8.93); Calibrated: 19/10/2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 28/09/2016
- Phantom: SAM1; Type: SAM; Serial: TP1576
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

right/touch high/Area Scan (11x18x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.373 W/kg

right/touch high/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.809 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.420 W/kg
SAR(1 g) = 0.313 W/kg; SAR(10 g) = 0.237 W/kg
Maximum value of SAR (measured) = 0.382 W/kg

0 dB = 0.373 W/kg = -4.28 dBW/kg


Interpolated Max SAR Z Line(z)
touch high;Zoom Scan;SAR;cube 0
Markers
W/kg
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

GSM850 back high GPRS(2up)

Date/Time: 23/12/2016 13:41:43

Communication System: UID 0, GPRS/EGPRS(2UP) (0); Communication System Band: GSM850; Frequency: 848.8 MHz;Communication System PAR: 6.19 dB

Medium parameters used: f = 849 MHz; σ = 0.967 S/m; ε_r = 54.15; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: EX3DV4 - SN3717; ConvF(8.99, 8.99, 8.99); Calibrated: 19/10/2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 28/09/2016
- Phantom: SAM1; Type: SAM; Serial: TP1576
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

body/back high/Area Scan (10x18x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.841 W/kg

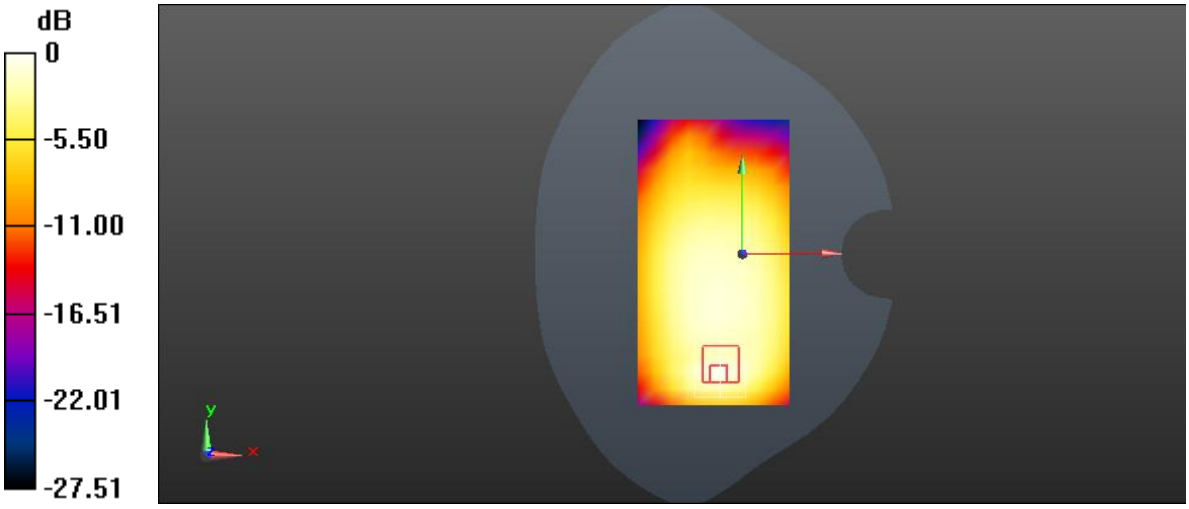
body/back high/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 23.06 V/m; Power Drift = -0.05 dB

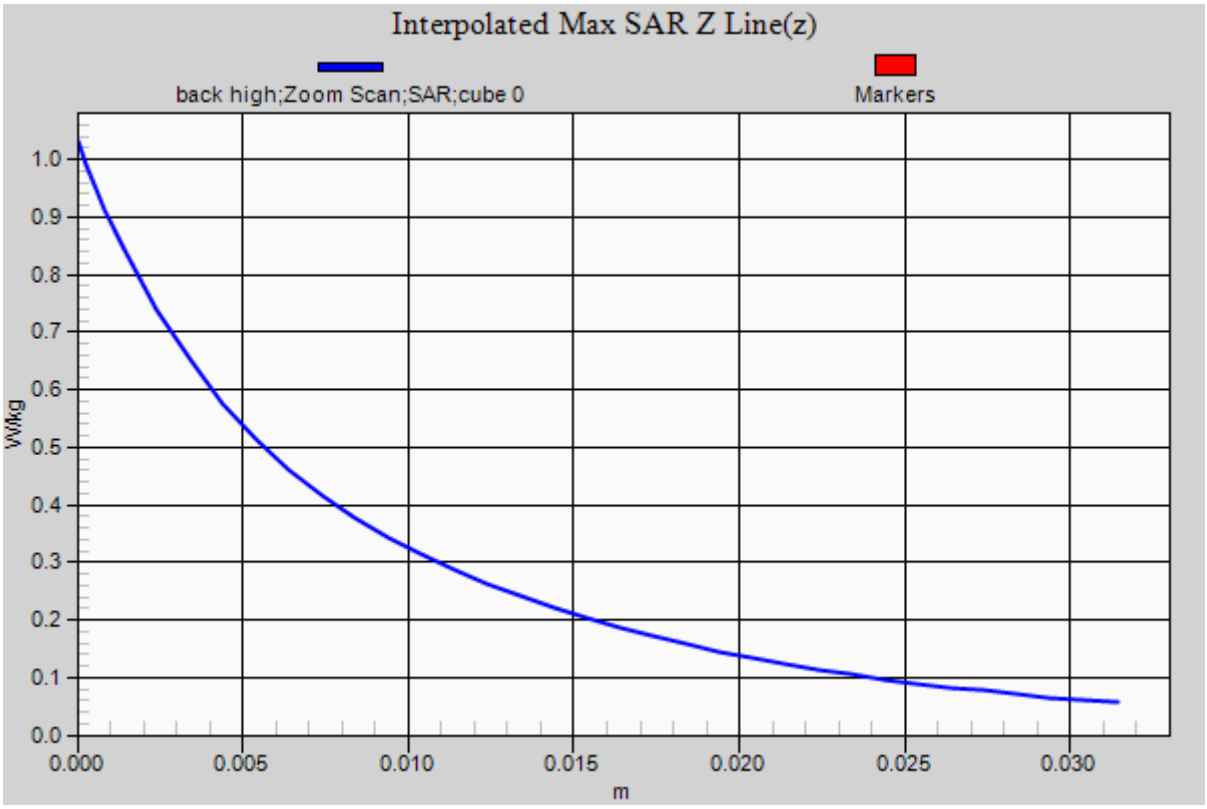
Peak SAR (extrapolated) = 1.03 W/kg

SAR(1 g) = 0.554 W/kg; SAR(10 g) = 0.332 W/kg

Maximum value of SAR (measured) = 0.840 W/kg



0 dB = 0.841 W/kg = -0.75 dBW/kg


Interpolated Max SAR Z Line(z)
back high;Zoom Scan;SAR;cube 0
Markers
W/kg
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

GSM1900 Right head Touch high

Date/Time: 22/12/2016 11:14:33

Communication System: UID 0, GSM (0); Communication System Band: PCS1900(1850.0-1910.0MHz); Frequency: 1909.8 MHz;Communication System PAR: 9.191 dB

Medium parameters used: f = 1910 MHz; σ = 1.393 S/m; ε_r = 39.011; ρ = 1000 kg/m^3

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: EX3DV4 - SN3717; ConvF(7.65, 7.65, 7.65); Calibrated: 19/10/2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 28/09/2016
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

right/touch high/Area Scan (11x18x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.221 W/kg

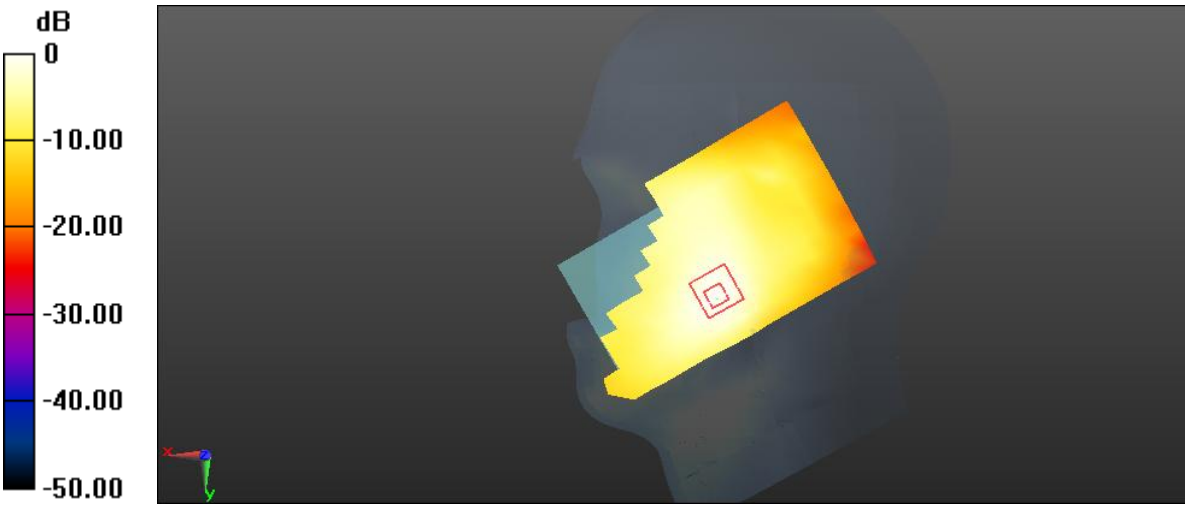
right/touch high/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 3.991 V/m; Power Drift = 0.12 dB

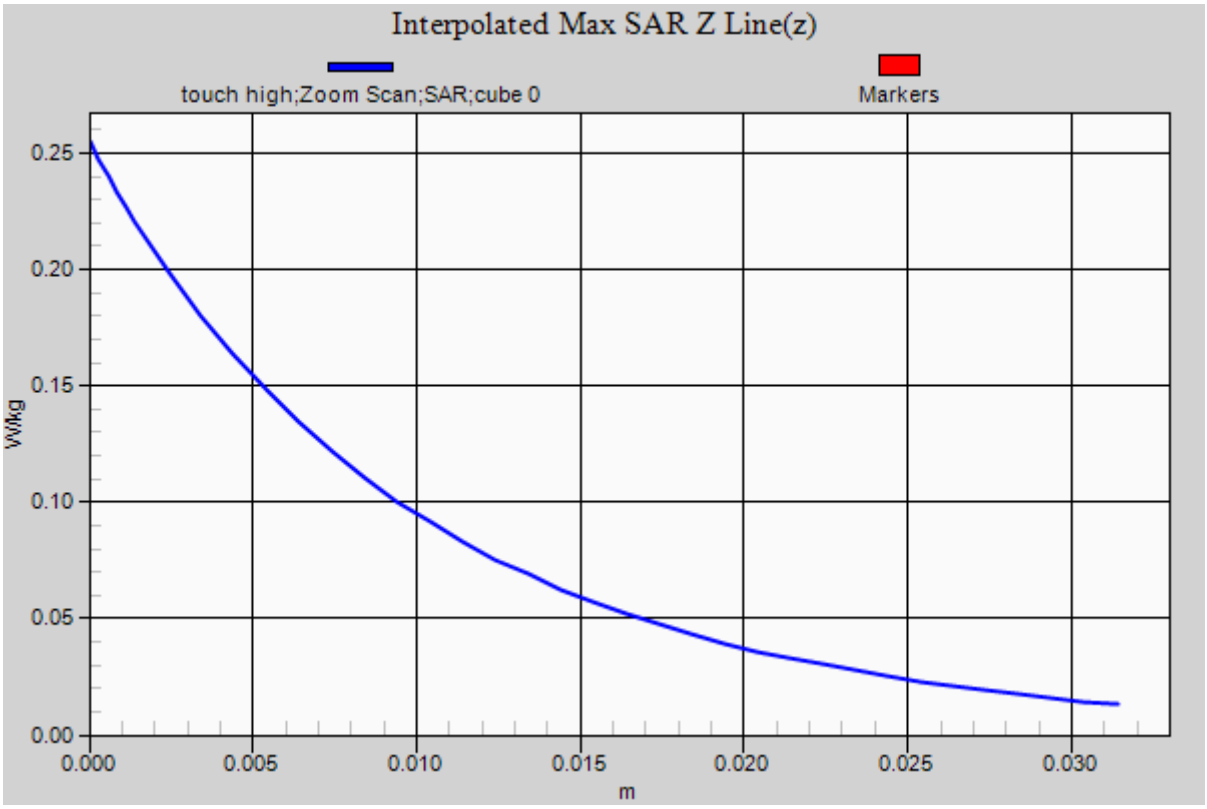
Peak SAR (extrapolated) = 0.255 W/kg

SAR(1 g) = 0.161 W/kg; SAR(10 g) = 0.098 W/kg

Maximum value of SAR (measured) = 0.223 W/kg



0 dB = 0.221 W/kg = -6.56 dBW/kg


Interpolated Max SAR Z Line(z)
touch high;Zoom Scan;SAR;cube 0
Markers
0.25
0.20
0.15
0.10
0.05
0.00
W/kg
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

GSM1900 back high GPRS(2up)

Date/Time: 26/12/2016 18:17:38

Communication System: UID 0, GPRS/EGPRS(2UP) (0); Communication System Band: PCS1900; Frequency: 1909.8 MHz;Communication System PAR: 6.19 dB

Medium parameters used: f = 1910 MHz; σ = 1.503 S/m; ε_r = 52.325; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: EX3DV4 - SN3717; ConvF(7.44, 7.44, 7.44); Calibrated: 19/10/2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 28/09/2016
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/back high/Area Scan (10x18x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.782 W/kg

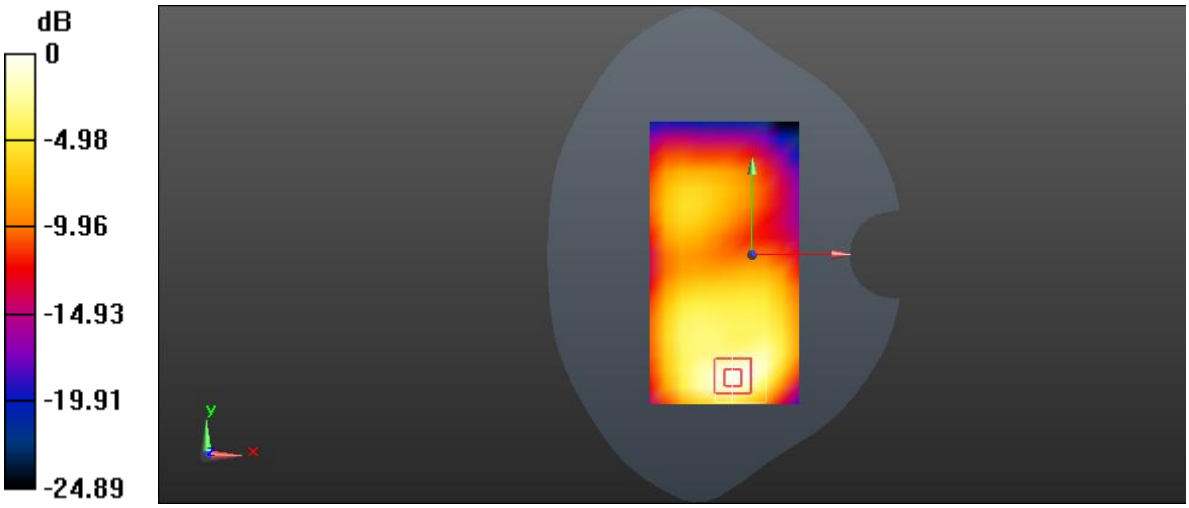
Configuration/back high/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.607 V/m; Power Drift = 0.11 dB

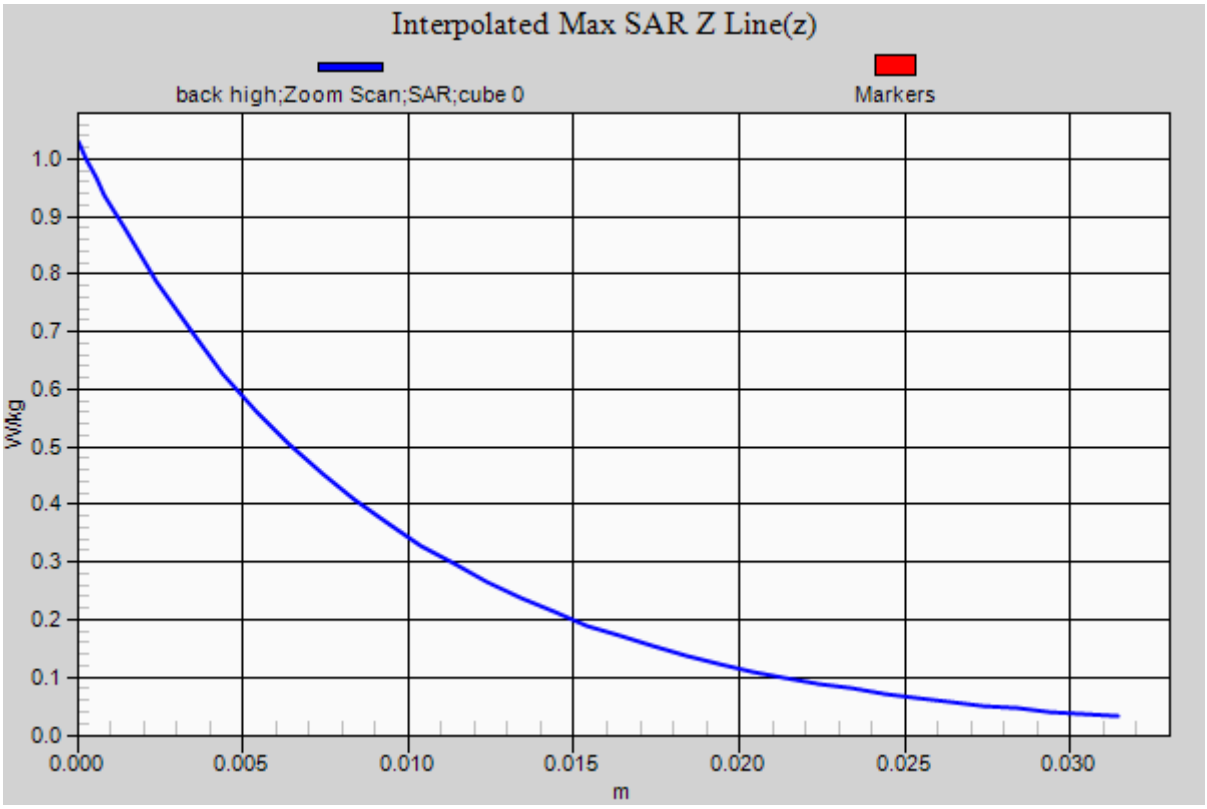
Peak SAR (extrapolated) = 1.03 W/kg

SAR(1 g) = 0.583 W/kg; SAR(10 g) = 0.311 W/kg

Maximum value of SAR (measured) = 0.881 W/kg



0 dB = 0.782 W/kg = -1.07 dBW/kg


Interpolated Max SAR Z Line(z)
back high;Zoom Scan;SAR;cube 0
Markers
W/kg
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

WCDMA BAND II Right head Touch mid

Date/Time: 22/12/2016 08:53:43

Communication System: UID 0, WCDMA (0); Communication System Band: BAND 2; Frequency: 1880 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 1880 MHz; σ = 1.364 S/m; ε_r = 39.144; ρ = 1000 kg/m^3

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: EX3DV4 - SN3717; ConvF(7.65, 7.65, 7.65); Calibrated: 19/10/2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 28/09/2016
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

right/touch mid/Area Scan (11x18x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.418 W/kg

right/touch mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

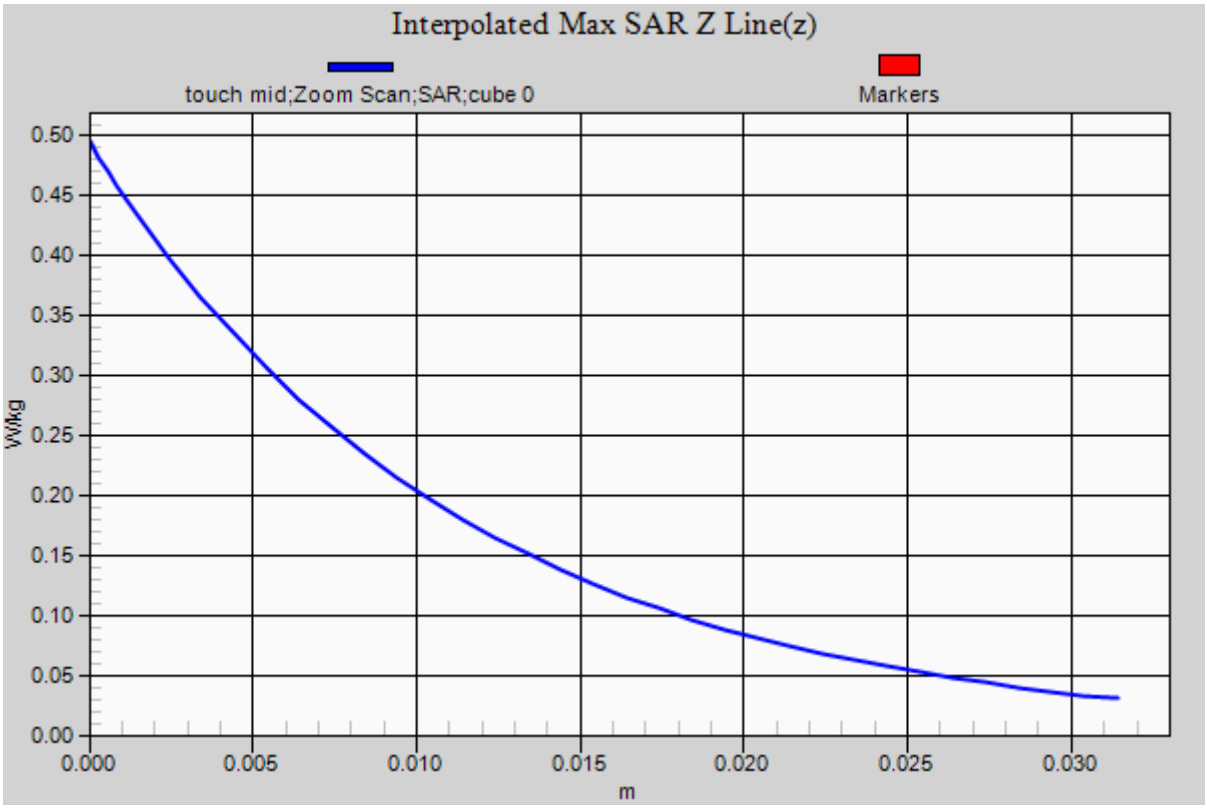
Reference Value = 5.959 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 0.495 W/kg

SAR(1 g) = 0.320 W/kg; SAR(10 g) = 0.196 W/kg

Maximum value of SAR (measured) = 0.432 W/kg

0 dB = 0.418 W/kg = -3.79 dBW/kg


Interpolated Max SAR Z Line(z)
touch mid;Zoom Scan;SAR;cube 0
Markers
W/kg
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

WCDMA BAND II bottom mid

Date/Time: 26/12/2016 11:37:47

Communication System: UID 0, WCDMA (0); Communication System Band: BAND 2; Frequency: 1880 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 1880 MHz; σ = 1.477 S/m; ε_r = 52.425; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: EX3DV4 - SN3717; ConvF(7.44, 7.44, 7.44); Calibrated: 19/10/2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 28/09/2016
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Configuration/bottom mid/Area Scan (7x11x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 1.11 W/kg

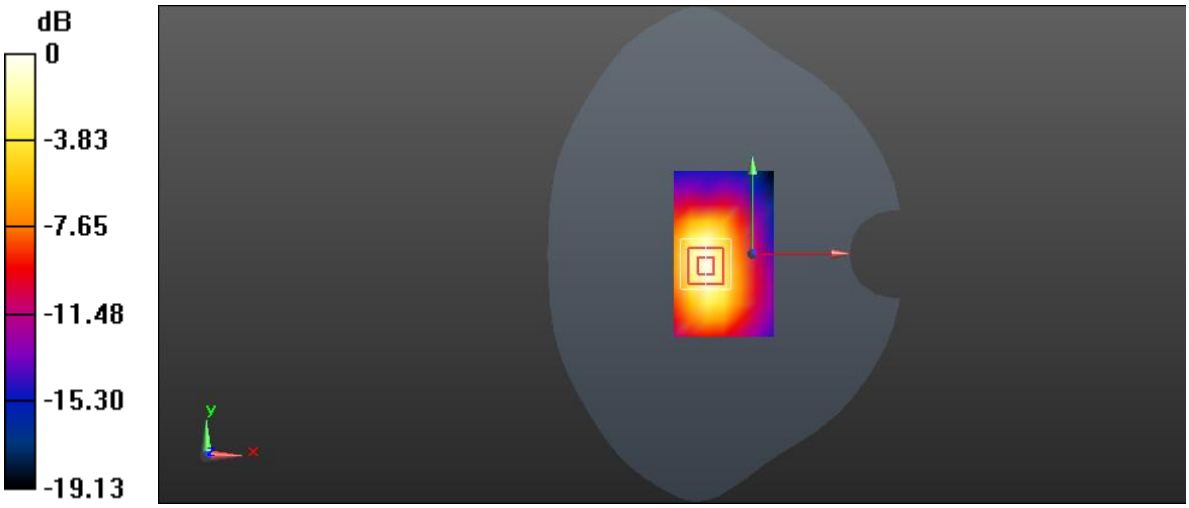
Configuration/bottom mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 17.41 V/m; Power Drift = 0.07 dB

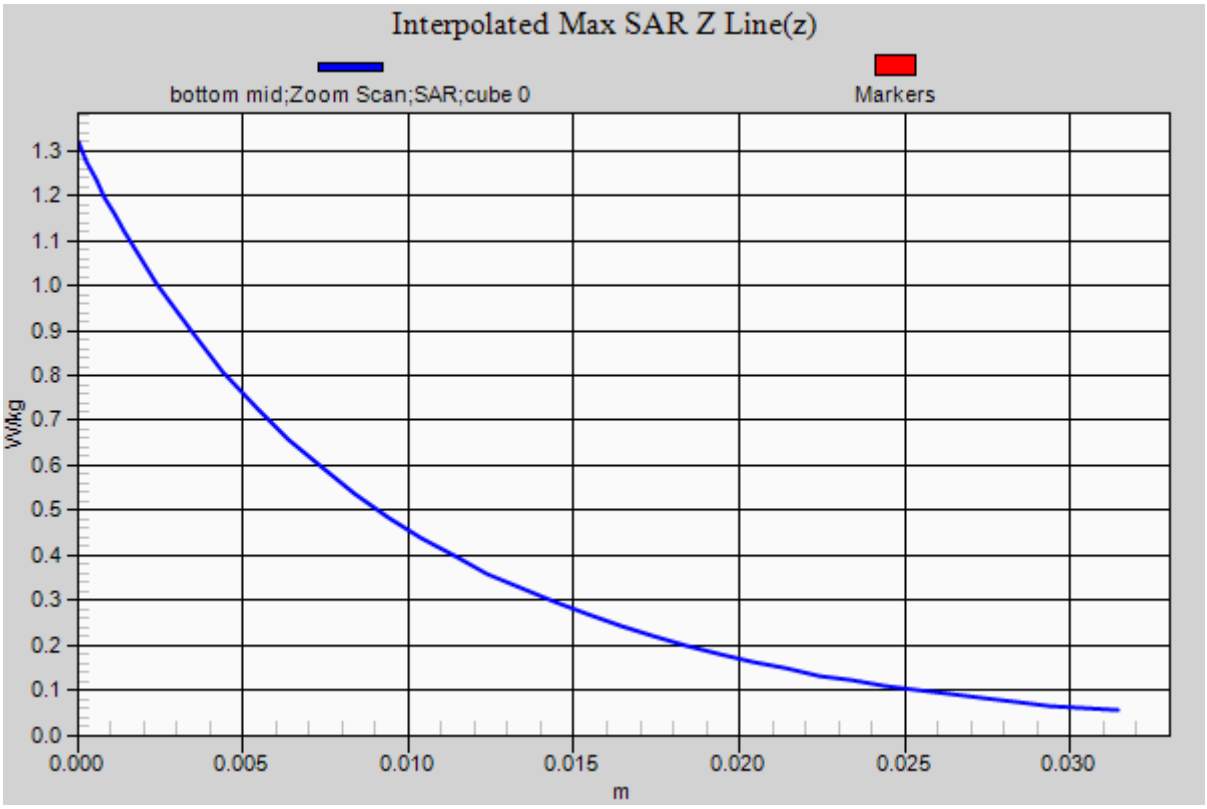
Peak SAR (extrapolated) = 1.32 W/kg

SAR(1 g) = 0.757 W/kg; SAR(10 g) = 0.413 W/kg

Maximum value of SAR (measured) = 1.12 W/kg



0 dB = 1.11 W/kg = 0.45 dBW/kg


Interpolated Max SAR Z Line(z)
bottom mid;Zoom Scan;SAR;cube 0
Markers
W/kg
1.3
1.2
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

WCDMA BAND V Right head Touch high

Date/Time: 21/12/2016 14:39:27

Communication System: UID 0, WCDMA (0); Communication System Band: BAND 5; Frequency: 846.6 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 847 MHz; σ = 0.892 S/m; ε_r = 41.467; ρ = 1000 kg/m^3

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: EX3DV4 - SN3717; ConvF(8.93, 8.93, 8.93); Calibrated: 19/10/2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 28/09/2016
- Phantom: SAM1; Type: SAM; Serial: TP1576
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

right/touch high/Area Scan (11x18x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.387 W/kg

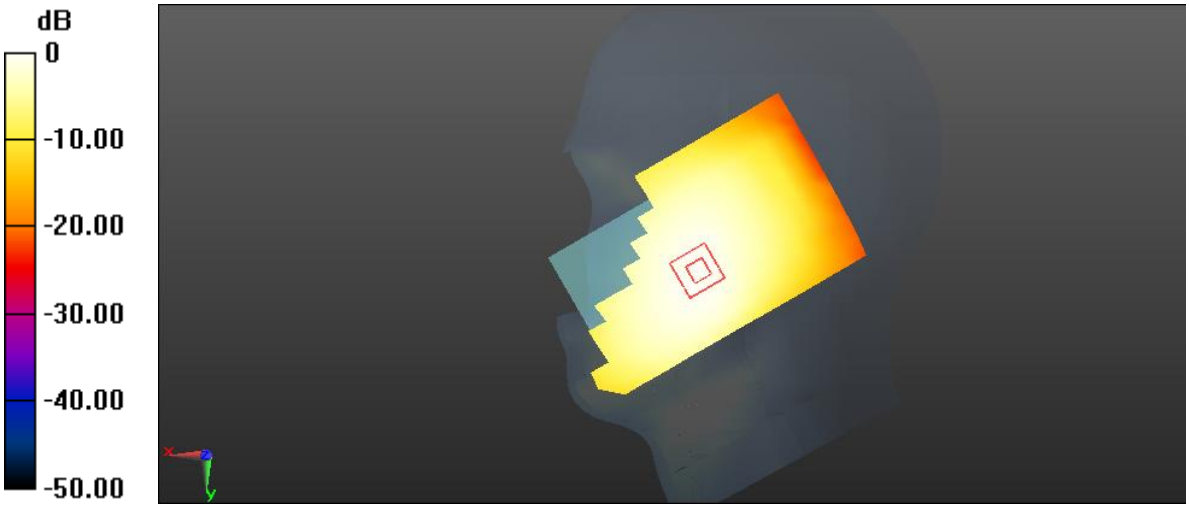
right/touch high/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.834 V/m; Power Drift = 0.12 dB

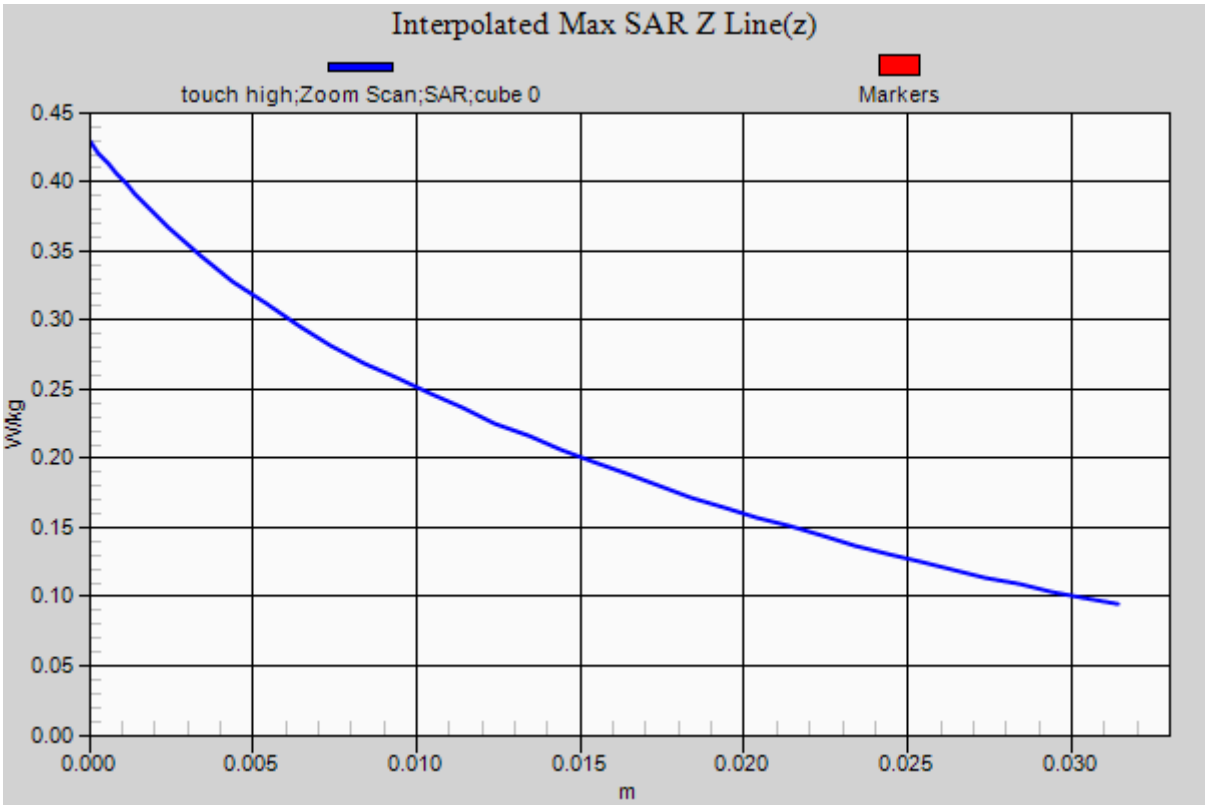
Peak SAR (extrapolated) = 0.429 W/kg

SAR(1 g) = 0.323 W/kg; SAR(10 g) = 0.245 W/kg

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



0 dB = 0.387 W/kg = -4.12 dBW/kg


Interpolated Max SAR Z Line(z)
touch high;Zoom Scan;SAR;cube 0
Markers
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
W/kg
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

WCDMA BAND V back high

Date/Time: 23/12/2016 11:28:11

Communication System: UID 0, WCDMA (0); Communication System Band: BAND 5; Frequency: 846.6 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 847 MHz; σ = 0.965 S/m; ε_r = 54.169; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: EX3DV4 - SN3717; ConvF(8.99, 8.99, 8.99); Calibrated: 19/10/2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 28/09/2016
- Phantom: SAM1; Type: SAM; Serial: TP1576
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

body/back high/Area Scan (10x18x1): Measurement grid: dx=10mm, dy=10mm

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

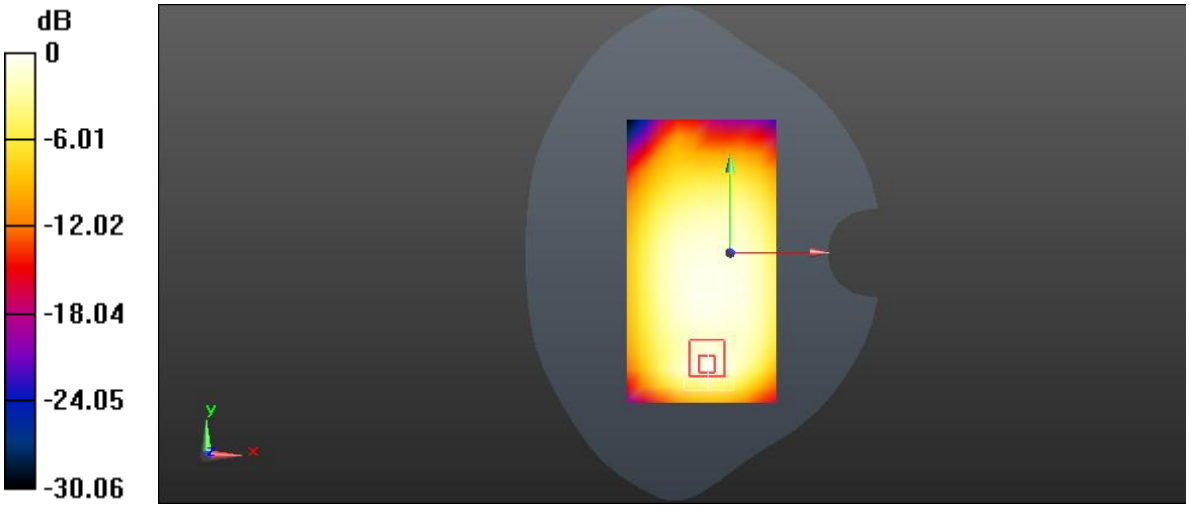
body/back high/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 20.06 V/m; Power Drift = -0.01 dB

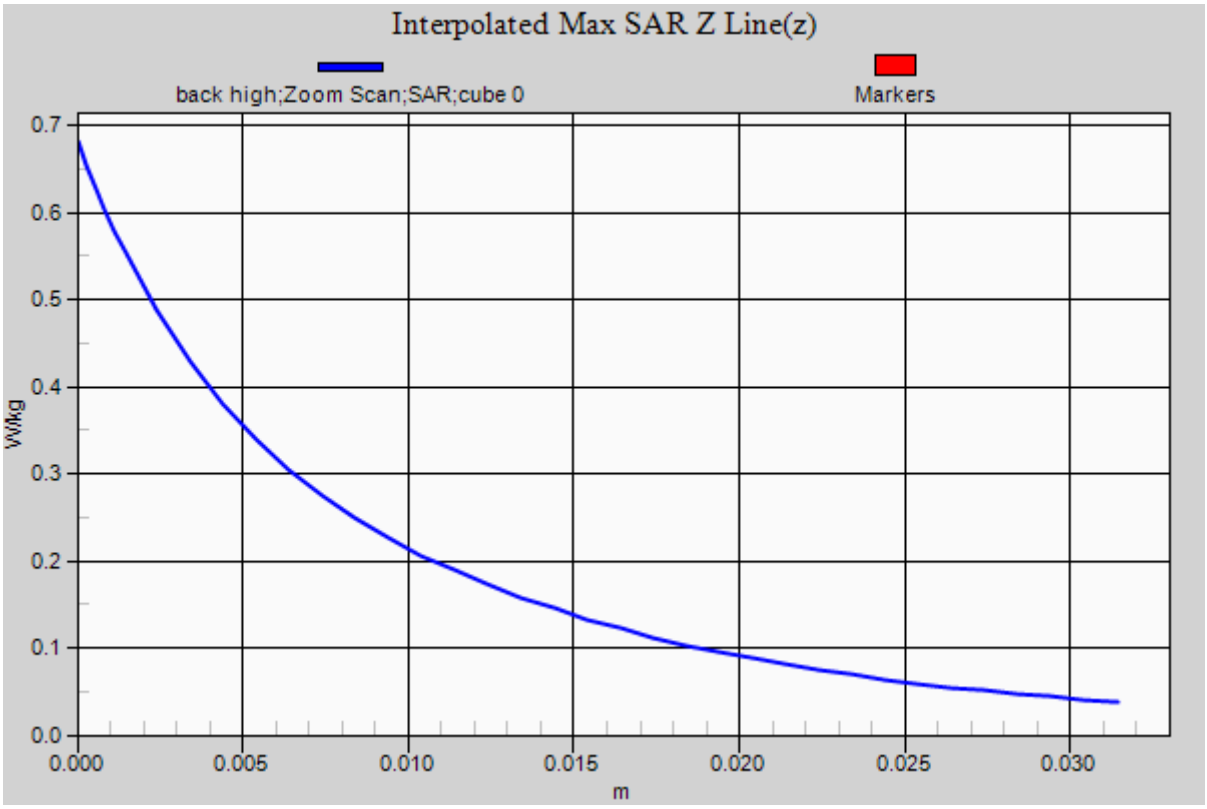
Peak SAR (extrapolated) = 0.681 W/kg

SAR(1 g) = 0.367 W/kg; SAR(10 g) = 0.222 W/kg

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



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


Interpolated Max SAR Z Line(z)
back high;Zoom Scan;SAR;cube 0
Markers
W/kg
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

LTE 2 Right head Touch high QPSK_20M_1RB low

Date/Time: 22/12/2016 13:46:30

Communication System: UID 0, FDD-LTE(QPSK_20M_1RB) (0); Communication System Band: BAND 2; Frequency: 1900 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 1900 MHz; σ = 1.383 S/m; ε_r = 39.048; ρ = 1000 kg/m^3

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: EX3DV4 - SN3717; ConvF(7.65, 7.65, 7.65); Calibrated: 19/10/2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 28/09/2016
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

right/touch high/Area Scan (11x18x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.414 W/kg

right/touch high/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

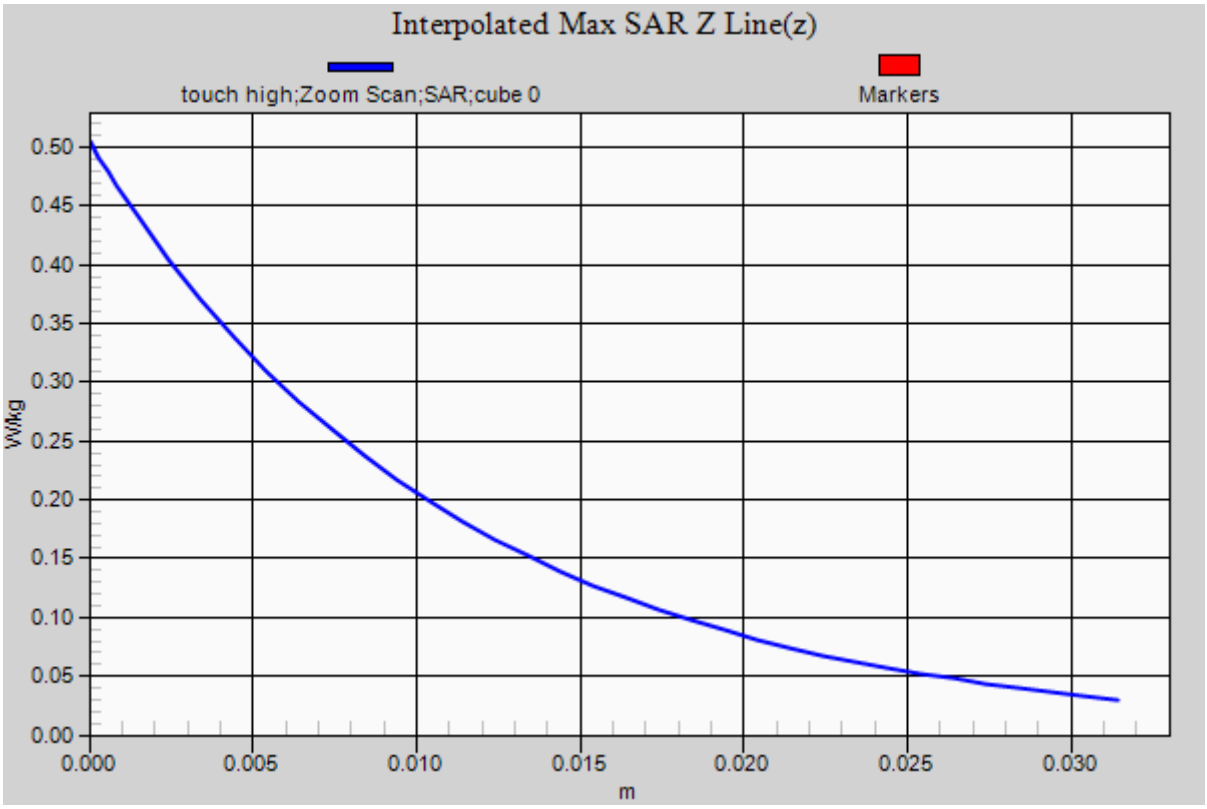
Reference Value = 5.946 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 0.505 W/kg

SAR(1 g) = 0.325 W/kg; SAR(10 g) = 0.199 W/kg

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

0 dB = 0.414 W/kg = -3.83 dBW/kg


Interpolated Max SAR Z Line(z)
touch high;Zoom Scan;SAR;cube 0
Markers
W/kg
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

LTE 2 bottom high QPSK_20M_1RB low

Date/Time: 26/12/2016 16:07:38

Communication System: UID 0, FDD-LTE(QPSK_20M_1RB) (0); Communication System Band: BAND 2; Frequency: 1900 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 1900 MHz; σ = 1.495 S/m; ε_r = 52.357; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: EX3DV4 - SN3717; ConvF(7.44, 7.44, 7.44); Calibrated: 19/10/2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 28/09/2016
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

body/bottom high/Area Scan (7x11x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 1.01 W/kg

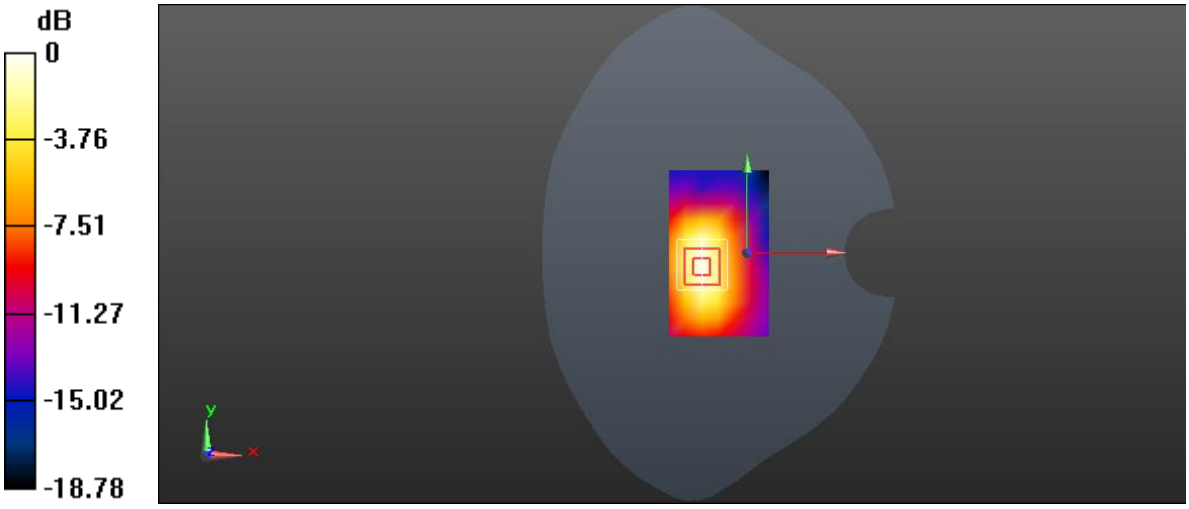
body/bottom high/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 17.08 V/m; Power Drift = -0.01 dB

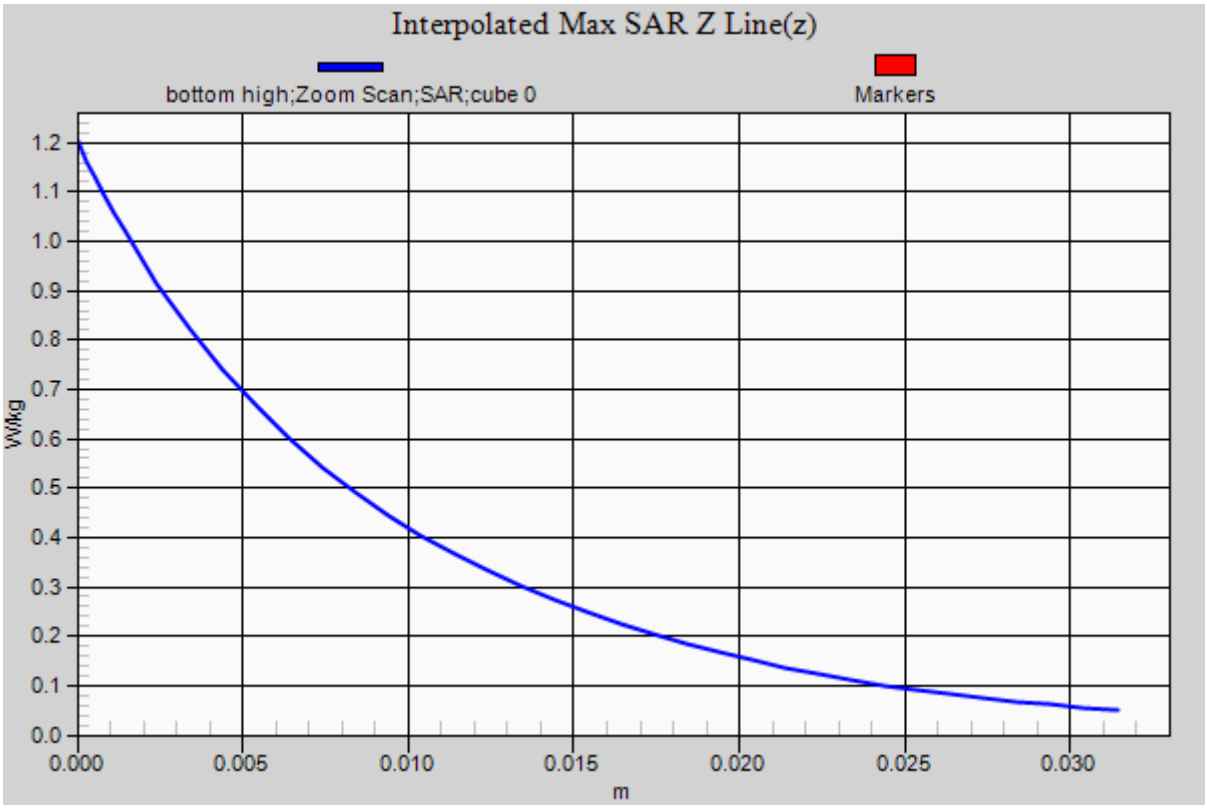
Peak SAR (extrapolated) = 1.20 W/kg

SAR(1 g) = 0.690 W/kg; SAR(10 g) = 0.378 W/kg

Maximum value of SAR (measured) = 1.02 W/kg



0 dB = 1.01 W/kg = 0.04 dBW/kg


Interpolated Max SAR Z Line(z)
bottom high;Zoom Scan;SAR;cube 0
Markers
W/kg
1.2
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

LTE 4 Right head Touch high QPSK_20M_1RB low

Date/Time: 31/12/2016 08:34:44

Communication System: UID 0, FDD-LTE(QPSK_20M_1RB) (0); Communication System Band: BAND 4; Frequency: 1745 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 1745 MHz; σ = 1.385 S/m; ε_r = 39.193; ρ = 1000 kg/m^3

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: EX3DV4 - SN3717; ConvF(7.7, 7.7, 7.7); Calibrated: 19/10/2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 28/09/2016
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

right/touch high/Area Scan (11x18x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.382 W/kg

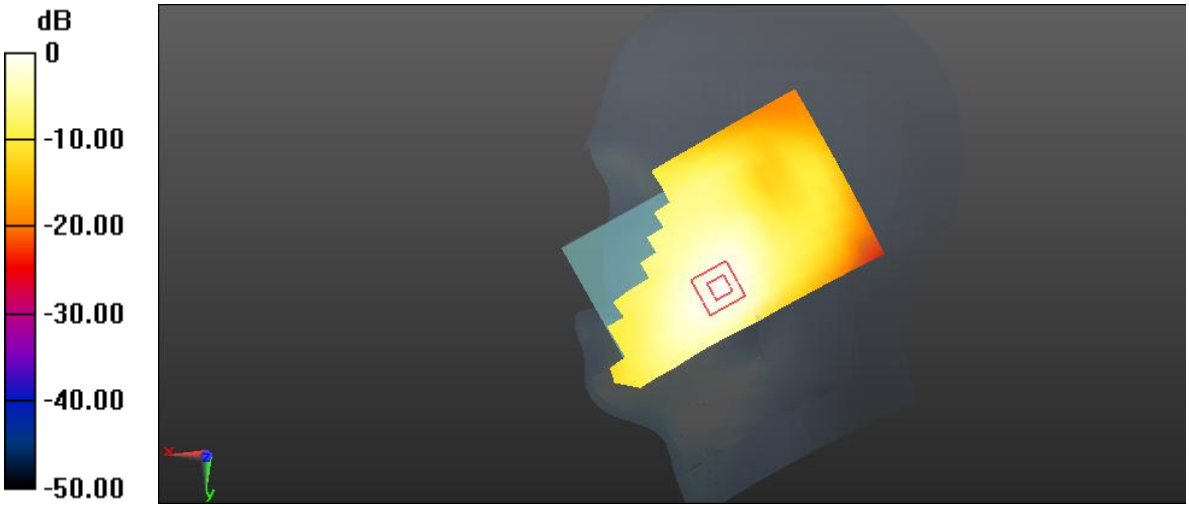
right/touch high/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.171 V/m; Power Drift = -0.16 dB

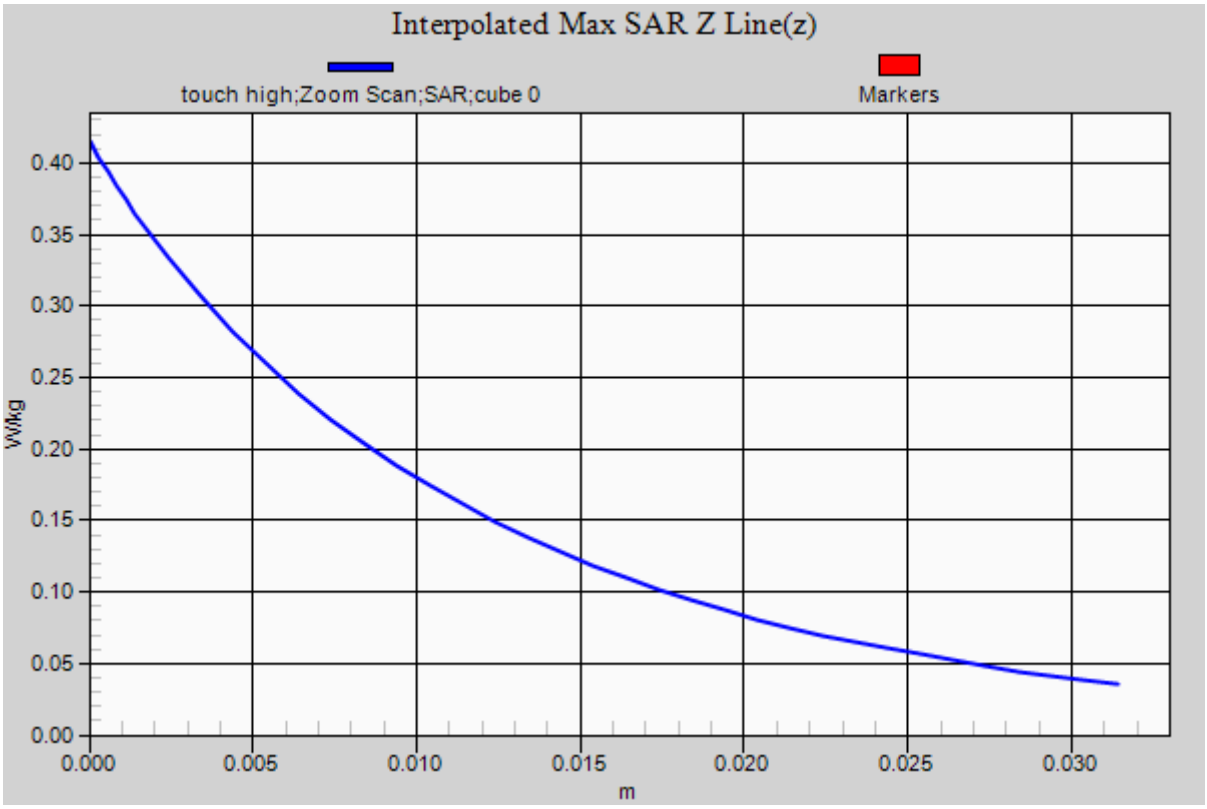
Peak SAR (extrapolated) = 0.415 W/kg

SAR(1 g) = 0.273 W/kg; SAR(10 g) = 0.174 W/kg

Maximum value of SAR (measured) = 0.365 W/kg



0 dB = 0.382 W/kg = -4.18 dBW/kg


Interpolated Max SAR Z Line(z)
touch high;Zoom Scan;SAR;cube 0
Markers
W/kg
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

LTE 4 back high QPSK_20M_1RB low

Date/Time: 31/12/2016 13:48:39

Communication System: UID 0, FDD-LTE(QPSK_20M_1RB) (0); Communication System Band: BAND 4; Frequency: 1745 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 1745 MHz; σ = 1.507 S/m; ε_r = 51.877; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: EX3DV4 - SN3717; ConvF(7.63, 7.63, 7.63); Calibrated: 19/10/2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 28/09/2016
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

body/back high/Area Scan (10x18x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 1.04 W/kg

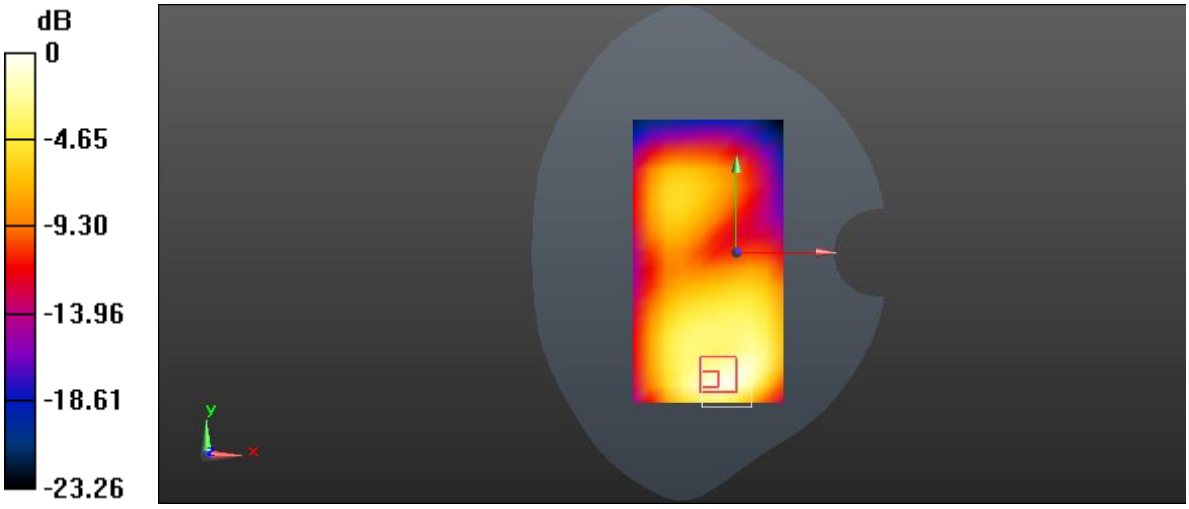
body/back high/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.108 V/m; Power Drift = -0.14 dB

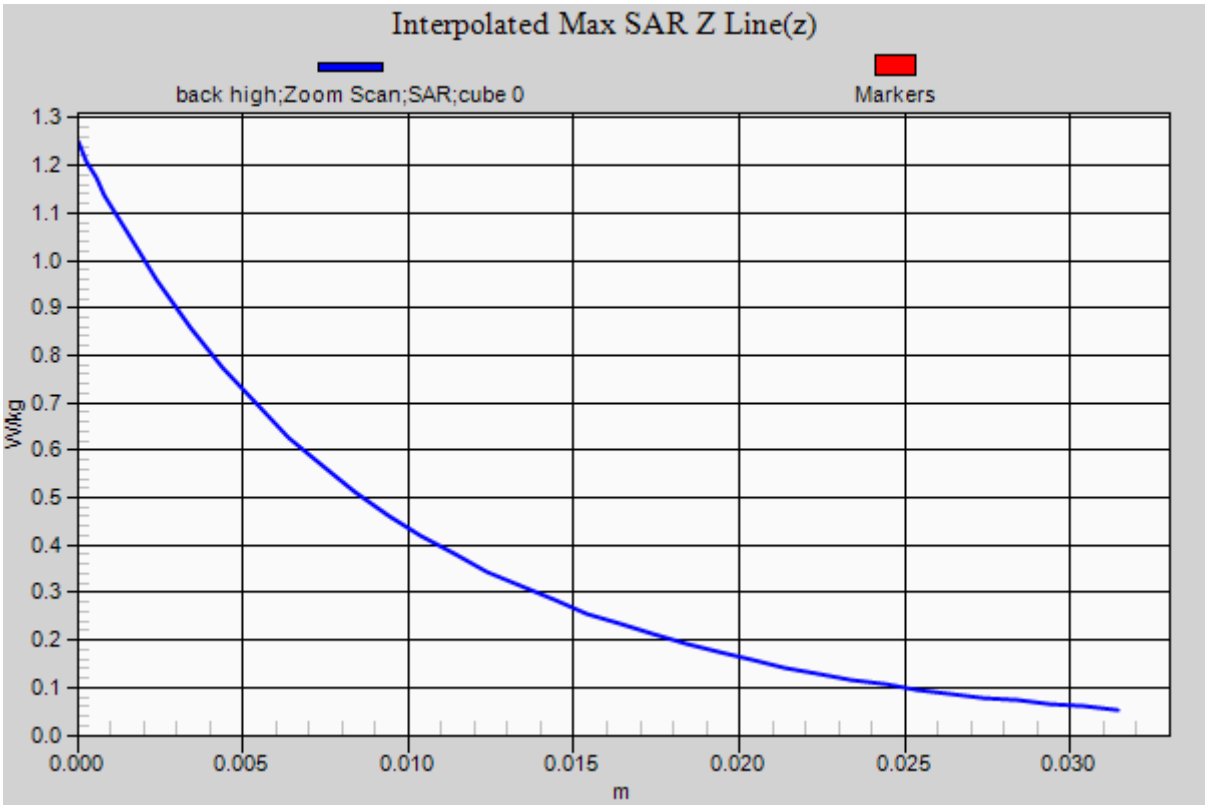
Peak SAR (extrapolated) = 1.25 W/kg

SAR(1 g) = 0.713 W/kg; SAR(10 g) = 0.374 W/kg

Maximum value of SAR (measured) = 1.03 W/kg



0 dB = 1.04 W/kg = 0.17 dBW/kg


Interpolated Max SAR Z Line(z)
back high;Zoom Scan;SAR;cube 0
Markers
W/kg
1.3
1.2
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

LTE 7 Left head Touch high QPSK_20M_1RB low

Date/Time: 29/12/2016 18:16:58

Communication System: UID 0, FDD-LTE(QPSK_20M_1RB) (0); Communication System Band: BAND 7; Frequency: 2560 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 2560 MHz; σ = 1.925 S/m; ε_r = 39.1; ρ = 1000 kg/m^3

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: EX3DV4 - SN3717; ConvF(6.7, 6.7, 6.7); Calibrated: 19/10/2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 28/09/2016
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

left head/touch high/Area Scan (11x18x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.757 W/kg

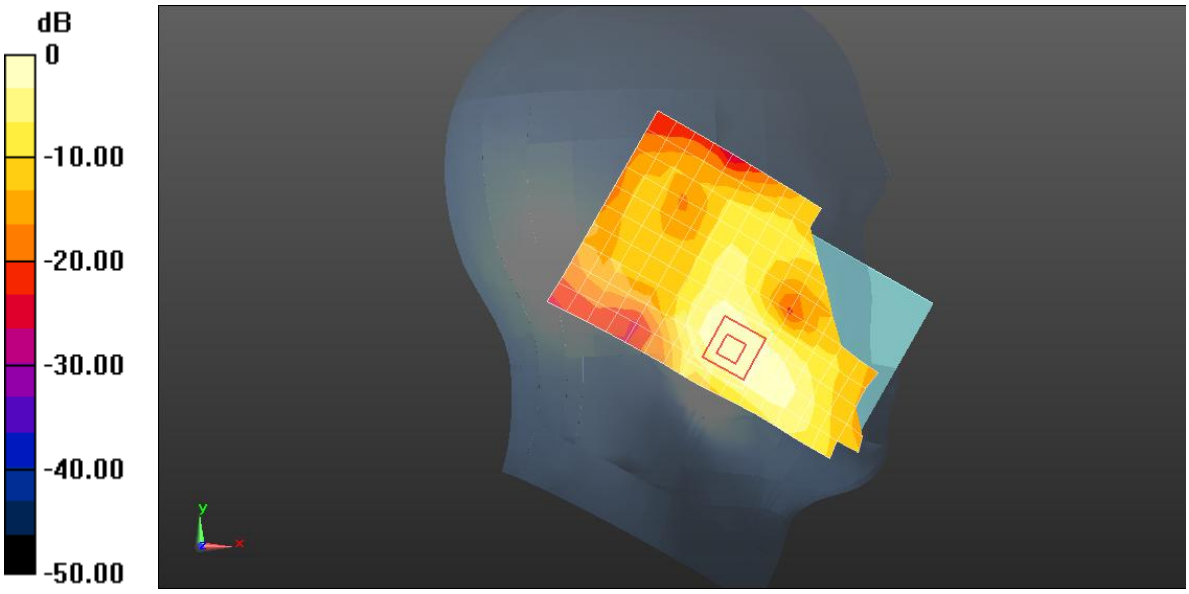
left head/touch high/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 4.660 V/m; Power Drift = 0.14 dB

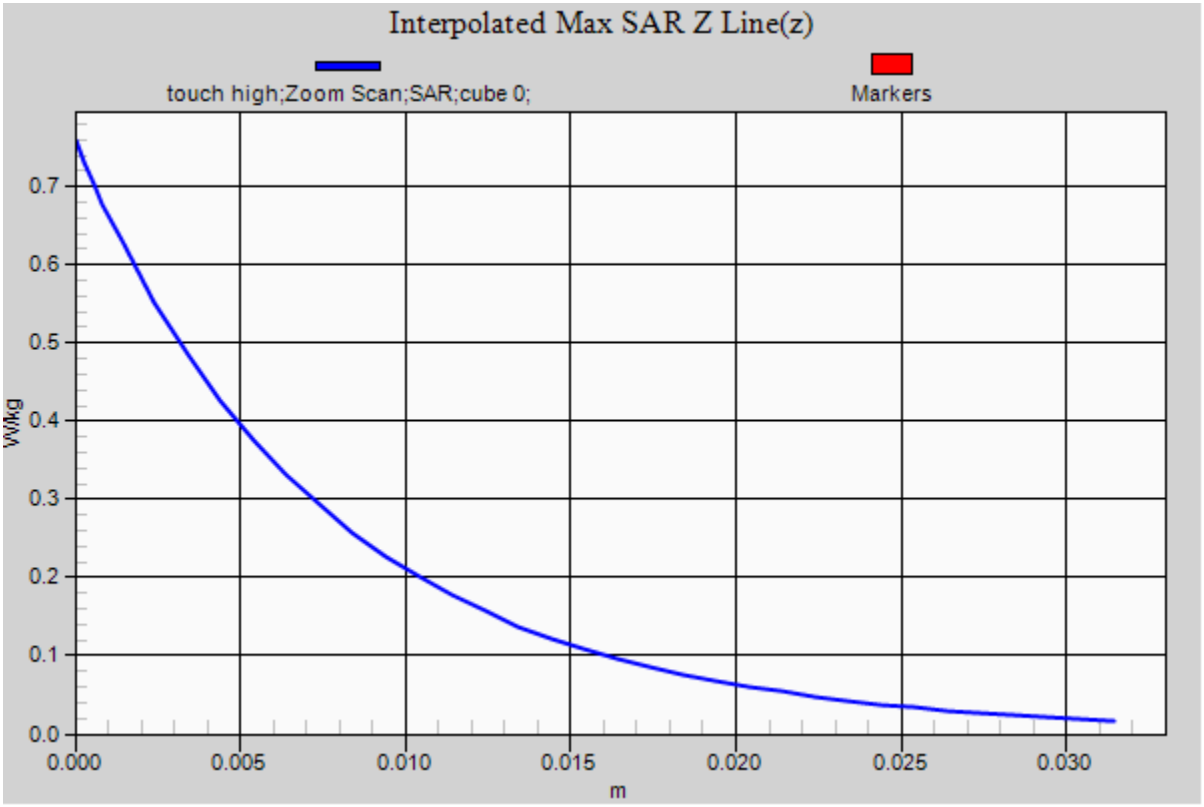
Peak SAR (extrapolated) = 0.759 W/kg

SAR(1 g) = 0.405 W/kg; SAR(10 g) = 0.208 W/kg

Maximum value of SAR (measured) = 0.612 W/kg



0 dB = 0.757 W/kg = -1.21 dBW/kg


Interpolated Max SAR Z Line(z)
touch high;Zoom Scan;SAR;cube 0;
Markers
W/kg
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

LTE 7 bottom high QPSK_20M_1RB low

Date/Time: 29/12/2016 15:33:14

Communication System: UID 0, FDD-LTE(QPSK_20M_1RB) (0); Communication System Band: BAND 7; Frequency: 2560 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 2560 MHz; σ = 2.142 S/m; ε_r = 51.52; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: EX3DV4 - SN3717; ConvF(6.86, 6.86, 6.86); Calibrated: 19/10/2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 28/09/2016
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

body 2/bottom high/Area Scan (7x11x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 1.14 W/kg

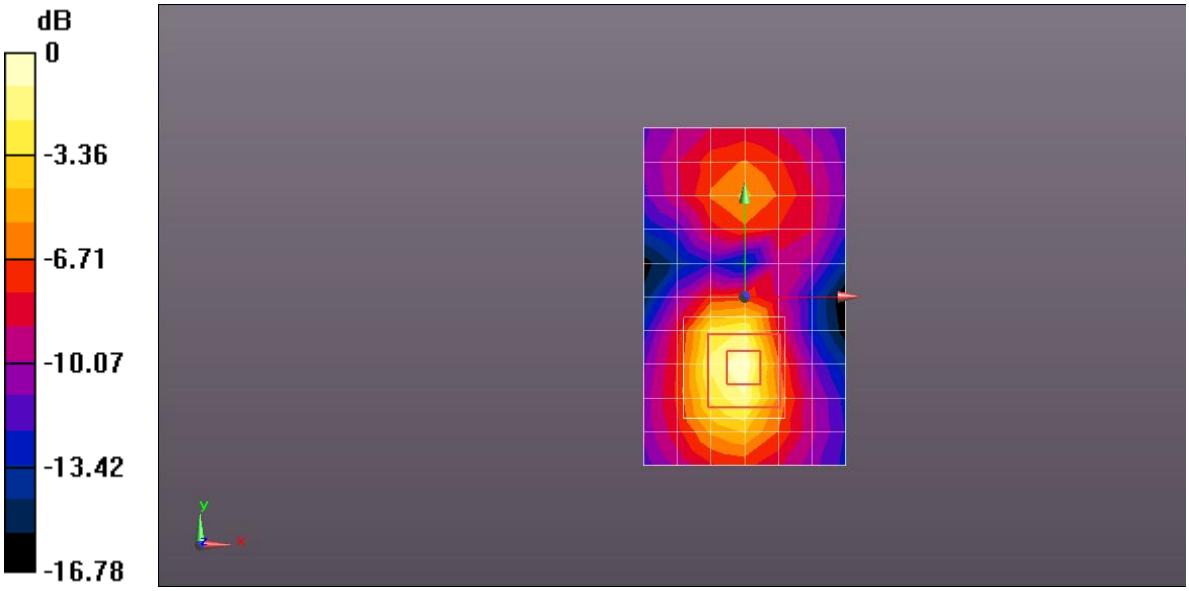
body 2/bottom high/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.926 V/m; Power Drift = -0.04 dB

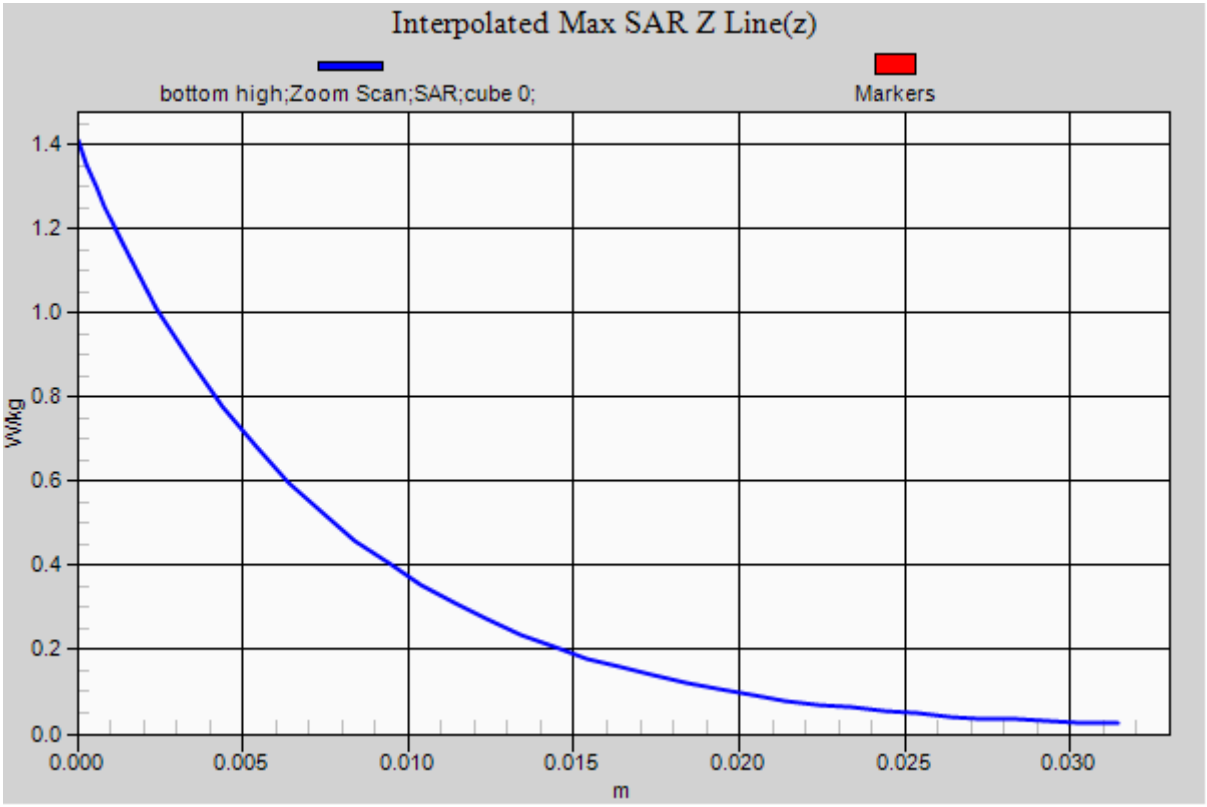
Peak SAR (extrapolated) = 1.41 W/kg

SAR(1 g) = 0.693 W/kg; SAR(10 g) = 0.308 W/kg

Maximum value of SAR (measured) = 1.11 W/kg



0 dB = 1.14 W/kg = 0.58 dBW/kg


Interpolated Max SAR Z Line(z)
bottom high;Zoom Scan;SAR;cube 0;
Markers
W/kg
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

LTE 12 Right head Touch mid QPSK_10M_1RB low

Date/Time: 28/12/2016 14:59:36

Communication System: UID 0, FDD-LTE(QPSK_10M_1RB) (0); Communication System Band: BAND 12; Frequency: 707.5 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 708 MHz; σ = 0.836 S/m; ε_r = 43.089; ρ = 1000 kg/m^3

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: EX3DV4 - SN3717; ConvF(9.27, 9.27, 9.27); Calibrated: 19/10/2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 28/09/2016
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

right/touch mid/Area Scan (11x18x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.127 W/kg

right/touch mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

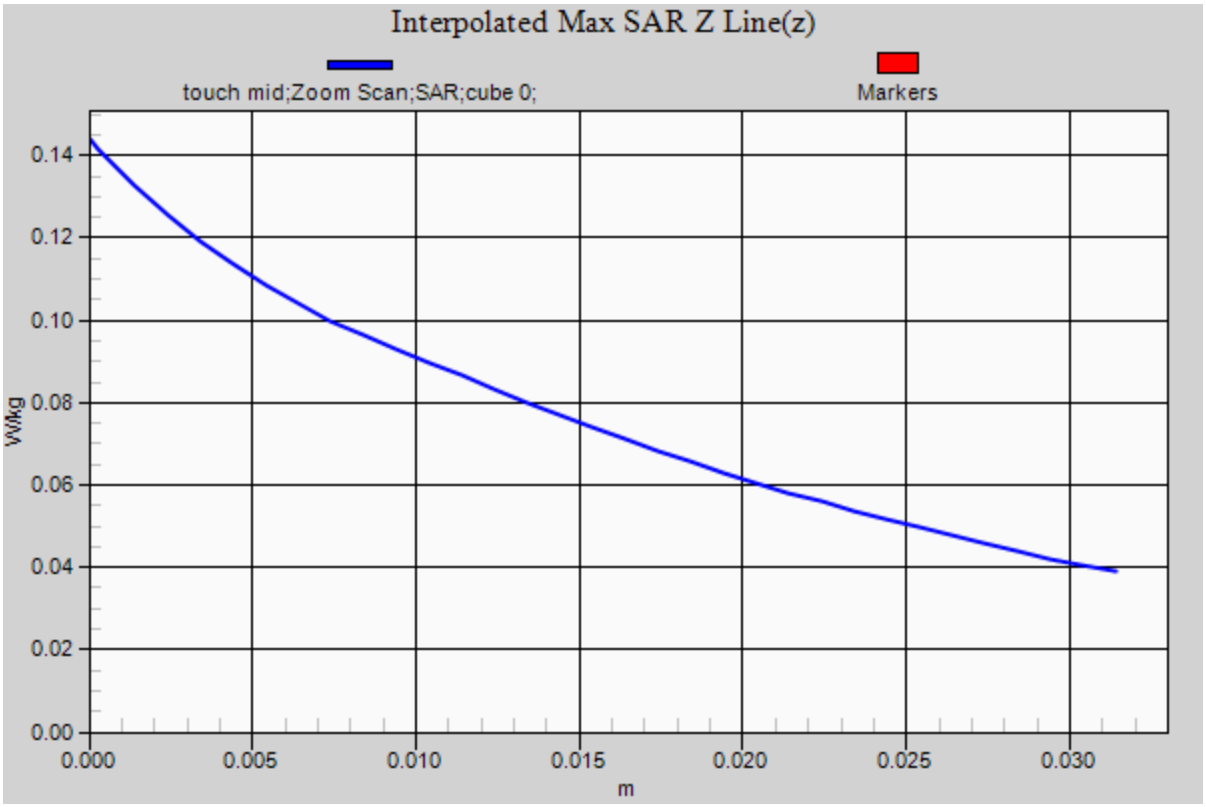
Reference Value = 4.367 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.144 W/kg

SAR(1 g) = 0.112 W/kg; SAR(10 g) = 0.087 W/kg

Maximum value of SAR (measured) = 0.133 W/kg

0 dB = 0.127 W/kg = -8.96 dBW/kg


Interpolated Max SAR Z Line(z)
touch mid;Zoom Scan;SAR;cube 0;
Markers
W/kg
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

LTE 12 back mid QPSK_10M_1RB low

Date/Time: 27/12/2016 15:21:07

Communication System: UID 0, FDD-LTE(QPSK_10M_1RB) (0); Communication System Band: BAND 12; Frequency: 707.5 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 708 MHz; σ = 0.897 S/m; ε_r = 54.876; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: EX3DV4 - SN3717; ConvF(9.25, 9.25, 9.25); Calibrated: 19/10/2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 28/09/2016
- Phantom: SAM1; Type: SAM; Serial: TP1576
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

body/back mid/Area Scan (10x18x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.236 W/kg

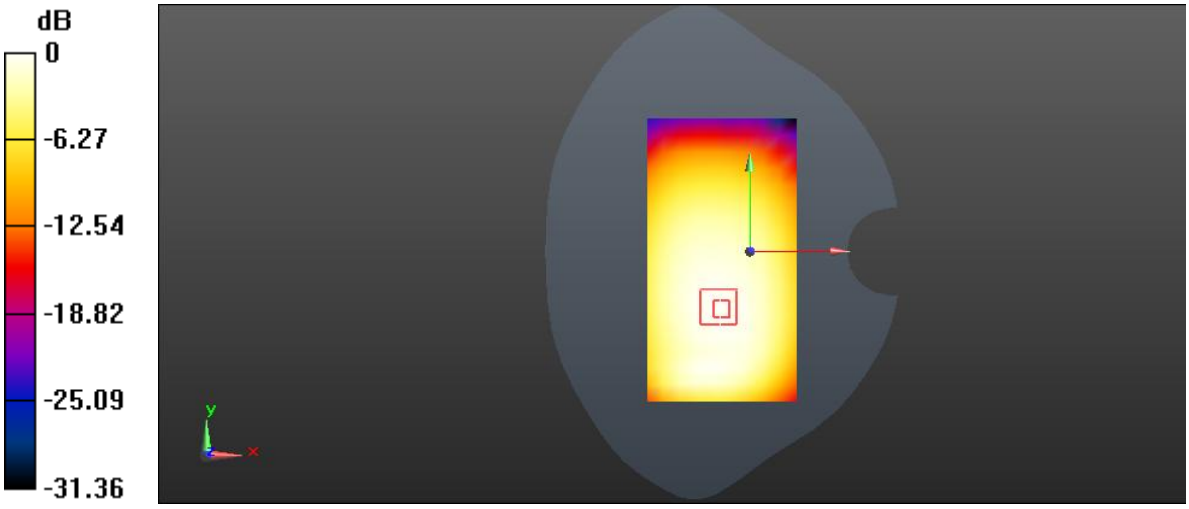
body/back mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 13.54 V/m; Power Drift = -0.00 dB

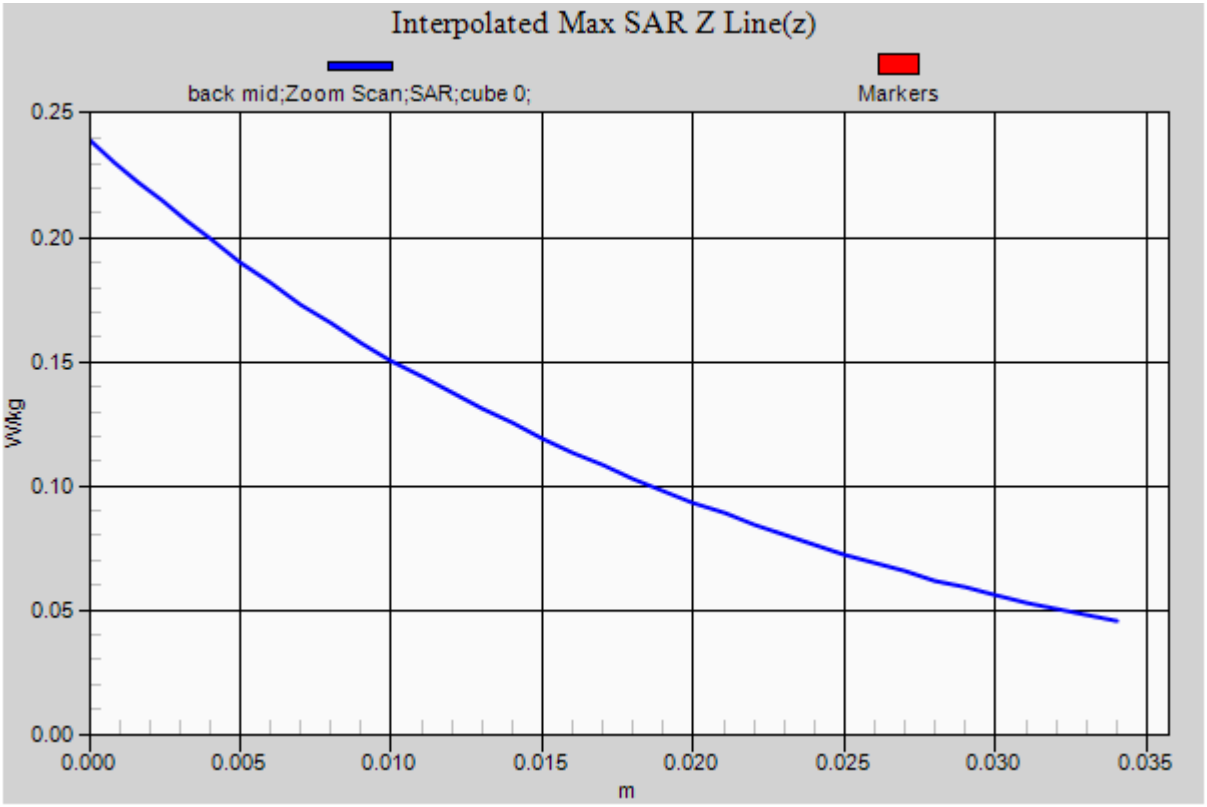
Peak SAR (extrapolated) = 0.239 W/kg

SAR(1 g) = 0.192 W/kg; SAR(10 g) = 0.149 W/kg

Maximum value of SAR (measured) = 0.201 W/kg



0 dB = 0.236 W/kg = -6.27 dBW/kg


Interpolated Max SAR Z Line(z)
back mid;Zoom Scan;SAR;cube 0;
Markers
0.25
0.20
0.15
0.10
0.05
0.00
W/kg
0.000
0.005
0.010
0.015
0.020
0.025
0.030
0.035
m

LTE 13 Right head Touch mid QPSK_10M_1RB low

Date/Time: 28/12/2016 14:09:01

Communication System: UID 0, FDD-LTE(QPSK_10M_1RB) (0); Communication System Band: BAND 13; Frequency: 782 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 782 MHz; σ = 0.904 S/m; ε_r = 42.226; ρ = 1000 kg/m^3

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: EX3DV4 - SN3717; ConvF(9.27, 9.27, 9.27); Calibrated: 19/10/2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 28/09/2016
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

right/touch mid/Area Scan (11x18x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.154 W/kg

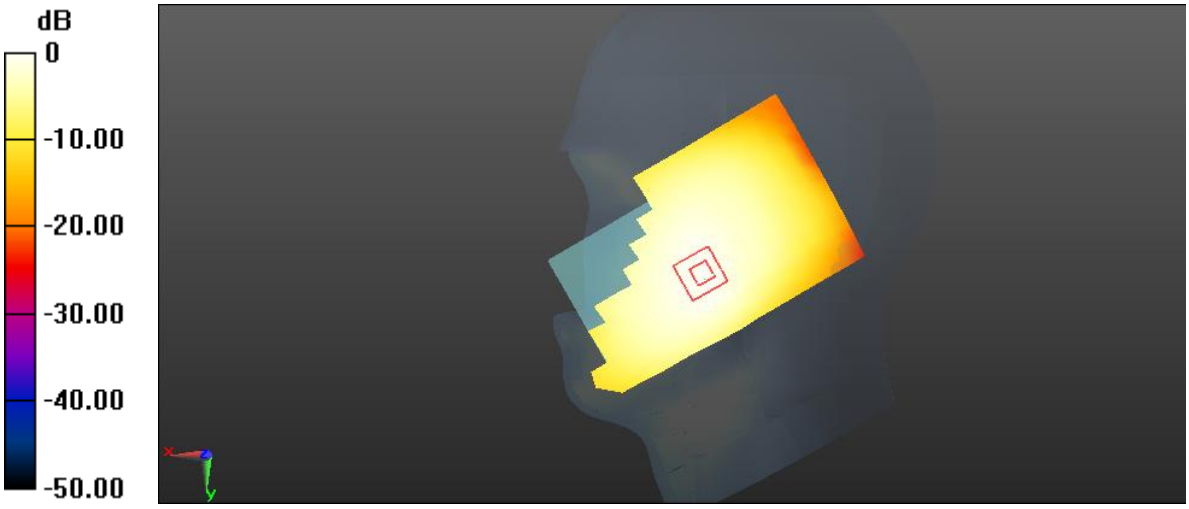
right/touch mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 4.727 V/m; Power Drift = 0.14 dB

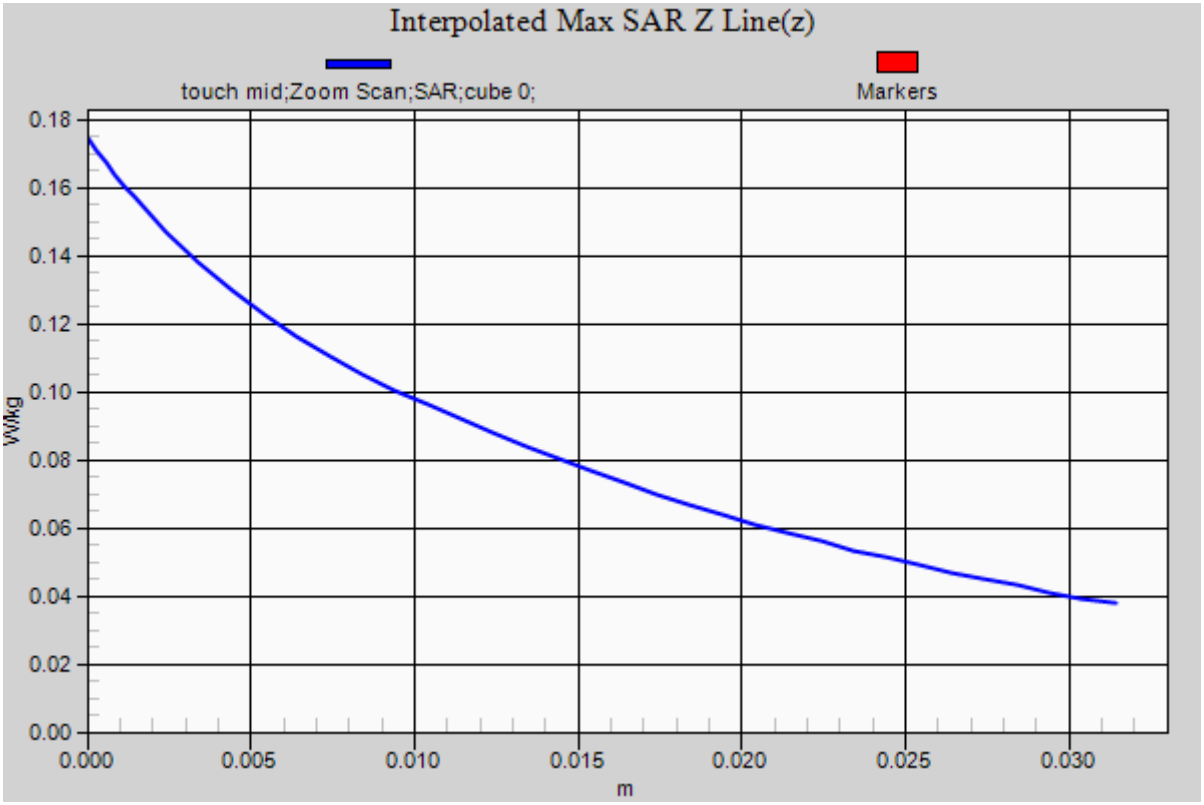
Peak SAR (extrapolated) = 0.174 W/kg

SAR(1 g) = 0.129 W/kg; SAR(10 g) = 0.098 W/kg

Maximum value of SAR (measured) = 0.158 W/kg



0 dB = 0.154 W/kg = -8.12 dBW/kg


Interpolated Max SAR Z Line(z)
touch mid;Zoom Scan;SAR;cube 0;
Markers
W/kg
0.18
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

LTE 13 back mid QPSK_10M_1RB low

Date/Time: 27/12/2016 10:58:14

Communication System: UID 0, FDD-LTE(QPSK_10M_1RB) (0); Communication System Band: BAND 13; Frequency: 782 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 782 MHz; σ = 0.965 S/m; ε_r = 54.172; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: EX3DV4 - SN3717; ConvF(9.25, 9.25, 9.25); Calibrated: 19/10/2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 28/09/2016
- Phantom: SAM1; Type: SAM; Serial: TP1576
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

body/back mid/Area Scan (10x18x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.299 W/kg

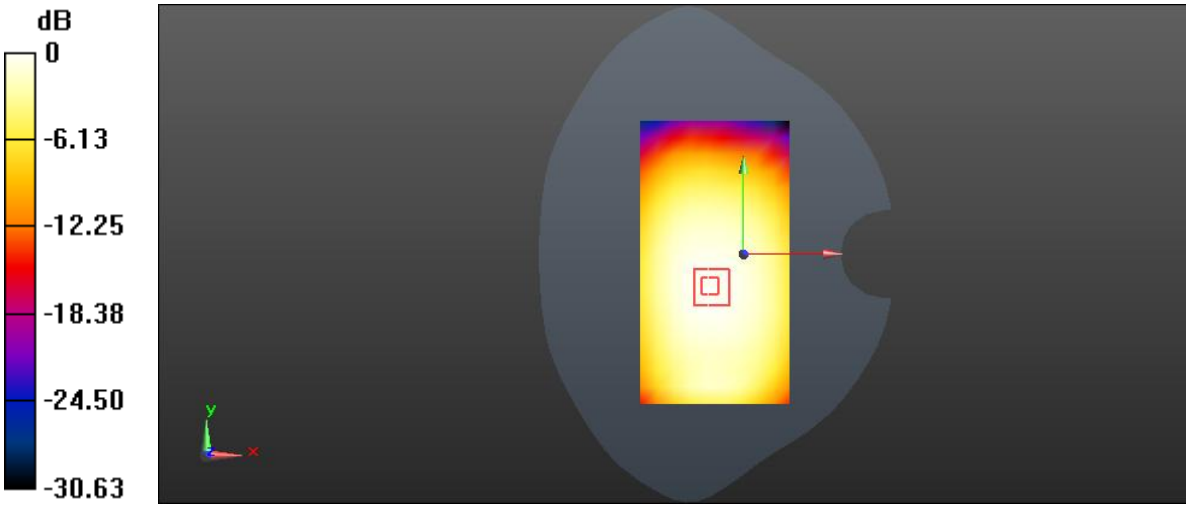
body/back mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 16.01 V/m; Power Drift = -0.01 dB

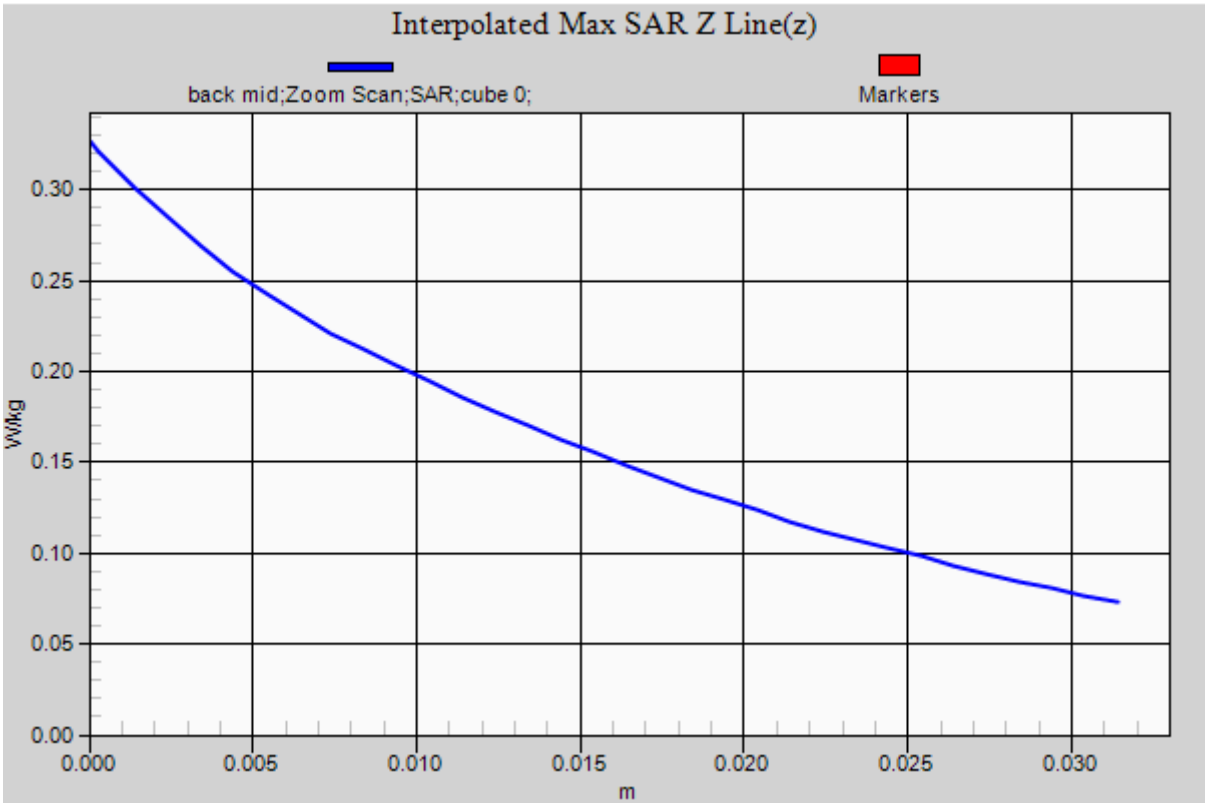
Peak SAR (extrapolated) = 0.326 W/kg

SAR(1 g) = 0.252 W/kg; SAR(10 g) = 0.195 W/kg

Maximum value of SAR (measured) = 0.301 W/kg



0 dB = 0.299 W/kg = -5.24 dBW/kg


Interpolated Max SAR Z Line(z)
back mid;Zoom Scan;SAR;cube 0;
Markers
W/kg
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

802.11b Data Rate: 1 Mbps Right head Touch mid

Date/Time: 30/12/2016 13:12:04

Communication System: UID 0, 802.11b/g/n 2.45GHz (0); Communication System Band: 2.4G; Frequency: 2437 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 2437 MHz; σ = 1.776 S/m; ε_r = 37.832; ρ = 1000 kg/m^3

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: EX3DV4 - SN3717; ConvF(6.96, 6.96, 6.96); Calibrated: 19/10/2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 28/09/2016
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

right head/touch mid/Area Scan (11x18x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.425 W/kg

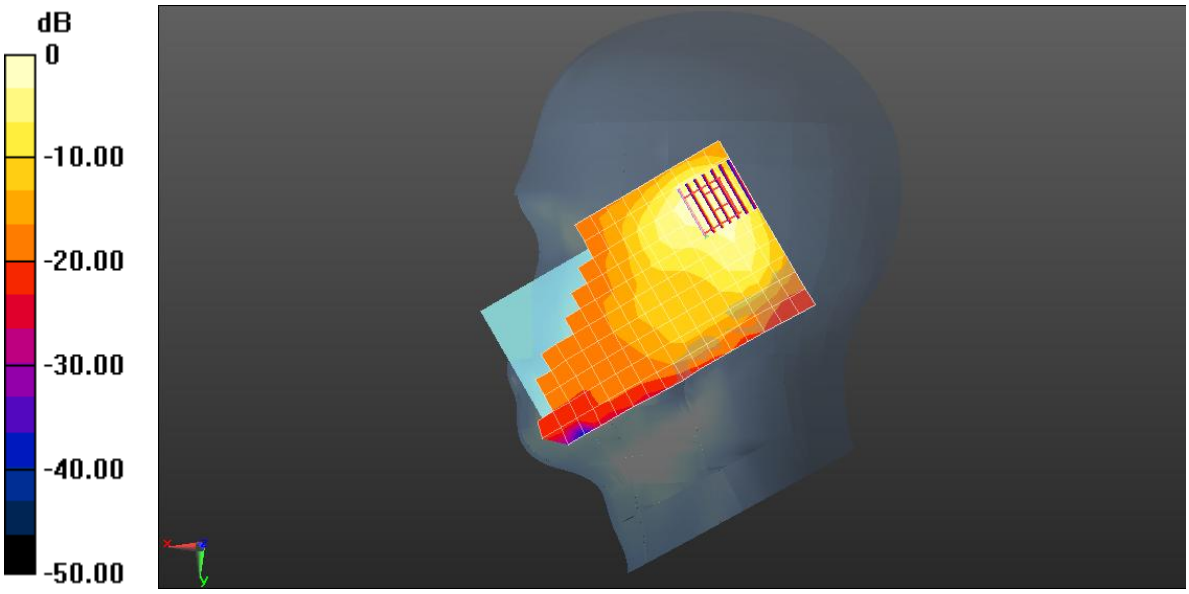
right head/touch mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.879 V/m; Power Drift = -0.16 dB

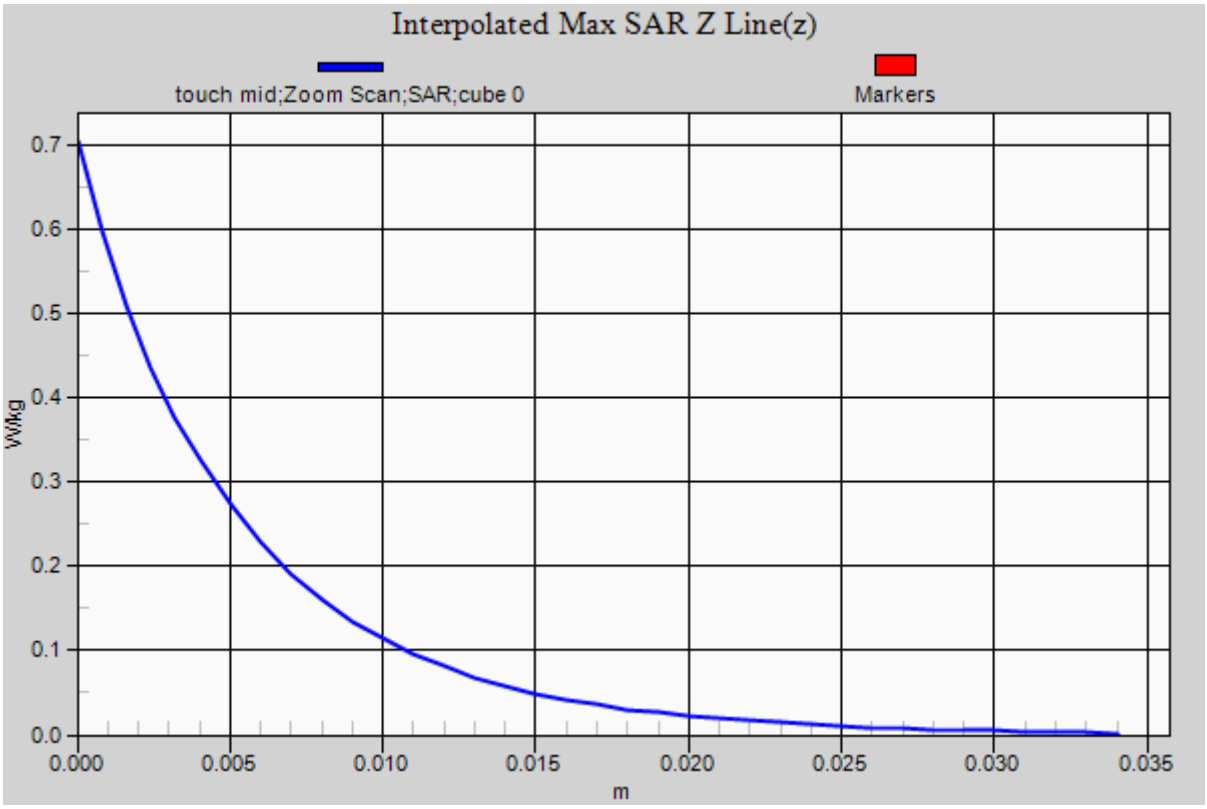
Peak SAR (extrapolated) = 0.705 W/kg

SAR(1 g) = 0.282 W/kg; SAR(10 g) = 0.129 W/kg

Maximum value of SAR (measured) = 0.327 W/kg



0 dB = 0.425 W/kg = -3.71 dBW/kg


Interpolated Max SAR Z Line(z)
touch mid;Zoom Scan;SAR;cube 0
Markers
W/kg
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
0.000
0.005
0.010
0.015
0.020
0.025
0.030
0.035
m

802.11b Data Rate: 1 Mbps top mid

Date/Time: 30/12/2016 15:24:17

Communication System: UID 0, 802.11b/g/n 2.45GHz (0); Communication System Band: 2.4G; Frequency: 2437 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 2437 MHz; σ = 1.906 S/m; ε_r = 51.957; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: EX3DV4 - SN3717; ConvF(7.04, 7.04, 7.04); Calibrated: 19/10/2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 28/09/2016
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

body/top mid/Area Scan (7x11x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.0813 W/kg

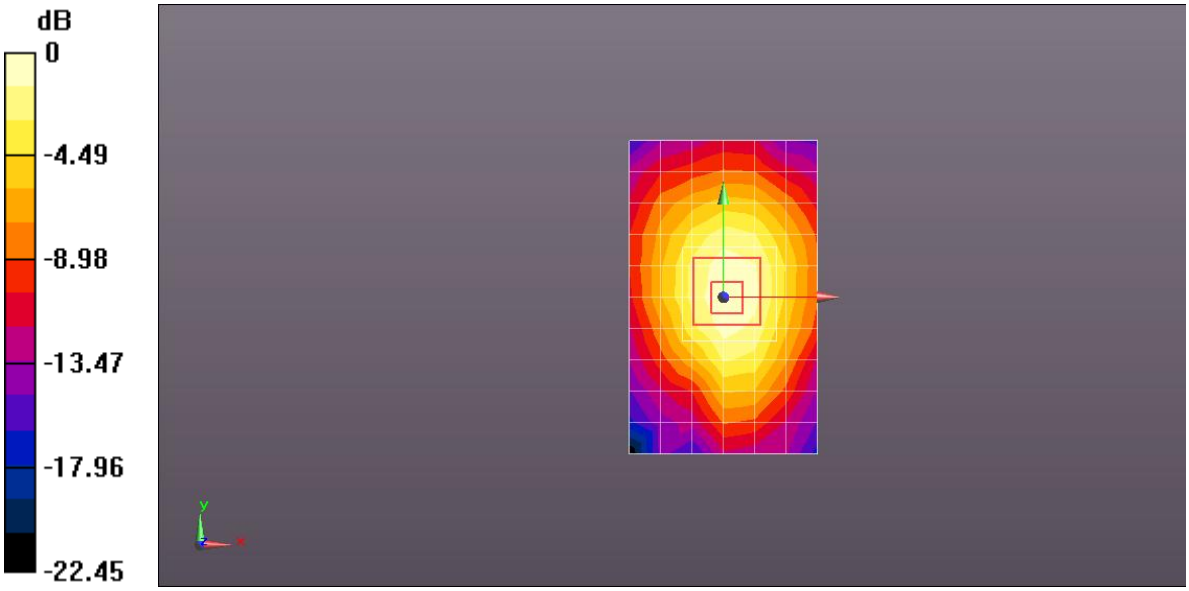
body/top mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.945 V/m; Power Drift = -0.02 dB

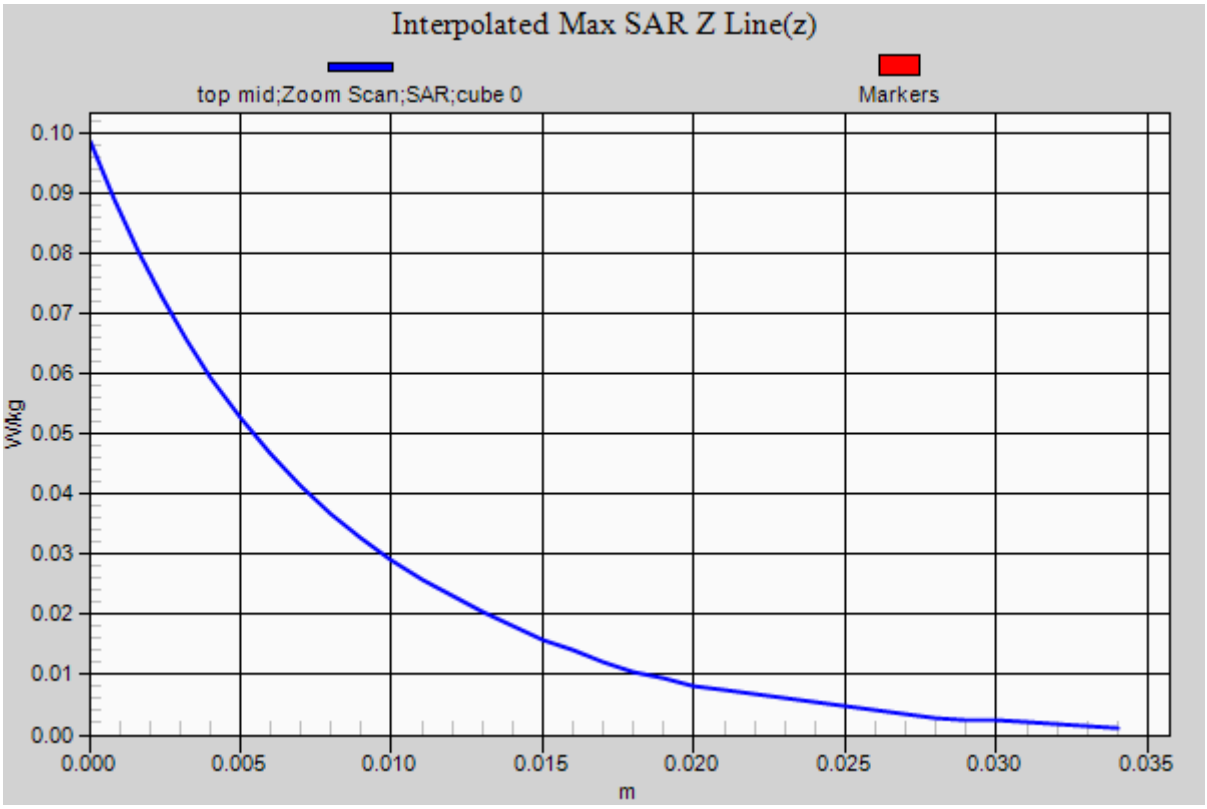
Peak SAR (extrapolated) = 0.0990 W/kg

SAR(1 g) = 0.054 W/kg; SAR(10 g) = 0.029 W/kg

Maximum value of SAR (measured) = 0.0592 W/kg



0 dB = 0.0813 W/kg = -10.90 dBW/kg


Interpolated Max SAR Z Line(z)
top mid;Zoom Scan;SAR;cube 0
Markers
W/kg
0.10
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
0.000
0.005
0.010
0.015
0.020
0.025
0.030
0.035
m