TEST REPORT

No. I19D00088-SAR01

For

Client: Shanghai Sunmi Technology Co.,Ltd.

Production: Smart POS system

Model Name: W6900

Brand Name SUNMI

FCC ID: 2AH25W6900

Hardware Version: V2.0

Software Version: V1.0

Issued date: 2019-7-25

Note:

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of ECIT Shanghai.

Test Laboratory:

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Revision Version

Report Number	Revision	Date	Memo
I19D00088-SAR01	00	2019-7-25	Initial creation of test report

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1. Test Laboratory

1.1. Testing Location

Company Name:	ECIT Shanghai, East China Institute of Telecommunications
Address:	7-8F, G Area,No. 668, Beijing East Road, Huangpu District, Shanghai, P. R. China
Postal Code:	200001
Telephone:	(+86)-021-63843300
Fax:	(+86)-021-63843301

1.2. Testing Environment

Normal Temperature:	18-25℃
Relative Humidity:	25-75%
Ambient noise & Reflection:	< 0.012 W/kg

1.3. Project Data

Project Leader:	Yu Anlu
Testing Start Date:	2018-6-28
Testing End Date:	2018-7-25

1.4. Signature

Yan Hang
(Prepared this test report)

Fu Erliang
(Reviewed this test report)

Zheng Zhongbin
(Approved this test report)

2. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **W6900** are as follows .

Table 2.1: Max. Reported SAR (1g)

Band	Reported SAR 1g(W/Kg)	
	Body(5mm)	Body(0mm)
GSM 850	1.265(Original)	1.780(**Current**)
GSM 1900	1.236(Original)	1.085(Original)
WCDMA Band2	1.212(Original)	1.118(Original)
WCDMA Band4	1.136(Original)	1.016(Original)
WCDMA Band5	0.709(Original)	0.689(Original)
LTE Band2	1.310(Original)	1.373(Original)
LTE Band4	1.254(Original)	1.789(Original)
LTE Band7	1.277(**Current**)	1.299(**Current**)
LTE Band17	0.196(Original)	0.299(**Current**)
CDMA BC0	1.242(Original)	1.045(Original)
CDMA BC1	1.202(Original)	1.136(Original)
2.4G Wi-Fi	0.262(**Current**)	0.293(Original)

The SAR values found for the Mobile Phone are below the maximum recommended levels of 1.6 W/Kg as averaged over any 1g tissue, 4.0 W/Kg as averaged over any 10g tissue according to the ANSI C95.1-1999.

For body worn operation, this device has been tested and meets FCC RF exposure guidelines when used with any accessory that contains no metal. Use of other accessories may not ensure compliance with FCC RF exposure guidelines.

The sample has four antennas. One is main antenna for GSM/WCDMA/LTE, and the other is for WiFi/BT/GPS and Diversity Antenna (CDMA) and NFC Antenna. Because the EUT not support hotspot ,so wifi and WWAN simultaneous transmission is not support.

Table 2.3: Simultaneous SAR

Transmission SAR(W/Kg)								
Test Position		2G	3G	4G	2.4G WIFI	CDMA	BT	SUM
Body 5mm	Phantom Side	1.265	1.080	1.310	0.063	0.175	0.167	1.477
	Ground Side	1.053	1.105	1.254	0.029	1.242	0.167	1.421
	Left Side	0.502	0.263	0.199	0.029	0.313	0.167	0.669
	Right Side	1.236	1.212	1.136	0.262	0.132	0.167	1.403
	Bottom Side	0.830	0.791	1.277	--	--	0.167	1.444
	Top Side	--	--	--	0.031	0.221	0.167	0.388
Body 0mm	Phantom Side	1.113	1.087	1.789	0.034	0.224	0.067	1.856
	Ground Side	0.669	0.955	1.141	0.021	1.136	0.067	1.208
	Left Side	0.358	0.184	0.189	0.016	0.279	0.067	0.425
	Right Side	1.074	1.118	1.373	0.293	0.103	0.067	1.44
	Bottom Side	0.765	0.748	1.299	--	--	0.067	1.366
	Top Side	--	--	--	0.023	0.180	0.067	0.247

According to the above table, the maximum sum of reported SAR values for GSM/WCDMA/LTE/CDMA and BT is **1.477 W/kg** (1g). GSM/WCDMA/LTE/CDMA and BT is **1.856 W/kg** (10g)

3. Client Information

3.1. Applicant Information

Company Name:	Shanghai Sunmi Technology Co.,Ltd.
Address:	Room 505, KIC Plaza, No.388 Song Hu Road, Yang Pu District, Shanghai, China
Email:	zhangwentang@sunmi.com

3.2. Manufacturer Information

Company Name:	Shanghai Sunmi Technology Co.,Ltd.
Address:	Room 505, KIC Plaza, No.388 Song Hu Road, Yang Pu District, Shanghai, China
Email:	zhangwentang@sunmi.com

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

4.1. About EUT

Description:	Smart POS system
Model name:	W6900
Operation Model(s):	GSM850/900/1800/1900,WCDMA Band II/IV/V LTE Band 2/4/7/17/28,WIFI2.4G/5G,BT
Tx Frequency:	824.2-848.8MHz(GSM850) 1850.2-1909.8MHz（GSM1900） 1852.4-1907.6 MHz (WCDMA Band II) 1712.4-1752.6 MHz (WCDMA Band IV) 826.4-846.6MHz (WCDMA Band V) 1850 -1910 MHz (LTE Band 2) 1710 -1755 MHz (LTE Band 4) 2500 - 2570 MHz (LTE Band 7) 704 -718MHz (LTE Band 17) 2412- 2462 MHz (Wi-Fi) 5150- 5350 MHz (Wi-Fi) 5725- 5825 MHz (Wi-Fi) 2400-2483.5 MHz (BT)
Test device Production information: GPRS/EGPRS Class Mode: GPRS/ EGPRS Multislot Class:	Production unit B 12
Device type:	Portable device
UE category:	3
Antenna type:	Inner antenna
Accessories/Body-worn configurations:	Battery
Dimensions: Hotspot Mode:	61.3 mmX213mmX82.97mm Not support
FCC ID:	2AH25W6900

4.2. Internal Identification of EUT used during the test

EUT ID*	SN or IMEI	HW Version	SW Version	Receive Date
N01	N/A	V2.0	V1.0	2019-6-20

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

4.3. Internal Identification of AE used during the test

AE ID*	Description	Model	SN	Manufacturer
N/A	N/A	N/A	N/A	N/A

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

5. TEST METHODOLOGY

5.1. Applicable Limit Regulations

ANSI C95.1–1999:IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz.

It specifies the maximum exposure limit of **1.6 W/kg** as averaged over any 1 gram of tissue and **4.0 W/kg** as averaged over any 10 gram of tissue for portable devices being used within 20 cm of the user in the uncontrolled environment.

5.2. Applicable Measurement Standards

IEEE 1528–2013: Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Body Due to Wireless Communications Devices:
Experimental Techniques.
KDB248227 D01 802 11 Wi-Fi SAR v02r02: SAR measurement procedures for 802.112abg transmitters.
KDB447498 D01 General RF Exposure Guidance v06: Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies.
KDB865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04:SAR Measurement Requirements for 100 MHz to 6 GHz
KDB865664 D02 RF Exposure Reporting v01r02:provides general reporting requirements as well as certain specific information required to support MPE and SAR compliance.
KDB941225 D01 3G SAR Procedures v03r01: 3G SAR Measurement Procedures.
KDB 941225 D05 SAR for LTE Devices v02r05
NOTE: KDB is not in A2LA Scope List.

6. Specific Absorption Rate (SAR)

6.1. Introduction

SAR is related to the rate at which energy is absorbed per unit mass in an object exposed to a radio field. The SAR distribution in a biological body is complicated and is usually carried out by experimental techniques or numerical modeling. The standard recommends limits for two tiers of groups, occupational/controlled and general population/uncontrolled, based on a person's awareness and ability to exercise control over his or her exposure. In general, occupational/controlled exposure limits are higher than the limits for general population/uncontrolled.

6.2. SAR Definition

The SAR definition is the time derivative (rate) of the incremental energy (dW) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dv) of a given density (ρ). The equation description is as below:

$$SAR = \frac{d}{dt}\left(\frac{dW}{dm}\right) = \frac{d}{dt}\left(\frac{dW}{\rho dv}\right)$$

SAR is expressed in units of Watts per kilogram (W/kg)

SAR measurement can be either related to the temperature elevation in tissue by

$$SAR = c\left(\frac{\delta T}{\delta t}\right)$$

Where: C is the specific head capacity, δT is the temperature rise and δt is the exposure duration, or related to the electrical field in the tissue by

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

Where: σ is the conductivity of the tissue, ρ is the mass density of tissue and E is the RMS electrical field strength.

However for evaluating SAR of low power transmitter, electrical field measurement is typically applied.

7. Tissue Simulating Liquids

7.1. Targets for tissue simulating liquid

Table 7.1: Targets for tissue simulating liquid

Frequency(MHz)	Liquid Type	Conductivity(σ)	± 5% Range	Permittivity(ε)	± 5% Range
835	Body	0.97	0.92～1.02	55.2	52.4～58.0
1800	Body	1.52	1.44～1.60	53.3	50.6～56.0
1900	Body	1.52	1.44～1.60	53.3	50.6～56.0
2450	Body	1.95	1.85～2.05	52.7	50.1～55.3
2600	Body	2.16	2.05~2.27	52.5	59.9~55.1

7.2. Dielectric Performance

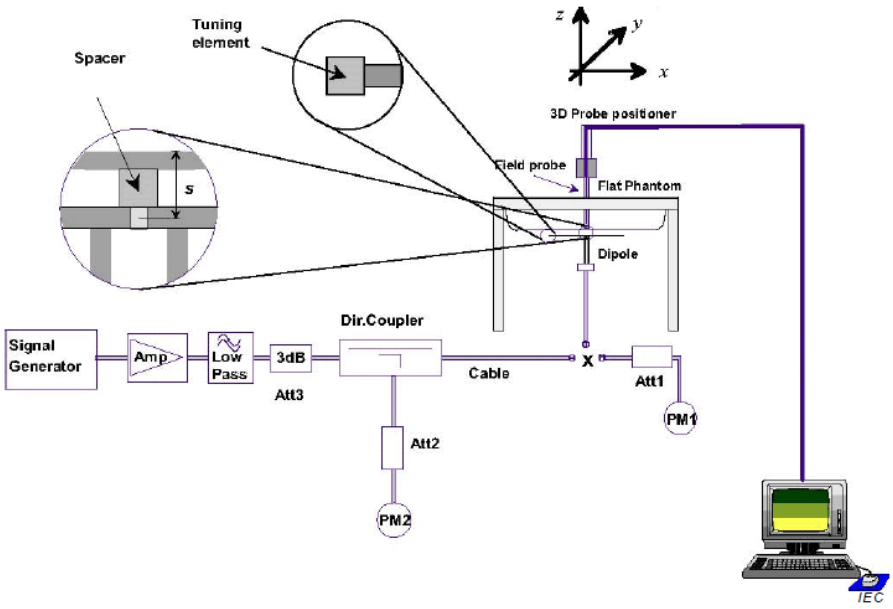
Table 7.2: Dielectric Performance of Tissue Simulating Liquid

Measurement Value						
Liquid Temperature: 22.5 ℃						
Type	**Frequency**	**Permittivity ε**	**Drift (%)**	**Conductivity σ**	**Drift (%)**	Test Date
Body	750 MHz	57.721	4.00%	0.916	-4.58%	2019-06-28
Body	835 MHz	56.731	2.77%	0.998	2.89%	2019-06-28
Body	1800 MHz	55.227	3.62%	1.479	-2.70%	2019-07-05
Body	1900 MHz	52.274	-1.92%	1.485	-2.30%	2019-07-05
Body	2450 MHz	54.788	3.96%	1.927	-1.18%	2019-07-25
Body	2600MHz	54.370	3.56%	2.112	-2.22%	2019-07-20
Body	5200MHz	50.168	2.38%	5.128	-3.25%	2019-07-17
Body	5800MHz	48.931	1.52%	5.985	-0.25%	2019-07-17

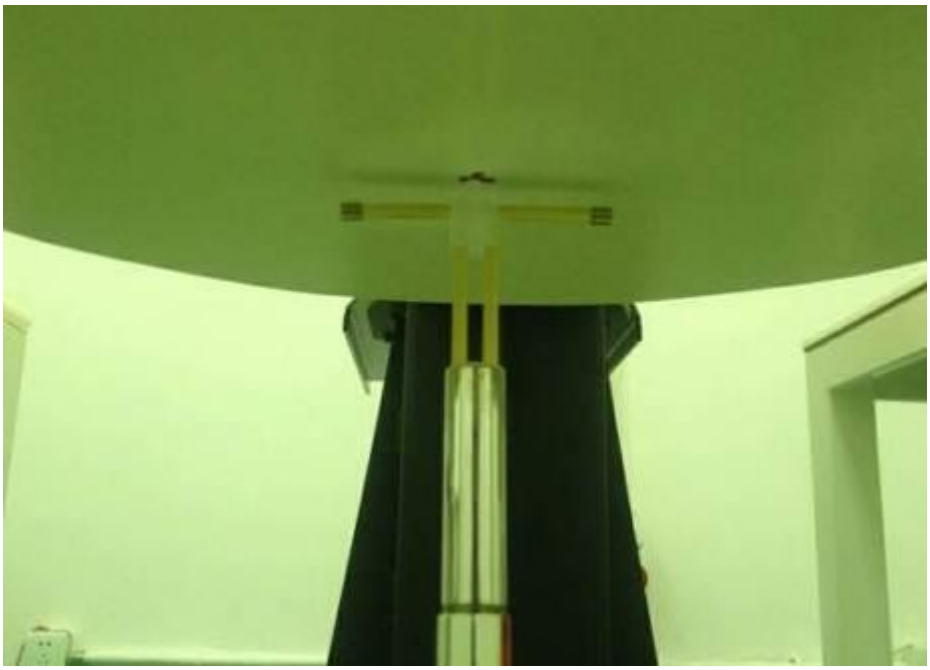
8. System verification

8.1. System Setup

In the simplified setup for system evaluation, the DUT is replaced by a calibrated dipole and the power source is replaced by a continuous wave that comes from a signal generator. The calibrated dipole must be placed beneath the flat phantom section of the SAM twin phantom with the correct distance holder. The distance holder should touch the phantom surface with a light pressure at the reference marking and be oriented parallel to the long side of the phantom. The equipment setup is shown below:



Picture 8.1 System Setup for System Evaluation



Picture 8.2 Photo of Dipole Setup

8.2. System Verification

SAR system verification is required to confirm measurement accuracy, according to the tissue dielectric media, probe calibration points and other system operating parameters required for measuring the SAR of test device. The system verification must be performed for each frequency band and within the valid range of each probe calibration point required for testing the device.

Table 8.1: System Verification of Body

Verification Results							
Input power level: 1W							
Frequency	**Target value (W/kg)**		**Measured value (W/kg)**		**Deviation**		**Test date**
	10 g Average	**1 g Average**	**10 g Average**	**1 g Average**	**10 g Average**	**1 g Average**	
750MHz	5.7	8.55	5.92	8.64	3.86%	1.05%	2019-06-28
835 MHz	6.4	9.75	6.6	9.96	3.12%	2.15%	2019-06-28
1750 MHz	19.9	37.4	20.24	37.36	1.71%	-0.11%	2019-07-05
1900 MHz	21.2	40.4	20.44	39.24	-3.58%	-2.87%	2019-07-05
2450 MHz	23.5	50.5	24.2	53.2	2.98%	5.35%	2019-07-25
2600 MHz	24.1	54.3	24.88	55.6	3.24%	2.39%	2019-07-20
5200 MHz	19.8	70.9	19.6	70.1	-1.01%	-1.13%	2019-07-17
5800 MHz	20.2	72.6	19.6	71.3	-2.97%	-1.79%	2019-07-17

9. Measurement Procedures

9.1. Tests to be performed

In order to determine the highest value of the peak spatial-average SAR of a handset, all device positions, configurations and operational modes shall be tested for each frequency band according to steps 1 to 3 below. A flowchart of the test process is shown in Picture 11.1.

Step 1: The tests described in 11.2 shall be performed at the channel that is closest to the centre of the transmit frequency band (f_c) for:

a) all device positions (cheek and tilt, for both left and right sides of the SAM phantom, as described in Chapter 8),

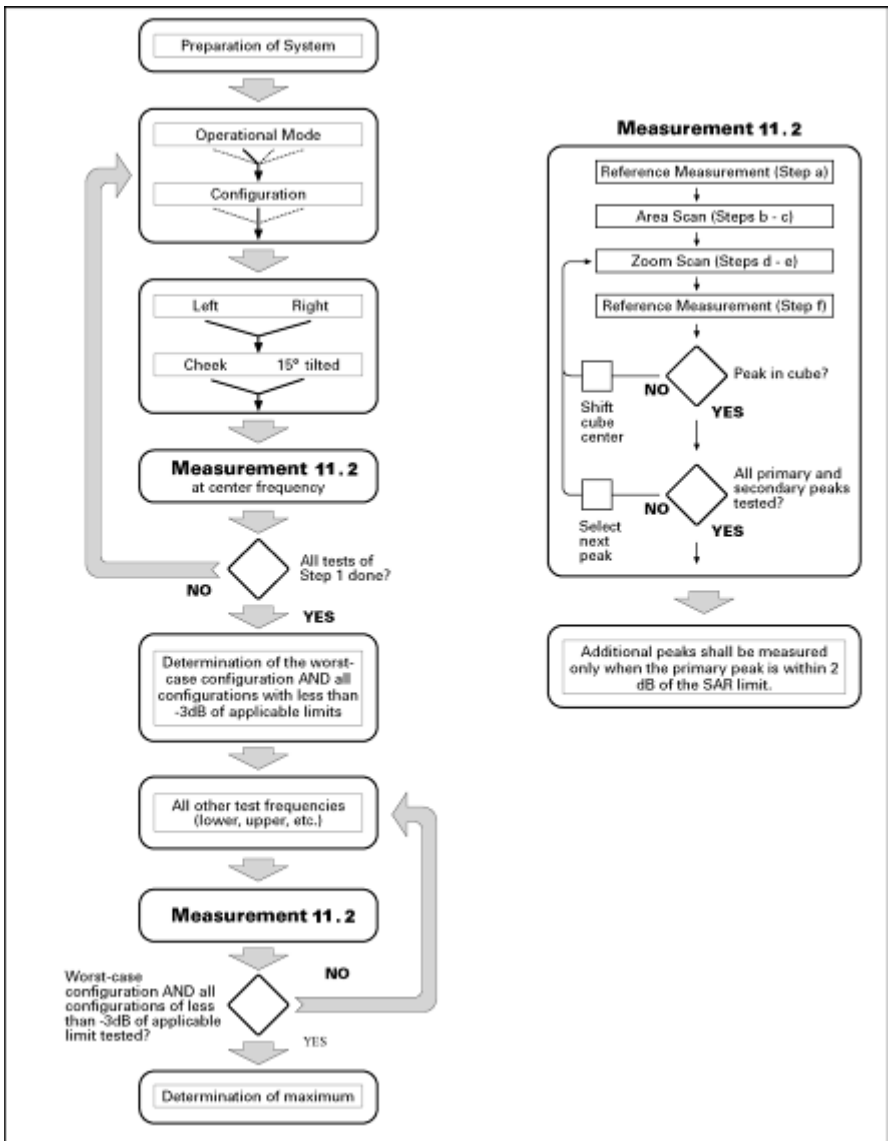
b) all configurations for each device position in a), e.g., antenna extended and retracted, and

c) all operational modes, e.g., analogue and digital, for each device position in a) and configuration in b) in each frequency band.

If more than three frequencies need to be tested according to 11.1 (i.e., N_c > 3), then all frequencies, configurations and modes shall be tested for all of the above test conditions.

Step 2: For the condition providing highest peak spatial-average SAR determined in Step 1, perform all tests described in 11.2 at all other test frequencies, i.e., lowest and highest frequencies. In addition, for all other conditions (device position, configuration and operational mode) where the peak spatial-average SAR value determined in Step 1 is within 3 dB of the applicable SAR limit, it is recommended that all other test frequencies shall be tested as well.

Step 3: Examine all data to determine the highest value of the peak spatial-average SAR found in Steps 1 to 2.



Picture 9.1Block diagram of the tests to be performed

9.2. General Measurement Procedure

The following procedure shall be performed for each of the test conditions (see Picture 11.1) described in 11.1:

a) Measure the local SAR at a test point within 8 mm or less in the normal direction from the inner surface of the phantom.

b) Measure the two-dimensional SAR distribution within the phantom (area scan procedure). The boundary of the measurement area shall not be closer than 20 mm from the phantom side walls. The distance between the measurement points should enable the detection of the location of local maximum with an accuracy of better than half the linear dimension of the tissue cube after interpolation. A maximum grip spacing of 20 mm for

frequencies below 3 GHz and (60/f [GHz]) mm for frequencies of 3GHz and greater is recommended. The maximum distance between the geometrical centre of the probe detectors and the inner surface of the phantom shall be 5 mm for frequencies below 3 GHz and δ In(2)/2 mm for frequencies of 3 GHz and greater, where δ is the plane wave skin depth and In(x) is the natural logarithm. The maximum variation of the sensor-phantom surface shall be $\pm$1 mm for frequencies below 3 GHz and $\pm$0.5 mm for frequencies of 3 GHz and greater. At all measurement points the angle of the probe with respect to the line normal to the surface should be less than 5° . If this cannot be achieved for a measurement distance to the phantom inner surface shorter than the probe diameter, additional uncertainty evaluation is needed.

c) From the scanned SAR distribution, identify the position of the maximum SAR value, in addition identify the positions of any local maxima with SAR values within 2 dB of the maximum value that are not within the zoom-scan volume; additional peaks shall be measured only when the primary peak is within 2 dB of the SAR limit. This is consistent with the 2 dB threshold already stated;

d) Measure the three-dimensional SAR distribution at the local maxima locations identified in step c). The horizontal grid step shall be (24/f[GHz]) mm or less but not more than 8 mm. The minimum zoom size of 30 mm by 30 mm and 30 mm for frequencies below 3 GHz. For higher frequencies, the minimum zoom size of 22 mm by 22 mm and 22 mm. The grip step in the vertical direction shall be (8-f[GHz]) mm or less but not more than 5 mm, if uniform spacing is used. If variable spacing is used in the vertical direction, the maximum spacing between the two closest measured points to the phantom shell shall be (12 / f[GHz]) mm or less but not more than 4 mm, and the spacing between father points shall increase by an incremental factor not exceeding 1.5. When variable spacing is used, extrapolation routines shall be tested with the same spacing as used in measurements. The maximum distance between the geometrical centre of the probe detectors and the inner surface of the phantom shall be 5 mm for frequencies below 3 GHz and δ In(2)/2 mm for frequencies of 3 GHz and greater, where δ is the plane wave skin depth and In(x) is the natural logarithm. Separate grids shall be centered on each of the local SAR maxima found in step c). Uncertainties due to field distortion between the media boundary and the dielectric enclosure of the probe should also be minimized, which is achieved is the distance between the phantom surface and physical tip of the probe is larger than probe tip diameter. Other methods may utilize correction procedures for these boundary effects that enable high precision measurements closer than half the probe diameter. For all measurement points, the angle of the probe with respect to the flat phantom surface shall be less than

5°. If this cannot be achieved an additional uncertainty evaluation is needed.

e) Use post processing(e.g. interpolation and extrapolation) procedures to determine the local SAR values at the spatial resolution needed for mass averaging.

9.3. WCDMA Measurement Procedures for SAR

The following procedures are applicable to WCDMA handsets operating under 3GPP Release99, Release 5 and Release 6. The default test configuration is to measure SAR with an established radio link between the DUT and a communication test set using a 12.2kbps RMC (reference measurement channel) configured in Test Loop Mode 1. SAR is selectively confirmed for other physical channel configurations (DPCCH &DPDCH$_n$), HSDPA and HSPA (HSUPA/HSDPA) modes according to output power, exposure conditions and device operating capabilities. Both uplink and downlink should be configured with the same RMC or AMR, when required. SAR for Release 5 HSDPA and Release 6 HSPA are measured using the applicable FRC (fixed reference channel) and E-DCH reference channel configurations. Maximum output power is verified according to applicable versions of 3GPP TS 34.121 and SAR must be measured according to these maximum output conditions. When Maximum Power Reduction (MPR) is not implemented according to Cubic Metric (CM) requirements for Release 6 HSPA, the following procedures do not apply.

For Release 5 HSDPA Data Devices:

Sub-test	β_c	β_d	β_d （SF）	β_c/β_d	β_{hs}	CM/dB	MPR (dB)
1	2/15	15/15	64	2/15	4/15	1.5	0
2	12/15	15/15	64	12/15	24/25	2.0	0
3	15/15	8/15	64	15/8	30/15	2.0	0
4	15/15	4/15	64	15/4	30/15	2.0	0

For Release 6 HSUPA Data Devices

Sub-test	β_c	β_d	β_d （SF）	β_c/β_d	β_{hs}	β_{ec}	β_{ed}	β_{ed} （SF）	β_{ed} （codes）	CM (dB)	MPR (dB)	AG Index	E-TFCI
1	11/15	15/15	64	11/15	22/15	209/225	1039/225	4	1	2.0	0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	12/15	4	1	3.0	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	3.0	0	15	92
4	2/15	15/15	64	2/15	4/15	4/15	56/75	4	1	2.0	0	17	71
5	15/15	15/15	64	15/15	24/15	30/15	134/15	4	1	2.0	0	21	81

9.4. Bluetooth & Wi-Fi Measurement Procedures for SAR

Normal network operating configurations are not suitable for measuring the SAR of 802.11 transmitters in general. Unpredictable fluctuations in network traffic and antenna diversity conditions can introduce undesirable variations in SAR results. The SAR for these devices should be measured using chipset based test mode software to ensure that the results are consistent and reliable.

Chipset based test mode software is hardware dependent and generally varies among manufacturers. The device operating parameters established in a test mode for SAR measurements must be identical to those programmed in production units, including output power levels, amplifier gain settings and other RF performance tuning parameters. The test frequencies should correspond to actual channel frequencies defined for domestic use. SAR for devices with switched diversity should be measured with only one antenna transmitting at a time during each SAR measurement, according to a fixed modulation and data rate. The same data pattern should be used for all measurements.

9.5. Power Drift

To control the output power stability during the SAR test, DASY4 system calculates the power drift by measuring the E-field at the same location at the beginning and at the end of the measurement for each test position. These drift values can be found in Section 13 labeled as: (Power Drift [dB]). This ensures that the power drift during one measurement is within 5%.

10. Conducted Output Power

Manufacturing tolerance

Table 10.1: GPRS/EGPRS (GMSK Modulation)

GSM 850 GPRS				
Channel		**128**	**190**	**251**
1 Txslots	Maximum Target Value (dBm)	33.0	33.0	33.0
2 Txslots	Maximum Target Value (dBm)	32.5	32.5	32.5
3 Txslots	Maximum Target Value (dBm)	31.0	31.0	31.0
4 Txslots	Maximum Target Value (dBm)	30.0	30.0	30.0
GSM 1900 GPRS				
Channel		**512**	**661**	**810**
1 Txslots	Maximum Target Value (dBm)	29.0	29.0	29.0
2 Txslots	Maximum Target Value (dBm)	28.5	28.5	28.5
3 Txslots	Maximum Target Value (dBm)	27.0	27.0	27.0
4 Txslots	Maximum Target Value (dBm)	28.0	28.0	28.0

Table 10.2: EGPRS (8-PSK Modulation)

GSM 850 EGPRS				
Channel		**975**	**38**	**124**
1 Txslots	Maximum Target Value (dBm)	28.0	28.0	28.0
2 Txslots	Maximum Target Value (dBm)	27.0	27.0	27.0
3 Txslots	Maximum Target Value (dBm)	26.0	26.0	26.0
4 Txslots	Maximum Target Value (dBm)	24.5	24.5	24.5
GSM 1900 EGPRS				
Channel		**512**	**661**	**810**
1 Txslots	Maximum Target Value (dBm)	26.0	26.0	26.0
2 Txslots	Maximum Target Value (dBm)	24.5	24.5	24.5
3 Txslots	Maximum Target Value (dBm)	23.0	23.0	23.0
4 Txslots	Maximum Target Value (dBm)	22.0	22.0	22.0

Table 10.3: WCDMA

WCDMA Band II			
Channel	Channel 9262	Channel 9400	Channel 9538
Maximum Target Value (dBm)	21.5	21.5	21.5

WCDMA Band II **HSDPA**					MPR (dB)
Channel		9262	9400	9538	
1	Maximum Target Value (dBm)	21	21	21	0
2	Maximum Target Value (dBm)	21	21	21	0
3	Maximum Target Value (dBm)	21	21	21	0
4	Maximum Target Value (dBm)	21	21	21	0
WCDMA Band II **HSUPA**					MPR (dB)
Channel		9262	9400	9538	
1	Maximum Target Value (dBm)	21	21	21	0
2	Maximum Target Value (dBm)	20	20	20	0
3	Maximum Target Value (dBm)	20	20	20	0
4	Maximum Target Value (dBm)	20	20	20	0
5	Maximum Target Value (dBm)	20	20	20	0

Table 10.4: WCDMA

WCDMA Band IV			
Channel	1537	1638	1738
Maximum Target Value (dBm)	22.5	22.5	22.5

WCDMA Band IV **HSDPA**					MPR (dB)
Channel		1537	1638	1738	
1	Maximum Target Value (dBm)	22	22	22	0
2	Maximum Target Value (dBm)	22	22	22	0
3	Maximum Target Value (dBm)	22	22	22	0
4	Maximum Target Value (dBm)	22	22	22	0
WCDMA Band IV **HSUPA**					MPR (dB)
Channel		1537	1638	1738	
1	Maximum Target Value (dBm)	22	22	22	0
2	Maximum Target Value (dBm)	22	22	22	0
3	Maximum Target Value (dBm)	22	22	22	0
4	Maximum Target Value (dBm)	22	22	22	0
5	Maximum Target Value (dBm)	22	22	22	0

Table 10.5: WCDMA

WCDMA Band V			
Channel	4233	4182	4132
Maximum Target Value (dBm)	22.5	22.5	22.5

WCDMA Band V **HSDPA**					MPR (dB)
Channel		4233	4182	4132	
1	Maximum Target Value (dBm)	22	22	22	0
2	Maximum Target Value (dBm)	22	22	22	0
3	Maximum Target Value (dBm)	22	22	22	0
4	Maximum Target Value (dBm)	22	22	22	0
WCDMA Band V **HSUPA**					MPR (dB)
Channel		4233	4182	4132	
1	Maximum Target Value (dBm)	22	22	22	0
2	Maximum Target Value (dBm)	21	21	21	0
3	Maximum Target Value (dBm)	21	21	21	0
4	Maximum Target Value (dBm)	21	21	21	0
5	Maximum Target Value (dBm)	21	21	21	0

Table 10.6: LTE

LTE Band2			
RB Size	1	50%	100%
Maximum Target Value (dBm)	23.5	22.5	22.5
LTE Band4			
RB Size	1	50%	100%
Maximum Target Value (dBm)	23.5	23.0	23.0
LTE Band7			
RB Size	1	50%	100%
Maximum Target Value (dBm)	21.5	20	20
LTE Band17			
RB Size	1	50%	100%
Maximum Target Value (dBm)	23.5	22.5	22.5

Table 10.7: CDMA

CDMA BC0				
Mode		Channel		
		1013	**384**	**777**
1xRTT RC1 SO55	Maximum Target Value (dBm)	22	22	22
1xRTT RC3 SO55	Maximum Target Value (dBm)	22	22	22
1xRTT RC3 SO32(+ F-SCH)	Maximum Target Value (dBm)	22	22	22
1xRTT RC3 SO32(+SCH)	Maximum Target Value (dBm)	22	22	22
1xEVDO RTAP 153.6Kbps	Maximum Target Value (dBm)	22	22	22
CDMA BC1				
Mode		Channel		
		25	**600**	**1175**
1xRTT RC1 SO55	Maximum Target Value (dBm)	21.5	21.5	21.5
1xRTT RC3 SO55	Maximum Target Value (dBm)	21.5	21.5	21.5
1xRTT RC3 SO32(+ F-SCH)	Maximum Target Value (dBm)	21.5	21.5	21.5
1xRTT RC3 SO32(+SCH)	Maximum Target Value (dBm)	21.5	21.5	21.5

1xEVDO RTAP 153.6Kbps	Maximum Target Value (dBm)	21.5	21.5	21.5

Table 10.8: WiFi

WiFi 802.11b 2.4G			
Channel	Channel 1	Channel 6	Channel 11
Maximum Target Value (dBm)	18	18	18
WiFi 802.11g 2.4G			
Channel	Channel 1	Channel 6	Channel 11
Maximum Target Value (dBm)	17	17	17
WiFi 802.11n 20M 2.4G			
Channel	Channel 1	Channel 6	Channel 11
Maximum Target Value (dBm)	17.5	17.5	17.5
WiFi 802.11n 40M 2.4G			
Channel	Channel 1	Channel 6	Channel 11
Maximum Target Value (dBm)	14.5	14.5	14.5

Table 10.9: Bluetooth

Bluetooth			
Channel	Channel 0	Channel 39	Channel 78
Maximum Target Value (dBm)	6.0	6.0	6.0

Table 10.10: Bluetooth 4.0

Bluetooth			
Channel	Channel 0	Channel 19	Channel 39
Maximum Target Value (dBm)	-1	-1	-1

10.1. GSM Measurement result

During the process of testing, the EUT was controlled via Agilent Digital Radio Communication tester (E5515C) to ensure the maximum power transmission and proper modulation. This result contains conducted output power for the EUT. In all cases, the measured peak output power should be greater and within 5% than EMI measurement.

Table 10.11: The conducted power measurement results for GPRS

GSM 850	Measured Power (dBm)			calculation	Averaged Power (dBm)		
GMSK	**128**	**190**	**251**		**128**	**190**	**251**

1 Txslot	32.79	32.71	32.72	-9.03dB	23.76	23.68	23.69
2 Txslots	32.14	32.15	32.16	-6.02dB	26.12	26.13	26.14
3 Txslots	30.57	30.59	30.58	-4.26dB	26.31	26.33	26.32
4 Txslots	29.52	29.51	29.52	-3.01dB	26.51	26.5	26.51
GSM 1900	Measured Power (dBm)			calculation	Averaged Power (dBm)		
GMSK	**512**	**661**	**810**		**512**	**661**	**810**
1 Txslot	28.93	28.91	28.89	-9.03dB	19.9	19.88	19.86
2 Txslots	28.31	28.34	28.32	-6.02dB	22.29	22.32	22.3
3 Txslots	26.73	26.75	26.71	-4.26dB	22.47	22.49	22.45
4 Txslots	27.76	27.7	27.67	-3.01dB	22.95	22.89	22.86

Table 10.12: The conducted power measurement results for E-GPRS

GSM 850 8-PSK	Measured Power (dBm)			calculation	Averaged Power (dBm)		
	128	**190**	**251**		**128**	**190**	**251**
1 Txslot	27.63	27.69	27.68	-9.03dB	18.6	18.66	18.65
2 Txslots	26.83	26.81	26.82	-6.02dB	20.81	20.79	20.8
3 Txslots	25.12	25.14	25.16	-4.26dB	20.86	20.88	20.9
4 Txslots	24.12	24.16	24.18	-3.01dB	21.11	21.15	21.17
GSM 1900 8-PSK	Measured Power (dBm)			calculation	Averaged Power (dBm)		
	512	**661**	**810**		**512**	**661**	**810**
1 Txslot	25.12	25.11	25.1	-9.03dB	16.09	16.08	16.07
2 Txslots	24.1	24.12	24.13	-6.02dB	18.08	18.1	18.11
3 Txslots	22.47	22.46	22.45	-4.26dB	18.21	18.2	18.19
4 Txslots	21.68	21.71	21.69	-3.01dB	18.67	18.7	18.68

NOTES:

1) Division Factors

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

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

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

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

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

According to the conducted power as above, the body measurements are performed with 4Txslots for 850MHz ; 4Txslots for1900MHz;

10.2. WCDMA Measurement result

Table 10.13: The conducted Power for WCDMA

Item	band	WCDMA BAND II result(dBm)		
	ARFCN	9662 (1852.4MHz)	9800 (1880.0MHz)	9938 (1907.6MHz)
WCDMA	\	21.44	21.31	21.42
HSDPA	1	20.72	20.38	20.48
	2	20.5	20.18	20.3
	3	20.17	19.88	20.01
	4	20.09	19.78	19.88
HSUPA	1	20.07	19.78	19.87
	2	19.12	18.72	18.91
	3	19.11	18.86	18.84
	4	19.92	19.56	19.75
	5	19.72	19.46	19.64
Item	band	WCDMA BAND IV result(dBm)		
	ARFCN	Channel 1537 (1712.4MHz)	Channel 1638 (1732.6MHz)	Channel 1738 (1752.6MHz)
WCDMA	\	22.28	22.38	22.2
HSDPA	1	21.67	21.75	21.55
	2	21.77	21.86	21.67
	3	21.72	21.81	21.62
	4	21.75	21.82	21.63
HSUPA	1	21.65	21.74	21.55
	2	21.87	21.95	21.78
	3	21.75	21.85	21.64
	4	21.78	21.88	21.69
	5	21.69	21.78	21.59
Item	band	WCDMA BAND V result(dBm)		
	ARFCN	Channel 4132 (826.4MHz)	Channel 4183 (836.6MHz)	Channel 4233 (846.6MHz)
WCDMA	\	22.28	22.2	22.04
HSDPA	1	21.76	21.47	21.3
	2	21.54	21.27	21.12
	3	21.21	20.97	20.83
	4	21.13	20.87	20.7
HSUPA	1	21.11	20.87	20.69
	2	20.16	19.81	19.73
	3	20.15	19.95	19.66
	4	20.96	20.65	20.57
	5	20.76	20.55	20.46

10.3. LTE Measurement result

Table 10.14: The conducted Power for LTE BAND 2/4/7/17

Band2						
Bandwidth	Mode	RB Size	RB Offset	Actual output power(dBm)		
				Channel 18625 1852.5MHz	Channel 18900 1880MHz	Channel 19175 1907.5MHz
5MHz	QPSK	1	0	22.96	22.74	22.86
		1	13	22.91	22.86	23.06
		1	24	23.07	22.78	23
		12	0	23.07	22.9	23.02
		12	6	23.11	23.06	22.97
		12	13	23.22	22.93	22.97
		25	0	22.1	21.99	22
	16QAM	1	0	22.02	21.88	21.65
		1	13	21.98	21.79	21.77
		1	24	21.71	21.74	21.64
		12	0	22.12	21.95	21.99
		12	6	22.17	21.99	22.02
		12	13	22.01	21.98	21.8
		25	0	21.19	21.1	20.92
Bandwidth	Mode	RB Size	RB Offset	Actual output power(dBm)		
				Channel 18650 1855MHz	Channel 18900 1880MHz	Channel 19150 1905MHz
10MHz	QPSK	1	0	22.49	22.66	22.35
		1	25	22.57	22.67	22.31
		1	49	22.45	22.58	22.32
		25	0	21.77	21.75	21.97
		25	13	21.75	21.81	22.06
		25	25	21.64	21.79	21.98
		50	0	21.78	21.74	21.85
	16QAM	1	0	21.28	21.18	20.89
		1	25	21.86	21.78	21.44
		1	49	21.4	21.47	21.06
		25	0	20.77	20.81	20.88
		25	13	20.66	20.85	20.97
		25	25	20.67	20.71	20.99
		50	0	20.76	20.77	20.97
Bandwidth	Mode	RB Size	RB Offset	Actual output power(dBm)		

				Channel 18675 1857.5MHz	Channel 18900 1880MHz	Channel 19125 1902.5MHz
15MHz	QPSK	1	0	22.59	22.6	22.43
		1	37	22.92	22.95	22.81
		1	74	22.72	22.77	22.44
		36	0	21.8	21.76	21.87
		36	19	21.87	21.79	22.05
		36	38	21.77	21.88	21.82
		75	0	21.76	21.75	21.83
	16QAM	1	0	21.13	21.1	20.9
		1	37	21.18	21.32	21.41
		1	74	21.5	21.38	21.54
		36	0	20.91	20.81	20.94
		36	19	20.9	20.92	21.13
		36	38	21.07	20.93	20.9
		75	0	20.94	20.67	20.91
Bandwidth	Mode	RB Size	RB Offset	Actual output power(dBm)		
				Channel 18700 1860MHz	Channel 18900 1880MHz	Channel 19100 1900MHz
20MHz	QPSK	1	0	23.33	23.45	**23.46**
		1	50	22.99	23.11	23.16
		1	99	22.97	23.14	23.09
		50	0	22.16	22.25	**22.33**
		50	25	22.11	22.23	22.29
		50	50	22.08	22.23	22.27
		100	0	22.17	22.25	22.33
	16QAM	1	0	21.49	21.8	21.4
		1	50	21.82	21.97	21.77
		1	99	21.4	21.76	21.6
		50	0	21.23	21.21	21.11
		50	25	21.29	21.14	21.02
		50	50	21.22	21.04	21.06
		100	0	21.24	21.14	21.07
Bandwidth	Mode	RB Size	RB Offset	Actual output power(dBm)		
				Channel 18615 1851.5MHz	Channel 18900 1880MHz	Channel 19185 1908.5MHz
3MHz	QPSK	1	0	22.9	22.89	22.93
		1	7	23.11	22.98	23.15
		1	14	22.9	22.67	22.93
		8	0	22.2	22.12	22.07

		8	4	22.27	22.11	22.16
		8	7	22.13	22.09	22.11
		15	0	22.13	22.11	22.11
	16QAM	1	0	21.5	21.81	21.41
		1	7	21.83	21.98	21.78
		1	14	21.41	21.77	21.61
		8	0	21.24	21.22	21.12
		8	4	21.3	21.15	21.03
		8	7	21.23	21.05	21.07
		15	0	21.25	21.15	21.08
Bandwidth	Mode	RB Size	RB Offset	Actual output power(dBm)		
				Channel 18607 1850.7MHz	Channel 18900 1880MHz	Channel 19193 1909.3MHz
1.4MHz	QPSK	1	0	22.96	22.77	22.86
		1	3	22.98	22.92	22.94
		1	5	22.94	23.04	22.83
		3	0	22.18	22.02	21.96
		3	1	22.22	22.11	22.13
		3	3	22.15	22.13	22.07
		6	0	21.96	22	22.09
	16QAM	1	0	21.75	21.52	21.52
		1	3	22.07	21.74	21.77
		1	5	21.56	21.51	21.67
		3	0	21.03	21.07	20.86
		3	1	20.97	21.09	21
		3	3	20.98	21.06	20.85
		6	0	21.19	21.12	20.95

Band4						
Bandwidth	Mode	RB Size	RB Offset	Actual output power(dBm)		
				Channel 19975 1712.5MHz	Channel 20175 1732.5MHz	Channel 20375 1752.5MHz
5MHz	QPSK	1	0	22.77	22.98	22.89
		1	13	22.83	22.75	22.91
		1	24	22.66	22.57	22.75
		12	0	21.88	21.89	22.05
		12	6	21.96	21.92	21.94
		12	13	21.9	21.83	21.78

		25	0	21.95	21.82	21.86
	16QAM	1	0	21.73	21.52	21.56
		1	13	21.97	21.71	21.72
		1	24	21.1	20.94	21.05
		12	0	20.97	20.97	20.91
		12	6	20.94	20.78	21.02
		12	13	20.89	20.9	20.84
		25	0	20.97	20.79	20.83
Bandwidth	Mode	RB Size	RB Offset	Actual output power(dBm)		
				Channel 20000 1715MHz	Channel 20175 1732.5MHz	Channel 20350 1750MHz
10MHz	QPSK	1	0	22.86	22.76	22.44
		1	25	22.66	22.69	22.51
		1	49	22.61	21.82	22.45
		25	0	21.9	21.86	21.66
		25	13	21.89	21.75	21.7
		25	25	21.79	21.74	21.68
		50	0	21.85	21.76	21.67
	16QAM	1	0	21.95	21.61	21.67
		1	25	21.76	21.57	21.71
		1	49	21.48	21.27	21.53
		25	0	20.72	20.71	20.68
		25	13	20.71	20.66	20.82
		25	25	20.9	20.93	20.8
		50	0	20.92	20.81	20.75
Bandwidth	Mode	RB Size	RB Offset	Actual output power(dBm)		
				Channel 20025 1717.5MHz	Channel 20175 1732.5MHz	Channel 20325 1747.5MHz
15MHz	QPSK	1	0	22.88	22.8	22.82
		1	38	22.96	22.72	22.87
		1	74	22.76	22.69	22.56
		36	0	21.95	21.88	21.97
		36	18	21.91	21.94	22.02
		36	39	21.89	21.92	21.83
		75	0	21.98	21.91	21.87
	16QAM	1	0	21.3	21.51	21.62
		1	38	21.83	21.99	22.13
		1	74	21.48	21.66	21.38
		36	0	20.83	20.8	20.87
		36	18	20.85	20.94	20.92
		36	39	20.7	20.84	20.73

		75	0	20.9	20.84	20.97
Bandwidth	Mode	RB Size	RB Offset	Actual output power(dBm)		
				Channel 20050 1720MHz	Channel 20175 1732.5MHz	Channel 20300 1745MHz
20MHz	QPSK	1	0	**23.38**	23.35	23.28
		1	50	23.28	23.35	23.17
		1	99	23.03	23.29	23.08
		50	0	**22.65**	22.48	22.61
		50	25	22.41	22.49	22.6
		50	50	22.46	22.43	22.61
		100	0	22.41	22.46	22.63
	16QAM	1	0	22.06	21.94	22.04
		1	50	22.75	22.81	22.68
		1	99	22.03	22.14	22.16
		50	0	21.45	21.5	21.44
		50	25	21.51	21.59	21.73
		50	50	21.47	21.51	21.66
		100	0	21.4	21.46	21.66
Bandwidth	Mode	RB Size	RB Offset	Actual output power(dBm)		
				Channel 19965 1711.5MHz	Channel 20175 1732.5MHz	Channel 20385 1753.5MHz
3MHz	QPSK	1	0	22.71	22.69	22.58
		1	8	22.8	22.72	22.52
		1	14	22.74	22.53	22.47
		8	0	21.8	21.77	21.68
		8	4	21.91	21.82	21.74
		8	7	21.85	21.79	21.73
		15	0	21.79	21.78	21.79
	16QAM	1	0	21.52	21.57	21.45
		1	8	21.6	21.21	21.55
		1	15	21.25	21.28	21.35
		8	0	20.71	20.7	20.59
		8	4	20.72	20.65	20.55
		8	7	20.61	20.73	20.55
		15	0	20.74	20.89	20.71
Bandwidth	Mode	RB Size	RB Offset	Actual output power(dBm)		
				Channel 19957 1710.7MHz	Channel 20175 1732.5MHz	Channel 20393 1754.3MHz
1.4MHz	QPSK	1	0	22.74	22.7	22.79
		1	2	22.98	22.84	23.06

		1	5	22.67	22.58	22.65
		3	0	21.94	21.86	22.02
		3	1	21.84	21.9	21.96
		3	2	21.72	21.89	21.79
		6	0	21.89	21.87	21.81
	16QAM	1	0	21.27	21.25	21.69
		1	2	21.57	21.44	22.25
		1	5	21.34	21.08	21.47
		3	0	20.83	20.87	21.03
		3	1	20.95	20.91	20.97
		3	2	20.84	20.89	20.8
		6	0	21.01	20.88	20.81

Band7						
Bandwidth	Mode	RB Size	RB Offset	Actual output power(dBm)		
				Channel 20775 2502.5MHz	Channel 21100 2535MHz	Channel 21425 2567.5MHz
5MHz	QPSK	1	0	20.98	21.01	20.94
		1	13	21.06	21.04	20.96
		1	24	20.89	20.92	20.86
		12	0	19.95	19.97	19.87
		12	6	19.81	19.85	19.89
		12	13	19.78	19.75	19.71
		25	0	19.84	19.82	19.76
	16QAM	1	0	20.03	19.97	19.96
		1	13	20.04	20.11	19.84
		1	24	19.88	19.85	19.66
		12	0	19.01	18.89	18.63
		12	6	18.74	18.92	18.96
		12	13	18.69	18.77	18.63
		25	0	18.74	18.78	18.74
Bandwidth	Mode	RB Size	RB Offset	Actual output power(dBm)		
				Channel 20800 2505MHz	Channel 21100 2535MHz	Channel 21400 2565MHz
10MHz	QPSK	1	0	21.05	20.92	21.06
		1	25	20.95	21.02	20.97
		1	49	20.74	20.81	20.89
		25	0	19.93	19.89	19.77
		25	13	19.88	19.84	19.71

		25	25	19.68	19.75	19.82
		50	0	19.76	19.82	19.87
	16QAM	1	0	20.06	19.91	20.18
		1	25	19.91	20.02	19.95
		1	49	19.63	19.75	19.76
		25	0	18.99	18.81	18.78
		25	13	18.81	18.79	18.78
		25	25	18.69	18.77	18.71
		50	0	18.73	18.78	18.85
Bandwidth	Mode	RB Size	RB Offset	Actual output power(dBm)		
				Channel 20825 2507.5MHz	Channel 21100 2535MHz	Channel 21375 2562.5MHz
15MHz	QPSK	1	0	20.85	20.81	20.86
		1	38	20.71	20.78	20.77
		1	74	20.67	20.58	20.62
		36	0	19.83	19.84	19.76
		36	18	19.75	19.68	19.65
		36	39	19.69	19.72	19.81
		75	0	19.71	19.73	19.78
	16QAM	1	0	19.85	19.8	19.88
		1	38	19.69	19.79	19.75
		1	74	19.56	19.51	19.49
		36	0	18.89	18.76	18.77
		36	18	18.68	18.65	18.72
		36	39	18.71	18.74	18.69
		75	0	18.61	18.69	18.76
Bandwidth	Mode	RB Size	RB Offset	Actual output power(dBm)		
				Channel 20850 2510MHz	Channel 21100 2535MHz	Channel 21350 2560MHz
20MHz	QPSK	1	0	21.15	21.12	**21.24**
		1	50	20.95	21.02	20.97
		1	99	20.74	20.81	20.89
		50	0	19.87	19.89	**19.92**
		50	25	19.88	19.84	19.71
		50	50	19.68	19.75	19.82
		100	0	19.76	19.82	19.87
	16QAM	1	0	20.06	19.91	20.18
		1	50	19.91	20.02	19.95
		1	99	19.63	19.75	19.76
		50	0	18.99	18.81	18.78
		50	25	18.81	18.79	18.78

		50	50	18.69	18.77	18.71
		100	0	18.73	18.78	18.85

Band17						
Bandwidth	Mode	RB Size	RB Offset	Actual output power(dBm)		
				Channel 23755 706.5 MHz	Channel 23790 710 MHz	Channel 23825 713.5MHz
5MHz	QPSK	1	0	22.77	22.83	22.93
		1	12	23.03	23.08	22.97
		1	24	23.13	23.18	22.99
		12	0	23.08	22.92	23.10
		12	6	23.06	23.09	23.15
		12	13	23.07	23.09	23.14
		25	0	21.96	21.96	22.11
	16QAM	1	0	21.61	21.40	21.42
		1	12	21.60	21.48	21.71
		1	24	21.70	21.61	21.57
		12	0	22.04	22.19	22.09
		12	6	22.01	22.04	22.12
		12	13	22.16	22.14	22.10
		25	0	21.15	21.04	20.98
Bandwidth	Mode	RB Size	RB Offset	Actual output power(dBm)		
				Channel 23780 709MHz	Channel 23790 710MHz	Channel 23800 711MHz
10MHz	QPSK	1	0	23.10	23.12	23.16
		1	25	23.25	**23.28**	23.27
		1	49	23.22	23.23	23.23
		25	0	22.25	22.27	22.32
		25	13	22.33	**22.37**	22.32
		25	25	22.36	22.35	22.34
		50	0	22.34	22.33	22.34
	16QAM	1	0	22.89	22.96	22.85
		1	25	22.84	22.81	22.80
		1	49	22.72	22.73	22.40
		25	0	22.04	22.09	22.02
		25	13	21.92	21.97	21.87
		25	25	21.95	21.86	21.80
		50	0	21.87	21.95	21.83

10.4. CDMA Measurement result

Table 10.15: The conducted power for CDMA

Band	CDMA2000 BC0			CDMA2000 BC1		
Channel	1013	384	777	25	600	1175
Frequency (MHz)	824.7	836.52	848.31	1851.25	1880.00	1908.75
1xRTT RC1 SO55	21.74	21.77	21.75	21.25	21.22	20.95
1xRTT RC3 SO55	21.74	21.80	21.78	21.23	21.21	20.95
1xRTT RC3 SO32(+ F-SCH)	21.73	21.80	21.77	21.22	21.21	20.93
1xRTT RC3 SO32(+SCH)	21.74	21.77	21.75	21.27	21.21	20.95
1xEVDO RTAP 153.6Kbps	21.74	21.85	21.82	21.27	21.20	20.97

10.5. Wi-Fi and BT Measurement result

Table 10.16: The conducted power for Bluetooth

GFSK			
Channel	Ch0 (2402 MHz)	Ch39 (2441MHz)	CH78 (2480MHz)
Conducted Output Power (dBm)	5.1	5.5	4.74
π /4 DQPSK			
Channel	Ch0 (2402 MHz)	Ch39 (2441MHz)	CH78 (2480MHz)
Conducted Output Power (dBm)	3.75	4.01	3.12
8DPSK			
Channel	Ch0 (2402 MHz)	Ch39 (2441MHz)	CH78 (2480MHz)
Conducted Output Power (dBm)	3.71	4.4	3.9

Table 10.17: The conducted power for Bluetooth4.0

GFSK			
Channel	Ch0 (2402 MHz)	Ch19 (2440MHz)	CH39 (2480MHz)
Conducted Output Power (dBm)	-2.03	-2.09	-2.21

NOTE: According to KDB447498 D01 BT standalone SAR are not required, because maximum average output power is less than 10mW.

When the standalone SAR test exclusion is applied to an antenna that transmits simultaneously with other antennas, the standalone SAR must be estimated according to

the following to determine simultaneous transmission SAR test exclusion:

(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.

SAR body value of BT is 0.083 W/Kg.

The default power measurement procedures are:
a) Power must be measured at each transmit antenna port according to the DSSS and OFDM transmission configurations in each standalone and aggregated frequency band.
b) Power measurement is required for the transmission mode configuration with the highest maximum output power specified for production units.
1) When the same highest maximum output power specification applies to multiple transmission modes, the largest channel bandwidth configuration with the lowest order modulation and lowest data rate is measured.
2) When the same highest maximum output power is specified for multiple largest channel bandwidth configurations with the same lowest order modulation or lowest order modulation and lowest data rate, power measurement is required for all equivalent 802.11 configurations with the same maximum output power.
c) For each transmission mode configuration, power must be measured for the highest and lowest channels; and at the mid-band channel(s) when there are at least 3 channels. For configurations with multiple mid-band channels, due to an even number of channels, both channels should be measured.

During WLAN SAR testing EUT is configured with the WLAN continuous TX tool, and the transmission duty factor was monitored on the spectrum analyzer with zero-span setting，the duty cycle is 100%.

Duty Cycle 802.11b mode

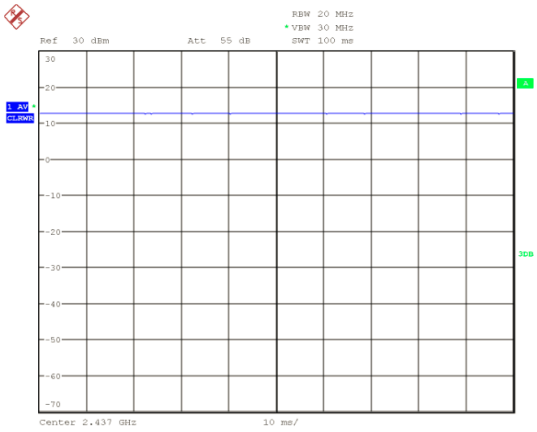


Table 10.18: The average conducted power for WiFi

Mode	Channel	Frequence	Average power(dBm)
802.11 b	1	2412 MHZ	17.71
	6	2437 MHZ	17.55
	11	2462 MHZ	17.54
802.11 g	1	2412 MHZ	16.46
	6	2437 MHZ	16.35
	11	2462 MHZ	16.32
802.11 n 20M	1	2412 MHZ	16.86
	6	2437 MHZ	16.98
	11	2462 MHZ	17.10
802.11 n 40M	3	2422 MHZ	14.21
	6	2437 MHZ	14.23
	9	2452 MHZ	14.35

2.4 GHz 802.11g/n OFDM SAR Test Exclusion Requirements

When SAR measurement is required for 2.4 GHz 802.11g/n OFDM configurations, the measurement and test reduction procedures for OFDM are applied. SAR is not required for the following 2.4 GHz OFDM conditions.

a) When KDB Publication 447498 D01 SAR test exclusion applies to the OFDM configuration.

b) When the highest *reported* SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.

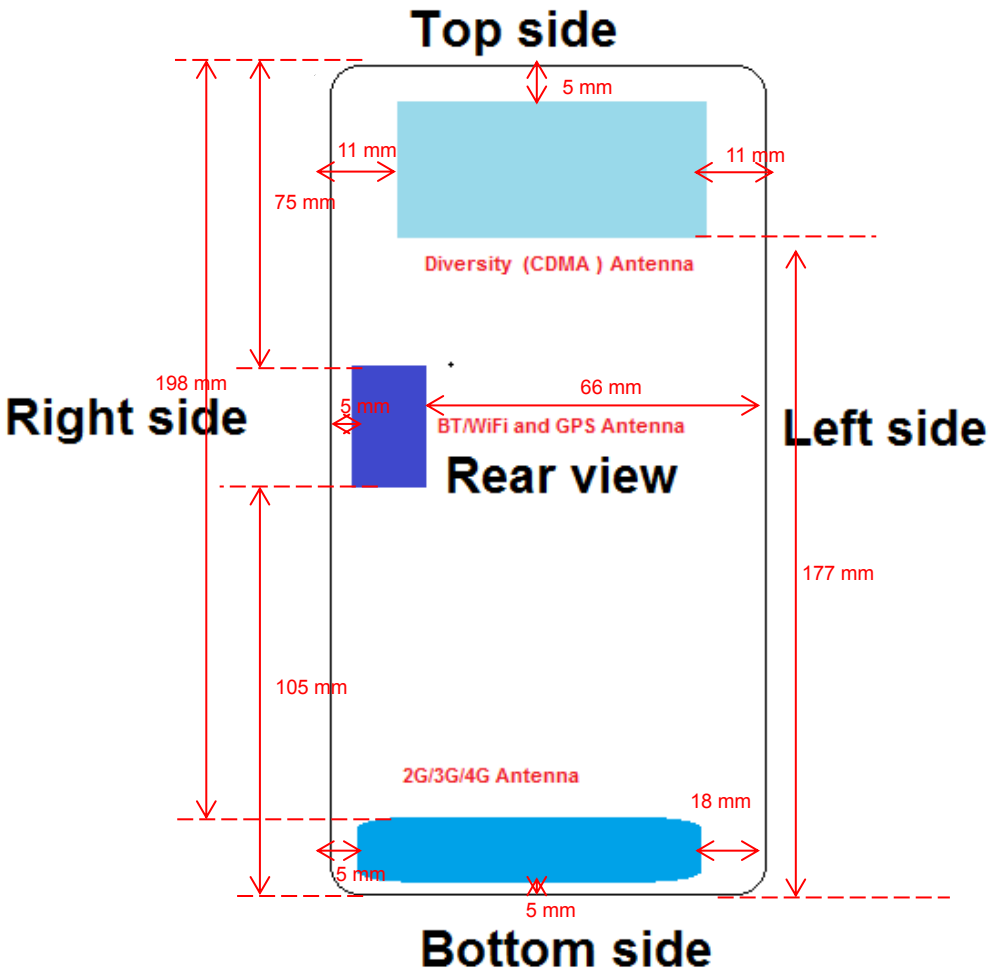
11. Simultaneous TX SAR Considerations

11.1. Introduction

The following procedures adopted from “FCC SAR Considerations for Cell Phones with Multiple Transmitters” are applicable to handsets with built-in unlicensed transmitters such as 802.11 a/b/g and Bluetooth devices which may simultaneously transmit with the licensed transmitter.

For this device, the BT and Wi-Fi can transmit simultaneous with other transmitters.

11.2. Transmit Antenna Separation Distances



Picture 11.1 Antenna Locations

11.3. Standalone SAR Test Exclusion Considerations

Standalone 1-g head or body SAR evaluation by measurement or numerical simulation is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied.

The 1-g SAR test exclusion threshold for 100 MHz to 6 GHz at test separation distances≤ 50 mm are determined by:

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] ·

[√f(GHz)] ≤ 3.0 for 1-g SAR, where

- f(GHz) is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison

According to the KDB447498 appendix A, the SAR test exclusion threshold for 2450MHz at 5mm test separation distances is 10mW.

$$\frac{\text{(max. power of channel, including tune-up tolerance, mW)}}{\text{(min. test separation distance, mm)}} * \sqrt{\text{Frequency (GHz)}} \leqslant 3.0$$

Based on the above equation, Bluetooth SAR was not required:

Evaluation=1.254＜3.0

Based on the above equation, WiFi SAR was required:

Evaluation=19.87>3.0

11.4. SAR Measurement Positions

The following SAR test exclusion Thresholds based on KDB 447498 D01 General RF Exposure Guidance v06 4.3.1

Exposure Position	Wireless Interface	GSM		WCDMA			WLAN
		850	1900	Band2	Band4	Band5	802.11 b
	Maximum power	33	29	21.5	22.5	22.5	18
	Maximum rated power(mW)	1995.26	794.33	141.25	177.83	177.83	63.10
Front view	Antenna to user (mm)	5	5	5	5	5	10
	SAR exclusion threshold	16.27	10.88	10.88	10.88	16.27	19.17
	SAR testing required?	Yes	Yes	Yes	Yes	Yes	Yes
Rear view	Antenna to user (mm)	8	8	8	8	8	5
	SAR exclusion threshold	26.03	17.41	17.41	17.41	26.03	9.58
	SAR testing required?	Yes	Yes	Yes	Yes	Yes	Yes

Top	Antenna to user (mm)	198	198	198	198	198	75
	SAR exclusion threshold	1002.67	1589.00	1589.00	1589.00	1002.67	346.00
	SAR testing required?	No	No	No	No	No	No
Left	Antenna to user (mm)	18	18	18	18	18	66
	SAR exclusion threshold	58.57	39.18	39.18	39.18	58.57	126.50
	SAR testing required?	Yes	Yes	Yes	Yes	Yes	No
Bottom	Antenna to user (mm)	5	5	5	5	5	105
	SAR exclusion threshold	16.27	10.88	10.88	10.88	16.27	646
	SAR testing required?	Yes	Yes	Yes	Yes	Yes	No
Right	Antenna to user (mm)	5	5	5	5	5	5
	SAR exclusion threshold	16.27	10.88	10.88	10.88	16.27	19.17
	SAR testing required?	Yes	Yes	Yes	Yes	Yes	Yes

Exposure Position	Wireless Interface	CDMA		LTE			
		BC0	BC1	Band2	Band4	Band7	Band17
	Maximum power	22	21.5	23.5	23.5	21.5	23.5
	Maximum rated power(mW)	158.49	141.25	141.25	141.25	141.25	223.87
Front view	Antenna to user (mm)	35	35	5	5	5	5
	SAR exclusion threshold	113.89	76.18	10.88	10.88	10.88	16.27
	SAR testing required?	Yes	Yes	Yes	Yes	Yes	Yes
Rear view	Antenna to user (mm)	8	8	8	8	8	8
	SAR exclusion threshold	26.03	17.41	17.41	17.41	17.41	26.03
	SAR testing required?	Yes	Yes	Yes	Yes	Yes	Yes
Top	Antenna to user (mm)	5	5	198	198	198	198
	SAR exclusion threshold	16.27	10.88	1589.00	1589.00	1589.00	1002.67
	SAR testing required?	Yes	Yes	No	No	No	No
Left	Antenna to user (mm)	11	11	18	18	18	18
	SAR exclusion threshold	35.79	23.94	39.18	39.18	39.18	58.57
	SAR testing required?	Yes	Yes	Yes	Yes	Yes	Yes
Bottom	Antenna to user (mm)	177	177	5	5	5	5
	SAR exclusion threshold	883.67	1379.00	10.88	10.88	10.88	16.27
	SAR testing required?	No	No	Yes	Yes	Yes	Yes
Right	Antenna to user (mm)	11	11	5	5	5	5
	SAR exclusion threshold	35.79	23.94	10.88	10.88	10.88	16.27
	SAR testing required?	Yes	Yes	Yes	Yes	Yes	Yes

12. SAR Test Result

12.1 SAR Result for I18D00082-SAR01

Battery use for BA01

Table 12.1: SAR Values (GSM 850 MHz Band-Body)

Frequency		Mode /Band	Service /Headset	Test Position	Spacing (mm)	Figure No.	Measured average power (dBm)	Maximum allowed Power (dBm)	Scaling factor	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.											
836.6	190	GPRS 4TS	Class12	Toward Phantom	5	1	29.51	30	1.119	1.13	**1.265**	-0.19
834.2	128	GPRS 4TS	Class12	Toward Phantom	5	/	29.52	30	1.117	1.03	1.150	0.17
848.8	251	GPRS 4TS	Class12	Toward Phantom	5	/	29.52	30	1.117	0.957	1.069	0.05
836.6	190	GPRS 4TS	Class12	Toward Ground	5	/	29.51	30	1.119	0.853	0.955	0.12
834.2	128	GPRS 4TS	Class12	Toward Ground	5	/	29.52	30	1.117	0.943	1.053	0.14
848.8	251	GPRS 4TS	Class12	Toward Ground	5	/	29.52	30	1.117	0.738	0.824	0.13
836.6	190	GPRS 4TS	Class12	Toward Left	5	/	29.51	30	1.119	0.448	0.502	0.10
836.6	190	GPRS 4TS	Class12	Toward Right	5	/	29.51	30	1.119	0.827	0.926	-0.12
834.2	128	GPRS 4TS	Class12	Toward Right	5	/	29.52	30	1.117	0.733	0.819	-0.07
848.8	251	GPRS 4TS	Class12	Toward Right	5	/	29.52	30	1.117	0.809	0.904	-0.16
836.6	190	GPRS 4TS	Class12	Toward Bottom	5	/	29.51	30	1.119	0.64	0.716	0.10
Repeated												
836.6	190	GPRS 4TS	Class12	Toward Phantom	5	/	29.51	30	1.119	1.06	1.187	0.04
Frequency		**Mode /Band**	**Service /Headset**	**Test Position**	**Spacing (mm)**	**Figure No.**	**Measured average power (dBm)**	**Maximum allowed Power (dBm)**	**Scaling factor**	**Measured SAR(10g) (W/kg)**	**Reported SAR(10g) (W/kg)**	**Power Drift (dB)**
MHz	**Ch.**											
836.6	190	GPRS 4TS	Class12	Toward Phantom	0	2	29.51	30	1.119	0.994	**1.113**	-0.09
836.6	190	GPRS 4TS	Class12	Toward Ground	0	/	29.51	30	1.119	0.598	0.669	0.16

836.6	190	GPRS 4TS	Class12	Toward Left	0	/	29.51	30	1.119	0.32	0.358	0.08
836.6	190	GPRS 4TS	Class12	Toward Right	0	/	29.51	30	1.119	0.924	1.034	-0.14
836.6	190	GPRS 4TS	Class12	Toward Bottom	0	/	29.51	30	1.119	0.556	0.622	0.17

Table 12.2: SAR Values (GSM 1900 MHz Band-Body)

Frequency		Mode /Band	Service /Headset	Test Position	Spacing (mm)	Figure No.	Measured average power (dBm)	Maximum allowed Power (dBm)	Scaling factor	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.											
1880	661	GPRS 4TS	Class12	Toward Phantom	5	/	25.9	26	1.023	0.819	0.838	0.07
1850.2	512	GPRS 4TS	Class12	Toward Phantom	5	/	25.96	26	1.009	0.803	0.810	0.03
1909.8	810	GPRS 4TS	Class12	Toward Phantom	5	/	25.87	26	1.030	0.93	0.958	-0.02
1880	661	GPRS 4TS	Class12	Toward Ground	5	/	25.9	26	1.023	0.567	0.580	0.03
1880	661	GPRS 4TS	Class12	Toward Left	5	/	25.9	26	1.023	0.184	0.188	-0.05
1880	661	GPRS 4TS	Class12	Toward Right	5	/	25.9	26	1.023	1.01	1.034	-0.13
1850.2	512	GPRS 4TS	Class12	Toward Right	5	/	25.96	26	1.009	0.899	0.907	-0.12
1909.8	810	GPRS 4TS	Class12	Toward Right	5	3	25.87	26	1.030	1.2	**1.236**	-0.20
1880	661	GPRS 4TS	Class12	Toward Bottom	5	/	25.9	26	1.023	0.735	0.752	-0.20
1850.2	512	GPRS 4TS	Class12	Toward Bottom	5	/	25.96	26	1.009	0.726	0.733	-0.08
1909.8	810	GPRS 4TS	Class12	Toward Bottom	5	/	25.87	26	1.030	0.806	0.830	-0.11
Repeated												
1909.8	810	GPRS 4TS	Class12	Toward Right	5	/	25.87	26	1.030	1.15	1.185	-0.11
Frequency		**Mode /Band**	**Service /Headset**	**Test Position**	**Spacing (mm)**	**Figure No.**	**Measured average power (dBm)**	**Maximum allowed Power (dBm)**	**Scaling factor**	**Measured SAR(10g) (W/kg)**	**Reported SAR(10g) (W/kg)**	**Power Drift (dB)**
MHz	**Ch.**											
1880	661	GPRS 4TS	Class12	Toward Phantom	0	4	25.9	26	1.023	1.06	**1.085**	0.10
1880	661	GPRS 4TS	Class12	Toward Ground	0	/	25.9	26	1.023	0.567	0.580	0.15
1880	661	GPRS 4TS	Class12	Toward Left	0	/	25.9	26	1.023	0.11	0.113	0.12
1880	661	GPRS 4TS	Class12	Toward Right	0	/	25.9	26	1.023	1.05	1.074	-0.13

1880	661	GPRS 4TS	Class12	Toward Bottom	0	/	25.9	26	1.023	0.748	0.765	0.16

Table 12.3: SAR Values (WCDMA Band II-Body)

Frequency		Mode /Band	Service /Headset	Test Position	Spacing (mm)	Figure No.	Measured average power (dBm)	Maximum allowed Power (dBm)	Scaling factor	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.											
1880	9800	Band II	12.2kbps RMC	Toward Phantom	5	/	21.31	21.5	1.045	0.952	0.995	0.09
1852.4	9662	Band II	12.2kbps RMC	Toward Phantom	5	/	21.44	21.5	1.014	0.994	1.008	-0.19
1907.6	9938	Band II	12.2kbps RMC	Toward Phantom	5	/	21.42	21.5	1.019	1.06	1.080	-0.12
1880	9800	Band II	12.2kbps RMC	Toward Ground	5	/	21.31	21.5	1.045	0.727	0.760	0.18
1880	9800	Band II	12.2kbps RMC	Toward Left	5	/	21.31	21.5	1.045	0.201	0.210	0.10
1880	9800	Band II	12.2kbps RMC	Toward Right	5	5	21.31	21.5	1.045	1.16	**1.212**	-0.00
1852.4	9662	Band II	12.2kbps RMC	Toward Right	5	/	21.44	21.5	1.014	1.03	1.044	-0.15
1907.6	9938	Band II	12.2kbps RMC	Toward Right	5	/	21.42	21.5	1.019	1.14	1.161	0.03
1880	9800	Band II	12.2kbps RMC	Toward Bottom	5	/	21.31	21.5	1.045	0.757	0.791	0.11
Repeated												
1880	9800	Band II	12.2kbps RMC	Toward Right	5	/	21.31	21.5	1.045	1.12	1.170	-0.06
Frequency		**Mode /Band**	**Service /Headset**	**Test Position**	**Spacing (mm)**	**Figure No.**	**Measured average power (dBm)**	**Maximum allowed Power (dBm)**	**Scaling factor**	**Measured SAR(10g) (W/kg)**	**Reported SAR(10g) (W/kg)**	**Power Drift (dB)**
MHz	**Ch.**											
1880	661	GPRS 4TS	Class12	Toward Phantom	0	/	21.31	21.5	1.045	1.04	1.087	0.11
1880	661	GPRS 4TS	Class12	Toward Ground	0	/	21.31	21.5	1.045	0.571	0.597	-0.11
1880	661	GPRS 4TS	Class12	Toward Left	0	/	21.31	21.5	1.045	0.106	0.111	0.12

1880	661	GPRS 4TS	Class12	Toward Right	0	6	21.31	21.5	1.045	1.07	**1.118**	-0.11
1880	661	GPRS 4TS	Class12	Toward Bottom	0	/	21.31	21.5	1.045	0.711	0.743	-0.16

Table 12.4: SAR Values (WCDMA Band IV-Body)

Frequency		Mode /Band	Service /Headset	Test Position	Spacing (mm)	Figure No.	Measured average power (dBm)	Maximum allowed Power (dBm)	Scaling factor	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.											
1732.6	1413	Band IV	12.2kbps RMC	Toward Phantom	5	/	22.38	22.5	1.028	0.668	0.687	0.09
1732.6	1413	Band IV	12.2kbps RMC	Toward Ground	5	/	22.38	22.5	1.028	0.995	1.023	-0.19
1712.4	1312	Band IV	12.2kbps RMC	Toward Ground	5	/	22.28	22.5	1.052	1.05	1.105	0.07
1752.6	1512	Band IV	12.2kbps RMC	Toward Ground	5	/	22.2	22.5	1.072	0.952	1.020	-0.00
1732.6	1413	Band IV	12.2kbps RMC	Toward Left	5	/	22.38	22.5	1.028	0.15	0.154	0.11
1732.6	1413	Band IV	12.2kbps RMC	Toward Right	5	/	22.38	22.5	1.028	0.983	1.011	0.15
1712.4	1312	Band IV	12.2kbps RMC	Toward Right	5	/	22.28	22.5	1.052	0.968	1.018	0.14
1752.6	1512	Band IV	12.2kbps RMC	Toward Right	5	7	22.2	22.5	1.072	1.06	**1.136**	0.18
1732.6	1413	Band IV	12.2kbps RMC	Toward Bottom	5	/	22.38	22.5	1.028	0.755	0.776	0.15
Repeated												
1752.6	1512	Band IV	12.2kbps RMC	Toward Right	5	/	22.2	22.5	1.072	1.04	1.114	0.14
Frequency		**Mode /Band**	**Service /Headset**	**Test Position**	**Spacing (mm)**	**Figure No.**	**Measured average power (dBm)**	**Maximum allowed Power (dBm)**	**Scaling factor**	**Measured SAR(10g) (W/kg)**	**Reported SAR(10g) (W/kg)**	**Power Drift (dB)**
MHz	**Ch.**											
1732.6	1413	Band IV	12.2kbps RMC	Toward Phantom	0	/	22.38	22.5	1.028	0.654	0.672	0.11
1732.6	1413	Band IV	12.2kbps RMC	Toward Ground	0	/	22.38	22.5	1.028	0.929	0.955	0.15

1732.6	1413	Band IV	12.2kbps RMC	Toward Left	0	/	22.38	22.5	1.028	0.137	0.141	0.14
1732.6	1413	Band IV	12.2kbps RMC	Toward Right	0	8	22.38	22.5	1.028	0.988	**1.016**	0.18
1732.6	1413	Band IV	12.2kbps RMC	Toward Bottom	0	/	22.38	22.5	1.028	0.728	0.748	0.09

Table 12.5: SAR Values (WCDMA Band V-Body)

Frequency		Mode /Band	Service /Headset	Test Position	Spacing (mm)	Figure No.	Measured average power (dBm)	Maximum allowed Power (dBm)	Scaling factor	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.											
836.6	4175	Band V	12.2kbps RMC	Toward Phantom	5	9	22.2	22.5	1.072	0.662	0.709	-0.00
836.6	4175	Band V	12.2kbps RMC	Toward Ground	5	/	22.2	22.5	1.072	0.355	0.380	0.019
836.6	4175	Band V	12.2kbps RMC	Toward Left	5	/	22.2	22.5	1.072	0.245	0.263	0.15
836.6	4175	Band V	12.2kbps RMC	Toward Right	5	/	22.2	22.5	1.072	0.412	0.441	0.06
836.6	4175	Band V	12.2kbps RMC	Toward Bottom	5	/	22.2	22.5	1.072	0.544	0.583	-0.11
Frequency		Mode /Band	Service /Headset	Test Position	Spacing (mm)	Figure No.	Measured average power (dBm)	Maximum allowed Power (dBm)	Scaling factor	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Power Drift (dB)
MHz	Ch.											
836.6	4175	Band V	12.2kbps RMC	Toward Phantom	0	10	22.2	22.5	1.072	0.643	0.689	-0.15
836.6	4175	Band V	12.2kbps RMC	Toward Ground	0	/	22.2	22.5	1.072	0.389	0.417	0.05
836.6	4175	Band V	12.2kbps RMC	Toward Left	0	/	22.2	22.5	1.072	0.172	0.184	0.15
836.6	4175	Band V	12.2kbps RMC	Toward Right	0	/	22.2	22.5	1.072	0.516	0.553	-0.13
836.6	4175	Band V	12.2kbps RMC	Toward Bottom	0	/	22.2	22.5	1.072	0.36	0.386	0.01

Table 12.6: SAR Values (LTE Band 2-Body)

Frequency		Configuration	Test Position	Spacing (mm)	Figure No.	Measured average power (dBm)	Maximum allowed Power (dBm)	Scaling factor	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.										
1900	19100	QPSK_20MHz_1RB_ 0 offset High	Toward Phantom	5	/	23.46	23.5	1.009	1.16	1.171	-0.17
1860	18700	QPSK_20MHz_1RB_ 0 offset Low	Toward Phantom	5	11	23.33	23.5	1.040	1.26	**1.310**	0.18
1880	18900	QPSK_20MHz_1RB_ 0 offset Middle	Toward Phantom	5	/	23.45	23.5	1.012	1.12	1.133	0.03
1900	19100	QPSK_20MHz_1RB_ 0 offset High	Toward Ground	5	/	23.46	23.5	1.009	0.832	0.840	0.12
1860	18700	QPSK_20MHz_1RB_ 0 offset Low	Toward Ground	5	/	23.33	23.5	1.040	0.881	0.916	0.09
1880	18900	QPSK_20MHz_1RB_ 0 offset Middle	Toward Ground	5	/	23.45	23.5	1.012	0.808	0.817	0.09
1900	19100	QPSK_20MHz_1RB_ 0 offset High	Toward Left	5	/	23.46	23.5	1.009	0.197	0.199	0.14
1900	19100	QPSK_20MHz_1RB_ 0 offset High	Toward Right	5	/	23.46	23.5	1.009	1.19	1.201	-0.10
1860	18700	QPSK_20MHz_1RB_ 0 offset Low	Toward Right	5	/	23.33	23.5	1.040	1.21	1.258	0.676
1880	18900	QPSK_20MHz_1RB_ 0 offset Middle	Toward Right	5	/	23.45	23.5	1.012	1.16	1.173	0.15
1900	19100	QPSK_20MHz_1RB_ 0 offset High	Toward Bottom	5	/	23.46	23.5	1.009	0.941	0.950	-0.08
1860	18700	QPSK_20MHz_1RB_ 0 offset Low	Toward Bottom	5	/	23.33	23.5	1.040	1	1.040	0.19
1880	18900	QPSK_20MHz_1RB_ 0 offset Middle	Toward Bottom	5	/	23.45	23.5	1.012	0.973	0.984	0.16
1900	19100	QPSK_20MHz_50RB_ 0 offset High	Toward Phantom	5	/	22.33	22.5	1.040	0.967	1.006	0.01
1860	18700	QPSK_20MHz_50RB_ 0 offset Low	Toward Phantom	5	/	22.16	22.5	1.081	1	1.081	0.10
1880	18900	QPSK_20MHz_50RB_ 0 offset Middle	Toward Phantom	5	/	22.25	22.5	1.059	0.908	0.962	0.19
1900	19100	QPSK_20MHz_50RB_ 0 offset High	Toward Ground	5	/	22.33	22.5	1.040	0.677	0.704	0.15
1900	19100	QPSK_20MHz_50RB_ 0 offset High	Toward Left	5	/	22.33	22.5	1.040	0.158	0.164	0.14
1900	19100	QPSK_20MHz_50RB_ 0 offset High	Toward Right	5	/	22.33	22.5	1.040	1.03	1.071	0.19

1860	18700	QPSK_20MHz_50RB_ 0 offset Low	Toward Right	5	/	22.16	22.5	1.081	0.985	1.065	0.10
1880	18900	QPSK_20MHz_50RB_ 0 offset Middle	Toward Right	5	/	22.25	22.5	1.059	1	1.059	0.17
1900	19100	QPSK_20MHz_50RB_ 0 offset High	Toward Bottom	5	/	22.33	22.5	1.040	0.767	0.798	0.10
1860	18700	QPSK_20MHz_50RB_ 0 offset Low	Toward Bottom	5	/	22.16	22.5	1.081	0.801	0.866	0.20
1880	18900	QPSK_20MHz_50RB_ 0 offset Middle	Toward Bottom	5	/	22.25	22.5	1.059	0.795	0.842	0.16
1880	18900	QPSK_20MHz_100RB_ 0 offset Middle	Toward Phantom	5	/	22.25	22.5	1.059	0.973	1.031	0.18
1880	18900	QPSK_20MHz_100RB_ 0 offset Middle	Toward Ground	5	/	22.25	22.5	1.059	0.675	0.715	0.17
1880	18900	QPSK_20MHz_100RB_ 0 offset Middle	Toward Right	5	/	22.25	22.5	1.059	1	1.059	0.17
1880	18900	QPSK_20MHz_100RB_ 0 offset Middle	Toward Bottom	5	/	22.25	22.5	1.059	0.783	0.829	0.13
Repeated											
1860	18700	QPSK_20MHz_1RB_ 0 offset Low	Toward Phantom	5	/	23.33	23.5	1.040	1.26	1.310	0.17
Frequency		**Configuration**	**Test Position**	**Spacing (mm)**	**Figure No.**	**Measured average power (dBm)**	**Maximum allowed Power (dBm)**	**Scaling factor**	**Measured SAR(10g) (W/kg)**	**Reported SAR(10g) (W/kg)**	**Power Drift (dB)**
MHz	**Ch.**										
1900	19100	QPSK_20MHz_1RB_ 0 offset High	Toward Phantom	0	/	23.46	23.5	1.009	1.24	1.251	0.11
1900	19100	QPSK_20MHz_1RB_ 0 offset High	Toward Ground	0	/	23.46	23.5	1.009	0.73	0.737	0.02
1900	19100	QPSK_20MHz_1RB_ 0 offset High	Toward Left	0	/	23.46	23.5	1.009	0.187	0.189	0.16
1900	19100	QPSK_20MHz_1RB_ 0 offset High	Toward Right	0	12	23.46	23.5	1.009	1.36	**1.373**	-0.07
1900	19100	QPSK_20MHz_1RB_ 0 offset High	Toward Bottom	0	/	23.46	23.5	1.009	0.924	0.933	-0.20
1900	19100	QPSK_20MHz_50RB_ 0 offset High	Toward Phantom	0	/	22.25	22.5	1.059	1.02	1.080	0.19
1900	19100	QPSK_20MHz_50RB_ 0 offset High	Toward Ground	0	/	22.25	22.5	1.059	0.599	0.634	-0.08
1900	19100	QPSK_20MHz_50RB_ 0 offset High	Toward Left	0	/	22.25	22.5	1.059	0.151	0.160	0.19
1900	19100	QPSK_20MHz_50RB_ 0 offset High	Toward Right	0	/	22.25	22.5	1.059	1.12	1.186	-0.10

1900	19100	QPSK_20MHz_50RB_ 0 offset High	Toward Bottom	0	/	22.25	22.5	1.059	0.754	0.799	-0.19

Table 12.7: SAR Values (LTE Band 4-Body)

Frequency		Configuration	Test Position	Spacing (mm)	Figure No.	Measured average power (dBm)	Maximum allowed Power (dBm)	Scaling factor	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.										
1720	20050	QPSK_20MHz_1RB_ 0 offset Low	Toward Phantom	5	/	23.38	23.5	1.028	0.949	0.976	-0.19
1732.5	20175	QPSK_20MHz_1RB_ 0 offset Middle	Toward Phantom	5	/	23.35	23.5	1.035	1.02	1.056	0.08
1745	20300	QPSK_20MHz_1RB_ 0 offset High	Toward Phantom	5	/	23.28	23.5	1.052	1.02	1.073	0.06
1720	20050	QPSK_20MHz_1RB_ 0 offset Low	Toward Ground	5	/	23.38	23.5	1.028	1.21	1.244	-0.15
1732.5	20175	QPSK_20MHz_1RB_ 0 offset Middle	Toward Ground	5	/	23.35	23.5	1.035	1.14	1.180	-0.17
1745	20300	QPSK_20MHz_1RB_ 0 offset High	Toward Ground	5	/	23.28	23.5	1.052	1.08	1.136	-0.13
1720	20050	QPSK_20MHz_1RB_ 0 offset Low	Toward Left	5	/	23.38	23.5	1.028	0.142	0.146	0.16
1720	20050	QPSK_20MHz_50RB_ 0 offset Low	Toward Right	5	/	23.38	23.5	1.028	0.971	0.998	-0.18
1732.5	20175	QPSK_20MHz_50RB_ 0 offset Middle	Toward Right	5	/	23.35	23.5	1.035	1.09	1.128	0.10
1745	20300	QPSK_20MHz_50RB_ 0 offset High	Toward Right	5	/	23.28	23.5	1.052	1.08	1.136	0.12
1720	20050	QPSK_20MHz_1RB_ 0 offset Low	Toward Bottom	5	/	23.38	23.5	1.028	0.846	0.870	0.18
1732.5	20175	QPSK_20MHz_1RB_ 0 offset Middle	Toward Bottom	5	/	23.35	23.5	1.035	0.845	0.875	0.19
1745	20300	QPSK_20MHz_1RB_ 0 offset High	Toward Bottom	5	/	23.28	23.5	1.052	0.833	0.876	0.19
1720	20050	QPSK_20MHz_50RB_ 0 offset Low	Toward Phantom	5	/	22.65	23	1.084	0.782	0.848	-0.13
1732.5	20175	QPSK_20MHz_50RB_ 0 offset Middle	Toward Phantom	5	/	22.48	23	1.127	0.814	0.918	0.16
1745	20300	QPSK_20MHz_50RB_ 0 offset High	Toward Phantom	5	/	22.61	23	1.094	0.835	0.913	-0.19
1720	20050	QPSK_20MHz_50RB_ 0 offset Low	Toward Ground	5	/	22.65	23	1.084	0.923	1.000	0.19
1732.5	20175	QPSK_20MHz_50RB_ 0 offset Middle	Toward Ground	5	/	22.48	23	1.127	0.873	0.984	0.18

1745	20300	QPSK_20MHz_50RB_ 0 offset High	Toward Ground	5	/	22.61	23	1.094	0.836	0.915	0.12
1720	20050	QPSK_20MHz_50RB_ 0 offset Low	Toward Left	5	/	22.65	23	1.084	0.119	0.129	-0.12
1720	20050	QPSK_20MHz_50RB_ 0 offset Low	Toward Right	5	/	22.65	23	1.084	0.836	0.906	0.06
1732.5	20175	QPSK_20MHz_50RB_ 0 offset Middle	Toward Right	5	/	22.48	23	1.127	0.878	0.990	0.16
1745	20300	QPSK_20MHz_50RB_ 0 offset High	Toward Right	5	/	22.61	23	1.094	0.896	0.980	0.19
1720	20050	QPSK_20MHz_50RB_ 0 offset Low	Toward Bottom	5	/	22.65	23	1.084	0.69	0.748	0.15
1732.5	20175	QPSK_20MHz_100RB_ 0 offset Middle	Toward Phantom	5	/	22.46	23	1.132	0.7	0.792	0.19
1732.5	20175	QPSK_20MHz_100RB_ 0 offset Middle	Toward Ground	5	/	22.46	23	1.132	0.85	0.963	0.15
1732.5	20175	QPSK_20MHz_100RB_ 0 offset Middle	Toward Right	5	/	22.46	23	1.132	0.88	0.997	0.12
1732.5	20175	QPSK_20MHz_100RB_ 0 offset Middle	Toward Bottom	5	/	22.46	23	1.132	0.736	0.833	-0.19
Repeated											
1720	20050	QPSK_20MHz_1RB_ 0 offset Low	Toward Ground	5	13	23.38	23.5	1.028	1.22	1.254	0.02
Frequency		**Configuration**	**Test Position**	**Spacing (mm)**	**Figure No.**	**Measured average power (dBm)**	**Maximum allowed Power (dBm)**	**Scaling factor**	**Measured SAR(10g) (W/kg)**	**Reported SAR(10g) (W/kg)**	**Power Drift (dB)**
MHz	**Ch.**										
1720	20050	QPSK_20MHz_1RB_ 0 offset Low	Toward Phantom	0	14	23.38	23.5	1.028	1.74	**1.789**	0.12
1720	20050	QPSK_20MHz_1RB_ 0 offset Low	Toward Ground	0	/	23.38	23.5	1.028	1.11	1.141	0.18
1720	20050	QPSK_20MHz_1RB_ 0 offset Low	Toward Left	0	/	23.38	23.5	1.028	0.182	0.187	0.14
1720	20050	QPSK_20MHz_1RB_ 0 offset Low	Toward Right	0	/	23.38	23.5	1.028	1.25	1.285	0.20
1720	20050	QPSK_20MHz_1RB_ 0 offset Low	Toward Bottom	0	/	23.38	23.5	1.028	0.948	0.975	-0.11
1720	20050	QPSK_20MHz_50RB_ 0 offset Low	Toward Phantom	0	/	22.65	23	1.084	1.44	1.561	0.19
1720	20050	QPSK_20MHz_50RB_ 0 offset Low	Toward Ground	0	/	22.65	23	1.084	0.818	0.887	0.09
1720	**20050**	QPSK_20MHz_50RB_ 0 offset Low	Toward Left	0	/	22.65	23	1.084	0.149	0.162	0.20

1720	**20050**	QPSK_20MHz_50RB_ 0 offset Low	Toward Right	0	/	22.65	23	1.084	1.05	1.138	0.11
1720	**20050**	QPSK_20MHz_50RB_ 0 offset Low	Toward Bottom	0	/	22.65	23	1.084	0.77	0.835	0.04

Table 12.8: SAR Values (LTE Band 7-Body)

Frequency		Configuration	Test Position	Spacing (mm)	Figure No.	Measured average power (dBm)	Maximum allowed Power (dBm)	Scaling factor	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.										
2560	21350	QPSK_20MHz_1RB_ 0 offset High	Toward Phantom	5	/	21.24	21.5	1.062	0.377	0.400	0.12
2560	21350	QPSK_20MHz_1RB_ 0 offset High	Toward Ground	5	/	21.24	21.5	1.062	0.384	0.408	0.18
2560	21350	QPSK_20MHz_1RB_ 0 offset High	Toward Left	5	/	21.24	21.5	1.062	0.0442	0.047	0.14
2560	21350	QPSK_20MHz_1RB_ 0 offset High	Toward Right	5	/	21.24	21.5	1.062	0.175	0.186	0.18
2560	21350	QPSK_20MHz_1RB_ 0 offset High	Toward Bottom	5	/	21.24	21.5	1.062	1.14	1.210	-0.11
2510	20850	QPSK_20MHz_1RB_ 0 offset Low	Toward Bottom	5	/	21.15	21.5	1.084	1.08	1.171	0.18
2535	21100	QPSK_20MHz_1RB_ 0 offset Middle	Toward Bottom	5	15	21.12	21.5	1.091	1.15	**1.255**	0.17
2560	21350	QPSK_20MHz_50RB_ 0 offset High	Toward Phantom	5	/	19.92	20	1.019	0.3	0.306	0.19
2560	21350	QPSK_20MHz_50RB_ 0 offset High	Toward Ground	5	/	19.92	20	1.019	0.306	0.312	0.09
2560	21350	QPSK_20MHz_50RB_ 0 offset High	Toward Left	5	/	19.92	20	1.019	0.0361	0.037	0.20
2560	21350	QPSK_20MHz_50RB_ 0 offset High	Toward Right	5	/	19.92	20	1.019	0.137	0.140	0.11
2560	21350	QPSK_20MHz_50RB_ 0 offset High	Toward Bottom	5	/	19.92	20	1.019	0.926	0.943	0.04
2510	20850	QPSK_20MHz_50RB_ 0 offset High	Toward Bottom	5	/	19.87	20	1.030	0.655	0.675	0.19
2535	21100	QPSK_20MHz_50RB_ 0 offset High	Toward Bottom	5	/	19.89	20	1.026	0.934	0.958	0.09
2535	21100	QPSK_20MHz_100RB_ 0 offset Middle	Toward Bottom	5	/	19.82	20	1.042	0.813	0.847	0.06
Repeated											

2535	21100	QPSK_20MHz_1RB_ 0 offset Middle	Toward Bottom	5	/	21.12	21.5	1.091	1.12	1.222	0.12

Frequency		Configuration	Test Position	Spacing (mm)	Figure No.	Measured average power (dBm)	Maximum allowed Power (dBm)	Scaling factor	Measured SAR(10g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.										
2560	21350	QPSK_20MHz_1RB_ 0 offset High	Toward Phantom	0	/	21.24	21.5	1.062	0.406	0.431	0.09
2560	21350	QPSK_20MHz_1RB_ 0 offset High	Toward Ground	0	/	21.24	21.5	1.062	0.365	0.388	0.03
2560	21350	QPSK_20MHz_1RB_ 0 offset High	Toward Left	0	/	21.24	21.5	1.062	0.0471	0.050	-0.02
2560	21350	QPSK_20MHz_1RB_ 0 offset High	Toward Right	0	/	21.24	21.5	1.062	0.12	0.127	0.11
2560	21350	QPSK_20MHz_1RB_ 0 offset High	Toward Bottom	0	16	21.24	21.5	1.062	1.17	**1.242**	-0.19
2560	21350	QPSK_20MHz_50RB_ 0 offset High	Toward Phantom	0	/	19.92	20	1.019	0.324	0.330	0.03
2560	21350	QPSK_20MHz_50RB_ 0 offset High	Toward Ground	0	/	19.92	20	1.019	0.29	0.295	-0.02
2560	21350	QPSK_20MHz_50RB_ 0 offset High	Toward Left	0	/	19.92	20	1.019	0.0378	0.039	0.11
2560	21350	QPSK_20MHz_50RB_ 0 offset High	Toward Right	0	/	19.92	20	1.019	0.0955	0.097	0.13
2560	21350	QPSK_20MHz_50RB_ 0 offset High	Toward Bottom	0	/	19.92	20	1.019	0.952	0.970	-0.02

Table 12.9: SAR Values (LTE Band 17-Body)

Frequency		Configuration	Test Position	Spacing (mm)	Figure No.	Measured average power (dBm)	Maximum allowed Power (dBm)	Scaling factor	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.										
710	23790	QPSK_10MHz_1RB_ 25 offset Middle	Toward Phantom	5	17	23.28	23.5	1.052	0.186	**0.196**	-0.02
710	23790	QPSK_10MHz_1RB_ 25 offset Middle	Toward Ground	5	/	23.28	23.5	1.052	0.152	0.160	0.17
710	23790	QPSK_10MHz_1RB_ 25 offset Middle	Toward Left	5	/	23.28	23.5	1.052	0.068	0.072	0.17
710	23790	QPSK_10MHz_1RB_ 25 offset Middle	Toward Right	5	/	23.28	23.5	1.052	0.12	0.126	0.13

710	23790	QPSK_10MHz_1RB_ 25 offset Middle	Toward Bottom	5	/	23.28	23.5	1.052	0.174	0.183	-0.12
710	23790	QPSK_10MHz_25RB_ 13 offset Middle	Toward Phantom	5	/	22.37	22.5	1.030	0.154	0.159	0.05
710	23790	QPSK_10MHz_25RB_ 13 offset Middle	Toward Ground	5	/	22.37	22.5	1.030	0.126	0.130	0.13
710	23790	QPSK_10MHz_25RB_ 13 offset Middle	Toward Left	5	/	22.37	22.5	1.030	0.055	0.057	0.13
710	23790	QPSK_10MHz_25RB_ 13 offset Middle	Toward Right	5	/	22.37	22.5	1.030	0.098	0.101	0.02
710	23790	QPSK_10MHz_25RB_ 13 offset Middle	Toward Bottom	5	/	22.37	22.5	1.030	0.144	0.148	-0.15
Frequency		**Configuration**	**Test Position**	**Spacing (mm)**	**Figure No.**	**Measured average power (dBm)**	**Maximum allowed Power (dBm)**	**Scaling factor**	**Measured SAR(10g) (W/kg)**	**Reported SAR(10g) (W/kg)**	**Power Drift (dB)**
MHz	**Ch.**										
710	23790	QPSK_10MHz_1RB_ 25 offset Middle	Toward Phantom	0	/	23.28	23.5	1.052	0.231	0.243	-0.01
710	23790	QPSK_10MHz_1RB_ 25 offset Middle	Toward Ground	0	18	23.28	23.5	1.052	0.231	**0.243**	0.12
710	23790	QPSK_10MHz_1RB_ 25 offset Middle	Toward Left	0	/	23.28	23.5	1.052	0.049	0.052	-0.14
710	23790	QPSK_10MHz_1RB_ 25 offset Middle	Toward Right	0	/	23.28	23.5	1.052	0.162	0.170	-0.05
710	23790	QPSK_10MHz_1RB_ 25 offset Middle	Toward Bottom	0	/	23.28	23.5	1.052	0.231	0.243	-0.12
710	23790	QPSK_10MHz_25RB_ 13 offset Middle	Toward Phantom	0	/	22.37	22.5	1.030	0.187	0.193	0.12
710	23790	QPSK_10MHz_25RB_ 13 offset Middle	Toward Ground	0	/	22.37	22.5	1.030	0.188	0.194	0.15
710	23790	QPSK_10MHz_25RB_ 13 offset Middle	Toward Left	0	/	22.37	22.5	1.030	0.039	0.040	0.02
710	23790	QPSK_10MHz_25RB_ 13 offset Middle	Toward Right	0	/	22.37	22.5	1.030	0.132	0.136	0.03
s710	23790	QPSK_10MHz_25RB_ 13 offset Middle	Toward Bottom	0	/	22.37	22.5	1.030	0.19	0.196	-0.18

Table 12.10: SAR Values (CDMA BC0-Body)

Frequency		Mode /Band	Service /Headset	Test Position	Spacing (mm)	Figure No.	Measured average power (dBm)	Maximum allowed Power (dBm)	Scaling factor	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.											
836.52	384	BC0	1xEVDO	Toward Phantom	5	/	21.85	22	1.035	0.169	0.175	-0.18
836.52	384	BC0	1xEVDO	Toward Ground	5	/	21.85	22	1.035	1.0	1.035	-0.09
824.7	1013	BC0	1xEVDO	Toward Ground	5	19	21.74	22	1.062	1.17	**1.242**	-0.07
848.31	777	BC0	1xEVDO	Toward Ground	5	/	21.82	22	1.042	0.932	0.971	-0.08
836.52	384	BC0	1xEVDO	Toward Left	5	/	21.85	22	1.035	0.176	0.182	0.16
836.52	384	BC0	1xEVDO	Toward Right	5	/	21.85	22	1.035	0.0202	0.021	0.18
836.52	384	BC0	1xEVDO	Toward Top	5	/	21.85	22	1.035	0.0369	0.038	-0.19
Repeated												
824.7	1013	BC0	1xEVDO	Toward Ground	5	/	21.74	22	1.062	1.16	1.232	-0.12

Frequency		Mode /Band	Service /Headset	Test Position	Spacing (mm)	Figure No.	Measured average power (dBm)	Maximum allowed Power (dBm)	Scaling factor	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Power Drift (dB)
MHz	Ch.											
836.52	384	BC0	1xEVDO	Toward Phantom	0	/	21.85	22	1.035	0.216	0.224	0.11
836.52	384	BC0	1xEVDO	Toward Ground	0	20	21.85	22	1.035	1.01	**1.045**	-0.12
836.52	384	BC0	1xEVDO	Toward Left	0	/	21.85	22	1.035	0.219	0.227	-0.01
836.52	384	BC0	1xEVDO	Toward Right	0	/	21.85	22	1.035	0.0993	0.103	-0.18
836.52	384	BC0	1xEVDO	Toward Top	0	/	21.85	22	1.035	0.108	0.112	0.07

Table 12.11: SAR Values (CDMA BC1-Body)

Frequency		Mode /Band	Service /Headset	Test Position	Spacing (mm)	Figure No.	Measured average power (dBm)	Maximum allowed Power (dBm)	Scaling factor	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.											
1880	600	BC1	1xEVDO	Toward Phantom	5	/	21.20	21.5	1.072	0.0893	0.096	-0.14
1880	600	BC1	1xEVDO	Toward Ground	5	/	21.20	21.5	1.072	1.09	1.168	0.14
1851.25	25	BC1	1xEVDO	Toward Ground	5	21	21.27	21.5	1.054	1.14	**1.202**	0.12
1908.75	1175	BC1	1xEVDO	Toward Ground	5	/	20.97	21.5	1.130	0.923	1.043	0.12
1880	600	BC1	1xEVDO	Toward Left	5	/	21.20	21.5	1.072	0.292	0.313	0.14
1880	600	BC1	1xEVDO	Toward Right	5	/	21.20	21.5	1.072	0.123	0.132	0.15
1880	600	BC1	1xEVDO	Toward Top	5	/	21.20	21.5	1.072	0.206	0.221	0.18
Repeated												
1851.25	25	BC1	1xEVDO	Toward Ground	5	/	21.27	21.5	1.054	1.06	1.118	0.11

Frequency		Mode /Band	Service /Headset	Test Position	Spacing (mm)	Figure No.	Measured average power (dBm)	Maximum allowed Power (dBm)	Scaling factor	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Power Drift (dB)
MHz	Ch.											
1880	600	BC1	1xEVDO	Toward Phantom	0	/	21.20	21.5	1.072	0.0743	0.080	0.00
1880	600	BC1	1xEVDO	Toward Ground	0	22	21.20	21.5	1.072	1.06	**1.136**	0.13
1880	600	BC1	1xEVDO	Toward Left	0	/	21.20	21.5	1.072	0.26	0.279	0.12
1880	600	BC1	1xEVDO	Toward Right	0	/	21.20	21.5	1.072	0.0883	0.095	0.09
1880	600	BC1	1xEVDO	Toward Top	0	/	21.20	21.5	1.072	0.168	0.180	0.15

Table 12.12 SAR Values (Wi-Fi 802.11b - Body)

Frequency		Mode /Band	Service /Headset	Test Position	Spacing (mm)	Figure No.	Measured average power (dBm)	Maximum allowed Power (dBm)	Scaling factor	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.											
2412	1	Wi-Fi 2450	802.11b	Toward Phantom	5	/	17.71	18	1.069	0.059	0.063	0.01
2412	1	Wi-Fi 2450	802.11b	Toward Ground	5	/	17.71	18	1.069	0.0267	0.029	0.17
2412	1	Wi-Fi 2450	802.11b	Toward Left	5	/	17.71	18	1.069	0.0269	0.029	0.19
2412	1	Wi-Fi 2450	802.11b	Toward Right	5	23	17.71	18	1.069	0.198	**0.212**	-0.02
2412	1	Wi-Fi 2450	802.11b	Toward Top	5	/	17.71	18	1.069	0.0293	0.031	0.09
Frequency		Mode /Band	Service /Headset	Test Position	Spacing (mm)	Figure No.	Measured average power (dBm)	Maximum allowed Power (dBm)	Scaling factor	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Power Drift (dB)
MHz	Ch.											
2412	1	Wi-Fi 2450	802.11b	Toward Phantom	0	/	17.71	18	1.069	0.0314	0.034	0.01
2412	1	Wi-Fi 2450	802.11b	Toward Ground	0	/	17.71	18	1.069	0.02	0.021	0.16
2412	1	Wi-Fi 2450	802.11b	Toward Left	0	/	17.71	18	1.069	0.0151	0.016	0.12
2412	1	Wi-Fi 2450	802.11b	Toward Right	0	24	17.71	18	1.069	0.274	**0.293**	-0.01
2412	1	Wi-Fi 2450	802.11b	Toward Top	0	/	17.71	18	1.069	0.0212	0.023	0.09

Battery use for BB02

Table 12.13: SAR Values (LTE Band 2-Body)

Frequency		Configuration	Test Position	Spacing (mm)	Figure No.	Measured average power (dBm)	Maximum allowed Power (dBm)	Scaling factor	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.										
1860	18700	QPSK_20MHz_1RB_ 0 offset Low	Toward Phantom	5	/	23.33	23.5	1.040	1.23	**1.279**	0.07

Table 12.14: SAR Values (LTE Band 4-Body)

1720	20050	QPSK_20MHz_1RB_ 0 offset Low	Toward Ground	0	/	23.38	23.5	1.028	1.19	1.223	0.02

12.2 SAR Result for I19D00088-SAR01

Table 12.15: SAR Values

Test Position	Band	Mode	Channel	Frequency (MHz)	Tune-up (dBm)	Measured power (dBm)	Power Drift (dB)	Limit of 1gSAR 1.6 W/kg (mW/g)			Figure No.
								Measured SAR1g	Scaling Factor	Report SAR1g	
Body SAR (Distance 5mm)											
Phantom Side	GSM850	GPRS 4TS	190	836.6	30	29.51	-0.08	0.674	1.12	0.755	1
Right Edge	GSM1900	GPRS 4TS	661	1880	26	25.9	0.11	0.814	1.02	0.833	/
Right Edge	GSM1900	GPRS 4TS	512	1850.2	26	25.96	0.05	0.724	1.01	0.731	/
Right Edge	GSM1900	GPRS 4TS	810	1909.8	26	25.87	-0.01	1.020	1.03	1.051	3
Right Edge	WCDMA Band 2	RMC12.2k	9400	1880	21.5	21.31	0.14	0.842	1.04	0.880	/
Right Edge	WCDMA Band 2	RMC12.2k	9262	1852.4	21.5	21.44	0.19	0.801	1.01	0.812	/
Right Edge	WCDMA Band 2	RMC12.2k	9538	1907.6	21.5	21.42	0.14	0.866	1.02	0.882	5
Right Edge	WCDMA Band 4	RMC12.2k	1413	1732.6	22.5	22.38	-0.03	0.691	1.03	0.710	/
Right Edge	WCDMA Band 4	RMC12.2k	1312	1712.4	22.5	22.28	0.01	0.677	1.05	0.712	/
Right Edge	WCDMA Band 4	RMC12.2k	1512	1752.6	22.5	22.2	0.01	0.794	1.07	0.851	7
Phantom Side	WCDMA Band 5	RMC12.2k	4175	836.6	22.2	22.5	-0.18	0.237	0.93	0.221	9
Phantom Side	LTE Band 2	QPSK_20MHz Low 1RB 0ofset	18700	1860	23.5	23.33	0.09	0.566	1.04	0.589	11
Ground Side	LTE Band 4	QPSK_20MHz Low 1RB 0ofset	20050	1720	23.5	23.38	0.10	0.635	1.03	0.653	13
Bottom Edge	LTE Band 7	QPSK_20MHz Middle 1RB 0ofset	21100	2535	21.5	21.24	-0.15	1.160	1.06	1.232	/
Bottom Edge	LTE Band 7	QPSK_20MHz Low 1RB 0ofset	20850	2510	21.5	21.15	-0.13	1.130	1.08	1.225	/
Bottom Edge	LTE Band 7	QPSK_20MHz High 1RB 0ofset	21350	2560	21.5	21.12	0.11	1.170	1.09	1.277	15
Phantom Side	LTE Band 17	QPSK_10MHz Middle 1RB 0ofset	23790	710	23.5	23.28	-0.09	0.142	1.05	0.149	17
Ground Side	CDMA BC0	1XEVDO	1013	824.7	22	21.74	-0.07	0.480	1.06	0.510	19
Ground Side	CDMA BC1	1XEVDO	25	1851.25	21.5	21.27	-0.07	0.507	1.05	0.535	21
Right Edge	WIFI 2.4G	802.11b	1	2412	18	17.71	0.05	0.245	1.07	0.262	23
Right Edge	WIFI 5G	802.11n	151	5755	18	17.81	0.06	0.298	1.04	0.311	25
Repeated											
Right Edge	GSM1900	GPRS 4TS	810	1909.8	26	25.87	0.10	1.020	1.03	1.051	/
Ground Side	WCDMA Band 2	RMC12.2k	9538	1907.6	21.5	21.42	0.11	0.863	1.02	0.879	/
Bottom Edge	LTE Band 7	QPSK_20MHz High 1RB 0ofset	21350	2560	21.5	21.12	0.18	1.170	1.09	1.277	/
Test Position	**Band**	**Mode**	**Channel**	**Frequency (MHz)**	**Tune-up (dBm)**	**Measured power (dBm)**	**Power Drift (dB)**	**Limit of 10gSAR 4.0 W/kg (mW/g)**			**Figure No.**
								Measured SAR10g	**Scaling Factor**	**Report SAR10g**	
Limb SAR (Distance 0mm)											
Phantom Side	GSM850	GPRS 4TS	190	836.6	30	29.51	-0.06	1.59	1.12	1.780	2
Phantom Side	GSM1900	GPRS 4TS	661	1880	26	25.9	-0.14	1.03	1.02	1.054	4
Right Edge	WCDMA Band 2	RMC12.2k	9400	1880	21.5	21.31	0.06	0.93	1.04	0.972	6
Right Edge	WCDMA Band 4	RMC12.2k	1413	1732.6	22.5	22.38	-0.04	0.86	1.03	0.884	8
Phantom Side	WCDMA Band 5	RMC12.2k	4175	836.6	22.2	22.5	0.01	0.593	0.93	0.553	10
Right Edge	LTE Band 2	QPSK_20MHz High 1RB 0ofset	19100	1900	23.5	23.46	0.12	1.29	1.01	1.302	12
Phantom Side	LTE Band 4	QPSK_20MHz Low 1RB 0ofset	20050	1720	23.5	23.38	0.10	1.03	1.03	1.059	14
Bottom Edge	LTE Band 7	QPSK_20MHz High 1RB 0ofset	18900	1880	21.5	21.12	0.12	1.19	1.09	1.299	16
Ground Side	LTE Band 17	QPSK_10MHz Middle 1RB 0ofset	23790	710	23.5	23.28	0.17	0.284	1.05	0.299	18
Ground Side	CDMA BC0	1XEVDO	384	836.52	22	21.74	0.07	0.41	1.06	0.435	20
Ground Side	CDMA BC1	1XEVDO	600	1880	21.5	21.27	0.09	0.419	1.05	0.442	22
Right Edge	WIFI 2.4G	802.11b	1	2412	18	17.71	-0.10	0.272	1.07	0.291	24
Right Edge	WIFI 5G	802.11n	38	5190	18.5	18.09	-0.10	0.125	1.10	0.137	26

13. Evaluation of Simultaneous

The sample has four antennas. One is main antenna for GSM/WCDMA/LTE, and the other is for WiFi/BT/GPS and Diversity Antenna (CDMA) and NFC Antenna. Because the EUT not support hotspot mode ,so wifi and WWAN simultaneous transmission is not support.

Table13.1 Simultaneous transmission SAR

Standalone SAR for 2G(W/Kg)				
Test Position		GSM 850	GSM 1900	Highest SAR
Body 5mm	Phantom Side	1.265	0.958	1.265
	Ground Side	1.053	0.580	1.053
	Left Side	0.502	0.188	0.502
	Right Side	0.926	1.236	1.236
	Bottom Side	0.716	0.830	0.830
	Top Side	-	-	-
Body 0mm	Phantom Side	1.780 (Current)	1.085	1.780 (Current)
	Ground Side	0.669	0.580	0.669
	Left Side	0.358	0.113	0.358
	Right Side	1.034	1.074	1.074
	Bottom Side	0.622	0.765	0.765
	Top Side	-	-	-

Standalone SAR for 3G (W/Kg)					
Test Position		WCDMA Band II	WCDMA Band IV	WCDMA Band V	Highest SAR
Body 5mm	Phantom Side	1.080	0.687	0.709	1.080
	Ground Side	0.760	1.105	0.380	1.105
	Left Side	0.210	0.154	0.263	0.263
	Right Side	1.212	1.136	0.441	1.212
	Bottom Side	0.791	0.776	0.583	0.791
	Top Side	-	-	-	-
Body 0mm	Phantom Side	1.087	0.672	0.689	1.087

	Ground Side	0.597	0.955	0.417	0.955
	Left Side	0.111	0.141	0.184	0.184
	Right Side	1.118	1.016	0.553	1.118
	Bottom Side	0.743	0.748	0.386	0.748
	Top Side	-	-	-	-

Standalone SAR for 4G (W/Kg)						
Test Position		LTE Band 2	LTE Band 4	LTE Band 7	LTE Band 17	Highest SAR
Body 5mm	Phantom Side	1.310	1.073	0.400	0.196	1.310
	Ground Side	0.916	1.254	0.408	0.160	1.254
	Left Side	0.199	0.146	0.047	0.072	0.199
	Right Side	1.258	1.136	0.186	0.126	1.136
	Bottom Side	1.040	0.876	1.277 (Current)	0.183	1.277 (Current)
	Top Side	-	-	-	-	-
Body 0mm	Phantom Side	1.780 (Current)	1.789	0.431	0.243	1.789
	Ground Side	0.737	1.141	0.388	0.299 (Current)	1.141
	Left Side	0.189	0.187	0.050	0.052	0.189
	Right Side	1.373	1.285	0.127	0.170	1.373
	Bottom Side	0.933	0.975	1.299 (Current)	0.243	1.299 (Current)
	Top Side	-	-	-	-	-

Standalone SAR for CDMA(W/Kg)				
Test Position		BC0	BC1	Highest SAR
Body 5mm	Phantom Side	0.175	0.096	0.175
	Ground Side	1.242	1.202	1.242
	Left Side	0.182	0.313	0.313
	Right Side	0.021	0.132	0.132
	Bottom Side	--	--	--
	Top Side	0.038	0.221	0.221
Body 0mm	Phantom Side	0.224	0.080	0.224
	Ground Side	1.045	1.136	1.136
	Left Side	0.227	0.279	0.279
	Right Side	0.103	0.095	0.103
	Bottom Side	--	--	--
	Top Side	0.112	0.180	0.180

Transmission SAR(W/Kg)								
Test Position		2G	3G	4G	2.4G WIFI	CDMA	BT	SUM
Body 5mm	Phantom Side	1.265	1.080	1.310	0.063	0.175	0.167	1.477
	Ground Side	1.053	1.105	1.254	0.029	1.242	0.167	1.421
	Left Side	0.502	0.263	0.199	0.029	0.313	0.167	0.669
	Right Side	1.236	1.212	1.136	0.262	0.132	0.167	1.403
	Bottom Side	0.830	0.791	1.277	--	--	0.167	1.444
	Top Side	--	--	--	0.031	0.221	0.167	0.388
Body 0mm	Phantom Side	1.113	1.087	1.789	0.034	0.224	0.067	1.856
	Ground Side	0.669	0.955	1.141	0.021	1.136	0.067	1.208
	Left Side	0.358	0.184	0.189	0.016	0.279	0.067	0.425
	Right Side	1.074	1.118	1.373	0.293	0.103	0.067	1.44
	Bottom Side	0.765	0.748	1.299	--	--	0.067	1.366
	Top Side	--	--	--	0.023	0.180	0.067	0.247

According to the conducted power measurement result, we can draw the conclusion that: stand-alone SAR for WiFi should be performed. Then, simultaneous transmission SAR for BT is considered with measurement results of GSM/WCDMA/LTE and BT. According to the above table,

the sum of reported SAR values for GSM/WCDMA/LTE/CDMA and BT<1.6W/kg for 1g and<4.0W/kg for 10g. So the simultaneous transmission SAR is not required.

14. SAR Measurement Variability

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

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

1) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg; steps2) through 4) do not apply.

2) When the original highest measured SAR is ≥ 0.80 W/kg, repeat that measurement once.

3) Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is ≥ 1.45W/kg (~ 10% from the 1-g SAR limit).

4) Perform a third repeated measurement only if the original, first or second repeated measurement is ≥1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.

Table 14.1: SAR Measurement Variability for Body Value (1g)

Frequency		Configuration	Test Position	Original SAR (W/kg)	First Repeated SAR (W/kg)	The Ratio
MHz	Ch.					
836.6	190	GPRS 4TS	Phantom	1.13	1.06	1.066
1909.8	810	GPRS 4TS	Right	1.2	1.15	1.043
1880	9800	12.2kbps RMC	Right	1.16	1.12	1.036
1752.6	1512	12.2kbps RMC	Right	1.06	1.04	1.019
1860	18700	QPSK_20MHz_1RB_ 0 offset Low	Phantom	1.26	1.26	1.000
1720	20050	QPSK_20MHz_1RB_ 0 offset Low	Ground	1.21	1.22	1.008
2535	21100	QPSK_20MHz_1RB_ 0 offset Middle	Bottom	1.15	1.12	1.027
824.7	1013	1xEVDO	Ground	1.17	1.16	1.009
1851.25	25	1xEVDO	Ground	1.14	1.06	1.075

Note: According to the KDB 865664 D01repeated measurement is not required when the original highest measured SAR is < 0.8 W/kg.

15. Measurement Uncertainty

Measurement uncertainty for 750 MHz to 3 GHz averaged over 1 gram						
Uncertainty Component	Uncertainty	Prob.	Div.	$c_{i\ (1g)}$	Std. Unc. (1-g)	v_i or Veff
Measurement System						
Probe Calibration (*k*=1)	5.4	Normal	2	1	5.40	∞
Probe Isotropy	4.70	Rectangular	√3	0.7	1.90	∞
Modulation Response	2.40	Rectangular	√3	1	1.39	∞
Hemispherical Isotropy	2.60	Rectangular	√3	0.7	1.05	∞
Boundary Effect	1.00	Rectangular	√3	1	0.58	∞
Linearity	4.70	Rectangular	√3	1	2.71	∞
System Detection Limit	1.00	Rectangular	√3	1	0.58	∞
Readout Electronics	0.30	Normal	1	1	0.30	∞
Response Time	0.80	Rectangular	√3	1	0.46	∞
Integration Time	2.60	Rectangular	√3	1	1.50	∞
RF Ambient Noise	0.00	Rectangular	√3	1	0.00	∞
RF Ambient Reflections	0.00	Rectangular	√3	1	0.00	∞
Probe Positioner	0.40	Rectangular	√3	1	0.23	∞
Probe Positioning	2.90	Rectangular	√3	1	1.67	∞
Post-processing	1.00	Rectangular	√3	1	0.58	∞
Test sample Related						
Test sample Positioning	1.2	Normal	1	1	1.2	5
Device Holder Uncertainty	3.2	Normal	1	1	3.2	71
Power drift	5	Rectangular	√3	1	2.89	∞
Power Scaling	0	Rectangular	√3	1	0.00	∞
Phantom and Tissue Parameters						
Phantom Uncertainty	4	Rectangular	√3	1	2.31	∞
SAR correction	1.9	Rectangular	√3	1	1.10	∞
Liquid Conductivity (meas)	4.19	Rectangular	1	0.78	3.27	∞
Liquid Permittivity (meas)	4.4	Rectangular	1	0.26	1.14	∞
Temp. unc. - Conductivity	0.18	Rectangular	√3	0.78	0.08	∞
Temp. unc. - Permittivity	0.54	Rectangular	√3	0.23	0.07	∞
Combined Std. Uncertainty		RSS			9.39	
Expanded STD Uncertainty		*k*=2			18.77%	

System check uncertainty for 750 MHz to 3 GHz averaged over 1 gram						
Uncertainty Component	Uncertainty	Prob.	Div.	$c_{i\ (1g)}$	Std. Unc. (1-g)	v_i or Veff
Measurement System						
Probe Calibration (*k*=1)	5.40	Normal	1	1	5.40	∞
Probe Isotropy	4.70	Rectangular	√3	0.7	1.90	∞
Modulation Response	2.40	Rectangular	√3	1	1.39	∞
Hemispherical Isotropy	2.60	Rectangular	√3	0.7	1.05	∞
Boundary Effect	1.00	Rectangular	√3	1	0.58	∞
Linearity	4.70	Rectangular	√3	1	2.71	∞
System Detection Limit	1.00	Rectangular	√3	1	0.58	∞
Readout Electronics	0.30	Normal	1	1	0.30	∞
Response Time	0.80	Rectangular	√3	1	0.46	∞
Integration Time	2.60	Rectangular	√3	1	1.50	∞
RF Ambient Noise	0.00	Rectangular	√3	1	0.00	∞
RF Ambient Reflections	0.00	Rectangular	√3	1	0.00	∞
Probe Positioner	0.40	Rectangular	√3	1	0.23	∞
Probe Positioning	2.90	Rectangular	√3	1	1.67	∞
Post-processing	1.00	Rectangular	√3	1	0.58	∞
Field source						
Deviation of the experimental source from numerical source	5.5	Normal	1	1	5.5	∞
Source to liquid distance	2	Rectangular	√3	1	1.15	∞
Power drift	5	Rectangular	√3	1	2.89	∞
Phantom and Tissue Parameters						
Phantom Uncertainty	4	Rectangular	√3	1	2.31	∞
SAR correction	1.9	Rectangular	√3	1	1.10	∞
Liquid Conductivity (meas)	4.19	Normal	1	0.78	3.27	∞
Liquid Permittivity (meas)	4.4	Normal	1	0.26	1.14	∞
Temp. unc. - Conductivity	0.18	Rectangular	√3	0.78	0.08	∞
Temp. unc. - Permittivity	0.54	Rectangular	√3	0.23	0.07	∞
Combined Std. Uncertainty		RSS			10.39	
Expanded STD Uncertainty		*k*=2			20.79%	

16. Main Test Instrument

Table 17.1: List of Main Instruments

Item	Instrument Name	Type	Serial Number	Manufacturer	Cal. Date	Cal. interval
1	Network analyzer	N5242A	MY51221755	Agilent	2018-12-17	1 year
2	Power meter	NRVD	102257	RS	2019-5-10	1 year
3	Power sensor	NRV-Z5	100241			
			100644			
4	Signal Generator	E4438C	MY49072044	Agilent	2019-5-10	1 Year
5	Amplifier	NTWPA-0086010F	12023024	rflight	No Calibration Requested	
6	Coupler	778D	MY4825551	Agilent	2019-5-10	1 year
7	BTS	E5515C	MY50266468	Agilent	2018-12-17	1 year
		MT8820C	6201240338	Anritsu	2018-12-17	1 year
8	E-field Probe	ES3DV3	3252	SPEAG	2018-9-4	1 year
		EX3DV4	7401	SPEAG	2019-1-5	1 year
9	DAE	SPEAG DAE4	1244	SPEAG	2018-12-13	1 year
10	Dipole Validation Kit	SPEAG D750V3	1144	SPEAG	2018-10-26	3 year
		SPEAG D835V2	4d112	SPEAG	2018-10-25	3 year
		SPEAG D1750V2	1044	SPEAG	2018-10-31	3 year
		SPEAG D1900V2	5d151	SPEAG	2017-12-6	3 year
		SPEAG D2450V2	858	SPEAG	2018-10-26	3 year
		SPEAG D2600V2	1031	SPEAG	2018-11-1	3 year
		SPEAG D5GHzV2	1172	SPEAG	2018-3-30	3 year

ANNEX A. GRAPH RESULTS

Fig.1 GPRS 850 4TS Phantom Mode Middle

Date/Time: 2019/6/28
Electronics: DAE4 Sn1244
Medium parameters used: f = 837 MHz; σ = 1.001 S/m; ε_r = 56.715; ρ = 1000 kg/m^3
Ambient Temperature:22.5°C Liquid Temperature:22.5°C
Communication System: GSM 900MHz GPRS 4TS (0); Frequency: 836.6 MHz; Duty Cycle: 1:2
Probe: ES3DV3 - SN3252ConvF(6.34, 6.34, 6.34); Calibrated: 9/4/2018
GPRS 850 4TS Phantom Mode Middle/Area Scan (61x121x1):
Measurement grid: dx=10 mm, dy=10 mm
Maximum value of SAR (Measurement) = 0.699 W/kg
GPRS 850 4TS Phantom Mode Middle/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.16 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 0.966 W/kg
SAR(1 g) = 0.674 W/kg; SAR(10 g) = 0.460 W/kg
Maximum value of SAR (measured) = 0.720 W/kg

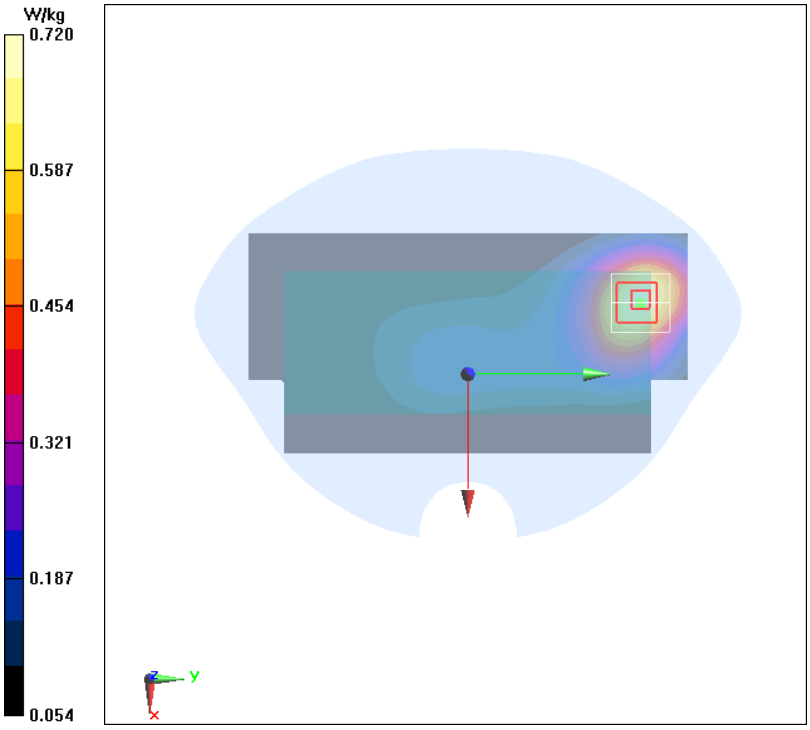


Fig.2 GPRS 850 4TS Phantom Mode Middle

Date/Time: 2019/6/28
Electronics: DAE4 Sn1244
Medium parameters used: f = 837 MHz; σ = 1.001 S/m; ε_r = 56.715; ρ = 1000 kg/m^3
Ambient Temperature:22.5°C Liquid Temperature:22.5°C
Communication System: GSM 900MHz GPRS 4TS (0); Frequency: 836.6 MHz; Duty Cycle: 1:2
Probe: ES3DV3 - SN3252ConvF(6.34, 6.34, 6.34); Calibrated: 9/4/2018
GPRS 850 4TS Phantom Mode Middle/Area Scan (61x121x1):
Measurement grid: dx=10 mm, dy=10 mm
Maximum value of SAR (Measurement) = 2.87 W/kg
GPRS 850 4TS Phantom Mode Middle/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.264 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 4.70 W/kg
SAR(1 g) = 2.72 W/kg; SAR(10 g) = 1.59 W/kg
Maximum value of SAR (measured) = 2.93 W/kg

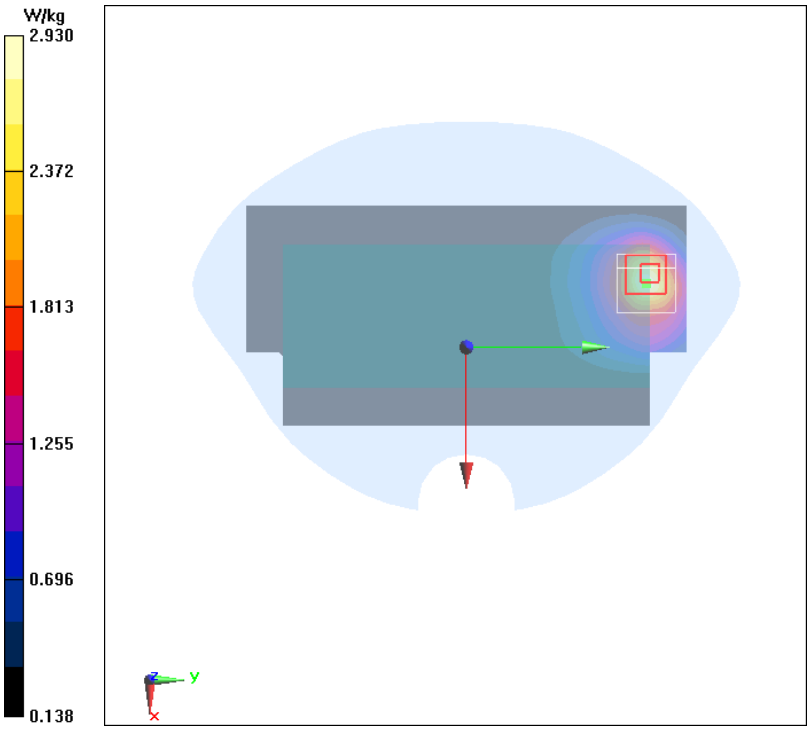


Fig.3 GPRS 1900 4TS Right Mode High

Date/Time: 2019/7/5
Electronics: DAE4 Sn1244
Medium parameters used: f = 1910 MHz; σ = 1.495 S/m; ε_r = 52.237; ρ = 1000 kg/m^3
Ambient Temperature:22.5°C Liquid Temperature:22.5°C
Communication System: GSM 1900MHz GPRS 4TS (0); Frequency: 1909.8 MHz; Duty Cycle: 1:2
Probe: ES3DV3 - SN3252ConvF(4.77, 4.77, 4.77); Calibrated: 9/4/2018
GPRS 1900 4TS Right Mode High/Area Scan (41x121x1):
Measurement grid: dx=10 mm, dy=10 mm
Maximum value of SAR (Measurement) = 1.09 W/kg
GPRS 1900 4TS Right Mode High/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 23.09 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 1.71 W/kg
SAR(1 g) = 1.02 W/kg; SAR(10 g) = 0.586 W/kg
Maximum value of SAR (measured) = 1.12 W/kg

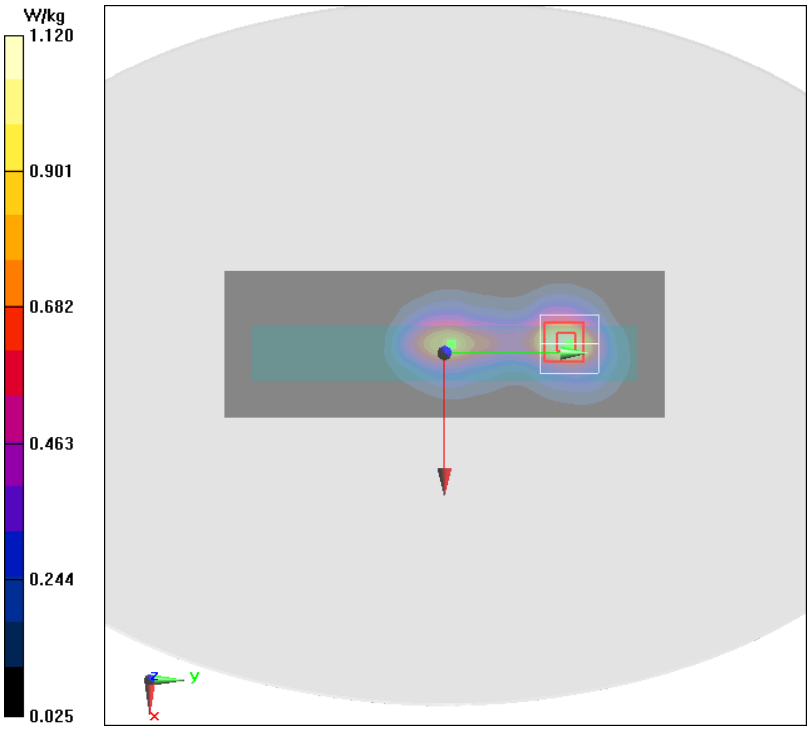


Fig.4 GPRS 1900 4TS Phantom Mode Middle

Date/Time: 2019/7/5
Electronics: DAE4 Sn1244
Medium parameters used (extrapolated): f = 1880 MHz; σ = 1.464 S/m; ε_r = 52.35; ρ = 1000 kg/m^3
Ambient Temperature:22.5°C Liquid Temperature:22.5°C
Communication System: GSM 1900MHz GPRS 4TS (0); Frequency: 1880 MHz; Duty Cycle: 1:2
Probe: ES3DV3 - SN3252ConvF(4.77, 4.77, 4.77); Calibrated: 9/4/2018
GPRS 1900 4TS Phantom Mode Middle/Area Scan (61x121x1):
Measurement grid: dx=10 mm, dy=10 mm
Maximum value of SAR (Measurement) = 1.90 W/kg
GPRS 1900 4TS Phantom Mode Middle/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.876 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 3.24 W/kg
SAR(1 g) = 1.89 W/kg; SAR(10 g) = 1.03 W/kg
Maximum value of SAR (measured) = 2.11 W/kg

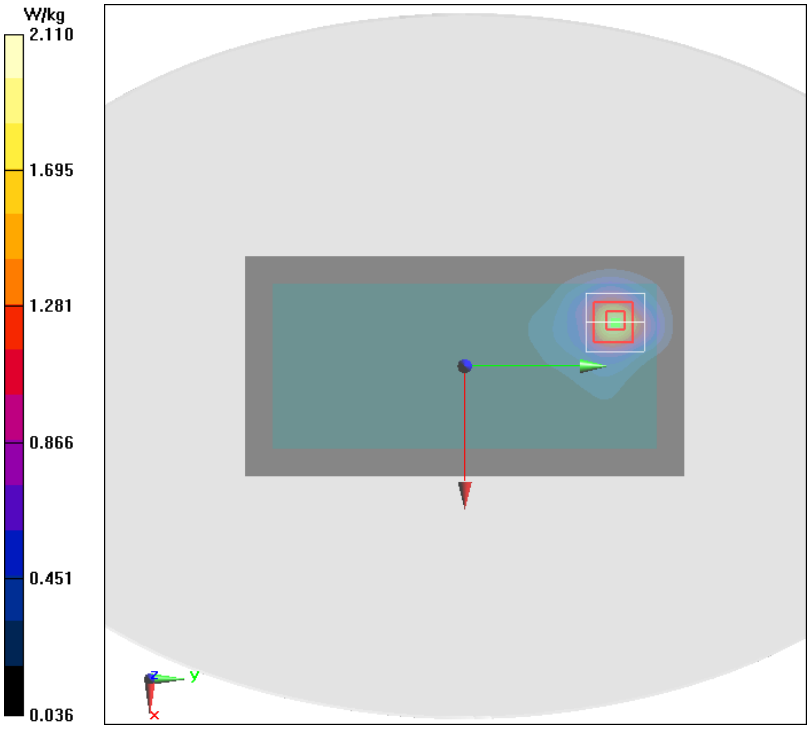


Fig.5 WCDMA B2 Right Mode High

Date/Time: 2019/7/5
Electronics: DAE4 Sn1244
Medium parameters used: f = 1908 MHz; σ = 1.493 S/m; ε_r = 52.244; ρ = 1000 kg/m^3
Ambient Temperature:22.5°C Liquid Temperature:22.5°C
Communication System: WCDMA Professional Band Ⅱ; Frequency: 1907.6 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(4.77, 4.77, 4.77); Calibrated: 9/4/2018
WCDMA B2 Right Mode High/Area Scan (41x121x1):
Measurement grid: dx=10 mm, dy=10 mm
Maximum value of SAR (Measurement) = 0.971 W/kg
WCDMA B2 Right Mode High/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.495 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 1.41 W/kg
SAR(1 g) = 0.866 W/kg; SAR(10 g) = 0.502 W/kg
Maximum value of SAR (measured) = 0.949 W/kg

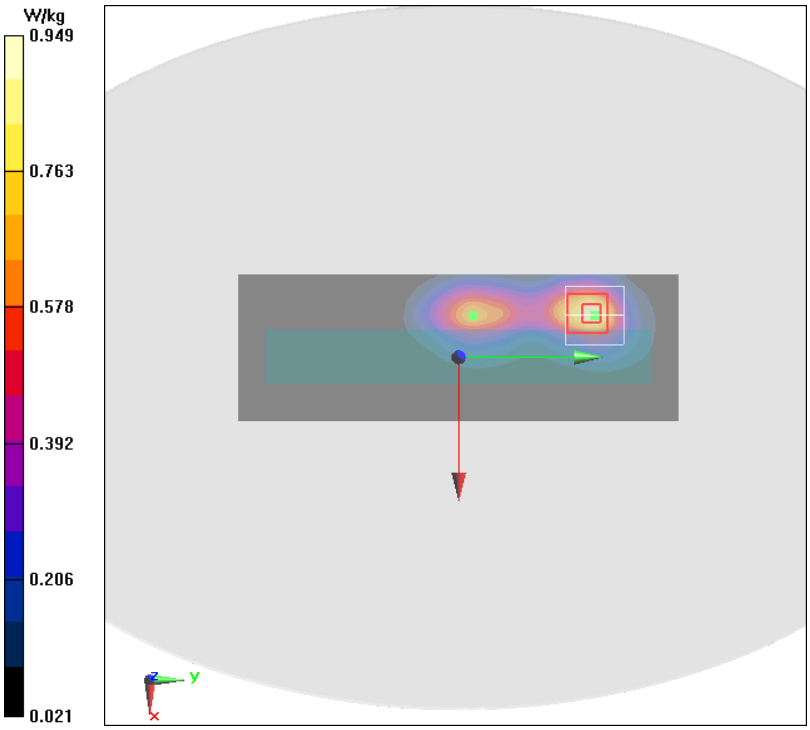


Fig.6 WCDMA B2 Right Mode Middle

Date/Time: 2019/7/5
Electronics: DAE4 Sn1244
Medium parameters used (extrapolated): f = 1880 MHz; σ = 1.464 S/m; ε_r = 52.35; ρ = 1000 kg/m^3
Ambient Temperature:22.5°C Liquid Temperature:22.5°C
Communication System: WCDMA Professional Band Ⅱ; Frequency: 1880 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(4.77, 4.77, 4.77); Calibrated: 9/4/2018
WCDMA B2 Right Mode Middle/Area Scan (41x121x1):
Measurement grid: dx=10 mm, dy=10 mm
Maximum value of SAR (Measurement) = 1.86 W/kg
WCDMA B2 Right Mode Middle/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 24.32 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 2.88 W/kg
SAR(1 g) = 1.69 W/kg; SAR(10 g) = 0.930 W/kg
Maximum value of SAR (measured) = 1.87 W/kg

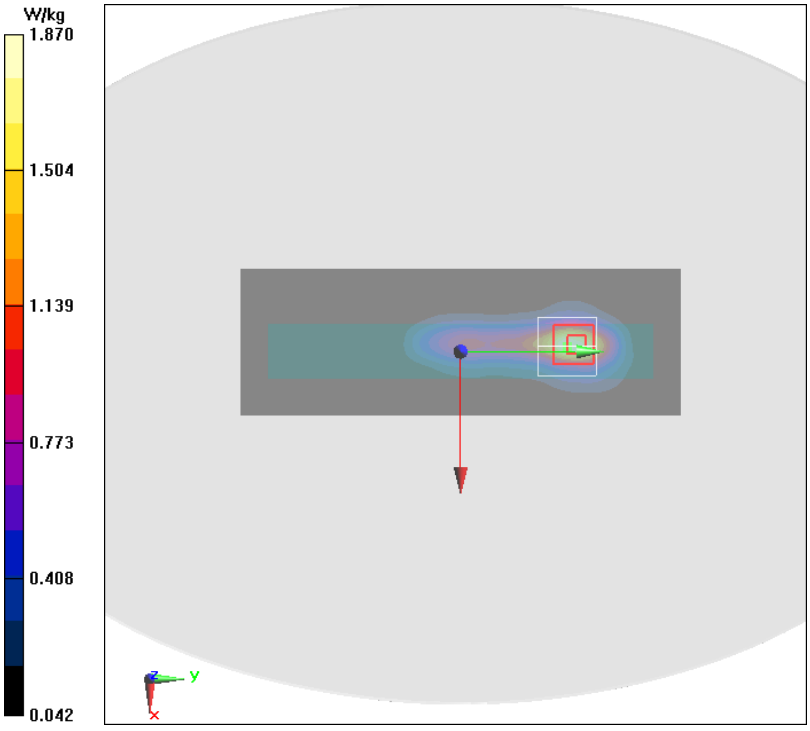


Fig.7 WCDMA B4 Right Mode High

Date/Time: 2019/7/5
Electronics: DAE4 Sn1244
Medium parameters used: f = 1753 MHz; σ = 1.43 S/m; ε_r = 55.382; ρ = 1000 kg/m^3
Ambient Temperature:22.5°C Liquid Temperature:22.5°C
Communication System: WCDMA Professional 1800MHz; Frequency: 1752.6 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(4.99, 4.99, 4.99); Calibrated: 9/4/2018
WCDMA B4 Right Mode High/Area Scan (41x121x1):
Measurement grid: dx=10 mm, dy=10 mm
Maximum value of SAR (Measurement) = 0.855 W/kg
WCDMA B4 Right Mode High/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 16.11 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 1.21 W/kg
SAR(1 g) = 0.794 W/kg; SAR(10 g) = 0.499 W/kg
Maximum value of SAR (measured) = 0.864 W/kg

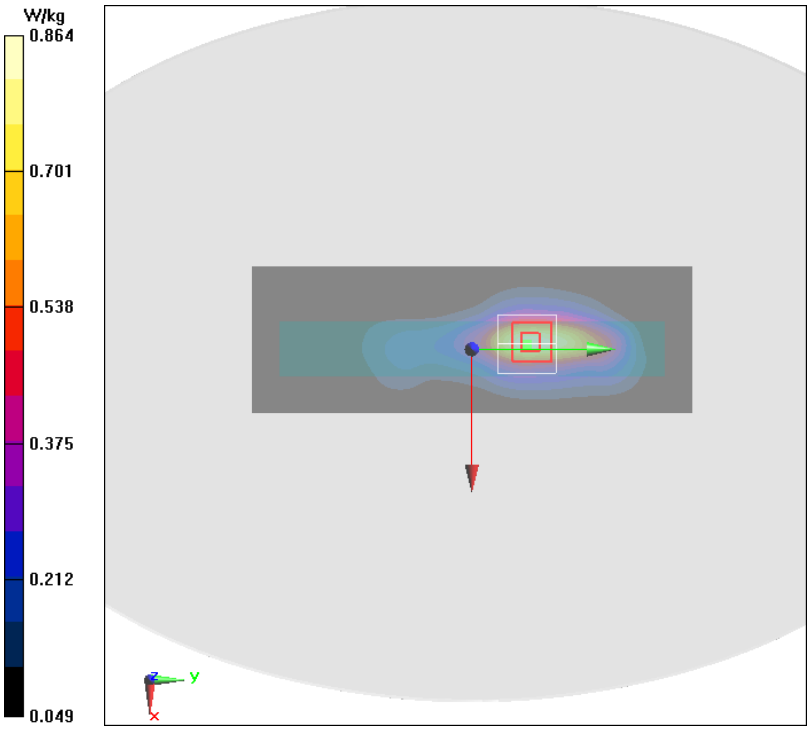


Fig.8 WCDMA B4 Right Mode Middle

Date/Time: 2019/7/5
Electronics: DAE4 Sn1244
Medium parameters used: f = 1733 MHz; σ = 1.408 S/m; ε_r = 55.442; ρ = 1000 kg/m^3
Ambient Temperature:22.5°C Liquid Temperature:22.5°C
Communication System: WCDMA Professional 1800MHz; Frequency: 1732.6 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(4.99, 4.99, 4.99); Calibrated: 9/4/2018
WCDMA B4 Right Mode Middle/Area Scan (41x121x1):
Measurement grid: dx=10 mm, dy=10 mm
Maximum value of SAR (Measurement) = 1.72 W/kg
WCDMA B4 Right Mode Middle/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 20.39 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 2.49 W/kg
SAR(1 g) = 1.49 W/kg; SAR(10 g) = 0.860 W/kg
Maximum of SAR (measured) = 1.66 W/kg

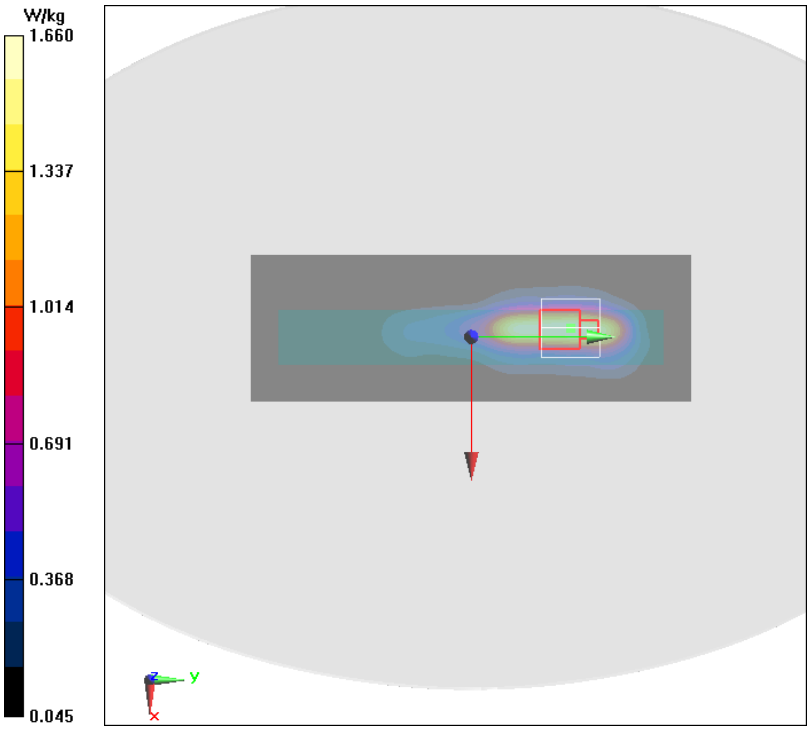


Fig.9 WCDMA B5 4TS Phantom Mode Middle

Date/Time: 2019/6/28
Electronics: DAE4 Sn1244
Medium parameters used: f = 837 MHz; σ = 1.001 S/m; ε_r = 56.715; ρ = 1000 kg/m^3
Ambient Temperature:22.5°C Liquid Temperature:22.5°C
Communication System: WCDMA Professional Band Ⅷ; Frequency: 836.6 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(6.34, 6.34, 6.34); Calibrated: 9/4/2018
WCDMA B5 4TS Phantom Mode Middle/Area Scan (61x121x1):
Measurement grid: dx=10 mm, dy=10 mm
Maximum value of SAR (Measurement) = 0.255 W/kg
WCDMA B5 4TS Phantom Mode Middle/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.309 V/m; Power Drift = -0.18 dB
Peak SAR (extrapolated) = 0.332 W/kg
SAR(1 g) = 0.237 W/kg; SAR(10 g) = 0.162 W/kg
Maximum value of SAR (measured) = 0.253 W/kg

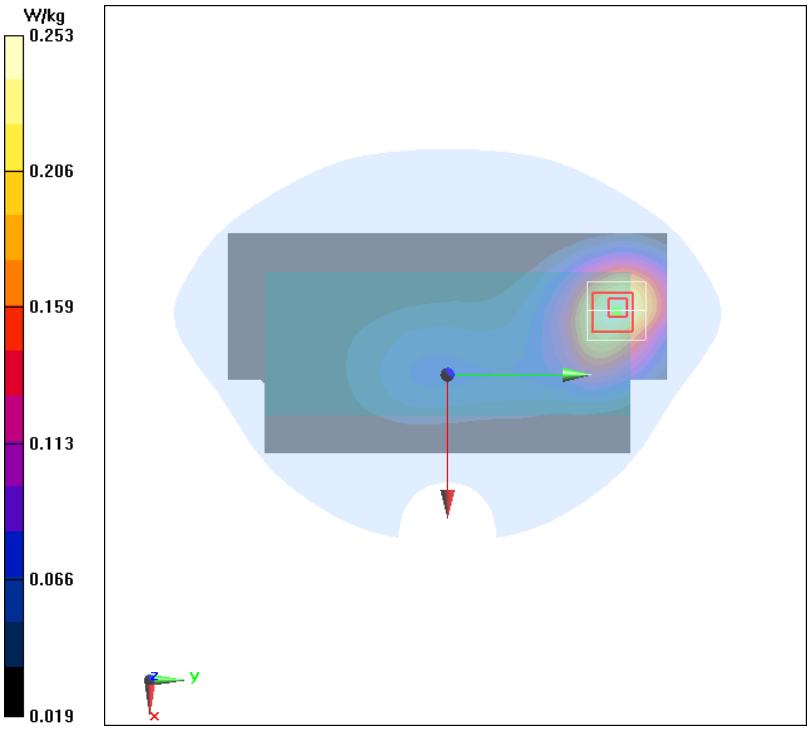


Fig.10 WCDMA B5 Phantom Mode Middle

Date/Time: 2019/6/28
Electronics: DAE4 Sn1244
Medium parameters used: f = 837 MHz; σ = 1.001 S/m; ε_r = 56.715; ρ = 1000 kg/m^3
Ambient Temperature:22.5°C Liquid Temperature:22.5°C
Communication System: WCDMA Professional Band Ⅷ; Frequency: 836.6 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(6.34, 6.34, 6.34); Calibrated: 9/4/2018
WCDMA B5 Phantom Mode Middle/Area Scan (61x121x1):
Measurement grid: dx=10 mm, dy=10 mm
Maximum value of SAR (Measurement) = 1.10 W/kg
WCDMA B5 Phantom Mode Middle/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.743 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 1.77 W/kg
SAR(1 g) = 1.01 W/kg; SAR(10 g) = 0.593 W/kg
Maximum value of SAR (measured) = 1.10 W/kg

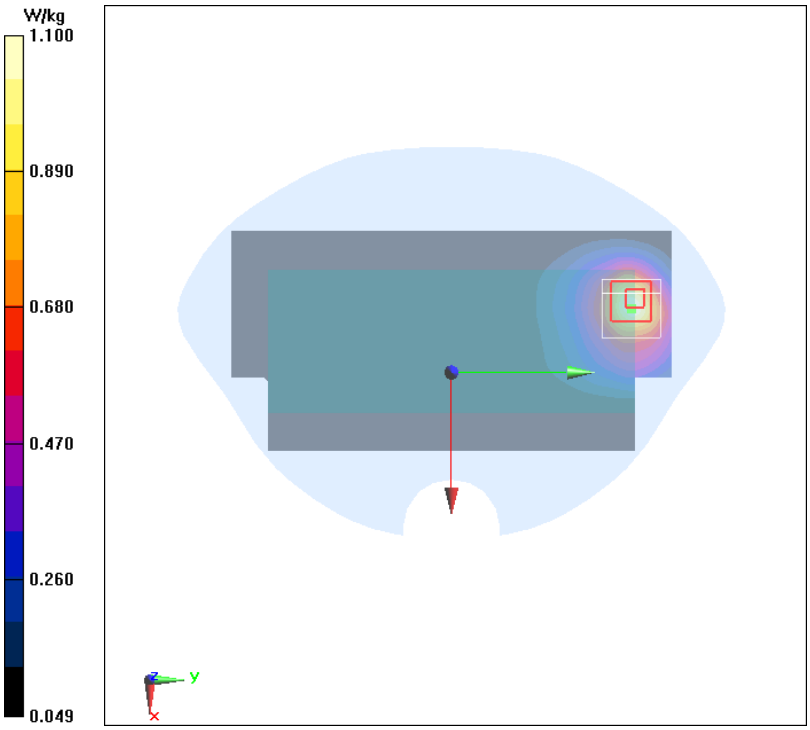


Fig.11 LTE2 20MHz 1RB 0 Offset Phantom Mode Low

Date/Time: 2019/7/5
Electronics: DAE4 Sn1244
Medium parameters used (extrapolated): f = 1860 MHz; σ = 1.444 S/m; ε_r = 52.426; ρ = 1000 kg/m^3
Ambient Temperature:22.5°C Liquid Temperature:22.5°C
Communication System: LTE Band 2 Professional 1900MHz; Frequency: 1860 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(4.77, 4.77, 4.77); Calibrated: 9/4/2018
LTE2 20MHz 1RB 0 Offset Phantom Mode Low/Area Scan (71x111x1):
Measurement grid: dx=10 mm, dy=10 mm
Maximum value of SAR (Measurement) = 0.585 W/kg
LTE2 20MHz 1RB 0 Offset Phantom Mode Low/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.44 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 0.827 W/kg
SAR(1 g) = 0.566 W/kg; SAR(10 g) = 0.391 W/kg
Maximum value of SAR (measured) = 0.604 W/kg

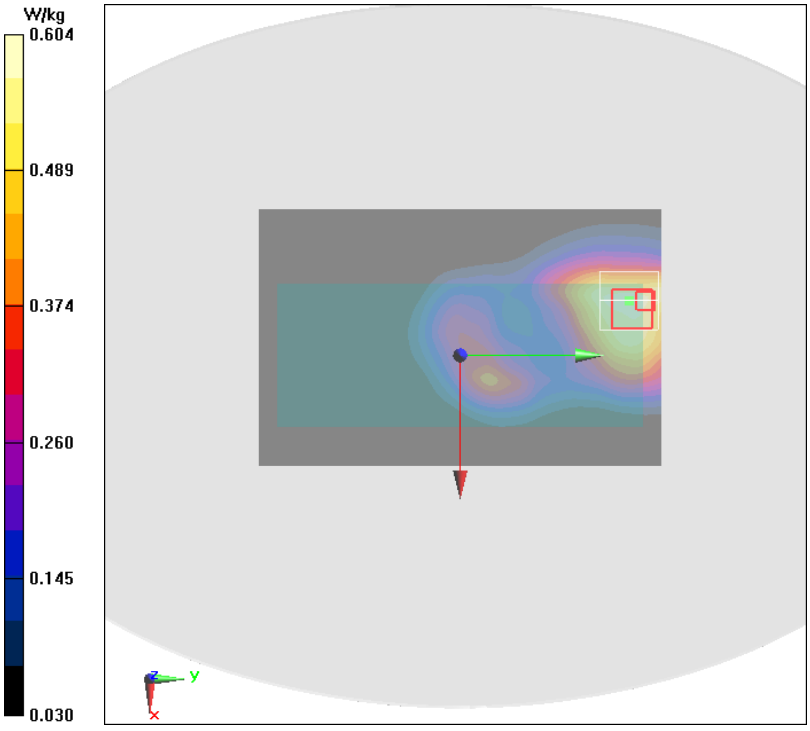


Fig.12 LTE 2 20MHz 1RB 0 Offset Right Mode High

Date/Time: 2019/7/5
Electronics: DAE4 Sn1244
Medium parameters used: f = 1900 MHz; σ = 1.485 S/m; ε_r = 52.274; ρ = 1000 kg/m^3
Ambient Temperature:22.5°C Liquid Temperature:22.5°C
Communication System: LTE Band 2 Professional 1900MHz; Frequency: 1900 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(4.77, 4.77, 4.77); Calibrated: 9/4/2018
LTE 2 20MHz 1RB 0 Offset Right Mode High/Area Scan (61x121x1):
Measurement grid: dx=10 mm, dy=10 mm
Maximum value of SAR (Measurement) = 2.43 W/kg
LTE 2 20MHz 1RB 0 Offset Right Mode High/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 24.37 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 4.12 W/kg
SAR(1 g) = 2.39 W/kg; SAR(10 g) = 1.29 W/kg
Maximum value of SAR (measured) = 2.66 W/kg

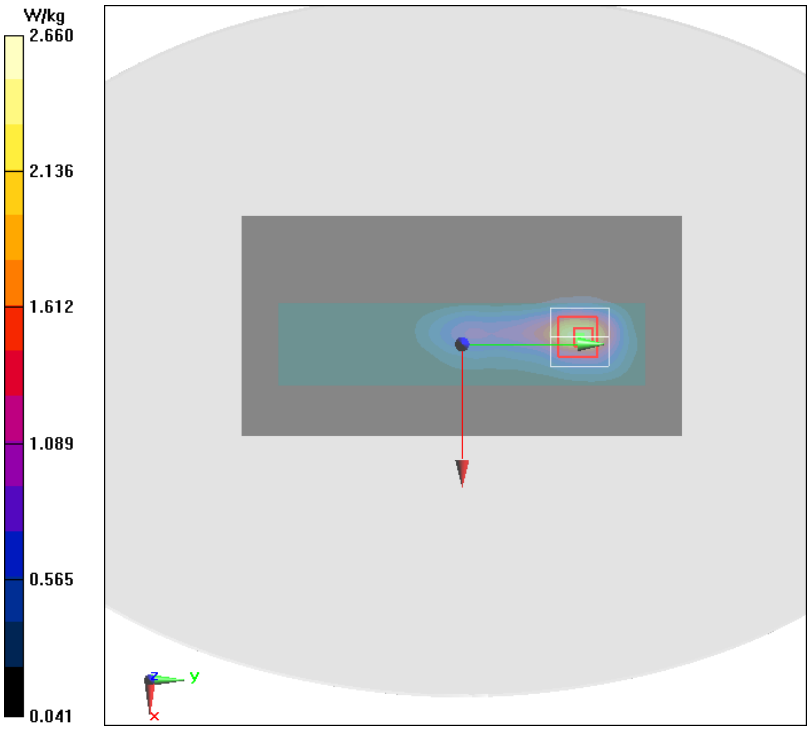


Fig.13 LTE 4 20MHz 1RB 0 Offset Ground Mode Low

Date/Time: 2019/7/5
Electronics: DAE4 Sn1244
Medium parameters used: f = 1720 MHz; σ = 1.394 S/m; ε_r = 55.481; ρ = 1000 kg/m^3
Ambient Temperature:22.5°C Liquid Temperature:22.5°C
Communication System: LTE Band 4 Professional 1800MHz; Frequency: 1720 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(4.99, 4.99, 4.99); Calibrated: 9/4/2018
LTE 4 20MHz 1RB 0 Offset Ground Mode Low/Area Scan (71x111x1):
Measurement grid: dx=10 mm, dy=10 mm
Maximum value of SAR (Measurement) = 0.640 W/kg
LTE 4 20MHz 1RB 0 Offset Ground Mode Low/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.962 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 1.03 W/kg
SAR(1 g) = 0.635 W/kg; SAR(10 g) = 0.375 W/kg
Maximum value of SAR (measured) = 0.661 W/kg

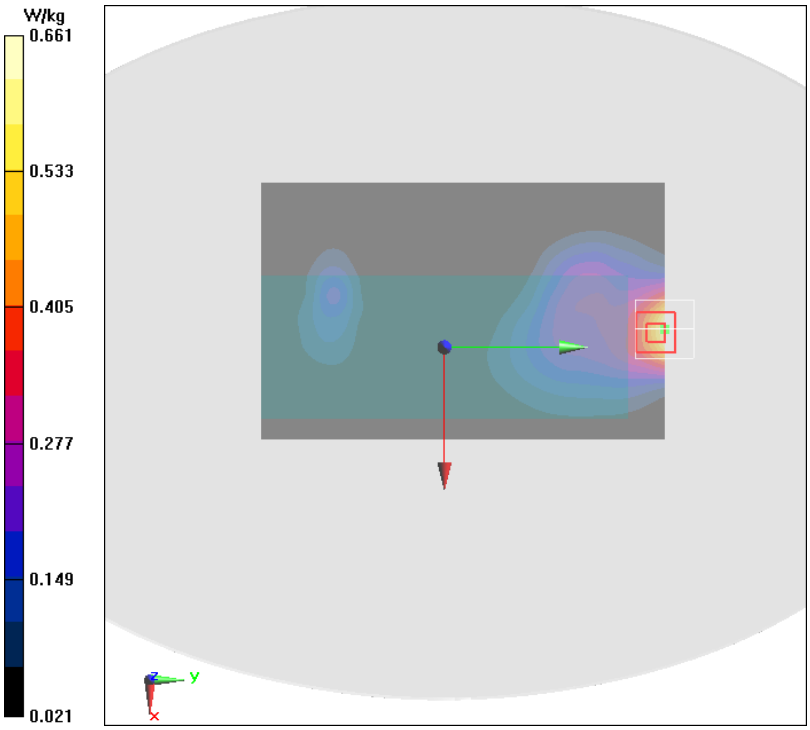


Fig.14 LTE 4 20MHz 1RB 0 Offset Phantom Mode Low

Date/Time: 2019/7/5
Electronics: DAE4 Sn1244
Medium parameters used: f = 1720 MHz; σ = 1.394 S/m; ε_r = 55.481; ρ = 1000 kg/m^3
Ambient Temperature:22.5°C Liquid Temperature:22.5°C
Communication System: LTE Band 4 Professional 1800MHz; Frequency: 1720 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(4.99, 4.99, 4.99); Calibrated: 9/4/2018
LTE 4 20MHz 1RB 0 Offset Phantom Mode Low/Area Scan (71x111x1):
Measurement grid: dx=10 mm, dy=10 mm
Maximum value of SAR (Measurement) = 1.83 W/kg
LTE 4 20MHz 1RB 0 Offset Phantom Mode Low/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.944 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 2.86 W/kg
SAR(1 g) = 1.76 W/kg; SAR(10 g) = 1.03 W/kg
Maximum value of SAR (measured) = 1.91 W/kg

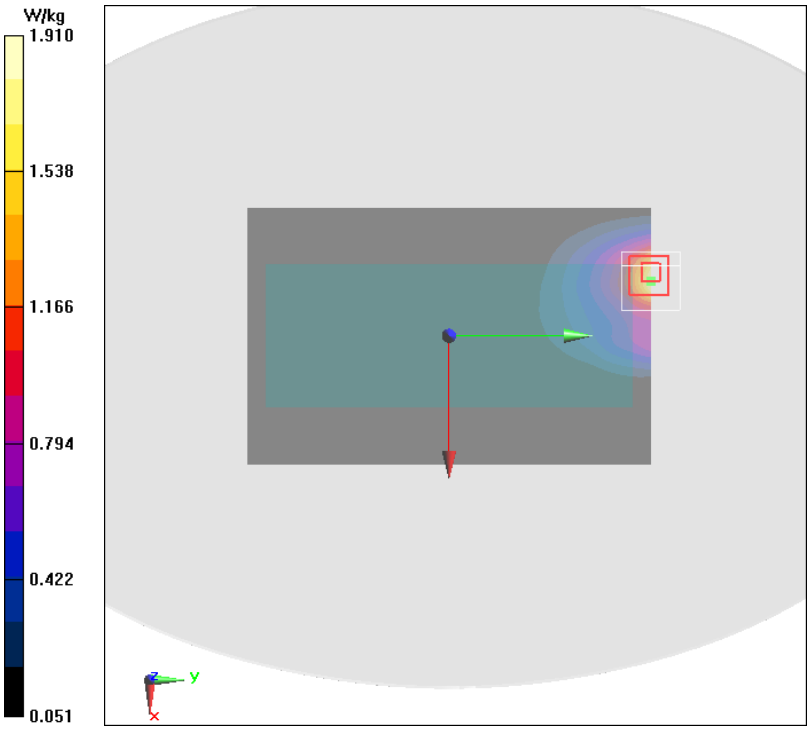


Fig.15 LTE B7 20MHz 1RB 0 offset Bottom Mode High 5mm N05

Date/Time: 2019/7/20
Electronics: DAE4 Sn1244
Medium parameters used: f = 2560 MHz; σ = 2.061 S/m; ε_r = 54.476; ρ = 1000 kg/m^3
Ambient Temperature:22.5°C Liquid Temperature:22.5°C
Communication System: LTE Band 7 Professional 2450MHz; Frequency: 2560 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(4.19, 4.19, 4.19); Calibrated: 9/4/2018
LTE B7 20MHz 1RB 0 offset Bottom Mode High 5mm N05/Area Scan (51x81x1):
Measurement grid: dx=10 mm, dy=10 mm
Maximum value of SAR (Measurement) = 1.33 W/kg
LTE B7 20MHz 1RB 0 offset Bottom Mode High 5mm N05/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 24.57 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 2.42 W/kg
SAR(1 g) = 1.17 W/kg; SAR(10 g) = 0.542 W/kg
Maximum value of SAR (measured) = 1.32 W/kg

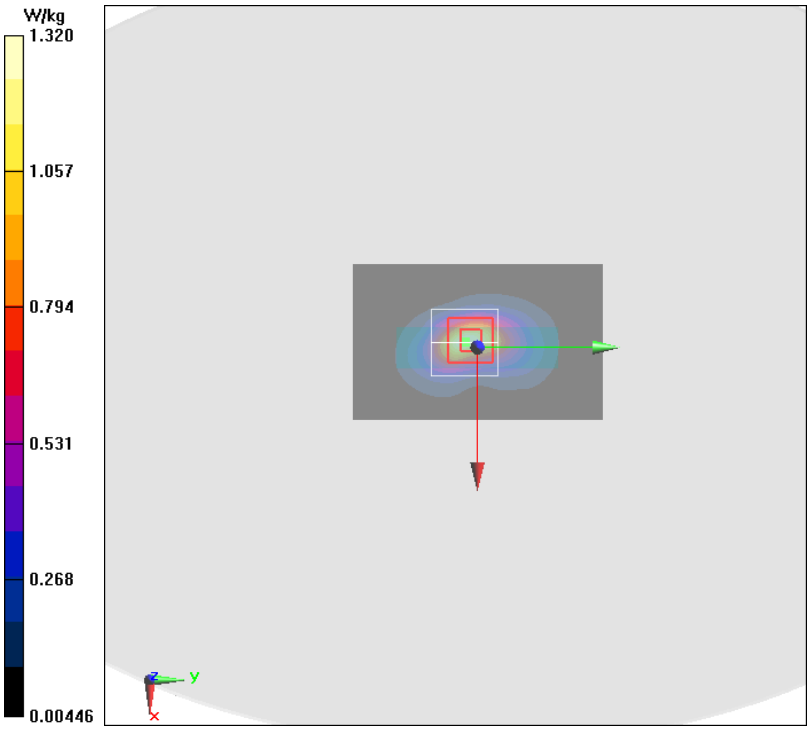


Fig.16 LTE B7 20MHz 1RB 0 offset Bottom Mode High

Date/Time: 2019/7/20
Electronics: DAE4 Sn1244
Medium parameters used: f = 2560 MHz; σ = 2.061 S/m; ε_r = 54.476; ρ = 1000 kg/m^3
Ambient Temperature:22.5°C Liquid Temperature:22.5°C
Communication System: LTE Band 7 Professional 2600MHz; Frequency: 2560 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(4.19, 4.19, 4.19); Calibrated: 9/4/2018
LTE B7 20MHz 1RB 0 offset Bottom Mode High/Area Scan (41x61x1):
Measurement grid: dx=10 mm, dy=10 mm
Maximum value of SAR (Measurement) = 1.91 W/kg
LTE B7 20MHz 1RB 0 offset Bottom Mode High/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.961 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 6.64 W/kg
SAR(1 g) = 2.9 W/kg; SAR(10 g) = 1.19 W/kg
Maximum value of SAR (measured) = 3.20 W/kg

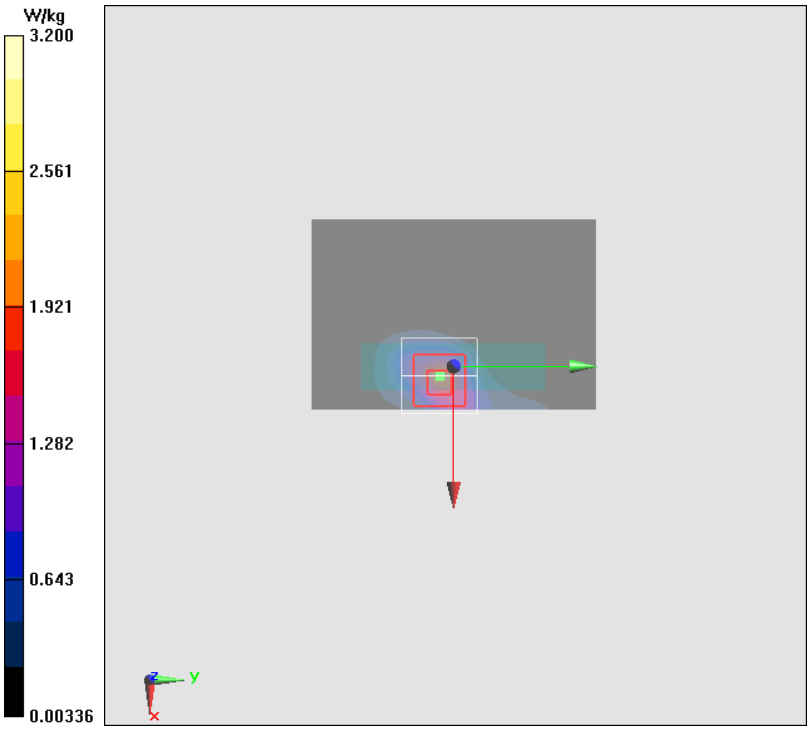


Fig.17 LTE B17 10M 1RB25offset Phantom Mode Middle

Date/Time: 2019/6/28
Electronics: DAE4 Sn1244
Medium parameters used: f = 710 MHz; σ = 0.877 S/m; ε_r = 58.181; ρ = 1000 kg/m^3
Ambient Temperature:22.5°C Liquid Temperature:22.5°C
Communication System: LTE Band 17 Professional 900MHz; Frequency: 710 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(6.53, 6.53, 6.53); Calibrated: 9/4/2018
LTE B17 10M 1RB25offset Phantom Mode Middle/Area Scan (61x121x1):
Measurement grid: dx=10 mm, dy=10 mm
Maximum value of SAR (Measurement) = 0.149 W/kg
LTE B17 10M 1RB25offset Phantom Mode Middle/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.385 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 0.195 W/kg
SAR(1 g) = 0.142 W/kg; SAR(10 g) = 0.099 W/kg
Maximum value of SAR (measured) = 0.151 W/kg

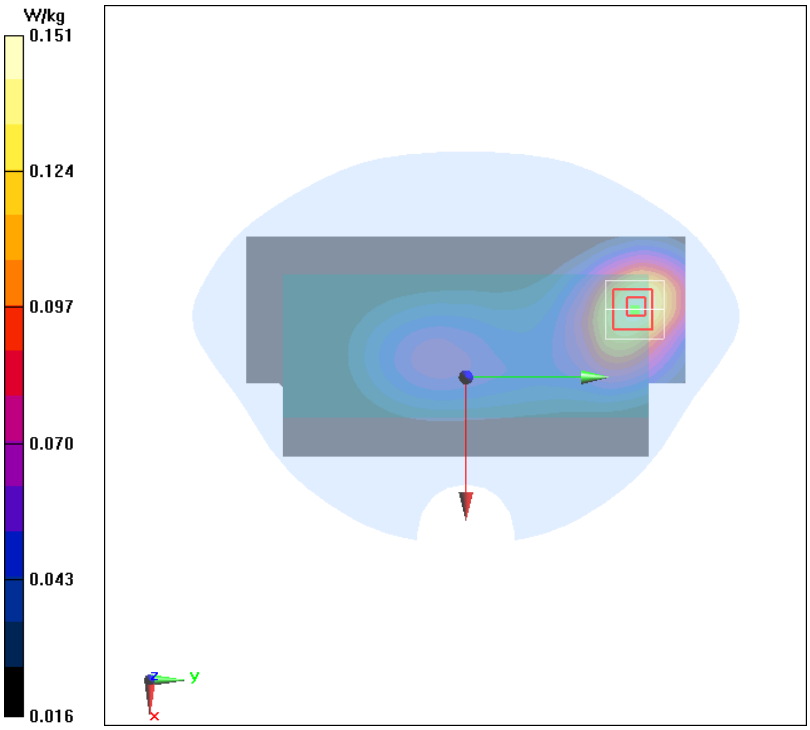


Fig.18 LTE B17 10M 1RB25offset Ground Mode Middle

Date/Time: 2019/6/28
Electronics: DAE4 Sn1244
Medium parameters used: f = 710 MHz; σ = 0.877 S/m; ε_r = 58.181; ρ = 1000 kg/m^3
Ambient Temperature:22.5°C Liquid Temperature:22.5°C
Communication System: LTE Band 17 Professional 900MHz; Frequency: 710 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(6.53, 6.53, 6.53); Calibrated: 9/4/2018
LTE B17 10M 1RB25offset Ground Mode Middle/Area Scan (61x121x1):
Measurement grid: dx=10 mm, dy=10 mm
Maximum value of SAR (Measurement) = 0.489 W/kg
LTE B17 10M 1RB25offset Ground Mode Middle/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.00 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 0.810 W/kg
SAR(1 g) = 0.478 W/kg; SAR(10 g) = 0.284 W/kg
Maximum value of SAR (measured) = 0.534 W/kg

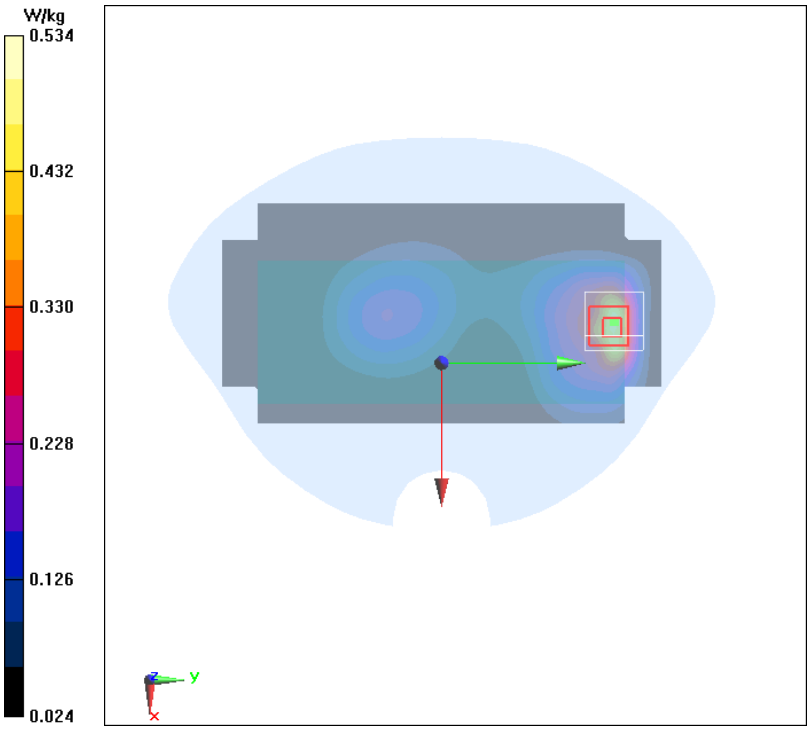


Fig.19 CDMA BC0 Ground Mode Low 5mm

Date/Time: 2019/6/28
Electronics: DAE4 Sn1244
Medium parameters used: f = 825 MHz; σ = 0.989 S/m; ε_r = 56.81; ρ = 1000 kg/m^3
Ambient Temperature:22.5°C Liquid Temperature:22.5°C
Communication System: CDMA 835MHz 835MHz; Frequency: 824.7 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(6.34, 6.34, 6.34); Calibrated: 9/4/2018
CDMA BC0 Ground Mode Low 5mm/Area Scan (71x141x1):
Measurement grid: dx=10 mm, dy=10 mm
Maximum value of SAR (Measurement) = 0.537 W/kg
CDMA BC0 Ground Mode Low 5mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.668 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 0.778 W/kg
SAR(1 g) = 0.480 W/kg; SAR(10 g) = 0.287 W/kg
Maximum value of SAR (measured) = 0.527 W/kg

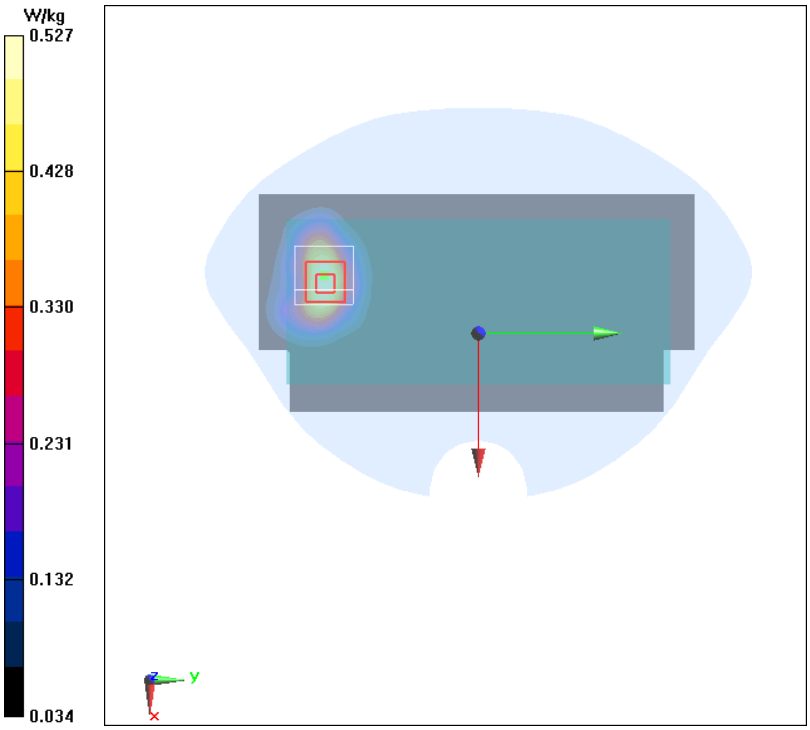


Fig.20 CDMA BC0 Ground Mode Middle 0mm

Date/Time: 2019/6/28
Electronics: DAE4 Sn1244
Medium parameters used: f = 837 MHz; σ = 1.001 S/m; ε_r = 56.687; ρ = 1000 kg/m^3
Ambient Temperature:22.5°C Liquid Temperature:22.5°C
Communication System: CDMA 835MHz 835MHz; Frequency: 836.52 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(6.34, 6.34, 6.34); Calibrated: 9/4/2018
CDMA BC0 Ground Mode Middle 0mm/Area Scan (71x141x1):
Measurement grid: dx=10 mm, dy=10 mm
Maximum value of SAR (Measurement) = 0.824 W/kg
CDMA BC0 Ground Mode Middle 0mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 0.3940 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 1.22 W/kg
SAR(1 g) = 0.709 W/kg; SAR(10 g) = 0.410 W/kg
Maximum value of SAR (measured) = 0.796 W/kg

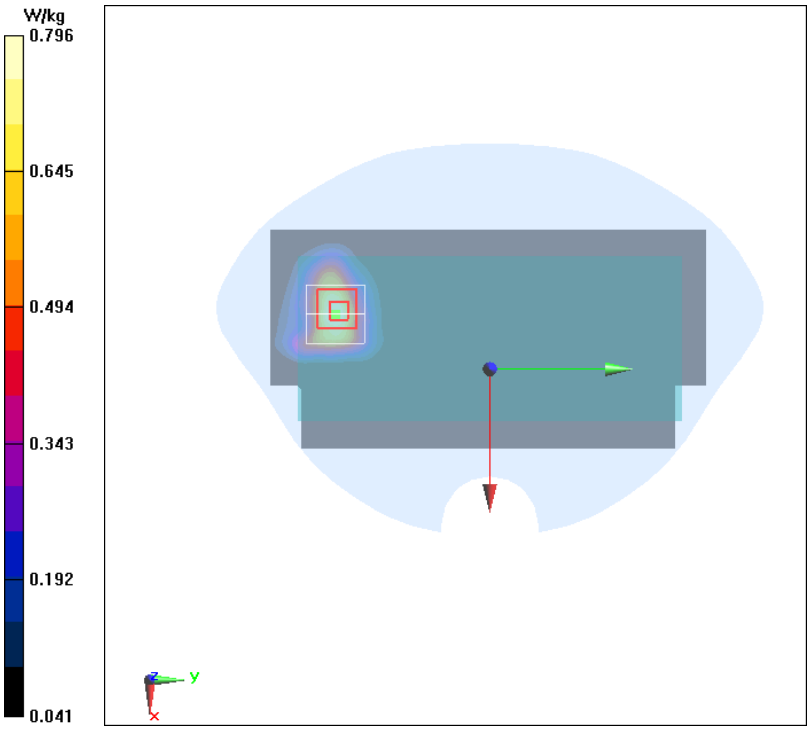


Fig.21 CDMA BC1 Ground Mode Low

Date/Time: 2019/7/5
Electronics: DAE4 Sn1244
Medium parameters used (interpolated): f = 1851.25 MHz; σ = 1.526 S/m; ε_r = 54.732; ρ = 1000 kg/m^3
Ambient Temperature:22.5°C Liquid Temperature:22.5°C
Communication System: CDMA 1900MHz 1900MHz; Frequency: 1851.25 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(4.77, 4.77, 4.77); Calibrated: 9/4/2018
CDMA BC1 Ground Mode Low/Area Scan (71x141x1):
Measurement grid: dx=10 mm, dy=10 mm
Maximum value of SAR (Measurement) = 0.643 W/kg
CDMA BC1 Ground Mode Low/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.132 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 0.905 W/kg
SAR(1 g) = 0.507 W/kg; SAR(10 g) = 0.294 W/kg
Maximum value of SAR (measured) = 0.547 W/kg

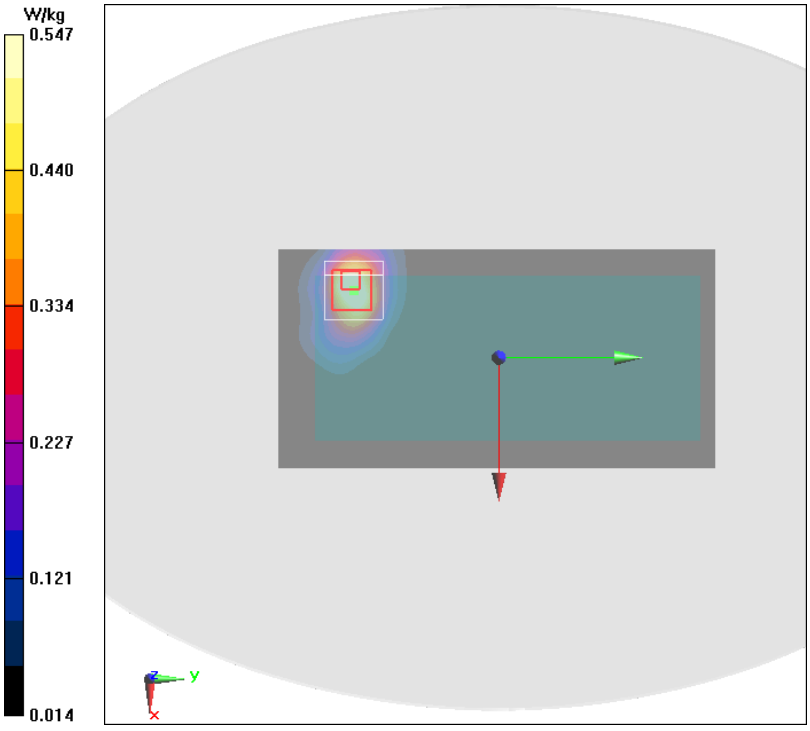


Fig.22 CDMA BC1 Ground Mode Middle

Date/Time: 2019/7/5
Electronics: DAE4 Sn1244
Medium parameters used: f = 1880 MHz; σ = 1.555 S/m; ε_r = 54.618; ρ = 1000 kg/m^3
Ambient Temperature:22.5°C Liquid Temperature:22.5°C
Communication System: CDMA 1900MHz 1900MHz; Frequency: 1880 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(4.77, 4.77, 4.77); Calibrated: 9/4/2018
CDMA BC1 Ground Mode Middle 0mm/Area Scan (71x141x1):
Measurement grid: dx=10 mm, dy=10 mm
Maximum value of SAR (Measurement) = 1.04 W/kg
CDMA BC1 Ground Mode Middle 0mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.989 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 1.47 W/kg
SAR(1 g) = 0.765 W/kg; SAR(10 g) = 0.419 W/kg
Maximum value of SAR (measured) = 0.806 W/kg

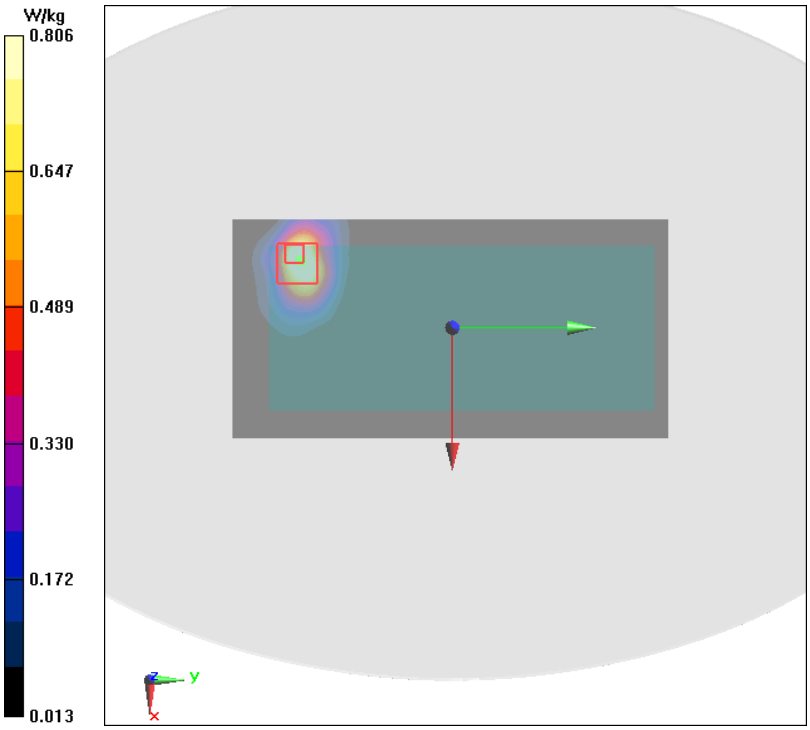


Fig.23 WiFi2450 Right Mode Low

Date/Time: 2019/7/6
Electronics: DAE4 Sn1244
Medium parameters used: f = 2412 MHz; σ = 1.879 S/m; ε_r = 54.877; ρ = 1000 kg/m^3
Ambient Temperature:22.5°C Liquid Temperature:22.5°C
Communication System: Wifi 2450 2600MHz; Frequency: 2412 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(4.41, 4.41, 4.41); Calibrated: 9/4/2018
WiFi2450 Right Mode Low/Area Scan (41x121x1):
Measurement grid: dx=10 mm, dy=10 mm
Maximum value of SAR (Measurement) = 0.373 W/kg
WiFi2450 Right Mode Low/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.708 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.888 W/kg
SAR(1 g) = 0.407 W/kg; SAR(10 g) = 0.183 W/kg
Maximum value of SAR (measured) = 0.421 W/kg

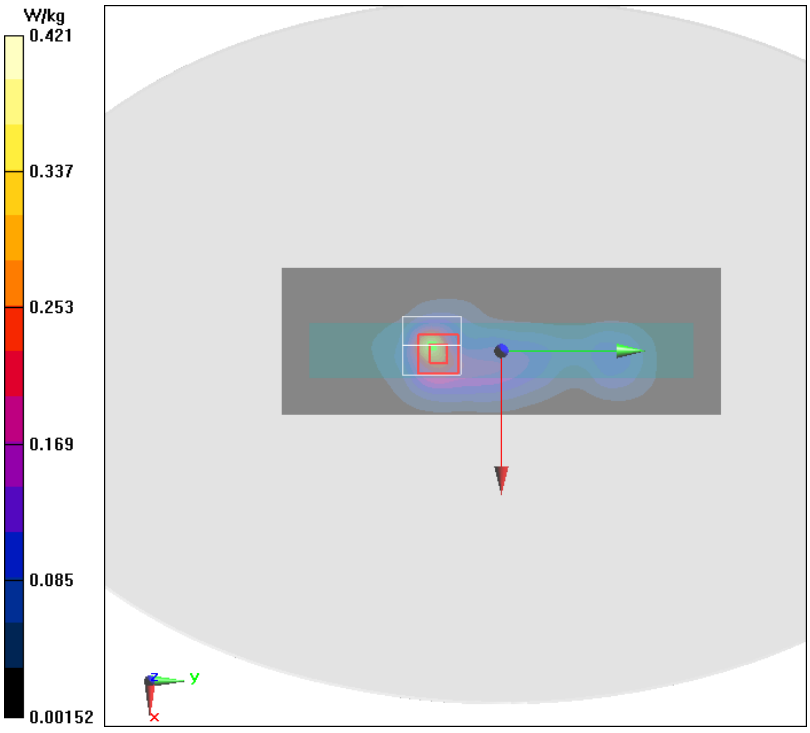


Fig.24 WiFi2450 Right Mode Low

Date/Time: 2019/7/25
Electronics: DAE4 Sn1244
Medium parameters used: f = 2412 MHz; σ = 1.879 S/m; ε_r = 54.877; ρ = 1000 kg/m^3
Ambient Temperature:22.5°C Liquid Temperature:22.5°C
Communication System: Wifi 2450; Frequency: 2412 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(4.41, 4.41, 4.41); Calibrated: 9/4/2018
WiFi2450 Right Mode Low/Area Scan (41x121x1):
Measurement grid: dx=10 mm, dy=10 mm
Maximum value of SAR (Measurement) = 0.570 W/kg
WiFi2450 Right Mode Low/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.49 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 1.95 W/kg
SAR(1 g) = 0.700 W/kg; SAR(10 g) = 0.272 W/kg
Maximum value of SAR (measured) = 0.836 W/kg

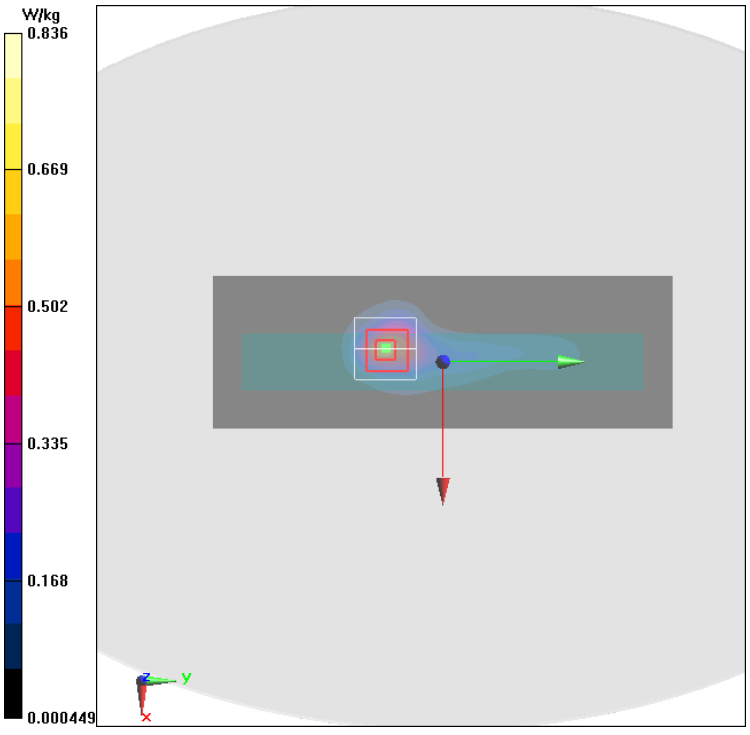


Fig.25 WIFI 5G Right Mode Middle 5mm

Date/Time: 2019/7/17
Electronics: DAE4 Sn1244
Medium parameters used: f = 5755 MHz; σ = 5.924 S/m; ε_r = 49.01; ρ = 1000 kg/m^3
Ambient Temperature:22.5°C Liquid Temperature:22.5°C
Communication System: 5GHz U-NII-3 5GHz; Frequency: 5755 MHz; Duty Cycle: 1:1
Probe: EX3DV4 - SN7401ConvF(4.69, 4.69, 4.69); Calibrated: 1/15/2019
WIFI 5G Right Mode Middle 5mm/Area Scan (41x221x1):
Measurement grid: dx=10 mm, dy=10 mm
Maximum value of SAR (Measurement) = 0.728 W/kg
WIFI 5G Right Mode Middle 5mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.816 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 1.30 W/kg
SAR(1 g) = 0.298 W/kg; SAR(10 g) = 0.094 W/kg
Maximum of SAR (measured) = 0.770 W/kg

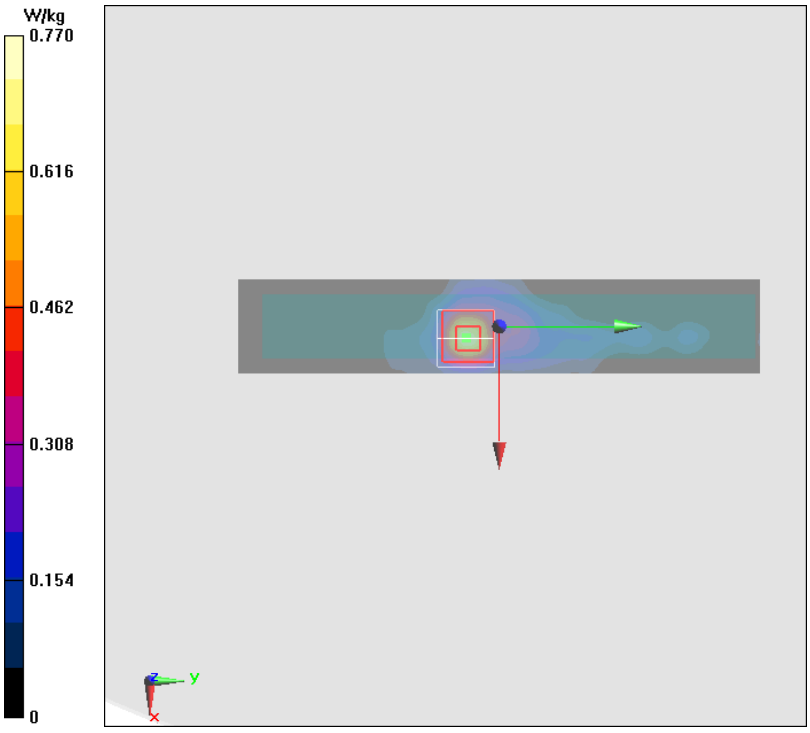
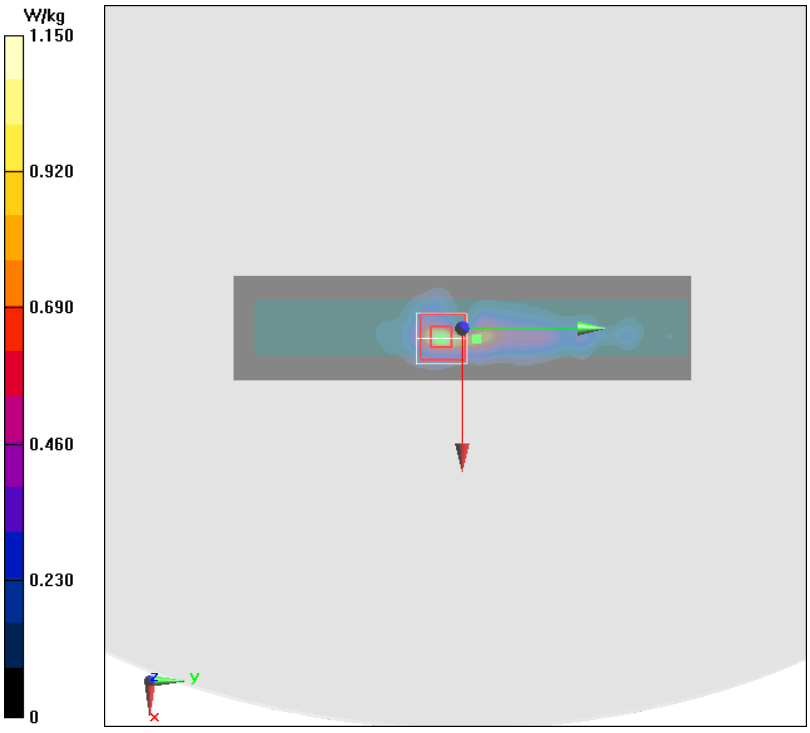


Fig.26 WIFI 5G Right Mode Middle 0mm

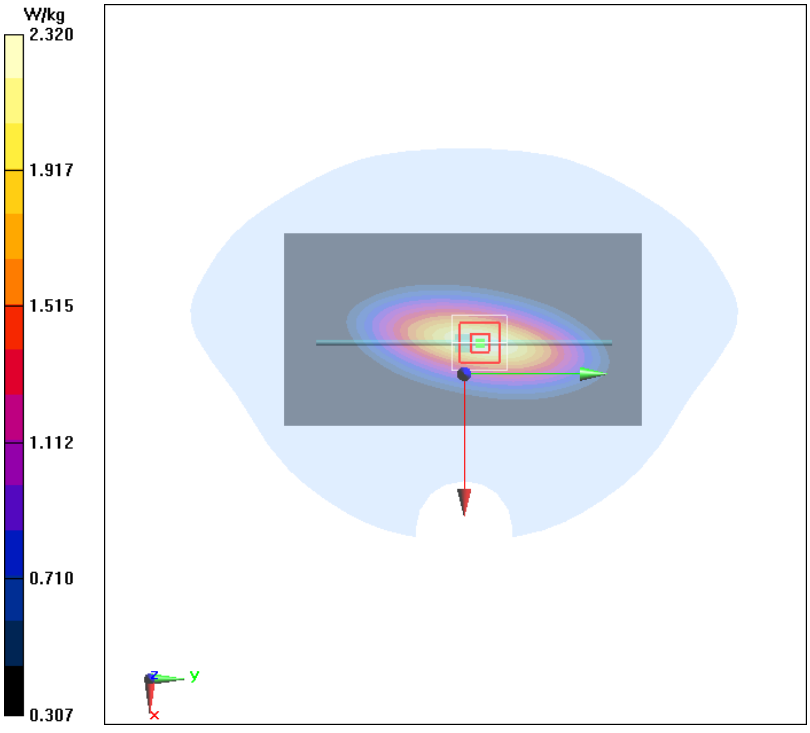
Date/Time: 2019/7/17
Electronics: DAE4 Sn1244
Medium parameters used: f = 5190 MHz; σ = 5.115 S/m; ε_r = 50.189; ρ = 1000 kg/m^3
Ambient Temperature:22.5°C Liquid Temperature:22.5°C
Communication System: 5GHz U-NII-1 5GHz; Frequency: 5190 MHz; Duty Cycle: 1:1
Probe: EX3DV4 - SN7401ConvF(5.26, 5.26, 5.26); Calibrated: 1/15/2019
WIFI 5G Right Mode Middle 0mm/Area Scan (51x221x1):
Measurement grid: dx=10 mm, dy=10 mm
Maximum value of SAR (Measurement) = 1.17 W/kg
WIFI 5G Right Mode Middle 0mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.322 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 1.85 W/kg
SAR(1 g) = 0.444 W/kg; SAR(10 g) = 0.125 W/kg
Maximum of SAR (measured) = 1.15 W/kg



ANNEX B. SYSTEM VALIDATION RESULTS

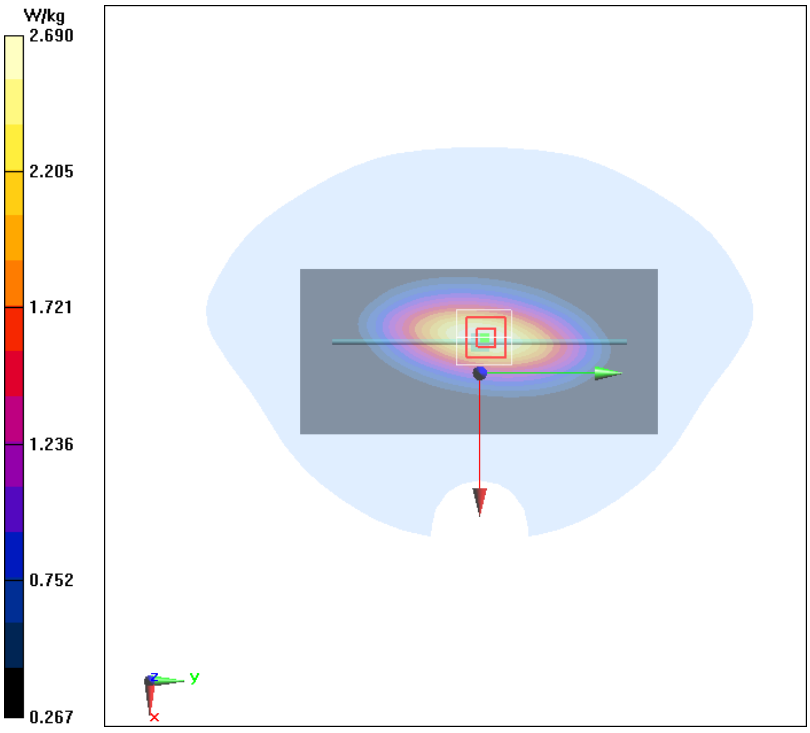
Body 750 MHz

Date/Time: 2019/6/28
Electronics: DAE4 Sn1244
Medium parameters used: f = 750 MHz; σ = 0.916 S/m; ε_r = 57.721; ρ = 1000 kg/m^3
Ambient Temperature:22.5°C Liquid Temperature:22.5°C
Communication System: CW 750MHz; Frequency: 750 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(6.53, 6.53, 6.53); Calibrated: 9/4/2018
System Validation/Area Scan (71x131x1):
Measurement grid: dx=10 mm, dy=10 mm
Maximum value of SAR (Measurement) = 2.32 W/kg
System Validation/Zoom Scan (7x7x7) (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 50.15 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 3.07 W/kg
SAR(1 g) = 2.16 W/kg; SAR(10 g) = 1.48 W/kg
Maximum value of SAR (measured) = 2.32 W/kg



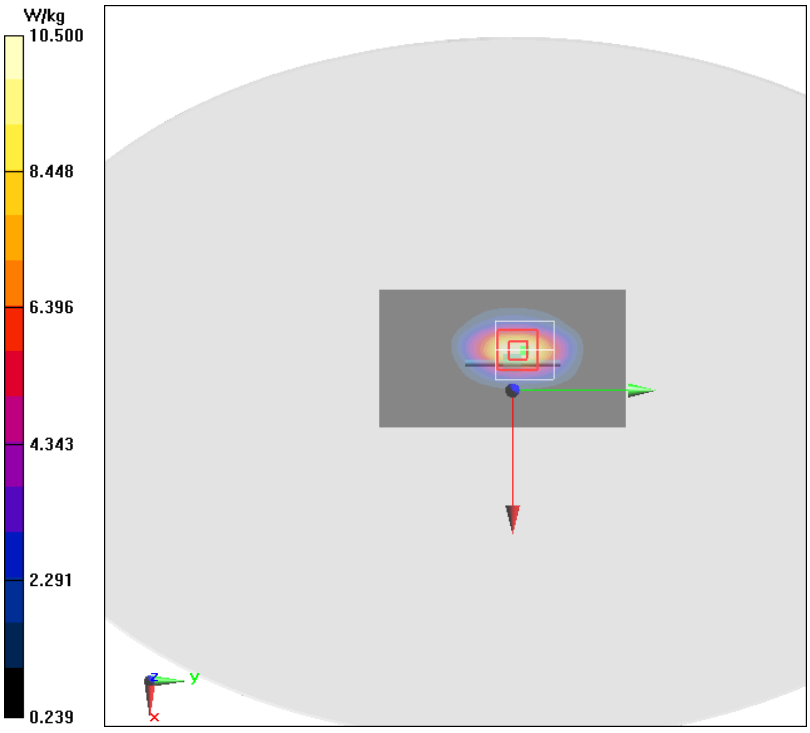
Body 835 MHz

Date/Time: 2019/6/28
Electronics: DAE4 Sn1244
Medium parameters used: f = 835 MHz; σ = 0.998 S/m; ε_r = 56.73; ρ = 1000 kg/m^3
Ambient Temperature:22.5°C Liquid Temperature:22.5°C
Communication System: CW 900MHz; Frequency: 835 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(6.34, 6.34, 6.34); Calibrated: 9/4/2018
System Validation 2/Area Scan (61x131x1):
Measurement grid: dx=10 mm, dy=10 mm
Maximum value of SAR (Measurement) = 2.70 W/kg
System Validation 2/Zoom Scan (7x7x7) (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 52.66 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 3.61 W/kg
SAR(1 g) = 2.49 W/kg; SAR(10 g) = 1.65 W/kg
Maximum value of SAR (measured) = 2.69 W/kg



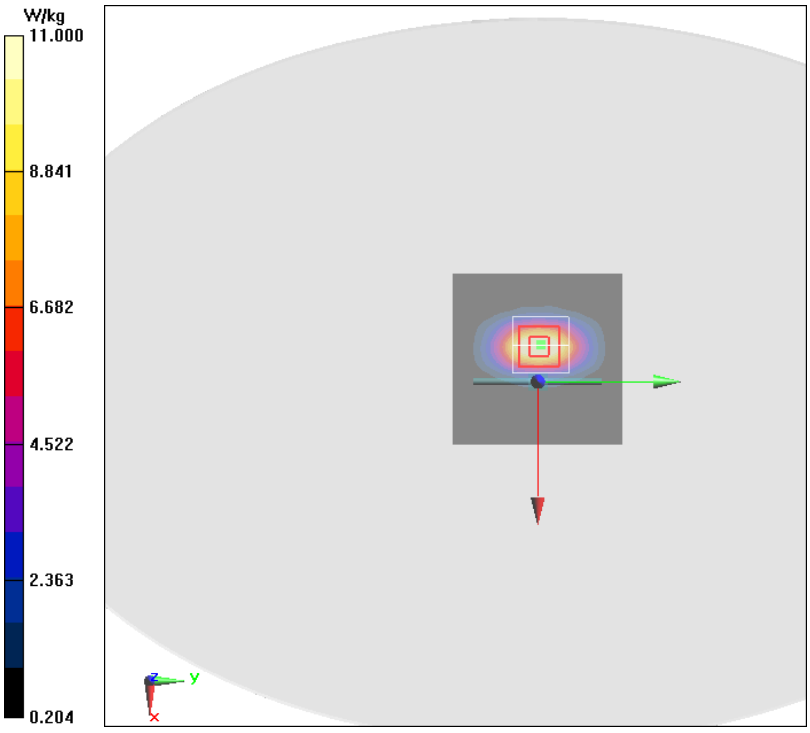
Body 1750 MHz

Date/Time: 2019/7/5
Electronics: DAE4 Sn1244
Medium parameters used: f = 1750 MHz; σ = 1.426 S/m; ε_r = 55.385; ρ = 1000 kg/m^3
Ambient Temperature:22.5°C Liquid Temperature:22.5°C
Communication System: CW 1800MHz; Frequency: 1750 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(4.99, 4.99, 4.99); Calibrated: 9/4/2018
System validation/Area Scan (51x91x1):
Measurement grid: dx=10 mm, dy=10 mm
Maximum value of SAR (Measurement) = 10.7 W/kg
System validation/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 78.58 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 16.3 W/kg
SAR(1 g) = 9.34 W/kg; SAR(10 g) = 5.06 W/kg
Maximum value of SAR (measured) = 10.5 W/kg



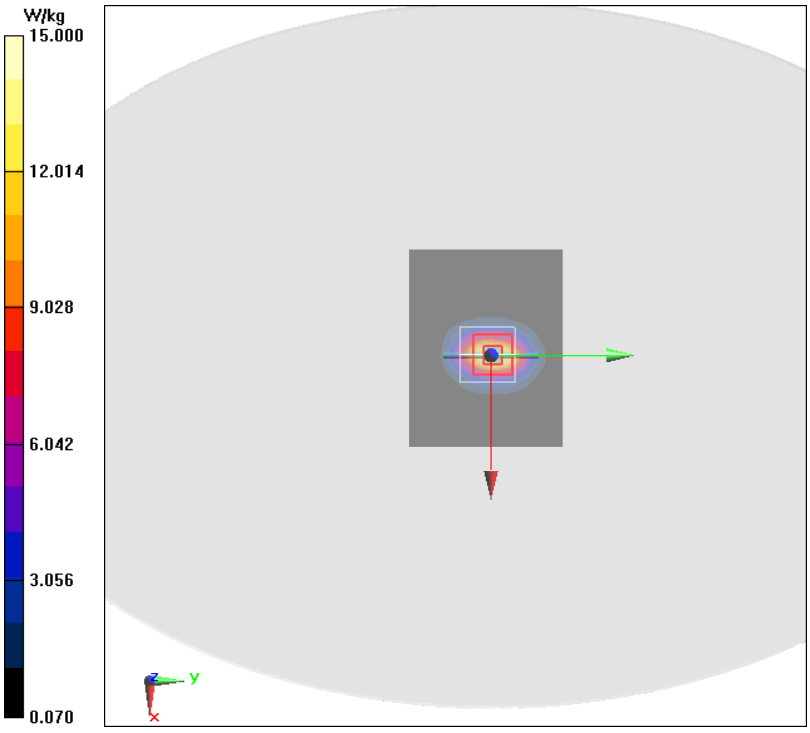
Body 1900 MHz

Date/Time: 2019/7/5
Electronics: DAE4 Sn1244
Medium parameters used: f = 1900 MHz; σ = 1.485 S/m; ε_r = 52.274; ρ = 1000 kg/m^3
Ambient Temperature:22.5°C Liquid Temperature:22.5°C
Communication System: CW 1900MHz; Frequency: 1900 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(4.77, 4.77, 4.77); Calibrated: 9/4/2018
System check Validation/Area Scan (61x61x1):
Measurement grid: dx=10 mm, dy=10 mm
Maximum value of SAR (Measurement) = 12.4 W/kg
System check Validation/Zoom Scan (7x7x7) (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 90.03 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 18.1 W/kg
SAR(1 g) = 9.81 W/kg; SAR(10 g) = 5.11 W/kg
Maximum value of SAR (measured) = 11.0 W/kg



Body 2450 MHz

Date/Time: 2019/7/25
Electronics: DAE4 Sn1244
Medium parameters used: f = 2450 MHz; σ = 1.927 S/m; ε_r = 54.788; ρ = 1000 kg/m^3
Ambient Temperature:22.5°C Liquid Temperature:22.5°C
Communication System: CW 2600MHz; Frequency: 2450 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(4.41, 4.41, 4.41); Calibrated: 9/4/2018
System Validation/Area Scan (91x71x1):
Measurement grid: dx=10 mm, dy=10 mm
Maximum value of SAR (Measurement) = 15.8 W/kg
System Validation/Zoom Scan (7x7x7) (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 90.38 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 29.0 W/kg
SAR(1 g) = 13.3 W/kg; SAR(10 g) = 6.05 W/kg
Maximum value of SAR (measured) = 15.0 W/kg

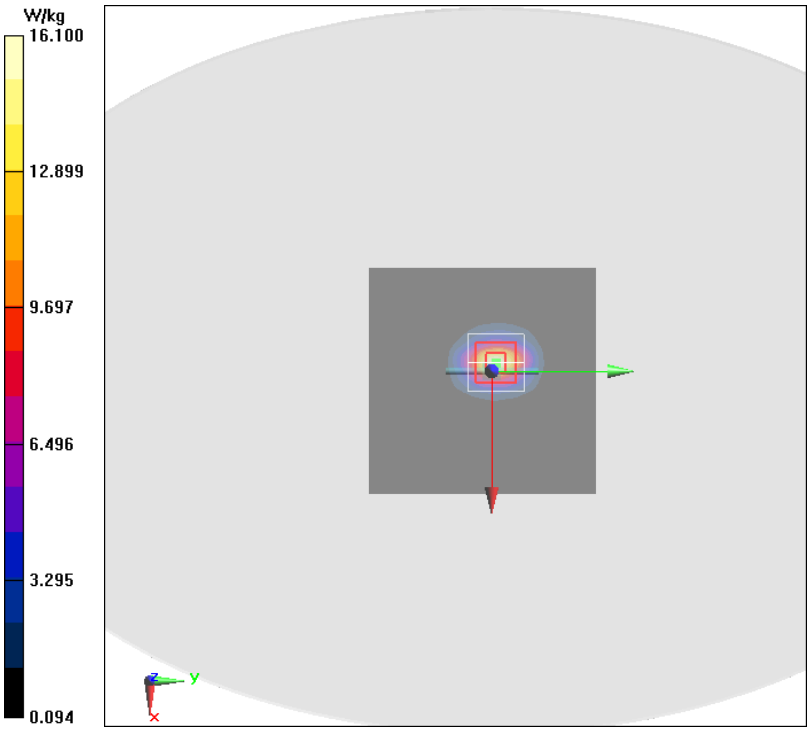


Body 2600MHz

Date/Time: 2019/7/20
Electronics: DAE4 Sn1244
Medium parameters used: f = 2600 MHz; σ = 2.112 S/m; ε_r = 54.37; ρ = 1000 kg/m^3
Ambient Temperature:22.5°C Liquid Temperature:22.5°C
Communication System: CW 2600MHz; Frequency: 2600 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(4.19, 4.19, 4.19); Calibrated: 9/4/2018

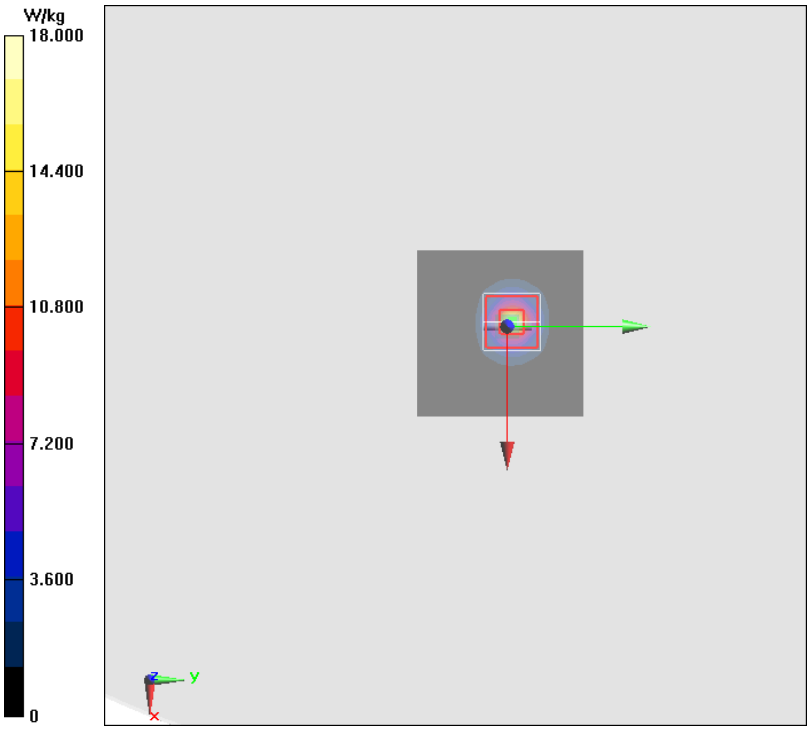
Body 2600MHz/Area Scan (101x101x1):
Measurement grid: dx=10 mm, dy=10 mm
Maximum value of SAR (Measurement) = 16.5 W/kg

Body 2600MHz/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 79.77 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 29.1 W/kg
SAR(1 g) = 13.9 W/kg; SAR(10 g) = 6.22 W/kg
Maximum value of SAR (measured) = 16.1 W/kg



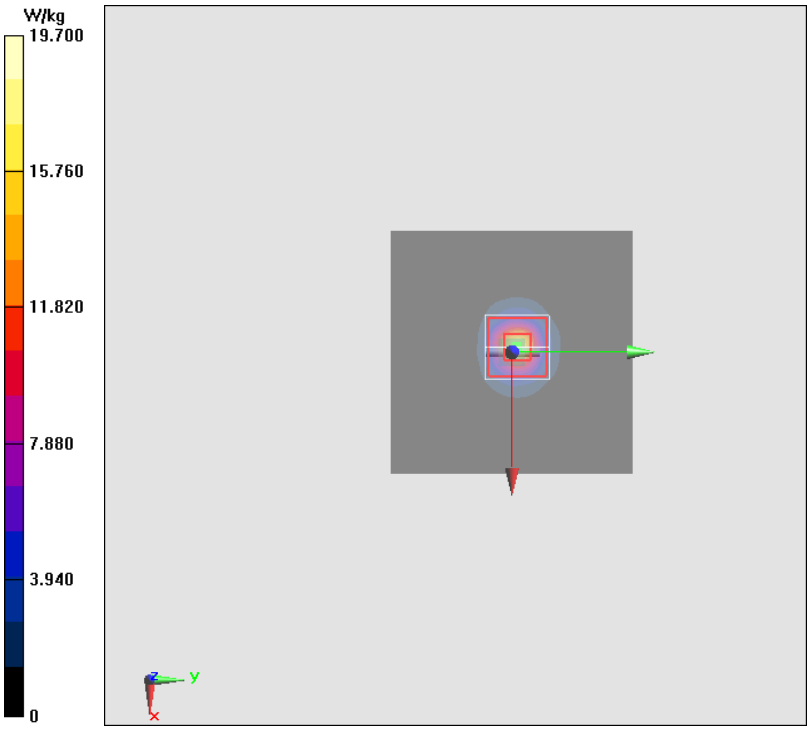
Body 5200 MHz

Date/Time: 2019/7/17
Electronics: DAE4 Sn1244
Medium parameters used: f = 5200 MHz; σ = 5.128 S/m; ε_r = 50.168; ρ = 1000 kg/m^3
Ambient Temperature:22.5°C Liquid Temperature:22.5°C
Communication System: 5GHz; Frequency: 5200 MHz; Duty Cycle: 1:1
Probe: EX3DV4 - SN7401ConvF(5.26, 5.26, 5.26); Calibrated: 1/15/2019
System Validation 5200 MHz/Area Scan (71x71x1):
Measurement grid: dx=10 mm, dy=10 mm
Maximum value of SAR (Measurement) = 18.2 W/kg
System Validation 5200 MHz/Zoom Scan (4x4x1.4mm, graded), dist=1.4mm (7x7x7)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 62.94 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 29.3 W/kg
SAR(1 g) = 7.01 W/kg; SAR(10 g) = 1.96 W/kg
Maximum value of SAR (measured) = 18.0 W/kg



Body 5800 MHz

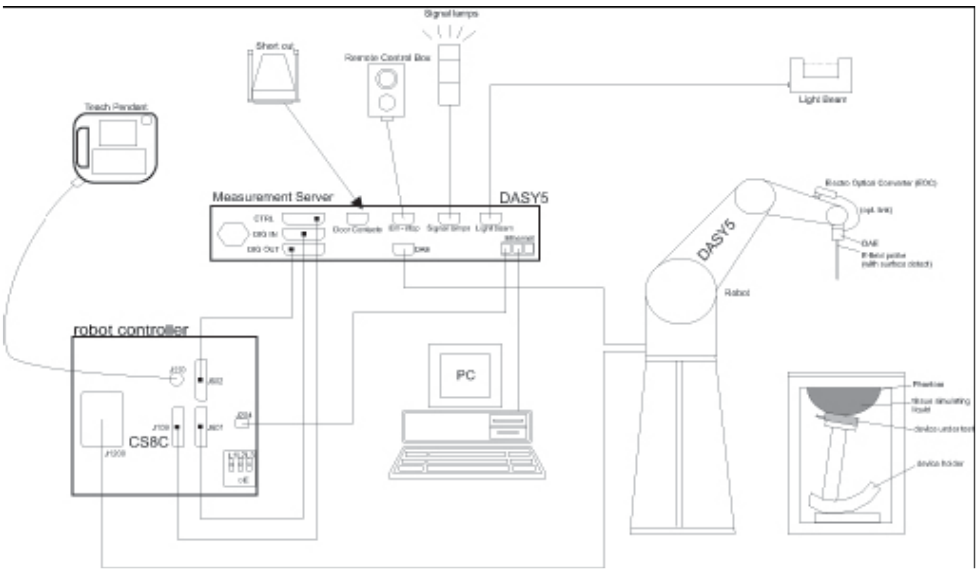
Date/Time: 2019/7/17
Electronics: DAE4 Sn1244
Medium parameters used: f = 5800 MHz; σ = 5.985 S/m; ε_r = 48.931; ρ = 1000 kg/m^3
Ambient Temperature:22.5°C Liquid Temperature:22.5°C
Communication System: CW 5GHz; Frequency: 5800 MHz; Duty Cycle: 1:1
Probe: EX3DV4 - SN7401ConvF(4.69, 4.69, 4.69); Calibrated: 1/15/2019
System Validation5800 MHz/Area Scan (91x91x1):
Measurement grid: dx=10 mm, dy=10 mm
Maximum value of SAR (Measurement) = 17.7 W/kg
System Validation5800 MHz/Zoom Scan (4x4x1.4mm, graded), dist=1.4mm (7x7x7)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 60.59 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 34.6 W/kg
SAR(1 g) = 7.13 W/kg; SAR(10 g) = 1.96 W/kg
Maximum value of SAR (measured) = 19.7 W/kg



ANNEX C. SAR Measurement Setup

C.1. Measurement Set-up

The DASY5 system for performing compliance tests is illustrated above graphically. This system consists of the following items:



Picture C.1 SAR Lab Test Measurement Set-up

- A standard high precision 6-axis robot (Stäubli 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 phantom, the device holder and other accessories according to the targeted measurement.

C.2. DASY5 E-field Probe System

The SAR measurements were conducted with the dosimetric probe designed in the classical triangular configuration and optimized for dosimetric evaluation. The probe is constructed using the thick film technique; with printed resistive lines on ceramic substrates. The probe is equipped with an optical multifiber line ending at the front of the probe tip. It is connected to the EOC box on the robot arm and provides an automatic detection of the phantom surface. Half of the fibers are connected to a pulsed infrared transmitter, the other half to a synchronized receiver. As the probe approaches the surface, the reflection from the surface produces a coupling from the transmitting to the receiving fibers. This reflection increases first during the approach, reaches maximum and then decreases. If the probe is flatly touching the surface, the coupling is zero. The distance of the coupling maximum to the surface is independent of the surface reflectivity and largely independent of the surface to probe angle. The DASY5 software reads the reflection durning a software approach and looks for the maximum using 2ndord curve fitting. The approach is stopped at reaching the maximum.

Probe Specifications:

Model: ES3DV3,EX3DV4
Frequency 10MHz — 6GHz(EX3DV4)
Range: 10MHz — 4GHz(ES3DV3)
Calibration: In head and body simulating tissue at Frequencies from 835 up to 5800MHz
Linearity: ± 0.2 dB(30 MHz to 4 GHz) for ES3DV3
± 0.2 dB(30 MHz to 6 GHz) for EX3DV4
Dynamic Range: 10 mW/kg — 100W/kg
Probe Length: 330 mm
Probe Tip
Length: 20 mm
Body Diameter: 12 mm
Tip Diameter: 2.5 mm (3.9 mm for ES3DV3)
Tip-Center: 1 mm (2.0mm for ES3DV3)
Application: SAR Dosimetry Testing
Compliance tests of mobile phones
Dosimetry in strong gradient fields

Picture7-2 Near-field Probe

Picture 7-3 E-field Probe

C.3. E-field Probe Calibration

Each E-Probe/Probe Amplifier combination has unique calibration parameters. A TEM cell calibration procedure is conducted to determine the proper amplifier settings to enter in the probe parameters. The amplifier settings are determined for a given frequency by subjecting the probe to

a known E-field density (1 mW/cm^2) using an RF Signal generator, TEM cell, and RF Power Meter.

The free space E-field from amplified probe outputs is determined in a test chamber. This calibration can be performed in a TEM cell if the frequency is below 1 GHz and inn a waveguide or other methodologies 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 until the three channels show the maximum reading. The power density readings equates to 1 mW/ cm^2.·

E-field temperature correlation calibration is performed in a flat phantom filled with the appropriate simulated brain tissue. The E-field in the medium correlates with the temperature rise in the 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.

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

Where:

σ = Simulated tissue conductivity,

ρ = Tissue density (kg/m^3).

C.4. Other Test Equipment

C.4.1. Data Acquisition Electronics(DAE)

The data acquisition electronics consist of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder with a control logic unit. Transmission to the measurement server is accomplished through an optical downlink for data and status information, as well as an optical uplink for commands and the clock.

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

The input impedance of the DAE is 200 MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.

PictureC.4: DAE

C.4.2. Robot

The SPEAG DASY system uses the high precision robots (DASY5: RX90L) type from Stäubli SA (France). For the 6-axis controller system, the robot controller version from Stäubli is used. The Stäubli robot series have many features that are important for our application:

- High precision (repeatability 0.02mm)
- High reliability (industrial design)
- Low maintenance costs (virtually maintenance free due to direct drive gears; no belt drives)
- Jerk-free straight movements (brushless synchron motors; no stepper motors)
- Low ELF interference (motor control fields shielded via the closed metallic construction shields)

Picture C.5 DASY 5

C.4.3. Measurement Server

The Measurement server is based on a PC/104 CPU broad with CPU (DASY5: 400 MHz, Intel Celeron), chipdisk (DASY5: 128MB), RAM (DASY5: 128MB). The necessary circuits for communication with the DAE electronic box, as well as the 16 bit AD converter system for optical detection and digital I/O interface are contained on the DASY I/O broad, which is directly connected to the PC/104 bus of the CPU broad.

The measurement server performs all real-time data evaluation of field measurements and surface detection, controls robot movements and handles safety operation. The PC operating system cannot interfere with these time critical processes. All connections are supervised by a watchdog, and disconnection of any of the cables to the measurement server will automatically disarm the robot and disable all program-controlled robot movements. Furthermore, the measurement server is equipped with an expansion port which is reserved for future applications. Please note that this expansion port does not have a standardized pinout, and therefore only devices provided by SPEAG can be connected. Devices from any other supplier could seriously damage the measurement server.

Picture C.6 Server for DASY 5

C.4.4. Device Holder for Phantom

The SAR in the phantom is approximately inversely proportional to the square of the distance between the source and the liquid surface. For a source at 5mm distance, a positioning uncertainty of ±0.5mm would produce a SAR uncertainty of ±20%. Accurate device positioning is therefore crucial for accurate and repeatable measurements. The positions in which the devices must be measured are defined by the standards.

The DASY device holder is designed to cope with the different 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 is the ear reference point (ERP). Thus the device needs no

repositioning when changing the angles.

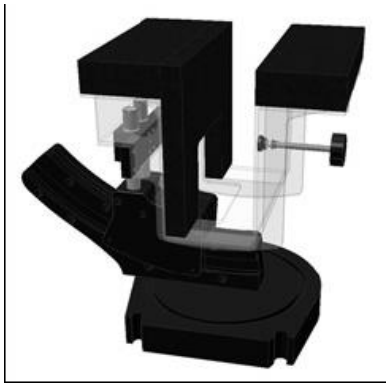
The DASY device holder is constructed of low-loss POM material having the following dielectric parameters: relative permittivity ε =3 and loss tangent δ =0.02. The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the influence of the clamp on the test results could thus be lowered.

<Laptop Extension Kit>

The extension is lightweight and made of POM, acrylic glass and foam. It fits easily on the upper part of the Mounting Device in place of the phone positioner. The extension is fully compatible with

the Twin-SAM and ELI phantoms.

Picture C.7: Device Holder



Picture C.8: Laptop Extension Kit

C.4.5. Phantom

The SAM Twin Phantom V4.0 is constructed of a fiberglass shell integrated in a table. The shape of the shell is based on data from an anatomical study designed to

Represent the 90th percentile of the population. The phantom enables the dissymmetric evaluation of SAR for both left and right handed handset usage, as well as body-worn usage using the flat phantom region. 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. The shell phantom has a 2mm shell thickness (except the ear region where shell thickness increases to 6 mm).

Shell Thickness: 2 ± 0. 2 mm

Filling Volume: Approx. 25 liters

Dimensions: 810 x l000 x 500 mm (H x L x W)

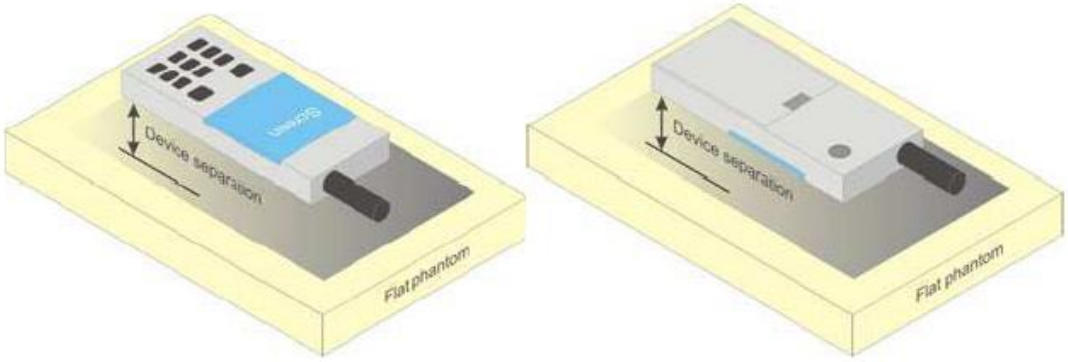
Available: Special

Picture C.9: SAM Twin Phantom

ANNEX D. Position of the wireless device in relation to the phantom

D.1. Body-worn device

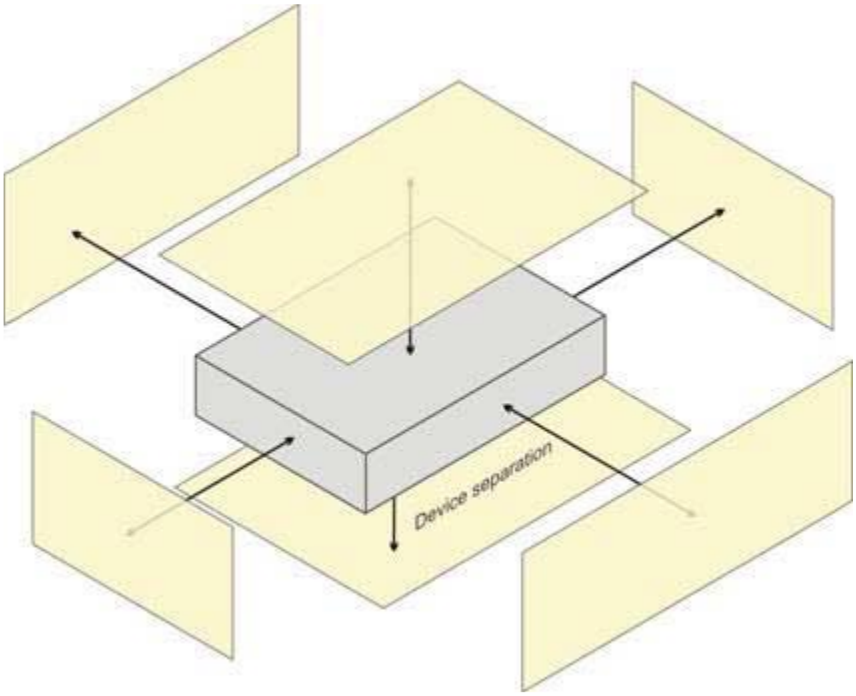
A typical example of a body-worn device is a mobile phone, wireless enabled PDA or other battery operated wireless device with the ability to transmit while mounted on a person's body using a carry accessory approved by the wireless device manufacturer.



Picture D.1Test positions for body-worn devices

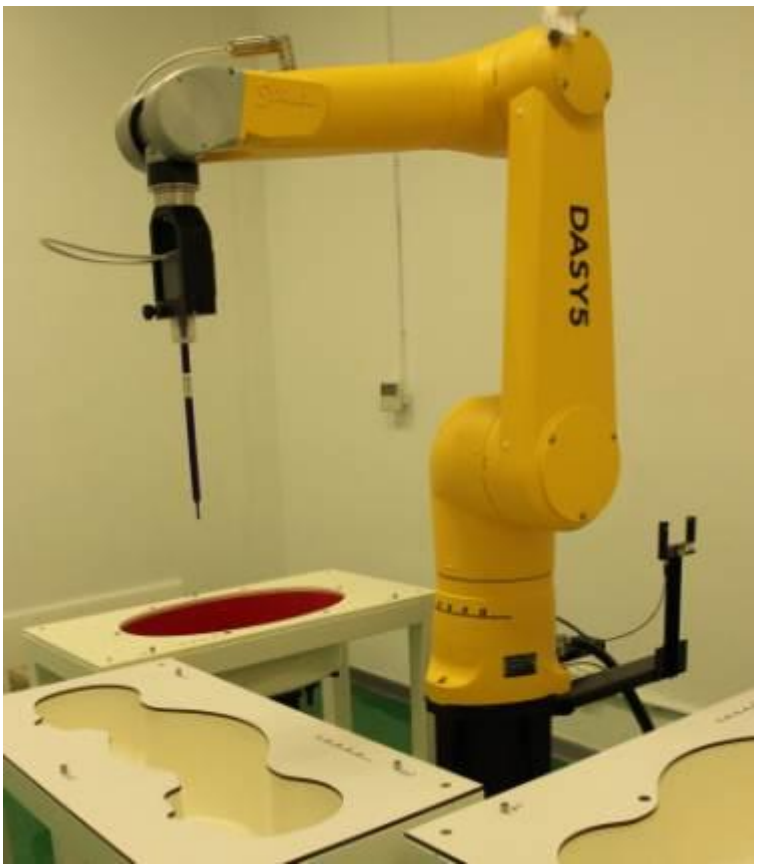
D.2. Generic device

The SAR evaluation shall be performed for all surfaces of the DUT that are accessible during intended use, as indicated in D2. The separation distance in testing shall correspond to the intended use distance as specified in the user instructions provided by the manufacturer.



Picture D.2 Test positions for desktop devices

D.3. DUT Setup Photos



Picture D.3 DSY5 system Set-up

Note:

The photos of test sample and test positions show in additional document.

ANNEX E. Equivalent Media Recipes

The liquid used for the frequency range of 800-3000 MHz consisted of water, sugar, salt, preventol, glycol monobutyl and Cellulose. The liquid has been previously proven to be suited for worst-case. The Table E.1 shows the detail solution. It's satisfying the latest tissue dielectric parameters requirements proposed by the IEEE 1528 and IEC 62209.

Table E.1: Composition of the Tissue Equivalent Matter

Frequency (MHz)	835 Head	835 Body	1900 Head	1900 Body	2450 Head	2450 Body
Ingredients (% by weight)						
Water	41.45	52.5	55.242	69.91	58.79	72.60
Sugar	56.0	45.0	\	\	\	\
Salt	1.45	1.4	0.306	0.13	0.06	0.18
Preventol	0.1	0.1	\	\	\	\
Cellulose	1.0	1.0	\	\	\	\
Glycol Monobutyl	\	\	44.452	29.96	41.15	27.22
Dielectric Parameters Target Value	ε=41.5 σ=0.90	ε=55.2 σ=0.97	ε=40.0 σ=1.40	ε=53.3 σ=1.52	ε=39.2 σ=1.80	ε=52.7 σ=1.95

ANNEX F. System Validation

The SAR system must be validated against its performance specifications before it is deployed. When SAR probes, system components or software are changed, upgraded or recalibrated, these must bevalidated with the SAR system(s) that operates with such components.

Table F.1: System Validation Part 1

System No.	Probe SN.	Liquid name	Validation date	Frequency point	**Permittivity ε**	**Conductivity σ (S/m)**
1	3252	Body 750 MHz	2019-06-28	750 MHz	57.721	0.916
2	3252	Body 835 MHz	2019-06-28	835 MHz	56.731	0.998
3	3252	Body 1800 MHz	2019-07-05	1800 MHz	55.227	1.479
4	3252	Body 1900 MHz	2019-07-05	1900 MHz	52.274	1.485
5	3252	Body 2450 MHz	2019-07-25	2450 MHz	54.788	1.927
6	3252	Body 2600MHz	2019-07-20	2600MHz	54.370	2.112
7	3252	Body 5200MHz	2019-07-17	5200MHz	50.168	5.128
8	3252	Body 5800MHz	2019-07-17	5800MHz	48.931	5.985

Table F.2: System Validation Part 2

CW Validation	Sensitivity	PASS	PASS
	Probe linearity	PASS	PASS
	Probe Isotropy	PASS	PASS
Mod Validation	MOD.type	GMSK	GMSK
	MOD.type	OFDM	OFDM
	Duty factor	PASS	PASS
	PAR	PASS	PASS

ANNEX G. Probe and DAE Calibration Certificate

In Collaboration with
speag
CALIBRATION LABORATORY
Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com Http://www.chinattl.cn

中国认可 国际互认 校准 CALIBRATION CNAS L0570

Client : ECIT Certificate No: Z18-60529

CALIBRATION CERTIFICATE

Object	DAE4 - SN: 1244
Calibration Procedure(s)	FF-Z11-002-01 Calibration Procedure for the Data Acquisition Electronics (DAEx)
Calibration date:	December 03, 2018

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Process Calibrator 753	1971018	20-Jun-18 (CTTL, No.J18X05034)	June-19

	Name	Function	Signature
Calibrated by:	Yu Zongying	SAR Test Engineer	
Reviewed by:	Lin Hao	SAR Test Engineer	
Approved by:	Qi Dianyuan	SAR Project Leader	

Issued: December 05, 2018

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

Certificate No: Z18-60529 Page 1 of 3