TEST REPORT

No. I18D00141-SAR01

For

Client: **Shanghai Sunmi Technology Co.,Ltd.**

Production: **Handheld Wireless Terminal**

Model Name: **T8900/T8901**

FCC ID: **2AH25L2**

Hardware Version: **2DD021_V2.01**

Software Version: **L2_V2.6_20180621**

Issued date: **2018-10-12**

Test Laboratory:

ECIT Shanghai, East China Institute of Telecommunications

Add: 7-8F, G Area, No.668, Beijing East Road, Huangpu District, Shanghai, P. R. China

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Revision Version

Report Number	Revision	Date	Memo
I18D00141-SAR01	00	2018-10-8	Initial creation of test report
I18D00141-SAR01	01	2018-10-12	Second creation of test report

CONTENTS

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:	2018-07-26
Testing End Date:	2018-09-18

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 T8900/T8901 are as follows .

Table 2.1: Max. Reported SAR (1g)

Band	SAR 1g(W/Kg)		
	Head	Body (10mm)	Hotspot (10mm)
GSM 850	0.099	0.356	0.356
GSM 1900	0.169	0.420	0.420
WCDMA Band2	0.454	0.853	0.853
WCDMA Band4	0.409	0.462	0.462
WCDMA Band5	0.146	0.302	0.302
LTE Band2	0.362	0.642	0.642
LTE Band4	0.335	0.750	0.750
LTE Band7	0.129	0.612	0.612
LTE Band17	0.050	0.155	0.155
CDMA BC0	0.267	0.641	0.641
CDMA BC1	0.564	1.126	1.126
2.4G WiFi	0.183	0.056	0.056
5G WiFi	0.090	0.150	0.150

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.

Note: Original 5G test results are obtained from the **Shenzhen BALUN Technology Co., Ltd.** Report and report No. is **BL-SZ1880242-701**.

Table 2.2: Simultaneous SAR

Transmission SAR(W/Kg)									
Test Position			2G	3G	4G	2.4G WiFi	5G WiFi	BT	SUM
Head	Left	Cheek	0.169	0.564	0.335	0.084	0.054	0.166	0.730
		Tilt 15°	0.052	0.219	0.136	0.061	0.058	0.166	0.385
	Right	Cheek	0.082	0.337	0.207	0.183	0.083	0.166	0.520
		Tilt 15°	0.099	0.143	0.126	0.115	0.090	0.166	0.309
Body worn&hotspot 10mm	Phantom Side		0.191	0.464	0.598	0.050	0.020	0.083	0.681
	Ground Side		0.420	1.126	0.750	0.056	0.150	0.083	1.276
Hotspot 10mm	Left Side		0.146	0.268	0.280	--	--	0.083	0.363
	Right Side		0.129	0.286	0.111	0.161	0.086	0.083	0.447
	Bottom Side		0.189	0.437	0.404	--	--	0.083	0.520
	Top Side		--	--	--	0.045	0.052	0.083	0.083

According to the above table, the maximum sum of reported SAR values for GSM/WCDMA/LTE/and BT is **1.276 W/kg (**1g).

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:	Handheld Wireless Terminal
Model name:	T8900/T8901
Operation Model(s):	GSM850/900/1800/1900,WCDMA Band I/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) 1850.7 -1909.3 MHz (LTE Band 2) 1710.7 -1754.3 MHz (LTE Band 4) 2502.5 – 2567.5 MHz (LTE Band 7) 706.5 -713.5 MHz (LTE Band 17) 2412- 2462 MHz (Wi-Fi) 5150- 5350 MHz (Wi-Fi) 5725- 5850 MHz (Wi-Fi) 2402-2480 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:	22.2cm×8.2 cm support
FCC ID:	2AH25L2

4.2. Internal Identification of EUT used during the test

EUT ID*	SN or IMEI	HW Version	SW Version	Receive Date
N06	868591030045933	2DD021_V2.01	L2_V2.6_20180621	2018-7-25
N01	868591030045974	2DD021_V2.01	L2_V2.6_20180621	2018-7-25

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

N06 ismain supply; N01 is second supply

4.3. Internal Identification of AE used during the test

AE ID*	Description	Model	SN	Manufacturer
BA01	Battery	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 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	Head	0.90	0.86～0.95	41.5	39.4～43.6
1800	Head	1.40	1.33～1.47	40.0	38.0～42.0
1900	Head	1.40	1.33～1.47	40.0	38.0～42.0
2450	Head	1.80	1.71～1.89	39.2	37.2～41.2
2600	Head	1.96	1.86～2.06	39.0	37.1～41.0
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

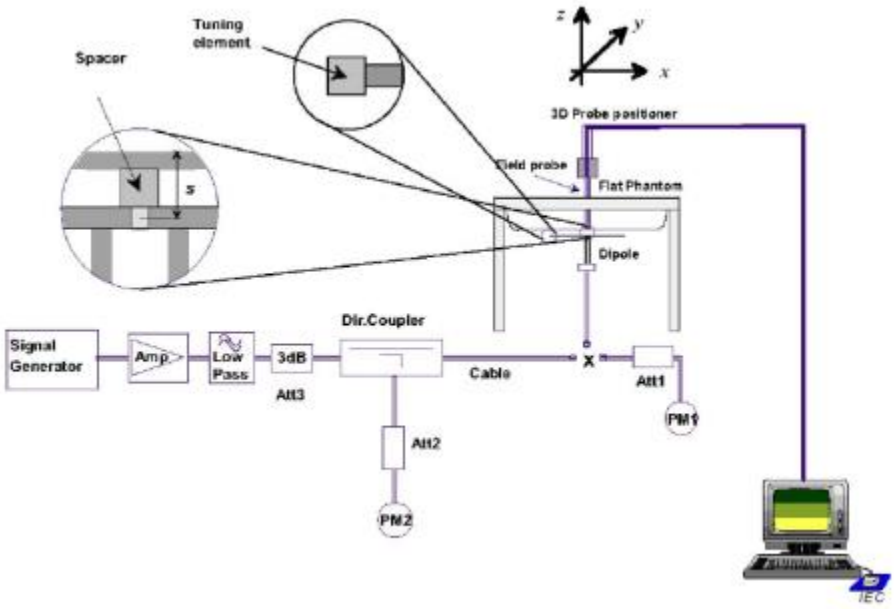
Table 7.2: Dielectric Performance of Tissue Simulating Liquid

Measurement Value						
Liquid Temperature: 22.5 ℃						
Type	**Frequency**	**Permittivity ε**	**Drift (%)**	**Conductivity σ**	**Drift (%)**	Test Date
Body	835 MHz	54.42	-1.41%	0.982	1.24%	2018-8-9
Body	1800 MHz	52.40	-1.69%	1.525	0.33%	2018-8-14
Body	1900 MHz	51.95	-2.53%	1.515	-0.33%	2018-8-14
Body	2450 MHz	52.70	0%	1.925	-1.28%	2018-8-16
Body	2600MHz	52.09	-0.78%	2.138	-1.02%	2018-9-18
Body	750 MHz	57.721	4.00%	0.958	-0.52%	2018-7-26
Body	835 MHz	56.705	2.73%	0.998	2.89%	2018-9-12
Body	1900 MHz	54.861	2.93%	1.523	0.20%	2018-9-12
Head	835 MHz	42.18	1.64%	0.909	1.00%	2018-8-14
Head	1800 MHz	38.98	-2.55%	1.368	-2.29%	2018-8-9
Head	1900 MHz	38.79	-3.02%	1.440	2.86%	2018-8-9
Head	2450 MHz	38.44	-1.94%	1.809	0.50%	2018-8-15
Head	2600MHz	38.90	-0.26%	2.013	2.70%	2018-9-18
Head	750 MHz	43.156	3.00%	0.888	-0.60%	2018-7-26
Head	835 MHz	42.584	2.61%	0.931	3.44%	2018-9-12
Head	1900 MHz	41.450	3.63%	1.386	-1.00%	2018-9-12

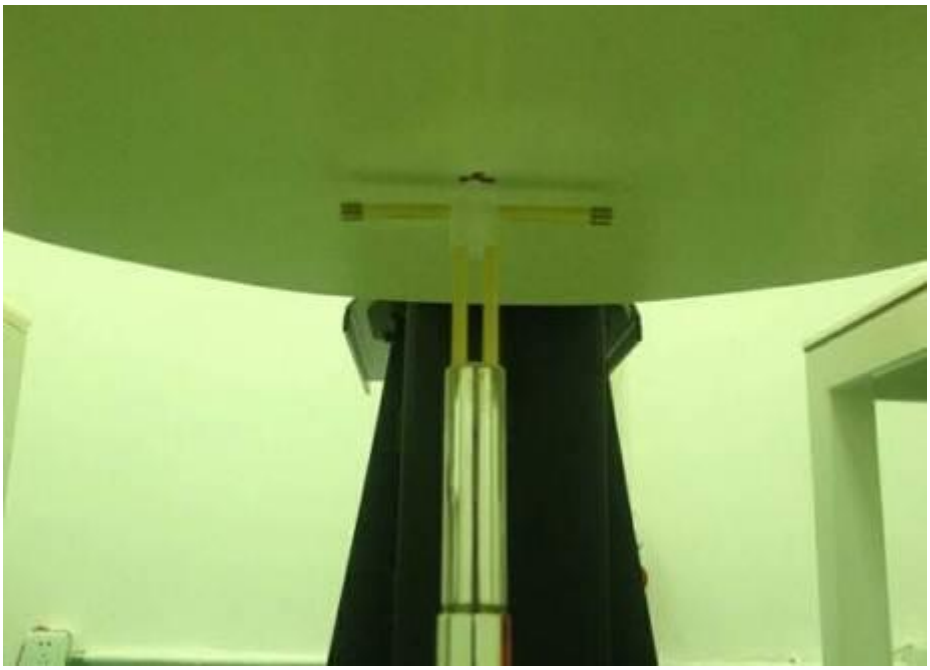
8. System verification

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

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**	
835 MHz	6.03	9.22	6.56	10.0	8.79%	8.46%	2018-8-14
1800 MHz	20.8	39.3	19.6	37.5	-5.77%	-4.63%	2018-8-9
1900 MHz	21.1	40.5	21.4	41.6	1.23%	2.72%	2018-8-9
2450 MHz	24.3	52.9	25.6	56.0	5.19%	5.86%	2018-8-15
2600 MHz	25.5	58.0	25.8	59.6	1.18%	2.76%	2018-9-18
750 MHz	5.29	8.07	5.48	8.04	3.59%	-0.37%	2018-7-26
835 MHz	6.03	9.22	6.28	9.4	4.15%	1.95%	2018-9-12
1750 MHz	20.1	37.3	20.32	36.8	1.09%	-1.34%	2018-9-12
835 MHz	6.29	9.57	6.20	9.36	2.82%	1.52%	2018-8-9
1800 MHz	21.0	39.5	22.5	41.6	8.08%	5.85%	2018-8-14
1900 MHz	21.2	40.4	21.0	39.7	-0.85%	-1.93%	2018-8-14
2450 MHz	24.7	53.1	23.9	50.4	-1.73%	-4.73%	2018-8-16

2600 MHz	25.4	57.1	26.0	58.8	1.80%	1.38%	2018-9-18
750 MHz	5.71	8.6	5.8	8.56	1.58%	-0.47%	2018-7-26
835 MHz	6.29	9.57	6.6	9.88	4.93%	3.24%	2018-9-12
1900 MHz	21.2	40.4	20.28	39.44	-4.34%	-2.37%	2018-9-12

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),

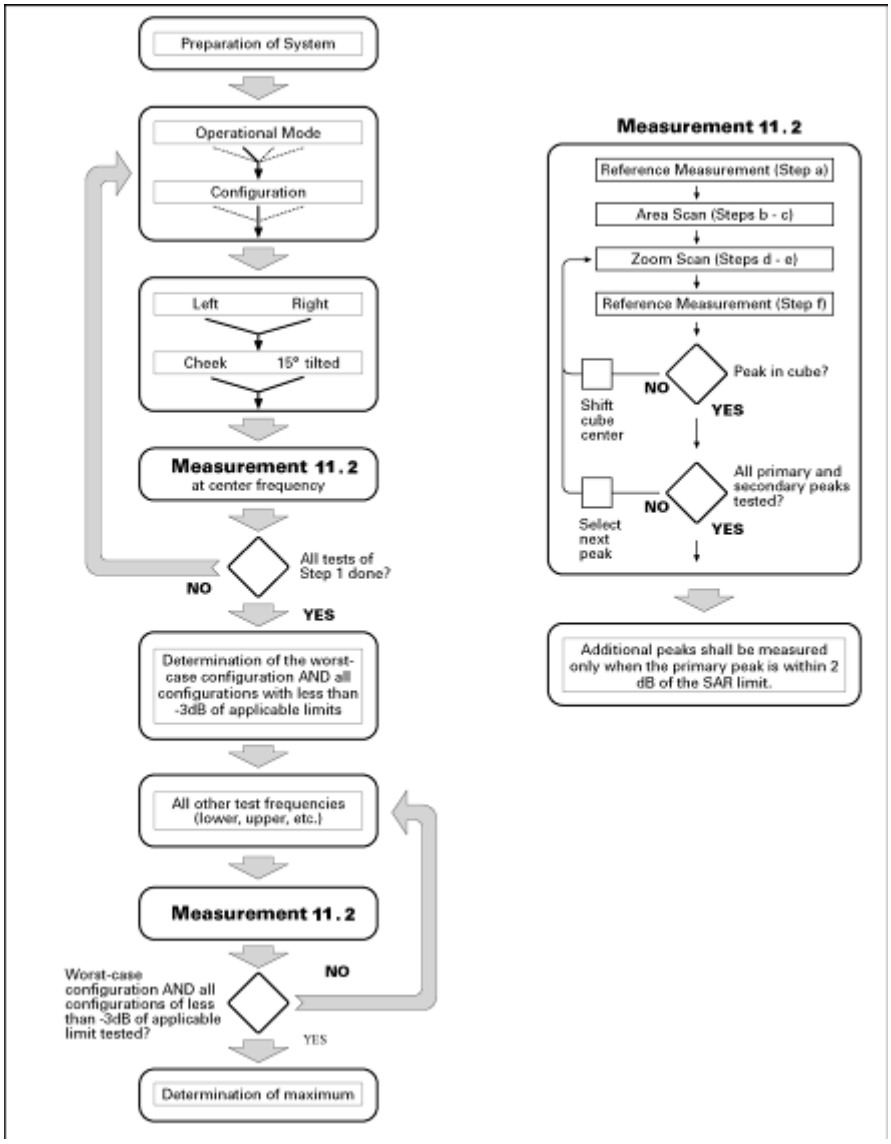
b) all configurations for each device position in a), e.g., antenna extended and retracted, and

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 ±1 mm for frequencies below 3 GHz and ±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 12 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: (GMSK Modulation)

GSM 850MHZ	Conducted Power (dBm)		
	128	**190**	**251**
	33.0	33.0	33.0
GSM 1900MHZ	Conducted Power(dBm)		
	512	**661**	**810**
	31.0	31.0	31.0

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)	31.0	31.0	31.0
3 Txslots	Maximum Target Value (dBm)	29.0	29.0	29.0
4 Txslots	Maximum Target Value (dBm)	28.0	28.0	28.0
GSM 1900 GPRS				
Channel		**512**	**661**	**810**
1 Txslots	Maximum Target Value (dBm)	31.0	31.0	31.0
2 Txslots	Maximum Target Value (dBm)	29.0	29.0	29.0
3 Txslots	Maximum Target Value (dBm)	27.0	27.0	27.0
4 Txslots	Maximum Target Value (dBm)	26.0	26.0	26.0

Table 10.2: EGPRS (8-PSK Modulation)

GSM 850 EGPRS				
Channel		**975**	**38**	**124**
1 Txslots	Maximum Target Value (dBm)	30.0	30.0	30.0
2 Txslots	Maximum Target Value (dBm)	28.0	28.0	28.0
3 Txslots	Maximum Target Value (dBm)	26.0	26.0	26.0
4 Txslots	Maximum Target Value (dBm)	25.0	25.0	25.0
GSM 1900 EGPRS				
Channel		**512**	**661**	**810**
1 Txslots	Maximum Target Value (dBm)	29.0	29.0	29.0
2 Txslots	Maximum Target Value (dBm)	27.0	27.0	27.0
3 Txslots	Maximum Target Value (dBm)	25.0	25.0	25.0
4 Txslots	Maximum Target Value (dBm)	23.0	23.0	23.0

Table 10.3: WCDMA

WCDMA Band II			
Channel	Channel 9262	Channel 9400	Channel 9538
Maximum Target Value (dBm)	24	24	24

WCDMA Band II **HSDPA**					MPR (dB)
Channel		9262	9400	9538	
1	Maximum Target Value (dBm)	23	23	23	1
2	Maximum Target Value (dBm)	23	23	23	1
3	Maximum Target Value (dBm)	23	23	23	1
4	Maximum Target Value (dBm)	23	23	23	1
WCDMA Band II **HSUPA**					MPR (dB)
Channel		9262	9400	9538	
1	Maximum Target Value (dBm)	23	23	23	1
2	Maximum Target Value (dBm)	23	23	23	1
3	Maximum Target Value (dBm)	23	23	23	1
4	Maximum Target Value (dBm)	23	23	23	1
5	Maximum Target Value (dBm)	23	23	23	1

Table 10.4: WCDMA

WCDMA Band IV			
Channel	1537	1638	1738
Maximum Target Value (dBm)	24	24	24

WCDMA Band IV **HSDPA**					MPR (dB)
Channel		1537	1638	1738	
1	Maximum Target Value (dBm)	23	23	23	1
2	Maximum Target Value (dBm)	23	23	23	1
3	Maximum Target Value (dBm)	23	23	23	1
4	Maximum Target Value (dBm)	23	23	23	1
WCDMA Band IV **HSUPA**					MPR (dB)
Channel		1537	1638	1738	
1	Maximum Target Value (dBm)	23	23	23	1
2	Maximum Target Value (dBm)	23	23	23	1
3	Maximum Target Value (dBm)	23	23	23	1
4	Maximum Target Value (dBm)	23	23	23	1
5	Maximum Target Value (dBm)	23	23	23	1

Table 10.5: WCDMA

WCDMA Band V			
Channel	4233	4182	4132
Maximum Target Value (dBm)	24	24	24

WCDMA Band V **HSDPA**					MPR (dB)
Channel		4233	4182	4132	
1	Maximum Target Value (dBm)	23	23	23	1
2	Maximum Target Value (dBm)	23	23	23	1
3	Maximum Target Value (dBm)	23	23	23	1
4	Maximum Target Value (dBm)	23	23	23	1
WCDMA Band V **HSUPA**					MPR (dB)
Channel		4233	4182	4132	
1	Maximum Target Value (dBm)	23	23	23	1
2	Maximum Target Value (dBm)	23	23	23	1
3	Maximum Target Value (dBm)	23	23	23	1
4	Maximum Target Value (dBm)	23	23	23	1
5	Maximum Target Value (dBm)	23	23	23	1

Table 10.6: LTE

LTE Band2			
RB Size	1	50%	100%
Maximum Target Value (dBm)	24.0	23.5	23.0
LTE Band4			
RB Size	1	50%	100%
Maximum Target Value (dBm)	24.5	24.0	23.0
LTE Band7			
RB Size	1	50%	100%
Maximum Target Value (dBm)	24.5	23.5	23.0
LTE Band17			
RB Size	1	50%	100%
Maximum Target Value (dBm)	24	23	23

Table 10.7: WiFi

WiFi 802.11b 2.4G			
Channel	Channel 1	Channel 6	Channel 11
Maximum Target Value (dBm)	17.0	17.0	17.0
WiFi 802.11g 2.4G			
Channel	Channel 1	Channel 6	Channel 11
Maximum Target Value (dBm)	17.0	17.0	17.0
WiFi 802.11n 20M 2.4G			
Channel	Channel 1	Channel 6	Channel 11
Maximum Target Value (dBm)	15	15	15
WiFi 802.11n 40M 2.4G			
Channel	Channel 1	Channel 6	Channel 11
Maximum Target Value (dBm)	16	16	16

Table 10.8: Bluetooth

Bluetooth			
Channel	Channel 0	Channel 39	Channel 78
Maximum Target Value (dBm)	6	6	6

Table 10.9: BLE

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

Table 10.10: 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	25	25	25	24.5	24.5	24.5
1xRTT RC3 SO55	25	25	25	24.5	24.5	24.5
1xRTT RC3 SO32(+ F-SCH)	25	25	25	24.5	24.5	24.5
1xRTT RC3 SO32(+SCH)	25	25	25	24.5	24.5	24.5
1xEVDO RTAP 153.6Kbps	25	25	25	24	24	24
1xEVDO RETAP 4096Bits	24	24	24	24	24	24

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

GSM 850MHZ	Conducted Power (dBm)		
	128	**190**	**251**
	31.9	32.4	31.9
GSM 1900MHZ	Conducted Power(dBm)		
	512	**661**	**810**
	30.2	30.3	30.3

GSM 850 GMSK	Measured Power (dBm)			calculation	Averaged Power (dBm)		
	128	**190**	**251**		**128**	**190**	**251**
1 Txslot	31.9	32.4	31.9	-9.03dB	22.87	23.37	22.87
2 Txslots	29.8	30.0	30.1	-6.02dB	23.54	23.74	23.84
3 Txslots	28.3	28.5	28.6	-4.26dB	24.27	24.47	24.57
4 Txslots	26.7	26.8	26.8	-3.01dB	23.67	23.77	23.77
GSM 1900 GMSK	Measured Power (dBm)			calculation	Averaged Power (dBm)		
	512	**661**	**810**		**512**	**661**	**810**
1 Txslot	30.2	30.3	30.3	-9.03dB	21.17	21.27	21.27
2 Txslots	28.2	28.2	28.1	-6.02dB	21.94	21.94	21.84
3 Txslots	26.4	26.6	26.5	-4.26dB	22.37	22.57	22.47
4 Txslots	25.0	25.1	25.1	-3.01dB	21.97	22.07	22.07

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	29.78	29.73	29.68	-9.03dB	20.75	20.7	20.65
2 Txslots	27.0	27.0	26.9	-6.02dB	20.74	20.74	20.64
3 Txslots	25.5	25.4	25.4	-4.26dB	21.47	21.37	21.37
4 Txslots	24.0	23.9	23.9	-3.01dB	20.97	20.87	20.87
GSM 1900 8-PSK	Measured Power (dBm)			calculation	Averaged Power (dBm)		
	512	**661**	**810**		**512**	**661**	**810**
1 Txslot	27.9	27.87	27.67	-9.03dB	18.87	18.84	18.64
2 Txslots	25.5	25.5	25.4	-6.02dB	19.24	19.24	19.14
3 Txslots	23.0	22.9	22.9	-4.26dB	18.97	18.87	18.87
4 Txslots	21.8	21.9	21.8	-3.01dB	18.77	18.87	18.77

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 3Txslots for 850MHz ; 3Txslots 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	\	23.33	23.58	23.4
HSDPA	1	22.61	22.85	22.66
	2	22.39	22.65	22.48
	3	22.06	22.35	22.19
	4	21.98	22.25	22.06
HSUPA	1	21.96	22.25	22.05
	2	21.01	21.19	21.09
	3	21	21.33	21.02
	4	21.81	22.03	21.93
	5	21.61	21.93	21.82
Item	band	WCDMA BAND IV result(dBm)		
	ARFCN	Channel 1537 (1712.4MHz)	Channel 1638 (1732.6MHz)	Channel 1738 (1752.6MHz)
WCDMA	\	23.22	23.11	23.27
HSDPA	1	22.47	22.37	22.55
	2	22.27	22.19	22.31
	3	22	21.88	22.06
	4	21.9	21.81	21.96
HSUPA	1	21.9	21.78	21.89
	2	20.87	20.79	20.9
	3	20.87	20.84	20.94
	4	21.8	21.61	21.82
	5	21.51	21.44	21.65
Item	band	WCDMA BAND V result(dBm)		
	ARFCN	Channel 4132 (826.4MHz)	Channel 4183 (836.6MHz)	Channel 4233 (846.6MHz)
WCDMA	\	23.27	23.51	23.42
HSDPA	1	22.52	22.77	22.7
	2	22.32	22.59	22.46
	3	22.05	22.28	22.21
	4	21.95	22.21	22.11
HSUPA	1	21.95	22.18	22.04
	2	20.92	21.19	21.05
	3	20.92	21.24	21.09
	4	21.85	22.01	21.97
	5	21.56	21.84	21.8

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	22.50	22.78	22.79
		1	13	22.63	22.90	22.68
		1	24	22.58	22.84	22.95
		12	0	21.60	21.97	21.91
		12	6	21.70	21.99	21.92
		12	13	21.72	21.93	21.87
		25	0	21.66	21.95	21.88
	16QAM	1	0	21.47	21.00	21.52
		1	13	21.75	21.24	21.36
		1	24	21.70	21.14	21.43
		12	0	20.49	20.94	20.78
		12	6	20.55	20.86	20.79
		12	13	20.57	20.99	20.83
		25	0	20.68	20.90	20.83
Bandwidth	Mode	RB Size	RB Offset	Actual output power(dBm)		
				Channel 18650 1855MHz	Channel 18900 1880MHz	Channel 19150 1905MHz
10MHz	QPSK	1	0	22.65	22.87	23.00
		1	25	22.73	23.02	23.07
		1	49	22.53	22.86	22.97
		25	0	21.75	21.96	21.88
		25	13	21.70	22.02	22.04
		25	25	21.71	21.89	22.02
		50	0	21.58	21.92	21.86
	16QAM	1	0	21.02	21.49	21.27
		1	25	21.25	21.57	21.50
		1	49	21.56	21.50	21.56
		25	0	20.83	21.09	21.01
		25	13	20.89	21.18	21.14
		25	25	20.80	21.01	21.07
		50	0	20.67	21.04	21.09

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	22.69	22.89	23.06
		1	37	23.02	23.07	22.97
		1	74	22.69	22.90	22.87
		36	0	21.58	22.01	21.99
		36	19	21.70	21.99	21.93
		36	38	21.78	21.93	21.80
		75	0	21.64	21.97	21.81
	16QAM	1	0	21.39	21.71	21.70
		1	37	21.90	21.41	22.09
		1	74	21.51	21.43	22.09
		36	0	20.57	21.02	20.93
		36	19	20.82	21.08	20.97
		36	38	20.77	21.05	20.99
		75	0	20.73	20.97	20.84
Bandwidth	Mode	RB Size	RB Offset	Actual output power(dBm)		
				Channel 18700 1860MHz	Channel 18900 1880MHz	Channel 19100 1900MHz
20MHz	QPSK	1	0	22.66	22.69	22.73
		1	50	22.90	**23.11**	23.10
		1	99	22.73	22.64	23.00
		50	0	21.82	**22.08**	22.03
		50	25	21.87	21.92	22.03
		50	50	21.84	21.90	21.77
		100	0	21.78	21.94	21.97
	16QAM	1	0	21.32	21.48	21.71
		1	50	22.05	21.45	22.20
		1	99	21.48	21.38	22.02
		50	0	20.69	21.10	20.97
		50	25	20.87	21.14	21.06
		50	50	20.76	20.99	20.90
		100	0	20.75	20.90	20.97

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	22.61	22.77	22.75
		1	7	22.61	22.83	22.71
		1	14	22.63	22.78	22.71
		8	0	21.57	21.90	21.80
		8	4	21.64	21.92	21.82
		8	7	21.64	21.88	21.85
		15	0	21.59	21.87	21.84
	16QAM	1	0	21.12	21.26	21.13
		1	7	21.12	21.94	21.56
		1	14	21.15	21.28	21.59
		8	0	20.68	21.02	20.93
		8	4	20.75	21.04	20.95
		8	7	20.85	21.08	21.02
		15	0	20.67	20.97	20.87
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	22.54	23.01	23.03
		1	3	22.59	23.04	23.16
		1	5	22.57	22.97	23.05
		3	0	22.63	22.97	22.93
		3	1	22.67	23.01	23.23
		3	3	22.78	22.89	23.10
		6	0	21.62	21.87	21.84
	16QAM	1	0	21.27	21.51	21.50
		1	3	21.50	21.81	21.26
		1	5	21.30	21.60	21.56
		3	0	21.60	21.71	21.67
		3	1	21.54	22.16	22.21
		3	3	21.82	21.85	21.66
		6	0	20.58	20.75	20.88

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	22.92	22.83	22.83
		1	13	22.96	22.96	22.94
		1	24	22.80	23.05	22.94
		12	0	22.00	22.11	22.13
		12	6	21.92	22.24	22.09
		12	13	21.95	22.19	22.16
		25	0	21.95	22.09	22.10
	16QAM	1	0	21.52	21.66	21.44
		1	13	21.53	21.75	21.47
		1	24	21.97	21.26	21.71
		12	0	21.03	20.93	21.09
		12	6	20.86	21.09	21.07
		12	13	20.78	21.16	21.06
		25	0	21.02	21.18	21.13
Bandwidth	Mode	RB Size	RB Offset	Actual output power(dBm)		
				Channel 20000 1715MHz	Channel 20175 1732.5MHz	Channel 20350 1750MHz
10MHz	QPSK	1	0	22.83	22.89	23.16
		1	25	22.99	23.15	23.20
		1	49	22.65	22.70	23.18
		25	0	21.97	22.10	22.17
		25	13	22.08	22.16	22.21
		25	25	21.94	22.11	22.01
		50	0	22.01	22.05	22.14
	16QAM	1	0	21.64	21.41	21.80
		1	25	21.79	21.67	22.30
		1	49	21.44	21.47	21.73
		25	0	21.14	21.14	21.16
		25	13	21.12	21.22	21.21
		25	25	21.00	21.23	20.99
		50	0	21.16	21.17	21.12

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	22.91	22.99	22.86
		1	38	22.97	23.02	23.17
		1	74	23.01	22.66	22.87
		36	0	22.04	22.17	22.06
		36	18	22.10	22.20	22.07
		36	39	22.06	22.12	22.00
		75	0	21.97	22.10	22.19
	16QAM	1	0	21.84	21.74	21.90
		1	38	22.17	22.34	22.31
		1	74	21.76	21.73	21.74
		36	0	20.98	21.10	20.98
		36	18	21.07	21.17	21.04
		36	39	20.91	21.06	20.97
		75	0	21.04	21.03	21.14
Bandwidth	Mode	RB Size	RB Offset	Actual output power(dBm)		
				Channel 20050 1720MHz	Channel 20175 1732.5MHz	Channel 20300 1745MHz
20MHz	QPSK	1	0	**23.21**	23.13	23.07
		1	50	22.97	23.03	23.19
		1	99	22.81	22.69	22.85
		50	0	22.09	22.15	22.30
		50	25	22.03	**22.17**	22.14
		50	50	22.03	22.08	22.04
		100	0	22.06	22.06	22.09
	16QAM	1	0	21.74	21.84	21.89
		1	50	22.16	22.23	22.42
		1	99	21.60	21.79	21.62
		50	0	21.03	21.01	21.18
		50	25	21.06	21.12	21.00
		50	50	20.97	21.03	21.11
		100	0	21.02	20.98	21.16

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	22.85	22.70	22.74
		1	8	22.86	22.99	22.69
		1	14	22.86	23.12	22.80
		8	0	22.09	22.16	22.04
		8	4	22.03	22.13	22.02
		8	7	21.98	22.11	21.96
		15	0	21.96	22.02	22.06
	16QAM	1	0	21.58	22.02	22.04
		1	8	21.39	21.42	21.31
		1	15	21.38	21.53	21.63
		8	0	21.29	20.93	21.11
		8	4	21.13	21.03	21.09
		8	7	21.04	21.08	21.06
		15	0	21.00	21.06	21.04
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	22.87	22.93	22.77
		1	2	23.01	22.98	23.06
		1	5	22.93	22.90	22.86
		3	0	22.94	23.16	23.10
		3	1	23.00	23.21	23.18
		3	2	23.11	23.03	23.12
		6	0	22.07	22.16	22.13
	16QAM	1	0	21.72	21.89	21.88
		1	2	21.90	21.64	21.73
		1	5	21.70	21.91	21.41
		3	0	21.91	22.11	21.97
		3	1	21.97	22.15	22.05
		3	2	21.91	22.24	22.18
		6	0	20.89	21.10	21.18

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	23.64	23.42	23.08
		1	13	23.41	23.47	23.32
		1	24	23.45	23.49	23.30
		12	0	22.64	22.47	22.40
		12	6	22.59	22.51	22.33
		12	13	22.57	22.56	22.44
		25	0	22.71	22.51	22.32
	16QAM	1	0	22.17	22.22	21.95
		1	13	22.20	22.03	21.80
		1	24	22.08	22.20	21.59
		12	0	21.62	21.38	21.29
		12	6	21.31	21.29	21.14
		12	13	21.34	21.43	21.23
		25	0	21.75	21.49	21.35
Bandwidth	Mode	RB Size	RB Offset	Actual output power(dBm)		
				Channel 20800 2505MHz	Channel 21100 2535MHz	Channel 21400 2565MHz
10MHz	QPSK	1	0	23.90	23.58	23.48
		1	25	23.54	23.38	23.20
		1	49	23.80	23.55	23.38
		25	0	22.71	22.56	22.39
		25	13	22.60	22.45	22.37
		25	25	22.69	22.46	22.33
		50	0	22.69	22.48	22.44
	16QAM	1	0	22.71	22.08	21.71
		1	25	22.44	22.15	22.08
		1	49	22.99	22.05	22.00
		25	0	21.75	21.68	21.53
		25	13	21.42	21.58	21.41
		25	25	21.63	21.53	21.49
		50	0	21.72	21.56	21.45

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	23.99	23.64	23.45
		1	38	23.61	23.56	23.12
		1	74	23.75	23.87	23.57
		36	0	22.67	22.52	22.45
		36	18	22.64	22.48	22.37
		36	39	22.58	22.43	22.43
		75	0	22.66	22.52	22.42
	16QAM	1	0	22.32	22.25	22.35
		1	38	22.45	22.69	22.13
		1	74	22.23	22.61	22.56
		36	0	21.69	21.39	21.46
		36	18	21.45	21.53	21.35
		36	39	21.70	21.41	21.42
		75	0	21.68	21.62	21.41
Bandwidth	Mode	RB Size	RB Offset	Actual output power(dBm)		
				Channel 20850 2510MHz	Channel 21100 2535MHz	Channel 21350 2560MHz
20MHz	QPSK	1	0	**23.78**	23.39	23.36
		1	50	23.52	23.51	23.39
		1	99	23.49	23.50	23.25
		50	0	**22.70**	22.44	22.39
		50	25	22.45	22.42	22.39
		50	50	22.43	22.59	22.31
		100	0	22.59	22.52	22.36
	16QAM	1	0	22.82	22.71	21.72
		1	50	22.30	22.75	21.95
		1	99	22.79	22.20	21.83
		50	0	21.66	21.43	21.32
		50	25	21.49	21.47	21.32
		50	50	21.53	21.62	21.47
		100	0	21.65	21.49	21.43

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	23.62	23.56	23.51
		1	12	23.7	23.68	23.62
		1	24	23.62	23.59	23.54
		12	0	22.7	22.64	22.51
		12	6	22.74	22.72	22.66
		12	13	22.67	22.72	22.54
		25	0	22.72	22.72	22.57
	16QAM	1	0	22.9	22.82	22.78
		1	12	22.95	22.92	22.86
		1	24	22.85	22.81	22.76
		12	0	21.77	21.7	21.54
		12	6	21.79	21.78	21.69
		12	13	21.72	21.75	21.59
		25	0	21.74	21.74	21.59
Bandwidth	Mode	RB Size	RB Offset	Actual output power(dBm)		
				Channel 23780 709MHz	Channel 23790 710 MHz	Channel 23800 711 MHz
10MHz	QPSK	1	0	23.66	23.62	23.63
		1	25	23.64	23.63	23.6
		1	49	23.79	23.77	23.72
		25	0	22.78	22.75	22.7
		25	13	22.75	22.75	22.7
		25	25	22.9	22.88	22.82
		50	0	22.86	22.84	22.76
	16QAM	1	0	22.92	22.89	22.87
		1	25	23.04	23.02	22.96
		1	49	22.9	22.86	22.83
		25	0	21.8	21.76	21.7
		25	13	21.77	21.76	21.72
		25	25	21.9	21.9	21.83
		50	0	21.87	21.85	21.77

10.4. Wi-Fi and BT Measurement result

Table 10.15: The conducted power for Bluetooth

GFSK			
Channel	Ch0 (2402 MHz)	Ch39 (2441MHz)	CH78 (2480MHz)
Conducted Output Power (dBm)	5.5	5.9	5.4
π /4 DQPSK			
Channel	Ch0 (2402 MHz)	Ch39 (2441MHz)	CH78 (2480MHz)
Conducted Output Power (dBm)	5.1	5.3	4.9
8DPSK			
Channel	Ch0 (2402 MHz)	Ch39 (2441MHz)	CH78 (2480MHz)
Conducted Output Power (dBm)	5.2	5.7	5.1

Table 10.16: The conducted power for BLE

GFSK			
Channel	Ch0 (2402 MHz)	Ch19 (2440MHz)	CH39 (2480MHz)
Conducted Output Power (dBm)	-3	-2	-3

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

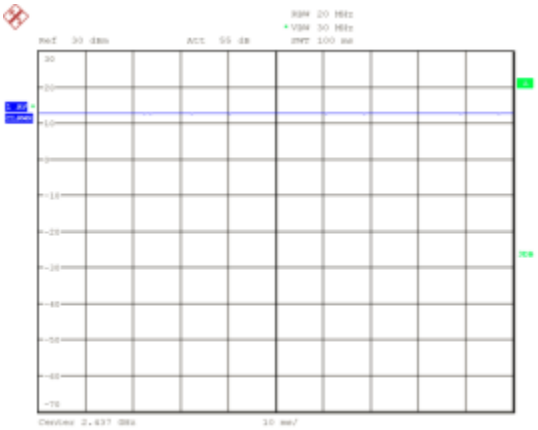


Table 10.17: The average conducted power for WiFi

Mode	Channel	Frequence	Average power(dBm)
802.11 b	1	2412 MHZ	16.28
	6	2437 MHZ	16.05
	11	2462 MHZ	15.75
802.11 g	1	2412 MHZ	16.70
	6	2437 MHZ	16.35
	11	2462 MHZ	15.91
802.11 n 20M	1	2412 MHZ	14.74
	6	2437 MHZ	14.46
	11	2462 MHZ	14.23
802.11 n 40M	3	2422 MHZ	15.85
	6	2437 MHZ	14.53
	9	2452 MHZ	14.46

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.

Table 10.18: 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	24.41	24.62	24.56	24.04	24.17	24.02
1xRTT RC3 SO55	24.46	24.65	24.58	24.05	24.13	24.04
1xRTT RC3 SO32(+ F-SCH)	24.35	24.56	24.54	24.03	24.12	24.01
1xRTT RC3 SO32(+SCH)	24.42	24.61	24.52	24.03	24.11	24.02
1xEVDO RTAP 153.6Kbps	24.31	24.48	24.42	23.79	23.81	23.78
1xEVDO RETAP 4096Bits	23.39	23.63	23.61	23.78	23.86	23.82

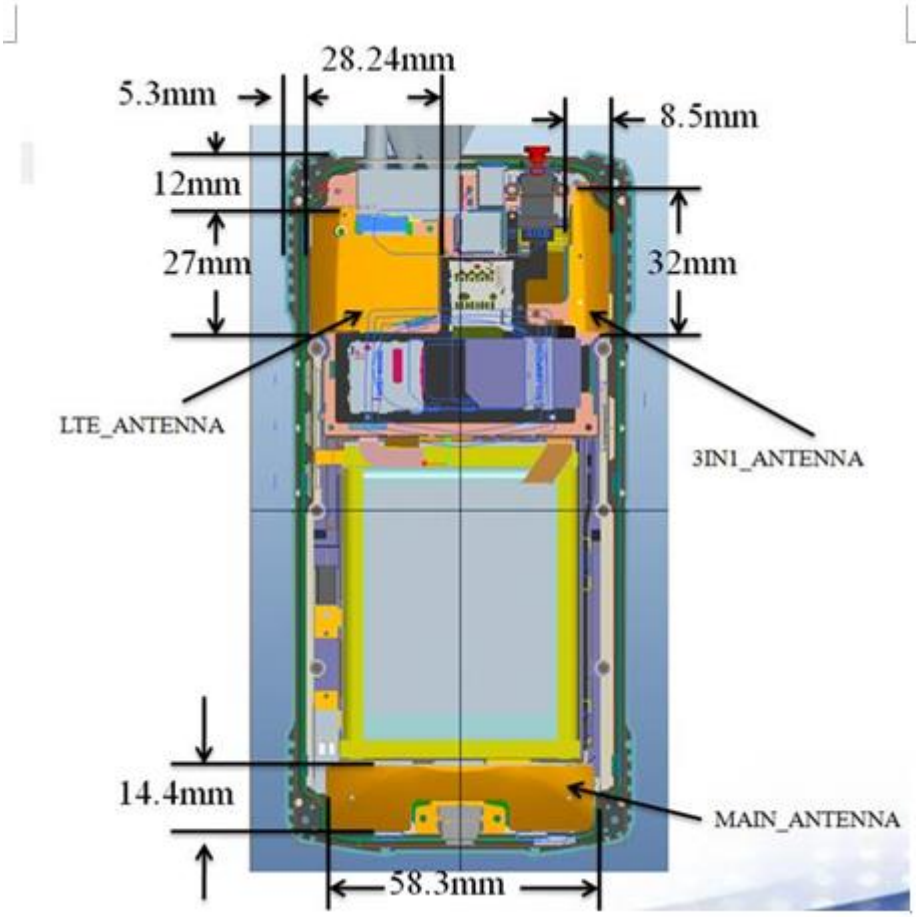
11. Simultaneous TX SAR Considerations

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.

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

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

Evaluation=1.254＜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

SAR Measurement Positions						
Antenna Mode	Phantom	Ground	Left	Right	Top	Bottom
WWAN	Yes	Yes	Yes	Yes	No	Yes
WLAN	Yes	Yes	No	Yes	Yes	No

12. SAR Test Result

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

Frequency		Mode /Band	Side	Test Position	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	Speech	Left	Touch	/	32.4	33.0	1.148	0.0661	0.076	-0.17
836.6	190	Speech	Left	Tilt	/	32.4	33.0	1.148	0.0449	0.052	0.14
836.6	190	Speech	Right	Touch	/	32.4	33.0	1.148	0.0712	0.082	0.18
836.6	190	Speech	Right	Tilt	/	32.4	33.0	1.148	0.0495	0.057	-0.09
848.8	251	Speech	Right	Touch	/	31.9	33.0	1.288	0.0756	0.097	0.12
824.2	128	Speech	Right	Touch	1	31.9	33.0	1.288	0.077	0.099	0.15

Table 12.2: 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.											
Body worn & Hotspot												
836.6	190	GPRS 3TS	Class12	Toward Phantom	10	/	28.5	29.0	1.122	0.0979	0.110	-0.02
836.6	190	GPRS 3TS	Class12	Toward Ground	10	/	28.5	29.0	1.122	0.260	0.292	-0.17
848.8	251	GPRS 3TS	Class12	Toward Ground	10	/	28.6	29.0	1.096	0.253	0.277	0.05
824.2	128	GPRS 3TS	Class12	Toward Ground	10	2	28.3	29.0	1.175	0.303	0.356	0.03
Hotspot												
836.6	190	GPRS 3TS	Class12	Toward Left	10	/	28.5	29.0	1.122	0.0832	0.093	0.04
836.6	190	GPRS 3TS	Class12	Toward Right	10	/	28.5	29.0	1.122	0.115	0.129	0.12
836.6	190	GPRS 3TS	Class12	Toward Bottom	10	/	28.5	29.0	1.122	0.0581	0.065	0.09

Table 12.3: SAR Values (GSM 1900 MHz Band-Head)

Frequency		Mode /Band	Side	Test Position	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	Speech	Left	Touch	3	30.3	31.0	1.175	0.144	0.169	0.17
1880	661	Speech	Left	Tilt	/	30.3	31.0	1.175	0.0361	0.042	0.14
1880	661	Speech	Right	Touch	/	30.3	31.0	1.175	0.0548	0.064	0.11
1880	661	Speech	Right	Tilt	/	30.3	31.0	1.175	0.0402	0.047	-0.08
1909.8	810	Speech	Left	Touch	/	30.3	31.0	1.175	0.0998	0.117	0.15
1850.2	512	Speech	Left	Touch	/	30.2	31.0	1.202	0.110	0.132	0.14

Table 12.4: 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.											
Body worn &Hotspot												
1880	661	GPRS 3TS	Class12	Toward Phantom	10	/	26.6	27.0	1.096	0.174	0.191	0.11
1880	661	GPRS 3TS	Class12	Toward Ground	10	/	26.6	27.0	1.096	0.297	0.326	0.17
1909.8	810	GPRS 3TS	Class12	Toward Ground	10	4	26.5	27.0	1.122	0.374	0.420	0.19
1850.2	512	GPRS 3TS	Class12	Toward Ground	10	/	26.4	27.0	1.148	0.270	0.310	0.11
Hotspot												
1880	661	GPRS 3TS	Class12	Toward Left	10	/	26.6	27.0	1.096	0.133	0.146	-0.07
1880	661	GPRS 3TS	Class12	Toward Right	10	/	26.6	27.0	1.096	0.0504	0.055	0.17
1880	661	GPRS 3TS	Class12	Toward Bottom	10	/	26.6	27.0	1.096	0.172	0.189	0.04

Table 12.5: SAR Values (WCDMA Band II-Head)

Frequency		Mode /Band	Side	Test Position	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	9400	Band2	Left	Touch	5	23.58	24	1.102	0.412	0.454	-0.13
1880	9400	Band2	Left	Tilt	/	23.58	24	1.102	0.109	0.120	0.04
1880	9400	Band2	Right	Touch	/	23.58	24	1.102	0.201	0.221	0.07
1880	9400	Band2	Right	Tilt	/	23.58	24	1.102	0.130	0.143	0.11
1907.6	9538	Band2	Left	Touch	/	23.4	24	1.148	0.260	0.299	-0.09
1852.4	9262	Band2	Left	Touch	/	23.33	24	1.167	0.320	0.373	0.06

Table 12.6: 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.											
Body worn &Hotspot												
1880	9400	Band2	12.2kbps RMC	Toward Phantom	10	/	23.58	24	1.102	0.372	0.410	0.03
1880	9400	Band2	12.2kbps RMC	Toward Ground	10	/	23.58	24	1.102	0.719	0.792	0.03
1907.6	9538	Band2	12.2kbps RMC	Toward Ground	10	6	23.4	24	1.148	0.743	0.853	0.12
1852.4	9262	Band2	12.2kbps RMC	Toward Ground	10	/	23.33	24	1.167	0.664	0.775	0.13
Hotspot												
1880	9400	Band2	12.2kbps RMC	Toward Left	10	/	23.58	24	1.102	0.232	0.256	-0.03
1880	9400	Band2	12.2kbps RMC	Toward Right	10	/	23.58	24	1.102	0.0855	0.094	0.15
1880	9400	Band2	12.2kbps RMC	Toward Bottom	10	/	23.58	24	1.102	0.382	0.421	0.08

Table 12.7: SAR Values (WCDMA Band IV-Head)

Frequency		Mode /Band	Side	Test Position	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	Band4	Left	Touch	7	23.11	24	1.227	0.333	0.409	0.11
1732.6	1413	Band4	Left	Tilt	/	23.11	24	1.227	0.104	0.128	0.16
1732.6	1413	Band4	Right	Touch	/	23.11	24	1.227	0.260	0.319	-0.18
1732.6	1413	Band4	Right	Tilt	/	23.11	24	1.227	0.0801	0.098	0.10
1752.6	1513	Band4	Left	Touch	/	23.27	24	1.183	0.315	0.373	-0.11
1712.4	1312	Band4	Left	Touch	/	23.22	24	1.197	0.322	0.385	0.14

Table 12.8: 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.											
Body worn &Hotspot												
1732.6	1413	Band4	12.2kbps RMC	Toward Phantom	10	8	23.11	24	1.227	0.376	0.462	0.13
1732.6	1413	Band4	12.2kbps RMC	Toward Ground	10	/	23.11	24	1.227	0.347	0.426	0.17
1752.6	1513	Band4	12.2kbps RMC	Toward Phantom	10	/	23.27	24	1.183	0.293	0.347	-0.05
1712.4	1312	Band4	12.2kbps RMC	Toward Phantom	10	/	23.22	24	1.197	0.309	0.370	-0.10
Hotspot												
1732.6	1413	Band4	12.2kbps RMC	Toward Left	10	/	23.11	24	1.227	0.139	0.171	-0.10
1732.6	1413	Band4	12.2kbps RMC	Toward Right	10	/	23.11	24	1.227	0.0864	0.106	0.12
1732.6	1413	Band4	12.2kbps RMC	Toward Bottom	10	/	23.11	24	1.227	0.301	0.369	0.04

Table 12.9: SAR Values (WCDMA Band V-Head)

Frequency		Mode /Band	Side	Test Position	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	4183	Band5	Left	Touch	/	23.51	24	1.119	0.110	0.123	0.17
836.6	4183	Band5	Left	Tilt	/	23.51	24	1.119	0.0929	0.104	0.19
836.6	4183	Band5	Right	Touch	/	23.51	24	1.119	0.119	0.133	0.15
836.6	4183	Band5	Right	Tilt	/	23.51	24	1.119	0.0795	0.089	0.11
846.6	4233	Band5	Right	Touch	/	23.42	24	1.143	0.121	0.138	0.12
826.4	4132	Band5	Right	Touch	9	23.27	24	1.183	0.123	0.146	0.13

Table 12.10: 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.											
Body worn &Hotspot												
836.6	4183	Band5	12.2kbps RMC	Toward Phantom	10	/	23.51	24	1.119	0.118	0.132	0.06
836.6	4183	Band5	12.2kbps RMC	Toward Ground	10	/	23.51	24	1.119	0.228	0.255	0.12
846.6	4233	Band5	12.2kbps RMC	Toward Ground	10	/	23.42	24	1.143	0.215	0.246	-0.07
826.4	4132	Band5	12.2kbps RMC	Toward Ground	10	10	23.27	24	1.183	0.255	0.302	0.01
Hotspot												
836.6	4183	Band5	12.2kbps RMC	Toward Left	10	/	23.51	24	1.119	0.097	0.109	-0.12
836.6	4183	Band5	12.2kbps RMC	Toward Right	10	/	23.51	24	1.119	0.125	0.140	-0.17
836.6	4183	Band5	12.2kbps RMC	Toward Bottom	10	/	23.51	24	1.119	0.0612	0.069	0.16

Table 12.11: SAR Values (LTE Band 2-Head)

Frequency		Mode /Band	Side	Test Position	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	18900	QPSK_20MHz_1RB_50 offset	Left	Touch	/	23.11	24.0	1.227	0.224	0.275	-0.15
1880	18900	QPSK_20MHz_50RB_0 offset	Left	Touch	/	22.08	23.5	1.387	0.191	0.265	0.15
1880	18900	QPSK_20MHz_1RB_50 offset	Left	Tilt	/	23.11	24.0	1.227	0.103	0.126	0.11
1880	18900	QPSK_20MHz_50RB_0 offset	Left	Tilt	/	22.08	23.5	1.387	0.0893	0.124	0.17
1880	18900	QPSK_20MHz_1RB_50 offset	Right	Touch	/	23.11	24.0	1.227	0.160	0.196	0.15
1880	18900	QPSK_20MHz_50RB_0 offset	Right	Touch	/	22.08	23.5	1.387	0.134	0.186	0.15
1880	18900	QPSK_20MHz_1RB_50 offset	Right	Tilt	/	23.11	24.0	1.227	0.103	0.126	0.15
1880	18900	QPSK_20MHz_50RB_0 offset	Right	Tilt	/	22.08	23.5	1.387	0.0862	0.120	0.11
1900	19100	QPSK_20MHz_1RB_50 offset	Left	Touch	/	23.10	24.0	1.230	0.254	0.312	0.18
1900	19100	QPSK_20MHz_50RB_0 offset	Left	Touch	/	22.03	23.5	1.403	0.188	0.264	0.19
1860	18700	QPSK_20MHz_1RB_50 offset	Left	Touch	11	22.90	24.0	1.288	0.281	0.362	0.15
1860	18700	QPSK_20MHz_50RB_0 offset	Left	Touch	/	21.82	23.5	1.472	0.228	0.336	0.11

Table 12.12: 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.										
Body worn &Hotspot											
1880	18900	QPSK_20MHz_1RB_50 offset	Toward Phantom	10	/	23.11	24.0	1.227	0.228	0.280	-0.05
1880	18900	QPSK_20MHz_50RB_0 offset	Toward Phantom	10	/	22.08	23.5	1.387	0.202	0.280	0.11
1880	18900	QPSK_20MHz_1RB_50 offset	Toward Ground	10	/	23.11	24.0	1.227	0.459	0.563	0.05

1880	18900	QPSK_20MHz_50RB_0 offset	Toward Ground	10	/	22.08	23.5	1.387	0.393	0.545	0.18
1900	19100	QPSK_20MHz_1RB_50 offset	Toward Ground	10	12	23.10	24.0	1.230	0.522	0.642	0.12
1900	19100	QPSK_20MHz_50RB_0 offset	Toward Ground	10	/	22.03	23.5	1.403	0.406	0.570	0.17
1860	18700	QPSK_20MHz_1RB_50 offset	Toward Ground	10	/	22.90	24.0	1.288	0.437	0.563	0.02
1860	18700	QPSK_20MHz_50RB_0 offset	Toward Ground	10	/	21.82	23.5	1.472	0.391	0.576	0.10
Hotspot											
1880	18900	QPSK_20MHz_1RB_50 offset	Toward Left	10	/	23.11	24.0	1.227	0.222	0.272	-0.13
1880	18900	QPSK_20MHz_50RB_0 offset	Toward Left	10	/	22.08	23.5	1.387	0.202	0.280	0.02
1880	18900	QPSK_20MHz_1RB_50 offset	Toward Right	10	/	23.11	24.0	1.227	0.0725	0.089	-0.11
1880	18900	QPSK_20MHz_50RB_0 offset	Toward Right	10	/	22.08	23.5	1.387	0.0629	0.087	0.12
1880	18900	QPSK_20MHz_1RB_50 offset	Toward Bottom	10	/	23.11	24.0	1.227	0.253	0.311	-0.13
1880	18900	QPSK_20MHz_50RB_0 offset	Toward Bottom	10	/	22.08	23.5	1.387	0.214	0.297	0.04

Table 12.13: SAR Values (LTE Band 4-Head)

Frequency		Mode /Band	Side	Test Position	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	Left	Touch	/	23.21	24.5	1.346	0.243	**0.327**	0.18
1732.5	20175	QPSK_20MHz_50RB_25 offset	Left	Touch	/	22.17	24.0	1.524	0.198	**0.302**	0.16
1720	20050	QPSK_20MHz_1RB_0 offset	Left	Tilt	/	23.21	24.5	1.346	0.101	**0.136**	0.05
1732.5	20175	QPSK_20MHz_50RB_25 offset	Left	Tilt	/	22.17	24.0	1.524	0.073	**0.111**	0.13
1720	20050	QPSK_20MHz_1RB_0 offset	Right	Touch	/	23.21	24.5	1.346	0.154	**0.207**	0.05
1732.5	20175	QPSK_20MHz_50RB_25 offset	Right	Touch	/	22.17	24.0	1.524	0.122	**0.186**	0.13
1720	20050	QPSK_20MHz_1RB_0 offset	Right	Tilt	/	23.21	24.5	1.346	0.0715	**0.096**	0.17
1732.5	20175	QPSK_20MHz_50RB_25 offset	Right	Tilt	/	22.17	24.0	1.524	0.0611	**0.093**	0.17
1745	20300	QPSK_20MHz_1RB_0 offset	Left	Touch	13	23.07	24.5	1.390	0.241	**0.335**	0.19
1745	20300	QPSK_20MHz_50RB_25 offset	Left	Touch	/	22.14	24.0	1.535	0.175	**0.269**	0.15
1732.5	20175	QPSK_20MHz_1RB_0 offset	Left	Touch	/	23.13	24.5	1.371	0.231	**0.317**	0.17
1720	20050	QPSK_20MHz_50RB_25 offset	Left	Touch	/	22.03	24.0	1.574	0.175	**0.275**	0.12

Table 12.14: 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.										
Body worn & Hotspot											
1720	20050	QPSK_20MHz_1RB_0 offset	Toward Phantom	10	/	23.21	24.5	1.346	0.444	0.598	-0.13
1732.5	20175	QPSK_20MHz_50RB_25 offset	Toward Phantom	10	/	22.17	24.0	1.524	0.360	0.549	0.10
1720	20050	QPSK_20MHz_1RB_0 offset	Toward Ground	10	/	23.21	24.5	1.346	0.496	0.668	0.04

1732.5	20175	QPSK_20MHz_50RB_25 offset	Toward Ground	10	/	22.17	24.0	1.524	0.406	0.619	-0.01
1745	20300	QPSK_20MHz_1RB_0 offset	Toward Ground	10	/	23.07	24.5	1.390	0.535	0.744	0.07
1745	20300	QPSK_20MHz_50RB_25 offset	Toward Ground	10	/	22.14	24.0	1.535	0.409	0.628	0.10
1732.5	20175	QPSK_20MHz_1RB_0 offset	Toward Ground	10	14	23.13	24.5	1.371	0.547	0.750	-0.03
1720	20050	QPSK_20MHz_50RB_25 offset	Toward Ground	10	/	22.03	24.0	1.574	0.318	0.501	0.06
Hotspot											
1720	20050	QPSK_20MHz_1RB_0 offset	Toward Left	10	/	23.21	24.5	1.346	0.156	0.210	0.03
1732.5	20175	QPSK_20MHz_50RB_25 offset	Toward Left	10	/	22.17	24.0	1.524	0.127	0.194	0.16
1720	20050	QPSK_20MHz_1RB_0 offset	Toward Right	10	/	23.21	24.5	1.346	0.0822	0.111	0.17
1732.5	20175	QPSK_20MHz_50RB_25 offset	Toward Right	10	/	22.17	24.0	1.524	0.0704	0.107	0.12
1720	20050	QPSK_20MHz_1RB_0 offset	Toward Bottom	10	/	23.21	24.5	1.346	0.300	0.404	0.17
1732.5	20175	QPSK_20MHz_50RB_25 offset	Toward Bottom	10	/	22.17	24.0	1.524	0.263	0.401	0.13

Table 12.15: SAR Values (LTE Band 7-Head)

Frequency		Mode /Band	Side	Test Position	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.										
2510	20850	QPSK_20MHz_1RB_0offset	Left	Touch	/	23.78	24.5	1.180	0.0705	**0.083**	0.16
2510	20850	QPSK_20MHz_50B_0offset	Left	Touch	/	22.70	23.5	1.202	0.0597	**0.072**	0.12
2510	20850	QPSK_20MHz_1RB_0offset	Left	Tilt	/	23.78	24.5	1.180	0.0148	**0.017**	0.13
2510	20850	QPSK_20MHz_50B_0offset	Left	Tilt	/	22.70	23.5	1.202	0.0134	**0.016**	0.18
2510	20850	QPSK_20MHz_1RB_0offset	Right	Touch	/	23.78	24.5	1.180	0.0339	**0.040**	0.09
2510	20850	QPSK_20MHz_50B_0offset	Right	Touch	/	22.70	23.5	1.202	0.0285	**0.034**	0.13
2510	20850	QPSK_20MHz_1RB_0offset	Right	Tilt	/	23.78	24.5	1.180	0.0215	**0.025**	0.12
2510	20850	QPSK_20MHz_50B_0offset	Right	Tilt	/	22.70	23.5	1.202	0.0152	**0.018**	0.14
2560	21350	QPSK_20MHz_1RB_0offset	Left	Touch	15	23.36	24.5	1.300	0.099	**0.129**	0.14
2560	21350	QPSK_20MHz_50B_0offset	Left	Touch	/	22.39	23.5	1.291	0.0804	**0.104**	0.16
2535	21100	QPSK_20MHz_1RB_0offset	Left	Touch	/	23.39	24.5	1.291	0.0850	**0.110**	0.13
2535	21100	QPSK_20MHz_50B_0offset	Left	Touch	/	22.44	23.5	1.276	0.0675	**0.086**	0.01

Table 12.16: 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.										
Body worn & Hotspot											
2510	20850	QPSK_20MHz_1RB_0offset	Toward Phantom	10	/	23.78	24.5	1.180	0.0469	0.055	0.15
2510	20850	QPSK_20MHz_50B_0offset	Toward Phantom	10	/	22.70	23.5	1.202	0.0403	0.048	0.19
2510	20850	QPSK_20MHz_1RB_0offset	Toward Ground	10	/	23.78	24.5	1.180	0.288	0.340	0.13
2510	20850	QPSK_20MHz_50B_0offset	Toward Ground	10	/	22.70	23.5	1.202	0.232	0.279	0.10
2560	21350	QPSK_20MHz_1RB_0offset	Toward Ground	10	16	23.36	24.5	1.300	0.471	0.612	0.15
2560	21350	QPSK_20MHz_50B_0offset	Toward Ground	10	/	22.39	23.5	1.291	0.383	0.495	0.12

2535	21100	QPSK_20MHz_1RB_0offset	Toward Ground	10	/	23.39	24.5	1.291	0.441	0.569	0.13
2535	21100	QPSK_20MHz_50B_0offset	Toward Ground	10	/	22.44	23.5	1.276	0.338	0.431	-0.18
Hotspot											
2510	20850	QPSK_20MHz_1RB_0offset	Toward Left	10	/	23.78	24.5	1.180	0.0579	0.068	0.16
2510	20850	QPSK_20MHz_50B_0offset	Toward Left	10	/	22.70	23.5	1.202	0.0476	0.057	0.14
2510	20850	QPSK_20MHz_1RB_0offset	Toward Right	10	/	23.78	24.5	1.180	0.00678	0.008	0.13
2510	20850	QPSK_20MHz_50B_0offset	Toward Right	10	/	22.70	23.5	1.202	0.00591	0.007	0.17
2510	20850	QPSK_20MHz_1RB_0offset	Toward Bottom	10	/	23.78	24.5	1.180	0.117	0.138	0.19
2510	20850	QPSK_20MHz_50B_0offset	Toward Bottom	10	/	22.70	23.5	1.202	0.0928	0.112	0.15

Table 12.17: SAR Values(LTE Band 17-Head)

Frequency		Configuration	Side	Test Position	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.										
709	23780	QPSK_10MHz_1RB_ 49 offset Low	Left	Touch	17	23.79	24	1.050	0.048	0.050	0.07
709	23780	QPSK_10MHz_1RB_ 49 offset Low	Left	Tilt	/	23.79	24	1.050	0.033	0.035	0.04
709	23780	QPSK_10MHz_1RB_ 49 offset Low	Right	Touch	/	23.79	24	1.050	0.04	0.042	0.08
709	23780	QPSK_10MHz_1RB_ 49 offset Low	Right	Tilt	/	23.79	24	1.050	0.025	0.026	0.01
709	23780	QPSK_10MHz_25RB_ 25 offset Low	Left	Touch	/	22.90	23	1.023	0.037	0.038	0.01
709	23780	QPSK_10MHz_25RB_ 25 offset Low	Left	Tilt	/	22.90	23	1.023	0.025	0.026	0.05
709	23780	QPSK_10MHz_25RB_ 25 offset Low	Right	Touch	/	22.90	23	1.023	0.031	0.032	0.05
709	23780	QPSK_10MHz_25RB_ 25 offset Low	Right	Tilt	/	22.90	23	1.023	0.019	0.019	0.03

Table 12.18: 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.										
Body worn & Hotspot											
709	23780	QPSK_10MHz_1RB_ 49 offset Low	Toward Phantom	10	/	23.79	24	1.050	0.051	0.054	-0.03
709	23780	QPSK_10MHz_1RB_ 49 offset Low	Toward Ground	10	18	23.79	24	1.050	0.148	0.155	0.03
709	23780	QPSK_10MHz_25RB_ 25 offset Low	Toward Phantom	10	/	22.90	23	1.023	0.038	0.039	0.03
709	23780	QPSK_10MHz_25RB_ 25 offset Low	Toward Ground	10	/	22.90	23	1.023	0.115	0.118	-0.02
Hotspot											
709	23780	QPSK_10MHz_1RB_ 49 offset Low	Toward Left	10	/	23.79	24	1.050	0.07	0.073	0.05
709	23780	QPSK_10MHz_1RB_ 49 offset Low	Toward Right	10	/	23.79	24	1.050	0.05	0.052	0.07

709	23780	QPSK_10MHz_1RB_ 49 offset Low	Toward Bottom	10	/	23.79	24	1.050	0.014	0.015	0.08
709	23780	QPSK_10MHz_25RB_ 25 offset Low	Toward Left	10	/	22.90	23	1.023	0.052	0.053	0.11
709	23780	QPSK_10MHz_25RB_ 25 offset Low	Toward Right	10	/	22.90	23	1.023	0.037	0.038	0.16
709	23780	QPSK_10MHz_25RB_ 25 offset Low	Toward Bottom	10	/	22.90	23	1.023	0.011	0.011	0.01

Table 12.19: SAR Values(CDMA BC0-Head)

Frequency		Mode /Band	Side	Test Position	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	1xRTT	Left	Touch	19	24.65	25	1.084	0.246	0.267	0.05
836.52	384	1xRTT	Left	Tilt	/	24.65	25	1.084	0.135	0.146	0.15
836.52	384	1xRTT	Right	Touch	/	24.65	25	1.084	0.216	0.234	0.1
836.52	384	1xRTT	Right	Tilt	/	24.65	25	1.084	0.132	0.143	0.11
836.52	384	1xEV-DO-0	Left	Touch	/	24.48	25	1.127	0.198	0.223	-0.01
836.52	384	1xEV-DO-0	Left	Tilt	/	24.48	25	1.127	0.172	0.194	0.03
836.52	384	1xEV-DO-0	Right	Touch	/	24.48	25	1.127	0.182	0.205	0.13
836.52	384	1xEV-DO-0	Right	Tilt	/	24.48	25	1.127	0.181	0.204	0.17
836.52	384	1xEV-DO-A	Left	Touch	/	23.63	24	1.089	0.198	0.216	-0.1
836.52	384	1xEV-DO-A	Left	Tilt	/	23.63	24	1.089	0.201	0.219	0.03
836.52	384	1xEV-DO-A	Right	Touch	/	23.63	24	1.089	0.215	0.234	-0.01
836.52	384	1xEV-DO-A	Right	Tilt	/	23.63	24	1.089	0.159	0.173	-0.03

Table 12.20: SAR Values (CDMA BC0 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.											
Body worn & Hotspot												
836.52	384	CDMA BC0	1xEV-DO-0	Toward Phantom	10	/	24.48	25	1.127	0.314	0.354	0.01
836.52	384	CDMA BC0	1xEV-DO-0	Toward Ground	10	20	24.48	25	1.127	0.569	0.641	-0.1
Hotspot												
836.52	384	CDMA BC0	1xEV-DO-0	Toward Left	10	/	24.48	25	1.127	0.236	0.266	0.06
836.52	384	CDMA BC0	1xEV-DO-0	Toward Right	10	/	24.48	25	1.127	0.254	0.286	0.06
836.52	384	CDMA BC0	1xEV-DO-0	Toward Bottom	10	/	24.48	25	1.127	0.143	0.161	0.08

Table 12.21: SAR Values(CDMA BC1-Head)

Frequency		Mode /Band	Side	Test Position	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	1xRTT	Left	Touch	21	24.13	24.5	1.089	0.445	0.485	0.01
1880	600	1xRTT	Left	Tilt	/	24.13	24.5	1.089	0.102	0.111	0.12
1880	600	1xRTT	Right	Touch	/	24.13	24.5	1.089	0.191	0.208	0.05
1880	600	1xRTT	Right	Tilt	/	24.13	24.5	1.089	0.114	0.124	0.15
1880	600	1xEV-DO-0	Left	Touch	/	23.81	24	1.045	0.407	0.425	0.03
1880	600	1xEV-DO-0	Left	Tilt	/	23.81	24	1.045	0.112	0.117	0.05
1880	600	1xEV-DO-0	Right	Touch	/	23.81	24	1.045	0.237	0.248	0.08
1880	600	1xEV-DO-0	Right	Tilt	/	23.81	24	1.045	0.125	0.131	0.04
1880	600	1xEV-DO-A	Left	Touch	/	23.86	24	1.033	0.546	0.564	0.07
1880	600	1xEV-DO-A	Left	Tilt	/	23.86	24	1.033	0.112	0.116	0.09
1880	600	1xEV-DO-A	Right	Touch	/	23.86	24	1.033	0.326	0.337	0.05
1880	600	1xEV-DO-A	Right	Tilt	/	23.86	24	1.033	0.131	0.135	-0.06

Table 12.22: SAR Values (CDMA BC1 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.											
Body worn & Hotspot												
1880	600	CDMA BC0	1xEV-DO-0	Toward Phantom	10	/	23.81	24	1.045	0.444	0.464	-0.01
1880	600	CDMA BC0	1xEV-DO-0	Toward Ground	10	/	23.81	24	1.045	1.02	1.066	-0.04
1851.25	25	CDMA BC0	1xEV-DO-0	Toward Ground	10	/	23.79	24	1.050	0.705	0.740	-0.03
1908.75	1175	CDMA BC0	1xEV-DO-0	Toward Ground	10	22	23.78	24	1.052	1.07	1.126	-0.04
Hotspot												
1880	600	CDMA BC0	1xEV-DO-0	Toward Left	10	/	23.81	24	1.045	0.257	0.268	0.04
1880	600	CDMA BC0	1xEV-DO-0	Toward Right	10	/	23.81	24	1.045	0.097	0.101	0.02
1880	600	CDMA BC0	1xEV-DO-0	Toward Bottom	10	/	23.81	24	1.045	0.418	0.437	-0.1
Repeated												
1908.75	1175	CDMA BC0	1xEV-DO-0	Toward Ground	10	/	23.78	24	1.052	1.05	1.105	-0.08
Second Supply												
1908.75	1175	CDMA BC0	1xEV-DO-0	Toward Ground	10	/	23.78	24	1.052	0.748	0.787	0.12

Table 12.23 SAR Values (Wi-Fi 802.11b - Head)

Frequency		Mode /Band	Side	Test Position	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	802.11b	Left	Touch	/	16.28	17.0	1.180	0.0715	0.084	0.15
2412	1	802.11b	Left	Tilt	/	16.28	17.0	1.180	0.0516	0.061	0.15
2412	1	802.11b	Right	Touch	/	16.28	17.0	1.180	0.154	0.182	0.11
2412	1	802.11b	Right	Tilt	/	16.28	17.0	1.180	0.0977	0.115	0.18
2462	11	802.11b	Right	Touch	/	15.75	17.0	1.334	0.0906	0.121	-0.17
2437	6	802.11b	Right	Touch	23	16.05	17.0	1.245	0.147	0.183	0.04

Table 12.24 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	10	/	16.28	17.0	1.180	0.0423	0.050	0.14
2412	1	Wi-Fi 2450	802.11b	Toward Ground	10	/	16.28	17.0	1.180	0.0472	0.056	0.17
2412	1	Wi-Fi 2450	802.11b	Toward Right	10	/	16.28	17.0	1.180	0.0786	0.093	0.17
2412	1	Wi-Fi 2450	802.11b	Toward Top	10	/	16.28	17.0	1.180	0.0384	0.045	0.06
2462	11	Wi-Fi 2450	802.11b	Toward Right	10	/	15.75	17.0	1.334	0.0631	0.084	0.15
2437	6	Wi-Fi 2450	802.11b	Toward Right	10	24	16.05	17.0	1.245	0.129	0.161	0.13

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. Because the EUT not support hotspot mode ,so WiFi and WWAN simultaneous transmission is not support.

Table 13.1 Simultaneous transmission SAR

Standalone SAR for 2G(W/Kg)					
Test Position			GSM 850	GSM 1900	Highest SAR
Head	Left	Cheek	0.076	0.169	0.169
		Tilt 15°	0.052	0.042	0.052
	Right	Cheek	0.082	0.064	0.082
		Tilt 15°	0.099	0.047	0.099
Body worn&hotspot 10mm	Phantom Side		0.110	0.191	0.191
	Ground Side		0.356	0.420	0.420
Hotspot 10mm	Left Side		0.093	0.146	0.146
	Right Side		0.129	0.055	0.129
	Bottom Side		0.065	0.189	0.189
	Top Side		--	--	--

Standalone SAR for 3G(W/Kg)								
Test Position			WCDMA Band II	WCDMA Band IV	WCDMA Band V	CDMA BC0	CDMA BC1	Highest SAR
Head	Left	Cheek	0.454	0.409	0.123	0.267	**0.564**	**0.564**
		Tilt 15°	0.120	0.128	0.104	0.219	**0.117**	0.219
	Right	Cheek	0.221	0.319	0.146	0.234	**0.337**	**0.337**
		Tilt 15°	0.143	0.098	0.089	0.204	**0.135**	0.143
Body worn&hotspot 10mm	Phantom Side		0.410	0.462	0.132	0.354	0.464	0.464
	Ground Side		0.853	0.426	0.302	0.641	1.126	1.126
Hotspot 10mm	Left Side		0.256	0.171	0.109	0.266	0.268	0.268
	Right Side		0.094	0.106	0.140	0.286	0.101	0.286
	Bottom Side		0.421	0.369	0.069	0.161	0.437	0.437
	Top Side		--	--	--	--	--	--

Standalone SAR for 4G(W/Kg)							
Test Position			LTE Band 2	LTE Band 4	LTE Band 7	LTE Band 17	Highest SAR
Head	Left	Cheek	0.362	0.335	0.129	0.050	0.335
		Tilt 15°	0.126	0.136	0.017	0.035	0.136
	Right	Cheek	0.196	0.207	0.040	0.042	0.207
		Tilt 15°	0.126	0.096	0.025	0.026	0.126
Body worn&hotspot 10mm	Phantom Side		0.280	0.598	0.055	0.054	0.598
	Ground Side		0.642	0.750	0.612	0.155	0.750
Hotspot 10mm	Left Side		0.280	0.210	0.068	0.073	0.280
	Right Side		0.089	0.111	0.008	0.052	0.111
	Bottom Side		0.311	0.404	0.138	0.015	0.404
	Top Side		--	--	--	--	--

Transmission SAR(W/Kg)									
Test Position			2G	3G	4G	2.4G WiFi	5G WiFi	BT	SUM
Head	Left	Cheek	0.169	0.564	0.335	0.084	0.054	0.166	0.730
		Tilt 15°	0.052	0.219	0.136	0.061	0.058	0.166	0.385
	Right	Cheek	0.082	0.337	0.207	0.183	0.083	0.166	0.520
		Tilt 15°	0.099	0.143	0.126	0.115	0.090	0.166	0.309
Body worn&hotspot 10mm	Phantom Side		0.191	0.464	0.598	0.050	0.020	0.083	0.681
	Ground Side		0.420	1.126	0.750	0.056	0.150	0.083	1.276
Hotspot 10mm	Left Side		0.146	0.268	0.280	--	--	0.083	0.363
	Right Side		0.129	0.286	0.111	0.161	0.086	0.083	0.447
	Bottom Side		0.189	0.437	0.404	--	--	0.083	0.520
	Top Side		--	--	--	0.045	0.052	0.083	0.083

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.					
1908.75	1175	1xEV-DO-0	Toward Ground	1.07	1.05	1.02

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 16.1: List of Main Instruments

No.	Name	Type	Serial Number	Calibration Date	Valid Period
01	Network analyzer	N5242A	MY51221755	Dec 25, 2017	1 year
02	Power meter	NRVD	102257	May 11, 2018	1 year
03	Power sensor	NRV-Z5	100241		
			100644		
04	Signal Generator	E4438C	MY49072044	May 11, 2018	1 Year
05	Amplifier	NTWPA-0086010F	12023024	No Calibration Requested	
06	Coupler	778D	MY4825551	May 11, 2018	1 year
07	BTS	E5515C	MY50266468	Dec 25, 2017	1 year
08	BTS	MT8820C	6201240338	Dec 25, 2017	1 year
09	E-field Probe	ES3DV3	3252	Sep 4, 2018	1 year
				Aug 31, 2017	1 year
10	DAE	SPEAG DAE4	1244	Dec 4,2017	1 year
11	Dipole Validation Kit	SPEAG D835V2	4d112	Oct 22, 2015	3 year
		SPEAG D750V3	1144	Aug 03,2015	3 year
		SPEAG D1800V2	2d153	Mar 23,2018	1year
		SPEAG D1900V2	5d151	Dec 6,2017	1 year
		SPEAG D2450V2	858	Oct 30,2015	3 year
		SPEAG D2600V2	1031	Oct 30,2015	3 year

ANNEX A. GRAPH RESULTS

Fig.1 GSM 850MHz Cheek Right Low

Date/Time: 2018/8/14
Electronics: DAE4 Sn1244
Medium: Head 850MHz
Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.897 S/m; εr = 42.402; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃ Liquid Temperature:22.5 ℃
Communication System: GSM 850MHz; Frequency: 824.2 MHz; Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3252ConvF(6.19, 6.19, 6.19);
Low Cheek Right GSM 850MHz/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.0777 W/kg
Low Cheek Right GSM 850MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.749 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 0.0910 W/kg
SAR(1 g) = 0.077 W/kg; SAR(10 g) = 0.060 W/kg
Maximum value of SAR (measured) = 0.0802 W/kg

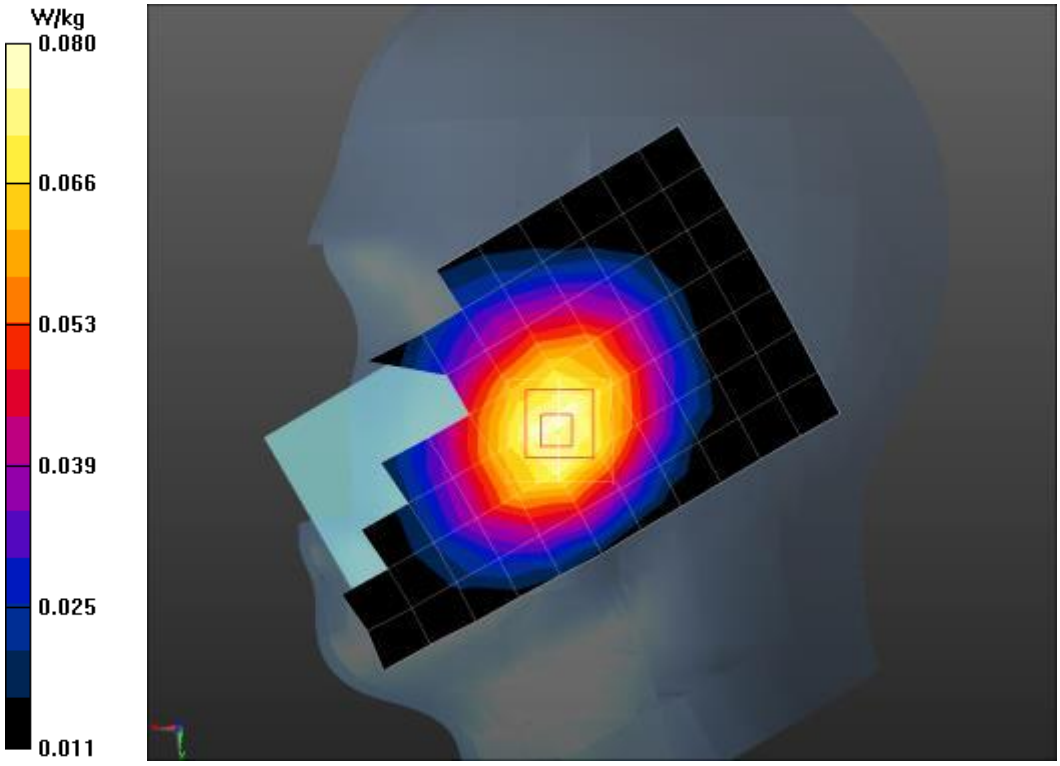


Fig.2 GPRS 850MHz 3TS Toward Ground Low With 10mm

Date/Time: 2018/8/9
Electronics: DAE4 Sn1244
Medium: Body 850MHz
Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.97 S/m; εr = 54.515; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃ Liquid Temperature:22.5 ℃
Communication System: GPRS 850MHz 3TS; Frequency: 824.2 MHz; Duty Cycle: 1:2.7
Probe: ES3DV3 - SN3252ConvF(6.14 6.14, 6.14);
Low Toward Ground GPRS 850MHz 3TS With 10mm/Area Scan (9x14x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.315 W/kg
Low Toward Ground GPRS 850MHz 3TS With 10mm/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.81 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.376 W/kg
SAR(1 g) = 0.303 W/kg; SAR(10 g) = 0.230 W/kg
Maximum value of SAR (measured) = 0.319 W/kg

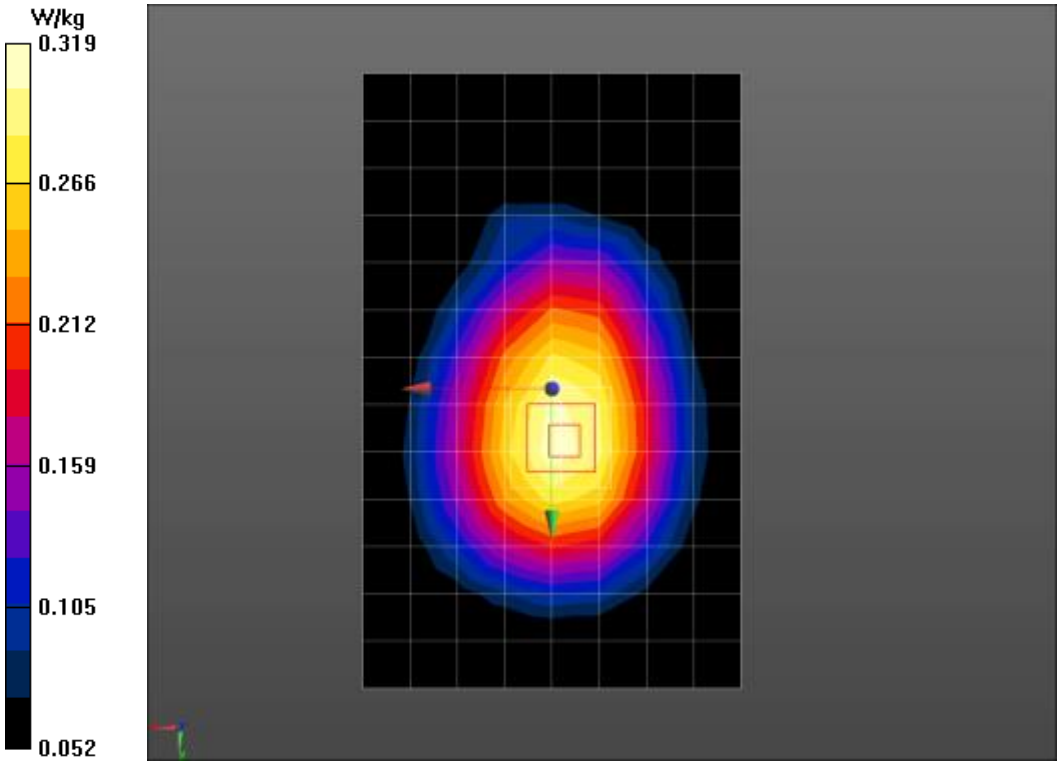


Fig.3 GSM 1900MHz Cheek Left Middle

Date/Time: 2018/8/9
Electronics: DAE4 Sn1244
Medium: Head 1900MHz
Medium parameters used: f = 1880 MHz; σ = 1.421 S/m; εr = 38.858; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃ Liquid Temperature:22.5 ℃
Communication System: GSM 1900MHz; Frequency: 1880 MHz; Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3252ConvF(5.11, 5.11, 5.11)
Middle Cheek Left GSM 1900MHz/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.128 W/kg
Middle Cheek Left GSM 1900MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.694 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 0.236 W/kg
SAR(1 g) = 0.144 W/kg; SAR(10 g) = 0.084 W/kg
Maximum value of SAR (measured) = 0.158 W/kg

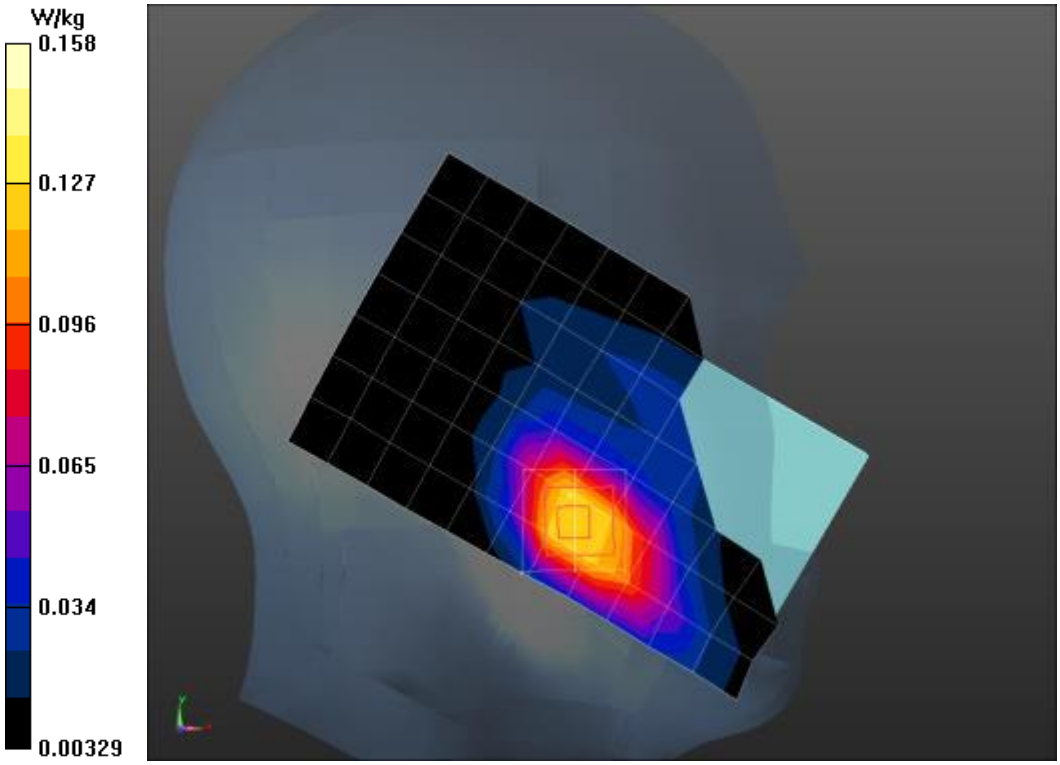


Fig.4 GPRS 1900MHz 3TS Toward Ground High With 10mm

Date/Time: 2018/8/14
Electronics: DAE4 Sn1244
Medium: Body 1900MHz
Medium parameters used: f = 1910 MHz; σ = 1.525 S/m; εr = 51.922; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃ Liquid Temperature:22.5 ℃
Communication System: GPRS 1900MHz 3TS; Frequency: 1909.8 MHz; Duty Cycle: 1:2.7
Probe: ES3DV3 - SN3252ConvF(4.69, 4.69, 4.69)
High Toward Ground GPRS 1900MHz 3TS With 10mm/Area Scan (9x14x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.371 W/kg
High Toward Ground GPRS 1900MHz 3TS With 10mm/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.840 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 0.641 W/kg
SAR(1 g) = 0.374 W/kg; SAR(10 g) = 0.206 W/kg
Maximum value of SAR (measured) = 0.426 W/kg

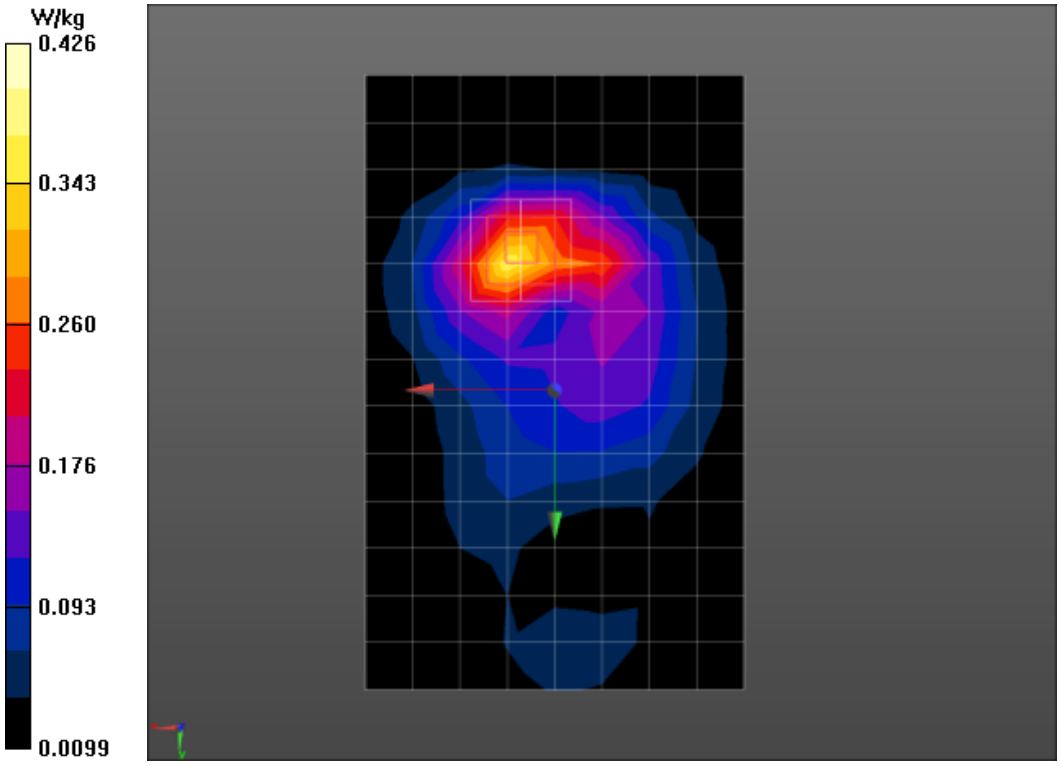


Fig.5 WCDMA Band2 Cheek Left Middle

Date/Time: 2018/8/9
Electronics: DAE4 Sn1244
Medium: Head 1900MHz
Medium parameters used: f = 1880 MHz; σ = 1.421 S/m; εr = 38.858; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃ Liquid Temperature:22.5 ℃
Communication System: WCDMA Band 2; Frequency: 1880 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(5.11, 5.11, 5.11)
Middle Cheek Left WCDMA Band2/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.382 W/kg
Middle Cheek Left WCDMA Band2/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.935 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 0.670 W/kg
SAR(1 g) = 0.412 W/kg; SAR(10 g) = 0.244 W/kg
Maximum value of SAR (measured) = 0.450 W/kg

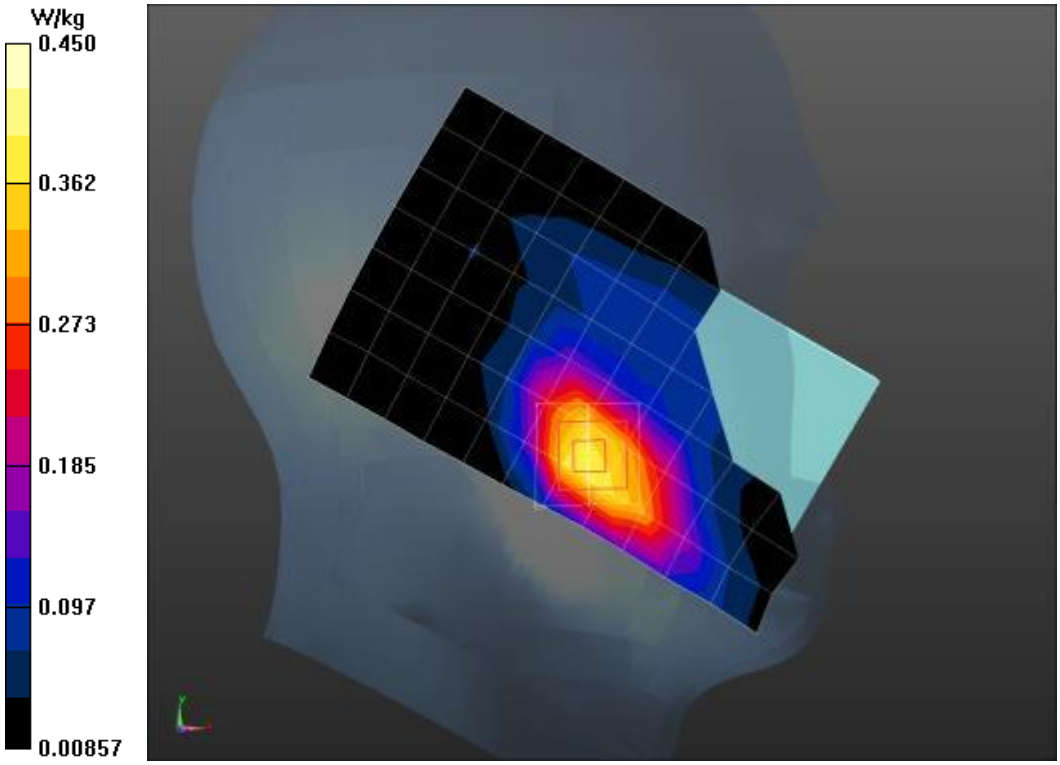


Fig.6 WCDMA Band2 Toward Ground High With 10mm

Date/Time: 2018/8/14
Electronics: DAE4 Sn1244
Medium: Body 1900MHz
Medium parameters used: f = 1908 MHz; σ = 1.523 S/m; εr = 51.93; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃ Liquid Temperature:22.5 ℃
Communication System: WCDMA Band 2; Frequency: 1907.6 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(4.69,4.69,4.69)

High Toward Ground WCDMA Band2 With 10mm/Area Scan (9x14x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.802 W/kg

High Toward Ground WCDMA Band2 With 10mm/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.69 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 1.27 W/kg
SAR(1 g) = 0.743 W/kg; SAR(10 g) = 0.410 W/kg
Maximum value of SAR (measured) = 0.822 W/kg

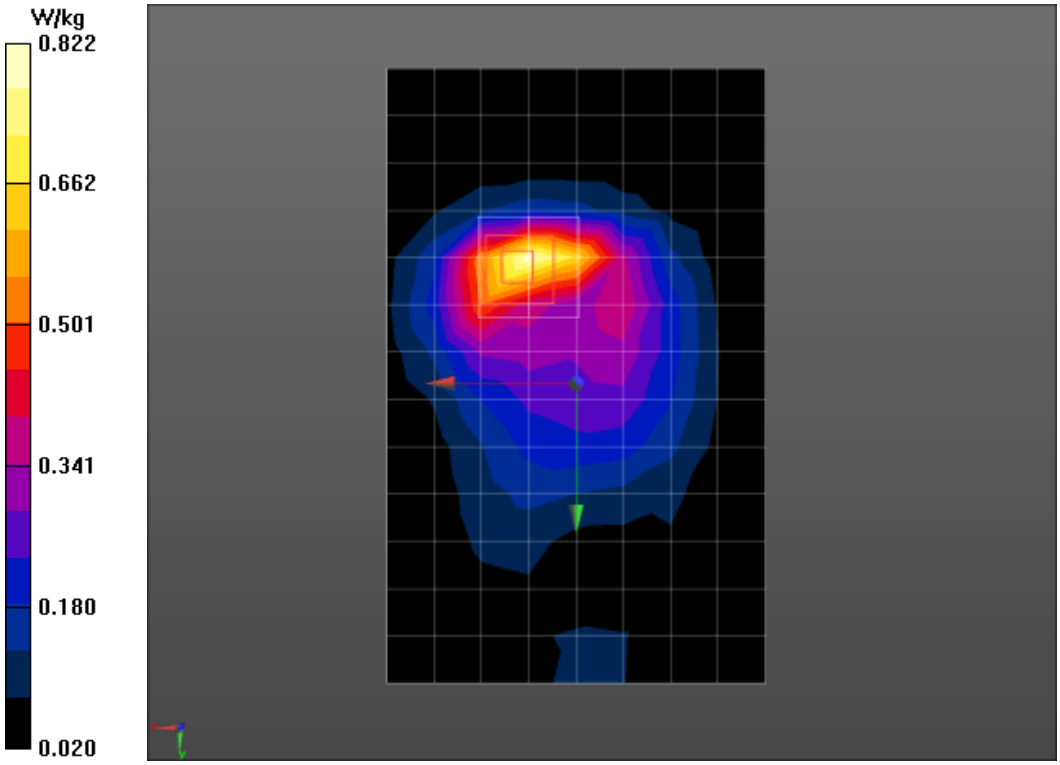


Fig.7 WCDMA Band4 Cheek Left Middle

Date/Time: 2018/8/9
Electronics: DAE4 Sn1244
Medium: Head 1800MHz
Medium parameters used: f = 1733 MHz; σ = 1.304 S/m; εr = 39.258; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃ Liquid Temperature:22.5 ℃
Communication System: WCDMA Band 4; Frequency: 1732.6 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(5.3, 5.3, 5.3);
Middle Cheek Left WCDMA Band4/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.308 W/kg
Middle Cheek Left WCDMA Band4/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.343 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 0.528 W/kg
SAR(1 g) = 0.333 W/kg; SAR(10 g) = 0.205 W/kg
Maximum value of SAR (measured) = 0.366 W/kg

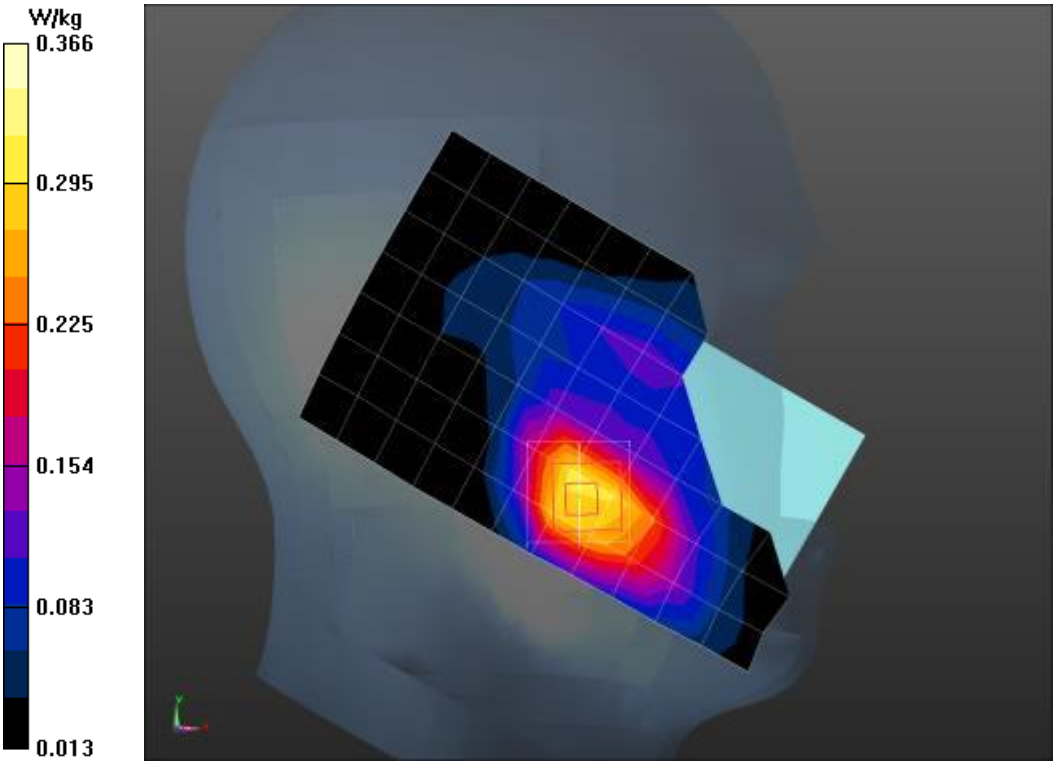


Fig.8 WCDMA Band4 Toward Phantom Middle With 10mm

Date/Time: 2018/8/14
Electronics: DAE4 Sn1244
Medium: Body 1800MHz
Medium parameters used: f = 1733 MHz; σ = 1.46 S/m; εr = 52.625; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃ Liquid Temperature:22.5 ℃
Communication System: WCDMA Band 4; Frequency: 1732.6 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(4.95,4.95,4.95);
Middle Toward Phantom WCDMA Band4 With 10mm/Area Scan (9x14x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.392 W/kg
Middle Toward Phantom WCDMA Band4 With 10mm/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.29 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 0.625 W/kg
SAR(1 g) = 0.376 W/kg; SAR(10 g) = 0.231 W/kg
Maximum value of SAR (measured) = 0.396 W/kg

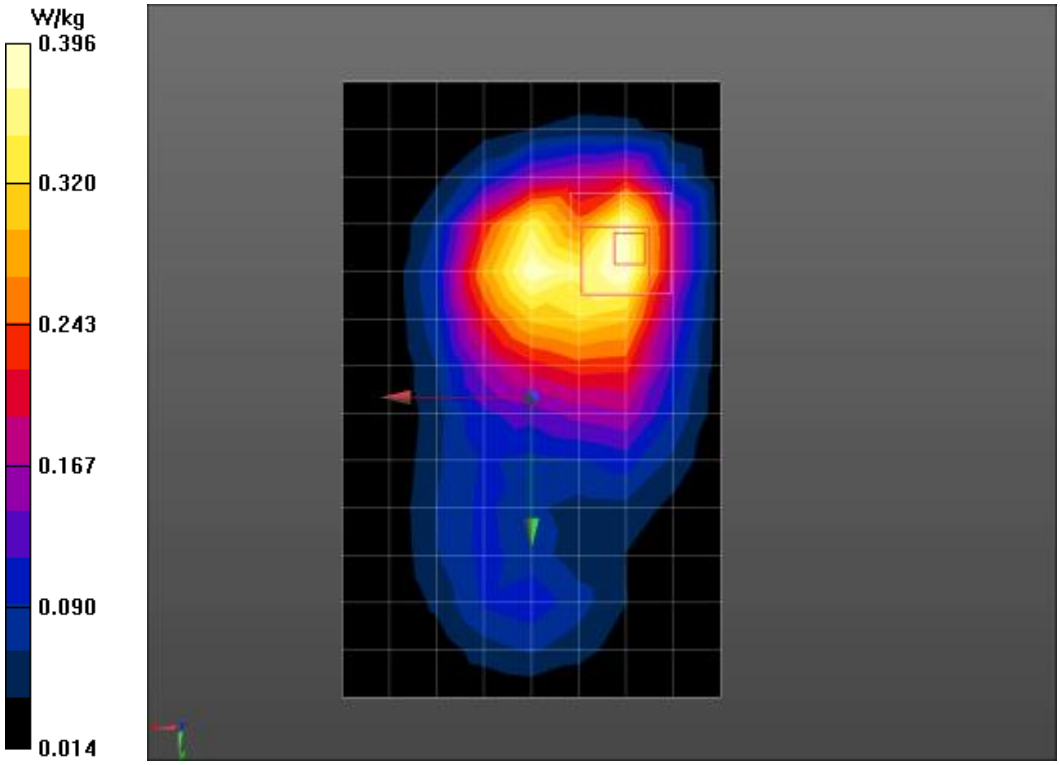


Fig.9 WCDMA Band5 Cheek Right Low

Date/Time: 2018/8/14
Electronics: DAE4 Sn1244
Medium: Head 850MHz
Medium parameters used: f = 826.4 MHz; σ = 0.899 S/m; εr = 42.376; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃ Liquid Temperature:22.5 ℃
Communication System: WCDMA Band 5; Frequency: 826.4 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(6.19, 6.19, 6.19);
Low Cheek Right WCDMA Band 5/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.127 W/kg
Low Cheek Right WCDMA Band 5/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.466 V/m; Power Drift = 0.13dB
Peak SAR (extrapolated) = 0.146 W/kg
SAR(1 g) = 0.123 W/kg; SAR(10 g) = 0.098 W/kg
Maximum value of SAR (measured) = 0.129 W/kg

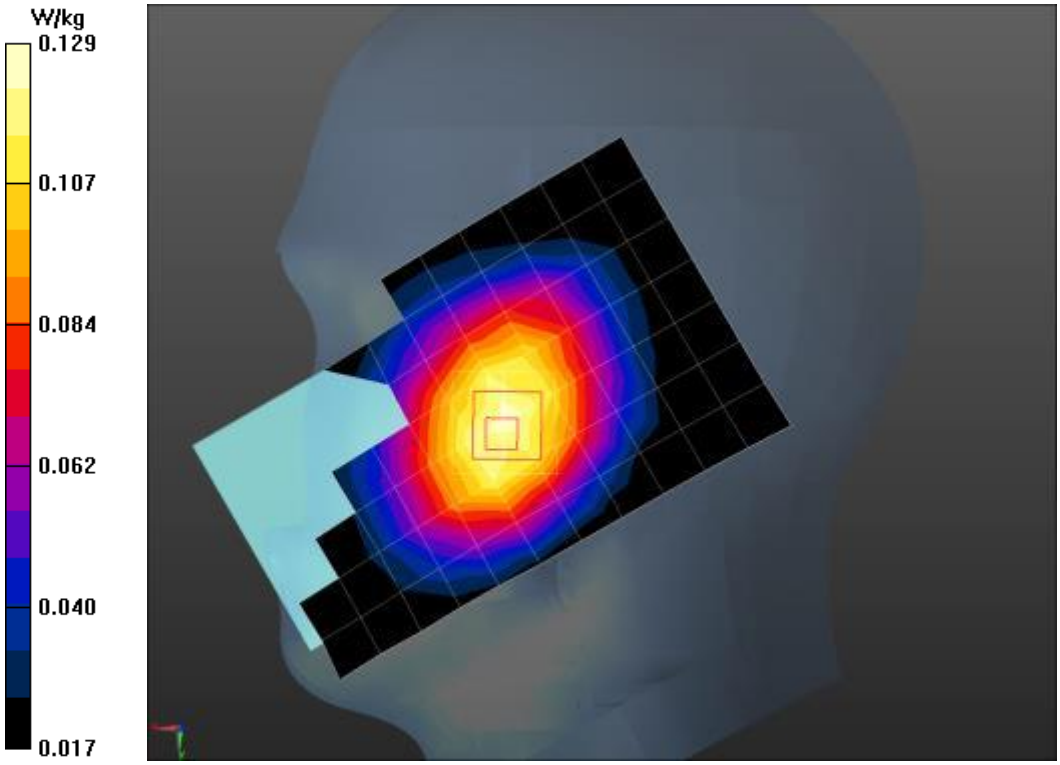


Fig.10 WCDMA Band 5 Toward Ground Low With 10mm

Date/Time: 2018/8/9
Electronics: DAE4 Sn1244
Medium: Body 835MHz
Medium parameters used: f = 826.4 MHz; σ = 0.973 S/m; εr = 54.491; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃ Liquid Temperature:22.5 ℃
Communication System: WCDMA Band 5; Frequency: 826.4 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(6.14, 6.14, 6.14);
Low Toward Ground WCDMA Band5 With 10mm/Area Scan (9x14x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.261 W/kg
Low Toward Ground WCDMA Band5 With 10mm/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.30 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.311 W/kg
SAR(1 g) = 0.255 W/kg; SAR(10 g) = 0.194 W/kg
Maximum value of SAR (measured) = 0.267 W/kg

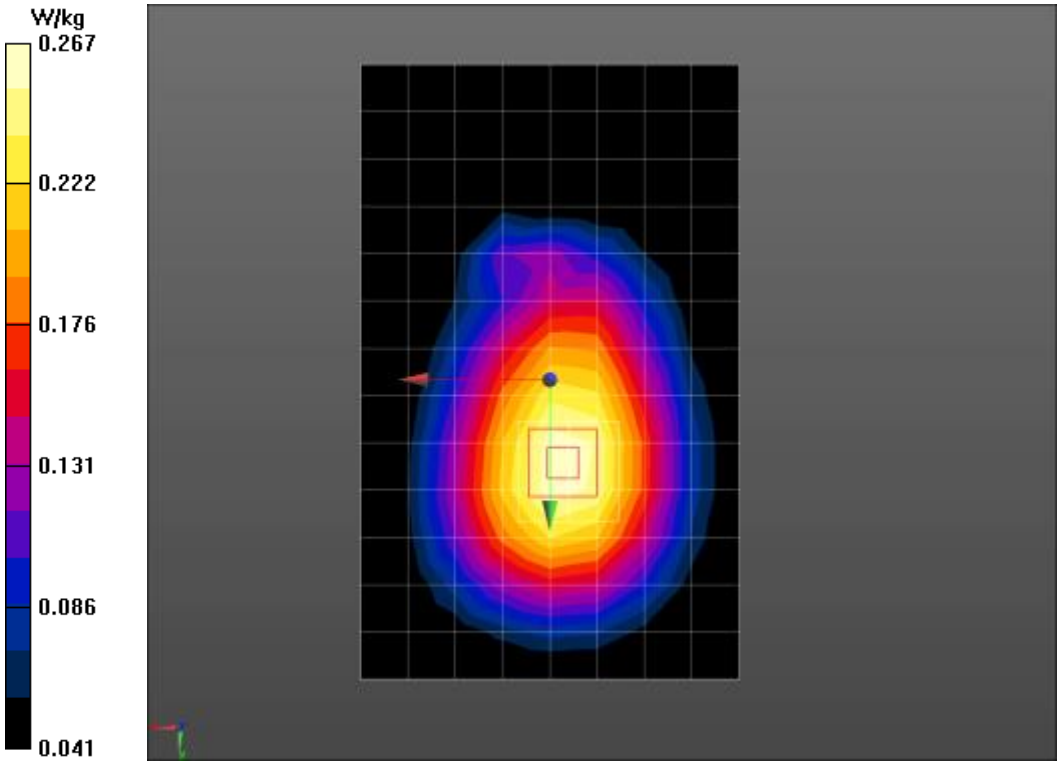


Fig.11 LTE Band2 20MHz 1RB 50 Cheek Left Low

Date/Time: 2018/8/9
Electronics: DAE4 Sn1244
Medium: Head 1900MHz
Medium parameters used: f = 1860 MHz; σ = 1.403 S/m; εr = 38.926; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃ Liquid Temperature:22.5 ℃
Communication System: LTE Band 2; Frequency: 1860 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(5.11, 5.11, 5.11)
Low Cheek Left LTE Band2 20MHz 1RB 50/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.282 W/kg
Low Cheek Left LTE Band2 20MHz 1RB 50/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.165 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 0.432 W/kg
SAR(1 g) = 0.281 W/kg; SAR(10 g) = 0.176 W/kg
Maximum value of SAR (measured) = 0.301 W/kg

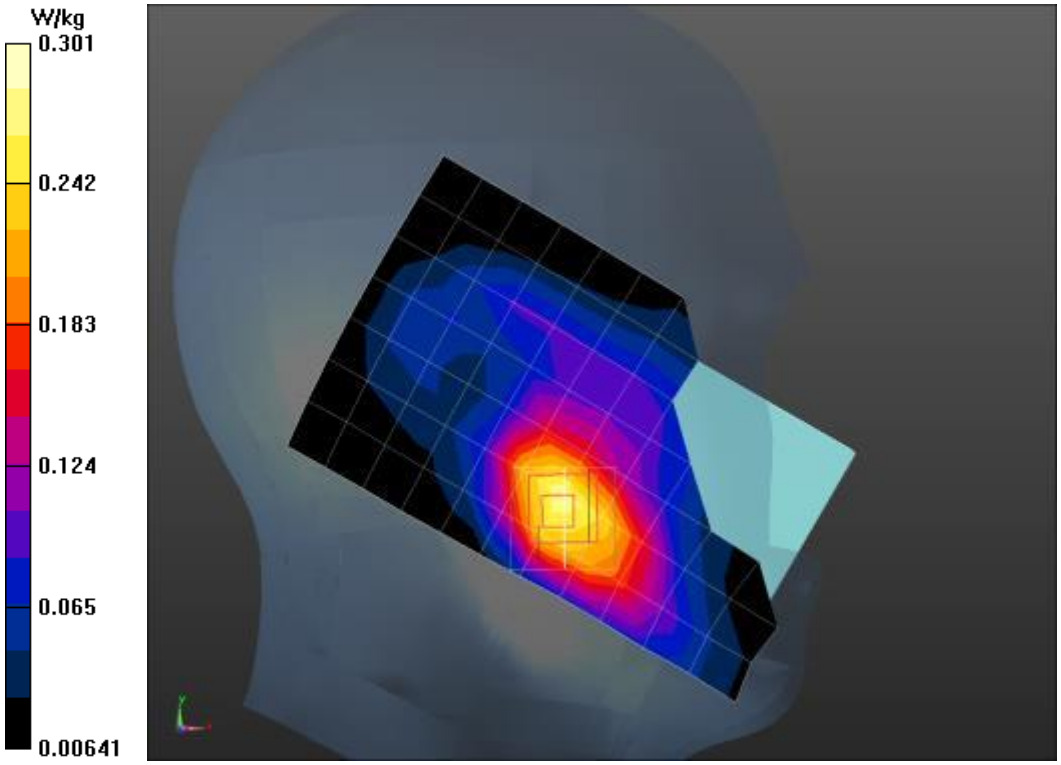


Fig.12 LTE Band2 20MHz 1RB 50 Toward Ground High With 10mm

Date/Time: 2018/8/14
Electronics: DAE4 Sn1244
Medium: Body 1900MHz
Medium parameters used: f = 1900 MHz; σ = 1.515 S/m; εr = 51.954; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃ Liquid Temperature:22.5 ℃
Communication System: LTE Band 2; Frequency: 1900 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(4.69, 4.69, 4.69)
High Toward Ground LTE Band2 20MHz 1RB 50 With 10mm/Area Scan (9x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.458 W/kg
High Toward Ground LTE Band2 20MHz 1RB 50 With 10mm/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.88 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 0.872 W/kg
SAR(1 g) = 0.522 W/kg; SAR(10 g) = 0.296 W/kg
Maximum value of SAR (measured) = 0.584 W/kg

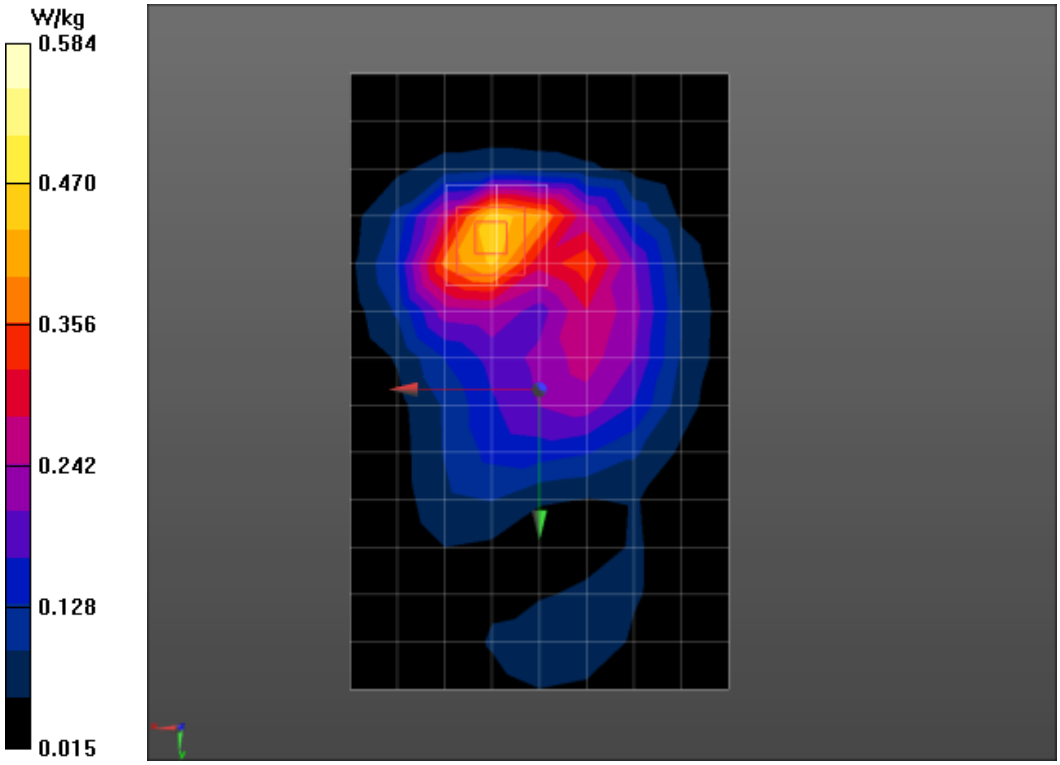


Fig.13 LTE Band4 20MHz 1RB 0 Cheek Left High

Date/Time: 2018/8/9
Electronics: DAE4 Sn1244
Medium: Head 1800MHz
Medium parameters used: f = 1745 MHz; σ = 1.315 S/m; εr = 39.214; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃ Liquid Temperature:22.5 ℃
Communication System: LTE Band 4; Frequency: 1745 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(5.3, 5.3, 5.3);
High Cheek Left LTE Band4 20MHz 1RB 0/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.243 W/kg
High Cheek Left LTE Band4 20MHz 1RB 0/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.968 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 0.352 W/kg
SAR(1 g) = 0.241 W/kg; SAR(10 g) = 0.158 W/kg
Maximum value of SAR (measured) = 0.261 W/kg

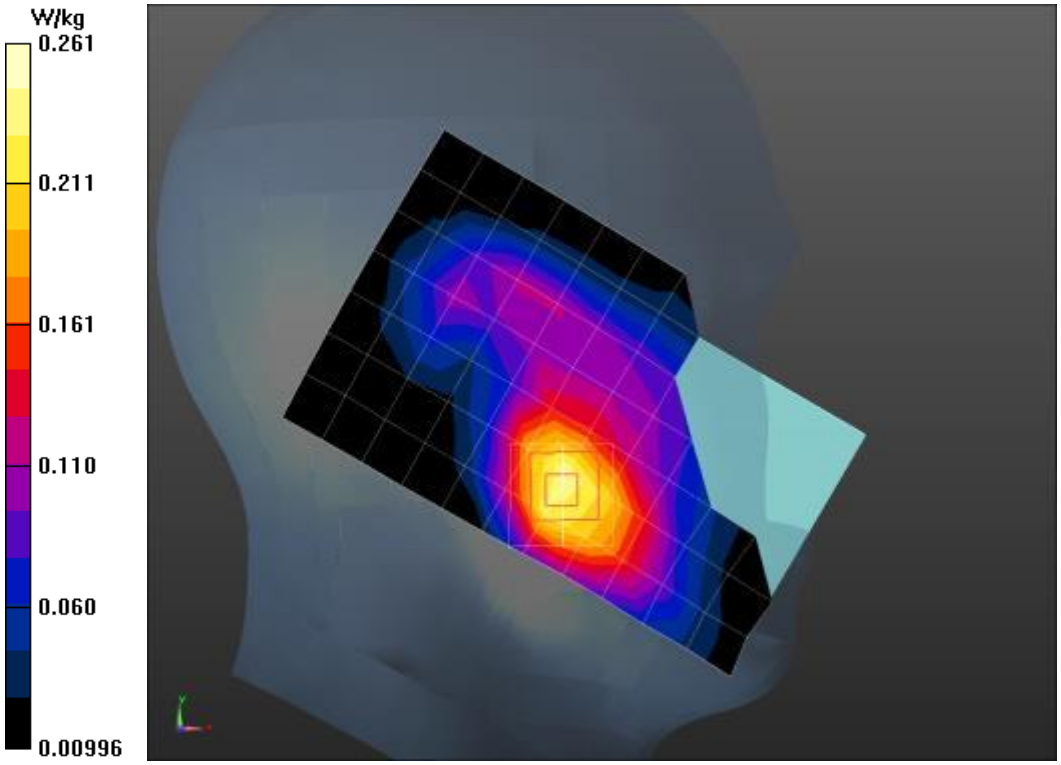


Fig.14 LTE Band4 20MHz 1RB 0 Toward Ground Middle With 10mm

Date/Time: 2018/8/14
Electronics: DAE4 Sn1244
Medium: Body 1800MHz
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.459 S/m; εr = 52.627; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃ Liquid Temperature:22.5 ℃
Communication System: LTE Band 4; Frequency: 1732.5 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(4.95, 4.95, 4.95);
Middle Toward Ground LTE Band4 20MHz 1RB 0 With 10mm/Area Scan (9x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.546 W/kg
Middle Toward Ground LTE Band4 20MHz 1RB 0 With 10mm/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.57 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.817 W/kg
SAR(1 g) = 0.547 W/kg; SAR(10 g) = 0.355 W/kg
Maximum value of SAR (measured) = 0.585 W/kg

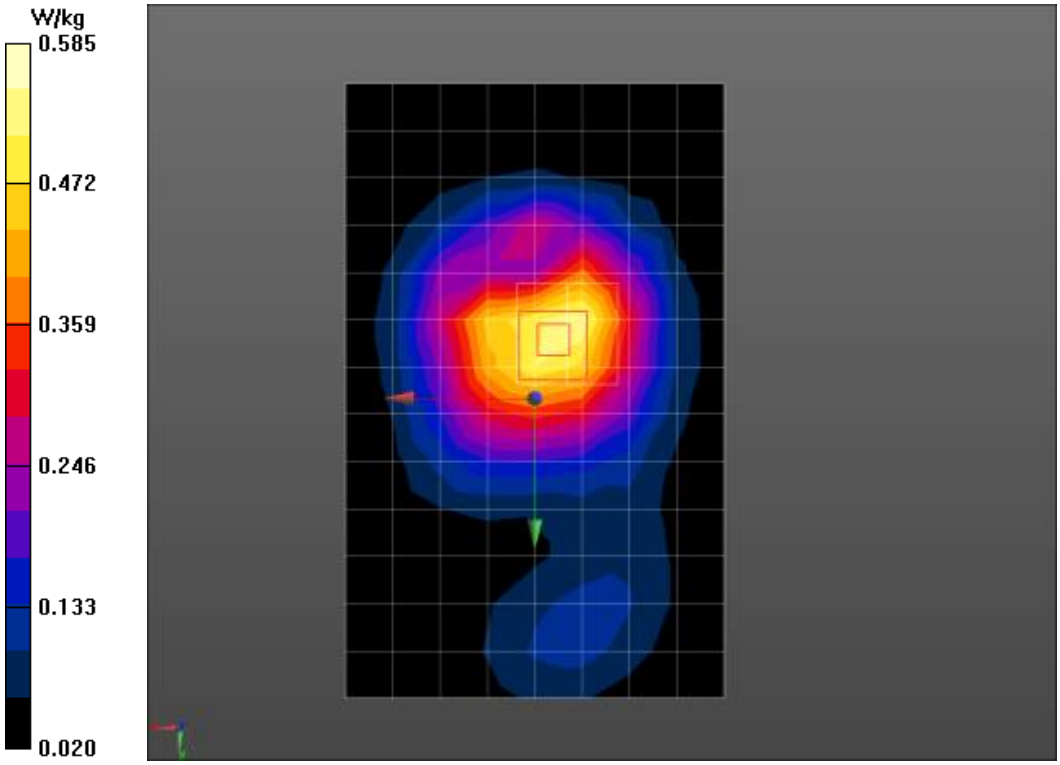


Fig.15 LTE Band7 20MHz 1RB 0 Cheek Left High

Date/Time: 2018/9/18
Electronics: DAE4 Sn1244
Medium: Head 2600MHz
Medium parameters used: f = 2560 MHz; σ = 1.968 S/m; εr = 39.043; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃ Liquid Temperature:22.5 ℃
Communication System: LTE Band 7; Frequency: 2560 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(4.44, 4.44, 4.44)
High Cheek Left LTE Band7 20MHz 1RB 0/Area Scan (10x16x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.103 W/kg
High Cheek Left LTE Band7 20MHz 1RB 0/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.866 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 0.187 W/kg
SAR(1 g) = 0.099 W/kg; SAR(10 g) = 0.051 W/kg
Maximum value of SAR (measured) = 0.109 W/kg

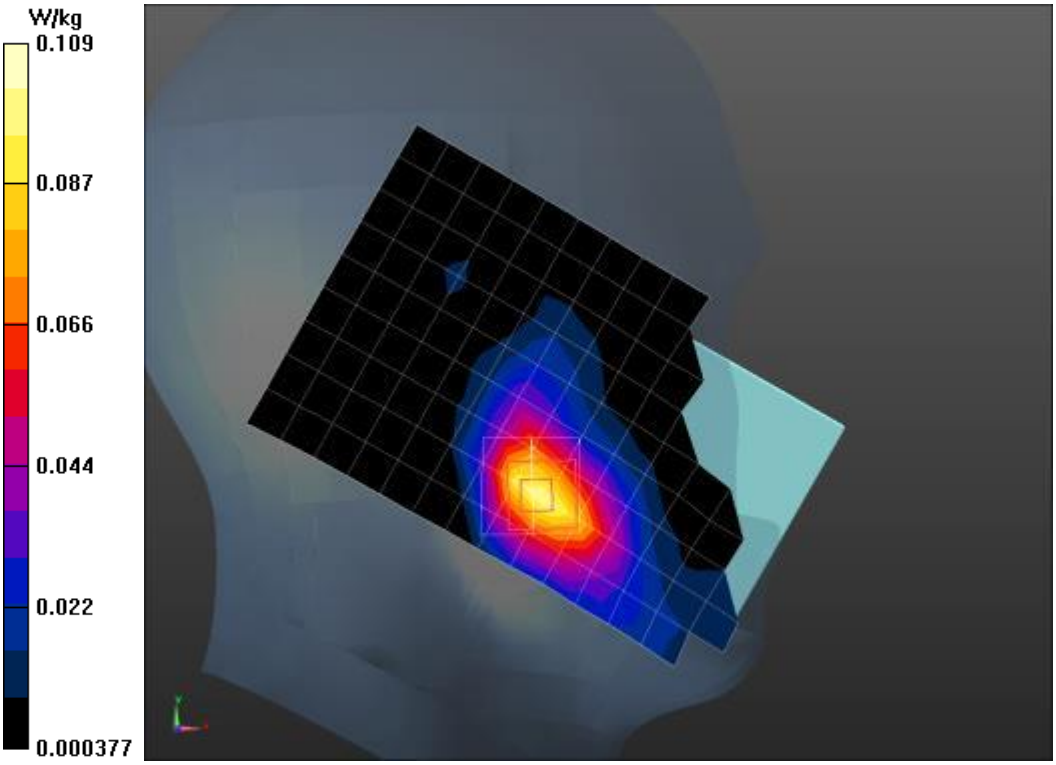


Fig.16 LTE Band7 20MHz 1RB 0 Toward Ground High With 10mm

Date/Time: 2018/9/18
Electronics: DAE4 Sn1244
Medium: Body 2600MHz
Medium parameters used: f = 2560 MHz; σ = 2.089 S/m; εr = 52.194; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃ Liquid Temperature:22.5 ℃
Communication System: LTE Band 7; Frequency: 2560 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(4.22, 4.22, 4.22);
High Toward Ground LTE Band7 20MHz 1RB 0 With 10mm/Area Scan (11x17x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.490 W/kg
High Toward Ground LTE Band7 20MHz 1RB 0 With 10mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.994 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 0.956 W/kg
SAR(1 g) = 0.471 W/kg; SAR(10 g) = 0.218 W/kg
Maximum value of SAR (measured) = 0.532 W/kg

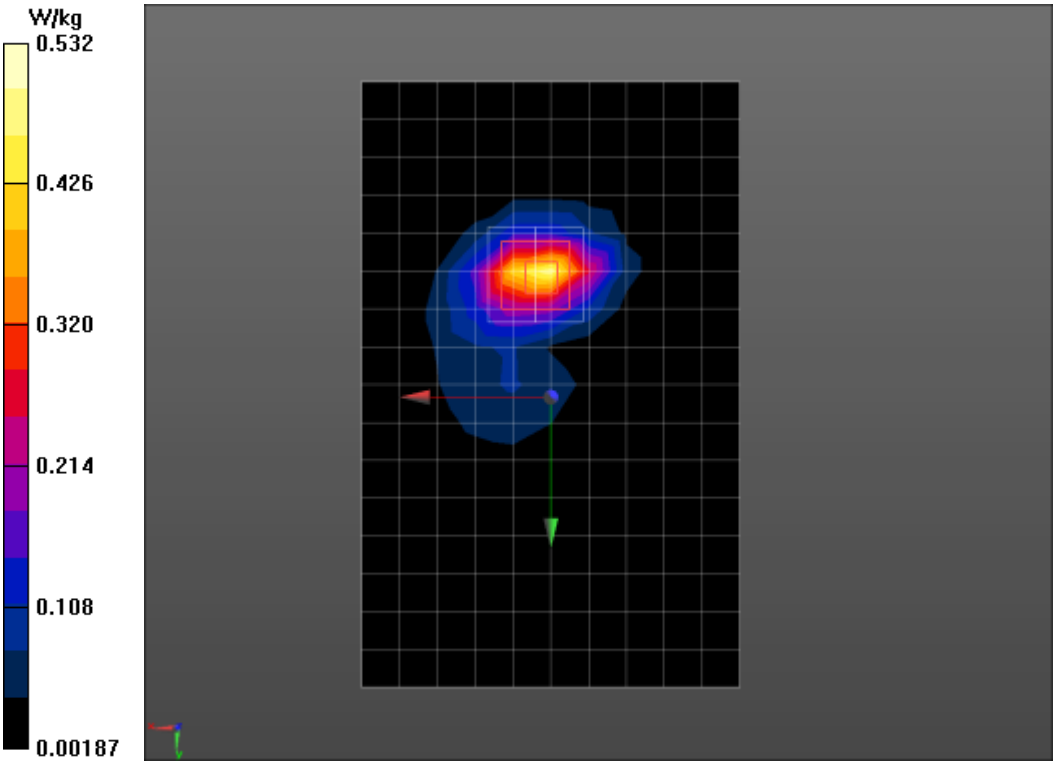


Fig.17 LTE Band 17 10M 1RB 49offset Left Cheek Low

Date/Time: 2018/7/26
Electronics: DAE4 Sn1244
Medium parameters used: f = 709 MHz; σ = 0.854 S/m; ε_r = 43.622; ρ = 1000 kg/m^3
Ambient Temperature:22.5 ℃ Liquid Temperature:22.5 ℃
Communication System: LTE Band 17 Professional 700MHz; Frequency: 709 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(6.25, 6.25, 6.25); Calibrated: 8/31/2017
LTE Band 17 10M 1RB 49offset Left Cheek Low/Area Scan (101x51x1):
Measurement grid: dx=10 mm, dy=10 mm
Maximum value of SAR (Measurement) = 0.0500 W/kg
LTE Band 17 10M 1RB 49offset Left Cheek Low/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.738 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.0630 W/kg
SAR(1 g) = 0.048 W/kg; SAR(10 g) = 0.038 W/kg
Maximum of SAR (measured) = 0.0501 W/kg

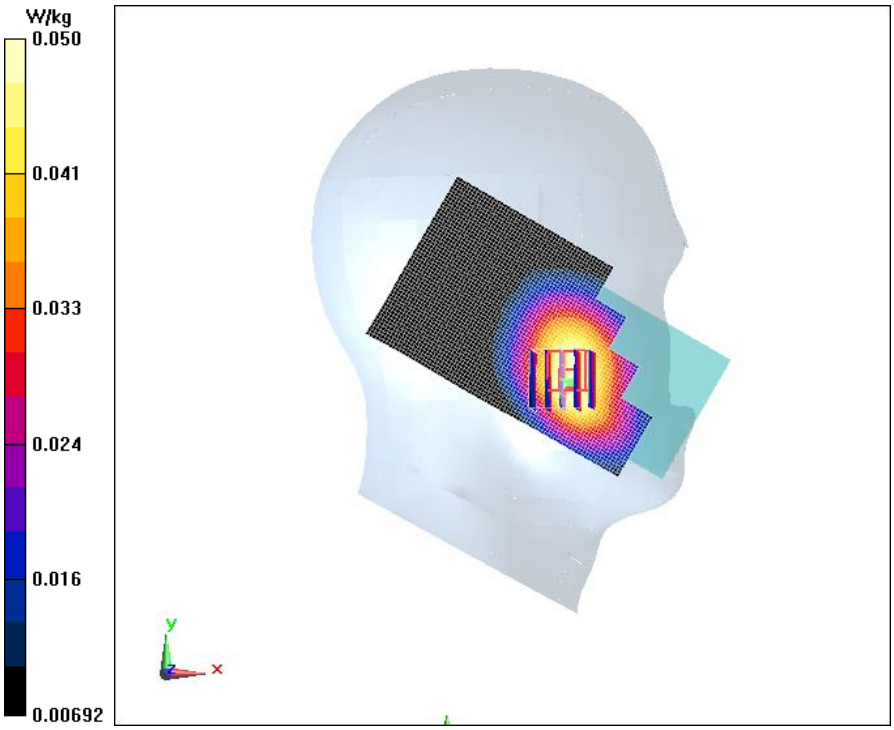


Fig.18 LTE Band 17 10M 1RB 49offset Ground Mode Low

Date/Time: 2018/7/26
Electronics: DAE4 Sn1244
Medium parameters used: f = 709 MHz; σ = 0.917 S/m; ε_r = 58.195; ρ = 1000 kg/m^3
Ambient Temperature:22.5 ℃ Liquid Temperature:22.5 ℃
Communication System: LTE Band 17 Professional 750MHz; Frequency: 709 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(6.34, 6.34, 6.34); Calibrated: 8/31/2017
LTE Band 17 10M 1RB 49offset Ground Mode Low/Area Scan (61x101x1):
Measurement grid: dx=10 mm, dy=10 mm
Maximum value of SAR (Measurement) = 0.157 W/kg
LTE Band 17 10M 1RB 49offset Ground Mode Low/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.01 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.183 W/kg
SAR(1 g) = 0.148 W/kg; SAR(10 g) = 0.115 W/kg
Maximum value of SAR (measured) = 0.154 W/kg

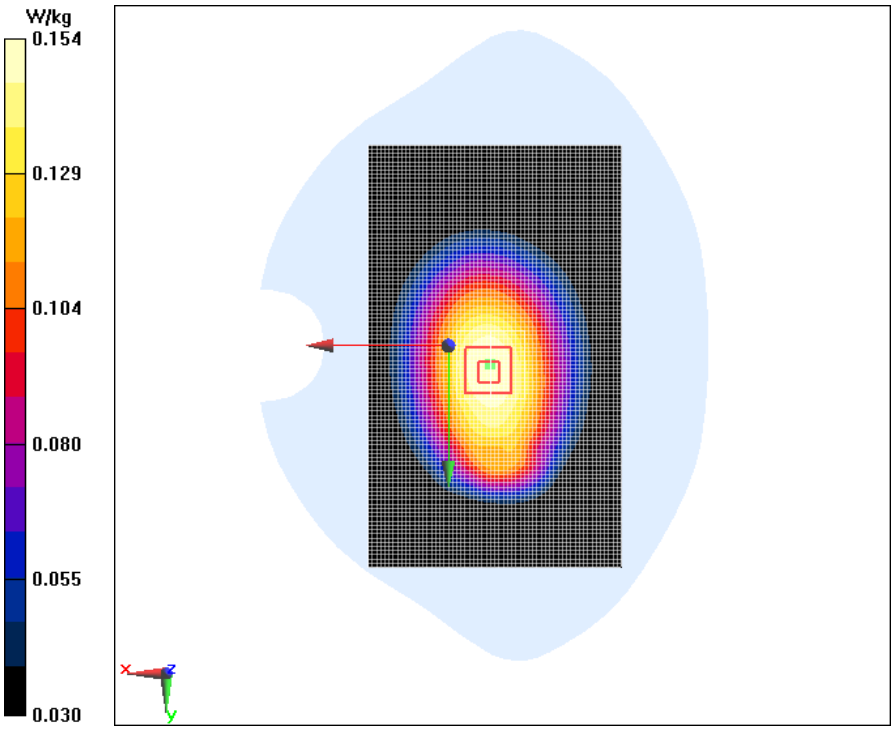


Fig.19 CDMA BC0 Left Cheek Middle 1xRTT

Date/Time: 2018/9/12
Electronics: DAE4 Sn1244
Medium parameters used: f = 837 MHz; σ = 0.933 S/m; ε_r = 42.561; ρ = 1000 kg/m^3
Ambient Temperature:22.5 ℃ Liquid Temperature:22.5 ℃
Communication System: CDMA 835MHz 900MHz; Frequency: 836.52 MHz;
Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(6.36, 6.36, 6.36); Calibrated: 9/4/2018
CDMA BC0 Left Cheek Middle 1xRTT/Area Scan (101x61x1):
Measurement grid: dx=10 mm, dy=10 mm
Maximum value of SAR (Measurement) = 0.253 W/kg
CDMA BC0 Left Cheek Middle 1xRTT/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.743 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.285 W/kg
SAR(1 g) = 0.246 W/kg; SAR(10 g) = 0.200 W/kg
Maximum of SAR (measured) = 0.256 W/kg

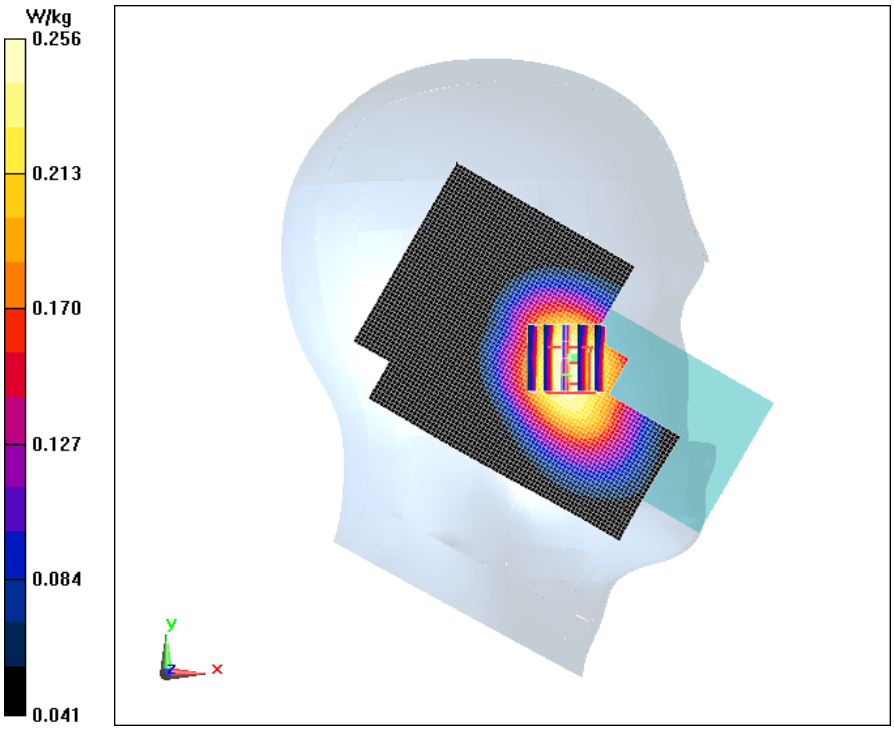


Fig.20 CDMA BC0 1xEV-DO-0 Ground Mode Middle 10mm

Date/Time: 2018/9/12
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 ℃ Liquid Temperature:22.5 ℃
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 1xEV-DO-0 Ground Mode Middle 10mm/Area Scan (61x101x1):
Measurement grid: dx=10 mm, dy=10 mm
Maximum value of SAR (Measurement) = 0.599 W/kg

CDMA BC0 1xEV-DO-0 Ground Mode Middle 10mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 24.27 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 0.707 W/kg
SAR(1 g) = 0.569 W/kg; SAR(10 g) = 0.434 W/kg
Maximum value of SAR (measured) = 0.599 W/kg

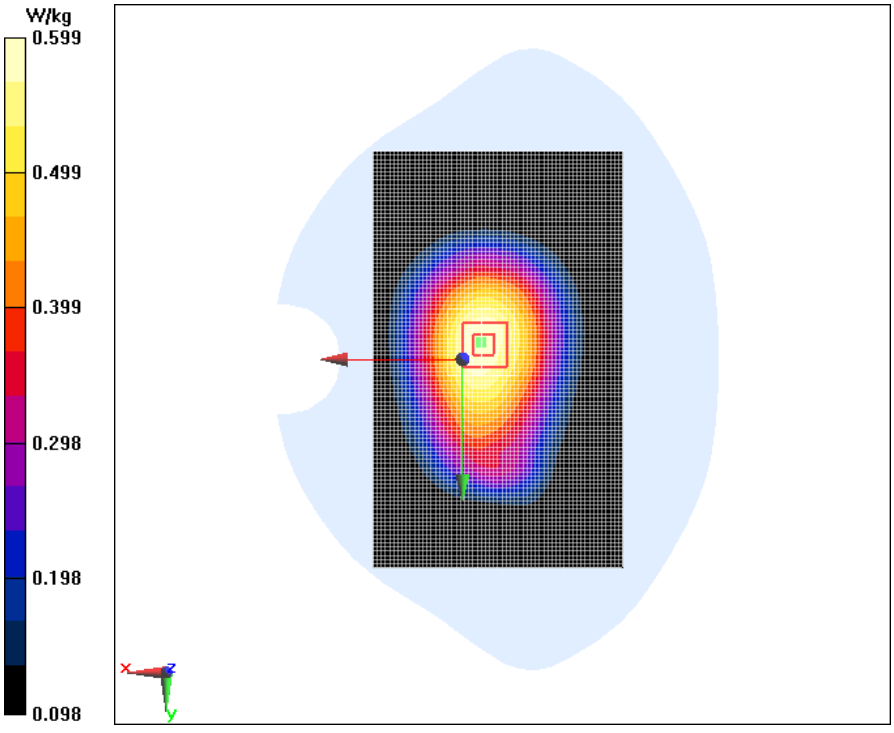


Fig.21CDMA BC1 Left Cheek Middle 1xRTT

Date/Time: 2018/9/12
Electronics: DAE4 Sn1244
Medium parameters used: f = 1880 MHz; σ = 1.367 S/m; ε_r = 41.535; ρ = 1000 kg/m^3
Ambient Temperature:22.5 ℃ Liquid Temperature:22.5 ℃
Communication System: CDMA 1900MHz 1900MHz; Frequency: 1880 MHz;
Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(5.18, 5.18, 5.18); Calibrated: 9/4/2018
CDMA BC1 Left Cheek Middle 1xRTT/Area Scan (101x61x1):
Measurement grid: dx=10 mm, dy=10 mm
Maximum value of SAR (Measurement) = 0.443 W/kg
CDMA BC1 Left Cheek Middle 1xRTT/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.601 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.706 W/kg
SAR(1 g) = 0.445 W/kg; SAR(10 g) = 0.269 W/kg
Maximum value of SAR (measured) = 0.473 W/kg

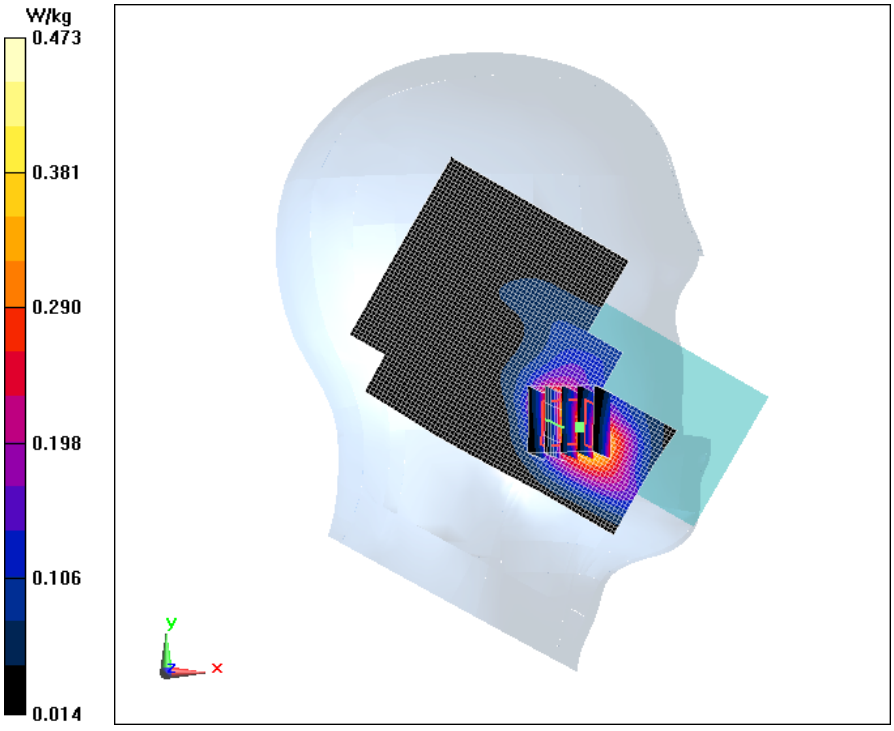


Fig.22 CDMA BC1 1xEV-DO-0 Ground Mode High 10mm

Date/Time: 2018/9/12
Electronics: DAE4 Sn1244
Medium parameters used: f = 1909 MHz; σ = 1.532 S/m; ε_r = 54.857; ρ = 1000 kg/m^3
Ambient Temperature:22.5 ℃ Liquid Temperature:22.5 ℃
Communication System: CDMA 1900MHz 1900MHz; Frequency: 1908.75 MHz;
Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(4.77, 4.77, 4.77); Calibrated: 9/4/2018
CDMA BC1 1xEV-DO-0 Ground Mode High 10mm 3/Area Scan (61x101x1):
Measurement grid: dx=10 mm, dy=10 mm
Maximum value of SAR (Measurement) = 1.10 W/kg
CDMA BC1 1xEV-DO-0 Ground Mode High 10mm 3/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.21 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 1.82 W/kg
SAR(1 g) = 1.07 W/kg; SAR(10 g) = 0.580 W/kg
Maximum value of SAR (measured) = 1.20 W/kg

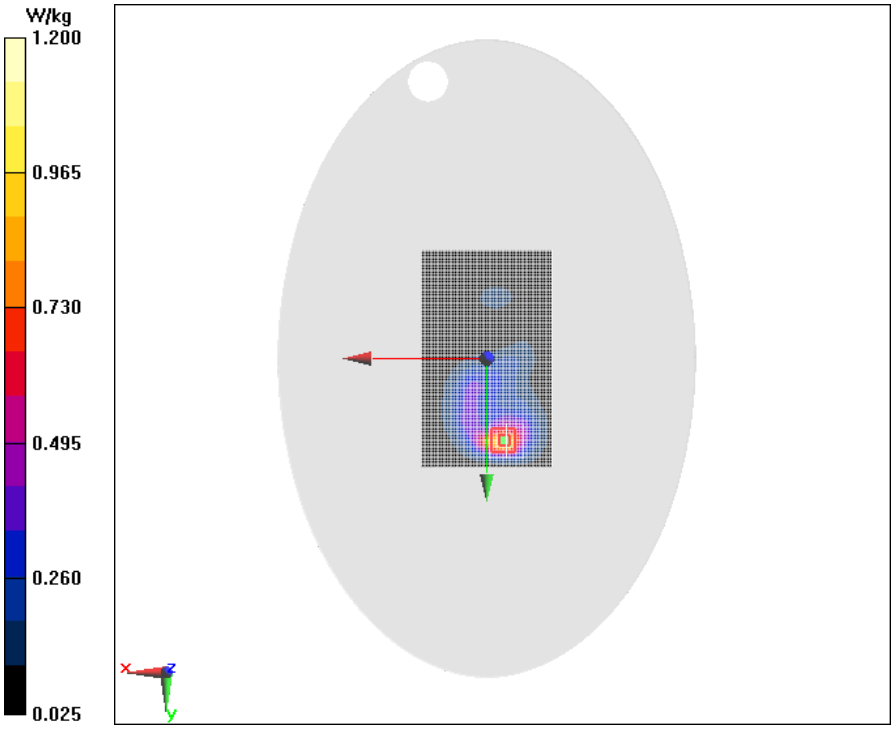


Fig.23 WIFI 802.11b Head Right Cheek Middle

Date/Time: 2018/8/15
Electronics: DAE4 Sn1244
Medium: Head 2450MHz
Medium parameters used: f = 2437 MHz; σ = 1.794 S/m; εr = 38.485; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃ Liquid Temperature:22.5 ℃
Communication System: Wi-Fi; Frequency: 2437 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(4.75, 4.75, 4.75);
Middle Cheek Right WIFI 802.11b/Area Scan (10x16x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.149 W/kg
Middle Cheek Right WIFI 802.11b/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.816 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.314 W/kg
SAR(1 g) = 0.147 W/kg; SAR(10 g) = 0.079 W/kg
Maximum value of SAR (measured) = 0.160 W/kg

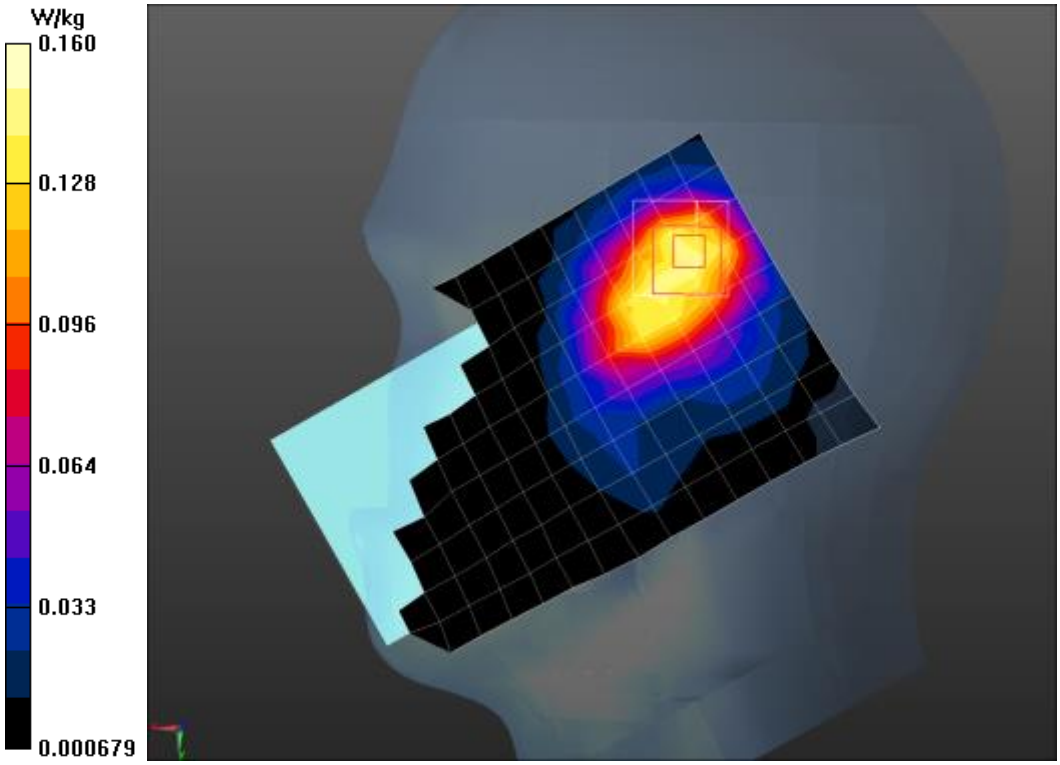
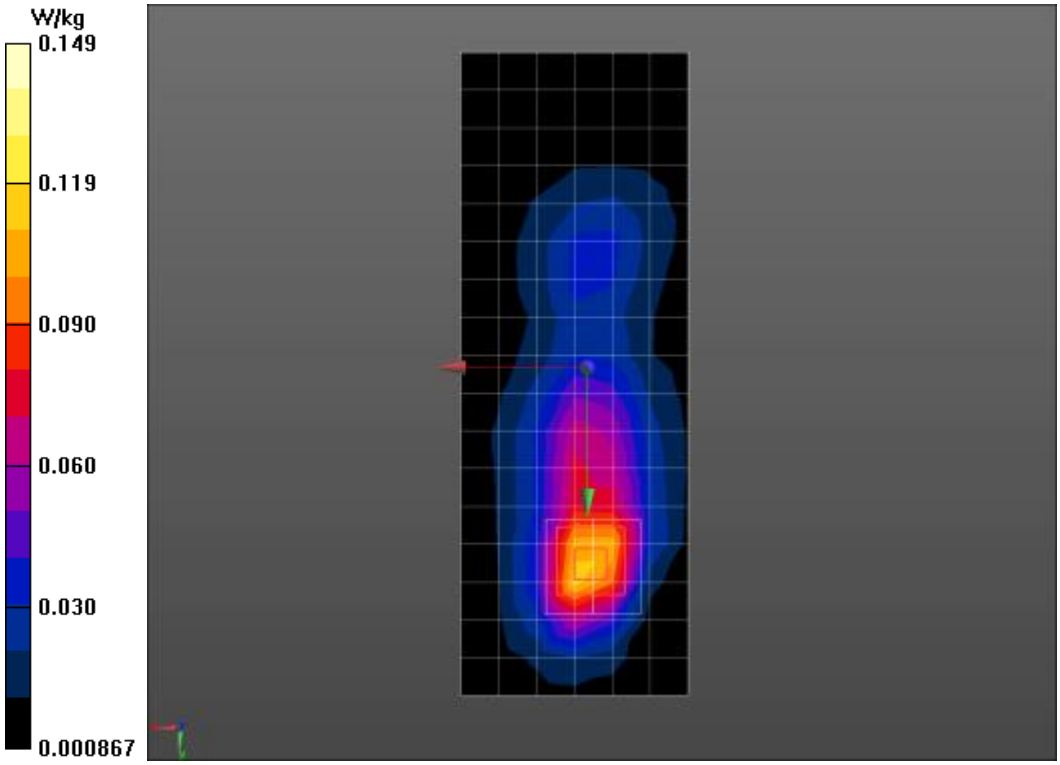


Fig.24 WIFI 802.11b Body Left Middle With 10mm

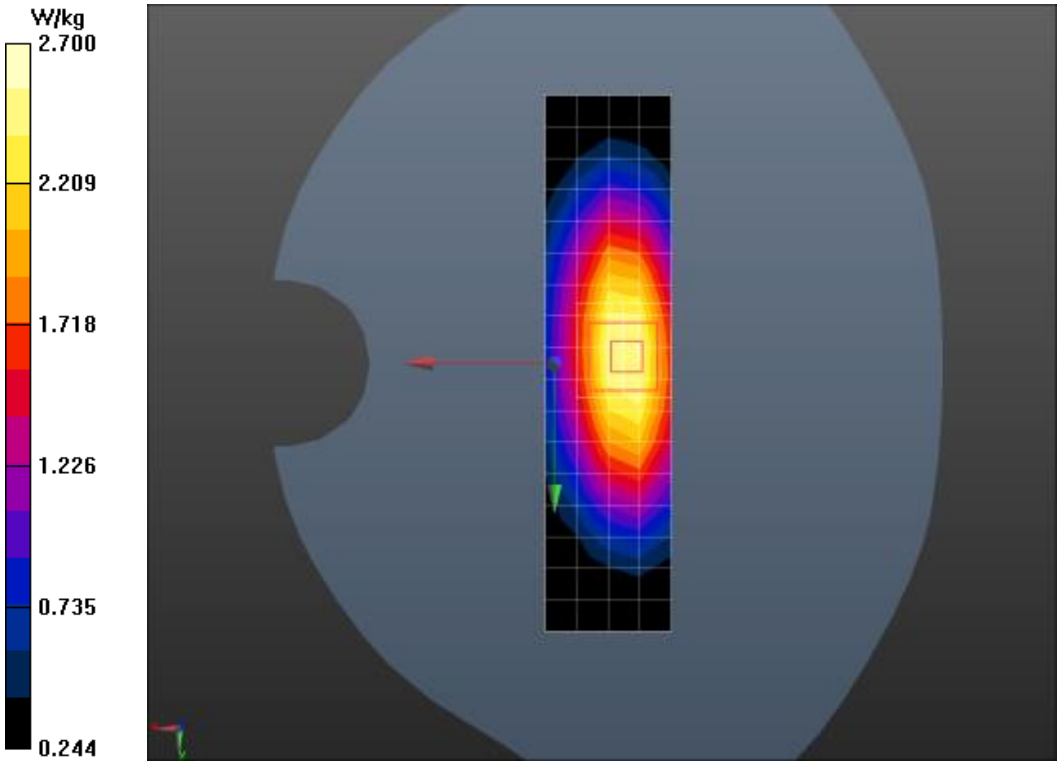
Date/Time: 2018/8/16
Electronics: DAE4 Sn1244
Medium: Body 2450MHz
Medium parameters used: f = 2437 MHz; σ = 1.907 S/m; εr = 52.734; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃ Liquid Temperature:22.5 ℃
Communication System: Wi-Fi; Frequency: 2437 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(4.42, 4.42, 4.42);
Middle Left WIFI 802.11b With 10mm/Area Scan (7x18x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.115 W/kg
Middle Left WIFI 802.11b With 10mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.237 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 0.255 W/kg
SAR(1 g) = 0.129 W/kg; SAR(10 g) = 0.063 W/kg
Maximum value of SAR (measured) = 0.149 W/kg



ANNEX B. SYSTEM VALIDATION RESULTS

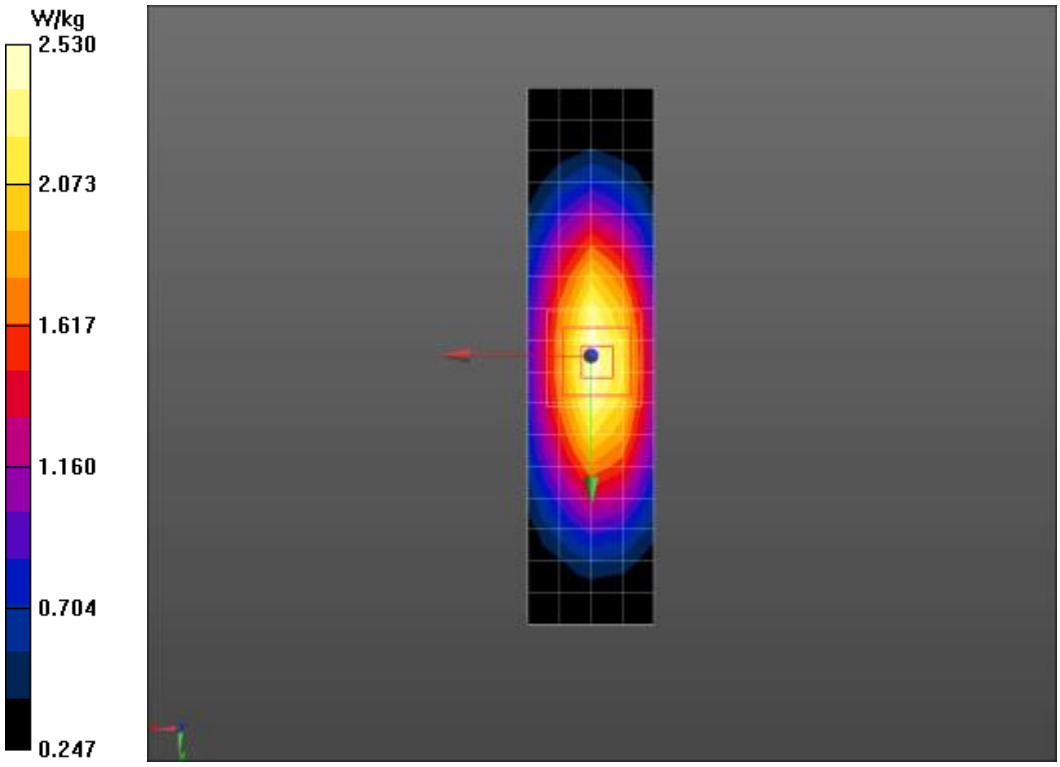
Head 835MHz

Date/Time: 2018/8/14
Electronics: DAE4 Sn1244
Medium: Head 835MHz
Medium parameters used: f = 835 MHz; σ = 0.909 S/m; εr = 42.281; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃ Liquid Temperature:22.5 ℃
Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(6.19, 6.19, 6.19);
System Check Dipole 835 MHz/Area Scan (5x18x1): Measurement grid:
dx=10mm, dy=10mm
Maximum value of SAR (measured) = 2.55 W/kg
System Check Dipole 835 MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid:
dx=5mm, dy=5mm, dz=5mm
Reference Value = 53.13 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 3.70 W/kg
SAR(1 g) = 2.5 W/kg; SAR(10 g) = 1.64 W/kg
Maximum value of SAR (measured) = 2.70 W/kg



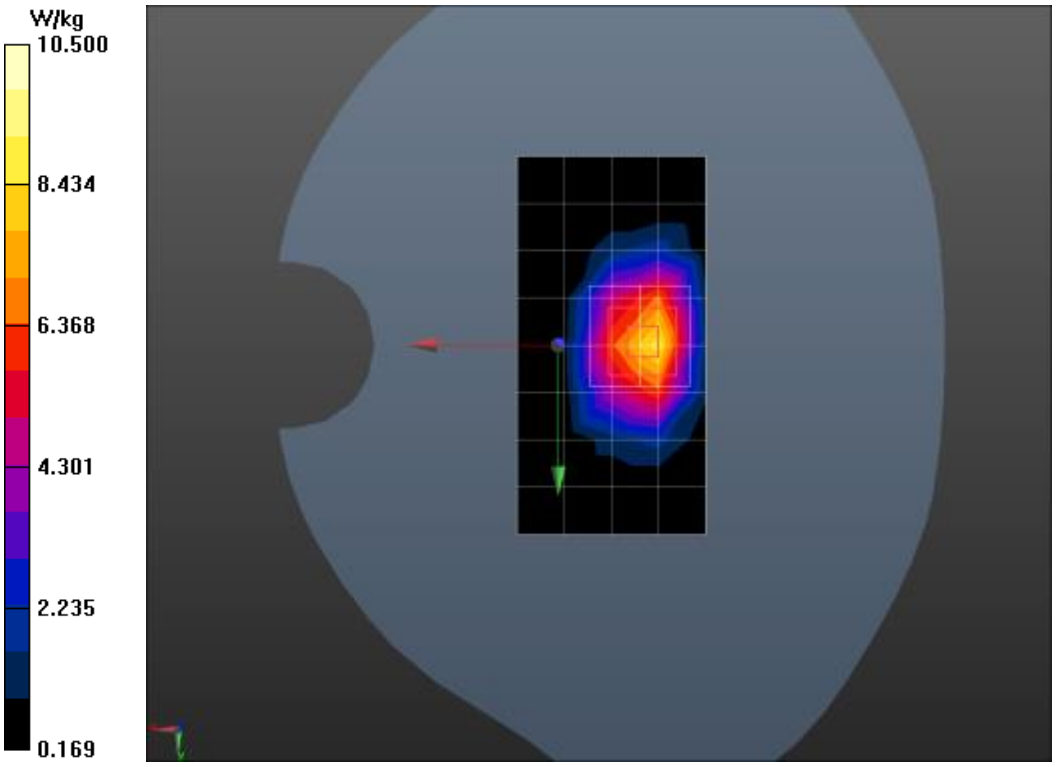
Body 835MHz

Date/Time: 2018/8/9
Electronics: DAE4 Sn1244
Medium: Body 835MHz
Medium parameters used: f = 835 MHz; σ = 0.982 S/m; εr = 54.418; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃ Liquid Temperature:22.5 ℃
Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(6.14, 6.14, 6.14);
System Check Dipole 835 MHz/Area Scan (5x18x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 2.50 W/kg
System Check Dipole 835 MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 51.73 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 3.38 W/kg
SAR(1 g) = 2.34 W/kg; SAR(10 g) = 1.55 W/kg
Maximum value of SAR (measured) = 2.53 W/kg



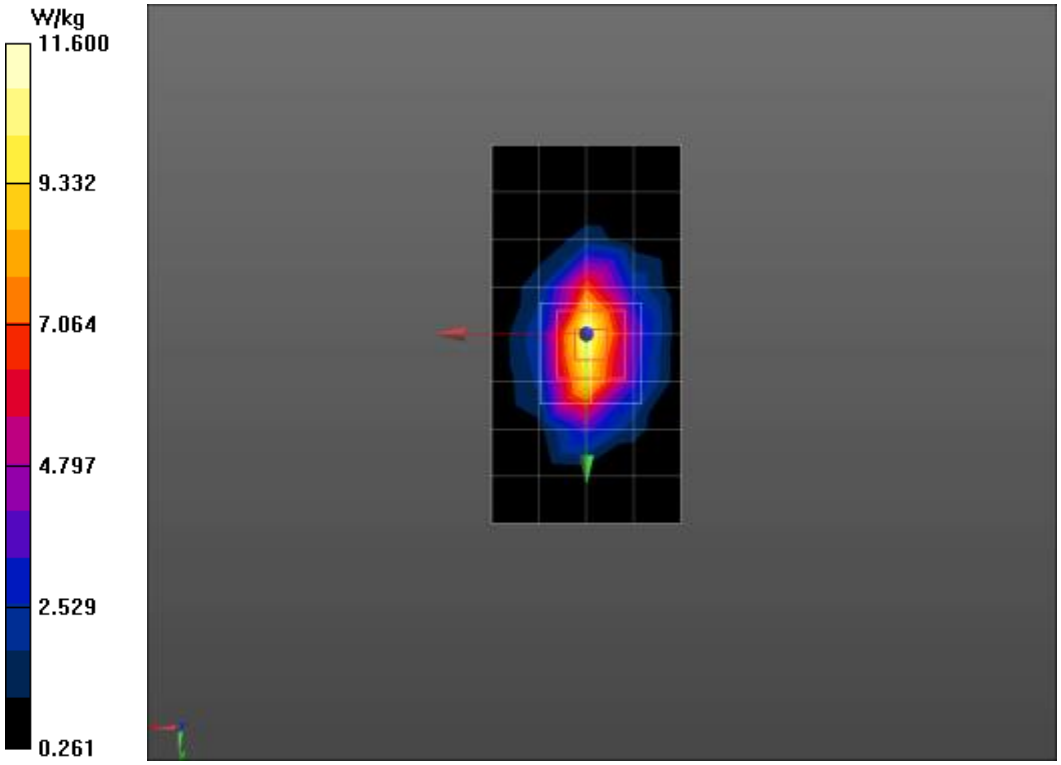
Head 1800MHz

Date/Time: 2018/8/9
Electronics: DAE4 Sn1244
Medium: Head 1800MHz
Medium parameters used: f = 1800 MHz; σ = 1.368 S/m; εr = 38.98; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃ Liquid Temperature:22.5 ℃
Communication System: CW; Frequency: 1800 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(5.3, 5.3, 5.3);
System Head 1800MHz/Area Scan (5x9x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 8.89 W/kg
System Head 1800MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 68.52 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 17.2 W/kg
SAR(1 g) = 9.37 W/kg; SAR(10 g) = 4.9 W/kg
Maximum value of SAR (measured) = 10.5 W/kg



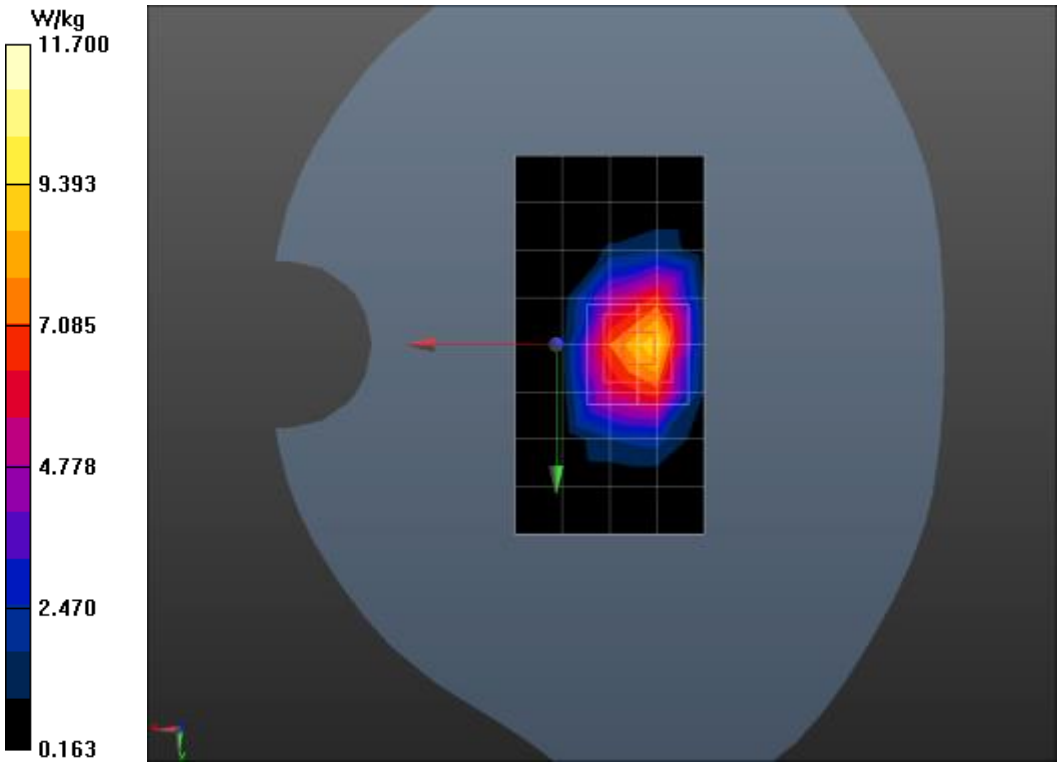
Body 1800MHz

Date/Time: 2018/8/14
Electronics: DAE4 Sn1244
Medium: Body 1800MHz
Medium parameters used: f = 1800 MHz; σ = 1.525 S/m; εr = 52.401; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃ Liquid Temperature:22.5 ℃
Communication System: CW; Frequency: 1800 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(4.95, 4.95, 4.95);
System Body 1800MHz/Area Scan (5x9x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 11.2 W/kg
System Body 1800MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 88.05 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 18.3 W/kg
SAR(1 g) = 10.4 W/kg; SAR(10 g) = 5.62 W/kg
Maximum value of SAR (measured) = 11.6 W/kg



Head 1900MHz

Date/Time: 2018/8/9
Electronics: DAE4 Sn1244
Medium: Head 1900MHz
Medium parameters used: f = 1900 MHz; σ = 1.44 S/m; εr = 38.789; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃ Liquid Temperature:22.5 ℃
Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(5.11, 5.11, 5.11)
System Head 1900MHz/Area Scan (5x9x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 9.39 W/kg
System Head 1900MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 71.25 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 19.7 W/kg
SAR(1 g) = 10.4 W/kg; SAR(10 g) = 5.34 W/kg
Maximum value of SAR (measured) = 11.7 W/kg



Body 1900MHz

Date/Time: 2018/8/14
Electronics: DAE4 Sn1244
Medium: Body 1900MHz
Medium parameters used: f = 1900 MHz; σ = 1.515 S/m; εr = 51.954; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃ Liquid Temperature:22.5 ℃
Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(4.69, 4.69, 4.69)
System Body 1900MHz/Area Scan (5x9x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 10.8 W/kg
System Body 1900MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 86.29 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 17.9 W/kg
SAR(1 g) = 9.93 W/kg; SAR(10 g) = 5.23 W/kg
Maximum value of SAR (measured) = 11.0 W/kg