TEST REPORT

No. I17D00181-SAR01

For

Client: Hisense International Co., Ltd.

Production: Smartphone

Model Name: Hisense F8 MINI

FCC ID: 2ADOBF8MINI

Hardware Version: V1.00

Software Version: L1431.6.01.09.MX05

Issued date: 2017-9-30

Note:

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

Test Laboratory:

ECIT Shanghai, East China Institute of Telecommunications

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

Tel: (+86)-021-63843300, E-Mail: welcome@ecit.org.cn

Revision Version

Report Number	Revision	Date	Memo
I17D00181-SAR01	00	2017-9-15	Initial creation of test report
I17D00181-SAR01	01	2017-9-28	Second creation of test report
I17D00181-SAR01	02	2017-9-30	Third 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:	10-90%
Ambient noise & Reflection:	< 0.012 W/kg

1.3. Project Data

Project Leader:	Yu Anlu
Testing Start Date:	2017-9-7
Testing End Date:	2017-9-12

1.4. Signature

Yan Hang
(Prepared this test report)

Fu Erliang
(Reviewed this test report)

Zheng Zhongbin
Director of the laboratory
(Approved this test report)

2. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **Hisense F8 MINI** are as follows (with expanded uncertainty 22.4%)

Table 2.1: Main Supply Max. Reported SAR (1g)

Band	Position/Distance	SAR 1g (W/Kg)
GSM 850	Head	0.267
	Body worn/10mm	0.643
	Hotspot/10mm	0.643
GSM 1900	Head	0.200
	Body worn/10mm	0.498
	Hotspot/10mm	0.799
WCDMA Band2	Head	0.402
	Body worn/10mm	0.738
	Hotspot/10mm	**1.037**
WCDMA Band4	Head	0.373
	Body worn/10mm	0.578
	Hotspot/10mm	0.578
WCDMA Band5	Head	0.303
	Body worn/10mm	0.447
	Hotspot/10mm	0.447
LTE Band2	Head	0.490
	Body worn/10mm	**0.892**
	Hotspot/10mm	0.892
LTE Band4	Head	0.344
	Body worn/10mm	0.424
	Hotspot/10mm	0.448
LTE Band5	Head	0.222
	Body worn/10mm	0.465
	Hotspot/10mm	0.465
LTE Band7	Head	**0.991**
	Body worn/10mm	0.694
	Hotspot/10mm	0.865
2.4G Wi-Fi	Head	0.462
	Body worn/10mm	0.250
	Hotspot/10mm	0.250

Table 2.2: Secondary Supply Max. Reported SAR (1g)

Band	Position/Distance	SAR 1g (W/Kg)
WCDMA Band2	Body worn/10mm	0.825
LTE Band7	Head	0.991
2.4G Wi-Fi	Head	0.142
	Body worn/10mm	0.125

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 according to the ANSI C95.1-1999.

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

The measurement together with the test system set-up is described in chapter 7 of this test report. A detailed description of the equipment under test can be found in chapter 3 of this test report.

The sample has three antennas. One is main antenna for GSM/WCDMA/LTE, and the other is for WiFi/BT and GPS. So simultaneous transmission is GSM/WCDMA/LTE and WiFi/BT.

Table 2.3: Simultaneous SAR (1g)

Transmission SAR(W/Kg)								
Test Position			2G	3G	4G	2.4G WIFI	BT	SUM
Head	Left	Cheek	0.267	0.402	0.991	0.161	0.264	1.255
		Tilt 15°	0.204	0.194	0.321	0.125	0.264	0.585
	Right	Cheek	0.267	0.317	0.445	0.462	0.264	0.907
		Tilt 15°	0.184	0.241	0.350	0.253	0.264	0.614
Body worn/Hotspot 10mm	Phantom Side		0.498	0.738	0.855	0.168	0.132	0.906
	Ground Side		0.643	0.705	0.892	0.250	0.132	1.142
Hotspot 10mm	Left Side		0.293	0.486	0.630	0.244	0.132	0.874
	Right Side		0.465	0.318	0.250	0.009	0.132	0.597
	Bottom Side		0.799	1.037	0.865		0.132	1.169
	Top Side		--	--	--	0.028	0.132	0.132

According to the above table, the maximum sum of reported SAR values for GSM/WCDMA/LTE and WiFi is **1.255 W/kg** (1g). The detail for simultaneous transmission consideration is described in chapter 14.

3. Client Information

3.1. Applicant Information

Company Name:	Hisense International Co., Ltd.
Address:	Floor 22, Hisense Tower, 17 Donghai Xi Road, Qingdao, 266071, China
Email:	zhangkelin@hisense.com

3.2. Manufacturer Information

Company Name:	Hisense Communications Co., Ltd.
Address:	218 Qianwangang Road, Economic & Technological Development Zone, Qingdao, Shandong Province, P.R. China
Email:	zhangmingyd@hisense.com

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

4.1. About EUT

Description:	Smartphone
Model name:	Hisense F8 MINI
Operation Model(s):	GSM850/1900,WCDMA Band II/IV/V LTE Band 2/4/5/7,WIFI2450
Tx Frequency:	824.2-848.8MHz(GSM850) 1850.2-1909.8MHz（GSM1900） 1852.4-1907.6 MHz (WCDMA Band II) 1712.4-1752.6 MHz(WCDMA Band IV) 826.4-846.6MHz (WCDMA Band V) 1850 -1910 MHz (LTE Band 2) 1712.5-1752.5MHz(LTE Band 4) 826.5-846.5 MHz(LTE Band 5) 2500– 2570 MHz (LTE Band 7) 2412- 2462 MHz (Wi-Fi) 2400-2483.5 MHz (BT)
Test device Production information: GPRS/EGPRS Class Mode: GPRS/ EGPRS Multislot Class:	Production unit B 12
Device type:	Portable device
UE category:	3
Antenna type:	Inner antenna
Accessories/Body-worn configurations:	Headset Battery
Dimensions: Hotspot Mode:	15cm×7cmx0.8cm Support simultaneous transmission of hotspot and voice (or data)
FCC ID:	2ADOBF8MINI

4.2. Internal Identification of EUT used during the test

EUT ID*	SN or IMEI	HW Version	SW Version	Receive Date
N53	86599603000141	V1.00	L1431.6.01.09.MX05	2017-9-1
N67	86599603000156	V1.00	L1431.6.01.09.MX05	2017-9-5

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

N53 is Main Supply
N67 is Secondary Supply

4.3. Internal Identification of AE used during the test

AE ID*	Description	Model	SN	Manufacturer
A	Headset	NLD-EM116T-046S	NA	Xin Li De
BA59	Battery	NA	NA	NA

*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.

KDB648474 D04 Handset SAR v01r03:SAR Evaluation Considerations for Wireless Handsets.

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.

KDB941225 D05 SAR for LTE Devices v02r04: SAR Evaluation Considerations for LTE Devices.

KDB941225 D06 hotspot SAR v02r01:SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities.

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

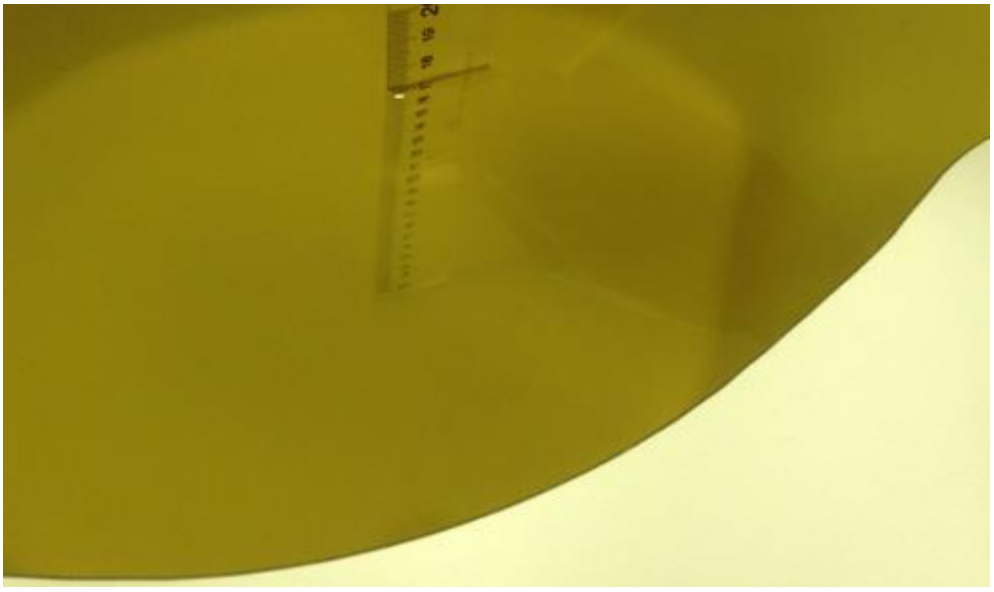
Table 7.1: Targets for tissue simulating liquid

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
835	Body	0.97	0.92～1.02	55.2	52.4～58.0
1800	Head	1.40	1.33～1.47	40.0	38.0～42.0
1800	Body	1.52	1.44～1.60	53.3	50.6～56.0
1900	Head	1.40	1.33～1.47	40.0	38.0～42.0
1900	Body	1.52	1.44～1.60	53.3	50.6～56.0
2450	Head	1.80	1.71～1.89	39.2	37.2～41.2
2450	Body	1.95	1.85～2.05	52.7	50.1～55.3
2600	Head	1.96	1.86~2.06	39	37.05~40.95
2600	Body	2.16	2.05~2.27	52.5	59.88~55.13

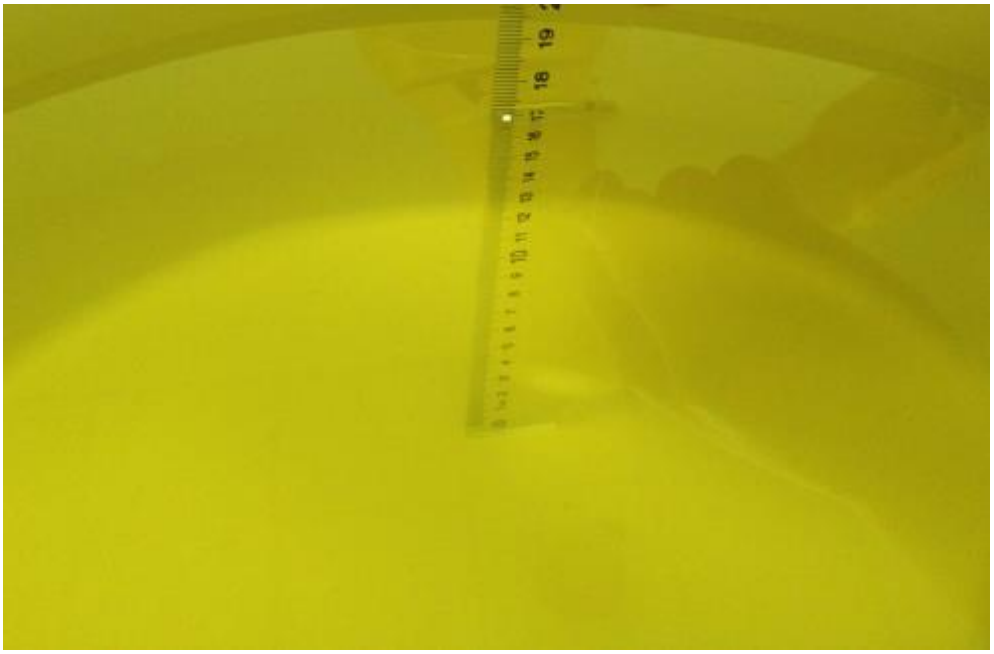
7.2. Dielectric Performance

Table 7.2: Dielectric Performance of Tissue Simulating Liquid

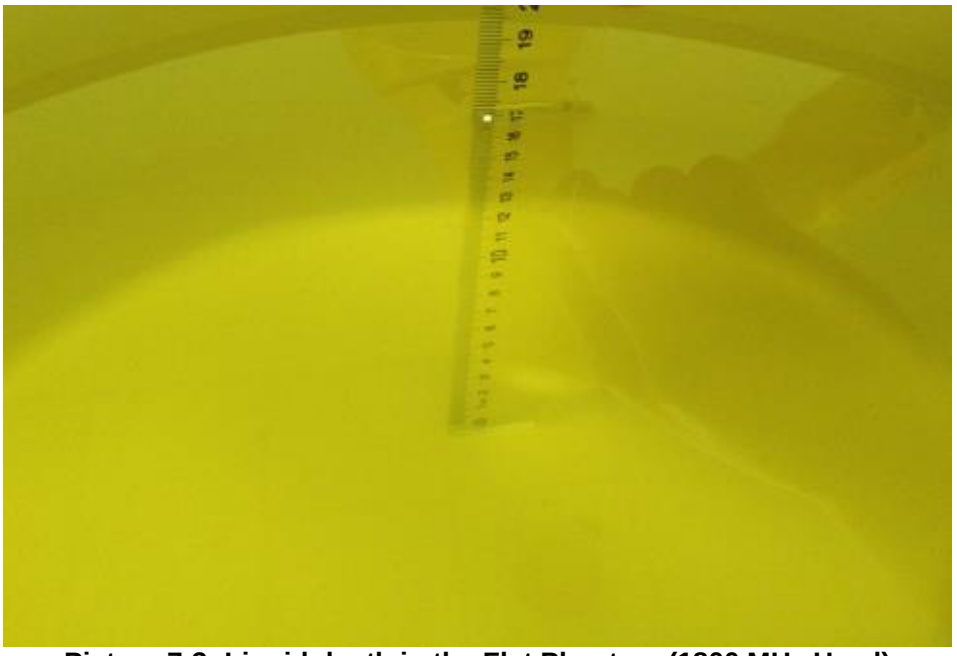
Measurement Value						
Liquid Temperature: 22.5 ℃						
Type	**Frequency**	**Permittivity ε**	**Drift (%)**	**Conductivity σ**	**Drift (%)**	Test Date
Head	835 MHz	41.83	1.92%	0.883	-4.02%	2017-9-7
Head	1800MHz	40.72	1.8%	1.362	-2.7%	2017-9-8
Head	1900 MHz	41.29	3.23%	1.458	4.14%	2017-9-9
Head	2450 MHz	40.874	4.27%	1.821	1.17%	2017-9-10
Head	2450 MHz	39.126	-0.19%	1.811	0.61%	2017-9-12
Head	2600 MHz	39.43	0.59%	1.848	2.67%	2017-9-12
Head	2600 MHz	38.943	-0.15%	1.951	-0.46%	2017-9-11
Body	835 MHz	57.108	3.46%	1.001	3.20%	2017-9-7
Body	1800MHz	54.91	3.02%	1.471	3.22%	2017-9-8
Body	1900 MHz	54.552	2.35%	1.573	3.49%	2017-9-9
Body	1900 MHz	53.237	-0.12%	1.524	0.26%	2017-9-12
Body	2450 MHz	53.946	2.36%	1.918	-1.64%	2017-9-10
Body	2450 MHz	53.125	0.81%	1.945	-0.26%	2017-9-12
Body	2600 MHz	52.686	0.35%	2.136	-1.11%	2017-9-11



Picture 7-1: Liquid depth in the Flat Phantom (835 MHz Head)

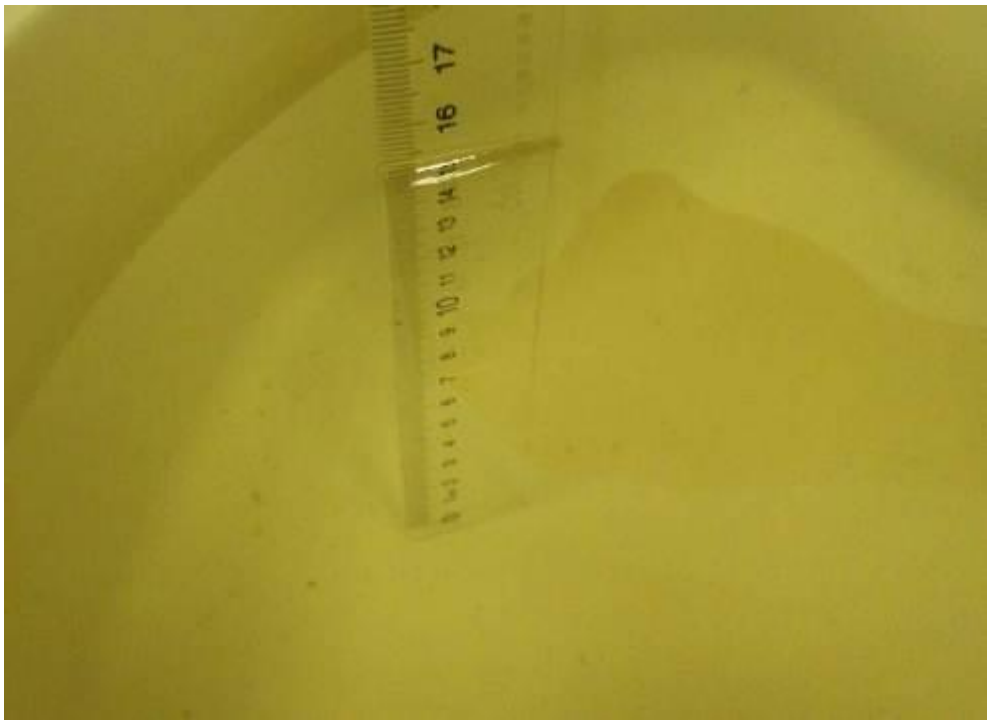


Picture 7-2: Liquid depth in the Flat Phantom (1900 MHz Head)

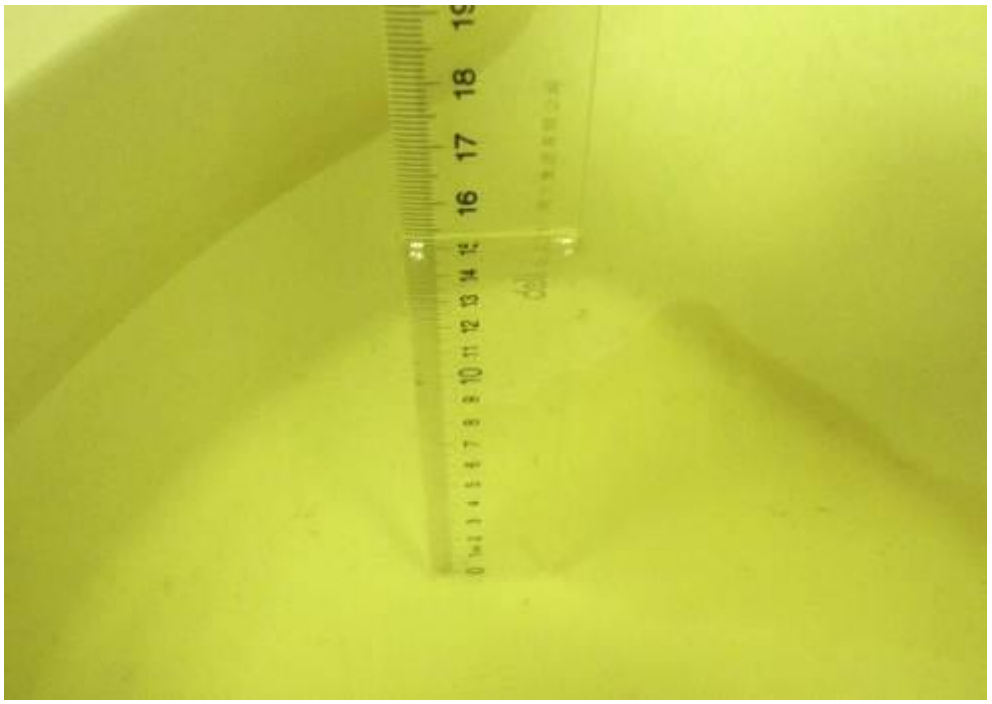


Picture 7-3: Liquid depth in the Flat Phantom (1800 MHz Head)

Picture 7-4 Liquid depth in the Flat Phantom (1800 MHz Body)

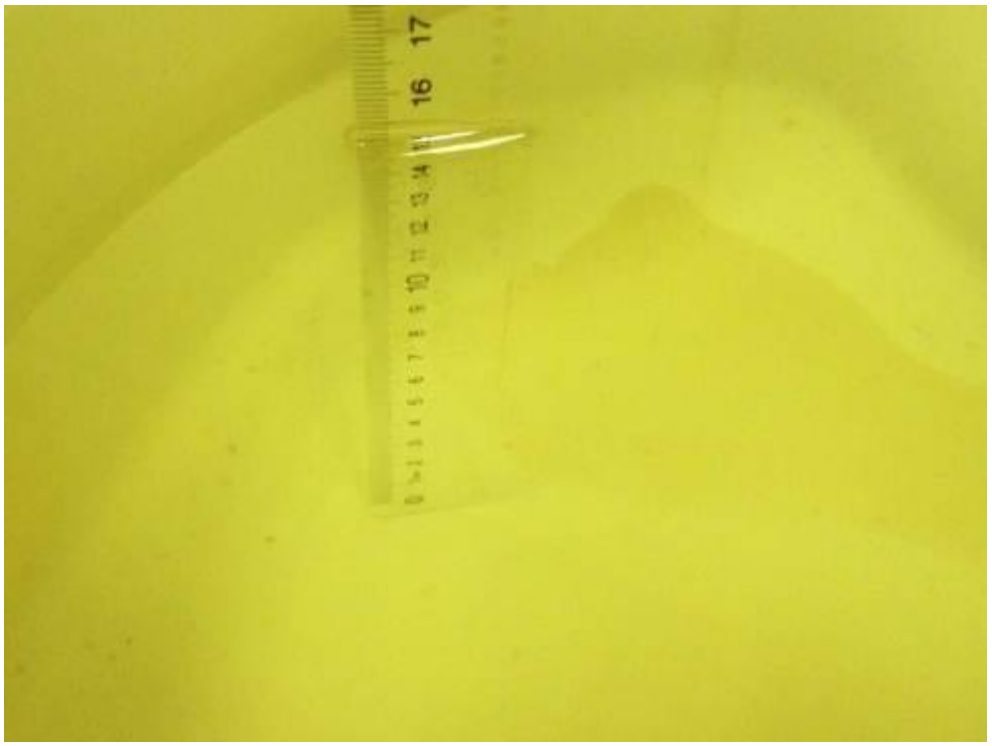


Picture 7-5: Liquid depth in the Flat Phantom (835 MHz Body)

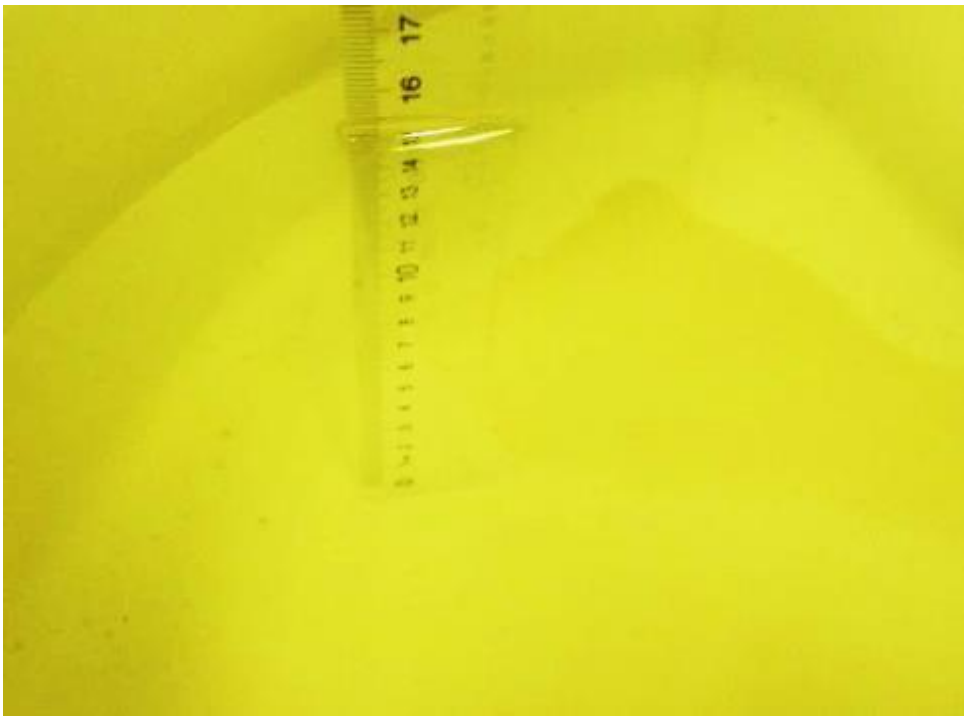


Picture 7-4: Liquid depth in the Flat Phantom (1900 MHz Body)

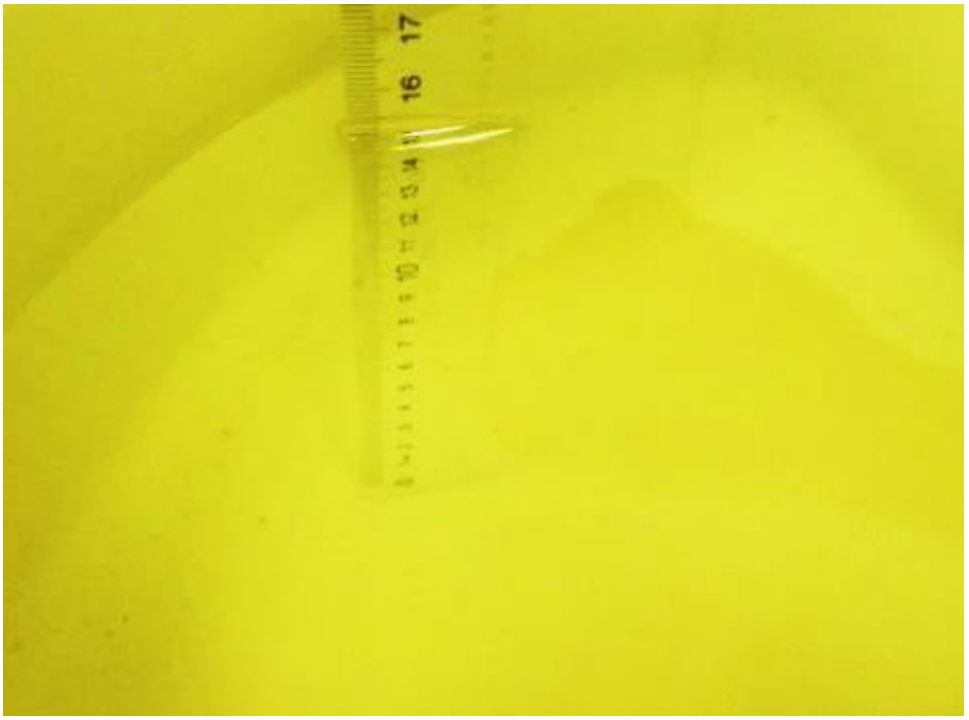
Picture 7-5: Liquid depth in the Flat Phantom (2450 MHz Head)



Picture 7-6: Liquid depth in the Flat Phantom (2450 MHz Body)



icture 7-7: Liquid depth in the Flat Phantom (2600 MHz Head)

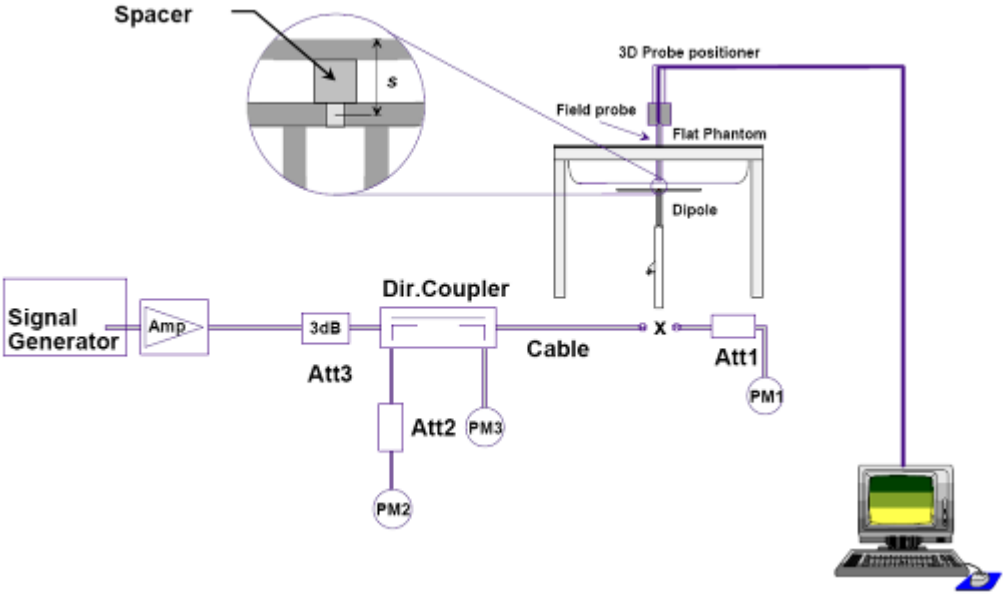


icture 7-8: Liquid depth in the Flat Phantom (2600 MHz Body)

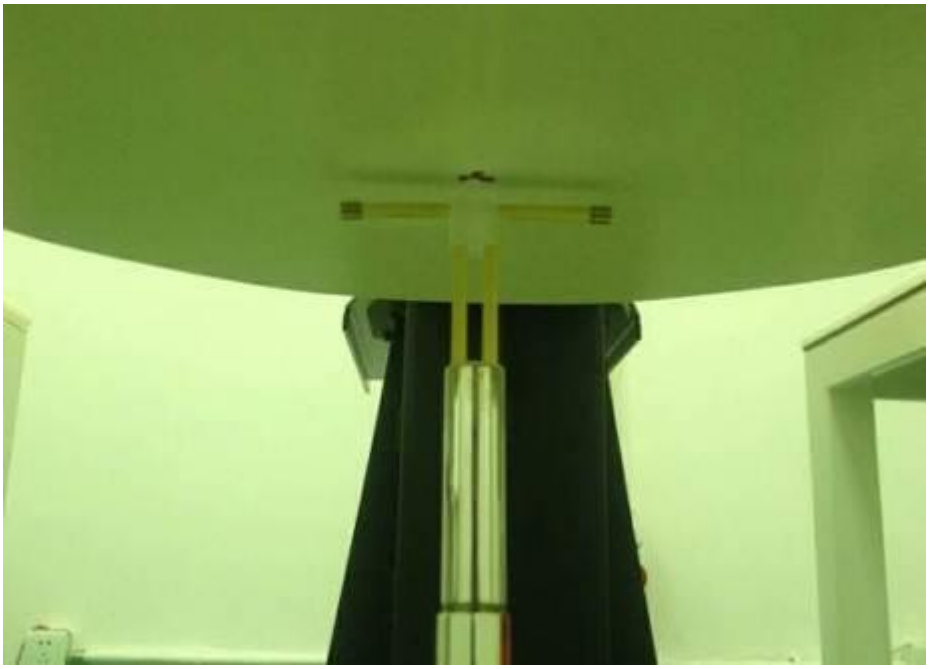
8. System verification

8.1. System Setup

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



Picture 8.1 System Setup for System Evaluation



Picture 8.2 Photo of Dipole Setup

8.2. System Verification

SAR system verification is required to confirm measurement accuracy, according to the tissue dielectric media, probe calibration points and other system operating parameters required for measuring the SAR of

test device. The system verification must be performed for each frequency band and within the valid range of each probe calibration point required for testing the device.

Table 8.1: System Verification of Head

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	6.12	9.4	1.49%	1.95%	2017-9-7
1750MHz	20.1	37.3	19.92	36.96	-0.90%	-0.91%	2017-9-8
1900 MHz	21.0	40.8	21.24	41.2	1.14%	0.98%	2017-9-9
2450 MHz	24.3	52.9	23.68	51.6	-2.55%	-2.46%	2017-9-10
2450 MHz	24.3	52.9	23.72	51.6	-2.39%	-2.46%	2017-9-11
2600 MHz	25.6	58.4	26.12	60	2.43%	3.45%	2017-9-11
2600 MHz	25.5	58	25.72	59.2	1.26%	3.68%	2017-9-12

Table 8.2: System Verification of BodTable 8.2: System Verification of Body

Verification Results							
Input power level: 1W							
Frequency	Target value (W/kg)		Measured value (W/kg)		Deviation		Test date
	10 g Average	1 g Average	10 g Average	1 g Average	10 g Average	1 g Average	
835 MHz	6.29	9.57	6.36	9.68	1.11%	1.15%	2017-9-7
1750MHz	20.2	37.6	20.92	38.56	3.5%	2.55%	2017-9-8
1900 MHz	21.3	41.1	20.84	41.2	-2.16%	-0.66%	2017-9-9
1900 MHz	21.3	41.1	20.64	41.2	-3.1%	0.24%	2017-9-12
2450 MHz	24.7	53.1	23.68	51.6	-4.13%	-2.82%	2017-9-10
2450 MHz	24.7	53.1	23.6	52.4	-4.13%	-1.32	2017-9-12
2600 MHz	25.4	57.1	24.32	55.6	-4.25%	-2.63%	2017-9-11

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),

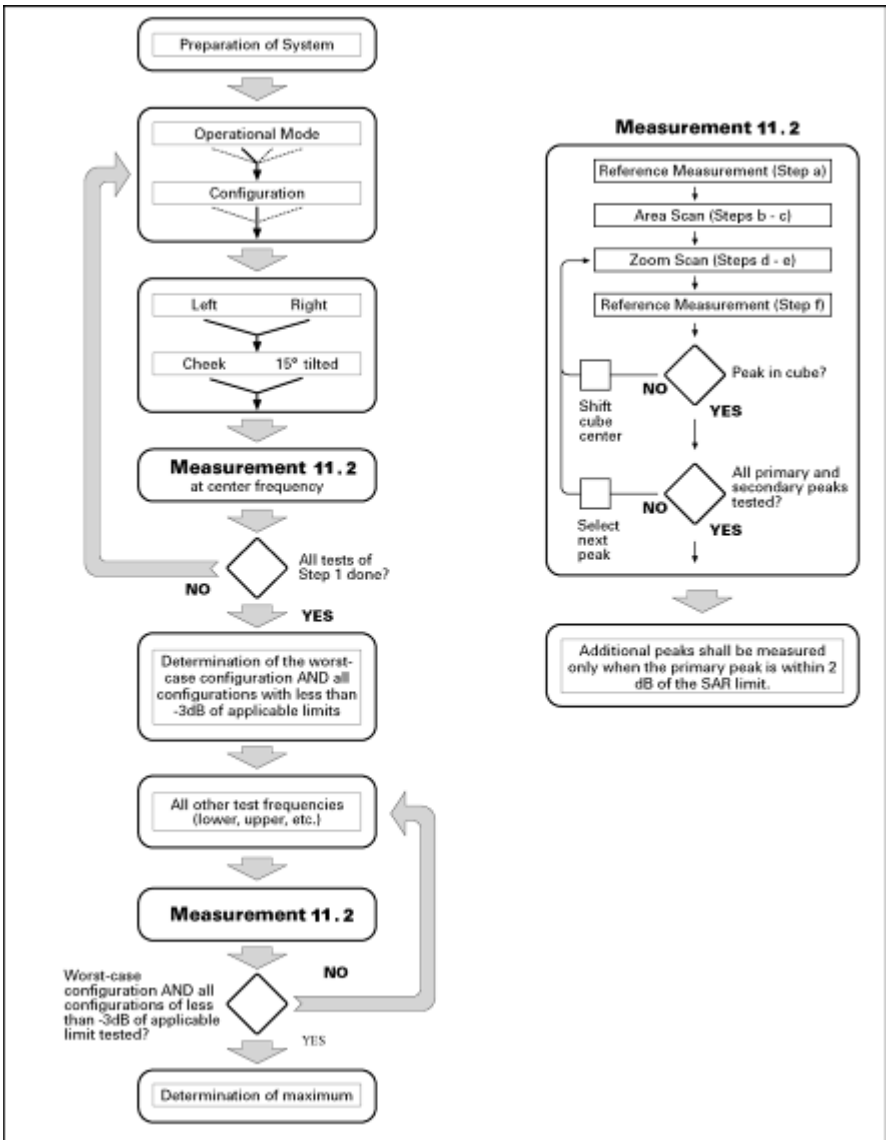
b) all configurations for each device position in a), e.g., antenna extended and retracted, and

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 ln(2)/2 mm for frequencies of 3 GHz and greater, where δ is the plane wave skin depth and ln(x) is the natural logarithm. The maximum variation of the sensor-phantom surface shall be $\pm$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	2.0	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	1.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	12/15	4	1	2.0	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	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	4/15	56/75	4	1	2.0	1.0	17	71
5	15/15	15/15	64	15/15	24/15	30/15	134/15	4	1	2.0	1.0	21	81

9.4. SAR Measurement for LTE

SAR tests for LTE are performed with a base station simulator, Anritsu 8820. Closed loop power control was used so the UE transmits with maximum output power during SAR testing. All powers were measured with the Anritsu 8820

It is performed for conducted power and SAR based on the KDB941225 D05.

SAR is evaluated separately according to the following procedures for the different test positions in each exposure condition – head, body, body-worn accessories and other use conditions. The procedures in the following subsections are applied separately to test each LTE frequency band

1) QPSK with 1 RB allocation

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

2) QPSK with 50% RB allocation

The procedures required for 1 RB allocation in 1) are applied to measure the SAR for QPSK with 50% RB allocation.

3) QPSK with 100% RB allocation

For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation in 1) and 2) are ≤ 0.8W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.

9.5. 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.

9.6. 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 14 labeled as: (Power Drift [dB]). This ensures that the power drift during one measurement is within 5%.

10. Area Scan Based 1-g SAR

10.1 Requirement of KDB

According to the KDB447498 D01 v06, when the implementation is based the specific polynomial fit algorithm as presented at the 29th Bioelectromagnetics Society meeting (2007) and the estimated 1-g SAR is ≤ 1.2 W/kg, a zoom scan measurement is not required provided it is also not needed for any other purpose; for example, if the peak SAR location required fo simultaneous transmission SAR test exclusion can be determined accurately by the SAR system or manually to discriminate between distinctive peaks and scattered noisy SAR distributions from area scans.

There must not be any warning or alert messages due to various measurement concerns identified by the SAR system; for example, noise in measurements, peaks too close to scan boundary, peaks are too sharp, spatial resolution and uncertainty issues etc. The SAR system verification must also demonstrate that the area scan estimated 1-g SAR is within 3% of the zoom scan 1-g SAR (See Annex B). When all the SAR results for each exposure condition in a frequency band and wireless mode are based on estimated 1-g SAR, the 1-g SAR for the highest SAR configuration must be determined by a zoom scan.

10.2 Fast SAR Algorithms

The approach is based on the area scan measurement applying a frequency dependent attenuation parameter. This attenuation parameter was empirically determined by analyzing a large number of phones. The MOTOROLA FAST SAR was developed and validated by the MOTOROLA Research Group in Ft. Lauderdale.

In the initial study, an approximation algorithm based on Linear fit was developed. The accuracy of the algorithm has been demonstrated across a broad frequency range (136-2450 MHz) and for both 1- and 10-g averaged SAR using a sample of 264 SAR measurements from 55 wireless handsets. For the sample size studied, the root-mean-squared errors of the algorithm are 1.2% and 5.8% for 1- and 10-g averaged SAR, respectively. The paper describing the algorithm in detail is expected to be published in August 2004 within the Special Issue of Transactions on MTT.

In the second step, the same research group optimized the fitting algorithm to an Polynomial fit whereby the frequency validity was extended to cover the range 30-6000MHz. Details of this study can be found in the BEMS 2007 Proceedings.

Both algorithms are implemented in DASY software.

11. Conducted Output Power

11.1. Manufacturing tolerance

Table 11.1: GSM Speech

GSM 850			
Channel	Channel 128	Channel 190	Channel 251
Maximum Target Value (dBm)	32.5	32.5	32.5
GSM1900			
Channel	Channel 512	Channel 661	Channel 810
Maximum Target Value (dBm)	30	30	30

Table 11.2: GPRS (GMSK Modulation)

GSM 850 GPRS				
Channel		**128**	**190**	**251**
1 Txslots	Maximum Target Value (dBm)	32.5	32.5	32.5
2 Txslots	Maximum Target Value (dBm)	30.5	30.5	30.5
3 Txslots	Maximum Target Value (dBm)	29	29	29
4 Txslots	Maximum Target Value (dBm)	27	27	27
GSM 1900 GPRS				
Channel		**512**	**661**	**810**
1 Txslots	Maximum Target Value (dBm)	30	30	30
2 Txslots	Maximum Target Value (dBm)	28	28	28
3 Txslots	Maximum Target Value (dBm)	27	27	27
4 Txslots	Maximum Target Value (dBm)	25	25	25

Table 11.3: EGPRS (8PSK Modulation)

GSM 850 EGPRS				
Channel		**975**	**38**	**124**
1 Txslots	Maximum Target Value (dBm)	25.5	25.5	25.5
2 Txslots	Maximum Target Value (dBm)	25	25	25
3 Txslots	Maximum Target Value (dBm)	24	24	24
4 Txslots	Maximum Target Value (dBm)	21.5	21.5	21.5
GSM 1900 EGPRS				
Channel		**512**	**661**	**810**
1 Txslots	Maximum Target Value (dBm)	24	24	24
2 Txslots	Maximum Target Value (dBm)	24.5	24.5	24.5
3 Txslots	Maximum Target Value (dBm)	23	23	23
4 Txslots	Maximum Target Value (dBm)	21	21	21

Table 11.4: WCDMA

WCDMA Band II			
Channel	Channel 9262	Channel 9400	Channel 9538
Maximum Target Value (dBm)	22.5	22.5	22.5

Table 11.5: HSDPA

WCDMA Band II					MPR (dB)
Channel		9262	9400	9538	
1	Maximum Target Value (dBm)	21.5	21.5	21.5	0
2	Maximum Target Value (dBm)	21.5	21.5	21.5	0
3	Maximum Target Value (dBm)	21	21	21	0
4	Maximum Target Value (dBm)	21	21	21	0

Table 11.6: HSUPA/HSPA+

WCDMA Band II					MPR (dB)
Channel		9262	9400	9538	
1	Maximum Target Value (dBm)	21	21	21	0
2	Maximum Target Value (dBm)	21	21	21	0
3	Maximum Target Value (dBm)	21	21	21	0
4	Maximum Target Value (dBm)	21	21	21	0
5	Maximum Target Value (dBm)	21	21	21	0
HSPA+					
1	Maximum Target Value (dBm)	21	21	21	0

Table 11.7: WCDMA

WCDMA Band V			
Channel	4233	4182	4132
Maximum Target Value (dBm)	22.8	22.8	22.8

Table 11.8: HSDPA

WCDMA Band V					MPR (dB)
Channel		4233	4182	4132	
1	Maximum Target Value (dBm)	21.5	21.5	21.5	0
2	Maximum Target Value (dBm)	21.5	21.5	21.5	0
3	Maximum Target Value (dBm)	21	21	21	0
4	Maximum Target Value (dBm)	21	21	21	0

Table 11.9: HSUPA/HSPA+

WCDMA Band V					MPR (dB)
Channel		4233	4182	4132	
1	Maximum Target Value (dBm)	21	21	21	0
2	Maximum Target Value (dBm)	21	21	21	0

3	Maximum Target Value (dBm)	21	21	21	0
4	Maximum Target Value (dBm)	21.5	21.5	21.5	0
5	Maximum Target Value (dBm)	21	21	21	0
HSPA+					
1	Maximum Target Value (dBm)	21	21	21	0

Table 11.10: WCDMA

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

Table 11.11: HSDPA

WCDMA Band IV					MPR (dB)
Channel		1537	1638	1738	
1	Maximum Target Value (dBm)	21.5	21.5	21.5	0
2	Maximum Target Value (dBm)	21.5	21.5	21.5	0
3	Maximum Target Value (dBm)	21	21	21	0
4	Maximum Target Value (dBm)	21	21	21	0

Table 11.12: HSUPA/ HSPA+

WCDMA Band IV					MPR (dB)
Channel		1537	1638	1738	
1	Maximum Target Value (dBm)	21	21	21	0
2	Maximum Target Value (dBm)	21	21	21	0
3	Maximum Target Value (dBm)	20.5	20.5	20.5	0
4	Maximum Target Value (dBm)	21	21	21	0
5	Maximum Target Value (dBm)	21	21	21	0
HSPA+					
1	Maximum Target	21	21	21	0

	Value (dBm)				

Table 11.13: LTE

LTE Band2			
RB Size	1	50%	100%
Maximum Target Value (dBm)	22.8	22.8	22.8
LTE Band4			
RB Size	1	50%	100%
Maximum Target Value (dBm)	22.5	22.5	22.5
LTE Band5			
RB Size	1	50%	100%
Maximum Target Value (dBm)	22.8	22.8	22.8
LTE Band7			
RB Size	1	50%	100%
Maximum Target Value (dBm)	22.6	22.6	22.6

Table 11.14: WiFi

WiFi 802.11b			
Channel	Channel 1	Channel 6	Channel 11
Maximum Target Value (dBm)	16.5	16.5	16.5
WiFi 802.11g			
Channel	Channel 1	Channel 6	Channel 11
Maximum Target Value (dBm)	16.5	16.5	16.5
WiFi 802.11n 20M			
Channel	Channel 1	Channel 6	Channel 11
Maximum Target Value (dBm)	12	12	12

Table 11.15: Bluetooth 2.1

Bluetooth			
Channel	Channel 0	Channel 39	Channel 78
Maximum Target Value (dBm)	8	8	8

Table 11.16: Bluetooth 4.0

Bluetooth			
Channel	Channel 0	Channel 39	Channel 78
Maximum Target Value (dBm)	1	1	1

11.2. 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 11.17: The conducted power measurement results for GSM

GSM 850MHZ	**Conducted Power (dBm)**		
	Channel 128(824.2MHz)	**Channel 190(836.6MHz)**	**Channel 251(848.6MHz)**
	32.23	32.17	32.21
GSM 1900MHZ	**Conducted Power (dBm)**		
	Channel 512(1850.2MHz)	**Channel 661(1880MHz)**	**Channel 810(1909.8MHz)**
	29.59	29.61	29.62

Table 11.18: The conducted power measurement results for GPRS/EGPRS

GSM 850	Measured Power (dBm)			calculation	Averaged Power (dBm)		
GMSK	**128**	**190**	**251**		**128**	**190**	**251**
1 Txslot	32.23	32.17	32.21	-9.03dB	23.20	22.14	23.18
2 Txslots	30.16	30.16	30.21	-6.02dB	24.14	24.14	24.19
3 Txslots	28.44	28.45	28.51	-4.26dB	24.18	24.19	**24.25**
4 Txslots	26.37	26.43	26.53	-3.01dB	23.36	23.42	23.52
GSM 1900	Measured Power (dBm)			calculation	Averaged Power (dBm)		
GMSK	**512**	**661**	**810**		**512**	**661**	**810**
1 Txslot	29.62	29.61	29.63	-9.03dB	20.59	20.58	20.6
2 Txslots	27.9	27.93	27.94	-6.02dB	21.88	21.91	21.92
3 Txslots	26.65	26.69	26.71	-4.26dB	22.39	22.43	**22.45**
4 Txslots	24.92	24.94	24.91	-3.01dB	21.91	21.93	21.9

Table 11.19: 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	24.9	25.04	25.14	-9.03dB	15.87	16.01	16.11
2 Txslots	24.33	24.76	24.93	-6.02dB	18.31	18.74	18.91
3 Txslots	23.38	23.84	23.91	-4.26dB	19.12	19.58	19.65
4 Txslots	21.09	21.25	21.35	-3.01dB	18.08	18.24	18.34
GSM 1900 8-PSK	Measured Power (dBm)			calculation	Averaged Power (dBm)		
	512	**661**	**810**		**512**	**661**	**810**
1 Txslot	23.93	24.13	23.98	-9.03dB	14.9	15.1	14.95
2 Txslots	23.89	24.17	23.95	-6.02dB	17.87	18.15	17.93
3 Txslots	22.48	22.52	22.26	-4.26dB	18.22	18.26	18
4 Txslots	20.85	20.62	20.35	-3.01dB	17.84	17.61	17.34

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;

11.3. WCDMA Measurement result

Table 11.20: The conducted Power for WCDMA

Item	band	WCDMA BAND II result(dBm)		
	ARFCN	2712 (1852.4MHz)	2788 (1880.0MHz)	2863 (1907.6MHz)
WCDMA	\	22.41	22.46	22.43
HSDPA	1	21.18	21.12	21.01
	2	20.98	21.08	21.18
	3	20.64	20.63	20.62
	4	20.76	20.73	20.69
HSUPA	1	20.54	20.73	20.78
	2	20.09	20.07	20.12
	3	20.08	20.21	20.05
	4	20.89	20.91	20.96
	5	20.69	20.81	20.85
HSPA+	1	20.58	20.61	20.69
Item	band	WCDMA BAND V result(dBm)		
	ARFCN	Channel 4132 (826.4MHz)	Channel 4183 (836.6MHz)	Channel 4233 (846.6MHz)
WCDMA	\	22.44	22.46	22.47
HSDPA	1	21.21	21.12	21.05
	2	21.01	21.08	21.22
	3	20.67	20.63	20.66
	4	20.79	20.73	20.73
HSUPA	1	20.57	20.73	20.82
	2	20.12	20.07	20.16
	3	20.11	20.21	20.09
	4	20.92	20.91	21
	5	20.72	20.81	20.89
HSPA+		20.64	20.68	20.65
Item	band	WCDMA BAND IV result(dBm)		
	ARFCN	1537 (MHz)	1638 (1732.6MHz)	1738 (1752.6MHz)
WCDMA	\	22.38	22.35	22.33
HSDPA	1	21.15	21.01	20.91
	2	20.95	20.97	21.08
	3	20.61	20.52	20.52
	4	20.73	20.62	20.59
HSUPA	1	20.51	20.62	20.68
	2	20.06	19.96	20.02
	3	20.05	20.1	19.95

	4	20.86	20.8	20.86
	5	20.66	20.7	20.75
HSPA+	**1**	20.71	20.68	20.73

11.4. LTE Measurement result

Table 11.21: The conducted Power for LTE BAND 2/4/5/7

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	21.91	21.96	21.87
		1	13	21.86	21.87	21.87
		1	24	21.88	21.92	21.83
		12	0	21.02	21.02	20.94
		12	6	21.09	21.09	20.96
		12	13	21.00	21.10	20.96
		25	0	21.09	21.09	20.95
	16QAM	1	0	20.99	21.38	21.31
		1	13	21.04	21.36	21.24
		1	24	20.91	21.39	21.31
		12	0	20.28	20.26	20.19
		12	6	20.20	20.21	20.16
		12	13	20.17	20.18	20.15
		25	0	20.36	20.26	20.19
Bandwidth	Mode	RB Size	RB Offset	Actual output power(dBm)		
				Channel 18650 1855MHz	Channel 18900 1880MHz	Channel 19150 1905MHz
10MHz	QPSK	1	0	22.04	22.10	22.13
		1	25	21.55	21.81	21.57
		1	49	21.23	21.66	21.23
		25	0	21.09	21.10	21.52
		25	13	21.09	21.13	21.19
		25	25	21.01	21.13	21.00
		50	0	21.12	21.15	21.15
	16QAM	1	0	21.05	21.05	21.41
		1	25	20.99	20.96	21.02
		1	49	21.17	21.01	20.90
		25	0	20.38	20.45	20.34
		25	13	20.34	20.38	20.36
		25	25	20.32	20.41	20.28
		50	0	20.28	20.31	20.26
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	22.03	22.09	22.42
		1	37	21.96	21.97	22.30
		1	74	21.95	21.98	22.27
		36	0	21.04	21.04	21.03
		36	19	21.09	21.01	21.05
		36	38	21.11	20.98	21.06
		75	0	21.07	21.07	21.06
	16QAM	1	0	21.46	21.44	21.7
		1	37	21.25	21.41	21.63
		1	74	21.24	21.37	21.65
		36	0	20.19	20.32	20.28
		36	19	20.17	20.30	20.31
		36	38	20.16	20.24	20.26
		75	0	20.29	20.34	20.44
Bandwidth	Mode	RB Size	RB Offset	Actual output power(dBm)		
				Channel 18700 1860MHz	Channel 18900 1880MHz	Channel 19100 1900MHz
20MHz	QPSK	1	0	22.18	22.46	22.21
		1	50	22.07	22.19	22.11
		1	99	22.45	22.49	22.43
		50	0	22.44	22.47	22.45
		50	25	21.34	20.93	21.09
		50	50	20.95	21.11	21.00
		100	0	20.99	21.14	20.98
	16QAM	1	0	21.12	21.59	21.14
		1	50	21.02	21.03	21.00
		1	99	21.13	21.64	21.07
		50	0	20.28	20.34	20.26
		50	25	20.22	20.29	20.27
		50	50	20.24	20.27	20.24
		100	0	20.27	20.27	20.26
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	21.98	21.04	21.67
		1	7	21.96	21.91	21.99
		1	14	21.47	21.88	21.36
		8	0	21.01	20.92	20.98

		8	4	21.06	21.19	20.94
		8	7	21.09	21.19	20.98
		15	0	21.06	21.16	21.04
	16QAM	1	0	21.13	21.11	21.79
		1	7	21.04	21.15	21.75
		1	14	21.07	21.09	21.77
		8	0	20.29	20.31	20.32
		8	4	20.28	20.38	20.31
		8	7	20.29	20.31	20.28
		15	0	20.31	20.32	20.26

Bandwidth	Mode	RB Size	RB Offset	Actual output power(dBm)		
				Channel 18607 1850.7MHz	Channel 18900 1880MHz	Channel 19193 1909.3MHz
1.4MHz	Mode	1	0	21.95	21.93	22.05
		1	3	20.97	20.70	22.06
		1	5	21.71	21.24	21.45
		3	0	21.10	21.23	21.36
		3	1	21.94	21.20	20.94
		3	3	21.94	21.21	21.86
		6	0	21.13	21.16	21.02
	16QAM	1	0	21.12	21.18	21.13
		1	3	21.12	21.20	21.21
		1	5	21.12	21.19	21.80
		3	0	21.28	21.35	21.42
		3	1	21.28	21.34	21.47
		3	3	21.29	21.32	21.42
		6	0	20.21	20.25	20.11

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	22.09	21.97	21.99
		1	13	22.04	22.02	21.90
		1	24	22.01	21.94	21.89
		12	0	21.14	21.08	21.13
		12	6	21.15	21.14	21.14
		12	13	21.15	21.13	21.09
		25	0	21.20	21.09	21.12
	16QAM	1	0	20.89	21.35	20.95

		1	13	20.83	21.32	20.93
		1	24	20.87	21.28	20.87
		12	0	20.21	20.18	20.17
		12	6	20.23	20.13	20.19
		12	13	20.13	20.11	20.20
		25	0	20.29	20.19	20.33
Bandwidth	Mode	RB Size	RB Offset	Actual output power(dBm)		
				Channel 20000 1715MHz	Channel 20175 1732.5MHz	Channel 20350 1750MHz
10MHz	QPSK	1	0	22.07	22.01	21.63
		1	25	21.12	21.81	21.55
		1	49	22.01	21.77	21.57
		25	0	21.83	21.68	21.15
		25	13	21.61	21.16	21.20
		25	25	21.84	21.16	21.56
		50	0	20.84	21.18	21.54
	16QAM	1	0	20.94	21.01	20.91
		1	25	20.85	20.97	20.90
		1	49	20.87	20.95	20.88
		25	0	20.32	20.36	20.36
		25	13	20.31	20.34	20.41
		25	25	20.30	20.28	20.31
		50	0	20.24	20.24	20.28
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	22.14	22.11	22.13
		1	37	22.11	21.92	22.08
		1	74	22.02	21.97	22.00
		36	0	21.12	21.08	21.11
		36	19	21.20	21.05	21.12
		36	38	21.12	21.15	21.05
		75	0	21.13	21.10	21.09
	16QAM	1	0	21.27	21.29	20.92
		1	37	21.21	21.22	20.87
		1	74	21.19	21.18	20.86
		36	0	20.21	20.18	20.32
		36	19	20.17	20.17	20.21
		36	38	20.25	20.09	20.16
		75	0	20.23	20.26	20.28
Bandwidth	Mode	RB Size	RB Offset	Actual output power(dBm)		

				Channel 20050 1720MHz	Channel 20175 1732.5MHz	Channel 20300 1745MHz
20MHz	QPSK	1	0	22.13	22.11	22.15
		1	50	21.99	21.88	21.92
		1	99	21.94	21.82	21.91
		50	0	22.11	22.10	22.13
		50	25	22.02	22.07	22.03
		50	50	21.08	21.13	21.07
		100	0	21.13	21.02	21.09
	16QAM	1	0	20.86	20.90	20.85
		1	50	20.78	20.79	20.81
		1	99	20.81	20.76	20.73
		50	0	20.20	20.25	20.21
		50	25	20.18	20.26	20.24
		50	50	20.13	20.13	20.18
		100	0	20.24	20.26	20.24
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	20.11	21.84	21.90
		1	7	20.66	21.11	21.99
		1	14	20.62	21.15	21.14
		8	0	21.29	21.12	21.15
		8	4	21.16	21.14	21.11
		8	7	21.27	21.07	21.13
		15	0	21.17	21.08	21.13
	16QAM	1	0	20.86	21.26	21.24
		1	7	20.85	21.29	21.21
		1	14	20.82	21.26	21.17
		8	0	20.22	20.30	20.30
		8	4	20.25	20.28	20.27
		8	7	20.19	20.30	20.29
		15	0	20.20	20.23	20.21
Bandwidth	Mode	RB Size	RB Offset	Actual output power(dBm)		
				Channel 19557 1710.7MHz	Channel 20175 1732.5MHz	Channel 20393 1754.3MHz
1.4MHz		1	0	21.73	21.85	21.40
		1	3	21.29	20.00	20.30
		1	5	21.43	21.10	2.23
		3	0	20.81	20.95	20.36

		3	1	20.39	20.96	20.05
		3	3	20.39	20.90	21.06
		6	0	20.83	21.10	21.12
	16QAM	1	0	21.19	20.85	20.89
		1	3	21.20	20.88	20.90
		1	5	21.18	20.91	20.86
		3	0	21.30	21.06	21.07
		3	1	21.20	21.09	21.08
		3	3	21.07	21.06	21.05
		6	0	20.14	20.16	20.17

Band5						
Bandwidth	Mode	RB Size	RB Offset	Actual output power(dBm)		
				Channel 20455 826.5MHz	Channel20525 836.5MHz	Channel 20625 846.5MHz
5MHz	QPSK	1	0	22.20	22.35	22.27
		1	13	22.26	22.34	22.31
		1	24	22.31	22.35	22.27
		12	0	21.45	21.42	21.41
		12	6	21.39	21.45	21.44
		12	13	21.47	21.45	21.56
		25	0	21.47	21.45	21.45
	16QAM	1	0	21.00	21.01	21.36
		1	13	21.01	20.96	21.36
		1	24	21.02	20.99	21.45
		12	0	20.37	20.34	20.35
		12	6	20.48	20.36	20.26
		12	13	20.32	20.38	20.41
		25	0	20.50	20.54	20.36
Bandwidth	Mode	RB Size	RB Offset	Actual output power(dBm)		
				Channel 20450 829MHz	Channel20525 836.5MHz	Channel 20600 844MHz
10MHz	QPSK	1	0	22.36	22.32	22.35
		1	25	22.08	22.02	21.90
		1	49	21.48	21.44	21.73
		25	0	22.33	22.34	22.30
		25	13	21.39	21.44	21.43
		25	25	21.30	21.38	21.39
		50	0	21.35	21.41	21.50
	16QAM	1	0	21.04	20.92	21.00
		1	25	21.03	21.37	21.02
		1	49	21.03	21.38	21.05

		25	0	20.48	20.48	20.49
		25	13	20.41	20.36	20.60
		25	25	20.50	20.33	20.48
		50	0	20.39	20.47	20.58

Bandwidth	Mode	RB Size	RB Offset	Actual output power(dBm)		
				Channel 20415 825.5MHz	Channel20525 836.5MHz	Channel 20635 847.5MHz
3MHz	QPSK	1	0	21.29	22.27	22.27
		1	8	21.41	22.33	22.12
		1	14	21.03	20.94	21.82
		8	0	21.39	21.08	21.21
		8	4	21.44	21.22	21.41
		8	7	21.41	21.57	21.33
		15	0	21.52	21.78	21.38
	16QAM	1	0	21.01	21.36	20.91
		1	8	21.02	21.39	20.99
		1	15	21.35	21.37	21.01
		8	0	20.53	20.43	20.33
		8	4	20.48	20.43	20.40
		8	7	20.56	20.39	20.34
		15	0	20.40	20.35	20.37
Bandwidth	Mode	RB Size	RB Offset	Actual output power(dBm)		
				Channel 20407 824.7MHz	Channel20525 836.5MHz	Channel 20643 848.3MHz
1.4MHz	QPSK	1	0	22.25	22.26	22.34
		1	2	21.93	20.80	21.64
		1	5	21.42	21.62	21.39
		3	0	22.24	21.39	22.22
		3	1	22.25	21.98	22.32
		3	2	22.30	22.21	22.30
		6	0	21.38	21.28	21.49
	16QAM	1	0	21.35	21.34	21.44
		1	2	21.37	21.43	21.41
		1	5	21.34	21.35	21.50
		3	0	21.42	21.42	21.50
		3	1	21.47	21.20	21.41
		3	2	21.49	21.23	21.44
		6	0	20.33	20.33	20.38

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	22.08	22.49	22.38
		1	13	22.49	22.49	22.39
		1	24	22.07	22.52	22.43
		12	0	20.86	21.57	21.51
		12	6	21.49	21.59	21.49
		12	13	21.54	21.55	21.51
		25	0	21.61	21.56	21.44
	16QAM	1	0	21.96	21.57	21.15
		1	13	21.57	21.59	21.15
		1	24	22.01	21.55	21.16
		12	0	20.13	20.54	20.52
		12	6	20.56	20.54	20.57
		12	13	20.50	20.53	20.61
		25	0	20.56	20.53	20.60
Bandwidth	Mode	RB Size	RB Offset	Actual output power(dBm)		
				Channel 20800 2505MHz	Channel 21100 2535MHz	Channel 21400 2565MHz
10MHz	QPSK	1	0	21.49	21.61	21.47
		1	25	20.80	21.53	21.51
		1	49	22.32	22.50	22.49
		25	0	20.84	21.56	21.65
		25	13	20.81	21.62	21.00
		25	25	21.59	21.55	21.47
		50	0	20.83	21.62	21.49
	16QAM	1	0	21.52	21.19	21.13
		1	25	21.51	21.24	21.09
		1	49	21.30	21.24	21.20
		25	0	20.70	20.67	20.61
		25	13	20.35	20.69	20.62
		25	25	20.72	20.69	20.70
		50	0	20.21	20.59	20.55
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	22.17	22.48	22.38
		1	38	22.44	22.52	22.46
		1	74	22.53	22.50	22.46
		36	0	20.81	21.51	21.45
		36	18	21.43	21.51	21.48
		36	39	21.56	21.46	21.51
		75	0	21.54	21.56	21.59
	16QAM	1	0	21.84	21.51	21.49
		1	38	21.53	21.52	21.51
		1	74	21.66	21.21	21.62
		36	0	20.15	20.55	20.52
		36	18	20.65	20.57	20.61
		36	39	20.54	20.61	20.52
		75	0	20.66	20.63	20.57
Bandwidth	Mode	RB Size	RB Offset	Actual output power(dBm)		
				Channel 20850 2510MHz	Channel 21100 2535MHz	Channel 21350 2560MHz
20MHz	QPSK	1	0	22.28	22.48	22.29
		1	50	22.44	22.51	22.35
		1	99	22.54	22.51	22.50
		50	0	21.78	22.03	21.92
		50	25	22.52	22.50	22.48
		50	50	21.55	21.58	21.46
		100	0	21.41	21.46	21.48
	16QAM	1	0	21.34	21.01	21.09
		1	50	21.10	21.08	21.12
		1	99	21.22	21.16	21.21
		50	0	20.15	20.52	20.51
		50	25	20.56	20.60	20.56
		50	50	20.61	20.56	20.61
		100	0	20.63	20.58	20.49

11.5. Wi-Fi and BT Measurement result

Table 11.22: The conducted power for Bluetooth2.1

GFSK			
Channel	Ch0 (2402 MHz)	Ch39 (2441MHz)	CH78 (2480MHz)
Conducted Output Power (dBm)	5.13	5.45	4.32
π /4 DQPSK			
Channel	Ch0 (2402 MHz)	Ch39 (2441MHz)	CH78 (2480MHz)
Conducted Output Power (dBm)	6.20	6.57	5.42
8DPSK			
Channel	Ch0 (2402 MHz)	Ch39 (2441MHz)	CH78 (2480MHz)
Conducted Output Power (dBm)	6.5	7.00	7.86

Table 11.23: The conducted power for Bluetooth4.0

GFSK			
Channel	Ch0 (2402 MHz)	Ch39 (2441MHz)	CH78 (2480MHz)
Conducted Output Power (dBm)	0.411	0.892	-1.45

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 head value of BT is 0.264 W/Kg. SAR body value of BT is 0.132 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.

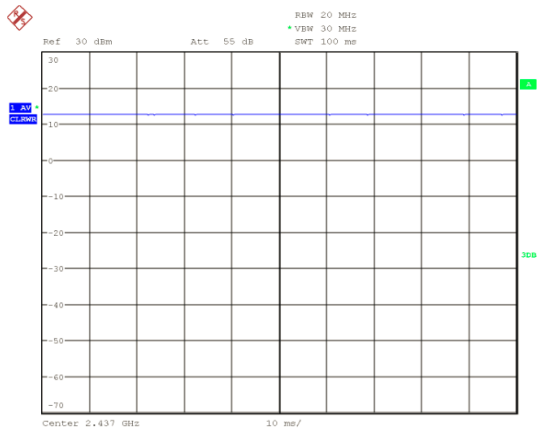
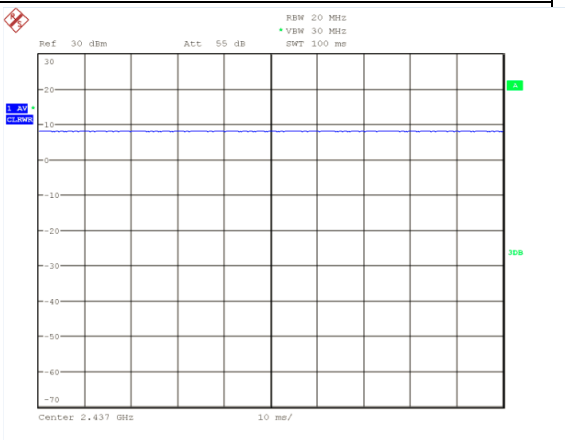
b) Power measurement is required for the transmission mode configuration with the highest maximum output power specified for production units.

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	**Duty Cycle 802.11g mode**
	
Duty Cycle 802.11n20 mode	

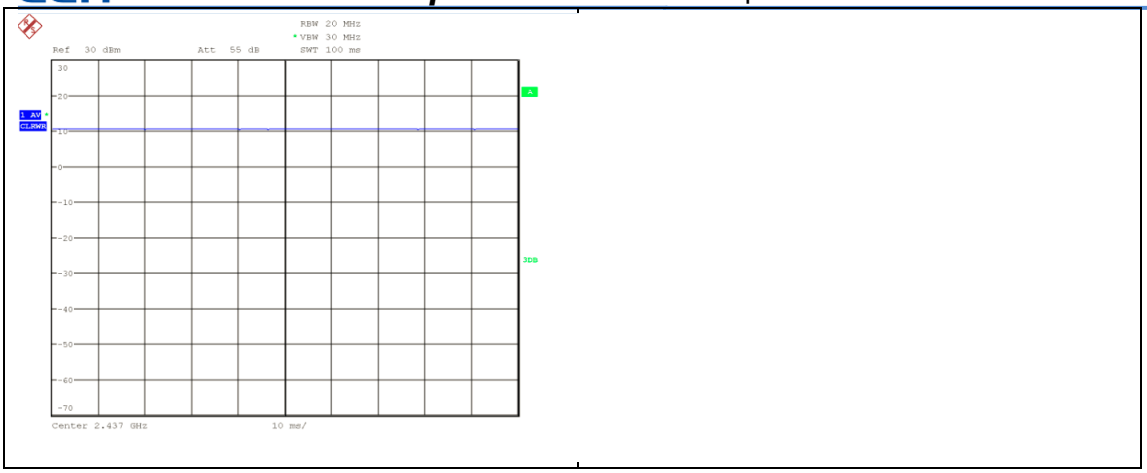


Table 11.24: The average conducted power for WiFi

Mode	Channel	Frequence	Average power(dBm)
802.11 b	1	2412 MHZ	16.41
	6	2437 MHZ	15.85
	11	2462 MHZ	13.77
802.11 g	1	2412 MHZ	14.82
	6	2437 MHZ	16.04
	11	2462 MHZ	13.84
802.11 n 20M	1	2412 MHZ	10.54
	6	2437 MHZ	11.59
	11	2462 MHZ	9.34

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.

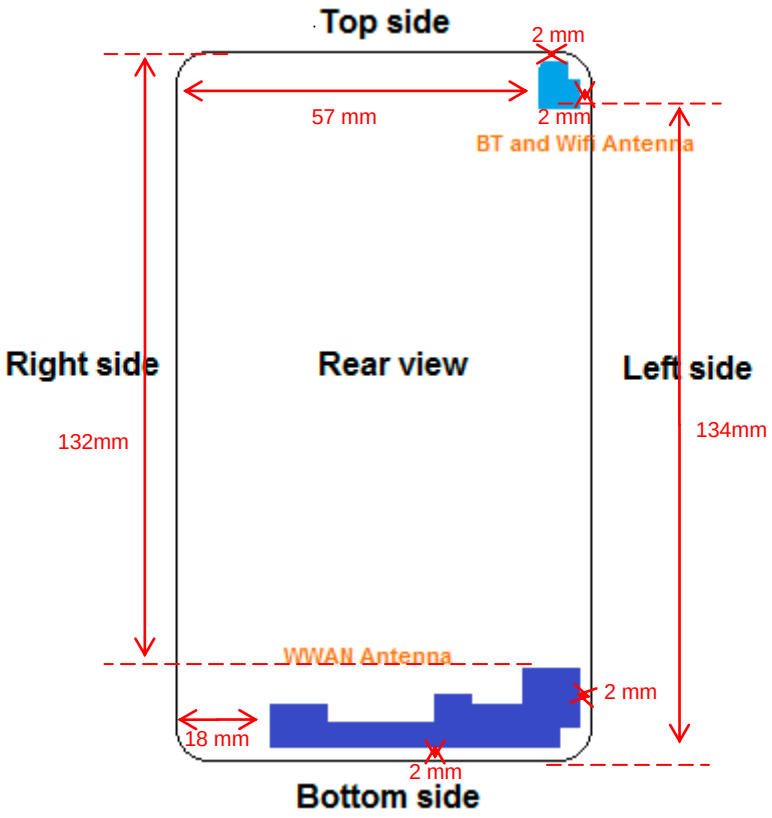
12. Simultaneous TX SAR Considerations

12.1. 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.

12.2. Transmit Antenna Separation Distances



Picture 12.1 Antenna Locations

Note:

WWAN Antenna meaning is 2G/3G/4G TX Antenna

12.3. Standalone SAR Test Exclusion Considerations

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

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

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

[√f(GHz)] ≤ 3.0 for 1-g SAR, where

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

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

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

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

Evaluation=0.99＜3.0

Based on the above equation, WiFi SAR was required:

Evaluation=7.009>3.0

12.4. SAR Measurement Positions

According to the KDB941225 D06 Hot Spot SAR v01, the edges with less than 2.5 cm distance to the antennas need to be tested for SAR.

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

13. SAR Test Result

13.1. SAR results for Fast SAR

Duty Cycle	
Speech for GSM850/1900	1:8.3
GPRS for GSM850/1900	1:2.77
WCDMA Band I/ VI/ V/and WiFi	1:1
LTE Band 2/4/5/7	1:1

Table 13.1: 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	GSM850	Left	Touch	/	32.17	32.5	1.079	0.199	0.215	0.12
836.6	190	GSM850	Left	Tilt	/	32.17	32.5	1.079	0.189	0.204	0.10
836.6	190	GSM850	Right	Touch	/	32.17	32.5	1.079	0.231	0.249	0.13
836.6	190	GSM850	Right	Tilt	/	32.17	32.5	1.079	0.171	0.184	-0.09
824.2	128	GSM850	Right	Touch	Fig.1	32.23	32.5	1.064	0.251	0.267	-0.17
848.8	251	GSM850	Right	Touch	/	32.21	32.5	1.069	0.211	0.226	0.12

Table 13.2: 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	/	28.45	29	1.135	0.357	0.405	0.04
836.6	190	GPRS 3TS	Class12	Toward Ground	10	/	28.45	29	1.135	0.561	0.637	0.10
824.2	128	GPRS 3TS	Class12	Toward Ground	10	Fig.2	28.44	29	1.138	0.565	0.643	-0.15
848.8	251	GPRS 3TS	Class12	Toward Ground	10	/	28.51	29	1.119	0.542	0.607	0.09
Hotspot												
836.6	190	GPRS 3TS	Class12	Toward Left	10	/	28.45	29	1.135	0.258	0.293	0.08

836.6	190	GPRS 3TS	Class12	Toward Right	10	/	28.45	29	1.135	0.410	0.465	0.04
836.6	190	GPRS 3TS	Class12	Toward Bottom	10	/	28.45	29	1.135	0.115	0.131	0.10

Table 13.3: 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	GSM1900	Left	Touch	/	29.61	30	1.094	0.135	0.148	-0.04
1880	661	GSM1900	Left	Tilt	/	29.61	30	1.094	0.047	0.051	-0.07
1880	661	GSM1900	Right	Touch	/	29.61	30	1.094	0.085	0.093	0.04
1880	661	GSM1900	Right	Tilt	/	29.61	30	1.094	0.060	0.066	0.12
1850.2	512	GSM1900	Left	Touch	Fig.3	29.59	30	1.099	0.182	0.200	-0.18
1909.8	810	GSM1900	Left	Touch	/	29.62	30	1.091	0.150	0.164	0.13

Table 13.4: 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	/	26.69	27	1.074	0.464	0.498	-0.06
1880	661	GPRS 3TS	Class12	Toward Ground	10	/	26.69	27	1.074	0.351	0.377	-0.14
Hotspot												
1880	661	GPRS 3TS	Class12	Toward Left	10	/	26.69	27	1.074	0.241	0.259	-0.06
1880	661	GPRS 3TS	Class12	Toward Right	10	/	26.69	27	1.074	0.131	0.141	-0.14
1880	661	GPRS 3TS	Class12	Toward Bottom	10	/	26.69	27	1.074	0.714	0.767	-0.06
1850.2	512	GPRS 3TS	Class12	Toward Bottom	10	/	26.65	27	1.084	0.650	0.705	-0.14
1909.8	810	GPRS 3TS	Class12	Toward Bottom	10	Fig.4	26.71	27	1.069	0.747	0.799	-0.13

Table 13.5: 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	9800	Band II	Left	Touch	/	22.46	22.5	1.009	0.277	0.280	-0.07
1880	9800	Band II	Left	Tilt	/	22.46	22.5	1.009	0.101	0.102	0.12
1880	9800	Band II	Right	Touch	/	22.46	22.5	1.009	0.242	0.244	-0.15
1880	9800	Band II	Right	Tilt	/	22.46	22.5	1.009	0.239	0.241	0.03
1852.4	9662	Band II	Left	Touch	Fig.5	22.41	22.5	1.021	0.394	0.402	-0.14
1907.6	9938	Band II	Left	Touch	/	22.43	22.5	1.016	0.267	0.271	0.12

Table 13.6: 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	9800	Band II	12.2kbps RMC	Toward Phantom	10	/	22.46	22.5	1.009	0.731	0.738	-0.07
1880	9800	Band II	12.2kbps RMC	Toward Ground	10	/	22.46	22.5	1.009	0.699	0.705	0.12
Hotspot												
1880	9800	Band II	12.2kbps RMC	Toward Left	10	/	22.46	22.5	1.009	0.482	0.486	-0.07
1880	9800	Band II	12.2kbps RMC	Toward Right	10	/	22.46	22.5	1.009	0.096	0.097	0.12
1880	9800	Band II	12.2kbps RMC	Toward Bottom	10	/	22.46	22.5	1.009	0.742	0.749	-0.15
1852.4	9662	Band II	12.2kbps RMC	Toward Bottom	10	/	22.44	22.5	1.014	0.755	0.766	0.03
1907.6	9938	Band II	12.2kbps RMC	Toward Bottom	10	Fig.6	22.47	22.5	1.007	1.01	1.017	0.18
Repeated												
1907.6	9938	Band II	12.2kbps RMC	Toward Bottom	10	Fig.7	22.47	22.5	1.007	1.02	1.037	0.11
Secondary Supply												

1907.6	9938	Band II	12.2kbps RMC	Toward Bottom	10	Fig.35	22.47	22.5	1.007	0.819	0.825	0.02

Table 13.7: 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.										
1732.8	1638	Band IV	Left	Touch	/	22.35	22.5	1.035	0.324	0.335	-0.07
1732.8	1638	Band IV	Left	Tilt	/	22.35	22.5	1.035	0.178	0.184	0.12
1732.8	1638	Band IV	Right	Touch	/	22.35	22.5	1.035	0.306	0.317	-0.15
1732.8	1638	Band IV	Right	Tilt	/	22.35	22.5	1.035	0.144	0.149	0.03
1712.4	1537	Band IV	Left	Touch	/	22.38	22.5	1.028	0.348	0.358	0.05
1752.6	1738	Band IV	Left	Touch	Fig.8	22.33	22.5	1.040	0.359	0.373	-0.14

Table 13.8: 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												
1732.8	**1638**	Band IV	12.2kbps RMC	Toward Phantom	10	/	22.35	22.5	1.035	0.522	0.540	0.12
1732.8	**1638**	Band IV	12.2kbps RMC	Toward Ground	10	Fig.9	22.35	22.5	1.035	0.558	0.578	-0.17
1712.4	**1537**	Band IV	12.2kbps RMC	Toward Ground	10	/	22.38	22.5	1.028	0.522	0.537	-0.07
1752.6	**1738**	Band IV	12.2kbps RMC	Toward Ground	10	/	22.33	22.5	1.040	0.512	0.532	0.12
Hotspot												
1732.8	**1638**	Band IV	12.2kbps RMC	Toward Left	10	/	22.35	22.5	1.035	0.369	0.382	-0.07
1732.8	**1638**	Band IV	12.2kbps RMC	Toward Right	10	/	22.35	22.5	1.035	0.158	0.164	0.12
1732.8	**1638**	Band IV	12.2kbps RMC	Toward Bottom	10	/	22.35	22.5	1.035	0.528	0.547	-0.15

Table 13.9: 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	4175	Band V	Left	Touch	/	22.46	22.8	1.081	0.259	0.280	-0.07
836.6	4175	Band V	Left	Tilt	/	22.46	22.8	1.081	0.179	0.194	0.12
836.6	4175	Band V	Right	Touch	/	22.46	22.8	1.081	0.260	0.281	-0.15
836.6	4175	Band V	Right	Tilt	/	22.46	22.8	1.081	0.191	0.207	0.03
826.4	4132	Band V	Right	Touch	/.	22.44	22.8	1.086	0.233	0.253	0.05
846.6	4232	Band V	Right	Touch	Fig.10	22.47	22.8	1.079	0.281	0.303	-0.17

Table 13.10: 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	4175	Band V	12.2kbps RMC	Toward Phantom	10	/	22.46	22.8	1.081	0.324	0.350	-0.07
836.6	4175	Band V	12.2kbps RMC	Toward Ground	10	/	22.46	22.8	1.081	0.400	0.433	0.12
826.4	4132	Band V	12.2kbps RMC	Toward Ground	10	/	22.44	22.8	1.086	0.375	0.407	-0.15
846.6	4232	Band V	12.2kbps RMC	Toward Ground	10	Fig.11	22.47	22.8	1.079	0.414	0.447	-0.10
Hotspot												
836.6	4175	Band V	12.2kbps RMC	Toward Left	10	/	22.46	22.8	1.081	0.241	0.261	-0.07
836.6	4175	Band V	12.2kbps RMC	Toward Right	10	/	22.46	22.8	1.081	0.294	0.318	0.12
836.6	4175	Band V	12.2kbps RMC	Toward Bottom	10	/	22.46	22.8	1.081	0.074	0.080	-0.15

Table 13.11: SAR Values (LTE Band 2- Head)

Frequency		Mode	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.											
1880	18900	Band 2	QPSK_20MHz 1RB_99 offset	Left	Touch	Fig.12	22.49	22.8	1.074	0.456	0.490	-0.19
1880	18900		QPSK_20MHz 50RB_0 offset	Left	Touch	/	22.47	22.8	1.079	0.326	0.352	-0.07
1880	18900	Band 2	QPSK_20MHz 1RB_99 offset	Left	Tilt	/	22.49	22.8	1.074	0.124	0.133	0.12
1880	18900		QPSK_20MHz 50RB_0 offset	Left	Tilt	/	22.47	22.8	1.079	0.133	0.143	-0.15
1880	18900	Band 2	QPSK_20MHz 1RB_99 offset	Right	Touch	/	22.49	22.8	1.074	0.312	0.335	0.03
1880	18900		QPSK_20MHz 50RB_0 offset	Right	Touch	/	22.47	22.8	1.079	0.193	0.208	0.05
1880	18900	Band 2	QPSK_20MHz 1RB_99 offset	Right	Tilt	/	22.49	22.8	1.074	0.159	0.171	-0.07
1880	18900		QPSK_20MHz 50RB_0 offset	Right	Tilt	/	22.47	22.8	1.079	0.106	0.114	0.12
1860	18700	Band 2	QPSK_20MHz 1RB_99 offset	Left	Touch	/	22.45	22.8	1.084	0.391	0.424	-0.15
1860	18700		QPSK_20MHz 50RB_0 offset	Left	Touch	Fig.13	22.44	22.8	1.086	0.343	0.373	-0.13
1900	19100	Band 2	QPSK_20MHz 1RB_99 offset	Left	Touch	/	22.43	22.8	1.089	0.283	0.308	-0.07
1900	19100		QPSK_20MHz 50RB_0 offset	Left	Touch	/	22.45	22.8	1.084	0.255	0.276	0.12

Table 13.12: SAR Values (LTE Band2 Body)

Frequency		Mode	Configuration	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.										
Body-Worn/Hotspot											
1880	18900	Band2	QPSK_20MHz 1RB_99 offset	Toward Phantom	/	22.49	22.8	1.074	0.796	0.855	0.01
1880	18900		QPSK_20MHz 50RB_0 offset	Toward Phantom	/	22.47	22.8	1.079	0.593	0.640	0.07
1880	18900	Band2	QPSK_20MHz 1RB_99 offset	Toward Ground	Fig.14	22.49	22.8	1.074	0.824	0.885	-0.01
1880	18900		QPSK_20MHz 50RB_0 offset	Toward Ground	/	22.47	22.8	1.079	0.622	0.671	0.01
1860	18700	Band2	QPSK_20MHz 1RB_99 offset	Toward Ground	/	22.49	22.8	1.074	0.765	0.822	0.07
1860	18700		QPSK_20MHz 50RB_0 offset	Toward Ground	Fig.15	22.47	22.8	1.079	0.673	0.726	-0.12
1900	19100	Band2	QPSK_20MHz 1RB_99 offset	Toward Ground		22.49	22.8	1.074	0.733	0.787	0.01
1900	19100		QPSK_20MHz 50RB_0 offset	Toward Ground	/	22.47	22.8	1.079	0.583	0.629	0.07
1860	18700	Band2	QPSK_20MHz 1RB_99 offset	Toward Phantom	/	22.45	22.8	1.084	0.716	0.776	0.15
1900	19100		QPSK_20MHz 1RB_99 offset	Toward Phantom	/	22.43	22.8	1.089	0.645	0.702	0.19
Hotspot											
1880	18900	Band2	QPSK_20MHz 1RB_99 offset	Toward Left	/	22.49	22.8	1.074	0.409	0.439	0.01
1880	18900		QPSK_20MHz 50RB_0 offset	Toward Left	/	22.47	22.8	1.079	0.288	0.311	0.07
1880	18900	Band2	QPSK_20MHz 1RB_99 offset	Toward Right	/	22.49	22.8	1.074	0.142	0.153	0.15
1880	18900		QPSK_20MHz 50RB_0 offset	Toward Right	/	22.47	22.8	1.079	0.143	0.154	0.19
1880	18900	Band2	QPSK_20MHz 1RB_99 offset	Toward Bottom	/	22.49	22.8	1.074	0.681	0.731	0.01
1880	18900		QPSK_20MHz 50RB_0 offset	Toward Bottom	/	22.47	22.8	1.079	0.678	0.732	0.07
Repeated											
1880	18900	Band2	QPSK_20MHz 1RB_99 offset	Toward Ground	Fig.16	22.49	22.8	1.074	0.892	0.892	0.13

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

Table 13.13: SAR Values (LTE Band 4- Head)

Frequency		Mode	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.											
1745	20300	Band 4	QPSK_20MHz 1RB_0 offset	Left	Touch	Fig.17	22.15	22.5	1.084	0.317	0.344	-0.15
1745	20300		QPSK_20MHz 50RB_0 offset	Left	Touch	/	22.13	22.5	1.089	0.109	0.119	0.01
1745	20300	Band 4	QPSK_20MHz 1RB_0 offset	Left	Tilt	/	22.15	22.5	1.084	0.183	0.198	0.07
1745	20300		QPSK_20MHz 50RB_0 offset	Left	Tilt	/	22.13	22.5	1.089	0.106	0.115	0.15
1745	20300	Band 4	QPSK_20MHz 1RB_0 offset	Right	Touch	/	22.15	22.5	1.084	0.249	0.270	0.19
1745	20300		QPSK_20MHz 50RB_0 offset	Right	Touch	/	22.13	22.5	1.089	0.107	0.117	0.01
1745	20300	Band 4	QPSK_20MHz 1RB_0 offset	Right	Tilt	/	22.15	22.5	1.084	0.103	0.112	0.07
1745	20300		QPSK_20MHz 50RB_0 offset	Right	Tilt	/	22.13	22.5	1.089	0.071	0.077	0.15
1720	20050	Band 4	QPSK_20MHz 1RB_0 offset	Left	Touch	/	22.13	22.5	1.089	0.299	0.326	0.19
1720	20050		QPSK_20MHz 50RB_0 offset	Left	Touch	/	22.11	22.5	1.094	0.101	0.110	0.01
1732.5	20175	Band 4	QPSK_20MHz 1RB_0 offset	Left	Touch	/	22.11	22.5	1.094	0.307	0.336	0.07
1732.5	20175		QPSK_20MHz 50RB_0 offset	Left	Touch	Fig.18	22.10	22.5	1.096	0.21	0.230	0.12

Table 13.14: SAR Values (LTE Band4 Body)

Frequency		Mode	Configuration	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.										
Body-Worn/Hotspot											
1745	20300	Band4	QPSK_20MHz 1RB_0 offset	Toward Phantom	/	22.15	22.5	1.084	0.349	0.378	0.04
1745	20300		QPSK_20MHz 50RB_0 offset	Toward Phantom	/	22.13	22.5	1.089	0.301	0.328	-0.18
1745	20300	Band4	QPSK_20MHz 1RB_0 offset	Toward Ground	/.	22.15	22.5	1.084	0.376	0.408	0.04
1745	20300		QPSK_20MHz 50RB_0 offset	Toward Ground	/	22.13	22.5	1.089	0.388	0.423	-0.12
1720	20050	Band4	QPSK_20MHz 1RB_0 offset	Toward Ground	Fig.19	22.13	22.5	1.089	0.389	0.424	0.14
1732.5	20175		QPSK_20MHz 1RB_0 offset	Toward Ground	/	22.11	22.5	1.094	0.361	0.395	0.11
Hotspot											
1745	20300	Band4	QPSK_20MHz 1RB_0 offset	Toward Left	/	22.15	22.5	1.084	0.232	0.251	0.04
1745	20300		QPSK_20MHz 50RB_0 offset	Toward Left	/	22.13	22.5	1.089	0.194	0.211	-0.18
1745	20300	Band4	QPSK_20MHz 1RB_0 offset	Toward Right	/	22.15	22.5	1.084	0.121	0.131	0.04
1745	20300		QPSK_20MHz 50RB_0 offset	Toward Right	/	22.13	22.5	1.089	0.188	0.205	-0.12
1745	20300	Band4	QPSK_20MHz 1RB_0 offset	Toward Bottom	/	22.15	22.5	1.084	0.367	0.398	0.04
1745	20300		QPSK_20MHz 50RB_0 offset	Toward Bottom	Fig.20	22.13	22.5	1.089	0.411	0.448	-0.01
1720	20050	Band4	QPSK_20MHz 50RB_0 offset	Toward Bottom	/	22.11	22.5	1.094	0.372	0.407	0.07
1732.5	20175		QPSK_20MHz 50RB_0 offset	Toward Bottom	/	22.10	22.5	1.096	0.368	0.404	0.12

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

Table 13.15: SAR Values (LTE Band 5- Head)

Frequency		Mode	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.											
829	20450	Band5	QPSK_10MHz 1RB_0 offset	Left	Touch	/	22.36	22.8	1.107	0.183	0.203	-0.12
836.5	20525		QPSK_10MHz 25RB_0 offset	Left	Touch	/	22.34	22.8	1.112	0.130	0.145	0.14
829	20450	Band5	QPSK_10MHz 1RB_0 offset	Left	Tilt	/	22.36	22.8	1.107	0.131	0.145	0.13
836.5	20525		QPSK_10MHz 25RB_0 offset	Left	Tilt	/	22.34	22.8	1.112	0.128	0.142	0.15
829	20450	Band5	QPSK_10MHz 1RB_0 offset	Right	Touch	/	22.36	22.8	1.107	0.167	0.185	-0.02
836.5	20525		QPSK_10MHz 25RB_0 offset	Right	Touch	/	22.34	22.8	1.112	0.119	0.132	-0.12
829	20450	Band5	QPSK_20MHz 1RB_0 offset	Right	Tilt	/	22.36	22.8	1.107	0.114	0.126	0.14
836.5	20525		QPSK_10MHz 25RB_0 offset	Right	Tilt	/	22.34	22.8	1.112	0.104	0.116	0.13
836.5	20525	Band5	QPSK_10MHz 1RB_0 offset	Left	Touch	/	22.32	22.8	1.117	0.174	0.194	0.15
829	20450		QPSK_10MHz 25RB_0 offset	Left	Touch	Fig.22	22.33	22.8	1.114	0.153	0.170	0.18
844	20600	Band5	QPSK_10MHz 1RB_0 offset	Left	Touch	Fig.21	22.35	22.8	1.109	0.2	0.222	0.12
844	20600		QPSK_10MHz 25RB_0 offset	Left	Touch	/	22.30	22.8	1.122	0.125	0.140	0.11

Table 13.16: SAR Values (LTE Band5 Body)

Frequency		Mode	Configuration	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.										
Body-Worn/Hotspot											
829	20450	Band5	QPSK_10MHz 1RB_0 offset	Toward Phantom	/	22.36	22.8	1.107	0.208	0.230	0.07
836.5	20525		QPSK_10MHz 25RB_0 offset	Toward Phantom	/	22.34	22.8	1.112	0.218	0.242	0.03
829	20450	Band5	QPSK_10MHz 1RB_0 offset	Toward Ground	/.	22.36	22.8	1.107	0.356	0.394	-0.05
836.5	20525		QPSK_10MHz 25RB_0 offset	Toward Ground	/	22.34	22.8	1.112	0.328	0.365	0.13
836.5	20525	Band5	QPSK_10MHz 1RB_0 offset	Toward Ground	/	22.32	22.8	1.117	0.377	0.421	0.07
829	20450		QPSK_10MHz 25RB_0 offset	Toward Ground	/	22.33	22.8	1.114	0.304	0.339	0.03
844	20600	Band5	QPSK_10MHz 1RB_0 offset	Toward Ground	Fig.23	22.35	22.8	1.109	0.419	0.465	0.13
844	20600		QPSK_10MHz 25RB_0 offset	Toward Ground	Fig.24	22.30	22.8	1.122	0.352	0.395	0.03
829	20450	Band5	QPSK_10MHz 1RB_0 offset	Toward Left	/	22.36	22.8	1.107	0.155	0.172	0.07
836.5	20525		QPSK_10MHz 25RB_0 offset	Toward Left	/	22.34	22.8	1.112	0.129	0.143	0.03
829	20450	Band5	QPSK_20MHz 1RB_0 offset	Toward Right	/	22.36	22.8	1.107	0.152	0.168	-0.05
836.5	20525		QPSK_10MHz 25RB_0 offset	Toward Right	/	22.34	22.8	1.112	0.225	0.250	0.13
829	20450	Band5	QPSK_10MHz 1RB_0 offset	Toward Bottom	/	22.36	22.8	1.107	0.0636	0.070	0.07
836.5	20525		QPSK_10MHz 25RB_0 offset	Toward Bottom	/	22.34	22.8	1.112	0.0492	0.055	0.03

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

Table 13.17: SAR Values (LTE Band 7- Head)

Frequency		Mode	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.											
2510	20850	Band 7	QPSK_20MHz 1RB_99 offset	Left	Touch	Fig.25	22.54	22.6	1.014	0.976	0.990	0.17
			QPSK_20MHz 50RB_25 offset	Left	Touch	/	22.52	22.6	1.019	0.693	0.706	0.07
2510	20850	Band 7	QPSK_20MHz 1RB_99 offset	Left	Tilt	/	22.54	22.6	1.014	0.317	0.321	0.03
			QPSK_20MHz 50RB_25 offset	Left	Tilt	/	22.52	22.6	1.019	0.210	0.214	-0.05
2510	20850	Band 7	QPSK_20MHz 1RB_99 offset	Right	Touch	/	22.54	22.6	1.014	0.439	0.445	0.13
			QPSK_20MHz 50RB_25 offset	Right	Touch	/	22.52	22.6	1.019	0.353	0.360	0.07
2510	20850	Band 7	QPSK_20MHz 1RB_199 offset	Right	Tilt	/	22.54	22.6	1.014	0.345	0.350	0.03
			QPSK_20MHz 50RB_25 offset	Right	Tilt	/	22.52	22.6	1.019	0.327	0.333	-0.05
2535	21100	Band 7	QPSK_20MHz 1RB_99 offset	Left	Touch	/	22.51	22.6	1.021	0.910	0.929	0.13
			QPSK_20MHz 50RB_25 offset	Left	Touch	Fig.26	22.50	22.6	1.023	0.812	0.831	-0.11
2560	21350	Band 7	QPSK_20MHz 1RB_99 offset	Left	Touch	/	22.50	22.6	1.023	0.890	0.911	0.08
			QPSK_20MHz 50RB_25 offset	Left	Touch	/	22.48	22.6	1.028	0.800	0.822	0.12
Repeated												
2510	20850	Band 7	QPSK_20MHz 1RB_99 offset	Left	Touch	Fig.27	22.54	22.6	1.014	0.977	0.991	0.12
2535	21100	Band 7	QPSK_20MHz 50RB_25 offset	Left	Touch	Fig.28	22.51	22.6	1.021	0.815	0.832	-0.11
Secondary Supply												
2510	20850	Band 7	QPSK_20MHz 1RB_99 offset	Left	Touch	Fig.34	22.54	22.6	1.014	0.977	0.991	-0.17

Table 13.18: SAR Values (LTE Band 7–Body)

Frequency		Mode	Configuration	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.										
Body-Worn/Hotspot											
2510	20850	Band 7	QPSK_20MHz 1RB_99 offset	Toward Phantom	/	22.54	22.6	1.014	0.514	0.521	-0.07
			QPSK_20MHz 50RB_25 offset	Toward Phantom	/	22.52	22.6	1.019	0.395	0.402	0.11
2510	20850	Band 7	QPSK_20MHz 1RB_99 offset	Toward Ground	Fig.29	22.54	22.6	1.014	0.684	0.694	0.04
			QPSK_20MHz 50RB_25 offset	Toward Ground	/.	22.52	22.6	1.019	0.404	0.412	-0.05
2535	21100	Band 7	QPSK_20MHz 1RB_99 offset	Toward Ground	/	22.51	22.6	1.021	0.525	0.536	0.13
			QPSK_20MHz 50RB_25 offset	Toward Ground	/	22.50	22.6	1.023	0.391	0.400	-0.07
2560	21350	Band 7	QPSK_20MHz 1RB_99 offset	Toward Ground	/	22.50	22.6	1.023	0.468	0.479	0.11
			QPSK_20MHz 50RB_25 offset	Toward Ground	/	22.48	22.6	1.028	0.382	0.393	-0.05
2510	20850	Band 7	QPSK_20MHz 1RB_99 offset	Toward Left	/	22.54	22.6	1.014	0.621	0.630	-0.05
			QPSK_20MHz 50RB_25 offset	Toward Left	/	22.52	22.6	1.019	0.446	0.454	0.13
2510	20850	Band 7	QPSK_20MHz 1RB_99 offset	Toward Right	/	22.54	22.6	1.014	0.0732	0.074	-0.07
			QPSK_20MHz 50RB_25 offset	Toward Right	/	22.52	22.6	1.019	0.0465	0.047	0.11
2510	20850	Band 7	QPSK_20MHz 1RB_99 offset	Toward Bottom	Fig.30	22.54	22.6	1.014	0.838	0.850	0.15
			QPSK_20MHz 50RB_25 offset	Toward Bottom	/	22.52	22.6	1.019	0.533	0.543	-0.05
2535	21100	Band 7	QPSK_20MHz 1RB_99 offset	Toward Bottom	/	22.51	22.6	1.021	0.680	0.694	0.13
			QPSK_20MHz 50RB_25 offset	Toward Bottom	/	22.50	22.6	1.023	0.683	0.699	-0.07
2560	21350	Band 7	QPSK_20MHz 1RB_99 offset	Toward Bottom	/	22.50	22.6	1.023	0.707	0.723	0.11

			QPSK_20MHz 1RB_99 offset	Toward Bottom	/	22.48	22.6	1.028	0.602	0.619	0.03
Repeated											
2510	20850	Band 7	QPSK_20MHz 1RB_99 offset	Toward Bottom	Fig.31	22.54	22.6	1.014	0.853	0.865	0.02

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

Table 13.19:SAR Values (WiFi2450 802.11b- Head)

Frequency		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	Left	Touch	/	15.85	16.5	1.161	0.139	0.161	0.09
2412	1	Left	Tilt	/	15.85	16.5	1.161	0.108	0.125	0.03
2412	1	Right	Touch	Fig.32	16.41	16.5	1.021	0.453	0.462	-0.19
2412	1	Right	Tilt	/	15.85	16.5	1.161	0.218	0.253	-0.02
2437	6	Right	Touch	/	15.85	16.5	1.161	0.271	0.315	0.05
2462	11	Right	Touch	/	13.77	16.5	1.875	0.226	0.424	0.09
Secondary Supply										
2412	1	Left	Touch	/	15.85	16.5	1.161	0.122	0.142	0.08

Table 13.20:SAR Values (WiFi2450 –Body)

Frequency		Mode	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.									
Body-Worn/Hotspot										
2412	1	802.11 b	Phantom	/	15.85	16.5	1.161	0.145	0.168	0.11
2412	1	802.11 b	Ground	Fig.33	15.85	16.5	1.161	0.215	0.250	-0.13
2437	6	802.11 b	Ground	/	16.41	16.5	1.021	0.122	0.125	0.09
2462	11	802.11 b	Ground	/	13.77	16.5	1.875	0.130	0.244	0.03
Hotspot										
2412	1	802.11 b	Left	/	15.85	16.5	1.161	0.145	0.168	0.19
2412	1	802.11 b	Right	/	15.85	16.5	1.161	0.008	0.009	-0.03
2412	1	802.11 b	Top	/	15.85	16.5	1.161	0.0238	0.028	0.05
Secondary Supply										
2412	1	802.11 b	Ground	Fig.34	15.85	16.5	1.161	0.108	0.125	0.16

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

SAR results for Standard procedure

There is zoom scan measurement to be added for the highest measured SAR in each exposure configuration/band.

Table 13.17: SAR Values for Head

Frequency		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.									
824.2	128	Right	Touch	Fig.1	32.23	32.5	1.064	0.251	0.267	-0.17
1850.2	512	Left	Touch	Fig.3	28.87	29.2	1.079	0.182	0.196	-0.18
1852.4	9662	Left	Touch	Fig.5	22.41	22.5	1.021	0.394	0.402	-0.14
1752.6	1738	Left	Touch	Fig.8	22.33	22.5	1.040	0.359	0.373	-0.14
846.6	4232	Right	Touch	Fig.10	22.47	22.8	1.079	0.281	0.303	-0.17
2412	1	Right	Touch	Fig.32	16.41	16.5	1.021	0.453	0.462	-0.19
2412	1	Left	Touch	Fig.36	15.85	16.5	1.161	0.122	0.142	0.08

Frequency		Mode	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.											
1880	18900	Band 2	QPSK_20MHz 1RB_99 offset	Left	Touch	Fig.12	22.49	22.8	1.074	0.456	0.490	-0.19
1860	18700		QPSK_20MHz 50RB_0 offset	Left	Touch	Fig.13	22.44	22.8	1.086	0.343	0.373	-0.13
1745	20300	Band 4	QPSK_20MHz 1RB_0 offset	Left	Touch	Fig.17	22.15	22.5	1.084	0.317	0.344	-0.15
1732.5	20175		QPSK_20MHz 50RB_0 offset	Left	Touch	Fig.18	22.10	22.5	1.096	0.21	0.230	0.12
829	20450	Band 5	QPSK_10MHz 25RB_0 offset	Left	Touch	Fig.22	22.33	22.8	1.114	0.153	0.170	0.18
844	20600		QPSK_10MHz 1RB_0 offset	Left	Touch	Fig.21	22.35	22.8	1.109	0.2	0.222	0.12
2510	20850	Band 7	QPSK_20MHz 1RB_99 offset	Left	Touch	Fig.25	22.54	22.6	1.014	0.976	0.990	0.17
2535	21100	Band 7	QPSK_20MHz 50RB_25 offset	Left	Touch	Fig.26	22.50	22.6	1.023	0.812	0.831	-0.11

2510	20850	Band 7	QPSK_20MHz 1RB_99 offset	Left	Touch	Fig.27	22.54	22.6	1.014	0.977	0.991	0.12
2535	21100	Band 7	QPSK_20MHz 50RB_25 offset	Left	Touch	Fig.28	22.51	22.6	1.021	0.815	0.832	-0.11
2510	20850	Band 7	QPSK_20MHz 1RB_99 offset	Left	Touch	Fig.34	22.54	22.6	1.014	0.977	0.991	-0.17

Table 13.18: SAR Values for Hotspot/Body worn

Frequency		Mode (number of timeslots)	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.									
824.2	128	GPRS 3TS	Toward Ground	Fig.2	28.44	29	1.138	0.565	0.643	-0.15
1909.8	810	GPRS 3TS	Toward Bottom	Fig.4	26.71	27	1.069	0.747	0.799	-0.13
1907.6	9938	12.2kbps RMC	Toward Bottom	Fig.6	22.47	22.5	1.007	1.01	1.017	0.18
1907.6	9938	12.2kbps RMC	Toward Bottom	Fig.7	22.47	22.5	1.007	1.02	1.037	0.11
1907.6	9938	12.2kbps RMC	Toward Bottom	Fig.35	22.47	22.5	1.007	0.819	0.825	0.02
1732.8	1638	12.2kbps RMC	Toward Ground	Fig.9	22.35	22.5	1.035	0.558	0.578	-0.17
846.6	4232	12.2kbps RMC	Toward Ground	Fig.11	22.47	22.8	1.079	0.414	0.447	-0.10
2412	1	802.11 b	Ground	Fig.33	15.85	16.5	1.161	0.215	0.250	-0.13

Frequency		Mode	Configuration	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	Band2	QPSK_20MHz 1RB_99 offset	Toward Ground	Fig.14	22.49	22.8	1.074	0.824	0.885	-0.01
1860	18700		QPSK_20MHz 50RB_0 offset	Toward Ground	Fig.15	22.47	22.8	1.079	0.673	0.726	-0.12
1880	18900		QPSK_20MHz 1RB_99 offset	Toward Ground	Fig.16	22.49	22.8	1.074	0.892	0.892	0.13
1720	20050	Band4	QPSK_20MHz 1RB_0 offset	Toward Ground	Fig.19	22.13	22.5	1.089	0.389	0.424	0.14
1745	20300		QPSK_20MHz 50RB_0 offset	Toward Bottom	Fig.20	22.13	22.5	1.089	0.411	0.448	-0.01

844	20600	Band5	QPSK_10MHz 1RB_0 offset	Toward Ground	Fig.23	22.35	22.8	1.109	0.419	0.465	0.13
844	20600		QPSK_10MHz 25RB_0 offset	Toward Ground	Fig.24	22.30	22.8	1.122	0.352	0.395	0.03
2510	20850	Band 7	QPSK_20MHz 1RB_99 offset	Toward Ground	Fig.29	22.54	22.6	1.014	0.684	0.694	0.04
2510	20850		QPSK_20MHz 1RB_99 offset	Toward Bottom	Fig.30	22.54	22.6	1.014	0.838	0.850	0.15
2510	20850		QPSK_20MHz 1RB_99 offset	Toward Bottom	Fig.31	22.54	22.6	1.014	0.853	0.865	0.02

14. Evaluation of Simultaneous

Table 14.1: Summary of Transmitters

Band/Mode	Frequency (GHz)	SAR test exclusion threshold(mW)	RF output power (mW)
Bluetooth	2480	10	6.310
2.4GHz WLAN 802.11 b/g/n	2450	10	44.668

Table14.2 Simultaneous transmission SAR

Standalone SAR for 2G(W/Kg)					
Test Position			GSM 850	GSM 1900	Highest SAR
Head voice	Left	Cheek	0.267	0.200	0.267
		Tilt 15°	0.204	0.051	0.204
	Right	Cheek	0.267	0.093	0.267
		Tilt 15°	0.184	0.066	0.184
Body worn/Hotspot 10mm	Phantom Side		0.405	0.498	0.498
	Ground Side		0.643	0.377	0.643
Hotspot 10mm	Left Side		0.293	0.259	0.293
	Right Side		0.465	0.141	0.465
	Bottom Side		0.131	0.799	0.799
	Top Side		--	--	--

Standalone SAR for 3G (W/Kg)						
Test Position			WCDMA Band II	WCDMA Band IV	WCDMA Band V	Highest SAR
Head data	Left	Cheek	0.402	0.373	0.303	0.402
		Tilt 15°	0.102	0.184	0.194	0.194
	Right	Cheek	0.244	0.317	0.281	0.317
		Tilt 15°	0.241	0.149	0.207	0.241
Body worn/Hotspot 10mm	Phantom Side		0.738	0.540	0.350	0.738
	Ground Side		0.705	0.578	0.447	0.705
Hotspot 10mm	Left Side		0.486	0.382	0.261	0.486
	Right Side		0.097	0.164	0.318	0.318
	Bottom Side		1.037	0.547	0.080	1.037
	Top Side		--	--	--	--

Standalone SAR for 4G (W/Kg)							
Test Position			LTE Band 2	LTE Band 4	LTE Band 5	LTE Band 7	Highest SAR
Head	Left	Cheek	0.490	0.336	0.222	0.991	0.991
		Tilt 15°	0.143	0.198	0.145	0.321	0.321
	Right	Cheek	0.335	0.270	0.185	0.445	0.445
		Tilt 15°	0.171	0.112	0.126	0.350	0.350
Body worn/Hotspot 10mm	Phantom Side		0.855	0.378	0.242	0.521	0.855
	Ground Side		0.892	0.424	0.465	0.694	0.892
Body 10mm	Left Side		0.439	0.251	0.172	0.630	0.630
	Right Side		0.154	0.205	0.250	0.074	0.250
	Bottom Side		0.732	0.448	0.070	0.865	0.865
	Top Side		--	--	--	--	--

Transmission SAR(W/Kg)								
Test Position			2G	3G	4G	2.4G WIFI	BT	SUM
Head	Left	Cheek	0.267	0.402	0.991	0.161	0.264	1.255
		Tilt 15°	0.204	0.194	0.321	0.125	0.264	0.585
	Right	Cheek	0.267	0.317	0.445	0.462	0.264	0.907
		Tilt 15°	0.184	0.241	0.350	0.253	0.264	0.614
Body worn/Hotspot 10mm	Phantom Side		0.498	0.738	0.855	0.168	0.132	0.906
	Ground Side		0.643	0.705	0.892	0.250	0.132	1.142
Hotspot 10mm	Left Side		0.293	0.486	0.630	0.244	0.132	0.874
	Right Side		0.465	0.318	0.250	0.009	0.132	0.597
	Bottom Side		0.799	1.037	0.865		0.132	1.169
	Top Side		--	--	--	0.028	0.132	0.132

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 WiFi/BT is considered with measurement results of GSM/WCDMA /LTEand WiFi/BT. According to the above table, the sum of reported SAR values for GSM/WCDMA/LTE and WiFi<1.6W/kg. So the simultaneous transmission SAR is not required for WiFi/BT transmitter.

15. 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 15.1: SAR Measurement Variability for Head Value (1g)

Frequency		Side	Test Position	Original SAR (W/kg)	First Repeated SAR (W/kg)	second Repeated SAR(1g)(W/kg)	The Ratio
MHz	Ch.						
2510	20850	Left	Touch	0.990	0.991	N/A	1.001
2535	21100	Left	Touch	0.831	0.832	N/A	1.001

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

Table 15.1: SAR Measurement Variability for Body Value (1g)

Frequency		mode	Test Position	Original SAR (W/kg)	First Repeated SAR (W/kg)	second Repeated SAR(1g)(W/kg)	The Ratio
MHz	Ch.						
1907.6	9938	12.2kbps RMC	Bottom	1.017	0.825	N/A	1.23
1852.4	9262	12.2kbps RMC	Phantom	1.1	1.1	N/A	1.0
1880	18900	Band2	Ground	0.885	0.892	N/A	1.007
2510	20850	Band 7	Bottom	0.850	0.865	N/A	1.017

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

16. Measurement Uncertainty

Error Description	Unc. value, ±%	Prob. Dist.	Div.	c_i 1g	c_i 10g	Std.Unc. ±%,1g	Std.Unc. ±%,10g	V_i v_{eff}
Measurement System								
Probe Calibration	6.0	N	1	1	1	6.0	6.0	∞
Axial Isotropy	0.5	R	$\sqrt{3}$	0.7	0.7	0.2	0.2	∞
Hemispherical Isotropy	2.6	R	$\sqrt{3}$	0.7	0.7	1.1	1.1	∞
Boundary Effects	0.8	R	$\sqrt{3}$	1	1	0.5	0.5	∞
Linearity	0.6	R	$\sqrt{3}$	1	1	0.3	0.3	∞
System Detection Limits	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
Readout Electronics	0.7	N	1	1	1	0.7	0.7	∞
Response Time	0	R	$\sqrt{3}$	1	1	0	0	∞
Integration Time	2.6	R	$\sqrt{3}$	1	1	1.5	1.5	∞
RF Ambient Noise	3.0	R	$\sqrt{3}$	1	1	1.7	1.7	∞
RF Ambient Reflections	3.0	R	$\sqrt{3}$	1	1	1.7	1.7	∞
Probe Positioner	1.5	R	$\sqrt{3}$	1	1	0.9	0.9	∞
Probe Positioning	2.9	R	$\sqrt{3}$	1	1	1.7	1.7	∞
Max. SAR Eval.	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
Test Sample Related								
Device Positioning	2.9	N	1	1	1	2.9	2.9	145
Device Holder	3.6	N	1	1	1	3.6	3.6	5
Diople								
Power Drift	5.0	R	$\sqrt{3}$	1	1	2.9	2.9	∞
Dipole Positioning	2.0	N	1	1	1	2.0	2.0	∞
Dipole Input Power	5.0	N	1	1	1	5.0	5.0	∞
Phantom and Setup								
Phantom Uncertainty	4.0	R	$\sqrt{3}$	1	1	2.3	2.3	∞
Liquid Conductivity (target)	5.0	R	$\sqrt{3}$	0.64	0.43	1.8	1.2	∞
Liquid Conductivity (meas.)	2.5	N	1	0.64	0.43	1.6	1.1	∞
Liquid Permittivity (target)	5.0	R	$\sqrt{3}$	0.6	0.49	1.7	1.4	∞
Liquid Permittivity (meas.)	2.5	N	1	0.6	0.49	1.5	1.2	∞
Combined Std Uncertainty						±11.2%	±10.9%	387
Expanded Std Uncertainty						**±22.4 %**	**±21.8 %**	

17. Main Test Instrument

Table 17.1: List of Main Instruments

No.	Name	Type	Serial Number	Calibration Date	Valid Period
01	Network analyzer	N5242A	MY51221755	Jan 6, 2017	1 year
02	Power meter	NRVD	102257	May 11, 2017	1 year
03	Power sensor	NRV-Z5	100241		
			100644		
04	Signal Generator	E4438C	MY49072044	May 11, 2017	1 Year
05	Amplifier	NTWPA-0086010F	12023024	No Calibration Requested	
06	Coupler	778D	MY4825551	May 11, 2017	1 year
07	BTS	E5515C	MY50266468	Jan 6, 2017	1 year
08	BTS	MT8820C	6201240338	May 11, 2017	1 year
09	E-field Probe	EX3DV4	3754	Jan 13, 2017	1 year
		ES3DV3	3252	Aug 31,2017	1 year
10	DAE	SPEAG DAE4	1244	Dec 12,2016	1 year
11	Dipole Validation Kit	SPEAG D835V2	4d112	Oct 22, 2015	2 year
		SPEAG D1750V2	1044	Nov 3,2015	2 year
		SPEAG D1900V2	5d134	Nov 4,2015	2 year
		SPEAG D2450V2	858	Oct 30,2015	2 year
		SPEAG D2600V2	1031	Oct 30,2015	2 year

ANNEX A. GRAPH RESULTS

GSM850 Right Cheek Low

Date/Time: 2017/9/7
Electronics: DAE4 Sn1244
Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.871 S/m; ε_r = 41.92; ρ = 1000 kg/m^3
Ambient Temperature:22.5°C Liquid Temperature:22.5°C
Communication System: GSM Professional 835MHz; Frequency: 824.2 MHz; Duty Cycle: 1:8.3
Probe: EX3DV4 - SN3754ConvF(9.41, 9.41, 9.41); Calibrated: 1/13/2017
GSM850 Right Cheek Low/Area Scan (121x71x1):
Measurement grid: dx=10 mm, dy=10 mm
Maximum value of SAR (Measurement) = 0.273 W/kg
GSM850 Right Cheek Low/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.200 V/m; Power Drift = -0.17 dB
Peak SAR (extrapolated) = 0.266 W/kg
SAR(1 g) = 0.251 W/kg; SAR(10 g) = 0.210 W/kg
Maximum of SAR (measured) = 0.261 W/kg

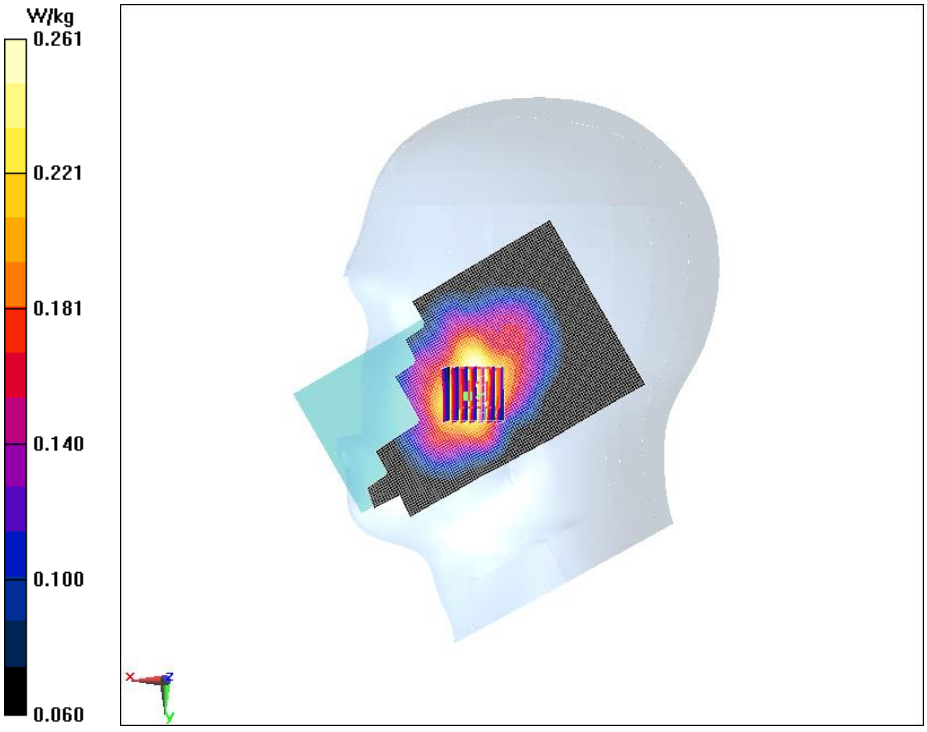


Fig.1 GSM850 Right Cheek Low

GSM850 3TS Ground Mode Low

Date/Time: 2017/9/7
Electronics: DAE4 Sn1244
Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.991 S/m; ε_r = 57.221; ρ = 1000 kg/m^3
Ambient Temperature:22.5°C Liquid Temperature:22.5°C
Communication System: GSM 835MHz GPRS 3TS (0); Frequency: 824.2 MHz; Duty Cycle: 1:2.77
Probe: EX3DV4 - SN3754ConvF(9.66, 9.66, 9.66); Calibrated: 1/13/2017
GSM850 3TS Ground Mode Low 10mm/Area Scan (71x121x1):
Measurement grid: dx=10 mm, dy=10 mm
Maximum value of SAR (Measurement) = 0.633 W/kg
GSM850 3TS Ground Mode Low 10mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 24.67 V/m; Power Drift = -0.15 dB
Peak SAR (extrapolated) = 0.643 W/kg
SAR(1 g) = 0.565 W/kg; SAR(10 g) = 0.463 W/kg
Maximum of SAR (measured) = 0.585 W/kg

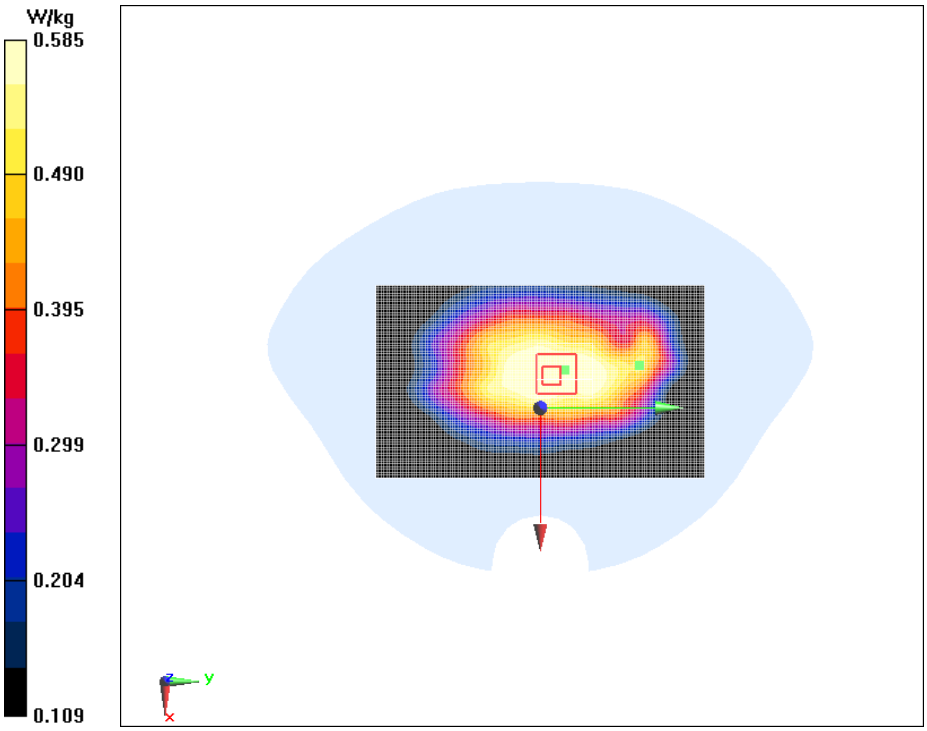


Fig.2 GSM850 3TS Ground Mode Low

GSM 1900 Left Cheek Low

Date/Time: 2017/9/9
Electronics: DAE4 Sn1244
Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.270 S/m; ε_r = 42.062; ρ = 1000 kg/m^3
Ambient Temperature:22.5°C Liquid Temperature:22.5°C
Communication System: GSM Professional 1900MHz; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3
Probe: EX3DV4 - SN3754ConvF(7.85, 7.85, 7.85); Calibrated: 1/13/2017
GSM 1900 Left Cheek Low/Area Scan (101x61x1):
Measurement grid: dx=10 mm, dy=10 mm
Maximum value of SAR (Measurement) = 0.200 W/kg
GSM 1900 Left Cheek Low/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.823 V/m; Power Drift = -0.18 dB
Peak SAR (extrapolated) = 0.274 W/kg
SAR(1 g) = 0.182 W/kg; SAR(10 g) = 0.116 W/kg
Maximum value of SAR (measured) = 0.197 W/kg

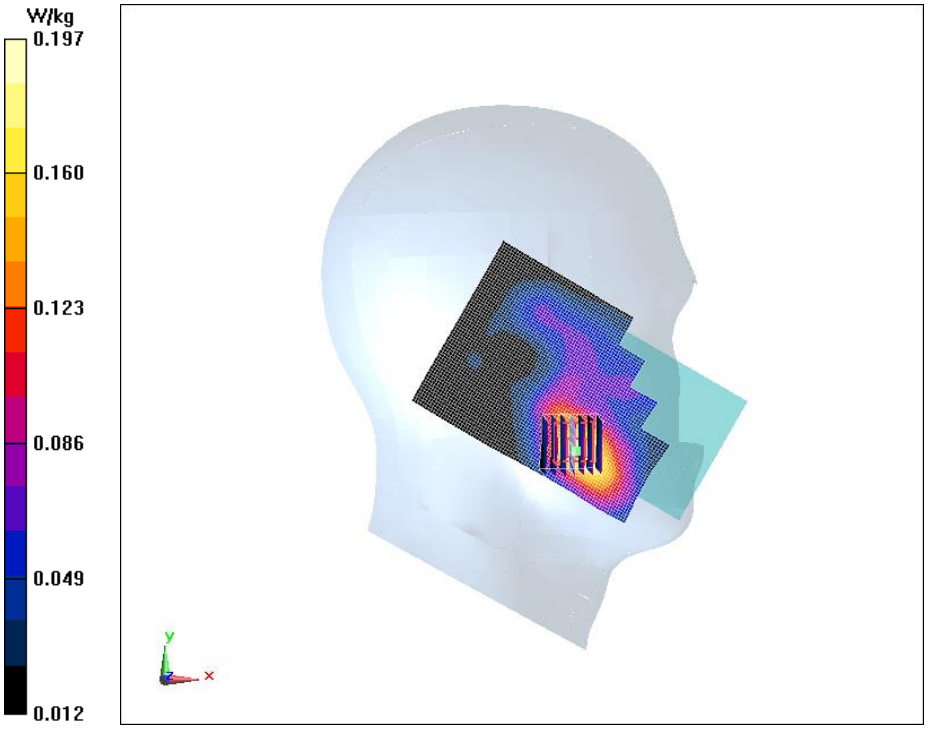


Fig.3 GSM 1900 Left Cheek Low

GSM1900 Bottom 3TS Mode High 10mm

Date/Time: 2017/9/9
Electronics: DAE4 Sn1244
Medium parameters used: f = 1910 MHz; σ = 1.612 S/m; ε_r = 54.427; ρ = 1000 kg/m^3
Ambient Temperature:22.5°C Liquid Temperature:22.5°C
Communication System: GSM 1900MHz GPRS 3TS (0); Frequency: 1909.8 MHz; Duty Cycle: 1:2.77
Probe: EX3DV4 - SN3754ConvF(7.6, 7.6, 7.6); Calibrated: 1/13/2017
GSM1900 Bottom 3TS Mode High 10mm /Area Scan (41x81x1):
Measurement grid: dx=10 mm, dy=10 mm
Maximum value of SAR (Measurement) = 0.879 W/kg
GSM1900 Bottom 3TS Mode High 10mm /Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 17.40 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 1.11 W/kg
SAR(1 g) = 0.747 W/kg; SAR(10 g) = 0.440 W/kg
Maximum value of SAR (measured) = 0.835 W/kg

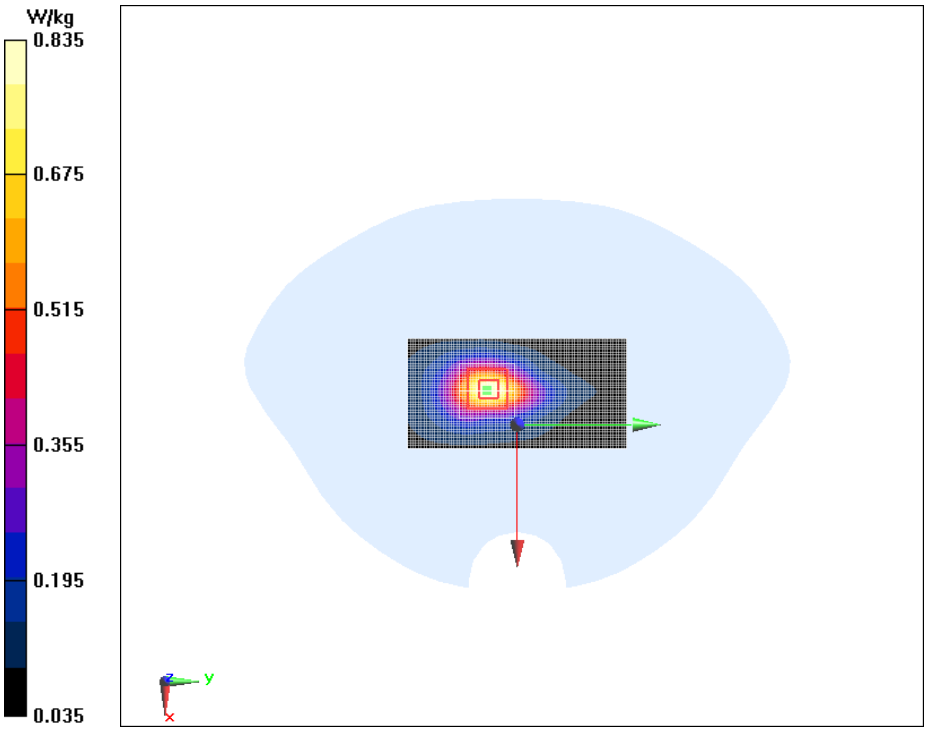


Fig.4 GSM1900 Bottom 3TS Mode High 10mm

WCDMA Band 2 Left Cheek Low

Date/Time: 2017/9/9
Electronics: DAE4 Sn1244
Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.373 S/m; ε_r = 41.562; ρ = 1000 kg/m^3
Ambient Temperature:22.5°C Liquid Temperature:22.5°C
Communication System: WCDMA Professional Band Ⅱ; Frequency: 1852.4 MHz; Duty Cycle: 1:1
Probe: EX3DV4 - SN3754ConvF(7.85, 7.85, 7.85); Calibrated: 1/13/2017
WCDMA Band 2 Left Cheek Low/Area Scan (121x71x1):
Measurement grid: dx=10 mm, dy=10 mm
Maximum value of SAR (Measurement) = 0.427 W/kg
WCDMA Band 2 Left Cheek Low/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.768 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 0.591 W/kg
SAR(1 g) = 0.394 W/kg; SAR(10 g) = 0.255 W/kg
Maximum value of SAR (measured) = 0.424 W/kg

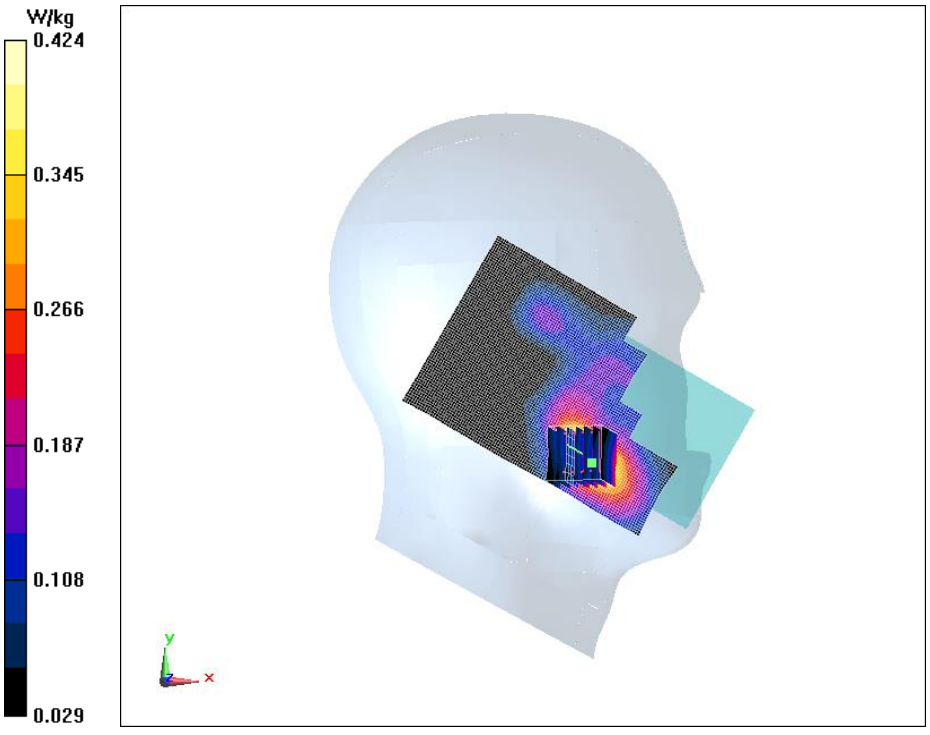


Fig. 5 WCDMA Band 2 Left Cheek Low

WCDMA Band 2 Bottom Mode High

Date/Time: 2017/9/9
Electronics: DAE4 Sn1244
Medium parameters used: f = 1908 MHz; σ = 1.610 S/m; ε_r = 54.857; ρ = 1000 kg/m^3
Ambient Temperature:22.5°C Liquid Temperature:22.5°C
Communication System: WCDMA Professional Band Ⅱ; Frequency: 1907.6 MHz; Duty Cycle: 1:1
Probe: EX3DV4 - SN3754ConvF(7.6, 7.6, 7.6); Calibrated: 1/13/2017
WCDMA Band 2 Bottom Mode High/Area Scan (41x81x1):
Measurement grid: dx=10 mm, dy=10 mm
Maximum value of SAR (Measurement) = 1.12 W/kg
WCDMA Band 2 Bottom Mode High/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.49 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 1.67 W/kg
SAR(1 g) = 1.01 W/kg; SAR(10 g) = 0.545 W/kg
Maximum value of SAR (measured) = 1.11 W/kg

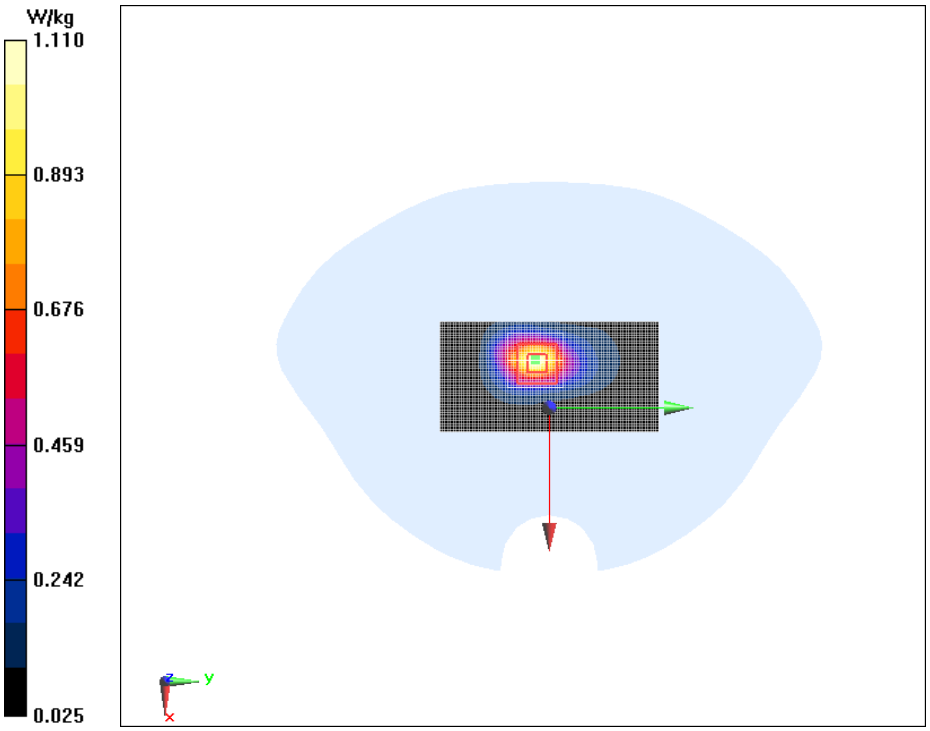


Fig.6 WCDMA Band 2 Bottom Mode High

WCDMA Band 2 Bottom Mode High Repeated

Date/Time: 2017/9/9
Electronics: DAE4 Sn1244
Medium parameters used: f = 1908 MHz; σ = 1.610 S/m; ε_r = 54.857; ρ = 1000 kg/m^3
Ambient Temperature:22.5°C Liquid Temperature:22.5°C
Communication System: WCDMA Professional Band Ⅱ; Frequency: 1907.6 MHz; Duty Cycle: 1:1
Probe: EX3DV4 - SN3754ConvF(7.6, 7.6, 7.6); Calibrated: 1/13/2017
WCDMA Band 2 Bottom Mode High Repeated/Area Scan (41x81x1):
Measurement grid: dx=10 mm, dy=10 mm
Maximum value of SAR (Measurement) = 1.18 W/kg
WCDMA Band 2 Bottom Mode High Repeated/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 22.24 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 1.67 W/kg
SAR(1 g) = 1.02 W/kg; SAR(10 g) = 0.552 W/kg
Maximum value of SAR (measured) = 1.16 W/kg

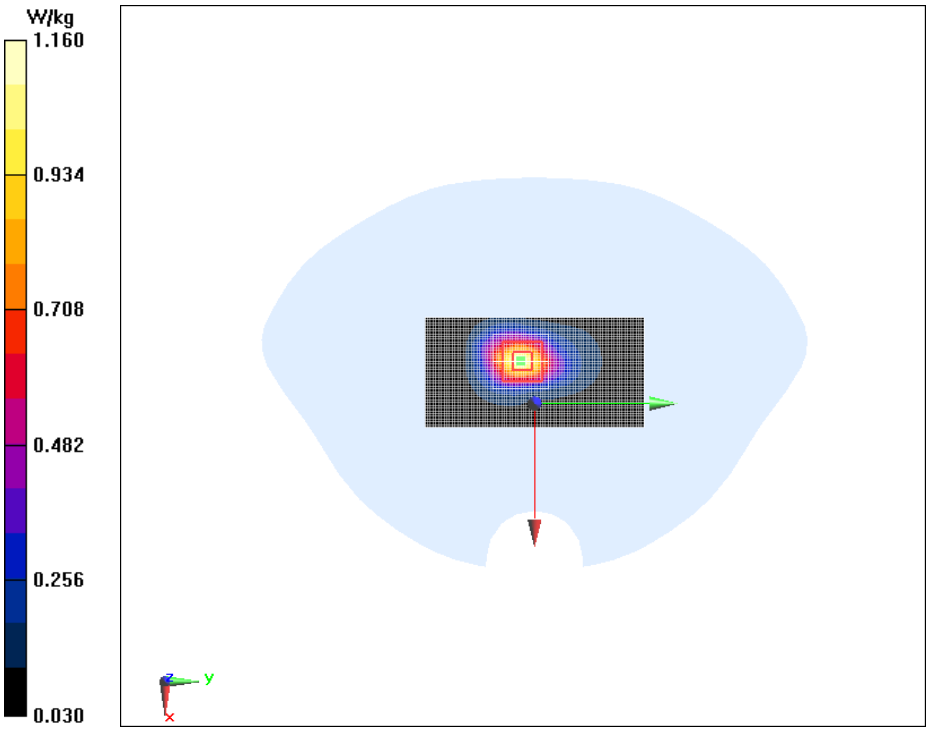


Fig.7 WCDMA Band 2 Bottom Mode High Repeated

WCDMA Band 4 Left Cheek High

Date/Time: 2017/9/8
Electronics: DAE4 Sn1244
Medium parameters used: f = 1753 MHz; σ = 1.315 S/m; ε_r = 40.870; ρ = 1000 kg/m^3
Ambient Temperature:22.5°C Liquid Temperature:22.5°C
Communication System: WCDMA Professional 1800MHz; Frequency: 1752.6 MHz; Duty Cycle: 1:1
Probe: EX3DV4 - SN3754ConvF(8.08, 8.08, 8.08); Calibrated: 1/13/2017
WCDMA Band 4 Left Cheek High/Area Scan (101x61x1):
Measurement grid: dx=10 mm, dy=10 mm
Maximum value of SAR (Measurement) = 0.399 W/kg
WCDMA Band 4 Left Cheek High/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.908 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 0.532 W/kg
SAR(1 g) = 0.359 W/kg; SAR(10 g) = 0.237 W/kg
Maximum of SAR (measured) = 0.385 W/kg

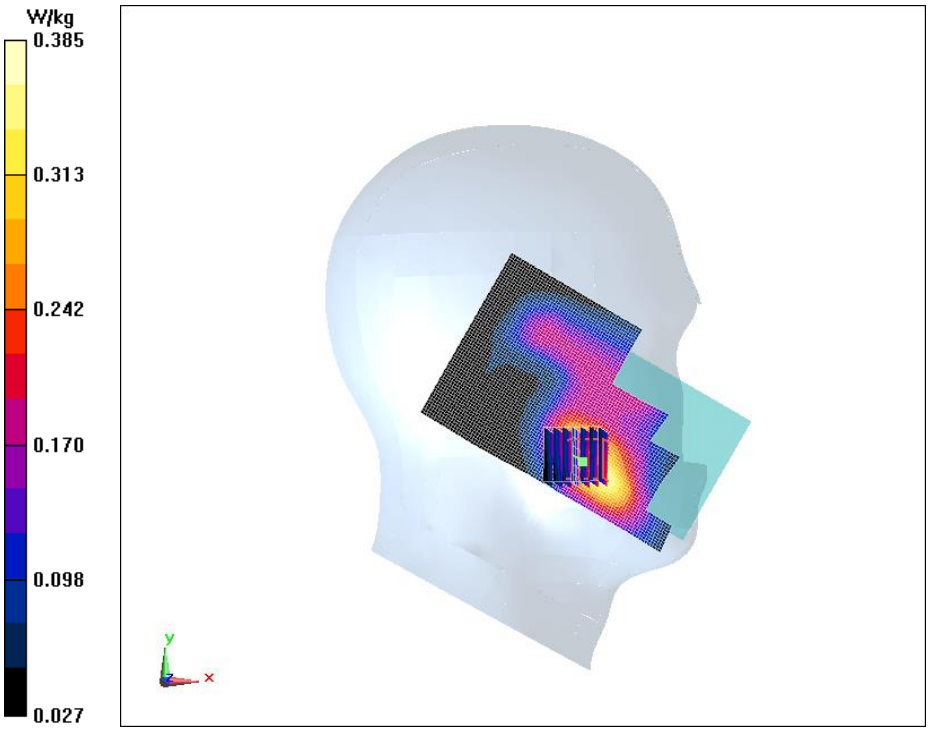


Fig.8 WCDMA Band 4 Left Cheek High

WCDMA Band 4 Ground Mode Middle

Date/Time: 2017/9/8
Electronics: DAE4 Sn1244
Medium parameters used: f = 1733 MHz; σ = 1.401 S/m; ε_r = 55.123; ρ = 1000 kg/m^3
Ambient Temperature:22.5°C Liquid Temperature:22.5°C
Communication System: WCDMA Professional 1800MHz; Frequency: 1732.6 MHz; Duty Cycle: 1:1
Probe: EX3DV4 - SN3754ConvF(7.8, 7.8, 7.8); Calibrated: 1/13/2017
WCDMA Band 4 Ground Mode Middle/Area Scan (71x111x1):
Measurement grid: dx=10 mm, dy=10 mm
Maximum value of SAR (Measurement) = 0.660 W/kg
WCDMA Band 4 Ground Mode Middle/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.60 V/m; Power Drift = -0.17 dB
Peak SAR (extrapolated) = 0.821 W/kg
SAR(1 g) = 0.558 W/kg; SAR(10 g) = 0.360 W/kg
Maximum of SAR (measured) = 0.599 W/kg

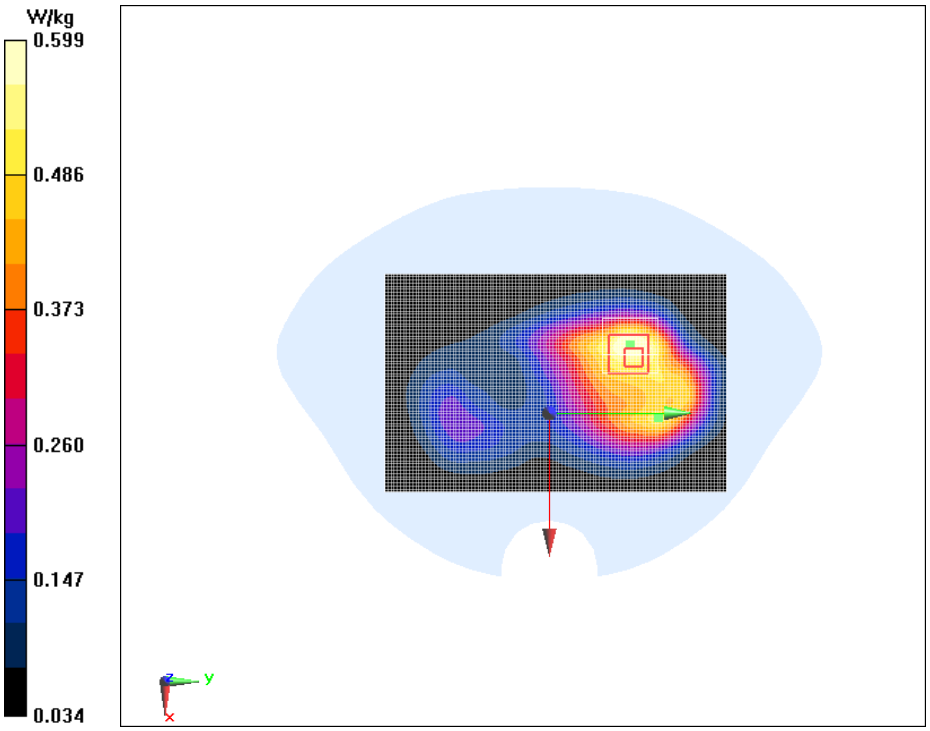


Fig.9 WCDMA Band 4 Ground Mode Middle

WCDMA Band5 Right Cheek High

Date/Time: 2017/9/7
Electronics: DAE4 Sn1244
Medium parameters used: f = 847 MHz; σ = 0.927 S/m; ε_r = 40.809; ρ = 1000 kg/m^3
Ambient Temperature:22.5°C Liquid Temperature:22.5°C
Communication System: WCDMA Professional 835MHz; Frequency: 846.6 MHz; Duty Cycle: 1:1
Probe: EX3DV4 - SN3754ConvF(9.41, 9.41, 9.41); Calibrated: 1/13/2017
WCDMA Band5 Right Cheek High/Area Scan (121x71x1):
Measurement grid: dx=10 mm, dy=10 mm
Maximum value of SAR (Measurement) = 0.301 W/kg
WCDMA Band5 Right Cheek High/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.268 V/m; Power Drift = -0.17 dB
Peak SAR (extrapolated) = 0.310 W/kg
SAR(1 g) = 0.281 W/kg; SAR(10 g) = 0.228 W/kg
Maximum of SAR (measured) = 0.293 W/kg

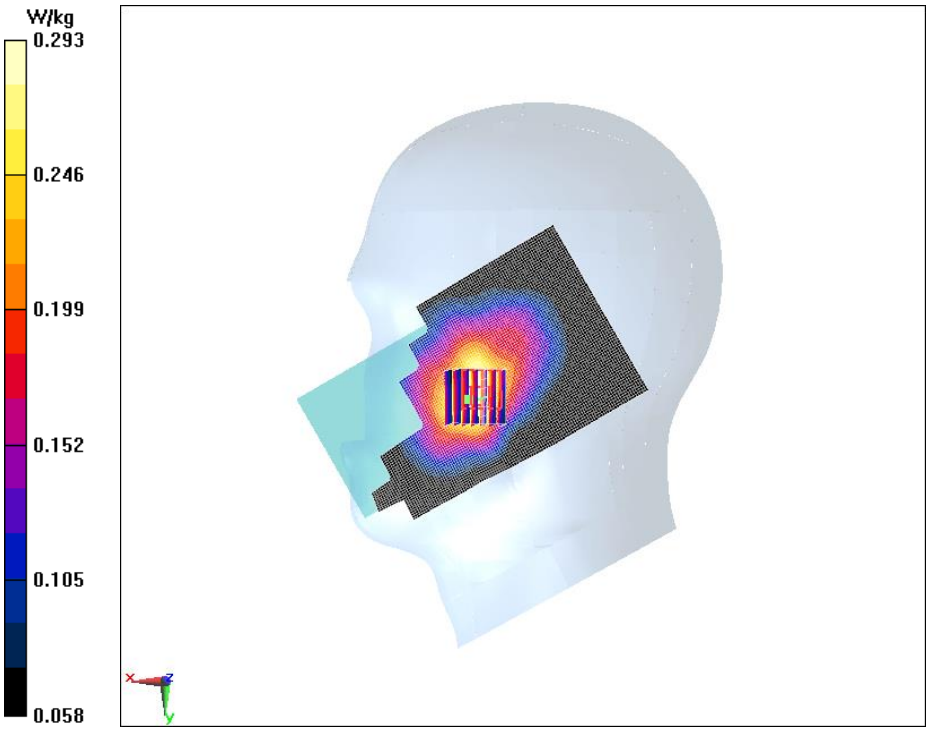


Fig.10 WCDMA Band5 Right Cheek High

WCDMA Band5 Ground Mode High

Date/Time: 2017/9/7
Electronics: DAE4 Sn1244
Medium parameters used: f = 847 MHz; σ = 1.012 S/m; ε_r = 56.994; ρ = 1000 kg/m^3
Ambient Temperature:22.5°C Liquid Temperature:22.5°C
Communication System: WCDMA Professional 835MHz; Frequency: 846.6 MHz; Duty Cycle: 1:1
Probe: EX3DV4 - SN3754ConvF(9.66, 9.66, 9.66); Calibrated: 1/13/2017
WCDMA Band5 Ground Mode High 10mm/Area Scan (71x121x1):
Measurement grid: dx=10 mm, dy=10 mm
Maximum value of SAR (Measurement) = 0.444 W/kg
WCDMA Band5 Ground Mode High 10mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 20.55 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 0.492 W/kg
SAR(1 g) = 0.414 W/kg; SAR(10 g) = 0.331 W/kg
Maximum of SAR (measured) = 0.430 W/kg

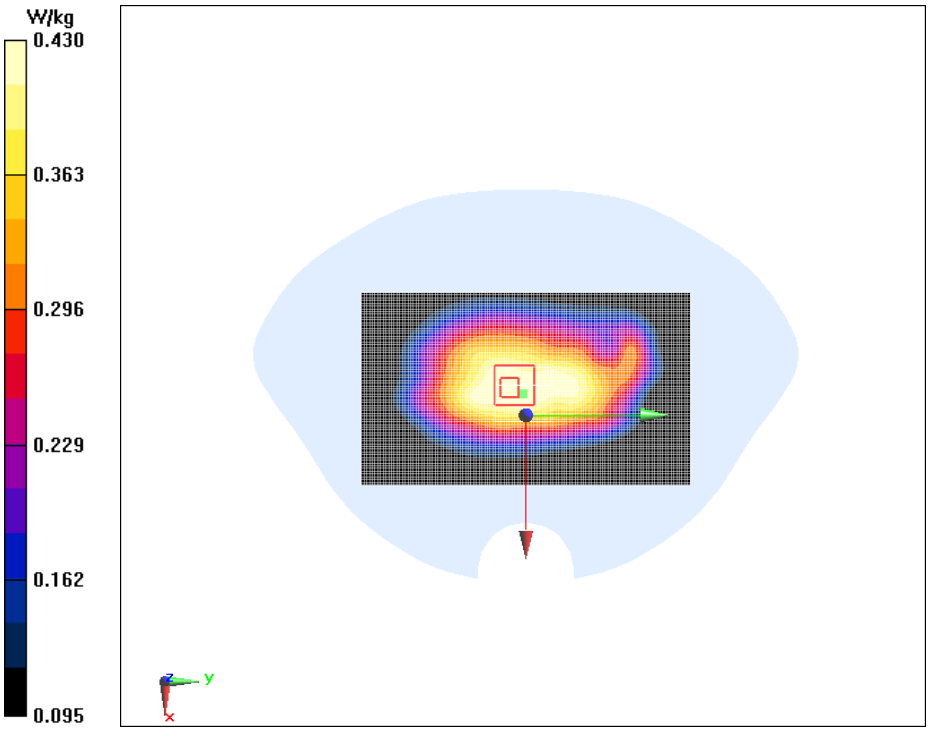


Fig.11 WCDMA Band5 Ground Mode High