TESTING
NVLAP LAB CODE 600118-0

SAR TEST REPORT

No. I19Z61444-SEM04

For

Micromax Informatics Ltd

LTE Mobile Phone

Model name: T5542

With

Hardware Version: MMX_T5542_V3.0

Software Version: MMX_T5542_SW_V03_20191106

FCC ID: 2AU5XT5542

Issued Date: 2019-12-3

Note:

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Test Laboratory:

CTTL, Telecommunication Technology Labs, CAICT

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REPORT HISTORY

Report Number	Revision	Issue Date	Description
I19Z61444-SEM04	Rev.0	2019-11-20	Initial creation of test report
I19Z61444-SEM04	Rev.1	2019-12-3	Update the information on page11/71/74/76 of test report.

TABLE OF CONTENT

1 Test Laboratory

1.1 Testing Location

Company Name:	CTTL(Shouxiang)
Address:	No. 51 Shouxiang Science Building, Xueyuan Road, Haidian District, Beijing, P. R. China100191

1.2 Testing Environment

Temperature:	18°C~25°C,
Relative humidity:	30%~ 70%
Ground system resistance:	< 0.5 Ω
Ambient noise & Reflection:	< 0.012 W/kg

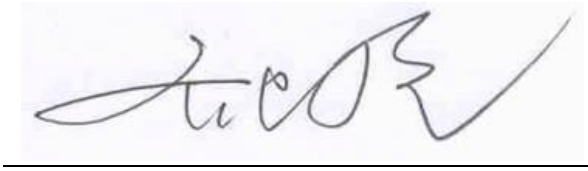
1.3 Project Data

Project Leader:	Qi Dianyuan
Test Engineer:	Lin Xiaojun
Testing Start Date:	November 5, 2019
Testing End Date:	November 12, 2019

1.4 Signature

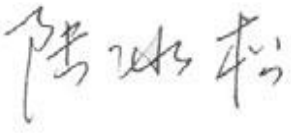
Lin Xiaojun

(Prepared this test report)



Qi Dianyuan

(Reviewed this test report)



Lu Bingsong

Deputy Director of the laboratory

(Approved this test report)

2 Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for Micromax Informatics Ltd LTE Mobile Phone T5542 is as follows:

Table 2.1: Highest Reported SAR (1g)

Exposure Configuration	Technology Band	Highest Reported SAR 1g(W/kg)	Equipment Class
Head (Separation Distance 0mm)	GSM 850	0.69	PCE
	PCS 1900	0.50	
	UMTS FDD 2	0.93	
	UMTS FDD 4	1.00	
	UMTS FDD 5	0.24	
	LTE Band 7	1.04	
	LTE Band 12	0.25	
	LTE Band 25	1.10	
	LTE Band 26	0.25	
	LTE Band 41	0.52	
	LTE Band 66	1.09	
	LTE Band 71	0.23	
	WLAN 2.4 GHz	0.95	DTS
	WLAN 5GHz	0.90	UNII
Hotspot (Separation Distance 10/15mm)	GSM 850	0.32	PCE
	PCS 1900	1.01	
	UMTS FDD 2	1.31	
	UMTS FDD 4	1.40	
	UMTS FDD 5	0.31	
	LTE Band 7	1.05	
	LTE Band 12	0.52	
	LTE Band 25	1.21	
	LTE Band 26	0.28	
	LTE Band 41	0.55	
	LTE Band 66	1.36	
	LTE Band 71	0.28	
	WLAN 2.4 GHz	0.11	DTS
	WLAN 5GHz	0.23	UNII

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 C95.1-1992.

For body operation, this device has been tested and meets FCC RF exposure guidelines when used with any accessory that contains no metal and which provides a minimum separation distance of 10 /15mm between this device and the body of the user. Use of other accessories may not ensure compliance with FCC RF exposure guidelines.

The EUT battery must be fully charged and checked periodically during the test to ascertain uniform power output.

The measurement together with the test system set-up is described in annex C of this test report. A detailed description of the equipment under test can be found in chapter 4 of this test report. The highest reported SAR value is obtained at the case of **(Table 2.1),** and the values are**: 1.40 W/kg(1g).**

According to the KDB648474 D04, the UMPC mini-tablet procedures must also be applied to test the SAR of all surfaces and edges with an antenna located at ≤ 25 mm from that surface or edge, in direct contact with a flat phantom, for 10-g extremity SAR according to the body-equivalent tissue dielectric parameters in KDB Publication 865664 D01 to address interactive hand use exposure conditions. When hotspot mode applies, 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg

Table 2.2: 0mm Reported SAR for phablet

Exposure Configuration	Technology Band	Highest Reported SAR 10g(W/kg)	Equipment Class	Limited SAR 10g(W/kg)
Hotspot (Separation Distance 0mm)	WCDMA1700	1.35	PCE	4.0
	WCDMA1900	0.95		
	LTE Band25	1.03		
	LTE Band66	1.22		

Table 2.3: The sum of reported SAR values for main antenna ANT1/3 and WiFi 2.4G/5G

	Position	Main antenna	WLAN	Sum
Maximum reported SAR value for Head	Left hand, Touch Tilt	1.10	0.27[1]	**1.37**
Maximum reported SAR value for Body	Top	1.40	0.06[1]	**1.46**

[1] –When the Wi-Fi transmit simultaneous with main antenna, the Wi-Fi TX power will be back off. The low power WLAN values is used to the calculation of simultaneous transmission

Table 2.4: The sum of reported SAR values for main antenna ANT1/3 and BT

	Position	Main antenna	BT	Sum
Maximum reported SAR value for Head	Left hand, Touch Tilt	1.10	0.33[2]	**1.43**
Maximum reported SAR value for Body	Top	1.40	0.16[2]	**1.56**

[2] - Estimated SAR for Bluetooth (see the table 13.3)

According to the above tables, the highest sum of reported SAR values is **1.56 W/kg (1g)**. The detail for simultaneous transmission consideration is described in chapter 13.

3 Client Information

3.1 Applicant Information

Company Name:	Micromax Informatics Ltd
Address/Post:	288A Udyog Vihar Phase 4 Gurgaon 122015
Contact Person:	Mr. Sunil Joon
Contact Email:	sunil@micromaxinfo.com
Telephone:	+91 8447446444

3.2 Manufacturer Information

Company Name:	Micromax Informatics Ltd
Address/Post:	288A Udyog Vihar Phase 4 Gurgaon 122015
Contact Person:	Mr. Sunil Joon
Contact Email:	sunil@micromaxinfo.com
Telephone:	+91 8447446444

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

4.1 About EUT

Description:	LTE Mobile Phone
Model name:	T5542
Operating mode(s):	GSM850/1900, WCDM850/1700/1900, LTE Band 2/4/5/7/12/25/26/41/66/71, BT, Wi-Fi(2.4G/5G)
Tested Tx Frequency:	825 – 848.8 MHz (GSM 850)
	1850.2 – 1910 MHz (GSM 1900)
	826.4–846.6 MHz (WCDMA 850 Band V)
	1710 – 1755 MHz (WCDMA 1700 Band IV)
	1852.4–1907.6 MHz (WCDMA1900 Band II)
	2502.5 – 2567.5 MHz(LTE Band 7)
	699.7 – 715.3 MHz (LTE Band 12)
	1850.7 – 1914.3 MHz (LTE Band 25)
	814.7 – 848.3 MHz (LTE Band 26)
	2498.5 – 2687.5 MHz (LTE Band 41)
	1710.7 – 1779.3 MHz (LTE Band 66)
	665.5 – 695.5 MHz (LTE Band 71)
	2412 – 2462 MHz (Wi-Fi 2.4G)
	5.15 – 5.35 GHz 5.725 – 5.825 GHz(Wi-Fi 5G)
GPRS/EGPRS Multislot Class:	33
GPRS capability Class:	B
Test device Production information:	Production unit
Device type:	Portable device
Antenna type:	Integrated antenna
Hotspot mode:	Support

4.2 Internal Identification of EUT used during the test

EUT ID*	IMEI	HW Version	SW Version
EUT1	358849109008654	MMX_T5542_V3.0	MMX_T5542_SW_V03_20191106
EUT2	358849109008571	MMX_T5542_V3.0	MMX_T5542_SW_V03_20191106

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

Note: It is performed to test SAR and conducted power with the EUT1-2.

4.3 Internal Identification of AE used during the test

AE ID*	Description	Model	SN	Manufacturer
AE1	Battery	Li-Polymer	/	NINGBO VEKEN BATTERY CO., LTD.

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

5 TEST METHODOLOGY

5.1 Applicable Limit Regulations

ANSI C95.1–1992: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 Head from Wireless Communications Devices: Measurement Techniques.

KDB447498 D01: General RF Exposure Guidance v06: Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies.

KDB 616217 D04 SAR for laptop and tablets v01r02: SAR Evaluation Considerations for Laptop, Notebook, Netbook and Tablet Computers

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

KDB941225 D01 SAR test for 3G devices v03r01: SAR Measurement Procedures for 3G Devices

KDB941225 D05 SAR for LTE Devices v02r05: SAR Evaluation Considerations for LTE Devices

KDB941225 D06 Hotspot Mode SAR v02r01: SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities

KDB248227 D01 802.11 Wi-Fi SAR v02r02: SAR GUIDANCE FOR IEEE 802.11 (Wi-Fi) TRANSMITTERS

KDB865664 D01SAR measurement 100 MHz to 6 GHz v01r04: SAR Measurement Requirements for 100 MHz to 6 GHz.

KDB865664 D02RF Exposure Reporting v01r02: RF Exposure Compliance Reporting and Documentation Considerations

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

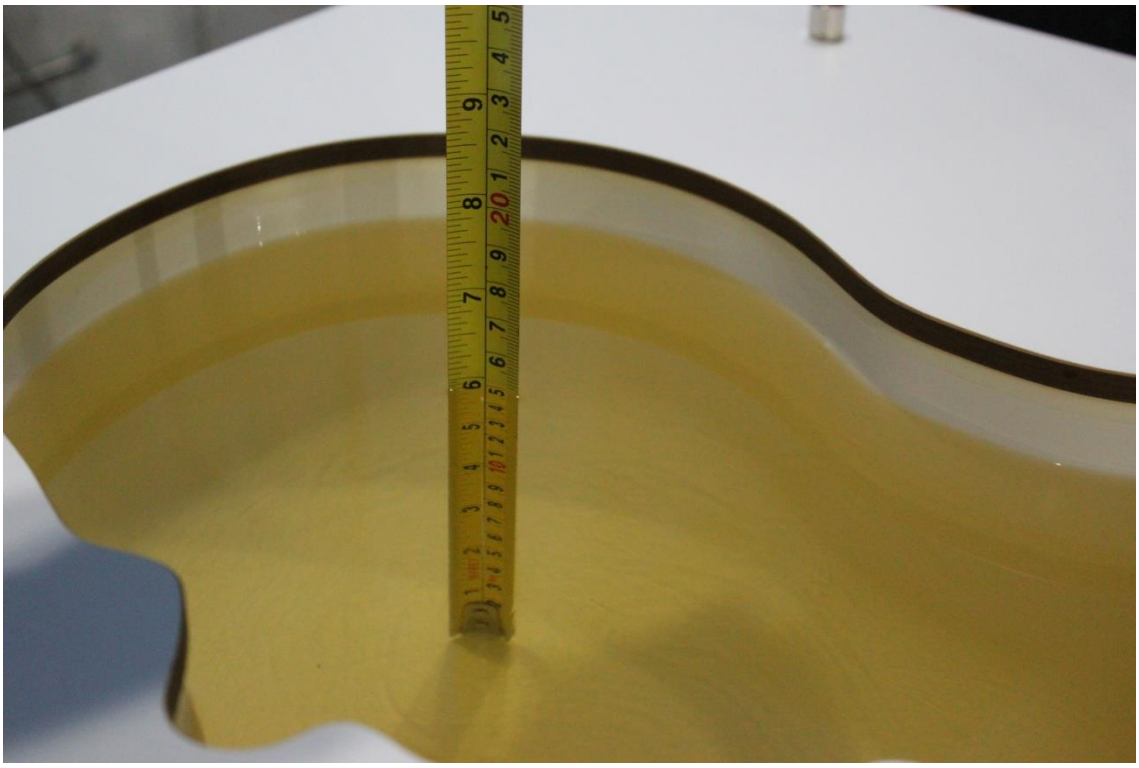
Frequency(MHz)	Liquid Type	Conductivity(σ)	± 5% Range	Permittivity(ε)	± 5% Range
750	Head	0.89	0.85～0.93	41.94	39.8～44.0
750	Body	0.96	0.91～1.01	55.5	52.7～58.3
835	Head	0.90	0.86～0.95	41.5	39.4～43.6
835	Body	0.97	0.92～1.02	55.2	52.4～58.0
1750	Head	1.37	1.30～1.44	40.08	38.1～42.1
1750	Body	1.49	1.42～1.56	53.4	50.7～56.1
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	39.01	37.1～41.0
2600	Body	2.16	2.05～2.27	52.5	49.9～55.1
5250	Head	4.71	4.47～4.95	35.93	34.13～37.73
5250	Body	5.36	5.09～5.63	48.9	46.46～51.35
5750	Head	5.22	4.96～5.48	35.36	33.59～37.13
5750	Body	5.94	5.64～6.24	48.3	45.89～50.72

7.2 Dielectric Performance

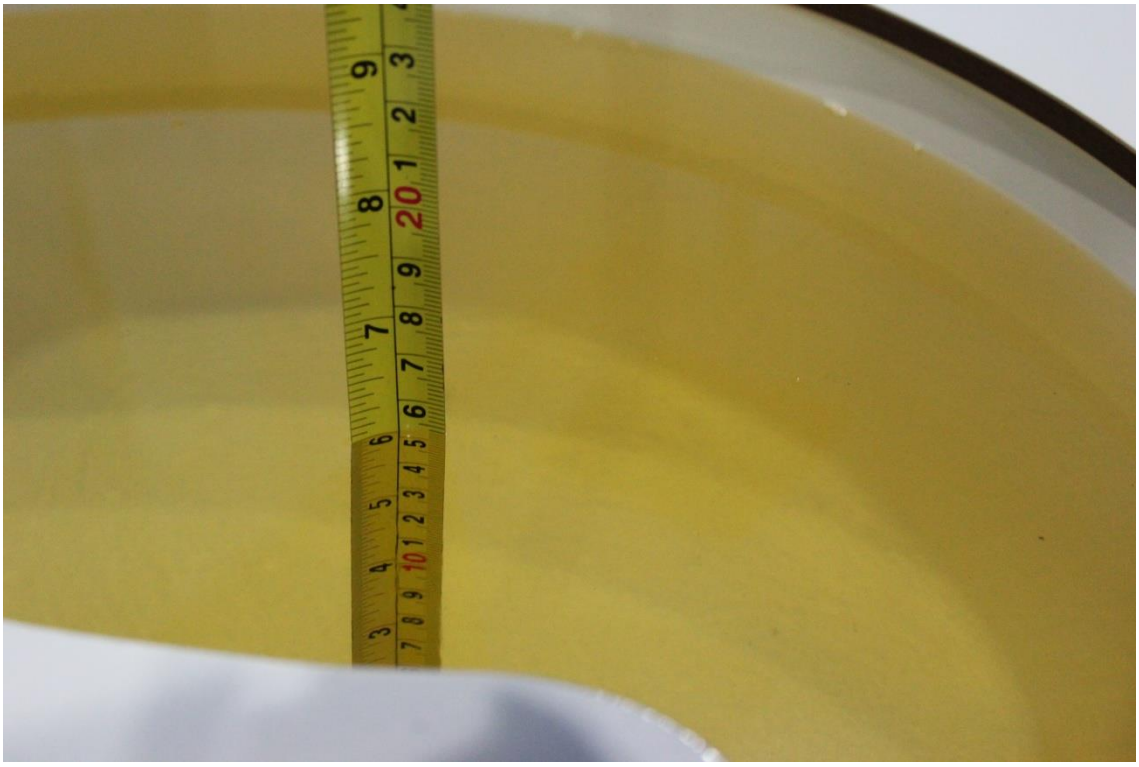
Table 7.2: Dielectric Performance of Tissue Simulating Liquid

Measurement Date (yyyy-mm-dd)	Type	Frequency	Permittivity ε	Drift (%)	Conductivity σ (S/m)	Drift (%)
2019-11-5	Head	750 MHz	42.71	1.84	0.895	0.56
	Body	750 MHz	54.64	-1.55	0.957	-0.31
2019-11-6	Head	835 MHz	41.49	-0.02	0.918	2.00
	Body	835 MHz	55.01	-0.34	0.964	-0.62
2019-11-7	Head	1750 MHz	39.86	-0.55	1.355	-1.09
	Body	1750 MHz	54.2	1.50	1.495	0.34
2019-11-8	Head	1900 MHz	40.05	0.12	1.375	-1.79
	Body	1900 MHz	53.43	0.24	1.533	0.86
2019-11-9	Head	2450 MHz	38.98	-0.56	1.817	0.94
	Body	2450 MHz	52.56	-0.27	1.933	-0.87
2019-11-10	Head	2600 MHz	39.1	0.23	1.961	0.05
	Body	2600 MHz	53.36	1.64	2.2	1.85
2019-11-11	Head	5250 MHz	36.47	1.50	4.743	0.70
	Body	5250 MHz	48.74	-0.33	5.447	1.62
2019-11-12	Head	5750 MHz	34.96	-1.13	5.183	-0.71
	Body	5750 MHz	48.2	-0.21	5.549	1.07

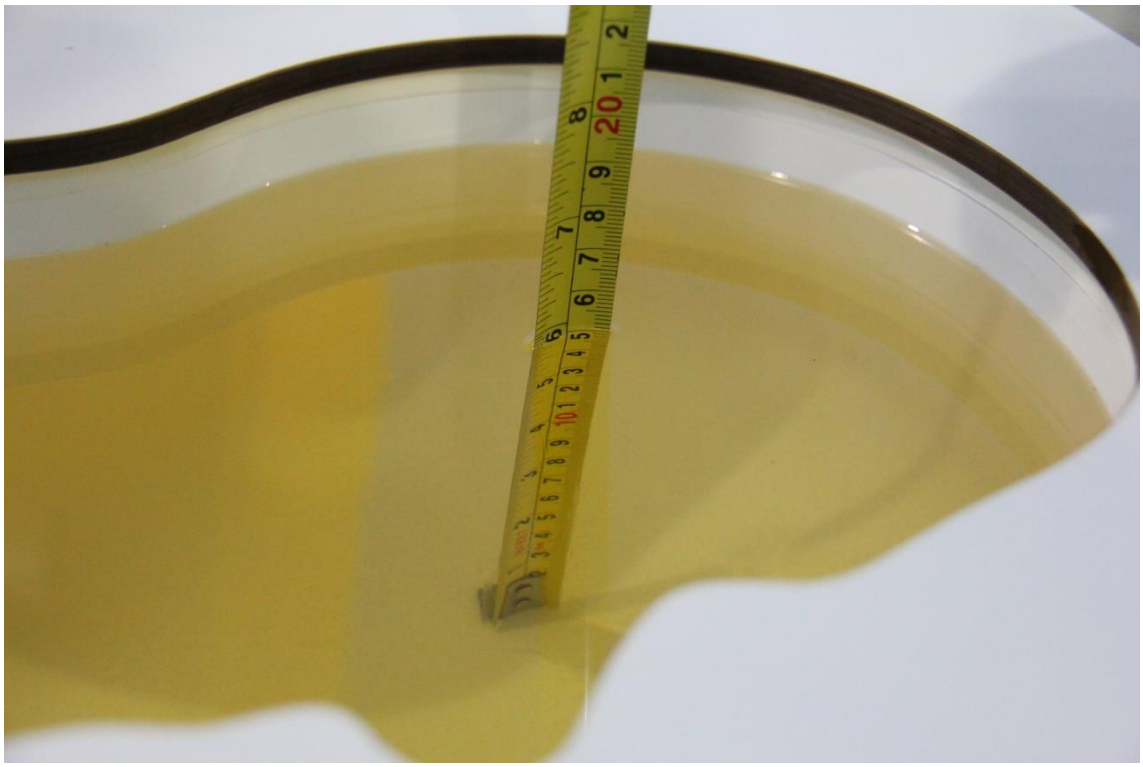
Note: The liquid temperature is 22.3°C



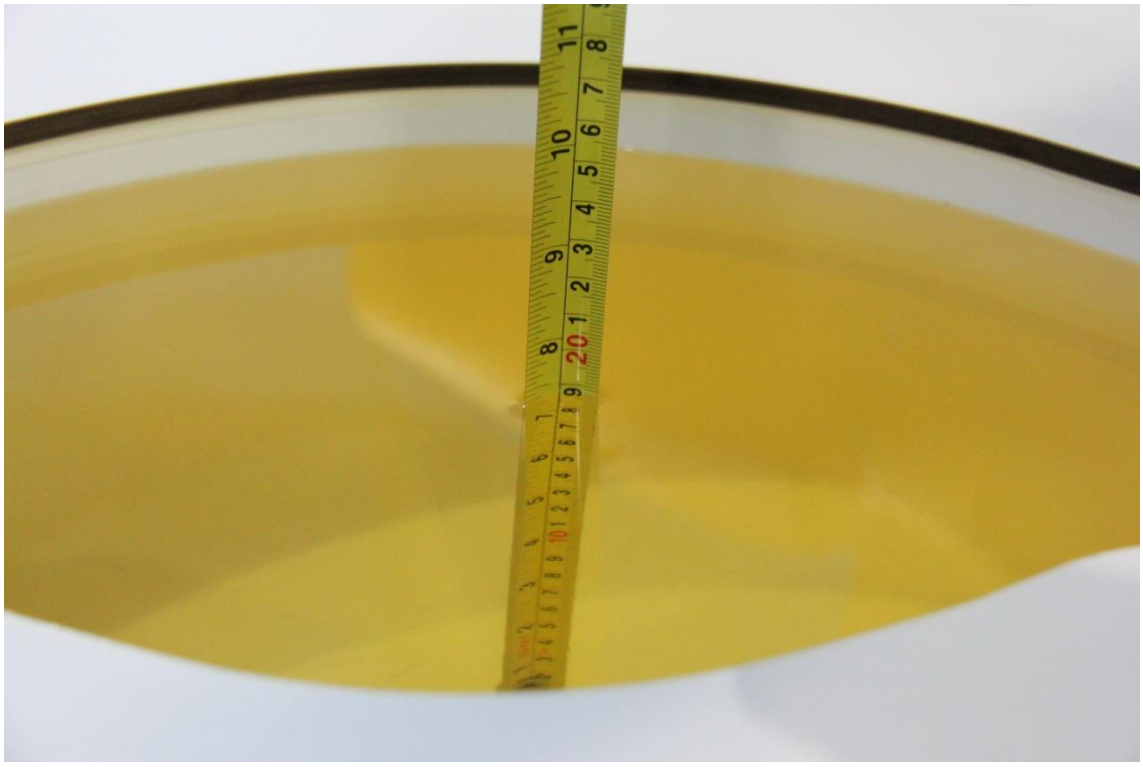
Picture 7-1 Liquid depth in the Head Phantom (750MHz)



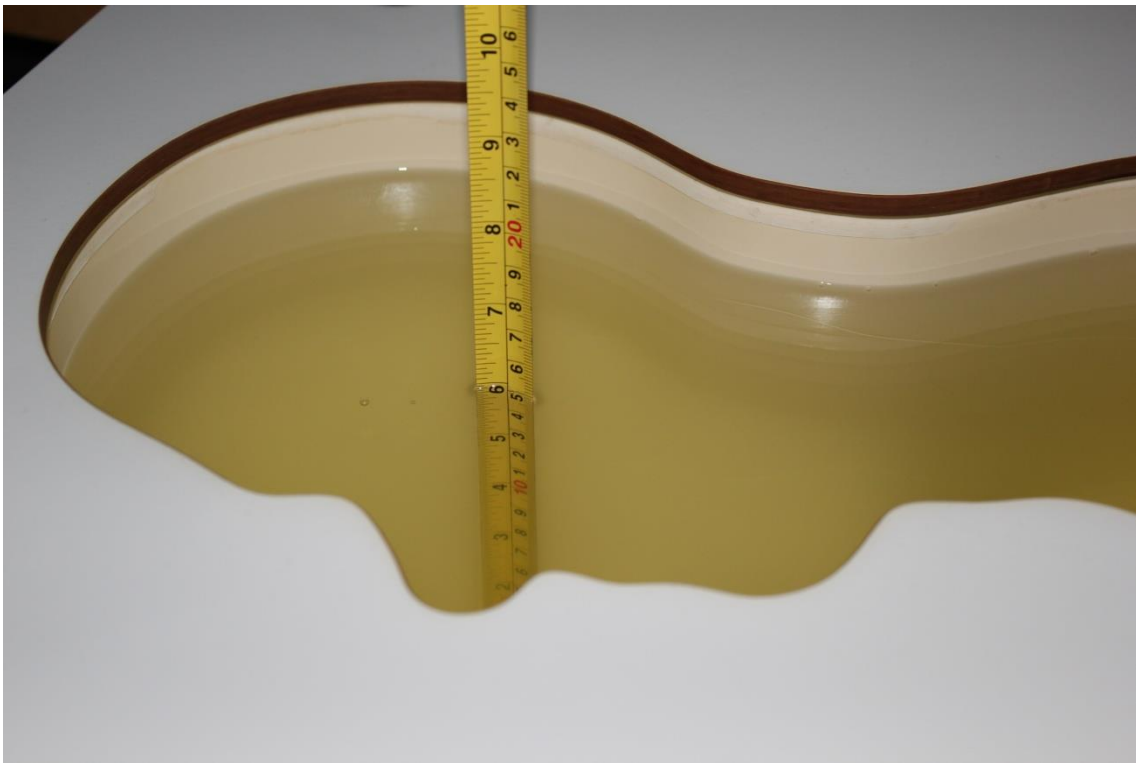
Picture 7-2 Liquid depth in the Flat Phantom (750MHz)



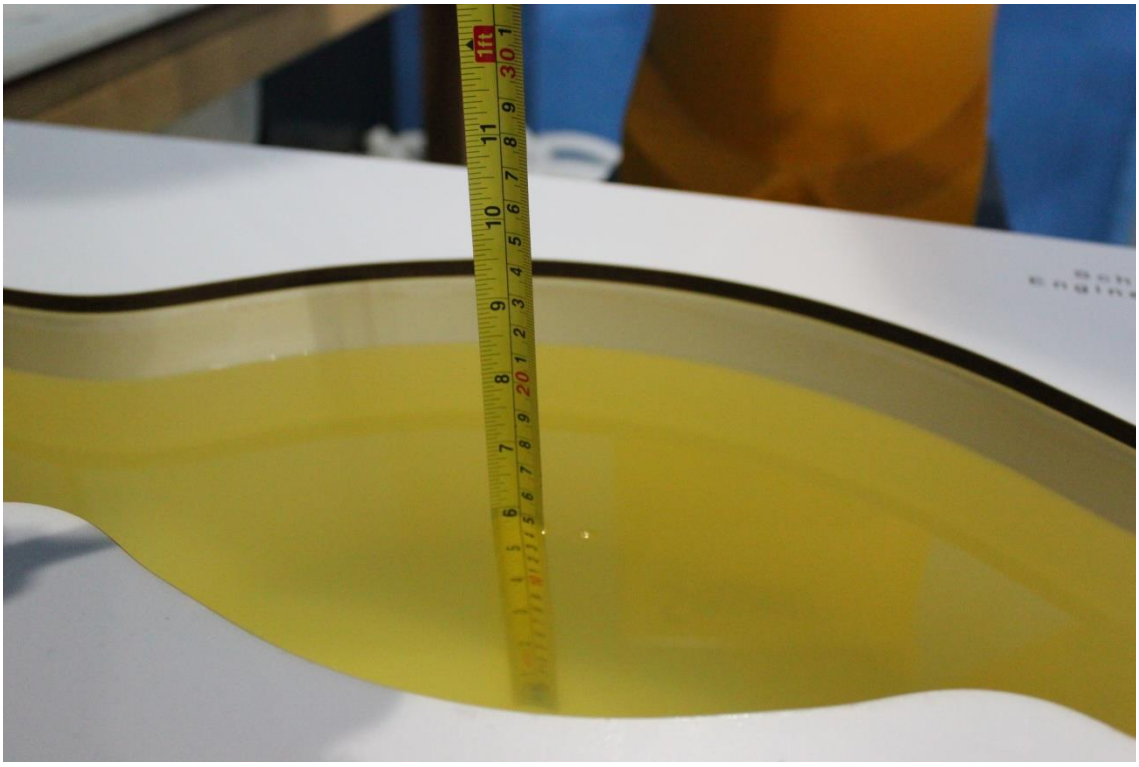
Picture 7-3 Liquid depth in the Head Phantom (835 MHz)



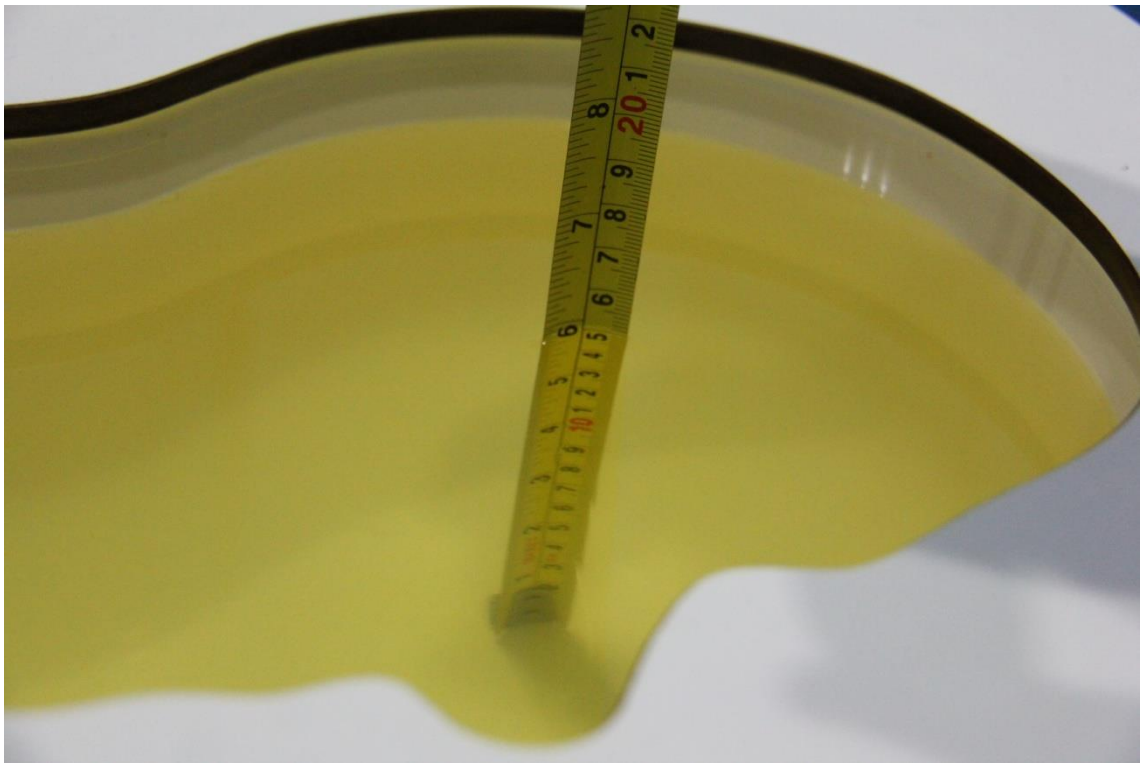
Picture 7-4 Liquid depth in the Flat Phantom (835 MHz)



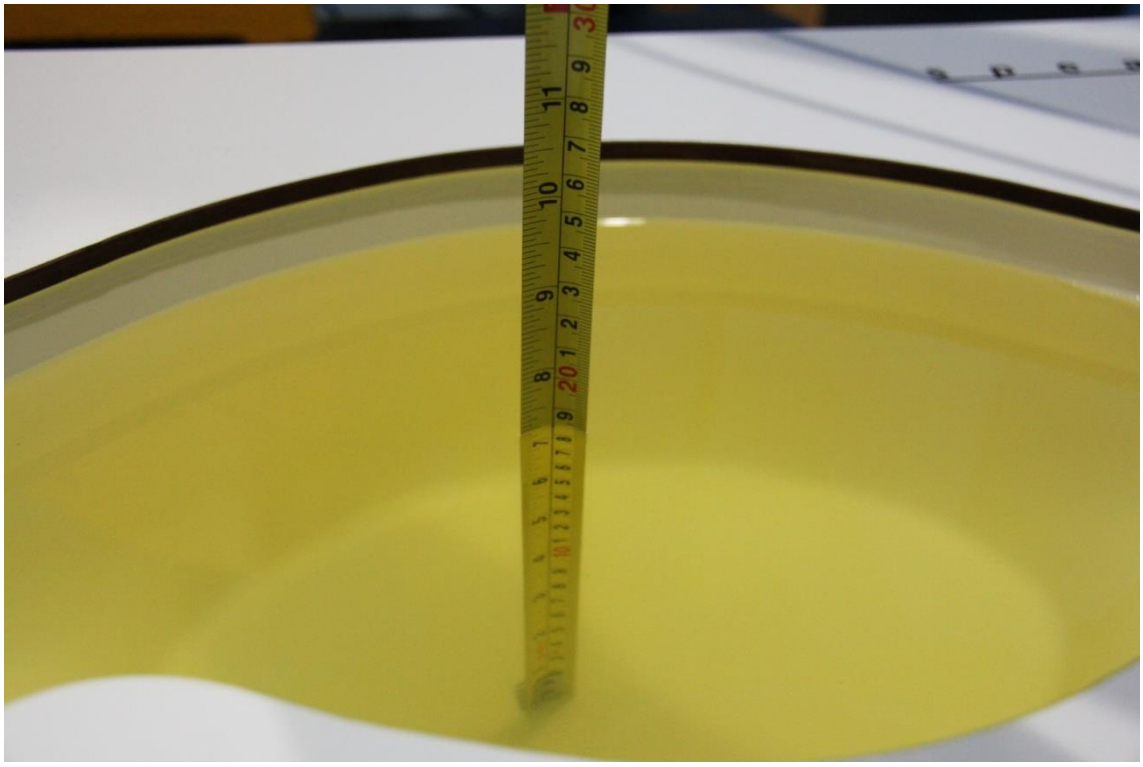
Picture 7-5 Liquid depth in the Head Phantom (1750 MHz)



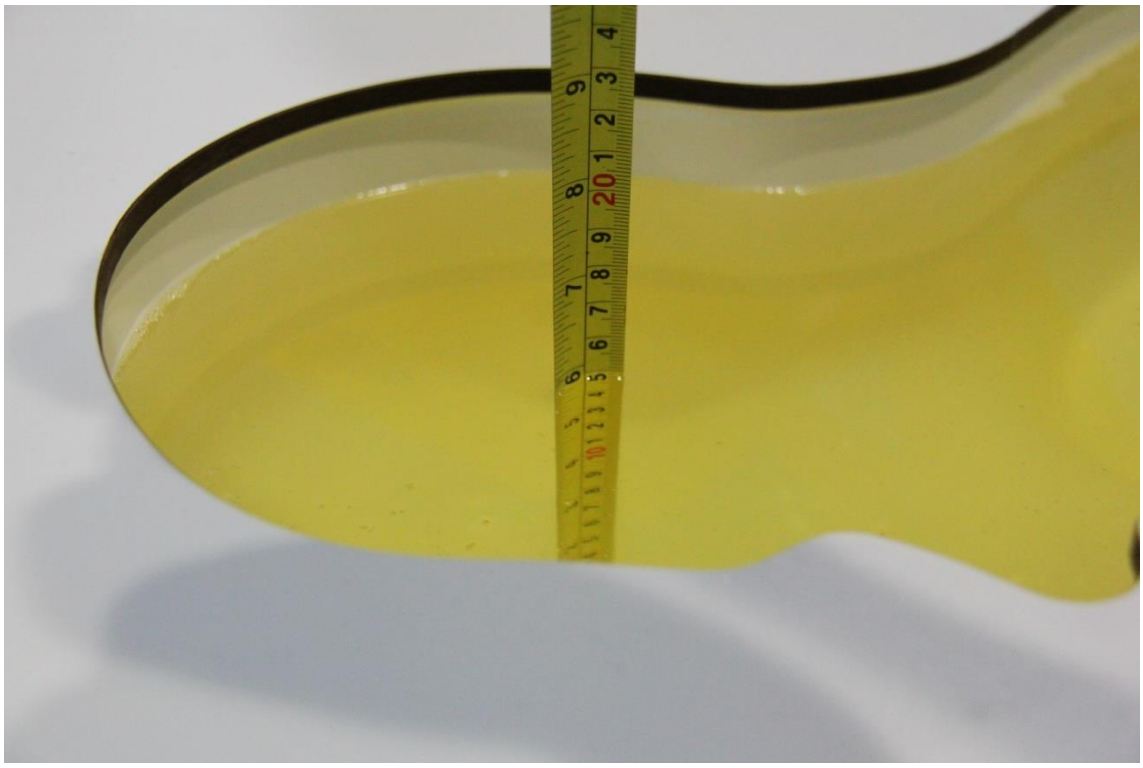
Picture 7-6 Liquid depth in the Flat Phantom (1750MHz)



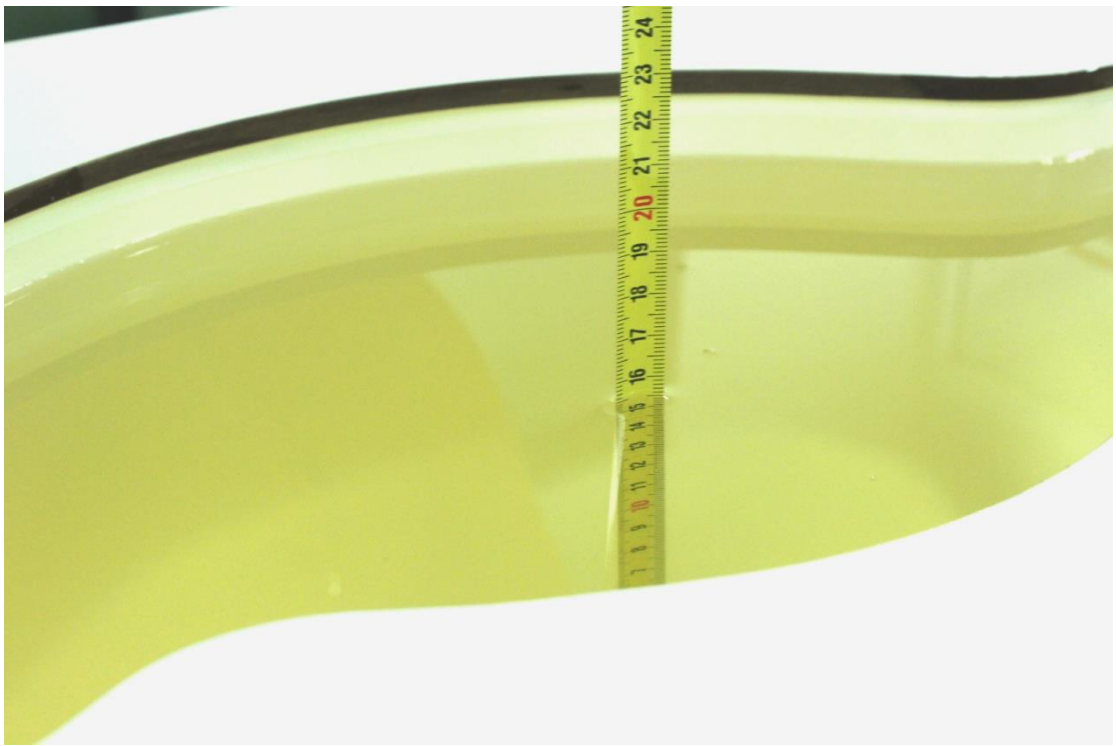
Picture 7-7 Liquid depth in the Head Phantom (1900 MHz)



Picture 7-8 Liquid depth in the Flat Phantom (1900MHz)

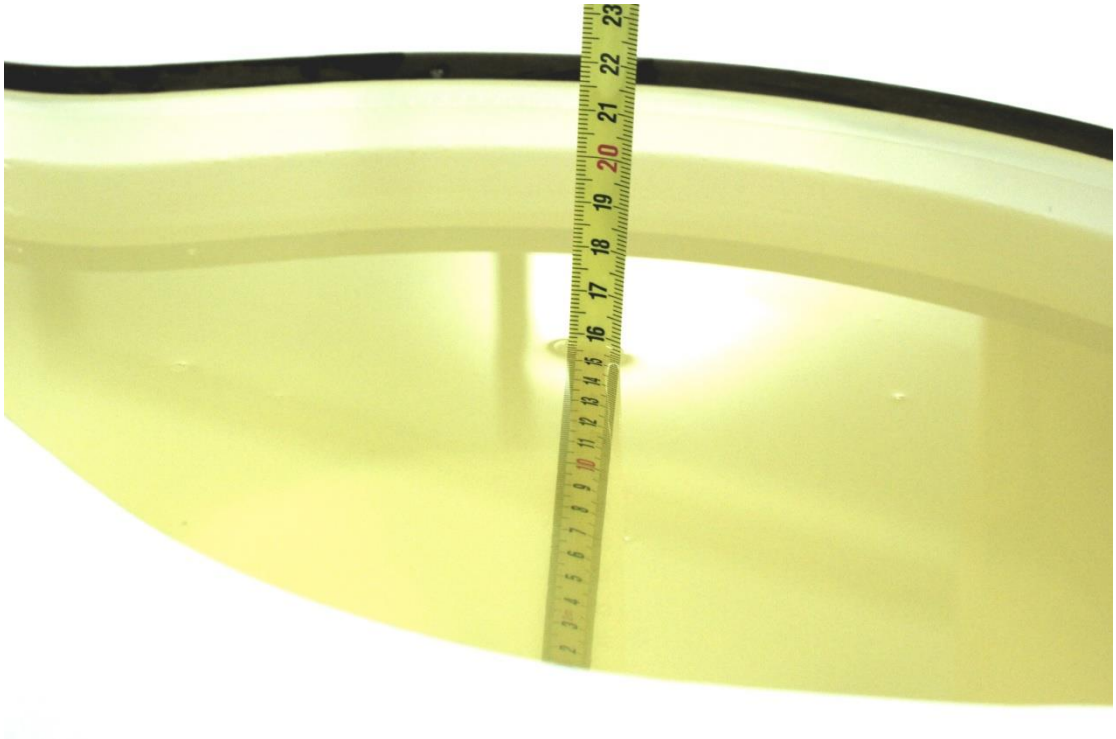


Picture 7-9 Liquid depth in the Head Phantom (2450MHz)

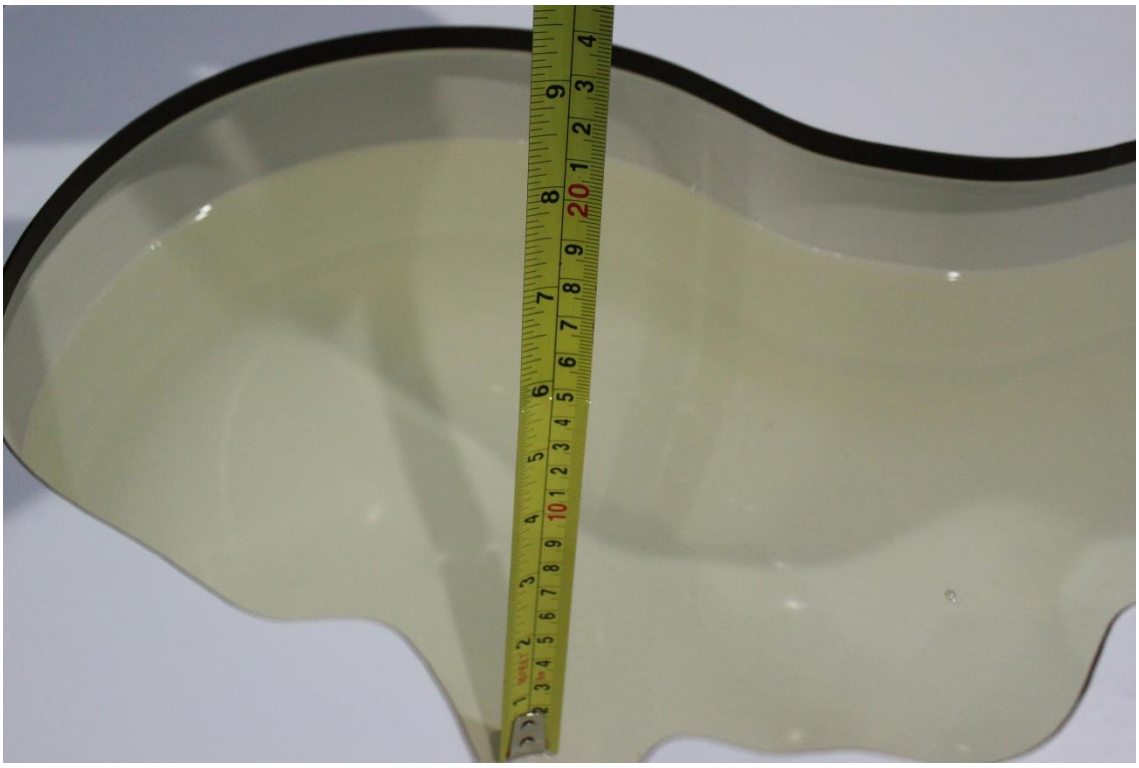


Picture 7-10 Liquid depth in the Flat Phantom (2450MHz)

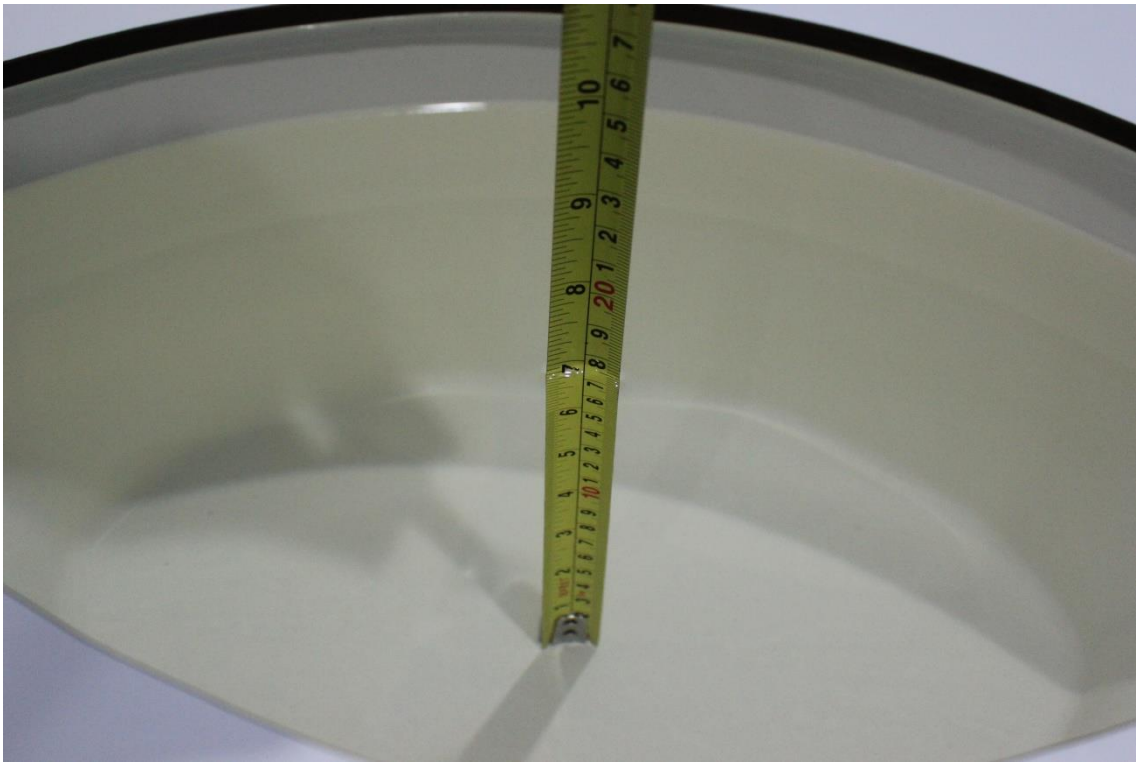
Picture 7-11 Liquid depth in the Head Phantom (2600 MHz)



Picture 7-12 Liquid depth in the Flat Phantom (2600MHz)



Picture 7-11 Liquid depth in the Head Phantom (5GHz)

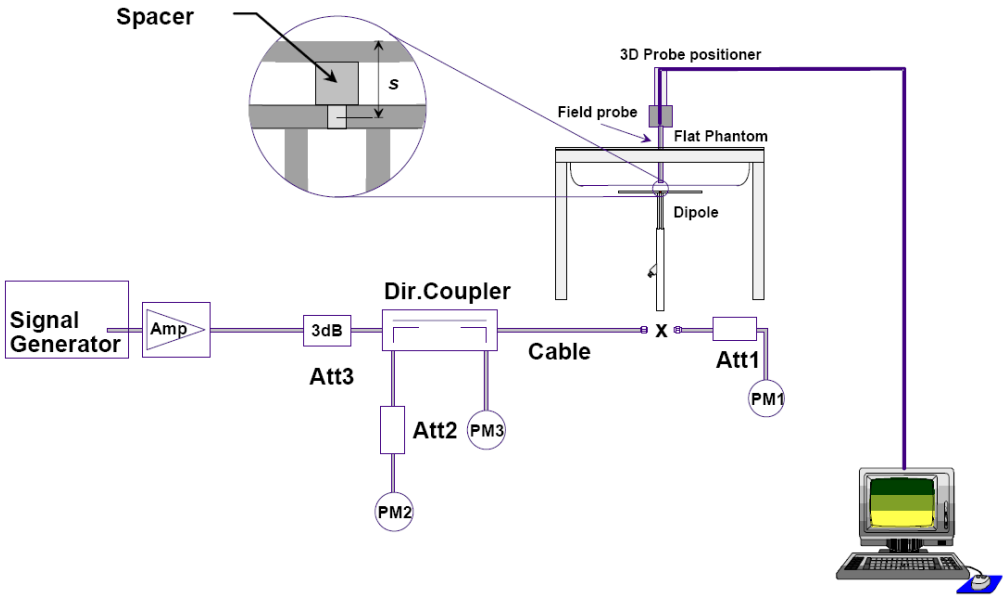


Picture 7-12 Liquid depth in the Flat Phantom (5GHz)

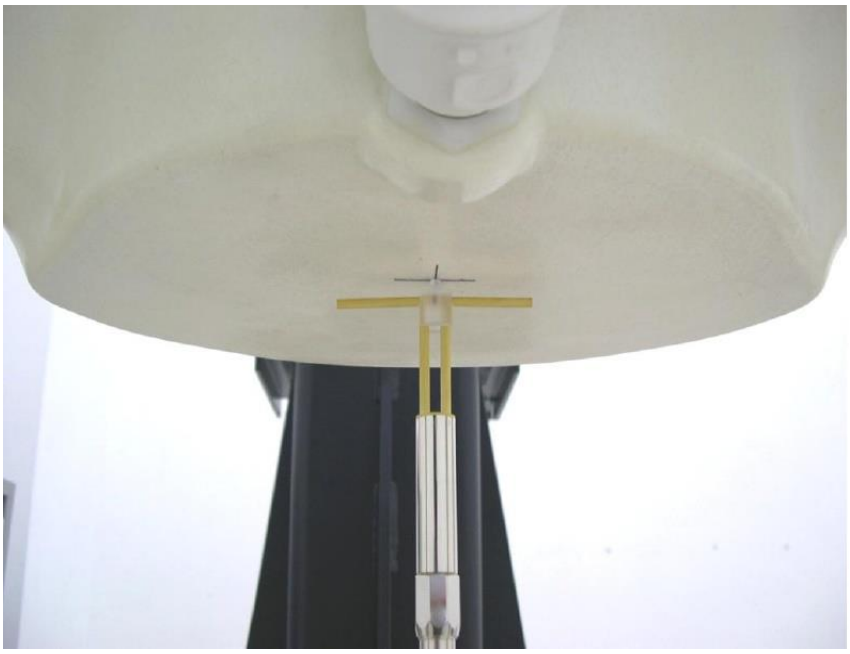
8 System verification

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 a 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.

The system verification results are required that the area scan estimated 1-g SAR is within 3% of the zoom scan 1-g SAR. The details are presented in annex B.

Table 8.1: System Verification of Head

Measurement Date (yyyy-mm-dd)	Frequency	Target value (W/kg)		Measured value(W/kg)		Deviation	
		10 g Average	1 g Average	10 g Average	1 g Average	10 g Average	1 g Average
2019-11-5	750 MHz	5.57	8.57	5.56	8.6	-0.18%	0.35%
2019-11-6	835 MHz	6.29	9.70	6.4	9.68	1.75%	-0.21%
2019-11-7	1750 MHz	19.3	36.6	19.52	35.96	1.14%	-1.75%
2019-11-8	1900 MHz	20.8	39.7	20.72	38.92	-0.38%	-1.96%
2019-11-9	2450 MHz	24.2	51.6	23.92	51.6	-1.16%	0.00%
2019-11-10	2600 MHz	25.1	55.8	25.12	56.44	0.08%	1.15%
2019-11-11	5250 MHz	23.2	80.4	23.3	79.1	0.52%	-1.59%
2019-11-12	5750 MHz	23.0	80.4	22.8	81.6	-1.04%	1.49%

Table 8.2: System Verification of Body

Measurement Date (yyyy-mm-dd)	Frequency	Target value (W/kg)		Measured value (W/kg)		Deviation	
		10 g Average	1 g Average	10 g Average	1 g Average	10 g Average	1 g Average
2019-11-5	750 MHz	5.63	8.55	5.6	8.68	-0.53%	1.52%
2019-11-6	835 MHz	6.32	9.68	6.28	9.76	-0.63%	0.83%
2019-11-7	1750 MHz	19.5	36.8	19.4	36.16	-0.51%	-1.74%
2019-11-8	1900 MHz	20.9	39.7	20.72	39.6	-0.86%	-0.25%
2019-11-9	2450 MHz	24.5	52.3	24.4	53.28	-0.41%	1.87%
2019-11-10	2600 MHz	24.8	55	25.04	54	0.97%	-1.82%
2019-11-11	5250 MHz	21.3	76.2	21.6	75.5	1.41%	-0.89%
2019-11-12	5750 MHz	21.5	77.4	21.2	76.6	-1.21%	-0.98%

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 9.1.

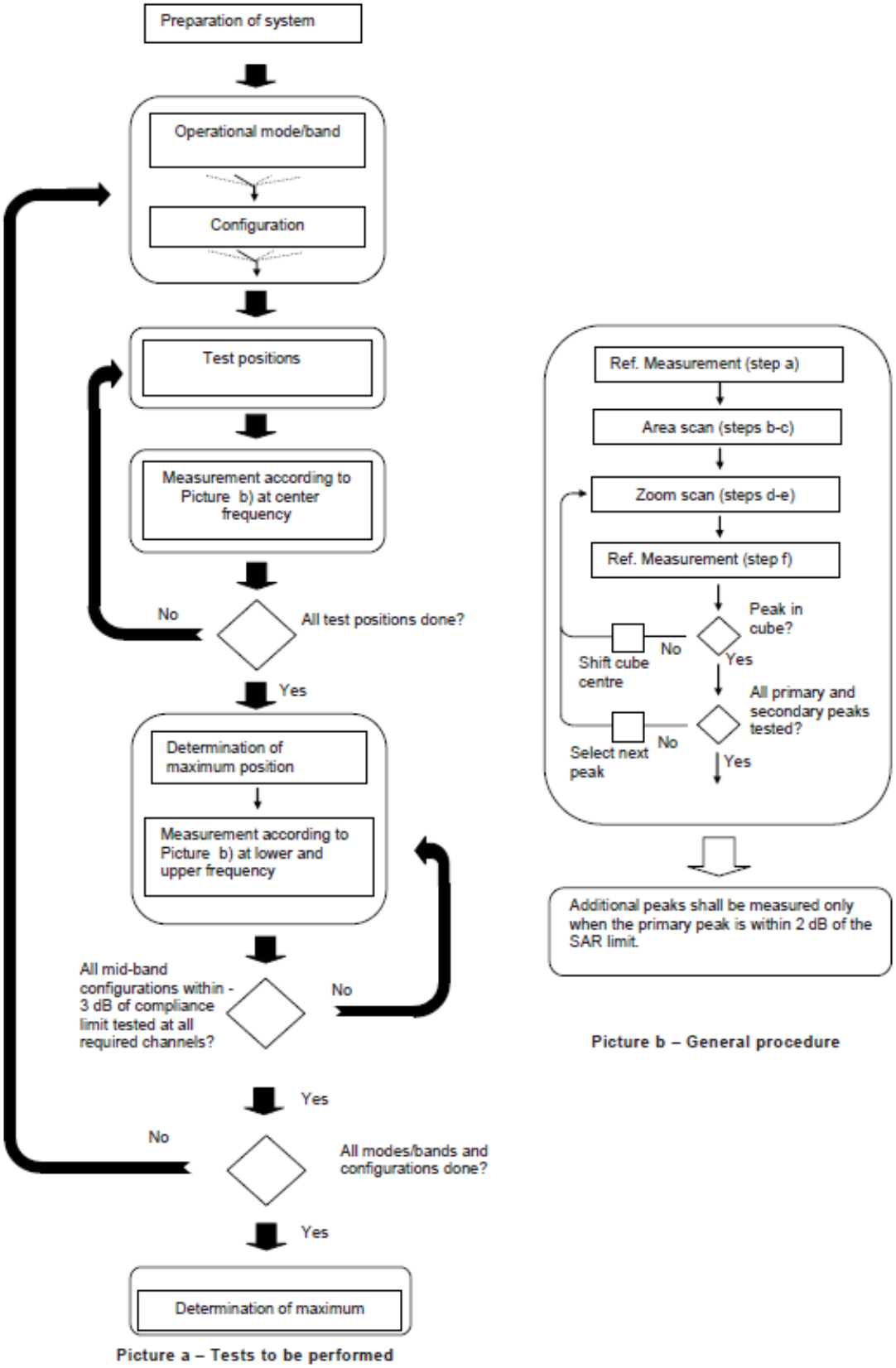
Step 1: The tests described in 9.2 shall be performed at the channel that is closest to the centre of the transmit frequency band (f_c) for:

a) all device positions (cheek and tilt, for both left and right sides of the SAM phantom, as described in annex D),
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 9.2 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 within3 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 area and zoom scan resolutions specified in the table below must be applied to the SAR measurements and fully documented in SAR reports to qualify for TCB approval. Probe boundary effect error compensation is required for measurements with the probe tip closer than half a probe tip diameter to the phantom surface. Both the probe tip diameter and sensor offset distance must satisfy measurement protocols; to ensure probe boundary effect errors are minimized and the higher fields closest to the phantom surface can be correctly measured and extrapolated to the phantom surface for computing 1-g SAR. Tolerances of the post-processing algorithms must be verified by the test laboratory for the scan resolutions used in the SAR measurements, according to the reference distribution functions specified in IEEE Std 1528-2003. The results should be documented as part of the system validation records and may be requested to support test results when all the measurement parameters in the following table are not satisfied.

<table>
<tr><td colspan="3"></td><td>≤ 3 GHz</td><td>> 3 GHz</td></tr>
<tr><td colspan="3">Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface</td><td>5 ± 1 mm</td><td>½·δ·ln(2) ± 0.5 mm</td></tr>
<tr><td colspan="3">Maximum probe angle from probe axis to phantom surface normal at the measurement location</td><td>30° ± 1°</td><td>20° ± 1°</td></tr>
<tr><td colspan="3" rowspan="2">Maximum area scan spatial resolution: Δx_{Area}, Δy_{Area}</td><td>≤ 2 GHz: ≤ 15 mm
2 – 3 GHz: ≤ 12 mm</td><td>3 – 4 GHz: ≤ 12 mm
4 – 6 GHz: ≤ 10 mm</td></tr>
<tr><td colspan="2">When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.</td></tr>
<tr><td colspan="3">Maximum zoom scan spatial resolution: Δx_{Zoom}, Δy_{Zoom}</td><td>≤ 2 GHz: ≤ 8 mm
2 – 3 GHz: ≤ 5 mm*</td><td>3 – 4 GHz: ≤ 5 mm*
4 – 6 GHz: ≤ 4 mm*</td></tr>
<tr><td rowspan="3">Maximum zoom scan spatial resolution, normal to phantom surface</td><td colspan="2">uniform grid: $\Delta z_{Zoom}(n)$</td><td>≤ 5 mm</td><td>3 – 4 GHz: ≤ 4 mm
4 – 5 GHz: ≤ 3 mm
5 – 6 GHz: ≤ 2 mm</td></tr>
<tr><td rowspan="2">graded grid</td><td>$\Delta z_{Zoom}(1)$: between 1st two points closest to phantom surface</td><td>≤ 4 mm</td><td>3 – 4 GHz: ≤ 3 mm
4 – 5 GHz: ≤ 2.5 mm
5 – 6 GHz: ≤ 2 mm</td></tr>
<tr><td>$\Delta z_{Zoom}(n>1)$: between subsequent points</td><td colspan="2">≤ 1.5·$\Delta z_{Zoom}(n-1)$</td></tr>
<tr><td colspan="2">Minimum zoom scan volume</td><td>x, y, z</td><td>≥ 30 mm</td><td>3 – 4 GHz: ≥ 28 mm
4 – 5 GHz: ≥ 25 mm
5 – 6 GHz: ≥ 22 mm</td></tr>
<tr><td colspan="5">Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details.
* When zoom scan is required and the <u>reported</u> SAR from the area scan based 1-g SAR estimation procedures of KDB 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.</td></tr>
</table>

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
1	2/15	15/15	64	2/15	4/15	0.0
2	12/15	15/15	64	12/15	24/25	1.0
3	15/15	8/15	64	15/8	30/15	1.5
4	15/15	4/15	64	15/4	30/15	1.5

For Release 6 HSPA 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	1.5	1.5	20	75
2	6/15	15/15	64	6/15	12/15	12/15	12/15	4	1	1.5	1.5	12	67
3	15/15	9/15	64	15/9	30/15	30/15	β_{ed1}:47/15 β_{ed2}:47/15	4	2	1.5	1.5	15	92
4	2/15	15/15	64	2/15	4/15	4/15	56/75	4	1	1.5	1.5	17	71
5	15/15	15/15	64	15/15	24/15	30/15	134/15	4	1	1.5	1.5	21	81

Rel.8 DC-HSDPA (Cat 24)

SAR test exclusion for Rel.8 DC-HSDPA must satisfy the SAR test exclusion requirements of Rel.5 HSDPA. SAR test exclusion for DC-HSDPA devices is determined by power measurements according to the H-Set 12, Fixed Reference Channel (FRC) configuration in Table C.8.1.12 of 3GPP TS 34.121-1. A primary and a secondary serving HS-DSCH Cell are required to perform the power measurement and for the results to qualify for SAR test exclusion.

9.4 SAR Measurement for LTE

SAR tests for LTE are performed with a base station simulator, Rohde & Rchwarz CMW500. Closed loop power control was used so the UE transmits with maximum output power during SAR testing. All powers were measured with the CMW 500.
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 ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.

TDD test:

TDD testing is performed using guidance from FCC KDB 941225 D05 and the SAR test guidance provided in April 2013 TCB works hop notes. TDD is tested at the highest duty factor using UL-DL configuration 0 with special subframe configuration 6 and applying the FDD LTE procedures in KDB 941225 D05. SAR testing is performed using the extended cyclic prefix listed in 3GPP TS 36.211.

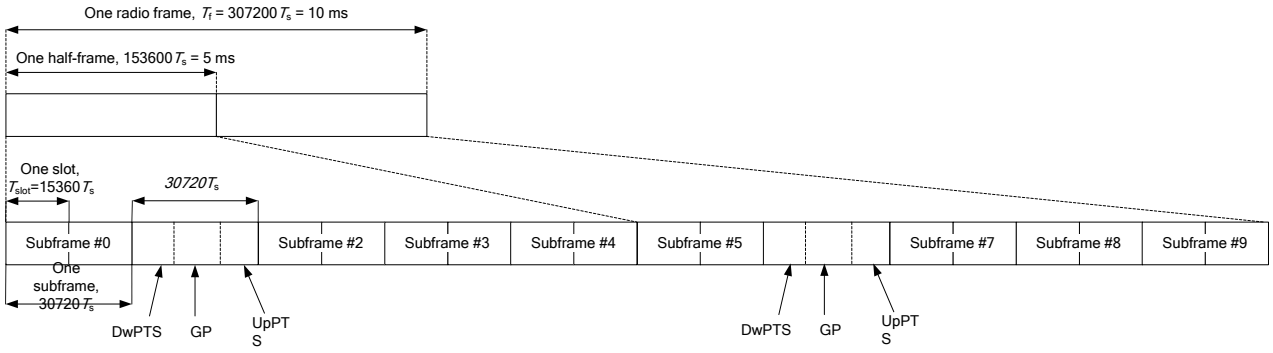


Figure 9.2: Frame structure type 2 (for 5 ms switch-point periodicity)

Table 9.1: Configuration of special subframe (lengths of DwPTS/GP/UpPTS)

Special subframe configuration	Normal cyclic prefix in downlink			Extended cyclic prefix in downlink		
	DwPTS	UpPTS		DwPTS	UpPTS	
		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink
0	$6592 \cdot T_s$	$2192 \cdot T_s$	$2560 \cdot T_s$	$7680 \cdot T_s$	$2192 \cdot T_s$	$2560 \cdot T_s$
1	$19760 \cdot T_s$			$20480 \cdot T_s$		
2	$21952 \cdot T_s$			$23040 \cdot T_s$		
3	$24144 \cdot T_s$			$25600 \cdot T_s$		
4	$26336 \cdot T_s$			$7680 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$
5	$6592 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$	$20480 \cdot T_s$		
6	$19760 \cdot T_s$			$23040 \cdot T_s$		
7	$21952 \cdot T_s$			$12800 \cdot T_s$		
8	$24144 \cdot T_s$			-	-	-
9	$13168 \cdot T_s$			-	-	-

Table 9.2: Uplink-downlink configurations

Uplink-downlink Configuration	Downlink-to-Uplink Switch-point periodicity	Subframe number									
		0	1	2	3	4	5	6	7	8	9
0	5 ms	D	S	U	U	U	D	S	U	U	U
1	5 ms	D	S	U	U	D	D	S	U	U	D
2	5 ms	D	S	U	D	D	D	S	U	D	D
3	10 ms	D	S	U	U	U	D	D	D	D	D
4	10 ms	D	S	U	U	D	D	D	D	D	D
5	10 ms	D	S	U	D	D	D	D	D	D	D
6	5 ms	D	S	U	U	U	D	S	U	U	D

Duty factor is calculated by:

Duty factor = uplink frame*6+UpPTS*2/one frame length

= (30720.T_s * 6+5120. T_s*2)/307200.T_s

= 0.633

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 section14 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, when the implementation is based the specific polynomial fit algorithm as presented at the 29th Bioelectromagnetics Society meeting (2007) and the estimated 1-gSAR 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 for 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 55wireless handsets. For the sample size studied, the root-mean-squared errors of the algorithm mare 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

For Main antenna, there are two sets of tune-up power, Normal power and Low power, for GSM1900 WCDMA19001700 LTE Band12/25/66 by proximity sensor. The detail of proximity sensor is presented in annex I.
For Wi-Fi antenna, there are two sets of tune-up power, Normal power and Low power. When the Wi-Fi transmit simultaneous with main antenna, the Wi-Fi TX power will be back off.

11.1 GSM Measurement result

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

Normal Power

Table 11.1-1: The conducted power measurement results for GSM, GPRS and EGPRS

GSM 850	Measured Power (dBm)			Tune up	calculation	Averaged Power (dBm)		
Speech (GMSK)	251	190	128			251	190	128
1 Txslot	33.48	33.44	33.28	34.00	/	/	/	/
GSM 850	Measured Power (dBm)				calculation	Averaged Power (dBm)		
GPRS (GMSK)	251	190	128			251	190	128
1 Txslot	33.58	33.44	33.25	34	-9.03	24.55	24.41	24.22
2 Txslots	**32.21**	**32.02**	**31.82**	**32.5**	**-6.02**	**26.19**	**26.00**	**25.80**
3Txslots	30.24	30.10	29.88	30.5	-4.26	25.98	25.84	25.62
4 Txslots	28.65	28.43	28.20	29.00	-3.01	25.64	25.42	25.19
GSM 850	Measured Power (dBm)				calculation	Averaged Power (dBm)		
EGPRS (GMSK)	251	190	128			251	190	128
1 Txslot	33.44	33.35	33.17	34	-9.03	24.41	24.32	24.14
2 Txslots	**31.96**	**31.91**	**31.73**	**32.5**	**-6.02**	**25.94**	**25.89**	**25.71**
3Txslots	30.10	29.97	29.77	30.5	-4.26	25.84	25.71	25.51
4 Txslots	28.51	28.30	28.08	29.00	-3.01	25.50	25.29	25.07
GSM 850	Measured Power (dBm)				calculation	Averaged Power (dBm)		
EGPRS (8PSK)	251	190	128			251	190	128
1 Txslot	26.96	27.10	27.14	28.00	-9.03	17.93	18.07	18.11
2 Txslots	24.70	24.71	24.79	26.00	-6.02	18.68	18.69	18.77
3Txslots	22.71	22.68	22.74	24.20	-4.26	18.45	18.42	18.48
4 Txslots	21.24	21.27	21.30	23.00	-3.01	18.23	18.26	18.29
PCS1900	Measured Power (dBm)			Tune up	calculation	Averaged Power (dBm)		
Speech (GMSK)	810	661	512			810	661	512
1 Txslot	31.14	31.10	31.12	31.50	/	/	/	/
PCS1900	Measured Power (dBm)				calculation	Averaged Power (dBm)		

GPRS (GMSK)	810	661	512			810	661	512
1 Txslot	31.07	31.04	31.09	31.5	-9.03	22.04	22.01	22.06
2 Txslots	**29.27**	**29.30**	**29.05**	**29.5**	**-6.02**	**23.25**	**23.28**	**23.03**
3Txslots	27.40	27.24	27.23	27.5	-4.26	23.14	22.98	22.97
4 Txslots	25.95	25.87	25.86	26.00	-3.01	22.94	22.86	22.85
PCS1900	Measured Power (dBm)				calculation	Averaged Power (dBm)		
EGPRS (GMSK)	810	661	512			810	661	512
1 Txslot	31.09	31.01	31.03	31.5	-9.03	22.06	21.98	22.00
2 Txslots	**29.25**	**29.26**	**28.99**	**29.5**	**-6.02**	**23.23**	**23.24**	**22.97**
3Txslots	27.36	27.22	27.17	27.5	-4.26	23.10	22.96	22.91
4 Txslots	25.92	25.84	25.81	26.00	-3.01	22.91	22.83	22.80
PCS1900	Measured Power (dBm)				calculation	Averaged Power (dBm)		
EGPRS (8PSK)	810	661	512			810	661	512
1 Txslot	26.35	26.23	26.30	27.00	-9.03	17.32	17.20	17.27
2 Txslots	24.59	24.63	24.67	25.00	-6.02	18.57	18.61	18.65
3Txslots	22.25	22.38	22.41	23.20	-4.26	17.99	18.12	18.15
4 Txslots	21.02	21.15	21.19	22.00	-3.01	18.01	18.14	18.18

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 2Txslots for GSM850 and GSM1900.

Low Power

Table 11.1-2: The conducted power measurement results for GSM, GPRS and EGPRS

PCS1900 Speech (GMSK)	Measured Power (dBm)			**Tune up**	calculation	Averaged Power (dBm)		
	810	661	512			810	661	512
1 Txslot	22.38	22.63	22.90	24.00	/	/	/	/
PCS1900	Measured Power (dBm)				calculation	Averaged Power (dBm)		
GPRS (GMSK)	810	661	512			810	661	512
1 Txslot	22.40	22.63	22.93	24.00	-9.03	13.37	13.60	13.90
2 Txslots	**20.33**	**20.67**	**20.66**	**22.00**	**-6.02**	**14.31**	**14.65**	**14.64**
3Txslots	18.41	18.71	18.85	20.20	-4.26	14.15	14.45	14.59
4 Txslots	17.31	17.46	17.48	19.00	-3.01	14.30	14.45	14.47
PCS1900	Measured Power (dBm)				calculation	Averaged Power (dBm)		
EGPRS (GMSK)	810	661	512			810	661	512
1 Txslot	22.41	22.65	22.92	24.00	-9.03	13.38	13.62	13.89
2 Txslots	**20.32**	**20.68**	**20.76**	**22.00**	**-6.02**	**14.30**	**14.66**	**14.74**

3Txslots	18.41	18.72	18.93	20.20	-4.26	14.15	14.46	14.67
4 Txslots	17.30	17.47	17.55	19.00	-3.01	14.29	14.46	14.54
PCS1900	Measured Power (dBm)				calculation	Averaged Power (dBm)		
EGPRS (8PSK)	810	661	512			810	661	512
1 Txslot	18.63	18.36	18.93	20.00	-9.03	9.60	9.33	9.90
2 Txslots	16.12	16.10	16.32	18.00	-6.02	10.10	10.08	10.30
3Txslots	14.28	14.49	14.31	16.20	-4.26	10.02	10.23	10.05
4 Txslots	13.07	13.08	13.32	15.00	-3.01	10.06	10.07	10.31

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 2Txslots for GSM1900.

11.2 WCDMA Measurement result

Normal power

Table 11.2-1: The conducted Power for WCDMA

Item	band	FDDV result			
	ARFCN	4233 (846.6MHz)	4182 (836.4MHz)	4132 (826.4MHz)	Tune up
WCDMA	\	22.14	22.32	22.35	24.00
HSUPA	1	21.30	20.98	21.11	22.00
	2	20.21	20.14	20.35	22.00
	3	20.39	20.15	20.42	22.00
	4	21.15	21.08	20.75	22.00
	5	21.61	21.60	21.74	22.00
HSPA+	1	21.57	21.62	21.44	22.00
DC-HSDPA	1	22.25	21.97	22.22	23.50
	2	22.26	21.98	22.27	23.50
	3	21.81	21.72	21.83	23.50
	4	21.80	21.61	21.81	23.50
Item	band	FDDIV result			
	ARFCN	1513 (1752.6MHz)	1412 (1732.4MHz)	1312 (1712.4MHz)	
WCDMA	\	22.49	22.44	22.61	24.00
HSUPA	1	21.89	21.54	21.75	22.00
	2	20.55	20.77	20.73	22.00
	3	20.22	20.74	20.26	22.00

	4	21.53	21.30	20.90	22.00
	5	21.84	21.76	21.81	22.00
HSPA+	1	21.56	21.42	21.31	22.00
DC-HSDPA	1	21.16	21.13	21.08	22.00
	2	21.17	21.19	21.12	22.00
	3	20.72	20.68	20.65	22.00
	4	20.71	20.64	20.64	22.00
Item	band	FDDII result			
	ARFCN	9538 (1907.6MHz)	9400 (1880MHz)	9262 (1852.4MHz)	Tune up
WCDMA	\	22.29	22.43	22.22	24.00
HSUPA	1	21.75	21.20	21.06	22.00
	2	20.76	20.43	20.21	22.00
	3	20.66	20.42	20.67	22.00
	4	21.34	20.61	20.63	22.00
	5	21.68	21.80	21.89	22.00
HSPA+	1	21.34	21.33	21.23	22.00
DC-HSDPA	1	20.68	20.95	20.93	21.00
	2	20.79	20.99	20.87	21.00
	3	20.35	20.52	20.39	21.00
	4	20.33	20.49	20.36	21.00

Low power

Table 11.2-2: The conducted Power for WCDMA

Item	band	FDDIV result			
	ARFCN	1513 (1752.6MHz)	1412(1732.4MHz)	1312 (1712.4MHz)	Tune up
WCDMA	\	18.99	18.95	18.96	19.00
HSUPA	1	16.97	16.31	16.38	17.00
	2	16.02	15.96	16.12	17.00
	3	15.94	15.99	16.18	17.00
	4	16.53	16.57	16.65	17.00
	5	16.92	16.86	16.94	17.00
HSPA+	1	16.73	16.71	16.83	17.00
DC-HSDPA	1	16.23	16.33	16.44	17.00
	2	16.33	16.26	16.49	17.00
	3	15.84	15.79	15.89	17.00
	4	15.81	15.80	15.91	17.00
Item	band	FDDII result			
	ARFCN	9538 (1907.6MHz)	9400 (1880MHz)	9262 (1852.4MHz)	Tune up
WCDMA	\	18.72	18.75	18.73	19.00
HSUPA	1	15.57	15.38	15.28	16.00
	2	14.51	15.01	14.87	16.00

	3	14.74	14.59	15.18	16.00
	4	15.07	15.49	15.35	16.00
	5	15.85	15.94	15.91	16.00
HSPA+	1	15.38	15.60	15.39	16.00
DC-HSDPA	1	15.11	15.17	15.05	16.00
	2	15.07	15.13	15.02	16.00
	3	14.56	14.71	14.51	16.00
	4	14.55	14.72	14.48	16.00

11.3 LTE Measurement result

Table 11.3-1: Maximum Power Reduction (MPR) for LTE

Modulation	Channel bandwidth / Transmission bandwidth configuration [RB]						MPR (dB)
	1.4 MHz	3 MHz	5 MHz	10 MHz	15 MHz	20 MHz	
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	1
16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	1
16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	2

Table 11.3-2: The tune up for LTE – Normal Power

Band	Tune up
LTE Band 7	24
LTE Band 12	24
LTE Band 25	24
LTE Band 26	24.5
LTE Band 41	24
LTE Band 66	24
LTE Band 71	24

Table 11.3-3: The tune up for LTE – Low Power

Band	Tune up
LTE Band 12	20
LTE Band 25	18
LTE Band 66	17

Normal power

Table 11.3-4: The conducted Power for LTE

Band 7				
Bandwidth (MHz)	RB allocation RB offset (Start RB)	Frequency (MHz)	QPSK Actual output power (dBm)	16QAM Actual output power (dBm)
5 MHz	1RB High (24)	2567.5	23.38	22.15
		2535	23.55	22.36
		2502.5	23.37	21.99
	1RB Middle (12)	2567.5	23.87	22.01
		2535	23.96	22.06
		2502.5	23.61	22.00
	1RB Low (0)	2567.5	23.56	22.04
		2535	23.65	22.32
		2502.5	23.37	22.29
	12RB High (13)	2567.5	22.32	21.24
		2535	22.57	21.59
		2502.5	22.53	21.64
	12RB Middle (6)	2567.5	22.45	21.40
		2535	22.60	21.52
		2502.5	22.57	21.41
	12RB Low (0)	2567.5	22.41	21.42
		2535	22.54	21.64
		2502.5	22.50	21.35
	25RB (0)	2567.5	22.27	21.20
		2535	22.53	21.67
		2502.5	22.52	21.40
10 MHz	1RB High (49)	2565	23.70	22.64
		2535	23.70	22.17
		2505	23.77	22.64
	1RB Middle (24)	2565	23.98	22.90
		2535	23.95	22.12
		2505	23.58	22.79
	1RB Low (0)	2565	23.97	22.44
		2535	23.58	21.89
		2505	23.55	22.55
	25RB High (25)	2565	22.48	21.43
		2535	22.68	21.70
		2505	22.72	21.66
	25RB Middle (12)	2565	22.53	21.48
		2535	22.72	21.74
		2505	22.64	21.59
	25RB Low (0)	2565	22.51	21.50
		2535	22.54	21.63
		2505	22.56	21.49
	50RB (0)	2565	22.38	21.48
		2535	22.54	21.57
		2505	22.65	21.52

15 MHz	1RB High (74)	2562.5	23.45	22.56
		2535	23.45	22.94
		2507.5	23.74	22.83
	1RB Middle (37)	2562.5	23.67	22.55
		2535	23.63	22.95
		2507.5	23.84	22.72
	1RB Low (0)	2562.5	23.49	22.54
		2535	23.63	22.73
		2507.5	23.83	22.70
	36RB High (38)	2562.5	22.42	21.49
		2535	22.66	21.62
		2507.5	22.78	21.66
	36RB Middle (19)	2562.5	22.51	21.59
		2535	22.64	21.59
		2507.5	22.67	21.41
	36RB Low (0)	2562.5	22.48	21.56
		2535	22.52	21.53
		2507.5	22.52	21.24
	75RB (0)	2562.5	22.40	21.47
		2535	22.57	21.51
		2507.5	22.72	21.54
20 MHz	1RB High (99)	2560	23.54	22.15
		2535	23.27	22.36
		2510	23.18	22.06
	1RB Middle (50)	2560	23.60	22.42
		2535	23.80	22.61
		2510	23.47	22.27
	1RB Low (0)	2560	23.57	22.30
		2535	23.41	22.44
		2510	23.32	21.86
	50RB High (50)	2560	22.46	21.35
		2535	22.40	21.45
		2510	22.69	21.61
	50RB Middle (25)	2560	22.54	21.49
		2535	22.52	21.57
		2510	22.63	21.54
	50RB Low (0)	2560	22.36	21.37
		2535	22.43	21.47
		2510	22.49	21.34
	100RB (0)	2560	22.46	21.45
		2535	22.43	21.40
		2510	22.64	21.64

Band 12				
Bandwidth (MHz)	RB allocation RB offset (Start RB)	Frequency (MHz)	QPSK Actual output power (dBm)	16QAM Actual output power (dBm)
1.4 MHz	1RB High (5)	715.3	22.96	21.96
		707.5	23.45	21.89
		699.7	22.75	22.31
	1RB Middle (3)	715.3	23.08	22.00
		707.5	23.11	21.93
		699.7	23.06	22.11
	1RB Low (0)	715.3	23.07	22.10
		707.5	22.95	21.85
		699.7	23.17	22.24
	3RB High (3)	715.3	23.05	22.21
		707.5	22.98	22.10
		699.7	22.97	22.01
	3RB Middle (1)	715.3	22.87	22.17
		707.5	22.84	21.96
		699.7	23.03	21.94
	3RB Low (0)	715.3	23.06	22.28
		707.5	22.85	21.71
		699.7	23.02	22.11
	6RB (0)	715.3	22.17	21.07
		707.5	22.01	21.20
		699.7	22.02	21.00
3 MHz	1RB High (14)	714.5	22.92	22.28
		707.5	22.83	22.29
		700.5	23.05	22.10
	1RB Middle (7)	714.5	23.04	22.22
		707.5	23.19	21.92
		700.5	23.03	21.96
	1RB Low (0)	714.5	23.07	22.22
		707.5	22.87	22.05
		700.5	23.16	22.10
	8RB High (7)	714.5	22.22	21.51
		707.5	22.19	21.11
		700.5	21.88	21.12
	8RB Middle (4)	714.5	22.21	21.34
		707.5	22.09	21.25
		700.5	21.96	21.11
	8RB Low (0)	714.5	22.21	21.14
		707.5	22.13	21.06
		700.5	21.97	20.88
	15RB (0)	714.5	22.10	21.06
		707.5	22.13	21.09
		700.5	22.03	20.87
5 MHz	1RB High (24)	713.5	23.02	21.62
		707.5	22.87	22.01
		701.5	23.07	21.87

	1RB Middle (12)	713.5	23.47	21.85
		707.5	23.02	21.71
		701.5	23.43	22.12
	1RB Low (0)	713.5	23.08	21.51
		707.5	23.14	21.99
		701.5	23.03	21.96
	12RB High (13)	713.5	22.07	21.10
		707.5	22.08	21.07
		701.5	22.09	21.06
	12RB Middle (6)	713.5	22.06	21.34
		707.5	22.19	21.02
		701.5	22.14	21.18
	12RB Low (0)	713.5	22.05	21.38
		707.5	22.17	21.00
		701.5	22.03	21.02
	25RB (0)	713.5	22.07	21.25
		707.5	22.13	21.05
		701.5	22.10	21.19
10 MHz	1RB High (49)	711	22.90	22.24
		707.5	23.06	22.10
		704	23.08	22.27
	1RB Middle (24)	711	23.04	21.55
		707.5	23.32	22.46
		704	23.32	22.55
	1RB Low (0)	711	22.84	22.01
		707.5	23.00	21.99
		704	22.86	22.09
	25RB High (25)	711	22.17	21.18
		707.5	22.08	21.23
		704	22.20	21.26
	25RB Middle (12)	711	22.17	21.31
		707.5	22.16	21.14
		704	22.17	21.17
	25RB Low (0)	711	22.14	21.13
		707.5	22.08	21.12
		704	22.02	21.09
	50RB (0)	711	22.32	21.19
		707.5	22.11	21.03
		704	22.18	21.16

Band 25				
Bandwidth (MHz)	RB allocation RB offset (Start RB)	Frequency (MHz)	QPSK Actual output power (dBm)	16QAM Actual output power (dBm)
1.4 MHz	1RB High (5)	1914.3	22.60	22.47
		1882.5	22.71	22.27
		1850.7	23.17	22.57
	1RB Middle (3)	1914.3	22.94	22.61
		1882.5	23.72	22.60
		1850.7	23.69	22.24
	1RB Low (0)	1914.3	23.39	22.54
		1882.5	23.35	22.84
		1850.7	23.55	22.66
	3RB High (3)	1914.3	23.48	22.13
		1882.5	23.48	22.61
		1850.7	23.68	22.65
	3RB Middle (1)	1914.3	23.60	22.25
		1882.5	23.59	22.70
		1850.7	23.64	22.27
	3RB Low (0)	1914.3	23.44	22.19
		1882.5	23.44	22.59
		1850.7	23.60	22.34
	6RB (0)	1914.3	22.42	21.64
		1882.5	22.52	21.65
		1850.7	22.45	21.52
3 MHz	1RB High (14)	1913.5	23.02	22.88
		1882.5	23.05	22.75
		1851.5	23.03	22.06
	1RB Middle (7)	1913.5	23.53	22.87
		1882.5	23.31	22.89
		1851.5	23.57	22.94
	1RB Low (0)	1913.5	23.78	22.71
		1882.5	23.44	22.77
		1851.5	23.26	22.90
	8RB High (7)	1913.5	22.53	21.31
		1882.5	22.61	21.89
		1851.5	22.48	21.49
	8RB Middle (4)	1913.5	22.51	21.61
		1882.5	22.50	21.69
		1851.5	22.38	21.43
	8RB Low (0)	1913.5	22.58	21.47
		1882.5	22.55	21.61
		1851.5	22.43	21.57
	15RB (0)	1913.5	22.49	21.50
		1882.5	22.49	21.59
		1851.5	22.42	21.63
5 MHz	1RB	1912.5	23.20	22.26

	High (24)	1882.5	23.33	22.14
		1852.5	23.46	22.30
	1RB Middle (12)	1912.5	23.89	22.64
		1882.5	23.41	22.25
		1852.5	23.60	22.42
	1RB Low (0)	1912.5	23.58	22.18
		1882.5	23.45	21.94
		1852.5	23.65	22.41
	12RB High (13)	1912.5	22.67	21.55
		1882.5	22.67	21.61
		1852.5	22.48	21.35
	12RB Middle (6)	1912.5	22.57	21.60
		1882.5	22.70	21.54
		1852.5	22.63	21.68
	12RB Low (0)	1912.5	22.66	21.68
		1882.5	22.63	21.48
		1852.5	22.54	21.51
	25RB (0)	1912.5	22.64	21.89
		1882.5	22.66	21.68
		1852.5	22.47	21.42
10 MHz	1RB High (49)	1910	23.58	22.53
		1882.5	23.19	22.66
		1855	23.09	22.91
	1RB Middle (24)	1910	23.84	22.93
		1882.5	23.46	22.69
		1855	23.56	22.04
	1RB Low (0)	1910	23.05	22.56
		1882.5	23.05	22.60
		1855	23.32	22.13
	25RB High (25)	1910	22.46	21.64
		1882.5	22.42	21.73
		1855	22.45	21.73
	25RB Middle (12)	1910	22.31	21.84
		1882.5	22.55	21.60
		1855	22.32	21.60
	25RB Low (0)	1910	22.36	21.53
		1882.5	22.42	21.49
		1855	22.24	21.60
	50RB (0)	1910	22.37	21.45
		1882.5	22.48	21.52
		1855	22.31	21.58
15 MHz	1RB High (74)	1907.5	23.56	22.64
		1882.5	23.50	22.76
		1857.5	23.15	22.91
	1RB Middle (37)	1907.5	23.54	22.69
		1882.5	23.45	22.65
		1857.5	23.52	22.94
	1RB	1907.5	23.62	22.74

	Low (0)	1882.5	23.21	22.53
		1857.5	23.23	22.41
	36RB High (38)	1907.5	22.53	21.53
		1882.5	22.36	21.53
		1857.5	22.44	21.44
	36RB Middle (19)	1907.5	22.49	21.60
		1882.5	22.51	21.59
		1857.5	22.55	21.48
	36RB Low (0)	1907.5	22.53	21.44
		1882.5	22.40	21.50
		1857.5	22.24	21.39
	75RB (0)	1907.5	22.43	21.47
		1882.5	22.42	21.49
		1857.5	22.34	21.42
20 MHz	1RB High (99)	1905	23.57	22.44
		1882.5	23.42	22.34
		1860	23.19	22.00
	1RB Middle (50)	1905	23.96	22.68
		1882.5	23.58	22.20
		1860	23.39	22.00
	1RB Low (0)	1905	23.79	22.12
		1882.5	23.13	21.73
		1860	23.02	21.74
	50RB High (50)	1905	22.47	21.41
		1882.5	22.42	21.35
		1860	22.49	21.48
	50RB Middle (25)	1905	22.52	21.57
		1882.5	22.51	21.53
		1860	22.53	21.54
	50RB Low (0)	1905	22.47	21.52
		1882.5	22.41	21.42
		1860	22.30	21.39
	100RB (0)	1905	22.40	21.45
		1882.5	22.42	21.47
		1860	22.49	21.51

Band 26				
Bandwidth (MHz)	RB allocation RB offset (Start RB)	Frequency (MHz)	QPSK Actual output power (dBm)	16QAM Actual output power (dBm)
1.4 MHz	1RB High (5)	848.3	23.44	22.52
		831.5	23.44	22.47
		814.7	23.47	22.49
	1RB Middle (3)	848.3	23.54	22.52
		831.5	23.42	22.52
		814.7	23.58	22.51
	1RB Low (0)	848.3	23.47	22.48
		831.5	23.48	22.49
		814.7	23.68	22.38
	3RB High (3)	848.3	23.55	22.62
		831.5	23.42	22.67
		814.7	23.55	22.58
	3RB Middle (1)	848.3	23.53	22.84
		831.5	23.55	22.69
		814.7	23.60	22.69
	3RB Low (0)	848.3	23.50	22.62
		831.5	23.46	22.56
		814.7	23.59	22.60
	6RB (0)	848.3	22.64	21.62
		831.5	22.47	21.51
		814.7	22.56	21.48
3 MHz	1RB High (14)	847.5	23.24	22.68
		831.5	23.35	22.11
		815.5	23.29	22.42
	1RB Middle (7)	847.5	23.52	22.88
		831.5	23.58	22.49
		815.5	23.54	22.36
	1RB Low (0)	847.5	23.55	22.13
		831.5	23.44	22.55
		815.5	23.49	22.30
	8RB High (7)	847.5	22.52	21.43
		831.5	22.43	21.32
		815.5	22.41	21.49
	8RB Middle (4)	847.5	22.47	21.56
		831.5	22.43	21.23
		815.5	22.41	21.31
	8RB Low (0)	847.5	22.46	21.47
		831.5	22.40	21.37
		815.5	22.38	21.11
	15RB (0)	847.5	22.55	21.52
		831.5	22.48	21.29
		815.5	22.55	21.28

5 MHz	1RB High (24)	846.5	23.19	21.80
		831.5	23.28	21.95
		816.5	23.21	22.08
	1RB Middle (12)	846.5	23.46	21.77
		831.5	23.68	22.16
		816.5	23.60	22.16
	1RB Low (0)	846.5	23.42	21.56
		831.5	23.32	21.80
		816.5	23.33	21.96
	12RB High (13)	846.5	22.45	21.35
		831.5	22.52	21.29
		816.5	22.42	21.24
	12RB Middle (6)	846.5	22.55	21.33
		831.5	22.44	21.45
		816.5	22.52	21.35
	12RB Low (0)	846.5	22.46	21.41
		831.5	22.35	21.37
		816.5	22.44	21.45
	25RB (0)	846.5	22.37	21.34
		831.5	22.44	21.46
		816.5	22.55	21.46
10 MHz	1RB High (49)	844	23.34	22.39
		831.5	23.52	22.52
		820	23.29	21.96
	1RB Middle (24)	844	23.51	22.71
		831.5	23.60	22.90
		820	23.54	22.05
	1RB Low (0)	844	23.37	22.26
		831.5	23.48	22.36
		820	23.44	22.09
	25RB High (25)	844	22.39	21.37
		831.5	22.48	21.36
		820	22.47	21.52
	25RB Middle (12)	844	22.42	21.41
		831.5	22.50	21.48
		820	22.41	21.54
	25RB Low (0)	844	22.33	21.38
		831.5	22.42	21.28
		820	22.43	21.37
	50RB (0)	844	22.36	21.21
		831.5	22.46	21.37
		820	22.42	21.27
15 MHz	1RB High (74)	841.5	23.13	22.29
		831.5	23.17	22.99
		822.5	23.56	22.49
	1RB Middle (37)	1907.5	23.32	22.50
		1882.5	23.24	22.95
		1857.5	23.60	22.88

	1RB Low (0)	1907.5	23.18	22.10
		1882.5	23.06	22.24
		1857.5	23.58	22.59
	36RB High (38)	1907.5	22.36	21.35
		1882.5	22.45	21.31
		1857.5	22.38	21.38
	36RB Middle (19)	1907.5	22.38	21.39
		1882.5	22.42	21.26
		1857.5	22.38	21.36
	36RB Low (0)	1907.5	22.22	21.17
		1882.5	22.35	21.06
		1857.5	22.35	21.29
	75RB (0)	1907.5	22.37	21.21
		1882.5	22.43	21.36
		1857.5	22.27	21.29

Band 41				
Bandwidth (MHz)	RB allocation RB offset (Start RB)	Frequency (MHz)	QPSK Actual output power (dBm)	16QAM Actual output power (dBm)
5 MHz	1RB High (24)	2687.5	22.64	21.57
		2640.3	22.74	21.23
		2593	22.82	21.69
		2545.8	22.71	21.69
		2498.5	23.02	21.56
	1RB Middle (12)	2687.5	22.96	21.63
		2640.3	23.00	21.23
		2593	23.01	22.14
		2545.8	23.27	21.75
		2498.5	23.60	21.57
	1RB Low (0)	2687.5	22.53	21.40
		2640.3	22.82	21.13
		2593	22.74	21.66
		2545.8	22.95	21.70
		2498.5	23.15	21.37
	12RB High (13)	2687.5	21.75	20.78
		2640.3	21.84	20.69
		2593	21.98	20.96
		2545.8	21.92	20.89
		2498.5	22.20	20.99
	12RB Middle (6)	2687.5	21.62	20.72
		2640.3	21.97	20.95
		2593	22.02	20.82
		2545.8	22.03	20.95
		2498.5	22.17	21.10
	12RB Low (0)	2687.5	21.62	20.79
		2640.3	21.92	20.89
		2593	21.97	20.78
		2545.8	22.00	20.87
		2498.5	22.01	20.91
	25RB (0)	2687.5	21.66	20.56
		2640.3	21.87	20.82
		2593	21.93	20.90
		2545.8	21.84	20.75
		2498.5	22.10	21.16
10 MHz	1RB High (49)	2685	22.79	22.22
		2639	22.70	22.10
		2593	22.83	21.40

		2547	22.76	22.69
		2501	23.38	22.48
	1RB Middle (24)	2685	22.98	22.42
		2639	23.11	22.11
		2593	22.98	21.21
		2547	22.84	22.81
		2501	23.32	22.53
	1RB Low (0)	2685	22.70	22.05
		2639	22.61	22.07
		2593	22.84	21.13
		2547	22.88	22.44
		2501	22.92	22.30
	25RB High (25)	2685	21.88	20.65
		2639	21.97	20.92
		2593	21.95	21.01
		2547	22.04	21.08
		2501	22.22	21.26
	25RB Middle (12)	2685	21.98	20.58
		2639	21.95	20.99
		2593	21.96	20.91
		2547	22.02	20.91
		2501	22.21	21.26
	25RB Low (0)	2685	21.77	20.56
		2639	21.85	20.98
		2593	21.78	20.80
		2547	21.97	20.86
		2501	22.03	20.96
	50RB (0)	2685	21.83	20.67
		2639	21.91	20.96
		2593	21.81	20.89
		2547	22.00	20.80
		2501	22.15	21.05
15 MHz	1RB High (74)	2682.5	22.77	21.72
		2637.8	22.83	22.17
		2593	22.84	21.52
		2548.3	22.79	21.77
		2503.5	23.11	22.29
	1RB Middle (37)	2682.5	23.02	21.90
		2637.8	23.14	22.17
		2593	23.13	21.26
		2548.3	23.18	22.02
		2503.5	23.38	22.43

	1RB Low (0)	2682.5	23.03	21.74
		2637.8	22.94	22.17
		2593	22.81	21.25
		2548.3	23.14	21.93
		2503.5	22.99	22.21
	36RB High (38)	2682.5	21.87	20.50
		2637.8	21.80	20.86
		2593	21.91	20.91
		2548.3	21.95	20.74
		2503.5	22.16	21.23
	36RB Middle (19)	2682.5	22.00	20.58
		2637.8	21.86	20.93
		2593	21.96	20.88
		2548.3	22.06	20.87
		2503.5	22.26	21.07
	36RB Low (0)	2682.5	21.70	20.61
		2637.8	21.87	20.84
		2593	21.80	20.83
		2548.3	21.94	20.76
		2503.5	21.88	20.75
	75RB (0)	2682.5	21.77	20.67
		2637.8	21.93	20.90
		2593	21.83	20.90
		2548.3	21.94	20.91
		2503.5	22.05	21.01
20 MHz	1RB High (99)	2680	22.97	21.88
		2636.5	23.02	21.35
		2593	22.83	21.14
		2549.5	22.59	22.06
		2506	23.21	21.89
	1RB Middle (50)	2680	22.86	22.19
		2636.5	23.26	21.67
		2593	23.24	21.33
		2549.5	23.09	22.31
		2506	23.45	22.27
	1RB Low (0)	2680	22.60	21.69
		2636.5	23.05	21.36
		2593	22.71	21.06
		2549.5	22.52	22.21
		2506	23.17	21.37
	50RB High (50)	2680	21.52	20.65
		2636.5	21.85	20.79

		2593	21.96	20.81
		2549.5	21.80	20.79
		2506	22.27	21.05
	50RB Middle (25)	2680	21.79	20.68
		2636.5	21.89	20.93
		2593	21.98	20.98
		2549.5	22.03	21.01
		2506	22.11	21.13
	50RB Low (0)	2680	21.69	20.68
		2636.5	21.86	20.90
		2593	21.69	20.74
		2549.5	21.90	20.88
		2506	21.93	20.95
	100RB (0)	2680	21.71	20.69
		2636.5	21.82	20.85
		2593	21.72	20.82
		2549.5	21.96	20.80
		2506	22.07	21.09

Band 66				
Bandwidth (MHz)	RB allocation RB offset (Start RB)	Frequency (MHz)	QPSK Actual output power (dBm)	16QAM Actual output power (dBm)
1.4 MHz	1RB High (5)	1779.3	23.60	22.74
		1745	23.94	22.95
		1710.7	23.64	22.37
	1RB Middle (3)	1779.3	23.75	22.58
		1745	23.92	22.71
		1710.7	23.91	22.57
	1RB Low (0)	1779.3	23.71	22.60
		1745	23.93	22.65
		1710.7	23.58	22.37
	3RB High (3)	1779.3	23.78	22.77
		1745	23.77	22.88
		1710.7	23.68	22.60
	3RB Middle (1)	1779.3	23.90	22.84
		1745	23.87	22.90
		1710.7	23.59	22.80
	3RB Low (0)	1779.3	23.85	22.99
		1745	23.99	22.93
		1710.7	23.52	22.86
	6RB (0)	1779.3	22.85	21.65
		1745	22.82	21.99
		1710.7	22.62	21.82
3 MHz	1RB High (14)	1778.5	23.80	22.87
		1745	23.90	22.74
		1711.5	23.94	22.95
	1RB Middle (7)	1778.5	23.07	22.87
		1745	23.98	22.92
		1711.5	23.97	22.92
	1RB Low (0)	1778.5	23.94	22.92
		1745	23.92	22.96
		1711.5	23.82	22.99
	8RB High (7)	1778.5	22.66	21.64
		1745	22.89	21.94
		1711.5	22.83	21.96
	8RB Middle (4)	1778.5	22.75	21.77
		1745	22.88	21.92
		1711.5	22.78	21.92
	8RB Low (0)	1778.5	22.75	21.94
		1745	22.91	21.99
		1711.5	22.75	21.89
	15RB (0)	1778.5	22.64	21.83
		1745	22.94	21.93
		1711.5	22.83	21.91
5 MHz	1RB	1777.5	23.56	22.16

	High (24)	1745	23.98	22.81
		1712.5	23.85	22.43
	1RB Middle (12)	1777.5	23.96	22.49
		1745	23.93	22.36
		1712.5	23.96	22.35
	1RB Low (0)	1777.5	23.68	22.22
		1745	23.96	22.31
		1712.5	23.72	22.28
	12RB High (13)	1777.5	22.78	21.72
		1745	23.00	21.75
		1712.5	22.81	21.85
	12RB Middle (6)	1777.5	22.71	21.81
		1745	22.98	21.73
		1712.5	22.73	21.68
	12RB Low (0)	1777.5	22.82	21.73
		1745	23.00	21.82
		1712.5	22.71	21.58
	25RB (0)	1777.5	22.69	21.89
		1745	22.95	21.87
		1712.5	22.88	21.71
10 MHz	1RB High (49)	1775	23.52	22.38
		1745	24.00	22.92
		1715	23.77	22.96
	1RB Middle (24)	1775	23.81	22.96
		1745	23.98	22.91
		1715	23.91	22.70
	1RB Low (0)	1775	23.88	22.82
		1745	23.94	22.98
		1715	23.83	22.98
	25RB High (25)	1775	22.57	21.65
		1745	22.86	21.96
		1715	22.85	21.99
	25RB Middle (12)	1775	22.64	22.00
		1745	22.88	21.91
		1715	22.88	21.93
	25RB Low (0)	1775	22.69	21.90
		1745	22.87	21.97
		1715	22.77	21.84
	50RB (0)	1775	22.58	21.70
		1745	22.96	21.94
		1715	22.90	21.84
15 MHz	1RB High (74)	1772.5	23.42	22.96
		1745	23.72	22.56
		1717.5	23.90	22.94
	1RB Middle (37)	1772.5	23.85	22.98
		1745	23.90	22.84
		1717.5	23.87	22.96
	1RB	1772.5	23.89	22.94

	Low (0)	1745	23.81	22.83
		1717.5	23.75	22.80
	36RB High (38)	1772.5	22.50	21.49
		1745	22.83	21.91
		1717.5	22.85	21.71
	36RB Middle (19)	1772.5	22.65	21.83
		1745	22.77	21.89
		1717.5	22.82	21.68
	36RB Low (0)	1772.5	22.62	21.72
		1745	22.71	21.63
		1717.5	22.73	21.57
	75RB (0)	1772.5	22.52	21.59
		1745	22.82	21.77
		1717.5	22.77	21.83
20 MHz	1RB High (99)	1770	23.21	21.88
		1745	23.22	22.17
		1720	22.77	21.59
	1RB Middle (50)	1770	23.48	22.15
		1745	23.47	22.24
		1720	22.96	22.21
	1RB Low (0)	1770	23.21	21.87
		1745	23.17	22.04
		1720	22.74	21.57
	50RB High (50)	1770	21.90	20.88
		1745	22.32	21.35
		1720	22.27	21.24
	50RB Middle (25)	1770	22.06	21.18
		1745	22.21	21.25
		1720	22.29	21.28
	50RB Low (0)	1770	22.04	21.14
		1745	22.27	21.19
		1720	22.14	21.22
	100RB (0)	1770	21.99	20.92
		1745	22.34	21.29
		1720	22.14	21.24

Band 71				
Bandwidth (MHz)	RB allocation RB offset (Start RB)	Frequency (MHz)	QPSK Actual output power (dBm)	16QAM Actual output power (dBm)
5 MHz	1RB High (24)	695.5	22.72	21.82
		680.5	22.95	21.78
		665.5	23.36	21.94
	1RB Middle (12)	695.5	22.70	21.57
		680.5	22.94	21.77
		665.5	23.15	21.99
	1RB Low (0)	695.5	22.61	21.58
		680.5	22.83	21.55
		665.5	23.03	21.56
	12RB High (13)	695.5	22.04	21.01
		680.5	22.17	20.98
		665.5	22.24	21.27
	12RB Middle (6)	695.5	21.97	20.90
		680.5	22.11	20.96
		665.5	22.24	21.22
	12RB Low (0)	695.5	21.92	20.86
		680.5	22.09	20.84
		665.5	22.08	21.19
	25RB (0)	695.5	22.03	21.03
		680.5	22.12	20.99
		665.5	22.20	21.34
10 MHz	1RB High (49)	693	23.20	22.14
		680.5	23.07	22.35
		668	23.18	22.62
	1RB Middle (24)	693	23.28	22.51
		680.5	23.24	22.52
		668	23.28	21.96
	1RB Low (0)	693	23.10	22.21
		680.5	22.90	22.12
		668	23.14	21.77
	25RB High (25)	693	22.16	21.37
		680.5	22.12	21.16
		668	22.15	21.31
	25RB Middle (12)	693	22.16	21.31
		680.5	22.06	21.08
		668	22.20	21.43
	25RB Low (0)	693	22.09	21.21
		680.5	22.09	20.95
		668	22.13	21.16
	50RB (0)	693	22.05	21.14
		680.5	22.09	21.06
		668	22.08	21.23

15 MHz	1RB High (74)	690.5	23.06	22.62
		680.5	22.97	22.45
		670.5	23.27	22.40
	1RB Middle (37)	690.5	23.14	22.85
		680.5	22.89	22.39
		670.5	23.32	22.35
	1RB Low (0)	690.5	23.01	22.51
		680.5	22.91	22.11
		670.5	23.39	21.71
	36RB High (38)	690.5	21.94	20.80
		680.5	22.10	21.07
		670.5	22.19	21.29
	36RB Middle (19)	690.5	22.15	20.98
		680.5	22.00	20.91
		670.5	22.15	21.27
	36RB Low (0)	690.5	22.06	20.96
		680.5	22.03	20.91
		670.5	22.02	21.13
	75RB (0)	690.5	21.90	20.94
		680.5	22.12	21.03
		670.5	22.17	21.16
20 MHz	1RB High (99)	688	22.66	21.55
		683	23.05	21.74
		673	22.76	21.83
	1RB Middle (50)	688	22.86	21.69
		683	23.56	21.97
		673	23.28	22.56
	1RB Low (0)	688	22.66	21.60
		683	22.85	21.60
		673	22.93	21.50
	50RB High (50)	688	21.95	20.98
		683	22.01	21.02
		673	22.10	21.03
	50RB Middle (25)	688	21.94	21.12
		683	22.01	20.98
		673	22.14	21.13
	50RB Low (0)	688	21.92	20.99
		683	21.88	20.86
		673	22.11	21.05
	100RB (0)	688	21.80	20.91
		683	22.04	21.04
		673	22.03	21.03

Low power

Table 11.3-5: The conducted Power for LTE

Band 12				
Bandwidth (MHz)	RB allocation RB offset (Start RB)	Frequency (MHz)	QPSK Actual output power (dBm)	16QAM Actual output power (dBm)
1.4 MHz	1RB High (5)	715.3	19.30	18.19
		707.5	19.43	18.20
		699.7	19.37	18.54
	1RB Middle (3)	715.3	19.24	18.20
		707.5	19.40	18.13
		699.7	19.70	18.28
	1RB Low (0)	715.3	19.32	18.12
		707.5	19.36	18.08
		699.7	19.38	18.19
	3RB High (3)	715.3	19.31	18.37
		707.5	19.49	18.38
		699.7	19.65	18.33
	3RB Middle (1)	715.3	19.20	18.45
		707.5	19.43	18.29
		699.7	19.61	18.31
	3RB Low (0)	715.3	19.17	18.28
		707.5	19.35	18.36
		699.7	19.58	18.46
	6RB (0)	715.3	18.19	17.47
		707.5	18.42	17.27
		699.7	18.37	17.35
3 MHz	1RB High (14)	714.5	19.09	18.25
		707.5	19.46	18.34
		700.5	19.32	18.53
	1RB Middle (7)	714.5	19.47	18.14
		707.5	19.49	18.46
		700.5	19.56	18.89
	1RB Low (0)	714.5	19.45	18.40
		707.5	19.33	18.40
		700.5	19.59	17.98
	8RB High (7)	714.5	18.33	17.35
		707.5	18.42	17.20
		700.5	18.64	17.49
	8RB Middle (4)	714.5	18.25	17.01
		707.5	18.39	17.20
		700.5	18.46	17.54
	8RB Low (0)	714.5	18.21	17.21
		707.5	18.27	16.97
		700.5	18.45	17.53
	15RB (0)	714.5	18.23	17.23
		707.5	18.34	17.33
		700.5	18.44	17.46
5 MHz	1RB	713.5	19.19	17.56

	High (24)	707.5	18.96	18.09
		701.5	19.27	18.03
	1RB Middle (12)	713.5	19.43	17.72
		707.5	19.40	17.97
		701.5	19.84	18.04
	1RB Low (0)	713.5	19.40	17.72
		707.5	19.19	17.92
		701.5	19.49	18.05
	12RB High (13)	713.5	18.15	17.13
		707.5	18.32	17.25
		701.5	18.30	17.03
	12RB Middle (6)	713.5	18.30	17.26
		707.5	18.36	17.37
		701.5	18.31	17.21
	12RB Low (0)	713.5	18.39	17.37
		707.5	18.17	17.23
		701.5	18.43	17.34
	25RB (0)	713.5	18.15	17.30
		707.5	18.38	17.29
		701.5	18.28	17.41
10 MHz	1RB High (49)	711	19.17	18.39
		707.5	19.35	18.33
		704	19.56	18.48
	1RB Middle (24)	711	19.65	18.19
		707.5	19.53	18.65
		704	19.75	18.72
	1RB Low (0)	711	19.18	18.43
		707.5	19.18	18.14
		704	19.51	18.36
	25RB High (25)	711	18.34	17.38
		707.5	18.40	17.47
		704	18.31	17.30
	25RB Middle (12)	711	18.41	17.69
		707.5	18.24	17.41
		704	18.20	17.10
	25RB Low (0)	711	18.35	17.46
		707.5	18.19	17.17
		704	18.22	17.20
	50RB (0)	711	18.25	17.28
		707.5	18.21	17.21
		704	18.27	17.26

LTE Band25				
Bandwidth (MHz)	RB allocation RB offset (Start RB)	Frequency (MHz)	QPSK Actual output power (dBm)	16QAM Actual output power (dBm)
1.4 MHz	1RB High (5)	1914.3	17.32	16.70
		1882.5	17.48	16.86
		1850.7	17.54	16.47
	1RB Middle (3)	1914.3	17.62	16.62
		1882.5	17.55	16.56
		1850.7	17.64	16.55
	1RB Low (0)	1914.3	17.59	16.46
		1882.5	17.54	16.84
		1850.7	17.42	16.38
	3RB High (3)	1914.3	17.60	16.42
		1882.5	17.66	16.45
		1850.7	17.58	16.78
	3RB Middle (1)	1914.3	17.63	16.67
		1882.5	17.71	16.59
		1850.7	17.55	16.82
	3RB Low (0)	1914.3	17.59	16.75
		1882.5	17.58	16.67
		1850.7	17.62	16.89
	6RB (0)	1914.3	16.68	15.92
		1882.5	16.68	15.40
		1850.7	16.54	15.61
3 MHz	1RB High (14)	1913.5	17.76	16.68
		1882.5	17.58	16.61
		1851.5	17.32	16.64
	1RB Middle (7)	1913.5	17.81	16.73
		1882.5	17.71	16.45
		1851.5	17.65	16.69
	1RB Low (0)	1913.5	17.75	16.27
		1882.5	17.58	16.42
		1851.5	17.59	16.42
	8RB High (7)	1913.5	16.70	15.68
		1882.5	16.67	15.72
		1851.5	16.58	15.64
	8RB Middle (4)	1913.5	16.81	15.62
		1882.5	16.60	15.77
		1851.5	16.60	15.54
	8RB Low (0)	1913.5	16.74	15.53
		1882.5	16.71	15.76
		1851.5	16.58	15.68
	15RB (0)	1913.5	16.69	15.79
		1882.5	16.77	15.70
		1851.5	16.60	15.63
5 MHz	1RB	1912.5	17.61	16.56

	High (24)	1882.5	17.67	16.41
		1852.5	17.31	16.06
	1RB Middle (12)	1912.5	17.75	16.61
		1882.5	17.76	16.29
		1852.5	17.49	16.28
	1RB Low (0)	1912.5	17.55	16.27
		1882.5	17.70	16.19
		1852.5	17.32	16.26
	12RB High (13)	1912.5	16.72	15.78
		1882.5	16.71	15.69
		1852.5	16.55	15.31
	12RB Middle (6)	1912.5	16.74	15.68
		1882.5	16.71	15.56
		1852.5	16.65	15.51
	12RB Low (0)	1912.5	16.58	15.44
		1882.5	16.71	15.47
		1852.5	16.60	15.44
	25RB (0)	1912.5	16.66	15.67
		1882.5	16.69	15.82
		1852.5	16.53	15.57
10 MHz	1RB High (49)	1910	17.71	16.78
		1882.5	17.63	16.95
		1855	17.35	16.56
	1RB Middle (24)	1910	17.94	16.94
		1882.5	17.77	16.89
		1855	17.61	16.71
	1RB Low (0)	1910	17.79	16.61
		1882.5	17.57	16.91
		1855	17.57	16.56
	25RB High (25)	1910	16.68	15.57
		1882.5	16.73	15.69
		1855	16.63	15.60
	25RB Middle (12)	1910	16.76	15.57
		1882.5	16.71	15.79
		1855	16.57	15.84
	25RB Low (0)	1910	16.64	15.65
		1882.5	16.66	15.77
		1855	16.48	15.56
	50RB (0)	1910	16.66	15.73
		1882.5	16.70	15.70
		1855	16.51	15.57
15 MHz	1RB High (74)	1907.5	17.88	16.50
		1882.5	17.31	16.94
		1857.5	17.40	16.93
	1RB Middle (37)	1907.5	17.88	16.98
		1882.5	17.64	16.99
		1857.5	17.36	16.96
	1RB	1907.5	17.88	16.73

	Low (0)	1882.5	17.40	16.03
		1857.5	17.44	16.91
	36RB High (38)	1907.5	16.59	15.52
		1882.5	16.65	15.75
		1857.5	16.61	15.51
	36RB Middle (19)	1907.5	16.65	15.68
		1882.5	16.73	15.84
		1857.5	16.59	15.63
	36RB Low (0)	1907.5	16.52	15.37
		1882.5	16.61	15.83
		1857.5	16.52	15.46
	75RB (0)	1907.5	16.61	15.57
		1882.5	16.61	15.70
		1857.5	16.59	15.56
20 MHz	1RB High (99)	1905	17.62	16.81
		1882.5	17.25	16.64
		1860	17.26	16.15
	1RB Middle (50)	1905	17.87	16.84
		1882.5	17.86	16.75
		1860	17.47	16.39
	1RB Low (0)	1905	17.53	16.28
		1882.5	17.43	16.61
		1860	17.14	16.03
	50RB High (50)	1905	16.68	15.62
		1882.5	16.72	15.69
		1860	16.67	15.50
	50RB Middle (25)	1905	16.64	15.81
		1882.5	16.68	15.74
		1860	16.69	15.69
	50RB Low (0)	1905	16.63	15.59
		1882.5	16.66	15.54
		1860	16.47	15.65
	100RB (0)	1905	16.51	15.59
		1882.5	16.65	15.64
		1860	16.63	15.63

LTE Band66				
Bandwidth (MHz)	RB allocation	Frequency (MHz)	QPSK	16QAM
	RB offset (Start RB)		Actual output power (dBm)	Actual output power (dBm)
1.4 MHz	1RB High (5)	1779.3	16.22	15.63
		1745	16.74	15.91
		1710.7	16.87	15.39
	1RB Middle (3)	1779.3	16.70	15.62
		1745	16.93	15.60
		1710.7	16.94	15.56
	1RB Low (0)	1779.3	16.74	15.59
		1745	16.63	15.67
		1710.7	16.65	15.80
	3RB High (3)	1779.3	16.69	15.59
		1745	16.84	15.79
		1710.7	16.62	15.46
	3RB Middle (1)	1779.3	16.85	15.69
		1745	16.80	15.77
		1710.7	16.72	15.97
	3RB Low (0)	1779.3	16.75	15.75
		1745	16.74	15.56
		1710.7	16.75	15.64
	6RB (0)	1779.3	15.62	14.60
		1745	15.68	14.99
		1710.7	15.60	14.61
3 MHz	1RB High (14)	1778.5	16.77	15.57
		1745	16.71	15.45
		1711.5	16.72	15.64
	1RB Middle (7)	1778.5	16.95	15.77
		1745	16.82	15.79
		1711.5	16.75	15.59
	1RB Low (0)	1778.5	16.78	15.73
		1745	16.73	15.72
		1711.5	16.63	15.59
	8RB High (7)	1778.5	15.71	14.69
		1745	15.80	14.82
		1711.5	15.59	14.77
	8RB Middle (4)	1778.5	15.70	14.82
		1745	15.68	14.95
		1711.5	15.64	14.86
	8RB Low (0)	1778.5	15.73	14.40
		1745	15.74	14.80
		1711.5	15.65	14.68
	15RB (0)	1778.5	15.66	14.56
		1745	15.67	14.79
		1711.5	15.62	14.58
5 MHz	1RB	1777.5	16.51	15.12

	High (24)	1745	16.63	15.30
		1712.5	16.73	15.35
	1RB Middle (12)	1777.5	16.77	15.17
		1745	16.59	15.40
		1712.5	16.97	15.35
	1RB Low (0)	1777.5	16.61	15.38
		1745	16.48	15.36
		1712.5	16.49	15.23
	12RB High (13)	1777.5	15.65	14.56
		1745	15.74	14.80
		1712.5	15.65	14.77
	12RB Middle (6)	1777.5	15.71	14.53
		1745	15.69	14.82
		1712.5	15.56	14.76
	12RB Low (0)	1777.5	15.65	14.59
		1745	15.72	14.84
		1712.5	15.52	14.83
	25RB (0)	1777.5	15.68	14.66
		1745	15.78	14.91
		1712.5	15.62	14.84
10 MHz	1RB High (49)	1775	16.57	15.63
		1745	16.93	15.95
		1715	16.70	15.60
	1RB Middle (24)	1775	16.88	15.96
		1745	16.92	15.96
		1715	16.73	15.95
	1RB Low (0)	1775	16.76	15.62
		1745	16.65	15.93
		1715	16.82	15.97
	25RB High (25)	1775	15.67	14.63
		1745	15.78	14.85
		1715	15.64	14.89
	25RB Middle (12)	1775	15.66	14.69
		1745	15.82	14.94
		1715	15.65	14.89
	25RB Low (0)	1775	15.68	14.59
		1745	15.72	14.64
		1715	15.58	14.74
	50RB (0)	1775	15.52	14.43
		1745	15.73	14.69
		1715	15.66	14.71
15 MHz	1RB High (74)	1772.5	16.88	15.73
		1745	16.84	15.30
		1717.5	16.55	15.27
	1RB Middle (37)	1772.5	16.94	15.99
		1745	16.90	15.82
		1717.5	16.74	15.90
	1RB	1772.5	16.93	15.70

	Low (0)	1745	16.48	15.97
		1717.5	16.43	15.96
	36RB High (38)	1772.5	15.64	14.40
		1745	15.79	14.82
		1717.5	15.69	14.61
	36RB Middle (19)	1772.5	15.71	14.68
		1745	15.76	14.79
		1717.5	15.71	14.77
	36RB Low (0)	1772.5	15.72	14.67
		1745	15.68	14.79
		1717.5	15.62	14.68
	75RB (0)	1772.5	15.59	14.49
		1745	15.73	14.83
		1717.5	15.69	14.66
20 MHz	1RB High (99)	1770	16.79	15.12
		1745	16.62	15.53
		1720	16.39	15.33
	1RB Middle (50)	1770	16.84	15.60
		1745	16.74	15.80
		1720	16.78	15.32
	1RB Low (0)	1770	16.62	15.28
		1745	16.45	15.49
		1720	16.18	15.01
	50RB High (50)	1770	15.45	14.45
		1745	15.77	14.68
		1720	15.63	14.74
	50RB Middle (25)	1770	15.68	14.59
		1745	15.72	14.70
		1720	15.68	14.69
	50RB Low (0)	1770	15.71	14.62
		1745	15.63	14.59
		1720	15.60	14.53
	100RB (0)	1770	15.65	14.60
		1745	15.79	14.69
		1720	15.61	14.56

11.5 Wi-Fi and BT Measurement result

The maximum output power of BT is8.67dBm.
The maximum tune up of BT is 9dBm.

Normal power

The average conducted power for Wi-Fi is as following:

2.4G

802.11b	Channel\	1Mbps	2Mbps	5.5Mbps	11Mbps				
WLAN2450	11(2462	14.35	\	14.41	\				
	6(2437(	14.39	14.42	14.53	14.50				
	1(2412M	14.26	\	14.36	\				
	Tune up	15.00	15.00	15.00	15.00				
802.11g	Channel\	6Mbps	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
WLAN2450	11(2462	13.42	\	\	\	\	\	\	\
	6(2437(	13.50	13.49	13.48	13.48	13.45	13.44	13.42	13.42
	1(2412M	13.41	\	\	\	\	\	\	\
	Tune up	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00
802.11n-20MHz	Channel\	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
WLAN2450	11(2462	13.48	\	\	\	\	\	\	\
	6(2437(	13.80	13.57	13.56	13.50	13.49	13.47	13.45	13.44
	1(2412M	13.39	\	\	\	\	\	\	\
	Tune up	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00

5G

802.11n(dBm)-20MHz								
Channel\data	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
36(5180 MHz)	**13.98**	13.95	13.93	13.88	13.82	13.82	13.81	13.83
40(5200 MHz)	13.97	\	\	\	\	\	\	\
44(5220 MHz)	13.80	\	\	\	\	\	\	\
48(5240 MHz)	13.85	\	\	\	\	\	\	\
Tune up	14.50	14.50	14.50	14.50	14.50	14.50	14.50	14.50
52(5260 MHz)	13.94	\	\	\	\	\	\	\
56(5280 MHz)	13.98	\	\	\	\	\	\	\
60(5300 MHz)	14.09	\	\	\	\	\	\	\
64(5320 MHz)	**14.24**	14.23	14.21	14.18	14.17	14.13	14.12	14.11
Tune up	14.50	14.50	14.50	14.50	14.50	14.50	14.50	14.50
149(5745 MHz)	13.37	\	\	\	\	\	\	\
153(5765 MHz)	13.30	\	\	\	\	\	\	\
157(5785 MHz)	13.71	\	\	\	\	\	\	\
161(5805 MHz)	14.19	\	\	\	\	\	\	\
165(5825 MHz)	**14.48**	14.45	14.46	14.43	14.39	14.38	14.35	14.36
Tune up	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00

Low power

The average conducted power for Wi-Fi is as following:

2.4G

802.11b	Channel\	1Mbps	2Mbps	5.5Mbps	11Mbps				
WLAN2450	11(2462	8.90	\	9.03	\				
	6(2437(	9.02	\	9.12	\				
	1(2412M	9.09	9.15	9.20	9.16				
	Tune up	10.00	10.00	10.00	10.00				
802.11g	Channel\	6Mbps	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
WLAN2450	11(2462	8.07	\	\	\	\	\	\	\
	6(2437(	8.15	\	\	\	\	\	\	\
	1(2412M	8.21	8.20	8.18	8.18	8.16	8.15	8.13	8.12
	Tune up	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00
802.11n-20MHz	Channel\	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
WLAN2450	11(2462	8.11	8.09	\	\	\	\	\	\
	6(2437(	8.20	8.21	\	\	\	\	\	\
	1(2412M	8.23	8.28	8.25	8.21	8.19	8.18	8.15	8..15
	Tune up	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00

5G

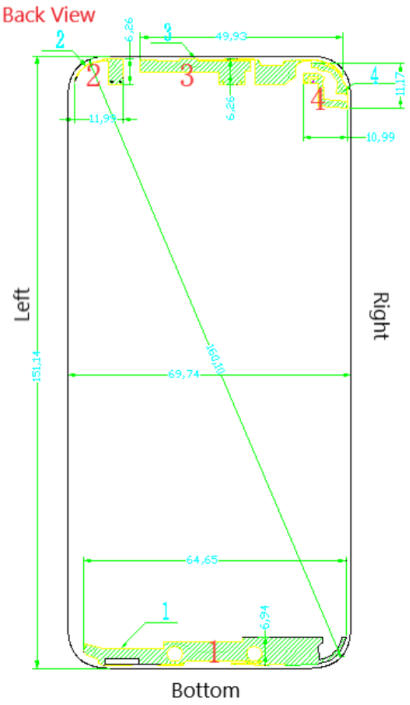
802.11n(dBm)-20MHz								
Channel\data	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
36(5180 MHz)	7.29	\	\	\	\	\	\	\
40(5200 MHz)	7.19	\	\	\	\	\	\	\
44(5220 MHz)	**7.40**	7.34	7.32	7.27	7.25	7.24	7.21	7.22
48(5240 MHz)	7.07	\	\	\	\	\	\	\
Tune up	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00
52(5260 MHz)	7.27	\	\	\	\	\	\	\
56(5280 MHz)	7.39	\	\	\	\	\	\	\
60(5300 MHz)	7.29	\	\	\	\	\	\	\
64(5320 MHz)	**7.83**	7.80	7.79	7.76	7.74	7.71	7.70	7.72
Tune up	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00
149(5745 MHz)	7.58	\	\	\	\	\	\	\
153(5765 MHz)	7.13	\	\	\	\	\	\	\
157(5785 MHz)	7.65	\	\	\	\	\	\	\
161(5805 MHz)	7.92	\	\	\	\	\	\	\
165(5825 MHz)	**8.14**	8.11	8.09	8.07	8.05	8.06	8.05	8.02
Tune up	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00

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



Antenna	Mode	Band
ANT1	Main LB/HB	LTE B5/7/12/26/41/71,WB5 TX/RX LTE B2/4/25/66,WB2/B4,GSM850 RX
ANT2	WiFi	BT/WiFi（2.4G&5G）
ANT3	Main LB/HB	LTEB2/B4/B25/B66,WB2B4,GSM1900 TX/RX GS850 TX LTE B5/7/12/26/41/71,WB5 RX
ANT4	GPS	GPS

Picture 12.1 Antenna Locations

12.3 SAR Measurement Positions

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

SAR measurement positions						
Mode	Front	Rear	Left edge	Right edge	Top edge	Bottom edge
Main antenna ANT1	Yes	Yes	Yes	Yes	No	Yes
Main antenna ANT3	Yes	Yes	Yes	Yes	Yes	No
WLAN ANT2	Yes	Yes	No	Yes	Yes	No

12.4 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

Table 12.1: Standalone SAR test exclusion considerations

Band/Mode	F(GHz)	Position	SAR test exclusion threshold(mW)	RF output power		SAR test exclusion
				dBm	mW	
Bluetooth	2.441	Head	9.60	9	7.9	Yes
		Body	19.20	9	7.9	Yes
2.4GHz WLAN	2.45	Head	9.58	15	31.6	No
		Body	19.17	15	31.6	No
5GHz WLAN	5.2	Head	6.58	14.5	28.2	No
		Body	13.16	14.5	28.2	No
	5.3	Head	6.52	14.5	28.2	No
		Body	13.03	14.5	28.2	No
	5.8	Head	6.23	15	31.6	No
		Body	12.46	15	31.6	No

13 Evaluation of Simultaneous

Table 13.1: The sum of reported SAR values for main antenna ANT1/3 and WiFi 2.4G/5G

	Position	Main antenna	WLAN	Sum
Maximum reported SAR value for Head	Left hand, Touch Tilt	1.10	0.27[1]	**1.37**
Maximum reported SAR value for Body	Top	1.40	0.06[1]	**1.46**

[1] –When the Wi-Fi transmit simultaneous with main antenna, the Wi-Fi TX power will be back off. The low power WLAN values is used to the calculation of simultaneous transmission

Table 13.2: The sum of reported SAR values for main antenna ANT1/3 and BT

	Position	Main antenna	BT	Sum
Maximum reported SAR value for Head	Left hand, Touch Tilt	1.10	0.33[2]	**1.43**
Maximum reported SAR value for Body	Top	1.40	0.16[2]	**1.56**

[2] - Estimated SAR for Bluetooth (see the table 13.3)

Table 13.3: Estimated SAR for Bluetooth

Mode/Band	F (GHz)	Position	Distance (mm)	Upper limit of power *		Estimated$_{1g}$ (W/kg)
				dBm	mW	
Bluetooth	2.441	Head	5	9	7.9	0.33
Bluetooth	2.441	Body	10	9	7.9	0.16

* - Maximum possible output power declared by manufacturer

When standalone SAR test exclusion applies to an antenna that transmits simultaneously with other antennas, the standalone SAR must be estimated according to 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.
When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion

Conclusion:
According to the above tables, the sum of reported SAR values is<1.6W/kg. So the simultaneous transmission SAR with volume scans is not required.

14 SAR Test Result

It is determined by user manual for the distance between the EUT and the phantom bottom. The distance is 10 mm or 15mm and just applied to the condition of body worn accessory.

It is performed for all SAR measurements with area scan based 1-g SAR estimation (Fast SAR). A zoom scan measurement is added when the estimated 1-g SAR is the highest measured SAR in each exposure configuration, wireless mode and frequency band combination or more than 1.2W/kg.

The calculated SAR is obtained by the following formula:

$$\text{Reported SAR} = \text{Measured SAR} \times 10^{(P_{Target}-P_{Measured})/10}$$

Where P_{Target} is the power of manufacturing upper limit;

$P_{Measured}$ is the measured power in chapter 11.

Table 14.1: Duty Cycle

Mode	Duty Cycle
Speech for GSM	1:4
GPRS&EGPRS for GSM	1:4
WCDMA&LTE FDD	1:1
LTE TDD	1:1.58

14.1 SAR results for Fast SAR

.

Table 14.1-1: SAR Values (GSM 850 MHz Band - Head)

Test Position	Phantom position L/Rightight/F	Frequency Band	Channel Number	Frequency (MHz)	Test setup	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 10g (W/kg)	Calculated SAR 10g (W/kg)	Measured SAR 1g (W/kg)	Calculated SAR 1g (W/kg)	Power Drift	Figure
Cheek	Left	GSM850	190	836.6		33.44	34	0.245	**0.28**	0.374	**0.43**	0.08	\
Tilt	Left	GSM850	190	836.6		33.44	34	0.164	**0.19**	0.293	**0.33**	0.01	\
Cheek	Right	GSM850	251	848.8		33.48	34	0.333	**0.38**	0.576	**0.65**	-0.14	\
Cheek	Right	GSM850	190	836.6		33.44	34	0.345	**0.39**	0.609	**0.69**	0.09	Fig.1
Cheek	Right	GSM850	128	824.2		33.28	34	0.324	**0.38**	0.565	**0.67**	-0.07	\
Tilt	Right	GSM850	190	836.6		33.44	34	0.223	**0.25**	0.414	**0.47**	-0.19	\

Table 14.1-2: SAR Values (GSM 850 MHz Band - Body)

Test Position	Phantom position L/Rightight/F	Frequency Band	Channel Number	Frequency (MHz)	Test setup	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 10g (W/kg)	Calculated SAR 10g (W/kg)	Measured SAR 1g (W/kg)	Calculated SAR 1g (W/kg)	Power Drift	Figure
Body	F	GSM850	190	836.6	Front GPRS (2Tx) 10mm	32.02	32.5	0.151	**0.17**	0.194	**0.22**	-0.19	\
Body	F	GSM850	251	848.8	Rear GPRS (2Tx) 10mm	31.96	32.5	0.214	**0.24**	0.278	**0.31**	0.11	\
Body	F	GSM850	190	836.6	Rear GPRS (2Tx) 10mm	32.02	32.5	0.221	**0.25**	0.286	**0.32**	-0.16	Fig.2
Body	F	GSM850	128	824.2	Rear GPRS (2Tx) 10mm	31.73	32.5	0.207	**0.25**	0.257	**0.31**	-0.08	\
Body	F	GSM850	190	836.6	Left GPRS (2Tx) 10mm	32.02	32.5	0.174	**0.19**	0.239	**0.27**	-0.10	\
Body	F	GSM850	190	836.6	Right GPRS (2Tx) 10mm	32.02	32.5	0.095	**0.11**	0.128	**0.14**	0.07	\
Body	F	GSM850	190	836.6	Bottom GPRS (2Tx) 10mm	32.02	32.5	0.029	**0.03**	0.034	**0.04**	-0.09	\
Body	F	GSM850	190	836.6	Rear EGPRS 10mm	31.91	32.5	0.201	**0.23**	0.27	**0.31**	0.08	\

Table 14.1-3: SAR Values (GSM 1900 MHz Band - Head)

Test Position	Phantom position L/Rightight/F	Frequency Band	Channel Number	Frequency (MHz)	Test setup	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 10g (W/kg)	Calculated SAR 10g (W/kg)	Measured SAR 1g (W/kg)	Calculated SAR 1g (W/kg)	Power Drift	Figure
Cheek	Left	GSM1900	661	1880		22.63	24	0.1	**0.14**	0.178	**0.24**	-0.06	\
Tilt	Left	GSM1900	661	1880		22.63	24	0.122	**0.17**	0.217	**0.30**	-0.14	\
Cheek	Right	GSM1900	661	1880		22.63	24	0.134	**0.18**	0.242	**0.33**	-0.12	\
Tilt	Right	GSM1900	810	1909.8		22.38	24	0.145	**0.21**	0.272	**0.39**	-0.11	\
Tilt	Right	GSM1900	661	1880		22.63	24	0.177	**0.24**	0.343	**0.47**	-0.10	\
Tilt	Right	GSM1900	512	1850.2		22.9	24	0.202	**0.26**	0.39	**0.50**	-0.10	Fig.3

Table 14.1-4: SAR Values (GSM 1900 MHz Band - Body)

Test Position	Phantom position L/Rightig ht/F	Frequency Band	Channel Number	Frequen cy (MHz)	Test setup	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 10g (W/kg)	Calculat ed SAR 10g (W/kg)	Measured SAR 1g (W/kg)	Calculat ed SAR 1g (W/kg)	Power Drift	Figure
Body	F	GSM1900	661	1880	Front GPRS (2Tx) 10mm	20.67	22	0.059	**0.08**	0.109	**0.15**	0.02	\
Body	F	GSM1900	661	1880	Rear GPRS (2Tx) 10mm	20.67	22	0.111	**0.15**	0.204	**0.28**	0.17	\
Body	F	GSM1900	661	1880	Top GPRS (2Tx) 10mm	20.67	22	0.127	**0.17**	0.245	**0.33**	-0.16	\
Body	F	GSM1900	661	1880	Front GPRS (2Tx) 15mm	29.3	29.5	0.211	**0.22**	0.337	**0.35**	0.04	\
Body	F	GSM1900	661	1880	Rear GPRS (2Tx) 15mm	29.3	29.5	0.375	**0.39**	0.632	**0.66**	-0.01	\
Body	F	GSM1900	661	1880	Left GPRS (2Tx) 10mm	29.3	29.5	0.05	**0.05**	0.077	**0.08**	0.00	\
Body	F	GSM1900	661	1880	Right GPRS (2Tx) 10mm	29.3	29.5	0.061	**0.06**	0.11	**0.12**	0.16	\
Body	F	GSM1900	810	1909.8	Top GPRS (2Tx) 15mm	29.27	29.5	0.464	**0.49**	0.808	**0.85**	0.04	\
Body	F	GSM1900	661	1880	Top GPRS (2Tx) 15mm	29.3	29.5	0.435	**0.46**	0.753	**0.79**	0.02	\
Body	F	GSM1900	512	1850.2	Top GPRS (2Tx) 15mm	29.05	29.5	0.528	**0.59**	0.913	**1.01**	0.11	Fig.4
Body	F	GSM1900	512	1850.2	Top EGPRS 15mm	28.99	29.5	0.421	**0.47**	0.703	**0.79**	0.01	\

Table 14.1-5: SAR Values (WCDMA 850 MHz Band - Head)

Test Position	Phantom position L/Rightig ht/F	Frequency Band	Channel Number	Frequen cy (MHz)	Test setup	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 10g (W/kg)	Calculat ed SAR 10g (W/kg)	Measured SAR 1g (W/kg)	Calculat ed SAR 1g (W/kg)	Power Drift	Figure
Cheek	Left	WCDMA 850	4183	836.6		22.32	24	0.125	**0.18**	0.158	**0.23**	0.11	\
Tilt	Left	WCDMA 850	4183	836.6		22.32	24	0.07	**0.10**	0.086	**0.13**	0.07	\
Cheek	Right	WCDMA 850	4233	846.6		22.14	24	0.115	**0.18**	0.142	**0.22**	-0.19	\
Cheek	Right	WCDMA 850	4183	836.6		22.32	24	0.129	**0.19**	0.165	**0.24**	-0.09	Fig.5
Cheek	Right	WCDMA 850	4132	826.4		22.35	24	0.097	**0.14**	0.126	**0.18**	-0.14	\
Tilt	Right	WCDMA 850	4183	836.6		22.32	24	0.058	**0.09**	0.071	**0.10**	0.19	\

Table 14.1-6: SAR Values (WCDMA 850 MHz Band - Body)

Test Position	Phantom position L/Rightig ht/F	Frequency Band	Channel Number	Frequen cy (MHz)	Test setup	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 10g (W/kg)	Calculat ed SAR 10g (W/kg)	Measured SAR 1g (W/kg)	Calculat ed SAR 1g (W/kg)	Power Drift	Figure
Body	F	WCDMA 850	4183	836.6	Front 10mm	22.32	24	0.107	**0.16**	0.139	**0.20**	0.04	\
Body	F	WCDMA 850	4233	846.6	Rear 10mm	22.14	24	0.158	**0.24**	0.202	**0.31**	-0.06	Fig.6
Body	F	WCDMA 850	4183	836.6	Rear 10mm	22.32	24	0.127	**0.19**	0.162	**0.24**	-0.16	\
Body	F	WCDMA 850	4132	826.4	Rear 10mm	22.35	24	0.103	**0.15**	0.133	**0.19**	-0.19	\
Body	F	WCDMA 850	4183	836.6	Left 10mm	22.32	24	0.064	**0.09**	0.091	**0.13**	0.02	\
Body	F	WCDMA 850	4183	836.6	Right 10mm	22.32	24	0.086	**0.13**	0.122	**0.18**	0.08	\
Body	F	WCDMA 850	4183	836.6	Bottom 10mm	22.32	24	0.031	**0.05**	0.056	**0.08**	-0.08	\

Table 14.1-7: SAR Values (WCDMA 1700 MHz Band - Head)

Test Position	Phantom position L/Rightig ht/F	Frequency Band	Channel Number	Frequen cy (MHz)	Test setup	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 10g (W/kg)	Calculat ed SAR 10g (W/kg)	Measured SAR 1g (W/kg)	Calculat ed SAR 1g (W/kg)	Power Drift	Figure
Cheek	Left	WCDMA1700	1412	1732.4		18.95	19	0.392	**0.40**	0.731	**0.74**	0.16	\
Tilt	Left	WCDMA1700	1513	1752.6		18.99	19	0.52	**0.52**	0.995	**1.00**	-0.03	Fig.7
Tilt	Left	WCDMA1700	1412	1732.4		18.95	19	0.506	**0.51**	0.96	**0.97**	0.10	\
Tilt	Left	WCDMA1700	1312	1712.4		18.96	19	0.516	**0.52**	0.976	**0.99**	0.01	\
Cheek	Right	WCDMA1700	1513	1752.6		18.99	19	0.416	**0.42**	0.821	**0.82**	0.05	\
Cheek	Right	WCDMA1700	1412	1732.4		18.95	19	0.437	**0.44**	0.855	**0.86**	-0.03	\
Cheek	Right	WCDMA1700	1312	1712.4		18.96	19	0.411	**0.41**	0.813	**0.82**	-0.08	\
Tilt	Right	WCDMA1700	1513	1752.6		18.99	19	0.461	**0.46**	0.867	**0.87**	0.03	\
Tilt	Right	WCDMA1700	1412	1732.4		18.95	19	0.499	**0.50**	0.926	**0.94**	-0.11	\
Tilt	Right	WCDMA1700	1312	1712.4		18.96	19	0.472	**0.48**	0.884	**0.89**	0.09	\

Table 14.1-8: SAR Values (WCDMA 1700 MHz Band - Body)

Test Position	Phantom position L/Rightight/F	Frequency Band	Channel Number	Frequency (MHz)	Test setup	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 10g (W/kg)	Calculated SAR 10g (W/kg)	Measured SAR 1g (W/kg)	Calculated SAR 1g (W/kg)	Power Drift	Figure
Body	F	WCDMA1700	1412	1732.5	Front 10mm	18.95	19	0.212	**0.21**	0.353	**0.36**	-0.12	\
Body	F	WCDMA1700	1412	1732.5	Rear 10mm	18.95	19	0.382	**0.39**	0.661	**0.67**	0.05	\
Body	F	WCDMA1700	1412	1732.5	Top 10mm	18.95	19	0.389	**0.39**	0.708	**0.72**	-0.12	\
Body	F	WCDMA1700	1412	1732.5	Front 15mm	22.44	24	0.334	**0.48**	0.546	**0.78**	0.02	\
Body	F	WCDMA1700	1513	1752.6	Rear 15mm	22.49	24	0.354	**0.50**	0.642	**0.91**	0.06	\
Body	F	WCDMA1700	1412	1732.5	Rear 15mm	22.44	24	0.465	**0.67**	0.774	**1.11**	0.13	\
Body	F	WCDMA1700	1312	1712.4	Rear 15mm	22.61	24	0.383	**0.53**	0.671	**0.92**	-0.01	\
Body	F	WCDMA1700	1412	1732.5	Left 10mm	22.44	24	0.06	**0.09**	0.098	**0.14**	0.04	\
Body	F	WCDMA1700	1412	1732.5	Right 10mm	22.44	24	0.093	**0.13**	0.157	**0.22**	0.04	\
Body	F	WCDMA1700	1513	1752.6	Top 15mm	22.49	24	0.58	**0.82**	0.992	**1.40**	0.00	Fig.8
Body	F	WCDMA1700	1412	1732.5	Top 15mm	22.44	24	0.567	**0.81**	0.951	**1.36**	0.06	\
Body	F	WCDMA1700	1312	1712.4	Top 15mm	22.61	24	0.542	**0.75**	0.927	**1.28**	0.09	\

Table 14.1-9: SAR Values (WCDMA 1900 MHz Band - Head)

Test Position	Phantom position L/Rightight/F	Frequency Band	Channel Number	Frequency (MHz)	Test setup	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 10g (W/kg)	Calculated SAR 10g (W/kg)	Measured SAR 1g (W/kg)	Calculated SAR 1g (W/kg)	Power Drift	Figure
Cheek	Left	WCDMA1900	9400	1880		18.75	19	0.371	**0.39**	0.742	**0.79**	0.06	\
Tilt	Left	WCDMA1900	9538	1907.6		18.72	19	0.408	**0.44**	0.753	**0.80**	0.13	\
Tilt	Left	WCDMA1900	9400	1880		18.75	19	0.454	**0.48**	0.874	**0.93**	-0.05	Fig.9
Tilt	Left	WCDMA1900	9262	1852.4		18.73	19	0.416	**0.44**	0.769	**0.82**	-0.10	\
Cheek	Right	WCDMA1900	9400	1880		18.75	19	0.295	**0.31**	0.545	**0.58**	-0.01	\
Tilt	Right	WCDMA1900	9400	1880		18.75	19	0.388	**0.41**	0.744	**0.79**	0.16	\

Table 14.1-10: SAR Values (WCDMA 1900 MHz Band - Body)

Test Position	Phantom position L/Rightight/F	Frequency Band	Channel Number	Frequency (MHz)	Test setup	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 10g (W/kg)	Calculated SAR 10g (W/kg)	Measured SAR 1g (W/kg)	Calculated SAR 1g (W/kg)	Power Drift	Figure
Body	F	WCDMA1900	9400	1880	Front 10mm	18.75	19	0.143	**0.15**	0.239	**0.25**	0.08	\
Body	F	WCDMA1900	9400	1880	Rear 10mm	18.75	19	0.263	**0.28**	0.47	**0.50**	-0.09	\
Body	F	WCDMA1900	9400	1880	Top 10mm	18.75	19	0.28	**0.30**	0.52	**0.55**	0.07	\
Body	F	WCDMA1900	9400	1880	Front 15mm	22.43	24	0.235	**0.34**	0.372	**0.53**	0.06	\
Body	F	WCDMA1900	9538	1907.6	Rear 15mm	22.29	24	0.311	**0.46**	0.685	**1.02**	-0.03	\
Body	F	WCDMA1900	9400	1880	Rear 15mm	22.43	24	0.436	**0.63**	0.758	**1.09**	0.02	\
Body	F	WCDMA1900	9262	1852.4	Rear 15mm	22.22	24	0.406	**0.61**	0.713	**1.07**	0.05	\
Body	F	WCDMA1900	9400	1880	Left 10mm	22.43	24	0.057	**0.08**	0.088	**0.13**	-0.19	\
Body	F	WCDMA1900	9400	1880	Right 10mm	22.43	24	0.061	**0.09**	0.108	**0.16**	0.15	\
Body	F	WCDMA1900	9538	1907.6	Top 15mm	22.29	24	0.518	**0.77**	0.851	**1.26**	0.13	\
Body	F	WCDMA1900	9400	1880	Top 15mm	22.43	24	0.524	**0.75**	0.912	**1.31**	0.00	Fig.10
Body	F	WCDMA1900	9262	1852.4	Top 15mm	22.22	24	0.506	**0.76**	0.861	**1.30**	0.08	\

Table 14.1-11: SAR Values (LTE Band7 - Head)

Test Position	Phantom position L/Rightight/F	Frequency Band	Channel Number	Frequency (MHz)	Test setup	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 10g (W/kg)	Calculated SAR 10g (W/kg)	Measured SAR 1g (W/kg)	Calculated SAR 1g (W/kg)	Power Drift	Figure
Cheek	Left	LTE Band7	21350	2560	1RB-Middle	23.6	24	0.515	**0.56**	0.946	**1.04**	0.08	Fig.11
Cheek	Left	LTE Band7	21100	2535	1RB-Middle	23.8	24	0.428	**0.45**	0.78	**0.82**	-0.19	\
Cheek	Left	LTE Band7	20850	2510	1RB-Middle	23.47	24	0.439	**0.50**	0.8	**0.90**	0.12	\
Tilt	Left	LTE Band7	21100	2535	1RB-Middle	23.8	24	0.16	**0.17**	0.336	**0.35**	-0.03	\
Cheek	Right	LTE Band7	21100	2535	1RB-Middle	23.8	24	0.174	**0.18**	0.288	**0.30**	0.18	\
Tilt	Right	LTE Band7	21100	2535	1RB-Middle	23.8	24	0.167	**0.17**	0.31	**0.32**	-0.03	\
Cheek	Left	LTE Band7	20850	2510	50RB-High	22.69	23	0.346	**0.37**	0.626	**0.67**	0.03	\
Tilt	Left	LTE Band7	20850	2510	50RB-High	22.69	23	0.124	**0.13**	0.232	**0.25**	0.08	\
Cheek	Right	LTE Band7	20850	2510	50RB-High	22.69	23	0.145	**0.16**	0.237	**0.25**	-0.04	\
Tilt	Right	LTE Band7	20850	2510	50RB-High	22.69	23	0.131	**0.14**	0.239	**0.26**	0.00	\
Cheek	Left	LTE Band7	20850	2510	100RB	22.64	23	0.341	**0.37**	0.609	**0.66**	0.08	\

Note: The LTE mode is QPSK_20MHz.

Table 14.1-12: SAR Values (LTE Band7 - Body)

Test Position	Phantom position L/Rightight/F	Frequency Band	Channel Number	Frequency (MHz)	Test setup	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 10g (W/kg)	Calculated SAR 10g (W/kg)	Measured SAR 1g (W/kg)	Calculated SAR 1g (W/kg)	Power Drift	Figure
Body	F	LTE Band7	21350	2560	1RB-Middle Front 10mm	23.6	24	0.512	**0.56**	0.962	**1.05**	-0.01	Fig.12
Body	F	LTE Band7	21100	2535	1RB-Middle Front 10mm	23.8	24	0.492	**0.52**	0.911	**0.95**	-0.18	\
Body	F	LTE Band7	20850	2510	1RB-Middle Front 10mm	23.47	24	0.48	**0.54**	0.891	**1.01**	-0.09	\
Body	F	LTE Band7	21350	2560	1RB-Middle Rear 10mm	23.6	24	0.469	**0.51**	0.889	**0.97**	0.03	\
Body	F	LTE Band7	21100	2535	1RB-Middle Rear 10mm	23.8	24	0.441	**0.46**	0.827	**0.87**	-0.05	\
Body	F	LTE Band7	20850	2510	1RB-Middle Rear 10mm	23.47	24	0.454	**0.51**	0.86	**0.97**	-0.16	\
Body	F	LTE Band7	21100	2535	1RB-Middle Left 10mm	23.8	24	0.379	**0.40**	0.716	**0.75**	-0.17	\
Body	F	LTE Band7	21100	2535	1RB-Middle Right 10mm	23.8	24	0.053	**0.06**	0.104	**0.11**	-0.15	\
Body	F	LTE Band7	21100	2535	1RB-Middle Bottom 10mm	23.8	24	0.201	**0.21**	0.392	**0.41**	-0.03	\
Body	F	LTE Band7	20850	2510	50RB-High Front 10mm	22.69	23	0.381	**0.41**	0.705	**0.76**	0.01	\
Body	F	LTE Band7	20850	2510	50RB-High Rear 10mm	22.69	23	0.343	**0.37**	0.644	**0.69**	0.12	\
Body	F	LTE Band7	20850	2510	50RB-High Left 10mm	22.69	23	0.27	**0.29**	0.511	**0.55**	0.05	\
Body	F	LTE Band7	20850	2510	50RB-High Right 10mm	22.69	23	0.038	**0.04**	0.075	**0.08**	0.07	\
Body	F	LTE Band7	20850	2510	50RB-High Bottom 10mm	22.69	23	0.136	**0.15**	0.268	**0.29**	-0.18	\
Body	F	LTE Band7	20850	2510	100RB Front 10mm	22.64	23	0.352	**0.38**	0.663	**0.72**	0.18	\
Body	F	LTE Band7	20850	2510	100RB rear 10mm	22.64	23	0.328	**0.36**	0.607	**0.66**	-0.08	\

Note: The LTE mode is QPSK_20MHz.

Table 14.1-13: SAR Values (LTE Band12- Head)

Test Position	Phantom position L/Rightight/F	Frequency Band	Channel Number	Frequency (MHz)	Test setup	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 10g (W/kg)	Calculated SAR 10g (W/kg)	Measured SAR 1g (W/kg)	Calculated SAR 1g (W/kg)	Power Drift	Figure
Cheek	Left	LTE Band12	23060	704	1RB-Middle	23.32	24	0.142	**0.17**	0.173	**0.20**	0.12	\
Tilt	Left	LTE Band12	23060	704	1RB-Middle	23.32	24	0.109	**0.13**	0.131	**0.15**	-0.04	\
Cheek	Right	LTE Band12	23060	704	1RB-Middle	23.32	24	0.17	**0.20**	0.212	**0.25**	0.14	Fig.13
Tilt	Right	LTE Band12	23060	704	1RB-Middle	23.32	24	0.098	**0.11**	0.117	**0.14**	-0.04	\
Cheek	Left	LTE Band12	23060	704	25RB-High	22.2	23	0.139	**0.17**	0.17	**0.20**	-0.03	\
Tilt	Left	LTE Band12	23060	704	25RB-High	22.2	23	0.086	**0.10**	0.107	**0.13**	0.19	\
Cheek	Right	LTE Band12	23060	704	25RB-High	22.2	23	0.142	**0.17**	0.179	**0.22**	-0.01	\
Tilt	Right	LTE Band12	23060	704	25RB-High	22.2	23	0.075	**0.09**	0.09	**0.11**	0.15	\

Note: The LTE mode is QPSK_10MHz.

Table 14.1-14: SAR Values (LTE Band12 - Body)

Test Position	Phantom position L/Rightig ht/F	Frequency Band	Channel Number	Frequen cy (MHz)	Test setup	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 10g (W/kg)	Calculat ed SAR 10g (W/kg)	Measure d SAR 1g (W/kg)	Calculat ed SAR 1g (W/kg)	Power Drift	Figure
Body	F	LTE Band12	23130	711	1RB-Middle Front 10mm	19.75	20	0.08	**0.08**	0.104	**0.11**	0.11	\
Body	F	LTE Band12	23130	711	1RB-Middle Rear 10mm	19.75	20	0.1	**0.11**	0.131	**0.14**	-0.08	\
Body	F	LTE Band12	23130	711	1RB-Middle Bottom 10mm	19.75	20	0.013	**0.01**	0.018	**0.02**	-0.08	\
Body	F	LTE Band12	23130	711	1RB-Middle Front 15mm	23.32	24	0.285	**0.33**	0.376	**0.44**	-0.02	\
Body	F	LTE Band12	23130	711	1RB-Middle Rear 15mm	23.32	24	0.339	**0.40**	0.444	**0.52**	-0.17	Fig.14
Body	F	LTE Band12	23130	711	1RB-Middle Left 10mm	23.32	24	0.382	**0.45**	0.287	**0.34**	0.02	\
Body	F	LTE Band12	23130	711	1RB-Middle Right 10mm	23.32	24	0.431	**0.50**	0.312	**0.36**	0.07	\
Body	F	LTE Band12	23130	711	1RB-Middle Bottom 15mm	23.32	24	0.038	**0.04**	0.066	**0.08**	0.01	\
Body	F	LTE Band12	23130	711	25RB-Middle Front 10mm	18.41	19	0.066	**0.08**	0.086	**0.10**	0.13	\
Body	F	LTE Band12	23130	711	25RB-Middle Rear 10mm	18.41	19	0.082	**0.09**	0.108	**0.12**	0.01	\
Body	F	LTE Band12	23130	711	25RB-Middle Bottom 10mm	18.41	19	0.012	**0.01**	0.017	**0.02**	-0.10	\
Body	F	LTE Band12	23130	711	25RB-Middle Front 15mm	22.2	23	0.234	**0.28**	0.306	**0.37**	0.05	\
Body	F	LTE Band12	23130	711	25RB-Middle Rear 15mm	22.2	23	0.28	**0.34**	0.368	**0.44**	-0.07	\
Body	F	LTE Band12	23130	711	25RB-Middle Left 10mm	22.2	23	0.289	**0.35**	0.211	**0.25**	0.01	\
Body	F	LTE Band12	23130	711	25RB-Middle Right 10mm	22.2	23	0.343	**0.41**	0.269	**0.32**	0.07	\
Body	F	LTE Band12	23130	711	25RB-Middle Bottom 15mm	22.2	23	0.031	**0.04**	0.055	**0.07**	-0.08	\

Note: The LTE mode is QPSK_10MHz.

Table 14.1-15: SAR Values (LTE Band25 - Head)

Test Position	Phantom position L/Rightig ht/F	Frequency Band	Channel Number	Frequen cy (MHz)	Test setup	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 10g (W/kg)	Calculat ed SAR 10g (W/kg)	Measured SAR 1g (W/kg)	Calculat ed SAR 1g (W/kg)	Power Drift	Figure
Cheek	Left	LTE Band25	26590	1905	1RB-Middle	17.87	18	0.468	**0.48**	0.901	**0.93**	-0.03	\
Cheek	Left	LTE Band25	26365	1882.5	1RB-Middle	17.86	18	0.413	**0.43**	0.821	**0.85**	0.06	\
Cheek	Left	LTE Band25	26140	1860	1RB-Middle	17.47	18	0.433	**0.49**	0.846	**0.96**	-0.06	\
Tilt	Left	LTE Band25	26590	1905	1RB-Middle	17.87	18	0.556	**0.57**	1.07	**1.10**	0.14	Fig.15
Tilt	Left	LTE Band25	26365	1882.5	1RB-Middle	17.86	18	0.413	**0.43**	0.932	**0.96**	0.06	\
Tilt	Left	LTE Band25	26140	1860	1RB-Middle	17.47	18	0.409	**0.46**	0.917	**1.04**	0.11	\
Cheek	Right	LTE Band25	26590	1905	1RB-Middle	17.87	18	0.362	**0.37**	0.668	**0.69**	-0.10	\
Tilt	Right	LTE Band25	26590	1905	1RB-Middle	17.87	18	0.463	**0.48**	0.853	**0.88**	0.01	\
Tilt	Right	LTE Band25	26365	1882.5	1RB-Middle	17.86	18	0.411	**0.42**	0.763	**0.79**	0.07	\
Tilt	Right	LTE Band25	26140	1860	1RB-Middle	17.47	18	0.435	**0.49**	0.814	**0.92**	-0.09	\
Cheek	Left	LTE Band25	26140	1860	50RB-High	16.72	17	0.352	**0.38**	0.653	**0.70**	-0.03	\
Tilt	Left	LTE Band25	26140	1860	50RB-High	16.72	17	0.359	**0.38**	0.684	**0.73**	-0.10	\
Cheek	Right	LTE Band25	26140	1860	50RB-High	16.72	17	0.313	**0.33**	0.568	**0.61**	0.15	\
Tilt	Right	LTE Band25	26140	1860	50RB-High	16.72	17	0.327	**0.35**	0.569	**0.61**	0.08	\
Cheek	Left	LTE Band25	26365	1882.5	100RB	16.65	17	0.342	**0.37**	0.653	**0.71**	-0.06	\
Tilt	Left	LTE Band25	26365	1882.5	100RB	16.65	17	0.367	**0.40**	0.714	**0.77**	0.09	\
Tilt	Right	LTE Band25	26365	1882.5	100RB	16.65	17	0.312	**0.34**	0.623	**0.68**	0.05	\

Note: The LTE mode is QPSK_20MHz.

Table 14.1-16: SAR Values (LTE Band25 - Body)

Test Position	Phantom position L/Rightight/F	Frequency Band	Channel Number	Frequency (MHz)	Test setup	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 10g (W/kg)	Calculated SAR 10g (W/kg)	Measured SAR 1g (W/kg)	Calculated SAR 1g (W/kg)	Power Drift	Figure
Body	F	LTE Band25	26590	1905	1RB-Middle Front 10mm	17.87	18	0.164	**0.17**	0.286	**0.29**	0.03	\
Body	F	LTE Band25	26590	1905	1RB-Middle Rear 10mm	17.87	18	0.276	**0.28**	0.507	**0.52**	-0.08	\
Body	F	LTE Band25	26590	1905	1RB-Middle top 10mm	17.87	18	0.32	**0.33**	0.595	**0.61**	0.05	\
Body	F	LTE Band25	26590	1905	1RB-Middle Front 15mm	23.96	24	0.348	**0.35**	0.553	**0.56**	0.02	\
Body	F	LTE Band25	26590	1905	1RB-Middle Rear 15mm	23.96	24	0.536	**0.54**	0.909	**0.92**	-0.01	\
Body	F	LTE Band25	26365	1882.5	1RB-Middle Rear 15mm	23.58	24	0.527	**0.58**	0.892	**0.98**	0.04	\
Body	F	LTE Band25	26140	1860	1RB-Middle Rear 15mm	23.39	24	0.511	**0.59**	0.875	**1.01**	0.06	\
Body	F	LTE Band25	26590	1905	1RB-Middle Left 10mm	23.96	24	0.136	**0.14**	0.261	**0.26**	0.16	\
Body	F	LTE Band25	26590	1905	1RB-Middle Right 10mm	23.96	24	0.092	**0.09**	0.17	**0.17**	0.15	\
Body	F	LTE Band25	26590	1905	1RB-Middle Top 15mm	23.96	24	0.692	**0.70**	1.2	**1.21**	0.05	Fig.16
Body	F	LTE Band25	26365	1882.5	1RB-Middle Top 15mm	23.58	24	0.681	**0.75**	1.02	**1.12**	-0.03	\
Body	F	LTE Band25	26140	1860	1RB-Middle Top 15mm	23.39	24	0.667	**0.77**	1.01	**1.16**	0.01	\
Body	F	LTE Band25	26140	1860	50RB-High Front 10mm	16.72	17	0.137	**0.15**	0.242	**0.26**	-0.04	\
Body	F	LTE Band25	26140	1860	50RB-High Rear 10mm	16.72	17	0.238	**0.25**	0.448	**0.48**	-0.19	\
Body	F	LTE Band25	26140	1860	50RB-High top 10mm	16.72	17	0.25	**0.27**	0.461	**0.49**	-0.11	\
Body	F	LTE Band25	26140	1860	50RB-Middle Front 15mm	22.53	23	0.254	**0.28**	0.403	**0.45**	0.09	\
Body	F	LTE Band25	26140	1860	50RB-Middle Rear 15mm	22.53	23	0.457	**0.51**	0.662	**0.74**	-0.03	\
Body	F	LTE Band25	26140	1860	50RB-Middle Left 10mm	22.53	23	0.072	**0.08**	0.135	**0.15**	-0.12	\
Body	F	LTE Band25	26140	1860	50RB-Middle Right 10mm	22.53	23	0.065	**0.07**	0.118	**0.13**	0.16	\
Body	F	LTE Band25	26590	1905	50RB-Middle Top 15mm	22.52	23	0.411	**0.46**	0.843	**0.94**	0.07	\
Body	F	LTE Band25	26365	1882.5	50RB-Middle Top 15mm	22.51	23	0.376	**0.42**	0.813	**0.91**	0.02	\
Body	F	LTE Band25	26140	1860	50RB-Middle Top 15mm	22.53	23	0.556	**0.62**	0.964	**1.07**	0.03	\
Body	F	LTE Band25	26590	1905	100RB Top 15mm	22.4	23	0.499	**0.57**	0.87	**1.00**	0.06	\
Body	F	LTE Band25	26365	1882.5	100RB Top 15mm	22.42	23	0.492	**0.56**	0.861	**0.98**	-0.03	\
Body	F	LTE Band25	26140	1860	100RB Top 15mm	22.49	23	0.489	**0.55**	0.854	**0.96**	0.01	\
Body	F	LTE Band25	26140	1860	100RB Rear 15mm	22.49	23	0.343	**0.39**	0.612	**0.69**	-0.06	\

Note: The LTE mode is QPSK_20MHz

Table 14.1-17: SAR Values (LTE Band26 - Head)

Test Position	Phantom position L/Rightig ht/F	Frequency Band	Channel Number	Frequency (MHz)	Test setup	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 10g (W/kg)	Calculated SAR 10g (W/kg)	Measured SAR 1g (W/kg)	Calculated SAR 1g (W/kg)	Power Drift	Figure
Cheek	Left	LTE Band26	26775	822.5	1RB-Middle	23.6	24.5	0.14	**0.17**	0.168	**0.21**	-0.15	\
Tilt	Left	LTE Band26	26775	822.5	1RB-Middle	23.6	24.5	0.091	**0.11**	0.11	**0.14**	-0.11	\
Cheek	Right	LTE Band26	26775	822.5	1RB-Middle	23.6	24.5	0.162	**0.20**	0.204	**0.25**	0.03	Fig.17
Tilt	Right	LTE Band26	26775	822.5	1RB-Middle	23.6	24.5	0.101	**0.12**	0.123	**0.15**	-0.10	\
Cheek	Left	LTE Band26	26865	831.5	36RB-High	22.45	23.5	0.143	**0.18**	0.171	**0.22**	-0.07	\
Tilt	Left	LTE Band26	26865	831.5	36RB-High	22.45	23.5	0.097	**0.12**	0.115	**0.15**	0.11	\
Cheek	Right	LTE Band26	26865	831.5	36RB-High	22.45	23.5	0.147	**0.19**	0.186	**0.24**	0.04	\
Tilt	Right	LTE Band26	26865	831.5	36RB-High	22.45	23.5	0.095	**0.12**	0.113	**0.14**	-0.10	\

Note1: The LTE mode is QPSK_15MHz.

Table 14.1-18: SAR Values (LTE Band26 - Body)

Test Position	Phantom position L/Rightight/F	Frequency Band	Channel Number	Frequency (MHz)	Test setup	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 10g (W/kg)	Calculated SAR 10g (W/kg)	Measured SAR 1g (W/kg)	Calculated SAR 1g (W/kg)	Power Drift	Figure
Body	F	LTE Band26	26775	822.5	1RB-Middle Front 10mm	23.6	24.5	0.137	**0.17**	0.176	**0.22**	0.04	\
Body	F	LTE Band26	26775	822.5	1RB-Middle Rear 10mm	23.6	24.5	0.178	**0.22**	0.23	**0.28**	-0.07	Fig.18
Body	F	LTE Band26	26775	822.5	1RB-Middle Left 10mm	23.6	24.5	0.091	**0.11**	0.128	**0.16**	-0.09	\
Body	F	LTE Band26	26775	822.5	1RB-Middle Right 10mm	23.6	24.5	0.113	**0.14**	0.16	**0.20**	-0.18	\
Body	F	LTE Band26	26775	822.5	1RB-Middle Bottom 10mm	23.6	24.5	0.025	**0.03**	0.053	**0.07**	0.19	\
Body	F	LTE Band26	26865	831.5	36RB-High Front 10mm	22.45	23.5	0.125	**0.16**	0.161	**0.21**	0.10	\
Body	F	LTE Band26	26865	831.5	36RB-High Rear 10mm	22.45	23.5	0.155	**0.20**	0.203	**0.26**	0.02	\
Body	F	LTE Band26	26865	831.5	36RB-High Left 10mm	22.45	23.5	0.076	**0.10**	0.109	**0.14**	-0.17	\
Body	F	LTE Band26	26865	831.5	36RB-High Right 10mm	22.45	23.5	0.087	**0.11**	0.125	**0.16**	-0.05	\
Body	F	LTE Band26	26865	831.5	36RB-High Bottom 10mm	22.45	23.5	0.023	**0.03**	0.048	**0.06**	0.05	\

Note: The LTE mode is QPSK_15MHz.

Table 14.1-19: SAR Values (LTE Band41 - Head)

Test Position	Phantom position L/Rightight/F	Frequency Band	Channel Number	Frequency (MHz)	Test setup	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 10g (W/kg)	Calculated SAR 10g (W/kg)	Measured SAR 1g (W/kg)	Calculated SAR 1g (W/kg)	Power Drift	Figure
Cheek	Left	LTE Band41	39750	2506	1RB-Middle	23.45	24	0.25	**0.28**	0.461	**0.52**	-0.10	Fig.19
Tilt	Left	LTE Band41	39750	2506	1RB-Middle	23.45	24	0.096	**0.11**	0.176	**0.20**	0.00	\
Cheek	Right	LTE Band41	39750	2506	1RB-Middle	23.45	24	0.111	**0.13**	0.188	**0.21**	-0.06	\
Tilt	Right	LTE Band41	39750	2506	1RB-Middle	23.45	24	0.107	**0.12**	0.207	**0.23**	0.17	\
Cheek	Left	LTE Band41	39750	2506	50RB-High	22.27	23	0.19	**0.22**	0.351	**0.42**	-0.19	\
Tilt	Left	LTE Band41	39750	2506	50RB-High	22.27	23	0.067	**0.08**	0.126	**0.15**	-0.18	\
Cheek	Right	LTE Band41	39750	2506	50RB-High	22.27	23	0.084	**0.10**	0.142	**0.17**	0.07	\
Tilt	Right	LTE Band41	39750	2506	50RB-High	22.27	23	0.073	**0.09**	0.139	**0.16**	0.07	\

Note: The LTE mode is QPSK_20MHz.

Table 14.1-20: SAR Values (LTE Band41 - Body)

Test Position	Phantom position L/Rightight/F	Frequency Band	Channel Number	Frequency (MHz)	Test setup	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 10g (W/kg)	Calculated SAR 10g (W/kg)	Measured SAR 1g (W/kg)	Calculated SAR 1g (W/kg)	Power Drift	Figure
Body	F	LTE Band41	39750	2506	1RB-Middle Front 10mm	23.45	24	0.274	**0.31**	0.487	**0.55**	-0.13	Fig.20
Body	F	LTE Band41	39750	2506	1RB-Middle Rear 10mm	23.45	24	0.205	**0.23**	0.364	**0.41**	-0.16	\
Body	F	LTE Band41	39750	2506	1RB-Middle Left 10mm	23.45	24	0.245	**0.28**	0.447	**0.51**	0.06	\
Body	F	LTE Band41	39750	2506	1RB-Middle Right 10mm	23.45	24	0.029	**0.03**	0.063	**0.07**	-0.11	\
Body	F	LTE Band41	39750	2506	1RB-Middle Bottom 10mm	23.45	24	0.115	**0.13**	0.225	**0.26**	0.05	\
Body	F	LTE Band41	39750	2506	50RB-High Front 10mm	22.27	23	0.203	**0.24**	0.359	**0.42**	0.18	\
Body	F	LTE Band41	39750	2506	50RB-High Rear 10mm	22.27	23	0.143	**0.17**	0.251	**0.30**	-0.11	\
Body	F	LTE Band41	39750	2506	50RB-High Left 10mm	22.27	23	0.187	**0.22**	0.344	**0.41**	-0.16	\
Body	F	LTE Band41	39750	2506	50RB-High Right 10mm	22.27	23	0.019	**0.02**	0.055	**0.07**	0.15	\
Body	F	LTE Band41	39750	2506	50RB-High Bottom 10mm	22.27	23	0.085	**0.10**	0.165	**0.20**	0.15	\

Note: The LTE mode is QPSK_20MHz.

Table 14.1-21: SAR Values (LTE Band66 - Head)

Test Position	Phantom position L/Rightight/F	Frequency Band	Channel Number	Frequency (MHz)	Test setup	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 10g (W/kg)	Calculated SAR 10g (W/kg)	Measured SAR 1g (W/kg)	Calculated SAR 1g (W/kg)	Power Drift	Figure
Cheek	Left	LTE Band66	132572	1770	1RB-Middle	16.84	17	0.389	**0.40**	0.73	**0.76**	0.19	\
Tilt	Left	LTE Band66	132572	1770	1RB-Middle	16.84	17	0.538	**0.56**	1.023	**1.06**	-0.08	\
Tilt	Left	LTE Band66	132322	1745	1RB-Middle	16.74	17	0.454	**0.48**	0.923	**0.98**	0.06	\
Tilt	Left	LTE Band66	132072	1720	1RB-Middle	16.78	17	0.437	**0.46**	0.891	**0.94**	-0.01	\
Cheek	Right	LTE Band66	132572	1770	1RB-Middle	16.84	17	0.422	**0.44**	0.825	**0.86**	-0.03	\
Cheek	Right	LTE Band66	132322	1745	1RB-Middle	16.74	17	0.418	**0.44**	0.799	**0.85**	0.09	\
Cheek	Right	LTE Band66	132072	1720	1RB-Middle	16.78	17	0.42	**0.44**	0.783	**0.82**	-0.05	\
Tilt	Right	LTE Band66	132572	1770	1RB-Middle	16.84	17	0.544	**0.56**	1.05	**1.09**	-0.08	Fig.21
Tilt	Right	LTE Band66	132322	1745	1RB-Middle	16.74	17	0.512	**0.54**	0.911	**0.97**	-0.13	\
Tilt	Right	LTE Band66	132072	1720	1RB-Middle	16.78	17	0.486	**0.51**	0.894	**0.94**	0.06	\
Cheek	Left	LTE Band66	132322	1745	50RB-High	15.77	16	0.328	**0.35**	0.636	**0.67**	0.03	\
Tilt	Left	LTE Band66	132322	1745	50RB-High	15.77	16	0.389	**0.41**	0.742	**0.78**	-0.10	\
Cheek	Right	LTE Band66	132322	1745	50RB-High	15.77	16	0.306	**0.32**	0.585	**0.62**	-0.10	\
Tilt	Right	LTE Band66	132572	1770	50RB-Low	15.71	16	0.312	**0.33**	0.793	**0.85**	-0.11	\
Tilt	Right	LTE Band66	132322	1745	50RB-High	15.77	16	0.433	**0.46**	0.825	**0.87**	0.14	\
Tilt	Right	LTE Band66	132072	1720	50RB-Low	15.68	16	0.417	**0.45**	0.812	**0.87**	0.03	\
Tilt	Left	LTE Band66	132322	1745	100RB	15.79	16	0.421	**0.44**	0.723	**0.76**	0.06	\
Cheek	Right	LTE Band66	132322	1745	100RB	15.79	16	0.375	**0.39**	0.714	**0.75**	-0.07	\
Tilt	Right	LTE Band66	132322	1745	100RB	15.79	16	0.312	**0.33**	0.673	**0.71**	0.09	\

Note: The LTE mode is QPSK_20MHz.

Table 14.1-22: SAR Values (LTE Band66 - Body)

Test Position	Phantom position L/Rightight/F	Frequency Band	Channel Number	Frequency (MHz)	Test setup	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 10g (W/kg)	Calculated SAR 10g (W/kg)	Measured SAR 1g (W/kg)	Calculated SAR 1g (W/kg)	Power Drift	Figure
Body	F	LTE Band66	132572	1770	1RB-Middle Front 10mm	16.84	17	0.135	**0.14**	0.235	**0.24**	0.19	\
Body	F	LTE Band66	132572	1770	1RB-Middle Rear 10mm	16.84	17	0.274	**0.28**	0.506	**0.52**	0.08	\
Body	F	LTE Band66	132572	1770	1RB-Middle top 10mm	16.84	17	0.284	**0.29**	0.526	**0.55**	0.19	\
Body	F	LTE Band66	132572	1770	1RB-Middle Front 15mm	23.48	24	0.354	**0.40**	0.571	**0.64**	0.08	\
Body	F	LTE Band66	132572	1770	1RB-Middle Rear 15mm	23.48	24	0.717	**0.81**	1.21	**1.36**	-0.03	Fig.22
Body	F	LTE Band66	132322	1745	1RB-Middle Rear 15mm	23.47	24	0.699	**0.79**	1.12	**1.27**	-0.11	\
Body	F	LTE Band66	132072	1720	1RB-Middle Rear 15mm	22.96	24	0.708	**0.90**	1.01	**1.28**	0.02	\
Body	F	LTE Band66	132572	1770	1RB-Middle Left 10mm	23.48	24	0.06	**0.07**	0.11	**0.12**	-0.03	\
Body	F	LTE Band66	132572	1770	1RB-Middle Right 10mm	23.48	24	0.083	**0.09**	0.143	**0.16**	-0.02	\
Body	F	LTE Band66	132572	1770	1RB-Middle Top 15mm	23.48	24	0.711	**0.80**	1.11	**1.25**	0.09	\
Body	F	LTE Band66	132322	1745	1RB-Middle Top 15mm	23.47	24	0.621	**0.70**	1.01	**1.14**	0.03	\
Body	F	LTE Band66	132072	1720	1RB-Middle Top 15mm	22.96	24	0.643	**0.82**	0.987	**1.25**	-0.07	\
Body	F	LTE Band66	132322	1745	50RB-High Front 10mm	15.77	16	0.106	**0.11**	0.18	**0.19**	-0.02	\
Body	F	LTE Band66	132322	1745	50RB-High Rear 10mm	15.77	16	0.185	**0.20**	0.329	**0.35**	-0.05	\
Body	F	LTE Band66	132322	1745	50RB-High top 10mm	15.77	16	0.206	**0.22**	0.378	**0.40**	0.15	\
Body	F	LTE Band66	132322	1745	50RB-High Front 15mm	22.32	23	0.273	**0.32**	0.436	**0.51**	-0.01	\
Body	F	LTE Band66	132572	1770	50RB-High Rear 15mm	22.06	23	0.315	**0.39**	0.631	**0.78**	0.05	\
Body	F	LTE Band66	132322	1745	50RB-High Rear 15mm	22.32	23	0.458	**0.54**	0.751	**0.88**	0.06	\
Body	F	LTE Band66	132072	1720	50RB-High Rear 15mm	22.29	23	0.359	**0.42**	0.683	**0.80**	-0.07	\
Body	F	LTE Band66	132322	1745	50RB-High Left 10mm	22.32	23	0.066	**0.08**	0.11	**0.13**	-0.03	\
Body	F	LTE Band66	132322	1745	50RB-High Right 10mm	22.32	23	0.067	**0.08**	0.114	**0.13**	0.19	\
Body	F	LTE Band66	132572	1770	50RB-Middle Top 15mm	22.06	23	0.476	**0.59**	0.815	**1.01**	0.02	\
Body	F	LTE Band66	132322	1745	50RB-High Top 15mm	22.32	23	0.496	**0.58**	0.83	**0.97**	0.06	\
Body	F	LTE Band66	132072	1720	50RB-Middle Top 15mm	22.29	23	0.483	**0.57**	0.821	**0.97**	-0.03	\
Body	F	LTE Band66	132322	1745	100RB Rear 10mm	22.34	23	0.321	**0.37**	0.616	**0.72**	0.06	\
Body	F	LTE Band66	132322	1745	100RB Top 10mm	22.34	23	0.354	**0.41**	0.681	**0.79**	0.07	\

Note: The LTE mode is QPSK_20MHz

Table 14.1-23: SAR Values (LTE Band71 - Head)

Test Position	Phantom position L/Rightig ht/F	Frequency Band	Channel Number	Frequen cy (MHz)	Test setup	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 10g (W/kg)	Calculat ed SAR 10g (W/kg)	Measure d SAR 1g (W/kg)	Calculat ed SAR 1g (W/kg)	Power Drift	Figure
Cheek	Left	LTE Band71	133322	683	1RB-Middle	23.56	24	0.153	**0.17**	0.185	**0.20**	0.01	\
Tilt	Left	LTE Band71	133322	683	1RB-Middle	23.56	24	0.124	**0.14**	0.152	**0.17**	0.15	\
Cheek	Right	LTE Band71	133322	683	1RB-Middle	23.56	24	0.168	**0.19**	0.209	**0.23**	0.08	Fig.23
Tilt	Right	LTE Band71	133322	683	1RB-Middle	23.56	24	0.117	**0.13**	0.143	**0.16**	0.05	\
Cheek	Left	LTE Band71	133222	673	50RB-Middle	22.14	23	0.112	**0.14**	0.137	**0.17**	0.17	\
Tilt	Left	LTE Band71	133222	673	50RB-Middle	22.14	23	0.081	**0.10**	0.098	**0.12**	-0.18	\
Cheek	Right	LTE Band71	133222	673	50RB-Middle	22.14	23	0.118	**0.14**	0.147	**0.18**	0.17	\
Tilt	Right	LTE Band71	133222	673	50RB-Middle	22.14	23	0.073	**0.09**	0.093	**0.11**	-0.11	\

Note: The LTE mode is QPSK_20MHz.

Table 14.1-24: SAR Values (LTE Band71 - Body)

Test Position	Phantom position L/Rightig ht/F	Frequency Band	Channel Number	Frequen cy (MHz)	Test setup	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 10g (W/kg)	Calculat ed SAR 10g (W/kg)	Measure d SAR 1g (W/kg)	Calculat ed SAR 1g (W/kg)	Power Drift	Figure
Body	F	LTE Band71	133322	683	1RB-Middle Front 10mm	23.56	24	0.147	**0.16**	0.196	**0.22**	0.17	\
Body	F	LTE Band71	133322	683	1RB-Middle Rear 10mm	23.56	24	0.189	**0.21**	0.251	**0.28**	-0.02	Fig.24
Body	F	LTE Band71	133322	683	1RB-Middle Left 10mm	23.56	24	0.133	**0.15**	0.195	**0.22**	0.11	\
Body	F	LTE Band71	133322	683	1RB-Middle Right 10mm	23.56	24	0.162	**0.18**	0.233	**0.26**	-0.03	\
Body	F	LTE Band71	133322	683	1RB-Middle Bottom 10mm	23.56	24	0.02	**0.02**	0.034	**0.04**	-0.19	\
Body	F	LTE Band71	133222	673	50RB-Middle Front 10mm	22.14	23	0.101	**0.12**	0.135	**0.16**	-0.08	\
Body	F	LTE Band71	133222	673	50RB-Middle Rear 10mm	22.14	23	0.143	**0.17**	0.191	**0.23**	0.01	\
Body	F	LTE Band71	133222	673	50RB-Middle Left 10mm	22.14	23	0.115	**0.14**	0.166	**0.20**	0.02	\
Body	F	LTE Band71	133222	673	50RB-Middle Right 10mm	22.14	23	0.111	**0.14**	0.16	**0.20**	-0.05	\
Body	F	LTE Band71	133222	673	50RB-Middle Bottom 10mm	22.14	23	0.015	**0.02**	0.027	**0.03**	0.11	\

Note: The LTE mode is QPSK_20MHz

14.2 SAR results for Standard procedure

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

Table 14.2-1: SAR Values (GSM 850 MHz Band - Head)

Test Position	Phantom position L/Rightight/F	Frequency Band	Channel Number	Frequency (MHz)	Test setup	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 10g (W/kg)	Calculated SAR 10g (W/kg)	Measured SAR 1g (W/kg)	Calculated SAR 1g (W/kg)	Power Drift	Figure
Cheek	Right	GSM850	190	836.6		33.44	34	0.345	**0.39**	0.609	**0.69**	0.09	Fig.1

Note: the head SAR of GSM850 is tested with GPRS (2Txslots) mode because of VoIP.

Table 14.1-2: SAR Values (GSM 850 MHz Band - Body)

Test Position	Phantom position L/Rightight/F	Frequency Band	Channel Number	Frequency (MHz)	Test setup	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 10g (W/kg)	Calculated SAR 10g (W/kg)	Measured SAR 1g (W/kg)	Calculated SAR 1g (W/kg)	Power Drift	Figure
Body	F	GSM850	190	836.6	Rear GPRS (2Tx) 10mm	32.02	32.5	0.221	**0.25**	0.286	**0.32**	-0.16	Fig.2

Table 14.1-3: SAR Values (GSM 1900 MHz Band - Head)

Test Position	Phantom position L/Rightight/F	Frequency Band	Channel Number	Frequency (MHz)	Test setup	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 10g (W/kg)	Calculated SAR 10g (W/kg)	Measured SAR 1g (W/kg)	Calculated SAR 1g (W/kg)	Power Drift	Figure
Tilt	Right	GSM1900	512	1850.2		22.9	24	0.202	**0.26**	0.39	**0.50**	-0.10	Fig.3

Table 14.1-4: SAR Values (GSM 1900 MHz Band - Body)

Test Position	Phantom position L/Rightight/F	Frequency Band	Channel Number	Frequency (MHz)	Test setup	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 10g (W/kg)	Calculated SAR 10g (W/kg)	Measured SAR 1g (W/kg)	Calculated SAR 1g (W/kg)	Power Drift	Figure
Body	F	GSM1900	512	1850.2	Top GPRS (2Tx) 15mm	29.05	29.5	0.528	**0.59**	0.913	**1.01**	0.11	Fig.4

Table 14.1-5: SAR Values (WCDMA 850 MHz Band - Head)

Test Position	Phantom position L/Rightight/F	Frequency Band	Channel Number	Frequency (MHz)	Test setup	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 10g (W/kg)	Calculated SAR 10g (W/kg)	Measured SAR 1g (W/kg)	Calculated SAR 1g (W/kg)	Power Drift	Figure
Cheek	Right	WCDMA 850	4183	836.6		22.32	24	0.129	**0.19**	0.165	**0.24**	-0.09	Fig.5

Table 14.1-6: SAR Values (WCDMA 850 MHz Band - Body)

Test Position	Phantom position L/Rightight/F	Frequency Band	Channel Number	Frequency (MHz)	Test setup	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 10g (W/kg)	Calculated SAR 10g (W/kg)	Measured SAR 1g (W/kg)	Calculated SAR 1g (W/kg)	Power Drift	Figure
Body	F	WCDMA 850	4233	846.6	Rear 10mm	22.14	24	0.158	**0.24**	0.202	**0.31**	-0.06	Fig.6

Table 14.2-7: SAR Values (WCDMA 1700 MHz Band - Head)

Test Position	Phantom position L/Rightight/F	Frequency Band	Channel Number	Frequency (MHz)	Test setup	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 10g (W/kg)	Calculated SAR 10g (W/kg)	Measured SAR 1g (W/kg)	Calculated SAR 1g (W/kg)	Power Drift	Figure
Tilt	Left	WCDMA1700	1513	1752.6		18.99	19	0.52	**0.52**	0.995	**1.00**	-0.03	Fig.7

Table 14.2-8: SAR Values (WCDMA 1700 MHz Band - Body)

Test Position	Phantom position L/Rightig ht/F	Frequency Band	Channel Number	Frequen cy (MHz)	Test setup	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 10g (W/kg)	Calculat ed SAR 10g (W/kg)	Measure d SAR 1g (W/kg)	Calculat ed SAR 1g (W/kg)	Power Drift	Figure
Body	F	WCDMA1700	1513	1752.6	Top 15mm	22.49	24	0.58	**0.82**	0.992	**1.40**	0.00	Fig.8

Table 14.2-9: SAR Values (WCDMA 1900 MHz Band - Head)

Test Position	Phantom position L/Rightig ht/F	Frequency Band	Channel Number	Frequen cy (MHz)	Test setup	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 10g (W/kg)	Calculat ed SAR 10g (W/kg)	Measure d SAR 1g (W/kg)	Calculat ed SAR 1g (W/kg)	Power Drift	Figure
Tilt	Left	WCDMA1900	9400	1880		18.75	19	0.454	**0.48**	0.874	**0.93**	-0.05	Fig.9

Table 14.2-10: SAR Values (WCDMA 1900 MHz Band - Body)

Test Position	Phantom position L/Rightig ht/F	Frequency Band	Channel Number	Frequen cy (MHz)	Test setup	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 10g (W/kg)	Calculat ed SAR 10g (W/kg)	Measure d SAR 1g (W/kg)	Calculat ed SAR 1g (W/kg)	Power Drift	Figure
Body	F	WCDMA1900	9400	1880	Top 15mm	22.43	24	0.524	**0.75**	0.912	**1.31**	0.00	Fig.10

Table 14.2-11: SAR Values (LTE Band7 - Head)

Test Position	Phantom position L/Rightig ht/F	Frequency Band	Channel Number	Frequen cy (MHz)	Test setup	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 10g (W/kg)	Calculat ed SAR 10g (W/kg)	Measure d SAR 1g (W/kg)	Calculat ed SAR 1g (W/kg)	Power Drift	Figure
Cheek	Left	LTE Band7	21350	2560	1RB-Middle	23.6	24	0.515	**0.56**	0.946	**1.04**	0.08	Fig.11

Note: The LTE mode is QPSK_20MHz.

Table 14.2-12: SAR Values (LTE Band7 - Body)

Test Position	Phantom position L/Rightig ht/F	Frequency Band	Channel Number	Frequen cy (MHz)	Test setup	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 10g (W/kg)	Calculat ed SAR 10g (W/kg)	Measure d SAR 1g (W/kg)	Calculat ed SAR 1g (W/kg)	Power Drift	Figure
Body	F	LTE Band7	21350	2560	1RB-Middle Front 10mm	23.6	24	0.512	**0.56**	0.962	**1.05**	-0.01	Fig.12

Note: The LTE mode is QPSK_20MHz.

Table 14.2-13: SAR Values (LTE Band12- Head)

Test Position	Phantom position L/Rightig ht/F	Frequency Band	Channel Number	Frequen cy (MHz)	Test setup	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 10g (W/kg)	Calculat ed SAR 10g (W/kg)	Measure d SAR 1g (W/kg)	Calculat ed SAR 1g (W/kg)	Power Drift	Figure
Cheek	Right	LTE Band12	23060	704	1RB-Middle	23.32	24	0.17	**0.20**	0.212	**0.25**	0.14	Fig.13

Note: The LTE mode is QPSK_10MHz.

Table 14.2-14: SAR Values (LTE Band12 - Body)

Test Position	Phantom position L/Rightig ht/F	Frequency Band	Channel Number	Frequen cy (MHz)	Test setup	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 10g (W/kg)	Calculat ed SAR 10g (W/kg)	Measure d SAR 1g (W/kg)	Calculat ed SAR 1g (W/kg)	Power Drift	Figure
Body	F	LTE Band12	23130	711	1RB-Middle Rear 15mm	23.32	24	0.339	**0.40**	0.444	**0.52**	-0.17	Fig.14

Note: The LTE mode is QPSK_20MHz.

Table 14.2-15: SAR Values (LTE Band25 - Head)

Test Position	Phantom position L/Rightight/F	Frequency Band	Channel Number	Frequency (MHz)	Test setup	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 10g (W/kg)	Calculated SAR 10g (W/kg)	Measured SAR 1g (W/kg)	Calculated SAR 1g (W/kg)	Power Drift	Figure
Tilt	Left	LTE Band25	26590	1905	1RB-Middle	17.87	18	0.556	**0.57**	1.07	**1.10**	0.14	Fig.15

Note: The LTE mode is QPSK_20MHz.

Table 14.2-16: SAR Values (LTE Band25 - Body)

Test Position	Phantom position L/Rightight/F	Frequency Band	Channel Number	Frequency (MHz)	Test setup	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 10g (W/kg)	Calculated SAR 10g (W/kg)	Measured SAR 1g (W/kg)	Calculated SAR 1g (W/kg)	Power Drift	Figure
Body	F	LTE Band25	26590	1905	1RB-Middle Top 15mm	23.96	24	0.692	**0.70**	1.2	**1.21**	0.05	Fig.16

Note: The LTE mode is QPSK_20MHz

Table 14.2-17: SAR Values (LTE Band26 - Head)

Test Position	Phantom position L/Rightight/F	Frequency Band	Channel Number	Frequency (MHz)	Test setup	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 10g (W/kg)	Calculated SAR 10g (W/kg)	Measured SAR 1g (W/kg)	Calculated SAR 1g (W/kg)	Power Drift	Figure
Cheek	Right	LTE Band26	26775	822.5	1RB-Middle	23.6	24.5	0.162	**0.20**	0.204	**0.25**	0.03	Fig.17

Note: The LTE mode is QPSK_15MHz.

Table 14.2-18: SAR Values (LTE Band26 - Body)

Test Position	Phantom position L/Rightight/F	Frequency Band	Channel Number	Frequency (MHz)	Test setup	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 10g (W/kg)	Calculated SAR 10g (W/kg)	Measured SAR 1g (W/kg)	Calculated SAR 1g (W/kg)	Power Drift	Figure
Body	F	LTE Band26	26775	822.5	1RB-Middle Rear 10mm	23.6	24.5	0.178	**0.22**	0.23	**0.28**	-0.07	Fig.18

Note: The LTE mode is QPSK_15MHz.

Table 14.2-19: SAR Values (LTE Band41 - Head)

Test Position	Phantom position L/Rightight/F	Frequency Band	Channel Number	Frequency (MHz)	Test setup	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 10g (W/kg)	Calculated SAR 10g (W/kg)	Measured SAR 1g (W/kg)	Calculated SAR 1g (W/kg)	Power Drift	Figure
Cheek	Left	LTE Band41	39750	2506	1RB-Middle	23.45	24	0.25	**0.28**	0.461	**0.52**	-0.10	Fig.19

Note: The LTE mode is QPSK_20MHz.

Table 14.2-20: SAR Values (LTE Band41 - Body)

Test Position	Phantom position L/Rightight/F	Frequency Band	Channel Number	Frequency (MHz)	Test setup	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 10g (W/kg)	Calculated SAR 10g (W/kg)	Measured SAR 1g (W/kg)	Calculated SAR 1g (W/kg)	Power Drift	Figure
Body	F	LTE Band41	39750	2506	1RB-Middle Front 10mm	23.45	24	0.274	**0.31**	0.487	**0.55**	-0.13	Fig.20

Note: The LTE mode is QPSK_20MHz.

Table 14.2-21: SAR Values (LTE Band66 - Head)

Test Position	Phantom position L/Rightight/F	Frequency Band	Channel Number	Frequency (MHz)	Test setup	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 10g (W/kg)	Calculated SAR 10g (W/kg)	Measured SAR 1g (W/kg)	Calculated SAR 1g (W/kg)	Power Drift	Figure
Tilt	Right	LTE Band66	132572	1770	1RB-Middle	16.84	17	0.544	**0.56**	1.05	**1.09**	-0.08	Fig.21

Note: The LTE mode is QPSK_20MHz.

Table 14.2-22: SAR Values (LTE Band66 - Body)

Test Position	Phantom position L/Rightig ht/F	Frequency Band	Channel Number	Frequen cy (MHz)	Test setup	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 10g (W/kg)	Calculat ed SAR 10g (W/kg)	Measure d SAR 1g (W/kg)	Calculat ed SAR 1g (W/kg)	Power Drift	Figure
Body	F	LTE Band66	132572	1770	1RB-Middle Rear 15mm	23.48	24	0.717	**0.81**	1.21	**1.36**	-0.03	Fig.22

Note: The LTE mode is QPSK_20MHz

Table 14.2-23: SAR Values (LTE Band71 - Head)

Test Position	Phantom position L/Rightig ht/F	Frequency Band	Channel Number	Frequen cy (MHz)	Test setup	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 10g (W/kg)	Calculat ed SAR 10g (W/kg)	Measure d SAR 1g (W/kg)	Calculat ed SAR 1g (W/kg)	Power Drift	Figure
Cheek	Right	LTE Band71	133322	683	1RB-Middle	23.56	24	0.168	**0.19**	0.209	**0.23**	0.08	Fig.23

Note: The LTE mode is QPSK_20MHz.

Table 14.2-24: SAR Values (LTE Band71 - Body)

Test Position	Phantom position L/Rightig ht/F	Frequency Band	Channel Number	Frequen cy (MHz)	Test setup	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 10g (W/kg)	Calculat ed SAR 10g (W/kg)	Measure d SAR 1g (W/kg)	Calculat ed SAR 1g (W/kg)	Power Drift	Figure
Body	F	LTE Band71	133322	683	1RB-Middle Rear 10mm	23.56	24	0.189	**0.21**	0.251	**0.28**	-0.02	Fig.24

Note: The LTE mode is QPSK_20MHz

14.3 WLAN Evaluation for 2.4G

For Wi-Fi antenna, there are two transmit ways, Wi-Fi single transmit and Wi-Fi transmit simultaneous with main antenna. When the Wi-Fi transmit simultaneous with main antenna, the Wi-Fi TX power will be back off.

Wi-Fi single transmit

According to the KDB248227 D01, SAR is measured for 2.4GHz 802.11b DSSS using the initial test position procedure.

Head Evaluation

Table 14.3-1: SAR Values (WLAN - Head)– 802.11b (Fast SAR)

Ambient Temperature: 22.5 ℃ Liquid Temperature: 22.3℃											
Frequency		Side	Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g)(W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g)(W/kg)	Power Drift (dB)
MHz	Ch.										
2437	6	Left	Touch	/	14.53	15	0.403	**0.45**	0.839	**0.93**	0.04
2462	11	Left	Touch	/	14.41	15	0.333	**0.38**	0.671	**0.77**	0.09
2437	6	Left	Tilt	/	14.53	15	0.229	**0.26**	0.476	**0.53**	-0.05
2437	6	Right	Touch	/	14.53	15	0.166	**0.18**	0.304	**0.34**	0.19
2437	6	Right	Tilt	/	14.53	15	0.122	**0.14**	0.243	**0.27**	-0.09

As shown above table, the initial test position for head is “Left Touch”. So the head SAR of WLAN is presented as below:

Table 14.3-2: SAR Values (WLAN - Head)– 802.11b (Full SAR)

Ambient Temperature: 22.5 ℃ Liquid Temperature: 22.3℃											
Frequency		Side	Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g)(W/kg)	Power Drift (dB)
MHz	Ch.										
2437	6	Left	Touch	Fig.25	14.53	15	0.4	**0.45**	0.849	**0.95**	0.04
2462	11	Left	Touch		14.41	15	0.324	**0.37**	0.685	**0.78**	0.09
2437	6	Left	Tilt	/	14.53	15	0.222	**0.25**	0.496	**0.55**	-0.05

Note1: When the reported SAR of the initial test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position using subsequent highest estimated 1-g SAR conditions determined by area scans, on the highest maximum output power channel, until the reported SAR is ≤ 0.8 W/kg.
Note2: For all positions/configurations tested using the initial test position and subsequent test positions, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel until the reported SAR is ≤ 1.2 W/kg or all required channels are tested.

According to the KDB248227 D01, The reported SAR must be scaled to 100% transmission duty factor to determine compliance at the maximum tune-up tolerance limit. The scaled reported SAR is presented as below.

Table 14.3-3: SAR Values (WLAN - Head) – 802.11b (Scaled Reported SAR)

Ambient Temperature: 22.5 ℃ Liquid Temperature: 22.3℃							
Frequency		Side	Test Position	Actual duty factor	maximum duty factor	Reported SAR (1g)(W/kg)	Scaled reported SAR (1g)(W/kg)
MHz	Ch.						
2437	6	Left	Touch	100%	100%	**0.95**	**0.95**

SAR is not required for OFDM because the 802.11b adjusted SAR ≤ 1.2 W/kg.

Body Evaluation

Table 14.3-4: SAR Values (WLAN - Body)– 802.11b (Fast SAR)

Ambient Temperature: 22.5 ℃ Liquid Temperature: 22.3℃										
Frequency		**Test Position**	**Figure No./ Note**	**Conducted Power (dBm)**	**Max. tune-up Power (dBm)**	**Measured SAR(10g) (W/kg)**	**Reported SAR(10g)(W/kg)**	**Measured SAR(1g) (W/kg)**	**Reported SAR(1g)(W /kg)**	**Power Drift (dB)**
MHz	Ch.									
6	2437	Front	/	14.53	15	0.055	**0.06**	0.1	**0.11**	-0.13
6	2437	Rear	/	14.53	15	0.041	**0.05**	0.078	**0.09**	0.18
6	2437	Right	/	14.53	15	0.042	**0.05**	0.077	**0.09**	0.04
6	2437	Top	/	14.53	15	0.012	**0.01**	0.023	**0.03**	0.04

As shown above table, the initial test position for body is “Front”. So the body SAR of WLAN is presented as below:

Table 14.3-5: SAR Values (WLAN - Body)– 802.11b (Full SAR)

Ambient Temperature: 22.5 ℃ Liquid Temperature: 22.3℃										
Frequency		Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g)(W/kg)	Power Drift (dB)
MHz	Ch.									
6	2437	Front	Fig.26	14.53	15	0.054	**0.06**	0.093	**0.10**	-0.13

Note1: When the reported SAR of the initial test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position using subsequent highest estimated 1-g SAR conditions determined by area scans, on the highest maximum output power channel, until the reported SAR is ≤ 0.8 W/kg.

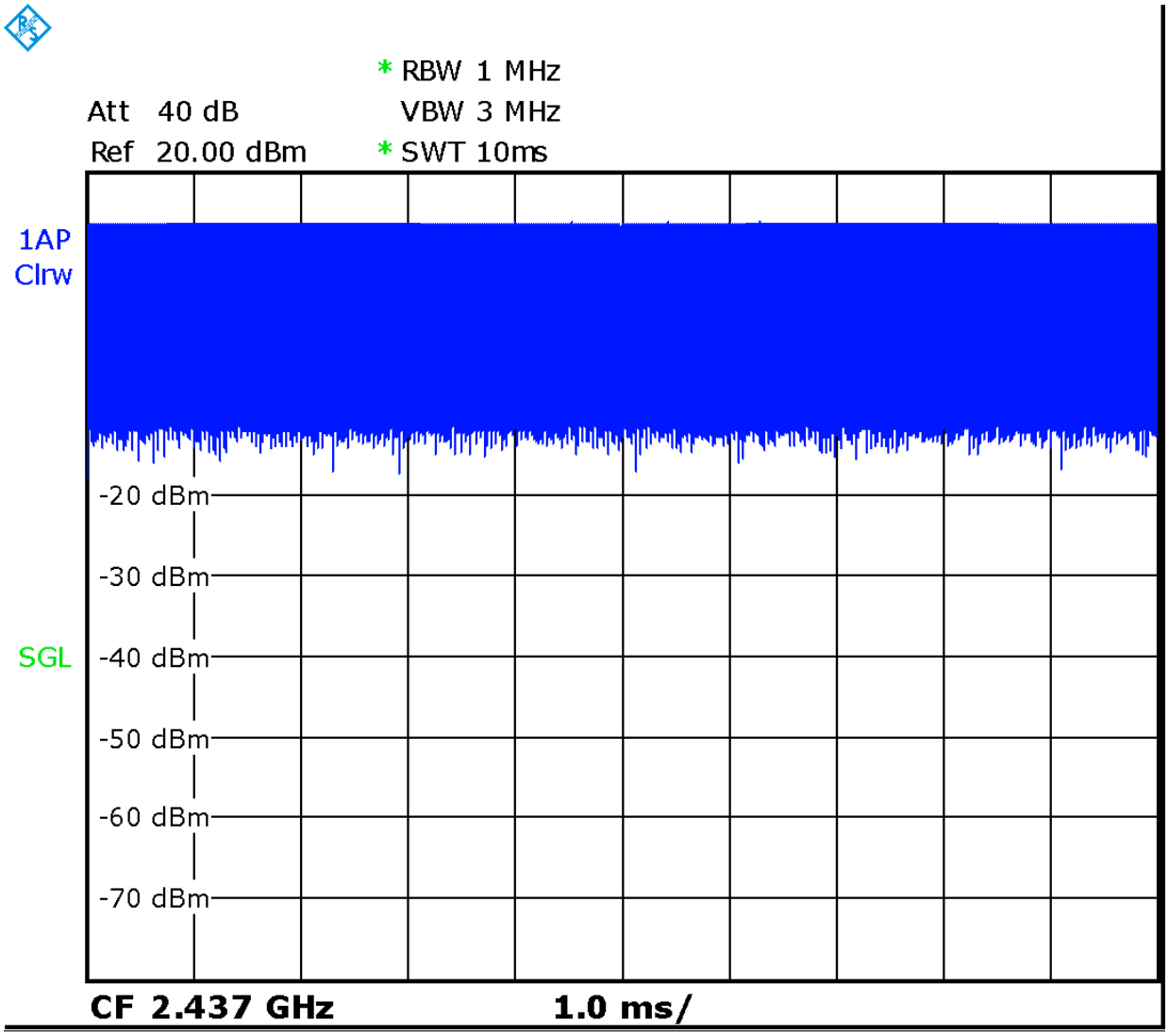
Note2: For all positions/configurations tested using the initial test position and subsequent test positions, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel until the reported SAR is ≤ 1.2 W/kg or all required channels are tested.

According to the KDB248227 D01, The reported SAR must be scaled to 100% transmission duty factor to determine compliance at the maximum tune-up tolerance limit. The scaled reported SAR is presented as below.

Table 14.3-6: SAR Values (WLAN - Body) – 802.11b (Scaled Reported SAR)

Ambient Temperature: 22.5 ℃ Liquid Temperature: 22.3℃						
Frequency		Test Position	Actual duty factor	maximum duty factor	Reported SAR (1g)(W/kg)	Scaled reported SAR (1g)(W/kg)
MHz	Ch.					
6	2437	Front	100%	100%	**0.10**	**0.10**

SAR is not required for OFDM because the 802.11b adjusted SAR ≤ 1.2 W/kg.



Picture 14.1 Duty factor plot

Transmit simultaneous

According to the KDB248227 D01, SAR is measured for 2.4GHz 802.11b DSSS using the initial test position procedure.

Head Evaluation

Table 14.3-7: SAR Values (WLAN - Head)– 802.11b (Fast SAR)

Ambient Temperature: 22.5 ℃ Liquid Temperature: 22.3℃											
Frequency		Side	Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g)(W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g)(W/kg)	Power Drift (dB)
MHz	Ch.										
2412	1	Left	Touch	/	9.2	10	0.107	**0.13**	0.208	**0.25**	0.11
2412	1	Left	Tilt	/	9.2	10	0.082	**0.10**	0.176	**0.21**	-0.02
2412	1	Right	Touch	/	9.2	10	0.047	**0.06**	0.082	**0.10**	-0.09
2412	1	Right	Tilt	/	9.2	10	0.041	**0.05**	0.079	**0.09**	0.11

As shown above table, the initial test position for head is “Left Touch”. So the head SAR of WLAN is presented as below:

Table 14.3-8: SAR Values (WLAN - Head)– 802.11b (Full SAR)

Ambient Temperature: 22.5 ℃ Liquid Temperature: 22.3℃											
Frequency		Side	Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g)(W/kg)	Power Drift (dB)
MHz	Ch.										
2412	1	Left	Touch	Fig.29	9.2	10	0.106	**0.13**	0.22	**0.26**	0.11
Note1: When the reported SAR of the initial test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position using subsequent highest estimated 1-g SAR conditions determined by area scans, on the highest maximum output power channel, until the reported SAR is ≤ 0.8 W/kg. Note2: For all positions/configurations tested using the initial test position and subsequent test positions, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel until the reported SAR is ≤ 1.2 W/kg or all required channels are tested.											

According to the KDB248227 D01, The reported SAR must be scaled to 100% transmission duty factor to determine compliance at the maximum tune-up tolerance limit. The scaled reported SAR is presented as below.

Table 14.3-9: SAR Values (WLAN - Head) – 802.11b (Scaled Reported SAR)

Ambient Temperature: 22.5 ℃ Liquid Temperature: 22.3℃							
Frequency		Side	Test Position	Actual duty factor	maximum duty factor	Reported SAR (1g)(W/kg)	Scaled reported SAR (1g)(W/kg)
MHz	Ch.						
2412	1	Left	Touch	100%	100%	**0.26**	**0.26**

SAR is not required for OFDM because the 802.11b adjusted SAR ≤ 1.2 W/kg.

Body Evaluation

Table 14.3-10: SAR Values (WLAN - Body)– 802.11b (Fast SAR)

Ambient Temperature: 22.5 ℃ Liquid Temperature: 22.3℃										
Frequency		Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g)(W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g)(W /kg)	Power Drift (dB)
MHz	Ch.									
2412	1	Front	/	9.2	10	0.019	**0.02**	0.034	**0.04**	-0.07
2412	1	Rear	/	9.2	10	0.016	**0.02**	0.028	**0.03**	0.03
2412	1	Right	/	9.2	10	0.011	**0.01**	0.017	**0.02**	-0.01
2412	1	Top	/	9.2	10	0.015	**0.02**	0.02	**0.02**	0.04

As shown above table, the initial test position for body is “Front”. So the body SAR of WLAN is presented as below:

Table 14.3-11: SAR Values (WLAN - Body)– 802.11b (Full SAR)

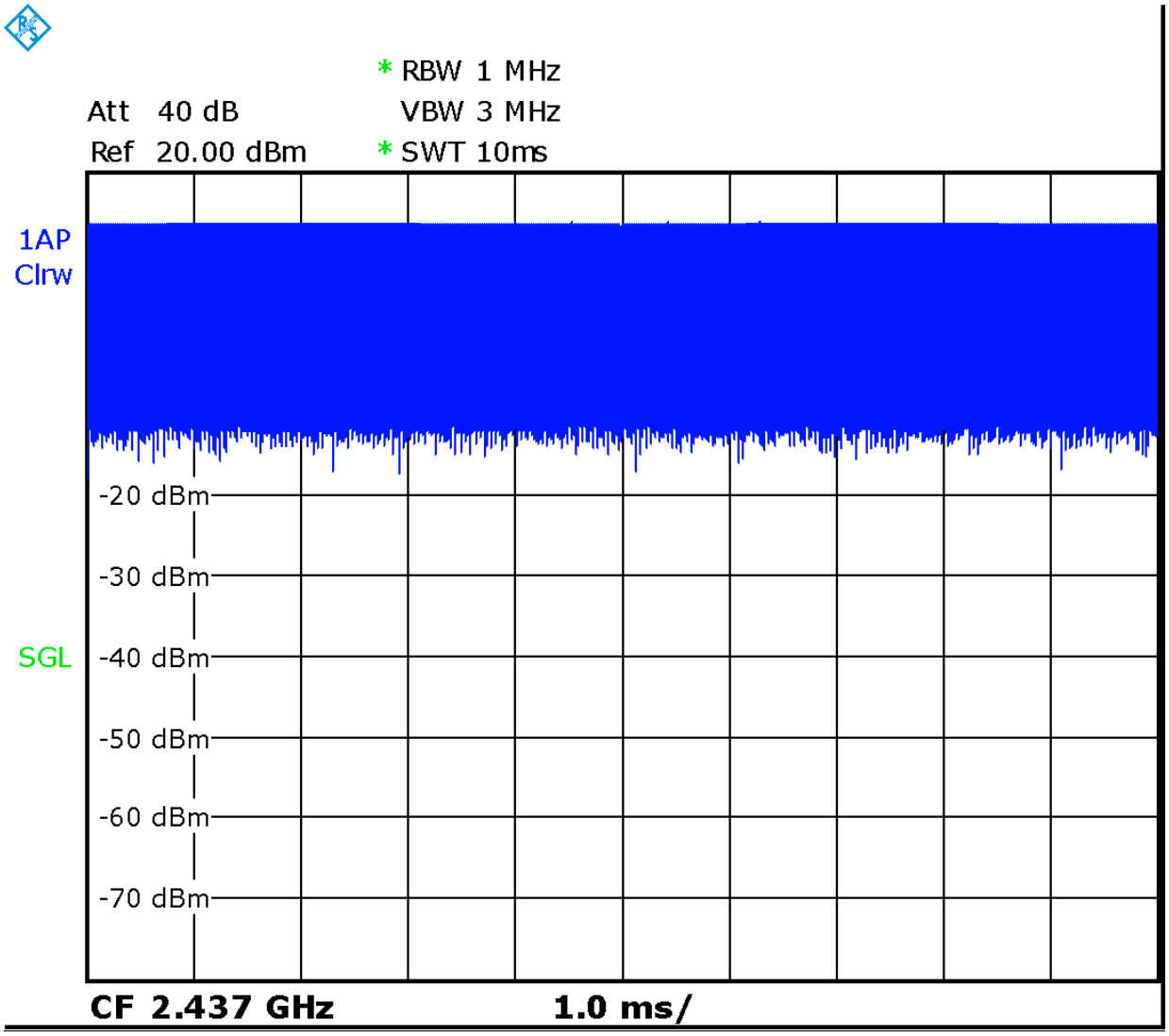
Ambient Temperature: 22.5 ℃ Liquid Temperature: 22.3℃										
Frequency		Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g)(W/kg)	Power Drift (dB)
MHz	Ch.									
2412	1	Front	Fig.30	9.2	10	0.019	**0.02**	0.032	**0.04**	-0.07
Note1: When the reported SAR of the initial test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position using subsequent highest estimated 1-g SAR conditions determined by area scans, on the highest maximum output power channel, until the reported SAR is ≤ 0.8 W/kg.										
Note2: For all positions/configurations tested using the initial test position and subsequent test positions, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel until the reported SAR is ≤ 1.2 W/kg or all required channels are tested.										

According to the KDB248227 D01, The reported SAR must be scaled to 100% transmission duty factor to determine compliance at the maximum tune-up tolerance limit. The scaled reported SAR is presented as below.

Table 14.3-12: SAR Values (WLAN - Body) – 802.11b (Scaled Reported SAR)

Ambient Temperature: 22.5 ℃ Liquid Temperature: 22.3℃						
Frequency		Test Position	Actual duty factor	maximum duty factor	Reported SAR (1g)(W/kg)	Scaled reported SAR (1g)(W/kg)
MHz	Ch.					
2412	1	Front	100%	100%	**0.04**	**0.04**

SAR is not required for OFDM because the 802.11b adjusted SAR ≤ 1.2 W/kg.



Picture 14.2 Duty factor plot

14.4 WLAN Evaluation For 5G

For Wi-Fi antenna, there are two transmit ways, Wi-Fi single transmit and Wi-Fi transmit simultaneous with main antenna. When the Wi-Fi transmit simultaneous with main antenna, the Wi-Fi TX power will be back off.

Wi-Fi single transmit

Table 14.4-1: OFDM mode specified maximum output power of WLAN antenna

802.11 mode	a	g	n		ac			
Ch. BW(MHz)	20	20	20	40	20	40	80	160
U-NII-1	X		X	X				
U-NII-2A	X		X	X				
U-NII-2C								
U-NII-3	X		X	X				
§ 15.247 (5.8/ GHz)								
X: maximum(conducted) output power(mW), including tolerance, specified for production units								

Table 14.4-2: Maximum output power specified of WLAN antenna

802.11 mode	a	g	n		ac			
Ch. BW(MHz)	20	20	20	40	20	40	80	160
U-NII-1	14		14.5	14				
U-NII-2A	14		14.5	14				
U-NII-2C								
U-NII-3	14.5		15	14.5				
§ 15.247 (5.8 GHz)								

- The maximum output power specified for production units is the same for all channels, modulations and data rates in each channel bandwidth configuration of the 802.11a/g/n/ac modes.
- The blue highlighted cells represent highest output configurations in each standalone or aggregated frequency band, with tune-up tolerance included.

Table 14.4-3: Maximum output power measured of WLAN antenna, for the applicable OFDM configurations according to the default power measurement procedures for selection initial test configurations

802.11 mode	a	n		ac	
BW(MHz)	20	20	40	20	40
U-NII-1	36/40/44/48 Lower power	36/40/44/48 **25/25/24/24**	38/46 Lower power	\	\
U-NII-2A	52/56/60/64 Lower power	52/56/60/64 **25/25/26/27**	54/62 Lower power	\	\
U-NII-3	149/153/157/161/165 Lower power	149/153/157/161 /165 **22/21/23/26/28**	151/159 Lower power	\	\
The **bold numbers** is the maximum output measured power (mW).					

- Channels with measured maximum power within 0.25dB are considered to have the same measured output. Channels selected for initial test configuration are highlighted in yellow.

Table 14.4-4: Reported SAR of initial test configuration for Head

802.11 mode	a	n		ac		
BW(MHz)	20	20	40	20	40	80
U-NII-1	36/40/44/48	36/40/44/48 **0.65**	38/46	\	\	\
U-NII-2A	52/56/60/64	52/56/60/64 **0.90**	54/62	\	\	\
U-NII-3	149/153/157/161/165	149/153/157/161/165 **0.56**	151/159	\	\	\
Highest measured output power channel tested initially are in yellow highlight.						

Table 14.4-5: Reported SAR of initial test configuration for Head

802.11 mode	a	n		ac	
BW(MHz)	20	20	40	20	40
U-NII-2A	52/56/60/64	52/56/60/64 **0.81/0.90**	54/62	\	\
Highest measured output power channel tested initially are in green highlight.					

Table 14.4-6: Reported SAR of initial test configuration for Body

802.11 mode	a	n		ac	
BW(MHz)	20	20	40	20	40
U-NII-1	36/40/44/48	36/40/44/48 **0.14**	38/46	\	\
U-NII-2A	52/56/60/64	52/56/60/64 **0.21**	54/62	\	\
U-NII-3	149/153/157/161/165	149/153/157/161/165 **0.23**	151/159	\	\
Highest measured output power channel tested initially are in yellow highlight.					

Table 14.4-7: SAR Values (WLAN 5G - Head)

Frequency		Side	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz										
40	5200	Left	Touch	/	13.97	14	0.176	**0.18**	0.649	**0.65**	-0.15
40	5200	Left	Tilt	/	13.97	14	0.172	**0.17**	0.636	**0.64**	-0.13
40	5200	Right	Touch	/	13.97	14	0.117	**0.12**	0.366	**0.37**	-0.16
40	5200	Right	Tilt	/	13.97	14	0.144	**0.14**	0.47	**0.47**	0.01
64	5320	Left	Touch	Fig.27	14.24	14.5	0.225	**0.24**	0.852	**0.90**	0.08
60	5300	Left	Touch	/	14.09	14.5	0.195	**0.21**	0.737	**0.81**	-0.02
64	5320	Left	Tilt	/	14.24	14.5	0.211	**0.22**	0.779	**0.83**	-0.07
64	5320	Right	Touch	/	14.24	14.5	0.174	**0.18**	0.555	**0.59**	-0.17
64	5320	Right	Tilt	/	14.24	14.5	0.207	**0.22**	0.662	**0.70**	-0.16
165	5825	Left	Touch	/	14.48	15	0.138	**0.16**	0.498	**0.56**	-0.03
165	5825	Left	Tilt	/	14.48	15	0.122	**0.14**	0.467	**0.53**	0.12
165	5825	Right	Touch	/	14.48	15	0.134	**0.15**	0.393	**0.44**	-0.18
165	5825	Right	Tilt	/	14.48	15	0.155	**0.17**	0.459	**0.52**	-0.12

Table 14.4-8: SAR Values (WLAN 5G - Body)

Frequency		Test Position	Figure No.	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz									
40	5200	Front	/	13.97	14	0.04	**0.04**	0.101	**0.10**	-0.02
40	5200	Rear	/	13.97	14	0.056	**0.06**	0.137	**0.14**	-0.07
40	5200	Left	/	13.97	14	0.024	**0.02**	0.04	**0.04**	-0.12
40	5200	Top	/	13.97	14	0.052	**0.05**	0.131	**0.13**	-0.11
64	5320	Front	/	14.24	14.5	0.05	**0.05**	0.126	**0.13**	0.18
64	5320	Rear	/	14.24	14.5	0.074	**0.08**	0.194	**0.21**	-0.04
64	5320	Left	/	14.24	14.5	0.042	**0.04**	0.055	**0.06**	0.18
64	5320	Top	/	14.24	14.5	0.078	**0.08**	0.188	**0.20**	-0.04
165	5825	Front	/	14.48	15	0.056	**0.06**	0.183	**0.21**	0.05
165	5825	Rear	Fig.28	14.48	15	0.081	**0.09**	0.206	**0.23**	0.08
165	5825	Left	/	14.48	15	0.053	**0.06**	0.078	**0.09**	-0.13
165	5825	Top	/	14.48	15	0.084	**0.09**	0.195	**0.22**	0.07

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

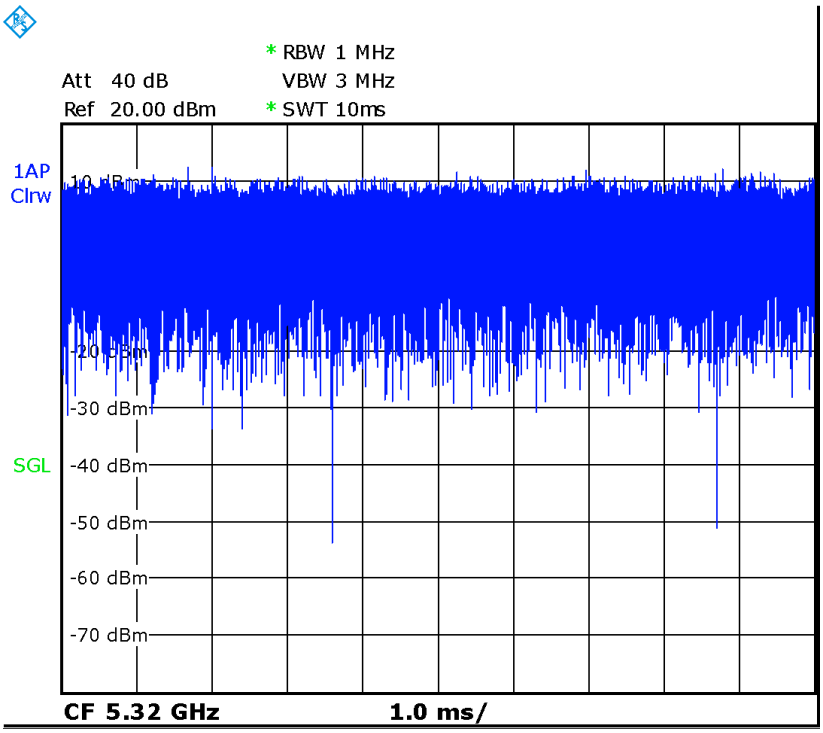
According to the KDB248227 D01, The reported SAR must be scaled to 100% transmission duty factor to determine compliance at the maximum tune-up tolerance limit. The scaled reported SAR is presented as below.

Table 14.4-9: SAR Values (WLAN 5G - Head) (Scaled Reported SAR)

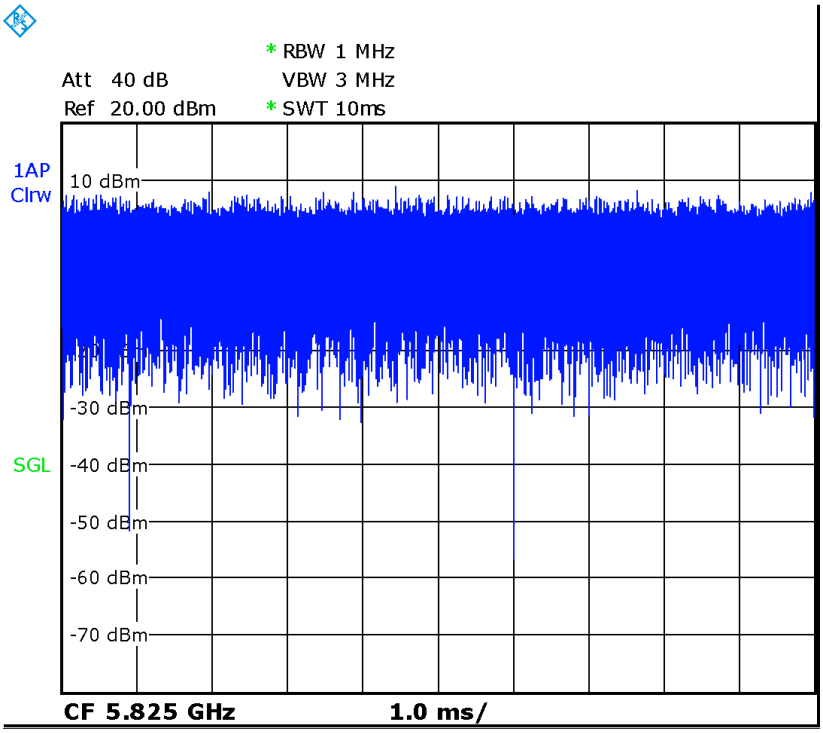
Frequency		Side	Test Position	Actual duty factor	maximum duty factor	Reported SAR (1g) (W/kg)	Scaled reported SAR (1g) (W/kg)
Ch.	MHz						
64	5320	Left	Touch	100%	100%	**0.90**	**0.90**

Table 14.4-10 SAR Values (WLAN 5G - Body) (Scaled Reported SAR)

Frequency		Test Position	D (mm)	Actual duty factor	maximum duty factor	Reported SAR (1g) (W/kg)	Scaled reported SAR (1g) (W/kg)
Ch.	MHz						
165	5825	Rear	10	100%	100%	**0.23**	**0.23**



Picture 14.3 The plot of duty factor for Head



Picture 14.4The plot of duty factor for Body

Transmit simultaneous

Table 14.4-11: OFDM mode specified maximum output power of WLAN antenna

802.11 mode	a	g	n		ac			
Ch. BW(MHz)	20	20	20	40	20	40	80	160
U-NII-1	X		X	X				
U-NII-2A	X		X	X				
U-NII-2C								
U-NII-3	X		X	X				
§ 15.247 (5.8/ GHz)								
X: maximum(conducted) output power(mW), including tolerance, specified for production units								

Table 14.4-12: Maximum output power specified of WLAN antenna

802.11 mode	a	g	n		ac			
Ch. BW(MHz)	20	20	20	40	20	40	80	160
U-NII-1	8.5		9	8.5				
U-NII-2A	8.5		9	8.5				
U-NII-2C								
U-NII-3	8.5		9	8.5				
§ 15.247 (5.8 GHz)								

- The maximum output power specified for production units is the same for all channels, modulations and data rates in each channel bandwidth configuration of the 802.11a/g/n/ac modes.
- The blue highlighted cells represent highest output configurations in each standalone or aggregated frequency band, with tune-up tolerance included.

Table 14.4-13: Maximum output power measured of WLAN antenna, for the applicable OFDM configurations according to the default power measurement procedures for selection initial test configurations

802.11 mode	a	n		ac	
BW(MHz)	20	20	40	20	40
U-NII-1	36/40/44/48 Lower power	36/40/44/48 **5/5/5/5**	38/46 Lower power	\	\
U-NII-2A	52/56/60/64 Lower power	52/56/60/64 **5/5/5/6**	54/62 Lower power	\	\
U-NII-3	149/153/157/161/165 Lower power	149/153/157/161 /165 **6/5/6/6/7**	151/159 Lower power	\	\

- The **bold numbers** is the maximum output measured power (mW).
- Channels with measured maximum power within 0.25dB are considered to have the same measured output. Channels selected for initial test configuration are highlighted in yellow.

Table 14.4-14: Reported SAR of initial test configuration for Head

802.11 mode	a	n		ac		
BW(MHz)	20	20	40	20	40	80
U-NII-2A	52/56/60/64	52/56/60/64 **0.27**	54/62	\	\	\
U-NII-3	149/153/157/161/165	149/153/157/161/165 **0.11**	151/159	\	\	\
Highest measured output power channel tested initially are in yellow highlight.						

Table 14.4-15: Reported SAR of initial test configuration for Body

802.11 mode	a	n		ac	
BW(MHz)	20	20	40	20	40
U-NII-2A	52/56/60/64	52/56/60/64 **0.06**	54/62	\	\
U-NII-3	149/153/157/161/165	149/153/157/161/165 **0.07**	151/159	\	\
Highest measured output power channel tested initially are in yellow highlight.					

Table 14.4-16: SAR Values (WLAN 5G - Head)

Frequency		Side	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz										
64	5320	Left	Touch	/	7.83	9	0.053	**0.07**	0.102	**0.13**	0.02
64	5320	Left	Tilt	Fig.31	7.83	9	0.069	**0.09**	0.204	**0.27**	0.05
64	5320	Right	Touch	/	7.83	9	0.049	**0.06**	0.097	**0.13**	-0.01
64	5320	Right	Tilt	/	7.83	9	0.051	**0.07**	0.114	**0.15**	0.02
165	5825	Left	Touch	/	8.14	9	0.011	**0.01**	0.081	**0.10**	-0.03
165	5825	Left	Tilt	/	8.14	9	0.022	**0.03**	0.09	**0.11**	0.06
165	5825	Right	Touch	/	8.14	9	0.013	**0.02**	0.073	**0.09**	-0.04
165	5825	Right	Tilt	/	8.14	9	0.017	**0.02**	0.083	**0.10**	0.06

Table 14.4-17: SAR Values (WLAN 5G - Body)

Frequency		Test Position	Figure No.	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz									
64	5320	Front	/	7.83	9	0.018	**0.02**	0.037	**0.05**	-0.03
64	5320	Rear	/	7.83	9	0.021	**0.03**	0.043	**0.06**	0.03
64	5320	Left	/	7.83	9	0.013	**0.02**	0.027	**0.04**	0.08
64	5320	Top	/	7.83	9	0.019	**0.02**	0.041	**0.05**	-0.11

165	5825	Front	/	8.14	9	0.021	**0.03**	0.043	**0.05**	-0.17
165	5825	Rear	Fig.32	8.14	9	0.029	**0.04**	0.056	**0.07**	-0.07
165	5825	Left	/	8.14	9	0.021	**0.03**	0.052	**0.06**	0.09
165	5825	Top	/	8.14	9	0.017	**0.02**	0.048	**0.06**	-0.03

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

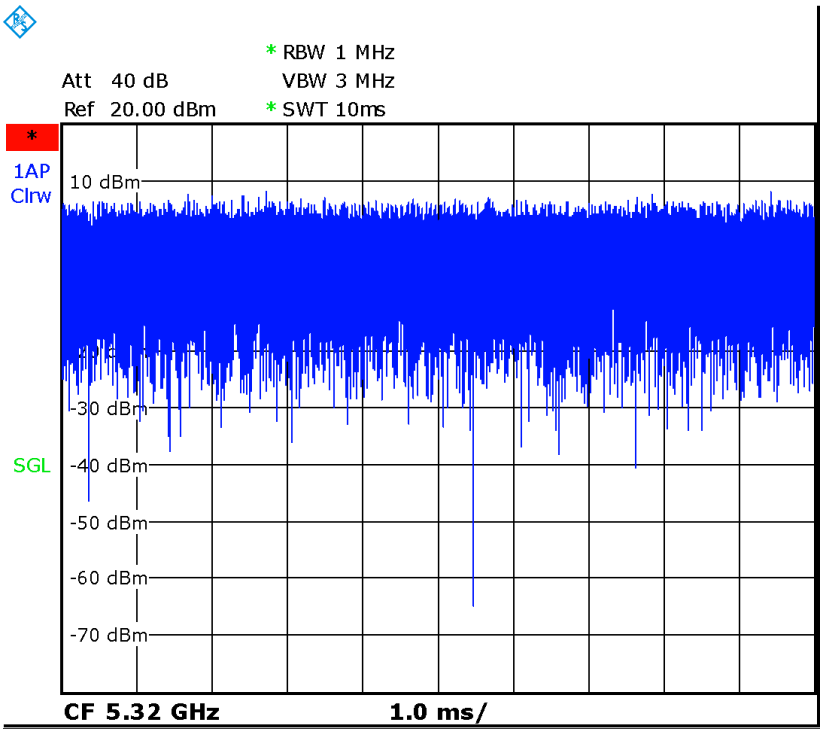
According to the KDB248227 D01, The reported SAR must be scaled to 100% transmission duty factor to determine compliance at the maximum tune-up tolerance limit. The scaled reported SAR is presented as below.

Table 14.4-18: SAR Values (WLAN 5G - Head) (Scaled Reported SAR)

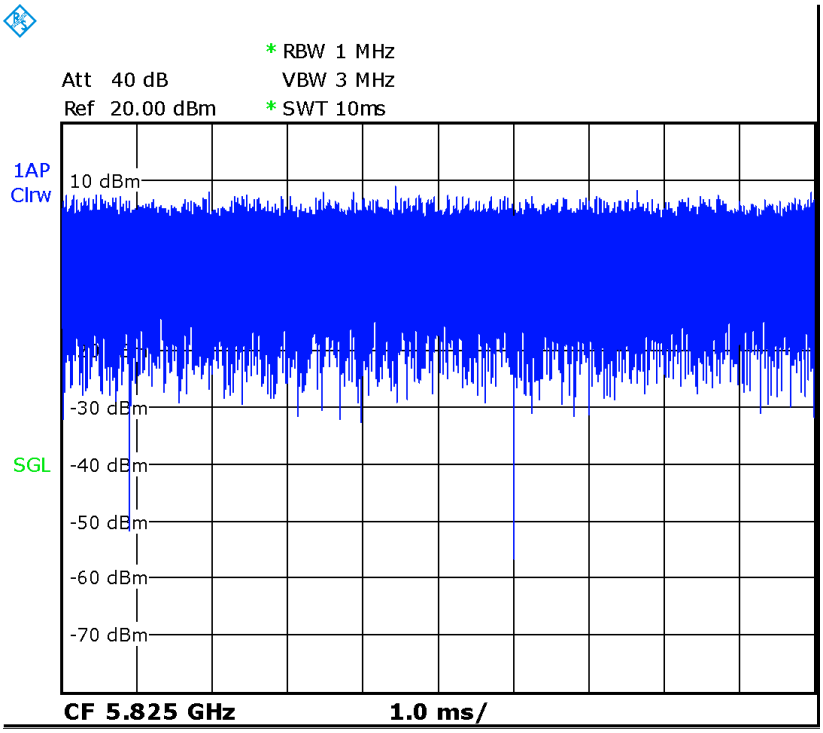
Frequency		Side	Test Position	Actual duty factor	maximum duty factor	Reported SAR (1g) (W/kg)	Scaled reported SAR (1g) (W/kg)
Ch.	MHz						
64	5320	Left	Tilt	100%	100%	**0.27**	**0.27**

Table 14.4-19 SAR Values (WLAN 5G - Body) (Scaled Reported SAR)

Frequency		Test Position	D (mm)	Actual duty factor	maximum duty factor	Reported SAR (1g) (W/kg)	Scaled reported SAR (1g) (W/kg)
Ch.	MHz						
165	5825	Rear	10	100%	100%	**0.07**	**0.07**



Picture 14.5 The plot of duty factor for Head



Picture 14.6The plot of duty factor for Body

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 Body GSM1900 (1g)

Frequency		Test Position	Spacing (mm)	Original SAR (W/kg)	First Repeated SAR (W/kg)	The Ratio	Second Repeated SAR (W/kg)
Ch.	MHz						
512	1850.2	Top	15	0.913	0.907	1.01	/

Table 15.2: SAR Measurement Variability for Head WCDMA1700 (1g)

Frequency		Test Position	Spacing (mm)	Original SAR (W/kg)	First Repeated SAR (W/kg)	The Ratio	Second Repeated SAR (W/kg)
Ch.	MHz						
1513	1752.6	Left Tilt	0	0.995	0.978	1.02	/

Table 15.3: SAR Measurement Variability for Body WCDMA1700 (1g)

Frequency		Test Position	Spacing (mm)	Original SAR (W/kg)	First Repeated SAR (W/kg)	The Ratio	Second Repeated SAR (W/kg)
Ch.	MHz						
1513	1752.6	Top	15	0.992	0.965	1.03	/

Table 15.4: SAR Measurement Variability for Head WCDMA1900 (1g)

Frequency		Test Position	Spacing (mm)	Original SAR (W/kg)	First Repeated SAR (W/kg)	The Ratio	Second Repeated SAR (W/kg)
Ch.	MHz						
9400	1880	Left Tilt	0	0.874	0.844	1.04	/

Table 15.5: SAR Measurement Variability for Body WCDMA1900 (1g)

Frequency		Test Position	Spacing (mm)	Original SAR (W/kg)	First Repeated SAR (W/kg)	The Ratio	Second Repeated SAR (W/kg)
Ch.	MHz						
9400	1880	Top	15	0.912	0.889	1.03	/

Table 15.6: SAR Measurement Variability for Head LTE B7 (1g)

Frequency		Test Position	Spacing (mm)	Original SAR (W/kg)	First Repeated SAR (W/kg)	The Ratio	Second Repeated SAR (W/kg)
Ch.	MHz						
21350	2560	Left Cheek	0	0.946	0.925	1.02	/

Table 15.7: SAR Measurement Variability for Body LTE B7 (1g)

Frequency		Test Position	Spacing (mm)	Original SAR (W/kg)	First Repeated SAR (W/kg)	The Ratio	Second Repeated SAR (W/kg)
Ch.	MHz						
21350	2560	Front	10	0.962	0.913	1.05	/

Table 15.8: SAR Measurement Variability for Head LTE B25 (1g)

Frequency		Test Position	Spacing (mm)	Original SAR (W/kg)	First Repeated SAR (W/kg)	The Ratio	Second Repeated SAR (W/kg)
Ch.	MHz						
26590	1905	Left Tilt	0	1.07	0.978	1.09	/

Table 15.9: SAR Measurement Variability for Body LTE B25 (1g)

Frequency		Test Position	Spacing (mm)	Original SAR (W/kg)	First Repeated SAR (W/kg)	The Ratio	Second Repeated SAR (W/kg)
Ch.	MHz						
26590	1905	Top	15	1.2	1.14	1.05	/

Table 15.10: SAR Measurement Variability for Head LTE B66 (1g)

Frequency		Test Position	Spacing (mm)	Original SAR (W/kg)	First Repeated SAR (W/kg)	The Ratio	Second Repeated SAR (W/kg)
Ch.	MHz						
132572	1770	Right Tilt	0	1.05	0.975	1.08	/

Table 15.11: SAR Measurement Variability for Body LTE B66 (1g)

Frequency		Test Position	Spacing (mm)	Original SAR (W/kg)	First Repeated SAR (W/kg)	The Ratio	Second Repeated SAR (W/kg)
Ch.	MHz						
132572	1770	Rear	15	1.21	1.06	1.14	/

Table 15.12: SAR Measurement Variability for Head WLAN 2.4GHz (1g)

Frequency		Test Position	Spacing (mm)	Original SAR (W/kg)	First Repeated SAR (W/kg)	The Ratio	Second Repeated SAR (W/kg)
Ch.	MHz						
6	2437	Left Cheek	0	0.849	0.815	1.04	/

Table 15.13: SAR Measurement Variability for Head WLAN 5GHz (1g)

Frequency		Test Position	Spacing (mm)	Original SAR (W/kg)	First Repeated SAR (W/kg)	The Ratio	Second Repeated SAR (W/kg)
Ch.	MHz						
64	5320	Left Cheek	0	0.852	0.817	1.04	/

16 Measurement Uncertainty

16.1 Measurement Uncertainty for Normal SAR Tests (300MHz~3GHz)

No.	Error Description	Type	Uncertainty value	Probably Distribution	Div.	(Ci) 1g	(Ci) 10g	Std. Unc. (1g)	Std. Unc. (10g)	Degree of freedom
Measurement system										
1	Probe calibration	B	6.0	N	1	1	1	6.0	6.0	∞
2	Isotropy	B	4.7	R	√3	0.7	0.7	1.9	1.9	∞
3	Boundary effect	B	1.0	R	√3	1	1	0.6	0.6	∞
4	Linearity	B	4.7	R	√3	1	1	2.7	2.7	∞
5	Detection limit	B	1.0	N	1	1	1	0.6	0.6	∞
6	Readout electronics	B	0.3	R	√3	1	1	0.3	0.3	∞
7	Response time	B	0.8	R	√3	1	1	0.5	0.5	∞
8	Integration time	B	2.6	R	√3	1	1	1.5	1.5	∞
9	RF ambient conditions-noise	B	0	R	√3	1	1	0	0	∞
10	RFambient conditions-reflection	B	0	R	√3	1	1	0	0	∞
11	Probe positioned mech. restrictions	B	0.4	R	√3	1	1	0.2	0.2	∞
12	Probe positioning with respect to phantom shell	B	2.9	R	√3	1	1	1.7	1.7	∞
13	Post-processing	B	1.0	R	√3	1	1	0.6	0.6	∞
Test sample related										
14	Test sample positioning	A	3.3	N	1	1	1	3.3	3.3	71
15	Device holder uncertainty	A	3.4	N	1	1	1	3.4	3.4	5
16	Drift of output power	B	5.0	R	√3	1	1	2.9	2.9	∞
Phantom and set-up										
17	Phantom uncertainty	B	4.0	R	√3	1	1	2.3	2.3	∞
18	Liquid conductivity (target)	B	5.0	R	√3	0.64	0.43	1.8	1.2	∞
19	Liquid conductivity (meas.)	A	2.06	N	1	0.64	0.43	1.32	0.89	43
20	Liquid permittivity (target)	B	5.0	R	√3	0.6	0.49	1.7	1.4	∞
21	Liquid permittivity (meas.)	A	1.6	N	1	0.6	0.49	1.0	0.8	521

Combined standard uncertainty	$u_c^{'} = \sqrt{\sum_{i=1}^{21} c_i^2 u_i^2}$					9.55	9.43	257
Expanded uncertainty (confidence interval of 95 %)	$u_e = 2u_c$					19.1	18.9	

16.2 Measurement Uncertainty for Normal SAR Tests (3~6GHz)

No.	Error Description	Type	Uncertainty value	Probably Distribution	Div.	(Ci) 1g	(Ci) 10g	Std. Unc. (1g)	Std. Unc. (10g)	Degree of freedom
Measurement system										
1	Probe calibration	B	6.55	N	1	1	1	6.55	6.55	∞
2	Isotropy	B	4.7	R	√3	0.7	0.7	1.9	1.9	∞
3	Boundary effect	B	2.0	R	√3	1	1	1.2	1.2	∞
4	Linearity	B	4.7	R	√3	1	1	2.7	2.7	∞
5	Detection limit	B	1.0	R	√3	1	1	0.6	0.6	∞
6	Readout electronics	B	0.3	R	√3	1	1	0.3	0.3	∞
7	Response time	B	0.8	R	√3	1	1	0.5	0.5	∞
8	Integration time	B	2.6	R	√3	1	1	1.5	1.5	∞
9	RF ambient conditions-noise	B	0	R	√3	1	1	0	0	∞
10	RFambient conditions-reflection	B	0	R	√3	1	1	0	0	∞
11	Probe positioned mech. restrictions	B	0.8	R	√3	1	1	0.5	0.5	∞
12	Probe positioning with respect to phantom shell	B	6.7	R	√3	1	1	3.9	3.9	∞
13	Post-processing	B	4.0	R	√3	1	1	2.3	2.3	∞
Test sample related										
14	Test sample positioning	A	3.3	N	1	1	1	3.3	3.3	71
15	Device holder uncertainty	A	3.4	N	1	1	1	3.4	3.4	5
16	Drift of output power	B	5.0	R	√3	1	1	2.9	2.9	∞
Phantom and set-up										
17	Phantom uncertainty	B	4.0	R	√3	1	1	2.3	2.3	∞
18	Liquid conductivity (target)	B	5.0	R	√3	0.64	0.43	1.8	1.2	∞
19	Liquid conductivity (meas.)	A	2.06	N	1	0.64	0.43	1.32	0.89	43
20	Liquid permittivity (target)	B	5.0	R	√3	0.6	0.49	1.7	1.4	∞

21	Liquid permittivity (meas.)	A	1.6	N	1	0.6	0.49	1.0	0.8	521
Combined standard uncertainty		$u_c^{'} = \sqrt{\sum_{i=1}^{21} c_i^2 u_i^2}$						10.7	10.6	257
Expanded uncertainty (confidence interval of 95 %)		$u_e = 2u_c$						21.4	21.1	

16.3 Measurement Uncertainty for Fast SAR Tests (300MHz~3GHz)

No.	Error Description	Type	Uncertainty value	Probably Distribution	Div.	(Ci) 1g	(Ci) 10g	Std. Unc. (1g)	Std. Unc. (10g)	Degree of freedom
Measurement system										
1	Probe calibration	B	6.0	N	1	1	1	6.0	6.0	∞
2	Isotropy	B	4.7	R	√3	0.7	0.7	1.9	1.9	∞
3	Boundary effect	B	1.0	R	√3	1	1	0.6	0.6	∞
4	Linearity	B	4.7	R	√3	1	1	2.7	2.7	∞
5	Detection limit	B	1.0	R	√3	1	1	0.6	0.6	∞
6	Readout electronics	B	0.3	R	√3	1	1	0.3	0.3	∞
7	Response time	B	0.8	R	√3	1	1	0.5	0.5	∞
8	Integration time	B	2.6	R	√3	1	1	1.5	1.5	∞
9	RF ambient conditions-noise	B	0	R	√3	1	1	0	0	∞
10	RFambient conditions-reflection	B	0	R	√3	1	1	0	0	∞
11	Probe positioned mech. Restrictions	B	0.4	R	√3	1	1	0.2	0.2	∞
12	Probe positioning with respect to phantom shell	B	2.9	R	√3	1	1	1.7	1.7	∞
13	Post-processing	B	1.0	R	√3	1	1	0.6	0.6	∞
14	Fast SAR z-Approximation	B	7.0	R	√3	1	1	4.0	4.0	∞
Test sample related										
15	Test sample positioning	A	3.3	N	1	1	1	3.3	3.3	71
16	Device holder uncertainty	A	3.4	N	1	1	1	3.4	3.4	5
17	Drift of output power	B	5.0	R	√3	1	1	2.9	2.9	∞
Phantom and set-up										
18	Phantom uncertainty	B	4.0	R	√3	1	1	2.3	2.3	∞
19	Liquid conductivity (target)	B	5.0	R	√3	0.64	0.43	1.8	1.2	∞

20	Liquid conductivity (meas.)	A	2.06	N	1	0.64	0.43	1.32	0.89	43
21	Liquid permittivity (target)	B	5.0	R	√3	0.6	0.49	1.7	1.4	∞
22	Liquid permittivity (meas.)	A	1.6	N	1	0.6	0.49	1.0	0.8	521
Combined standard uncertainty		$u_c^{'} = \sqrt{\sum_{i=1}^{22} c_i^2 u_i^2}$						10.4	10.3	257
Expanded uncertainty (confidence interval of 95 %)		$u_e = 2u_c$						20.8	20.6	

16.4 Measurement Uncertainty for Fast SAR Tests (3~6GHz)

No.	Error Description	Type	Uncertainty value	Probably Distribution	Div.	(Ci) 1g	(Ci) 10g	Std. Unc. (1g)	Std. Unc. (10g)	Degree of freedom
Measurement system										
1	Probe calibration	B	6.55	N	1	1	1	6.55	6.55	∞
2	Isotropy	B	4.7	R	√3	0.7	0.7	1.9	1.9	∞
3	Boundary effect	B	2.0	R	√3	1	1	1.2	1.2	∞
4	Linearity	B	4.7	R	√3	1	1	2.7	2.7	∞
5	Detection limit	B	1.0	R	√3	1	1	0.6	0.6	∞
6	Readout electronics	B	0.3	R	√3	1	1	0.3	0.3	∞
7	Response time	B	0.8	R	√3	1	1	0.5	0.5	∞
8	Integration time	B	2.6	R	√3	1	1	1.5	1.5	∞
9	RF ambient conditions-noise	B	0	R	√3	1	1	0	0	∞
10	RFambient conditions-reflection	B	0	R	√3	1	1	0	0	∞
11	Probe positioned mech. Restrictions	B	0.8	R	√3	1	1	0.5	0.5	∞
12	Probe positioning with respect to phantom shell	B	6.7	R	√3	1	1	3.9	3.9	∞
13	Post-processing	B	1.0	R	√3	1	1	0.6	0.6	∞
14	Fast SAR z-Approximation	B	14.0	R	√3	1	1	8.1	8.1	∞
Test sample related										
15	Test sample positioning	A	3.3	N	1	1	1	3.3	3.3	71
16	Device holder uncertainty	A	3.4	N	1	1	1	3.4	3.4	5
17	Drift of output power	B	5.0	R	√3	1	1	2.9	2.9	∞

Phantom and set-up										
18	Phantom uncertainty	B	4.0	R	$\sqrt{3}$	1	1	2.3	2.3	∞
19	Liquid conductivity (target)	B	5.0	R	$\sqrt{3}$	0.64	0.43	1.8	1.2	∞
20	Liquid conductivity (meas.)	A	2.06	N	1	0.64	0.43	1.32	0.89	43
21	Liquid permittivity (target)	B	5.0	R	$\sqrt{3}$	0.6	0.49	1.7	1.4	∞
22	Liquid permittivity (meas.)	A	1.6	N	1	0.6	0.49	1.0	0.8	521
Combined standard uncertainty		$u_c' = \sqrt{\sum_{i=1}^{22} c_i^2 u_i^2}$						13.5	13.4	257
Expanded uncertainty (confidence interval of 95 %)		$u_e = 2u_c$						27.0	26.8	

17 MAIN TEST INSTRUMENTS

Table 17.1: List of Main Instruments

No.	Name	Type	Serial Number	Calibration Date	Valid Period
01	Network analyzer	E5071C	MY46110673	January 24, 2019	One year
02	Power meter	NRP2	106277	September 4, 2019	One year
03	Power sensor	NRP8S	104291		
04	Power sensor	NRP6A	101369	April 11, 2019	One Year
05	Signal Generator	E4438C	MY49070393	January 4, 2019	One Year
06	Amplifier	60S1G4	0331848	No Calibration Requested	
07	Directional Coupler	778D	MY48220584	No Calibration Requested	
08	Directional Coupler	772D	MY46151265	No Calibration Requested	
09	BTS	E5515C	MY50263375	January 17, 2019	One year
10	BTS	CMW500	159890	January 3, 2019	One year
11	E-field Probe	SPEAG EX3DV4	3617	January 31, 2019	One year
12	DAE	SPEAG DAE4	771	January 11,2019	One year
13	Dipole Validation Kit	SPEAG D750V3	1017	July 18, 2019	One year
14	Dipole Validation Kit	SPEAG D835V2	4d069	July 18, 2019	One year
15	Dipole Validation Kit	SPEAG D1750V2	1003	July 16, 2019	One year
16	Dipole Validation Kit	SPEAG D1900V2	5d101	July 17, 2019	One year
17	Dipole Validation Kit	SPEAG D2450V2	853	July 17, 2019	One year
18	Dipole Validation Kit	SPEAG D2600V2	1012	July 17, 2019	One year
19	Dipole Validation Kit	SPEAG D5GHzV2	1060	July 22, 2019	One year

END OF REPORT BODY

ANNEX A Graph Results

GSM850_CH190 Right Cheek
Date: 11/6/2019
Electronics: DAE4 Sn771
Medium: head 835 MHz
Medium parameters used: f = 836.6 MHz; σ = 0.92 mho/m; εr = 41.49; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: GSM850 836.6 MHz Duty Cycle: 1:8.3
Probe: EX3DV4 – SN3617 ConvF(9.75,9.75,9.75)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.36 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 29.43 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 1.33 W/kg
SAR(1 g) = 0.609 W/kg; SAR(10 g) = 0.345 W/kg
Maximum value of SAR (measured) = 0.896 W/kg

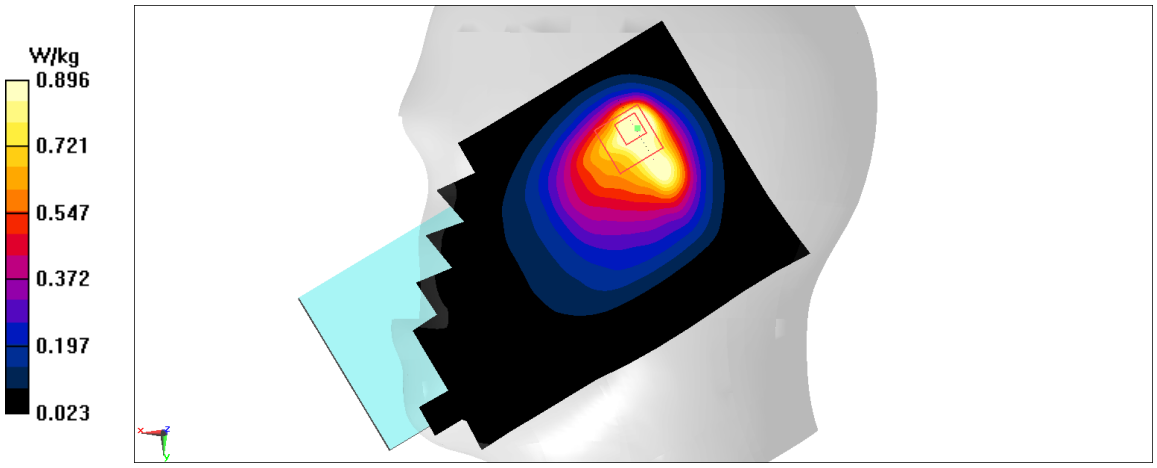


Fig A.1

GSM850_CH190 Rear
Date: 11/6/2019
Electronics: DAE4 Sn771
Medium: body 835 MHz
Medium parameters used: f = 836.6 MHz; σ = 0.966 mho/m; εr = 55.01; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: GSM850 836.6 MHz Duty Cycle: 1:4
Probe: EX3DV4 – SN3617 ConvF(9.61,9.61,9.61)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.351 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 17.32 V/m; Power Drift = -0.16 dB
Peak SAR (extrapolated) = 0.385 W/kg
SAR(1 g) = 0.286 W/kg; SAR(10 g) = 0.221 W/kg
Maximum value of SAR (measured) = 0.348 W/kg

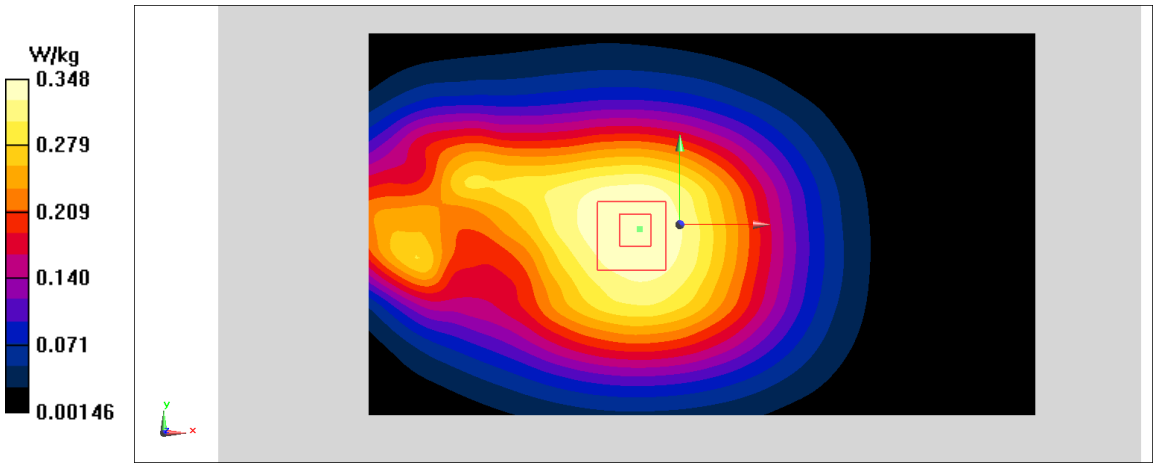


Fig A.2

PCS1900_CH512 Right Tilt
Date: 11/8/2019
Electronics: DAE4 Sn771
Medium: head 1900 MHz
Medium parameters used: f = 1850.2 MHz; σ = 1.328 mho/m; εr = 40.11; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: PCS1900 1850.2 MHz Duty Cycle: 1:8.3
Probe: EX3DV4 – SN3617 ConvF(8.14,8.14,8.14)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.626 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 17.27 V/m; Power Drift = -0.1 dB
Peak SAR (extrapolated) = 0.696 W/kg
SAR(1 g) = 0.39 W/kg; SAR(10 g) = 0.202 W/kg
Maximum value of SAR (measured) = 0.54 W/kg

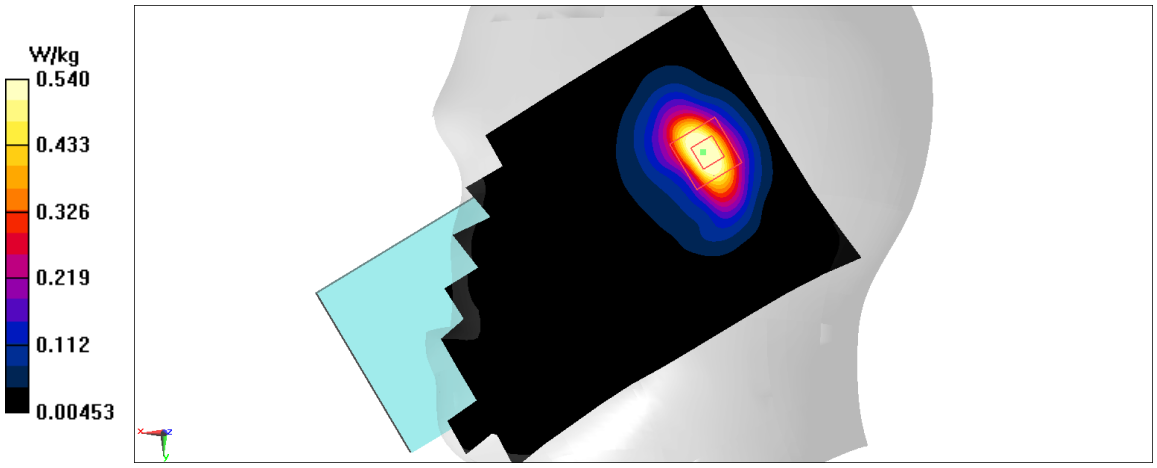


Fig A.3

PCS1900_CH512 Top
Date: 11/8/2019
Electronics: DAE4 Sn771
Medium: body 1900 MHz
Medium parameters used: f = 1850.2 MHz; σ = 1.485 mho/m; εr = 53.49; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: PCS1900 1850.2 MHz Duty Cycle: 1:4
Probe: EX3DV4 – SN3617 ConvF(7.78,7.78,7.78)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.33 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 29.27 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 1.54 W/kg
SAR(1 g) = 0.913 W/kg; SAR(10 g) = 0.528 W/kg
Maximum value of SAR (measured) = 1.32 W/kg

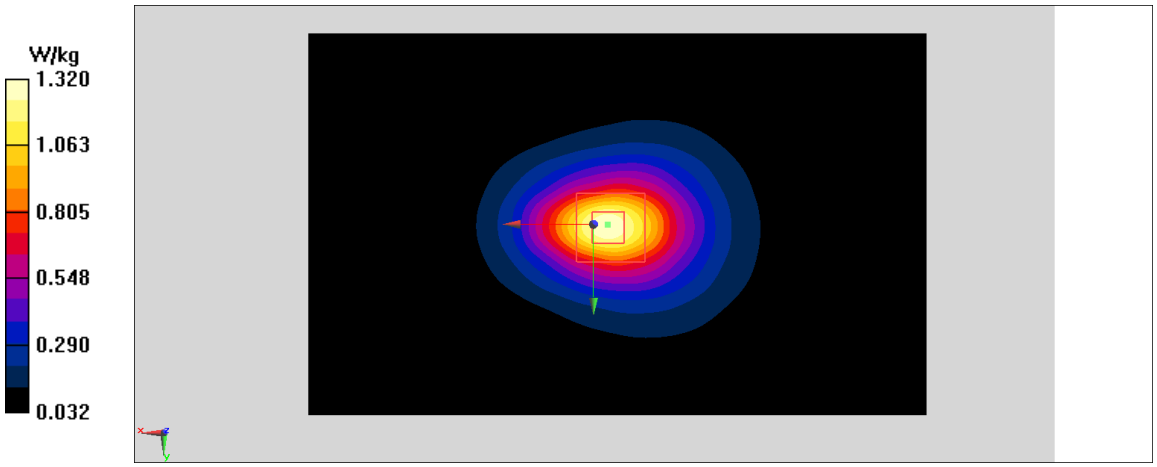


Fig A.4

WCDMA850-BV_CH4183 Right Cheek
Date: 11/6/2019
Electronics: DAE4 Sn771
Medium: head 835 MHz
Medium parameters used: f = 836.6 MHz; σ = 0.92 mho/m; εr = 41.49; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: WCDMA850-BV 836.6 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN3617 ConvF(9.75,9.75,9.75)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.197 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.666 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 0.206 W/kg
SAR(1 g) = 0.165 W/kg; SAR(10 g) = 0.129 W/kg
Maximum value of SAR (measured) = 0.187 W/kg

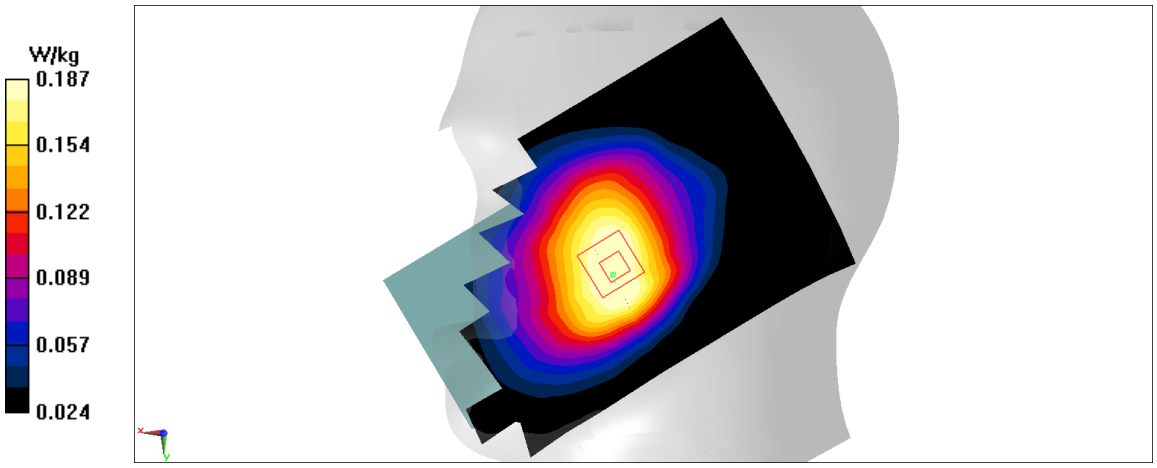


Fig A.5

WCDMA850-BV_CH4233 Rear
Date: 11/6/2019
Electronics: DAE4 Sn771
Medium: body 835 MHz
Medium parameters used: f = 846.6 MHz; σ = 0.975 mho/m; εr = 55; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: WCDMA850-BV 846.6 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN3617 ConvF(9.61,9.61,9.61)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.249 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 15.27 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 0.27 W/kg
SAR(1 g) = 0.202 W/kg; SAR(10 g) = 0.158 W/kg
Maximum value of SAR (measured) = 0.243 W/kg

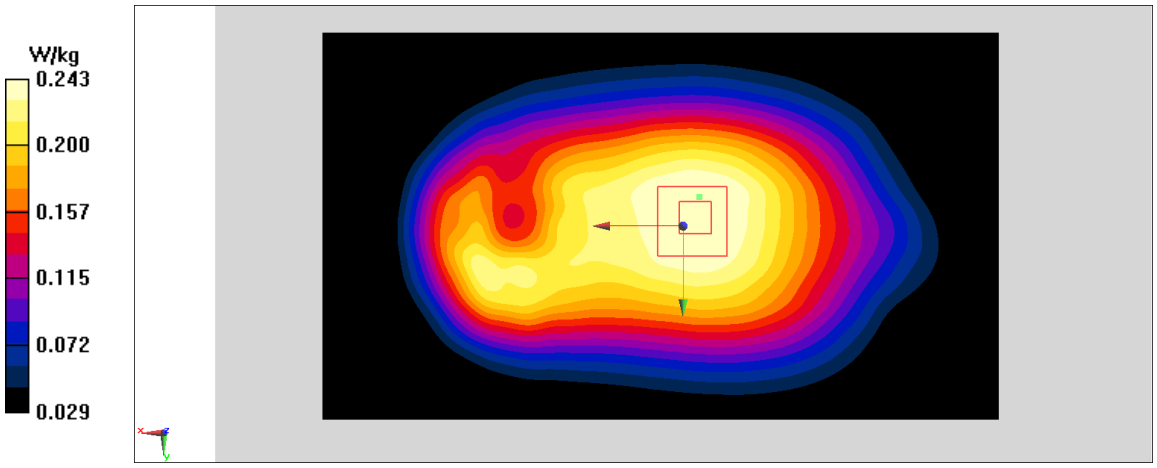


Fig A.6

WCDMA1700-BIV_CH1513 Left Tilt
Date: 11/7/2019
Electronics: DAE4 Sn771
Medium: head 1750 MHz
Medium parameters used: f = 1752.6 MHz; σ = 1.358 mho/m; εr = 39.86; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: WCDMA1700-BIV 1752.6 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN3617 ConvF(8.38,8.38,8.38)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.58 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 29.36 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 1.75 W/kg
SAR(1 g) = 0.995 W/kg; SAR(10 g) = 0.52 W/kg
Maximum value of SAR (measured) = 1.4 W/kg

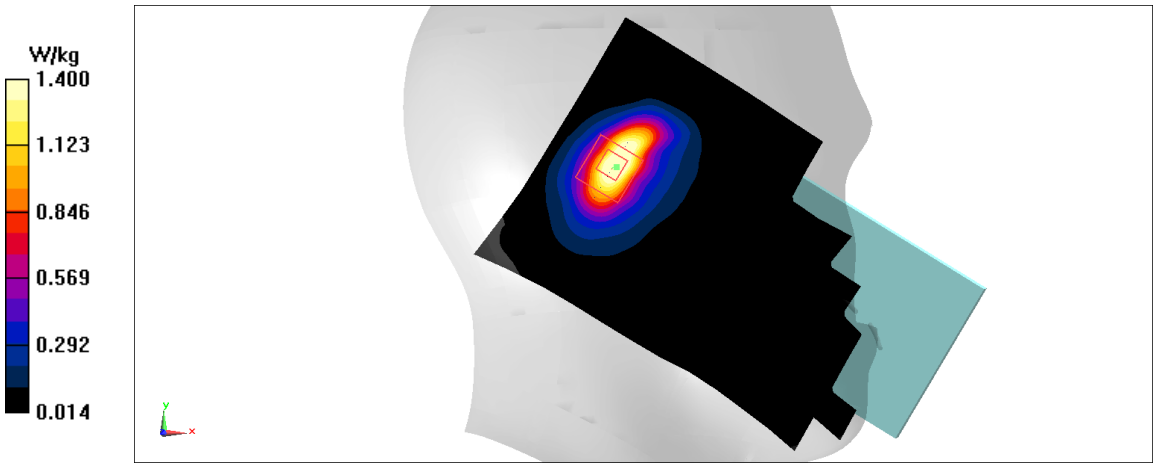


Fig A.7

WCDMA1700-BIV_CH1513 Top
Date: 11/7/2019
Electronics: DAE4 Sn771
Medium: body 1750 MHz
Medium parameters used: f = 1752.6 MHz; σ = 1.498 mho/m; εr = 54.2; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: WCDMA1700-BIV 1752.6 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN3617 ConvF(8.03,8.03,8.03)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.44 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 31.94 V/m; Power Drift = 0 dB
Peak SAR (extrapolated) = 1.66 W/kg
SAR(1 g) = 0.992 W/kg; SAR(10 g) = 0.58 W/kg
Maximum value of SAR (measured) = 1.41 W/kg

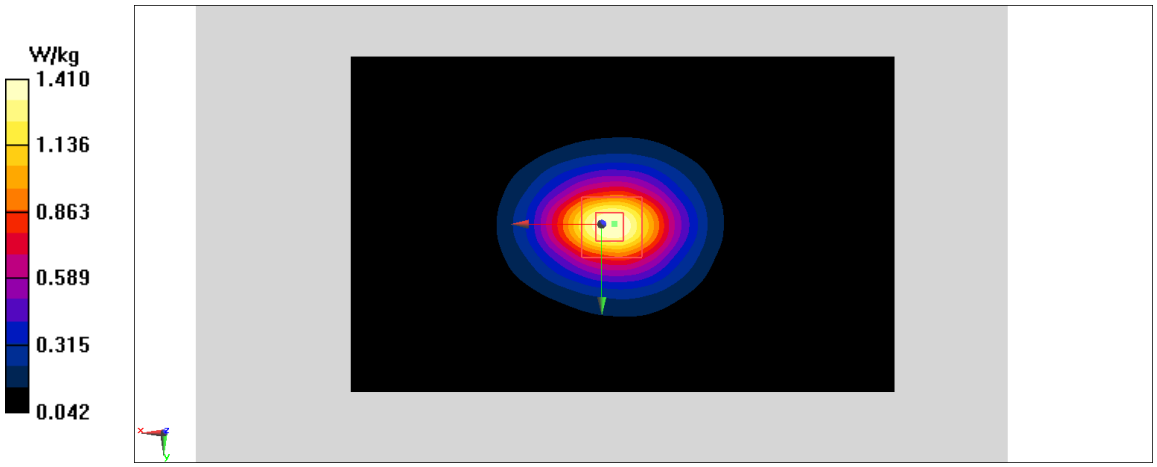


Fig A.8

WCDMA1900-BII_CH9400 Left Tilt
Date: 11/8/2019
Electronics: DAE4 Sn771
Medium: head 1900 MHz
Medium parameters used: f = 1880 MHz; σ = 1.356 mho/m; εr = 40.07; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: WCDMA1900-BII 1880 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN3617 ConvF(8.14,8.14,8.14)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.29 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 31.18 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 1.6 W/kg
SAR(1 g) = 0.874 W/kg; SAR(10 g) = 0.454 W/kg
Maximum value of SAR (measured) = 1.25 W/kg

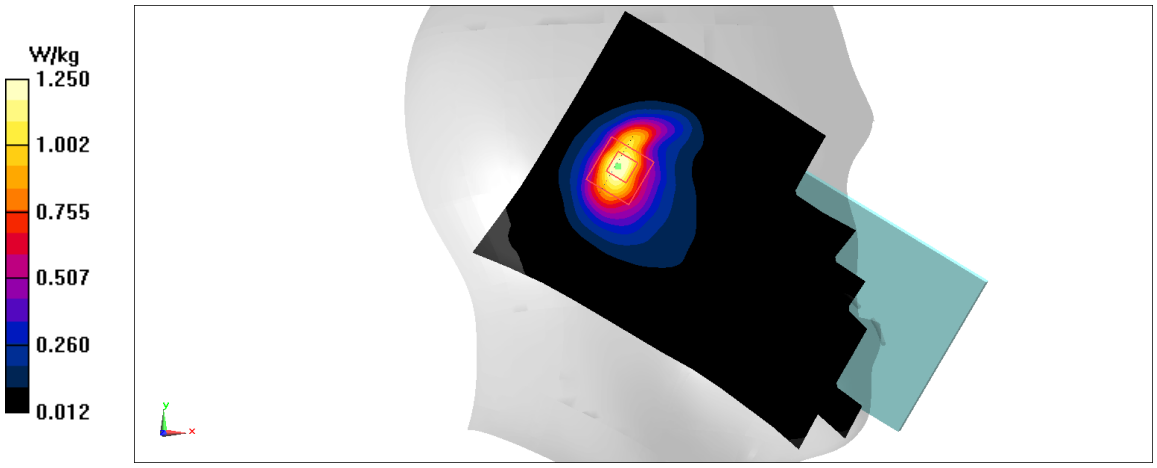


Fig A.9

WCDMA1900-BII_CH9400 Top
Date: 11/8/2019
Electronics: DAE4 Sn771
Medium: body 1900 MHz
Medium parameters used: f = 1880 MHz; σ = 1.514 mho/m; εr = 53.45; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: WCDMA1900-BII 1880 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN3617 ConvF(7.78,7.78,7.78)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.34 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 29.85 V/m; Power Drift = 0 dB
Peak SAR (extrapolated) = 1.55 W/kg
SAR(1 g) = 0.912 W/kg; SAR(10 g) = 0.524 W/kg
Maximum value of SAR (measured) = 1.3 W/kg

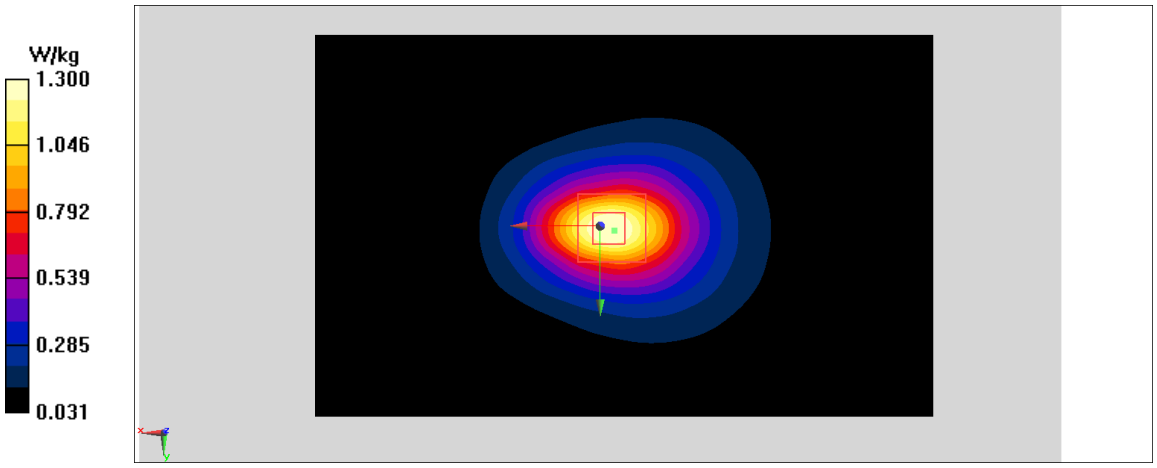


Fig A.10

LTE2500-FDD7_CH21350 Left Cheek
Date: 11/10/2019
Electronics: DAE4 Sn771
Medium: head 2600 MHz
Medium parameters used: f = 2560 MHz; σ = 1.923 mho/m; εr = 39.15; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: LTE2500-FDD7 2560 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN3617 ConvF(7.19,7.19,7.19)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.47 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.404 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 1.65 W/kg
SAR(1 g) = 0.946 W/kg; SAR(10 g) = 0.515 W/kg
Maximum value of SAR (measured) = 1.3 W/kg

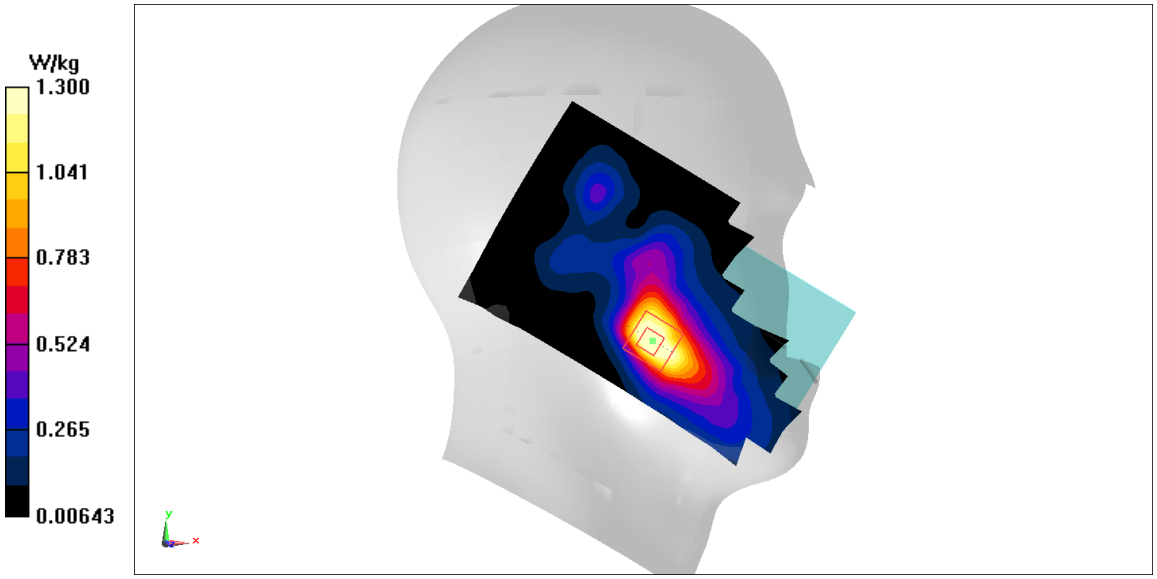


Fig A.11

LTE2500-FDD7_CH21350 Front
Date: 11/10/2019
Electronics: DAE4 Sn771
Medium: body 2600 MHz
Medium parameters used: f = 2560 MHz; σ = 2.162 mho/m; εr = 53.41; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: LTE2500-FDD7 2560 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN3617 ConvF(7.49,7.49,7.49)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.41 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.18 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 1.8 W/kg
SAR(1 g) = 0.962 W/kg; SAR(10 g) = 0.512 W/kg
Maximum value of SAR (measured) = 1.48 W/kg

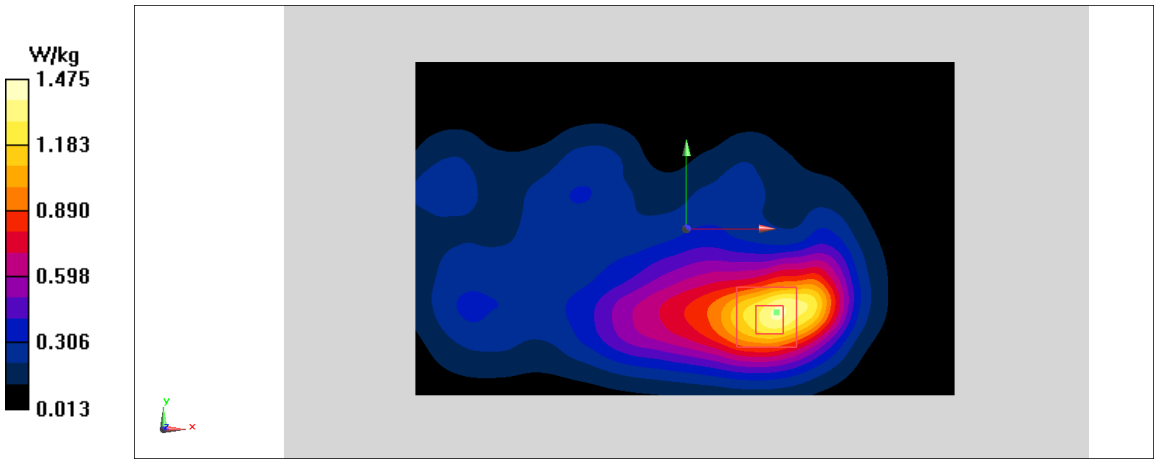


Fig A.12

LTE700-FDD12_CH23060 Right Cheek
Date: 11/5/2019
Electronics: DAE4 Sn771
Medium: head 750 MHz
Medium parameters used: f = 704 MHz; σ = 0.851 mho/m; εr = 42.77; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: LTE700-FDD12 704 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN3617 ConvF(10.03,10.03,10.03)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.25 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.892 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 0.255 W/kg
SAR(1 g) = 0.212 W/kg; SAR(10 g) = 0.17 W/kg
Maximum value of SAR (measured) = 0.235 W/kg

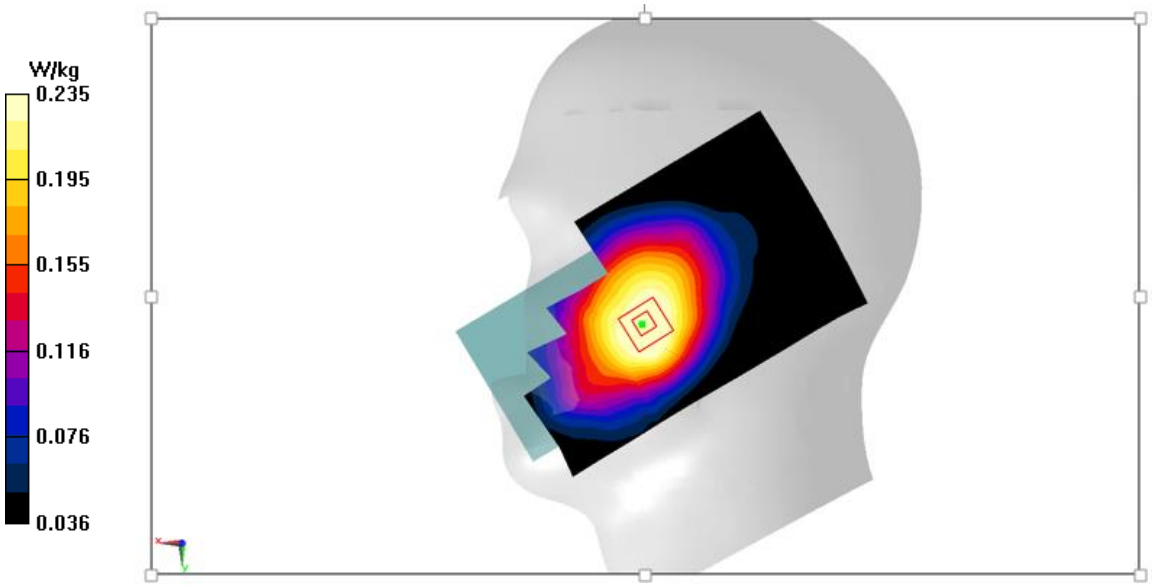


Fig A.13

LTE700-FDD12_CH23130 Rear
Date: 11/5/2019
Electronics: DAE4 Sn771
Medium: body 750 MHz
Medium parameters used: f = 711 MHz; σ = 0.92 mho/m; εr = 54.69; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: LTE700-FDD12 711 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN3617 ConvF(9.85,9.85,9.85)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.552 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 19.4 V/m; Power Drift = -0.17 dB
Peak SAR (extrapolated) = 0.602 W/kg
SAR(1 g) = 0.444 W/kg; SAR(10 g) = 0.339 W/kg
Maximum value of SAR (measured) = 0.543 W/kg

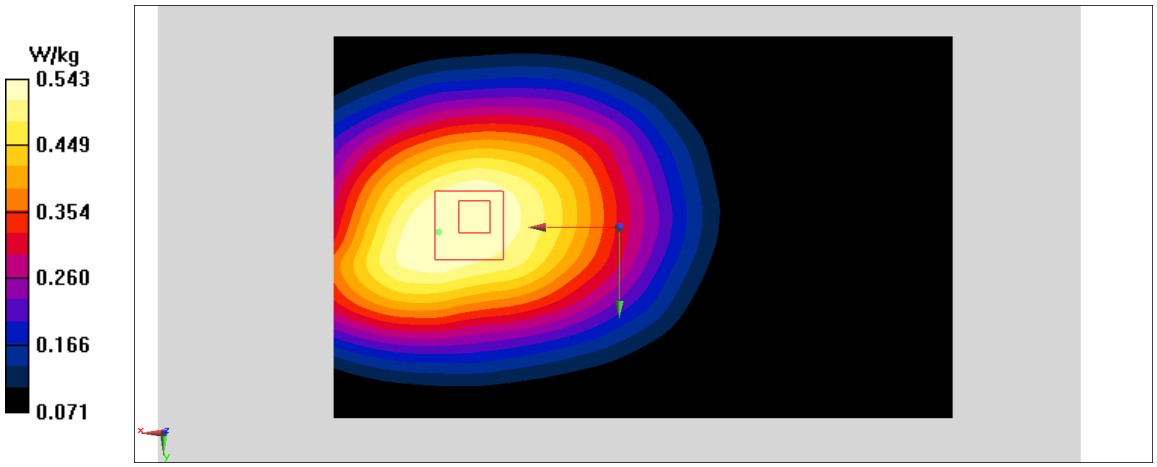


Fig A.14

LTE1900-FDD25_CH26590 Left Tilt
Date: 11/8/2019
Electronics: DAE4 Sn771
Medium: head 1900 MHz
Medium parameters used: f = 1905 MHz; σ = 1.38 mho/m; εr = 40.04; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: LTE1900-FDD25 1905 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN3617 ConvF(8.14,8.14,8.14)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.41 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 27.72 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 1.94 W/kg
SAR(1 g) = 1.07 W/kg; SAR(10 g) = 0.556 W/kg
Maximum value of SAR (measured) = 1.59 W/kg

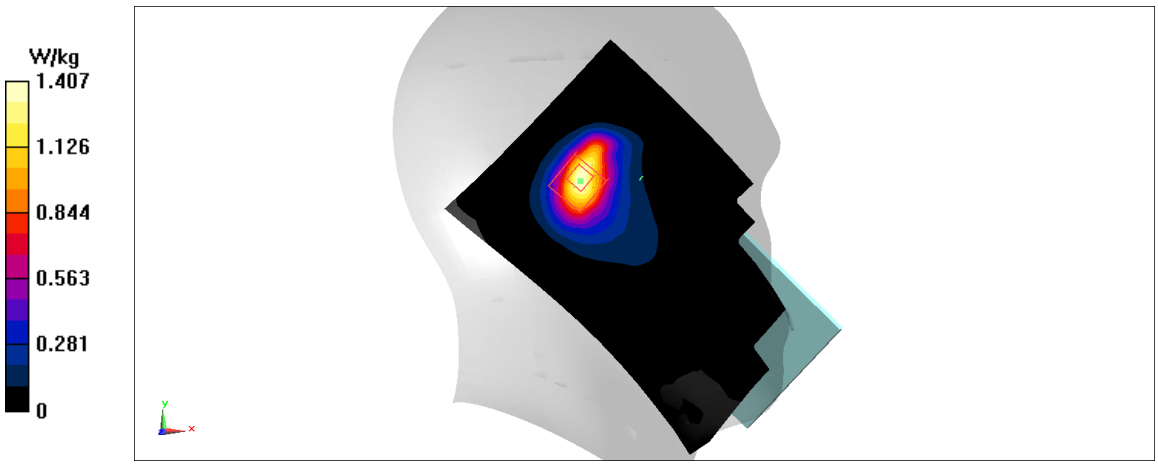


Fig A.15

LTE1900-FDD25_CH26590 Top
Date: 11/8/2019
Electronics: DAE4 Sn771
Medium: body 1900 MHz
Medium parameters used: f = 1905 MHz; σ = 1.538 mho/m; εr = 53.42; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: LTE1900-FDD25 1905 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN3617 ConvF(7.78,7.78,7.78)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.84 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 33.76 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 2.06 W/kg
SAR(1 g) = 1.2 W/kg; SAR(10 g) = 0.692 W/kg
Maximum value of SAR (measured) = 1.75 W/kg

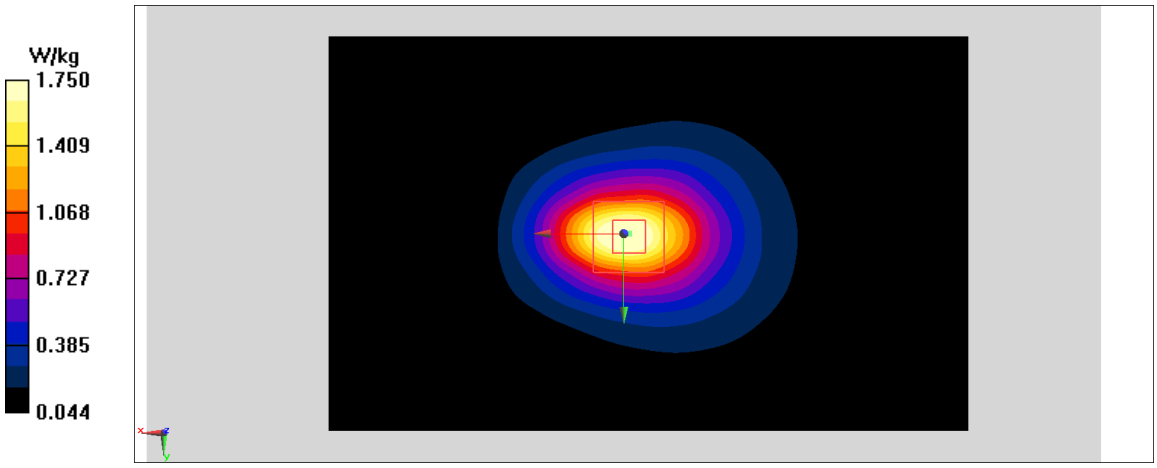


Fig A.16

LTE850-FDD26_CH26775 Right Cheek
Date: 11/6/2019
Electronics: DAE4 Sn771
Medium: head 835 MHz
Medium parameters used: f = 822.5 MHz; σ = 0.906 mho/m; εr = 41.51; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: LTE850-FDD26 822.5 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN3617 ConvF(9.75,9.75,9.75)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.256 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.08 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.253 W/kg
SAR(1 g) = 0.204 W/kg; SAR(10 g) = 0.162 W/kg
Maximum value of SAR (measured) = 0.228 W/kg

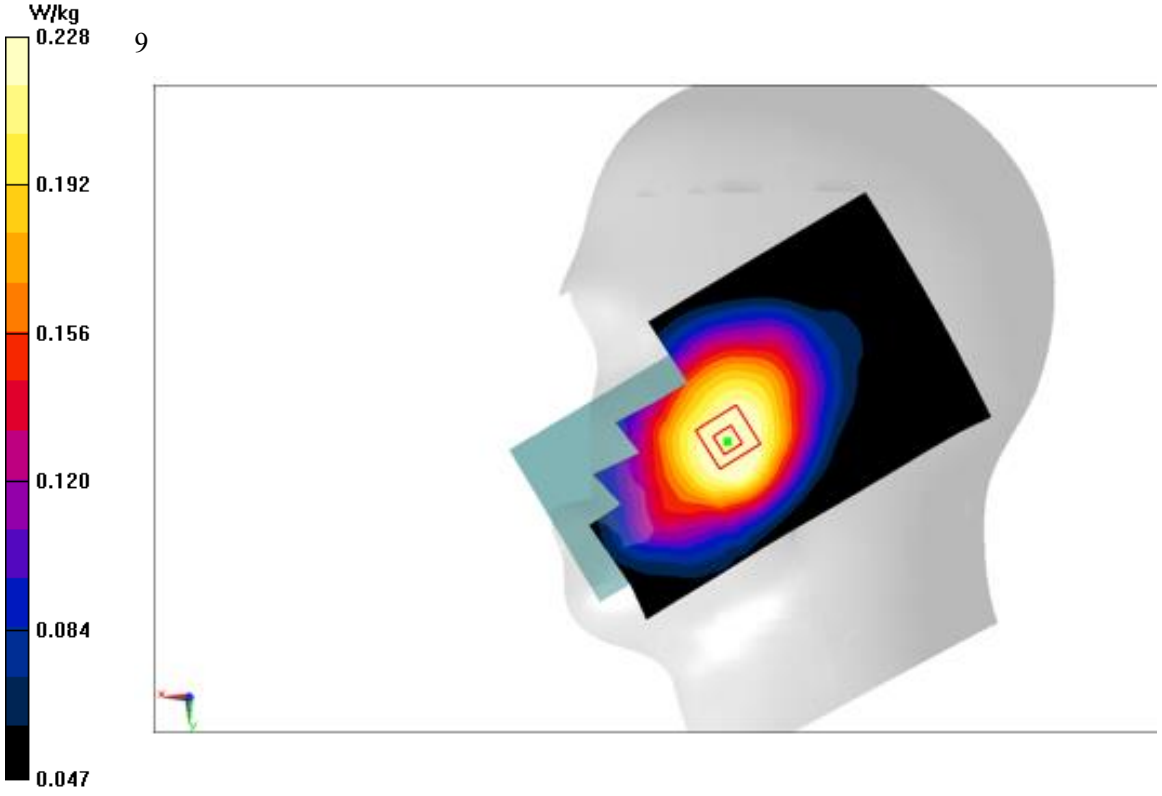


Fig A.17

LTE850-FDD26_CH26775 Rear
Date: 11/6/2019
Electronics: DAE4 Sn771
Medium: body 835 MHz
Medium parameters used: f = 822.5 MHz; σ = 0.952 mho/m; εr = 55.03; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: LTE850-FDD26 822.5 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN3617 ConvF(9.61,9.61,9.61)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.282 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 15.47 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 0.308 W/kg
SAR(1 g) = 0.23 W/kg; SAR(10 g) = 0.178 W/kg
Maximum value of SAR (measured) = 0.277 W/kg

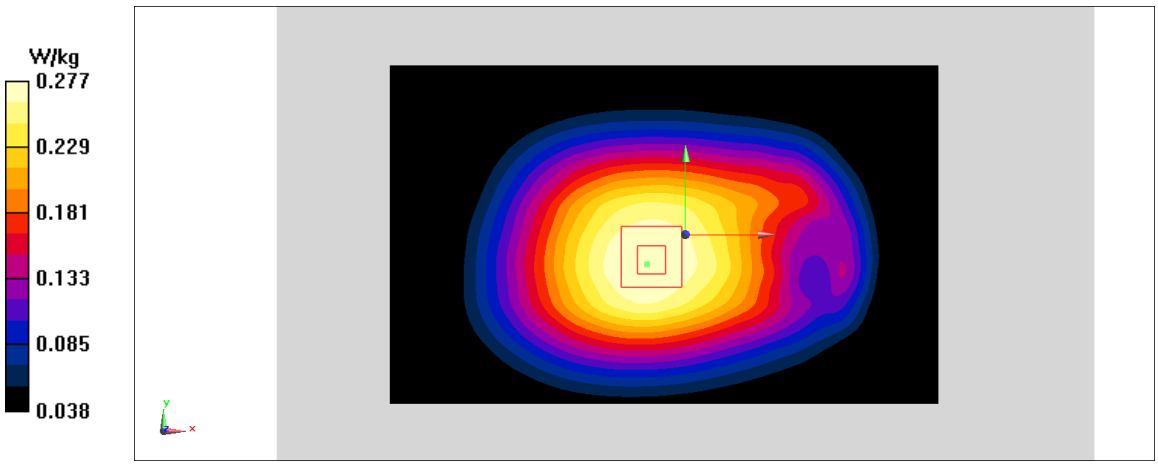


Fig A.18

LTE2600-FDD41_CH39750 Left Cheek
Date: 11/10/2019
Electronics: DAE4 Sn771
Medium: head 2600 MHz
Medium parameters used: f = 2506 MHz; σ = 1.903 mho/m; εr = 39.55; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: LTE2600-FDD41 2506 MHz Duty Cycle: 1:1.58
Probe: EX3DV4 – SN3617 ConvF(7.19,7.19,7.19)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.716 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.253 V/m; Power Drift = -0.1 dB
Peak SAR (extrapolated) = 0.813 W/kg
SAR(1 g) = 0.461 W/kg; SAR(10 g) = 0.25 W/kg
Maximum value of SAR (measured) = 0.632 W/kg

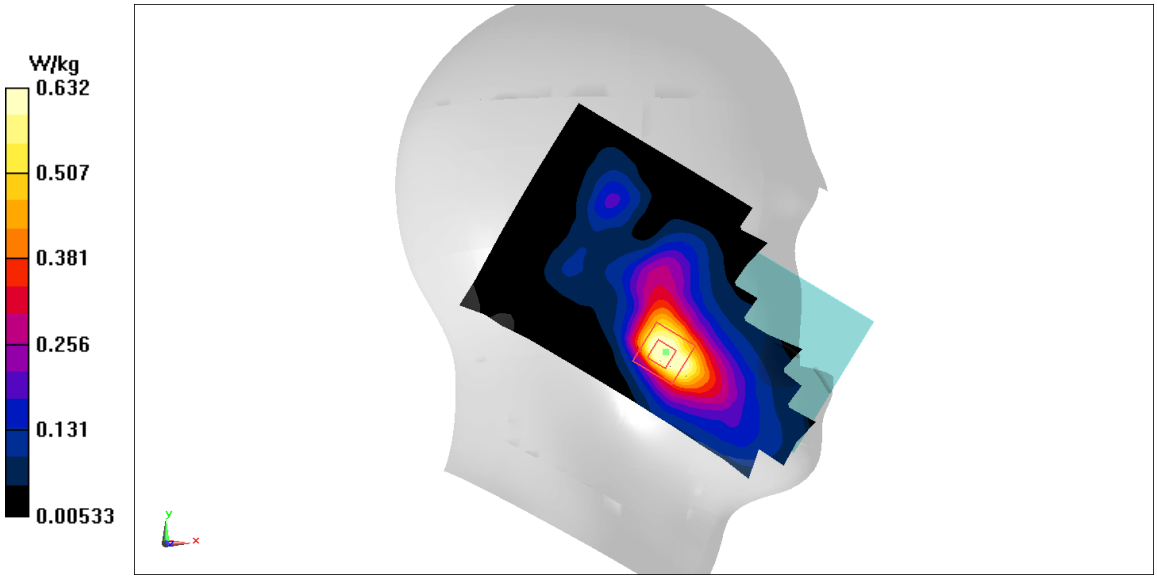


Fig A.19

LTE2600-FDD41_CH39750 Front
Date: 11/10/2019
Electronics: DAE4 Sn771
Medium: body 2600 MHz
Medium parameters used: f = 2506 MHz; σ = 2.151 mho/m; εr = 53.61; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: LTE2600-FDD41 2506 MHz Duty Cycle: 1:1.58
Probe: EX3DV4 – SN3617 ConvF(7.49,7.49,7.49)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.72 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.096 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 0.867 W/kg
SAR(1 g) = 0.487 W/kg; SAR(10 g) = 0.274 W/kg
Maximum value of SAR (measured) = 0.716 W/kg

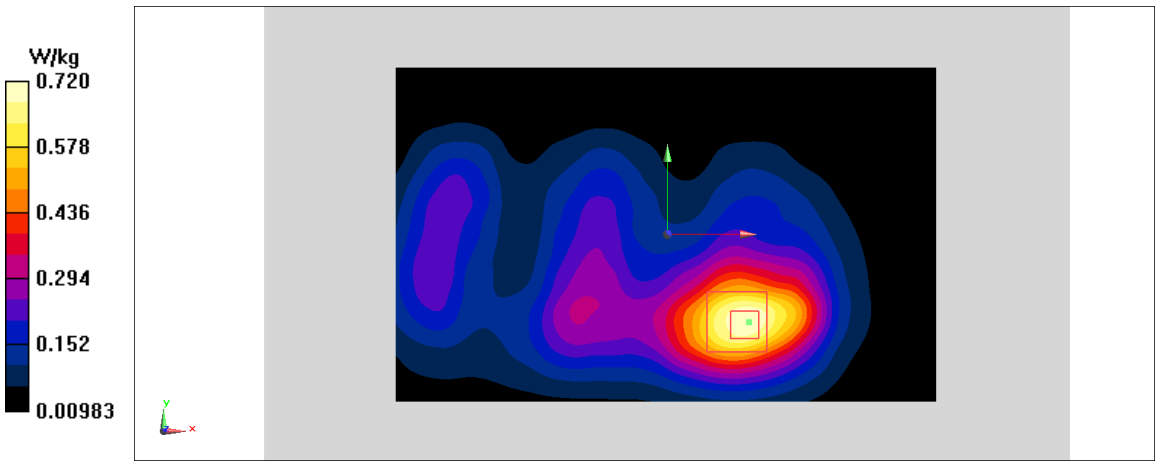


Fig A.20

LTE1700-FDD66_CH132572 Right Tilt
Date: 11/7/2019
Electronics: DAE4 Sn771
Medium: head 1750 MHz
Medium parameters used: f = 1770MHZ; σ = 2.073 mho/m; εr = 38.95; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: LTE1700-FDD66 2506 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN3617 ConvF(8.38,8.38,8.38)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.52 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 22.24 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 1.92 W/kg
SAR(1 g) = 1.05 W/kg; SAR(10 g) = 0.544 W/kg
Maximum value of SAR (measured) = 1.62 W/kg

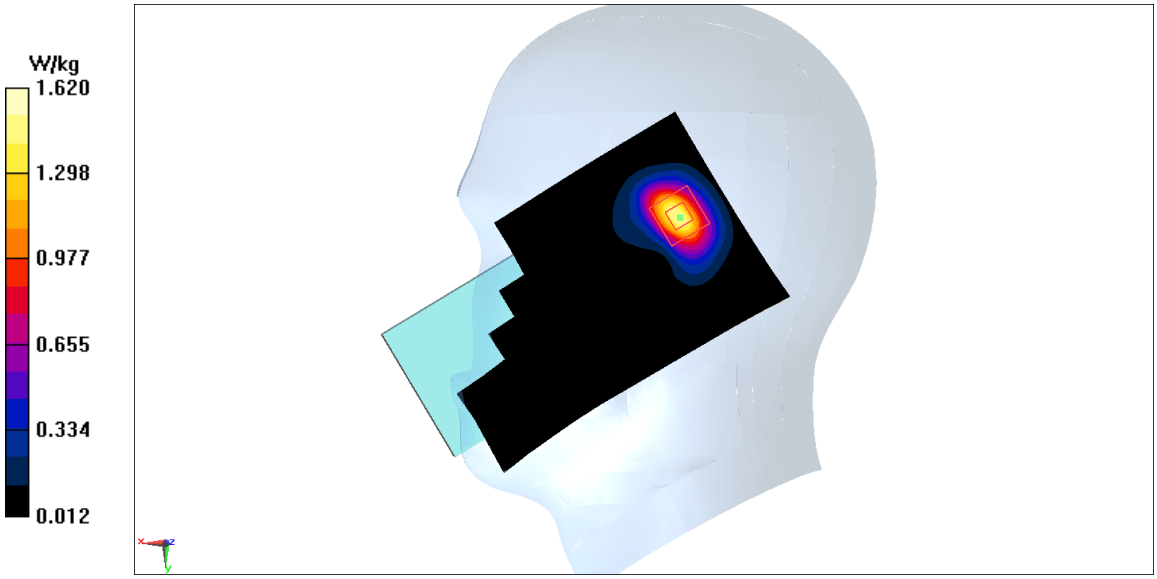


Fig A.21

LTE1700-FDD66_CH132572 Rear
Date: 11/7/2019
Electronics: DAE4 Sn771
Medium: body 1750 MHz
Medium parameters used: f = 1770MHZ; σ = 2.213 mho/m; εr = 53.29; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: LTE1700-FDD66 2506 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN3617 ConvF(8.03,8.03,8.03)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.81 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.72 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 2 W/kg
SAR(1 g) = 1.21 W/kg; SAR(10 g) = 0.717 W/kg
Maximum value of SAR (measured) = 1.7 W/kg

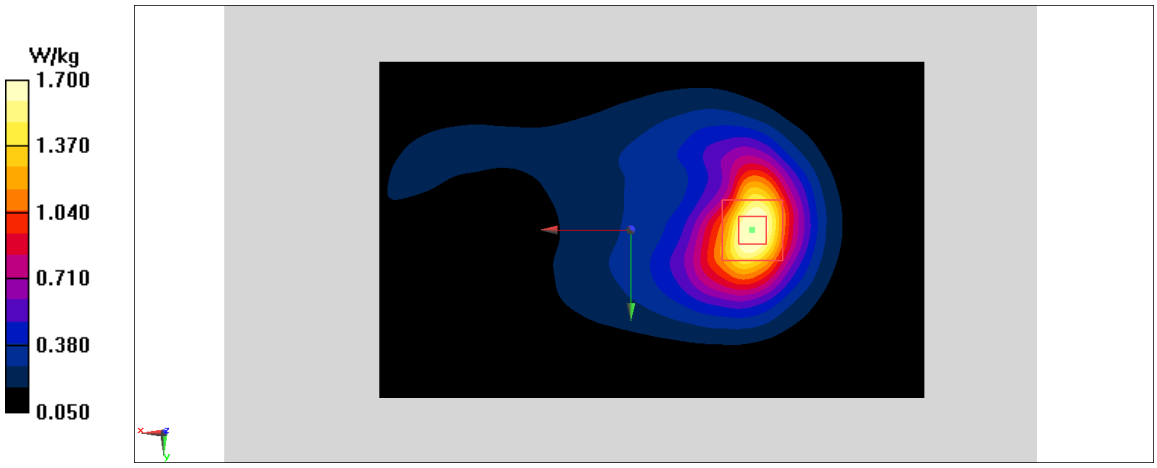


Fig A.22

LTE700-FDD71_CH133322 Right Cheek
Date: 11/5/2019
Electronics: DAE4 Sn771
Medium: head 750 MHz
Medium parameters used: f = 683 MHZ; σ = 2.563 mho/m; εr = 40.6; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: LTE700-FDD71 2506 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN3617 ConvF(10.03,10.03,10.03)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.238 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.552 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 0.25 W/kg
SAR(1 g) = 0.209 W/kg; SAR(10 g) = 0.168 W/kg
Maximum value of SAR (measured) = 0.232 W/kg

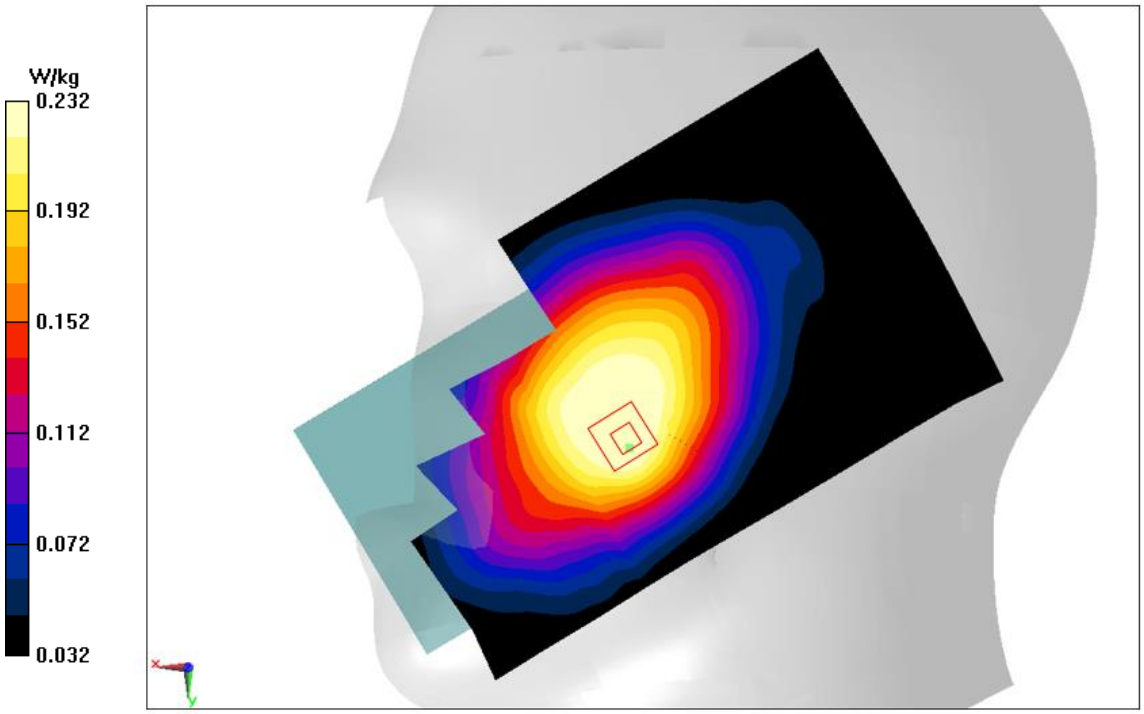


Fig A.23

LTE700-FDD71_CH133322 Rear
Date: 11/5/2019
Electronics: DAE4 Sn771
Medium: body 750 MHz
Medium parameters used: f = 683 MHZ; σ = 2.625 mho/m; εr = 52.53; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: LTE700-FDD71 2506 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN3617 ConvF(9.85,9.85,9.85)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.306 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 15.94 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.359 W/kg
SAR(1 g) = 0.251 W/kg; SAR(10 g) = 0.189 W/kg
Maximum value of SAR (measured) = 0.316 W/kg

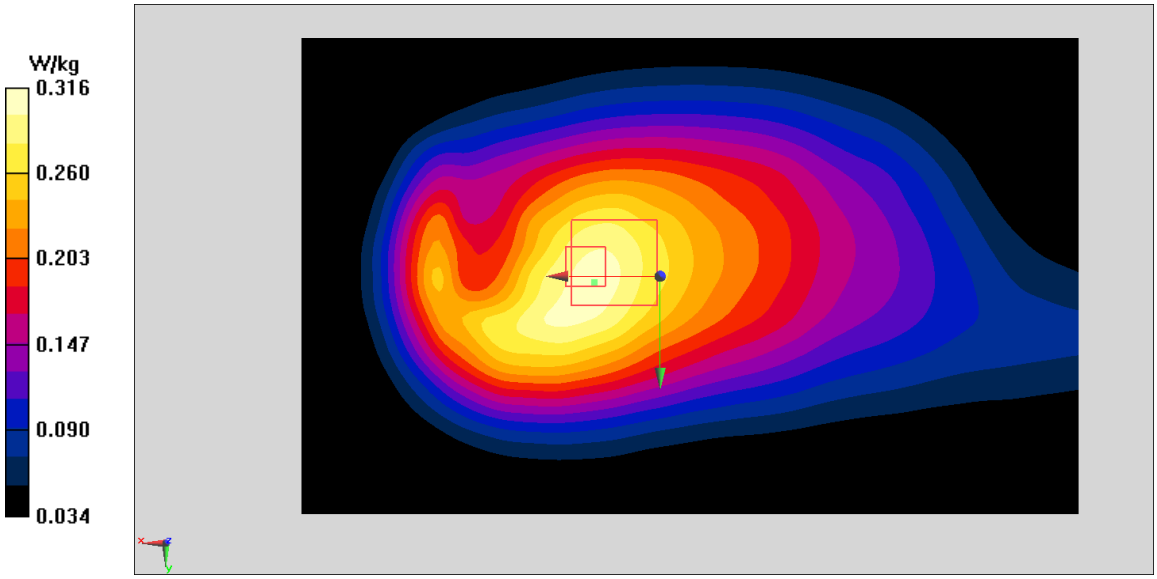


Fig A.24

WLAN2450_CH6 Left Cheek
Date: 11/9/2019
Electronics: DAE4 Sn771
Medium: head 2450 MHz
Medium parameters used: f = 2437 MHZ; σ = 1.805 mho/m; εr = 39; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: WLAN2450 2437 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN3617 ConvF(7.62,7.62,7.62)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.45 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.6 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 1.9 W/kg
SAR(1 g) = 0.849 W/kg; SAR(10 g) = 0.4 W/kg
Maximum value of SAR (measured) = 1.44 W/kg

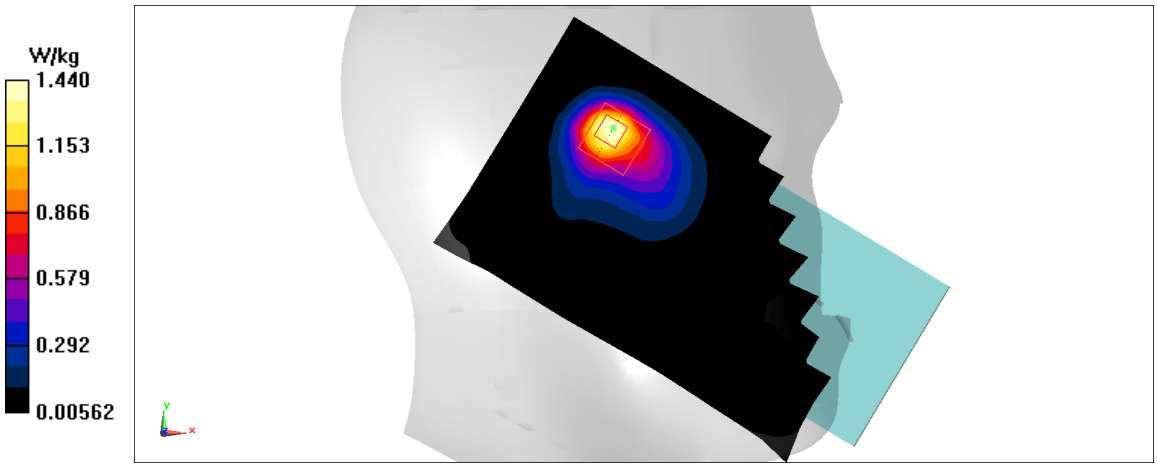


Fig A.25