SAR TEST REPORT

No. I19Z60700-SEM01

For

Hytera Communications Corporation Limited

Smart LTE Terminal

Model Name: PNC550

With

Hardware Version: 1.01

Software Version: V1.0.01.001.01

FCC ID: YAMPNC550B9

Issued Date: 2019-7-15

TESTING
NVLAP LAB CODE 600118-0

Note:

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

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S.Government.

Test Laboratory:

CTTL, Telecommunication Technology Labs, CAICT

No. 51, Huayuan North Road, Haidian District, Beijing, P. R. China 100191.

Tel:+86(0)10-62304633-2512, Fax:+86(0)10-62304633-2504

Email: cttl_terminals@caict.ac.cn, website: www.caict.ac.cn

REPORT HISTORY

Report Number	Revision	Issue Date	Description
I19Z60700-SEM01	Rev.0	2019-7-	Initial creation of test report
I19Z60700-SEM01	Rev.1	2019-7-	Update the conducted Power for GSM1900 on page29. Update the conducted Power for LTE band4 on page33. Update the conducted Power for LTE band38 on page42. Update the information on section 12.3 of test report. Update the information on section 4.1 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

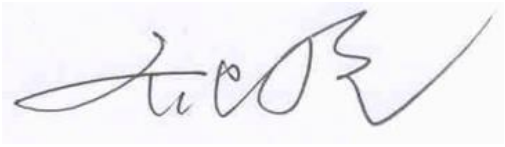
1.3 Project Data

Project Leader:	Qi Dianyuan
Test Engineer:	Lin Xiaojun
Testing Start Date:	May 25, 2019
Testing End Date:	May 30, 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 SAR found during testing for Hytera Communications Corporation Limited Smart LTE Terminal PNC550 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	0.79	PCE
	PCS 1900	0.96	
	UMTS FDD 2	1.17	
	UMTS FDD 4	1.03	
	UMTS FDD 5	0.91	
	LTE Band 2	1.19	
	LTE Band 4	0.87	
	LTE Band 7	1.26	
	LTE Band 12	0.14	
	LTE Band 13	0.37	
	LTE Band 26	0.81	
	LTE Band 38	0.96	
	WiFi 2.4 GHz	0.50	DTS
Hotspot (Separation Distance 10mm)	GSM 850	0.33	PCE
	PCS 1900	0.54	
	UMTS FDD 2	0.30	
	UMTS FDD 4	0.30	
	UMTS FDD 5	0.38	
	LTE Band 2	0.42	
	LTE Band 4	0.34	
	LTE Band 7	0.33	
	LTE Band 12	0.06	
	LTE Band 13	0.17	
	LTE Band 26	0.32	
	LTE Band 38	0.12	
	WiFi 2.4 GHz	0.12	DTS

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 worn 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 mm 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**: 1.26 W/kg (1g).**

Table 2.2: The sum of reported SAR values for main antenna and WiFi

	Position	Main antenna	WiFi	Sum
Highest reported SAR value for Head	Right hand, Touch cheek	1.26	0.32	**1.58**
Highest reported SAR value for Body	Rear	0.54	0.08	**0.62**

Table 2.3: The sum of reported SAR values for main antenna and BT

	Position	Main antenna	BT	Sum
Maximum reported SAR value for Head	Right hand, Touch cheek	1.26	0.21	**1.47**
Maximum reported SAR value for Body	Rear	0.54	0.10	**0.64**

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

According to the above tables, the highest sum of reported SAR values is **1.58 W/kg (1g)**. The detail for simultaneous transmission consideration is described in chapter 13.

3 Client Information

3.1 Applicant Information

Company Name:	Hytera Communications Corporation Limited
Address /Post:	Hytera Tower, Hi-Tech Industrial Park North, 9108# Beihuan Road, Nanshan District, Shenzhen, People's Republic of China
City:	Shanghai
Postal Code:	201203
Country:	China
Contact Person:	licheng
E-mail:	cheng.li@hytera.com
Telephone:	13717055929
Fax:	/

3.2 Manufacturer Information

Company Name:	Hytera Communications Corporation Limited
Address /Post:	Hytera Tower, Hi-Tech Industrial Park North, 9108# Beihuan Road, Nanshan District, Shenzhen, People's Republic of China
City:	Shanghai
Postal Code:	201203
Country:	China
Contact Person:	licheng
E-mail:	cheng.li@hytera.com
Telephone:	13717055929
Fax:	/

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

4.1 About EUT

Description:	Smart LTE Terminal
Model name:	PNC550
Operating mode(s):	GSM 850/900/1800/1900 WCDMA850/1700/1900 LTE B2/3/4/5/7/12/13/17/26/28/38, BT, WiFi
Tested Tx Frequency:	825 – 848.8 MHz (GSM 850)
	1850.2 – 1910 MHz (GSM 1900)
	826.4–846.6 MHz (WCDMA 850 Band V)
	1712.4 – 1752.6 MHz (WCDMA 1700 Band IV)
	1852.4–1907.6 MHz (WCDMA1900 Band II)
	1860 – 1900 MHz (LTE Band 2)
	1720 – 1745 MHz (LTE Band 4)
	2502.5 – 2567.5 MHz (LTE Band 7)
	699.7 – 715.3 MHz (LTE Band 12)
	779.5 –784.5 MHz (LTE Band 13)
	814.7 –848.3 MHz (LTE Band 26)
	2572.5 –2617.5 MHz (LTE Band 38)
	2412 – 2462 MHz (Wi-Fi 2.4G)
GPRS/EGPRS Multislot Class:	12
GPRS capability Class:	B
Test device Production information:	Production unit
Device type:	Portable device
Antenna type:	Integrated antenna
Accessories/Body-worn configurations:	Headset
Hotspot mode:	Support
Product dimension	Long 156.5mm ;Wide 75mm ; Overall Diagonal 173.54mm

4.2 Internal Identification of EUT used during the test

EUTID	IMEI	HW Version	SW Version
1	**864608040026127** **864608040026135**	**1.01**	**V1.0.01.001.01**
2	**864608040026085** **864608040026093**	**1.01**	**V1.0.01.001.01**

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

Note: It is performed to test SAR with the EUT1 and conducted power with the EUT2.

4.3 Internal Identification of AE used during the test

AE ID	Description	Model	SN	Manufactor
AE1	Battery	BP4003	/	FPR Connectivity Technology Inc.
AE2	Headset	Earset for PNC550	/	savox

*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.

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

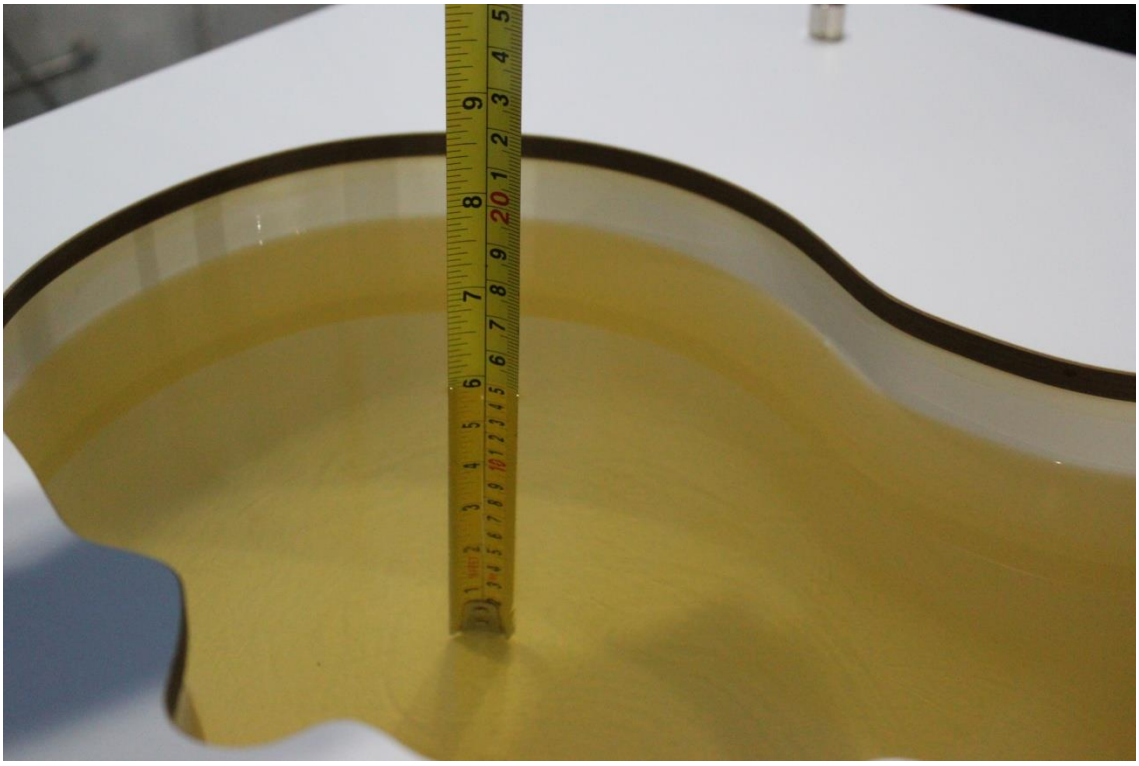
Table 7.1: Targets for tissue simulating liquid

Frequency(MHz)	Liquid Type	Conductivity(σ)	± 5% Range	Permittivity(ε)	± 5% Range
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
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	37.06～40.96
2600	Body	2.16	2.05～2.27	52.5	49.9～55.1
5250	Head	4.71	4.47～4.95	35.93	34.1～37.7
5250	Body	5.36	5.09～5.63	48.9	46.5～51.3
5600	Head	5.07	4.82～5.32	35.53	33.8～37.3
5600	Body	5.77	5.48～6.06	48.5	46.1～50.9
5750	Head	5.22	4.96～5.48	35.36	33.6～37.1
5750	Body	5.94	5.64～6.24	48.3	45.9～50.7

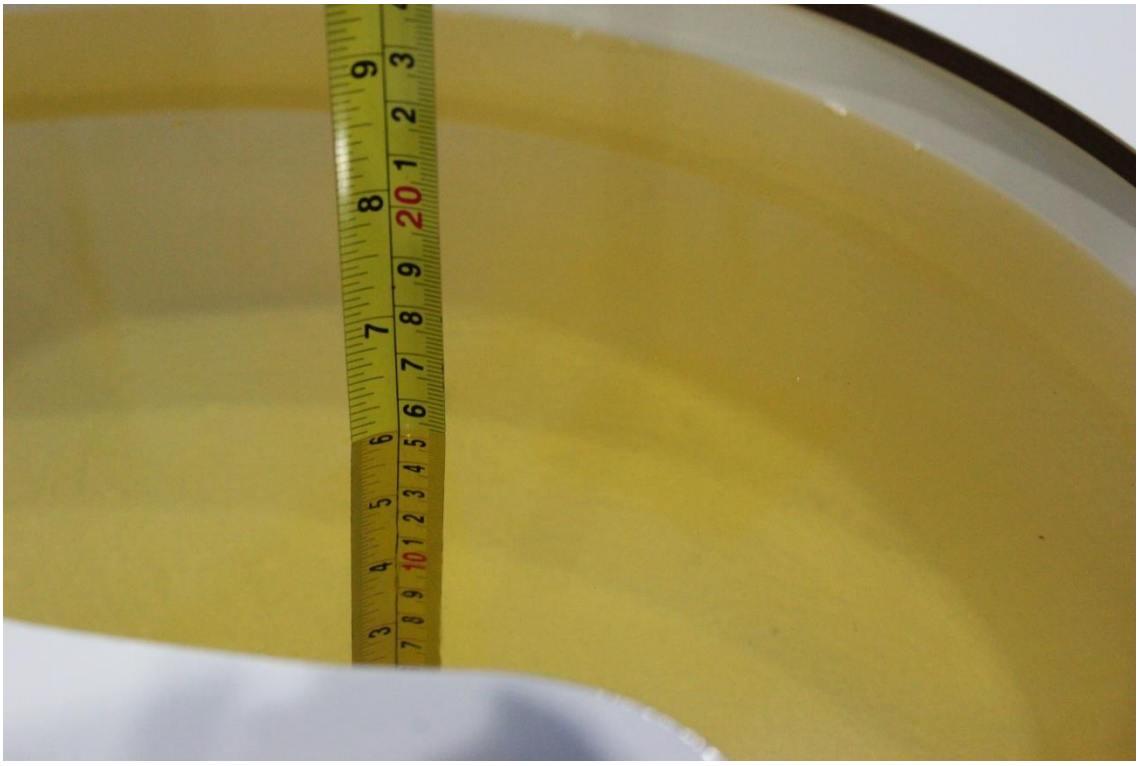
7.2 Dielectric Performance

Table 7.2: Dielectric Performance of Tissue Simulating Liquid

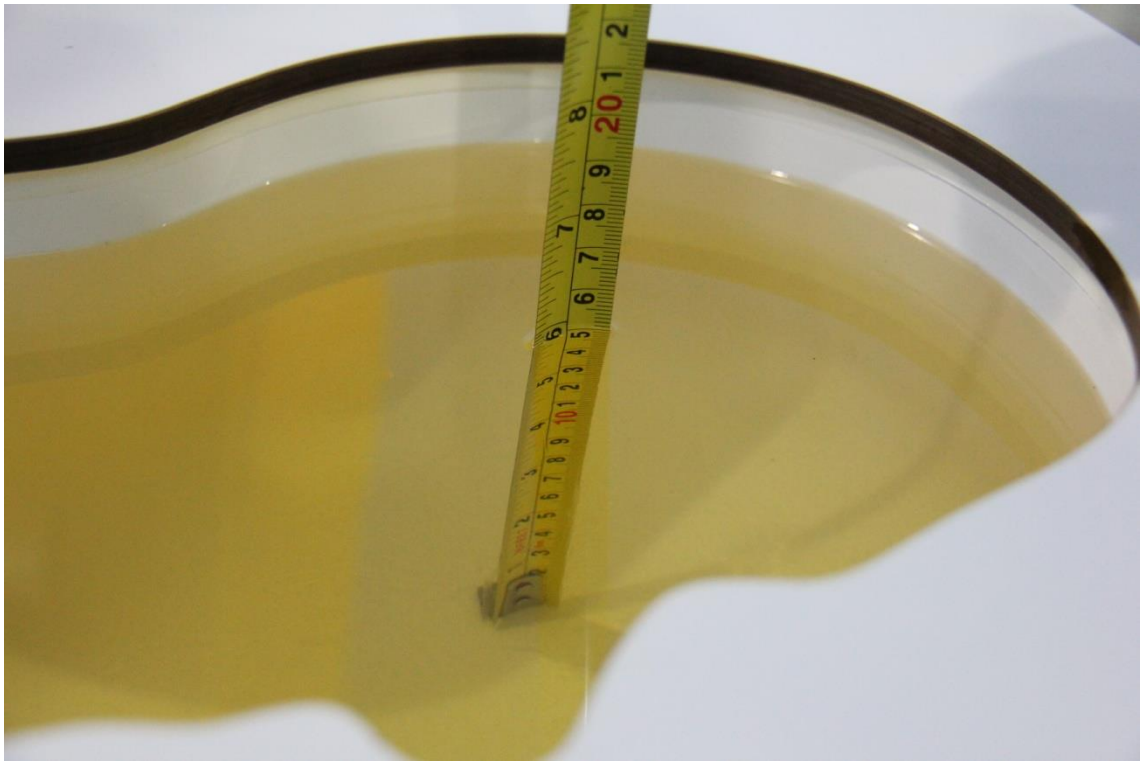
Measurement Date yyyy/mm/dd	Frequency	Type	Permittivity ε	Drift (%)	Conductivity σ (S/m)	Drift (%)
2019/5/25	750 MHz	Head	42.1	0.38	0.894	0.45
		Body	55.12	-0.68	0.961	0.10
2019/5/26	835 MHz	Head	41.75	0.60	0.915	1.67
		Body	54.13	-1.94	0.987	1.75
2019/5/27	1750 MHz	Head	40.5	1.05	1.365	-0.36
		Body	53.57	0.32	1.494	0.27
2019/5/28	1900 MHz	Head	40.26	0.65	1.386	-1.00
		Body	53.88	1.09	1.533	0.86
2019/5/29	2450 MHz	Head	39.94	1.89	1.777	-1.28
		Body	53.27	1.08	1.95	0.00
2019/5/30	2600 MHz	Head	39.76	1.92	1.943	-0.87
		Body	52.05	-0.86	2.124	-1.67



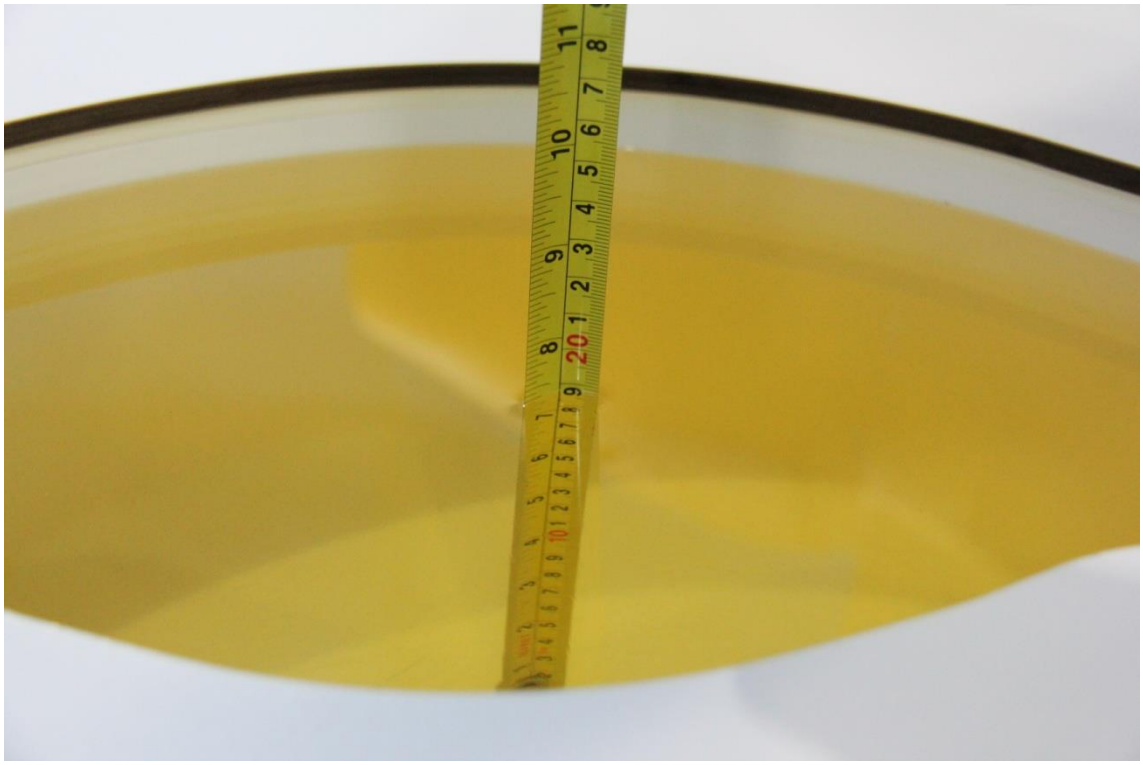
Picture 7-1 Liquid depth in the Head Phantom (750 MHz)



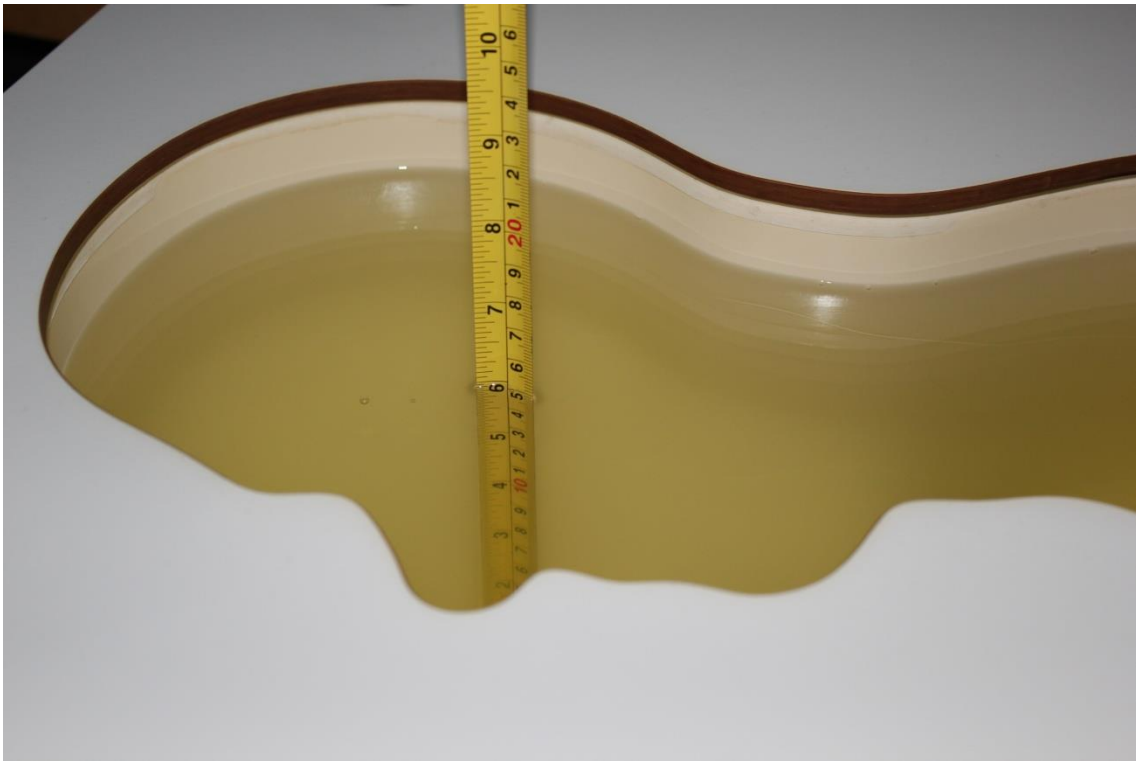
Picture 7-2 Liquid depth in the Flat Phantom (750 MHz)



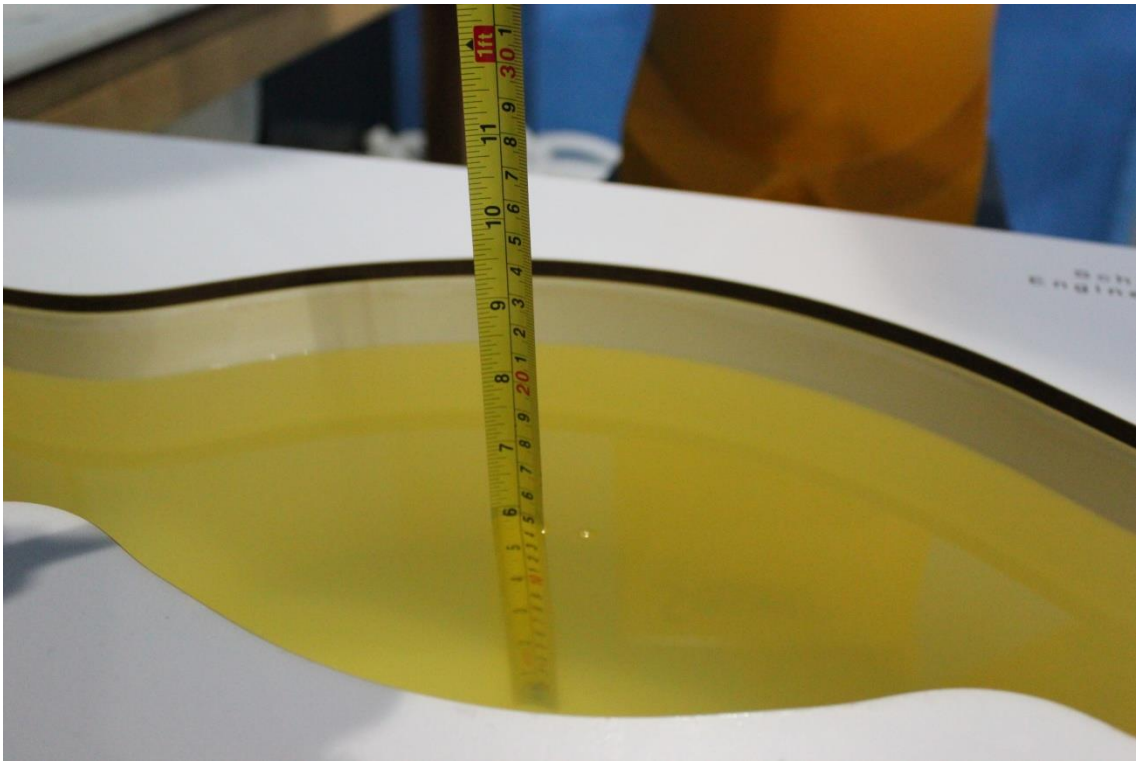
Picture 7-3 Liquid depth in the Head Phantom (835MHz)



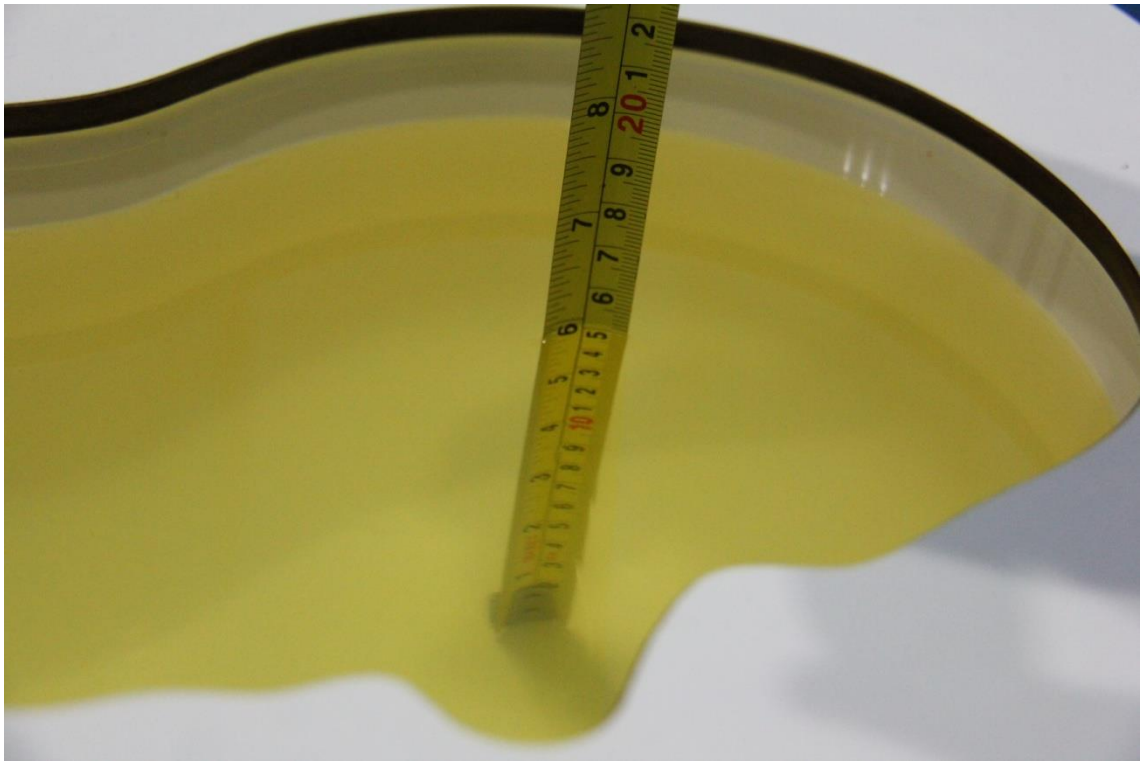
Picture 7-4 Liquid depth in the Flat Phantom (835MHz)



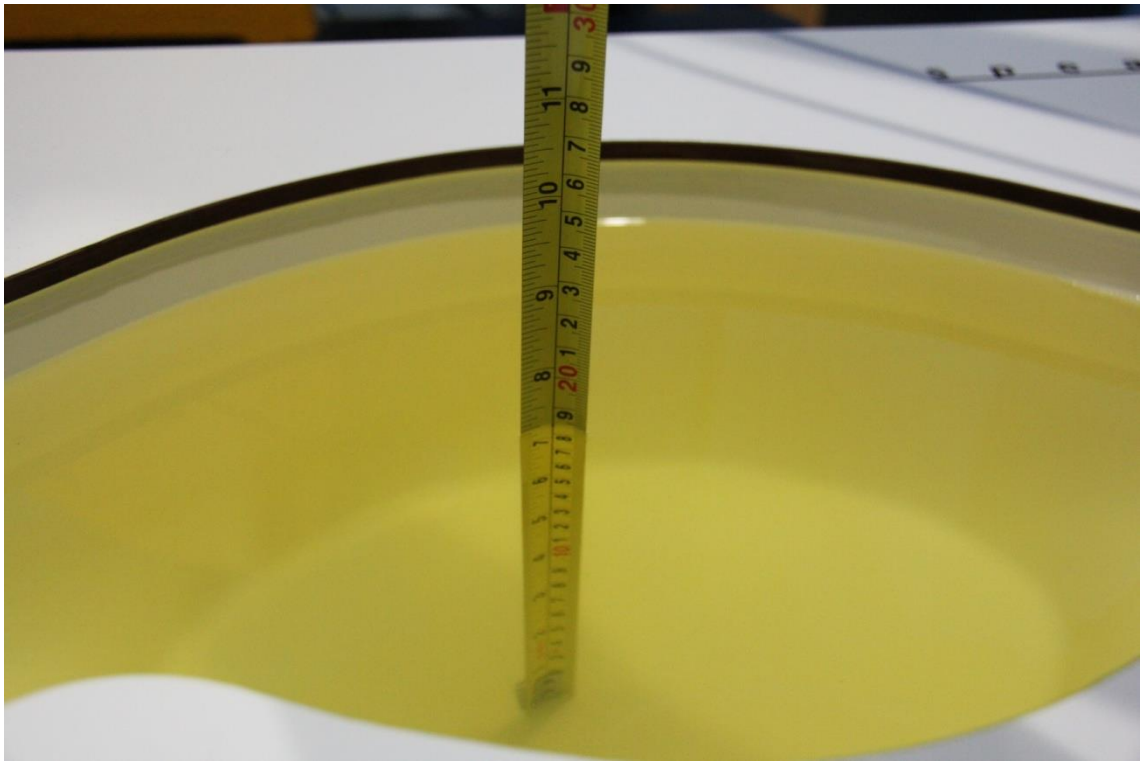
Picture 7-5 Liquid depth in the Head Phantom (1750 MHz)



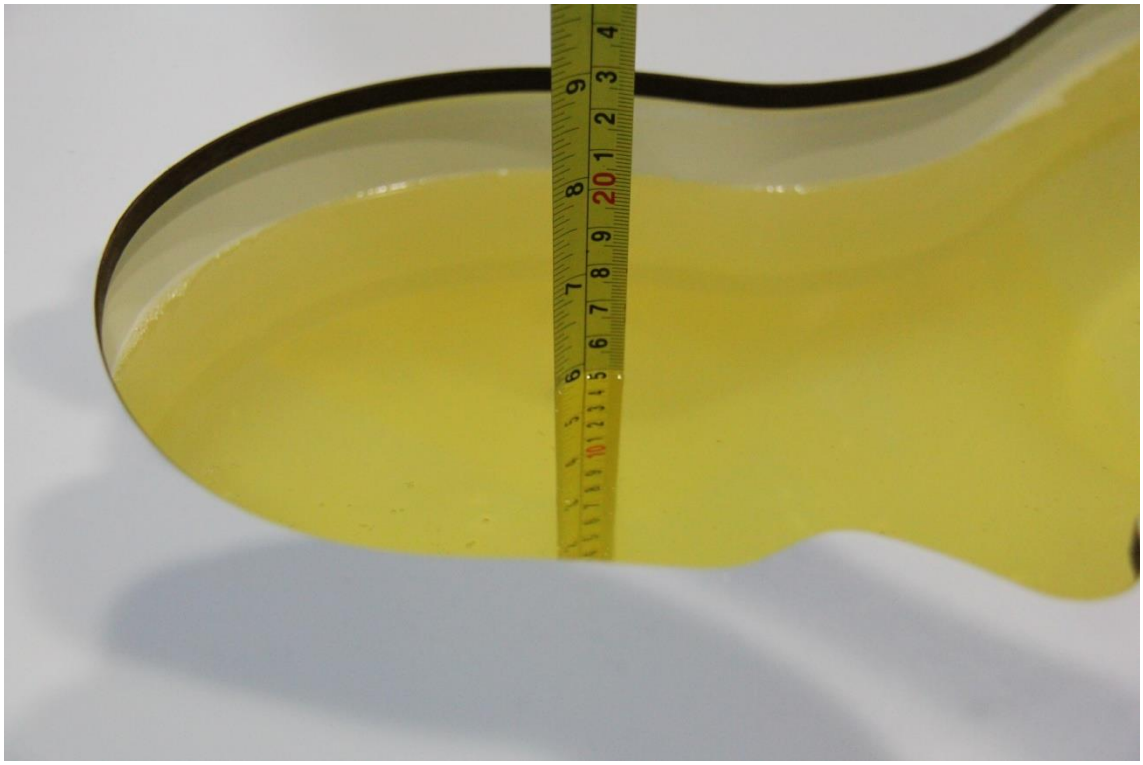
Picture 7-6 Liquid depth in the Flat Phantom (1750MHz)



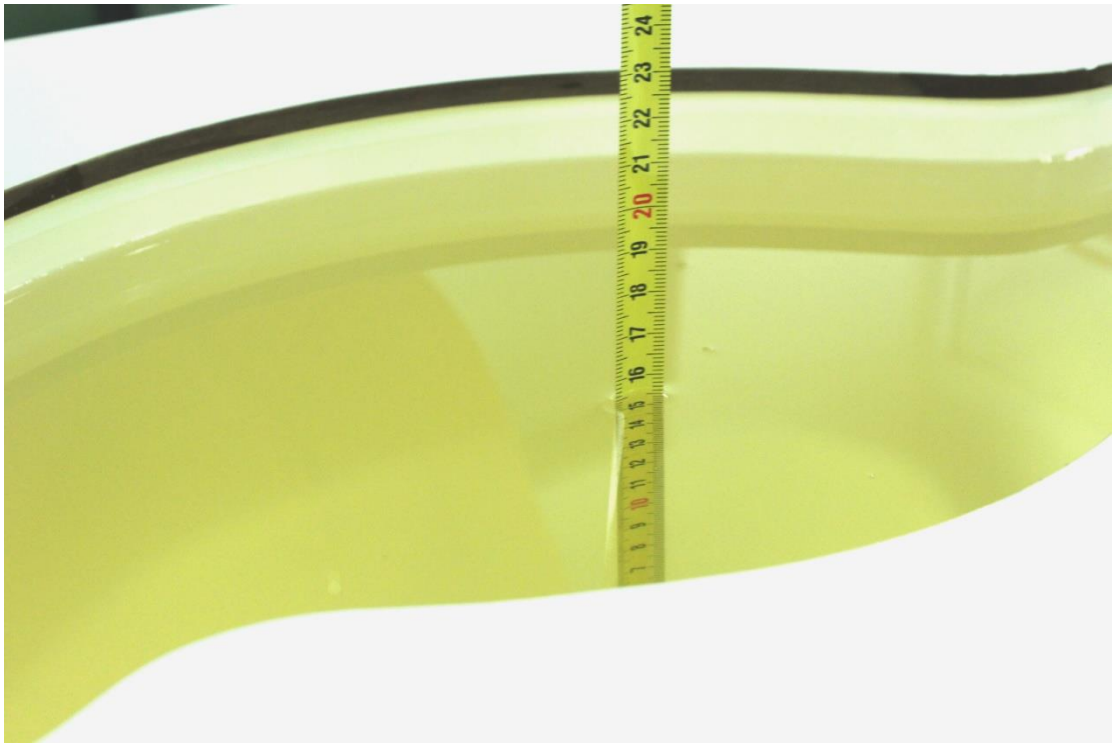
Picture 7-7 Liquid depth in the Head Phantom (1900 MHz)



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

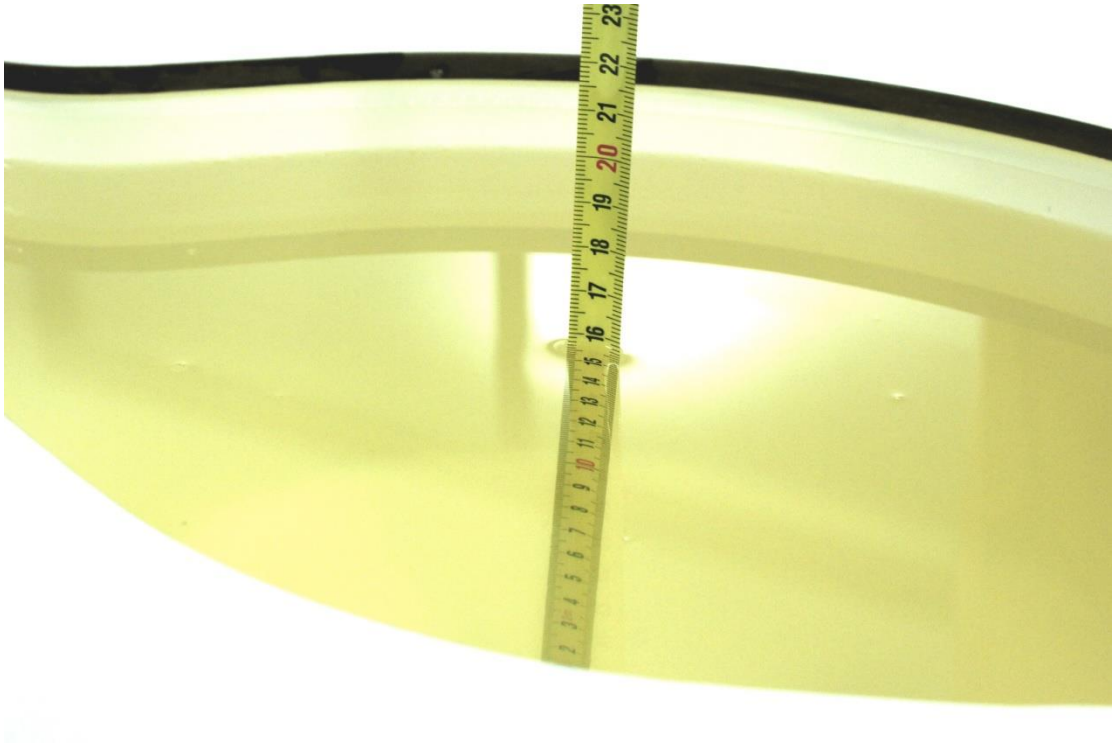


Picture 7-9 Liquid depth in the Head Phantom (2450MHz)



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

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

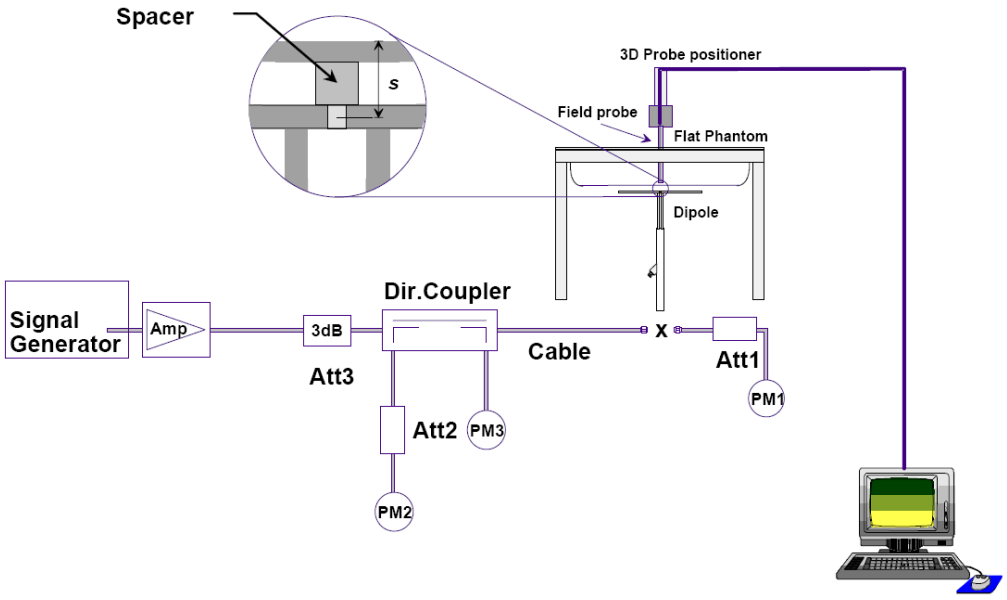


Picture 7-12 Liquid depth in the Flat Phantom (2600MHz)

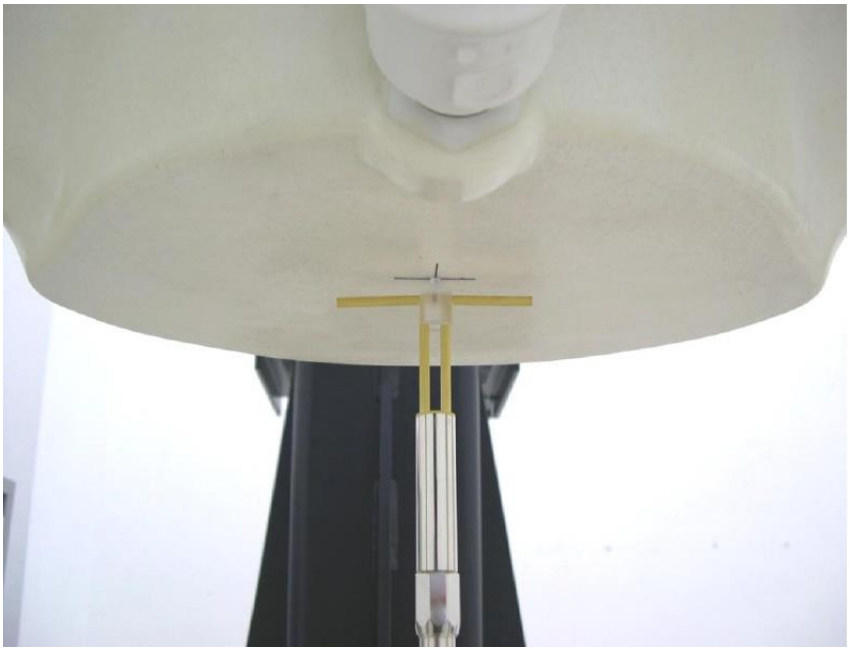
8 System verification

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
2019/5/25	750 MHz	5.42	8.32	5.48	8.28	1.11%	-0.48%
2019/5/26	835 MHz	6.06	9.37	6.04	9.4	-0.33%	0.32%
2019/5/27	1750 MHz	19.4	36.7	19.64	36.32	1.24%	-1.04%
2019/5/28	1900 MHz	21.0	40.0	20.68	40.12	-1.52%	0.30%
2019/5/29	2450 MHz	24.7	52.2	24.6	52.76	-0.40%	1.07%
2019/5/30	2600 MHz	25.8	57.9	25.6	58.12	-0.78%	0.38%

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
2019/5/25	750 MHz	5.68	8.66	5.56	8.72	-2.11%	0.69%
2019/5/26	835 MHz	6.12	9.41	6.12	9.36	0.00%	-0.53%
2019/5/27	1750 MHz	19.8	37.1	19.56	37.76	-1.21%	1.78%
2019/5/28	1900 MHz	21.5	40.5	21.12	40.72	-1.77%	0.54%
2019/5/29	2450 MHz	23.8	50.4	24.04	50.12	1.01%	-0.56%
2019/5/30	2600 MHz	24.8	55.5	24.44	54.44	-1.45%	-1.91%

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.

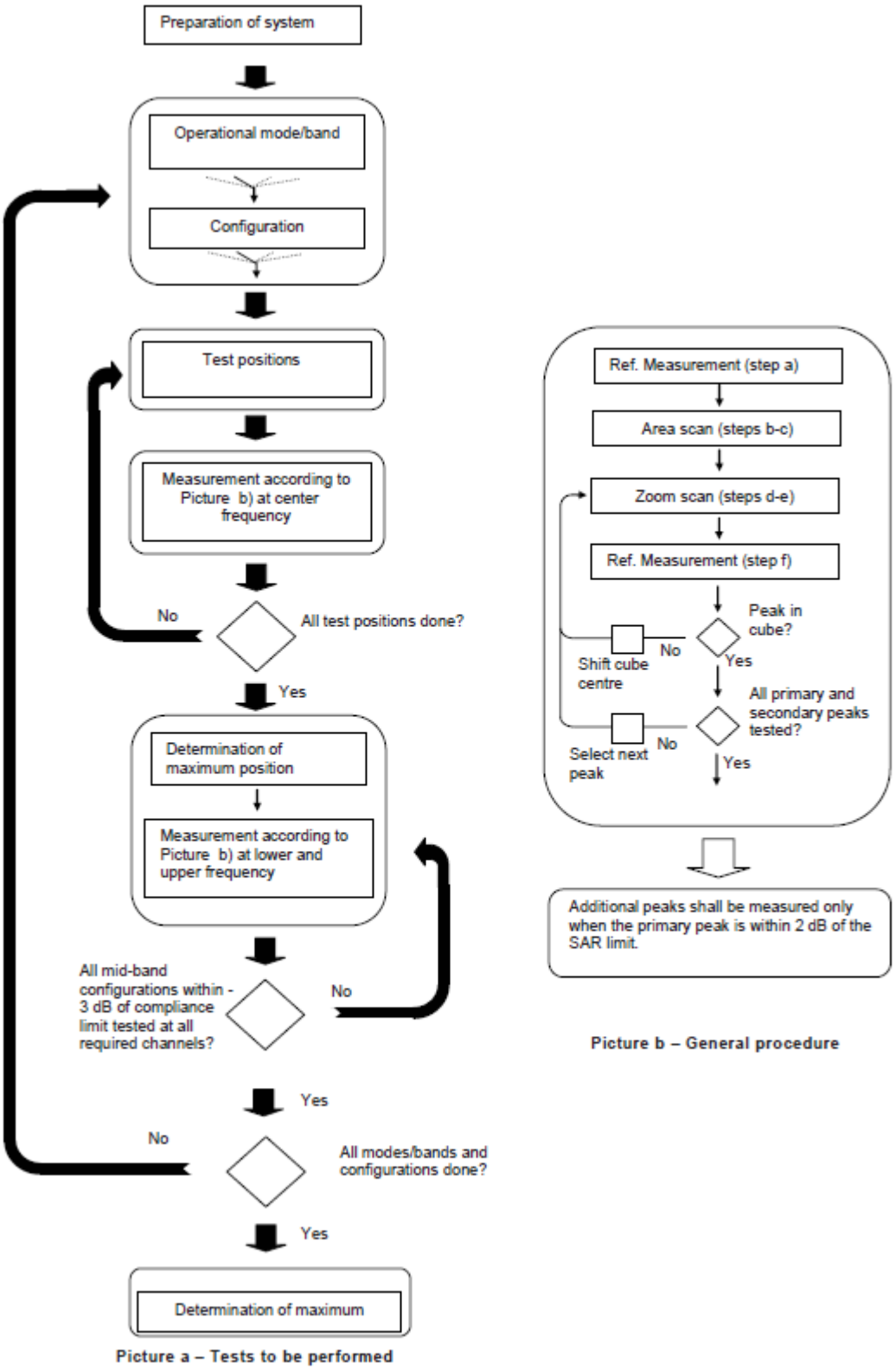
Step 1: The tests described in 9.2 shall be performed at the channel that is closest to the center of the transmit frequency band (f_c) for:

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 within 3 dB of the applicable SAR limit, it is recommended that all other test frequencies shall be tested as well.

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



Picture 9.1 Block 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 1528-2013. 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>Minimum zoom scan volume</td><td colspan="2">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.

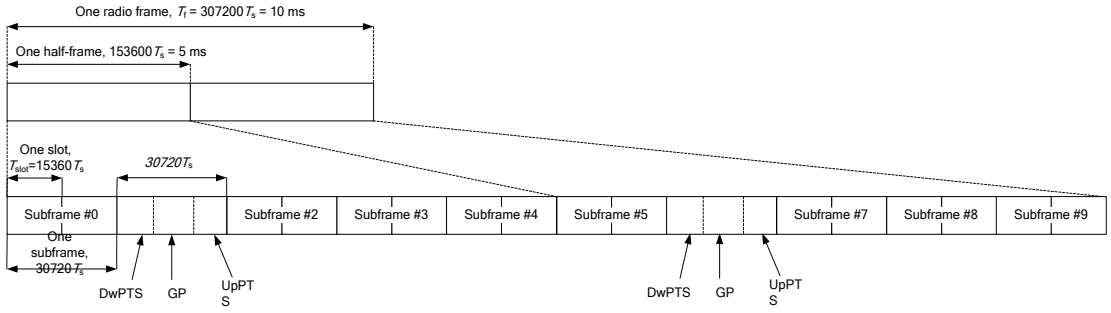
9.4 SAR Measurement for LTE

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.

According to KDB 941225 D05, for Time-Division Duplex (TDD) systems, SAR must be tested using a fixed periodic duty factor according to the highest transmission duty factor implemented for the device and supported by the defined 3GPP LTE TDD configurations.

TDD LTE Band supports 3GPP TS 36.211 section 4.2 for Type 2 Frame Structure and Table 4.2-2 for uplink-downlink configurations and Table 4.2-1 for Special subframe configurations.



Picture 10-4 Frame structure type 2

Table 11.6-1: 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 11.6-2: 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

According to Picture 11.1, one radio frame is configured by 10 subframes, which consist of Uplink-subframe, Downlink-subframe and Special subframe. For TDD-LTE, the Duty Cycle should be calculated on Uplink-subframes and Special subframes, due to Special subframe containing both Uplink transmissions. So for one radio frame, Duty Cycle can be calculated with formula as below. The count of Uplink subframes are according to Table 11.6-2:

Duty cycle =(30720Ts*Ups+Uplink Component*Specials)/(307200Ts)

About the uplink component of Special subframes, we can figure out by Table 11.6-1:

Uplink Component=UpPTS

In conclusion, for the **TDD LTE Band 40**, Duty Cycle can be calculated with formula as below .all these sets are ok when we test, or we can set as below.

Duty cycle =[(30720Ts*Ups)+ UpPTS *Specials]/(307200Ts)

And we can get different Duty cycles under different configurations:

Uplink-downlink configuration	Subframe number			Configuration of special subframe							
				Normal cyclic prefix in downlink				Extended cyclic prefix in downlink			
				Normal cyclic prefix in uplink		Extended cyclic prefix in uplink		Normal cyclic prefix in uplink		Extended cyclic prefix in uplink	
	D	S	U	configuration 0~4	configuration 5~9	configuration 0~4	configuration 5~9	configuration 0~3	configuration 4~7	configuration 0~3	configuration 4~7
0	2	2	6	61.43%	62.85%	61.67%	63.33%	61.43%	62.85%	61.67%	63.33%
1	4	2	4	41.43%	42.85%	41.67%	43.33%	41.43%	42.85%	41.67%	43.33%
2	6	2	2	21.43%	22.85%	21.67%	23.33%	21.43%	22.85%	21.67%	23.33%
3	6	1	3	30.71%	31.43%	30.83%	31.67%	30.71%	31.43%	30.83%	31.67%
4	7	1	2	20.71%	21.43%	20.83%	21.67%	20.71%	21.43%	20.83%	21.67%
5	8	1	1	10.71%	11.43%	10.83%	11.67%	10.71%	11.43%	10.83%	11.67%
6	3	2	5	51.43%	52.85%	51.67%	53.33%	51.43%	52.85%	51.67%	53.33%

SAR test Plan: For TDD LTE, SAR should be tested with the highest transmission duty factor **(63.33%)** using Uplink-downlink configuration **0** and Special subframe configuration **7** for Frame structure **type 2.**

9.5 Bluetooth & Wi-Fi Measurement Procedures for SAR

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

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

9.6 Power Drift

To control the output power stability during the SAR test, DASY4 system calculates the power drift by measuring the E-field at the same location at the beginning and at the end of the measurement for each test position. These drift values can be found in section 14 labeled as: (Power Drift [dB]). This ensures that the power drift during one measurement is within 5%.

10 Area Scan Based 1-g SAR

10.1 Requirement of KDB

According to the KDB447498 D01 v06, when the implementation is based the specific polynomial fit
algorithm as presented at the 29th Bioelectromagnetics Society meeting (2007) and the estimated 1-g SAR is ≤ 1.2 W/kg, a zoom scan measurement is not required provided it is also not needed for any other purpose; for example, if the peak SAR location required 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 55 wireless handsets. For the sample size studied, the root-mean-squared errors of the algorithm are 1.2% and 5.8% for 1- and 10-g averaged SAR, respectively. The paper describing the algorithm in detail is expected to be published in August 2004 within the Special Issue of Transactions on MTT.

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

11 Conducted Output Power

11.1 GSM Measurement result

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

Table 11-1 GSM850 #1

GSM850 #1								
		Measured Power (dBm)			Caculation	Frame Burst Power （dBm）		
Config	Tune-up	CH251 848.8 MHz	CH190 836.6 MHz	CH128 824.2 MHz		CH251 848.8 MHz	CH190 836.6 MHz	CH128 824.2 MHz
GSM Speech	34.00	33.53	33.62	33.59				
GPRS 1 Txslot	34.00	33.57	33.58	33.59	-9.03	24.54	24.55	24.56
GPRS 2 Txslots	31.00	29.97	29.98	29.90	-6.02	23.95	23.96	23.88
GPRS 3 Txslots	29.20	28.32	28.37	28.23	-4.26	24.06	24.11	23.97
GPRS 4 Txslots	28.00	26.69	26.64	26.57	-3.01	23.68	23.63	23.56
EGPRS GMSK 1 Txslot	34.00	33.57	33.63	33.61	-9.03	24.54	24.60	24.58
EGPRS GMSK 2 Txslots	31.00	29.96	30.00	29.87	-6.02	23.94	23.98	23.85
EGPRS GMSK 3 Txslots	29.20	28.32	28.35	28.28	-4.26	24.06	24.09	24.02
EGPRS GMSK 4 Txslots	28.00	26.68	26.65	26.65	-3.01	23.67	23.64	23.64
EGPRS 8PSK 1 Txslot	28.00	27.28	27.43	27.29	-9.03	18.25	18.40	18.26
EGPRS 8PSK 2 Txslots	25.00	24.75	24.80	24.75	-6.02	18.73	18.78	18.73
EGPRS 8PSK 3 Txslots	23.20	23.11	23.18	23.19	-4.26	18.85	18.92	18.93
EGPRS 8PSK 4 Txslots	22.00	21.83	21.91	21.75	-3.01	18.82	18.90	18.74

Table 11-2 PCS1900 #1

PCS1900 #1								
		Measured Power (dBm)			Caculation	Frame Burst Power （dBm）		
Config	Tune-up	CH810 1909.8 MHz	CH661 1880 MHz	CH512 1850.2 MHz		CH810 1909.8 MHz	CH661 1880 MHz	CH512 1850.2 MHz
GSM Speech	28.00	27.27	27.42	27.49				
GPRS 1 Txslot	28.00	27.30	27.46	27.55	-9.03	18.27	18.43	18.52
GPRS 2 Txslots	27.50	27.05	27.02	27.10	-6.02	21.03	21.00	21.08
GPRS 3 Txslots	27.00	25.11	25.30	25.40	-4.26	20.85	21.04	21.14
GPRS 4 Txslots	24.00	23.64	23.84	23.85	-3.01	20.63	20.83	20.84
EGPRS GMSK 1 Txslot	28.00	27.26	27.42	27.71	-9.03	18.23	18.39	18.68
EGPRS GMSK 2 Txslots	27.50	27.03	27.08	27.05	-6.02	21.01	21.06	21.03
EGPRS GMSK 3 Txslots	27.00	25.20	25.36	25.35	-4.26	20.94	21.10	21.09
EGPRS GMSK 4 Txslots	24.00	23.73	23.81	23.90	-3.01	20.72	20.80	20.89
EGPRS 8PSK 1 Txslot	23.00	22.63	22.77	22.84	-9.03	13.60	13.74	13.81
EGPRS 8PSK 2 Txslots	23.00	22.44	22.71	22.77	-6.02	16.42	16.69	16.75
EGPRS 8PSK 3 Txslots	22.00	21.37	21.58	21.65	-4.26	17.11	17.32	17.39
EGPRS 8PSK 4 Txslots	21.00	20.22	20.44	20.49	-3.01	17.21	17.43	17.48

NOTES:

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 1Txslot for 850MHz GPRS, 3Txslots for 1900MHz EGPRS.

11.2 WCDMA Measurement result

Table 11-3 WCDMA1900-BII #1

WCDMA1900-BII #1					
			Measured Power (dBm)		
Item		Tune-up	CH9538 1907.6 MHz	CH9400 1880 MHz	CH9262 1852.4 MHz
WCDMA	RMC	21.50	21.28	21.24	21.09
HSUPA	subtest1	19.00	18.76	18.64	18.55
	subtest2	18.00	17.40	17.35	17.26
	subtest3	18.00	17.61	17.52	17.44
	subtest4	18.00	17.95	17.87	17.66
	subtest5	19.00	18.82	18.66	18.59
HSPA+	\	\	\	\	\
DC-HSDPA	subtest1	19.00	18.70	18.72	18.57
	subtest2	19.00	18.72	18.68	18.58
	subtest3	19.00	18.21	18.14	18.05
	subtest4	19.00	18.22	18.12	18.11

Table 11-4 WCDMA1700-BIV #1

WCDMA1700-BIV #1					
			Measured Power (dBm)		
Item		Tune-up	CH1513 1752.6 MHz	CH1412 1732.4 MHz	CH1312 1712.4 MHz
WCDMA	RMC	20.00	19.47	19.45	19.36
HSUPA	subtest1	19.00	18.51	18.39	18.37
	subtest2	18.00	16.98	16.95	16.92
	subtest3	18.00	17.59	17.86	17.79
	subtest4	18.00	17.32	17.57	17.45
	subtest5	19.00	18.40	18.35	18.39
HSPA+	\	\	\	\	\
DC-HSDPA	subtest1	19.00	18.38	18.41	18.33
	subtest2	19.00	18.43	18.40	18.36
	subtest3	19.00	17.89	17.91	17.88
	subtest4	19.00	17.85	18.88	17.87

Table 11-5 WCDMA850-BV #1

WCDMA850-BV #1					
			Measured Power (dBm)		
Item		Tune-up	CH4233 846.6 MHz	CH4183 836.6 MHz	CH4132 826.4 MHz
WCDMA	RMC	24.50	24.17	24.25	24.19
HSUPA	subtest1	22.50	22.05	22.04	22.03
	subtest2	21.00	20.51	20.57	20.46
	subtest3	22.50	22.02	22.01	21.95
	subtest4	22.00	21.28	21.12	21.01
	subtest5	22.50	22.27	22.32	22.26
HSPA+	\	\	\	\	\
DC-HSDPA	subtest1	23.00	22.01	22.05	21.98
	subtest2	23.00	22.02	22.02	21.97
	subtest3	23.00	21.49	21.45	21.39
	subtest4	23.00	21.48	21.47	21.41

11.3 LTE Measurement result

Table 11-6 LTE1900-FDD2 #1

LTE1900-FDD2 #1								
SN				Measured Power (dBm) & MPR				
				QPSK		16QAM		
BandWidth	RB No./Start	Channel	Tune-up	Measured Power	MPR	Measured Power	MPR	
1.4MHz	1H	19193	22.5	21.81	0	20.37	1	
		18900	22.5	21.84	0	20.45	1	
		18607	22.5	21.95	0	20.51	1	
	1M	19193	22.5	22.00	0	20.51	1	
		18900	22.5	22.00	0	20.56	1	
		18607	22.5	21.97	0	20.61	1	
	1L	19193	22.5	21.94	0	20.43	1	
		18900	22.5	21.88	0	20.53	1	
		18607	22.5	21.90	0	20.22	1	
	3H	19193	22.5	21.96	0	20.85	1	
		18900	22.5	22.02	0	20.87	1	
		18607	22.5	22.02	0	20.87	1	
	3M	19193	22.5	22.07	0	20.47	1	
		18900	22.5	22.05	0	20.63	1	
		18607	22.5	22.05	0	20.94	1	
	3L	19193	22.5	21.99	0	20.87	1	
		18900	22.5	22.00	0	20.88	1	
		18607	22.5	21.88	0	20.75	1	
	6	19193	22.5	20.84	1	19.88	2	
		18900	22.5	20.88	1	19.85	2	
		18607	22.5	20.91	1	19.87	2	
3MHz	1H	19185	22.5	21.91	0	20.29	1	
		18900	22.5	22.00	0	20.62	1	
		18615	22.5	21.98	0	20.51	1	
	1M	19185	22.5	22.08	0	21.11	1	
		18900	22.5	21.93	0	21.02	1	
		18615	22.5	22.23	0	21.19	1	
	1L	19185	22.5	21.69	0	20.41	1	
		18900	22.5	21.87	0	20.40	1	
		18615	22.5	22.09	0	20.79	1	
	8H	19185	22.5	21.01	1	19.89	2	
		18900	22.5	20.90	1	19.94	2	
		18615	22.5	21.02	1	19.88	2	
	8M	19185	22.5	20.90	1	19.94	2	
		18900	22.5	20.92	1	19.88	2	
		18615	22.5	20.93	1	19.89	2	
	8L	19185	22.5	20.92	1	19.87	2	
		18900	22.5	20.89	1	19.86	2	
		18615	22.5	21.06	1	19.93	2	
	15	19185	22.5	20.93	1	19.94	2	
		18900	22.5	20.84	1	20.05	2	
		18615	22.5	21.02	1	20.21	2	
5MHz	1H	19175	22.5	21.97	0	19.94	1	
		18900	22.5	21.96	0	20.71	1	
		18625	22.5	21.81	0	20.20	1	
	1M	19175	22.5	22.13	0	20.96	1	
		18900	22.5	21.82	0	20.48	1	
		18625	22.5	21.95	0	21.14	1	
	1L	19175	22.5	21.95	0	20.35	1	
		18900	22.5	21.84	0	20.66	1	
		18625	22.5	21.84	0	20.15	1	
	12H	19175	22.5	20.93	1	19.70	2	
		18900	22.5	20.83	1	19.68	2	
		18625	22.5	20.98	1	19.94	2	
	12M	19175	22.5	20.93	1	19.79	2	
		18900	22.5	20.88	1	20.01	2	
		18625	22.5	20.95	1	19.99	2	
	12L	19175	22.5	20.87	1	20.00	2	
		18900	22.5	20.85	1	19.81	2	
		18625	22.5	20.90	1	19.87	2	
	25	19175	22.5	20.90	1	19.84	2	
		18900	22.5	20.91	1	19.95	2	
		18625	22.5	20.95	1	19.98	2	

10MHz	1H	19150	22.5	21.93	0	20.12	1
		18900	22.5	22.22	0	20.49	1
		18650	22.5	22.10	0	20.16	1
	1M	19150	22.5	22.00	0	20.61	1
		18900	22.5	21.76	0	20.67	1
		18650	22.5	22.13	0	20.65	1
	1L	19150	22.5	22.08	0	20.18	1
		18900	22.5	22.02	0	20.28	1
		18650	22.5	22.11	0	20.29	1
	25H	19150	22.5	20.93	1	20.01	2
		18900	22.5	20.90	1	19.97	2
		18650	22.5	20.95	1	20.11	2
	25M	19150	22.5	20.95	1	20.00	2
		18900	22.5	20.93	1	20.07	2
		18650	22.5	20.96	1	20.30	2
	25L	19150	22.5	20.97	1	19.84	2
		18900	22.5	20.92	1	19.89	2
		18650	22.5	20.98	1	20.08	2
	50	19150	22.5	20.98	1	20.03	2
		18900	22.5	20.91	1	19.97	2
		18650	22.5	20.97	1	20.18	2
15MHz	1H	19125	22.5	21.80	0	20.08	1
		18900	22.5	21.92	0	19.88	1
		18675	22.5	21.87	0	20.29	1
	1M	19125	22.5	22.31	0	21.06	1
		18900	22.5	21.87	0	20.92	1
		18675	22.5	22.03	0	20.57	1
	1L	19125	22.5	21.97	0	20.17	1
		18900	22.5	22.03	0	20.66	1
		18675	22.5	22.02	0	20.05	1
	36H	19125	22.5	20.93	1	19.93	2
		18900	22.5	21.06	1	20.10	2
		18675	22.5	20.85	1	19.87	2
	36M	19125	22.5	20.96	1	20.02	2
		18900	22.5	20.88	1	19.87	2
		18675	22.5	20.93	1	20.07	2
	36L	19125	22.5	21.00	1	19.91	2
		18900	22.5	20.95	1	20.02	2
		18675	22.5	20.98	1	19.94	2
	75	19125	22.5	20.94	1	19.99	2
		18900	22.5	21.01	1	19.99	2
		18675	22.5	21.01	1	19.98	2
20MHz	1H	19100	22.5	21.89	0	20.09	1
		18900	22.5	21.93	0	20.40	1
		18700	22.5	22.01	0	20.15	1
	1M	19100	22.5	22.03	0	**20.61**	1
		18900	22.5	22.04	0	**20.57**	1
		18700	22.5	22.00	0	**20.73**	1
	1L	19100	22.5	21.83	0	19.81	1
		18900	22.5	22.11	0	20.18	1
		18700	22.5	22.01	0	20.19	1
	50H	19100	22.5	20.96	1	20.00	2
		18900	22.5	21.02	1	20.27	2
		18700	22.5	20.84	1	19.92	2
	50M	19100	22.5	21.01	1	19.99	2
		18900	22.5	20.92	1	20.09	2
		18700	22.5	20.84	1	19.90	2
	50L	19100	22.5	21.01	1	20.19	2
		18900	22.5	21.01	1	20.04	2
		18700	22.5	20.98	1	20.02	2
	100	19100	22.5	21.00	1	20.05	2
		18900	22.5	21.01	1	20.01	2
		18700	22.5	21.01	1	20.06	2

Table 11-7 LTE1700-FDD4 #1

LTE1700-FDD4 #1							
SN				Measured Power (dBm) & MPR			
				QPSK		16QAM	
BandWidth	RB No./Start	Channel	Tune-up	Measured Power	MPR	Measured Power	MPR
1.4MHz	1H	20393	20.5	19.79	0	18.83	1
		20175	20.5	19.37	0	18.53	1
		19957	20.5	19.67	0	18.36	1
	1M	20393	20.5	19.93	0	18.63	1
		20175	20.5	19.81	0	18.57	1
		19957	20.5	19.76	0	18.47	1
	1L	20393	20.5	19.72	0	18.56	1
		20175	20.5	20.00	0	18.65	1
		19957	20.5	19.54	0	17.97	1
	3H	20393	20.5	19.72	0	18.79	1
		20175	20.5	19.74	0	18.45	1
		19957	20.5	19.77	0	18.52	1
	3M	20393	20.5	19.74	0	18.85	1
		20175	20.5	19.66	0	18.42	1
		19957	20.5	19.72	0	18.54	1
	3L	20393	20.5	19.67	0	18.67	1
		20175	20.5	19.76	0	18.50	1
		19957	20.5	19.77	0	18.43	1
	6	20393	20.5	18.64	1	17.61	2
		20175	20.5	18.58	1	17.60	2
		19957	20.5	18.63	1	17.28	2
3MHz	1H	20385	20.5	19.71	0	18.58	1
		20175	20.5	19.94	0	18.45	1
		19965	20.5	19.78	0	18.49	1
	1M	20385	20.5	20.02	0	18.50	1
		20175	20.5	20.07	0	18.65	1
		19965	20.5	19.86	0	18.96	1
	1L	20385	20.5	19.56	0	18.46	1
		20175	20.5	19.55	0	18.55	1
		19965	20.5	19.84	0	18.54	1
	8H	20385	20.5	18.76	1	17.62	2
		20175	20.5	18.69	1	18.04	2
		19965	20.5	18.76	1	17.57	2
	8M	20385	20.5	18.64	1	17.53	2
		20175	20.5	18.69	1	18.12	2
		19965	20.5	18.77	1	17.66	2
	8L	20385	20.5	18.71	1	17.58	2
		20175	20.5	18.88	1	17.62	2
		19965	20.5	18.64	1	17.64	2
	15	20385	20.5	18.68	1	17.59	2
		20175	20.5	18.82	1	17.62	2
		19965	20.5	18.78	1	17.68	2
5MHz	1H	20375	20.5	19.81	0	18.52	1
		20175	20.5	19.44	0	18.73	1
		19975	20.5	19.58	0	18.15	1
	1M	20375	20.5	20.05	0	18.38	1
		20175	20.5	19.66	0	18.38	1
		19975	20.5	20.05	0	18.10	1
	1L	20375	20.5	19.61	0	18.03	1
		20175	20.5	19.26	0	18.08	1
		19975	20.5	19.49	0	17.84	1
	12H	20375	20.5	18.84	1	17.60	2
		20175	20.5	18.68	1	17.49	2
		19975	20.5	18.76	1	17.42	2
	12M	20375	20.5	18.87	1	17.75	2
		20175	20.5	18.78	1	17.46	2
		19975	20.5	18.83	1	17.64	2
	12L	20375	20.5	18.79	1	17.77	2
		20175	20.5	18.76	1	17.54	2
		19975	20.5	18.82	1	17.55	2
	25	20375	20.5	18.81	1	17.93	2
		20175	20.5	18.76	1	17.75	2
		19975	20.5	18.77	1	17.60	2

10MHz	1H	20350	20.5	19.88	0	18.68	1
		20175	20.5	19.78	0	18.50	1
		20000	20.5	19.79	0	18.75	1
	1M	20350	20.5	19.64	0	18.93	1
		20175	20.5	19.90	0	18.48	1
		20000	20.5	19.91	0	18.84	1
	1L	20350	20.5	19.75	0	18.55	1
		20175	20.5	19.70	0	17.95	1
		20000	20.5	19.58	0	18.60	1
	25H	20350	20.5	18.79	1	17.80	2
		20175	20.5	18.75	1	17.71	2
		20000	20.5	18.77	1	17.77	2
	25M	20350	20.5	18.74	1	17.75	2
		20175	20.5	18.62	1	17.68	2
		20000	20.5	18.81	1	17.73	2
	25L	20350	20.5	18.80	1	17.60	2
		20175	20.5	18.76	1	17.71	2
		20000	20.5	18.73	1	17.67	2
	50	20350	20.5	18.81	1	17.71	2
		20175	20.5	18.74	1	17.52	2
		20000	20.5	18.77	1	17.63	2
15MHz	1H	20325	20.5	19.82	0	18.61	1
		20175	20.5	19.88	0	18.32	1
		20025	20.5	19.64	0	19.43	1
	1M	20325	20.5	20.00	0	19.31	1
		20175	20.5	19.66	0	18.53	1
		20025	20.5	20.09	0	19.20	1
	1L	20325	20.5	19.86	0	18.79	1
		20175	20.5	19.77	0	18.63	1
		20025	20.5	19.46	0	19.32	1
	36H	20325	20.5	18.70	1	17.52	2
		20175	20.5	18.73	1	17.69	2
		20025	20.5	18.81	1	17.62	2
	36M	20325	20.5	18.69	1	17.61	2
		20175	20.5	18.63	1	17.77	2
		20025	20.5	18.72	1	17.64	2
	36L	20325	20.5	18.72	1	17.60	2
		20175	20.5	18.78	1	17.70	2
		20025	20.5	18.73	1	17.53	2
	75	20325	20.5	18.70	1	17.67	2
		20175	20.5	18.70	1	17.74	2
		20025	20.5	18.67	1	17.68	2
20MHz	1H	20300	20.5	19.90	0	**19.33**	1
		20175	20.5	19.94	0	18.48	1
		20050	20.5	19.40	0	**18.42**	1
	1M	20300	20.5	20.00	0	18.66	1
		20175	20.5	19.85	0	**18.55**	1
		20050	20.5	19.67	0	18.41	1
	1L	20300	20.5	20.02	0	18.55	1
		20175	20.5	19.84	0	18.39	1
		20050	20.5	19.19	0	18.23	1
	50H	20300	20.5	18.85	1	17.78	2
		20175	20.5	18.81	1	17.69	2
		20050	20.5	18.85	1	17.69	2
	50M	20300	20.5	18.82	1	17.83	2
		20175	20.5	18.82	1	17.65	2
		20050	20.5	18.79	1	17.81	2
	50L	20300	20.5	18.86	1	17.78	2
		20175	20.5	18.81	1	17.64	2
		20050	20.5	18.83	1	17.84	2
	100	20300	20.5	18.86	1	17.73	2
		20175	20.5	18.82	1	17.74	2
		20050	20.5	18.81	1	17.72	2

Table 11-8 LTE2500-FDD7 #1

LTE2500-FDD7 #1							
				Measured Power (dBm) & MPR			
				QPSK		16QAM	
BandWidth	RB No./Start	Channel	Tune-up	Measured Power	MPR	Measured Power	MPR
5MHz	1H	21425	20	19.58	0	18.34	1
		21100	20	19.58	0	17.95	1
		20775	20	19.61	0	17.81	1
	1M	21425	20	19.92	0	18.56	1
		21100	20	19.57	0	18.54	1
		20775	20	19.48	0	18.38	1
	1L	21425	20	19.58	0	18.35	1
		21100	20	19.69	0	18.37	1
		20775	20	19.19	0	17.94	1
	12H	21425	20	18.71	1	17.37	2
		21100	20	18.75	1	17.43	2
		20775	20	18.55	1	17.23	2
	12M	21425	20	18.73	1	17.59	2
		21100	20	18.72	1	17.44	2
		20775	20	18.52	1	17.21	2
	12L	21425	20	18.70	1	17.40	2
		21100	20	18.76	1	17.38	2
		20775	20	18.39	1	17.23	2
	25	21425	20	18.66	1	17.65	2
		21100	20	18.71	1	17.64	2
		20775	20	18.49	1	17.34	2
10MHz	1H	21400	20	19.89	0	18.10	1
		21100	20	19.91	0	18.02	1
		20800	20	19.61	0	17.89	1
	1M	21400	20	19.89	0	18.10	1
		21100	20	19.78	0	18.40	1
		20800	20	19.68	0	17.82	1
	1L	21400	20	19.75	0	17.94	1
		21100	20	19.81	0	18.11	1
		20800	20	19.16	0	18.03	1
	25H	21400	20	18.82	1	17.72	2
		21100	20	18.76	1	17.57	2
		20800	20	18.64	1	17.56	2
	25M	21400	20	18.82	1	17.71	2
		21100	20	18.79	1	17.69	2
		20800	20	18.64	1	17.55	2
	25L	21400	20	18.79	1	17.58	2
		21100	20	18.74	1	17.70	2
		20800	20	18.48	1	17.39	2
	50	21400	20	18.81	1	17.79	2
		21100	20	18.78	1	17.75	2
		20800	20	18.67	1	17.57	2
15MHz	1H	21375	20	19.88	0	18.11	1
		21100	20	19.87	0	18.10	1
		20825	20	19.75	0	17.96	1
	1M	21375	20	19.83	0	18.61	1
		21100	20	19.64	0	18.51	1
		20825	20	19.56	0	18.33	1
	1L	21375	20	19.69	0	18.08	1
		21100	20	19.74	0	18.30	1
		20825	20	19.24	0	17.76	1
	36H	21375	20	18.84	1	17.83	2
		21100	20	18.73	1	17.64	2
		20825	20	18.69	1	17.53	2
	36M	21375	20	18.78	1	17.78	2
		21100	20	18.71	1	17.71	2
		20825	20	18.67	1	17.43	2
	36L	21375	20	18.77	1	17.69	2
		21100	20	18.73	1	17.72	2
		20825	20	18.55	1	17.57	2
	75	21375	20	18.86	1	17.78	2
		21100	20	18.79	1	17.69	2
		20825	20	18.67	1	17.52	2

20MHz	1H	21350	20	19.86	0	18.32	1
		21100	20	19.71	0	18.10	1
		20850	20	19.63	0	17.86	1
	1M	21350	20	19.85	0	**18.39**	1
		21100	20	19.64	0	**18.37**	1
		20850	20	19.56	0	**18.18**	1
	1L	21350	20	19.70	0	18.08	1
		21100	20	19.72	0	18.14	1
		20850	20	18.61	0	17.56	1
	50H	21350	20	18.88	1	17.79	2
		21100	20	18.76	1	17.76	2
		20850	20	18.68	1	17.72	2
	50M	21350	20	18.81	1	17.71	2
		21100	20	18.75	1	17.72	2
		20850	20	18.66	1	17.60	2
	50L	21350	20	18.82	1	17.74	2
		21100	20	18.86	1	17.84	2
		20850	20	18.61	1	17.55	2
	100	21350	20	18.86	1	17.79	2
		21100	20	18.81	1	17.64	2
		20850	20	18.70	1	17.56	2

Table 11-9 LTE700-FDD12 #1

LTE700-FDD12 #1							
				Measured Power (dBm) & MPR			
				QPSK		16QAM	
BandWidth	RB No./Start	Channel	Tune-up	Measured Power	MPR	Measured Power	MPR
1.4MHz	1H	23173	24.5	23.71	0	22.80	1
		23095	24.5	23.91	0	23.06	1
		23017	24.5	24.07	0	22.73	1
	1M	23173	24.5	23.88	0	22.79	1
		23095	24.5	24.19	0	22.85	1
		23017	24.5	24.10	0	22.45	1
	1L	23173	24.5	23.91	0	22.55	1
		23095	24.5	23.97	0	22.97	1
		23017	24.5	23.84	0	22.19	1
	3H	23173	24.5	24.00	0	22.86	1
		23095	24.5	23.99	0	22.99	1
		23017	24.5	24.15	0	23.00	1
	3M	23173	24.5	24.03	0	22.94	1
		23095	24.5	24.26	0	22.99	1
		23017	24.5	24.09	0	22.84	1
	3L	23173	24.5	24.02	0	22.79	1
		23095	24.5	24.21	0	23.15	1
		23017	24.5	24.01	0	22.79	1
	6	23173	24.5	22.92	1	21.31	2
		23095	24.5	23.16	1	22.00	2
		23017	24.5	23.17	1	22.46	2
3MHz	1H	23165	24.5	23.99	0	22.76	1
		23095	24.5	24.10	0	22.69	1
		23025	24.5	24.02	0	22.64	1
	1M	23165	24.5	24.06	0	22.69	1
		23095	24.5	24.24	0	23.25	1
		23025	24.5	23.83	0	23.17	1
	1L	23165	24.5	23.71	0	22.44	1
		23095	24.5	24.13	0	22.86	1
		23025	24.5	23.70	0	22.16	1
	8H	23165	24.5	22.93	1	21.60	2
		23095	24.5	23.28	1	22.41	2
		23025	24.5	23.08	1	22.36	2
	8M	23165	24.5	22.93	1	22.27	2
		23095	24.5	23.24	1	22.04	2
		23025	24.5	23.03	1	22.31	2
	8L	23165	24.5	23.08	1	21.96	2
		23095	24.5	23.34	1	22.38	2
		23025	24.5	23.11	1	22.35	2
	15	23165	24.5	22.91	1	22.19	2
		23095	24.5	23.16	1	22.18	2
		23025	24.5	23.13	1	22.21	2
5MHz	1H	23155	24.5	23.81	0	22.18	1
		23095	24.5	23.95	0	22.30	1
		23035	24.5	23.94	0	22.57	1
	1M	23155	24.5	24.13	0	22.74	1
		23095	24.5	24.16	0	23.19	1
		23035	24.5	24.11	0	23.27	1
	1L	23155	24.5	23.71	0	22.20	1
		23095	24.5	23.95	0	22.80	1
		23035	24.5	23.89	0	22.46	1
	12H	23155	24.5	22.88	1	21.85	2
		23095	24.5	23.08	1	21.84	2
		23035	24.5	22.91	1	21.81	2
	12M	23155	24.5	22.88	1	21.84	2
		23095	24.5	23.10	1	22.15	2
		23035	24.5	23.07	1	21.81	2
	12L	23155	24.5	22.95	1	21.68	2
		23095	24.5	23.03	1	22.00	2
		23035	24.5	22.97	1	21.96	2
	25	23155	24.5	22.86	1	21.93	2
		23095	24.5	23.04	1	22.00	2
		23035	24.5	22.99	1	22.16	2

10MHz	1H	23130	24.5	23.91	0	22.60	1
		23095	24.5	23.88	0	22.56	1
		23060	24.5	24.22	0	**22.74**	1
	1M	23130	24.5	24.06	0	22.63	1
		23095	24.5	24.10	0	**22.79**	1
		23060	24.5	23.99	0	22.67	1
	1L	23130	24.5	23.96	0	**22.73**	1
		23095	24.5	23.96	0	22.24	1
		23060	24.5	23.80	0	22.69	1
	25H	23130	24.5	22.98	1	21.99	2
		23095	24.5	22.95	1	22.04	2
		23060	24.5	23.10	1	22.36	2
	25M	23130	24.5	22.99	1	22.08	2
		23095	24.5	22.98	1	22.05	2
		23060	24.5	23.13	1	22.02	2
	25L	23130	24.5	23.03	1	22.10	2
		23095	24.5	23.03	1	21.97	2
		23060	24.5	23.03	1	21.94	2
	50	23130	24.5	23.01	1	22.08	2
		23095	24.5	23.10	1	22.26	2
		23060	24.5	23.12	1	22.25	2

Table 11-10 LTE750-FDD13 #1

LTE750-FDD13 #1							
				Measured Power (dBm) & MPR			
				QPSK		16QAM	
Bandwidth	RB No./Start	Channel	Tune-up	Measured Power	MPR	Measured Power	MPR
5MHz	1H	23255	24	23.35	0	22.05	1
		23230	24	23.28	0	21.89	1
		23205	24	23.21	0	21.86	1
	1M	23255	24	23.39	0	22.58	1
		23230	24	23.54	0	22.52	1
		23205	24	23.50	0	22.46	1
	1L	23255	24	23.25	0	21.51	1
		23230	24	23.20	0	22.03	1
		23205	24	23.23	0	22.07	1
	12H	23255	24	22.36	1	21.42	2
		23230	24	22.40	1	21.34	2
		23205	24	22.37	1	21.38	2
	12M	23255	24	22.42	1	21.18	2
		23230	24	22.39	1	21.19	2
		23205	24	22.27	1	21.06	2
	12L	23255	24	22.26	1	21.26	2
		23230	24	22.36	1	21.11	2
		23205	24	22.21	1	21.39	2
	25	23255	24	22.36	1	21.30	2
		23230	24	22.34	1	21.34	2
		23205	24	22.25	1	21.25	2
10MHz	1H	23230	24	23.38	0	**22.05**	1
	1M	23230	24	23.40	0	22.01	1
	1L	23230	24	23.06	0	21.41	1
	25H	23230	24	22.34	1	21.40	2
	25M	23230	24	22.34	1	21.36	2
	25L	23230	24	22.27	1	21.32	2
	50	23230	24	22.41	1	21.33	2

Table 11-11 LTE850-FDD26 #1

LTE850-FDD26 #1							
				Measured Power (dBm) & MPR			
				QPSK		16QAM	
BandWidth	RB No./Start	Channel	Tune-up	Measured Power	MPR	Measured Power	MPR
1.4MHz	1H	27033	24	22.41	0	21.11	1
		26865	24	22.18	0	21.13	1
		26697	24	22.45	0	21.17	1
	1M	27033	24	22.66	0	21.27	1
		26865	24	22.76	0	21.34	1
		26697	24	22.77	0	21.36	1
	1L	27033	24	22.53	0	21.37	1
		26865	24	22.70	0	21.41	1
		26697	24	22.63	0	21.22	1
	3H	27033	24	22.48	0	21.49	1
		26865	24	22.54	0	21.43	1
		26697	24	22.68	0	21.53	1
	3M	27033	24	22.55	0	21.51	1
		26865	24	22.72	0	21.61	1
		26697	24	22.65	0	21.63	1
	3L	27033	24	22.51	0	21.68	1
		26865	24	22.72	0	21.48	1
		26697	24	22.68	0	21.66	1
	6	27033	24	22.15	1	21.72	2
		26865	24	22.37	1	21.85	2
		26697	24	21.81	1	21.90	2
3MHz	1H	27025	24	22.62	0	21.19	1
		26865	24	22.53	0	21.15	1
		26705	24	22.53	0	21.31	1
	1M	27025	24	22.70	0	21.60	1
		26865	24	22.52	0	21.29	1
		26705	24	22.38	0	21.30	1
	1L	27025	24	22.47	0	21.33	1
		26865	24	22.79	0	21.52	1
		26705	24	22.67	0	21.01	1
	8H	27025	24	21.53	1	20.52	2
		26865	24	21.56	1	20.73	2
		26705	24	21.51	1	20.40	2
	8M	27025	24	21.44	1	20.42	2
		26865	24	21.54	1	20.70	2
		26705	24	21.51	1	20.57	2
	8L	27025	24	21.48	1	20.63	2
		26865	24	21.72	1	20.90	2
		26705	24	21.56	1	20.55	2
	15	27025	24	21.42	1	20.58	2
		26865	24	21.42	1	20.47	2
		26705	24	21.50	1	20.53	2
5MHz	1H	27015	24	22.47	0	21.08	1
		26865	24	22.37	0	21.06	1
		26715	24	22.46	0	21.39	1
	1M	27015	24	22.70	0	21.55	1
		26865	24	22.46	0	21.43	1
		26715	24	22.60	0	21.65	1
	1L	27015	24	22.44	0	21.37	1
		26865	24	22.58	0	21.11	1
		26715	24	22.60	0	21.17	1
	12H	27015	24	21.44	1	20.66	2
		26865	24	21.46	1	20.36	2
		26715	24	21.53	1	20.51	2
	12M	27015	24	21.44	1	20.25	2
		26865	24	21.59	1	20.34	2
		26715	24	21.46	1	20.27	2
	12L	27015	24	21.45	1	20.45	2
		26865	24	21.59	1	20.45	2
		26715	24	21.55	1	20.41	2
	25	27015	24	21.46	1	20.41	2
		26865	24	21.51	1	20.50	2
		26715	24	21.46	1	20.36	2

10MHz	1H	26990	24	22.60	0	21.23	1
		26865	24	22.64	0	21.31	1
		26750	24	22.53	0	21.25	1
	1M	26990	24	22.59	0	21.20	1
		26865	24	22.74	0	21.52	1
		26750	24	22.73	0	21.24	1
	1L	26990	24	22.62	0	21.21	1
		26865	24	22.59	0	21.14	1
		26750	24	22.63	0	21.17	1
	25H	26990	24	21.49	1	20.57	2
		26865	24	21.51	1	20.49	2
		26750	24	21.61	1	20.53	2
	25M	26990	24	21.54	1	20.51	2
		26865	24	21.58	1	20.50	2
		26750	24	21.57	1	20.55	2
	25L	26990	24	21.64	1	20.56	2
		26865	24	21.55	1	20.48	2
		26750	24	21.50	1	20.40	2
	50	26990	24	21.53	1	20.55	2
		26865	24	21.52	1	20.55	2
		26750	24	21.56	1	20.66	2
15MHz	1H	26965	24	22.59	0	21.12	1
		26865	24	22.80	0	21.29	1
		26775	24	22.48	0	21.21	1
	1M	26965	24	22.71	0	21.46	1
		26865	24	22.72	0	21.27	1
		26775	24	22.63	0	21.29	1
	1L	26965	24	22.67	0	21.22	1
		26865	24	22.44	0	21.25	1
		26775	24	22.52	0	21.24	1
	36H	26965	24	21.56	1	20.49	2
		26865	24	21.51	1	20.65	2
		26775	24	21.56	1	20.51	2
	36M	26965	24	21.57	1	20.79	2
		26865	24	21.53	1	20.43	2
		26775	24	21.59	1	20.52	2
	36L	26965	24	21.50	1	20.53	2
		26865	24	21.51	1	20.37	2
		26775	24	21.53	1	20.55	2
	75	26965	24	21.56	1	20.51	2
		26865	24	21.54	1	20.48	2
		26775	24	21.58	1	20.70	2

Table 11-12 LTE2600-TDD38 #1

LTE2600-TDD38 #1							
				Measured Power (dBm) & MPR			
				QPSK		16QAM	
BandWidth	RB No./Start	Channel	Tune-up	Measured Power	MPR	Measured Power	MPR
5MHz	1H	38225	19.5	18.87	0	18.15	1
		38000	19.5	18.88	0	17.66	1
		37775	19.5	18.79	0	17.09	1
	1M	38225	19.5	19.35	0	18.37	1
		38000	19.5	19.06	0	17.85	1
		37775	19.5	18.83	0	17.29	1
	1L	38225	19.5	19.02	0	18.06	1
		38000	19.5	18.84	0	17.63	1
		37775	19.5	18.79	0	17.18	1
	12H	38225	19.5	17.93	1	17.02	2
		38000	19.5	17.85	1	17.08	2
		37775	19.5	17.74	1	16.95	2
	12M	38225	19.5	18.06	1	17.14	2
		38000	19.5	18.06	1	16.88	2
		37775	19.5	17.78	1	16.89	2
	12L	38225	19.5	18.01	1	17.09	2
		38000	19.5	17.91	1	16.95	2
		37775	19.5	17.87	1	16.81	2
	25	38225	19.5	18.02	1	16.96	2
		38000	19.5	18.01	1	17.06	2
		37775	19.5	17.86	1	16.78	2
10MHz	1H	38200	19.5	18.75	0	17.27	1
		38000	19.5	18.90	0	17.25	1
		37800	19.5	18.82	0	17.24	1
	1M	38200	19.5	19.06	0	17.23	1
		38000	19.5	19.11	0	17.29	1
		37800	19.5	18.87	0	17.26	1
	1L	38200	19.5	18.91	0	17.28	1
		38000	19.5	18.88	0	17.36	1
		37800	19.5	18.83	0	17.33	1
	25H	38200	19.5	18.01	1	16.93	2
		38000	19.5	17.95	1	16.99	2
		37800	19.5	17.69	1	16.89	2
	25M	38200	19.5	18.07	1	16.92	2
		38000	19.5	17.93	1	16.98	2
		37800	19.5	17.78	1	16.86	2
	25L	38200	19.5	18.06	1	16.90	2
		38000	19.5	17.93	1	16.89	2
		37800	19.5	17.84	1	16.92	2
	50	38200	19.5	18.06	1	16.99	2
		38000	19.5	18.00	1	16.93	2
		37800	19.5	17.82	1	16.93	2

15MHz	1H	38175	19.5	19.00	0	17.32	1
		38000	19.5	19.18	0	18.24	1
		37825	19.5	18.77	0	18.34	1
	1M	38175	19.5	19.02	0	17.34	1
		38000	19.5	19.16	0	18.22	1
		37825	19.5	18.99	0	18.17	1
	1L	38175	19.5	19.06	0	17.49	1
		38000	19.5	19.27	0	18.24	1
		37825	19.5	18.83	0	18.31	1
	36H	38175	19.5	18.00	1	16.93	2
		38000	19.5	17.96	1	17.03	2
		37825	19.5	17.89	1	16.78	2
	36M	38175	19.5	17.99	1	16.93	2
		38000	19.5	17.96	1	16.83	2
		37825	19.5	17.84	1	16.63	2
	36L	38175	19.5	17.97	1	16.98	2
		38000	19.5	17.88	1	16.87	2
		37825	19.5	17.80	1	16.71	2
	75	38175	19.5	17.94	1	16.98	2
		38000	19.5	17.93	1	17.03	2
		37825	19.5	17.80	1	16.80	2
20MHz	1H	38150	19.5	18.76	0	17.16	1
		38000	19.5	19.00	0	18.13	1
		37850	19.5	19.01	0	17.46	1
	1M	38150	19.5	19.03	0	16.96	1
		38000	19.5	19.41	0	18.15	1
		37850	19.5	19.00	0	**17.56**	1
	1L	38150	19.5	18.92	0	**17.32**	1
		38000	19.5	19.36	0	**18.18**	1
		37850	19.5	18.92	0	17.45	1
	50H	38150	19.5	17.95	1	17.01	2
		38000	19.5	17.96	1	17.01	2
		37850	19.5	17.96	1	17.00	2
	50M	38150	19.5	17.94	1	16.99	2
		38000	19.5	17.93	1	16.92	2
		37850	19.5	17.88	1	16.88	2
	50L	38150	19.5	17.98	1	17.02	2
		38000	19.5	17.94	1	16.97	2
		37850	19.5	17.91	1	16.85	2
	100	38150	19.5	17.94	1	16.86	2
		38000	19.5	18.01	1	16.95	2
		37850	19.5	17.89	1	16.86	2

11.4 Wi-Fi and BT Measurement result

The output power of BT antenna is as following:

Table 11-13 Bluetooth Power

Bluetooth Power				
Mode	Channel	Frequence	Tune-up	Measured
GFSK	78	2480 MHz	6	5.76
	39	2441 MHz	7	6.77
	0	2402 MHz	5	4.6
EDR2M-4_DQPSK	78	2480 MHz	5	4.79
	39	2441 MHz	6	5.83
	0	2402 MHz	4	3.69
EDR3M-8DPSK	78	2480 MHz	5	4.77
	39	2441 MHz	6	5.81
	0	2402 MHz	5	3.7

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

Table 11-14 WLAN2450 #1

WLAN2450 #1						
Band	Mode	Channel	Frequence	Data Rate	Tune-up	Measured
WLAN 2.4G 20M	802.11b	11	2462 MHz	1Mbps	16.50	16.34
		6	2437 MHz		16.50	15.60
		1	2412 MHz		16.50	15.90
		11	2462 MHz	2Mbps	16.50	16.31
		6	2437 MHz		/	/
		1	2412 MHz		/	/
		11	2462 MHz	5.5Mbps	16.50	16.32
		6	2437 MHz		/	/
		1	2412 MHz		/	/
		11	2462 MHz	11Mbps	16.50	16.33
		6	2437 MHz		/	/
		1	2412 MHz		/	/
	802.11g	11	2462 MHz	6Mbps	14.00	13.93
		6	2437 MHz		14.00	13.68
		1	2412 MHz		14.00	13.71
		11	2462 MHz	9Mbps	14.00	13.91
		6	2437 MHz		/	/
		1	2412 MHz		/	/
		11	2462 MHz	12Mbps	14.00	13.92
		6	2437 MHz		/	/
		1	2412 MHz		/	/
		11	2462 MHz	18Mbps	14.00	13.92
		6	2437 MHz		/	/
		1	2412 MHz		/	/
		11	2462 MHz	24Mbps	14.00	13.88
		6	2437 MHz		/	/
		1	2412 MHz		/	/
		11	2462 MHz	36Mbps	14.00	13.89
		6	2437 MHz		/	/
		1	2412 MHz		/	/
		11	2462 MHz	48Mbps	14.00	13.88
		6	2437 MHz		/	/
		1	2412 MHz		/	/
		11	2462 MHz	54Mbps	14.00	13.86
		6	2437 MHz		/	/
		1	2412 MHz		/	/
	802.11n 20M	11	2462 MHz	MCS0	13.00	12.90
		6	2437 MHz		13.00	12.48
		1	2412 MHz		13.00	12.79
		11	2462 MHz	MCS1	13.00	12.93
		6	2437 MHz		/	/
		1	2412 MHz		/	/
		11	2462 MHz	MCS2	13.00	12.94
		6	2437 MHz		13.00	12.45
		1	2412 MHz		13.00	12.74
		11	2462 MHz	MCS3	13.00	12.89
		6	2437 MHz		/	/
		1	2412 MHz		/	/
		11	2462 MHz	MCS4	13.00	12.88
		6	2437 MHz		/	/
		1	2412 MHz		/	/
		11	2462 MHz	MCS5	13.00	12.83
		6	2437 MHz		/	/
		1	2412 MHz		/	/
		11	2462 MHz	MCS6	13.00	12.86
		6	2437 MHz		/	/
		1	2412 MHz		/	/
		11	2462 MHz	MCS7	13.00	12.84
		6	2437 MHz		/	/

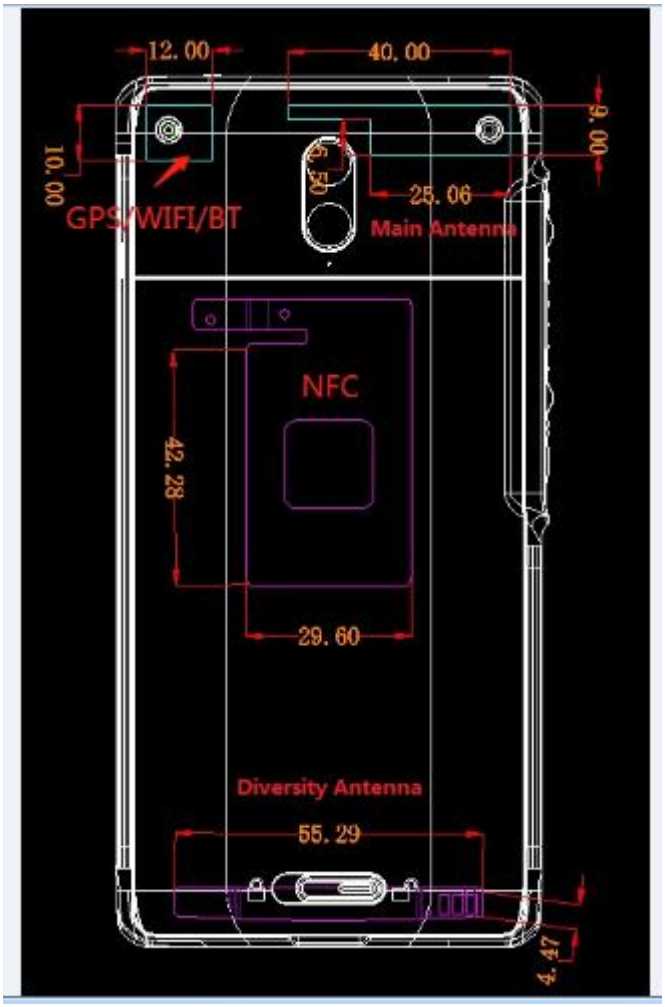
		1	2412 MHz		/	/
WLAN 2.4G 40M	802.11n 40M	9	2452 MHz	MCS0	14.00	12.28
		6	2437 MHz		14.00	13.33
		3	2422 MHz		14.00	12.88
		9	2452 MHz	MCS1	/	/
		6	2437 MHz		14.00	13.25
		3	2422 MHz		/	/
		9	2452 MHz	MCS2	/	/
		6	2437 MHz		14.00	13.24
		3	2422 MHz		/	/
		9	2452 MHz	MCS3	/	/
		6	2437 MHz		14.00	13.23
		3	2422 MHz		/	/
		9	2452 MHz	MCS4	/	/
		6	2437 MHz		14.00	13.19
		3	2422 MHz		/	/
		9	2452 MHz	MCS5	/	/
		6	2437 MHz		14.00	13.18
		3	2422 MHz		/	/
		9	2452 MHz	MCS6	/	/
		6	2437 MHz		14.00	13.17
		3	2422 MHz		/	/
		9	2452 MHz	MCS7	/	/
		6	2437 MHz		14.00	13.18
		3	2422 MHz		/	/

12 Simultaneous TX SAR Considerations

12.1 Introduction

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

12.2 Transmit Antenna Separation Distances



Picture 12.1 Antenna Locations

12.3 SAR Measurement Positions

According to the KDB941225 D06 Hot Spot SAR v02r01, 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	Yes	Yes	Yes	No	Yes	No
WiFi	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	9.6	**7**	5.01	Yes
		Body	19.2	**7**	5.01	Yes
2.4GHz WLAN 802.11 b	2.45	Head	9.58	**16.5**	44.67	No
		Body	19.17	**16.5**	44.67	No

13 Evaluation of Simultaneous

Table 13.1: The sum of reported SAR values for main antenna and WiFi

	Position	Main antenna	WiFi	Sum
Highest reported SAR value for Head	Right hand, Touch cheek	1.26	0.32	**1.58**
Highest reported SAR value for Body	Rear	0.54	0.08	**0.62**

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

	Position	Main antenna	BT	Sum
Maximum reported SAR value for Head	Right hand, Touch cheek	1.26	0.21	**1.47**
Maximum reported SAR value for Body	Rear	0.54	0.10	**0.64**

[1] - 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	7	5.01	0.21
Bluetooth	2.441	Body	10	7	5.01	0.10

* - 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 10mm 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.

Mode	Duty Cycle
Speech for GSM850/1900	1:8.3
GPRS&EGPRS for GSM850	1:8.3
GPRS&EGPRS for GSM1900	1:4
WCDMA&LTE(Except LTE Band 38)	1:1
LTE Band 38	1:1.58

14.1 Evaluation of multi SIM slots

frequency		Mode/Band	Side	Position	SIM Card	1g SAR (W/kg)	PowerDrift
MHz	Channel						
836.4	4182	WCDMA 850	L	Cheek	SIM1	0.775	0.02
836.4	4182	WCDMA 850	L	Cheek	SIM2	0.767	0.01

Note: According to the values in the above table, the SIM1 is the primary slot.
We'll perform the head measurements with this SIM slot and retest on highest value point with others.

frequency		Mode/Band	Position	SIM Card	1g SAR (W/kg)	PowerDrift
MHz	Channel					
836.4	4182	WCDMA 850	Front	SIM1	0.259	0.05
836.4	4182	WCDMA 850	Front	SIM2	0.257	-0.02

Note: According to the values in the above table, the SIM1 is the primary slot.
We'll perform the body measurements with this SIM slot and retest on highest value point with others.

14.2 SAR results

Table 14-1 GSM850 #1 Head

GSM 850 #1 Head									
Ambient Temperature:	22.5					Liquid Temperature:	22.3		
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			CH251 848.8 MHz	CH190 836.6 MHz	CH128 824.2 MHz	CH251 848.8 MHz	CH190 836.6 MHz	CH128 824.2 MHz	
GSM	Tune-up		34.00	34.00	34.00	Scaling factor*			
	Slot Average Power [dBm]		33.53	33.62	33.59	1.11	1.09	1.10	
	Left Cheek	1g SAR		0.575			0.63		
		10g SAR		0.417			0.46		
		Deviation		0.02			0.02		
	Left Tilt	1g SAR		0.438			0.48		
		10g SAR		0.289			0.32		
		Deviation		-0.01			-0.01		
	Right Cheek	1g SAR	0.7	0.72	0.66	0.78	0.79	0.73	
		10g SAR	0.469	0.473	0.435	0.52	0.52	0.48	
		Deviation	0.06	0.11	-0.06	0.06	0.11	-0.06	
	Right Tilt	1g SAR		0.508			0.55		
		10g SAR		0.296			0.32		
		Deviation		0.03			0.03		
GSM	*Right Cheek SM 2*	1g SAR		0.693			0.76		
		10g SAR		0.466			0.51		
		Deviation		0.1			0.10		

Table 14-2 GSM850 #1 Body

GSM 850 #1 Body									
Ambient Temperature:	22.5					Liquid Temperature:	22.3		
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			CH251 848.8 MHz	CH190 836.6 MHz	CH128 824.2 MHz	CH251 848.8 MHz	CH190 836.6 MHz	CH128 824.2 MHz	
GPRS 1 Txslot	Tune-up		34.00	34.00	34.00	Scaling factor*			
	Slot Average Power [dBm]		33.57	33.58	33.59	1.10	1.10	1.10	
	Front	1g SAR		0.229			0.25		
		10g SAR		0.177			0.19		
		Deviation		0.02			0.02		
	Rear	1g SAR	0.299	0.272	0.227	0.33	0.30	0.25	
		10g SAR	0.228	0.205	0.212	0.25	0.23	0.23	
		Deviation	0.1	-0.07	-0.12	0.10	-0.07	-0.12	
	Left edge	1g SAR		0.151			0.17		
		10g SAR		0.104			0.11		
		Deviation		0.07			0.07		
	Top edge	1g SAR		0.083			0.09		
		10g SAR		0.053			0.06		
		Deviation		0.03			0.03		
EGPRS GMSK 1 Txslot	Tune-up		34.00	34.00	34.00	Scaling factor*			
	Slot Average Power [dBm]		33.57	33.63	33.61	1.10	1.09	1.09	
	Rear	1g SAR	0.285			0.31			
		10g SAR	0.22			0.24			
		Deviation	-0.02			-0.02			
GPRS 1 Txslot	*Rear SM 2*	1g SAR	0.291			0.32			
		10g SAR	0.223			0.25			
		Deviation	0.04			0.04			

Table 14-3 PCS1900 #1 Head

PCS1900 #1 Head									
Ambient Temperature:	22.5					Liquid Temperature:	22.3		
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			CH810 1909.8	CH661 1880 MHz	CH512 1850.2	CH810 1909.8	CH661 1880 MHz	CH512 1850.2	
GSM	Tune-up		28.00	28.00	28.00	Scaling factor*			
	Slot Average Power [dBm]		27.27	27.42	27.49	1.18	1.14	1.12	
	Left Cheek	1g SAR		0.454			0.52		
		10g SAR		0.249			0.28		
		Deviation		0.03			0.03		
	Left Tilt	1g SAR		0.408			0.47		
		10g SAR		0.213			0.24		
		Deviation		0.1			0.10		
	Right Cheek	1g SAR	0.814	0.717	0.743	0.96	0.82	0.84	
		10g SAR	0.442	0.397	0.406	0.52	0.45	0.46	
		Deviation	-0.09	-0.07	0.04	-0.09	-0.07	0.04	
	Right Tilt	1g SAR		0.592			0.68		
		10g SAR		0.313			0.36		
		Deviation		0.02			0.02		
GSM	*Right Cheek SM2*	1g SAR	0.806			0.95			
		10g SAR	0.437			0.52			
		Deviation	0.05			0.05			

Table 14-4 PCS1900 #1 Body

PCS1900 #1 Body									
Ambient Temperature:	22.5					Liquid Temperature:	22.3		
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			CH810 1909.8	CH661 1880 MHz	CH512 1850.2	CH810 1909.8	CH661 1880 MHz	CH512 1850.2	
GPRS 3 Txslots	Tune-up		27.00	27.00	27.00	Scaling factor*			
	Slot Average Power [dBm]		25.11	25.30	25.40	1.55	1.48	1.45	
	Front	1g SAR		0.253			0.37		
		10g SAR		0.131			0.19		
		Deviation		0.01			0.01		
	Rear	1g SAR	0.233	0.294	0.376	0.36	0.44	0.54	
		10g SAR	0.144	0.17	0.206	0.22	0.25	0.30	
		Deviation	-0.05	0.13	0.04	-0.05	0.13	0.04	
	Left edge	1g SAR		0.258			0.38		
		10g SAR		0.15			0.22		
		Deviation		0.09			0.09		
	Top edge	1g SAR		0.222			0.33		
		10g SAR		0.123			0.18		
		Deviation		-0.07			-0.07		
EGPRS GMSK 3 Txslots	Tune-up		27.00	27.00	27.00	Scaling factor*			
	Slot Average Power [dBm]		25.20	25.36	25.35	1.51	1.46	1.46	
	Rear	1g SAR			0.354			0.52	
		10g SAR			0.188			0.27	
		Deviation			-0.02			-0.02	
GPRS 3 Txslots	*Rear SM2*	1g SAR			0.366			0.53	
		10g SAR			0.194			0.28	
		Deviation			0.08			0.08	

Table 14-5 WCDMA1900-BII #1Head

WCDMA1900-BII #1Head									
Ambient Temperature:	22.5					Liquid Temperature:			22.3
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			CH9538 1907.6 MHz	CH9400 1880 MHz	CH9262 1852.4 MHz	CH9538 1907.6 MHz	CH9400 1880 MHz	CH9262 1852.4 MHz	
RMC	Tune-up		21.50	21.50	21.50	Scaling factor*			
	Slot Average Power [dBm]		21.28	21.24	21.09	1.05	1.06	1.10	
	LeftCheek	1g SAR		0.493			0.52		
		10g SAR		0.253			0.27		
		Deviation		0.03			0.03		
	LeftTilt	1g SAR		0.5			0.53		
		10g SAR		0.25			0.27		
		Deviation		0.08			0.08		
	RightCheek	1g SAR	1.11	0.925	0.852	1.17	0.98	0.94	
		10g SAR	0.58	0.503	0.456	0.61	0.53	0.50	
		Deviation	-0.1	-0.02	0.09	-0.10	-0.02	0.09	
	RightTilt	1g SAR		0.686			0.73		
		10g SAR		0.342			0.36		
		Deviation		0.12			0.12		
RMC	*RightCheek SM2*	1g SAR	1.03			1.08			
		10g SAR	0.569			0.60			
		Deviation	0.01			0.01			

Table 14-6 WCDMA1900-BII #1Body

WCDMA1900-BII #1Body									
Ambient Temperature:	22.5					Liquid Temperature:			22.3
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			CH9538 1907.6 MHz	CH9400 1880 MHz	CH9262 1852.4 MHz	CH9538 1907.6 MHz	CH9400 1880 MHz	CH9262 1852.4 MHz	
RMC	Tune-up		21.50	21.50	21.50	Scaling factor*			
	Slot Average Power [dBm]		21.28	21.24	21.09	1.05	1.06	1.10	
	Front	1g SAR		0.167			0.18		
		10g SAR		0.107			0.11		
		Deviation		0.03			0.03		
	Rear	1g SAR		0.257			0.27		
		10g SAR		0.139			0.15		
		Deviation		0.01			0.01		
	Leftedge	1g SAR	0.222	0.286	0.217	0.23	0.30	0.24	
		10g SAR	0.129	0.169	0.106	0.14	0.18	0.12	
		Deviation	-0.07	0.16	0.05	-0.07	0.16	0.05	
	Top edge	1g SAR		0.183			0.19		
		10g SAR		0.099			0.11		
		Deviation		-0.08			-0.08		
RMC	*Leftedge SM2*	1g SAR		0.277			0.29		
		10g SAR		0.161			0.17		
		Deviation		0.01			0.01		

Table 14-7 WCDMA1700-BIV #1Head

WCDMA1700-BIV #1Head									
Ambient Temperature:		22.5				Liquid Temperature:			22.3
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			CH1513 1752.6 MHz	CH1412 1732.4 MHz	CH1312 1712.4 MHz	CH1513 1752.6 MHz	CH1412 1732.4 MHz	CH1312 1712.4 MHz	
RMC	Tune-up		20.00	20.00	20.00	Scaling factor*			
	SlotAverage Power [dBm]		19.47	19.45	19.36	1.13	1.14	1.16	
	LeftCheek	1g SAR		0.624			0.71		
		10g SAR		0.342			0.39		
		Deviation		0.04			0.04		
	LeftTilt	1g SAR		0.502			0.57		
		10g SAR		0.276			0.31		
		Deviation		-0.01			-0.01		
	RightCheek	1g SAR	0.908	0.892	0.844	1.03	1.01	0.98	
		10g SAR	0.486	0.475	0.46	0.55	0.54	0.53	
		Deviation	0.05	-0.02	0.1	0.05	-0.02	0.10	
	RightTilt	1g SAR		0.69			0.78		
		10g SAR		0.354			0.40		
		Deviation		-0.13			-0.13		
RMC	*RightCheek SM2*	1g SAR	0.899			1.02			
		10g SAR	0.479			0.54			
		Deviation	-0.02			-0.02			

Table 14-8 WCDMA1700-BIV #1Body

WCDMA1700-BIV #1Body									
Ambient Temperature:		22.5				Liquid Temperature:			22.3
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			CH1513 1752.6 MHz	CH1412 1732.4 MHz	CH1312 1712.4 MHz	CH1513 1752.6 MHz	CH1412 1732.4 MHz	CH1312 1712.4 MHz	
RMC	Tune-up		20.00	20.00	20.00	Scaling factor*			
	SlotAverage Power [dBm]		19.47	19.45	19.36	1.13	1.14	1.16	
	Front	1g SAR		0.189			0.21		
		10g SAR		0.113			0.13		
		Deviation		-0.08			-0.08		
	Rear	1g SAR	0.246	0.264	0.241	0.28	0.30	0.28	
		10g SAR	0.138	0.152	0.134	0.16	0.17	0.16	
		Deviation	0.01	0.08	-0.04	0.01	0.08	-0.04	
	Leftedge	1g SAR		0.168			0.19		
		10g SAR		0.092			0.10		
		Deviation		0.02			0.02		
	Top edge	1g SAR		0.176			0.20		
		10g SAR		0.102			0.12		
		Deviation		-0.1			-0.10		
RMC	*Rear SM2*	1g SAR		0.256			0.29		
		10g SAR		0.148			0.17		
		Deviation		0.08			0.08		

Table 14-9 WCDMA850-BV #1Head

WCDMA850-BV #1Head									
Ambient Temperature:		22.5				Liquid Temperature:			22.3
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			CH4233 846.6 MHz	CH4183 836.6 MHz	CH4132 826.4 MHz	CH4233 846.6 MHz	CH4183 836.6 MHz	CH4132 826.4 MHz	
RMC	Tune-up		24.50	24.50	24.50	Scaling factor*			
	SlotAverage Power [dBm]		24.17	24.25	24.19	1.08	1.06	1.07	
	LeftCheek	1g SAR		0.671			0.71		
		10g SAR		0.487			0.52		
		Deviation		-0.01			-0.01		
	LeftTilt	1g SAR		0.489			0.52		
		10g SAR		0.328			0.35		
		Deviation		-0.05			-0.05		
	RightCheek	1g SAR	0.839	0.775	0.735	0.91	0.82	0.79	
		10g SAR	0.561	0.503	0.487	0.61	0.53	0.52	
		Deviation	0.19	0.02	0.04	0.19	0.02	0.04	
	RightTilt	1g SAR		0.515			0.55		
		10g SAR		0.312			0.33		
		Deviation		0.08			0.08		
RMC	*RightCheek SM2*	1g SAR	0.825			0.89			
		10g SAR	0.553			0.60			
		Deviation	0.04			0.04			

Table 14-10 WCDMA850-BV #1Body

WCDMA850-BV #1Body									
Ambient Temperature:		22.5				Liquid Temperature:			22.3
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			CH4233 846.6 MHz	CH4183 836.6 MHz	CH4132 826.4 MHz	CH4233 846.6 MHz	CH4183 836.6 MHz	CH4132 826.4 MHz	
RMC	Tune-up		24.50	24.50	24.50	Scaling factor*			
	SlotAverage Power [dBm]		24.17	24.25	24.19	1.08	1.06	1.07	
	Front	1g SAR		0.318			0.34		
		10g SAR		0.241			0.26		
		Deviation		0.02			0.02		
	Rear	1g SAR	0.356	0.336	0.314	0.38	0.36	0.34	
		10g SAR	0.272	0.255	0.242	0.29	0.27	0.26	
		Deviation	0.01	-0.07	0.06	0.01	-0.07	0.06	
	Leftedge	1g SAR		0.219			0.23		
		10g SAR		0.151			0.16		
		Deviation		0.1			0.10		
	Top edge	1g SAR		0.097			0.10		
		10g SAR		0.062			0.07		
		Deviation		-0.09			-0.09		
RMC	*RearSM2*	1g SAR	0.348			0.38			
		10g SAR	0.266			0.29			
		Deviation	-0.05			-0.05			

Table 14-11 LTE1900-FDD2 #1 Head

LTE1900-FDD2 #1 Head									
Ambient Temperature:	22.5					Liquid Temperature:	22.3		
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			19100	18900	18700	19100	18900	18700	
			M	L	H	M	L	H	
20MHz QPSK1RB	Tune-up		22.50	22.50	22.50	Scaling factor*			
	Measured Power [dBm]		22.03	22.11	22.01	1.11	1.09	1.12	
	LeftCheek	1g SAR		0.399			0.44		
		10g SAR		0.211			0.23		
		Deviation		0.02			0.02		
	LeftTilt	1g SAR		0.478			0.52		
		10g SAR		0.242			0.26		
		Deviation		0.01			0.01		
	RightCheek	1g SAR	1.06	1.09	0.974	1.18	1.19	1.09	
		10g SAR	0.566	0.569	0.517	0.63	0.62	0.58	
		Deviation	-0.08	0.11	-0.02	-0.08	0.11	-0.02	
	RightTilt	1g SAR	0.831	0.834	0.745	0.93	0.91	0.83	
		10g SAR	0.412	0.415	0.377	0.46	0.45	0.42	
		Deviation	0.01	-0.08	0.09	0.01	-0.08	0.09	
FALSE	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			19100	18900	18700	19100	18900	18700	
			M	H	L	M	H	L	
20MHz QPSK50% RB	Tune-up		21.50	21.50	21.50	Scaling factor*			
	Measured Power [dBm]		21.01	21.02	20.98	1.12	1.12	1.13	
	LeftCheek	1g SAR		0.403			0.45		
		10g SAR		0.214			0.24		
		Deviation		0.05			0.05		
	LeftTilt	1g SAR		0.371			0.41		
		10g SAR		0.19			0.21		
		Deviation		-0.1			-0.10		
	RightCheek	1g SAR	0.917	0.923	0.825	1.03	1.03	0.93	
		10g SAR	0.488	0.493	0.447	0.55	0.55	0.50	
		Deviation	0.08	-0.02	-0.09	0.08	-0.02	-0.09	
	RightTilt	1g SAR		0.624			0.70		
		10g SAR		0.317			0.35		
		Deviation		0.07			0.07		
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			19100	18900	18700	19100	18900	18700	
20MHz QPSK100% RB	Tune-up		21.50	21.50	21.50	Scaling factor*			
	Measured Power [dBm]		21.00	21.01	21.01	1.12	1.12	1.12	
	RightCheek	1g SAR			0.71			0.79	
		10g SAR			0.389			0.44	
		Deviation			0.03			0.03	
20MHz QPSK100% RB	RightTilt	1g SAR			0.461			0.52	
		10g SAR			0.231			0.26	
		Deviation			-0.05			-0.05	
20MHz QPSK1RB	RightCheek SIM2	1g SAR		1.01			1.10		
		10g SAR		0.562			0.61		
		Deviation		0.03			0.03		

Table 14-12 LTE1900-FDD2 #1 Body

LTE1900-FDD2 #1 Body									
Ambient Temperature: 22.5						Liquid Temperature: 22.3			
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			19100	18900	18700	19100	18900	18700	
			M	L	H	M	L	H	
20MHz QPSK1RB	Tune-up		22.50	22.50	22.50	Scaling factor*			
	Measured Power [dBm]		22.03	22.11	22.01	1.11	1.09	1.12	
	Front	1g SAR		0.294			0.32		
		10g SAR		0.177			0.19		
		Deviation		0.06			0.06		
	Rear	1g SAR		0.386			0.42		
		10g SAR		0.204			0.22		
		Deviation		0.01			0.01		
	Leftedge	1g SAR		0.344			0.38		
		10g SAR		0.197			0.22		
		Deviation		-0.07			-0.07		
	Top edge	1g SAR		0.359			0.39		
		10g SAR		0.188			0.21		
		Deviation		-0.04			-0.04		
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			19100	18900	18700	19100	18900	18700	
			M	H	L				
20MHz QPSK50% RB	Tune-up		21.50	21.50	21.50	Scaling factor*			
	Measured Power [dBm]		21.01	21.02	20.98	1.12	1.12	1.13	
	Front	1g SAR		0.248			0.28		
		10g SAR		0.149			0.17		
		Deviation		0.08			0.08		
	Rear	1g SAR		0.288			0.32		
		10g SAR		0.155			0.17		
		Deviation		0.06			0.06		
	Leftedge	1g SAR		0.304			0.34		
		10g SAR		0.173			0.19		
		Deviation		0.03			0.03		
	Top edge	1g SAR		0.257			0.29		
		10g SAR		0.134			0.15		
		Deviation		0.11			0.11		
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			19100	18900	18700	19100	18900	18700	
20MHz QPSK100% RB	Tune-up		21.50	21.50	21.50	Scaling factor*			
	Measured Power [dBm]		21.00	21.01	21.01	1.12	1.12	1.12	
	Rear	1g SAR							
		10g SAR							
		Deviation							
20MHz QPSK1RB	*Rear SM2*	1g SAR		0.377			0.41		
		10g SAR		0.2			0.22		
		Deviation		0.02			0.02		

Table 14-13 LTE1700-FDD4 #1 Head

LTE1700-FDD4 #1 Head									
Ambient Temperature:	22.5					Liquid Temperature:	22.3		
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			20300	20175	20050	20300	20175	20050	
			L	H	M	L	H	M	
20MHz QPSK1RB	Tune-up		20.50	20.50	20.50	Scaling factor*			
	Measured Power [dBm]		20.02	19.94	19.67	1.12	1.14	1.21	
	LeftCheek	1g SAR	0.701			0.78			
		10g SAR	0.427			0.48			
		Deviation	0.05			0.05			
	LeftTilt	1g SAR	0.624			0.70			
		10g SAR	0.364			0.41			
		Deviation	0.01			0.01			
	RightCheek	1g SAR	0.778	0.6	0.53	0.87	0.68	0.64	
		10g SAR	0.391	0.369	0.335	0.44	0.42	0.41	
		Deviation	-0.05	0.06	0.07	-0.05	0.06	0.07	
	RightTilt	1g SAR	0.76	0.564	0.521	0.85	0.64	0.63	
		10g SAR	0.454	0.338	0.321	0.51	0.38	0.39	
		Deviation	0.12	-0.03	0.01	0.12	-0.03	0.01	
FALSE	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			20300	20175	20050	20300	20175	20050	
			L	M	H	L	M	H	
20MHz QPSK50% RB	Tune-up		19.50	19.50	19.50	Scaling factor*			
	Measured Power [dBm]		18.86	18.82	18.85	1.16	1.17	1.16	
	LeftCheek	1g SAR	0.494			0.57			
		10g SAR	0.299			0.35			
		Deviation	-0.06			-0.06			
	LeftTilt	1g SAR	0.461			0.53			
		10g SAR	0.268			0.31			
		Deviation	-0.02			-0.02			
	RightCheek	1g SAR	0.743	0.457	0.449	0.86	0.53	0.52	
		10g SAR	0.386	0.284	0.282	0.45	0.33	0.33	
		Deviation	0.15	0.02	-0.04	0.15	0.02	-0.04	
	RightTilt	1g SAR	0.63			0.73			
		10g SAR	0.35			0.41			
		Deviation	0.06			0.06			
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			20300	20175	20050	20300	20175	20050	
20MHz QPSK100% RB	Tune-up		19.50	19.50	19.50	Scaling factor*			
	Measured Power [dBm]		18.86	18.82	18.81	1.16	1.17	1.17	
	RightCheek	1g SAR	0.723			0.84			
		10g SAR	0.383			0.44			
		Deviation	-0.08			-0.08			
20MHz QPSK100% RB	RightTilt	1g SAR	0.698			0.78			
		10g SAR	0.373			0.42			
		Deviation	0.05			0.05			
20MHz QPSK1RB	RightCheek SIM2	1g SAR	0.769			0.86			
		10g SAR	0.389			0.43			
		Deviation	0.03			0.03			

Table 14-14 LTE1700-FDD4 #1 Body

LTE1700-FDD4 #1 Body									
Ambient Temperature: 22.5						Liquid Temperature: 22.3			
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			20300	20175	20050	20300	20175	20050	
			L	H	M	L	H	M	
20MHz QPSK1RB	Tune-up		20.50	20.50	20.50	Scaling factor*			
	Measured Power [dBm]		20.02	19.94	19.67	1.12	1.14	1.21	
	Front	1g SAR	0.219			0.24			
		10g SAR	0.127			0.14			
		Deviation	-0.1			-0.10			
	Rear	1g SAR	0.308			0.34			
		10g SAR	0.174			0.19			
		Deviation	0.08			0.08			
	Leftedge	1g SAR	0.095			0.11			
		10g SAR	0.059			0.07			
		Deviation	0.07			0.07			
	Top edge	1g SAR	0.216			0.24			
		10g SAR	0.131			0.15			
		Deviation	0.04			0.04			
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			20300	20175	20050	20300	20175	20050	
			L	M	H				
20MHz QPSK50% RB	Tune-up		19.50	19.50	19.50	Scaling factor*			
	Measured Power [dBm]		18.86	18.82	18.85	1.16	1.17	1.16	
	Front	1g SAR	0.18			0.21			
		10g SAR	0.104			0.12			
		Deviation	-0.12			-0.12			
	Rear	1g SAR	0.24			0.28			
		10g SAR	0.136			0.16			
		Deviation	0.09			0.09			
	Leftedge	1g SAR	0.089			0.10			
		10g SAR	0.046			0.05			
		Deviation	0.05			0.05			
	Top edge	1g SAR	0.261			0.30			
		10g SAR	0.159			0.18			
		Deviation	-0.02			-0.02			
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			20300	20175	20050	20300	20175	20050	
20MHz QPSK100% RB	Tune-up		19.50	19.50	19.50	Scaling factor*			
	Measured Power [dBm]		18.86	18.82	18.81	1.16	1.17	1.17	
	Rear	1g SAR							
		10g SAR							
		Deviation							
20MHz QPSK1RB H	*Rear*	1g SAR							
		10g SAR							
		Deviation							
20MHz QPSK1RB	*Rear SM2*	1g SAR	0.288			0.32			
		10g SAR	0.161			0.18			
		Deviation	0.01			0.01			

Table 14-15 LTE2500-FDD7 #1 Head

LTE2500-FDD7 #1 Head									
Ambient Temperature:	22.5					Liquid Temperature:	22.3		
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			21350	21100	20850	21350	21100	20850	
			H	L	H	H	L	H	
20MHz QPSK1RB	Tune-up		20.00	20.00	20.00	Scaling factor*			
	Measured Power [dBm]		19.86	19.72	19.63	1.03	1.07	1.09	
	LeftCheek	1g SAR	0.661			0.68			
		10g SAR	0.341			0.35			
		Deviation	0.02			0.02			
	LeftTilt	1g SAR	0.404			0.42			
		10g SAR	0.211			0.22			
		Deviation	-0.08			-0.08			
	RightCheek	1g SAR	1.22	1.127	1.015	1.26	1.20	1.11	
		10g SAR	0.597	0.556	0.5	0.62	0.59	0.54	
		Deviation	0.04	0.02	-0.08	0.04	0.02	-0.08	
	RightTilt	1g SAR	0.721			0.74			
		10g SAR	0.364			0.38			
		Deviation	0.1			0.10			
TRUE	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			21350	21100	20850	21350	21100	20850	
			H	L	H	H	L	H	
20MHz QPSK50% RB	Tune-up		19.00	19.00	19.00	Scaling factor*			
	Measured Power [dBm]		18.88	18.86	18.68	1.03	1.03	1.08	
	LeftCheek	1g SAR	0.548			0.56			
		10g SAR	0.284			0.29			
		Deviation	0.06			0.06			
	LeftTilt	1g SAR	0.341			0.35			
		10g SAR	0.178			0.18			
		Deviation	-0.03			-0.03			
	RightCheek	1g SAR	1.005	0.928	0.836	1.03	0.96	0.90	
		10g SAR	0.498	0.464	0.417	0.51	0.48	0.45	
		Deviation	-0.1	0.02	0.07	-0.10	0.02	0.07	
	RightTilt	1g SAR	0.608			0.63			
		10g SAR	0.305			0.31			
		Deviation	-0.08			-0.08			
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			21350	21100	20850	21350	21100	20850	
20MHz QPSK100% RB	Tune-up		19.00	19.00	19.00	Scaling factor*			
	Measured Power [dBm]		18.86	18.81	18.70	1.03	1.04	1.07	
	RightCheek	1g SAR	0.929			0.96			
		10g SAR	0.455			0.47			
		Deviation	0.01			0.01			
20MHz QPSK1RB	RightCheek SIM2	1g SAR	1.18			1.22			
		10g SAR	0.59			0.61			
		Deviation	0.09			0.09			

Table 14-16 LTE2500-FDD7 #1 Body

LTE2500-FDD7 #1 Body									
Ambient Temperature: 22.5						Liquid Temperature: 22.3			
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			21350	21100	20850	21350	21100	20850	
			H	L	H	H	L	H	
20MHz QPSK1RB	Tune-up		20.00	20.00	20.00	Scaling factor*			
	Measured Power [dBm]		19.86	19.72	19.63	1.03	1.07	1.09	
	Front	1g SAR	0.317			0.33			
		10g SAR	0.17			0.18			
		Deviation	0.18			0.18			
	Rear	1g SAR	0.228			0.24			
		10g SAR	0.121			0.12			
		Deviation	0.03			0.03			
	Leftedge	1g SAR	0.229			0.24			
		10g SAR	0.12			0.12			
		Deviation	-0.01			-0.01			
	Top edge	1g SAR	0.206			0.21			
		10g SAR	0.099			0.10			
		Deviation	-0.02			-0.02			
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			21350	21100	20850	21350	21100	20850	
			H	L	H				
20MHz QPSK50% RB	Tune-up		19.00	19.00	19.00	Scaling factor*			
	Measured Power [dBm]		18.88	18.86	18.68	1.03	1.03	1.08	
	Front	1g SAR	0.259			0.27			
		10g SAR	0.14			0.14			
		Deviation	0.06			0.06			
	Rear	1g SAR	0.181			0.19			
		10g SAR	0.096			0.10			
		Deviation	0.09			0.09			
	Leftedge	1g SAR	0.264			0.27			
		10g SAR	0.134			0.14			
		Deviation	-0.01			-0.01			
	Top edge	1g SAR	0.156			0.16			
		10g SAR	0.074			0.08			
		Deviation	0.11			0.11			
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			21350	21100	20850	21350	21100	20850	
20MHz QPSK100% RB	Tune-up		19.00	19.00	19.00	Scaling factor*			
	Measured Power [dBm]		18.86	18.81	18.70	1.03	1.04	1.07	
	Front	1g SAR							
		10g SAR							
		Deviation							
20MHz QPSK1RB	*Front SM2*	1g SAR	0.308			0.32			
		10g SAR	0.164			0.17			
		Deviation	0.02			0.02			

Table 14-17 LTE700-FDD12 #1 Head

LTE700-FDD12 #1 Head									
Ambient Temperature:	22.5					Liquid Temperature:	22.3		
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			23130	23095	23060	23130	23095	23060	
			M	M	H	M	M	H	
10MHz QPSK1RB	Tune-up		24.50	24.50	24.50	Scaling factor*			
	Measured Power [dBm]		24.06	24.10	24.22	1.11	1.10	1.07	
	LeftCheek	1g SAR			0.091			0.10	
		10g SAR			0.062			0.07	
		Deviation			0.02			0.02	
	LeftTilt	1g SAR			0.096			0.10	
		10g SAR			0.061			0.07	
		Deviation			0.04			0.04	
	RightCheek	1g SAR			0.13			0.14	
		10g SAR			0.09			0.10	
		Deviation			0.19			0.19	
	RightTilt	1g SAR			0.109			0.12	
		10g SAR			0.067			0.07	
		Deviation			0.01			0.01	
TRUE	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			23130	23095	23060	23130	23095	23060	
			L	L	M	L	L	M	
10MHz QPSK50% RB	Tune-up		23.50	23.50	23.50	Scaling factor*			
	Measured Power [dBm]		23.03	23.03	23.13	1.11	1.11	1.09	
	LeftCheek	1g SAR			0.074			0.08	
		10g SAR			0.05			0.05	
		Deviation			-0.08			-0.08	
	LeftTilt	1g SAR			0.079			0.09	
		10g SAR			0.05			0.05	
		Deviation			-0.03			-0.03	
	RightCheek	1g SAR			0.101			0.11	
		10g SAR			0.07			0.08	
		Deviation			-0.1			-0.10	
	RightTilt	1g SAR			0.088			0.10	
		10g SAR			0.054			0.06	
		Deviation			0.03			0.03	
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			23130	23095	23060	23130	23095	23060	
10MHz QPSK100% RB	Tune-up		23.50	23.50	23.50	Scaling factor*			
	Measured Power [dBm]		23.01	23.10	23.12	1.12	1.10	1.09	
	LeftCheek	1g SAR							
		10g SAR							
		Deviation							
10MHz QPSK1RB	RightCheek SIM2	1g SAR			0.124			0.13	
		10g SAR			0.082			0.09	
		Deviation			0.02			0.02	

Table 14-18 LTE700-FDD12 #1 Body

LTE700-FDD12 #1 Body									
Ambient Temperature:	22.5					Liquid Temperature:		22.3	
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			23130	23095	23060	23130	23095	23060	
			M	M	H	M	M	H	
10MHz QPSK1RB	Tune-up		24.50	24.50	24.50	Scaling factor*			
	Measured Power [dBm]		24.06	24.10	24.22	1.11	1.10	1.07	
	Front	1g SAR			0.056			0.06	
		10g SAR			0.04			0.04	
		Deviation			0.14			0.14	
	Rear	1g SAR			0.05			0.05	
		10g SAR			0.033			0.04	
		Deviation			0.04			0.04	
	Leftedge	1g SAR			<0.01			<0.01	
		10g SAR			<0.01			<0.01	
		Deviation			0			0.00	
	Top edge	1g SAR			0.054			0.06	
		10g SAR			0.036			0.04	
		Deviation			0.09			0.09	
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			23130	23095	23060	23130	23095	23060	
			L	L	M				
10MHz QPSK50% RB	Tune-up		23.50	23.50	23.50	Scaling factor*			
	Measured Power [dBm]		23.03	23.03	23.13	1.11	1.11	1.09	
	Front	1g SAR			0.047			0.05	
		10g SAR			0.033			0.04	
		Deviation			-0.03			-0.03	
	Rear	1g SAR			0.051			0.06	
		10g SAR			0.036			0.04	
		Deviation			0.1			0.10	
	Leftedge	1g SAR			<0.01			<0.01	
		10g SAR			<0.01			<0.01	
		Deviation			0			0.00	
	Top edge	1g SAR			0.042			0.05	
		10g SAR			0.027			0.03	
		Deviation			-0.06			-0.06	
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			23130	23095	23060	23130	23095	23060	
10MHz QPSK100% RB	Tune-up		23.50	23.50	23.50	Scaling factor*			
	Measured Power [dBm]		23.01	23.10	23.12	1.12	1.10	1.09	
	Front	1g SAR							
		10g SAR							
		Deviation							
10MHz QPSK1RB	*Front SM2*	1g SAR			0.05			0.05	
		10g SAR			0.032			0.03	
		Deviation			0.06			0.06	

Table 14-19 LTE750-FDD13 #1 Head

LTE750-FDD13 #1 Head									
Ambient Temperature:	22.5					Liquid Temperature:	22.3		
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			H	M	23230	H	M	23230	
			H	H	M	H	H	M	
10MHz QPSK1RB	Tune-up		24.00	24.00	24.00	Scaling factor*			
	Measured Power [dBm]		0.00	0.00	23.40	251.19	251.19	1.15	
	LeftCheek	1g SAR			0.224			0.26	
		10g SAR			0.154			0.18	
		Deviation			0.04			0.04	
	LeftTilt	1g SAR			0.223			0.26	
		10g SAR			0.148			0.17	
		Deviation			-0.02			-0.02	
	RightCheek	1g SAR			0.326			0.37	
		10g SAR			0.216			0.25	
		Deviation			0.14			0.14	
	RightTilt	1g SAR			0.278			0.32	
		10g SAR			0.177			0.20	
		Deviation			0.07			0.07	
TRUE	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			H	M	23230	H	M	23230	
			H	H	H	H	H	H	
10MHz QPSK50% RB	Tune-up		23.00	23.00	23.00	Scaling factor*			
	Measured Power [dBm]		0.00	0.00	22.34	199.53	199.53	1.16	
	LeftCheek	1g SAR			0.196			0.23	
		10g SAR			0.135			0.16	
		Deviation			-0.1			-0.10	
	LeftTilt	1g SAR			0.184			0.21	
		10g SAR			0.122			0.14	
		Deviation			-0.06			-0.06	
	RightCheek	1g SAR			0.275			0.32	
		10g SAR			0.181			0.21	
		Deviation			0.02			0.02	
	RightTilt	1g SAR			0.232			0.27	
		10g SAR			0.146			0.17	
		Deviation			-0.03			-0.03	
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			H	M	23230	H	M	23230	
10MHz QPSK100% RB	Tune-up		23.00	23.00	23.00	Scaling factor*			
	Measured Power [dBm]		0.00	0.00	22.41	199.53	199.53	1.15	
	LeftCheek	1g SAR							
		10g SAR							
		Deviation							
10MHz QPSK1RB	RightCheek SIM2	1g SAR			0.315			0.36	
		10g SAR			0.21			0.24	
		Deviation			0.06			0.06	

Table 14-20 LTE750-FDD13 #1 Body

LTE750-FDD13 #1 Body									
Ambient Temperature: 22.5						Liquid Temperature: 22.3			
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			H	M	23230	H	M	23230	
			H	H	M	H	H	M	
10MHz QPSK1RB	Tune-up		24.00	24.00	24.00	Scaling factor*			
	Measured Power [dBm]		0.00	0.00	23.40	251.19	251.19	1.15	
	Front	1g SAR			0.11			0.13	
		10g SAR			0.084			0.10	
		Deviation			0.01			0.01	
	Rear	1g SAR			0.15			0.17	
		10g SAR			0.108			0.12	
		Deviation			0.02			0.02	
	Leftedge	1g SAR			0.12			0.14	
		10g SAR			0.081			0.09	
		Deviation			-0.07			-0.07	
	Top edge	1g SAR			0.051			0.06	
		10g SAR			0.033			0.04	
		Deviation			-0.04			-0.04	
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			H	M	23230	H	M	23230	
			H	H	H				
10MHz QPSK50% RB	Tune-up		23.00	23.00	23.00	Scaling factor*			
	Measured Power [dBm]		0.00	0.00	22.34	199.53	199.53	1.16	
	Front	1g SAR			0.089			0.10	
		10g SAR			0.068			0.08	
		Deviation			0.02			0.02	
	Rear	1g SAR			0.116			0.14	
		10g SAR			0.083			0.10	
		Deviation			0.12			0.12	
	Leftedge	1g SAR			0.094			0.11	
		10g SAR			0.063			0.07	
		Deviation			0.1			0.10	
	Top edge	1g SAR			<0.01			<0.01	
		10g SAR			<0.01			<0.01	
		Deviation			0			0.00	
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			H	M	23230	H	M	23230	
10MHz QPSK100% RB	Tune-up		23.00	23.00	23.00	Scaling factor*			
	Measured Power [dBm]		0.00	0.00	22.41	199.53	199.53	1.15	
	Rear	1g SAR							
		10g SAR							
		Deviation							
10MHz QPSK1RB	*Rear SM1*	1g SAR			0.144			0.17	
		10g SAR			0.101			0.12	
		Deviation			0.03			0.03	

Table 14-21 LTE850-FDD26 #1 Head

LTE850-FDD26 #1 Head									
Ambient Temperature:	22.5					Liquid Temperature:	22.3		
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			26965	26865	26775	26965	26865	26775	
			M	H	M	M	H	M	
15MHz QPSK1RB	Tune-up		24.00	24.00	24.00	Scaling factor*			
	Measured Power [dBm]		22.71	22.80	22.63	1.35	1.32	1.37	
	LeftCheek	1g SAR		0.487			0.64		
		10g SAR		0.356			0.47		
		Deviation		0.07			0.07		
	LeftTilt	1g SAR		0.354			0.47		
		10g SAR		0.239			0.32		
		Deviation		0.03			0.03		
	RightCheek	1g SAR	0.603	0.618	0.58	0.81	0.81	0.80	
		10g SAR	0.41	0.413	0.402	0.55	0.54	0.55	
		Deviation	0.07	0.01	-0.02	0.07	0.01	-0.02	
	RightTilt	1g SAR		0.491			0.65		
		10g SAR		0.297			0.39		
		Deviation		-0.09			-0.09		
TRUE	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			26965	26865	26775	26965	26865	26775	
			M	M	M	M	M	M	
15MHz QPSK50% RB	Tune-up		23.00	23.00	23.00	Scaling factor*			
	Measured Power [dBm]		21.57	21.53	21.59	1.39	1.40	1.38	
	LeftCheek	1g SAR			0.337			0.47	
		10g SAR			0.236			0.33	
		Deviation			0.12			0.12	
	LeftTilt	1g SAR			0.259			0.36	
		10g SAR			0.17			0.24	
		Deviation			-0.03			-0.03	
	RightCheek	1g SAR			0.411			0.57	
		10g SAR			0.28			0.39	
		Deviation			0.08			0.08	
	RightTilt	1g SAR			0.31			0.43	
		10g SAR			0.198			0.27	
		Deviation			0.09			0.09	
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			26965	26865	26775	26965	26865	26775	
15MHz QPSK100% RB	Tune-up		23.00	23.00	23.00	Scaling factor*			
	Measured Power [dBm]		21.56	21.54	21.58	1.39	1.40	1.39	
	RightCheek	1g SAR			0.422			0.59	
		10g SAR			0.273			0.38	
		Deviation			0.04			0.04	
15MHz QPSK1RB	RightCheek SIM2	1g SAR		0.611			0.81		
		10g SAR		0.402			0.53		
		Deviation		0.05			0.05		

Table 14-22 LTE850-FDD26 #1 Body

LTE850-FDD26 #1 Body									
Ambient Temperature:	22.5					Liquid Temperature:		22.3	
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			26965	26865	26775	26965	26865	26775	
			M	H	M	M	H	M	
15MHz QPSK1RB	Tune-up		24.00	24.00	24.00	Scaling factor*			
	Measured Power [dBm]		22.71	22.80	22.63	1.35	1.32	1.37	
	Front	1g SAR		0.213			0.28		
		10g SAR		0.162			0.21		
		Deviation		0.01			0.01		
	Rear	1g SAR		0.244			0.32		
		10g SAR		0.183			0.24		
		Deviation		-0.05			-0.05		
	Leftedge	1g SAR		0.16			0.21		
		10g SAR		0.106			0.14		
		Deviation		0.03			0.03		
	Top edge	1g SAR		0.072			0.09		
		10g SAR		0.045			0.06		
		Deviation		-0.01			-0.01		
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			26965	26865	26775	26965	26865	26775	
			M	M	M				
15MHz QPSK50% RB	Tune-up		23.00	23.00	23.00	Scaling factor*			
	Measured Power [dBm]		21.57	21.53	21.59	1.39	1.40	1.38	
	Front	1g SAR			0.145			0.20	
		10g SAR			0.106			0.15	
		Deviation			0.1			0.10	
	Rear	1g SAR			0.162			0.22	
		10g SAR			0.117			0.16	
		Deviation			-0.06			-0.06	
	Leftedge	1g SAR			0.135			0.19	
		10g SAR			0.087			0.12	
		Deviation			0.03			0.03	
	Top edge	1g SAR			0.045			0.06	
		10g SAR			0.026			0.04	
		Deviation			-0.01			-0.01	
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			26965	26865	26775	26965	26865	26775	
15MHz QPSK100% RB	Tune-up		23.00	23.00	23.00	Scaling factor*			
	Measured Power [dBm]		21.56	21.54	21.58	1.39	1.40	1.39	
	Front	1g SAR							
		10g SAR							
		Deviation							
15MHz QPSK1RB	*Rear SM2*	1g SAR		0.233			0.31		
		10g SAR		0.174			0.23		
		Deviation		0.06			0.06		

Table 14-23 LTE2600-TDD38 #1 Head

LTE2600-TDD38 #1 Head									
Ambient Temperature:	22.5					Liquid Temperature:	22.3		
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			38150	38000	37850	38150	38000	37850	
			M	M	H	M	M	H	
20MHz QPSK1RB	Tune-up		19.50	19.50	19.50	Scaling factor*			
	Measured Power [dBm]		19.03	19.41	19.01	1.11	1.02	1.12	
	LeftCheek	1g SAR		0.342			0.35		
		10g SAR		0.169			0.17		
		Deviation		0.04			0.04		
	LeftTilt	1g SAR		0.215			0.22		
		10g SAR		0.103			0.11		
		Deviation		-0.02			-0.02		
	RightCheek	1g SAR	0.852	0.942	0.843	0.95	0.96	0.94	
		10g SAR	0.405	0.44	0.401	0.45	0.45	0.45	
		Deviation	0.09	0.19	0.1	0.09	0.19	0.10	
	RightTilt	1g SAR		0.582			0.59		
		10g SAR		0.271			0.28		
		Deviation		-0.03			-0.03		
FALSE	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			38150	38000	37850	38150	38000	37850	
			L	H	H	L	H	H	
20MHz QPSK50% RB	Tune-up		18.50	18.50	18.50	Scaling factor*			
	Measured Power [dBm]		17.98	17.96	17.96	1.13	1.13	1.13	
	LeftCheek	1g SAR	0.292			0.33			
		10g SAR	0.142			0.16			
		Deviation	0.12			0.12			
	LeftTilt	1g SAR	0.215			0.24			
		10g SAR	0.105			0.12			
		Deviation	0.05			0.05			
	RightCheek	1g SAR	0.778	0.755	0.742	0.88	0.85	0.84	
		10g SAR	0.35	0.347	0.337	0.39	0.39	0.38	
		Deviation	0.14	-0.08	0.01	0.14	-0.08	0.01	
	RightTilt	1g SAR	0.511			0.58			
		10g SAR	0.234			0.26			
		Deviation	-0.07			-0.07			
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			38150	38000	37850	38150	38000	37850	
20MHz QPSK100% RB	Tune-up		18.50	18.50	18.50	Scaling factor*			
	Measured Power [dBm]		17.94	18.01	17.89	1.14	1.12	1.15	
	RightCheek	1g SAR		0.72			0.81		
		10g SAR		0.336			0.38		
		Deviation		0.03			0.03		
20MHz QPSK1RB	RightCheek SIM2	1g SAR		0.931			0.95		
		10g SAR		0.431			0.44		
		Deviation		0.01			0.01		

Table 14-24 LTE2600-TDD38 #1 Body

LTE2600-TDD38 #1 Body									
Ambient Temperature: 22.5						Liquid Temperature: 22.3			
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			38150	38000	37850	38150	38000	37850	
			M	M	H	M	M	H	
20MHz QPSK1RB	Tune-up		19.50	19.50	19.50	Scaling factor*			
	Measured Power [dBm]		19.03	19.41	19.01	1.11	1.02	1.12	
	Front	1g SAR		0.12			0.12		
		10g SAR		0.071			0.07		
		Deviation		-0.02			-0.02		
	Rear	1g SAR		0.085			0.09		
		10g SAR		0.047			0.05		
		Deviation		0.03			0.03		
	Leftedge	1g SAR		0.112			0.11		
		10g SAR		0.06			0.06		
		Deviation		0.1			0.10		
	Top edge	1g SAR		0.078			0.08		
		10g SAR		0.04			0.04		
		Deviation		0.09			0.09		
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			38150	38000	37850	38150	38000	37850	
			L	H	H				
20MHz QPSK50% RB	Tune-up		18.50	18.50	18.50	Scaling factor*			
	Measured Power [dBm]		17.98	17.96	17.96	1.13	1.13	1.13	
	Front	1g SAR	0.082			0.09			
		10g SAR	0.048			0.05			
		Deviation	0.01			0.01			
	Rear	1g SAR	0.053			0.06			
		10g SAR	0.032			0.04			
		Deviation	-0.12			-0.12			
	Leftedge	1g SAR	0.083			0.09			
		10g SAR	0.047			0.05			
		Deviation	0.08			0.08			
	Top edge	1g SAR	0.068			0.08			
		10g SAR	0.036			0.04			
		Deviation	0.05			0.05			
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			38150	38000	37850	38150	38000	37850	
20MHz QPSK100% RB	Tune-up		18.50	18.50	18.50	Scaling factor*			
	Measured Power [dBm]		17.94	18.01	17.89	1.14	1.12	1.15	
	Front	1g SAR							
		10g SAR							
		Deviation							
20MHz QPSK1RB H	*Front*	1g SAR							
		10g SAR							
		Deviation							
20MHz QPSK1RB	*Front SM2*	1g SAR		0.102			0.10		
		10g SAR		0.061			0.06		
		Deviation		0.02			0.02		

14.3 Full SAR

Test Band	Channel	Frequency	Tune-Up	Measured Power	Test Position	Measured 10g SAR	Measured 1g SAR	Reported 10g SAR	Reported 1g SAR	Power Drift	Figure
GSM850	190	836.6 MHz	34	33.62	Right Cheek	0.473	0.72	0.52	0.79	0.11	Fig A.1
GSM850	251	848.8 MHz	34	33.57	Rear	0.228	0.299	0.25	0.33	0.1	Fig A.2
PCS1900	810	1909.8 MHz	28	27.2739	Right Cheek	0.442	0.814	0.52	0.96	-0.09	Fig A.3
PCS1900	512	1850.2 MHz	27	25.3952	Rear	0.206	0.376	0.30	0.54	0.04	Fig A.4
WCDMA1900-BII	9538	1907.6 MHz	21.5	21.28	Right Cheek	0.58	1.11	0.61	1.17	-0.1	Fig A.5
WCDMA1900-BII	9400	1880 MHz	21.5	21.24	Left edge	0.169	0.286	0.18	0.30	0.16	Fig A.6
WCDMA1700-BIV	1513	1752.6 MHz	20	19.47	Right Cheek	0.486	0.908	0.55	1.03	0.05	Fig A.7
WCDMA1700-BIV	1412	1732.4 MHz	20	19.45	Rear	0.152	0.264	0.17	0.30	0.08	Fig A.8
WCDMA850-BV	4233	846.6 MHz	24.5	24.17	Right Cheek	0.561	0.839	0.61	0.91	0.19	Fig A.9
WCDMA850-BV	4233	846.6 MHz	24.5	24.17	Rear	0.272	0.356	0.29	0.38	0.01	Fig A.10
LTE1900-FDD2	18900	1880 MHz	22.5	22.11	Right Cheek	0.569	1.09	0.62	1.19	0.11	Fig A.11
LTE1900-FDD2	18900	1880 MHz	22.5	22.11	Rear	0.204	0.386	0.22	0.42	0.01	Fig A.12
LTE1700-FDD4	20300	1745 MHz	20.5	20.01614	Right Cheek	0.391	0.778	0.44	0.87	-0.05	Fig A.13
LTE1700-FDD4	20300	1745 MHz	20.5	20.01614	Rear	0.174	0.308	0.19	0.34	0.08	Fig A.14
LTE2500-FDD7	21350	2560 MHz	20	19.86	Right Cheek	0.597	1.22	0.62	1.26	0.04	Fig A.15
LTE2500-FDD7	21350	2560 MHz	20	19.86	Front	0.17	0.317	0.18	0.33	0.18	Fig A.16
LTE700-FDD12	23060	704 MHz	24.5	24.22	Right Cheek	0.09	0.13	0.10	0.14	0.19	Fig A.17
LTE700-FDD12	23060	704 MHz	24.5	24.22	Front	0.04	0.056	0.04	0.06	0.14	Fig A.18
LTE750-FDD13	23230	782 MHz	24	23.4	Right Cheek	0.216	0.326	0.25	0.37	0.14	Fig A.19
LTE750-FDD13	23230	782 MHz	24	23.4	Rear	0.108	0.15	0.12	0.17	0.02	Fig A.20
LTE850-FDD26	26865	831.5 MHz	24	22.8	Right Cheek	0.413	0.618	0.54	0.81	0.01	Fig A.21
LTE850-FDD26	26865	831.5 MHz	24	22.8	Rear	0.183	0.244	0.24	0.32	-0.05	Fig A.22
LTE2600-TDD38	38000	2595 MHz	19.5	19.41	Right Cheek	0.44	0.942	0.45	0.96	0.19	Fig A.23
LTE2600-TDD38	38000	2595 MHz	19.5	19.41	Front	0.071	0.12	0.07	0.12	-0.02	Fig A.24
WLAN2450	11	2462 MHz	16.5	16.34	Left Cheek	0.247	0.478	0.26	0.50	0.09	Fig A.25
WLAN2450	11	2462 MHz	16.5	16.34	Top edge	0.063	0.12	0.07	0.12	-0.08	Fig A.26

14.4 WiFi Evaluation

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

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.

Note3: 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.

Table 14-25 WLAN2450 #1 Head Fast SAR

WLAN2450 #1 Head FastSAR									
Ambient Temperature:	22.5					Liquid Temperature:	22.3		
Rate	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			11	6	1	11	6	1	
			2462 MHz	2437 MHz	2412 MHz				
802.11b 1Mbps	Tune up		16.5	16.5	16.5	Scaling factor*			
	Slot Average Power [dBm]		16.34	15.60	15.90	1.04	1.23	1.15	
	Left Cheek	1g FastSAR	0.495			0.51			
		10g SAR	0.255			0.26			
		Deviation	0.09			0.09			
	Left Tilt	1g FastSAR	0.322			0.33			
		10g SAR	0.157			0.16			
		Deviation	-0.02			-0.02			
	Right Cheek	1g FastSAR	0.305			0.32			
		10g SAR	0.161			0.17			
		Deviation	-0.08			-0.08			
	Right Tilt	1g FastSAR	0.278			0.29			
		10g SAR	0.138			0.14			
		Deviation	-0.07			-0.07			
802.11b 1Mbps	Left Cheek SM2	1g FastSAR	0.495			0.51			
		10g SAR	0.255			0.26			
		Deviation	0.09			0.09			

Table 14-26 WLAN2450 #1 Head Full SAR

WLAN2450 #1 Head Full SAR								
Ambient Temperature:	22.5				Liquid Temperature:	22.3		
Rate	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]		
			11	6	1	11	6	1
			2462 MHz	2437 MHz	2412 MHz			
802.11b 1Mbps	Tune up		16.5	16.5	16.5	Scaling factor*		
	Slot Average Power [dBm]		16.34	15.60	15.90	1.04	1.23	1.15
	Left Cheek	1g Full SAR	0.478			0.50		
		10g SAR	0.247			0.26		
		Deviation	0.09			0.09		
	Left Tilt	1g Full SAR	0.318			0.33		
		10g SAR	0.153			0.16		
		Deviation	-0.02			-0.02		

Table 14-27 WLAN2450 #1 Body Fast SAR

WLAN2450 #1 Body FastSAR									
Ambient Temperature:	22.5					Liquid Temperature:	22.3		
Rate	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			11	6	1	11	6	1	
			2462 MHz	2437 MHz	2412 MHz				
802.11b 1Mbps	Tune up		16.5	16.5	16.5	Scaling factor*			
	Slot Average Power [dBm]		16.34	15.60	15.90	1.04	1.23	1.15	
	Front	1g FastSAR	0.092			0.10			
		10g SAR	0.049			0.05			
		Deviation	0.11			0.11			
	Rear	1g FastSAR	0.077			0.08			
		10g SAR	0.044			0.05			
		Deviation	0.01			0.01			
	Top edge	1g FastSAR	0.119			0.12			
		10g SAR	0.063			0.07			
		Deviation	0.1			0.10			
	Right edge	1g FastSAR	0.11			0.11			
		10g SAR	0.057			0.06			
		Deviation	-0.09			-0.09			
802.11b 1Mbps	*Top edge SM2*	1g FastSAR	0.115			0.12			
		10g SAR	0.059			0.06			
		Deviation	0.02			0.02			

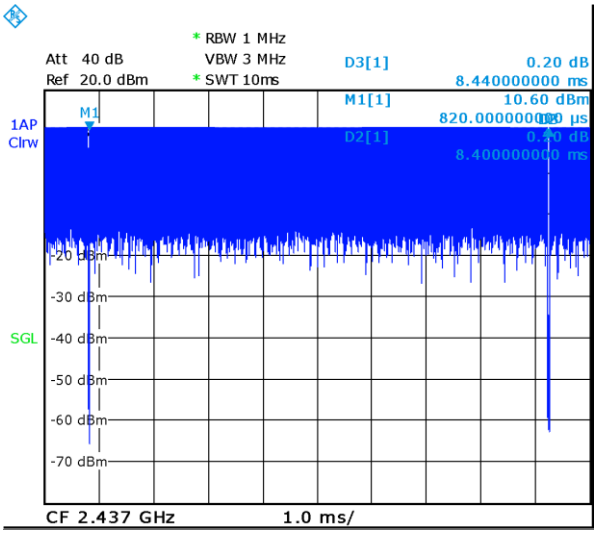
Table 14-28 WLAN2450 #1 Body Full SAR

WLAN2450 #1 Body FullSAR									
Ambient Temperature:	22.5					Liquid Temperature:	22.3		
Rate	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			11	6	1	11	6	1	
			2462 MHz	2437 MHz	2412 MHz				
802.11b 1Mbps	Tune up		16.5	16.5	16.5	Scaling factor*			
	Slot Average Power [dBm]		16.34	15.60	15.90	1.04	1.23	1.15	
	Top edge	1g FullSAR	0.12			0.12			
		10g SAR	0.063			0.07			
		Deviation	-0.08			-0.08			

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

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							
Frequency		Test Position	Actual duty factor	maximum duty factor	Reported SAR (1g) (W/kg)	Scaled reported SAR (1g) (W/kg)	Figure
MHz	Ch.						
2462 MHz	11	Left Cheek	100.00%	100%	**0.50**	**0.50**	Fig.A.25

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							
Frequency		Test Position	Actual duty factor	maximum duty factor	Reported SAR (1g) (W/kg)	Scaled reported SAR (1g) (W/kg)	Figure
MHz	Ch.						
2462 MHz	11	Top edge	100.00%	100%	**0.12**	**0.12**	Fig.A.26



Picture 14.1 Duty factor plot

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; steps 2) 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 ≥ 1.45 W/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.

Mode	CH	Freq	Test Poisition	Original SAR (W/kg)	First Repeated SAR(W/kg)	The Ratio
PCS1900	810	1909.8 MHz	Right Cheek	0.814	0.80	1.01
WCDMA1900-BII	9538	1907.6 MHz	Right Cheek	1.11	1.09	1.02
WCDMA1700-BIV	1513	1752.6 MHz	Right Cheek	0.908	0.88	1.03
WCDMA850-BV	4233	846.6 MHz	Right Cheek	0.839	0.82	1.02
LTE1900-FDD2	18900	1880 MHz	Right Cheek	1.09	1.02	1.07
LTE2500-FDD7	21350	2560 MHz	Right Cheek	1.22	1.18	1.03
LTE2600-TDD38	38000	2595 MHz	Right Cheek	0.942	0.94	1.00

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	$\sqrt{3}$	0.7	0.7	1.9	1.9	∞
3	Boundary effect	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
4	Linearity	B	4.7	R	$\sqrt{3}$	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	$\sqrt{3}$	1	1	0.3	0.3	∞
7	Response time	B	0.8	R	$\sqrt{3}$	1	1	0.5	0.5	∞
8	Integration time	B	2.6	R	$\sqrt{3}$	1	1	1.5	1.5	∞
9	RF ambient conditions-noise	B	0	R	$\sqrt{3}$	1	1	0	0	∞
10	RFambient conditions-reflection	B	0	R	$\sqrt{3}$	1	1	0	0	∞
11	Probe positioned mech. restrictions	B	0.4	R	$\sqrt{3}$	1	1	0.2	0.2	∞
12	Probe positioning with respect to phantom shell	B	2.9	R	$\sqrt{3}$	1	1	1.7	1.7	∞
13	Post-processing	B	1.0	R	$\sqrt{3}$	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	$\sqrt{3}$	1	1	2.9	2.9	∞
Phantom and set-up										
17	Phantom uncertainty	B	4.0	R	$\sqrt{3}$	1	1	2.3	2.3	∞
18	Liquid conductivity (target)	B	5.0	R	$\sqrt{3}$	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	$\sqrt{3}$	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	RF ambient 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	B	5.0	R	√3	0.6	0.49	1.7	1.4	∞

	(target)									
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	$\sqrt{3}$	0.7	0.7	1.9	1.9	∞
3	Boundary effect	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
4	Linearity	B	4.7	R	$\sqrt{3}$	1	1	2.7	2.7	∞
5	Detection limit	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
6	Readout electronics	B	0.3	R	$\sqrt{3}$	1	1	0.3	0.3	∞
7	Response time	B	0.8	R	$\sqrt{3}$	1	1	0.5	0.5	∞
8	Integration time	B	2.6	R	$\sqrt{3}$	1	1	1.5	1.5	∞
9	RF ambient conditions-noise	B	0	R	$\sqrt{3}$	1	1	0	0	∞
10	RF ambient conditions-reflection	B	0	R	$\sqrt{3}$	1	1	0	0	∞
11	Probe positioned mech. Restrictions	B	0.4	R	$\sqrt{3}$	1	1	0.2	0.2	∞
12	Probe positioning with respect to phantom shell	B	2.9	R	$\sqrt{3}$	1	1	1.7	1.7	∞
13	Post-processing	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
14	Fast SAR z-Approximation	B	7.0	R	$\sqrt{3}$	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	$\sqrt{3}$	1	1	2.9	2.9	∞
Phantom and set-up										
18	Phantom uncertainty	B	4.0	R	$\sqrt{3}$	1	1	2.3	2.3	∞

19	Liquid conductivity (target)	B	5.0	R	$\sqrt{3}$	0.64	0.43	1.8	1.2	∞
20	Liquid conductivity (meas.)	A	2.06	N	1	0.64	0.43	1.32	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		$u_c^{'} = \sqrt{\sum_{i=1}^{22} c_i^2 u_i^2}$						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	$\sqrt{3}$	0.7	0.7	1.9	1.9	∞
3	Boundary effect	B	2.0	R	$\sqrt{3}$	1	1	1.2	1.2	∞
4	Linearity	B	4.7	R	$\sqrt{3}$	1	1	2.7	2.7	∞
5	Detection limit	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
6	Readout electronics	B	0.3	R	$\sqrt{3}$	1	1	0.3	0.3	∞
7	Response time	B	0.8	R	$\sqrt{3}$	1	1	0.5	0.5	∞
8	Integration time	B	2.6	R	$\sqrt{3}$	1	1	1.5	1.5	∞
9	RF ambient conditions-noise	B	0	R	$\sqrt{3}$	1	1	0	0	∞
10	RF ambient conditions-reflection	B	0	R	$\sqrt{3}$	1	1	0	0	∞
11	Probe positioned mech. Restrictions	B	0.8	R	$\sqrt{3}$	1	1	0.5	0.5	∞
12	Probe positioning with respect to phantom shell	B	6.7	R	$\sqrt{3}$	1	1	3.9	3.9	∞
13	Post-processing	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
14	Fast SAR z-Approximation	B	14.0	R	$\sqrt{3}$	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	$\sqrt{3}$	1	1	2.9	2.9	∞
Phantom and set-up										
18	Phantom uncertainty	B	4.0	R	$\sqrt{3}$	1	1	2.3	2.3	∞
19	Liquid conductivity (target)	B	5.0	R	$\sqrt{3}$	0.64	0.43	1.8	1.2	∞
20	Liquid conductivity (meas.)	A	2.06	N	1	0.64	0.43	1.32	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	101919	June 20, 2018	One year
03	Power sensor	NRP-Z91	101547		
04	Signal Generator	E4438C	MY49070393	January 4,2019	One Year
05	Amplifier	60S1G4	0331848	No Calibration Requested	
06	BTS	CMW500	159890	January 3, 2019	One year
07	E-field Probe	SPEAG EX3DV4	7514	August 27,2018	One year
08	DAE	SPEAG DAE4	1525	September 18, 2018	One year
09	Dipole Validation Kit	SPEAG D750V3	1017	July 19, 2017	Two years
10	Dipole Validation Kit	SPEAG D835V2	4d069	July 19, 2017	Two years
11	Dipole Validation Kit	SPEAG D1750V2	1003	July 21, 2017	Two years
12	Dipole Validation Kit	SPEAG D1900V2	5d101	July 26, 2017	Two years
13	Dipole Validation Kit	SPEAG D2450V2	853	July 21, 2017	Two years
14	Dipole Validation Kit	SPEAG D2600V2	1012	July 21, 2017	Two years

END OF REPORT BODY

ANNEX A Graph Results

GSM850_CH190 Right Cheek
Date: 5/26/2019
Electronics: DAE4 Sn1525
Medium: head 835 MHz
Medium parameters used: f = 836.6 MHz; σ = 0.917 mho/m; εr = 41.75; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C, Liquid Temperature: 22.3°C
Communication System: GSM850 836.6 MHz Duty Cycle: 1:8.3
Probe: EX3DV4 – SN7514 ConvF(9.09,9.09,9.09)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.959 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 24.44 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 1.23 W/kg
SAR(1 g) = 0.72 W/kg; SAR(10 g) = 0.473 W/kg
Maximum value of SAR (measured) = 0.907 W/kg

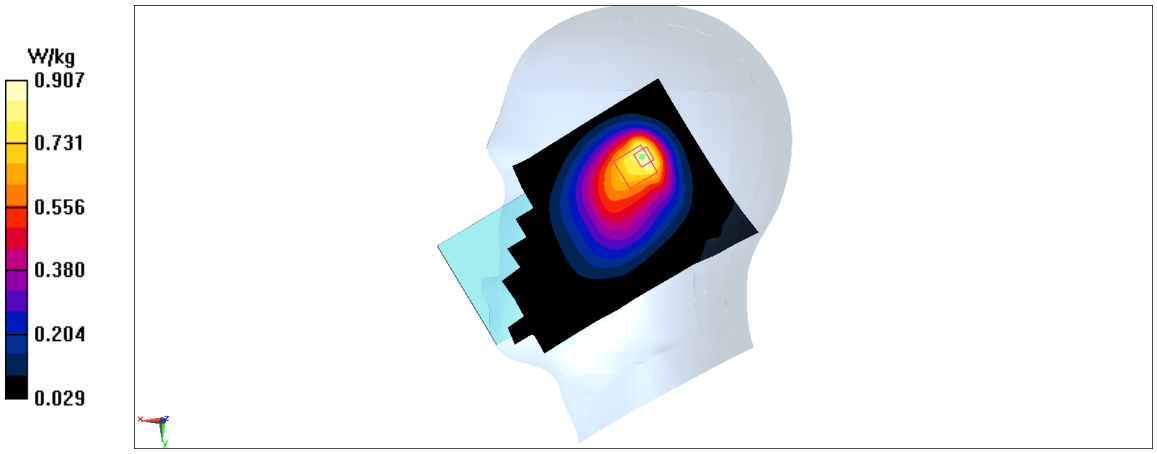


Fig A.1

GSM850_CH251 Rear
Date: 5/26/2019
Electronics: DAE4 Sn1525
Medium: body 835 MHz
Medium parameters used: f = 848.8 MHz; σ = 1 mho/m; εr = 54.11; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: GSM850 848.8 MHz Duty Cycle: 1:8.3
Probe: EX3DV4 – SN7514 ConvF(9.47,9.47,9.47)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.344 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 16.59 V/m; Power Drift = 0.1 dB
Peak SAR (extrapolated) = 0.389 W/kg
SAR(1 g) = 0.299 W/kg; SAR(10 g) = 0.228 W/kg
Maximum value of SAR (measured) = 0.348 W/kg

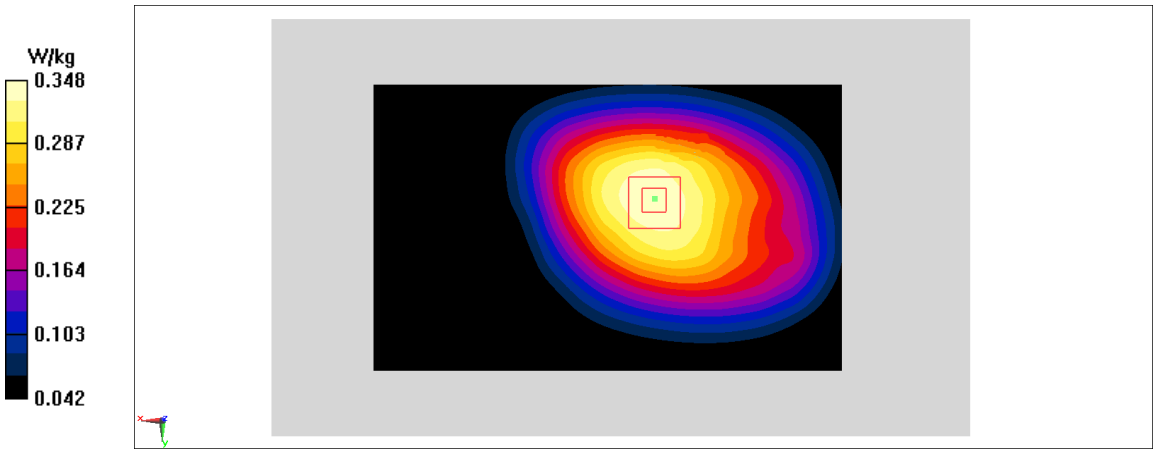


Fig A.2

PCS1900_CH810 Right Cheek
Date: 5/28/2019
Electronics: DAE4 Sn1525
Medium: head 1900 MHz
Medium parameters used: f = 1909.8 MHz; σ = 1.396 mho/m; εr = 40.25; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: PCS1900 1909.8 MHz Duty Cycle: 1:8.3
Probe: EX3DV4 – SN7514 ConvF(7.73,7.73,7.73)

Area Scan (81x131x1): 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=8mm, dy=8mm, dz=5mm

Reference Value = 8.543 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 1.41 W/kg
SAR(1 g) = 0.814 W/kg; SAR(10 g) = 0.442 W/kg
Maximum value of SAR (measured) = 1.07 W/kg

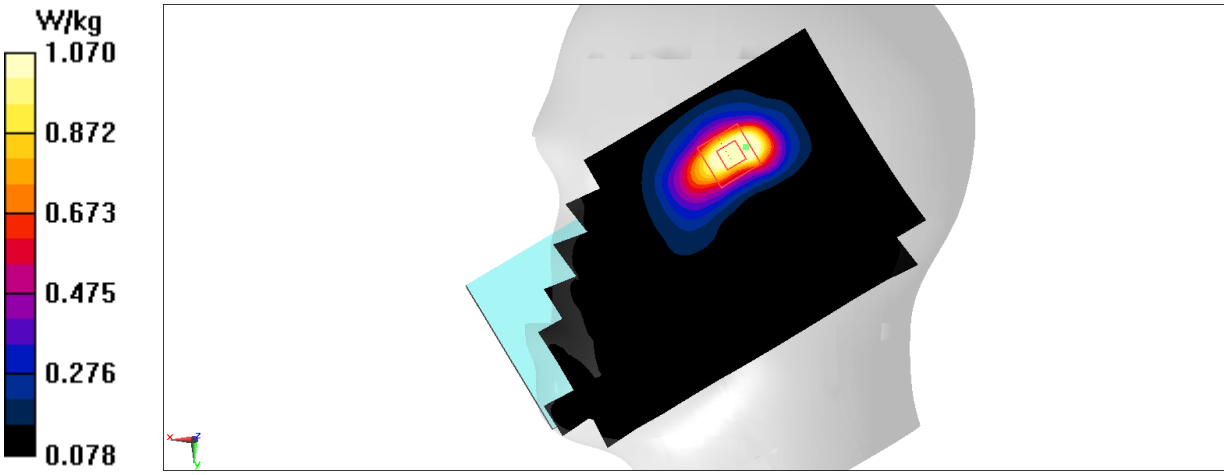


Fig A.3

PCS1900_CH512 Rear
Date: 5/28/2019
Electronics: DAE4 Sn1525
Medium: body 1900 MHz
Medium parameters used: f = 1850.2 MHz; σ = 1.485 mho/m; εr = 53.94; 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 – SN7514 ConvF(7.53,7.53,7.53)

Area Scan (121x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.488 W/kg

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

Reference Value = 9.717 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.633 W/kg
SAR(1 g) = 0.376 W/kg; SAR(10 g) = 0.206 W/kg
Maximum value of SAR (measured) = 0.509 W/kg

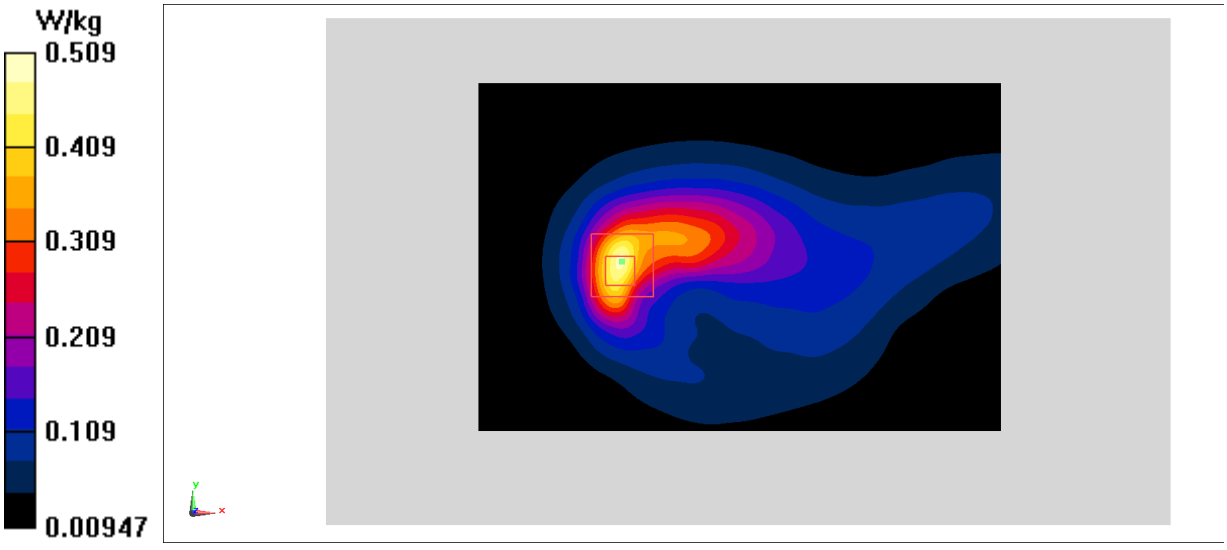


Fig A.4

WCDMA1900-BII_CH9538 Right Cheek
Date: 5/28/2019
Electronics: DAE4 Sn1525
Medium: head 1900 MHz
Medium parameters used: f = 1907.6 MHz; σ = 1.394 mho/m; εr = 40.25; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: WCDMA1900-BII 1907.6 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7514 ConvF(7.73,7.73,7.73)

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 = 9.364 V/m; Power Drift = -0.1 dB
Peak SAR (extrapolated) = 1.89 W/kg
SAR(1 g) = 1.11 W/kg; SAR(10 g) = 0.58 W/kg
Maximum value of SAR (measured) = 1.52 W/kg

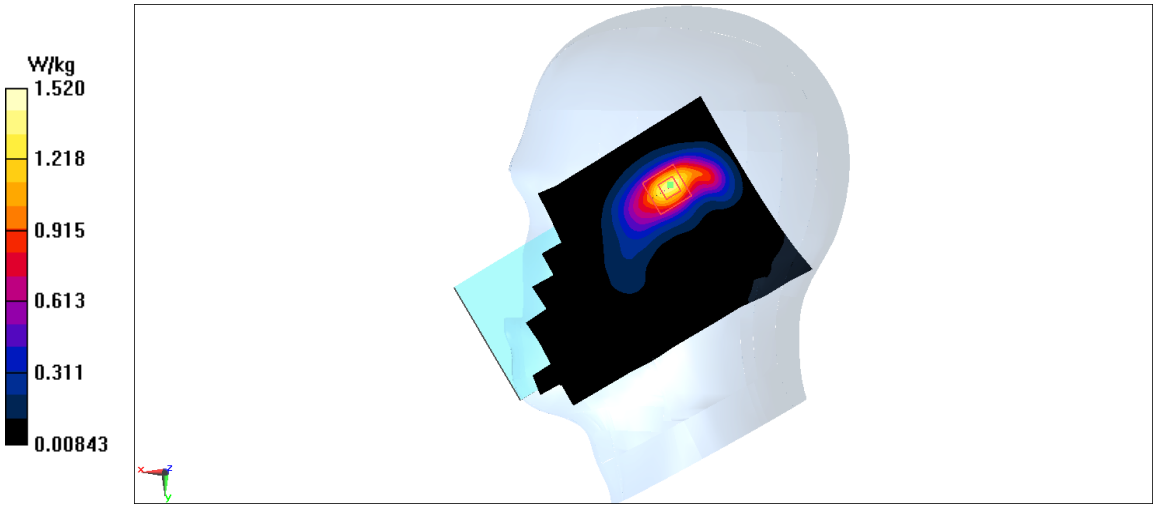


Fig A.5

WCDMA1900-BII_CH9400 Left edge
Date: 5/28/2019
Electronics: DAE4 Sn1525
Medium: body 1900 MHz
Medium parameters used: f = 1880 MHz; σ = 1.514 mho/m; εr = 53.9; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C, Liquid Temperature: 22.3°C
Communication System: WCDMA1900-BII 1880 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7514 ConvF(7.53,7.53,7.53)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.368 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.624 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 0.458 W/kg
SAR(1 g) = 0.286 W/kg; SAR(10 g) = 0.169 W/kg
Maximum value of SAR (measured) = 0.376 W/kg

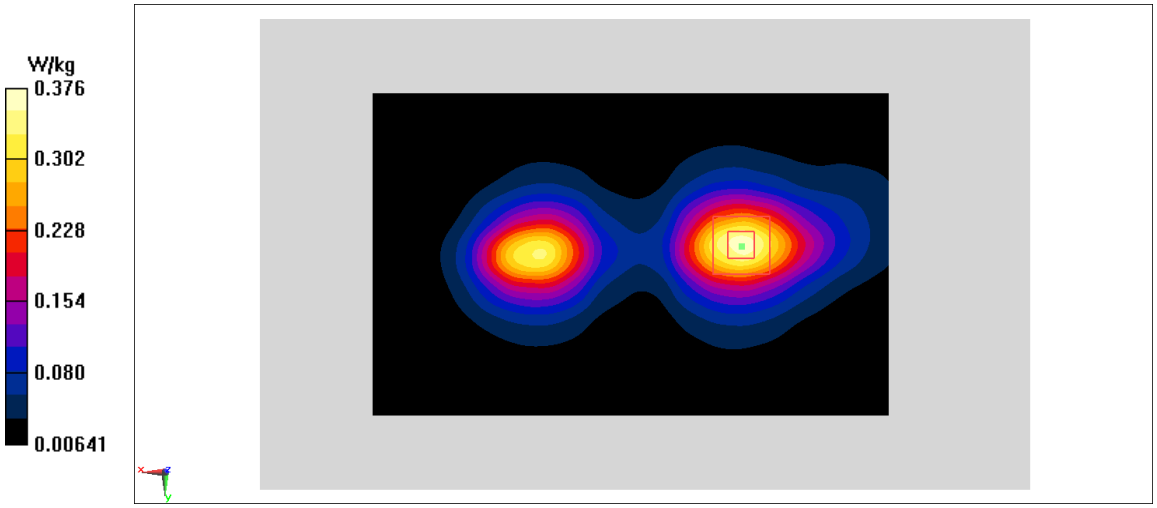


Fig A.6

WCDMA1700-BIV_CH1513 Right Cheek
Date: 5/27/2019
Electronics: DAE4 Sn1525
Medium: head 1750 MHz
Medium parameters used: f = 1752.6 MHz; σ = 1.368 mho/m; εr = 40.5; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C, Liquid Temperature: 22.3°C
Communication System: WCDMA1700-BIV 1752.6 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7514 ConvF(8.10,8.10,8.10)

Area Scan (81x131x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 1.61 W/kg

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

Reference Value = 8.943 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 1.63 W/kg
SAR(1 g) = 0.908 W/kg; SAR(10 g) = 0.486 W/kg
Maximum value of SAR (measured) = 1.27 W/kg

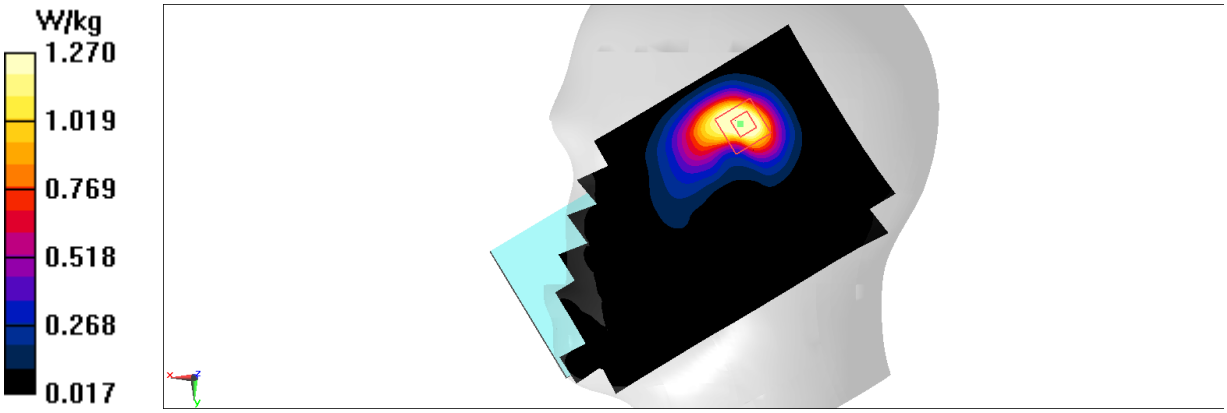


Fig A.7

WCDMA1700-BIV_CH1412 Rear
Date: 5/27/2019
Electronics: DAE4 Sn1525
Medium: body 1750 MHz
Medium parameters used: f = 1732.4 MHz; σ = 1.477 mho/m; εr = 53.59; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: WCDMA1700-BIV 1732.4 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7514 ConvF(7.82,7.82,7.82)

Area Scan (131x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.340 W/kg

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

Reference Value = 8.297 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 0.430 W/kg
SAR(1 g) = 0.264 W/kg; SAR(10 g) = 0.152 W/kg
Maximum value of SAR (measured) = 0.345 W/kg

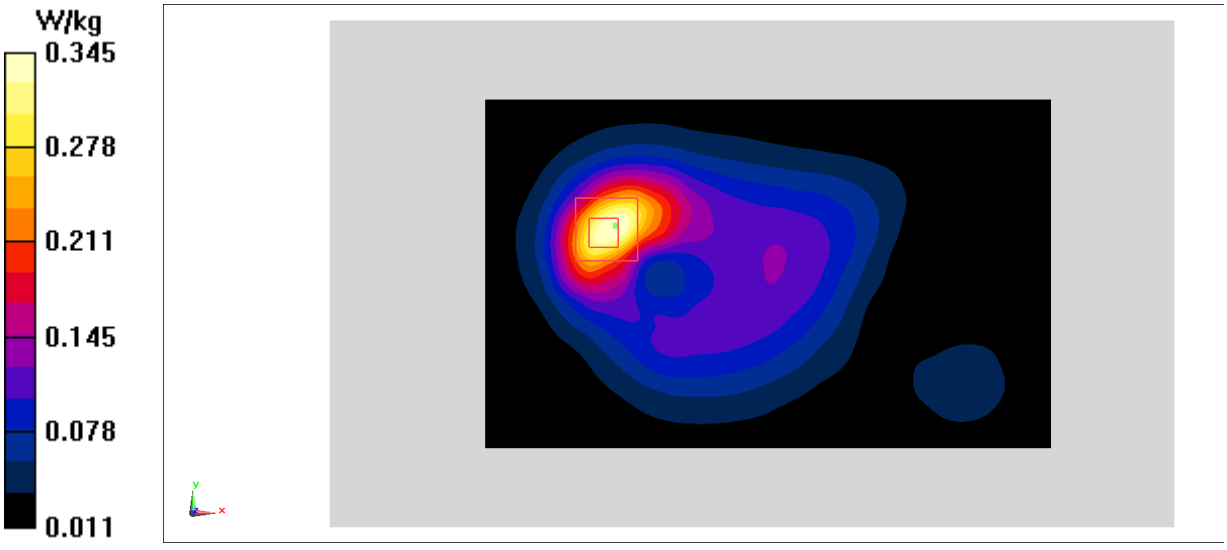


Fig A.8

WCDMA850-BV_CH4233 Right Cheek
Date: 5/26/2019
Electronics: DAE4 Sn1525
Medium: head 835 MHz
Medium parameters used: f = 846.6 MHz; σ = 0.926 mho/m; εr = 41.74; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C, Liquid Temperature: 22.3°C
Communication System: WCDMA850-BV 846.6 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7514 ConvF(9.09,9.09,9.09)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.08 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 27.05 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 1.38 W/kg
SAR(1 g) = 0.839 W/kg; SAR(10 g) = 0.561 W/kg
Maximum value of SAR (measured) = 1.05 W/kg

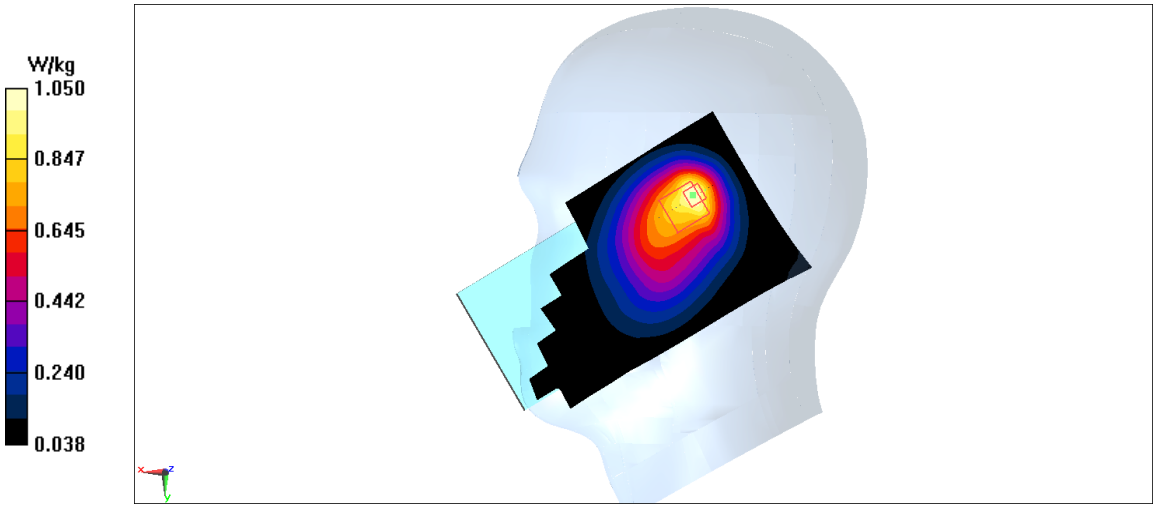


Fig A.9

WCDMA850-BV_CH4233 Rear
Date: 5/26/2019
Electronics: DAE4 Sn1525
Medium: body 835 MHz
Medium parameters used: f = 846.6 MHz; σ = 0.998 mho/m; εr = 54.12; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C, Liquid Temperature: 22.3°C
Communication System: WCDMA850-BV 846.6 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7514 ConvF(9.47,9.47,9.47)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.413 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 17.79 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.465 W/kg
SAR(1 g) = 0.356 W/kg; SAR(10 g) = 0.272 W/kg
Maximum value of SAR (measured) = 0.416 W/kg

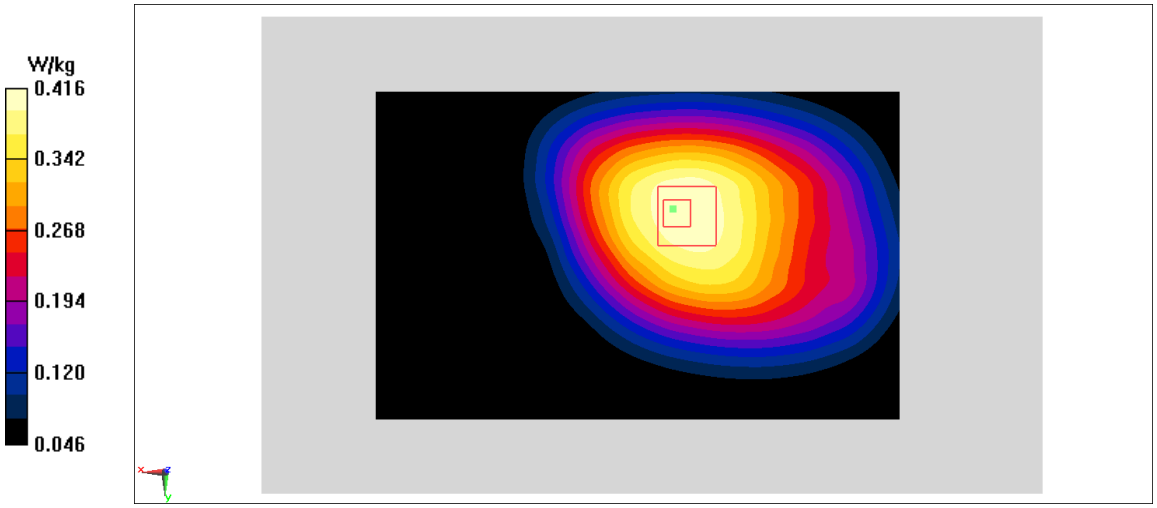


Fig A.10

LTE1900-FDD2_CH18900 Right Cheek
Date: 5/28/2019
Electronics: DAE4 Sn1525
Medium: head 1900 MHz
Medium parameters used: f = 1880 MHz; σ = 1.367 mho/m; εr = 40.28; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: LTE1900-FDD2 1880 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7514 ConvF(7.73,7.73,7.73)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.48 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.274 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 2.07 W/kg
SAR(1 g) = 1.09 W/kg; SAR(10 g) = 0.569 W/kg
Maximum value of SAR (measured) = 1.57 W/kg

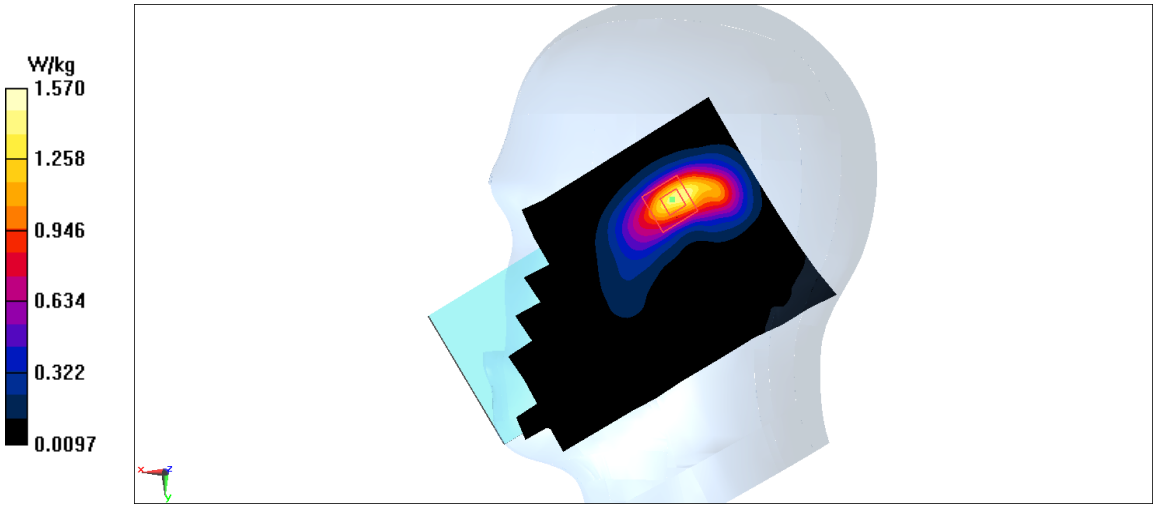


Fig A.11

LTE1900-FDD2_CH18900 Rear
Date: 5/28/2019
Electronics: DAE4 Sn1525
Medium: body 1900 MHz
Medium parameters used: f = 1880 MHz; σ = 1.514 mho/m; εr = 53.9; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: LTE1900-FDD2 1880 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7514 ConvF(7.53,7.53,7.53)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.554 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.947 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.695 W/kg
SAR(1 g) = 0.386 W/kg; SAR(10 g) = 0.204 W/kg
Maximum value of SAR (measured) = 0.576 W/kg

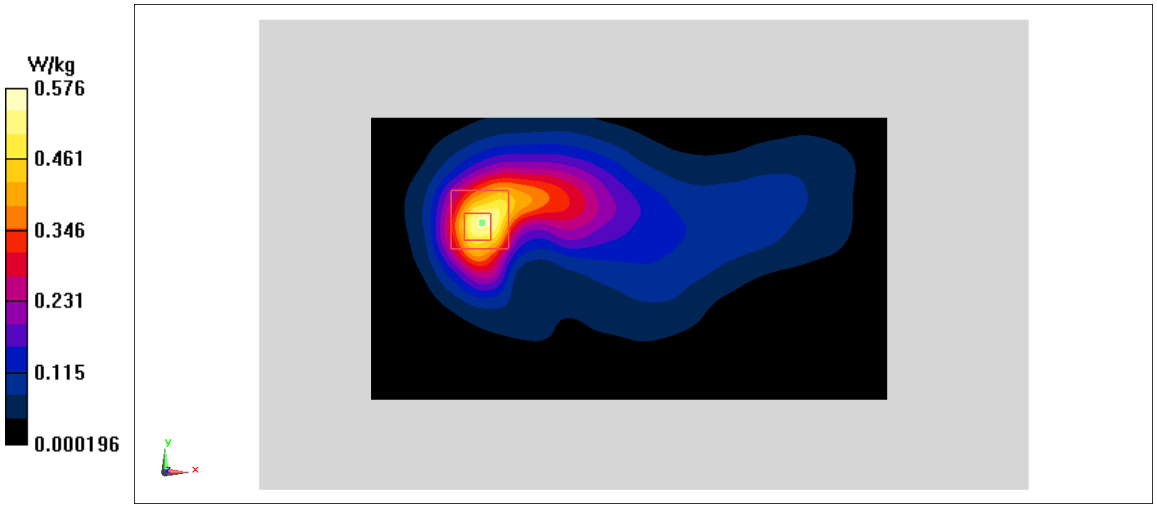


Fig A.12

LTE1700-FDD4_CH20300 Right Cheek
Date: 5/27/2019
Electronics: DAE4 Sn1525
Medium: head 1750 MHz
Medium parameters used: f = 1745 MHz; σ = 1.36 mho/m; εr = 40.51; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: LTE1700-FDD4 1745 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7514 ConvF(8.10,8.10,8.10)

Area Scan (81x131x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 1.21 W/kg

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

Reference Value = 8.984 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 1.43 W/kg
SAR(1 g) = 0.778 W/kg; SAR(10 g) = 0.391 W/kg
Maximum value of SAR (measured) = 1.07 W/kg

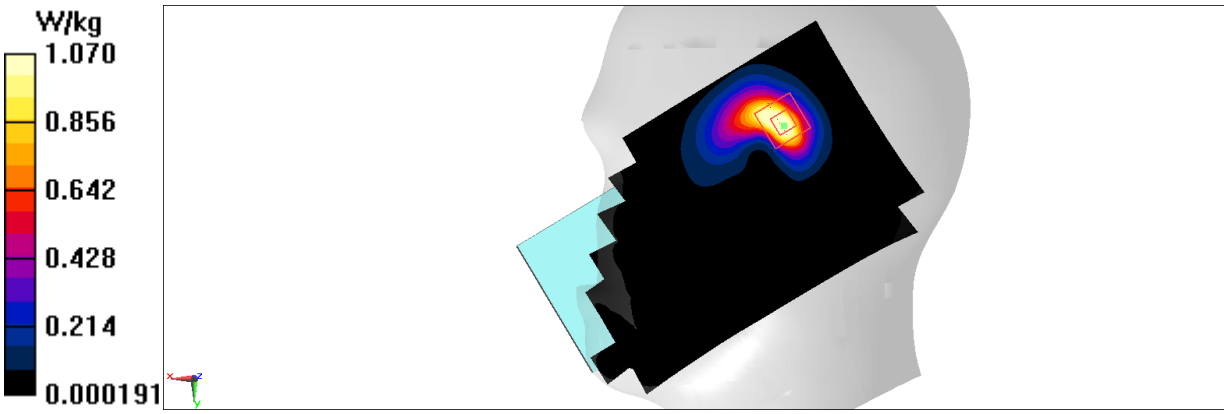


Fig A.13

LTE1700-FDD4_CH20300 Rear
Date: 5/27/2019
Electronics: DAE4 Sn1525
Medium: body 1750 MHz
Medium parameters used: f = 1745 MHz; σ = 1.489 mho/m; εr = 53.58; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: LTE1700-FDD4 1745 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7514 ConvF(7.82,7.82,7.82)

Area Scan (131x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.406 W/kg

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

Reference Value = 8.157 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 0.509 W/kg
SAR(1 g) = 0.308 W/kg; SAR(10 g) = 0.174 W/kg
Maximum value of SAR (measured) = 0.409 W/kg

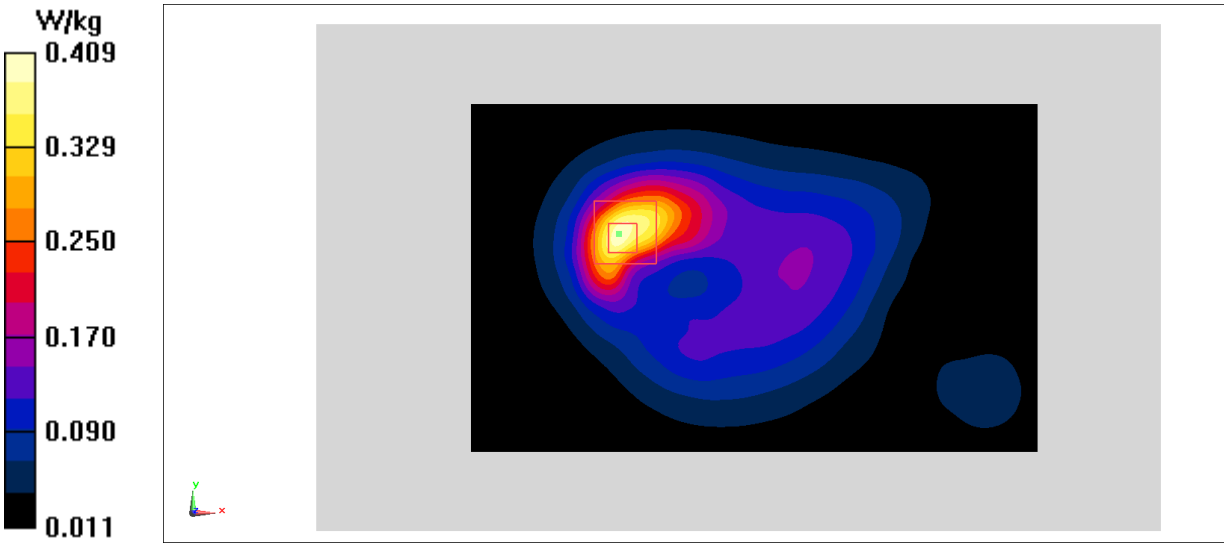


Fig A.14

LTE2500-FDD7_CH21350 Right Cheek
Date: 5/30/2019
Electronics: DAE4 Sn1525
Medium: head 2600 MHz
Medium parameters used: f = 2560 MHz; σ = 1.905 mho/m; εr = 39.81; 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 – SN7514 ConvF(6.92,6.92,6.92)

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 = 11.15 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 2.36 W/kg
SAR(1 g) = 1.22 W/kg; SAR(10 g) = 0.597 W/kg
Maximum value of SAR (measured) = 1.93 W/kg

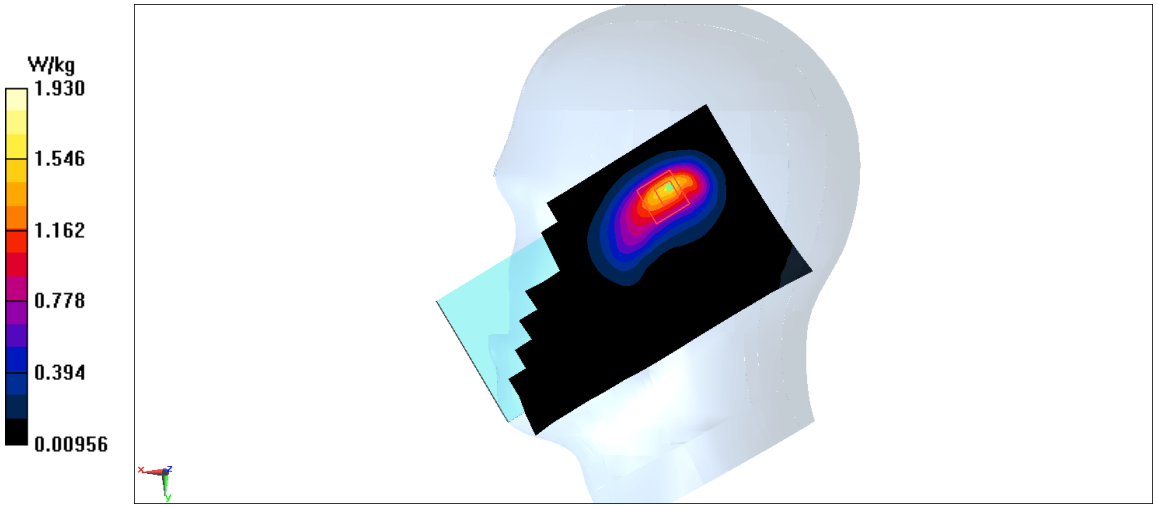


Fig A.15

LTE2500-FDD7_CH21350 Front
Date: 5/30/2019
Electronics: DAE4 Sn1525
Medium: body 2600 MHz
Medium parameters used: f = 2560 MHz; σ = 2.086 mho/m; εr = 52.1; 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 – SN7514 ConvF(7.06,7.06,7.06)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.482 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.233 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 0.604 W/kg
SAR(1 g) = 0.317 W/kg; SAR(10 g) = 0.17 W/kg
Maximum value of SAR (measured) = 0.494 W/kg

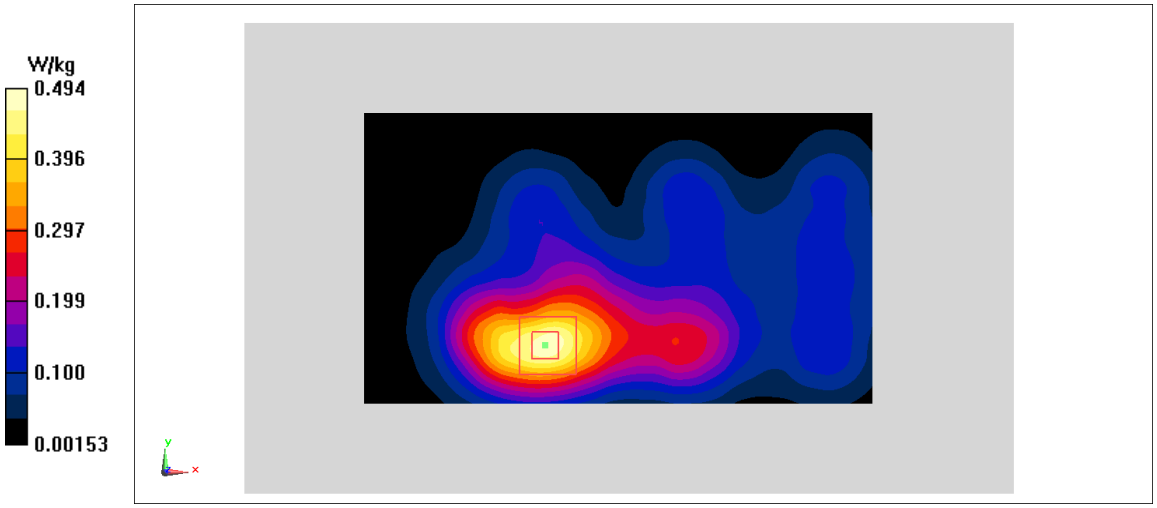


Fig A.16

LTE700-FDD12_CH23060 Right Cheek
Date: 5/25/2019
Electronics: DAE4 Sn1525
Medium: head 750 MHz
Medium parameters used: f = 704 MHz; σ = 0.85 mho/m; εr = 42.16; 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 – SN7514 ConvF(9.47,9.47,9.47)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.179 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.26 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 0.226 W/kg
SAR(1 g) = 0.13 W/kg; SAR(10 g) = 0.09 W/kg
Maximum value of SAR (measured) = 0.171 W/kg

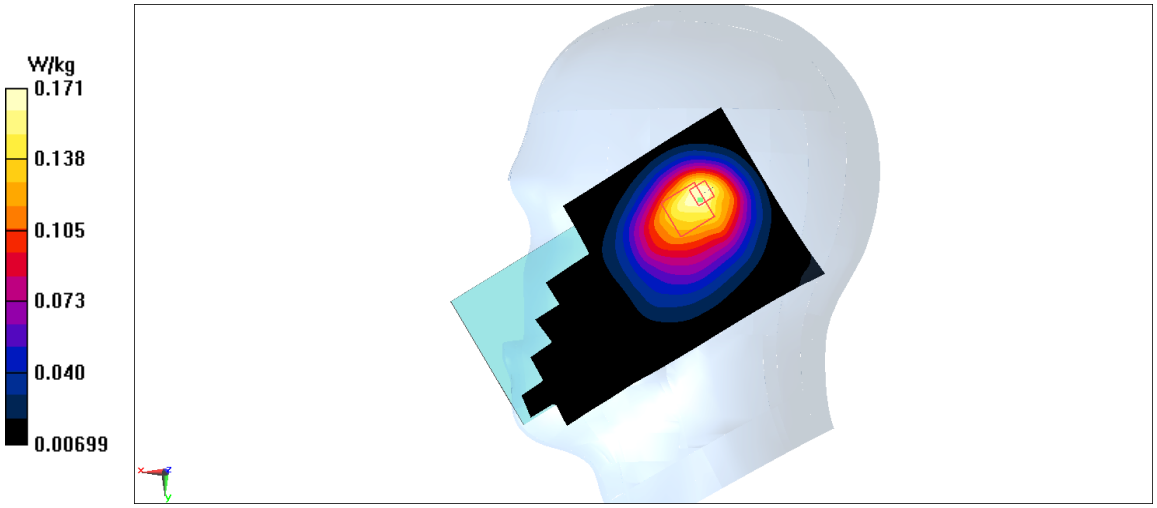


Fig A.17

LTE700-FDD12_CH23060 Front
Date: 5/25/2019
Electronics: DAE4 Sn1525
Medium: body 750 MHz
Medium parameters used: f = 704 MHz; σ = 0.917 mho/m; εr = 55.18; 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 – SN7514 ConvF(9.68,9.68,9.68)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.0679 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.83 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 0.077 W/kg
SAR(1 g) = 0.056 W/kg; SAR(10 g) = 0.04 W/kg
Maximum value of SAR (measured) = 0.0671 W/kg

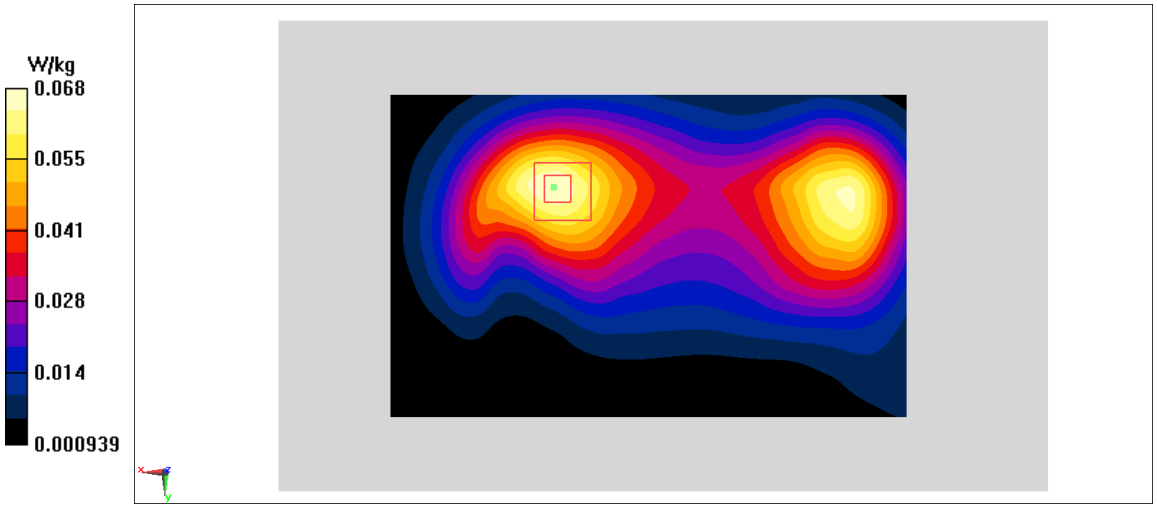


Fig A.18

LTE750-FDD13_CH23230 Right Cheek
Date: 5/25/2019
Electronics: DAE4 Sn1525
Medium: head 750 MHz
Medium parameters used: f = 782 MHz; σ = 0.924 mho/m; εr = 42.06; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: LTE750-FDD13 782 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7514 ConvF(9.47,9.47,9.47)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.396 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 17.1 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 0.549 W/kg
SAR(1 g) = 0.326 W/kg; SAR(10 g) = 0.216 W/kg
Maximum value of SAR (measured) = 0.408 W/kg

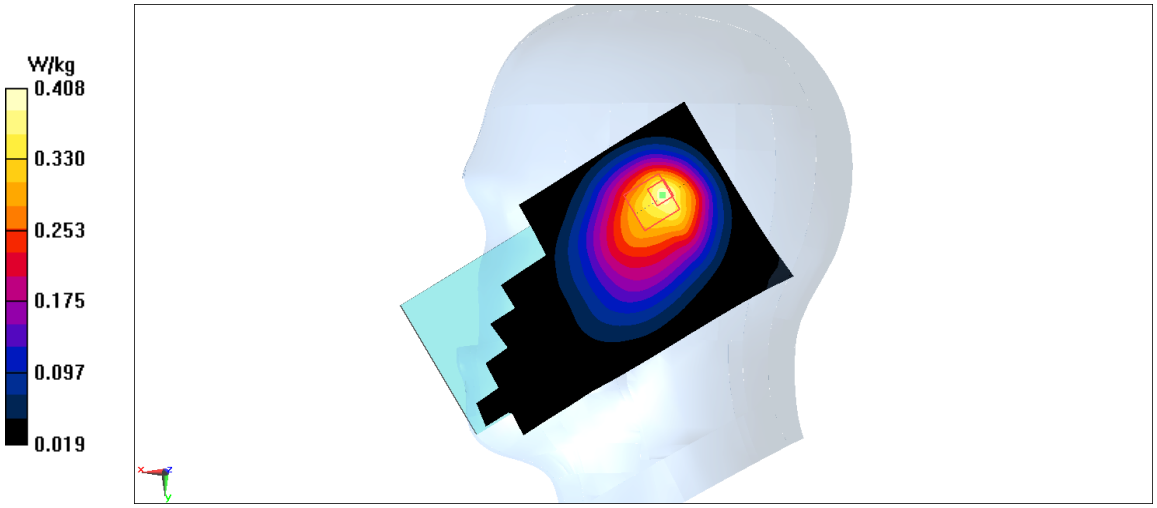


Fig A.19

LTE750-FDD13_CH23230 Rear
Date: 5/25/2019
Electronics: DAE4 Sn1525
Medium: body 750 MHz
Medium parameters used: f = 782 MHz; σ = 0.991 mho/m; εr = 55.08; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: LTE750-FDD13 782 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7514 ConvF(9.68,9.68,9.68)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.194 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.916 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.218 W/kg
SAR(1 g) = 0.15 W/kg; SAR(10 g) = 0.108 W/kg
Maximum value of SAR (measured) = 0.184 W/kg

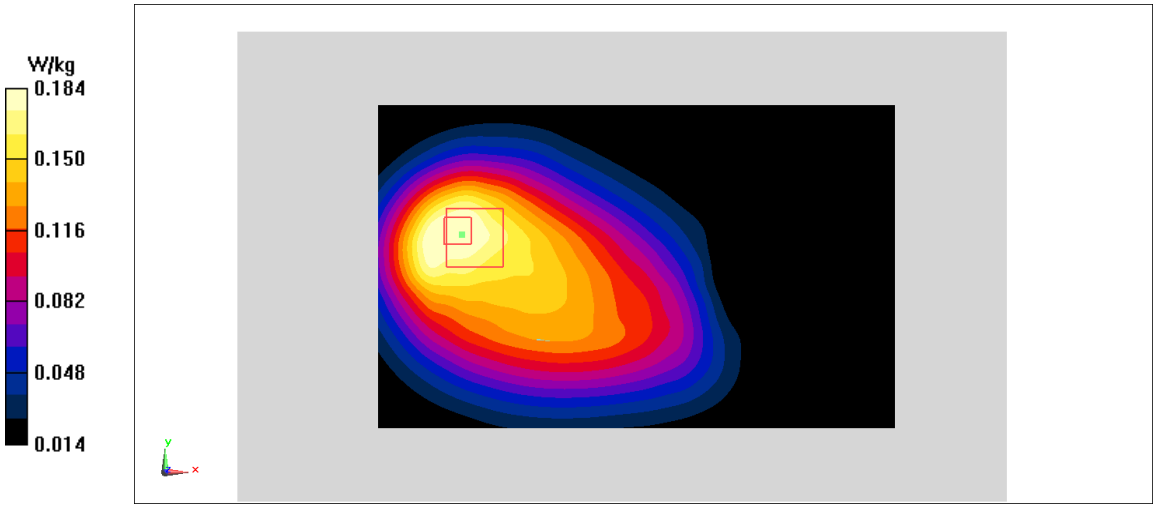


Fig A.20

LTE850-FDD26_CH26865 Right Cheek
Date: 5/26/2019
Electronics: DAE4 Sn1525
Medium: head 835 MHz
Medium parameters used: f = 831.5 MHz; σ = 0.912 mho/m; εr = 41.75; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C, Liquid Temperature: 22.3°C
Communication System: LTE850-FDD26 831.5 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7514 ConvF(9.09,9.09,9.09)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.833 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 23.87 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.998 W/kg
SAR(1 g) = 0.618 W/kg; SAR(10 g) = 0.413 W/kg
Maximum value of SAR (measured) = 0.761 W/kg

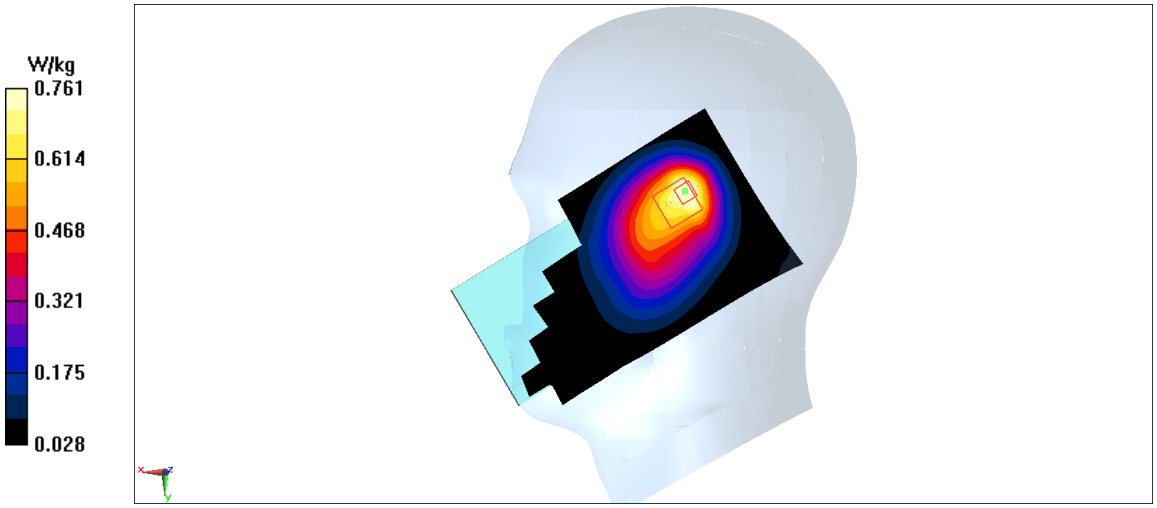


Fig A.21

LTE850-FDD26_CH26865 Rear
Date: 5/26/2019
Electronics: DAE4 Sn1525
Medium: body 835 MHz
Medium parameters used: f = 831.5 MHz; σ = 0.984 mho/m; εr = 54.13; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C, Liquid Temperature: 22.3°C
Communication System: LTE850-FDD26 831.5 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7514 ConvF(9.47,9.47,9.47)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.279 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.94 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 0.324 W/kg
SAR(1 g) = 0.244 W/kg; SAR(10 g) = 0.183 W/kg
Maximum value of SAR (measured) = 0.286 W/kg

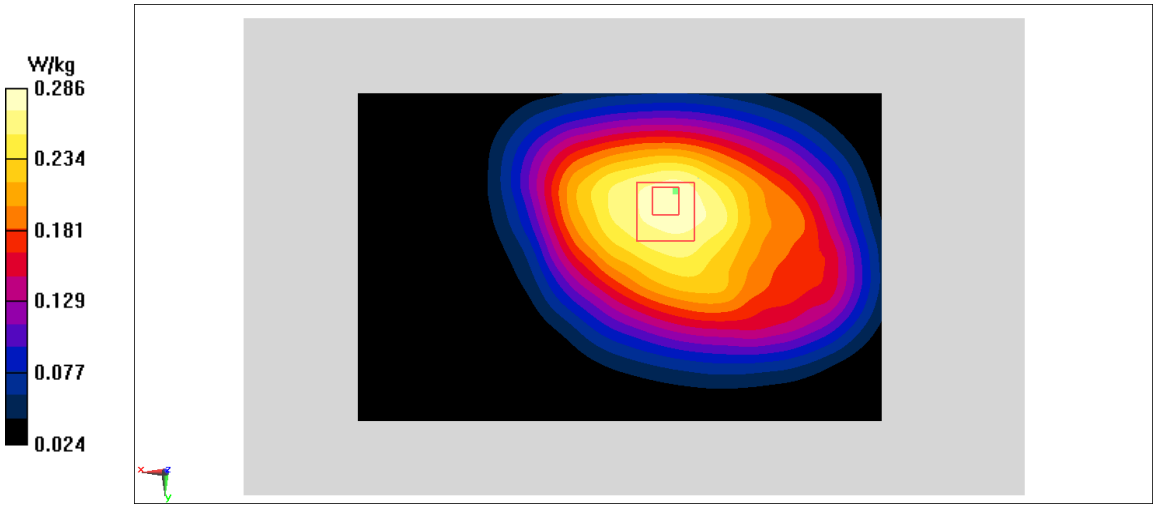


Fig A.22

LTE2600-TDD38_CH38000 Right Cheek
Date: 5/30/2019
Electronics: DAE4 Sn1525
Medium: head 2600 MHz
Medium parameters used: f = 2595 MHz; σ = 1.938 mho/m; εr = 39.77; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: LTE2600-TDD38 2595 MHz Duty Cycle: 1:1.58
Probe: EX3DV4 – SN7514 ConvF(6.92,6.92,6.92)

Area Scan (91x151x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 1.23 W/kg

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

Reference Value = 9.023 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 1.85 W/kg
SAR(1 g) = 0.942 W/kg; SAR(10 g) = 0.440 W/kg
Maximum value of SAR (measured) = 1.41 W/kg

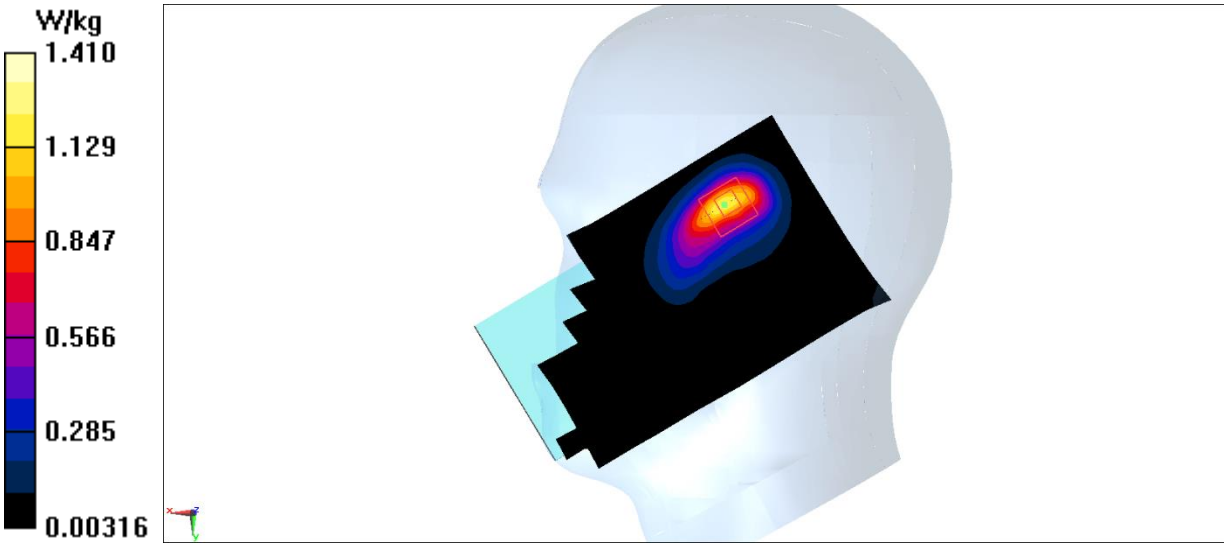


Fig A.23

LTE2600-TDD38_CH38000 Front
Date: 5/30/2019
Electronics: DAE4 Sn1525
Medium: body 2600 MHz
Medium parameters used: f = 2595 MHz; σ = 2.119 mho/m; εr = 52.06; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: LTE2600-TDD38 2595 MHz Duty Cycle: 1:1.58
Probe: EX3DV4 – SN7514 ConvF(7.06,7.06,7.06)

Area Scan (151x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.173 W/kg

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

Reference Value = 5.059 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.214 W/kg
SAR(1 g) = 0.120 W/kg; SAR(10 g) = 0.071 W/kg
Maximum value of SAR (measured) = 0.165 W/kg

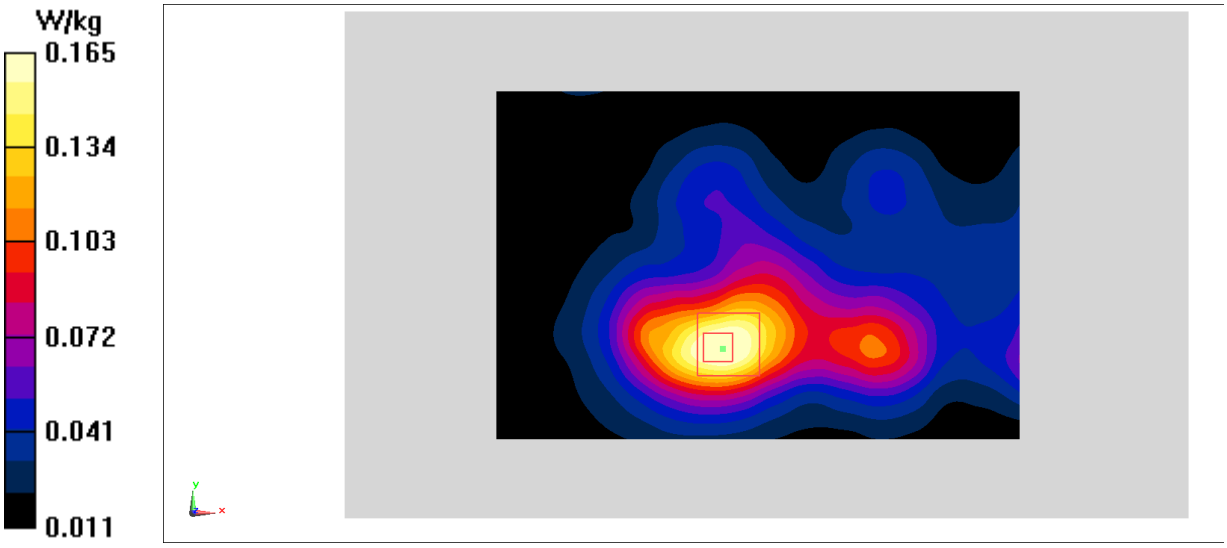


Fig A.24

WLAN2450_CH11 Left Cheek
Date: 5/29/2019
Electronics: DAE4 Sn1525
Medium: head 2450 MHz
Medium parameters used: f = 2462 MHz; σ = 1.788 mho/m; εr = 39.93; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C, Liquid Temperature: 22.3°C
Communication System: WLAN2450 2462 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7514 ConvF(6.95,6.95,6.95)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.807 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.43 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 0.991 W/kg
SAR(1 g) = 0.478 W/kg; SAR(10 g) = 0.247 W/kg
Maximum value of SAR (measured) = 0.755 W/kg

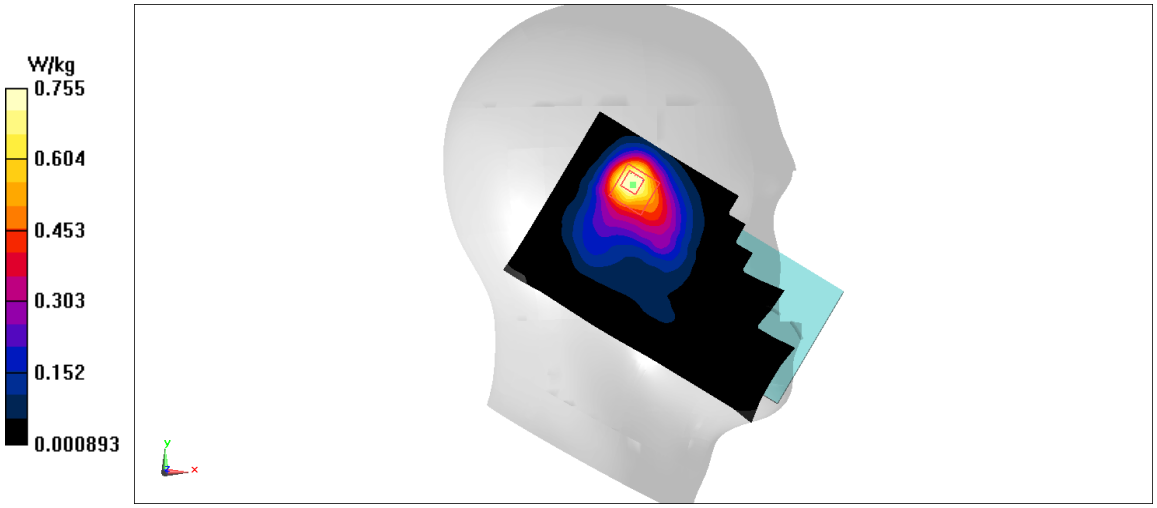


Fig A.25

WLAN2450_CH11 Top edge
Date: 5/29/2019
Electronics: DAE4 Sn1525
Medium: body 2450 MHz
Medium parameters used: f = 2462 MHz; σ = 1.961 mho/m; εr = 53.26; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: WLAN2450 2462 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7514 ConvF(7.13,7.13,7.13)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.185 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.262 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 0.223 W/kg
SAR(1 g) = 0.12 W/kg; SAR(10 g) = 0.063 W/kg
Maximum value of SAR (measured) = 0.185 W/kg

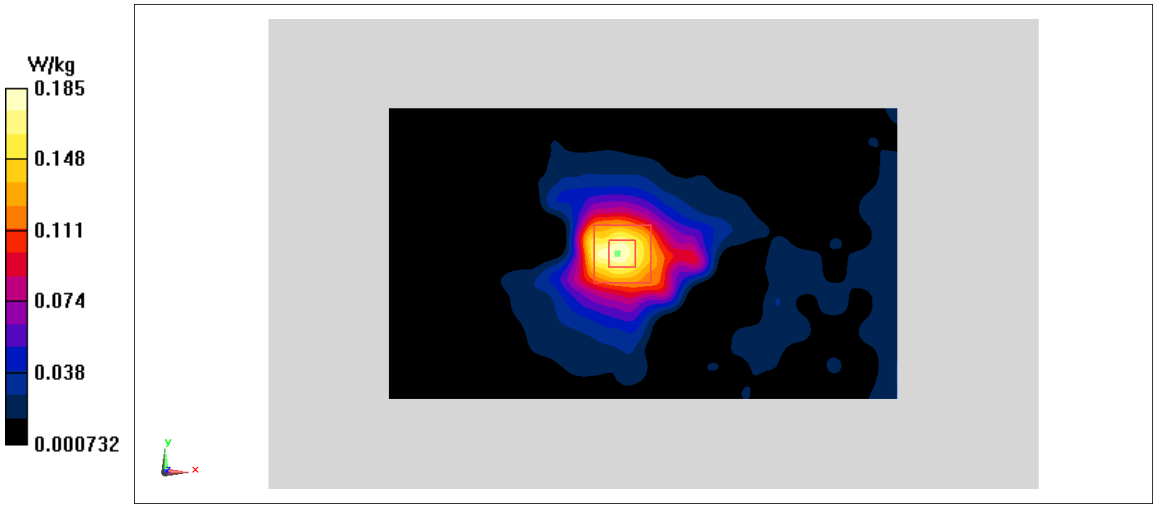


Fig A.26

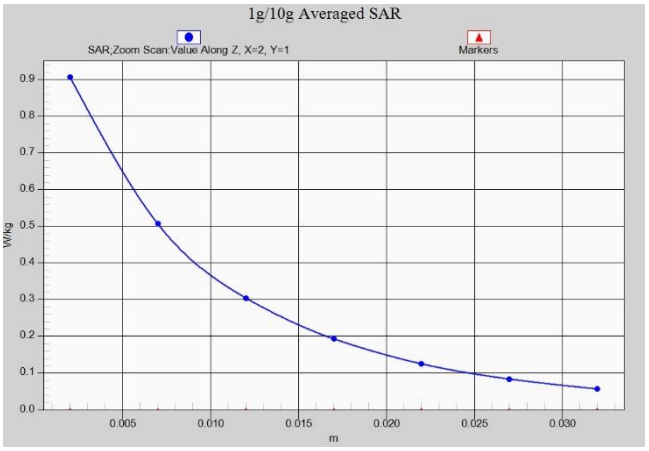


Fig.A.1- 1 Z-Scan at power reference point (GSM850)

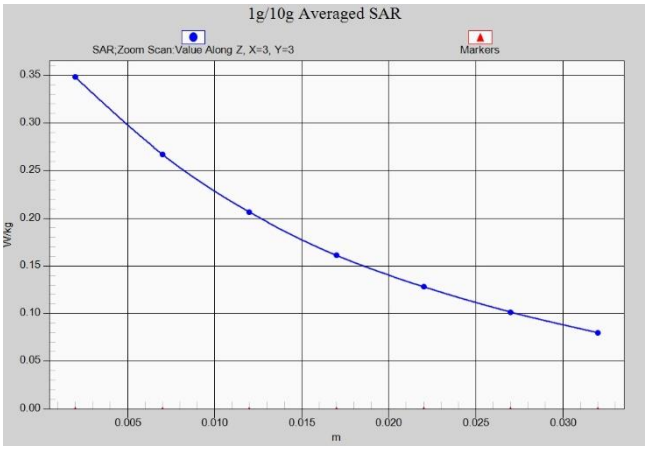


Fig.A.1- 2 Z-Scan at power reference point (GSM850)

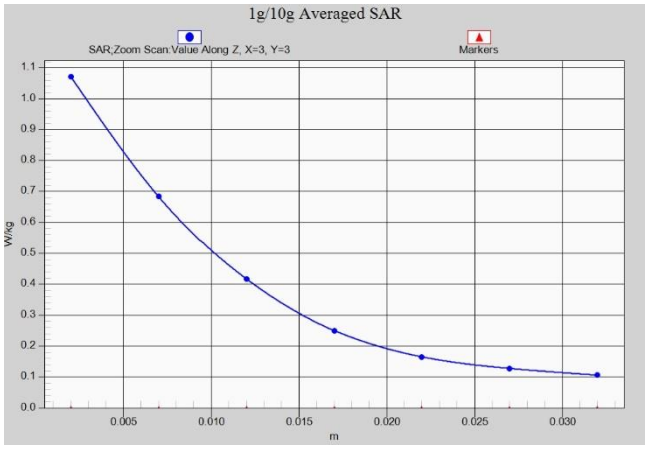


Fig.A.1- 3 Z-Scan at power reference point (PCS1900)

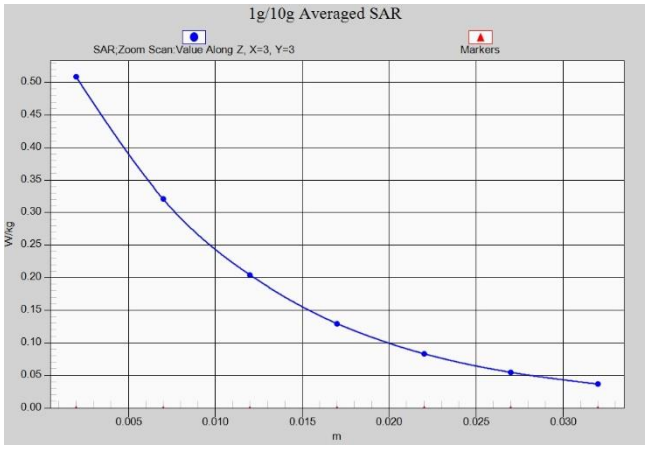


Fig.A.1- 4 Z-Scan at power reference point (PCS1900)

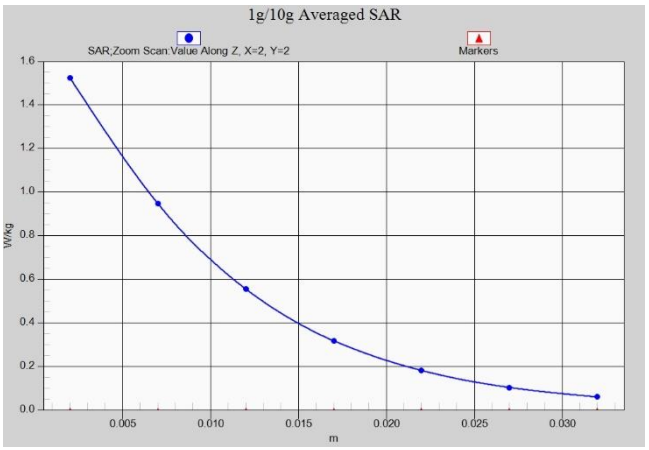


Fig.A.1- 5 Z-Scan at power reference point (W1900)

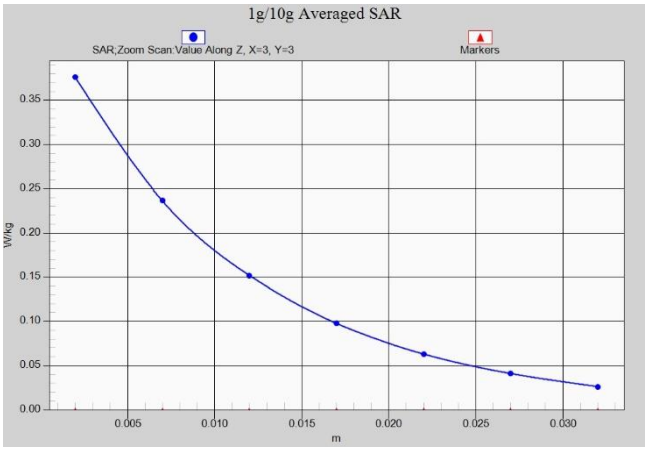


Fig.A.1- 6 Z-Scan at power reference point (W1900)

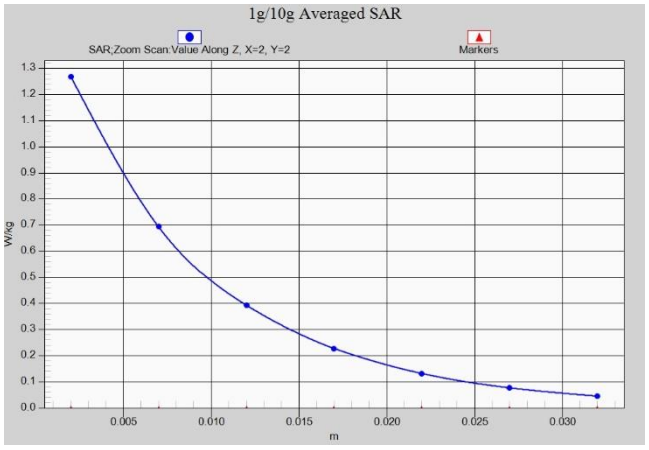


Fig.A.1- 7 Z-Scan at power reference point (W1700)

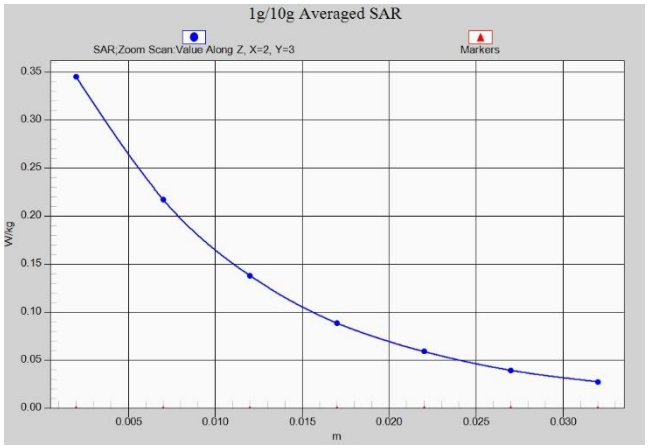


Fig.A.1- 8 Z-Scan at power reference point (W1700)

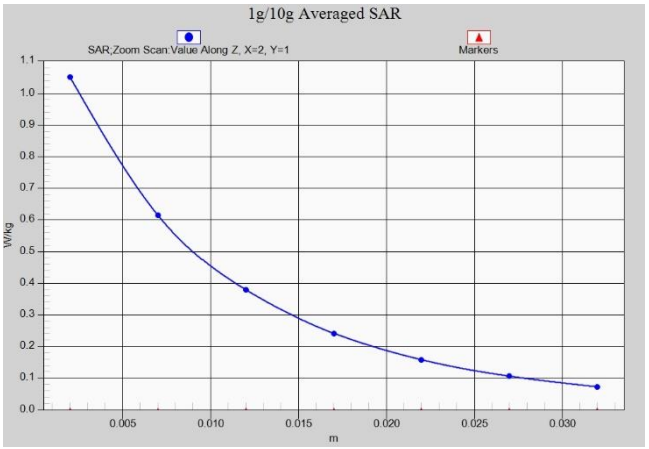


Fig.A.1- 9 Z-Scan at power reference point (W850)

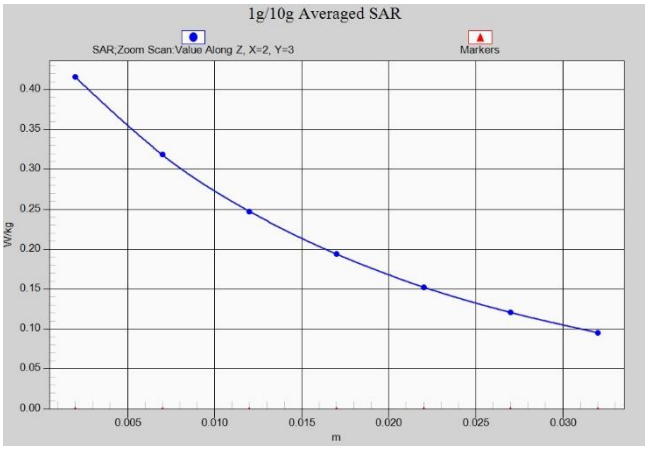


Fig.A.1- 10 Z-Scan at power reference point (W850)

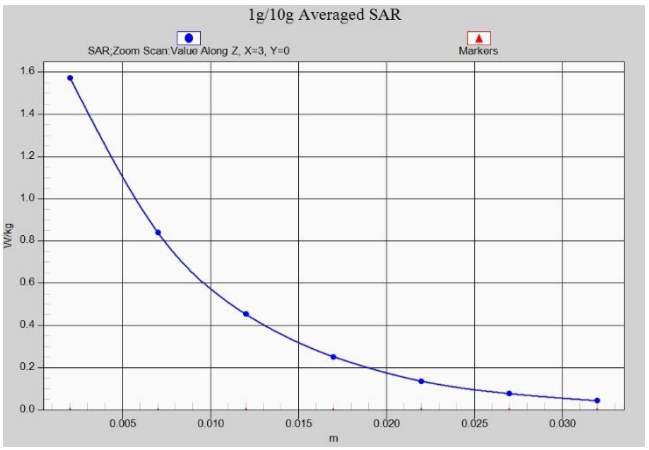


Fig.A.1- 11 Z-Scan at power reference point (LTE band2)

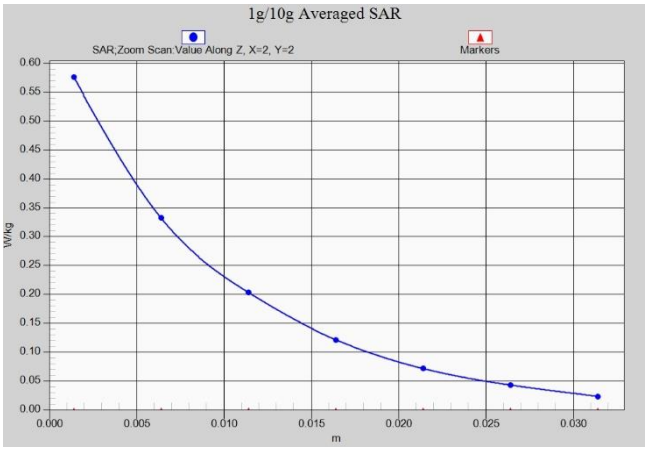


Fig.A.1- 12 Z-Scan at power reference point (LTE band2)

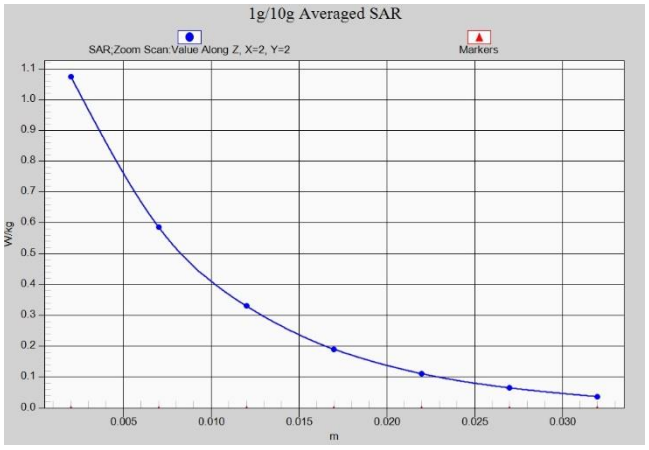


Fig.A.1- 13 Z-Scan at power reference point (LTE band4)

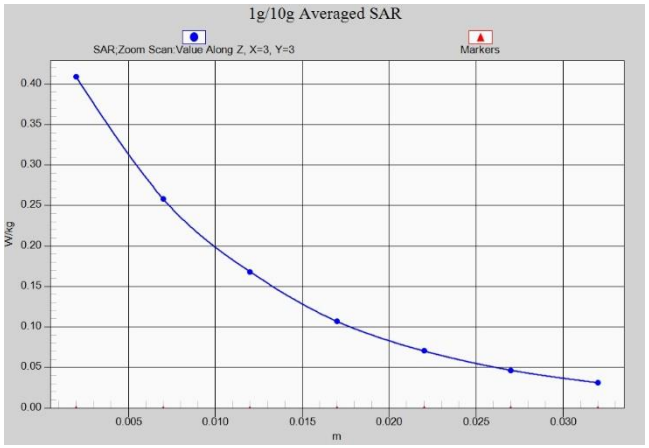


Fig.A.1- 14 Z-Scan at power reference point (LTE band4)

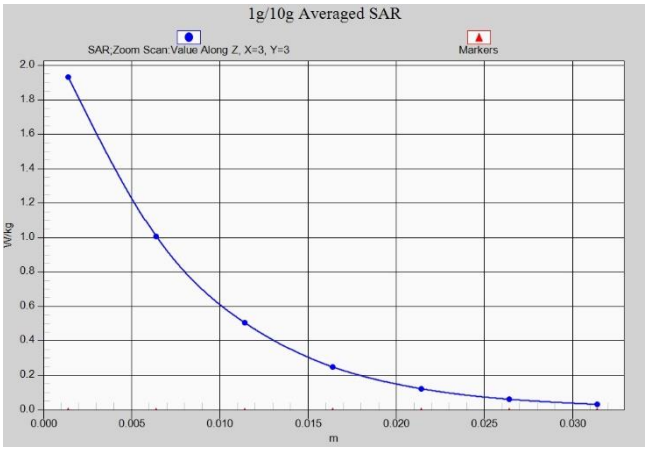


Fig.A.1- 15 Z-Scan at power reference point (LTE band7)

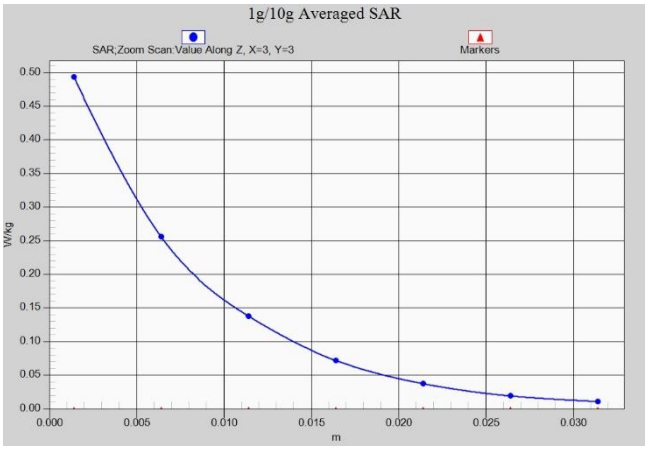


Fig.A.1- 16 Z-Scan at power reference point (LTE band7)

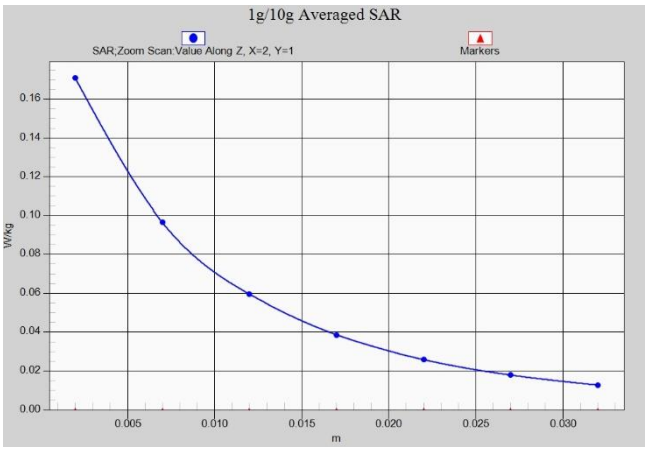


Fig.A.1- 17 Z-Scan at power reference point (LTE band12)

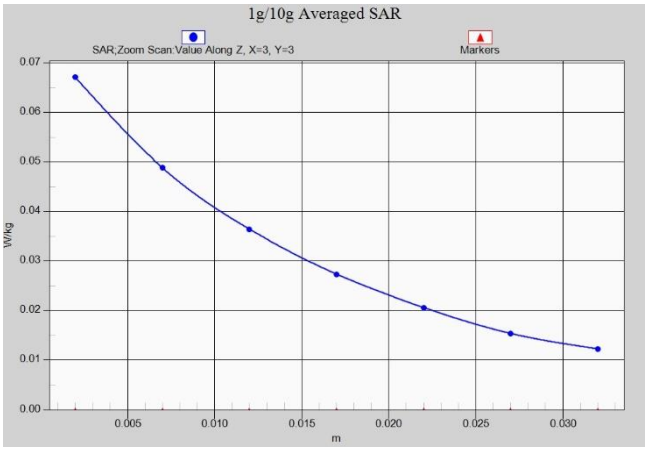


Fig.A.1- 18 Z-Scan at power reference point (LTE band12)

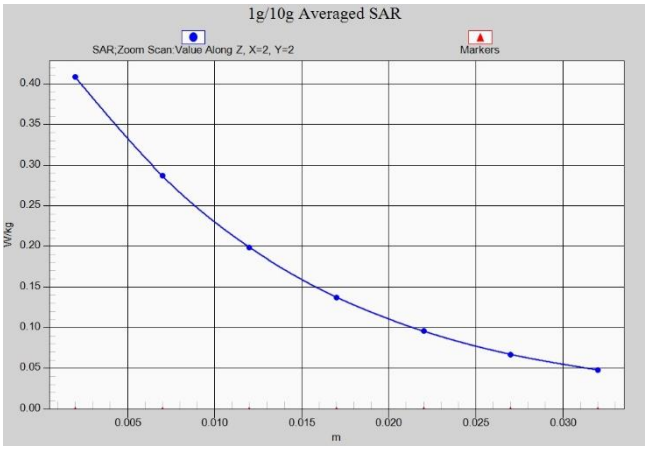


Fig.A.1- 19 Z-Scan at power reference point (LTE band13)

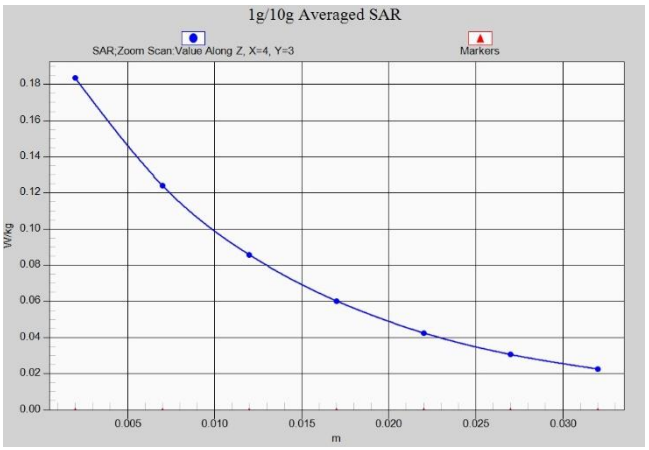


Fig.A.1- 20 Z-Scan at power reference point (LTE band13)

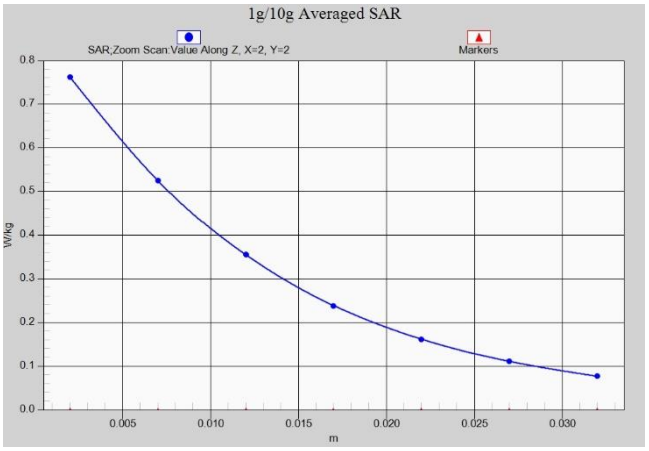


Fig.A.1- 21 Z-Scan at power reference point (LTE band26)

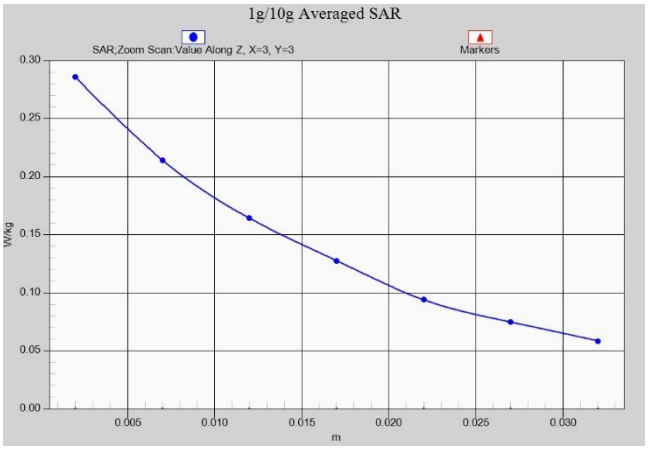


Fig.A.1- 22 Z-Scan at power reference point (LTE band26)

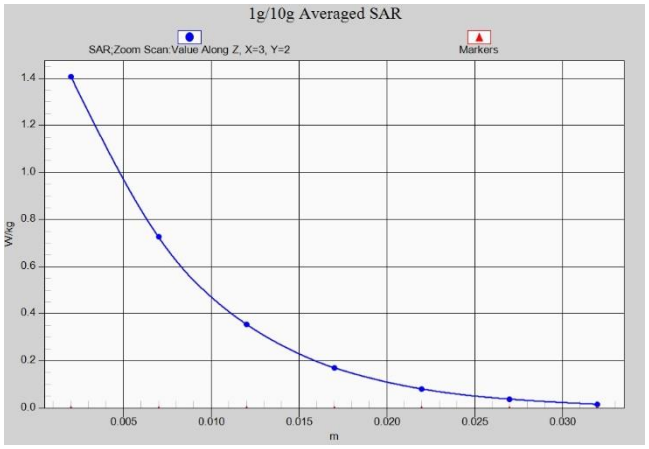


Fig.A.1- 23 Z-Scan at power reference point (LTE band38)

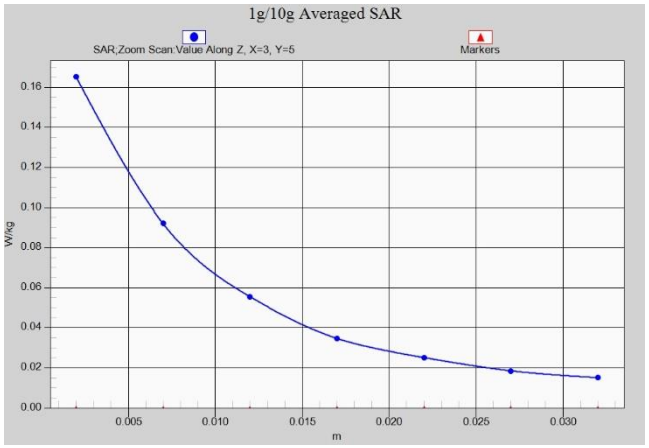


Fig.A.1- 24 Z-Scan at power reference point (LTE band38)

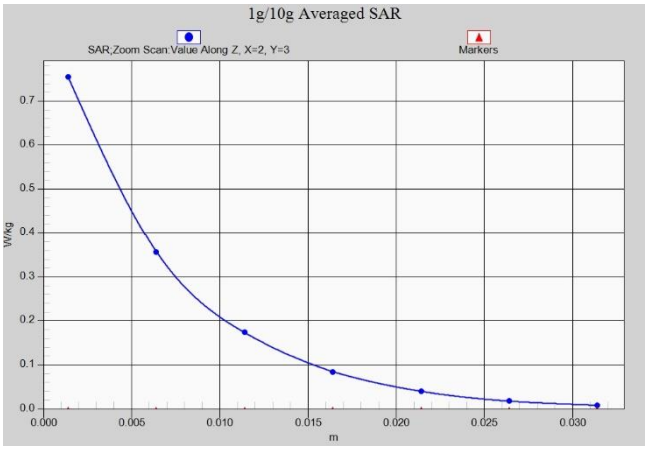


Fig.A.1- 25 Z-Scan at power reference point (Wifi2450)

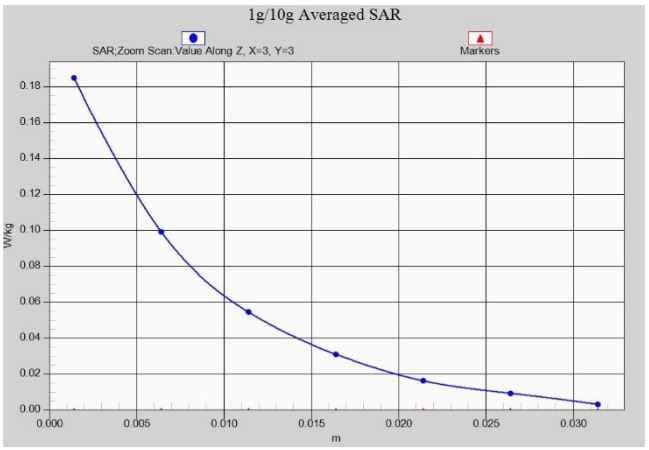


Fig.A.1- 26 Z-Scan at power reference point (Wifi2450)

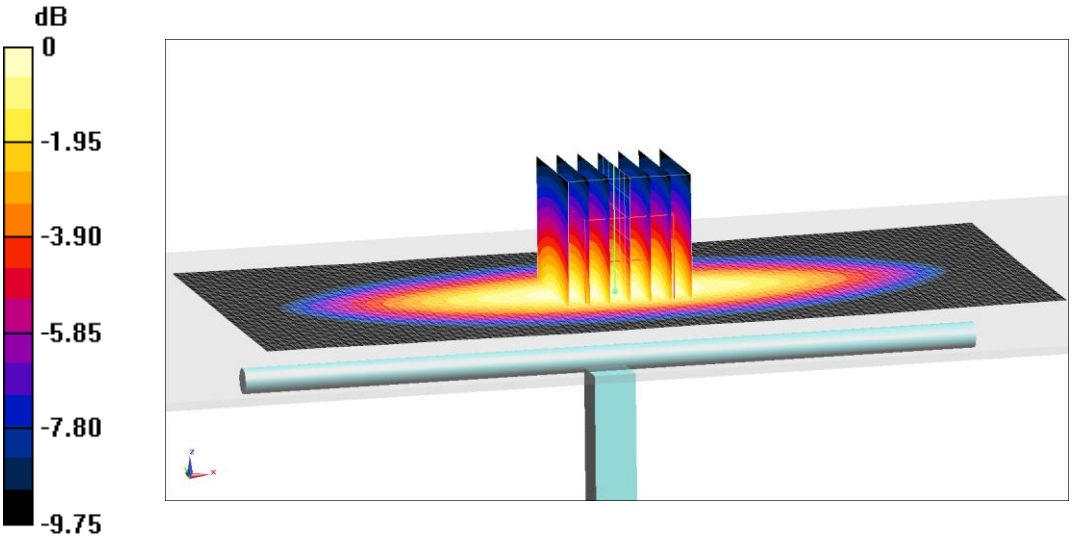
ANNEX B System Verification Results

750 MHz

Date: 5/25/2019
Electronics: DAE4 Sn1525
Medium: Head 750 MHz
Medium parameters used: f = 750 MHz; σ =0.894 mho/m; ε_r = 42.1; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C Liquid Temperature: 22.3°C
Communication System: CW Frequency: 750 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7514 ConvF(9.47,9.47,9.47)

System Validation /Area Scan (81x191x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 59.81 V/m; Power Drift = 0.02
Fast SAR: SAR(1 g) = 2.04 W/kg; SAR(10 g) = 1.37 W/kg
Maximum value of SAR (interpolated) = 2.72 W/kg

System Validation /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value =59.81 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 3.25 W/kg
SAR(1 g) = 2.07 W/kg; SAR(10 g) = 1.37 W/kg
Maximum value of SAR (measured) = 2.86 W/kg



0 dB = 2.86 W/kg = 4.56 dB W/kg

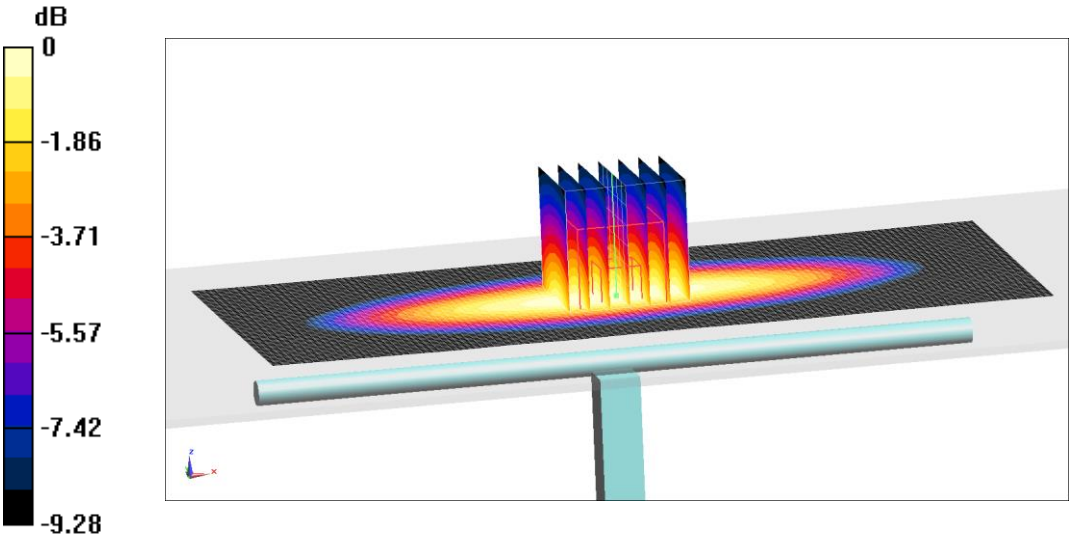
Fig.B.1 validation 750 MHz 250mW

750 MHz

Date: 5/25/2019
Electronics: DAE4 Sn1525
Medium: Body 750 MHz
Medium parameters used: f = 750 MHz; σ =0.961 mho/m; ε_r = 55.12; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC Liquid Temperature: 22.3ºC
Communication System: CW Frequency: 750 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7514 ConvF(9.68,9.68,9.68)

System Validation /Area Scan (81x191x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 58.29 V/m; Power Drift = -0.01
Fast SAR: SAR(1 g) = 2.14 W/kg; SAR(10 g) = 1.45 W/kg
Maximum value of SAR (interpolated) = 3.29 W/kg

System Validation /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value =58.29 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 3.29 W/kg
SAR(1 g) = 2.18 W/kg; SAR(10 g) = 1.39 W/kg
Maximum value of SAR (measured) = 2.93 W/kg



0 dB = 2.93 W/kg = 4.67 dB W/kg

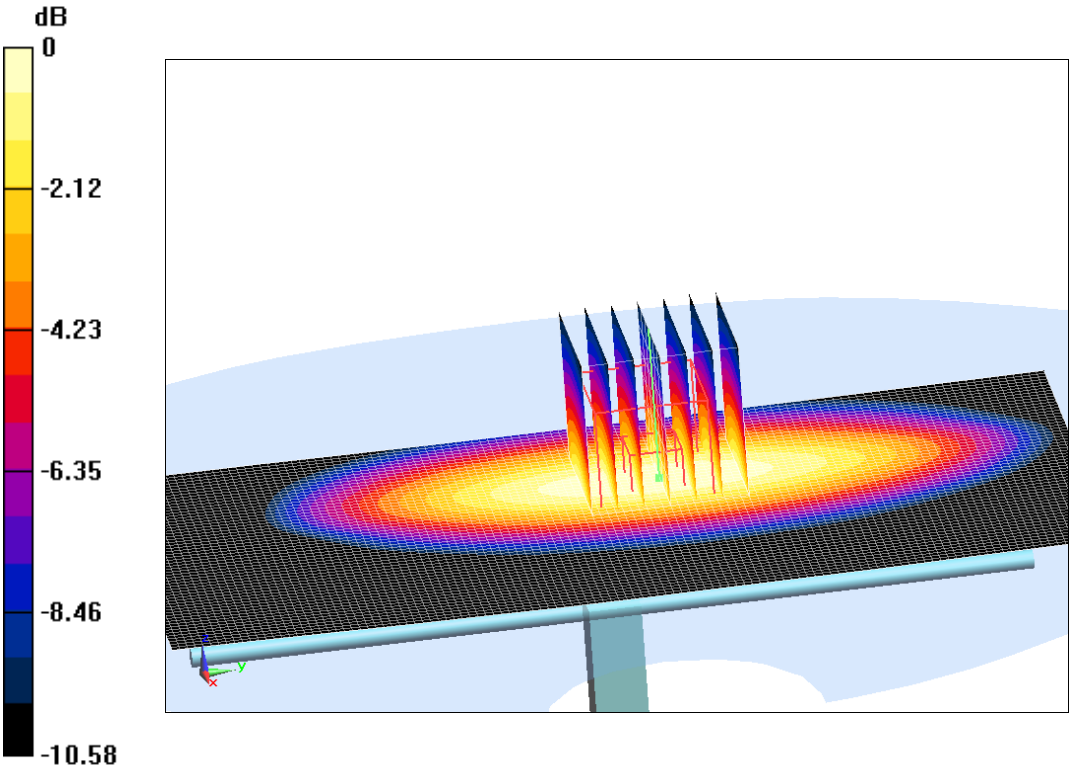
Fig.B.2 validation 750 MHz 250mW

835 MHz

Date: 5/26/2019
Electronics: DAE4 Sn1525
Medium: Head 835 MHz
Medium parameters used: f = 835 MHz; σ =0.915 mho/m; ε_r = 41.75; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC Liquid Temperature: 22.3ºC
Communication System: CW Frequency: 835 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7514 ConvF(9.09,9.09,9.09)

System Validation /Area Scan (81x191x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 64.82 V/m; Power Drift = -0.1
Fast SAR: SAR(1 g) = 2.35 W/kg; SAR(10 g) = 1.49 W/kg
Maximum value of SAR (interpolated) = 3.7 W/kg

System Validation /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value =64.82 V/m; Power Drift = -0.1 dB
Peak SAR (extrapolated) = 4.01 W/kg
SAR(1 g) = 2.35 W/kg; SAR(10 g) = 1.51 W/kg
Maximum value of SAR (measured) = 3.62 W/kg



0 dB = 3.62 W/kg = 5.59 dB W/kg

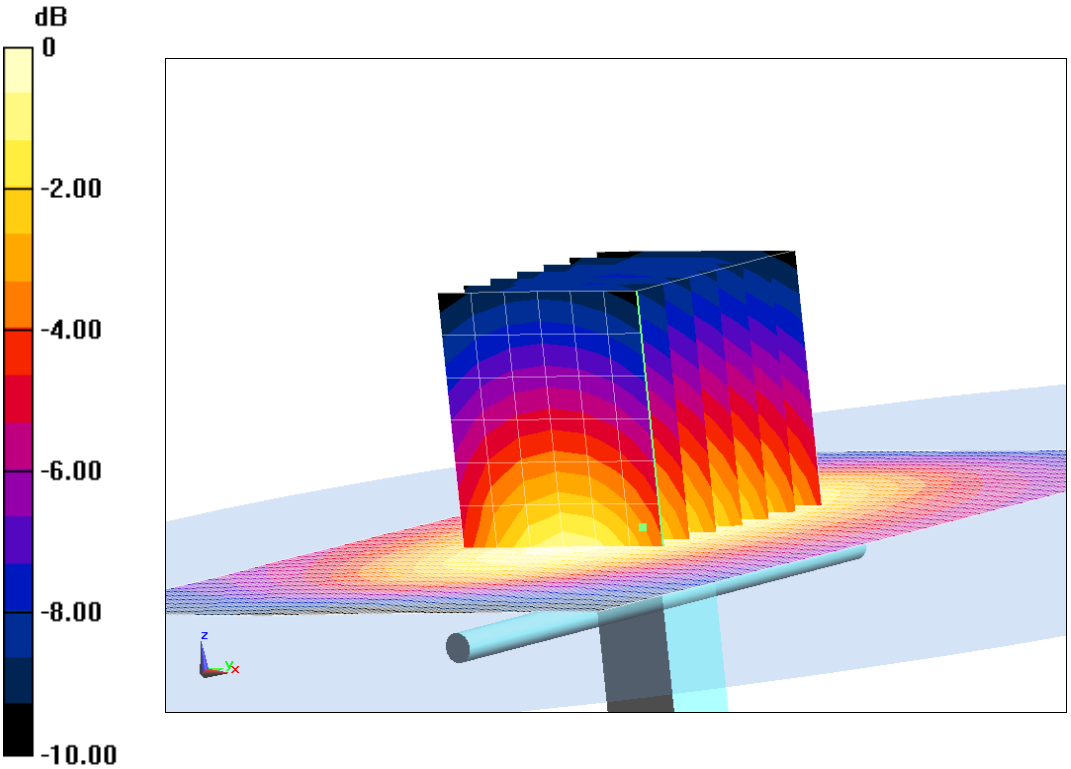
Fig.B.3 validation 835 MHz 250mW

835 MHz

Date: 5/26/2019
Electronics: DAE4 Sn1525
Medium: Body 835 MHz
Medium parameters used: f = 835 MHz; σ =0.987 mho/m; ε_r = 54.13; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C Liquid Temperature: 22.3°C
Communication System: CW Frequency: 835 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7514 ConvF(9.47,9.47,9.47)

System Validation /Area Scan (81x191x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 60.45 V/m; Power Drift = 0.09
Fast SAR: SAR(1 g) = 2.38 W/kg; SAR(10 g) = 1.5 W/kg
Maximum value of SAR (interpolated) = 3.48 W/kg

System Validation /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value =60.45 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 3.64 W/kg
SAR(1 g) = 2.34 W/kg; SAR(10 g) = 1.53 W/kg
Maximum value of SAR (measured) = 3.21 W/kg



0 dB = 3.21 W/kg = 5.07 dB W/kg

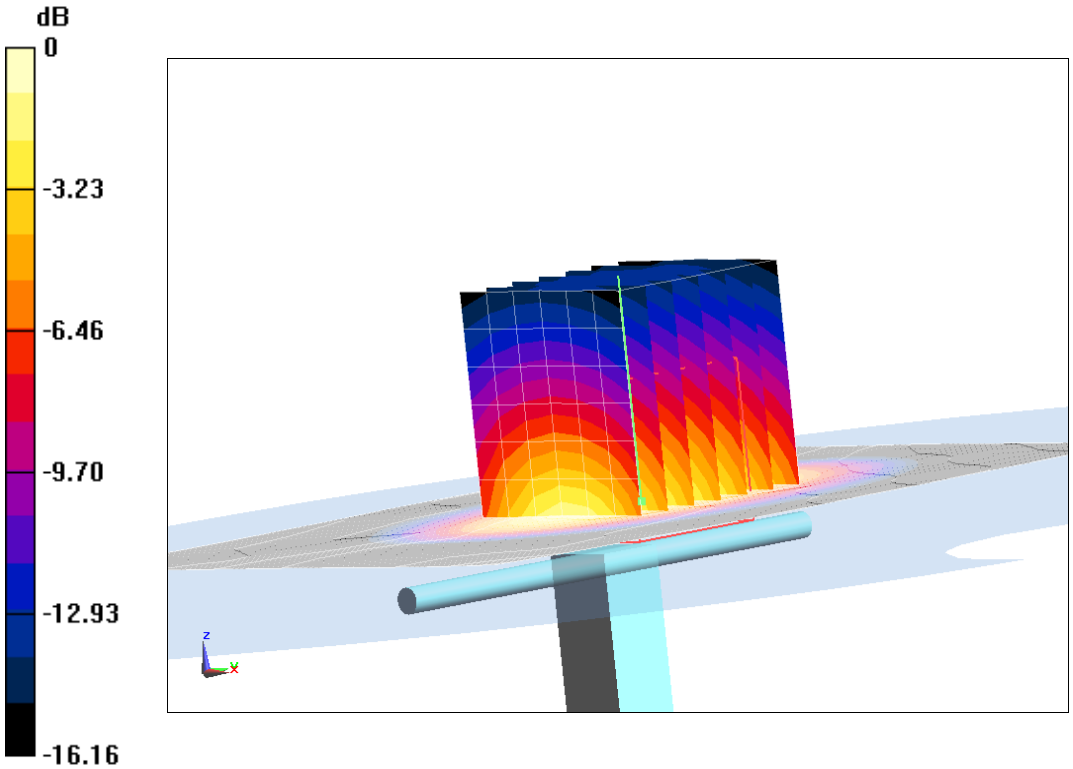
Fig.B.4 validation 835 MHz 250mW

1750 MHz

Date: 5/27/2019
Electronics: DAE4 Sn1525
Medium: Head 1750 MHz
Medium parameters used: f = 1750 MHz; σ =1.365 mho/m; ε_r = 40.5; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C Liquid Temperature: 22.3°C
Communication System: CW Frequency: 1750 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7514 ConvF(8.10,8.10,8.10)

System Validation /Area Scan (81x191x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 106.74 V/m; Power Drift = -0.02
Fast SAR: SAR(1 g) = 9.26 W/kg; SAR(10 g) = 4.9 W/kg
Maximum value of SAR (interpolated) = 14.92 W/kg

System Validation /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value =106.74 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 18.16 W/kg
SAR(1 g) = 9.08 W/kg; SAR(10 g) = 4.91 W/kg
Maximum value of SAR (measured) = 14.32 W/kg



0 dB = 14.32 W/kg = 11.56 dB W/kg

Fig.B.5 validation 1750 MHz 250mW