SAR TEST REPORT

No. I19Z60464-SEM06

For

Samsung Electronics Co., Ltd.

Multi-band GSM/WCDMA/LTE phone with Bluetooth, WLAN

Modelname: SM-T295

With

Hardware Version: V0.3

Software Version: T295XXU0ASE8

FCC ID: ZCASMT295

Issued Date: 2019-5-30

TESTING
NVLAP LAB CODE 600118-0

Note:

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Test Laboratory:

CTTL, Telecommunication Technology Labs, CAICT

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REPORT HISTORY

Report Number	Revision	Issue Date	Description
I19Z60464-SEM06	Rev.0	2019-5-27	Initial creation of test report
I19Z60464-SEM06	Rev.1	2019-5-30	Update the highest reported SAR on page 7 of test report. Update the client and EUTinformation on section 3 and section 4 of test report. Update the information on section 11 of test report. Update the report No. Update the information on section 14 of test report. Update the serial number and calibration date. Update the test date on the plot and validation test date. Update the conducted Power for LTE band41 on page64. Update the Table 17.1 on P98 Update the frequency range of LTE Band41 in Table 4.1

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

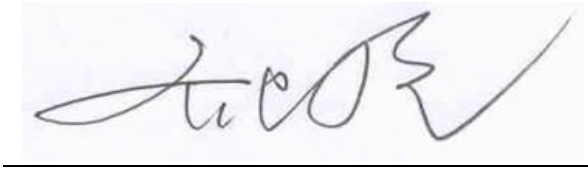
1.3 Project Data

Project Leader:	Qi Dianyuan
Test Engineer:	Lin Xiaojun
Testing Start Date:	May 16, 2019
Testing End Date:	May 22, 2019

1.4 Signature

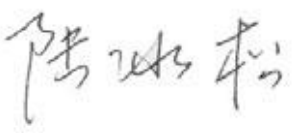
Lin Xiaojun

(Prepared this test report)



Qi Dianyuan

(Reviewed this test report)



Lu Bingsong

Deputy Director of the laboratory

(Approved this test report)

2 Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for Samsung Electronics Co., Ltd. Multi-band GSM/WCDMA/LTE phone with Bluetooth, WLAN SM-T295 is as follows:

Table 2.1: Highest Reported SAR (1g)

Exposure Configuration	Technology Band	Highest Reported SAR 1g(W/kg)	Equipment Class
Head	GSM850	0.24	PCE
	GSM1900	0.40	
	WCDMA 1900	0.21	
	WCDMA 1700	0.20	
	WCDMA 850	0.32	
	LTE Band2	0.19	
	LTE Band4	0.19	
	LTE Band5	0.27	
	LTE Band7	0.50	
	LTE Band12	0.21	
	LTE Band41	0.27	
	WLAN 2.4 GHz	0.12	DTS
	WLAN 5 GHz	0.53	UNI
Hotspot	GSM850	0.49	PCE
	GSM1900	0.60	
	WCDMA 1900	0.34	
	WCDMA 1700	0.34	
	WCDMA 850	0.49	
	LTE Band2	0.30	
	LTE Band4	0.57	
	LTE Band5	0.54	
	LTE Band7	0.43	
	LTE Band12	0.33	
	LTE Band41	0.48	
	WLAN 2.4 GHz	0.75	DTS
	WLAN 5 GHz	0.58	UNI

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 0/4/9/14/19/29 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**: 0.75W/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	0.50	0.15	**0.65**
Highest reported SAR value for Body	Rear	0.60	0.75	**1.35**

Note1: we have evaluated and chose the highest value of both main antennae in the above table
Note2: we have evaluated and chose the highest value of WiFi 2.4G and 5G in the above table

According to the above tables, the highest sum of reported SAR values is **1.35 W/kg (1g)**. The detail for simultaneous transmission consideration is described in chapter 13.

3 Client Information

3.1 Applicant Information

Company Name:	Samsung Electronics Co., Ltd.
Address/Post:	R5, A Tower 23Floor B-3,(Maetan dong) 129,Samsung-ro,Yeongtong-gu, Suwon-Si, Gyeonggi-do 16677, Korea
Contact Person:	Kang Kuiho
Contact Email:	kangmiao@samsung.com
Telephone:	NA

3.2 Manufacturer Information

Company Name:	Jiaxing Yongrui Electron Technology Co., Ltd.
Address/Post:	NO.777 Yazhong Road, Daqiao Town, Nanhu District, Jiaxing City ,Zhejiang
Contact Person:	NA
Contact Email:	NA
Telephone:	NA

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

4.1 About EUT

Description:	Multi-band GSM/WCDMA/LTE phone with Bluetooth, WLAN
Model name:	SM-T295
Operating mode(s):	GSM 850/900/1800/1900, UMTS FDD 1/2/4/5/8, BT, Wi-Fi LTE Band 1/2/3/4/5/7/8/12/17/20/28/38/40/41
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)
	824.7 – 848.3 MHz (LTE Band 5)
	2502.5 – 2567.5 MHz (LTE Band 7)
	699.7 – 715.3 MHz (LTE Band 12)
	2535 – 2655 MHz (LTE Band41)
	2402 – 2480 MHz (Bluetooth)
	2412 – 2462 MHz (Wi-Fi 2.4G)
	5150-5825 MHz (Wi-Fi 5G)
GPRS/EDGE Multislot Class:	12
GPRS capability Class:	B
Test device Production information:	Production unit
Device type:	Portable device
Antenna type:	Integrated antenna
Hotspot mode:	Support

4.2 Internal Identification of EUT used during the test

EUT ID*	IMEI	HW Version	SW Version
EUT1	356136100026196	V0.3	T295XXU0ASE8
EUT2	356136100026964	V0.3	T295XXU0ASE8
EUT3	356136100025768	V0.3	T295XXU0ASE8
EUT4	356136100025305	V0.3	T295XXU0ASE8
EUT5	356136100027319	V0.3	T295XXU0ASE8
EUT6	356136100025768	V0.3	T295XXU0ASE8
EUT7	356136100026998	V0.3	T295XXU0ASE8

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

Note: It is performed to test SAR with the EUT1-5 and conducted power with the EUT6&7

4.3 Internal Identification of AE used during the test

AE ID*	Description	Model	SN	Manufacturer
AE1	Battery	SWD-WT-N8	/	Sunwoda Electronic Co., Ltd .
AE2	Battery	SCUD-WT-N8	/	SCUD(Fujian) Electronic Co., Ltd.
AE3	Headset	GH59-15054A	/	WATA

*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

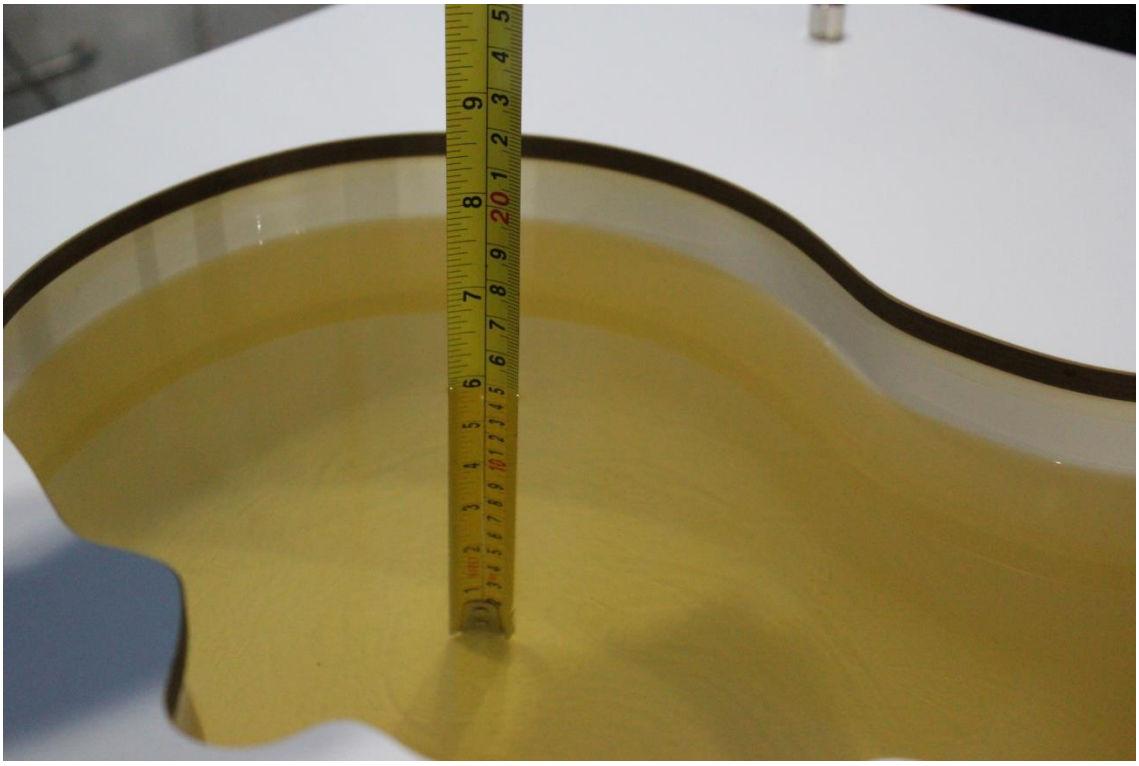
Table 7.1: Targets for tissue simulating liquid

Frequency(MHz)	Liquid Type	Conductivity(σ)	± 5% Range	Permittivity(ε)	± 5% Range
750	Head	0.89	0.85～0.93	41.94	39.8～44.0
750	Body	0.96	0.91～1.01	55.5	52.7～58.3
835	Head	0.90	0.86～0.95	41.5	39.4～43.6
835	Body	0.97	0.92～1.02	55.2	52.4～58.0
1750	Head	1.37	1.30～1.44	40.08	38.1～42.1
1750	Body	1.49	1.42～1.56	53.4	50.7～56.1
1900	Head	1.40	1.33～1.47	40.0	38.0～42.0
1900	Body	1.52	1.44～1.60	53.3	50.6～56.0
2300	Head	1.67	1.59～1.75	39.47	37.5～41.4
2300	Body	1.85	1.76～1.94	52.8	50.2～55.4
2450	Head	1.80	1.71～1.89	39.2	37.2～41.2
2450	Body	1.95	1.85～2.05	52.7	50.1～55.3
2600	Head	1.96	1.86～2.06	39.01	37.1～41.0
2600	Body	2.16	2.05～2.27	52.5	49.9～55.1
5250	Head	4.71	4.47～4.95	35.93	34.1～37.7
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

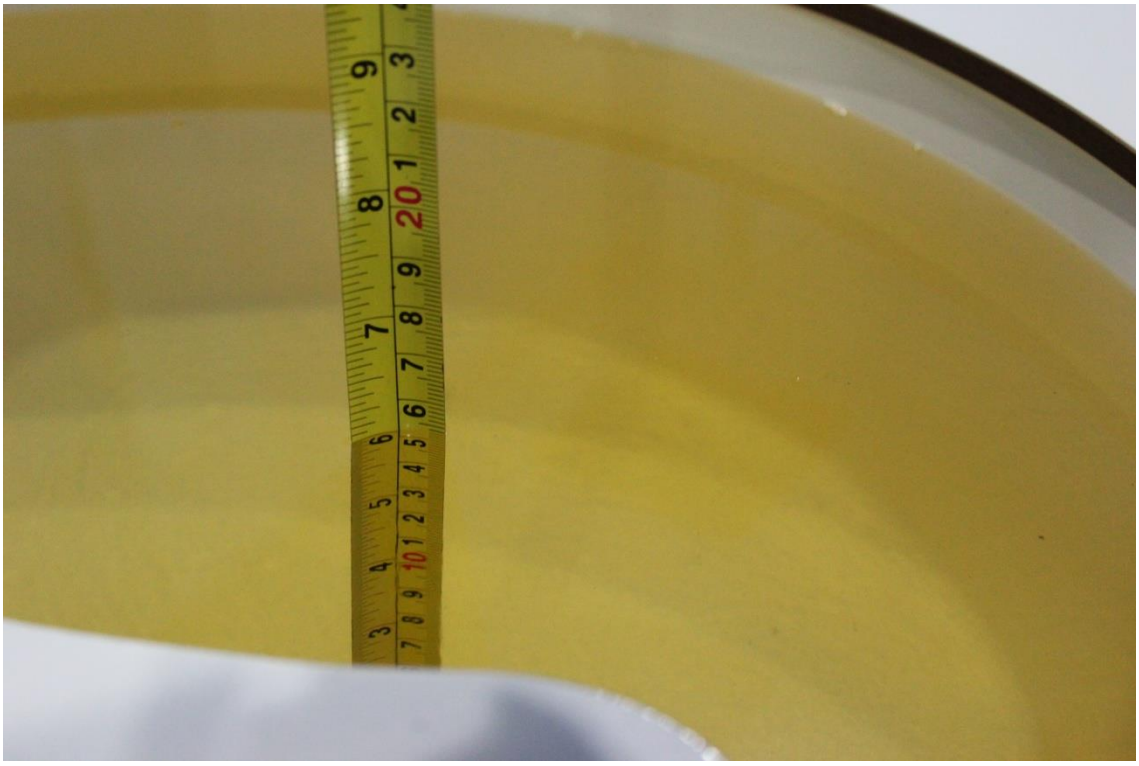
7.2 Dielectric Performance

Table 7.2: Dielectric Performance of Tissue Simulating Liquid

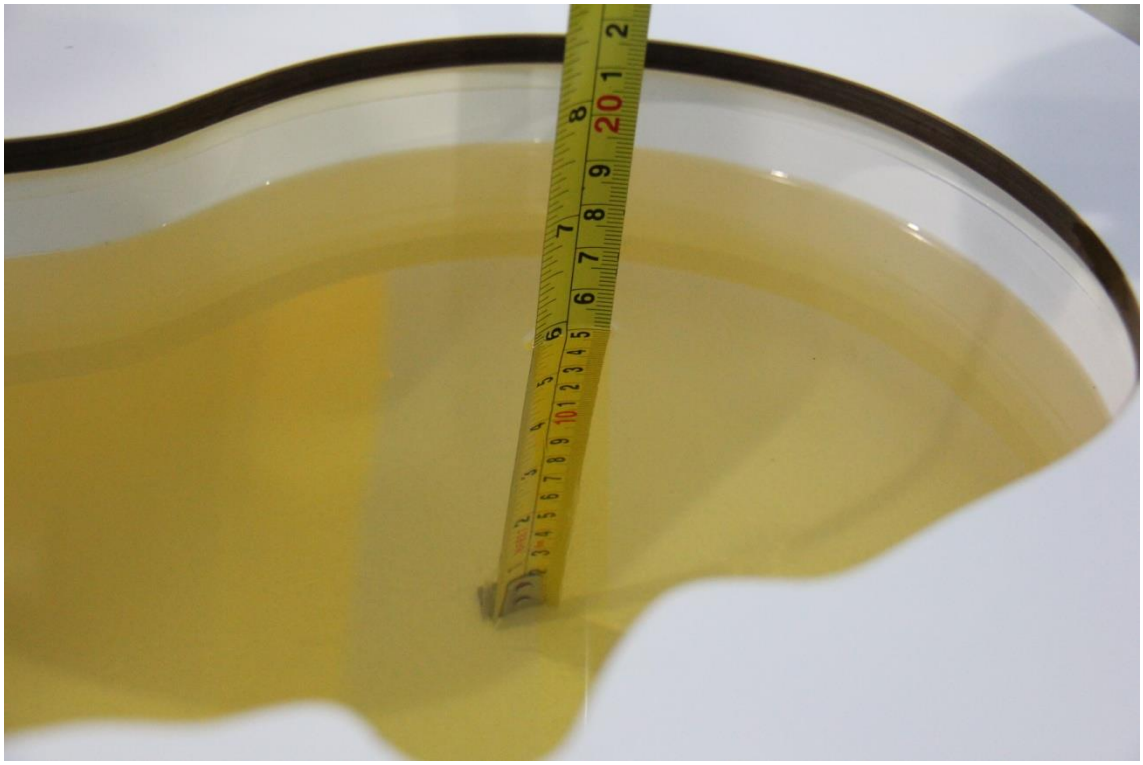
Measurement Date (yyyy-mm-dd)	Type	Frequency	Permittivity ε	Drift (%)	Conductivity σ (S/m)	Drift (%)
2019-5-16	Head	750 MHz	42.21	0.64	0.891	0.11
	Body	750 MHz	56.52	1.84	0.954	-0.63
2019-5-17	Head	835 MHz	41.56	0.14	0.913	1.44
	Body	835 MHz	56.11	1.65	0.971	0.10
2019-5-18	Head	1750 MHz	40.31	0.57	1.351	-1.39
	Body	1750 MHz	53.42	0.04	1.511	1.41
2019-5-19	Head	1900 MHz	40.81	2.03	1.421	1.50
	Body	1900 MHz	52.21	-2.05	1.517	-0.20
2019-5-20	Head	2450 MHz	38.41	-2.02	1.816	0.89
	Body	2450 MHz	51.89	-1.54	1.977	1.38
2019-5-21	Head	2600 MHz	37.99	-2.61	1.959	-0.05
	Body	2600 MHz	52.31	-0.36	2.151	-0.42
2019-5-22	Head	5250 MHz	36.28	0.97	4.726	0.34
	Body	5250 MHz	47.44	-2.99	5.259	-1.88
	Head	5600 MHz	35.73	0.56	5.199	2.54
	Body	5600 MHz	46.98	-3.13	5.708	-1.07
	Head	5825 MHz	35.38	0.06	5.414	3.72
	Body	5825 MHz	46.78	-3.15	5.992	0.88



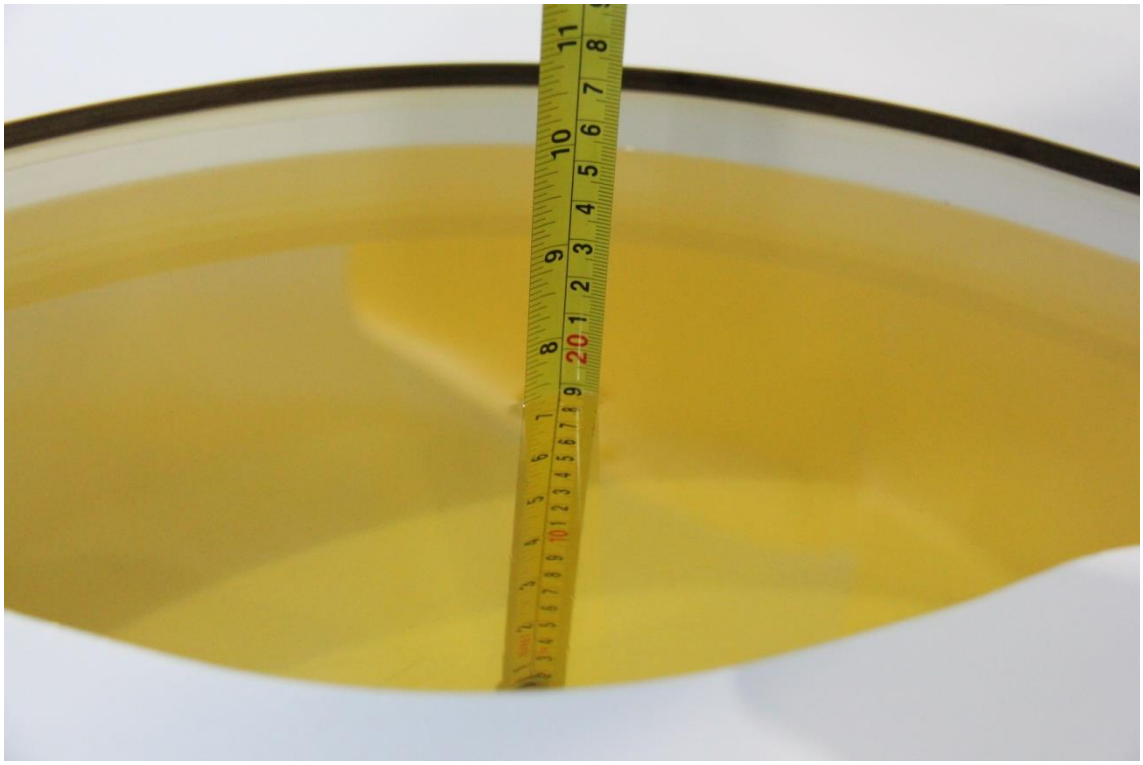
Picture 7-1 Liquid depth in the Head Phantom (750MHz)



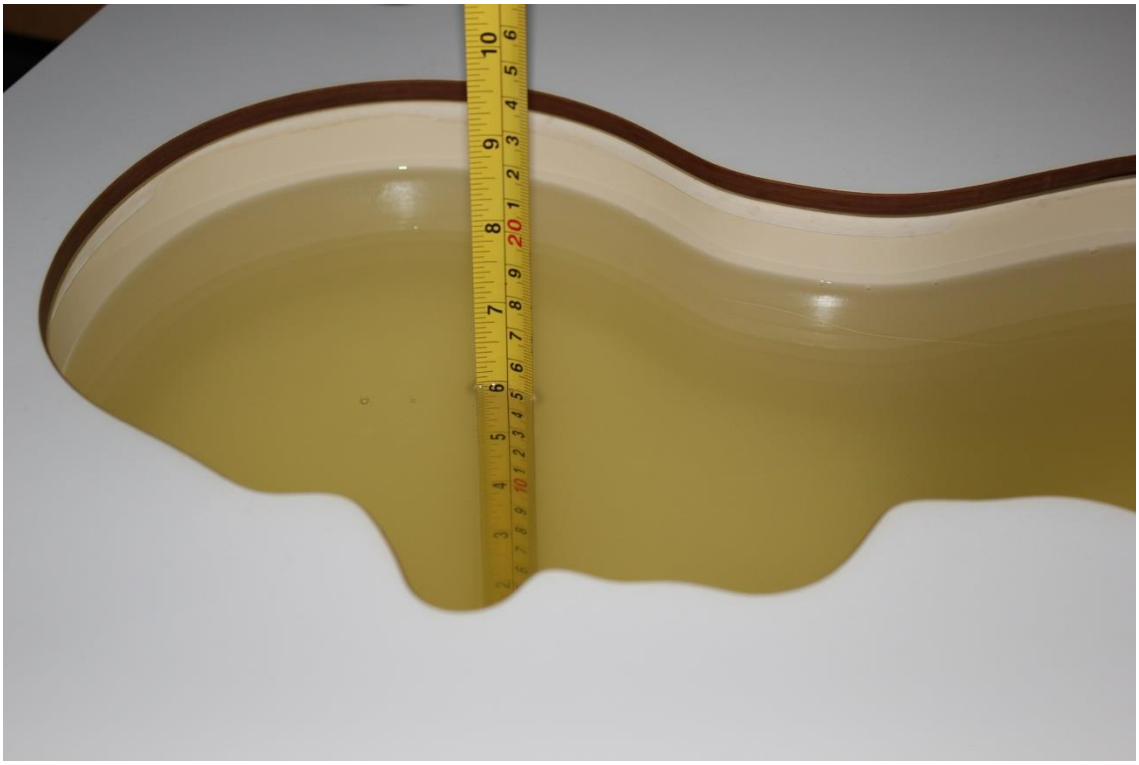
Picture 7-2 Liquid depth in the Flat Phantom (750MHz)



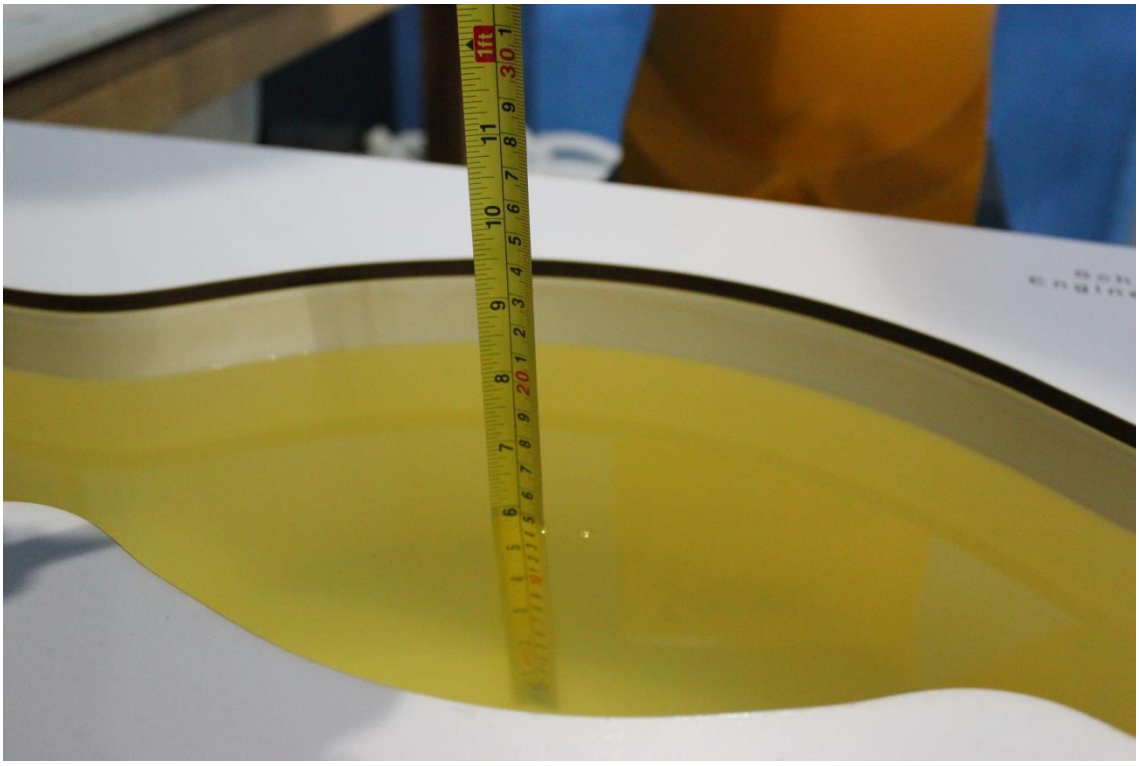
Picture 7-3 Liquid depth in the Head Phantom (835 MHz)



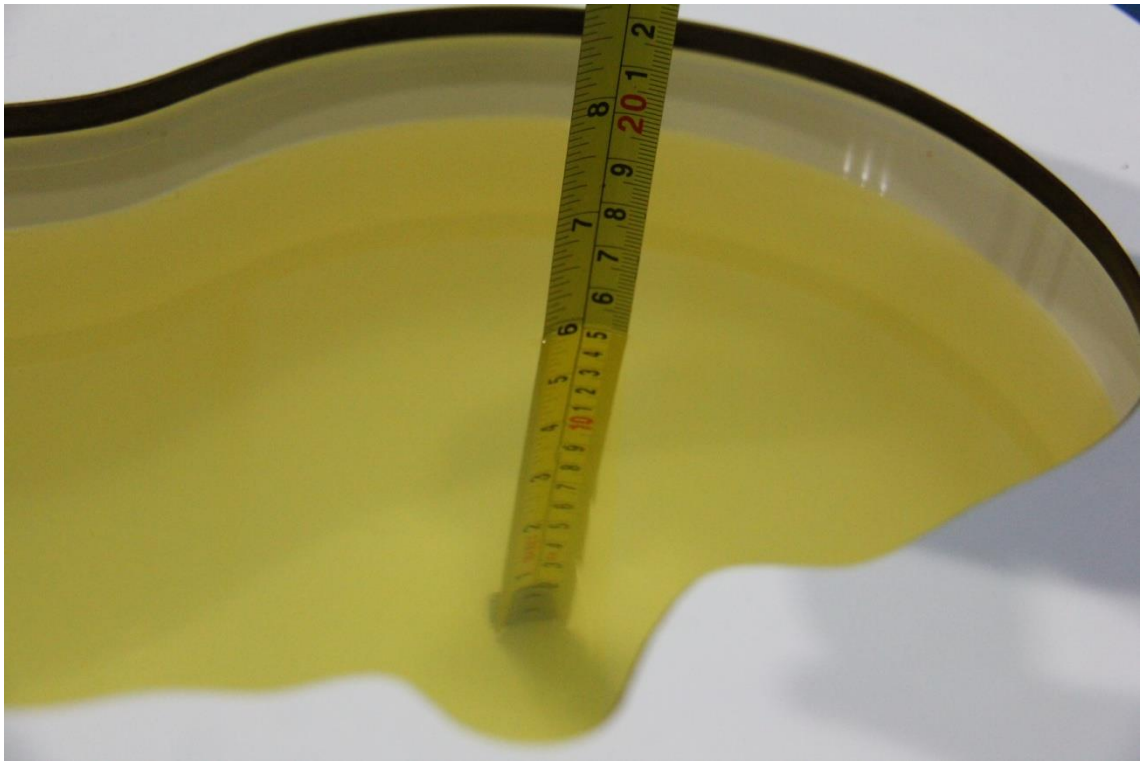
Picture 7-4 Liquid depth in the Flat Phantom (835 MHz)



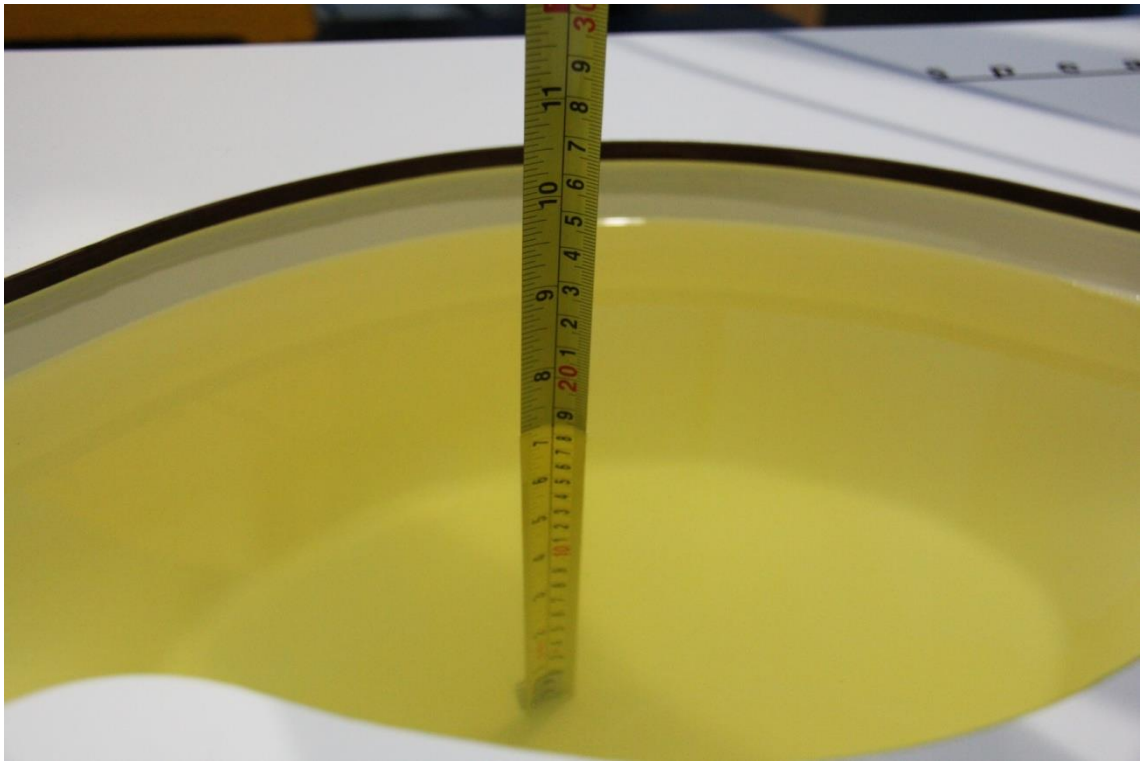
Picture 7-5 Liquid depth in the Head Phantom (1750 MHz)



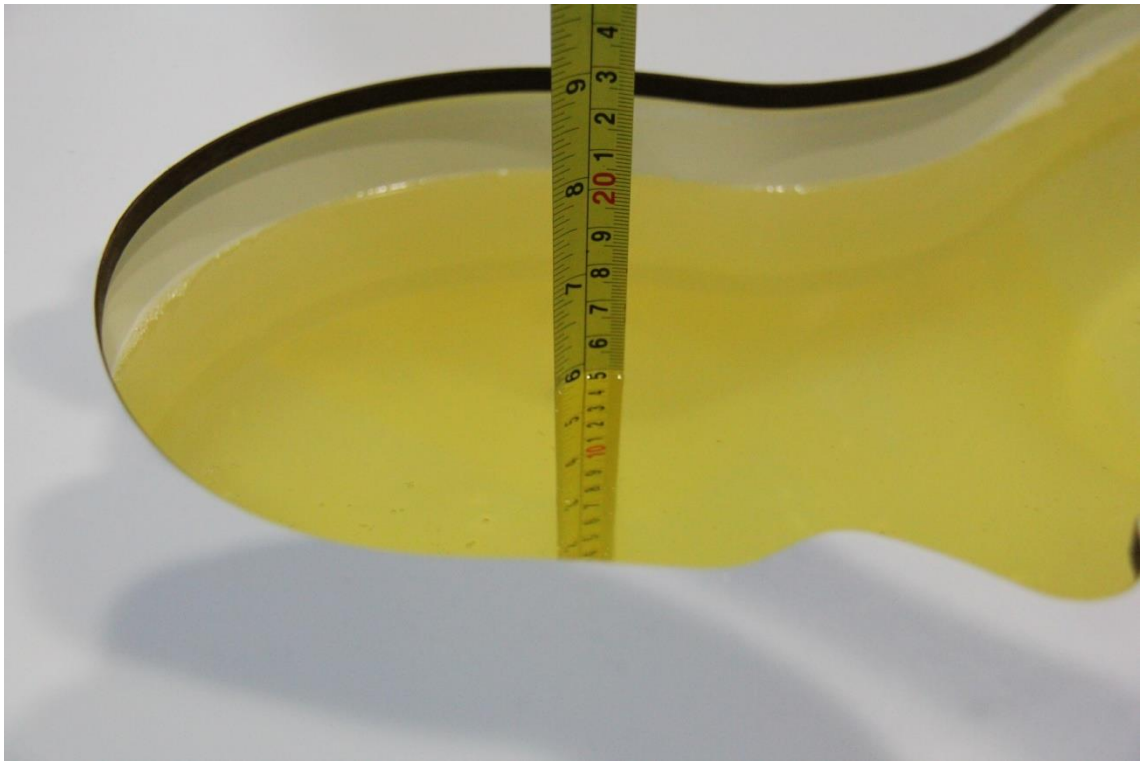
Picture 7-6 Liquid depth in the Flat Phantom (1750MHz)



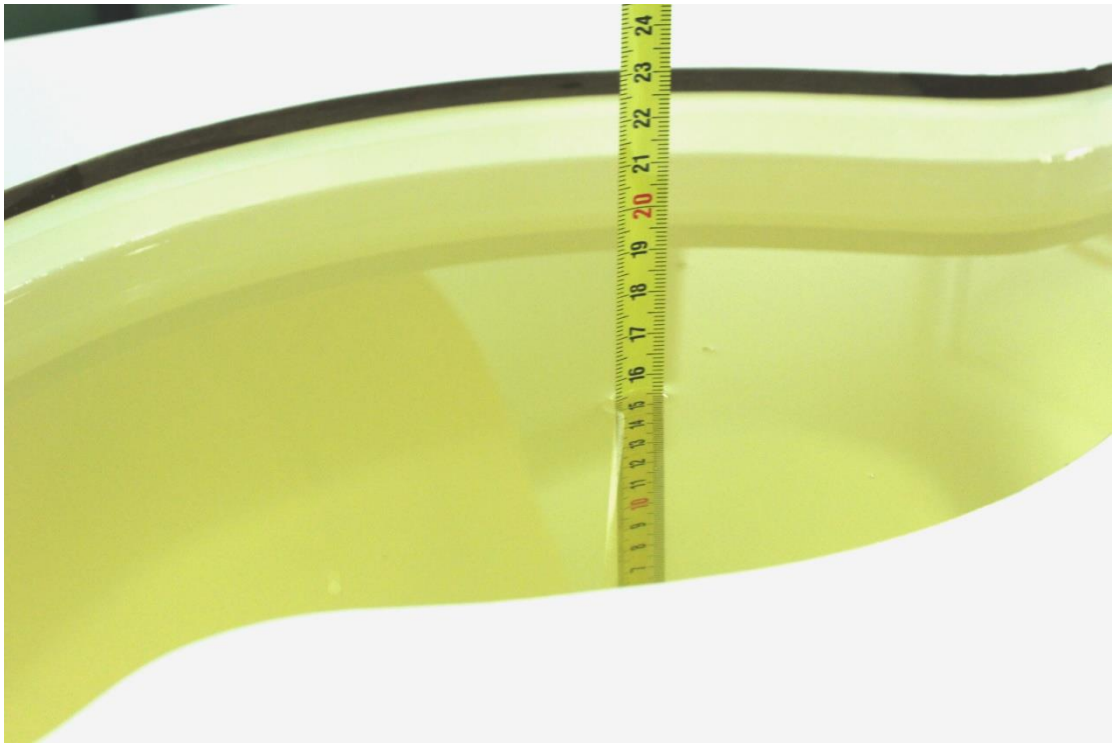
Picture 7-7 Liquid depth in the Head Phantom (1900 MHz)



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

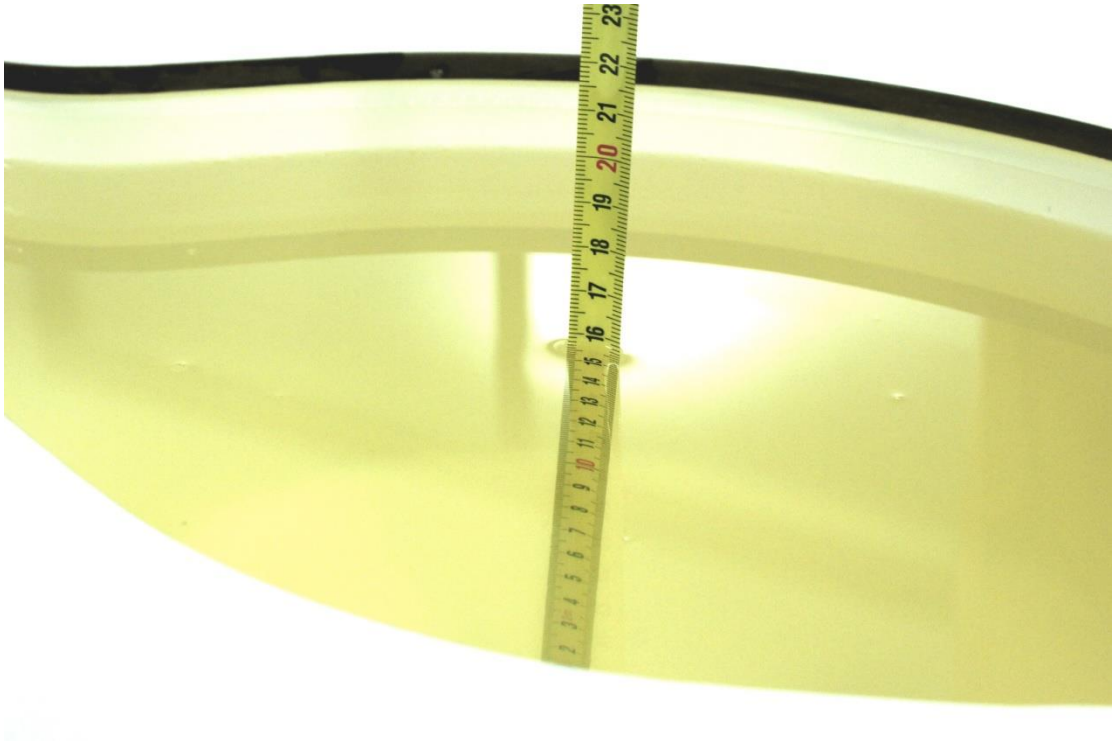


Picture 7-9 Liquid depth in the Head Phantom (2450MHz)

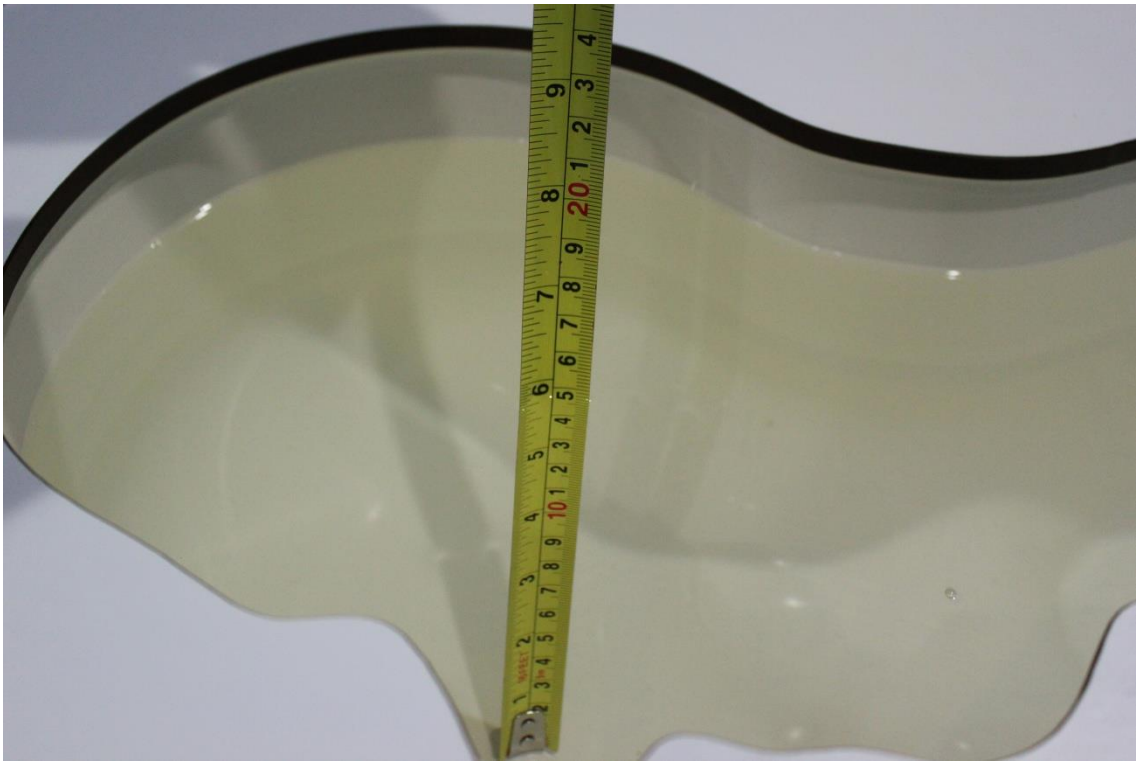


Picture 7-10 Liquid depth in the Flat Phantom (2450MHz)

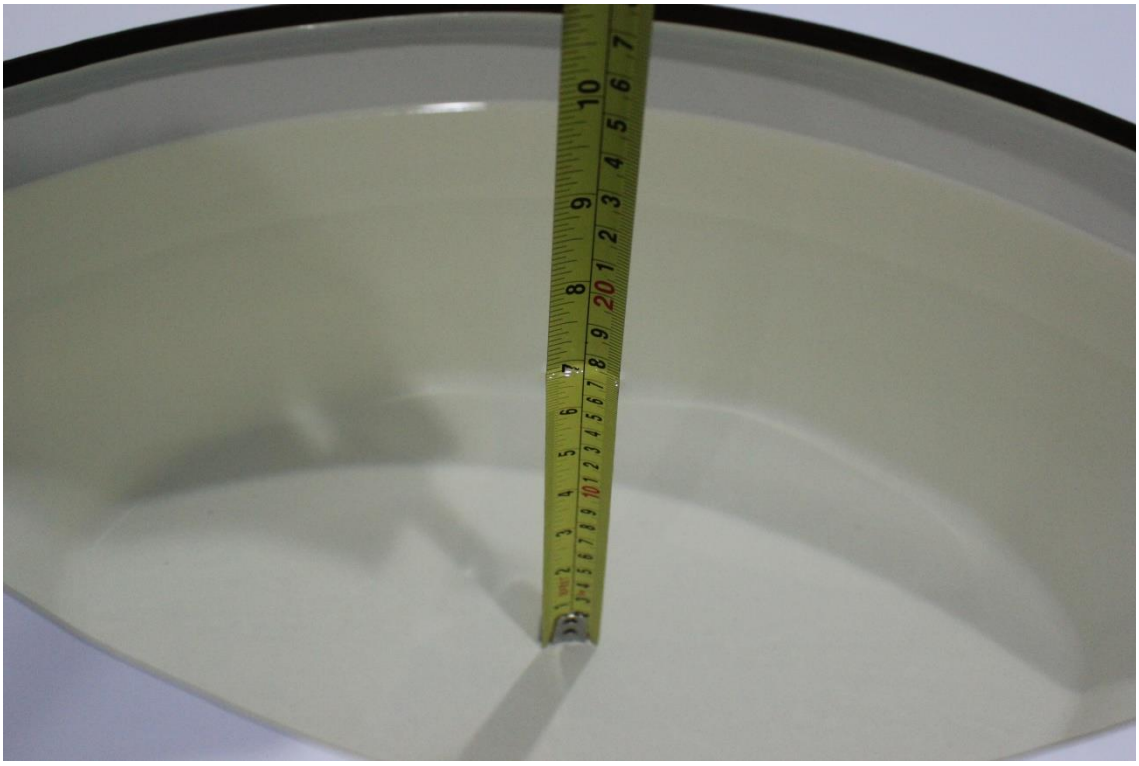
Picture 7-11 Liquid depth in the Head Phantom (2600 MHz Head)



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



Picture 7-13 Liquid depth in the Head Phantom (5GHz)

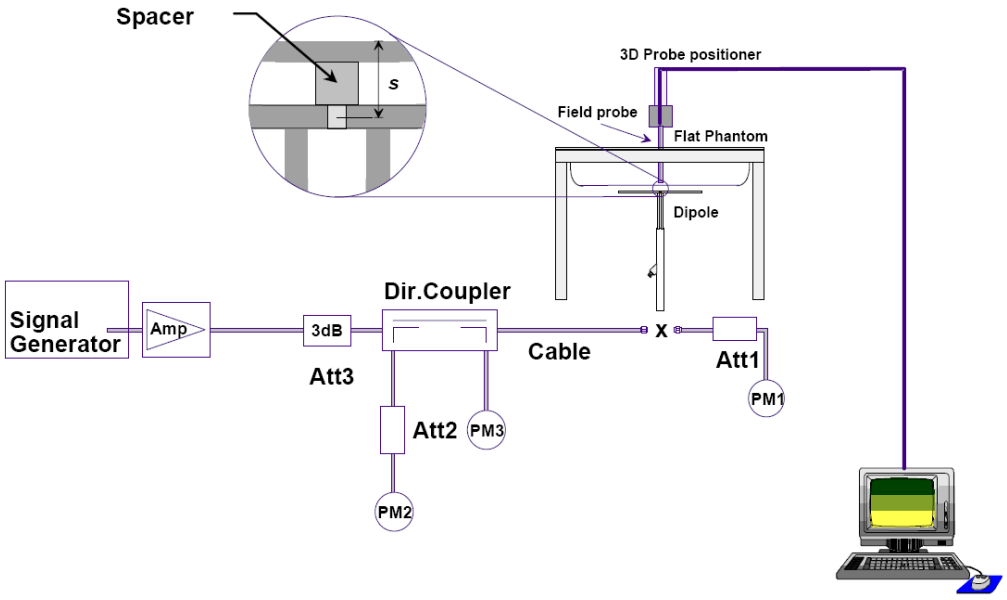


Picture 7-14 Liquid depth in the Flat Phantom (5GHz)

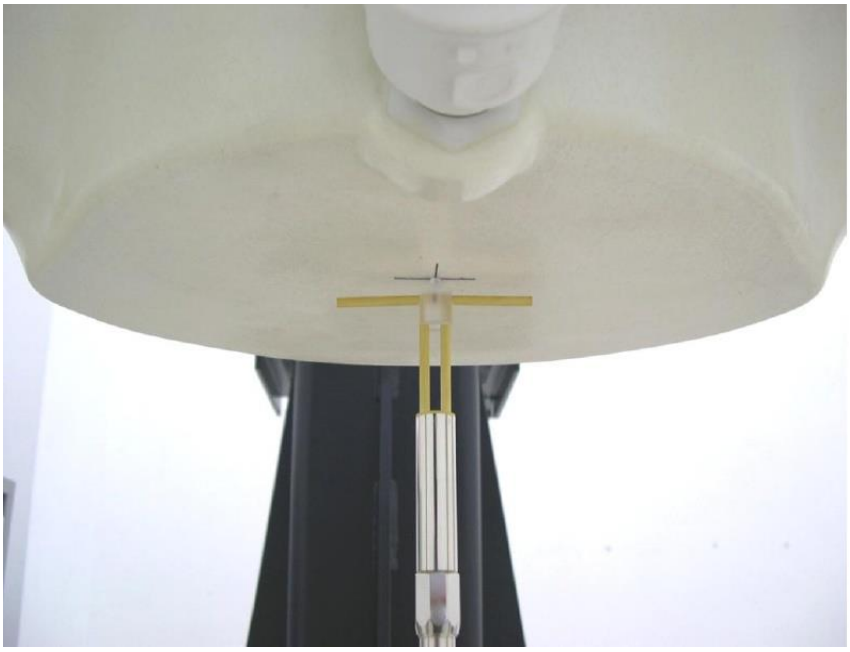
8 System verification

8.1 System Setup

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



Picture 8.1 System Setup for System Evaluation



Picture 8.2 Photo of Dipole Setup

8.2 System Verification

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

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

Table 8.1: System Verification of Head

Measurement Date (yyyy-mm-dd)	Frequency	Target value (W/kg)		Measured value(W/kg)		Deviation	
		10 g Average	1 g Average	10 g Average	1 g Average	10 g Average	1 g Average
2019-5-16	750 MHz	5.46	8.33	5.24	8.12	-4.03%	-2.52%
2019-5-17	835 MHz	6.18	9.44	6.04	9.24	-2.27%	-2.12%
2019-5-18	1750 MHz	19.5	36.8	19.1	36.2	-1.95%	-1.63%
2019-5-19	1900 MHz	21.2	40.7	20.7	40.1	-2.26%	-1.52%
2019-5-20	2450 MHz	24.6	52.8	25.5	54.0	3.58%	2.35%
2019-5-21	2600 MHz	25.2	56.7	26.0	58.1	3.02%	2.43%
2019-5-22	5250 MHz	22.5	78.6	22.0	77.7	-2.22%	-1.15%
	5600 MHz	23.4	81.8	23.1	82.0	-1.28%	0.24%
	5750 MHz	22.7	79.8	22.7	81.2	0.00%	1.75%

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
2019-5-16	750 MHz	5.76	8.78	5.56	8.48	-3.47%	-3.42%
2019-5-17	835 MHz	6.36	9.69	6.20	9.44	-2.52%	-2.58%
2019-5-18	1750 MHz	19.6	37.0	19.84	37.72	1.22%	1.95%
2019-5-19	1900 MHz	21.3	40.1	21.68	41.28	1.78%	2.94%
2019-5-20	2450 MHz	24.1	51.2	24.96	52.88	3.57%	3.28%
2019-5-21	2600 MHz	24.8	55.3	25.68	57.64	3.55%	4.23%
2019-5-22	5250 MHz	21.2	75.6	21.30	75.40	0.47%	-0.26%
	5600 MHz	22.1	79.1	22.50	79.30	1.81%	0.25%
	5750 MHz	20.8	74.5	20.90	74.20	0.48%	-0.40%

9 Measurement Procedures

9.1 Tests to be performed

In order to determine the highest value of the peak spatial-average SAR of a handset, all device positions, configurations and operational modes shall be tested for each frequency band according to steps 1 to 3 below. A flowchart of the test process is shown in picture 9.1.

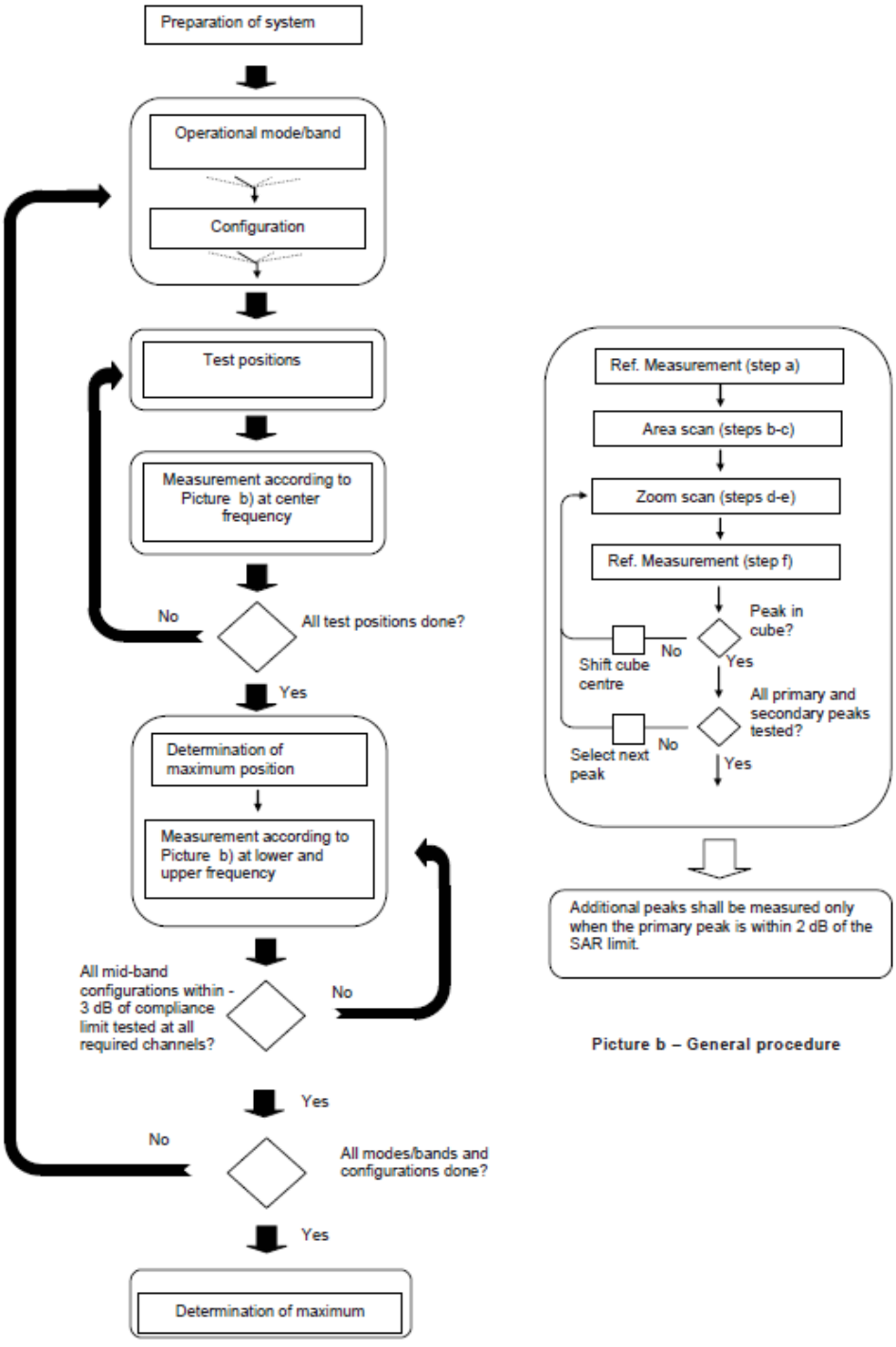
Step 1: The tests described in 9.2 shall be performed at the channel that is closest to the centre of the transmit frequency band (f_c) for:

a) all device positions (cheek and tilt, for both left and right sides of the SAM phantom, as described in annex D),
b) all configurations for each device position in a), e.g., antenna extended and retracted, and
c) all operational modes, e.g., analogue and digital, for each device position in a) and configuration in b) in each frequency band.

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

Step 2: For the condition providing highest peak spatial-average SAR determined in Step 1,perform all tests described in 9.2 at all other test frequencies, i.e., lowest and highest frequencies. In addition, for all other conditions (device position, configuration and operational mode) where the peak spatial-average SAR value determined in Step 1 is within3 dB of the applicable SAR limit, it is recommended that all other test frequencies shall be tested as well.

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



Picture 9.1Block diagram of the tests to be performed

9.2 General Measurement Procedure

The area and zoom scan resolutions specified in the table below must be applied to the SAR measurements and fully documented in SAR reports to qualify for TCB approval. Probe boundary effect error compensation is required for measurements with the probe tip closer than half a probe tip diameter to the phantom surface. Both the probe tip diameter and sensor offset distance must satisfy measurement protocols; to ensure probe boundary effect errors are minimized and the

higher fields closest to the phantom surface can be correctly measured and extrapolated to the phantom surface for computing 1-g SAR. Tolerances of the post-processing algorithms must be verified by the test laboratory for the scan resolutions used in the SAR measurements, according to the reference distribution functions specified in IEEE Std 1528-2003. The results should be documented as part of the system validation records and may be requested to support test results when all the measurement parameters in the following table are not satisfied.

<table>
<tr><td colspan="3"></td><td>≤ 3 GHz</td><td>> 3 GHz</td></tr>
<tr><td colspan="3">Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface</td><td>5 ± 1 mm</td><td>½·δ·ln(2) ± 0.5 mm</td></tr>
<tr><td colspan="3">Maximum probe angle from probe axis to phantom surface normal at the measurement location</td><td>30° ± 1°</td><td>20° ± 1°</td></tr>
<tr><td colspan="3" rowspan="2">Maximum area scan spatial resolution: Δx_{Area}, Δy_{Area}</td><td>≤ 2 GHz: ≤ 15 mm
2 – 3 GHz: ≤ 12 mm</td><td>3 – 4 GHz: ≤ 12 mm
4 – 6 GHz: ≤ 10 mm</td></tr>
<tr><td colspan="2">When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.</td></tr>
<tr><td colspan="3">Maximum zoom scan spatial resolution: Δx_{Zoom}, Δy_{Zoom}</td><td>≤ 2 GHz: ≤ 8 mm
2 – 3 GHz: ≤ 5 mm*</td><td>3 – 4 GHz: ≤ 5 mm*
4 – 6 GHz: ≤ 4 mm*</td></tr>
<tr><td rowspan="3">Maximum zoom scan spatial resolution, normal to phantom surface</td><td colspan="2">uniform grid: $\Delta z_{Zoom}(n)$</td><td>≤ 5 mm</td><td>3 – 4 GHz: ≤ 4 mm
4 – 5 GHz: ≤ 3 mm
5 – 6 GHz: ≤ 2 mm</td></tr>
<tr><td rowspan="2">graded grid</td><td>$\Delta z_{Zoom}(1)$: between 1st two points closest to phantom surface</td><td>≤ 4 mm</td><td>3 – 4 GHz: ≤ 3 mm
4 – 5 GHz: ≤ 2.5 mm
5 – 6 GHz: ≤ 2 mm</td></tr>
<tr><td>$\Delta z_{Zoom}(n>1)$: between subsequent points</td><td colspan="2">≤ 1.5·$\Delta z_{Zoom}(n-1)$</td></tr>
<tr><td>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.

TDD test:

TDD testing is performed using guidance from FCC KDB 941225 D05 v02r05 and the SAR test guidance provided in April 2013 TCB works hop notes. TDD is tested at the highest duty factor using UL-DL configuration 0 with special subframe configuration 6 and applying the FDD LTE procedures in KDB 941225 D05 v02r05. SAR testing is performed using the extended cyclic prefix listed in 3GPP TS 36.211.

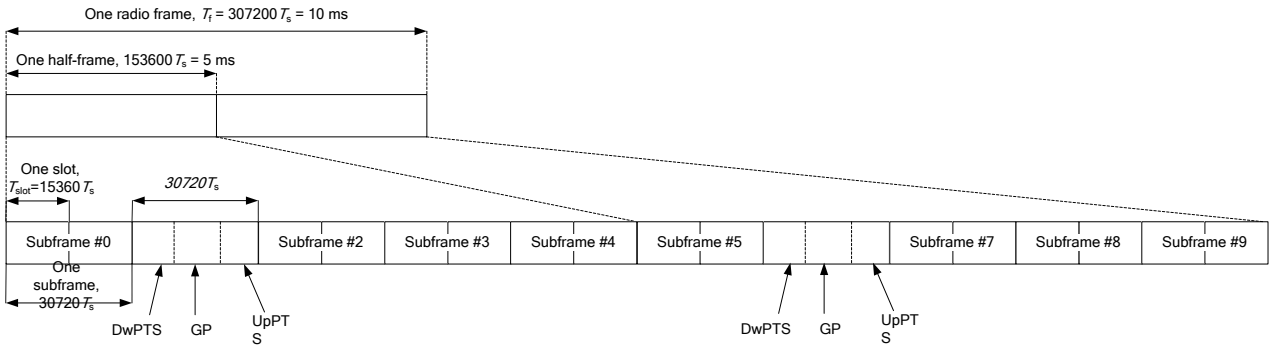


Figure 9.2: Frame structure type 2 (for 5 ms switch-point periodicity)

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

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

Table 9.2: Uplink-downlink configurations

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

Duty factor is calculated by:

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

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

= 0.633

According to the KDB 447498 D01, SAR should be evaluated at more than 3 frequencies for devices supporting transmit bands wider than 100MHz. Oct.2014 FCC-TCB conference notes (Dec. 2014 rev.) specifies the 5 test channels to use for 3GPP band 41 SAR evaluation.

9.5 Bluetooth & Wi-Fi Measurement Procedures for SAR

Normal network operating configurations are not suitable for measuring the SAR of 802.11 transmitters in general. Unpredictable fluctuations in network traffic and antenna diversity conditions can introduce undesirable variations in SAR results. The SAR for these devices should be measured using chipset based test mode software to ensure that the results are consistent and reliable.
Chipset based test mode software is hardware dependent and generally varies among manufacturers. The device operating parameters established in a test mode for SAR measurements must be identical to those programmed in production units, including output power levels, amplifier gain settings and other RF performance tuning parameters. The test frequencies should correspond to actual channel frequencies defined for domestic use. SAR for devices with switched diversity should be measured with only one antenna transmitting at a time during each SAR measurement, according to a fixed modulation and data rate. The same data pattern should be used for all measurements.

9.6 Power Drift

To control the output power stability during the SAR test, DASY4 system calculates the power drift by measuring the E-field at the same location at the beginning and at the end of the measurement for each test position. These drift values can be found in section14 labeled as: (Power Drift [dB]). This ensures that the power drift during one measurement is within 5%.

10 Area Scan Based 1-g SAR

10.1 Requirement of KDB

According to the KDB447498 D01 v05, when the implementation is based the specific polynomial fit
algorithm as presented at the 29th Bioelectromagnetics Society meeting (2007) and the estimated 1-gSAR is ≤ 1.2 W/kg, a zoom scan measurement is not required provided it is also not needed for any other purpose; for example, if the peak SAR location required for simultaneous transmission SAR test exclusion can be determined accurately by the SAR system or manually to discriminate between distinctive peaks and scattered noisy SAR distributions from area scans.

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

10.2 Fast SAR Algorithms

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

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

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

Both algorithms are implemented in DASY software.

11 Conducted Output Power

11.1 GSM Measurement result

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

Normal Power

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

GSM 850	Measured Power (dBm)			Tune up	calculation	Averaged Power (dBm)		
Speech (GMSK)	251	190	128			251	190	128
1 Txslot	33.32	33.25	33.11	33.50	/	/	/	/
GSM 850	Measured Power (dBm)				calculation	Averaged Power (dBm)		
GPRS (GMSK)	251	190	128			251	190	128
1 Txslot	32.69	32.58	32.74	33.50	-9.03	23.66	23.55	23.71
2 Txslots	31.35	31.21	31.07	31.50	-6.02	25.33	25.19	25.05
3Txslots	28.65	28.85	28.69	29.50	-4.26	24.39	24.59	24.43
4 Txslots	27.49	27.71	27.64	28.50	-3.01	24.48	24.70	24.63
GSM 850	Measured Power (dBm)				calculation	Averaged Power (dBm)		
EGPRS (GMSK)	251	190	128			251	190	128
1 Txslot	32.67	32.55	32.70	33.50	-9.03	23.64	23.52	23.67
2 Txslots	31.31	31.17	31.01	31.50	-6.02	25.29	25.15	24.99
3Txslots	28.77	28.79	28.62	29.50	-4.26	24.51	24.53	24.36
4 Txslots	27.51	27.66	27.57	28.50	-3.01	24.50	24.65	24.56
GSM 850	Measured Power (dBm)				calculation	Averaged Power (dBm)		
EGPRS (8PSK)	251	190	128			251	190	128
1 Txslot	26.91	26.97	26.96	27.00	-9.03	17.88	17.94	17.93
2 Txslots	24.21	24.13	24.21	24.50	-6.02	18.19	18.11	18.19
3Txslots	23.32	23.53	23.62	23.50	-4.26	19.06	19.27	19.36
4 Txslots	21.47	21.40	21.46	21.50	-3.01	18.46	18.39	18.45
PCS1900	Measured Power (dBm)			Tune up	calculation	Averaged Power (dBm)		
Speech (GMSK)	810	661	512			810	661	512
1 Txslot	30.48	30.49	30.34	30.50	/	/	/	/
PCS1900	Measured Power (dBm)				calculation	Averaged Power (dBm)		
GPRS (GMSK)	810	661	512			810	661	512
1 Txslot	30.22	30.05	30.22	30.50	-9.03	21.19	21.02	21.19
2 Txslots	28.33	28.39	28.44	30.50	-6.02	22.31	22.37	22.42
3Txslots	26.55	26.59	26.59	29.00	-4.26	22.39	22.33	22.33
4 Txslots	25.45	25.40	25.48	27.00	-3.01	22.44	22.39	22.47
PCS1900	Measured Power (dBm)				calculation	Averaged Power (dBm)		
EGPRS (GMSK)	810	661	512			810	661	512

1 Txslot	30.36	30.50	30.23	30.50	-9.03	21.33	21.47	21.20
2 Txslots	28.50	28.56	28.66	30.50	-6.02	22.48	22.54	22.64
3Txslots	26.63	26.45	26.45	29.00	-4.26	22.37	22.19	22.19
4 Txslots	25.48	25.51	25.51	27.00	-3.01	22.47	22.50	22.50
PCS1900	Measured Power (dBm)				calculation	Averaged Power (dBm)		
EGPRS (8PSK)	810	661	512			810	661	512
1 Txslot	25.06	25.28	25.26	26.00	-9.03	16.03	16.25	16.23
2 Txslots	23.25	23.27	23.38	23.50	-6.02	17.23	17.25	17.36
3Txslots	22.97	22.88	22.97	23.00	-4.26	18.71	18.62	18.71
4 Txslots	20.94	20.94	20.91	21.00	-3.01	17.93	17.93	17.90

NOTES:

1) Division Factors

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

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

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

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

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

According to the conducted power as above, the body measurements are performed with 2Txslots for GSM850 and 4Txslots for GSM1900.

Low Power

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

GSM 850	Measured Power (dBm)			Tune up	calculation	Averaged Power (dBm)		
Speech (GMSK)	251	190	128			251	190	128
1 Txslot	24.79	24.68	24.52	25.50	/	/	/	/
GSM 850	Measured Power (dBm)				calculation	Averaged Power (dBm)		
GPRS (GMSK)	251	190	128			251	190	128
1 Txslot	24.85	24.73	24.59	25.50	-9.03	15.82	15.70	15.56
2 Txslots	22.34	22.22	22.37	23.50	-6.02	16.32	16.20	16.35
3Txslots	20.23	20.12	20.08	21.50	-4.26	15.97	15.86	15.82
4 Txslots	19.15	19.06	19.12	20.50	-3.01	16.14	16.05	16.11
GSM 850	Measured Power (dBm)				calculation	Averaged Power (dBm)		
EGPRS (GMSK)	251	190	128			251	190	128
1 Txslot	24.78	24.66	24.54	25.50	-9.03	15.75	15.63	15.51
2 Txslots	22.29	22.27	22.35	23.50	-6.02	16.27	16.25	16.33
3Txslots	20.20	20.20	20.08	21.50	-4.26	15.94	15.94	15.82
4 Txslots	19.06	19.06	19.17	20.50	-3.01	16.05	16.05	16.16
PCS1900	Measured Power (dBm)			Tune up	calculation	Averaged Power (dBm)		
Speech (GMSK)	810	661	512			810	661	512
1 Txslot	20.87	20.73	20.71	21.50	/	/	/	/

PCS1900	Measured Power (dBm)				calculation	Averaged Power (dBm)		
GPRS (GMSK)	810	661	512			810	661	512
1 Txslot	20.85	20.69	20.67	21.50	-9.03	11.82	11.66	11.64
2 Txslots	18.00	17.81	17.72	19.00	-6.02	11.98	11.79	11.70
3Txslots	15.89	15.74	15.67	17.00	-4.26	11.63	11.48	11.41
4 Txslots	14.55	14.52	14.55	16.50	-3.01	11.54	11.51	11.54
PCS1900	Measured Power (dBm)				calculation	Averaged Power (dBm)		
EGPRS (GMSK)	810	661	512			810	661	512
1 Txslot	20.82	20.67	20.68	21.50	-9.03	11.79	11.64	11.65
2 Txslots	17.86	17.82	17.85	19.00	-6.02	11.84	11.80	11.83
3Txslots	15.88	15.54	15.51	17.00	-4.26	11.62	11.28	11.25
4 Txslots	14.57	14.58	14.56	16.50	-3.01	11.56	11.57	11.55

NOTES:

1) Division Factors

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

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

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

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

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

According to the conducted power as above, the body measurements are performed with 2Txslots for GSM850 and 2Txslots for GSM1900.

11.2 WCDMA Measurement result

Normal power

Table 11.2-1: The conducted Power for WCDMA

Item	band	FDDV result			
	ARFCN	4132 (826.4MHz)	4182 (836.4MHz)	4233 (846.6MHz)	Tune up
WCDMA	\	23.48	23.60	23.50	24.00
HSUPA	1	21.42	21.56	21.37	22.90
	2	20.72	20.81	20.63	22.20
	3	21.04	21.19	20.93	21.80
	4	21.15	21.21	21.07	22.50
	5	22.35	22.43	22.25	23.00
DC-HSDPA	1	22.15	22.12	22.01	23.20
	2	22.38	22.43	22.16	23.20
	3	21.79	21.81	21.65	22.70
	4	21.76	21.78	21.63	22.60
Item	band	FDDIV result			
	ARFCN	1312 (1712.4MHz)	1412 (1732.4MHz)	1513 (1752.6MHz)	
WCDMA	\	23.78	23.91	23.87	24.00
HSUPA	1	21.78	21.96	21.86	22.00
	2	20.96	21.29	21.07	22.00
	3	20.95	21.17	20.99	22.00
	4	21.47	21.80	21.54	22.00
	5	22.64	22.69	22.54	23.00
DC-HSDPA	1	22.36	22.47	22.41	23.00
	2	22.51	22.68	22.54	23.00
	3	22.13	22.18	22.17	23.00
	4	22.12	22.24	22.18	23.00
Item	band	FDDII result			
	ARFCN	9262 (1852.4MHz)	9400 (1880MHz)	9538 (1907.6MHz)	
WCDMA	\	23.44	23.41	23.39	24.00
HSUPA	1	22.19	22.12	22.15	22.20
	2	21.26	21.32	21.29	21.80
	3	21.31	21.29	21.03	21.30
	4	21.67	21.73	21.63	21.80
	5	22.41	22.40	22.48	22.80
DC-HSDPA	1	22.40	22.42	22.37	22.70
	2	22.43	22.56	22.47	22.70
	3	21.92	21.99	21.97	22.20
	4	21.91	21.97	21.95	22.20

Low power

Table 11.2-2: The conducted Power for WCDMA

Item	band	FDDV result			
	ARFCN	4132 (826.4MHz)	4182 (836.4MHz)	4233 (846.6MHz)	Tune up
WCDMA	\	17.30	17.34	17.28	18.00
HSUPA	1	15.89	15.79	15.70	16.50
	2	14.41	14.39	14.31	16.00
	3	14.70	14.65	14.66	15.80
	4	15.10	15.08	15.01	16.50
	5	16.19	16.31	16.26	17.00
DC-HSDPA	1	16.32	16.25	16.17	17.20
	2	16.39	16.29	16.26	17.20
	3	15.60	15.41	15.34	16.70
	4	15.51	15.42	15.35	16.60
Item	band	FDDIV result			
	ARFCN	1312 (1712.4MHz)	1412 (1732.4MHz)	1513 (1752.6MHz)	
WCDMA	\	12.02	12.30	12.40	13.00
HSUPA	1	10.98	11.51	11.75	12.00
	2	9.88	10.43	10.68	11.00
	3	9.99	10.52	10.76	11.00
	4	10.45	10.99	11.22	12.00
	5	10.90	11.41	11.62	12.00
DC-HSDPA	1	10.90	11.42	11.65	12.00
	2	10.79	11.33	11.56	12.00
	3	10.29	10.83	11.05	12.00
	4	10.30	10.84	11.04	12.00
Item	band	FDDII result			
	ARFCN	9262 (1852.4MHz)	9400 (1880MHz)	9538 (1907.6MHz)	
WCDMA	\	11.19	11.08	11.56	12.00
HSUPA	1	10.28	10.32	10.79	11.00
	2	9.37	9.23	9.76	9.80
	3	9.55	9.43	9.97	10.00
	4	9.52	9.78	9.86	10.00
	5	10.27	10.16	10.67	10.80
DC-HSDPA	1	10.69	10.27	10.69	10.70
	2	10.59	10.14	10.68	10.70
	3	10.07	9.60	10.12	10.20
	4	10.08	9.61	10.15	10.20

11.3 LTE Measurement result

Table 11.3-1: Tune up for LTE Normal power

Band	Tune up (dBm)	
	Normal power	Low power

Band 2	24	13.5
Band 4	24	12.5
Band 5	24	16.5
Band 7	24	13
Band 12	24	16.5
Band 41	24	16

Table 11.3-2: Maximum Power Reduction (MPR) for LTE

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

Normal power

Table 11.3-1: The conducted Power for LTE

LTE Band2

	RB allocation		QPSK	16QAM	64QAM
Bandwidth (MHz)	RB offset (Start RB)	Frequency (MHz)	Actual output power (dBm)	Actual output power (dBm)	Actual output power (dBm)
1.4MHz	1RB-High (5)	1909.3 (19193)	22.78	21.94	21.40
		1880 (18900)	22.65	21.62	21.14
		1850.7 (18607)	22.77	21.57	20.94
	1RB-Middle (3)	1909.3 (19193)	22.89	21.89	21.27
		1880 (18900)	22.71	21.42	21.03
		1850.7 (18607)	22.84	22.09	21.00
	1RB-Low (0)	1909.3 (19193)	22.88	21.73	20.86
		1880 (18900)	22.73	21.32	20.92
		1850.7 (18607)	22.67	21.99	21.13
	3RB-High (3)	1909.3 (19193)	22.86	22.02	21.30
		1880 (18900)	22.81	21.71	21.20
		1850.7 (18607)	22.74	21.73	20.98
	3RB-Middle (1)	1909.3 (19193)	22.99	22.18	21.22
		1880 (18900)	22.82	21.73	21.06
		1850.7 (18607)	22.84	21.71	21.04
	3RB-Low (0)	1909.3 (19193)	22.91	21.92	20.95
		1880 (18900)	22.67	21.77	20.80
		1850.7 (18607)	22.79	21.79	21.14
	6RB (0)	1909.3 (19193)	22.04	21.28	20.27
		1880 (18900)	21.79	20.98	20.01
		1850.7 (18607)	21.72	20.81	20.24
3MHz	1RB-High (14)	1908.5 (19185)	22.64	21.78	21.34
		1880 (18900)	22.88	21.50	21.19
		1851.5 (18615)	22.69	21.70	21.02
	1RB-Middle (7)	1908.5 (19185)	22.87	21.83	21.25
		1880 (18900)	23.02	21.96	21.10
		1851.5 (18615)	22.69	21.51	21.00
	1RB-Low (0)	1908.5 (19185)	22.74	21.74	20.90
		1880 (18900)	22.72	21.34	20.89
		1851.5 (18615)	22.75	22.10	21.21
	8RB-High (7)	1908.5 (19185)	21.74	20.80	20.32
		1880 (18900)	21.72	20.49	20.07
		1851.5 (18615)	21.76	20.53	20.04
	8RB-Middle (4)	1908.5 (19185)	21.83	20.56	20.32
		1880 (18900)	21.75	20.41	20.10
		1851.5 (18615)	21.71	20.70	20.21
	8RB-Low (0)	1908.5 (19185)	21.77	20.77	20.34
		1880 (18900)	21.57	20.45	19.91
		1851.5 (18615)	21.73	20.70	20.22
	15RB (0)	1908.5 (19185)	21.71	20.69	20.31
		1880 (18900)	21.71	20.71	20.00
		1851.5 (18615)	21.68	20.81	20.23

5MHz	1RB-High (24)	1907.5	22.72	21.49	21.33
		1880	22.74	21.57	21.20
		1852.5	22.61	21.25	20.96
	1RB-Middle (12)	1907.5	23.02	21.55	21.22
		1880	22.90	21.30	21.13
		1852.5	22.87	21.37	21.04
	1RB-Low (0)	1907.5	23.06	21.32	20.90
		1880	22.86	21.19	20.87
		1852.5	22.49	21.35	21.24
	12RB-High (13)	1907.5	21.75	20.72	20.36
		1880	21.80	20.74	20.15
		1852.5	21.75	20.62	20.05
	12RB-Middle (6)	1907.5	21.88	20.94	20.25
		1880	21.82	20.86	20.21
		1852.5	21.70	20.59	20.17
	12RB-Low (0)	1907.5	21.88	20.93	20.28
		1880	21.82	20.77	19.96
		1852.5	21.70	20.59	20.22
	25RB (0)	1907.5	21.79	20.67	20.28
		1880	21.78	20.93	20.06
		1852.5	21.80	20.77	20.19

10MHz	1RB-High (49)	1905 (19150)	22.57	21.54	21.30
		1880 (18900)	22.97	21.75	21.22
		1855 (18650)	22.72	22.20	20.98
	1RB-Middle (24)	1905 (19150)	22.91	22.03	21.27
		1880 (18900)	23.12	22.17	21.12
		1855 (18650)	23.08	21.42	21.07
	1RB-Low (0)	1905 (19150)	22.90	22.06	20.88
		1880 (18900)	22.85	21.67	20.88
		1855 (18650)	22.68	21.15	21.17
	25RB-High (25)	1905 (19150)	21.85	20.94	20.31
		1880 (18900)	21.82	20.89	20.10
		1855 (18650)	21.82	20.95	20.08
	25RB-Middle (12)	1905 (19150)	21.89	21.00	20.27
		1880 (18900)	21.85	21.04	20.15
		1855 (18650)	21.84	21.08	20.21
	25RB-Low (0)	1905 (19150)	21.79	20.80	20.29
		1880 (18900)	21.68	20.94	19.90
		1855 (18650)	21.78	20.90	20.17
	50RB (0)	1905 (19150)	21.79	20.77	20.24
		1880 (18900)	21.71	20.74	20.02
		1855 (18650)	21.79	20.82	20.25
15MHz	1RB-High (74)	1902.5 (19125)	22.60	22.09	21.35
		1880 (18900)	22.60	22.37	21.19
		1857.5 (18675)	22.84	21.73	21.00
	1RB-Middle (37)	1902.5 (19125)	22.77	21.82	21.20
		1880 (18900)	22.56	22.25	21.09
		1857.5 (18675)	22.90	22.17	21.07
	1RB-Low (0)	1902.5 (19125)	22.68	21.19	20.89
		1880 (18900)	22.49	21.59	20.84
		1857.5 (18675)	22.99	21.57	21.20
	36RB-High (38)	1902.5 (19125)	21.91	20.87	20.31
		1880 (18900)	21.80	20.73	20.11
		1857.5 (18675)	21.80	20.68	20.09
	36RB-Middle (19)	1902.5 (19125)	21.98	20.89	20.23
		1880 (18900)	21.66	20.73	20.21
		1857.5 (18675)	21.76	20.78	20.16
	36RB-Low (0)	1902.5 (19125)	21.81	21.09	20.32
		1880 (18900)	21.60	20.64	19.91
		1857.5 (18675)	21.71	20.68	20.16
	75RB (0)	1902.5 (19125)	21.77	20.73	20.25
		1880 (18900)	21.63	20.73	20.05
		1857.5 (18675)	21.78	20.79	20.22

20MHz	1RB-High (99)	1900 (19100)	22.83	21.77	21.37
		1880 (18900)	22.37	21.45	21.22
		1860 (18700)	22.29	21.13	21.01
	1RB-Middle (50)	1900 (19100)	23.12	21.90	21.25
		1880 (18900)	22.61	21.87	21.10
		1860 (18700)	22.68	21.40	21.04
	1RB-Low (0)	1900 (19100)	23.02	21.19	20.91
		1880 (18900)	22.43	21.44	20.88
		1860 (18700)	22.30	21.12	21.21
	50RB-High (50)	1900 (19100)	21.84	20.80	20.35
		1880 (18900)	21.70	20.69	20.12
		1860 (18700)	21.64	20.80	20.10
	50RB-Middle (25)	1900 (19100)	21.95	20.99	20.29
		1880 (18900)	21.74	20.74	20.17
		1860 (18700)	21.80	20.98	20.21
	50RB-Low (0)	1900 (19100)	21.87	20.80	20.31
		1880 (18900)	21.56	20.58	19.96
		1860 (18700)	21.72	20.83	20.20
	100RB (0)	1900 (19100)	21.95	20.79	20.29
		1880 (18900)	21.62	20.66	20.03
		1860 (18700)	21.77	20.84	20.22

LTE BAND4

Bandwidth (MHz)	RB allocation	Frequency (MHz)	QPSK	16QAM	64QAM
	RB offset (Start RB)		Actual output power (dBm)	Actual output power (dBm)	Actual output power (dBm)
1.4MHz	1RB-High (5)	1754.3 (20393)	22.88	21.72	21.68
		1732.5 (20175)	22.99	22.28	21.17
		1710.7 (19957)	22.67	21.27	21.62
	1RB-Middle (3)	1754.3 (20393)	23.02	21.90	21.63
		1732.5 (20175)	23.05	21.74	21.69
		1710.7 (19957)	22.69	21.14	21.43
	1RB-Low (0)	1754.3 (20393)	22.96	21.86	21.52
		1732.5 (20175)	22.95	21.82	21.64
		1710.7 (19957)	22.60	21.37	21.32
	3RB-High (3)	1754.3 (20393)	22.95	21.91	21.57
		1732.5 (20175)	22.99	21.93	21.14
		1710.7 (19957)	22.91	21.66	21.57
	3RB-Middle (1)	1754.3 (20393)	23.05	22.20	21.57
		1732.5 (20175)	23.13	21.58	21.60
		1710.7 (19957)	23.03	21.75	21.49
	3RB-Low (0)	1754.3 (20393)	22.93	22.11	21.49
		1732.5 (20175)	22.99	21.97	21.64
		1710.7 (19957)	22.88	21.77	21.34
	6RB (0)	1754.3 (20393)	22.02	20.99	20.37
		1732.5 (20175)	21.87	21.21	20.26
		1710.7 (19957)	21.78	20.62	20.29

3MHz	1RB-High (14)	1753.5 (20385)	22.86	21.75	21.67
		1732.5 (20175)	22.83	21.95	21.21
		1711.5 (19965)	22.90	21.88	21.52
	1RB-Middle (7)	1753.5 (20385)	22.86	21.80	21.65
		1732.5 (20175)	23.24	22.21	21.68
		1711.5 (19965)	23.00	21.93	21.43
	1RB-Low (0)	1753.5 (20385)	22.85	21.79	21.54
		1732.5 (20175)	23.27	22.05	21.66
		1711.5 (19965)	22.69	22.11	21.27
	8RB-High (7)	1753.5 (20385)	21.67	20.79	20.48
		1732.5 (20175)	21.91	21.17	20.52
		1711.5 (19965)	21.92	20.90	20.56
	8RB-Middle (4)	1753.5 (20385)	21.77	20.76	20.54
		1732.5 (20175)	21.97	21.15	20.54
		1711.5 (19965)	21.92	21.04	20.44
	8RB-Low (0)	1753.5 (20385)	21.71	20.65	20.46
		1732.5 (20175)	22.00	21.26	20.56
		1711.5 (19965)	21.72	20.87	20.43
	15RB (0)	1753.5 (20385)	21.73	20.65	20.32
		1732.5 (20175)	21.88	21.16	20.31
		1711.5 (19965)	21.74	20.84	20.38

5MHz	1RB-High (24)	1752.5 (20375)	22.83	21.77	21.63
		1732.5 (20175)	22.84	21.33	21.22
		1712.5 (19975)	22.53	21.36	21.51
	1RB-Middle (12)	1752.5 (20375)	22.94	21.60	21.64
		1732.5 (20175)	22.97	21.48	21.65
		1712.5 (19975)	23.06	21.32	21.45
	1RB-Low (0)	1752.5 (20375)	23.07	21.38	21.53
		1732.5 (20175)	23.03	21.24	21.74
		1712.5 (19975)	22.48	21.21	21.31
	12RB-High (13)	1752.5 (20375)	21.71	20.76	20.40
		1732.5 (20175)	21.91	20.93	20.47
		1712.5 (19975)	21.82	20.72	20.59
	12RB-Middle (6)	1752.5 (20375)	21.83	20.90	20.51
		1732.5 (20175)	21.93	20.81	20.53
		1712.5 (19975)	21.85	20.74	20.43
	12RB-Low (0)	1752.5 (20375)	21.82	20.81	20.49
		1732.5 (20175)	21.90	20.84	20.54
		1712.5 (19975)	21.75	20.64	20.48
	25RB (0)	1752.5 (20375)	21.83	20.72	20.29
		1732.5 (20175)	21.88	21.03	20.30
		1712.5 (19975)	21.80	20.88	20.30
10MHz	1RB-High (49)	1750 (20350)	22.71	21.64	21.62
		1732.5 (20175)	23.00	21.77	21.16
		1715 (20000)	22.68	21.57	21.56
	1RB-Middle (24)	1750 (20350)	22.81	22.02	21.62
		1732.5 (20175)	23.30	22.64	21.70
		1715 (20000)	22.92	22.37	21.44
	1RB-Low (0)	1750 (20350)	22.66	21.60	21.50
		1732.5 (20175)	22.96	21.77	21.68
		1715 (20000)	22.71	21.56	21.30
	25RB-High (25)	1750 (20350)	21.74	20.89	20.48
		1732.5 (20175)	21.98	20.90	20.43
		1715 (20000)	21.88	21.06	20.56
	25RB-Middle (12)	1750 (20350)	21.79	21.15	20.51
		1732.5 (20175)	21.94	20.93	20.56
		1715 (20000)	21.84	21.04	20.47
	25RB-Low (0)	1750 (20350)	21.73	21.10	20.44
		1732.5 (20175)	21.87	20.87	20.61
		1715 (20000)	21.79	20.84	20.40
	50RB (0)	1750 (20350)	21.78	20.80	20.37
		1732.5 (20175)	21.82	20.91	20.24
		1715 (20000)	21.83	20.77	20.39
15MHz	1RB-High (74)	1747.5 (20325)	22.80	22.61	21.59
		1732.5 (20175)	23.07	21.74	21.23
		1717.5 (20025)	22.74	21.74	21.55
	1RB-Middle (37)	1747.5 (20325)	22.71	22.63	21.59
		1732.5 (20175)	23.10	22.46	21.65
		1717.5 (20025)	22.84	21.86	21.43
	1RB-Low (0)	1747.5 (20325)	22.72	22.55	21.54
		1732.5 (20175)	23.09	21.99	21.65
		1717.5 (20025)	22.60	21.94	21.24
	36RB-High (38)	1747.5 (20325)	21.73	20.83	20.44
		1732.5 (20175)	21.90	20.99	20.42
		1717.5 (20025)	21.92	20.95	20.58
	36RB-Middle (19)	1747.5 (20325)	21.75	20.88	20.46
		1732.5 (20175)	21.95	21.01	20.53
		1717.5 (20025)	21.91	21.00	20.50
	36RB-Low (0)	1747.5 (20325)	21.65	20.74	20.49
		1732.5 (20175)	21.82	20.79	20.51
		1717.5 (20025)	21.72	21.00	20.41
	75RB (0)	1747.5 (20325)	21.67	20.76	20.34
		1732.5 (20175)	21.86	20.87	20.28
		1717.5 (20025)	21.68	20.93	20.40

20MHz	1RB-High (99)	1745 (20300)	23.02	21.85	21.65
		1732.5 (20175)	22.55	21.65	21.21
		1720 (20050)	22.50	21.78	21.57
	1RB-Middle (50)	1745 (20300)	23.09	21.84	21.65
		1732.5 (20175)	23.04	21.52	21.67
		1720 (20050)	22.86	21.28	21.48
	1RB-Low (0)	1745 (20300)	22.92	21.58	21.52
		1732.5 (20175)	22.77	21.71	21.71
		1720 (20050)	22.41	21.08	21.30
	50RB-High (50)	1745 (20300)	21.75	20.72	20.45
		1732.5 (20175)	21.94	20.90	20.49
		1720 (20050)	21.94	20.95	20.56
	50RB-Middle (25)	1745 (20300)	21.78	20.86	20.52
		1732.5 (20175)	21.93	20.91	20.60
		1720 (20050)	21.89	20.86	20.49
	50RB-Low (0)	1745 (20300)	21.78	20.86	20.51
		1732.5 (20175)	21.82	20.81	20.58
		1720 (20050)	21.78	20.94	20.47
	100RB (0)	1745 (20300)	21.82	20.90	20.35
		1732.5 (20175)	21.82	20.82	20.28
		1720 (20050)	21.81	20.86	20.36

LTE BAND5

Bandwidth (MHz)	RB allocation RB offset (Start RB)	Frequency (MHz)	QPSK Actual output power (dBm)	16QAM Actual output power (dBm)	64QAM Actual output power (dBm)
1.4MHz	1RB-High (5)	848.3 (20643)	23.46	22.38	21.61
		836.5 (20525)	23.21	22.24	21.51
		824.7 (20407)	23.09	22.25	21.27
	1RB-Middle (3)	848.3 (20643)	23.26	22.41	21.07
		836.5 (20525)	23.21	22.32	21.80
		824.7 (20407)	23.31	22.50	21.60
	1RB-Low (0)	848.3 (20643)	23.47	22.42	21.13
		836.5 (20525)	23.17	22.20	21.63
		824.7 (20407)	23.15	22.03	21.73
	3RB-High (3)	848.3 (20643)	23.35	22.57	21.58
		836.5 (20525)	23.38	21.96	21.43
		824.7 (20407)	23.22	22.51	21.31
	3RB-Middle (1)	848.3 (20643)	23.49	22.67	21.14
		836.5 (20525)	23.36	22.61	21.81
		824.7 (20407)	23.33	22.43	21.65
	3RB-Low (0)	848.3 (20643)	23.45	22.24	21.13
		836.5 (20525)	23.39	22.46	21.68
		824.7 (20407)	23.36	22.36	21.74
	6RB (0)	848.3 (20643)	22.34	21.37	20.76
		836.5 (20525)	22.33	21.19	20.59
		824.7 (20407)	22.40	21.06	20.66

3MHz	1RB-High (14)	847.5 (20635)	23.47	22.40	21.57
		836.5 (20525)	23.60	22.93	21.48
		825.5 (20415)	23.16	22.45	21.29
	1RB-Middle (7)	847.5 (20635)	23.69	22.54	21.10
		836.5 (20525)	23.54	22.74	21.82
		825.5 (20415)	23.30	22.26	21.68
	1RB-Low (0)	847.5 (20635)	23.46	22.52	21.14
		836.5 (20525)	23.40	22.11	21.62
		825.5 (20415)	23.25	22.24	21.73
	8RB-High (7)	847.5 (20635)	22.39	21.60	20.51
		836.5 (20525)	22.36	21.42	20.67
		825.5 (20415)	22.36	21.32	20.32
	8RB-Middle (4)	847.5 (20635)	22.36	21.21	20.61
		836.5 (20525)	22.37	21.37	20.74
		825.5 (20415)	22.33	21.29	20.66
	8RB-Low (0)	847.5 (20635)	22.36	21.32	20.72
		836.5 (20525)	22.39	21.48	20.62
		825.5 (20415)	22.34	21.02	20.63
	15RB (0)	847.5 (20635)	22.42	21.41	20.84
		836.5 (20525)	22.38	21.40	20.56
		825.5 (20415)	22.36	21.35	20.57
5MHz	1RB-High (24)	846.5 (20625)	23.21	22.05	21.54
		836.5 (20525)	23.43	22.08	21.46
		826.5 (20425)	22.97	22.21	21.30
	1RB-Middle (12)	846.5 (20625)	23.78	21.99	21.07
		836.5 (20525)	23.46	21.94	21.76
		826.5 (20425)	23.14	22.41	21.65
	1RB-Low (0)	846.5 (20625)	23.20	21.87	21.19
		836.5 (20525)	23.34	21.91	21.72
		826.5 (20425)	23.04	22.33	21.76
	12RB-High (13)	846.5 (20625)	22.40	21.29	20.50
		836.5 (20525)	22.43	21.26	20.68
		826.5 (20425)	22.36	21.14	20.35
	12RB-Middle (6)	846.5 (20625)	22.45	21.50	20.54
		836.5 (20525)	22.47	21.36	20.72
		826.5 (20425)	22.45	21.36	20.64
	12RB-Low (0)	846.5 (20625)	22.35	21.41	20.79
		836.5 (20525)	22.43	21.37	20.64
		826.5 (20425)	22.37	21.23	20.63
	25RB (0)	846.5 (20625)	22.27	21.36	20.75
		836.5 (20525)	22.40	21.55	20.55
		826.5 (20425)	22.35	21.34	20.62

10MHz	1RB-High (49)	844 (20600)	23.37	22.12	21.60
		836.5 (20525)	23.15	22.40	21.46
		829 (20450)	23.06	22.16	21.31
	1RB-Middle (24)	844 (20600)	23.76	22.09	21.11
		836.5 (20525)	23.43	22.69	21.81
		829 (20450)	23.07	22.25	21.65
	1RB-Low (0)	844 (20600)	23.54	22.47	21.20
		836.5 (20525)	23.09	22.24	21.69
		829 (20450)	23.34	22.33	21.79
	25RB-High (25)	844 (20600)	22.36	21.41	20.50
		836.5 (20525)	22.48	21.67	20.66
		829 (20450)	22.37	21.32	20.39
	25RB-Middle (12)	844 (20600)	22.42	21.58	20.58
		836.5 (20525)	22.38	21.41	20.70
		829 (20450)	22.35	21.26	20.63
	25RB-Low (0)	844 (20600)	22.46	21.32	20.78
		836.5 (20525)	22.37	21.45	20.68
		829 (20450)	22.25	21.28	20.62
	50RB (0)	844 (20600)	22.48	21.33	20.81
		836.5 (20525)	22.35	21.33	20.61
		829 (20450)	22.27	21.27	20.62

LTE BAND7

Bandwidth (MHz)	RB allocation RB offset (Start RB)	Frequency (MHz)	QPSK Actual output power (dBm)	16QAM Actual output power (dBm)	64QAM Actual output power (dBm)
5MHz	1RB-High (24)	2567.5 (21425)	23.19	22.08	21.63
		2535 (21100)	23.66	22.06	21.46
		2502.5 (20775)	23.30	22.21	21.57
	1RB-Middle (12)	2567.5 (21425)	23.84	22.31	21.55
		2535 (21100)	23.81	22.18	21.97
		2502.5 (20775)	23.90	22.79	21.98
	1RB-Low (0)	2567.5 (21425)	23.63	22.02	21.75
		2535 (21100)	23.86	22.04	21.69
		2502.5 (20775)	23.54	22.45	21.29
	12RB-High (13)	2567.5 (21425)	22.46	21.36	20.73
		2535 (21100)	22.56	21.71	20.77
		2502.5 (20775)	22.69	21.62	20.83
	12RB-Middle (6)	2567.5 (21425)	22.44	21.56	20.86
		2535 (21100)	22.56	21.71	20.90
		2502.5 (20775)	22.70	21.75	20.95
	12RB-Low (0)	2567.5 (21425)	22.37	21.52	20.85
		2535 (21100)	22.49	21.66	20.80
		2502.5 (20775)	22.60	21.56	20.75
	25RB (0)	2567.5 (21425)	22.36	21.36	20.66
		2535 (21100)	22.48	21.57	20.67
		2502.5 (20775)	22.68	21.57	20.87

10MHz	1RB-High (49)	2565 (21400)	23.33	22.41	21.65
		2535 (21100)	23.58	22.75	21.48
		2505 (20800)	23.60	22.72	21.59
	1RB-Middle (24)	2565 (21400)	23.68	22.17	21.58
		2535 (21100)	23.64	22.87	21.97
		2505 (20800)	23.88	22.56	22.00
	1RB-Low (0)	2565 (21400)	23.53	22.10	21.75
		2535 (21100)	23.74	22.40	21.71
		2505 (20800)	23.64	22.84	21.29
	25RB-High (25)	2565 (21400)	22.50	21.73	20.79
		2535 (21100)	22.66	21.75	20.68
		2505 (20800)	22.61	21.49	20.90
	25RB-Middle (12)	2565 (21400)	22.55	21.58	20.78
		2535 (21100)	22.60	21.72	20.89
		2505 (20800)	22.70	21.87	20.91
	25RB-Low (0)	2565 (21400)	22.70	21.66	20.82
		2535 (21100)	22.53	21.63	20.73
		2505 (20800)	22.69	21.60	20.70
	50RB (0)	2565 (21400)	22.58	21.63	20.70
		2535 (21100)	22.56	21.59	20.74
		2505 (20800)	22.64	21.53	20.86
15MHz	1RB-High (74)	2562.5 (21375)	23.44	22.65	21.67
		2535 (21100)	23.31	22.47	21.38
		2507.5 (20825)	23.62	22.70	21.63
	1RB-Middle (37)	2562.5 (21375)	23.69	22.87	21.57
		2535 (21100)	23.71	22.56	21.87
		2507.5 (20825)	23.95	22.86	21.94
	1RB-Low (0)	2562.5 (21375)	23.74	22.88	21.75
		2535 (21100)	23.50	22.02	21.68
		2507.5 (20825)	23.57	22.98	21.33
	36RB-High (38)	2562.5 (21375)	22.42	21.40	20.78
		2535 (21100)	22.62	21.62	20.73
		2507.5 (20825)	22.59	21.51	20.86
	36RB-Middle (19)	2562.5 (21375)	22.62	21.66	20.80
		2535 (21100)	22.59	21.59	20.95
		2507.5 (20825)	22.63	21.45	20.92
	36RB-Low (0)	2562.5 (21375)	22.58	21.58	20.84
		2535 (21100)	22.48	21.68	20.79
		2507.5 (20825)	22.62	21.48	20.73
	75RB (0)	2562.5 (21375)	22.44	21.49	20.73
		2535 (21100)	22.54	21.62	20.71
		2507.5 (20825)	22.57	21.55	20.84

20MHz	1RB-High (99)	2560 (21350)	23.33	22.19	21.66
		2535 (21100)	23.24	22.16	21.45
		2510 (20850)	23.06	21.92	21.63
	1RB-Middle (50)	2560 (21350)	23.91	22.69	21.61
		2535 (21100)	23.42	22.48	21.94
		2510 (20850)	23.46	22.58	21.96
	1RB-Low (0)	2560 (21350)	23.75	22.18	21.82
		2535 (21100)	23.19	22.45	21.70
		2510 (20850)	23.21	22.11	21.32
	50RB-High (50)	2560 (21350)	22.38	21.33	20.75
		2535 (21100)	22.50	21.45	20.75
		2510 (20850)	22.50	21.44	20.90
	50RB-Middle (25)	2560 (21350)	22.48	21.66	20.84
		2535 (21100)	22.49	21.43	20.91
		2510 (20850)	22.61	21.72	20.91
	50RB-Low (0)	2560 (21350)	22.48	21.54	20.83
		2535 (21100)	22.57	21.44	20.78
		2510 (20850)	22.48	21.54	20.74
	100RB (0)	2560 (21350)	22.39	21.44	20.72
		2535 (21100)	22.48	21.49	20.72
		2510 (20850)	22.50	21.43	20.87

LTE BAND12

Bandwidth (MHz)	RB allocation RB offset (Start RB)	Frequency (MHz)	QPSK Actual output power (dBm)	16QAM Actual output power (dBm)	64QAM Actual output power (dBm)
1.4MHz	1RB-High (5)	715.3 (23173)	23.23	22.47	21.47
		707.5 (23095)	23.39	22.60	21.49
		699.7 (23017)	23.09	21.95	21.56
	1RB-Middle (3)	715.3 (23173)	23.28	22.52	21.63
		707.5 (23095)	23.35	22.55	21.68
		699.7 (23017)	23.24	22.29	21.62
	1RB-Low (0)	715.3 (23173)	23.22	22.25	21.36
		707.5 (23095)	23.36	22.46	21.41
		699.7 (23017)	23.14	22.20	21.21
	3RB-High (3)	715.3 (23173)	23.31	22.57	21.41
		707.5 (23095)	23.37	22.32	21.58
		699.7 (23017)	23.46	22.25	21.53
	3RB-Middle (1)	715.3 (23173)	23.26	22.65	21.63
		707.5 (23095)	23.40	22.35	21.73
		699.7 (23017)	23.20	22.38	21.73
	3RB-Low (0)	715.3 (23173)	23.18	22.75	21.31
		707.5 (23095)	23.39	22.37	21.36
		699.7 (23017)	23.13	22.33	21.24
	6RB (0)	715.3 (23173)	22.41	21.36	20.51
		707.5 (23095)	22.27	21.51	20.60
		699.7 (23017)	22.19	21.01	20.36

3MHz	1RB-High (14)	714.5 (23165)	23.34	22.51	21.44
		707.5 (23095)	23.32	22.11	21.51
		700.5 (23025)	23.12	22.42	21.57
	1RB-Middle (7)	714.5 (23165)	23.26	22.36	21.70
		707.5 (23095)	23.37	22.56	21.77
		700.5 (23025)	23.29	22.42	21.70
	1RB-Low (0)	714.5 (23165)	23.42	22.37	21.30
		707.5 (23095)	23.25	22.38	21.37
		700.5 (23025)	23.28	22.24	21.22
	8RB-High (7)	714.5 (23165)	22.32	21.60	20.57
		707.5 (23095)	22.41	21.71	20.43
		700.5 (23025)	22.21	21.18	20.64
	8RB-Middle (4)	714.5 (23165)	22.25	21.27	20.50
		707.5 (23095)	22.37	21.48	20.40
		700.5 (23025)	22.35	21.17	20.55
	8RB-Low (0)	714.5 (23165)	22.24	21.33	20.50
		707.5 (23095)	22.33	21.54	20.59
		700.5 (23025)	22.26	21.27	20.60
	15RB (0)	714.5 (23165)	22.34	21.39	20.49
		707.5 (23095)	22.40	21.33	20.58
		700.5 (23025)	22.27	21.25	20.36
5MHz	1RB-High (24)	713.5 (23155)	23.10	22.28	21.36
		707.5 (23095)	23.12	22.18	21.48
		701.5 (23035)	23.09	21.95	21.50
	1RB-Middle (12)	713.5 (23155)	23.24	22.17	21.71
		707.5 (23095)	23.37	22.33	21.76
		701.5 (23035)	23.24	21.87	21.73
	1RB-Low (0)	713.5 (23155)	23.11	21.90	21.28
		707.5 (23095)	23.13	22.09	21.37
		701.5 (23035)	23.21	21.86	21.23
	12RB-High (13)	713.5 (23155)	22.34	21.21	20.62
		707.5 (23095)	22.42	21.37	20.39
		701.5 (23035)	22.28	21.18	20.65
	12RB-Middle (6)	713.5 (23155)	22.33	21.27	20.53
		707.5 (23095)	22.40	21.25	20.39
		701.5 (23035)	22.23	21.22	20.50
	12RB-Low (0)	713.5 (23155)	22.26	21.31	20.51
		707.5 (23095)	22.34	21.40	20.56
		701.5 (23035)	22.18	21.06	20.56
	25RB (0)	713.5 (23155)	22.25	21.32	20.51
		707.5 (23095)	22.39	21.27	20.55
		701.5 (23035)	22.34	21.15	20.32

10MHz	1RB-High (49)	711 (23130)	23.36	22.09	21.42
		707.5 (23095)	23.12	21.71	21.53
		704 (23060)	23.27	22.30	21.57
	1RB-Middle (24)	711 (23130)	23.43	22.29	21.70
		707.5 (23095)	23.56	22.70	21.75
		704 (23060)	23.52	22.25	21.70
	1RB-Low (0)	711 (23130)	23.38	22.34	21.33
		707.5 (23095)	23.08	22.00	21.44
		704 (23060)	23.14	22.13	21.21
	25RB-High (25)	711 (23130)	22.33	21.36	20.62
		707.5 (23095)	22.38	21.42	20.40
		704 (23060)	22.39	21.32	20.70
	25RB-Middle (12)	711 (23130)	22.44	21.29	20.51
		707.5 (23095)	22.36	21.38	20.44
		704 (23060)	22.42	21.20	20.56
	25RB-Low (0)	711 (23130)	22.32	21.26	20.50
		707.5 (23095)	22.28	21.33	20.60
		704 (23060)	22.17	21.27	20.60
	50RB (0)	711 (23130)	22.31	21.34	20.55
		707.5 (23095)	22.28	21.29	20.58
		704 (23060)	22.30	21.28	20.39

LTE BAND41

Bandwidth (MHz)	RB allocation	Frequency (MHz)	QPSK	16QAM	64QAM
	RB offset (Start RB)		Actual output power (dBm)	Actual output power (dBm)	Actual output power (dBm)
5MHz	1RB-High (24)	2655(41240)	22.77	21.77	20.71
		2615(40840)	22.64	22.41	20.77
		2575(40440)	22.84	21.40	20.83
		2535(40040)	22.90	21.70	20.85
	1RB-Middle (12)	2655(41240)	23.35	22.39	21.34
		2615(40840)	23.24	22.11	21.41
		2575(40440)	23.25	21.69	21.31
		2535(40040)	23.32	22.02	21.30
	1RB-Low (0)	2655(41240)	23.05	21.98	20.90
		2615(40840)	22.77	21.73	20.65
		2575(40440)	22.83	21.34	20.78
		2535(40040)	23.01	21.66	20.91
	12RB-High (13)	2655(41240)	22.19	21.03	20.34
		2615(40840)	21.91	20.84	20.46
		2575(40440)	21.99	20.68	20.43
		2535(40040)	22.10	20.87	20.48
	12RB-Middle (6)	2655(41240)	22.32	21.16	20.45
		2615(40840)	22.06	21.00	20.58
		2575(40440)	22.08	20.82	20.64
		2535(40040)	22.12	20.81	20.58
	12RB-Low (0)	2655(41240)	22.08	21.11	20.48
		2615(40840)	21.98	20.92	20.52
		2575(40440)	22.05	20.80	20.50
		2535(40040)	22.09	20.86	20.46
	25RB (0)	2655(41240)	21.97	21.02	20.63
		2615(40840)	22.14	20.80	20.74
		2575(40440)	21.96	21.04	20.73
		2535(40040)	22.09	20.98	20.74

10MHz	1RB-High (49)	2652.5(41215)	23.24	22.50	20.58
		2614.5(40835)	23.17	21.51	20.85
		2575.5(40445)	23.05	22.56	21.06
		2537.5(40065)	23.19	22.38	21.00
	1RB-Middle (24)	2652.5(41215)	23.43	22.67	21.05
		2614.5(40835)	23.57	21.43	21.24
		2575.5(40445)	23.54	22.98	21.11
		2537.5(40065)	23.47	22.38	21.15
	1RB-Low (0)	2652.5(41215)	23.16	22.38	20.97
		2614.5(40835)	22.90	21.44	20.83
		2575.5(40445)	23.10	22.90	21.15
		2537.5(40065)	23.28	22.39	21.10
	25RB-High (25)	2652.5(41215)	22.20	21.22	20.55
		2614.5(40835)	22.17	20.84	20.46
		2575.5(40445)	22.20	21.01	20.76
		2537.5(40065)	22.36	21.32	20.93
	25RB-Middle (12)	2652.5(41215)	22.35	21.16	20.70
		2614.5(40835)	22.15	20.95	20.76
		2575.5(40445)	22.14	21.01	20.79
		2537.5(40065)	22.22	21.30	20.92
	25RB-Low (0)	2652.5(41215)	22.20	21.02	20.48
		2614.5(40835)	22.04	20.95	20.71
		2575.5(40445)	22.09	21.02	20.89
		2537.5(40065)	22.17	21.07	20.79
	50RB (0)	2652.5(41215)	22.13	21.13	20.40
		2614.5(40835)	22.13	20.90	20.53
		2575.5(40445)	22.09	20.96	20.48
		2537.5(40065)	22.13	21.09	20.60
15MHz	1RB-High (74)	2650(41190)	23.24	21.57	20.59
		2613(40820)	23.01	21.95	20.35
		2577(40460)	22.78	22.26	20.91
		2540(40090)	22.96	21.64	21.13
	1RB-Middle (37)	2650(41190)	23.17	21.64	21.32
		2613(40820)	23.20	22.19	21.48
		2577(40460)	23.03	22.42	21.37
		2540(40090)	23.21	21.43	21.53
	1RB-Low (0)	2650(41190)	22.81	21.56	20.76
		2613(40820)	22.86	22.13	21.01
		2577(40460)	22.98	22.38	21.12
		2540(40090)	22.97	21.53	21.15
	36RB-High (38)	2650(41190)	22.03	21.06	20.48
		2613(40820)	22.11	20.86	20.51
		2577(40460)	22.04	21.01	20.54
		2540(40090)	22.24	21.13	20.64
	36RB-Middle (19)	2650(41190)	22.07	21.10	20.59
		2613(40820)	22.01	20.92	20.69
		2577(40460)	22.15	21.02	20.64
		2540(40090)	22.30	21.19	20.86
	36RB-Low (0)	2650(41190)	21.95	20.98	20.14
		2613(40820)	21.92	20.85	20.63
		2577(40460)	21.99	20.95	20.77
		2540(40090)	22.10	20.98	20.76
	75RB (0)	2650(41190)	21.96	21.01	20.39
		2613(40820)	21.96	21.03	20.63
		2577(40460)	21.90	20.87	20.64
		2540(40090)	22.12	21.09	20.72

20MHz	1RB-High (99)	2647.5 (41165)	23.11	22.23	20.03
		2612.5(40815)	23.00	21.95	20.52
		2577.5(40465)	22.74	21.53	20.76
		2542.5(40115)	23.49	22.35	20.87
	1RB-Middle (50)	2647.5 (41165)	23.71	22.79	21.23
		2612.5(40815)	23.11	21.97	21.28
		2577.5(40465)	23.31	21.56	21.09
		2542.5(40115)	23.61	22.65	21.90
	1RB-Low (0)	2647.5 (41165)	23.06	22.21	20.85
		2612.5(40815)	22.93	21.88	20.71
		2577.5(40465)	22.90	21.32	21.03
		2542.5(40115)	23.00	22.33	20.77
	50RB-High (50)	2647.5 (41165)	22.39	21.09	20.24
		2612.5(40815)	22.06	20.92	20.24
		2577.5(40465)	22.10	20.90	20.41
		2542.5(40115)	22.32	21.39	20.50
	50RB-Middle (25)	2647.5 (41165)	22.06	21.13	20.34
		2612.5(40815)	22.11	20.95	20.27
		2577.5(40465)	22.15	21.15	20.47
		2542.5(40115)	22.35	21.35	20.56
	50RB-Low (0)	2647.5 (41165)	22.15	20.85	20.23
		2612.5(40815)	22.03	21.06	20.36
		2577.5(40465)	22.03	21.00	20.43
		2542.5(40115)	22.22	21.18	20.50
	100RB (0)	2647.5 (41165)	22.05	20.95	20.16
		2612.5(40815)	22.11	21.07	20.13
		2577.5(40465)	22.09	20.96	20.33
		2542.5(40115)	22.18	21.09	20.52

Low power

Table 11.3-2: The conducted Power for LTE

LTE BAND2

Bandwidth (MHz)	RB allocation	Frequency (MHz)	QPSK	16QAM	64QAM
	RB offset (Start RB)		Actual output power (dBm)	Actual output power (dBm)	Actual output power (dBm)
1.4MHz	1RB-High (5)	1909.3 (19193)	11.76	11.23	10.21
		1880 (18900)	12.05	11.02	10.84
		1850.7 (18607)	12.61	11.62	10.31
	1RB-Middle (3)	1909.3 (19193)	11.86	11.32	10.28
		1880 (18900)	12.07	11.04	10.17
		1850.7 (18607)	12.68	11.69	11.05
	1RB-Low (0)	1909.3 (19193)	11.84	11.34	10.59
		1880 (18900)	11.95	11.00	10.25
		1850.7 (18607)	12.51	11.69	10.87
	3RB-High (3)	1909.3 (19193)	11.98	11.06	10.17
		1880 (18900)	12.04	11.13	10.83
		1850.7 (18607)	12.60	11.58	10.31
	3RB-Middle (1)	1909.3 (19193)	12.05	11.17	10.27
		1880 (18900)	12.08	11.19	10.11
		1850.7 (18607)	12.66	11.63	11.04
	3RB-Low (0)	1909.3 (19193)	12.02	11.15	10.48
		1880 (18900)	12.04	11.14	10.27
		1850.7 (18607)	12.63	11.60	10.84
	6RB (0)	1909.3 (19193)	10.94	9.83	9.02
		1880 (18900)	10.99	10.12	9.12
		1850.7 (18607)	11.29	10.40	9.37
3MHz	1RB-High (14)	1908.5 (19185)	11.68	10.97	9.17
		1880 (18900)	12.21	10.99	9.84
		1851.5 (18615)	12.54	11.84	9.34
	1RB-Middle (7)	1908.5 (19185)	11.89	11.15	10.28
		1880 (18900)	12.15	10.96	10.16
		1851.5 (18615)	12.62	11.91	11.01
	1RB-Low (0)	1908.5 (19185)	11.84	11.03	10.18
		1880 (18900)	11.97	11.00	10.08
		1851.5 (18615)	12.56	11.98	10.88
	8RB-High (7)	1908.5 (19185)	11.15	10.07	8.77
		1880 (18900)	11.08	10.12	8.98
		1851.5 (18615)	11.27	10.26	9.36
	8RB-Middle (4)	1908.5 (19185)	11.20	10.15	9.16
		1880 (18900)	11.11	10.16	8.99
		1851.5 (18615)	11.34	10.34	9.75
	8RB-Low (0)	1908.5 (19185)	11.13	10.11	9.21
		1880 (18900)	11.10	10.17	8.71
		1851.5 (18615)	11.37	10.38	9.38
	15RB (0)	1908.5 (19185)	11.12	10.02	8.98
		1880 (18900)	11.08	10.09	8.85
		1851.5 (18615)	11.32	10.30	9.37

5MHz	1RB-High (24)	1907.5 (19175)	11.75	11.27	10.19
		1880 (18900)	11.88	11.06	10.36
		1852.5 (18625)	12.37	11.61	10.32
	1RB-Middle (12)	1907.5 (19175)	11.82	11.37	10.27
		1880 (18900)	11.83	11.00	10.16
		1852.5 (18625)	12.37	11.57	11.01
	1RB-Low (0)	1907.5 (19175)	12.00	11.52	9.97
		1880 (18900)	11.73	10.90	9.29
		1852.5 (18625)	12.49	11.70	9.86
	12RB-High (13)	1907.5 (19175)	10.86	10.05	8.73
		1880 (18900)	10.91	10.01	8.99
		1852.5 (18625)	11.09	10.20	9.34
	12RB-Middle (6)	1907.5 (19175)	10.89	10.08	9.12
		1880 (18900)	10.91	10.00	9.00
		1852.5 (18625)	11.05	10.17	9.75
	12RB-Low (0)	1907.5 (19175)	10.87	10.06	9.21
		1880 (18900)	10.93	10.03	8.69
		1852.5 (18625)	11.15	10.27	9.38
	25RB (0)	1907.5 (19175)	10.86	9.98	9.01
		1880 (18900)	10.87	9.88	8.83
		1852.5 (18625)	11.20	10.27	9.40
10MHz	1RB-High (49)	1905 (19150)	11.55	10.57	9.18
		1880 (18900)	11.59	10.81	9.86
		1855 (18650)	11.74	11.07	9.31
	1RB-Middle (24)	1905 (19150)	11.99	11.11	10.29
		1880 (18900)	11.89	10.92	10.16
		1855 (18650)	12.54	11.85	11.06
	1RB-Low (0)	1905 (19150)	11.56	10.53	9.99
		1880 (18900)	11.54	10.54	9.26
		1855 (18650)	11.78	10.95	9.85
	25RB-High (25)	1905 (19150)	10.79	9.83	8.77
		1880 (18900)	10.80	9.78	9.00
		1855 (18650)	11.23	10.25	9.33
	25RB-Middle (12)	1905 (19150)	10.99	10.07	9.14
		1880 (18900)	10.96	9.96	8.96
		1855 (18650)	11.36	10.38	9.77
	25RB-Low (0)	1905 (19150)	10.71	9.80	9.24
		1880 (18900)	10.76	9.77	8.73
		1855 (18650)	11.12	10.14	9.35
	50RB (0)	1905 (19150)	10.73	9.76	9.00
		1880 (18900)	10.68	9.67	8.85
		1855 (18650)	11.15	10.16	9.39

15MHz	1RB-High (74)	1902.5 (19125)	11.50	10.52	9.19
		1880 (18900)	11.53	10.67	9.87
		1857.5 (18675)	11.59	10.53	9.32
	1RB-Middle (37)	1902.5 (19125)	11.94	11.21	10.26
		1880 (18900)	12.01	11.36	10.12
		1857.5 (18675)	12.45	11.40	11.06
	1RB-Low (0)	1902.5 (19125)	11.69	10.94	9.98
		1880 (18900)	11.53	10.58	9.26
		1857.5 (18675)	11.80	10.73	9.85
	36RB-High (38)	1902.5 (19125)	10.81	9.84	8.77
		1880 (18900)	10.88	9.84	8.97
		1857.5 (18675)	11.20	10.22	9.35
	36RB-Middle (19)	1902.5 (19125)	10.92	9.97	9.12
		1880 (18900)	10.94	9.92	8.98
		1857.5 (18675)	11.47	10.48	9.75
	36RB-Low (0)	1902.5 (19125)	10.81	9.86	9.21
		1880 (18900)	10.70	9.69	8.70
		1857.5 (18675)	11.13	10.14	9.39
	75RB (0)	1902.5 (19125)	10.79	9.82	9.00
		1880 (18900)	10.68	9.69	8.85
		1857.5 (18675)	11.09	10.11	9.37
20MHz	1RB-High (99)	1900 (19100)	11.54	10.52	9.20
		1880 (18900)	11.53	10.82	9.85
		1860 (18700)	11.55	10.54	9.33
	1RB-Middle (50)	1900 (19100)	11.90	11.41	10.27
		1880 (18900)	11.93	11.37	10.15
		1860 (18700)	12.34	11.73	11.04
	1RB-Low (0)	1900 (19100)	11.51	10.91	9.98
		1880 (18900)	11.52	10.52	9.28
		1860 (18700)	11.51	10.80	9.87
	50RB-High (50)	1900 (19100)	10.54	9.59	8.76
		1880 (18900)	10.74	9.78	9.00
		1860 (18700)	10.78	9.79	9.34
	50RB-Middle (25)	1900 (19100)	10.84	9.90	9.15
		1880 (18900)	10.83	9.87	8.99
		1860 (18700)	11.13	10.15	9.75
	50RB-Low (0)	1900 (19100)	10.81	9.86	9.24
		1880 (18900)	10.54	9.59	8.72
		1860 (18700)	10.84	9.85	9.38
	100RB (0)	1900 (19100)	10.65	9.73	9.01
		1880 (18900)	10.58	9.62	8.84
		1860 (18700)	10.81	9.84	9.40

LTE BAND4

Bandwidth (MHz)	RB allocation RB offset (Start RB)	Frequency (MHz)	QPSK Actual output power (dBm)	16QAM Actual output power (dBm)	64QAM Actual output power (dBm)
1.4MHz	1RB-High (5)	1754.3 (20393)	11.73	10.74	9.04
		1732.5 (20175)	12.20	11.31	9.46
		1710.7 (19957)	12.05	11.41	9.29
	1RB-Middle (3)	1754.3 (20393)	11.76	10.75	10.34
		1732.5 (20175)	12.25	11.36	10.52
		1710.7 (19957)	12.10	11.44	9.97
	1RB-Low (0)	1754.3 (20393)	11.78	10.79	9.47
		1732.5 (20175)	12.12	11.21	8.91
		1710.7 (19957)	12.13	11.50	9.54
	3RB-High (3)	1754.3 (20393)	11.64	10.77	9.01
		1732.5 (20175)	12.19	11.26	9.45
		1710.7 (19957)	12.03	11.22	9.27
	3RB-Middle (1)	1754.3 (20393)	11.75	10.90	10.32
		1732.5 (20175)	12.11	11.19	10.53
		1710.7 (19957)	12.17	11.36	9.96
	3RB-Low (0)	1754.3 (20393)	11.62	10.78	9.50
		1732.5 (20175)	12.06	11.15	8.89
		1710.7 (19957)	12.13	11.33	9.52
	6RB (0)	1754.3 (20393)	10.71	9.87	8.67
		1732.5 (20175)	10.87	10.04	8.83
		1710.7 (19957)	10.98	9.94	8.49
3MHz	1RB-High (14)	1753.5 (20385)	11.74	10.56	9.02
		1732.5 (20175)	12.24	11.59	9.44
		1711.5 (19965)	11.95	11.04	9.26
	1RB-Middle (7)	1753.5 (20385)	11.80	10.68	10.32
		1732.5 (20175)	12.31	11.65	10.50
		1711.5 (19965)	12.09	11.19	9.94
	1RB-Low (0)	1753.5 (20385)	11.68	10.58	9.49
		1732.5 (20175)	12.12	11.46	8.91
		1711.5 (19965)	12.15	11.26	9.51
	8RB-High (7)	1753.5 (20385)	10.78	9.83	8.52
		1732.5 (20175)	11.15	10.23	9.01
		1711.5 (19965)	10.95	10.04	8.43
	8RB-Middle (4)	1753.5 (20385)	10.83	9.89	9.19
		1732.5 (20175)	10.96	10.06	8.93
		1711.5 (19965)	10.98	10.07	8.63
	8RB-Low (0)	1753.5 (20385)	10.74	9.80	9.11
		1732.5 (20175)	10.94	10.03	8.57
		1711.5 (19965)	10.97	10.07	8.59
	15RB (0)	1753.5 (20385)	10.82	9.82	8.66
		1732.5 (20175)	10.94	10.00	8.82
		1711.5 (19965)	10.97	9.99	8.49

5MHz	1RB-High (24)	1752.5 (20375)	11.88	10.93	8.99
		1732.5 (20175)	12.35	11.83	9.45
		1712.5 (19975)	12.07	11.20	9.28
	1RB-Middle (12)	1752.5 (20375)	11.77	10.85	10.31
		1732.5 (20175)	12.28	11.78	10.53
		1712.5 (19975)	12.02	11.13	9.94
	1RB-Low (0)	1752.5 (20375)	11.82	10.90	9.48
		1732.5 (20175)	12.20	11.69	8.90
		1712.5 (19975)	12.25	11.37	9.49
	12RB-High (13)	1752.5 (20375)	10.63	9.70	8.52
		1732.5 (20175)	11.18	10.32	9.03
		1712.5 (19975)	10.96	10.06	8.41
	12RB-Middle (6)	1752.5 (20375)	10.67	9.75	9.21
		1732.5 (20175)	10.99	10.15	8.92
		1712.5 (19975)	10.93	10.02	8.66
	12RB-Low (0)	1752.5 (20375)	10.62	9.71	9.09
		1732.5 (20175)	10.98	10.13	8.55
		1712.5 (19975)	11.01	10.11	8.62
	25RB (0)	1752.5 (20375)	10.63	9.64	8.66
		1732.5 (20175)	10.98	10.05	8.82
		1712.5 (19975)	10.92	9.93	8.47
10MHz	1RB-High (49)	1750 (20350)	11.31	10.31	9.27
		1732.5 (20175)	11.57	10.90	9.48
		1715 (20000)	11.34	10.38	9.25
	1RB-Middle (24)	1750 (20350)	11.79	10.70	10.32
		1732.5 (20175)	12.22	11.57	10.49
		1715 (20000)	12.12	11.17	9.97
	1RB-Low (0)	1750 (20350)	11.36	10.30	9.50
		1732.5 (20175)	11.38	10.43	8.93
		1715 (20000)	11.46	10.52	9.51
	25RB-High (25)	1750 (20350)	10.39	9.39	8.52
		1732.5 (20175)	10.94	10.01	9.03
		1715 (20000)	10.44	9.55	8.42
	25RB-Middle (12)	1750 (20350)	10.62	9.63	9.21
		1732.5 (20175)	10.90	9.98	8.94
		1715 (20000)	10.94	10.05	8.67
	25RB-Low (0)	1750 (20350)	10.48	9.49	9.10
		1732.5 (20175)	10.58	9.66	8.54
		1715 (20000)	10.66	9.78	8.59
	50RB (0)	1750 (20350)	10.43	9.43	8.64
		1732.5 (20175)	10.67	9.72	8.82
		1715 (20000)	10.39	9.45	8.45

15MHz	1RB-High (74)	1747.5 (20325)	11.32	10.39	9.02
		1732.5 (20175)	11.50	10.48	9.47
		1717.5 (20025)	11.31	10.36	9.26
	1RB-Middle (37)	1747.5 (20325)	11.82	11.20	10.30
		1732.5 (20175)	12.12	11.10	10.52
		1717.5 (20025)	11.94	11.29	9.96
	1RB-Low (0)	1747.5 (20325)	11.32	10.58	9.49
		1732.5 (20175)	11.31	10.54	8.90
		1717.5 (20025)	11.40	10.75	9.52
	36RB-High (38)	1747.5 (20325)	10.66	9.34	8.51
		1732.5 (20175)	10.99	10.01	9.01
		1717.5 (20025)	10.51	9.46	8.42
	36RB-Middle (19)	1747.5 (20325)	10.67	9.66	9.20
		1732.5 (20175)	10.90	9.93	8.93
		1717.5 (20025)	10.66	9.73	8.66
	36RB-Low (0)	1747.5 (20325)	10.61	9.60	9.08
		1732.5 (20175)	10.57	9.59	8.55
		1717.5 (20025)	10.65	9.74	8.59
	75RB (0)	1747.5 (20325)	10.52	9.53	8.64
		1732.5 (20175)	10.84	9.86	8.83
		1717.5 (20025)	10.52	9.57	8.46
20MHz	1RB-High (99)	1745 (20300)	11.35	10.32	9.01
		1732.5 (20175)	11.33	10.57	9.47
		1720 (20050)	11.37	10.54	9.27
	1RB-Middle (50)	1745 (20300)	11.93	11.29	10.32
		1732.5 (20175)	11.94	11.77	10.52
		1720 (20050)	11.74	11.20	9.95
	1RB-Low (0)	1745 (20300)	11.31	10.49	9.50
		1732.5 (20175)	11.34	10.36	8.92
		1720 (20050)	11.39	10.55	9.52
	50RB-High (50)	1745 (20300)	11.26	9.38	8.53
		1732.5 (20175)	11.35	9.88	9.02
		1720 (20050)	11.25	9.46	8.43
	50RB-Middle (25)	1745 (20300)	11.06	9.77	9.20
		1732.5 (20175)	11.13	9.89	8.95
		1720 (20050)	11.16	9.66	8.66
	50RB-Low (0)	1745 (20300)	10.77	9.76	9.11
		1732.5 (20175)	10.60	9.56	8.57
		1720 (20050)	10.45	9.50	8.61
	100RB (0)	1745 (20300)	10.60	9.60	8.65
		1732.5 (20175)	10.73	9.80	8.83
		1720 (20050)	10.52	9.45	8.48

LTE BAND5

Bandwidth (MHz)	RB allocation	Frequency (MHz)	QPSK	16QAM	64QAM
	RB offset (Start RB)		Actual output power (dBm)	Actual output power (dBm)	Actual output power (dBm)
1.4MHz	1RB-High (5)	848.3 (20643)	17.43	16.55	15.64
		836.5 (20525)	17.53	16.35	15.50
		824.7 (20407)	17.25	16.30	15.48
	1RB-Middle (3)	848.3 (20643)	17.56	16.58	15.80
		836.5 (20525)	17.33	16.64	15.68
		824.7 (20407)	17.38	16.47	15.84
	1RB-Low (0)	848.3 (20643)	17.58	16.53	15.50
		836.5 (20525)	17.41	16.50	15.39
		824.7 (20407)	17.29	16.71	15.44
	3RB-High (3)	848.3 (20643)	17.36	16.65	15.60
		836.5 (20525)	17.46	16.37	15.46
		824.7 (20407)	17.42	15.87	15.45
	3RB-Middle (1)	848.3 (20643)	17.50	16.25	15.79
		836.5 (20525)	17.57	16.28	15.68
		824.7 (20407)	17.62	16.23	15.81
	3RB-Low (0)	848.3 (20643)	17.50	16.77	15.47
		836.5 (20525)	17.44	16.22	15.35
		824.7 (20407)	17.52	16.37	15.49
	6RB (0)	848.3 (20643)	16.51	15.42	13.92
		836.5 (20525)	16.53	15.92	14.01
		824.7 (20407)	16.65	15.17	13.95
3MHz	1RB-High (14)	847.5 (20635)	17.38	16.01	15.57
		836.5 (20525)	17.62	16.37	15.51
		825.5 (20415)	17.57	16.95	15.51
	1RB-Middle (7)	847.5 (20635)	17.65	16.19	15.83
		836.5 (20525)	17.58	16.64	15.64
		825.5 (20415)	17.87	16.34	15.80
	1RB-Low (0)	847.5 (20635)	17.68	16.71	15.50
		836.5 (20525)	17.74	16.61	15.42
		825.5 (20415)	17.65	16.30	15.48
	8RB-High (7)	847.5 (20635)	16.72	15.51	13.95
		836.5 (20525)	16.67	16.00	14.00
		825.5 (20415)	16.74	15.60	13.89
	8RB-Middle (4)	847.5 (20635)	16.67	15.54	14.23
		836.5 (20525)	16.67	15.35	14.18
		825.5 (20415)	16.69	15.48	14.18
	8RB-Low (0)	847.5 (20635)	16.63	15.61	13.99
		836.5 (20525)	16.59	15.28	13.92
		825.5 (20415)	16.58	15.68	14.04
	15RB (0)	847.5 (20635)	16.64	15.33	13.97
		836.5 (20525)	16.62	15.51	13.96
		825.5 (20415)	16.62	15.59	13.94

5MHz	1RB-High (24)	846.5 (20625)	17.47	16.28	15.56
		836.5 (20525)	17.62	16.31	15.52
		826.5 (20425)	17.70	16.35	15.47
	1RB-Middle (12)	846.5 (20625)	17.62	16.51	15.78
		836.5 (20525)	17.70	16.48	15.63
		826.5 (20425)	17.59	16.18	15.81
	1RB-Low (0)	846.5 (20625)	17.53	16.27	15.54
		836.5 (20525)	17.52	16.19	15.38
		826.5 (20425)	17.47	15.92	15.46
	12RB-High (13)	846.5 (20625)	16.67	15.35	13.92
		836.5 (20525)	16.71	15.45	14.04
		826.5 (20425)	16.65	15.60	13.87
	12RB-Middle (6)	846.5 (20625)	16.71	15.59	14.28
		836.5 (20525)	16.81	15.47	14.20
		826.5 (20425)	16.70	15.66	14.17
	12RB-Low (0)	846.5 (20625)	16.70	15.64	14.02
		836.5 (20525)	16.60	15.72	13.89
		826.5 (20425)	16.60	15.52	14.09
	25RB (0)	846.5 (20625)	16.66	15.53	13.94
		836.5 (20525)	16.65	15.65	13.99
		826.5 (20425)	16.60	15.86	13.97
10MHz	1RB-High (49)	844 (20600)	17.32	16.48	15.61
		836.5 (20525)	17.67	16.51	15.52
		829 (20450)	17.57	16.42	15.48
	1RB-Middle (24)	844 (20600)	17.51	16.37	15.81
		836.5 (20525)	17.74	16.82	15.67
		829 (20450)	17.79	17.10	15.81
	1RB-Low (0)	844 (20600)	17.29	16.78	15.52
		836.5 (20525)	17.30	16.09	15.39
		829 (20450)	17.51	16.44	15.46
	25RB-High (25)	844 (20600)	16.58	15.66	13.93
		836.5 (20525)	16.59	15.75	14.05
		829 (20450)	16.44	15.51	13.92
	25RB-Middle (12)	844 (20600)	16.55	15.71	14.27
		836.5 (20525)	16.59	15.54	14.18
		829 (20450)	16.54	15.57	14.17
	25RB-Low (0)	844 (20600)	16.38	15.45	14.02
		836.5 (20525)	16.50	15.63	13.91
		829 (20450)	16.51	15.46	14.06
	50RB (0)	844 (20600)	16.43	15.48	13.97
		836.5 (20525)	16.61	15.50	13.98
		829 (20450)	16.47	15.50	13.99

LTE BAND7

Bandwidth (MHz)	RB allocation	Frequency (MHz)	QPSK	16QAM	64QAM
	RB offset (Start RB)		Actual output power (dBm)	Actual output power (dBm)	Actual output power (dBm)
5MHz	1RB-High (24)	2567.5 (21425)	11.11	10.05	9.17
		2535 (21100)	11.82	11.30	10.40
		2502.5 (20775)	12.62	11.72	10.91
	1RB-Middle (12)	2567.5 (21425)	11.40	10.35	10.25
		2535 (21100)	11.78	11.29	10.45
		2502.5 (20775)	12.60	11.57	10.91
	1RB-Low (0)	2567.5 (21425)	11.38	10.34	10.07
		2535 (21100)	11.50	11.01	10.43
		2502.5 (20775)	12.32	11.30	10.47
	12RB-High (13)	2567.5 (21425)	10.14	9.13	8.82
		2535 (21100)	10.75	9.84	9.20
		2502.5 (20775)	11.89	10.88	9.71
	12RB-Middle (6)	2567.5 (21425)	10.28	9.28	9.12
		2535 (21100)	10.73	9.82	9.23
		2502.5 (20775)	11.94	10.92	9.94
	12RB-Low (0)	2567.5 (21425)	10.27	9.29	9.16
		2535 (21100)	10.61	9.71	8.84
		2502.5 (20775)	11.76	10.75	9.82
	25RB (0)	2567.5 (21425)	10.20	9.13	8.92
		2535 (21100)	10.67	9.67	9.02
		2502.5 (20775)	11.86	10.75	9.98

10MHz	1RB-High (49)	2565 (21400)	10.55	9.60	9.15
		2535 (21100)	11.09	10.40	9.89
		2505 (20800)	11.96	10.96	9.92
	1RB-Middle (24)	2565 (21400)	11.41	10.27	10.41
		2535 (21100)	11.87	11.17	10.48
		2505 (20800)	12.64	11.75	10.97
	1RB-Low (0)	2565 (21400)	10.55	9.54	10.04
		2535 (21100)	10.65	9.96	9.57
		2505 (20800)	11.29	10.30	9.47
	25RB-High (25)	2565 (21400)	9.92	8.87	8.79
		2535 (21100)	10.55	9.53	9.19
		2505 (20800)	11.76	10.78	9.69
	25RB-Middle (12)	2565 (21400)	10.32	9.28	9.16
		2535 (21100)	10.67	9.64	9.23
		2505 (20800)	11.93	10.95	9.92
	25RB-Low (0)	2565 (21400)	10.00	8.95	9.17
		2535 (21100)	10.28	9.24	8.85
		2505 (20800)	11.52	10.55	9.83
	50RB (0)	2565 (21400)	10.06	9.00	8.93
		2535 (21100)	10.40	9.35	9.03
		2505 (20800)	11.63	10.59	9.98

15MHz	1RB-High (74)	2562.5 (21375)	10.87	10.03	9.13
		2535 (21100)	11.72	10.93	9.88
		2507.5 (20825)	12.28	11.09	9.91
	1RB-Middle (37)	2562.5 (21375)	11.73	10.90	10.40
		2535 (21100)	12.03	11.24	10.44
		2507.5 (20825)	12.66	11.67	10.92
	1RB-Low (0)	2562.5 (21375)	11.53	10.72	10.07
		2535 (21100)	11.26	10.47	9.53
		2507.5 (20825)	11.63	10.43	9.46
	36RB-High (38)	2562.5 (21375)	10.42	9.27	8.80
		2535 (21100)	10.94	9.77	9.17
		2507.5 (20825)	11.86	10.73	9.67
	36RB-Middle (19)	2562.5 (21375)	10.64	9.50	9.12
		2535 (21100)	10.89	9.73	9.22
		2507.5 (20825)	11.91	10.98	9.93
	36RB-Low (0)	2562.5 (21375)	10.71	9.59	9.15
		2535 (21100)	10.51	9.34	8.83
		2507.5 (20825)	11.78	10.64	9.84
	75RB (0)	2562.5 (21375)	10.54	9.38	8.90
		2535 (21100)	10.70	9.56	9.01
		2507.5 (20825)	11.80	10.66	9.97
20MHz	1RB-High (99)	2560 (21350)	10.52	9.59	9.16
		2535 (21100)	10.88	10.31	9.90
		2510 (20850)	11.03	10.51	9.94
	1RB-Middle (50)	2560 (21350)	11.29	10.77	10.44
		2535 (21100)	11.54	10.97	10.49
		2510 (20850)	12.69	11.96	10.91
	1RB-Low (0)	2560 (21350)	10.97	10.45	10.06
		2535 (21100)	10.52	9.74	9.56
		2510 (20850)	11.05	10.61	9.49
	50RB-High (50)	2560 (21350)	9.79	8.83	8.81
		2535 (21100)	10.44	9.42	9.19
		2510 (20850)	11.26	10.28	9.69
	50RB-Middle (25)	2560 (21350)	10.22	9.27	9.15
		2535 (21100)	10.43	9.41	9.22
		2510 (20850)	11.61	10.63	9.93
	50RB-Low (0)	2560 (21350)	10.25	9.30	9.16
		2535 (21100)	9.96	8.94	8.85
		2510 (20850)	11.38	10.40	9.84
	100RB (0)	2560 (21350)	9.98	9.01	8.92
		2535 (21100)	10.21	9.21	9.02
		2510 (20850)	11.37	10.39	9.97

LTE BAND12

BANDWIDTH	Number of RBs	Frequency	QPSK	16QAM	64QAM
Bandwidth (MHz)	RB allocation RB offset (Start RB)	Frequency (MHz)	QPSK Actual output power (dBm)	16QAM Actual output power (dBm)	64QAM Actual output power (dBm)
1.4MHz	1RB-High (5)	715.3 (23173)	15.50	14.84	13.25
		707.5 (23095)	15.59	14.83	13.34
		699.7 (23017)	15.20	14.27	12.98
	1RB-Middle (3)	715.3 (23173)	15.55	14.90	13.55
		707.5 (23095)	15.75	14.87	13.95
		699.7 (23017)	15.20	14.24	14.05
	1RB-Low (0)	715.3 (23173)	15.48	14.81	12.88
		707.5 (23095)	15.61	14.76	13.05
		699.7 (23017)	15.05	14.10	12.75
	3RB-High (3)	715.3 (23173)	15.47	14.78	13.21
		707.5 (23095)	15.82	14.59	13.33
		699.7 (23017)	15.18	14.34	13.02
	3RB-Middle (1)	715.3 (23173)	15.47	14.80	13.56
		707.5 (23095)	15.87	14.63	13.96
		699.7 (23017)	15.17	14.35	14.11
	3RB-Low (0)	715.3 (23173)	15.34	14.68	12.88
		707.5 (23095)	15.77	14.54	13.05
		699.7 (23017)	15.08	14.27	12.82
	6RB (0)	715.3 (23173)	14.41	13.82	12.39
		707.5 (23095)	14.40	13.33	12.37
		699.7 (23017)	14.11	13.31	12.47
3MHz	1RB-High (14)	714.5 (23165)	15.45	14.58	13.20
		707.5 (23095)	15.62	14.76	13.36
		700.5 (23025)	15.35	14.51	12.96
	1RB-Middle (7)	714.5 (23165)	15.46	14.64	13.54
		707.5 (23095)	15.74	14.88	13.92
		700.5 (23025)	15.32	14.46	14.10
	1RB-Low (0)	714.5 (23165)	15.26	14.47	12.86
		707.5 (23095)	15.79	14.83	13.08
		700.5 (23025)	15.03	14.19	12.76
	8RB-High (7)	714.5 (23165)	14.46	13.82	12.49
		707.5 (23095)	14.38	13.56	12.31
		700.5 (23025)	14.41	13.54	12.54
	8RB-Middle (4)	714.5 (23165)	14.49	13.87	12.62
		707.5 (23095)	14.38	13.57	12.59
		700.5 (23025)	14.42	13.54	12.85
	8RB-Low (0)	714.5 (23165)	14.38	13.76	12.36
		707.5 (23095)	14.41	13.49	12.57
		700.5 (23025)	14.16	13.33	12.52
	15RB (0)	714.5 (23165)	14.48	13.79	12.38
		707.5 (23095)	14.35	13.50	12.37
		700.5 (23025)	14.36	13.39	12.43

5MHz	1RB-High (24)	713.5 (23155)	15.64	14.77	13.23
		707.5 (23095)	15.23	14.84	13.33
		701.5 (23035)	15.40	14.49	12.99
	1RB-Middle (12)	713.5 (23155)	15.79	14.91	13.57
		707.5 (23095)	15.94	14.98	13.92
		701.5 (23035)	15.47	14.54	14.04
	1RB-Low (0)	713.5 (23155)	15.20	14.32	12.91
		707.5 (23095)	15.40	14.92	13.08
		701.5 (23035)	15.00	14.07	12.78
	12RB-High (13)	713.5 (23155)	14.65	13.77	12.50
		707.5 (23095)	14.33	13.50	12.30
		701.5 (23035)	14.37	13.45	12.49
	12RB-Middle (6)	713.5 (23155)	14.65	13.77	12.58
		707.5 (23095)	14.44	13.61	12.60
		701.5 (23035)	14.32	13.39	12.91
	12RB-Low (0)	713.5 (23155)	14.46	13.58	12.40
		707.5 (23095)	14.44	13.60	12.56
		701.5 (23035)	14.31	13.38	12.50
	25RB (0)	713.5 (23155)	14.57	13.62	12.40
		707.5 (23095)	14.44	13.52	12.36
		701.5 (23035)	14.34	13.32	12.46
10MHz	1RB-High (49)	711 (23130)	14.84	13.89	13.22
		707.5 (23095)	14.53	13.56	13.34
		704 (23060)	14.50	13.85	12.89
	1RB-Middle (24)	711 (23130)	15.11	14.20	13.55
		707.5 (23095)	15.83	14.21	13.95
		704 (23060)	15.54	14.89	14.09
	1RB-Low (0)	711 (23130)	14.55	13.62	12.89
		707.5 (23095)	15.57	13.61	13.10
		704 (23060)	14.53	13.67	12.80
	25RB-High (25)	711 (23130)	14.23	13.35	12.50
		707.5 (23095)	13.98	13.03	12.29
		704 (23060)	14.16	13.22	12.53
	25RB-Middle (12)	711 (23130)	14.19	13.31	12.62
		707.5 (23095)	14.35	13.29	12.61
		704 (23060)	14.39	13.45	12.89
	25RB-Low (0)	711 (23130)	14.03	13.16	12.40
		707.5 (23095)	14.20	13.24	12.60
		704 (23060)	14.16	13.08	12.51
	50RB (0)	711 (23130)	14.13	13.20	12.40
		707.5 (23095)	14.10	13.10	12.37
		704 (23060)	14.09	13.05	12.47

LTE BAND 41

BANDWIDTH	Number of RBs	Frequency	QPSK	16QAM	64QAM
Bandwidth (MHz)	RB allocation	Frequency (MHz)	Actual output power (dBm)		
5MHz	1RB-High (24)	2655 (41240)	14.11	13.10	12.38
		2615 (40840)	14.02	13.18	12.57
		2575 (40440)	15.27	14.40	13.50
		2535 (40040)	15.28	14.52	13.68
	1RB-Middle (12)	2655 (41240)	14.27	13.49	12.71
		2615 (40840)	14.06	13.42	12.84
		2575 (40440)	15.57	14.73	13.83
		2535 (40040)	15.28	14.54	13.61
	1RB-Low (0)	2655 (41240)	14.11	13.33	12.54
		2615 (40840)	14.01	13.13	12.65
		2575 (40440)	15.36	14.50	13.73
		2535 (40040)	14.89	14.13	13.25
	12RB-High (13)	2655 (41240)	13.03	11.96	11.61
		2615 (40840)	12.95	12.01	11.88
		2575 (40440)	14.27	13.28	12.71
		2535 (40040)	14.22	13.17	12.72
	12RB-Middle (6)	2655 (41240)	13.21	12.15	11.78
		2615 (40840)	13.05	12.11	12.01
		2575 (40440)	14.43	13.44	12.88
		2535 (40040)	14.18	13.14	12.87
	12RB-Low (0)	2655 (41240)	13.20	12.16	11.77
		2615 (40840)	13.09	11.93	11.87
		2575 (40440)	14.42	13.43	12.92
		2535 (40040)	14.00	12.96	12.48
	25RB (0)	2655 (41240)	13.08	12.08	11.69
		2615 (40840)	12.96	11.93	11.93
		2575 (40440)	14.32	13.29	12.81
		2535 (40040)	14.08	13.08	12.60

10MHz	1RB-High (49)	2652.5 (41215)	13.15	12.54	11.69
		2614.5 (40835)	13.20	12.48	11.90
		2575.5 (40445)	14.32	13.53	12.62
		2537.5 (40065)	14.38	13.82	12.88
	1RB-Middle (24)	2652.5 (41215)	14.37	13.77	12.88
		2614.5 (40835)	14.16	13.43	12.99
		2575.5 (40445)	15.55	14.74	12.81
		2537.5 (40065)	15.49	14.94	14.20
	1RB-Low (0)	2652.5 (41215)	13.48	12.89	11.95
		2614.5 (40835)	13.10	12.38	12.06
		2575.5 (40445)	14.72	13.88	13.23
		2537.5 (40065)	14.19	13.63	12.82
	25RB-High (25)	2652.5 (41215)	12.90	11.82	11.51
		2614.5 (40835)	12.69	11.64	11.64
		2575.5 (40445)	13.96	12.90	12.37
		2537.5 (40065)	13.98	12.93	12.53
	25RB-Middle (12)	2652.5 (41215)	13.22	12.15	11.80
		2614.5 (40835)	12.87	11.82	11.89
		2575.5 (40445)	14.36	13.28	12.81
		2537.5 (40065)	14.30	13.25	12.84
	25RB-Low (0)	2652.5 (41215)	12.99	11.92	11.55
		2614.5 (40835)	12.64	11.58	11.71
		2575.5 (40445)	14.23	13.15	12.77
		2537.5 (40065)	13.92	12.87	12.44
	50RB (0)	2652.5 (41215)	12.94	11.89	11.48
		2614.5 (40835)	12.59	11.55	11.55
		2575.5 (40445)	14.07	13.02	12.50
		2537.5 (40065)	14.00	12.96	12.47

15MHz	1RB-High (74)	2650 (41190)	13.33	12.26	11.86
		2613 (40820)	13.03	11.90	12.12
		2577 (40460)	14.55	13.40	12.62
		2540 (40090)	14.49	13.30	12.96
	1RB-Middle (37)	2650 (41190)	13.10	12.03	12.92
		2613 (40820)	12.79	11.67	12.92
		2577 (40460)	14.41	13.26	13.78
		2540 (40090)	14.10	12.92	13.88
	1RB-Low (0)	2650 (41190)	13.04	11.98	12.18
		2613 (40820)	12.73	11.64	12.14
		2577 (40460)	14.25	13.13	13.40
		2540 (40090)	14.15	12.99	12.87
	36RB-High (38)	2650 (41190)	15.42	14.63	11.54
		2613 (40820)	15.37	14.83	11.84
		2577 (40460)	13.73	13.17	12.28
		2540 (40090)	13.11	12.39	12.47
	36RB-Middle (19)	2650 (41190)	14.79	14.01	11.90
		2613 (40820)	14.39	13.71	12.01
		2577 (40460)	12.93	11.88	12.81
		2540 (40090)	12.72	11.72	13.11
	36RB-Low (0)	2650 (41190)	13.86	12.81	11.69
		2613 (40820)	13.76	12.72	11.87
		2577 (40460)	13.30	12.27	12.85
		2540 (40090)	12.89	11.89	12.84
	75RB (0)	2650 (41190)	14.28	13.24	11.75
		2613 (40820)	14.11	13.07	11.86
		2577 (40460)	13.06	12.02	12.72
		2540 (40090)	12.67	11.68	12.76
20MHz	1RB-High (99)	2647.5 (41165)	14.21	13.18	10.55
		2612.5 (40815)	14.00	12.95	10.66
		2577.5 (40465)	13.03	11.98	11.17
		2542.5 (40115)	12.64	11.58	11.66
	1RB-Middle (50)	2647.5 (41165)	14.03	12.99	11.96
		2612.5 (40815)	13.88	12.83	11.87
		2577.5 (40465)	15.66	14.72	12.74
		2542.5 (40115)	15.22	14.39	12.73
	1RB-Low (0)	2647.5 (41165)	13.68	12.72	10.90
		2612.5 (40815)	13.01	12.30	10.78
		2577.5 (40465)	14.68	13.73	12.00
		2542.5 (40115)	14.16	13.10	11.53
	50RB-High (50)	2647.5 (41165)	13.02	11.95	10.46
		2612.5 (40815)	12.68	11.66	10.39
		2577.5 (40465)	13.74	12.64	11.00
		2542.5 (40115)	13.74	12.69	11.24
	50RB-Middle (25)	2647.5 (41165)	13.45	12.37	10.81
		2612.5 (40815)	12.95	11.92	10.78
		2577.5 (40465)	14.29	13.19	11.57
		2542.5 (40115)	14.02	12.97	11.76
	50RB-Low (0)	2647.5 (41165)	13.21	12.14	10.51
		2612.5 (40815)	12.58	11.54	10.44
		2577.5 (40465)	14.24	13.14	11.59
		2542.5 (40115)	14.01	12.94	11.63
	100RB (0)	2647.5 (41165)	13.13	12.05	10.47
		2612.5 (40815)	12.62	11.54	10.38
		2577.5 (40465)	14.00	12.91	11.28
		2542.5 (40115)	13.84	12.76	11.32

11.4 Wi-Fi and BT Measurement result

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

Normal power

802.11b (dBm)

Channel\data rate	1Mbps	2Mbps	5.5Mbps	11Mbps
11	17.08	/	17.10	/
6	17.78	17.72	17.81	17.76
1	17.76	/	17.98	/
Tune up	**18.50**	**18.50**	**18.50**	**18.50**

802.11g (dBm)

Channel\data rate	6Mbps	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
1	16.23	/	/	/	/	/	/	/
6	16.84	16.37	15.88	15.40	14.88	14.41	13.92	13.89
11	16.76	/	/	/	/	/	/	/
Tune up	**17.50**	**17.00**	**17.00**	**16.00**	**15.50**	**15.00**	**14.50**	**14.50**

802.11n (dBm) - HT20 (2.4G)

Channel\data rate	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
1	15.33	/	/	/	/	/	/	/
6	15.93	/	/	/	/	/	/	/
11	16.06	15.60	15.57	15.07	15.05	14.54	14.53	14.11
Tune up	**16.50**	**16.00**	**16.00**	**15.50**	**15.50**	**15.00**	**15.00**	**14.50**

802.11a (dBm)

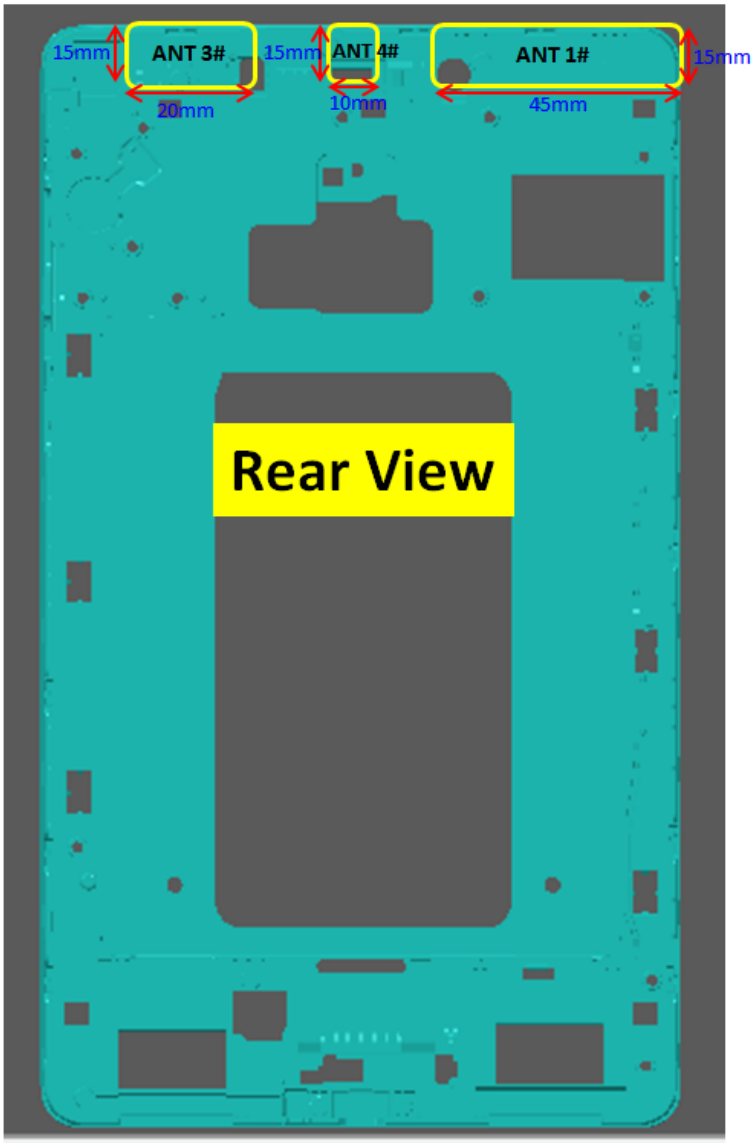
802.11a(dBm)								
Channel\data rate	6Mbps	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
36(5180 MHz)	**16.57**	16.14	16.10	15.55	15.51	15.06	15.03	14.41
40(5200 MHz)	16.39							
44(5220 MHz)	16.02							
48(5240 MHz)	15.74							
52(5260 MHz)	15.73							
56(5280 MHz)	16.08							
60(5300 MHz)	16.72							
64(5320 MHz)	**17.06**	16.44	16.41	16.10	16.05	15.38	15.36	14.91
tuneup	**17.50**	**17.00**	**16.50**	**16.50**	**16.50**	**15.50**	**15.50**	**15.00**
100(5500 MHz)	**17.09**	16.49	16.48	16.18	16.14	15.76	15.73	15.72
104(5520 MHz)	16.87							
108(5540 MHz)	16.51							
112(5560 MHz)	16.27							
116(5580 MHz)	16.31							
120(5600 MHz)	16.46							
124(5620 MHz)	16.72							
128(5640 MHz)	17.04							
132(5660 MHz)	16.89							
136(5680 MHz)	16.55							
140(5700 MHz)	16.22							
144(5720 MHz)	16.02							
tuneup	**17.50**	**17.00**	**17.00**	**16.50**	**16.50**	**16.00**	**16.00**	**16.00**
149(5745 MHz)	12.42							
153(5765 MHz)	12.86							
157(5785 MHz)	13.26							
161(5805 MHz)	**13.52**	13.37	13.32	13.30	13.27	13.28	13.26	13.25
165(5825 MHz)	13.44							
tuneup	**14.00**	**14.00**	**14.00**	**14.00**	**14.00**	**14.00**	**14.00**	**14.00**

12 Simultaneous TX SAR Considerations

12.1 Introduction

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

12.2 Transmit Antenna Separation Distances



Picture 12.1 Antenna Locations

12.3 SAR Measurement Positions

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

SAR measurement positions						
Mode	Front	Rear	Left edge	Right edge	Top edge	Bottom edge
Primary antenna 1	No	Yes	No	Yes	Yes	Yes
Primary antenna 2	No	Yes	Yes	No	No	Yes
WLAN 2.4G	No	No	Yes	No	Yes	No
WLAN 5G	No	Yes	No	No	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: Summary of Transmitters

Band/Mode	P_{ref} power (mW)	RF output power (mW)		SAR test exclusion
		dBm	mW	
Bluetooth	20	6.5	4.47	Yes
2.4GHz WLAN 802.11 b/g/n	20	18.5	70.79	No
5GHz WLAN 802.11 a/n/ac	20	17.5	56.23	No

According to the conducted power measurement result, we can draw the conclusion that: stand-alone SAR for WiFi should be performed. Then, simultaneous transmission SAR for WiFi is considered with measurement results of main antenna and WiFi.

Stand-alone SAR and simultaneous transmission SAR for Bluetooth should not be performed.

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	0.50	0.15	**0.65**
Highest reported SAR value for Body	Rear	0.60	0.75	**1.35**

Note1: we have evaluated and chose the highest value of both main antennae in the above table
Note2: we have evaluated and chose the highest value of WiFi 2.4G and 5G in the above table

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 0/4/9/14/19/29 mm 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-gSAR is the highest measured SAR in each exposure configuration, wireless mode and frequency band combination or more than 1.2W/kg.
The calculated SAR is obtained by the following formula:

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

Where P_{Target} is the power of manufacturing upper limit;
$P_{Measured}$ is the measured power in chapter 11.

Table 14.1: Duty Cycle

Mode	Duty Cycle
Speech for GSM850&1900	1:8.3
GPRS&EGPRS for GSM850(Low&Normal)	1:4
GPRS&EGPRS for GSM1900(Low)	1:4
GPRS&EGPRS for GSM1900(Normal)	1:2
WCDMA&LTE FDD	1:1
LTE TDD	1:1.58

14.1 The evaluation of multi-batteries

We'll perform the head measurement in all bands with the primary battery depending on the evaluation of multi-batteries and retest on highest value point with other batteries. Then, repeat the measurement in the Body test.

Table 14.1-1: The evaluation of multi-batteries for Head Test

Frequency		Mode/Band	Side	Test Position	Battery Type	SAR(1g)	Power Drift(dB)
MHz	Ch.					(W/kg)	
707.5	23095	LTE Band 12	Left	Touch	BAT-63108-003	0.139	0.04
707.5	23095	LTE Band 12	Left	Touch	TLp034E1	0.123	-0.16

Note: According to the values in the above table, the battery, BAT-63108-003, is the primary battery. We'll perform the head measurement with this battery and retest on highest value point with others.

Table 14.1-2: The evaluation of multi-batteries for Body Test

Frequency		Mode/Band	Test Position	Spacing (mm)	Battery Type	SAR(1g)	Power Drift(dB)
MHz	Ch.					(W/kg)	
707.5	23095	LTE Band 12	Left	10	BAT-63108-003	0.263	-0.07
707.5	23095	LTE Band 12	Left	10	TLp034E1	0.238	-0.08

Note: According to the values in the above table, the battery, BAT-63108-003, is the primary battery. We'll perform the body measurement with this battery and retest on highest value point with others.

14.2 SAR results for Fast SAR

Note:

B1: The battery of SWD-WT-N8

B2: The battery of SCUD-WT-N8

H: The headset of GH59-15054A

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

Ambient Temperature: 22.9 °C Liquid Temperature: 22.5°C											
Frequency		Side	Test Position	Figure No./Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz										
190	836.6	Left	Touch	/	24.68	25.50	0.050	**0.06**	0.078	**0.09**	-0.03
190	836.6	Left	Tilt	/	24.68	25.50	0.046	**0.06**	0.072	**0.09**	-0.02
251	848.8	Right	Touch	Fig.1	24.79	25.50	0.113	**0.13**	0.201	**0.24**	0.04
190	836.6	Right	Touch	/	24.68	25.50	0.095	**0.11**	0.168	**0.20**	-0.12
128	824.2	Right	Touch	/	24.52	25.50	0.090	**0.11**	0.162	**0.20**	0.07
190	836.6	Right	Tilt	/	24.68	25.50	0.082	**0.10**	0.15	**0.18**	-0.11
251	848.8	Right	Touch	B2	24.79	25.50	0.101	**0.12**	0.195	**0.23**	0.09

Table 14.2-2: SAR Values (GSM 850 MHz Band - Body)

Ambient Temperature: 22.9 °C Liquid Temperature: 22.5°C											
Frequency		Mode (number of timeslots)	Test Position	Figure No./Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz										
190	836.6	GPRS (2)	Top	Note1	31.21	31.50	0.049	**0.05**	0.071	**0.08**	0.10
190	836.6	GPRS (2)	Rear	Note2	31.21	31.50	0.150	**0.16**	0.211	**0.23**	0.08
190	836.6	GPRS (2)	Left	Note3	31.21	31.50	0.060	**0.06**	0.089	**0.10**	0.10
190	836.6	GPRS (2)	Top	/	22.22	23.50	0.068	**0.09**	0.138	**0.19**	0.12
251	848.8	GPRS (2)	Rear	Fig.2	22.34	23.50	0.197	**0.26**	0.372	**0.49**	0.09
190	836.6	GPRS (2)	Rear	/	22.22	23.50	0.158	**0.21**	0.309	**0.42**	-0.02
128	824.2	GPRS (2)	Rear	/	22.37	23.50	0.137	**0.18**	0.257	**0.33**	-0.08
190	836.6	GPRS (2)	Left	/	22.22	23.50	0.035	**0.05**	0.065	**0.09**	0.07
251	848.8	EGPRS (2)	Rear	/	22.34	23.50	0.193	**0.25**	0.364	**0.47**	-0.03
251	848.8	GPRS (2)	Rear	B2	22.34	23.50	0.132	**0.17**	0.245	**0.32**	0.03

Note: The distance between the EUT and the phantom bottom is 0mm.

Note1: The distance between the EUT and the phantom bottom is 29mm.
Note2: The distance between the EUT and the phantom bottom is 19mm.
Note3: The distance between the EUT and the phantom bottom is 14mm.

Table 14.2-3: SAR Values (GSM 1900 MHz Band - Head)

Ambient Temperature: 22.9 ºC Liquid Temperature: 22.5ºC											
Frequency		Side	Test Position	Figure No./Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz										
661	1880	Left	Touch	/	20.73	21.50	0.051	**0.06**	0.103	**0.12**	-0.10
661	1880	Left	Tilt	/	20.73	21.50	0.040	**0.05**	0.083	**0.10**	-0.12
810	1909.8	Right	Touch	Fig.3	20.87	21.50	0.154	**0.18**	0.350	**0.40**	0.11
661	1880	Right	Touch	/	20.73	21.50	0.121	**0.14**	0.276	**0.33**	-0.10
512	1850.2	Right	Touch	/	20.71	21.50	0.092	**0.11**	0.206	**0.25**	-0.06
661	1880	Right	Tilt	/	20.73	21.50	0.112	**0.13**	0.266	**0.32**	0.09
810	1909.8	Right	Touch	B2	20.87	21.50	0.143	**0.17**	0.301	**0.35**	0.01

Table 14.2-4: SAR Values (GSM 1900 MHz Band - Body)

Ambient Temperature: 22.9 ºC Liquid Temperature: 22.5ºC											
Frequency		Mode (number of timeslots)	Test Position	Figure No./Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz										
661	1880	GPRS (4)	Top	Note1	**25.40**	**27.00**	0.172	**0.25**	0.281	**0.41**	-0.07
810	1909.8	GPRS (4)	Rear	Note2 Fig.6	**25.45**	**27.00**	0.240	**0.34**	0.418	**0.60**	-0.13
661	1880	GPRS (4)	Rear	Note2	**25.40**	**27.00**	0.221	**0.32**	0.374	**0.54**	-0.10
512	1850.2	GPRS (4)	Rear	Note2	**25.48**	**27.00**	0.173	**0.25**	0.295	**0.42**	-0.07
661	1880	EGPRS (4)	Left	Note3	**25.40**	**27.00**	0.142	**0.21**	0.235	**0.34**	-0.06
661	1880	GPRS (2)	Top	/	**17.81**	**19.00**	0.103	**0.14**	0.247	**0.32**	-0.07
661	1880	GPRS (2)	Rear	/	**17.81**	**19.00**	0.146	**0.19**	0.354	**0.47**	0.02
661	1880	GPRS (2)	Left	/	**17.81**	**19.00**	0.030	**0.04**	0.067	**0.09**	0.03
810	1909.8	GPRS (4)	Rear	B2	**25.45**	**27.00**	0.141	**0.20**	0.237	**0.34**	0.03

Note: The distance between the EUT and the phantom bottom is 0mm.
Note1: The distance between the EUT and the phantom bottom is 29mm.
Note2: The distance between the EUT and the phantom bottom is 19mm.
Note3: The distance between the EUT and the phantom bottom is 14mm.

Table 14.2-5: SAR Values (WCDMA 850 MHz Band - Head)

Ambient Temperature: 22.9 ºC Liquid Temperature: 22.5ºC											
Frequency		Side	Test Position	Figure No./Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz										
4182	836.4	Left	Touch	/	17.34	18.00	0.101	**0.12**	0.163	**0.19**	0.06
4182	836.4	Left	Tilt	/	17.34	18.00	0.087	**0.10**	0.137	**0.16**	0.04
4233	846.6	Right	Touch	/	17.30	18.00	0.145	**0.17**	0.257	**0.30**	-0.03
4182	836.4	Right	Touch	Fig.5	17.34	18.00	0.153	**0.18**	0.273	**0.32**	-0.11
4132	826.4	Right	Touch	/	17.28	18.00	0.152	**0.18**	0.272	**0.32**	0.03
4182	836.4	Right	Tilt	/	17.34	18.00	0.111	**0.13**	0.203	**0.24**	0.02
4182	836.4	Right	Touch	B2	17.34	18.00	0.150	**0.17**	0.269	**0.31**	-0.05

Table 14.2-6: SAR Values (WCDMA 850 MHz Band - Body)

Ambient Temperature: 22.9 ºC Liquid Temperature: 22.5ºC										
Frequency		Test Position	Figure No./Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz									
4182	836.4	Top	/	23.48	24.00	0.048	**0.05**	0.065	**0.07**	-0.08
4182	836.4	Rear	/	23.48	24.00	0.139	**0.16**	0.183	**0.21**	0.12
4182	836.4	Left	Fig.6	23.48	24.00	0.048	**0.05**	0.070	**0.08**	-0.01
4182	836.4	Top	/	17.30	18.00	0.080	**0.09**	0.162	**0.19**	0.06
4233	846.6	Rear	/	17.30	18.00	0.222	**0.26**	0.421	**0.49**	-0.06
4182	836.4	Rear	/	17.34	18.00	0.215	**0.25**	0.416	**0.48**	-0.01

4132	826.4	Rear	/	17.28	18.00	0.163	**0.19**	0.380	**0.45**	0.10
4182	836.4	Left	/	17.34	18.00	0.070	**0.08**	0.118	**0.14**	0.06
4233	846.6	Rear	B2	17.30	18.00	0.142	**0.17**	0.260	**0.31**	0.01

Note: The distance between the EUT and the phantom bottom is 0mm.
Note1: The distance between the EUT and the phantom bottom is 29mm.
Note2: The distance between the EUT and the phantom bottom is 19mm.
Note3: The distance between the EUT and the phantom bottom is 14mm.

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

Ambient Temperature: 22.9 ºC Liquid Temperature: 22.5ºC											
Frequency		Side	Test Position	Figure No./Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz										
1412	1732.4	Left	Touch	/	12.30	13.00	0.036	**0.04**	0.061	**0.07**	0.06
1412	1732.4	Left	Tilt	/	12.30	13.00	0.024	**0.03**	0.044	**0.05**	0.02
1513	1752.6	Right	Touch	/	12.02	13.00	0.080	**0.10**	0.157	**0.20**	0.15
1412	1732.4	Right	Touch	/	12.30	13.00	0.078	**0.09**	0.155	**0.18**	0.03
1312	1712.4	Right	Touch	Fig.7	12.40	13.00	0.074	**0.08**	0.147	**0.17**	-0.03
1412	1732.4	Right	Tilt	/	12.30	13.00	0.060	**0.07**	0.122	**0.14**	0.01
1513	1752.6	Right	Touch	B2	12.02	13.00	0.076	**0.10**	0.153	**0.19**	-0.06

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

Ambient Temperature: 22.9 ºC Liquid Temperature: 22.5ºC										
Frequency		Test Position	Figure No./Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz									
1738	1752.6	Front	Note1	23.91	24	0.106	**0.11**	0.157	**0.16**	0.08
1637	1732.4	Front	Note2	23.78	24	0.209	**0.22**	0.326	**0.34**	0.02
1537	1712.4	Front	Note3 Fig.8	23.91	24	0.187	**0.19**	0.293	**0.30**	-0.10
1738	1752.6	Rear	/	23.87	24	0.207	**0.21**	0.323	**0.33**	0.06
1637	1732.4	Rear	/	23.91	24	0.153	**0.16**	0.244	**0.25**	0.07

1537	1712.4	Rear	/	12.30	13.00	0.112	**0.13**	0.241	**0.28**	-0.02
1637	1732.4	Left	/	12.30	13.00	0.111	**0.13**	0.317	**0.37**	-0.05
1637	1732.4	Right	/	12.30	13.00	0.042	**0.05**	0.074	**0.09**	-0.02
1738	1752.6	Bottom	/	23.78	24	0.198	**0.21**	0.320	**0.34**	-0.01
1637	1732.4	Bottom	B	23.91	24	0.106	**0.11**	0.157	**0.16**	0.08

Note: The distance between the EUT and the phantom bottom is 0mm.
Note1: The distance between the EUT and the phantom bottom is 29mm.
Note2: The distance between the EUT and the phantom bottom is 19mm.
Note3: The distance between the EUT and the phantom bottom is 14mm.

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

Ambient Temperature: 22.9 °C Liquid Temperature: 22.5°C											
Frequency		Side	Test Position	Figure No./Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz										
9400	1880	Left	Touch	/	11.08	12.00	0.033	**0.04**	0.071	**0.09**	0.01
9400	1880	Left	Tilt	/	11.08	12.00	0.033	**0.04**	0.071	**0.09**	-0.02
9538	1907.6	Right	Touch	/	11.19	12.00	0.073	**0.09**	0.155	**0.19**	-0.06
9400	1880	Right	Touch	Fig.9	11.08	12.00	0.080	**0.10**	0.172	**0.21**	0.06
9262	1852.4	Right	Touch	/	11.56	12.00	0.072	**0.08**	0.150	**0.17**	0.01
9400	1880	Right	Tilt	/	11.08	12.00	0.072	**0.09**	0.158	**0.20**	-0.08
9400	1880	Right	Touch	B2	11.08	12.00	0.074	**0.09**	0.165	**0.20**	0.07

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

Ambient Temperature: 22.9 °C Liquid Temperature: 22.5°C										
Frequency		Test Position	Figure No./Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz									
9400	1880	Top	Note1	23.41	24.00	0.143	**0.16**	0.218	**0.25**	0.05
9538	1907.6	Rear	Note2	23.44	24.00	0.184	**0.21**	0.295	**0.34**	-0.10
9400	1880	Rear	Note2	23.41	24.00	0.173	**0.20**	0.280	**0.32**	0.06
9262	1852.4	Rear	Note2	23.39	24.00	0.185	**0.21**	0.296	**0.34**	0.02
9400	1880	Left	Note3	23.41	24.00	0.084	**0.10**	0.129	**0.15**	0.12

9400	1880	Top	/	11.08	12.00	0.090	**0.11**	0.193	**0.24**	0.08
9400	1880	Rear	Fig.10	11.08	12.00	0.134	**0.17**	0.274	**0.34**	0.05
9400	1880	Left	/	11.08	12.00	0.025	**0.03**	0.049	**0.06**	0.03
9262	1852.4	Rear	B	23.39	24.00	0.181	**0.21**	0.291	**0.33**	0.19

Note: The distance between the EUT and the phantom bottom is 0mm.
Note1: The distance between the EUT and the phantom bottom is 29mm.
Note2: The distance between the EUT and the phantom bottom is 19mm.
Note3: The distance between the EUT and the phantom bottom is 14mm.

Table 14.2-11: SAR Values (LTE Band2 - Head)

Ambient Temperature: 22.9 °C Liquid Temperature: 22.5°C												
Frequency		Mode	Side	Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz											
18700	1860	1RB_Mid	Left	Touch	/	12.34	13.5	0.029	**0.04**	0.059	**0.08**	0.06
18700	1860	1RB_Mid	Left	Tilt	/	12.34	13.5	0.029	**0.04**	0.060	**0.08**	-0.10
18700	1860	1RB_Mid	Right	Touch	/	12.34	13.5	0.058	**0.08**	0.120	**0.16**	-0.08
18700	1860	1RB_Mid	Right	Tilt	/	12.34	13.5	0.063	**0.08**	0.144	**0.19**	0.13
18700	1860	50RB_Mid	Left	Touch	/	11.13	12.5	0.023	**0.03**	0.047	**0.06**	0.07
18700	1860	50RB_Mid	Left	Tilt	/	11.13	12.5	0.023	**0.03**	0.049	**0.07**	0.09
18700	1860	50RB_Mid	Right	Touch	/	11.13	12.5	0.047	**0.06**	0.099	**0.14**	0.02
18700	1860	50RB_Mid	Right	Tilt	Fig.11	11.13	12.5	0.052	**0.07**	0.118	**0.16**	0.11

18700	1860	1RB_Mid	Right	Tilt	B2	12.34	13.5	0.055	**0.07**	0.123	**0.16**	0.02

Note1: The LTE mode is QPSK_20MHz.

Table 14.2-12: SAR Values (LTE Band2 - Body)

Ambient Temperature: 22.9 °C Liquid Temperature: 22.5°C											
Frequency		Mode	Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz										
19100	1900	1RB_Mid	Top	Note1	23.12	24	0.113	**0.14**	0.174	**0.21**	0.11
19100	1900	1RB_Mid	Rear	Note2 Fig.12	23.12	24	0.145	**0.18**	0.241	**0.30**	-0.02
19100	1900	1RB_Mid	Left	Note3	23.12	24	0.083	**0.10**	0.130	**0.16**	0.08
18700	1860	1RB_Mid	Top	/	12.34	12.5	0.078	**0.08**	0.175	**0.18**	-0.07
18700	1860	1RB_Mid	Rear	/	12.34	12.5	0.108	**0.11**	0.229	**0.24**	-0.05
18700	1860	1RB_Mid	Left	/	12.34	12.5	0.018	**0.02**	0.035	**0.04**	-0.07
19100	1900	50RB_Mid	Top	/	21.95	24	0.088	**0.14**	0.136	**0.22**	0.11
19100	1900	50RB_Mid	Rear	/	21.95	24	0.106	**0.17**	0.178	**0.29**	-0.11
19100	1900	50RB_Mid	Left	/	21.95	24	0.060	**0.10**	0.092	**0.15**	-0.10
18700	1860	50RB_Mid	Top	/	11.13	12.5	0.062	**0.08**	0.134	**0.18**	-0.02
18700	1860	50RB_Mid	Rear	/	11.13	12.5	0.083	**0.11**	0.158	**0.22**	0.08
18700	1860	50RB_Mid	Left	/	11.13	12.5	0.017	**0.02**	0.032	**0.04**	-0.07
19100	1900	1RB_Mid	Rear	B2	23.12	24	0.142	**0.17**	0.232	**0.28**	-0.05

Note: The distance between the EUT and the phantom bottom is 0mm.
Note1: The distance between the EUT and the phantom bottom is 29mm.
Note2: The distance between the EUT and the phantom bottom is 19mm.
Note3: The distance between the EUT and the phantom bottom is 14mm.

Table 14.2-13: SAR Values(LTE Band4 - Head)

Ambient Temperature: 22.9 °C Liquid Temperature: 22.5°C												
Frequency		Mode	Side	Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz											
20175	1732.5	1RB_Mid	Left	Touch	/	12.24	13.3	0.035	**0.04**	0.071	**0.09**	-0.07
20175	1732.5	1RB_Mid	Left	Tilt	/	12.24	13.3	0.033	**0.04**	0.072	**0.09**	0.11
20175	1732.5	1RB_Mid	Right	Touch	/	12.24	13.3	0.070	**0.09**	0.152	**0.19**	0.02
20175	1732.5	1RB_Mid	Right	Tilt	/	12.24	13.3	0.058	**0.07**	0.131	**0.17**	0.07
20175	1732.5	50RB_Mid	Left	Touch	/	11.35	12.3	0.028	**0.03**	0.055	**0.07**	-0.12
20175	1732.5	50RB_Mid	Left	Tilt	/	11.35	12.3	0.027	**0.03**	0.059	**0.07**	-0.11
20175	1732.5	50RB_Mid	Right	Touch	Fig.13	11.35	12.3	0.055	**0.07**	0.122	**0.15**	-0.07

20175	1732.5	50RB_Mid	Right	Tilt	/	11.35	12.3	0.045	**0.06**	0.101	**0.13**	0.08
20175	1732.5	1RB_Mid	Right	Tilt	B2	12.24	13.3	0.064	**0.08**	0.142	**0.18**	0.04

Note1: The LTE mode is QPSK_20MHz.

Table 14.2-14: SAR Values (LTE Band4 - Body)

Ambient Temperature: 22.9 °C Liquid Temperature: 22.5°C											
Frequency		Mode	Test Position	Figure No./Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz										
20300	1745	1RB_Mid	Top	Note1	23.09	24	0.127	**0.16**	0.216	**0.27**	0.04
20300	1745	1RB_Mid	Rear	Note2	23.09	24	0.137	**0.17**	0.237	**0.29**	0.03
20300	1745	1RB_Mid	Left	Note3	23.09	24	0.117	**0.14**	0.210	**0.26**	0.02
20175	1732.5	1RB_Mid	Top	/	11.94	12.3	0.118	**0.13**	0.287	**0.31**	-0.01
20175	1732.5	1RB_Mid	Rear	Fig.14	11.94	12.3	0.215	**0.23**	0.526	**0.57**	0.11
20175	1732.5	1RB_Mid	Left	/	11.94	12.3	0.042	**0.05**	0.086	**0.09**	0.05
20050	1720	50RB_High	Top	/	21.94	24	0.088	**0.14**	0.148	**0.24**	-0.11
20050	1720	50RB_High	Rear	/	21.94	24	0.133	**0.21**	0.236	**0.38**	0.00
20050	1720	50RB_High	Left	/	21.94	24	0.101	**0.16**	0.181	**0.29**	-0.03
20175	1732.5	50RB_High	Top	/	11.35	12.3	0.141	**0.18**	0.360	**0.45**	0.08
20175	1732.5	50RB_High	Rear	/	11.35	12.3	0.039	**0.05**	0.081	**0.10**	0.01
20175	1732.5	50RB_High	Left	/	11.35	12.3	0.211	**0.26**	0.451	**0.56**	0.02
20175	1732.5	1RB_Mid	Rear	B2	12.24	12.3	0.199	**0.20**	0.519	**0.53**	0.11

Note: The distance between the EUT and the phantom bottom is 0mm.
Note1: The distance between the EUT and the phantom bottom is 29mm.
Note2: The distance between the EUT and the phantom bottom is 19mm.
Note3: The distance between the EUT and the phantom bottom is 14mm.

Table 14.2-15: SAR Values (LTE Band5 - Head)

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C												
Frequency		Mode	Side	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g)(W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz											
20450	829	1RB_Mid	Left	Touch	/	17.79	18.5	0.015	**0.02**	0.080	**0.09**	0.01
20450	829	1RB_Mid	Left	Tilt	/	17.79	18.5	0.046	**0.05**	0.068	**0.08**	-0.08
20450	829	1RB_Mid	Right	Touch	Fig.15	17.79	18.5	0.128	**0.15**	0.231	**0.27**	0.13
20450	829	1RB_Mid	Right	Tilt	/	17.79	18.5	0.094	**0.11**	0.174	**0.20**	0.12
20525	836.5	25RB_Mid	Left	Touch	/	16.59	17.5	0.046	**0.06**	0.068	**0.08**	-0.11

20525	836.5	25RB_Mid	Left	Tilt	/	16.59	17.5	0.033	**0.04**	0.050	**0.06**	0.05
20525	836.5	25RB_Mid	Right	Touch	/	16.59	17.5	0.104	**0.13**	0.169	**0.21**	-0.01
20525	836.5	25RB_Mid	Right	Tilt	/	16.59	17.5	0.075	**0.09**	0.139	**0.17**	0.01
20450	829	1RB_Mid	Right	Tilt	B2	17.79	18.5	0.126	**0.15**	0.224	**0.26**	-0.06

Note1: The LTE mode is QPSK_10MHz.

Table 14.2-16: SAR Values (LTE Band5 - Body)

Ambient Temperature: 22.9 ºC Liquid Temperature: 22.5ºC											
Frequency		Mode	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz										
23095	707.5	1RB-Mid	Top	Note1	23.76	24	0.064	**0.07**	0.084	**0.09**	0.02
23095	707.5	1RB-Mid	Rear	Note2	23.76	24	0.155	**0.16**	0.206	**0.22**	-0.02
23095	707.5	1RB-Mid	Left	Note3	23.76	24	0.084	**0.09**	0.115	**0.12**	-0.11
23095	707.5	1RB-Mid	Top	/	17.79	18.5	0.101	**0.12**	0.201	**0.24**	0.04
23095	707.5	1RB-Mid	Rear	Fig.16	17.79	18.5	0.252	**0.30**	0.459	**0.54**	0.05
23095	707.5	1RB-Mid	Left	/	17.79	18.5	0.081	**0.10**	0.137	**0.16**	0.12
23130	711	25RB-Mid	Top	/	22.48	24	0.044	**0.06**	0.059	**0.08**	-0.07
23130	711	25RB-Mid	Rear	/	22.48	24	0.124	**0.18**	0.161	**0.23**	-0.04
23130	711	25RB-Mid	Left	/	22.48	24	0.066	**0.09**	0.092	**0.13**	-0.10
23060	704	25RB-Mid	Top	/	16.59	17.5	0.080	**0.10**	0.163	**0.20**	0.03
23060	704	25RB-Mid	Rear	/	16.59	17.5	0.204	**0.25**	0.362	**0.45**	-0.04
23060	704	25RB-Mid	Left	/	16.59	17.5	0.065	**0.08**	0.111	**0.14**	-0.08
23095	707.5	1RB-Mid	Rear	B2	16.59	18.5	0.236	**0.37**	0.455	**0.71**	0.01

Note: The distance between the EUT and the phantom bottom is 0mm.

Note1: The distance between the EUT and the phantom bottom is 29mm.

Note2: The distance between the EUT and the phantom bottom is 19mm.

Note3: The distance between the EUT and the phantom bottom is 14mm.

Table 15.1-17: SAR Values (LTE Band 7-Head)

Ambient Temperature: 22.9 ºC Liquid Temperature: 22.5 ºC												
Frequency		Mode	Side	Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g)(W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz											
20850	2510	1RB_Mid	Left	Touch	/	12.69	13	0.044	**0.05**	0.098	**0.11**	-0.10
20850	2510	1RB_Mid	Left	Tilt	/	12.69	13	0.043	**0.05**	0.092	**0.10**	0.05
20850	2510	1RB_Mid	Right	Touch	/	12.69	13	0.115	**0.12**	0.239	**0.26**	0.07
20850	2510	1RB_Mid	Right	Tilt	Fig.17	12.69	13	0.192	**0.21**	0.462	**0.50**	0.05
20850	2510	50RB_Mid	Left	Touch	/	11.61	12	0.035	**0.04**	0.082	**0.09**	0.07
20850	2510	50RB_Mid	Left	Tilt	/	11.61	12	0.032	**0.03**	0.072	**0.08**	-0.10
20850	2510	50RB_Mid	Right	Touch	/	11.61	12	0.124	**0.14**	0.266	**0.29**	0.08
20850	2510	50RB_Mid	Right	Tilt	/	11.61	12	0.154	**0.17**	0.365	**0.40**	0.05

20850	2510	1RB_Mid	Right	Tilt	B2	12.69	13	0.175	**0.19**	0.433	**0.46**	-0.09

Note1: The LTE mode is QPSK_20MHz.

Table 15.1-18: SAR Values (LTE Band 7-Body)

Ambient Temperature: 22.9 °C Liquid Temperature: 22.5 °C											
Frequency		Mode	Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz										
21350	2560	1RB_Mid	Top	Note2	23.91	24	0.110	**0.11**	0.197	**0.20**	0.08
21350	2560	1RB_Mid	Rear	Note3	23.91	24	0.154	**0.16**	0.279	**0.28**	-0.05
21350	2560	1RB_Mid	Left	Fig.18/ Note4	23.91	24	0.226	**0.23**	0.417	**0.43**	0.05
20850	2510	1RB_Mid	Top	/	12.69	13	0.052	**0.06**	0.123	**0.13**	0.11
20850	2510	1RB_Mid	Rear	/	12.69	13	0.117	**0.13**	0.294	**0.32**	0.06
20850	2510	1RB_Mid	Left	/	12.69	13	0.047	**0.05**	0.110	**0.12**	-0.05
20850	2510	50RB_Mid	Top	Note2	22.61	23	0.088	**0.10**	0.156	**0.17**	0.05
20850	2510	50RB_Mid	Rear	Note3	22.61	23	0.132	**0.14**	0.243	**0.27**	-0.08
20850	2510	50RB_Mid	Left	Note4	22.61	23	0.185	**0.20**	0.340	**0.37**	0.11
20850	2510	50RB_Mid	Top	/	11.61	12	0.068	**0.07**	0.172	**0.19**	0.07
20850	2510	50RB_Mid	Rear	/	11.61	12	0.120	**0.13**	0.282	**0.31**	-0.05
20850	2510	50RB_Mid	Left	/	11.61	12	0.057	**0.06**	0.125	**0.14**	0.04
21350	2560	1RB_Mid	Left	B2/ Note4	23.91	24	0.173	**0.18**	0.304	**0.31**	0.11
21350	2560	1RB_Mid	Left	H/ Note4	23.91	24	0.206	**0.21**	0.409	**0.42**	0.11

Note1: The distance between the EUT and the phantom bottom is 0mm
Note2: The distance between the EUT and the phantom bottom is 29mm
Note3: The distance between the EUT and the phantom bottom is 19mm
Note4: The distance between the EUT and the phantom bottom is 14mm
Note5: The LTE mode is QPSK_20MHz.

Table 14.2-19: SAR Values (LTE Band12 - Head)

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C												
Frequency		Mode	Side	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g)(W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz											
23095	707.5	1RB_Mid	Left	Touch	/	15.83	16.5	0.049	**0.06**	0.084	**0.10**	-0.10
23095	707.5	1RB_Mid	Left	Tilt	/	15.83	16.5	0.056	**0.07**	0.101	**0.12**	-0.11
23095	707.5	1RB_Mid	Right	Touch	Fig.19	15.83	16.5	0.096	**0.11**	0.176	**0.21**	-0.14
23095	707.5	1RB_Mid	Right	Tilt	/	15.83	16.5	0.071	**0.08**	0.136	**0.16**	-0.09
23060	704	50RB_Mid	Left	Touch	/	14.39	15.5	0.040	**0.05**	0.067	**0.09**	0.04
23060	704	50RB_Mid	Left	Tilt	/	14.39	15.5	0.041	**0.05**	0.073	**0.09**	-0.10
23060	704	50RB_Mid	Right	Touch	/	14.39	15.5	0.070	**0.09**	0.129	**0.17**	-0.03
23060	704	50RB_Mid	Right	Tilt	/	14.39	15.5	0.055	**0.07**	0.105	**0.14**	-0.04
23095	707.5	1RB_Mid	Right	Tilt	B2	15.83	15.5	0.095	**0.09**	0.172	**0.16**	0.02

Note1: The LTE mode is QPSK_10MHz.

Table 14.2-20: SAR Values (LTE Band12 - Body)

Ambient Temperature: 22.9 ºC Liquid Temperature: 22.5ºC											
Frequency		Mode	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz										
23095	707.5	1RB-Mid	Top	Note1	23.56	24	0.031	**0.03**	0.042	**0.05**	-0.07
23095	707.5	1RB-Mid	Rear	Note2	23.56	24	0.086	**0.10**	0.112	**0.12**	0.06
23095	707.5	1RB-Mid	Left	Note3	23.56	24	0.023	**0.03**	0.033	**0.04**	0.06
23095	707.5	1RB-Mid	Top	/	15.83	16.5	0.049	**0.06**	0.111	**0.13**	0.11
23095	707.5	1RB-Mid	Rear	Fig.20	15.83	16.5	0.150	**0.17**	0.284	**0.33**	-0.05
23095	707.5	1RB-Mid	Left	/	15.83	16.5	0.021	**0.02**	0.039	**0.05**	0.02
23130	711	50RB-Mid	Top	/	22.44	23	0.023	**0.03**	0.031	**0.04**	-0.08
23130	711	50RB-Mid	Rear	/	22.44	23	0.071	**0.08**	0.094	**0.11**	0.12
23130	711	50RB-Mid	Left	/	22.44	23	0.018	**0.02**	0.028	**0.03**	-0.07
23060	704	50RB-Mid	Top	/	14.39	15.5	0.034	**0.04**	0.077	**0.10**	-0.04
23060	704	50RB-Mid	Rear	/	14.39	15.5	0.108	**0.14**	0.200	**0.26**	-0.12
23060	704	50RB-Mid	Left	/	14.39	15.5	0.017	**0.02**	0.032	**0.04**	0.05
23095	707.5	1RB-Mid	Rear	B2	15.83	16.5	0.105	**0.12**	0.192	**0.22**	0.06

Note: The distance between the EUT and the phantom bottom is 0mm.
Note1: The distance between the EUT and the phantom bottom is 29mm.
Note2: The distance between the EUT and the phantom bottom is 19mm.
Note3: The distance between the EUT and the phantom bottom is 14mm.

Table 14.2-21: SAR Values (LTE Band41 - Head)

Ambient Temperature: 22.9 ºC Liquid Temperature: 22.5ºC												
Frequency		Mode	Side	Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g)(W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz											
40465	2577.5	1RB_Mid	Left	Touch	/	15.66	16	0.028	**0.03**	0.061	**0.07**	0.07
40465	2577.5	1RB_Mid	Left	Tilt	/	15.66	16	0.033	**0.04**	0.074	**0.08**	0.03
40465	2577.5	1RB_Mid	Right	Touch	/	15.66	16	0.073	**0.08**	0.148	**0.16**	-0.10
40465	2577.5	1RB_Mid	Right	Tilt	Fig.21	15.66	16	0.106	**0.11**	0.250	**0.27**	0.03
40465	2577.5	50RB_High	Left	Touch	/	14.29	15	0.018	**0.02**	0.039	**0.05**	-0.09

40465	2577.5	50RB_High	Left	Tilt	/	14.29	15	0.027	**0.03**	0.061	**0.07**	0.05
40465	2577.5	50RB_High	Right	Touch	/	14.29	15	0.056	**0.07**	0.107	**0.13**	-0.05
40465	2577.5	50RB_High	Right	Tilt	/	14.29	15	0.079	**0.09**	0.185	**0.22**	0.01
40465	2577.5	1RB_Mid	Right	Touch	B2	15.66	15	0.100	**0.09**	0.212	**0.18**	0.08

Note1: The LTE mode is QPSK_20MHz.

Table 14.2-22: SAR Values (LTE Band41 - Body)

Ambient Temperature: 22.9℃ Liquid Temperature: 22.5℃											
Frequency		Mode	Test Position	Figure No./Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz										
41165	2647.5	1RB_Mid	Top	Note1	23.71	24	0.063	**0.07**	0.105	**0.11**	-0.04
41165	2647.5	1RB_Mid	Rear	Note2	23.71	24	0.088	**0.09**	0.142	**0.15**	0.11
41165	2647.5	1RB_Mid	Left	Note3	23.71	24	0.160	**0.17**	0.272	**0.29**	-0.04
40465	2577.5	1RB_Mid	Top	/	15.66	16	0.077	**0.08**	0.170	**0.18**	0.12
40465	2577.5	1RB_Mid	Rear	Fig.22	15.66	16	0.192	**0.21**	0.446	**0.48**	0.06
40465	2577.5	1RB_Mid	Left	/	15.66	16	0.080	**0.09**	0.165	**0.18**	0.09
41165	2647.5	50RB_High	Top	/	22.39	24	0.045	**0.07**	0.074	**0.11**	-0.01
41165	2647.5	50RB_High	Rear	/	22.39	24	0.065	**0.09**	0.106	**0.15**	0.04
41165	2647.5	50RB_High	Left		22.39	24	0.121	**0.18**	0.204	**0.30**	-0.05
40465	2577.5	50RB_Mid	Top	/	14.29	15	0.057	**0.07**	0.118	**0.14**	0.09
40465	2577.5	50RB_Mid	Rear	/	14.29	15	0.146	**0.17**	0.341	**0.40**	0.08
40465	2577.5	50RB_Mid	Left	/	14.29	15	0.060	**0.07**	0.124	**0.15**	-0.11
40465	2577.5	1RB_Mid	Rear	B	15.66	16	0.187	**0.20**	0.441	**0.48**	-0.05

Note: The distance between the EUT and the phantom bottom is 0mm.
Note1: The distance between the EUT and the phantom bottom is 29mm.
Note2: The distance between the EUT and the phantom bottom is 19mm.
Note3: The distance between the EUT and the phantom bottom is 14mm.

14.3 SAR results for Standard procedure

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

Frequency Band	Channel Number	Frequency (MHz)	Test setup		EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 10g (W/kg)	Calculated SAR 10g (W/kg)	Measured SAR 1g (W/kg)	Calculated SAR 1g (W/kg)	Power Drift
GSM850	251	848.8	Right check	Fig.1	24.79	25.50	0.113	**0.13**	0.201	**0.24**	0.04
GSM850	251	848.8	Rear GPRS 0mm	Fig.2	22.34	23.50	0.197	**0.26**	0.372	**0.49**	0.09
GSM1900	810	1909.8	Right check	Fig.3	20.87	21.50	0.154	**0.18**	0.350	**0.40**	0.11
GSM1900	810	1909.8	Rear	Fig.4	25.45	27.00	0.240	**0.34**	0.418	**0.60**	-0.13
WCDMA 1900	9400	1880	Right check	Fig.5	11.08	12.00	0.080	**0.10**	0.172	**0.21**	0.06
WCDMA 1900	9262	1852.4	Rear	Fig.6	23.39	24.00	0.185	**0.21**	0.296	**0.34**	0.02
WCDMA 1700	1513	1752.6	Right check	Fig.7	12.02	13.00	0.080	**0.10**	0.157	**0.20**	0.15
WCDMA 1700	1513	1752.6	Rear 19mm	Fig.8	23.78	24	0.209	**0.22**	0.326	**0.34**	0.02
WCDMA 850	4182	836.4	Right check	Fig.9	17.34	18.00	0.153	**0.18**	0.273	**0.32**	-0.11
WCDMA 850	4233	846.6	Rear	Fig.10	17.30	18.00	0.222	**0.26**	0.421	**0.49**	-0.06
LTE Band2	18700	1860	1RB-Middle	Fig.11	12.34	13.5	0.063	**0.08**	0.144	**0.19**	0.13
LTE Band2	19100	1900	Rear	Fig.12	23.12	24	0.145	**0.18**	0.241	**0.30**	-0.02
LTE Band4	20175	1732.5	1RB-Middle	Fig.13	12.24	13.3	0.070	**0.09**	0.152	**0.19**	0.02
LTE Band4	20175	1732.5	Rear	Fig.14	11.94	12.3	0.215	**0.23**	0.526	**0.57**	0.11
LTE Band5	20450	829	1RB-Middle	Fig.15	17.79	18.5	0.128	**0.15**	0.231	**0.27**	0.13
LTE Band5	20450	829	Rear	Fig.16	17.79	18.5	0.252	**0.30**	0.459	**0.54**	0.05
LTE Band7	20850	2510	Right Tilt	Fig.17	12.69	13	0.192	**0.21**	0.462	**0.50**	0.05
LTE Band7	21350	2560	Left	Fig.18	23.91	24	0.226	**0.23**	0.417	**0.43**	0.05
LTE Band12	23095	707.5	1RB-Middle	Fig.19	15.83	16.5	0.096	**0.11**	0.176	**0.21**	-0.14
LTE Band12	23095	707.5	Rear	Fig.20	15.83	16.5	0.150	**0.17**	0.284	**0.33**	-0.05
LTE Band41	40465	2577.5	1RB-Middle	Fig.21	15.66	16	0.106	**0.11**	0.250	**0.27**	0.03
LTE Band41	40465	2577.5	Rear	Fig.22	15.66	16	0.192	**0.21**	0.446	**0.48**	0.06

14.4 WLAN Evaluation

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

Head Evaluation

Table 14.4-1: SAR Values (WLAN - Head)– 802.11b 1Mbps (Fast SAR)

Ambient Temperature: 22.9 ºC Liquid Temperature: 22.5ºC											
Frequency	Side	Test	Figure	Conducte	Max. tune-	Measured	Reported	Measured	Reported	Power

MHz	Ch.		Position	No./ Note	d Power (dBm)	up Power (dBm)	SAR(10g) (W/kg)	SAR(10g) (W/kg)	SAR(1g) (W/kg)	SAR(1g)(W/kg)	Drift (dB)
2412	1	Left	Touch	/	17.98	18.50	0.046	0.05	0.105	0.12	-0.06
2412	1	Left	Tilt	/	17.98	18.50	0.038	0.04	0.087	0.1	0.05
2412	1	Right	Touch	/	17.98	18.50	0.041	0.05	0.094	0.11	0.05
2412	1	Right	Tilt	/	17.98	18.50	0.022	0.02	0.061	0.07	0.12
2412	1	Right	Touch	B2	17.98	18.50	0.04	0.05	0.098	0.11	0.13

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

Table 14.4-2: SAR Values (WLAN - Head)– 802.11b 1Mbps (Full SAR)

Ambient Temperature: 22.9℃ Liquid Temperature: 22.5℃											
Frequency		Side	Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g)(W/kg)	Power Drift (dB)
MHz	Ch.										
2437	6	Left	Touch	Fig.21	17.98	**18.50**	0.045	**0.05**	0.109	**0.12**	0.14
Note1: When the reported SAR of the initial test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position using subsequent highest estimated 1-g SAR conditions determined by area scans, on the highest maximum output power channel, until the reported SAR is ≤ 0.8 W/kg. Note2: For all positions/configurations tested using the initial test position and subsequent test positions, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel until the reported SAR is ≤ 1.2 W/kg or all required channels are tested.											

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

Body Evaluation

Table 14.4-4: SAR Values(WLAN - Body)– 802.11b 1Mbps (Fast SAR)

Ambient Temperature: 22.9 ºC Liquid Temperature: 22.5ºC										
Frequency		Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g)(W/kg)	Power Drift (dB)
MHz	Ch.									
2437	6	Front	/	17.81	18.50	0.031	0.04	0.077	0.09	0.02
2437	6	Rear	/	17.81	18.50	0.188	0.22	0.644	0.75	0.08
2412	1	Right	/	17.98	18.50	0.067	0.08	0.137	0.15	0.11
2437	6	Top	/	17.81	18.50	0.165	0.19	0.601	0.7	0.13
2437	6	Rear	B2	17.81	18.5	0.175	0.22	0.615	0.75	0.08

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

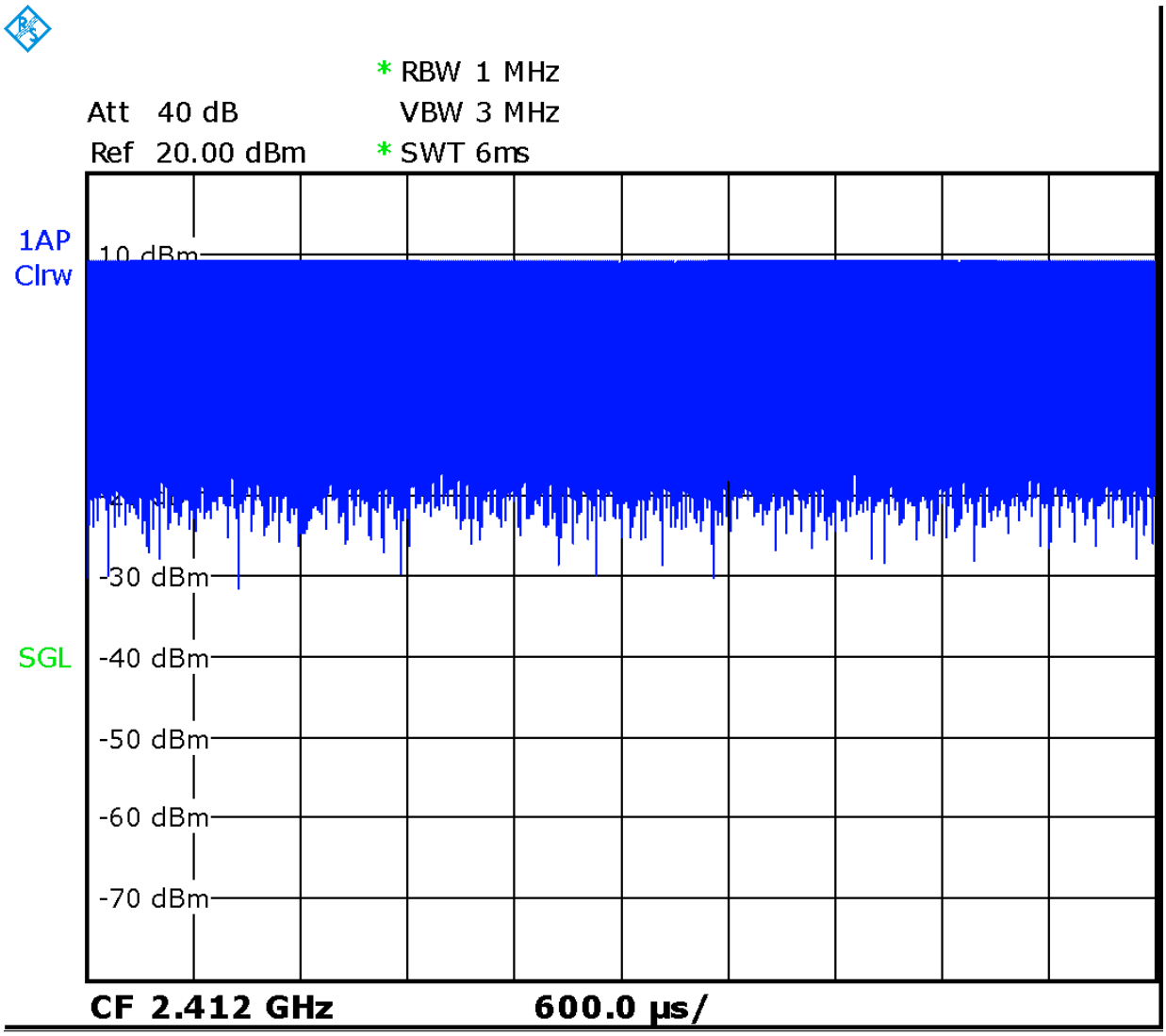
Table 14.4-5: SAR Values(WLAN - Body)– 802.11b 1Mbps (Full SAR)

Ambient Temperature: 22.9 ºC Liquid Temperature: 22.5ºC										
Frequency		Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g)(W/kg)	Power Drift (dB)
MHz	Ch.									
2437	6	Rear	Fig.38	17.81	**18.50**	0.188	**0.22**	0.644	**0.75**	0.13

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

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

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



Picture 14.1 Duty factor plot

14.5 WLAN Evaluation For 5G

Table 14.5-1: OFDM mode specified maximum output power of WLAN antenna

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

Table 14.5-2: Maximum output power specified of WLAN antenna

802.11 mode	a	g	n		ac			
Ch. BW(MHz)	20	20	20	40	20	40	80	160
U-NII-1	45		37		24			
U-NII-2A	51		41		25			
U-NII-2C	51		45		33			
U-NII-3	22		22		19			
§ 15.247 (5.8 GHz)								

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

Table 14.5-3: Maximum output power measured of WLAN antenna, for the applicable OFDM configurations according to the default power measurement procedures for selection initial test configurations

802.11 mode	a	n		ac		
BW(MHz)	20	20	40	20	40	80
U-NII-1	36/40/44/48 **77/75/69/66**	36/40/44/48 Lower power	38/46 Lower power	36/40/44/48 Lower power	38/46 Lower power	42 Lower power
U-NII-2A	52/56/60/64 **67/72/78/85**	52/56/60/64 Lower power	54/62 Lower power	52/56/60/64 Lower power	54/62 Lower power	58 Lower power
U-NII-2C	100/104/108/112 **75/68/62/62**	100/104/108/112	102/110/134 Lower	100/104/108/112	102/110/134 Lower	106 Lower

	116/132/136/140/144 **64/56/49/44/42**	116/132/136/140 Lower power	power	116/132/136/140 Lower power	power	power
U-NII-3	149/153/157/161/165 **25/25/26/25/24**	149/153/157/161/165 Lower power	151/159 Lower power	149/153/157/161/165 Lower power	151/159 Lower power	155 Lower power
● Channels with measured maximum power within 0.25dB are considered to have the same measured output. Channels selected for initial test configuration are highlighted in yellow.						

Table 14.5-4: Reported SAR of initial test configuration for Head

802.11 mode	**a**	**n**		**ac**		
BW(MHz)	**20**	**20**	**40**	**20**	**40**	**80**
U-NII-1	36/40/44/48	36/40/44/48	38/46	36/40/44/48	38/46	42
U-NII-2A	52/56/60/64 **0.04**	52/56/60/64	54/62	52/56/60/64	54/62	58
U-NII-2C	100/104/108/112 116/132/136/140/144 **0.02**	100/104/108/112 116/132/136/140	102/110/118/ 126/134	100/104/108/112 116/132/136/140	102/110/134	106
U-NII-3	149/153/157/161/165 **0.05**	149/153/157/161 /165	151/159	149/153/157/161 /165	151/159	155
U-NII-1 and U-NII-2A bands have the same specified maximum output and tolerance; SAR is measured for U-NII-2A band first. Adjusted SAR of U-NII-2A band is ≤ 1.2W/kg, SAR is not required for U-NII-1 band.						

Table 14.5-5: Reported SAR of initial test configuration for Body

802.11 mode	**a**	**n**		**ac**		
BW(MHz)	**20**	**20**	**40**	**20**	**40**	**80**
U-NII-1	36/40/44/48	36/40/44/48	38/46	36/40/44/48	38/46	42
U-NII-2A	52/56/60/64 **0.59**	52/56/60/64	54/62	52/56/60/64	54/62	58
U-NII-2C	100/104/108/112 116/132/136/140/144 **0.30**	100/104/108/112 116/132/136/140	102/110/118/ 126/134	100/104/108/112 116/132/136/140	102/110/134	106
U-NII-3	149/153/157/161/165 **0.41**	149/153/157/161 /165	151/159	149/153/157/161 /165	151/159	155
U-NII-1 and U-NII-2A bands have the same specified maximum output and tolerance; SAR is measured for U-NII-2A band first. Adjusted SAR of U-NII-2A band is ≤ 1.2W/kg, SAR is not required for U-NII-1 band.						

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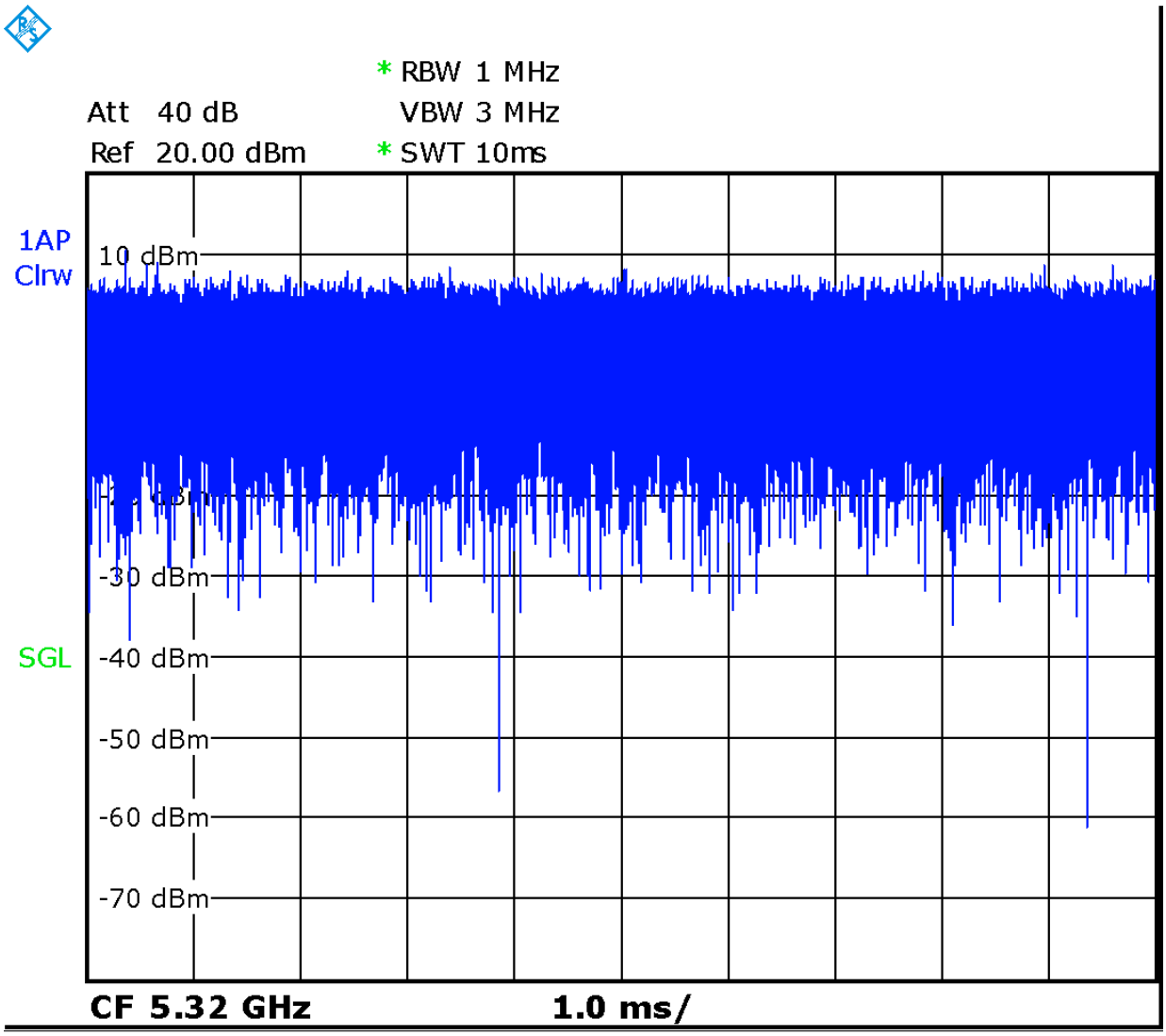
Table 14.5-6: SAR Values (WLAN - Head) – 802.11a 6Mbps

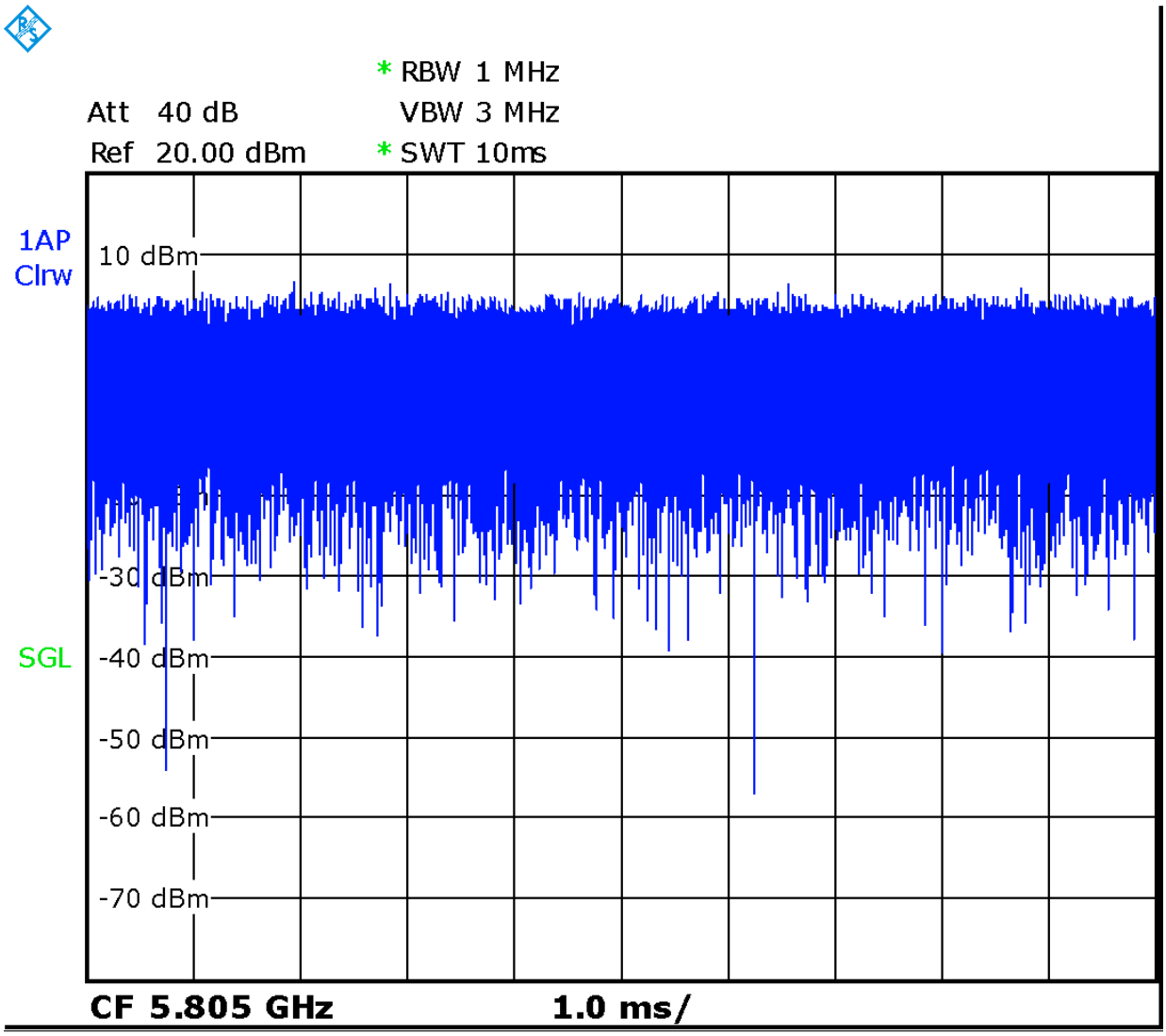
Ambient Temperature: 22.9 °C Liquid Temperature: 22.5 °C											
Frequency		Side	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g)(W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.										
5180	36	Left	Touch	/	16.57	17.5	0.123	**0.15**	0.262	**0.32**	0.10
5180	36	Left	Tilt	/	16.57	17.5	0.105	**0.13**	0.218	**0.27**	-0.10
5180	36	Right	Touch	/	13.12	14	0.182	**0.22**	0.434	**0.53**	-0.04
5180	36	Right	Tilt	Fig.27	13.12	14	0.126	**0.15**	0.324	**0.4**	0.14
5320	64	Left	Touch	/	17.06	17.5	0.108	**0.12**	0.263	**0.29**	0.01
5320	64	Left	Tilt	/	17.06	17.5	0.1	**0.11**	0.202	**0.22**	0.12
5320	64	Right	Touch	/	13.67	14	0.161	**0.17**	0.37	**0.4**	0.05
5320	64	Right	Tilt	/	13.67	14	0.11	**0.12**	0.251	**0.27**	-0.12
5500	100	Left	Touch	/	17.09	17.5	0.057	**0.06**	0.136	**0.15**	-0.05
5500	100	Left	Tilt	/	17.09	17.5	0.049	**0.05**	0.114	**0.12**	0.02
5500	100	Right	Touch	/	13.62	14	0.085	**0.09**	0.226	**0.25**	-0.09
5500	100	Right	Tilt	/	13.62	14	0.059	**0.06**	0.168	**0.18**	-0.11
5805	161	Left	Touch	/	13.52	14	0.041	**0.05**	0.116	**0.13**	0.02
5805	161	Left	Tilt	/	13.52	14	0.038	**0.04**	0.09	**0.1**	-0.05
5805	161	Right	Touch	/	13.47	13.5	0.062	**0.06**	0.164	**0.17**	0.04
5805	161	Right	Tilt	/	13.47	13.5	0.043	**0.04**	0.111	**0.11**	0.05
5180	36	Right	Touch	B2	13.12	14	0.174	**0.21**	0.427	**0.52**	0.10

Table 14.5-7: SAR Values (WLAN - Body) – 802.11a 6Mbps

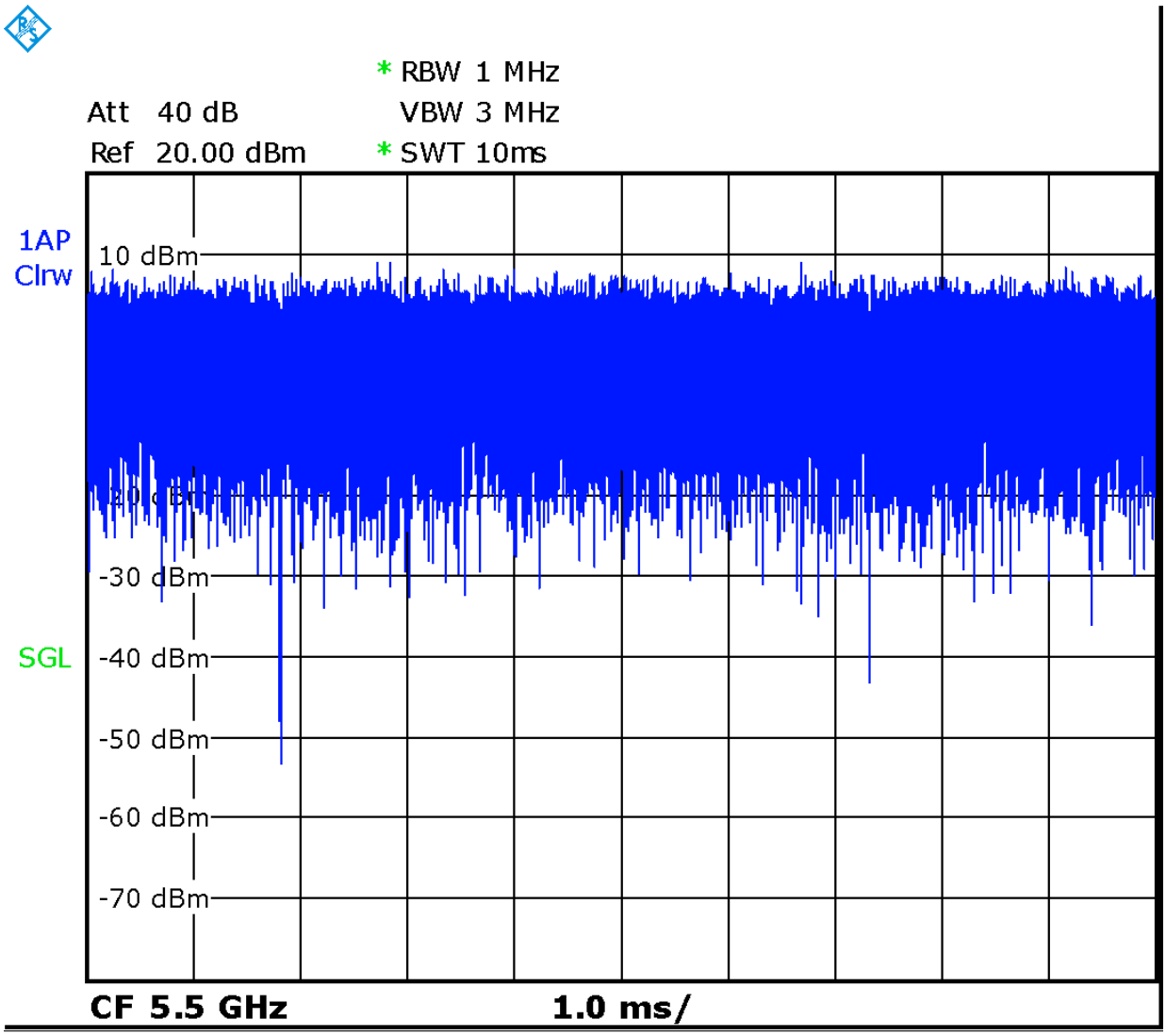
Ambient Temperature: 22.9 ºC Liquid Temperature: 22.5 ºC										
Frequency		Test Position	Figure No.	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.									
5180	36	Top	Note2	16.57	17.5	0.076	**0.09**	0.203	**0.25**	0.02
5180	36	Rear	Note3	16.57	17.5	0.049	**0.06**	0.139	**0.17**	-0.02
5180	36	Top	/	13.12	14	0.046	**0.06**	0.137	**0.17**	-0.11
5180	36	Rear	Fig.28	13.12	14	0.135	**0.17**	0.473	**0.58**	0.04
5320	64	Top	Note2	17.06	17.5	0.086	**0.1**	0.298	**0.33**	0.05
5320	64	Rear	Note3	17.06	17.5	0.049	**0.05**	0.156	**0.17**	0.12
5320	64	Top	/	13.67	14	0.054	**0.06**	0.177	**0.19**	-0.07
5320	64	Rear	/	13.67	14	0.115	**0.12**	0.385	**0.42**	-0.04
5500	100	Top	Note2	17.09	17.5	0.054	**0.06**	0.168	**0.18**	-0.10
5500	100	Rear	Note3	17.09	17.5	0.035	**0.04**	0.105	**0.12**	0.03
5500	100	Top	/	13.62	14	0.033	**0.04**	0.104	**0.11**	-0.04
5500	100	Rear	/	13.62	14	0.058	**0.06**	0.193	**0.21**	-0.08
5805	161	Top	Note2	13.52	14	0.012	**0.01**	0.035	**0.04**	0.01
5805	161	Rear	Note3	13.52	14	0.004	**0**	0.011	**0.01**	-0.07
5805	161	Top	/	13.47	13.5	0.004	**0**	0.015	**0.02**	-0.04
5805	161	Rear	/	13.47	13.5	0.009	**0.01**	0.028	**0.03**	-0.12
5180	36	Rear	B2	13.12	14	0.131	**0.16**	0.47	**0.58**	0.05



Picture 14.2 The plot of duty factor for U-NII-2A



Picture 14.3 The plot of duty factor for U-NII-2C



Picture 14.4 The plot of duty factor for U-NII-3

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	RFambient conditions-reflection	B	0	R	√3	1	1	0	0	∞
11	Probe positioned mech. restrictions	B	0.8	R	√3	1	1	0.5	0.5	∞
12	Probe positioning with respect to phantom shell	B	6.7	R	√3	1	1	3.9	3.9	∞
13	Post-processing	B	4.0	R	√3	1	1	2.3	2.3	∞
Test sample related										
14	Test sample positioning	A	3.3	N	1	1	1	3.3	3.3	71
15	Device holder uncertainty	A	3.4	N	1	1	1	3.4	3.4	5
16	Drift of output power	B	5.0	R	√3	1	1	2.9	2.9	∞
Phantom and set-up										
17	Phantom uncertainty	B	4.0	R	√3	1	1	2.3	2.3	∞
18	Liquid conductivity (target)	B	5.0	R	√3	0.64	0.43	1.8	1.2	∞
19	Liquid conductivity (meas.)	A	2.06	N	1	0.64	0.43	1.32	0.89	43
20	Liquid permittivity (target)	B	5.0	R	√3	0.6	0.49	1.7	1.4	∞

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

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

No.	Error Description	Type	Uncertainty value	Probably Distribution	Div.	(Ci) 1g	(Ci) 10g	Std. Unc. (1g)	Std. Unc. (10g)	Degree of freedom
Measurement system										
1	Probe calibration	B	6.0	N	1	1	1	6.0	6.0	∞
2	Isotropy	B	4.7	R	$\sqrt{3}$	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	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	∞
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	RFambient 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	N5239A	MY55491241	June 15, 2018	One year
02	Power meter	NRVD	102083	Octomber 24, 2018	One year
03	Power sensor	NRV-Z5	100542		
04	Signal Generator	E4438C	MY49070393	January 4, 2019	One Year
05	Amplifier	60S1G4	0331848	No Calibration Requested	
07	BTS	CMW500	149646	Octomber 22, 2018	One year
08	E-field Probe	SPEAG EX3DV4	7514	August 27, 2018	One year
09	DAE	SPEAG DAE4	1525	September 18, 2018	One year
10	Dipole Validation Kit	SPEAG D750V3	1017	July 23,2018	One year
11	Dipole Validation Kit	SPEAG D900V2	1d051	July 23,2018	One year
12	Dipole Validation Kit	SPEAG D1800V2	2d145	July 25,2018	One year
13	Dipole Validation Kit	SPEAG D1900V2	5d101	July 24,2018	One year
14	Dipole Validation Kit	SPEAG D2450V2	853	July 24,2018	One year
15	Dipole Validation Kit	SPEAG D2600V2	1012	July 26,2018	One year
16	Dipole Validation Kit	SPEAG D2300V2	1018	July 24,2018	One year
17	Dipole Validation Kit	SPEAG D5GHzV2	1262	January 31, 2019	One year

END OF REPORT BODY

ANNEX A Graph Results

850 Right Cheek High

Date: 2019-5-17
Electronics: DAE4 Sn1525
Medium: Head 850 MHz
Medium parameters used (interpolated): f = 848.8 MHz; σ = 0.917 mho/m; εr = 41.52; ρ = 1000 kg/m^3
Ambient Temperature: 22.9ºC Liquid Temperature: 22.5ºC
Communication System: GSM 850 GPRS Frequency: 848.8 MHz Duty Cycle: 1:8.3
Probe: EX3DV4 – SN7514 ConvF(9.03, 9.03, 9.03)

Area Scan (101x161x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.244 W/kg

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

Reference Value = 10.83 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.428 W/kg
SAR(1 g) = 0.201 W/kg; SAR(10 g) = 0.113 W/kg
Maximum value of SAR (measured) = 0.300 W/kg

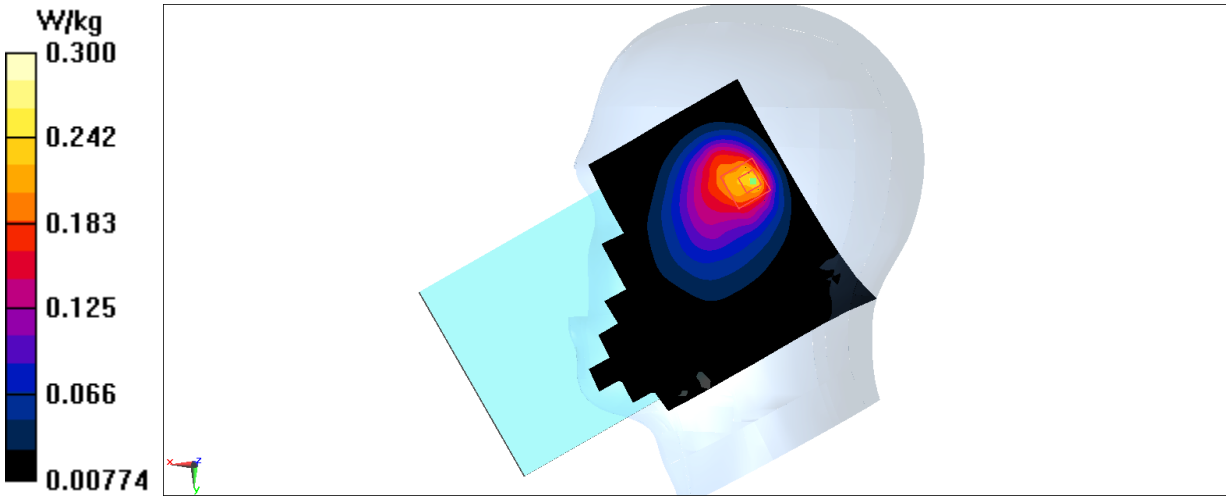


Fig.1 850MHz

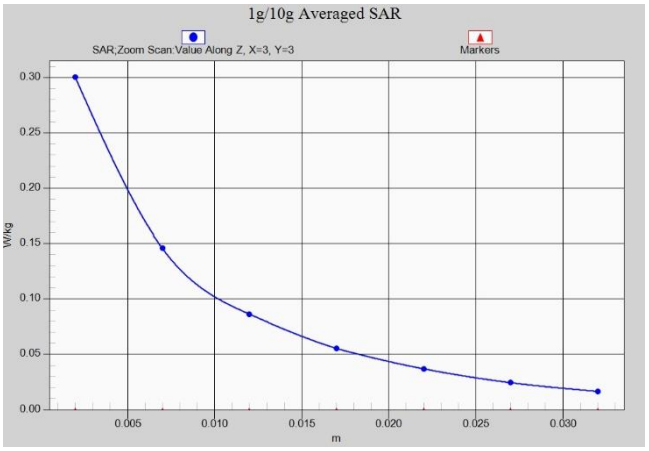


Fig. 1-1 Z-Scan at power reference point (850 MHz)

850 Body Rear High

Date: 2019-5-17

Electronics: DAE4 Sn1525

Medium: Body 850 MHz

Medium parameters used (interpolated): f = 848.8 MHz; σ = 0.976 mho/m; εr = 56.07; ρ = 1000 kg/m^3

Ambient Temperature: 22.9ºC Liquid Temperature: 22.5ºC

Communication System: GSM 850 GPRS Frequency: 848.8 MHz Duty Cycle: 1:4

Probe: EX3DV4 – SN7514 ConvF(9.03, 9.03, 9.03)

Area Scan (101x161x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.627 W/kg

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

Reference Value = 1.294 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 0.865 W/kg

SAR(1 g) = 0.372 W/kg; SAR(10 g) = 0.197 W/kg

Maximum value of SAR (measured) = 0.557 W/kg

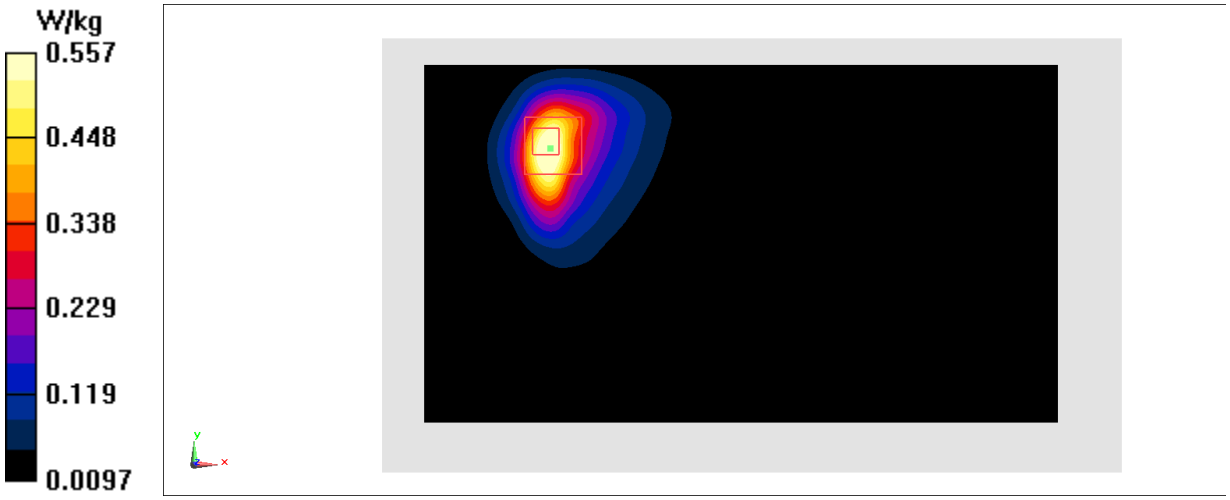


Fig.2 850 MHz

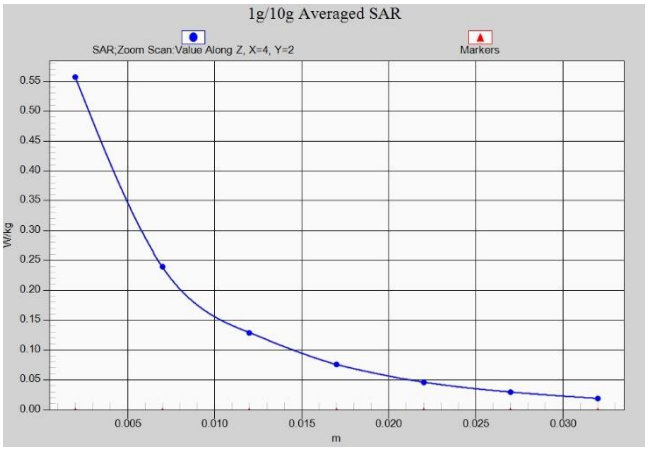


Fig. 2-1 Z-Scan at power reference point (850 MHz)

1900 Right Cheek High

Date: 2019-5-19

Electronics: DAE4 Sn1525

Medium: Head 1900 MHz

Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.409 mho/m; εr = 40.86; ρ = 1000 kg/m^3

Ambient Temperature: 22.9ºC Liquid Temperature: 22.5ºC

Communication System: GSM 1900MHz GRPS Frequency: 1850.2 MHz Duty Cycle: 1:8.3

Probe: EX3DV4 – SN7514 ConvF(7.73,7.73, 7.73)

Area Scan (101x161x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.543 W/kg

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

Reference Value = 7.404 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 0.745 W/kg

SAR(1 g) = 0.350 W/kg; SAR(10 g) = 0.154 W/kg

Maximum value of SAR (measured) = 0.544 W/kg

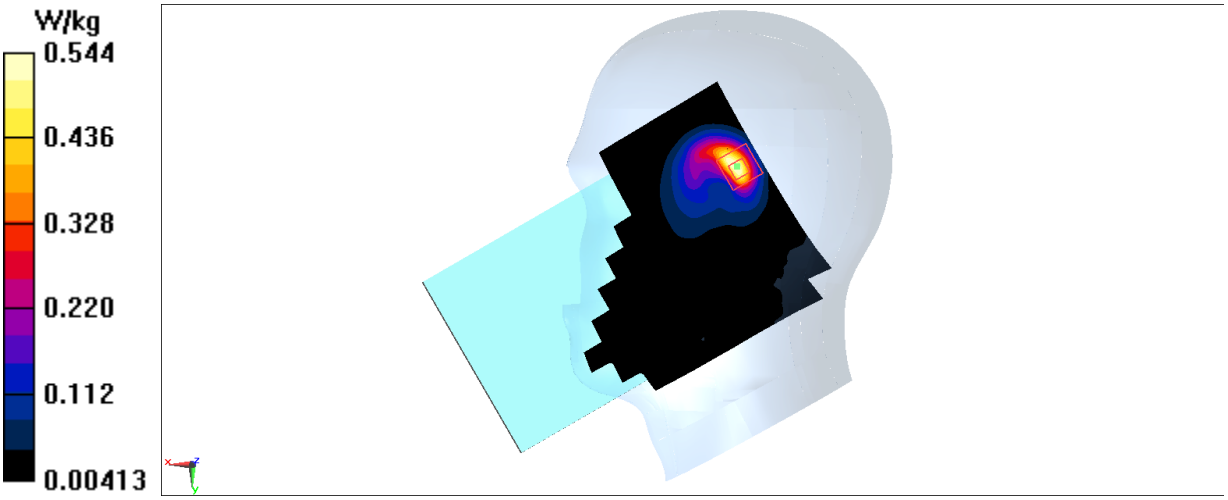


Fig.3 1900 MHz

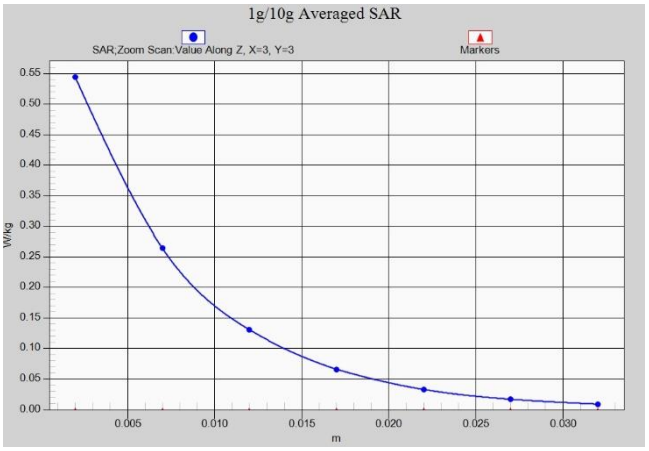


Fig. 3-1 Z-Scan at power reference point (1900 MHz)

1900 Body Rear Middle

Date: 2019-5-19

Electronics: DAE4 Sn1525

Medium: Body 1900 MHz

Medium parameters used: f = 1880 MHz; σ =1.535 mho/m; εr = 52.23; ρ = 1000 kg/m^3

Ambient Temperature: 22.9ºC Liquid Temperature: 22.5ºC

Communication System: GSM 1900MHz GPRS Frequency: 1880 MHz Duty Cycle: 1:8.3

Probe: EX3DV4 – SN7514 ConvF(7.73,7.73, 7.73)

Area Scan (101x161x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.520 W/kg

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

Reference Value = 4.097 V/m; Power Drift = -0.13 dB

Peak SAR (extrapolated) = 0.685 W/kg

SAR(1 g) = 0.418 W/kg; SAR(10 g) = 0.240 W/kg

Maximum value of SAR (measured) = 0.562 W/kg

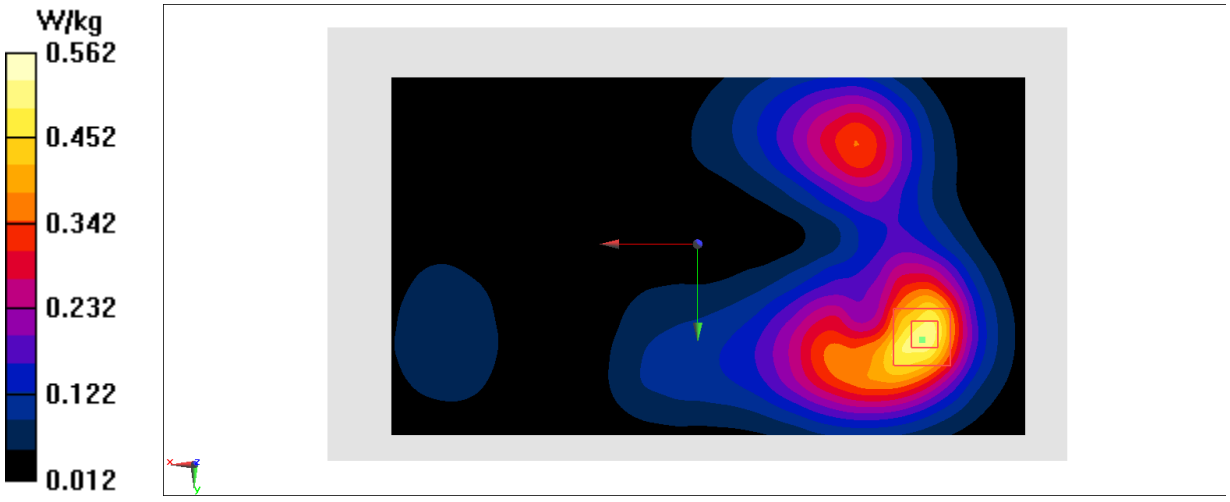


Fig.4 1900 MHz

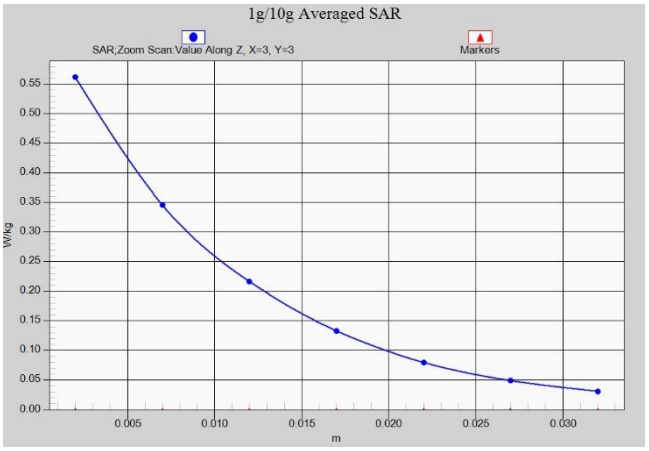


Fig. 4-1 Z-Scan at power reference point (1900 MHz)

WCDMA 850 Right Cheek Middle

Date: 2019-5-17

Electronics: DAE4 Sn1525

Medium: Head 850 MHz

Medium parameters used (interpolated): f = 826.4 MHz; σ = 0.896 mho/m; εr = 41.765; ρ = 1000 kg/m^3

Ambient Temperature: 22.9ºC Liquid Temperature: 22.5ºC

Communication System: WCDMA; Frequency: 826.4 MHz; Duty Cycle: 1:1

Probe: EX3DV4 – SN7514 ConvF(9.03, 9.03, 9.03)

Area Scan (101x161x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.319 W/kg

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

Reference Value = 12.76 V/m; Power Drift = -0.11 dB

Peak SAR (extrapolated) = 0.598 W/kg

SAR(1 g) = 0.273 W/kg; SAR(10 g) = 0.153 W/kg

Maximum value of SAR (measured) = 0.400 W/kg

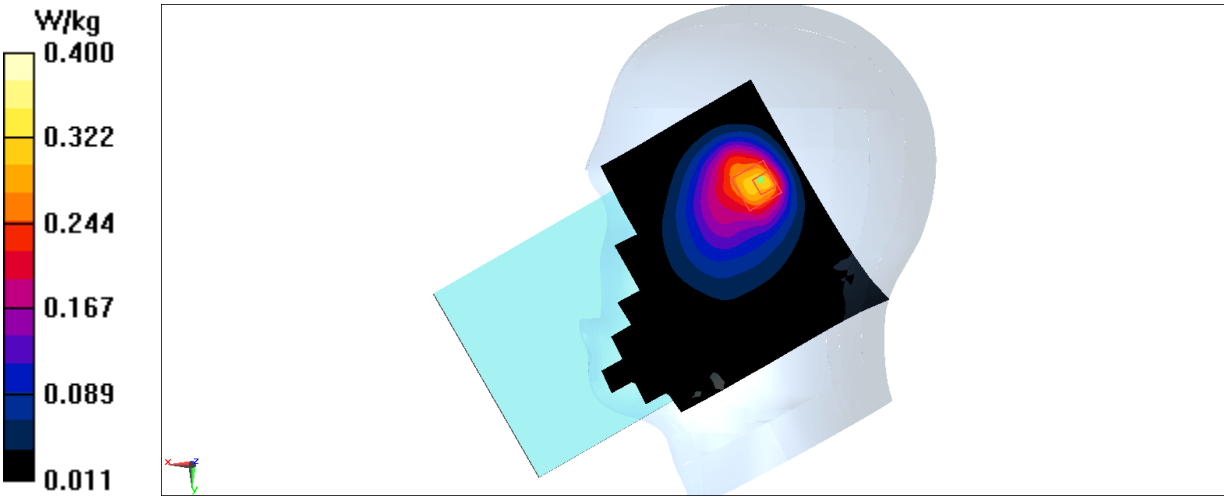


Fig.5 WCDMA 850

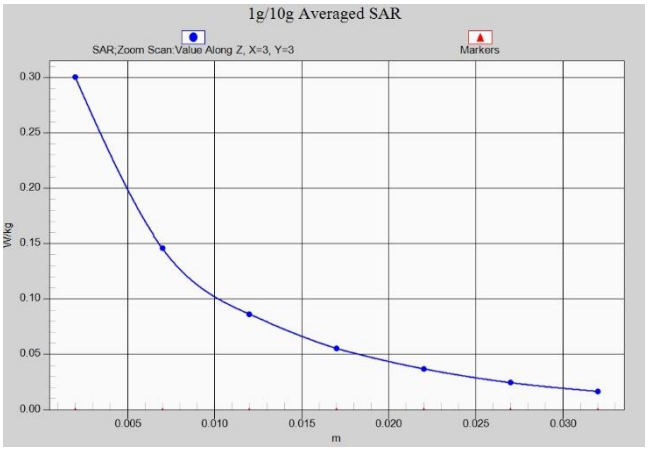


Fig. 5-1 Z-Scan at power reference point (850 MHz)

WCDMA 850 Body Rear High

Date: 2019-5-17

Electronics: DAE4 Sn1525

Medium: Body 850 MHz

Medium parameters used (interpolated): f = 846.6 MHz; σ = 0.973 mho/m; εr = 56.076; ρ = 1000 kg/m^3

Ambient Temperature: 22.9ºC Liquid Temperature: 22.5ºC

Communication System: WCDMA; Frequency: 846.6 MHz; Duty Cycle: 1:1

Probe: EX3DV4 – SN7514 ConvF(9.03, 9.03, 9.03)

Area Scan (101x161x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.689 W/kg

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

Reference Value = 1.315 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 0.954 W/kg

SAR(1 g) = 0.421 W/kg; SAR(10 g) = 0.222 W/kg

Maximum value of SAR (measured) = 0.618 W/kg

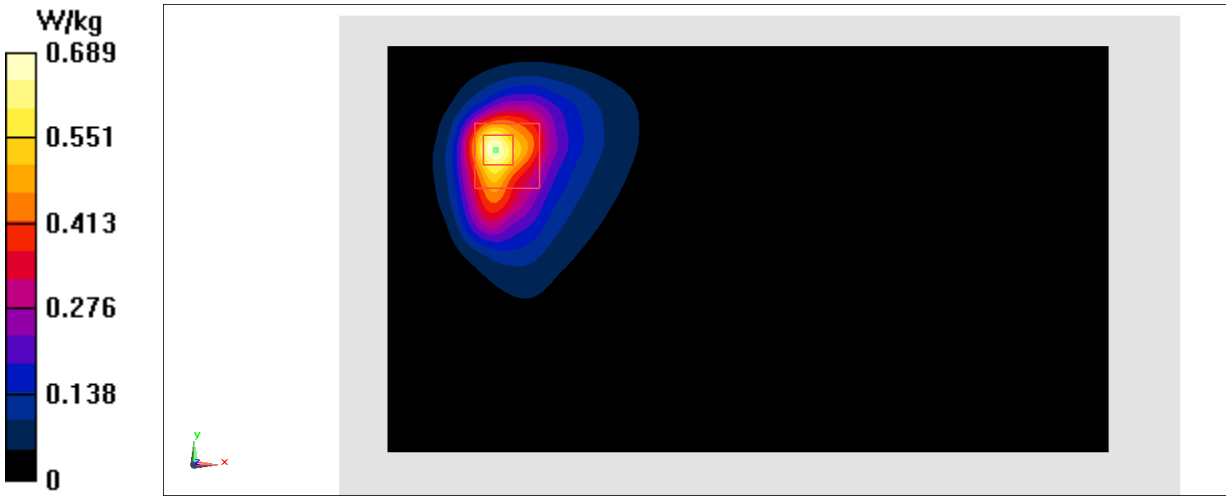


Fig.6 WCDMA 850

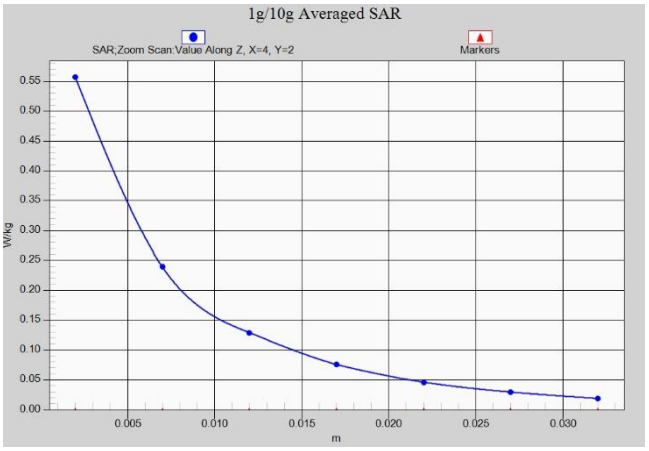


Fig. 6-1 Z-Scan at power reference point (WCDMA850)

WCDMA 1700 Right Cheek High

Date: 2019-5-18

Electronics: DAE4 Sn1525

Medium: Head 1750 MHz

Medium parameters used (interpolated): f = 1712.4 MHz; σ = 1.3 mho/m; εr = 40.577; ρ = 1000 kg/m^3

Ambient Temperature: 22.9ºC Liquid Temperature: 22.5ºC

Communication System: WCDMA 1750 Frequency: 1712.4 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7514 ConvF(7.82, 7.82, 7.82)

Area Scan (101x161x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.226 W/kg

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

Reference Value = 6.543 V/m; Power Drift = 0.15 dB

Peak SAR (extrapolated) = 0.311 W/kg

SAR(1 g) = 0.157 W/kg; SAR(10 g) = 0.080 W/kg

Maximum value of SAR (measured) = 0.226 W/kg

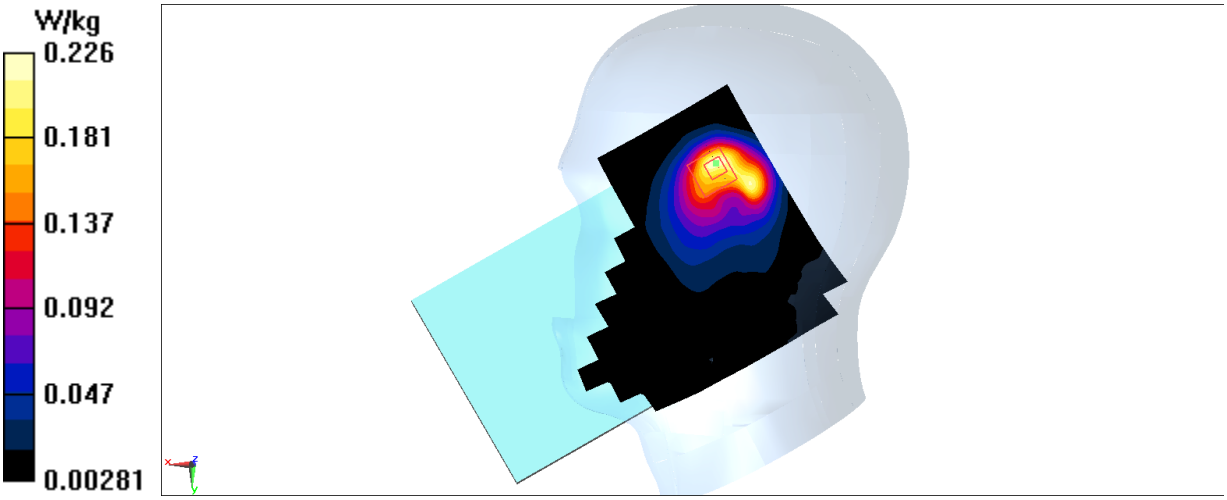


Fig.7 WCDMA1700

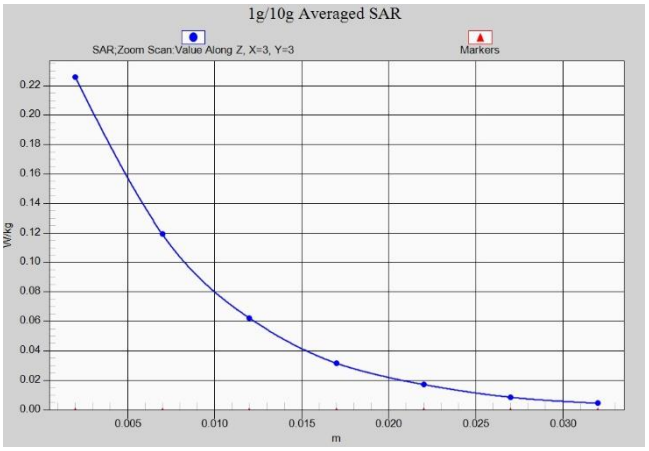


Fig. 7-1 Z-Scan at power reference point (WCDMA1700)

WCDMA 1700 Body Rear High

Date: 2019-5-18

Electronics: DAE4 Sn1525

Medium: Body 1750 MHz

Medium parameters used: f = 1752.6 MHz; σ = 1.514 mho/m; εr = 53.418; ρ = 1000 kg/m^3

Ambient Temperature: 22.9ºC Liquid Temperature: 22.5ºC

Communication System: WCDMA 1900 Frequency: 1752.6 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7514 ConvF(7.82, 7.82, 7.82)

Area Scan (171x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.441 W/kg

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

Reference Value = 4.623 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.509 W/kg

SAR(1 g) = 0.326 W/kg; SAR(10 g) = 0.209 W/kg

Maximum value of SAR (measured) = 0.444 W/kg

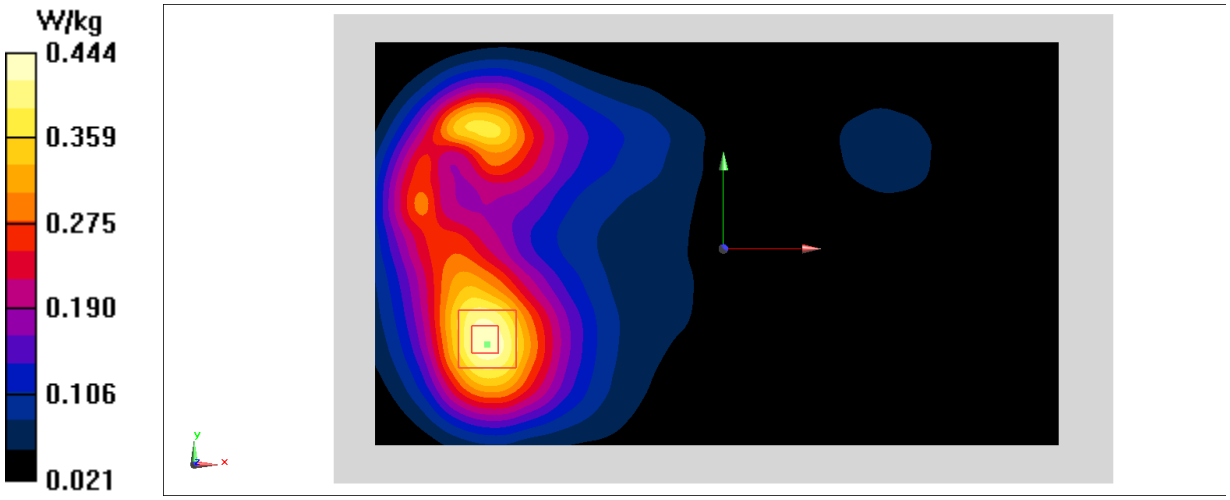


Fig.8 WCDMA1700

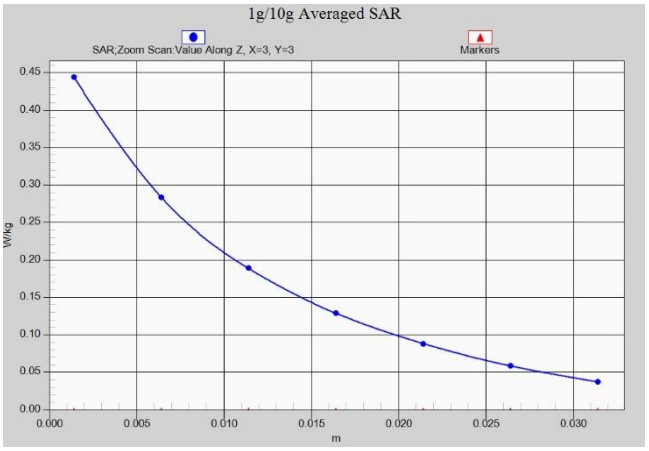


Fig. 8-1 Z-Scan at power reference point (WCDMA1700)

WCDMA 1900 Right Cheek Middle

Date: 2019-5-19

Electronics: DAE4 Sn1525

Medium: Head 1900 MHz

Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.432 mho/m; εr = 41.276; ρ = 1000 kg/m^3

Ambient Temperature: 22.9ºC Liquid Temperature: 22.5ºC

Communication System: WCDMA 1900 Frequency: 1852.4 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7514 ConvF(7.73,7.73, 7.73)

Area Scan (101x161x1): Interpolated grid: dx=1.500 mm, dy=1.500 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 = 5.919 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 0.349 W/kg

SAR(1 g) = 0.172 W/kg; SAR(10 g) = 0.080 W/kg

Maximum value of SAR (measured) = 0.255 W/kg

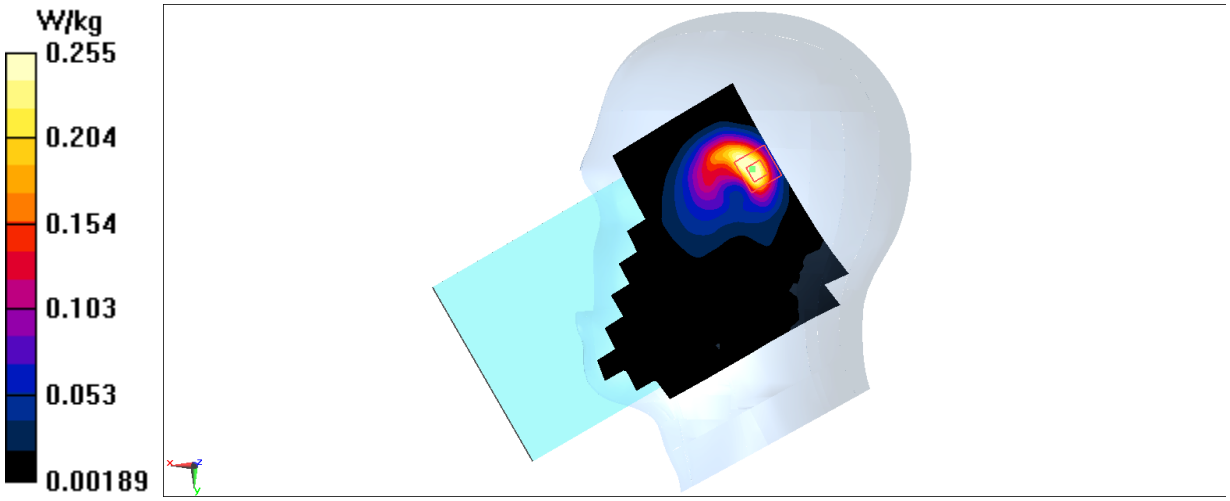


Fig.9 WCDMA1900

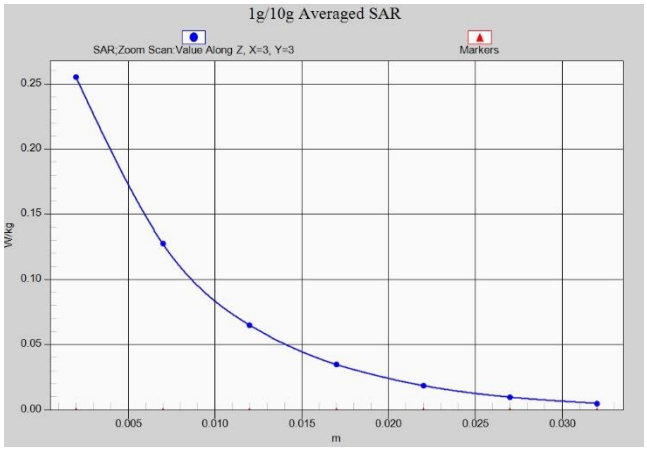


Fig. 9-1 Z-Scan at power reference point (WCDMA1900)

WCDMA 1900 Body Bottom High

Date: 2019-5-19

Electronics: DAE4 Sn1525

Medium: Body 1900 MHz

Medium parameters used (interpolated): f = 1907.6 MHz; σ = 1.551 mho/m; εr = 52.5; ρ = 1000 kg/m^3

Ambient Temperature: 22.9ºC Liquid Temperature: 22.5ºC

Communication System: WCDMA 1900 Frequency: 1907.6 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7514 ConvF(7.73,7.73, 7.73)

Area Scan (171x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.402 W/kg

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

Reference Value = 3.225 V/m; Power Drift = 0.052 dB

Peak SAR (extrapolated) = 0.472 W/kg

SAR(1 g) = 0.296 W/kg; SAR(10 g) = 0.185 W/kg

Maximum value of SAR (measured) = 0.410 W/kg

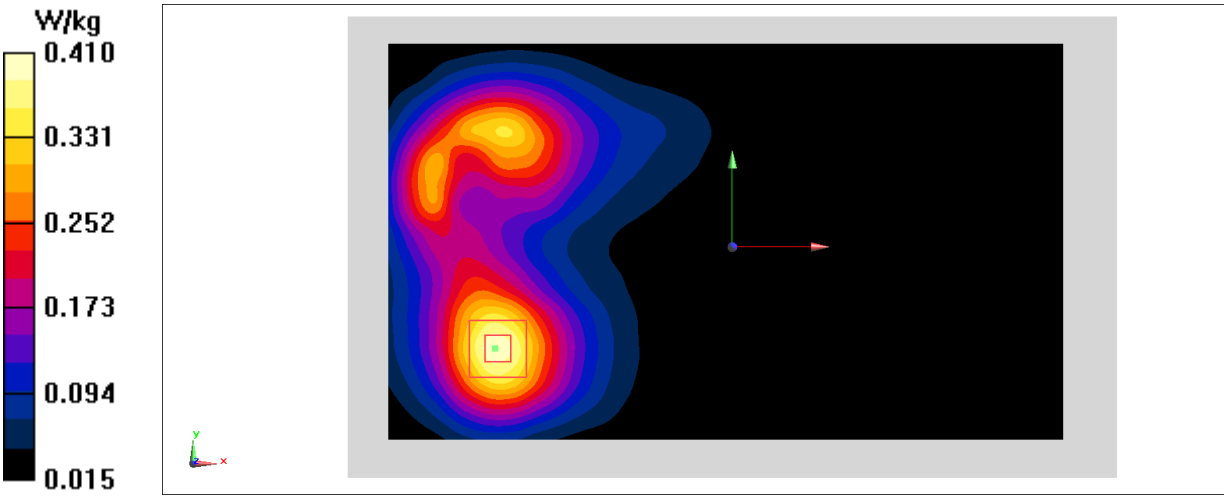


Fig.10 WCDMA1900

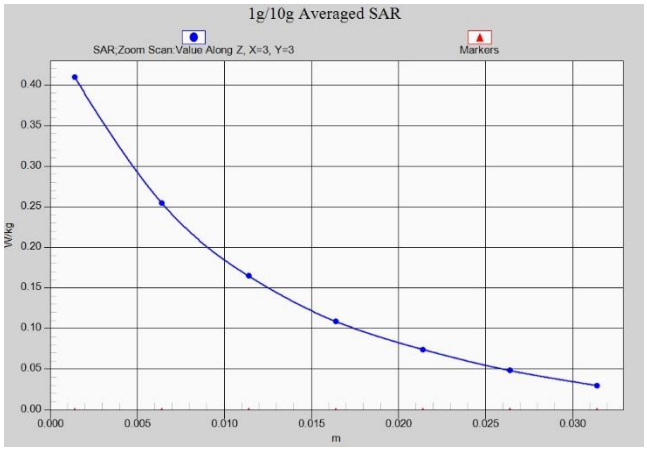


Fig. 10-1 Z-Scan at power reference point (WCDMA1900)

LTE Band2 Right Cheek High with QPSK_20M_1RB_Low

Date: 2019-5-19
Electronics: DAE4 Sn1525
Medium: Head 1900 MHz
Medium parameters used: f = 1900 MHz; σ =1.421. mho/m; εr = 40.81; ρ = 1000 kg/m^3
Ambient Temperature: 22.9ºC Liquid Temperature: 22.5ºC
Communication System: LTE Band2 Frequency: 1900 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7514 ConvF(7.73,7.73, 7.73)

Area Scan (131x201x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.216 W/kg

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

Reference Value = 5.894 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 0.308 W/kg
SAR(1 g) = 0.144 W/kg; SAR(10 g) = 0.063 W/kg
Maximum value of SAR (measured) = 0.224 W/kg

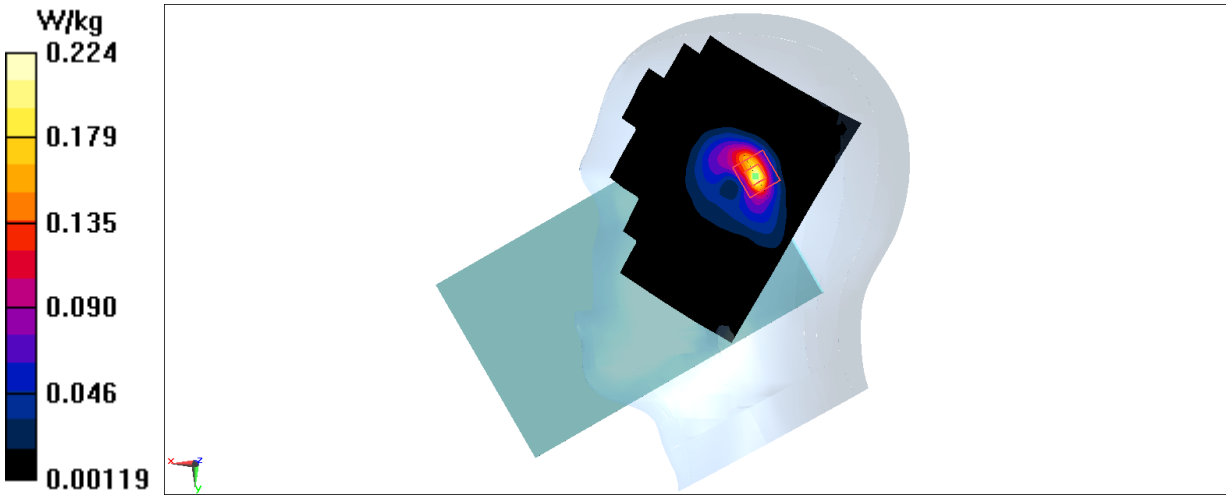


Fig.11 LTE Band2

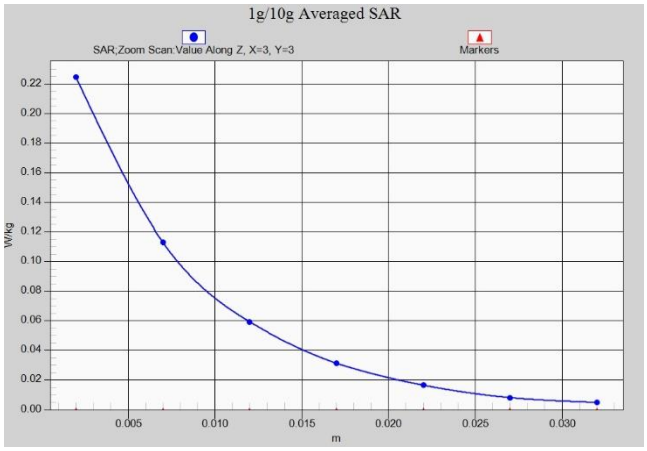


Fig. 11-1 Z-Scan at power reference point (LTE Band2)

LTE Band2 Body Bottom High with QPSK_20M_1RB_Low

Date: 2019-5-19
Electronics: DAE4 Sn1525
Medium: Body 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.517 mho/m; εr = 52.21; ρ = 1000 kg/m^3
Ambient Temperature: 22.9ºC Liquid Temperature: 22.5ºC
Communication System: LTE Band2 Frequency: 1900 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7514 ConvF(7.73, 7.73, 7.73)

Area Scan (171x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.354 W/kg

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

Reference Value = 3.219 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.399 W/kg
SAR(1 g) = 0.241 W/kg; SAR(10 g) = 0.145 W/kg
Maximum value of SAR (measured) = 0.341 W/kg

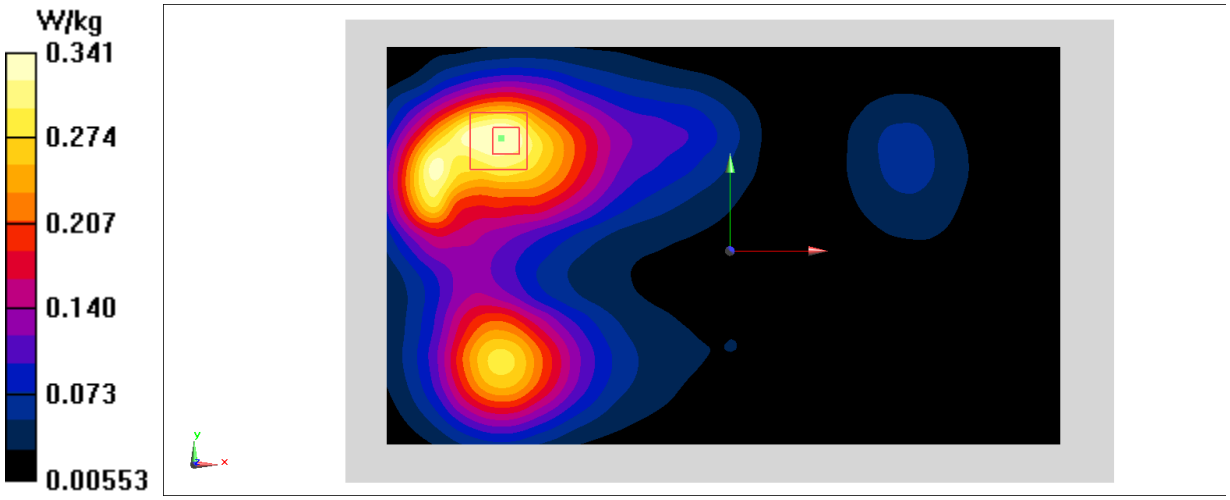


Fig.12 LTE Band2

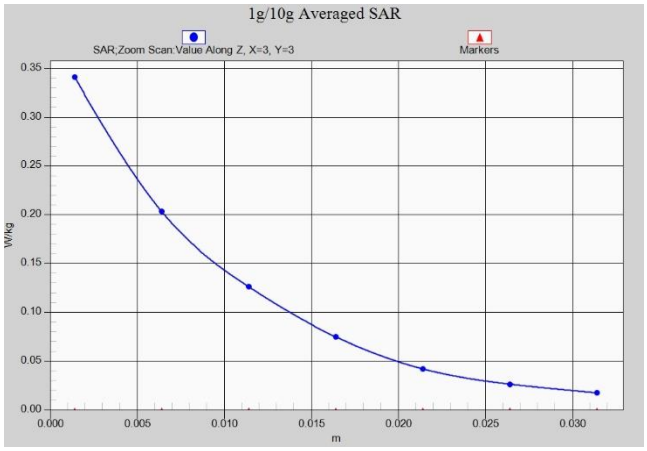


Fig. 12-1 Z-Scan at power reference point (LTE Band2)

LTE Band4 Right Cheek High with QPSK_20M_1RB_Low

Date: 2019-5-18
Electronics: DAE4 Sn1525
Medium: Head 1750 MHz
Medium parameters used f = 1745 MHz; σ = 1.329 mho/m; εr = 40.287; ρ = 1000 kg/m^3
Ambient Temperature: 22.9ºC Liquid Temperature: 22.5ºC
Communication System: LTE Band4 Frequency: 1745MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7514 ConvF(7.82, 7.82, 7.82)

Area Scan (101x161x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.264 W/kg

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

Reference Value = 6.236 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.368 W/kg
SAR(1 g) = 0.152 W/kg; SAR(10 g) = 0.070 W/kg
Maximum value of SAR (measured) = 0.253 W/kg

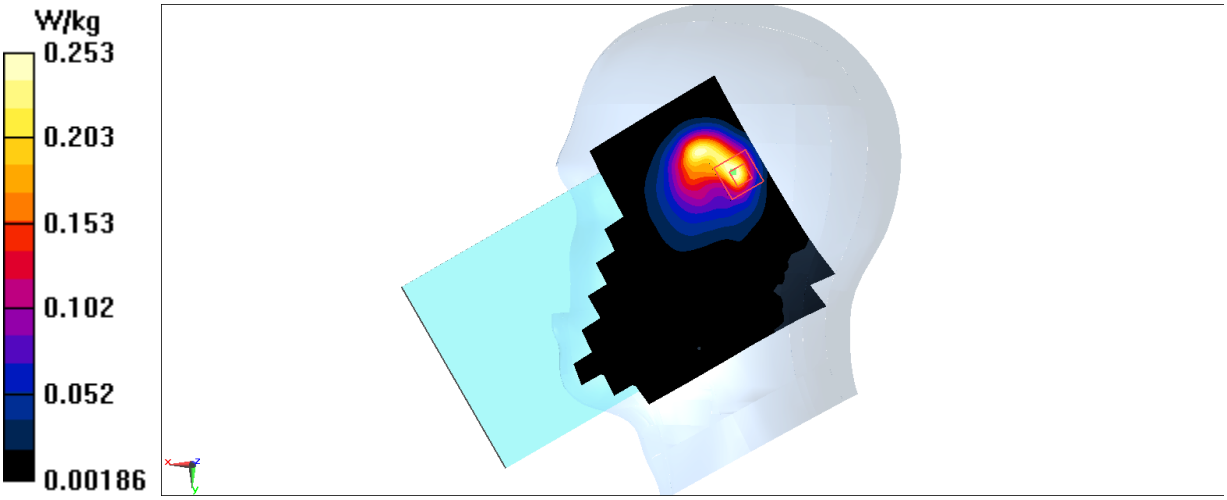


Fig.13 LTE Band4

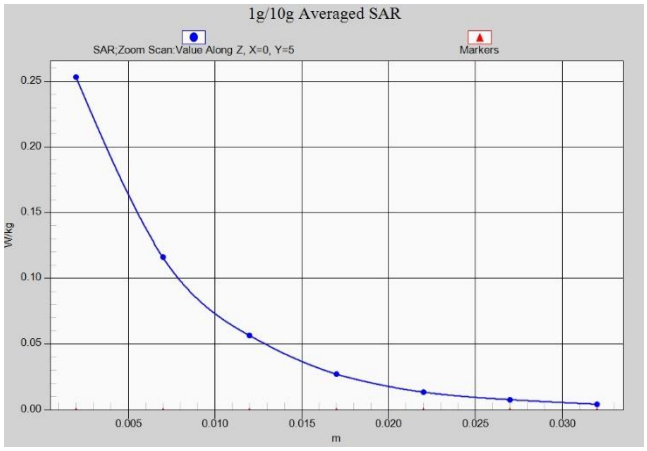


Fig. 13-1 Z-Scan at power reference point (LTE Band4)

LTE Band4 Body Bottom High with QPSK_20M_100RB

Date: 2019-5-18
Electronics: DAE4 Sn1525
Medium: Body 1750 MHz
Medium parameters used: f = 1745 MHz; σ =1.526 mho/m; εr = 53.329; ρ = 1000 kg/m^3
Ambient Temperature: 22.9ºC Liquid Temperature: 22.5ºC
Communication System: LTE Band4 Frequency: 1745 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7514 ConvF(7.82, 7.82, 7.82)

Area Scan (171x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.733 W/kg

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

Reference Value = 0 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 1.49 W/kg
SAR(1 g) = 0.526 W/kg; SAR(10 g) = 0.215 W/kg
Maximum value of SAR (measured) = 0.979 W/kg

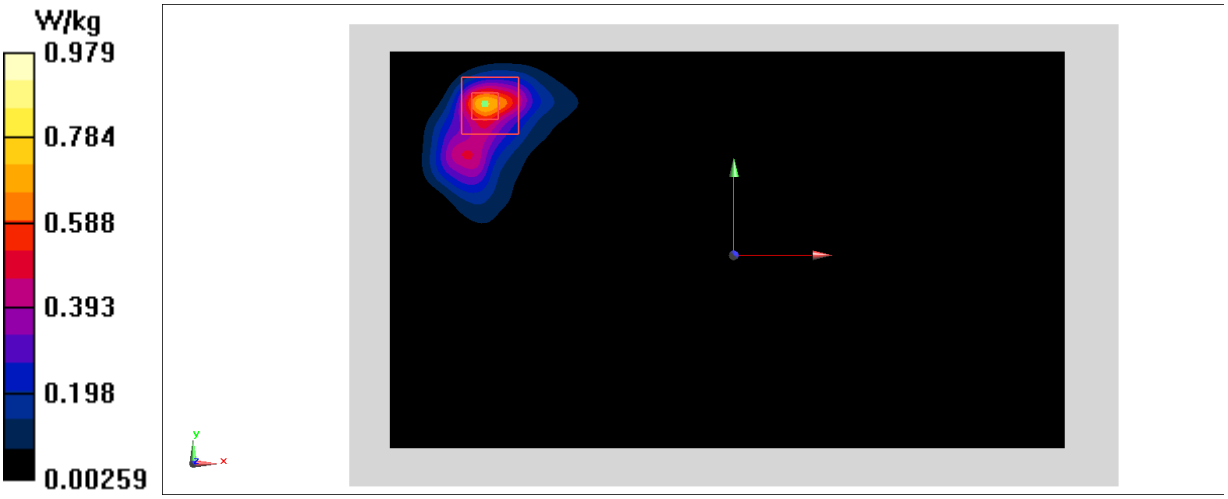


Fig.14 LTE Band4

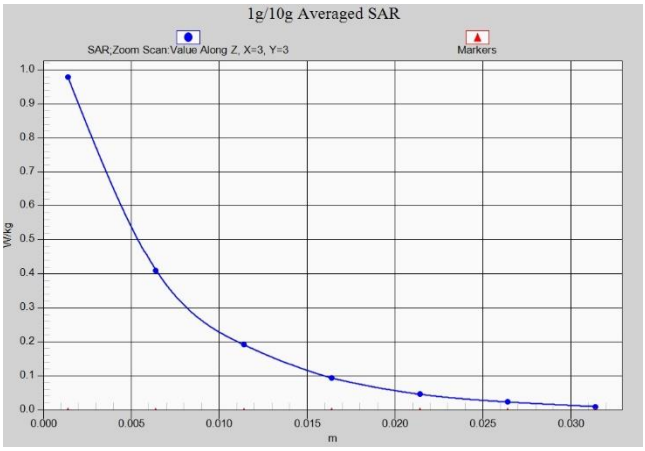


Fig. 14-1 Z-Scan at power reference point (LTE Band4)

LTE Band5 Right Cheek High with QPSK_10M_25RB_Middle

Date: 2019-5-17

Electronics: DAE4 Sn1525

Medium: Head 850 MHz

Medium parameters used (interpolated): f = 844 MHz; σ = 0.923 mho/m; εr = 41.431; ρ = 1000 kg/m^3

Ambient Temperature: 22.9ºC Liquid Temperature: 22.5ºC

Communication System: LTE Band5 Frequency: 844 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7514 ConvF(9.03, 9.03, 9.03)

Area Scan (101x161x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.278 W/kg

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

Reference Value = 11.47 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 0.511 W/kg

SAR(1 g) = 0.213 W/kg; SAR(10 g) = 0.128 W/kg

Maximum value of SAR (measured) = 0.352 W/kg

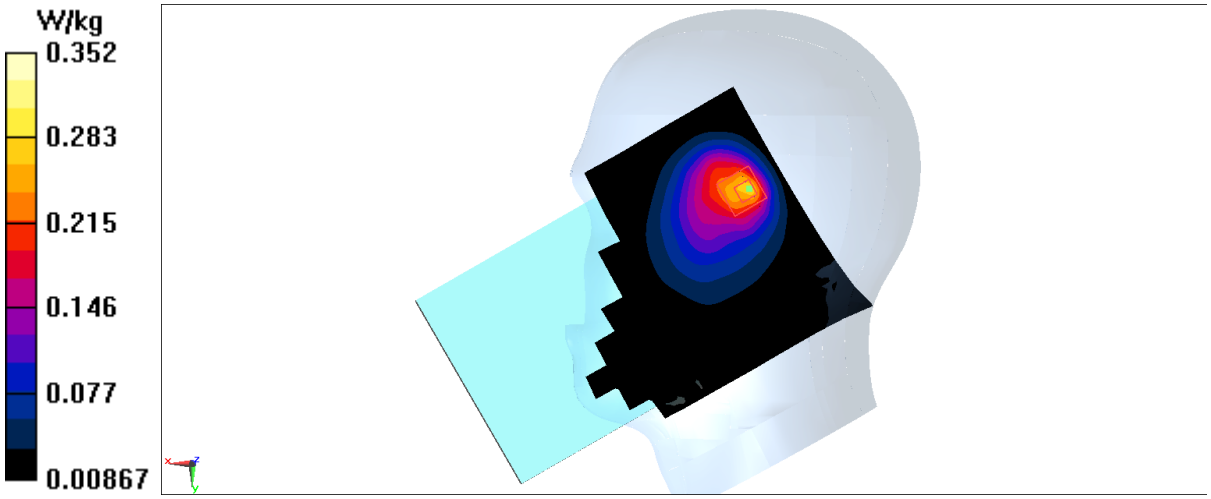


Fig.15 LTE Band5

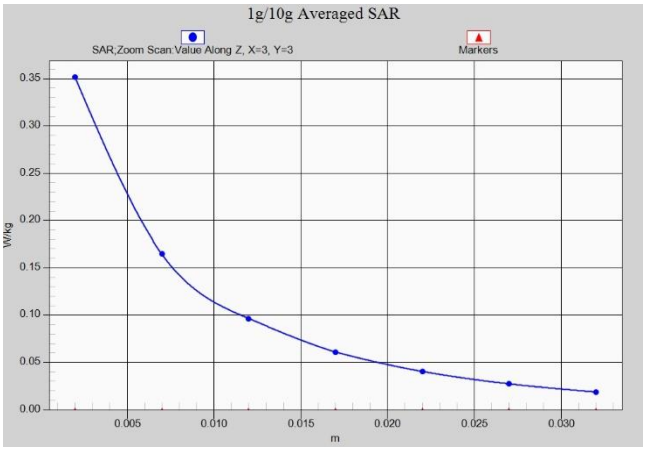


Fig. 15-1 Z-Scan at power reference point (LTE Band5)

LTE Band5 Body Rear Middle with QPSK_10M_25RB_High

Date: 2019-5-17

Electronics: DAE4 Sn1525

Medium: Body 850 MHz

Medium parameters used (interpolated): f = 844 MHz; σ = 1.028 mho/m; εr = 55.734; ρ = 1000 kg/m^3

Ambient Temperature: 22.9ºC Liquid Temperature: 22.5ºC

Communication System: LTE Band5 Frequency: 844 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7514 ConvF(9.03, 9.03, 9.03)

Configuration/Rear 1-M 0mm/Area Scan (171x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.781 W/kg

Configuration/Rear 1-M 0mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 0.9100 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 1.08 W/kg

SAR(1 g) = 0.459 W/kg; SAR(10 g) = 0.252 W/kg

Maximum value of SAR (measured) = 0.782 W/kg

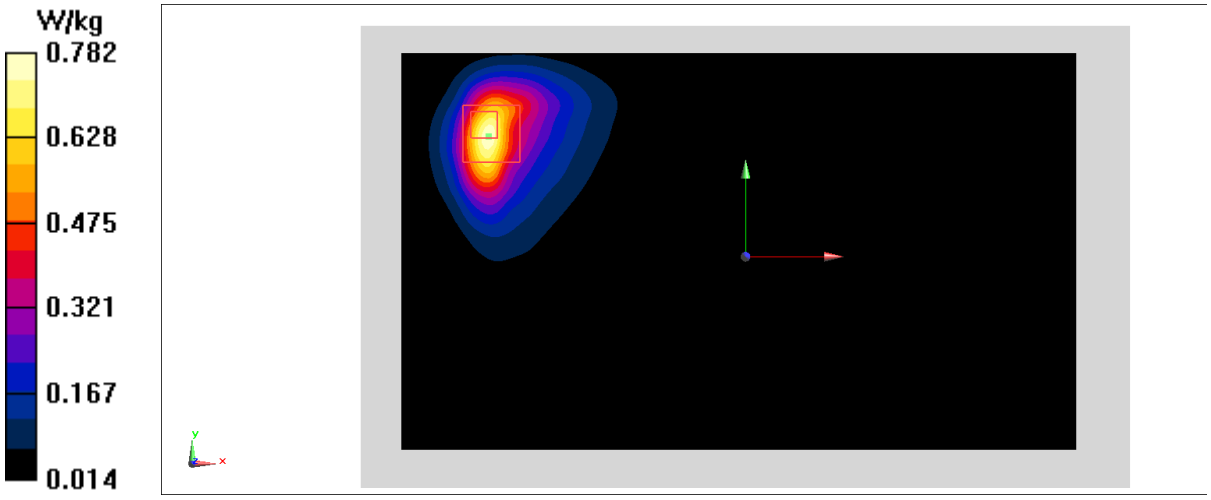


Fig.16 LTE Band5

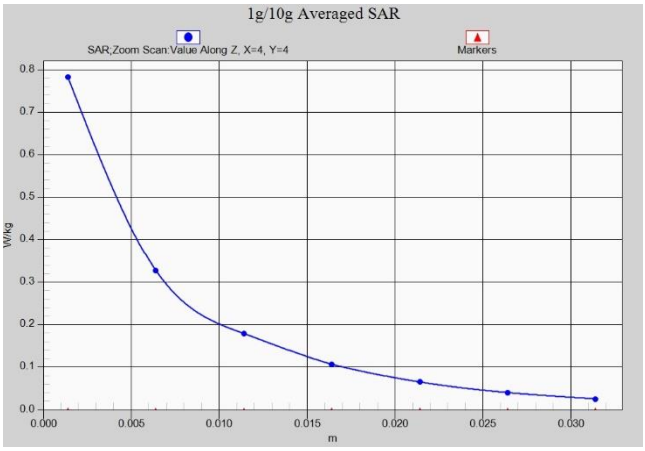


Fig. 16-1 Z-Scan at power reference point (LTE Band5)

LTE Band 7 Right Tilt Low with QPSK_20MHz_1RB_Middle

Date: 2019-5-21
Electronics: DAE4 Sn1525
Medium: Head 2600 MHz
Medium parameters used: f = 2510 MHz; σ = 1.931 mho/m; εr = 38.65; ρ = 1000 kg/m^3
Ambient Temperature: 22.9ºC Liquid Temperature: 22.5ºC
Communication System: LTE Band 7; Frequency: 2510 MHz; Duty Cycle: 1:1
Probe: EX3DV4 – SN7514 ConvF(7.92, 7.92, 7.92)

Area Scan (141x171x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.611 W/kg

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

Reference Value = 2.773 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 1.04 W/kg
SAR(1 g) = 0.462 W/kg; SAR(10 g) = 0.194 W/kg
Maximum value of SAR (measured) = 0.730 W/kg

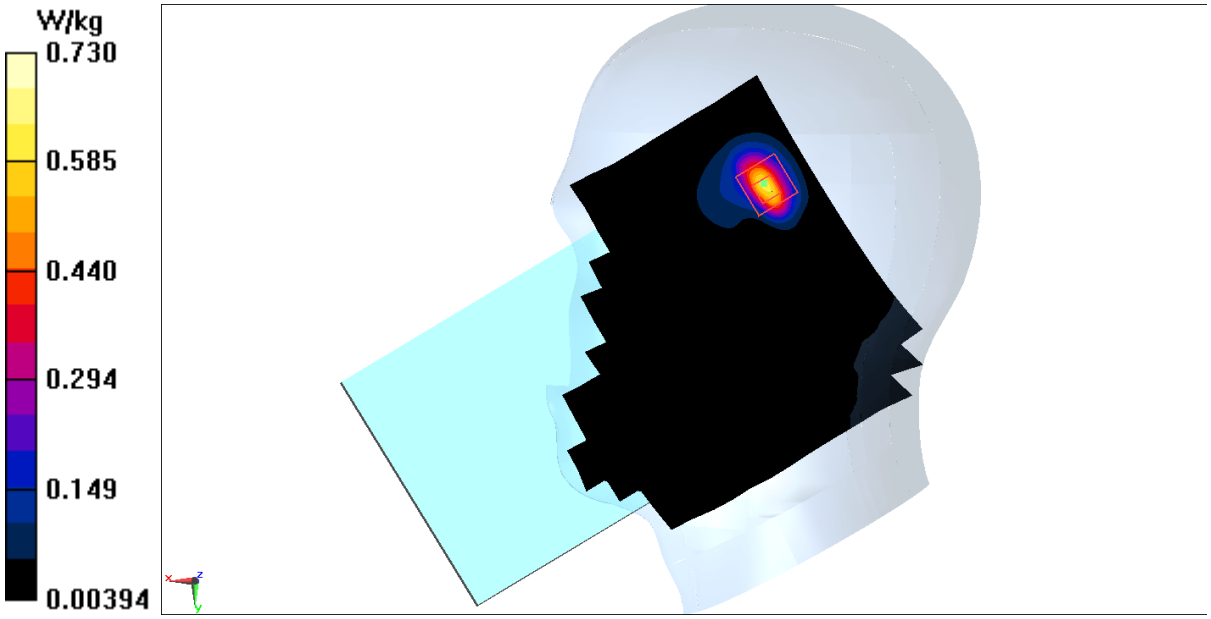


Fig. 17 LTE Band 7

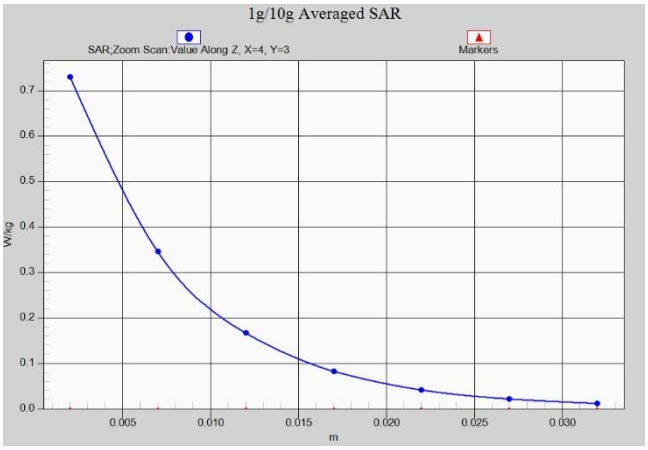


Fig. 17-1 Z-Scan at power reference point (LTE Band7)

LTE Band 7 Body Left High with QPSK_20MHz_1RB_Middle

Date: 2019-5-21
Electronics: DAE4 Sn1525
Medium: Body 2600 MHz
Medium parameters used: f = 2560 MHz; σ = 2.154 mho/m; εr = 51.73; ρ = 1000 kg/m^3
Ambient Temperature: 22.9ºC Liquid Temperature: 22.5ºC
Communication System: LTE Band7 Frequency: 2560 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7514ConvF(7.06, 7.06, 7.06)

Area Scan (161x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.600 W/kg

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

Reference Value = 10.52 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.774 W/kg
SAR(1 g) = 0.417 W/kg; SAR(10 g) = 0.226 W/kg
Maximum value of SAR (measured) = 0.591 W/kg

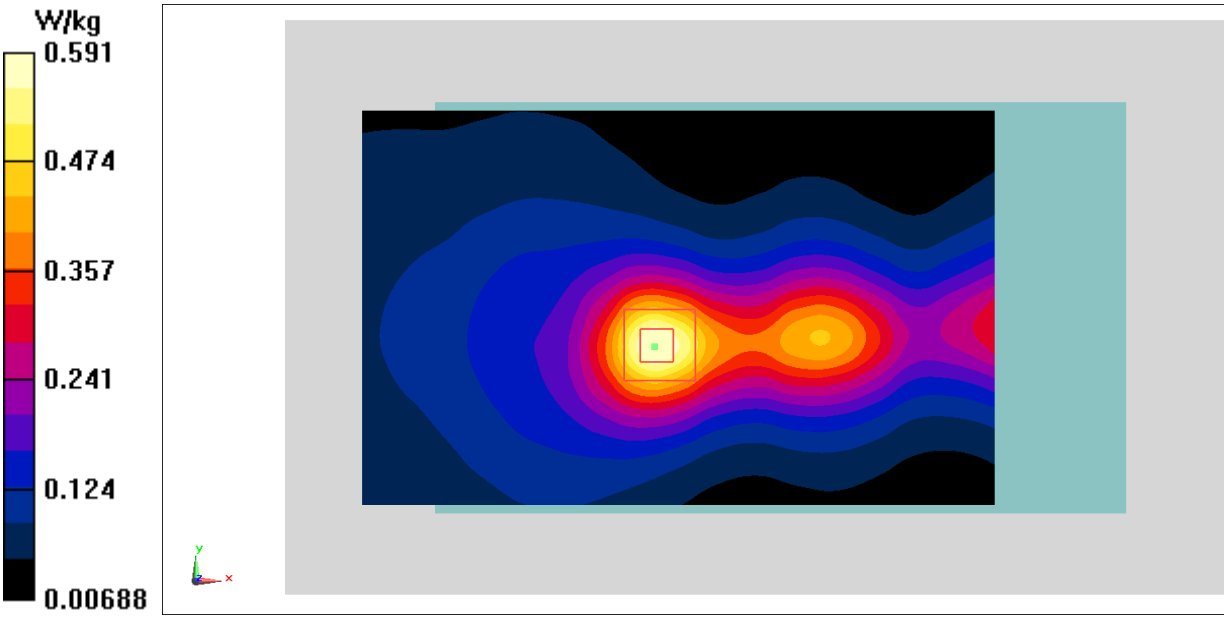


Fig. 18 LTE Band 7

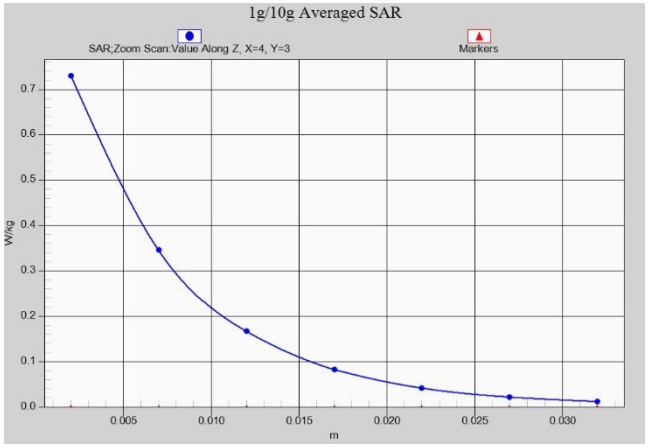


Fig. 18-1 Z-Scan at power reference point (LTE Band7)

LTE Band12 Right Cheek Middle with QPSK_10M_1RB_Middle

Date: 2019-5-16

Electronics: DAE4 Sn1525

Medium: Head750 MHz

Medium parameters used (interpolated): f = 707.5 MHz; σ = 0.866 mho/m; εr = 42.15; ρ = 1000 kg/m^3

Ambient Temperature: 22.9ºC Liquid Temperature: 22.5ºC

Communication System: LTE Band12Frequency: 707.5 MHz Duty Cycle: 1:1

Probe: EX3DV4– SN7514 ConvF(10.47,10.47, 10.47)

Area Scan (131x201x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.247 W/kg

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

Reference Value = 10.46 V/m; Power Drift = -0.14 dB

Peak SAR (extrapolated) = 0.423 W/kg

SAR(1 g) = 0.176 W/kg; SAR(10 g) = 0.096 W/kg

Maximum value of SAR (measured) = 0.276 W/kg

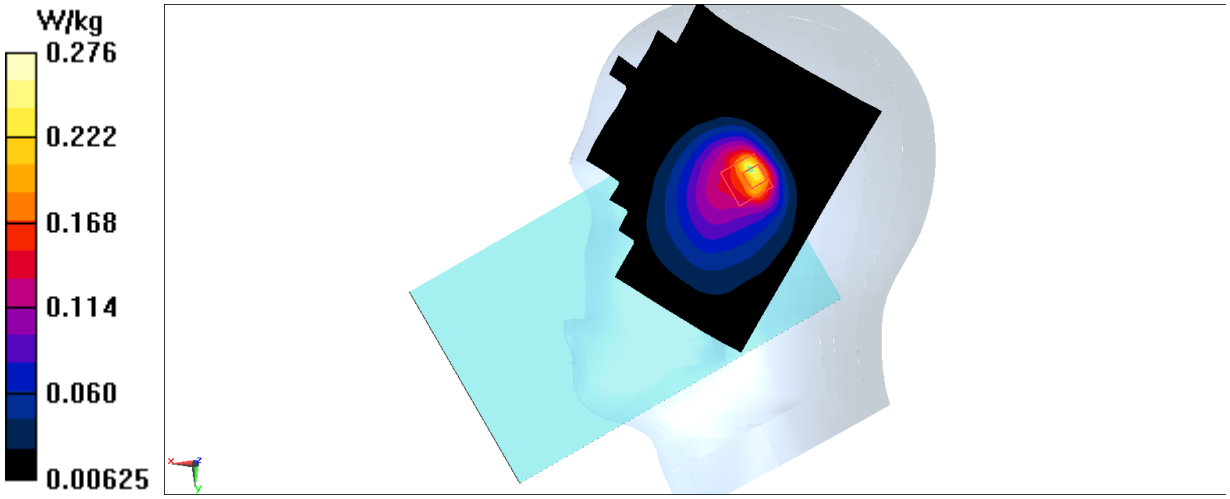


Fig.19 LTE Band12

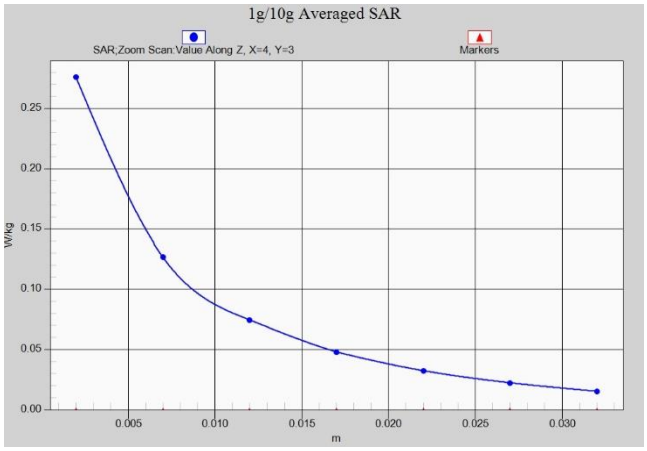


Fig. 19-1 Z-Scan at power reference point (LTE Band12)

LTE Band12 Body Rear Middle with QPSK_10M_1RB_Middle

Date: 2019-5-16

Electronics: DAE4 Sn1525

Medium: Body750 MHz

Medium parameters used (interpolated): f = 707.5 MHz; σ = 0.942 mho/m; εr = 56.57; ρ = 1000 kg/m^3

Ambient Temperature: 22.9ºC Liquid Temperature: 22.5ºC

Communication System: LTE Band12Frequency: 707.5 MHz Duty Cycle: 1:1

Probe: EX3DV4– SN7514 ConvF(9.93, 9.93, 9.93)

Area Scan (101x161x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.417 W/kg

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

Reference Value = 1.289 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 0.717 W/kg

SAR(1 g) = 0.284 W/kg; SAR(10 g) = 0.150 W/kg

Maximum value of SAR (measured) = 0.426 W/kg

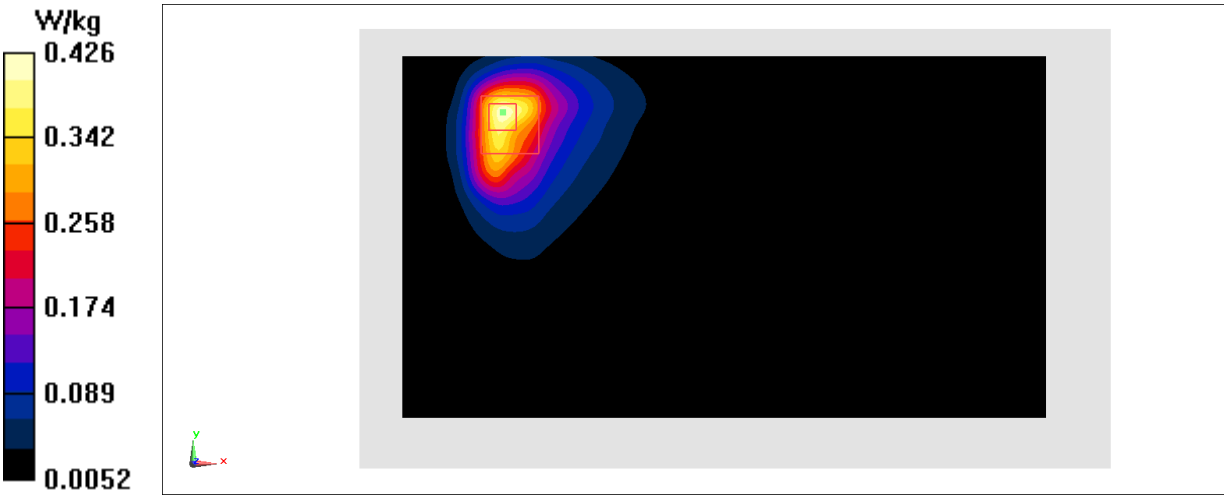


Fig.20 LTE Band12

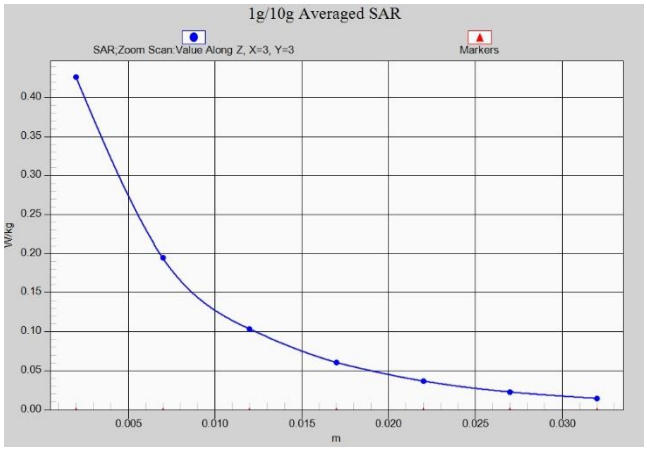


Fig. 20-1 Z-Scan at power reference point (LTE Band12)

LTE Band 41 Right Tilt Milddle with QPSK_20M_1RB_Middle

Date: 2019-5-21

Electronics: DAE4 Sn1525

Medium: Head 2600 MHz

Medium parameters used (interpolated): f = 2577.5 MHz; σ = 1.865 mho/m; εr = 38.41; ρ = 1000 kg/m^3

Ambient Temperature: 22.9ºC Liquid Temperature: 22.5ºC

Communication System: LTE Band41 Frequency: 2577.5 MHz Duty Cycle: 1:1.58

Probe: EX3DV4 – SN7514ConvF(7.21, 7.21, 7.21)

Area Scan (131x201x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.392 W/kg

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

Reference Value = 1.106 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.578 W/kg

SAR(1 g) = 0.250 W/kg; SAR(10 g) = 0.106 W/kg

Maximum value of SAR (measured) = 0.398 W/kg

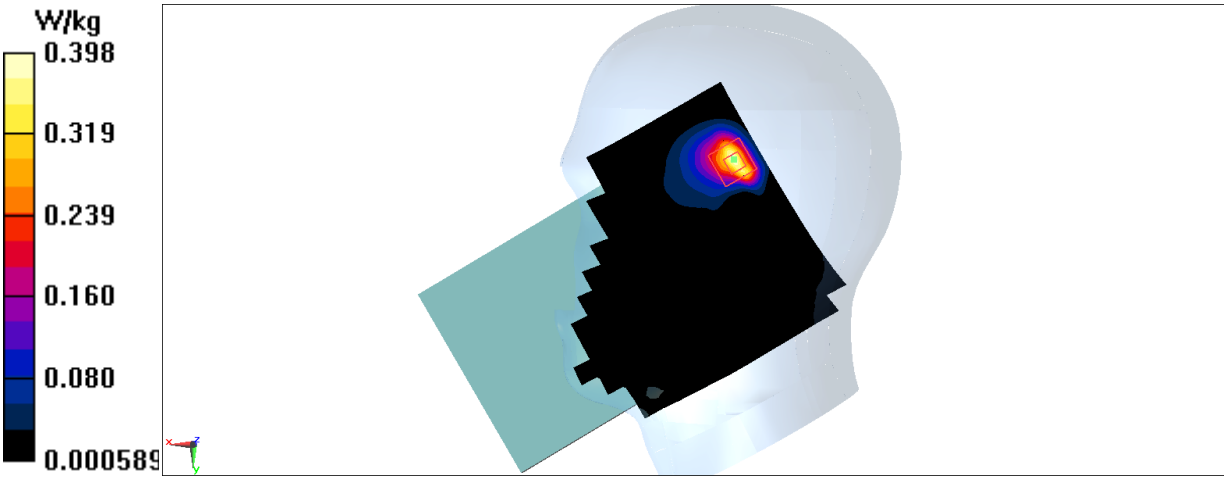


Fig.21 LTE Band 41

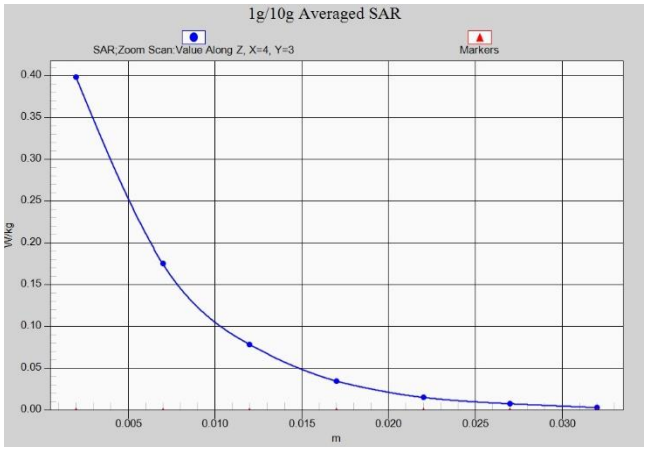


Fig. 21-1 Z-Scan at power reference point (LTE Band 41)

LTE Band 41 Body Rear Middle with QPSK_20M_1RB_Middle

Date: 2019-5-21

Electronics: DAE4 Sn1525

Medium: Body 2600 MHz

Medium parameters use (interpolated): f = 2577.5 MHz; σ = 2.024 mho/m; εr = 52.639; ρ = 1000 kg/m^3

Ambient Temperature: 22.9ºC Liquid Temperature: 22.5ºC

Communication System: LTE Band41 Frequency: 2577.5 MHz Duty Cycle: 1:1.58

Probe: EX3DV4 – SN7514ConvF(6.92, 6.92, 6.92)

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

Reference Value = 0.1670 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 1.24 W/kg

SAR(1 g) = 0.446 W/kg; SAR(10 g) = 0.192 W/kg

Maximum value of SAR (measured) = 0.761 W/kg

Area Scan (131x201x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.731 W/kg

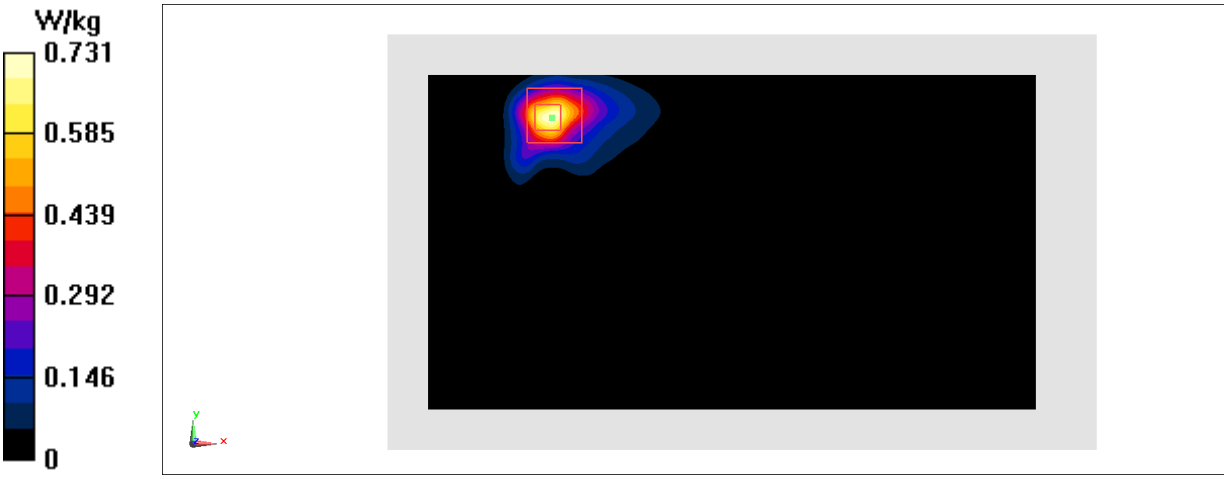


Fig.22 LTE Band 41

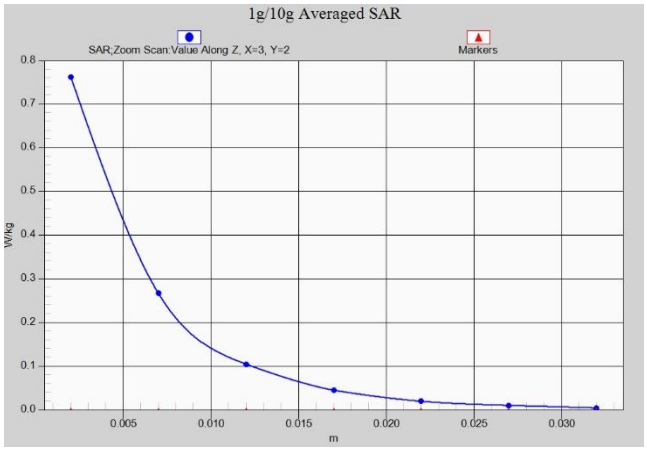


Fig. 22-1 Z-Scan at power reference point (LTE Band 41)

Wifi 802.11b Right Cheek Channel 1

Date: 2019-5-20

Electronics: DAE4 Sn1525

Medium: Head 2450 MHz

Medium parameters used (interpolated): f = 2437 MHz; σ = 1.804 mho/m; ε_r = 38.47; ρ = 1000 kg/m^3

Ambient Temperature: 22.9ºC Liquid Temperature: 22.5ºC

Communication System: WLan 2450 Frequency: 2437 MHz Duty Cycle: 1:1

Probe: EX3DV4– SN7514 ConvF(7.36, 7.36, 7.36)

Area Scan (131x211x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.178 W/kg

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

Reference Value = 1.110 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.277 W/kg

SAR(1 g) = 0.0.098 W/kg; SAR(10 g) = 0.040 W/kg

Maximum value of SAR (measured) = 0.144 W/kg

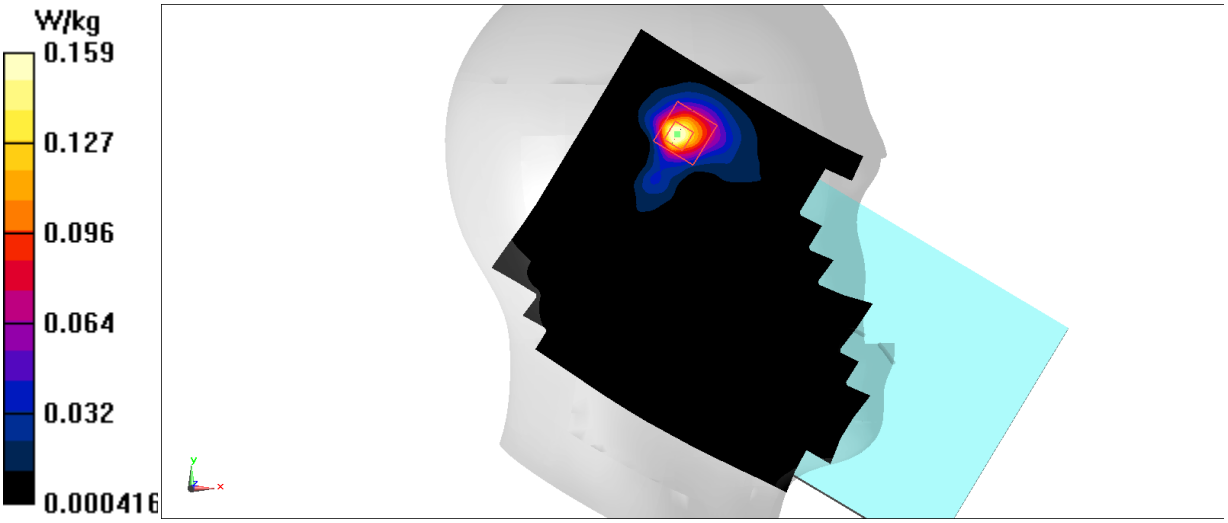


Fig.23 2450 MHz

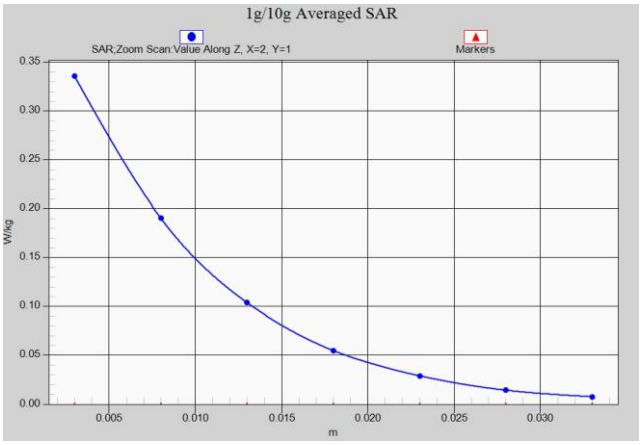


Fig. 23-1 Z-Scan at power reference point (2450 MHz)

Wifi 802.11b Body Rear Channel 6

Date: 2019-5-20
Electronics: DAE4 Sn1331
Medium: Body 2450 MHz
Medium parameters used (interpolated): f = 2437 MHz; σ = 1.961 mho/m; ε_r = 51.92; ρ = 1000 kg/m^3
Ambient Temperature: 22.9ºC Liquid Temperature: 22.5ºC
Communication System: WLan 2450 Frequency: 2437 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7514 ConvF(7.22, 7.22, 7.22)

Area Scan (111x71x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.579 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.834 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 1.17 W/kg
SAR(1 g) = 0.644 W/kg; SAR(10 g) = 0.188 W/kg
Maximum value of SAR (measured) = 0.577 W/kg

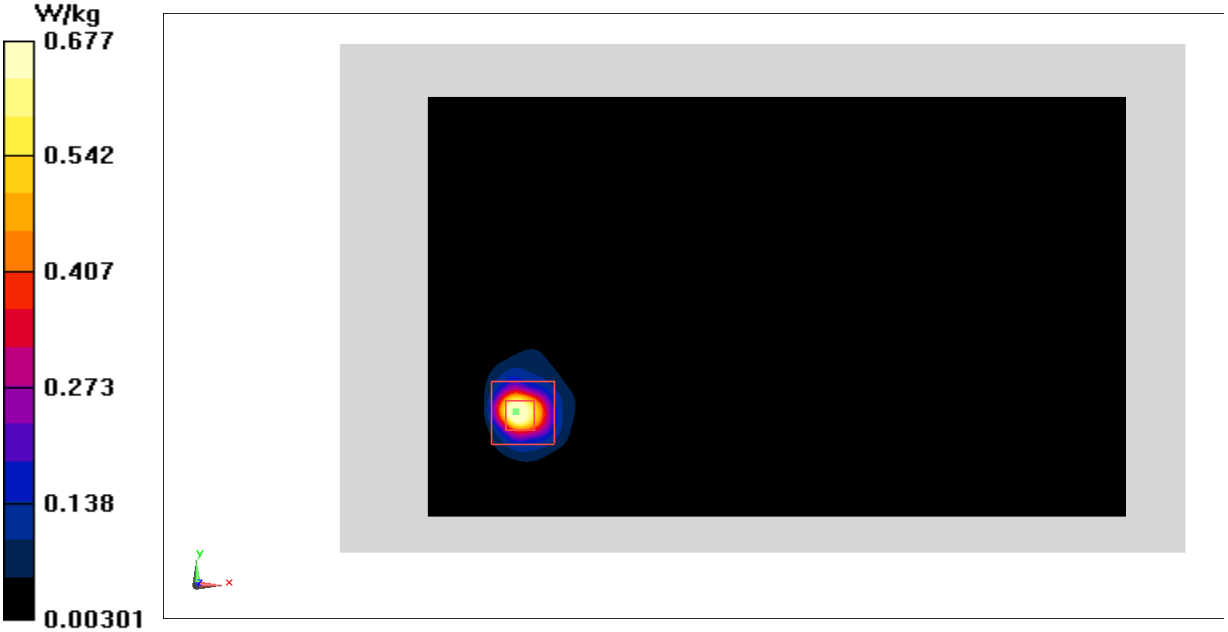


Fig.24 2450 MHz

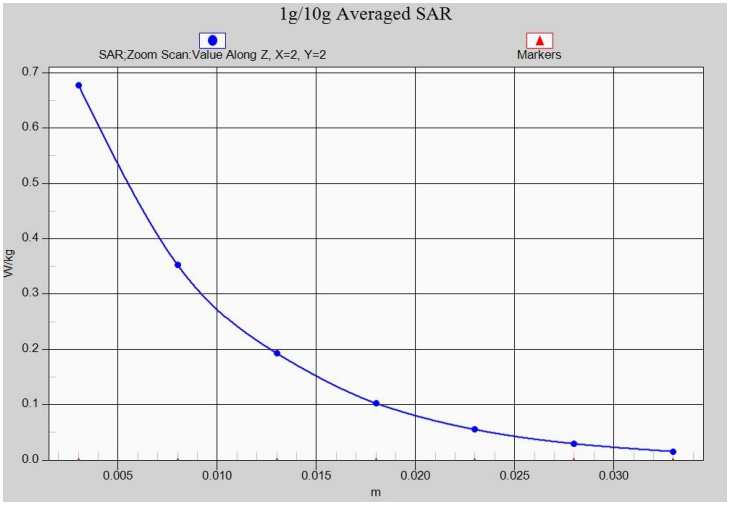


Fig. 24-1 Z-Scan at power reference point (2450 MHz)

Wifi 802.11a Right Cheek Channel 36

Date: 2019-5-22
Electronics: DAE4 Sn1331
Medium: Head 5 GHz
Medium parameters used: f = 5785 MHz; σ = 5.426 mho/m; ε_r = 35.168; ρ = 1000 kg/m^3
Ambient Temperature: 22.9ºC Liquid Temperature: 22.5ºC
Communication System: WLan 5G Frequency: 5785 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7307 ConvF(4.45, 4.45, 4.45)

Area Scan (131x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.831 W/kg

Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 1.237 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 1.02 W/kg
SAR(1 g) = 0.434 W/kg; SAR(10 g) = 0.182 W/kg
Maximum value of SAR (measured) = 1.12 W/kg

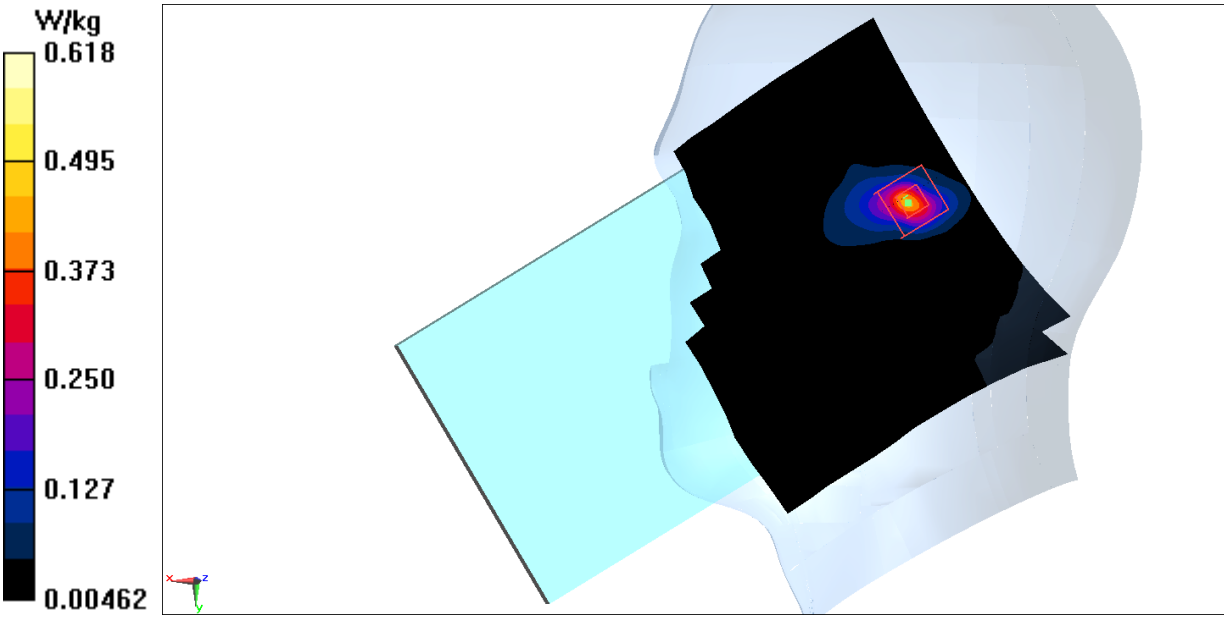


Fig.25 5GHz

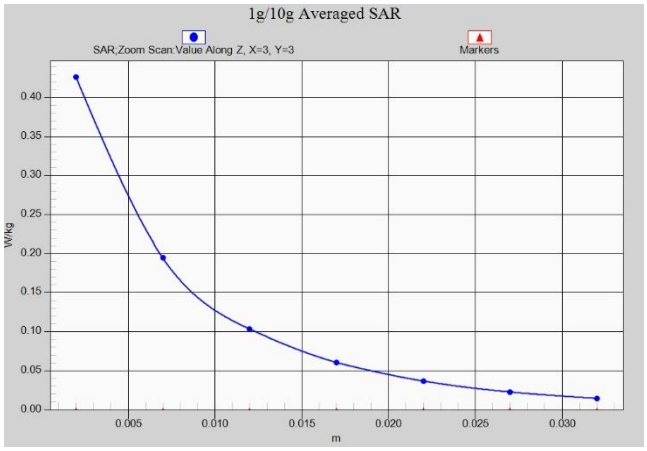


Fig. 25-1 Z-Scan at power reference point (5GHz)

Wifi 802.11a Rear Channel 36

Date: 2019-5-22
Electronics: DAE4 Sn1331
Medium: Body 5 GHz
Medium parameters used: f = 5320 MHz; σ = 5.356 mho/m; ε_r = 47.608; ρ = 1000 kg/m^3
Ambient Temperature: 22.9ºC Liquid Temperature: 22.5ºC
Communication System: WLan 5G Frequency: 5320 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7307 ConvF(4.29, 4.29, 4.29)

Area Scan (151x151x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.874 W/kg

Zoom Scan (9x10x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 1.526 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 2.78 W/kg
SAR(1 g) = 0.473 W/kg; SAR(10 g) = 0.135 W/kg
Maximum value of SAR (measured) = 1.32 W/kg

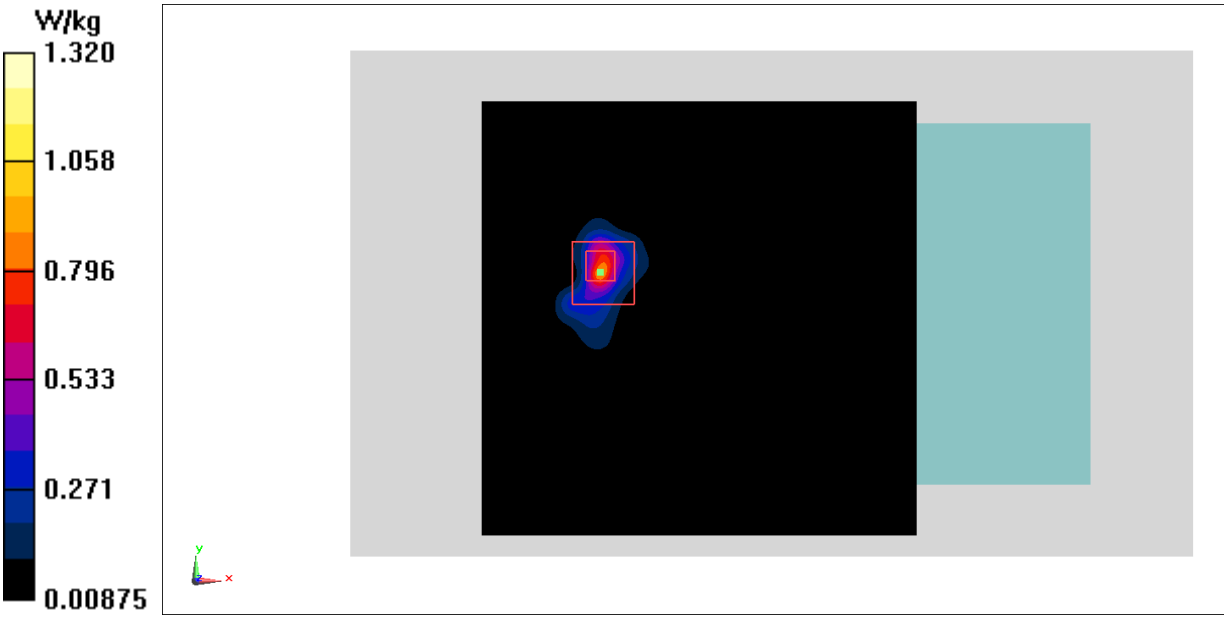


Fig.26 5GHz

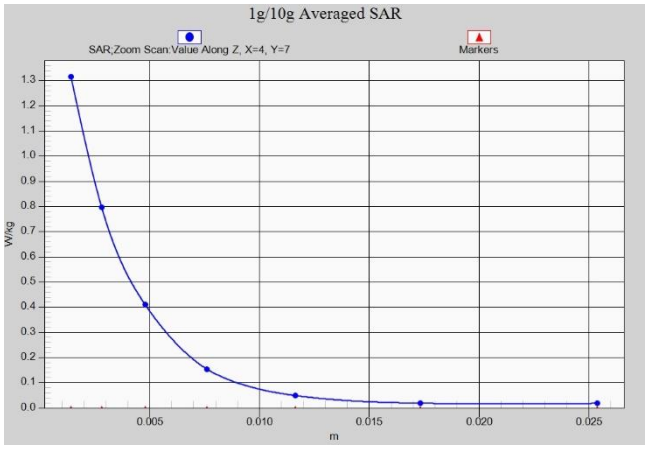


Fig. 26-1 Z-Scan at power reference point (5GHz)

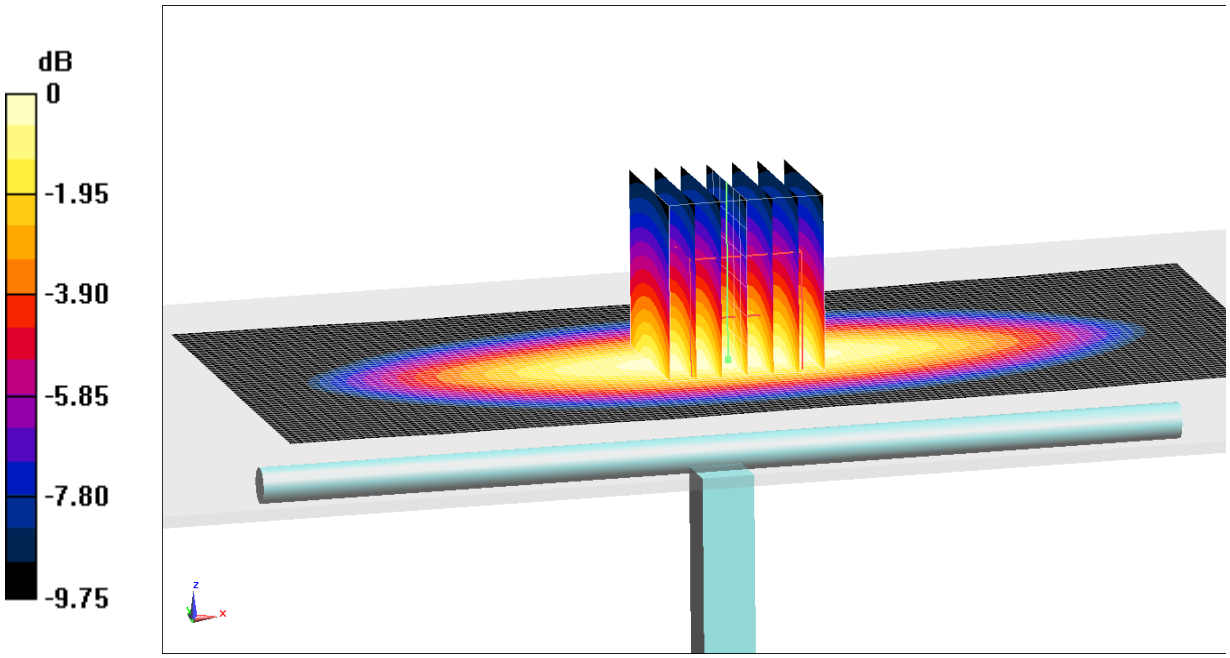
ANNEX B System Verification Results

750MHz

Date: 2019-5-16
Electronics: DAE4 Sn1525
Medium: Head 750 MHz
Medium parameters used: f = 750 MHz; σ = 0.886 mho/m; ε_r = 42.31; ρ = 1000 kg/m^3
Ambient Temperature: 22.9ºC Liquid Temperature: 22.5ºC
Communication System: CW Frequency: 750 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7514 ConvF(10.57, 10.57, 10.57)

System Validation /Area Scan (81x191x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 49.217 V/m; Power Drift = -0.07 dB
Fast SAR: SAR(1 g) = 2.07 W/kg; SAR(10 g) = 1.40 W/kg
Maximum value of SAR (interpolated) = 2.20 W/kg

System Validation /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 49.217 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 2.84 W/kg
SAR(1 g) = 2.05 W/kg; SAR(10 g) = 1.38 W/kg
Maximum value of SAR (measured) = 2.18 W/kg



0 dB = 2.18 W/kg = 3.38 dB W/kg

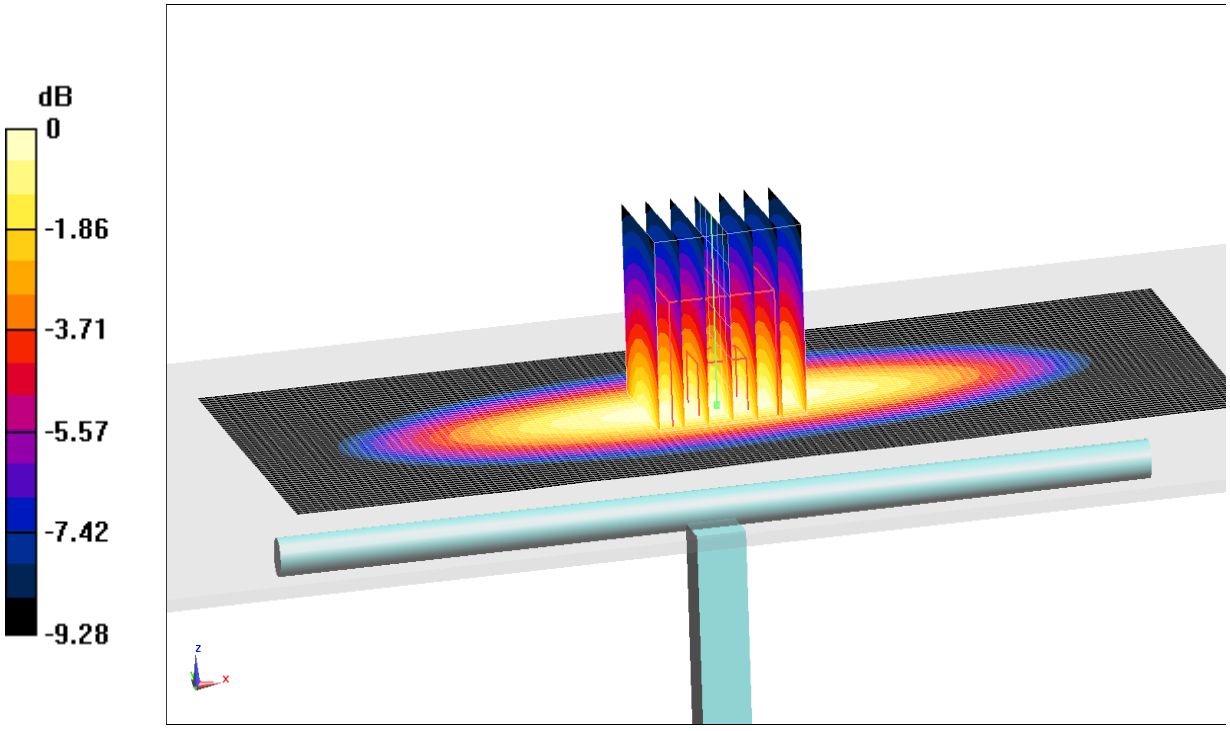
Fig.B.1 validation 750MHz 250mW

750MHz

Date: 2019-5-16
Electronics: DAE4 Sn1525
Medium: Body750 MHz
Medium parameters used: f = 750 MHz; σ = 0.944 mho/m; ε_r = 56.42; ρ = 1000 kg/m^3
Ambient Temperature: 22.9ºC Liquid Temperature: 22.5ºC
Communication System: CW Frequency: 750 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7514 ConvF(10.63, 10.63, 10.63)

System Validation/Area Scan (81x191x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 51.669 V/m; Power Drift = -0.05 dB
Fast SAR: SAR(1 g) = 2.16 W/kg; SAR(10 g) = 1.42 W/kg
Maximum value of SAR (interpolated) = 2.41 W/kg

System Validation/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 51.669 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 3.06 W/kg
SAR(1 g) = 2.19 W/kg; SAR(10 g) = 1.44 W/kg
Maximum value of SAR (measured) = 2.43 W/kg



0 dB = 2.43 W/kg = 3.86 dB W/kg

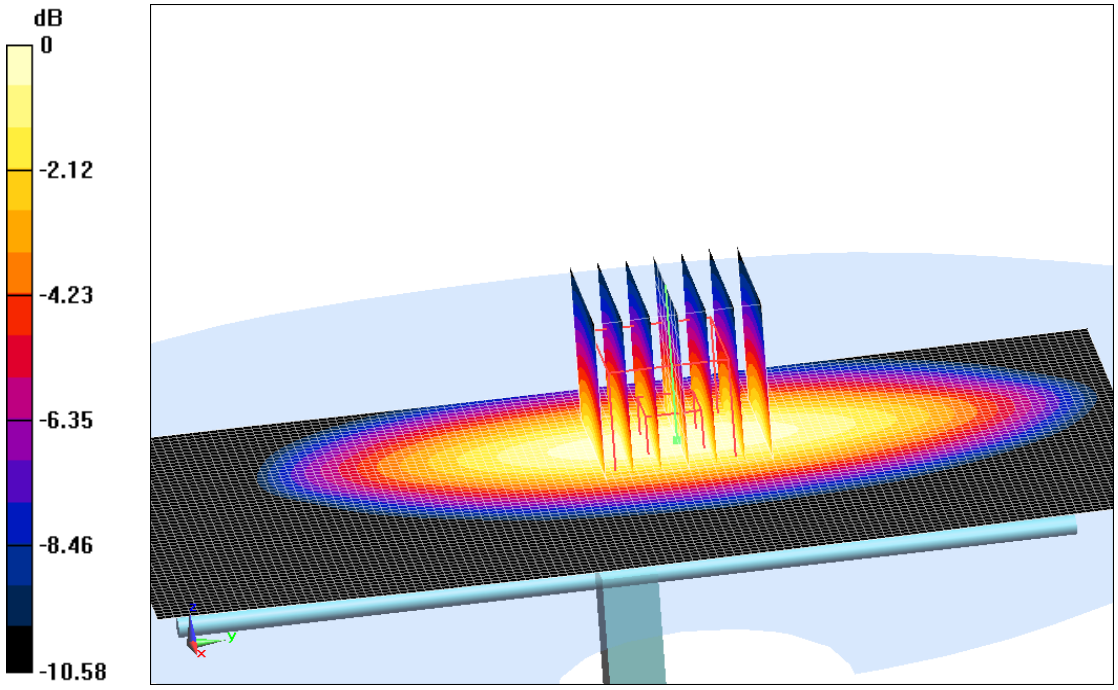
Fig.B.2 validation 750MHz 250mW

835MHz

Date: 2019-5-17
Electronics: DAE4 Sn1525
Medium: Head 850 MHz
Medium parameters used: f = 835 MHz; σ = 0.908 S/m; ε_r = 41.76; ρ = 1000 kg/m^3
Ambient Temperature: 22.9ºC Liquid Temperature: 22.5ºC
Communication System: CW Frequency: 835 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7514 ConvF(10.28, 10.28, 10.28)

System Validation/Area Scan (61x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 54.82 V/m; Power Drift = 0.04 dB
Fast SAR: SAR(1 g) = 2.41 W/kg; SAR(10 g) = 1.55 W/kg
Maximum value of SAR (interpolated) = 2.60 W/kg

System Validation/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 54.82 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 3.14 W/kg
SAR(1 g) = 2.37 W/kg; SAR(10 g) = 1.53 W/kg
Maximum value of SAR (measured) = 2.57 W/kg



0 dB = 2.57 W/kg = 4.00 dBW/kg

Fig.B.3 validation 835MHz 250mW

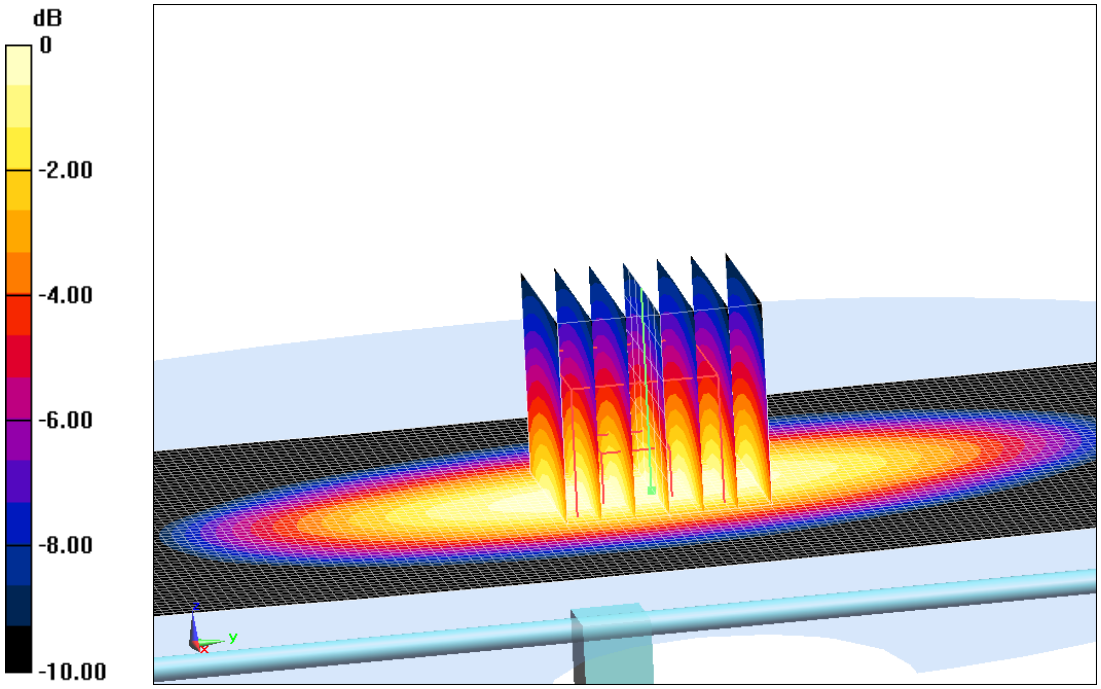
835MHz

Date: 2019-5-18

Electronics: DAE4 Sn1525
Medium: Body 850 MHz
Medium parameters used: f = 835 MHz; σ = 0.979 S/m; ε_r = 55.91; ρ = 1000 kg/m^3
Ambient Temperature: 22.9ºC Liquid Temperature: 22.5ºC
Communication System: CW Frequency: 835 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7514 ConvF(10.21, 10.21, 10.21)

System Validation /Area Scan (61x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 52.95 V/m; Power Drift = -0.04 dB
Fast SAR: SAR(1 g) = 2.38 W/kg; SAR(10 g) = 1.56 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 = 52.95 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 3.19 W/kg
SAR(1 g) = 2.43 W/kg; SAR(10 g) = 1.59 W/kg
Maximum value of SAR (measured) = 2.76 W/kg



0 dB = 2.76 W/kg = 4.41 dBW/kg

Fig.B.4 validation 835MHz 250mW

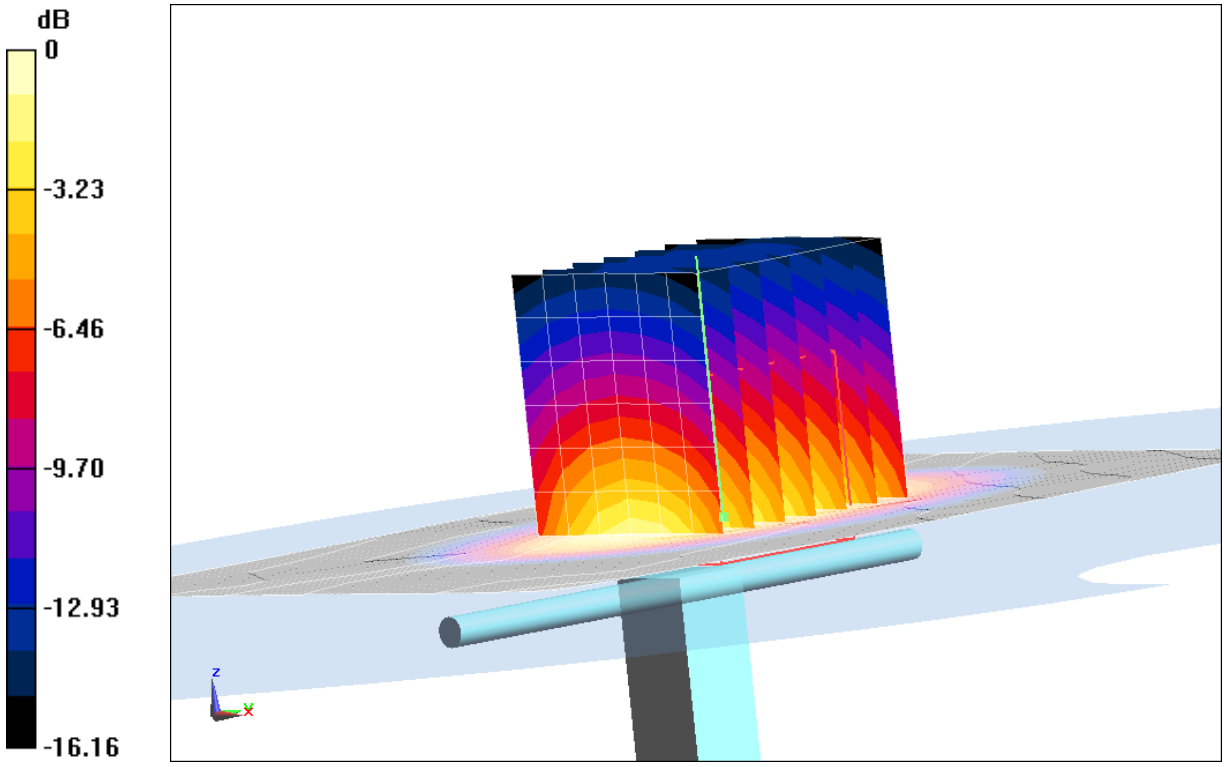
1750MHz

Date: 2019-5-18
Electronics: DAE4 Sn1525Medium: Head 1750 MHz

Medium parameters used: f=1750 MHz; σ = 1.421 mho/m; εr = 40.41; ρ = 1000 kg/m^3
Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C
Communication System: CW Frequency: 1750 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7514ConvF(8.70, 8.70, 8.70)

System Validation/Area Scan (81x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 89.61 V/m; Power Drift = 0.06 dB
Fast SAR: SAR(1 g) = 9.08 W/kg; SAR(10 g) = 4.80 W/kg
Maximum value of SAR (interpolated) = 10.0 W/kg

System Validation/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 89.61 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 15.59 W/kg
SAR(1 g) = 9.18 W/kg; SAR(10 g) = 4.88 W/kg
Maximum value of SAR (measured) = 10.1 W/kg



0 dB = 10.1 W/kg = 10.04 dB W/kg

Fig.B.5 validation 1750MHz 250mW

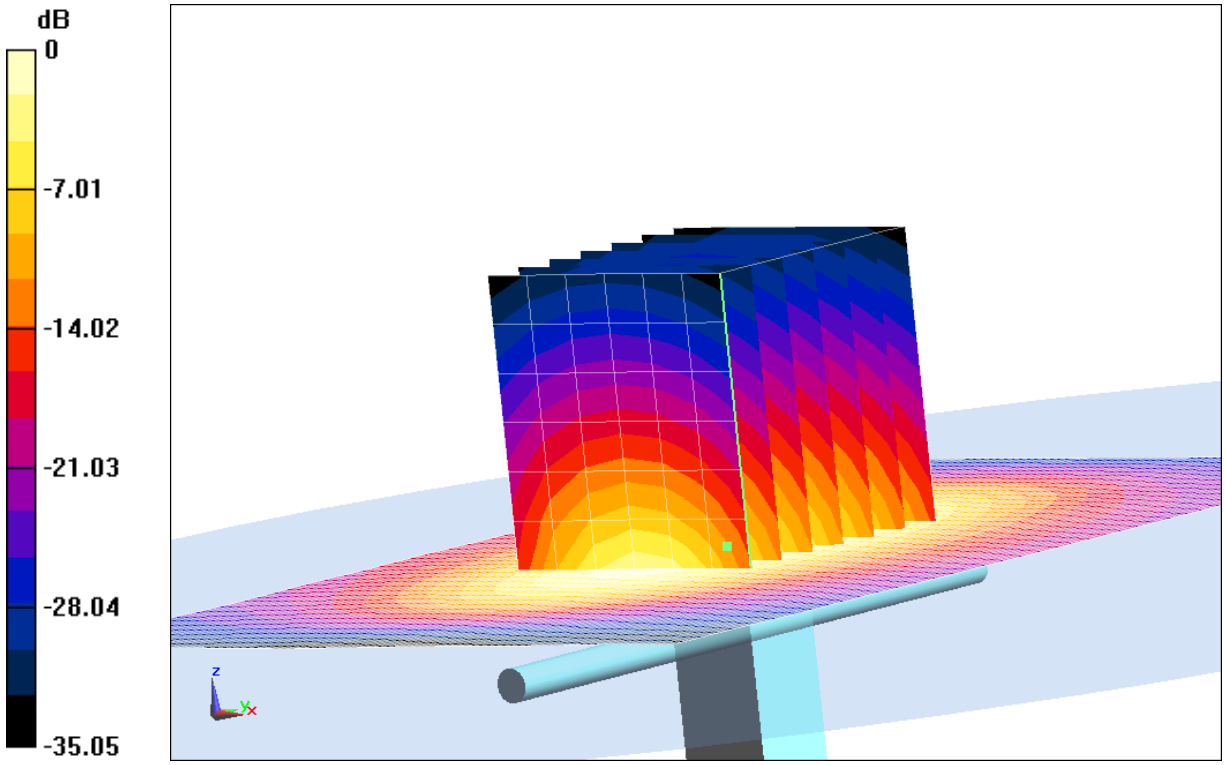
1750MHz

Date: 2019-5-18
Electronics: DAE4 Sn1525Medium: Body 1750 MHz
Medium parameters used: f=1750 MHz; σ = 1.506 mho/m; εr = 53.72; ρ = 1000 kg/m^3

Ambient Temperature: 22.9ºC Liquid Temperature: 22.5ºC
Communication System: CW Frequency: 1750 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7514 ConvF(8.60, 8.60, 8.60)

System Validation/Area Scan (81x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 95.17 V/m; Power Drift = -0.03 dB
Fast SAR: SAR(1 g) = 9.51 W/kg; SAR(10 g) = 5.07 W/kg
Maximum value of SAR (interpolated) = 10.4 W/kg

System Validation/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 95.17 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 15.54 W/kg
SAR(1 g) = 9.42 W/kg; SAR(10 g) = 4.99 W/kg
Maximum value of SAR (measured) = 10.3 W/kg



0 dB = 10.3 W/kg = 10.13 dB W/kg

Fig.B.6 validation 1750MHz 250mW

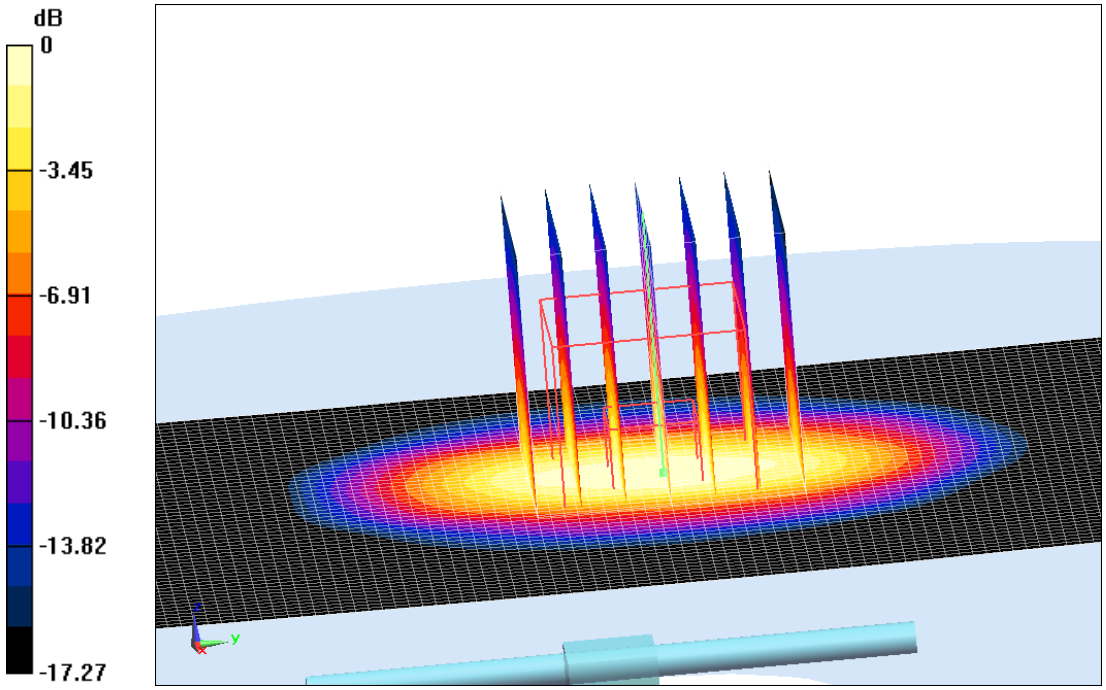
1900MHz

Date: 2019-5-19
Electronics: DAE4 Sn1331
Medium: Head 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.411 mho/m; ε_r = 40.61; ρ = 1000 kg/m^3

Ambient Temperature: 22.9ºC Liquid Temperature: 22.5ºC
Communication System: CW Frequency: 1900 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7514 ConvF (8.39, 8.39, 8.39)

System Validation /Area Scan(61x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 92.19 V/m; Power Drift = 0.05 dB
SAR(1 g) = 10.4 W/kg; SAR(10 g) = 5.52 W/kg
Maximum value of SAR (interpolated) = 12.6 W/kg

System Validation /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 92.19 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 18.05 W/kg
SAR(1 g) = 10.2 W/kg; SAR(10 g) = 5.38 W/kg
Maximum value of SAR (measured) = 12.4 W/kg



0 dB = 12.4 W/kg = 10.93 dBW/kg

Fig.B.7 validation 1900MHz 250mW

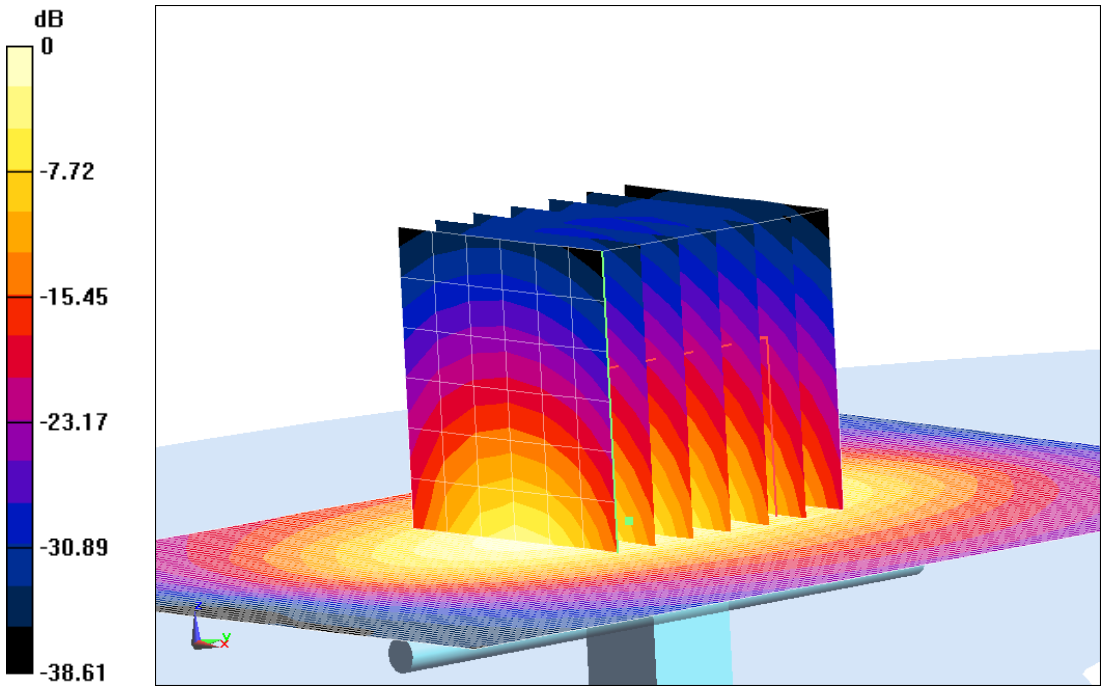
1900MHz

Date: 2019-5-19
Electronics: DAE4 Sn1525
Medium: Body 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.527 S/m; ε_r = 52.71; ρ = 1000 kg/m^3
Ambient Temperature: 22.9ºC Liquid Temperature: 22.5ºC

Communication System: CW Frequency: 1900 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7514 ConvF(8.32, 8.32, 8.32)

System Validation/Area Scan (81x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 94.27 V/m; Power Drift = -0.03 dB
Fast SAR: SAR(1 g) = 10.5 W/kg; SAR(10 g) = 5.58 W/kg
Maximum value of SAR (interpolated) = 12.5 W/kg

System Validation/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 94.27 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 19.18 W/kg
SAR(1 g) = 10.4 W/kg; SAR(10 g) = 5.49 W/kg
Maximum value of SAR (measured) = 12.4 W/kg



0 dB = 12.4 W/kg = 10.93 dB W/kg

Fig.B.8 validation 1900MHz 250mW

2450MHz

Date: 2019-5-20
Electronics: DAE4 Sn1525
Medium: Head 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 1.811 mho/m; ε_r = 38.91; ρ = 1000 kg/m^3