



SAR TEST REPORT

No. I18Z61178-SEM01

For

TCL Communication Ltd.

GSM/UMTS/LTE mobile phone

Model Name: REVVL 2 5052W

With

Hardware Version: 05

Software Version: vARA5

FCC ID: 2ACCJH093

Issued Date: 2018-8-16



Note:

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REPORT HISTORY

Report Number	Revision	Issue Date	Description
I18Z61178-SEM01	Rev.0	2018-8-16	Initial creation of test report

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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
(if applicable) SAR test lab number	12389A-1

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

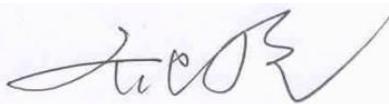
Project Leader:	Qi Dianyuan
Test Engineer:	Lin Xiaojun
Testing Start Date:	August 5, 2018
Testing End Date:	August 10, 2018

1.4 Signature



Lin Xiaojun

(Prepared this test report)



Qi Dianyuan

(Reviewed this test report)



Lu Bingsong

Deputy Director of the laboratory

(Approved this test report)

2 Statement of Compliance

The maximum results of SAR found during testing for TCL Communication Ltd. GSM/UMTS/LTE mobile phone REVVL 2 5052W is as follows:

Table 2.1: Highest Reported SAR (1g)

Exposure Configuration	Technology Band	Highest Reported SAR 1g (W/Kg)	Equipment Class
Head (Separation Distance 0mm)	GSM850	0.13	PCE
	PCS1900	0.28	
	WCDMA1900-BII	0.50	
	WCDMA1700-BIV	0.38	
	WCDMA850-BV	0.22	
	LTE1900-FDD2	0.53	
	LTE850-FDD5	0.16	
	LTE2500-FDD7	0.22	
	LTE700-FDD12	0.34	
	LTE1700-FDD66	0.44	
	LTE700-FDD71	0.26	
	WLAN2450	0.91	DTS
Body (Separation Distance 10mm)	GSM850	0.17	PCE
	PCS1900	0.38	
	WCDMA1900-BII	0.94	
	WCDMA1700-BIV	1.39	
	WCDMA850-BV	0.32	
	LTE1900-FDD2	0.99	
	LTE850-FDD5	0.30	
	LTE2500-FDD7	0.97	
	LTE700-FDD12	0.50	
	LTE1700-FDD66	1.24	
	LTE700-FDD71	0.35	
	WLAN2450	0.18	DTS
Body (Separation Distance 15mm)	PCS1900	0.47	PCE
	WCDMA1900-BII	0.58	
	WCDMA1700-BIV	1.40	
	LTE1900-FDD2	0.75	
	LTE2500-FDD7	0.57	
	LTE1700-FDD66	1.15	

The SAR values found for the Mobile Phone are below the maximum recommended levels of 1.6 W/Kg as averaged over any 1g tissue according to the ANSI C95.1-1992.

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

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

The measurement together with the test system set-up is described in annex C of this test report. A detailed description of the equipment under test can be found in chapter 4 of this test report.

The highest reported SAR value is obtained at the case of (**Table 2.1**), and the values are: 1.40 **W/kg (1g)**.

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	Left hand, Touch cheek	0.51	0.91	1.42
Highest reported SAR value for Body	Bottom edge 10mm	1.39	/	1.39
Highest reported SAR value for Body	Rear 15mm	1.40	0.09	1.49

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

	Position	Main antenna	BT	Sum
Maximum reported SAR value for Head	Left hand, Touch cheek	0.53	0.21	0.74
Maximum reported SAR value for Body	Bottom edge 10mm	1.39	0.10	1.49
Maximum reported SAR value for Body	Rear 15mm	1.40	0.04	1.44

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

According to the above tables, the highest sum of reported SAR values is 1.49 **W/kg (1g)**. The detail for simultaneous transmission consideration is described in chapter 13.

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

Table 2.4: 0mm Reported SAR for Limb (10g)

Exposure Configuration	Technology Band	Highest Reported SAR 10g(W/kg)	Limit 10g (W/kg)
Hotspot (Separation Distance 0mm)	WCDMA 1700	1.51	4.0
	LTE1700-FDD66	1.52	4.0

3 Client Information

3.1 Applicant Information

Company Name:	TCL Communication Ltd.
Address /Post:	7/F, Block F4, TCL Communication Technology Building, TCL International E City, Zhong Shan Yuan Road, Nanshan District, Shenzhen, Guangdong, P.R. China 518052
City:	Shanghai
Postal Code:	201203
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E-mail:	zhizhou.gong@tcl.com
Telephone:	0086-755-36611722
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3.2 Manufacturer Information

Company Name:	TCL Communication Ltd.
Address /Post:	7/F, Block F4, TCL Communication Technology Building, TCL International E City, Zhong Shan Yuan Road, Nanshan District, Shenzhen, Guangdong, P.R. China 518052
City:	Shanghai
Postal Code:	201203
Country:	China
Contact Person:	Gong Zhizhou
E-mail:	zhizhou.gong@tcl.com
Telephone:	0086-755-36611722
Fax:	0086-75536612000-81722

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

4.1 About EUT

Description:	GSM/UMTS/LTE mobile phone
Model name:	REVVL 2 5052W
Operating mode(s):	GSM 850/900/1800/1900 WCDMA850/1700/1900 LTE B2/4/5/7/12/66/71, BT, WLAN
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) 824.7 – 848.3 MHz (LTE Band 5) 2502.5 – 2567.5 MHz (LTE Band 7) 699.7 –715.3 MHz (LTE Band 12) 1710.7 – 1779.3 MHz (LTE Band 66) 665.5 – 695.5 MHz (LTE Band 71) 2412 – 2462 MHz (Wi-Fi 2.4G)
GPRS/EGPRS Multislot Class:	12
Test device Production information:	Production unit
Device type:	Portable device
Antenna type:	Integrated antenna
Hotspot mode:	Support
Product dimension	Long 147.1mm ;Wide 68.8mm ; Diagonal 162.39mm

4.2 Internal Identification of EUT used during the test

EUTID	IMEI	HW Version	SW Version
1	015246000151672	05	vARA5
2	015246000151078	05	vARA5
3	015246000151748	05	vARA5

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

Note: It is performed to test SAR with the EUT1 to2 and conducted power with the EUT3.

4.3 Internal Identification of AE used during the test

AE ID	Description	Model	SN	Manufactory
AE1	Battery	CAC2900019C1	/	BYD

*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

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

KDB865664 D01 SAR measurement 100 MHz to 6 GHz v01r04: SAR Measurement Requirements for 100 MHz to 6 GHz.

KDB865664 D02 RF Exposure Reporting v01r02: 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 heat 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

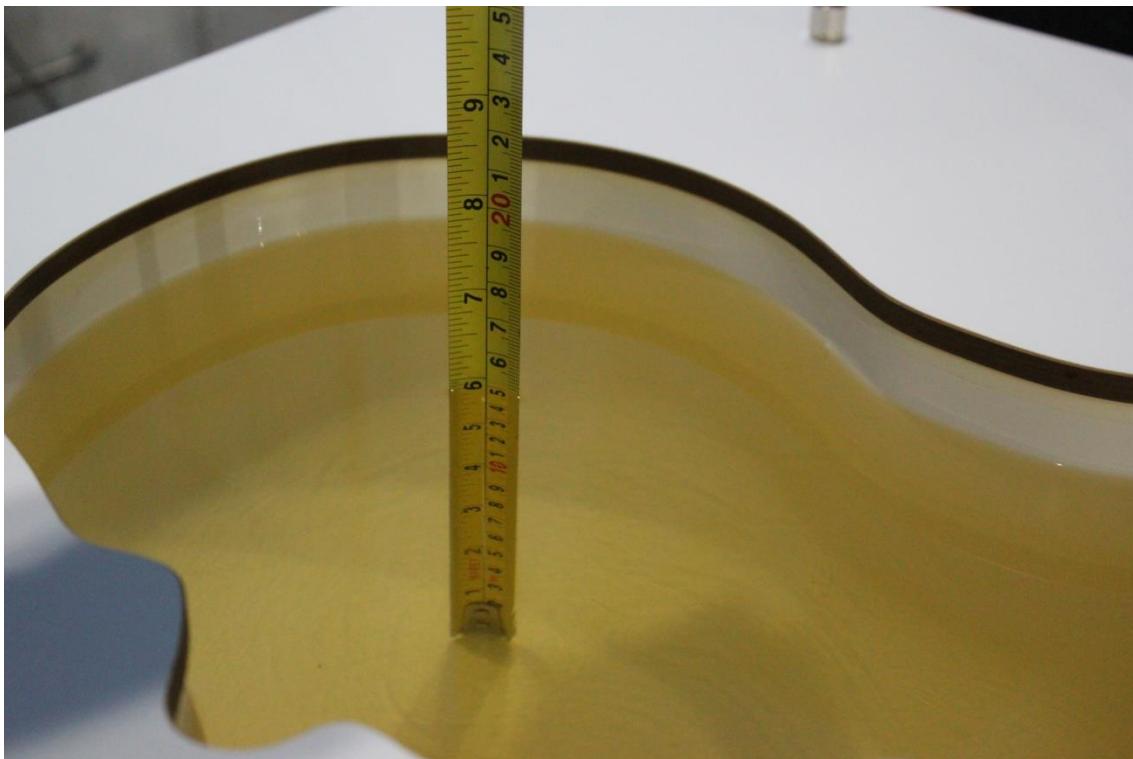
Frequency(MHz)	Liquid Type	Conductivity(σ)	\pm 5% Range	Permittivity(ϵ)	\pm 5% Range
750	Head	0.89	0.85~0.93	41.94	39.8~44.0
750	Body	0.96	0.91~1.01	55.5	52.7~58.3
835	Head	0.90	0.86~0.95	41.5	39.4~43.6
835	Body	0.97	0.92~1.02	55.2	52.4~58.0
1750	Head	1.37	1.30~1.44	40.08	38.1~42.1
1750	Body	1.49	1.42~1.56	53.4	50.7~56.1
1900	Head	1.40	1.33~1.47	40.0	38.0~42.0
1900	Body	1.52	1.44~1.60	53.3	50.6~56.0
2450	Head	1.80	1.71~1.89	39.2	37.2~41.2
2450	Body	1.95	1.85~2.05	52.7	50.1~55.3
2600	Head	1.96	1.86~2.06	39.01	37.06~40.96
2600	Body	2.16	2.05~2.27	52.5	49.9~55.1

7.2 Dielectric Performance

Table 7.2: Dielectric Performance of Tissue Simulating Liquid

Measurement Date yyyy/mm/dd	Frequency	Type	Permittivity ϵ	Drift (%)	Conductivity σ (S/m)	Drift (%)
2018/8/5	750 MHz	Head	41.35	-1.41	0.888	-0.22
		Body	55.95	0.81	0.955	-0.52
2018/8/6	835 MHz	Head	41.1	-0.96	0.892	-0.89
		Body	54.29	-1.65	0.977	0.72
2018/8/7	1750 MHz	Head	40.82	1.85	1.377	0.51
		Body	52.58	-1.54	1.485	-0.34
2018/8/8	1900 MHz	Head	39.99	-0.02	1.428	2.00
		Body	53.11	-0.36	1.51	-0.66
2018/8/9	2450 MHz	Head	38.99	-0.54	1.78	-1.11
		Body	53.49	1.50	1.957	0.36
2018/8/10	2600 MHz	Head	39.06	0.13	1.925	-1.79
		Body	52.63	0.25	2.179	0.88

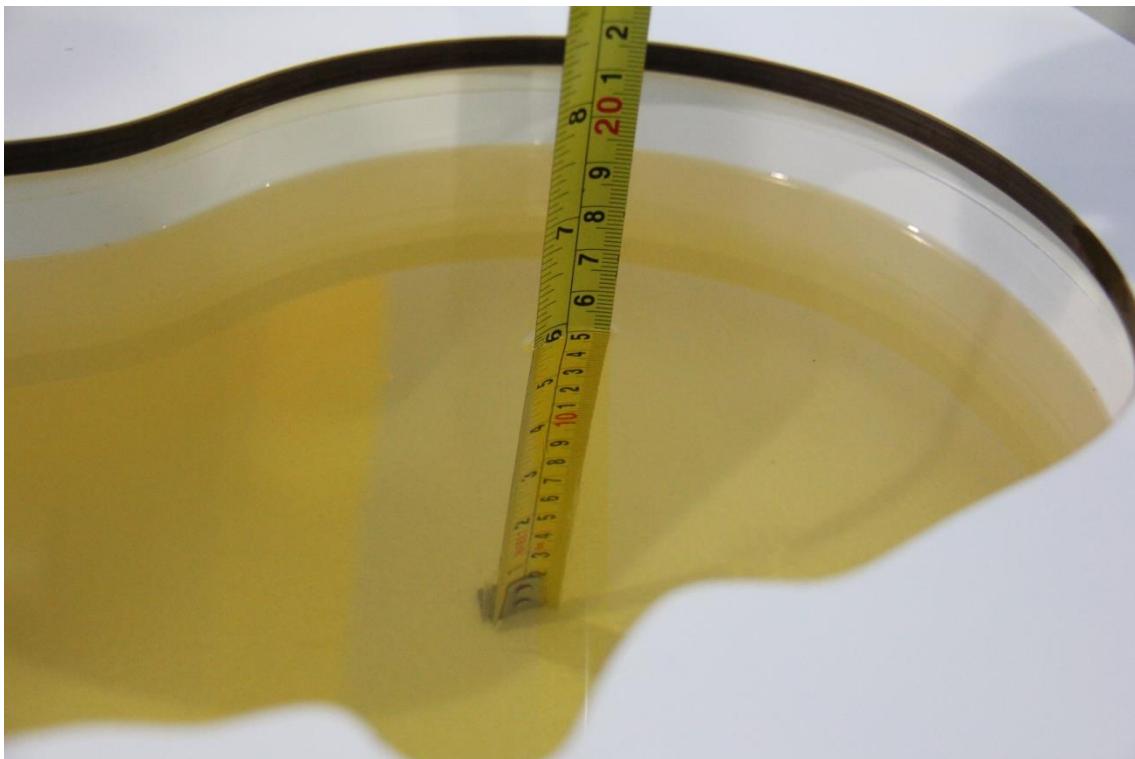
Note: The liquid temperature is 22.0 °C



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



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



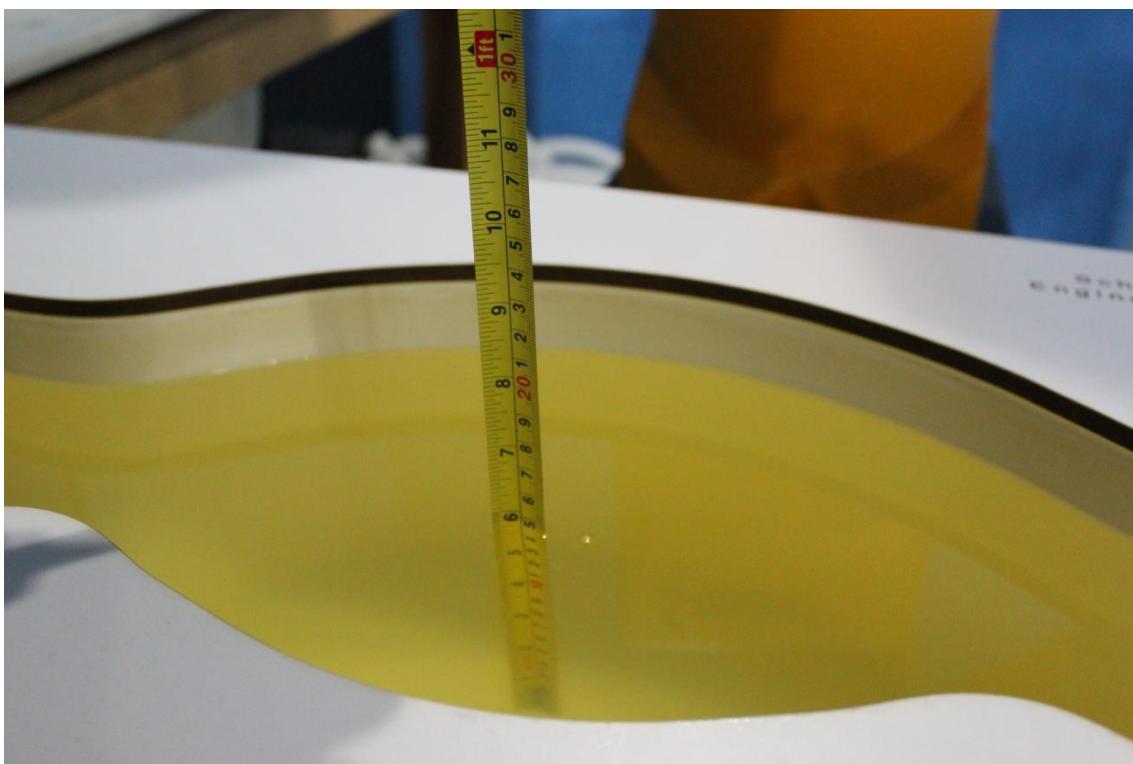
Picture 7-3 Liquid depth in the Head Phantom (835MHz)



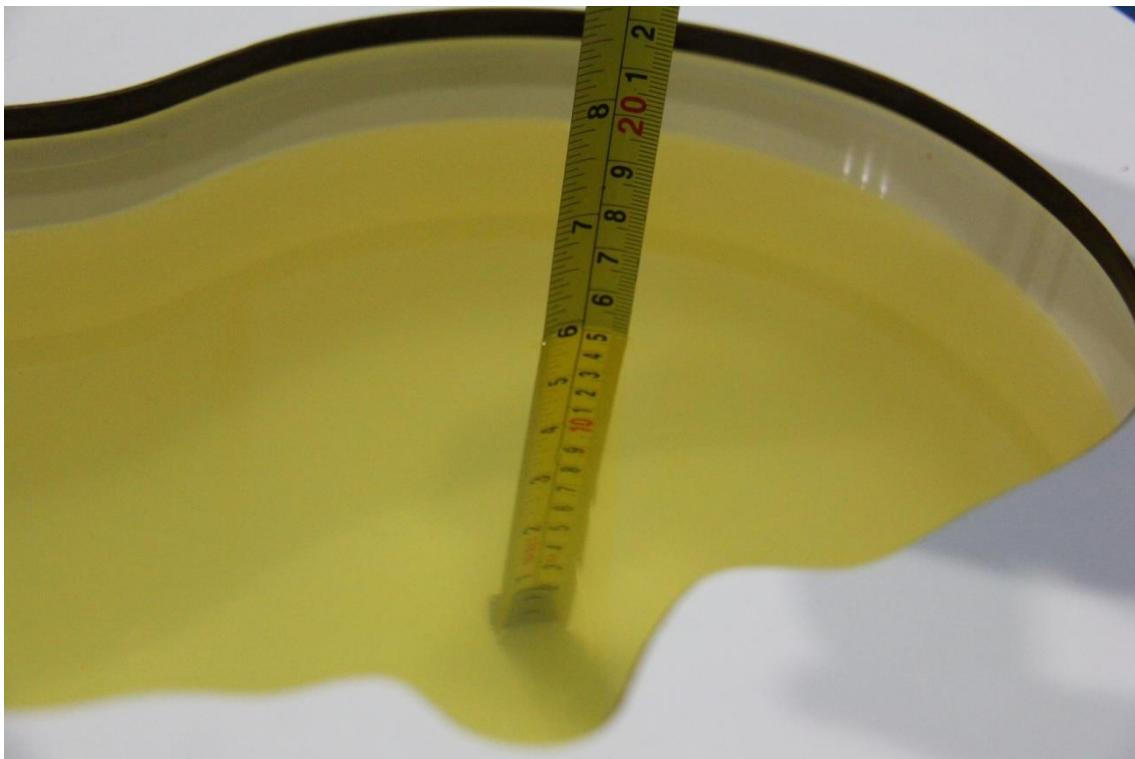
Picture 7-4 Liquid depth in the Flat Phantom (835MHz)



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



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



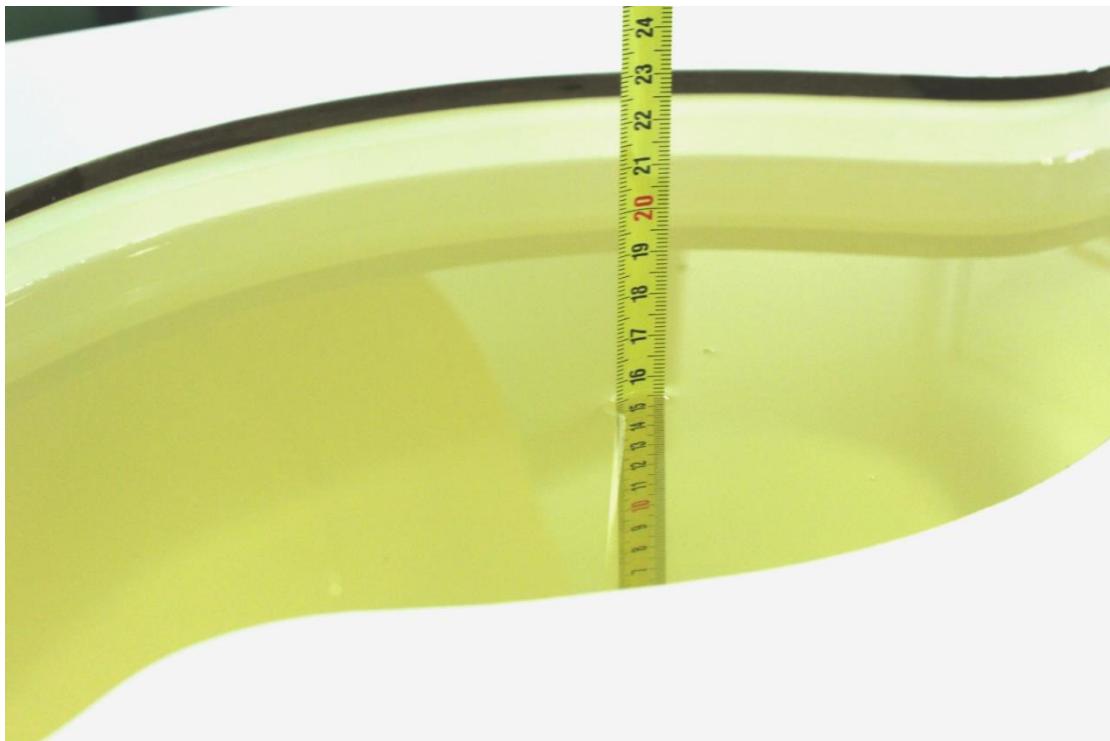
Picture 7-7 Liquid depth in the Head Phantom (1900 MHz)



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



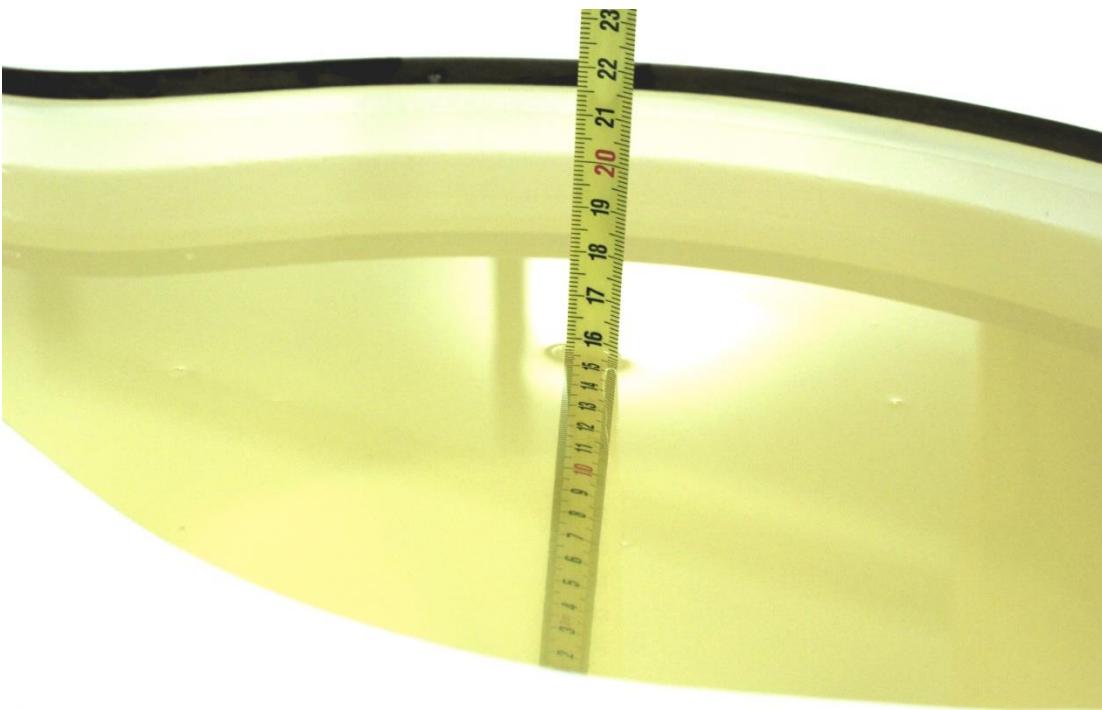
Picture 7-9 Liquid depth in the Head Phantom (2450MHz)



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



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

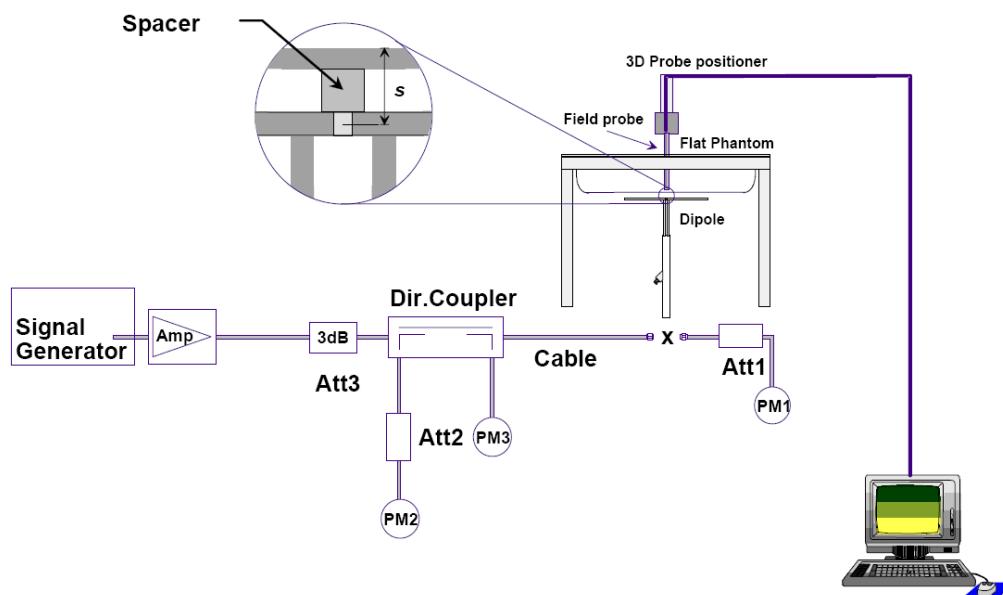


Picture 7-12 Liquid depth in the Flat Phantom (2600MHz)

8 System verification

8.1 System Setup

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



Picture 8.1 System Setup for System Evaluation



Picture 8.2 Photo of Dipole Setup

8.2 System Verification

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

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

Table 8.1: System Verification of Head

Measurement Date (yyyy-mm-dd)	Frequency	Target value (W/kg)		Measured value (W/kg)		Deviation	
		10 g Average	1 g Average	10 g Average	1 g Average	10 g Average	1 g Average
2018/8/5	750 MHz	5.42	8.32	5.52	8.36	1.85%	0.48%
2018/8/6	835 MHz	6.06	9.37	6.08	9.24	0.33%	-1.39%
2018/8/7	1750 MHz	19.4	36.7	19.44	36.76	0.21%	0.16%
2018/8/8	1900 MHz	21.0	40.0	21.32	40	1.52%	0.00%
2018/8/9	2450 MHz	24.7	52.2	25	51.28	1.21%	-1.76%
2018/8/10	2600 MHz	25.8	57.9	25.68	56.76	-0.47%	-1.97%

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
2018/8/5	750 MHz	5.68	8.66	5.6	8.56	-1.41%	-1.15%
2018/8/6	835 MHz	6.12	9.41	6.2	9.56	1.31%	1.59%
2018/8/7	1750 MHz	19.8	37.1	19.72	37.72	-0.40%	1.67%
2018/8/8	1900 MHz	21.5	40.5	21.4	40.8	-0.47%	0.74%
2018/8/9	2450 MHz	23.8	50.4	23.68	49.52	-0.50%	-1.75%
2018/8/10	2600 MHz	24.8	55.5	24.56	55.36	-0.97%	-0.25%

9 Measurement Procedures

9.1 Tests to be performed

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

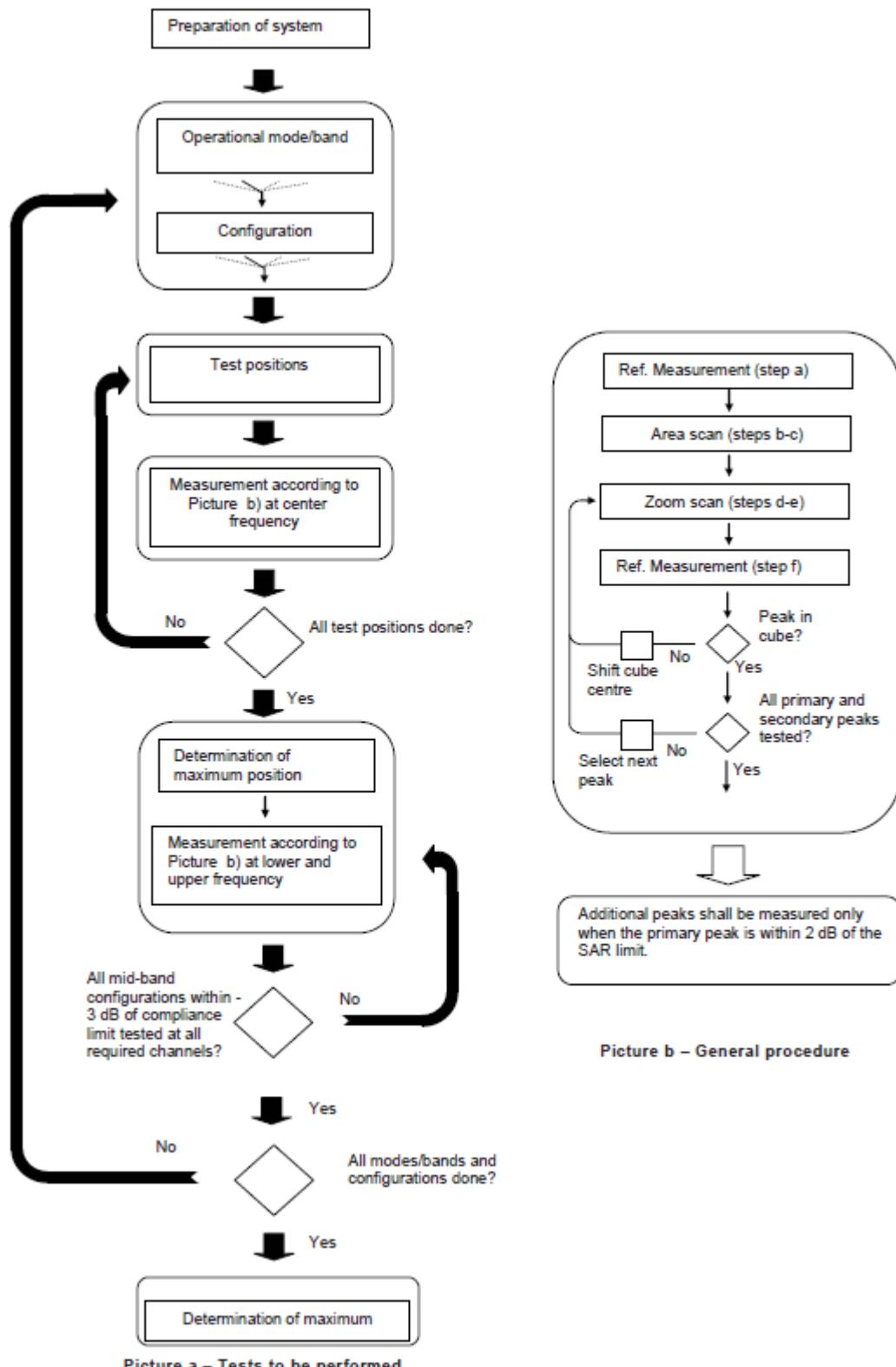
Step 1: The tests described in 9.2 shall be performed at the channel that is closest to the center of the transmit frequency band (f_c) for:

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

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

Step 2: For the condition providing highest peak spatial-average SAR determined in Step 1, perform all tests described in 9.2 at all other test frequencies, i.e., lowest and highest frequencies. In addition, for all other conditions (device position, configuration and operational mode) where the peak spatial-average SAR value determined in Step 1 is within 3 dB of the applicable SAR limit, it is recommended that all other test frequencies shall be tested as well.

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



Picture 9.1 Block diagram of the tests to be performed

9.2 General Measurement Procedure

The area and zoom scan resolutions specified in the table below must be applied to the SAR measurements and fully documented in SAR reports to qualify for TCB approval. Probe boundary effect error compensation is required for measurements with the probe tip closer than half a probe tip diameter to the phantom surface. Both the probe tip diameter and sensor offset distance must satisfy measurement protocols; to ensure probe boundary effect errors are minimized and the higher fields closest to the phantom surface can be correctly measured and extrapolated to the phantom surface for computing 1-g SAR. Tolerances of the post-processing algorithms must be verified by the test laboratory for the scan resolutions used in the SAR measurements, according to the reference distribution functions specified in IEEE Std 1528-2013. The results should be documented as part of the system validation records and may be requested to support test results when all the measurement parameters in the following table are not satisfied.

		$\leq 3 \text{ GHz}$	$> 3 \text{ GHz}$
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface		$5 \pm 1 \text{ mm}$	$\frac{1}{2} \cdot \delta \cdot \ln(2) \pm 0.5 \text{ mm}$
Maximum probe angle from probe axis to phantom surface normal at the measurement location		$30^\circ \pm 1^\circ$	$20^\circ \pm 1^\circ$
		$\leq 2 \text{ GHz}: \leq 15 \text{ mm}$ $2 - 3 \text{ GHz}: \leq 12 \text{ mm}$	$3 - 4 \text{ GHz}: \leq 12 \text{ mm}$ $4 - 6 \text{ GHz}: \leq 10 \text{ mm}$
Maximum area scan spatial resolution: $\Delta x_{\text{Area}}, \Delta y_{\text{Area}}$		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 \leq the corresponding x or y dimension of the test device with at least one measurement point on the test device.	
Maximum zoom scan spatial resolution: $\Delta x_{\text{Zoom}}, \Delta y_{\text{Zoom}}$		$\leq 2 \text{ GHz}: \leq 8 \text{ mm}$ $2 - 3 \text{ GHz}: \leq 5 \text{ mm}^*$	$3 - 4 \text{ GHz}: \leq 5 \text{ mm}^*$ $4 - 6 \text{ GHz}: \leq 4 \text{ mm}^*$
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{\text{Zoom}}(n)$	$\leq 5 \text{ mm}$	$3 - 4 \text{ GHz}: \leq 4 \text{ mm}$ $4 - 5 \text{ GHz}: \leq 3 \text{ mm}$ $5 - 6 \text{ GHz}: \leq 2 \text{ mm}$
	graded grid graded grid	$\Delta z_{\text{Zoom}}(1): \text{between } 1^{\text{st}}$ two points closest to phantom surface $\Delta z_{\text{Zoom}}(n>1): \text{between}$ subsequent points	$\leq 4 \text{ mm}$ $\leq 1.5 \cdot \Delta z_{\text{Zoom}}(n-1)$
Minimum zoom scan volume	x, y, z	$\geq 30 \text{ mm}$	$3 - 4 \text{ GHz}: \geq 28 \text{ mm}$ $4 - 5 \text{ GHz}: \geq 25 \text{ mm}$ $5 - 6 \text{ GHz}: \geq 22 \text{ mm}$
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 $\leq 1.4 \text{ W/kg}$, $\leq 8 \text{ mm}$, $\leq 7 \text{ mm}$ and $\leq 5 \text{ mm}$ zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.			

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	$\beta_{ed1}^{47/15}$ $\beta_{ed2}^{47/15}$	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.

9.5 Bluetooth & Wi-Fi Measurement Procedures for SAR

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

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

9.6 Power Drift

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

10 Area Scan Based 1-g SAR

10.1 Requirement of KDB

According to the KDB447498 D01 v05, when the implementation is based the specific polynomial fit

algorithm as presented at the 29th Bioelectromagnetics Society meeting (2007) and the estimated 1-g SAR is $\leq 1.2 \text{ W/kg}$, a zoom scan measurement is not required provided it is also not needed for any other purpose; for example, if the peak SAR location required for simultaneous transmission SAR test exclusion can be determined accurately by the SAR system or manually to discriminate between distinctive peaks and scattered noisy SAR distributions from area scans.

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

10.2 Fast SAR Algorithms

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

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

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

Both algorithms are implemented in DASY software.

11 Conducted Output Power

11.1 GSM Measurement result

During the process of testing, the EUT was controlled via 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.

Note: The #1 is normal power

The #2 is low power

Table 11-1 GSM850 #1

Config	Tune-up	Measured Power (dBm)			Calculation	Frame Burst Power (dBm)		
		CH251 848.8 MHz	CH190 836.6 MHz	CH128 824.2 MHz		CH251 848.8 MHz	CH190 836.6 MHz	CH128 824.2 MHz
GSM Speech	33.00	32.55	32.60	32.52				
GPRS 1 Txslot	33.00	32.47	32.50	32.44	-9.03	23.44	23.47	23.41
GPRS 2 Txslots	29.50	29.17	29.19	29.08	-6.02	23.15	23.17	23.06
GPRS 3 Txslots	28.00	27.15	27.14	26.99	-4.26	22.89	22.88	22.73
GPRS 4 Txslots	27.00	26.65	26.63	26.46	-3.01	23.64	23.62	23.45
EGPRS GMSK 1 Txslot	33.00	32.41	32.47	32.41	-9.03	23.38	23.44	23.38
EGPRS GMSK 2 Txslots	29.50	29.12	29.15	29.06	-6.02	23.10	23.13	23.04
EGPRS GMSK 3 Txslots	28.00	27.10	27.11	26.97	-4.26	22.84	22.85	22.71
EGPRS GMSK 4 Txslots	27.00	26.60	26.60	26.44	-3.01	23.59	23.59	23.43
EGPRS 8PSK 1 Txslot	27.50	27.13	27.05	27.02	-9.03	18.10	18.02	17.99
EGPRS 8PSK 2 Txslots	26.00	25.84	25.74	25.78	-6.02	19.82	19.72	19.76
EGPRS 8PSK 3 Txslots	25.50	25.31	25.21	25.21	-4.26	21.05	20.95	20.95
EGPRS 8PSK 4 Txslots	24.50	24.06	23.94	23.96	-3.01	21.05	20.93	20.95

Table 11-2 PCS1900 #1

Config	Tune-up	Measured Power (dBm)			Calculation	Frame Burst Power (dBm)		
		CH810 1909.8 MHz	CH661 1880 MHz	CH512 1850.2 MHz		CH810 1909.8 MHz	CH661 1880 MHz	CH512 1850.2 MHz
GSM Speech	30.10	29.87	30.02	30.01				
GPRS 1 Txslot	30.10	29.78	29.94	29.94	-9.03	20.75	20.91	20.91
GPRS 2 Txslots	27.00	26.67	26.75	26.70	-6.02	20.65	20.73	20.68
GPRS 3 Txslots	26.00	24.70	24.78	24.70	-4.26	20.44	20.52	20.44
GPRS 4 Txslots	25.00	24.25	24.33	24.25	-3.01	21.24	21.32	21.24
EGPRS GMSK 1 Txslot	30.10	29.76	29.93	29.93	-9.03	20.73	20.90	20.90
EGPRS GMSK 2 Txslots	27.00	26.66	26.74	26.69	-6.02	20.64	20.72	20.67
EGPRS GMSK 3 Txslots	26.00	24.69	24.77	24.69	-4.26	20.43	20.51	20.43
EGPRS GMSK 4 Txslots	25.00	24.24	24.32	24.24	-3.01	21.23	21.31	21.23
EGPRS 8PSK 1 Txslot	26.50	26.20	26.36	26.09	-9.03	17.17	17.33	17.06
EGPRS 8PSK 2 Txslots	24.50	24.00	23.93	23.74	-6.02	17.98	17.91	17.72
EGPRS 8PSK 3 Txslots	23.50	22.83	22.82	22.54	-4.26	18.57	18.56	18.28
EGPRS 8PSK 4 Txslots	23.00	22.56	22.57	22.31	-3.01	19.55	19.56	19.30

Table 11-3 PCS1900 #2

PCS1900 #2								
Config	Tune-up	Measured Power (dBm)			Calculation	Frame Burst Power (dBm)		
		CH810 1909.8 MHz	CH661 1880 MHz	CH512 1850.2 MHz		CH810 1909.8 MHz	CH661 1880 MHz	CH512 1850.2 MHz
GSM Speech	27.00	26.73	26.83	26.77				
GPRS 1 Txslot	27.00	26.71	26.81	26.74	-9.03	17.68	17.78	17.71
GPRS 2 Txslots	24.00	23.79	23.90	23.80	-6.02	17.77	17.88	17.78
GPRS 3 Txslots	22.50	22.05	22.17	22.10	-4.26	17.79	17.91	17.84
GPRS 4 Txslots	21.00	20.72	20.84	20.78	-3.01	17.71	17.83	17.77
EGPRS GMSK 1 Txslot	27.00	26.67	26.79	26.73	-9.03	17.64	17.76	17.70
EGPRS GMSK 2 Txslots	24.00	23.77	23.88	23.79	-6.02	17.75	17.86	17.77
EGPRS GMSK 3 Txslots	22.50	22.02	22.15	22.09	-4.26	17.76	17.89	17.83
EGPRS GMSK 4 Txslots	21.00	20.69	20.83	20.77	-3.01	17.68	17.82	17.76
EGPRS 8PSK 1 Txslot	23.00	22.87	22.65	22.53	-9.03	13.84	13.62	13.50
EGPRS 8PSK 2 Txslots	20.00	19.64	19.61	19.37	-6.02	13.62	13.59	13.35
EGPRS 8PSK 3 Txslots	18.00	17.65	17.62	17.41	-4.26	13.39	13.36	13.15
EGPRS 8PSK 4 Txslots	20.50	20.27	20.15	20.03	-3.01	17.26	17.14	17.02

NOTES:

Division Factors

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

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

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

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

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

According to the conducted power as above, the body measurements are performed with 4Txslots for 850MHz and 1900MHz normal power, 3Txslots for 1900MHz low power.

11.2 WCDMA Measurement result

Table 11-4 WCDMA1900-BII #1

WCDMA1900-BII #1			Measured Power (dBm)		
Item		Tune-up	CH9538 1907.6 MHz	CH9400 1880 MHz	CH9262 1852.4 MHz
WCDMA	RMC	24.10	23.89	23.99	23.99
HSUPA	subtest1	23.00	22.72	22.64	22.73
	subtest2	23.00	22.75	22.73	22.77
	subtest3	23.00	22.19	22.25	22.21
	subtest4	23.00	22.73	22.68	22.79
	subtest5	23.00	22.71	22.65	22.67
HSPA+	\	23.00	21.88	21.87	21.92
DC-HSDPA	subtest1	23.00	22.47	22.40	22.46
	subtest2	23.00	22.43	22.41	22.45
	subtest3	23.00	22.45	22.42	22.47
	subtest4	23.00	22.45	22.41	22.46

Table 11-5 WCDMA1900-BII #2

WCDMA1900-BII #2			Measured Power (dBm)		
Item		Tune-up	CH9538 1907.6 MHz	CH9400 1880 MHz	CH9262 1852.4 MHz
WCDMA	RMC	21.00	19.65	19.58	19.66
HSUPA	subtest1	20.00	19.71	19.67	19.74
	subtest2	20.00	19.74	19.75	19.81
	subtest3	20.00	19.17	19.24	19.27
	subtest4	20.00	19.71	19.72	19.76
	subtest5	20.00	19.78	19.71	19.70
HSPA+	\	19.00	18.88	18.87	18.93
DC-HSDPA	subtest1	20.00	19.44	19.41	19.47
	subtest2	20.00	19.42	19.40	19.45
	subtest3	20.00	19.45	19.42	19.46
	subtest4	20.00	19.44	19.41	19.45

Table 11-6 WCDMA1700-BIV #1

WCDMA1700-BIV #1			Measured Power (dBm)		
Item		Tune-up	CH1513 1752.6 MHz	CH1412 1732.4 MHz	CH1312 1712.4 MHz
WCDMA	RMC	24.00	23.88	23.81	23.90
HSUPA	subtest1	22.50	22.31	22.34	22.37
	subtest2	22.50	22.37	22.42	22.39
	subtest3	22.50	21.89	21.86	21.88
	subtest4	22.50	22.40	22.38	22.34
	subtest5	22.50	22.37	22.42	22.45
HSPA+	\	23.00	21.72	21.70	21.59
DC-HSDPA	subtest1	23.00	22.22	22.23	22.14
	subtest2	23.00	22.20	22.21	22.14
	subtest3	23.00	22.20	22.23	22.15
	subtest4	23.00	22.21	22.22	22.15

Table 11-7 WCDMA1700-BIV #2

WCDMA1700-BIV #2			Measured Power (dBm)		
Item		Tune-up	CH1513 1752.6 MHz	CH1412 1732.4 MHz	CH1312 1712.4 MHz
WCDMA	RMC	20.00	19.53	19.45	19.55
HSUPA	subtest1	20.00	19.58	19.65	18.99
	subtest2	20.00	19.57	19.62	19.49
	subtest3	20.00	18.61	19.04	18.99
	subtest4	20.00	19.52	19.61	19.50
	subtest5	20.00	19.55	19.65	19.52
HSPA+	\	19.00	18.65	18.72	18.60
DC-HSDPA	subtest1	19.50	19.22	19.22	19.15
	subtest2	19.50	19.19	19.21	19.13
	subtest3	19.50	19.22	19.23	19.15
	subtest4	19.50	19.20	19.22	19.14

Table 11-8 WCDMA850-BV #1

WCDMA850-BV #1			Measured Power (dBm)		
Item		Tune-up	CH4233 846.6 MHz	CH4182 835.4 MHz	CH4132 826.4 MHz
WCDMA	RMC	24.00	23.82	23.83	23.77
HSUPA	subtest1	22.50	22.31	22.34	22.37
	subtest2	22.50	22.37	22.42	22.39
	subtest3	22.00	21.89	21.86	21.88
	subtest4	22.50	22.40	22.38	22.34
	subtest5	22.50	22.37	22.42	22.45
HSPA+	\	23.00	21.72	21.70	21.69
DC-HSDPA	subtest1	23.00	22.19	22.17	22.12
	subtest2	23.00	22.19	22.17	22.11
	subtest3	23.00	22.19	22.18	22.12
	subtest4	23.00	22.22	22.17	22.12

11.3 LTE Measurement result

Table 11-9 LTE1900-FDD2 #1

LTE1900-FDD2 #1				Measured Power (dBm) & MPR				
SN	BandWidth	RB No./Start	Channel	Tune-up	QPSK		16QAM	
					Measured Power	MPR	Measured Power	MPR
1.4MHz	1H	19193	24	23.34	0	22.31	1	
		18900	24	23.31	0	22.59	1	
		18607	24	23.33	0	22.39	1	
	1M	19193	24	23.51	0	22.47	1	
		18900	24	23.49	0	22.74	1	
		18607	24	23.54	0	22.57	1	
	1L	19193	24	23.34	0	22.30	1	
		18900	24	23.32	0	22.61	1	
		18607	24	23.27	0	22.42	1	
	3H	19193	24	23.29	0	22.28	1	
		18900	24	23.32	0	22.48	1	
		18607	24	23.38	0	22.61	1	
	3M	19193	24	23.36	0	22.33	1	
		18900	24	23.39	0	22.52	1	
		18607	24	23.40	0	22.67	1	
	3L	19193	24	23.28	0	22.29	1	
		18900	24	23.35	0	22.48	1	
		18607	24	23.35	0	22.58	1	
	6	19193	24	22.46	1	21.51	2	
		18900	24	22.32	1	21.26	2	
		18607	24	22.48	1	21.64	2	
3MHz	1H	19185	24	23.56	0	22.78	1	
		18900	24	23.32	0	22.14	1	
		18615	24	23.36	0	22.81	1	
	1M	19185	24	23.50	0	22.79	1	
		18900	24	23.36	0	22.27	1	
		18615	24	23.41	0	22.92	1	
	1L	19185	24	23.33	0	22.49	1	
		18900	24	23.35	0	22.16	1	
		18615	24	23.44	0	22.76	1	
	8H	19185	24	22.44	1	21.50	2	
		18900	24	22.32	1	21.41	2	
		18615	24	22.45	1	21.49	2	
	8M	19185	24	22.50	1	21.53	2	
		18900	24	22.38	1	21.45	2	
		18615	24	22.49	1	21.58	2	
	8L	19185	24	22.46	1	21.41	2	
		18900	24	22.37	1	21.45	2	
		18615	24	22.48	1	21.56	2	
	15	19185	24	22.40	1	21.32	2	
		18900	24	22.34	1	21.37	2	
		18615	24	22.47	1	21.45	2	
5MHz	1H	19175	24	23.30	0	22.26	1	
		18900	24	23.23	0	22.36	1	
		18625	24	23.28	0	22.82	1	
	1M	19175	24	23.55	0	22.56	1	
		18900	24	23.46	0	22.58	1	
		18625	24	23.55	0	22.96	1	
	1L	19175	24	23.28	0	22.28	1	
		18900	24	23.18	0	22.34	1	
		18625	24	23.31	0	22.81	1	
	12H	19175	24	22.32	1	21.40	2	
		18900	24	22.28	1	21.45	2	
		18625	24	22.44	1	21.57	2	
	12M	19175	24	22.39	1	21.48	2	
		18900	24	22.29	1	21.49	2	
		18625	24	22.48	1	21.61	2	
	12L	19175	24	22.33	1	21.43	2	
		18900	24	22.30	1	21.42	2	
		18625	24	22.39	1	21.56	2	
	25	19175	24	22.32	1	21.32	2	
		18900	24	22.32	1	21.39	2	
		18625	24	22.44	1	21.49	2	

10MHz	1H	19150	24	23.51	0	22.13
		18900	24	23.30	0	22.57
		18650	24	23.29	0	22.31
	1M	19150	24	23.62	0	22.32
		18900	24	23.53	0	22.70
		18650	24	23.51	0	22.54
	1L	19150	24	23.29	0	22.21
		18900	24	23.29	0	22.52
		18650	24	23.33	0	22.40
	25H	19150	24	22.43	1	21.40
		18900	24	22.39	1	21.41
		18650	24	22.51	1	21.58
	25M	19150	24	22.94	1	21.48
		18900	24	22.41	1	21.40
		18650	24	22.50	1	21.53
	25L	19150	24	22.46	1	21.45
		18900	24	22.43	1	21.43
		18650	24	22.47	1	21.47
	50	19150	24	22.42	1	21.39
		18900	24	22.43	1	21.44
		18650	24	22.50	1	21.50
15MHz	1H	19125	24	23.29	0	22.06
		18900	24	23.28	0	22.58
		18675	24	23.26	0	22.61
	1M	19125	24	23.42	0	22.25
		18900	24	23.40	0	22.62
		18675	24	23.36	0	22.76
	1L	19125	24	23.30	0	22.15
		18900	24	23.30	0	22.56
		18675	24	23.34	0	22.73
	36H	19125	24	22.46	1	21.47
		18900	24	22.36	1	21.46
		18675	24	22.51	1	21.46
	36M	19125	24	22.41	1	21.43
		18900	24	22.41	1	21.49
		18675	24	22.46	1	21.42
	36L	19125	24	22.40	1	21.41
		18900	24	22.36	1	21.45
		18675	24	22.43	1	21.36
	75	19125	24	22.49	1	21.50
		18900	24	22.43	1	21.43
		18675	24	22.48	1	21.43
20MHz	1H	19100	24	23.02	0	22.37
		18900	24	23.01	0	22.40
		18700	24	22.98	0	22.55
	1M	19100	24	23.39	0	22.88
		18900	24	23.35	0	22.78
		18700	24	23.40	0	22.91
	1L	19100	24	23.01	0	22.47
		18900	24	22.98	0	22.37
		18700	24	23.05	0	22.67
	50H	19100	24	22.32	1	21.44
		18900	24	22.30	1	21.32
		18700	24	22.26	1	21.45
	50M	19100	24	22.32	1	21.42
		18900	24	22.27	1	21.33
		18700	24	22.38	1	21.40
	50L	19100	24	22.31	1	21.40
		18900	24	22.34	1	21.37
		18700	24	22.29	1	21.30
	100	19100	24	22.32	1	21.38
		18900	24	22.31	1	21.37
		18700	24	22.34	1	21.39

Table 11-10 LTE1900-FDD2 #2

LTE1900-FDD2 #2							
SN				Measured Power (dBm) & MPR			
BandWidth	RB No./Start	Channel	Tune-up	QPSK		16QAM	
				Measured Power	MPR	Measured Power	MPR
1.4MHz	1H	19193	21	19.43	0	19.75	0
		18900	21	19.31	0	19.35	0
		18607	21	19.38	0	19.57	0
	1M	19193	21	19.62	0	19.80	0
		18900	21	19.44	0	19.52	0
		18607	21	19.56	0	19.72	0
	1L	19193	21	19.36	0	19.77	0
		18900	21	19.27	0	19.37	0
		18607	21	19.40	0	19.54	0
	3H	19193	21	19.66	0	19.65	0
		18900	21	19.51	0	19.64	0
		18607	21	19.79	0	19.61	0
	3M	19193	21	19.71	0	19.69	0
		18900	21	19.55	0	19.71	0
		18607	21	19.82	0	19.66	0
	3L	19193	21	19.68	0	19.67	0
		18900	21	19.51	0	19.63	0
		18607	21	19.82	0	19.62	0
	6	19193	21	19.63	0	19.30	0
		18900	21	19.52	0	19.55	0
		18607	21	19.43	0	19.63	0
					0		0
3MHz	1H	19185	21	19.40	0	19.77	0
		18900	21	19.29	0	19.37	0
		18615	21	19.41	0	19.40	0
	1M	19185	21	19.61	0	19.96	0
		18900	21	19.47	0	19.56	0
		18615	21	19.58	0	19.54	0
	1L	19185	21	19.41	0	19.77	0
		18900	21	19.35	0	19.44	0
		18615	21	19.51	0	19.45	0
	8H	19185	21	19.46	0	19.49	0
		18900	21	19.33	0	19.41	0
		18615	21	19.46	0	19.59	0
	8M	19185	21	19.57	0	19.56	0
		18900	21	19.35	0	19.45	0
		18615	21	19.50	0	19.60	0
	8L	19185	21	19.49	0	19.52	0
		18900	21	19.32	0	19.42	0
		18615	21	19.47	0	19.64	0
	15	19185	21	19.43	0	19.45	0
		18900	21	19.32	0	19.35	0
		18615	21	19.46	0	19.54	0
					0		0
5MHz	1H	19175	21	19.30	0	19.47	0
		18900	21	19.25	0	19.48	0
		18625	21	19.39	0	19.88	0
	1M	19175	21	19.58	0	19.74	0
		18900	21	19.50	0	19.73	0
		18625	21	19.60	0	20.18	0
	1L	19175	21	19.29	0	19.48	0
		18900	21	19.26	0	19.45	0
		18625	21	19.38	0	19.92	0
	12H	19175	21	19.32	0	19.46	0
		18900	21	19.28	0	19.43	0
		18625	21	19.42	0	19.64	0
	12M	19175	21	19.47	0	19.55	0
		18900	21	19.35	0	19.50	0
		18625	21	19.48	0	19.69	0
	12L	19175	21	19.34	0	19.43	0
		18900	21	19.31	0	19.46	0
		18625	21	19.37	0	19.62	0
	25	19175	21	19.35	0	19.36	0
		18900	21	19.30	0	19.39	0
		18625	21	19.42	0	19.56	0

				0		0
10MHz	1H	19150	21	19.42	0	19.37
		18900	21	19.27	0	19.27
		18650	21	19.34	0	19.82
	1M	19150	21	19.60	0	19.53
		18900	21	19.50	0	19.40
		18650	21	19.58	0	19.90
	1L	19150	21	19.36	0	19.43
		18900	21	19.27	0	19.26
		18650	21	19.41	0	19.80
	25H	19150	21	19.42	0	19.51
		18900	21	19.39	0	19.40
		18650	21	19.52	0	19.55
	25M	19150	21	19.47	0	19.56
		18900	21	19.44	0	19.44
		18650	21	19.48	0	19.57
	25L	19150	21	19.45	0	19.52
		18900	21	19.41	0	19.43
		18650	21	19.42	0	19.49
	50	19150	21	19.43	0	19.47
		18900	21	19.43	0	19.41
		18650	21	19.46	0	19.55
				0		0
15MHz	1H	19125	21	19.32	0	19.65
		18900	21	19.25	0	19.79
		18675	21	19.28	0	19.24
	1M	19125	21	19.44	0	19.85
		18900	21	19.35	0	19.82
		18675	21	19.43	0	19.41
	1L	19125	21	19.30	0	19.69
		18900	21	19.27	0	19.73
		18675	21	19.35	0	19.33
	36H	19125	21	19.48	0	19.52
		18900	21	19.36	0	19.34
		18675	21	19.47	0	19.48
	36M	19125	21	19.48	0	19.53
		18900	21	19.39	0	19.35
		18675	21	19.49	0	19.51
	36L	19125	21	19.41	0	19.49
		18900	21	19.35	0	19.38
		18675	21	19.42	0	19.46
	75	19125	21	19.46	0	19.46
		18900	21	19.37	0	19.36
		18675	21	19.47	0	19.46
				0		0
20MHz	1H	19100	21	19.04	0	19.64
		18900	21	19.06	0	19.65
		18700	21	19.00	0	19.53
	1M	19100	21	19.49	0	20.03
		18900	21	19.42	0	19.98
		18700	21	19.51	0	19.99
	1L	19100	21	19.02	0	19.63
		18900	21	19.07	0	19.63
		18700	21	19.11	0	19.61
	50H	19100	21	19.36	0	19.49
		18900	21	19.30	0	19.38
		18700	21	19.43	0	19.41
	50M	19100	21	19.43	0	19.49
		18900	21	19.34	0	19.43
		18700	21	19.44	0	19.44
	50L	19100	21	19.40	0	19.51
		18900	21	19.38	0	19.45
		18700	21	19.32	0	19.37
	100	19100	21	19.40	0	19.48
		18900	21	19.33	0	19.40
		18700	21	19.37	0	19.43

Table 11-11 LTE850-FDD5 #1

LTE850-FDD5 #1							
BandWidth	RB No./Start	Channel	Tune-up	Measured Power (dBm) & MPR			
				QPSK		16QAM	
				Measured Power	MPR	Measured Power	MPR
1.4MHz	1H	20643	24	23.10	0	22.03	1
		20525	24	23.15	0	22.15	1
		20407	24	23.18	0	22.47	1
	1M	20643	24	23.32	0	22.24	1
		20525	24	23.34	0	22.36	1
		20407	24	23.35	0	22.60	1
	1L	20643	24	23.09	0	22.07	1
		20525	24	23.17	0	22.14	1
		20407	24	23.18	0	22.47	1
	3H	20643	24	23.09	0	22.25	1
		20525	24	23.16	0	22.17	1
		20407	24	23.17	0	22.32	1
	3M	20643	24	23.12	0	22.28	1
		20525	24	23.18	0	22.22	1
		20407	24	23.25	0	22.37	1
	3L	20643	24	23.06	0	22.27	1
		20525	24	23.17	0	22.17	1
		20407	24	23.23	0	22.36	1
	6	20643	24	22.25	1	21.29	2
		20525	24	22.20	1	21.26	2
		20407	24	22.22	1	21.06	2
3MHz	1H	20635	24	23.29	0	21.99	1
		20525	24	23.19	0	22.48	1
		20415	24	23.18	0	22.07	1
	1M	20635	24	23.26	0	22.16	1
		20525	24	23.20	0	22.59	1
		20415	24	23.14	0	22.23	1
	1L	20635	24	23.19	0	22.10	1
		20525	24	23.22	0	22.43	1
		20415	24	23.24	0	22.15	1
	8H	20635	24	22.23	1	21.22	2
		20525	24	22.20	1	21.18	2
		20415	24	22.19	1	21.18	2
	8M	20635	24	22.25	1	21.29	2
		20525	24	22.24	1	21.26	2
		20415	24	22.23	1	21.18	2
	8L	20635	24	22.23	1	21.26	2
		20525	24	22.18	1	21.19	2
		20415	24	22.19	1	21.15	2
	15	20635	24	22.19	1	21.16	2
		20525	24	22.18	1	21.15	2
		20415	24	22.16	1	21.11	2
5MHz	1H	20625	24	23.10	0	22.09	1
		20525	24	23.07	0	22.16	1
		20425	24	23.13	0	22.55	1
	1M	20625	24	23.36	0	22.40	1
		20525	24	23.31	0	22.43	1
		20425	24	23.31	0	22.74	1
	1L	20625	24	23.05	0	22.14	1
		20525	24	23.08	0	22.15	1
		20425	24	23.15	0	22.53	1
	12H	20625	24	22.20	1	21.19	2
		20525	24	22.10	1	21.19	2
		20425	24	22.15	1	21.29	2
	12M	20625	24	22.23	1	21.25	2
		20525	24	22.16	1	21.21	2
		20425	24	22.14	1	21.28	2
	12L	20625	24	22.13	1	21.18	2
		20525	24	22.13	1	21.19	2
		20425	24	22.03	1	21.21	2
	25	20625	24	22.20	1	21.12	2
		20525	24	22.14	1	21.13	2
		20425	24	22.11	1	21.16	2

10MHz	1H	20600	24	23.20	0	22.41
		20525	24	23.16	0	22.08
		20450	24	23.18	0	21.98
	1M	20600	24	23.22	0	22.54
		20525	24	23.35	0	22.26
		20450	24	23.38	0	22.16
	1L	20600	24	23.15	0	22.40
		20525	24	23.14	0	22.10
		20450	24	23.18	0	21.98
	25H	20600	24	22.28	1	21.24
		20525	24	22.18	1	21.18
		20450	24	22.23	1	21.18
	25M	20600	24	22.25	1	21.21
		20525	24	22.17	1	21.23
		20450	24	22.19	1	21.16
	25L	20600	24	22.29	1	21.24
		20525	24	22.21	1	21.24
		20450	24	22.11	1	21.09
	50	20600	24	22.26	1	21.22
		20525	24	22.16	1	21.16
		20450	24	22.16	1	21.08

Table 11-12 LTE2500-FDD7 #1

LTE2500-FDD7 #1							
BandWidth	RB No./Start	Channel	Tune-up	Measured Power (dBm) & MPR			
				QPSK		16QAM	
				Measured Power	MPR	Measured Power	MPR
5MHz	1H	21425	22.8	22.24	0	21.20	1
		21100	22.8	22.18	0	21.33	1
		20775	22.8	22.09	0	21.64	1
	1M	21425	22.8	22.51	0	21.20	1
		21100	22.8	22.46	0	21.56	1
		20775	22.8	22.40	0	21.74	1
	1L	21425	22.8	22.24	0	20.94	1
		21100	22.8	22.20	0	21.32	1
		20775	22.8	22.18	0	21.43	1
	12H	21425	22.8	21.37	1	20.31	2
		21100	22.8	21.31	1	20.39	2
		20775	22.8	21.27	1	20.44	2
	12M	21425	22.8	21.42	1	20.36	2
		21100	22.8	21.35	1	20.41	2
		20775	22.8	21.26	1	20.43	2
	12L	21425	22.8	21.32	1	20.30	2
		21100	22.8	21.26	1	20.34	2
		20775	22.8	21.22	1	20.43	2
	25	21425	22.8	21.40	1	20.05	2
		21100	22.8	21.27	1	20.32	2
		20775	22.8	21.25	1	20.40	2
10MHz	1H	21400	22.8	22.40	0	21.69	1
		21100	22.8	22.26	0	21.27	1
		20800	22.8	22.20	0	21.19	1
	1M	21400	22.8	22.13	0	21.79	1
		21100	22.8	22.45	0	21.35	1
		20800	22.8	21.90	0	21.16	1
	1L	21400	22.8	22.30	0	21.72	1
		21100	22.8	21.85	0	21.26	1
		20800	22.8	22.22	0	21.10	1
	25H	21400	22.8	21.13	1	20.57	2
		21100	22.8	21.35	1	20.46	2
		20800	22.8	20.88	1	20.35	2
	25M	21400	22.8	21.03	1	20.51	2
		21100	22.8	21.35	1	20.45	2
		20800	22.8	20.90	1	20.34	2
	25L	21400	22.8	21.00	1	20.45	2
		21100	22.8	21.22	1	20.33	2
		20800	22.8	20.85	1	20.27	2
	50	21400	22.8	21.05	1	20.54	2
		21100	22.8	21.33	1	20.30	2
		20800	22.8	20.83	1	20.27	2
15MHz	1H	21375	22.8	22.24	0	21.16	1
		21100	22.8	22.23	0	21.62	1
		20825	22.8	22.16	0	21.74	1
	1M	21375	22.8	22.39	0	21.36	1
		21100	22.8	22.38	0	21.68	1
		20825	22.8	22.23	0	21.71	1
	1L	21375	22.8	22.28	0	21.25	1
		21100	22.8	22.26	0	21.57	1
		20825	22.8	22.16	0	21.53	1
	36H	21375	22.8	21.55	1	20.55	2
		21100	22.8	21.44	1	20.43	2
		20825	22.8	21.30	1	20.31	2
	36M	21375	22.8	21.49	1	20.46	2
		21100	22.8	21.43	1	20.43	2
		20825	22.8	21.34	1	20.32	2
	36L	21375	22.8	21.40	1	20.43	2
		21100	22.8	21.31	1	20.35	2
		20825	22.8	21.43	1	20.29	2
	75	21375	22.8	21.54	1	20.49	2
		21100	22.8	21.38	1	20.37	2
		20825	22.8	21.36	1	20.30	2

20MHz	1H	21350	22.8	22.00	0	21.55
		21100	22.8	21.95	0	21.46
		20850	22.8	21.92	0	21.60
	1M	21350	22.8	22.47	0	21.78
		21100	22.8	22.44	0	21.77
		20850	22.8	22.34	0	21.76
	1L	21350	22.8	22.04	0	21.70
		21100	22.8	21.92	0	21.40
		20850	22.8	21.89	0	21.52
	50H	21350	22.8	21.51	1	20.61
		21100	22.8	21.36	1	20.32
		20850	22.8	21.29	1	20.33
	50M	21350	22.8	21.43	1	20.50
		21100	22.8	21.34	1	20.33
		20850	22.8	21.37	1	20.38
	50L	21350	22.8	21.47	1	20.50
		21100	22.8	21.16	1	20.14
		20850	22.8	21.32	1	20.37
	100	21350	22.8	21.53	1	20.53
		21100	22.8	21.24	1	20.25
		20850	22.8	21.32	1	20.33

Table 11-13 LTE2500-FDD7 #2

LTE2500-FDD7 #2							
BandWidth	RB No./Start	Channel	Tune-up	Measured Power (dBm) & MPR			
				QPSK		16QAM	
				Measured Power	MPR	Measured Power	MPR
5MHz	1H	21425	20	18.22	0	18.39	0
		21100	20	18.18	0	18.44	0
		20775	20	18.08	0	18.66	0
	1M	21425	20	18.45	0	18.66	0
		21100	20	18.46	0	18.57	0
		20775	20	18.35	0	18.91	0
	1L	21425	20	18.22	0	18.43	0
		21100	20	18.18	0	18.35	0
		20775	20	18.08	0	18.68	0
	12H	21425	20	18.31	0	18.42	0
		21100	20	18.26	0	18.43	0
		20775	20	18.16	0	18.36	0
	12M	21425	20	18.35	0	18.48	0
		21100	20	18.31	0	18.41	0
		20775	20	18.19	0	18.45	0
	12L	21425	20	18.27	0	18.37	0
		21100	20	18.17	0	18.31	0
		20775	20	18.10	0	18.39	0
	25	21425	20	18.30	0	18.32	0
		21100	20	18.22	0	18.30	0
		20775	20	18.14	0	18.28	0
10MHz	1H	21400	20	18.27	0	18.35	0
		21100	20	18.25	0	18.26	0
		20800	20	18.19	0	18.28	0
	1M	21400	20	18.54	0	18.54	0
		21100	20	18.29	0	18.35	0
		20800	20	18.30	0	18.44	0
	1L	21400	20	18.25	0	18.37	0
		21100	20	18.26	0	18.18	0
		20800	20	18.14	0	18.24	0
	25H	21400	20	18.57	0	18.61	0
		21100	20	18.45	0	18.42	0
		20800	20	18.34	0	18.32	0
	25M	21400	20	18.54	0	18.54	0
		21100	20	18.42	0	18.36	0
		20800	20	18.40	0	18.39	0
	25L	21400	20	18.47	0	18.46	0
		21100	20	18.33	0	18.25	0
		20800	20	18.27	0	18.30	0
	50	21400	20	18.55	0	18.48	0
		21100	20	18.39	0	18.33	0
		20800	20	18.36	0	18.26	0
15MHz	1H	21375	20	18.21	0	18.72	0
		21100	20	18.10	0	18.12	0
		20825	20	18.15	0	18.55	0
	1M	21375	20	18.34	0	18.88	0
		21100	20	18.23	0	18.20	0
		20825	20	18.29	0	18.62	0
	1L	21375	20	18.22	0	18.79	0
		21100	20	18.13	0	18.09	0
		20825	20	18.13	0	18.53	0
	36H	21375	20	18.40	0	18.44	0
		21100	20	18.32	0	18.35	0
		20825	20	18.16	0	18.29	0
	36M	21375	20	18.35	0	18.33	0
		21100	20	18.31	0	18.32	0
		20825	20	18.18	0	18.30	0
	36L	21375	20	18.30	0	18.34	0
		21100	20	18.21	0	18.21	0
		20825	20	18.17	0	18.32	0
	75	21375	20	18.37	0	18.40	0
		21100	20	18.31	0	18.30	0
		20825	20	18.19	0	18.22	0

20MHz	1H	21350	20	18.09	0	18.51
		21100	20	18.04	0	18.64
		20850	20	18.08	0	18.68
	1M	21350	20	18.45	0	18.94
		21100	20	18.47	0	19.05
		20850	20	18.42	0	19.03
	1L	21350	20	18.10	0	18.59
		21100	20	18.05	0	18.60
		20850	20	18.01	0	18.57
	50H	21350	20	18.62	0	18.61
		21100	20	18.39	0	18.45
		20850	20	18.34	0	18.36
	50M	21350	20	18.49	0	18.49
		21100	20	18.37	0	18.42
		20850	20	18.34	0	18.40
	50L	21350	20	18.49	0	18.52
		21100	20	18.24	0	18.25
		20850	20	18.32	0	18.39
	100	21350	20	18.52	0	18.59
		21100	20	18.29	0	18.37
		20850	20	18.35	0	18.36

Table 11-14 LTE700-FDD12 #1

LTE700-FDD12 #1							
BandWidth	RB No./Start	Channel	Tune-up	Measured Power (dBm) & MPR			
				QPSK		16QAM	
				Measured Power	MPR	Measured Power	MPR
1.4MHz	1H	23173	24	23.47	0	22.25	1
		23095	24	23.40	0	22.30	1
		23017	24	23.50	0	22.33	1
	1M	23173	24	23.61	0	22.41	1
		23095	24	23.51	0	22.48	1
		23017	24	23.64	0	22.53	1
	1L	23173	24	23.38	0	22.25	1
		23095	24	23.39	0	22.35	1
		23017	24	23.55	0	22.31	1
	3H	23173	24	23.34	0	22.24	1
		23095	24	23.38	0	22.56	1
		23017	24	23.41	0	22.38	1
	3M	23173	24	23.36	0	22.32	1
		23095	24	23.43	0	22.55	1
		23017	24	23.41	0	22.36	1
	3L	23173	24	23.33	0	22.28	1
		23095	24	23.38	0	22.54	1
		23017	24	23.36	0	22.31	1
	6	23173	24	22.46	1	21.50	2
		23095	24	22.46	1	21.61	2
		23017	24	22.48	1	21.54	2
3MHz	1H	23165	24	23.57	0	22.22	1
		23095	24	23.44	0	22.20	1
		23025	24	23.59	0	22.72	1
	1M	23165	24	23.47	0	22.41	1
		23095	24	23.42	0	22.39	1
		23025	24	23.56	0	22.82	1
	1L	23165	24	23.48	0	22.28	1
		23095	24	23.54	0	22.31	1
		23025	24	23.61	0	22.64	1
	8H	23165	24	22.42	1	21.43	2
		23095	24	22.44	1	21.51	2
		23025	24	22.50	1	21.50	2
	8M	23165	24	22.51	1	21.48	2
		23095	24	22.47	1	21.60	2
		23025	24	22.56	1	21.58	2
	8L	23165	24	22.49	1	21.47	2
		23095	24	22.45	1	21.54	2
		23025	24	22.50	1	21.49	2
	15	23165	24	22.40	1	21.35	2
		23095	24	22.41	1	21.44	2
		23025	24	22.42	1	21.45	2
5MHz	1H	23155	24	23.35	0	22.14	1
		23095	24	23.39	0	22.38	1
		23035	24	23.10	0	22.78	1
	1M	23155	24	23.54	0	22.42	1
		23095	24	23.63	0	22.57	1
		23035	24	23.42	0	22.90	1
	1L	23155	24	23.32	0	22.28	1
		23095	24	23.19	0	22.36	1
		23035	24	22.90	0	22.69	1
	12H	23155	24	22.28	1	21.26	2
		23095	24	22.30	1	21.41	2
		23035	24	22.01	1	21.46	2
	12M	23155	24	22.42	1	21.49	2
		23095	24	22.22	1	21.50	2
		23035	24	22.39	1	21.63	2
	12L	23155	24	22.36	1	21.44	2
		23095	24	22.22	1	21.41	2
		23035	24	22.25	1	21.54	2
	25	23155	24	22.31	1	21.30	2
		23095	24	22.20	1	21.33	2
		23035	24	22.28	1	21.42	2

10MHz	1H	23130	24	23.31	0	21.77
		23095	24	22.95	0	22.51
		23060	24	22.92	0	22.07
	1M	23130	24	23.17	0	21.91
		23095	24	23.06	0	22.67
		23060	24	22.98	0	22.06
	1L	23130	24	22.90	0	21.82
		23095	24	22.91	0	22.34
		23060	24	22.90	0	21.93
	25H	23130	24	21.85	1	21.00
		23095	24	22.18	1	21.33
		23060	24	22.07	1	21.25
	25M	23130	24	22.12	1	21.30
		23095	24	22.16	1	21.13
		23060	24	22.04	1	21.42
	25L	23130	24	21.96	1	21.01
		23095	24	22.06	1	21.12
		23060	24	22.03	1	21.40
	50	23130	24	21.92	1	21.14
		23095	24	22.11	1	21.42
		23060	24	22.15	1	21.19

Table 11-15 LTE1700-FDD66 #1

LTE1700-FDD66 #1							
SN				Measured Power (dBm) & MPR			
BandWidth	RB No./Start	Channel	Tune-up	QPSK		16QAM	
				Measured Power	MPR	Measured Power	MPR
1.4MHz	1H	132665	24	23.37	0	22.41	1
		132322	24	23.31	0	22.32	1
		131979	24	23.23	0	22.17	1
	1M	132665	24	23.33	0	22.63	1
		132322	24	23.30	0	22.45	1
		131979	24	23.32	0	22.29	1
	1L	132665	24	23.31	0	22.41	1
		132322	24	23.30	0	22.32	1
		131979	24	23.21	0	22.16	1
	3H	132665	24	23.30	0	22.42	1
		132322	24	23.34	0	22.58	1
		131979	24	23.21	0	22.43	1
	3M	132665	24	23.41	0	22.45	1
		132322	24	23.40	0	22.59	1
		131979	24	23.27	0	22.48	1
	3L	132665	24	23.38	0	22.43	1
		132322	24	23.32	0	22.51	1
		131979	24	23.24	0	22.39	1
	6	132665	24	22.40	1	21.48	2
		132322	24	22.36	1	21.45	2
		131979	24	22.30	1	21.42	2
3MHz	1H	132657	24	23.33	0	22.31	1
		132322	24	23.33	0	22.34	1
		131987	24	23.29	0	22.21	1
	1M	132657	24	23.30	0	22.48	1
		132322	24	23.28	0	22.48	1
		131987	24	23.21	0	22.36	1
	1L	132657	24	23.34	0	22.40	1
		132322	24	23.30	0	22.41	1
		131987	24	23.28	0	22.22	1
	8H	132657	24	22.34	1	21.37	2
		132322	24	22.29	1	21.35	2
		131987	24	22.22	1	21.26	2
	8M	132657	24	22.38	1	21.44	2
		132322	24	22.34	1	21.38	2
		131987	24	22.31	1	21.31	2
	8L	132657	24	22.37	1	21.37	2
		132322	24	22.30	1	21.37	2
		131987	24	22.27	1	21.26	2
	15	132657	24	22.34	1	21.34	2
		132322	24	22.32	1	21.29	2
		131987	24	22.25	1	21.20	2
5MHz	1H	132647	24	23.22	0	22.35	1
		132322	24	23.17	0	22.36	1
		131997	24	23.14	0	22.26	1
	1M	132647	24	23.44	0	22.58	1
		132322	24	23.41	0	22.60	1
		131997	24	23.36	0	22.51	1
	1L	132647	24	23.22	0	22.35	1
		132322	24	23.16	0	22.37	1
		131997	24	23.13	0	22.26	1
	12H	132647	24	22.35	1	21.43	2
		132322	24	22.31	1	21.37	2
		131997	24	22.26	1	21.26	2
	12M	132647	24	22.39	1	21.43	2
		132322	24	22.35	1	21.42	2
		131997	24	22.28	1	21.33	2
	12L	132647	24	22.37	1	21.42	2
		132322	24	22.30	1	21.35	2
		131997	24	22.20	1	21.27	2
	25	132647	24	22.38	1	21.31	2
		132322	24	22.33	1	21.30	2
		131997	24	22.24	1	21.20	2

10MHz	1H	132622	24	23.32	0	22.32
		132322	24	23.28	0	22.30
		132022	24	23.25	0	22.19
	1M	132622	24	23.50	0	22.42
		132322	24	23.46	0	22.50
		132022	24	23.47	0	22.26
	1L	132622	24	23.32	0	22.20
		132322	24	23.23	0	22.32
		132022	24	23.23	0	22.17
	25H	132622	24	22.42	1	21.46
		132322	24	22.47	1	21.49
		132022	24	22.35	1	21.39
	25M	132622	24	22.50	1	21.51
		132322	24	22.45	1	21.50
		132022	24	22.31	1	21.40
	25L	132622	24	22.51	1	21.52
		132322	24	22.40	1	21.41
		132022	24	22.23	1	21.33
	50	132622	24	22.49	1	21.44
		132322	24	22.42	1	21.43
		132022	24	22.28	1	21.31
15MHz	1H	132597	24	23.19	0	22.63
		132322	24	23.23	0	22.60
		132047	24	23.15	0	22.49
	1M	132597	24	23.30	0	22.64
		132322	24	23.33	0	22.78
		132047	24	23.29	0	22.55
	1L	132597	24	23.22	0	22.50
		132322	24	23.20	0	22.66
		132047	24	23.14	0	22.47
	36H	132597	24	22.45	1	21.36
		132322	24	22.40	1	21.39
		132047	24	22.40	1	21.36
	36M	132597	24	22.48	1	21.42
		132322	24	22.43	1	21.39
		132047	24	22.42	1	21.38
	36L	132597	24	22.50	1	21.42
		132322	24	22.31	1	21.34
		132047	24	22.35	1	21.29
	75	132597	24	22.50	1	21.39
		132322	24	22.43	1	21.41
		132047	24	22.39	1	21.36
20MHz	1H	132572	24	23.01	0	22.63
		132322	24	22.96	0	22.55
		132072	24	22.93	0	22.59
	1M	132572	24	23.37	0	22.71
		132322	24	23.34	0	22.92
		132072	24	23.32	0	22.85
	1L	132572	24	22.92	0	22.33
		132322	24	22.92	0	22.55
		132072	24	22.90	0	22.44
	50H	132572	24	22.27	1	21.23
		132322	24	22.40	1	21.44
		132072	24	22.20	1	21.23
	50M	132572	24	22.35	1	21.32
		132322	24	22.37	1	21.40
		132072	24	22.29	1	21.30
	50L	132572	24	22.33	1	21.33
		132322	24	22.30	1	21.35
		132072	24	22.22	1	21.25
	100	132572	24	22.34	1	21.31
		132322	24	22.39	1	21.41
		132072	24	22.25	1	21.27

Table 11-16 LTE1700-FDD66 #2

LTE1700-FDD66 #2							
SN				Measured Power (dBm) & MPR			
BandWidth	RB No./Start	Channel	Tune-up	QPSK		16QAM	
				Measured Power	MPR	Measured Power	MPR
1.4MHz	1H	132665	20	19.34	0	19.49	0
		132322	20	19.28	0	19.42	0
		131979	20	19.16	0	19.69	0
	1M	132665	20	19.51	0	19.69	0
		132322	20	19.45	0	19.54	0
		131979	20	19.37	0	19.75	0
	1L	132665	20	19.33	0	19.54	0
		132322	20	19.27	0	19.32	0
		131979	20	19.16	0	19.67	0
	3H	132665	20	19.42	0	19.51	0
		132322	20	19.39	0	19.64	0
		131979	20	19.36	0	19.62	0
3MHz	3M	132665	20	19.46	0	19.57	0
		132322	20	19.43	0	19.70	0
		131979	20	19.32	0	19.61	0
	3L	132665	20	19.40	0	19.54	0
		132322	20	19.38	0	19.65	0
		131979	20	19.29	0	19.60	0
	6	132665	20	19.39	0	19.57	0
		132322	20	19.35	0	19.55	0
		131979	20	19.28	0	19.19	0
5MHz	1H	132657	20	19.41	0	19.45	0
		132322	20	19.32	0	19.37	0
		131987	20	19.25	0	19.22	0
	1M	132657	20	19.59	0	19.58	0
		132322	20	19.46	0	19.58	0
		131987	20	19.36	0	19.34	0
	1L	132657	20	19.48	0	19.48	0
		132322	20	19.34	0	19.44	0
		131987	20	19.29	0	19.25	0
	8H	132657	20	19.42	0	19.40	0
		132322	20	19.46	0	19.38	0
		131987	20	19.40	0	19.37	0
	8M	132657	20	19.48	0	19.50	0
		132322	20	19.53	0	19.45	0
		131987	20	19.44	0	19.40	0
	8L	132657	20	19.45	0	19.45	0
		132322	20	19.47	0	19.38	0
		131987	20	19.43	0	19.40	0
	15	132657	20	19.40	0	19.40	0
		132322	20	19.43	0	19.34	0
		131987	20	19.37	0	19.34	0
5MHz	1H	132647	20	19.34	0	19.46	0
		132322	20	19.32	0	19.44	0
		131997	20	19.21	0	19.39	0
	1M	132647	20	19.58	0	19.70	0
		132322	20	19.49	0	19.65	0
		131997	20	19.43	0	19.64	0
	1L	132647	20	19.35	0	19.46	0
		132322	20	19.30	0	19.44	0
		131997	20	19.19	0	19.36	0
	12H	132647	20	19.33	0	19.45	0
		132322	20	19.31	0	19.44	0
		131997	20	19.21	0	19.39	0
	12M	132647	20	19.40	0	19.53	0
		132322	20	19.35	0	19.49	0
		131997	20	19.26	0	19.43	0
	12L	132647	20	19.37	0	19.48	0
		132322	20	19.28	0	19.40	0
		131997	20	19.22	0	19.34	0
	25	132647	20	19.39	0	19.39	0
		132322	20	19.35	0	19.32	0
		131997	20	19.20	0	19.25	0

10MHz	1H	132622	20	19.35	0	19.38	0
		132322	20	19.23	0	19.36	0
		132022	20	19.25	0	19.28	0
	1M	132622	20	19.42	0	19.46	0
		132322	20	19.43	0	19.63	0
		132022	20	19.34	0	19.43	0
	1L	132622	20	19.29	0	19.33	0
		132322	20	19.26	0	19.38	0
		132022	20	19.20	0	19.22	0
	25H	132622	20	19.34	0	19.42	0
		132322	20	19.38	0	19.49	0
		132022	20	19.33	0	19.40	0
	25M	132622	20	19.48	0	19.54	0
		132322	20	19.42	0	19.54	0
		132022	20	19.31	0	19.40	0
	25L	132622	20	19.49	0	19.57	0
		132322	20	19.33	0	19.45	0
		132022	20	19.29	0	19.37	0
	50	132622	20	19.43	0	19.50	0
		132322	20	19.39	0	19.44	0
		132022	20	19.32	0	19.36	0
15MHz	1H	132597	20	19.31	0	19.82	0
		132322	20	19.23	0	19.67	0
		132047	20	19.20	0	19.71	0
	1M	132597	20	19.39	0	19.90	0
		132322	20	19.34	0	19.93	0
		132047	20	19.32	0	19.84	0
	1L	132597	20	19.26	0	19.64	0
		132322	20	19.22	0	19.76	0
		132047	20	19.17	0	19.70	0
	36H	132597	20	19.37	0	19.47	0
		132322	20	19.36	0	19.47	0
		132047	20	19.38	0	19.32	0
	36M	132597	20	19.50	0	19.53	0
		132322	20	19.36	0	19.50	0
		132047	20	19.41	0	19.34	0
	36L	132597	20	19.53	0	19.55	0
		132322	20	19.31	0	19.47	0
		132047	20	19.34	0	19.26	0
	75	132597	20	19.48	0	19.46	0
		132322	20	19.38	0	19.39	0
		132047	20	19.38	0	19.30	0
20MHz	1H	132572	20	19.12	0	19.69	0
		132322	20	19.06	0	19.61	0
		132072	20	19.08	0	19.66	0
	1M	132572	20	19.50	0	20.00	0
		132322	20	19.48	0	19.96	0
		132072	20	19.42	0	19.99	0
	1L	132572	20	19.04	0	19.56	0
		132322	20	19.04	0	19.61	0
		132072	20	19.01	0	19.58	0
	50H	132572	20	19.25	0	19.29	0
		132322	20	19.41	0	19.46	0
		132072	20	19.27	0	19.34	0
	50M	132572	20	19.37	0	19.40	0
		132322	20	19.36	0	19.45	0
		132072	20	19.34	0	19.36	0
	50L	132572	20	19.35	0	19.42	0
		132322	20	19.39	0	19.42	0
		132072	20	19.28	0	19.30	0
	100	132572	20	19.33	0	19.36	0
		132322	20	19.37	0	19.47	0
		132072	20	19.24	0	19.33	0

Table 11-17 LTE700-FDD71 #1

LTE700-FDD71 #1							
BandWidth	RB No./Start	Channel	Tune-up	Measured Power (dBm) & MPR			
				QPSK		16QAM	
				Measured Power	MPR	Measured Power	MPR
5MHz	1H	133447	24	23.33	0	22.35	1
		133297	24	23.38	0	22.45	1
		133147	24	23.41	0	22.48	1
	1M	133447	24	23.49	0	22.52	1
		133297	24	23.51	0	22.60	1
		133147	24	23.60	0	22.65	1
	1L	133447	24	23.33	0	22.38	1
		133297	24	23.51	0	22.61	1
		133147	24	23.45	0	22.47	1
	12H	133447	24	22.42	1	21.49	2
		133297	24	22.51	1	21.46	2
		133147	24	22.59	1	21.55	2
	12M	133447	24	22.45	1	21.57	2
		133297	24	22.59	1	21.62	2
		133147	24	22.61	1	21.64	2
	12L	133447	24	22.43	1	21.52	2
		133297	24	22.39	1	21.49	2
		133147	24	22.53	1	21.46	2
	25	133447	24	22.43	1	21.44	2
		133297	24	22.53	1	21.41	2
		133147	24	22.45	1	21.38	2
10MHz	1H	132422	24	23.41	0	22.89	1
		133297	24	23.49	0	22.45	1
		133172	24	23.53	0	22.54	1
	1M	132422	24	23.63	0	22.93	1
		133297	24	23.71	0	22.67	1
		133172	24	23.74	0	22.65	1
	1L	132422	24	23.40	0	22.89	1
		133297	24	23.51	0	22.52	1
		133172	24	23.53	0	22.51	1
	25H	132422	24	22.51	1	21.62	2
		133297	24	22.54	1	21.63	2
		133172	24	22.69	1	21.74	2
	25M	132422	24	22.46	1	21.54	2
		133297	24	22.57	1	21.66	2
		133172	24	22.62	1	21.67	2
	25L	132422	24	22.49	1	21.51	2
		133297	24	22.56	1	21.61	2
		133172	24	22.57	1	21.63	2
	50	132422	24	22.57	1	21.55	2
		133297	24	22.58	1	21.58	2
		133172	24	22.62	1	21.68	2
15MHz	1H	133397	24	23.38	0	22.71	1
		133297	24	23.44	0	22.77	1
		133197	24	23.50	0	22.83	1
	1M	133397	24	23.56	0	22.85	1
		133297	24	23.54	0	22.91	1
		133197	24	23.56	0	22.97	1
	1L	133397	24	23.46	0	22.74	1
		133297	24	23.42	0	22.83	1
		133197	24	23.45	0	22.76	1
	36H	133397	24	22.64	1	21.60	2
		133297	24	22.57	1	21.58	2
		133197	24	22.75	1	21.70	2
	36M	133397	24	22.57	1	21.60	2
		133297	24	22.67	1	21.59	2
		133197	24	22.64	1	21.57	2
	36L	133397	24	22.46	1	21.53	2
		133297	24	22.57	1	21.57	2
		133197	24	22.59	1	21.58	2
	75	133397	24	22.60	1	21.63	2
		133297	24	22.62	1	21.54	2
		133197	24	22.78	1	21.58	2

20MHz	1H	133372	24	23.19	0	22.72
		133297	24	23.27	0	22.57
		133222	24	23.28	0	22.61
	1M	133372	24	23.63	0	22.99
		133297	24	23.61	0	22.93
		133222	24	23.76	0	22.94
	1L	133372	24	23.17	0	22.76
		133297	24	23.25	0	22.56
		133222	24	23.22	0	22.51
	50H	133372	24	22.53	1	21.62
		133297	24	22.50	1	21.56
		133222	24	22.65	1	21.60
	50M	133372	24	22.51	1	21.54
		133297	24	22.56	1	21.59
		133222	24	22.60	1	21.62
	50L	133372	24	22.44	1	21.47
		133297	24	22.45	1	21.46
		133222	24	22.46	1	21.44
	100	133372	24	22.47	1	21.52
		133297	24	22.56	1	21.53
		133222	24	22.57	1	21.54

11.4 Wi-Fi and BT Measurement result

Table 11-18 Bluetooth Power

Bluetooth Power				
Mode	Channel	Frequence	Tune-up	Measured
GFSK	78	2480 MHz	6	5.93
	39	2441 MHz	7	6.64
	0	2402 MHz	6	5.71
EDR2M-4_DQPSK	78	2480 MHz	6	4.63
	39	2441 MHz	6	5.44
	0	2402 MHz	6	4.43
EDR3M-8DPSK	78	2480 MHz	6	4.68
	39	2441 MHz	6	5.46
	0	2402 MHz	6	4.46

Table 11-19 WLAN2450 #1

Mode	Channel	Frequence	Data Rate	Tune-up	Measured
802.11b	11	2462 MHz	11Mbps	17.50	17.22
	6	2437 MHz		17.50	17.07
	1	2412 MHz		17.50	17.08
	11	2462 MHz	2Mbps	17.50	16.98
	6	2437 MHz		/	/
	1	2412 MHz		/	/
	11	2462 MHz	5.5Mbps	17.50	17.09
	6	2437 MHz		/	/
	1	2412 MHz		/	/
	11	2462 MHz	1Mbps	17.50	16.91
	6	2437 MHz		17.50	16.89
	1	2412 MHz		17.50	16.70
802.11g	11	2462 MHz	24Mbps	16.00	15.34
	6	2437 MHz		16.00	15.60
	1	2412 MHz		16.00	15.41
	11	2462 MHz	9Mbps	/	/
	6	2437 MHz		16.00	14.56
	1	2412 MHz		/	/
	11	2462 MHz	12Mbps	/	/
	6	2437 MHz		16.00	14.47
	1	2412 MHz		/	/
	11	2462 MHz	18Mbps	/	/
	6	2437 MHz		16.00	14.85
	1	2412 MHz		/	/
	11	2462 MHz	6Mbps	16.00	14.27
	6	2437 MHz		16.00	14.76
	1	2412 MHz		16.00	14.24
	11	2462 MHz	36Mbps	/	/
	6	2437 MHz		16.00	15.55
	1	2412 MHz		/	/
	11	2462 MHz	48Mbps	/	/
	6	2437 MHz		16.00	14.05
	1	2412 MHz		/	/
	11	2462 MHz	54Mbps	/	/
	6	2437 MHz		16.00	14.62
	1	2412 MHz		/	/

802.11n 20M	11	2462 MHz	MCS0	15.50	15.36
	6	2437 MHz		15.50	15.15
	1	2412 MHz		15.50	15.00
	11	2462 MHz	MCS1	15.50	14.78
	6	2437 MHz		/	/
	1	2412 MHz		/	/
	11	2462 MHz	MCS2	15.50	15.14
	6	2437 MHz		/	/
	1	2412 MHz		/	/
	11	2462 MHz	MCS3	15.50	15.11
	6	2437 MHz		/	/
	1	2412 MHz		/	/
802.11n 40M	11	2462 MHz	MCS4	15.50	14.98
	6	2437 MHz		/	/
	1	2412 MHz		/	/
	11	2462 MHz	MCS5	15.50	13.73
	6	2437 MHz		/	/
	1	2412 MHz		/	/
	11	2462 MHz	MCS6	15.50	14.07
	6	2437 MHz		/	/
	1	2412 MHz		/	/
	11	2462 MHz	MCS7	15.50	14.02
	6	2437 MHz		/	/
	1	2412 MHz		/	/
802.11n 40M	9	2452 MHz	MCS3	13.50	13.01
	6	2437 MHz		13.50	13.41
	3	2422 MHz		13.50	13.17
	9	2452 MHz	MCS1	/	/
	6	2437 MHz		13.50	13.09
	3	2422 MHz		/	/
	9	2452 MHz	MCS2	/	/
	6	2437 MHz		13.50	13.20
	3	2422 MHz		/	/
	9	2452 MHz	MCS0	13.50	13.35
	6	2437 MHz		13.50	13.39
	3	2422 MHz		13.50	13.00
802.11n 40M	9	2452 MHz	MCS4	/	/
	6	2437 MHz		13.50	13.15
	3	2422 MHz		/	/
	9	2452 MHz	MCS5	/	/
	6	2437 MHz		13.50	12.30
	3	2422 MHz		/	/
	9	2452 MHz	MCS6	/	/
	6	2437 MHz		13.50	12.35
	3	2422 MHz		/	/
	9	2452 MHz	MCS7	/	/
	6	2437 MHz		13.50	12.00
	3	2422 MHz		/	/

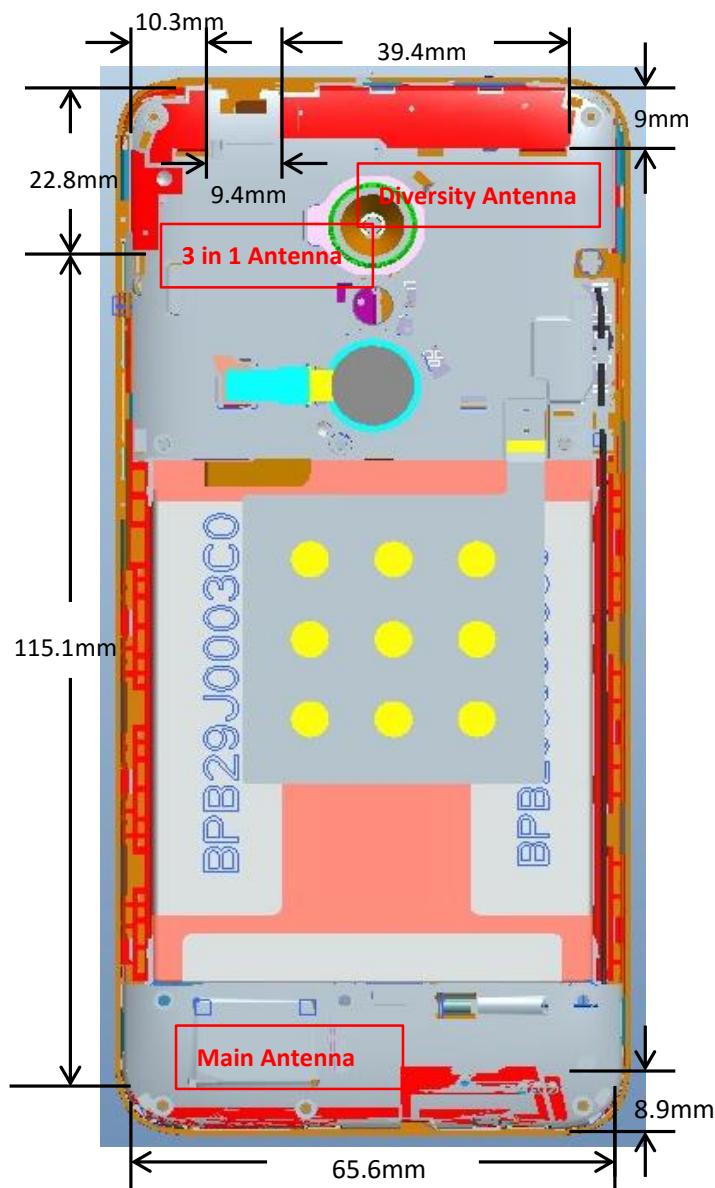
12 Simultaneous TX SAR Considerations

12.1 Introduction

The following procedures adopted from "FCC SAR Considerations for Cell Phones with Multiple Transmitters" are applicable to handsets with built-in unlicensed transmitters such as 802.11 a/b/g and Bluetooth devices which may simultaneously transmit with the licensed transmitter.

For this device, the BT and Wi-Fi can transmit simultaneous with other transmitters.

12.2 Transmit Antenna Separation Distances



Picture 12.1 Antenna Locations

12.3 SAR Measurement Positions

According to the KDB941225 D06 Hot Spot SAR 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
Main antenna	Yes	Yes	Yes	Yes	No	Yes
WLAN	Yes	Yes	No	Yes	Yes	No

12.4 Standalone SAR Test Exclusion Considerations

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

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

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$ for 1-g SAR, where

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

Table 12.1: Standalone SAR test exclusion considerations

Band/Mode	F(GHz)	Position	SAR test exclusion threshold (mW)	RF output power		SAR test exclusion
				dBm	mW	
Bluetooth	2.441	Head	9.6	7	5.01	Yes
		Body	19.2	7	5.01	Yes
2.4GHz WLAN 802.11 b	2.45	Head	9.58	17.5	56.23	No
		Body	19.17	17.5	56.23	No

13 Evaluation of Simultaneous

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

	Position	Main antenna	WiFi	Sum
Highest reported SAR value for Head	Left hand, Touch cheek	0.51	0.91	1.42
Highest reported SAR value for Body	Bottom edge 10mm	1.39	/	1.39
Highest reported SAR value for Body	Rear 15mm	1.40	0.09	1.49

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

	Position	Main antenna	BT	Sum
Maximum reported SAR value for Head	Left hand, Touch cheek	0.53	0.21	0.74
Maximum reported SAR value for Body	Bottom edge 10mm	1.39	0.10	1.49
Maximum reported SAR value for Body	Rear 15mm	1.40	0.04	1.44

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

Table 13.3: Estimated SAR for Bluetooth

Mode/Band	F (GHz)	Position	Distance (mm)	Upper limit of power *		Estimated _{1g} (W/kg)
				dBm	mW	
Bluetooth	2.441	Head	5	7	5.01	0.21
Bluetooth	2.441	Body	10	7	5.01	0.10
Bluetooth	2.441	Body	15	7	5.01	0.04

* - Maximum possible output power declared by manufacturer

When standalone SAR test exclusion applies to an antenna that transmits simultaneously with other antennas, the standalone SAR must be estimated according to following to determine simultaneous transmission SAR test exclusion:

(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)]·[$\sqrt{f(\text{GHz})/x}$] 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 < 1.6 W/kg. So the simultaneous transmission SAR with volume scans is not required.

14 SAR Test Result

It is determined by user manual for the distance between the EUT and the phantom bottom.

The distance is 10 or 15mm and just applied to the condition of body worn accessory.

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

The calculated SAR is obtained by the following formula:

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

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

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

Mode	Duty Cycle
Speech for GSM850/1900	1:8.3
GPRS&EGPRS for GSM850/1900 normal power	1:2
GPRS&EGPRS for GSM1900 low power	1:2
WCDMA<E	1:1

14.1 SAR results

Table 14-1 GSM850 #1 Head

GSM850 #1 Head								
Ambient Temperature:			22.2		Liquid Temperature: 22.3			
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]		
			CH251	CH190	CH128			
			848.8 MHz	836.6 MHz	824.2 MHz	848.8 MHz 836.6 MHz 824.2 MHz		
GSM	Tune-up		33.00	33.00	33.00	Scaling factor*		
	Slot Average Power [dBm]		32.55	32.60	32.52	1.11	1.10	1.12
	Left Cheek	1g SAR		0.087			0.10	
		10g SAR		0.068			0.07	
		Deviation		-0.11			-0.11	
	Left Tilt	1g SAR		0.049			0.05	
		10g SAR		0.038			0.04	
		Deviation		-0.14			-0.14	
	Right Cheek	1g SAR	0.118	0.092	0.072	0.13	0.10	0.08
		10g SAR	0.092	0.072	0.057	0.10	0.08	0.06
		Deviation	0.05	0	0.08	0.05	0.00	0.08
	Right Tilt	1g SAR		0.04			0.04	
		10g SAR		0.032			0.04	
		Deviation		-0.08			-0.08	

Table 14-2 GSM850 #1 Body

GSM850 #1 Body							
Ambient Temperature: 22.2			Liquid Temperature: 22.3				
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]	
			CH251 848.8 MHz	CH190 836.6 MHz	CH128 824.2 MHz		
GPRS 4 Txslots	Tune-up		27.00	27.00	27.00	Scaling factor*	
	Slot Average Power [dBm]		26.65	26.63	26.46	1.09	
	Front 10mm	1g SAR	0.056			0.06	
		10g SAR	0.042			0.05	
		Deviation	0.04			0.04	
	Rear 10mm	1g SAR	0.153	0.114	0.111	0.17	
		10g SAR	0.116	0.085	0.08	0.13	
		Deviation	-0.06	0.19	0.02	-0.06	
	Left edge 10mm	1g SAR	0.066			0.07	
		10g SAR	0.048			0.05	
		Deviation	-0.04			-0.04	
	Right edge 10mm	1g SAR	0.06			0.07	
		10g SAR	0.044			0.05	
		Deviation	0.08			0.08	
	Bottom edge 10mm	1g SAR	0.027			0.03	
		10g SAR	0.013			0.01	
		Deviation	0.01			0.01	
EGPRS GMSK 4 Txslots	Tune-up		27.00	27.00	27.00	Scaling factor*	
	Slot Average Power [dBm]		26.60	26.60	26.44	1.10	
	Rear 10mm	1g SAR	0.149			0.16	
		10g SAR	0.104			0.11	
		Deviation	0.03			0.03	

Table 14-3 PCS1900 #1 Head

PCS1900 #1 Head							
Ambient Temperature: 22.2			Liquid Temperature: 22.3				
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]	
			CH810 1909.8	CH661 1880 MHz	CH512 1850.2		
GSM	Tune-up		30.10	30.10	30.10	Scaling factor*	
	Slot Average Power [dBm]		29.87	30.02	30.01	1.05	
	Left Cheek	1g SAR	0.24			0.24	
		10g SAR	0.16			0.16	
		Deviation	0.09			0.09	
	Left Tilt	1g SAR	0.191			0.19	
		10g SAR	0.123			0.13	
		Deviation	0.02			0.02	
	Right Cheek	1g SAR	0.255	0.26	0.273	0.27	
		10g SAR	0.16	0.166	0.17	0.17	
		Deviation	0.01	0.06	0.05	0.01	
	Right Tilt	1g SAR	0.169			0.17	
		10g SAR	0.114			0.12	
		Deviation	0.15			0.15	

Table 14-4 PCS1900 #1 Body

PCS1900 #1 Body							
Ambient Temperature: 22.2			Liquid Temperature: 22.3				
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]	
			CH810 1909.8	CH661 1880 MHz	CH512 1850.2		
GPRS 4 Txslots	Tune-up		25.00	25.00	25.00	Scaling factor*	
	Slot Average Power [dBm]		24.25	24.33	24.25	1.19	
	Front 15mm	1g SAR		0.276		0.32	
		10g SAR		0.165		0.19	
		Deviation		0.04		0.04	
	Rear 15mm	1g SAR	0.26	0.36	0.399	0.31	
		10g SAR	0.141	0.193	0.231	0.17	
		Deviation	-0.01	0.13	0.02	-0.01	
EGPRS GMSK 4 Txslots	Tune-up		25.00	25.00	25.00	Scaling factor*	
	Slot Average Power [dBm]		24.24	24.32	24.24	1.19	
	Rear 15mm	1g SAR			0.386		
		10g SAR			0.227		
		Deviation			0.01		

Table 14-5 PCS1900 #2 Body

PCS1900 #2 Body							
Ambient Temperature: 22.2			Liquid Temperature: 22.3				
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]	
			CH810 1909.8	CH661 1880 MHz	CH512 1850.2		
GPRS 3 Txslots	Tune-up		22.50	22.50	22.50	Scaling factor*	
	Slot Average Power [dBm]		22.05	22.17	22.10	1.11	
	Front 10mm	1g SAR		0.146		0.16	
		10g SAR		0.083		0.09	
		Deviation		0.08		0.08	
	Rear 10mm	1g SAR		0.238		0.26	
		10g SAR		0.126		0.14	
		Deviation		0.02		0.02	
	Left edge 10mm	1g SAR		0.045		0.05	
		10g SAR		0.026		0.03	
		Deviation		0.08		0.08	
	Right edge 10mm	1g SAR		0.044		0.05	
		10g SAR		0.025		0.03	
		Deviation		-0.01		-0.01	
	Bottom edge 10mm	1g SAR	0.24	0.296	0.345	0.27	
		10g SAR	0.127	0.157	0.186	0.14	
		Deviation	-0.09	0.16	-0.03	-0.09	
EGPRS GMSK 3 Txslots	Tune-up		22.50	22.50	22.50	Scaling factor*	
	Slot Average Power [dBm]		22.02	22.15	22.09	1.12	
	Bottom edge 10mm	1g SAR			0.337		
		10g SAR			0.178		
		Deviation			0.11		

Table 14-6 WCDMA1900-BII #1Head

WCDMA1900-BII #1Head							
Ambient Temperature: 22.2			Liquid Temperature: 22.3				
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]	
			CH9538 1907.6 MHz	CH9400 1880 MHz	CH9262 1852.4 MHz		
RMC	Tune-up		24.10	24.10	24.10	Scaling factor*	
	Slot Average Power [dBm]		23.89	23.99	23.99	1.05 1.03 1.03	
	Left Cheek	1g SAR		0.445		0.46	
		10g SAR		0.276		0.28	
		Deviation		-0.02		-0.02	
	Left Tilt	1g SAR		0.342		0.35	
		10g SAR		0.221		0.23	
		Deviation		-0.14		-0.14	
	Right Cheek	1g SAR	0.412	0.465	0.485	0.43 0.48 0.50	
		10g SAR	0.26	0.294	0.309	0.27 0.30 0.32	
		Deviation	-0.09	-0.12	0.03	-0.09 -0.12 0.03	
	Right Tilt	1g SAR		0.282		0.29	
		10g SAR		0.189		0.19	
		Deviation		0.09		0.09	

Table 14-7 WCDMA1900-BII #1Body

WCDMA1900-BII #1Body							
Ambient Temperature: 22.2			Liquid Temperature: 22.3				
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]	
			CH9538 1907.6 MHz	CH9400 1880 MHz	CH9262 1852.4 MHz		
RMC	Tune-up		24.10	24.10	24.10	Scaling factor*	
	Slot Average Power [dBm]		23.89	23.99	23.99	1.05 1.03 1.03	
	Front 15mm	1g SAR		0.431		0.44	
		10g SAR		0.26		0.27	
		Deviation		0.04		0.04	
	Rear 15mm	1g SAR	0.338	0.562	0.555	0.35 0.58 0.57	
		10g SAR	0.198	0.326	0.323	0.21 0.33 0.33	
		Deviation	0.02	-0.13	0.11	0.02 -0.13 0.11	

Table 14-8 WCDMA1900-BII #2Body

WCDMA1900-BII #2Body							
Ambient Temperature: 22.2			Liquid Temperature: 22.3				
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]	
			CH9538 1907.6 MHz	CH9400 1880 MHz	CH9262 1852.4 MHz		
RMC	Tune-up		21.00	21.00	21.00	Scaling factor*	
	Slot Average Power [dBm]		19.65	19.58	19.66	1.36 1.39 1.36	
	Front 10mm	1g SAR		0.289		0.40	
		10g SAR		0.172		0.24	
		Deviation		0.08		0.08	
	Rear 10mm	1g SAR		0.412		0.57	
		10g SAR		0.228		0.32	
		Deviation		-0.07		-0.07	
	Left edge 10mm	1g SAR		0.082		0.11	
		10g SAR		0.05		0.07	
		Deviation		0.01		0.01	
	Right edge 10mm	1g SAR		0.094		0.13	
		10g SAR		0.057		0.08	
		Deviation		0.05		0.05	
	Bottom edge 10mm	1g SAR	0.568	0.626	0.693	0.78 0.87 0.94	
		10g SAR	0.306	0.336	0.373	0.42 0.47 0.51	
		Deviation	-0.04	-0.01	-0.13	-0.04 -0.01 -0.13	

Table 14-9 WCDMA1700-BIV #1Head

WCDMA1700-BIV #1Head						
Ambient Temperature: 22.2			Liquid Temperature: 22.3			
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			
			CH1513	CH1412	CH1312	
RMC	Tune-up		1752.6 MHz	1732.4 MHz	1712.4 MHz	
	Slot Average Power [dBm]		24.00	24.00	24.00	
	Left Cheek	1g SAR	0.203			
		10g SAR	0.143			
		Deviation	0.13			
	Left Tilt	1g SAR	0.168			
		10g SAR	0.111			
		Deviation	0.12			
	Right Cheek	1g SAR	0.374	0.268	0.38	
		10g SAR	0.241	0.174	0.25	
		Deviation	0.15	-0.06	0.09	
	Right Tilt	1g SAR	0.134			
		10g SAR	0.092			
		Deviation	0.12			

Table 14-10 WCDMA1700-BIV #1Body

WCDMA1700-BIV #1Body						
Ambient Temperature: 22.2			Liquid Temperature: 22.3			
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			
			CH1513	CH1412	CH1312	
RMC	Tune-up		1752.6 MHz	1732.4 MHz	1712.4 MHz	
	Slot Average Power [dBm]		24.00	24.00	24.00	
	Front 15mm	1g SAR	0.732			
		10g SAR	0.427			
		Deviation	0.04			
	Rear 15mm	1g SAR	1.08	1.06	1.37	
		10g SAR	0.625	0.613	0.778	
		Deviation	0.12	-0.09	-0.04	
	Scaling factor*		1.03	1.04	1.02	

Table 14-11 WCDMA1700-BIV #2Body

WCDMA1700-BIV #2Body						
Ambient Temperature: 22.2			Liquid Temperature: 22.3			
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			
			CH1513	CH1412	CH1312	
RMC	Tune-up		1752.6 MHz	1732.4 MHz	1712.4 MHz	
	Slot Average Power [dBm]		20.00	20.00	20.00	
	Front 10mm	1g SAR	19.53	19.45	19.55	
		10g SAR	0.577			
		Deviation	0.319			
	Rear 10mm	1g SAR	0.09			
		10g SAR	0.833	0.995	1.03	
		Deviation	0.464	0.533	0.572	
	Left edge 10mm	1g SAR	0.09	0.19	-0.01	
		10g SAR	0.045			
		Deviation	0.022			
	Right edge 10mm	1g SAR	-0.01			
		10g SAR	0.068			
		Deviation	0.043			
	Bottom edge 10mm	1g SAR	-0.09			
		10g SAR	1.05	1.17	1.25	
		Deviation	0.576	0.638	0.68	
	Scaling factor*		1.11	1.14	1.11	

Table 14-12 WCDMA850-BV #1Head

WCDMA850-BV #1Head						
Ambient Temperature: 22.2			Liquid Temperature: 22.3			
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			
			CH4233 846.6 MHz	CH4182 835.4 MHz	CH4132 826.4 MHz	
RMC	Tune-up		24.00	24.00	24.00	
	Slot Average Power [dBm]		23.82	23.83	23.77	
	Left Cheek	1g SAR	0.183			
		10g SAR	0.145			
		Deviation	0.11			
	Left Tilt	1g SAR	0.093			
		10g SAR	0.074			
		Deviation	0			
	Right Cheek	1g SAR	0.215	0.194	0.14	
		10g SAR	0.169	0.153	0.111	
		Deviation	0.12	-0.02	-0.03	
	Right Tilt	1g SAR	0.086			
		10g SAR	0.07			
		Deviation	-0.04			

Table 14-13 WCDMA850-BV #1Body

WCDMA850-BV #1Body						
Ambient Temperature: 22.2			Liquid Temperature: 22.3			
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			
			CH4233 846.6 MHz	CH4182 835.4 MHz	CH4132 826.4 MHz	
RMC	Tune-up		24.00	24.00	24.00	
	Slot Average Power [dBm]		23.82	23.83	23.77	
	Front 10mm	1g SAR	0.117			
		10g SAR	0.091			
		Deviation	0.09			
	Rear 10mm	1g SAR	0.306	0.223	0.204	
		10g SAR	0.235	0.17	0.154	
		Deviation	0.03	-0.08	0.12	
	Left edge 10mm	1g SAR	0.099			
		10g SAR	0.069			
		Deviation	0.08			
	Right edge 10mm	1g SAR	0.104			
		10g SAR	0.074			
		Deviation	0.15			
	Bottom edge 10mm	1g SAR	0.038			
		10g SAR	0.019			
		Deviation	-0.04			

Table 14-14 LTE1900-FDD2 #1 Head

LTE1900-FDD2 #1 Head									
Ambient Temperature: 22.2			Liquid Temperature: 22.3						
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			19100	18900	18700	19100			
			M	M	M	M			
20MHz QPSK1RB	Tune-up		24.00	24.00	24.00	Scaling factor*			
	Measured Power [dBm]		23.39	23.35	23.40	1.15	1.16	1.15	
	Left Cheek	1g SAR			0.445			0.51	
		10g SAR			0.283			0.33	
		Deviation			-0.01			-0.01	
	Left Tilt	1g SAR			0.348			0.40	
		10g SAR			0.215			0.25	
		Deviation			0.11			0.11	
	Right Cheek	1g SAR			0.462			0.53	
		10g SAR			0.286			0.33	
		Deviation			0.02			0.02	
	Right Tilt	1g SAR			0.325			0.37	
		10g SAR			0.211			0.24	
		Deviation			-0.04			-0.04	
TRUE	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			19100	18900	18700	19100	18900	18700	
			H	L	M	H	L	M	
	Tune-up		23.00	23.00	23.00	Scaling factor*			
	Measured Power [dBm]		22.32	22.34	22.38	1.17	1.17	1.15	
	Left Cheek	1g SAR			0.378			0.44	
		10g SAR			0.233			0.27	
		Deviation			-0.15			-0.15	
20MHz QPSK50% RB	Left Tilt	1g SAR			0.309			0.36	
		10g SAR			0.19			0.22	
		Deviation			0.11			0.11	
	Right Cheek	1g SAR			0.367			0.42	
		10g SAR			0.228			0.26	
		Deviation			-0.05			-0.05	
	Right Tilt	1g SAR			0.247			0.28	
		10g SAR			0.161			0.19	
		Deviation			-0.02			-0.02	

Table 14-15 LTE1900-FDD2 #1 Body

LTE1900-FDD2 #1 Body								
Ambient Temperature: 22.2			Liquid Temperature: 22.3					
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]		
			19100	18900	18700	19100	18900	18700
20MHz QPSK1RB	Front 15mm	M	M	M	M	M	M	M
		Tune-up	24.00	24.00	24.00	Scaling factor*		
		Measured Power [dBm]	23.39	23.35	23.40	1.15	1.16	1.15
	Rear 15mm	1g SAR			0.49			0.56
		10g SAR			0.305			0.35
		Deviation			0.01			0.01
	Front 15mm	1g SAR			0.656			0.75
		10g SAR			0.383			0.44
		Deviation			-0.03			-0.03
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]		
			19100	18900	18700	19100	18900	18700
20MHz QPSK50% RB	Front 15mm	H	L	M				
		Tune-up	23.00	23.00	23.00	Scaling factor*		
		Measured Power [dBm]	22.32	22.34	22.38	1.17	1.17	1.15
	Rear 15mm	1g SAR			0.393			0.45
		10g SAR			0.244			0.28
		Deviation			-0.08			-0.08
	Front 15mm	1g SAR			0.517			0.60
		10g SAR			0.309			0.36
		Deviation			0.06			0.06

Table 14-16 LTE1900-FDD2 #2 Body

LTE1900-FDD2 #2 Body									
Ambient Temperature: 22.2			Liquid Temperature: 22.3						
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			19100	18900	18700	19100			
			M	M	M	M			
20MHz QPSK1RB	Tune-up		21.00	21.00	21.00	Scaling factor*			
	Measured Power [dBm]		19.49	19.42	19.51	1.42	1.44	1.41	
	Front 10mm	1g SAR			0.356			0.50	
		10g SAR			0.207			0.29	
		Deviation			-0.08			-0.08	
	Rear 10mm	1g SAR			0.509			0.72	
		10g SAR			0.285			0.40	
		Deviation			0.11			0.11	
	Left edge 10mm	1g SAR			0.087			0.12	
		10g SAR			0.055			0.08	
		Deviation			-0.02			-0.02	
	Right edge 10mm	1g SAR			0.082			0.12	
		10g SAR			0.051			0.07	
		Deviation			-0.01			-0.01	
	Bottom edge 10mm	1g SAR	0.63	0.666	0.701	0.89	0.96	0.99	
		10g SAR	0.34	0.359	0.376	0.48	0.52	0.53	
		Deviation	-0.08	-0.01	-0.02	-0.08	-0.01	-0.02	
20MHz QPSK50% RB	Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]		
				19100	18900	18700	19100	18900	18700
				M	L	M			
	Tune-up		21.00	21.00	21.00	Scaling factor*			
	Measured Power [dBm]		19.43	19.38	19.44	1.44	1.45	1.43	
	Front 10mm	1g SAR			0.35			0.50	
		10g SAR			0.203			0.29	
		Deviation			-0.07			-0.07	
	Rear 10mm	1g SAR			0.494			0.71	
		10g SAR			0.277			0.40	
		Deviation			-0.07			-0.07	
	Left edge 10mm	1g SAR			0.08			0.11	
		10g SAR			0.053			0.08	
		Deviation			0.18			0.18	
	Right edge 10mm	1g SAR			0.078			0.11	
		10g SAR			0.049			0.07	
		Deviation			0.02			0.02	
	Bottom edge 10mm	1g SAR	0.614	0.656	0.672	0.88	0.95	0.96	
		10g SAR	0.331	0.354	0.371	0.48	0.51	0.53	
		Deviation	-0.07	0.08	0.04	-0.07	0.08	0.04	
20MHz QPSK100% RB	Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]		
				19100	18900	18700	19100	18900	18700
				M	L	M			
	Tune-up		21.00	21.00	21.00	Scaling factor*			
	Measured Power [dBm]		19.40	19.33	19.37	1.45	1.47	1.46	
	Bottom edge 10mm	1g SAR	0.611			0.88			
		10g SAR	0.329			0.48			
		Deviation	-0.06			-0.06			

Table 14-17 LTE850-FDD5 #1 Head

LTE850-FDD5 #1 Head									
Ambient Temperature: 22.2			Liquid Temperature: 22.3						
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			20600	20525	20450	20600			
			M	M	M	M			
10MHz QPSK1RB	Tune-up		24.00	24.00	24.00	Scaling factor*			
	Measured Power [dBm]		23.22	23.35	23.38	1.20	1.16	1.15	
	Left Cheek	1g SAR			0.133			0.15	
		10g SAR			0.106			0.12	
		Deviation			-0.1			-0.10	
	Left Tilt	1g SAR			0.07			0.08	
		10g SAR			0.056			0.06	
		Deviation			0.11			0.11	
	Right Cheek	1g SAR			0.139			0.16	
		10g SAR			0.11			0.13	
		Deviation			0.06			0.06	
	Right Tilt	1g SAR			0.061			0.07	
		10g SAR			0.056			0.06	
		Deviation			0.12			0.12	
TRUE	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			20600	20525	20450	20600	20525	20450	
			L	L	H	L	L	H	
	Tune-up		23.00	23.00	23.00	Scaling factor*			
	Measured Power [dBm]		22.29	22.21	22.23	1.18	1.20	1.19	
	Left Cheek	1g SAR	0.126			0.15			
		10g SAR	0.101			0.12			
		Deviation	-0.14			-0.14			
10MHz QPSK50% RB	Left Tilt	1g SAR	0.074			0.09			
		10g SAR	0.059			0.07			
		Deviation	0.08			0.08			
	Right Cheek	1g SAR	0.122			0.14			
		10g SAR	0.096			0.11			
		Deviation	0.1			0.10			
	Right Tilt	1g SAR	0.066			0.08			
		10g SAR	0.053			0.06			
		Deviation	-0.12			-0.12			

Table 14-18 LTE850-FDD5 #1 Body

LTE850-FDD5 #1 Body										
Ambient Temperature: 22.2			Liquid Temperature: 22.3							
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]				
			20600	20525	20450	20600				
			M	M	M	M				
10MHz QPSK1RB	Tune-up		24.00	24.00	24.00	Scaling factor*				
	Measured Power [dBm]		23.22	23.35	23.38	1.20	1.16	1.15		
	Front 10mm	1g SAR			0.134			0.15		
		10g SAR			0.105			0.12		
		Deviation			-0.02			-0.02		
	Rear 10mm	1g SAR			0.259			0.30		
		10g SAR			0.196			0.23		
		Deviation			0.06			0.06		
	Left edge 10mm	1g SAR			0.17			0.20		
		10g SAR			0.122			0.14		
		Deviation			-0.04			-0.04		
	Right edge 10mm	1g SAR			0.167			0.19		
		10g SAR			0.121			0.14		
		Deviation			-0.04			-0.04		
	Bottom edge 10mm	1g SAR			0.078			0.09		
		10g SAR			0.04			0.05		
		Deviation			0.08			0.08		
10MHz QPSK50% RB	Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
				20600	20525	20450	20600	20525	20450	
				L	L	H				
	Tune-up		23.00	23.00	23.00	Scaling factor*				
	Measured Power [dBm]		22.29	22.21	22.23	1.18	1.20	1.19		
	Front 10mm	1g SAR	0.126			0.15				
		10g SAR	0.098			0.12				
		Deviation	-0.07			-0.07				
	Rear 10mm	1g SAR	0.232			0.27				
		10g SAR	0.175			0.21				
		Deviation	-0.01			-0.01				
	Left edge 10mm	1g SAR	0.111			0.13				
		10g SAR	0.08			0.09				
		Deviation	-0.03			-0.03				
	Right edge 10mm	1g SAR	0.123			0.14				
		10g SAR	0.09			0.11				
		Deviation	0.04			0.04				
	Bottom edge 10mm	1g SAR	0.054			0.06				
		10g SAR	0.032			0.04				
		Deviation	0.08			0.08				

Table 14-19 LTE2500-FDD7 #1 Head

LTE2500-FDD7 #1 Head								
Ambient Temperature: 22.2				Liquid Temperature: 22.3				
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]		
			21350	21100	20850	21350		
			M	M	M	M		
20MHz QPSK1RB	Tune-up		22.80	22.80	22.80	Scaling factor*		
	Measured Power [dBm]		22.47	22.44	22.34	1.08	1.09	1.11
	Left Cheek	1g SAR	0.105			0.11		
		10g SAR	0.063			0.07		
		Deviation	0.03			0.03		
	Left Tilt	1g SAR	0.102			0.11		
		10g SAR	0.059			0.06		
		Deviation	-0.15			-0.15		
	Right Cheek	1g SAR	0.203			0.22		
		10g SAR	0.109			0.12		
		Deviation	0.03			0.03		
	Right Tilt	1g SAR	0.083			0.09		
		10g SAR	0.048			0.05		
		Deviation	-0.03			-0.03		
TRUE	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]		
			21350	21100	20850	21350	21100	20850
			H	H	M	H	H	M
	Tune-up		21.80	21.80	21.80	Scaling factor*		
	Measured Power [dBm]		21.51	21.36	21.37	1.07	1.11	1.10
	Left Cheek	1g SAR	0.084			0.09		
		10g SAR	0.05			0.05		
		Deviation	0.07			0.07		
	Left Tilt	1g SAR	0.082			0.09		
		10g SAR	0.047			0.05		
		Deviation	-0.14			-0.14		
	Right Cheek	1g SAR	0.162			0.17		
		10g SAR	0.087			0.09		
		Deviation	-0.02			-0.02		
	Right Tilt	1g SAR	0.065			0.07		
		10g SAR	0.038			0.04		
		Deviation	0.07			0.07		

Table 14-20 LTE2500-FDD7 #1 Body

LTE2500-FDD7 #1 Body									
Ambient Temperature: 22.2			Liquid Temperature: 22.3						
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			21350	21100	20850	21350	21100	20850	
20MHz QPSK1RB	Front 15mm	M	M	M	M	M	M	M	
		Tune-up	22.80	22.80	22.80	Scaling factor*			
		Measured Power [dBm]	22.47	22.44	22.34	1.08	1.09	1.11	
	Rear 15mm	1g SAR	0.306			0.33			
		10g SAR	0.168			0.18			
		Deviation	0.08			0.08			
	Front 15mm	1g SAR	0.527			0.57			
		10g SAR	0.266			0.29			
		Deviation	-0.01			-0.01			
20MHz QPSK50% RB	Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]		
				21350	21100	20850	21350	21100	20850
	Front 15mm	H	H	M					
		Tune-up	21.80	21.80	21.80	Scaling factor*			
		Measured Power [dBm]	21.51	21.36	21.37	1.07	1.11	1.10	
	Rear 15mm	1g SAR	0.249			0.27			
		10g SAR	0.137			0.15			
		Deviation	0.08			0.08			

Table 14-21 LTE2500-FDD7 #2 Body

LTE2500-FDD7 #2 Body								
Ambient Temperature: 22.2				Liquid Temperature: 22.3				
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]		
			21350	21100	20850	21350	21100	
20MHz QPSK1RB	Tune-up		20.00	20.00	20.00	Scaling factor*		
	Measured Power [dBm]		18.45	18.47	18.42	1.43	1.42	
	Front 10mm	1g SAR	0.319			0.45		
		10g SAR	0.166			0.24		
		Deviation	0.04			0.04		
	Rear 10mm	1g SAR	0.542	0.582	0.558	0.77	0.83	
		10g SAR	0.235	0.265	0.241	0.34	0.38	
		Deviation	0.02	0.01	-0.01	0.02	0.01	
	Left edge 10mm	1g SAR	0.061			0.09		
		10g SAR	0.032			0.05		
		Deviation	-0.01			-0.01		
	Right edge 10mm	1g SAR	0.072			0.10		
		10g SAR	0.038			0.05		
		Deviation	-0.04			-0.04		
	Bottom edge 10mm	1g SAR	0.437			0.62		
		10g SAR	0.22			0.31		
		Deviation	0.18			0.18		
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]		
			21350	21100	20850	21350	21100	
			H	H	H			
20MHz QPSK50% RB	Tune-up		20.00	20.00	20.00	Scaling factor*		
	Measured Power [dBm]		18.62	18.39	18.34	1.37	1.45	
	Front 10mm	1g SAR	0.388			0.53		
		10g SAR	0.198			0.27		
		Deviation	0.01			0.01		
	Rear 10mm	1g SAR	0.703	0.662	0.657	0.97	0.96	
		10g SAR	0.321	0.311	0.304	0.44	0.45	
		Deviation	-0.06	0.02	0.03	-0.06	0.02	
	Left edge 10mm	1g SAR	0.068			0.09		
		10g SAR	0.034			0.05		
		Deviation	0.09			0.09		
	Right edge 10mm	1g SAR	0.102			0.14		
		10g SAR	0.056			0.08		
		Deviation	0.18			0.18		
	Bottom edge 10mm	1g SAR	0.541			0.74		
		10g SAR	0.249			0.34		
		Deviation	0.01			0.01		
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]		
			21350	21100	20850	21350	21100	
			H	H	H			
20MHz QPSK100% RB	Tune-up		20.00	20.00	20.00	Scaling factor*		
	Measured Power [dBm]		18.52	18.29	18.35	1.41	1.48	
	Rear 10mm	1g SAR	0.564			0.79		
		10g SAR	0.258			0.36		
		Deviation	0.01			0.01		

Table 14-22 LTE700-FDD12 #1 Head

LTE700-FDD12 #1 Head								
Ambient Temperature: 22.2			Liquid Temperature: 22.3					
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]		
			23130	23095	23060	23130		
10MHz QPSK1RB	Left Cheek	H	M	M	H	M		
		Tune-up	24.00	24.00	24.00	Scaling factor*		
		Measured Power [dBm]	23.31	23.06	22.98	1.17	1.24	1.27
	Left Tilt	1g SAR	0.284			0.33		
		10g SAR	0.221			0.26		
		Deviation	-0.06			-0.06		
	Right Cheek	1g SAR	0.221			0.26		
		10g SAR	0.178			0.21		
		Deviation	0.01			0.01		
	Right Tilt	1g SAR	0.288			0.34		
		10g SAR	0.226			0.27		
		Deviation	-0.02			-0.02		
TRUE	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]		
			23130	23095	23060	23130	23095	23060
			M	H	H	M	H	H
	Left Cheek	Tune-up	23.00	23.00	23.00	Scaling factor*		
		Measured Power [dBm]	22.12	22.18	22.07	1.22	1.21	1.24
		1g SAR		0.226			0.27	
10MHz QPSK50% RB	Left Tilt	10g SAR		0.179			0.22	
		Deviation		-0.06			-0.06	
		1g SAR		0.175			0.21	
	Right Cheek	10g SAR		0.134			0.16	
		Deviation		-0.13			-0.13	
		1g SAR		0.238			0.29	
	Right Tilt	10g SAR		0.186			0.22	
		Deviation		0.14			0.14	
		1g SAR		0.154			0.19	
		10g SAR		0.125			0.15	
		Deviation		-0.12			-0.12	

Table 14-23 LTE700-FDD12 #1 Body

LTE700-FDD12 #1 Body									
Ambient Temperature: 22.2			Liquid Temperature: 22.3						
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			23130	23095	23060	23130	23095	23060	
10MHz QPSK1RB	Tune-up		24.00	24.00	24.00	Scaling factor*			
	Measured Power [dBm]		23.31	23.06	22.98	1.17	1.24	1.27	
	Front 10mm	1g SAR	0.334			0.39			
		10g SAR	0.26			0.30			
		Deviation	-0.09			-0.09			
	Rear 10mm	1g SAR	0.423			0.50			
		10g SAR	0.326			0.38			
		Deviation	-0.01			-0.01			
	Left edge 10mm	1g SAR	0.317			0.37			
		10g SAR	0.23			0.27			
		Deviation	0.07			0.07			
	Right edge 10mm	1g SAR	0.306			0.36			
		10g SAR	0.226			0.27			
		Deviation	0.01			0.01			
	Bottom edge 10mm	1g SAR	0.029			0.03			
		10g SAR	0.017			0.02			
		Deviation	-0.04			-0.04			
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			23130	23095	23060	23130	23095	23060	
10MHz QPSK50% RB	Tune-up		23.00	23.00	23.00	Scaling factor*			
	Measured Power [dBm]		22.12	22.18	22.07	1.22	1.21	1.24	
	Front 10mm	1g SAR		0.274			0.33		
		10g SAR		0.212			0.26		
		Deviation		-0.06			-0.06		
	Rear 10mm	1g SAR		0.37			0.45		
		10g SAR		0.285			0.34		
		Deviation		-0.08			-0.08		
	Left edge 10mm	1g SAR		0.26			0.31		
		10g SAR		0.19			0.23		
		Deviation		-0.04			-0.04		
	Right edge 10mm	1g SAR		0.253			0.31		
		10g SAR		0.186			0.22		
		Deviation		-0.01			-0.01		
	Bottom edge 10mm	1g SAR		0.025			0.03		
		10g SAR		0.013			0.02		
		Deviation		0.02			0.02		

Table 14-24 LTE1700-FDD66 #1 Head

LTE1700-FDD66 #1 Head									
Ambient Temperature: 22.2			Liquid Temperature: 22.3						
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			132572	132322	132072	132572			
20MHz QPSK1RB	Tune-up		24.00	24.00	24.00	Scaling factor*			
	Measured Power [dBm]		23.37	23.34	23.32	1.16	1.16	1.17	
	Left Cheek	1g SAR	0.274			0.32			
		10g SAR	0.195			0.23			
		Deviation	-0.11			-0.11			
	Left Tilt	1g SAR	0.207			0.24			
		10g SAR	0.135			0.16			
		Deviation	0.08			0.08			
	Right Cheek	1g SAR	0.378			0.44			
		10g SAR	0.242			0.28			
		Deviation	0.02			0.02			
TRUE	Right Tilt	1g SAR	0.132			0.15			
		10g SAR	0.09			0.10			
		Deviation	-0.14			-0.14			
	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			132572	132322	132072	132572	132322	132072	
			M	H	M	M	H	M	
	Tune-up		23.00	23.00	23.00	Scaling factor*			
	Measured Power [dBm]		22.35	22.40	22.29	1.16	1.15	1.18	
	Left Cheek	1g SAR		0.183			0.21		
		10g SAR		0.129			0.15		
		Deviation		0.02			0.02		
	Left Tilt	1g SAR		0.126			0.14		
		10g SAR		0.084			0.10		
		Deviation		-0.08			-0.08		
	Right Cheek	1g SAR		0.303			0.35		
		10g SAR		0.193			0.22		
		Deviation		0.09			0.09		
	Right Tilt	1g SAR		0.1			0.11		
		10g SAR		0.068			0.08		
		Deviation		-0.1			-0.10		

Table 14-25 LTE1700-FDD66 #1 Body

LTE1700-FDD66 #1 Body									
Ambient Temperature: 22.2			Liquid Temperature: 22.3						
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			132572	132322	132072	132572			
20MHz QPSK1RB	Tune-up		24.00	24.00	24.00	Scaling factor*			
	Measured Power [dBm]		23.37	23.34	23.32	1.16	1.16	1.17	
	Front 15mm	1g SAR	0.642			0.74			
		10g SAR	0.38			0.44			
		Deviation	0.08			0.08			
	Rear 15mm	1g SAR	0.992	0.957	0.961	1.15	1.11	1.12	
		10g SAR	0.572	0.546	0.553	0.66	0.64	0.65	
		Deviation	-0.04	0.01	0.02	-0.04	0.01	0.02	
20MHz QPSK50% RB	Mode	Device orientation	Measured SAR [W/kg]			Reported SAR [W/kg]			
			132572	132322	132072	132572	132322	132072	
			M	H	M				
	Tune-up		23.00	23.00	23.00	Scaling factor*			
	Measured Power [dBm]		22.35	22.40	22.29	1.16	1.15	1.18	
	Front 15mm	1g SAR		0.593			0.68		
		10g SAR		0.246			0.28		
		Deviation		-0.08			-0.08		
20MHz QPSK100% RB	Mode	Device orientation	Measured SAR [W/kg]			Reported SAR [W/kg]			
			132572	132322	132072	132572	132322	132072	
	Tune-up		23.00	23.00	23.00	Scaling factor*			
	Measured Power [dBm]		22.34	22.39	22.25	1.16	1.15	1.19	
	Rear 15mm	1g SAR		0.895			1.03		
		10g SAR		0.478			0.55		
		Deviation		0.02			0.02		

Table 14-26 LTE1700-FDD66 #2 Body

LTE1700-FDD66 #2 Body								
Ambient Temperature: 22.2			Liquid Temperature: 22.3					
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]		
			132572	132322	132072	132572	132322	
20MHz QPSK1RB	Tune-up		20.00	20.00	20.00	Scaling factor*		
	Measured Power [dBm]		19.50	19.48	19.42	1.12	1.13	
	Front 10mm	1g SAR	0.468			0.52		
		10g SAR	0.273			0.31		
		Deviation	-0.08			-0.08		
	Rear 10mm	1g SAR	0.737	0.841	0.967	0.83	0.95	
		10g SAR	0.412	0.466	0.539	0.46	0.53	
		Deviation	-0.04	-0.08	0.01	-0.04	-0.08	
	Left edge 10mm	1g SAR	0.057			0.06		
		10g SAR	0.034			0.04		
		Deviation	-0.01			-0.01		
	Right edge 10mm	1g SAR	0.064			0.07		
		10g SAR	0.041			0.05		
		Deviation	0.02			0.02		
	Bottom edge 10mm	1g SAR	0.896	0.929	0.929	1.00	1.05	
		10g SAR	0.506	0.506	0.541	0.57	0.57	
		Deviation	-0.08	-0.01	-0.03	-0.08	-0.01	
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]		
			132572	132322	132072	132572	132322	
			M	H	M			
20MHz QPSK50% RB	Tune-up		20.00	20.00	20.00	Scaling factor*		
	Measured Power [dBm]		19.37	19.41	19.34	1.15	1.14	
	Front 10mm	1g SAR		0.473		0.54		
		10g SAR		0.276		0.32		
		Deviation		0.09		0.09		
	Rear 10mm	1g SAR	0.635	0.776	0.913	0.73	0.89	
		10g SAR	0.369	0.452	0.515	0.43	0.52	
		Deviation	-0.09	0.07	0.06	-0.09	0.07	
	Left edge 10mm	1g SAR		0.037		0.04		
		10g SAR		0.025		0.03		
		Deviation		0.08		0.08		
	Right edge 10mm	1g SAR		0.059		0.07		
		10g SAR		0.04		0.05		
		Deviation		0.19		0.19		
	Bottom edge 10mm	1g SAR	0.888	1.08	0.654	1.03	1.24	
		10g SAR	0.498	0.59	0.39	0.58	0.68	
		Deviation	-0.01	0.07	-0.06	-0.01	0.07	
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]		
			132572	132322	132072	132572	132322	
			M	H	M			
20MHz QPSK100% RB	Tune-up		20.00	20.00	20.00	Scaling factor*		
	Measured Power [dBm]		19.33	19.37	19.24	1.17	1.16	
	Rear 10mm	1g SAR	0.714			0.83		
		10g SAR	0.411			0.48		
		Deviation	-0.02			-0.02		
20MHz QPSK100% RB	Bottom edge 10mm	1g SAR	0.978			1.13		
		10g SAR	0.565			0.65		
		Deviation	-0.02			-0.02		

Table 14-27 LTE700-FDD71 #1 Head

LTE700-FDD71 #1 Head								
Ambient Temperature: 22.2			Liquid Temperature: 22.3					
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]		
			133372	133297	133222	133372		
20MHz QPSK1RB	Tune-up		24.00	24.00	24.00	Scaling factor*		
	Measured Power [dBm]		23.63	23.61	23.76	1.09	1.09	1.06
	Left Cheek	1g SAR			0.247			0.26
		10g SAR			0.2			0.21
		Deviation			0.07			0.07
	Left Tilt	1g SAR			0.117			0.12
		10g SAR			0.094			0.10
		Deviation			-0.04			-0.04
	Right Cheek	1g SAR			0.231			0.24
		10g SAR			0.185			0.20
		Deviation			0.01			0.01
	Right Tilt	1g SAR			0.178			0.19
		10g SAR			0.14			0.15
		Deviation			0.11			0.11
TRUE	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]		
			133372	133297	133222	133372	133297	133222
	H	M	H	H	H	M	M	H
20MHz QPSK50% RB	Tune-up		23.00	23.00	23.00	Scaling factor*		
	Measured Power [dBm]		22.53	22.56	22.65	1.11	1.11	1.08
	Left Cheek	1g SAR			0.158			0.17
		10g SAR			0.129			0.14
		Deviation			0.09			0.09
	Left Tilt	1g SAR			0.117			0.13
		10g SAR			0.096			0.10
		Deviation			0.07			0.07
	Right Cheek	1g SAR			0.167			0.18
		10g SAR			0.135			0.15
		Deviation			0.05			0.05
	Right Tilt	1g SAR			0.131			0.14
		10g SAR			0.103			0.11
		Deviation			0.03			0.03

Table 14-28 LTE700-FDD71 #1 Body

LTE700-FDD71 #1 Body								
Ambient Temperature: 22.2			Liquid Temperature: 22.3					
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]		
			133372	133297	133222	133372	133297	133222
20MHz QPSK1RB	Front 10mm	Tune-up	24.00	24.00	24.00	Scaling factor*		
		Measured Power [dBm]	23.63	23.61	23.76	1.09	1.09	1.06
		1g SAR			0.261			0.28
	Rear 10mm	10g SAR			0.202			0.21
		Deviation			-0.08			-0.08
		1g SAR			0.335			0.35
	Left edge 10mm	10g SAR			0.26			0.27
		Deviation			0.01			0.01
		1g SAR			0.236			0.25
	Right edge 10mm	10g SAR			0.172			0.18
		Deviation			0.06			0.06
		1g SAR			0.244			0.26
	Bottom edge 10mm	10g SAR			0.179			0.19
		Deviation			-0.01			-0.01
		1g SAR			0.038			0.04
	Mode	10g SAR			0.022			0.02
		Deviation			0.07			0.07
		Measured SAR [W/kg]			Reported SAR [W/kg]			
20MHz QPSK50% RB	Front 10mm	133372	133297	133222	133372	133297	133222	
		H	M	H				
		Tune-up	23.00	23.00	23.00	Scaling factor*		
	Rear 10mm	Measured Power [dBm]	22.53	22.56	22.65	1.11	1.11	1.08
		1g SAR			0.187			0.20
		10g SAR			0.146			0.16
	Left edge 10mm	Deviation			0.02			0.02
		1g SAR			0.24			0.26
		10g SAR			0.186			0.20
	Right edge 10mm	Deviation			-0.01			-0.01
		1g SAR			0.173			0.19
		10g SAR			0.125			0.14
	Bottom edge 10mm	Deviation			-0.04			-0.04
		1g SAR			0.184			0.20
		10g SAR			0.133			0.14
		Deviation			0.01			0.01

14.2 Full SAR

Test Band	Channel	Frequency	Tune-Up	Measured Power	Test Position	Measured 10g SAR	Measured 1g SAR	Reported 10g SAR	Reported 1g SAR	Power Drift	Figure
GSM850	251	848.8 MHz	33	32.55	Right Cheek	0.092	0.118	0.10	0.13	0.05	Fig A.1
GSM850	251	848.8 MHz	27	26.65	Rear 10mm	0.116	0.153	0.13	0.17	-0.06	Fig A.2
PCS1900	512	1850.2 MHz	30.1	30.01	Right Cheek	0.17	0.273	0.17	0.28	0.05	Fig A.3
PCS1900	512	1850.2 MHz	25	24.25	Rear 15mm	0.231	0.399	0.27	0.47	0.02	Fig A.4
PCS1900	512	1850.2 MHz	22.5	22.10	Bottom edge 10mm	0.186	0.345	0.20	0.38	-0.03	Fig A.5
WCDMA1900-BII	9262	1852.4 MHz	24.1	23.99	Right Cheek	0.309	0.485	0.32	0.50	0.03	Fig A.6
WCDMA1900-BII	9400	1880 MHz	24.1	23.99	Rear 15mm	0.326	0.562	0.33	0.58	-0.13	Fig A.7
WCDMA1900-BII	9262	1852.4 MHz	21	19.66	Bottom edge 10mm	0.373	0.693	0.51	0.94	-0.13	Fig A.8
WCDMA1700-BIV	1513	1752.6 MHz	24	23.88	Right Cheek	0.241	0.374	0.25	0.38	0.15	Fig A.9
WCDMA1700-BIV	1312	1712.4 MHz	24	23.90	Rear 15mm	0.778	1.37	0.80	1.40	-0.04	Fig A.10
WCDMA1700-BIV	1312	1712.4 MHz	20	19.55	Bottom edge 10mm	0.68	1.25	0.75	1.39	-0.02	Fig A.11
WCDMA850-BV	4233	846.6 MHz	24	23.82	Right Cheek	0.169	0.215	0.18	0.22	0.12	Fig A.12
WCDMA850-BV	4233	846.6 MHz	24	23.82	Rear 10mm	0.235	0.306	0.24	0.32	0.03	Fig A.13
LTE1900-FDD2	18700	1860 MHz	24	23.40	Right Cheek	0.286	0.462	0.33	0.53	0.02	Fig A.14
LTE1900-FDD2	18700	1860 MHz	24	23.40	Rear 15mm	0.383	0.656	0.44	0.75	-0.03	Fig A.15
LTE1900-FDD2	18700	1860 MHz	21	19.51	Bottom edge 10mm	0.376	0.701	0.53	0.99	-0.02	Fig A.16
LTE850-FDD5	20450	829 MHz	24	23.38	Right Cheek	0.11	0.139	0.13	0.16	0.06	Fig A.17
LTE850-FDD5	20450	829 MHz	24	23.38	Rear 10mm	0.196	0.259	0.23	0.30	0.06	Fig A.18
LTE2500-FDD7	21350	2560 MHz	22.8	22.47	Right Cheek	0.109	0.203	0.12	0.22	0.03	Fig A.19
LTE2500-FDD7	21350	2560 MHz	22.8	22.47	Rear 15mm	0.266	0.527	0.29	0.57	-0.01	Fig A.20
LTE2500-FDD7	21350	2560 MHz	20	18.45	Rear 10mm	0.321	0.703	0.44	0.97	-0.06	Fig A.21
LTE700-FDD12	23130	711 MHz	24	23.31	Right Cheek	0.226	0.288	0.27	0.34	-0.02	Fig A.22
LTE700-FDD12	23130	711 MHz	24	23.31	Rear 10mm	0.326	0.423	0.38	0.50	-0.01	Fig A.23
LTE1700-FDD66	132572	711 MHz	24	23.37	Right Cheek	0.242	0.378	0.28	0.44	0.02	Fig A.24
LTE1700-FDD66	132572	711 MHz	24	23.37	Rear 15mm	0.572	0.992	0.66	1.15	-0.04	Fig A.25
LTE1700-FDD66	132322	711 MHz	20	19.48	Bottom edge 10mm	0.59	1.08	0.68	1.24	0.07	Fig A.26
LTE700-FDD71	133222	711 MHz	24	23.76	Left Cheek	0.2	0.247	0.21	0.26	0.07	Fig A.27
LTE700-FDD71	133222	711 MHz	24	23.76	Rear 10mm	0.26	0.335	0.27	0.35	0.01	Fig A.28

14.3 WLAN Evaluation

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

Note1: When the reported SAR of the initial test position is $> 0.4 \text{ W/kg}$, 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 $\leq 0.8 \text{ W/kg}$.

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

Note3: According to the KDB248227 D01, The reported SAR must be scaled to 100% transmission duty factor to determine compliance at the maximum tune-up tolerance limit.

Table 14-29 WLAN2450 #1 Head Fast SAR

WLAN2450 #1 Head Fast SAR								
Ambient Temperature: 22.2			Liquid Temperature: 22.3					
Rate	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]		
			11 2462 MHz	6 2437 MHz	1 2412 MHz			
802.11b 11Mbps	Tune up		17.5	17.5	17.5	Scaling factor*		
	Slot Average Power [dBm]		17.22	17.07	17.08	1.07	1.10	1.10
	Left Cheek	1g Fast SAR	0.768			0.82		
		10g SAR	0.337			0.36		
		Deviation	0.04			0.04		
	Left Tilt	1g Fast SAR	0.448			0.48		
		10g SAR	0.188			0.20		
		Deviation	0.08			0.08		
	Right Cheek	1g Fast SAR	0.394			0.42		
		10g SAR	0.209			0.22		
		Deviation	-0.14			-0.14		
	Right Tilt	1g Fast SAR	0.42			0.45		
		10g SAR	0.202			0.22		
		Deviation	-0.09			-0.09		

Table 14-30 WLAN2450 #1 Head Full SAR

WLAN2450 #1 Head Full SAR								
Ambient Temperature: 22.2			Liquid Temperature: 22.3					
Rate	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]		
			11 2462 MHz	6 2437 MHz	1 2412 MHz			
802.11b 11Mbps	Tune up		17.5	17.5	17.5	Scaling factor*		
	Slot Average Power [dBm]		17.22	17.07	17.08	1.07	1.10	1.10
	Left Cheek	1g Full SAR	0.819		0.826	0.87		0.91
		10g SAR	0.361		0.37	0.39		0.41
		Deviation	0.04		0.15	0.04		0.15
	Left Tilt	1g Full SAR	0.466			0.50		
		10g SAR	0.195			0.21		
		Deviation	0.08			0.08		