Shenzhen Academy of Information and Communications Technology

SAR TEST REPORT

No. B17N01898-SAR

For

Huawei Technologies Co., Ltd.

Smart Phone

Model Name: FIG-LX2

With

Hardware Version: HL2FIGOM

Software Version: FIG-LX2 8.0.0.102（C900）

FCC ID: QISFIG-LX2

Issued Date: 2017-12-28

Designation Number: CN1210

Note:

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

Test Laboratory:

Shenzhen Academy of Information and Communications Technology

Building G, Shenzhen International Innovation Center, No.1006 Shennan Road, Futian District, Shenzhen, Guangdong, P. R. China 518026.

Tel: +86(0)755-33322000, Fax: +86(0)755-33322001

Email: yewu@caict.ac.cn, website: www.cszit.com

REPORT HISTORY

Report Number	Revision	Issue Date	Description
B17N01898-SAR	Rev.0	2017-12-28	Initial creation of test report

TABLE OF CONTENT

1 Test Laboratory

1.1 Testing Location

Company Name:	Shenzhen Academy of Information and Communications Technology
Address:	Building G, Shenzhen International Innovation Center, No.1006 Shennan Road, Futian District, Shenzhen, Guangdong, China

1.2 Testing Environment

Temperature:	18°C~25 °C
Relative humidity:	30%~ 70%
Ground system resistance:	< 4Ω
Ambient noise & Reflection:	< 0.012 W/kg

1.3 Project Data

Project Leader:	Zhang Yunzhuan
Test Engineer:	Li Yongfu
Testing Start Date:	December 12, 2017
Testing End Date:	December 21, 2017

1.4 Signature

Li Yongfu
(Prepared this test report)

Zhang Yunzhuan
(Reviewed this test report)

Cao Junfei
Deputy Director of the laboratory
(Approved this test report)

2 Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for Huawei Technologies Co., Ltd. Smart Phone FIG-LX2 are as follows:

Table 2.1: Highest Reported SAR for Head (1g)

Exposure Configuration	Technology Band	Highest Reported SAR 1g(W/Kg)	Equipment Class
Head	GSM850	0.19	PCE (Main antenna)
	PCS1900	0.11	
	UMTS FDD 5	0.25	
	LTE Band 5	0.21	
	LTE Band 7	0.31	
	LTE Band 41	0.16	
	GSM850	0.77	PCE (Second antenna)
	PCS1900	0.72	
	UMTS FDD 5	0.64	
	LTE Band 5	**0.79**	
	LTE Band 7	0.72	
	LTE Band 41	0.58	
	Bluetooth	0.04	DSS
	WLAN 2.4GHz	0.57	DTS

Table 2.2: Highest Reported SAR for Hotspot (1g)

Exposure Configuration	Technology Band	Highest Reported SAR 1g(W/Kg)	Equipment Class
Hotspot	GSM850	0.35	PCE (Main antenna)
	PCS1900	**0.68**	
	UMTS FDD 5	0.17	
	LTE Band 5	0.44	
	LTE Band 7	0.56	
	LTE Band 41	0.35	
	GSM850	0.12	PCE (Second antenna)
	PCS1900	0.05	
	UMTS FDD 5	0.15	
	LTE Band 5	0.16	
	LTE Band 7	0.09	
	LTE Band 41	0.08	
	WLAN 2.4GHz	0.14	DTS

Table 2.3: Highest Reported SAR for Body-worn (1g)

Exposure Configuration	Technology Band	Highest Reported SAR 1g(W/Kg)	Equipment Class
Body-worn (Data)	GSM850	0.22	PCE (Main antenna)
	PCS1900	**0.51**	
	UMTS FDD 5	0.41	
	LTE Band 5	0.40	
	LTE Band 7	0.40	
	LTE Band 41	0.23	
	GSM850	0.19	PCE (Second antenna)
	PCS1900	0.08	
	UMTS FDD 5	0.22	
	LTE Band 5	0.38	
	LTE Band 7	0.36	
	LTE Band 41	0.16	
	WLAN 2.4GHz	0.06	DTS

The SAR values found for the Mobile Phone are below the maximum recommended levels of 1.6 W/Kg as averaged over any 1g tissue according to the ANSI C95.1-1999.

For body operation, this device has been tested and meets FCC RF exposure guidelines when used with any accessory that contains no metal and which provides a minimum separation distance of 10mm, 15mm or 17mm 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&2.2&2.3),** and the values are**: 0.79W/kg(1g).**

Table 2.4: The sum of reported SAR values for WWAN antenna and WLAN

	Position	WWAN (W/Kg)	WLAN (W/kg)	Sum (W/kg)
Highest reported SAR value for Head	Left Touch	0.718	0.566	**1.28**
Highest reported SAR value for Hotspot	Rear	0.555	0.104	**0.66**
Highest reported SAR value for Body-worn	Rear	0.401	0.061	**0.46**

Table2.5: The sum of reported SAR values for WWAN antenna and BT

	Position	WWAN (W/Kg)	Bluetooth (W/kg)	Sum (W/kg)
Highest reported SAR value for Head	Right Touch	0.789	0.009	**0.80**
Highest reported SAR value for Body-worn	Rear	0.401	0.170	**0.57**

BT*-Estimated SAR for Bluetooth (see the table12.3)

According to the above tables, the highest sum of reported SAR values is **1.28 W/kg (1g)**. The detail for simultaneous transmission consideration is described in chapter 13.

3 Client Information

3.1 Applicant Information

Company Name:	Huawei Technologies Co., Ltd.
Address /Post:	Huawei Base, Bantian, Longgang District, Shenzhen 518129, P.R. China
Contact:	/
Email:	/
Telephone:	+86 755 28780808
Fax:	+86 755 89652518

3.2 Manufacturer Information

Company Name:	Huawei Technologies Co., Ltd.
Address /Post:	Huawei Base, Bantian, Longgang District, Shenzhen 518129, P.R. China
Contact:	/
Email:	/
Telephone:	+86 755 28780808
Fax:	+86 755 89652518

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

4.1 About EUT

Description:	Smart Phone
Model Name:	FIG-LX2
Operating mode(s):	GSM 850/1900, WCDMA Band V, LTE_FDD Band 5/7 LTE_TDD Band 41, BT, Wi-Fi 2.4G
Tested Tx Frequency:	825 – 848.8MHz (GSM 850)
	1850.2 – 1910MHz (GSM 1900)
	826.4 – 846.6MHz (WCDMA850 Band V)
	824.7 – 848.3MHz (LTE_FDD Band 5)
	2502.5 – 2567.5MHz (LTE_FDD Band 7)
	2545 – 2595MHz (LTE_TDD Band 41)
	2412 – 2462MHz (Wi-Fi 2.4G)
	2402 – 2480MHz (Bluetooth)
GPRS&EGPRS Multislot Class:	12
GPRS capability Class:	B
Test device Production information:	Production unit
Device type:	Portable device
Antenna type:	Integrated antenna
Hotspot mode:	Support

Remark：

1. For dual SIM card mobile has two SIM slots and supports dual SIM dual standby. The WWAN radio transmission will be enabled by either one SIM at a time (single active). After pre-scan two SIM cards power, we found test result of the SIM1 was the worse, so we chose SIM1 slot to perform all tests , and SIM2 slot test the worst case SAR of SIM1 slot.
2. This device has two antennas. The main antenna is located on the bottom edge of the device and the second antenna is located on the top edge of the device.
3. The device is capable of switching between the top antenna and bottom antenna based on signal strength.
4. There are totally three power reduction levels of WWAN Antenna. Reduced power 1 is for WWAN at top antenna when handset close to ear(receiver on), Reduced power 2 is for hotspot mode at top and bottom antennas, reduced power 3 is for WWAN top antenna +WLAN simultaneous transmission at WWAN top antenna
5. For WLAN transmitter
   Head exposure conditions:
   Power reduction for WLAN 2.4GHz antenna: When the device close to ear, the proximity sensor will be triggered
6. For WWAN transmitter
   1) Head exposure conditions:
      Reduced power level 1 - GSM850/1900, WCDMA Band 5, LTE Band 5/7/41, While the device WWAN is transmitting at the WWAN Top antenna, and the audio is actively routed through the earpiece receiver, power reduction enabled for those bands

Reduced power level 3 - GSM850/1900, WCDMA Band 5, LTE Band 5/7/41.
While the device WLAN is transmitting simultaneously with the WWAN Top antenna, and the audio is actively routed through the earpiece receiver, power reduction enabled for those bands.

2) Hotspot exposure condition
Reduced power level 2 – Second antenna: GSM850/1900, WCDMA Band 5, LTE Band 5/7/41, main antenna: GSM850/1900, WCDMA Band 5.
While the device WWAN is transmitting at the WWAN antennas, and hotspot mode is enabled, power reduction enabled for those bands.

4.2 Internal Identification of EUT used during the test

EUT ID*	SN or IMEI	HW Version	SW Version
EUT1	IMEI: 867171030004833	HL2FIGOM	FIG-LX2 8.0.0.102（C900）
EUT2	IMEI: 867171030005160	HL2FIGOM	FIG-LX2 8.0.0.102（C900）
EUT3	IMEI: 867171030005020	HL2FIGOM	FIG-LX2 8.0.0.102（C900）
EUT4	IMEI: 867171030005426	HL2FIGOM	FIG-LX2 8.0.0.102（C900）
EUT5	IMEI: 867171030005335	HL2FIGOM	FIG-LX2 8.0.0.102（C900）

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

Note: It is performed to test SAR with the EUT 1 & EUT 2 & EUT 3, and conducted power with the EUT 4 & EUT 5.

4.3 Internal Identification of AE used during the test

AE ID*	Description	Model	Manufacturer
AE1	Battery	HB366481ECW-11	Sunwoda Electronic Co., Ltd.
AE2	Battery	HB366481ECW-11	Huizhou Desay Battery Co., Ltd.
AE3	Battery	HB366481ECW-11	SCUD(Fujian)Electronics Co., Ltd
AE4	Headset	MEMD1532B528A00	Jiangxi Lianchuang Hongsheng Electronic Co., LTD.
AE5	Headset	HA1-3W	GoerTek.

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

5 TEST METHODOLOGY

5.1 Applicable Limit Regulations

ANSI C95.1–1999:IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz.

It specifies the maximum exposure limit of **1.6 W/kg** as averaged over any 1 gram of tissue for portable devices being used within 20 cm of the user in the uncontrolled environment.

5.2 Applicable Measurement Standards

IEEE 1528–2013: Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Experimental Techniques.

KDB 447498 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

KDB 941225 D06 Hot Spot SAR v02r01: SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities

KDB 248227 D01 802.11 Wi-Fi SAR v02r02: SAR Guidance for IEEE 802.11 (Wi-Fi) Transmitters.

KDB 865664 D01SAR measurement 100 MHz to 6 GHz v01r04: SAR Measurement Requirements for 100 MHz to 6 GHz.

KDB 865664 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 head capacity, δT is the temperature rise and δt is the exposure duration, or related to the electrical field in the tissue by

$$SAR = \frac{\sigma |E|^2}{\rho}$$

Where: σ is the conductivity of the tissue, ρ is the mass density of tissue and E is the RMS electrical field strength.

However for evaluating SAR of low power transmitter, electrical field measurement is typically applied.

7 Tissue Simulating Liquids

7.1 Targets for tissue simulating liquid

Table 7.1: Targets for tissue simulating liquid

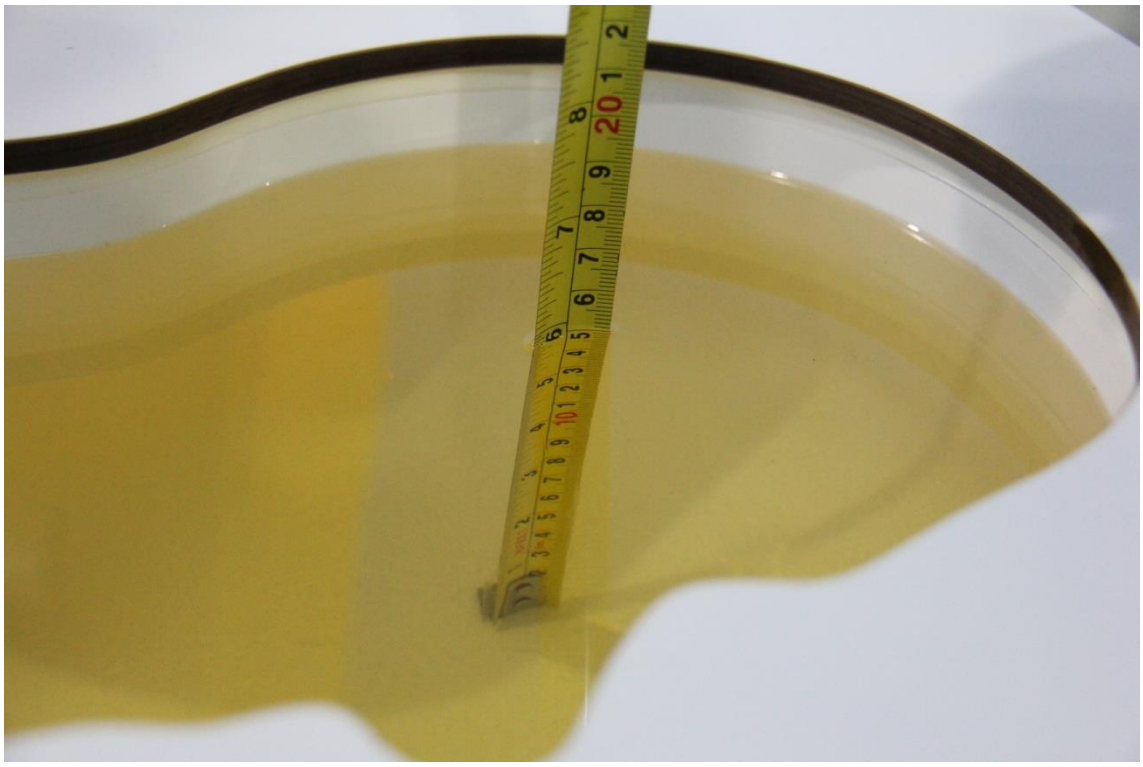
Frequency (MHz)	Liquid Type	Conductivity (σ)	± 5% Range	Permittivity (ε)	± 5% Range
835	Head	0.90	0.86～0.95	41.5	39.4～43.6
835	Body	0.97	0.92～1.02	55.2	52.4～58.0
1900	Head	1.40	1.33～1.47	40.0	38.0～42.0
1900	Body	1.52	1.44～1.60	53.3	50.6～56.0
2450	Head	1.80	1.71～1.89	39.2	37.2～41.2
2450	Body	1.95	1.85～2.05	52.7	50.1～55.3
2550	Head	1.91	1.81～2.01	39.07	37.1～41.0
2550	Body	2.09	1.99～2.19	52.6	50.0～55.2

7.2 Dielectric Performance

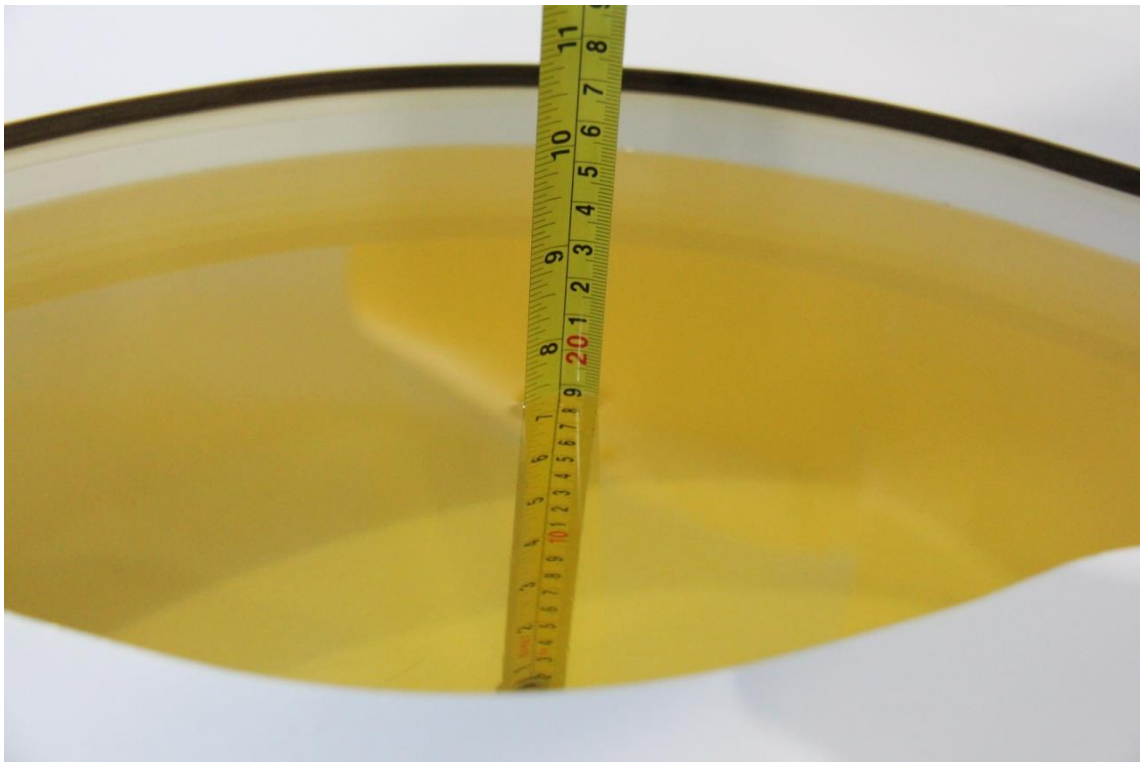
Table 7.2: Dielectric Performance of Tissue Simulating Liquid

Measurement Date (yyyy-mm-dd)	Type	Frequency	Conductivity σ (S/m)	Drift (%)	Permittivity ε	Drift (%)
2017-12-12	Head	835	0.925	2.78	40.85	-1.57
2017-12-13	Body	835	0.988	1.86	53.68	-2.75
2017-12-15	Head	1900	1.424	1.71	39.25	-1.88
2017-12-15	Body	1900	1.574	3.55	52.75	-1.03
2017-12-21	Head	2450	1.853	2.94	38.77	-1.10
2017-12-21	Body	2450	1.928	-1.13	51.53	-2.22
2017-12-18	Head	2550	1.951	2.15	38.46	-1.56
2017-12-19	Body	2550	2.052	-1.82	51.21	-2.64

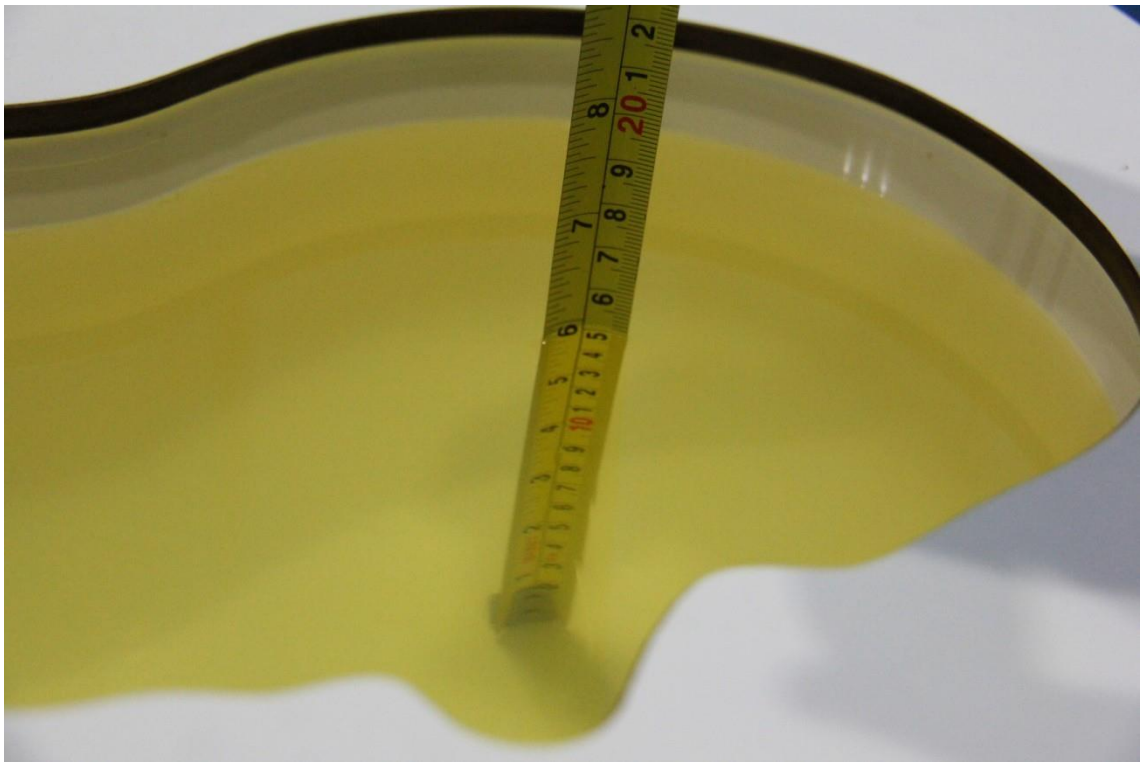
Note: The liquid temperature is 22.0^{o}C



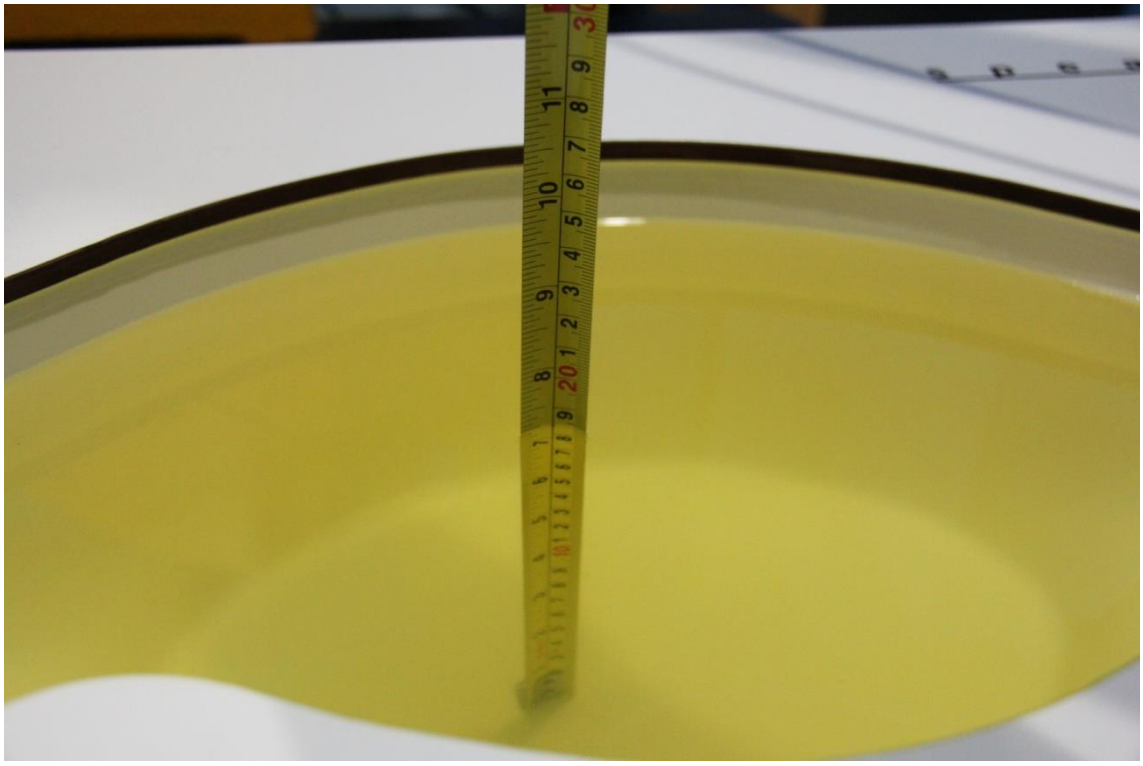
Picture 7-1: Liquid depth in the Head Phantom (835 MHz)



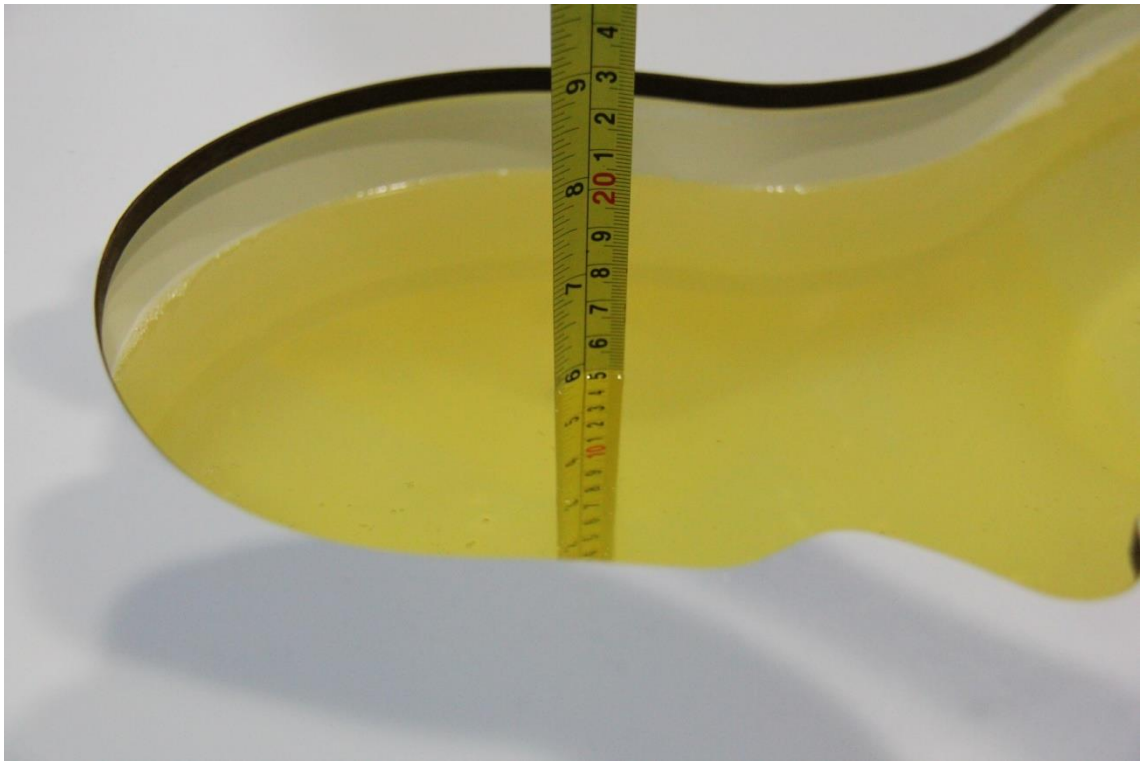
Picture 7-2: Liquid depth in the Flat Phantom (835 MHz)



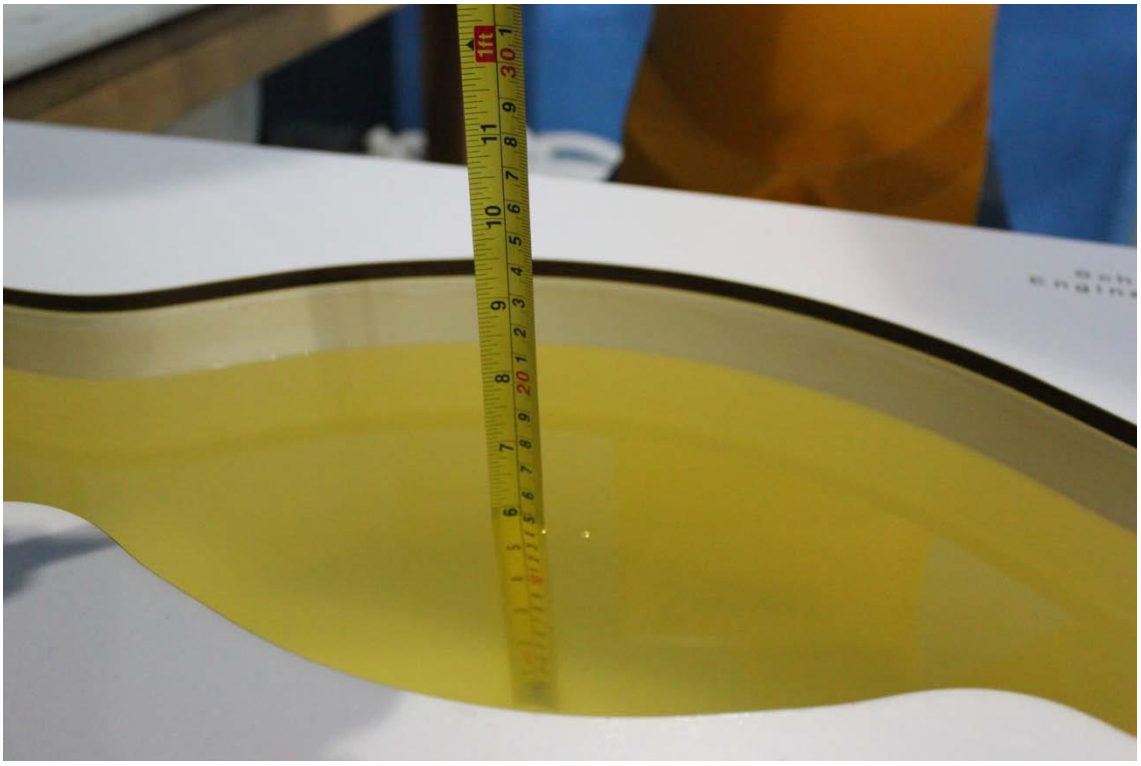
Picture 7-3: Liquid depth in the Head Phantom (1900 MHz)



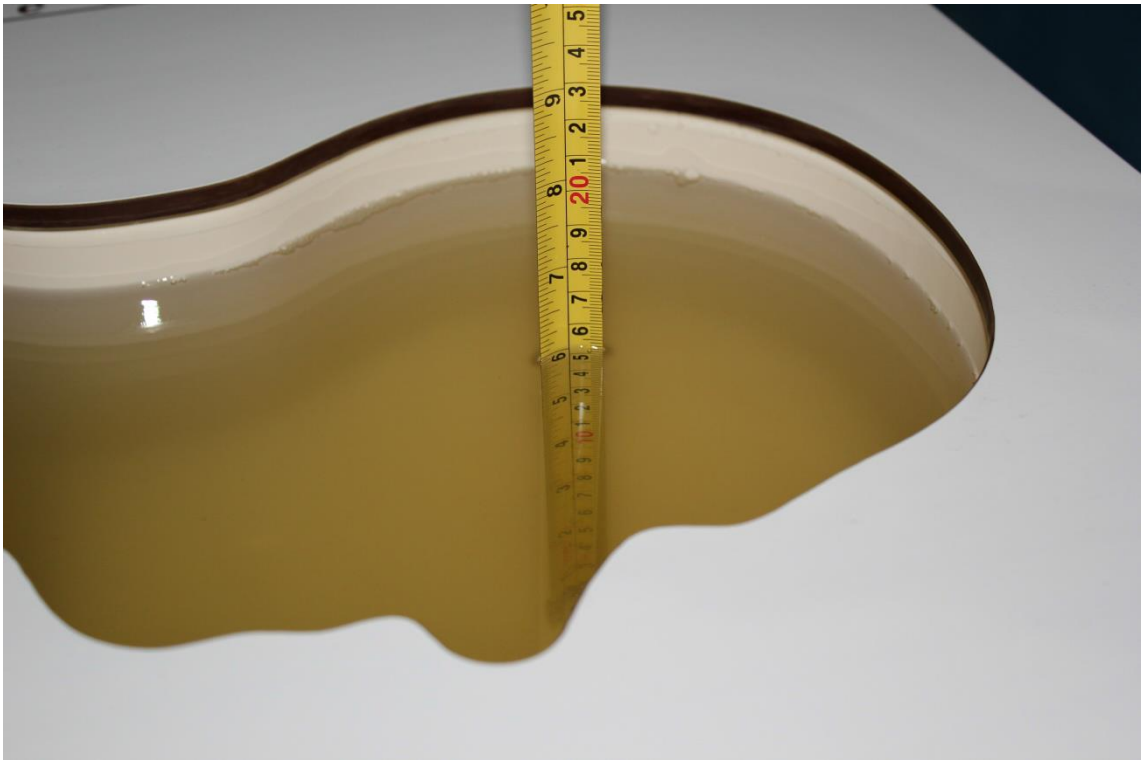
Picture 7-4: Liquid depth in the Flat Phantom (1900MHz)



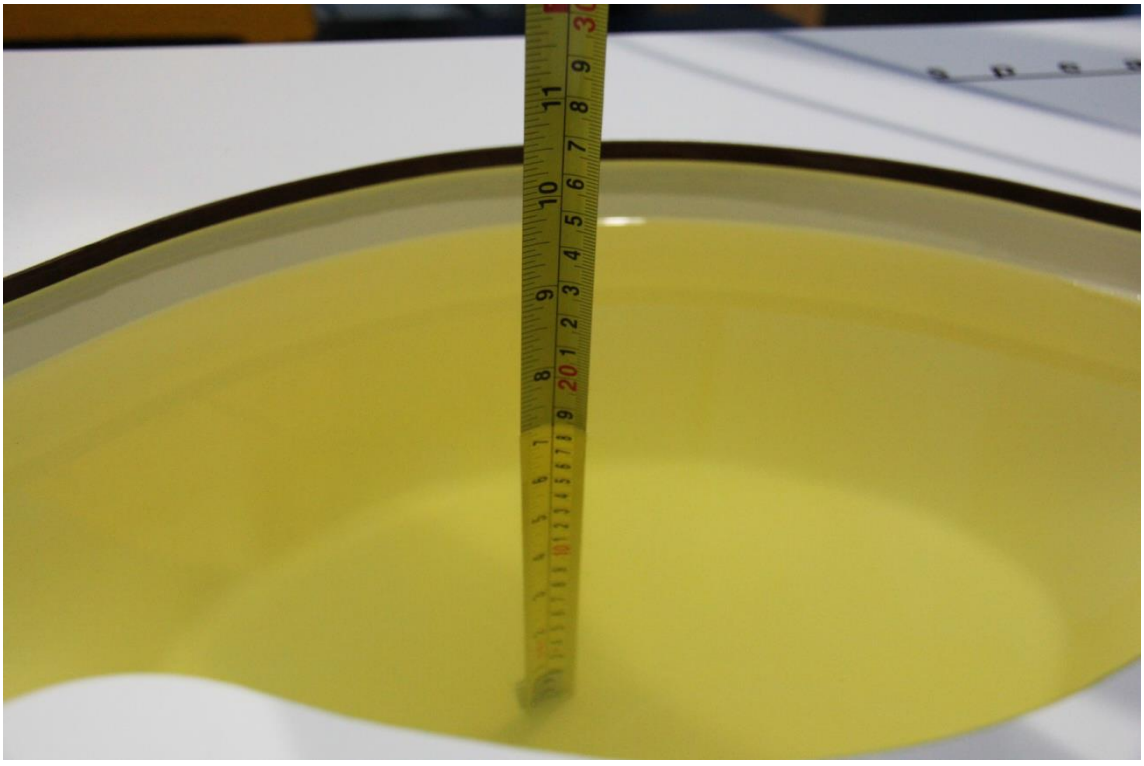
Picture 7-5: Liquid depth in the Head Phantom(2450MHz)



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



Picture 7-7: Liquid depth in the Head Phantom(2550MHz)

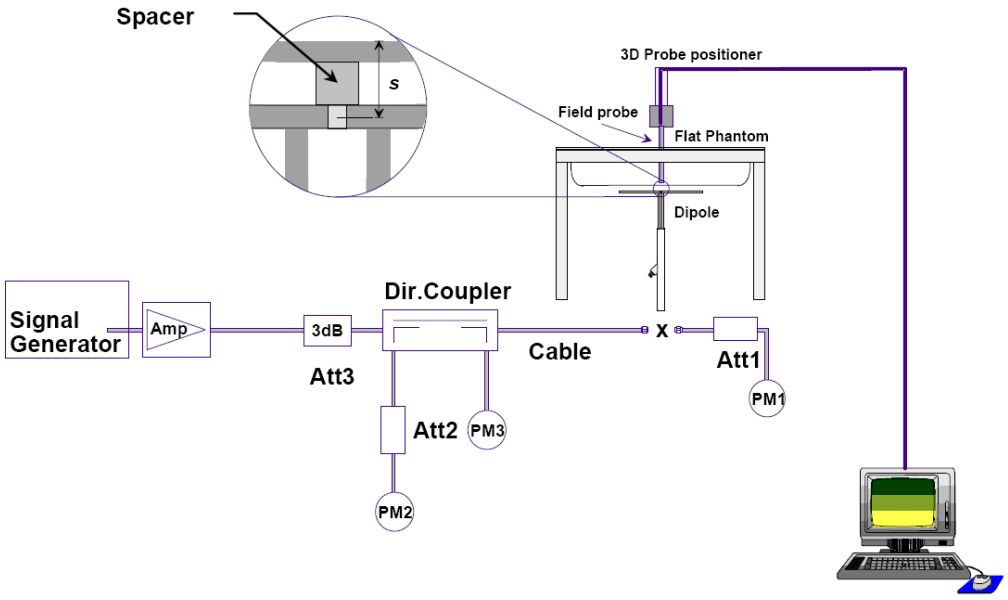


Picture 7-8: Liquid depth in the Flat Phantom(2550MHz)

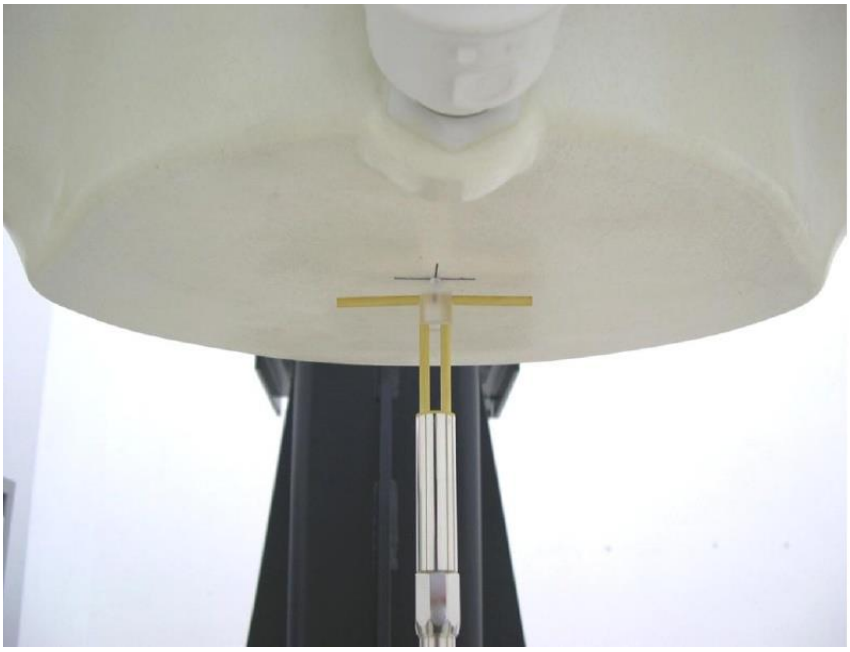
8 System verification

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 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
2017-12-12	835 MHz	6.03	9.22	5.92	8.96	-1.82	-2.82
2017-12-15	1900 MHz	21.0	40.8	21.36	42.40	1.71	3.92
2017-12-18	2450 MHz	24.1	52.5	24.44	54.00	1.41	2.86
2017-12-21	2550 MHz	26.2	57.2	26.64	59.20	1.68	3.50

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
2017-12-13	835 MHz	6.20	9.44	6.16	9.28	-0.65	-1.69
2017-12-15	1900 MHz	21.3	41.1	21.44	41.60	0.66	1.22
2017-12-19	2450 MHz	24.4	52.3	24.76	54.00	1.48	3.25
2017-12-21	2550 MHz	25.1	54.8	24.80	53.20	-1.20	-2.92

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.

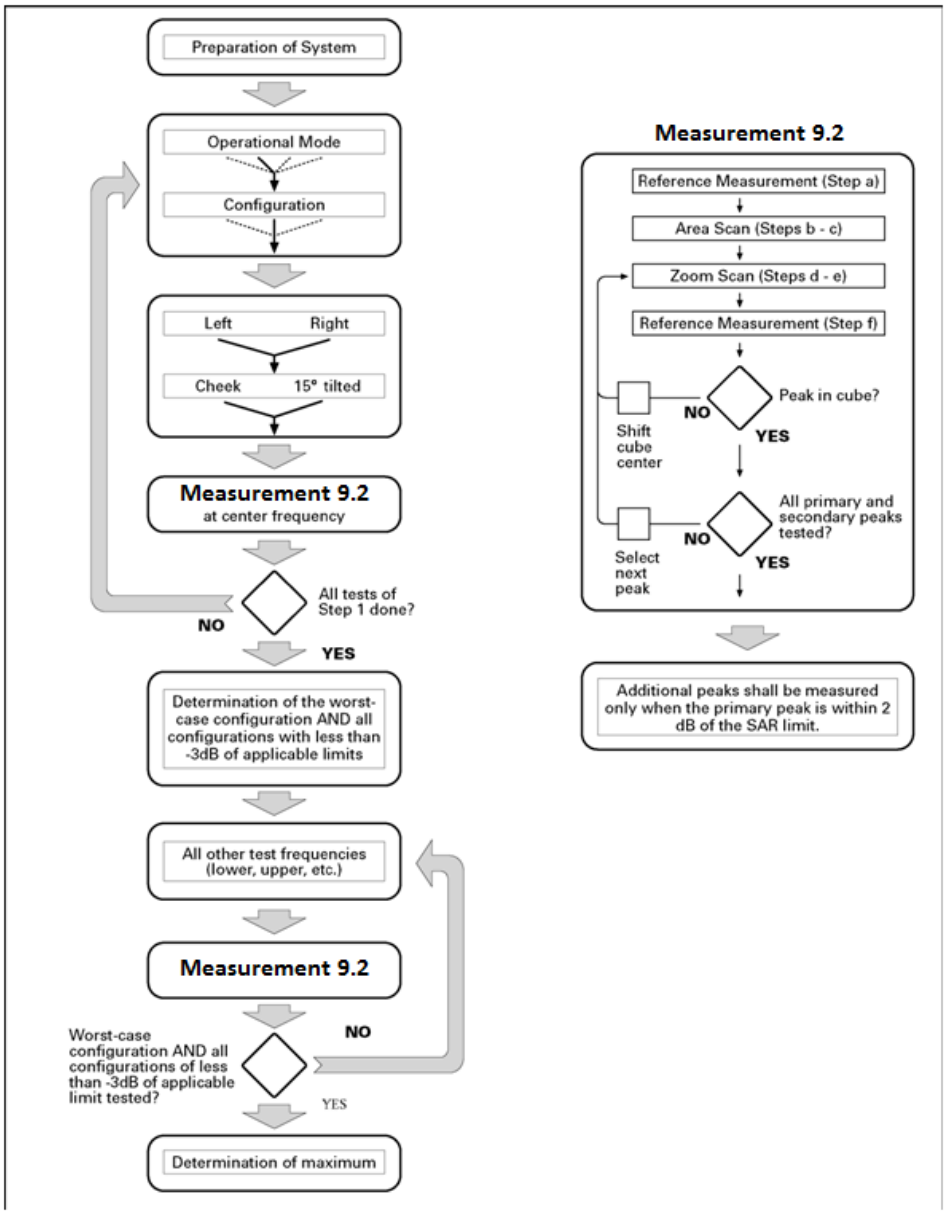
Step 1: The tests described in 9.2 shall be performed at the channel that is closest to the center of the transmit frequency band (f_c) for:

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 9.1Block diagram of the tests to be performed

9.2 General Measurement Procedure

The area and zoom scan resolutions specified in the table below must be applied to the SAR measurements and fully documented in SAR reports to qualify for TCB approval. Probe boundary effect error compensation is required for measurements with the probe tip closer than half a probe tip diameter to the phantom surface. Both the probe tip diameter and sensor offset distance must satisfy measurement protocols; to ensure probe boundary effect errors are minimized and the higher fields closest to the phantom surface can be correctly measured and extrapolated to the phantom surface for computing 1-g SAR. Tolerances of the post-processing algorithms must be verified by the test laboratory for the scan resolutions used in the SAR measurements, according to the reference distribution functions specified in IEEE Std 1528-2013. The results should be documented as part of the system validation records and

may be requested to support test results when all the measurement parameters in the following table are not satisfied.

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

9.3 WCDMA Measurement Procedures for SAR

The following procedures are applicable to WCDMA handsets operating under 3GPP Release99, Release 5 and Release 6. The default test configuration is to measure SAR with an established radio link between the DUT and a communication test set using a 12.2kbps RMC (reference measurement channel) configured in Test Loop Mode 1. SAR is selectively confirmed for other physical channel configurations (DPCCH & $DPDCH_n$), HSDPA and HSPA (HSUPA/HSDPA) modes according to output power, exposure conditions and device operating capabilities. Both uplink and downlink should be configured with the same RMC or AMR, when required. SAR for Release 5 HSDPA and Release 6 HSPA are measured using the applicable FRC (fixed reference channel) and E-DCH reference channel configurations. Maximum output power is verified according to applicable versions of 3GPP TS 34.121 and SAR must be measured according to these maximum output conditions. When Maximum Power Reduction (MPR) is not implemented according to Cubic Metric (CM) requirements for Release 6 HSPA, the following procedures do not apply.

For Release 5 HSDPA Data Devices:

Sub-test	β_c	β_d	β_d （SF）	β_c / β_d	β_{hs}	CM/dB
1	2/15	15/15	64	2/15	4/15	0.0
2	12/15	15/15	64	12/15	24/25	1.0
3	15/15	8/15	64	15/8	30/15	1.5
4	15/15	4/15	64	15/4	30/15	1.5

For Release 6 HSPA Data Devices

Sub-test	β_c	β_d	β_d （SF）	β_c / β_d	β_{hs}	β_{ec}	β_{ed}	β_{ed} （SF）	β_{ed} （codes）	CM (dB)	MPR (dB)	AG Index	E-TFCI
1	11/15	15/15	64	11/15	22/15	209/225	1039/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	12/15	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	β_{ed1}:47/15 β_{ed2}:47/15	4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	4/15	56/75	4	1	3.0	2.0	17	71
5	15/15	15/15	64	15/15	24/15	30/15	134/15	4	1	1.0	0.0	21	81

9.4 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.

9.5 SAR Measurement for LTE

SAR tests for LTE are performed with a base station simulator, Anristu MT8820C. Closed loop power control was used so the UE transmits with maximum output power during SAR testing. All powers were measured with the Anristu MT8820C.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.

9.6 LTE (TDD) Considerations

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

SAR was tested with the highest transmission duty factor (63.33%) using Uplink-downlink configuration 0 and Special subframe configuration 7.

LTE TDD Band 41 support 3GPP TS 36.211 section 4.2 for Type 2 Frame Structure and Table 4.2-2 for uplink-downlink configurations and Table 4.2-1 for Special subframe configurations.

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

Configuration of special subframe (lengths of DwPTS/GP/UpPTS)

Uplink-Downlink Configuration	Downlink-to-Uplink Switch-point Periodicity	Subframe Number										Calculated Duty Cycle (%)
		0	1	2	3	4	5	6	7	8	9	
0	5 ms	D	S	U	U	U	D	S	U	U	U	63.33
1	5 ms	D	S	U	U	D	D	S	U	U	D	43.33
2	5 ms	D	S	U	D	D	D	S	U	D	D	23.33
3	10 ms	D	S	U	U	U	D	D	D	D	D	31.67
4	10 ms	D	S	U	U	D	D	D	D	D	D	21.67
5	10 ms	D	S	U	D	D	D	D	D	D	D	11.67
6	5 ms	D	S	U	U	U	D	S	U	U	D	53.33

Calculated Duty Cycle

Calculated Duty Cycle = Extended cyclic prefix in uplink x (Ts) x # of S + # of U
Example for Calculated Duty Cycle for Uplink-Downlink Configuration 0:
Calculated Duty Cycle = 5120 x [1/(15000 x 2048)] x 2 + 6 ms = 63.33%
Where
Ts = 1/(15000 x 2048) seconds

9.7 Proximity Sensor Considerations

This device uses a power reduction mechanism to reduce output powers in certain use conditions of the main antenna when the device is used close the user's body .

When the device's main antenna is within a certain distance of the user, the sensor activates and reduces the maximum allowed output power. However, the sensor is not active when the device is moved beyond the sensor triggering distance and the maximum output power is no longer limited. Therefore, additional evaluation is needed in the vicinity of the triggering distance to ensure SAR is compliant when the device is allowed to operate at a non-reduced output power level. FCC KDB Publication 616217 D04v01r02 Section 6 was used as a guideline for selecting SAR test distances for this device at these additional test positions. Sensor triggering distance summary data is included in Appendix G.

9.8 Power Drift

To control the output power stability during the SAR test, DASY5 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 Conducted Output Power

10.1 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.

Table 10.1: The conducted power measurement results for GSM850/1900

Main antenna				
Full Power				
GSM850MHz	Conducted Power (dBm)			
	Tune up	Channel 251 (848.8MHz)	Channel 190 (836.6MHz)	Channel 128 (824.2MHz)
	33.3	32.41	**32.43**	32.50
GSM1900MHz	Conducted Power(dBm)			
	Tune up	Channel 810 (1909.8MHz)	Channel 661 (1880MHz)	Channel 512 (1850.2MHz)
	30.5	29.92	**29.94**	30.03
Sensor on				
GSM1900MHz	Conducted Power (dBm)			
	Tune up	Channel 810 (1909.8MHz)	Channel 661 (1880MHz)	Channel 512 (1850.2MHz)
	27.5	26.80	26.81	26.87
Hotspot				
GSM850MHz	Conducted Power (dBm)			
	Tune up	Channel 251 (848.8MHz)	Channel 190 (836.6MHz)	Channel 128 (824.2MHz)
	31.3	30.36	30.47	30.55
GSM1900MHz	Conducted Power (dBm)			
	Tune up	Channel 810 (1909.8MHz)	Channel 661 (1880MHz)	Channel 512 (1850.2MHz)
	28.5	27.79	27.78	27.85
Hotspot+ Sensor on				
GSM1900MHz	Conducted Power (dBm)			
	Tune up	Channel 810 (1909.8MHz)	Channel 661 (1880MHz)	Channel 512 (1850.2MHz)
	25.5	24.87	24.86	24.94

Second antenna				
Receiver on				
GSM850MHz	Conducted Power (dBm)			
	Tune up	Channel 251 (848.8MHz)	Channel 190 (836.6MHz)	Channel 128 (824.2MHz)
	28.8	27.62	27.68	27.76
GSM1900MHz	Conducted Power (dBm)			
	Tune up	Channel 810 (1909.8MHz)	Channel 661 (1880MHz)	Channel 512 (1850.2MHz)
	26.5	25.90	25.96	26.03
Receiver off				
GSM850MHz	Conducted Power (dBm)			
	Tune up	Channel 251 (848.8MHz)	Channel 190 (836.6MHz)	Channel 128 (824.2MHz)
	31.3	30.21	**30.26**	30.31
GSM1900MHz	Conducted Power (dBm)			
	Tune up	Channel 810 (1909.8MHz)	Channel 661 (1880MHz)	Channel 512 (1850.2MHz)
	27.5	26.90	**26.97**	27.02
Hotspot				
GSM850MHz	Conducted Power (dBm)			
	Tune up	Channel 251 (848.8MHz)	Channel 190 (836.6MHz)	Channel 128 (824.2MHz)
	26.3	25.12	25.16	25.23
GSM1900MHz	Conducted Power (dBm)			
	Tune up	Channel 810 (1909.8MHz)	Channel 661 (1880MHz)	Channel 512 (1850.2MHz)
	23.5	22.98	23.03	23.06
Receiver on +WIFI				
GSM850MHz	Conducted Power (dBm)			
	Tune up	Channel 251 (848.8MHz)	Channel 190 (836.6MHz)	Channel 128 (824.2MHz)
	26.3	25.10	25.15	25.21
GSM1900MHz	Conducted Power (dBm)			
	Tune up	Channel 810 (1909.8MHz)	Channel 661 (1880MHz)	Channel 512 (1850.2MHz)
	23.5	22.97	23.03	23.06

Table 10.2: The conducted power measurement results for GPRS and EGPRS

Main antenna - Full Power								
GPRS 850	Tune up	Measured Power (dBm)			calculation	Average Power (dBm)		
		251	190	128		251	190	128
1Tx-slots	33.3	32.38	**32.43**	32.48	-9.03dB	**23.35**	**23.40**	**23.45**
2Tx-slots	29.8	28.76	28.83	28.95	-6.02dB	22.74	22.81	22.93
3Tx-slots	28.0	26.97	27.04	26.96	-4.26dB	22.71	22.78	22.7
4Tx-slots	26.8	25.78	25.86	25.78	-3.01dB	22.77	22.85	22.77
EGPRS 850 (8PSK)	Tune up	Measured Power (dBm)			calculation	Measured Power (dBm)		
		251	190	128		251	190	128
1Tx-slots	27.5	26.36	26.40	26.51	-9.03dB	17.33	17.37	17.48
2Tx-slots	24.0	22.91	22.90	22.96	-6.02dB	16.89	16.88	16.94
3Tx-slots	22.2	21.15	21.17	20.97	-4.26dB	16.89	16.91	16.71
4Tx-slots	21.0	19.74	19.69	19.73	-3.01dB	16.73	16.68	16.72
GPRS 1900	Tune up	Measured Power (dBm)			calculation	Average Power (dBm)		
		810	661	512		810	661	512
1Tx-slots	30.5	29.92	**29.93**	30.01	-9.03dB	**20.89**	**20.90**	**20.98**
2Tx-slots	27.0	26.23	26.23	26.30	-6.02dB	20.21	20.21	20.28
3Tx-slots	25.0	24.45	24.45	24.54	-4.26dB	20.19	20.19	20.28
4Tx-slots	24.0	23.26	23.26	23.31	-3.01dB	20.25	20.25	20.30
EGPRS 1900 (8PSK)	Tune up	Measured Power (dBm)			calculation	Measured Power (dBm)		
		810	661	512		810	661	512
1Tx-slots	26.0	25.64	25.41	25.40	-9.03dB	16.61	16.38	16.37
2Tx-slots	22.5	21.98	21.99	22.02	-6.02dB	15.96	15.97	16.00
3Tx-slots	20.5	20.12	20.13	20.14	-4.26dB	15.86	15.87	15.88
4Tx-slots	19.5	18.92	19.03	19.11	-3.01dB	15.91	16.02	16.10
Main antenna – Sensor on								
GPRS 1900	Tune up	Measured Power (dBm)			calculation	Measured Power (dBm)		
		810	661	512		810	661	512
1Tx-slots	27.5	26.80	**26.80**	26.86	-9.03dB	**17.77**	**17.77**	**17.83**
2Tx-slots	24.0	23.34	23.34	23.39	-6.02dB	17.32	17.32	17.37
3Tx-slots	22.0	21.52	21.51	21.57	-4.26dB	17.26	17.25	17.31
4Tx-slots	21.0	20.33	20.31	20.38	-3.01dB	17.32	17.30	17.37
EGPRS 1900 (8PSK)	Tune up	Measured Power (dBm)			calculation	Average Power (dBm)		
		810	661	512		810	661	512
1Tx-slots	26.0	25.67	25.48	25.52	-9.03dB	16.64	16.45	16.49
2Tx-slots	22.5	22.03	22.02	22.07	-6.02dB	16.01	16.00	16.05
3Tx-slots	20.5	20.17	20.20	20.24	-4.26dB	15.91	15.94	15.98
4Tx-slots	19.5	19.16	19.17	19.16	-3.01dB	16.15	16.16	16.15

Main antenna - Hotspot								
GPRS 850	Tune up	Measured Power (dBm)			calculation	Measured Power (dBm)		
		251	190	128		251	190	128
1Tx-slots	31.3	30.26	**30.31**	30.47	-9.03dB	**21.23**	**21.28**	**21.44**
2Tx-slots	27.8	26.76	26.86	27.01	-6.02dB	20.74	20.84	20.99
3Tx-slots	26.0	25.00	25.15	25.27	-4.26dB	20.74	20.89	21.01
4Tx-slots	24.8	23.78	23.90	24.03	-3.01dB	20.77	20.89	21.02
EGPRS 850 (8PSK)	Tune up	Measured Power (dBm)			calculation	Average Power (dBm)		
		251	190	128		251	190	128
1Tx-slots	27.5	26.45	26.38	26.42	-9.03dB	17.42	17.35	17.39
2Tx-slots	24.0	23.05	23.05	22.89	-6.02dB	17.03	17.03	16.87
3Tx-slots	22.2	21.32	21.33	21.35	-4.26dB	17.06	17.07	17.09
4Tx-slots	21.0	20.01	19.92	19.87	-3.01dB	17.00	16.91	16.86
GPRS 1900	Tune up	Measured Power (dBm)			calculation	Measured Power (dBm)		
		810	661	512		810	661	512
1Tx-slots	28.5	27.78	**27.78**	27.84	-9.03dB	**18.75**	**18.75**	**18.81**
2Tx-slots	25.0	24.24	24.27	24.34	-6.02dB	20.20	20.21	20.28
3Tx-slots	23.0	22.45	22.48	22.56	-4.26dB	20.19	20.19	20.28
4Tx-slots	22.0	21.21	21.24	21.33	-3.01dB	20.25	20.24	20.30
EGPRS 1900 (8PSK)	Tune up	Measured Power (dBm)			calculation	Measured Power (dBm)		
		810	661	512		810	661	512
1Tx-slots	26.0	25.60	25.41	25.45	-9.03dB	16.57	16.38	16.42
2Tx-slots	22.5	21.97	21.98	22.00	-6.02dB	15.95	15.96	15.98
3Tx-slots	20.5	20.28	20.31	20.38	-4.26dB	16.02	16.05	16.12
4Tx-slots	19.5	19.13	19.07	19.13	-3.01dB	16.12	16.06	16.12
Main antenna – Hotspot+ Sensor on								
GPRS 1900	Tune up	Measured Power (dBm)			calculation	Measured Power (dBm)		
		810	661	512		810	661	512
1Tx-slots	25.5	24.85	24.86	24.94	-9.03dB	15.82	15.83	15.91
2Tx-slots	22.0	21.37	21.35	21.41	-6.02dB	15.35	15.33	15.39
3Tx-slots	20.0	19.55	19.53	19.60	-4.26dB	15.29	15.27	15.34
4Tx-slots	19.0	18.28	18.26	18.27	-3.01dB	15.27	15.25	15.26
EGPRS 1900 (8PSK)	Tune up	Measured Power (dBm)			calculation	Measured Power (dBm)		
		810	661	512		810	661	512
1Tx-slots	26.0	25.62	**25.41**	25.41	-9.03dB	**16.59**	**16.38**	**16.38**
2Tx-slots	22.5	21.95	21.97	22.01	-6.02dB	15.93	15.95	15.99
3Tx-slots	20.5	20.13	20.16	20.12	-4.26dB	15.87	15.9	15.86
4Tx-slots	19.5	18.90	19.03	19.12	-3.01dB	15.89	16.02	16.11

Second antenna - Receiver on								
GPRS 850	Tune up	Measured Power (dBm)			calculation	Average Power (dBm)		
		251	190	128		251	190	128
1Tx-slots	28.8	27.62	**27.68**	27.76	-9.03dB	**18.59**	**18.65**	**18.73**
2Tx-slots	25.3	24.06	24.10	24.17	-6.02dB	18.04	18.08	18.15
3Tx-slots	23.5	22.27	22.33	22.41	-4.26dB	18.01	18.07	18.15
4Tx-slots	22.3	21.10	21.11	21.19	-3.01dB	18.09	18.10	18.18
EGPRS 850 (8PSK)	Tune up	Measured Power (dBm)			calculation	Measured Power (dBm)		
		251	190	128		251	190	128
1Tx-slots	26.5	25.16	25.17	25.17	-9.03dB	16.13	16.14	16.14
2Tx-slots	23.0	21.84	21.81	21.83	-6.02dB	15.82	15.79	15.81
3Tx-slots	21.2	19.84	19.82	19.74	-4.26dB	15.58	15.56	15.48
4Tx-slots	20.0	18.76	18.74	18.64	-3.01dB	15.75	15.73	15.63
GPRS 1900	Tune up	Measured Power (dBm)			calculation	Average Power (dBm)		
		810	661	512		810	661	512
1Tx-slots	26.5	25.90	**25.96**	26.02	-9.03dB	**16.87**	**16.93**	**16.99**
2Tx-slots	23.0	22.50	22.54	22.58	-6.02dB	16.48	16.52	16.56
3Tx-slots	21.0	20.70	20.74	20.79	-4.26dB	16.44	16.48	16.53
4Tx-slots	20.0	19.42	19.47	19.52	-3.01dB	16.41	16.46	16.51
EGPRS 1900 (8PSK)	Tune up	Measured Power (dBm)			calculation	Measured Power (dBm)		
		810	661	512		810	661	512
1Tx-slots	26.0	25.76	25.63	25.61	-9.03dB	16.73	16.60	16.58
2Tx-slots	22.5	22.14	22.20	22.19	-6.02dB	16.12	16.18	16.17
3Tx-slots	20.5	20.44	20.48	20.46	-4.26dB	16.18	16.25	16.24
4Tx-slots	19.5	19.18	19.19	19.22	-3.01dB	16.17	16.18	16.21

Second antenna - Receiver off								
GPRS 850	Tune up	Measured Power (dBm)			calculation	Average Power (dBm)		
		251	190	128		251	190	128
1Tx-slots	31.3	30.20	**30.26**	30.29	-9.03dB	**21.17**	**21.23**	**21.26**
2Tx-slots	27.8	26.58	26.66	26.71	-6.02dB	20.56	20.64	20.69
3Tx-slots	26.0	24.77	24.82	24.89	-4.26dB	20.51	20.56	20.63
4Tx-slots	24.8	23.55	23.60	23.68	-3.01dB	20.54	20.59	20.67
EGPRS 850 (8PSK)	Tune up	Measured Power (dBm)			calculation	Measured Power (dBm)		
		251	190	128		251	190	128
1Tx-slots	27.5	26.15	26.17	26.18	-9.03dB	17.12	17.14	17.15
2Tx-slots	24.0	22.71	22.69	22.74	-6.02dB	16.69	16.67	16.72
3Tx-slots	22.2	21.08	21.09	21.07	-4.26dB	16.82	16.83	16.81
4Tx-slots	21.0	19.82	19.64	19.61	-3.01dB	16.81	16.63	16.60
GPRS 1900	Tune up	Measured Power (dBm)			calculation	Average Power (dBm)		
		810	661	512		810	661	512
1Tx-slots	27.5	26.91	**26.98**	27.03	-9.03dB	**17.88**	**17.95**	**18.00**
2Tx-slots	24.0	23.48	23.53	23.56	-6.02dB	17.46	17.51	17.54
3Tx-slots	22.0	21.65	21.71	21.75	-4.26dB	17.39	17.45	17.49
4Tx-slots	21.0	20.46	20.51	20.56	-3.01dB	17.45	17.5	17.55
EGPRS 1900 (8PSK)	Tune up	Measured Power (dBm)			calculation	Measured Power (dBm)		
		810	661	512		810	661	512
1Tx-slots	26.0	25.78	25.63	25.71	-9.03dB	16.75	16.6	16.68
2Tx-slots	22.5	22.14	22.19	22.18	-6.02dB	16.12	16.17	16.16
3Tx-slots	20.5	20.43	20.49	20.37	-4.26dB	16.17	16.23	16.11
4Tx-slots	19.5	19.26	19.36	19.25	-3.01dB	16.25	16.35	16.24

Second antenna - Hotspot								
GPRS 850	Tune up	Measured Power (dBm)			calculation	Average Power (dBm)		
		251	190	128		251	190	128
1Tx-slots	26.3	25.12	**25.16**	25.22	-9.03dB	**16.09**	**16.13**	**16.19**
2Tx-slots	22.8	21.59	21.65	21.68	-6.02dB	15.57	15.63	15.66
3Tx-slots	21.0	19.75	19.82	19.85	-4.26dB	15.49	15.56	15.59
4Tx-slots	19.8	18.55	18.64	18.67	-3.01dB	15.54	15.63	15.66
EGPRS 850 (8PSK)	Tune up	Measured Power (dBm)			calculation	Measured Power (dBm)		
		251	190	128		251	190	128
1Tx-slots	23.5	22.41	22.26	22.27	-9.03dB	13.38	13.23	13.24
2Tx-slots	20.0	18.78	18.72	18.66	-6.02dB	12.76	12.7	12.64
3Tx-slots	18.2	17.01	17.18	17.02	-4.26dB	12.75	12.92	12.76
4Tx-slots	17.0	16.10	15.99	16.01	-3.01dB	13.09	12.98	13
GPRS 1900	Tune up	Measured Power (dBm)			calculation	Average Power (dBm)		
		810	661	512		810	661	512
1Tx-slots	23.5	22.97	23.02	23.05	-9.03dB	13.94	13.99	14.02
2Tx-slots	20.0	19.47	19.52	19.57	-6.02dB	13.45	13.50	13.55
3Tx-slots	18.0	17.71	17.75	17.75	-4.26dB	13.45	13.49	13.49
4Tx-slots	17.0	16.48	16.52	16.58	-3.01dB	13.47	13.51	13.57
EGPRS 1900 (8PSK)	Tune up	Measured Power (dBm)			calculation	Measured Power (dBm)		
		810	661	512		810	661	512
1Tx-slots	24.0	23.75	**23.89**	23.90	-9.03dB	**14.72**	**14.86**	**14.87**
2Tx-slots	20.5	20.26	20.35	20.32	-6.02dB	14.24	14.33	14.3
3Tx-slots	18.5	18.14	18.19	18.25	-4.26dB	13.88	13.93	13.99
4Tx-slots	17.5	17.05	17.08	17.10	-3.01dB	14.04	14.07	14.09

Second antenna - Receiver on +WIFI								
GPRS 850	Tune up	Measured Power (dBm)			calculation	Average Power (dBm)		
		251	190	128		251	190	128
1Tx-slots	26.3	25.11	**25.15**	25.21	-9.03dB	**16.08**	**16.12**	**16.18**
2Tx-slots	22.8	21.58	21.64	21.67	-6.02dB	15.56	15.62	15.65
3Tx-slots	21.0	19.74	19.81	19.84	-4.26dB	15.48	15.55	15.58
4Tx-slots	19.8	18.55	18.63	18.66	-3.01dB	15.54	15.62	15.65
EGPRS 850 (8PSK)	Tune up	Measured Power (dBm)			calculation	Measured Power (dBm)		
		251	190	128		251	190	128
1Tx-slots	23.5	22.36	22.34	22.32	-9.03dB	13.33	13.31	13.29
2Tx-slots	20.0	18.83	18.77	18.72	-6.02dB	12.81	12.75	12.7
3Tx-slots	18.2	17.05	16.99	16.98	-4.26dB	12.79	12.73	12.72
4Tx-slots	17.0	16.04	15.83	15.83	-3.01dB	13.03	12.82	12.82
GPRS 1900	Tune up	Measured Power (dBm)			calculation	Average Power (dBm)		
		810	661	512		810	661	512
1Tx-slots	23.5	22.98	23.04	23.07	-9.03dB	13.95	14.01	14.04
2Tx-slots	20.0	19.49	19.53	19.57	-6.02dB	13.47	13.51	13.55
3Tx-slots	18.0	17.72	17.76	17.75	-4.26dB	13.46	13.50	13.49
4Tx-slots	17.0	16.49	16.53	16.58	-3.01dB	13.48	13.52	13.57
EGPRS 1900 (8PSK)	Tune up	Measured Power (dBm)			calculation	Measured Power (dBm)		
		810	661	512		810	661	512
1Tx-slots	24.0	23.74	**23.87**	23.84	-9.03dB	**14.71**	**14.84**	**14.81**
2Tx-slots	20.5	20.30	20.35	20.33	-6.02dB	14.28	14.33	14.31
3Tx-slots	18.5	18.10	18.23	18.23	-4.26dB	13.84	13.97	13.97
4Tx-slots	17.5	16.87	17.06	17.10	-3.01dB	13.86	14.05	14.09

NOTES:

1) Division Factors

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

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

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

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

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

10.2 WCDMA Measurement result

Table 10.3: The conducted Power for WCDMA850

Main antenna - full Power					
Item	band	FDD Band 5 result			
	ARFCN	Tune up	4233 (846.6MHz)	4182 (836.4MHz)	4132 (826.4MHz)
WCDMA	\	24.5	23.30	23.50	23.50
HSDPA	1	24.5	23.20	23.30	23.30
	2	24.5	23.30	23.40	23.50
	3	23.5	22.20	22.30	22.30
	4	23.5	22.20	22.30	22.30
HSUPA	1	22.0	20.70	20.90	20.70
	2	20.0	19.50	19.40	19.70
	3	23.0	22.30	22.40	21.50
	4	21.0	19.50	19.70	19.70
	5	24.5	22.90	23.00	23.00
DC-HSDPA	1	24.5	23.48	23.45	23.40
	2	24.5	23.46	23.44	23.45
	3	23.5	23.07	23.06	23.08
	4	23.5	23.06	23.01	23.07
Main antenna - Hotspot					
Item	band	FDD Band 5 result			
	ARFCN	Tune up	4233 (846.6MHz)	4182 (836.4MHz)	4132 (826.4MHz)
WCDMA	\	21.5	20.30	20.50	20.40
HSDPA	1	21.5	20.20	20.30	20.20
	2	21.5	20.40	20.50	20.40
	3	20.5	19.30	19.30	19.30
	4	20.5	19.30	19.40	19.40
HSUPA	1	19.0	17.80	18.00	18.00
	2	17.0	16.50	16.90	16.90
	3	20.0	18.60	19.50	19.50
	4	18.0	16.40	16.50	16.50
	5	21.5	19.80	20.00	19.90
DC-HSDPA	1	21.5	19.41	19.33	19.45
	2	21.5	19.40	19.34	19.36
	3	20.5	19.41	19.34	19.34
	4	20.5	19.42	19.33	19.35

Main antenna – Sensor on					
Item	band	FDD Band 5 result			
	ARFCN	Tune up	4233 (846.6MHz)	4182 (836.4MHz)	4132 (826.4MHz)
WCDMA	\	22.5	21.40	21.40	21.50
HSDPA	1	22.5	21.10	21.40	21.30
	2	22.5	21.30	21.50	21.50
	3	21.5	20.20	20.40	20.40
	4	21.5	20.20	20.40	20.40
HSUPA	1	20.0	18.90	18.80	18.90
	2	18.0	17.90	17.80	17.90
	3	21.0	19.40	19.50	19.60
	4	19.0	17.80	17.70	17.80
	5	22.5	20.80	20.80	21.00
DC-HSDPA	1	22.5	20.47	20.45	20.46
	2	22.5	20.48	20.42	20.44
	3	21.5	20.46	20.44	20.47
	4	21.5	20.41	20.43	20.45
Main antenna – Sensor on+ Hotspot					
Item	band	FDD Band 5 result			
	ARFCN	Tune up	4233 (846.6MHz)	4182 (836.4MHz)	4132 (826.4MHz)
WCDMA	\	19.5	18.30	18.40	18.50
HSDPA	1	19.5	18.10	18.40	18.30
	2	19.5	18.30	18.50	18.50
	3	18.5	17.30	17.40	17.40
	4	18.5	17.20	17.40	17.40
HSUPA	1	17.0	15.80	15.80	15.90
	2	15.0	14.60	14.60	13.70
	3	18.0	17.30	17.30	17.50
	4	16.0	14.40	14.50	14.60
	5	19.5	17.80	17.90	18.00
DC-HSDPA	1	19.5	17.52	17.47	17.46
	2	19.5	17.49	17.46	17.45
	3	18.5	17.41	17.48	17.46
	4	18.5	17.40	17.47	17.48

Second antenna - Receiver on					
Item	band	FDD Band 5 result			
	ARFCN	Tune up	4233 (846.6MHz)	4182 (836.4MHz)	4132 (826.4MHz)
WCDMA	\	18.5	17.40	17.40	17.30
HSDPA	1	18.5	17.20	17.10	17.30
	2	18.5	17.20	17.30	17.40
	3	17.5	16.10	16.30	16.30
	4	17.5	16.10	16.20	16.20
HSUPA	1	16.0	15.10	15.10	14.90
	2	14.0	13.20	13.10	12.70
	3	17.0	16.10	16.20	16.00
	4	15.0	13.20	13.20	13.00
	5	18.5	17.00	16.90	17.10
DC-HSDPA	1	18.5	16.73	16.75	16.73
	2	18.5	16.69	16.74	16.72
	3	17.5	16.68	16.69	16.73
	4	17.5	16.71	16.72	16.74
Second antenna - Receiver off					
Item	band	FDD Band 5 result			
	ARFCN	Tune up	4233 (846.6MHz)	4182 (836.4MHz)	4132 (826.4MHz)
WCDMA	\	22.5	21.20	21.30	21.30
HSDPA	1	22.5	21.10	21.20	21.20
	2	22.5	21.20	21.40	21.40
	3	21.5	20.10	20.20	20.30
	4	21.5	20.10	20.30	20.30
HSUPA	1	20.0	18.80	18.80	19.00
	2	18.0	17.70	17.70	17.70
	3	21.0	20.30	20.30	20.40
	4	19.0	17.50	17.60	17.50
	5	22.5	20.70	20.80	20.80
DC-HSDPA	1	22.5	20.44	20.37	20.36
	2	22.5	20.32	20.36	20.35
	3	21.5	20.41	20.38	20.37
	4	21.5	20.40	20.37	20.36

Second antenna - Hotspot					
Item	band	FDD Band 5 result			
	ARFCN	Tune up	4233 (846.6MHz)	4182 (836.4MHz)	4132 (826.4MHz)
WCDMA	\	16.5	15.10	15.70	15.00
HSDPA	1	16.5	15.10	15.30	15.20
	2	16.5	15.20	15.50	15.30
	3	15.5	14.60	14.90	14.60
	4	15.5	14.60	15.00	14.70
HSUPA	1	15.0	14.30	14.60	14.00
	2	12.0	11.20	11.60	11.20
	3	15.0	14.10	14.30	14.00
	4	13.0	11.20	11.50	11.10
	5	16.5	15.00	15.30	14.90
DC-HSDPA	1	16.5	15.32	15.48	15.26
	2	16.5	15.33	15.37	15.25
	3	15.5	15.31	15.35	15.24
	4	15.5	15.34	15.40	15.36
Second antenna - Receiver on + WIFI					
Item	band	FDD Band 5 result			
	ARFCN	Tune up	4233 (846.6MHz)	4182 (836.4MHz)	4132 (826.4MHz)
WCDMA	\	16.5	15.10	15.70	15.10
HSDPA	1	16.5	15.20	15.30	15.20
	2	16.5	15.30	15.50	15.30
	3	15.5	14.60	15.00	14.70
	4	15.5	14.70	15.00	14.70
HSUPA	1	15.0	14.40	14.60	14.10
	2	12.0	11.10	11.50	11.20
	3	15.0	14.10	14.30	14.00
	4	13.0	11.20	11.50	11.20
	5	16.5	15.10	15.30	14.90
DC-HSDPA	1	16.5	15.43	15.45	15.39
	2	16.5	15.18	15.42	15.34
	3	15.5	15.34	15.43	15.30
	4	15.5	15.31	15.40	15.29

10.3 LTE Measurement result

Table 10.4: The conducted Power for LTE

Main antenna - Full Power							
LTE-FDD Band 5				Actual output Power (dBm)			Tune up
Band-width	RB allocation	RB offset	Modulation	High	Middle	Low	
1.4 MHz				848.3MHz	836.5MHz	824.7MHz	
	1RB	High	QPSK	22.65	22.76	22.63	**23.5**
			16QAM	22.09	22.10	22.01	**22.5**
		Middle	QPSK	22.91	22.90	22.72	**23.5**
			16QAM	22.31	22.25	22.11	**22.5**
		Low	QPSK	22.77	22.77	22.52	**23.5**
			16QAM	22.19	22.10	21.91	**22.5**
	3RB	High	QPSK	22.76	22.81	22.67	**23.5**
			16QAM	21.94	21.95	21.79	**22.5**
		Middle	QPSK	22.88	22.86	22.68	**23.5**
			16QAM	22.04	22.00	21.83	**22.5**
		Low	QPSK	22.92	22.82	22.60	**23.5**
			16QAM	22.01	21.96	21.74	**22.5**
	6RB	/	QPSK	21.81	21.85	21.63	**22.5**
			16QAM	21.40	21.35	21.19	**22**
3 MHz				847.5MHz	836.5MHz	825.5MHz	
	1RB	High	QPSK	22.45	22.50	22.43	**23.5**
			16QAM	21.79	21.86	21.83	**22.5**
		Middle	QPSK	22.94	22.89	22.83	**23.5**
			16QAM	22.23	22.29	22.17	**22.5**
		Low	QPSK	22.67	22.53	22.28	**23.5**
			16QAM	21.99	21.95	21.67	**22.5**
	8RB	High	QPSK	21.76	21.72	21.69	**22.5**
			16QAM	21.29	21.25	21.18	**22**
		Middle	QPSK	21.86	21.80	21.76	**22.5**
			16QAM	21.42	21.31	21.26	**22**
		Low	QPSK	21.76	21.75	21.64	**22.5**
			16QAM	21.39	21.26	21.12	**22**
	15RB	/	QPSK	21.76	21.74	21.67	**22.5**
			16QAM	21.34	21.20	21.12	**22**

				846.5MHz	836.5MHz	826.5MHz	Tune up
5 MHz	1RB	High	QPSK	22.23	22.17	22.08	**23.5**
			16QAM	21.64	21.54	21.53	**22.5**
		Middle	QPSK	23.01	22.88	22.81	**23.5**
			16QAM	22.29	22.26	22.18	**22.5**
		Low	QPSK	22.47	22.45	22.11	**23.5**
			16QAM	21.83	21.85	21.53	**22.5**
	12RB	High	QPSK	21.55	21.55	21.53	**22.5**
			16QAM	21.13	21.08	21.03	**22**
		Middle	QPSK	21.79	21.76	21.74	**22.5**
			16QAM	21.38	21.27	21.21	**22**
		Low	QPSK	21.72	21.68	21.59	**22.5**
			16QAM	21.30	21.16	21.08	**22**
	25RB	/	QPSK	21.66	21.62	21.53	**22.5**
			16QAM	21.24	21.10	21.03	**22**
10 MHz				844MHz	836.5MHz	829MHz	
	1RB	High	QPSK	22.02	22.12	21.89	**23.5**
			16QAM	21.45	21.55	21.31	**22.5**
		Middle	QPSK	22.80	22.75	22.62	**23.5**
			16QAM	22.19	22.11	21.98	**22.5**
		Low	QPSK	22.20	22.17	21.82	**23.5**
			16QAM	21.61	21.59	21.26	**22.5**
	25RB	High	QPSK	21.51	21.35	21.31	**22.5**
			16QAM	21.02	20.93	20.79	**22**
		Middle	QPSK	21.80	21.59	21.58	**22.5**
			16QAM	21.29	21.14	21.05	**22**
		Low	QPSK	21.62	21.43	21.40	**22.5**
			16QAM	21.06	20.97	20.93	**22**
	50RB	/	QPSK	21.64	21.39	21.30	**22.5**
			16QAM	21.08	20.92	20.84	**22**

Second antenna - Receiver on							
LTE-FDD Band 5				Actual output Power (dBm)			Tune up
Band-width	RB allocation	RB offset	Modulation	High	Middle	Low	
1.4 MHz				848.3MHz	836.5MHz	824.7MHz	
	1RB	High	QPSK	18.16	18.00	18.01	19
			16QAM	18.50	18.31	18.30	19
		Middle	QPSK	18.27	18.13	18.10	19
			16QAM	18.63	18.43	18.37	19
		Low	QPSK	18.18	17.99	17.85	19
			16QAM	18.56	18.32	18.15	19
	3RB	High	QPSK	18.15	18.04	18.04	19
			16QAM	18.27	18.11	18.12	19
		Middle	QPSK	18.26	18.08	18.03	19
			16QAM	18.34	18.17	18.11	19
		Low	QPSK	18.25	18.03	17.95	19
			16QAM	18.35	18.12	18.03	19
	6RB	/	QPSK	18.19	18.02	17.99	19
			16QAM	18.21	18.04	18.01	19
3 MHz				847.5MHz	836.5MHz	825.5MHz	
	1RB	High	QPSK	17.90	17.70	17.80	19
			16QAM	18.18	17.99	18.11	19
		Middle	QPSK	18.38	18.14	18.27	19
			16QAM	18.69	18.48	18.54	19
		Low	QPSK	18.02	17.69	17.57	19
			16QAM	18.36	18.04	17.86	19
	8RB	High	QPSK	18.13	17.93	18.06	19
			16QAM	18.13	17.95	18.06	19
		Middle	QPSK	18.27	18.02	18.13	19
			16QAM	18.28	18.03	18.14	19
		Low	QPSK	18.21	17.93	17.94	19
			16QAM	18.21	17.94	17.95	19
	15RB	/	QPSK	18.19	17.92	17.99	19
			16QAM	18.17	17.91	17.98	19

				846.5MHz	836.5MHz	826.5MHz	Tune up
5 MHz	1RB	High	QPSK	17.72	17.58	17.61	19
			16QAM	17.97	17.88	17.90	19
		Middle	QPSK	18.40	18.17	18.32	19
			16QAM	18.69	18.46	18.58	19
		Low	QPSK	17.99	17.71	17.56	19
			16QAM	18.30	18.02	17.88	19
	12RB	High	QPSK	18.02	17.87	17.96	19
			16QAM	18.07	17.85	17.94	19
		Middle	QPSK	18.28	18.03	18.17	19
			16QAM	18.32	18.02	18.16	19
		Low	QPSK	18.22	17.90	18.00	19
			16QAM	18.26	17.89	17.98	19
	25RB	/	QPSK	18.15	17.88	17.97	19
			16QAM	18.17	17.85	17.94	19
				844MHz	836.5MHz	829MHz	
10 MHz	1RB	High	QPSK	17.42	17.58	17.29	19
			16QAM	17.76	17.85	17.54	19
		Middle	QPSK	18.34	18.09	18.16	19
			16QAM	18.69	18.38	18.40	19
		Low	QPSK	17.61	17.55	17.38	19
			16QAM	17.90	17.82	17.62	19
	25RB	High	QPSK	17.99	17.76	17.72	19
			16QAM	17.93	17.72	17.67	19
		Middle	QPSK	18.27	17.92	18.06	19
			16QAM	18.22	17.87	18.00	19
		Low	QPSK	18.03	17.73	17.89	19
			16QAM	17.98	17.67	17.83	19
	50RB	/	QPSK	18.05	17.72	17.75	19
			16QAM	18.00	17.69	17.70	19

Second antenna - Receiver off							
LTE-FDD Band 5				Actual output Power (dBm)			Tune up
Band-width	RB allocation	RB offset	Modulation	High	Middle	Low	
1.4 MHz				848.3MHz	836.5MHz	824.7MHz	
	1RB	High	QPSK	22.48	22.40	22.37	23.5
			16QAM	21.84	21.80	21.70	22.5
		Middle	QPSK	22.68	22.56	22.48	23.5
			16QAM	21.98	21.95	21.85	22.5
		Low	QPSK	22.52	22.43	22.24	23.5
			16QAM	21.86	21.86	21.59	22.5
	3RB	High	QPSK	22.52	22.46	22.40	23.5
			16QAM	21.61	21.58	21.50	22.5
		Middle	QPSK	22.55	22.50	22.40	23.5
			16QAM	21.64	21.60	21.50	22.5
		Low	QPSK	22.55	22.46	22.33	23.5
			16QAM	21.64	21.60	21.41	22.5
	6RB	/	QPSK	21.54	21.49	21.42	22.5
			16QAM	21.13	21.06	20.98	21.5
3 MHz				847.5MHz	836.5MHz	825.5MHz	
	1RB	High	QPSK	22.26	22.14	22.13	23.5
			16QAM	21.64	21.61	21.62	22.5
		Middle	QPSK	22.59	22.60	22.56	23.5
			16QAM	22.00	21.95	22.01	22.5
		Low	QPSK	22.40	22.20	21.96	23.5
			16QAM	21.76	21.59	21.46	22.5
	8RB	High	QPSK	21.48	21.37	21.44	22.5
			16QAM	21.09	20.97	21.04	21.5
		Middle	QPSK	21.55	21.43	21.50	22.5
			16QAM	21.13	21.05	21.11	21.5
		Low	QPSK	21.52	21.38	21.37	22.5
			16QAM	21.04	21.00	20.96	21.5
	15RB	/	QPSK	21.51	21.37	21.41	22.5
			16QAM	21.02	20.96	20.98	21.5

				846.5MHz	836.5MHz	826.5MHz	Tune up
5 MHz	1RB	High	QPSK	22.03	21.96	21.88	**23.5**
			16QAM	21.43	21.33	21.33	**22.5**
		Middle	QPSK	22.75	22.58	22.60	**23.5**
			16QAM	22.06	21.96	22.02	**22.5**
		Low	QPSK	22.28	22.10	21.90	**23.5**
			16QAM	21.67	21.53	21.34	**22.5**
	12RB	High	QPSK	21.34	21.29	21.31	**22.5**
			16QAM	20.87	20.88	20.86	**21.5**
		Middle	QPSK	21.65	21.46	21.54	**22.5**
			16QAM	21.13	21.05	21.08	**21.5**
		Low	QPSK	21.60	21.34	21.39	**22.5**
			16QAM	21.09	20.93	20.93	**21.5**
	25RB	/	QPSK	21.46	21.31	21.35	**22.5**
			16QAM	20.99	20.87	20.85	**21.5**
10 MHz				844MHz	836.5MHz	829MHz	
	1RB	High	QPSK	21.83	21.93	21.61	**23.5**
			16QAM	21.17	21.31	21.03	**22.5**
		Middle	QPSK	22.63	22.47	22.43	**23.5**
			16QAM	21.92	21.83	21.78	**22.5**
		Low	QPSK	22.01	21.90	21.73	**23.5**
			16QAM	21.40	21.31	21.15	**22.5**
	25RB	High	QPSK	21.27	21.18	21.09	**22.5**
			16QAM	20.79	20.69	20.65	**21.5**
		Middle	QPSK	21.62	21.34	21.41	**22.5**
			16QAM	21.09	20.90	20.90	**21.5**
		Low	QPSK	21.41	21.16	21.27	**22.5**
			16QAM	20.94	20.71	20.75	**21.5**
	50RB	/	QPSK	21.42	21.14	21.13	**22.5**
			16QAM	20.89	20.69	20.61	**21.5**

Second antenna - Hotspot							
LTE-FDD Band 5				Actual output Power (dBm)			Tune up
Band-width	RB allocation	RB offset	Modulation	High	Middle	Low	
1.4 MHz				848.3MHz	836.5MHz	824.7MHz	
	1RB	High	QPSK	16.33	16.07	16.09	17.5
			16QAM	16.53	16.35	16.33	17.5
		Middle	QPSK	16.43	16.23	16.12	17.5
			16QAM	16.63	16.47	16.43	17.5
		Low	QPSK	16.33	16.15	15.91	17.5
			16QAM	16.53	16.39	16.20	17.5
	3RB	High	QPSK	16.32	16.16	16.09	17.5
			16QAM	16.34	16.21	16.15	17.5
		Middle	QPSK	16.38	16.20	16.07	17.5
			16QAM	16.41	16.27	16.13	17.5
		Low	QPSK	16.38	16.18	16.00	17.5
			16QAM	16.42	16.25	16.06	17.5
	6RB	/	QPSK	16.30	16.15	16.03	17.5
			16QAM	16.29	16.16	16.03	17.5
3 MHz				847.5MHz	836.5MHz	825.5MHz	
	1RB	High	QPSK	16.15	15.91	15.99	17.5
			16QAM	16.42	16.23	16.29	17.5
		Middle	QPSK	16.51	16.22	16.33	17.5
			16QAM	16.73	16.57	16.61	17.5
		Low	QPSK	16.35	15.91	15.75	17.5
			16QAM	16.60	16.29	16.05	17.5
	8RB	High	QPSK	16.28	16.06	16.17	17.5
			16QAM	16.24	16.09	16.16	17.5
		Middle	QPSK	16.34	16.12	16.21	17.5
			16QAM	16.31	16.15	16.19	17.5
		Low	QPSK	16.38	16.12	16.05	17.5
			16QAM	16.36	16.12	16.03	17.5
	15RB	/	QPSK	16.29	16.12	16.11	17.5
			16QAM	16.24	16.08	16.07	17.5

5 MHz				846.5MHz	836.5MHz	826.5MHz	**Tune up**
	1RB	High	QPSK	15.87	15.73	15.76	**17.5**
			16QAM	16.11	15.97	15.97	**17.5**
		Middle	QPSK	16.56	16.25	16.43	**17.5**
			16QAM	16.79	16.48	16.66	**17.5**
		Low	QPSK	16.18	15.84	15.67	**17.5**
			16QAM	16.39	16.09	15.93	**17.5**
	12RB	High	QPSK	16.15	15.99	16.09	**17.5**
			16QAM	16.13	15.98	16.06	**17.5**
		Middle	QPSK	16.47	16.15	16.28	**17.5**
			16QAM	16.46	16.14	16.26	**17.5**
		Low	QPSK	16.43	16.05	16.10	**17.5**
			16QAM	16.41	16.02	16.07	**17.5**
	25RB	/	QPSK	16.35	16.00	16.09	**17.5**
			16QAM	16.30	15.95	16.04	**17.5**
10 MHz				844MHz	836.5MHz	829MHz	
	1RB	High	QPSK	15.75	15.85	15.46	**17.5**
			16QAM	15.95	16.10	15.72	**17.5**
		Middle	QPSK	16.53	16.17	16.26	**17.5**
			16QAM	16.78	16.47	16.50	**17.5**
		Low	QPSK	15.79	15.74	15.55	**17.5**
			16QAM	16.07	16.00	15.80	**17.5**
	25RB	High	QPSK	16.18	15.89	15.84	**17.5**
			16QAM	16.12	15.84	15.79	**17.5**
		Middle	QPSK	16.47	16.03	16.15	**17.5**
			16QAM	16.42	15.99	16.09	**17.5**
		Low	QPSK	16.23	15.87	16.01	**17.5**
			16QAM	16.19	15.82	15.96	**17.5**
	50RB	/	QPSK	16.26	15.85	15.88	**17.5**
			16QAM	16.19	15.79	15.81	**17.5**

Second antenna - Receiver on + WIFI							
LTE-FDD Band 5				Actual output Power (dBm)			Tune up
Band-width	RB allocation	RB offset	Modulation	High	Middle	Low	
1.4 MHz				848.3MHz	836.5MHz	824.7MHz	
	1RB	High	QPSK	16.31	16.13	16.12	17.5
			16QAM	16.65	16.44	16.42	17.5
		Middle	QPSK	16.46	16.26	16.19	17.5
			16QAM	16.76	16.55	16.51	17.5
		Low	QPSK	16.33	16.17	15.97	17.5
			16QAM	16.66	16.48	16.26	17.5
	3RB	High	QPSK	16.32	16.18	16.15	17.5
			16QAM	16.40	16.22	16.18	17.5
		Middle	QPSK	16.38	16.22	16.13	17.5
			16QAM	16.46	16.26	16.18	17.5
		Low	QPSK	16.42	16.20	16.06	17.5
			16QAM	16.45	16.26	16.10	17.5
	6RB	/	QPSK	16.37	16.18	16.09	17.5
			16QAM	16.37	16.18	16.10	17.5
3 MHz				847.5MHz	836.5MHz	825.5MHz	
	1RB	High	QPSK	16.16	15.97	16.06	17.5
			16QAM	16.51	16.32	16.39	17.5
		Middle	QPSK	16.60	16.29	16.39	17.5
			16QAM	16.85	16.59	16.71	17.5
		Low	QPSK	16.37	15.98	15.83	17.5
			16QAM	16.68	16.31	16.13	17.5
	8RB	High	QPSK	16.30	16.13	16.25	17.5
			16QAM	16.27	16.11	16.20	17.5
		Middle	QPSK	16.42	16.20	16.28	17.5
			16QAM	16.39	16.17	16.27	17.5
		Low	QPSK	16.39	16.15	16.12	17.5
			16QAM	16.37	16.14	16.10	17.5
	15RB	/	QPSK	16.38	16.13	16.18	17.5
			16QAM	16.32	16.10	16.13	17.5

5 MHz				846.5MHz	836.5MHz	826.5MHz	**Tune up**
	1RB	High	QPSK	15.90	15.77	15.81	**17.5**
			16QAM	16.21	16.06	16.11	**17.5**
		Middle	QPSK	16.67	16.34	16.48	**17.5**
			16QAM	16.91	16.67	16.74	**17.5**
		Low	QPSK	16.25	15.95	15.72	**17.5**
			16QAM	16.52	16.25	15.98	**17.5**
	12RB	High	QPSK	16.26	16.06	16.12	**17.5**
			16QAM	16.22	16.05	16.08	**17.5**
		Middle	QPSK	16.52	16.24	16.31	**17.5**
			16QAM	16.49	16.21	16.28	**17.5**
		Low	QPSK	16.47	16.13	16.13	**17.5**
			16QAM	16.43	16.10	16.09	**17.5**
	25RB	/	QPSK	16.39	16.09	16.12	**17.5**
			16QAM	16.32	16.04	16.05	**17.5**
10 MHz				844MHz	836.5MHz	829MHz	
	1RB	High	QPSK	15.80	15.89	15.49	**17.5**
			16QAM	16.03	16.13	15.73	**17.5**
		Middle	QPSK	16.59	16.25	16.32	**17.5**
			16QAM	16.86	16.47	16.56	**17.5**
		Low	QPSK	15.83	15.81	15.58	**17.5**
			16QAM	16.06	16.05	15.83	**17.5**
	25RB	High	QPSK	16.26	15.94	15.89	**17.5**
			16QAM	16.18	15.86	15.82	**17.5**
		Middle	QPSK	16.54	16.09	16.21	**17.5**
			16QAM	16.46	16.02	16.14	**17.5**
		Low	QPSK	16.29	15.92	16.05	**17.5**
			16QAM	16.21	15.86	15.99	**17.5**
	50RB	/	QPSK	16.32	15.91	15.92	**17.5**
			16QAM	16.24	15.83	15.85	**17.5**

Main antenna - Full Power							
LTE-FDD Band 7				Actual output Power (dBm)			Tune up
Band-width	RB allocation	RB offset	Modulation	High	Middle	Low	
5 MHz				2567.4MHz	2535MHz	2502.5MHz	
	1RB	High	QPSK	20.97	21.67	21.62	**23**
			16QAM	20.24	20.98	20.91	**22**
		Middle	QPSK	21.61	22.14	21.99	**23**
			16QAM	20.99	21.48	21.31	**22**
		Low	QPSK	21.39	21.89	21.45	**23**
			16QAM	20.72	21.22	20.75	**22**
	12RB	High	QPSK	20.23	20.92	20.88	**22**
			16QAM	19.73	20.50	20.50	**21.5**
		Middle	QPSK	20.47	21.14	20.97	**22**
			16QAM	20.01	20.74	20.58	**21.5**
		Low	QPSK	20.54	21.11	20.81	**22**
			16QAM	20.07	20.70	20.41	**21.5**
	25RB	/	QPSK	20.41	20.98	20.84	**22**
			16QAM	19.92	20.55	20.43	**21.5**
10 MHz				2565MHz	2535MHz	2505MHz	
	1RB	High	QPSK	21.40	22.11	22.07	**23**
			16QAM	20.61	21.35	21.39	**22**
		Middle	QPSK	22.00	22.54	22.46	**23**
			16QAM	21.21	21.73	21.69	**22**
		Low	QPSK	21.82	22.14	21.79	**23**
			16QAM	21.07	21.45	21.05	**22**
	25RB	High	QPSK	20.43	20.93	20.95	**22**
			16QAM	19.86	20.47	20.50	**21.5**
		Middle	QPSK	20.55	21.07	21.03	**22**
			16QAM	20.04	20.65	20.63	**21.5**
		Low	QPSK	20.44	20.99	20.87	**22**
			16QAM	19.95	20.57	20.47	**21.5**
	50RB	/	QPSK	20.49	20.92	20.89	**22**
			16QAM	19.95	20.49	20.48	**21.5**