REPORT No.：SZ19100008S01

TEST REPORT

APPLICANT	:	Great Talent Technology Limited
PRODUCT NAME	:	SC3218
MODEL NAME	:	SC3218
BRAND NAME	:	SCHOK
FCC ID	:	2ALZM-SC3218
STANDARD(S)	:	47CFR 2.1093 IEEE 1528-2013
RECEIPT DATE	:	2019-10-09
TEST DATE	:	2019-10-15 to 2019-10-21
ISSUE DATE	:	2019-10-26

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Changed History		
Version	**Date**	**Reason for change**
1.0	2019-10-26	Original

1. SAR Results Summary

The maximum results of Specific Absorption Rate (SAR) found during test as bellows:

<Highest Reported standalone SAR Summary>

Frequency Band		Highest SAR Summary		
		Head (Separation 0mm)	Body-worn (Separation 10mm)	Hotspot (Separation 10mm)
		1g SAR (W/kg)		
GSM	GSM850	0.444	0.928	0.928
	GSM1900	0.082	1.017	1.017
WCDMA	WCDMA Band II	0.362	0.923	0.923
	WCDMA Band IV	0.298	0.919	0.919
	WCDMA Band V	0.394	0.513	0.513
CDMA	CDMA2000 BC0	0.374	0.490	0.599
	CDMA2000 BC1	0.321	0.807	0.915
	CDMA2000 BC10	0.352	0.570	0.484
LTE	LTE Band 2	0.075	1.013	1.013
	LTE Band 4	0.370	1.031	1.031
	LTE Band 5	0.407	0.698	0.698
	LTE Band 12	0.052	0.277	0.277
	LTE Band 13	0.222	1.091	1.091
	LTE Band 17	0.044	0.296	0.296
	LTE Band 25	0.074	0.930	0.930
	LTE Band 26	0.528	0.587	0.587
	LTE Band 28	0.076	0.448	0.448
	LTE Band 30	0.173	1.032	1.032
	LTE Band 41	0.059	1.142	1.142
	LTE Band 66	0.096	0.929	0.929
	LTE Band 71	0.031	0.100	0.100
WLAN	2.4GHz WLAN	0.052	0.119	0.221
2.4GHz Band	Bluetooth	N/A	0.023	0.023

Max Scaled SAR_{1g} (W/Kg):	Head:	0.528 W/kg	Limit(W/kg): 1.6 W/kg
	Body-worn:	1.142 W/kg	
	Hotspot:	1.142 W/kg	

Highest Simultaneous Transmission SAR_{1g} (W/Kg):	1.261 W/kg	Limit(W/kg): 1.6 W/kg

Note:

1. This device is in compliance with Specific Absorption Rate (SAR) for general population/ uncontrolled exposure limits (1.6W/kg as averaged over any 1 gram of tissue; specified in FCC 47 CFR part 2 (2.1093) and ANSI/IEEE C95.1-1992, and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528-2013 and FCC KDB publications.
2. The Bluetooth 2.4GHz Band is estimated result.

2. Technical Information

Note: Provide by applicant.

2.1. Applicant and Manufacturer Information

Applicant:	Great Talent Technology Limited
Applicant Address:	RM602,T3 Software Park,Nanshan,Shenzhen,China
Manufacturer:	Great Talent Technology Limited
Manufacturer Address:	RM602,T3 Software Park,Nanshan,Shenzhen,China

2.2. Equipment Under Test (EUT) Description

EUT Name:	SC3218
Hardware Version:	SC3218-V1.1
Software Version:	SC3218_V1.0.4
Frequency Bands:	GSM 850: 824 MHz ~ 849 MHz GSM 1900: 1850 MHz ~ 1910 MHz WCDMA Band II: 1852 MHz ~ 1908 MHz WCDMA Band IV: 1712 MHz ~ 1753 MHz WCDMA Band V: 826 MHz ~ 847 MHz CDMA BC 0: 824 MHz ~ 849 MHz CDMA BC 1: 1850 MHz ~ 1910 MHz CDMA BC 10: 806 MHz ~ 901 MHz LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 13: 777 MHz ~ 787 MHz LTE Band 17: 704 MHz ~ 716 MHz LTE Band 25: 1850 MHz ~ 1915 MHz LTE Band 26: 824 MHz ~ 849 MHz LTE Band 28: 703 MHz ~ 748 MHz LTE Band 30: 2305 MHz ~ 2315 MHz LTE Band 41: 2496 MHz ~ 2690 MHz LTE Band 66: 1710 MHz ~ 1780 MHz LTE Band 71: 663 MHz ~ 696 MHz WLAN 2.4GHz: 2412 MHz ~ 2462 MHz Bluetooth: 2402 MHz ~ 2480 MHz
Modulation Mode:	GSM/GPRS: GMSK

	EDGE: 8PSK WCDMA: QPSK/16QAM 1XRTT: QPSK EV-DO Rev.0: QPSK LTE: QPSK/16QAM 802.11b: DSSS 802.11g/n-HT20: OFDM BR+EDR: GFSK(1Mbps), π/4-DQPSK(2Mbps), 8-DPSK(3Mbps) Bluetooth LE: GFSK(1Mbps), π/4-DQPSK(2Mbps)
Multi-slot Class:	GPRS: Multi-slot Class 33; EDGE: Multi-slot Class 33;
Operation Class:	Class B
Hotspot Mode:	Support
Antenna Type:	PIFA Antenna
Battery:	1650mAh/3.8V
SIM Cards Description:	Only supports single SIM card

Note: For a more detailed description, please refer to specification or user manual supplied by the applicant and/or manufacturer.

2.3. Environment of Test Site/Conditions

Normal Temperature (NT):	20 ... 25 °C
Relative Humidity:	30 ... 75 %
Air Pressure:	980 ... 1020 hPa

Test frequency:	GSM 850MHz/1900MHz; WCDMA Band II/IV/V; CDMA BC 0/BC 1/10; FDD-LTE Band 2/4/5/12/13/17/25/26/28/30/66/71; TDD-LTE Band 41; WLAN 2.4GHz;
Operation mode:	Call established
Power Level:	GSM 850 MHz Maximum output power(level 5) GSM 1900MHz Maximum output power(level 0) WCDMA Band II/IV/V (All Up Bits) CDMA BC 0/BC 1/BC 10(Maximum output power) FDD-LTE Band 2/4/5/12/13/17/25/26/28/30/66/71 (Maximum output power) TDD-LTE Band 41 (Maximum output power) WLAN 2.4GHz (Power setting=13)

During SAR test, EUT is in Traffic Mode (Channel Allocated) at Normal Voltage Condition. A communication link is set up with a System Simulator (SS) by air link, and a call is established.

The EUT shall use its internal transmitter. The antenna(s), battery and accessories shall be those specified by the Factory. The EUT battery must be fully charged and checked periodically during the test to ascertain uniform power output. If a wireless link is used, the antenna connected to the output of the base station simulator shall be placed at least 50 cm away from the handset.
The signal transmitted by the simulator to the antenna feeding point shall be lower than the output power level of the handset by at least 35 dB.

For SAR testing, EUT is in GPRS mode. In GPRS link mode, its crest factor is 2, because EUT is set in GPRS multi-slot class 12 with 4 uplink slots. In WCDMA and WI-FI mode, its crest factor is 1.

3. Specific Absorption Rate (SAR)

3.1. 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 Middle than the limits for general population/uncontrolled.

3.2. 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:

$$\mathbf{SAR} = \frac{\mathbf{d}}{\mathbf{dt}}\left(\frac{\mathbf{dW}}{\mathbf{dm}}\right) = \frac{\mathbf{d}}{\mathbf{dt}}\left(\frac{\mathbf{dW}}{\boldsymbol{\rho}\mathbf{dv}}\right)$$

SAR is expressed in units of Watts per kilogram (W/kg)
SAR measurement can be either related to the temperature elevation in tissue by,

$$\mathbf{SAR} = \mathbf{C}\left(\frac{\boldsymbol{\delta}\mathbf{T}}{\boldsymbol{\delta}\mathbf{t}}\right)$$

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

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

Where σ is the conductivity of the tissue, ρ is the mass density of the tissue and |E| is the rmselectrical field strength.

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

4. RF Exposure Limits

Limits for General Population/Uncontrolled Exposure (W/kg)

Type Exposure	Uncontrolled Environment Limit
Spatial Peak SAR (1g cube tissue for head and trunk)	1.60W/kg
Spatial Peak SAR (10g cube tissue for limbs)	4.00W/kg
Spatial Peak SAR (1g cube tissue for whole body)	0.08W/kg

Note:

1. This limit is according to recommendation1999/519/EC, Annex II (Basic Restrictions)
2. Occupational/Uncontrolled Environments are defined as locations where there is exposure that may be incurred by people who are aware of the potential for exposure,(i.e. as a result of employment or occupation)

5. Applied Reference Documents

Leading reference documents for testing:

No.	Identity	Document Title	Method determination /Remark
1	47 CFR§2.1093	Radio Frequency Radiation Exposure Evaluation: Portable Devices	No deviation
2	IEEE 1528-2013	IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques	No deviation
3	KDB 447498 D01v06	General RF Exposure Guidance	No deviation
4	KDB 248227 D01v02r02	SAR Measurement Procedures for 802.11 Transmitters	No deviation
5	KDB 865664 D01v01r04	SAR Measurement 100 MHz to 6 GHz	No deviation
6	KDB 865664 D02v01r02	RF Exposure Reporting	No deviation
7	KDB 648474 D04v01r03	Handset SAR	No deviation
8	KDB 941225 D01v03r01	3G SAR MEAUREMENT PROCEDURES	No deviation
9	KDB 941225 D05v02r05	SAR Evaluation Consideration for LTE Devices	No deviation
10	KDB 941225 D06v02r01	SAR Evaluation Procedures For Portable Devices With Wireless Router Capabilities	No deviation

6. SAR Measurement System

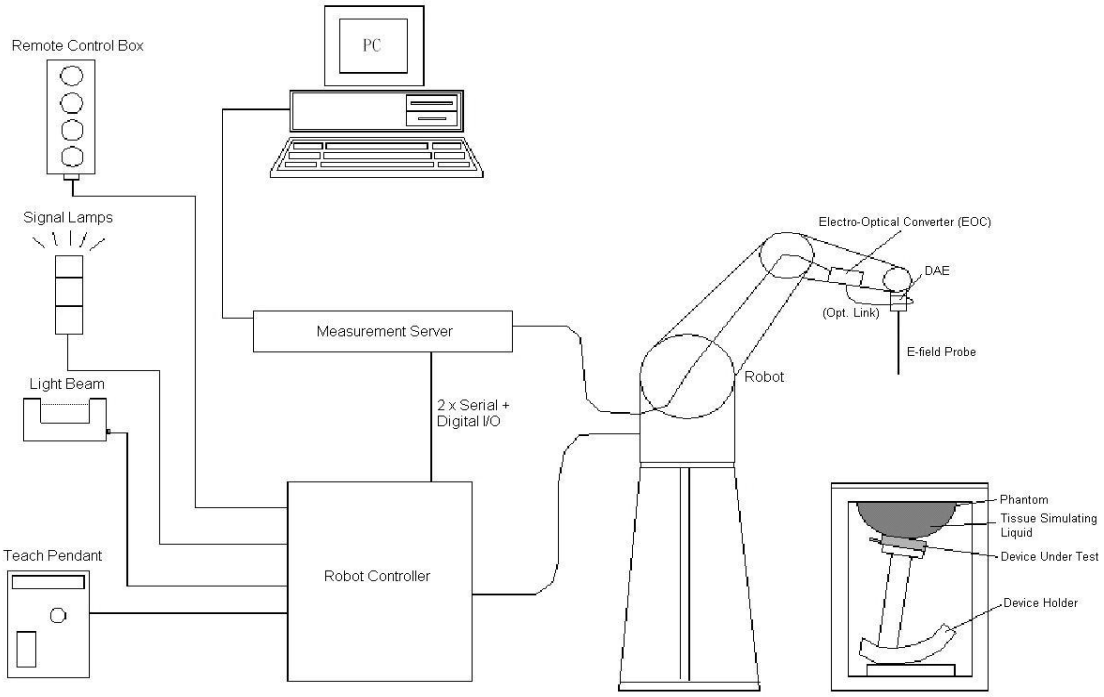


Fig 6.1 SPEAG DASY System Configurations

The DASY system for performance compliance tests is illustrated above graphically. This system consists of the following items:

A standard high precision 6-axis robot with controller, a teach pendant and software

A data acquisition electronic (DAE) attached to the robot arm extension

A dosimetric probe equipped with an optical surface detector system

The electro-optical converter (ECO) performs the conversion between optical and electrical signals

A measurement server performs the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.

A probe alignment unit which improves the accuracy of the probe positioning

A computer operating Windows XP

DASY software

Remove control with teach pendant and additional circuitry for robot safety such as warming lamps, etc.

The SAM twin phantom

A device holder

Tissue simulating liquid

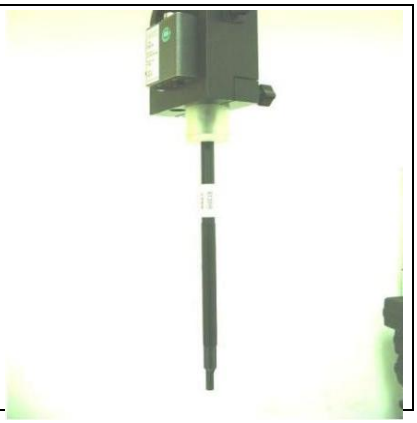
Dipole for evaluating the proper functioning of the system

Some of the components are described in details in the following sub-sections.

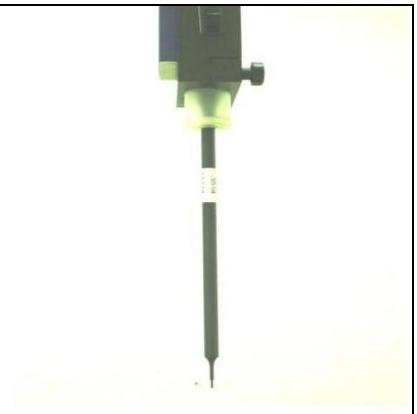
6.1. E-Field Probe

The SAR measurement is conducted with the dosimetric probe (manufactured by SPEAG).The probe is specially designed and calibrated for use in liquid with high permittivity. The dosimetric probe has special calibration in liquid at different frequency. This probe has a built in optical surface detection system to prevent from collision with phantom.

E-Field Probe Specification
<ES3DV3 Probe>

Construction	Symmetrical design with triangular core Built-in optical fiber for surface detection system. Built-in shielding against static charges. PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	
Frequency	10 MHz to 3 GHz; Linearity: ± 0.2 dB	
Directivity	± 0.2 dB in HSL (rotation around probe axis) ± 0.4 dB in HSL (rotation normal to probe axis)	
Dynamic Range	5 µW/g to 100 mW/g; Linearity: ± 0.2 dB	
Dimensions	Overall length: 330 mm (Tip: 16 mm) Tip diameter: 6.8 mm (Body: 12 mm) Distance from probe tip to dipole centers: 2.7 mm	

<EX3DV4 Probe>

Construction	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	
Frequency	10 MHz to 6 GHz; Linearity: ± 0.2 dB	
Directivity	± 0.3 dB in HSL (rotation around probe axis) ± 0.5 dB in tissue material (rotation normal to probe axis)	
Dynamic Range	10 µW/g to 100 mW/g; Linearity: ± 0.2 dB	
Dimensions	Overall length: 330 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm	

E-Field Probe Calibration

Each probe needs to be calibrated according to a dosimetric assessment procedure with accuracy better than ± 10%. The spherical isotropy shall be evaluated and within ± 0.25 dB. The sensitivity parameters (NormX, NormY, and NormZ), the diode compression parameter (DCP) and the conversion factor (ConvF) of the probe are tested. The calibration data can be referred to appendix C of this report.

6.2. Data Acquisition Electronics (DAE)

The data acquisition electronics(DAE) consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast16 bit AD-converter and a command decoder and control logic unit. AD-converter and a command decoder and control logic unit. Transmission to the measurement server is accomplished through an optical downlink for data and status information as well as an optical uplink for commands and the clock. The input impedance of the DAE is 200MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.

Fig 6.4Photo of DAE

6.3. Robot

The SPEAG DASY system uses the high precision robots (DASY4: RX90BL; DASY5: TX90XL) type from Stäubli SA (France). For the 6-axis controller system, the robot controller version (DASY4: CS7MB; DASY5: CS8c) from Stäubli is used. The Stäubli robot series have many features that are important for our application:
High precision (repeatability ±0.035 mm)
High reliability (industrial design)
Jerk-free straight movements
Low ELF interference (the closed metallic construction shields against motor control fields)

Fig 6.5 Photo of DASY5

6.4. Measurement Server

The measurement server is based on a PC/104 CPU board with CPU (DASY4: 166 MHz, Intel Pentium;

DASY5: 400 MHz, Intel Celeron), chip disk (DASY4: 32 MB; DASY5: 128 MB), RAM (DASY4: 64 MB, DASY5: 128 MB). The necessary circuits for communication with the DAE electronic box, as well as the 16 bit AD converter system for optical detection and digital I/O interface are contained on the DASY I/O board, which is directly connected to the PC/104 bus of the CPU board.

The measurement server performs all the real-time data evaluation for field measurements and surface detection, controls robot movements and handles safety operations.

Fig 6.6Photo of Server for DASY5

6.5. Light Beam Unit

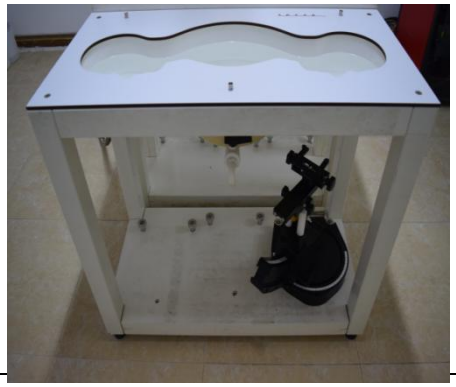
The light beam switch allows automatic "tooling" of the probe. During the process, the actual position of the probe tip with respect to the robot arm is measured, as well as the probe length and the horizontal probe offset. The software then corrects all movements, such that the robot coordinates are valid for the probe tip.

The repeatability of this process is better than0.1 mm. If a position has been taught with an aligned probe, the same position will be reached with another aligned probe within 0.1 mm, even if the other probe has different dimensions. During probe rotations, the probe tip will keep its actual position.

Fig. 6.7 Photo of Light Beam

6.6. Phantom

<SAM Twin Phantom>

Shell Thickness	2 ± 0.2 mm (sagging: <1%) Center ear point: 6 ± 0.2 mm	
Filling Volume	Approx. 25 liters	
Dimensions	Length: 1000 mm; Width: 500 mm; Height: adjustable feet	
Measurement Areas	Left Hand, Right Hand, Flat Phantom	**Fig 6.8Photo of SAM Phantom**

The bottom plate contains three pair of bolts for locking the device holder. The device holder positions are adjusted to the standard measurement positions in the three sections. A white cover is provided to tap the phantom during off-periods to prevent water evaporation and changes in the liquid parameters. On the phantom top, three reference markers are provided to identify the phantom position with respect to the robot.

6.7. Device Holder

<Device Holder for SAM Twin Phantom>

The SAR in the phantom is approximately inversely proportional to the square of the distance between the source and the liquid surface. For a source at 5 mm distance, a positioning uncertainty of ± 0.5 mm would produce a SAR uncertainty of ± 20 %. Accurate device positioning is therefore crucial for accurate and repeatable measurements. The positions in which the devices must be measured are defined by the standards.

The DASY device holder is designed to cope with different positions given in the standard. It has two scales for the device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear reference points). The rotation center for both scales is the ear reference point (EPR). Thus the device needs no repositioning when changing the angles.

The DASY device holder is constructed of low-loss POM material having the following dielectric parameters: relative permittivity ε = 3 and loss tangent δ = 0.02. The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the influence of the clamp on the test results could thus be lowered.

Fig 6.9 Device Holder

<Laptop Extension Kit>

The extension is lightweight and made of POM, acrylic glass and foam. It fits easily on the upper part of the mounting device in place of the phone positioned. The extension is fully compatible with the SAM Twin and ELI phantoms.

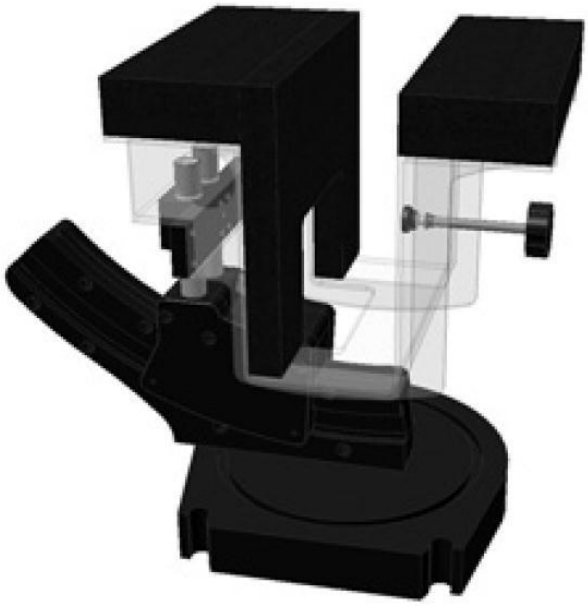


Fig 6.10Laptop Extension Kit

6.8. Data Storage and Evaluation

Data Storage

The DASY software stores the assessed data from the data acquisition electronics as raw data (in microvolt readings from the probe sensors), together with all the necessary software parameters for the data evaluation (probe calibration data, liquid parameters and device frequency and modulation data) in measurement files. The post-processing software evaluates the desired unit and format for output each time the data is visualized or exported. This allows verification of the complete software setup even after the measurement and allows correction of erroneous parameter settings. For example, if a measurement has been performed with an incorrect crest factor parameter in the device setup, the parameter can be corrected afterwards and the data can be reevaluated.

The measured data can be visualized or exported in different units or formats, depending on the selected probe type (e.g., [V/m], [A/m], [mW/g]). Some of these units are not available in certain situations or give meaningless results, e.g., a SAR-output in a non-lose media, will always be zero. Raw data can also be exported to perform the evaluation with other software packages.

Data Evaluation

The DASY post-processing software (SEMCAD) automatically executes the following procedures to calculate the field units from the microvolt readings at the probe connector. The parameters used in the evaluation are stored in the configuration modules of the software.

Probe parameters：	- Sensitivity	$Norm_i$, a_{i0}, a_{i1}, a_{i2}
	- Conversion factor	$ConvF_i$
	- Diode compression point	dcpi
Device parameters：	- Frequency	f
	- Crest factor	cf
Media parameters：	- Conductivity	σ
	- Density	ρ

These parameters must be set correctly in the software. They can be found in the component documents or they can be imported into the software from the configuration files issued for the DASY components. In the direct measuring mode of the multi-meter option, the parameters of the actual system setup are used. In the scan visualization and export modes, the parameters stored in the corresponding document files are used.

The first step of the evaluation is a linearization of the filtered input signal to account for the compression characteristics of the detector diode. The compensation depends on the input signal, the diode type and the DC-transmission factor from the diode to the evaluation electronics. If the exciting field is pulsed, the crest factor of the signal must be known to correctly compensate for peak power.

The formula for each channel can be given as:

$$V_i = U_i + U_i^2 \times \frac{cf}{dcp_i}$$

With Vi = compensated signal of channel i, (i = x, y, z)
Ui = input signal of channel i, (i = x, y, z)
cf = crest factor of exciting field (DASY parameter)
dcpi = diode compression point (DASY parameter)

From the compensated input signals, the primary field data for each channel can be evaluated:

E-field Probes: $E_i = \sqrt{\frac{V_i}{Norm_i \times ConvF}}$

H-field Probes: $H_i = \sqrt{V_i} \times \frac{a_{i0}+a_{i1}+a_{i2}f^2}{f}$

With V_i = compensated signal of channel i, (i = x, y, z)

$Norm_i$ = sensor sensitivity of channel i, (i = x, y, z), μV/(V/m)^2 forE-field

Probes ConvF = sensitivity enhancement in solution

a_{ij} = sensor sensitivity factors for H-field probes

f = carrier frequency [GHz]

E_i = electric field strength of channel i in V/m

H_i = magnetic field strength of channel i in A/m

The RSS value of the field components gives the total field strength (Hermitian magnitude):

$$E_{tot} = \sqrt{E_x^2 + E_y^2 + E_z^2}$$

The primary field data are used to calculate the derived field units.

$$SAR = E_{tot}^2 \times \frac{\sigma}{\rho \times 1000}$$

with SAR = local specific absorption rate in mW/g

E_{tot} = total field strength in V/m

σ = conductivity in [mho/m] or [Siemens/m]

ρ = equivalent tissue density in g/cm^3

Note that the density is set to 1, to account for actual head tissue density rather than the density of the tissue simulating liquid.

6.9. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	750MHz System Validation Kit	D750V3	1173	2019.06.21	2020.06.20
SPEAG	835MHz System Validation Kit	D835V2	4d227	2019.06.22	2020.06.21
SPEAG	1750MHz System Validation Kit	D1750V2	1160	2019.06.25	2020.06.24
SPEAG	1900MHz System Validation Kit	D1900V2	5d221	2019.06.22	2020.06.21
SPEAG	2300MHz System Validation Kit	D2300V2	1056	2018.09.18	2021.09.17
SPEAG	2450MHz System Validation Kit	D2450V2	805	2018.10.26	2019.10.25
SPEAG	2600MHz System Validation Kit	D2600V2	1139	2018.06.25	2021.06.24
SPEAG	Dosimetric E-Field Probe	EX3DV4	3823	2018.11.12	2019.11.11
SPEAG	Dosimetric E-Field Probe	ES3DV3	3154	2019.07.16	2020.07.15
SPEAG	Data Acquisition Electronics	DAE4	480	2019.04.11	2020.04.10
SPEAG	Dielectric Assessment KIT	DAK-3.5	1279	2018.11.03	2019.11.02
SPEAG	SAM Twin Phantom 1	QD 000 P40 CB	TP-1471	NCR	NCR
SPEAG	SAM Twin Phantom 2	QD 000 P40 CB	TP-1464	NCR	NCR
SPEAG	Phone Positioner	N/A	N/A	NCR	NCR
R&S	Network Emulator	CMW500	124534	2019.04.17	2020.04.16
Agilent	Network Analyzer	E5071B	MY42404762	2019.04.15	2020.04.14
mini-circuits	Amplifier	ZHL-42W+	608501717	NCR	NCR
Agilent	Signal Generator	N5182B	MY53050509	2019.04.17	2020.04.16
Agilent	Power Senor	N8482A	MY41090849	2018.11.23	2019.11.22
Agilent	Power Meter	E4416A	MY45102093	2018.11.23	2019.11.22
Anritsu	Power Sensor	MA2411B	N/A	2018.11.23	2019.11.22
Anritsu	Power Meter	NRVD	101066	2018.11.23	2019.11.22
Agilent	Dual Directional Coupler	778D	50422	NA	NA
MCL	Attenuation1	351-218-010	N/A	NA	NA
THERMOMETER	Thermo meter	DC-803	N/A	2018.11.22	2019.11.21
N/A	Tissue Simulating Liquids	700-2600MHz	N/A	24H	

Note:

1. The calibration certificate of DASY can be referred to appendix E of this report.
2. The Insertion Loss calibration of Dual Directional Coupler and Attenuator were characterized via the network analyzer and compensated during system check.
3. The dielectric probe kit was calibrated via the network analyzer, with the specified procedure (calibrated

in pure water) and calibration kit (standard) short circuit, before the dielectric measurement. The specific procedure and calibration kit are provided by Speag.

4. In system check we need to monitor the level on the power meter, and adjust the power amplifier level to have precise power level to the dipole; the measured SAR will be normalized to 1W input power according to the ratio of 1W to the input power to the dipole. For system check, the calibration of the power amplifier is deemed not critically required for correct measurement; the power meter is critical and we do have calibration for it
5. Attenuator insertion loss is calibrated by the network Analyzer, which the calibration is valid, before system check.
6. N.C.R means No Calibration Requirement.

7. Tissue Simulating Liquids

For SAR measurement ofthefielddistributioninsidethephantom,thephantommustbefilledwithhomogeneous tissue simulatingliquidtoadepthofatleast15cm.ForheadSARtesting, the liquid height from the ear reference point(ERP)ofthephantomtotheliquidtopsurfaceislargerthan15cm.Forbody SAR testing, the liquid height fromthecenteroftheflatphantomtotheliquidtopsurfaceislargerthan15cm,which is shown in Fig. 5.1. For body SAR testing, the liquid height from the center of the flat phantom to the liquid top surface is larger than 15 cm, which is shown in Fig. 5.2.Thenominaldielectricvaluesofthe tissues imulatingliquidsin the phantom and the tolerance of 5%are listed in below table.

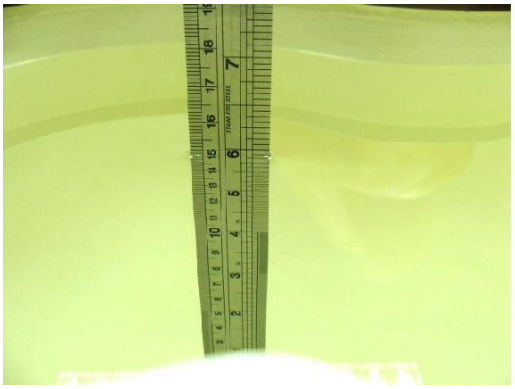


Fig 7.1 Photo of Liquid Height for Head SAR

Fig 7.2 Photo of Liquid Height for Body SAR

The following table gives the recipes for tissue simulating liquids

Frequency (MHz)	Water (%)	Sugar (%)	Cellulose (%)	Salt (%)	Preventol (%)	DGBE (%)	Conductivity (σ)	Permittivity (εr)
Head								
750	41.1	57.0	0.2	1.4	0.2	0	0.89	41.9
835	40.3	57.9	0.2	1.4	0.2	0	0.90	41.5
1800, 1900, 2000	55.2	0	0	0.3	0	44.5	1.40	40.0
2450	55.0	0	0	0	0	45.0	1.80	39.2
2600	54.8	0	0	0.1	0	45.1	1.96	39.0
Body								
750	51.7	47.2	0	0.9	0.1	0	0.96	55.5
835	50.8	48.2	0	0.9	0.1	0	0.97	55.2
1800, 1900, 2000	70.2	0	0	0.4	0	29.4	1.52	53.3
2450	68.6	0	0	0	0	31.4	1.95	52.7
2600	68.1	0	0	0.1	0	31.8	2.16	52.5

Simulating Liquid for 5GHz, Manufactured by SPEAG

Ingredients	(% by weight)
Water	64~78%
Mineral oil	11~18%
Emulsifiers	9~15%
Additives and Salt	2~3%

Note: Please refer to the validation results for dielectric parameters of each frequency band.

The dielectric properties of the tissue simulating liquids were verified prior to the SAR evaluation

using an Agilent 85033E Dielectric Probe Kit and an Agilent Network Analyzer.

Table 1: Dielectric Performance of Tissue Simulating Liquid

<HSL>

Frequency (MHz)	Tissue Type	Liquid Temp. (℃)	Conductivity (σ)	Conductivity Target (σ)	Delta (σ) (%)	Limit (%)	Date
750	HSL	22.1	0.929	0.89	4.38	±5	2019.10.15
835	HSL	22.3	0.904	0.90	0.44	±5	2019.10.16
1750	HSL	22.2	1.416	1.37	3.36	±5	2019.10.17
1900	HSL	22.4	1.375	1.40	-1.79	±5	2019.10.19
2300	HSL	22.6	1.623	1.67	-2.81	±5	2019.10.21
2450	HSL	22.5	1.792	1.80	-0.44	±5	2019.10.18
2600	HSL	22.2	1.962	1.96	0.10	±5	2019.10.18
Frequency (MHz)	Tissue Type	Liquid Temp. (℃)	Permittivity (ε_r)	Permittivity Target (ε_r)	Delta (ε_r) (%)	Limit (%)	Date
750	HSL	22.1	42.139	41.90	0.57	±5	2019.10.15
835	HSL	22.3	41.134	41.50	-0.88	±5	2019.10.16
1750	HSL	22.2	39.417	40.10	-1.70	±5	2019.10.17
1900	HSL	22.4	39.998	40.00	-0.01	±5	2019.10.19
2300	HSL	22.6	39.835	39.50	0.85	±5	2019.10.21
2450	HSL	22.5	39.236	39.20	0.09	±5	2019.10.18
2600	HSL	22.2	38.517	39.00	-1.24	±5	2019.10.18

Note: Effective February 19, 2019, FCC has permitted the use of single head-tissue simulating liquid specified in IEC 62209-1 for all SAR tests.

8. SAR System Verification

Each DASY system is equipped with one or more system validation kits. These units, together with the predefined measurement procedures within the DASY software, enable the user to conduct the system performance check and system validation. System validation kit includes a dipole, tripod holder to fix it underneath the flat phantom and a corresponding distance holder.

8.1. Purpose of System Performance check

The system performance check verifies that the system operates within its specifications. System and operator errors can be detected and corrected. It is recommended that the system performance check be performed prior to any usage of the system in order to guarantee reproducible results. The system performance check uses normal SAR measurements in a simplified setup with a well characterized source. This setup was selected to give a high sensitivity to all parameters that might fail or vary over time. The system check does not intend to replace the calibration of the components, but indicates situations where the system uncertainty is exceeded due to drift or failure.

8.2. System Setup

The output power on dipole port must be calibrated to 24 dBm (250 mW) before dipole is connected.
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 which 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 system check verifies that the system operates within its specifications. It is performed daily or before every SAR measurement. The system check uses normal SAR measurements in the flat section of the phantom with a matched dipole at a specified distance. The system verification setup is shown as below.

Fig 8.1 Photo of Dipole Setup

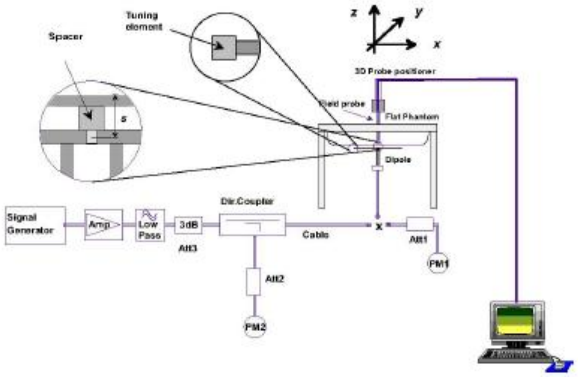


Fig 8.2 System Setup for System Evaluation

8.3. Validation Results

After system check testing, the SAR result will be normalized to 1W forward input power and compared with the reference SAR value derived from validation dipole certificate report. The deviation of system check should be within 10%.

<Validation Setup>

Frequency (MHz)	Tissue Type	Input Power (mW)	Dipole S/N	Probe S/N	DAE S/N
750	HSL	250	D750V3-1173	3154	480
835	HSL	250	D835V2-4d227	3823	480
1750	HSL	250	D1750V2-1160	3823	480
1900	HSL	250	D1900V2_5d221	3823	480
2300	HSL	250	D2300V2_1056	3823	480
2450	HSL	250	D2450V2-805	3823	480
2600	HSL	250	D2600V2-1139	3823	480

<Head>

Date	Frequency (MHz)	Tissue Type	Input Power (mW)	Measured 1g SAR (W/kg)	Targeted 1g SAR (W/kg)	Normalized 1g SAR (W/kg)	Deviation (%)
2019.10.15	750	HSL	250	2.04	8.26	8.16	-1.21
2019.10.16	835	HSL	250	2.31	9.34	9.24	-1.07
2019.10.17	1750	HSL	250	9.69	37.10	38.76	4.47
2019.10.19	1900	HSL	250	9.67	39.50	38.68	-2.08
2019.10.21	2300	HSL	250	11.91	47.70	47.64	-0.13
2019.10.18	2450	HSL	250	12.90	52.00	51.6	-0.77
2019.10.18	2600	HSL	250	14.00	54.00	56	3.70
Date	**Frequency (MHz)**	**Tissue Type**	**Input Power (mW)**	**Measured 10g SAR (W/kg)**	**Targeted 10g SAR (W/kg)**	**Normalized 10g SAR (W/kg)**	**Deviation (%)**
2019.10.15	750	HSL	250	1.37	5.45	5.48	0.55
2019.10.16	835	HSL	250	1.47	6.07	5.88	-3.13
2019.10.17	1750	HSL	250	5.18	20.00	20.72	3.60
2019.10.19	1900	HSL	250	5.14	20.60	20.56	-0.19
2019.10.21	2300	HSL	250	5.68	23.10	22.72	-1.65
2019.10.18	2450	HSL	250	5.93	24.10	23.72	-1.58
2019.10.18	2600	HSL	250	6.12	24.50	24.48	-0.08

Note: System checks the specific test data please see Annex C

9. EUT Testing Position

This EUT was tested in six different positions. They are right cheek/right tilted/left cheek/left tilted for head, Front/Back of the EUT with phantom 10 mm gap, as illustrated below, please refer to Appendix B for the test setup photos.

9.1. Handset Reference Points

The vertical centre line passes through two points on the front side of the handset – the midpoint of the width w_t of the handset at the level of the acoustic output, and the midpoint of the width w_b of the bottom of the handset.

The horizontal line is perpendicular to the vertical centre line and passes the center of the acoustic output. The horizontal line is also tangential to the handset at point A.

The two lines intersect at point A. Note that for many handsets, point A coincides with the center of the acoustic output; however, the acoustic output may be located elsewhere on the horizontal line. Also note that the vertical centre line is not necessarily parallel to the front face of the handset, especially for clamshell handsets, handsets with flip covers, and other irregularly shaped handsets.

Fig. 9.1 Illustration for Cheek Position

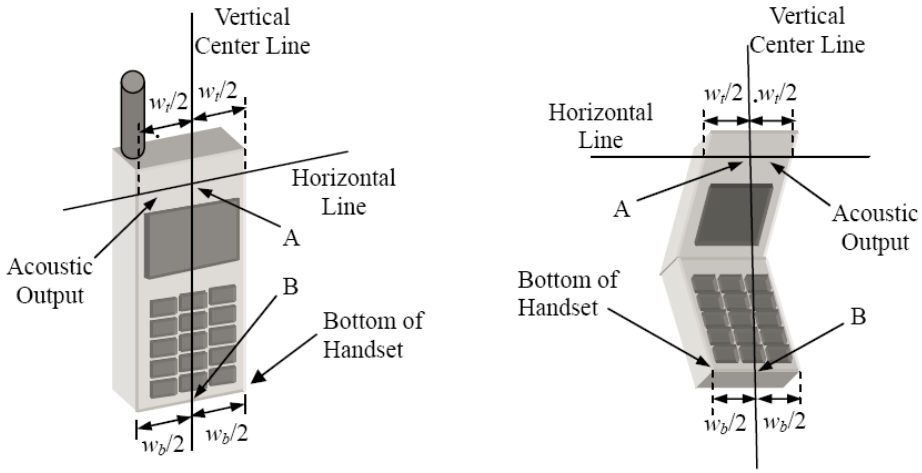


Fig. 9.2 Illustration for Handset Vertical and Horizontal Reference Lines

9.2. Positioning for Cheek / Touch

To position the device with the vertical center line of the body of the device and the horizontal line crossing the center piece in a plane parallel to the sagittal plane of the phantom. While maintaining the device in this plane, align the vertical center line with the reference plane containing the three ear and mouth reference point (M: Mouth, RE: Right Ear and LE: Left Ear) and align the center of the ear piece with the line RE-LE.

To move the device towards the phantom with the ear piece aligned with the line LE-RE until the phone touched the ear. While maintaining the device in the reference plane and maintaining the phone contact with the ear, move the bottom of the phone until any point on the front side is in contact with the cheek of the phantom or until contact with the ear is lost (see below figure)

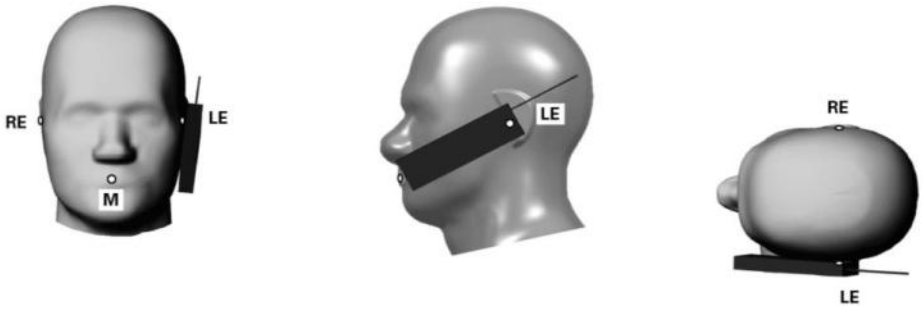


Fig 9.3 Illustration for Cheek Position

9.3. Positioning for Ear / 15º Tilt

To position the device in the “cheek” position described above.

While maintaining the device the reference plane described above and pivoting against the ear, moves it outward away from the mouth by an angle of 15 degrees or until contact with the ear is lost (see figure below).

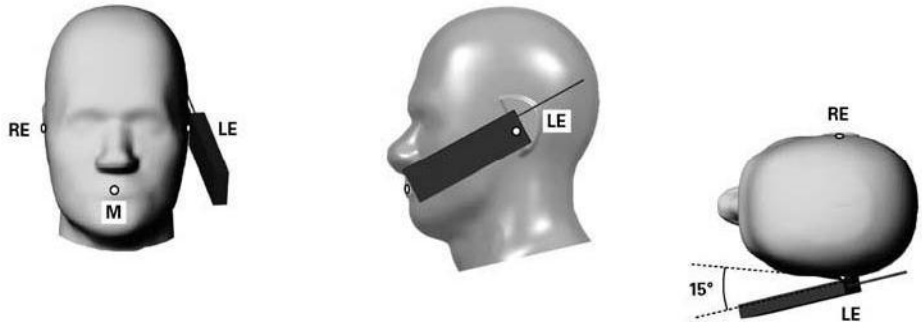


Fig 9.4 Illustration for Tilted Position

9.4. SAR Evaluations near the Mouth/Jaw Regions of the SAM Phantom

Antennas located near the bottom of a phone may require SAR measurements around the mouth and jaw regions of the SAM head phantom. This typically applies to clam-shell style phones that are generally longer in the unfolded normal use positions or to certain older style long rectangular phones.

Under these circumstances, the following procedures apply, adopted from the FCC guidance on SAR handsets document FCC KDB Publication 648474 D04v01r03. The SAR required in these regions of SAM should be measured using a flat phantom. The phone should be positioned with a separation distance of 4 mm between the ear reference point (ERP) and the outer surface of the flat phantom shell. While maintaining this distance at the ERP location, the low (bottom) edge of the phone should be lowered from the phantom to establish the same separation distance between the peak SAR locations identified by the truncated partial SAR distribution measured with the SAM phantom. The distance from the peak SAR location to the phone is determined by the straight line passing perpendicularly through the phantom surface. When it is not feasible to maintain 4 mm separation at the ERP while also establishing the required separation at the peak SAR location, the top edge of the phone will be allowed to touch the phantom with a separation < 4 mm at the ERP. The phone should not be tilted to the left or right while placed in this inclined position to the flat phantom.

9.5. Body-worn Configurations

The body-worn configurations shall be tested with the supplied accessories (belt-clips, holsters, etc.) attached to the device in normal use configuration.
For body-worn and other configurations a flat phantom shall be used which is comprised of material with electrical properties similar to the corresponding tissues.

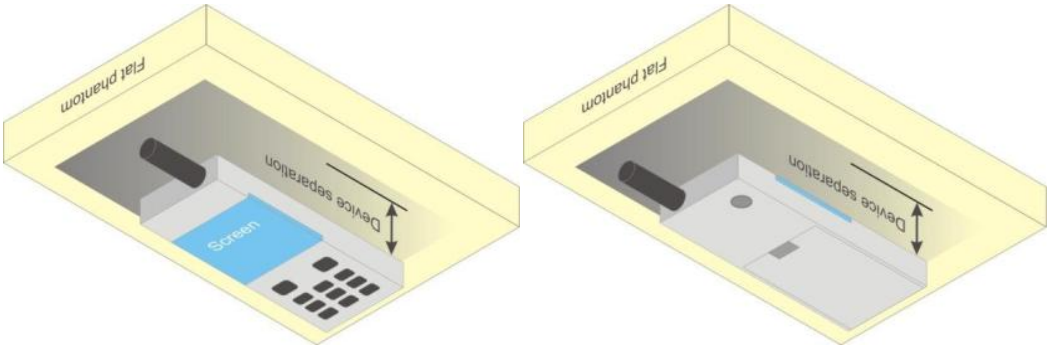


Fig 9.5 Illustration for Body Worn Position

9.6. Hotspot Mode Exposure Position Conditions

For handsets that support hotspot mode operations, with wireless router capabilities and various web browsing functions, the relevant hand and body exposure conditions are tested according to the hotspot SAR procedures in KDB 941225. A test separation distance of 10 mm is required between the phantom and all surfaces and edges with a transmitting antenna located within 25 mm from that surface or edge. When the form factor of a handset is smaller than 9 cm x 5 cm, a test separation distance of 5 mm (instead of 10 mm) is required for testing hotspot mode. When the separation distance required for body-worn accessory testing is larger than or equal to that tested for hotspot mode, in the same wireless mode and for the same surface of the phone, the hotspot mode SAR data may be used to support body-worn accessory SAR compliance for that particular configuration (surface).

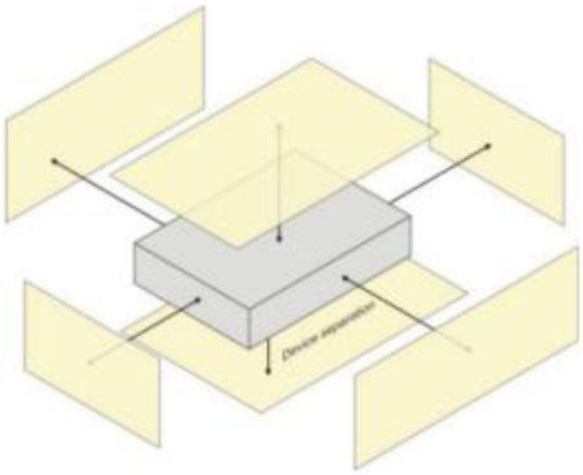


Fig 9.6 Illustration for Hotspot Position

10. Measurement Procedures

The measurement procedures are as follows:

<Conducted power measurement>

(a) For WWAN power measurement, use base station simulator to configure EUT WWAN transmission in conducted connection with RF cable, at maximum power in each supported wireless interface and frequency band.
(b) Read the WWAN RF power level from the base station simulator.
(c) For WLAN/BT power measurement, use engineering software to configure EUT WLAN/BT continuously transmission, at maximum RF power in each supported wireless interface and frequency band
(d) Connect EUT RF port through RF cable to the power meter, and measure WLAN/BT output power

<SAR measurement>

(a) Use base station simulator to configure EUT WWAN transmission in radiated connection, and engineering software to configure EUT WLAN/BT continuously transmission, at maximum RF power, in the highest power channel
(b) Place the EUT in the positions as Appendix D demonstrates.
(c) Set scan area, grid size and other setting on the DASY software.
(d) Measure SAR results for the highest power channel on each testing position.
(e) Find out the largest SAR result on these testing positions of each band
(f)Measure SAR results for other channels in worst SAR testing position if the reported SAR of highest power channel is larger than 0.8 W/kg

According to the test standard, the recommended procedure for assessing the peak spatial-average SAR value consists of the following steps:

(a) Power reference measurement
(b) Area scan
(c) Zoom scan
(d) Power drift measurement

10.1. Spatial Peak SAR Evaluation

The procedure for spatial peak SAR evaluation has been implemented according to the test standard. It can be conducted for 1g and 10g, as well as for user-specific masses. The DASY software includes all numerical procedures necessary to evaluate the spatial peak SAR value. The base for the evaluation is a "cube" measurement. The measured volume must include the 1g and 10g cubes with the highest averaged SAR values. For that purpose, the center of the

measured volume is aligned to the interpolated peak SAR value of a previously performed area sc Ant.

The entire evaluation of the spatial peak values is performed within the post-processing engine (SEMCAD). The system always gives the maximum values for the 1g and 10g cubes. The algorithm to find the cube with highest averaged SAR is divided into the following stages:

(a) Extraction of the measured data (grid and values) from the Zoom Scan

(b) Calculation of the SAR value at every measurement point based on all stored data (A/D values and measurement parameters)

(c) Generation of a high-resolution mesh within the measured volume

(d) Interpolation of all measured values form the measurement grid to the high-resolution grid

(e) Extrapolation of the entire 3-D field distribution to the phantom surface over the distance from sensor to surface

(f)Calculation of the averaged SAR within masses of 1g and 10g

10.2. Power Reference Measurement

The Power Reference Measurement and Power Drift Measurements are for monitoring the power drift of the device under test in the batch process. The minimum distance of probe sensors to surface determines the closest measurement point to phantom surface. This distance cannot be smaller than the distance of sensor calibration points to probe tip as defined in the probe properties.

10.3. Area Scan Procedures

Area scans are defined prior to the measurement process being executed with a user defined variable spacing between each measurement point (integral) allowing low uncertainty measurements to be conducted. Scans defined for FCC applications utilize a10mm² step integral, with 1mm interpolation used to locate the peak SAR area used for zoom scan assessments.

When an Area Scan has measured all reachable points, it computes the field maxima founding the scanned area, within a range of the global maximum. The range (in dB) is specified in the standards for compliance testing. For example, a 2 dB range is required in IEEE1528-2003, EN 50361 and IEC 62209 standards, whereby 3 dB is a requirement when compliance is assessed in accordance with the ARIB standard (Japan).

10.4. Zoom Scan Procedures

Zoom Scans are used to assess the peak spatial SAR values within a cubic averaging volume containing 1 g and 10 g of simulated tissue. A density of 1000 kg/m³ is used to represent the head and body tissue density and not the phantom liquid density, in order to be consistent with the definition of the liquid dielectric properties, i.e. the side length of the 1g cube is 10mm, with the side length of the 10 g cube 21,5mm.The zoom scan integer steps can be user defined so as to reduce uncertainty, but normal practice for typical test applications utilize a physical step of 5x5x7 (8mmx8mmx5mm) providing a volume of 32mm in the X & Y axis, and 30mm in the Z axis.

10.5. SAR Averaged Methods

In DASY, the interpolation and extrapolation are both based on the modified Quadratic Sheppard's method. The interpolation scheme combines a least-square fitted function method and a weighted average method which are the two basic types of computational interpolation and approximation.

Extrapolation routines are used to obtain SAR values between the lowest measurement points and the inner phantom surface. The extrapolation distance is determined by the surface detection distance and the probe sensor offset. The uncertainty increases with the extrapolation distance. To keep the uncertainty within 1% for the 1 g and 10 g cubes, the extrapolation distance should not be larger than 5 mm.

10.6. Power Drift Monitoring

All SAR testing is under the DUT install full charged battery and transmit maximum output power. In DASY measurement software, the power reference measurement and power drift measurement procedures are used for monitoring the power drift of DUT during SAR test. Both these procedures measure the field at a specified reference position before and after the SAR testing. The software will calculate the field difference in dB. If the power drift more than 5%, the SAR will be retested.

11. SAR Test Procedure

11.1. General scan Requirements

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.

<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 mm ± 1 mm</td><td>½·δ·ln(2) mm ± 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·$\Delta z_{Zoom}(n-1)$ mm</td></tr>
<tr><td>Minimum zoom scan volume</td><td colspan="2">x, y, z</td><td>≥ 30 mm</td><td>3 – 4 GHz: ≥ 28 mm
4 – 5 GHz: ≥ 25 mm
5 – 6 GHz: ≥ 22 mm</td></tr>
<tr><td colspan="5">Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see IEEE Std 1528-2013 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 Publication 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>

11.2. Test procedure

The Following steps are used for each test position

1. Establish a call with the maximum output power with a base station simulator. The connection between the mobile and the base station simulator is established via air interface.
2. Measurement of the local E-field value at a fixed location. This value serves as a reference value for calculating a possible power drift.
3. Measurement of the SAR distribution with a grid of 8 to 16mm * 8 to16 mm and a constant distance to the inner surface of the phantom. Since the sensors cannot directly measure at the inner phantom surface, the values between the sensors and the inner phantom surface are extrapolated. With these values the area of the maximum SAR is calculated by an interpolation scheme.
4. Around this point, a cube of 30 * 30 * 30 mm or 32 * 32 * 32 mm is assessed by measuring 5 or 8 * 5 or 8*4 or 5 mm. With these data, the peak spatial-average SAR value can be calculated.

11.3. Description of interpolation/extrapolation scheme

The local SAR inside the phantom is measured using small dipole sensing elements inside a probe body. The probe tip must not be in contact with the phantom surface in order to minimize measurements errors, but the highest local SAR will occur at the surface of the phantom.

An extrapolation is using to determinate this highest local SAR values. The extrapolation is based on a fourth-order least-square polynomial fit of measured data. The local SAR value is then extrapolated from the liquid surface with a 1mm step.

The measurements have to be performed over a limited time (due to the duration of the battery) so the step of measurement is high. It could vary between 5 and 8 mm. To obtain an accurate assessment of the maximum SAR averaged over 10 grams and 1 gram requires a very fine resolution in the three dimensional scanned data array.

11.4. Wireless Router

Some battery-operated handsets have the capability to transmit and receive user through simultaneous transmission of WIFI simultaneously with a separate licensed transmitter. The FCC has provided guidance in FCC KDB Publication 941225 D06 v02r01 where SAR test considerations for handsets (L x W ≥ 9 cm x 5 cm) are based on a composite test separation distance of 10 from the front, back and edges of the device containing transmitting antennas within 2.5cm of their edges, determined form general mixed use conditions for this type of devices. Since the hotspot SAR results may overlap with the body-worn accessory SAR requirements, the more conservative configurations can be considered, thus excluding some body-worn accessory SAR tests.

When the user enables the personal wireless router functions for the handset, actual operations include simultaneous transmission of both the WIFI transmitter and another licensed transmitter. Both transmitters often do not transmit at the same transmitting frequency and thus cannot be evaluated for SAR under actual use conditions due to the limitations of the SAR assessment probes. Therefore, SAR must be evaluated for each frequency transmission and mode separately and spatially summed with the WIFI transmitter according to FCC KDB Publication 447498 D01v06 publication procedures. The “Portable Hotspot” feature on the handset was NOT activated during SAR assessments, to ensure the SAR measurements were evaluated for a single transmission frequency RF signal at a time.

12. SAR Test Configuration

<GSM Mode>

A summary of these settings are illustrated below:

For GSM850frequency band, the power control is set to 5 for GSM/GPRS mode (GSMK-CS1) and set to 8 for EDGE mode (MCS5); For GSM1900frequency band, the power control is set to 0 for GSM/GPRS mode (GSMK-CS1) and set to 2 for EDGE mode (MCS5)

1. Per KDB 447498 D01v06, the maximum output power channel is used for SAR testing and for further SAR test reduction.
2. Per KDB 941225 D01v03r01, SAR test reduction for GSM / GPRS / EDGE modes is determined by the source-based time-averaged output power including tune-up tolerance. The mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested. Therefore, the GPRS (4Tx slots) for GSM850/GSM1900 is considered as the primary mode.
3. Other configurations of GSM / GPRS / EDGE are considered as secondary modes.

Timeslot consignations:

Remark:

1. The frame-averaged power is linearly reported the maximum burst averaged power over 8 time slots. The calculated method are shown as below:
   The duty cycle “x” of different time slots as below:
   1 TX slot is 1/8, 2 TX slots is 2/8, 3 TX slots is 3/8 and 4 TX slots is 4/8
   Based on the calculation formula:
   Frame-averaged power = Burst averaged power + 10 1og (x)
   So,
   Frame-averaged power (1 TX slot) = Burst averaged power (1 TX slot)– 9.03
   Frame-averaged power (2 TX slots) = Burst averaged power (2 TX slots)– 6.02
   Frame-averaged power (3 TX slots) = Burst averaged power (3 TX slots)– 4.26
   Frame-averaged power (4 TX slots) = Burst averaged power (4 TX slots) – 3.01
2. CS1 coding scheme was used in GPRS conducted power measurements and SAR testing, MCS5 coding scheme was used in EGPRS conducted power measurements and SAR testing (if necessary).

No. of Slots:	Slot 1	Slot 2	Slot 3	Slot 4
Slot Consignation:	1Up4Down	2Up3Down	3Up2Down	4Up1Down
Duty Cycle:	1:8.3	1:4.15	1:2.77	1:2.08
Correct Factor:	-9.03dB	-6.02dB	-4.26dB	-3.01dB

<WCDMA Mode>

Summary of UMTS conducted power measurement:

1. The 3G SAR test reduction procedure is applied, when the maximum output power and tune-up tolerance specified for production units in a secondary mode is ≤ ¼ dB higher than the primary mode, SAR measurement is not required for the secondary mode.
2. The following tests were conducted according to the test requirements outlines in 3GPP TS 34.121 specification.
3. The procedures in KDB 941225 D01v03r01 are applied for 3GPP Rel. 6 HSPA to configure the device in the required sub-test mode(s) to determine SAR test exclusion.
4. For HSPA+ devices supporting 16 QAM in the uplink, power measurements procedure is according to the configurations in Table C.11.1.4 of 3GPP TS 34.121-1.
5. Per KDB 941225 D01v03r01, RMC 12.2kbps setting is used to evaluate SAR. The maximum output power and tune-up tolerance specified for production units in HSDPA / HSUPA / DC-HSDPA / HSPA+ is ≤ ¼ dB higher than RMC 12.2Kbps or when the highest reported SAR of the RMC12.2Kbps is scaled by the ratio of specified maximum output power and tune-up tolerance of HSDPA / HSUPA / DC-HSDPA / HSPA+ to RMC12.2Kbps and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA / HSPA+, and according to the following RF output power, the output power results of the secondary modes (HSDPA / HSUPA / DC-HSDPA / HSPA+) are less than ¼ dB higher than the primary modes; therefore, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA / HSPA+.
6. A fixed level power reduction is applied for WCDMA Band II when handset open Hotspot mode, the power reduction triggered.

HSDPA Setup Configuration:

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

Note 1: Δ_{ACK}, Δ_{NACK} and $\Delta_{CQI} = 8 \Leftrightarrow A_{hs} = \beta_{hs}/\beta_c = 30/15 \Leftrightarrow \beta_{hs} = 30/15 * \beta_c$
Note 2: CM = 1 for β_c/β_d =12/15, β_{hs}/β_c=24/15.
Note 3: For subtest 2 the β_c/β_d ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signaled gain factors for the reference TFC (TF1, TF1) to β_c = 11/15 and β_d = 15/15.

HSUPA Setup Configuration:

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{hs}(1)	β_{ec}	β_{ed}	β_{ed} (SF)	β_{ed} (codes)	CM(2) (dB)	MPR (dB)	AG(4) Index	E-TFCI
1	11/15(3)	15/15(3)	64	11/15(3)	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	94/75	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	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15(4)	15/15(4)	64	15/15(4)	30/15	24/15	134/15	4	1	1.0	0.0	21	81

Note 1: Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 8 ⇔ $A_{hs} = \beta_{hs}/\beta_c = 30/15 \Leftrightarrow \beta_{hs} = 30/15 * \beta_c$.

Note 2: CM = 1 for β_c/β_d =12/15, β_{hs}/β_c=24/15. For all other combinations of DPDCH, DPCCH, HS- DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.

Note 3: For subtest 1 the β_c/β_d ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signaled gain factors for the reference TFC (TF1, TF1) to β_c = 10/15 and β_d = 15/15.

Note 4: For subtest 5 the β_c/β_d ratio of 15/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signaled gain factors for the reference TFC (TF1, TF1) to β_c = 14/15 and β_d = 15/15.

Note 5: Testing UE using E-DPDCH Physical Layer category 1 Sub-test 3 is not required according to TS 25.306 Table 5.1g.

Note 6: β_{ed} cannot be set directly; it is set by Absolute Grant Value.

HSPA+ 3GPP release 7 (uplink category 7) 16QAM, Setup Configuration:

Table C.11.1.4: β values for transmitter characteristics tests with HS-DPCCH and E-DCH with 16QAM

Sub-test	β_c (Note3)	β_d	β_{HS} (Note1)	β_{ec}	β_{ed} (2xSF2) (Note 4)	β_{ed} (2xSF4) (Note 4)	CM (dB) (Note 2)	MPR (dB) (Note 2)	AG Index (Note 4)	E-TFCI (Note 5)	E-TFCI (boost)
1	1	0	30/15	30/15	$\beta_{ed}1$: 30/15 $\beta_{ed}2$: 30/15	$\beta_{ec}3$: 24/15 $\beta_{ec}4$: 24/15	3.5	2.5	14	105	105

Note 1: Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 30/15 with $\beta_{hs} = 30/15 * \beta_c$.

Note 2: CM = 3.5 and the MPR is based on the relative CM difference, MPR = MAX(CM-1,0).

Note 3: DPDCH is not configured, therefore the β_c is set to 1 and β_d = 0 by default.

Note 4: β_{ed} can not be set directly; it is set by Absolute Grant Value.

Note 5: All the sub-tests require the UE to transmit 2SF2+2SF4 16QAM EDCH and they apply for UE using E-DPDCH category 7. E-DCH TTI is set to 2ms TTI and E-DCH table index = 2. To support these E-DCH configurations DPDCH is not allocated. The UE is signaled to use the extrapolation algorithm.

DC-HSDPA Setup Configuration:

The following tests were completed according to procedures in section 7.3.13 of 3GPP TS34.108 v9.5.0. A summary of these settings are illustrated below:
Downlink Physical Channels are set as per 3GPP TS34.121-1 v9.0.0 E.5.

Table E.5.0: Levels for HSDPA connection setup

Parameter During Connection setup	Unit	Value
P-CPICH_Ec/Ior	dB	-10
P-CCPCH and SCH_Ec/Ior	dB	-12
PICH _Ec/Ior	dB	-15
HS-PDSCH	dB	off
HS-SCCH_1	dB	off
DPCH_Ec/Ior	dB	-5
OCNS_Ec/Ior	dB	-3.1

Call is set up as per 3GPP TS34.108 v9.5.0 sub clause 7.3.13

The configurations of the fixed reference channels for HSDPA RF tests are described in 3GPP TS 34.121, annex C for FDD and 3GPP TS 34.122.

Table C.8.1.12: Fixed Reference Channel H-Set 12

Parameter	Unit	Value
Nominal Avg. Inf. Bit Rate	kbps	60
Inter-TTI Distance	TTI's	1
Number of HARQ Processes	Processes	6
Information Bit Payload (N_{INF})	Bits	120
Number Code Blocks	Blocks	1
Binary Channel Bits Per TTI	Bits	960
Total Available SML's in UE	SML's	19200
Number of SML's per HARQ Proc.	SML's	3200
Coding Rate		0.15
Number of Physical Channel Codes	Codes	1
Modulation		QPSK
Note 1: The RMC is intended to be used for DC-HSDPA mode and both cells shall transmit with identical parameters as listed in the table.		
Note 2: Maximum number of transmission is limited to 1, i.e., retransmission is not allowed. The redundancy and constellation version 0 shall be used.		

ccc

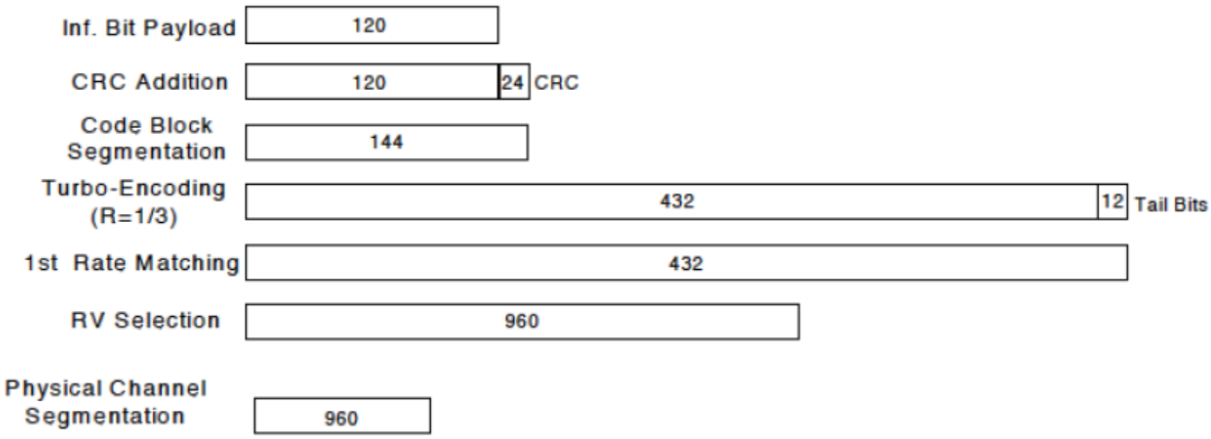


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

<CDMA Mode>

1xEV-DO Rev. B

Call box setup procedure
1xEV-DO Release B
1> CMW 500 Signal Generator > 1xEV-DO Taskbar Enable
2> CMW 500 1xEV-DO Signaling Configuration Window >
3> 1xEV-DO Signaling On Window:
Under Access Network Control:
Band Class: BC0: US Cellular
RF Channel: 31
1xEV-DO Power: -70 dBm
4> 1xEV-DO Signaling Configuration Window
Under RF Frequency Band / Channel: Enter Ch. Frequency

- Under Carrier Configuration: RF Frequency

For Two Carriers: Low Channel (1013)

	RF Channel	RF Channel Offset
Carrier [0]	31	0
Carrier [1]	1013	982

- Under Carrier Configuration: RF Pilot

	Carrier Sector	Active on AN	Assigned to AT
Pilot [0]	C0/S0	✓	✓
	CA/S1	✓	✓

For Three Carriers: Low Channel (1013)

	RF Channel	RF Channel Offset
Carrier [0]	72	0
Carrier [1]	31	-41
Carrier [2]	1013	941

- Under Carrier Configuration: RF Pilot

	Carrier Sector	Active on AN	Assigned to AT
Pilot [0]	C0/S0	✓	✓
Pilot [1]	C1/S1	✓	✓
Pilot [2]	C2/S2	✓	✓

<LTE Mode>

LTE Target MPR level

The device implements maximum power reduction per 3GPP 36.101 requirements where the MPR target is as below table. The MPR settings are implemented configured into firmware and cannot be disabled by the end user or LTE carrier network.

Modulation	Channel bandwidth / Transmission bandwidth configuration [RB]						MPR	3GPP
	1.4	3.0	5	10	15	20	Target	MPR
	MHz	MHz	MHz	MHz	MHz	MHz	(dB)	(dB)
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	1	≤ 1
16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	1	≤ 1
64 QAM	> 5	> 4	> 8	> 12	> 16	> 18	2	≤ 2

Note: The measurement result showed some difference from the target MPR level, due to expected 0.5dBmeasurement tolerance

LTE Bands

LTE Bands	Channel bandwidth / Transmission bandwidth configuration [RB]					
	1.4	3.0	5	10	15	20
	MHz	MHz	MHz	MHz	MHz	MHz
2	v	v	v	v	v	v
4	v	v	v	v	v	v
5	v	v	v	v	N/A	N/A
12	v	v	v	v	N/A	N/A
13	N/A	N/A	v	v	N/A	N/A
17	N/A	N/A	v	v	N/A	N/A
25	v	v	v	v	v	v
26	v	v	v	v	v	N/A
28	N/A	v	v	v	v	v
30	N/A	N/A	v	v	N/A	N/A
41	N/A	N/A	v	v	v	v
66	v	v	v	v	v	v
71	v	v	v	v	v	v

Note:

1. Per KDB 941225 D05v02r05, when a properly configured base station simulator is used for the SAR and power measurements, spectrum plots for each RB allocation and offset configuration is not required.
2. Per KDB 941225 D05v02r05, 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 for RB offsets at the upper edge, middle and lower edge of each required test channel.

3. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
4. Per KDB 941225 D05v02r05, 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 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.
5. Per KDB 941225 D05v02r05, 16QAM/64QAM output power for each RB allocation configuration is > not ½ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB941225 D05v02r05, 16QAM/64QAM SAR testing is not required.
6. Per KDB 941225 D05v02r05, smaller bandwidth output power for each RB allocation configuration is > not ½ Db higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported band width is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
7. For LTE B4 / B5 / B7 / B17 the maximum bandwidth does not support three non-overlapping channels, per KDB941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
8. LTE band 2 / 12 SAR test was covered by Band 25 / 17; according to April 2015 TCB workshop, SAR test for overlapping LTE bands can be reduced if
   a. the maximum output power, including tolerance, for the smaller band is ≤ the larger band to qualify for the SAR test exclusion.
   b. the channel bandwidth and other operating parameters for the smaller band are fully supported by the larger band.
9. According to 2017 TCB workshop, for 64 QAM and 16 QAM should be verified by checking the signal constellation with a call box to avoid incorrect maximum power levels due to MPR and other requirements associated with signal modulation, and the following figure is taken from the "Fundamental Measurement >> Modulation Analysis >>constellation" mode of the device connect to the CMW500 base station, therefore, the device 64QAM and 16QAMsignal modulation are correct. Identify if Maximum Power Reduction (MPR) is optional or mandatory, i.e. built-in by design: only mandatory MPR may be considered during SAR testing, when the maximum output power is permanently limited by the MPR implemented within the UE; and only for the applicable RB (resource block) configurations specified in LTE standards: b) A-MPR (additional MPR) must be disabled.
10. Per KDB 447498 D01v06, the reported SAR is the measured SAR value adjusted for maximum

tune-up tolerance.

a. Tune-up scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.

b. For SAR testing of WLAN signal with non-100% duty cycle, the measured SAR is scaled-up by the duty cycle scaling factor which is equal to "1/(duty cycle)"

c. For WWAN: Reported SAR(W/kg)= Measured SAR(W/kg)*Tune-up Scaling Factor

d. For WLAN/Bluetooth: Reported SAR(W/kg)= Measured SAR(W/kg)* Duty Cycle scaling factor * Tune-up scaling factor

e. For TDD LTE SAR measurement, the duty cycle 1:1.59 (62.9 %) was used perform testing and considering the theoretical duty cycle of 63.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 62.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix 63.3%/62.9% = 1.006 is applied to scale-up the measured SAR result. The Reported TDD LTE SAR = measured SAR (W/kg)* Tune-up Scaling Factor* scaling factor for extended cyclic prefix.

11. Per KDB 447498 D01v06, for each exposure position, testing of other required channels within the operating mode of a frequency band is not required when the reported 1-g or 10-g SAR for the mid-band or highest output power channel is:≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz
12. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥0.8W/kg.
13. Per KDB 648474 D04v01r03, when the reported SAR for a body-worn accessory measured without a headset connected to the handset is ≤ 1.2 W/kg, SAR testing with a headset connected to the handset is not required.

<WLAN 2.4GHz>

1. SAR is measured for 2.4 GHz 802.11b DSSS using either the fixed test position or, when applicable, the initial test position procedure. SAR test reduction is determined according to the following:

   1) When the reported SAR of the highest measured maximum output power channel for the exposure configuration is ≤ 0.8 W/kg, no further SAR testing is required for 802.11b DSSS in that exposure configuration.

   2) When the reported SAR is > 0.8 W/kg, SAR is required for that position using the next highest measured output power channel. When any reported SAR is > 1.2 W/kg, SAR is required for the third channel; i.e., all channels require testing.
2. 2.4 GHz 802.11 g/n OFDM are additionally evaluated for SAR if the highest reported SAR for 802.11b, adjusted by the ratio of the OFDM to DSSS specified maximum output power, is > 1.2 W/kg. When SAR is required for OFDM modes in 2.4 GHz band, the Initial Test Configuration Procedures should be followed.

3. For held-to-ear and hotspot operations, the initial test position procedures were applied. The test position with the highest extrapolated peak SAR will be used as the initial test position. When reported SAR for the initial test position is ≤ 0.4 W/kg, no additional testing for the remaining test positions was required. Otherwise, SAR is evaluated at the subsequent highest peak SAR positions until the reported SAR result is ≤ 0.8 W/kg or all test positions are measured.
4. Justification for test configurations for WLAN per KDB Publication 248227 D02DR02-41929 for 2.4 GHz WI-FI single transmission chain operations, the highest measured maximum output power channel for DSSS was selected for SAR measurement. SAR for OFDM modes (2.4 GHz802.11g/n) was not required due to the maximum allowed powers and the highest reported DSSSSAR.
5. A fixed level power reduction is applied for WiFi when handset operates "held to the body" condition or "held to the ear" condition, the power reduction triggered by audio receiver detection and call establish status.
6. Per KDB 248227 D01v02r02, In the 2.4 GHz band, separate SAR procedures are applied to DSSS and OFDM configurations to simplify DSSS test requirements.SAR is not required for the following 2.4 GHz OFDM conditions:
   1) When KDB Publication 447498 SAR test exclusion applies to the OFDM configuration.
   2) When the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.

13. Conducted RF Output Power

➢ **GSM Conducted Power**

GSM850	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
TX Channel	128	189	251		128	189	251	
Frequency (MHz)	824.2	836.4	848.8		824.2	836.4	848.8	
GSM 1 Tx slot	33.53	33.54	33.52	34.00	24.53	24.54	24.52	25.00
GPRS 1 Tx slot	33.61	33.51	33.62	34.00	24.61	24.51	24.62	25.00
GPRS 2 Tx slots	31.53	31.41	31.55	32.00	25.53	25.41	25.55	26.00
GPRS 3 Tx slots	29.44	29.36	29.41	29.50	25.18	25.10	25.15	25.24
GPRS 4 Tx slots	27.35	27.42	27.31	27.50	24.35	24.42	24.31	24.50
EDGE 1 Tx slot	27.75	27.77	27.72	28.00	18.75	18.77	18.72	19.00
EDGE 2 Tx slots	25.68	25.52	25.71	26.00	19.68	19.52	19.71	20.00
EDGE 3 Tx slots	23.66	23.51	23.81	24.00	19.40	19.25	19.55	19.74
EDGE 4 Tx slots	21.63	21.75	21.76	22.00	18.63	18.75	18.76	19.00

GSM1900	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
TX Channel	512	661	810		512	661	810	
Frequency (MHz)	1850.2	1880	1909.8		1850.2	1880	1909.8	
GSM 1 Tx slot	29.46	29.45	29.43	30.00	20.46	20.45	20.43	21.00
GPRS 1 Tx slot	29.41	29.61	29.52	30.00	20.41	20.61	20.52	21.00
GPRS 2 Tx slots	28.15	28.01	27.95	28.50	22.15	22.01	21.95	22.50
GPRS 3 Tx slots	26.35	26.52	26.53	27.00	22.09	22.26	22.27	22.74
GPRS 4 Tx slots	24.92	25.10	25.05	25.50	21.92	22.10	22.05	22.50
EDGE 1 Tx slot	26.59	26.67	26.61	27.00	17.59	17.67	17.61	18.00
EDGE 2 Tx slots	24.15	24.16	23.91	24.50	18.15	18.16	17.91	18.50
EDGE 3 Tx slots	22.94	22.91	22.71	23.00	18.68	18.65	18.45	18.74
EDGE 4 Tx slots	21.52	21.65	21.76	22.00	18.52	18.65	18.76	19.00

Timeslot consignations:

No. of Slots	Slot 1	Slot 2	Slot 3	Slot 4
Slot Consignation	1Up4Down	2Up3Down	3Up2Down	4Up1Down
Duty Cycle	1:8.3	1:4.15	1:2.77	1:2.08
Correct Factor	-9.03dB	-6.02dB	-4.26dB	-3.01dB

➢ **WCDMA Conducted Power**

Band		WCDMA II			Tune-up Limit (dBm)
TX Channel		9262	9400	9538	
Rx Channel		9662	9800	9938	
Frequency (MHz)		1852.4	1880	1907.6	
3GPP Rel 99	RMC 12.2Kbps	21.35	21.24	21.19	22.00
3GPP Rel 6	HSDPA Subtest-1	20.41	20.35	20.29	21.00
3GPP Rel 6	HSDPA Subtest-2	19.89	19.75	19.78	20.50
3GPP Rel 6	HSDPA Subtest-3	19.77	19.68	19.71	20.50
3GPP Rel 6	HSDPA Subtest-4	19.81	19.79	19.76	20.50
3GPP Rel 6	HSUPA Subtest-1	20.38	20.29	20.17	20.50
3GPP Rel 6	HSUPA Subtest-2	19.89	19.81	19.73	20.00
3GPP Rel 6	HSUPA Subtest-3	19.76	19.71	19.69	20.00
3GPP Rel 6	HSUPA Subtest-4	19.21	19.11	19.06	20.00
3GPP Rel 6	HSUPA Subtest-5	19.17	19.13	19.03	20.00
3GPP Rel 7	HSPA+ (16QAM) Subtest-1	20.18	20.09	20.01	20.50

Band		WCDMA IV			Tune-up Limit (dBm)
TX Channel		1312	1413	1513	
Rx Channel		1537	1638	1738	
Frequency (MHz)		1712.4	1732.6	1752.6	
3GPP Rel 99	RMC 12.2Kbps	21.01	21.12	21.23	22.00
3GPP Rel 6	HSDPA Subtest-1	20.39	20.36	20.26	21.00
3GPP Rel 6	HSDPA Subtest-2	19.87	19.76	19.75	21.00
3GPP Rel 6	HSDPA Subtest-3	19.75	19.69	19.68	20.50
3GPP Rel 6	HSDPA Subtest-4	19.79	19.80	19.73	20.50
3GPP Rel 6	HSUPA Subtest-1	20.36	20.30	20.14	20.50
3GPP Rel 6	HSUPA Subtest-2	19.87	19.82	19.70	20.50
3GPP Rel 6	HSUPA Subtest-3	19.74	19.72	19.66	20.50
3GPP Rel 6	HSUPA Subtest-4	19.19	19.12	19.03	20.00
3GPP Rel 6	HSUPA Subtest-5	19.15	19.14	19.09	20.00
3GPP Rel 7	HSPA+ (16QAM) Subtest-1	20.11	20.10	19.98	20.50

Band		WCDMA V			Tune-up Limit (dBm)
TX Channel		4132	4183	4233	
Rx Channel		4357	4408	4458	
Frequency (MHz)		826.4	836.6	846.6	
3GPP Rel 99	RMC 12.2Kbps	23.02	23.03	23.01	23.50
3GPP Rel 6	HSDPA Subtest-1	22.56	22.17	22.03	23.00
3GPP Rel 6	HSDPA Subtest-2	21.99	21.87	21.76	23.00
3GPP Rel 6	HSDPA Subtest-3	21.66	21.49	21.41	22.50
3GPP Rel 6	HSDPA Subtest-4	21.31	21.28	21.19	22.50
3GPP Rel 6	HSUPA Subtest-1	22.09	22.11	22.06	22.50
3GPP Rel 6	HSUPA Subtest-2	21.76	21.55	21.76	22.00
3GPP Rel 6	HSUPA Subtest-3	21.39	21.52	21.43	22.00
3GPP Rel 6	HSUPA Subtest-4	21.41	21.31	21.12	22.00
3GPP Rel 6	HSUPA Subtest-5	20.87	20.62	20.76	21.50
3GPP Rel 7	HSPA+ (16QAM) Subtest-1	21.19	21.11	21.08	21.50

- **CDMA2000 Conducted Power**

1XRTT Conducted Power:

Band	CDMA 2000 BC0			Tune-up Limit (dBm)
TX Channel	1013	384	777	
Frequency (MHz)	824.7	836.52	848.31	
RC1 SO55	23.25	23.28	23.17	23.50
RC3 SO55	23.26	23.33	23.13	23.50
RC3 SO32 (F+SCH)	23.22	23.29	23.11	23.50
RC3 SO32 (+SCH)	23.27	23.27	23.15	23.50

Band	CDMA 2000 BC1			Tune-up Limit (dBm)
TX Channel	25	600	1175	
Frequency (MHz)	1851.25	1880	1908.75	
RC1 SO55	21.50	21.47	21.51	22.00
RC3 SO55	21.54	21.56	21.52	22.00
RC3 SO32 (F+SCH)	21.51	21.55	21.54	22.00
RC3 SO32 (+SCH)	21.52	21.50	21.52	22.00

Band	CDMA 2000 BC10			Tune-up Limit (dBm)
TX Channel	476	580	684	
Frequency (MHz)	817.9	820.5	823.1	
RC1 SO55	21.88	21.93	22.19	22.50
RC3 SO55	21.90	21.91	22.18	22.50
RC3 SO32 (F+SCH)	21.86	21.90	22.15	22.50
RC3 SO32 (+SCH)	21.79	21.87	22.14	22.50

1XEVDO Conducted Power:

Band	CDMA 2000 BC0			Tune-up Limit (dBm)
TX Channel	1013	384	777	
Frequency (MHz)	824.7	836.52	848.31	
RTAP 153.6Kbps	23.03	23.12	23.11	23.50

Band	CDMA 2000 BC1			Tune-up Limit (dBm)
TX Channel	25	600	1175	
Frequency (MHz)	1851.25	1880	1908.75	
RTAP 153.6Kbps	21.29	21.31	21.28	22.00

Band	CDMA 2000 BC10			Tune-up Limit (dBm)
TX Channel	476	580	684	
Frequency (MHz)	817.9	820.5	823.1	
RTAP 153.6Kbps	22.06	22.10	22.22	22.50

➢ **LTE Conducted Power**

<FDD-LTE Band 2>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				18700	18900	19100	
Frequency (MHz)				1860	1880	1900	
20	QPSK	1	0	21.14	21.14	21.07	22.00
20	QPSK	1	49	21.41	21.15	21.07	
20	QPSK	1	99	21.11	21.11	21.10	
20	QPSK	50	0	20.44	20.41	20.40	21.00
20	QPSK	50	24	20.43	20.37	20.28	
20	QPSK	50	50	20.38	20.30	20.42	
20	QPSK	100	0	20.45	20.33	20.24	
20	16QAM	1	0	20.30	19.92	20.22	21.00
20	16QAM	1	49	20.22	19.88	20.28	
20	16QAM	1	99	20.28	20.06	20.30	
20	16QAM	50	0	19.37	19.26	19.35	20.00
20	16QAM	50	24	19.40	19.11	19.32	
20	16QAM	50	50	19.48	19.14	19.50	
20	16QAM	100	0	19.44	19.31	19.24	
Channel				18675	18900	19125	Tune-up limit (dBm)
Frequency (MHz)				1857.5	1880	1902.5	
15	QPSK	1	0	21.29	21.27	21.11	22.00
15	QPSK	1	37	21.27	21.24	21.35	
15	QPSK	1	74	21.28	21.28	21.21	
15	QPSK	36	0	20.31	20.36	20.18	21.00
15	QPSK	36	20	20.31	20.39	20.28	
15	QPSK	36	39	20.36	20.26	20.05	
15	QPSK	75	0	20.39	20.31	20.20	
15	16QAM	1	0	20.06	20.05	20.44	21.00
15	16QAM	1	37	20.27	20.16	19.97	
15	16QAM	1	74	20.22	20.16	19.94	
15	16QAM	36	0	19.26	19.20	19.15	20.00
15	16QAM	36	20	19.26	19.26	19.15	
15	16QAM	36	39	19.41	19.04	19.18	

15	16QAM	75	0	19.51	19.19	19.21	
Channel				18650	18900	19150	Tune-up limit (dBm)
Frequency (MHz)				1855	1880	1905	
10	QPSK	1	0	21.16	21.11	20.98	22.00
10	QPSK	1	25	21.30	21.36	21.37	
10	QPSK	1	49	21.25	21.01	21.12	
10	QPSK	25	0	20.23	20.18	20.12	21.00
10	QPSK	25	12	20.32	20.24	20.37	
10	QPSK	25	25	20.24	20.15	20.29	
10	QPSK	50	0	20.20	20.14	20.21	
10	16QAM	1	0	19.64	19.81	19.57	21.00
10	16QAM	1	25	19.82	19.49	19.65	
10	16QAM	1	49	19.93	19.71	19.64	
10	16QAM	25	0	19.01	19.14	19.20	20.00
10	16QAM	25	12	19.25	19.19	19.44	
10	16QAM	25	25	19.29	19.00	19.03	
10	16QAM	50	0	19.23	19.15	19.36	
Channel				18625	18900	19175	Tune-up limit (dBm)
Frequency (MHz)				1852.5	1880	1907.5	
5	QPSK	1	0	21.26	21.39	21.05	22.00
5	QPSK	1	12	21.29	21.35	21.21	
5	QPSK	1	24	21.31	21.32	21.30	
5	QPSK	12	0	20.25	20.27	20.29	21.00
5	QPSK	12	7	20.29	20.24	20.34	
5	QPSK	12	13	20.36	20.27	20.38	
5	QPSK	25	0	20.31	20.32	20.22	
5	16QAM	1	0	20.66	20.44	20.45	21.00
5	16QAM	1	12	20.77	20.28	20.60	
5	16QAM	1	24	20.33	20.47	20.64	
5	16QAM	12	0	19.26	19.19	19.20	20.00
5	16QAM	12	7	19.30	19.34	19.25	
5	16QAM	12	13	19.39	19.23	19.36	
5	16QAM	25	0	19.25	19.30	19.36	
Channel				18615	18900	19185	Tune-up limit (dBm)
Frequency (MHz)				1851.5	1880	1908.5	

3	QPSK	1	0	21.21	21.08	21.34	22.00
3	QPSK	1	8	21.25	21.26	21.24	
3	QPSK	1	14	21.27	21.34	21.18	
3	QPSK	8	0	20.27	20.34	20.26	21.00
3	QPSK	8	4	20.30	20.34	20.34	
3	QPSK	8	7	20.36	20.31	20.35	
3	QPSK	15	0	20.42	20.31	20.26	
3	16QAM	1	0	20.74	20.53	20.60	21.00
3	16QAM	1	8	20.54	20.50	20.51	
3	16QAM	1	14	20.67	20.44	20.43	
3	16QAM	8	0	19.48	19.48	19.48	20.00
3	16QAM	8	4	19.48	19.54	19.53	
3	16QAM	8	7	19.51	19.53	19.48	
3	16QAM	15	0	19.47	19.52	19.53	
Channel				18607	18900	19193	Tune-up limit (dBm)
Frequency (MHz)				1850.7	1880	1909.3	
1.4	QPSK	1	0	21.27	21.19	21.18	22.00
1.4	QPSK	1	3	21.25	21.27	21.22	
1.4	QPSK	1	5	21.22	21.29	21.17	
1.4	QPSK	3	0	21.11	21.08	21.21	
1.4	QPSK	3	1	21.21	21.18	21.29	
1.4	QPSK	3	3	21.24	21.27	21.06	
1.4	QPSK	6	0	20.28	20.31	20.33	21.00
1.4	16QAM	1	0	20.47	20.17	20.48	21.00
1.4	16QAM	1	3	20.48	20.13	20.50	
1.4	16QAM	1	5	20.53	20.20	20.63	
1.4	16QAM	3	0	20.22	20.43	20.43	
1.4	16QAM	3	1	20.46	20.44	20.37	
1.4	16QAM	3	3	20.47	20.57	20.43	
1.4	16QAM	6	0	19.51	19.48	19.50	20.00

<FDD-LTE Band 4>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				20050	20175	20300	
Frequency (MHz)				1720	1732.5	1745	
20	QPSK	1	0	20.90	20.81	20.88	21.50
20	QPSK	1	49	20.80	20.81	20.78	
20	QPSK	1	99	20.65	20.65	20.63	
20	QPSK	50	0	19.99	19.80	19.66	20.50
20	QPSK	50	24	19.71	19.75	19.94	
20	QPSK	50	50	19.77	19.74	19.79	
20	QPSK	100	0	19.64	19.79	19.83	
20	16QAM	1	0	19.65	19.68	20.04	20.50
20	16QAM	1	49	19.69	19.71	19.63	
20	16QAM	1	99	19.66	19.70	19.73	
20	16QAM	50	0	18.72	18.78	18.90	19.50
20	16QAM	50	24	18.64	18.79	18.88	
20	16QAM	50	50	18.68	18.89	18.75	
20	16QAM	100	0	18.56	18.80	18.82	
Channel				20025	20175	20325	Tune-up limit (dBm)
Frequency (MHz)				1717.5	1732.5	1747.5	
15	QPSK	1	0	20.70	20.56	20.69	21.50
15	QPSK	1	37	20.77	20.78	20.70	
15	QPSK	1	74	20.85	20.76	20.53	
15	QPSK	36	0	19.88	19.76	20.02	20.50
15	QPSK	36	20	19.68	19.85	19.83	
15	QPSK	36	39	19.75	19.75	19.90	
15	QPSK	75	0	19.90	19.76	19.92	
15	16QAM	1	0	19.82	19.65	19.70	20.50
15	16QAM	1	37	19.99	19.52	19.99	
15	16QAM	1	74	19.89	19.49	19.77	
15	16QAM	36	0	18.73	18.66	18.76	19.50
15	16QAM	36	20	18.64	18.78	18.86	
15	16QAM	36	39	18.72	18.67	18.62	
15	16QAM	75	0	18.86	18.78	18.77	

Channel				20000	20175	20350	Tune-up limit (dBm)
Frequency (MHz)				1715	1732.5	1750	
10	QPSK	1	0	20.87	20.85	20.76	21.50
10	QPSK	1	25	20.77	20.77	20.59	
10	QPSK	1	49	20.87	20.55	20.56	
10	QPSK	25	0	20.36	20.33	20.21	20.50
10	QPSK	25	12	20.44	20.36	20.17	
10	QPSK	25	25	20.33	20.20	20.13	
10	QPSK	50	0	20.23	19.96	20.04	
10	16QAM	1	0	20.41	20.40	20.42	20.50
10	16QAM	1	25	20.34	20.19	20.34	
10	16QAM	1	49	20.31	20.13	20.24	
10	16QAM	25	0	19.23	19.14	19.26	19.50
10	16QAM	25	12	19.16	19.19	19.30	
10	16QAM	25	25	19.28	19.10	19.24	
10	16QAM	50	0	19.43	19.34	19.36	
Channel				19975	20175	20375	Tune-up limit (dBm)
Frequency (MHz)				1712.5	1732.5	1752.5	
5	QPSK	1	0	20.66	20.69	20.79	21.50
5	QPSK	1	12	20.66	20.70	20.68	
5	QPSK	1	24	20.69	20.67	20.69	
5	QPSK	12	0	20.08	20.01	20.13	20.50
5	QPSK	12	7	20.06	20.23	20.19	
5	QPSK	12	13	19.97	20.05	20.13	
5	QPSK	25	0	20.15	20.17	20.22	
5	16QAM	1	0	20.06	19.67	19.95	20.50
5	16QAM	1	12	20.00	19.66	19.77	
5	16QAM	1	24	19.71	19.82	20.13	
5	16QAM	12	0	19.16	19.23	19.14	19.50
5	16QAM	12	7	19.14	19.05	19.10	
5	16QAM	12	13	19.06	19.10	19.05	
5	16QAM	25	0	19.11	19.09	19.07	
Channel				19965	20175	20385	Tune-up limit (dBm)
Frequency (MHz)				1711.5	1732.5	1753.5	
3	QPSK	1	0	20.68	20.70	20.72	21.50

3	QPSK	1	8	20.76	20.80	20.68	
3	QPSK	1	14	20.69	20.67	20.69	
3	QPSK	8	0	19.39	19.45	19.39	20.50
3	QPSK	8	4	19.37	19.48	19.40	
3	QPSK	8	7	19.37	19.41	19.39	
3	QPSK	15	0	19.29	19.41	19.37	
3	16QAM	1	0	19.08	19.36	19.55	20.50
3	16QAM	1	8	19.23	19.12	19.11	
3	16QAM	1	14	19.30	19.42	19.53	
3	16QAM	8	0	18.83	18.87	18.57	19.50
3	16QAM	8	4	18.73	18.78	18.58	
3	16QAM	8	7	18.79	18.62	18.60	
3	16QAM	15	0	18.83	18.72	18.73	
Channel				19957	20175	20393	Tune-up limit (dBm)
Frequency (MHz)				1710.7	1732.5	1754.3	
1.4	QPSK	1	0	20.68	20.67	20.62	21.50
1.4	QPSK	1	3	20.56	20.66	20.68	
1.4	QPSK	1	5	20.56	20.67	20.69	
1.4	QPSK	3	0	20.68	20.60	20.62	
1.4	QPSK	3	1	20.56	20.60	20.68	
1.4	QPSK	3	3	20.65	20.67	20.65	
1.4	QPSK	6	0	19.68	19.78	20.06	20.50
1.4	16QAM	1	0	19.08	19.32	19.50	20.50
1.4	16QAM	1	3	19.42	19.07	19.54	
1.4	16QAM	1	5	19.33	19.30	19.38	
1.4	16QAM	3	0	19.25	19.12	19.43	
1.4	16QAM	3	1	19.06	19.14	19.47	
1.4	16QAM	3	3	19.37	19.18	19.26	
1.4	16QAM	6	0	19.30	19.50	19.13	20.00

<FDD-LTE Band 5>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				20450	20525	20600	
Frequency (MHz)				829	836.5	844	
10	QPSK	1	0	23.37	23.44	23.45	24.00
10	QPSK	1	25	23.37	23.39	23.36	
10	QPSK	1	49	23.39	23.41	23.38	
10	QPSK	25	0	22.47	22.50	22.55	23.00
10	QPSK	25	12	22.47	22.53	22.47	
10	QPSK	25	25	22.40	22.52	22.31	
10	QPSK	50	0	22.43	22.44	22.43	
10	16QAM	1	0	22.24	22.24	22.28	23.00
10	16QAM	1	25	22.27	21.97	22.18	
10	16QAM	1	49	21.78	21.93	21.97	
10	16QAM	25	0	21.59	21.55	21.55	22.00
10	16QAM	25	12	21.63	21.51	21.69	
10	16QAM	25	25	21.66	21.58	21.57	
10	16QAM	50	0	21.63	21.50	21.56	
Channel				20425	20525	20625	Tune-up limit (dBm)
Frequency (MHz)				826.5	836.5	846.5	
5	QPSK	1	0	23.26	23.16	23.11	24.00
5	QPSK	1	12	23.24	23.02	23.15	
5	QPSK	1	24	23.11	23.14	23.19	
5	QPSK	12	0	22.79	22.81	22.66	23.00
5	QPSK	12	7	22.78	22.93	22.79	
5	QPSK	12	13	22.70	22.91	22.71	
5	QPSK	25	0	22.71	22.89	22.64	
5	16QAM	1	0	22.94	22.59	22.81	23.00
5	16QAM	1	12	22.53	22.62	22.66	
5	16QAM	1	24	22.46	22.58	22.49	
5	16QAM	12	0	21.98	21.89	21.79	22.00
5	16QAM	12	7	21.98	21.65	21.68	
5	16QAM	12	13	21.79	21.58	21.59	
5	16QAM	25	0	21.59	21.63	21.65	

Channel				20415	20525	20635	Tune-up limit (dBm)
Frequency (MHz)				825.5	836.5	847.5	
3	QPSK	1	0	23.28	23.28	23.28	24.00
3	QPSK	1	8	23.22	23.25	23.31	
3	QPSK	1	14	23.25	23.21	23.27	
3	QPSK	8	0	22.44	22.45	22.42	23.00
3	QPSK	8	4	22.50	22.49	22.57	
3	QPSK	8	7	22.46	22.41	22.40	
3	QPSK	15	0	22.43	22.39	22.28	
3	16QAM	1	0	22.13	22.13	22.41	23.00
3	16QAM	1	8	22.22	22.04	22.20	
3	16QAM	1	14	22.49	22.44	22.46	
3	16QAM	8	0	21.52	21.65	21.56	22.00
3	16QAM	8	4	21.50	21.63	21.55	
3	16QAM	8	7	21.55	21.63	21.52	
3	16QAM	15	0	21.59	21.67	21.54	
Channel				20407	20525	20643	Tune-up limit (dBm)
Frequency (MHz)				824.7	836.5	848.3	
1.4	QPSK	1	0	22.76	23.07	23.03	24.00
1.4	QPSK	1	3	22.98	23.08	22.96	
1.4	QPSK	1	5	22.87	23.03	22.87	
1.4	QPSK	3	0	23.17	23.33	23.13	
1.4	QPSK	3	1	23.19	23.24	23.17	
1.4	QPSK	3	3	23.21	23.38	23.02	
1.4	QPSK	6	0	22.11	22.23	22.02	23.00
1.4	16QAM	1	0	22.14	21.97	22.16	23.00
1.4	16QAM	1	3	21.91	21.95	22.21	
1.4	16QAM	1	5	21.94	21.98	21.87	
1.4	16QAM	3	0	21.80	22.04	22.08	
1.4	16QAM	3	1	21.98	22.07	22.03	
1.4	16QAM	3	3	22.05	21.98	21.98	
1.4	16QAM	6	0	21.61	21.91	21.53	22.00

<FDD-LTE Band 12>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				23060	23095	23130	
Frequency (MHz)				704	707.5	711	
10	QPSK	1	0	23.33	23.42	23.22	24.00
10	QPSK	1	25	23.21	23.28	23.22	
10	QPSK	1	49	23.28	23.19	23.12	
10	QPSK	25	0	22.39	22.68	22.28	23.00
10	QPSK	25	12	22.45	22.56	22.38	
10	QPSK	25	25	22.44	22.62	22.50	
10	QPSK	50	0	22.48	22.53	22.59	
10	16QAM	1	0	22.42	22.22	22.43	23.00
10	16QAM	1	25	22.41	22.48	22.32	
10	16QAM	1	49	22.25	22.33	22.23	
10	16QAM	25	0	21.53	21.56	21.65	22.00
10	16QAM	25	12	21.56	21.58	21.59	
10	16QAM	25	25	21.50	21.59	21.50	
10	16QAM	50	0	21.60	21.55	21.67	
Channel				23035	23095	23155	Tune-up limit (dBm)
Frequency (MHz)				701.5	707.5	713.5	
5	QPSK	1	0	23.33	23.30	23.30	24.00
5	QPSK	1	12	23.25	23.11	23.22	
5	QPSK	1	24	23.17	23.24	23.20	
5	QPSK	12	0	22.44	22.51	22.54	23.00
5	QPSK	12	7	22.49	22.64	22.50	
5	QPSK	12	13	22.39	22.62	22.44	
5	QPSK	25	0	22.48	22.58	22.45	
5	16QAM	1	0	22.13	22.09	22.36	23.00
5	16QAM	1	12	22.34	22.49	22.46	
5	16QAM	1	24	22.24	22.43	22.43	
5	16QAM	12	0	21.51	21.54	21.52	22.00
5	16QAM	12	7	21.63	21.56	21.64	
5	16QAM	12	13	21.51	21.54	21.71	
5	16QAM	25	0	21.63	21.78	21.68	

Channel				23025	23095	23165	Tune-up limit (dBm)
Frequency (MHz)				700.5	707.5	714.5	
3	QPSK	1	0	23.29	23.25	23.27	24.00
3	QPSK	1	8	23.23	23.26	23.21	
3	QPSK	1	14	23.27	23.21	23.20	
3	QPSK	8	0	22.48	22.74	22.49	23.00
3	QPSK	8	4	22.45	22.62	22.50	
3	QPSK	8	7	22.40	22.62	22.49	
3	QPSK	15	0	22.38	22.60	22.57	
3	16QAM	1	0	21.77	22.12	22.15	23.00
3	16QAM	1	8	21.88	22.27	22.09	
3	16QAM	1	14	22.12	21.95	21.99	
3	16QAM	8	0	21.59	21.54	21.56	22.00
3	16QAM	8	4	21.68	21.59	21.62	
3	16QAM	8	7	21.66	21.63	21.76	
3	16QAM	15	0	21.79	21.53	21.54	
Channel				23017	23095	23173	Tune-up limit (dBm)
Frequency (MHz)				699.7	707.5	715.3	
1.4	QPSK	1	0	23.19	23.15	23.22	24.00
1.4	QPSK	1	3	23.18	23.16	23.21	
1.4	QPSK	1	5	23.16	23.22	23.35	
1.4	QPSK	3	0	23.11	23.27	23.21	
1.4	QPSK	3	1	23.12	23.05	23.23	
1.4	QPSK	3	3	23.29	23.23	23.14	
1.4	QPSK	6	0	22.43	22.51	22.50	23.00
1.4	16QAM	1	0	22.73	22.71	22.40	23.00
1.4	16QAM	1	3	22.41	22.57	22.45	
1.4	16QAM	1	5	22.23	22.49	22.31	
1.4	16QAM	3	0	22.22	22.32	22.41	
1.4	16QAM	3	1	22.05	22.42	22.35	
1.4	16QAM	3	3	22.51	22.52	22.46	
1.4	16QAM	6	0	21.75	21.72	21.77	22.00

<FDD-LTE Band 13>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				23230			
Frequency (MHz)				782			
10	QPSK	1	0	23.26			24.00
10	QPSK	1	25	22.88			
10	QPSK	1	49	22.88			
10	QPSK	25	0	22.17			23.00
10	QPSK	25	12	22.15			
10	QPSK	25	25	22.14			
10	QPSK	50	0	22.11			
10	16QAM	1	0	22.28			23.00
10	16QAM	1	25	22.29			
10	16QAM	1	49	22.29			
10	16QAM	25	0	21.57			22.00
10	16QAM	25	12	21.53			
10	16QAM	25	25	21.58			
10	16QAM	50	0	21.60			
Channel				23205	23230	23255	Tune-up limit (dBm)
Frequency (MHz)				779.5	782	784.5	
5	QPSK	1	0	23.01	23.07	23.08	24.00
5	QPSK	1	12	23.22	23.07	23.15	
5	QPSK	1	24	22.98	22.93	23.08	
5	QPSK	12	0	22.27	22.21	22.19	23.00
5	QPSK	12	7	22.14	22.28	22.25	
5	QPSK	12	13	22.08	22.12	22.24	
5	QPSK	25	0	22.13	22.08	22.26	
5	16QAM	1	0	22.25	22.29	21.88	23.00
5	16QAM	1	12	22.14	22.23	22.29	
5	16QAM	1	24	21.85	21.82	21.89	
5	16QAM	12	0	21.52	21.61	21.62	22.00
5	16QAM	12	7	21.63	21.55	21.55	
5	16QAM	12	13	21.71	21.57	21.72	
5	16QAM	25	0	21.52	21.54	21.58	

<FDD-LTE Band 17>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				23780	23790	23800	
Frequency (MHz)				709	710	711	
10	QPSK	1	0	23.36	23.48	23.36	24.00
10	QPSK	1	25	23.24	23.46	23.15	
10	QPSK	1	49	23.36	23.28	23.36	
10	QPSK	25	0	22.43	22.58	22.35	23.00
10	QPSK	25	12	22.54	22.48	22.53	
10	QPSK	25	25	22.55	22.37	22.37	
10	QPSK	50	0	22.39	22.40	22.38	
10	16QAM	1	0	21.97	21.82	21.87	23.00
10	16QAM	1	25	22.32	21.98	22.19	
10	16QAM	1	49	21.89	21.89	22.22	
10	16QAM	25	0	21.58	21.64	21.57	22.00
10	16QAM	25	12	21.55	21.53	21.52	
10	16QAM	25	25	21.63	21.51	21.61	
10	16QAM	50	0	21.51	21.50	21.52	
Channel				23755	23790	23825	Tune-up limit (dBm)
Frequency (MHz)				706.5	710	713.5	
5	QPSK	1	0	23.24	23.19	23.28	24.00
5	QPSK	1	12	23.27	23.26	23.22	
5	QPSK	1	24	23.21	23.28	23.29	
5	QPSK	12	0	22.37	22.56	22.4	23.00
5	QPSK	12	7	22.31	22.54	22.39	
5	QPSK	12	13	22.32	22.43	22.34	
5	QPSK	25	0	22.35	22.49	22.32	
5	16QAM	1	0	22.18	22.45	22.18	23.00
5	16QAM	1	12	22.36	22.66	22.19	
5	16QAM	1	24	22.62	22.48	22.16	
5	16QAM	12	0	21.54	21.7	21.5	22.00
5	16QAM	12	7	21.69	21.62	21.66	
5	16QAM	12	13	21.62	21.63	21.58	
5	16QAM	25	0	21.5	21.59	21.5	

<FDD-LTE Band 25>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				26140	26365	26590	
Frequency (MHz)				1860	1882.5	1905	
20	QPSK	1	0	20.97	20.98	20.98	22.00
20	QPSK	1	49	21.39	21.14	21.07	
20	QPSK	1	99	20.95	21.02	21.05	
20	QPSK	50	0	20.29	20.22	20.19	21.00
20	QPSK	50	24	20.26	20.18	20.18	
20	QPSK	50	50	20.16	20.21	20.18	
20	QPSK	100	0	20.24	20.19	20.27	
20	16QAM	1	0	20.00	19.82	19.91	21.00
20	16QAM	1	49	19.57	20.03	19.84	
20	16QAM	1	99	19.56	20.03	19.94	
20	16QAM	50	0	19.47	19.60	19.45	20.00
20	16QAM	50	24	19.51	19.46	19.56	
20	16QAM	50	50	19.57	19.71	19.52	
20	16QAM	100	0	19.60	19.50	19.60	
Channel				26115	26365	26615	Tune-up limit (dBm)
Frequency (MHz)				1857.5	1882.5	1907.5	
15	QPSK	1	0	21.08	21.16	21.29	22.00
15	QPSK	1	37	21.34	21.26	21.33	
15	QPSK	1	74	21.28	21.18	21.23	
15	QPSK	36	0	20.16	20.23	20.16	21.00
15	QPSK	36	20	20.24	20.24	20.22	
15	QPSK	36	39	20.22	20.22	20.18	
15	QPSK	75	0	20.20	20.22	20.22	
15	16QAM	1	0	19.93	19.92	19.82	21.00
15	16QAM	1	37	20.31	20.20	20.11	
15	16QAM	1	74	20.24	19.82	19.91	
15	16QAM	36	0	19.52	19.50	19.50	20.00
15	16QAM	36	20	19.50	19.60	19.55	
15	16QAM	36	39	19.49	19.71	19.82	
15	16QAM	75	0	19.58	19.66	19.84	

Channel				26090	26365	26640	Tune-up limit (dBm)
Frequency (MHz)				1855	1882.5	1910	
10	QPSK	1	0	20.98	20.99	20.74	22.00
10	QPSK	1	25	20.99	21.05	20.99	
10	QPSK	1	49	20.87	21.04	21.00	
10	QPSK	25	0	20.16	20.18	20.07	21.00
10	QPSK	25	12	20.25	20.17	20.23	
10	QPSK	25	25	20.15	20.03	20.12	
10	QPSK	50	0	20.12	20.05	20.19	
10	16QAM	1	0	20.19	19.87	19.89	21.00
10	16QAM	1	25	20.32	20.35	20.00	
10	16QAM	1	49	19.90	19.89	20.26	
10	16QAM	25	0	19.52	19.63	19.79	20.00
10	16QAM	25	12	19.60	19.45	19.66	
10	16QAM	25	25	19.51	19.45	19.82	
10	16QAM	50	0	19.48	19.57	19.56	
Channel				26065	26365	26665	Tune-up limit (dBm)
Frequency (MHz)				1852.5	1882.5	1912.5	
5	QPSK	1	0	21.05	21.15	21.19	22.00
5	QPSK	1	12	21.12	21.21	21.33	
5	QPSK	1	24	21.01	21.10	21.18	
5	QPSK	12	0	20.17	20.21	20.21	21.00
5	QPSK	12	7	20.19	20.14	20.22	
5	QPSK	12	13	20.13	20.15	20.31	
5	QPSK	25	0	20.22	20.12	20.21	
5	16QAM	1	0	20.31	19.88	19.95	21.00
5	16QAM	1	12	20.35	19.93	20.22	
5	16QAM	1	24	20.34	19.85	20.01	
5	16QAM	12	0	19.48	19.51	19.81	20.00
5	16QAM	12	7	19.60	19.47	19.52	
5	16QAM	12	13	19.69	19.56	19.56	
5	16QAM	25	0	19.66	19.66	19.45	
Channel				26055	26365	26675	Tune-up limit (dBm)
Frequency (MHz)				1851.5	1882.5	1913.5	
3	QPSK	1	0	21.13	21.16	21.08	22.00

3	QPSK	1	8	20.97	21.16	21.22	
3	QPSK	1	14	20.98	21.16	21.06	
3	QPSK	8	0	20.41	20.22	20.23	21.00
3	QPSK	8	4	20.23	20.22	20.32	
3	QPSK	8	7	20.18	20.23	20.34	
3	QPSK	15	0	20.27	20.25	20.42	
3	16QAM	1	0	20.40	19.94	20.31	21.00
3	16QAM	1	8	20.38	19.92	20.37	
3	16QAM	1	14	20.29	19.92	20.41	
3	16QAM	8	0	19.50	19.52	19.76	20.00
3	16QAM	8	4	19.71	19.66	19.52	
3	16QAM	8	7	19.50	19.69	19.58	
3	16QAM	15	0	19.62	19.74	19.66	
Channel				26047	26365	26683	Tune-up limit (dBm)
Frequency (MHz)				1850.7	1882.5	1914.3	
1.4	QPSK	1	0	21.26	21.06	21.06	22.00
1.4	QPSK	1	3	21.16	21.17	21.17	
1.4	QPSK	1	5	20.91	21.14	21.14	
1.4	QPSK	3	0	21.19	21.09	21.09	
1.4	QPSK	3	1	21.30	21.13	21.13	
1.4	QPSK	3	3	21.19	21.25	21.25	
1.4	QPSK	6	0	20.24	20.18	20.18	21.00
1.4	16QAM	1	0	20.69	20.32	20.32	21.00
1.4	16QAM	1	3	20.43	20.73	20.73	
1.4	16QAM	1	5	20.42	20.69	20.69	
1.4	16QAM	3	0	20.15	20.51	20.51	
1.4	16QAM	3	1	20.24	20.37	20.37	
1.4	16QAM	3	3	20.19	20.21	20.21	
1.4	16QAM	6	0	19.49	19.66	19.74	20.00

<FDD-LTE Band 26>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				26765	26865	26965	
Frequency (MHz)				821.5	831.5	841.5	
15	QPSK	1	0	23.44	23.34	23.42	24.00
15	QPSK	1	37	23.32	23.21	23.19	
15	QPSK	1	74	23.31	23.24	23.27	
15	QPSK	36	0	22.71	22.79	22.60	23.00
15	QPSK	36	20	22.65	22.61	22.67	
15	QPSK	36	39	22.61	22.74	22.80	
15	QPSK	75	0	22.98	22.59	22.66	
15	16QAM	1	0	22.91	22.86	22.94	23.00
15	16QAM	1	37	22.87	22.81	22.63	
15	16QAM	1	74	22.78	22.83	22.56	
15	16QAM	36	0	21.69	21.76	21.59	22.00
15	16QAM	36	20	21.59	21.69	21.51	
15	16QAM	36	39	21.62	21.59	21.80	
15	16QAM	75	0	21.59	21.66	21.55	
Channel				26740	26865	26990	Tune-up limit (dBm)
Frequency (MHz)				819	831.5	844	
10	QPSK	1	0	23.10	22.69	22.76	24.00
10	QPSK	1	25	22.95	23.19	23.18	
10	QPSK	1	49	22.89	22.95	22.94	
10	QPSK	25	0	22.28	22.22	22.20	23.00
10	QPSK	25	12	22.16	22.20	22.27	
10	QPSK	25	25	22.15	22.25	22.13	
10	QPSK	50	0	22.22	22.25	22.19	
10	16QAM	1	0	22.28	21.99	22.24	23.00
10	16QAM	1	25	22.14	22.23	22.48	
10	16QAM	1	49	22.08	22.12	22.04	
10	16QAM	25	0	21.59	21.56	21.59	22.00
10	16QAM	25	12	21.66	21.66	21.74	
10	16QAM	25	25	21.64	21.56	21.58	
10	16QAM	50	0	21.54	21.74	21.67	

Channel				26715	26865	27015	Tune-up limit (dBm)
Frequency (MHz)				816.5	831.5	846.5	
5	QPSK	1	0	23.04	22.80	23.29	24.00
5	QPSK	1	12	22.79	23.15	22.90	
5	QPSK	1	24	22.85	22.88	22.86	
5	QPSK	12	0	22.19	22.17	22.22	23.00
5	QPSK	12	7	22.12	22.36	22.09	
5	QPSK	12	13	22.04	22.21	22.01	
5	QPSK	25	0	22.17	22.20	21.99	
5	16QAM	1	0	21.86	21.69	21.58	22.00
5	16QAM	1	12	21.69	21.96	21.57	
5	16QAM	1	24	21.67	21.85	21.58	
5	16QAM	12	0	21.51	21.66	21.75	22.00
5	16QAM	12	7	21.62	21.54	21.56	
5	16QAM	12	13	21.66	21.75	21.66	
5	16QAM	25	0	21.72	21.66	21.80	
Channel				26705	26865	21.94	Tune-up limit (dBm)
Frequency (MHz)				815.5	831.5	847.5	
3	QPSK	1	0	23.05	22.94	23.25	24.00
3	QPSK	1	8	22.89	23.18	22.75	
3	QPSK	1	14	22.92	23.13	22.83	
3	QPSK	8	0	22.25	22.33	22.22	23.00
3	QPSK	8	4	22.12	22.35	22.17	
3	QPSK	8	7	22.06	22.31	22.11	
3	QPSK	15	0	22.19	22.36	22.15	
3	16QAM	1	0	22.19	22.42	22.37	23.00
3	16QAM	1	8	22.18	22.63	22.19	
3	16QAM	1	14	22.21	22.23	22.15	
3	16QAM	8	0	21.58	21.58	21.8	22.00
3	16QAM	8	4	21.58	21.62	21.66	
3	16QAM	8	7	21.66	21.56	21.76	
3	16QAM	15	0	21.56	21.72	21.88	
Channel				26697	26865	27033	Tune-up limit (dBm)
Frequency (MHz)				814.7	831.5	848.3	
1.4	QPSK	1	0	23.08	23.18	23.08	24.00

1.4	QPSK	1	3	23.07	23.03	23.11	
1.4	QPSK	1	5	23.19	22.89	22.96	
1.4	QPSK	3	0	23.16	23.21	23.39	
1.4	QPSK	3	1	23.15	23.36	23.15	
1.4	QPSK	3	3	23.21	23.32	22.99	
1.4	QPSK	6	0	22.22	22.26	22.13	23.00
1.4	16QAM	1	0	21.91	22.25	22.23	23.00
1.4	16QAM	1	3	21.87	22.25	21.97	
1.4	16QAM	1	5	21.89	22.09	21.84	
1.4	16QAM	3	0	21.99	21.99	22.17	
1.4	16QAM	3	1	22.15	22.37	22.32	
1.4	16QAM	3	3	22.12	22.45	22.13	
1.4	16QAM	6	0	21.55	21.56	21.55	22.00

<FDD-LTE Band 28>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				27310	27460	27560	
Frequency (MHz)				713	728	738	
20	QPSK	1	0	23.21	23.22	23.25	24.00
20	QPSK	1	49	23.41	23.29	22.98	
20	QPSK	1	99	23.18	23.27	23.11	
20	QPSK	50	0	22.38	22.08	22.08	23.00
20	QPSK	50	24	22.33	22.12	22.05	
20	QPSK	50	50	22.37	22.20	22.14	
20	QPSK	100	0	22.27	22.29	22.02	
20	16QAM	1	0	21.88	21.87	21.89	23.00
20	16QAM	1	49	21.96	22.35	22.04	
20	16QAM	1	99	21.88	22.33	21.89	
20	16QAM	50	0	21.71	21.89	21.55	22.00
20	16QAM	50	24	21.63	21.71	21.51	
20	16QAM	50	50	21.58	21.65	21.59	
20	16QAM	100	0	21.60	21.71	21.68	
Channel				27285	27435	27585	Tune-up limit (dBm)
Frequency (MHz)				710.5	725.5	740.5	

15	QPSK	1	0	23.28	23.12	23.19	24.00
15	QPSK	1	37	23.37	23.38	23.22	
15	QPSK	1	74	23.01	23.36	23.11	
15	QPSK	36	0	22.34	22.05	22.01	23.00
15	QPSK	36	20	22.37	22.21	22.03	
15	QPSK	36	39	22.37	22.17	22.25	
15	QPSK	75	0	22.43	22.24	22.03	
15	16QAM	1	0	22.53	22.11	22.08	23.00
15	16QAM	1	37	22.58	22.38	22.31	
15	16QAM	1	74	22.48	22.36	22.46	
15	16QAM	36	0	21.89	21.96	22.06	22.00
15	16QAM	36	20	21.77	21.88	21.89	
15	16QAM	36	39	21.76	21.79	21.81	
15	16QAM	75	0	21.81	21.77	21.73	
Channel				27260	27410	27610	Tune-up limit (dBm)
Frequency (MHz)				708	723	743	
10	QPSK	1	0	23.22	22.98	22.91	24.00
10	QPSK	1	25	23.24	23.36	23.00	
10	QPSK	1	49	23.21	23.28	23.02	
10	QPSK	25	0	22.50	22.09	22.04	23.00
10	QPSK	25	12	22.53	22.24	22.07	
10	QPSK	25	25	22.46	22.29	22.18	
10	QPSK	50	0	22.45	22.25	22.12	
10	16QAM	1	0	22.40	22.46	22.33	23.00
10	16QAM	1	25	22.53	22.37	22.31	
10	16QAM	1	49	22.32	22.31	22.29	
10	16QAM	25	0	21.89	21.96	21.78	22.00
10	16QAM	25	12	21.77	21.87	21.67	
10	16QAM	25	25	21.74	21.81	21.66	
10	16QAM	50	0	21.81	21.92	21.79	
Channel				27235	27385	27635	Tune-up limit (dBm)
Frequency (MHz)				705.5	720.5	745.5	
5	QPSK	1	0	23.33	22.99	23.03	24.00
5	QPSK	1	12	23.23	23.31	23.21	
5	QPSK	1	24	23.19	23.20	23.09	
5	QPSK	12	0	22.44	22.04	22.05	23.00

5	QPSK	12	7	22.39	22.17	22.14	
5	QPSK	12	13	22.49	22.24	22.22	
5	QPSK	25	0	22.57	22.28	22.21	
5	16QAM	1	0	22.49	22.21	22.35	23.00
5	16QAM	1	12	22.46	22.19	22.45	
5	16QAM	1	24	22.48	22.23	22.19	
5	16QAM	12	0	21.78	21.89	21.77	22.00
5	16QAM	12	7	21.69	21.81	21.65	
5	16QAM	12	13	21.66	21.77	21.61	
5	16QAM	25	0	21.72	21.86	21.77	
Channel				27225	27375	27645	Tune-up limit (dBm)
Frequency (MHz)				704.5	719.5	746.5	
3	QPSK	1	0	23.34	23.19	23.28	24.00
3	QPSK	1	8	23.18	23.18	23.11	
3	QPSK	1	14	23.31	23.19	22.99	
3	QPSK	8	0	22.29	22.24	22.19	23.00
3	QPSK	8	4	22.40	22.40	22.14	
3	QPSK	8	7	22.37	22.37	22.05	
3	QPSK	15	0	22.31	22.31	22.07	
3	16QAM	1	0	22.36	22.31	22.28	23.00
3	16QAM	1	8	22.56	22.43	22.39	
3	16QAM	1	14	22.69	22.50	22.31	
3	16QAM	8	0	21.89	21.77	21.69	22.00
3	16QAM	8	4	21.76	21.78	21.58	
3	16QAM	8	7	21.56	21.63	21.51	
3	16QAM	15	0	21.63	21.58	21.63	

<FDD-LTE Band 30>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				27710			
Frequency (MHz)				2310			
10	QPSK	1	0	19.20			20.00
10	QPSK	1	25	19.14			
10	QPSK	1	49	18.98			
10	QPSK	25	0	18.15			19.00
10	QPSK	25	12	18.13			
10	QPSK	25	25	18.08			
10	QPSK	50	0	18.10			
10	16QAM	1	0	17.87			19.00
10	16QAM	1	25	18.22			
10	16QAM	1	49	17.92			
10	16QAM	25	0	17.97			18.50
10	16QAM	25	12	17.90			
10	16QAM	25	25	17.93			
10	16QAM	50	0	18.07			
Channel				27685	27710	27735	Tune-up limit (dBm)
Frequency (MHz)				2307.5	2310	2312.5	
5	QPSK	1	0	18.89	18.86	19.16	20.00
5	QPSK	1	12	19.01	19.17	19.19	
5	QPSK	1	24	18.76	18.90	19.04	
5	QPSK	12	0	18.14	18.10	18.05	19.00
5	QPSK	12	7	18.11	18.18	18.09	
5	QPSK	12	13	18.02	18.12	18.00	
5	QPSK	25	0	18.07	18.10	18.12	
5	16QAM	1	0	17.85	17.90	18.22	19.00
5	16QAM	1	12	18.00	17.85	18.07	
5	16QAM	1	24	18.09	18.00	17.93	
5	16QAM	12	0	18.28	18.21	18.00	18.50
5	16QAM	12	7	18.29	18.12	18.03	
5	16QAM	12	13	18.23	18.07	17.92	
5	16QAM	25	0	17.90	18.01	17.96	

<TDD-LTE Band 41>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Low Middle Ch. / Freq.	Power Middle Ch. / Freq.	Power High Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				39750	40185	40620	41055	41490	
Frequency (MHz)				2506	2549.5	2593	2636.5	2680	
20	QPSK	1	0	19.16	18.91	19.31	19.19	19.30	19.50
20	QPSK	1	49	19.26	19.19	19.30	19.14	19.20	
20	QPSK	1	99	19.19	19.27	19.15	19.13	19.15	
20	QPSK	50	0	18.00	18.22	18.37	18.17	18.24	18.50
20	QPSK	50	24	18.01	18.31	18.25	18.33	18.30	
20	QPSK	50	50	17.99	18.23	18.18	18.23	18.28	
20	QPSK	100	0	17.89	18.21	18.13	18.33	18.30	
20	16QAM	1	0	18.06	18.05	17.90	18.01	18.01	18.50
20	16QAM	1	49	18.00	18.18	18.09	18.30	18.16	
20	16QAM	1	99	18.29	17.96	18.17	17.93	18.03	
20	16QAM	50	0	16.88	17.21	17.14	17.28	17.32	17.50
20	16QAM	50	24	17.03	17.21	17.23	17.31	17.30	
20	16QAM	50	50	16.96	17.13	17.07	17.23	17.29	
20	16QAM	100	0	16.86	17.10	17.15	17.13	17.18	
Channel				39725	40173	40620	41068	41515	Tune-up limit (dBm)
Frequency (MHz)				2503.5	2548.3	2593	2637.8	2682.5	
15	QPSK	1	0	19.12	19.06	19.03	19.17	19.19	19.50
15	QPSK	1	37	19.20	19.23	19.20	19.13	18.94	
15	QPSK	1	74	19.09	19.19	19.17	19.09	19.16	
15	QPSK	36	0	17.97	18.24	18.07	18.45	18.39	18.50
15	QPSK	36	20	18.09	18.31	18.32	18.42	18.40	
15	QPSK	36	39	18.10	18.37	18.20	18.26	18.31	
15	QPSK	75	0	17.93	18.17	18.22	18.37	18.18	
15	16QAM	1	0	17.96	18.02	17.81	18.22	18.05	18.50
15	16QAM	1	37	18.27	18.13	18.12	18.18	18.19	
15	16QAM	1	74	18.29	17.84	18.11	17.96	17.93	
15	16QAM	36	0	16.99	17.17	17.10	17.28	17.30	17.50
15	16QAM	36	20	16.97	17.24	17.27	17.41	17.34	
15	16QAM	36	39	17.28	17.23	17.07	17.31	17.36	

15	16QAM	75	0	17.10	17.17	17.20	17.36	17.35	
Channel				39700	40160	40620	41080	41540	Tune-up limit (dBm)
Frequency (MHz)				2501	2547	2593	2639	2685	
10	QPSK	1	0	18.61	18.98	19.06	19.09	18.94	19.50
10	QPSK	1	25	19.00	19.04	19.07	19.08	19.04	
10	QPSK	1	49	19.08	19.01	18.93	19.02	18.96	
10	QPSK	25	0	18.07	18.23	18.25	18.40	18.33	18.50
10	QPSK	25	12	18.09	18.36	18.34	18.47	18.44	
10	QPSK	25	25	18.06	18.26	18.25	18.30	18.38	
10	QPSK	50	0	18.08	18.24	18.22	18.35	18.30	
10	16QAM	1	0	17.96	17.96	18.19	18.11	17.99	18.50
10	16QAM	1	25	18.29	18.04	18.11	18.25	18.14	
10	16QAM	1	49	18.19	18.41	18.24	17.91	18.19	
10	16QAM	25	0	17.21	17.41	17.05	17.29	17.52	17.50
10	16QAM	25	12	17.26	17.45	17.34	17.51	17.40	
10	16QAM	25	25	17.22	17.35	17.35	17.48	17.47	
10	16QAM	50	0	16.97	17.24	17.21	17.24	17.20	
Channel				39675	40148	40620	41093	41565	Tune-up limit (dBm)
Frequency (MHz)				2498.5	2545.8	2593	2640.30	2687.5	
5	QPSK	1	0	19.14	19.00	18.94	19.22	19.17	19.50
5	QPSK	1	12	19.05	19.21	19.20	19.19	19.20	
5	QPSK	1	24	19.00	19.05	19.06	19.14	19.16	
5	QPSK	12	0	18.03	18.21	18.24	18.39	18.43	18.50
5	QPSK	12	7	18.00	18.31	18.32	18.37	18.37	
5	QPSK	12	13	17.97	18.24	18.20	18.43	18.40	
5	QPSK	25	0	17.99	18.22	18.22	18.43	18.40	
5	16QAM	1	0	17.86	17.75	17.64	17.89	17.97	18.50
5	16QAM	1	12	17.76	18.13	17.98	18.12	18.10	
5	16QAM	1	24	17.75	17.85	17.77	17.84	17.90	
5	16QAM	12	0	17.20	17.22	17.23	17.24	17.23	17.50
5	16QAM	12	7	17.16	17.32	17.30	17.52	17.28	
5	16QAM	12	13	17.17	17.23	17.19	17.30	17.28	
5	16QAM	25	0	17.18	17.32	17.43	17.43	17.41	

<FDD-LTE Band 66>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				132072	132322	132572	
Frequency (MHz)				1720	1745	1770	
20	QPSK	1	0	20.02	20.36	20.15	21.00
20	QPSK	1	49	20.09	20.27	19.90	
20	QPSK	1	99	20.11	19.96	19.98	
20	QPSK	50	0	19.20	19.23	19.16	20.00
20	QPSK	50	24	19.17	19.09	19.03	
20	QPSK	50	50	19.05	18.96	19.05	
20	QPSK	100	0	19.07	19.05	18.97	
20	16QAM	1	0	19.03	18.82	19.04	20.00
20	16QAM	1	49	19.06	18.76	19.08	
20	16QAM	1	99	18.86	18.60	18.97	
20	16QAM	50	0	18.39	18.50	18.60	19.00
20	16QAM	50	24	18.50	18.60	18.40	
20	16QAM	50	50	18.60	18.54	18.57	
20	16QAM	100	0	18.43	18.65	18.60	
Channel				132047	132322	132597	Tune-up limit (dBm)
Frequency (MHz)				1717.5	1745	1772.5	
15	QPSK	1	0	19.98	20.26	20.08	21.00
15	QPSK	1	37	19.99	20.17	20.09	
15	QPSK	1	74	20.01	20.16	20.00	
15	QPSK	36	0	19.10	19.23	19.06	20.00
15	QPSK	36	20	19.07	19.09	19.13	
15	QPSK	36	39	18.98	19.12	19.15	
15	QPSK	75	0	19.00	19.01	19.17	
15	16QAM	1	0	18.46	18.42	18.47	20.00
15	16QAM	1	37	18.47	18.46	18.74	
15	16QAM	1	74	18.54	18.74	18.47	
15	16QAM	36	0	18.40	18.60	18.54	19.00
15	16QAM	36	20	18.60	18.50	18.68	
15	16QAM	36	39	18.40	18.54	18.57	
15	16QAM	75	0	18.53	18.65	18.60	

Channel				132022	132322	132622	Tune-up limit (dBm)
Frequency (MHz)				1715	1745	1775	
10	QPSK	1	0	20.01	20.16	20.14	21.00
10	QPSK	1	25	20.06	20.17	20.11	
10	QPSK	1	49	20.05	20.06	20.10	
10	QPSK	25	0	19.00	19.03	19.16	20.00
10	QPSK	25	12	18.98	18.99	19.11	
10	QPSK	25	25	19.01	19.16	19.12	
10	QPSK	50	0	19.07	19.11	19.27	
10	16QAM	1	0	18.50	18.52	18.57	20.00
10	16QAM	1	25	18.67	18.66	18.44	
10	16QAM	1	49	18.64	18.54	18.38	
10	16QAM	25	0	18.50	18.50	18.44	19.00
10	16QAM	25	12	18.70	18.40	18.56	
10	16QAM	25	25	18.80	18.64	18.47	
10	16QAM	50	0	18.53	18.85	18.50	
Channel				131997	132322	132647	Tune-up limit (dBm)
Frequency (MHz)				1712.5	1745	1777.5	
5	QPSK	1	0	20.11	20.00	20.04	21.00
5	QPSK	1	12	20.14	20.09	20.03	
5	QPSK	1	24	19.99	20.01	20.01	
5	QPSK	12	0	19.06	18.99	19.16	20.00
5	QPSK	12	7	19.04	19.09	18.99	
5	QPSK	12	13	19.05	19.26	19.02	
5	QPSK	25	0	19.08	19.05	19.07	
5	16QAM	1	0	18.53	18.40	18.47	20.00
5	16QAM	1	12	18.77	18.52	18.64	
5	16QAM	1	24	18.44	18.47	18.70	
5	16QAM	12	0	18.52	18.54	18.55	19.00
5	16QAM	12	7	18.40	18.62	18.46	
5	16QAM	12	13	18.54	18.58	18.51	
5	16QAM	25	0	18.42	18.54	18.46	
Channel				131987	132322	132657	Tune-up limit (dBm)
Frequency (MHz)				1711.5	1745	1778.5	
3	QPSK	1	0	20.01	19.98	19.99	21.00

3	QPSK	1	8	20.04	20.08	20.03	
3	QPSK	1	14	20.00	20.10	20.04	
3	QPSK	8	0	19.03	19.07	19.10	20.00
3	QPSK	8	4	19.13	19.08	19.07	
3	QPSK	8	7	19.07	19.06	19.07	
3	QPSK	15	0	19.02	19.10	18.99	
3	16QAM	1	0	18.57	18.54	18.58	20.00
3	16QAM	1	8	18.63	18.45	18.54	
3	16QAM	1	14	18.49	18.42	18.60	
3	16QAM	8	0	18.45	18.52	18.41	19.00
3	16QAM	8	4	18.40	18.42	18.56	
3	16QAM	8	7	18.69	18.50	18.55	
3	16QAM	15	0	18.45	18.45	18.44	
Channel				131979	132322	132665	Tune-up limit (dBm)
Frequency (MHz)				1710.7	1745	1779.3	
1.4	QPSK	1	0	19.94	19.97	20.04	21.00
1.4	QPSK	1	3	19.97	20.00	20.03	
1.4	QPSK	1	5	19.98	19.99	20.01	
1.4	QPSK	3	0	18.97	19.00	19.16	
1.4	QPSK	3	1	19.08	18.90	18.99	
1.4	QPSK	3	3	18.96	18.88	19.02	
1.4	QPSK	6	0	18.97	18.97	19.07	20.00
1.4	16QAM	1	0	18.40	18.46	18.47	20.00
1.4	16QAM	1	3	18.47	18.64	18.64	
1.4	16QAM	1	5	18.55	18.49	18.70	
1.4	16QAM	3	0	18.62	18.70	18.55	
1.4	16QAM	3	1	18.49	18.43	18.43	
1.4	16QAM	3	3	18.40	18.52	18.61	
1.4	16QAM	6	0	18.49	18.41	18.69	19.00

<FDD-LTE Band 71>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				133222	133322	133372	
Frequency (MHz)				673	683	688	
20	QPSK	1	0	23.28	23.23	23.22	24.00
20	QPSK	1	49	23.03	23.06	23.15	
20	QPSK	1	99	23.12	23.05	23.22	
20	QPSK	50	0	23.19	22.86	22.79	23.50
20	QPSK	50	24	22.78	22.91	22.97	
20	QPSK	50	50	22.84	23.01	22.85	
20	QPSK	100	0	22.75	22.86	22.74	
20	16QAM	1	0	21.95	21.92	21.79	22.50
20	16QAM	1	49	21.87	21.89	21.78	
20	16QAM	1	99	22.04	21.85	21.82	
20	16QAM	50	0	21.74	22.01	21.86	22.50
20	16QAM	50	24	21.80	21.77	21.94	
20	16QAM	50	50	21.75	21.84	22.05	
20	16QAM	100	0	21.84	21.75	21.81	
Channel				133197	133297	133397	Tune-up limit (dBm)
Frequency (MHz)				670.5	680.5	690.5	
15	QPSK	1	0	23.22	23.20	23.12	24.00
15	QPSK	1	37	23.04	23.16	23.15	
15	QPSK	1	74	22.82	23.05	23.07	
15	QPSK	36	0	23.12	23.19	23.10	23.50
15	QPSK	36	20	23.05	23.00	22.91	
15	QPSK	36	39	22.86	22.92	22.81	
15	QPSK	75	0	22.79	22.76	22.78	
15	16QAM	1	0	21.85	21.84	21.89	22.50
15	16QAM	1	37	21.97	21.79	22.04	
15	16QAM	1	74	22.04	21.86	21.92	
15	16QAM	36	0	21.75	21.86	22.01	22.50
15	16QAM	36	20	22.08	21.74	21.84	
15	16QAM	36	39	21.74	21.94	21.95	
15	16QAM	75	0	21.96	21.81	21.71	

Channel				133172	133297	133422	Tune-up limit (dBm)
Frequency (MHz)				668	680.5	693	
10	QPSK	1	0	23.12	23.22	23.14	24.00
10	QPSK	1	25	22.95	23.19	22.97	
10	QPSK	1	49	22.84	22.84	23.05	
10	QPSK	25	0	22.91	23.04	23.14	23.50
10	QPSK	25	12	23.08	23.01	22.86	
10	QPSK	25	25	22.92	22.77	23.02	
10	QPSK	50	0	22.89	22.76	22.86	
10	16QAM	1	0	22.01	21.91	21.92	23.00
10	16QAM	1	25	21.72	21.83	21.74	
10	16QAM	1	49	21.70	21.92	21.82	
10	16QAM	25	0	21.76	22.00	21.97	22.50
10	16QAM	25	12	21.92	21.92	21.78	
10	16QAM	25	25	21.86	21.81	21.92	
10	16QAM	50	0	22.11	21.97	21.86	
Channel				133147	133297	133447	Tune-up limit (dBm)
Frequency (MHz)				665.5	680.5	695.5	
5	QPSK	1	0	22.93	23.21	23.15	24.00
5	QPSK	1	12	22.98	23.01	22.84	
5	QPSK	1	24	23.01	23.05	23.15	
5	QPSK	12	0	23.11	22.84	23.04	23.50
5	QPSK	12	7	22.86	22.97	22.97	
5	QPSK	12	13	22.82	23.04	23.02	
5	QPSK	25	0	22.84	22.81	22.91	
5	16QAM	1	0	21.97	21.99	21.86	23.00
5	16QAM	1	12	21.88	22.04	22.00	
5	16QAM	1	24	21.74	21.79	21.92	
5	16QAM	12	0	21.93	21.84	21.74	22.50
5	16QAM	12	7	21.72	21.86	21.81	
5	16QAM	12	13	21.84	21.93	22.01	
5	16QAM	25	0	22.04	22.14	21.90	
Channel				133137	133282	133427	Tune-up limit (dBm)
Frequency (MHz)				665.5	680	694.5	
3	QPSK	1	0	22.91	23.19	23.13	24.00

3	QPSK	1	8	22.96	22.99	22.82	
3	QPSK	1	14	22.99	23.03	23.13	
3	QPSK	8	0	23.09	22.82	23.02	23.50
3	QPSK	8	4	22.84	22.95	22.95	
3	QPSK	8	7	22.80	23.02	23.00	
3	QPSK	15	0	22.82	22.79	22.89	
3	16QAM	1	0	21.95	21.97	21.84	23.00
3	16QAM	1	8	21.86	22.02	21.98	
3	16QAM	1	14	21.72	21.77	21.90	
3	16QAM	8	0	21.91	21.82	21.72	22.50
3	16QAM	8	4	21.71	21.84	21.79	
3	16QAM	8	7	21.82	21.91	21.99	
3	16QAM	15	0	22.02	22.12	21.88	
Channel				133129	133282	133435	Tune-up limit (dBm)
Frequency (MHz)				664.7	680	695.3	
1.4	QPSK	1	0	22.91	23.15	23.16	24.00
1.4	QPSK	1	3	22.94	22.93	22.89	
1.4	QPSK	1	5	22.93	23.01	22.98	
1.4	QPSK	3	0	23.02	22.83	23.04	
1.4	QPSK	3	1	22.84	22.99	22.98	
1.4	QPSK	3	3	22.80	23.06	22.97	
1.4	QPSK	6	0	22.80	22.77	22.79	23.00
1.4	16QAM	1	0	21.91	21.76	21.94	23.00
1.4	16QAM	1	3	21.72	22.05	21.87	
1.4	16QAM	1	5	21.79	21.74	21.91	
1.4	16QAM	3	0	21.86	21.85	21.70	
1.4	16QAM	3	1	21.75	21.87	21.79	
1.4	16QAM	3	3	21.78	21.79	21.99	
1.4	16QAM	6	0	21.72	21.85	21.88	22.50

➢ **WLAN Conducted Power**

<2.4GHz WLAN>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN	802.11b 1Mbps	CH 1	2412	15.12	16.00	97.51
		CH 6	2437	16.17	17.00	
		CH 11	2462	14.77	15.50	
	802.11g 6Mbps	CH 1	2412	12.88	13.50	87.50
		CH 6	2437	13.75	14.50	
		CH 11	2462	12.61	13.50	
	802.11n-HT20 MCS0	CH 1	2412	10.83	11.50	86.44
		CH 6	2437	11.61	12.50	
		CH 11	2462	10.67	11.50	

Note:

1. Per KDB 447498 D01v06, the 1-g SAR test exclusion thresholds for 100 MHz to 6 GHz at *test separation distances* ≤ 50 mm are determined by:
   [(*max. power of channel, including tune-up tolerance, mW*) / (*min. test separation distance, mm*)] · [√f(GHz)] ≤ 3.0 for 1-g SAR, where
   - f(GHz) is the RF channel transmit frequency in GHz
   - Power and distance are rounded to the nearest mW and mm before calculation
   - The result is rounded to one decimal place for comparison

Ch	Frequency (GHz)	Max. Tune-up Power (dBm)	Max. Power (mW)	Test distance (mm)	Result	exclusion thresholds for 1-g SAR
CH 6	2.437	17.00	50.12	5	15.65	3.0

2. Base on the result of note1, RF exposure evaluation of 802.11 b and g mode is required.
3. Per KDB 248227 D01v02r02, choose the highest output power channel to test SAR and determine further SAR exclusion.
4. Per KDB 248227 D01v02r02, In the 2.4 GHz band, separate SAR procedures are applied to DSSS and OFDM configurations to simplify DSSS test requirements. SAR is not required for the following 2.4 GHz OFDM conditions:
   1) When KDB Publication 447498 SAR test exclusion applies to the OFDM configuration.
   2) When the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.
5. The output power of all data rate were pre-scan, just the worst case (the lowest data rate) of all mode were shown in report.

➢ **Bluetooth Conducted Power**

Mode	Channel	Frequency (MHz)	Average power (dBm)		
			1Mbps	2Mbps	3Mbps
BR / EDR	CH 00	2402	-1.19	-3.07	-3.06
	CH 39	2441	0.44	-1.48	-1.40
	CH 78	2480	-1.82	-3.66	-3.82
Tune-up Limit (dBm)			0.50	-1.00	-1.00
Duty Cycle %			76.80	76.80	77.20

Mode	Channel	Frequency (MHz)	Average power (dBm)
			1Mbps
LE	CH 00	2402	-2.61
	CH 19	2440	-0.56
	CH 39	2480	-2.77
Tune-up Limit (dBm)			-0.50
Duty Cycle %			62.50

Note:

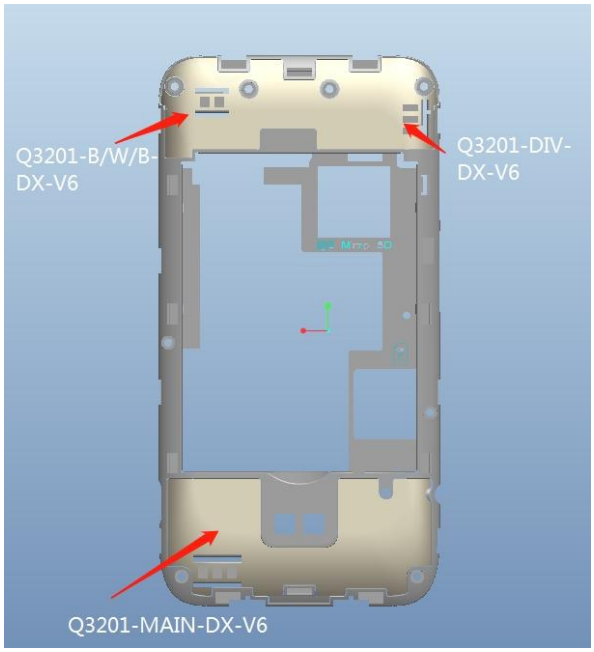
1. Per KDB 447498 D01v06, the 1-g SAR test exclusion thresholds for 100 MHz to 6 GHz at *test separation distances* ≤50 mm are determined by:
   [(*max. power of channel, including tune-up tolerance, mW)*/ (*min. test separation distance, mm*)] · [√f(GHz)] ≤ 3.0 for1-g SAR, where
   - f(GHz) is the RF channel transmit frequency in GHz
   - Power and distance are rounded to the nearest mW and mm before calculation
   - The result is rounded to one decimal place for comparison

Channel	Frequency (GHz)	Max. Tune-up Power (dBm)	Max. Power (mW)	Test distance (mm)	Result	exclusion thresholds for 1-g SAR
CH 39	2.441	0.50	1.12	10.0	0.18	3.0

2. Per KDB 248227 D01v02r02, choose the highest output power channel to test SAR and determine further SAR exclusion.
3. The output power of all data rate were pre-scan, just the worst case (the lowest data rate) of all mode were shown in report.
4. Per KDB 248227 D01V02r02 section 2.2, when the EUT in continuously transmitting mode, the actual duty cycle is 100%, so the duty cycle factor is 1.

14. Hot-Spot Mode Evaluation Procedure

14.1. EUT Antenna Location



WWAN antenna supported TX bands :
GSM 850/1900
UMTS Band II/IV/V
CDMA BC 0/BC 1/BC 10
FDD LTE Band
2/4/5/12/13/17/25/26/28/30/66/71
TDD LTE Band 41
WLAN antenna supported bands : 2.4GHz
BT antenna supported bands: 2.4GHz

EUT Antenna Distance:

Antenna Location	Support Function	Top Side(mm)	Bottom Side(mm)	Left Side(mm)	Right Side(mm)
WWAN Main Antenna	TX/RX	100	2	2.5	3
WWAN Aux Antenna	DRX	6	92	32	4.5
WLAN Antenna	TX/RX	6	92	2.5	32
BT Antenna	TX/RX	6	92	2.5	32

Hotspot Evaluation:

Assessment	Hotspot side for SAR Test distance: 10mm					
Antennas	Back	Front	Top	Bottom	Left	Right
WWAN Main Antenna	Yes	Yes	No	Yes	Yes	Yes
WWAN Aux Antenna	Yes	Yes	Yes	No	No	Yes
WLAN Antenna	Yes	Yes	Yes	No	Yes	No
BT Antenna	Yes	Yes	Yes	No	Yes	No

Note :

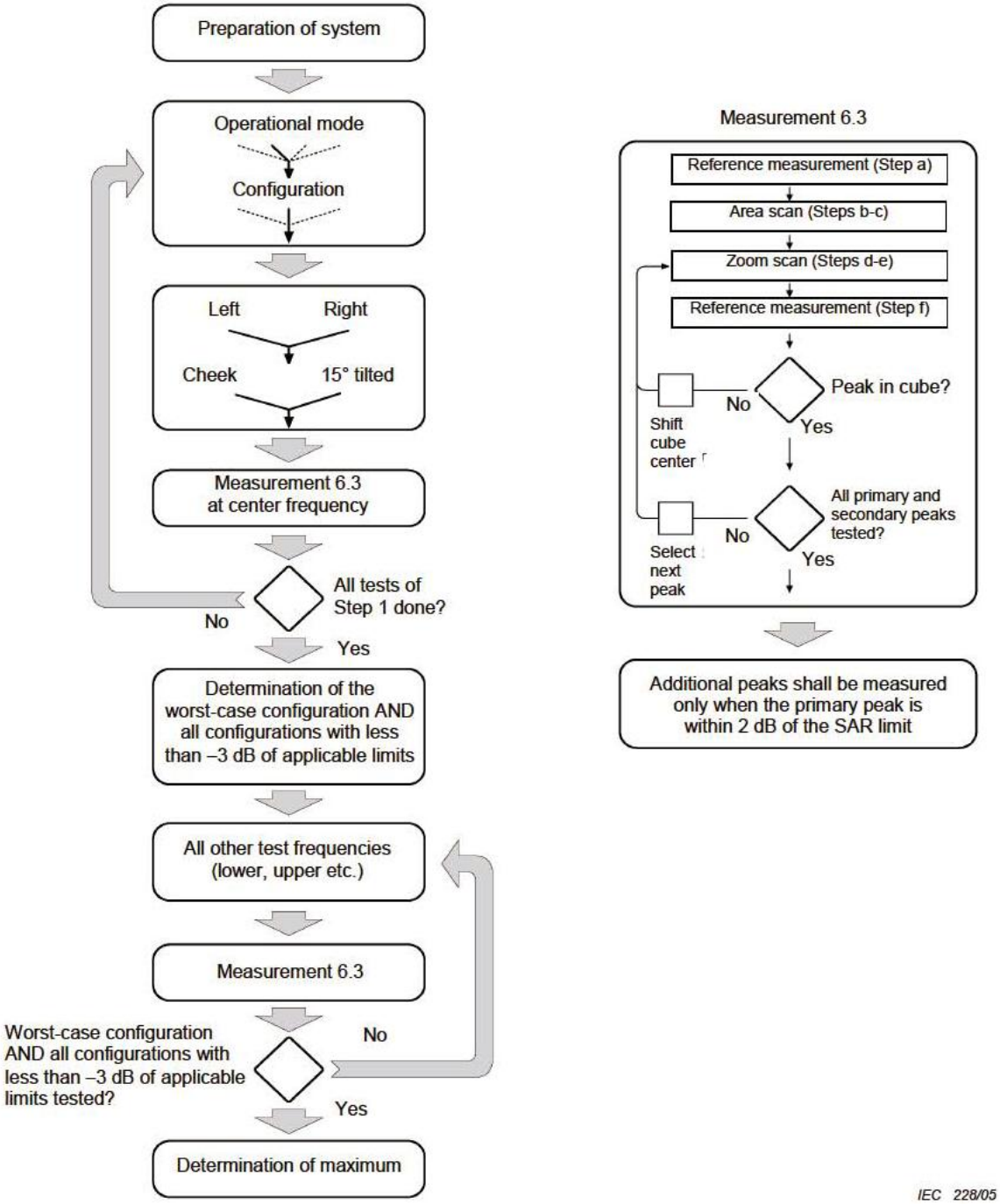
1. The SAR evaluation procedures for Portable Devices with Wireless Router function is according to KDB 941225 D06 Hotspot SAR v02r01.
2. Head/Body-worn/Hotspot mode SAR assessments are required.
3. Referring to KDB 941225 D06, when the overall device length and width are ≥ 9cm*5cm, the

test distance is 10 mm. SAR must be measured for all sides and surfaces with a transmitting antenna located within 25mm from that surface or edge.

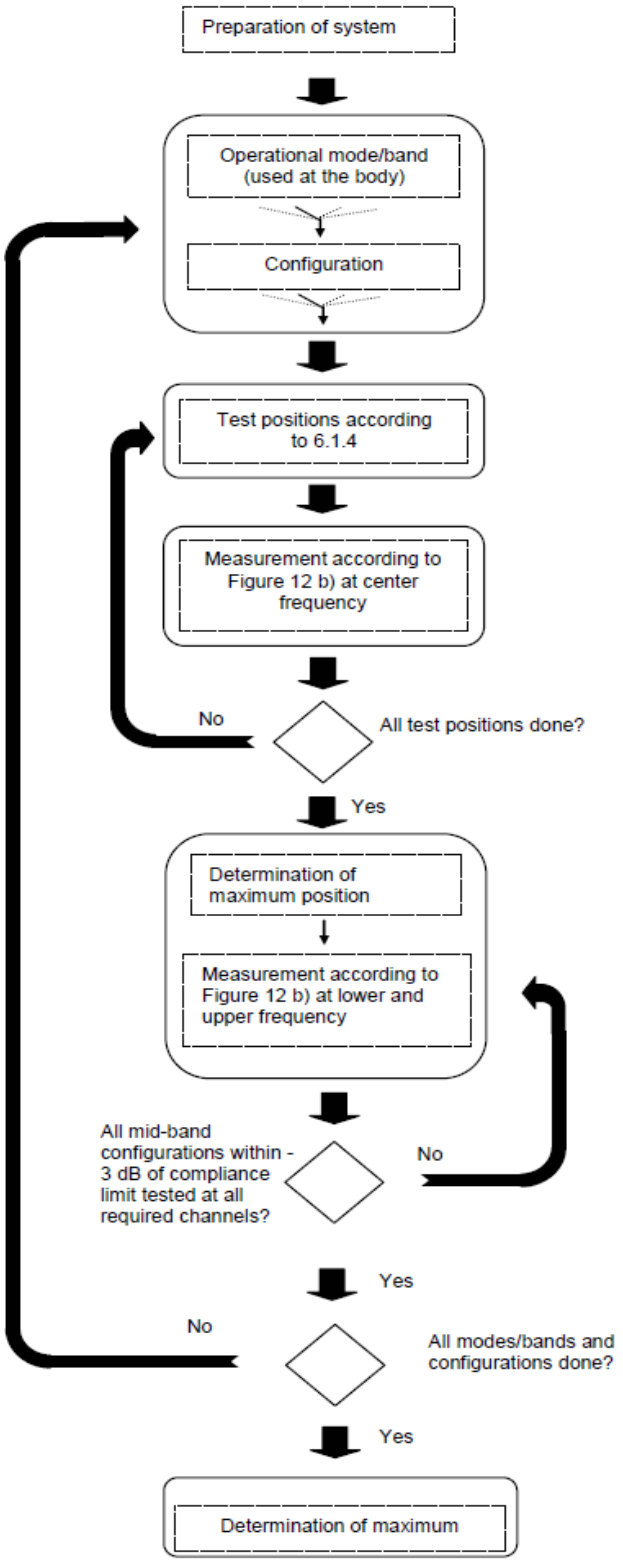
4. For Main antenna, SAR measurements at Top side are not required since the distance between DUT and flat phantom > 25mm.
5. For WLAN&BT antenna, SAR measurements Bottom side and Right side are not required since the distance between DUT and flat phantom > 25mm.

15. Block diagram of the tests to be performed

15.1. Head



15.2. Body



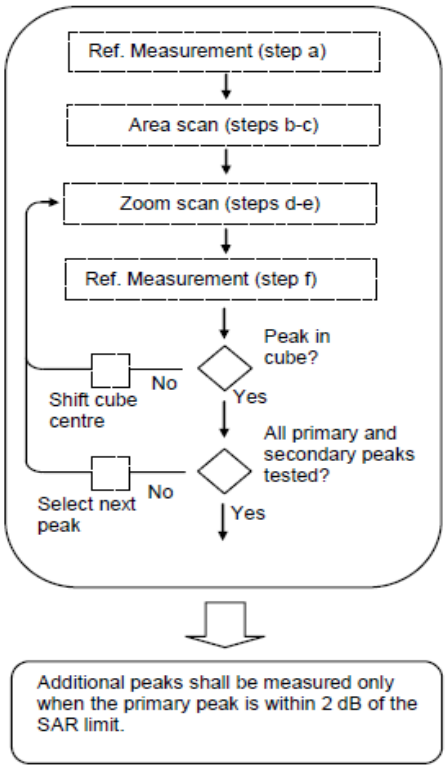


Figure 12b – General procedure

16. Test Results List

16.1. Test Guidance

1. Per KDB 447498 D01v06, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
   a. Tune-up scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
   b. For SAR testing of WLAN signal with non-100% duty cycle, the measured SAR is scaled-up by the duty cycle scaling factor which is equal to "1/(duty cycle)"
   c. For WWAN: Reported SAR(W/kg)= Measured SAR(W/kg)*Tune-up Scaling Factor
   d. For WLAN/Bluetooth: Reported SAR(W/kg)= Measured SAR(W/kg)* Duty Cycle scaling factor * Tune-up scaling factor
2. Per KDB 447498 D01v06, for each exposure position, testing of other required channels within the operating mode of a frequency band is not required when the *reported* 1-g or 10-g SAR for the mid-band or highest output power channel is:
   ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
   ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
   ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz
3. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥0.8W/kg.
4. Per KDB 648474 D04v01r03, when the reported SAR for a body-worn accessory measured without a headset connected to the handset is ≤ 1.2 W/kg, SAR testing with a headset connected to the handset is not required.
5. Per KDB648474 D04v01r03, for smart phones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm, 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, however, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, including tolerance, allowed for tablet modes to compare with the 1.2 W/kg SAR test reduction threshold.
6. Per KDB248227 D01v02r02,a Wi-Fi device must be configured to transmit continuously at the required data rate, channel bandwidth and signal modulation, using the highest transmission duty factor supported by the test mode tools for SAR measurement. The test frequencies

established using test mode must correspond to the actual channel frequencies required for operations in the U.S. When 802.11 frame gaps are accounted for in the transmission, a maximum transmission duty factor of 92 - 96% is typically achievable in most test mode configurations. A minimum transmission duty factor of 85% is required to avoid certain hardware and device implementation issues related to wide range SAR scaling. In addition, a periodic transmission duty factor is required for current generation SAR systems to measure SAR correctly. Unless it is permitted by specific KDB procedures or continuous transmission is specifically restricted by the device, the reported SAR must be scaled to 100% transmission duty factor to determine compliance at the maximum tune-up tolerance limit. When a device is not capable of sustaining continuous transmission or the output can become nonlinear, and it is limited by hardware design and unable to transmit at higher than 85% duty factor, a periodic duty factor within 15% of the maximum duty factor the device is capable of transmitting should be used. The reported SAR must be scaled to the maximum transmission duty factor to determine compliance. Descriptions of the procedures applied to establish the specific duty factor used for SAR testing are required in SAR reports to support the test results.

16.2. Head SAR Data

➢ GSM Head SAR

Plot No.	Band/Mode	Test Position	CH.	Ave. Power (dBm)	Tune-up Limit (dBm)	Tune-up Scaling Factor	Meas. SAR1g (W/kg)	Reported SAR1g (W/kg)
1#	GPRS850/2TX slots	Right Cheek	251	31.55	32.00	1.109	0.400	**0.444**
	GPRS850/2TX slots	Right Tilt	251	31.55	32.00	1.109	0.143	0.159
	GPRS850/2TX slots	Left Cheek	251	31.55	32.00	1.109	0.229	0.254
	GPRS850/2TX slots	Left Tilt	251	31.55	32.00	1.109	0.101	0.112
2#	GPRS1900/3TX slots	Right Cheek	810	26.53	27.00	1.114	0.073	**0.082**
	GPRS1900/3TX slots	Right Tilt	810	26.53	27.00	1.114	0.044	0.049
	GPRS1900/3TX slots	Left Cheek	810	26.53	27.00	1.114	0.040	0.044
	GPRS1900/3TX slots	Left Tilt	810	26.53	27.00	1.114	0.029	0.032

➢ WCDMA Head SAR

Plot No.	Band/Mode	Test Position	CH.	Ave. Power (dBm)	Tune-up Limit (dBm)	Tune-up Scaling Factor	Meas. SAR1g (W/kg)	Reported SAR1g (W/kg)
3#	Band II/RMC	Right Cheek	9262	21.35	22.00	1.161	0.312	**0.362**
	Band II/RMC	Right Tilt	9262	21.35	22.00	1.161	0.065	0.076
	Band II/RMC	Left Cheek	9262	21.35	22.00	1.161	0.277	0.322
	Band II/RMC	Left Tilt	9262	21.35	22.00	1.161	0.077	0.089
4#	Band IV/RMC	Right Cheek	1513	21.23	22.00	1.194	0.250	**0.298**
	Band IV/RMC	Right Tilt	1513	21.23	22.00	1.194	0.055	0.065
	Band IV/RMC	Left Cheek	1513	21.23	22.00	1.194	0.242	0.289
	Band IV/RMC	Left Tilt	1513	21.23	22.00	1.194	0.056	0.067
5#	Band V/RMC	Right Cheek	4183	23.03	23.50	1.114	0.354	**0.394**
	Band V/RMC	Right Tilt	4183	23.03	23.50	1.114	0.165	0.184
	Band V/RMC	Left Cheek	4183	23.03	23.50	1.114	0.315	0.351
	Band V/RMC	Left Tilt	4183	23.03	23.50	1.114	0.150	0.167

➢ CDMA Head SAR

Plot No.	Band/Mode	Test Position	CH.	Ave. Power (dBm)	Tune-up Limit (dBm)	Tune-up Scaling Factor	Meas. SAR1g (W/kg)	Reported SAR1g (W/kg)
	BC0/RC3 SO55	Right Cheek	384	23.33	23.50	1.040	0.328	0.341
	BC0/RC3 SO55	Right Tilt	384	23.33	23.50	1.040	0.225	0.234
6#	BC0/RC3 SO55	Left Cheek	384	23.33	23.50	1.040	0.360	**0.374**
	BC0/RC3 SO55	Left Tilt	384	23.33	23.50	1.040	0.202	0.210
	BC1/RC3 SO55	Right Cheek	600	21.56	22.00	1.107	0.268	0.297
	BC1/RC3 SO55	Right Tilt	600	21.56	22.00	1.107	0.089	0.098
7#	BC1/RC3 SO55	Left Cheek	600	21.56	22.00	1.107	0.290	**0.321**
	BC1/RC3 SO55	Left Tilt	600	21.56	22.00	1.107	0.061	0.067
	BC10/RC3 SO55	Right Cheek	684	22.18	22.50	1.076	0.318	0.342
	BC10/RC3 SO55	Right Tilt	684	22.18	22.50	1.076	0.226	0.243
8#	BC10/RC3 SO55	Left Cheek	684	22.18	22.50	1.076	0.327	**0.352**
	BC10/RC3 SO55	Left Tilt	684	22.18	22.50	1.076	0.204	0.220

➢ LTE QPSK Head SAR

Plot No.	Band/Mode	Test Position	CH.	Ave. Power (dBm)	Tune-up Limit (dBm)	Tune-up Scaling Factor	Meas. SAR1g (W/kg)	Reported SAR1g (W/kg)
9#	LTE Band 2/1RB#49 20M	Right Cheek	18700	21.41	22.00	1.146	0.065	**0.075**
	LTE Band 2/1RB#49 20M	Right Tilt	18700	21.41	22.00	1.146	0.029	0.033
	LTE Band 2/1RB#49 20M	Left Cheek	18700	21.41	22.00	1.146	0.039	0.044
	LTE Band 2/1RB#49 20M	Left Tilt	18700	21.41	22.00	1.146	0.020	0.023
	LTE Band 2/50RB#0 20M	Right Cheek	18700	20.44	21.00	1.138	0.050	0.057
	LTE Band 2/50RB#0 20M	Right Tilt	18700	20.44	21.00	1.138	0.024	0.027
	LTE Band 2/50RB#0 20M	Left Cheek	18700	20.44	21.00	1.138	0.039	0.044
	LTE Band 2/50RB#0 20M	Left Tilt	18700	20.44	21.00	1.138	0.015	0.017
	LTE Band 4/1RB#0 20M	Right Cheek	20050	20.90	21.50	1.148	0.295	0.339
	LTE Band 4/1RB#0 20M	Right Tilt	20050	20.90	21.50	1.148	0.075	0.087
10#	LTE Band 4/1RB#0 20M	Left Cheek	20050	20.90	21.50	1.148	0.322	**0.370**
	LTE Band 4/1RB#0 20M	Left Tilt	20050	20.90	21.50	1.148	0.071	0.081

Plot No.	Band/Mode	Test Position	CH.	Ave. Power (dBm)	Tune-up Limit (dBm)	Tune-up Scaling Factor	Meas. SAR1g (W/kg)	Reported SAR1g (W/kg)
	LTE Band 4/50RB#0 20M	Right Cheek	20050	19.99	20.50	1.125	0.260	0.292
	LTE Band 4/50RB#0 20M	Right Tilt	20050	19.99	20.50	1.125	0.062	0.069
	LTE Band 4/50RB#0 20M	Left Cheek	20050	19.99	20.50	1.125	0.255	0.287
	LTE Band 4/50RB#0 20M	Left Tilt	20050	19.99	20.50	1.125	0.063	0.071
11#	LTE Band 5/1RB#0 10M	Right Cheek	20600	23.45	24.00	1.135	0.359	**0.407**
	LTE Band 5/1RB#0 10M	Right Tilt	20600	23.45	24.00	1.135	0.254	0.288
	LTE Band 5/1RB#0 10M	Left Cheek	20600	23.45	24.00	1.135	0.333	0.378
	LTE Band 5/1RB#0 10M	Left Tilt	20600	23.45	24.00	1.135	0.243	0.276
	LTE Band 5/25RB#0 10M	Right Cheek	20600	22.55	23.00	1.109	0.263	0.292
	LTE Band 5/25RB#0 10M	Right Tilt	20600	22.55	23.00	1.109	0.180	0.200
	LTE Band 5/25RB#0 10M	Left Cheek	20600	22.55	23.00	1.109	0.253	0.281
	LTE Band 5/25RB#010M	Left Tilt	20600	22.55	23.00	1.109	0.164	0.182
12#	LTE Band 12/1RB#0 10M	Right Cheek	23095	23.42	24.00	1.143	0.046	**0.052**
	LTE Band 12/1RB#0 10M	Right Tilt	23095	23.42	24.00	1.143	0.019	0.022
	LTE Band 12/1RB#0 10M	Left Cheek	23095	23.42	24.00	1.143	0.036	0.041
	LTE Band 12/1RB#0 10M	Left Tilt	23095	23.42	24.00	1.143	0.017	0.019
	LTE Band 12/25RB#0 10M	Right Cheek	23095	22.68	23.00	1.076	0.036	0.039
	LTE Band 12/25RB#0 10M	Right Tilt	23095	22.68	23.00	1.076	0.015	0.016
	LTE Band 12/25RB#0 10M	Left Cheek	23095	22.68	23.00	1.076	0.031	0.034
	LTE Band 12/25RB#0 10M	Left Tilt	23095	22.68	23.00	1.076	0.013	0.014
13#	LTE Band 13/1RB#0 10M	Right Cheek	23230	23.26	24.00	1.186	0.187	**0.222**
	LTE Band 13/1RB#0 10M	Right Tilt	23230	23.26	24.00	1.186	0.111	0.132
	LTE Band 13/1RB#0 10M	Left Cheek	23230	23.26	24.00	1.186	0.117	0.139
	LTE Band 13/1RB#0 10M	Left Tilt	23230	23.26	24.00	1.186	0.075	0.089
	LTE Band 13/25RB#0 10M	Right Cheek	23230	22.17	23.00	1.211	0.157	0.190
	LTE Band 13/25RB#0 10M	Right Tilt	23230	22.17	23.00	1.211	0.092	0.111
	LTE Band 13/25RB#0 10M	Left Cheek	23230	22.17	23.00	1.211	0.089	0.108
	LTE Band 13/25RB#0 10M	Left Tilt	23230	22.17	23.00	1.211	0.058	0.070

Plot No.	Band/Mode	Test Position	CH.	Ave. Power (dBm)	Tune-up Limit (dBm)	Tune-up Scaling Factor	Meas. SAR1g (W/kg)	Reported SAR1g (W/kg)
14#	LTE Band 17/1RB#0 10M	Right Cheek	23790	23.48	24.00	1.127	0.039	**0.044**
	LTE Band 17/1RB#0 10M	Right Tilt	23790	23.48	24.00	1.127	0.018	0.020
	LTE Band 17/1RB#0 10M	Left Cheek	23790	23.48	24.00	1.127	0.038	0.043
	LTE Band 17/1RB#0 10M	Left Tilt	23790	23.48	24.00	1.127	0.018	0.021
	LTE Band 17/25RB#0 10M	Right Cheek	23790	22.58	23.00	1.102	0.035	0.039
	LTE Band 17/25RB#0 10M	Right Tilt	23790	22.58	23.00	1.102	0.016	0.017
	LTE Band 17/25RB#0 10M	Left Cheek	23790	22.58	23.00	1.102	0.033	0.036
	LTE Band 17/25RB#0 10M	Left Tilt	23790	22.58	23.00	1.102	0.016	0.018
15#	LTE Band 25/1RB#49 20M	Right Cheek	26140	21.39	22.00	1.151	0.065	**0.074**
	LTE Band 25/1RB#49 20M	Right Tilt	26140	21.39	22.00	1.151	0.040	0.046
	LTE Band 25/1RB#49 20M	Left Cheek	26140	21.39	22.00	1.151	0.045	0.052
	LTE Band 25/1RB#49 20M	Left Tilt	26140	21.39	22.00	1.151	0.035	0.040
	LTE Band 25/50RB#0 20M	Right Cheek	26140	20.29	21.00	1.178	0.051	0.060
	LTE Band 25/50RB#0 20M	Right Tilt	26140	20.29	21.00	1.178	0.031	0.037
	LTE Band 25/50RB#0 20M	Left Cheek	26140	20.29	21.00	1.178	0.037	0.043
	LTE Band 25/50RB#0 20M	Left Tilt	26140	20.29	21.00	1.178	0.029	0.035
16#	LTE Band 26/1RB#0 15M	Right Cheek	26765	23.44	24.00	1.138	0.464	**0.528**
	LTE Band 26/1RB#0 15M	Right Tilt	26765	23.44	24.00	1.138	0.284	0.323
	LTE Band 26/1RB#0 15M	Left Cheek	26765	23.44	24.00	1.138	0.422	0.480
	LTE Band 26/1RB#0 15M	Left Tilt	26765	23.44	24.00	1.138	0.264	0.300
	LTE Band 26/36RB#0 15M	Right Cheek	26765	22.71	23.00	1.069	0.364	0.389
	LTE Band 26/36RB#0 15M	Right Tilt	26765	22.71	23.00	1.069	0.217	0.232
	LTE Band 26/36RB#0 15M	Left Cheek	26765	22.71	23.00	1.069	0.330	0.353
	LTE Band 26/36RB#0 15M	Left Tilt	26765	22.71	23.00	1.069	0.209	0.223
17#	LTE Band 28/1RB#49 20M	Right Cheek	27310	23.41	24.00	1.146	0.066	**0.076**
	LTE Band 28/1RB#49 20M	Right Tilt	27310	23.41	24.00	1.146	0.064	0.073
	LTE Band 28/1RB#49 20M	Left Cheek	27310	23.41	24.00	1.146	0.051	0.058
	LTE Band 28/1RB#49 20M	Left Tilt	27310	23.41	24.00	1.146	0.025	0.029

Plot No.	Band/Mode	Test Position	CH.	Ave. Power (dBm)	Tune-up Limit (dBm)	Tune-up Scaling Factor	Meas. SAR1g (W/kg)	Reported SAR1g (W/kg)
	LTE Band 28/50RB#0 20M	Right Cheek	27310	22.38	23.00	1.153	0.036	0.042
	LTE Band 28/50RB#0 20M	Right Tilt	27310	22.38	23.00	1.153	0.035	0.040
	LTE Band 28/50RB#0 20M	Left Cheek	27310	22.38	23.00	1.153	0.046	0.053
	LTE Band 28/50RB#0 20M	Left Tilt	27310	22.38	23.00	1.153	0.024	0.028
18#	LTE Band 30/1RB#0 10M	Right Cheek	27710	19.20	20.00	1.202	0.144	**0.173**
	LTE Band 30/1RB#0 10M	Right Tilt	27710	19.20	20.00	1.202	0.051	0.061
	LTE Band 30/1RB#0 10M	Left Cheek	27710	19.20	20.00	1.202	0.101	0.121
	LTE Band 30/1RB#0 10M	Left Tilt	27710	19.20	20.00	1.202	0.037	0.044
	LTE Band 30/25RB#0 10M	Right Cheek	27710	18.15	19.00	1.216	0.116	0.141
	LTE Band 30/25RB#0 10M	Right Tilt	27710	18.15	19.00	1.216	0.034	0.041
	LTE Band 30/25RB#0 10M	Left Cheek	27710	18.15	19.00	1.216	0.080	0.097
	LTE Band 30/25RB#0 10M	Left Tilt	27710	18.15	19.00	1.216	0.022	0.027
19#	LTE Band 41/1RB#0 20M	Right Cheek	40620	19.31	19.50	1.045	0.056	**0.059**
	LTE Band 41/1RB#0 20M	Right Tilt	40620	19.31	19.50	1.045	0.044	0.046
	LTE Band 41/1RB#0 20M	Left Cheek	40620	19.31	19.50	1.045	0.043	0.045
	LTE Band 41/1RB#0 20M	Left Tilt	40620	19.31	19.50	1.045	0.035	0.037
	LTE Band 41/50RB#0 20M	Right Cheek	40620	18.37	18.50	1.030	0.047	0.049
	LTE Band 41/50RB#0 20M	Right Tilt	40620	18.37	18.50	1.030	0.029	0.030
	LTE Band 41/50RB#0 20M	Left Cheek	40620	18.37	18.50	1.030	0.035	0.036
	LTE Band 41/50RB#0 20M	Left Tilt	40620	18.37	18.50	1.030	0.013	0.014
20#	LTE Band 66/1RB#0 20M	Right Cheek	132322	20.36	21.00	1.159	0.083	**0.096**
	LTE Band 66/1RB#0 20M	Right Tilt	132322	20.36	21.00	1.159	0.028	0.033
	LTE Band 66/1RB#0 20M	Left Cheek	132322	20.36	21.00	1.159	0.041	0.047
	LTE Band 66/1RB#0 20M	Left Tilt	132322	20.36	21.00	1.159	0.022	0.026
	LTE Band 66/50RB#0 20M	Right Cheek	132322	19.23	20.00	1.194	0.067	0.080
	LTE Band 66/50RB#0 20M	Right Tilt	132322	19.23	20.00	1.194	0.021	0.025
	LTE Band 66/50RB#0 20M	Left Cheek	132322	19.23	20.00	1.194	0.037	0.044
	LTE Band 66/50RB#0 20M	Left Tilt	132322	19.23	20.00	1.194	0.019	0.023

Note: The LTE Band 41 Reported 1g SAR (W/kg) has been calculated together with the duty cycle scaling factor.

Plot No.	Band/Mode	Test Position	CH.	Ave. Power (dBm)	Tune-up Limit (dBm)	Tune-up Scaling Factor	Meas. SAR1g (W/kg)	Reported SAR1g (W/kg)
	LTE Band 71/1RB#0 20M	Right Cheek	133222	23.28	24.00	1.180	0.022	0.026
	LTE Band 71/1RB#0 20M	Right Tilt	133222	23.28	24.00	1.180	0.011	0.012
21#	LTE Band 71/1RB#0 20M	Left Cheek	133222	23.28	24.00	1.180	0.026	**0.031**
	LTE Band 71/1RB#0 20M	Left Tilt	133222	23.28	24.00	1.180	0.014	0.017
	LTE Band 71/50RB#0 20M	Right Cheek	133222	23.19	23.50	1.074	0.019	0.021
	LTE Band 71/50RB#0 20M	Right Tilt	133222	23.19	23.50	1.074	0.008	0.008
	LTE Band 71/50RB#0 20M	Left Cheek	133222	23.19	23.50	1.074	0.017	0.019
	LTE Band 71/50RB#0 20M	Left Tilt	133222	23.19	23.50	1.074	0.013	0.014

➢ **WLAN Head SAR**

Plot No.	Band/Mode	Test Position	CH.	Ave. Power (dBm)	Tune-up Limit (dBm)	Tune-up Scaling Factor	Meas. SAR1g (W/kg)	Reported SAR1g (W/kg)
	WLAN2.4GHz/802.11b	Right Cheek	6	16.17	17.00	1.211	0.025	0.031
	WLAN2.4GHz/802.11b	Right Tilt	6	16.17	17.00	1.211	0.012	0.015
22#	WLAN2.4GHz/802.11b	Left Cheek	6	16.17	17.00	1.211	0.042	**0.052**
	WLAN2.4GHz/802.11b	Left Tilt	6	16.17	17.00	1.211	0.014	0.017

Note:

1. Per KDB 447498 D01v06, for each exposure position, if the highest output power channel Reported SAR ≤ 0.8W/kg, other channels SAR testing is not necessary.
2. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required when the measured SAR is ≥ 0.8W/kg.
3. Per KDB 941225 D05v02r05, 100% RB allocation SAR measurement is not required when the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg.
4. Per KDB 248227 D01v02r02, for 802.11b DSSS , when the reported SAR of the highest measured maximum output power channel for the exposure configuration is ≤ 0.8 W/kg, no further SAR testing is required in that exposure configuration.
5. Per KDB 248227 D01v02r02, OFDM SAR is not required when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.
6. According to KDB 865664 D02v01r02, SAR plot is required for the highest measured SAR in each exposure configuration, wireless mode and frequency band combination.
7. The WLAN Reported 1g SAR (W/kg) has been calculated together with the duty cycle scaling factor 1.026.

16.3. Body-worn SAR Data

➢ **GSM Body-worn SAR**

Plot No.	Band/Mode	Test Position	CH.	Ave. Power (dBm)	Tune-up Limit (dBm)	Tune-up Scaling Factor	Meas. SAR1g (W/kg)	Reported SAR1g (W/kg)
	GPRS850/2TX slots	Front Side	251	31.55	32.00	1.109	0.113	0.125
	GPRS850/2TX slots	Back Side	251	31.55	32.00	1.109	0.743	0.824
	GPRS850/2TX slots	Back Side	128	31.53	32.00	1.114	0.733	0.817
23#	GPRS850/2TX slots	Back Side	189	31.41	32.00	1.146	0.810	**0.928**
	GPRS1900/3TX slots	Front Side	810	26.53	27.00	1.114	0.196	0.218
24#	GPRS1900/3TX slots	Back Side	810	26.53	27.00	1.114	0.913	**1.017**
	GPRS1900/3TX slots	Back Side	512	26.35	27.00	1.161	0.758	0.880
	GPRS1900/3TX slots	Back Side	661	26.52	27.00	1.117	0.892	0.996

➢ **WCDMA Body-worn SAR**

Plot No.	Band/Mode	Test Position	CH.	Ave. Power (dBm)	Tune-up Limit (dBm)	Tune-up Scaling Factor	Meas. SAR1g (W/kg)	Reported SAR1g (W/kg)
	Band II/RMC	Front Side	9262	21.35	22.00	1.161	0.192	0.223
25#	Band II/RMC	Back Side	9262	21.35	22.00	1.161	0.795	**0.923**
	Band II/RMC	Back Side	9400	21.24	22.00	1.191	0.715	0.852
	Band II/RMC	Back Side	9538	21.19	22.00	1.205	0.645	0.777
	Band IV/RMC	Front Side	1513	21.23	22.00	1.194	0.216	0.258
26#	Band IV/RMC	Back Side	1513	21.23	22.00	1.194	0.770	**0.919**
	Band IV/RMC	Back Side	1312	21.01	22.00	1.256	0.711	0.893
	Band IV/RMC	Back Side	1413	21.12	22.00	1.225	0.630	0.772
	Band V/RMC	Front Side	4183	23.03	23.50	1.114	0.112	0.125
27#	Band V/RMC	Back Side	4183	23.03	23.50	1.114	0.460	**0.513**

➢ CDMA Body-worn SAR

Plot No.	Band/Mode	Test Position	CH.	Ave. Power (dBm)	Tune-up Limit (dBm)	Tune-up Scaling Factor	Meas. SAR1g (W/kg)	Reported SAR1g (W/kg)
	BC0/RC3 SO32(F+SCH)	Front Side	384	23.29	23.50	1.050	0.389	0.408
28#	BC0/RC3 SO32(F+SCH)	Back Side	384	23.29	23.50	1.050	0.467	**0.490**
	BC1/RC3 SO32(F+SCH)	Front Side	600	21.55	22.00	1.109	0.659	0.731
29#	BC1/RC3 SO32(F+SCH)	Back Side	600	21.55	22.00	1.109	0.728	**0.807**
	BC1/RC3 SO32(F+SCH)	Back Side	25	21.51	22.00	1.119	0.700	0.784
	BC1/RC3 SO32(F+SCH)	Back Side	1175	21.54	22.00	1.112	0.711	0.790
	BC10/RC3 SO32(F+SCH)	Front Side	684	22.15	22.50	1.084	0.379	0.411
30#	BC10/RC3 SO32(F+SCH)	Back Side	684	22.15	22.50	1.084	0.526	**0.570**

➢ LTE QPSK Body-worn SAR

Plot No.	Band/Mode	Test Position	CH.	Ave. Power (dBm)	Tune-up Limit (dBm)	Tune-up Scaling Factor	Meas. SAR1g (W/kg)	Reported SAR1g (W/kg)
	LTE Band 2/1RB#49 20M	Front Side	18700	21.41	22.00	1.146	0.210	0.241
31#	LTE Band 2/1RB#49 20M	Back Side	18700	21.41	22.00	1.146	0.884	**1.013**
	LTE Band 2/1RB#49 20M	Back Side	18900	21.15	22.00	1.216	0.800	0.973
	LTE Band 2/1RB#49 20M	Back Side	19100	21.07	22.00	1.239	0.684	0.847
	LTE Band 2/**100RB#0** 20M	Back Side	18700	20.45	21.00	1.135	0.679	0.771
	LTE Band 2/50RB#0 20M	Front Side	18700	20.44	21.00	1.138	0.156	0.177
	LTE Band 2/50RB#0 20M	Back Side	18700	20.44	21.00	1.138	0.700	0.796
	LTE Band 4/1RB#0 20M	Front Side	20050	20.90	21.50	1.148	0.214	0.246
	LTE Band 4/1RB#0 20M	Back Side	20050	20.90	21.50	1.148	0.732	0.840
	LTE Band 4/1RB#0 20M	Back Side	20175	20.81	21.50	1.172	0.785	0.920
32#	LTE Band 4/1RB#0 20M	Back Side	20300	20.88	21.50	1.153	0.894	**1.031**
	LTE Band 4/**100RB#0** 20M	Back Side	20300	19.83	20.50	1.167	0.567	0.662
	LTE Band 4/50RB#0 20M	Front Side	20050	19.99	20.50	1.125	0.171	0.192
	LTE Band 4/50RB#0 20M	Back Side	20050	19.99	20.50	1.125	0.607	0.683

Plot No.	Band/Mode	Test Position	CH.	Ave. Power (dBm)	Tune-up Limit (dBm)	Tune-up Scaling Factor	Meas. SAR1g (W/kg)	Reported SAR1g (W/kg)
	LTE Band 5/1RB#0 10M	Front Side	20600	23.45	24.00	1.135	0.154	0.175
33#	LTE Band 5/1RB#0 10M	Back Side	20600	23.45	24.00	1.135	0.615	**0.698**
	LTE Band 5/25RB#0 10M	Front Side	20600	22.55	23.00	1.109	0.125	0.139
	LTE Band 5/25RB#0 10M	Back Side	20600	22.55	23.00	1.109	0.495	0.549
	LTE Band 12/1RB#0 10M	Front Side	23095	23.42	24.00	1.143	0.123	0.141
34#	LTE Band 12/1RB#0 10M	Back Side	23095	23.42	24.00	1.143	0.242	**0.277**
	LTE Band 12/25RB#0 10M	Front Side	23095	22.68	23.00	1.076	0.107	0.115
	LTE Band 12/25RB#0 10M	Back Side	23095	22.68	23.00	1.076	0.201	0.216
	LTE Band 13/1RB#0 10M	Front Side	23230	23.26	24.00	1.186	0.354	0.420
35#	LTE Band 13/1RB#0 10M	Back Side	23230	23.26	24.00	1.186	0.920	**1.091**
	LTE Band 13/**50RB#0** 10M	Back Side	23230	22.11	23.00	1.227	0.650	0.798
	LTE Band 13/25RB#0 10M	Front Side	23230	22.17	23.00	1.211	0.265	0.321
	LTE Band 13/25RB#0 10M	Back Side	23230	22.17	23.00	1.211	0.746	0.903
	LTE Band 17/1RB#0 10M	Front Side	23790	23.48	24.00	1.127	0.132	0.149
36#	LTE Band 17/1RB#0 10M	Back Side	23790	23.48	24.00	1.127	0.263	**0.296**
	LTE Band 17/25RB#0 10M	Front Side	23790	22.58	23.00	1.102	0.133	0.147
	LTE Band 17/25RB#0 10M	Back Side	23790	22.58	23.00	1.102	0.214	0.236
	LTE Band 25/1RB#49 20M	Front Side	26140	21.39	22.00	1.151	0.126	0.145
37#	LTE Band 25/1RB#49 20M	Back Side	26140	21.39	22.00	1.151	0.808	**0.930**
	LTE Band 25/1RB#49 20M	Back Side	26365	21.14	22.00	1.219	0.756	0.922
	LTE Band 25/1RB#49 20M	Back Side	26590	21.07	22.00	1.239	0.680	0.842
	LTE Band 25/**100RB#0** 20M	Back Side	26140	20.24	21.00	1.191	0.453	0.540
	LTE Band 25/50RB#0 20M	Front Side	26140	20.29	21.00	1.178	0.099	0.116
	LTE Band 25/50RB#0 20M	Back Side	26140	20.29	21.00	1.178	0.499	0.588

Plot No.	Band/Mode	Test Position	CH.	Ave. Power (dBm)	Tune-up Limit (dBm)	Tune-up Scaling Factor	Meas. SAR1g (W/kg)	Reported SAR1g (W/kg)
	LTE Band 26/1RB#0 15M	Front Side	26765	23.44	24.00	1.138	0.139	0.158
38#	LTE Band 26/1RB#0 15M	Back Side	26765	23.44	24.00	1.138	0.516	**0.587**
	LTE Band 26/36RB#0 15M	Front Side	26765	22.71	23.00	1.069	0.111	0.119
	LTE Band 26/36RB#0 15M	Back Side	26765	22.71	23.00	1.069	0.430	0.460
	LTE Band 28/1RB#49 20M	Front Side	27310	23.41	24.00	1.146	0.260	0.298
39#	LTE Band 28/1RB#49 20M	Back Side	27310	23.41	24.00	1.146	0.391	**0.448**
	LTE Band 28/50RB#0 20M	Front Side	27310	22.38	23.00	1.153	0.189	0.218
	LTE Band 28/50RB#0 20M	Back Side	27310	22.38	23.00	1.153	0.346	0.399
	LTE Band 30/1RB#0 10M	Front Side	27710	19.20	20.00	1.202	0.065	0.078
40#	LTE Band 30/1RB#0 10M	Back Side	27710	19.20	20.00	1.202	0.858	**1.032**
	LTE Band 30/**50RB#0** 10M	Back Side	27710	18.10	19.00	1.230	0.571	0.702
	LTE Band 30/25RB#0 10M	Front Side	27710	18.15	19.00	1.216	0.052	0.063
	LTE Band 30/25RB#0 10M	Back Side	27710	18.15	19.00	1.216	0.687	0.836
	LTE Band 41/1RB#0 20M	Front Side	40620	19.31	19.50	1.045	0.016	0.017
	LTE Band 41/1RB#0 20M	Back Side	40620	19.31	19.50	1.045	0.952	1.001
	LTE Band 41/1RB#0 20M	Back Side	39750	19.16	19.50	1.081	0.822	0.894
41#	LTE Band 41/1RB#0 20M	Back Side	40185	18.91	19.50	1.146	0.991	**1.142**
	LTE Band 41/1RB#0 20M	Back Side	41055	19.19	19.50	1.074	0.634	0.685
	LTE Band 41/1RB#0 20M	Back Side	41490	19.30	19.50	1.047	0.650	0.685
	LTE Band 41/**100RB#0** 20M	Back Side	40620	19.31	19.50	1.045	0.599	0.630
	LTE Band 41/50RB#0 20M	Front Side	40620	18.37	18.50	1.030	0.015	0.015
	LTE Band 41/50RB#0 20M	Back Side	40620	18.37	18.50	1.030	0.612	0.634
	LTE Band 66/1RB#0 20M	Front Side	132322	20.36	21.00	1.159	0.194	0.225
	LTE Band 66/1RB#0 20M	Back Side	132322	20.36	21.00	1.159	0.709	0.822
	LTE Band 66/1RB#0 20M	Back Side	132072	20.02	21.00	1.253	0.616	0.772
42#	LTE Band 66/1RB#0 20M	Back Side	132572	20.15	21.00	1.216	0.764	**0.929**
	LTE Band 66/**100RB#0** 20M	Back Side	132322	20.36	21.00	1.159	0.510	0.591

Plot No.	Band/Mode	Test Position	CH.	Ave. Power (dBm)	Tune-up Limit (dBm)	Tune-up Scaling Factor	Meas. SAR1g (W/kg)	Reported SAR1g (W/kg)
	LTE Band 66/50RB#0 20M	Front Side	132322	19.23	20.00	1.194	0.164	0.196
	LTE Band 66/50RB#0 20M	Back Side	132322	19.23	20.00	1.194	0.582	0.695
	LTE Band 71/1RB#0 20M	Front Side	133222	23.28	24.00	1.180	0.036	0.042
43#	LTE Band 71/1RB#0 20M	Back Side	133222	23.28	24.00	1.180	0.085	**0.100**
	LTE Band 71/50RB#0 20M	Front Side	133222	23.19	23.50	1.074	0.035	0.037
	LTE Band 71/50RB#0 20M	Back Side	133222	23.19	23.50	1.074	0.073	0.078

Note: The LTE Band 41 Reported 1g SAR (W/kg) has been calculated together with the duty cycle scaling factor.

- **WLAN Body-worn SAR**

Plot No.	Band/Mode	Test Position	CH.	Ave. Power (dBm)	Tune-up Limit (dBm)	Tune-up Scaling Factor	Meas. SAR1g (W/kg)	Reported SAR1g (W/kg)
	WLAN2.4GHz/802.11b	Front Side	6	16.17	17.00	1.211	0.089	0.111
44#	WLAN2.4GHz/802.11b	Back Side	6	16.17	17.00	1.211	0.096	**0.119**

Note: The WLAN Reported 1g SAR (W/kg) has been calculated together with the duty cycle scaling factor 1.026.

16.4. Hotspot SAR Data

➢ **GSM Hotspot SAR**

Plot No.	Band/Mode	Test Position	CH.	Ave. Power (dBm)	Tune-up Limit (dBm)	Tune-up Scaling Factor	Meas. SAR1g (W/kg)	Reported SAR1g (W/kg)
	GPRS850/2TX slots	Front Side	251	31.55	32.00	1.109	0.113	0.125
	GPRS850/2TX slots	Back Side	251	31.55	32.00	1.109	0.743	0.824
	GPRS850/2TX slots	Left Side	251	31.55	32.00	1.109	0.252	0.280
	GPRS850/2TX slots	Right Side	251	31.55	32.00	1.109	0.215	0.238
	GPRS850/2TX slots	Bottom Side	251	31.55	32.00	1.109	0.123	0.136
	GPRS850/2TX slots	Back Side	128	31.53	32.00	1.114	0.733	0.817
45#	GPRS850/2TX slots	Back Side	189	31.41	32.00	1.146	0.810	**0.928**
	GPRS1900/3TX slots	Front Side	810	26.53	27.00	1.114	0.196	0.218
46#	GPRS1900/3TX slots	Back Side	810	26.53	27.00	1.114	0.913	**1.017**
	GPRS1900/3TX slots	Left Side	810	26.53	27.00	1.114	0.216	0.241
	GPRS1900/3TX slots	Right Side	810	26.53	27.00	1.114	0.163	0.182
	GPRS1900/3TX slots	Bottom Side	810	26.53	27.00	1.114	0.662	0.738
	GPRS1900/3TX slots	Back Side	512	26.35	27.00	1.161	0.758	0.880
	GPRS1900/3TX slots	Back Side	661	26.52	27.00	1.117	0.892	0.996

➢ WCDMA Hotspot SAR

Plot No.	Band/Mode	Test Position	CH.	Ave. Power (dBm)	Tune-up Limit (dBm)	Tune-up Scaling Factor	Meas. SAR1g (W/kg)	Reported SAR1g (W/kg)
	Band II/RMC	Front Side	9262	21.35	22.00	1.161	0.192	0.223
47#	Band II/RMC	Back Side	9262	21.35	22.00	1.161	0.795	**0.923**
	Band II/RMC	Left Side	9262	21.35	22.00	1.161	0.137	0.159
	Band II/RMC	Right Side	9262	21.35	22.00	1.161	0.153	0.178
	Band II/RMC	Bottom Side	9262	21.35	22.00	1.161	0.488	0.567
	Band II/RMC	Back Side	9400	21.24	22.00	1.191	0.715	0.852
	Band II/RMC	Back Side	9538	21.19	22.00	1.205	0.645	0.777
	Band IV/RMC	Front Side	1513	21.23	22.00	1.194	0.216	0.258
48#	Band IV/RMC	Back Side	1513	21.23	22.00	1.194	0.770	**0.919**
	Band IV/RMC	Left Side	1513	21.23	22.00	1.194	0.162	0.193
	Band IV/RMC	Right Side	1513	21.23	22.00	1.194	0.200	0.239
	Band IV/RMC	Bottom Side	1513	21.23	22.00	1.194	0.397	0.474
	Band IV/RMC	Back Side	1312	21.01	22.00	1.256	0.711	0.893
	Band IV/RMC	Back Side	1413	21.12	22.00	1.225	0.630	0.772
	Band V/RMC	Front Side	4183	23.03	23.50	1.114	0.112	0.125
49#	Band V/RMC	Back Side	4183	23.03	23.50	1.114	0.460	**0.513**
	Band V/RMC	Left Side	4183	23.03	23.50	1.114	0.167	0.186
	Band V/RMC	Right Side	4183	23.03	23.50	1.114	0.172	0.192
	Band V/RMC	Bottom Side	4183	23.03	23.50	1.114	0.134	0.149

➢ CDMA Hotspot SAR

Plot No.	Band/Mode	Test Position	CH.	Ave. Power (dBm)	Tune-up Limit (dBm)	Tune-up Scaling Factor	Meas. SAR1g (W/kg)	Reported SAR1g (W/kg)
	BC0/RTAP153.6Kbps	Front Side	384	23.12	23.50	1.091	0.145	0.158
50#	BC0/RTAP153.6Kbps	Back Side	384	23.12	23.50	1.091	0.549	**0.599**
	BC0/RTAP153.6Kbps	Left Side	384	23.12	23.50	1.091	0.263	0.287
	BC0/RTAP153.6Kbps	Right Side	384	23.12	23.50	1.091	0.282	0.308
	BC0/RTAP153.6Kbps	Bottom Side	384	23.12	23.50	1.091	0.109	0.119
	BC1/RTAP153.6Kbps	Front Side	600	21.31	22.00	1.172	0.193	0.226
	BC1/RTAP153.6Kbps	Back Side	600	21.31	22.00	1.172	0.702	0.823
	BC1/RTAP153.6Kbps	Left Side	600	21.31	22.00	1.172	0.115	0.135
	BC1/RTAP153.6Kbps	Right Side	600	21.31	22.00	1.172	0.165	0.193
	BC1/RTAP153.6Kbps	Bottom Side	600	21.31	22.00	1.172	0.621	0.728
51#	BC1/RTAP153.6Kbps	Back Side	25	21.29	22.00	1.178	0.777	**0.915**
	BC1/RTAP153.6Kbps	Back Side	1175	21.28	22.00	1.180	0.649	0.766
	BC10/RTAP153.6Kbps	Front Side	684	22.22	22.50	1.067	0.142	0.151
52#	BC10/RTAP153.6Kbps	Back Side	684	22.22	22.50	1.067	0.454	**0.484**
	BC10/RTAP153.6Kbps	Left Side	684	22.22	22.50	1.067	0.281	0.300
	BC10/RTAP153.6Kbps	Right Side	684	22.22	22.50	1.067	0.268	0.286
	BC10/RTAP153.6Kbps	Bottom Side	684	22.22	22.50	1.067	0.098	0.105

➢ LTE QPSK Hotspot SAR

Plot No.	Band/Mode	Test Position	CH.	Ave. Power (dBm)	Tune-up Limit (dBm)	Tune-up Scaling Factor	Meas. SAR1g (W/kg)	Reported SAR1g (W/kg)
	LTE Band 2/1RB#49 20M	Front Side	18700	21.41	22.00	1.146	0.210	0.241
53#	LTE Band 2/1RB#49 20M	Back Side	18700	21.41	22.00	1.146	0.884	**1.013**
	LTE Band 2/1RB#49 20M	Left Side	18700	21.41	22.00	1.146	0.135	0.155
	LTE Band 2/1RB#49 20M	Right Side	18700	21.41	22.00	1.146	0.178	0.204
	LTE Band 2/1RB#49 20M	Bottom Side	18700	21.41	22.00	1.146	0.499	0.572
	LTE Band 2/1RB#49 20M	Back Side	18900	21.15	22.00	1.216	0.800	0.973
	LTE Band 2/1RB#49 20M	Back Side	19100	21.07	22.00	1.239	0.684	0.847
	LTE Band 2/**100RB#0** 20M	Back Side	18700	20.45	21.00	1.135	0.679	0.771
	LTE Band 2/50RB#0 20M	Front Side	18700	20.44	21.00	1.138	0.156	0.177
	LTE Band 2/50RB#0 20M	Back Side	18700	20.44	21.00	1.138	0.700	0.796
	LTE Band 2/50RB#0 20M	Left Side	18700	20.44	21.00	1.138	0.114	0.130
	LTE Band 2/50RB#0 20M	Right Side	18700	20.44	21.00	1.138	0.140	0.159
	LTE Band 2/50RB#0 20M	Bottom Side	18700	20.44	21.00	1.138	0.408	0.464
	LTE Band 4/1RB#0 20M	Front Side	20050	20.90	21.50	1.148	0.214	0.246
	LTE Band 4/1RB#0 20M	Back Side	20050	20.90	21.50	1.148	0.732	0.840
	LTE Band 4/1RB#0 20M	Left Side	20050	20.90	21.50	1.148	0.190	0.218
	LTE Band 4/1RB#0 20M	Right Side	20050	20.90	21.50	1.148	0.194	0.223
	LTE Band 4/1RB#0 20M	Bottom Side	20050	20.90	21.50	1.148	0.432	0.496
	LTE Band 4/1RB#0 20M	Back Side	20175	20.81	21.50	1.172	0.785	0.920
54#	LTE Band 4/1RB#0 20M	Back Side	20300	20.88	21.50	1.153	0.894	**1.031**
	LTE Band 4/**100RB#0** 20M	Back Side	20300	19.83	20.50	1.167	0.567	0.662
	LTE Band 4/50RB#0 20M	Front Side	20050	19.99	20.50	1.125	0.171	0.192
	LTE Band 4/50RB#0 20M	Back Side	20050	19.99	20.50	1.125	0.607	0.683
	LTE Band 4/50RB#0 20M	Left Side	20050	19.99	20.50	1.125	0.149	0.168
	LTE Band 4/50RB#0 20M	Right Side	20050	19.99	20.50	1.125	0.165	0.186
	LTE Band 4/50RB#0 20M	Bottom Side	20050	19.99	20.50	1.125	0.359	0.404

Plot No.	Band/Mode	Test Position	CH.	Ave. Power (dBm)	Tune-up Limit (dBm)	Tune-up Scaling Factor	Meas. SAR1g (W/kg)	Reported SAR1g (W/kg)
	LTE Band 5/1RB#0 10M	Front Side	20600	23.45	24.00	1.135	0.154	0.175
55#	LTE Band 5/1RB#0 10M	Back Side	20600	23.45	24.00	1.135	0.615	**0.698**
	LTE Band 5/1RB#0 10M	Left Side	20600	23.45	24.00	1.135	0.181	0.205
	LTE Band 5/1RB#0 10M	Right Side	20600	23.45	24.00	1.135	0.199	0.226
	LTE Band 5/1RB#0 10M	Bottom Side	20600	23.45	24.00	1.135	0.127	0.144
	LTE Band 5/25RB#0 10M	Front Side	20600	22.55	23.00	1.109	0.125	0.139
	LTE Band 5/25RB#0 10M	Back Side	20600	22.55	23.00	1.109	0.495	0.549
	LTE Band 5/25RB#0 10M	Left Side	20600	22.55	23.00	1.109	0.137	0.152
	LTE Band 5/25RB#0 10M	Right Side	20600	22.55	23.00	1.109	0.153	0.170
	LTE Band 5/25RB#0 10M	Bottom Side	20600	22.55	23.00	1.109	0.097	0.108
	LTE Band 12/1RB#0 10M	Front Side	23095	23.42	24.00	1.143	0.123	0.141
56#	LTE Band 12/1RB#0 10M	Back Side	23095	23.42	24.00	1.143	0.242	**0.277**
	LTE Band 12/1RB#0 10M	Left Side	23095	23.42	24.00	1.143	0.210	0.240
	LTE Band 12/1RB#0 10M	Right Side	23095	23.42	24.00	1.143	0.212	0.242
	LTE Band 12/1RB#0 10M	Bottom Side	23095	23.42	24.00	1.143	0.023	0.026
	LTE Band 12/25RB#0 10M	Front Side	23095	22.68	23.00	1.076	0.107	0.115
	LTE Band 12/25RB#0 10M	Back Side	23095	22.68	23.00	1.076	0.201	0.216
	LTE Band 12/25RB#0 10M	Left Side	23095	22.68	23.00	1.076	0.184	0.198
	LTE Band 12/25RB#0 10M	Right Side	23095	22.68	23.00	1.076	0.184	0.198
	LTE Band 12/25RB#0 10M	Bottom Side	23095	22.68	23.00	1.076	0.019	0.020
	LTE Band 13/1RB#0 10M	Front Side	23230	23.26	24.00	1.186	0.354	0.420
57#	LTE Band 13/1RB#0 10M	Back Side	23230	23.26	24.00	1.186	0.920	**1.091**
	LTE Band 13/1RB#0 10M	Left Side	23230	23.26	24.00	1.186	0.533	0.632
	LTE Band 13/1RB#0 10M	Right Side	23230	23.26	24.00	1.186	0.560	0.664
	LTE Band 13/1RB#0 10M	Bottom Side	23230	23.26	24.00	1.186	0.049	0.058
	LTE Band 13/**50RB#0** 10M	Back Side	23230	22.11	23.00	1.227	0.650	0.798

Plot No.	Band/Mode	Test Position	CH.	Ave. Power (dBm)	Tune-up Limit (dBm)	Tune-up Scaling Factor	Meas. SAR1g (W/kg)	Reported SAR1g (W/kg)
	LTE Band 13/25RB#0 10M	Front Side	23230	22.17	23.00	1.211	0.265	0.321
	LTE Band 13/25RB#0 10M	Back Side	23230	22.17	23.00	1.211	0.746	0.903
	LTE Band 13/25RB#0 10M	Left Side	23230	22.17	23.00	1.211	0.414	0.501
	LTE Band 13/25RB#0 10M	Right Side	23230	22.17	23.00	1.211	0.430	0.521
	LTE Band 13/25RB#0 10M	Bottom Side	23230	22.17	23.00	1.211	0.040	0.048
	LTE Band 17/1RB#0 10M	Front Side	23790	23.48	24.00	1.127	0.132	0.149
58#	LTE Band 17/1RB#0 10M	Back Side	23790	23.48	24.00	1.127	0.263	**0.296**
	LTE Band 17/1RB#0 10M	Left Side	23790	23.48	24.00	1.127	0.208	0.234
	LTE Band 17/1RB#0 10M	Right Side	23790	23.48	24.00	1.127	0.225	0.254
	LTE Band 17/1RB#0 10M	Bottom Side	23790	23.48	24.00	1.127	0.023	0.026
	LTE Band 17/25RB#0 10M	Front Side	23790	22.58	23.00	1.102	0.133	0.147
	LTE Band 17/25RB#0 10M	Back Side	23790	22.58	23.00	1.102	0.214	0.236
	LTE Band 17/25RB#0 10M	Left Side	23790	22.58	23.00	1.102	0.191	0.210
	LTE Band 17/25RB#0 10M	Right Side	23790	22.58	23.00	1.102	0.195	0.215
	LTE Band 17/25RB#0 10M	Bottom Side	23790	22.58	23.00	1.102	0.020	0.022
	LTE Band 25/1RB#49 20M	Front Side	26140	21.39	22.00	1.151	0.126	0.145
59#	LTE Band 25/1RB#49 20M	Back Side	26140	21.39	22.00	1.151	0.808	**0.930**
	LTE Band 25/1RB#49 20M	Left Side	26140	21.39	22.00	1.151	0.136	0.157
	LTE Band 25/1RB#49 20M	Right Side	26140	21.39	22.00	1.151	0.182	0.209
	LTE Band 25/1RB#49 20M	Bottom Side	26140	21.39	22.00	1.151	0.468	0.539
	LTE Band 25/1RB#49 20M	Back Side	26365	21.14	22.00	1.219	0.756	0.922
	LTE Band 25/1RB#49 20M	Back Side	26590	21.07	22.00	1.239	0.680	0.842
	LTE Band 25/**100RB#0** 20M	Back Side	26140	20.24	21.00	1.191	0.453	0.540
	LTE Band 25/50RB#0 20M	Front Side	26140	20.29	21.00	1.178	0.099	0.116
	LTE Band 25/50RB#0 20M	Back Side	26140	20.29	21.00	1.178	0.499	0.588
	LTE Band 25/50RB#0 20M	Left Side	26140	20.29	21.00	1.178	0.106	0.125
	LTE Band 25/50RB#0 20M	Right Side	26140	20.29	21.00	1.178	0.135	0.159
	LTE Band 25/50RB#0 20M	Bottom Side	26140	20.29	21.00	1.178	0.372	0.438

Plot No.	Band/Mode	Test Position	CH.	Ave. Power (dBm)	Tune-up Limit (dBm)	Tune-up Scaling Factor	Meas. SAR1g (W/kg)	Reported SAR1g (W/kg)
	LTE Band 26/1RB#0 15M	Front Side	26765	23.44	24.00	1.138	0.139	0.158
60#	LTE Band 26/1RB#0 15M	Back Side	26765	23.44	24.00	1.138	0.516	**0.587**
	LTE Band 26/1RB#0 15M	Left Side	26765	23.44	24.00	1.138	0.164	0.187
	LTE Band 26/1RB#0 15M	Right Side	26765	23.44	24.00	1.138	0.182	0.207
	LTE Band 26/1RB#0 15M	Bottom Side	26765	23.44	24.00	1.138	0.105	0.119
	LTE Band 26/36RB#0 15M	Front Side	26765	22.71	23.00	1.069	0.111	0.119
	LTE Band 26/36RB#0 15M	Back Side	26765	22.71	23.00	1.069	0.430	0.460
	LTE Band 26/36RB#0 15M	Left Side	26765	22.71	23.00	1.069	0.131	0.140
	LTE Band 26/36RB#0 15M	Right Side	26765	22.71	23.00	1.069	0.151	0.161
	LTE Band 26/36RB#0 15M	Bottom Side	26765	22.71	23.00	1.069	0.088	0.094
	LTE Band 28/1RB#49 20M	Front Side	27310	23.41	24.00	1.146	0.260	0.298
61#	LTE Band 28/1RB#49 20M	Back Side	27310	23.41	24.00	1.146	0.391	**0.448**
	LTE Band 28/1RB#49 20M	Left Side	27310	23.41	24.00	1.146	0.291	0.333
	LTE Band 28/1RB#49 20M	Right Side	27310	23.41	24.00	1.146	0.334	0.383
	LTE Band 28/1RB#49 20M	Bottom Side	27310	23.41	24.00	1.146	0.030	0.034
	LTE Band 28/50RB#0 20M	Front Side	27310	22.38	23.00	1.153	0.189	0.218
	LTE Band 28/50RB#0 20M	Back Side	27310	22.38	23.00	1.153	0.346	0.399
	LTE Band 28/50RB#0 20M	Left Side	27310	22.38	23.00	1.153	0.289	0.333
	LTE Band 28/50RB#0 20M	Right Side	27310	22.38	23.00	1.153	0.301	0.347
	LTE Band 28/50RB#0 20M	Bottom Side	27310	22.38	23.00	1.153	0.025	0.029
	LTE Band 30/1RB#0 10M	Front Side	27710	19.20	20.00	1.202	0.065	0.078
62#	LTE Band 30/1RB#0 10M	Back Side	27710	19.20	20.00	1.202	0.858	**1.032**
	LTE Band 30/1RB#0 10M	Left Side	27710	19.20	20.00	1.202	0.039	0.047
	LTE Band 30/1RB#0 10M	Right Side	27710	19.20	20.00	1.202	0.121	0.145
	LTE Band 30/1RB#0 10M	Bottom Side	27710	19.20	20.00	1.202	0.407	0.489
	LTE Band 30/**50RB#0** 10M	Back Side	27710	18.10	19.00	1.230	0.571	0.702

Plot No.	Band/Mode	Test Position	CH.	Ave. Power (dBm)	Tune-up Limit (dBm)	Tune-up Scaling Factor	Meas. SAR1g (W/kg)	Reported SAR1g (W/kg)
	LTE Band 30/25RB#0 10M	Front Side	27710	18.15	19.00	1.216	0.052	0.063
	LTE Band 30/25RB#0 10M	Back Side	27710	18.15	19.00	1.216	0.687	0.836
	LTE Band 30/25RB#0 10M	Left Side	27710	18.15	19.00	1.216	0.033	0.040
	LTE Band 30/25RB#0 10M	Right Side	27710	18.15	19.00	1.216	0.092	0.112
	LTE Band 30/25RB#0 10M	Bottom Side	27710	18.15	19.00	1.216	0.329	0.400
	LTE Band 41/1RB#0 20M	Front Side	40620	19.31	19.50	1.045	0.016	0.017
	LTE Band 41/1RB#0 20M	Back Side	40620	19.31	19.50	1.045	0.952	1.001
	LTE Band 41/1RB#0 20M	Left Side	40620	19.31	19.50	1.045	0.255	0.268
	LTE Band 41/1RB#0 20M	Right Side	40620	19.31	19.50	1.045	0.301	0.316
	LTE Band 41/1RB#0 20M	Bottom Side	40620	19.31	19.50	1.045	0.714	0.750
	LTE Band 41/1RB#0 20M	Back Side	39750	19.16	19.50	1.081	0.822	0.894
63#	LTE Band 41/1RB#0 20M	Back Side	40185	18.91	19.50	1.146	0.991	**1.142**
	LTE Band 41/1RB#0 20M	Back Side	41055	19.19	19.50	1.074	0.634	0.685
	LTE Band 41/1RB#0 20M	Back Side	41490	19.30	19.50	1.047	0.650	0.685
	LTE Band 41/**100RB#0** 20M	Back Side	40620	19.31	19.50	1.045	0.599	0.630
	LTE Band 41/50RB#0 20M	Front Side	40620	18.37	18.50	1.030	0.015	0.015
	LTE Band 41/50RB#0 20M	Back Side	40620	18.37	18.50	1.030	0.612	0.634
	LTE Band 41/50RB#0 20M	Left Side	40620	18.37	18.50	1.030	0.209	0.217
	LTE Band 41/50RB#0 20M	Right Side	39750	18.37	18.50	1.030	0.243	0.252
	LTE Band 41/50RB#0 20M	Bottom Side	41490	18.37	18.50	1.030	0.569	0.590
	LTE Band 66/1RB#0 20M	Front Side	132322	20.36	21.00	1.159	0.194	0.225
	LTE Band 66/1RB#0 20M	Back Side	132322	20.36	21.00	1.159	0.709	0.822
	LTE Band 66/1RB#0 20M	Left Side	132322	20.36	21.00	1.159	0.166	0.192
	LTE Band 66/1RB#0 20M	Right Side	132322	20.36	21.00	1.159	0.218	0.253
	LTE Band 66/1RB#0 20M	Bottom Side	132322	20.36	21.00	1.159	0.441	0.511
	LTE Band 66/1RB#0 20M	Back Side	132072	20.02	21.00	1.253	0.616	0.772
64	LTE Band 66/1RB#0 20M	Back Side	132572	20.15	21.00	1.216	0.764	**0.929**
	LTE Band 66/**100RB#0** 20M	Back Side	132322	20.36	21.00	1.159	0.510	0.591

Plot No.	Band/Mode	Test Position	CH.	Ave. Power (dBm)	Tune-up Limit (dBm)	Tune-up Scaling Factor	Meas. SAR1g (W/kg)	Reported SAR1g (W/kg)
	LTE Band 66/50RB#0 20M	Front Side	132322	19.23	20.00	1.194	0.164	0.196
	LTE Band 66/50RB#0 20M	Back Side	132322	19.23	20.00	1.194	0.582	0.695
	LTE Band 66/50RB#0 20M	Left Side	132322	19.23	20.00	1.194	0.133	0.159
	LTE Band 66/50RB#0 20M	Right Side	132322	19.23	20.00	1.194	0.177	0.211
	LTE Band 66/50RB#0 20M	Bottom Side	132322	19.23	20.00	1.194	0.346	0.413
	LTE Band 71/1RB#0 20M	Front Side	133222	23.28	24.00	1.180	0.036	0.042
	LTE Band 71/1RB#0 20M	Back Side	133222	23.28	24.00	1.180	0.085	**0.100**
	LTE Band 71/1RB#0 20M	Left Side	133222	23.28	24.00	1.180	0.051	0.061
65#	LTE Band 71/1RB#0 20M	Right Side	133222	23.28	24.00	1.180	0.067	0.079
	LTE Band 71/1RB#0 20M	Bottom Side	133222	23.28	24.00	1.180	0.014	0.017
	LTE Band 71/50RB#0 20M	Front Side	133222	23.19	23.50	1.074	0.035	0.037
	LTE Band 71/50RB#0 20M	Back Side	133222	23.19	23.50	1.074	0.073	0.078
	LTE Band 71/50RB#0 20M	Left Side	133222	23.19	23.50	1.074	0.047	0.051
	LTE Band 71/50RB#0 20M	Right Side	133222	23.19	23.50	1.074	0.051	0.055
	LTE Band 71/50RB#0 20M	Bottom Side	133222	23.19	23.50	1.074	0.012	0.013

Note: The LTE Band 41 Reported 1g SAR (W/kg) has been calculated together with the duty cycle scaling factor.

- **WLAN Hotspot SAR**

Plot No.	Band/Mode	Test Position	CH.	Ave. Power (dBm)	Tune-up Limit (dBm)	Tune-up Scaling Factor	Meas. SAR1g (W/kg)	Reported SAR1g (W/kg)
	WLAN2.4GHz/802.11b	Front Side	6	16.17	17.00	1.211	0.089	0.111
	WLAN2.4GHz/802.11b	Back Side	6	16.17	17.00	1.211	0.096	0.119
	WLAN2.4GHz/802.11b	Left Side	6	16.17	17.00	1.211	0.039	0.048
66#	WLAN2.4GHz/802.11b	Top Side	6	16.17	17.00	1.211	0.178	**0.221**

Note: The WLAN Reported 1g SAR (W/kg) has been calculated together with the duty cycle scaling factor 1.026.

16.5. Repeated SAR Measurement

In accordance with published RF Exposure KDB procedure 865664 D01 SAR measurement 100 MHz to 6 GHz. These additional measurements are repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device should be returned to ambient conditions (normal room temperature) with the battery fully charged before it is re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results.

1) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg; steps 2)through 4) do not apply.
2) When the original highest measured SAR is ≥ 0.80 W/kg, repeat that measurement once.
3) Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is ≥ 1.45 W/kg (~ 10% from the 1-g SAR limit).
4) Perform a third repeated measurement only if the original, first or second repeated measurement is ≥1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.

➢ Repeated SAR

Plot No.	Band/Mode	Test Position	CH.	Ave. Power (dBm)	Tune-up Limit (dBm)	Tune-up Scaling Factor	Meas. SAR1g (W/kg)	Reported SAR1g (W/kg)
OR	GPRS850/2TX slots	Back Side	189	31.41	32.00	1.146	0.810	**0.928**
	GPRS850/2TX slots	Back Side	189	31.41	32.00	1.146	0.809	0.927
OR	GPRS1900/3TX slots	Back Side	810	26.53	27.00	1.114	0.913	**1.017**
	GPRS1900/3X slots	Back Side	810	26.53	27.00	1.114	0.910	1.014
OR	LTE Band 2/1RB#49 20M	Back Side	18700	21.41	22.00	1.146	0.884	**1.013**
	LTE Band 2/1RB#49 20M	Back Side	18700	21.41	22.00	1.146	0.880	1.008
OR	LTE Band 4/1RB#0 20M	Back Side	20300	20.88	21.50	1.153	0.894	**1.031**
	LTE Band 4/1RB#0 20M	Back Side	20300	20.88	21.50	1.153	0.892	1.029
OR	LTE Band 13/1RB#0 10M	Back Side	23230	23.26	24.00	1.186	0.920	**1.091**
	LTE Band 13/1RB#0 10M	Back Side	23230	23.26	24.00	1.186	0.917	1.087
OR	LTE Band 25/1RB#49 20M	Back Side	26140	21.39	22.00	1.151	0.808	**0.930**
	LTE Band 25/1RB#49 20M	Back Side	26140	21.39	22.00	1.151	0.807	0.929
OR	LTE Band 30/1RB#0 10M	Back Side	27710	19.20	20.00	1.202	0.858	**1.032**
	LTE Band 30/1RB#0 10M	Back Side	27710	19.20	20.00	1.202	0.855	1.028
OR	LTE Band 41/ RB#0 20M	Back Side	40185	18.91	19.50	1.146	0.991	**1.142**
	LTE Band 41/ RB#0 20M	Back Side	40185	18.91	19.50	1.146	0.990	1.141

17. Simultaneous Transmission Evaluation

➢ **Simultaneous Transmission Capabilities**

According to FCC KDB Publication 447498 D01v06, transmitters are considered to be transmitting simultaneously when there is overlapping transmission, with the exception of transmissions during network hand-offs with maximum hand-off duration less than 30 seconds. Possible transmission paths for the EUT are shown in below Figure and are color-coded to indicate communication modes which share the same path. Modes which share the same transmission path cannot transmit simultaneously with one another.

Fig.15.1 Simultaneous Transmission Paths

➢ **Simultaneous Transmission Procedures**

This device contains transmitters that may operate simultaneously. Therefore simultaneous transmission analysis is required. Per FCC KDB 447498 D01v06, simultaneous transmission SAR test exclusion may be applied when the sum of the 1-g SAR for all the simultaneous transmitting antennas ina specific a physical test configuration is ≤1.6 W/kg. When standalone SAR is not required to be measured, per FCC KDB 447498 D01v06 4.3.2), the following equation must be used to estimate the standalone 1g SAR for simultaneous transmission assessment involving that transmitter.

$$\text{Estimated SAR} = \frac{\sqrt{f(GHz)}}{7.5} \cdot \frac{\text{Max. power of channel, mW}}{\text{Min. Separation Distance, mm}}$$

Mode	Max. tune-up Power (dBm)	Exposure Position	Head	Body-worn	Hotspot
		Test Distance (mm)	0	10	10
Bluetooth	0.50	Estimated SAR (W/kg)	N/A	0.023	0.023

Note:

1. When the minimum *test separation distance* is < 5 mm, a distance of 5 mm according is applied to determine estimated SAR.
2. Held-to ear configuration are not applicable to Bluetooth operations and therefore were not considered for simultaneous transmission.

➢ Simultaneous Evaluation:

No.	Simultaneous Transmission Consideration	Head	Body-Worn	Hotspot
1	WWAN+WLAN 2.4GHz	Yes	Yes	Yes
2	WWAN+Bluetooth	NO	Yes	Yes

Note:

1. When the user enables the personal wireless router functions for the handset, actual operations include simultaneous transmission of both the Wi-Fi transmitter and another WWAN transmitter. Both transmitter often do not transmit at the same transmitting frequency and thus cannot be evaluated for SAR under actual use conditions. The "Portable Hotspot" feature on the handset was NOT activated, to ensure the SAR measurements were evaluated for a single transmission frequency RF signal.
2. The hotspot SAR result may overlap with the body-worn accessory SAR requirements, per KDB 941225 D06, the more conservative configurations can be considered, thus excluding some unnecessary body-worn accessory SAR tests.
3. GSM supports voice and data transmission, though not simultaneously. WCDMA supports voice and data transmission simultaneously.
4. Simultaneous Transmission SAR evaluation is not required for BT and Wi-Fi , because the software mechanism have been incorporated to guarantee that the WLAN and Bluetooth transmitters would not simultaneously operate.
5. Per KDB 447498D01v06, Simultaneous Transmission SAR Evaluation procedures is as followed:

   Step 1: If sum of 1 g SAR < 1.6 W/kg, Simultaneous SAR measurement is not required.

   Step 2: If sum of 1 g SAR > 1.6 W/kg, ratio of SAR to peak separation distance for pair of transmitters calculated.

   Step 3: If the ratio of SAR to peak separation distance is ≤ 0.04, Simultaneous SAR measurement is not required.

   Step 4: If the ratio of SAR to peak separation distance is > 0.04, Simultaneous SAR measurement is required and simultaneous transmission SAR value is calculated.

   (The ratio is determined by: (SAR1 + SAR2) ^ 1.5/Ri ≤ 0.04,

Ri is the separation distance between the peak SAR locations for the antenna pair in mm.

➢ **Head Simultaneous Transmission for WWAN+ 2.4GHz WLAN**

WWAN Band		Exposure Position	1	2	1+2 Summed 1g SAR (W/kg)
			WWAN	2.4GHz WLAN	
			1g SAR (W/kg)	1g SAR (W/kg)	
GSM	GSM850	Right Cheek	0.444	0.031	0.475
		Right Tilt	0.159	0.015	0.174
		Left Cheek	0.254	0.052	0.306
		Left Tilt	0.112	0.017	0.129
	GSM1900	Right Cheek	0.082	0.031	0.113
		Right Tilt	0.049	0.015	0.064
		Left Cheek	0.044	0.052	0.096
		Left Tilt	0.032	0.017	0.049
WCDMA	WCDMA Band II	Right Cheek	0.362	0.031	0.393
		Right Tilt	0.076	0.015	0.091
		Left Cheek	0.322	0.052	0.374
		Left Tilt	0.089	0.017	0.106
	WCDMA Band IV	Right Cheek	0.298	0.031	0.329
		Right Tilt	0.065	0.015	0.080
		Left Cheek	0.289	0.052	0.341
		Left Tilt	0.067	0.017	0.084
	WCDMA Band V	Right Cheek	0.394	0.031	0.425
		Right Tilt	0.184	0.015	0.199
		Left Cheek	0.351	0.052	0.403
		Left Tilt	0.167	0.017	0.184
CDMA	CDMA2000 BC0	Right Cheek	0.341	0.031	0.372
		Right Tilt	0.234	0.015	0.249
		Left Cheek	0.374	0.052	0.426
		Left Tilt	0.210	0.017	0.227
	CDMA2000 BC1	Right Cheek	0.297	0.031	0.328
		Right Tilt	0.098	0.015	0.113
		Left Cheek	0.321	0.052	0.373
		Left Tilt	0.067	0.017	0.084
	CDMA2000 BC10	Right Cheek	0.342	0.031	0.373
		Right Tilt	0.243	0.015	0.258
		Left Cheek	0.352	0.052	0.404
		Left Tilt	0.220	0.017	0.237

LTE	LTE Band 2	Right Cheek	0.075	0.031	0.106
		Right Tilt	0.033	0.015	0.048
		Left Cheek	0.044	0.052	0.096
		Left Tilt	0.023	0.017	0.040
	LTE Band 4	Right Cheek	0.339	0.031	0.370
		Right Tilt	0.087	0.015	0.102
		Left Cheek	0.370	0.052	0.422
		Left Tilt	0.081	0.017	0.098
	LTE Band 5	Right Cheek	0.407	0.031	0.438
		Right Tilt	0.288	0.015	0.303
		Left Cheek	0.378	0.052	0.430
		Left Tilt	0.276	0.017	0.293
	LTE Band 12	Right Cheek	0.052	0.031	0.083
		Right Tilt	0.022	0.015	0.037
		Left Cheek	0.041	0.052	0.093
		Left Tilt	0.019	0.017	0.036
	LTE Band 13	Right Cheek	0.222	0.031	0.253
		Right Tilt	0.132	0.015	0.147
		Left Cheek	0.139	0.052	0.191
		Left Tilt	0.089	0.017	0.106
	LTE Band 17	Right Cheek	0.044	0.031	0.075
		Right Tilt	0.020	0.015	0.035
		Left Cheek	0.043	0.052	0.095
		Left Tilt	0.021	0.017	0.038
	LTE Band 25	Right Cheek	0.074	0.031	0.105
		Right Tilt	0.046	0.015	0.061
		Left Cheek	0.052	0.052	0.104
		Left Tilt	0.040	0.017	0.057
	LTE Band 26	Right Cheek	0.528	0.031	0.559
		Right Tilt	0.323	0.015	0.338
		Left Cheek	0.480	0.052	0.532
		Left Tilt	0.300	0.017	0.317
	LTE Band 28	Right Cheek	0.076	0.031	0.107
		Right Tilt	0.073	0.015	0.088
		Left Cheek	0.058	0.052	0.110
		Left Tilt	0.029	0.017	0.046
	LTE Band 30	Right Cheek	0.173	0.031	0.204
		Right Tilt	0.061	0.015	0.076

		Left Cheek	0.121	0.052	0.173
		Left Tilt	0.044	0.017	0.061
	LTE Band 41	Right Cheek	0.059	0.031	0.090
		Right Tilt	0.046	0.015	0.061
		Left Cheek	0.045	0.052	0.097
		Left Tilt	0.037	0.017	0.054
	LTE Band 66	Right Cheek	0.096	0.031	0.127
		Right Tilt	0.033	0.015	0.048
		Left Cheek	0.047	0.052	0.099
		Left Tilt	0.026	0.017	0.043
	LTE Band 71	Right Cheek	0.026	0.031	0.057
		Right Tilt	0.012	0.015	0.027
		Left Cheek	0.031	0.052	0.083
		Left Tilt	0.017	0.017	0.034

➢ **Body-worn Simultaneous Transmission for WWAN+WLAN/BT**

WWAN Band		Exposure Position	1	2	3	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)
			WWAN	2.4GHz WLAN	Bluetooth		
			1g SAR (W/kg)	1g SAR (W/kg)	Estimated 1g SAR (W/kg)		
GSM	GSM850	Front	0.125	0.111	0.023	0.236	0.148
		Back	0.928	0.119	0.023	1.047	0.951
	GSM1900	Front	0.218	0.111	0.023	0.329	0.241
		Back	1.017	0.119	0.023	1.136	1.040
WCDMA	WCDMA Band II	Front	0.223	0.111	0.023	0.334	0.246
		Back	0.923	0.119	0.023	1.042	0.946
	WCDMA Band IV	Front	0.258	0.111	0.023	0.369	0.281
		Back	0.919	0.119	0.023	1.038	0.942
	WCDMA Band V	Front	0.125	0.111	0.023	0.236	0.148
		Back	0.513	0.119	0.023	0.632	0.536
CDMA	CDMA2000 BC0	Front	0.408	0.111	0.023	0.519	0.431
		Back	0.490	0.119	0.023	0.609	0.513
	CDMA2000 BC1	Front	0.731	0.111	0.023	0.842	0.754
		Back	0.807	0.119	0.023	0.926	0.83
	CDMA2000 BC10	Front	0.411	0.111	0.023	0.522	0.434
		Back	0.570	0.119	0.023	0.689	0.593

LTE	LTE Band 2	Front	0.241	0.111	0.023	0.352	0.264
		Back	1.013	0.119	0.023	1.132	1.036
	LTE Band 4	Front	0.246	0.111	0.023	0.357	0.269
		Back	1.031	0.119	0.023	1.150	1.054
	LTE Band 5	Front	0.175	0.111	0.023	0.286	0.198
		Back	0.698	0.119	0.023	0.817	0.721
	LTE Band 12	Front	0.141	0.111	0.023	0.252	0.164
		Back	0.277	0.119	0.023	0.396	0.300
	LTE Band 13	Front	0.420	0.111	0.023	0.531	0.443
		Back	1.091	0.119	0.023	1.210	1.114
	LTE Band 17	Front	0.149	0.111	0.023	0.260	0.172
		Back	0.296	0.119	0.023	0.415	0.319
	LTE Band 25	Front	0.145	0.111	0.023	0.256	0.168
		Back	0.930	0.119	0.023	1.049	0.953
	LTE Band 26	Front	0.158	0.111	0.023	0.269	0.181
		Back	0.587	0.119	0.023	0.706	0.610
	LTE Band 28	Front	0.298	0.111	0.023	0.409	0.321
		Back	0.448	0.119	0.023	0.567	0.471
	LTE Band 30	Front	0.078	0.111	0.023	0.189	0.101
		Back	1.032	0.119	0.023	1.151	1.055
	LTE Band 41	Front	0.017	0.111	0.023	0.128	0.040
		Back	1.142	0.119	0.023	1.261	1.165
	LTE Band 66	Front	0.225	0.111	0.023	0.336	0.248
		Back	0.929	0.119	0.023	1.048	0.952
	LTE Band 71	Front	0.042	0.111	0.023	0.153	0.065
		Back	0.100	0.119	0.023	0.219	0.123

➢ **Hotspot Simultaneous Transmission for WWAN+WLAN**

WWAN Band		Exposure Position	1 WWAN 1g SAR (W/kg)	2 2.4GHz WLAN 1g SAR (W/kg)	3 Bluetooth Estimated 1g SAR (W/kg)	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)
GSM	GSM850	Front	0.125	0.111	0.023	0.236	0.148
		Back	0.928	0.119	0.023	1.047	0.951
		Left side	0.280	0.048	0.023	0.328	0.303
		Right side	0.238		0.023	0.238	0.261
		Top side		0.221	0.023	0.221	0.023
		Bottom side	0.136		0.023	0.136	0.159
	GSM1900	Front	0.218	0.111	0.023	0.329	0.241
		Back	1.017	0.119	0.023	1.136	1.040
		Left side	0.241	0.048	0.023	0.289	0.264
		Right side	0.182		0.023	0.182	0.205
		Top side		0.221	0.023	0.221	0.023
		Bottom side	0.738		0.023	0.738	0.761
WCDMA	WCDMA Band II	Front	0.223	0.111	0.023	0.334	0.246
		Back	0.923	0.119	0.023	1.042	0.946
		Left side	0.159	0.048	0.023	0.207	0.182
		Right side	0.178		0.023	0.178	0.201
		Top side		0.221	0.023	0.221	0.023
		Bottom side	0.567		0.023	0.567	0.590
	WCDMA Band IV	Front	0.258	0.111	0.023	0.369	0.281
		Back	0.919	0.119	0.023	1.038	0.942
		Left side	0.193	0.048	0.023	0.241	0.216
		Right side	0.239		0.023	0.239	0.262
		Top side		0.221	0.023	0.221	0.023
		Bottom side	0.474		0.023	0.474	0.497
	WCDMA Band V	Front	0.125	0.111	0.023	0.236	0.148
		Back	0.513	0.119	0.023	0.632	0.536
		Left side	0.186	0.048	0.023	0.234	0.209
		Right side	0.192		0.023	0.192	0.215
		Top side		0.221	0.023	0.221	0.023
		Bottom side	0.149		0.023	0.149	0.172
CDMA	CDMA2000	Front	0.158	0.111	0.023	0.269	0.181

	BC0	Back	0.599	0.119	0.023	0.718	0.622
		Left side	0.287	0.048	0.023	0.335	0.31
		Right side	0.308		0.023	0.308	0.331
		Top side		0.221	0.023	0.221	0.023
		Bottom side	0.119		0.023	0.119	0.142
	CDMA2000 BC1	Front	0.226	0.111	0.023	0.337	0.249
		Back	0.915	0.119	0.023	1.034	0.938
		Left side	0.135	0.048	0.023	0.183	0.158
		Right side	0.193		0.023	0.193	0.216
		Top side		0.221	0.023	0.221	0.023
		Bottom side	0.728		0.023	0.728	0.751
	CDMA2000 BC10	Front	0.151	0.111	0.023	0.262	0.174
		Back	0.484	0.119	0.023	0.603	0.507
		Left side	0.300	0.048	0.023	0.348	0.323
		Right side	0.286		0.023	0.286	0.309
		Top side		0.221	0.023	0.221	0.023
		Bottom side	0.105		0.023	0.105	0.128
LTE	LTE Band 2	Front	0.241	0.111	0.023	0.352	0.264
		Back	1.013	0.119	0.023	1.132	1.036
		Left side	0.155	0.048	0.023	0.203	0.178
		Right side	0.204		0.023	0.204	0.227
		Top side		0.221	0.023	0.221	0.023
		Bottom side	0.572		0.023	0.572	0.595
	LTE Band 4	Front	0.246	0.111	0.023	0.357	0.269
		Back	1.031	0.119	0.023	1.150	1.054
		Left side	0.218	0.048	0.023	0.266	0.241
		Right side	0.223		0.023	0.223	0.246
		Top side		0.221	0.023	0.221	0.023
		Bottom side	0.496		0.023	0.496	0.519
	LTE Band 5	Front	0.175	0.111	0.023	0.286	0.198
		Back	0.698	0.119	0.023	0.817	0.721
		Left side	0.205	0.048	0.023	0.253	0.228
		Right side	0.226		0.023	0.226	0.249
		Top side		0.221	0.023	0.221	0.023
		Bottom side	0.144		0.023	0.144	0.167
	LTE Band 12	Front	0.141	0.111	0.023	0.252	0.164
		Back	0.277	0.119	0.023	0.396	0.300
		Left side	0.240	0.048	0.023	0.288	0.263

		Right side	0.242		0.023	0.242	0.265
		Top side		0.221	0.023	0.221	0.023
		Bottom side	0.026		0.023	0.026	0.049
	LTE Band 13	Front	0.420	0.111	0.023	0.531	0.443
		Back	1.091	0.119	0.023	1.210	1.114
		Left side	0.632	0.048	0.023	0.680	0.655
		Right side	0.664		0.023	0.664	0.687
		Top side		0.221	0.023	0.221	0.023
		Bottom side	0.058		0.023	0.058	0.081
	LTE Band 17	Front	0.149	0.111	0.023	0.260	0.172
		Back	0.296	0.119	0.023	0.415	0.319
		Left side	0.234	0.048	0.023	0.282	0.257
		Right side	0.254		0.023	0.254	0.277
		Top side		0.221	0.023	0.221	0.023
		Bottom side	0.026		0.023	0.026	0.049
	LTE Band 25	Front	0.145	0.111	0.023	0.256	0.168
		Back	0.930	0.119	0.023	1.049	0.953
		Left side	0.157	0.048	0.023	0.205	0.180
		Right side	0.209		0.023	0.209	0.232
		Top side		0.221	0.023	0.221	0.023
		Bottom side	0.539		0.023	0.539	0.562
	LTE Band 26	Front	0.158	0.111	0.023	0.269	0.181
		Back	0.587	0.119	0.023	0.706	0.610
		Left side	0.187	0.048	0.023	0.235	0.210
		Right side	0.207		0.023	0.207	0.230
		Top side		0.221	0.023	0.221	0.023
		Bottom side	0.119		0.023	0.119	0.142
	LTE Band 28	Front	0.298	0.111	0.023	0.409	0.321
		Back	0.448	0.119	0.023	0.567	0.471
		Left side	0.333	0.048	0.023	0.381	0.356
		Right side	0.383		0.023	0.383	0.406
		Top side		0.221	0.023	0.221	0.023
		Bottom side	0.034		0.023	0.034	0.057
	LTE Band 30	Front	0.078	0.111	0.023	0.189	0.101
		Back	1.032	0.119	0.023	1.151	1.055
		Left side	0.047	0.048	0.023	0.095	0.070
		Right side	0.145		0.023	0.145	0.168
		Top side		0.221	0.023	0.221	0.023

		Bottom side	0.489		0.023	0.489	0.512
	LTE Band 41	Front	0.017	0.111	0.023	0.128	0.040
		Back	1.142	0.119	0.023	1.261	1.165
		Left side	0.268	0.048	0.023	0.316	0.291
		Right side	0.316		0.023	0.316	0.339
		Top side		0.221	0.023	0.221	0.023
		Bottom side	0.750		0.023	0.750	0.773
	LTE Band 66	Front	0.225	0.111	0.023	0.336	0.248
		Back	0.929	0.119	0.023	1.048	0.952
		Left side	0.192	0.048	0.023	0.240	0.215
		Right side	0.253		0.023	0.253	0.276
		Top side		0.221	0.023	0.221	0.023
		Bottom side	0.511		0.023	0.511	0.534
	LTE Band 71	Front	0.042	0.111	0.023	0.153	0.065
		Back	0.100	0.119	0.023	0.219	0.123
		Left side	0.061	0.048	0.023	0.109	0.084
		Right side	0.079		0.023	0.079	0.102
		Top side		0.221	0.023	0.221	0.023
		Bottom side	0.017		0.023	0.017	0.040

18. Uncertainty Assessment

The component of uncertainly may generally be categorized according to the methods used to evaluate them. The evaluation of uncertainly by the statistical analysis of a series of observations is termed a Type An evaluation of uncertainty. The evaluation of uncertainty by means other than the statistical analysis of a series of observation is termed a Type B evaluation of uncertainty. Each component of uncertainty, however evaluated, is represented by an estimated standard deviation, termed standard uncertainty, which is determined by the positive square root of the estimated variance.

A Type A evaluation of standard uncertainty may be based on any valid statistical method for treating data. This includes calculating the standard deviation of the mean of a series of independent observations; using the method of least squares to fit a curve to the data in order to estimate the parameter of the curve and their standard deviations; or carrying out an analysis of variance in order to identify and quantify random effects in certain kinds of measurement.

A type B evaluation of standard uncertainty is typically based on scientific judgment using all of the relevant information available. These may include previous measurement data, experience, and knowledge of the behavior and properties of relevant materials and instruments, manufacture's specification, data provided in calibration reports and uncertainties assigned to reference data taken from handbooks. Broadly speaking, the uncertainty is either obtained from an outdoor source or obtained from an assumed distribution, such as the normal distribution, rectangular or triangular distributions indicated in table below.

Uncertainty	Normal	Rectangular	Triangular	U-Shape
Multi-plying Factor[a]	1/k[b]	$1/\sqrt{3}$	$1/\sqrt{6}$	$1/\sqrt{2}$

Table 8.1. Standard Uncertainty for Assumed Distribution

(a) standard uncertainty is determined as the product of the multiplying factor and the estimated range of variations in the measured quantity

(b) κ is the coverage factor

The combined standard uncertainty of the measurement result represents the estimated standard deviation of the result. It is obtained by combining the individual standard uncertainties of both Type A and Type B evaluation using the usual "root-sum-squares" (RSS) methods of combining standard deviations by taking the positive square root of the estimated variances.

Expanded uncertainty is a measure of uncertainty that defines an interval about the measurement result within which the measured value is confidently believed to lie. It is obtained by multiplying the combined standard uncertainty by a coverage factor. Typically, the coverage factor ranges from 2 to 3. Using a coverage factor allows the true value of a measured quantity to be specified with a defined probability within the specified uncertainty range. For purpose of this document, a coverage factor two is used, which corresponds to confidence interval of about 95 %. The DASY uncertainty Budget is shown in the following

tables.

Error Description	Uncertainty Value (±%)	Probability	Divisor	(Ci) 1g	(Ci) 10g	Standard Uncertainty (1g) (±%)	Standard Uncertainty (10g) (±%)
Measurement System							
Probe Calibration	6.0	N	1	1	1	6.0	6.0
Axial Isotropy	4.7	R	1.732	0.7	0.7	1.9	1.9
Hemispherical Isotropy	9.6	R	1.732	0.7	0.7	3.9	3.9
Boundary Effects	1.0	R	1.732	1	1	0.6	0.6
Linearity	4.7	R	1.732	1	1	2.7	2.7
System Detection Limits	1.0	R	1.732	1	1	0.6	0.6
Modulation Response	3.2	R	1.732	1	1	1.8	1.8
Readout Electronics	0.3	N	1	1	1	0.3	0.3
Response Time	0.0	R	1.732	1	1	0.0	0.0
Integration Time	2.6	R	1.732	1	1	1.5	1.5
RF Ambient Noise	3.0	R	1.732	1	1	1.7	1.7
RF Ambient Reflections	3.0	R	1.732	1	1	1.7	1.7
Probe Positioner	0.4	R	1.732	1	1	0.2	0.2
Probe Positioning	2.9	R	1.732	1	1	1.7	1.7
Max. SAR Eval.	2.0	R	1.732	1	1	1.2	1.2
Test Sample Related							
Device Positioning	3.0	N	1	1	1	3.0	3.0
Device Holder	3.6	N	1	1	1	0.089	0.089
Power Drift	5.0	R	1.732	1	1	2.9	2.9
Power Scaling	0.0	R	1.732	1	1	0.0	0.0
Phantom and Setup							
Phantom Uncertainty	6.1	R	1.732	1	1	3.5	3.5
SAR correction	0.0	R	1.732	1	0.84	0.0	0.0
Liquid Conductivity Repeatability	0.2	N	1	0.78	0.71	0.1	0.1
Liquid Conductivity (target)	5.0	R	1.732	0.78	0.71	2.3	2.0
Liquid Conductivity (mea.)	2.5	R	1.732	0.78	0.71	1.1	1.0
Temp. unc. - Conductivity	3.4	R	1.732	0.78	0.71	1.5	1.4
Liquid Permittivity Repeatability	0.15	N	1	0.23	0.26	0.0	0.0
Liquid Permittivity (target)	5.0	R	1.732	0.23	0.26	0.7	0.8
Liquid Permittivity (mea.)	2.5	R	1.732	0.23	0.26	0.3	0.4
Temp. unc. - Permittivity	0.83	R	1.732	0.23	0.26	0.1	0.1
Combined Std. Uncertainty						11.4%	11.4%
Coverage Factor for 95 %						K=2	K=2
Expanded STD Uncertainty						22.9%	22.7%

Error Description	Uncertainty Value (±%)	Probability	Divisor	(Ci) 1g	(Ci) 10g	Standard Uncertainty (1g) (±%)	Standard Uncertainty (10g) (±%)
Measurement System							
Probe Calibration	6.55	N	1	1	1	6.0	6.0
Axial Isotropy	4.7	R	1.732	0.7	0.7	1.9	1.9
Hemispherical Isotropy	9.6	R	1.732	0.7	0.7	3.9	3.9
Boundary Effects	2.0	R	1.732	1	1	1.2	1.2
Linearity	4.7	R	1.732	1	1	2.7	2.7
System Detection Limits	1.0	R	1.732	1	1	0.6	0.6
Modulation Response	3.2	R	1.732	1	1	1.8	1.8
Readout Electronics	0.3	N	1	1	1	0.3	0.3
Response Time	0.0	R	1.732	1	1	0.0	0.0
Integration Time	2.6	R	1.732	1	1	1.5	1.5
RF Ambient Noise	3.0	R	1.732	1	1	1.7	1.7
RF Ambient Reflections	3.0	R	1.732	1	1	1.7	1.7
Probe Positioner	0.4	R	1.732	1	1	0.2	0.2
Probe Positioning	6.7	R	1.732	1	1	3.9	3.9
Max. SAR Eval.	4.0	R	1.732	1	1	2.3	2.3
Test Sample Related							
Device Positioning	3.0	N	1	1	1	3.0	3.0
Device Holder	3.6	N	1	1	1	0.089	0.089
Power Drift	5.0	R	1.732	1	1	2.9	2.9
Power Scaling	0.0	R	1.732	1	1	0.0	0.0
Phantom and Setup							
Phantom Uncertainty	6.1	R	1.732	1	1	3.8	3.8
SAR correction	0.0	R	1.732	1	0.84	0.0	0.0
Liquid Conductivity Repeatability	0.2	N	1	0.78	0.71	0.1	0.1
Liquid Conductivity (target)	5.0	R	1.732	0.78	0.71	2.3	2.0
Liquid Conductivity (mea.)	2.5	R	1.732	0.78	0.71	1.1	1.0
Temp. unc. - Conductivity	3.4	R	1.732	0.78	0.71	1.5	1.4
Liquid Permittivity Repeatability	0.15	N	1	0.23	0.26	0.0	0.0
Liquid Permittivity (target)	5.0	R	1.732	0.23	0.26	0.7	0.8
Liquid Permittivity (mea.)	2.5	R	1.732	0.23	0.26	0.3	0.4
Temp. unc. - Permittivity	0.83	R	1.732	0.23	0.26	0.1	0.1
Combined Std. Uncertainty						12.5%	12.5%
Coverage Factor for 95 %						K=2	K=2
Expanded STD Uncertainty						25.1 %	25.1%

Annex A General Information

1. Identification of the Responsible Testing Laboratory

Laboratory Name:	Shenzhen Morlab Communications Technology Co., Ltd.Morlab Laboratory
Laboratory Address:	FL.1-3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China
Telephone:	+86 755 36698555
Facsimile:	+86 755 36698525

2. Identification of the Responsible Testing Location

Name:	Shenzhen Morlab Communications Technology Co., Ltd. Morlab Laboratory
Address:	FL.1-3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China

Note：

The main report is end here and the other annex(B,C,D,E) will be submitted separately.

****** END OF REPORT ******