REPORT No.: SZ20010191S01

TEST REPORT

APPLICANT	:	Nubia Technology Co.,Ltd.
PRODUCT NAME	:	5G Digital Mobile Phone
MODEL NAME	:	NX659J
BRAND NAME	:	REDMAGIC
FCC ID	:	2AHJO-NX659J
STANDARD(S)	:	47 CFR Part 2(2.1093) IEEE 1528-2013
RECEIPT DATE	:	2020-01-19
TEST DATE	:	2020-03-15 to 2020-04-01
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Changed History		
Version	**Date**	**Reason for Change**
1.0	2020-04-03	Original

1. SAR Results Summary

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

<Highest Reported SAR Summary>

Frequency Band		Highest SAR Summary			
		Head (Gap 0mm)	Body-worn (Gap 10mm)	Hotspot (Gap 10mm)	Extremity (Gap 0mm)
		1g SAR (W/kg)			10g SAR (W/kg)
GSM	GSM850	0.601	0.486	0.486	N/A
	GSM1900	0.680	0.445	0.445	N/A
WCDMA	WCDMA Band II	0.686	0.536	0.536	N/A
	WCDMA Band IV	0.772	0.581	0.581	N/A
	WCDMA Band V	0.582	0.388	0.388	N/A
CDMA	CDMA2000 BC0	1.133	0.373	0.373	N/A
	CDMA2000 BC1	0.818	0.523	0.523	N/A
LTE	LTE Band 2	0.721	0.558	0.558	N/A
	LTE Band 4	0.719	0.549	0.549	N/A
	LTE Band 5	0.706	0.379	0.379	N/A
	LTE Band 7	0.874	0.544	1.037	N/A
	LTE Band 12	0.736	0.137	0.137	N/A
	LTE Band 18	0.698	0.350	0.350	N/A
	LTE Band 19	0.734	0.334	0.334	N/A
	LTE Band 26	0.679	0.325	0.325	N/A
5G NR	Sub-6G n41	0.215	0.181	0.226	N/A
WLAN	2.4GHz WLAN	0.475	0.130	0.130	N/A
	5GHz WLAN	0.434	0.126	N/A	0.253
2.4GHz Band	Bluetooth (Estimated)	N/A	0.134	0.134	N/A

Max Scaled SAR_{1g} (W/Kg):	Head:	1.133 W/kg	Limit(W/kg): 1.6 W/kg
	Body-worn:	0.581 W/kg	
	Hotspot:	1.037 W/kg	
Max Scaled SAR_{10g} (W/Kg):	Extremity	W/kg	Limit(W/kg): 4.0 W/kg

Highest Simultaneous Transmission SAR_{1g} (W/Kg):	1.443 W/kg	Limit(W/kg): 1.6 W/kg

Note:

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. Technical Information

Note: Provide by applicant.

2.1. Applicant and Manufacturer Information

Applicant:	Nubia Technology Co.,Ltd.
Applicant Address:	16/F,Building 2,chongwen Park,Nanshan zhiyuan,3370 Liuxian Road,Nanshan District,Shenzhen,China.
Manufacturer:	Nubia Technology Co.,Ltd.
Manufacturer Address:	16/F,Building 2,chongwen Park,Nanshan zhiyuan,3370 Liuxian Road,Nanshan District,Shenzhen,China.

2.2. Equipment Under Test (EUT) Description

EUT Name:	5G Digital Mobile Phone
Hardware Version:	NX659J_V1AMB
Software Version:	NX659J_ENCommon_V1.22
Frequency Bands:	GSM 850: 824 MHz ~ 849 MHz GSM 1900: 1850 MHz ~ 1910 MHz WCDMA Band II: 1850 MHz ~ 1910 MHz WCDMA Band IV: 1710 MHz ~ 1755 MHz WCDMA Band V: 824 MHz ~ 849 MHz CDMA BC 0: 824 MHz ~ 849 MHz CDMA BC 1: 1850 MHz ~ 1910 MHz LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2500 MHz ~ 2570 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 17: 704 MHz ~ 716 MHz LTE Band 18: 815 MHz ~ 830 MHz LTE Band 19: 830 MHz ~ 845 MHz LTE Band 26: 814 MHz ~ 849 MHz Sub-6G n41: 2496 MHz ~ 2690 MHz WLAN 2.4GHz: 2412 MHz ~ 2462 MHz WLAN 5.2GHz: 5180 MHz ~ 5240 MHz WLAN 5.3GHz: 5260 MHz ~ 5320 MHz WLAN 5.5GHz: 5500 MHz ~ 5720 MHz

	WLAN 5.8GHz: 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz NFC: 13.56 MHz	
Modulation Mode:	GSM/GPRS: GMSK EDGE: 8PSK WCDMA: QPSK/16QAM 1XRTT: QPSK EV-DO Rev.0/A/B: QPSK LTE: QPSK/16QAM/64QAM 5G NR: QPSK/16QAM/64QAM/256QAM 802.11b: DSSS 802.11a/g/n-HT20/HT40/ac-VHT20/40/80: OFDM 802.11ax-HEW20/40/80: OFDMA BR+EDR: GFSK(1Mbps), π/4-DQPSK(2Mbps), 8-DPSK(3Mbps) Bluetooth LE: GFSK(1Mbps), π/4-DQPSK(2Mbps) NFC: ASK	
Multi-slot Class:	GPRS: Multi-slot Class 12; EDGE: Multi-slot Class 12;	
Operation Class:	Class B	
Hotspot Mode:	WWAN/2.4GHz WLAN	
Antenna Type:	WWAN: Fixed Internal WLAN: PIFA Antenna Bluetooth: PIFA Antenna	
Battery:	Manufacturer:	Dongguan Amperex Technology Limited
	Model Name:	Li3945T44P8h526391
	Capacity:	4400mAh
	Rated Voltage:	3.87V
SIM Cards Description:	SIM 1	GSM+CDMA+WCDMA+LTE+NR
	SIM 2	GSM+CDMA+WCDMA+LTE
	For dual SIM card version, SIM 1 and SIM 2 are the same chipset unit and tested as a single chipset, the SIM 1 is selected for testing	

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; FDD-LTE Band 2/4/5/7/12/18/19/26; Sub-6G n41; WLAN 2.4GHz; WLAN 5GHz;
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(Maximum output power) FDD-LTE Band 2/4/5/7/12/18/19/26 (Maximum output power) Sub-6G n41 (Maximum output power) WLAN 2.4GHz Ant.0 (Power Setting=10) WLAN 2.4GHz Ant.1 (Power Setting=15) WLAN 5GHz Ant.0 (Power Setting=6) WLAN 5GHz Ant.1 (Power Setting=10)

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.

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

4.1. Uncontrolled Environment

Uncontrolled Environments are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure. The general population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity.

4.2. Controlled Environment

Controlled Environments are defined as locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, (i.e. as a result of employment or occupation). In general, occupational/controlled exposure limits are applicable to situations in which persons are exposed as a consequence of their employment, who have been made fully aware of the potential for exposure and can exercise control over their exposure. The exposure category is also applicable when the exposure is of a transient nature due to incidental passage through a location where the exposure levels may be higher than the general population/uncontrolled limits, but the exposed person is fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

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. 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)
2. Whole-Body SAR is averaged over the entire body, partial-body SAR is averaged over any 1gram of tissue defined as a tissue volume in the shape of a cube. SAR for hands, wrists, feet and ankles is averaged over any 10 grams of tissue defined as a tissue volume in the shape of a cube.

5. Applied Reference Documents

Leading reference documents for testing:

No.	Identity	Document Title	Method determination /Remark
1	47 CFR Part 2(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

Note 1: The test item is not applicable.

Note 2: Additions to, deviation, or exclusions from the method shall be judged in the "method determination" column of add, deviate or exclude from the specific method shall be explained in the "Remark" of the above table.

6. SAR Measurement System

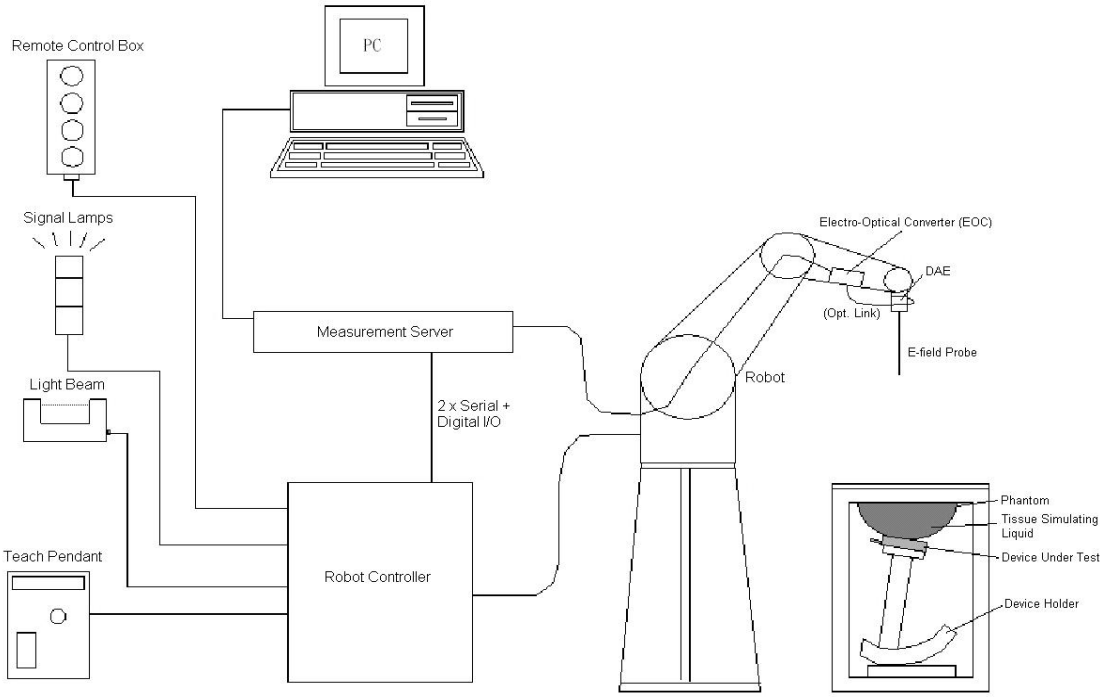


Fig 6.1 SPEAG DASY System Configurations

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>

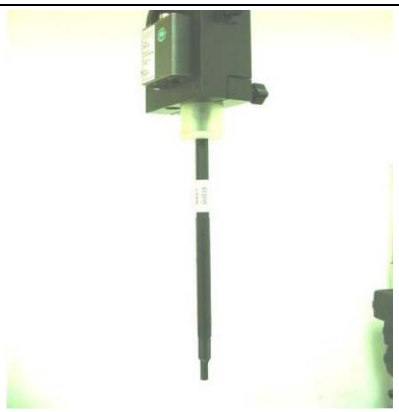
Construction	Symmetrical design with triangular core Built-in optical fiber for surface detection system. Built-in shielding against static charges. PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	
Frequency	10 MHz to 3 GHz; Linearity: ± 0.2 dB	
Directivity	± 0.2 dB in HSL (rotation 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	

Fig 6.2 Photo of ES3DV3

<EX3DV4 Probe>

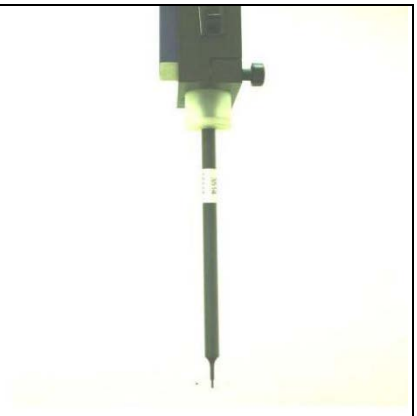
Construction	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	
Frequency	10 MHz to 6 GHz; Linearity: ± 0.2 dB	
Directivity	± 0.3 dB in HSL (rotation around probe axis) ± 0.5 dB in tissue material (rotation 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	

Fig 6.3 Photo of EX3DV4

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 6.4 Photo 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 6.6 Photo of Server for DASY5

6.5. Light Beam Unit

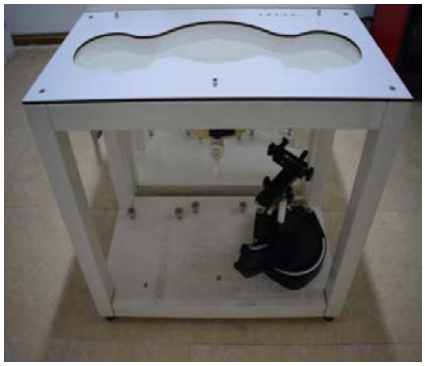
The light beam switch allows automatic "tooling" of the probe. During the process, the actual position of the probe tip with respect to the robot arm is measured, as well as the probe length and the horizontal probe offset. The software then corrects all movements, such that the robot coordinates are 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 6.8 Photo 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.

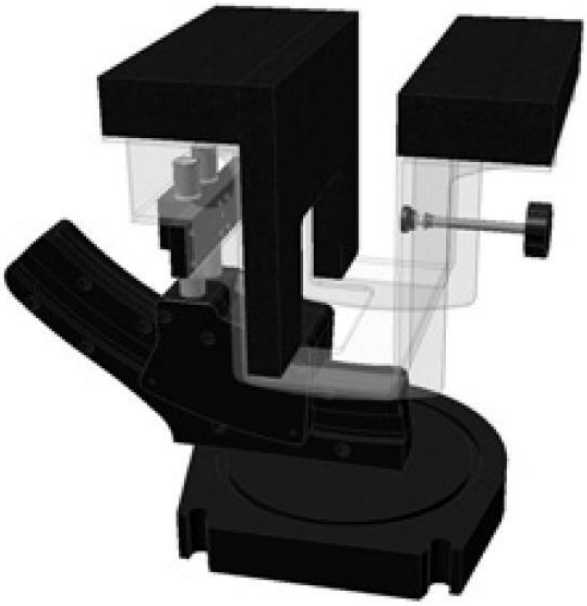


Fig 6.10 Laptop Extension Kit

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	2018.06.21	2021.06.20
SPEAG	835MHz System Validation Kit	D835V2	4d227	2018.06.22	2021.06.21
SPEAG	1750MHz System Validation Kit	D1750V2	1160	2018.06.25	2021.06.24
SPEAG	1900MHz System Validation Kit	D1900V2	5d221	2018.06.22	2021.06.21
SPEAG	2450MHz System Validation Kit	D2450V2	805	2018.10.26	2021.10.25
SPEAG	2600MHz System Validation Kit	D2600V2	1139	2018.06.25	2021.06.24
SPEAG	5000MHz System Validation Kit	D5GHzV2	1176	2018.11.06	2021.11.05
SPEAG	Dosimetric E-Field Probe	EX3DV4	3823	2020.01.03	2021.01.02
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	2019.11.03	2020.11.02
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
Anritsu	Radio Communication Analyzer	MT 8821C	6261830572	2020.02.25	2021.02.21
Anritsu	Radio Communication Analyzer	MT8000A	6262012906	2019.10.07	2020.10.06
Agilent	Network Analyzer	E5071B	MY42404762	2019.04.15	2020.04.14
mini-circuits	Amplifier	ZHL-42W+	608501717	NCR	NCR
mini-circuits	Amplifier	ZVE-8G+	754401735	NCR	NCR
Agilent	Signal Generator	N5182B	MY53050509	2019.04.17	2020.04.16
Agilent	Power Senor	N8482A	MY41090849	2019.10.28	2020.10.27
Agilent	Power Meter	E4416A	MY45102093	2019.10.28	2020.10.27
Anritsu	Power Sensor	MA2411B	N/A	2019.10.28	2020.10.27
Anritsu	Power Meter	NRVD	101066	2019.10.28	2020.10.27
Agilent	Dual Directional Coupler	778D	50422	NA	NA
MCL	Attenuation1	351-218-010	N/A	NA	NA
THERMOMETER	Thermo meter	DC-803	N/A	2020.03.04	2020.06.03
N/A	Tissue Simulating Liquids	700-6000MHz	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 of1W 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 of the field distribution inside the phantom, the phantom must be filled with homogeneous 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. 7.1. 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. 7.2.Thenominaldielectricvaluesofthe tissue simulating liquids in the phantom and the tolerance of 5%are listed in below table.

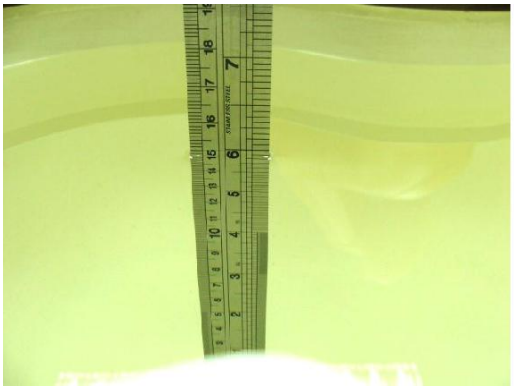


Fig 7.1 Photo of Liquid Height for Head SAR

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

Frequency (MHz)	Tissue Type	Liquid Temp. (℃)	Conductivity (σ)	Conductivity Target (σ)	Delta (σ) (%)	Limit (%)	Date
750	HSL	22.5	0.929	0.89	0.89	±5	2020/3/15
835	HSL	22.1	0.904	0.90	0.90	±5	2020/3/23
1750	HSL	22.4	1.416	1.37	1.37	±5	2020/3/25
1900	HSL	22.3	1.349	1.40	1.40	±5	2020/3/31
2450	HSL	22.2	1.870	1.80	1.80	±5	2020/3/28
2600	HSL	22.2	2.053	1.96	1.96	±5	2020/3/27
5250	HSL	22.1	4.532	4.71	4.71	±5	2020/4/1
5750	HSL	22.2	5.030	5.22	5.22	±5	2020/3/29
Frequency (MHz)	Tissue Type	Liquid Temp. (℃)	Permittivity (ε_r)	Permittivity Target (ε_r)	Delta (ε_r) (%)	Limit (%)	Date
750	HSL	22.5	42.139	41.90	0.57	±5	2020/3/15
835	HSL	22.1	41.134	41.50	-0.88	±5	2020/3/23
1750	HSL	22.4	39.417	40.10	-1.70	±5	2020/3/25
1900	HSL	22.3	41.316	40.00	3.29	±5	2020/3/31
2450	HSL	22.2	38.061	39.20	-2.91	±5	2020/3/28
2600	HSL	22.2	37.321	39.00	-4.31	±5	2020/3/27
5250	HSL	22.1	34.968	35.95	-2.73	±5	2020/4/1
5750	HSL	22.2	34.288	35.35	-3.00	±5	2020/3/29

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.

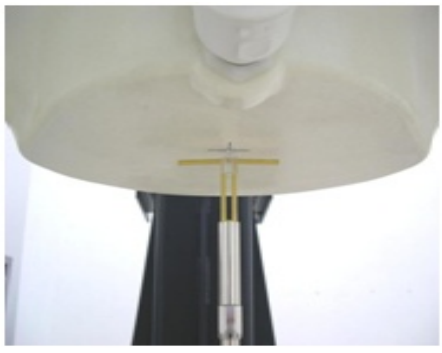


Fig 8.1 Photo of Dipole Setup

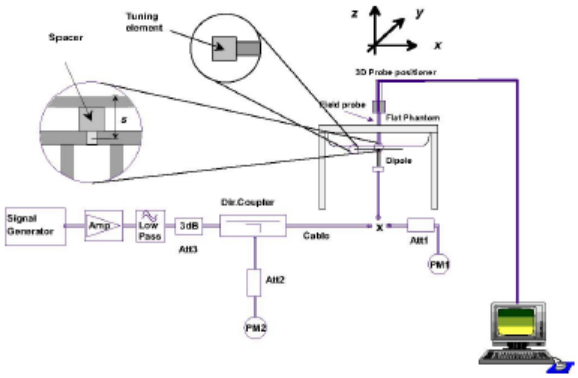


Fig 8.2 System Setup for System Evaluation

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)2	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
2450	HSL	250	D2450V2-805	3823	480
2600	HSL	250	D2600V2-1139	3823	480
5250	HSL	100	D5GHzV2-1176-5250	3823	480
5750	HSL	100	D5GHzV2-1176-5750	3823	480

<Validation Results>

Date	Frequency (MHz)	Tissue Type	Input Power (mW)	Measured 1g SAR (W/kg)	Targeted 1g SAR (W/kg)	Normalized 1g SAR (W/kg)	Deviation (%)
2020/3/15	750	HSL	250	2.06	8.26	8.24	-0.24
2020/3/23	835	HSL	250	2.39	9.34	9.56	2.36
2020/3/25	1750	HSL	250	9.61	37.10	38.44	3.61
2020/3/31	1900	HSL	250	9.66	39.50	38.64	-2.18
2020/3/28	2450	HSL	250	13.46	52.00	53.84	3.54
2020/3/27	2600	HSL	250	13.70	54.00	54.8	1.48
2020/4/1	5250	HSL	100	7.91	78.20	79.1	0.25
2020/3/29	5750	HSL	100	7.79	80.00	77.9	-2.62

Date	Frequency (MHz)	Tissue Type	Input Power (mW)	Measured 10g SAR (W/kg)	Targeted 10g SAR (W/kg)	Normalized 10g SAR (W/kg)	Deviation (%)
2020/3/15	750	HSL	250	1.36	5.45	5.44	-0.18
2020/3/23	835	HSL	250	1.53	6.07	6.12	0.82
2020/3/25	1750	HSL	250	5.15	20.00	20.6	3.00
2020/3/31	1900	HSL	250	5.03	20.60	20.12	-2.33
2020/3/28	2450	HSL	250	6.25	24.10	25	3.73
2020/3/27	2600	HSL	250	6.26	24.50	25.04	2.20
2020/4/1	5250	HSL	100	2.29	22.50	22.9	1.78
2020/3/29	5750	HSL	100	2.24	22.60	22.4	-0.88

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

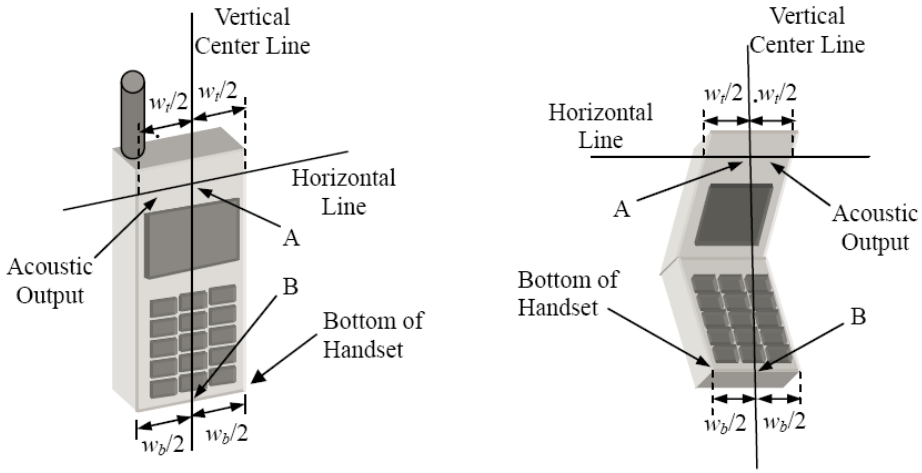


Fig. 9.2 Illustration for Handset Vertical and Horizontal Reference Lines

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)

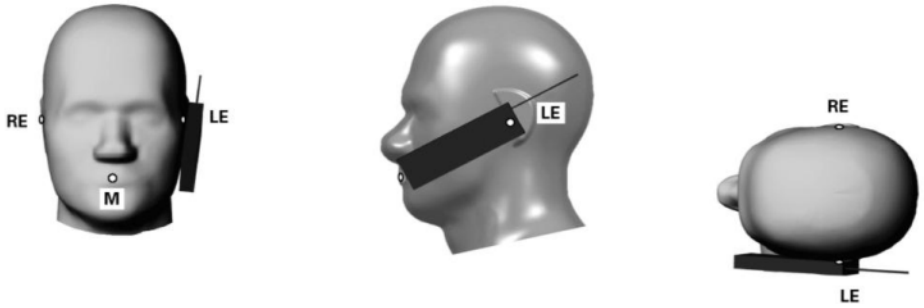


Fig 9.3 Illustration for Cheek Position

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).

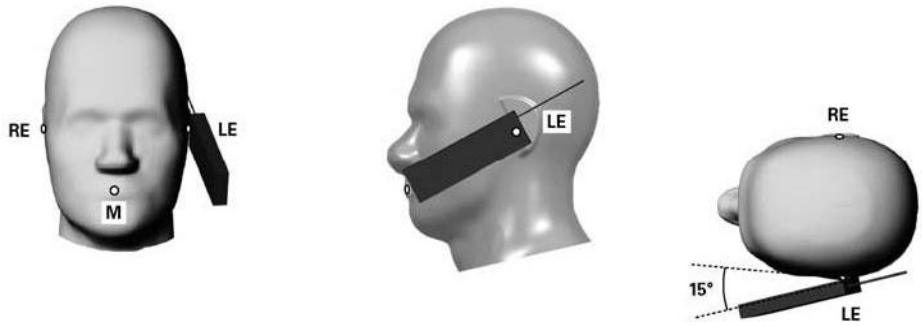


Fig 9.4 Illustration for Tilted Position

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.

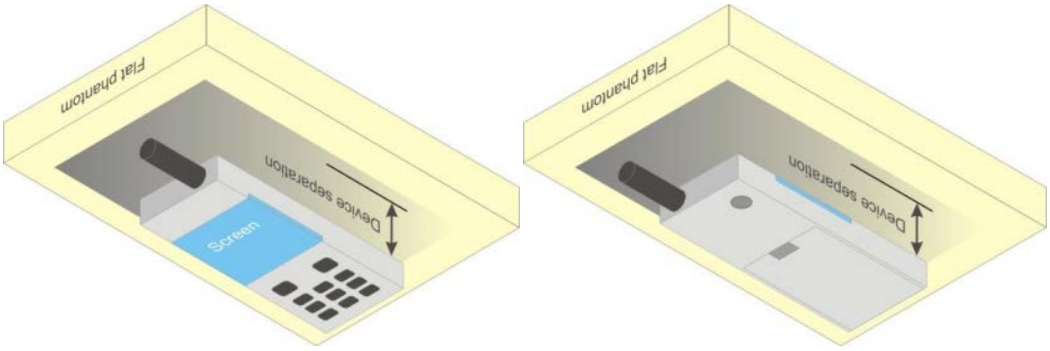


Fig 9.5 Illustration for Body Worn Position

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).

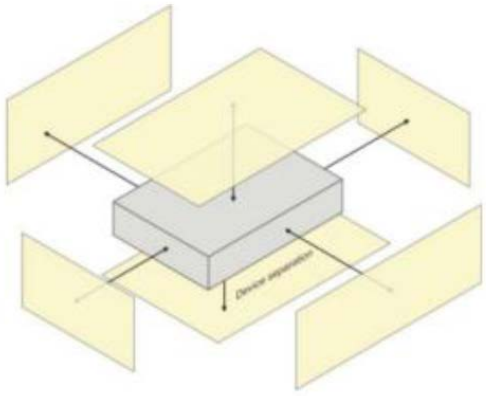


Fig 9.6 Illustration for Hotspot Position

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.

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.

			≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface			5 mm ± 1 mm	½·δ·ln(2) mm ± 0.5 mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location			30° ± 1°	20° ± 1°
Maximum area scan spatial resolution: Δx_{Area}, Δy_{Area}			≤ 2 GHz: ≤ 15 mm 2 – 3 GHz: ≤ 12 mm	3 – 4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm
			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.	
Maximum zoom scan spatial resolution: Δx_{Zoom}, Δy_{Zoom}			≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$		≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm
	graded grid	$\Delta z_{Zoom}(1)$: between 1st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{Zoom}(n>1)$: between subsequent points	≤ 1.5·$\Delta z_{Zoom}(n-1)$ mm	
Minimum zoom scan volume	x, y, z		≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm

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 *reported* 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.

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 $\Delta_{CQI} = 8 \Leftrightarrow A_{hs} = \beta_{hs}/\beta_c = 30/15 \Leftrightarrow \beta_{hs} = 30/15 * \beta_c$.
Note 2: CM = 1 for β_c/β_d =12/15, β_{hs}/β_c=24/15. 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

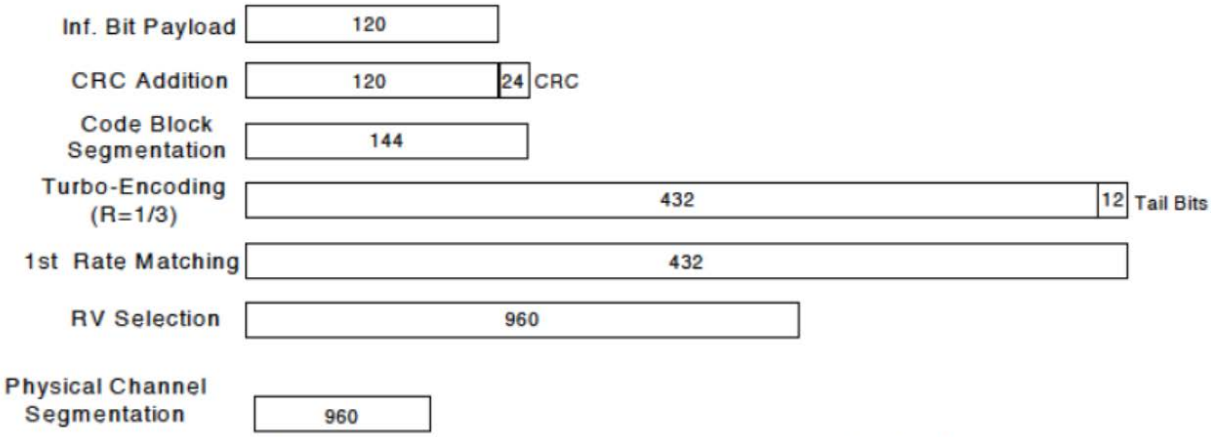


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

<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 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	Target (dB)	MPR (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 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz
2	v	v	v	v	v	v
4	v	v	v	v	v	v
5	v	v	v	v	N/A	N/A
7	N/A	N/A	v	v	v	v
12	v	v	v	v	N/A	N/A
17	N/A	N/A	v	v	N/A	N/A
18	N/A	v	v	v	v	N/A
19	N/A	v	v	v	v	N/A
26	v	v	v	v	v	N/A

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.

<WLAN 5GHz>

A)U-NII-1 and U-NII-2A Bands

For devices that operate in only one of the U-NII-1 and U-NII-2A bands, the normally required SAR procedures for OFDM configurations are applied. For devices that operate in both U-NII bands using the same transmitter and antenna(s), SAR test reduction is determined according to the following：

1) When the same maximum output power is specified for both bands, begin SAR measurement in U- NII-2A band by applying the OFDM SAR requirements. If the highest reported SAR for a test configuration is ≤ 1.2 W/kg, SAR is not required for U-NII-1 band for that configuration (802.11 mode and exposure condition); otherwise, both bands are tested independently for SAR.

2) When different maximum output power is specified for the bands, begin SAR measurement in the band with higher specified maximum output power. The highest reported SAR for the tested configuration is adjusted by the ratio of lower to higher specified maximum output power for the two bands. When the adjusted SAR is ≤ 1.2 W/kg, SAR is not required for the band with lower maximum output power in that test configuration; otherwise, both bands are tested independently for SAR.

3)The two U-NII bands may be aggregated to support a 160 MHz channel on channel number 50. Without additional testing, the maximum output power for this is limited to the lower of the maximum output power certified for the two bands. When SAR measurement is required for at least one of the bands and the highest reported SAR adjusted by the ratio of specified maximum output power of aggregated to standalone band is > 1.2 W/kg, SAR is required for the 160 MHz channel. This procedure does not apply to an aggregated band with maximum output higher than the standalone band(s); the aggregated band must be tested independently for SAR. SAR is not required when the 160 MHz channel is operating at a reduced maximum power and also qualifies for SAR test exclusion.

B)U-NII-2C and U-NII-3 Bands

The frequency range covered by these bands is 380 MHz (5.47 – 5.85 GHz), which requires a minimum of at least two SAR probe calibration frequency points to support SAR measurements. when Terminal Doppler Weather Radar (TDWR) restriction applies, all channels that operate at 5.60 – 5.65 GHz must be included to apply the SAR test reduction and measurement procedures. When the same transmitter and antenna(s) are used for U-NII-2C band and U-NII-3 band or 5.8 GHz band of §15.247, the bands may be aggregated to enable additional channels with 20, 40 or 80 MHz bandwidth to span across the band gap, as illustrated in Appendix B. The maximum output power for the additional band gap channels is limited to the lower of those certified for the bands. Unless band gap channels are permanently disabled, they must be considered for SAR testing. The frequency range covered by these bands is 380 MHz (5.47 – 5.85 GHz), which requires a minimum of at least two SAR probe calibration frequency points to support SAR measurements. To maintain SAR measurement accuracy and to facilitate test reduction, the channels in U-NII-2C band above 5.65 GHz may be grouped with the 5.8 GHz channels in U-NII-3 or §15.247 band to enable two SAR probe calibration frequency points to cover the bands, including the band gap channels. When band gap channels are supported and the bands are not aggregated for SAR testing, band gap channels must be considered independently in each band according to the normally required OFDM SAR measurement and probe calibration frequency points requirements.

C)OFDM Transmission Mode SAR Test Configuration and Channel Selection Requirements

The initial test configuration for 5 GHz OFDM transmission modes is determined by the 802.11 configuration with the highest maximum output power specified for production units, including tune-up tolerance, in each standalone and aggregated frequency band. SAR for the initial test configuration is measured using the highest maximum output power channel determined by the default power measurement procedures. When multiple configurations in a frequency band have the same specified maximum output power, the initial test configuration is determined according to the following steps applied sequentially.

1)The largest channel bandwidth configuration is selected among the multiple configurations with thesame specified maximum output power.

2)If multiple configurations have the same specified maximum output power and largest channelbandwidth, the lowest order modulation among the largest channel bandwidth configurations is selected.

3)If multiple configurations have the same specified maximum output power, largest channel bandwidthand lowest order modulation, the lowest data rate configuration among these configurations is selected.

4)When multiple transmission modes (802.11a/g/n/ac) have the same specified maximum output power,largest channel bandwidth, lowest order modulation and lowest data rate, the lowest order 802.11 mode is selected; i.e., 802.11a is chosen over 802.11n then 802.11ac or 802.11g is chosen over 802.11n. After an initial test configuration is determined, if multiple test channels have the same measured maximum output power, the channel chosen for SAR measurement is determined

according to the following. These channel selection procedures apply to both the initial test configuration and subsequent test configuration(s), with respect to the default power measurement procedures or additional power measurements required for further SAR test reduction. The same procedures also apply to subsequent highest output power channel(s) selection.

1)The channel closest to mid-band frequency is selected for SAR measurement.

2)For channels with equal separation from mid-band frequency; for example, high and low channels ortwo mid-band channels, the higher frequency (number) channel is selected for SAR measurement.

D)SAR Test Requirements for OFDM configurations

When SAR measurement is required for 802.11 a/n/ac OFDM configurations, each standalone and frequency aggregated band is considered separately for SAR test reduction. When the sametransmitter and antenna(s) are used for U-NII-1 and U-NII-2A bands, additional SAR test reduction Vapplies. When band gap channels between U-NII-2C band and 5.8 GHz U-NII-3 or §15.247 bandare supported, the highest maximum output power transmission mode configuration and maximumoutput power channel across the bands must be used to determine SAR test reduction, accordingto the initial test configuration and subsequent test configuration requirements. In applying theinitial test configuration and subsequent test configuration procedures, the 802.11 transmissionconfiguration with the highest specified maximum output power and the channel within a testconfiguration with the highest measured maximum output power should be clearly distinguished toapply the procedures.

13. Conducted RF Output Power

13.1. Conducted Power for Bottom Antenna

➢ **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	32.19	32.16	32.45	33.00	23.19	23.16	23.45	24.00
GPRS 1 Tx slot	32.29	32.25	32.54	33.00	23.29	23.25	23.54	24.00
GPRS 2 Tx slots	30.32	30.48	30.21	31.00	24.32	24.48	24.21	25.00
GPRS 3 Tx slots	27.35	27.56	27.38	28.00	23.09	23.30	23.12	23.74
GPRS 4 Tx slots	24.23	24.57	24.38	25.00	21.23	21.57	21.38	22.00
EDGE 1 Tx slot	26.39	26.46	26.29	27.00	17.39	17.46	17.29	18.00
EDGE 2 Tx slots	24.57	24.63	24.72	25.00	18.57	18.63	18.72	19.00
EDGE 3 Tx slots	21.83	22.24	21.96	22.50	17.57	17.98	17.70	18.24
EDGE 4 Tx slots	18.64	19.12	18.63	19.50	15.64	16.12	15.63	16.50

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	30.24	30.18	29.98	30.50	21.24	21.18	20.98	21.50
GPRS 1 Tx slot	30.23	30.18	29.98	30.50	21.23	21.18	20.98	21.50
GPRS 2 Tx slots	27.58	27.39	27.18	28.00	21.58	21.39	21.18	22.00
GPRS 3 Tx slots	24.99	25.17	24.85	25.50	20.73	20.91	20.59	21.24
GPRS 4 Tx slots	21.99	21.88	21.66	22.50	18.99	18.88	18.66	19.50
EDGE 1 Tx slot	25.38	25.59	25.17	26.00	16.38	16.59	16.17	17.00
EDGE 2 Tx slots	24.38	24.01	24.18	25.00	18.38	18.01	18.18	19.00
EDGE 3 Tx slots	21.38	21.72	21.26	22.00	17.12	17.46	17.00	17.74
EDGE 4 Tx slots	18.38	18.55	18.14	19.00	15.38	15.55	15.14	16.00

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 Band 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	23.64	23.61	23.58	24.00
3GPP Rel 5	HSDPA Subtest-1	22.79	22.81	22.92	23.50
3GPP Rel 5	HSDPA Subtest-2	22.30	22.34	22.41	23.50
3GPP Rel 5	HSDPA Subtest-3	22.29	22.35	22.43	23.00
3GPP Rel 5	HSDPA Subtest-4	21.78	21.75	21.72	23.00
3GPP Rel 6	HSUPA Subtest-1	20.99	20.96	20.93	21.00
3GPP Rel 6	HSUPA Subtest-2	20.76	20.83	20.70	21.00
3GPP Rel 6	HSUPA Subtest-3	20.54	20.71	20.48	21.00
3GPP Rel 6	HSUPA Subtest-4	20.31	20.28	20.25	21.00
3GPP Rel 6	HSUPA Subtest-5	20.01	19.98	19.95	20.50
3GPP Rel 7	HSPA+ (16QAM) Subtest-1	19.93	19.90	19.87	20.50

Band		WCDMA Band 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	23.57	23.54	23.44	24.00
3GPP Rel 5	HSDPA Subtest-1	22.50	22.72	22.59	23.00
3GPP Rel 5	HSDPA Subtest-2	22.06	22.07	22.05	23.00
3GPP Rel 5	HSDPA Subtest-3	21.16	21.99	22.04	22.50
3GPP Rel 5	HSDPA Subtest-4	21.09	21.10	21.11	22.50
3GPP Rel 6	HSUPA Subtest-1	20.96	20.97	20.98	21.00
3GPP Rel 6	HSUPA Subtest-2	20.83	20.84	20.75	21.00
3GPP Rel 6	HSUPA Subtest-3	20.75	20.76	20.67	21.00
3GPP Rel 6	HSUPA Subtest-4	20.41	20.62	20.43	21.00
3GPP Rel 6	HSUPA Subtest-5	20.01	20.02	20.03	20.50
3GPP Rel 7	HSPA+ (16QAM) Subtest-1	19.78	19.80	19.83	20.50

Band		WCDMA Band 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	23.52	23.57	23.55	24.00
3GPP Rel 5	HSDPA Subtest-1	22.69	22.62	22.17	23.00
3GPP Rel 5	HSDPA Subtest-2	22.67	22.62	22.13	23.00
3GPP Rel 5	HSDPA Subtest-3	22.65	22.19	22.12	23.00
3GPP Rel 5	HSDPA Subtest-4	22.64	22.19	21.72	23.00
3GPP Rel 6	HSUPA Subtest-1	21.99	21.97	21.95	22.00
3GPP Rel 6	HSUPA Subtest-2	21.51	21.69	21.47	22.00
3GPP Rel 6	HSUPA Subtest-3	20.89	20.57	20.85	21.00
3GPP Rel 6	HSUPA Subtest-4	20.78	20.46	20.74	21.00
3GPP Rel 6	HSUPA Subtest-5	20.01	19.99	19.97	20.50
3GPP Rel 7	HSPA+ (16QAM) Subtest-1	19.97	19.95	19.93	20.50

- **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	23.46	23.47	23.44	24.00
RC3 SO55	23.51	23.52	23.43	24.00
RC3 SO32 (F+SCH)	23.48	23.40	23.45	24.00
RC3 SO32 (+SCH)	23.43	23.31	23.43	24.00

Band	CDMA 2000 BC1			Tune-up Limit (dBm)
TX Channel	25	600	1175	
Frequency (MHz)	1851.25	1880	1908.75	
RC1 SO55	23.46	23.42	23.42	24.00
RC3 SO55	23.51	23.48	23.47	24.00
RC3 SO32 (F+SCH)	23.57	23.48	23.45	24.00
RC3 SO32 (+SCH)	23.59	23.49	23.50	24.00

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	24.02	23.55	23.44	24.50
RETAP 4096Bits	23.57	23.74	23.55	24.50

Band	CDMA 2000 BC1			Tune-up Limit (dBm)
TX Channel	25	600	1175	
Frequency (MHz)	1851.25	1880	1908.75	
RTAP 153.6Kbps	23.91	23.52	23.63	24.50
RETAP 4096Bits	23.69	23.60	23.63	24.50

➢ **LTE Conducted Power**

<FDD-LTE Band 2>

BW [MHz]	Modulation	RB Size	RB Offset	Low Channel	Middle Channel	High Channel	Tune-up limit (dBm)
Channel				18700	18900	19100	
Frequency (MHz)				1860	1880	1900	
20	QPSK	1	0	23.64	23.65	23.54	24.00
20	QPSK	1	49	23.53	23.50	23.34	
20	QPSK	1	99	23.64	23.63	23.53	
20	QPSK	50	0	22.68	22.74	22.64	23.00
20	QPSK	50	24	22.71	22.73	22.70	
20	QPSK	50	50	22.66	22.76	22.61	
20	QPSK	100	0	22.69	22.69	22.72	
20	16QAM	1	0	22.92	23.03	22.62	23.00
20	16QAM	1	49	22.78	22.76	22.64	
20	16QAM	1	99	23.10	22.79	23.09	
20	16QAM	50	0	21.60	21.63	21.67	22.00
20	16QAM	50	24	21.79	21.72	21.65	
20	16QAM	50	50	21.72	21.76	21.59	
20	16QAM	100	0	21.75	21.67	21.72	
20	64QAM	1	0	23.02	22.58	23.02	23.50
20	64QAM	1	49	22.88	23.04	22.68	
20	64QAM	1	99	22.86	22.68	22.54	
20	64QAM	50	0	21.55	21.67	21.64	22.00
20	64QAM	50	24	21.66	21.72	21.63	
20	64QAM	50	50	21.72	21.74	21.59	
20	64QAM	100	0	21.72	21.61	21.71	
Channel				18675	18900	19125	Tune-up limit (dBm)
Frequency (MHz)				1857.5	1880	1902.5	
15	QPSK	1	0	23.63	23.57	23.56	24.00
15	QPSK	1	37	23.50	23.65	23.52	
15	QPSK	1	74	23.63	23.62	23.56	
15	QPSK	36	0	22.61	22.67	22.51	23.00
15	QPSK	36	20	22.69	22.60	22.64	
15	QPSK	36	39	22.62	22.76	22.65	
15	QPSK	75	0	22.71	22.65	22.56	
15	16QAM	1	0	22.88	22.96	22.99	23.00

15	16QAM	1	37	22.82	22.71	22.66	
15	16QAM	1	74	22.95	22.81	22.81	
15	16QAM	36	0	21.59	21.70	21.59	22.00
15	16QAM	36	20	21.71	21.74	21.61	
15	16QAM	36	39	21.67	21.82	21.60	
15	16QAM	75	0	21.75	21.79	21.55	
15	64QAM	1	0	23.20	22.98	22.80	23.50
15	64QAM	1	37	23.08	23.18	22.74	
15	64QAM	1	74	23.10	23.12	23.13	
15	64QAM	36	0	21.54	21.68	21.53	22.00
15	64QAM	36	20	21.74	21.81	21.60	
15	64QAM	36	39	21.77	21.82	21.75	
15	64QAM	75	0	21.66	21.72	21.62	
Channel				18650	18900	19150	Tune-up limit (dBm)
Frequency (MHz)				1855	1880	1905	
10	QPSK	1	0	23.37	23.64	23.44	24.00
10	QPSK	1	25	23.28	23.40	23.19	
10	QPSK	1	49	23.23	23.28	23.22	
10	QPSK	25	0	22.49	22.47	22.30	23.00
10	QPSK	25	12	22.45	22.54	22.43	
10	QPSK	25	25	22.51	22.56	22.42	
10	QPSK	50	0	22.40	22.41	22.29	
10	16QAM	1	0	22.94	23.07	22.79	23.00
10	16QAM	1	25	22.94	22.76	22.85	
10	16QAM	1	49	22.60	22.69	22.64	
10	16QAM	25	0	21.32	21.44	21.26	22.00
10	16QAM	25	12	21.52	21.37	21.53	
10	16QAM	25	25	21.59	21.48	21.41	
10	16QAM	50	0	21.41	21.50	21.27	
10	64QAM	1	0	22.91	22.90	22.79	23.50
10	64QAM	1	25	22.82	22.74	22.96	
10	64QAM	1	49	22.53	22.84	22.62	
10	64QAM	25	0	21.52	21.53	21.31	22.00
10	64QAM	25	12	21.38	21.50	21.33	
10	64QAM	25	25	21.50	21.49	21.43	
10	64QAM	50	0	21.43	21.50	21.40	
Channel				18625	18900	19175	Tune-up

Frequency (MHz)				1852.5	1880	1907.5	limit (dBm)
5	QPSK	1	0	23.48	23.39	23.18	24.00
5	QPSK	1	12	23.52	23.50	23.28	
5	QPSK	1	24	23.55	23.48	23.23	
5	QPSK	12	0	22.50	22.42	22.32	23.00
5	QPSK	12	7	22.49	22.52	22.39	
5	QPSK	12	13	22.47	22.54	22.35	
5	QPSK	25	0	22.52	22.49	22.40	
5	16QAM	1	0	22.95	22.70	22.77	23.00
5	16QAM	1	12	22.88	22.60	22.84	
5	16QAM	1	24	22.62	22.68	22.59	
5	16QAM	12	0	21.54	21.48	21.39	22.00
5	16QAM	12	7	21.58	21.58	21.43	
5	16QAM	12	13	21.56	21.49	21.42	
5	16QAM	25	0	21.52	21.39	21.36	
5	64QAM	1	0	22.90	22.62	22.85	23.50
5	64QAM	1	12	22.95	22.69	22.58	
5	64QAM	1	24	22.96	22.69	22.50	
5	64QAM	12	0	21.47	21.39	21.34	22.00
5	64QAM	12	7	21.49	21.57	21.44	
5	64QAM	12	13	21.46	21.53	21.35	
5	64QAM	25	0	21.60	21.37	21.37	
Channel				18615	18900	19185	Tune-up limit (dBm)
Frequency (MHz)				1851.5	1880	1908.5	
3	QPSK	1	0	23.35	23.40	23.25	24.00
3	QPSK	1	8	23.37	23.46	23.43	
3	QPSK	1	14	23.39	23.47	23.30	
3	QPSK	8	0	22.50	22.47	22.29	23.00
3	QPSK	8	4	22.53	22.44	22.33	
3	QPSK	8	7	22.50	22.60	22.34	
3	QPSK	15	0	22.49	22.51	22.32	
3	16QAM	1	0	22.76	22.62	22.66	23.00
3	16QAM	1	8	22.62	22.76	22.61	
3	16QAM	1	14	22.64	22.88	22.59	
3	16QAM	8	0	21.51	21.54	21.44	22.00
3	16QAM	8	4	21.68	21.61	21.33	

3	16QAM	8	7	21.49	21.50	21.38	
3	16QAM	15	0	21.56	21.49	21.32	
3	64QAM	1	0	22.67	22.70	22.32	23.50
3	64QAM	1	8	22.74	22.69	22.36	
3	64QAM	1	14	22.63	22.65	22.46	
3	64QAM	8	0	21.45	21.62	21.32	22.00
3	64QAM	8	4	21.49	21.44	21.34	
3	64QAM	8	7	21.54	21.61	21.26	
3	64QAM	15	0	21.43	21.52	21.27	
Channel				18607	18900	19193	Tune-up limit (dBm)
Frequency (MHz)				1850.7	1880	1909.3	
1.4	QPSK	1	0	23.36	23.37	23.17	24.00
1.4	QPSK	1	3	23.42	23.44	23.23	
1.4	QPSK	1	5	23.36	23.39	23.17	
1.4	QPSK	3	0	23.41	23.38	23.20	
1.4	QPSK	3	1	23.34	23.38	23.28	
1.4	QPSK	3	3	23.38	23.40	23.22	
1.4	QPSK	6	0	22.42	22.44	22.23	23.00
1.4	16QAM	1	0	22.57	22.98	22.54	23.00
1.4	16QAM	1	3	22.59	22.64	22.51	
1.4	16QAM	1	5	22.54	22.83	22.52	
1.4	16QAM	3	0	22.46	22.41	22.23	
1.4	16QAM	3	1	22.41	22.40	22.32	
1.4	16QAM	3	3	22.32	22.55	22.31	
1.4	16QAM	6	0	21.48	21.41	21.53	22.00
1.4	64QAM	1	0	22.52	22.41	22.45	23.50
1.4	64QAM	1	3	22.57	22.65	22.55	
1.4	64QAM	1	5	22.61	22.90	22.70	
1.4	64QAM	3	0	22.71	22.52	22.28	
1.4	64QAM	3	1	22.29	22.53	22.35	
1.4	64QAM	3	3	22.64	22.49	22.37	
1.4	64QAM	6	0	21.42	21.52	21.24	22.00

<FDD-LTE Band 4>

BW [MHz]	Modulation	RB Size	RB Offset	Low Channel	Middle Channel	High Channel	Tune-up limit (dBm)
Channel				20050	20175	20300	
Frequency (MHz)				1720	1732.5	1745	
20	QPSK	1	0	23.70	23.67	23.44	24.00
20	QPSK	1	49	23.46	23.42	23.34	
20	QPSK	1	99	23.37	23.45	23.35	
20	QPSK	50	0	22.74	22.64	22.61	23.00
20	QPSK	50	24	22.72	22.51	22.47	
20	QPSK	50	50	22.58	22.43	22.30	
20	QPSK	100	0	22.62	22.43	22.55	
20	16QAM	1	0	22.83	22.82	22.85	23.00
20	16QAM	1	49	22.84	22.83	22.56	
20	16QAM	1	99	22.69	22.67	22.55	
20	16QAM	50	0	21.72	21.57	21.61	22.00
20	16QAM	50	24	21.66	21.45	21.53	
20	16QAM	50	50	21.48	21.47	21.39	
20	16QAM	100	0	21.63	21.57	21.43	
20	64QAM	1	0	22.92	22.53	22.71	23.00
20	64QAM	1	49	22.69	22.61	22.60	
20	64QAM	1	99	22.62	22.97	22.50	
20	64QAM	50	0	21.78	21.50	21.57	22.00
20	64QAM	50	24	21.62	21.49	21.50	
20	64QAM	50	50	21.60	21.42	21.38	
20	64QAM	100	0	21.62	21.57	21.51	
Channel				20025	20175	20325	Tune-up limit (dBm)
Frequency (MHz)				1717.5	1732.5	1747.5	
15	QPSK	1	0	23.69	23.54	23.52	24.00
15	QPSK	1	37	23.40	23.36	23.21	
15	QPSK	1	74	23.42	23.33	23.35	
15	QPSK	36	0	22.72	22.54	22.48	23.00
15	QPSK	36	20	22.61	22.45	22.47	
15	QPSK	36	39	22.59	22.41	22.41	
15	QPSK	75	0	22.69	22.50	22.46	
15	16QAM	1	0	22.87	22.76	22.74	23.00
15	16QAM	1	37	22.61	22.50	22.51	

15	16QAM	1	74	22.72	22.90	22.82	
15	16QAM	36	0	21.71	21.64	21.60	22.00
15	16QAM	36	20	21.56	21.56	21.50	
15	16QAM	36	39	21.63	21.39	21.41	
15	16QAM	75	0	21.68	21.53	21.51	
15	64QAM	1	0	22.66	22.82	22.66	23.00
15	64QAM	1	37	22.37	22.61	22.82	
15	64QAM	1	74	22.39	22.40	22.56	
15	64QAM	36	0	21.74	21.67	21.55	22.00
15	64QAM	36	20	21.65	21.52	21.49	
15	64QAM	36	39	21.59	21.51	21.36	
15	64QAM	75	0	21.65	21.54	21.54	
Channel				20000	20175	20350	Tune-up limit (dBm)
Frequency (MHz)				1715	1732.5	1750	
10	QPSK	1	0	23.69	23.66	23.43	24.00
10	QPSK	1	25	23.45	23.41	23.33	
10	QPSK	1	49	23.36	23.44	23.34	
10	QPSK	25	0	22.73	22.63	22.60	23.00
10	QPSK	25	12	22.71	22.50	22.46	
10	QPSK	25	25	22.57	22.42	22.29	
10	QPSK	50	0	22.61	22.42	22.54	
10	16QAM	1	0	22.82	22.81	22.84	23.00
10	16QAM	1	25	22.83	22.82	22.55	
10	16QAM	1	49	22.68	22.66	22.54	
10	16QAM	25	0	21.71	21.56	21.60	22.00
10	16QAM	25	12	21.65	21.44	21.52	
10	16QAM	25	25	21.47	21.46	21.38	
10	16QAM	50	0	21.62	21.56	21.42	
10	64QAM	1	0	22.91	22.52	22.70	23.00
10	64QAM	1	25	22.68	22.60	22.59	
10	64QAM	1	49	22.61	22.96	22.49	
10	64QAM	25	0	21.77	21.49	21.56	22.00
10	64QAM	25	12	21.61	21.48	21.49	
10	64QAM	25	25	21.59	21.41	21.37	
10	64QAM	50	0	21.61	21.56	21.50	
Channel				19975	20175	20375	Tune-up limit
Frequency (MHz)				1712.5	1732.5	1752.5	

							(dBm)
5	QPSK	1	0	23.68	23.53	23.51	24.00
5	QPSK	1	12	23.39	23.35	23.20	
5	QPSK	1	24	23.41	23.32	23.34	
5	QPSK	12	0	22.71	22.53	22.47	23.00
5	QPSK	12	7	22.60	22.44	22.46	
5	QPSK	12	13	22.58	22.40	22.40	
5	QPSK	25	0	22.68	22.49	22.45	
5	16QAM	1	0	22.86	22.75	22.73	23.00
5	16QAM	1	12	22.60	22.49	22.50	
5	16QAM	1	24	22.71	22.89	22.81	
5	16QAM	12	0	21.70	21.63	21.59	22.00
5	16QAM	12	7	21.55	21.55	21.49	
5	16QAM	12	13	21.62	21.38	21.40	
5	16QAM	25	0	21.67	21.52	21.50	
5	64QAM	1	0	22.65	22.81	22.65	23.00
5	64QAM	1	12	22.36	22.60	22.81	
5	64QAM	1	24	22.38	22.39	22.55	
5	64QAM	12	0	21.73	21.66	21.54	22.00
5	64QAM	12	7	21.64	21.51	21.48	
5	64QAM	12	13	21.58	21.50	21.35	
5	64QAM	25	0	21.64	21.53	21.53	
Channel				19965	20175	20385	Tune-up limit (dBm)
Frequency (MHz)				1711.5	1732.5	1753.5	
3	QPSK	1	0	23.67	23.52	23.50	24.00
3	QPSK	1	8	23.38	23.34	23.19	
3	QPSK	1	14	23.40	23.31	23.33	
3	QPSK	8	0	22.70	22.52	22.46	23.00
3	QPSK	8	4	22.59	22.43	22.45	
3	QPSK	8	7	22.57	22.39	22.39	
3	QPSK	15	0	22.67	22.48	22.44	
3	16QAM	1	0	22.85	22.74	22.72	23.00
3	16QAM	1	8	22.59	22.48	22.49	
3	16QAM	1	14	22.70	22.88	22.80	
3	16QAM	8	0	21.69	21.62	21.58	22.00
3	16QAM	8	4	21.54	21.54	21.48	
3	16QAM	8	7	21.61	21.37	21.39	

3	16QAM	15	0	21.66	21.51	21.49	
3	64QAM	1	0	22.64	22.80	22.64	23.00
3	64QAM	1	8	22.35	22.59	22.80	
3	64QAM	1	14	22.37	22.38	22.54	
3	64QAM	8	0	21.72	21.65	21.53	22.00
3	64QAM	8	4	21.63	21.50	21.47	
3	64QAM	8	7	21.57	21.49	21.34	
3	64QAM	15	0	21.63	21.52	21.52	
Channel				19957	20175	20393	Tune-up limit (dBm)
Frequency (MHz)				1710.7	1732.5	1754.3	
1.4	QPSK	1	0	23.68	23.65	23.42	24.00
1.4	QPSK	1	3	23.44	23.40	23.32	
1.4	QPSK	1	5	23.35	23.43	23.33	
1.4	QPSK	3	0	22.72	22.62	22.59	
1.4	QPSK	3	1	22.70	22.49	22.45	
1.4	QPSK	3	3	22.56	22.41	22.28	
1.4	QPSK	6	0	22.60	22.41	22.53	23.00
1.4	16QAM	1	0	22.81	22.80	22.83	23.00
1.4	16QAM	1	3	22.82	22.81	22.54	
1.4	16QAM	1	5	22.67	22.65	22.53	
1.4	16QAM	3	0	21.70	21.55	21.59	
1.4	16QAM	3	1	21.64	21.43	21.51	
1.4	16QAM	3	3	21.46	21.45	21.37	
1.4	16QAM	6	0	21.61	21.55	21.41	22.00
1.4	64QAM	1	0	22.90	22.51	22.69	23.00
1.4	64QAM	1	3	22.67	22.59	22.58	
1.4	64QAM	1	5	22.60	22.95	22.48	
1.4	64QAM	3	0	21.76	21.48	21.55	
1.4	64QAM	3	1	21.60	21.47	21.48	
1.4	64QAM	3	3	21.58	21.40	21.36	
1.4	64QAM	6	0	21.60	21.55	21.49	22.00

<FDD-LTE Band 5>

BW [MHz]	Modulation	RB Size	RB Offset	Low Channel	Middle Channel	High Channel	Tune-up limit (dBm)
Channel				20450	20525	20600	
Frequency (MHz)				829	836.5	844	
10	QPSK	1	0	23.25	23.12	23.36	24.00
10	QPSK	1	25	23.00	23.14	23.08	
10	QPSK	1	49	22.94	23.18	23.18	
10	QPSK	25	0	21.97	22.28	22.35	23.00
10	QPSK	25	12	21.93	22.34	22.27	
10	QPSK	25	25	21.91	22.30	22.28	
10	QPSK	50	0	22.05	22.31	22.29	
10	16QAM	1	0	22.50	22.63	22.76	23.00
10	16QAM	1	25	22.42	22.88	22.85	
10	16QAM	1	49	22.39	22.44	22.67	
10	16QAM	25	0	21.27	21.28	21.30	22.00
10	16QAM	25	12	20.93	21.41	21.30	
10	16QAM	25	25	20.99	21.32	21.21	
10	16QAM	50	0	21.28	21.16	21.26	
10	64QAM	1	0	22.45	22.75	22.60	23.00
10	64QAM	1	25	22.55	22.48	22.85	
10	64QAM	1	49	22.42	22.50	22.54	
10	64QAM	25	0	21.12	21.34	21.24	22.00
10	64QAM	25	12	21.03	21.27	21.38	
10	64QAM	25	25	20.93	21.31	21.23	
10	64QAM	50	0	21.20	21.22	21.26	
Channel				20425	20525	20625	Tune-up limit (dBm)
Frequency (MHz)				826.5	836.5	846.5	
5	QPSK	1	0	23.31	23.30	23.27	24.00
5	QPSK	1	12	22.95	23.13	23.05	
5	QPSK	1	24	22.88	23.21	23.12	
5	QPSK	12	0	21.87	22.33	22.24	23.00
5	QPSK	12	7	22.02	22.36	22.18	
5	QPSK	12	13	21.98	22.31	22.27	
5	QPSK	25	0	21.83	22.24	22.19	
5	16QAM	1	0	21.99	22.33	22.27	23.00
5	16QAM	1	12	22.00	22.45	22.36	

5	16QAM	1	24	21.95	22.29	22.19	
5	16QAM	12	0	21.10	21.38	21.23	22.00
5	16QAM	12	7	20.95	21.33	21.26	
5	16QAM	12	13	20.95	21.25	21.27	
5	16QAM	25	0	20.91	21.23	21.18	
5	64QAM	1	0	22.01	22.19	22.49	23.00
5	64QAM	1	12	22.08	22.37	22.44	
5	64QAM	1	24	22.00	22.14	22.00	
5	64QAM	12	0	20.99	21.32	21.24	22.00
5	64QAM	12	7	20.83	21.28	21.23	
5	64QAM	12	13	20.90	21.24	21.30	
5	64QAM	25	0	20.89	21.34	21.19	
Channel				20415	20525	20635	Tune-up limit (dBm)
Frequency (MHz)				825.5	836.5	847.5	
3	QPSK	1	0	22.89	23.16	23.27	24.00
3	QPSK	1	8	23.23	23.27	23.23	
3	QPSK	1	14	22.89	23.17	23.10	
3	QPSK	8	0	22.42	22.27	22.25	23.00
3	QPSK	8	4	22.35	22.32	22.29	
3	QPSK	8	7	22.09	22.27	22.17	
3	QPSK	15	0	22.10	22.22	22.23	
3	16QAM	1	0	22.39	22.86	22.39	23.00
3	16QAM	1	8	22.45	22.84	22.51	
3	16QAM	1	14	22.38	22.73	22.36	
3	16QAM	8	0	21.40	21.30	21.41	22.00
3	16QAM	8	4	21.22	21.37	21.26	
3	16QAM	8	7	20.94	21.37	21.20	
3	16QAM	15	0	21.02	21.27	21.20	
3	64QAM	1	0	22.36	22.55	22.38	23.00
3	64QAM	1	8	22.73	22.52	22.49	
3	64QAM	1	14	22.45	22.43	22.25	
3	64QAM	8	0	21.36	21.31	21.31	22.00
3	64QAM	8	4	21.21	21.41	21.19	
3	64QAM	8	7	21.09	21.22	21.18	
3	64QAM	15	0	21.07	21.22	21.19	
Channel				20407	20525	20643	Tune-up limit
Frequency (MHz)				824.7	836.5	848.3	

							(dBm)
1.4	QPSK	1	0	22.96	23.04	23.02	24.00
1.4	QPSK	1	3	23.13	23.17	23.13	
1.4	QPSK	1	5	23.18	22.99	22.93	
1.4	QPSK	3	0	22.96	23.07	23.03	
1.4	QPSK	3	1	23.10	23.01	23.06	
1.4	QPSK	3	3	22.93	23.04	23.03	
1.4	QPSK	6	0	22.11	22.19	22.02	23.00
1.4	16QAM	1	0	22.61	22.37	22.21	23.00
1.4	16QAM	1	3	22.24	22.37	22.66	
1.4	16QAM	1	5	22.51	22.58	22.56	
1.4	16QAM	3	0	22.01	22.13	22.17	
1.4	16QAM	3	1	22.15	22.30	22.22	
1.4	16QAM	3	3	22.25	22.24	22.07	
1.4	16QAM	6	0	21.25	21.26	21.07	22.00
1.4	64QAM	1	0	22.24	22.20	22.31	23.00
1.4	64QAM	1	3	22.38	22.42	22.22	
1.4	64QAM	1	5	22.28	22.23	22.23	
1.4	64QAM	3	0	22.16	22.19	22.19	
1.4	64QAM	3	1	22.29	22.20	22.28	
1.4	64QAM	3	3	22.20	22.26	22.26	
1.4	64QAM	6	0	21.28	21.29	21.17	22.00

<FDD-LTE Band 7>

BW [MHz]	Modulation	RB Size	RB Offset	Low Channel	Middle Channel	High Channel	Tune-up limit (dBm)
Channel				20850	21100	21350	
Frequency (MHz)				2510	2535	2560	
20	QPSK	1	0	20.73	20.84	20.89	21.50
20	QPSK	1	49	20.72	20.86	20.90	
20	QPSK	1	99	20.89	20.92	20.86	
20	QPSK	50	0	19.79	19.97	19.82	20.50
20	QPSK	50	24	19.96	20.04	19.90	
20	QPSK	50	50	19.86	20.15	19.93	
20	QPSK	100	0	19.99	19.95	19.88	
20	16QAM	1	0	19.88	20.09	20.11	20.50
20	16QAM	1	49	20.06	20.12	20.02	
20	16QAM	1	99	19.79	20.16	20.06	

20	16QAM	50	0	18.93	18.96	18.98	19.50
20	16QAM	50	24	18.89	19.00	18.93	
20	16QAM	50	50	18.99	19.14	18.86	
20	16QAM	100	0	18.85	19.02	18.99	
20	64QAM	1	0	19.81	20.21	19.89	20.50
20	64QAM	1	49	19.85	20.38	19.91	
20	64QAM	1	99	20.41	19.79	19.97	
20	64QAM	50	0	18.79	18.96	18.98	19.50
20	64QAM	50	24	18.87	19.10	18.92	
20	64QAM	50	50	18.83	19.00	19.00	
20	64QAM	100	0	19.01	18.97	18.83	
Channel				20825	21100	21375	Tune-up limit (dBm)
Frequency (MHz)				2507.5	2535	2562.5	
15	QPSK	1	0	20.77	20.90	20.85	21.50
15	QPSK	1	37	20.76	20.90	20.75	
15	QPSK	1	74	20.84	20.91	20.91	
15	QPSK	36	0	19.86	19.97	19.76	20.50
15	QPSK	36	20	19.97	20.03	19.89	
15	QPSK	36	39	19.98	20.05	19.92	
15	QPSK	75	0	19.88	19.89	19.93	
15	16QAM	1	0	20.01	20.05	19.85	20.50
15	16QAM	1	37	20.21	20.03	20.42	
15	16QAM	1	74	20.42	20.66	20.23	
15	16QAM	36	0	18.87	19.01	18.90	19.50
15	16QAM	36	20	18.87	19.04	18.89	
15	16QAM	36	39	18.81	19.13	18.95	
15	16QAM	75	0	18.86	19.05	18.96	
15	64QAM	1	0	20.00	20.24	20.15	20.50
15	64QAM	1	37	20.00	20.17	19.93	
15	64QAM	1	74	20.12	20.10	19.97	
15	64QAM	36	0	18.76	18.90	18.95	19.50
15	64QAM	36	20	18.95	18.99	18.89	
15	64QAM	36	39	18.92	19.08	18.96	
15	64QAM	75	0	18.81	19.07	18.88	
Channel				20800	21100	21400	Tune-up limit (dBm)
Frequency (MHz)				2505	2535	2565	

10	QPSK	1	0	20.74	20.81	20.86	21.50
10	QPSK	1	25	20.72	20.90	20.87	
10	QPSK	1	49	20.84	20.88	20.91	
10	QPSK	25	0	19.86	19.88	19.95	20.50
10	QPSK	25	12	19.85	20.07	19.87	
10	QPSK	25	25	19.91	20.07	20.01	
10	QPSK	50	0	19.86	19.99	19.92	
10	16QAM	1	0	19.85	20.39	20.35	20.50
10	16QAM	1	25	20.42	20.51	20.35	
10	16QAM	1	49	20.26	20.63	20.03	
10	16QAM	25	0	18.83	19.02	18.96	19.50
10	16QAM	25	12	18.98	19.17	18.96	
10	16QAM	25	25	18.94	19.08	18.97	
10	16QAM	50	0	18.98	19.04	18.91	
10	64QAM	1	0	20.28	20.51	20.21	20.50
10	64QAM	1	25	20.02	20.16	20.03	
10	64QAM	1	49	19.91	19.94	19.96	
10	64QAM	25	0	18.76	19.03	18.86	19.50
10	64QAM	25	12	18.84	19.03	18.88	
10	64QAM	25	25	18.95	19.13	19.02	
10	64QAM	50	0	18.91	19.07	18.93	
Channel				20775	21100	21425	Tune-up limit (dBm)
Frequency (MHz)				2502.5	2535	2567.5	
5	QPSK	1	0	20.75	20.92	20.87	21.50
5	QPSK	1	12	20.79	20.90	20.82	
5	QPSK	1	24	20.85	20.87	20.92	
5	QPSK	12	0	19.81	19.95	19.91	20.50
5	QPSK	12	7	19.92	19.98	19.84	
5	QPSK	12	13	19.82	20.04	20.07	
5	QPSK	25	0	19.88	19.99	19.94	
5	16QAM	1	0	20.02	20.09	19.85	20.50
5	16QAM	1	12	20.34	20.42	20.48	
5	16QAM	1	24	20.05	20.30	20.14	
5	16QAM	12	0	18.87	19.02	18.90	19.50
5	16QAM	12	7	18.88	19.12	19.00	
5	16QAM	12	13	18.88	19.12	18.97	
5	16QAM	25	0	18.87	19.02	18.84	

5	64QAM	1	0	20.38	20.16	19.98	20.50
5	64QAM	1	12	19.91	20.22	19.96	
5	64QAM	1	24	19.97	19.92	19.99	
5	64QAM	12	0	18.80	18.98	18.99	19.50
5	64QAM	12	7	18.95	19.04	18.83	
5	64QAM	12	13	18.98	19.08	19.03	
5	64QAM	25	0	18.97	18.96	18.87	

<FDD-LTE Band 12>

BW [MHz]	Modulation	RB Size	RB Offset	Low Channel	Middle Channel	High Channel	Tune-up limit (dBm)
Channel				23060	23095	23130	
Frequency (MHz)				704	707.5	711	
10	QPSK	1	0	23.15	23.06	23.34	24.00
10	QPSK	1	25	23.07	23.14	23.17	
10	QPSK	1	49	23.45	23.22	23.20	
10	QPSK	25	0	22.28	22.30	22.34	23.00
10	QPSK	25	12	22.31	22.20	22.26	
10	QPSK	25	25	22.39	22.32	22.36	
10	QPSK	50	0	22.38	22.27	22.33	
10	16QAM	1	0	22.50	22.74	22.53	23.00
10	16QAM	1	25	22.43	22.51	22.46	
10	16QAM	1	49	22.73	22.86	22.86	
10	16QAM	25	0	21.36	21.40	21.48	22.00
10	16QAM	25	12	21.44	21.34	21.19	
10	16QAM	25	25	21.27	21.39	21.32	
10	16QAM	50	0	21.38	21.36	21.28	
10	64QAM	1	0	22.85	22.58	22.63	23.00
10	64QAM	1	25	22.55	22.51	22.75	
10	64QAM	1	49	22.68	22.75	22.97	
10	64QAM	25	0	21.27	21.27	21.29	22.00
10	64QAM	25	12	21.38	21.41	21.30	
10	64QAM	25	25	21.48	21.49	21.39	
10	64QAM	50	0	21.41	21.25	21.37	
Channel				23035	23095	23155	Tune-up limit (dBm)
Frequency (MHz)				701.5	707.5	713.5	
5	QPSK	1	0	23.16	23.25	23.12	24.00

5	QPSK	1	12	22.98	23.28	23.29	
5	QPSK	1	24	22.87	23.19	23.21	
5	QPSK	12	0	21.86	22.29	22.36	23.00
5	QPSK	12	7	21.98	22.30	22.30	
5	QPSK	12	13	22.16	22.27	22.29	
5	QPSK	25	0	22.32	22.29	22.28	
5	16QAM	1	0	22.25	22.48	22.70	23.00
5	16QAM	1	12	22.47	22.72	22.73	
5	16QAM	1	24	22.29	22.72	22.26	
5	16QAM	12	0	21.02	21.50	21.44	22.00
5	16QAM	12	7	21.00	21.25	21.32	
5	16QAM	12	13	21.05	21.43	21.34	
5	16QAM	25	0	21.01	21.36	21.37	
5	64QAM	1	0	22.28	22.59	22.41	23.00
5	64QAM	1	12	22.32	22.66	22.68	
5	64QAM	1	24	22.32	22.61	22.51	
5	64QAM	12	0	20.99	21.30	21.31	22.00
5	64QAM	12	7	21.14	21.24	21.36	
5	64QAM	12	13	21.14	21.26	21.34	
5	64QAM	25	0	21.00	21.34	21.20	
Channel				23025	23095	23165	Tune-up limit (dBm)
Frequency (MHz)				700.5	707.5	714.5	
3	QPSK	1	0	22.91	23.31	23.32	24.00
3	QPSK	1	8	23.05	23.33	23.30	
3	QPSK	1	14	22.97	23.27	23.24	
3	QPSK	8	0	22.69	22.31	22.29	23.00
3	QPSK	8	4	22.38	22.40	22.40	
3	QPSK	8	7	22.23	22.36	22.27	
3	QPSK	15	0	22.27	22.32	22.24	
3	16QAM	1	0	22.39	22.36	22.42	23.00
3	16QAM	1	8	22.64	22.43	22.51	
3	16QAM	1	14	22.77	22.75	22.44	
3	16QAM	8	0	21.37	21.41	21.37	22.00
3	16QAM	8	4	21.61	21.45	21.54	
3	16QAM	8	7	21.30	21.50	21.39	
3	16QAM	15	0	21.30	21.27	21.31	
3	64QAM	1	0	22.35	22.49	22.32	23.00

3	64QAM	1	8	22.40	22.58	22.49	
3	64QAM	1	14	22.17	22.47	22.35	
3	64QAM	8	0	21.64	21.35	21.31	22.00
3	64QAM	8	4	21.32	21.28	21.35	
3	64QAM	8	7	21.58	21.30	21.38	
3	64QAM	15	0	21.58	21.31	21.31	
Channel				23017	23095	23173	Tune-up limit (dBm)
Frequency (MHz)				699.7	707.5	715.3	
1.4	QPSK	1	0	22.98	23.09	23.14	24.00
1.4	QPSK	1	3	22.99	23.21	23.16	
1.4	QPSK	1	5	22.81	23.21	23.14	
1.4	QPSK	3	0	23.10	23.16	23.17	
1.4	QPSK	3	1	22.97	23.21	23.25	
1.4	QPSK	3	3	23.37	23.23	23.16	
1.4	QPSK	6	0	22.35	22.28	22.22	23.00
1.4	16QAM	1	0	22.61	22.12	22.58	23.00
1.4	16QAM	1	3	22.52	22.55	22.16	
1.4	16QAM	1	5	22.30	22.29	22.40	
1.4	16QAM	3	0	22.29	22.32	22.28	
1.4	16QAM	3	1	22.44	22.16	22.37	
1.4	16QAM	3	3	22.14	22.31	22.04	
1.4	16QAM	6	0	21.44	21.36	21.30	22.00
1.4	64QAM	1	0	22.57	22.40	22.44	23.00
1.4	64QAM	1	3	22.62	22.48	22.59	
1.4	64QAM	1	5	22.14	22.30	22.58	
1.4	64QAM	3	0	22.28	22.37	22.25	
1.4	64QAM	3	1	22.20	22.15	22.55	
1.4	64QAM	3	3	22.40	22.29	22.24	
1.4	64QAM	6	0	21.41	21.27	21.26	22.00

<FDD-LTE Band 17>

BW [MHz]	Modulation	RB Size	RB Offset	Low Channel	Middle Channel	High Channel	Tune-up limit (dBm)
Channel				23780	23790	23800	
Frequency (MHz)				709	710	711	
10	QPSK	1	0	23.08	22.90	22.89	24.00
10	QPSK	1	25	23.11	23.19	22.95	
10	QPSK	1	49	23.22	23.23	22.99	
10	QPSK	25	0	22.08	22.11	22.15	23.00
10	QPSK	25	12	22.22	22.21	22.16	
10	QPSK	25	25	22.16	22.25	22.24	
10	QPSK	50	0	22.25	22.19	22.17	
10	16QAM	1	0	22.46	22.50	22.24	23.00
10	16QAM	1	25	22.43	22.58	22.33	
10	16QAM	1	49	22.61	22.22	22.63	
10	16QAM	25	0	21.17	21.08	21.19	22.00
10	16QAM	25	12	21.22	21.17	21.23	
10	16QAM	25	25	21.33	21.40	21.44	
10	16QAM	50	0	21.31	21.12	21.10	
10	64QAM	1	0	22.84	22.59	22.97	23.00
10	64QAM	1	25	22.73	22.58	22.80	
10	64QAM	1	49	22.67	23.02	22.57	
10	64QAM	25	0	21.11	21.24	21.13	22.00
10	64QAM	25	12	21.28	21.23	21.22	
10	64QAM	25	25	21.34	21.23	21.17	
10	64QAM	50	0	21.29	21.19	21.23	
Channel				23755	23790	23825	Tune-up limit (dBm)
Frequency (MHz)				706.5	710	713.5	
5	QPSK	1	0	23.06	23.05	23.01	24.00
5	QPSK	1	12	23.05	22.91	23.21	
5	QPSK	1	24	23.13	22.83	23.19	
5	QPSK	12	0	22.09	21.98	22.20	23.00
5	QPSK	12	7	22.13	22.04	22.30	
5	QPSK	12	13	22.25	21.98	22.26	
5	QPSK	25	0	22.18	22.18	22.20	
5	16QAM	1	0	22.23	22.26	22.52	23.00
5	16QAM	1	12	22.22	22.12	22.10	

5	16QAM	1	24	22.15	22.34	22.47	
5	16QAM	12	0	21.08	21.26	21.14	22.00
5	16QAM	12	7	21.14	21.29	21.31	
5	16QAM	12	13	21.18	21.16	21.29	
5	16QAM	25	0	21.05	21.04	21.30	
5	64QAM	1	0	22.38	22.28	22.34	23.00
5	64QAM	1	12	22.39	22.16	22.26	
5	64QAM	1	24	22.27	22.21	22.66	
5	64QAM	12	0	21.05	20.99	21.10	22.00
5	64QAM	12	7	21.02	21.05	21.22	
5	64QAM	12	13	21.08	21.10	21.27	
5	64QAM	25	0	21.04	20.97	21.17	

<FDD-LTE Band 18>

BW [MHz]	Modulation	RB Size	RB Offset	Low Channel	Middle Channel	High Channel	Tune-up limit (dBm)
Channel				23925	23925	23925	
Frequency (MHz)				822.5	822.5	822.5	
15	QPSK	1	0	22.79			24.00
23	QPSK	1	37	23.05			
15	QPSK	1	74	23.03			
15	QPSK	36	0	22.06			23.00
15	QPSK	36	20	22.28			
15	QPSK	36	39	22.22			
15	QPSK	75	0	22.17			
15	16QAM	1	0	21.96			23.00
15	16QAM	1	37	22.28			
15	16QAM	1	74	22.35			
15	16QAM	36	0	20.85			22.00
15	16QAM	36	20	21.24			
15	16QAM	36	39	21.34			
15	16QAM	75	0	21.50			
10	64QAM	1	0	21.93			23.00
10	64QAM	1	25	22.35			
10	64QAM	1	49	22.00			
10	64QAM	25	0	20.88			22.00
10	64QAM	25	12	21.26			
10	64QAM	25	25	21.33			

10	64QAM	50	0	21.24			
Channel				23900	23925	23950	Tune-up limit (dBm)
Frequency (MHz)				820	822.5	825	
10	QPSK	1	0	22.59	22.57	22.83	24.00
10	QPSK	1	25	23.00	22.90	23.04	
10	QPSK	1	49	22.89	23.02	22.99	
10	QPSK	25	0	21.69	22.02	22.07	23.00
10	QPSK	25	12	21.97	22.02	21.95	
10	QPSK	25	25	22.15	22.05	21.90	
10	QPSK	50	0	22.16	22.01	21.96	
10	16QAM	1	0	22.15	22.16	22.15	23.00
10	16QAM	1	25	22.13	22.35	22.60	
10	16QAM	1	49	22.47	22.11	22.51	
10	16QAM	25	0	20.73	20.96	21.02	22.00
10	16QAM	25	12	20.93	21.07	21.14	
10	16QAM	25	25	20.96	21.17	20.98	
10	16QAM	50	0	21.02	21.08	20.96	
10	64QAM	1	0	21.98	21.89	21.90	23.00
10	64QAM	1	25	21.96	22.35	22.37	
10	64QAM	1	49	22.37	22.03	22.35	
10	64QAM	25	0	20.81	21.14	21.01	22.00
10	64QAM	25	12	20.78	21.01	21.12	
10	64QAM	25	25	21.02	21.00	21.07	
10	64QAM	50	0	20.89	21.07	20.76	
Channel				23875	23925	23975	Tune-up limit (dBm)
Frequency (MHz)				817.5	822.5	827.5	
5	QPSK	1	0	22.72	22.89	22.97	24.00
5	QPSK	1	12	22.99	22.98	22.98	
5	QPSK	1	24	22.78	23.00	23.00	
5	QPSK	12	0	21.84	21.76	22.09	23.00
5	QPSK	12	7	21.99	22.16	22.10	
5	QPSK	12	13	22.26	22.00	21.98	
5	QPSK	25	0	21.97	21.88	21.89	
5	16QAM	1	0	22.40	22.04	22.48	23.00
5	16QAM	1	12	22.05	22.48	22.26	
5	16QAM	1	24	22.44	22.43	22.11	

5	16QAM	12	0	20.93	20.91	21.06	22.00
5	16QAM	12	7	20.98	21.18	21.28	
5	16QAM	12	13	21.19	21.10	21.18	
5	16QAM	25	0	21.19	21.04	21.25	
5	64QAM	1	0	22.02	21.79	22.06	23.00
5	64QAM	1	12	22.01	22.13	22.03	
5	64QAM	1	24	22.00	21.97	22.12	
5	64QAM	12	0	20.93	20.93	21.02	22.00
5	64QAM	12	7	21.11	21.18	21.19	
5	64QAM	12	13	20.80	21.10	21.12	
5	64QAM	25	0	21.02	21.01	21.15	

<FDD-LTE Band 19>

BW [MHz]	Modulation	RB Size	RB Offset	Low Channel	Middle Channel	High Channel	Tune-up limit (dBm)
Channel				24075	24075	24075	
Frequency (MHz)				837.5	837.5	837.5	
15	QPSK	1	0	23.07			24.00
15	QPSK	1	37	23.32			
15	QPSK	1	74	22.96			
15	QPSK	36	0	22.07			23.00
15	QPSK	36	20	22.45			
15	QPSK	36	39	22.44			
15	QPSK	75	0	22.24			
15	16QAM	1	0	22.37			23.00
15	16QAM	1	37	22.35			
15	16QAM	1	74	22.27			
15	16QAM	36	0	21.05			22.00
15	16QAM	36	20	21.38			
15	16QAM	36	39	21.32			
15	16QAM	75	0	21.29			
10	64QAM	1	0	22.32			23.00
10	64QAM	1	25	22.21			
10	64QAM	1	49	22.10			
10	64QAM	25	0	21.10			22.00
10	64QAM	25	12	21.25			
10	64QAM	25	25	21.52			
10	64QAM	50	0	21.28			

Channel				24050	24075	24100	Tune-up limit (dBm)
Frequency (MHz)				835	837.5	840	
10	QPSK	1	0	23.06	23.05	22.99	24.00
10	QPSK	1	25	23.31	23.30	23.24	
10	QPSK	1	49	22.95	22.94	22.88	
10	QPSK	25	0	22.06	22.05	21.99	23.00
10	QPSK	25	12	22.44	22.43	22.37	
10	QPSK	25	25	22.43	22.42	22.36	
10	QPSK	50	0	22.23	22.22	22.16	
10	16QAM	1	0	22.36	22.35	22.29	23.00
10	16QAM	1	25	22.34	22.33	22.27	
10	16QAM	1	49	22.26	22.25	22.19	
10	16QAM	25	0	21.04	21.03	20.97	22.00
10	16QAM	25	12	21.37	21.36	21.30	
10	16QAM	25	25	21.31	21.30	21.24	
10	16QAM	50	0	21.28	21.27	21.21	
10	64QAM	1	0	22.31	22.30	22.24	23.00
10	64QAM	1	25	22.20	22.19	22.13	
10	64QAM	1	49	22.09	22.08	22.02	
10	64QAM	25	0	21.09	21.08	21.02	22.00
10	64QAM	25	12	21.24	21.23	21.17	
10	64QAM	25	25	21.51	21.50	21.44	
10	64QAM	50	0	21.27	21.26	21.20	
Channel				24025	24075	24125	Tune-up limit (dBm)
Frequency (MHz)				832.5	837.5	842.5	
5	QPSK	1	0	22.95	23.03	22.99	24.00
5	QPSK	1	12	23.20	23.28	23.14	
5	QPSK	1	24	23.00	23.02	22.88	
5	QPSK	12	0	21.95	22.03	21.99	23.00
5	QPSK	12	7	22.33	22.41	22.27	
5	QPSK	12	13	22.32	22.40	22.26	
5	QPSK	25	0	22.12	22.20	22.06	
5	16QAM	1	0	22.25	22.33	22.19	23.00
5	16QAM	1	12	22.23	22.31	22.17	
5	16QAM	1	24	22.15	22.23	22.09	
5	16QAM	12	0	20.93	21.01	20.87	22.00

5	16QAM	12	7	21.26	21.34	21.20	
5	16QAM	12	13	21.20	21.28	21.14	
5	16QAM	25	0	21.17	21.25	21.11	
5	64QAM	1	0	22.20	22.28	22.14	
5	64QAM	1	12	22.09	22.17	22.03	23.00
5	64QAM	1	24	21.98	22.06	21.92	
5	64QAM	12	0	20.98	21.06	20.92	
5	64QAM	12	7	21.13	21.21	21.07	22.00
5	64QAM	12	13	21.40	21.38	21.34	
5	64QAM	25	0	21.16	21.24	21.10	

<FDD-LTE Band 26>

BW [MHz]	Modulation	RB Size	RB Offset	Low Channel	Middle Channel	High Channel	Tune-up limit (dBm)
Channel				26765	26865	26965	
Frequency (MHz)				821.5	831.5	841.5	
15	QPSK	1	0	23.49	23.40	23.34	
15	QPSK	1	37	23.29	23.34	23.28	24.00
15	QPSK	1	74	23.29	23.26	23.16	
15	QPSK	36	0	22.55	22.50	22.44	
15	QPSK	36	20	22.43	22.47	22.48	23.00
15	QPSK	36	39	22.48	22.51	22.34	
15	QPSK	75	0	22.41	22.44	22.43	
15	16QAM	1	0	22.70	22.73	22.78	
15	16QAM	1	37	22.69	22.65	22.56	23.00
15	16QAM	1	74	22.65	22.82	22.84	
15	16QAM	36	0	21.46	21.56	21.44	
15	16QAM	36	20	21.50	21.42	21.52	22.00
15	16QAM	36	39	21.49	21.45	21.52	
15	16QAM	75	0	21.53	21.47	21.39	
15	64QAM	1	0	22.67	22.78	22.81	
15	64QAM	1	37	22.75	22.59	22.41	23.00
15	64QAM	1	74	22.49	22.71	22.35	
15	64QAM	36	0	21.44	21.52	21.41	
15	64QAM	36	20	21.50	21.47	21.45	22.00
15	64QAM	36	39	21.43	21.51	21.46	
15	64QAM	75	0	21.48	21.49	21.41	
Channel				26740	26865	26990	Tune-up

Frequency (MHz)				819	831.5	844	limit (dBm)
10	QPSK	1	0	23.38	23.39	23.24	24.00
10	QPSK	1	25	23.18	23.33	23.18	
10	QPSK	1	49	23.18	23.25	23.06	
10	QPSK	25	0	22.38	22.49	22.34	23.00
10	QPSK	25	12	22.32	22.46	22.38	
10	QPSK	25	25	22.38	22.54	22.24	
10	QPSK	50	0	22.30	22.43	22.33	
10	16QAM	1	0	22.59	22.72	22.68	23.00
10	16QAM	1	25	22.58	22.64	22.46	
10	16QAM	1	49	22.54	22.81	22.74	
10	16QAM	25	0	21.35	21.55	21.34	22.00
10	16QAM	25	12	21.39	21.41	21.42	
10	16QAM	25	25	21.38	21.44	21.42	
10	16QAM	50	0	21.42	21.46	21.29	
10	64QAM	1	0	22.56	22.77	22.71	23.00
10	64QAM	1	25	22.64	22.58	22.31	
10	64QAM	1	49	22.38	22.70	22.35	
10	64QAM	25	0	21.33	21.51	21.31	22.00
10	64QAM	25	12	21.39	21.46	21.35	
10	64QAM	25	25	21.32	21.50	21.36	
10	64QAM	50	0	21.37	21.48	21.31	
Channel				26715	26865	27015	Tune-up limit (dBm)
Frequency (MHz)				816.5	831.5	846.5	
5	QPSK	1	0	23.44	23.47	23.24	24.00
5	QPSK	1	12	23.24	23.41	23.18	
5	QPSK	1	24	23.24	23.33	23.06	
5	QPSK	12	0	22.44	22.57	22.34	23.00
5	QPSK	12	7	22.38	22.54	22.38	
5	QPSK	12	13	22.44	22.62	22.24	
5	QPSK	25	0	22.36	22.51	22.33	
5	16QAM	1	0	22.65	22.80	22.68	23.00
5	16QAM	1	12	22.64	22.72	22.46	
5	16QAM	1	24	22.60	22.89	22.74	
5	16QAM	12	0	21.41	21.63	21.34	22.00
5	16QAM	12	7	21.45	21.49	21.42	

5	16QAM	12	13	21.44	21.52	21.42	
5	16QAM	25	0	21.48	21.54	21.29	
5	64QAM	1	0	22.62	22.85	22.71	
5	64QAM	1	12	22.70	22.66	22.41	23.00
5	64QAM	1	24	22.44	22.78	22.55	
5	64QAM	12	0	21.39	21.59	21.31	
5	64QAM	12	7	21.45	21.54	21.35	22.00
5	64QAM	12	13	21.38	21.58	21.36	
5	64QAM	25	0	21.43	21.56	21.31	
Channel				26705	26865	27025	Tune-up limit (dBm)
Frequency (MHz)				815.5	831.5	847.5	
3	QPSK	1	0	23.36	23.39	23.16	
3	QPSK	1	8	23.16	23.33	23.10	24.00
3	QPSK	1	14	23.16	23.25	22.98	
3	QPSK	8	0	22.36	22.49	22.26	
3	QPSK	8	4	22.30	22.46	22.30	23.00
3	QPSK	8	7	22.36	22.54	22.16	
3	QPSK	15	0	22.28	22.43	22.25	
3	16QAM	1	0	22.57	22.72	22.60	
3	16QAM	1	8	22.56	22.64	22.38	23.00
3	16QAM	1	14	22.52	22.81	22.66	
3	16QAM	8	0	21.33	21.55	21.26	
3	16QAM	8	4	21.37	21.41	21.34	22.00
3	16QAM	8	7	21.36	21.44	21.34	
3	16QAM	15	0	21.40	21.46	21.21	
3	64QAM	1	0	22.54	22.77	22.63	
3	64QAM	1	8	22.62	22.58	22.33	23.00
3	64QAM	1	14	22.36	22.70	22.57	
3	64QAM	8	0	21.31	21.51	21.23	
3	64QAM	8	4	21.37	21.46	21.27	22.00
3	64QAM	8	7	21.30	21.50	21.28	
3	64QAM	15	0	21.35	21.48	21.23	
Channel				26697	26865	27033	Tune-up limit (dBm)
Frequency (MHz)				814.7	831.5	848.3	
1.4	QPSK	1	0	23.44	23.35	23.29	24.00
1.4	QPSK	1	3	23.24	23.29	23.23	

1.4	QPSK	1	5	23.24	23.21	23.11	
1.4	QPSK	3	0	22.44	22.45	22.39	
1.4	QPSK	3	1	22.38	22.42	22.43	
1.4	QPSK	3	3	22.44	22.50	22.29	
1.4	QPSK	6	0	22.36	22.39	22.38	23.00
1.4	16QAM	1	0	22.65	22.68	22.73	
1.4	16QAM	1	3	22.64	22.60	22.51	
1.4	16QAM	1	5	22.60	22.77	22.79	23.00
1.4	16QAM	3	0	21.41	21.51	21.39	
1.4	16QAM	3	1	21.45	21.37	21.47	
1.4	16QAM	3	3	21.44	21.40	21.47	
1.4	16QAM	6	0	21.48	21.42	21.34	22.00
1.4	64QAM	1	0	22.62	22.73	22.76	
1.4	64QAM	1	3	22.70	22.54	22.36	
1.4	64QAM	1	5	22.44	22.66	22.30	23.00
1.4	64QAM	3	0	21.39	21.47	21.36	
1.4	64QAM	3	1	21.45	21.42	21.40	
1.4	64QAM	3	3	21.38	21.46	21.41	
1.4	64QAM	6	0	21.43	21.44	21.36	22.00

<Sub-6G n41>

BW [MHz]	Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Middle Channel	Mid-High Channel	High Channel	Tune-up limit (dBm)
Channel				509202	515460	518598	521742	528000	
Frequency (MHz)				2546.01	257.3	2592.99	2608.71	2640	
100	DTF-S-OFDM QPSK	1	0	21.53	21.47	21.40	21.34	21.59	23.00
100		1	136	22.13	22.12	22.39	22.13	22.35	
100		1	272	21.22	21.16	21.70	21.38	21.44	
100		137	0	21.75	21.61	21.77	21.59	21.71	22.00
100		137	67	21.77	21.71	21.53	21.62	21.75	
100		137	136	21.63	21.64	21.57	21.60	21.62	
100		273	0	21.67	21.65	21.71	21.61	21.68	
100	DTF-S-OFDM 16QAM	1	0	21.70	21.77	21.80	21.62	21.71	22.00
100		1	136	21.98	22.12	22.07	22.06	22.27	
100		1	272	21.80	21.83	22.03	21.94	21.89	
100		137	0	21.59	21.73	21.53	21.62	21.61	21.00
100		137	67	21.71	21.70	21.57	21.49	21.66	

100		137	136	21.46	21.52	21.59	21.64	21.51	
100		273	0	21.07	21.11	21.14	21.22	21.24	
100	DTF-S-OFDM 64QAM	1	0	20.91	20.94	21.05	21.01	21.09	21.00
100		1	136	20.75	20.89	20.94	21.09	21.16	
100		1	272	20.92	21.11	21.12	21.08	21.16	
100		137	0	21.06	21.05	21.15	20.99	21.12	20.00
100		137	67	20.91	20.94	21.09	21.15	21.19	
100		137	136	20.95	21.02	21.11	21.08	21.12	
100		273	0	21.05	21.07	21.14	21.13	21.27	
100	DTF-S-OFDM 256QAM	1	0	19.35	19.51	19.42	19.54	19.82	20.00
100		1	136	19.50	19.58	19.38	19.63	20.12	
100		1	272	18.01	18.84	18.97	18.75	18.08	
100		137	0	18.05	18.13	18.21	17.80	18.14	19.00
100		137	67	17.89	17.92	18.10	18.05	18.19	
100		137	136	18.02	17.95	18.15	18.10	18.25	
100		273	0	18.00	18.06	18.13	18.15	18.21	
Channel				507204	514800	518598	522402	529998	Tune-up limit (dBm)
Frequency (MHz)				2536.02	2574	2592.99	2612.01	2649.99	
80	DTF-S-OFDM QPSK	1	0	21.39	21.33	21.26	21.20	21.41	23.00
80		1	108	22.00	22.01	21.98	22.18	22.29	
80		1	216	21.09	21.05	21.54	21.27	21.29	
80		109	0	21.61	21.47	21.49	21.41	21.47	22.00
80		109	53	21.63	21.57	21.37	21.48	21.61	
80		109	108	21.49	21.50	21.41	21.46	21.46	
80		217	0	21.43	21.51	21.57	21.47	21.52	
80	DTF-S-OFDM 16QAM	1	0	21.56	21.63	21.66	21.48	21.57	22.00
80		1	108	21.42	21.56	21.51	21.50	21.59	
80		1	216	21.66	21.69	21.89	21.80	21.75	
80		109	0	21.45	21.59	21.39	21.48	21.47	21.00
80		109	53	21.57	21.56	21.43	21.35	21.52	
80		109	108	21.32	21.38	21.45	21.50	21.37	
80		217	0	20.93	20.97	21.00	21.08	21.10	
80	DTF-S-OFDM 64QAM	1	0	20.77	20.80	20.91	20.87	20.95	21.00
80		1	108	20.61	20.75	20.80	20.95	21.02	
80		1	216	20.78	20.96	20.98	20.94	21.02	
80		109	0	20.92	20.91	21.01	20.85	20.98	20.00
80		109	53	20.77	20.80	20.95	21.01	21.05	

80		109	108	20.81	20.88	20.97	20.94	20.98	
80		217	0	20.91	20.93	21.00	20.99	21.13	
80	DTF-S-OFDM 256QAM	1	0	18.31	18.47	18.38	18.50	18.78	20.00
80		1	108	18.44	18.54	18.34	18.59	19.08	
80		1	216	18.97	18.80	18.93	18.71	19.04	
80		109	0	17.91	17.99	18.07	17.66	18.00	19.00
80		109	53	17.75	17.78	17.96	17.91	18.05	
80		109	108	17.88	17.81	18.01	17.96	18.11	
80		217	0	17.86	17.92	17.99	18.01	18.07	
Channel				505200	514140	518598	523080	531996	Tune-up limit (dBm)
Frequency (MHz)				2526.01	2570.7	2592.99	2615.40	2659.98	
60	DTF-S-OFDM QPSK	1	0	21.44	21.38	21.31	21.25	21.41	23.00
60		1	81	22.01	21.89	21.82	22.01	22.22	
60		1	161	21.16	21.07	21.61	21.29	21.33	
60		81	0	21.66	21.52	21.54	21.50	21.65	22.00
60		81	40	21.68	21.62	21.44	21.53	21.67	
60		81	81	21.54	21.55	21.48	21.51	21.56	
60		162	0	21.58	21.56	21.62	21.52	21.51	
60	DTF-S-OFDM 16QAM	1	0	21.61	21.68	21.71	21.53	21.65	22.00
60		1	81	21.78	21.63	21.58	21.47	21.46	
60		1	161	21.71	21.74	21.96	21.85	21.71	
60		81	0	21.50	21.64	21.44	21.53	21.52	21.00
60		81	40	21.62	21.61	21.48	21.40	21.57	
60		81	81	21.37	21.43	21.50	21.55	21.42	
60		162	0	20.98	21.02	21.05	21.13	21.15	
60	DTF-S-OFDM 64QAM	1	0	20.82	20.85	20.96	20.92	21.01	21.00
60		1	81	20.66	20.77	20.86	21.00	21.09	
60		1	161	20.83	21.02	21.08	21.00	21.07	
60		81	0	20.97	20.96	21.06	20.90	21.03	20.00
60		81	40	20.82	20.85	21.00	21.06	21.10	
60		81	81	20.86	20.93	21.02	20.99	21.03	
60		162	0	20.96	20.98	21.05	21.04	21.18	
60	DTF-S-OFDM 256QAM	1	0	19.29	19.45	19.36	19.48	19.79	20.00
60		1	81	19.44	19.52	19.32	19.57	20.06	
60		1	161	19.95	19.78	19.91	19.69	20.02	
60		81	0	17.96	18.04	18.12	17.71	18.05	19.00
60		81	40	17.80	17.83	18.01	17.96	18.10	

60		81	81	17.93	17.86	18.06	18.01	18.16	
60		162	0	17.91	17.97	18.04	18.06	18.12	
Channel				503202	510900	518598	526302	534000	Tune-up limit (dBm)
Frequency (MHz)				2516.01	2554.55	2592.99	2631.55	2670	
40	DTF-S-OFDM QPSK	1	0	21.32	21.26	21.19	21.13	21.38	23.00
40		1	53	21.83	21.80	21.75	21.93	22.09	
40		1	105	21.01	20.95	21.49	21.17	21.23	
40		53	0	21.54	21.40	21.42	21.38	21.50	22.00
40		53	26	21.56	21.50	21.32	21.41	21.54	
40		53	52	21.42	21.43	21.36	21.39	21.41	
40		106	0	21.46	21.44	21.50	21.40	21.47	
40	DTF-S-OFDM 16QAM	1	0	21.49	21.56	21.59	21.41	21.50	22.00
40		1	53	21.48	21.62	21.57	21.59	21.39	
40		1	105	21.59	21.62	21.82	21.73	21.68	
40		53	0	21.38	21.52	21.32	21.41	21.40	21.00
40		53	26	21.50	21.49	21.36	21.28	21.45	
40		53	52	21.25	21.31	21.38	21.43	21.30	
40		106	0	20.86	20.90	20.93	21.01	21.03	
40	DTF-S-OFDM 64QAM	1	0	20.70	20.73	20.84	20.80	20.88	21.00
40		1	53	20.54	20.68	20.73	20.88	20.95	
40		1	105	20.71	20.90	20.91	20.87	20.95	
40		53	0	20.85	20.84	20.94	20.78	20.91	20.00
40		53	26	20.70	20.73	20.88	20.94	20.98	
40		53	52	20.74	20.81	20.90	20.87	20.91	
40		106	0	20.84	20.86	20.93	20.92	21.06	
40	DTF-S-OFDM 256QAM	1	0	19.18	19.34	19.25	19.37	19.65	20.00
40		1	53	19.33	19.41	19.21	19.46	19.95	
40		1	105	19.84	19.67	19.80	19.58	19.91	
40		53	0	17.84	17.92	18.00	17.59	17.93	19.00
40		53	26	17.68	17.71	17.89	17.84	17.98	
40		53	52	17.81	17.74	17.94	17.89	18.04	
40		106	0	17.79	17.85	17.92	17.94	18.00	
Channel				501204	509898	518598	527298	535998	Tune-up limit (dBm)
Frequency (MHz)				2506.02	2549.49	2592.99	2636.49	2679.99	
20	DTF-S-OFDM QPSK	1	0	21.36	21.30	21.23	21.17	21.42	23.00
20		1	25	21.87	21.84	21.79	21.97	22.01	

20		1	50	21.05	20.99	21.53	21.21	21.27	
20		26	0	21.58	21.44	21.46	21.42	21.54	22.00
20		26	12	21.60	21.54	21.36	21.45	21.58	
20		26	25	21.46	21.47	21.40	21.43	21.45	
20		51	0	21.50	21.48	21.54	21.44	21.51	
20	DTF-S-OFDM 16QAM	1	0	21.53	21.60	21.63	21.45	21.54	22.00
20		1	25	21.54	21.48	21.63	21.62	21.51	
20		1	50	21.63	21.66	21.86	21.77	21.72	
20		26	0	21.42	21.56	21.36	21.45	21.44	21.00
20		26	12	21.54	21.53	21.40	21.32	21.49	
20		26	25	21.29	21.35	21.42	21.47	21.34	
20		51	0	20.90	20.94	20.97	21.05	21.07	
20	DTF-S-OFDM 64QAM	1	0	20.74	20.77	20.88	20.84	20.92	21.00
20		1	25	20.58	20.72	20.77	20.92	20.99	
20		1	50	20.75	20.94	20.95	20.91	20.99	
20		26	0	20.89	20.88	20.98	20.82	20.95	20.00
20		26	12	20.74	20.77	20.92	20.98	21.02	
20		26	25	20.78	20.85	20.94	20.91	20.95	
20		51	0	20.88	20.90	20.97	20.96	21.10	
20	DTF-S-OFDM 256QAM	1	0	19.04	19.20	19.11	19.23	19.51	20.00
20		1	25	19.19	19.27	19.07	19.32	19.81	
20		1	50	19.70	19.53	19.66	19.44	19.77	
20		26	0	17.88	17.96	18.04	17.63	17.97	19.00
20		26	12	17.72	17.75	17.93	17.88	18.02	
20		26	25	17.85	17.78	17.98	17.93	18.08	
20		51	0	17.83	17.89	17.96	17.98	18.04	

➢ **WLAN Conducted Power**

<2.4GHz WLAN Ant 0>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN ANT 0	802.11b 1Mbps	CH 1	2412	15.42	16.00	98.01
		CH 6	2437	15.51	16.00	
		CH 11	2462	15.53	16.00	
	802.11g 6Mbps	CH 1	2412	15.12	15.50	99.02
		CH 6	2437	15.14	15.50	
		CH 11	2462	15.12	15.50	
	802.11n-HT20 MCS0	CH 1	2412	14.89	15.50	99.72
		CH 6	2437	14.99	15.50	
		CH 11	2462	15.01	15.50	
	802.11ax-HEW 20 MCS0 (RU242)	CH 1	2412	15.04	15.50	99.73
		CH 6	2437	15.08	15.50	
		CH 11	2462	15.06	15.50	
	802.11ax-HEW 20 MCS0 (RU26)	CH 1	2412	15.36	15.50	99.73
		CH 6	2437	15.35	15.50	
		CH 11	2462	15.32	15.50	
		CH 6	2437	15.27	15.50	
		CH 9	2452	15.31	15.50	

<2.4GHz WLAN Ant 1>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN ANT 1	802.11b 1Mbps	CH 1	2412	19.04	20.00	98.01
		CH 6	2437	19.12	20.00	
		CH 11	2462	19.12	20.00	
	802.11g 6Mbps	CH 1	2412	18.64	19.50	99.02
		CH 6	2437	18.78	19.50	
		CH 11	2462	18.67	19.50	
	802.11n-HT20 MCS0	CH 1	2412	17.46	18.00	99.72
		CH 6	2437	17.64	18.00	
		CH 11	2462	17.74	18.00	
	802.11ax-HEW	CH 1	2412	15.73	16.50	99.73

	20 MCS0 (RU242)	CH 6	2437	15.84	16.50	
		CH 11	2462	15.75	16.50	
	802.11ax-HEW 20 MCS0 (RU26)	CH 1	2412	15.74	16.50	99.73
		CH 6	2437	15.58	16.50	
		CH 11	2462	15.72	16.50	
		CH 6	2437	15.97	16.50	
		CH 9	2452	16.02	16.50	

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

Antenna	Frequency (GHz)	Max. Tune-up Power (dBm)	Max. Power (mW)	Test distance (mm)	Result	exclusion thresholds for 1-g SAR
ANT 0	2.462	15.00	31.62	5	9.92	3.0
ANT 1	2.462	20.00	100.00	5	31.38	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.

<5.2GHz WLAN Ant 0>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN ANT 0	802.11a 6Mbps	CH 36	5180	7.28	8.00	99.10
		CH 40	5200	7.31	7.50	
		CH 48	5240	7.76	8.00	
	802.11n-HT20 MCS0	CH 36	5180	7.02	7.50	98.61
		CH 40	5200	7.19	7.50	
		CH 48	5240	7.74	8.00	
	802.11n-HT40 MCS0	CH 38	5190	7.78	8.00	98.33
		CH 46	5230	7.86	8.00	
	802.11ac-VHT20 MCS0	CH 36	5180	7.02	7.50	98.61
		CH 40	5200	7.13	7.50	
		CH 48	5240	7.21	7.50	
	802.11ax-HEW 20 MCS0 (RU242)	CH 36	5180	6.95	7.50	98.50
		CH 40	5200	6.82	7.50	
		CH 48	5240	6.74	7.50	
	802.11ax-HEW 20 MCS0 (RU26)	CH 36	5180	6.83	7.50	98.50
		CH 40	5200	6.92	7.50	
		CH 48	5240	6.74	7.00	
	802.11ac-VHT40 MCS0	CH 38	5190	7.62	8.00	98.47
		CH 46	5230	7.39	7.50	
	802.11ax-HEW 40 MCS0	CH 38	5190	7.39	7.50	98.35
		CH 46	5230	7.22	7.50	
	802.11ac-VHT80 MCS0	CH 42	5210	7.38	7.50	98.74
	802.11ax-HEW 80 MCS0	CH 42	5210	7.37	7.50	98.64

<5.2GHz WLAN Ant 1>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN ANT 1	802.11a 6Mbps	CH 36	5180	7.76	8.00	99.10
		CH 40	5200	7.68	8.00	
		CH 48	5240	7.86	8.00	
	802.11n-HT20 MCS0	CH 36	5180	7.55	8.00	98.61
		CH 40	5200	7.46	8.00	
		CH 48	5240	7.62	8.00	
	802.11n-HT40 MCS0	CH 38	5190	7.83	8.00	98.33
		CH 46	5230	8.18	8.50	
	802.11ac-VHT20 MCS0	CH 36	5180	7.61	8.00	98.61
		CH 40	5200	7.62	8.00	
		CH 48	5240	7.81	8.00	
	802.11ax-HEW 20 MCS0 (RU242)	CH 36	5180	7.70	8.00	98.50
		CH 40	5200	7.68	8.00	
		CH 48	5240	7.82	8.00	
	802.11ax-HEW 20 MCS0 (RU26)	CH 36	5180	7.69	8.00	98.50
		CH 40	5200	7.58	8.00	
		CH 48	5240	7.66	8.00	
	802.11ac-VHT40 MCS0	CH 38	5190	8.20	8.50	98.47
		CH 46	5230	8.14	8.50	
	802.11ax-HEW 40 MCS0	CH 38	5190	7.72	8.00	98.35
		CH 46	5230	7.81	8.00	
	802.11ac-VHT80 MCS0	CH 42	5210	7.75	8.00	98.74
	802.11ax-HEW 80 MCS0	CH 42	5210	7.78	8.00	98.64

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

Antenna	Frequency (GHz)	Max. Tune-up Power (dBm)	Max. Power (mW)	Test distance (mm)	Result	exclusion thresholds for 1-g SAR
ANT 0	5.230	8.00	6.31	5	2.89	3.0
ANT 1	5.230	8.50	7.08	5	3.24	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.

<5.3GHz WLAN Ant 0>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN ANT 0	802.11a 6Mbps	CH 52	5260	7.83	8.00	99.10
		CH 60	5300	7.52	8.00	
		CH 64	5320	7.29	7.50	
	802.11n-HT20 MCS0	CH 52	5260	7.73	8.00	98.61
		CH 60	5300	7.41	7.50	
		CH 64	5320	7.14	7.50	
	802.11n-HT40 MCS0	CH 54	5270	8.38	8.50	98.33
		CH 62	5310	7.65	8.00	
	802.11ac-VHT20 MCS0	CH 52	5260	7.66	8.00	98.61
		CH 60	5300	7.41	8.00	
		CH 64	5320	7.36	8.00	
	802.11ax-HEW 20 MCS0 (RU242)	CH 52	5260	6.91	7.00	98.50
		CH 60	5300	6.64	7.00	
		CH 64	5320	6.59	7.00	
	802.11ax-HEW 20 MCS0 (RU26)	CH 52	5260	6.68	7.00	98.50
		CH 60	5300	7.05	7.50	
		CH 64	5320	6.94	7.50	
	802.11ac-VHT40 MCS0	CH 54	5270	8.20	8.50	98.47
		CH 62	5310	8.14	8.50	
	802.11ax-HEW 40 MCS0	CH 54	5270	7.34	7.50	98.35
		CH 62	5310	7.41	7.50	
	802.11ac-VHT80 MCS0	CH 58	5290	7.24	7.50	98.74

	802.11ax-HEW 80 MCS0	CH 58	5290	7.29	7.50	98.64

<5.3GHz WLAN Ant 1>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN ANT 1	802.11a 6Mbps	CH 52	5260	8.13	8.50	99.10
		CH 60	5300	8.24	8.50	
		CH 64	5320	8.33	8.50	
	802.11n-HT20 MCS0	CH 52	5260	7.81	8.00	98.61
		CH 60	5300	7.91	8.00	
		CH 64	5320	8.01	8.50	
	802.11n-HT40 MCS0	CH 54	5270	8.52	9.00	98.33
		CH 62	5310	8.44	9.00	
	802.11ac-VHT20 MCS0	CH 52	5260	8.11	8.50	98.61
		CH 60	5300	8.23	8.50	
		CH 64	5320	8.17	8.50	
	802.11ax-HEW 20 MCS0 (RU242)	CH 52	5260	7.66	8.00	98.50
		CH 60	5300	7.59	8.00	
		CH 64	5320	7.67	8.00	
	802.11ax-HEW 20 MCS0 (RU26)	CH 52	5260	7.84	8.00	98.50
		CH 60	5300	8.01	8.50	
		CH 64	5320	7.63	8.00	
	802.11ac-VHT40 MCS0	CH 54	5270	8.23	8.50	98.47
		CH 62	5310	8.34	8.50	
	802.11ax-HEW 40 MCS0	CH 54	5270	7.64	8.00	98.35
		CH 62	5310	7.68	8.00	
	802.11ac-VHT80 MCS0	CH 58	5290	7.82	8.00	98.74
	802.11ax-HEW 80 MCS0	CH 58	5290	7.69	8.00	98.64

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

Antenna	Frequency (GHz)	Max. Tune-up Power (dBm)	Max. Power (mW)	Test distance (mm)	Result	exclusion thresholds for 1-g SAR
ANT 0	5.270	8.50	7.08	5	3.25	3.0
ANT 1	5.270	9.00	7.94	5	3.65	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.

<5.5GHz WLAN Ant 0>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN ANT 0	802.11a 6Mbps	CH 100	5500	7.72	8.00	99.10
		CH 120	5600	7.38	7.50	
		CH 144	5720	7.98	8.00	
	802.11n-HT20 MCS0	CH 100	5500	7.65	8.00	98.61
		CH 120	5600	7.28	8.00	
		CH 144	5720	7.87	8.00	
	802.11n-HT40 MCS0	CH 102	5510	8.11	8.50	98.33
		CH 118	5590	7.73	8.00	
		CH 142	5710	8.42	9.00	
	802.11ac-VHT20 MCS0	CH 100	5500	7.51	8.00	98.61
		CH 120	5600	7.47	8.00	
		CH 144	5720	7.91	8.00	
	802.11ax-HEW 20 MCS0 (RU242)	CH 100	5500	6.81	7.00	98.50
		CH 120	5600	6.77	7.00	
		CH 144	5720	7.73	8.00	
	802.11ax-HEW 20 MCS0 (RU26)	CH 100	5500	7.11	7.50	98.50
		CH 120	5600	6.78	7.00	
		CH 144	5720	7.68	8.00	
	802.11ac-VHT40 MCS0	CH 102	5510	8.03	8.50	98.47
		CH 118	5590	7.79	8.00	
		CH 142	5710	8.54	9.00	

	802.11ax-HEW 40 MCS0	CH 102	5510	7.56	8.00	98.35
		CH 118	5590	7.39	7.50	
		CH 142	5710	8.14	8.50	
	802.11ac-VHT80 MCS0	CH 106	5530	7.55	8.00	98.74
		CH 138	5690	7.84	8.00	
	802.11ax-HEW 20 MCS0 (RU242)	CH 106	5530	7.40	8.00	98.64
		CH 138	5690	7.94	8.00	

<5.5GHz WLAN Ant 1>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN ANT 1	802.11a 6Mbps	CH 100	5500	8.41	8.50	99.10
		CH 116	5580	8.26	8.50	
		CH 144	5720	8.54	9.00	
	802.11n-HT20 MCS0	CH 100	5500	7.89	8.00	98.61
		CH 116	5580	8.03	8.50	
		CH 144	5720	8.46	8.50	
	802.11n-HT40 MCS0	CH 102	5510	8.36	8.50	98.33
		CH 118	5590	8.40	8.50	
		CH 142	5710	9.12	9.50	
	802.11ac-VHT20 MCS0	CH 100	5500	8.32	8.50	98.61
		CH 116	5580	8.28	8.50	
		CH 144	5720	8.34	8.50	
	802.11ax-HEW 20 MCS0 (RU242)	CH 100	5500	7.74	8.00	98.50
		CH 120	5600	7.79	8.00	
		CH 144	5720	8.28	8.50	
	802.11ax-HEW 20 MCS0 (RU26)	CH 100	5500	7.74	8.00	98.50
		CH 120	5600	7.83	8.00	
		CH 144	5720	8.23	8.50	
	802.11ac-VHT40 MCS0	CH 102	5510	8.33	8.50	98.47
		CH 118	5590	8.25	8.50	
		CH 142	5710	8.86	9.00	
	802.11ax-HEW 40 MCS0	CH 102	5510	7.81	8.00	98.35
		CH 118	5590	7.63	8.00	
		CH 142	5710	8.33	8.50	

	802.11ac-VHT80 MCS0	CH 106	5530	7.67	8.00	98.74
		CH 138	5690	8.34	8.50	
	802.11ax-HEW 20 MCS0 (RU242)	CH 106	5530	7.82	8.00	98.64
		CH 138	5690	8.47	8.50	

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

Antenna	Frequency (GHz)	Max. Tune-up Power (dBm)	Max. Power (mW)	Test distance (mm)	Result	exclusion thresholds for 1-g SAR
ANT 0	5.710	9.00	7.94	5	3.80	3.0
ANT 1	5.710	9.50	8.91	5	4.26	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.

<5.8GHz WLAN Ant 0>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN ANT 0	802.11a MCS0	CH 149	5745	7.72	8.00	99.10
		CH 157	5785	7.72	8.00	
		CH 165	5825	7.14	8.00	
	802.11n-HT20 MCS0	CH 149	5745	7.60	8.00	98.61
		CH 157	5785	7.57	8.00	
		CH 165	5825	7.02	8.00	
	802.11n-HT40 MCS0	CH 151	5755	8.21	8.50	98.33
		CH 159	5795	8.14	8.50	
	802.11ac-VHT20 MCS0	CH 149	5745	7.52	8.00	98.61
		CH 157	5785	7.36	7.50	

		CH 165	5825	7.64	8.00	
	802.11ax-HEW 20 MCS0 (RU242)	CH 149	5745	7.34	7.50	98.50
		CH 157	5785	6.73	7.00	
		CH 165	5825	6.58	7.00	
	802.11ax-HEW 20 MCS0 (RU26)	CH 149	5745	7.21	7.50	98.50
		CH 157	5785	6.89	7.00	
		CH 165	5825	6.76	7.00	
	802.11ac-VHT40 MCS0	CH 151	5755	8.09	8.50	98.47
		CH 159	5795	8.12	8.50	
	802.11ax-HEW 40 MCS0	CH 151	5755	7.28	7.50	98.35
		CH 159	5795	7.33	7.50	
	802.11ac-VHT80 MCS0	CH 155	5775	7.53	8.00	98.74
	802.11ax-HEW 80 MCS0	CH 155	5775	7.42	7.50	98.64

<5.8GHz WLAN Ant 1>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN ANT 1	802.11a MCS0	CH 149	5745	8.17	8.50	99.10
		CH 157	5785	8.22	8.50	
		CH 165	5825	8.24	8.50	
	802.11n-HT20 MCS0	CH 149	5745	8.11	8.50	98.61
		CH 157	5785	8.36	8.50	
		CH 165	5825	8.14	8.50	
	802.11n-HT40 MCS0	CH 151	5755	8.55	9.00	98.33
		CH 159	5795	8.39	8.50	
	802.11ac-VHT20 MCS0	CH 149	5745	8.52	9.00	98.61
		CH 157	5785	8.36	8.50	
		CH 165	5825	8.24	8.50	
	802.11ax-HEW 20 MCS0 (RU242)	CH 149	5745	7.88	8.00	98.50
		CH 157	5785	7.81	8.00	
		CH 165	5825	7.69	8.00	
	802.11ax-HEW 20 MCS0 (RU26)	CH 149	5745	7.95	8.00	98.50
		CH 157	5785	7.78	8.00	

		CH 165	5825	7.64	8.00	
	802.11ac-VHT40 MCS0	CH 151	5755	8.34	8.50	98.47
		CH 159	5795	8.27	8.50	
	802.11ax-HEW 40 MCS0	CH 151	5755	7.74	8.00	98.35
		CH 159	5795	7.56	8.00	
	802.11ac-VHT80 MCS0	CH 155	5775	7.79	8.00	98.74
	802.11ax-HEW 80 MCS0	CH 155	5775	8.11	8.50	98.64

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

Antenna	Frequency (GHz)	Max. Tune-up Power (dBm)	Max. Power (mW)	Test distance (mm)	Result	exclusion thresholds for 1-g SAR
ANT 0	5.755	8.50	7.08	5	3.40	3.0
ANT 1	5.755	9.00	7.94	5	3.81	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.

<2.4GHz WLAN Ant 0 + Ant 1>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN ANT 0+1	802.11n-HT20 MCS0	CH 1	2412	19.40	20.00	99.72
		CH 6	2437	19.54	20.00	
		CH 11	2462	19.59	20.00	
	802.11ax-HEW 20 MCS0 (RU242)	CH 1	2412	18.39	19.00	99.73
		CH 6	2437	18.51	19.00	
		CH 11	2462	18.45	19.00	
	802.11ax-HEW 20 MCS0 (RU26)	CH 1	2412	18.57	19.00	99.73
		CH 6	2437	18.51	19.00	
		CH 11	2462	18.57	19.00	

<5.2GHz WLAN Ant 0 + Ant 1>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN ANT 0+1	802.11a 6Mbps	CH 36	5180	10.41	10.50	99.10
		CH 40	5200	10.41	10.50	
		CH 48	5240	10.79	11.00	
	802.11n-HT20 MCS0	CH 36	5180	10.41	10.50	98.61
		CH 40	5200	10.41	10.50	
		CH 48	5240	10.79	11.00	
	802.11n-HT40 MCS0	CH 38	5190	10.79	11.00	98.33
		CH 46	5230	11.14	11.50	
	802.11ac-VHT20 MCS0	CH 36	5180	10.41	10.50	98.61
		CH 40	5200	10.41	10.50	
		CH 48	5240	10.41	10.50	
	802.11ax-HEW 20 MCS0 (RU242)	CH 36	5180	10.41	10.50	98.50
		CH 40	5200	10.41	10.50	
		CH 48	5240	10.41	10.50	
	802.11ax-HEW 20 MCS0 (RU26)	CH 36	5180	10.41	10.50	98.50
		CH 40	5200	10.41	10.50	
		CH 48	5240	10.41	10.50	
	802.11ac-VHT40 MCS0	CH 38	5190	11.14	10.50	98.47
		CH 46	5230	10.79	11.00	

	802.11ax-HEW 40 MCS0	CH 38	5190	10.79	11.00	98.35
		CH 46	5230	10.41	10.50	
	802.11ac-VHT80 MCS0	CH 42	5210	10.79	11.00	98.74
	802.11ax-HEW 80 MCS0	CH 42	5210	10.79	11.00	98.64

<5.3GHz WLAN Ant 0 + Ant 1>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN ANT 0+1	802.11a 6Mbps	CH 52	5260	11.14	11.50	99.10
		CH 60	5300	10.79	11.00	
		CH 64	5320	10.79	11.00	
	802.11n-HT20 MCS0	CH 52	5260	10.79	11.00	98.61
		CH 60	5300	10.79	11.00	
		CH 64	5320	10.79	11.00	
	802.11n-HT40 MCS0	CH 54	5270	11.46	11.50	98.33
		CH 62	5310	11.14	11.50	
	802.11ac-VHT20 MCS0	CH 52	5260	10.79	11.00	98.61
		CH 60	5300	10.79	11.00	
		CH 64	5320	10.79	11.00	
	802.11ax-HEW 20 MCS0 (RU242)	CH 52	5260	10.41	11.50	98.50
		CH 60	5300	10.41	11.50	
		CH 64	5320	10.41	11.50	
	802.11ax-HEW 20 MCS0 (RU26)	CH 52	5260	10.41	11.50	98.50
		CH 60	5300	10.79	11.00	
		CH 64	5320	10.41	11.50	
	802.11ac-VHT40 MCS0	CH 54	5270	11.14	11.50	98.47
		CH 62	5310	11.46	11.50	
	802.11ax-HEW 40 MCS0	CH 54	5270	10.41	11.00	98.35
		CH 62	5310	10.79	11.00	
	802.11ac-VHT80 MCS0	CH 58	5290	10.79	11.00	98.74
	802.11ax-HEW 80 MCS0	CH 58	5290	10.41	11.00	98.64

<5.5GHz WLAN Ant 0 + Ant 1>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN ANT 0+1	802.11a 6Mbps	CH 100	5500	11.14	11.50	99.10
		CH 116	5580	10.79	11.00	
		CH 144	5720	11.46	11.50	
	802.11n-HT20 MCS0	CH 100	5500	10.79	11.00	98.61
		CH 116	5580	10.79	11.00	
		CH 144	5720	11.14	11.50	
	802.11n-HT40 MCS0	CH 102	5510	11.46	11.50	98.33
		CH 118	5590	11.14	11.50	
		CH 142	5710	11.76	12.00	
	802.11ac-VHT20 MCS0	CH 100	5500	11.14	11.50	98.61
		CH 116	5580	10.79	11.00	
		CH 144	5720	11.14	11.50	
	802.11ax-HEW 20 MCS0 (RU242)	CH 100	5500	10.41	10.50	98.50
		CH 116	5580	10.41	10.50	
		CH 144	5720	11.14	11.50	
	802.11ax-HEW 20 MCS0 (RU26)	CH 100	5500	10.41	10.50	98.50
		CH 116	5580	10.41	10.50	
		CH 144	5720	11.14	11.50	
	802.11ac-VHT40 MCS0	CH 102	5510	11.14	11.50	98.47
		CH 118	5590	11.14	11.50	
		CH 142	5710	11.76	12.00	
	802.11ax-HEW 40 MCS0	CH 102	5510	10.79	11.00	98.35
		CH 118	5590	10.41	11.00	
		CH 142	5710	11.46	11.50	
	802.11ac-VHT80 MCS0	CH 106	5530	10.79	11.00	98.74
		CH 138	5690	11.14	11.50	
	802.11ax-HEW 20 MCS0 (RU242)	CH 106	5530	10.79	11.00	98.64
		CH 138	5690	11.14	11.50	

<5.8GHz WLAN Ant 0 + Ant 1>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN ANT 0+1	802.11a MCS0	CH 149	5745	11.14	11.50	99.10
		CH 157	5785	11.14	11.50	
		CH 165	5825	10.79	11.00	
	802.11n-HT20 MCS0	CH 149	5745	10.79	11.00	98.61
		CH 157	5785	11.14	11.50	
		CH 165	5825	10.79	11.00	
	802.11n-HT40 MCS0	CH 151	5755	11.46	11.50	98.33
		CH 159	5795	11.46	11.50	
	802.11ac-VHT20 MCS0	CH 149	5745	11.14	11.50	98.61
		CH 157	5785	10.79	11.00	
		CH 165	5825	11.14	11.50	
	802.11ax-HEW 20 MCS0 (RU242)	CH 149	5745	10.79	11.00	98.50
		CH 157	5785	10.41	11.00	
		CH 165	5825	10.41	11.00	
	802.11ax-HEW 20 MCS0 (RU26)	CH 149	5745	10.79	11.00	98.50
		CH 157	5785	10.41	11.00	
		CH 165	5825	10.41	11.00	
	802.11ac-VHT40 MCS0	CH 151	5755	11.14	11.50	98.47
		CH 159	5795	11.14	11.50	
	802.11ax-HEW 40 MCS0	CH 151	5755	10.41	11.00	98.35
		CH 159	5795	10.41	11.00	
	802.11ac-VHT80 MCS0	CH 155	5775	10.79	11.00	98.74
	802.11ax-HEW 80 MCS0	CH 155	5775	10.79	11.00	98.64

➢ **Bluetooth Conducted Power**

Mode	Channel	Frequency (MHz)	Average power (dBm)		
			1Mbps	2Mbps	3Mbps
BR / EDR	CH 00	2402	7.39	4.64	4.60
	CH 39	2441	7.90	5.27	5.18
	CH 78	2480	7.73	5.14	5.05
Tune-up Limit (dBm)			8.00	5.50	5.50
Duty Cycle %			76.80	76.80	76.80

Mode	Channel	Frequency (MHz)	Average power (dBm)	
			1Mbps	2Mbps
LE	CH 00	2402	1.91	-0.52
	CH 19	2440	0.49	-1.90
	CH 39	2480	-0.57	-2.03
Tune-up Limit (dBm)			2.50	0.50
Duty Cycle %			62.02	32.54

Note:

1. The Bluetooth duty cycle are 76.80%, 76.80%, 76.80% for BR/EDR, and 62.02%, 32.54% for LE, according to 2016 Oct. TCB workshop for Bluetooth SAR consideration and the theoretical duty cycle is 83.3%, the refore the actual duty cycle will bescaled up to the theoretical value of Bluetooth reported SAR calculation.
2. 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 00	2.441	8.00	6.31	10.0	1.97	3.0

3. Per KDB 248227 D01v02r02, choose the highest output power channel to test SAR and determine further SAR exclusion.
4. 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.
5. 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.

6. Held-to ear configuration is not applicable to Bluetooth operations and therefore were not considered for simultaneous transmission.

13.2. Conducted Power for Top Antenna

➢ **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	26.87	26.97	26.93	27.00	17.87	17.97	17.93	18.00
GPRS 1 Tx slot	26.88	26.93	26.92	27.00	17.88	17.93	17.92	18.00
GPRS 2 Tx slots	26.61	26.64	26.59	27.00	20.61	20.64	20.59	21.00
GPRS 3 Tx slots	24.12	24.15	23.93	24.50	19.86	19.89	19.67	20.24
GPRS 4 Tx slots	23.02	23.13	22.89	23.50	20.02	20.13	19.89	20.50
EDGE 1 Tx slot	23.86	24.08	23.91	24.50	14.86	15.08	14.91	15.50
EDGE 2 Tx slots	23.75	23.95	23.75	24.00	17.75	17.95	17.75	18.00
EDGE 3 Tx slots	23.64	23.83	23.62	24.00	19.38	19.57	19.36	19.74
EDGE 4 Tx slots	22.87	22.86	22.91	23.00	19.87	19.86	19.91	20.00

Note: It will reduce about 3dBm by the sensor when it uses to the top antenna and be used for top antenna measurement.

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	24.63	24.74	24.62	25.00	15.63	15.74	15.62	16.00
GPRS 1 Tx slot	24.63	24.81	24.62	25.00	15.63	15.81	15.62	16.00
GPRS 2 Tx slots	24.73	24.61	24.68	25.00	18.73	18.61	18.68	19.00
GPRS 3 Tx slots	21.77	22.04	21.57	22.50	17.51	17.78	17.31	18.24
GPRS 4 Tx slots	20.85	20.84	20.59	21.00	17.85	17.84	17.59	18.00
EDGE 1 Tx slot	24.66	24.76	24.67	25.00	15.66	15.76	15.67	16.00
EDGE 2 Tx slots	24.39	24.56	24.08	25.00	18.39	18.56	18.08	19.00
EDGE 3 Tx slots	21.81	21.89	21.57	22.00	17.55	17.63	17.31	17.74
EDGE 4 Tx slots	20.87	20.92	20.61	21.00	17.87	17.92	17.61	18.00

Note: It will reduce about 3dBm by the sensor when it uses to the top antenna and be used for top antenna measurement.

➢ **WCDMA Conducted Power**

Band		WCDMA Band 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	18.64	18.61	18.54	19.00
3GPP Rel 5	HSDPA Subtest-1	17.79	17.81	17.92	18.50
3GPP Rel 5	HSDPA Subtest-2	17.30	17.34	17.41	18.50
3GPP Rel 5	HSDPA Subtest-3	17.29	17.35	17.43	18.00
3GPP Rel 5	HSDPA Subtest-4	16.78	16.75	16.72	18.00
3GPP Rel 6	HSUPA Subtest-1	15.99	15.96	15.93	16.50
3GPP Rel 6	HSUPA Subtest-2	15.76	15.83	15.70	16.50
3GPP Rel 6	HSUPA Subtest-3	15.54	15.71	15.48	16.00
3GPP Rel 6	HSUPA Subtest-4	15.31	15.28	15.25	16.00
3GPP Rel 6	HSUPA Subtest-5	15.01	14.98	14.95	15.50
3GPP Rel 7	HSPA+ (16QAM) Subtest-1	14.93	14.90	14.87	15.50

Note: It will reduce about 5dBm by the sensor when it uses to the top antenna and be used for top antenna measurement.

Band		WCDMA Band 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	16.62	16.57	16.55	17.00
3GPP Rel 5	HSDPA Subtest-1	16.50	16.52	16.59	17.00
3GPP Rel 5	HSDPA Subtest-2	16.06	16.07	16.05	17.00
3GPP Rel 5	HSDPA Subtest-3	15.16	15.99	16.04	16.50
3GPP Rel 5	HSDPA Subtest-4	15.09	15.10	15.11	16.50
3GPP Rel 6	HSUPA Subtest-1	14.96	14.97	14.98	15.50
3GPP Rel 6	HSUPA Subtest-2	14.83	14.84	14.75	15.50
3GPP Rel 6	HSUPA Subtest-3	14.75	14.76	14.67	15.50
3GPP Rel 6	HSUPA Subtest-4	14.41	14.62	14.43	15.00
3GPP Rel 6	HSUPA Subtest-5	14.01	14.02	14.03	15.00
3GPP Rel 7	HSPA+ (16QAM) Subtest-1	13.78	13.80	13.83	14.50

Note: It will reduce about 7dBm by the sensor when it uses to the top antenna and be used for top antenna measurement.

Band		WCDMA Band 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	19.73	19.77	19.69	20.00
3GPP Rel 5	HSDPA Subtest-1	18.69	18.62	18.17	19.00
3GPP Rel 5	HSDPA Subtest-2	18.67	18.62	18.13	19.00
3GPP Rel 5	HSDPA Subtest-3	18.65	18.19	18.12	19.00
3GPP Rel 5	HSDPA Subtest-4	18.64	18.19	17.72	19.00
3GPP Rel 6	HSUPA Subtest-1	17.99	17.97	17.95	18.50
3GPP Rel 6	HSUPA Subtest-2	17.51	17.69	17.47	18.00
3GPP Rel 6	HSUPA Subtest-3	16.89	16.57	16.85	17.00
3GPP Rel 6	HSUPA Subtest-4	16.78	16.46	16.74	17.00
3GPP Rel 6	HSUPA Subtest-5	16.01	15.99	15.97	16.50
3GPP Rel 7	HSPA+ (16QAM) Subtest-1	15.97	15.95	15.93	16.50

Note: It will reduce about 4dBm by the sensor when it uses to the top antenna and be used for top antenna measurement.

- **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	22.11	22.24	22.20	22.50
RC3 SO55	22.25	22.23	22.23	22.50
RC3 SO32 (F+SCH)	22.23	22.18	22.24	22.50
RC3 SO32 (+SCH)	22.21	22.21	22.22	22.50

Note: It will reduce about 2.0dBm by the sensor when it uses to the top antenna and be used for top antenna measurement.

Band	CDMA 2000 BC1			Tune-up Limit (dBm)
TX Channel	25	600	1175	
Frequency (MHz)	1851.25	1880	1908.75	
RC1 SO55	20.25	20.27	20.21	20.50
RC3 SO55	20.25	20.23	20.23	20.50
RC3 SO32 (F+SCH)	20.22	20.24	20.23	20.50
RC3 SO32 (+SCH)	20.23	20.24	20.21	20.50

Note: It will reduce about 4dBm by the sensor when it uses to the top antenna and be used for top antenna measurement.

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	22.27	22.20	22.17	22.50
RETAP 4096Bits	22.23	22.14	22.12	22.50

Note: It will reduce about 2.0dBm by the sensor when it uses to the top antenna and be used for top antenna measurement.

Band	CDMA 2000 BC1			Tune-up Limit (dBm)
TX Channel	25	600	1175	
Frequency (MHz)	1851.25	1880	1908.75	
RTAP 153.6Kbps	20.26	20.23	20.21	20.50
RETAP 4096Bits	20.23	20.20	20.11	20.50

Note: It will reduce about 3.5dBm by the sensor when it uses to the top antenna and be used for top antenna measurement.

- **LTE Conducted Power**

<FDD-LTE Band 2>

BW [MHz]	Modulation	RB Size	RB Offset	Low Channel	Middle Channel	High Channel	Tune-up limit (dBm)
Channel				18700	18900	19100	
Frequency (MHz)				1860	1880	1900	
20	QPSK	1	0	18.67	18.72	18.68	19.00
20	QPSK	1	49	18.45	18.56	18.39	
20	QPSK	1	99	18.44	18.46	18.45	
20	QPSK	50	0	17.51	17.66	17.43	18.00
20	QPSK	50	24	17.67	17.65	17.59	
20	QPSK	50	50	17.68	17.69	17.61	
20	QPSK	100	0	17.55	17.55	17.53	
20	16QAM	1	0	17.65	17.65	17.82	18.00
20	16QAM	1	49	17.71	17.65	17.71	
20	16QAM	1	99	17.35	17.73	17.65	
20	16QAM	50	0	17.57	17.53	17.61	18.00
20	16QAM	50	24	17.79	17.64	17.53	
20	16QAM	50	50	17.64	17.63	17.62	
20	16QAM	100	0	17.67	17.62	17.55	
20	64QAM	1	0	17.71	17.54	17.61	18.00

20	64QAM	1	49	17.62	17.62	17.25	
20	64QAM	1	99	17.65	17.47	17.98	
20	64QAM	50	0	16.6	16.56	16.57	17.00
20	64QAM	50	24	16.54	16.63	16.61	
20	64QAM	50	50	16.56	16.63	16.53	
20	64QAM	100	0	16.72	16.63	16.54	
Channel				18675	18900	19125	Tune-up limit (dBm)
Frequency (MHz)				1857.5	1880	1902.5	
15	QPSK	1	0	18.53	18.49	18.52	19.00
15	QPSK	1	37	18.42	18.55	18.38	
15	QPSK	1	74	18.51	18.52	18.61	
15	QPSK	36	0	17.47	17.62	17.51	18.00
15	QPSK	36	20	17.58	17.58	17.65	
15	QPSK	36	39	17.66	17.65	17.58	
15	QPSK	75	0	17.68	17.59	17.53	
15	16QAM	1	0	17.9	17.72	17.62	18.00
15	16QAM	1	37	17.51	17.62	17.89	
15	16QAM	1	74	17.22	17.86	17.76	
15	16QAM	36	0	17.46	17.62	17.44	18.00
15	16QAM	36	20	17.67	17.65	17.59	
15	16QAM	36	39	17.72	17.62	17.67	
15	16QAM	75	0	17.69	17.48	17.55	
15	64QAM	1	0	17.63	17.22	17.78	18.00
15	64QAM	1	37	17.98	17.44	17.85	
15	64QAM	1	74	17.43	17.65	17.62	
15	64QAM	36	0	16.66	16.56	16.55	17.00
15	64QAM	36	20	16.65	16.68	16.64	
15	64QAM	36	39	16.54	16.56	16.52	
15	64QAM	75	0	16.55	16.62	16.51	
Channel				18650	18900	19150	Tune-up limit (dBm)
Frequency (MHz)				1855	1880	1905	
10	QPSK	1	0	18.19	18.35	18.24	19.00
10	QPSK	1	25	18.21	18.31	18.43	
10	QPSK	1	49	18.45	18.28	18.3	
10	QPSK	25	0	17.42	17.34	17.17	18.00
10	QPSK	25	12	17.35	17.43	17.22	

10	QPSK	25	25	17.45	17.49	17.25	
10	QPSK	50	0	17.45	17.29	17.27	
10	16QAM	1	0	17.42	17.45	17.57	18.00
10	16QAM	1	25	17.55	17.88	17.64	
10	16QAM	1	49	17.95	17.94	17.83	
10	16QAM	25	0	17.51	17.26	17.31	18.00
10	16QAM	25	12	17.41	17.35	17.29	
10	16QAM	25	25	17.26	17.62	17.47	
10	16QAM	50	0	17.52	17.37	17.56	
10	64QAM	1	0	17.86	17.79	17.48	18.00
10	64QAM	1	25	17.89	17.56	17.61	
10	64QAM	1	49	17.56	17.65	17.83	
10	64QAM	25	0	16.28	16.31	16.27	17.00
10	64QAM	25	12	16.56	16.41	16.23	
10	64QAM	25	25	16.48	16.42	16.47	
10	64QAM	50	0	16.45	16.58	16.22	
Channel				18625	18900	19175	Tune-up limit (dBm)
Frequency (MHz)				1852.5	1880	1907.5	
5	QPSK	1	0	18.33	18.27	18.24	19.00
5	QPSK	1	12	18.41	18.41	18.34	
5	QPSK	1	24	18.38	18.35	18.36	
5	QPSK	12	0	17.42	17.36	17.24	18.00
5	QPSK	12	7	17.51	17.48	17.35	
5	QPSK	12	13	17.45	17.51	17.36	
5	QPSK	25	0	17.42	17.38	17.39	
5	16QAM	1	0	17.61	17.61	17.81	18.00
5	16QAM	1	12	17.52	17.61	17.35	
5	16QAM	1	24	17.89	17.62	17.44	
5	16QAM	12	0	17.44	17.65	17.35	18.00
5	16QAM	12	7	17.55	17.52	17.56	
5	16QAM	12	13	17.64	17.37	17.41	
5	16QAM	25	0	17.46	17.37	17.55	
5	64QAM	1	0	17.31	17.47	17.73	18.00
5	64QAM	1	12	17.58	17.44	17.73	
5	64QAM	1	24	17.61	17.57	17.8	
5	64QAM	12	0	16.43	16.33	16.18	17.00
5	64QAM	12	7	16.48	16.41	16.32	

5	64QAM	12	13	16.42	16.41	16.35	
5	64QAM	25	0	16.45	16.37	16.35	
Channel				18615	18900	19185	Tune-up limit (dBm)
Frequency (MHz)				1851.5	1880	1908.5	
3	QPSK	1	0	18.24	18.31	18.12	19.00
3	QPSK	1	8	18.44	18.54	18.21	
3	QPSK	1	14	18.36	18.35	18.24	
3	QPSK	8	0	17.43	17.27	17.24	18.00
3	QPSK	8	4	17.49	17.47	17.34	
3	QPSK	8	7	17.45	17.42	17.31	
3	QPSK	15	0	17.38	17.35	17.28	
3	16QAM	1	0	17.87	17.57	17.53	18.00
3	16QAM	1	8	17.81	17.51	17.61	
3	16QAM	1	14	17.85	17.56	17.41	
3	16QAM	8	0	17.37	17.65	17.55	18.00
3	16QAM	8	4	17.52	17.65	17.32	
3	16QAM	8	7	17.55	17.54	17.47	
3	16QAM	15	0	17.49	17.42	17.54	
3	64QAM	1	0	17.52	17.45	17.18	18.00
3	64QAM	1	8	17.32	17.53	17.49	
3	64QAM	1	14	17.35	17.47	17.49	
3	64QAM	8	0	16.28	16.53	16.24	17.00
3	64QAM	8	4	16.52	16.37	16.43	
3	64QAM	8	7	16.36	16.32	16.32	
3	64QAM	15	0	16.37	16.33	16.42	
Channel				18607	18900	19193	Tune-up limit (dBm)
Frequency (MHz)				1850.7	1880	1909.3	
1.4	QPSK	1	0	18.25	18.21	18.09	19.00
1.4	QPSK	1	3	18.35	18.34	18.25	
1.4	QPSK	1	5	18.36	18.26	18.14	
1.4	QPSK	3	0	18.22	18.26	18.22	
1.4	QPSK	3	1	18.25	18.33	18.21	
1.4	QPSK	3	3	18.31	18.22	18.09	
1.4	QPSK	6	0	17.33	17.31	17.22	18.00
1.4	16QAM	1	0	17.56	17.69	17.56	18.00
1.4	16QAM	1	3	17.89	17.55	17.16	

1.4	16QAM	1	5	17.64	17.56	17.34	
1.4	16QAM	3	0	17.42	17.22	17.26	
1.4	16QAM	3	1	17.43	17.42	17.19	
1.4	16QAM	3	3	17.44	17.41	17.27	
1.4	16QAM	6	0	17.66	17.52	17.65	18.00
1.4	64QAM	1	0	17.52	17.48	17.65	
1.4	64QAM	1	3	17.54	17.49	17.24	
1.4	64QAM	1	5	17.43	17.79	17.42	18.00
1.4	64QAM	3	0	17.49	17.51	17.36	
1.4	64QAM	3	1	17.49	17.24	17.34	
1.4	64QAM	3	3	17.48	17.55	17.27	
1.4	64QAM	6	0	16.64	16.58	16.53	17.00

Note: It will reduce about 5dBm by the sensor when it uses to the top antenna and be used for top antenna measurement.

<FDD-LTE Band 4>

BW [MHz]	Modulation	RB Size	RB Offset	Low Channel	Middle Channel	High Channel	Tune-up limit (dBm)
Channel				20050	20175	20300	
Frequency (MHz)				1720	1732.5	1745	
20	QPSK	1	0	16.66	16.62	16.51	
20	QPSK	1	49	16.38	16.32	16.36	17.00
20	QPSK	1	99	16.42	16.36	16.35	
20	QPSK	50	0	15.61	15.57	15.51	
20	QPSK	50	24	15.55	15.54	15.58	16.00
20	QPSK	50	50	15.54	15.58	15.49	
20	QPSK	100	0	15.66	15.55	15.61	
20	16QAM	1	0	15.61	15.55	15.55	
20	16QAM	1	49	15.57	15.62	15.52	16.00
20	16QAM	1	99	14.82	14.82	14.066	
20	16QAM	50	0	14.66	14.51	14.52	
20	16QAM	50	24	14.61	14.49	14.61	15.00
20	16QAM	50	50	14.57	14.42	14.45	
20	16QAM	100	0	14.32	14.51	14.62	
20	64QAM	1	0	14.23	14.09	14.28	
20	64QAM	1	49	14.35	14.32	14.27	15.00
20	64QAM	1	99	14.12	14.62	14.32	
20	64QAM	50	0	13.94	13.78	13.78	14.00

20	64QAM	50	24	13.87	13.79	13.73	
20	64QAM	50	50	13.88	13.62	13.62	
20	64QAM	100	0	13.96	13.78	13.72	
Channel				20025	20175	20325	Tune-up limit (dBm)
Frequency (MHz)				1717.5	1732.5	1747.5	
15	QPSK	1	0	16.53	16.48	16.52	17.00
15	QPSK	1	37	16.31	16.31	16.38	
15	QPSK	1	74	16.31	16.37	16.41	
15	QPSK	36	0	15.51	15.39	15.49	16.00
15	QPSK	36	20	15.59	15.47	15.58	
15	QPSK	36	39	15.59	15.46	15.51	
15	QPSK	75	0	15.59	15.47	15.54	
15	16QAM	1	0	15.62	15.62	15.71	16.00
15	16QAM	1	37	15.58	15.22	15.41	
15	16QAM	1	74	15.51	15.76	15.62	
15	16QAM	36	0	14.67	14.45	14.52	15.00
15	16QAM	36	20	14.61	14.51	14.53	
15	16QAM	36	39	14.51	14.43	14.57	
15	16QAM	75	0	14.51	14.44	14.45	
15	64QAM	1	0	14.77	14.76	14.75	15.00
15	64QAM	1	37	14.63	14.55	14.34	
15	64QAM	1	74	14.58	14.53	14.51	
15	64QAM	36	0	13.62	13.65	13.77	14.00
15	64QAM	36	20	13.72	13.79	13.62	
15	64QAM	36	39	13.68	13.62	13.52	
15	64QAM	75	0	13.65	13.66	13.55	
Channel				20000	20175	20350	Tune-up limit (dBm)
Frequency (MHz)				1715	1732.5	1750	
10	QPSK	1	0	16.57	16.51	16.51	17.00
10	QPSK	1	25	16.39	16.51	16.37	
10	QPSK	1	49	16.42	16.31	16.31	
10	QPSK	25	0	15.57	15.41	15.51	16.00
10	QPSK	25	12	15.58	15.48	15.57	
10	QPSK	25	25	15.46	15.57	15.48	
10	QPSK	50	0	15.55	15.43	15.54	
10	16QAM	1	0	15.54	15.64	15.66	16.00

10	16QAM	1	25	15.61	15.54	15.41	
10	16QAM	1	49	15.53	15.62	15.55	
10	16QAM	25	0	14.59	14.41	14.48	15.00
10	16QAM	25	12	14.61	14.56	14.51	
10	16QAM	25	25	14.55	14.51	14.61	
10	16QAM	50	0	14.52	14.43	14.54	
10	64QAM	1	0	14.65	14.83	14.56	15.00
10	64QAM	1	25	14.56	14.62	14.54	
10	64QAM	1	49	14.52	14.39	14.54	
10	64QAM	25	0	13.52	13.42	13.58	14.00
10	64QAM	25	12	13.66	13.75	13.64	
10	64QAM	25	25	13.56	13.55	13.62	
10	64QAM	50	0	13.54	13.72	13.55	
Channel				19975	20175	20375	Tune-up limit (dBm)
Frequency (MHz)				1712.5	1732.5	1752.5	
5	QPSK	1	0	16.61	16.57	16.59	17.00
5	QPSK	1	12	16.38	16.31	16.35	
5	QPSK	1	24	16.45	16.37	16.36	
5	QPSK	12	0	15.51	15.47	15.47	16.00
5	QPSK	12	7	15.59	15.56	15.57	
5	QPSK	12	13	15.59	15.54	15.58	
5	QPSK	25	0	15.48	15.44	15.52	
5	16QAM	1	0	15.56	15.83	15.22	16.00
5	16QAM	1	12	15.62	15.63	15.49	
5	16QAM	1	24	15.56	15.51	15.68	
5	16QAM	12	0	14.49	14.58	14.51	15.00
5	16QAM	12	7	14.49	14.55	14.54	
5	16QAM	12	13	14.54	14.52	14.56	
5	16QAM	25	0	14.57	14.47	14.54	
5	64QAM	1	0	14.59	14.62	14.62	15.00
5	64QAM	1	12	14.73	14.72	14.51	
5	64QAM	1	24	14.54	14.52	14.61	
5	64QAM	12	0	13.62	13.53	13.52	14.00
5	64QAM	12	7	13.54	13.51	13.56	
5	64QAM	12	13	13.65	13.59	13.55	
5	64QAM	25	0	13.61	13.32	13.55	
Channel				19965	20175	20385	Tune-up

Frequency (MHz)				1711.5	1732.5	1753.5	limit (dBm)
3	QPSK	1	0	16.59	16.57	16.48	17.00
3	QPSK	1	8	16.39	16.33	16.49	
3	QPSK	1	14	16.45	16.34	16.37	
3	QPSK	8	0	15.57	15.45	15.59	16.00
3	QPSK	8	4	15.55	15.54	15.58	
3	QPSK	8	7	15.56	15.41	15.59	
3	QPSK	15	0	15.48	15.42	15.5	
3	16QAM	1	0	15.62	15.49	15.88	16.00
3	16QAM	1	8	15.82	15.55	15.57	
3	16QAM	1	14	15.62	15.62	15.46	
3	16QAM	8	0	14.56	14.38	14.55	15.00
3	16QAM	8	4	14.58	14.46	14.58	
3	16QAM	8	7	14.64	14.56	14.49	
3	16QAM	15	0	14.56	14.57	14.58	
3	64QAM	1	0	14.49	14.79	14.69	15.00
3	64QAM	1	8	14.46	14.73	14.34	
3	64QAM	1	14	14.58	14.42	14.51	
3	64QAM	8	0	13.53	13.55	13.52	14.00
3	64QAM	8	4	13.61	13.49	13.62	
3	64QAM	8	7	13.57	13.42	13.45	
3	64QAM	15	0	13.62	13.51	13.62	
Channel				19957	20175	20393	Tune-up limit (dBm)
Frequency (MHz)				1710.7	1732.5	1754.3	
1.4	QPSK	1	0	16.62	16.62	16.51	17.00
1.4	QPSK	1	3	16.38	16.32	16.36	
1.4	QPSK	1	5	16.42	16.36	16.35	
1.4	QPSK	3	0	16.61	16.57	16.51	
1.4	QPSK	3	1	16.55	16.54	16.58	
1.4	QPSK	3	3	16.54	16.58	16.49	
1.4	QPSK	6	0	15.54	16.42	15.54	16.00
1.4	16QAM	1	0	15.77	15.81	15.78	16.00
1.4	16QAM	1	3	15.82	15.89	15.83	
1.4	16QAM	1	5	15.62	15.36	15.63	
1.4	16QAM	3	0	15.56	15.56	15.58	
1.4	16QAM	3	1	15.58	15.49	15.56	

1.4	16QAM	3	3	15.64	15.57	15.62	
1.4	16QAM	6	0	14.54	14.52	14.54	15.00
1.4	64QAM	1	0	14.72	14.22	14.62	15.00
1.4	64QAM	1	3	14.72	14.53	14.42	
1.4	64QAM	1	5	14.63	14.59	14.59	
1.4	64QAM	3	0	14.61	14.54	14.54	
1.4	64QAM	3	1	14.61	14.53	14.57	
1.4	64QAM	3	3	14.53	14.61	14.46	
1.4	64QAM	6	0	13.32	13.49	13.37	14.00

Note: It will reduce about 7dBm by the sensor when it uses to the top antenna and be used for top antenna measurement.

<FDD-LTE Band 5>

BW [MHz]	Modulation	RB Size	RB Offset	Low Channel	Middle Channel	High Channel	Tune-up limit (dBm)
Channel				20450	20525	20600	
Frequency (MHz)				829	836.5	844	
10	QPSK	1	0	19.75	19.72	19.78	20.00
10	QPSK	1	25	19.61	19.48	19.55	
10	QPSK	1	49	19.72	19.58	19.63	
10	QPSK	25	0	18.71	18.76	18.84	19.00
10	QPSK	25	12	18.82	18.63	18.73	
10	QPSK	25	25	18.79	18.72	18.81	
10	QPSK	50	0	18.77	18.84	18.69	
10	16QAM	1	0	18.32	18.67	18.88	19.00
10	16QAM	1	25	18.66	18.75	18.62	
10	16QAM	1	49	18.81	18.52	18.55	
10	16QAM	25	0	17.74	17.81	17.83	18.00
10	16QAM	25	12	17.82	17.68	17.83	
10	16QAM	25	25	17.79	17.77	17.79	
10	16QAM	50	0	17.69	17.88	17.83	
10	64QAM	1	0	17.26	17.86	17.17	18.00
10	64QAM	1	25	17.55	17.56	17.62	
10	64QAM	1	49	17.59	17.83	17.15	
10	64QAM	25	0	17.75	17.76	17.75	18.00
10	64QAM	25	12	17.82	17.76	17.82	
10	64QAM	25	25	17.88	17.74	17.84	
10	64QAM	50	0	17.62	17.78	17.82	

Channel				20425	20525	20625	Tune-up limit (dBm)
Frequency (MHz)				826.5	836.5	846.5	
5	QPSK	1	0	19.74	19.63	19.59	20.00
5	QPSK	1	12	19.63	19.71	19.69	
5	QPSK	1	24	19.67	19.61	19.61	
5	QPSK	12	0	18.77	18.69	18.77	19.00
5	QPSK	12	7	18.8	18.82	18.79	
5	QPSK	12	13	18.76	18.74	18.79	
5	QPSK	25	0	18.81	18.75	18.77	
5	16QAM	1	0	18.96	18.92	18.64	19.00
5	16QAM	1	12	18.65	18.86	18.66	
5	16QAM	1	24	18.62	18.79	18.56	
5	16QAM	12	0	17.83	17.74	17.84	18.00
5	16QAM	12	7	17.75	17.79	17.85	
5	16QAM	12	13	17.82	17.69	17.7	
5	16QAM	25	0	17.83	17.71	17.74	
5	64QAM	1	0	17.64	17.64	17.66	18.00
5	64QAM	1	12	17.28	17.57	17.18	
5	64QAM	1	24	17.13	17.17	17.62	
5	64QAM	12	0	17.76	17.68	17.79	18.00
5	64QAM	12	7	17.89	17.74	17.81	
5	64QAM	12	13	17.75	17.77	17.75	
5	64QAM	25	0	17.66	17.77	17.63	
Channel				20415	20525	20635	Tune-up limit (dBm)
Frequency (MHz)				825.5	836.5	847.5	
3	QPSK	1	0	19.61	19.59	19.76	20.00
3	QPSK	1	8	19.57	19.62	19.73	
3	QPSK	1	14	19.61	19.56	19.69	
3	QPSK	8	0	18.77	18.73	18.68	19.00
3	QPSK	8	4	18.78	18.71	18.8	
3	QPSK	8	7	18.71	18.67	18.72	
3	QPSK	15	0	18.74	18.74	18.75	
3	16QAM	1	0	18.24	18.25	18.36	19.00
3	16QAM	1	8	18.65	18.24	18.33	
3	16QAM	1	14	18.83	18.25	18.18	
3	16QAM	8	0	17.94	17.84	17.74	18.00

3	16QAM	8	4	17.89	17.75	17.88	
3	16QAM	8	7	17.74	17.84	17.76	
3	16QAM	15	0	17.86	17.85	17.61	
3	64QAM	1	0	17.56	17.44	17.78	18.00
3	64QAM	1	8	17.66	17.62	17.85	
3	64QAM	1	14	17.43	17.62	17.76	
3	64QAM	8	0	17.8	17.71	17.68	18.00
3	64QAM	8	4	17.72	17.79	17.77	
3	64QAM	8	7	17.78	17.66	17.68	
3	64QAM	15	0	17.72	17.75	17.68	
Channel				20407	20525	20643	Tune-up limit (dBm)
Frequency (MHz)				824.7	836.5	848.3	
1.4	QPSK	1	0	19.66	19.54	19.61	20.00
1.4	QPSK	1	3	19.64	19.59	19.63	
1.4	QPSK	1	5	19.55	19.49	19.51	
1.4	QPSK	3	0	19.58	19.49	19.61	
1.4	QPSK	3	1	19.61	19.54	19.63	
1.4	QPSK	3	3	19.62	19.55	19.54	
1.4	QPSK	6	0	18.67	18.62	18.67	19.00
1.4	16QAM	1	0	18.21	18.71	18.85	19.00
1.4	16QAM	1	3	18.22	18.18	18.42	
1.4	16QAM	1	5	18.66	18.55	18.62	
1.4	16QAM	3	0	18.74	18.59	18.73	
1.4	16QAM	3	1	18.69	18.75	18.68	
1.4	16QAM	3	3	18.55	18.66	18.61	
1.4	16QAM	6	0	17.74	17.85	17.81	18.00
1.4	64QAM	1	0	17.81	17.74	17.62	18.00
1.4	64QAM	1	3	17.58	17.09	17.54	
1.4	64QAM	1	5	17.51	17.75	17.62	
1.4	64QAM	3	0	17.62	17.62	17.78	
1.4	64QAM	3	1	17.81	17.69	17.74	
1.4	64QAM	3	3	17.81	17.71	17.62	
1.4	64QAM	6	0	17.74	17.69	17.66	18.00

Note: It will reduce about 4dBm by the sensor when it uses to the top antenna and be used for top antenna measurement.

<FDD-LTE Band 7>

BW [MHz]	Modulation	RB Size	RB Offset	Low Channel	Middle Channel	High Channel	Tune-up limit (dBm)
Channel				20850	21100	21350	
Frequency (MHz)				2510	2535	2560	
20	QPSK	1	0	17.77	17.82	17.79	18.00
20	QPSK	1	49	17.59	17.66	17.73	
20	QPSK	1	99	17.75	17.85	17.78	
20	QPSK	50	0	16.77	16.76	16.81	17.00
20	QPSK	50	24	16.88	16.91	16.89	
20	QPSK	50	50	16.84	16.87	16.83	
20	QPSK	100	0	16.93	16.87	16.83	
20	16QAM	1	0	16.89	16.87	16.33	17.00
20	16QAM	1	49	16.89	16.56	16.97	
20	16QAM	1	99	16.62	16.66	16.54	
20	16QAM	50	0	15.79	15.84	15.77	16.00
20	16QAM	50	24	15.86	15.94	15.83	
20	16QAM	50	50	15.88	15.84	15.96	
20	16QAM	100	0	15.82	15.97	15.85	
20	64QAM	1	0	15.66	15.79	15.88	16.00
20	64QAM	1	49	15.56	15.61	15.64	
20	64QAM	1	99	15.72	15.78	15.64	
20	64QAM	50	0	15.71	15.87	15.77	16.00
20	64QAM	50	24	15.86	15.56	15.79	
20	64QAM	50	50	15.62	15.97	15.83	
20	64QAM	100	0	15.78	15.87	15.88	
Channel				20825	21100	21375	Tune-up limit (dBm)
Frequency (MHz)				2507.5	2535	2562.5	
15	QPSK	1	0	17.66	17.68	17.72	18.00
15	QPSK	1	37	17.75	17.55	17.71	
15	QPSK	1	74	17.79	17.76	17.74	
15	QPSK	36	0	16.85	16.79	16.78	17.00
15	QPSK	36	20	16.88	16.87	16.83	
15	QPSK	36	39	16.92	17.04	16.89	
15	QPSK	75	0	16.81	16.91	16.83	
15	16QAM	1	0	16.89	16.62	16.62	17.00
15	16QAM	1	37	16.39	16.62	16.55	

15	16QAM	1	74	16.75	16.55	16.72	
15	16QAM	36	0	15.88	15.78	15.81	16.00
15	16QAM	36	20	15.89	15.87	15.83	
15	16QAM	36	39	15.89	15.88	15.94	
15	16QAM	75	0	15.87	15.89	15.71	
15	64QAM	1	0	15.62	15.25	15.66	16.00
15	64QAM	1	37	15.22	15.56	15.75	
15	64QAM	1	74	15.91	15.85	15.82	
15	64QAM	36	0	15.91	15.88	15.79	16.00
15	64QAM	36	20	15.83	15.98	15.81	
15	64QAM	36	39	15.91	15.88	15.78	
15	64QAM	75	0	15.77	15.62	15.73	
Channel				20800	21100	21400	Tune-up limit (dBm)
Frequency (MHz)				2505	2535	2565	
10	QPSK	1	0	17.52	17.41	17.43	18.00
10	QPSK	1	25	17.47	17.38	17.44	
10	QPSK	1	49	17.46	17.43	17.61	
10	QPSK	25	0	16.59	16.57	16.62	17.00
10	QPSK	25	12	16.57	16.76	16.66	
10	QPSK	25	25	16.55	16.68	16.64	
10	QPSK	50	0	16.55	16.66	16.59	
10	16QAM	1	0	16.98	16.52	16.54	17.00
10	16QAM	1	25	16.75	16.22	16.64	
10	16QAM	1	49	16.72	16.75	16.44	
10	16QAM	25	0	15.67	15.59	15.67	16.00
10	16QAM	25	12	15.63	15.75	15.65	
10	16QAM	25	25	15.28	15.92	15.73	
10	16QAM	50	0	15.61	15.71	15.62	
10	64QAM	1	0	15.64	15.34	15.68	16.00
10	64QAM	1	25	15.48	15.39	15.75	
10	64QAM	1	49	15.65	15.82	15.61	
10	64QAM	25	0	15.64	15.66	15.64	16.00
10	64QAM	25	12	15.69	15.77	15.66	
10	64QAM	25	25	15.69	15.77	15.78	
10	64QAM	50	0	15.62	15.68	15.55	
Channel				20775	21100	21425	Tune-up limit
Frequency (MHz)				2502.5	2535	2567.5	

							(dBm)
5	QPSK	1	0	17.51	17.42	17.5	18.00
5	QPSK	1	12	17.51	17.54	17.46	
5	QPSK	1	24	17.46	17.57	17.42	
5	QPSK	12	0	16.61	16.62	16.62	17.00
5	QPSK	12	7	16.65	16.65	16.64	
5	QPSK	12	13	16.62	16.71	16.66	
5	QPSK	25	0	16.59	16.72	16.73	
5	16QAM	1	0	16.45	16.25	16.89	17.00
5	16QAM	1	12	16.63	16.54	16.55	
5	16QAM	1	24	16.61	16.76	16.54	
5	16QAM	12	0	15.59	15.62	15.71	16.00
5	16QAM	12	7	15.75	15.63	15.67	
5	16QAM	12	13	15.67	15.77	15.73	
5	16QAM	25	0	15.59	15.74	15.65	
5	64QAM	1	0	15.63	15.59	15.54	16.00
5	64QAM	1	12	15.62	15.61	15.62	
5	64QAM	1	24	15.62	15.76	15.71	
5	64QAM	12	0	15.52	15.52	15.61	16.00
5	64QAM	12	7	15.53	15.75	15.61	
5	64QAM	12	13	15.75	15.78	15.69	
5	64QAM	25	0	15.79	15.65	15.69	

Note: It will reduce about 3.5dBm by the sensor when it uses to the top antenna and be used for top antenna measurement.

<FDD-LTE Band 12>

BW [MHz]	Modulation	RB Size	RB Offset	Low Channel	Middle Channel	High Channel	Tune-up limit (dBm)
Channel				23060	23095	23130	
Frequency (MHz)				704	707.5	711	
10	QPSK	1	0	19.62	19.76	19.74	20.00
10	QPSK	1	25	19.67	19.65	19.71	
10	QPSK	1	49	19.83	19.72	19.63	
10	QPSK	25	0	18.72	18.77	18.76	19.00
10	QPSK	25	12	18.82	18.72	18.63	
10	QPSK	25	25	18.83	18.75	18.81	
10	QPSK	50	0	18.78	18.85	18.79	
10	16QAM	1	0	18.98	18.81	18.92	19.00
10	16QAM	1	25	18.64	18.55	18.56	
10	16QAM	1	49	18.84	18.92	18.62	
10	16QAM	25	0	17.73	17.83	17.91	18.00
10	16QAM	25	12	17.75	17.76	17.81	
10	16QAM	25	25	17.68	17.85	17.81	
10	16QAM	50	0	17.88	17.69	17.78	
10	64QAM	1	0	17.25	17.16	17.34	18.00
10	64QAM	1	25	17.22	17.27	17.39	
10	64QAM	1	49	17.76	17.52	17.16	
10	64QAM	25	0	17.74	17.77	17.77	18.00
10	64QAM	25	12	17.88	17.82	17.73	
10	64QAM	25	25	17.62	17.85	17.77	
10	64QAM	50	0	17.75	17.74	17.82	
Channel				23035	23095	23155	Tune-up limit (dBm)
Frequency (MHz)				701.5	707.5	713.5	
5	QPSK	1	0	19.69	19.65	19.61	20.00
5	QPSK	1	12	19.67	19.71	19.66	
5	QPSK	1	24	19.61	19.67	19.67	
5	QPSK	12	0	18.84	18.76	18.73	19.00
5	QPSK	12	7	18.77	18.79	18.72	
5	QPSK	12	13	18.75	18.73	18.76	
5	QPSK	25	0	18.79	18.82	18.72	
5	16QAM	1	0	18.55	18.62	18.65	19.00
5	16QAM	1	12	18.85	18.59	18.62	

5	16QAM	1	24	18.62	18.95	18.66	
5	16QAM	12	0	17.83	17.77	17.77	18.00
5	16QAM	12	7	17.79	17.86	17.78	
5	16QAM	12	13	17.72	17.66	17.81	
5	16QAM	25	0	17.81	17.69	17.76	
5	64QAM	1	0	17.56	17.66	17.62	18.00
5	64QAM	1	12	17.62	17.26	17.59	
5	64QAM	1	24	17.65	17.62	17.62	
5	64QAM	12	0	17.65	17.79	17.84	18.00
5	64QAM	12	7	17.72	17.68	17.73	
5	64QAM	12	13	17.73	17.71	17.78	
5	64QAM	25	0	17.82	17.65	17.74	
Channel				23025	23095	23165	Tune-up limit (dBm)
Frequency (MHz)				700.5	707.5	714.5	
3	QPSK	1	0	19.68	19.64	19.67	20.00
3	QPSK	1	8	19.67	19.64	19.69	
3	QPSK	1	14	19.55	19.63	19.66	
3	QPSK	8	0	18.74	18.72	18.71	19.00
3	QPSK	8	4	18.73	18.78	18.83	
3	QPSK	8	7	18.69	18.71	18.75	
3	QPSK	15	0	18.72	18.79	18.77	
3	16QAM	1	0	18.72	18.66	18.84	19.00
3	16QAM	1	8	18.62	18.95	18.81	
3	16QAM	1	14	18.61	18.65	18.96	
3	16QAM	8	0	17.75	17.78	17.75	18.00
3	16QAM	8	4	17.82	17.85	17.59	
3	16QAM	8	7	17.72	17.87	17.82	
3	16QAM	15	0	17.85	17.71	17.71	
3	64QAM	1	0	17.65	17.56	17.65	18.00
3	64QAM	1	8	17.66	17.69	17.71	
3	64QAM	1	14	17.62	17.82	17.69	
3	64QAM	8	0	17.72	17.97	17.71	18.00
3	64QAM	8	4	17.78	17.85	17.77	
3	64QAM	8	7	17.85	17.67	17.67	
3	64QAM	15	0	17.79	17.67	17.66	
Channel				23017	23095	23173	Tune-up limit
Frequency (MHz)				699.7	707.5	715.3	

							(dBm)
1.4	QPSK	1	0	19.63	19.51	19.59	20.00
1.4	QPSK	1	3	19.66	19.52	19.61	
1.4	QPSK	1	5	19.58	19.55	19.52	
1.4	QPSK	3	0	19.58	19.48	19.62	
1.4	QPSK	3	1	19.55	19.61	19.52	
1.4	QPSK	3	3	19.58	19.53	19.53	
1.4	QPSK	6	0	18.69	18.63	18.64	19.00
1.4	16QAM	1	0	18.65	18.85	18.66	19.00
1.4	16QAM	1	3	18.62	18.81	18.65	
1.4	16QAM	1	5	18.62	18.77	18.76	
1.4	16QAM	3	0	18.82	18.63	18.72	
1.4	16QAM	3	1	18.74	18.74	18.65	
1.4	16QAM	3	3	18.69	18.79	18.58	
1.4	16QAM	6	0	17.81	17.75	17.71	18.00
1.4	64QAM	1	0	17.73	17.73	17.77	18.00
1.4	64QAM	1	3	17.36	17.73	17.82	
1.4	64QAM	1	5	17.59	17.39	17.65	
1.4	64QAM	3	0	17.57	17.45	17.62	
1.4	64QAM	3	1	17.72	17.51	17.76	
1.4	64QAM	3	3	17.72	17.82	17.72	
1.4	64QAM	6	0	17.73	17.62	17.58	18.00

Note: It will reduce about 4dBm by the sensor when it uses to the top antenna and be used for top antenna measurement.

<FDD-LTE Band 17>

BW [MHz]	Modulation	RB Size	RB Offset	Low Channel	Middle Channel	High Channel	Tune-up limit (dBm)
Channel				23780	23790	23800	
Frequency (MHz)				709	710	711	
10	QPSK	1	0	19.62	19.52	19.65	20.00
10	QPSK	1	25	19.45	19.44	19.53	
10	QPSK	1	49	19.56	19.72	19.35	
10	QPSK	25	0	18.59	18.58	18.61	19.00
10	QPSK	25	12	18.72	18.72	18.68	
10	QPSK	25	25	18.71	18.74	18.69	
10	QPSK	50	0	18.77	18.94	18.75	
10	16QAM	1	0	18.66	18.93	18.81	19.00
10	16QAM	1	25	18.78	18.83	18.71	
10	16QAM	1	49	18.74	18.87	18.87	
10	16QAM	25	0	17.64	17.68	17.66	18.00
10	16QAM	25	12	17.83	17.78	17.69	
10	16QAM	25	25	17.86	17.84	17.63	
10	16QAM	50	0	17.79	17.64	17.74	
10	64QAM	1	0	17.21	17.62	17.73	18.00
10	64QAM	1	25	17.82	17.68	17.62	
10	64QAM	1	49	17.26	17.24	17.68	
10	64QAM	25	0	17.71	17.62	17.63	18.00
10	64QAM	25	12	17.79	17.68	17.74	
10	64QAM	25	25	17.79	17.56	17.71	
10	64QAM	50	0	17.77	17.64	17.69	
Channel				23755	23790	23825	Tune-up limit (dBm)
Frequency (MHz)				706.5	710	713.5	
5	QPSK	1	0	19.45	19.61	19.56	20.00
5	QPSK	1	12	19.57	19.66	19.71	
5	QPSK	1	24	19.63	19.57	19.52	
5	QPSK	12	0	18.45	18.61	18.62	19.00
5	QPSK	12	7	18.69	18.72	18.75	
5	QPSK	12	13	18.72	18.71	18.68	
5	QPSK	25	0	18.71	18.68	18.72	
5	16QAM	1	0	18.73	18.52	18.78	19.00

5	16QAM	1	12	18.62	18.56	18.76	
5	16QAM	1	24	18.56	18.76	18.84	
5	16QAM	12	0	17.71	17.62	17.64	18.00
5	16QAM	12	7	17.73	17.62	17.76	
5	16QAM	12	13	17.63	17.72	17.74	
5	16QAM	25	0	17.62	17.62	17.59	
5	64QAM	1	0	17.72	17.76	17.69	18.00
5	64QAM	1	12	17.76	17.62	17.56	
5	64QAM	1	24	17.69	17.61	17.56	
5	64QAM	12	0	17.59	17.63	17.63	18.00
5	64QAM	12	7	17.63	17.75	17.69	
5	64QAM	12	13	17.71	17.72	17.58	
5	64QAM	25	0	17.72	17.63	17.63	

Note: It will reduce about 4dBm by the sensor when it uses to the top antenna and be used for top antenna measurement.

<FDD-LTE Band 18>

BW [MHz]	Modulation	RB Size	RB Offset	Low Channel	Middle Channel	High Channel	Tune-up limit (dBm)
Channel				23925	23925	23925	
Frequency (MHz)				822.5	822.5	822.5	
15	QPSK	1	0	20.58			21.00
15	QPSK	1	37	20.69			
15	QPSK	1	74	20.68			
15	QPSK	36	0	19.73			20.00
15	QPSK	36	20	19.75			
15	QPSK	36	39	19.69			
15	QPSK	75	0	19.69			
15	16QAM	1	0	20.29			20.00
15	16QAM	1	37	20.09			
15	16QAM	1	74	19.66			
15	16QAM	36	0	18.74			19.00
15	16QAM	36	20	18.74			
15	16QAM	36	39	18.88			
15	16QAM	75	0	18.82			
10	64QAM	1	0	20.21			19.00
10	64QAM	1	25	19.92			
10	64QAM	1	49	19.04			

10	64QAM	25	0	18.81			19.00
10	64QAM	25	12	18.69			
10	64QAM	25	25	18.81			
10	64QAM	50	0	18.66			
Channel				23900	23925	23950	Tune-up limit (dBm)
Frequency (MHz)				820	822.5	825	
10	QPSK	1	0	20.35	20.27	20.43	21.00
10	QPSK	1	25	20.18	20.42	20.41	
10	QPSK	1	49	20.44	20.45	20.39	
10	QPSK	25	0	19.55	19.48	19.45	20.00
10	QPSK	25	12	19.63	19.52	19.39	
10	QPSK	25	25	19.49	19.61	19.53	
10	QPSK	50	0	19.58	19.49	19.57	
10	16QAM	1	0	19.65	19.61	19.76	19.00
10	16QAM	1	25	19.71	19.85	19.55	
10	16QAM	1	49	19.72	19.75	19.71	
10	16QAM	25	0	18.48	18.69	18.52	19.00
10	16QAM	25	12	18.58	18.58	18.56	
10	16QAM	25	25	18.59	18.59	18.65	
10	16QAM	50	0	18.56	18.72	18.57	
10	64QAM	1	0	18.75	18.62	18.64	19.00
10	64QAM	1	25	18.58	18.55	18.75	
10	64QAM	1	49	18.89	18.81	18.64	
10	64QAM	25	0	18.57	18.72	18.48	19.00
10	64QAM	25	12	18.71	18.59	18.62	
10	64QAM	25	25	18.57	18.53	18.64	
10	64QAM	50	0	18.52	18.53	18.38	
Channel				23875	23925	23975	Tune-up limit (dBm)
Frequency (MHz)				817.5	822.5	827.5	
5	QPSK	1	0	20.43	20.43	20.54	21.00
5	QPSK	1	12	20.48	20.49	20.45	
5	QPSK	1	24	20.36	20.48	20.35	
5	QPSK	12	0	19.49	19.56	19.53	20.00
5	QPSK	12	7	19.61	19.61	19.54	
5	QPSK	12	13	19.55	19.49	19.52	
5	QPSK	25	0	19.59	19.52	19.53	

5	16QAM	1	0	19.66	19.56	19.62	20.00
5	16QAM	1	12	19.55	19.58	19.71	
5	16QAM	1	24	19.95	19.77	19.62	
5	16QAM	12	0	18.58	18.61	18.55	19.00
5	16QAM	12	7	18.61	18.59	18.49	
5	16QAM	12	13	18.51	18.63	18.62	
5	16QAM	25	0	18.59	18.62	18.51	
5	64QAM	1	0	18.69	18.65	18.69	19.00
5	64QAM	1	12	18.41	18.65	18.64	
5	64QAM	1	24	18.49	18.59	18.64	
5	64QAM	12	0	18.61	18.57	18.53	19.00
5	64QAM	12	7	18.45	18.62	18.55	
5	64QAM	12	13	18.57	18.61	18.47	
5	64QAM	25	0	18.54	18.57	18.53	

Note: It will reduce about 3dBm by the sensor when it uses to the top antenna and be used for top antenna measurement.

<FDD-LTE Band 19>

BW [MHz]	Modulation	RB Size	RB Offset	Low Channel	Middle Channel	High Channel	Tune-up limit (dBm)
Channel				24075	24075	24075	
Frequency (MHz)				837.5	837.5	837.5	
15	QPSK	1	0	20.57			21.00
15	QPSK	1	37	20.69			
15	QPSK	1	74	20.41			
15	QPSK	36	0	19.75			20.00
15	QPSK	36	20	19.79			
15	QPSK	36	39	19.75			
15	QPSK	75	0	19.71			
15	16QAM	1	0	19.56			20.00
15	16QAM	1	37	19.67			
15	16QAM	1	74	19.54			
15	16QAM	36	0	18.72			19.00
15	16QAM	36	20	18.58			
15	16QAM	36	39	18.68			
15	16QAM	75	0	18.65			
10	64QAM	1	0	18.62			19.00
10	64QAM	1	25	18.51			

10	64QAM	1	49	18.78			
10	64QAM	25	0	18.62			19.00
10	64QAM	25	12	18.73			
10	64QAM	25	25	18.64			
10	64QAM	50	0	18.62			
Channel				24050	24075	24100	Tune-up limit (dBm)
Frequency (MHz)				835	837.5	840	
10	QPSK	1	0	20.54	20.29	20.63	21.00
10	QPSK	1	25	20.26	20.55	20.36	
10	QPSK	1	49	20.28	20.45	20.43	
10	QPSK	25	0	19.61	19.54	19.55	20.00
10	QPSK	25	12	19.34	19.55	19.52	
10	QPSK	25	25	19.59	19.55	19.56	
10	QPSK	50	0	19.71	19.57	19.47	
10	16QAM	1	0	19.81	19.64	19.65	20.00
10	16QAM	1	25	19.82	19.92	19.98	
10	16QAM	1	49	19.65	19.54	19.76	
10	16QAM	25	0	18.66	18.54	18.56	19.00
10	16QAM	25	12	18.68	18.58	18.54	
10	16QAM	25	25	18.59	18.57	18.53	
10	16QAM	50	0	18.49	18.72	18.49	
10	64QAM	1	0	18.56	18.81	18.62	19.00
10	64QAM	1	25	18.84	18.72	18.56	
10	64QAM	1	49	18.55	18.74	18.62	
10	64QAM	25	0	18.62	18.56	18.56	19.00
10	64QAM	25	12	18.63	18.66	18.53	
10	64QAM	25	25	18.67	18.52	18.66	
10	64QAM	50	0	18.53	18.55	18.55	
Channel				24025	24075	24125	Tune-up limit (dBm)
Frequency (MHz)				832.5	837.5	842.5	
5	QPSK	1	0	20.42	20.46	20.53	21.00
5	QPSK	1	12	20.61	20.58	20.39	
5	QPSK	1	24	20.62	20.48	20.47	
5	QPSK	12	0	19.56	19.57	19.49	20.00
5	QPSK	12	7	19.64	19.61	19.58	
5	QPSK	12	13	19.57	19.59	19.46	

5	QPSK	25	0	19.65	19.62	19.59	
5	16QAM	1	0	19.89	19.72	19.77	20.00
5	16QAM	1	12	19.65	19.86	19.69	
5	16QAM	1	24	19.62	19.98	19.61	
5	16QAM	12	0	18.54	18.62	18.56	19.00
5	16QAM	12	7	18.58	18.66	18.63	
5	16QAM	12	13	18.59	18.59	18.63	
5	16QAM	25	0	18.63	18.67	18.54	
5	64QAM	1	0	18.58	18.65	18.65	19.00
5	64QAM	1	12	18.62	18.68	18.62	
5	64QAM	1	24	18.62	18.62	18.62	
5	64QAM	12	0	18.54	18.51	18.47	19.00
5	64QAM	12	7	18.61	18.71	18.54	
5	64QAM	12	13	18.59	18.54	18.55	
5	64QAM	25	0	18.65	18.66	18.55	

Note: It will reduce about 3dBm by the sensor when it uses to the top antenna and be used for top antenna measurement.

<FDD-LTE Band 26>

BW [MHz]	Modulation	RB Size	RB Offset	Low Channel	Middle Channel	High Channel	Tune-up limit (dBm)
Channel				26765	26865	26965	
Frequency (MHz)				821.5	831.5	841.5	
15	QPSK	1	0	20.79	20.72	20.75	21.00
15	QPSK	1	37	20.72	20.63	20.58	
15	QPSK	1	74	20.66	20.58	20.52	
15	QPSK	36	0	19.84	19.83	19.76	20.00
15	QPSK	36	20	19.80	19.73	19.73	
15	QPSK	36	39	19.81	19.82	19.71	
15	QPSK	75	0	19.77	19.75	19.79	
15	16QAM	1	0	19.93	19.78	19.95	20.00
15	16QAM	1	37	19.56	19.57	19.95	
15	16QAM	1	74	19.76	19.89	19.71	
15	16QAM	36	0	18.80	18.81	18.80	19.00
15	16QAM	36	20	18.79	18.81	18.83	
15	16QAM	36	39	18.79	18.74	18.70	
15	16QAM	75	0	18.85	18.74	18.71	
15	64QAM	1	0	18.70	18.84	18.79	19.00

15	64QAM	1	37	18.65	18.65	18.65	
15	64QAM	1	74	18.66	18.62	18.62	
15	64QAM	36	0	18.84	18.56	18.69	19.00
15	64QAM	36	20	18.79	18.71	18.74	
15	64QAM	36	39	18.86	18.74	18.69	
15	64QAM	75	0	18.89	18.85	18.71	
Channel				26740	26865	26990	Tune-up limit (dBm)
Frequency (MHz)				819	831.5	844	
10	QPSK	1	0	20.37	20.32	20.46	21.00
10	QPSK	1	25	20.24	20.52	20.54	
10	QPSK	1	49	20.48	20.51	20.19	
10	QPSK	25	0	19.47	19.49	19.45	20.00
10	QPSK	25	12	19.58	19.56	19.63	
10	QPSK	25	25	19.48	19.43	19.47	
10	QPSK	50	0	19.54	19.55	19.46	
10	16QAM	1	0	19.74	19.65	19.65	20.00
10	16QAM	1	25	19.89	19.71	19.68	
10	16QAM	1	49	19.97	19.83	19.82	
10	16QAM	25	0	18.55	18.53	18.52	19.00
10	16QAM	25	12	18.57	18.54	18.54	
10	16QAM	25	25	18.48	18.53	18.59	
10	16QAM	50	0	18.55	18.54	18.48	
10	64QAM	1	0	18.66	18.62	18.65	19.00
10	64QAM	1	25	18.65	18.56	18.64	
10	64QAM	1	49	18.59	18.62	18.46	
10	64QAM	25	0	18.48	18.48	18.54	19.00
10	64QAM	25	12	18.54	18.62	18.45	
10	64QAM	25	25	18.54	18.53	18.51	
10	64QAM	50	0	18.76	18.54	18.57	
Channel				26715	26865	27015	Tune-up limit (dBm)
Frequency (MHz)				816.5	831.5	846.5	
5	QPSK	1	0	20.51	20.49	20.43	21.00
5	QPSK	1	12	20.45	20.47	20.46	
5	QPSK	1	24	20.39	20.46	20.48	
5	QPSK	12	0	19.47	19.48	19.46	20.00
5	QPSK	12	7	19.52	19.56	19.56	

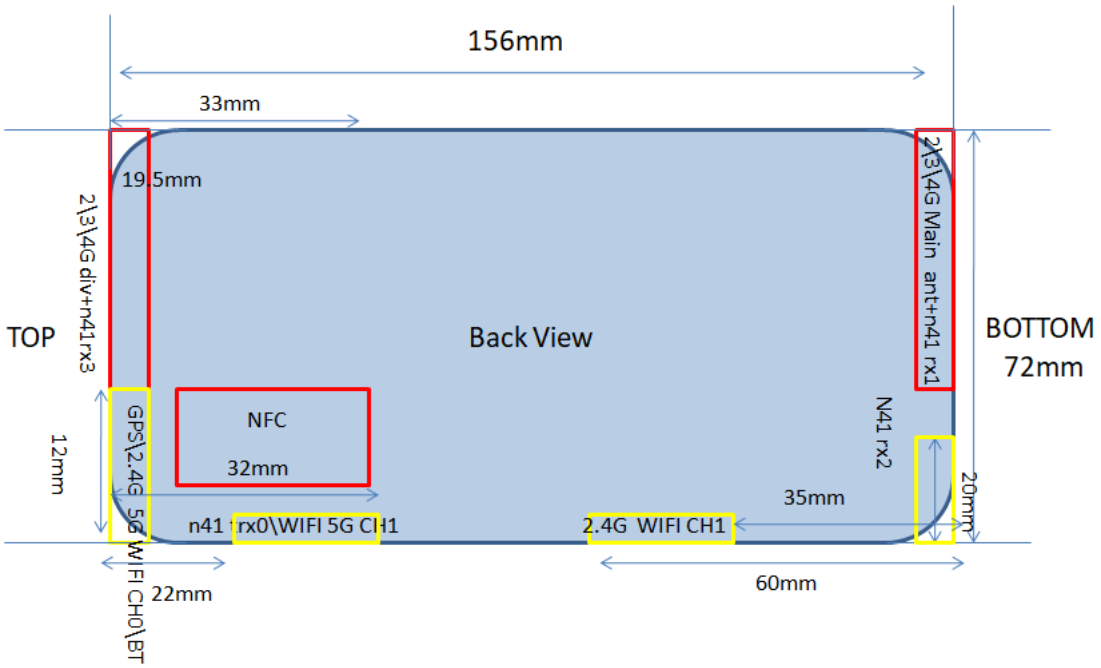
5	QPSK	12	13	19.53	19.54	19.43	
5	QPSK	25	0	19.52	19.52	19.48	
5	16QAM	1	0	19.62	19.67	19.81	20.00
5	16QAM	1	12	19.52	19.95	19.96	
5	16QAM	1	24	19.72	19.64	19.62	
5	16QAM	12	0	18.56	18.53	18.52	19.00
5	16QAM	12	7	18.62	18.62	18.45	
5	16QAM	12	13	18.56	18.61	18.54	
5	16QAM	25	0	18.51	18.57	18.43	
5	64QAM	1	0	18.72	18.55	18.61	19.00
5	64QAM	1	12	18.77	18.65	18.66	
5	64QAM	1	24	18.72	18.64	18.65	
5	64QAM	12	0	18.52	18.58	18.48	19.00
5	64QAM	12	7	18.52	18.54	18.42	
5	64QAM	12	13	18.53	18.56	18.57	
5	64QAM	25	0	18.61	18.65	18.52	
Channel				26705	26865	27025	Tune-up limit (dBm)
Frequency (MHz)				815.5	831.5	847.5	
3	QPSK	1	0	20.43	20.43	20.41	21.00
3	QPSK	1	8	20.33	20.38	20.35	
3	QPSK	1	14	20.45	20.42	20.39	
3	QPSK	8	0	19.51	19.49	19.48	20.00
3	QPSK	8	4	19.84	19.53	19.33	
3	QPSK	8	7	19.55	19.49	19.52	
3	QPSK	15	0	19.51	19.56	19.56	
3	16QAM	1	0	19.52	19.65	19.71	20.00
3	16QAM	1	8	19.65	19.66	19.65	
3	16QAM	1	14	19.71	19.78	19.67	
3	16QAM	8	0	18.58	18.52	18.49	19.00
3	16QAM	8	4	18.88	18.63	18.53	
3	16QAM	8	7	18.58	18.57	18.51	
3	16QAM	15	0	18.61	18.51	18.55	
3	64QAM	1	0	18.55	18.56	18.86	19.00
3	64QAM	1	8	18.66	18.72	18.72	
3	64QAM	1	14	18.54	18.62	18.65	
3	64QAM	8	0	18.64	18.47	18.42	19.00
3	64QAM	8	4	18.61	18.61	18.48	

3	64QAM	8	7	18.45	18.67	18.61	
3	64QAM	15	0	18.62	18.58	18.43	
Channel				26697	26865	27033	Tune-up limit (dBm)
Frequency (MHz)				814.7	831.5	848.3	
1.4	QPSK	1	0	20.29	20.28	20.35	21.00
1.4	QPSK	1	3	20.21	20.36	20.24	
1.4	QPSK	1	5	20.49	20.32	20.39	
1.4	QPSK	3	0	19.54	19.85	19.95	
1.4	QPSK	3	1	19.61	19.77	19.93	
1.4	QPSK	3	3	19.57	19.94	19.61	
1.4	QPSK	6	0	19.59	19.51	19.48	20.00
1.4	16QAM	1	0	19.59	19.32	19.66	20.00
1.4	16QAM	1	3	19.68	19.49	19.65	
1.4	16QAM	1	5	19.58	19.67	19.69	
1.4	16QAM	3	0	19.55	19.58	19.47	
1.4	16QAM	3	1	19.67	19.64	19.44	
1.4	16QAM	3	3	19.51	19.62	19.55	
1.4	16QAM	6	0	18.64	18.53	18.55	19.00
1.4	64QAM	1	0	18.66	18.77	18.72	19.00
1.4	64QAM	1	3	18.65	18.62	18.56	
1.4	64QAM	1	5	18.66	18.62	18.62	
1.4	64QAM	3	0	18.54	18.51	18.46	
1.4	64QAM	3	1	18.52	18.65	18.52	
1.4	64QAM	3	3	18.43	18.59	18.49	
1.4	64QAM	6	0	18.44	18.47	18.37	18.00

Note: It will reduce about 3dBm by the sensor when it uses to the top antenna and be used for top antenna measurement.

14. Hot-Spot Mode Evaluation Procedure

14.1. EUT Antenna Location



WWAN antenna supported TX bands :
GSM 850/1900
UMTS Band II/IV/V
FDD LTE Band 2/4/5/7/12/17/18/19/26
WLAN antenna supported bands : 2.4GHz/5GHz/5G NR Band n41
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 Top Antenna (2G/3G/4G)	TX/RX	＜5	＞25	＜5	12
WWAN Bottom Antenna (2G/3G/4G)	TX/RX	＞25	＜5	＜5	12
N41/WLAN 5G CH1	TX/RX	22	＞25	＞25	＜5
WLAN CH0/BT Antenna	TX/RX	＜5	＞25	60	＜5
WLAN 2.4G CH1 Antenna	TX/RX	96	35	＞25	＜5
N41 rx2	RX	＞25	＜5	52	＜5

Hotspot Evaluation:

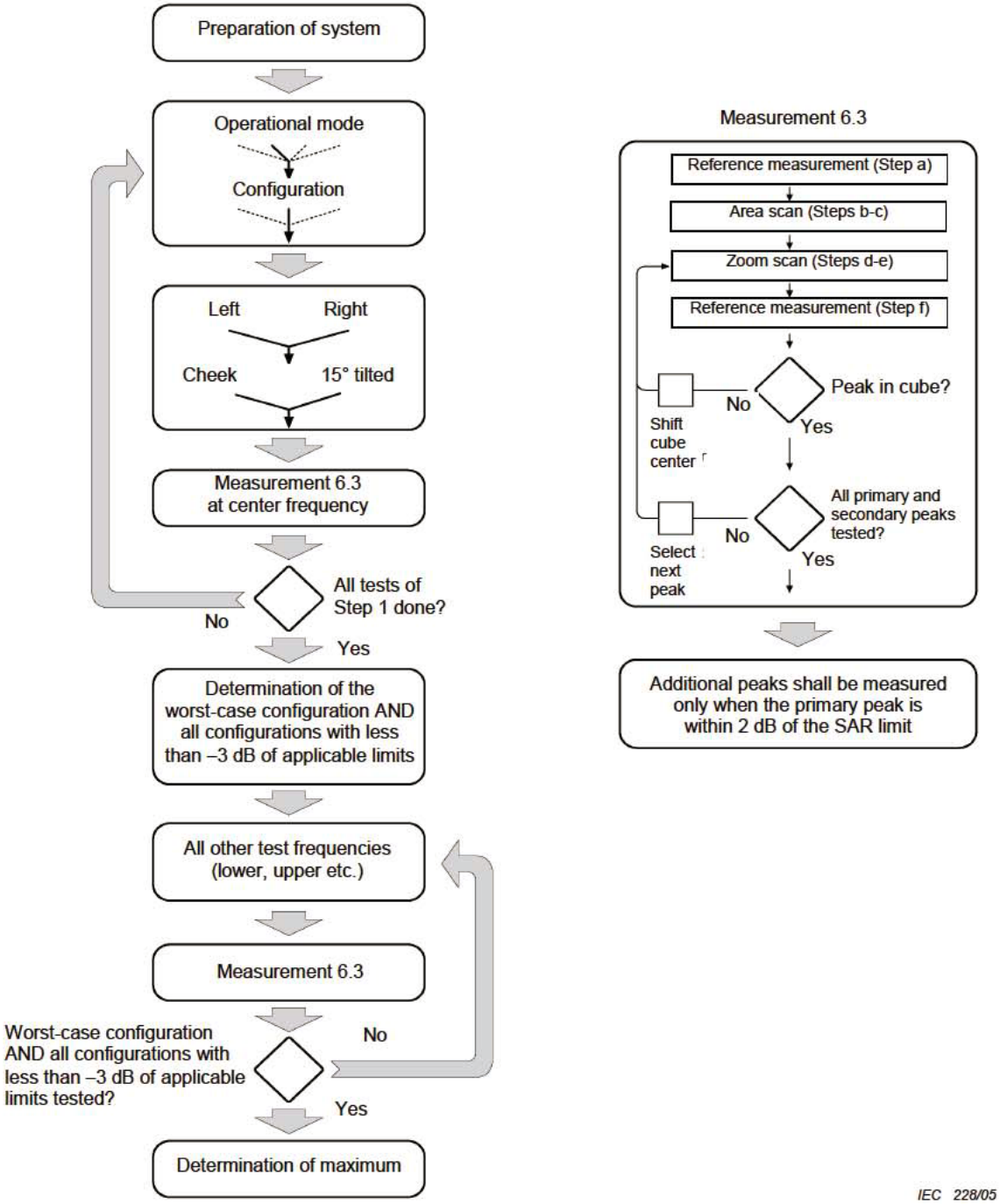
Assessment	Hotspot side for SAR Test distance: 10mm					
Antennas	Back	Front	Top	Bottom	Left	Right
WWAN Top Antenna (2G/3G/4G)	Yes	Yes	Yes	No	Yes	Yes
WWAN Bottom Antenna (2G/3G/4G)	Yes	Yes	No	Yes	Yes	Yes
N41/WLAN 5G CH1	Yes	Yes	Yes	No	No	Yes
WLAN CH0/BT Antenna	Yes	Yes	Yes	No	No	Yes
WLAN 2.4G CH1 Antenna	Yes	Yes	No	No	No	Yes
N41 rx2	No	No	No	No	No	No

Note :

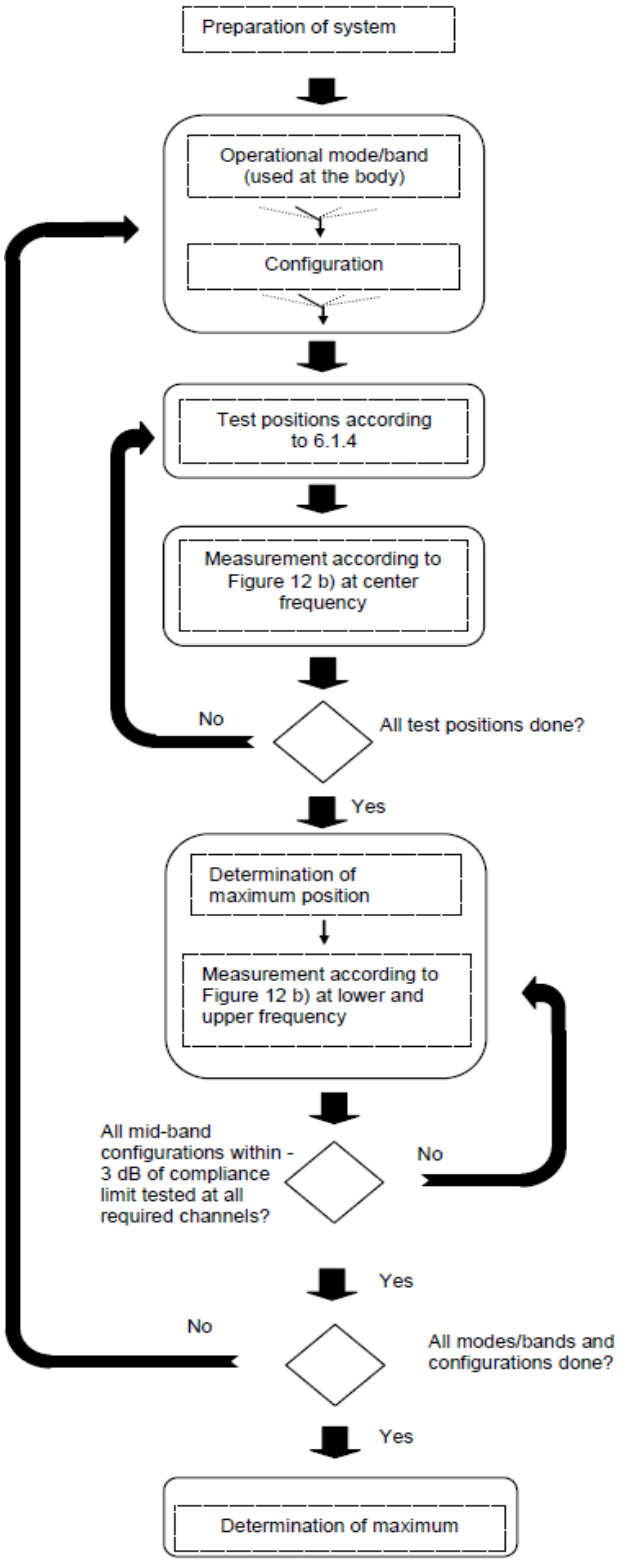
1. The SAR evaluation procedures for Portable Devices with Wireless Router function is according to KDB 941225 D06 Hotspot SAR v02r01.
2. Head/Body-worn/Hotspot mode SAR assessments are required.
3. Referring to KDB 941225 D06, when the overall device length and width are ≥ 9cm*5cm, the test distance is 10 mm. SAR must be measured for all sides and surfaces with a transmitting antenna located within 25mm from that surface or edge.

15. Block diagram of the tests to be performed

15.1. Head



15.2. Body



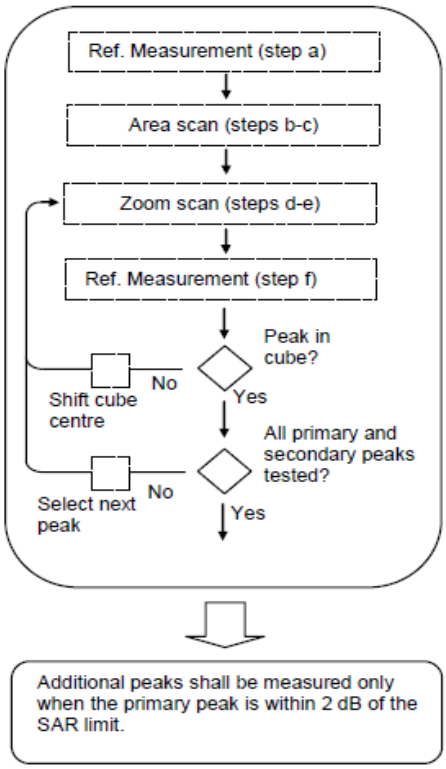


Figure 12b – General procedure

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.

7. The EUT respectively defined the top and bottom antenna maximum power in the software and the default PRX and Tx antenna is the bottom antenna. The top and bottom antenna will switch antomatically according to the receiver signal strength and maximum transmission power level.

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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)
Top Ant.								
1#	GPRS 850(2 TX slots)	Right Cheek	189	26.64	27.00	1.086	0.553	**0.601**
	GPRS 850(2 TX slots)	Right Tilt	189	26.64	27.00	1.086	0.394	0.428
	GPRS 850(2 TX slots)	Left Cheek	189	26.64	27.00	1.086	0.378	0.411
	GPRS 850(2 TX slots)	Left Tilt	189	26.64	27.00	1.086	0.337	0.366
Bottom Ant.								
	GPRS 850(2 TX slots)	Right Cheek	189	30.48	31.00	1.127	0.134	0.151
	GPRS 850(2 TX slots)	Right Tilt	189	30.48	31.00	1.127	0.088	0.099
	GPRS 850(2 TX slots)	Left Cheek	189	30.48	31.00	1.127	0.183	0.206
	GPRS 850(2 TX slots)	Left Tilt	189	30.48	31.00	1.127	0.089	0.100
Top Ant.								
2#	GPRS 1900(2 TX slots)	Right Cheek	512	24.73	25.00	1.064	0.639	**0.680**
	GPRS 1900(2 TX slots)	Right Tilt	512	24.73	25.00	1.064	0.399	0.425
	GPRS 1900(2 TX slots)	Left Cheek	512	24.73	25.00	1.064	0.311	0.331
	GPRS 1900(2 TX slots)	Left Tilt	512	24.73	25.00	1.064	0.212	0.226
Bottom Ant.								
	GPRS 1900(2 TX slots)	Right Cheek	512	27.58	28.00	1.102	0.073	0.080
	GPRS 1900(2 TX slots)	Right Tilt	512	27.58	28.00	1.102	0.080	0.088
	GPRS 1900(2 TX slots)	Left Cheek	512	27.58	28.00	1.102	0.187	0.206
	GPRS 1900(2 TX slots)	Left Tilt	512	27.58	28.00	1.102	0.099	0.109

➢ 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)
Top Ant.								
3#	Band II/RMC	Right Cheek	9262	18.64	19.00	1.086	0.631	**0.686**
	Band II/RMC	Right Tilt	9262	18.64	19.00	1.086	0.514	0.558
	Band II/RMC	Left Cheek	9262	18.64	19.00	1.086	0.386	0.419
	Band II/RMC	Left Tilt	9262	18.64	19.00	1.086	0.398	0.432
Bottom Ant.								
	Band II/RMC	Right Cheek	9262	23.64	24.00	1.086	0.083	0.090
	Band II/RMC	Right Tilt	9262	23.64	24.00	1.086	0.096	0.104
	Band II/RMC	Left Cheek	9262	23.64	24.00	1.086	0.203	0.221
	Band II/RMC	Left Tilt	9262	23.64	24.00	1.086	0.103	0.112
Top Ant.								
4#	Band IV/RMC	Right Cheek	1312	16.62	17.00	1.091	0.707	**0.772**
	Band IV/RMC	Right Tilt	1312	16.62	17.00	1.091	0.494	0.539
	Band IV/RMC	Left Cheek	1312	16.62	17.00	1.091	0.415	0.453
	Band IV/RMC	Left Tilt	1312	16.62	17.00	1.091	0.416	0.454
Bottom Ant.								
	Band IV/RMC	Right Cheek	1312	23.57	24.00	1.104	0.154	0.170
	Band IV/RMC	Right Tilt	1312	23.57	24.00	1.104	0.091	0.100
	Band IV/RMC	Left Cheek	1312	23.57	24.00	1.104	0.212	0.234
	Band IV/RMC	Left Tilt	1312	23.57	24.00	1.104	0.097	0.107
Top Ant.								
5#	Band V/RMC	Right Cheek	4183	19.77	20.00	1.054	0.552	**0.582**
	Band V/RMC	Right Tilt	4183	19.77	20.00	1.054	0.380	0.401
	Band V/RMC	Left Cheek	4183	19.77	20.00	1.054	0.326	0.344
	Band V/RMC	Left Tilt	4183	19.77	20.00	1.054	0.316	0.333
Bottom Ant.								
	Band V/RMC	Right Cheek	4183	23.57	24.00	1.104	0.102	0.113
	Band V/RMC	Right Tilt	4183	23.57	24.00	1.104	0.052	0.058
	Band V/RMC	Left Cheek	4183	23.57	24.00	1.104	0.124	0.137
	Band V/RMC	Left Tilt	4183	23.57	24.00	1.104	0.054	0.060

➢ 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)
Top Ant.								
	BC0/RTAP 153.6Kbps	Right Cheek	1013	22.27	22.50	1.054	1.010	1.065
	BC0/RTAP 153.6Kbps	Right Tilt	1013	22.27	22.50	1.054	0.762	0.803
	BC0/RTAP 153.6Kbps	Left Cheek	1013	22.27	22.50	1.054	0.605	0.638
	BC0/RTAP 153.6Kbps	Left Tilt	1013	22.27	22.50	1.054	0.513	0.541
	BC0/RTAP 153.6Kbps	Right Cheek	384	22.20	22.50	1.072	0.991	1.062
6#	BC0/RTAP 153.6Kbps	Right Cheek	777	22.17	22.50	1.079	1.050	**1.133**
Bottom Ant.								
	BC0/RTAP 153.6Kbps	Right Cheek	1013	24.02	24.50	1.117	0.082	0.091
	BC0/RTAP 153.6Kbps	Right Tilt	1013	24.02	24.50	1.117	0.043	0.048
	BC0/RTAP 153.6Kbps	Left Cheek	1013	24.02	24.50	1.117	0.105	0.117
	BC0/RTAP 153.6Kbps	Left Tilt	1013	24.02	24.50	1.117	0.048	0.053
Top Ant.								
7#	BC1/ RTAP 153.6Kbps	Right Cheek	25	20.26	20.50	1.057	0.774	**0.818**
	BC1/ RTAP 153.6Kbps	Right Tilt	25	20.26	20.50	1.057	0.567	0.599
	BC1/ RTAP 153.6Kbps	Left Cheek	25	20.26	20.50	1.057	0.517	0.546
	BC1/ RTAP 153.6Kbps	Left Tilt	25	20.26	20.50	1.057	0.501	0.529
	BC1/ RTAP 153.6Kbps	Right Cheek	600	20.23	20.50	1.064	0.750	0.798
	BC1/ RTAP 153.6Kbps	Right Cheek	1175	20.21	20.50	1.069	0.727	0.777
Bottom Ant.								
	BC1/ RTAP 153.6Kbps	Right Cheek	25	23.91	24.50	1.146	0.102	0.117
	BC1/ RTAP 153.6Kbps	Right Tilt	25	23.91	24.50	1.146	0.061	0.070
	BC1/ RTAP 153.6Kbps	Left Cheek	25	23.91	24.50	1.146	0.198	0.227
	BC1/ RTAP 153.6Kbps	Left Tilt	25	23.91	24.50	1.146	0.096	0.110

➢ FDD-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)
Top Ant.								
8#	LTE Band 2/1RB#0 20M	Right Cheek	18900	18.72	19.00	1.067	0.676	**0.721**
	LTE Band 2/1RB#0 20M	Right Tilt	18900	18.72	19.00	1.067	0.530	0.565
	LTE Band 2/1RB#0 20M	Left Cheek	18900	18.72	19.00	1.067	0.478	0.510
	LTE Band 2/1RB#0 20M	Left Tilt	18900	18.72	19.00	1.067	0.418	0.446
	LTE Band 2/50RB#50 20M	Right Cheek	18900	17.69	18.00	1.074	0.560	0.601
	LTE Band 2/50RB#50 20M	Right Tilt	18900	17.69	18.00	1.074	0.417	0.448
	LTE Band 2/50RB#50 20M	Left Cheek	18900	17.69	18.00	1.074	0.358	0.384
	LTE Band 2/50RB#50 20M	Left Tilt	18900	17.69	18.00	1.074	0.307	0.330
Bottom Ant.								
	LTE Band 2/1RB#0 20M	Right Cheek	18900	23.65	24.00	1.084	0.092	0.100
	LTE Band 2/1RB#0 20M	Right Tilt	18900	23.65	24.00	1.084	0.096	0.104
	LTE Band 2/1RB#0 20M	Left Cheek	18900	23.65	24.00	1.084	0.207	0.224
	LTE Band 2/1RB#0 20M	Left Tilt	18900	23.65	24.00	1.084	0.109	0.118
	LTE Band 2/50RB#50 20M	Right Cheek	18900	22.76	23.00	1.057	0.078	0.082
	LTE Band 2/50RB#50 20M	Right Tilt	18900	22.76	23.00	1.057	0.081	0.086
	LTE Band 2/50RB#50 20M	Left Cheek	18900	22.76	23.00	1.057	0.169	0.179
	LTE Band 2/50RB#50 20M	Left Tilt	18900	22.76	23.00	1.057	0.090	0.095

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)
Top Ant.								
9#	LTE Band 4/1RB#0 20M	Right Cheek	20050	16.66	17.00	1.081	0.665	**0.719**
	LTE Band 4/1RB#0 20M	Right Tilt	20050	16.66	17.00	1.081	0.407	0.440
	LTE Band 4/1RB#0 20M	Left Cheek	20050	16.66	17.00	1.081	0.535	0.579
	LTE Band 4/1RB#0 20M	Left Tilt	20050	16.66	17.00	1.081	0.434	0.469
	LTE Band 4/50RB#0 20M	Right Cheek	20050	15.61	16.00	1.094	0.550	0.602
	LTE Band 4/50RB#0 20M	Right Tilt	20050	15.61	16.00	1.094	0.381	0.417
	LTE Band 4/50RB#0 20M	Left Cheek	20050	15.61	16.00	1.094	0.403	0.441
	LTE Band 4/50RB#0 20M	Left Tilt	20050	15.61	16.00	1.094	0.321	0.351
Bottom Ant.								
	LTE Band 4/1RB#0 20M	Right Cheek	20050	23.70	24.00	1.072	0.182	0.195
	LTE Band 4/1RB#0 20M	Right Tilt	20050	23.70	24.00	1.072	0.086	0.092
	LTE Band 4/1RB#0 20M	Left Cheek	20050	23.70	24.00	1.072	0.214	0.229
	LTE Band 4/1RB#0 20M	Left Tilt	20050	23.70	24.00	1.072	0.096	0.103
	LTE Band 4/50RB#0 20M	Right Cheek	20050	22.74	23.00	1.062	0.149	0.158
	LTE Band 4/50RB#0 20M	Right Tilt	20050	22.74	23.00	1.062	0.074	0.079
	LTE Band 4/50RB#0 20M	Left Cheek	20050	22.74	23.00	1.062	0.175	0.186
	LTE Band 4/50RB#0 20M	Left Tilt	20050	22.74	23.00	1.062	0.077	0.082
Top Ant.								
10#	LTE Band 5/1RB#0 10M	Right Cheek	20600	19.78	20.00	1.052	0.671	**0.706**
	LTE Band 5/1RB#0 10M	Right Tilt	20600	19.78	20.00	1.052	0.474	0.499
	LTE Band 5/1RB#0 10M	Left Cheek	20600	19.78	20.00	1.052	0.435	0.458
	LTE Band 5/1RB#0 10M	Left Tilt	20600	19.78	20.00	1.052	0.363	0.382
	LTE Band 5/25RB#0 10M	Right Cheek	20600	18.84	19.00	1.038	0.544	0.564
	LTE Band 5/25RB#0 10M	Right Tilt	20600	18.84	19.00	1.038	0.366	0.380
	LTE Band 5/25RB#0 10M	Left Cheek	20600	18.84	19.00	1.038	0.361	0.375
	LTE Band 5/25RB#010M	Left Tilt	20600	18.84	19.00	1.038	0.293	0.304

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)
Bottom Ant.								
	LTE Band 5/1RB#0 10M	Right Cheek	20600	23.36	24.00	1.159	0.090	0.104
	LTE Band 5/1RB#0 10M	Right Tilt	20600	23.36	24.00	1.159	0.051	0.059
	LTE Band 5/1RB#0 10M	Left Cheek	20600	23.36	24.00	1.159	0.101	0.117
	LTE Band 5/1RB#0 10M	Left Tilt	20600	23.36	24.00	1.159	0.053	0.061
	LTE Band 5/25RB#0 10M	Right Cheek	20600	22.35	23.00	1.161	0.073	0.085
	LTE Band 5/25RB#0 10M	Right Tilt	20600	22.35	23.00	1.161	0.038	0.044
	LTE Band 5/25RB#0 10M	Left Cheek	20600	22.35	23.00	1.161	0.090	0.105
	LTE Band 5/25RB#0 10M	Left Tilt	20600	22.35	23.00	1.161	0.041	0.047
Top Ant.								
11#	LTE Band 7/1RB#99 20M	Right Cheek	21100	17.85	18.00	1.035	0.844	**0.874**
	LTE Band 7/1RB#99 20M	Right Tilt	21100	17.85	18.00	1.035	0.746	0.772
	LTE Band 7/1RB#99 20M	Left Cheek	21100	17.85	18.00	1.035	0.750	0.776
	LTE Band 7/1RB#99 20M	Left Tilt	21100	17.85	18.00	1.035	0.744	0.770
	LTE Band 7/1RB#99 20M	Right Cheek	20850	17.75	18.00	1.059	0.679	0.719
	LTE Band 7/1RB#99 20M	Right Cheek	21350	17.78	18.00	1.052	0.700	0.736
	LTE Band 7/50RB#24 20M	Right Cheek	21100	16.91	17.00	1.021	0.582	0.594
	LTE Band 7/50RB#24 20M	Right Tilt	21100	16.91	17.00	1.021	0.565	0.577
	LTE Band 7/50RB#24 20M	Left Cheek	21100	16.91	17.00	1.021	0.646	0.660
	LTE Band 7/50RB#24 20M	Left Tilt	21100	16.91	17.00	1.021	0.633	0.646
Bottom Ant.								
	LTE Band 7/1RB#99 20M	Right Cheek	21100	20.92	21.50	1.143	0.098	0.112
	LTE Band 7/1RB#99 20M	Right Tilt	21100	20.92	21.50	1.143	0.076	0.087
	LTE Band 7/1RB#99 20M	Left Cheek	21100	20.92	21.50	1.143	0.137	0.157
	LTE Band 7/1RB#99 20M	Left Tilt	21100	20.92	21.50	1.143	0.076	0.087
	LTE Band 7/50RB#24 20M	Right Cheek	21100	20.04	20.50	1.112	0.085	0.094
	LTE Band 7/50RB#24 20M	Right Tilt	21100	20.04	20.50	1.112	0.060	0.067
	LTE Band 7/50RB#24 20M	Left Cheek	21100	20.04	20.50	1.112	0.113	0.126
	LTE Band 7/50RB#24 20M	Left Tilt	21100	20.04	20.50	1.112	0.070	0.078

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)
Top Ant.								
12#	LTE Band 12/1RB#49 10M	Right Cheek	23060	19.83	20.00	1.040	0.708	**0.736**
	LTE Band 12/1RB#49 10M	Right Tilt	23060	19.83	20.00	1.040	0.495	0.515
	LTE Band 12/1RB#49 10M	Left Cheek	23060	19.83	20.00	1.040	0.366	0.381
	LTE Band 12/1RB#49 10M	Left Tilt	23060	19.83	20.00	1.040	0.275	0.286
	LTE Band 12/25RB#25 10M	Right Cheek	23060	18.83	19.00	1.040	0.588	0.611
	LTE Band 12/25RB#25 10M	Right Tilt	23060	18.83	19.00	1.040	0.406	0.422
	LTE Band 12/25RB#25 10M	Left Cheek	23060	18.83	19.00	1.040	0.301	0.313
	LTE Band 12/25RB#25 10M	Left Tilt	23060	18.83	19.00	1.040	0.236	0.245
Bottom Ant.								
	LTE Band 12/1RB#49 10M	Right Cheek	23060	23.45	24.00	1.135	0.010	0.011
	LTE Band 12/1RB#49 10M	Right Tilt	23060	23.45	24.00	1.135	0.007	0.008
	LTE Band 12/1RB#49 10M	Left Cheek	23060	23.45	24.00	1.135	0.013	0.015
	LTE Band 12/1RB#49 10M	Left Tilt	23060	23.45	24.00	1.135	0.007	0.008
	LTE Band 12/25RB#25 10M	Right Cheek	23060	22.39	23.00	1.151	0.008	0.009
	LTE Band 12/25RB#25 10M	Right Tilt	23060	22.39	23.00	1.151	0.005	0.006
	LTE Band 12/25RB#25 10M	Left Cheek	23060	22.39	23.00	1.151	0.010	0.012
	LTE Band 12/25RB#25 10M	Left Tilt	23060	22.39	23.00	1.151	0.005	0.006
Top Ant.								
13#	LTE Band 18/1RB#37 15M	Right Cheek	23925	20.69	21.00	1.074	0.650	**0.698**
	LTE Band 18/1RB#37 15M	Right Tilt	23925	20.69	21.00	1.074	0.452	0.485
	LTE Band 18/1RB#37 15M	Left Cheek	23925	20.69	21.00	1.074	0.422	0.453
	LTE Band 18/1RB#37 15M	Left Tilt	23925	20.69	21.00	1.074	0.337	0.362
	LTE Band 18/36RB#20 15M	Right Cheek	23925	19.79	20.00	1.059	0.527	0.558
	LTE Band 18/36RB#20 15M	Right Tilt	23925	19.79	20.00	1.059	0.371	0.393
	LTE Band 18/36RB#20 15M	Left Cheek	23925	19.79	20.00	1.059	0.347	0.368
	LTE Band 18/36RB#20 15M	Left Tilt	23925	19.79	20.00	1.059	0.275	0.291

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)
Bottom Ant.								
	LTE Band 18/1RB#37 15M	Right Cheek	23925	23.05	24.00	1.245	0.085	0.105
	LTE Band 18/1RB#37 15M	Right Tilt	23925	23.05	24.00	1.245	0.063	0.079
	LTE Band 18/1RB#37 15M	Left Cheek	23925	23.05	24.00	1.245	0.115	0.143
	LTE Band 18/1RB#37 15M	Left Tilt	23925	23.05	24.00	1.245	0.065	0.081
	LTE Band 18/36RB#20 15M	Right Cheek	23925	22.28	23.00	1.180	0.071	0.084
	LTE Band 18/36RB#20 15M	Right Tilt	23925	22.28	23.00	1.180	0.052	0.061
	LTE Band 18/36RB#20 15M	Left Cheek	23925	22.28	23.00	1.180	0.093	0.110
	LTE Band 18/36RB#20 15M	Left Tilt	23925	22.28	23.00	1.180	0.054	0.064
Top Ant.								
14#	LTE Band 19/1RB#37 15M	Right Cheek	24075	20.69	21.00	1.074	0.683	**0.734**
	LTE Band 19/1RB#37 15M	Right Tilt	24075	20.69	21.00	1.074	0.483	0.519
	LTE Band 19/1RB#37 15M	Left Cheek	24075	20.69	21.00	1.074	0.457	0.491
	LTE Band 19/1RB#37 15M	Left Tilt	24075	20.69	21.00	1.074	0.366	0.393
	LTE Band 19/36RB#20 15M	Right Cheek	24075	19.79	20.00	1.050	0.557	0.585
	LTE Band 19/36RB#20 15M	Right Tilt	24075	19.79	20.00	1.050	0.397	0.417
	LTE Band 19/36RB#20 15M	Left Cheek	24075	19.79	20.00	1.050	0.374	0.393
	LTE Band 19/36RB#20 15M	Left Tilt	24075	19.79	20.00	1.050	0.299	0.314
Bottom Ant.								
	LTE Band 19/1RB#37 15M	Right Cheek	24075	23.32	24.00	1.169	0.093	0.109
	LTE Band 19/1RB#37 15M	Right Tilt	24075	23.32	24.00	1.169	0.055	0.064
	LTE Band 19/1RB#37 15M	Left Cheek	24075	23.32	24.00	1.169	0.117	0.137
	LTE Band 19/1RB#37 15M	Left Tilt	24075	23.32	24.00	1.169	0.061	0.071
	LTE Band 19/36RB#20 15M	Right Cheek	24075	22.45	23.00	1.135	0.076	0.087
	LTE Band 19/36RB#20 15M	Right Tilt	24075	22.45	23.00	1.135	0.045	0.051
	LTE Band 19/36RB#20 15M	Left Cheek	24075	22.45	23.00	1.135	0.096	0.108
	LTE Band 19/36RB#20 15M	Left Tilt	24075	22.45	23.00	1.135	0.050	0.056

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)
Top Ant.								
15#	LTE Band 26/1RB#0 15M	Right Cheek	26765	20.79	21.00	1.050	0.647	**0.679**
	LTE Band 26/1RB#0 15M	Right Tilt	26765	20.79	21.00	1.050	0.435	0.457
	LTE Band 26/1RB#0 15M	Left Cheek	26765	20.79	21.00	1.050	0.415	0.436
	LTE Band 26/1RB#0 15M	Left Tilt	26765	20.79	21.00	1.050	0.320	0.336
	LTE Band 26/36RB#0 15M	Right Cheek	26765	19.84	20.00	1.038	0.528	0.548
	LTE Band 26/36RB#0 15M	Right Tilt	26765	19.84	20.00	1.038	0.361	0.375
	LTE Band 26/36RB#0 15M	Left Cheek	26765	19.84	20.00	1.038	0.338	0.351
	LTE Band 26/36RB#0 15M	Left Tilt	26765	19.84	20.00	1.038	0.265	0.275
Bottom Ant.								
	LTE Band 26/1RB#0 15M	Right Cheek	26765	23.49	24.00	1.125	0.088	0.098
	LTE Band 26/1RB#0 15M	Right Tilt	26765	23.49	24.00	1.125	0.060	0.067
	LTE Band 26/1RB#0 15M	Left Cheek	26765	23.49	24.00	1.125	0.115	0.129
	LTE Band 26/1RB#0 15M	Left Tilt	26765	23.49	24.00	1.125	0.065	0.073
	LTE Band 26/36RB#0 15M	Right Cheek	26765	22.55	24.00	1.396	0.071	0.099
	LTE Band 26/36RB#0 15M	Right Tilt	26765	22.55	24.00	1.396	0.050	0.069
	LTE Band 26/36RB#0 15M	Left Cheek	26765	22.55	24.00	1.396	0.093	0.130
	LTE Band 26/36RB#0 15M	Left Tilt	26765	22.55	24.00	1.396	0.053	0.075

➢ Sub-6G SA DTF-s-OFDM 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)
Top Ant.								
	SA n41/1RB#136 100M	Right Cheek	518598	22.39	23.00	1.151	0.186	0.214
	SA n41/1RB#136 100M	Right Tilt	518598	22.39	23.00	1.151	0.050	0.058
16#	SA n41/1RB#136 100M	Left Cheek	518598	22.39	23.00	1.151	0.187	**0.215**
	SA n41/1RB#136 100M	Left Tilt	518598	22.39	23.00	1.151	0.116	0.133
	SA n41/137RB#0 100M	Right Cheek	518598	21.77	22.00	1.054	0.161	0.170
	SA n41/137RB#0 100M	Right Tilt	518598	21.77	22.00	1.054	0.042	0.044
	SA n41/137RB#0 100M	Left Cheek	518598	21.77	22.00	1.054	0.173	0.182
	SA n41/137RB#0 100M	Left Tilt	518598	21.77	22.00	1.054	0.098	0.103

➢ 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)
Ant.0								
	WLAN2.4GHz/802.11b	Right Cheek	11	15.53	16.00	1.114	0.140	0.159
	WLAN2.4GHz/802.11b	Right Tilt	11	15.53	16.00	1.114	0.099	0.113
17#	WLAN2.4GHz/802.11b	Left Cheek	11	15.53	16.00	1.114	0.417	**0.474**
	WLAN2.4GHz/802.11b	Left Tilt	11	15.53	16.00	1.114	0.251	0.285
Ant.1								
	WLAN2.4GHz/802.11b	Right Cheek	11	19.12	20.00	1.225	0.019	0.024
	WLAN2.4GHz/802.11b	Right Tilt	11	19.12	20.00	1.225	0.008	0.010
	WLAN2.4GHz/802.11b	Left Cheek	11	19.12	20.00	1.225	0.010	0.013
	WLAN2.4GHz/802.11b	Left Tilt	11	19.12	20.00	1.225	0.005	0.007
Ant.0								
	WLAN5.2GHz/802.11n-40	Right Cheek	46	7.86	8.00	1.033	0.142	0.149
	WLAN5.2GHz/802.11n-40	Right Tilt	46	7.86	8.00	1.033	0.090	0.094
18#	WLAN5.2GHz/802.11n-40	Left Cheek	46	7.86	8.00	1.033	0.280	**0.294**
	WLAN5.2GHz/802.11n-40	Left Tilt	46	7.86	8.00	1.033	0.162	0.170
Ant.1								
	WLAN5.2GHz/802.11n-40	Right Cheek	46	8.18	8.50	1.076	0.043	0.047
	WLAN5.2GHz/802.11n-40	Right Tilt	46	8.18	8.50	1.076	0.013	0.014
	WLAN5.2GHz/802.11n-40	Left Cheek	46	8.18	8.50	1.076	0.119	0.130
	WLAN5.2GHz/802.11n-40	Left Tilt	46	8.18	8.50	1.076	0.027	0.029
Ant.0								
	WLAN5.3GHz/802.11n-40	Right Cheek	54	8.38	8.50	1.028	0.112	0.117
	WLAN5.3GHz/802.11n-40	Right Tilt	54	8.38	8.50	1.028	0.094	0.098
19#	WLAN5.3GHz/802.11n-40	Left Cheek	54	8.38	8.50	1.028	0.241	**0.252**
	WLAN5.3GHz/802.11n-40	Left Tilt	54	8.38	8.50	1.028	0.233	0.244
Ant.1								
	WLAN5.3GHz/802.11n-40	Right Cheek	54	8.52	9.00	1.117	0.056	0.064
	WLAN5.3GHz/802.11n-40	Right Tilt	54	8.52	9.00	1.117	0.020	0.022
	WLAN5.3GHz/802.11n-40	Left Cheek	54	8.52	9.00	1.117	0.170	0.193
	WLAN5.3GHz/802.11n-40	Left Tilt	54	8.52	9.00	1.117	0.032	0.036

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)
Ant.0								
	WLAN5.5GHz/802.11n-40	Right Cheek	142	8.42	9.00	1.143	0.162	0.188
	WLAN5.5GHz/802.11n-40	Right Tilt	142	8.42	9.00	1.143	0.136	0.158
20#	WLAN5.5GHz/802.11n-40	Left Cheek	142	8.42	9.00	1.143	0.373	**0.434**
	WLAN5.5GHz/802.11n-40	Left Tilt	142	8.42	9.00	1.143	0.232	0.270
Ant.1								
	WLAN5.5GHz/802.11n-40	Right Cheek	142	9.12	9.50	1.091	0.079	0.088
	WLAN5.5GHz/802.11n-40	Right Tilt	142	9.12	9.50	1.091	0.045	0.050
	WLAN5.5GHz/802.11n-40	Left Cheek	142	9.12	9.50	1.091	0.136	0.151
	WLAN5.5GHz/802.11n-40	Left Tilt	142	9.12	9.50	1.091	0.054	0.060
Ant.0								
	WLAN5.8GHz/802.11n-40	Right Cheek	151	8.21	8.50	1.069	0.160	0.174
	WLAN5.8GHz/802.11n-40	Right Tilt	151	8.21	8.50	1.069	0.128	0.139
21#	WLAN5.8GHz/802.11n-40	Left Cheek	151	8.21	8.50	1.069	0.288	**0.313**
	WLAN5.8GHz/802.11n-40	Left Tilt	151	8.21	8.50	1.069	0.267	0.290
Ant.1								
	WLAN5.8GHz/802.11n-40	Right Cheek	151	8.55	9.00	1.109	0.082	0.092
	WLAN5.8GHz/802.11n-40	Right Tilt	151	8.55	9.00	1.109	0.039	0.044
	WLAN5.8GHz/802.11n-40	Left Cheek	151	8.55	9.00	1.109	0.120	0.135
	WLAN5.8GHz/802.11n-40	Left Tilt	151	8.55	9.00	1.109	0.048	0.054

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 1.02 for 2.4G WLAN and 1.017 for 5G WLAN.

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)
Top Ant.								
	GPRS 850(2 TX slots)	Front Side	189	26.64	27.00	1.086	0.108	0.117
	GPRS 850(2 TX slots)	Back Side	189	26.64	27.00	1.086	0.121	0.131
Bottom Ant.								
22#	GPRS 850(2 TX slots)	Front Side	189	30.48	31.00	1.127	0.431	**0.486**
	GPRS 850(2 TX slots)	Back Side	189	30.48	31.00	1.127	0.252	0.284
Top Ant.								
	GPRS1900(2 TX slots)	Front Side	512	24.73	25.00	1.064	0.152	0.162
	GPRS1900(2 TX slots)	Back Side	512	24.73	25.00	1.064	0.127	0.135
Bottom Ant.								
23#	GPRS1900(2 TX slots)	Front Side	512	27.58	28.00	1.102	0.404	**0.445**
	GPRS1900(2 TX slots)	Back Side	512	27.58	28.00	1.102	0.403	0.444

➢ **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)
Top Ant.								
	Band II/RMC	Front Side	9262	18.64	19.00	1.086	0.184	0.200
	Band II/RMC	Back Side	9262	18.64	19.00	1.086	0.103	0.112
Bottom Ant.								
24#	Band II/RMC	Front Side	9262	23.64	24.00	1.086	0.493	**0.536**
	Band II/RMC	Back Side	9262	23.64	24.00	1.086	0.462	0.502
Top Ant.								
	Band IV/RMC	Front Side	1312	16.62	17.00	1.091	0.133	0.145
	Band IV/RMC	Back Side	1312	16.62	17.00	1.091	0.069	0.075
Bottom Ant.								
25#	Band IV/RMC	Front Side	1312	23.57	24.00	1.104	0.526	**0.581**

	Band IV/RMC	Back Side	1312	23.57	24.00	1.104	0.460	0.508
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)
Top Ant.								
	Band V/RMC	Front Side	4183	19.77	20.00	1.054	0.131	0.138
	Band V/RMC	Back Side	4183	19.77	20.00	1.054	0.110	0.116
Bottom Ant.								
	Band V/RMC	Front Side	4183	23.57	24.00	1.104	0.288	0.318
26#	Band V/RMC	Back Side	4183	23.57	24.00	1.104	0.351	**0.388**

➢ 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)
Top Ant.								
	BC0/RTAP 153.6Kbps	Front Side	1013	22.27	22.50	1.054	0.189	0.199
	BC0/RTAP 153.6Kbps	Back Side	1013	22.27	22.50	1.054	0.159	0.168
Bottom Ant.								
27#	BC0/RTAP 153.6Kbps	Front Side	1013	24.02	24.50	1.117	0.334	**0.373**
	BC0/RTAP 153.6Kbps	Back Side	1013	24.02	24.50	1.117	0.096	0.107
Top Ant.								
	BC1/RTAP 153.6Kbps	Front Side	25	20.26	20.50	1.057	0.203	0.215
	BC1/RTAP 153.6Kbps	Back Side	25	20.26	20.50	1.057	0.169	0.179
Bottom Ant.								
28#	BC1/RTAP 153.6Kbps	Front Side	25	23.91	24.50	1.146	0.457	**0.523**
	BC1/RTAP 153.6Kbps	Back Side	25	23.91	24.50	1.146	0.382	0.438

➢ FDD-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)
Top Ant.								
	LTE Band 2/1RB#0 20M	Front Side	18900	18.72	19.00	1.067	0.177	0.189
	LTE Band 2/1RB#0 20M	Back Side	18900	18.72	19.00	1.067	0.187	0.199
	LTE Band 2/50RB#50 20M	Front Side	18900	17.69	18.00	1.074	0.144	0.155
	LTE Band 2/50RB#50 20M	Back Side	18900	17.69	18.00	1.074	0.150	0.161
Bottom Ant.								
29#	LTE Band 2/1RB#0 20M	Front Side	18900	23.65	24.00	1.084	0.515	**0.558**
	LTE Band 2/1RB#0 20M	Back Side	18900	23.65	24.00	1.084	0.465	0.504
	LTE Band 2/50RB#50 20M	Front Side	18900	22.76	23.00	1.057	0.432	0.457
	LTE Band 2/50RB#50 20M	Back Side	18900	22.76	23.00	1.057	0.389	0.411
Top Ant.								
	LTE Band 4/1RB#0 20M	Front Side	20050	16.66	17.00	1.081	0.126	0.136
	LTE Band 4/1RB#0 20M	Back Side	20050	16.66	17.00	1.081	0.126	0.136
	LTE Band 4/50RB#0 20M	Front Side	20050	15.61	16.00	1.094	0.105	0.115
	LTE Band 4/50RB#0 20M	Back Side	20050	15.61	16.00	1.094	0.106	0.116
Bottom Ant.								
30#	LTE Band 4/1RB#0 20M	Front Side	20050	23.70	24.00	1.072	0.512	**0.549**
	LTE Band 4/1RB#0 20M	Back Side	20050	23.70	24.00	1.072	0.468	0.501
	LTE Band 4/50RB#0 20M	Front Side	20050	22.74	23.00	1.062	0.415	0.441
	LTE Band 4/50RB#0 20M	Back Side	20050	22.74	23.00	1.062	0.404	0.429
Top Ant.								
	LTE Band 5/1RB#0 10M	Front Side	20600	19.78	20.00	1.052	0.157	0.165
	LTE Band 5/1RB#0 10M	Back Side	20600	19.78	20.00	1.052	0.131	0.138
	LTE Band 5/25RB#0 10M	Front Side	20600	18.84	19.00	1.038	0.149	0.155
	LTE Band 5/25RB#0 10M	Back Side	20600	18.84	19.00	1.038	0.105	0.109

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)
Bottom Ant.								
31#	LTE Band 5/1RB#0 10M	Front Side	20600	23.36	24.00	1.159	0.327	**0.379**
	LTE Band 5/1RB#0 10M	Back Side	20600	23.36	24.00	1.159	0.246	0.285
	LTE Band 5/25RB#0 10M	Front Side	20600	22.35	23.00	1.161	0.207	0.240
	LTE Band 5/25RB#0 10M	Back Side	20600	22.35	23.00	1.161	0.207	0.240
Top Ant.								
	LTE Band 7/1RB#99 20M	Front Side	21100	17.85	18.00	1.035	0.250	0.259
	LTE Band 7/1RB#99 20M	Back Side	21100	17.85	18.00	1.035	0.227	0.235
	LTE Band 7/50RB#24 20M	Front Side	21100	16.91	17.00	1.021	0.201	0.205
	LTE Band 7/50RB#24 20M	Back Side	21100	16.91	17.00	1.021	0.184	0.188
Bottom Ant.								
	LTE Band 7/1RB#99 20M	Front Side	21100	20.92	21.50	1.143	0.346	0.395
32#	LTE Band 7/1RB#99 20M	Back Side	21100	20.92	21.50	1.143	0.476	**0.544**
	LTE Band 7/50RB#24 20M	Front Side	21100	20.04	20.50	1.112	0.311	0.346
	LTE Band 7/50RB#24 20M	Back Side	21100	20.04	20.50	1.112	0.382	0.425
Top Ant.								
33#	LTE Band 12/1RB#49 10M	Front Side	23060	19.83	20.00	1.040	0.132	**0.137**
	LTE Band 12/1RB#49 10M	Back Side	23060	19.83	20.00	1.040	0.114	0.119
	LTE Band 12/25RB#25 10M	Front Side	23060	18.83	19.00	1.040	0.108	0.112
	LTE Band 12/25RB#25 10M	Back Side	23060	18.83	19.00	1.040	0.093	0.097
Bottom Ant.								
	LTE Band 12/1RB#49 10M	Front Side	23060	23.45	24.00	1.135	0.026	0.030
	LTE Band 12/1RB#49 10M	Back Side	23060	23.45	24.00	1.135	0.022	0.025
	LTE Band 12/25RB#25 10M	Front Side	23060	22.39	23.00	1.151	0.021	0.024
	LTE Band 12/25RB#25 10M	Back Side	23060	22.39	23.00	1.151	0.018	0.021

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)
Top Ant.								
	LTE Band 18/1RB#37 15M	Front Side	23925	20.69	21.00	1.074	0.150	0.161
	LTE Band 18/1RB#37 15M	Back Side	23925	20.69	21.00	1.074	0.118	0.127
	LTE Band 18/36RB#20 15M	Front Side	23925	19.75	20.00	1.059	0.145	0.154
	LTE Band 18/36RB#20 15M	Back Side	23925	19.75	20.00	1.059	0.097	0.103
Bottom Ant.								
34#	LTE Band 18/1RB#37 15M	Front Side	23925	23.05	24.00	1.245	0.281	**0.350**
	LTE Band 18/1RB#37 15M	Back Side	23925	23.05	24.00	1.245	0.224	0.279
	LTE Band 18/36RB#20 15M	Front Side	23925	22.28	23.00	1.180	0.248	0.293
	LTE Band 18/36RB#20 15M	Back Side	23925	22.28	23.00	1.180	0.217	0.256
Top Ant.								
	LTE Band 19/1RB#37 15M	Front Side	24075	20.69	21.00	1.074	0.189	0.203
	LTE Band 19/1RB#37 15M	Back Side	24075	20.69	21.00	1.074	0.128	0.137
	LTE Band 19/36RB#20 15M	Front Side	24075	19.79	20.00	1.050	0.154	0.162
	LTE Band 19/36RB#20 15M	Back Side	24075	19.79	20.00	1.050	0.105	0.110
Bottom Ant.								
35#	LTE Band 19/1RB#37 15M	Front Side	24075	23.32	24.00	1.169	0.286	**0.334**
	LTE Band 19/1RB#37 15M	Back Side	24075	23.32	24.00	1.169	0.228	0.267
	LTE Band 19/36RB#20 15M	Front Side	24075	22.45	23.00	1.135	0.236	0.268
	LTE Band 19/36RB#20 15M	Back Side	24075	22.45	23.00	1.135	0.207	0.235
Top Ant.								
	LTE Band 26/1RB#0 15M	Front Side	26765	20.79	21.00	1.050	0.142	0.149
	LTE Band 26/1RB#0 15M	Back Side	26765	20.79	21.00	1.050	0.117	0.123
	LTE Band 26/36RB#0 15M	Front Side	26765	19.84	20.00	1.038	0.117	0.121
	LTE Band 26/36RB#0 15M	Back Side	26765	19.84	20.00	1.038	0.096	0.099
Bottom Ant.								
36#	LTE Band 26/1RB#0 15M	Front Side	26765	23.49	24.00	1.125	0.289	**0.325**
	LTE Band 26/1RB#0 15M	Back Side	26765	23.49	24.00	1.125	0.244	0.274
	LTE Band 26/36RB#0 15M	Front Side	26765	22.55	23.00	1.109	0.246	0.273
	LTE Band 26/36RB#0 15M	Back Side	26765	22.55	23.00	1.109	0.211	0.234

➢ **Sub-G SA DFT-s-OFDM 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)
37#	SA n41/1RB#136 100M	Front Side	518598	22.39	23.00	1.151	0.157	**0.181**
	SA n41/1RB#136 100M	Back Side	518598	22.39	23.00	1.151	0.130	0.150
	SA n41/137RB#0 100M	Front Side	518598	21.77	22.00	1.054	0.124	0.131
	SA n41/137RB#0 100M	Back Side	518598	21.77	22.00	1.054	0.112	0.118

➢ **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)
Ant.0								
	WLAN2.4GHz/802.11b	Front Side	11	15.53	16.00	1.114	0.065	0.074
	WLAN2.4GHz/802.11b	Back Side	11	15.53	16.00	1.114	0.071	0.080
Ant.1								
38#	WLAN2.4GHz/802.11b	Front Side	11	19.12	20.00	1.225	0.104	**0.130**
	WLAN2.4GHz/802.11b	Back Side	11	19.12	20.00	1.225	0.072	0.090
Ant.0								
	WLAN5.2GHz/802.11n-40	Front Side	46	7.86	8.00	1.033	0.028	0.029
	WLAN5.2GHz/802.11n-40	Back Side	46	7.86	8.00	1.033	0.014	0.014
Ant.1								
	WLAN5.2GHz/802.11n-40	Front Side	46	8.18	8.50	1.076	0.009	0.010
39#	WLAN5.2GHz/802.11n-40	Back Side	46	8.18	8.50	1.076	0.038	**0.041**
Ant.0								
	WLAN5.3GHz/802.11n-40	Front Side	54	8.38	8.50	1.028	0.031	0.033
40#	WLAN5.3GHz/802.11n-40	Back Side	54	8.38	8.50	1.028	0.074	**0.077**
Ant.1								
	WLAN5.3GHz/802.11n-40	Front Side	54	8.52	9.00	1.117	0.015	0.017
	WLAN5.3GHz/802.11n-40	Back Side	54	8.52	9.00	1.117	0.042	0.048
Ant.0								
	WLAN5.5GHz/802.11n-40	Front Side	142	8.42	9.00	1.143	0.033	0.038
41#	WLAN5.5GHz/802.11n-40	Back Side	142	8.42	9.00	1.143	0.108	**0.126**
Ant.1								
	WLAN5.5GHz/802.11n-40	Front Side	142	9.12	9.50	1.091	0.035	0.039
	WLAN5.5GHz/802.11n-40	Back Side	142	9.12	9.50	1.091	0.087	0.096

Ant.0								
	WLAN5.8GHz/802.11n-40	Front Side	151	8.21	8.50	1.069	0.033	0.036
42#	WLAN5.8GHz/802.11n-40	Back Side	151	8.21	8.50	1.069	0.100	**0.109**
Ant.1								
	WLAN5.8GHz/802.11n-40	Front Side	151	8.55	9.00	1.109	0.033	0.037
	WLAN5.8GHz/802.11n-40	Back Side	151	8.55	9.00	1.109	0.082	0.092

Note: The WLAN Reported 1g SAR (W/kg) has been calculated together with the duty cycle scaling factor 1.02 for 2.4G WLAN and 1.017 for 5G WLAN.

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)
Top Ant.								
	GPRS 850(2 TX slots)	Front Side	189	26.64	27.00	1.086	0.108	0.117
	GPRS 850(2 TX slots)	Back Side	189	26.64	27.00	1.086	0.121	0.131
	GPRS 850(2 TX slots)	Left Side	189	26.64	27.00	1.086	0.079	0.086
	GPRS 850(2 TX slots)	Right Side	189	26.64	27.00	1.086	0.024	0.026
	GPRS 850(2 TX slots)	Top Side	189	26.64	27.00	1.086	0.099	0.107
Bottom Ant.								
43#	GPRS 850(2 TX slots)	Front Side	189	30.48	31.00	1.127	0.431	**0.486**
	GPRS 850(2 TX slots)	Back Side	189	30.48	31.00	1.127	0.252	0.284
	GPRS 850(2 TX slots)	Left Side	189	30.48	31.00	1.127	0.248	0.280
	GPRS 850(2 TX slots)	Right Side	189	30.48	31.00	1.127	0.054	0.061
	GPRS 850(2 TX slots)	Bottom Side	189	30.48	31.00	1.127	0.385	0.434
Top Ant.								
	GPRS 1900(2 TX slots)	Front Side	512	24.73	25.00	1.064	0.152	0.162
	GPRS 1900(2 TX slots)	Back Side	512	24.73	25.00	1.064	0.127	0.135
	GPRS 1900(2 TX slots)	Left Side	512	24.73	25.00	1.064	0.098	0.104
	GPRS 1900(2 TX slots)	Right Side	512	24.73	25.00	1.064	0.008	0.008
	GPRS 1900(2 TX slots)	Top Side	512	24.73	25.00	1.064	0.071	0.076
Bottom Ant.								
44#	GPRS 1900(2 TX slots)	Front Side	512	27.58	28.00	1.102	0.404	**0.445**
	GPRS 1900(2 TX slots)	Back Side	512	27.58	28.00	1.102	0.403	0.444
	GPRS 1900(2 TX slots)	Left Side	512	27.58	28.00	1.102	0.332	0.366

	GPRS 1900(2 TX slots)	Right Side	512	27.58	28.00	1.102	0.053	0.058
	GPRS 1900(2 TX slots)	Bottom Side	512	27.58	28.00	1.102	0.292	0.322

➢ 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)
Top Ant.								
	Band II/RMC	Front Side	9262	18.64	19.00	1.086	0.184	0.200
	Band II/RMC	Back Side	9262	18.64	19.00	1.086	0.103	0.112
	Band II/RMC	Left Side	9262	18.64	19.00	1.086	0.106	0.115
	Band II/RMC	Right Side	9262	18.64	19.00	1.086	0.021	0.022
	Band II/RMC	Top Side	9262	18.64	19.00	1.086	0.092	0.100
Bottom Ant.								
45#	Band II/RMC	Front Side	9262	23.64	24.00	1.086	0.493	**0.536**
	Band II/RMC	Back Side	9262	23.64	24.00	1.086	0.462	0.502
	Band II/RMC	Left Side	9262	23.64	24.00	1.086	0.334	0.363
	Band II/RMC	Right Side	9262	23.64	24.00	1.086	0.063	0.068
	Band II/RMC	Bottom Side	9262	23.64	24.00	1.086	0.322	0.350
Top Ant.								
	Band IV/RMC	Front Side	1312	16.62	17.00	1.091	0.133	0.145
	Band IV/RMC	Back Side	1312	16.62	17.00	1.091	0.069	0.075
	Band IV/RMC	Left Side	1312	16.62	17.00	1.091	0.032	0.035
	Band IV/RMC	Right Side	1312	16.62	17.00	1.091	0.020	0.022
	Band IV/RMC	Top Side	1312	16.62	17.00	1.091	0.081	0.088
Bottom Ant.								
46#	Band IV/RMC	Front Side	1312	23.57	24.00	1.104	0.526	**0.581**
	Band IV/RMC	Back Side	1312	23.57	24.00	1.104	0.460	0.508
	Band IV/RMC	Left Side	1312	23.57	24.00	1.104	0.370	0.409
	Band IV/RMC	Right Side	1312	23.57	24.00	1.104	0.068	0.075
	Band IV/RMC	Bottom Side	1312	23.57	24.00	1.104	0.381	0.421
Top Ant.								
	Band V/RMC	Front Side	4183	19.77	20.00	1.054	0.131	0.138
	Band V/RMC	Back Side	4183	19.77	20.00	1.054	0.110	0.116
	Band V/RMC	Left Side	4183	19.77	20.00	1.054	0.076	0.081
	Band V/RMC	Right Side	4183	19.77	20.00	1.054	0.024	0.026
	Band V/RMC	Top Side	4183	19.77	20.00	1.054	0.104	0.110

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)
Bottom Ant.								
	Band V/RMC	Front Side	4183	23.57	24.00	1.104	0.288	0.318
47#	Band V/RMC	Back Side	4183	23.57	24.00	1.104	0.351	**0.388**
	Band V/RMC	Left Side	4183	23.57	24.00	1.104	0.161	0.178
	Band V/RMC	Right Side	4183	23.57	24.00	1.104	0.046	0.051
	Band V/RMC	Top Side	4183	23.57	24.00	1.104	0.347	0.383

➢ 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)
Top Ant.								
	BC0/RTAP153.6Kbps	Front Side	1013	22.27	22.50	1.054	0.189	0.199
	BC0/RTAP153.6Kbps	Back Side	1013	22.27	22.50	1.054	0.159	0.168
	BC0/RTAP153.6Kbps	Left Side	1013	22.27	22.50	1.054	0.119	0.125
	BC0/RTAP153.6Kbps	Right Side	1013	22.27	22.50	1.054	0.030	0.032
	BC0/RTAP153.6Kbps	Top Side	1013	22.27	22.50	1.054	0.150	0.158
Bottom Ant.								
48#	BC0/RTAP153.6Kbps	Front Side	1013	24.02	24.50	1.117	0.334	**0.373**
	BC0/RTAP153.6Kbps	Back Side	1013	24.02	24.50	1.117	0.096	0.107
	BC0/RTAP153.6Kbps	Left Side	1013	24.02	24.50	1.117	0.144	0.161
	BC0/RTAP153.6Kbps	Right Side	1013	24.02	24.50	1.117	0.020	0.022
	BC0/RTAP153.6Kbps	Bottom Side	1013	24.02	24.50	1.117	0.305	0.341
Top Ant.								
	BC1/RTAP153.6Kbps	Front Side	25	20.26	20.50	1.057	0.203	0.215
	BC1/RTAP153.6Kbps	Back Side	25	20.26	20.50	1.057	0.169	0.179
	BC1/RTAP153.6Kbps	Left Side	25	20.26	20.50	1.057	0.122	0.129
	BC1/RTAP153.6Kbps	Right Side	25	20.26	20.50	1.057	0.020	0.021
	BC1/RTAP153.6Kbps	Top Side	25	20.26	20.50	1.057	0.122	0.129
Bottom Ant.								
49#	BC1/RTAP153.6Kbps	Front Side	25	23.91	24.50	1.146	0.457	**0.523**
	BC1/RTAP153.6Kbps	Back Side	25	23.91	24.50	1.146	0.382	0.438
	BC1/RTAP153.6Kbps	Left Side	25	23.91	24.50	1.146	0.380	0.435
	BC1/RTAP153.6Kbps	Right Side	25	23.91	24.50	1.146	0.054	0.061
	BC1/RTAP153.6Kbps	Bottom Side	25	23.91	24.50	1.146	0.351	0.402

➢ FDD-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)
Top Ant.								
	LTE Band 2/1RB#0 20M	Front Side	18900	18.72	19.00	1.067	0.177	0.189
	LTE Band 2/1RB#0 20M	Back Side	18900	18.72	19.00	1.067	0.187	0.199
	LTE Band 2/1RB#0 20M	Left Side	18900	18.72	19.00	1.067	0.094	0.100
	LTE Band 2/1RB#0 20M	Right Side	18900	18.72	19.00	1.067	0.014	0.015
	LTE Band 2/1RB#0 20M	Top Side	18900	18.72	19.00	1.067	0.070	0.074
	LTE Band 2/50RB#50 20M	Front Side	18900	17.69	18.00	1.074	0.144	0.155
	LTE Band 2/50RB#50 20M	Back Side	18900	17.69	18.00	1.074	0.150	0.161
	LTE Band 2/50RB#50 20M	Left Side	18900	17.69	18.00	1.000	0.073	0.073
	LTE Band 2/50RB#50 20M	Right Side	18900	17.69	18.00	1.074	0.007	0.008
	LTE Band 2/50RB#50 20M	Top Side	18900	17.69	18.00	1.074	0.053	0.057
Bottom Ant.								
50#	LTE Band 2/1RB#0 20M	Front Side	18900	23.65	24.00	1.084	0.515	**0.558**
	LTE Band 2/1RB#0 20M	Back Side	18900	23.65	24.00	1.084	0.465	0.504
	LTE Band 2/1RB#0 20M	Left Side	18900	23.65	24.00	1.084	0.325	0.352
	LTE Band 2/1RB#0 20M	Right Side	18900	23.65	24.00	1.084	0.067	0.073
	LTE Band 2/1RB#0 20M	Bottom Side	18900	23.65	24.00	1.084	0.305	0.331
	LTE Band 2/50RB#50 20M	Front Side	18900	22.76	23.00	1.057	0.432	0.457
	LTE Band 2/50RB#50 20M	Back Side	18900	22.76	23.00	1.057	0.389	0.411
	LTE Band 2/50RB#50 20M	Left Side	18900	22.76	23.00	1.057	0.254	0.268
	LTE Band 2/50RB#50 20M	Right Side	18900	22.76	23.00	1.057	0.055	0.058
	LTE Band 2/50RB#50 20M	Bottom Side	18900	22.76	23.00	1.057	0.237	0.250

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)
Top Ant.								
	LTE Band 4/1RB#0 20M	Front Side	20050	16.66	17.00	1.081	0.126	0.136
	LTE Band 4/1RB#0 20M	Back Side	20050	16.66	17.00	1.081	0.126	0.136
	LTE Band 4/1RB#0 20M	Left Side	20050	16.66	17.00	1.081	0.065	0.071
	LTE Band 4/1RB#0 20M	Right Side	20050	16.66	17.00	1.081	0.011	0.012
	LTE Band 4/1RB#0 20M	Top Side	20050	16.66	17.00	1.081	0.087	0.094
	LTE Band 4/50RB#0 20M	Front Side	20050	15.61	16.00	1.094	0.105	0.115
	LTE Band 4/50RB#0 20M	Back Side	20050	15.61	16.00	1.094	0.106	0.116
	LTE Band 4/50RB#0 20M	Left Side	20050	15.61	16.00	1.094	0.055	0.060
	LTE Band 4/50RB#0 20M	Right Side	20050	15.61	16.00	1.094	0.010	0.011
	LTE Band 4/50RB#0 20M	Top Side	20050	15.61	16.00	1.094	0.070	0.077
Bottom Ant.								
51#	LTE Band 4/1RB#0 20M	Front Side	20050	23.70	24.00	1.072	0.512	**0.549**
	LTE Band 4/1RB#0 20M	Back Side	20050	23.70	24.00	1.072	0.468	0.501
	LTE Band 4/1RB#0 20M	Left Side	20050	23.70	24.00	1.072	0.367	0.393
	LTE Band 4/1RB#0 20M	Right Side	20050	23.70	24.00	1.072	0.073	0.078
	LTE Band 4/1RB#0 20M	Bottom Side	20050	23.70	24.00	1.072	0.376	0.403
	LTE Band 4/50RB#0 20M	Front Side	20050	22.74	23.00	1.062	0.415	0.441
	LTE Band 4/50RB#0 20M	Back Side	20050	22.74	23.00	1.062	0.404	0.429
	LTE Band 4/50RB#0 20M	Left Side	20050	22.74	23.00	1.062	0.300	0.319
	LTE Band 4/50RB#0 20M	Right Side	20050	22.74	23.00	1.062	0.062	0.066
	LTE Band 4/50RB#0 20M	Bottom Side	20050	22.74	23.00	1.062	0.376	0.399

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)
Top Ant.								
	LTE Band 5/1RB#0 10M	Front Side	20600	19.78	20.00	1.052	0.157	0.165
	LTE Band 5/1RB#0 10M	Back Side	20600	19.78	20.00	1.052	0.131	0.138
	LTE Band 5/1RB#0 10M	Left Side	20600	19.78	20.00	1.052	0.097	0.102
	LTE Band 5/1RB#0 10M	Right Side	20600	19.78	20.00	1.052	0.062	0.065
	LTE Band 5/1RB#0 10M	Top Side	20600	19.78	20.00	1.052	0.155	0.163
	LTE Band 5/25RB#0 10M	Front Side	20600	18.84	19.00	1.038	0.149	0.155
	LTE Band 5/25RB#0 10M	Back Side	20600	18.84	19.00	1.038	0.105	0.109
	LTE Band 5/25RB#0 10M	Left Side	20600	18.84	19.00	1.038	0.081	0.084
	LTE Band 5/25RB#0 10M	Right Side	20600	18.84	19.00	1.038	0.052	0.054
	LTE Band 5/25RB#010M	Top Side	20600	18.84	19.00	1.038	0.128	0.133
Bottom Ant.								
52#	LTE Band 5/1RB#0 10M	Front Side	20600	23.36	24.00	1.159	0.327	**0.379**
	LTE Band 5/1RB#0 10M	Back Side	20600	23.36	24.00	1.159	0.246	0.285
	LTE Band 5/1RB#0 10M	Left Side	20600	23.36	24.00	1.159	0.102	0.118
	LTE Band 5/1RB#0 10M	Right Side	20600	23.36	24.00	1.159	0.087	0.101
	LTE Band 5/1RB#0 10M	Bottom Side	20600	23.36	24.00	1.159	0.313	0.363
	LTE Band 5/25RB#0 10M	Front Side	20600	22.35	23.00	1.161	0.207	0.240
	LTE Band 5/25RB#0 10M	Back Side	20600	22.35	23.00	1.161	0.207	0.240
	LTE Band 5/25RB#0 10M	Left Side	20600	22.35	23.00	1.161	0.097	0.113
	LTE Band 5/25RB#0 10M	Right Side	20600	22.35	23.00	1.161	0.077	0.089
	LTE Band 5/25RB#0 10M	Bottom Side	20600	22.35	23.00	1.161	0.264	0.307

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)
Top Ant.								
	LTE Band 7/1RB#99 20M	Front Side	21100	17.85	18.00	1.035	0.250	0.259
	LTE Band 7/1RB#99 20M	Back Side	21100	17.85	18.00	1.035	0.227	0.235
	LTE Band 7/1RB#99 20M	Left Side	21100	17.85	18.00	1.035	0.061	0.063
	LTE Band 7/1RB#99 20M	Right Side	21100	17.85	18.00	1.035	0.057	0.059
	LTE Band 7/1RB#99 20M	Top Side	21100	17.85	18.00	1.035	0.317	0.328
	LTE Band 7/50RB#24 20M	Front Side	21100	16.91	17.00	1.021	0.201	0.205
	LTE Band 7/50RB#24 20M	Back Side	21100	16.91	17.00	1.021	0.184	0.188
	LTE Band 7/50RB#24 20M	Left Side	21100	16.91	17.00	1.021	0.046	0.047
	LTE Band 7/50RB#24 20M	Right Side	21100	16.91	17.00	1.021	0.031	0.032
	LTE Band 7/50RB#24 20M	Top Side	21100	16.91	17.00	1.021	0.276	0.282
Bottom Ant.								
	LTE Band 7/1RB#99 20M	Front Side	21100	20.92	21.50	1.143	0.346	0.395
	LTE Band 7/1RB#99 20M	Back Side	21100	20.92	21.50	1.143	0.476	0.544
	LTE Band 7/1RB#99 20M	Left Side	21100	20.92	21.50	1.143	0.093	0.107
	LTE Band 7/1RB#99 20M	Right Side	21100	20.92	21.50	1.143	0.025	0.028
53#	LTE Band 7/1RB#99 20M	Bottom Side	21100	20.92	21.50	1.143	0.907	**1.037**
	LTE Band 7/1RB#99 20M	Bottom Side	20850	20.89	21.50	1.151	0.801	0.922
	LTE Band 7/1RB#99 20M	Bottom Side	21350	20.86	21.50	1.159	0.891	1.032
	LTE Band 7/100RB#0 20M	Bottom Side	21100	19.95	20.50	1.135	0.784	0.890
	LTE Band 7/50RB#24 20M	Front Side	21100	20.04	20.50	1.112	0.311	0.346
	LTE Band 7/50RB#24 20M	Back Side	21100	20.04	20.50	1.112	0.382	0.425
	LTE Band 7/50RB#24 20M	Left Side	21100	20.04	20.50	1.112	0.077	0.086
	LTE Band 7/50RB#24 20M	Right Side	21100	20.04	20.50	1.112	0.021	0.024
	LTE Band 7/50RB#24 20M	Bottom Side	21100	20.04	20.50	1.112	0.662	0.736

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)
Top Ant.								
54#	LTE Band 12/1RB#49 10M	Front Side	23060	19.83	20.00	1.040	0.132	**0.137**
	LTE Band 12/1RB#49 10M	Back Side	23060	19.83	20.00	1.040	0.114	0.119
	LTE Band 12/1RB#49 10M	Left Side	23060	19.83	20.00	1.040	0.097	0.101
	LTE Band 12/1RB#49 10M	Right Side	23060	19.83	20.00	1.040	0.035	0.037
	LTE Band 12/1RB#49 10M	Top Side	23060	19.83	20.00	1.040	0.110	0.114
	LTE Band 12/25RB#12 10M	Front Side	23060	18.83	19.00	1.040	0.108	0.112
	LTE Band 12/25RB#12 10M	Back Side	23060	18.83	19.00	1.040	0.093	0.097
	LTE Band 12/25RB#12 10M	Left Side	23060	18.83	19.00	1.040	0.069	0.071
	LTE Band 12/25RB#12 10M	Right Side	23060	18.83	19.00	1.040	0.028	0.029
	LTE Band 12/25RB#12 10M	Top Side	23060	18.83	19.00	1.040	0.087	0.091
Bottom Ant.								
	LTE Band 12/1RB#49 10M	Front Side	23060	23.45	24.00	1.135	0.026	0.030
	LTE Band 12/1RB#49 10M	Back Side	23060	23.45	24.00	1.135	0.022	0.025
	LTE Band 12/1RB#49 10M	Left Side	23060	23.45	24.00	1.135	0.030	0.034
	LTE Band 12/1RB#49 10M	Right Side	23060	23.45	24.00	1.135	0.015	0.017
	LTE Band 12/1RB#49 10M	Bottom Side	23060	23.45	24.00	1.135	0.026	0.029
	LTE Band 12/25RB#12 10M	Front Side	23060	22.39	23.00	1.151	0.021	0.024
	LTE Band 12/25RB#12 10M	Back Side	23060	22.39	23.00	1.151	0.018	0.021
	LTE Band 12/25RB#12 10M	Left Side	23060	22.39	23.00	1.151	0.024	0.028
	LTE Band 12/25RB#12 10M	Right Side	23060	22.39	23.00	1.151	0.012	0.014
	LTE Band 12/25RB#12 10M	Bottom Side	23060	22.39	23.00	1.151	0.021	0.024

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)
Top Ant.								
	LTE Band 18/1RB#37 15M	Front Side	23925	20.69	21.00	1.074	0.150	0.161
	LTE Band 18/1RB#37 15M	Back Side	23925	20.69	21.00	1.074	0.118	0.127
	LTE Band 18/1RB#37 15M	Left Side	23925	20.69	21.00	1.074	0.068	0.073
	LTE Band 18/1RB#37 15M	Right Side	23925	20.69	21.00	1.074	0.057	0.061
	LTE Band 18/1RB#37 15M	Top Side	23925	20.69	21.00	1.074	0.148	0.159
	LTE Band 18/36RB#20 15M	Front Side	23925	19.75	20.00	1.059	0.145	0.154
	LTE Band 18/36RB#20 15M	Back Side	23925	19.75	20.00	1.059	0.097	0.103
	LTE Band 18/36RB#20 15M	Left Side	23925	19.75	20.00	1.059	0.059	0.062
	LTE Band 18/36RB#20 15M	Right Side	23925	19.75	20.00	1.059	0.044	0.047
	LTE Band 18/36RB#20 15M	Top Side	23925	19.75	20.00	1.059	0.123	0.130
Bottom Ant.								
55#	LTE Band 18/1RB#37 15M	Front Side	23925	23.05	24.00	1.245	0.281	**0.350**
	LTE Band 18/1RB#37 15M	Back Side	23925	23.05	24.00	1.245	0.224	0.279
	LTE Band 18/1RB#37 15M	Left Side	23925	23.05	24.00	1.245	0.138	0.172
	LTE Band 18/1RB#37 15M	Right Side	23925	23.05	24.00	1.245	0.115	0.143
	LTE Band 18/1RB#37 15M	Bottom Side	23925	23.05	24.00	1.245	0.280	0.348
	LTE Band 18/36RB#20 15M	Front Side	23925	22.28	23.00	1.180	0.248	0.293
	LTE Band 18/36RB#20 15M	Back Side	23925	22.28	23.00	1.180	0.217	0.256
	LTE Band 18/36RB#20 15M	Left Side	23925	22.28	23.00	1.180	0.112	0.132
	LTE Band 18/36RB#20 15M	Right Side	23925	22.28	23.00	1.180	0.092	0.109
	LTE Band 18/36RB#20 15M	Bottom Side	23925	22.28	23.00	1.180	0.252	0.297

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)
Top Ant.								
	LTE Band 19/1RB#37 15M	Front Side	24075	20.69	21.00	1.074	0.189	0.203
	LTE Band 19/1RB#37 15M	Back Side	24075	20.69	21.00	1.074	0.128	0.137
	LTE Band 19/1RB#37 15M	Left Side	24075	20.69	21.00	1.074	0.090	0.097
	LTE Band 19/1RB#37 15M	Right Side	24075	20.69	21.00	1.074	0.076	0.082
	LTE Band 19/1RB#37 15M	Top Side	24075	20.69	21.00	1.074	0.161	0.173
	LTE Band 19/36RB#20 15M	Front Side	24075	19.79	20.00	1.050	0.154	0.162
	LTE Band 19/36RB#20 15M	Back Side	24075	19.79	20.00	1.050	0.105	0.110
	LTE Band 19/36RB#20 15M	Left Side	24075	19.79	20.00	1.050	0.076	0.079
	LTE Band 19/36RB#20 15M	Right Side	24075	19.79	20.00	1.050	0.051	0.054
	LTE Band 19/36RB#20 15M	Top Side	24075	19.79	20.00	1.050	0.133	0.140
Bottom Ant.								
56#	LTE Band 19/1RB#37 15M	Front Side	24075	23.32	24.00	1.169	0.286	**0.334**
	LTE Band 19/1RB#37 15M	Back Side	24075	23.32	24.00	1.169	0.228	0.267
	LTE Band 19/1RB#37 15M	Left Side	24075	23.32	24.00	1.169	0.117	0.137
	LTE Band 19/1RB#37 15M	Right Side	24075	23.32	24.00	1.169	0.097	0.113
	LTE Band 19/1RB#37 15M	Bottom Side	24075	23.32	24.00	1.169	0.278	0.325
	LTE Band 19/36RB#20 15M	Front Side	24075	22.45	23.00	1.135	0.236	0.268
	LTE Band 19/36RB#20 15M	Back Side	24075	22.45	23.00	1.135	0.207	0.235
	LTE Band 19/36RB#20 15M	Left Side	24075	22.45	23.00	1.135	0.098	0.111
	LTE Band 19/36RB#20 15M	Right Side	24075	22.45	23.00	1.135	0.081	0.092
	LTE Band 19/36RB#20 15M	Bottom Side	24075	22.45	23.00	1.135	0.249	0.283

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)
Top Ant.								
	LTE Band 26/1RB#0 15M	Front Side	26765	20.79	21.00	1.050	0.142	0.149
	LTE Band 26/1RB#0 15M	Back Side	26765	20.79	21.00	1.050	0.117	0.123
	LTE Band 26/1RB#0 15M	Left Side	26765	20.79	21.00	1.050	0.071	0.075
	LTE Band 26/1RB#0 15M	Right Side	26765	20.79	21.00	1.050	0.027	0.028
	LTE Band 26/1RB#0 15M	Top Side	26765	20.79	21.00	1.050	0.110	0.115
	LTE Band 26/36RB#0 15M	Front Side	26765	19.84	20.00	1.038	0.117	0.121
	LTE Band 26/36RB#0 15M	Back Side	26765	19.84	20.00	1.038	0.096	0.099
	LTE Band 26/36RB#0 15M	Left Side	26765	19.84	20.00	1.038	0.060	0.062
	LTE Band 26/36RB#0 15M	Right Side	26765	19.84	20.00	1.038	0.024	0.024
	LTE Band 26/36RB#0 15M	Top Side	26765	19.84	20.00	1.038	0.090	0.094
Bottom Ant.								
57#	LTE Band 26/1RB#0 15M	Front Side	26765	23.49	24.00	1.125	0.289	**0.325**
	LTE Band 26/1RB#0 15M	Back Side	26765	23.49	24.00	1.125	0.244	0.274
	LTE Band 26/1RB#0 15M	Left Side	26765	23.49	24.00	1.125	0.147	0.165
	LTE Band 26/1RB#0 15M	Right Side	26765	23.49	24.00	1.125	0.044	0.049
	LTE Band 26/1RB#0 15M	Bottom Side	26765	23.49	24.00	1.125	0.287	0.323
	LTE Band 26/36RB#0 15M	Front Side	26765	22.55	23.00	1.109	0.246	0.273
	LTE Band 26/36RB#0 15M	Back Side	26765	22.55	23.00	1.109	0.211	0.234
	LTE Band 26/36RB#0 15M	Left Side	26765	22.55	23.00	1.109	0.117	0.130
	LTE Band 26/36RB#0 15M	Right Side	26765	22.55	23.00	1.109	0.036	0.039
	LTE Band 26/36RB#0 15M	Bottom Side	26765	22.55	23.00	1.109	0.249	0.276

➢ Sub-6G SA DFT-s-OFDM 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)
Top Ant.								
	SA n41/1RB#136 100M	Front Side	518598	22.39	23.00	1.151	0.157	0.181
	SA n41/1RB#136 100M	Back Side	518598	22.39	23.00	1.151	0.130	0.150
58#	SA n41/1RB#136 100M	Right Side	518598	22.39	23.00	1.151	0.196	**0.226**
	SA n41/1RB#136 100M	Top Side	518598	22.39	23.00	1.151	0.023	0.027

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)
Bottom Ant.								
	SA n41/137RB#0100M	Front Side	518598	21.77	22.00	1.054	0.124	0.131
	SA n41/137RB#0100M	Back Side	518598	21.77	22.00	1.054	0.112	0.118
	SA n41/137RB#0100M	Right Side	518598	21.77	22.00	1.054	0.173	0.182
	SA n41/137RB#0100M	Top Side	518598	21.77	22.00	1.054	0.018	0.019

➢ 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)
Ant.0								
	WLAN2.4GHz/802.11b	Front Side	11	15.53	16.00	1.114	0.065	0.074
	WLAN2.4GHz/802.11b	Back Side	11	15.53	16.00	1.114	0.071	0.080
	WLAN2.4GHz/802.11b	Right Side	11	15.53	16.00	1.114	0.006	0.007
	WLAN2.4GHz/802.11b	Top Side	11	15.53	16.00	1.114	0.065	0.074
Ant.1								
59#	WLAN2.4GHz/802.11b	Front Side	11	19.12	20.00	1.225	0.104	**0.130**
	WLAN2.4GHz/802.11b	Back Side	11	19.12	20.00	1.225	0.104	0.130
	WLAN2.4GHz/802.11b	Right Side	11	19.12	20.00	1.225	0.024	0.030

Note:

The WLAN Reported 1g SAR (W/kg) has been calculated together with the duty cycle scaling factor 1.02 for 2.4G WLAN.

16.5. Repeated SAR Assessment

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.

➢ **Head 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	BC0/RC3 SO55	Right Cheek	777	22.17	22.50	1.079	1.050	1.133
	BC0/RC3 SO55	Right Cheek	777	22.17	22.50	1.079	0.998	1.077

➢ **Hotspot 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	LTE Band 7/1RB#99 20M	Bottom Side	21100	20.92	21.50	1.143	0.907	1.037
	LTE Band 7/1RB#99 20M	Bottom Side	21100	20.92	21.50	1.143	0.90	1.029

16.6. Extremity SAR Assessment

Guidance:

1. According to KDB 648747 D04v01r03 The UMPC mini-tablet procedures must also be applied to test the SAR of all surfaces and edges with an antenna located at ≤ 25 mm from that surface or edge, in direct contact with a flat phantom, for 10-g extremity SAR according to the body-equivalent tissue dielectric parameters in KDB Publication 865664 D01 to address interactive hand use exposure conditions.
2. 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.
3. According to the user manual, the EUT diagonal size is greater than 16cm, therefore the 0mm extremity SAR of WLAN 5GHz is required. There are two types of antennas in this device, only the worst antenna was tested the extremity SAR in this report.
4. Test results as below:

Plot No.	Band/Mode	Test Position	CH.	Ave. Power (dBm)	Tune-up Limit (dBm)	Tune-up Scaling Factor	Meas. SAR_{10g} (W/kg)	Reported SAR_{10g} (W/kg)
Ant.1								
OR	WLAN5.2GHz/802.11n-40	Back Side	46	8.18	8.50	1.076	0.038	0.041
60#	WLAN5.2GHz/802.11n-40	Back Side	46	8.18	8.50	1.076	0.071	**0.077**
Ant.0								
OR	WLAN5.3GHz/802.11n-40	Back Side	54	8.38	8.50	1.028	0.074	0.077
61#	WLAN5.3GHz/802.11n-40	Back Side	54	8.38	8.50	1.028	0.189	**0.196**
Ant.0								
OR	WLAN5.5GHz/802.11n-40	Front Side	142	8.42	9.00	1.143	0.108	0.126
62#	WLAN5.5GHz/802.11n-40	Back Side	142	8.42	9.00	1.143	0.219	**0.253**
Ant.0								
OR	WLAN5.8GHz/802.11n-40	Front Side	151	8.21	8.50	1.069	0.100	0.109
63#	WLAN5.8GHz/802.11n-40	Back Side	151	8.21	8.50	1.069	0.177	**0.191**

17. Simultaneous Transmission Evaluation

17.1. Simultaneous Transmission Consideration

No.	Simultaneous Transmission Consideration	Head	Body-Worn	Hotspot
1	WWAN(2G/3G/4G)+WLAN 2.4GHz Ant 0/Ant 1	Yes	Yes	Yes
2	WWAN(2G/3G/4G)+WLAN 5GHz Ant 0/Ant 1	Yes	Yes	NO
3	WWAN(2G/3G/4G)+WLAN(2.4GHz+5GHz)	Yes	Yes	NO
4	WWAN(2G/3G/4G)+Bluetooth	NO	Yes	Yes
5	WLAN 5GHz Ant 1+Bluetooth	NO	Yes	NO
6	WLAN 2.4GHz Ant 0+WLAN 2.4GHz Ant 1	Yes	Yes	Yes
7	WLAN 5GHz Ant 0+WLAN 5GHz Ant 1	Yes	Yes	NO
8	WLAN 2.4GHz Ant 0+WLAN 5GHz Ant 1	Yes	Yes	NO
9	WWAN(2G/3G/4G)+WLAN 2.4GHz(MIMO)	Yes	Yes	Yes
10	WWAN(2G/3G/4G)+WLAN 5GHz(MIMO)	NO	Yes	NO
11	WWAN(2G/3G/4G)+WLAN 2.4GHz+Bluetooth	Yes	Yes	NO
12	WWAN(2G/3G/4G)+WLAN 5GHz+Bluetooth	Yes	Yes	NO
13	NR Band n41+WLAN 2.4GHz Ant 0/Ant 1	Yes	Yes	Yes
14	NR Band n41+Bluetooth	Yes	Yes	Yes
15	NR Band n41+WLAN 2.4GHz(MIMO)	Yes	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.

6. 2.4G&5G MIMO SAR was combined standalone SAR of antenna 0 and antenna 1.
7. The 5G NR for n41 transmitter and the 5G WLAN antenna 1 share the same antenna, therefore both of them cannot transmit simultaneously
8. When it supports transmit simultaneously at WWAN+WLAN MIMO mode, the co-location SAR of WWAN+WLAN(standalone SAR) would not be recorded in this report.

17.2. Simultaneous Transmission Analysis

➢ **Head Simultaneous Transmission for 2.4GHz/5GHz(MIMO)**

WWAN Band	Exposure Position	1	2	1+2 Summed 1g SAR (W/kg)
		Ant 0	Ant 1	
		1g SAR (W/kg)		
2.4GHz WLAN	Right Cheek	0.160	0.024	0.184
	Right Tilt	0.113	0.010	0.123
	Left Cheek	0.475	0.013	0.488
	Left Tilt	0.286	0.007	0.293
5GHz WLAN	Right Cheek	0.188	0.092	0.28
	Right Tilt	0.158	0.050	0.208
	Left Cheek	0.434	0.193	0.627
	Left Tilt	0.290	0.060	0.35

➢ Head Simultaneous Transmission for WWAN+2.4GHz WLAN(MIMO)

WWAN Band		Exposure Position	1	2	1+2 Summed 1g SAR (W/kg)
			WWAN	2.4GHz WLAN Ant 0+ Ant 1	
			1g SAR (W/kg)		
GSM	GSM850	Right Cheek	0.601	0.184	0.785
		Right Tilt	0.428	0.123	0.551
		Left Cheek	0.411	0.488	0.899
		Left Tilt	0.366	0.293	0.659
	GSM1900	Right Cheek	0.680	0.184	0.864
		Right Tilt	0.425	0.123	0.548
		Left Cheek	0.331	0.488	0.819
		Left Tilt	0.226	0.293	0.519
WCDMA	WCDMA Band II	Right Cheek	0.686	0.184	0.87
		Right Tilt	0.558	0.123	0.681
		Left Cheek	0.419	0.488	0.907
		Left Tilt	0.432	0.293	0.725
	WCDMA Band IV	Right Cheek	0.772	0.184	0.956
		Right Tilt	0.539	0.123	0.662
		Left Cheek	0.453	0.488	0.941
		Left Tilt	0.454	0.293	0.747
	WCDMA Band V	Right Cheek	0.582	0.184	0.766
		Right Tilt	0.401	0.123	0.524
		Left Cheek	0.344	0.488	0.832
		Left Tilt	0.333	0.293	0.626
CDMA	CDMA2000 BC0	Right Cheek	1.133	0.184	1.317
		Right Tilt	0.803	0.123	0.926
		Left Cheek	0.638	0.488	1.126
		Left Tilt	0.541	0.293	0.834
	CDMA2000 BC1	Right Cheek	0.818	0.184	1.002
		Right Tilt	0.599	0.123	0.722
		Left Cheek	0.546	0.488	1.034
		Left Tilt	0.529	0.293	0.822
LTE	LTE Band 2	Right Cheek	0.721	0.184	0.905
		Right Tilt	0.565	0.123	0.688
		Left Cheek	0.510	0.488	0.998
		Left Tilt	0.446	0.293	0.739
	LTE Band 4	Right Cheek	0.719	0.184	0.903

		Right Tilt	0.440	0.123	0.563
		Left Cheek	0.579	0.488	1.067
		Left Tilt	0.469	0.293	0.762
	LTE Band 5	Right Cheek	0.706	0.184	0.89
		Right Tilt	0.499	0.123	0.622
		Left Cheek	0.458	0.488	0.946
		Left Tilt	0.382	0.293	0.675
	LTE Band 7	Right Cheek	0.874	0.184	1.058
		Right Tilt	0.772	0.123	0.895
		Left Cheek	0.776	0.488	1.264
		Left Tilt	0.770	0.293	1.063
	LTE Band 12	Right Cheek	0.736	0.184	0.92
		Right Tilt	0.515	0.123	0.638
		Left Cheek	0.381	0.488	0.869
		Left Tilt	0.286	0.293	0.579
	LTE Band 18	Right Cheek	0.698	0.184	0.882
		Right Tilt	0.485	0.123	0.608
		Left Cheek	0.453	0.488	0.941
		Left Tilt	0.362	0.293	0.655
	LTE Band 19	Right Cheek	0.734	0.184	0.918
		Right Tilt	0.519	0.123	0.642
		Left Cheek	0.491	0.488	0.979
		Left Tilt	0.393	0.293	0.686
	LTE Band 26	Right Cheek	0.679	0.184	0.863
		Right Tilt	0.457	0.123	0.58
		Left Cheek	0.436	0.488	0.924
		Left Tilt	0.336	0.293	0.629
5G NR	Band n41	Right Cheek	0.214	0.184	0.398
		Right Tilt	0.058	0.123	0.181
		Left Cheek	0.215	0.488	0.703
		Left Tilt	0.133	0.293	0.426

➢ Head Simultaneous Transmission for WWAN+5GHz WLAN(MIMO)

WWAN Band		Exposure Position	1	2	1+2 Summed 1g SAR (W/kg)
			WWAN	5GHz WLAN Ant 0+ Ant 1	
			1g SAR (W/kg)		
GSM	GSM850	Right Cheek	0.601	0.28	0.881
		Right Tilt	0.428	0.208	0.636
		Left Cheek	0.411	0.627	1.038
		Left Tilt	0.366	0.35	0.716
	GSM1900	Right Cheek	0.680	0.28	0.96
		Right Tilt	0.425	0.208	0.633
		Left Cheek	0.331	0.627	0.958
		Left Tilt	0.226	0.35	0.576
WCDMA	WCDMA Band II	Right Cheek	0.686	0.28	0.966
		Right Tilt	0.558	0.208	0.766
		Left Cheek	0.419	0.627	1.046
		Left Tilt	0.432	0.35	0.782
	WCDMA Band IV	Right Cheek	0.772	0.28	1.052
		Right Tilt	0.539	0.208	0.747
		Left Cheek	0.453	0.627	1.08
		Left Tilt	0.454	0.35	0.804
	WCDMA Band V	Right Cheek	0.582	0.28	0.862
		Right Tilt	0.401	0.208	0.609
		Left Cheek	0.344	0.627	0.971
		Left Tilt	0.333	0.35	0.683
CDMA	CDMA2000 BC0	Right Cheek	1.133	0.28	1.413
		Right Tilt	0.803	0.208	1.011
		Left Cheek	0.638	0.627	1.265
		Left Tilt	0.541	0.35	0.891
	CDMA2000 BC1	Right Cheek	0.818	0.28	1.098
		Right Tilt	0.599	0.208	0.807
		Left Cheek	0.546	0.627	1.173
		Left Tilt	0.529	0.35	0.879
LTE	LTE Band 2	Right Cheek	0.721	0.28	1.001
		Right Tilt	0.565	0.208	0.773
		Left Cheek	0.510	0.627	1.137
		Left Tilt	0.446	0.35	0.796
	LTE Band 4	Right Cheek	0.719	0.28	0.999

		Right Tilt	0.440	0.208	0.648
		Left Cheek	0.579	0.627	1.206
		Left Tilt	0.469	0.35	0.819
	LTE Band 5	Right Cheek	0.706	0.28	0.986
		Right Tilt	0.499	0.208	0.707
		Left Cheek	0.458	0.627	1.085
		Left Tilt	0.382	0.35	0.732
	LTE Band 7	Right Cheek	0.874	0.28	1.154
		Right Tilt	0.772	0.208	0.98
		Left Cheek	0.776	0.627	1.403
		Left Tilt	0.770	0.35	1.12
	LTE Band 12	Right Cheek	0.736	0.28	1.016
		Right Tilt	0.515	0.208	0.723
		Left Cheek	0.381	0.627	1.008
		Left Tilt	0.286	0.35	0.636
	LTE Band 18	Right Cheek	0.698	0.28	0.978
		Right Tilt	0.485	0.208	0.693
		Left Cheek	0.453	0.627	1.08
		Left Tilt	0.362	0.35	0.712
	LTE Band 19	Right Cheek	0.734	0.28	1.014
		Right Tilt	0.519	0.208	0.727
		Left Cheek	0.491	0.627	1.118
		Left Tilt	0.393	0.35	0.743
	LTE Band 26	Right Cheek	0.679	0.28	0.959
		Right Tilt	0.457	0.208	0.665
		Left Cheek	0.436	0.627	1.063
		Left Tilt	0.336	0.35	0.686

➢ **Head Simultaneous Transmission for WWAN(2/3/4G)+WLAN(2.4GHz+5G)**

WWAN Band		Exposure Position	1	2		1+2 Summed 1g SAR (W/kg)
			WWAN	WLAN 2.4GHz Ant 0	WLAN 5GHz Ant 1	
			1g SAR(W/kg)			
GSM	GSM850	Right Cheek	0.601	0.159	0.092	0.852
		Right Tilt	0.428	0.113	0.05	0.591
		Left Cheek	0.411	0.474	0.193	1.078
		Left Tilt	0.366	0.285	0.06	0.711
	GSM1900	Right Cheek	0.680	0.159	0.092	0.931
		Right Tilt	0.425	0.113	0.05	0.588
		Left Cheek	0.331	0.474	0.193	0.998
		Left Tilt	0.226	0.285	0.06	0.571
WCDMA	Band II	Right Cheek	0.686	0.159	0.092	0.937
		Right Tilt	0.558	0.113	0.05	0.721
		Left Cheek	0.419	0.474	0.193	1.086
		Left Tilt	0.432	0.285	0.06	0.777
	Band IV	Right Cheek	0.772	0.159	0.092	1.023
		Right Tilt	0.539	0.113	0.05	0.702
		Left Cheek	0.453	0.474	0.193	1.12
		Left Tilt	0.454	0.285	0.06	0.799
	Band V	Right Cheek	0.582	0.159	0.092	0.833
		Right Tilt	0.401	0.113	0.05	0.564
		Left Cheek	0.344	0.474	0.193	1.011
		Left Tilt	0.333	0.285	0.06	0.678
CDMA 2000	BC 0	Right Cheek	1.133	0.159	0.092	1.384
		Right Tilt	0.803	0.113	0.05	0.966
		Left Cheek	0.638	0.474	0.193	1.305
		Left Tilt	0.541	0.285	0.06	0.886
	BC 1	Right Cheek	0.818	0.159	0.092	1.069
		Right Tilt	0.599	0.113	0.05	0.762
		Left Cheek	0.546	0.474	0.193	1.213
		Left Tilt	0.529	0.285	0.06	0.874
LTE	LTE Band 2	Right Cheek	0.721	0.159	0.092	0.972
		Right Tilt	0.565	0.113	0.05	0.728
		Left Cheek	0.510	0.474	0.193	1.177
		Left Tilt	0.446	0.285	0.06	0.791
	LTE Band 4	Right Cheek	0.719	0.159	0.092	0.97

		Right Tilt	0.440	0.113	0.05	0.603
		Left Cheek	0.579	0.474	0.193	1.246
		Left Tilt	0.469	0.285	0.06	0.814
	LTE Band 5	Right Cheek	0.706	0.159	0.092	0.957
		Right Tilt	0.499	0.113	0.05	0.662
		Left Cheek	0.458	0.474	0.193	1.125
		Left Tilt	0.382	0.285	0.06	0.727
	LTE Band 7	Right Cheek	0.874	0.159	0.092	1.125
		Right Tilt	0.772	0.113	0.05	0.935
		Left Cheek	0.776	0.474	0.193	1.443
		Left Tilt	0.770	0.285	0.06	1.115
	LTE Band 12	Right Cheek	0.736	0.159	0.092	0.987
		Right Tilt	0.515	0.113	0.05	0.678
		Left Cheek	0.381	0.474	0.193	1.048
		Left Tilt	0.286	0.285	0.06	0.631
	LTE Band 18	Right Cheek	0.698	0.159	0.092	0.949
		Right Tilt	0.485	0.113	0.05	0.648
		Left Cheek	0.453	0.474	0.193	1.12
		Left Tilt	0.362	0.285	0.06	0.707
	LTE Band 19	Right Cheek	0.734	0.159	0.092	0.985
		Right Tilt	0.519	0.113	0.05	0.682
		Left Cheek	0.491	0.474	0.193	1.158
		Left Tilt	0.393	0.285	0.06	0.738
	LTE Band 26	Right Cheek	0.679	0.159	0.092	0.93
		Right Tilt	0.457	0.113	0.05	0.62
		Left Cheek	0.436	0.474	0.193	1.103
		Left Tilt	0.336	0.285	0.06	0.681

➢ Body-worn Simultaneous Transmission for 2.4GHz/5GHz WLAN

WWAN Band	Exposure Position	1	2	1+2 Summed 1g SAR (W/kg)
		Ant 0	Ant 1	
		1g SAR (W/kg)		
2.4GHz WLAN	Front Side	0.074	0.13	0.204
	Back Side	0.08	0.09	0.17
5GHz WLAN	Front Side	0.038	0.039	0.077
	Back Side	0.126	0.096	0.222

➢ Body-worn Simultaneous Transmission for WWAN + 2.4GHz WLAN(MIMO)

WWAN Band		Exposure Position	1	2	1+2 Summed 1g SAR (W/kg)
			WWAN	2.4GHz WLAN Ant 0+ Ant 1	
			1g SAR (W/kg)		
GSM	GSM850	Front	0.486	0.204	0.690
		Back	0.284	0.17	0.454
	GSM1900	Front	0.445	0.204	0.649
		Back	0.444	0.17	0.614
WCDMA	WCDMA Band II	Front	0.536	0.204	0.740
		Back	0.502	0.17	0.672
	WCDMA Band IV	Front	0.581	0.204	0.785
		Back	0.508	0.17	0.678
	WCDMA Band V	Front	0.318	0.204	0.522
		Back	0.388	0.17	0.558
CDMA	CDMA2000 BC0	Front	0.373	0.204	0.577
		Back	0.168	0.17	0.338
	CDMA2000 BC1	Front	0.523	0.204	0.727
		Back	0.438	0.17	0.608
LTE	LTE Band 2	Front	0.558	0.204	0.762
		Back	0.504	0.17	0.674
	LTE Band 4	Front	0.549	0.204	0.753
		Back	0.501	0.17	0.671
	LTE Band 5	Front	0.379	0.204	0.583
		Back	0.285	0.17	0.455
	LTE Band 7	Front	0.395	0.204	0.599
		Back	0.544	0.17	0.714
	LTE Band 12	Front	0.137	0.204	0.341

		Back	0.119	0.17	0.289
	LTE Band 18	Front	0.350	0.204	0.554
		Back	0.279	0.17	0.449
	LTE Band 19	Front	0.334	0.204	0.538
		Back	0.267	0.17	0.437
	LTE Band 26	Front	0.325	0.204	0.529
		Back	0.274	0.17	0.444
5G NR	Band n41	Front	0.181	0.204	0.385
		Back	0.150	0.17	0.320

➢ **Body-worn Simultaneous Transmission for WWAN+5GHz WLAN(MIMO)**

WWAN Band		Exposure Position	1	2	1+2 Summed 1g SAR (W/kg)
			WWAN	5GHz WLAN Ant 0+ Ant 1	
			1g SAR (W/kg)		
GSM	GSM850	Front	0.486	0.077	0.563
		Back	0.284	0.222	0.506
	GSM1900	Front	0.445	0.077	0.522
		Back	0.444	0.222	0.666
WCDMA	WCDMA Band II	Front	0.536	0.077	0.613
		Back	0.502	0.222	0.724
	WCDMA Band IV	Front	0.581	0.077	0.658
		Back	0.508	0.222	0.730
	WCDMA Band V	Front	0.318	0.077	0.395
		Back	0.388	0.222	0.610
CDMA	CDMA2000 BC0	Front	0.373	0.077	0.450
		Back	0.168	0.222	0.390
	CDMA2000 BC1	Front	0.523	0.077	0.600
		Back	0.438	0.222	0.660
LTE	LTE Band 2	Front	0.558	0.077	0.635
		Back	0.504	0.222	0.726
	LTE Band 4	Front	0.549	0.077	0.626
		Back	0.501	0.222	0.723
	LTE Band 5	Front	0.379	0.077	0.456
		Back	0.285	0.222	0.507
	LTE Band 7	Front	0.395	0.077	0.472
		Back	0.544	0.222	0.766
	LTE Band 12	Front	0.137	0.077	0.214

		Back	0.119	0.222	0.341
	LTE Band 18	Front	0.350	0.077	0.427
		Back	0.279	0.222	0.501
	LTE Band 19	Front	0.334	0.077	0.411
		Back	0.267	0.222	0.489
	LTE Band 26	Front	0.325	0.077	0.402
		Back	0.274	0.222	0.496

➢ Body-worn Simultaneous Transmission for WWAN(2/3/4G)+WLAN(2.4GHz+5G)

WWAN Band		Exposure Position	1	2		1+2 Summed 1g SAR (W/kg)
			WWAN	WLAN 2.4GHz Ant 0	WLAN 5GHz Ant 1	
			1g SAR(W/kg)			
GSM	GSM 850	Front	0.486	0.074	0.039	0.599
		Back	0.284	0.08	0.096	0.46
	GSM 1900	Front	0.445	0.074	0.039	0.558
		Back	0.444	0.08	0.096	0.62
WCDMA	Band II	Front	0.536	0.074	0.039	0.649
		Back	0.502	0.08	0.096	0.678
	Band IV	Front	0.581	0.074	0.039	0.694
		Back	0.508	0.08	0.096	0.684
	Band V	Front	0.318	0.074	0.039	0.431
		Back	0.388	0.08	0.096	0.564
CDMA 2000	BC 0	Front	0.373	0.074	0.039	0.486
		Back	0.168	0.08	0.096	0.344
	BC 1	Front	0.523	0.074	0.039	0.636
		Back	0.438	0.08	0.096	0.614
LTE	LTE Band 2	Front	0.558	0.074	0.039	0.671
		Back	0.504	0.08	0.096	0.68
	LTE Band 4	Front	0.549	0.074	0.039	0.662
		Back	0.501	0.08	0.096	0.677
	LTE Band 5	Front	0.379	0.074	0.039	0.492
		Back	0.285	0.08	0.096	0.461
	LTE Band 7	Front	0.395	0.074	0.039	0.508
		Back	0.544	0.08	0.096	0.72
	LTE Band 12	Front	0.137	0.074	0.039	0.25
		Back	0.119	0.08	0.096	0.295
	LTE Band 18	Front	0.35	0.074	0.039	0.463

		Back	0.279	0.08	0.096	0.455
	LTE Band 19	Front	0.334	0.074	0.039	0.447
		Back	0.267	0.08	0.096	0.443
	LTE Band 26	Front	0.325	0.074	0.039	0.438
		Back	0.274	0.08	0.096	0.45

➢ **Body-worn Simultaneous Transmission for WWAN+2.4GHz/5GHz WLAN+BT**

WWAN Band		Exposure Position	1	2	3	4	1+2+4 Summed 1g SAR (W/kg)	1+3+4 Summed 1g SAR (W/kg)
			WWAN	2.4GHz Ant 1	5GHz Ant 1	Bluetooth Estimated		
			1g SAR(W/kg)					
GSM	GSM850	Front	0.486	0.130	0.039	0.134	0.75	0.659
		Back	0.284	0.090	0.096	0.134	0.508	0.514
	GSM1900	Front	0.445	0.130	0.039	0.134	0.709	0.618
		Back	0.444	0.090	0.096	0.134	0.668	0.674
WCDMA	WCDMA Band II	Front	0.536	0.130	0.039	0.134	0.8	0.709
		Back	0.502	0.090	0.096	0.134	0.726	0.732
	WCDMA Band IV	Front	0.581	0.130	0.039	0.134	0.845	0.754
		Back	0.508	0.090	0.096	0.134	0.732	0.738
	WCDMA Band V	Front	0.318	0.130	0.039	0.134	0.582	0.491
		Back	0.388	0.090	0.096	0.134	0.612	0.618
CDMA	CDMA2000 BC0	Front	0.373	0.130	0.039	0.134	0.637	0.546
		Back	0.168	0.090	0.096	0.134	0.392	0.398
	CDMA2000 BC1	Front	0.523	0.130	0.039	0.134	0.787	0.696
		Back	0.438	0.090	0.096	0.134	0.662	0.668
LTE	LTE Band 2	Front	0.558	0.130	0.039	0.134	0.822	0.731
		Back	0.504	0.090	0.096	0.134	0.728	0.734
	LTE Band 4	Front	0.549	0.130	0.039	0.134	0.813	0.722
		Back	0.501	0.090	0.096	0.134	0.725	0.731
	LTE Band 5	Front	0.379	0.130	0.039	0.134	0.643	0.552
		Back	0.285	0.090	0.096	0.134	0.509	0.515
	LTE Band 7	Front	0.395	0.130	0.039	0.134	0.659	0.568
		Back	0.544	0.090	0.096	0.134	0.768	0.774
	LTE Band 12	Front	0.137	0.130	0.039	0.134	0.401	0.31
		Back	0.119	0.090	0.096	0.134	0.343	0.349
	LTE Band 18	Front	0.350	0.130	0.039	0.134	0.614	0.523
		Back	0.279	0.090	0.096	0.134	0.503	0.509
	LTE Band 19	Front	0.334	0.130	0.039	0.134	0.598	0.507

		Back	0.267	0.090	0.096	0.134	0.491	0.497
	LTE Band 26	Front	0.325	0.130	0.039	0.134	0.589	0.498
		Back	0.274	0.090	0.096	0.134	0.498	0.504

➢ Hotspot Simultaneous Transmission for 2.4GHz WLAN(MIMO)

WWAN Band	Exposure Position	1	2	1+2 Summed 1g SAR (W/kg)
		Ant 0	Ant 1	
		1g SAR (W/kg)		
2.4GHz WLAN	Front Side	0.074	0.130	0.204
	Back Side	0.080	0.090	0.170
	Left side	0.007	N/A	0.007
	Right side	0.074	0.030	0.104
	Top Side	0.022	N/A	0.022

➢ Hotspot Simultaneous Transmission for WWAN + 2.4GHz WLAN(MIMO)

WWAN Band		Exposure Position	1	2	1+2 Summed 1g SAR (W/kg)
			WWAN	2.4GHz WLAN Ant 0+ Ant 1	
			1g SAR (W/kg)		
GSM	GSM850	Front	0.486	0.204	0.69
		Back	0.284	0.170	0.454
		Left side	0.280	0.007	0.287
		Right side	0.061	0.104	0.165
		Top side	0.107	0.022	0.129
		Bottom side	0.434		0.434
	GSM1900	Front	0.445	0.204	0.649
		Back	0.444	0.170	0.614
		Left side	0.366	0.007	0.373
		Right side	0.058	0.104	0.162
		Top side	0.076	0.022	0.098
		Bottom side	0.322		0.322
WCDMA	WCDMA Band II	Front	0.536	0.204	0.74
		Back	0.502	0.170	0.672
		Left side	0.363	0.007	0.37
		Right side	0.068	0.104	0.172
		Top side	0.100	0.022	0.122
		Bottom side	0.350		0.35

	WCDMA Band IV	Front	0.581	0.204	0.785
		Back	0.508	0.170	0.678
		Left side	0.409	0.007	0.416
		Right side	0.075	0.104	0.179
		Top side	0.088	0.022	0.11
		Bottom side	0.421		0.421
	WCDMA Band V	Front	0.318	0.204	0.522
		Back	0.388	0.170	0.558
		Left side	0.178	0.007	0.185
		Right side	0.051	0.104	0.155
		Top side	0.000	0.022	0.022
		Bottom side	0.383		0.383
CDMA	CDMA2000 BC0	Front	0.373	0.204	0.577
		Back	0.168	0.170	0.338
		Left side	0.161	0.007	0.168
		Right side	0.032	0.104	0.136
		Top side	0.158	0.022	0.18
		Bottom side	0.341		0.341
	CDMA2000 BC1	Front	0.523	0.204	0.727
		Back	0.438	0.170	0.608
		Left side	0.435	0.007	0.442
		Right side	0.061	0.104	0.165
		Top side	0.129	0.022	0.151
		Bottom side	0.402		0.402
LTE	LTE Band 2	Front	0.558	0.204	0.762
		Back	0.504	0.170	0.674
		Left side	0.352	0.007	0.359
		Right side	0.073	0.104	0.177
		Top side	0.074	0.022	0.096
		Bottom side	0.331		0.331
	LTE Band 4	Front	0.549	0.204	0.753
		Back	0.501	0.170	0.671
		Left side	0.393	0.007	0.4
		Right side	0.078	0.104	0.182
		Top side	0.094	0.022	0.116
		Bottom side	0.403		0.403
	LTE Band 5	Front	0.379	0.204	0.583
		Back	0.285	0.170	0.455

		Left side	0.118	0.007	0.125
		Right side	0.101	0.104	0.205
		Top side	0.163	0.022	0.185
		Bottom side	0.363		0.363
	LTE Band 7	Front	0.395	0.204	0.599
		Back	0.544	0.170	0.714
		Left side	0.107	0.007	0.114
		Right side	0.059	0.104	0.163
		Top side	0.328	0.022	0.35
		Bottom side	1.037		1.037
	LTE Band 12	Front	0.137	0.204	0.341
		Back	0.119	0.170	0.289
		Left side	0.101	0.007	0.108
		Right side	0.037	0.104	0.141
		Top side	0.114	0.022	0.136
		Bottom side	0.029		0.029
	LTE Band 18	Front	0.350	0.204	0.554
		Back	0.279	0.170	0.449
		Left side	0.172	0.007	0.179
		Right side	0.143	0.104	0.247
		Top side	0.159	0.022	0.181
		Bottom side	0.348		0.348
	LTE Band 19	Front	0.334	0.204	0.538
		Back	0.267	0.170	0.437
		Left side	0.137	0.007	0.144
		Right side	0.113	0.104	0.217
		Top side	0.173	0.022	0.195
		Bottom side	0.325		0.325
	LTE Band 26	Front	0.325	0.204	0.529
		Back	0.274	0.170	0.444
		Left side	0.165	0.007	0.172
		Right side	0.049	0.104	0.153
		Top side	0.115	0.022	0.137
		Bottom side	0.323		0.323
5G NR	Band n41	Front	0.181	0.204	0.385
		Back	0.150	0.170	0.32
		Left side		0.007	0.007
		Right side	0.226	0.104	0.33

		Top side	0.027	0.022	0.049
		Bottom side			

➢ **Hotspot Simultaneous Transmission for WWAN + 2.4GHz WLAN + BT**

WWAN Band		Exposure Position	1	2	3	1+2+3 Summed 1g SAR (W/kg)
			WWAN	2.4GHz WLAN Ant 1	Bluetooth Estimated	
			1g SAR (W/kg)			
GSM	GSM850	Front	0.486	0.130	0.134	0.75
		Back	0.284	0.090	0.134	0.508
		Left side	0.280			0.28
		Right side	0.061	0.030	0.134	0.225
		Top side	0.107		0.134	0.241
		Bottom side	0.434			0.434
	GSM1900	Front	0.445	0.130	0.134	0.709
		Back	0.444	0.090	0.134	0.668
		Left side	0.366			0.366
		Right side	0.058	0.030	0.134	0.222
		Top side	0.076		0.134	0.21
		Bottom side	0.322			0.322
WCDMA	WCDMA Band II	Front	0.536	0.130	0.134	0.8
		Back	0.502	0.090	0.134	0.726
		Left side	0.363			0.363
		Right side	0.068	0.030	0.134	0.232
		Top side	0.100		0.134	0.234
		Bottom side	0.350			0.35
	WCDMA Band IV	Front	0.581	0.130	0.134	0.845
		Back	0.508	0.090	0.134	0.732
		Left side	0.409			0.409
		Right side	0.075	0.030	0.134	0.239
		Top side	0.088		0.134	0.222
		Bottom side	0.421			0.421
	WCDMA Band V	Front	0.318	0.130	0.134	0.582
		Back	0.388	0.090	0.134	0.612
		Left side	0.178			0.178
		Right side	0.051	0.030	0.134	0.215
		Top side	0.000		0.134	0.134
		Bottom side	0.383			0.383

CDMA	CDMA2000 BC0	Front	0.373	0.130	0.134	0.637
		Back	0.168	0.090	0.134	0.392
		Left side	0.161			0.161
		Right side	0.032	0.030	0.134	0.196
		Top side	0.158		0.134	0.292
		Bottom side	0.341			0.341
	CDMA2000 BC1	Front	0.523	0.130	0.134	0.787
		Back	0.438	0.090	0.134	0.662
		Left side	0.435			0.435
		Right side	0.061	0.030	0.134	0.225
		Top side	0.129		0.134	0.263
		Bottom side	0.402			0.402
LTE	LTE Band 2	Front	0.558	0.130	0.134	0.822
		Back	0.504	0.090	0.134	0.728
		Left side	0.352			0.352
		Right side	0.073	0.030	0.134	0.237
		Top side	0.074		0.134	0.208
		Bottom side	0.331			0.331
	LTE Band 4	Front	0.549	0.130	0.134	0.813
		Back	0.501	0.090	0.134	0.725
		Left side	0.393			0.393
		Right side	0.078	0.030	0.134	0.242
		Top side	0.094		0.134	0.228
		Bottom side	0.403			0.403
	LTE Band 5	Front	0.379	0.130	0.134	0.643
		Back	0.285	0.090	0.134	0.509
		Left side	0.118			0.118
		Right side	0.101	0.030	0.134	0.265
		Top side	0.163		0.134	0.297
		Bottom side	0.363			0.363
	LTE Band 7	Front	0.395	0.130	0.134	0.659
		Back	0.544	0.090	0.134	0.768
		Left side	0.107			0.107
		Right side	0.059	0.030	0.134	0.223
		Top side	0.328		0.134	0.462
		Bottom side	1.037			1.037
	LTE Band 12	Front	0.137	0.130	0.134	0.401
		Back	0.119	0.090	0.134	0.343

		Left side	0.101			0.101
		Right side	0.037	0.030	0.134	0.201
		Top side	0.114		0.134	0.248
		Bottom side	0.029			0.029
	LTE Band 18	Front	0.350	0.130	0.134	0.614
		Back	0.279	0.090	0.134	0.503
		Left side	0.172			0.172
		Right side	0.143	0.030	0.134	0.307
		Top side	0.159		0.134	0.293
		Bottom side	0.348			0.348
	LTE Band 19	Front	0.334	0.074	0.134	0.542
		Back	0.267	0.080	0.134	0.481
		Left side	0.137			0.137
		Right side	0.113	0.074	0.134	0.321
		Top side	0.173		0.134	0.307
		Bottom side	0.325			0.325
	LTE Band 26	Front	0.325	0.130	0.134	0.589
		Back	0.274	0.090	0.134	0.498
		Left side	0.165			0.165
		Right side	0.049	0.030	0.134	0.213
		Top side	0.115		0.134	0.249
		Bottom side	0.323			0.323
5G NR	Band n41	Front	0.181	0.130	0.134	0.445
		Back	0.150	0.090	0.134	0.374
		Left side				
		Right side	0.226	0.030	0.134	0.39
		Top side	0.027		0.134	0.161
		Bottom side				

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 MAIN REPORT ******