FCC SAR TEST REPORT

Product Name:	Tablet
Trade Mark:	BLU
Model No.:	M10L PLUS
Report Number:	2309056739SAR-1
Test Standards:	FCC 47 CFR Part 2 §2.1093 ANSI/IEEE C95.1-1992 IEEE Std 1528-2013
FCC ID:	YHLBLUM10LP224
Test Result:	PASS
Date of Issue:	November 3, 2023

Prepared for:

BLU Products, Inc.
8600 NW 36th Street, Suite #200 Doral, FL 33166

Prepared by:

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UnionTrust Laboratories *Certified*

Version

Version No.	Date	Description
V1.0	November 3, 2023	Original Report

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1. GENERAL INFORMATION

1.1. STATEMENT OF COMPLIANCE

The maximum results of Specific Absorption Rate (SAR) found during testing for the EUT are as follows:

Equipment Class	Mode	Highest Reported Body SAR_{1g} (W/kg)
PCE	GSM 850	0.379
	PCS 1900	0.878
	WCDMA Band II	0.954
	WCDMA Band IV	0.718
	WCDMA Band V	0.376
	LTE Band 5	0.899
	LTE Band 12(17)	0.511
	LTE Band 25(2)	1.328
	LTE Band 26	0.777
	LTE Band 41	1.150
	LTE Band 66(4)	0.923
	LTE Band 71	1.192
DTS	2.4G WLAN	0.462
NII	5.2G&5.3G WLAN	0.174
	5.8G WLAN	0.098
DSS	Bluetooth	0.453
Highest Simultaneous Transmission SAR		Body (W/kg)
PCE + DTS		1.589
PCE + NII		1.300
PCE + DSS		1.478

1.2. CLIENT INFORMATION

Applicant:	BLU Products, Inc.
Address of Applicant:	8600 NW 36th Street, Suite #200 Doral, FL 33166
Manufacturer:	BLU Products, Inc.
Address of Manufacturer:	8600 NW 36th Street, Suite #200 Doral, FL 33166

1.3. EUT INFORMATION

1.3.1. General Description of EUT

Product Name:	Tablet
Trade Mark:	BLU
Model No.:	M10L PLUS
FCC ID:	YHLBLUM10LP224
DUT Stage:	Identical Prototype
IMEI Code:	Sample 1: 354085074879969; Sample 2: 353919025680130
Software Version:	BLU_M0224_ND_V13.0.04.03_GENERIC (Provided by the customer)
Hardware Version:	P612D2-V1 (Provided by the customer)
Sample Received Date:	September 1, 2023
Sample Tested Date:	September 15, 2023 to October 26, 2023

1.3.2. Description of Accessories

Adapter	
Model No.:	US-HY-2000
Input:	100-240 V~50/60 Hz 0.3 A
Output:	5.0 V ⎓ 2000 mA

Cable	
Connector:	USB Cable
Cable Type:	Unshielded without ferrite
Length:	0.5 Meter

Battery	
Model No.:	C1279829500P
Battery Type:	Lithium-ion Polymer Battery
Rated Voltage:	3.8 Vdc
Rated Capacity:	5000 mAh

1.3.3. EUT Tx Frequency Bands

RF Type	Band(s)	Tx Frequency Range (Unit: MHz)
GSM	**GSM 850:**	824.2 - 848.8
	PCS 1900:	1850.2 - 1909.8
WCDMA	**WCDMA Band II:**	1852.4 - 1907.6
	WCDMA Band IV:	1712.4 - 1752.6
	WCDMA Band V:	826.4 - 846.6
LTE	**LTE Band 2:**	1850.7 - 1909.3 (1.4M), 1851.5 - 1908.5 (3M), 1852.5 - 1907.5 (5M), 1855 - 1905 (10M), 1857.5 - 1902.5 (15M), 1860 - 1900 (20M)
	LTE Band 4:	1710.7 - 1754.3 (1.4M), 1711.5 - 1753.5 (3M), 1712.5 - 1752.5 (5M), 1715 - 1750 (10M), 1717.5 - 1747.5 (15M), 1720 - 1745 (20M)
	LTE Band 5:	824.7 - 848.3 (1.4M), 825.5 - 847.5 (3M), 826.5 - 846.5 (5M), 829 - 844 (10M)
	LTE Band 12:	699.7 - 715.3 (1.4M), 700.5 - 714.5 (3M), 701.5 - 713.5 (5M), 704 - 711 (10M)
	LTE Band 17:	706.5 - 713.5 (5M), 709 - 711 (10M)
	LTE Band 25:	1850.7 - 1914.3 (1.4M), 1851.5 - 1913.5 (3M), 1852.5 - 1912.5 (5M), 1855 - 1910 (10M), 1857.5 - 1907.5 (15M), 1860 - 1905 (20M)
	LTE Band 26:	814.7 - 848.3 (1.4M), 815.5 - 847.5 (3M), 816.5 - 846.5 (5M), 819 - 844 (10M), 821.5 - 841.5 (15M)
	LTE Band 41:	2498.5 - 2687.5 (5M), 2501 - 2685 (10M), 2503.5 - 2682.5 (15M) 2506 - 2680 (20M)
	LTE Band 66:	1710.7 - 1779.3 (1.4M), 1711.5 - 1778.5 (3M), 1712.5 - 1777.5 (5M), 1715 - 1775 (10M), 1717.5 - 1772.5 (15M), 1720 - 1770 (20M)
	LTE Band 71:	665.5 - 695.5 (5M), 668 - 693 (10M), 670.5 - 690.5 (15M), 673 - 688 (20M)
WLAN	**2.4 GHz:**	2412 - 2462
	U-NII-1:	5180 - 5240
	U-NII-2A:	5260 - 5320
	U-NII-3:	5745 - 5825
Bluetooth	**2.4 GHz:**	2402 - 2480

Note:
According to 201504 FCC TCB workshop RF exposure slides, for overlapping bands, only larger band was tested.

1. The maximum output power, including tolerance, for the smaller band is = the larger band to qualify for the SAR test exclusion.
2. The channel bandwidth and other operating parameters for the smaller band is fully supported by the larger band.
   - Band 66 (1710 - 1780 MHz) SAR can support band 4 (1710 - 1755 MHz).
   - Band 12 (699 - 716 MHz) SAR can support band 17 (704 – 716 MHz).
   - Band 25 (1850 - 1915 MHz) SAR can support band 2 (1850 – 1910 MHz).

1.3.4. Wireless Technologies

GSM	Voice GPRS (Multi-Slot Class: 12-4UP)
WCDMA	RMC HSDPA HSUPA
LTE	QPSK 16QAM
2.4G WLAN	802.11b 802.11g 802.11n (HT20/HT40)
5G WLAN	802.11a 802.11n (HT20/HT40) 802.11ac (VHT20/VHT40/VHT80)
Bluetooth	BR+EDR LE
Device Class (GSM)	B
Antenna Type	FPCB Antenna
Dynamic Antenna	Not Support
Power Reduction	Hotspot P-Sensor
Wireless Router (Hotspot)	2.4G WLAN: Support 5.2G WLAN: Support 5.8G WLAN: Support
VOIP	Support Note: Since this device supports VOIP capability through 3rd party apps software, we have evaluated data mode for head and body-worn SAR.
Dual SIM	SIM 1: GSM + WCDMA + LTE SIM 2: GSM + WCDMA + LTE Note : This device support dual SIM but they share the same antenna. Since these two SIM are used for subscriber identification only and it is not related to RF identity, only SIM1 was used for SAR testing.

1.4. MAXIMUM CONDUCTED POWER

The maximum conducted average power including tune-up tolerance is shown as below.

➢ **GSM**

Mode	Maximum conducted average power (dBm)			
	(Without Power Reduction)		(With Power Reduction)	
	GSM 850	PCS 1900	GSM 850	PCS 1900
GSM (GMSK, 1Tx-slot)	32.5	29.5	--	20.5
GPRS (GMSK, 1Tx-slot)	32.5	29.5	--	20.5
GPRS (GMSK, 2Tx-slot)	32.0	28.5	--	19.0
GPRS (GMSK, 3Tx-slot)	30.0	27.0	--	17.5
GPRS (GMSK, 4Tx-slot)	28.5	25.5	--	16.0

➢ **WCDMA**

Mode	Maximum conducted average power (dBm)		
	Without Power Reduction		
	Band II	Band V	Band IV
RMC 12.2K	22.5	22.5	22.5
HSDPA Subtest-1	22.5	22.5	22.5
HSDPA Subtest-2	21.5	22.0	21.5
HSDPA Subtest-3	21.0	21.5	21.0
HSDPA Subtest-4	21.0	21.5	21.0
HSUPA Subtest-1	21.5	22.0	21.5
HSUPA Subtest-2	21.5	22.0	21.5
HSUPA Subtest-3	21.0	21.5	21.0
HSUPA Subtest-4	21.5	22.0	21.5
HSUPA Subtest-5	21.0	21.5	21.0

Mode	Maximum conducted average power (dBm)		
	With Power Reduction		
	Band II	Band V	Band IV
RMC 12.2K	17.0	--	17.0
HSDPA Subtest-1	16.0	--	16.0
HSDPA Subtest-2	15.5	--	15.5
HSDPA Subtest-3	15.5	--	15.5
HSDPA Subtest-4	15.5	--	15.5
HSUPA Subtest-1	14.5	--	14.5
HSUPA Subtest-2	16.0	--	16.0
HSUPA Subtest-3	15.5	--	15.5
HSUPA Subtest-4	16.0	--	16.0
HSUPA Subtest-5	16.0	--	16.0

➢ **LTE**

Band	Mode	Maximum Conducted Power (dBm)	
		Without Power Reduction	With Power Reduction
LTE Band 2	QPSK/16QAM	23.0	17.5
LTE Band 4	QPSK/16QAM	23.5	17.5
LTE Band 5	QPSK/16QAM	24.0	20.0
LTE Band 12	QPSK/16QAM	23.5	17.5
LTE Band 17	QPSK/16QAM	23.5	17.5
LTE Band 25	QPSK/16QAM	23.0	17.5
LTE Band 26	QPSK/16QAM	24.0	20.0
LTE Band 41	QPSK/16QAM	23.0	18.0
LTE Band 66	QPSK/16QAM	23.5	17.5
LTE Band 71	QPSK/16QAM	23.5	20.5

➢ **2.4GHz WLAN**

Mode	Maximum Conducted Power (dBm)
802.11b	11.5
802.11g	9.5
802.11n-HT20	8.5
802.11n-HT40	9.0

➢ **5GHz WLAN**

Mode	Maximum Conducted Power (dBm)		
	U-NII-1	U-NII-2A	U-NII-3
802.11a	9.0	9.0	9.5
802.11n-HT20	8.5	8.5	8.0
802.11n-HT40	8.5	8.5	8.0
802.11ac-VHT20	4.5	4.5	4.0
802.11ac-VHT40	4.5	4.5	4.5
802.11ac-VHT80	4.5	4.5	5.0

➢ **Bluetooth**

Mode	Modulation	Maximum Conducted Power (dBm)
BR + EDR	GFSK	7.0
	π/4-DQPSK	5.0
	8-DPSK	5.0
LE	GFSK	-5.0

1.5. OTHER INFORMATION

None.

1.6. TEST LOCATION

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Telephone: +86 (0) 755 2823 0888
Fax: +86 (0) 755 2823 0886

1.7. TEST FACILITY

The test facility is recognized, certified, or accredited by the following organizations:

Shenzhen UnionTrust Quality and Technology Co., Ltd.

CNAS-Lab Code: L9069
The measuring equipment utilized to perform the tests documented in this report has been calibrated once a year or in accordance with the manufacturer's recommendations, and is traceable under the ISO/IEC 17025 to international or national standards. Equipment has been calibrated by accredited calibration laboratories.

A2LA-Lab Certificate No.: 4312.01
Shenzhen UnionTrust Quality and Technology Co., Ltd. has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

ISED Wireless Device Testing Laboratories
CAB identifier: CN0032

FCC Accredited Lab.
Designation Number: CN1194
Test Firm Registration Number: 259480

1.8. GUIDANCE STANDARD

The tests documented in this report were performed in accordance with FCC 47 CFR Part 2 §2.1093, IEEE Std 1528-2013, ANSI/IEEE C95.1-1992, the following FCC Published RF exposure KDB procedures:

KDB 865664 D01 v01r04
KDB 865664 D02 v01r02
KDB 248227 D01 v02r02
KDB 447498 D01 v06
KDB 616217 D04 v01r02
KDB 941225 D01 v03r01
KDB 941225 D05 v02r05
KDB 941225 D05A v01r02
KDB 941225 D06 v02r01

2. SPECIFIC ABSORPTION RATE (SAR)

2.1. 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, by appropriate techniques, to produce specific absorption rates (SARs) as averaged over the whole-body, any 1 g or any 10 g of tissue (defined as a tissue volume in the shape of a cube). All SAR values are to be averaged over any six-minute period. When portable device was used within 20 cm of the user's body, SAR evaluation of the device will be required. The SAR limit in chapter 2.3.

2.2. 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:

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

SAR is expressed in units of Watts per kilogram (W/kg)
SAR measurement can be related to the electrical field in the tissue by

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

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

2.3. SAR LIMITS

Limits for Occupational/Controlled Exposure (W/kg)

Whole-Body	Partial-Body	Hands, Wrists, Feet and Ankles
0.4	8.0	20.0

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

Whole-Body	Partial-Body	Hands, Wrists, Feet and Ankles
0.08	1.6	4.0

Note:

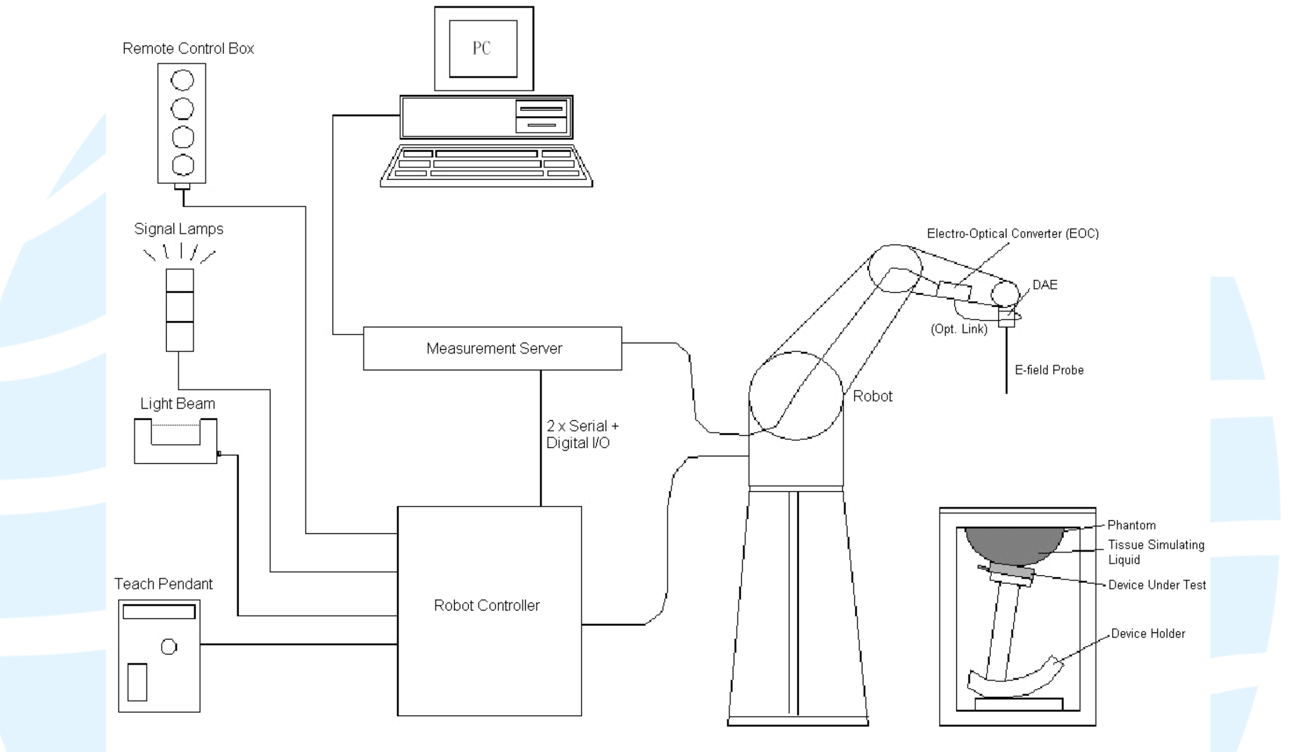
1) Whole-Body SAR is averaged over the entire body, partial-body SAR is averaged over any 1 gram of tissue defined as a tissue volume in the shape of a cube. SAR for hands, wrists, feet and ankles is averaged over any 10 grams of tissue defined as a tissue volume in the shape of a cube.
2) At frequencies above 6.0 GHz, SAR limits are not applicable and MPE limits for power density should be applied at 5 cm or more from the transmitting device.
3) The SAR limit is specified in FCC 47 CFR Part 2 §2.1093, ANSI/IEEE C95.1-1992.

3. SAR MEASUREMENT SYSTEM

3.1. SPEAG DASY SYSTEM

DASY system consists of high precision robot, probe alignment sensor, phantom, robot controller, controlled measurement server and near-field probe. The robot includes six axes that can move to the precision position of the DASY5 software defined. The DASY software can define the area that is detected by the probe. The robot is connected to controlled box. Controlled measurement server is connected to the controlled robot box. The DAE includes amplifier, signal multiplexing, AD converter, offset measurement and surface detection. It is connected to the Electro-optical coupler (ECO). The ECO performs the conversion form the optical into digital electric signal of the DAE and transfers data to the PC.

DASY Measurement System



3.1.1. Robot

The DASY system uses the high precision robots from Stäubli SA (France). For the 6-axis controller system, the robot controller version (DASY4: CS7MB) from Stäubli is used. The Stäubli robot series have many features that are important for our application:

- High precision (repeatability ±0.02 mm)
- High reliability (industrial design)
- Jerk-free straight movements
- Low ELF interference (the closed metallic construction shields against motor control fields)

3.1.2. Probe

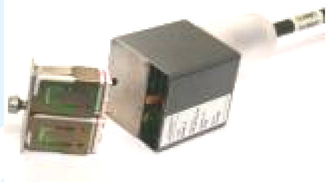
The SAR measurement is conducted with the dosimetric probe. The probe is specially designed and calibrated for use in liquid with high permittivity. The dosimetric probe has special calibration in liquid at different frequency.

Model	EX3DV4
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 (noise: typically < 1 µW/g)
Dimensions	Overall length: 337 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm

Model	ES3DV3
Construction	Symmetrical design with triangular core. Interleaved sensors. Built-in shielding against static charges. PEEK enclosure material (resistant to organic solvents, e.g., DGBE).
Frequency	10 MHz to 4 GHz Linearity: ± 0.2 dB
Directivity	± 0.2 dB in HSL (rotation around probe axis) ± 0.3 dB in tissue material (rotation normal to probe axis)
Dynamic Range	5 µW/g to 100 mW/g Linearity: ± 0.2 dB
Dimensions	Overall length: 337 mm (Tip: 20 mm) Tip diameter: 3.9 mm (Body: 12 mm) Distance from probe tip to dipole centers: 2.0 mm

3.1.3. Data Acquisition Electronics (DAE)

Model	DAE3, DAE4
Construction	Signal amplifier, multiplexer, A/D converter and control logic. Serial optical link for communication with DASY embedded system (fully remote controlled). Two step probe touch detectors for mechanical surface detection and emergency robot stop.
Measurement Range	-100 to +300 mV (16-bit resolution and two range settings: 4mV, 400mV)
Input Offset Voltage	< 5µV (with auto zero)
Input Bias Current	< 50 fA
Dimensions	60 x 60 x 68 mm



3.1.4. Phantom

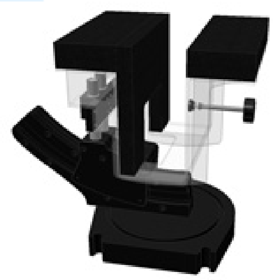
Model	Twin SAM
Construction	The shell corresponds to the specifications of the Specific Anthropomorphic Mannequin (SAM) phantom defined in IEEE 1528 and IEC 62209-1. It enables the dosimetric evaluation of left and right hand phone usage as well as body mounted usage at the flat phantom region. A cover prevents evaporation of the liquid. Reference markings on the phantom allow the complete setup of all predefined phantom positions and measurement grids by teaching three points with the robot.
Material	Vinylester, glass fiber reinforced (VE-GF)
Shell Thickness	2 ± 0.2 mm (6 ± 0.2 mm at ear point)
Dimensions	Length: 1000 mm Width: 500 mm Height: adjustable feet
Filling Volume	approx. 25 liters

Model	ELI
Construction	Phantom for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI is fully compatible with the IEC 62209-2 standard and all known tissue simulating liquids. ELI has been optimized regarding its performance and can be integrated into our standard phantom tables. A cover prevents evaporation of the liquid. Reference markings on the phantom allow installation of the complete setup, including all predefined phantom positions and measurement grids, by teaching three points. The phantom is compatible with all SPEAG dosimetric probes and dipoles.
Material	Vinylester, glass fiber reinforced (VE-GF)
Shell Thickness	2.0 ± 0.2 mm (bottom plate)
Dimensions	Major axis: 600 mm Minor axis: 400 mm
Filling Volume	approx. 30 liters

3.1.5. Device Holder

Model	Mounting Device
Construction	In combination with the Twin SAM Phantom or ELI4, the Mounting Device enables the rotation of the mounted transmitter device in spherical coordinates. Rotation point is the ear opening point. Transmitter devices can be easily and accurately positioned according to IEC, IEEE, FCC or other specifications. The device holder can be locked for positioning at different phantom sections (left head, right head, flat).
Material	POM

Model	Laptop Extensions Kit
Construction	Simple but effective and easy-to-use extension for Mounting Device that facilitates the testing of larger devices according to IEC 62209-2 (e.g., laptops, cameras, etc.). It is lightweight and fits easily on the upper part of the Mounting Device in place of the phone positioner.
Material	POM, Acrylic glass, Foam



3.1.6. System Validation Dipoles

Model	D-Serial
Construction	Symmetrical dipole with l/4 balun. Enables measurement of feed point impedance with NWA. Matched for use near flat phantoms filled with tissue simulating solutions.
Frequency	750 MHz to 5800 MHz
Return Loss	> 20 dB
Power Capability	> 100 W (f < 1GHz), > 40 W (f > 1GHz)

3.2. SAR SCAN PROCEDURE

3.2.1. SAR Reference Measurement (drift)

Prior to the SAR test, local SAR shall be measured at a stationary reference point where the SAR exceeds the lower detection limit of the measurement system.

3.2.2. Area Scan

Measurement procedures for evaluating the SAR of wireless device start with a coarse measurement grid to determine the approximate location of the local peak SAR values. This is known as the area-scan procedure. All antennas and radiating structures that may contribute to the measured SAR or influence the SAR distribution must be included in the area scan. The area scan measurement resolution must enable the extrapolation algorithms of the SAR system to correctly identify the peak SAR location(s) for subsequent zoom scan measurements to correctly determine the 1-g SAR. Area scans are performed at a constant distance from the phantom surface, determined by the measurement frequencies. When a measured peak is closer than ½ the zoom scan volume dimension (x, y) from the edge of the area scan region, unless the entire peak and gram-averaging volume are both captured within the zoom scan volume, the area scan must be repeated by shifting and expanding the area scan region to ensure all peaks are away from the area scan boundary. The area scan resolutions specified in the table below must be applied to the SAR measurements.

<table>
<tr><th></th><th>≤ 3 GHz</th><th>> 3 GHz</th></tr>
<tr><td>Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface</td><td>5 mm ± 1 mm</td><td>½·δ·ln(2) mm ± 0.5 mm</td></tr>
<tr><td>Maximum probe angle from probe axis to phantom surface normal at the measurement location</td><td>30° ± 1°</td><td>20° ± 1°</td></tr>
<tr><td rowspan="2">Maximum area scans spatial resolution: Δx_{Area}, Δy_{Area}</td><td>≤ 2 GHz: ≤ 15 mm
2 – 3 GHz: ≤ 12 mm</td><td>3 – 4 GHz: ≤ 12 mm
4 – 6 GHz: ≤ 10 mm</td></tr>
<tr><td colspan="2">When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.</td></tr>
</table>

3.2.3. Zoom Scan

To evaluate the peak spatial-average SAR values with respect to 1 g or 10 g cubes, fine resolution volume scans, called zoom scans, are performed at the peak SAR locations identified during the area scan. If the cube volume within the zoom scan chosen to calculate the peak spatial-average SAR touches any boundary of the zoom-scan volume, the zoom scan shall be repeated with the center of the zoom-scan volume shifted to the new maximum SAR location. For any secondary peaks found in the area scan that are within 2 dB of the maximum peak and are not within this zoom scan, the zoom scan shall be performed for such peaks, unless the peak spatial-average SAR at the location of the maximum peak is more than 2 dB below the applicable SAR limit (i.e., 1 W/kg for a 1.6 W/kg 1 g limit, or 1.26 W/kg for a 2 W/kg 10 g limit). The zoom scan resolutions specified in the table below must be applied to the SAR measurements.

<table>
<tr><td colspan="3"></td><td>≤ 3 GHz</td><td>> 3 GHz</td></tr>
<tr><td colspan="3">Maximum zoom scan spatial resolution: Δx_{Zoom}, Δy_{Zoom}</td><td>≤ 2 GHz: ≤ 8 mm
2 – 3 GHz: ≤ 5 mm*</td><td>3 – 4 GHz: ≤ 5 mm*
4 – 6 GHz: ≤ 4 mm*</td></tr>
<tr><td rowspan="3">Maximum zoom Scan spatial resolution, normal to phantom surface</td><td colspan="2">uniform grid: $\Delta Z_{Zoom}(n)$</td><td>≤ 5 mm</td><td>3 – 4 GHz: ≤ 4 mm
4 – 5 GHz: ≤ 3 mm
5 – 6 GHz: ≤ 2 mm</td></tr>
<tr><td rowspan="2">graded grid</td><td>$\Delta Z_{Zoom}(1)$: between 1^{ST} two points closest to phantom surface</td><td>≤ 4 mm</td><td>3 – 4 GHz: ≤ 3 mm
4 – 5 GHz: ≤ 2.5 mm
5 – 6 GHz: ≤ 2 mm</td></tr>
<tr><td>$\Delta Z_{Zoom}(n>1)$: between subsequent points</td><td colspan="2">≤ 1.5·$\Delta Z_{Zoom}(n-1)$ mm</td></tr>
<tr><td>Minimum zoom scan volume</td><td colspan="2">x, y, z</td><td>≥ 30 mm</td><td>3 – 4 GHz: ≥ 28 mm
4 – 5 GHz: ≥ 25 mm
5 – 6 GHz: ≥ 22 mm</td></tr>
<tr><td colspan="5">Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see IEEE Std 1528-2013 for details.
* When zoom scan is required and the 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.</td></tr>
</table>

3.2.4. SAR Drift Measurement

The local SAR (or conducted power) shall be measured at exactly the same location as in 3.2.1 section. The absolute value of the measurement drift (the difference between the SAR measured in 3.2.1 and 3.2.4 section) shall be recorded. The SAR drift shall be kept within ± 5%.

3.3. EQUIPMENT LIST

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Interval
System Validation Dipole	SPEAG	D750V3	1109	May 17, 2021	3 Year
System Validation Dipole	SPEAG	D835V2	4d005	Apr. 13, 2021	3 Year
System Validation Dipole	SPEAG	D1750V2	1086	April 14, 2021	3 Year
System Validation Dipole	SPEAG	D1900V2	509	April 14, 2021	3 Year
System Validation Dipole	SPEAG	D2450V2	1014	May 19, 2021	3 Year
System Validation Dipole	SPEAG	D2600V2	1153	May 19, 2021	3 Year
System Validation Dipole	SPEAG	D5GHzV2	1280	May. 17, 2021	3 Year
Dosimetric E-Field Probe	SPEAG	ES3DV3	3090	Mar. 15, 2023	1 Year
Dosimetric E-Field Probe	SPEAG	EX3DV4	7506	Jun. 29, 2023	1 Year
Data Acquisition Electronics	SPEAG	DAE4	662	Mar. 08, 2023	1 Year
Data Acquisition Electronics	SPEAG	DAE4	1557	July. 06, 2023	1 Year
Wideband Radio Communication Tester	R&S	CMW500	120932	Apr. 14, 2023	1 Year
ENA Series Network Analyzer	Agilent	8753ES	US39170317	Nov. 01, 2022	1 Year
Dielectric Assessment Kit	SPEAG	DAK-3.5	1056	N/A	N/A
USB/GPIB Interface	Agilent	82357B	N10149	N/A	N/A
Signal Generator	R&S	SMB100A	103718	Apr. 14, 2023	1 Year
POWER METER	R&S	NRP	101293	Nov. 03, 2022	1 Year
Thermometer	Shanghai Gao Zhi Precision Instrument Co., Ltd.	HB6801	18022507	Nov. 02, 2022	1 Year
Dual Directional Coupler	Agilent	778D	MY52180234	Nov. 03, 2022	1 Year
Amplifier	Mini-Circuit	ZHL42	QA1252001	Apr. 15, 2023	1 Year
DC Source	Agilent	66319B	MY43000795	Nov. 01, 2022	1 Year

3.4. MEASUREMENT UNCERTAINTY

Per KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz, when the highest measured 1-g SAR within a frequency band is < 1.5 W/kg, the extensive SAR measurement uncertainty analysis described in IEEE Std 1528-2013 is not required in SAR reports submitted for equipment approval.

TABLE 1 EXPOSURE ASSESSMENT UNCERTAINTY FOR HANDSET SAR

Source of Uncertainty	Tolerance (± %)	Probability Distribution	Divisor	Ci (1g)	Ci (10g)	Standard Uncertainty (1g) (± %)	Standard Uncertainty (10g) (± %)	Vi Veff
Measurement System								
Probe Calibration (< 3 GHz)	7.5	N (k=2)	2	1	1	3.75	3.75	∞
Probe Calibration (> 3 GHz)	6.3	N (k=2)	2	1	1	3.15	3.15	∞
Axial Isotropy	1.2	N (k=2)	2	0.7	0.7	0.42	0.42	∞
Hemispherical Isotropy	3.2	N (k=2)	2	0.7	0.7	1.12	1.12	∞
Boundary Effects	2	Rectangular	√3	1	1	1.15	1.15	∞
Linearity	0.9	N (k=2)	2	1	1	0.45	0.45	∞
Detection Limits	0.25	Rectangular	√3	1	1	0.14	0.14	∞
Modulation Response	2.4	Rectangular	√3	1	1	1.39	1.39	∞
Readout Electronics	0.3	Normal	1	1	1	0.30	0.30	∞
Response Time	0	Rectangular	√3	1	1	0.00	0.00	∞
Integration Time	1.7	Rectangular	√3	1	1	0.98	0.98	∞
RF Ambient – Noise	3	Rectangular	√3	1	1	1.73	1.73	∞
RF Ambient – Reflections	3	Rectangular	√3	1	1	1.73	1.73	∞
Probe Positioner	0.4	Rectangular	√3	1	1	0.23	0.23	∞
Probe Positioning	6.7	Rectangular	√3	1	1	3.87	3.87	∞
Max. SAR Evaluation	4	Rectangular	√3	1	1	2.31	2.31	∞
Test Sample Related								
Device Positioning	2.3 / 2.4	Normal	1	1	1	2.30	2.40	30
Device Holder	2.8 / 2.8	Normal	1	1	1	2.80	2.80	30
Power Drift	5	Rectangular	√3	1	1	2.89	2.89	∞
Power Scaling	0	Rectangular	√3	1	1	0.00	0.00	∞
Phantom and Setup								
Phantom Uncertainty	7.9	Rectangular	√3	1	1	4.56	4.56	∞
SAR correction	1.2 / 0.97	Rectangular	√3	1	0.84	0.69	0.47	∞
Liquid Conductivity (Meas.)	2.5	Rectangular	√3	0.78	0.71	1.13	1.02	∞
Liquid Permittivity (Meas.)	2.5	Rectangular	√3	0.26	0.26	0.38	0.38	∞
Temp. unc. - Conductivity	3.4	Rectangular	√3	0.78	0.71	1.53	1.39	∞
Temp. unc. - Permittivity	0.4	Rectangular	√3	0.23	0.26	0.05	0.06	∞
Combined Standard Uncertainty (k = 1) (≤ 3 GHz)						9.64	9.62	
Combined Standard Uncertainty (k = 1) (> 3 GHz)						9.42	9.40	
Max. Expanded Uncertainty (k = 2)						**19.27**	**19.23**	

TABLE 2SYSTEM VALIDATION Measurement uncertainty

Source of Uncertainty	Tolerance (± %)	Probability Distribution	Divisor	Ci (1g)	Ci (10g)	Standard Uncertainty (1g) (± %)	Standard Uncertainty (10g) (± %)	Vi Veff
Measurement System								
Probe Calibration (< 3 GHz)	7.5	N (k=2)	2	1	1	3.75	3.75	∞
Probe Calibration (> 3 GHz)	6.3	N (k=2)	2	1	1	3.15	3.15	∞
Axial Isotropy	1.2	N (k=2)	2	0.7	0.7	0.42	0.42	∞
Hemispherical Isotropy	3.2	N (k=2)	2	0.7	0.7	1.12	1.12	∞
Boundary Effects	2	Rectangular	√3	1	1	1.15	1.15	∞
Linearity	0.9	N (k=2)	2	1	1	0.45	0.45	∞
Detection Limits	0.25	Rectangular	√3	1	1	0.14	0.14	∞
Modulation Response	2.4	Rectangular	√3	1	1	1.39	1.39	∞
Readout Electronics	0.3	Normal	1	1	1	0.30	0.30	∞
Response Time	0	Rectangular	√3	1	1	0.00	0.00	∞
Integration Time	1.7	Rectangular	√3	1	1	0.98	0.98	∞
RF Ambient – Noise	3	Rectangular	√3	1	1	1.73	1.73	∞
RF Ambient – Reflections	3	Rectangular	√3	1	1	1.73	1.73	∞
Probe Positioner	0.4	Rectangular	√3	1	1	0.23	0.23	∞
Probe Positioning	6.7	Rectangular	√3	1	1	3.87	3.87	∞
Max. SAR Evaluation	4	Rectangular	√3	1	1	2.31	2.31	∞
Test Sample Related								
Device Positioning	2.3 / 2.4	Normal	1	1	1	2.30	2.40	30
Device Holder	2.8 / 2.8	Normal	1	1	1	2.80	2.80	30
Power Drift	5	Rectangular	√3	1	1	2.89	2.89	∞
Power Scaling	0	Rectangular	√3	1	1	0.00	0.00	∞
Phantom and Setup								
Phantom Uncertainty	7.9	Rectangular	√3	1	1	4.56	4.56	∞
SAR correction	1.2 / 0.97	Rectangular	√3	1	0.84	0.69	0.47	∞
Liquid Conductivity (Meas.)	2.5	Rectangular	√3	0.78	0.71	1.13	1.02	∞
Liquid Permittivity (Meas.)	2.5	Rectangular	√3	0.26	0.26	0.38	0.38	∞
Temp. unc. - Conductivity	3.4	Rectangular	√3	0.78	0.71	1.53	1.39	∞
Temp. unc. - Permittivity	0.4	Rectangular	√3	0.23	0.26	0.05	0.06	∞
Combined Standard Uncertainty (k = 1) (≤ 3 GHz)						9.64	9.62	
Combined Standard Uncertainty (k = 1) (> 3 GHz)						9.42	9.40	
Max. Expanded Uncertainty (k = 2)						**19.27**	**19.23**	

3.5. TISSUE DIELECTRIC PARAMETER MEASUREMENT & SYSTEM VERIFICATION

Per KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz, when the highest measured 1-g SAR within a frequency band is < 1.5 W/kg, the extensive SAR measurement uncertainty analysis described in IEEE Std 1528-2013 is not required in SAR reports submitted for equipment approval.

3.5.1. Tissue Simulating Liquids

The temperature of the tissue-equivalent medium used during measurement must also be within 18 °C to 25 °C and within ± 2 °C of the temperature when the tissue parameters are characterized. The dielectric parameters must be measured before the tissue-equivalent medium is used in a series of SAR measurements. The parameters should be re-measured after each 3 - 4 days of use; or earlier if the dielectric parameters can become out of tolerance.
The depth of tissue-equivalent liquid in a phantom must be ≥ 15.0 cm with ≤ ± 0.5 cm variation for SAR measurements ≤ 3 GHz and ≥ 10.0 cm with ≤ ± 0.5 cm variation for measurements > 3 GHz. The nominal dielectric values of the tissue simulating liquids in the phantom and the tolerance of 5% are listed in Table-3.1.

Photo of Liquid Height

Tissue Dielectric Parameters for Head and Body				
Target Frequency	Head		Body	
(MHz)	ε_r	σ(S/m)	ε_r	σ(S/m)
750	*41.9*	*0.89*	*55.5*	*0.96*
835	41.5	0.90	55.2	0.97
900	41.5	0.97	55.0	1.05
1450	*40.5*	*1.20*	*54.0*	*1.30*
1640	*40.3*	*1.29*	*53.8*	*1.40*
1750	*40.1*	*1.37*	*53.4*	*1.49*
1800	40.0	1.40	53.3	1.52
1900	40.0	1.40	53.3	1.52
2000	40.0	1.40	53.3	1.52
2300	*39.5*	*1.67*	*52.9*	*1.81*
2450	39.2	1.80	52.7	1.95
2600	*39.0*	*1.96*	*52.5*	*2.16*
3500	*37.9*	*2.91*	*51.3*	*3.31*
5200	36.0	*4.66*	*49.0*	5.30
5300	35.9	*4.76*	*48.9*	5.42
5500	35.6	*4.96*	*48.6*	5.65
5600	35.5	*5.07*	*48.5*	5.77
5800	35.3	5.27	48.2	6.00
(ε_r = relative permittivity, σ = conductivity and ρ = 1000 kg/m^3)				

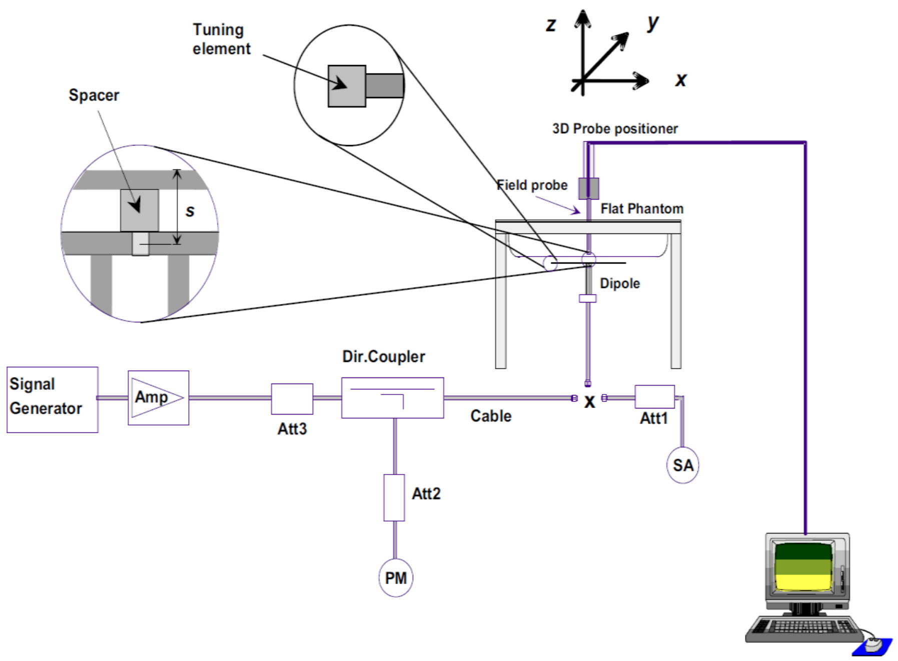
The following table gives the recipes for tissue simulating liquids.

Recipes of Tissue Simulating Liquid								
Tissue Type	Bactericide	DGBE	HEC	NaCl	Sucrose	Triton X-100	Water	Diethylene Glycol Mono-hexylether
H750	0.2	-	0.2	1.4	57.0	-	41.1	-
H835	0.1	-	1.0	1.4	57.0	-	40.5	-
H900	0.1	-	1.0	1.5	56.5	-	40.9	-
H1450	-	45.5	-	0.7	-	-	53.8	-
H1640	-	45.8	-	0.5	-	-	53.7	-
H1750	-	44.5	-	0.3	-	-	55.2	-
H1800	-	44.9	-	0.2	-	-	54.9	-
H1900	-	44.9	-	0.2	-	-	54.9	-
H2000	-	50	-	-	-	-	50	-
H2300	-	44.9	-	0.1	-	-	55.0	-
H2450	-	45.0	-	0.1	-	-	54.9	-
H2600	-	45.1	-	0.1	-	-	54.8	-
H3500	-	8.0	-	0.2	-	20.0	71.8	-
H5G	-	-	-	-	-	17.2	65.52	17.3
B750	0.2	-	0.2	0.8	48.8	-	50.0	-
B835	0.2	-	0.2	0.9	48.5	-	50.2	-
B900	0.2	-	0.2	0.9	48.2	-	50.5	-
B1450	-	34.0	-	0.3	-	-	65.7	-
B1640	-	32.5	-	0.3	-	-	67.2	-
B1750	-	29.4	-	0.4	-	-	70.2	-
B1800	-	29.5	-	0.4	-	-	70.1	-
B1900	-	29.5	-	0.3	-	-	70.2	-
B2000	-	30.0	-	0.2	-	-	69.8	-
B2300	-	31.0	-	0.1	-	-	68.9	-
B2450	-	31.4	-	0.1	-	-	68.5	-
B2600	-	31.8	-	0.1	-	-	68.1	-
B3500	-	28.8	-	0.1	-	-	71.1	-
B5G	-	-	-	-	-	10.7	78.6	10.7

3.5.2. System Check Description

The system check procedure provides a simple, fast, and reliable test method that can be performed daily or before every SAR measurement. The objective here is to ascertain that the measurement system has acceptable accuracy and repeatability. This test requires a flat phantom and a radiating source. The system verification setup is shown as below.

System Verification Setup



3.5.3. Tissue Verification

The measuring results for tissue simulating liquid are shown as below.

Test Date	Tissue Type	Frequency (MHz)	Liquid Temp. (℃)	Measured Conductivity (σ)	Measured Permittivity (ε_r)	Target Conductivity (σ)	Target Permittivity (ε_r)	Conductivity Deviation (%)	Permittivity Deviation (%)
Oct. 14, 2023	Head	750	21.6	0.865	40.180	0.89	41.94	-2.78	-4.20
Oct. 15, 2023	Head	750	21.6	0.862	40.110	0.89	41.94	-3.11	-4.36
Oct. 13, 2023	Head	835	21.7	0.918	39.510	0.91	41.55	0.92	-4.91
Oct. 18, 2023	Head	1750	21.6	1.314	39.740	1.37	40.08	-4.09	-0.85
Oct. 16, 2023	Head	1900	21.8	1.440	39.330	1.40	40.00	2.86	-1.68
Oct. 24, 2023	Head	1900	22.6	1.360	39.160	1.40	40.00	-2.86	-2.10
Sep. 15, 2023	Head	2450	21.6	1.762	37.620	1.80	39.20	-2.11	-4.03
Oct. 12, 2023	Head	2450	21.5	1.812	37.770	1.80	39.20	0.67	-3.65
Oct. 16, 2023	Head	2600	21.7	1.986	37.190	1.96	39.00	1.33	-4.64
Oct. 27, 2023	Head	5250	21.3	4.691	35.329	4.71	35.90	-0.40	-1.59
Oct. 27, 2023	Head	5800	21.3	5.249	34.538	5.27	35.30	-0.40	-2.16

Note:
The dielectric properties of the tissue simulating liquid must be measured within 24 hours before the SAR testing and within ± 5% of the target values. The variation of the liquid temperature must be within ± 2 °C during the test.

3.5.4. System Verification

The measuring result for system verification is tabulated as below.

Test Date	Tissue Type	Frequency (MHz)	1W Target SAR-1g (W/kg)	Measured SAR-1g (W/kg)	Normalized to 1W SAR-1g (W/kg)	Deviation (%)	Dipole S/N	Probe S/N	DAE S/N
Oct. 14, 2023	Head	750	8.39	2.160	8.64	2.98	1109	3090	662
Oct. 15, 2023	Head	750	8.39	2.030	8.12	-3.22	1109	3090	662
Oct. 13, 2023	Head	835	9.49	2.480	9.92	4.53	4d005	3090	662
Oct. 18, 2023	Head	1750	36.40	9.600	38.40	5.49	1086	3090	662
Oct. 16, 2023	Head	1900	39.90	10.400	41.60	4.26	509	3090	662
Oct. 24, 2023	Head	1900	39.90	10.100	40.40	1.25	509	3090	662
Sep. 15, 2023	Head	2450	51.80	12.800	51.20	-1.16	1014	3090	662
Oct. 12, 2023	Head	2450	51.80	13.000	52.00	0.39	1014	3090	662
Oct. 16, 2023	Head	2600	54.80	13.100	52.40	-4.38	1153	3090	662
Oct. 27, 2023	Head	5250	79.20	8.32	83.20	5.05	1280	7506	1557
Oct. 27, 2023	Head	5800	80.60	8.50	85.00	5.46	1280	7506	1557

Note:
Comparing to the reference SAR value, the validation data should be within its specification of 10%. The result indicates the system check can meet the variation criterion and the plots can be referred to Appendix A of this report.

4. SAR MEASUREMENT EVALUATION

4.1. EUT CONFIGURATION AND SETTING

Connections between EUT and System Simulator

For WWAN SAR testing, the EUT was linked and controlled by base station emulator. Communication between the EUT and the emulator was established by air link. The distance between the EUT and the communicating antenna of the emulator is larger than 50 cm and the output power radiated from the emulator antenna is at least 30 dB smaller than the output power of EUT. The EUT was set from the emulator to radiate maximum output power during SAR testing.

4.1.1. GSM Configuration and Testing

GSM (GMSK: CS1) voice mode transmits with 1 time slot. GPRS (GMSK: CS1) and EDGE (GMSK: MCS1, 8PSK: MCS9) may transmit up to 4 time slots in the 8 time-slot frame according to the multislot class implemented in a device.

4.1.2. WCDMA Configuration and Testing

WCDMA Handsets Head SAR

SAR for next to the ear head exposure is measured using a 12.2 kbps RMC with TPC bits configured to all “1’s”. The 3G SAR test reduction procedure is applied to AMR configurations with 12.2 kbps RMC as the primary mode.

WCDMA Handsets Body-worn SAR

SAR for body-worn configurations is measured using a 12.2 kbps RMC with TPC bits configured to all “1’s”. The 3G SAR test reduction procedure is applied to other spreading codes and multiple DPDCHn configurations supported by the handset with 12.2 kbps RMC as the primary mode.

Handsets with Release 5 HSDPA

The 3G SAR test reduction procedure is applied to HSDPA body-worn configurations with 12.2 kbps RMC as the primary mode. Otherwise, SAR is measured for HSDPA using the HSDPA body SAR procedures in the “Release 5 HSDPA Data Devices”, for the highest reported SAR body-worn exposure configuration in 12.2 kbps RMC. Handsets with both HSDPA and HSUPA are tested according to Release 6 HSPA test procedures.

Handsets with Release 6 HSUPA

The 3G SAR test reduction procedure is applied to HSPA (HSUPA/HSDPA with RMC) body-worn configurations with 12.2 kbps RMC as the primary mode. Otherwise, SAR is measured for HSPA using the HSPA body SAR procedures in the “Release 6 HSPA Data Devices”, for the highest reported body-worn exposure SAR configuration in 12.2 kbps RMC. When VOIP is applicable for next to the ear head exposure in HSPA, the 3G SAR test reduction procedure is applied to HSPA with 12.2 kbps RMC as the primary mode; otherwise, the same HSPA configuration used for body-worn measurements is tested for next to the ear head exposure.

Release 5 HSDPA Data Devices

The 3G SAR test reduction procedure is applied to body SAR with 12.2 kbps RMC as the primary mode. Otherwise, body SAR for HSDPA is measured using an FRC with H-Set 1 in Sub-test 1 and a 12.2 kbps RMC configured in Test Loop Mode 1, for the highest reported SAR configuration in 12.2 kbps RMC without HSDPA. HSDPA is configured according to the applicable UE category of a test device. The number of HS-DSCH / HS-PDSCHs, HARQ processes, minimum inter-TTI interval, transport block sizes and RV coding sequence are defined by the H-set. To maintain a consistent test configuration and stable transmission conditions, QPSK is used in the H-set for SAR testing. HS-DPCCH should be configured with a CQI feedback cycle of 4 ms and a CQI repetition factor of 2 to maintain a constant rate of active CQI slots. DPCCH and DPDCH gain factors (βc, βd), and HS-DPCCH power offset parameters (ΔACK, ΔNACK, ΔCQI) are set according to values indicated in below. The CQI value is determined by the UE category, transport block size, number of HS-PDSCHs and modulation used in the H-set.

Sub-test	β_c	β_d	β_d (SF)	β_c / β_d	β_{hs} (1)	CM (dB)(2)	MPR
1	2 / 15	15 / 15	64	2 / 15	4 / 15	0.0	0

2	12 / 15 (3)	15 / 15 (3)	64	12 / 15 (3)	24 / 15	1.0	0
3	15 / 15	8 / 15	64	15 / 8	30 / 15	1.5	0.5
4	15 / 15	4 / 15	64	15 / 4	30 / 15	1.5	0.5

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

Note 2: CM = 1 for $\beta_c / \beta_d = 12 / 15$, $\beta_{hs} / \beta_c = 24 / 15$.

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 $\beta_c = 11 / 15$ and $\beta_d = 15 / 15$.

Release 6 HSUPA Data Devices

The 3G SAR test reduction procedure is applied to body SAR with 12.2 kbps RMC as the primary mode. Otherwise, body SAR for HSPA is measured with E-DCH Sub-test 5, using H-Set 1 and QPSK for FRC and a 12.2 kbps RMC configured in Test Loop Mode 1 and power control algorithm 2, according to the highest reported body SAR configuration in 12.2 kbps RMC without HSPA. When VOIP applies to head exposure, the 3G SAR test reduction procedure is applied with 12.2 kbps RMC as the primary mode. Otherwise, the same HSPA configuration used for body SAR measurements are applied to head exposure testing. Due to inner loop power control requirements in HSPA, a communication test set is required for output power and SAR tests. The 12.2 kbps RMC, FRC H-set 1 and E-DCH configurations for HSPA are configured according to the β values indicated in below.

Sub-test	β_c	β_d	β_d (SF)	β_c / β_d	β_{hs} (1)	β_{ec}	β_{ed}	β_{ed} (SF)	β_{ed} (codes)	CM (2) (dB)	MPR (dB)	AG (4) Index	E-TFCI
1	11 / 15 (3)	15 / 15 (3)	64	11 / 15 (3)	22 / 15	209 / 225	1039 / 225	4	1	1.0	0.0	20	75
2	6 / 15	15 / 15	64	6 / 15	12 / 15	12 / 15	94 / 75	4	1	3.0	2.0	12	67
3	15 / 15	9 / 15	64	15 / 9	30 / 15	30 / 15	β_{ed1}: 47/15 β_{ed2}: 47/15	4	2	2.0	1.0	15	92
4	2 / 15	15 / 15	64	2 / 15	4 / 15	2 / 15	56 / 75	4	1	3.0	2.0	17	71
5	15 / 15 (4)	15 / 15 (4)	64	15 / 15 (4)	30 / 15	24 / 15	134 / 15	4	1	1.0	0.0	21	81

Note 1: Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 8 ⇔ $A_{hs} = \beta_{hs} / \beta_c = 30 / 15$ ⇔ $\beta_{hs} = 30 / 15 * \beta_c$.
Note 2: CM = 1 for $\beta_c / \beta_d = 12 / 15$, $\beta_{hs} / \beta_c = 24 / 15$. 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 $\beta_c = 10 / 15$ and $\beta_d = 15 / 15$.
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 $\beta_c = 14 / 15$ and $\beta_d = 15 / 15$.
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+ SAR Guidance

The 3G SAR test reduction procedure is applied to HSPA+ (uplink) with 12.2 kbps RMC as the primary mode. Otherwise, when SAR is required for Rel. 6 HSPA, SAR is required for Rel. 7 HSPA+. Power is measured for HSPA+ that supports uplink 16QAM according to configurations in Table C.11.1.4 of 3GPP TS 34.121-1 to determine SAR test reduction.

DC-HSDPA SAR Guidance

The 3G SAR test reduction procedure is applied to DC-HSDPA with 12.2 kbps RMC as the primary mode. Otherwise, when SAR is required for Rel. 5 HSDPA, SAR is required for Rel. 8 DC-HSDPA. Power is measured for DC-HSDPA according to the H-Set 12, FRC configuration in Table C.8.1.12 of 3GPP TS 34.121-1 to determine SAR test reduction. A primary and a secondary serving HS-DSCH Cell are required to perform the power measurement and for the results to be acceptable.

4.1.3. LTE Configuration and Testing

UE power class is category 3. The LTE maximum power reduction (MPR) in accordance with 3GPP TS 36.101 is active all times during LTE operation. The allowed MPR for the maximum output power please refer to the tune up procedure.

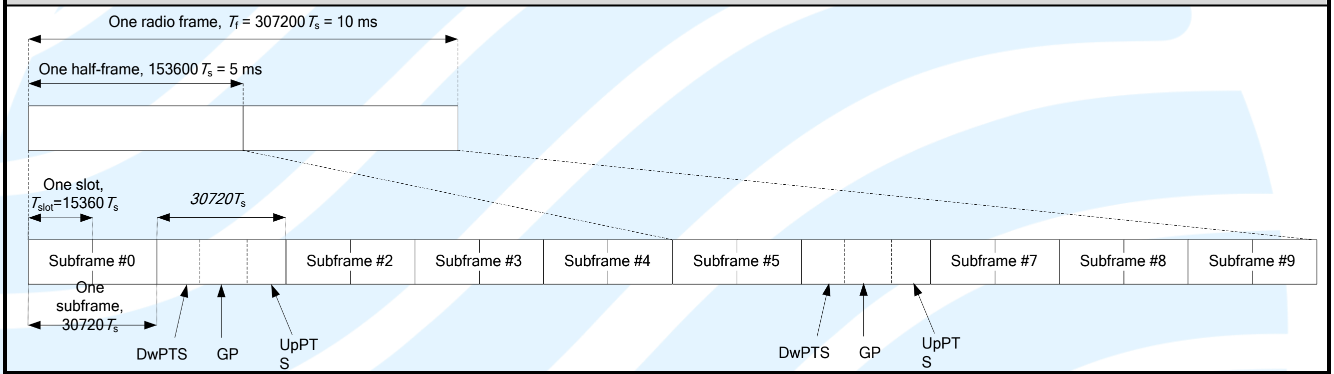
In addition, the device is compliant with additional maximum power reduction (A-MPR) requirements defined in 3GPP TS 36.101 section 6.2.4 that was disabled for all FCC compliance testing.

A properly configured base station simulator is used for the SAR and power measurements, so spectrum plots for each RB allocation and offset configuration are not included in the SAR report to demonstrate that the tested RB allocations have been correctly established at the maximum output power conditions.

TDD-LTE Setup Configurations

According to KDB 941225 D05, SAR testing for TDD-LTE device must be tested using a fixed periodic duty factor according to the highest transmission duty factor implemented for the device and supported by the defined 3GPP TDD-LTE configurations. The TDD-LTE of this device supports frame structure type 2 defined in 3GPP TS 36.211 section 4.2, and the frame structure configuration can be referred to below.

3GPP TS 36.211 Figure 4.2-1: Frame Structure Type 2



<table>
<tr><th colspan="7">3GPP TS 36.211 Table 4.2-1: Configuration of Special Subframe</th></tr>
<tr><th rowspan="3">Special Subframe Configuration</th><th colspan="3">Normal Cyclic Prefix in Downlink</th><th colspan="3">Extended Cyclic Prefix in Downlink</th></tr>
<tr><th rowspan="2">DwPTS</th><th colspan="2">UpPTS</th><th rowspan="2">DwPTS</th><th colspan="2">UpPTS</th></tr>
<tr><th>Normal Cyclic Prefix in Uplink</th><th>Extended Cyclic Prefix in Uplink</th><th>Normal Cyclic Prefix in Uplink</th><th>Extended Cyclic Prefix in Uplink</th></tr>
<tr><td>0</td><td>6592·Ts</td><td rowspan="5">2192·Ts</td><td rowspan="5">2560·Ts</td><td>7680·Ts</td><td rowspan="4">2192·Ts</td><td rowspan="4">2560·Ts</td></tr>
<tr><td>1</td><td>19760·Ts</td><td>20480·Ts</td></tr>
<tr><td>2</td><td>21952·Ts</td><td>23040·Ts</td></tr>
<tr><td>3</td><td>24144·Ts</td><td>25600·Ts</td></tr>
<tr><td>4</td><td>26336·Ts</td><td>7680·Ts</td><td rowspan="4">4384·Ts</td><td rowspan="4">5120·Ts</td></tr>
<tr><td>5</td><td>6592·Ts</td><td rowspan="5">4384·Ts</td><td rowspan="5">5120·Ts</td><td>20480·Ts</td></tr>
<tr><td>6</td><td>19760·Ts</td><td>23040·Ts</td></tr>
<tr><td>7</td><td>21952·Ts</td><td>12800·Ts</td></tr>
<tr><td>8</td><td>24144·Ts</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>9</td><td>13168·Ts</td><td>-</td><td>-</td><td>-</td></tr>
</table>

Uplink-Downlink Configurations and duty cycle												
Uplink-Downlink Configuration	Downlink-to-Uplink Switch-Point Periodicity	Subframe Number										Duty-Cycle
		0	1	2	3	4	5	6	7	8	9	
0	5 ms	D	S	U	U	U	D	S	U	U	U	63.33%
1	5 ms	D	S	U	U	D	D	S	U	U	D	43.33%
2	5 ms	D	S	U	D	D	D	S	U	D	D	23.33%
3	10 ms	D	S	U	U	U	D	D	D	D	D	31.67%
4	10 ms	D	S	U	U	D	D	D	D	D	D	21.67%
5	10 ms	D	S	U	D	D	D	D	D	D	D	11.67%
6	5 ms	D	S	U	U	U	D	S	U	U	D	53.33%

Considering the highest transmission duty cycle, TDD-LTE was tested using Uplink-Downlink Configuration 0 with 6 uplink subframe and 2 special subframe. The special subframe was set to special subframe configuration 7 using extended cyclic prefix uplink. Therefore, SAR testing for TDD-LTE was performed at the maximum output power with highest transmission duty cycle of 63.33%.

4.1.4. WLAN Configuration and Testing

In general, various vendor specific external test software and chipset based internal test modes are typically used for SAR measurement. These chipset-based test mode utilities are generally hardware and manufacturer dependent, and often include substantial flexibility to reconfigure or reprogram a device. 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. 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. The reported SAR must be scaled to 100% transmission duty factor to determine compliance at the maximum tune-up tolerance limit.

According to KDB 248227 D01, this device has installed WLAN engineering testing software which can provide continuous transmitting RF signal. During WLAN SAR testing, this device was operated to transmit continuously at the maximum transmission duty with specified transmission mode, operating frequency, lowest data rate, and maximum output power.

Initial Test Configuration

An initial test configuration is determined for OFDM transmission modes in 2.4 GHz and 5 GHz bands according to the channel bandwidth, modulation and data rate combination(s) with the highest maximum output power specified for production units in each standalone and aggregated frequency band. When the same maximum power is specified for multiple transmission modes in a frequency band, the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order 802.11a/g/n/ac mode is used for SAR measurement, on the highest measured output power channel in the initial test configuration, for each frequency band.

Subsequent Test Configuration

SAR measurement requirements for the remaining 802.11 transmission mode configurations that have not been tested in the initial test configuration are determined separately for each standalone and aggregated frequency band, in each exposure condition, according to the maximum output power specified for production units. Additional power measurements may be required to determine if SAR measurements are required for subsequent highest output power channels in a subsequent test configuration. When the highest reported SAR for the initial test configuration according to the initial test position or fixed exposure position requirements, is adjusted by the ratio of the subsequent test configuration to initial test configuration specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg, SAR is not required for that subsequent test configuration.

SAR Test Configuration and Channel Selection

When multiple channel bandwidth configurations in a frequency band have the same specified maximum output power, the initial test configuration is using largest channel bandwidth, lowest order modulation, lowest data rate, and lowest order 802.11 mode (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.
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 or two mid-band channels, the higher frequency (number) channel is selected for SAR measurement.

4.2. EUT TESTING POSITION

4.2.1. Body Exposure Conditions

RF Exposure Conditions	TestPosition	SeparationDistance	SAR test exclusion
Body	Rear Face	0 cm	Note4
	Left Side		
	Right Side		
	Top Side		
	Bottom Side		

Note:

1) Exposures from antennas through the front surface of thedisplay section of a tablet are generally limited to the user’s hands. Exposures to hands for typical consumertransmitters used in tablets are not expected to exceed the extremity SAR limit; therefore, SAR evaluation for thefront surface of tablet display screens are generally not necessary.
2) When voice mode is supported on a tablet and it is limited to speakermode or headset operations only, additional SAR testing for this type of voice use is not required.
3) Next to the ear operation is generally not expected for tablets with overall diagonal dimension > 20 cm. However, when next to the ear voice mode is supported, regardless of the overall dimension, phablets must be tested according to the requirements described in KDB Publication 648474 D04.
4) For SAR test exclusion, please refer to section 4.4.

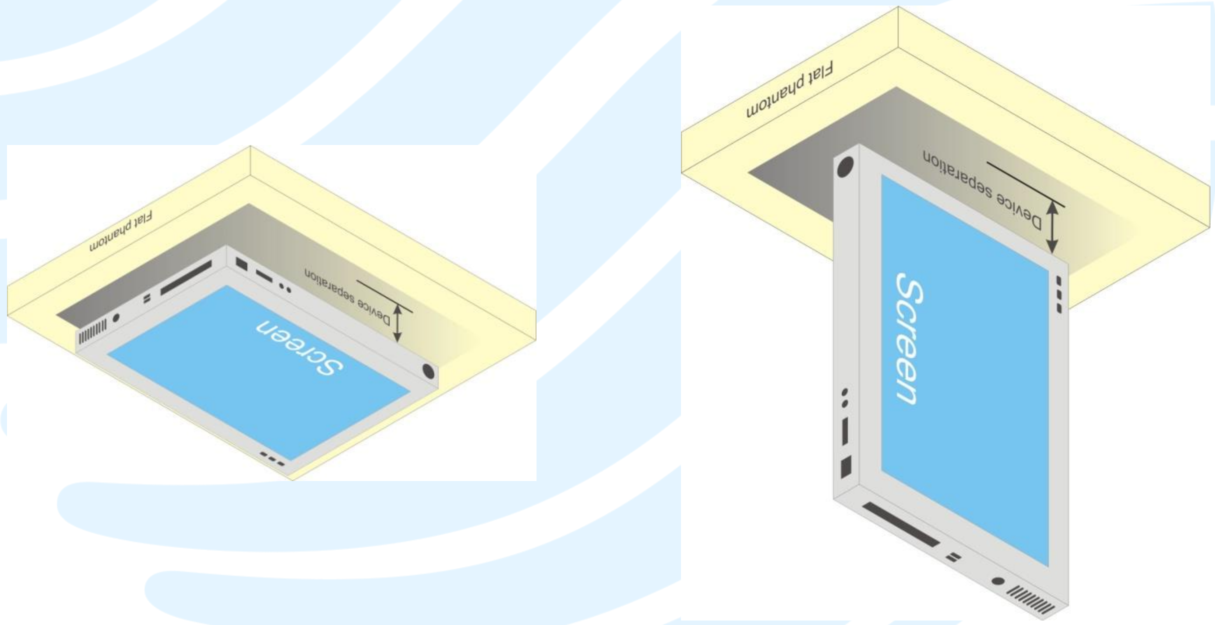


Fig-4.1 Test Positions for Tablet

4.3. MEASURED CONDUCTED POWER RESULT

4.3.1. Conducted Power of GSM Bands

The measuring conducted average power (Unit: dBm) is shown as below.

Band	GSM 850			PCS 1900		
Channel	128	190	251	512	661	810
Frequency (MHz)	824.2	836.6	848.8	1850.2	1880.0	1909.8
Maximum Burst-Averaged Output Power						
GSM (GMSK, 1Tx-slot)	32.13	32.16	32.12	28.77	28.87	28.72
GPRS (GMSK, 1Tx-slot)	32.11	32.10	32.07	28.79	28.89	28.70
GPRS (GMSK, 2Tx-slot)	31.32	31.30	31.22	27.98	28.10	27.94
GPRS (GMSK, 3Tx-slot)	29.38	29.32	29.24	26.18	26.34	26.16
GPRS (GMSK, 4Tx-slot)	28.13	28.10	27.99	25.05	25.18	25.00
Maximum Frame-Averaged Output Power						
GSM (GMSK, 1Tx-slot)	23.13	23.16	23.12	19.77	19.87	19.72
GPRS (GMSK, 1Tx-slot)	23.11	23.10	23.07	19.79	19.89	19.70
GPRS (GMSK, 2Tx-slot)	**25.32**	25.30	25.22	21.98	22.10	21.94
GPRS (GMSK, 3Tx-slot)	25.12	25.06	24.98	21.92	22.08	21.90
GPRS (GMSK, 4Tx-slot)	25.13	25.10	24.99	22.05	**22.18**	22.00

Power Reduction:

Band	GSM 850			PCS 1900		
Channel	128	190	251	512	661	810
Frequency (MHz)	824.2	836.6	848.8	1850.2	1880.0	1909.8
Maximum Burst-Averaged Output Power						
GSM (GMSK, 1Tx-slot)	--	--	--	19.55	19.73	19.84
GPRS (GMSK, 1Tx-slot)	--	--	--	19.55	19.72	**19.86**
GPRS (GMSK, 2Tx-slot)	--	--	--	18.47	18.62	18.71
GPRS (GMSK, 3Tx-slot)	--	--	--	16.48	16.62	16.78
GPRS (GMSK, 4Tx-slot)	--	--	--	15.45	15.59	15.74
Maximum Frame-Averaged Output Power						
GSM (GMSK, 1Tx-slot)	--	--	--	10.55	10.73	10.84
GPRS (GMSK, 1Tx-slot)	--	--	--	10.55	10.72	10.86
GPRS (GMSK, 2Tx-slot)	--	--	--	12.47	12.62	12.71
GPRS (GMSK, 3Tx-slot)	--	--	--	12.22	12.36	12.52
GPRS (GMSK, 4Tx-slot)	--	--	--	12.45	12.59	**12.74**

Note:

1) SAR testing was performed on the maximum frame-averaged power mode.
2) The frame-averaged power is line arly proportion to the slot number configured and it is linearly scaled the maximum burst-averaged power based on time slots. The calculated method is shown as below:
3) Frame-averaged power = 10 x log (Burst-averaged power mW x Slot used / 8)

4.3.2. Conducted Power of WCDMA Bands

The measuring conducted average power (Unit: dBm) is shown as below.

Band	WCDMA Band II			WCDMA Band IV			WCDMA Band V			3GPP MPR (dB)
Channel	9262	9400	9538	1312	1413	1513	4132	4182	4233	
Frequency (MHz)	1852.4	1880.0	1907.6	1712.4	1732.6	1752.6	826.4	836.4	846.6	
RMC 12.2K	**21.87**	21.78	21.70	**21.85**	21.77	21.83	22.20	**22.23**	22.21	-
HSDPA Subtest-1	21.85	21.77	21.70	21.84	21.78	21.82	22.19	22.19	22.20	0
HSDPA Subtest-2	20.87	20.78	20.69	20.77	20.84	20.85	21.29	21.24	21.25	0
HSDPA Subtest-3	20.39	20.31	20.23	20.30	20.34	20.36	20.81	20.77	20.73	0.5
HSDPA Subtest-4	20.34	20.28	20.20	20.27	20.33	20.35	20.79	20.75	20.71	0.5
HSUPA Subtest-1	20.88	20.80	20.74	20.78	20.80	20.83	21.36	21.30	21.26	0
HSUPA Subtest-2	20.89	20.83	20.75	20.74	20.75	20.79	21.34	21.28	21.26	2
HSUPA Subtest-3	20.40	20.31	20.25	20.26	20.35	20.35	20.82	20.78	20.77	1
HSUPA Subtest-4	20.88	20.82	20.74	20.79	20.83	20.86	21.34	21.28	21.25	2
HSUPA Subtest-5	20.33	20.25	20.15	20.27	20.32	20.33	20.77	20.73	20.72	0

Power Reduction:

Band	WCDMA Band II			WCDMA Band IV			WCDMA Band V			3GPP MPR (dB)
Channel	9262	9400	9538	1312	1413	1513	4132	4182	4233	
Frequency (MHz)	1852.4	1880.0	1907.6	1712.4	1732.6	1752.6	826.4	836.4	846.6	
RMC 12.2K	**16.40**	16.27	16.21	22.20	**22.23**	22.21	16.34	16.39	**16.41**	-
HSDPA Subtest-1	15.38	15.28	15.23	22.19	22.19	22.20	15.33	15.38	15.42	0
HSDPA Subtest-2	14.94	14.84	14.76	21.29	21.24	21.25	14.92	14.96	14.98	0
HSDPA Subtest-3	14.85	14.76	14.69	20.81	20.77	20.73	14.80	14.84	14.85	0.5
HSDPA Subtest-4	14.82	14.75	14.67	20.79	20.75	20.71	14.78	14.84	14.86	0.5
HSUPA Subtest-1	13.75	13.92	13.51	21.36	21.30	21.26	13.67	14.06	13.61	0
HSUPA Subtest-2	15.39	15.23	15.22	21.34	21.28	21.26	15.25	15.30	15.33	2
HSUPA Subtest-3	14.90	14.77	14.74	20.82	20.78	20.77	14.85	14.89	14.94	1
HSUPA Subtest-4	15.38	15.16	15.04	21.34	21.28	21.25	15.21	15.24	15.37	2
HSUPA Subtest-5	15.40	15.32	15.28	20.77	20.73	20.72	15.34	15.37	15.38	0

4.3.3. Conducted Power of LTE Bands

The measuring conducted average power (Unit: dBm) is shown as below.

➢ **LTE Band 2**

LTE Band / BW	RB Size	RB Offset	QPSK Low CH 18607 1850.7 MHz	QPSK Mid CH 18900 1880.0 MHz	QPSK High CH 19193 1909.3 MHz	3GPP MPR (dB)	16QAM Low CH 18607 1850.7 MHz	16QAM Mid CH 18900 1880.0 MHz	16QAM High CH 19193 1909.3 MHz	3GPP MPR (dB)	64QAM Low CH 18607 1850.7 MHz	64QAM Mid CH 18900 1880.0 MHz	64QAM High CH 19193 1909.3 MHz	3GPP MPR (dB)
2 / 1.4M	1	0	16.65	16.61	16.45	0	15.57	15.37	15.37	1	/	/	/	2
	1	3	16.89	16.77	16.62	0	15.74	15.56	15.57	1	/	/	/	2
	1	5	16.73	16.62	16.44	0	15.54	15.29	15.45	1	/	/	/	2
	3	0	16.78	16.68	16.45	0	15.82	15.74	15.39	1	/	/	/	3
	3	1	16.84	16.72	16.56	0	16.01	15.70	15.72	1	/	/	/	3
	3	3	16.83	16.65	16.50	0	15.79	15.77	15.39	1	/	/	/	3
	6	0	15.87	15.67	15.54	1	14.73	14.64	14.53	2	/	/	/	3

LTE Band / BW	RB Size	RB Offset	QPSK Low CH 18615 1851.5 MHz	QPSK Mid CH 18900 1880.0 MHz	QPSK High CH 19185 1908.5 MHz	3GPP MPR (dB)	16QAM Low CH 18615 1851.5 MHz	16QAM Mid CH 18900 1880.0 MHz	16QAM High CH 19185 1908.5 MHz	3GPP MPR (dB)	64QAM Low CH 18615 1851.5 MHz	64QAM Mid CH 18900 1880.0 MHz	64QAM High CH 19185 1908.5 MHz	3GPP MPR (dB)
2 / 3M	1	0	16.78	16.73	16.58	0	15.70	16.24	15.52	1	/	/	/	2
	1	8	16.79	16.68	16.55	0	15.63	16.23	15.53	1	/	/	/	2
	1	14	16.81	16.64	16.54	0	15.66	16.20	15.52	1	/	/	/	2
	8	0	15.80	15.70	15.54	1	14.92	14.83	14.54	2	/	/	/	3
	8	4	15.89	15.75	15.59	1	14.89	14.82	14.71	2	/	/	/	3
	8	7	15.82	15.66	15.50	1	14.89	14.81	14.52	2	/	/	/	3
	15	0	15.79	15.65	15.53	1	14.84	14.72	14.49	2	/	/	/	3

LTE Band / BW	RB Size	RB Offset	QPSK Low CH 18625 1852.5 MHz	QPSK Mid CH 18900 1880.0 MHz	QPSK High CH 19175 1907.5 MHz	3GPP MPR (dB)	16QAM Low CH 18625 1852.5 MHz	16QAM Mid CH 18900 1880.0 MHz	16QAM High CH 19175 1907.5 MHz	3GPP MPR (dB)	64QAM Low CH 18625 1852.5 MHz	64QAM Mid CH 18900 1880.0 MHz	64QAM High CH 19175 1907.5 MHz	3GPP MPR (dB)
2 / 5M	1	0	16.67	16.62	16.48	0	15.53	15.80	15.35	1	/	/	/	2
	1	12	16.88	16.81	16.60	0	15.64	15.90	15.51	1	/	/	/	2
	1	24	16.73	16.61	16.48	0	15.51	15.79	15.34	1	/	/	/	2
	12	0	15.72	15.68	15.58	1	14.72	14.65	14.52	2	/	/	/	3
	12	7	15.89	15.75	15.60	1	14.93	14.87	14.65	2	/	/	/	3
	12	13	15.80	15.64	15.45	1	14.78	14.67	14.45	2	/	/	/	3
	25	0	15.76	15.64	15.53	1	14.83	14.69	14.55	2	/	/	/	3

LTE Band / BW	RB Size	RB Offset	QPSK Low CH 18650 1855.0 MHz	QPSK Mid CH 18900 1880.0 MHz	QPSK High CH 19150 1905.0 MHz	3GPP MPR (dB)	16QAM Low CH 18650 1855.0 MHz	16QAM Mid CH 18900 1880.0 MHz	16QAM High CH 19150 1905.0 MHz	3GPP MPR (dB)	64QAM Low CH 18650 1855.0 MHz	64QAM Mid CH 18900 1880.0 MHz	64QAM High CH 19150 1905.0 MHz	3GPP MPR (dB)
2 / 10M	1	0	16.82	16.72	16.62	0	15.64	16.21	15.58	1	/	/	/	2
	1	25	16.94	16.84	16.69	0	15.71	16.35	15.72	1	/	/	/	2
	1	49	16.75	16.69	16.55	0	15.58	16.21	15.56	1	/	/	/	2
	25	0	15.77	15.74	15.55	1	14.83	14.77	14.60	2	/	/	/	3
	25	12	15.78	15.71	15.57	1	14.84	14.72	14.63	2	/	/	/	3
	25	25	15.75	15.68	15.47	1	14.81	14.70	14.45	2	/	/	/	3
	50	0	15.75	15.67	15.51	1	14.74	14.70	14.51	2	/	/	/	3

LTE Band / BW	RB Size	RB Offset	QPSK Low CH 18675 1857.5 MHz	QPSK Mid CH 18900 1880.0 MHz	QPSK High CH 19125 1902.5 MHz	3GPP MPR (dB)	16QAM Low CH 18675 1857.5 MHz	16QAM Mid CH 18900 1880.0 MHz	16QAM High CH 19125 1902.5 MHz	3GPP MPR (dB)	64QAM Low CH 18675 1857.5 MHz	64QAM Mid CH 18900 1880.0 MHz	64QAM High CH 19125 1902.5 MHz	3GPP MPR (dB)
2 / 15M	1	0	16.72	16.71	16.55	0	16.33	15.65	15.75	1	/	/	/	2
	1	37	16.81	16.75	16.57	0	16.30	15.72	15.87	1	/	/	/	2
	1	74	16.66	16.57	16.41	0	16.21	15.60	15.65	1	/	/	/	2
	36	0	15.88	15.75	15.69	1	14.81	14.77	14.65	2	/	/	/	3
	36	20	15.86	15.74	15.65	1	14.84	14.77	14.64	2	/	/	/	3
	36	39	15.78	15.70	15.51	1	14.78	14.67	14.50	2	/	/	/	3
	75	0	15.73	15.72	15.57	1	14.78	14.76	14.56	2	/	/	/	3

LTE Band / BW	RB Size	RB Offset	QPSK Low CH 18700 1860.0 MHz	QPSK Mid CH 18900 1880.0 MHz	QPSK High CH 19100 1900.0 MHz	3GPP MPR (dB)	16QAM Low CH 18700 1860.0 MHz	16QAM Mid CH 18900 1880.0 MHz	16QAM High CH 19100 1900.0 MHz	3GPP MPR (dB)	64QAM Low CH 18700 1860.0 MHz	64QAM Mid CH 18900 1880.0 MHz	64QAM High CH 19100 1900.0 MHz	3GPP MPR (dB)
2 / 20M	1	0	16.58	16.51	16.45	0	15.92	15.66	15.53	1	/	/	/	2
	1	49	16.96	16.87	16.74	0	16.35	16.06	15.86	1	/	/	/	2
	1	99	16.49	16.48	16.36	0	15.91	15.59	15.43	1	/	/	/	2
	50	0	15.81	15.76	15.77	1	14.86	14.72	14.82	2	/	/	/	3
	50	24	15.80	15.79	15.68	1	14.77	14.78	14.67	2	/	/	/	3
	50	50	15.74	15.61	15.53	1	14.78	14.61	14.54	2	/	/	/	3
	100	0	15.83	15.71	15.66	1	14.82	14.74	14.71	2	/	/	/	3

➢ **LTE Band 4**

LTE Band / BW	RB Size	RB Offset	QPSK Low CH 19957 1710.7 MHz	QPSK Mid CH 20175 1732.5 MHz	QPSK High CH 20393 1754.3 MHz	3GPP MPR (dB)	16QAM Low CH 19957 1710.7 MHz	16QAM Mid CH 20175 1732.5 MHz	16QAM High CH 20393 1754.3 MHz	3GPP MPR (dB)	64QAM Low CH 19957 1710.7 MHz	64QAM Mid CH 20175 1732.5 MHz	64QAM High CH 20393 1754.3 MHz	3GPP MPR (dB)
4 / 1.4M	1	0	16.68	16.84	16.77	0	15.58	15.58	15.80	1	/	/	/	2
	1	3	17.05	16.91	17.02	0	15.75	15.52	16.04	1	/	/	/	2
	1	5	16.76	16.72	16.80	0	15.57	15.50	15.81	1	/	/	/	2
	3	0	16.80	16.90	16.82	1	15.88	16.04	15.79	2	/	/	/	3
	3	1	16.85	16.92	16.94	1	16.04	15.90	16.12	2	/	/	/	3
	3	3	16.84	16.89	16.88	1	15.78	16.02	15.86	2	/	/	/	3
	6	0	15.81	15.83	15.87	1	14.79	14.81	14.92	2	/	/	/	3

LTE Band / BW	RB Size	RB Offset	QPSK Low CH 19965 1711.5 MHz	QPSK Mid CH 20175 1732.5 MHz	QPSK High CH 20385 1753.5 MHz	3GPP MPR (dB)	16QAM Low CH 19965 1711.5 MHz	16QAM Mid CH 20175 1732.5 MHz	16QAM High CH 20385 1753.5 MHz	3GPP MPR (dB)	64QAM Low CH 19965 1711.5 MHz	64QAM Mid CH 20175 1732.5 MHz	64QAM High CH 20385 1753.5 MHz	3GPP MPR (dB)
4 / 3M	1	0	16.79	16.85	16.88	0	15.68	16.39	15.88	1	/	/	/	2
	1	8	16.78	16.78	16.87	0	15.63	16.30	15.89	1	/	/	/	2
	1	14	16.82	16.77	16.88	0	15.70	16.42	15.89	1	/	/	/	2
	8	0	15.85	15.80	15.87	1	14.95	14.97	14.87	2	/	/	/	3
	8	4	15.78	15.83	15.91	1	14.90	14.95	14.99	2	/	/	/	3
	8	7	15.77	15.81	15.86	1	14.89	14.96	14.87	2	/	/	/	3
	15	0	15.87	15.80	15.85	1	14.86	14.91	14.85	2	/	/	/	3

LTE Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH 19975	Mid CH 20175	High CH 20375		Low CH 19975	Mid CH 20175	High CH 20375		Low CH 19975	Mid CH 20175	High CH 20375	
			1712.5 MHz	1732.5 MHz	1752.5 MHz		1712.5 MHz	1732.5 MHz	1752.5 MHz		1712.5 MHz	1732.5 MHz	1752.5 MHz	
4 / 5M	1	0	16.74	16.74	16.82	0	15.58	15.54	15.99	1	/	/	/	2
	1	12	16.85	16.90	16.91	0	15.70	15.68	16.10	1	/	/	/	2
	1	24	16.74	16.76	16.79	0	15.60	15.58	16.00	1	/	/	/	2
	12	0	15.79	15.78	15.85	1	14.71	14.74	14.89	2	/	/	/	3
	12	7	15.85	15.83	15.93	1	14.94	14.97	15.02	2	/	/	/	3
	12	13	15.81	15.81	15.89	1	14.80	14.79	14.85	2	/	/	/	3
	25	0	15.81	15.77	15.85	1	14.79	14.81	14.85	2	/	/	/	3

LTE Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH 20000	Mid CH 20175	High CH 20350		Low CH 20000	Mid CH 20175	High CH 20350		Low CH 20000	Mid CH 20175	High CH 20350	
			1715.0 MHz	1732.5 MHz	1750.0 MHz		1715.0 MHz	1732.5 MHz	1750.0 MHz		1715.0 MHz	1732.5 MHz	1750.0 MHz	
4 / 10M	1	0	16.80	16.73	16.91	0	15.62	16.29	15.84	1	/	/	/	2
	1	25	16.94	16.98	16.98	0	15.76	16.61	16.06	1	/	/	/	2
	1	49	16.74	16.85	16.87	0	15.58	16.41	15.86	1	/	/	/	2
	25	0	15.78	15.81	15.99	1	14.90	14.88	15.00	2	/	/	/	3
	25	12	15.83	15.80	15.92	1	15.05	14.84	14.93	2	/	/	/	3
	25	25	15.87	15.88	15.88	1	14.96	14.93	14.91	2	/	/	/	3
	50	0	15.82	15.84	15.88	1	14.85	14.88	14.93	2	/	/	/	3

LTE Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH 20025	Mid CH 20175	High CH 20325		Low CH 20025	Mid CH 20175	High CH 20325		Low CH 20025	Mid CH 20175	High CH 20325	
			1717.5 MHz	1732.5 MHz	1747.5 MHz		1717.5 MHz	1732.5 MHz	1747.5 MHz		1717.5 MHz	1732.5 MHz	1747.5 MHz	
4 / 15M	1	0	16.66	16.70	16.76	0	15.91	16.31	15.76	1	/	/	/	2
	1	37	16.79	16.83	16.91	0	16.04	16.41	15.93	1	/	/	/	2
	1	74	16.68	16.81	16.80	0	15.91	16.38	15.75	1	/	/	/	2
	36	0	15.79	15.86	15.98	1	14.79	14.83	14.96	2	/	/	/	3
	36	20	15.83	15.85	15.97	1	14.78	14.83	15.05	2	/	/	/	3
	36	39	15.83	15.88	15.89	1	14.83	14.91	14.87	2	/	/	/	3
	75	0	15.79	15.86	15.91	1	14.81	14.90	14.93	2	/	/	/	3

LTE Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH 20050	Mid CH 20175	High CH 20300		Low CH 20050	Mid CH 20175	High CH 20300		Low CH 20050	Mid CH 20175	High CH 20300	
			1720.0 MHz	1732.5 MHz	1745.0 MHz		1720.0 MHz	1732.5 MHz	1745.0 MHz		1720.0 MHz	1732.5 MHz	1745.0 MHz	
4 / 20M	1	0	16.57	16.51	16.60	0	15.68	15.98	15.73	1	/	/	/	2
	1	49	17.03	16.97	17.07	0	16.04	16.40	16.28	1	/	/	/	2
	1	99	16.53	16.61	16.67	0	15.65	16.10	15.87	1	/	/	/	2
	50	0	15.75	15.85	15.96	1	14.81	14.83	14.97	2	/	/	/	3
	50	25	15.80	15.84	15.91	1	14.83	14.85	14.97	2	/	/	/	3
	50	50	15.88	15.92	15.87	1	14.92	14.88	14.85	2	/	/	/	3
	100	0	15.79	15.89	15.92	1	14.82	14.90	14.95	2	/	/	/	3

➢ **LTE Band 5**

LTE Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH 20407	Mid CH 20525	High CH 20643		Low CH 20407	Mid CH 20525	High CH 20643		Low CH 20407	Mid CH 20525	High CH 20643	
			824.7 MHz	836.5 MHz	848.3 MHz		824.7 MHz	836.5 MHz	848.3 MHz		824.7 MHz	836.5 MHz	848.3 MHz	
5 / 1.4M	1	0	19.52	19.48	19.36	0	18.18	18.44	18.25	1	/	/	/	2
	1	3	19.63	19.58	19.56	0	18.43	18.66	18.49	1	/	/	/	2
	1	5	19.47	19.46	19.40	0	18.25	18.43	18.28	1	/	/	/	2
	3	0	19.47	19.46	19.47	1	18.63	18.43	18.56	2	/	/	/	3
	3	1	19.58	19.53	19.55	1	18.57	18.75	18.76	2	/	/	/	3
	3	3	19.57	19.45	19.53	1	18.67	18.42	18.56	2	/	/	/	3
	6	0	18.50	18.52	18.57	1	17.49	17.54	17.46	2	/	/	/	3

LTE Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH 20415	Mid CH 20525	High CH 20635		Low CH 20415	Mid CH 20525	High CH 20635		Low CH 20415	Mid CH 20525	High CH 20635	
			825.5 MHz	836.5 MHz	847.5 MHz		825.5 MHz	836.5 MHz	847.5 MHz		825.5 MHz	836.5 MHz	847.5 MHz	
5 / 3M	1	0	19.46	19.43	19.47	0	18.33	19.01	18.56	1	/	/	/	2
	1	8	19.54	19.45	19.46	0	18.41	18.95	18.50	1	/	/	/	2
	1	14	19.46	19.41	19.51	0	18.43	18.99	18.56	1	/	/	/	2
	8	0	18.54	18.49	18.50	1	17.58	17.61	17.42	2	/	/	/	3
	8	4	18.51	18.52	18.54	1	17.59	17.59	17.67	2	/	/	/	3
	8	7	18.44	18.49	18.52	1	17.53	17.60	17.45	2	/	/	/	3
	15	0	18.47	18.46	18.51	1	17.54	17.49	17.45	2	/	/	/	3

LTE Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH 20425	Mid CH 20525	High CH 20625		Low CH 20425	Mid CH 20525	High CH 20625		Low CH 20425	Mid CH 20525	High CH 20625	
			826.5 MHz	836.5 MHz	846.5 MHz		826.5 MHz	836.5 MHz	846.5 MHz		826.5 MHz	836.5 MHz	846.5 MHz	
5 / 5M	1	0	19.38	19.35	19.46	0	18.34	18.20	18.64	1	/	/	/	2
	1	12	19.55	19.50	19.53	0	18.49	18.27	18.70	1	/	/	/	2
	1	24	19.43	19.46	19.44	0	18.37	18.18	18.62	1	/	/	/	2
	12	0	18.58	18.44	18.40	1	17.50	17.41	17.42	2	/	/	/	3
	12	7	18.58	18.56	18.57	1	17.65	17.55	17.68	2	/	/	/	3
	12	13	18.63	18.43	18.60	1	17.52	17.33	17.59	2	/	/	/	3
	25	0	18.57	18.39	18.53	1	17.59	17.44	17.46	2	/	/	/	3

LTE Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH 20450	Mid CH 20525	High CH 20600		Low CH 20450	Mid CH 20525	High CH 20600		Low CH 20450	Mid CH 20525	High CH 20600	
			829.0 MHz	836.5 MHz	844.0 MHz		829.0 MHz	836.5 MHz	844.0 MHz		829.0 MHz	836.5 MHz	844.0 MHz	
5 / 10M	1	0	19.48	19.45	19.41	0	18.29	19.09	18.50	1	/	/	/	2
	1	25	19.63	19.61	19.65	0	18.52	19.19	18.67	1	/	/	/	2
	1	49	19.50	19.39	19.41	0	18.38	19.05	18.62	1	/	/	/	2
	25	0	18.66	18.45	18.70	1	17.74	17.44	17.70	2	/	/	/	3
	25	12	18.61	18.51	18.60	1	17.67	17.55	17.65	2	/	/	/	3
	25	25	18.74	18.40	18.75	1	17.78	17.41	17.80	2	/	/	/	3
	50	0	18.70	18.42	18.68	1	17.72	17.38	17.75	2	/	/	/	3

- **LTE Band 12**

LTE Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH 23017	Mid CH 23095	High CH 23173		Low CH 23017	Mid CH 23095	High CH 23173		Low CH 23017	Mid CH 23095	High CH 23173	
			699.7 MHz	707.5 MHz	715.3 MHz		699.7 MHz	707.5 MHz	715.3 MHz		699.7 MHz	707.5 MHz	715.3 MHz	
12 / 1.4M	1	0	17.06	17.05	17.02	0	15.88	15.82	16.03	1	/	/	/	2
	1	3	17.23	17.24	17.20	0	16.10	15.94	16.21	1	/	/	/	2
	1	5	17.06	17.03	17.04	0	15.89	15.73	15.94	1	/	/	/	2
	3	0	17.05	17.10	17.06	1	16.12	16.13	15.97	2	/	/	/	3
	3	1	17.14	17.13	17.15	1	16.33	16.14	16.30	2	/	/	/	3
	3	3	17.13	17.08	17.06	1	16.14	16.18	15.99	2	/	/	/	3
	6	0	16.08	16.07	16.11	1	14.98	15.07	15.08	2	/	/	/	3

LTE Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH 23025	Mid CH 23095	High CH 23165		Low CH 23025	Mid CH 23095	High CH 23165		Low CH 23025	Mid CH 23095	High CH 23165	
			700.5 MHz	707.5 MHz	714.5 MHz		700.5 MHz	707.5 MHz	714.5 MHz		700.5 MHz	707.5 MHz	714.5 MHz	
12 / 3M	1	0	17.14	17.10	17.04	0	16.64	16.04	15.85	1	/	/	/	2
	1	8	17.09	17.05	17.10	0	16.62	16.03	15.88	1	/	/	/	2
	1	14	17.02	17.07	17.04	0	16.61	16.04	15.88	1	/	/	/	2
	8	0	16.03	16.06	16.19	1	15.16	14.99	15.10	2	/	/	/	3
	8	4	16.13	16.10	16.12	1	15.22	15.20	15.15	2	/	/	/	3
	8	7	16.14	16.03	16.02	1	15.23	14.96	15.06	2	/	/	/	3
	15	0	16.07	16.03	16.05	1	15.07	14.98	15.09	2	/	/	/	3

LTE Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH 23035	Mid CH 23095	High CH 23155		Low CH 23035	Mid CH 23095	High CH 23155		Low CH 23035	Mid CH 23095	High CH 23155	
			701.5 MHz	707.5 MHz	713.5 MHz		701.5 MHz	707.5 MHz	713.5 MHz		701.5 MHz	707.5 MHz	713.5 MHz	
12 / 5M	1	0	17.16	17.02	16.90	0	15.76	16.11	15.73	1	/	/	/	2
	1	12	17.22	17.09	17.07	0	15.90	16.23	15.96	1	/	/	/	2
	1	24	17.03	16.96	16.99	0	15.75	16.12	15.85	1	/	/	/	2
	12	0	15.97	16.07	15.90	1	14.91	15.09	14.77	2	/	/	/	3
	12	7	16.11	16.10	16.13	1	15.15	15.22	15.10	2	/	/	/	3
	12	13	16.09	16.05	15.92	1	14.98	15.01	14.80	2	/	/	/	3
	25	0	15.98	16.09	15.97	1	15.06	15.04	14.95	2	/	/	/	3

LTE Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH 23060	Mid CH 23095	High CH 23130		Low CH 23060	Mid CH 23095	High CH 23130		Low CH 23060	Mid CH 23095	High CH 23130	
			704.0 MHz	707.5 MHz	711.0 MHz		704.0 MHz	707.5 MHz	711.0 MHz		704.0 MHz	707.5 MHz	711.0 MHz	
12 / 10M	1	0	17.00	16.95	16.99	0	15.85	16.50	16.05	1	/	/	/	2
	1	25	17.25	17.17	17.20	0	15.93	16.72	16.15	1	/	/	/	2
	1	49	17.03	17.01	17.10	0	15.85	16.58	16.13	1	/	/	/	2
	25	0	15.95	16.30	16.09	1	14.97	15.36	15.08	2	/	/	/	3
	25	12	16.08	16.10	16.10	1	15.12	15.12	15.14	2	/	/	/	3
	25	25	15.90	16.22	16.03	1	14.98	15.29	15.02	2	/	/	/	3
	50	0	15.93	16.26	16.01	1	14.91	15.24	15.02	2	/	/	/	3

➢ **LTE Band 17**

LTE Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH 23755	Mid CH 23790	High CH 23825		Low CH 23755	Mid CH 23790	High CH 23825		Low CH 23755	Mid CH 23790	High CH 23825	
			706.5 MHz	710.0 MHz	713.5 MHz		706.5 MHz	710.0 MHz	713.5 MHz		706.5 MHz	710.0 MHz	713.5 MHz	
17 / 5M	1	0	17.11	16.99	16.97	0	15.78	16.11	15.78	1	/	/	/	2
	1	12	17.16	17.03	17.06	0	15.86	16.19	15.95	1	/	/	/	2
	1	24	17.02	16.92	16.95	0	15.79	16.10	15.82	1	/	/	/	2
	12	0	16.17	16.01	15.87	1	15.06	14.99	14.90	2	/	/	/	3
	12	7	16.08	16.07	16.04	1	15.16	15.20	15.10	2	/	/	/	3
	12	13	15.98	16.06	15.90	1	14.97	15.07	14.79	2	/	/	/	3
	25	0	16.04	16.12	15.87	1	15.07	15.05	14.89	2	/	/	/	3

LTE Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH 23780	Mid CH 23790	High CH 23800		Low CH 23780	Mid CH 23790	High CH 23800		Low CH 23780	Mid CH 23790	High CH 23800	
			709.0 MHz	710.0 MHz	711.0 MHz		709.0 MHz	710.0 MHz	711.0 MHz		709.0 MHz	710.0 MHz	711.0 MHz	
17 / 10M	1	0	17.04	16.95	16.98	0	15.82	16.48	16.01	1	/	/	/	2
	1	25	17.23	17.17	17.19	0	16.09	16.74	16.20	1	/	/	/	2
	1	49	16.96	17.03	17.06	0	15.82	16.56	16.05	1	/	/	/	2
	25	0	16.22	16.14	16.04	1	15.27	15.19	15.05	2	/	/	/	3
	25	12	16.13	16.13	16.09	1	15.14	15.16	15.12	2	/	/	/	3
	25	25	16.25	16.18	16.03	1	15.29	15.17	15.03	2	/	/	/	3
	50	0	16.22	16.14	16.03	1	15.26	15.15	15.01	2	/	/	/	3

➢ **LTE Band 25**

LTE Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH 26047	Mid CH 26365	High CH 26683		Low CH 26047	Mid CH 26365	High CH 26683		Low CH 26047	Mid CH 26365	High CH 26683	
			1850.7 MHz	1882.5 MHz	1914.3 MHz		1850.7 MHz	1882.5 MHz	1914.3 MHz		1850.7 MHz	1882.5 MHz	1914.3 MHz	
25 / 1.4M	1	0	16.69	16.70	16.50	0	15.60	15.43	15.46	1	/	/	/	2
	1	3	16.93	16.80	16.69	0	15.76	15.62	15.75	1	/	/	/	2
	1	5	16.75	16.70	16.51	0	15.58	15.39	15.47	1	/	/	/	2
	3	0	16.80	16.71	16.61	0	15.89	15.78	15.52	1	/	/	/	2
	3	1	16.89	16.78	16.64	0	16.04	15.80	15.80	1	/	/	/	2
	3	3	16.75	16.71	16.57	0	15.82	15.83	15.46	1	/	/	/	2
	6	0	15.80	15.71	15.60	1	14.71	14.70	14.61	2	/	/	/	3

LTE Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH 26055	Mid CH 26365	High CH 26675		Low CH 26055	Mid CH 26365	High CH 26675		Low CH 26055	Mid CH 26365	High CH 26675	
			1851.5 MHz	1882.5 MHz	1913.5 MHz		1851.5 MHz	1882.5 MHz	1913.5 MHz		1851.5 MHz	1882.5 MHz	1913.5 MHz	
25 / 3M	1	0	16.78	16.70	16.53	0	15.65	16.26	15.56	1	/	/	/	2
	1	8	16.81	16.74	16.55	0	15.64	16.21	15.57	1	/	/	/	2
	1	14	16.75	16.61	16.57	0	15.61	16.19	15.52	1	/	/	/	2
	8	0	15.79	15.70	15.55	1	14.84	14.87	14.56	2	/	/	/	3
	8	4	15.83	15.72	15.58	1	14.89	14.85	14.66	2	/	/	/	3
	8	7	15.81	15.68	15.53	1	14.83	14.85	14.50	2	/	/	/	3
	15	0	15.77	15.70	15.52	1	14.81	14.75	14.49	2	/	/	/	3

LTE Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH 26065	Mid CH 26365	High CH 26665		Low CH 26065	Mid CH 26365	High CH 26665		Low CH 26065	Mid CH 26365	High CH 26665	
			1852.5 MHz	1882.5 MHz	1912.5 MHz		1852.5 MHz	1882.5 MHz	1912.5 MHz		1852.5 MHz	1882.5 MHz	1912.5 MHz	
25 / 5M	1	0	16.70	16.64	16.45	0	15.60	15.42	15.64	1	/	/	/	2
	1	12	16.84	16.72	16.58	0	15.73	15.56	15.78	1	/	/	/	2
	1	24	16.72	16.62	16.45	0	15.55	15.37	15.64	1	/	/	/	2
	12	0	15.70	15.67	15.61	1	14.68	14.66	14.64	2	/	/	/	3
	12	7	15.86	15.76	15.59	1	14.89	14.80	14.72	2	/	/	/	3
	12	13	15.78	15.68	15.52	1	14.77	14.63	14.51	2	/	/	/	3
	25	0	15.77	15.68	15.53	1	14.77	14.72	14.57	2	/	/	/	3

LTE Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH 26090	Mid CH 26365	High CH 26640		Low CH 26090	Mid CH 26365	High CH 26640		Low CH 26090	Mid CH 26365	High CH 26640	
			1855.0 MHz	1882.5 MHz	1910.0 MHz		1855.0 MHz	1882.5 MHz	1910.0 MHz		1855.0 MHz	1882.5 MHz	1910.0 MHz	
25 / 10M	1	0	16.78	16.69	16.54	0	15.64	16.23	15.52	1	/	/	/	2
	1	25	16.94	16.83	16.68	0	15.78	16.33	15.69	1	/	/	/	2
	1	49	16.78	16.69	16.57	0	15.56	16.23	15.51	1	/	/	/	2
	25	0	15.69	15.74	15.69	1	14.78	14.77	14.72	2	/	/	/	3
	25	12	15.79	15.72	15.64	1	14.91	14.74	14.66	2	/	/	/	3
	25	25	15.75	15.60	15.45	1	14.80	14.67	14.42	2	/	/	/	3
	50	0	15.75	15.68	15.56	1	14.73	14.73	14.62	2	/	/	/	3

LTE Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH 26115	Mid CH 26365	High CH 26615		Low CH 26115	Mid CH 26365	High CH 26615		Low CH 26115	Mid CH 26365	High CH 26615	
			1857.5 MHz	1882.5 MHz	1907.5 MHz		1857.5 MHz	1882.5 MHz	1907.5 MHz		1857.5 MHz	1882.5 MHz	1907.5 MHz	
25 / 15M	1	0	16.73	16.60	16.55	0	15.91	16.15	15.55	1	/	/	/	2
	1	37	16.83	16.77	16.59	0	16.04	16.29	15.59	1	/	/	/	2
	1	74	16.66	16.61	16.45	0	15.88	16.12	15.49	1	/	/	/	2
	36	0	15.83	15.76	15.64	1	14.78	14.74	14.63	2	/	/	/	3
	36	20	15.86	15.81	15.68	1	14.79	14.72	14.67	2	/	/	/	3
	36	39	15.80	15.69	15.48	1	14.76	14.64	14.53	2	/	/	/	3
	75	0	15.81	15.65	15.60	1	14.83	14.71	14.59	2	/	/	/	3

LTE Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH 26140	Mid CH 26365	High CH 26590		Low CH 26140	Mid CH 26365	High CH 26590		Low CH 26140	Mid CH 26365	High CH 26590	
			1860.0 MHz	1882.5 MHz	1905.0 MHz		1860.0 MHz	1882.5 MHz	1905.0 MHz		1860.0 MHz	1882.5 MHz	1905.0 MHz	
25 / 20M	1	0	16.59	16.51	16.41	0	15.68	15.87	15.59	1	/	/	/	2
	1	50	16.99	16.81	16.80	0	16.01	16.28	15.99	1	/	/	/	2
	1	99	16.53	16.41	16.34	0	15.61	15.83	15.51	1	/	/	/	2
	50	0	15.85	15.79	15.65	1	14.85	14.82	14.64	2	/	/	/	3
	50	25	15.80	15.69	15.61	1	14.84	14.71	14.66	2	/	/	/	3
	50	50	15.78	15.63	15.37	1	14.78	14.66	14.37	2	/	/	/	3
	100	0	15.83	15.73	15.52	1	14.84	14.72	14.55	2	/	/	/	3