

FCC SAR EVALUATION REPORT

In accordance with the requirements of
FCC 47 CFR Part 2(2.1093), ANSI/IEEE C95.1-1992 and
IEEE Std 1528-2013

Product Name : Tablet

Trademark : HOTWAV

Model Name : TAB R7

Family Model : TAB R7 Ultra, TAB R7 Pro, TAB R8, TAB R8 Pro, TAB R9, TAB R9 Pro, TAB R10, TAB R10 Pro, TAB R11, TAB R11 Pro, TAB R12, TAB R12 Pro, TAB R13, TAB R13 Pro, TAB R15, TAB R15 Pro, TAB R16, TAB R16 Pro, P2202S

FCC ID : 2AOKUTABLETR7

Report No. : S23120403105001

Prepared for

SHENZHEN TUGAO INTELLIGENT CO.,LTD
8th Floor, Bldg A, Jinggang Science&Technology Park, Fuyong,
Bao'an District, Shenzhen, China

Prepared by

Shenzhen NTEK Testing Technology Co., Ltd.
1/F, Building E, Fenda Science Park, Sanwei Community,
Xixiang Street Bao'an District, Shenzhen 518126 P.R. China
Tel.: 400-800-6106, 0755-2320 0050, 0755-2320 0090
Website: <http://www.ntek.org.cn>

TEST RESULT CERTIFICATION

Applicant's name SHENZHEN TUGAO INTELLIGENT CO.,LTD
Address..... 8th Floor, Bldg A, Jinggang Science&Technology Park, Fuyong,
Bao'an District, Shenzhen, China

Manufacturer's Name..... SHENZHEN TUGAO INTELLIGENT CO.,LTD
Address..... 8th Floor, Bldg A, Jinggang Science&Technology Park, Fuyong,
Bao'an District, Shenzhen, China

Product description

Product name..... Tablet
Trademark HOTWAV
Model Name TAB R7
TAB R7 Ultra, TAB R7 Pro, TAB R8, TAB R8 Pro, TAB R9,
Family Model..... TAB R9 Pro, TAB R10, TAB R10 Pro, TAB R11, TAB R11 Pro,
TAB R12, TAB R12 Pro, TAB R13, TAB R13 Pro, TAB R15,
TAB R15 Pro, TAB R16, TAB R16 Pro, P2202S
FCC 47 CFR Part 2(2.1093);
ANSI/IEEE C95.1-1992

Standards IEEE Std 1528-2013;
Published RF exposure KDB procedures

This device described above has been tested by Shenzhen NTEK. In accordance with the measurement methods and procedures specified in IEEE Std 1528-2013 and KDB 865664 D01. Testing has shown that this device is capable of compliance with localized specific absorption rate (SAR) specified in FCC 47 CFR Part 2(2.1093) and ANSI/IEEE C95.1-1992. The test results in this report apply only to the tested sample of the stated device/equipment. Other similar device/equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

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Test Sample Number S231204031006

Date of Test

Date (s) of performance of tests Dec. 05, 2023 ~ Dec. 18, 2023

Date of Issue Feb. 29, 2024

Test Result **Pass**

Prepared By : Jack Li
Jack Li
(Project Engineer)

Reviewed By : Aaron Cheng
Aaron Cheng
(Supervisor)

Approved By : Alex Li
Alex Li
(Manager)

※ ※ **Revision History** ※ ※

REV.	DESCRIPTION	ISSUED DATE	REMARK
Rev.1.0	Initial Test Report Release	Feb. 29, 2024	Jack Li

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1. General Information

1.1. RF exposure limits

(A).Limits for Occupational/Controlled Exposure (W/kg)

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

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

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

NOTE: **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.

Occupational/Controlled 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).

General Population/Uncontrolled Environments:

Are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure.

NOTE
TRUNK LIMIT
1.6 W/kg
APPLIED TO THIS EUT

1.2. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for TAB R7 are as follows.

RF Exposure Conditions		Max Reported SAR Value(W/kg)
1-g Body-Worn (Separation distance of 0mm)		1.154
1-g Hotspot (Separation distance of 0mm)		1.154
Max Simultaneous Tx	Body-Worn	1.436
	Hotspot	1.436

Note: The Max Simultaneous Tx is calculated based on the same configuration and test position. This device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6 W/kg) 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 Std 1528-2013 & KDB 865664 D01.

1.3. EUT Description

Device Information			
Product Name	Tablet		
Trade Name	HOTWAV		
Model Name	TAB R7		
Family Model	TAB R7 Ultra, TAB R7 Pro, TAB R8, TAB R8 Pro, TAB R9, TAB R9 Pro, TAB R10, TAB R10 Pro, TAB R11, TAB R11 Pro, TAB R12, TAB R12 Pro, TAB R13, TAB R13 Pro, TAB R15, TAB R15 Pro, TAB R16, TAB R16 Pro, P2202S		
Model Difference	All the model are the same circuit and RF module, except the model names.		
FCC ID	2AOKUTABLETR7		
Device Phase	Identical Prototype		
Exposure Category	General population / Uncontrolled environment		
Antenna	PIFA Antenna		
Battery	DC 3.85V, 15600mAh, 60.06Wh		
Hardware version	N/A		
Software version	N/A		
Device Operating Configurations			
Supporting Mode(s)	GSM 850/1900, WCDMA Band 2/4/5, LTE Band 2/4/5/7/12/17/25/26A/26B/38/40A/40B/41/66, WLAN 2.4G/5G, Bluetooth		
Test Modulation	GSM(GMSK/8PSK), WCDMA(QPSK), LTE(QPSK/16QAM), WLAN(DSSS/OFDM), Bluetooth(GFSK, $\pi/4$ -DQPSK, 8DPSK)		
Device Class	B		
Operating Frequency	Band	Tx (MHz)	Rx (MHz)

Range(s)	GSM 850	824-849	869-894
	GSM 1900	1850-1910	1930-1990
	WCDMA Band 2	1850-1910	1930-1990
	WCDMA Band 4	1710-1755	2110-2155
	WCDMA Band 5	824-849	869-894
	LTE Band 2	1850-1910	1930-1990
	LTE Band 4	1710-1755	2110-2155
	LTE Band 5	824-849	869-894
	LTE Band 7	2500-2570	2620-2690
	LTE Band 12	699-716	729-746
	LTE Band 17	704-716	734-746
	LTE Band 25	1850-1915	1930-1995
	LTE Band 26A	814-824	859-869
	LTE Band 26B	824-849	869-894
	LTE Band 38	2570-2620	
	LTE Band 40A	2305-2315	
	LTE Band 40B	2350-2360	
	LTE Band 41	2535-2655	
	LTE Band 66	1710-1780	2110-2200
	WLAN 2.4G	2412-2462	
	WLAN 5.2G	5180-5240	
WLAN 5.8G	5745-5825		
Bluetooth	2402-2480		
GPRS Multislot Class(12)	Max Number of Timeslots in Uplink		4
	Max Number of Timeslots in Downlink		4
	Max Total Timeslot		5
EGPRS Multislot Class(12)	Max Number of Timeslots in Uplink		4
	Max Number of Timeslots in Downlink		4
	Max Total Timeslot		5
Power Class	4, tested with power level 5(GSM 850)		
	1, tested with power level 0(GSM 1900)		
	3, tested with power control "all 1"(WCDMA Band 2)		
	3, tested with power control "all 1"(WCDMA Band 4)		
	3, tested with power control "all 1"(WCDMA Band 5)		
	3, tested with power control all Max.(LTE Band 2)		
	3, tested with power control all Max.(LTE Band 4)		
	3, tested with power control all Max.(LTE Band 5)		
	3, tested with power control all Max.(LTE Band 7)		
	3, tested with power control all Max.(LTE Band 12)		
	3, tested with power control all Max.(LTE Band 17)		

	3, tested with power control all Max.(LTE Band 25)
	3, tested with power control all Max.(LTE Band 26A)
	3, tested with power control all Max.(LTE Band 26B)
	3, tested with power control all Max.(LTE Band 38)
	3, tested with power control all Max.(LTE Band 40A)
	3, tested with power control all Max.(LTE Band 40B)
	3, tested with power control all Max.(LTE Band 41)
	3, tested with power control all Max.(LTE Band 66)

1.4. Test specification(s)

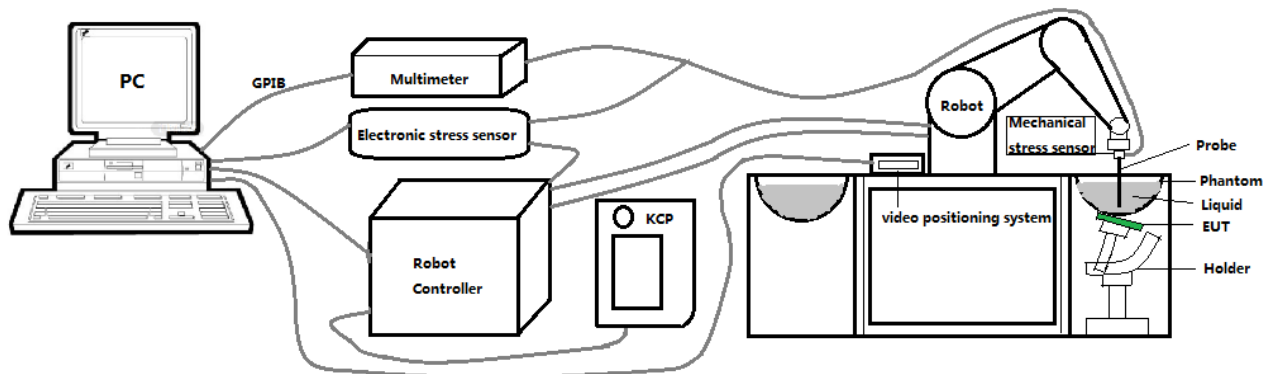
FCC 47 CFR Part 2(2.1093)
ANSI/IEEE C95.1-1992
IEEE Std 1528-2013
KDB 865664 D01 SAR measurement 100 MHz to 6 GHz
KDB 865664 D02 RF Exposure Reporting
KDB 447498 D01 General RF Exposure Guidance
KDB 248227 D01 802.11 Wi-Fi SAR
KDB 941225 D01 3G SAR Procedures
KDB 941225 D05 SAR for LTE Devices
KDB 616217 D04 SAR for laptop and tablets

1.5. Ambient Condition

Ambient temperature	20°C – 24°C
Relative Humidity	30% – 70%

2. SAR Measurement System

2.1. SATIMO SAR Measurement Set-up Diagram



These measurements were performed with the automated near-field scanning system OPENSAR from SATIMO. The system is based on a high precision robot (working range: 901 mm), which positions the probes with a positional repeatability of better than ± 0.03 mm. The SAR measurements were conducted with dosimetric probe (manufactured by SATIMO), designed in the classical triangular configuration and optimized for dosimetric evaluation.

The first step of the field measurement is the evaluation of the voltages induced on the probe by the device under test. Probe diode detectors are nonlinear. Below the diode compression point, the output voltage is proportional to the square of the applied E-field; above the diode compression point, it is linear to the applied E-field. The compression point depends on the diode, and a calibration procedure is necessary for each sensor of the probe.

The Keithley multimeter reads the voltage of each sensor and send these three values to the PC. The corresponding E field value is calculated using the probe calibration factors, which are stored in the working directory. This evaluation includes linearization of the diode characteristics. The field calculation is done separately for each sensor. Each component of the E field is displayed on the "Dipole Area Scan Interface" and the total E field is displayed on the "3D Interface"

2.2. Robot

The SATIMO SAR system uses the high precision robots from KUKA. For the 6-axis controller system, the robot controller version (KUKA) from KUKA is used. The KUKA robot series have many features that are important for our application:



- High precision (repeatability ± 0.03 mm)
- High reliability (industrial design)
- Jerk-free straight movements
- Low ELF interference (the closed metallic construction shields against motor control fields)

2.3. E-Field Probe

This E-field detection probe is composed of three orthogonal dipoles linked to special Schottky diodes with low detection thresholds. The probe allows the measurement of electric fields in liquids such as the one defined in the IEEE and CENELEC standards.

For the measurements the Specific Dosimetric E-Field Probe 3423-EPGO-426 with following specifications is used



- Dynamic range: 0.01-100 W/kg
 - Tip Diameter : 2.5 mm
 - Distance between probe tip and sensor center: 1 mm
 - Distance between sensor center and the inner phantom surface: 2 mm (repeatability better than ± 1 mm).
 - Probe linearity: ± 0.06 dB
 - Axial isotropy: ± 0.01 dB
 - Hemispherical Isotropy: ± 0.01 dB
 - Calibration range: 650MHz to 5900MHz for head & body simulating liquid.
 - Lower detection limit: 8mW/kg
- Angle between probe axis (evaluation axis) and surface normal line: less than 30° .

2.3.1. E-Field Probe Calibration

Each probe needs to be calibrated according to a dosimetric assessment procedure with accuracy better than $\pm 10\%$. The spherical isotropy shall be evaluated and within ± 0.25 dB. The sensitivity parameters (Norm X, Norm Y, and Norm Z), the diode compression parameter (DCP) and the conversion factor (Conv F) of the probe are tested. The calibration data can be referred to appendix D of this report.

2.4. SAM phantoms

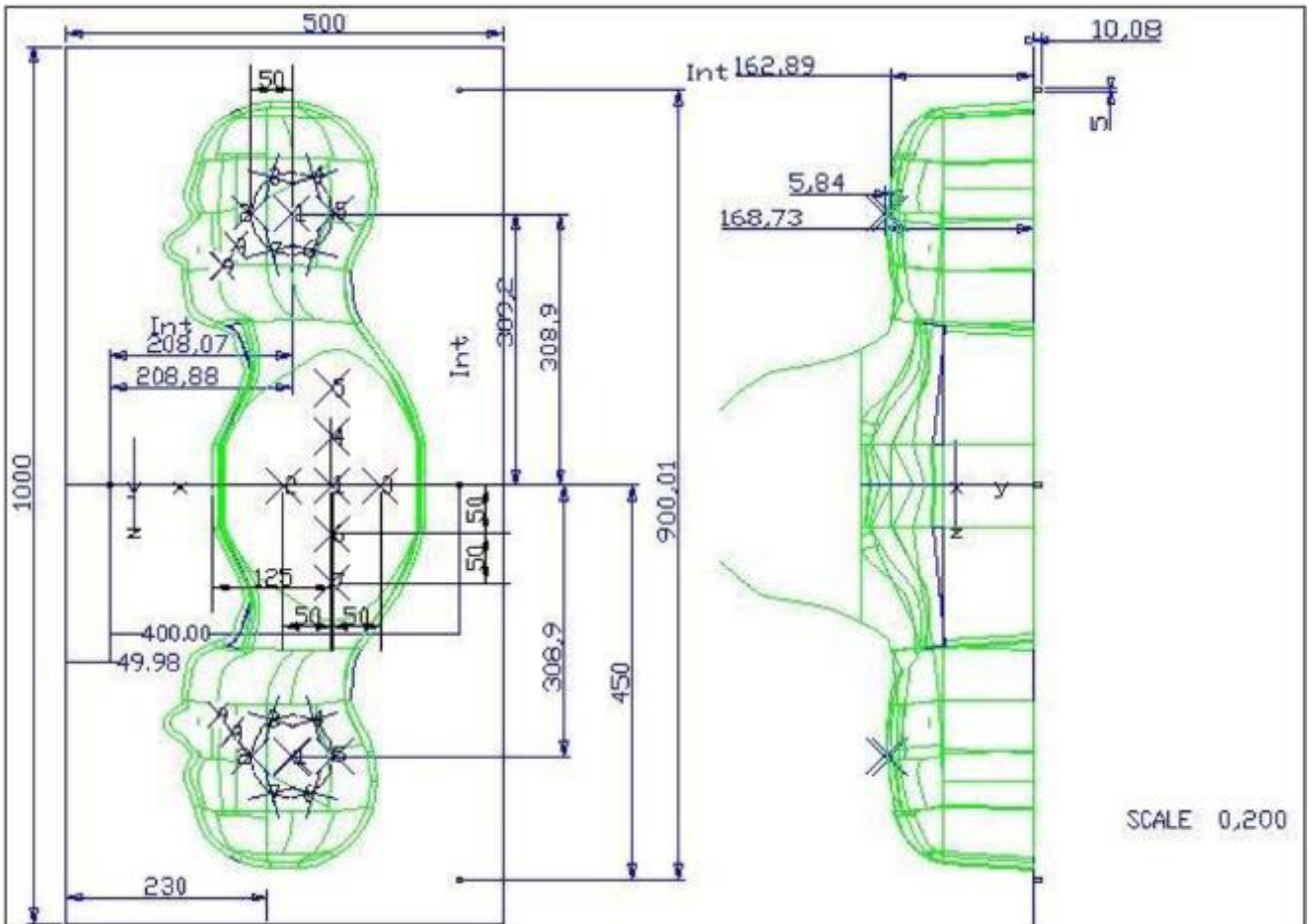
Photo of SAM phantom SN 16/15 SAM119



The SAM phantom is used to measure the SAR relative to people exposed to electro-magnetic field radiated by mobile phones.

2.4.1. Technical Data

Serial Number	Shell thickness	Filling volume	Dimensions	Positionner Material	Permittivity	Loss Tangent
SN 16/15 SAM119	2 mm ±0.2 mm	27 liters	Length:1000 mm Width:500 mm Height:200 mm	Gelcoat with fiberglass	3.4	0.02

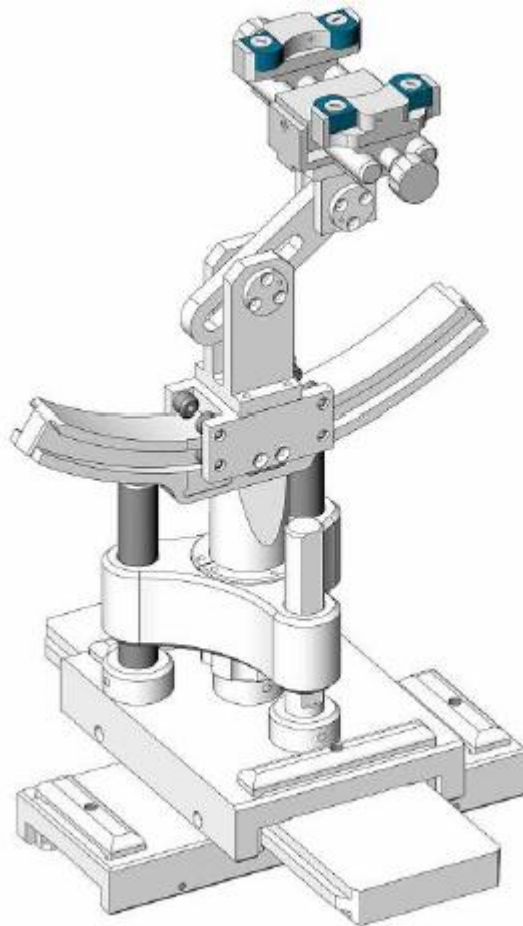


Serial Number	Left Head(mm)		Right Head(mm)		Flat Part(mm)	
	1	2	1	2	1	2
SN 16/15 SAM119	2	2.02	2	2.08	1	2.09
	3	2.05	3	2.06	2	2.06
	4	2.07	4	2.07	3	2.08
	5	2.08	5	2.08	4	2.10
	6	2.05	6	2.07	5	2.10
	7	2.05	7	2.05	6	2.07
	8	2.07	8	2.06	7	2.07
	9	2.08	9	2.06	-	-

The test, based on ultrasonic system, allows measuring the thickness with an accuracy of 10 µm.

2.5. Device Holder

The positioning system allows obtaining cheek and tilting position with a very good accuracy. In compliance with CENELEC, the tilt angle uncertainty is lower than 1 degree.



Serial Number	Holder Material	Permittivity	Loss Tangent
SN 16/15 MSH100	Delrin	3.7	0.005

2.6. Test Equipment List

This table gives a complete overview of the SAR measurement equipment.

Devices used during the test described are marked

	Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
					Last Cal.	Due Date
<input checked="" type="checkbox"/>	MVG	E FIELD PROBE	SSE2	3423-EPGO-426	Sep. 18, 2023	Sep. 17, 2024
<input checked="" type="checkbox"/>	MVG	750 MHz Dipole	SID750	SN 03/15 DIP 0G750-355	Mar. 01, 2021	Feb. 28, 2024
<input checked="" type="checkbox"/>	MVG	835 MHz Dipole	SID835	SN 03/15 DIP 0G835-347	Mar. 01, 2021	Feb. 28, 2024
<input type="checkbox"/>	MVG	900 MHz Dipole	SID900	SN 03/15 DIP 0G900-348	Mar. 01, 2021	Feb. 28, 2024
<input checked="" type="checkbox"/>	MVG	1800 MHz Dipole	SID1800	SN 03/15 DIP 1G800-349	Mar. 01, 2021	Feb. 28, 2024
<input checked="" type="checkbox"/>	MVG	1900 MHz Dipole	SID1900	SN 03/15 DIP 1G900-350	Mar. 01, 2021	Feb. 28, 2024
<input type="checkbox"/>	MVG	2000 MHz Dipole	SID2000	SN 03/15 DIP 2G000-351	Mar. 01, 2021	Feb. 28, 2024
<input checked="" type="checkbox"/>	MVG	2300 MHz Dipole	SID2300	SN 03/16 DIP 2G300-358	Mar. 01, 2021	Feb. 28, 2024
<input checked="" type="checkbox"/>	MVG	2450 MHz Dipole	SID2450	SN 03/15 DIP 2G450-352	Mar. 01, 2021	Feb. 28, 2024
<input checked="" type="checkbox"/>	MVG	2600 MHz Dipole	SID2600	SN 03/15 DIP 2G600-356	Mar. 01, 2021	Feb. 28, 2024
<input type="checkbox"/>	MVG	3500 MHz Dipole	SID3500	SN 09/12 DIP 3G500-360	Oct. 15, 2022	Oct. 14, 2025
<input checked="" type="checkbox"/>	MVG	5000 MHz Dipole	SWG5500	SN 13/14 WGA 33	Mar. 01, 2021	Feb. 28, 2024
<input checked="" type="checkbox"/>	MVG	Liquid measurement Kit	SCLMP	SN 21/15 OCPG 72	NCR	NCR
<input checked="" type="checkbox"/>	MVG	Power Amplifier	N.A	AMPLISAR_28/14_003	NCR	NCR
<input checked="" type="checkbox"/>	KEITHLEY	Millivoltmeter	2000	4072790	NCR	NCR
<input checked="" type="checkbox"/>	R&S	Universal radio communication tester	CMU200	117858	May 29, 2023	May 28, 2024
<input checked="" type="checkbox"/>	R&S	Wideband radio communication tester	CMW500	103917	May 29, 2023	May 28, 2024

<input checked="" type="checkbox"/>	HP	Network Analyzer	8753D	3410J01136	May 29, 2023	May 28, 2024
<input checked="" type="checkbox"/>	Agilent	MXG Vector Signal Generator	N5182A	MY47070317	May 29, 2023	May 28, 2024
<input checked="" type="checkbox"/>	Agilent	Power meter	E4419B	MY45102538	May 29, 2023	May 28, 2024
<input checked="" type="checkbox"/>	Agilent	Power sensor	E9301A	MY41495644	May 29, 2023	May 28, 2024
<input checked="" type="checkbox"/>	Agilent	Power sensor	E9301A	US39212148	May 29, 2023	May 28, 2024
<input checked="" type="checkbox"/>	MCLI/USA	Directional Coupler	CB11-20	0D2L51502	Jul. 04, 2023	Jul. 03, 2024
<input checked="" type="checkbox"/>	N/A	Thermometer	N/A	LES-085	Mar. 27, 2023	Mar. 26, 2026
<input checked="" type="checkbox"/>	MVG	SAM Phantom	SSM2	SN 16/15 SAM119	NCR	NCR
<input checked="" type="checkbox"/>	MVG	Device Holder	SMPPD	SN 16/15 MSH100	NCR	NCR
<input checked="" type="checkbox"/>	Shenzhen Tianxu Communication Technology Co., Ltd.	Human Simulating Liquid	Head 750	Head 750	NCR	NCR
<input checked="" type="checkbox"/>	Shenzhen Tianxu Communication Technology Co., Ltd.	Human Simulating Liquid	Head 835	Head 835	NCR	NCR
<input checked="" type="checkbox"/>	Shenzhen Tianxu Communication Technology Co., Ltd.	Human Simulating Liquid	Head 1800	Head 1800	NCR	NCR
<input checked="" type="checkbox"/>	Shenzhen Tianxu Communication Technology Co., Ltd.	Human Simulating Liquid	Head 1900	Head 1900	NCR	NCR
<input checked="" type="checkbox"/>	Shenzhen Tianxu Communication Technology Co., Ltd.	Human Simulating Liquid	Head 2300	Head 2300	NCR	NCR

<input checked="" type="checkbox"/>	Shenzhen Tianxu Communication Technology Co., Ltd.	Human Simulating Liquid	Head 2450	Head 2450	NCR	NCR
<input checked="" type="checkbox"/>	Shenzhen Tianxu Communication Technology Co., Ltd.	Human Simulating Liquid	Head 2600	Head 2600	NCR	NCR
<input checked="" type="checkbox"/>	Shenzhen Tianxu Communication Technology Co., Ltd.	Human Simulating Liquid	Head 5200	Head 5200	NCR	NCR
<input checked="" type="checkbox"/>	Shenzhen Tianxu Communication Technology Co., Ltd.	Human Simulating Liquid	Head 5800	Head 5800	NCR	NCR

3. SAR 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/Bluetooth power measurement, use engineering software to configure EUT WLAN/Bluetooth 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/Bluetooth output power.

<SAR measurement>

- (a) Use base station simulator to configure EUT WWAN transmission in radiated connection, and engineering software to configure EUT WLAN/Bluetooth continuously transmission, at maximum RF power, in the highest power channel.
- (b) Place the EUT in the positions as Appendix A demonstrates.
- (c) Set scan area, grid size and other setting on the OPENSAR 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

3.1. Power Reference

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.

3.2. Area scan & Zoom scan

The area scan is a 2D scan to find the hot spot location on the DUT. The zoom scan is a 3D scan above the hot spot to calculate the 1g and 10g SAR value.

Measurement of the SAR distribution with a grid of 8 to 16 mm * 8 to 16 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. 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.

From the scanned SAR distribution, identify the position of the maximum SAR value, in addition identify the positions of any local maxima with SAR values within 2 dB of the maximum value that will not be within the zoom scan of other peaks; additional peaks shall be measured only when the primary peak is within 2 dB of the SAR compliance limit (e.g., 1 W/kg for 1,6 W/kg 1 g limit, or 1,26 W/kg for 2 W/kg, 10 g limit).

Area scan & Zoom scan scan parameters extracted from FCC KDB 865664 D01 SAR measurement 100 MHz to 6 GHz.

		≤ 3 GHz	> 3 GHz	
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface		5 ± 1 mm	½·δ·ln(2) ± 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: Δz _{Zoom} (n)	≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm	
	graded grid	Δz _{Zoom} (1): between 1 st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		Δz _{Zoom} (n>1): between subsequent points	≤ 1.5·Δz _{Zoom} (n-1)	
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 draft standard IEEE P1528-2011 for details.

* When zoom scan is required and the *reported* SAR from the *area scan based 1-g SAR estimation* procedures of KDB 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.

3.3. 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 minimise measurements errors, but the highest local SAR will occur at the surface of the phantom.

An extrapolation is used to determine these 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 1 mm 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.

3.4. Volumetric Scan

The volumetric scan consists of a full 3D scan over a specific area. This 3D scan is useful for multi Tx SAR measurement. Indeed, it is possible with OpenSAR to add, point by point, several volumetric scans to calculate the SAR value of the combined measurement as it is defined in the standard IEEE1528 and IEC62209.

3.5. Power Drift

All SAR testing is under the EUT installed with a full charged battery and transmit maximum output power. In OpenSAR measurement software, the power reference measurement and power drift measurement procedures are used for monitoring the power drift of EUT 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 V/m. If the power drifts more than $\pm 5\%$, the SAR will be retested.

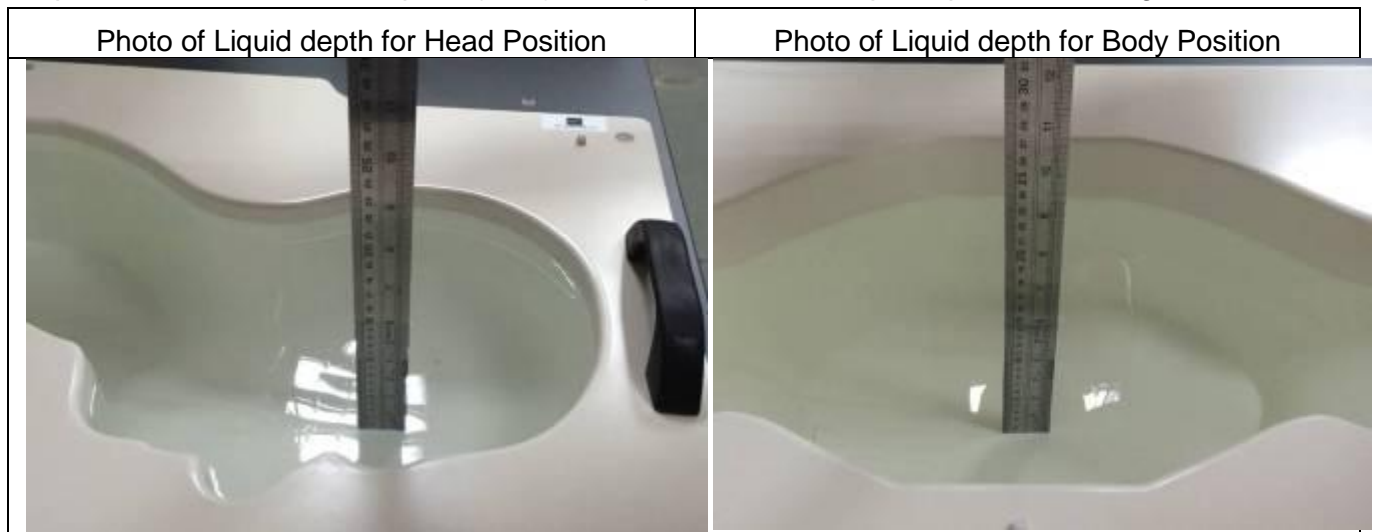
4. System Verification Procedure

4.1. Tissue Verification

The following tissue formulations are provided for reference only as some of the parameters have not been thoroughly verified. The composition of ingredients may be modified accordingly to achieve the desired target tissue parameters required for routine SAR evaluation.

Ingredients (% of weight)	Head Tissue								
	750	835	900	1800	1900	2000	2450	2600	5000
Frequency Band (MHz)	750	835	900	1800	1900	2000	2450	2600	5000
Water	34.40	34.40	34.40	55.36	55.36	71.88	71.88	71.88	65.53
NaCl	0.79	0.79	0.79	0.35	0.35	0.16	0.16	0.16	0.00
1,2-Propanediol	64.81	64.81	64.81	0.00	0.00	0.00	0.00	0.00	0.00
Triton X-100	0.00	0.00	0.00	30.45	30.45	19.97	19.97	19.97	17.24
DGBE	0.00	0.00	0.00	13.84	13.84	7.99	7.99	7.99	0.00

For SAR measurement of the field distribution inside the phantom, the phantom must be filled with homogeneous tissue simulating liquid to a depth of at least 15 cm. For head SAR testing, the liquid depth from the ear reference point (ERP) of the phantom to the liquid top surface is larger than 15 cm.



4.1.1. Tissue Dielectric Parameter Check Results

The simulating liquids should be checked at the beginning of a series of SAR measurements to determine if the dielectric parameters are within the tolerances of the specified target values. The measured conductivity and relative permittivity should be within $\pm 5\%$ of the target values.

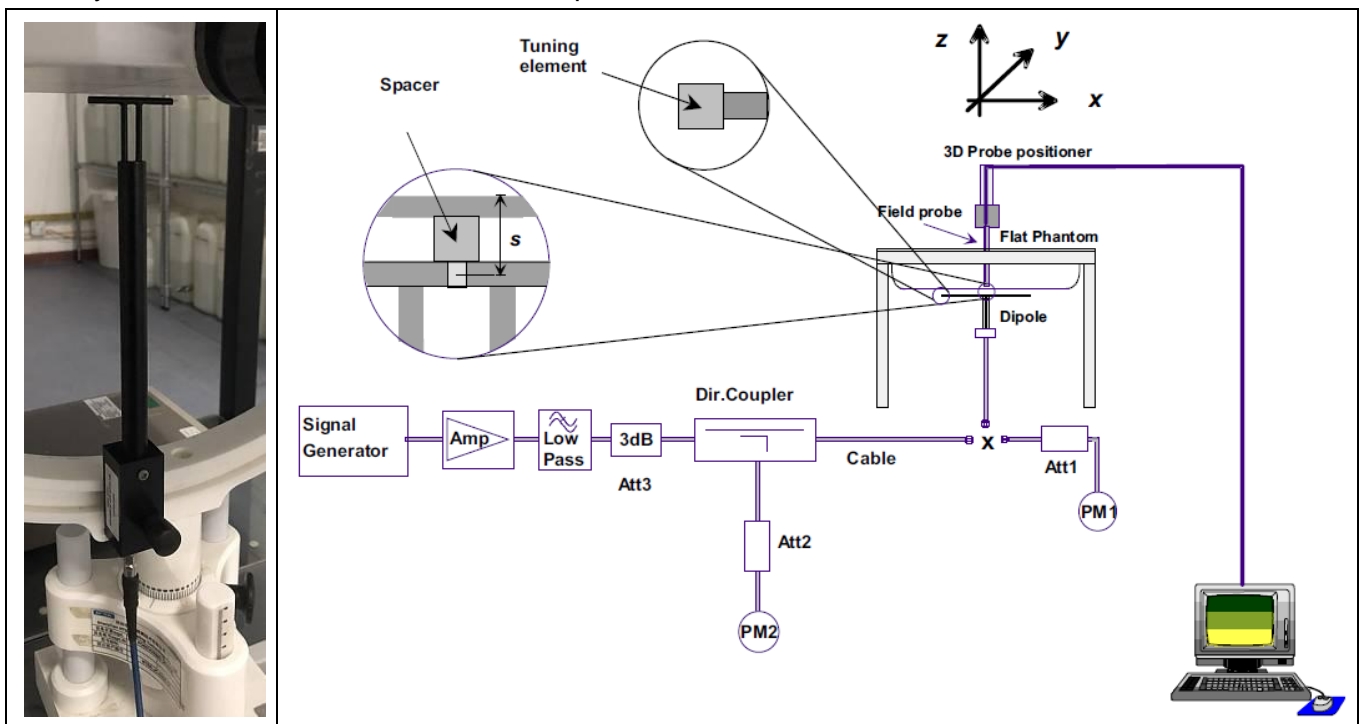
Tissue Type	Measured Frequency (MHz)	Target Tissue		Measured Tissue		Liquid Temp.	Test Date
		ϵ_r ($\pm 5\%$)	σ (S/m) ($\pm 5\%$)	ϵ_r	σ (S/m)		
Head 750	750	41.96 (39.86~44.06)	0.89 (0.85~0.93)	42.03	0.92	21.7 °C	Dec. 05, 2023
Head 850	835	41.50 (39.43~43.58)	0.90 (0.86~0.95)	41.41	0.90	21.9 °C	Dec. 14, 2023
Head 1800	1800	40.00 (38.00~42.00)	1.40 (1.33~1.47)	39.64	1.39	21.6 °C	Dec. 06, 2023
Head 1900	1900	40.00 (38.00~42.00)	1.40 (1.33~1.47)	38.98	1.44	21.3 °C	Dec. 15, 2023
Head 2300	2300	39.47 (37.50~41.44)	1.66 (1.58~1.74)	39.92	1.65	21.8 °C	Dec. 18, 2023
Head 2450	2450	39.20 (37.24~41.16)	1.80 (1.71~1.89)	38.46	1.77	21.9 °C	Dec. 07, 2023
Head 2600	2600	39.01 (37.06~40.96)	1.96 (1.86~2.06)	38.68	1.94	21.7 °C	Dec. 11, 2023
Head 5200	5200	36.00 (34.20~37.80)	4.66 (4.43~4.89)	35.36	4.47	21.2 °C	Dec. 16, 2023
Head 5800	5800	35.30 (33.54~37.07)	5.27 (5.01~5.53)	34.93	5.29	21.4 °C	Dec. 08, 2023

NOTE: The dielectric parameters of the tissue-equivalent liquid should be measured under similar ambient conditions and within 2 °C of the conditions expected during the SAR evaluation to satisfy protocol requirements.

4.2. System Verification Procedure

The system verification is performed for verifying the accuracy of the complete measurement system and performance of the software. The dipole is connected to the signal source consisting of signal generator and amplifier via a directional coupler, N-connector cable and adaption to SMA. It is fed with a power of 100mW (below 5GHz) or 100mW (above 5GHz). To adjust this power a power meter is used. The power sensor is connected to the cable before the system verification to measure the power at this point and do adjustments at the signal generator. At the outputs of the directional coupler both return loss as well as forward power are controlled during the system verification to make sure that emitted power at the dipole is kept constant. This can also be checked by the power drift measurement after the test (result on plot).

The system verification is shown as below picture:



4.2.1. System Verification Results

Comparing to the original SAR value provided by SATIMO, the verification data should be within its specification of $\pm 10\%$. Below table shows the target SAR and measured SAR after normalized to 1W input power. The table below indicates the system performance verification can meet the variation criterion and the plots can be referred to Appendix B of this report.

System Verification	Target SAR (1W)		Measured SAR		Liquid Temp.	Delta (%)		Test Date
	$(\pm 10\%)$		(Normalized to 1W)			1-g ($\pm 10\%$)	10-g ($\pm 10\%$)	
	1-g (W/Kg)	10-g (W/Kg)	1-g (W/Kg)	10-g (W/Kg)				
750MHz	8.53 (7.68~9.38)	5.56 (5.01~6.11)	8.87	5.52	21.7 °C	3.99%	-0.72%	Dec. 05, 2023
835MHz	9.84 (8.86~10.82)	6.22 (5.60~6.84)	10.47	6.37	21.9 °C	6.40%	2.41%	Dec. 14, 2023
1800MHz	37.96 (34.17~41.75)	19.81 (17.83~21.79)	36.89	21.10	21.6 °C	-2.82%	6.51%	Dec. 06, 2023
1900MHz	40.37 (36.34~44.40)	20.48 (18.44~22.52)	40.23	21.02	21.3 °C	-0.35%	2.64%	Dec. 15, 2023
2300MHz	50.65 (45.59~55.71)	23.55 (21.20~25.90)	46.40	24.19	21.8 °C	-8.39%	2.72%	Dec. 18, 2023
2450MHz	53.69 (48.33~59.05)	23.94 (21.55~26.33)	54.81	22.43	21.9 °C	2.09%	-4.76%	Dec. 07, 2023
2600MHz	55.83 (50.25~61.41)	24.19 (21.78~26.60)	52.37	24.58	21.7 °C	-6.20%	1.61%	Dec. 11, 2023
5200MHz	162.34 (146.11~178.57)	55.42 (49.88~60.96)	165.00	50.15	21.2 °C	1.64%	-9.51%	Dec. 16, 2023
5800MHz	178.89 (161.01~196.77)	59.32 (53.39~65.25)	171.10	59.75	21.4 °C	-4.35%	0.72%	Dec. 08, 2023

5. SAR Measurement variability and uncertainty

5.1. SAR measurement variability

Per KDB865664 D01 SAR measurement 100 MHz to 6 GHz, SAR measurement variability must be assessed for each frequency band, which is determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements. The 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 .

5.2. SAR measurement uncertainty

Per KDB865664 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. The equivalent ratio (1.5/1.6) is applied to extremity and occupational exposure conditions.

6. RF Exposure Positions

6.1. Tablet host platform exposure conditions

Refer to KDB616217 D04, when the modular approach is used, transmitters and modules must be initially tested for standalone operations in generic host conditions according to the following minimum test separation distance and antenna installation requirements for incorporation in the tablet platform. The separation distance required for incorporation in qualified hosts is described in KDB 447498; item 5) of section 4.1 and item 1) of section 5.2.2 etc.

- ≤ 5 mm between the antenna and user for both back surface and edge exposure conditions
- the antennas used by the host must have been tested for equipment approval or qualify for SAR test exclusion
- the antenna polarization, physical orientation, rotation and installation configurations used by the host must have been tested for compliance or qualify for test exclusion
- when the *SAR Test Exclusion Threshold* in KDB 447498 applies, a *test separation distance* of 5 mm is required to determine test exclusion for the tablet platform

The antennas embedded in tablets are typically ≤ 5 mm from the outer housing. The required antenna to user test separation distance is a “not to exceed test” distance required to apply the modular approach. Instead of the typical zero gap tablet edge test requirement between the edge of a tablet and the user, when an antenna has been tested at ≤ 5 mm according to the modular approach it can be incorporated into tablets with at least twice the tested distance from the outer housing of the tablet edge; otherwise, the tablet edge zero gap test requirement applies. When the dedicated host approach is applied, the back surface and edges of the tablet should be tested for SAR compliance with the tablet touching the phantom.

7. RF Output Power

7.1. GSM Conducted Power

Band GSM850		Burst-Averaged output Power (dBm)			Frame-Averaged output Power (dBm)			
Tx Channel	Tune -	128	189	251	Tune -	128	189	251
Frequency (MHz)	up (dBm)	824.2	836.4	848.8	up (dBm)	824.2	836.4	848.8
GSM (GMSK)	33.00	32.40	32.41	32.59	23.97	23.37	23.38	23.56
GPRS(GMSK, 1 TS)	33.00	32.52	32.50	32.67	23.97	23.49	23.47	23.64
GPRS(GMSK, 2 TS)	31.00	30.58	30.38	30.47	24.98	24.56	24.36	24.45
GPRS(GMSK, 3 TS)	29.00	28.66	28.51	28.56	24.74	24.40	24.25	24.30
GPRS(GMSK, 4 TS)	27.00	26.59	26.39	26.44	23.99	23.58	23.38	23.43
EGPRS(8PSK, 1 TS)	26.50	25.78	26.09	25.99	17.47	16.75	17.06	16.96
EGPRS(8PSK, 2 TS)	25.00	24.35	24.21	24.82	18.98	18.33	18.19	18.80
EGPRS(8PSK, 3 TS)	22.00	21.33	21.69	21.49	17.74	17.07	17.43	17.23
EGPRS(8PSK, 4 TS)	19.50	19.08	18.85	19.23	16.49	16.07	15.84	16.22
Band GSM1900		Burst-Averaged output Power (dBm)			Frame-Averaged output Power (dBm)			
Tx Channel	Tune -	512	661	810	Tune -	512	661	810
Frequency (MHz)	up (dBm)	1850.2	1880	1909.8	up (dBm)	1850.2	1880	1909.8
GSM (GMSK)	30.50	30.39	30.39	30.22	21.47	21.36	21.36	21.19
GPRS(GMSK, 1 TS)	30.50	30.39	30.36	30.19	21.47	21.36	21.33	21.16
GPRS(GMSK, 2 TS)	28.50	27.93	28.09	28.04	22.48	21.91	22.07	22.02
GPRS(GMSK, 3 TS)	27.00	26.42	26.57	26.46	22.74	22.16	22.31	22.20
GPRS(GMSK, 4 TS)	24.50	24.39	24.40	24.32	21.49	21.38	21.39	21.31
EGPRS(8PSK, 1 TS)	26.50	25.87	26.45	26.12	17.47	16.84	17.42	17.09
EGPRS(8PSK, 2 TS)	24.50	23.87	24.35	24.32	18.48	17.85	18.33	18.30
EGPRS(8PSK, 3 TS)	23.00	22.16	22.58	22.28	18.74	17.90	18.32	18.02
EGPRS(8PSK, 4 TS)	20.50	20.07	20.17	19.82	17.49	17.06	17.16	16.81

Note: The frame-averaged power is linearly scaled the maximum burst averaged power over 8 time slots. The calculated method are shown as below:

Frame-averaged power = Maximum burst averaged power (1 Tx Slot) - 9.03 dB

Frame-averaged power = Maximum burst averaged power (2 Tx Slots) - 6.02 dB

Frame-averaged power = Maximum burst averaged power (3 Tx Slots) - 4.26 dB

Frame-averaged power = Maximum burst averaged power (4 Tx Slots) - 3.01 dB

7.2. WCDMA Conducted Power

WCDMA Band 2		Burst-Averaged output Power (dBm)			
Tx Channel	Tune-up (dBm)	9262	9400	9538	
Frequency (MHz)		1852.4	1880	1907.6	
RMC12.2K	23.50	23.35	23.37	23.29	
HSDPA Sub 1	23.00	22.88	23.00	22.85	
HSDPA Sub 2	23.00	22.59	22.75	22.51	
HSDPA Sub 3	23.00	22.30	22.50	22.36	
HSDPA Sub 4	22.50	22.19	22.30	22.19	
HSUPA Sub 1	23.00	22.79	22.58	22.67	
HSUPA Sub 2	23.00	22.85	22.96	22.78	
HSUPA Sub 3	23.00	22.52	22.63	22.46	
HSUPA Sub 4	23.00	22.58	22.95	22.78	
HSUPA Sub 5	23.00	22.77	22.81	22.62	
WCDMA Band 4		Burst-Averaged output Power (dBm)			
Tx Channel	Tune-up (dBm)	1312	1413	1513	
Frequency (MHz)		1712.4	1732.6	1752.6	
RMC12.2K	23.50	22.82	22.94	23.10	
HSDPA Sub 1	23.00	22.73	22.51	22.68	
HSDPA Sub 2	22.50	22.42	22.29	22.40	
HSDPA Sub 3	22.50	22.14	22.04	22.16	
HSDPA Sub 4	22.50	21.76	22.00	22.17	
HSUPA Sub 1	23.00	22.58	22.29	22.58	
HSUPA Sub 2	23.00	22.66	22.54	22.65	
HSUPA Sub 3	22.50	22.26	22.02	22.30	
HSUPA Sub 4	23.00	22.63	22.30	22.62	
HSUPA Sub 5	22.50	22.42	22.19	22.43	
WCDMA Band 5		Burst-Averaged output Power (dBm)			
Tx Channel	Tune-up (dBm)	4132	4182	4233	
Frequency (MHz)		826.4	836.4	846.6	
RMC12.2K	24.00	23.50	23.52	23.33	
HSDPA Sub 1	23.50	23.38	23.14	23.25	
HSDPA Sub 2	23.50	23.17	22.93	23.11	
HSDPA Sub 3	23.00	22.97	22.79	22.79	
HSDPA Sub 4	23.00	22.65	22.54	22.68	
HSUPA Sub 1	23.50	23.33	23.15	23.13	

HSUPA Sub 2	23.50	23.44	23.15	23.26
HSUPA Sub 3	23.50	23.20	23.04	22.88
HSUPA Sub 4	23.50	23.43	23.15	23.28
HSUPA Sub 5	23.50	23.17	22.89	23.05

7.3. LTE Conducted Power

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)			
			RB Size	RB Offset		18607/1850.7	18900/1880	19193/1909.3	
LTE Band 2	1.4MHz	QPSK	1	0	25.50	25.36	25.41	25.35	
			1	2	25.50	25.34	25.42	25.33	
			1	5	25.50	25.36	25.41	25.29	
			3	0	25.50	25.21	25.22	25.04	
			3	1	25.50	25.26	25.29	25.10	
			3	2	25.50	25.19	25.18	25.07	
		16QAM	1	0	25.50	25.09	24.22	23.95	
			1	2	25.50	25.14	24.29	24.03	
			1	5	25.50	25.09	24.27	24.08	
			3	0	24.50	24.43	24.21	24.11	
			3	1	24.50	24.48	24.22	23.97	
			3	2	24.50	24.41	24.18	24.11	
			6	0	23.50	23.39	23.17	23.07	
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)			
			RB Size	RB Offset		18615/1851.5	18900/1880	19185/1908.5	
LTE Band 2	3MHz	QPSK	1	0	25.50	25.25	25.34	25.32	
			1	7	25.50	25.14	25.42	25.31	
			1	14	25.50	25.26	25.43	25.30	
			8	0	24.50	24.24	24.06	24.04	
			8	4	24.50	24.27	24.13	23.95	
			8	7	24.50	24.22	24.22	23.99	
			15	0	24.50	24.25	24.18	24.03	
		16QAM	1	0	25.50	25.24	23.77	24.02	
			1	7	25.50	25.23	23.67	24.00	
			1	14	25.50	25.18	23.70	24.01	
			8	0	23.50	23.20	23.16	23.03	

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)				
			RB Size	RB Offset		18625/1852.5	18900/1880	19175/1907.5		
			8	4	23.50	23.21	23.23	23.06		
			8	7	23.50	23.19	23.25	23.02		
			15	0	23.50	23.27	23.17	23.20		
LTE Band 2	5MHz	QPSK	1	0	25.50	25.16	25.16	25.04		
			1	12	25.50	25.06	25.06	25.02		
			1	24	25.50	25.23	25.23	25.02		
			12	0	24.50	24.22	24.22	24.13		
			12	6	24.50	24.16	24.16	24.04		
			12	11	24.50	24.22	24.22	23.95		
		16QAM	25	0	24.50	24.21	24.21	23.98		
			1	0	25.00	24.22	24.22	24.66		
			1	12	25.00	24.25	24.25	24.62		
			1	24	25.00	24.26	24.26	24.59		
			12	0	23.50	23.19	23.19	23.09		
			12	6	23.50	23.14	23.14	23.07		
					12	11	23.50	23.18	23.18	23.02
					25	0	23.50	23.28	23.28	23.22
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)				
			RB Size	RB Offset		18650/1855	18900/1880	19150/1905		
LTE Band 2	10MHz	QPSK	1	0	25.50	25.23	25.14	25.35		
			1	24	25.50	25.29	25.19	25.34		
			1	49	25.50	25.33	25.16	25.20		
			25	0	24.50	24.15	24.22	24.08		
			25	12	24.50	24.23	24.11	24.04		
			25	24	24.50	24.34	24.10	24.06		
		16QAM	50	0	24.50	24.18	24.25	24.10		
			1	0	25.50	25.19	24.75	24.36		
			1	24	25.50	25.29	24.76	24.32		
			1	49	25.50	25.34	24.79	24.25		
			25	0	23.50	23.25	23.15	23.11		
			25	12	23.50	23.31	23.23	23.12		
					25	24	23.50	23.36	23.23	23.14
					50	0	23.50	23.34	23.21	23.04
Band	Band	Modulation	RB		Tune-up	Channel/Frequency(MHz)				

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		19965/1711.5	20175/1732.5	20385/1753.5
LTE Band 4	1.4MHz	QPSK	1	0	23.00	22.71	22.42	22.82
			1	2	23.00	22.73	22.47	22.85
			1	5	23.00	22.73	22.54	22.87
			3	0	23.00	22.51	22.45	22.75
			3	1	23.00	22.59	22.53	22.74
			3	2	23.00	22.52	22.47	22.71
		16QAM	1	0	23.00	22.56	21.53	21.41
			1	2	23.00	22.51	21.59	21.38
			1	5	23.00	22.55	21.60	21.39
			3	0	22.00	21.81	21.51	21.62
			3	1	22.00	21.81	21.53	21.67
			3	2	22.00	21.83	21.54	21.63
			6	0	21.00	20.83	20.83	20.85
			6	0	21.00	20.83	20.83	20.85
LTE Band 4	3MHz	QPSK	1	0	23.00	22.50	22.38	22.92
			1	7	23.00	22.49	22.50	22.90
			1	14	23.00	22.47	22.53	22.81
			8	0	22.00	21.60	21.49	21.70
			8	4	22.00	21.66	21.54	21.71
			8	7	22.00	21.45	21.51	21.64
			15	0	22.00	21.63	21.56	21.86
		16QAM	1	0	23.00	22.72	21.56	21.49
			1	7	23.00	22.56	21.58	21.44
			1	14	23.00	22.41	21.59	21.39
			8	0	21.00	20.56	20.53	20.93
			8	4	21.00	20.59	20.67	20.93
			8	7	21.00	20.88	20.63	20.87
			15	0	21.00	20.73	20.60	20.80
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		19975/1712.5	20175/1732.5	20375/1752.5
LTE	5MHz	QPSK	1	0	23.00	22.54	22.54	22.63

Band 4			1	12	23.00	22.37	22.54	22.66
			1	24	23.00	22.45	22.61	22.63
			12	0	22.00	21.53	21.51	21.67
			12	6	22.00	21.51	21.55	21.76
			12	11	22.00	21.43	21.58	21.77
			25	0	22.00	21.39	21.64	21.65
			25	11	22.00	21.39	21.64	21.65
		16QAM	1	0	22.50	21.75	21.56	22.25
			1	12	22.50	21.58	21.56	21.83
			1	24	22.50	21.60	21.69	21.76
			12	0	21.50	20.59	20.38	21.17
			12	6	21.50	20.92	20.40	20.67
			12	11	21.50	20.92	20.44	20.68
			25	0	21.50	21.12	20.69	20.71
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		20000/1715	20175/1732.5	20350/1750
LTE Band 4	10MHz	QPSK	1	0	23.50	22.55	22.30	23.00
			1	24	23.50	22.40	22.47	23.03
			1	49	23.50	22.43	22.54	23.04
			25	0	22.00	21.48	21.44	21.75
			25	12	22.00	21.46	21.59	21.72
			25	24	22.00	21.55	21.66	21.76
			50	0	22.00	21.45	21.55	21.81
		16QAM	1	0	23.00	22.73	22.19	22.62
			1	24	23.00	22.58	22.35	22.77
			1	49	23.00	22.64	22.32	22.60
			25	0	21.00	20.92	20.47	20.74
			25	12	21.00	20.32	20.71	20.83
			25	24	21.00	20.44	20.69	20.79
			50	0	21.00	20.39	20.72	20.88
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		20025/1717.5	20175/1732.5	20325/1747.5
LTE Band 4	15MHz	QPSK	1	0	23.00	22.51	22.37	22.39
			1	37	23.00	22.39	22.51	22.44
			1	74	23.00	22.39	22.57	22.50

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)				
			RB Size	RB Offset		20050/1720	20175/1732.5	20300/1745		
			36	0	22.00	21.41	21.53	21.78		
			36	18	22.00	21.50	21.55	21.75		
			36	37	22.00	21.55	21.65	21.77		
			75	0	22.00	21.58	21.59	21.71		
		16QAM	1	0	23.00	22.58	21.36	22.50		
			1	37	23.00	22.52	21.57	22.56		
			1	74	23.00	22.43	21.58	22.67		
			36	0	21.50	20.51	21.12	20.72		
			36	18	21.50	20.60	20.76	20.75		
			36	37	21.50	20.58	20.80	21.14		
			75	0	21.00	20.65	20.66	20.84		
			LTE Band 4	20MHz	QPSK	1	0	23.00	22.48	22.47
		1				49	23.00	22.45	22.60	22.76
		1				99	23.00	22.49	22.82	22.75
50	0	22.00				21.43	21.49	21.62		
50	24	22.00				21.41	21.61	21.78		
50	49	22.00				21.40	21.61	21.89		
100	0	22.00				21.43	21.55	21.83		
16QAM	1	0			22.50	21.60	21.46	22.16		
	1	49			22.50	21.50	21.73	22.23		
	1	99			22.50	21.61	21.76	22.28		
	50	0			21.50	20.39	20.48	21.25		
	50	24			21.50	20.55	20.65	20.81		
	50	49			21.50	20.48	20.71	20.93		
	100	0			21.00	20.52	20.62	20.78		

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		20407/824.7	20525/836.5	20643/848.3
LTE Band 5	1.4MHz	QPSK	1	0	24.50	23.96	23.83	23.96
			1	2	24.50	23.98	23.78	24.01
			1	5	24.50	23.95	23.80	23.97
			3	0	24.00	23.88	23.89	23.76
			3	1	24.00	23.90	23.74	23.76

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		20415/825.5	20525/836.5	20635/847.5
		16QAM	3	2	24.00	23.83	23.72	23.76
			6	0	23.00	22.82	22.70	22.71
			1	0	24.00	23.77	22.83	22.71
			1	2	24.00	23.78	22.75	22.87
			1	5	24.00	23.78	22.80	22.85
			3	0	23.50	23.07	22.74	22.61
			3	1	23.50	23.05	22.82	22.55
			3	2	23.50	23.02	22.84	22.62
			6	0	22.00	21.91	21.99	21.69
LTE Band 5	3MHz	QPSK	1	0	24.50	23.79	23.84	24.03
			1	7	24.50	23.80	23.86	24.02
			1	14	24.50	23.83	23.83	23.93
			8	0	23.00	22.94	22.85	22.64
			8	4	23.00	23.00	22.80	22.57
			8	7	23.00	22.97	22.74	22.57
			15	0	23.00	22.96	22.75	22.72
		16QAM	1	0	24.00	23.89	23.56	22.72
			1	7	24.00	23.91	23.50	22.70
			1	14	24.00	23.91	23.49	22.80
			8	0	22.00	21.72	21.94	21.75
			8	4	22.00	21.77	21.96	21.72
			8	7	22.00	21.76	21.95	21.75
			15	0	22.50	22.01	21.83	21.69
						RB Configuration		Tune-up (dBm)
RB Size	RB Offset	20425/826.5				20525/836.5	20625/846.5	
LTE Band 5	5MHz	QPSK	1	0	24.00	23.82	23.86	23.68
			1	12	24.00	23.81	23.81	23.65
			1	24	24.00	23.91	23.81	23.63
			12	0	23.00	22.88	22.86	22.68
			12	6	23.00	22.87	22.74	22.69
			12	11	23.00	22.91	22.72	22.61
			25	0	23.00	22.90	22.84	22.65
		16QAM	1	0	23.50	22.98	22.88	23.29
			1	12	23.50	23.03	22.76	23.22

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		20450/829	20525/836.5	20600/844
LTE Band 5	10MHz	QPSK	1	24	23.50	23.10	22.84	23.11
			12	0	22.00	21.81	21.66	21.62
			12	6	22.00	21.88	21.60	21.60
			12	11	22.00	21.84	21.54	21.58
			25	0	22.50	22.01	21.71	21.78
			1	0	24.50	23.80	23.79	24.06
			1	24	24.50	23.90	23.75	23.95
		16QAM	1	49	24.50	23.88	23.79	23.95
			25	0	23.00	22.89	22.80	22.68
			25	12	23.00	22.92	22.77	22.75
			25	24	23.00	22.85	22.88	22.66
			50	0	23.00	22.94	22.80	22.71
			1	0	24.00	23.78	22.85	22.75
			1	24	24.00	23.97	22.73	22.67
1	49	24.00	23.98	22.78	22.63			
25	0	22.50	21.93	21.90	22.04			
25	12	22.50	21.92	21.79	21.76			
25	24	22.50	21.91	21.91	21.63			
50	0	22.00	21.96	21.77	21.72			

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		20775/2502.5	21100/2535	21425/2567.5
LTE Band 7	5MHz	QPSK	1	0	24.50	24.07	24.14	24.39
			1	12	24.50	24.11	24.25	24.38
			1	24	24.50	24.19	24.19	24.40
			12	0	23.50	22.95	23.35	23.28
			12	6	23.50	23.09	23.43	23.24
			12	11	23.50	23.07	23.26	23.39
		16QAM	25	0	23.50	22.95	23.31	23.28
			1	0	24.00	23.13	23.46	23.38
			1	12	24.00	23.18	23.50	23.41
			1	24	24.00	23.23	23.44	23.39
			12	0	22.50	21.85	22.44	22.27
			12	6	22.50	21.96	22.48	22.26

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		20800/2505	21100/2535	21400/2565
			12	11	22.50	21.98	22.43	22.24
			25	0	22.50	22.11	22.37	22.49
LTE Band 7	10MHz	QPSK	1	0	25.00	24.01	24.28	24.62
			1	24	25.00	24.18	24.44	24.65
			1	49	25.00	24.02	24.41	24.69
			25	0	23.50	22.94	23.37	23.27
			25	12	23.50	23.05	23.32	23.27
			25	24	23.50	23.12	23.26	23.27
			50	0	23.50	23.04	23.38	23.35
		16QAM	1	0	24.50	24.17	23.35	23.32
			1	24	24.50	24.29	23.45	23.35
			1	49	24.50	24.29	23.38	23.38
			25	0	23.00	22.13	22.45	22.43
			25	12	23.00	22.13	22.52	22.45
			25	24	23.00	22.17	22.45	22.56
			50	0	23.00	22.20	22.57	22.46
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		20825/2507.5	21100/2535	21375/2562.5
LTE Band 7	15MHz	QPSK	1	0	25.00	23.93	24.38	24.36
			1	37	25.00	23.98	24.52	24.30
			1	74	25.00	24.12	24.54	24.34
			36	0	23.50	23.11	23.17	23.38
			36	18	23.50	22.97	23.36	23.32
			36	37	23.50	23.12	23.32	23.26
			75	0	23.50	23.02	23.41	23.22
		16QAM	1	0	25.00	24.18	23.27	24.32
			1	37	25.00	24.20	23.50	24.32
			1	74	25.00	24.39	23.45	24.56
			36	0	23.00	22.21	22.43	22.37
			36	18	23.00	22.15	22.67	22.25
			36	37	23.00	22.20	22.65	22.39
			75	0	23.00	22.14	22.55	22.42
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		

			RB	RB		20850/2510	21100/2535	21350/2560
			Size	Offset				
LTE Band 7	20MHz	QPSK	1	0	25.00	24.04	24.25	24.28
			1	49	25.00	24.28	24.53	24.25
			1	99	25.00	24.30	24.48	24.30
			50	0	23.50	23.16	23.31	23.40
			50	24	23.50	23.23	23.46	23.42
			50	49	23.50	23.23	23.32	23.40
			100	0	23.50	23.12	23.36	23.39
		16QAM	1	0	24.00	22.71	23.38	23.87
			1	49	24.00	22.99	23.52	23.84
			1	99	24.00	23.12	23.51	23.92
			50	0	23.00	22.23	22.45	22.53
			50	24	23.00	22.36	22.60	22.47
			50	49	23.00	22.45	22.49	22.52
			100	0	22.50	22.30	22.44	22.45

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		23017/699.7	23095/707.5	23173/715.3
LTE Band 12	1.4MHz	QPSK	1	0	24.50	23.98	23.85	24.03
			1	2	24.50	24.10	23.84	24.04
			1	5	24.50	24.01	23.83	24.02
			3	0	24.00	23.89	23.77	23.85
			3	1	24.00	23.88	23.85	23.91
			3	2	24.00	23.98	23.81	23.82
			6	0	23.00	22.99	22.90	22.79
		16QAM	1	0	24.50	24.20	22.97	23.10
			1	2	24.50	24.22	22.90	22.83
			1	5	24.50	24.28	22.94	22.85
			3	0	23.50	23.22	23.01	23.02
			3	1	23.50	23.27	22.95	22.80
			3	2	23.50	23.31	23.00	22.74
			6	0	22.50	22.26	22.11	21.69
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		23025/700.5	23095/707.5	23165/714.5
LTE	3MHz	QPSK	1	0	24.50	23.73	23.98	24.10

Band 12			1	7	24.50	23.72	23.96	24.03
			1	14	24.50	23.83	23.95	24.07
			8	0	23.50	23.00	23.02	23.07
			8	4	23.50	22.99	22.95	22.97
			8	7	23.50	22.86	22.98	22.76
			15	0	23.50	23.09	22.99	23.15
		16QAM	1	0	24.50	24.06	23.03	23.19
			1	7	24.50	24.07	22.90	23.05
			1	14	24.50	23.92	23.00	22.93
			8	0	22.50	21.86	22.14	22.24
			8	4	22.50	21.87	22.04	22.15
			8	7	22.50	21.99	22.07	21.94
			15	0	22.50	22.20	21.98	22.18
			Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)
RB Size	RB Offset	23035/701.5				23095/707.5	23155/713.5	
LTE Band 12	5MHz	QPSK	1	0	24.00	23.70	23.87	23.80
			1	12	24.00	23.84	23.90	23.79
			1	24	24.00	23.74	23.92	23.80
			12	0	23.50	23.12	22.99	23.17
			12	6	23.50	22.81	23.04	23.07
			12	11	23.50	22.78	22.98	23.08
			25	0	23.50	22.77	23.01	23.19
		16QAM	1	0	24.00	23.13	23.13	23.64
			1	12	24.00	22.95	23.01	23.59
			1	24	24.00	22.86	23.25	23.21
			12	0	22.50	21.98	21.89	22.03
			12	6	22.50	22.00	21.87	22.07
			12	11	22.50	22.07	21.78	22.05
			25	0	22.50	22.17	22.10	22.30
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		23060/704	23095/707.5	23130/711
LTE Band 12	10MHz	QPSK	1	0	24.50	23.85	23.83	24.03
			1	24	24.50	23.96	23.95	24.13
			1	49	24.50	23.85	23.85	23.92
			25	0	23.50	22.84	23.02	22.97
			25	12	23.50	22.84	23.02	23.20

16QAM	25	24	23.50	23.03	23.18	23.10
	50	0	23.50	22.73	22.92	23.03
	1	0	24.00	23.93	23.56	23.39
	1	24	24.00	23.72	23.59	23.52
	1	49	24.00	23.88	23.86	23.16
	25	0	22.50	21.98	22.17	22.10
	25	12	22.50	21.79	22.08	22.18
	25	24	22.50	22.00	22.23	22.18
	50	0	22.50	21.77	21.96	22.13

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		23755/706.5	23790/710	23825/713.5
LTE Band 17	5MHz	QPSK	1	0	24.00	23.68	23.76	23.72
			1	12	24.00	23.71	23.74	23.68
			1	24	24.00	23.71	23.68	23.62
			12	0	23.50	22.88	22.86	22.96
			12	6	23.50	22.91	23.12	23.01
			12	11	23.50	22.87	23.12	23.00
		16QAM	1	0	24.00	22.45	23.30	23.03
			1	12	24.00	22.97	23.55	23.00
			1	24	24.00	22.92	23.46	22.68
			12	0	22.00	21.73	21.77	21.95
			12	6	22.00	21.73	21.94	21.88
			12	11	22.00	21.68	21.94	21.96
			25	0	22.50	22.01	22.12	22.08
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		23780/709	23790/710	23800/711
LTE Band 17	10MHz	QPSK	1	0	24.00	23.75	23.82	23.96
			1	24	24.00	23.80	23.84	23.97
			1	49	24.00	23.69	23.73	23.92
			25	0	23.50	22.91	22.85	22.78
			25	12	23.50	22.77	23.05	23.09
			25	24	23.50	23.03	22.93	23.04
			50	0	23.50	22.84	22.97	23.08
		16QAM	1	0	24.00	23.56	22.95	23.20

			1	24	24.00	23.63	23.03	23.42
			1	49	24.00	23.87	22.97	23.08
			25	0	22.50	21.91	21.89	21.94
			25	12	22.50	21.86	22.07	22.07
			25	24	22.50	22.08	22.03	22.09
			50	0	22.50	21.93	22.08	21.93

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		26047/1850.7	26365/1882.5	26683/1914.3
LTE Band 25	1.4MHz	QPSK	1	0	24.50	24.22	24.14	24.07
			1	2	24.50	24.28	24.16	23.95
			1	5	24.50	24.20	24.13	23.99
			3	0	24.50	24.07	24.03	23.98
			3	1	24.50	24.12	24.08	23.88
			3	2	24.50	24.06	24.02	23.85
			6	0	23.50	23.01	23.01	22.89
		16QAM	1	0	24.00	24.00	23.22	23.28
			1	2	24.00	23.97	23.07	23.29
			1	5	24.00	23.97	23.11	23.20
			3	0	23.50	23.28	23.04	23.33
			3	1	23.50	23.30	23.11	23.23
			3	2	23.50	23.28	23.04	23.23
			6	0	22.50	22.49	22.28	22.01

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		26055/1851.5	26365/1882.5	26675/1913.5

LTE Band 25	3MHz	QPSK	1	0	24.50	24.15	24.18	24.12
			1	7	24.50	24.17	24.10	24.01
			1	14	24.50	24.09	24.18	24.04
			8	0	23.50	23.07	23.11	22.92
			8	4	23.50	23.11	23.03	22.85
			8	7	23.50	23.07	22.99	22.90
			15	0	23.50	23.09	23.00	22.85
			16QAM	1	0	24.50	24.03	23.21
		1		7	24.50	24.00	23.07	23.38

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		26065/1852.5	26365/1882.5	26665/1912.5
			1	14	24.50	23.96	23.15	23.18
			8	0	22.50	22.16	22.24	22.10
			8	4	22.50	22.20	22.35	22.15
			8	7	22.50	22.27	22.44	21.85
			15	0	22.50	22.38	22.28	22.18
LTE Band 25	5MHz	QPSK	1	0	24.50	23.91	24.11	23.90
			1	12	24.50	23.92	24.08	23.88
			1	24	24.50	24.03	24.06	23.87
			12	0	23.50	23.04	23.05	22.94
			12	6	23.50	23.10	23.01	22.90
			12	11	23.50	23.01	22.88	22.86
			25	0	23.50	23.04	23.01	22.87
		16QAM	1	0	23.50	23.37	22.87	22.92
			1	12	23.50	23.27	22.78	22.93
			1	24	23.50	23.41	22.78	22.90
			12	0	22.50	22.14	21.93	21.95
			12	6	22.50	22.26	22.12	22.14
			12	11	22.50	22.26	22.14	22.11
			25	0	22.50	22.27	22.28	22.07
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		26090/1855	26365/1882.5	26640/1910
LTE Band 25	10MHz	QPSK	1	0	24.50	24.04	24.19	24.12
			1	24	24.50	24.17	24.15	24.18
			1	49	24.50	24.25	24.21	23.96
			25	0	23.50	23.11	23.09	23.03
			25	12	23.50	23.19	23.04	23.02
			25	24	23.50	23.25	23.06	22.94
			50	0	23.50	23.09	23.08	22.98
		16QAM	1	0	24.50	24.06	23.10	23.30
			1	24	24.50	24.11	22.98	23.36
			1	49	24.50	24.16	23.10	23.25
			25	0	22.50	22.23	22.13	22.01

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		26115/1857.5	26365/1882.5	26615/1907.5
			25	12	22.50	22.20	22.33	22.16
			25	24	22.50	22.08	22.31	22.19
			50	0	22.50	22.37	22.39	22.11
LTE Band 25	15MHz	QPSK	1	0	24.50	24.14	24.24	23.95
			1	37	24.50	24.24	24.09	23.94
			1	74	24.50	24.32	24.27	23.79
			36	0	23.50	23.09	23.06	23.02
			36	18	23.50	23.10	23.05	23.01
			36	37	23.50	23.01	23.02	22.89
			75	0	23.50	23.18	22.98	22.95
		16QAM	1	0	24.50	24.03	23.10	23.63
			1	37	24.50	24.13	23.04	23.62
			1	74	24.50	24.19	23.22	23.54
			36	0	22.50	22.30	22.34	22.12
			36	18	22.50	22.17	22.33	21.99
			36	37	22.50	22.16	22.16	22.00
			75	0	22.50	22.22	22.31	22.00
			RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		26140/1860	26365/1882.5	26590/1905
LTE Band 25	20MHz	QPSK	1	0	24.50	24.22	24.06	24.18
			1	49	24.50	24.38	24.00	24.09
			1	99	24.50	24.28	24.19	24.11
			50	0	23.50	23.19	23.21	23.00
			50	24	23.50	23.19	23.06	22.91
			50	49	23.50	23.11	23.19	22.96
			100	0	23.50	23.07	23.09	22.96
		16QAM	1	0	23.50	22.81	22.84	23.07
			1	49	23.50	23.00	22.75	22.92
			1	99	23.50	23.38	22.82	22.88
			50	0	22.50	22.37	22.13	21.97
			50	24	22.50	22.31	22.24	22.04
			50	49	22.50	22.34	22.18	22.20

			100	0	22.50	22.26	22.34	22.04
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Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		26697/814.7	26740/819	26783/823.3
LTE Band 26a	1.4MHz	QPSK	1	0	24.50	23.62	23.67	24.09
			1	2	24.50	23.62	23.74	24.05
			1	5	24.50	23.56	23.73	24.07
			3	0	23.50	23.18	23.43	23.35
			3	1	23.50	23.25	23.24	23.33
			3	2	23.50	23.23	23.24	23.30
		16QAM	1	0	24.00	23.71	22.72	22.80
			1	2	24.00	23.64	22.73	22.78
			1	5	24.00	23.75	22.77	22.84
			3	0	22.50	22.32	22.24	22.27
			3	1	22.50	22.32	22.22	22.23
			3	2	22.50	22.30	22.23	22.27
			6	0	22.00	21.20	21.65	21.37

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		26705/818.5	26740/819	26775/822.5
LTE Band 26a	3MHz	QPSK	1	0	24.50	23.63	23.69	24.13
			1	7	24.50	23.68	23.69	24.05
			1	14	24.50	23.70	23.83	24.16
			8	0	22.00	21.09	21.57	21.35
			8	4	22.00	21.17	21.57	21.27
			8	7	22.00	21.46	21.49	21.29
			15	0	22.00	21.00	21.55	21.33
		16QAM	1	0	24.00	23.78	22.58	22.66
			1	7	24.00	23.64	22.69	22.78
			1	14	24.00	23.63	22.63	22.81
			8	0	22.00	21.01	21.60	21.33
			8	4	22.00	21.09	21.60	21.38
			8	7	22.00	21.35	21.56	21.46
			15	0	22.00	21.23	21.57	21.41

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
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Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		N/A	26740/819	N/A
LTE Band 26a	5MHz	QPSK	1	0	24.00	26715/816.5	26740/819	26765/821.5
			1	12	24.00	23.50	23.67	23.70
			1	24	24.00	23.55	23.69	23.71
			12	0	22.00	23.59	23.76	23.74
			12	6	22.00	21.08	21.64	21.30
			12	11	22.00	21.55	21.55	21.21
			12	11	22.00	21.49	21.16	21.25
		16QAM	25	0	22.00	21.44	21.58	21.19
			1	0	23.50	22.91	22.60	23.27
			1	12	23.50	22.89	22.73	23.25
			1	24	23.50	22.95	22.76	23.41
			12	0	21.50	20.99	21.35	21.14
			12	6	21.50	21.36	21.35	21.14
			12	11	21.50	21.46	21.04	21.23
25	0	22.00	21.59	21.59	21.38			

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		26797/824.7	26915/836.5	27033/848.3
LTE	1.4MHz	QPSK	1	0	24.50	23.92	23.90	24.05

Band 26b			1	2	24.50	23.93	23.90	23.77
			1	5	24.50	23.89	23.91	24.01
			3	0	24.00	23.39	23.48	23.26
			3	1	24.00	23.43	23.50	23.26
			3	2	24.00	23.36	23.47	23.28
			6	0	22.00	21.38	21.76	21.25
		16QAM	1	0	24.00	23.79	23.57	22.76
			1	2	24.00	23.75	23.48	22.74
			1	5	24.00	23.78	23.56	22.75
			3	0	23.00	22.65	22.28	22.17
			3	1	23.00	22.57	22.30	22.17
			3	2	23.00	22.67	22.29	22.10
			6	0	22.00	21.44	21.60	21.29
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		26805/825.5	26915/836.5	27025/847.5
LTE Band 26b	3MHz	QPSK	1	0	24.50	23.92	23.85	24.32
			1	7	24.50	23.91	23.92	23.98
			1	14	24.50	23.92	23.93	23.99
			8	0	22.00	21.55	21.67	21.26
			8	4	22.00	21.61	21.70	21.19
			8	7	22.00	21.57	21.64	21.24
			15	0	22.00	21.57	21.67	21.24
		16QAM	1	0	24.00	23.84	22.96	22.78
			1	7	24.00	23.73	22.78	22.76
			1	14	24.00	23.84	22.83	22.83
			8	0	22.00	21.46	21.86	21.26
			8	4	22.00	21.49	21.72	21.32
			8	7	22.00	21.41	21.69	21.26
			15	0	22.00	21.62	21.65	21.31
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		26815/826.5	26915/836.5	27015/846.5
LTE Band 26b	5MHz	QPSK	1	0	24.00	23.73	23.89	23.71
			1	12	24.00	23.70	23.88	23.62
			1	24	24.00	23.83	23.77	23.57
			12	0	22.00	21.42	21.75	21.35
			12	6	22.00	21.45	21.71	21.28

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		26840/829	26915/836.5	26990/844
		16QAM	12	11	22.00	21.44	21.65	21.22
			25	0	22.00	21.44	21.74	21.24
			1	0	23.50	22.96	22.92	23.31
			1	12	23.50	23.01	22.77	23.25
			1	24	23.50	23.06	22.81	23.19
			12	0	22.00	21.37	21.56	21.25
			12	6	22.00	21.37	21.57	21.19
			12	11	22.00	21.40	21.50	21.09
			25	0	22.00	21.48	21.76	21.36
LTE Band 26b	10MHz	QPSK	1	0	24.00	23.78	23.80	23.90
			1	24	24.00	23.89	23.75	23.92
			1	49	24.00	23.85	23.74	23.82
			25	0	22.50	21.93	22.24	22.00
			25	12	22.50	21.93	22.31	21.64
			25	24	22.50	21.81	21.86	21.79
		16QAM	50	0	22.50	21.97	22.10	21.72
			1	0	24.00	23.84	23.49	23.06
			1	24	24.00	23.93	23.43	23.06
			1	49	24.00	23.97	23.47	22.93
			25	0	22.50	22.02	22.32	22.13
			25	12	22.50	21.95	22.26	21.84
			25	24	22.50	21.84	21.88	21.83
			50	0	22.50	22.07	22.21	21.73
						RB Configuration		Tune-up (dBm)
RB Size	RB Offset	26865/831.5				26915/836.5	26965/841.5	
LTE Band 26b	15MHz	QPSK	1	0	24.00	23.84	23.87	23.73
			1	37	24.00	23.93	23.75	23.54
			1	74	24.00	23.76	23.70	23.45
			36	0	22.50	21.99	21.76	21.80
			36	18	22.50	21.86	22.19	22.00
			36	37	22.50	22.33	22.23	21.83
			75	0	22.50	21.83	22.13	22.02
		16QAM	1	0	24.00	23.94	23.60	23.66
			1	37	24.00	23.95	23.42	23.51

			1	74	24.00	23.84	23.37	23.49
			36	0	22.50	21.97	21.97	21.84
			36	18	22.50	21.82	22.27	22.09
			36	37	22.50	22.23	22.30	21.81
			75	0	22.50	21.83	22.13	22.17

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		37775/2572.5	38000/2595	38225/2617.5
LTE Band 38	5MHz	QPSK	1	0	25.00	24.22	24.38	24.62
			1	12	25.00	24.30	24.18	24.64
			1	24	25.00	24.30	24.28	24.70
			12	0	24.00	23.41	23.57	23.47
			12	6	24.00	23.29	23.47	23.41
			12	11	24.00	23.29	23.52	23.41
			25	0	24.00	23.35	23.52	23.45
		16QAM	1	0	24.50	23.17	24.15	23.07
			1	12	24.50	23.19	24.13	23.11
			1	24	24.50	23.25	24.07	23.17
			12	0	23.00	22.45	22.58	22.43
			12	6	23.00	22.40	22.50	22.32
			12	11	23.00	22.39	22.53	22.32
			25	0	23.00	22.32	22.69	22.62

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		37800/2575	38000/2595	38200/2615
LTE Band 38	10MHz	QPSK	1	0	25.00	24.51	24.37	24.37
			1	24	25.00	24.63	24.28	24.28
			1	49	25.00	24.59	24.39	24.39
			25	0	23.50	23.39	23.47	23.44
			25	12	23.50	23.43	23.48	23.48
			25	24	23.50	23.41	23.41	23.46
			50	0	23.50	23.31	23.46	23.48
		16QAM	1	0	24.50	23.88	23.61	23.70
			1	24	24.50	23.92	23.69	23.72
			1	49	24.50	24.08	23.73	23.79
			25	0	23.00	22.32	22.61	22.63
			25	12	23.00	22.37	22.61	22.63

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		37825/2577.5	38000/2595	38175/2615
			25	24	23.00	22.47	22.77	22.64
			50	0	23.00	22.57	22.53	22.49
LTE Band 38	15MHz	QPSK	1	0	25.00	24.46	24.32	24.53
			1	37	25.00	24.55	24.32	24.48
			1	74	25.00	24.56	24.42	24.63
			36	0	24.00	23.33	23.37	23.44
			36	18	24.00	23.38	23.45	23.50
			36	37	24.00	23.36	23.50	23.47
			75	0	23.50	23.41	23.30	23.45
		16QAM	1	0	24.00	23.87	23.76	23.56
			1	37	24.00	23.85	23.70	23.65
			1	74	24.00	23.90	23.72	23.63
			36	0	23.00	22.41	22.48	22.57
			36	18	23.00	22.50	22.47	22.44
			36	37	23.00	22.44	22.50	22.59
			75	0	23.00	22.47	22.53	22.55
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		37850/2580	38000/2595	38150/2610
LTE Band 38	20MHz	QPSK	1	0	25.00	24.26	24.80	24.25
			1	49	25.00	24.34	24.72	24.34
			1	99	25.00	24.42	24.85	24.49
			50	0	24.00	23.29	23.44	23.46
			50	24	24.00	23.46	23.40	23.35
			50	49	24.00	23.49	23.50	23.46
			100	0	24.00	23.40	23.32	23.53
		16QAM	1	0	24.50	23.30	23.66	24.03
			1	49	24.50	23.46	23.48	23.45
			1	99	24.50	23.53	23.68	23.82
			50	0	23.00	22.60	22.46	22.45
			50	24	23.00	22.58	22.39	22.57
			50	49	23.00	22.56	22.49	22.44
			100	0	23.00	22.44	22.58	22.50

Band	Band	Modulation	RB Configuration	Tune-up	Channel/Frequency(MHz)
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Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		N/A	38750	N/A
LTE Band 40A	5MHz	QPSK	1	0	24.50	38725	38750	38775
			1	12	24.50	23.67	23.95	24.12
			1	24	24.50	23.77	23.95	24.02
			12	0	23.00	23.78	23.89	24.06
			12	6	23.00	22.94	22.81	22.83
			12	11	23.00	22.87	22.83	22.97
			25	0	23.00	22.82	22.99	22.93
		16QAM	1	0	23.50	22.92	22.88	22.83
			1	12	23.50	22.61	23.15	22.59
			1	24	23.50	22.63	23.22	22.54
			12	0	22.00	22.63	23.17	22.52
			12	6	22.00	21.97	21.91	21.88
			12	11	22.00	21.95	21.96	21.93
			25	0	22.00	21.90	21.95	21.89
LTE Band 40A	10MHz	QPSK	1	0	24.50	N/A	23.86	N/A
			1	24	24.50	N/A	23.89	N/A
			1	49	24.50	N/A	24.02	N/A
			25	0	23.00	N/A	22.80	N/A
			25	12	23.00	N/A	22.88	N/A
			25	24	23.00	N/A	22.87	N/A
			50	0	23.00	N/A	22.81	N/A
		16QAM	1	0	24.00	N/A	23.21	N/A
			1	24	24.00	N/A	23.32	N/A
			1	49	24.00	N/A	23.51	N/A
			25	0	22.50	N/A	21.98	N/A
			25	12	22.50	N/A	21.84	N/A
			25	24	22.50	N/A	22.03	N/A
			50	0	22.50	N/A	22.05	N/A

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		39175	39200	39225
LTE Band 40B	5MHz	QPSK	1	0	24.50	23.82	23.97	24.22
			1	12	24.50	23.84	23.96	24.30
			1	24	24.50	23.93	23.91	24.32

			12	0	23.50	22.99	23.05	23.02		
			12	6	23.50	22.97	23.07	23.03		
			12	11	23.50	22.91	23.03	22.98		
			25	0	23.50	22.95	23.06	23.01		
		16QAM	1	0	23.50	22.70	23.29	22.71		
			1	12	23.50	22.73	23.32	22.60		
			1	24	23.50	22.76	23.25	22.66		
			12	0	22.50	22.08	22.00	22.02		
			12	6	22.50	22.03	21.98	21.94		
			12	11	22.50	22.02	22.04	21.98		
			25	0	22.50	22.11	22.23	22.36		
			Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)	
		RB Size				RB Offset	N/A		39200	N/A
LTE Band 40B	10MHz	QPSK	1	0	24.50	N/A	24.07	N/A		
			1	24	24.50	N/A	24.04	N/A		
			1	49	24.50	N/A	24.14	N/A		
			25	0	23.50	N/A	23.00	N/A		
			25	12	23.50	N/A	23.08	N/A		
			25	24	23.50	N/A	23.09	N/A		
		16QAM	1	0	24.00	N/A	23.50	N/A		
			1	24	24.00	N/A	23.57	N/A		
			1	49	24.00	N/A	23.42	N/A		
			25	0	22.50	N/A	22.10	N/A		
			25	12	22.50	N/A	22.01	N/A		
			25	24	22.50	N/A	22.13	N/A		
			50	0	22.50	N/A	22.18	N/A		

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		40115	40665	41215
LTE Band 41	5MHz	QPSK	1	0	25.00	24.09	24.56	24.00
			1	12	25.00	24.09	24.51	24.07
			1	24	25.00	24.18	24.59	23.97
			12	0	23.50	23.38	23.31	23.26
			12	6	23.50	23.37	23.43	23.35
			12	11	23.50	23.24	23.47	23.12
			25	0	23.50	23.24	23.30	23.20
		16QAM	1	0	24.00	23.86	23.02	22.87

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		40140	40665	41190
			1	12	24.00	23.76	22.97	22.90
			1	24	24.00	23.78	23.03	22.97
			12	0	22.50	22.37	22.35	22.23
			12	6	22.50	22.36	22.31	22.21
			12	11	22.50	22.38	22.30	22.09
			25	0	23.00	22.60	22.64	22.44
LTE Band 41	10MHz	QPSK	1	0	25.00	24.46	24.12	24.36
			1	24	25.00	24.55	24.27	24.24
			1	49	25.00	24.54	24.32	24.25
			25	0	23.50	23.25	23.30	23.32
			25	12	23.50	23.37	23.35	23.28
			25	24	23.50	23.36	23.31	23.35
		16QAM	50	0	23.50	23.36	23.39	23.13
			1	0	24.00	23.85	22.42	23.88
			1	24	24.00	23.84	22.59	23.70
			1	49	24.00	23.95	22.59	23.64
			25	0	22.50	22.40	22.41	22.22
			25	12	22.50	22.39	22.45	22.20
			25	24	22.50	22.35	22.37	22.26
			50	0	22.50	22.45	22.44	22.40
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		40165	40665	41165
LTE Band 41	15MHz	QPSK	1	0	24.50	24.39	24.28	24.29
			1	37	24.50	24.43	24.36	24.21
			1	74	24.50	24.37	24.36	24.07
			36	0	23.50	23.42	23.38	23.34
			36	18	23.50	23.26	23.29	23.30
			36	37	23.50	23.28	23.34	23.19
			75	0	23.50	23.25	23.40	23.17
		16QAM	1	0	24.00	23.90	22.53	23.51
			1	37	24.00	23.93	22.54	23.67
			1	74	24.00	23.83	22.61	23.32
			36	0	23.00	22.49	22.55	22.22
			36	18	23.00	22.35	22.59	22.22
			36	37	23.00	22.42	22.76	22.23
			75	0	23.00	22.37	22.53	22.48

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		40190	40665	41140/2645
LTE Band 41	20MHz	QPSK	1	0	25.00	24.46	24.49	24.13
			1	49	25.00	24.36	24.58	24.14
			1	99	25.00	24.35	24.62	24.14
			50	0	23.50	23.37	23.39	23.33
			50	24	23.50	23.29	23.34	23.36
			50	49	23.50	23.33	23.34	23.26
			100	0	23.50	23.33	23.42	23.28
		16QAM	1	0	23.50	23.07	23.08	23.20
			1	49	23.50	23.07	23.13	22.81
			1	99	23.50	23.07	23.18	22.69
			50	0	23.00	22.57	22.39	22.52
			50	24	23.00	22.54	22.44	22.48
			50	49	23.00	22.54	22.48	22.36
			100	0	23.00	22.50	22.28	22.39

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		131979/1710.7	132322/174.5	132665/1779.3
LTE Band 66	1.4MHz	QPSK	1	0	23.50	22.50	22.66	23.26
			1	2	23.50	22.45	22.65	23.26
			1	5	23.50	22.48	22.64	23.28
			3	0	23.50	22.44	22.76	23.16
			3	1	23.50	22.50	22.82	23.16
			3	2	23.50	22.43	22.75	23.09
			6	0	22.50	21.35	21.75	22.14
		16QAM	1	0	22.50	22.34	22.28	22.38
			1	2	22.50	22.31	22.31	22.39
			1	5	22.50	22.35	22.30	22.33
			3	0	22.50	21.53	22.07	22.47
			3	1	22.50	21.46	22.03	22.42
			3	2	22.50	21.52	22.11	22.45
			6	0	21.50	21.08	20.64	21.30

Band	Band Width	Modulation	RB Configuration	Tune-up (dBm)	Channel/Frequency(MHz)
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Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		131997/1712.	132322/174	132647/1777.
LTE Band 66	3MHz	QPSK	1	0	23.50	131987/1711.5	132322/174	132657/1778.5
			1	7	23.50	22.36	22.72	23.18
			1	14	23.50	22.41	22.68	23.35
			8	0	22.50	22.35	22.71	23.34
			8	4	22.50	21.46	21.77	22.06
			8	7	22.50	21.44	21.83	22.06
			15	0	22.50	21.42	21.78	22.07
		16QAM	1	0	22.50	21.40	21.78	22.14
			1	7	22.50	22.40	22.27	22.29
			1	14	22.50	22.43	22.27	22.34
			8	0	21.50	22.43	22.27	22.44
			8	4	21.50	20.83	20.91	20.99
			8	7	21.50	20.75	20.96	21.10
			8	7	21.50	20.77	20.92	21.09
			15	0	21.50	20.98	20.79	21.19
LTE Band 66	5MHz	QPSK	1	0	23.00	131997/1712.5	132322/174	132647/1777.5
			1	12	23.00	22.42	22.77	22.81
			1	24	23.00	22.24	22.72	22.86
			12	0	22.50	22.35	22.74	22.92
			12	6	22.50	21.48	21.64	22.09
			12	11	22.50	21.29	21.58	21.99
			25	0	22.50	21.33	21.76	21.97
		16QAM	1	0	22.50	21.30	21.65	22.07
			1	12	22.50	21.52	21.31	21.90
			1	24	22.50	21.49	21.28	21.96
			12	0	21.50	21.46	21.38	22.01
			12	6	21.50	20.74	20.50	20.98
			12	6	21.50	20.85	20.49	21.01
			12	11	21.50	20.77	20.52	21.02
			25	0	21.00	20.98	20.71	20.98
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		132022/1715	132322/174	132622/1775

LTE Band 66	10MHz	QPSK	1	0	23.50	22.40	22.81	23.05
			1	24	23.50	22.44	22.80	23.29
			1	49	23.50	22.40	22.86	23.45
			25	0	22.50	21.46	21.78	21.89
			25	12	22.50	21.36	21.80	22.01
			25	24	22.50	21.52	21.71	22.08
			50	0	22.50	21.28	21.75	22.06
		16QAM	1	0	23.00	22.55	21.68	21.74
			1	24	23.00	22.48	21.71	21.90
			1	49	23.00	22.56	21.66	22.07
			25	0	21.50	20.81	20.78	20.88
			25	12	21.50	20.25	20.83	20.98
			25	24	21.50	20.25	20.85	21.06
			50	0	21.50	20.31	20.80	21.04
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		132047/1717.5	132322/1745	132597/1772.5
LTE Band 66	15MHz	QPSK	1	0	23.00	22.47	22.62	22.59
			1	37	23.00	22.38	22.73	22.74
			1	74	23.00	22.34	22.79	23.00
			36	0	22.50	21.47	21.84	21.62
			36	18	22.50	21.36	21.71	21.76
			36	37	22.50	21.45	21.75	22.02
			75	0	22.00	21.50	21.79	21.74
		16QAM	1	0	23.00	22.52	21.48	22.14
			1	37	23.00	22.46	21.65	22.33
			1	74	23.00	22.53	21.65	22.66
			36	0	21.00	20.28	20.94	20.62
			36	18	21.00	20.38	20.82	20.79
			36	37	21.00	20.37	20.87	20.99
			75	0	21.00	20.41	20.82	20.88
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		132072/1720	132322/1745	132572/1770
LTE Band	20MHz	QPSK	1	0	23.50	22.47	22.66	22.41
			1	49	23.50	22.49	22.80	22.60

d 66		1	99	23.50	22.49	22.87	23.05
		50	0	22.50	21.47	21.82	21.73
		50	24	22.50	21.53	21.81	21.76
		50	49	22.50	21.35	21.67	22.04
		100	0	22.00	21.34	21.72	21.65
	16QAM	1	0	22.50	21.36	21.06	21.90
		1	49	22.50	21.45	21.25	21.99
		1	99	22.50	22.01	21.32	22.38
		50	0	21.00	20.47	20.82	20.68
		50	24	21.00	20.57	20.78	20.81
		50	49	21.00	20.47	20.80	20.99
		100	0	21.00	20.45	20.77	20.68

7.4. WLAN & Bluetooth Output Power

7.4.1. Output Power Results Of WLAN

Mode	Channel	Frequency (MHz)	Tune-up (dBm)	Output Power (dBm)
802.11b	1	2412	17.00	16.01
	6	2437	17.00	16.58
	11	2462	17.00	15.19
802.11g	1	2412	16.50	16.07
	6	2437	16.50	16.14
	11	2462	16.50	15.87
802.11n HT20	1	2412	16.00	15.61
	6	2437	16.00	15.39
	11	2462	16.00	15.30
802.11n HT40	3	2422	16.00	15.33
	6	2437	16.00	15.12
	9	2452	16.00	15.74

NOTE: Power measurement results of WLAN 2.4G.

Mode	Channel	Frequency (MHz)	Tune-up (dBm)	Output Power (dBm)
802.11a	36	5180	12.50	12.30
	40	5200	12.50	11.93
	48	5240	12.50	11.12
802.11n HT20	36	5180	12.50	12.22
	40	5200	12.50	11.96

	48	5240	12.50	11.12
802.11n HT40	38	5190	10.00	9.72
	46	5230	10.00	9.94
802.11ac VHT20	36	5180	11.50	11.34
	40	5200	11.50	10.97
	48	5240	11.50	10.18
802.11ac VHT40	38	5190	11.00	10.75
	46	5230	11.00	10.90
802.11ac VHT80	42	5210	11.50	11.23

NOTE: Power measurement results of WLAN 5.2G.

Mode	Channel	Frequency (MHz)	Tune-up (dBm)	Output Power (dBm)
802.11a	149	5745	11.00	10.17
	157	5785	11.00	10.69
	165	5825	11.00	10.15
802.11n HT20	149	5745	11.00	10.24
	157	5785	11.00	10.78
	165	5825	11.00	10.57
802.11n HT40	151	5755	11.00	10.27
	159	5795	11.00	10.71
802.11ac VHT20	149	5745	11.00	10.28
	157	5785	11.00	10.51
	165	5825	11.00	10.31
802.11ac VHT40	151	5755	11.00	10.36
	159	5795	11.00	10.72
802.11ac VHT80	155	5775	11.00	10.57

NOTE: Power measurement results of WLAN 5.8G.

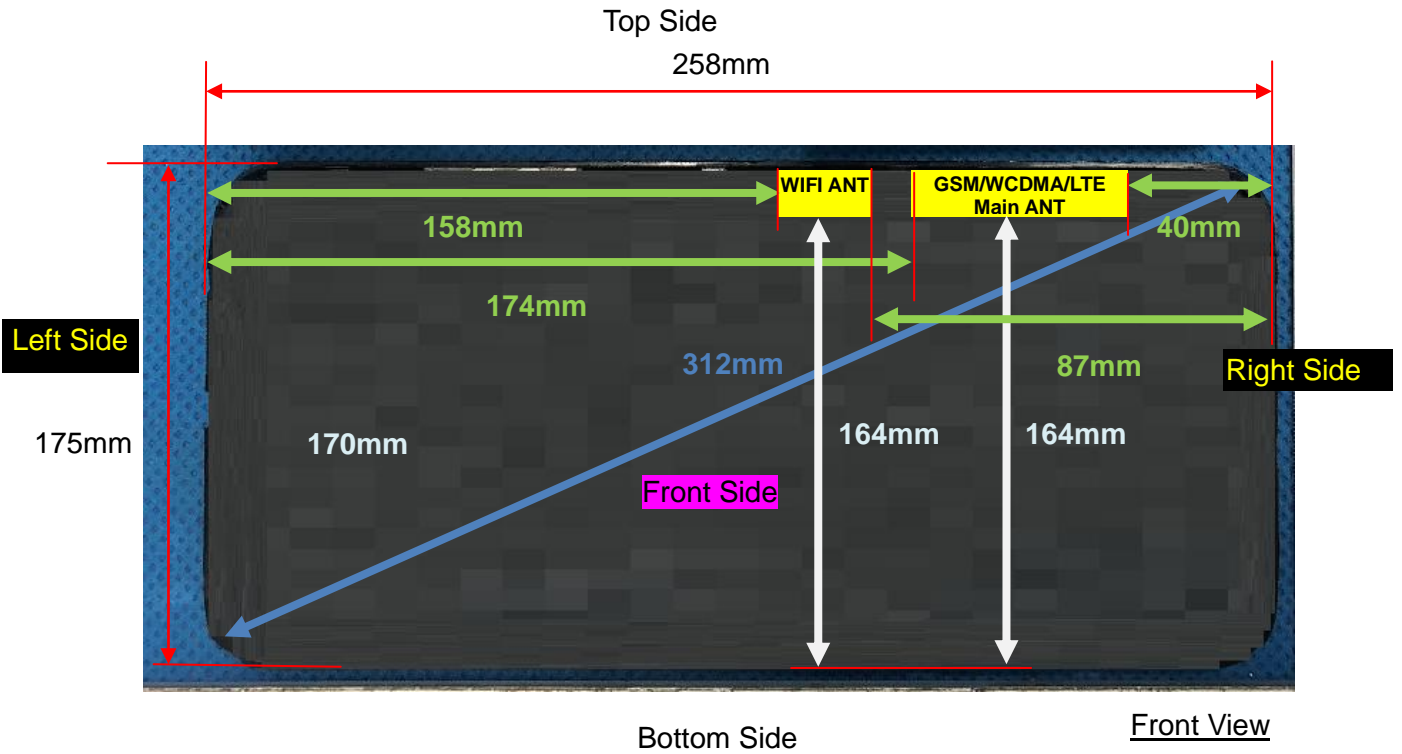
7.4.2. Output Power Results Of Bluetooth

BR+EDR	Output Power (dBm)				
	Channel	Tune-up (dBm)	Data Rates		
			1M	2M	3M
	0CH	6.00	4.88	5.09	5.24
	39CH	6.00	5.41	5.37	5.61
	78CH	5.00	3.52	3.91	4.10

BLE	Channel	Tune-up	Output Power (dBm)
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		(dBm)	1M	2M
	0CH	-2.50	-2.90	-3.05
	19CH	-2.00	-2.46	-2.61
	39CH	-4.00	-4.05	-4.20

8. Antenna Location



Note: Since the confidentiality request of EUT, the antenna location example diagram see as above.

Distance of the Antenna to the EUT surface/edge						
Antennas	Front Side	Back Side	Left Side	Right Side	Top Side	Bottom Side
WLAN	5	5	158	87	5	164
WWAN	5	5	174	40	5	164

Note: When the minimum separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

Positions for SAR tests		
Test separation distances > 50 mm		
Exposure Positions	Tune-up Maximum power of WLAN 2.4G	
	17.00 dBm	50.12 mW
Left Side	Antenna to user(mm)	158
	SAR exclusion threshold(mW)	1176
	SAR testing required?	NO
Right Side	Antenna to user(mm)	87

	SAR exclusion threshold(mW)	466
	SAR testing required?	NO
Bottom Side	Antenna to user(mm)	164
	SAR exclusion threshold(mW)	1236
	SAR testing required?	NO
Exposure Positions	Tune-up Maximum power of WLAN 5.2G	
	12.50 dBm	17.78 mW
Left Side	Antenna to user(mm)	158
	SAR exclusion threshold(mW)	1146
	SAR testing required?	NO
Right Side	Antenna to user(mm)	87
	SAR exclusion threshold(mW)	436
	SAR testing required?	NO
Bottom Side	Antenna to user(mm)	164
	SAR exclusion threshold(mW)	1206
	SAR testing required?	NO
Exposure Positions	Tune-up Maximum power of WLAN 5.8G	
	11.00 dBm	12.59 mW
Left Side	Antenna to user(mm)	158
	SAR exclusion threshold(mW)	1142
	SAR testing required?	NO
Right Side	Antenna to user(mm)	87
	SAR exclusion threshold(mW)	432
	SAR testing required?	NO
Bottom Side	Antenna to user(mm)	164
	SAR exclusion threshold(mW)	1202
	SAR testing required?	NO
Exposure Positions	Tune-up Maximum power of GSM 850	
	31.00 dBm	1258.93 mW
Left Side	Antenna to user(mm)	174
	SAR exclusion threshold(mW)	854
	SAR testing required?	YES
Bottom Side	Antenna to user(mm)	164
	SAR exclusion threshold(mW)	799
	SAR testing required?	YES
Exposure Positions	Tune-up Maximum power of GSM 1900	
	27.00 dBm	501.19 mW
Left Side	Antenna to user(mm)	174
	SAR exclusion threshold(mW)	1349
	SAR testing required?	NO
Bottom Side	Antenna to user(mm)	164

	SAR exclusion threshold(mW)	1249
	SAR testing required?	NO
Exposure Positions	Tune-up Maximum power of WCDMA Band 2	
	23.50 dBm	223.87 mW
Left Side	Antenna to user(mm)	174
	SAR exclusion threshold(mW)	1349
	SAR testing required?	NO
Bottom Side	Antenna to user(mm)	164
	SAR exclusion threshold(mW)	1249
	SAR testing required?	NO
Exposure Positions	Tune-up Maximum power of WCDMA Band 4	
	23.50 dBm	223.87 mW
Left Side	Antenna to user(mm)	174
	SAR exclusion threshold(mW)	1349
	SAR testing required?	NO
Bottom Side	Antenna to user(mm)	164
	SAR exclusion threshold(mW)	1249
	SAR testing required?	NO
Exposure Positions	Tune-up Maximum power of WCDMA Band 5	
	24.00 dBm	251.19 mW
Left Side	Antenna to user(mm)	174
	SAR exclusion threshold(mW)	854
	SAR testing required?	NO
Bottom Side	Antenna to user(mm)	164
	SAR exclusion threshold(mW)	799
	SAR testing required?	NO
Exposure Positions	Tune-up Maximum power of LTE Band 2	
	25.50 dBm	354.81 mW
Left Side	Antenna to user(mm)	174
	SAR exclusion threshold(mW)	1349
	SAR testing required?	NO
Bottom Side	Antenna to user(mm)	164
	SAR exclusion threshold(mW)	1249
	SAR testing required?	NO
Exposure Positions	Tune-up Maximum power of LTE Band 4	
	23.00 dBm	199.53 mW
Left Side	Antenna to user(mm)	174
	SAR exclusion threshold(mW)	1349
	SAR testing required?	NO
Bottom Side	Antenna to user(mm)	164
	SAR exclusion threshold(mW)	1249

	SAR testing required?	NO
Exposure Positions	Tune-up Maximum power of LTE Band 5	
	24.50 dBm	281.84 mW
Left Side	Antenna to user(mm)	174
	SAR exclusion threshold(mW)	854
	SAR testing required?	NO
Bottom Side	Antenna to user(mm)	164
	SAR exclusion threshold(mW)	799
	SAR testing required?	NO
Exposure Positions	Tune-up Maximum power of LTE Band 7	
	25.00 dBm	316.23 mW
Left Side	Antenna to user(mm)	174
	SAR exclusion threshold(mW)	1336
	SAR testing required?	NO
Bottom Side	Antenna to user(mm)	164
	SAR exclusion threshold(mW)	1236
	SAR testing required?	NO
Exposure Positions	Tune-up Maximum power of LTE Band 12	
	24.50 dBm	281.84 mW
Left Side	Antenna to user(mm)	174
	SAR exclusion threshold(mW)	854
	SAR testing required?	NO
Bottom Side	Antenna to user(mm)	164
	SAR exclusion threshold(mW)	799
	SAR testing required?	NO
Exposure Positions	Tune-up Maximum power of LTE Band 17	
	24.00 dBm	251.19 mW
Left Side	Antenna to user(mm)	174
	SAR exclusion threshold(mW)	854
	SAR testing required?	NO
Bottom Side	Antenna to user(mm)	164
	SAR exclusion threshold(mW)	799
	SAR testing required?	NO
Exposure Positions	Tune-up Maximum power of LTE Band 25	
	24.50 dBm	281.84 mW
Left Side	Antenna to user(mm)	174
	SAR exclusion threshold(mW)	1349
	SAR testing required?	NO
Bottom Side	Antenna to user(mm)	164
	SAR exclusion threshold(mW)	1249
	SAR testing required?	NO

Exposure Positions	Tune-up Maximum power of LTE Band 26A	
	24.00 dBm	251.19 mW
Left Side	Antenna to user(mm)	174
	SAR exclusion threshold(mW)	854
	SAR testing required?	NO
Bottom Side	Antenna to user(mm)	164
	SAR exclusion threshold(mW)	799
	SAR testing required?	NO
Exposure Positions	Tune-up Maximum power of LTE Band 26B	
	24.00 dBm	251.19 mW
Left Side	Antenna to user(mm)	174
	SAR exclusion threshold(mW)	854
	SAR testing required?	NO
Bottom Side	Antenna to user(mm)	164
	SAR exclusion threshold(mW)	799
	SAR testing required?	NO
Exposure Positions	Tune-up Maximum power of LTE Band 38	
	25.00 dBm	316.23 mW
Left Side	Antenna to user(mm)	174
	SAR exclusion threshold(mW)	1336
	SAR testing required?	NO
Bottom Side	Antenna to user(mm)	164
	SAR exclusion threshold(mW)	1236
	SAR testing required?	NO
Exposure Positions	Tune-up Maximum power of LTE Band 40A	
	24.50 dBm	281.84 mW
Left Side	Antenna to user(mm)	174
	SAR exclusion threshold(mW)	1336
	SAR testing required?	NO
Bottom Side	Antenna to user(mm)	164
	SAR exclusion threshold(mW)	1236
	SAR testing required?	NO
Exposure Positions	Tune-up Maximum power of LTE Band 40B	
	24.50 dBm	281.84 mW
Left Side	Antenna to user(mm)	174
	SAR exclusion threshold(mW)	1336
	SAR testing required?	NO
Bottom Side	Antenna to user(mm)	164
	SAR exclusion threshold(mW)	1236
	SAR testing required?	NO
Exposure Positions	Tune-up Maximum power of LTE Band 41	

	25.00 dBm	316.23 mW
Left Side	Antenna to user(mm)	174
	SAR exclusion threshold(mW)	1336
	SAR testing required?	NO
Bottom Side	Antenna to user(mm)	164
	SAR exclusion threshold(mW)	1236
	SAR testing required?	NO
Exposure Positions	Tune-up Maximum power of LTE Band 66	
	23.50 dBm	223.87 mW
Left Side	Antenna to user(mm)	174
	SAR exclusion threshold(mW)	1349
	SAR testing required?	NO
Bottom Side	Antenna to user(mm)	164
	SAR exclusion threshold(mW)	1249
	SAR testing required?	NO

NOTE: Refer to section 4.3.1 of KDB 447498 D01.

9. Stand-alone SAR test exclusion

Refer to FCC KDB 447498D01, the 1-g SAR and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f_{(\text{GHz})}}] \leq 3.0$ for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where:

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

When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

Mode	P _{max} (dBm)	P _{max} (mW)	Distance (mm)	f (GHz)	Calculation Result	SAR Exclusion threshold	SAR test exclusion
Bluetooth	6.00	3.98	5	2.480	1.2	3	YES

NOTE: Standalone SAR test exclusion for Bluetooth.

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

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f_{(\text{GHz})}} / x] \text{ W/kg}$ for test separation distances ≤ 50mm, where $x = 7.5$ for 1-g SAR and $x = 18.75$ for 10-g SAR.

When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

Mode	Position	P _{max} (dBm)	P _{max} (mW)	Distance (mm)	f (GHz)	x	Estimated SAR (W/Kg)
Bluetooth	Body	6.00	3.98	5	2.48	7.5	0.167
Bluetooth	Hotspot	6.00	3.98	5	2.48	7.5	0.167

NOTE: Estimated SAR calculation for Bluetooth

10. SAR Results

10.1. SAR measurement results

10.1.1. SAR measurement Result of GSM850

Test Position of Body-Worn with 0mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1g	10g						
Front Side	189/836.4	GPRS(GMSK 2TS)	0.911	0.510	0.82	30.38	31.00	1.051	2023/12/14	
Back Side	189/836.4	GPRS(GMSK 2TS)	0.861	0.507	-0.01	30.38	31.00	0.993	2023/12/14	
Front Side	128/824.2	GPRS(GMSK 2TS)	0.818	0.456	2.16	30.58	31.00	0.901	2023/12/14	
Front Side	251/848.8	GPRS(GMSK 2TS)	0.975	0.547	2.49	30.47	31.00	1.102	2023/12/14	1#
Front Side Repeated	251/848.8	GPRS(GMSK 2TS)	0.971	0.540	0.25	30.47	31.00	1.097	2023/12/14	

NOTE: Body-Worn SAR test results of GSM850

Test Position of Hotspot with 0mm	Test channel /Freq.	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Date	Plot
			1-g	10-g						
Front Side	189/836.4	GPRS(GMSK 2TS)	0.911	0.510	0.82	30.38	31.00	1.051	2023/12/14	
Back Side	189/836.4	GPRS(GMSK 2TS)	0.861	0.507	-0.01	30.38	31.00	0.993	2023/12/14	
Left Side	189/836.4	GPRS(GMSK 2TS)	0.261	0.154	-1.49	30.38	31.00	0.301	2023/12/14	
Right Side	189/836.4	GPRS(GMSK 2TS)	0.270	0.156	-2.77	30.38	31.00	0.311	2023/12/14	
Top Side	189/836.4	GPRS(GMSK 2TS)	0.406	0.210	0.25	30.38	31.00	0.468	2023/12/14	

		2TS)								
Bottom Side	189/836.4	GPRS(GMSK 2TS)	0.445	0.257	3.26	30.38	31.00	0.513	2023/12/14	
Front Side	128/824.2	GPRS(GMSK 2TS)	0.818	0.456	2.16	30.58	31.00	0.901	2023/12/14	
Front Side	251/848.8	GPRS(GMSK 2TS)	0.975	0.547	2.49	30.47	31.00	1.102	2023/12/14	1#
Front Side Repeated	251/848.8	GPRS(GMSK 2TS)	0.971	0.540	0.25	30.47	31.00	1.097	2023/12/14	

NOTE: Hotspot SAR test results of GSM850

10.1.2. SAR measurement Result of GSM1900

Test Position of Body-Worn with 0mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1g	10g						
Front Side	661/1880	GPRS(GMSK 3TS)	0.909	0.470	-4.72	26.57	27.00	1.004	2023/12/15	2#
Back Side	661/1880	GPRS(GMSK 3TS)	0.880	0.441	0.21	26.57	27.00	0.972	2023/12/15	
Front Side	512/1850.2	GPRS(GMSK 3TS)	0.872	0.450	1.56	26.42	27.00	0.997	2023/12/15	
Front Side	810/1909.8	GPRS(GMSK 3TS)	0.870	0.448	4.03	26.46	27.00	0.985	2023/12/15	
Front Side Repeated	661/1880	GPRS(GMSK 3TS)	0.901	0.462	1.32	26.57	27.00	0.995	2023/12/15	

NOTE: Body-Worn SAR test results of GSM1900

Test Position of Hotspot with 0mm	Test channel /Freq.	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Date	Plot
			1-g	10-g						
Front Side	661/1880	GPRS(GMSK 3TS)	0.909	0.470	-4.72	26.57	27.00	1.004	2023/12/15	2#
Back Side	661/1880	GPRS(GMSK 3TS)	0.880	0.441	0.21	26.57	27.00	0.972	2023/12/15	
Right Side	661/1880	GPRS(GMSK 3TS)	0.273	0.133	-0.90	26.57	27.00	0.301	2023/12/15	

Top Side	661/1880	GPRS(GMSK 3TS)	0.440	0.216	-3.62	26.57	27.00	0.486	2023/12/15	
Front Side	512/1850.2	GPRS(GMSK 3TS)	0.872	0.450	1.56	26.42	27.00	0.997	2023/12/15	
Front Side	810/1909.8	GPRS(GMSK 3TS)	0.870	0.448	4.03	26.46	27.00	0.985	2023/12/15	
Front Side Repeated	661/1880	GPRS(GMSK 3TS)	0.901	0.462	1.32	26.57	27.00	0.995	2023/12/15	

NOTE: Hotspot SAR test results of GSM1900

10.1.3. SAR measurement Result of WCDMA Band 2

Test Position of Body-Worn with 0mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1g	10g						
Front Side	9400/1880	RMC12.2K	0.534	0.233	1.72	23.37	23.50	0.550	2023/12/15	3#
Back Side	9400/1880	RMC12.2K	0.288	0.131	3.65	23.37	23.50	0.297	2023/12/15	

NOTE: Body-Worn SAR test results of WCDMA Band 2

Test Position of Hotspot with 0mm	Test channel /Freq.	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Date	Plot
			1-g	10-g						
Front Side	9400/1880	RMC12.2K	0.534	0.233	1.72	23.37	23.50	0.550	2023/12/15	3#
Back Side	9400/1880	RMC12.2K	0.288	0.131	3.65	23.37	23.50	0.297	2023/12/15	
Right Side	9400/1880	RMC12.2K	0.087	0.037	3.98	23.37	23.50	0.090	2023/12/15	
Top Side	9400/1880	RMC12.2K	0.150	0.065	-3.65	23.37	23.50	0.155	2023/12/15	

NOTE: Hotspot SAR test results of WCDMA Band 2

10.1.4. SAR measurement Result of WCDMA Band 4

Test Position of Body-Worn	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g	Date	Plot
			1g	10g						

with 0mm								(W/Kg)		
Front Side	1413/1732.6	RMC12.2K	0.266	0.121	0.38	22.94	23.50	0.303	2023/12/06	4#
Back Side	1413/1732.6	RMC12.2K	0.240	0.116	1.23	22.94	23.50	0.273	2023/12/06	

NOTE: Body-Worn SAR test results of WCDMA Band 4

Test Position of Hotspot with 0mm	Test channel /Freq.	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Date	Plot
			1-g	10-g						
Front Side	1413/1732.6	RMC12.2K	0.266	0.121	0.38	22.94	23.50	0.303	2023/12/06	4#
Back Side	1413/1732.6	RMC12.2K	0.240	0.116	1.23	22.94	23.50	0.273	2023/12/06	
Right Side	1413/1732.6	RMC12.2K	0.087	0.042	-2.76	22.94	23.50	0.099	2023/12/06	
Top Side	1413/1732.6	RMC12.2K	0.125	0.059	1.64	22.94	23.50	0.142	2023/12/06	

NOTE: Hotspot SAR test results of WCDMA Band 4

10.1.5. SAR measurement Result of WCDMA Band 5

Test Position of Body-Worn with 0mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1g	10g						
Front Side	4182/836.4	RMC12.2K	0.862	0.491	-0.29	23.52	24.00	0.963	2023/12/14	
Back Side	4182/836.4	RMC12.2K	0.723	0.401	0.52	23.52	24.00	0.807	2023/12/14	
Front Side	4132/826.4	RMC12.2K	0.915	0.525	-0.56	23.50	24.00	1.027	2023/12/14	5#
Front Side	4233/846.6	RMC12.2K	0.806	0.461	-1.44	23.33	24.00	0.940	2023/12/14	
Front Side Repeated	4132/826.4	RMC12.2K	0.908	0.521	1.36	23.50	24.00	1.019	2023/12/14	

NOTE: Body-Worn SAR test results of WCDMA Band 5

Test Position of Hotspot with 0mm	Test channel /Freq.	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Date	Plot
			1-g	10-g						
Front	4182/836.4	RMC12.2K	0.862	0.491	-0.29	23.52	24.00	0.963	2023/12/14	

Side										
Back Side	4182/836.4	RMC12.2K	0.723	0.401	0.52	23.52	24.00	0.807	2023/12/14	
Right Side	4182/836.4	RMC12.2K	0.222	0.119	0.81	23.52	24.00	0.248	2023/12/14	
Top Side	4182/836.4	RMC12.2K	0.370	0.197	-1.84	23.52	24.00	0.413	2023/12/14	
Front Side	4132/826.4	RMC12.2K	0.915	0.525	-0.56	23.50	24.00	1.027	2023/12/14	5#
Front Side	4233/846.6	RMC12.2K	0.806	0.461	-1.44	23.33	24.00	0.940	2023/12/14	
Front Side Repeated	4132/826.4	RMC12.2K	0.908	0.521	1.36	23.50	24.00	1.019	2023/12/14	

NOTE: Hotspot SAR test results of WCDMA Band 5

10.1.6. SAR measurement Result of LTE Band 2

Test Position of Body-Worn with 0mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1-g	10-g						
1RB										
Front Side	18900/1880	20M QPSK(1,49)	0.450	0.196	2.79	25.18	25.50	0.484	2023/12/15	9#
Back Side	18900/1880	20M QPSK(1,49)	0.292	0.135	1.08	25.18	25.50	0.314	2023/12/15	
50%RB										
Front Side	18900/1880	20M QPSK(50,24)	0.232	0.105	-0.24	24.14	24.50	0.252	2023/12/15	
Back Side	18900/1880	20M QPSK(50,24)	0.150	0.070	-0.94	24.14	24.50	0.163	2023/12/15	

NOTE: Body-Worn SAR test results of LTE Band 2

Test Position of Hotspot with 0mm	Test channel /Freq.	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Date	Plot
			1-g	10-g						
1RB										
Front	18900/1880	20M	0.450	0.196	2.79	25.18	25.50	0.484	2023/12/15	9#

Side		QPSK(1,49)								
Back Side	18900/1880	20M QPSK(1,49)	0.292	0.135	1.08	25.18	25.50	0.314	2023/12/15	
Right Side	18900/1880	20M QPSK(1,49)	0.087	0.040	-3.38	25.18	25.50	0.094	2023/12/15	
Top Side	18900/1880	20M QPSK(1,49)	0.170	0.078	-0.48	25.18	25.50	0.183	2023/12/15	
50%RB										
Front Side	18900/1880	20M QPSK(50,24)	0.232	0.105	-0.24	24.14	24.50	0.252	2023/12/15	
Back Side	18900/1880	20M QPSK(50,24)	0.150	0.070	-0.94	24.14	24.50	0.163	2023/12/15	
Right Side	18900/1880	20M QPSK(50,24)	0.051	0.022	-2.76	24.14	24.50	0.055	2023/12/15	
Top Side	18900/1880	20M QPSK(50,24)	0.100	0.046	3.32	24.14	24.50	0.109	2023/12/15	

NOTE: Hotspot SAR test results of LTE Band 2

10.1.7. SAR measurement Result of LTE Band 4

Test Position of Body-Worn with 0mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1-g	10-g						
1RB										
Front Side	20175/1732.5	20M QPSK(1,99)	0.196	0.095	-0.87	22.82	23.00	0.204	2023/12/06	10#
Back Side	20175/1732.5	20M QPSK(1,99)	0.178	0.083	-3.86	22.82	23.00	0.186	2023/12/06	
50%RB										
Front Side	20175/1732.5	20M QPSK(50,49)	0.108	0.054	-4.10	21.61	22.00	0.118	2023/12/06	
Back Side	20175/1732.5	20M QPSK(50,49)	0.091	0.046	3.22	21.61	22.00	0.100	2023/12/06	

NOTE: Body-Worn SAR test results of LTE Band 4

Test Position of Hotspot with 0mm	Test channel /Freq.	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Date	Plot
			1-g	10-g						

1RB										
Front Side	20175/1732.5	20M QPSK(1,99)	0.196	0.095	-0.87	22.82	23.00	0.204	2023/12/06	10#
Back Side	20175/1732.5	20M QPSK(1,99)	0.178	0.083	-3.86	22.82	23.00	0.186	2023/12/06	
Right Side	20175/1732.5	20M QPSK(1,99)	0.060	0.028	-2.02	22.82	23.00	0.063	2023/12/06	
Top Side	20175/1732.5	20M QPSK(1,99)	0.090	0.041	3.57	22.82	23.00	0.094	2023/12/06	
50%RB										
Front Side	20175/1732.5	20M QPSK(50,49)	0.108	0.054	-4.10	21.61	22.00	0.118	2023/12/06	
Back Side	20175/1732.5	20M QPSK(50,49)	0.091	0.046	3.22	21.61	22.00	0.100	2023/12/06	
Right Side	20175/1732.5	20M QPSK(50,49)	0.031	0.015	-1.92	21.61	22.00	0.034	2023/12/06	
Top Side	20175/1732.5	20M QPSK(50,49)	0.053	0.023	-3.03	21.61	22.00	0.058	2023/12/06	

NOTE: Hotspot SAR test results of LTE Band 4

10.1.8. SAR measurement Result of LTE Band 5

Test Position of Body-Worn with 0mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1-g	10-g						
1RB										
Front Side	20525/836.5	10M QPSK(1,0)	0.908	0.534	-1.11	23.79	24.50	1.069	2023/12/14	
Back Side	20525/836.5	10M QPSK(1,0)	0.855	0.489	0.63	23.79	24.50	1.007	2023/12/14	
Front Side	20450/829	10M QPSK(1,0)	0.929	0.557	0.38	23.80	24.50	1.091	2023/12/14	11#
Front Side	20600/844	10M QPSK(1,0)	0.821	0.494	-0.69	24.06	24.50	0.909	2023/12/14	
Front Side Repeated	20450/829	10M QPSK(1,0)	0.924	0.552	3.62	23.80	24.50	1.086	2023/12/14	
50%RB										
Front Side	20525/836.5	10M QPSK(25,12)	0.489	0.304	1.93	22.77	23.00	0.516	2023/12/14	
Back Side	20525/836.5	10M	0.431	0.292	-2.29	22.77	23.00	0.454	2023/12/14	

		QPSK(25,12)								
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NOTE: Body-Worn SAR test results of LTE Band 5

Test Position of Hotspot with 0mm	Test channel /Freq.	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Date	Plot
			1-g	10-g						
1RB										
Front Side	20525/836.5	10M QPSK(1,0)	0.908	0.534	-1.11	23.79	24.50	1.069	2023/12/14	
Back Side	20525/836.5	10M QPSK(1,0)	0.855	0.489	0.63	23.79	24.50	1.007	2023/12/14	
Right Side	20525/836.5	10M QPSK(1,0)	0.261	0.148	2.86	23.79	24.50	0.307	2023/12/14	
Top Side	20525/836.5	10M QPSK(1,0)	0.430	0.239	3.51	23.79	24.50	0.506	2023/12/14	
Front Side	20450/829	10M QPSK(1,0)	0.929	0.557	0.38	23.80	24.50	1.091	2023/12/14	11#
Front Side	20600/844	10M QPSK(1,0)	0.821	0.494	-0.69	24.06	24.50	0.909	2023/12/14	
Front Side Repeated	20450/829	10M QPSK(1,0)	0.924	0.552	3.62	23.80	24.50	1.086	2023/12/14	
50%RB										
Front Side	20525/836.5	10M QPSK(25,12)	0.489	0.304	1.93	22.77	23.00	0.516	2023/12/14	
Back Side	20525/836.5	10M QPSK(25,12)	0.431	0.292	-2.29	22.77	23.00	0.454	2023/12/14	
Right Side	20525/836.5	10M QPSK(25,12)	0.141	0.082	2.12	22.77	23.00	0.149	2023/12/14	
Top Side	20525/836.5	10M QPSK(25,12)	0.238	0.126	-2.32	22.77	23.00	0.251	2023/12/14	
100%RB										
Front Side	20525/836.5	10M QPSK(50,0)	0.312	0.256	0.23	22.80	23.00	0.327	2023/12/14	

NOTE: Hotspot SAR test results of LTE Band 5

10.1.9. SAR measurement Result of LTE Band 7

Test	Test	Test Mode	SAR Value	Power	Conducted	Tune-up	Scaled	Date	Plot
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Position of Body-Worn with 0mm	channel /Freq.		(W/kg)		Drift (±5%)	power (dBm)	power (dBm)	SAR 1g (W/Kg)		
			1-g	10-g						
1RB										
Front Side	21100/2535	20M QPSK(1,49)	0.842	0.355	1.44	24.53	25.00	0.938	2023/12/11	
Back Side	21100/2535	20M QPSK(1,49)	0.632	0.278	0.32	24.53	25.00	0.704	2023/12/11	
Front Side	20850/2510	20M QPSK(1,49)	0.978	0.410	0.19	24.28	25.00	1.154	2023/12/11	12#
Front Side	21350/2560	20M QPSK(1,49)	0.723	0.305	1.67	24.25	25.00	0.859	2023/12/11	
Front Side Repeated	20850/2510	20M QPSK(1,49)	0.971	0.400	2.54	24.28	25.00	1.146	2023/12/11	
50%RB										
Front Side	21100/2535	20M QPSK(50,24)	0.496	0.180	-1.52	23.46	23.50	0.501	2023/12/11	
Back Side	21100/2535	20M QPSK(50,24)	0.323	0.161	-0.63	23.46	23.50	0.326	2023/12/11	

NOTE: Body-Worn SAR test results of LTE Band 7

Test Position of Hotspot with 0mm	Test channel /Freq.	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Date	Plot
			1-g	10-g						
1RB										
Front Side	21100/2535	20M QPSK(1,49)	0.842	0.355	1.44	24.53	25.00	0.938	2023/12/11	
Back Side	21100/2535	20M QPSK(1,49)	0.632	0.278	0.32	24.53	25.00	0.704	2023/12/11	
Right Side	21100/2535	20M QPSK(1,49)	0.201	0.088	-2.35	24.53	25.00	0.224	2023/12/11	
Top Side	21100/2535	20M QPSK(1,49)	0.320	0.138	1.42	24.53	25.00	0.357	2023/12/11	
Front Side	20850/2510	20M QPSK(1,49)	0.978	0.410	0.19	24.28	25.00	1.154	2023/12/11	12#
Front Side	21350/2560	20M QPSK(1,49)	0.723	0.305	1.67	24.25	25.00	0.859	2023/12/11	
Front Side	20850/2510	20M QPSK(1,49)	0.971	0.400	2.54	24.28	25.00	1.146	2023/12/11	

Repeated										
50%RB										
Front Side	21100/2535	20M QPSK(50,24)	0.496	0.180	-1.52	23.46	23.50	0.501	2023/12/11	
Back Side	21100/2535	20M QPSK(50,24)	0.323	0.161	-0.63	23.46	23.50	0.326	2023/12/11	
Right Side	21100/2535	20M QPSK(50,24)	0.106	0.047	1.43	23.46	23.50	0.107	2023/12/11	
Top Side	21100/2535	20M QPSK(50,24)	0.169	0.072	3.35	23.46	23.50	0.171	2023/12/11	
100%RB										
Front Side	21100/2535	20M QPSK(100,0)	0.392	0.125	0.22	23.36	23.50	0.405	2023/12/11	

NOTE: Hotspot SAR test results of LTE Band 7

10.1.10. SAR measurement Result of LTE Band 12

Test Position of Body-Worn with 0mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1-g	10-g						
1RB										
Front Side	23095/707.5	10M QPSK(1,24)	0.696	0.396	-1.99	23.95	24.50	0.790	2023/12/05	13#
Back Side	23095/707.5	10M QPSK(1,24)	0.590	0.287	0.17	23.95	24.50	0.670	2023/12/05	
50%RB										
Front Side	23095/707.5	10M QPSK(25,12)	0.379	0.214	3.91	23.02	23.50	0.423	2023/12/05	
Back Side	23095/707.5	10M QPSK(25,12)	0.338	0.167	-1.78	23.02	23.50	0.377	2023/12/05	

NOTE: Body-Worn SAR test results of LTE Band 12

Test Position of Hotspot with 0mm	Test channel /Freq.	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Date	Plot
			1-g	10-g						
1RB										
Front	23095/707.5	10M	0.696	0.396	-1.99	23.95	24.50	0.790	2023/12/05	13#

Side		QPSK(1,24)								
Back Side	23095/707.5	10M QPSK(1,24)	0.590	0.287	0.17	23.95	24.50	0.670	2023/12/05	
Right Side	23095/707.5	10M QPSK(1,24)	0.180	0.087	1.69	23.95	24.50	0.204	2023/12/05	
Top Side	23095/707.5	10M QPSK(1,24)	0.310	0.151	1.22	23.95	24.50	0.352	2023/12/05	
50%RB										
Front Side	23095/707.5	10M QPSK(25,12)	0.379	0.214	3.91	23.02	23.50	0.423	2023/12/05	
Back Side	23095/707.5	10M QPSK(25,12)	0.338	0.167	-1.78	23.02	23.50	0.377	2023/12/05	
Right Side	23095/707.5	10M QPSK(25,12)	0.106	0.049	2.60	23.02	23.50	0.118	2023/12/05	
Top Side	23095/707.5	10M QPSK(25,12)	0.179	0.076	-3.92	23.02	23.50	0.200	2023/12/05	

NOTE: Hotspot SAR test results of LTE Band 12

10.1.11. SAR measurement Result of LTE Band 17

Test Position of Body-Worn with 0mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1-g	10-g						
1RB										
Front Side	23790/710	10M QPSK(1,24)	0.690	0.390	0.71	23.84	24.00	0.716	2023/12/05	14#
Back Side	23790/710	10M QPSK(1,24)	0.588	0.298	0.64	23.84	24.00	0.610	2023/12/05	
50%RB										
Front Side	23790/710	10M QPSK(25,12)	0.394	0.222	2.18	23.05	23.50	0.437	2023/12/05	
Back Side	23790/710	10M QPSK(25,12)	0.327	0.158	-0.36	23.05	23.50	0.363	2023/12/05	

NOTE: Body-Worn SAR test results of LTE Band 17

Test Position of Hotspot with	Test channel /Freq.	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Date	Plot
			1-g	10-g						

Omm										
1RB										
Front Side	23790/710	10M QPSK(1,24)	0.690	0.390	0.71	23.84	24.00	0.716	2023/12/05	14#
Back Side	23790/710	10M QPSK(1,24)	0.588	0.298	0.64	23.84	24.00	0.610	2023/12/05	
Right Side	23790/710	10M QPSK(1,24)	0.170	0.081	3.93	23.84	24.00	0.176	2023/12/05	
Top Side	23790/710	10M QPSK(1,24)	0.295	0.145	1.08	23.84	24.00	0.306	2023/12/05	
50%RB										
Front Side	23790/710	10M QPSK(25,12)	0.394	0.222	2.18	23.05	23.50	0.437	2023/12/05	
Back Side	23790/710	10M QPSK(25,12)	0.327	0.158	-0.36	23.05	23.50	0.363	2023/12/05	
Right Side	23790/710	10M QPSK(25,12)	0.086	0.045	0.75	23.05	23.50	0.095	2023/12/05	
Top Side	23790/710	10M QPSK(25,12)	0.164	0.075	3.54	23.05	23.50	0.182	2023/12/05	

NOTE: Hotspot SAR test results of LTE Band 17

10.1.12. SAR measurement Result of LTE Band 25

Test Position of Body-Worn with Omm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1-g	10-g						
1RB										
Front Side	26365/1882.5	20M QPSK(1,49)	0.404	0.177	4.46	24.00	24.50	0.453	2023/12/15	15#
Back Side	26365/1882.5	20M QPSK(1,49)	0.229	0.106	3.20	24.00	24.50	0.257	2023/12/15	
50%RB										
Front Side	26365/1882.5	20M QPSK(50,0)	0.202	0.105	0.34	23.21	23.50	0.216	2023/12/15	
Back Side	26365/1882.5	20M QPSK(50,0)	0.134	0.057	-3.62	23.21	23.50	0.143	2023/12/15	

NOTE: Body-Worn SAR test results of LTE Band 25

Test Position	Test channel /Freq.	Mode	SAR Value (W/kg)	Power Drift(%)	Conducted Power	Tune-up Power	Scaled SAR	Date	Plot
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of Hotspot with 0mm			1-g	10-g		(dBm)	(dBm)	1-g (W/Kg)		
1RB										
Front Side	26365/1882.5	20M QPSK(1,49)	0.404	0.177	4.46	24.00	24.50	0.453	2023/12/15	15#
Back Side	26365/1882.5	20M QPSK(1,49)	0.229	0.106	3.20	24.00	24.50	0.257	2023/12/15	
Right Side	26365/1882.5	20M QPSK(1,49)	0.081	0.036	1.65	24.00	24.50	0.091	2023/12/15	
Top Side	26365/1882.5	20M QPSK(1,49)	0.115	0.053	0.63	24.00	24.50	0.129	2023/12/15	
50%RB										
Front Side	26365/1882.5	20M QPSK(50,0)	0.202	0.105	0.34	23.21	23.50	0.216	2023/12/15	
Back Side	26365/1882.5	20M QPSK(50,0)	0.134	0.057	-3.62	23.21	23.50	0.143	2023/12/15	
Right Side	26365/1882.5	20M QPSK(50,0)	0.044	0.022	-0.78	23.21	23.50	0.047	2023/12/15	
Top Side	26365/1882.5	20M QPSK(50,0)	0.064	0.031	-4.57	23.21	23.50	0.068	2023/12/15	

NOTE: Hotspot SAR test results of LTE Band 25

10.1.13. SAR measurement Result of LTE Band 26A

Test Position of Body-Worn with 0mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1-g	10-g						
1RB										
Front Side	26740/819	10M QPSK(1,49)	1.071	0.593	-0.37	23.72	24.00	1.142	2023/12/14	20#
Back Side	26740/819	10M QPSK(1,49)	0.979	0.582	-2.36	23.72	24.00	1.044	2023/12/14	
Front Side Repeated	26740/819	10M QPSK(1,49)	1.066	0.590	0.54	23.72	24.00	1.137	2023/12/14	
50%RB										
Front Side	26740/819	10M QPSK(25,0)	0.589	0.312	-2.47	22.06	22.50	0.652	2023/12/14	
Back Side	26740/819	10M	0.513	0.309	0.27	22.06	22.50	0.568	2023/12/14	

		QPSK(25,0)								
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NOTE: Body-Worn SAR test results of LTE Band 26A

Test Position of Hotspot with 0mm	Test channel /Freq.	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Date	Plot
			1-g	10-g						
1RB										
Front Side	26740/819	10M QPSK(1,49)	1.071	0.593	-0.37	23.72	24.00	1.142	2023/12/14	20#
Back Side	26740/819	10M QPSK(1,49)	0.979	0.582	-2.36	23.72	24.00	1.044	2023/12/14	
Right Side	26740/819	10M QPSK(1,49)	0.303	0.177	-1.96	23.72	24.00	0.323	2023/12/14	
Top Side	26740/819	10M QPSK(1,49)	0.505	0.288	-2.96	23.72	24.00	0.539	2023/12/14	
Front Side Repeated	26740/819	10M QPSK(1,49)	1.066	0.590	0.54	23.72	24.00	1.137	2023/12/14	
50%RB										
Front Side	26740/819	10M QPSK(25,0)	0.589	0.312	-2.47	22.06	22.50	0.652	2023/12/14	
Back Side	26740/819	10M QPSK(25,0)	0.513	0.309	0.27	22.06	22.50	0.568	2023/12/14	
Right Side	26740/819	10M QPSK(25,0)	0.168	0.094	-0.67	22.06	22.50	0.186	2023/12/14	
Top Side	26740/819	10M QPSK(25,0)	0.279	0.157	-1.33	22.06	22.50	0.309	2023/12/14	
100%RB										
Front Side	26740/819	10M QPSK(50,0)	0.476	0.230	2.21	22.06	22.50	0.527	2023/12/14	

NOTE: Hotspot SAR test results of LTE Band 26A

10.1.14. SAR measurement Result of LTE Band 26B

Test Position of Body-Worn with 0mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1-g	10-g						
1RB										
Front Side	26865/831.5	15M QPSK(1,37)	1.031	0.572	-2.29	23.75	24.00	1.092	2023/12/14	

Back Side	26865/831.5	15M QPSK(1,37)	1.002	0.590	-1.36	23.75	24.00	1.061	2023/12/14	
Front Side	26775/822.5	15M QPSK(1,37)	1.092	0.602	-0.78	23.93	24.00	1.110	2023/12/14	21#
Front Side	26965/841.5	15M QPSK(1,37)	0.907	0.511	-3.07	23.54	24.00	1.008	2023/12/14	
Front Side Repeated	26775/822.5	15M QPSK(1,37)	1.087	0.596	0.23	23.93	24.00	1.105	2023/12/14	
50%RB										
Front Side	26865/831.5	15M QPSK(36,37)	0.547	0.322	3.24	22.23	22.50	0.582	2023/12/14	
Back Side	26865/831.5	15M QPSK(36,37)	0.510	0.353	-3.64	22.23	22.50	0.543	2023/12/14	

NOTE: Body-Worn SAR test results of LTE Band 26B

Test Position of Hotspot with 0mm	Test channel /Freq.	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Date	Plot
			1-g	10-g						
1RB										
Front Side	26865/831.5	15M QPSK(1,37)	1.031	0.572	-2.29	23.75	24.00	1.092	2023/12/14	
Back Side	26865/831.5	15M QPSK(1,37)	1.002	0.590	-1.36	23.75	24.00	1.061	2023/12/14	
Right Side	26865/831.5	15M QPSK(1,37)	0.315	0.178	-3.00	23.75	24.00	0.334	2023/12/14	
Top Side	26865/831.5	15M QPSK(1,37)	0.515	0.303	-1.51	23.75	24.00	0.546	2023/12/14	
Front Side	26775/822.5	15M QPSK(1,37)	1.092	0.602	-0.78	23.93	24.00	1.110	2023/12/14	21#
Front Side	26965/841.5	15M QPSK(1,37)	0.907	0.511	-3.07	23.54	24.00	1.008	2023/12/14	
Front Side Repeated	26775/822.5	15M QPSK(1,37)	1.087	0.596	0.23	23.93	24.00	1.105	2023/12/14	
50%RB										
Front Side	26865/831.5	15M QPSK(36,37)	0.547	0.322	3.24	22.23	22.50	0.582	2023/12/14	
Back Side	26865/831.5	15M QPSK(36,37)	0.510	0.353	-3.64	22.23	22.50	0.543	2023/12/14	

Right Side	26865/831.5	15M QPSK(36,37)	0.166	0.102	-1.34	22.23	22.50	0.177	2023/12/14	
Top Side	26865/831.5	15M QPSK(36,37)	0.277	0.154	-2.44	22.23	22.50	0.295	2023/12/14	
100%RB										
Front Side	26865/831.5	15M QPSK(75,0)	0.460	0.279	3.47	22.13	22.50	0.501	2023/12/14	

NOTE: Hotspot SAR test results of LTE Band 26B

10.1.15. SAR measurement Result of LTE Band 38

Test Position of Body-Worn with 0mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1-g	10-g						
1RB										
Front Side	38000/2595	20M QPSK(1,99)	1.108	0.479	-0.19	24.85	25.00	1.147	2023/12/11	16#
Back Side	38000/2595	20M QPSK(1,99)	1.049	0.453	3.26	24.85	25.00	1.086	2023/12/11	
Front Side	37850/2580	20M QPSK(1,99)	0.987	0.462	-2.55	24.42	25.00	1.128	2023/12/11	
Front Side	38150/2610	20M QPSK(1,99)	0.960	0.418	2.05	24.49	25.00	1.080	2023/12/11	
Front Side Repeated	38000/2595	20M QPSK(1,99)	1.091	0.467	3.65	24.85	25.00	1.129	2023/12/11	
50%RB										
Front Side	38000/2595	20M QPSK(50,0)	0.597	0.277	2.44	23.50	24.00	0.670	2023/12/11	
Back Side	38000/2595	20M QPSK(50,0)	0.529	0.244	-4.38	23.50	24.00	0.594	2023/12/11	

NOTE: Body-Worn SAR test results of LTE Band 38

Test Position of Hotspot with 0mm	Test channel /Freq.	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Date	Plot
			1-g	10-g						
1RB										
Front Side	38000/2595	20M QPSK(1,99)	1.108	0.479	-0.19	24.85	25.00	1.147	2023/12/11	16#
Back Side	38000/2595	20M	1.049	0.453	3.26	24.85	25.00	1.086	2023/12/11	

		QPSK(1,99)								
Right Side	38000/2595	20M QPSK(1,99)	0.318	0.132	3.23	24.85	25.00	0.329	2023/12/11	
Top Side	38000/2595	20M QPSK(1,99)	0.530	0.220	-2.56	24.85	25.00	0.549	2023/12/11	
Front Side	37850/2580	20M QPSK(1,99)	0.987	0.462	-2.55	24.42	25.00	1.128	2023/12/11	
Front Side	38150/2610	20M QPSK(1,99)	0.960	0.418	2.05	24.49	25.00	1.080	2023/12/11	
Front Side Repeated	38000/2595	20M QPSK(1,99)	1.091	0.467	3.65	24.85	25.00	1.129	2023/12/11	
50%RB										
Front Side	38000/2595	20M QPSK(50,0)	0.597	0.277	2.44	23.50	24.00	0.670	2023/12/11	
Back Side	38000/2595	20M QPSK(50,0)	0.529	0.244	-4.38	23.50	24.00	0.594	2023/12/11	
Right Side	38000/2595	20M QPSK(50,0)	0.173	0.076	-1.30	23.50	24.00	0.194	2023/12/11	
Top Side	38000/2595	20M QPSK(50,0)	0.272	0.121	-1.60	23.50	24.00	0.305	2023/12/11	
100%RB										
Front Side	38000/2595	20M QPSK(100,0)	0.397	0.201	0.12	23.32	24.00	0.464	2023/12/11	

NOTE: Hotspot SAR test results of LTE Band 38

10.1.16. SAR measurement Result of LTE Band 40A

Test Position of Body-Worn with 0mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1-g	10-g						
1RB										
Front Side	38750/2310	10M QPSK(1,49)	0.868	0.367	1.24	24.02	24.50	0.969	2023/12/18	17#
Back Side	38750/2310	10M QPSK(1,49)	0.694	0.315	-0.02	24.02	24.50	0.775	2023/12/18	
Front Side Repeated	38750/2310	10M QPSK(1,49)	0.858	0.360	1.08	24.02	24.50	0.958	2023/12/18	
50%RB										
Front Side	38750/2310	10M QPSK(25,12)	0.516	0.212	2.60	22.88	23.00	0.530	2023/12/18	

Back Side	38750/2310	10M QPSK(25,12)	0.398	0.163	2.60	22.88	23.00	0.409	2023/12/18	
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NOTE: Body-Worn SAR test results of LTE Band 40A

Test Position of Hotspot with 0mm	Test channel /Freq.	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Date	Plot
			1-g	10-g						
1RB										
Front Side	38750/2310	10M QPSK(1,49)	0.868	0.367	1.24	24.02	24.50	0.969	2023/12/18	17#
Back Side	38750/2310	10M QPSK(1,49)	0.694	0.315	-0.02	24.02	24.50	0.775	2023/12/18	
Right Side	38750/2310	10M QPSK(1,49)	0.210	0.095	0.52	24.02	24.50	0.235	2023/12/18	
Top Side	38750/2310	10M QPSK(1,49)	0.360	0.158	-0.91	24.02	24.50	0.402	2023/12/18	
Front Side Repeated	38750/2310	10M QPSK(1,49)	0.858	0.360	1.08	24.02	24.50	0.958	2023/12/18	
50%RB										
Front Side	38750/2310	10M QPSK(25,12)	0.516	0.212	2.60	22.88	23.00	0.530	2023/12/18	
Back Side	38750/2310	10M QPSK(25,12)	0.398	0.163	2.60	22.88	23.00	0.409	2023/12/18	
Right Side	38750/2310	10M QPSK(25,12)	0.115	0.054	0.99	22.88	23.00	0.118	2023/12/18	
Top Side	38750/2310	10M QPSK(25,12)	0.200	0.093	2.73	22.88	23.00	0.206	2023/12/18	
100%RB										
Front Side	38750/2310	10M QPSK(50,0)	0.402	0.165	0.45	22.81	23.00	0.420	2023/12/18	

NOTE: Hotspot SAR test results of LTE Band 40A

10.1.17. SAR measurement Result of LTE Band 40B

Test Position of Body-Worn with 0mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1-g	10-g						

1RB										
Front Side	39200/2355	10M QPSK(1,49)	0.564	0.257	-0.40	24.14	24.50	0.613	2023/12/18	18#
Back Side	39200/2355	10M QPSK(1,49)	0.512	0.210	0.21	24.14	24.50	0.556	2023/12/18	
Front Side Repeated	39200/2355	10M QPSK(1,49)	0.560	0.255	0.65	24.14	24.50	0.608	2023/12/18	
50%RB										
Front Side	39200/2355	10M QPSK(25,24)	0.327	0.147	-4.58	23.09	23.50	0.359	2023/12/18	
Back Side	39200/2355	10M QPSK(25,24)	0.285	0.112	2.77	23.09	23.50	0.313	2023/12/18	

NOTE: Body-Worn SAR test results of LTE Band 40B

Test Position of Hotspot with 0mm	Test channel /Freq.	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Date	Plot
			1-g	10-g						
1RB										
Front Side	39200/2355	10M QPSK(1,49)	0.564	0.257	-0.40	24.14	24.50	0.613	2023/12/18	18#
Back Side	39200/2355	10M QPSK(1,49)	0.512	0.210	0.21	24.14	24.50	0.556	2023/12/18	
Right Side	39200/2355	10M QPSK(1,49)	0.168	0.069	2.08	24.14	24.50	0.183	2023/12/18	
Top Side	39200/2355	10M QPSK(1,49)	0.265	0.109	-3.80	24.14	24.50	0.288	2023/12/18	
Front Side Repeated	39200/2355	10M QPSK(1,49)	0.560	0.255	0.65	24.14	24.50	0.608	2023/12/18	
50%RB										
Front Side	39200/2355	10M QPSK(25,24)	0.327	0.147	-4.58	23.09	23.50	0.359	2023/12/18	
Back Side	39200/2355	10M QPSK(25,24)	0.285	0.112	2.77	23.09	23.50	0.313	2023/12/18	
Right Side	39200/2355	10M QPSK(25,24)	0.089	0.040	4.24	23.09	23.50	0.098	2023/12/18	
Top Side	39200/2355	10M QPSK(25,24)	0.153	0.059	-0.14	23.09	23.50	0.168	2023/12/18	
100%RB										

Front Side	39200/2355	10M QPSK(50,0)	0.297	0.102	1.23	22.97	23.00	0.299	2023/12/18	
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NOTE: Hotspot SAR test results of LTE Band 40B

10.1.18. SAR measurement Result of LTE Band 41

Test Position of Body-Worn with 0mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1-g	10-g						
1RB										
Front Side	40665/2597.5	20M QPSK(1,99)	0.972	0.413	-0.74	24.62	25.00	1.061	2023/12/11	19#
Back Side	40665/2597.5	20M QPSK(1,99)	0.951	0.401	1.56	24.62	25.00	1.038	2023/12/11	
Front Side	40190/2500	20M QPSK(1,99)	0.902	0.387	0.21	24.35	25.00	1.048	2023/12/11	
Front Side	41140/2645	20M QPSK(1,99)	0.863	0.376	1.69	24.14	25.00	1.052	2023/12/11	
Front Side Repeated	40665/2597.5	20M QPSK(1,99)	0.961	0.396	2.36	24.62	25.00	1.049	2023/12/11	
50%RB										
Front Side	40665/2597.5	20M QPSK(50,0)	0.556	0.245	-0.40	23.39	23.50	0.570	2023/12/11	
Back Side	40665/2597.5	20M QPSK(50,0)	0.542	0.228	1.23	23.39	23.50	0.556	2023/12/11	

NOTE: Body-Worn SAR test results of LTE Band 41

Test Position of Hotspot with 0mm	Test channel /Freq.	Mode	SAR Value (W/kg)		Power Drift(%)	Conducte d Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Date	Plot
			1-g	10-g						
1RB										
Front Side	40665/2597.5	20M QPSK(1,99)	0.972	0.413	-0.74	24.62	25.00	1.061	2023/12/11	19#
Back Side	40665/2597.5	20M QPSK(1,99)	0.951	0.401	1.56	24.62	25.00	1.038	2023/12/11	
Right Side	40665/2597.5	20M QPSK(1,99)	0.297	0.121	0.28	24.62	25.00	0.318	2023/12/11	
Top Side	40665/2597.5	20M	0.49	0.200	-3.06	24.62	25.00	0.540	2023/12/11	

		QPSK(1,99)	5							
Front Side	40190/2500	20M QPSK(1,99)	0.90 2	0.387	0.21	24.35	25.00	1.048	2023/12/11	
Front Side	41140/2645	20M QPSK(1,99)	0.86 3	0.376	1.69	24.14	25.00	1.052	2023/12/11	
Front Side Repeated	40665/2597.5	20M QPSK(1,99)	0.96 1	0.396	2.36	24.62	25.00	1.049	2023/12/11	
50%RB										
Front Side	40665/2597.5	20M QPSK(50,0)	0.55 6	0.245	-0.40	23.39	23.50	0.570	2023/12/11	
Back Side	40665/2597.5	20M QPSK(50,0)	0.54 2	0.228	1.23	23.39	23.50	0.556	2023/12/11	
Right Side	40665/2597.5	20M QPSK(50,0)	0.15 9	0.066	4.88	23.39	23.50	0.163	2023/12/11	
Top Side	40665/2597.5	20M QPSK(50,0)	0.25 5	0.101	3.11	23.39	23.50	0.262	2023/12/11	
100%RB										
Front Side	40665/2597.5	20M QPSK(100,0)	0.49 0	0.178	3.67	23.42	23.50	0.499	2023/12/11	

NOTE: Hotspot SAR test results of LTE Band 41

10.1.19. SAR measurement Result of LTE Band 66

Test Position of Body-Worn with 0mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1-g	10-g						
1RB										
Front Side	132322/1745	20M QPSK(1,99)	0.371	0.163	-0.82	22.87	23.50	0.429	2023/12/06	22#
Back Side	132322/1745	20M QPSK(1,99)	0.322	0.152	-0.82	22.87	23.50	0.372	2023/12/06	
50%RB										
Front Side	132322/1745	20M QPSK(50,49)	0.209	0.094	0.93	21.67	22.50	0.253	2023/12/06	
Back Side	132322/1745	20M QPSK(50,49)	0.163	0.077	-3.96	21.67	22.50	0.197	2023/12/06	

NOTE: Body-Worn SAR test results of LTE Band 66

Test Position of Hotspot with 0mm	Test channel /Freq.	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Date	Plot
			1-g	10-g						
1RB										
Front Side	132322/1745	20M QPSK(1,99)	0.371	0.163	-0.82	22.87	23.50	0.429	2023/12/06	22#
Back Side	132322/1745	20M QPSK(1,99)	0.322	0.152	-0.82	22.87	23.50	0.372	2023/12/06	
Right Side	132322/1745	20M QPSK(1,99)	0.105	0.049	-1.69	22.87	23.50	0.121	2023/12/06	
Top Side	132322/1745	20M QPSK(1,99)	0.165	0.074	1.72	22.87	23.50	0.191	2023/12/06	
50%RB										
Front Side	132322/1745	20M QPSK(50,49)	0.209	0.094	0.93	21.67	22.50	0.253	2023/12/06	
Back Side	132322/1745	20M QPSK(50,49)	0.163	0.077	-3.96	21.67	22.50	0.197	2023/12/06	
Right Side	132322/1745	20M QPSK(50,49)	0.063	0.025	-0.19	21.67	22.50	0.076	2023/12/06	
Top Side	132322/1745	20M QPSK(50,49)	0.083	0.037	-2.19	21.67	22.50	0.100	2023/12/06	

NOTE: Hotspot SAR test results of LTE Band 66

10.1.20. SAR measurement Result of WLAN 2.4G

Test Position of Body-Worn with 0mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1-g	10-g						
Front Side	6/2437	802.11b	0.256	0.113	-0.03	16.58	17.00	0.282	2023/12/07	8#
Back Side	6/2437	802.11b	0.221	0.087	0.25	16.58	17.00	0.243	2023/12/07	

NOTE: Body-Worn SAR test results of WLAN 2.4G

Test Position of Hotspot with 0mm	Test channel /Freq.	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Date	Plot
			1-g	10-g						
Front Side	6/2437	802.11b	0.256	0.113	-0.03	16.58	17.00	0.282	2023/12/07	8#

Back Side	6/2437	802.11b	0.221	0.087	0.25	16.58	17.00	0.243	2023/12/07	
Top Side	6/2437	802.11b	0.081	0.032	0.61	16.58	17.00	0.089	2023/12/07	

NOTE: Hotspot SAR test results of WLAN 2.4G

10.1.21. SAR measurement Result of WLAN 5.2G

Test Position of Body-Worn with 0mm	Test channel /Freq	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Date	Plot
			1-g	10-g						
Front Side	36/5180	802.11a	0.093	0.090	3.79	12.30	12.50	0.097	2023/12/16	7#
Back Side	36/5180	802.11a	0.081	0.074	1.23	12.30	12.50	0.085	2023/12/16	

NOTE: Body-Worn SAR test results of WLAN 5.2G

Test Position of Hotspot with 0mm	Test channel /Freq	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Date	Plot
			1-g	10-g						
Front Side	36/5180	802.11a	0.093	0.090	3.79	12.30	12.50	0.097	2023/12/16	7#
Back Side	36/5180	802.11a	0.081	0.074	1.23	12.30	12.50	0.085	2023/12/16	
Top Side	36/5180	802.11a	0.030	0.027	-0.14	12.30	12.50	0.031	2023/12/16	

NOTE: Hotspot SAR test results of WLAN 5.2G

10.1.22. SAR measurement Result of WLAN 5.8G

Test Position of Body-Worn with 0mm	Test channel /Freq	Mode	SAR Value (W/kg)		Power Drift(%)	Conducted Power (dBm)	Tune-up Power (dBm)	Scaled SAR 1-g (W/Kg)	Date	Plot
			1-g	10-g						
Front Side	157/5785	802.11n HT20	0.137	0.115	2.55	10.78	11.00	0.144	2023/12/08	6#
Back Side	157/5785	802.11n HT20	0.119	0.100	0.15	10.78	11.00	0.125	2023/12/08	

NOTE: Body-Worn SAR test results of WLAN 5.8G

Test Position	Test channel	Mode	SAR Value (W/kg)	Power Drift(%)	Conducted Power	Tune-up Power	Scaled SAR	Date	Plot
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of Hotspot with 0mm	/Freq		1-g	10-g		(dBm)	(dBm)	1-g (W/Kg)		
Front Side	157/5785	802.11n HT20	0.137	0.115	2.55	10.78	11.00	0.144	2023/12/08	6#
Back Side	157/5785	802.11n HT20	0.119	0.100	0.15	10.78	11.00	0.125	2023/12/08	
Top Side	157/5785	802.11n HT20	0.047	0.038	1.83	10.78	11.00	0.049	2023/12/08	

NOTE: Hotspot SAR test results of WLAN 5.8G

10.2. SAR Summation Scenario

Per KDB 447498 D01, simultaneous transmission SAR is compliant if,

- Scalar SAR summation < 1.6W/kg.
- $SPLSR = (SAR_1 + SAR_2)^{1.5} / (\text{min. separation distance, mm})$, and the peak separation distance is determined from the square root of $[(x_1-x_2)^2 + (y_1-y_2)^2 + (z_1-z_2)^2]$, where (x_1, y_1, z_1) and (x_2, y_2, z_2) are the coordinates of the extrapolated peak SAR locations in the zoom scan. If $SPLSR \leq 0.04$, simultaneously transmission SAR measurement is not necessary.

Test Position		Scaled SARMAX		Σ 1-g SAR (W/Kg)	SPLSR	Remark
		WWAN	DTS			
Body-Worn	Front Side	1.154	0.282	1.436	N/A	N/A
	Back Side	1.086	0.243	1.329	N/A	N/A
Hotspot	Front Side	1.154	0.282	1.436	N/A	N/A
	Back Side	1.086	0.243	1.329	N/A	N/A
	Left Side	0.301	N/A	0.301	N/A	N/A
	Right Side	0.334	N/A	0.334	N/A	N/A
	Top Side	0.549	0.089	0.638	N/A	N/A
	Bottom Side	0.513	N/A	0.513	N/A	N/A

Test Position		Scaled SARMAX		Σ 1-g SAR (W/Kg)	SPLSR	Remark
		WWAN	NII			
Body-Worn	Front Side	1.154	0.144	1.298	N/A	N/A
	Back Side	1.086	0.125	1.211	N/A	N/A
Hotspot	Front Side	1.154	0.144	1.298	N/A	N/A
	Back Side	1.086	0.125	1.211	N/A	N/A
	Right Side	0.334	N/A	0.334	N/A	N/A

	Top Side	0.549	0.049	0.598	N/A	N/A
	Bottom Side	0.513	N/A	0.513	N/A	N/A

Test Position		Scaled SARMAX		Σ 1-g SAR (W/Kg)	SPLSR	Remark
		WWAN	DSS			
Body-Worn	Front Side	1.154	0.167	1.321	N/A	N/A
	Back Side	1.086	0.167	1.253	N/A	N/A
Hotspot	Front Side	1.154	0.167	1.321	N/A	N/A
	Back Side	1.086	0.167	1.253	N/A	N/A
	Left Side	0.301	N/A	0.301	N/A	N/A
	Right Side	0.334	N/A	0.334	N/A	N/A
	Top Side	0.549	0.167	0.716	N/A	N/A
	Bottom Side	0.513	N/A	0.513	N/A	N/A

11. Appendix A. Photo documentation

Refer to appendix Test Setup photo---SAR

12. Appendix B. System Check Plots

Table of contents
MEASUREMENT 1 System Performance Check - 750MHz
MEASUREMENT 2 System Performance Check - 835MHz
MEASUREMENT 3 System Performance Check - 1800MHz
MEASUREMENT 4 System Performance Check - 1900MHz
MEASUREMENT 5 System Performance Check - 2300MHz
MEASUREMENT 6 System Performance Check - 2450MHz
MEASUREMENT 7 System Performance Check - 2600MHz
MEASUREMENT 8 System Performance Check - 5200MHz
MEASUREMENT 9 System Performance Check - 5800MHz

MEASUREMENT 1

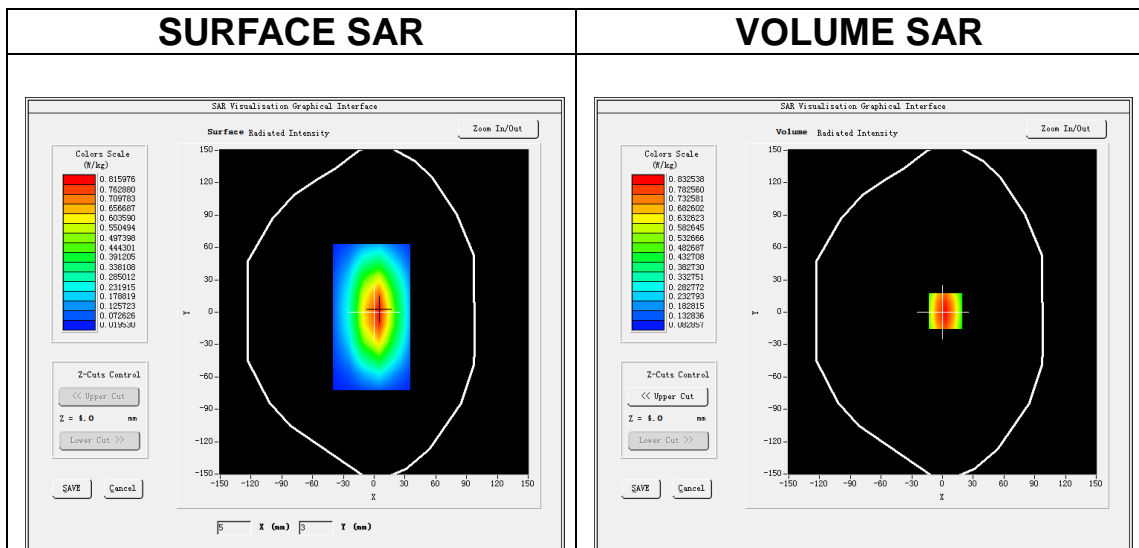
Date of measurement: 5/12/2023

A. Experimental conditions.

Area Scan	<u>dx=15mm dy=15mm, h= 5.00 mm</u>
ZoomScan	<u>5x5x7, dx=8mm dy=8mm dz=5mm</u>
Phantom	<u>Validation plane</u>
Device Position	<u>Dipole</u>
Band	<u>CW750</u>
Channels	<u>Middle</u>
Signal	<u>CW (Crest factor: 1.0)</u>
ConvF	<u>2.37</u>

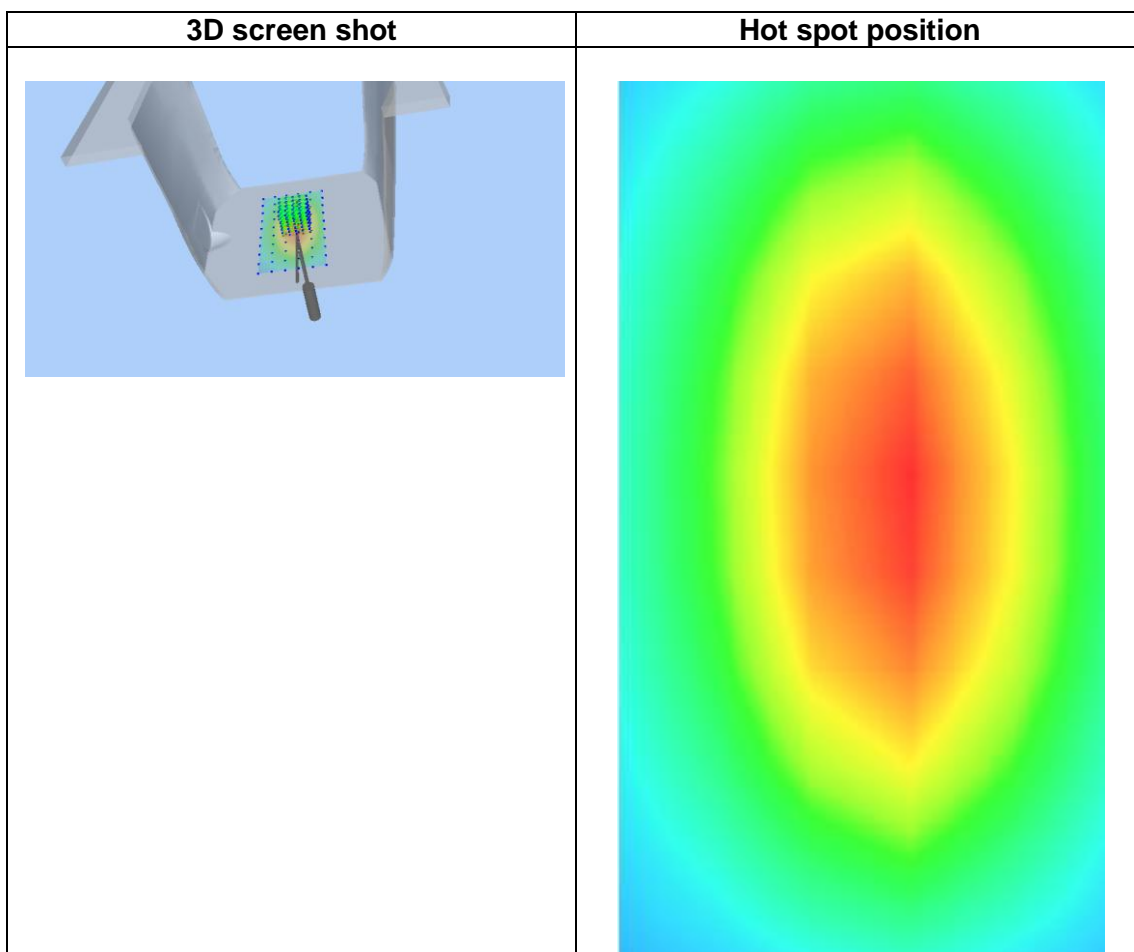
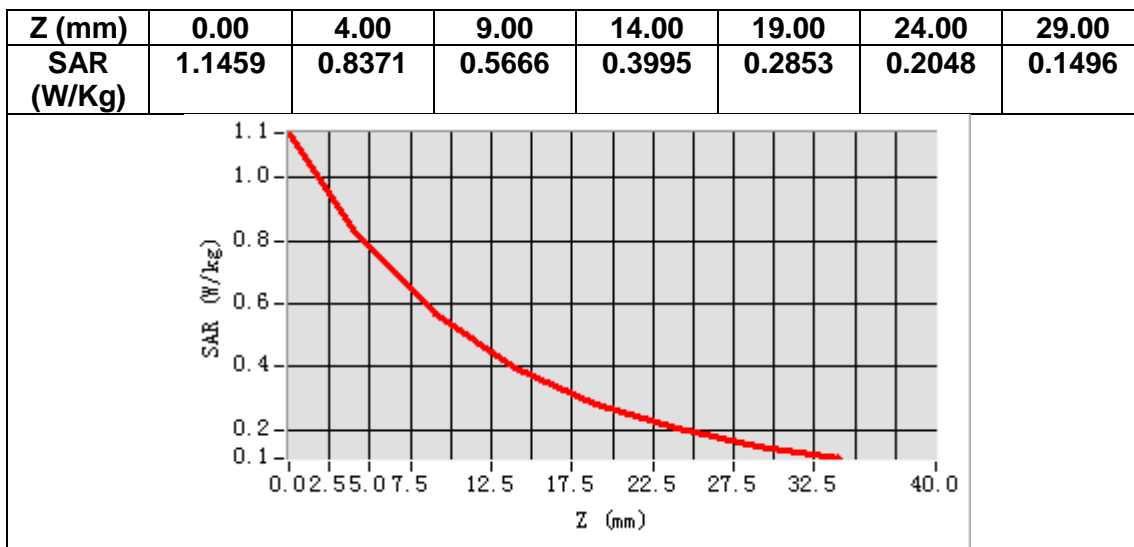
B. SAR Measurement Results

Frequency (MHz)	750.000000
Relative permittivity (real part)	42.032105
Relative permittivity (imaginary part)	21.999511
Conductivity (S/m)	0.916646
Variation (%)	-2.160000



Maximum location: X=3.00, Y=1.00
SAR Peak: 1.14 W/kg

SAR 10g (W/Kg)	0.552318
SAR 1g (W/Kg)	0.887339



MEASUREMENT 2

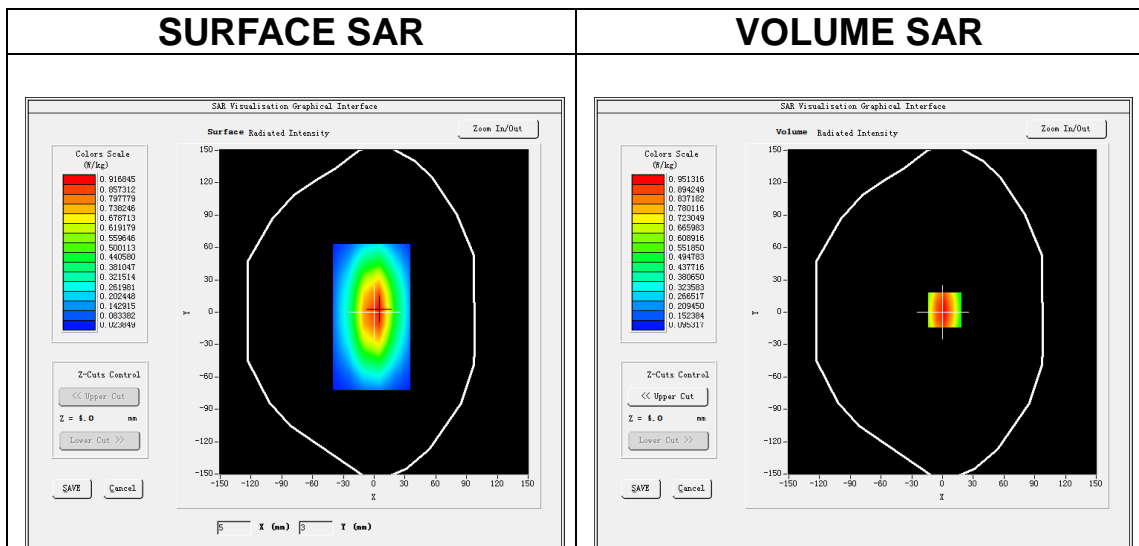
Date of measurement: 14/12/2023

A. Experimental conditions.

Area Scan	<u>dx=15mm dy=15mm, h= 5.00 mm</u>
ZoomScan	<u>5x5x7, dx=8mm dy=8mm dz=5mm</u>
Phantom	<u>Validation plane</u>
Device Position	<u>Dipole</u>
Band	<u>CW835</u>
Channels	<u>Middle</u>
Signal	<u>CW (Crest factor: 1.0)</u>
ConvF	<u>2.32</u>

B. SAR Measurement Results

Frequency (MHz)	835.000000
Relative permittivity (real part)	41.406160
Relative permittivity (imaginary part)	19.316538
Conductivity (S/m)	0.896073
Variation (%)	-0.780000



Maximum location: X=2.00, Y=2.00
SAR Peak: 1.29 W/kg

SAR 10g (W/Kg)	0.637115
SAR 1g (W/Kg)	1.047057