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 : access-ER HF NFC/FAP30

Trademark : COPPERNIC

Model Name : access-ER

Family Model : N/A

FCC ID : XGK-ACERNFC

Report No. : S22101403930001

Prepared for

Coppernic

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Prepared by

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TEST RESULT CERTIFICATION

Applicant's name.....: Coppernic

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Manufacturer's Name.....: Askey Computer Corp.

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Product description

Product name.....: access-ER HF NFC/FAP30

Trademark .....: COPPERNIC

Model Name .....: access-ER

Family Model.....: N/A

Standards.....: FCC 47 CFR Part 2(2.1093);
ANSI/IEEE C95.1-1992
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..... S221014039031

Date of Test

Date (s) of performance of tests..... : Oct. 20, 2022 ~ Nov. 02, 2022

Date of Issue ..... : Jan. 04, 2023

Test Result ..... : **Pass**

Prepared By (Test Engineer) : Jacob. chen
(Jacob Chen)

Approved By (Lab Manager) : Alex
(Alex Li)

※ ※ Revision History ※ ※

REV.	DESCRIPTION	ISSUED DATE	REMARK
Rev.1.0	Initial Test Report Release	Jan. 04, 2023	Jacob Chen

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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 access-ER are as follows.

RF Exposure Conditions		Equipment Class -Highest Reported SAR (W/kg)			
		PCT	DTS	NII	DSS
1-g Body-Worn (Separation distance of 10mm)		1.198	0.086	0.390	N/A
1-g Hotspot (Separation distance of 10mm)		1.198	0.086	0.356	N/A
Max Simultaneous Tx	Body-Worn	1.588	1.284	1.588	1.240
	Hotspot	1.554	1.284	1.554	1.240

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	access-ER HF NFC/FAP30
Trade Name	COPPERNIC
Model Name	access-ER
Family Model	N/A
Model Difference	N/A
FCC ID	XGK-ACERNFC
Device Phase	Identical Prototype
Exposure Category	General population / Uncontrolled environment
Antenna	LDS Antenna
Battery	DC 3.85V, 4000mAh
Hardware version	PCTA200 REV:3
Software version	ANDROID 10
Device Operating Configurations	
Supporting Mode(s)	GSM 850/1900, WCDMA Band 2/4/5, LTE Band 2/4/5/7/17/26/41, WLAN 2.4G/5G, Bluetooth, GPS, NFC, RFID
Test Modulation	GSM(GMSK/8PSK), WCDMA(QPSK), LTE(QPSK/16QAM), WLAN(DSSS/OFDM), Bluetooth(GFSK, π/4-DQPSK, 8DPSK) GPS(BPSK),NFC(ASK)
Device Class	B

Operating Frequency Range(s)	Band	Tx (MHz)	Rx (MHz)
	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 17	704-716	734-746
	LTE Band 26	814-849	859-894
	LTE Band 41	2496-2690	
	WLAN 2.4G	2412-2462	
	WLAN 5.2G	5180-5240	
	WLAN 5.3G	5260-5320	
	WLAN 5.6G	5500-5700	
	NFC	13.56	
	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 17)		
	3, tested with power control all Max.(LTE Band 26)		
	3, tested with power control all Max.(LTE Band 41)		
Wi-Fi Hotspot mode support	Wi-Fi 2.4G/5.2G		

1.4. Test specification(s)

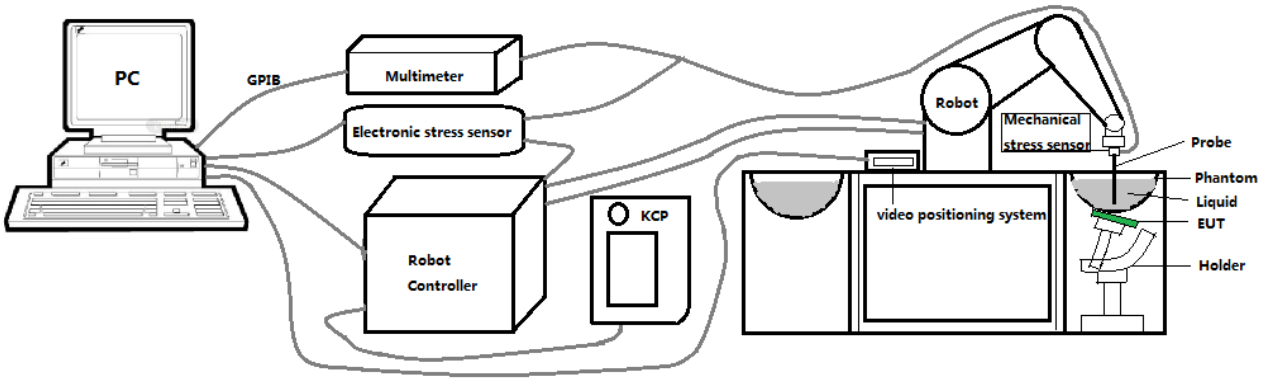
FCC 47 CFR Part 2(2.1093)
ANSI/IEEE C95.1-1992
IEEE Std 1528-2013
KDB 865664 D01 SAR measurement 100 MHz to 6 GHz
KDB 865664 D02 RF Exposure Reporting
KDB 447498 D01 General RF Exposure Guidance
KDB 248227 D01 802.11 Wi-Fi SAR
KDB 941225 D01 3G SAR Procedures
KDB 941225 D05 SAR for LTE Devices
KDB 941225 D06 Hotspot SAR

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 SN 08/16 EPGO287 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: ±0.08 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 ±10%. The spherical isotropy shall be evaluated and within ±0.25dB. 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.

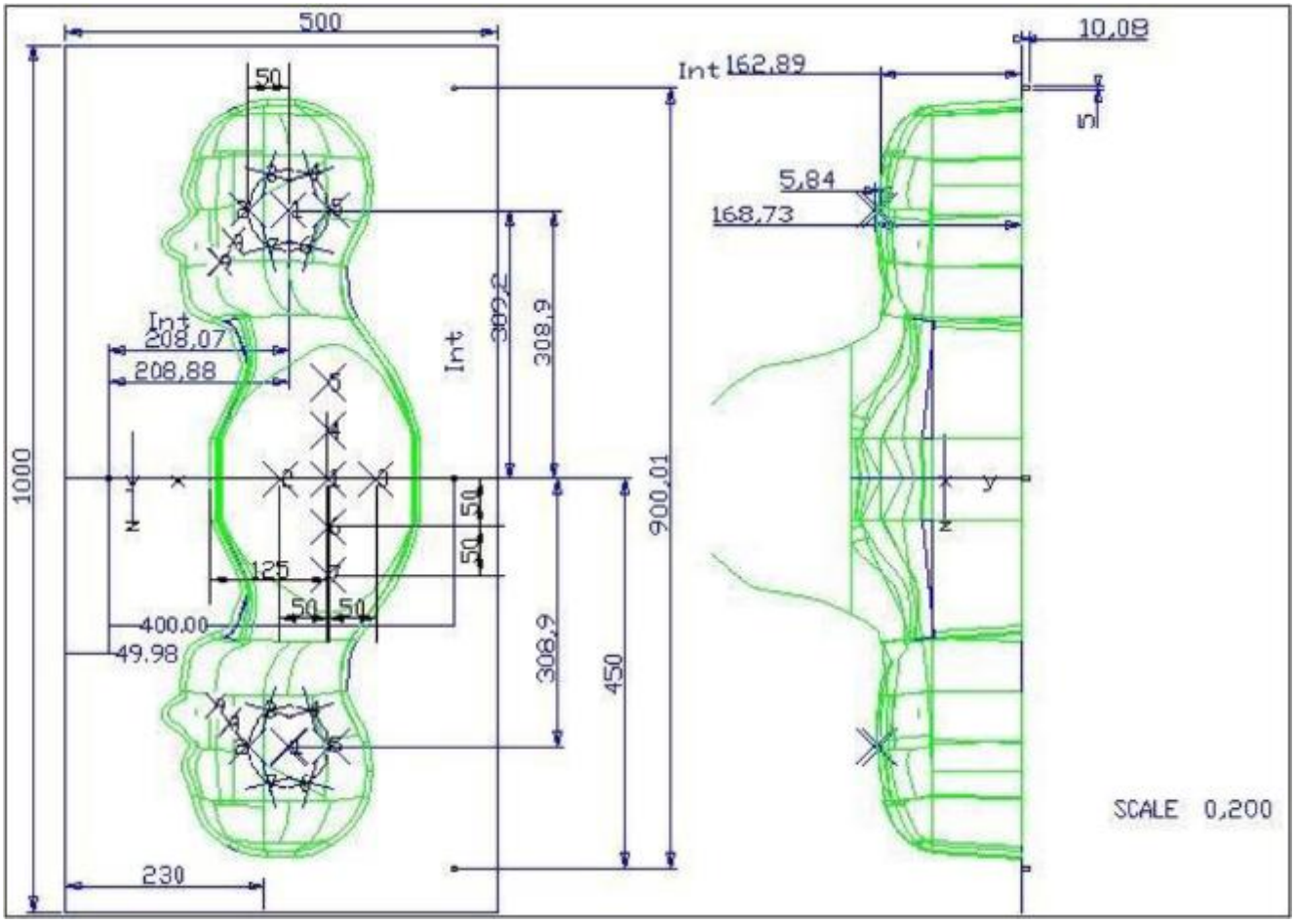
2.4. SAM phantoms

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

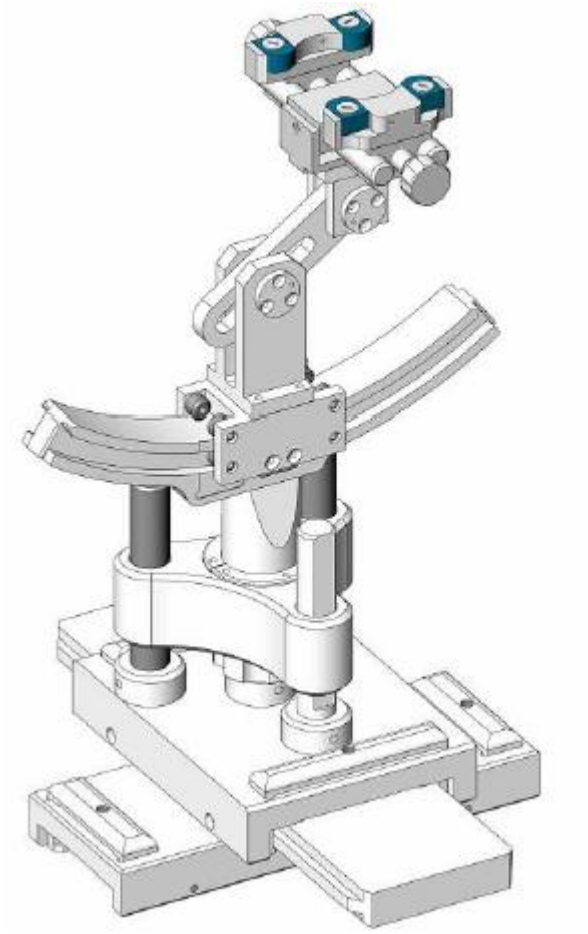


Serial Number	Left Head(mm)		Right Head(mm)		Flat Part(mm)	
SN 16/15 SAM119	2	2.02	2	2.08	1	2.09
	3	2.05	3	2.06	2	2.06
	4	2.07	4	2.07	3	2.08
	5	2.08	5	2.08	4	2.10
	6	2.05	6	2.07	5	2.10
	7	2.05	7	2.05	6	2.07
	8	2.07	8	2.06	7	2.07
	9	2.08	9	2.06	-	-

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
☒	MVG	E FIELD PROBE	SSE2	SN 08/16 EPGO287	Feb. 01, 2022	Jan. 31, 2023
☒	MVG	750 MHz Dipole	SID750	SN 03/15 DIP 0G750-355	Mar. 01, 2021	Feb. 28, 2024
☒	MVG	835 MHz Dipole	SID835	SN 03/15 DIP 0G835-347	Mar. 01, 2021	Feb. 28, 2024
☐	MVG	900 MHz Dipole	SID900	SN 03/15 DIP 0G900-348	Mar. 01, 2021	Feb. 28, 2024
☒	MVG	1800 MHz Dipole	SID1800	SN 03/15 DIP 1G800-349	Mar. 01, 2021	Feb. 28, 2024
☒	MVG	1900 MHz Dipole	SID1900	SN 03/15 DIP 1G900-350	Mar. 01, 2021	Feb. 28, 2024
☐	MVG	2000 MHz Dipole	SID2000	SN 03/15 DIP 2G000-351	Mar. 01, 2021	Feb. 28, 2024
☐	MVG	2300 MHz Dipole	SID2300	SN 03/16 DIP 2G300-358	Mar. 01, 2021	Feb. 28, 2024
☒	MVG	2450 MHz Dipole	SID2450	SN 03/15 DIP 2G450-352	Mar. 01, 2021	Feb. 28, 2024
☒	MVG	2600 MHz Dipole	SID2600	SN 03/15 DIP 2G600-356	Mar. 01, 2021	Feb. 28, 2024
☒	MVG	5000 MHz Dipole	SWG5500	SN 13/14 WGA 33	Mar. 01, 2021	Feb. 28, 2024
☒	MVG	Liquid measurement Kit	SCLMP	SN 21/15 OCPG 72	NCR	NCR
☒	MVG	Power Amplifier	N.A	AMPLISAR_28/14_003	NCR	NCR
☒	KEITHLEY	Millivoltmeter	2000	4072790	NCR	NCR
☒	R&S	Universal radio communication tester	CMU200	117858	Jun. 17, 2022	Jun. 16, 2023
☒	R&S	Wideband radio communication tester	CMW500	103917	Jun. 17, 2022	Jun. 16, 2023
☒	HP	Network Analyzer	8753D	3410J01136	Jun. 17, 2022	Jun. 16, 2023
☒	Agilent	MXG Vector	N5182A	MY47070317	Jun. 16,	Jun. 15,

		Signal Generator			2022	2023
☒	Agilent	Power meter	E4419B	MY45102538	Jun. 17, 2022	Jun. 16, 2023
☒	Agilent	Power sensor	E9301A	MY41495644	Jun. 17, 2022	Jun. 16, 2023
☒	Agilent	Power sensor	E9301A	US39212148	Jun. 17, 2022	Jun. 16, 2023
☒	MCLI/USA	Directional Coupler	CB11-20	0D2L51502	Jul. 17, 2020	Jul. 16, 2023

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: $\Delta z_{Zoom}(n)$		≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm
	graded grid	$\Delta z_{Zoom}(1)$: between 1st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{Zoom}(n>1)$: between subsequent points	$\leq 1.5 \cdot \Delta z_{Zoom}(n-1)$	
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 using to determinate this highest local SAR values. The extrapolation is based on a fourth-order least-square polynomial fit of measured data. The local SAR value is then extrapolated from the liquid surface with a 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 to a full 3D scan over a specific area. This 3D scan is useful form multi Tx SAR measurement. Indeed, it is possible with OpenSAR to add, point by point, several volumetric scan to calculate the SAR value of the combined measurement as it is define in the standard IEEE1528 and IEC62209.

3.5. Power Drift

All SAR testing is under the EUT install 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 ±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									
Frequency Band (MHz)	750	835	900	1800	1900	2000	2450	2600	5200	5800
Water	34.40	34.40	34.40	55.36	55.36	57.87	57.87	57.87	65.53	65.53
NaCl	0.79	0.79	0.79	0.35	0.35	0.16	0.16	0.16	0.00	0.00
1,2-Propanediol	64.81	64.81	64.81	0.00	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	24.24	24.24
DGBE	0.00	0.00	0.00	13.84	13.84	22.00	22.00	22.00	10.23	10.23
Ingredients (% of weight)	Body Tissue									
Frequency Band (MHz)	750	835	900	1800	1900	2000	2450	2600	5200	5800
Water	50.30	50.30	50.30	69.91	69.91	71.88	71.88	71.88	79.54	79.54
NaCl	0.60	0.60	0.60	0.13	0.13	0.16	0.16	0.16	0.00	0.00
1,2-Propanediol	49.10	49.10	49.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Triton X-100	0.00	0.00	0.00	9.99	9.99	19.97	19.97	19.97	11.24	11.24
DGBE	0.00	0.00	0.00	19.97	19.97	7.99	7.99	7.99	9.22	9.22

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.

Photo of Liquid depth for Head Position	Photo of Liquid depth for Body Position

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 of the dielectric parameter are within the tolerances of the specified target values. The measured conductivity and relative permittivity should be within ±5% of the target values.

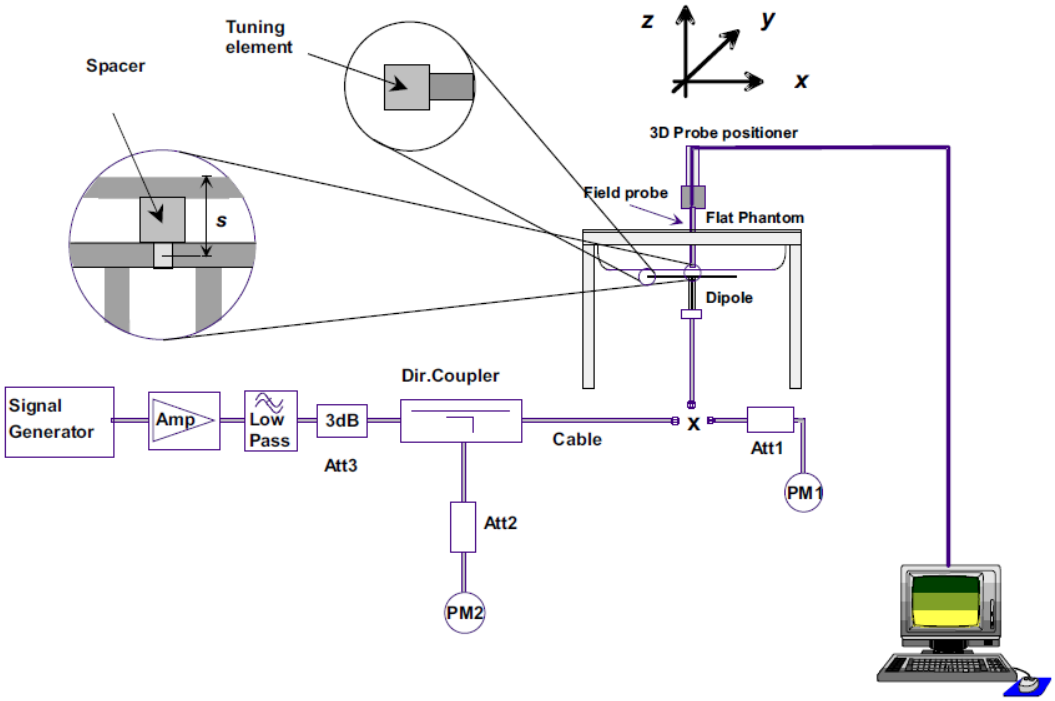
Tissue Type	Measured Frequency (MHz)	Target Tissue		Measured Tissue		Liquid Temp.	Test Date
		εr (±5%)	σ (S/m) (±5%)	εr	σ (S/m)		
Head 750	750	41.96 (39.86~44.06)	0.89 (0.85~0.93)	40.28	0.89	21.3 °C	Oct. 29, 2022
Head 850	835	41.50 (39.43~43.58)	0.90 (0.86~0.95)	41.25	0.92	21.7 °C	Oct. 20, 2022
Head 1800	1800	40.00 (38.00~42.00)	1.40 (1.33~1.47)	38.62	1.38	21.2 °C	Oct. 28, 2022
Head 1900	1900	40.00 (38.00~42.00)	1.40 (1.33~1.47)	38.43	1.47	21.1 °C	Nov. 02, 2022
Head 2450	2450	39.20 (37.24~41.16)	1.80 (1.71~1.89)	37.57	1.77	21.2 °C	Nov. 01, 2022
Head 2600	2600	39.01 (37.06~40.96)	1.96 (1.86~2.06)	37.55	1.91	21.2 °C	Oct. 27, 2022
Head 5200	5200	36.00 (34.20~37.80)	4.66 (4.43~4.89)	35.01	4.51	21.4 °C	Oct. 21, 2022
Head 5400	5400	35.80 (34.01~37.59)	4.86 (4.62~5.10)	36.23	4.78	21.8 °C	Oct. 25, 2022
Head 5600	5600	35.50 (33.73~37.28)	5.07 (4.82~5.32)	34.80	4.91	21.8 °C	Oct. 31, 2022

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 ±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) (±10%)		Measured SAR (Normalized to 1W)		Liquid Temp.	Test Date
	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)	7.98	5.31	21.3 °C	Oct. 29, 2022
835MHz	9.84 (8.86~10.82)	6.22 (5.60~6.84)	10.65	6.03	21.7 °C	Oct. 20, 2022
1800MHz	37.96 (34.17~41.75)	19.81 (17.83~21.79)	39.09	18.08	21.2 °C	Oct. 28, 2022
1900MHz	40.37 (36.34~44.40)	20.48 (18.44~22.52)	37.58	18.80	21.1 °C	Nov. 02, 2022
2450MHz	53.69 (48.33~59.05)	23.94 (21.55~26.33)	53.98	22.13	21.2 °C	Nov. 01, 2022
2600MHz	55.83 (50.25~61.41)	24.19 (21.78~26.60)	59.82	24.74	21.2 °C	Oct. 27, 2022
5200MHz	162.34 (146.11~178.57)	55.42 (49.88~60.96)	147.84	54.93	21.4 °C	Oct. 21, 2022
5400MHz	168.48 (151.64~185.32)	57.03 (51.33~62.73)	183.23	55.61	21.8 °C	Oct. 25, 2022
5600MHz	174.92 (157.43~192.41)	58.63 (52.77~64.49)	159.49	62.40	21.8 °C	Oct. 31, 2022

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. Body Worn Accessory

1. Body-worn operating configurations are tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in a normal use configuration (see Figure 6.1.1). Per KDB 648474 D04, body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in FCC KDB 447498 D01 should be used to test for body-worn accessory SAR compliance, without a headset connected to it. This enables the test results for such configuration to be compatible with that required for hotspot mode when the body-worn accessory test separation distance is greater than or equal to that required for hotspot mode, when applicable. When the reported SAR for body-worn accessory, measured without a headset connected to the handset is < 1.2 W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a handset attached to the handset.
2. Accessories for body-worn operation configurations are divided into two categories: those that do not contain metallic components and those that do contain metallic components and those that do contain metallic components. When multiple accessories that do not contain metallic components are supplied with the device, the device is tested with only the accessory that dictates the closest spacing to the body. Then multiple accessories that contain metallic components are test with the device with each accessory. If multiple accessories share an identical metallic component (i.e. the same metallic belt-chip used with different holsters with no other metallic components) only the accessory that dictates the closest spacing to the body is tested.

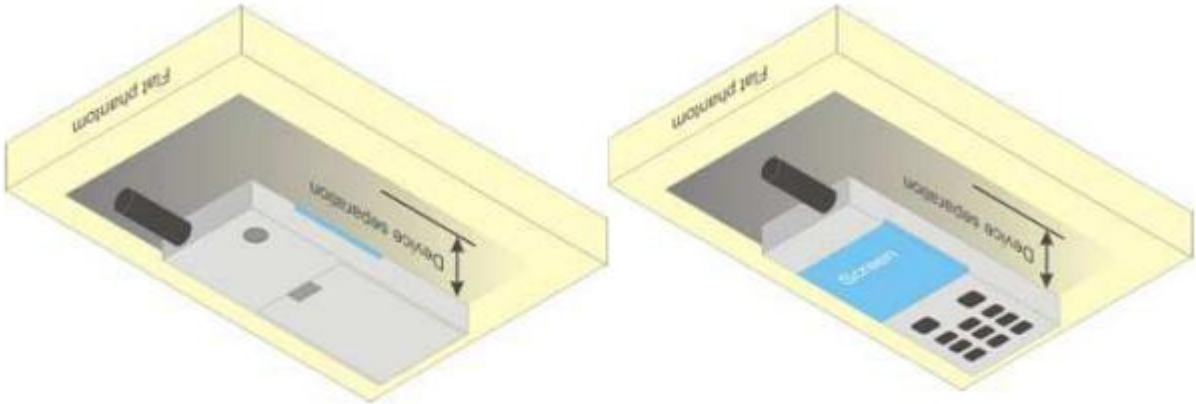


Figure 6.1.1 – Test positions for body-worn devices

6.2. Wireless Router Devices

Some battery-operated handsets have the capability to transmit and receive user through simultaneous transmission of WLAN simultaneously with a separate licensed transmitter. The FCC has provided guidance in FCC KDB Publication 941225 D06 where SAR test considerations for handsets (L x W ≥ 9 cm x 5 cm) are based on a composite test separation distance of 10mm from the front, back

and edges of the device containing transmitting antennas within 2.5cm of their edges, determined form general mixed use conditions for this type of devices. Since the hotspot SAR results may overlap with the body-worn accessory SAR requirements, the more conservative configurations can be considered, thus excluding some body-worn accessory SAR tests.

When the user enables the personal wireless router functions for the handset, actual operations include simultaneous transmission of both the WLAN transmitter and another licensed transmitter. Both transmitters often do not transmit at the same transmitting frequency and thus cannot be evaluated for SAR under actual use conditions due to the limitations of the SAR assessment probes. Therefore, SAR must be evaluated for each frequency transmission and mode separately and spatially summed with the WLAN transmitter according to FCC KDB Publication 447498 D01 publication procedures. The “Portable Hotspot” feature on the handset was NOT activated during SAR assessments, to ensure the SAR measurements were evaluated for a single transmission frequency RF signal at a time.

7. RF Output Power

7.1. GSM Conducted Power

Band GSM850	Burst-Averaged output Power (dBm)				Frame-Averaged output Power (dBm)			
Tx Channel	Tune - up (dBm)	128	189	251	Tune - up (dBm)	128	189	251
Frequency (MHz)		824.2	836.4	848.8		824.2	836.4	848.8
GSM (GMSK)	32.50	32.03	32.02	32.13	23.47	23.00	22.99	23.10
GPRS(GMSK, 1 TS)	33.00	32.73	32.63	32.69	23.97	23.70	23.60	23.66
GPRS(GMSK, 2 TS)	30.00	29.24	29.48	29.53	23.98	23.22	23.46	23.51
GPRS(GMSK, 3 TS)	27.50	27.14	27.40	27.45	23.24	22.88	23.14	23.19
GPRS(GMSK, 4 TS)	27.00	26.54	26.77	26.74	23.99	23.53	23.76	23.73
EGPRS(8PSK, 1 TS)	26.50	26.07	26.22	26.07	17.47	17.04	17.19	17.04
EGPRS(8PSK, 2 TS)	26.50	26.39	26.24	25.66	20.48	20.37	20.22	19.64
EGPRS(8PSK, 3 TS)	26.50	26.07	26.10	25.87	22.24	21.81	21.84	21.61
EGPRS(8PSK, 4 TS)	26.50	25.93	26.07	25.72	23.49	22.92	23.06	22.71
Band GSM1900	Burst-Averaged output Power (dBm)				Frame-Averaged output Power (dBm)			
Tx Channel	Tune - up (dBm)	512	661	810	Tune - up (dBm)	512	661	810
Frequency (MHz)		1850.2	1880	1909.8		1850.2	1880	1909.8
GSM (GMSK)	29.50	29.46	28.92	28.39	20.47	20.43	19.89	19.36
GPRS(GMSK, 1 TS)	29.50	29.45	28.93	28.75	20.47	20.42	19.90	19.72
GPRS(GMSK, 2 TS)	27.00	26.58	26.30	26.01	20.98	20.56	20.28	19.99
GPRS(GMSK, 3 TS)	25.00	24.73	24.45	24.19	20.74	20.47	20.19	19.93
GPRS(GMSK, 4 TS)	23.50	23.32	23.08	22.83	20.49	20.31	20.07	19.82
EGPRS(8PSK, 1 TS)	24.50	24.23	24.34	24.35	15.47	15.20	15.31	15.32
EGPRS(8PSK, 2 TS)	25.00	24.72	24.64	24.54	18.98	18.70	18.62	18.52
EGPRS(8PSK, 3 TS)	24.50	24.04	24.42	24.40	20.24	19.78	20.16	20.14
EGPRS(8PSK, 4 TS)	23.50	23.42	23.43	23.42	20.49	20.41	20.42	20.41

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	9262	9400	9538
Frequency (MHz)	(dBm)	1852.4	1880	1907.6
RMC12.2K	24.00	23.83	23.76	23.68
HSDPA Sub 1	23.00	22.85	22.80	22.68
HSDPA Sub 2	23.00	22.45	22.45	22.52
HSDPA Sub 3	21.50	21.34	21.49	21.21
HSDPA Sub 4	21.50	21.19	21.45	21.17
HSUPA Sub 1	22.50	22.23	22.08	21.97
HSUPA Sub 2	23.00	22.73	22.76	22.51
HSUPA Sub 3	22.50	22.08	22.13	22.14
HSUPA Sub 4	23.00	22.81	22.77	22.70
HSUPA Sub 5	22.50	22.13	22.08	21.74
WCDMA Band 4	Burst-Averaged output Power (dBm)			
Tx Channel	Tune-up	1312	1413	1513
Frequency (MHz)	(dBm)	1712.4	1732.6	1752.6
RMC12.2K	24.00	23.96	23.83	23.93
HSDPA Sub 1	23.00	22.93	22.81	22.95
HSDPA Sub 2	23.00	22.67	22.41	22.65
HSDPA Sub 3	22.00	21.49	21.67	21.78
HSDPA Sub 4	22.00	21.23	21.48	21.54
HSUPA Sub 1	22.50	22.20	21.98	22.15
HSUPA Sub 2	23.00	22.93	22.73	22.84
HSUPA Sub 3	22.50	22.20	22.07	22.13
HSUPA Sub 4	23.00	22.78	22.20	22.89
HSUPA Sub 5	22.50	22.14	21.87	22.02
WCDMA Band 5	Burst-Averaged output Power (dBm)			
Tx Channel	Tune-up	4132	4182	4233
Frequency (MHz)	(dBm)	826.4	836.4	846.6
RMC12.2K	24.00	23.84	23.71	23.77
HSDPA Sub 1	23.00	22.78	22.70	22.74
HSDPA Sub 2	23.00	22.56	22.43	22.41
HSDPA Sub 3	21.50	21.27	21.49	21.23
HSDPA Sub 4	22.00	21.39	20.83	21.69
HSUPA Sub 1	22.50	22.06	21.96	21.98

HSUPA Sub 2	23.00	22.70	22.64	22.49
HSUPA Sub 3	22.50	22.16	22.05	21.98
HSUPA Sub 4	23.00	22.78	22.72	22.75
HSUPA Sub 5	22.00	21.80	21.96	21.79

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	24.00	23.61	23.78	23.78
			1	2	24.00	23.64	23.89	23.98
			1	5	24.00	23.62	23.80	23.85
			3	0	24.00	23.64	23.77	23.87
			3	1	24.00	23.72	23.88	23.89
			3	2	24.00	23.65	23.81	23.90
			6	0	23.00	22.64	22.84	22.89
		16QAM	1	0	23.50	22.89	23.04	23.11
			1	2	23.50	22.90	23.21	23.24
			1	5	23.50	22.82	23.06	23.11
			3	0	23.00	22.69	22.93	22.96
			3	1	23.00	22.73	22.93	22.96
			3	2	23.00	22.69	22.91	22.92
			6	0	22.50	21.83	22.06	22.09
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	24.00	23.62	23.88	23.89
			1	7	24.00	23.64	23.91	23.88
			1	14	24.00	23.63	23.81	23.89
			8	0	23.00	22.68	22.88	22.96
			8	4	23.00	22.72	22.94	22.98
			8	7	23.00	22.69	22.93	22.88
			15	0	23.00	22.70	22.89	22.96
		16QAM	1	0	23.50	22.86	23.10	23.08
			1	7	23.50	22.95	23.17	23.13
			1	14	23.50	22.96	23.07	23.04
			8	0	22.50	21.84	22.06	22.03

			8	4	22.50	21.89	22.09	22.09
			8	7	22.50	21.81	22.06	22.03
			15	0	22.50	21.79	22.01	22.08
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		18625/1852.5	18900/1880	19175/1907.5
LTE Band 2	5MHz	QPSK	1	0	24.00	23.64	23.81	23.89
			1	12	24.00	23.70	23.91	23.97
			1	24	24.00	23.57	23.79	23.88
			12	0	23.00	22.69	22.94	22.94
			12	6	23.00	22.71	22.91	22.98
			12	11	23.00	22.68	22.93	22.92
			25	0	23.00	22.70	22.93	22.96
		16QAM	1	0	23.50	22.90	23.10	23.04
			1	12	23.50	23.07	23.30	23.16
			1	24	23.50	22.90	23.22	23.08
			12	0	22.50	21.85	22.04	21.95
			12	6	22.50	21.84	22.07	22.12
			12	11	22.50	21.83	22.03	22.00
			25	0	22.50	21.79	22.04	22.03
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	24.00	23.72	23.92	23.93
			1	24	24.00	23.71	23.92	23.92
			1	49	24.00	23.75	23.97	23.94
			25	0	23.00	22.71	22.87	23.00
			25	12	23.00	22.73	22.96	22.99
			25	24	23.00	22.71	22.92	22.95
			50	0	23.00	22.72	22.92	22.99
		16QAM	1	0	23.50	22.96	23.18	23.22
			1	24	23.50	23.03	23.26	23.21
			1	49	23.50	23.06	23.30	23.10
			25	0	22.50	21.83	22.07	22.05
			25	12	22.50	21.86	22.05	22.09
			25	24	22.50	21.83	22.05	22.05
			50	0	22.50	21.82	22.08	22.06
Band	Band	Modulation	RB		Tune-up	Channel/Frequency(MHz)		

	Width		Configuration		(dBm)			
			RB Size	RB Offset		18675/1857.5	18900/1880	19125/1902.5
LTE Band 2	15MHz	QPSK	1	0	24.00	23.63	23.82	23.89
			1	37	24.00	23.64	23.84	23.91
			1	74	24.00	23.61	23.87	23.88
			36	0	23.00	22.72	22.88	22.94
			36	18	23.00	22.71	22.93	22.95
			36	37	23.00	22.73	22.95	22.95
			75	0	23.00	22.70	22.90	22.93
		16QAM	1	0	23.50	23.05	23.08	23.19
			1	37	23.50	23.01	23.30	23.16
			1	74	23.50	23.00	23.26	23.14
			36	0	22.50	21.79	22.01	22.02
			36	18	22.50	21.87	22.10	22.08
			36	37	22.50	21.83	22.05	22.02
			75	0	22.50	21.86	22.03	22.06

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		18700/1860	18900/1880	19100/1900
LTE Band 2	20MHz	QPSK	1	0	24.00	23.62	23.82	23.86
			1	49	24.00	23.66	23.88	23.86
			1	99	24.00	23.66	23.90	23.89
			50	0	23.00	22.66	22.88	22.94
			50	24	23.00	22.76	22.94	22.96
			50	49	23.00	22.60	22.90	22.95
			100	0	23.00	22.60	22.92	22.91
		16QAM	1	0	23.50	22.94	23.12	23.16
			1	49	23.50	23.03	23.20	23.28
			1	99	23.50	22.96	23.24	23.17
			50	0	22.50	21.82	22.00	22.04
			50	24	22.50	21.86	22.05	22.06
			50	49	22.50	21.75	22.09	22.00
			100	0	22.50	21.73	22.04	22.03

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		19957/1710.7	20175/1732.5	20393/1754.3

LTE Band 4	1.4MHz	QPSK	1	0	24.00	23.38	23.39	23.49
			1	2	24.00	23.43	23.48	23.60
			1	5	24.00	23.31	23.37	23.53
			3	0	24.00	23.37	23.49	23.57
			3	1	24.00	23.40	23.51	23.59
			3	2	24.00	23.38	23.42	23.56
			6	0	23.00	22.37	22.48	22.56
		16QAM	1	0	23.00	22.63	22.81	22.78
			1	2	23.00	22.80	22.87	22.91
			1	5	23.00	22.74	22.68	22.74
			3	0	23.00	22.45	22.51	22.60
			3	1	23.00	22.56	22.61	22.64
			3	2	23.00	22.42	22.53	22.56
			6	0	22.00	21.56	21.66	21.74
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	3MHz	QPSK	1	0	24.00	23.39	23.47	23.56
			1	7	24.00	23.41	23.50	23.57
			1	14	24.00	23.33	23.44	23.55
			8	0	23.00	22.40	22.49	22.59
			8	4	23.00	22.48	22.57	22.62
			8	7	23.00	22.38	22.53	22.61
			15	0	23.00	22.39	22.52	22.69
		16QAM	1	0	23.00	22.70	22.74	22.71
			1	7	23.00	22.83	22.84	22.74
			1	14	23.00	22.77	22.85	22.79
			8	0	22.00	21.59	21.66	21.71
			8	4	22.00	21.64	21.74	21.75
			8	7	22.00	21.58	21.71	21.68
			15	0	22.00	21.53	21.67	21.74
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 Band 4	5MHz	QPSK	1	0	24.00	23.43	23.45	23.45
			1	12	24.00	23.45	23.58	23.56
			1	24	24.00	23.36	23.47	23.46
			12	0	23.00	22.45	22.52	22.49

			12	6	23.00	22.44	22.56	22.57
			12	11	23.00	22.39	22.56	22.54
			25	0	23.00	22.42	22.54	22.49
		16QAM	1	0	23.00	22.77	22.74	22.75
			1	12	23.00	22.84	22.95	22.79
			1	24	23.00	22.66	22.79	22.70
			12	0	22.00	21.54	21.63	21.60
			12	6	22.00	21.59	21.69	21.64
			12	11	22.00	21.56	21.66	21.60
			25	0	22.00	21.54	21.63	21.61
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	24.00	23.43	23.50	23.46
			1	24	24.00	23.39	23.55	23.49
			1	49	24.00	23.32	23.50	23.45
			25	0	23.00	22.45	22.49	22.49
			25	12	23.00	22.39	22.57	22.54
			25	24	23.00	22.34	22.53	22.54
			50	0	23.00	22.39	22.54	22.51
		16QAM	1	0	23.00	22.73	22.67	22.78
			1	24	23.00	22.79	22.79	22.83
			1	49	23.00	22.69	22.82	22.72
			25	0	22.00	21.53	21.63	21.61
			25	12	22.00	21.50	21.66	21.64
			25	24	22.00	21.49	21.66	21.57
			50	0	22.00	21.49	21.63	21.63
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	24.00	23.52	23.35	23.39
			1	37	24.00	23.42	23.53	23.50
			1	74	24.00	23.26	23.58	23.47
			36	0	23.00	22.53	22.51	22.40
			36	18	23.00	22.38	22.55	22.56
			36	37	23.00	22.34	22.55	22.51
			75	0	23.00	22.38	22.53	22.43
		16QAM	1	0	23.00	22.83	22.72	22.79

			1	37	23.00	22.84	22.88	22.84
			1	74	23.00	22.60	22.90	22.76
			36	0	22.00	21.63	21.59	21.53
			36	18	22.00	21.49	21.70	21.70
			36	37	22.00	21.41	21.70	21.59
			75	0	22.00	21.49	21.62	21.52
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		20050/1720	20175/1732.5	20300/1745
LTE Band 4	20MHz	QPSK	1	0	24.00	23.42	23.33	23.33
			1	49	24.00	23.37	23.47	23.45
			1	99	24.00	23.32	23.55	23.42
			50	0	23.00	22.47	22.49	22.42
			50	24	23.00	22.39	22.53	22.42
			50	49	23.00	22.39	22.55	22.54
			100	0	23.00	22.40	22.50	22.40
		16QAM	1	0	23.00	22.89	22.70	22.75
			1	49	23.00	22.80	22.76	22.85
			1	99	23.00	22.71	22.86	22.77
			50	0	22.00	21.59	21.62	21.52
			50	24	22.00	21.48	21.66	21.54
			50	49	22.00	21.44	21.67	21.61
			100	0	22.00	21.44	21.59	21.53

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	23.50	23.08	23.01	22.88
			1	2	23.50	23.14	23.02	22.99
			1	5	23.50	23.00	23.01	22.89
			3	0	23.50	23.10	23.12	22.93
			3	1	23.50	23.16	23.09	23.01
			3	2	23.50	23.08	23.04	22.99
			6	0	22.50	22.04	22.14	21.97
		16QAM	1	0	23.00	22.29	22.30	22.04
			1	2	23.00	22.54	22.30	22.08
			1	5	23.00	22.43	22.34	22.07
			3	0	22.50	22.20	22.15	21.94

			3	1	22.50	22.22	22.15	22.03
			3	2	22.50	22.18	22.14	21.94
			6	0	21.50	21.27	21.18	21.10
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
LTE Band 5	3MHz	QPSK	1	0	23.50	23.13	23.12	23.01
			1	7	23.50	23.13	23.05	22.94
			1	14	23.50	23.08	23.03	22.92
			8	0	22.50	22.12	22.15	22.00
			8	4	22.50	22.13	22.20	22.05
			8	7	22.50	22.14	22.12	22.00
			15	0	22.50	22.13	22.13	22.04
		16QAM	1	0	23.00	22.42	22.45	22.26
			1	7	23.00	22.56	22.43	22.18
			1	14	23.00	22.51	22.39	22.21
			8	0	21.50	21.34	21.27	21.09
			8	4	21.50	21.35	21.30	21.15
			8	7	21.50	21.30	21.24	21.07
			15	0	21.50	21.25	21.25	21.13
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		20425/826.5	20525/836.5	20625/846.5
LTE Band 5	5MHz	QPSK	1	0	23.50	23.10	23.12	23.04
			1	12	23.50	23.15	23.18	23.09
			1	24	23.50	23.09	23.01	22.95
			12	0	22.50	22.13	22.14	22.08
			12	6	22.50	22.16	22.21	22.07
			12	11	22.50	22.13	22.14	21.98
			25	0	22.50	22.14	22.17	22.04
		16QAM	1	0	23.00	22.54	22.44	22.37
			1	12	23.00	22.55	22.42	22.24
			1	24	23.00	22.47	22.24	22.10
			12	0	21.50	21.28	21.27	21.17
			12	6	21.50	21.31	21.29	21.13
			12	11	21.50	21.25	21.24	21.04
			25	0	21.50	21.23	21.25	21.12
Band	Band	Modulation	RB		Tune-up	Channel/Frequency(MHz)		

	Width		Configuration		(dBm)			
			RB Size	RB Offset		20450/829	20525/836.5	20600/844
LTE Band 5	10MHz	QPSK	1	0	23.50	23.15	23.19	22.97
			1	24	23.50	23.09	23.08	23.04
			1	49	23.50	23.17	22.99	22.92
			25	0	22.50	22.13	22.22	22.05
			25	12	22.50	22.22	22.20	22.09
			25	24	22.50	22.20	22.11	22.03
			50	0	22.50	22.25	22.14	22.04
		16QAM	1	0	23.00	22.53	22.62	22.23
			1	24	23.00	22.50	22.42	22.41
			1	49	23.00	22.48	22.30	22.13
			25	0	21.50	21.27	21.29	21.13
			25	12	21.50	21.34	21.25	21.16
			25	24	21.50	21.26	21.19	21.11
			50	0	21.50	21.33	21.23	21.09

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	24.00	23.39	23.63	23.96
			1	12	24.00	23.58	23.77	23.99
			1	24	24.00	23.51	23.71	23.90
			12	0	23.50	22.45	22.69	22.99
			12	6	23.50	22.58	22.75	23.04
			12	11	23.50	22.57	22.74	23.01
			25	0	23.50	22.56	22.73	23.02
		16QAM	1	0	23.50	22.65	22.87	23.21
			1	12	23.50	22.77	22.94	23.37
			1	24	23.50	22.70	22.97	23.20
			12	0	22.50	21.51	21.67	22.11
			12	6	22.50	21.59	21.76	22.08
			12	11	22.50	21.64	21.82	22.09
			25	0	22.50	21.59	21.77	22.08
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		20800/2505	21100/2535	21400/2565

LTE Band 7	10MHz	QPSK	1	0	24.00	23.43	23.57	23.93
			1	24	24.00	23.52	23.66	23.97
			1	49	24.00	23.63	23.75	23.92
			25	0	23.50	22.56	22.68	23.00
			25	12	23.50	22.62	22.76	23.05
			25	24	23.50	22.64	22.76	23.01
			50	0	23.50	22.59	22.71	23.05
		16QAM	1	0	23.50	22.69	22.77	23.24
			1	24	23.50	22.70	22.80	23.27
			1	49	23.50	22.85	23.07	23.20
			25	0	22.50	21.58	21.71	22.12
			25	12	22.50	21.67	21.82	22.11
			25	24	22.50	21.69	21.83	22.12
			50	0	22.50	21.62	21.77	22.11
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	24.00	23.41	23.53	23.89
			1	37	24.00	23.58	23.69	23.95
			1	74	24.00	23.58	23.78	23.94
			36	0	23.50	22.59	22.66	22.99
			36	18	23.50	22.66	22.76	23.04
			36	37	23.50	22.64	22.80	23.01
			75	0	23.00	22.65	22.72	22.99
		16QAM	1	0	23.50	22.61	22.70	23.22
			1	37	23.50	22.84	22.81	23.20
			1	74	23.50	22.82	23.06	23.25
			36	0	22.50	21.61	21.67	22.05
			36	18	22.50	21.68	21.80	22.14
			36	37	22.50	21.70	21.82	22.10
			75	0	22.50	21.68	21.77	22.09
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		20850/2510	21100/2535	21350/2560
LTE Band 7	20MHz	QPSK	1	0	24.00	23.44	23.46	23.77
			1	49	24.00	23.54	23.62	23.88
			1	99	24.00	23.43	23.71	23.90
			50	0	23.50	22.62	22.67	22.88

			50	24	23.50	22.68	22.79	23.01
			50	49	23.50	22.55	22.84	22.97
			100	0	23.00	22.51	22.73	22.94
		16QAM	1	0	23.50	22.70	22.66	23.04
			1	49	23.50	22.88	22.88	23.21
			1	99	23.50	22.69	22.98	23.24
			50	0	22.50	21.69	21.69	21.97
			50	24	22.50	21.76	21.84	22.08
			50	49	22.50	21.61	21.85	22.07
			100	0	22.50	21.59	21.78	22.03

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	23.50	23.19	23.25	23.15
			1	12	23.50	23.34	23.28	23.27
			1	24	23.50	23.23	23.32	23.18
			12	0	22.50	22.23	22.30	22.13
			12	6	22.50	22.39	22.30	22.27
			12	11	22.50	22.31	22.28	22.24
			25	0	22.50	22.29	22.30	22.14
		16QAM	1	0	23.00	22.58	22.56	22.44
			1	12	23.00	22.70	22.60	22.57
			1	24	23.00	22.50	22.72	22.55
			12	0	21.50	21.33	21.42	21.28
			12	6	21.50	21.46	21.45	21.38
			12	11	21.50	21.40	21.39	21.35
			25	0	21.50	21.43	21.40	21.25
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	23.50	23.27	23.25	23.32
			1	24	23.50	23.23	23.23	23.23
			1	49	23.50	23.26	23.30	23.25
			25	0	22.50	22.30	22.32	22.33
			25	12	22.50	22.28	22.34	22.29
			25	24	22.50	22.25	22.27	22.24
			50	0	22.50	22.31	22.27	22.27

		16QAM	1	0	23.00	22.71	22.61	22.60
			1	24	23.00	22.56	22.61	22.67
			1	49	23.00	22.64	22.64	22.54
			25	0	21.50	21.43	21.45	21.43
			25	12	21.50	21.40	21.45	21.37
			25	24	21.50	21.37	21.37	21.36
			50	0	21.50	21.42	21.38	21.40

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	23.50	23.10	23.08	23.11
			1	2	23.50	23.18	23.13	23.22
			1	5	23.50	23.07	23.04	23.05
			3	0	23.50	23.14	23.07	23.14
			3	1	23.50	23.17	23.14	23.16
			3	2	23.50	23.13	23.04	23.15
			6	0	22.50	22.14	22.09	22.17
		16QAM	1	0	23.00	22.45	22.35	22.44
			1	2	23.00	22.39	22.43	22.54
			1	5	23.00	22.37	22.28	22.41
			3	0	22.50	22.18	22.15	22.28
			3	1	22.50	22.22	22.14	22.28
			3	2	22.50	22.16	22.06	22.26
			6	0	21.50	21.32	21.23	21.32

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	23.50	23.10	23.15	23.22
			1	7	23.50	23.12	23.14	23.17
			1	14	23.50	23.09	23.19	23.15
			8	0	22.50	22.18	22.15	22.21
			8	4	22.50	22.20	22.19	22.25
			8	7	22.50	22.18	22.24	22.19
			15	0	22.50	22.21	22.28	22.22
		16QAM	1	0	23.00	22.41	22.44	22.42
			1	7	23.00	22.46	22.44	22.59
			1	14	23.00	22.41	22.42	22.52

			8	0	21.50	21.31	21.28	21.39
			8	4	21.50	21.32	21.32	21.42
			8	7	21.50	21.32	21.35	21.35
			15	0	21.50	21.27	21.32	21.32
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		26715/816.5	26740/819	26765/821.5
LTE Band 26a	5MHz	QPSK	1	0	23.50	23.16	23.13	23.10
			1	12	23.50	23.18	23.13	23.20
			1	24	23.50	23.06	23.15	23.19
			12	0	22.50	22.20	22.19	22.28
			12	6	22.50	22.19	22.30	22.28
			12	11	22.50	22.17	22.23	22.25
			25	0	22.50	22.22	22.28	22.25
		16QAM	1	0	23.00	22.52	22.40	22.43
			1	12	23.00	22.42	22.43	22.56
			1	24	23.00	22.40	22.47	22.43
			12	0	21.50	21.31	21.28	21.34
			12	6	21.50	21.30	21.38	21.33
			12	11	21.50	21.21	21.36	21.34
			25	0	21.50	21.28	21.34	21.33
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		/	26740/819	/
LTE Band 26a	10MHz	QPSK	1	0	23.50	/	23.18	/
			1	24	23.50	/	23.08	/
			1	49	23.50	/	23.14	/
			25	0	22.50	/	22.22	/
			25	12	22.50	/	22.30	/
			25	24	22.50	/	22.23	/
			50	0	22.50	/	22.30	/
		16QAM	1	0	22.50	/	22.45	/
			1	24	22.50	/	22.39	/
			1	49	22.50	/	22.45	/
			25	0	21.50	/	21.25	/
			25	12	21.50	/	21.38	/
			25	24	21.50	/	21.30	/
			50	0	21.50	/	21.35	/

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 Band 26b	1.4MHz	QPSK	1	0	23.50	23.14	23.12	23.15
			1	2	23.50	23.17	23.14	23.20
			1	5	23.50	23.15	23.06	23.09
			3	0	23.50	23.19	23.13	23.15
			3	1	23.50	23.20	23.17	23.20
			3	2	23.50	23.21	23.14	23.17
			6	0	22.50	22.17	22.16	22.19
		16QAM	1	0	23.00	22.48	22.43	22.19
			1	2	23.00	22.60	22.53	22.24
			1	5	23.00	22.49	22.41	22.24
			3	0	22.50	22.26	22.17	22.03
			3	1	22.50	22.21	22.25	22.13
			3	2	22.50	22.26	22.09	22.11
			6	0	21.50	21.31	21.33	21.27

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	23.50	23.23	23.20	23.20
			1	7	23.50	23.14	23.16	23.13
			1	14	23.50	23.16	23.17	23.16
			8	0	22.50	22.20	22.19	22.16
			8	4	22.50	22.21	22.24	22.24
			8	7	22.50	22.18	22.23	22.18
			15	0	22.50	22.19	22.23	22.20
		16QAM	1	0	23.00	22.53	22.51	22.37
			1	7	23.00	22.55	22.41	22.31
			1	14	23.00	22.51	22.32	22.19
			8	0	21.50	21.37	21.33	21.28
			8	4	21.50	21.40	21.36	21.28
			8	7	21.50	21.35	21.38	21.26
			15	0	21.50	21.30	21.29	21.29

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB	RB		26815/826.5	26915/836.5	27015/846.5

			Size	Offset				
LTE Band 26b	5MHz	QPSK	1	0	23.50	23.20	23.25	23.21
			1	12	23.50	23.25	23.24	23.21
			1	24	23.50	23.27	23.13	23.15
			12	0	22.50	22.21	22.28	22.23
			12	6	22.50	22.23	22.27	22.21
			12	11	22.50	22.35	22.19	22.19
			25	0	22.50	22.32	22.22	22.21
		16QAM	1	0	23.00	22.52	22.51	22.49
			1	12	23.00	22.66	22.49	22.42
			1	24	23.00	22.61	22.39	22.32
			12	0	21.50	21.35	21.37	21.32
			12	6	21.50	21.35	21.36	21.28
			12	11	21.50	21.38	21.27	21.23
			25	0	21.50	21.47	21.32	21.27
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		26840/829	26915/836.5	26990/844
LTE Band 26b	10MHz	QPSK	1	0	23.50	23.19	23.27	23.26
			1	24	23.50	23.28	23.14	23.22
			1	49	23.50	23.20	23.18	23.10
			25	0	22.50	22.30	22.27	22.31
			25	12	22.50	22.30	22.25	22.25
			25	24	22.50	22.26	22.20	22.22
			50	0	22.50	22.32	22.20	22.25
		16QAM	1	0	23.00	22.46	22.70	22.58
			1	24	23.00	22.67	22.43	22.57
			1	49	23.00	22.52	22.49	22.31
			25	0	21.50	21.48	21.36	21.37
			25	12	21.50	21.47	21.33	21.35
			25	24	21.50	21.36	21.26	21.27
			50	0	21.50	21.40	21.32	21.32
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		26865/831.5	26915/836.5	26965/841.5
LTE Band 26b	15MHz	QPSK	1	0	23.50	23.25	23.36	23.24
			1	37	23.50	23.24	23.19	23.22
			1	74	23.50	23.10	23.15	23.09

			36	0	22.50	22.36	22.32	22.23
			36	18	22.50	22.33	22.29	22.18
			36	37	22.50	22.25	22.21	22.25
			75	0	22.50	22.28	22.26	22.23
		16QAM	1	0	23.00	22.64	22.71	22.64
			1	37	23.00	22.63	22.55	22.55
			1	74	23.00	22.43	22.42	22.18
			36	0	21.50	21.42	21.37	21.30
			36	18	21.50	21.39	21.37	21.30
			36	37	21.50	21.33	21.30	21.32
			75	0	21.50	21.34	21.33	21.22

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		39675/2498.5	40620/2593	41565/2687.5
LTE Band 41	5MHz	QPSK	1	0	25.00	24.05	24.33	24.58
			1	12	25.00	24.14	24.38	24.66
			1	24	25.00	24.09	24.32	24.59
			12	0	24.00	23.13	23.36	23.66
			12	6	24.00	23.15	23.37	23.68
			12	11	24.00	23.18	23.36	23.68
			25	0	24.00	23.15	23.38	23.67
		16QAM	1	0	24.00	23.19	23.65	23.82
			1	12	24.00	23.34	23.70	23.91
			1	24	24.00	23.32	23.64	23.84
			12	0	23.00	22.19	22.51	22.77
			12	6	23.00	22.26	22.54	22.82
			12	11	23.00	22.24	22.49	22.83
			25	0	23.00	22.21	22.54	22.78
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		39700/2501	40620/2593	41540/2685
LTE Band 41	10MHz	QPSK	1	0	25.00	24.01	24.32	24.66
			1	24	25.00	24.03	24.29	24.55
			1	49	25.00	24.03	24.13	24.55
			25	0	24.00	23.12	23.40	23.78
			25	12	24.00	23.09	23.42	23.78
			25	24	24.00	23.07	23.36	23.66

			50	0	24.00	23.09	23.40	23.77
		16QAM	1	0	24.00	23.26	23.66	23.93
			1	24	24.00	23.33	23.66	23.86
			1	49	24.00	23.37	23.50	23.86
			25	0	23.00	22.23	22.51	22.84
			25	12	23.00	22.16	22.56	22.90
			25	24	23.00	22.23	22.46	22.80
			50	0	23.00	22.19	22.52	22.90
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		39725/2503.5	40620/2593	41515/2682.5
LTE Band 41	15MHz	QPSK	1	0	25.00	24.06	24.35	24.66
			1	37	25.00	24.03	24.36	24.60
			1	74	25.00	24.17	24.19	24.55
			36	0	24.00	23.08	23.47	23.78
			36	18	24.00	23.15	23.44	23.79
			36	37	24.00	23.18	23.39	23.80
			75	0	24.00	23.11	23.40	23.77
		16QAM	1	0	24.00	23.26	23.69	23.92
			1	37	24.00	23.31	23.68	23.90
			1	74	24.00	23.46	23.49	23.85
			36	0	23.00	22.10	22.56	22.80
			36	18	23.00	22.18	22.53	22.86
			36	37	23.00	22.25	22.49	22.87
			75	0	23.00	22.23	22.50	22.86
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		39750/2506	40620/2593	41490/2680
LTE Band 41	20MHz	QPSK	1	0	25.00	24.04	24.29	24.82
			1	49	25.00	24.06	24.28	24.64
			1	99	25.00	24.01	24.04	24.58
			50	0	24.00	23.13	23.44	23.88
			50	24	24.00	23.19	23.44	23.77
			50	49	24.00	23.10	23.35	23.77
			100	0	24.00	23.16	23.44	23.80
		16QAM	1	0	24.50	23.26	23.66	24.03
			1	49	24.50	23.34	23.64	23.89
			1	99	24.50	23.28	23.42	23.82

			50	0	23.00	22.22	22.58	22.99
			50	24	23.00	22.29	22.59	22.88
			50	49	23.00	22.21	22.52	22.89
			100	0	23.00	22.31	22.53	22.89

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	16.00	15.58
	6	2437	16.00	15.35
	11	2462	16.00	14.73
802.11g	1	2412	13.50	13.03
	6	2437	13.50	12.73
	11	2462	13.50	12.20
802.11n HT20	1	2412	13.00	12.97
	6	2437	13.00	12.60
	11	2462	13.00	12.04
802.11n HT40	3	2422	13.00	12.95
	6	2437	13.00	12.17
	9	2452	13.00	11.52

NOTE: Power measurement results of WLAN 2.4G.

Mode	Channel	Frequency (MHz)	Tune-up (dBm)	Output Power (dBm)
802.11a	36	5180	10.00	9.40
	40	5200	10.00	9.95
	48	5240	10.00	9.17
802.11n HT20	36	5180	10.00	9.40
	40	5200	10.00	9.83
	48	5240	10.00	9.12
802.11n HT40	38	5190	10.00	9.64
	46	5230	10.00	9.94
802.11ac VHT20	36	5180	10.00	9.39
	40	5200	10.00	9.83
	48	5240	10.00	9.10
802.11ac VHT40	38	5190	10.00	9.57
	46	5230	10.00	9.87

802.11ac VHT80	42	5210	9.50	9.39

NOTE: Power measurement results of WLAN 5.2G.

Mode	Channel	Frequency (MHz)	Tune-up (dBm)	Output Power (dBm)
802.11a	52	5260	10.00	9.31
	56	5280	10.00	9.07
	64	5320	10.00	9.66
802.11n HT20	52	5260	10.00	9.26
	56	5280	10.00	8.95
	64	5320	10.00	9.61
802.11n HT40	54	5270	10.00	9.56
	62	5310	10.00	9.86
802.11ac VHT20	52	5260	10.00	9.30
	56	5280	10.00	9.05
	64	5320	10.00	9.64
802.11ac VHT40	54	5270	10.00	9.56
	62	5310	10.00	9.88
802.11ac VHT80	58	5290	10.00	9.83

NOTE: Power measurement results of WLAN 5.3G.

Mode	Channel	Frequency (MHz)	Tune-up (dBm)	Output Power (dBm)
802.11a	100	5500	10.00	9.95
	120	5600	10.00	9.75
	140	5700	10.00	9.73
802.11n	100	5500	10.00	9.82
	120	5600	10.00	9.70
	140	5700	10.00	9.74
802.11n	102	5510	10.50	10.01
	118	5590	10.50	9.89
	134	5670	10.50	9.90
802.11ac (VHT20)	100	5500	10.00	9.82
	120	5600	10.00	9.69
	140	5700	10.00	9.71
802.11ac (VHT40)	102	5510	10.50	10.09
	118	5590	10.50	9.88
	134	5670	10.50	9.92
802.11ac	106	5530	9.50	9.39

(VHT80)	122	5610	9.50	9.44

NOTE: Power measurement results of WLAN 5.6G.

7.4.2. Output Power Results Of Bluetooth

	Output Power (dBm)				
BR+EDR	Channel	Tune-up (dBm)	Data Rates		
			1M	2M	3M
	0CH	3.00	2.15	1.12	1.55
	39CH	3.00	2.84	1.86	2.27
	78CH	2.00	1.88	0.97	1.21

	Channel	Tune-up (dBm)	Output Power (dBm)	
BLE			Data Rates 1M	Data Rates 2M
	0CH	-3.00	-3.16	-3.09
	19CH	-3.00	-3.26	-3.22
	39CH	-2.00	-2.82	-2.78

7.5. Hotspot Mode on/off Consideration

Hotspot Mode off:

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	24.00	23.83	23.76	23.68
HSDPA Sub 1	23.00	22.85	22.80	22.68
HSDPA Sub 2	23.00	22.45	22.45	22.52
HSDPA Sub 3	21.50	21.34	21.49	21.21
HSDPA Sub 4	21.50	21.19	21.45	21.17
HSUPA Sub 1	22.50	22.23	22.08	21.97
HSUPA Sub 2	23.00	22.73	22.76	22.51
HSUPA Sub 3	22.50	22.08	22.13	22.14
HSUPA Sub 4	23.00	22.81	22.77	22.70
HSUPA Sub 5	22.50	22.13	22.08	21.74
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	24.00	23.96	23.83	23.93

HSDPA Sub 1	23.00	22.93	22.81	22.95
HSDPA Sub 2	23.00	22.67	22.41	22.65
HSDPA Sub 3	22.00	21.49	21.67	21.78
HSDPA Sub 4	22.00	21.23	21.48	21.54
HSUPA Sub 1	22.50	22.20	21.98	22.15
HSUPA Sub 2	23.00	22.93	22.73	22.84
HSUPA Sub 3	22.50	22.20	22.07	22.13
HSUPA Sub 4	23.00	22.78	22.20	22.89
HSUPA Sub 5	22.50	22.14	21.87	22.02

Hotspot Mode on:

WCDMA Band 2	Burst-Averaged output Power (dBm)			
Tx Channel	Tune-up	9262	9400	9538
Frequency (MHz)	(dBm)	1852.4	1880	1907.6
RMC12.2K	21.00	20.83	20.76	20.68
HSDPA Sub 1	20.00	19.85	19.80	19.68
HSDPA Sub 2	20.00	19.45	19.45	19.52
HSDPA Sub 3	18.50	18.34	18.49	18.21
HSDPA Sub 4	18.50	18.19	18.45	18.17
HSUPA Sub 1	19.50	19.23	19.08	18.97
HSUPA Sub 2	20.00	19.73	19.76	19.51
HSUPA Sub 3	19.50	19.08	19.13	19.14
HSUPA Sub 4	20.00	19.81	19.77	19.70
HSUPA Sub 5	19.50	19.13	19.08	18.74
WCDMA Band 4	Burst-Averaged output Power (dBm)			
Tx Channel	Tune-up	1312	1413	1513
Frequency (MHz)	(dBm)	1712.4	1732.6	1752.6
RMC12.2K	20.00	19.96	19.83	19.93
HSDPA Sub 1	19.00	18.93	18.81	18.95
HSDPA Sub 2	19.00	18.67	18.41	18.65
HSDPA Sub 3	18.00	17.49	17.67	17.78
HSDPA Sub 4	18.00	17.23	17.48	17.54
HSUPA Sub 1	18.50	18.20	17.98	18.15
HSUPA Sub 2	19.00	18.93	18.73	18.84
HSUPA Sub 3	18.50	18.20	18.07	18.13
HSUPA Sub 4	19.00	18.78	18.20	18.89
HSUPA Sub 5	18.50	18.14	17.87	18.02

Hotspot Mode off:

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	24.00	23.61	23.78	23.78
			1	2	24.00	23.64	23.89	23.98
			1	5	24.00	23.62	23.80	23.85
			3	0	24.00	23.64	23.77	23.87
			3	1	24.00	23.72	23.88	23.89
			3	2	24.00	23.65	23.81	23.90
			6	0	23.00	22.64	22.84	22.89
		16QAM	1	0	23.50	22.89	23.04	23.11
			1	2	23.50	22.90	23.21	23.24
			1	5	23.50	22.82	23.06	23.11
			3	0	23.00	22.69	22.93	22.96
			3	1	23.00	22.73	22.93	22.96
			3	2	23.00	22.69	22.91	22.92
			6	0	22.50	21.83	22.06	22.09

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	24.00	23.62	23.88	23.89
			1	7	24.00	23.64	23.91	23.88
			1	14	24.00	23.63	23.81	23.89
			8	0	23.00	22.68	22.88	22.96
			8	4	23.00	22.72	22.94	22.98
			8	7	23.00	22.69	22.93	22.88
			15	0	23.00	22.70	22.89	22.96
		16QAM	1	0	23.50	22.86	23.10	23.08
			1	7	23.50	22.95	23.17	23.13
			1	14	23.50	22.96	23.07	23.04
			8	0	22.50	21.84	22.06	22.03
			8	4	22.50	21.89	22.09	22.09
			8	7	22.50	21.81	22.06	22.03
			15	0	22.50	21.79	22.01	22.08

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB	RB		18625/1852.5	18900/1880	19175/1907.5

			Size	Offset				
LTE Band 2	5MHz	QPSK	1	0	24.00	23.64	23.81	23.89
			1	12	24.00	23.70	23.91	23.97
			1	24	24.00	23.57	23.79	23.88
			12	0	23.00	22.69	22.94	22.94
			12	6	23.00	22.71	22.91	22.98
			12	11	23.00	22.68	22.93	22.92
			25	0	23.00	22.70	22.93	22.96
		16QAM	1	0	23.50	22.90	23.10	23.04
			1	12	23.50	23.07	23.30	23.16
			1	24	23.50	22.90	23.22	23.08
			12	0	22.50	21.85	22.04	21.95
			12	6	22.50	21.84	22.07	22.12
			12	11	22.50	21.83	22.03	22.00
			25	0	22.50	21.79	22.04	22.03
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	24.00	23.72	23.92	23.93
			1	24	24.00	23.71	23.92	23.92
			1	49	24.00	23.75	23.97	23.94
			25	0	23.00	22.71	22.87	23.00
			25	12	23.00	22.73	22.96	22.99
			25	24	23.00	22.71	22.92	22.95
			50	0	23.00	22.72	22.92	22.99
		16QAM	1	0	23.50	22.96	23.18	23.22
			1	24	23.50	23.03	23.26	23.21
			1	49	23.50	23.06	23.30	23.10
			25	0	22.50	21.83	22.07	22.05
			25	12	22.50	21.86	22.05	22.09
			25	24	22.50	21.83	22.05	22.05
			50	0	22.50	21.82	22.08	22.06
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		18675/1857.5	18900/1880	19125/1902.5
LTE Band 2	15MHz	QPSK	1	0	24.00	23.63	23.82	23.89
			1	37	24.00	23.64	23.84	23.91
			1	74	24.00	23.61	23.87	23.88

			36	0	23.00	22.72	22.88	22.94
			36	18	23.00	22.71	22.93	22.95
			36	37	23.00	22.73	22.95	22.95
			75	0	23.00	22.70	22.90	22.93
		16QAM	1	0	23.50	23.05	23.08	23.19
			1	37	23.50	23.01	23.30	23.16
			1	74	23.50	23.00	23.26	23.14
			36	0	22.50	21.79	22.01	22.02
			36	18	22.50	21.87	22.10	22.08
			36	37	22.50	21.83	22.05	22.02
			75	0	22.50	21.86	22.03	22.06
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		18700/1860	18900/1880	19100/1900
LTE Band 2	20MHz	QPSK	1	0	24.00	23.62	23.82	23.86
			1	49	24.00	23.66	23.88	23.86
			1	99	24.00	23.66	23.90	23.89
			50	0	23.00	22.66	22.88	22.94
			50	24	23.00	22.76	22.94	22.96
			50	49	23.00	22.60	22.90	22.95
			100	0	23.00	22.60	22.92	22.91
		16QAM	1	0	23.50	22.94	23.12	23.16
			1	49	23.50	23.03	23.20	23.28
			1	99	23.50	22.96	23.24	23.17
			50	0	22.50	21.82	22.00	22.04
			50	24	22.50	21.86	22.05	22.06
			50	49	22.50	21.75	22.09	22.00
			100	0	22.50	21.73	22.04	22.03

Hotspot Mode on:

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	20.00	19.61	19.78	19.78
			1	2	20.00	19.64	19.89	19.98
			1	5	20.00	19.62	19.80	19.85
			3	0	20.00	19.64	19.77	19.87
			3	1	20.00	19.72	19.88	19.89

			3	2	20.00	19.65	19.81	19.90
			6	0	19.00	18.64	18.84	18.89
		16QAM	1	0	19.50	18.89	19.04	19.11
			1	2	19.50	18.90	19.21	19.24
			1	5	19.50	18.82	19.06	19.11
			3	0	19.00	18.69	18.93	18.96
			3	1	19.00	18.73	18.93	18.96
			3	2	19.00	18.69	18.91	18.92
			6	0	18.50	17.83	18.06	18.09
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	20.00	19.62	19.88	19.89
			1	7	20.00	19.64	19.91	19.88
			1	14	20.00	19.63	19.81	19.89
			8	0	19.00	18.68	18.88	18.96
			8	4	19.00	18.72	18.94	18.98
			8	7	19.00	18.69	18.93	18.88
			15	0	19.00	18.70	18.89	18.96
		16QAM	1	0	19.50	18.86	19.10	19.08
			1	7	19.50	18.95	19.17	19.13
			1	14	19.50	18.96	19.07	19.04
			8	0	18.50	17.84	18.06	18.03
			8	4	18.50	17.89	18.09	18.09
			8	7	18.50	17.81	18.06	18.03
			15	0	18.50	17.79	18.01	18.08
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		18625/1852.5	18900/1880	19175/1907.5
LTE Band 2	5MHz	QPSK	1	0	20.00	19.64	19.81	19.89
			1	12	20.00	19.70	19.91	19.97
			1	24	20.00	19.57	19.79	19.88
			12	0	19.00	18.69	18.94	18.94
			12	6	19.00	18.71	18.91	18.98
			12	11	19.00	18.68	18.93	18.92
			25	0	19.00	18.70	18.93	18.96
		16QAM	1	0	19.50	18.90	19.10	19.04
			1	12	19.50	19.07	19.30	19.16

			1	24	19.50	18.90	19.22	19.08
			12	0	18.50	17.85	18.04	17.95
			12	6	18.50	17.84	18.07	18.12
			12	11	18.50	17.83	18.03	18.00
			25	0	18.50	17.79	18.04	18.03
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	20.00	19.72	19.92	19.93
			1	24	20.00	19.71	19.92	19.92
			1	49	20.00	19.75	19.97	19.94
			25	0	19.00	18.71	18.87	19.00
			25	12	19.00	18.73	18.96	18.99
			25	24	19.00	18.71	18.92	18.95
			50	0	19.00	18.72	18.92	18.99
		16QAM	1	0	19.50	18.96	19.18	19.22
			1	24	19.50	19.03	19.26	19.21
			1	49	19.50	19.06	19.30	19.10
			25	0	18.50	17.83	18.07	18.05
			25	12	18.50	17.86	18.05	18.09
			25	24	18.50	17.83	18.05	18.05
			50	0	18.50	17.82	18.08	18.06
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		18675/1857.5	18900/1880	19125/1902.5
LTE Band 2	15MHz	QPSK	1	0	20.00	19.63	19.82	19.89
			1	37	20.00	19.64	19.84	19.91
			1	74	20.00	19.61	19.87	19.88
			36	0	19.00	18.72	18.88	18.94
			36	18	19.00	18.71	18.93	18.95
			36	37	19.00	18.73	18.95	18.95
			75	0	19.00	18.70	18.90	18.93
		16QAM	1	0	19.50	19.05	19.08	19.19
			1	37	19.50	19.01	19.30	19.16
			1	74	19.50	19.00	19.26	19.14
			36	0	18.50	17.79	18.01	18.02
			36	18	18.50	17.87	18.10	18.08
			36	37	18.50	17.83	18.05	18.02

			75	0	18.50	17.86	18.03	18.06
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		18700/1860	18900/1880	19100/1900
LTE Band 2	20MHz	QPSK	1	0	20.00	19.62	19.82	19.86
			1	49	20.00	19.66	19.88	19.86
			1	99	20.00	19.66	19.90	19.89
			50	0	19.00	18.66	18.88	18.94
			50	24	19.00	18.76	18.94	18.96
			50	49	19.00	18.60	18.90	18.95
			100	0	19.00	18.60	18.92	18.91
		16QAM	1	0	19.50	18.94	19.12	19.16
			1	49	19.50	19.03	19.20	19.28
			1	99	19.50	18.96	19.24	19.17
			50	0	18.50	17.82	18.00	18.04
			50	24	18.50	17.86	18.05	18.06
			50	49	18.50	17.75	18.09	18.00
			100	0	18.50	17.73	18.04	18.03

Hotspot Mode off:

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		19957/1710.7	20175/1732.5	20393/1754.3
LTE Band 4	1.4MHz	QPSK	1	0	24.00	23.38	23.39	23.49
			1	2	24.00	23.43	23.48	23.60
			1	5	24.00	23.31	23.37	23.53
			3	0	24.00	23.37	23.49	23.57
			3	1	24.00	23.40	23.51	23.59
			3	2	24.00	23.38	23.42	23.56
			6	0	23.00	22.37	22.48	22.56
		16QAM	1	0	23.00	22.63	22.81	22.78
			1	2	23.00	22.80	22.87	22.91
			1	5	23.00	22.74	22.68	22.74
			3	0	23.00	22.45	22.51	22.60
			3	1	23.00	22.56	22.61	22.64
			3	2	23.00	22.42	22.53	22.56
			6	0	22.00	21.56	21.66	21.74

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	3MHz	QPSK	1	0	24.00	23.39	23.47	23.56
			1	7	24.00	23.41	23.50	23.57
			1	14	24.00	23.33	23.44	23.55
			8	0	23.00	22.40	22.49	22.59
			8	4	23.00	22.48	22.57	22.62
			8	7	23.00	22.38	22.53	22.61
			15	0	23.00	22.39	22.52	22.69
		16QAM	1	0	23.00	22.70	22.74	22.71
			1	7	23.00	22.83	22.84	22.74
			1	14	23.00	22.77	22.85	22.79
			8	0	22.00	21.59	21.66	21.71
			8	4	22.00	21.64	21.74	21.75
			8	7	22.00	21.58	21.71	21.68
			15	0	22.00	21.53	21.67	21.74

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 Band 4	5MHz	QPSK	1	0	24.00	23.43	23.45	23.45
			1	12	24.00	23.45	23.58	23.56
			1	24	24.00	23.36	23.47	23.46
			12	0	23.00	22.45	22.52	22.49
			12	6	23.00	22.44	22.56	22.57
			12	11	23.00	22.39	22.56	22.54
			25	0	23.00	22.42	22.54	22.49
		16QAM	1	0	23.00	22.77	22.74	22.75
			1	12	23.00	22.84	22.95	22.79
			1	24	23.00	22.66	22.79	22.70
			12	0	22.00	21.54	21.63	21.60
			12	6	22.00	21.59	21.69	21.64
			12	11	22.00	21.56	21.66	21.60
			25	0	22.00	21.54	21.63	21.61

Band	Band Width	Modulation	RB Configuratio	Tune-up	Channel/Frequency(MHz)

			n		(dBm)			
			RB Size	RB Offset		20000/1715	20175/1732.5	20350/1750
LTE Band 4	10MHz	QPSK	1	0	24.00	23.43	23.50	23.46
			1	24	24.00	23.39	23.55	23.49
			1	49	24.00	23.32	23.50	23.45
			25	0	23.00	22.45	22.49	22.49
			25	12	23.00	22.39	22.57	22.54
			25	24	23.00	22.34	22.53	22.54
			50	0	23.00	22.39	22.54	22.51
		16QAM	1	0	23.00	22.73	22.67	22.78
			1	24	23.00	22.79	22.79	22.83
			1	49	23.00	22.69	22.82	22.72
			25	0	22.00	21.53	21.63	21.61
			25	12	22.00	21.50	21.66	21.64
			25	24	22.00	21.49	21.66	21.57
			50	0	22.00	21.49	21.63	21.63
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	24.00	23.52	23.35	23.39
			1	37	24.00	23.42	23.53	23.50
			1	74	24.00	23.26	23.58	23.47
			36	0	23.00	22.53	22.51	22.40
			36	18	23.00	22.38	22.55	22.56
			36	37	23.00	22.34	22.55	22.51
			75	0	23.00	22.38	22.53	22.43
		16QAM	1	0	23.00	22.83	22.72	22.79
			1	37	23.00	22.84	22.88	22.84
			1	74	23.00	22.60	22.90	22.76
			36	0	22.00	21.63	21.59	21.53
			36	18	22.00	21.49	21.70	21.70
			36	37	22.00	21.41	21.70	21.59
			75	0	22.00	21.49	21.62	21.52
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB	RB		20050/1720	20175/1732.	20300/1745

			Size	Offset			5	
LTE Band 4	20MHz	QPSK	1	0	24.00	23.42	23.33	23.33
			1	49	24.00	23.37	23.47	23.45
			1	99	24.00	23.32	23.55	23.42
			50	0	23.00	22.47	22.49	22.42
			50	24	23.00	22.39	22.53	22.42
			50	49	23.00	22.39	22.55	22.54
			100	0	23.00	22.40	22.50	22.40
		16QAM	1	0	23.00	22.89	22.70	22.75
			1	49	23.00	22.80	22.76	22.85
			1	99	23.00	22.71	22.86	22.77
			50	0	22.00	21.59	21.62	21.52
			50	24	22.00	21.48	21.66	21.54
			50	49	22.00	21.44	21.67	21.61
			100	0	22.00	21.44	21.59	21.53

Hotspot Mode on:

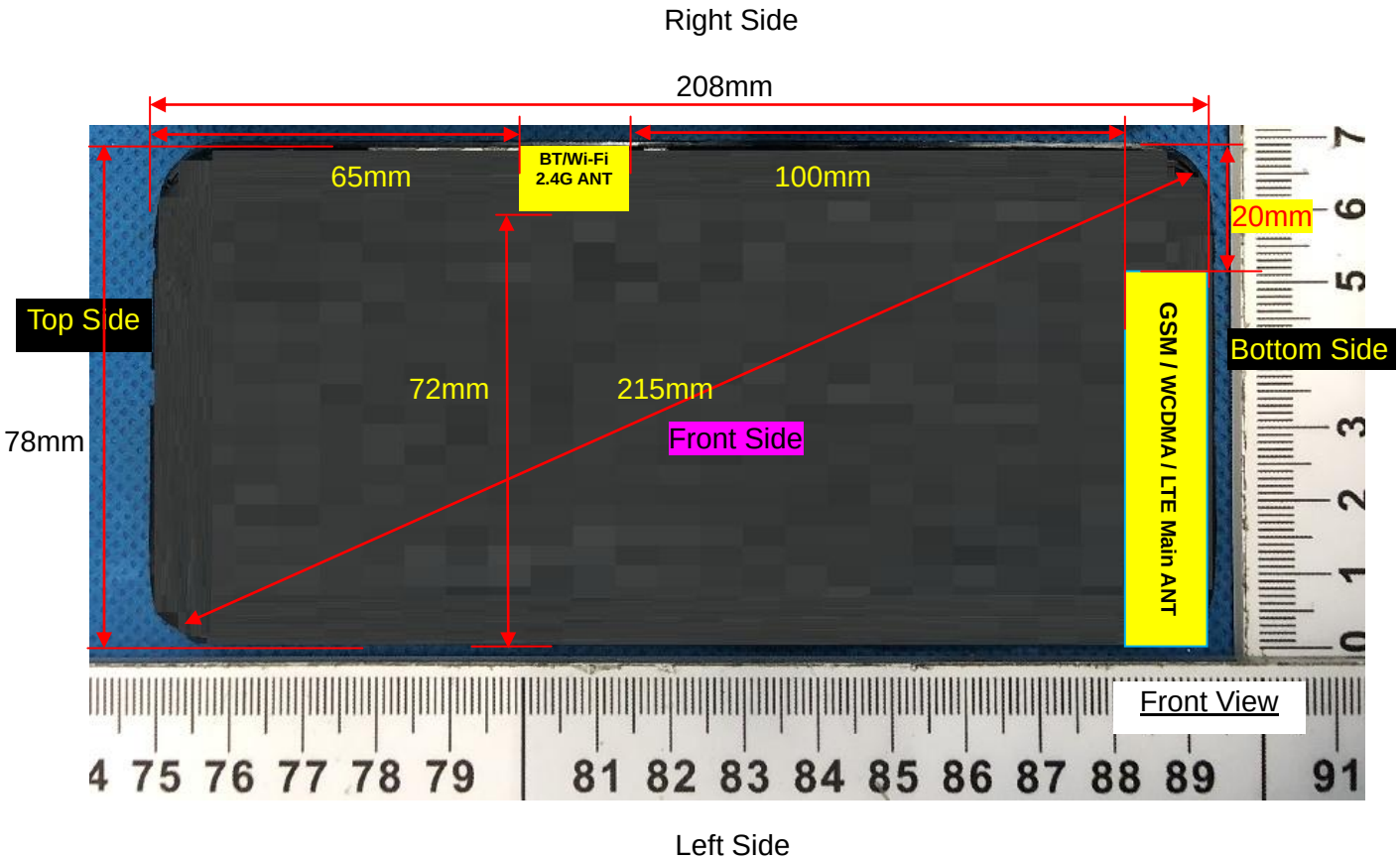
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		19957/1710.7	20175/1732.5	20393/1754.3
LTE Band 4	1.4MHz	QPSK	1	0	19.00	18.38	18.39	18.49
			1	2	19.00	18.43	18.48	18.60
			1	5	19.00	18.31	18.37	18.53
			3	0	19.00	18.37	18.49	18.57
			3	1	19.00	18.40	18.51	18.59
			3	2	19.00	18.38	18.42	18.56
			6	0	18.00	17.37	17.48	17.56
		16QAM	1	0	18.00	17.63	17.81	17.78
			1	2	18.00	17.80	17.87	17.91
			1	5	18.00	17.74	17.68	17.74
			3	0	18.00	17.45	17.51	17.60
			3	1	18.00	17.56	17.61	17.64
			3	2	18.00	17.42	17.53	17.56
			6	0	17.00	16.56	16.66	16.74
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB	RB		19965/1711.5	20175/1732.	20385/1753.

			Size	Offset			5	5
LTE Band 4	3MHz	QPSK	1	0	19.00	18.39	18.47	18.56
			1	7	19.00	18.41	18.50	18.57
			1	14	19.00	18.33	18.44	18.55
			8	0	18.00	17.40	17.49	17.59
			8	4	18.00	17.48	17.57	17.62
			8	7	18.00	17.38	17.53	17.61
			15	0	18.00	17.39	17.52	17.69
		16QAM	1	0	18.00	17.70	17.74	17.71
			1	7	18.00	17.83	17.84	17.74
			1	14	18.00	17.77	17.85	17.79
			8	0	17.00	16.59	16.66	16.71
			8	4	17.00	16.64	16.74	16.75
			8	7	17.00	16.58	16.71	16.68
			15	0	17.00	16.53	16.67	16.74
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 Band 4	5MHz	QPSK	1	0	19.00	18.43	18.45	18.45
			1	12	19.00	18.45	18.58	18.56
			1	24	19.00	18.36	18.47	18.46
			12	0	18.00	17.45	17.52	17.49
			12	6	18.00	17.44	17.56	17.57
			12	11	18.00	17.39	17.56	17.54
			25	0	18.00	17.42	17.54	17.49
		16QAM	1	0	18.00	17.77	17.74	17.75
			1	12	18.00	17.84	17.95	17.79
			1	24	18.00	17.66	17.79	17.70
			12	0	17.00	16.54	16.63	16.60
			12	6	17.00	16.59	16.69	16.64
			12	11	17.00	16.56	16.66	16.60
			25	0	17.00	16.54	16.63	16.61
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		20000/1715	20175/1732.5	20350/1750
LTE	10MHz	QPSK	1	0	19.00	18.43	18.50	18.46

Band 4			1	24	19.00	18.39	18.55	18.49
			1	49	19.00	18.32	18.50	18.45
			25	0	18.00	17.45	17.49	17.49
			25	12	18.00	17.39	17.57	17.54
			25	24	18.00	17.34	17.53	17.54
			50	0	18.00	17.39	17.54	17.51
		16QAM	1	0	18.00	17.73	17.67	17.78
			1	24	18.00	17.79	17.79	17.83
			1	49	18.00	17.69	17.82	17.72
			25	0	17.00	16.53	16.63	16.61
			25	12	17.00	16.50	16.66	16.64
			25	24	17.00	16.49	16.66	16.57
			50	0	17.00	16.49	16.63	16.63
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	19.00	18.52	18.35	18.39
			1	37	19.00	18.42	18.53	18.50
			1	74	19.00	18.26	18.58	18.47
			36	0	18.00	17.53	17.51	17.40
			36	18	18.00	17.38	17.55	17.56
			36	37	18.00	17.34	17.55	17.51
			75	0	18.00	17.38	17.53	17.43
		16QAM	1	0	18.00	17.83	17.72	17.79
			1	37	18.00	17.84	17.88	17.84
			1	74	18.00	17.60	17.90	17.76
			36	0	17.00	16.63	16.59	16.53
			36	18	17.00	16.49	16.70	16.70
			36	37	17.00	16.41	16.70	16.59
			75	0	17.00	16.49	16.62	16.52
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		20050/1720	20175/1732.5	20300/1745
LTE Band 4	20MHz	QPSK	1	0	19.00	18.42	18.33	18.33
			1	49	19.00	18.37	18.47	18.45
			1	99	19.00	18.32	18.55	18.42

			50	0	18.00	17.47	17.49	17.42
			50	24	18.00	17.39	17.53	17.42
			50	49	18.00	17.39	17.55	17.54
			100	0	18.00	17.40	17.50	17.40
		16QAM	1	0	18.00	17.89	17.70	17.75
			1	49	18.00	17.80	17.76	17.85
			1	99	18.00	17.71	17.86	17.77
			50	0	17.00	16.59	16.62	16.52
			50	24	17.00	16.48	16.66	16.54
			50	49	17.00	16.44	16.67	16.61
			100	0	17.00	16.44	16.59	16.53

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
WWAN Main ANT	≤ 25mm	≤ 25mm	≤ 25mm	≤ 25mm	> 25mm	≤ 25mm
WLAN & Bluetooth	≤ 25mm	≤ 25mm	> 25mm	≤ 25mm	> 25mm	>25mm
Positions for SAR tests						
Antennas	Front Side	Back Side	Left Side	Right Side	Top Side	Bottom Side
WWAN Main ANT	Yes	Yes	Yes	Yes	NO	Yes
WLAN & Bluetooth	Yes	Yes	NO	Yes	NO	NO

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:

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

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

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	3.00	2.00	5	2.480	0.63	3.0	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:

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] * [$\sqrt{f_{(GHZ)}}$/x] 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	3.00	2.00	10	2.48	7.5	0.042
Bluetooth	Hotspot	3.00	2.00	10	2.48	7.5	0.042

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 10mm	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 4TS)	0.622	0.374	-1.05	26.77	27.00	0.656	2022/10/20	
Back Side	189/836.4	GPRS(GMSK 4TS)	0.906	0.511	-3.16	26.77	27.00	0.955	2022/10/20	
Back Side Repeated	189/836.4	GPRS(GMSK 4TS)	0.895	0.502	1.30	26.77	27.00	0.944	2022/10/20	
Back Side	128/824.2	GPRS(GMSK 4TS)	0.839	0.482	-1.40	26.54	27.00	0.933	2022/10/20	
Back Side	251/848.8	GPRS(GMSK 4TS)	0.899	0.509	-1.66	26.74	27.00	0.954	2022/10/20	

NOTE: Body-worn SAR test results of GSM850

Test Position of Hotspot with 10mm	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 4TS)	0.622	0.374	-1.05	26.77	27.00	0.656	2022/10/20	
Back Side	189/836.4	GPRS(GMSK 4TS)	**0.906**	0.511	-3.16	26.77	27.00	**0.955**	2022/10/20	1#
Back Side Repeated	189/836.4	GPRS(GMSK 4TS)	0.895	0.502	1.30	26.77	27.00	0.944	2022/10/20	
Left Side	189/836.4	GPRS(GMSK 4TS)	0.279	0.153	-1.68	26.77	27.00	0.294	2022/10/20	
Right Side	189/836.4	GPRS(GMSK 4TS)	0.276	0.148	1.05	26.77	27.00	0.291	2022/10/20	
Bottom Side	189/836.4	GPRS(GMSK 4TS)	0.470	0.257	-0.29	26.77	27.00	0.496	2022/10/20	
Back Side	128/824.2	GPRS(GMSK 4TS)	0.839	0.482	-1.40	26.54	27.00	0.933	2022/10/20	
Back Side	251/848.8	GPRS(GMSK 4TS)	0.899	0.509	-1.66	26.74	27.00	0.954	2022/10/20	

NOTE: Hotspot SAR test results of GSM850

10.1.2. SAR measurement Result of GSM1900

Test Position of Body-worn with 10mm	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 2TS)	0.528	0.262	-0.87	26.30	27.00	0.620	2022/11/2	
Back Side	661/1880	GPRS(GMSK 2TS)	0.851	0.431	-0.06	26.30	27.00	1.000	2022/11/2	
Back Side	512/1850.2	GPRS(GMSK 2TS)	1.088	0.635	1.23	26.58	27.00	1.198	2022/11/2	
Back Side Repeated	512/1850.2	GPRS(GMSK 2TS)	1.080	0.633	0.30	26.58	27.00	1.190	2022/11/2	
Back Side	810/1909.8	GPRS(GMSK 2TS)	0.501	0.261	2.31	26.01	27.00	0.629	2022/11/2	

NOTE: Body-worn SAR test results of GSM1900

Test Position of Hotspot with 10mm	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 2TS)	0.528	0.262	-0.87	26.30	27.00	0.620	2022/11/2	
Back Side	661/1880	GPRS(GMSK 2TS)	0.851	0.431	-0.06	26.30	27.00	1.000	2022/11/2	
Left Side	661/1880	GPRS(GMSK 2TS)	0.270	0.131	-0.74	26.30	27.00	0.317	2022/11/2	
Right Side	661/1880	GPRS(GMSK 2TS)	0.264	0.128	-2.72	26.30	27.00	0.310	2022/11/2	
Bottom Side	661/1880	GPRS(GMSK 2TS)	0.445	0.219	-0.42	26.30	27.00	0.523	2022/11/2	
Back Side	512/1850.2	GPRS(GMSK 2TS)	**1.088**	0.635	1.23	26.58	27.00	**1.198**	2022/11/2	2#
Back Side Repeated	512/1850.2	GPRS(GMSK 2TS)	1.080	0.633	0.30	26.58	27.00	1.190	2022/11/2	
Back Side	810/1909.8	GPRS(GMSK 2TS)	0.501	0.261	2.31	26.01	27.00	0.629	2022/11/2	

NOTE: Hotspot SAR test results of GSM1900

10.1.3. SAR measurement Result of WCDMA Band 2

Test Position of Body-worn with 15mm	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	0.582	0.309	-2.54	23.76	24.00	0.615	2022/11/2	
Back Side	9400/1880	RMC12.2K	0.923	0.490	2.33	23.76	24.00	0.975	2022/11/2	
Back Side	9262/1852.4	RMC12.2K	1.035	0.613	0.43	23.83	24.00	1.076	2022/11/2	
Back Side Repeated	9262/1852.4	RMC12.2K	1.026	0.607	1.20	23.83	24.00	1.067	2022/11/2	
Back Side	9538/1907.6	RMC12.2K	0.790	0.410	-0.34	23.68	24.00	0.850	2022/11/2	

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

Test Position of Hotspot with 10mm	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	0.600	0.290	-2.56	20.76	21.00	0.634	2022/11/2	
Back Side	9400/1880	RMC12.2K	0.967	0.492	-0.72	20.76	21.00	1.022	2022/11/2	
Left Side	9400/1880	RMC12.2K	0.303	0.154	3.32	20.76	21.00	0.320	2022/11/2	
Right Side	9400/1880	RMC12.2K	0.294	0.145	0.74	20.76	21.00	0.311	2022/11/2	
Bottom Side	9400/1880	RMC12.2K	0.490	0.239	-0.08	20.76	21.00	0.518	2022/11/2	
Back Side	9262/1852.4	RMC12.2K	**1.086**	0.606	-1.37	20.83	21.00	**1.129**	2022/11/2	3#
Back Side Repeated	9262/1852.4	RMC12.2K	1.079	0.598	0.32	20.83	21.00	1.122	2022/11/2	
Back Side	9538/1907.6	RMC12.2K	0.741	0.377	-1.42	20.68	21.00	0.798	2022/11/2	

NOTE: Hotspot SAR test results of WCDMA Band 2

10.1.4. SAR measurement Result of WCDMA Band 4

Test Position of Body-worn with 15mm	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	0.354	0.195	1.30	23.83	24.00	0.368	2022/10/28	
Back Side	1413/1732.6	RMC12.2K	0.575	0.316	4.22	23.83	24.00	0.598	2022/10/28	

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

Test Position of Hotspot with 10mm	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	0.654	0.331	1.90	19.83	20.00	0.680	2022/10/28	
Back Side	1413/1732.6	RMC12.2K	1.041	0.548	-1.42	19.83	20.00	1.083	2022/10/28	
Left Side	1413/1732.6	RMC12.2K	0.324	0.162	0.30	19.83	20.00	0.337	2022/10/28	
Right Side	1413/1732.6	RMC12.2K	0.318	0.162	0.19	19.83	20.00	0.331	2022/10/28	
Bottom Side	1413/1732.6	RMC12.2K	0.535	0.273	-2.35	19.83	20.00	0.556	2022/10/28	
Back Side	1312/1712.4	RMC12.2K	1.025	0.540	-1.35	19.96	20.00	1.034	2022/10/28	
Back Side	1513/1752.6	RMC12.2K	**1.160**	0.609	-1.13	19.93	20.00	**1.179**	2022/10/28	4#
Back Side Repeated	1513/1752.6	RMC12.2K	1.155	0.597	0.34	19.93	20.00	1.174	2022/10/28	

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 10mm	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	4182/836.4	RMC12.2K	0.456	0.308	-1.39	23.71	24.00	0.487	2022/10/20	
Back Side	4182/836.4	RMC12.2K	0.713	0.502	-0.18	23.71	24.00	0.762	2022/10/20	

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

Test Position of Hotspot with 10mm	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	4182/836.4	RMC12.2K	0.456	0.308	-1.39	23.71	24.00	0.487	2022/10/20	
Back Side	4182/836.4	RMC12.2K	**0.713**	0.502	-0.18	23.71	24.00	**0.762**	2022/10/20	5#
Left Side	4182/836.4	RMC12.2K	0.216	0.148	3.63	23.71	24.00	0.231	2022/10/20	
Right Side	4182/836.4	RMC12.2K	0.219	0.151	1.36	23.71	24.00	0.234	2022/10/20	
Bottom Side	4182/836.4	RMC12.2K	0.375	0.251	2.06	23.71	24.00	0.401	2022/10/20	

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 15mm	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	18900/1880	20M QPSK(1,99)	0.678	0.361	-1.46	23.90	24.00	0.694	2022/11/2	
Back Side	18900/1880	20M QPSK(1,99)	1.106	0.607	0.30	23.90	24.00	1.132	2022/11/2	
Back Side Repeated	18900/1880	20M QPSK(1,99)	1.099	0.597	1.24	23.90	24.00	1.125	2022/11/2	
Back Side	18700/1860	20M QPSK(1,99)	0.896	0.467	-0.88	23.66	24.00	0.969	2022/11/2	
Back Side	19100/1900	20M	0.952	0.517	-2.82	23.89	24.00	0.976	2022/11/2	

		QPSK(1,99)								
50%RB										
Front Side	18900/1880	20M QPSK(50,24)	0.360	0.205	-4.73	22.94	23.00	0.365	2022/11/2	
Back Side	18900/1880	20M QPSK(50,24)	0.574	0.357	-2.05	22.94	23.00	0.582	2022/11/2	
100%RB										
Back Side	18900/1880	20M QPSK(100,0)	0.566	0.348	0.32	22.92	23.00	0.577	2022/11/2	

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

Test Position of Hotspot with 10mm	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	18900/1880	20M QPSK(1,99)	0.708	0.378	3.80	19.90	20.00	0.724	2022/11/2	
Back Side	18900/1880	20M QPSK(1,99)	**1.138**	0.613	0.43	19.90	20.00	**1.165**	2022/11/2	10#
Back Side Repeated	18900/1880	20M QPSK(1,99)	1.130	0.606	1.20	19.90	20.00	1.156	2022/11/2	
Left Side	18900/1880	20M QPSK(1,99)	0.234	0.122	2.60	19.90	20.00	0.239	2022/11/2	
Right Side	18900/1880	20M QPSK(1,99)	0.176	0.092	3.45	19.90	20.00	0.180	2022/11/2	
Bottom Side	18900/1880	20M QPSK(1,99)	0.472	0.244	-3.47	19.90	20.00	0.483	2022/11/2	
Back Side	18700/1860	20M QPSK(1,99)	0.928	0.490	-0.76	19.66	20.00	1.004	2022/11/2	
Back Side	19100/1900	20M QPSK(1,99)	0.978	0.516	2.77	19.89	20.00	1.003	2022/11/2	
50%RB										
Front Side	18900/1880	20M QPSK(50,24)	0.370	0.219	3.93	18.94	19.00	0.375	2022/11/2	
Back Side	18900/1880	20M QPSK(50,24)	0.678	0.338	3.91	18.94	19.00	0.687	2022/11/2	
Left Side	18900/1880	20M QPSK(50,24)	0.127	0.070	1.89	18.94	19.00	0.129	2022/11/2	

Right Side	18900/1880	20M QPSK(50,24)	0.096	0.053	2.60	18.94	19.00	0.097	2022/11/2	
Bottom Side	18900/1880	20M QPSK(50,24)	0.266	0.131	-1.75	18.94	19.00	0.270	2022/11/2	
100%RB										
Back Side	18900/1880	20M QPSK(100,0)	0.667	0.329	1.20	18.92	19.00	0.679	2022/11/2	

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 15mm	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)	0.696	0.390	-0.79	23.55	24.00	0.772	2022/10/28	
Back Side	20175/1732.5	20M QPSK(1,99)	**1.060**	0.622	-1.11	23.55	24.00	**1.176**	2022/10/28	11#
Back Side Repeated	20175/1732.5	20M QPSK(1,99)	1.056	0.616	0.34	23.55	24.00	1.171	2022/10/28	
Back Side	20050/1720	20M QPSK(1,99)	0.928	0.499	3.73	23.55	24.00	1.029	2022/10/28	
Back Side	20300/1745	20M QPSK(1,99)	0.986	0.530	-2.03	23.55	24.00	1.094	2022/10/28	
50%RB										
Front Side	20175/1732.5	20M QPSK(50,49)	0.358	0.227	0.53	22.55	23.00	0.397	2022/10/28	
Back Side	20175/1732.5	20M QPSK(50,49)	0.560	0.372	1.49	22.55	23.00	0.621	2022/10/28	
100%RB										
Back Side	20175/1732.5	20M QPSK(100,0)	0.550	0.367	0.23	22.50	23.00	0.617	2022/10/28	

NOTE: Body SAR test results of LTE Band 4

Test Position of	Test channel /Freq.	Mode	SAR Value (W/kg)	Power Drift(%)	Conducted Power	Tune-up Power	Scaled SAR	Date	Plot

Hotspot with 10mm			1-g	10-g		(dBm)	(dBm)	1-g (W/Kg)		
1RB										
Front Side	20175/1732.5	20M QPSK(1,99)	0.492	0.249	2.07	18.55	19.00	0.546	2022/10/28	
Back Side	20175/1732.5	20M QPSK(1,99)	0.792	0.422	4.12	18.55	19.00	0.878	2022/10/28	
Back Side Repeated	20175/1732.5	20M QPSK(1,99)	0.787	0.416	0.32	18.55	19.00	0.873	2022/10/28	
Left Side	20175/1732.5	20M QPSK(1,99)	0.249	0.131	3.19	18.55	19.00	0.276	2022/10/28	
Right Side	20175/1732.5	20M QPSK(1,99)	0.240	0.127	3.18	18.55	19.00	0.266	2022/10/28	
Bottom Side	20175/1732.5	20M QPSK(1,99)	0.410	0.210	1.93	18.55	19.00	0.455	2022/10/28	
Back Side	20050/1720	20M QPSK(1,99)	0.640	0.327	1.79	18.32	19.00	0.748	2022/10/28	
Back Side	20300/1745	20M QPSK(1,99)	0.689	0.363	0.97	18.42	19.00	0.787	2022/10/28	
50%RB										
Front Side	20175/1732.5	20M QPSK(50,49)	0.257	0.131	-0.94	17.55	18.00	0.285	2022/10/28	
Back Side	20175/1732.5	20M QPSK(50,49)	0.445	0.225	1.59	17.55	18.00	0.494	2022/10/28	
Left Side	20175/1732.5	20M QPSK(50,49)	0.132	0.077	-2.49	17.55	18.00	0.146	2022/10/28	
Right Side	20175/1732.5	20M QPSK(50,49)	0.144	0.072	-2.14	17.55	18.00	0.160	2022/10/28	
Bottom Side	20175/1732.5	20M QPSK(50,49)	0.222	0.112	0.02	17.55	18.00	0.246	2022/10/28	
100%RB										
Back Side	20175/1732.5	20M QPSK(100,0)	0.438	0.217	0.32	17.50	18.00	0.491	2022/10/28	

NOTE: Hotspot SAR test results of LTE Band 4

10.1.8. SAR measurement Result of LTE Band 5

Test Position of	Test channel	Mode	SAR Value (W/kg)	Power Drift(%)	Conducted Power	Tune-up Power	Scaled SAR	Date	Plot

Body-worn with 10mm	/Freq.		1-g	10-g		(dBm)	(dBm)	1-g (W/Kg)		
1RB										
Front Side	20525/836.5	10M QPSK(1,0)	0.324	0.246	0.09	23.19	23.50	0.348	2022/10/20	
Back Side	20525/836.5	10M QPSK(1,0)	0.500	0.395	-0.90	23.19	23.50	0.537	2022/10/20	12#
50%RB										
Front Side	20525/836.5	10M QPSK(25,12)	0.163	0.131	3.05	22.20	22.50	0.175	2022/10/20	
Back Side	20525/836.5	10M QPSK(25,12)	0.293	0.217	3.82	22.20	22.50	0.314	2022/10/20	

NOTE: Body-worn SAR test results of LTE Band 5

Test Position of Hotspot with 10mm	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)	0.324	0.246	0.09	23.19	23.50	0.348	2022/10/20	
Back Side	20525/836.5	10M QPSK(1,0)	**0.500**	0.395	-0.90	23.19	23.50	**0.537**	2022/10/20	12#
Left Side	20525/836.5	10M QPSK(1,0)	0.165	0.128	2.37	23.19	23.50	0.177	2022/10/20	
Right Side	20525/836.5	10M QPSK(1,0)	0.156	0.121	3.98	23.19	23.50	0.168	2022/10/20	
Bottom Side	20525/836.5	10M QPSK(1,0)	0.260	0.197	-0.36	23.19	23.50	0.279	2022/10/20	
50%RB										
Front Side	20525/836.5	10M QPSK(25,12)	0.163	0.131	3.05	22.20	22.50	0.175	2022/10/20	
Back Side	20525/836.5	10M QPSK(25,12)	0.293	0.217	3.82	22.20	22.50	0.314	2022/10/20	
Left Side	20525/836.5	10M QPSK(25,12)	0.094	0.071	-0.13	22.20	22.50	0.101	2022/10/20	
Right Side	20525/836.5	10M QPSK(25,12)	0.085	0.071	-1.18	22.20	22.50	0.091	2022/10/20	

Bottom Side	20525/836.5	10M QPSK(25,12)	0.132	0.100	-0.68	22.20	22.50	0.141	2022/10/20	

NOTE: Hotspot SAR test results of LTE Band 5

10.1.9. SAR measurement Result of LTE Band 7

Test Position of Body-worn with 10mm	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(1,99)	0.708	0.302	0.28	23.71	24.00	0.757	2022/10/27	
Back Side	21100/2535	20M QPSK(1,99)	1.071	0.521	-0.86	23.71	24.00	1.145	2022/10/27	
Back Side	20850/2510	20M QPSK(1,99)	1.049	0.478	-1.15	23.43	24.00	1.197	2022/10/27	
Back Side	21350/2560	20M QPSK(1,99)	1.109	0.528	-0.43	23.90	24.00	1.135	2022/10/27	
Back Side Repeated	21350/2560	20M QPSK(1,99)	1.100	0.522	0.30	23.90	24.00	1.126	2022/10/27	
50%RB										
Front Side	21100/2535	20M QPSK(50,24)	0.372	0.175	-3.24	22.79	23.50	0.438	2022/10/27	
Back Side	21100/2535	20M QPSK(50,24)	**0.601**	0.305	2.05	22.79	23.50	0.708	2022/10/27	
100%RB										
Back Side	21100/2535	20M QPSK(100,0)	0.577	0.267	1.06	22.73	23.00	0.614	2022/10/27	

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

Test Position of Hotspot with 10mm	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(1,99)	0.708	0.302	0.28	23.71	24.00	0.757	2022/10/27	
Back Side	21100/2535	20M	1.071	0.521	-0.86	23.71	24.00	1.145	2022/10/27	

		QPSK(1,99)								
Left Side	21100/2535	20M QPSK(1,99)	0.354	0.151	-2.61	23.71	24.00	0.378	2022/10/27	
Right Side	21100/2535	20M QPSK(1,99)	0.354	0.158	2.53	23.71	24.00	0.378	2022/10/27	
Bottom Side	21100/2535	20M QPSK(1,99)	0.600	0.264	-1.81	23.71	24.00	0.641	2022/10/27	
Back Side	20850/2510	20M QPSK(1,99)	1.049	0.478	-1.15	23.43	24.00	1.197	2022/10/27	
Back Side	21350/2560	20M QPSK(1,99)	**1.109**	0.528	-0.43	23.90	24.00	1.135	2022/10/27	13#
Back Side Repeated	21350/2560	20M QPSK(1,99)	1.100	0.522	0.30	23.90	24.00	1.126	2022/10/27	
50%RB										
Front Side	21100/2535	20M QPSK(50,24)	0.372	0.175	-3.24	22.79	23.50	0.438	2022/10/27	
Back Side	21100/2535	20M QPSK(50,24)	0.601	0.305	2.05	22.79	23.50	0.708	2022/10/27	
Left Side	21100/2535	20M QPSK(50,24)	0.196	0.076	-2.83	22.79	23.50	0.231	2022/10/27	
Right Side	21100/2535	20M QPSK(50,24)	0.209	0.081	-0.93	22.79	23.50	0.246	2022/10/27	
Bottom Side	21100/2535	20M QPSK(50,24)	0.313	0.136	0.55	22.79	23.50	0.369	2022/10/27	
100%RB										
Back Side	21100/2535	20M QPSK(100,0)	0.577	0.267	1.06	22.73	23.00	0.614	2022/10/27	

NOTE: Hotspot SAR test results of LTE Band 7

10.1.10. SAR measurement Result of LTE Band 17

Test Position of Body-worn with 10mm	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	23790/710	10M QPSK(1,0)	0.228	0.194	-0.99	23.25	23.50	0.242	2022/10/29	
Back Side	23790/710	10M	0.365	0.314	-1.07	23.25	23.50	0.387	2022/10/29	

		QPSK(1,0)								
50%RB										
Front Side	23790/710	10M QPSK(25,12)	0.128	0.103	1.90	22.34	22.50	0.133	2022/10/29	
Back Side	23790/710	10M QPSK(25,12)	0.187	0.157	2.69	22.34	22.50	0.194	2022/10/29	

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

Test Position of Hotspot with 10mm	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	23790/710	10M QPSK(1,0)	0.228	0.194	-0.99	23.25	23.50	0.242	2022/10/29	
Back Side	23790/710	10M QPSK(1,0)	**0.365**	0.314	-1.07	23.25	23.50	0.387	2022/10/29	14#
Left Side	23790/710	10M QPSK(1,0)	0.111	0.093	-0.51	23.25	23.50	0.118	2022/10/29	
Right Side	23790/710	10M QPSK(1,0)	0.117	0.099	1.05	23.25	23.50	0.124	2022/10/29	
Bottom Side	23790/710	10M QPSK(1,0)	0.205	0.169	-2.76	23.25	23.50	0.217	2022/10/29	
50%RB										
Front Side	23790/710	10M QPSK(25,12)	0.128	0.103	1.90	22.34	22.50	0.133	2022/10/29	
Back Side	23790/710	10M QPSK(25,12)	0.187	0.157	2.69	22.34	22.50	0.194	2022/10/29	
Left Side	23790/710	10M QPSK(25,12)	0.065	0.050	-2.51	22.34	22.50	0.067	2022/10/29	
Right Side	23790/710	10M QPSK(25,12)	0.064	0.053	4.42	22.34	22.50	0.066	2022/10/29	
Bottom Side	23790/710	10M QPSK(25,12)	0.110	0.091	-1.18	22.34	22.50	0.114	2022/10/29	

NOTE: Hotspot SAR test results of LTE Band 17

10.1.11. SAR measurement Result of LTE Band 26A

Test	Test	Mode	SAR Value	Power	Conducted	Tune-up	Scaled	Date	Plot

Position of Body-worn with 10mm	channel /Freq.		(W/kg)		Drift(%)	Power (dBm)	Power (dBm)	SAR 1-g (W/Kg)		
			1-g	10-g						
1RB										
Front Side	26740/819	10M QPSK(1,0)	0.282	0.227	1.74	23.18	23.50	0.304	2022/10/20	
Back Side	26740/819	10M QPSK(1,0)	0.452	0.364	0.94	23.18	23.50	0.487	2022/10/20	
50%RB										
Front Side	26740/819	10M QPSK(25,12)	0.153	0.123	-1.41	22.30	22.50	0.160	2022/10/20	
Back Side	26740/819	10M QPSK(25,12)	0.263	0.191	2.78	22.30	22.50	0.275	2022/10/20	

NOTE: Body-worn SAR test results of LTE Band 26A

Test Position of Hotspot with 10mm	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(1,0)	0.282	0.227	1.74	23.18	23.50	0.304	2022/10/20	
Back Side	26740/819	10M QPSK(1,0)	**0.452**	0.364	0.94	23.18	23.50	0.487	2022/10/20	15#
Left Side	26740/819	10M QPSK(1,0)	0.150	0.121	-3.46	23.18	23.50	0.161	2022/10/20	
Right Side	26740/819	10M QPSK(1,0)	0.141	0.111	-1.47	23.18	23.50	0.152	2022/10/20	
Bottom Side	26740/819	10M QPSK(1,0)	0.245	0.189	-1.46	23.18	23.50	0.264	2022/10/20	
50%RB										
Front Side	26740/819	10M QPSK(25,12)	0.153	0.123	-1.41	22.30	22.50	0.160	2022/10/20	
Back Side	26740/819	10M QPSK(25,12)	0.263	0.191	2.78	22.30	22.50	0.275	2022/10/20	
Left Side	26740/819	10M QPSK(25,12)	0.084	0.072	-4.43	22.30	22.50	0.088	2022/10/20	
Right Side	26740/819	10M QPSK(25,12)	0.073	0.059	1.21	22.30	22.50	0.076	2022/10/20	
Bottom Side	26740/819	10M	0.134	0.101	0.27	22.30	22.50	0.140	2022/10/20	

		QPSK(25,12)								

NOTE: Hotspot SAR test results of LTE Band 26A

10.1.12. SAR measurement Result of LTE Band 26B

Test Position of Body-worn with 10mm	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(1,0)	0.312	0.244	1.98	23.36	23.50	0.322	2022/10/20	
Back Side	26865/831.5	15M QPSK(1,0)	0.482	0.381	-1.03	23.36	23.50	0.498	2022/10/20	
50%RB										
Front Side	26865/831.5	15M QPSK(36,0)	0.164	0.144	3.81	22.32	22.50	0.171	2022/10/20	
Back Side	26865/831.5	15M QPSK(36,0)	0.250	0.191	1.87	22.32	22.50	0.261	2022/10/20	

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

Test Position of Hotspot with 10mm	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(1,0)	0.312	0.244	1.98	23.36	23.50	0.322	2022/10/20	
Back Side	26865/831.5	15M QPSK(1,0)	**0.482**	0.381	-1.03	23.36	23.50	0.498	2022/10/20	16#
Left Side	26865/831.5	15M QPSK(1,0)	0.156	0.123	0.46	23.36	23.50	0.161	2022/10/20	
Right Side	26865/831.5	15M QPSK(1,0)	0.147	0.116	0.18	23.36	23.50	0.152	2022/10/20	
Bottom Side	26865/831.5	15M QPSK(1,0)	0.260	0.201	-3.88	23.36	23.50	0.269	2022/10/20	
50%RB										
Front Side	26865/831.5	15M QPSK(36,0)	0.164	0.144	3.81	22.32	22.50	0.171	2022/10/20	

Back Side	26865/831.5	15M QPSK(36,0)	0.250	0.191	1.87	22.32	22.50	0.261	2022/10/20	
Left Side	26865/831.5	15M QPSK(36,0)	0.090	0.062	-2.95	22.32	22.50	0.094	2022/10/20	
Right Side	26865/831.5	15M QPSK(36,0)	0.086	0.069	-4.75	22.32	22.50	0.090	2022/10/20	
Bottom Side	26865/831.5	15M QPSK(36,0)	0.147	0.114	0.64	22.32	22.50	0.153	2022/10/20	

NOTE: Hotspot SAR test results of LTE Band 26B

10.1.13. SAR measurement Result of LTE Band 41

Test Position of Body-worn with 10mm	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	40620/2593	20M QPSK(1,0)	0.348	0.145	-0.17	24.29	25.00	0.410	2022/10/27	
Back Side	40620/2593	20M QPSK(1,0)	0.577	0.250	-1.00	24.29	25.00	0.679	2022/10/27	
50%RB										
Front Side	40620/2593	20M QPSK(50,0)	0.180	0.074	-4.52	23.44	24.00	0.205	2022/10/27	
Back Side	40620/2593	20M QPSK(50,0)	0.308	0.136	2.23	23.44	24.00	0.350	2022/10/27	

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

Test Position of Hotspot with 10mm	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	40620/2593	20M QPSK(1,0)	0.348	0.145	-0.17	24.29	25.00	0.410	2022/10/27	
Back Side	40620/2593	20M QPSK(1,0)	**0.577**	0.250	-1.00	24.29	25.00	0.679	2022/10/27	17#
Left Side	40620/2593	20M QPSK(1,0)	0.186	0.081	-1.89	24.29	25.00	0.219	2022/10/27	

Right Side	40620/2593	20M QPSK(1,0)	0.186	0.078	-3.51	24.29	25.00	0.219	2022/10/27	
Bottom Side	40620/2593	20M QPSK(1,0)	0.295	0.124	-2.61	24.29	25.00	0.347	2022/10/27	
50%RB										
Front Side	40620/2593	20M QPSK(50,0)	0.180	0.074	-4.52	23.44	24.00	0.205	2022/10/27	
Back Side	40620/2593	20M QPSK(50,0)	0.308	0.136	2.23	23.44	24.00	0.350	2022/10/27	
Left Side	40620/2593	20M QPSK(50,0)	0.094	0.046	-2.39	23.44	24.00	0.107	2022/10/27	
Right Side	40620/2593	20M QPSK(50,0)	0.097	0.043	-1.48	23.44	24.00	0.110	2022/10/27	
Bottom Side	40620/2593	20M QPSK(50,0)	0.158	0.063	-3.90	23.44	24.00	0.180	2022/10/27	

NOTE: Hotspot SAR test results of LTE Band 41

10.1.14. SAR measurement Result of WLAN 2.4G

Test Position of Body-worn with 10mm	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	1/2412	802.11b	0.054	0.029	-3.71	15.58	16.00	0.059	2022/11/1	
Back Side	1/2412	802.11b	0.078	0.044	0.30	15.58	16.00	0.086	2022/11/1	

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

Test Position of Hotspot with 10mm	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	1/2412	802.11b	0.054	0.029	-3.71	15.58	16.00	0.059	2022/11/1	
Back Side	1/2412	802.11b	**0.078**	0.044	0.30	15.58	16.00	0.086	2022/11/1	9#
Right Side	1/2412	802.11b	0.055	0.030	-2.80	15.58	16.00	0.061	2022/11/1	

NOTE: Hotspot SAR test results of WLAN 2.4G

10.1.15. SAR measurement Result of WLAN 5.2G

Test Position of Body-worn with 10mm	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	40/5200	802.11a	0.234	0.098	-2.99	9.95	10.00	0.237	2022/10/21	
Back Side	40/5200	802.11a	0.352	0.149	-0.42	9.95	10.00	0.356	2022/10/21	

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

Test Position of Hotspot with 10mm	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	40/5200	802.11a	0.234	0.098	-2.99	9.95	10.00	0.237	2022/10/21	
Back Side	40/5200	802.11a	**0.352**	0.149	-0.42	9.95	10.00	0.356	2022/10/21	6#
Right Side	40/5200	802.11a	0.190	0.080	-2.94	9.95	10.00	0.192	2022/10/21	

NOTE: Hotspot SAR test results of WLAN 5.2G

10.1.16. SAR measurement Result of WLAN 5.3G

Test Position of Body-worn with 10mm	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	62/5310	802.11ac VHT40	0.216	0.090	-1.69	9.88	10.00	0.222	2022/10/25	
Back Side	62/5310	802.11ac VHT40	**0.316**	0.135	-3.50	9.88	10.00	0.325	2022/10/25	7#

NOTE: Body-worn SAR test results of WLAN 5.3G. WLAN 5.3G do not support hotspot mode.

10.1.17. SAR measurement Result of WLAN 5.6G

Test Position of Body-worn with 10mm	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	102/5510	802.11ac VHT40	0.252	0.098	-3.45	10.09	10.50	0.277	2022/10/31	
Back Side	102/5510	802.11ac VHT40	**0.355**	0.149	0.20	10.09	10.50	0.390	2022/10/31	8#

NOTE: Body-worn SAR test results of WLAN 5.6G. WLAN 5.6G do not support hotspot mode.

10.2. SAR Summation Scenario

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

1) Scalar SAR summation < 1.6W/kg.

2) SPLSR = $(SAR_1 + SAR_2)^{1.5}$ / (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 ≤ 0.04, simultaneously transmission SAR measurement is not necessary.

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		WWAN	DTS			
Body-Worn	Front Side	0.772	0.059	0.831	N/A	N/A
	Back Side	1.198	0.086	1.284	N/A	N/A
Hotspot	Front Side	0.757	0.059	0.816	N/A	N/A
	Back Side	1.198	0.086	1.284	N/A	N/A
	Left Side	0.378	N/A	0.378	N/A	N/A
	Right Side	0.378	0.061	0.439	N/A	N/A
	Top Side	N/A	N/A	N/A	N/A	N/A
	Bottom Side	0.641	N/A	0.641	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		WWAN	NII			
Body-Worn	Front Side	0.772	0.277	1.049	N/A	N/A
	Back Side	1.198	0.390	1.588	N/A	N/A
Hotspot	Front Side	0.757	0.237	0.994	N/A	N/A
	Back Side	1.198	0.356	1.554	N/A	N/A
	Left Side	0.378	N/A	0.378	N/A	N/A
	Right Side	0.378	0.192	0.570	N/A	N/A
	Top Side	N/A	N/A	N/A	N/A	N/A
	Bottom Side	0.641	N/A	0.641	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		WWAN	DSS			
Body-Worn	Front Side	0.772	0.042	0.814	N/A	N/A
	Back Side	1.198	0.042	1.240	N/A	N/A
Hotspot	Front Side	0.757	0.042	0.799	N/A	N/A
	Back Side	1.198	0.042	1.240	N/A	N/A

	Left Side	0.378	N/A	0.378	N/A	N/A
	Right Side	0.378	0.042	0.420	N/A	N/A
	Top Side	N/A	N/A	N/A	N/A	N/A
	Bottom Side	0.641	N/A	0.641	N/A	N/A

11. Appendix A. Photo documentation

Refer to appendix Test Setup photo---SAR

12. Appendix B. System Check Plots

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MEASUREMENT 2 System Performance Check - 835MHz
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MEASUREMENT 6 System Performance Check - 2600MHz
MEASUREMENT 7 System Performance Check - 5200MHz
MEASUREMENT 8 System Performance Check - 5400MHz
MEASUREMENT 9 System Performance Check - 5600MHz

MEASUREMENT 1

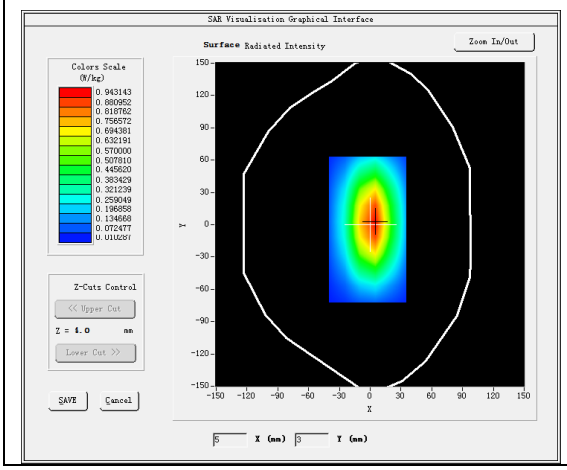
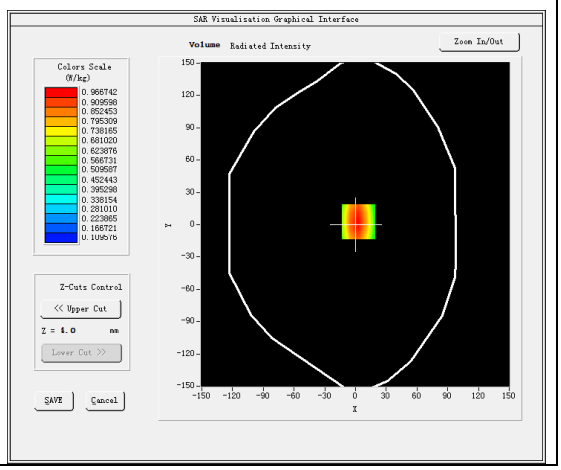
Date of measurement: 29/10/2022

A. Experimental conditions.

Area Scan	dx=15mm dy=15mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Validation plane
Device Position	Dipole
Band	CW750
Channels	Middle
Signal	CW (Crest factor: 1.0)
ConvF	1.49

B. SAR Measurement Results

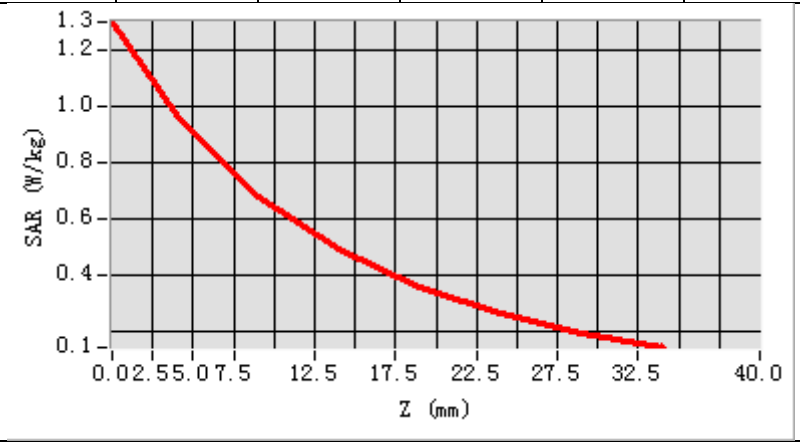
Frequency (MHz)	750.000000
Relative permittivity (real part)	40.277717
Relative permittivity (imaginary part)	21.363391
Conductivity (S/m)	0.890141
Variation (%)	2.730000

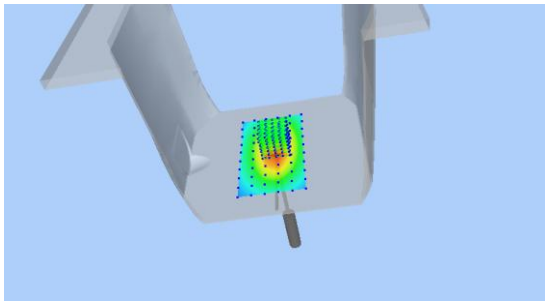
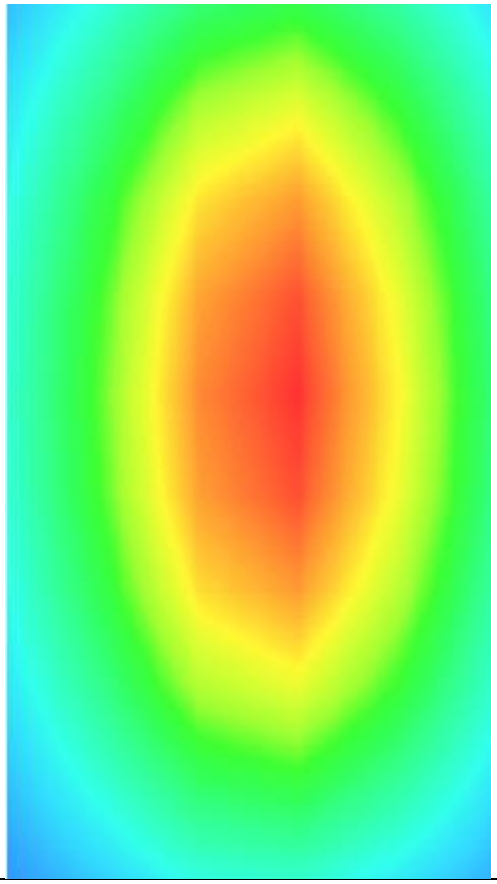
SURFACE SAR	VOLUME SAR
	

Maximum location: X=3.00, Y=3.00
SAR Peak: 1.30 W/kg

SAR 10g (W/Kg)	0.531332
SAR 1g (W/Kg)	0.798321

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	1.2992	0.9617	0.6783	0.4887	0.3535	0.2635	0.1945



3D screen shot	Hot spot position
	

MEASUREMENT 2

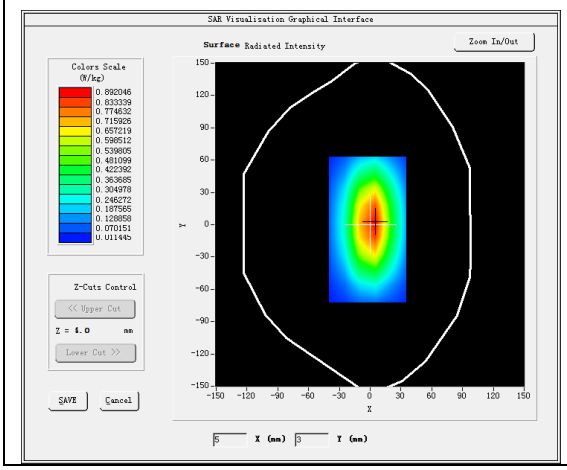
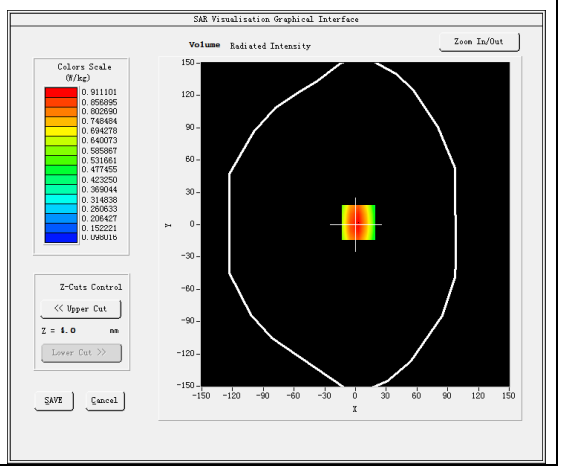
Date of measurement: 20/10/2022

A. Experimental conditions.

Area Scan	dx=15mm dy=15mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Validation plane
Device Position	Dipole
Band	CW835
Channels	Middle
Signal	CW (Crest factor: 1.0)
ConvF	1.50

B. SAR Measurement Results

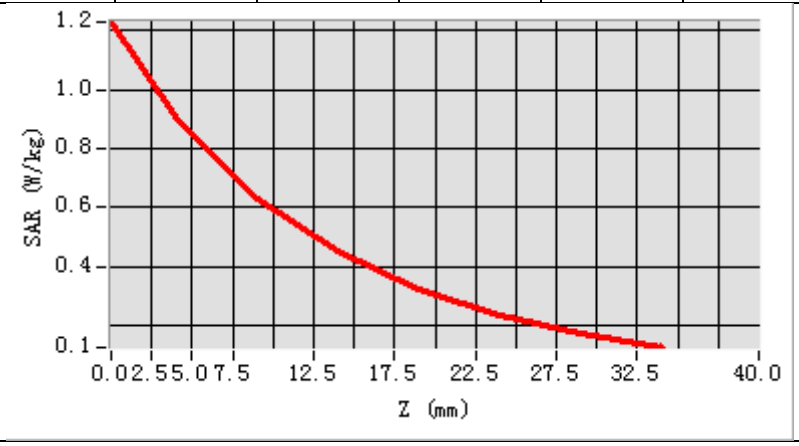
Frequency (MHz)	835.000000
Relative permittivity (real part)	41.250045
Relative permittivity (imaginary part)	19.800331
Conductivity (S/m)	0.918515
Variation (%)	-2.720000

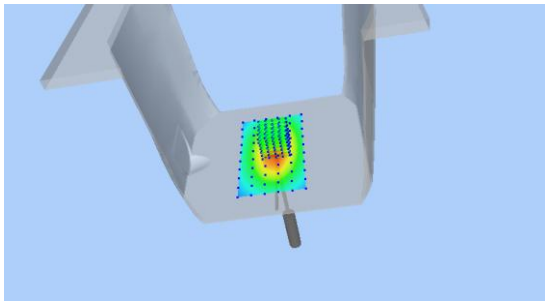
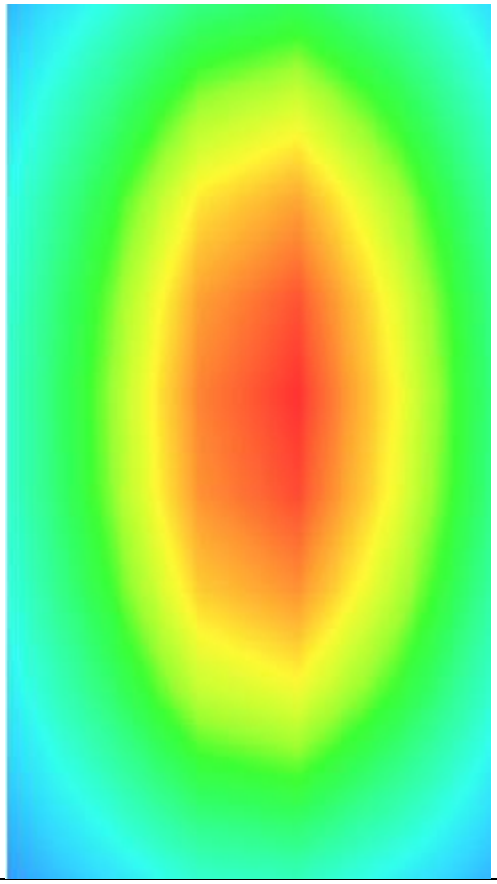
SURFACE SAR	**VOLUME SAR**
	

Maximum location: X=3.00, Y=2.00
SAR Peak: 1.23 W/kg

SAR 10g (W/Kg)	0.603333
SAR 1g (W/Kg)	1.065172

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	1.2221	0.9159	0.6332	0.4562	0.3263	0.2309	0.1726



3D screen shot	Hot spot position
	

MEASUREMENT 3

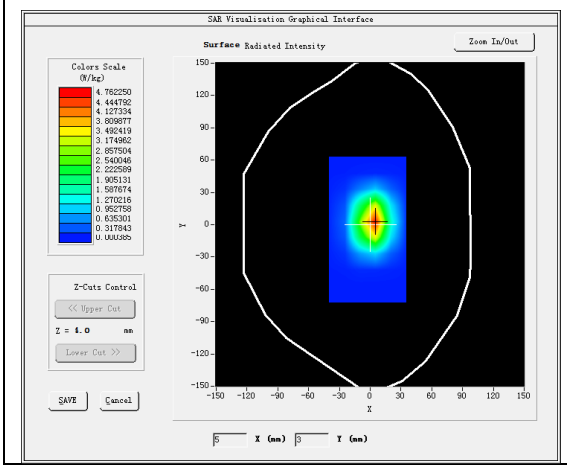
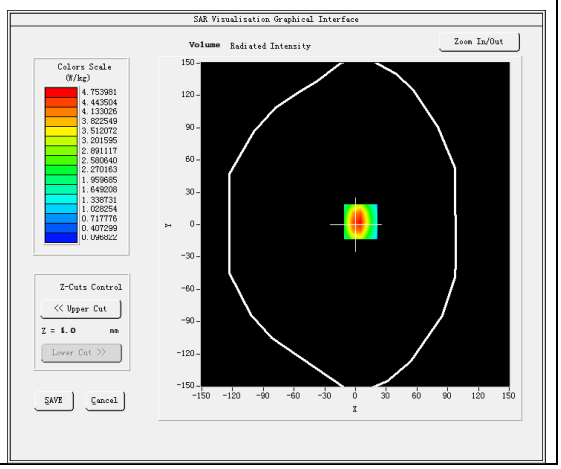
Date of measurement: 28/10/2022

A. Experimental conditions.

Area Scan	dx=15mm dy=15mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Validation plane
Device Position	Dipole
Band	CW1800
Channels	Middle
Signal	CW (Crest factor: 1.0)
ConvF	1.73

B. SAR Measurement Results

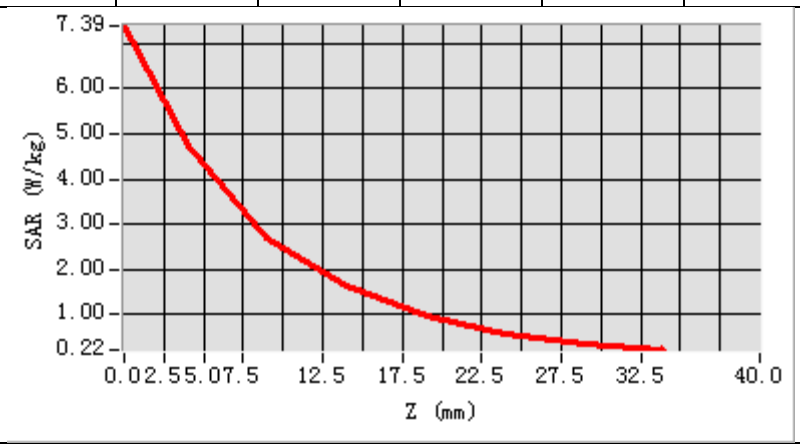
Frequency (MHz)	1800.000000
Relative permittivity (real part)	38.621625
Relative permittivity (imaginary part)	13.804764
Conductivity (S/m)	1.380476
Variation (%)	2.980000

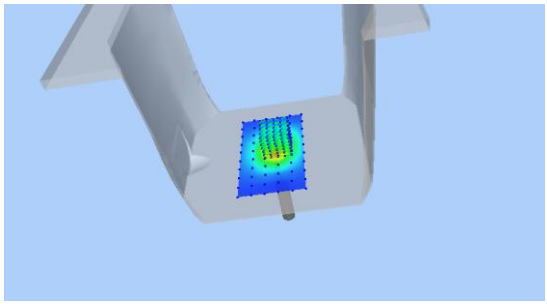
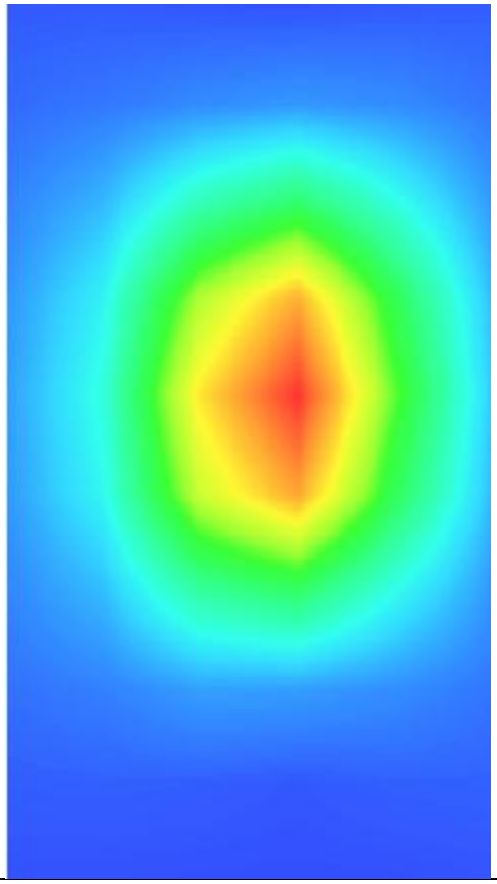
SURFACE SAR	**VOLUME SAR**
	

Maximum location: X=5.00, Y=3.00
SAR Peak: 7.59 W/kg

SAR 10g (W/Kg)	1.808307
SAR 1g (W/Kg)	3.909066

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	7.3874	4.7511	2.7029	1.6103	0.9672	0.5831	0.3534



3D screen shot	Hot spot position
	

MEASUREMENT 4

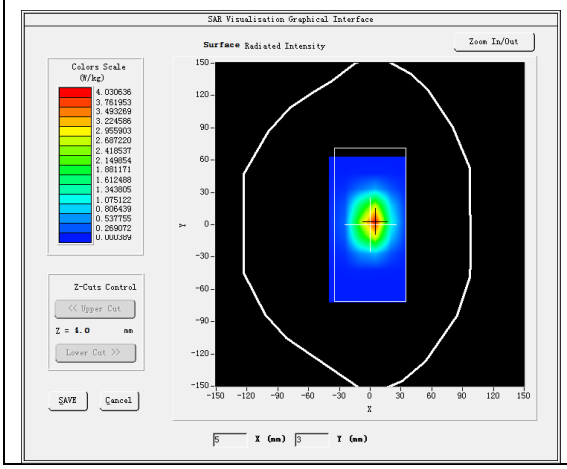
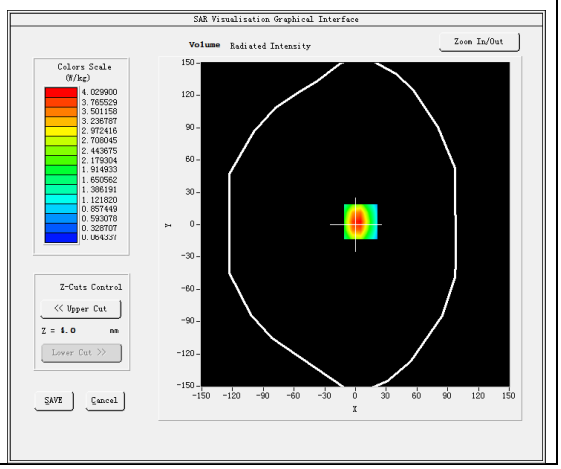
Date of measurement: 2/11/2022

A. Experimental conditions.

Area Scan	dx=15mm dy=15mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Validation plane
Device Position	Dipole
Band	CW1900
Channels	Middle
Signal	CW (Crest factor: 1.0)
ConvF	1.91

B. SAR Measurement Results

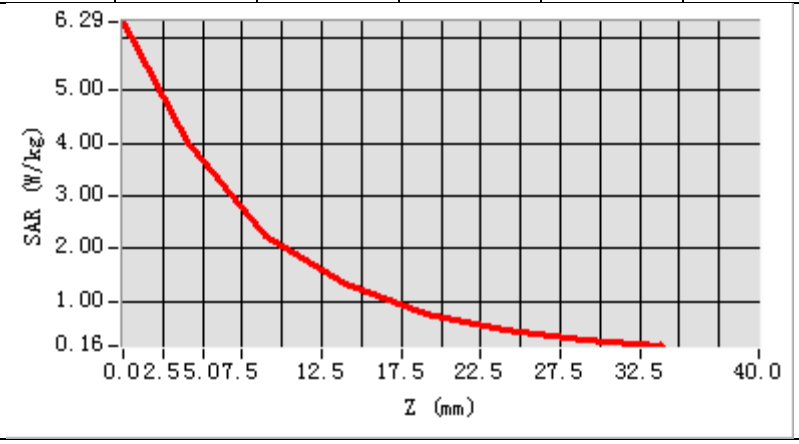
Frequency (MHz)	1900.000000
Relative permittivity (real part)	38.431278
Relative permittivity (imaginary part)	13.883294
Conductivity (S/m)	1.465459
Variation (%)	2.220000

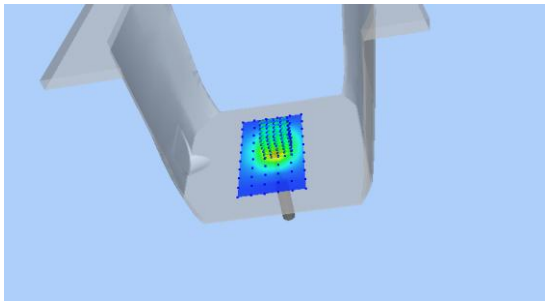
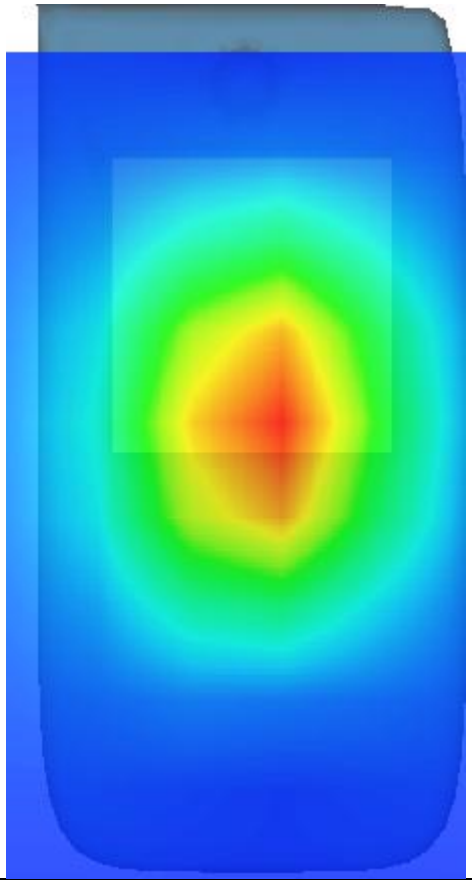
SURFACE SAR	**VOLUME SAR**
	

Maximum location: X=5.00, Y=3.00
SAR Peak: 6.57 W/kg

SAR 10g (W/Kg)	1.880347
SAR 1g (W/Kg)	3.758221

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	6.2947	4.0219	2.2530	1.3126	0.7618	0.4514	0.2694



3D screen shot	Hot spot position
	

MEASUREMENT 5

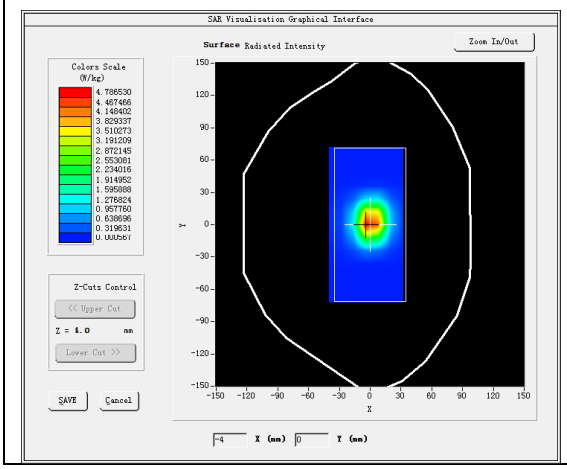
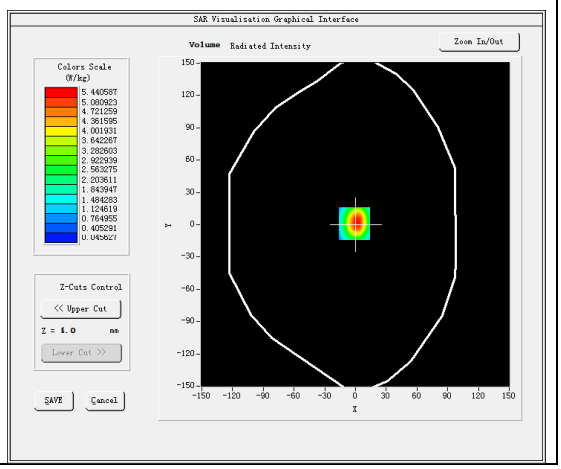
Date of measurement: 1/11/2022

A. Experimental conditions.

Area Scan	dx=12mm dy=12mm, h= 5.00 mm
ZoomScan	7x7x7,dx=5mm dy=5mm dz=5mm
Phantom	Validation plane
Device Position	Dipole
Band	CW2450
Channels	Middle
Signal	CW (Crest factor: 1.0)
ConvF	1.98

B. SAR Measurement Results

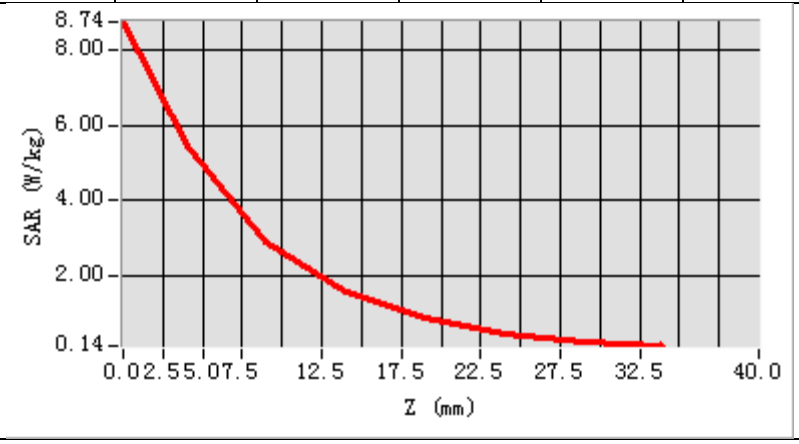
Frequency (MHz)	2450.000000
Relative permittivity (real part)	37.567995
Relative permittivity (imaginary part)	13.008427
Conductivity (S/m)	1.770591
Variation (%)	1.290000

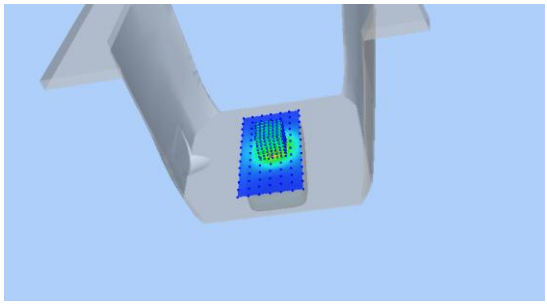
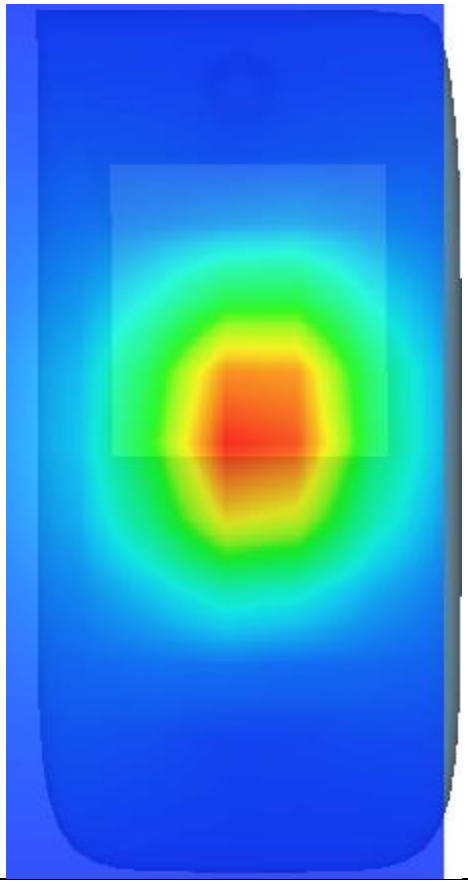
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-1.00, Y=1.00
SAR Peak: 8.94 W/kg

SAR 10g (W/Kg)	2.213106
SAR 1g (W/Kg)	5.398340

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	8.7397	5.4453	2.9027	1.5626	0.8561	0.4698	0.2560



3D screen shot	Hot spot position
	

MEASUREMENT 6

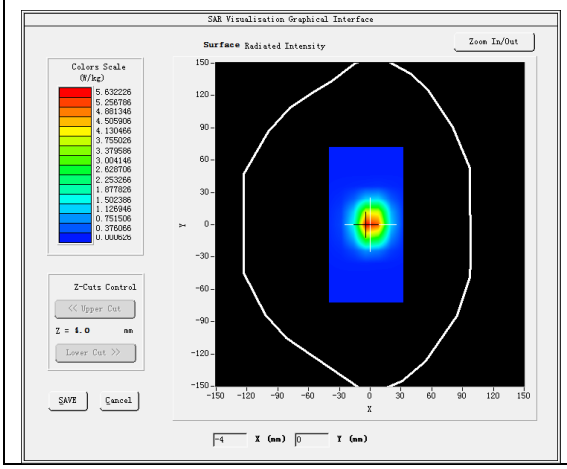
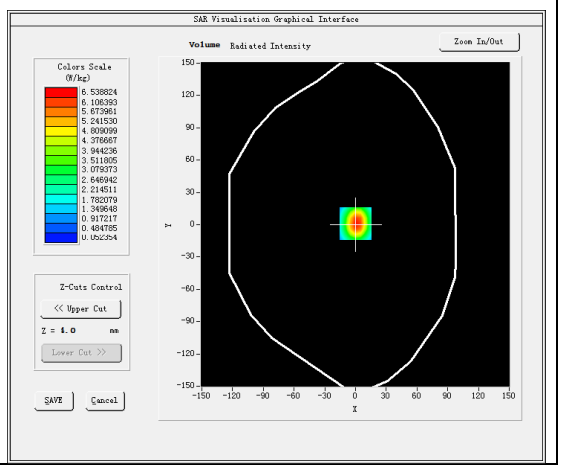
Date of measurement: 27/10/2022

A. Experimental conditions.

Area Scan	dx=12mm dy=12mm, h= 5.00 mm
ZoomScan	7x7x7,dx=5mm dy=5mm dz=5mm
Phantom	Validation plane
Device Position	Dipole
Band	CW2600
Channels	Middle
Signal	CW (Crest factor: 1.0)
ConvF	1.87

B. SAR Measurement Results

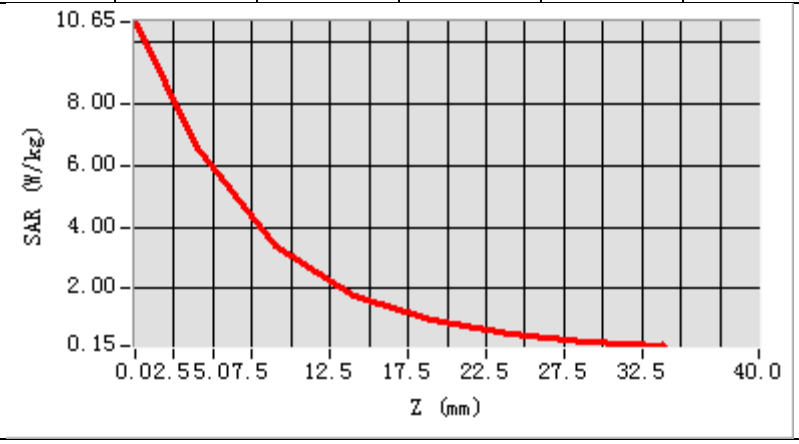
Frequency (MHz)	2600.000000
Relative permittivity (real part)	37.549729
Relative permittivity (imaginary part)	13.192469
Conductivity (S/m)	1.905579
Variation (%)	0.250000

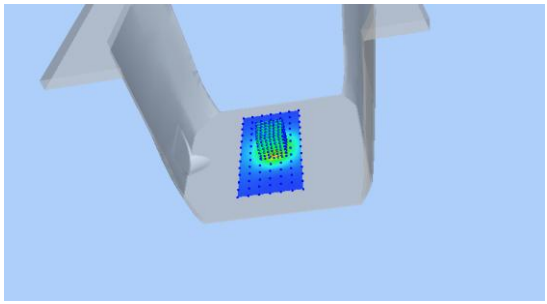
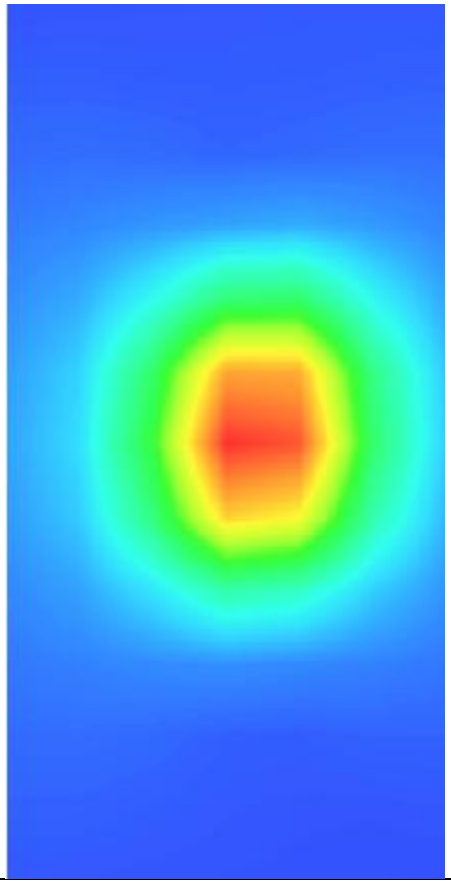
SURFACE SAR	**VOLUME SAR**
	

Maximum location: X=0.00, Y=1.00
SAR Peak: 10.67 W/kg

SAR 10g (W/Kg)	2.474037
SAR 1g (W/Kg)	5.982199

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	10.668	6.5332	3.4163	1.7956	0.9661	0.5169	0.2779



3D screen shot	Hot spot position
	

MEASUREMENT 7

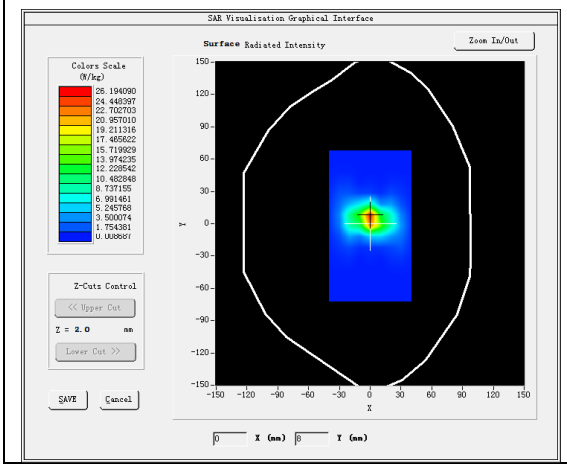
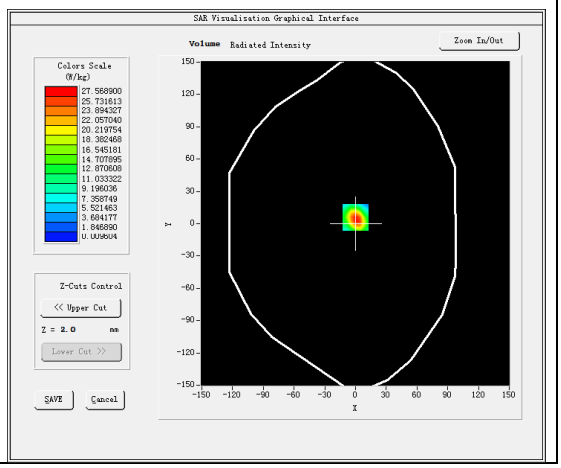
Date of measurement: 21/10/2022

A. Experimental conditions.

Area Scan	dx=10mm dy=10mm, h= 2.00 mm
ZoomScan	7x7x12,dx=4mm dy=4mm dz=2mm
Phantom	Validation plane
Device Position	Dipole
Band	CW5200
Channels	Middle
Signal	CW (Crest factor: 1.0)
ConvF	1.80

B. SAR Measurement Results

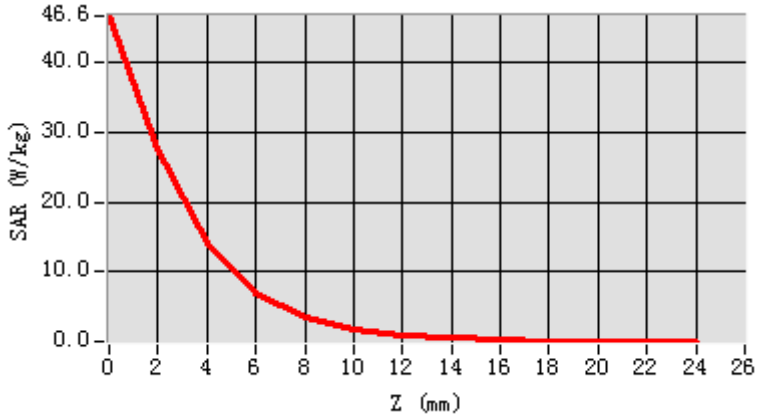
Frequency (MHz)	5200.000000
Relative permittivity (real part)	35.006922
Relative permittivity (imaginary part)	15.607523
Conductivity (S/m)	4.508840
Variation (%)	2.800000

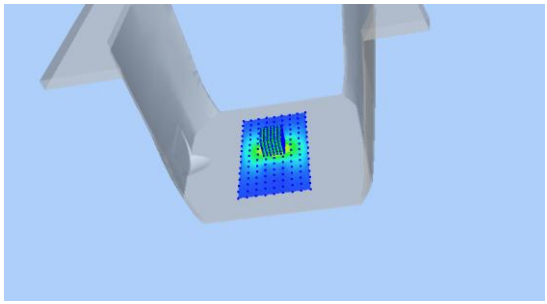
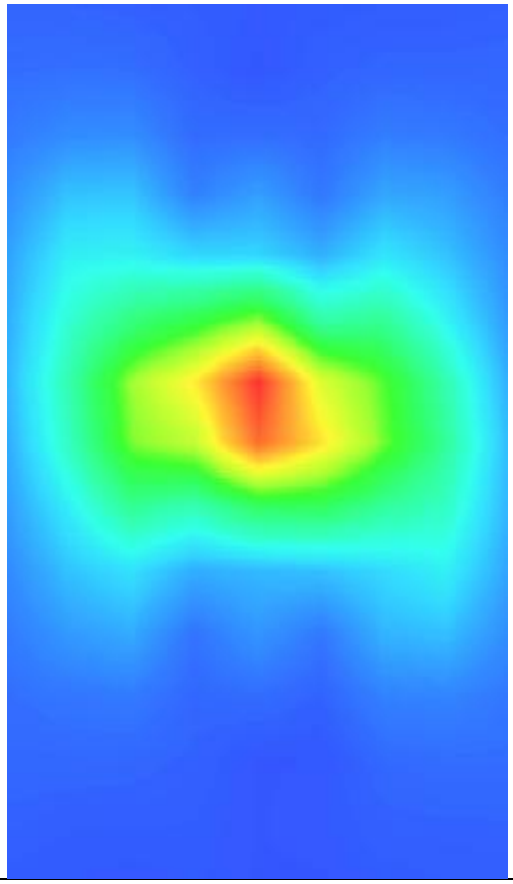
SURFACE SAR	**VOLUME SAR**
	

Maximum location: X=0.00, Y=6.00
SAR Peak: 49.61 W/kg

SAR 10g (W/Kg)	5.493162
SAR 1g (W/Kg)	14.784032

Z (mm)	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
SAR (W/Kg)	46.691	27.591	14.077	7.0594	3.5991	1.7843	0.8950	0.4637	0.2402	0.1308	0.0627	0.0497



3D screen shot	Hot spot position
	

MEASUREMENT 8

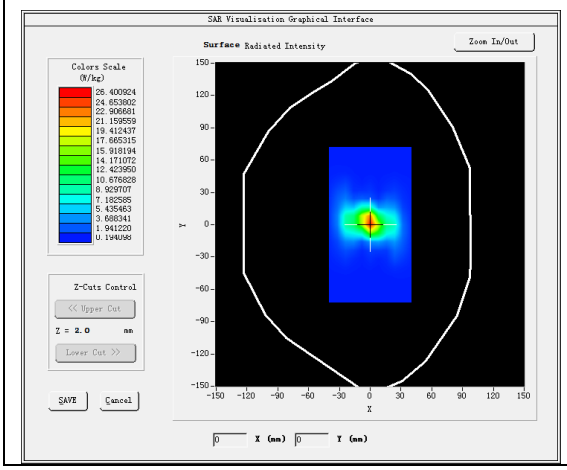
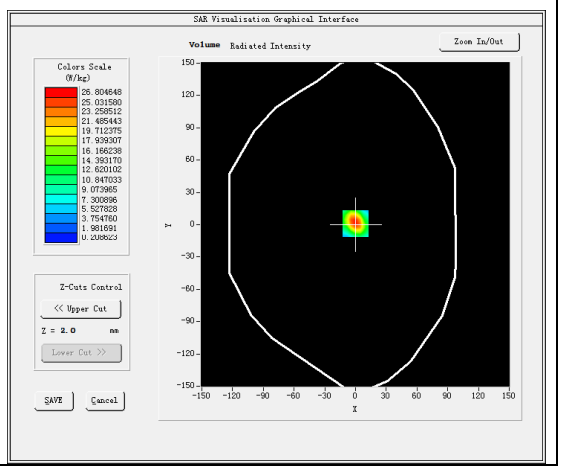
Date of measurement: 25/10/2022

A. Experimental conditions.

Area Scan	dx=10mm dy=10mm, h= 2.00 mm
ZoomScan	7x7x12,dx=4mm dy=4mm dz=2mm
Phantom	Validation plane
Device Position	Dipole
Band	CW5400
Channels	Middle
Signal	CW (Crest factor: 1.0)
ConvF	2.05

B. SAR Measurement Results

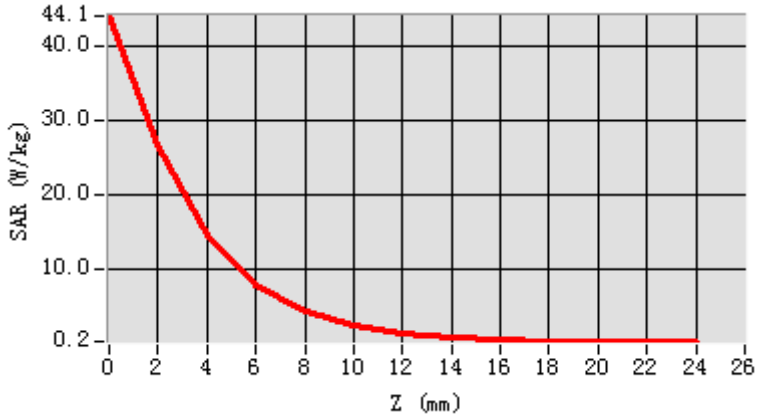
Frequency (MHz)	5400.000000
Relative permittivity (real part)	36.227219
Relative permittivity (imaginary part)	15.934159
Conductivity (S/m)	4.780248
Variation (%)	1.350000

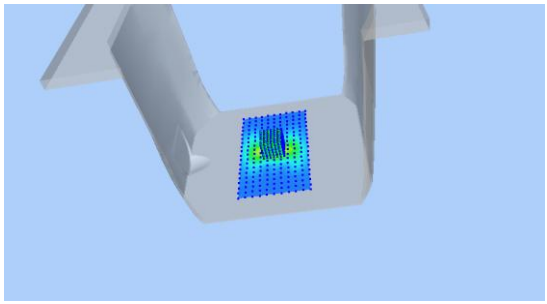
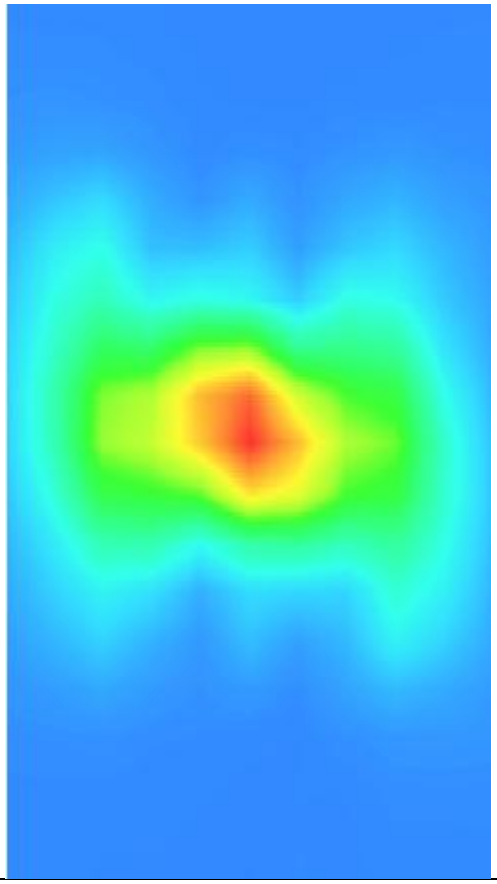
SURFACE SAR	VOLUME SAR
	

Maximum location: X=0.00, Y=1.00
SAR Peak: 46.18 W/kg

SAR 10g (W/Kg)	5.561443
SAR 1g (W/Kg)	18.323135

Z (mm)	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
SAR (W/Kg)	44.0730	26.8035	14.6104	7.8178	4.2299	2.3249	1.3238	0.7816	0.5067	0.3759	0.2858	0.2660



3D screen shot	Hot spot position
	

MEASUREMENT 9

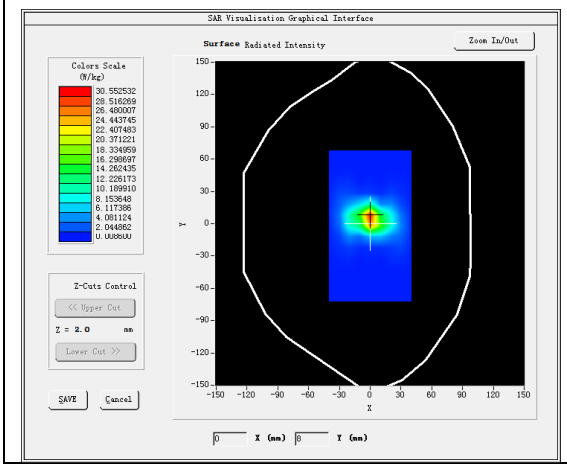
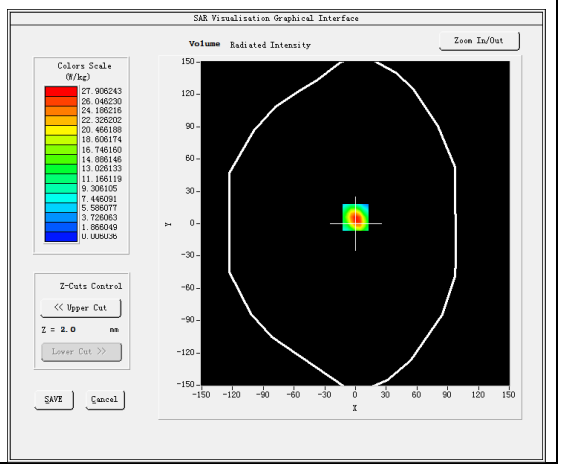
Date of measurement: 31/10/2022

A. Experimental conditions.

Area Scan	dx=10mm dy=10mm, h= 2.00 mm
ZoomScan	7x7x12,dx=4mm dy=4mm dz=2mm
Phantom	Validation plane
Device Position	Dipole
Band	CW5600
Channels	Middle
Signal	CW (Crest factor: 1.0)
ConvF	2.16

B. SAR Measurement Results

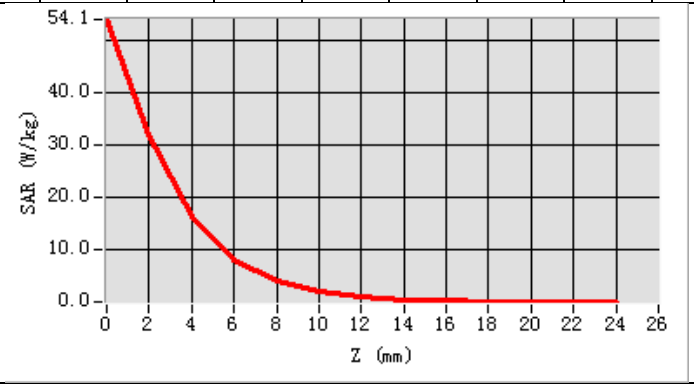
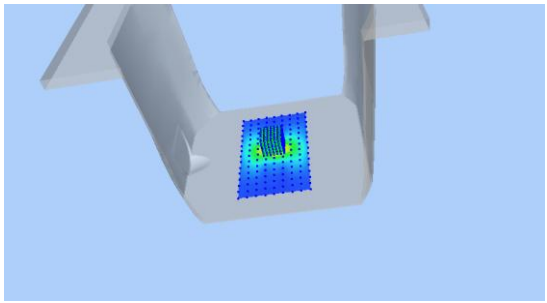
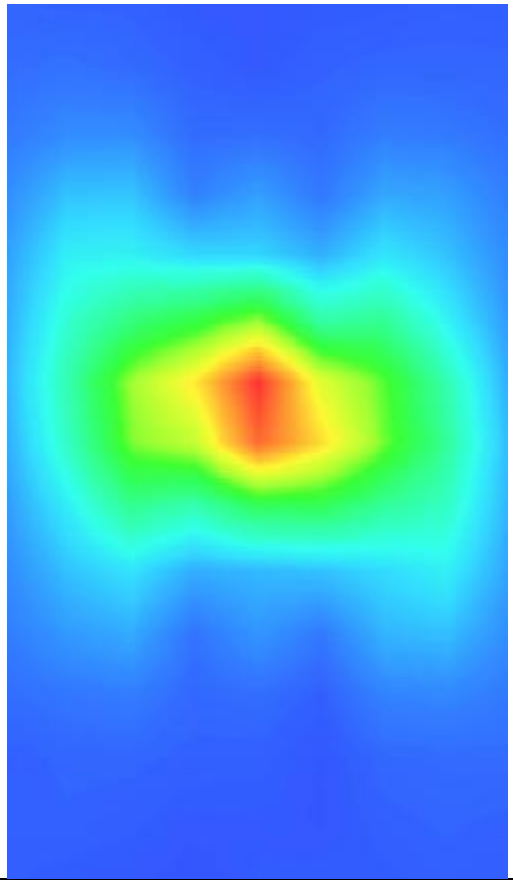
Frequency (MHz)	5600.000000
Relative permittivity (real part)	34.800423
Relative permittivity (imaginary part)	15.776507
Conductivity (S/m)	4.908247
Variation (%)	-0.500000

SURFACE SAR	**VOLUME SAR**
	

Maximum location: X=0.00, Y=6.00
SAR Peak: 51.23 W/kg

SAR 10g (W/Kg)	6.240228
SAR 1g (W/Kg)	15.949190

Z (mm)	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
SAR (W/Kg)	54.136	31.948	16.344	8.1766	4.0890	3.8150	1.0361	0.4644	0.2795	0.1372	0.0788	0.0538



3D screen shot	Hot spot position