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：	Smart Phone
Brand Name：	ROLLCALL
Model Name：	DT D1
Family Model：	DT
Report No.：	STR211029002009E
FCC ID：	2ATH4-ROLLCALL

Prepared for

Alliance International group, Inc

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TEST RESULT CERTIFICATION

Applicant's name.....: Alliance International group, Inc

Address.....: 43337 Isle Royal Street Fremont CA 94538 USA

Manufacturer's Name.....: Alliance International group, Inc

Address.....: 43337 Isle Royal Street Fremont CA 94538 USA

Product description

Product name.....: Smart Phone

Brand Name .....: ROLLCALL

Model and/or type reference : DT D1

Family Model.....: DT

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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Date of Test

Date (s) of performance of tests..... : Oct. 29, 2021 ~ Dec. 28, 2021

Date of Issue ..... : Dec. 29, 2021

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

Prepared By (Test Engineer) : Jacob. chen

(Jacob Chen)

Approved By (Lab Manager) : Alex

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※ ※ Revision History ※ ※

REV.	DESCRIPTION	ISSUED DATE	REMARK
Rev.1.0	Initial Test Report Release	Dec. 29, 2021	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 HEAD AND 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 DT D1 are as follows.

RF Exposure Conditions		Equipment Class -Highest Reported SAR (W/kg)			
		PCE	DTS	NII	DSS
1-g Head		0.164	0.230	0.118	N/A
1-g Body-Worn (Separation distance of 10mm)		1.172	0.230	0.146	N/A
1-g Hotspot (Separation distance of 10mm)		1.172	0.230	0.146	N/A
Max Simultaneous Tx	Head	0.483	0.394	0.282	0.483
	Body-Worn	1.402	1.402	1.318	1.331
	Hotspot	1.402	1.402	1.318	1.331

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	Smart Phone
Brand Name	ROLLCALL
Model Name	DT D1
Family Model	DT
FCC ID	2ATH4-ROLLCALL
Device Phase	Identical Prototype
Exposure Category	General population / Uncontrolled environment
Antenna Type	PIFA Antenna
Battery Information	DC 3.85V, 4500mAh, 17.325Wh
HW Version	G1970U-PT-V2.1
SW Version	G1970UPTV2_HF_Z6128_P_K_C01_FAC_OJ_R
Device Operating Configurations	
Supporting Mode(s)	GSM 850/1900, WCDMA Band 2/4/5, LTE Band 2/4/5/7/12/13/17/41/66/71, WLAN 2.4G/5G, Bluetooth, NFC
Test Modulation	GSM(GMSK/8PSK), WCDMA(QPSK), LTE(QPSK/16QAM), WLAN(DSSS/OFDM), Bluetooth(GFSK, π/4-DQPSK, 8DPSK), 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 12	699-716	729-746
	LTE Band 13	777-787	746-756
	LTE Band 17	704-716	734-746
	LTE Band 41	2560-2660	
	LTE Band 66	1710-1780	2110-2200
	LTE Band 71	663-698	617-652
	WLAN 2.4G	2412-2462	
	WLAN 5.2G	5180-5240	
	WLAN 5.8G	5745-5825	
	Bluetooth	2402-2480	
	NFC	13.56	
GPRS Multislot Class(12)	Max Number of Timeslots in Uplink	4	
	Max Number of Timeslots in Downlink	4	
	Max Total Timeslot	5	
EDGE Multislot Class(12)	Max Number of Timeslots in Uplink	4	
	Max Number of Timeslots in Downlink	4	
	Max Total Timeslot	5	
Power Class	4, tested with power level 5(GSM 850)		
	1, tested with power level 0(GSM 1900)		
	3, tested with power control “all 1”(WCDMA Band 2)		
	3, tested with power control “all 1”(WCDMA Band 4)		
	3, tested with power control “all 1”(WCDMA Band 5)		
	3, tested with power control all Max.(LTE Band 2)		
	3, tested with power control all Max.(LTE Band 4)		
	3, tested with power control all Max.(LTE Band 5)		
	3, tested with power control all Max.(LTE Band 7)		
	3, tested with power control all Max.(LTE Band 12)		
	3, tested with power control all Max.(LTE Band 13)		
	3, tested with power control all Max.(LTE Band 17)		
	3, tested with power control all Max.(LTE Band 41)		

	3, tested with power control all Max.(LTE Band 66)
	3, tested with power control all Max.(LTE Band 71)

1.4. Test specification(s)

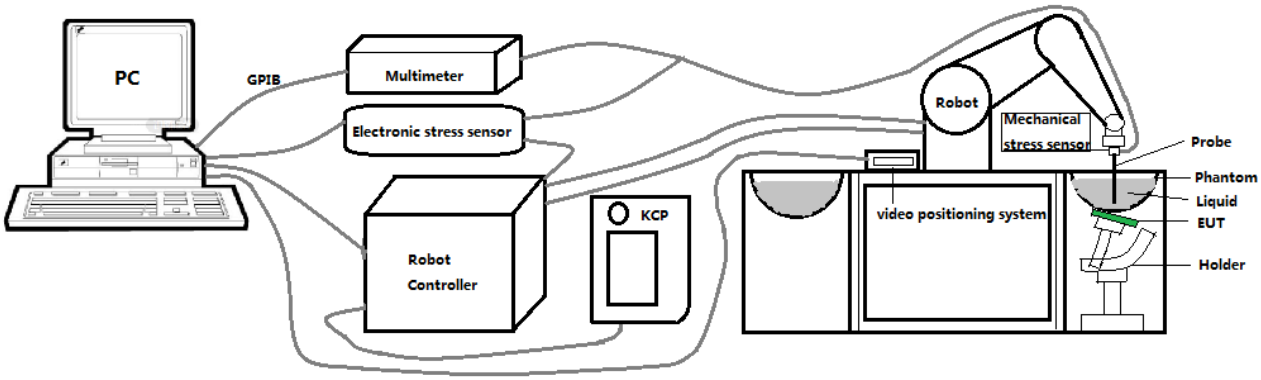
FCC 47 CFR Part 2(2.1093)
ANSI/IEEE C95.1-1992
IEEE Std 1528-2013
KDB 865664 D01 SAR measurement 100 MHz to 6 GHz
KDB 865664 D02 RF Exposure Reporting
KDB 447498 D01 General RF Exposure Guidance
KDB 248227 D01 802.11 Wi-Fi SAR
KDB 941225 D01 3G SAR Procedures
KDB 941225 D05 SAR for LTE Devices
KDB 941225 D06 Hotspot SAR
KDB 648474 D04 Handset 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.

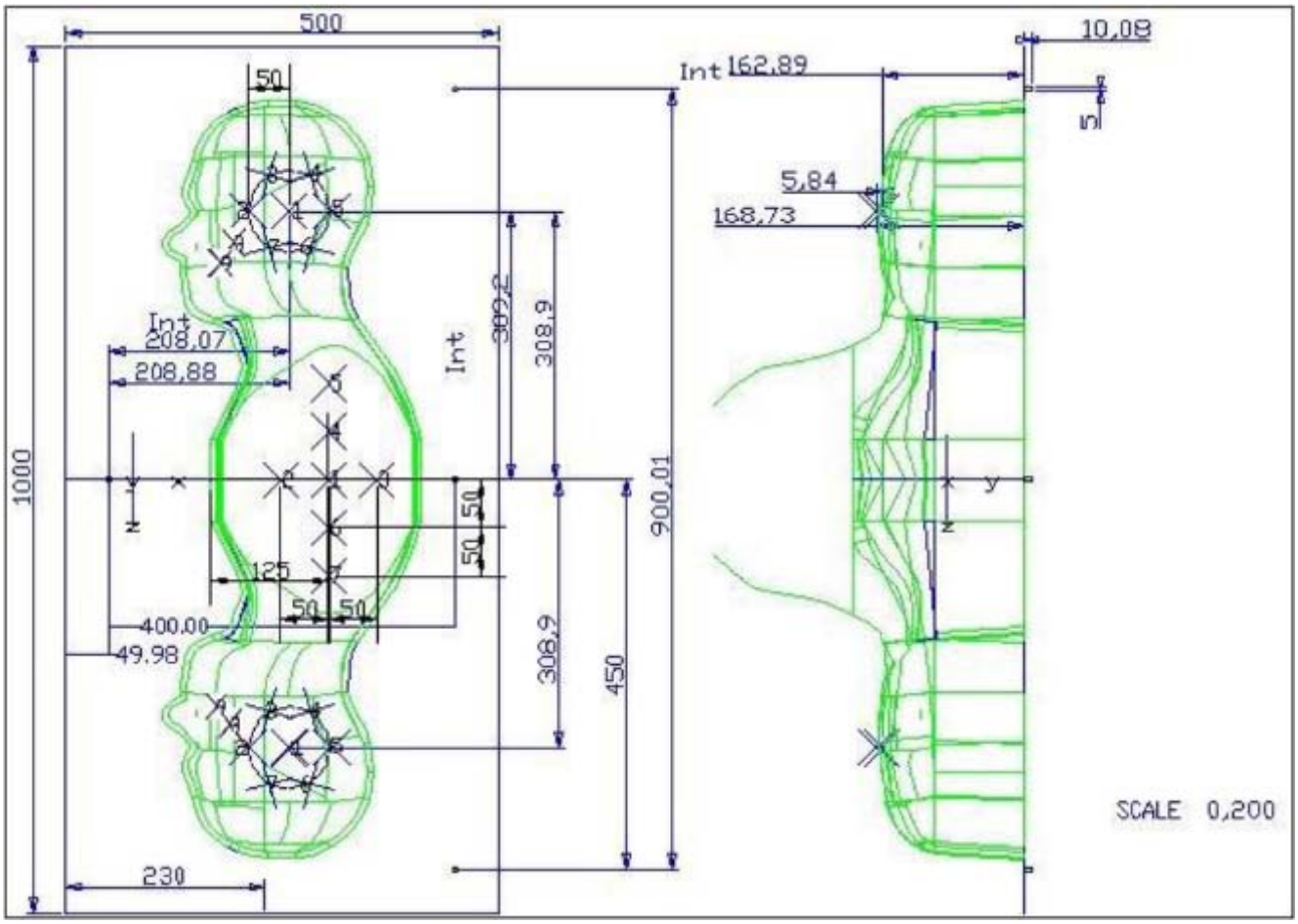
2.4. SAM phantoms

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

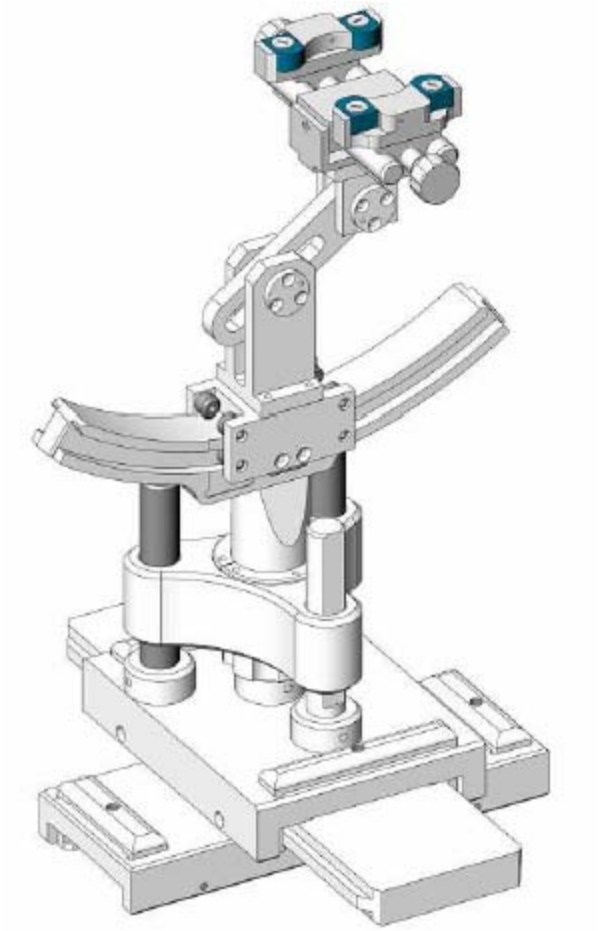


Serial Number	Left Head(mm)		Right Head(mm)		Flat Part(mm)	
SN 16/15 SAM119	2	2.02	2	2.08	1	2.09
	3	2.05	3	2.06	2	2.06
	4	2.07	4	2.07	3	2.08
	5	2.08	5	2.08	4	2.10
	6	2.05	6	2.07	5	2.10
	7	2.05	7	2.05	6	2.07
	8	2.07	8	2.06	7	2.07
	9	2.08	9	2.06	-	-

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	Mar. 01, 2021	Feb. 28, 2022
☒	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	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	Jul. 01, 2021	Jun. 30, 2022
☒	R&S	Wideband radio communication tester	CMW500	103917	Jul. 01, 2021	Jun. 30, 2022
☒	HP	Network Analyzer	8753D	3410J01136	Jul. 01, 2021	Jun. 30, 2022
☒	Agilent	PSG Analog Signal Generator	E8257D	MY51110112	Jul. 01, 2021	Jun. 30, 2022

☒	Agilent	Power meter	E4419B	MY45102538	Jul. 01, 2021	Jun. 30, 2022
☒	Agilent	Power sensor	E9301A	MY41495644	Jul. 01, 2021	Jun. 30, 2022
☒	Agilent	Power sensor	E9301A	US39212148	Jul. 01, 2021	Jun. 30, 2022
☒	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 Wi-Fi/BT power measurement, use engineering software to configure EUT Wi-Fi/BT continuously transmission, at maximum RF power in each supported wireless interface and frequency band.

(d) Connect EUT RF port through RF cable to the power meter, and measure Wi-Fi/BT output power.

<SAR measurement>

(a) Use base station simulator to configure EUT WWAN transmission in radiated connection, and engineering software to configure EUT Wi-Fi/BT 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

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.

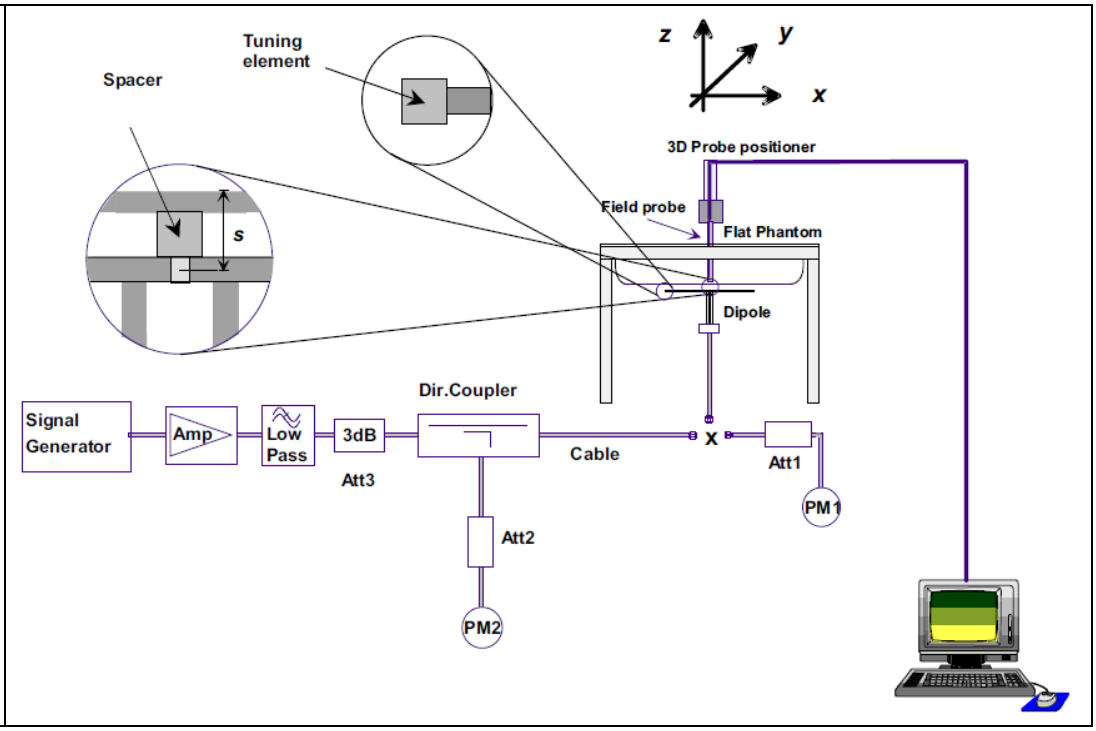
Tissue Type	Measured Frequency (MHz)	Target Tissue		Measured Tissue		Liquid Temp.	Test Date
		εr (±5%)	σ (S/m) (±5%)	εr	σ (S/m)		
Head 750	750	41.96 (39.86~44.06)	0.89 (0.85~0.93)	42.13	0.89	21.4 °C	Nov. 06, 2021
Head 850	835	41.50 (39.43~43.58)	0.90 (0.86~0.95)	42.81	0.93	21.3 °C	Nov. 07, 2021
Head 1800	1800	40.00 (38.00~42.00)	1.40 (1.33~1.47)	39.32	1.39	21.8 °C	Nov. 10, 2021
Head 1900	1900	40.00 (38.00~42.00)	1.40 (1.33~1.47)	38.94	1.46	21.6 °C	Oct. 30, 2021
Head 2450	2450	39.20 (37.24~41.16)	1.80 (1.71~1.89)	40.90	1.76	21.7 °C	Oct. 29, 2021
Head 2600	2600	39.01 (37.06~40.96)	1.96 (1.86~2.06)	39.75	1.93	21.5 °C	Oct. 29, 2021
Head 5200	5200	36.00 (34.20~37.80)	4.66 (4.43~4.89)	37.31	4.54	21.6 °C	Nov. 15, 2021
Head 5800	5800	35.30 (33.54~37.07)	5.27 (5.01~5.53)	36.30	5.17	21.7 °C	Nov. 16, 2021
Head 2600	2600	39.01 (37.06~40.96)	1.96 (1.86~2.06)	39.68	1.96	21.6 °C	Dec. 28, 2021

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)	7.99	5.35	21.4 °C	Nov. 06, 2021
835MHz	9.84 (8.86~10.82)	6.22 (5.60~6.84)	10.14	6.42	21.3 °C	Nov. 07, 2021
1800MHz	37.96 (34.17~41.75)	19.81 (17.83~21.79)	35.13	19.38	21.8 °C	Nov. 10, 2021
1900MHz	40.37 (36.34~44.40)	20.48 (18.44~22.52)	37.89	20.50	21.6 °C	Oct. 30, 2021
2450MHz	53.69 (48.33~59.05)	23.94 (21.55~26.33)	56.50	25.72	21.7 °C	Oct. 29, 2021
2600MHz	55.83 (50.25~61.41)	24.19 (21.78~26.60)	54.97	26.05	21.5 °C	Oct. 29, 2021
5200MHz	162.34 (146.11~178.57)	55.42 (49.88~60.96)	153.48	56.98	21.6 °C	Nov. 15, 2021
5800MHz	178.89 (161.01~196.77)	59.32 (53.39~65.25)	168.08	63.81	21.7 °C	Nov. 16, 2021
2600MHz	55.83 (50.25~61.41)	24.19 (21.78~26.60)	56.12	23.34	21.6 °C	Dec. 28, 2021

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. Ear and handset reference point

Figure 6.1.1 shows the front, back, and side views of the SAM phantom. The center-of-mouth reference point is labeled “M”, the left ear reference point (ERP) is marked “LE”, and the right ERP is marked “RE”.

Fig 6.1.1 Front, back, and side views of SAM phantom

6.2. Definition of the cheek position

1. Define two imaginary lines on the handset, the vertical centerline and the horizontal line. The vertical centerline passes through two points on the front side of the handset: the midpoint of the width w_t of the handset at the level of the acoustic output (point A in Figure 6.2.1 and Figure 6.2.2), and the midpoint of the width w_b of the bottom of the handset (point B). The horizontal line is perpendicular to the vertical centerline and passes through the center of the acoustic output (see Figure 6.2.1). The two lines intersect at point A. Note that for many handsets, point A coincides with the center of the acoustic output; however, the acoustic output may be located elsewhere on the horizontal line. Also note that the vertical centerline is not necessarily parallel to the front face of the handset (see Figure 6.2.2), especially for clamshell handsets, handsets with flip covers, and other irregularly-shaped handsets.
2. Position the handset close to the surface of the phantom such that point A is on the (virtual) extension of the line passing through points RE and LE on the phantom (see Figure 6.2.3), such that the plane defined by the vertical centerline and the horizontal line of the handset is approximately parallel to the sagittal plane of the phantom.
3. Translate the handset towards the phantom along the line passing through RE and LE until handset point A touches the pinna at the ERP
4. While maintaining the handset in this plane, rotate it around the LE-RE line until the vertical centerline is in the plane normal to the plane containing B-M and N-F lines, i.e., the Reference Plane.
5. Rotate the handset around the vertical centerline until the handset (horizontal line) is parallel to the N-F line.

6. While maintaining the vertical centerline in the Reference Plane, keeping point A on the line passing through RE and LE, and maintaining the handset contact with the pinna, rotate the handset about the N-F line until any point on the handset is in contact with a phantom point below the pinna on the cheek. See Figure 6.2.3. The actual rotation angles should be documented in the test report.

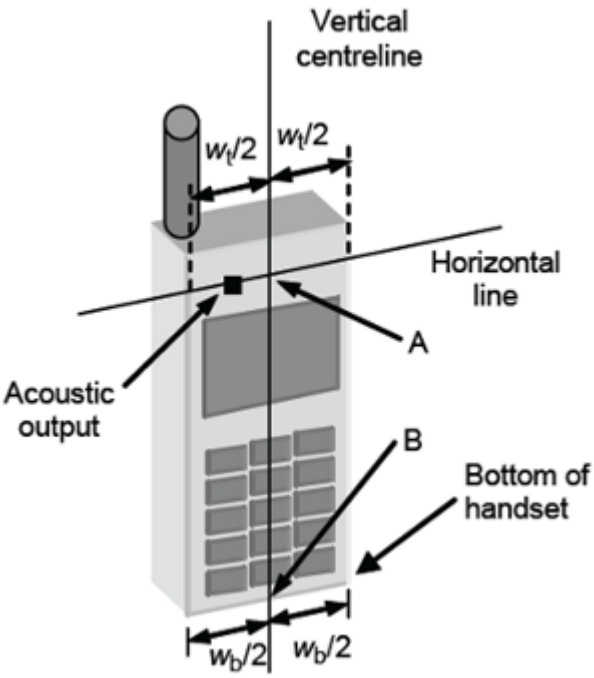


Fig 6.2.1 Handset vertical and horizontal reference lines—“fixed case

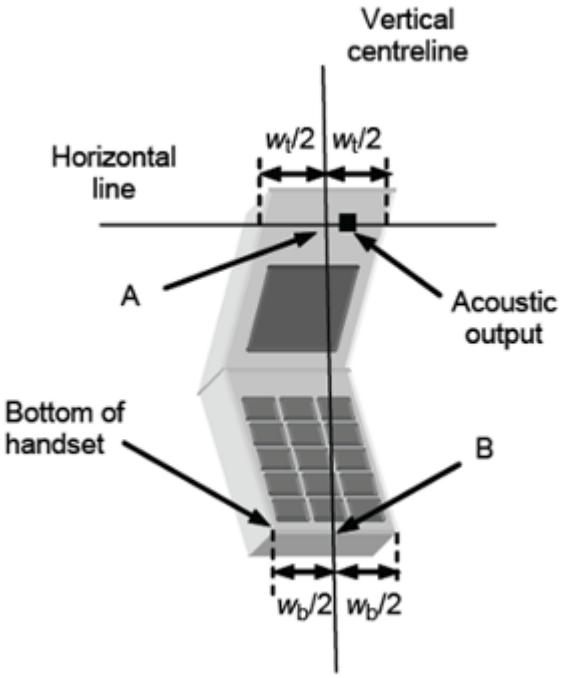


Fig 6.2.2 Handset vertical and horizontal reference lines—“clam-shell case”

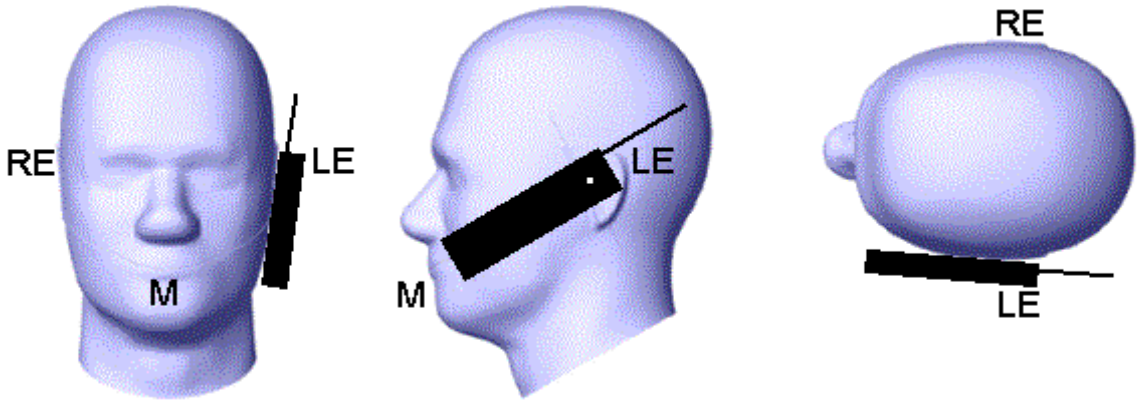


Fig 6.2.3 cheek or touch position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which establish the Reference Plane for handset positioning, are indicated.

6.3. Definition of the tilt position

1. While maintaining the orientation of the handset, retract the handset parallel to the reference plane far enough away from the phantom to enable a rotation of the device by 15 degree.
2. Rotate the Handset around the horizontal line by 15 degree (see Figure 6.3.1).
3. While maintaining the orientation of the handset, move the handset towards the phantom on a line passing through RE and LE until any part of the handset touches the ear. The tilt position is obtained when the contact is on the pinna. If the contact is at any location other than the pinna, e.g., the antenna with the back of the phantom head, the angle of the handset shall be reduced. In this case, the tilt position is obtained if any part of the handset is in contact with the pinna as well as a second part of the handset is in contact with the phantom, e.g., the antenna with the back of the head.

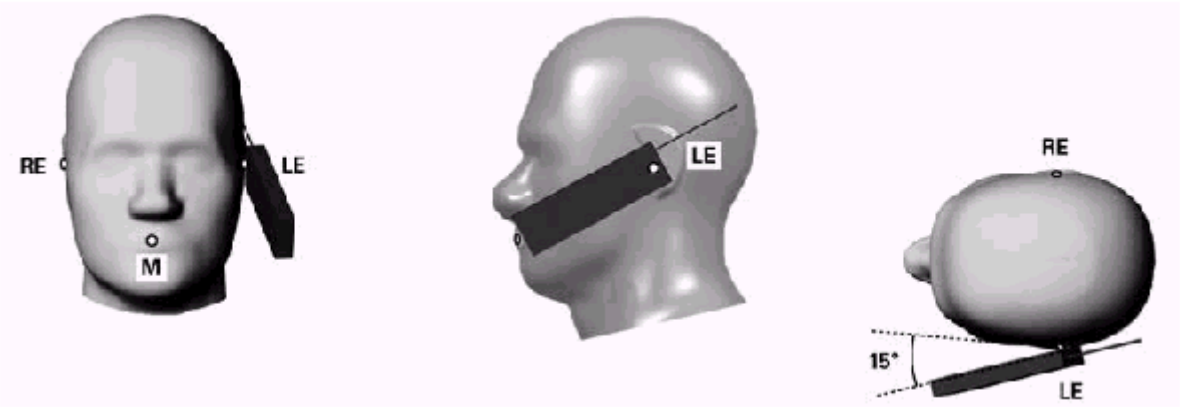


Figure 6.3.1 – Tilt position of the wireless device on the left side of SAM

6.4. 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 6.4.1). 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.

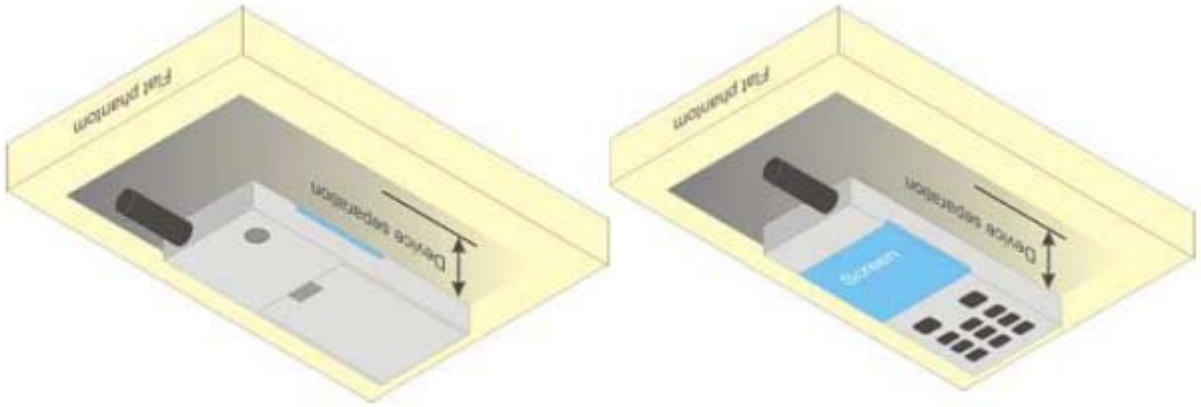


Figure 6.4.1 – Test positions for body-worn devices

6.5. 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	128	189	251	Tune-up	128	189	251
Frequency (MHz)	(dBm)	824.2	836.4	848.8	(dBm)	824.2	836.4	848.8
GSM (GMSK)	33.00	32.86	32.94	32.97	23.97	23.83	23.91	23.94
GPRS(GMSK, 1 TS)	33.00	32.80	32.90	32.92	23.97	23.77	23.87	23.89
GPRS(GMSK, 2 TS)	32.50	32.05	32.11	32.17	26.48	26.03	26.09	26.15
GPRS(GMSK, 3 TS)	30.50	30.16	30.10	30.29	26.24	25.90	25.84	26.03
GPRS(GMSK, 4 TS)	29.50	28.85	28.85	29.01	26.49	25.84	25.84	26.00
EDGE(GMSK, 1 TS)	27.50	27.25	27.06	27.05	18.47	18.22	18.03	18.02
EDGE(GMSK, 2 TS)	26.50	25.83	26.10	26.09	20.48	19.81	20.08	20.07
EDGE(GMSK, 3 TS)	24.00	23.46	23.75	23.62	19.74	19.20	19.49	19.36
EDGE(GMSK, 4 TS)	23.00	22.63	22.28	22.55	19.99	19.62	19.27	19.54
Band GSM1900	Burst-Averaged output Power (dBm)				Frame-Averaged output Power (dBm)			
Tx Channel	Tune-up	512	661	810	Tune-up	512	661	810
Frequency (MHz)	(dBm)	1850.2	1880.0	1909.8	(dBm)	1850.2	1880.0	1909.8
GSM (GMSK)	30.00	29.89	29.91	29.94	20.97	20.86	20.88	20.91
GPRS(GMSK, 1 TS)	30.00	29.79	29.86	29.86	20.97	20.76	20.83	20.83
GPRS(GMSK, 2 TS)	29.50	28.97	28.99	29.02	23.48	22.95	22.97	23.00
GPRS(GMSK, 3 TS)	27.50	27.03	27.09	27.03	23.24	22.77	22.83	22.77
GPRS(GMSK, 4 TS)	26.00	25.74	25.73	25.83	22.99	22.73	22.72	22.82
EDGE(GMSK, 1 TS)	27.00	26.43	26.37	26.70	17.97	17.40	17.34	17.67
EDGE(GMSK, 2 TS)	26.00	25.53	25.14	25.76	19.98	19.51	19.12	19.74
EDGE(GMSK, 3 TS)	24.00	23.10	23.58	23.66	19.74	18.84	19.32	19.40
EDGE(GMSK, 4 TS)	22.50	22.16	21.93	22.30	19.49	19.15	18.92	19.29

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 TS) - 9.03 dB
Frame-averaged power = Maximum burst averaged power (2 TS) - 6.02 dB
Frame-averaged power = Maximum burst averaged power (3 TS) - 4.26 dB
Frame-averaged power = Maximum burst averaged power (4 TS) - 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)		1852.4	1880	1907.6
RMC12.2K	23.00	22.99	22.84	22.81
HSDPA Sub 1	22.50	22.01	21.88	21.83
HSDPA Sub 2	22.00	21.45	21.51	21.39
HSDPA Sub 3	21.00	20.72	20.29	20.02
HSDPA Sub 4	20.50	20.39	19.99	20.02
HSUPA Sub 1	22.00	20.90	21.66	21.62
HSUPA Sub 2	22.00	21.86	21.80	21.73
HSUPA Sub 3	21.00	20.08	20.50	20.65
HSUPA Sub 4	22.50	22.04	21.88	21.84
HSUPA Sub 5	21.50	20.58	21.18	21.21
WCDMA Band 4	Burst-Averaged output Power (dBm)			
Tx Channel	Tune-up	1312	1413	1513
Frequency (MHz)		1712.4	1732.6	1752.6
RMC12.2K	23.00	22.30	22.47	22.77
HSDPA Sub 1	22.50	22.02	22.16	22.46
HSDPA Sub 2	22.50	21.60	21.84	22.02
HSDPA Sub 3	21.50	20.18	20.37	21.02
HSDPA Sub 4	21.50	20.60	20.78	21.02
HSUPA Sub 1	22.50	20.96	21.95	22.27
HSUPA Sub 2	22.50	21.92	22.05	22.38
HSUPA Sub 3	21.50	20.29	20.96	21.12
HSUPA Sub 4	22.50	22.02	22.19	22.47
HSUPA Sub 5	21.50	20.54	21.32	21.44
WCDMA Band 5	Burst-Averaged output Power (dBm)			
Tx Channel	Tune-up	4132	4182	4233
Frequency (MHz)		826.4	836.4	846.6
RMC12.2K	23.50	23.11	23.02	22.96
HSDPA Sub 1	22.50	22.12	22.10	22.00
HSDPA Sub 2	22.00	21.78	21.69	21.64
HSDPA Sub 3	20.50	20.31	20.48	20.46
HSDPA Sub 4	21.00	20.62	20.60	20.31
HSUPA Sub 1	22.00	20.74	21.86	21.84
HSUPA Sub 2	22.50	22.06	21.98	21.86
HSUPA Sub 3	21.00	20.18	20.81	20.69
HSUPA Sub 4	22.50	22.13	22.09	22.03
HSUPA Sub 5	21.50	20.71	21.48	21.23

7.3. LTE Conducted Power

Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		18607/1850.7	18900/1880	19193/1909.3
LTE Band 2	1.4MHz	QPSK	1	0	23.50	22.63	22.35	22.34
			1	2	23.50	22.74	22.45	22.48
			1	5	23.50	22.47	22.31	22.34
			3	0	23.00	22.74	22.44	22.42
			3	1	23.00	22.69	22.44	22.39
			3	2	23.00	22.71	22.44	22.39
			6	0	22.00	21.63	21.34	21.33
		16QAM	1	0	22.00	21.88	21.55	21.31
			1	2	22.00	21.93	21.70	21.38
			1	5	22.00	21.83	21.55	21.24
			3	0	22.00	21.87	21.66	21.58
			3	1	22.00	21.86	21.70	21.55
			3	2	22.00	21.87	21.68	21.61
			6	0	21.00	20.82	20.54	20.55
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		18615/1851.5	18900/1880	19185/1908.5
LTE Band 2	3MHz	QPSK	1	0	23.50	22.69	22.42	22.43
			1	7	23.50	22.97	22.75	22.75
			1	14	23.50	22.65	22.40	22.44
			8	0	22.00	21.68	21.39	21.43
			8	4	22.00	21.72	21.43	21.45
			8	7	22.00	21.64	21.41	21.38
			15	0	22.00	21.69	21.40	21.41
		16QAM	1	0	22.50	22.15	21.65	21.22
			1	7	22.50	22.42	21.95	21.50
			1	14	22.50	22.12	21.60	21.18
			8	0	21.00	20.71	20.46	20.24
			8	4	21.00	20.76	20.48	20.29
			8	7	21.00	20.70	20.42	20.37
			15	0	21.00	20.69	20.39	20.36
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		

			RB Size	RB Offset		18625/1852.5	18900/1880	19175/1907.5
LTE Band 2	5MHz	QPSK	1	0	23.50	22.55	22.34	22.34
			1	12	23.50	23.07	22.74	22.68
			1	24	23.50	22.50	22.32	22.27
			12	0	22.00	21.64	21.47	21.42
			12	6	22.00	21.75	21.49	21.40
			12	11	22.00	21.71	21.32	21.28
			25	0	22.00	21.68	21.44	21.26
		16QAM	1	0	23.00	22.19	21.67	21.41
			1	12	23.00	22.55	22.12	21.61
			1	24	23.00	22.15	21.70	21.26
			12	0	21.00	20.67	20.39	20.21
			12	6	21.00	20.73	20.39	20.34
			12	11	21.00	20.73	20.35	20.11
			25	0	21.00	20.63	20.47	20.01
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		18650/1855	18900/1880	19150/1905
LTE Band 2	10MHz	QPSK	1	0	23.50	22.71	22.45	22.49
			1	24	23.50	22.78	22.60	22.48
			1	49	23.50	22.59	22.43	22.32
			25	0	22.00	21.70	21.48	21.24
			25	12	22.00	21.71	21.45	21.20
			25	24	22.00	21.70	21.52	21.04
			50	0	22.00	21.71	21.49	21.23
		16QAM	1	0	22.00	21.86	21.29	21.50
			1	24	22.00	22.00	21.45	21.46
			1	49	22.00	21.76	21.28	21.31
			25	0	21.00	20.73	20.48	20.28
			25	12	21.00	20.71	20.49	20.19
			25	24	21.00	20.72	20.52	20.16
			50	0	21.00	20.71	20.44	20.07
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		18675/1857.5	18900/1880	19125/1902.5
LTE Band	15MHz	QPSK	1	0	23.50	22.69	22.34	22.25
			1	37	23.50	22.79	22.63	22.50

2			1	74	23.50	22.50	22.28	21.87
			36	0	22.00	21.65	21.26	21.07
			36	18	22.00	21.67	21.40	21.06
			36	37	22.00	21.63	21.38	20.94
			75	0	22.00	21.68	21.35	21.01
		16QAM	1	0	22.50	21.89	21.27	21.37
			1	37	22.50	22.12	21.49	21.72
			1	74	22.50	21.70	21.18	21.22
			36	0	21.00	20.69	20.18	20.11
			36	18	21.00	20.73	20.21	20.08
			36	37	21.00	20.69	20.03	20.03
			75	0	21.00	20.65	20.29	20.03
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		18700/1860	18900/1880	19100/1900
LTE Band 2	20MHz	QPSK	1	0	23.50	22.62	22.45	22.37
			1	49	23.50	22.74	22.57	22.53
			1	99	23.50	22.41	22.35	22.32
			50	0	22.00	21.60	21.52	21.53
			50	24	22.00	21.60	21.45	21.46
			50	49	22.00	21.53	21.50	21.45
			100	0	22.00	21.61	21.52	21.54
		16QAM	1	0	22.50	21.99	21.75	21.71
			1	49	22.50	22.12	21.86	21.83
			1	99	22.50	21.80	21.68	21.60
			50	0	21.00	20.69	20.50	20.70
			50	24	21.00	20.70	20.46	20.53
			50	49	21.00	20.61	20.50	20.47
			100	0	21.00	20.63	20.53	20.57

Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		19957/1710.7	20175/1732.5	20393/1754.3
LTE Band 4	1.4MHz	QPSK	1	0	22.50	21.39	21.61	21.60
			1	2	22.50	21.52	21.78	21.61
			1	5	22.50	22.14	21.66	21.36
			3	0	22.00	21.45	21.78	21.34
			3	1	22.00	21.52	21.81	21.36

			3	2	22.00	21.48	21.78	21.20
			6	0	21.00	20.45	20.72	20.56
		16QAM	1	0	21.50	20.48	20.91	20.09
			1	2	21.50	20.53	21.03	20.16
			1	5	21.50	20.48	20.89	19.96
			3	0	21.50	20.60	21.04	20.39
			3	1	21.50	20.61	21.05	20.36
			3	2	21.50	20.55	21.03	20.35
			6	0	20.00	19.61	19.94	19.50
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		19965/1711.5	20175/1732.5	20385/1753.5
LTE Band 4	3MHz	QPSK	1	0	22.50	21.47	21.76	21.95
			1	7	22.50	21.83	22.03	21.88
			1	14	22.50	21.63	21.80	21.28
			8	0	21.00	20.48	20.71	20.73
			8	4	21.00	20.49	20.75	20.66
			8	7	21.00	20.47	20.74	20.46
			15	0	21.00	20.44	20.75	20.43
		16QAM	1	0	21.50	20.55	20.66	20.95
			1	7	21.50	20.75	21.13	20.94
			1	14	21.50	20.51	20.65	20.46
			8	0	20.00	19.50	19.75	19.62
			8	4	20.00	19.50	19.83	19.59
			8	7	20.00	19.46	19.77	19.33
			15	0	20.00	19.40	19.88	19.43
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		19975/1712.5	20175/1732.5	20375/1752.5
LTE Band 4	5MHz	QPSK	1	0	22.50	21.32	21.55	21.99
			1	12	22.50	21.74	22.18	22.15
			1	24	22.50	21.36	21.67	21.25
			12	0	21.00	20.46	20.61	20.91
			12	6	21.00	20.45	20.77	20.80
			12	11	21.00	20.39	20.78	20.42
			25	0	21.00	20.44	20.69	20.65
		16QAM	1	0	21.50	20.74	20.95	20.89
			1	12	21.50	21.22	21.42	21.07

			1	24	21.50	20.74	21.00	20.28
			12	0	20.00	19.50	19.65	19.85
			12	6	20.00	19.49	19.83	19.76
			12	11	20.00	19.36	19.82	19.40
			25	0	20.00	19.40	19.80	19.60
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		20000/1715	20175/1732.5	20350/1750
LTE Band 4	10MHz	QPSK	1	0	22.50	21.44	21.67	21.84
			1	24	22.50	21.65	21.91	22.11
			1	49	22.50	21.51	21.74	21.39
			25	0	21.50	20.51	20.61	21.01
			25	12	21.50	20.50	20.78	20.91
			25	24	21.50	20.45	20.92	20.63
			50	0	21.00	20.50	20.76	20.82
		16QAM	1	0	21.50	20.20	21.05	20.82
			1	24	21.50	20.34	21.31	20.94
			1	49	21.50	20.23	21.14	20.34
			25	0	20.00	19.55	19.69	19.97
			25	12	20.00	19.53	19.83	19.86
			25	24	20.00	19.49	20.00	19.57
			50	0	20.00	19.53	19.81	19.84
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		20025/1717.5	20175/1732.5	20325/1747.5
LTE Band 4	15MHz	QPSK	1	0	22.50	21.46	21.50	21.76
			1	37	22.50	21.98	22.02	22.25
			1	74	22.50	21.52	21.70	21.43
			36	0	21.50	20.68	20.61	21.21
			36	18	21.50	20.70	20.78	21.16
			36	37	21.50	20.65	20.91	20.96
			75	0	21.50	20.65	20.78	21.07
		16QAM	1	0	21.50	20.50	20.69	21.10
			1	37	21.50	20.83	21.19	21.27
			1	74	21.50	20.71	20.83	20.50
			36	0	20.50	19.63	19.66	20.09
			36	18	20.50	19.64	19.78	20.03
			36	37	20.50	19.69	19.81	19.79

			75	0	20.00	19.66	19.85	19.98
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		20050/1720	20175/1732.5	20300/1745
LTE Band 4	20MHz	QPSK	1	0	22.50	21.32	21.48	21.67
			1	49	22.50	21.57	21.89	22.05
			1	99	22.50	21.55	21.77	21.49
			50	0	21.50	20.61	20.45	21.06
			50	24	21.50	20.57	20.76	20.88
			50	49	21.50	20.72	20.72	20.56
			100	0	21.00	20.63	20.63	20.85
		16QAM	1	0	21.50	20.49	20.77	20.92
			1	49	21.50	20.67	21.22	21.01
			1	99	21.50	20.83	20.98	20.39
			50	0	20.50	19.66	19.59	20.09
			50	24	20.50	19.68	19.88	19.87
			50	49	20.50	19.84	19.87	19.53
			100	0	20.00	19.63	19.70	19.84

Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		20407/824.7	20525/836.5	20643/848.3
LTE Band 5	1.4MHz	QPSK	1	0	23.00	21.25	22.20	22.02
			1	2	23.00	22.43	22.34	22.19
			1	5	23.00	22.27	22.21	22.04
			3	0	22.50	22.37	22.34	22.18
			3	1	22.50	22.32	22.33	22.20
			3	2	22.50	22.33	22.27	22.18
			6	0	21.50	21.22	21.19	21.07
		16QAM	1	0	22.00	21.18	21.50	21.32
			1	2	22.00	21.28	21.59	21.41
			1	5	22.00	21.26	21.50	21.34
			3	0	22.00	21.53	21.50	21.44
			3	1	22.00	21.50	21.54	21.44
			3	2	22.00	21.55	21.52	21.46
			6	0	20.50	20.48	20.44	20.33
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		

			RB Size	RB Offset		20415/825.5	20525/836.5	20635/847.5
LTE Band 5	3MHz	QPSK	1	0	23.00	22.29	22.32	22.10
			1	7	23.00	22.73	22.62	22.47
			1	14	23.00	22.46	22.22	22.20
			8	0	21.50	21.27	21.26	21.12
			8	4	21.50	21.29	21.24	21.19
			8	7	21.50	21.35	21.24	21.15
			15	0	21.50	21.30	21.26	21.14
		16QAM	1	0	22.50	21.29	21.79	21.36
			1	7	22.50	21.65	22.06	21.70
			1	14	22.50	21.31	21.70	21.41
			8	0	20.50	20.30	20.36	20.21
			8	4	20.50	20.31	20.36	20.24
			8	7	20.50	20.37	20.33	20.22
			15	0	20.50	20.39	20.37	20.19
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		20425/826.5	20525/836.5	20625/846.5
LTE Band 5	5MHz	QPSK	1	0	23.00	22.11	22.27	22.05
			1	12	23.00	22.57	22.57	22.48
			1	24	23.00	22.23	22.16	22.06
			12	0	21.50	21.33	21.25	21.19
			12	6	21.50	21.37	21.31	21.20
			12	11	21.50	21.38	21.19	21.13
			25	0	21.50	21.40	21.33	21.15
		16QAM	1	0	22.50	21.58	21.81	21.40
			1	12	22.50	22.03	22.29	21.82
			1	24	22.50	21.63	21.74	21.44
			12	0	20.50	20.35	20.35	20.17
			12	6	20.50	20.46	20.37	20.19
			12	11	20.50	20.47	20.28	20.13
			25	0	20.50	20.41	20.34	20.24
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		20450/829	20525/836.5	20600/844
LTE Band	10MHz	QPSK	1	0	23.00	22.24	22.26	22.25
			1	24	23.00	22.43	22.36	22.29

5			1	49	23.00	22.34	22.18	22.20
			25	0	22.00	21.38	21.33	21.24
			25	12	22.00	21.38	21.31	21.19
			25	24	22.00	21.55	21.21	21.12
			50	0	21.50	21.47	21.32	21.19
		16QAM	1	0	22.00	21.76	21.51	21.13
			1	24	22.00	21.99	21.52	21.22
			1	49	22.00	21.78	21.37	21.07
			25	0	21.00	20.42	20.38	20.27
			25	12	21.00	20.49	20.39	20.24
			25	24	21.00	20.62	20.26	20.16
			50	0	21.00	20.53	20.40	20.28

Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		20775/2502.5	21100/2535	21425/2567.5
LTE Band 7	5MHz	QPSK	1	0	24.50	24.90	24.47	23.60
			1	12	24.50	24.33	24.80	24.05
			1	24	24.50	24.86	24.42	23.59
			12	0	24.00	23.98	23.57	22.66
			12	6	24.00	24.00	23.61	22.72
			12	11	24.00	23.96	23.48	22.70
			25	0	24.00	23.92	23.43	22.68
		16QAM	1	0	24.50	24.18	23.63	22.88
			1	12	24.50	24.42	23.71	23.21
			1	24	24.50	24.14	23.29	22.85
			12	0	23.00	22.90	22.00	21.70
			12	6	23.00	22.92	22.10	21.72
			12	11	23.00	22.88	22.01	21.69
			25	0	23.00	22.88	22.05	21.65

Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		20800/2505	21100/2535	21400/2565
LTE Band 7	10MHz	QPSK	1	0	24.50	24.50	24.07	23.72
			1	24	24.50	24.50	24.11	23.82
			1	49	24.50	24.49	23.96	23.70
			25	0	24.00	23.50	23.09	22.70
			25	12	24.00	23.41	23.08	22.69

			25	24	24.00	23.38	23.03	22.74
			50	0	23.50	23.41	23.06	22.75
		16QAM	1	0	24.00	23.23	23.42	22.83
			1	24	24.00	23.26	23.52	22.90
			1	49	24.00	23.10	23.29	22.83
			25	0	22.50	22.49	22.14	21.69
			25	12	22.50	22.40	22.10	21.70
			25	24	22.50	22.35	22.06	21.74
			50	0	22.50	22.38	22.08	21.75
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		20825/2507.5	21100/2535	21375/2562.5
LTE Band 7	15MHz	QPSK	1	0	24.50	24.44	24.06	23.49
			1	37	24.50	24.33	24.31	23.95
			1	74	24.50	23.74	23.92	23.63
			36	0	24.00	23.71	23.14	22.81
			36	18	24.00	23.68	23.16	22.85
			36	37	24.00	23.62	23.06	22.82
			75	0	24.00	23.57	23.14	22.86
		16QAM	1	0	24.00	23.71	23.17	22.74
			1	37	24.00	23.88	23.53	23.03
			1	74	24.00	23.43	23.00	22.70
			36	0	23.00	22.56	22.15	21.71
			36	18	23.00	22.48	22.17	21.78
			36	37	23.00	22.40	22.04	21.73
			75	0	22.50	22.46	22.04	21.84
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		20850/2510	21100/2535	21350/2560
LTE Band 7	20MHz	QPSK	1	0	24.50	24.37	24.06	23.13
			1	49	24.50	24.06	24.23	23.83
			1	99	24.50	23.83	23.92	23.64
			50	0	23.50	23.47	23.04	22.71
			50	24	23.50	23.35	23.07	22.70
			50	49	23.50	23.27	22.88	22.79
			100	0	23.50	23.38	22.94	22.72
		16QAM	1	0	23.50	23.42	23.20	22.86
			1	49	23.50	23.49	23.35	23.07

			1	99	23.50	23.22	22.98	22.88
			50	0	22.50	22.39	22.10	21.71
			50	24	22.50	22.33	22.12	21.75
			50	49	22.50	22.22	21.95	21.81
			100	0	22.50	22.32	21.98	21.73

Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		23017/699.7	23095/707.5	23173/715.3
LTE Band 12	1.4MHz	QPSK	1	0	23.00	21.50	22.55	22.42
			1	2	23.00	22.65	22.66	22.53
			1	5	23.00	22.50	22.55	22.37
			3	0	23.00	22.52	22.61	22.48
			3	1	23.00	22.56	22.62	22.49
			3	2	23.00	22.56	22.59	22.46
			6	0	22.00	21.49	21.59	21.37
		16QAM	1	0	22.00	21.76	21.46	21.55
			1	2	22.00	21.83	21.56	21.65
			1	5	22.00	21.77	21.42	21.47
			3	0	22.00	21.82	21.73	21.62
			3	1	22.00	21.86	21.73	21.60
			3	2	22.00	21.87	21.79	21.61
			6	0	21.00	20.66	20.84	20.61

Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		23025/700.5	23095/707.5	23165/714.5
LTE Band 12	3MHz	QPSK	1	0	23.00	22.48	22.51	22.45
			1	7	23.00	22.85	22.84	22.76
			1	14	23.00	22.54	22.53	22.43
			8	0	22.00	21.49	21.53	21.47
			8	4	22.00	21.57	21.64	21.48
			8	7	22.00	21.56	21.55	21.43
			15	0	22.00	21.54	21.58	21.45
		16QAM	1	0	22.50	21.95	21.79	21.39
			1	7	22.50	22.37	22.08	21.60
			1	14	22.50	21.97	21.78	21.26
			8	0	21.00	20.55	20.59	20.43
			8	4	21.00	20.61	20.59	20.46

			8	7	21.00	20.60	20.55	20.42
			15	0	21.00	20.60	20.53	20.49
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		23035/701.5	23095/707.5	23155/713.5
LTE Band 12	5MHz	QPSK	1	0	23.00	22.34	22.35	22.43
			1	12	23.00	22.86	22.81	22.80
			1	24	23.00	22.44	22.37	22.30
			12	0	22.00	21.55	21.47	21.45
			12	6	22.00	21.58	21.62	21.50
			12	11	22.00	21.65	21.41	21.48
			25	0	22.00	21.61	21.47	21.55
		16QAM	1	0	22.50	21.72	21.77	21.98
			1	12	22.50	22.18	22.14	22.27
			1	24	22.50	21.81	21.74	21.80
			12	0	21.00	20.52	20.53	20.50
			12	6	21.00	20.58	20.65	20.54
			12	11	21.00	20.63	20.46	20.49
			25	0	21.00	20.67	20.45	20.52
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		23060/704	23095/707.5	23130/711
LTE Band 12	10MHz	QPSK	1	0	23.00	22.52	22.47	22.51
			1	24	23.00	22.71	22.63	22.57
			1	49	23.00	22.63	22.45	22.37
			25	0	22.00	21.48	21.40	21.75
			25	12	22.00	21.52	21.53	21.50
			25	24	22.00	21.66	21.36	21.56
			50	0	22.00	21.59	21.38	21.71
		16QAM	1	0	22.50	21.36	21.93	21.68
			1	24	22.50	21.54	22.05	21.82
			1	49	22.50	21.41	21.93	21.55
			25	0	21.00	20.51	20.46	20.81
			25	12	21.00	20.55	20.55	20.57
			25	24	21.00	20.69	20.41	20.58
			50	0	21.00	20.59	20.37	20.77

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

			RB Size	RB Offset		23205/779.5	23230/782	23255/784.5
LTE Band 13	5MHz	QPSK	1	0	23.50	22.48	22.51	22.57
			1	12	23.50	22.98	22.92	23.06
			1	24	23.50	22.59	22.59	22.67
			12	0	22.00	21.37	21.62	21.81
			12	6	22.00	21.64	21.72	21.76
			12	11	22.00	21.57	21.53	21.74
			25	0	22.00	21.55	21.61	21.81
		16QAM	1	0	23.00	21.89	21.80	22.17
			1	12	23.00	22.18	22.32	22.75
			1	24	23.00	21.94	21.95	22.24
			12	0	21.00	20.35	20.73	20.86
			12	6	21.00	20.64	20.79	20.85
			12	11	21.00	20.54	20.56	20.79
			25	0	21.00	20.59	20.62	20.80
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		N/A	23230/782	N/A
LTE Band 13	10MHz	QPSK	1	0	23.00	N/A	21.58	N/A
			1	24	23.00	N/A	22.81	N/A
			1	49	23.00	N/A	22.71	N/A
			25	0	22.00	N/A	21.46	N/A
			25	12	22.00	N/A	21.63	N/A
			25	24	22.00	N/A	21.60	N/A
			50	0	22.00	N/A	21.55	N/A
		16QAM	1	0	22.00	N/A	21.74	N/A
			1	24	22.00	N/A	21.93	N/A
			1	49	22.00	N/A	21.96	N/A
			25	0	21.00	N/A	20.52	N/A
			25	12	21.00	N/A	20.69	N/A
			25	24	21.00	N/A	20.65	N/A
			50	0	21.00	N/A	20.65	N/A

Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		23755/706.5	23790/710	23825/713.5
LTE Band 17	5MHz	QPSK	1	0	23.00	22.36	22.37	22.30
			1	12	23.00	22.82	22.79	22.60
			1	24	23.00	22.38	22.31	22.23

			12	0	22.00	21.40	21.57	21.43
			12	6	22.00	21.52	21.52	21.45
			12	11	22.00	21.42	21.39	21.46
			25	0	21.50	21.41	21.46	21.46
		16QAM	1	0	22.50	21.89	21.71	21.66
			1	12	22.50	22.34	22.09	22.01
			1	24	22.50	21.96	21.64	21.48
			12	0	21.00	20.37	20.53	20.46
			12	6	21.00	20.51	20.46	20.47
			12	11	21.00	20.42	20.30	20.46
			25	0	21.00	20.37	20.51	20.43
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		23780/709	23790/710	23800/711
LTE Band 17	10MHz	QPSK	1	0	23.00	22.43	22.48	22.44
			1	24	23.00	22.63	22.58	22.51
			1	49	23.00	22.44	22.33	22.29
			25	0	22.00	21.45	21.55	21.67
			25	12	22.00	21.44	21.46	21.47
			25	24	22.00	21.33	21.40	21.51
			50	0	22.00	21.42	21.50	21.62
		16QAM	1	0	22.00	21.57	21.31	21.77
			1	24	22.00	21.76	21.46	21.95
			1	49	22.00	21.58	21.18	21.65
			25	0	21.00	20.42	20.56	20.72
			25	12	21.00	20.47	20.50	20.52
			25	24	21.00	20.36	20.43	20.55
			50	0	21.00	20.45	20.50	20.66

Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)			
			RB Size	RB Offset		40315/2562.5	40790/2610	41027/2633.7	41265/2657.5
LTE Band 41	5MHz	QPSK	1	0	25.00	23.98	24.02	24.13	24.52
			1	12	25.00	24.28	24.37	24.40	24.95
			1	24	25.00	23.99	24.01	24.09	24.57
			12	0	23.50	23.06	23.11	23.13	23.43
			12	6	23.50	23.13	23.17	23.19	23.46
			12	11	23.50	23.05	23.08	23.14	23.39

			25	0	23.50	23.06	23.09	23.12	23.37
		16QAM	1	0	24.00	23.16	23.17	23.20	23.65
			1	12	24.00	23.44	23.48	23.50	23.93
			1	24	24.00	23.20	23.21	23.23	23.62
			12	0	22.50	22.03	22.09	22.12	22.35
			12	6	22.50	22.08	22.16	22.18	22.40
			12	11	22.50	22.01	22.08	22.14	22.30
			25	0	22.50	22.09	22.09	22.12	22.31
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)			
			RB Size	RB Offset		40340/2565	40790/2610	41015/2632.5	41240/2655
LTE Band 41	10MHz	QPSK	1	0	25.00	23.98	24.12	24.16	24.51
			1	24	25.00	24.15	24.32	24.39	24.76
			1	49	25.00	24.04	24.19	24.28	24.62
			25	0	23.50	23.16	23.18	23.20	23.47
			25	12	23.50	23.15	23.15	23.17	23.47
			25	24	23.50	23.16	23.16	23.19	23.43
			50	0	23.50	23.13	23.14	23.17	23.44
		16QAM	1	0	24.00	22.99	23.40	23.46	23.45
			1	24	24.00	23.18	23.61	23.70	23.55
			1	49	24.00	23.04	23.52	23.65	23.40
			25	0	22.50	22.16	22.18	22.30	22.49
			25	12	22.50	22.15	22.18	22.25	22.43
			25	24	22.50	22.15	22.20	22.31	22.37
			50	0	22.50	22.12	22.16	22.20	22.46
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)			
			RB Size	RB Offset		40365/2567.5	40790/2610	41003/2631.3	41215/2652.5
LTE Band 41	15MHz	QPSK	1	0	25.00	23.97	24.03	24.13	24.36
			1	37	25.00	24.28	24.42	24.53	24.83
			1	74	25.00	23.98	24.10	24.24	24.53
			36	0	24.00	23.18	23.32	23.40	23.56
			36	18	24.00	23.20	23.33	23.44	23.66
			36	37	24.00	23.27	23.27	23.30	23.59
			75	0	24.00	23.18	23.28	23.32	23.57
		16QAM	1	0	24.00	23.18	23.33	23.41	23.40
			1	37	24.00	23.52	23.68	23.70	23.66
			1	74	24.00	23.23	23.45	23.53	23.31

			36	0	23.00	22.04	22.17	22.21	22.46
			36	18	23.00	22.10	22.22	22.30	22.52
			36	37	23.00	22.08	22.18	22.21	22.48
			75	0	22.50	22.20	22.18	22.23	22.46
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)			
			RB Size	RB Offset		40390/2570	40790/2610	40990/2630	41190/2650
LTE Band 41	20MHz	QPSK	1	0	25.00	23.91	23.91	23.99	24.23
			1	49	25.00	24.20	24.25	24.31	24.68
			1	99	25.00	23.91	24.08	21.16	24.50
			50	0	23.50	23.07	23.18	23.20	23.33
			50	24	23.50	23.12	23.15	23.26	23.41
			50	49	23.50	23.16	23.05	23.24	23.33
			100	0	23.50	23.14	23.08	23.20	23.31
		16QAM	1	0	24.00	23.13	23.07	23.16	23.32
			1	49	24.00	23.49	23.39	23.18	23.57
			1	99	24.00	23.20	23.23	23.24	23.31
			50	0	22.50	22.14	22.11	22.20	22.37
			50	24	22.50	22.18	22.16	22.33	22.45
			50	49	22.50	22.17	22.04	22.21	22.38
			100	0	22.50	22.13	22.08	22.16	22.29

Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		131979/1710.7	132322/1745	132665/1779.3
LTE Band 66	1.4MHz	QPSK	1	0	23.00	21.38	21.92	22.21
			1	2	23.00	21.63	22.02	22.37
			1	5	23.00	21.47	22.01	22.25
			3	0	22.50	21.50	21.92	22.25
			3	1	22.50	21.50	21.94	22.27
			3	2	22.50	21.49	21.90	22.26
			6	0	21.50	20.47	21.01	21.18
		16QAM	1	0	21.50	20.59	20.63	21.16
			1	2	21.50	20.65	20.74	21.26
			1	5	21.50	20.61	20.61	21.13
			3	0	21.50	20.71	20.99	21.33
			3	1	21.50	20.71	20.98	21.32

			3	2	21.50	20.71	20.98	21.27
			6	0	20.50	19.65	20.12	20.35
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		131987/1711.5	132322/1745	132657/1778.5
LTE Band 66	3MHz	QPSK	1	0	23.00	21.45	21.92	22.17
			1	7	23.00	22.02	22.25	22.54
			1	14	23.00	21.58	22.03	22.24
			8	0	21.50	20.45	20.93	21.18
			8	4	21.50	20.47	21.00	21.19
			8	7	21.50	20.44	20.93	21.14
			15	0	21.50	20.42	20.94	21.10
		16QAM	1	0	21.50	20.80	20.95	21.03
			1	7	21.50	21.07	21.16	21.24
			1	14	21.50	20.80	20.96	20.89
			8	0	20.50	19.50	19.95	20.22
			8	4	20.50	19.54	19.95	20.21
			8	7	20.50	19.50	19.89	20.13
			15	0	20.50	19.49	19.85	20.23
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		131997/1712.5	132322/1745	132647/1777.5
LTE Band 66	5MHz	QPSK	1	0	23.00	21.39	21.85	22.08
			1	12	23.00	21.89	22.34	22.40
			1	24	23.00	21.49	21.98	22.09
			12	0	21.50	20.47	20.95	21.22
			12	6	21.50	20.49	20.97	21.19
			12	11	21.50	20.41	20.84	20.99
			25	0	21.50	20.45	20.91	21.13
		16QAM	1	0	22.00	20.64	21.00	21.61
			1	12	22.00	21.00	21.20	21.73
			1	24	22.00	20.62	20.92	21.39
			12	0	20.50	19.48	20.02	20.27
			12	6	20.50	19.48	19.99	20.23
			12	11	20.50	19.43	19.86	20.05
			25	0	20.50	19.48	19.88	20.18

Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		132022/1715	132322/1745	132622/1775
LTE Band 66	10MHz	QPSK	1	0	23.00	21.47	21.81	22.07
			1	24	23.00	21.69	22.03	22.24
			1	49	23.00	21.58	22.08	22.19
			25	0	21.50	20.55	21.04	21.19
			25	12	21.50	20.47	20.90	21.22
			25	24	21.50	20.46	20.81	21.01
			50	0	21.50	20.47	20.92	21.08
		16QAM	1	0	21.50	20.21	21.15	21.35
			1	24	21.50	20.36	21.17	21.44
			1	49	21.50	20.30	21.10	21.16
			25	0	20.50	19.59	20.07	20.20
			25	12	20.50	19.48	19.94	20.26
			25	24	20.50	19.54	19.80	20.06
			50	0	20.50	19.54	19.98	20.17

Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		132047/1717.5	132322/1745	132597/1772.5
LTE Band 66	15MHz	QPSK	1	0	23.00	21.31	21.85	21.90
			1	37	23.00	21.66	22.27	22.29
			1	74	23.00	21.53	22.06	22.09
			36	0	21.50	20.70	21.10	21.04
			36	18	21.50	20.67	21.13	21.19
			36	37	21.50	20.66	21.10	21.11
			75	0	21.50	20.69	21.16	21.10
		16QAM	1	0	22.00	20.67	21.03	21.12
			1	37	22.00	20.95	21.05	21.56
			1	74	22.00	20.95	20.87	21.11
			36	0	20.50	19.60	20.11	20.02
			36	18	20.50	19.62	20.09	20.19
			36	37	20.50	19.70	19.98	20.09
			75	0	20.50	19.63	20.07	20.16

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

			n					
			RB Size	RB Offset		132072/1720	132322/1745	132572/1770
LTE Band 66	20MHz	QPSK	1	0	23.00	21.35	21.73	21.90
			1	49	23.00	21.57	22.10	22.19
			1	99	23.00	21.66	22.09	22.07
			50	0	21.50	20.61	21.09	20.90
			50	24	21.50	20.59	20.93	21.14
			50	49	21.50	20.77	20.67	21.03
			100	0	21.00	20.63	20.86	21.00
		16QAM	1	0	22.00	20.52	21.02	20.90
			1	49	22.00	20.79	21.13	21.52
			1	99	22.00	20.90	20.95	21.14
			50	0	20.50	19.69	20.15	19.96
			50	24	20.50	19.69	19.99	20.20
			50	49	20.50	19.89	19.73	20.06
			100	0	20.50	19.72	19.96	20.12

Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		133147/665.5	133297/680.5	133447/695.5
LTE Band 71	5MHz	QPSK	1	0	24.00	23.39	23.43	23.35
			1	12	24.00	23.86	23.73	23.74
			1	24	24.00	23.47	23.40	23.42
			12	0	23.00	22.37	22.46	22.40
			12	6	23.00	22.57	22.60	22.54
			12	11	23.00	22.48	22.53	22.54
			25	0	23.00	22.46	22.54	22.49
		16QAM	1	0	23.50	22.60	22.74	22.83
			1	12	23.50	23.07	23.12	23.27
			1	24	23.50	22.78	22.68	22.87
			12	0	22.00	21.30	21.50	21.42
			12	6	22.00	21.50	21.59	21.52
			12	11	22.00	21.40	21.53	21.54
			25	0	22.00	21.43	21.48	21.51
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		133172/668	133297/680.5	133422/693

LTE Band 71	10MHz	QPSK	1	0	24.00	23.44	23.50	23.39
			1	24	24.00	23.64	23.63	23.58
			1	49	24.00	23.60	23.40	23.51
			25	0	23.00	22.51	22.53	22.61
			25	12	23.00	22.52	22.55	22.51
			25	24	23.00	22.61	22.57	22.57
			50	0	23.00	22.57	22.59	22.58
		16QAM	1	0	23.00	22.75	22.72	22.29
			1	24	23.00	22.97	22.77	22.41
			1	49	23.00	22.95	22.63	22.33
			25	0	22.00	21.48	21.56	21.61
			25	12	22.00	21.52	21.57	21.47
			25	24	22.00	21.61	21.59	21.60
			50	0	22.00	21.56	21.58	21.56
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		133197/670.5	133297/680.5	133397/690.5
LTE Band 71	15MHz	QPSK	1	0	24.00	23.35	23.50	23.40
			1	37	24.00	23.85	23.66	23.64
			1	74	24.00	23.47	23.38	23.42
			36	0	23.00	22.58	22.61	22.57
			36	18	23.00	22.63	22.59	22.53
			36	37	23.00	22.64	22.50	22.58
			75	0	23.00	22.63	22.59	22.56
		16QAM	1	0	23.50	22.46	22.90	22.58
			1	37	23.50	22.95	23.17	22.94
			1	74	23.50	22.61	22.77	22.60
			36	0	22.00	21.49	21.60	21.58
			36	18	22.00	21.51	21.56	21.54
			36	37	22.00	21.57	21.52	21.57
			75	0	22.00	21.61	21.51	21.55
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		133222/673	133322/683	133372/688
LTE Band 71	20MHz	QPSK	1	0	24.00	23.29	23.45	23.35
			1	49	24.00	23.64	23.63	23.54
			1	99	24.00	23.37	23.37	23.40
			50	0	23.00	22.47	22.47	22.48

			50	24	23.00	22.56	22.45	22.45
			50	49	23.00	22.56	22.30	22.42
			100	0	23.00	22.50	22.39	22.45
		16QAM	1	0	23.00	22.49	22.71	22.70
			1	49	23.00	22.87	22.81	22.85
			1	99	23.00	22.65	22.65	22.73
			50	0	22.00	21.43	21.51	21.51
			50	24	22.00	21.50	21.47	21.50
			50	49	22.00	21.56	21.33	21.47
			100	0	22.00	21.51	21.41	21.46

7.4. WLAN & Bluetooth Output Power

Mode	Channel	Frequency (MHz)	Tune-up	Output Power (dBm)
802.11b	1	2412	14.00	13.56
	6	2437	14.00	13.97
	11	2462	14.00	13.94
802.11g	1	2412	13.00	11.71
	6	2437	13.00	12.72
	11	2462	13.00	12.48
802.11n HT20	1	2412	13.00	12.11
	6	2437	13.00	12.78
	11	2462	13.00	12.58
802.11n HT40	3	2422	12.00	11.06
	6	2437	12.00	11.57
	9	2452	12.00	11.19

NOTE: Power measurement results of WLAN 2.4G.

Mode	Channel	Frequency (MHz)	Tune-up	Output Power (dBm)
802.11a	36	5180	11.00	9.51
	40	5200	11.00	9.18
	48	5240	11.00	10.56
802.11n HT20	36	5180	9.00	8.58
	40	5200	9.00	8.54
	48	5240	9.00	8.98
802.11n HT40	38	5190	8.00	7.41
	46	5230	8.00	7.76
802.11ac VHT20	36	5180	9.00	8.56
	40	5200	9.00	8.57

	48	5240	9.00	8.90
802.11ac VHT40	38	5190	8.00	7.16
	46	5230	8.00	7.73
802.11ac VHT80	42	5210	7.50	7.29

NOTE: Power measurement results of WLAN 5.2G.

Mode	Channel	Frequency (MHz)	Tune-up	Output Power (dBm)
802.11a	149	5745	10.00	8.72
	157	5785	10.00	9.81
	165	5825	10.00	9.29
802.11n HT20	149	5745	9.00	8.47
	157	5785	9.00	8.95
	165	5825	9.00	8.47
802.11n HT40	151	5755	8.00	7.78
	159	5795	8.00	7.18
802.11ac VHT20	149	5745	8.50	8.04
	157	5785	8.50	8.16
	165	5825	8.50	8.45
802.11ac VHT40	151	5755	8.00	7.73
	159	5795	8.00	7.71
802.11ac VHT80	155	5775	8.00	7.70

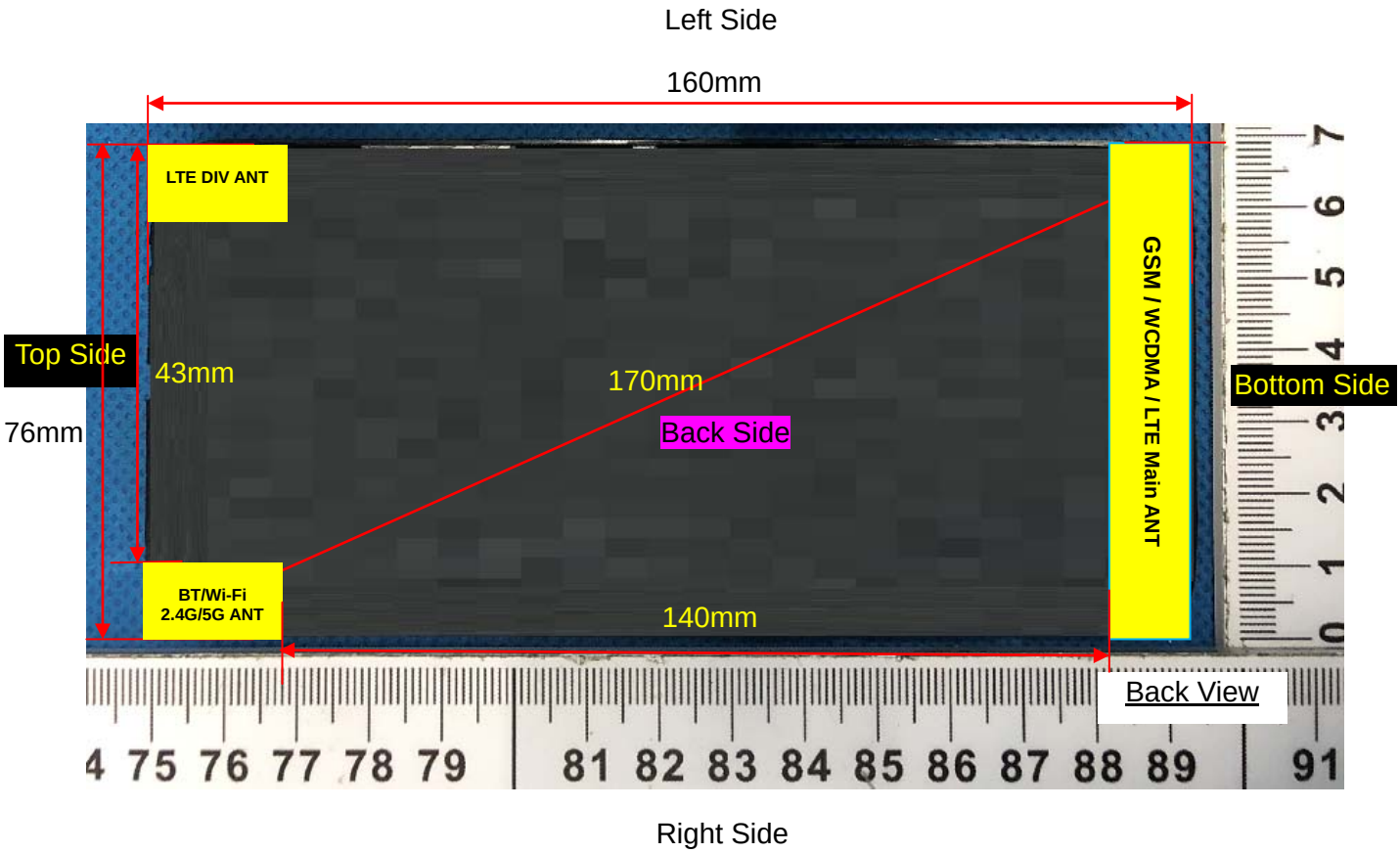
NOTE: Power measurement results of WLAN 5.8G.

	Output Power (dBm)				
	Channel	Tune-up	Data Rates		
			0CH	39CH	78CH
BR+EDR	1M	8.800	7.070	8.718	6.829
	2M	7.000	6.851	6.326	6.625
	3M	7.000	6.923	5.888	6.663

	Channel	Tune-up	Output Power (dBm)
BLE	0CH	5.000	4.502
	19CH	7.000	6.319
	39CH	6.000	5.562

NOTE: Power measurement results of Bluetooth.

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	≤ 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	Yes	Yes	Yes	Yes	NO	Yes
WLAN & Bluetooth	Yes	Yes	NO	Yes	Yes	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	8.80	7.59	5	2.480	2.39	3	Yes

NOTE: Standalone SAR test exclusion for Bluetooth.

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

[(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	Head	8.80	7.59	5	2.48	7.5	0.319
Bluetooth	Body-Worn	8.80	7.59	10	2.48	7.5	0.159
Bluetooth	Hotspot	8.80	7.59	10	2.48	7.5	0.159

NOTE: Estimated SAR calculation for Bluetooth

10. SAR Results

10.1. SAR measurement Result

10.1.1. SAR measurement Result of GSM850

Test Position of Head	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
Left Cheek	189/836.4	GPRS(GMSK 4TS)	0.090	0.069	-2.03	28.85	29.50	0.105	2021/11/07
Left Tilt 15 Degree	189/836.4	GPRS(GMSK 4TS)	0.054	0.040	0.55	28.85	29.50	0.063	2021/11/07
Right Cheek	189/836.4	GPRS(GMSK 4TS)	0.080	0.059	-2.88	28.85	29.50	0.093	2021/11/07
Right Tilt 15 Degree	189/836.4	GPRS(GMSK 4TS)	0.044	0.032	-3.95	28.85	29.50	0.051	2021/11/07

NOTE: Head SAR test results of GSM850.

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

Front Side	189/836.4	GPRS(GMSK 4TS)	0.132	0.077	-3.89	28.85	29.50	0.153	2021/11/07
Back Side	189/836.4	GPRS(GMSK 4TS)	0.175	0.105	-3.92	28.85	29.50	0.203	2021/11/07

NOTE: Body-Worn SAR test results of GSM850

Test Position of Hotspot with 10mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
Front Side	189/836.4	GPRS(GMSK 4TS)	0.132	0.077	-3.89	28.85	29.50	0.153	2021/11/07
Back Side	189/836.4	GPRS(GMSK 4TS)	0.175	0.105	-3.92	28.85	29.50	0.203	2021/11/07
Left Side	189/836.4	GPRS(GMSK 4TS)	0.060	0.034	2.85	28.85	29.50	0.070	2021/11/07
Right Side	189/836.4	GPRS(GMSK 4TS)	0.044	0.026	-2.39	28.85	29.50	0.051	2021/11/07
Bottom Side	189/836.4	GPRS(GMSK 4TS)	0.108	0.065	-1.58	28.85	29.50	0.125	2021/11/07

NOTE: Hotspot SAR test results of GSM850

10.1.2. SAR measurement Result of GSM1900

Test Position of Head	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
Left Cheek	661/1880	GPRS(GMSK 2TS)	0.095	0.063	1.18	28.99	29.50	0.107	2021/10/30
Left Tilt 15 Degree	661/1880	GPRS(GMSK 2TS)	0.055	0.035	-3.30	28.99	29.50	0.062	2021/10/30
Right Cheek	661/1880	GPRS(GMSK 2TS)	0.084	0.055	3.66	28.99	29.50	0.094	2021/10/30
Right Tilt 15 Degree	661/1880	GPRS(GMSK 2TS)	0.039	0.025	-4.15	28.99	29.50	0.044	2021/10/30

NOTE: Head SAR test results of GSM1900

Test Position of Body-Worn with 10mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
Front Side	661/1880	GPRS(GMSK 2TS)	0.156	0.082	2.97	28.99	29.50	0.175	2021/10/30
Back Side	661/1880	GPRS(GMSK	0.253	0.140	-0.77	28.99	29.50	0.285	2021/10/30

		2TS)							

NOTE: Body-Worn SAR test results of GSM1900

Test Position of Hotspot with 10mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
Front Side	661/1880	GPRS(GMSK 2TS)	0.156	0.082	2.97	28.99	29.50	0.175	2021/10/30
Back Side	661/1880	GPRS(GMSK 2TS)	0.253	0.140	-0.77	28.99	29.50	0.285	2021/10/30
Left Side	661/1880	GPRS(GMSK 2TS)	0.081	0.043	0.21	28.99	29.50	0.091	2021/10/30
Right Side	661/1880	GPRS(GMSK 2TS)	0.060	0.032	-2.89	28.99	29.50	0.067	2021/10/30
Bottom Side	661/1880	GPRS(GMSK 2TS)	0.162	0.089	0.20	28.99	29.50	0.182	2021/10/30

NOTE: Hotspot SAR test results of GSM1900

10.1.3. SAR measurement Result of WCDMA Band 2

Test Position of Head	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
Left Cheek	9400/1880	RMC12.2K	0.119	0.075	-0.60	22.84	23.00	0.123	2021/10/30
Left Tilt 15 Degree	9400/1880	RMC12.2K	0.068	0.041	2.00	22.84	23.00	0.071	2021/10/30
Right Cheek	9400/1880	RMC12.2K	0.106	0.065	1.01	22.84	23.00	0.110	2021/10/30
Right Tilt 15 Degree	9400/1880	RMC12.2K	0.056	0.034	-0.28	22.84	23.00	0.058	2021/10/30

NOTE: Head SAR test results of WCDMA Band 2

Test Position of Body-Worn with 10mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
Front Side	9400/1880	RMC12.2K	0.192	0.105	1.53	22.84	23.00	0.199	2021/10/30
Back Side	9400/1880	RMC12.2K	0.314	0.172	0.19	22.84	23.00	0.326	2021/10/30

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

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

10mm									
Front Side	9400/1880	RMC12.2K	0.192	0.105	1.53	22.84	23.00	0.199	2021/10/30
Back Side	9400/1880	RMC12.2K	0.314	0.172	0.19	22.84	23.00	0.326	2021/10/30
Left Side	9400/1880	RMC12.2K	0.108	0.056	-0.45	22.84	23.00	0.112	2021/10/30
Right Side	9400/1880	RMC12.2K	0.070	0.038	0.53	22.84	23.00	0.073	2021/10/30
Bottom Side	9400/1880	RMC12.2K	0.210	0.110	-3.85	22.84	23.00	0.218	2021/10/30

NOTE: Hotspot SAR test results of WCDMA Band 2

10.1.4. SAR measurement Result of WCDMA Band 4

Test Position of Head	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
Left Cheek	1413/1732.6	RMC12.2K	0.103	0.069	-0.92	22.47	23.00	0.116	2021/11/10
Left Tilt 15 Degree	1413/1732.6	RMC12.2K	0.056	0.036	-2.72	22.47	23.00	0.063	2021/11/10
Right Cheek	1413/1732.6	RMC12.2K	0.088	0.057	4.25	22.47	23.00	0.099	2021/11/10
Right Tilt 15 Degree	1413/1732.6	RMC12.2K	0.044	0.029	3.07	22.47	23.00	0.050	2021/11/10

NOTE: Head SAR test results of WCDMA Band 4

Test Position of Body-Worn with 10mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
Front Side	1413/1732.6	RMC12.2K	0.270	0.142	-3.35	22.47	23.00	0.305	2021/11/10
Back Side	1413/1732.6	RMC12.2K	0.407	0.226	-0.06	22.47	23.00	0.460	2021/11/10

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

Test Position of Hotspot with 10mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
Front Side	1413/1732.6	RMC12.2K	0.270	0.142	-3.35	22.47	23.00	0.305	2021/11/10
Back Side	1413/1732.6	RMC12.2K	0.407	0.226	-0.06	22.47	23.00	0.460	2021/11/10
Left Side	1413/1732.6	RMC12.2K	0.132	0.073	-2.40	22.47	23.00	0.149	2021/11/10
Right Side	1413/1732.6	RMC12.2K	0.082	0.045	0.80	22.47	23.00	0.093	2021/11/10
Bottom Side	1413/1732.6	RMC12.2K	0.252	0.136	1.11	22.47	23.00	0.285	2021/11/10

NOTE: Hotspot SAR test results of WCDMA Band 4

10.1.5. SAR measurement Result of WCDMA Band 5

Test Position of Head	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
Left Cheek	4182/836.4	RMC12.2K	0.048	0.037	0.29	23.02	23.50	0.054	2021/11/07
Left Tilt 15 Degree	4182/836.4	RMC12.2K	0.026	0.019	-1.44	23.02	23.50	0.029	2021/11/07
Right Cheek	4182/836.4	RMC12.2K	0.042	0.032	1.47	23.02	23.50	0.047	2021/11/07
Right Tilt 15 Degree	4182/836.4	RMC12.2K	0.019	0.017	-4.88	23.02	23.50	0.021	2021/11/07

NOTE: Head SAR test results of WCDMA Band 5

Test Position of Body-Worn with 10mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
Front Side	4182/836.4	RMC12.2K	0.078	0.046	-2.66	23.02	23.50	0.087	2021/11/07
Back Side	4182/836.4	RMC12.2K	0.095	0.059	0.07	23.02	23.50	0.106	2021/11/07

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

Test Position of Hotspot with 10mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
Front Side	4182/836.4	RMC12.2K	0.078	0.046	-2.66	23.02	23.50	0.087	2021/11/07
Back Side	4182/836.4	RMC12.2K	0.095	0.059	0.07	23.02	23.50	0.106	2021/11/07
Left Side	4182/836.4	RMC12.2K	0.039	0.024	-0.59	23.02	23.50	0.044	2021/11/07
Right Side	4182/836.4	RMC12.2K	0.026	0.016	0.40	23.02	23.50	0.029	2021/11/07
Bottom Side	4182/836.4	RMC12.2K	0.066	0.040	-1.69	23.02	23.50	0.074	2021/11/07

NOTE: Hotspot SAR test results of WCDMA Band 5

10.1.6. SAR measurement Result of LTE Band 2

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

Left Cheek	18900/1880	20M QPSK(1,49)	0.132	0.083	-2.60	22.57	23.50	0.164	2021/10/30
Left Tilt 15 Degree	18900/1880	20M QPSK(1,49)	0.072	0.043	0.22	22.57	23.50	0.089	2021/10/30
Right Cheek	18900/1880	20M QPSK(1,49)	0.119	0.073	-1.95	22.57	23.50	0.147	2021/10/30
Right Tilt 15 Degree	18900/1880	20M QPSK(1,49)	0.059	0.036	3.53	22.57	23.50	0.073	2021/10/30
50%RB									
Left Cheek	18900/1880	20M QPSK(50,0)	0.070	0.045	0.11	21.52	22.00	0.078	2021/10/30
Left Tilt 15 Degree	18900/1880	20M QPSK(50,0)	0.040	0.023	2.78	21.52	22.00	0.045	2021/10/30
Right Cheek	18900/1880	20M QPSK(50,0)	0.065	0.043	-2.93	21.52	22.00	0.073	2021/10/30
Right Tilt 15 Degree	18900/1880	20M QPSK(50,0)	0.031	0.021	2.59	21.52	22.00	0.035	2021/10/30

NOTE: Head SAR test results of LTE Band 2

Test Position of Body-Worn with 10mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
1RB									
Front Side	18900/1880	20M QPSK(1,49)	0.276	0.146	1.76	22.57	23.50	0.342	2021/10/30
Back Side	18900/1880	20M QPSK(1,49)	0.438	0.237	-0.59	22.57	23.50	0.543	2021/10/30
50%RB									
Front Side	18900/1880	20M QPSK(50,0)	0.161	0.084	-4.62	21.52	22.00	0.180	2021/10/30
Back Side	18900/1880	20M QPSK(50,0)	0.252	0.125	1.47	21.52	22.00	0.281	2021/10/30

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

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

of Hotspot with 10mm	/Freq.		1g	10g	(±5%)	(dBm)	(dBm)	1g (W/Kg)	
1RB									
Front Side	18900/1880	20M QPSK(1,49)	0.276	0.146	1.76	22.57	23.50	0.342	2021/10/30
Back Side	18900/1880	20M QPSK(1,49)	0.438	0.237	-0.59	22.57	23.50	0.543	2021/10/30
Left Side	18900/1880	20M QPSK(1,49)	0.144	0.077	1.69	22.57	23.50	0.178	2021/10/30
Right Side	18900/1880	20M QPSK(1,49)	0.088	0.045	0.45	22.57	23.50	0.109	2021/10/30
Bottom Side	18900/1880	20M QPSK(1,49)	0.276	0.148	0.71	22.57	23.50	0.342	2021/10/30
50%RB									
Front Side	18900/1880	20M QPSK(50,0)	0.161	0.084	-4.62	21.52	22.00	0.180	2021/10/30
Back Side	18900/1880	20M QPSK(50,0)	0.252	0.125	1.47	21.52	22.00	0.281	2021/10/30
Left Side	18900/1880	20M QPSK(50,0)	0.083	0.042	0.33	21.52	22.00	0.093	2021/10/30
Right Side	18900/1880	20M QPSK(50,0)	0.049	0.025	4.14	21.52	22.00	0.055	2021/10/30
Bottom Side	18900/1880	20M QPSK(50,0)	0.145	0.082	-3.94	21.52	22.00	0.162	2021/10/30

NOTE: Hotspot SAR test results of LTE Band 2

10.1.7. SAR measurement Result of LTE Band 4

Test Position of Head	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
1RB									
Left Cheek	20175/1732.5	20M QPSK(1,49)	0.121	0.080	-3.30	21.89	22.50	0.139	2021/11/10
Left Tilt 15 Degree	20175/1732.5	20M QPSK(1,49)	0.067	0.044	1.58	21.89	22.50	0.077	2021/11/10
Right	20175/1732.5	20M	0.105	0.067	1.66	21.89	22.50	0.121	2021/11/10

Cheek		QPSK(1,49)							
Right Tilt 15 Degree	20175/1732.5	20M QPSK(1,49)	0.057	0.037	-1.48	21.89	22.50	0.066	2021/11/10
50%RB									
Left Cheek	20175/1732.5	20M QPSK(50,0)	0.061	0.044	-0.94	20.45	21.50	0.078	2021/11/10
Left Tilt 15 Degree	20175/1732.5	20M QPSK(50,0)	0.036	0.025	1.39	20.45	21.50	0.046	2021/11/10
Right Cheek	20175/1732.5	20M QPSK(50,0)	0.054	0.040	3.83	20.45	21.50	0.069	2021/11/10
Right Tilt 15 Degree	20175/1732.5	20M QPSK(50,0)	0.030	0.020	2.42	20.45	21.50	0.038	2021/11/10

NOTE: Head SAR test results of LTE Band 4

Test Position of Body-Worn with 10mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
1RB									
Front Side	20175/1732.5	20M QPSK(1,49)	0.372	0.195	2.72	21.89	22.50	0.428	2021/11/10
Back Side	20175/1732.5	20M QPSK(1,49)	0.594	0.324	-0.26	21.89	22.50	0.684	2021/11/10
50%RB									
Front Side	20175/1732.5	20M QPSK(50,0)	0.195	0.104	-4.89	20.45	21.50	0.248	2021/11/10
Back Side	20175/1732.5	20M QPSK(50,0)	0.316	0.187	-0.76	20.45	21.50	0.402	2021/11/10

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

Test Position of Hotspot with 10mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
1RB									
Front	20175/1732.5	20M	0.372	0.195	2.72	21.89	22.50	0.428	2021/11/10

Side		QPSK(1,49)							
Back Side	20175/1732.5	20M QPSK(1,49)	0.594	0.324	-0.26	21.89	22.50	0.684	2021/11/10
Left Side	20175/1732.5	20M QPSK(1,49)	0.183	0.096	0.62	21.89	22.50	0.211	2021/11/10
Right Side	20175/1732.5	20M QPSK(1,49)	0.126	0.067	-0.99	21.89	22.50	0.145	2021/11/10
Bottom Side	20175/1732.5	20M QPSK(1,49)	0.360	0.187	0.58	21.89	22.50	0.414	2021/11/10
50%RB									
Front Side	20175/1732.5	20M QPSK(50,0)	0.195	0.104	-4.89	20.45	21.50	0.248	2021/11/10
Back Side	20175/1732.5	20M QPSK(50,0)	0.316	0.187	-0.76	20.45	21.50	0.402	2021/11/10
Left Side	20175/1732.5	20M QPSK(50,0)	0.092	0.050	4.60	20.45	21.50	0.117	2021/11/10
Right Side	20175/1732.5	20M QPSK(50,0)	0.065	0.037	3.85	20.45	21.50	0.083	2021/11/10
Bottom Side	20175/1732.5	20M QPSK(50,0)	0.205	0.097	-3.55	20.45	21.50	0.261	2021/11/10

NOTE: Hotspot SAR test results of LTE Band 4

10.1.8. SAR measurement Result of LTE Band 5

Test Position of Head	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
1RB									
Left Cheek	20525/836.5	10M QPSK(1,24)	0.051	0.040	-0.42	22.36	23.00	0.059	2021/11/07
Left Tilt 15 Degree	20525/836.5	10M QPSK(1,24)	0.028	0.021	-3.84	22.36	23.00	0.032	2021/11/07
Right Cheek	20525/836.5	10M QPSK(1,24)	0.045	0.034	0.33	22.36	23.00	0.052	2021/11/07
Right Tilt 15 Degree	20525/836.5	10M QPSK(1,24)	0.023	0.018	-2.97	22.36	23.00	0.027	2021/11/07
50%RB									
Left	20525/836.5	10M	0.028	0.022	-1.16	21.21	22.00	0.034	2021/11/07

Cheek		QPSK(25,24)							
Left Tilt 15 Degree	20525/836.5	10M QPSK(25,24)	0.016	0.011	-4.88	21.21	22.00	0.019	2021/11/07
Right Cheek	20525/836.5	10M QPSK(25,24)	0.024	0.017	4.44	21.21	22.00	0.029	2021/11/07
Right Tilt 15 Degree	20525/836.5	10M QPSK(25,24)	0.013	0.009	-0.34	21.21	22.00	0.016	2021/11/07

NOTE: Head SAR test results of LTE Band 5

Test Position of Body-Worn with 10mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
1RB									
Front Side	20525/836.5	10M QPSK(1,24)	0.066	0.048	-0.70	22.36	23.00	0.076	2021/11/07
Back Side	20525/836.5	10M QPSK(1,24)	0.101	0.074	-1.68	22.36	23.00	0.117	2021/11/07
50%RB									
Front Side	20525/836.5	10M QPSK(25,24)	0.037	0.028	3.09	21.21	22.00	0.044	2021/11/07
Back Side	20525/836.5	10M QPSK(25,24)	0.055	0.040	-2.13	21.21	22.00	0.066	2021/11/07

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

Test Position of Hotspot with 10mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
1RB									
Front Side	20525/836.5	10M QPSK(1,24)	0.066	0.048	-0.70	22.36	23.00	0.076	2021/11/07
Back Side	20525/836.5	10M QPSK(1,24)	0.101	0.074	-1.68	22.36	23.00	0.117	2021/11/07
Left Side	20525/836.5	10M QPSK(1,24)	0.039	0.027	-1.35	22.36	23.00	0.045	2021/11/07
Right	20525/836.5	10M	0.028	0.019	-1.48	22.36	23.00	0.032	2021/11/07

Side		QPSK(1,24)							
Bottom Side	20525/836.5	10M QPSK(1,24)	0.066	0.048	-2.40	22.36	23.00	0.076	2021/11/07
50%RB									
Front Side	20525/836.5	10M QPSK(25,24)	0.037	0.028	3.09	21.21	22.00	0.044	2021/11/07
Back Side	20525/836.5	10M QPSK(25,24)	0.055	0.040	-2.13	21.21	22.00	0.066	2021/11/07
Left Side	20525/836.5	10M QPSK(25,24)	0.020	0.014	-1.65	21.21	22.00	0.024	2021/11/07
Right Side	20525/836.5	10M QPSK(25,24)	0.015	0.010	1.00	21.21	22.00	0.018	2021/11/07
Bottom Side	20525/836.5	10M QPSK(25,24)	0.039	0.027	-3.15	21.21	22.00	0.047	2021/11/07

NOTE: Hotspot SAR test results of LTE Band 5

10.1.9. SAR measurement Result of LTE Band 7

Test Position of Head	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
1RB									
Left Cheek	21100/2535	20M QPSK(1,0)	0.117	0.068	0.26	24.06	24.50	0.129	2021/10/29
Left Tilt 15 Degree	21100/2535	20M QPSK(1,0)	0.069	0.039	-1.36	24.06	24.50	0.076	2021/10/29
Right Cheek	21100/2535	20M QPSK(1,0)	0.109	0.060	0.95	24.06	24.50	0.121	2021/10/29
Right Tilt 15 Degree	21100/2535	20M QPSK(1,0)	0.056	0.031	-3.88	24.06	24.50	0.062	2021/10/29
50%RB									
Left Cheek	21100/2535	20M QPSK(50,0)	0.062	0.037	4.49	23.04	23.50	0.069	2021/10/29
Left Tilt 15 Degree	21100/2535	20M QPSK(50,0)	0.037	0.020	-0.53	23.04	23.50	0.041	2021/10/29
Right Cheek	21100/2535	20M QPSK(50,0)	0.060	0.035	-4.69	23.04	23.50	0.067	2021/10/29

Right Tilt 15 Degree	21100/2535	20M QPSK(50,0)	0.032	0.016	-2.41	23.04	23.50	0.036	2021/10/29

NOTE: Head SAR test results of LTE Band 7

Test Position of Body-Worn with 10mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
1RB									
Front Side	21100/2535	20M QPSK(1,0)	0.675	0.322	0.71	24.06	24.50	0.747	2021/10/29
Back Side	21100/2535	20M QPSK(1,0)	1.025	0.632	0.82	24.06	24.50	1.134	2021/10/29
Back Side Repeated	21100/2535	20M QPSK(1,0)	1.018	0.625	0.35	24.06	24.50	1.127	2021/10/29
Back Side	20850/2510	20M QPSK(1,0)	0.986	0.543	-2.73	24.37	24.50	1.016	2021/10/29
Back Side	21350/2560	20M QPSK(1,0)	0.855	0.512	-3.29	23.13	24.50	1.172	2021/10/29
50%RB									
Front Side	21100/2535	20M QPSK(50,0)	0.357	0.186	-3.95	23.04	23.50	0.397	2021/10/29
Back Side	21100/2535	20M QPSK(50,0)	0.611	0.324	2.43	23.04	23.50	0.679	2021/10/29
100%RB									
Back Side	21100/2535	20M QPSK(100,0)	0.550	0.310	0.52	22.94	23.50	0.626	2021/10/29

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

Test Position of Hotspot with 10mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
1RB									
Front Side	21100/2535	20M QPSK(1,0)	0.675	0.322	0.71	24.06	24.50	0.747	2021/10/29
Back Side	21100/2535	20M QPSK(1,0)	1.025	0.632	0.82	24.06	24.50	1.134	2021/10/29

BackSide Repeated	21100/2535	20M QPSK(1,0)	1.018	0.625	0.35	24.06	24.50	1.127	2021/10/29
Left Side	21100/2535	20M QPSK(1,0)	0.411	0.192	-3.37	24.06	24.50	0.455	2021/10/29
Right Side	21100/2535	20M QPSK(1,0)	0.272	0.128	2.58	24.06	24.50	0.301	2021/10/29
Bottom Side	21100/2535	20M QPSK(1,0)	0.536	0.253	2.92	24.06	24.50	0.593	2021/10/29
Back Side	20850/2510	20M QPSK(1,0)	0.986	0.543	-2.73	24.37	24.50	1.016	2021/10/29
Back Side	21350/2560	20M QPSK(1,0)	0.855	0.512	-3.29	23.13	24.50	1.172	2021/10/29
50%RB									
Front Side	21100/2535	20M QPSK(50,0)	0.357	0.186	-3.95	23.04	23.50	0.397	2021/10/29
Back Side	21100/2535	20M QPSK(50,0)	0.611	0.324	2.43	23.04	23.50	0.679	2021/10/29
Left Side	21100/2535	20M QPSK(50,0)	0.233	0.106	-3.29	23.04	23.50	0.259	2021/10/29
Right Side	21100/2535	20M QPSK(50,0)	0.144	0.073	-2.47	23.04	23.50	0.160	2021/10/29
Bottom Side	21100/2535	20M QPSK(50,0)	0.320	0.132	3.76	23.04	23.50	0.356	2021/10/29
100%RB									
Back Side	21100/2535	20M QPSK(100,0)	0.550	0.310	0.52	22.94	23.50	0.626	2021/10/29

NOTE: Hotspot SAR test results of LTE Band 7

10.1.10. SAR measurement Result of LTE Band 12

Test Position of Head	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
1RB									
Left Cheek	23095/707.5	10M QPSK(1,24)	0.026	0.023	-3.26	22.63	23.00	0.028	2021/11/06
Left Tilt 15 Degree	23095/707.5	10M QPSK(1,24)	0.015	0.013	1.67	22.63	23.00	0.016	2021/11/06
Right	23095/707.5	10M	0.023	0.019	-2.57	22.63	23.00	0.025	2021/11/06

Cheek		QPSK(1,24)							
Right Tilt 15 Degree	23095/707.5	10M QPSK(1,24)	0.011	0.009	2.68	22.63	23.00	0.012	2021/11/06
50%RB									
Left Cheek	23095/707.5	10M QPSK(25,0)	0.015	0.013	3.80	21.40	22.00	0.017	2021/11/06
Left Tilt 15 Degree	23095/707.5	10M QPSK(25,0)	0.008	0.007	4.28	21.40	22.00	0.009	2021/11/06
Right Cheek	23095/707.5	10M QPSK(25,0)	0.014	0.010	-3.92	21.40	22.00	0.016	2021/11/06
Right Tilt 15 Degree	23095/707.5	10M QPSK(25,0)	0.006	0.005	3.76	21.40	22.00	0.007	2021/11/06

NOTE: Head SAR test results of LTE Band 12

Test Position of Body-Worn with 10mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
1RB									
Front Side	23095/707.5	10M QPSK(1,24)	0.054	0.039	1.06	22.63	23.00	0.059	2021/11/06
Back Side	23095/707.5	10M QPSK(1,24)	0.063	0.047	0.13	22.63	23.00	0.069	2021/11/06
50%RB									
Front Side	23095/707.5	10M QPSK(25,0)	0.030	0.022	1.37	21.40	22.00	0.034	2021/11/06
Back Side	23095/707.5	10M QPSK(25,0)	0.036	0.026	3.17	21.40	22.00	0.041	2021/11/06

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

Test Position of Hotspot with 10mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
1RB									
Front	23095/707.5	10M	0.054	0.039	1.06	22.63	23.00	0.059	2021/11/06

Side		QPSK(1,24)							
Back Side	23095/707.5	10M QPSK(1,24)	0.063	0.047	0.13	22.63	23.00	0.069	2021/11/06
Left Side	23095/707.5	10M QPSK(1,24)	0.024	0.017	1.68	22.63	23.00	0.026	2021/11/06
Right Side	23095/707.5	10M QPSK(1,24)	0.016	0.014	0.76	22.63	23.00	0.017	2021/11/06
Bottom Side	23095/707.5	10M QPSK(1,24)	0.060	0.044	1.17	22.63	23.00	0.065	2021/11/06
50%RB									
Front Side	23095/707.5	10M QPSK(25,0)	0.030	0.022	1.37	21.40	22.00	0.034	2021/11/06
Back Side	23095/707.5	10M QPSK(25,0)	0.036	0.026	3.17	21.40	22.00	0.041	2021/11/06
Left Side	23095/707.5	10M QPSK(25,0)	0.012	0.010	3.47	21.40	22.00	0.014	2021/11/06
Right Side	23095/707.5	10M QPSK(25,0)	0.008	0.008	3.06	21.40	22.00	0.009	2021/11/06
Bottom Side	23095/707.5	10M QPSK(25,0)	0.031	0.023	0.25	21.40	22.00	0.036	2021/11/06

NOTE: Hotspot SAR test results of LTE Band 12

10.1.11. SAR measurement Result of LTE Band 13

Test Position of Head	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
1RB									
Left Cheek	23230/782	10M QPSK(1,24)	0.055	0.037	2.37	22.81	23.00	0.057	2021/11/06
Left Tilt 15 Degree	23230/782	10M QPSK(1,24)	0.032	0.022	-3.42	22.81	23.00	0.033	2021/11/06
Right Cheek	23230/782	10M QPSK(1,24)	0.048	0.031	3.29	22.81	23.00	0.050	2021/11/06
Right Tilt 15 Degree	23230/782	10M QPSK(1,24)	0.024	0.016	2.53	22.81	23.00	0.025	2021/11/06
50%RB									
Left	23230/782	10M	0.033	0.019	-2.55	21.63	22.00	0.036	2021/11/06

Cheek		QPSK(25,12)							
Left Tilt 15 Degree	23230/782	10M QPSK(25,12)	0.019	0.013	-1.66	21.63	22.00	0.021	2021/11/06
Right Cheek	23230/782	10M QPSK(25,12)	0.024	0.016	-1.67	21.63	22.00	0.026	2021/11/06
Right Tilt 15 Degree	23230/782	10M QPSK(25,12)	0.014	0.009	3.54	21.63	22.00	0.015	2021/11/06

NOTE: Head SAR test results of LTE Band 13

Test Position of Body-Worn with 10mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
1RB									
Front Side	23230/782	10M QPSK(1,24)	0.024	0.014	2.42	22.81	23.00	0.025	2021/11/06
Back Side	23230/782	10M QPSK(1,24)	0.037	0.022	-1.58	22.81	23.00	0.039	2021/11/06
50%RB									
Front Side	23230/782	10M QPSK(25,12)	0.014	0.012	3.48	21.63	22.00	0.015	2021/11/06
Back Side	23230/782	10M QPSK(25,12)	0.022	0.012	4.26	21.63	22.00	0.024	2021/11/06

NOTE: Body-Worn SAR test results of LTE Band 13

Test Position of Hotspot with 10mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
1RB									
Front Side	23230/782	10M QPSK(1,24)	0.024	0.014	2.42	22.81	23.00	0.025	2021/11/06
Back Side	23230/782	10M QPSK(1,24)	0.037	0.022	-1.58	22.81	23.00	0.039	2021/11/06
Left Side	23230/782	10M QPSK(1,24)	0.023	0.013	1.11	22.81	23.00	0.024	2021/11/06
Right	23230/782	10M	0.018	0.010	-0.89	22.81	23.00	0.019	2021/11/06

Side		QPSK(1,24)							
Bottom Side	23230/782	10M QPSK(1,24)	0.030	0.018	-3.51	22.81	23.00	0.031	2021/11/06
50%RB									
Front Side	23230/782	10M QPSK(25,12)	0.014	0.012	3.48	21.63	22.00	0.015	2021/11/06
Back Side	23230/782	10M QPSK(25,12)	0.022	0.012	4.26	21.63	22.00	0.024	2021/11/06
Left Side	23230/782	10M QPSK(25,12)	0.012	0.010	3.57	21.63	22.00	0.013	2021/11/06
Right Side	23230/782	10M QPSK(25,12)	0.011	0.010	0.35	21.63	22.00	0.012	2021/11/06
Bottom Side	23230/782	10M QPSK(25,12)	0.015	0.013	3.48	21.63	22.00	0.016	2021/11/06

NOTE: Hotspot SAR test results of LTE Band 13

10.1.12. SAR measurement Result of LTE Band 17

Test Position of Head	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
1RB									
Left Cheek	23790/710	10M QPSK(1,24)	0.028	0.024	-2.07	22.58	23.00	0.031	2021/11/06
Left Tilt 15 Degree	23790/710	10M QPSK(1,24)	0.015	0.013	2.89	22.58	23.00	0.017	2021/11/06
Right Cheek	23790/710	10M QPSK(1,24)	0.026	0.021	-2.08	22.58	23.00	0.029	2021/11/06
Right Tilt 15 Degree	23790/710	10M QPSK(1,24)	0.013	0.011	2.34	22.58	23.00	0.014	2021/11/06
50%RB									
Left Cheek	23790/710	10M QPSK(25,0)	0.016	0.012	-2.33	21.55	22.00	0.018	2021/11/06
Left Tilt 15 Degree	23790/710	10M QPSK(25,0)	0.009	0.008	3.60	21.55	22.00	0.010	2021/11/06
Right Cheek	23790/710	10M QPSK(25,0)	0.015	0.011	-1.06	21.55	22.00	0.017	2021/11/06

Right Tilt 15 Degree	23790/710	10M QPSK(25,0)	0.007	0.006	4.38	21.55	22.00	0.008	2021/11/06

NOTE: Head SAR test results of LTE Band17

Test Position of Body-Worn with 10mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
1RB									
Front Side	23790/710	10M QPSK(1,24)	0.048	0.040	3.16	22.58	23.00	0.053	2021/11/06
Back Side	23790/710	10M QPSK(1,24)	0.060	0.050	-1.04	22.58	23.00	0.066	2021/11/06
50%RB									
Front Side	23790/710	10M QPSK(25,0)	0.029	0.023	-2.28	21.55	22.00	0.032	2021/11/06
Back Side	23790/710	10M QPSK(25,0)	0.034	0.027	4.01	21.55	22.00	0.038	2021/11/06

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

Test Position of Hotspot with 10mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
1RB									
Front Side	23790/710	10M QPSK(1,24)	0.048	0.040	3.16	22.58	23.00	0.053	2021/11/06
Back Side	23790/710	10M QPSK(1,24)	0.060	0.050	-1.04	22.58	23.00	0.066	2021/11/06
Left Side	23790/710	10M QPSK(1,24)	0.033	0.028	3.19	22.58	23.00	0.036	2021/11/06
Right Side	23790/710	10M QPSK(1,24)	0.022	0.018	2.49	22.58	23.00	0.024	2021/11/06
Bottom Side	23790/710	10M QPSK(1,24)	0.036	0.029	-0.02	22.58	23.00	0.040	2021/11/06
50%RB									
Front Side	23790/710	10M QPSK(25,0)	0.029	0.023	-2.28	21.55	22.00	0.032	2021/11/06

Back Side	23790/710	10M QPSK(25,0)	0.034	0.027	4.01	21.55	22.00	0.038	2021/11/06
Left Side	23790/710	10M QPSK(25,0)	0.018	0.015	-3.40	21.55	22.00	0.020	2021/11/06
Right Side	23790/710	10M QPSK(25,0)	0.011	0.010	-4.67	21.55	22.00	0.012	2021/11/06
Bottom Side	23790/710	10M QPSK(25,0)	0.021	0.016	2.48	21.55	22.00	0.023	2021/11/06

NOTE: Hotspot SAR test results of LTE Band 17

10.1.13. SAR measurement Result of LTE Band 41

Test Position of Head	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
1RB									
Left Cheek	40790/2610	20M QPSK(1,49)	0.083	0.048	-0.57	24.25	25.00	0.099	2021/10/29
Left Tilt 15 Degree	40790/2610	20M QPSK(1,49)	0.049	0.027	-1.57	24.25	25.00	0.058	2021/10/29
Right Cheek	40790/2610	20M QPSK(1,49)	0.074	0.042	3.06	24.25	25.00	0.088	2021/10/29
Right Tilt 15 Degree	40790/2610	20M QPSK(1,49)	0.035	0.020	0.18	24.25	25.00	0.042	2021/10/29
50%RB									
Left Cheek	40790/2610	20M QPSK(50,24)	0.049	0.025	3.28	23.15	23.50	0.053	2021/10/29
Left Tilt 15 Degree	40790/2610	20M QPSK(50,24)	0.025	0.014	1.60	23.15	23.50	0.027	2021/10/29
Right Cheek	40790/2610	20M QPSK(50,24)	0.038	0.025	-2.39	23.15	23.50	0.041	2021/10/29
Right Tilt 15 Degree	40790/2610	20M QPSK(50,24)	0.018	0.011	-2.87	23.15	23.50	0.020	2021/10/29

NOTE: Head SAR test results of LTE Band 41

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

Position of Body-Worn with 10mm	/Freq.		(W/kg)		Drift (±5%)	power (dBm)	power (dBm)	SAR 1g (W/Kg)	
			1g	10g					
1RB									
Front Side	40790/2610	20M QPSK(1,49)	0.552	0.251	-2.53	24.25	25.00	0.656	2021/10/29
Back Side	40790/2610	20M QPSK(1,49)	0.882	0.423	-0.77	24.25	25.00	1.048	2021/10/29
Back Side Repeated	40790/2610	20M QPSK(1,49)	0.876	0.418	2.34	24.25	25.00	1.041	2021/10/29
Back Side	40390/2570	20M QPSK(1,49)	0.774	0.367	1.32	24.20	25.00	0.931	2021/10/29
Back Side	41190/2650	20M QPSK(1,49)	0.736	0.353	1.31	24.68	25.00	0.792	2021/10/29
Back Side	40990/2630	20M QPSK(1,49)	0.783	0.375	0.24	24.31	25.00	0.918	2021/12/28
50%RB									
Front Side	40790/2610	20M QPSK(50,24)	0.328	0.132	4.51	23.15	23.50	0.356	2021/10/29
Back Side	40790/2610	20M QPSK(50,24)	0.493	0.228	0.86	23.15	23.50	0.534	2021/10/29
100%RB									
Back Side	40790/2610	20M QPSK(100,0)	0.473	0.218	0.34	23.08	23.50	0.521	2021/10/29

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

Test Position of Hotspot with 10mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
1RB									
Front Side	40790/2610	20M QPSK(1,49)	0.552	0.251	-2.53	24.25	25.00	0.656	2021/10/29
Back Side	40790/2610	20M QPSK(1,49)	0.882	0.423	-0.77	24.25	25.00	1.048	2021/10/29
Back Side Repeated	40790/2610	20M QPSK(1,49)	0.876	0.418	2.34	24.25	25.00	1.041	2021/10/29
Left Side	40790/2610	20M	0.270	0.123	3.04	24.25	25.00	0.321	2021/10/29

		QPSK(1,49)							
Right Side	40790/2610	20M QPSK(1,49)	0.178	0.085	0.11	24.25	25.00	0.212	2021/10/29
Bottom Side	40790/2610	20M QPSK(1,49)	0.546	0.251	-0.44	24.25	25.00	0.649	2021/10/29
Back Side	40390/2570	20M QPSK(1,49)	0.774	0.367	1.32	24.20	25.00	0.931	2021/10/29
Back Side	41190/2650	20M QPSK(1,49)	0.736	0.353	1.31	24.68	25.00	0.792	2021/10/29
Back Side	40990/2630	20M QPSK(1,49)	0.783	0.375	0.24	24.31	25.00	0.918	2021/12/28
50%RB									
Front Side	40790/2610	20M QPSK(50,24)	0.328	0.132	4.51	23.15	23.50	0.356	2021/10/29
Back Side	40790/2610	20M QPSK(50,24)	0.493	0.228	0.86	23.15	23.50	0.534	2021/10/29
Left Side	40790/2610	20M QPSK(50,24)	0.136	0.062	4.64	23.15	23.50	0.147	2021/10/29
Right Side	40790/2610	20M QPSK(50,24)	0.090	0.050	-4.26	23.15	23.50	0.098	2021/10/29
Bottom Side	40790/2610	20M QPSK(50,24)	0.325	0.139	3.49	23.15	23.50	0.352	2021/10/29
100%RB									
Back Side	40790/2610	20M QPSK(100,0)	0.473	0.218	0.34	23.08	23.50	0.521	2021/10/29

NOTE: Hotspot SAR test results of LTE Band 41

10.1.14. SAR measurement Result of LTE Band 66

Test Position of Head	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
1RB									
Left Cheek	132322/1745	20M QPSK(1,49)	0.086	0.055	2.54	22.10	23.00	0.106	2021/11/10
Left Tilt 15 Degree	132322/1745	20M QPSK(1,49)	0.050	0.031	0.21	22.10	23.00	0.062	2021/11/10
Right Cheek	132322/1745	20M QPSK(1,49)	0.074	0.045	-3.41	22.10	23.00	0.091	2021/11/10
Right	132322/1745	20M	0.033	0.021	-4.16	22.10	23.00	0.041	2021/11/10

Tilt 15 Degree		QPSK(1,49)							
50%RB									
Left Cheek	132322/1745	20M QPSK(50,24)	0.046	0.033	-0.31	20.93	21.50	0.052	2021/11/10
Left Tilt 15 Degree	132322/1745	20M QPSK(50,24)	0.027	0.017	1.44	20.93	21.50	0.031	2021/11/10
Right Cheek	132322/1745	20M QPSK(50,24)	0.042	0.023	3.42	20.93	21.50	0.048	2021/11/10
Right Tilt 15 Degree	132322/1745	20M QPSK(50,24)	0.017	0.011	1.44	20.93	21.50	0.019	2021/11/10

NOTE: Head SAR test results of LTE Band 66

Test Position of Body-Worn with 10mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
1RB									
Front Side	132322/1745	20M QPSK(1,49)	0.228	0.118	-1.96	22.10	23.00	0.281	2021/11/10
Back Side	132322/1745	20M QPSK(1,49)	0.342	0.187	-2.72	22.10	23.00	0.421	2021/11/10
50%RB									
Front Side	132322/1745	20M QPSK(50,24)	0.117	0.066	0.14	20.93	21.50	0.133	2021/11/10
Back Side	132322/1745	20M QPSK(50,24)	0.178	0.111	1.08	20.93	21.50	0.203	2021/11/10

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

Test Position of Hotspot with 10mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
1RB									
Front Side	132322/1745	20M QPSK(1,49)	0.228	0.118	-1.96	22.10	23.00	0.281	2021/11/10
Back	132322/1745	20M	0.342	0.187	-2.72	22.10	23.00	0.421	2021/11/10

Side		QPSK(1,49)							
Left Side	132322/1745	20M QPSK(1,49)	0.111	0.060	-0.32	22.10	23.00	0.137	2021/11/10
Right Side	132322/1745	20M QPSK(1,49)	0.070	0.037	3.20	22.10	23.00	0.086	2021/11/10
Bottom Side	132322/1745	20M QPSK(1,49)	0.228	0.118	-1.50	22.10	23.00	0.281	2021/11/10
50%RB									
Front Side	132322/1745	20M QPSK(50,24)	0.117	0.066	0.14	20.93	21.50	0.133	2021/11/10
Back Side	132322/1745	20M QPSK(50,24)	0.178	0.111	1.08	20.93	21.50	0.203	2021/11/10
Left Side	132322/1745	20M QPSK(50,24)	0.062	0.033	1.32	20.93	21.50	0.071	2021/11/10
Right Side	132322/1745	20M QPSK(50,24)	0.038	0.019	2.15	20.93	21.50	0.043	2021/11/10
Bottom Side	132322/1745	20M QPSK(50,24)	0.129	0.062	3.65	20.93	21.50	0.147	2021/11/10

NOTE: Hotspot SAR test results of LTE Band 66

10.1.15. SAR measurement Result of LTE Band 71

Test Position of Head	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
1RB									
Left Cheek	133322/683	20M QPSK(1,49)	0.025	0.022	-4.16	23.63	24.00	0.027	2021/11/06
Left Tilt 15 Degree	133322/683	20M QPSK(1,49)	0.014	0.012	4.46	23.63	24.00	0.015	2021/11/06
Right Cheek	133322/683	20M QPSK(1,49)	0.022	0.019	0.59	23.63	24.00	0.024	2021/11/06
Right Tilt 15 Degree	133322/683	20M QPSK(1,49)	0.011	0.009	4.41	23.63	24.00	0.012	2021/11/06
50%RB									
Left Cheek	133322/683	20M QPSK(50,24)	0.013	0.011	-2.13	22.45	23.00	0.015	2021/11/06
Left Tilt	133322/683	20M	0.007	0.006	-0.80	22.45	23.00	0.008	2021/11/06

15 Degree		QPSK(50,24)							
Right Cheek	133322/683	20M QPSK(50,24)	0.012	0.011	4.82	22.45	23.00	0.014	2021/11/06
Right Tilt 15 Degree	133322/683	20M QPSK(50,24)	0.006	0.005	-0.07	22.45	23.00	0.007	2021/11/06

NOTE: Head SAR test results of LTE Band 71

Test Position of Body-Worn with 10mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
1RB									
Front Side	133322/683	20M QPSK(1,49)	0.036	0.029	2.04	23.63	24.00	0.039	2021/11/06
Back Side	133322/683	20M QPSK(1,49)	0.048	0.040	-2.70	23.63	24.00	0.052	2021/11/06
50%RB									
Front Side	133322/683	20M QPSK(50,24)	0.033	0.027	-1.16	22.45	23.00	0.037	2021/11/06
Back Side	133322/683	20M QPSK(50,24)	0.043	0.036	-1.77	22.45	23.00	0.049	2021/11/06

NOTE: Body-Worn SAR test results of LTE Band 71

Test Position of Hotspot with 10mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
1RB									
Front Side	133322/683	20M QPSK(1,49)	0.036	0.029	2.04	23.63	24.00	0.039	2021/11/06
Back Side	133322/683	20M QPSK(1,49)	0.048	0.040	-2.70	23.63	24.00	0.052	2021/11/06
Left Side	133322/683	20M QPSK(1,49)	0.018	0.016	-3.00	23.63	24.00	0.020	2021/11/06
Right Side	133322/683	20M QPSK(1,49)	0.012	0.010	0.88	23.63	24.00	0.013	2021/11/06
Bottom	133322/683	20M	0.030	0.025	-0.60	23.63	24.00	0.033	2021/11/06

Side		QPSK(1,49)							
50%RB									
Front Side	133322/683	20M QPSK(50,0)	0.033	0.027	-1.16	22.45	23.00	0.037	2021/11/06
Back Side	133322/683	20M QPSK(50,0)	0.043	0.036	-1.77	22.45	23.00	0.049	2021/11/06
Left Side	133322/683	20M QPSK(50,0)	0.016	0.015	3.75	22.45	23.00	0.018	2021/11/06
Right Side	133322/683	20M QPSK(50,0)	0.011	0.009	-0.25	22.45	23.00	0.012	2021/11/06
Bottom Side	133322/683	20M QPSK(50,0)	0.028	0.024	1.18	22.45	23.00	0.032	2021/11/06

NOTE: Hotspot SAR test results of LTE Band 71

10.1.16. SAR measurement Result of WLAN 2.4G

Test Position of Head	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
Left Cheek	6/2437	802.11b	0.228	0.115	3.11	13.97	14.00	0.230	2021/10/29
Left Tilt 15 Degree	6/2437	802.11b	0.127	0.064	-1.97	13.97	14.00	0.128	2021/10/29
Right Cheek	6/2437	802.11b	0.213	0.103	-3.99	13.97	14.00	0.214	2021/10/29
Right Tilt 15 Degree	6/2437	802.11b	0.104	0.050	-0.63	13.97	14.00	0.105	2021/10/29

NOTE: Head SAR test results of WLAN 2.4G

Test Position of Body-Worn with 10mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
Front Side	6/2437	802.11b	0.138	0.073	-2.97	13.97	14.00	0.139	2021/10/29
Back Side	6/2437	802.11b	0.228	0.124	-4.65	13.97	14.00	0.230	2021/10/29

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

Test Position of Hotspot with 10mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
Front Side	6/2437	802.11b	0.138	0.073	-2.97	13.97	14.00	0.139	2021/10/29

Back Side	6/2437	802.11b	0.228	0.124	-4.65	13.97	14.00	0.230	2021/10/29
Right Side	6/2437	802.11b	0.078	0.042	-2.68	13.97	14.00	0.079	2021/10/29
Top Side	6/2437	802.11b	0.104	0.055	3.94	13.97	14.00	0.105	2021/10/29

NOTE: Hotspot SAR test results of WLAN 2.4G

10.1.17. SAR measurement Result of WLAN 5.2G

Test Position of Head	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
Left Cheek	40/5200	802.11a	0.073	0.049	-2.92	9.18	11.00	0.111	2021/11/15
Left Tilt 15 Degree	40/5200	802.11a	0.040	0.027	-1.41	9.18	11.00	0.061	2021/11/15
Right Cheek	40/5200	802.11a	0.066	0.043	2.38	9.18	11.00	0.100	2021/11/15
Right Tilt 15 Degree	40/5200	802.11a	0.035	0.023	-0.73	9.18	11.00	0.053	2021/11/15

NOTE: Head SAR test results of WLAN 5.2G

Test Position of Body-Worn with 10mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
Front Side	40/5200	802.11a	0.084	0.055	-0.24	9.18	11.00	0.128	2021/11/15
Back Side	40/5200	802.11a	0.093	0.063	-0.51	9.18	11.00	0.141	2021/11/15

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

Test Position of Hotspot with 10mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
Front Side	40/5200	802.11a	0.084	0.055	-0.24	9.18	11.00	0.128	2021/11/15
Back Side	40/5200	802.11a	0.093	0.063	-0.51	9.18	11.00	0.141	2021/11/15
Right Side	40/5200	802.11a	0.042	0.028	-2.98	9.18	11.00	0.064	2021/11/15
Top Side	40/5200	802.11a	0.044	0.028	3.93	9.18	11.00	0.067	2021/11/15

NOTE: Hotspot SAR test results of WLAN 5.2G

10.1.18. SAR measurement Result of WLAN 5.8G

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

								(W/Kg)	
Left Cheek	157/5785	802.11a	0.113	0.064	-0.11	9.81	10.00	0.118	2021/11/16
Left Tilt 15 Degree	157/5785	802.11a	0.060	0.034	3.09	9.81	10.00	0.063	2021/11/16
Right Cheek	157/5785	802.11a	0.096	0.054	-1.76	9.81	10.00	0.100	2021/11/16
Right Tilt 15 Degree	157/5785	802.11a	0.047	0.026	4.60	9.81	10.00	0.049	2021/11/16

NOTE: Head SAR test results of WLAN 5.8G

Test Position of Body-Worn with 10mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
Front Side	157/5785	802.11a	0.114	0.057	1.54	9.81	10.00	0.119	2021/11/16
Back Side	157/5785	802.11a	0.140	0.073	-1.11	9.81	10.00	0.146	2021/11/16

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

Test Position of Hotspot with 10mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date
			1g	10g					
Front Side	157/5785	802.11a	0.114	0.057	1.54	9.81	10.00	0.119	2021/11/16
Back Side	157/5785	802.11a	0.140	0.073	-1.11	9.81	10.00	0.146	2021/11/16
Right Side	157/5785	802.11a	0.051	0.026	-3.65	9.81	10.00	0.053	2021/11/16
Top Side	157/5785	802.11a	0.060	0.030	1.58	9.81	10.00	0.063	2021/11/16

NOTE: Hotspot SAR test results of WLAN 5.8G

10.2. Simultaneous Transmission Analysis

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			
Head	Left Cheek	0.164	0.230	0.394	N/A	N/A
	Left Tilt 15 Degree	0.089	0.128	0.217	N/A	N/A

	Right Cheek	0.147	0.214	0.361	N/A	N/A
	Right Tilt 15 Degree	0.073	0.105	0.178	N/A	N/A
Body-Worn	Front Side	0.747	0.139	0.886	N/A	N/A
	Back Side	1.172	0.230	1.402	N/A	N/A
Hotspot	Front Side	0.747	0.139	0.886	N/A	N/A
	Back Side	1.172	0.230	1.402	N/A	N/A
	Left Side	0.455	N/A	0.455	N/A	N/A
	Right Side	0.301	0.079	0.380	N/A	N/A
	Top Side	N/A	0.105	0.105	N/A	N/A
	Bottom Side	0.033	N/A	0.033	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		WWAN	NII			
Head	Left Cheek	0.164	0.118	0.282	N/A	N/A
	Left Tilt 15 Degree	0.089	0.063	0.152	N/A	N/A
	Right Cheek	0.147	0.100	0.247	N/A	N/A
	Right Tilt 15 Degree	0.073	0.053	0.126	N/A	N/A
Body-Worn	Front Side	0.747	0.128	0.875	N/A	N/A
	Back Side	1.172	0.146	1.318	N/A	N/A
Hotspot	Front Side	0.747	0.128	0.875	N/A	N/A
	Back Side	1.172	0.146	1.318	N/A	N/A
	Left Side	0.455	N/A	0.455	N/A	N/A
	Right Side	0.301	0.064	0.365	N/A	N/A
	Top Side	N/A	0.067	0.067	N/A	N/A
	Bottom Side	0.033	N/A	0.033	N/A	N/A

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		WWAN	DSS			
Head	Left Cheek	0.164	0.319	0.483	N/A	N/A
	Left Tilt 15 Degree	0.089	0.319	0.408	N/A	N/A

	Right Cheek	0.147	0.319	0.466	N/A	N/A
	Right Tilt 15 Degree	0.073	0.319	0.392	N/A	N/A
Body-Worn	Front Side	0.747	0.159	0.906	N/A	N/A
	Back Side	1.172	0.159	1.331	N/A	N/A
Hotspot	Front Side	0.747	0.159	0.906	N/A	N/A
	Back Side	1.172	0.159	1.331	N/A	N/A
	Left Side	0.455	N/A	0.455	N/A	N/A
	Right Side	0.301	0.159	0.460	N/A	N/A
	Top Side	N/A	0.159	0.159	N/A	N/A
	Bottom Side	0.033	N/A	0.033	N/A	N/A

11. Appendix A. Photo documentation

Refer to appendix Test Setup photo---SAR

12. Appendix B. System Check Plots

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

MEASUREMENT 1

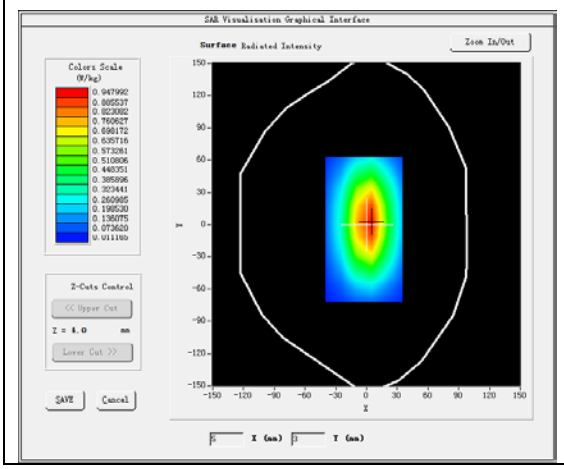
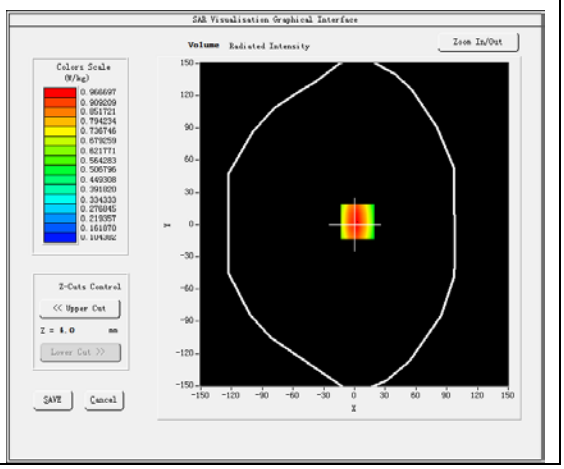
Date of measurement: 6/11/2021

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)

B. SAR Measurement Results

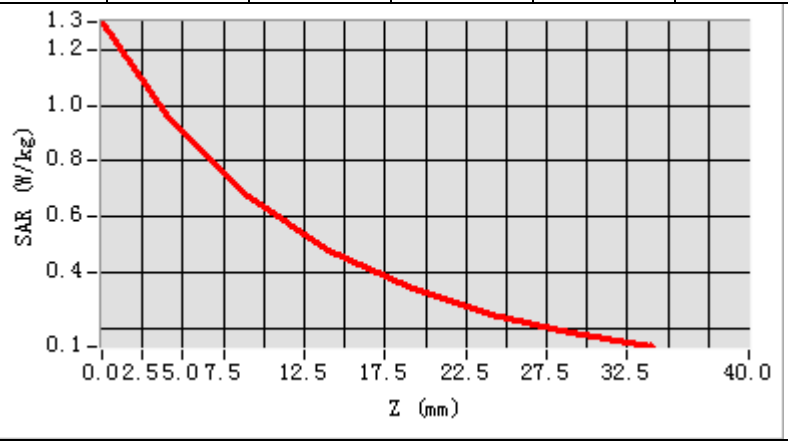
Frequency (MHz)	750.000000
Relative permittivity (real part)	42.131447
Relative permittivity (imaginary part)	21.289600
Conductivity (S/m)	0.887067
Variation (%)	2.730000

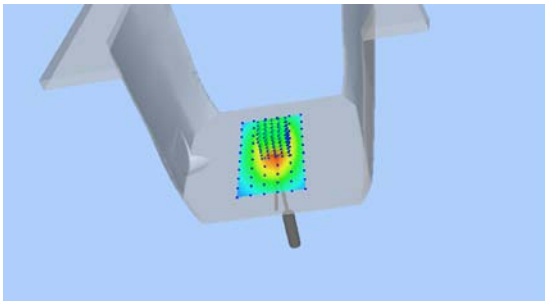
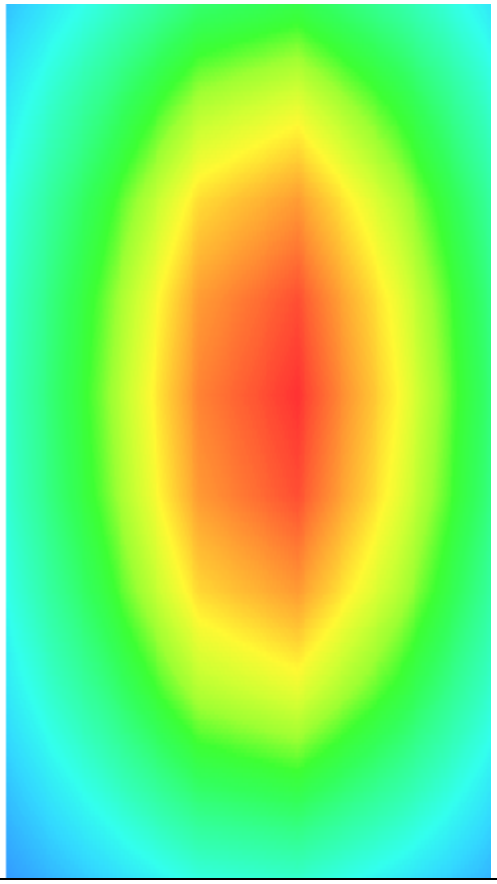
SURFACE SAR	VOLUME SAR
	

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

SAR 10g (W/Kg)	0.535332
SAR 1g (W/Kg)	0.799321

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	0.3435	0.2535	0.1845



3D screen shot	Hot spot position
	

MEASUREMENT 2

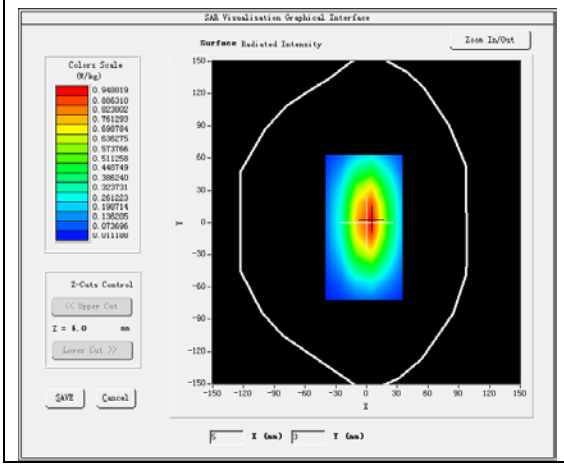
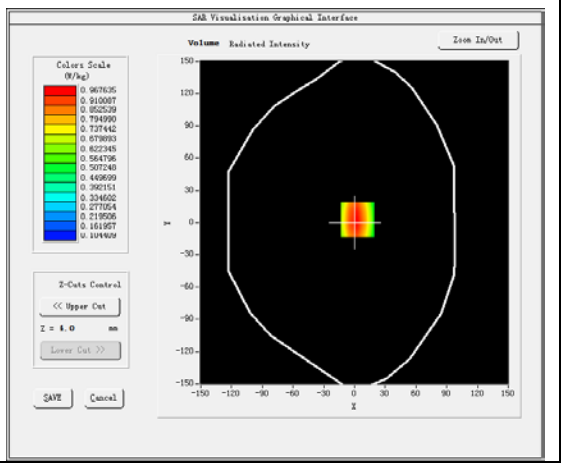
Date of measurement: 7/11/2021

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)

B. SAR Measurement Results

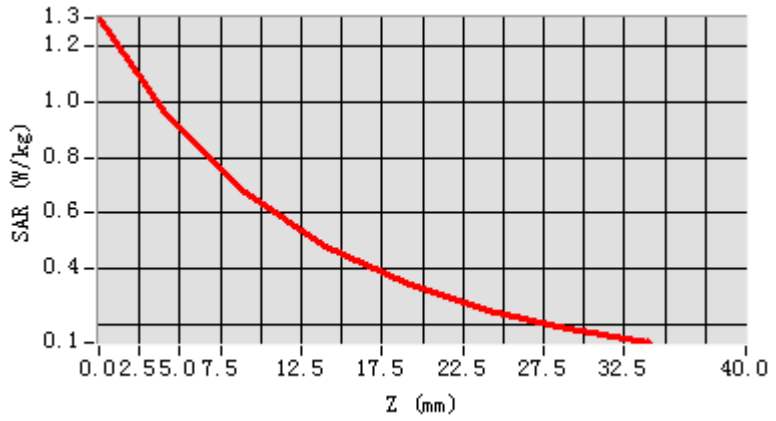
Frequency (MHz)	835.000000
Relative permittivity (real part)	42.810657
Relative permittivity (imaginary part)	19.969097
Conductivity (S/m)	0.926344
Variation (%)	-2.720000

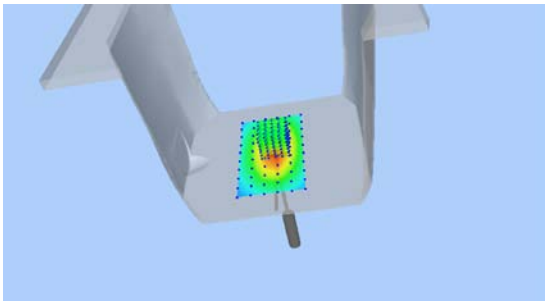
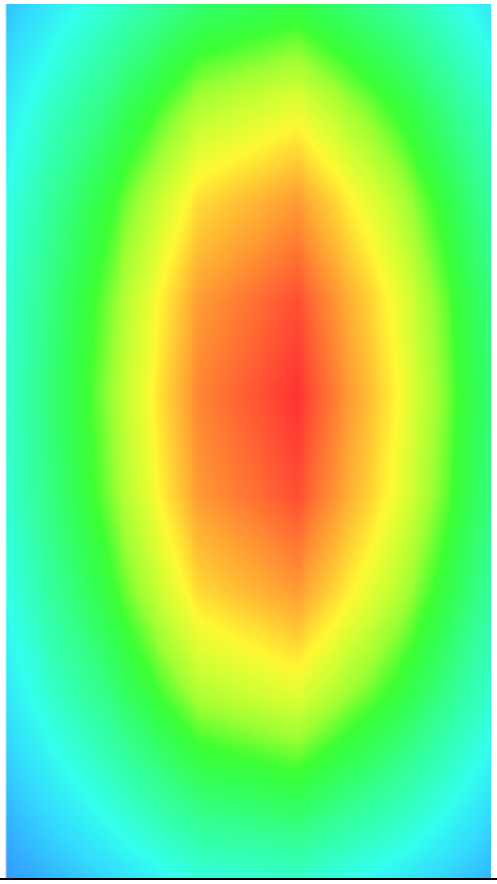
SURFACE SAR	VOLUME SAR
	

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

SAR 10g (W/Kg)	0.642333
SAR 1g (W/Kg)	1.014172

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	1.3021	0.9659	0.6732	0.4862	0.3463	0.2509	0.1826



3D screen shot	Hot spot position
	

MEASUREMENT 3

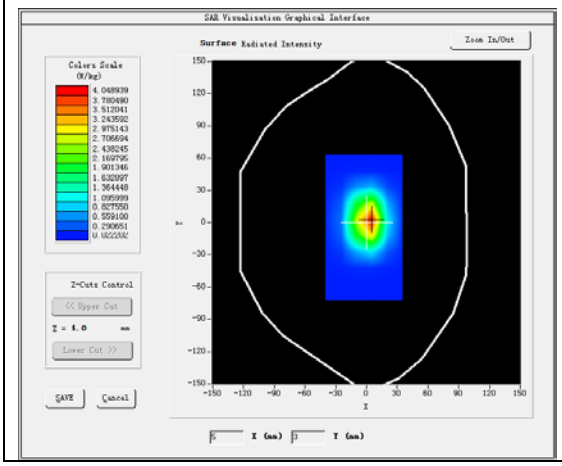
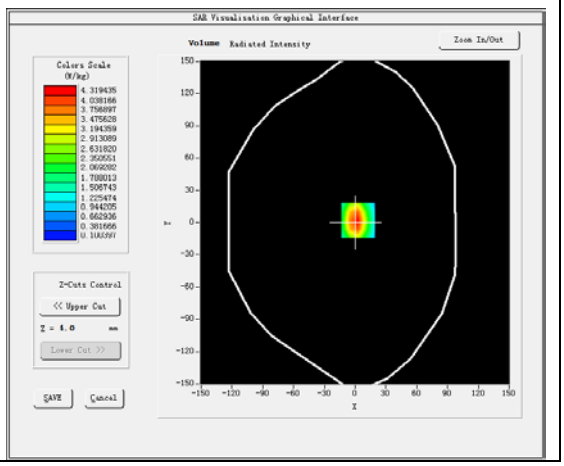
Date of measurement: 10/11/2021

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)

B. SAR Measurement Results

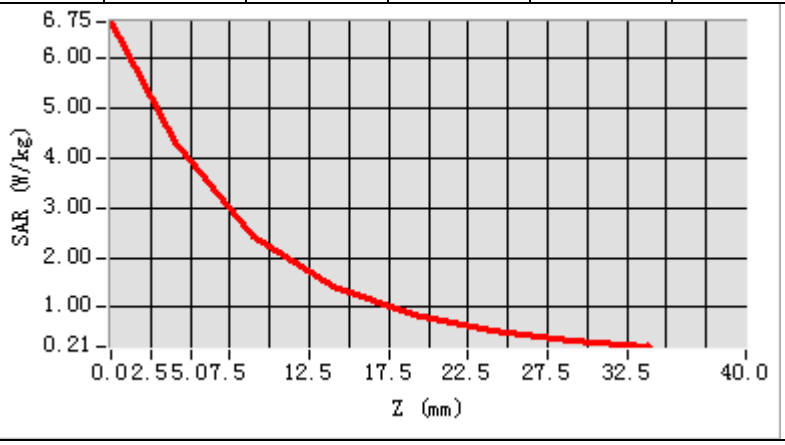
Frequency (MHz)	1800.000000
Relative permittivity (real part)	39.324723
Relative permittivity (imaginary part)	13.872880
Conductivity (S/m)	1.387288
Variation (%)	2.980000

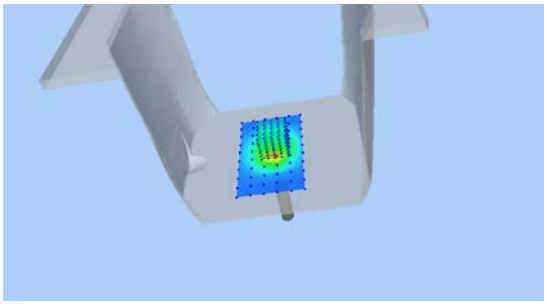
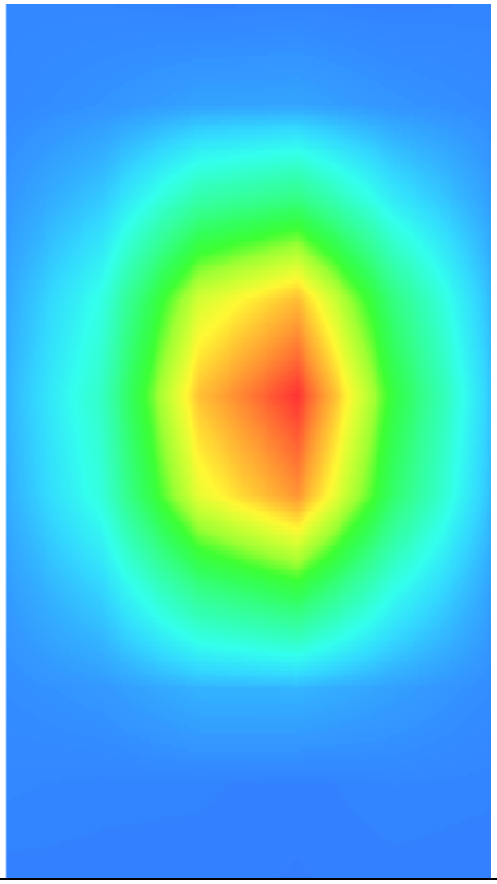
SURFACE SAR	VOLUME SAR
	

Maximum location: X=3.00, Y=2.00
SAR Peak: 6.82 W/kg

SAR 10g (W/Kg)	1.938307
SAR 1g (W/Kg)	3.513066

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	6.7474	4.3111	2.4329	1.4203	0.8572	0.5231	0.3234



3D screen shot	Hot spot position
	

MEASUREMENT 4

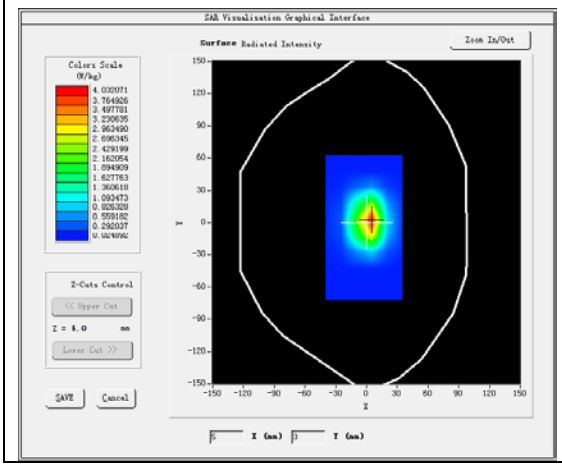
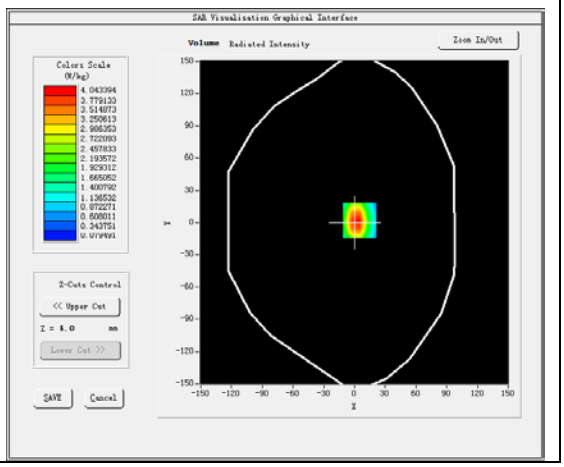
Date of measurement: 30/10/2021

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)

B. SAR Measurement Results

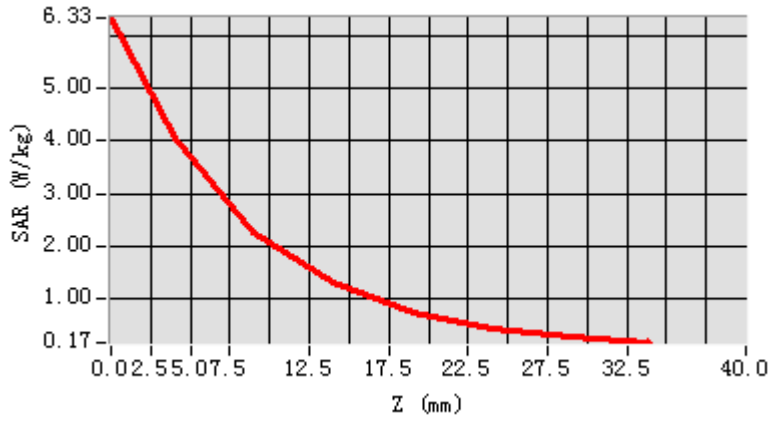
Frequency (MHz)	1900.000000
Relative permittivity (real part)	38.936912
Relative permittivity (imaginary part)	13.816866
Conductivity (S/m)	1.458447
Variation (%)	2.220000

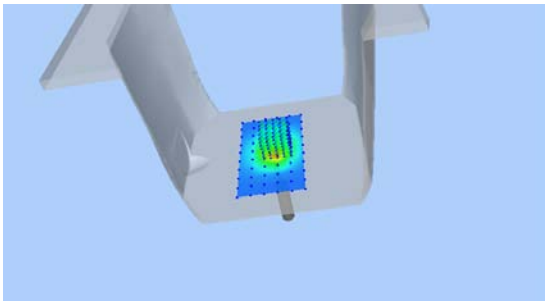
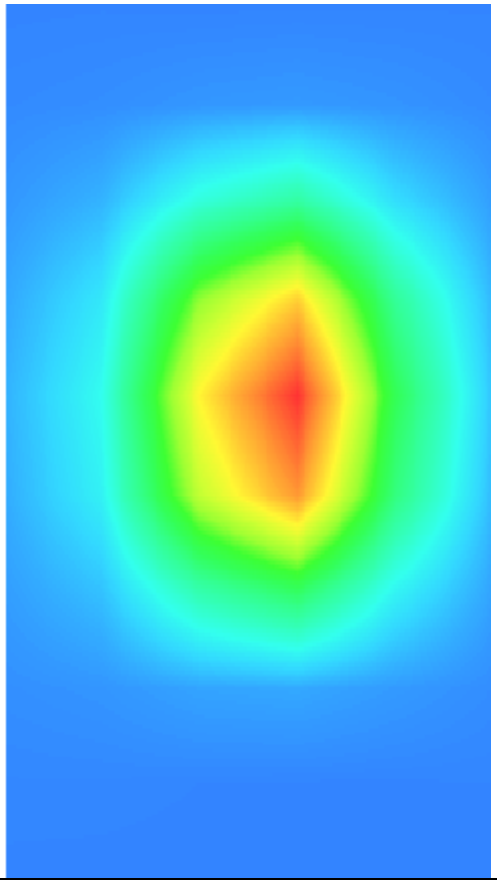
SURFACE SAR	VOLUME SAR
	

Maximum location: X=5.00, Y=2.00
SAR Peak: 6.70 W/kg

SAR 10g (W/Kg)	2.050347
SAR 1g (W/Kg)	3.789221

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	6.3247	4.0419	2.2630	1.3026	0.7618	0.4514	0.2794



3D screen shot	Hot spot position
	

MEASUREMENT 5

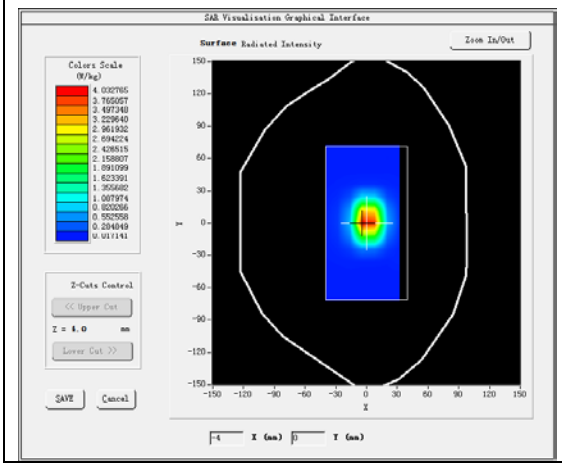
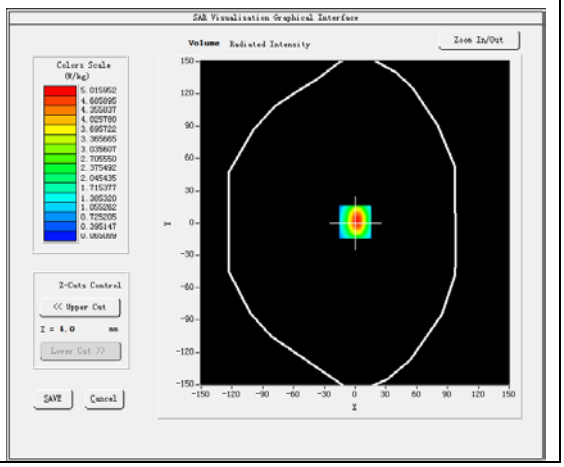
Date of measurement: 29/10/2021

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)

B. SAR Measurement Results

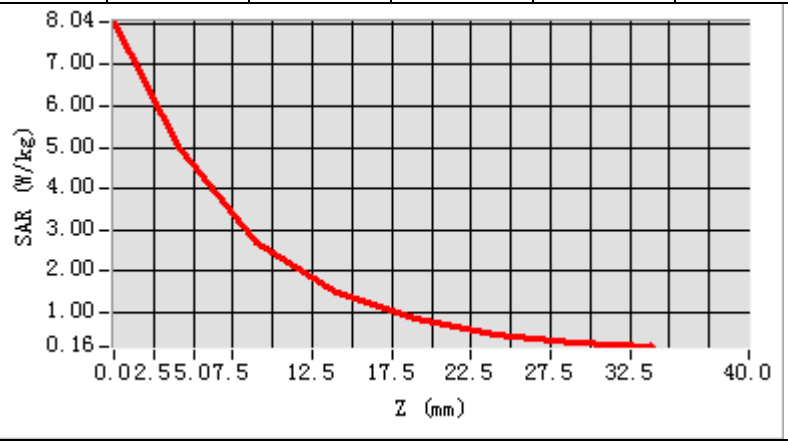
Frequency (MHz)	2450.000000
Relative permittivity (real part)	40.901561
Relative permittivity (imaginary part)	12.903594
Conductivity (S/m)	1.756323
Variation (%)	1.290000

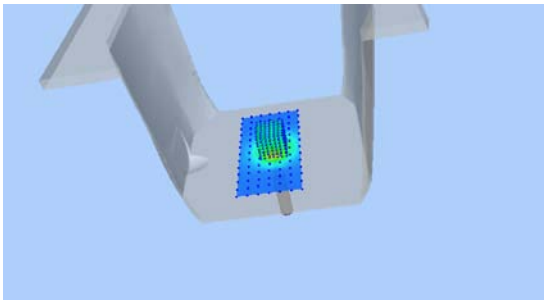
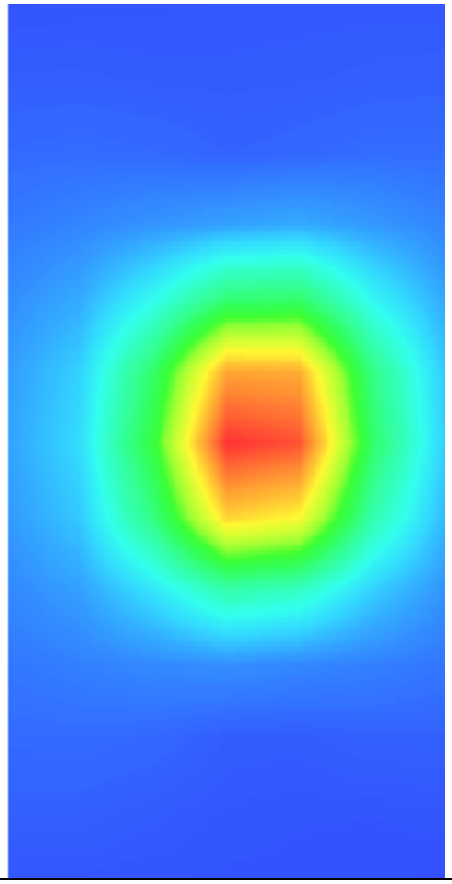
SURFACE SAR	VOLUME SAR
	

Maximum location: X=0.00, Y=1.00
SAR Peak: 8.14 W/kg

SAR 10g (W/Kg)	2.572106
SAR 1g (W/Kg)	5.650340

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	8.0397	5.0153	2.6927	1.4826	0.8361	0.4698	0.2660



3D screen shot	Hot spot position
	

MEASUREMENT 6

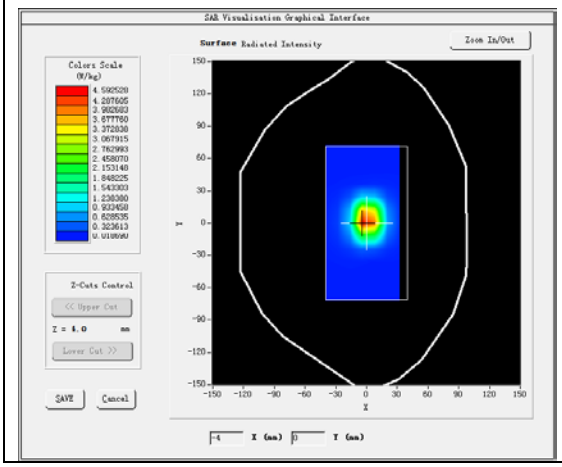
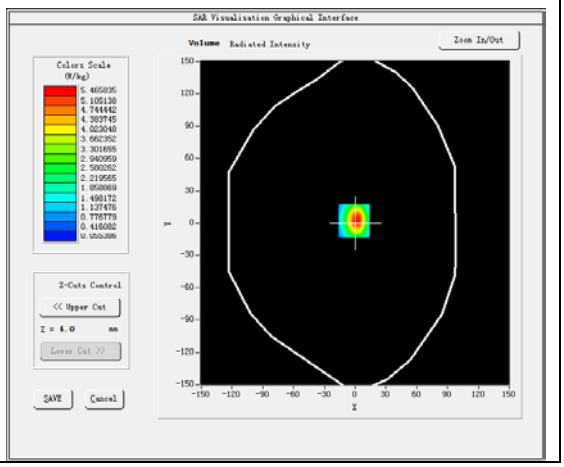
Date of measurement: 29/10/2021

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)

B. SAR Measurement Results

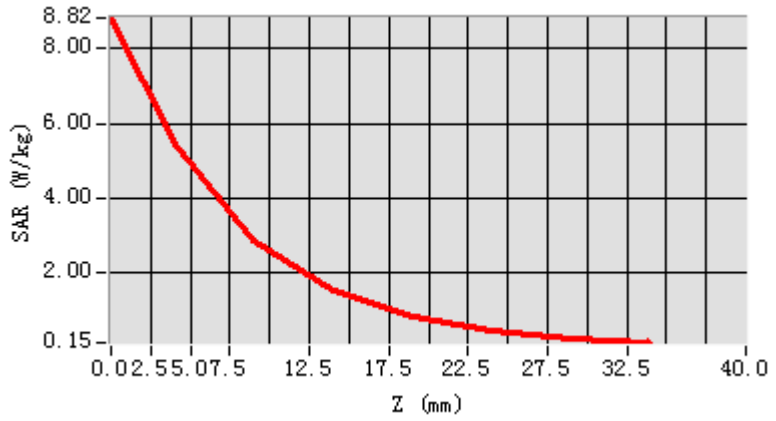
Frequency (MHz)	2600.000000
Relative permittivity (real part)	39.753402
Relative permittivity (imaginary part)	13.381022
Conductivity (S/m)	1.932814
Variation (%)	0.250000

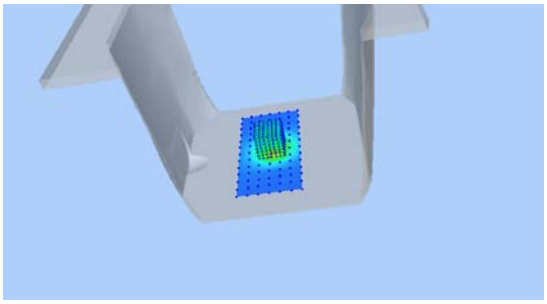
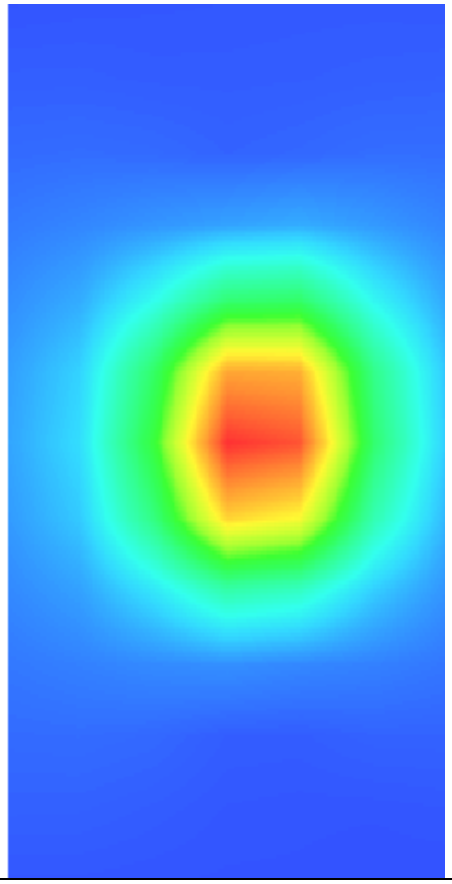
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-1.00, Y=2.00
SAR Peak: 9.07 W/kg

SAR 10g (W/Kg)	2.605037
SAR 1g (W/Kg)	5.497199

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	8.8168	5.4632	2.8963	1.5656	0.8561	0.4769	0.2679



3D screen shot	Hot spot position
	

MEASUREMENT 7

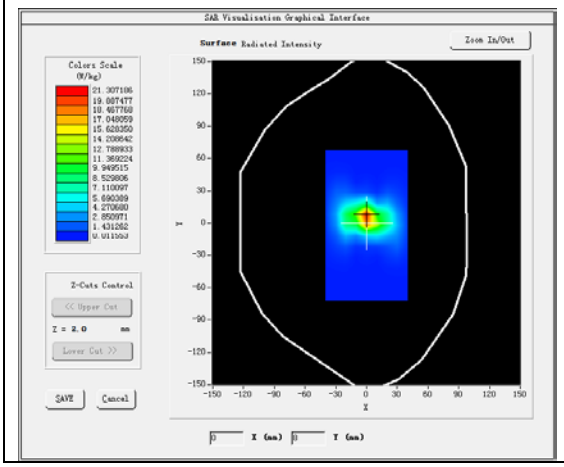
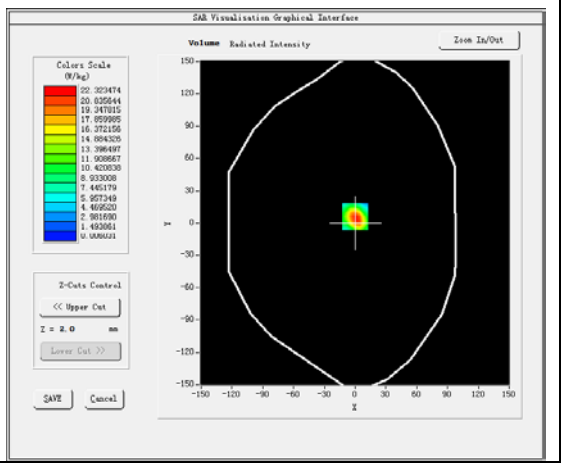
Date of measurement: 15/11/2021

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)

B. SAR Measurement Results

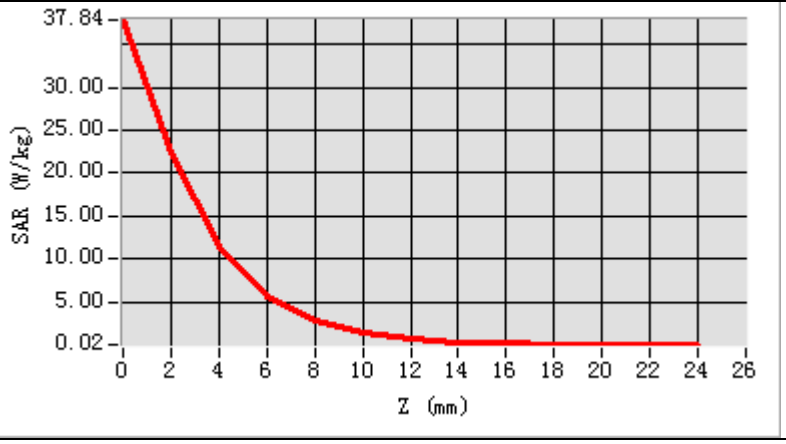
Frequency (MHz)	5200.000000
Relative permittivity (real part)	37.305325
Relative permittivity (imaginary part)	15.721080
Conductivity (S/m)	4.541645
Variation (%)	2.800000

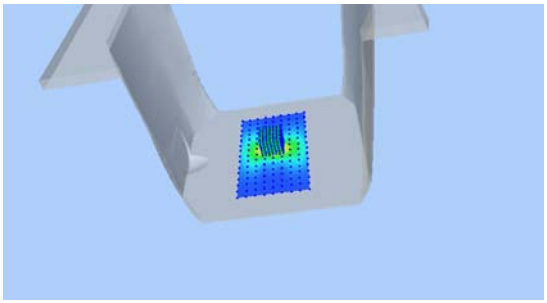
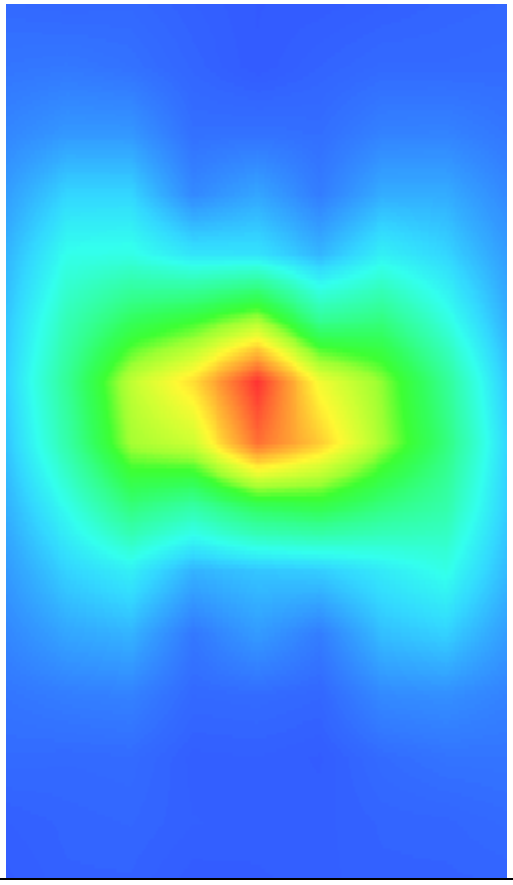
SURFACE SAR	VOLUME SAR
	

Maximum location: X=0.00, Y=6.00
SAR Peak: 40.06 W/kg

SAR 10g (W/Kg)	5.698162
SAR 1g (W/Kg)	15.348032

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)	37.891	22.391	11.377	5.6694	2.8291	1.4043	0.7150	0.3637	0.1802	0.1008	0.0527	0.0397



3D screen shot	Hot spot position
	

MEASUREMENT 8

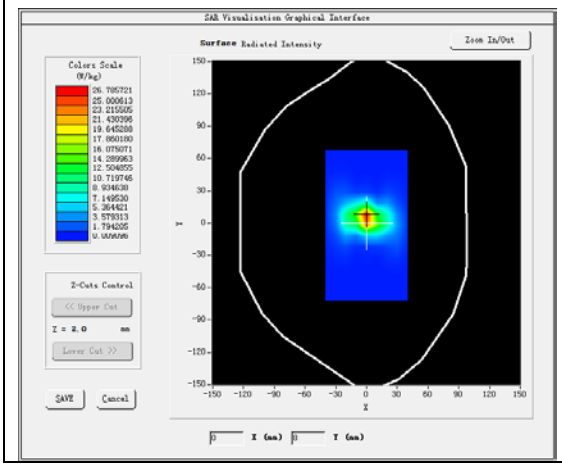
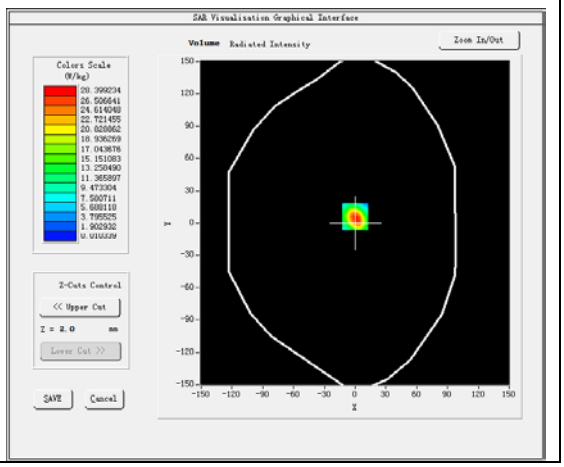
Date of measurement: 16/11/2021

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	CW5800
Channels	Middle
Signal	CW (Crest factor: 1.0)

B. SAR Measurement Results

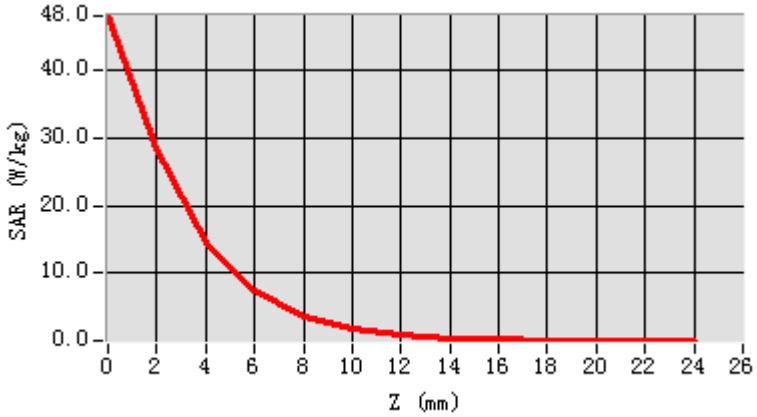
Frequency (MHz)	5800.000000
Relative permittivity (real part)	36.296242
Relative permittivity (imaginary part)	16.038489
Conductivity (S/m)	5.167958
Variation (%)	-0.500000

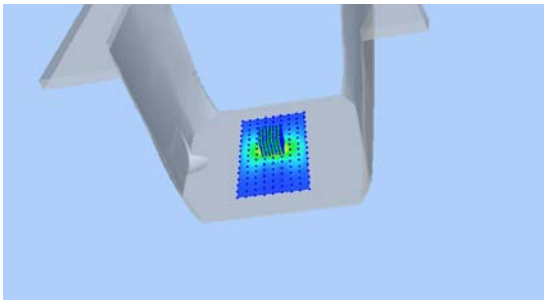
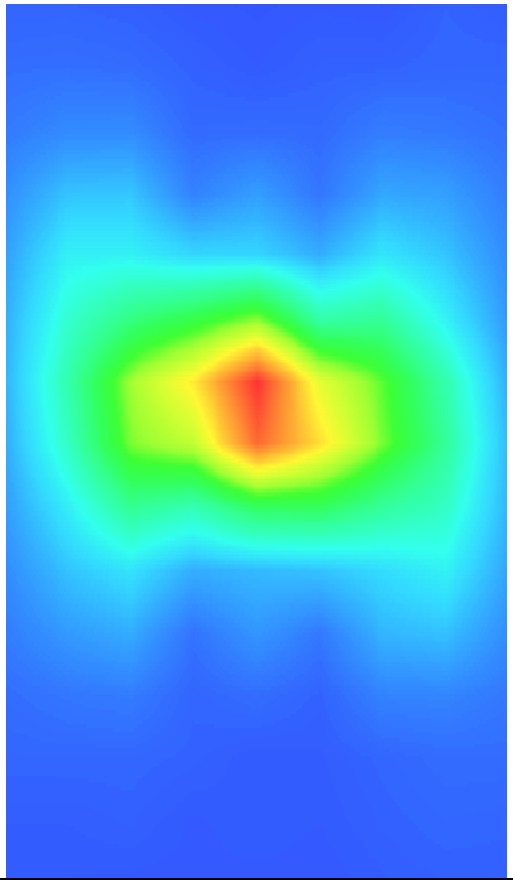
SURFACE SAR	VOLUME SAR
	

Maximum location: X=0.00, Y=6.00
SAR Peak: 50.97 W/kg

SAR 10g (W/Kg)	6.381228
SAR 1g (W/Kg)	16.808190

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)	48.036	28.348	14.444	7.2966	3.6490	1.8250	0.9261	0.4644	0.2495	0.1372	0.0788	0.0438



3D screen shot	Hot spot position
	

MEASUREMENT 9

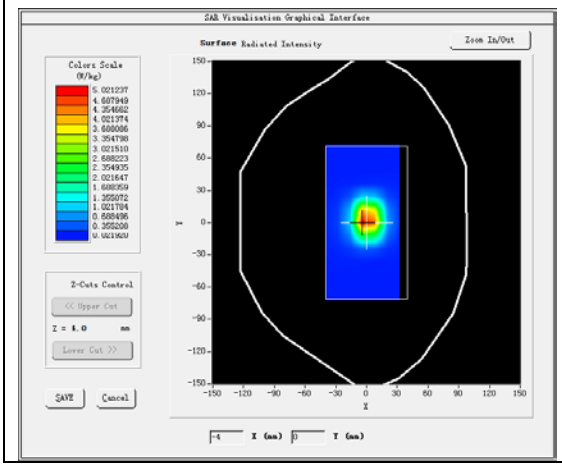
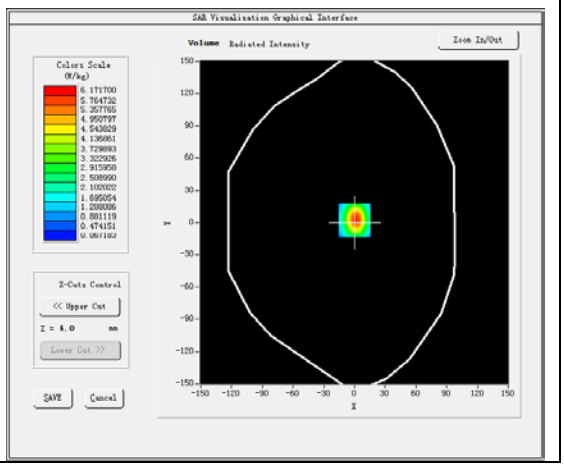
Date of measurement: 28/12/2021

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)

B. SAR Measurement Results

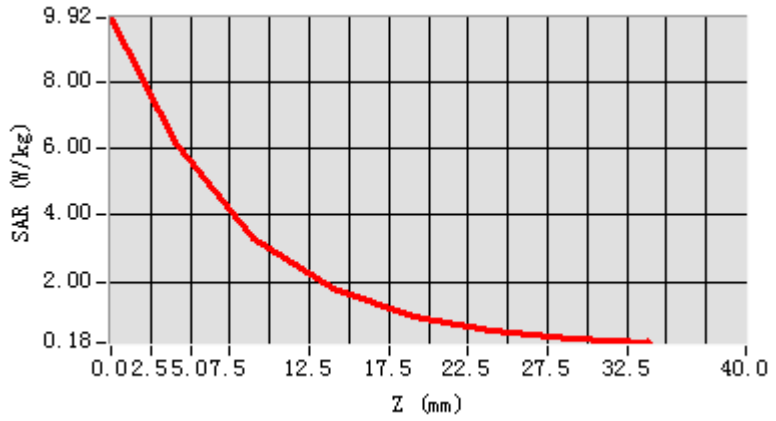
Frequency (MHz)	2600.000000
Relative permittivity (real part)	39.679883
Relative permittivity (imaginary part)	13.562839
Conductivity (S/m)	1.959077
Variation (%)	-1.220000

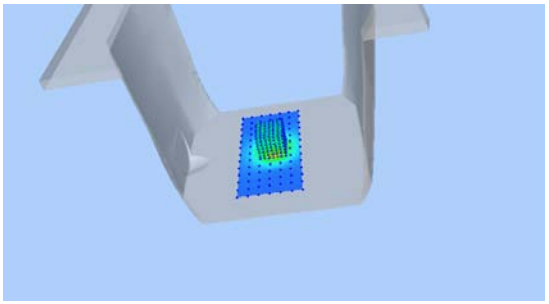
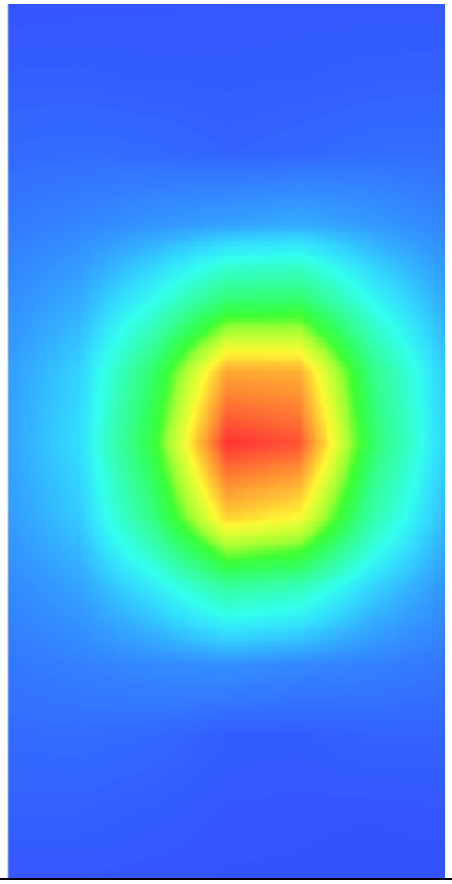
SURFACE SAR	VOLUME SAR
	

Maximum location: X=0.00, Y=2.00
SAR Peak: 9.99 W/kg

SAR 10g (W/Kg)	2.334324
SAR 1g (W/Kg)	5.612188

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	9.9118	6.1777	3.2952	1.7819	0.9818	0.5452	0.3128



3D screen shot	Hot spot position
	

13. Appendix C. Plots of High SAR Measurement

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MEASUREMENT 1

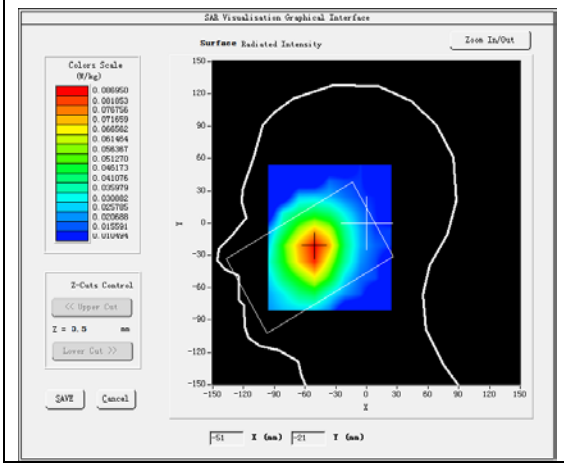
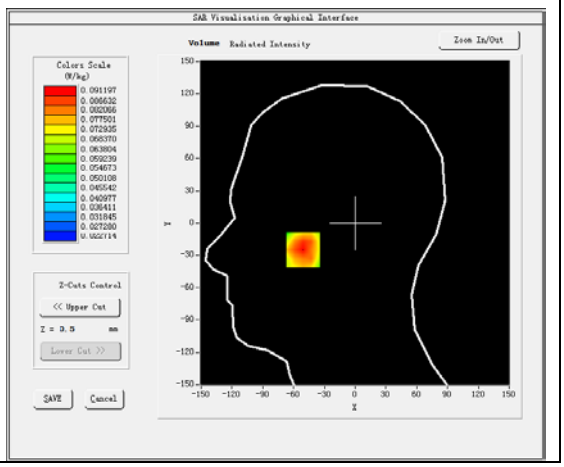
Date of measurement: 7/11/2021

A. Experimental conditions.

Area Scan	dx=15mm dy=15mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Left head
Device Position	Cheek
Band	GSM850
Channels	Middle
Signal	TDMA (Crest factor: 2.0)

B. SAR Measurement Results

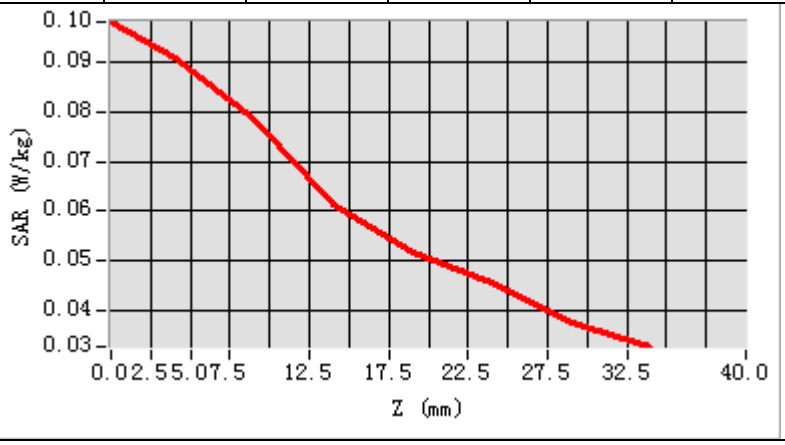
Frequency (MHz)	836.400000
Relative permittivity (real part)	42.726318
Relative permittivity (imaginary part)	19.994938
Conductivity (S/m)	0.929098
Variation (%)	-2.030000

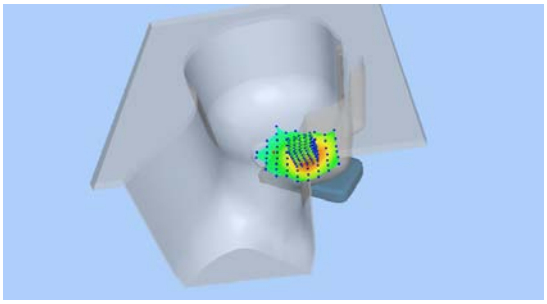
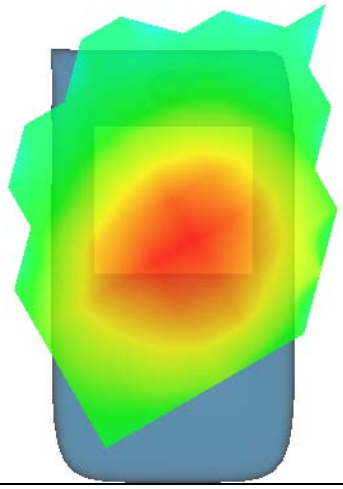
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-51.00, Y=-25.00
SAR Peak: 0.11 W/kg

SAR 10g (W/Kg)	0.068984
SAR 1g (W/Kg)	0.089988

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0983	0.0912	0.0789	0.0613	0.0515	0.0457	0.0375



3D screen shot	Hot spot position
	

MEASUREMENT 2

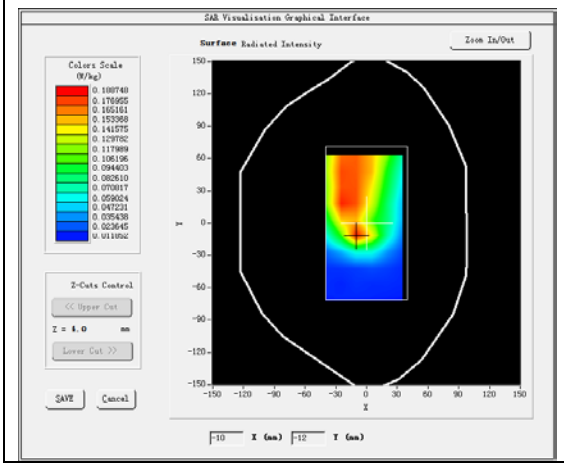
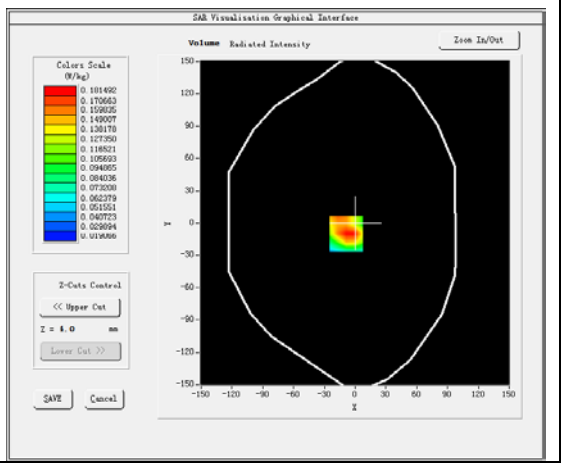
Date of measurement: 7/11/2021

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	Body
Band	GSM850
Channels	Middle
Signal	TDMA (Crest factor: 2.0)

B. SAR Measurement Results

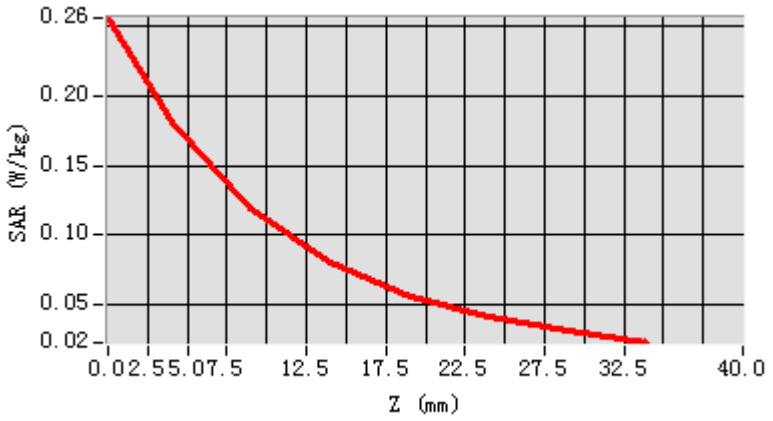
Frequency (MHz)	836.400000
Relative permittivity (real part)	42.726318
Relative permittivity (imaginary part)	19.994938
Conductivity (S/m)	0.929098
Variation (%)	-3.920000

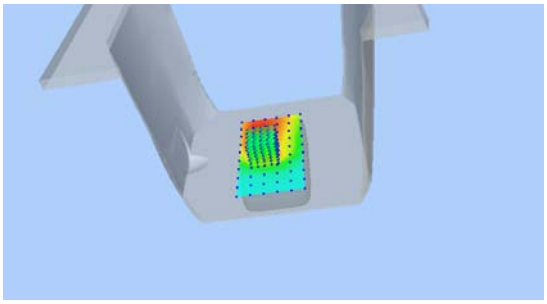
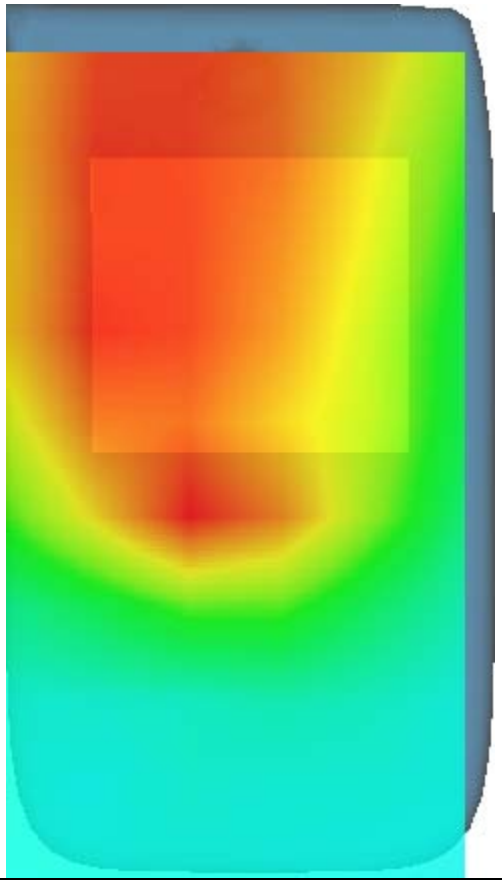
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-9.00, Y=-10.00
SAR Peak: 0.27 W/kg

SAR 10g (W/Kg)	0.104653
SAR 1g (W/Kg)	0.175304

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.2560	0.1815	0.1185	0.0799	0.0560	0.0415	0.0312



3D screen shot	Hot spot position
	

MEASUREMENT 3

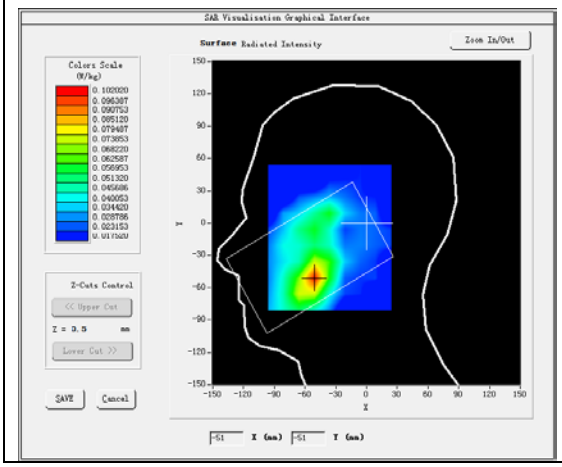
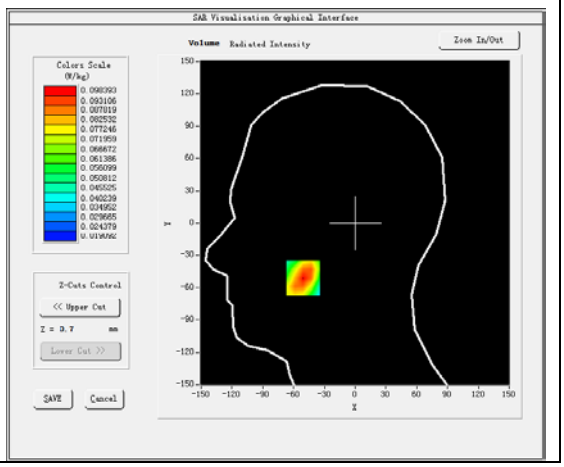
Date of measurement: 30/10/2021

A. Experimental conditions.

Area Scan	dx=15mm dy=15mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Left head
Device Position	Cheek
Band	GSM1900
Channels	Middle
Signal	TDMA (Crest factor: 4.0)

B. SAR Measurement Results

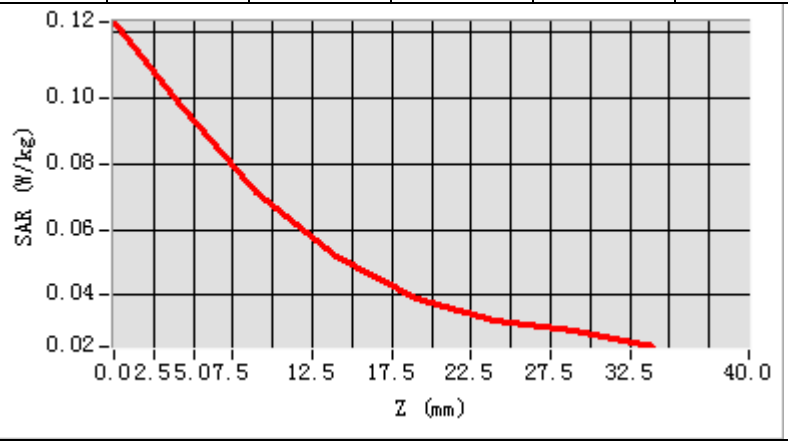
Frequency (MHz)	1880.000000
Relative permittivity (real part)	39.023312
Relative permittivity (imaginary part)	13.834666
Conductivity (S/m)	1.444954
Variation (%)	1.180000

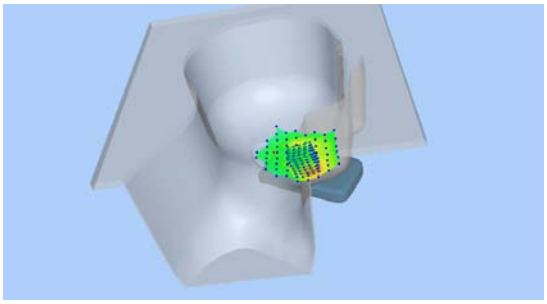
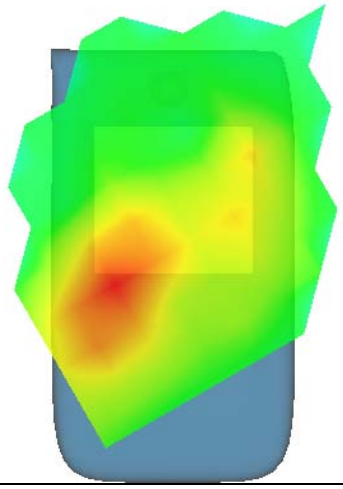
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-51.00, Y=-51.00
SAR Peak: 0.13 W/kg

SAR 10g (W/Kg)	0.063476
SAR 1g (W/Kg)	0.095446

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.1229	0.0984	0.0715	0.0520	0.0389	0.0322	0.0292



3D screen shot	Hot spot position
	

MEASUREMENT 4

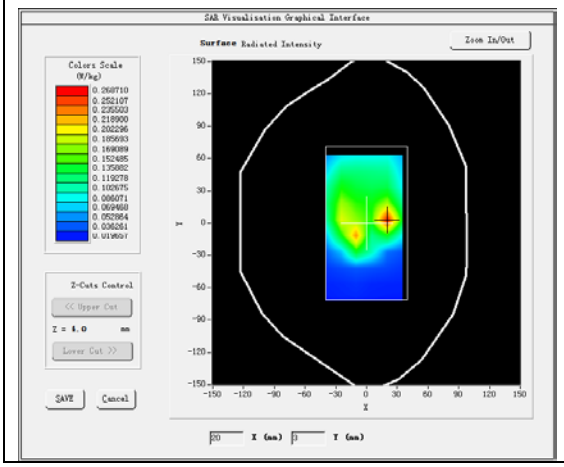
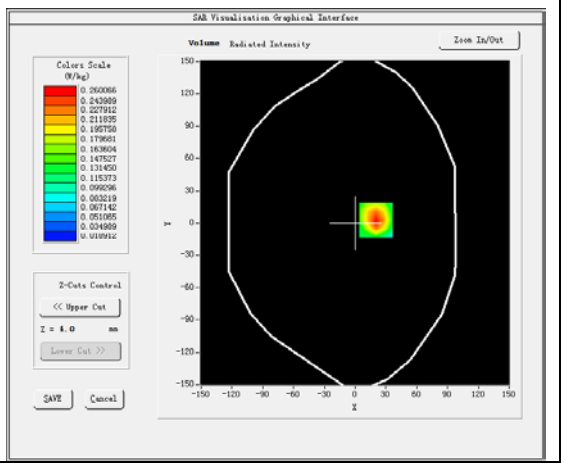
Date of measurement: 30/10/2021

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	Body
Band	GSM1900
Channels	Middle
Signal	TDMA (Crest factor: 4.0)

B. SAR Measurement Results

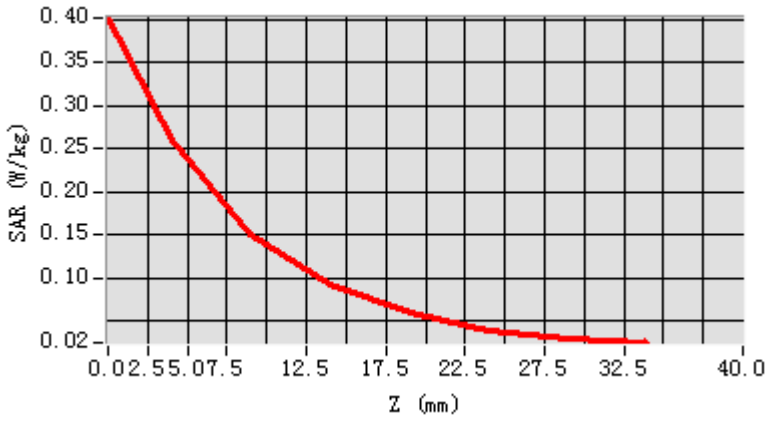
Frequency (MHz)	1880.000000
Relative permittivity (real part)	39.023312
Relative permittivity (imaginary part)	13.834666
Conductivity (S/m)	1.444954
Variation (%)	-0.770000

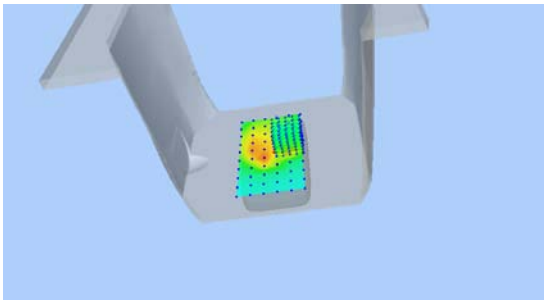
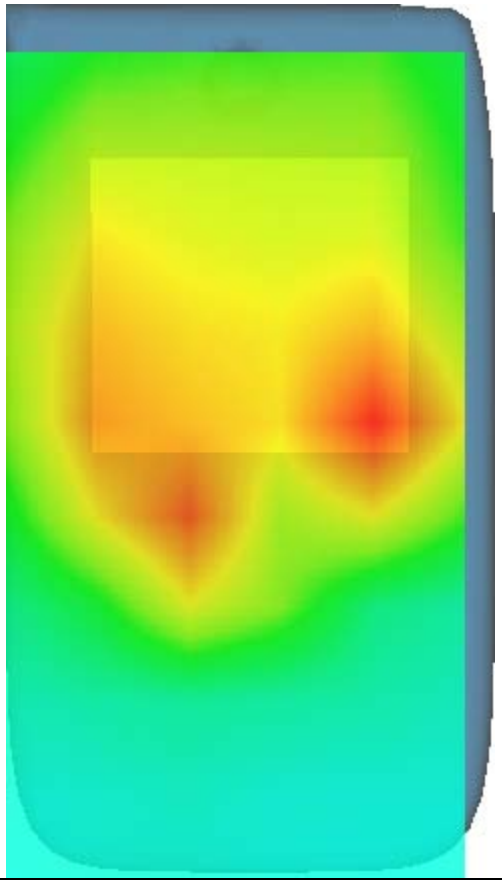
SURFACE SAR	VOLUME SAR
	

Maximum location: X=20.00, Y=3.00
SAR Peak: 0.41 W/kg

SAR 10g (W/Kg)	0.139832
SAR 1g (W/Kg)	0.252862

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.4022	0.2601	0.1511	0.0924	0.0601	0.0397	0.0288



3D screen shot	Hot spot position
	

MEASUREMENT 5

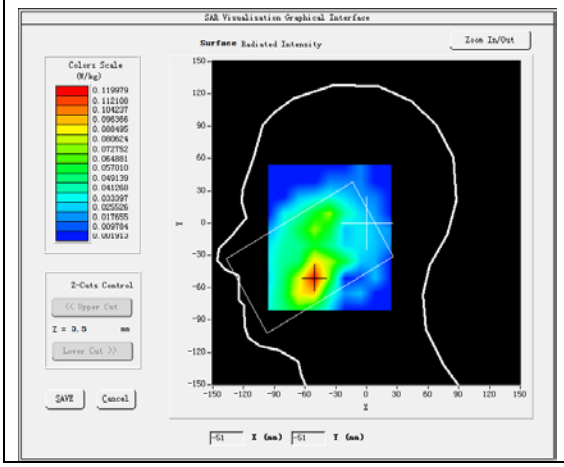
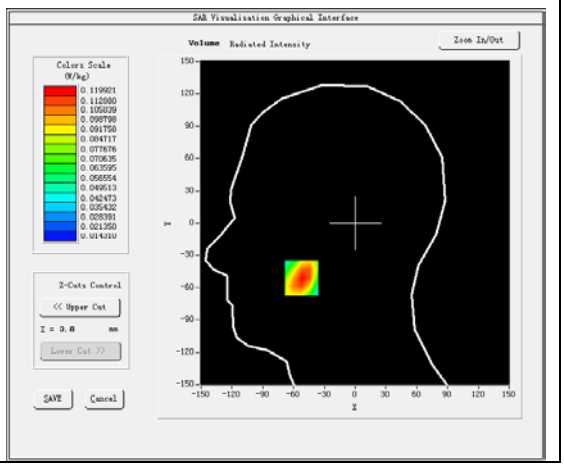
Date of measurement: 30/10/2021

A. Experimental conditions.

Area Scan	dx=15mm dy=15mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Left head
Device Position	Cheek
Band	Band2 WCDMA1900
Channels	Middle
Signal	WCDMA (Crest factor: 1.0)

B. SAR Measurement Results

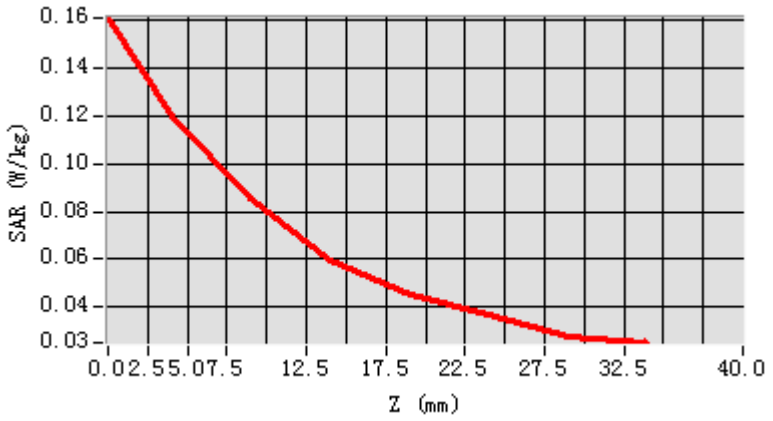
Frequency (MHz)	1880.000000
Relative permittivity (real part)	39.023312
Relative permittivity (imaginary part)	13.834666
Conductivity (S/m)	1.444954
Variation (%)	-0.600000

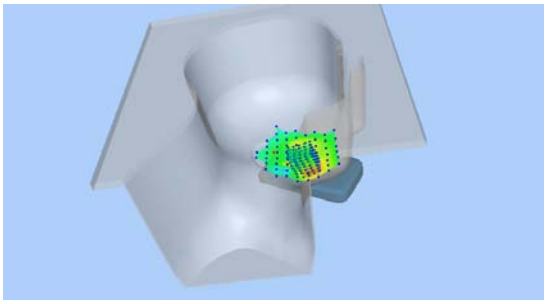
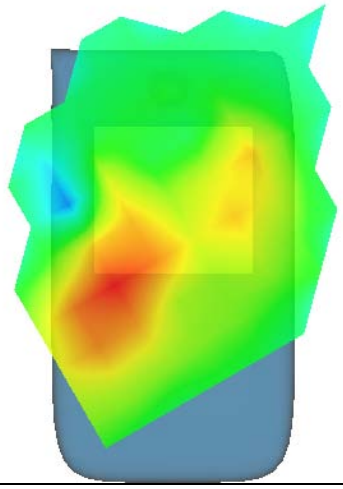
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-52.00, Y=-51.00
SAR Peak: 0.17 W/kg

SAR 10g (W/Kg)	0.075375
SAR 1g (W/Kg)	0.118889

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.1609	0.1199	0.0854	0.0596	0.0453	0.0371	0.0279



3D screen shot	Hot spot position
	

MEASUREMENT 6

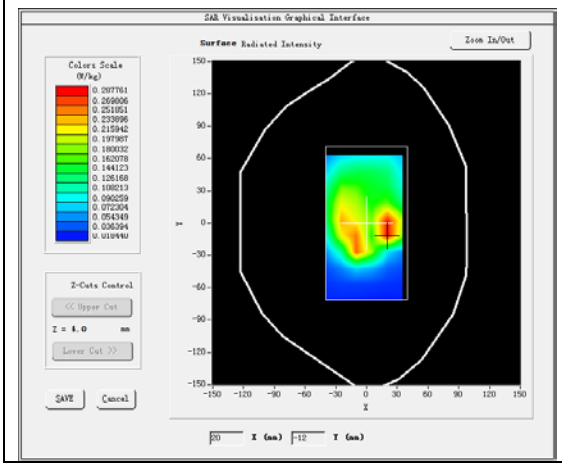
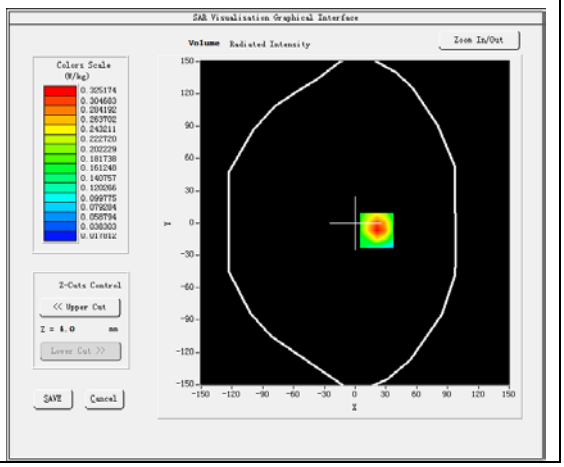
Date of measurement: 30/10/2021

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	Body
Band	Band2_WCDMA1900
Channels	Middle
Signal	WCDMA (Crest factor: 1.0)

B. SAR Measurement Results

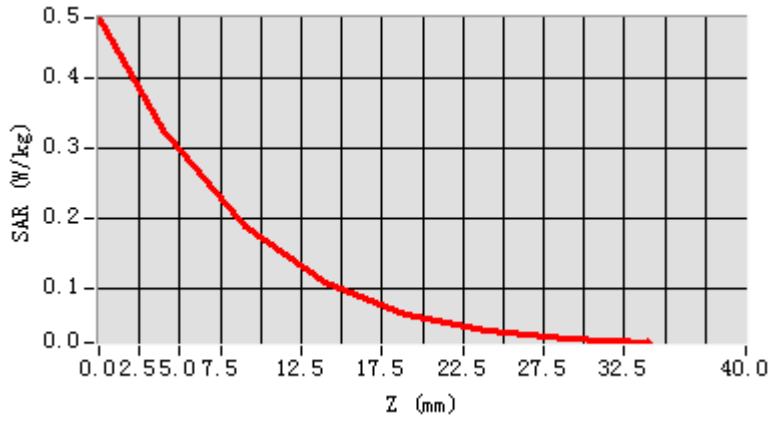
Frequency (MHz)	1880.000000
Relative permittivity (real part)	39.023312
Relative permittivity (imaginary part)	13.834666
Conductivity (S/m)	1.444954
Variation (%)	0.190000

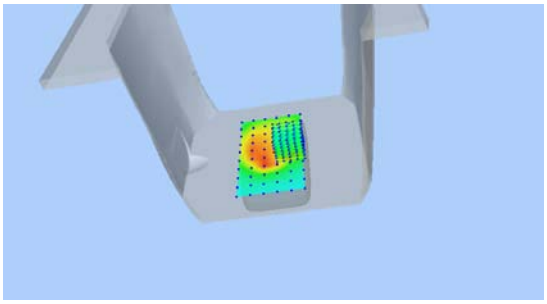
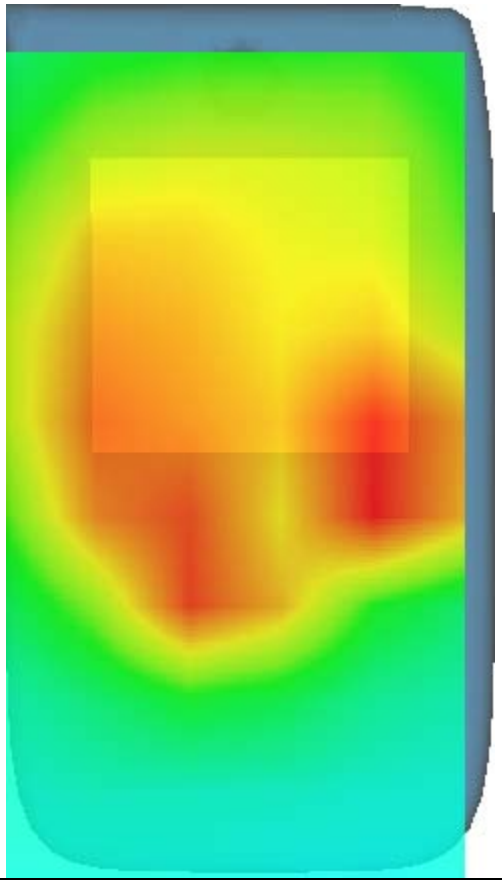
SURFACE SAR	VOLUME SAR
	

Maximum location: X=21.00, Y=-7.00
SAR Peak: 0.49 W/kg

SAR 10g (W/Kg)	0.171948
SAR 1g (W/Kg)	0.314164

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.4873	0.3252	0.1893	0.1093	0.0629	0.0402	0.0284



3D screen shot	Hot spot position
	

MEASUREMENT 7

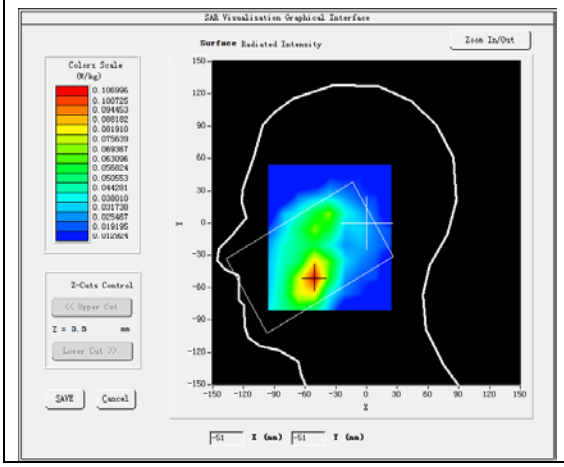
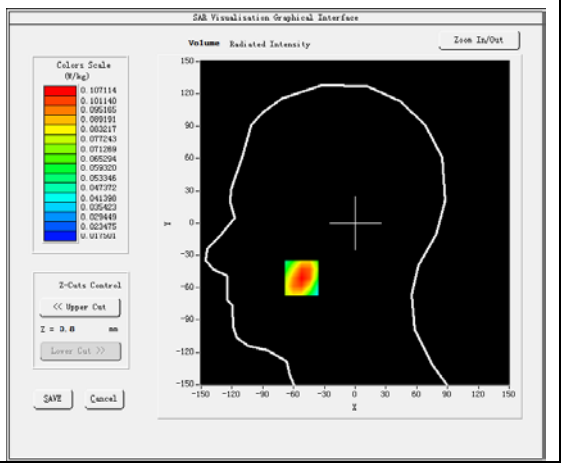
Date of measurement: 10/11/2021

A. Experimental conditions.

Area Scan	dx=15mm dy=15mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Left head
Device Position	Cheek
Band	Band4 WCDMA1700
Channels	Middle
Signal	WCDMA (Crest factor: 1.0)

B. SAR Measurement Results

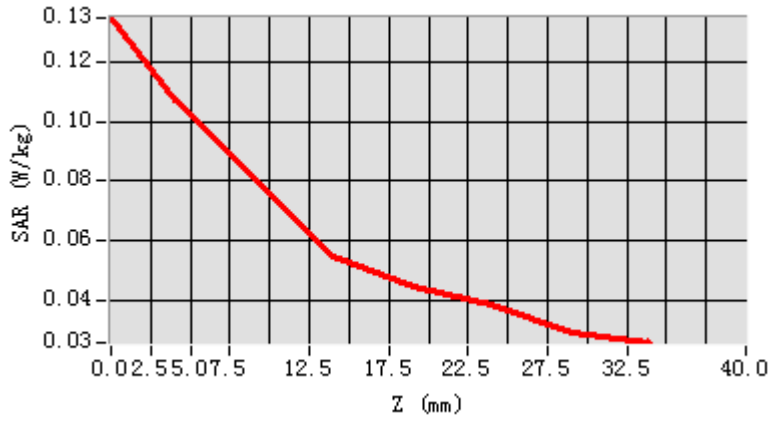
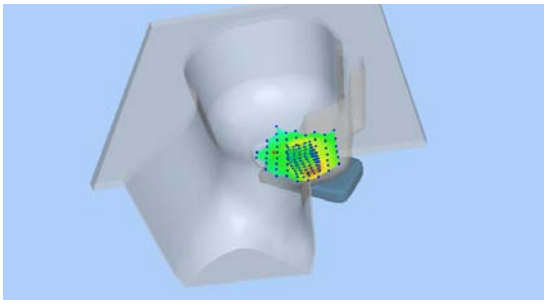
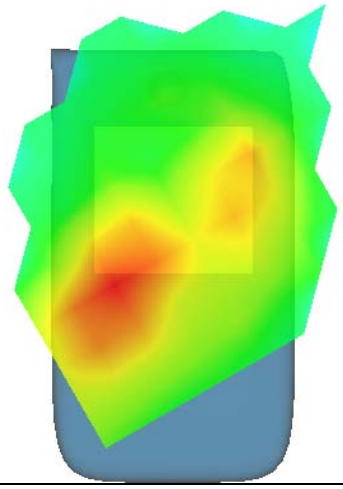
Frequency (MHz)	1732.600000
Relative permittivity (real part)	39.784424
Relative permittivity (imaginary part)	13.825180
Conductivity (S/m)	1.330290
Variation (%)	-0.920000

SURFACE SAR	VOLUME SAR
	

Maximum location: X=-52.00, Y=-51.00
SAR Peak: 0.15 W/kg

SAR 10g (W/Kg)	0.068671
SAR 1g (W/Kg)	0.102732

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.1347	0.1071	0.0816	0.0544	0.0444	0.0389	0.0294



3D screen shot	Hot spot position