TCT 通测检测 TESTING CENTRE TECHNOLOGY

SAR TEST REPORT

FCC ID.....:	2AM8GCHAMELEON5RV2	
Test Report No.....:	TCT220921E029	
Date of issue.....:	23rd Sept. 2022	
Testing laboratory.....:	SHENZHEN TONGCE TESTING LAB	
Testing location/ address.....:	2101 & 2201, Zhenchang Factory Renshan Industrial Zone, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, 518103, People's Republic of China	
Applicant's name.....:	Guangzhou Lie Dun Electronics Technology CO., Ltd.	
Address.....:	No. 4 plant of No. 43 South International Trade Avenue, Hualong Town, Panyu District, Guangzhou, Guangdong, China	
Manufacturer's name .....:	Guangzhou Lie Dun Electronics Technology CO., Ltd.	
Address.....:	No. 4 plant of No. 43 South International Trade Avenue, Hualong Town, Panyu District, Guangzhou, Guangdong, China	
Product Name.....:	RUGGEDIZED HAND-HELD DEVICE	
Trade Mark.....:	CHAMELEON	
Model/Type reference.....:	CHAMELEON 5R V2 SINGLE	
SAR Max. Values.....:	**0.799 W/Kg (1g) for Hotspot/Body-worn,** **0.133 W/Kg (1g) for Front-of-face**	
Date of receipt of test item..:	16th Sept. 2022	
Date (s) of performance of test.....:	19th Sept. 2022 to 22nd Sept. 2022	
Tested by (+signature).....:	Karl WANG	Karl Wang
Check by (+signature).....:	Beryl Zhao	Beryl Zhao
Approved by (+signature)...:	Tomsin	Tomsin

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1. General Product Information

1.1. EUT description

Product Name:	RUGGEDIZED HAND-HELD DEVICE
Model :	CHAMELEON 5R V2 SINGLE
Trade Mark:	CHAMELEON
Sample No.	BTFSN220921E002
Power Supply:	Rechargeable Battery Rated Voltage 3.85V
3G	
Operation Band:	FDD Band II & FDD Band IV & FDD Band V
Power Class:	Power Class 3
Modulation Type:	QPSK for WCDMA/HSDPA/HSUPA
WCDMA Release Version:	R99
HSDPA Release Version:	Release 5
HSUPA Release Version:	Release 6
DC-HSUPA Release Version:	Not Supported
LTE	
Operation Band:	LTE Band 2 & LTE Band 4 & LTE Band 5 & LTE Band 7 & LTE Band 12 & LTE Band 13 & LTE Band 17 & LTE Band 25 & LTE Band 26 & LTE Band 41 & LTE Band 66 & LTE Band 71
Power Class:	Power Class 3
Modulation Type:	QPSK &16-QAM for LTE
Wi-Fi 2.4G	
Supported type:	802.11b/802.11g/802.11n
Modulation:	802.11b: DSSS 802.11g/802.11n:OFDM
Operation frequency:	802.11b/802.11g/802.11n(HT20/HT40):2412MHz~2462MHz;
Channel number:	802.11b/802.11g/802.11n(HT20/HT40):11
Channel separation:	5MHz
Wi-Fi 5G	
Operation Frequency:	Band 1: 5150 MHz ~ 5250 MHz Band 2A: 5250 MHz ~ 5350 MHz Band 2C: 5500 MHz ~ 5700 MHz Band 3: 5725 MHz ~ 5850 MHz
Channel Bandwidth:	802.11a: 20MHz 802.11n: 20MHz, 40MHz 802.11ac: 20MHz, 40MHz, 80MHz
Modulation Technology:	Orthogonal Frequency Division Multiplexing(OFDM)
Modulation Type	256QAM, 64QAM, 16QAM, BPSK, QPSK
Bluetooth	
Bluetooth Version:	Supported 5.0
Modulation:	GFSK(1Mbps) , π/4-DQPSK(2Mbps) , 8-DPSK(3Mbps)
Operation frequency:	2402MHz~2480MHz
Channel number:	79/40
Channel separation:	1MHz/2MHz

1.2. Model(s) list

No.	Model No.	Tested with
1	CHAMELEON 5R V2 SINGLE	☒
Other models	CHAMELEON 5R V2 DUAL	☐
Note: CHAMELEON 5R V2 SINGLE is tested model, other models are derivative models. The models are identical in circuit and PCB layout, only different on the model names, finger print module & size. So the test data of CHAMELEON 5R V2 SINGLE can represent the remaining models.		

2. Test standard

The tests were performed according to following standards:
FCC 47 CFR §2.1093
IEEE1528-2013: Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate in the Human Head from Wireless Communications Devices: Measurement Techniques
KDB447498 D01: General RF Exposure Guidance v06
KDB447498 D04: Interim General RF Exposure Guidance v01
KDB865664 D01: SAR measurement 100MHz to 6GHz v01r04
KDB865664 D02: RF Exposure Reporting v01r02.
KDB941225 D01: 3G SAR Procedures v03r01
KDB941225 D05: SAR for LTE Devices v02r05
KDB248227 D01: 802.11 Wi-Fi SAR v02r02
KDB941225 D06: Hotspot Mode v02r01
KDB690783 D01: SAR Listings on Grant v01r03

3. Facilities and Accreditations

3.1. Facilities

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

- FCC - Registration No.: 645098

  Shenzhen Tongce Testing Lab

  The 3m Semi-anechoic chamber has been registered and fully described in a report with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files.

- IC - Registration No.: 10668A-1

  The 3m Semi-anechoic chamber of Shenzhen Tongce Testing Lab.. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing

3.2. Location

SHENZHEN TONGCE TESTING LAB.

Address: 2101 & 2201, Zhenchang Factory Renshan Industrial Zone, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, 518103, People's Republic of China

3.3. Environment Condition:

Temperature:	18°C ~25°C
Humidity:	35%~75% RH
Atmospheric Pressure:	1011 mbar

4. Test Result Summary

The maximum results of Specific Absorption Rate (SAR) found during test as bellows:
<Highest Reported standalone SAR Summary>

Exposure Position	Frequency Band	Reported SAR (W/kg)	Equipment Class	Highest Reported SAR (W/kg)
Hotspot/Body-worn 1-g SAR (10 mm Gap)	WCDMA Band II	0.387	PCB	**0.799**
	WCDMA Band IV	0.271		
	WCDMA Band V	0.211		
	LTE Band 2	0.585		
	LTE Band 4	0.370		
	LTE Band 5	0.416		
	LTE Band 7	0.176		
	LTE Band 12	0.123		
	LTE Band 13	0.148		
	LTE Band 17	0.182		
	LTE Band 25	0.401		
	LTE Band 26	0.428		
	LTE Band 41	0.498		
	LTE Band 66	0.720		
	LTE Band 71	0.630		
	2.4G WIFI	0.799	DTS	
	5G WIFI U-NII-1	0.584	NII	
	5G WIFI U-NII-2a	0.417		
	5G WIFI U-NII-2c	0.535		
	5G WIFI U-NII-3	0.194		
Exposure Position	Frequency Band	Reported SAR (W/kg)	Equipment Class	Highest Reported SAR (W/kg)
Front-of-face 1-g SAR (25 mm Gap)	WCDMA Band II	0.066	PCB	**0.133**
	WCDMA Band IV	0.062		
	WCDMA Band V	0.079		
	LTE Band 2	0.085		
	LTE Band 4	0.047		
	LTE Band 5	0.070		
	LTE Band 7	0.079		
	LTE Band 12	0.076		
	LTE Band 13	0.115		
	LTE Band 17	0.052		
	LTE Band 25	0.126		
	LTE Band 26	0.133		
	LTE Band 41	0.063		
	LTE Band 66	0.085		
	LTE Band 71	0.086		
	2.4G WIFI	0.094	DTS	
	5G WIFI U-NII-1	0.083	NII	
	5G WIFI U-NII-2a	0.096		
	5G WIFI U-NII-2c	0.076		
	5G WIFI U-NII-3	0.104		

<Highest Reported simultaneous SAR Summary>

Exposure Position	Frequency Band	Highest Reported Simultaneous Transmission SAR (W/kg)
Hotspot/Body-worn 1-g SAR (10 mm Gap)	LTE Band 66 + 2.4 G Wifi	1.519
Front-of-face 1-g SAR (25 mm Gap)	LTE Band 26 + 5 G Wifi	0.230

Note:

1. The highest simultaneous transmission is scalar summation of Reported standalone SAR per FCC KDB 690783 D01 v01r03, and scalar SAR summation of all possible simultaneous transmission scenarios are < 1.6W/kg.
2. This device is compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits specified in FCC 47 CFR part 2 (2.1093) and ANSI/IEEE C95.1-2005, and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528-2013.

5. RF Exposure Limit

Type Exposure	SAR (W/kg)
	Uncontrolled Exposure Limit
Spatial Peak SAR (averaged over any 1 g of tissue)	1.60
Spatial Peak SAR (hands/wrists/feet/ankles averaged over 10g)	4.00
Spatial Peak SAR (averaged over the whole body)	0.08

Note:

1. The Spatial Peak value of the SAR averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.
2. The Spatial Average value of the SAR averaged over the whole body.
3. The Spatial Peak value of the SAR averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.

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6. SAR Measurement System Configuration

6.1. SAR Measurement Set-up

The OPENSAR system for performing compliance tests consist of the following items:

A standard high precision 6-axis robot (KUKA) with controller and software.

KUKA Control Panel (KCP)

A dosimetric probe, i.e., an isotropic E-field probe optimized and calibrated for usage in tissue simulating liquid. The probe is equipped with a Video Positioning System (VPS).

The stress sensor is composed with mechanical and electronic when the electronic part detects a change on the electro-mechanical switch; it sends an “Emergency signal” to the robot controller that to stop robot’s moves A computer operating Windows XP.

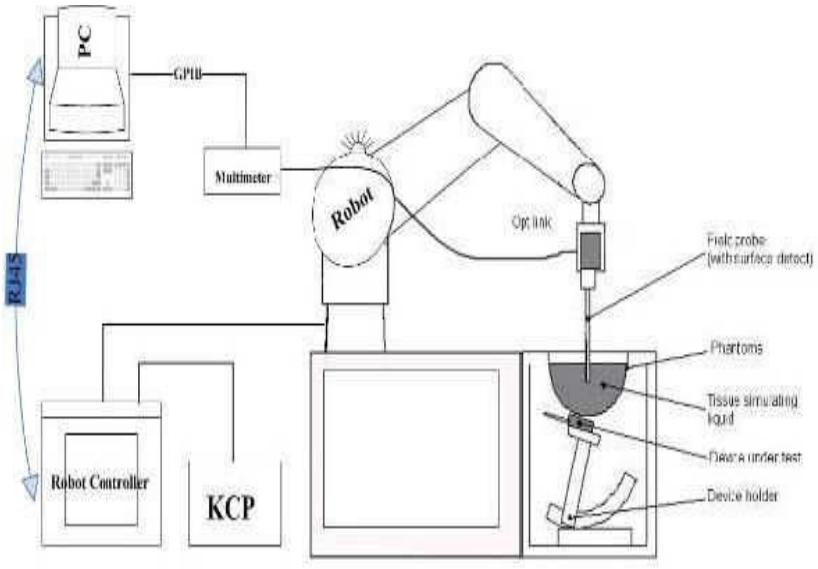
OPENSAR software Remote control with teaches pendant and additional circuitry for robot safety such as warning lamps, etc.

The SAM phantom enabling testing left-hand right-hand and body usage.

The Position device for handheld EUT

Tissue simulating liquid mixed according to the given recipes.

System validation dipoles to validate the proper functioning of the system.



KUKA SAR Test Sysytem Configuration

6.2. E-field Probe

The SAR measurement is conducted with the dosimetric probe (manufactured by MVG).
The probe is specially designed and calibrated for use in liquid with high permittivity. The dosimetric probe has special calibration in liquid at different frequency.
This probe has a built in optical surface detection system to prevent from collision with phantom.

Probe Specification
Construction Symmetrical design with triangular core
Interleaved sensors
Built-in shielding against static charges
PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Calibration ISO/IEC 17025 calibration service available.

Device Type	COMOSAR DOSIMETRIC E FIELD PROBE
Manufacturer	MVG
Model	SSE2
Serial Number	SN 36/20 EPGO346
Frequency Range of Probe	0.15 GHz-6GHz
Resistance of Three Dipoles at Connector	Dipole 1:R1=0.217MΩ Dipole 2:R3=0.245MΩ Dipole 3:R3=0.219MΩ

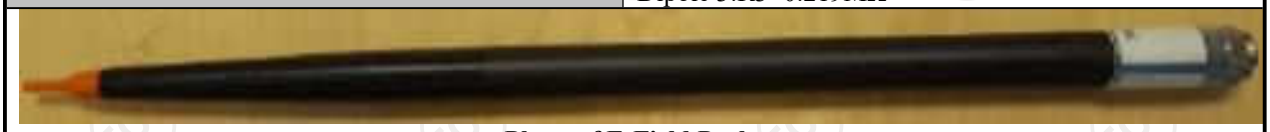
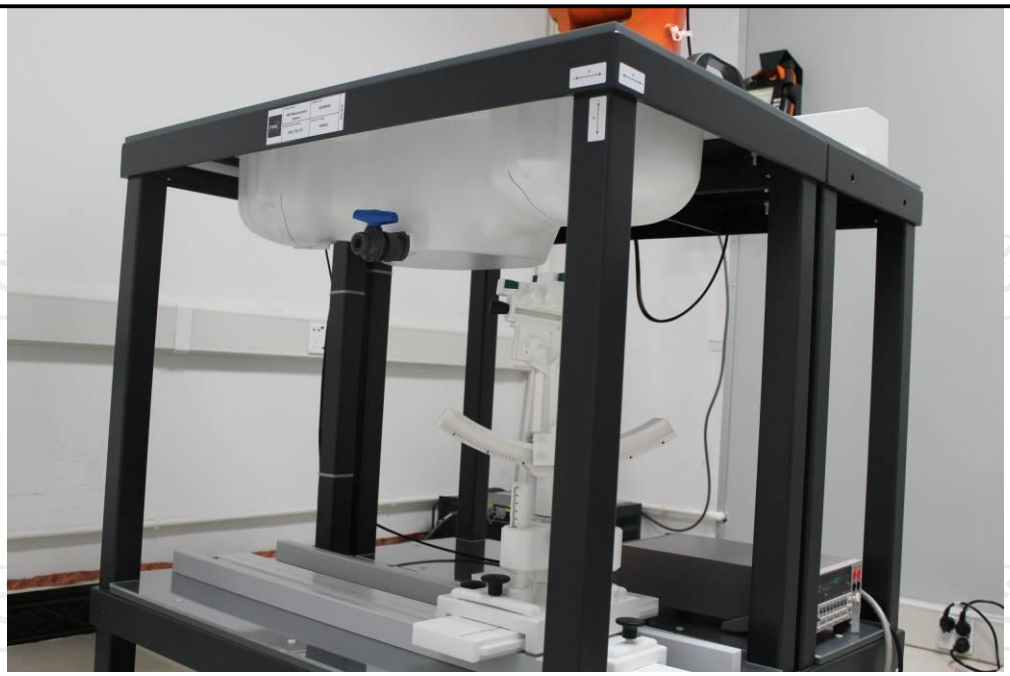


Photo of E-Field Probe

6.3. Phantom

The SAM Phantom SAM120 is constructed of a fiberglass shell integrated in a wooden table. The shape of the shell is in compliance with the specification set in IEEE P1528 and CENELEC IEC 62209-1, IEC 62209-2:2010.
The phantom enables the dosimetric evaluation of left and right hand phone usage as well as body mounted usage at the flat phantom region.
A cover prevents the evaporation of the liquid.
Reference markings on the Phantom allow the complete setup of all predefined phantom positions and measurement grids by manually teaching three points in the robot
System checking was performed using the flat section, whilst Head SAR tests used the left and right head profile sections.
Body SAR testing also used the flat section between the head profiles.

Name: COMOSAR IEEE SAM PHANTOM
S/N: SN 19/15 SAM 120
Manufacture: MVG

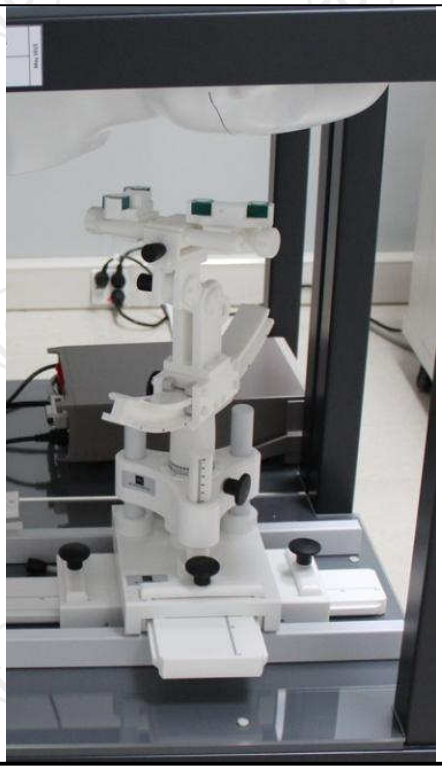


SAM Twin Phantom

6.4. Device Holder

In combination with the Generic Twin Phantom SAM120, the Mounting Device enables the rotation of the mounted transmitter in spherical coordinates whereby the rotation points is the ear opening.
The devices can be easily, accurately, and repeatedly positioned according to the FCC and CENELEC specifications.
The device holder can be locked at different phantom locations (left head, right head, flat phantom).

COMOSAR Mobile phone positioning system



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6.5. Data Storage and Evaluation

Data Storage

The OPENSAR software stores the acquired data from the data acquisition electronics as raw data (in microvolt readings from the probe sensors), together with all necessary software parameters for the data evaluation (probe calibration data, liquid parameters and device frequency and modulation data) in measurement files. The software evaluates the desired unit and format for output each time the data is visualized or exported. This allows verification of the complete software setup even after the measurement and allows correction of incorrect parameter settings. For example, if a measurement has been performed with a wrong crest factor parameter in the device setup, the parameter can be corrected afterwards and the data can be re-evaluated.

The measured data can be visualized or exported in different units or formats, depending on the selected probe type ([V/m], [A/m], [°C], [mW/g], [mW/cm²], [dBrel], etc.). Some of these units are not available in certain situations or show meaningless results, e.g., a SAR output in a lossless media will always be zero. Raw data can also be exported to perform the evaluation with other software packages.

Data Evaluation

The OPENSAR software automatically executes the following procedures to calculate the field units from the microvolt readings at the probe connector. The parameters used in the evaluation are stored in the configuration modules of the software:

Probe parameters:	- Sensitivity	Normi, ai0, ai1, ai2
	- Conversion factor	ConvFi
	- Diode compression point	Dcpi
Device parameters:	- Frequency	f
	- Crest factor	cf
Media parameters:	- Conductivity	σ
	- Density	ρ

These parameters must be set correctly in the software. They can be found in the component documents or they can be imported into the software from the configuration files issued for the OPENSAR components. In the direct measuring mode of the millimeter option, the parameters of the actual system setup are used. In the scan visualization and export modes, the parameters stored in the corresponding document files are used.

The first step of the evaluation is a linearization of the filtered input signal to account for the compression characteristics of the detector diode. The compensation depends on the input signal, the diode type and the DC-transmission factor from the diode to the evaluation electronics. If the exciting field is pulsed, the crest factor of the signal must be known to correctly compensate for peak power. The formula for each channel can be given as:

$$Vi = Ui + Ui2 \cdot c\,f / d\,c\,pi$$

With Vi = compensated signal of channel i (i = x, y, z)
Ui = input signal of channel i (i = x, y, z)
cf = crest factor of exciting field (MVG parameter)
dcpi = diode compression point (MVG parameter)

From the compensated input signals the primary field data for each channel can be evaluated:

$$\text{E-field probes: } Ei = (Vi / Normi \cdot ConvF)1/2$$

$$\text{H-field probes: } Hi = (Vi)1/2 \cdot (ai0 + ai1\,f + ai2f2) / f$$

With Vi = compensated signal of channel i (i = x, y, z)
Normi = sensor sensitivity of channel i (i = x, y, z)
[mV/(V/m)2] for E-field Probes
ConvF = sensitivity enhancement in solution
aij = sensor sensitivity factors for H-field probes
f = carrier frequency [GHz]
Ei = electric field strength of channel i in V/m
Hi = magnetic field strength of channel i in A/m

The RSS value of the field components gives the total field strength (Hermitian magnitude):

$$Etot = (Ex2+ EY2+ Ez2)1/2$$

The primary field data are used to calculate the derived field units.

$$SAR = (Etot)\ 2 \cdot \sigma / (\rho \cdot 1000)$$

with SAR = local specific absorption rate in mW/g
Etot = total field strength in V/m
σ = conductivity in [mho/m] or [Siemens/m]
ρ = equivalent tissue density in g/cm3

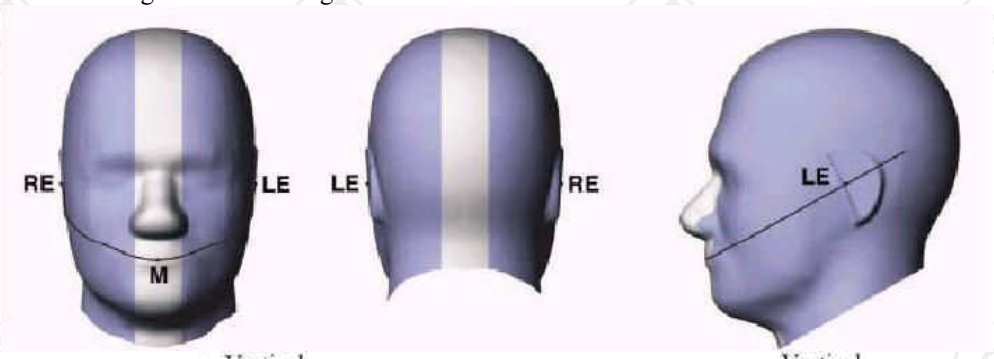
Note that the density is normally set to 1 (or 1.06), to account for actual brain density rather than the density of the simulation liquid. The power flow density is calculated assuming the excitation field to be a free space field.

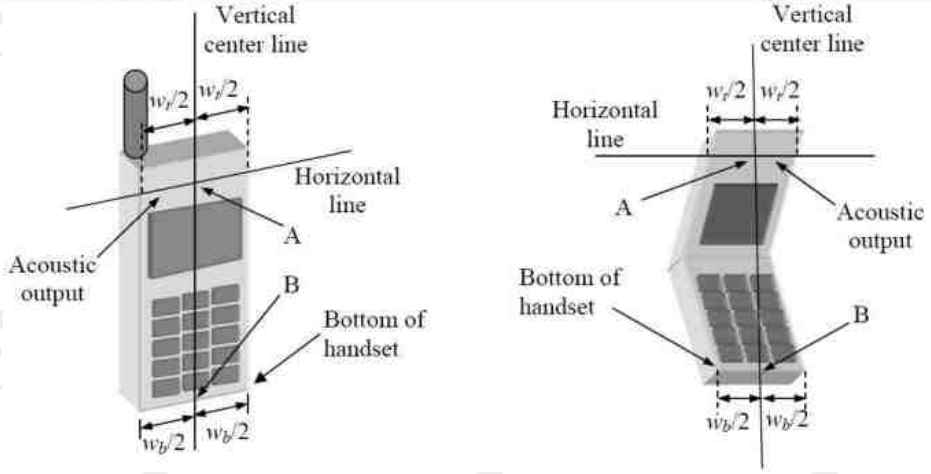
6.6. Position of the wireless device in relation to the phantom

Handset Reference Points

$$Ppwe = Etot2 / 3770 \text{ or } Ppwe = Htot2 \cdot 37.7$$

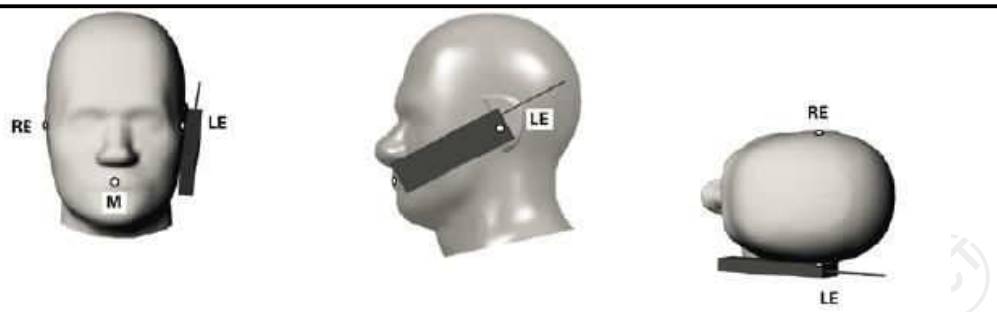
With Ppwe = equivalent power density of a plane wave in mW/cm2
Etot = total electric field strength in V/m
Htot = total magnetic field strength in A/m





Wt Width of the handset at the level of the acoustic
Wb Width of the bottom of the handset
A Midpoint of the width wt of the handset at the level of the acoustic output
B Midpoint of the width wb of the bottom of the handset

Positioning for Cheek / Touch



Positioning for Ear / 15º Tilt

Body Worn Accessory Configurations
To position the device parallel to the phantom surface with either keypad up or down.
To adjust the device parallel to the flat phantom.
To adjust the distance between the device surface and the flat phantom to 15mm or holster surface and the flat phantom to 0 mm.

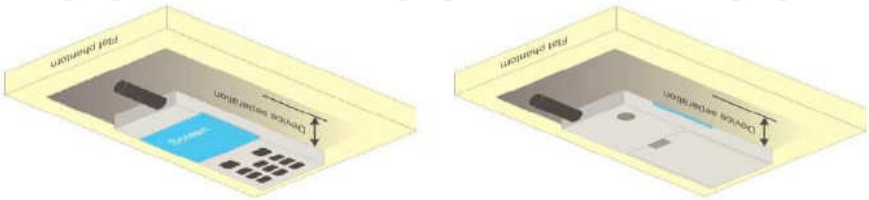


Illustration for Body Worn Position

Wireless Router（Hotspot）Configurations
Some battery-operated handsets have the capability to transmit and receive internet connectivity through simultaneous transmission of WIFI in conjunction with a separate licensed transmitter. The FCC has provided guidance in 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 10 mm from the front, back and edges of the device with antennas 2.5 cm or closer to the edge of the device, determined from general mixed use conditions for this type of devices. Since the hotspot SAR results may overlap with the body-worn accessory SAR requirements, the more conservative configurations can be considered, thus excluding some body-worn accessory SAR tests.

When the user enables the personal wireless router functions for the handset, actual operations include simultaneous transmission of both the WIFI transmitter and another licensed transmitter. Both transmitters often do not transmit at the same transmitting frequency and thus cannot be evaluated for SAR under actual use conditions. Therefore, SAR must be evaluated for each frequency transmission and mode separately and summed with the WIFI transmitter according to KDB 648474 publication procedures. The “Portable Hotspot” feature on the handset was NOT activated, to ensure the SAR measurements were evaluated for a single transmission frequency RF signal.

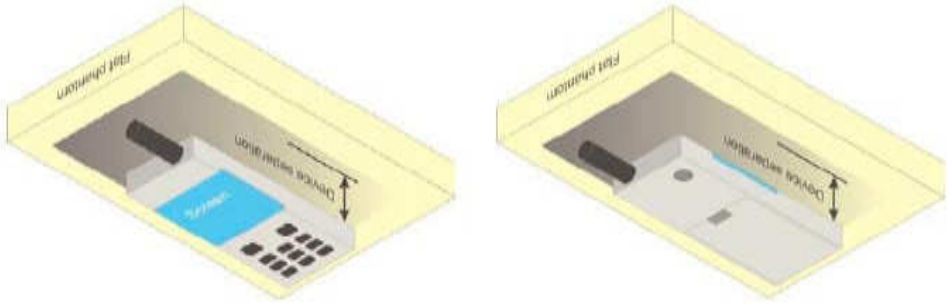
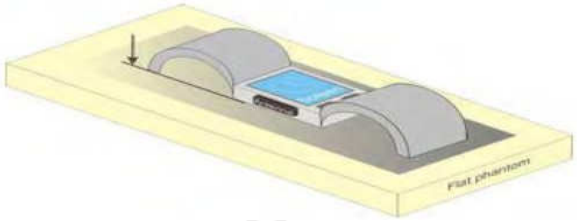


Illustration for Hotspot Position

Limb-worn device

A limb-worn device is a unit whose intended use includes being strapped to the arm or leg of the user while transmitting (except in idle mode). It is similar to a body-worn device. Therefore, the test positions of 6.1.4.4 also apply. The strap shall be opened so that it is divided into two parts as shown in Figure 9. The device shall be positioned directly against the phantom surface with the strap straightened as much as possible and the back of the device towards the phantom.

If the strap cannot normally be opened to allow placing in direct contact with the phantom surface, it may be necessary to break the strap of the device but ensuring to not damage the antenna.

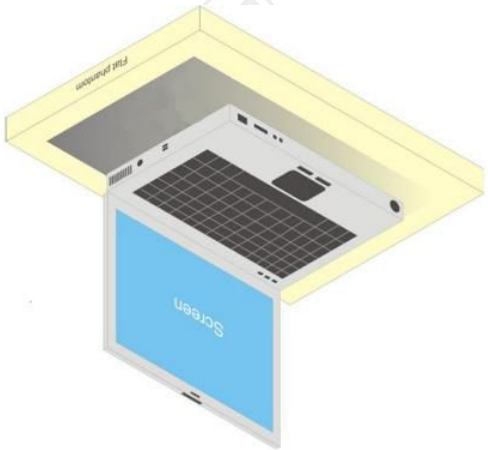


Test position for limb-worn devices

Laptop devices

For laptop PC, according to KDB 616217 D04, SAR evaluation is required for the bottom surface of the keyboard.

This EUT was tested in the base of EUT directly against the flat phantom. The required minimum test separation distance for incorporating transmitters and antennas into laptop computer display is determined with the display screen opened at an angle of 90° to the keyboard compartment.



Test position for laptop devices

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6.7. Tissue Dielectric Parameters

The liquid used for the frequency range of 100MHz-6G consisted of water, sugar, salt and Cellulose. The liquid has been previously proven to be suited for worst-case. The following Table shows the detail solution. It's satisfying the latest tissue dielectric parameters requirements proposed by the IEEE 1528 and IEC 62209.
The simulating liquids should be checked at the beginning of a series of SAR measurements to determine of the 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.
The following materials are used for producing the tissue-equivalent materials

Targets for tissue simulating liquid

Frequency (MHz)	Liquid Type	Liquid Type (σ)	± 5% Range	Permittivity (ε)	± 5% Range
750	Body	0.96	0.91~1.01	55.50	52.73~58.28
835	Body	0.97	0.92~1.02	55.20	52.44~57.96
1800-2000	Body	1.52	1.44~1.60	53.30	50.64~55.97
2450	Body	1.95	1.85~2.05	52.70	50.07~55.34
2600	Body	2.16	2.05~2.27	52.50	49.88~55.13
5200	Body	5.30	5.04~5.57	49.00	46.55~51.45
5400	Body	5.53	5.25~5.81	48.70	46.27~51.14
5600	Body	5.77	5.48~6.06	48.50	46.08~50.93
5800	Body	6.00	5.70~6.30	48.20	45.79~50.61

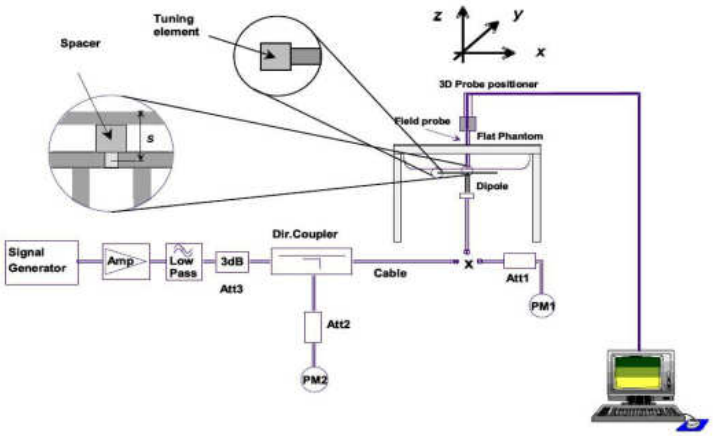
(εr = relative permittivity, σ = conductivity and ρ = 1000 kg/m3)

6.8. Tissue-equivalent Liquid Properties

Test Date dd/mm/yy	Temp ℃	Tissue Type	Measured Frequency (MHz)	εr	σ(s/m)	Dev εr(%)	Dev σ(%)
09/19/2022	22℃	750B	750	55.38	0.92	0.22	4.17
09/19/2022	22℃	835B	825	55.26	0.93	-0.11	4.12
			835	55.24	0.94	-0.07	3.09
			850	55.21	0.97	-0.02	0.00
09/20/2022	22℃	1800B	1710	54.65	1.49	-2.53	1.97
			1720	54.64	1.50	-2.51	1.32
			1750	54.62	1.51	-2.48	0.66
			1800	54.59	1.53	-2.42	-0.66
09/20/2022	22℃	1900B	1850	53.27	1.55	0.06	-1.97
			1880	53.25	1.56	0.09	-2.63
			1900	53.24	1.57	0.11	-3.29
			1910	53.23	1.58	0.13	-3.95
09/21/2022	22℃	2450B	2410	52.21	1.97	0.93	-1.03
			2435	52.16	1.98	1.02	-1.54
			2450	52.15	2.01	1.04	-3.08
			2460	52.14	2.03	1.06	-4.10
09/21/2022	22℃	2600B	2510	52.04	2.10	0.88	2.78
			2535	51.99	2.11	0.97	2.31
			2600	51.94	2.13	1.07	1.39
09/22/2022	22℃	5200B	5200	49.52	5.40	-1.06	-1.89
09/22/2022	22℃	5400B	5400	47.96	5.51	-1.52	-0.36
09/22/2022	22℃	5600B	5600	47.80	5.53	1.44	4.16
09/22/2022	22℃	5800B	5800	47.59	5.95	1.27	0.83

6.9. System Check

The SAR system must be validated against its performance specifications before it is deployed. When SAR probe and system component or software are changed, upgraded or recalibrated, these must be validated with the SAR system(s) that operates with such component. Reference dipoles are used with the required tissue-equivalent media for system validation. System check results have to be equal or near the values determined during dipole calibration with the relevant liquids and test system (±10 %).
System check is performed regularly on all frequency bands where tests are performed with the OPENSAR system.



System Check Set-up

Verification Results

Frequency (MHz)	Liquid Type	Measured Value in 100mW (W/kg)		Normalized to 1W (W/kg)		Target Value (W/kg)		Deviation (%)	
		1 g Average	10 g Average	1 g Average	10 g Average	1 g Average	10 g Average	1 g Average	10 g Average
750	Body	0.87	0.60	8.70	6.00	8.46	5.81	2.84	3.27
835	Body	0.95	0.63	9.50	6.30	9.62	6.44	-1.25	-2.17
1800	Body	3.78	2.05	37.79	20.46	37.69	20.57	0.27	-0.53
1900	Body	3.77	1.99	37.70	19.90	38.71	20.53	-2.61	-3.07
2450	Body	5.07	2.42	50.70	24.16	50.63	23.40	0.14	3.25
2600	Body	5.37	2.38	53.65	23.81	53.26	23.89	0.73	-0.33
5200	Body	15.90	5.69	159.00	56.90	158.49	55.40	0.32	2.71
5400	Body	16.64	5.84	166.40	58.43	167.20	57.39	-0.48	1.81
5600	Body	17.38	6.00	173.80	59.97	175.65	59.48	-1.05	0.82
5800	Body	18.12	6.15	181.20	61.50	183.06	61.62	-1.02	-0.19

Comparing to the original SAR value provided by MVG, 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 as below indicates the system performance check can meet the variation criterion and the plots can be referred to Section 10 of this report.

7. Measurement Procedure

Conducted power measurement

For WWAN power measurement, use base station simulator to configure EUT WWAN transition in conducted connection with RF cable, at maximum power in each supported wireless interface and frequency band.
Read the WWAN RF power level from the base station simulator.
For WLAN/BT power measurement, use engineering software to configure EUT WLAN/BT continuously transmission, at maximum RF power in each supported wireless interface and frequency band.
Connect EUT RF port through RF cable to the power meter or spectrum analyser, and measure WLAN/BT output power.

Conducted power measurement

Use base station simulator to configure EUT WWAN transmission in radiated connection, and engineering software to configure EUT WLAN/BT continuously transmission, at maximum RF power, in the highest power channel.
Place the EUT in positions as Appendix B demonstrates.
Set scan area, grid size and other setting on the MVG software.
Measure SAR results for the highest power channel on each testing position.
Find out the largest SAR result on these testing positions of each band.
Measure SAR results for other channels in worst SAR testing position if the Reported SAR or 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:

Power reference measurement
Area scan
Zoom scan
Power drift measurement

Spatial Peak SAR Evaluation

The procedure for spatial peak SAR evaluation has been implemented according to the test standard. It can be conducted for 1g and 10g, as well as for user-specific masses. The MVG software includes all numerical procedures necessary to evaluate the spatial peak SAR value.

The base for the evaluation is a “cube” measurement. The measured volume must include the 1g and 10 g cubes with the highest averaged SAR values. For that purpose, the center of the measured volume is aligned to the interpolated peak SAR value of a previously performed area scan.

The entire evaluation of the spatial peak values is performed within the post-processing engine (SEMCAD). The system always gives the maximum values for 1g and 10g cubes. The algorithm to find the cube with highest averaged SAR is divided into the following stages:
Extraction of the measured data (grid and values) from the Zoom Scan.

Calculation of the SAR value at every measurement point based on all stored data (A/D values and measurement parameters).

Generation of a high-resolution mesh within the measured volume.

Interpolation of all measured values form the measurement grid to the high-resolution grid

Extrapolation of the entire 3-D field distribution to the phantom surface over the distance from sensor to surface

Calculation of the averaged SAR within masses of 1g and 10g.

Power Reference Measurement

The Power Reference Measurement and Power Drift Measurement 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

Area & Zoom Scan Procedures

First Area Scan is used to locate the approximate location(s) of the local peak SAR value(s). The measurement grid within an Area Scan is defined by the grid extent, grid step size and grid offset. Next, in order to determine the EM field distribution in a three-dimensional spatial extension, Zoom Scan is required. The Zoom Scan is performed around the highest E-field value to determine the averaged SAR-distribution over 10g. Area scan and zoom scan resolution setting follows KDB 865664 D01v01r03 quoted below.

<table>
<tr><td colspan="3"></td><td>≤ 3 GHz</td><td>> 3 GHz</td></tr>
<tr><td colspan="3">Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface</td><td>5 mm ± 1 mm</td><td>½·δ·ln(2) mm ± 0.5 mm</td></tr>
<tr><td colspan="3">Maximum probe angle from probe axis to phantom surface normal at the measurement location</td><td>30° ± 1°</td><td>20° ± 1°</td></tr>
<tr><td colspan="3" rowspan="2">Maximum area scan spatial resolution: Δx_{Area}, Δy_{Area}</td><td>≤ 2 GHz: ≤ 15 mm
2 – 3 GHz: ≤ 12 mm</td><td>3 – 4 GHz: ≤ 12 mm
4 – 6 GHz: ≤ 10 mm</td></tr>
<tr><td colspan="2">When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.</td></tr>
<tr><td colspan="3">Maximum zoom scan spatial resolution: Δx_{Zoom}, Δy_{Zoom}</td><td>≤ 2 GHz: ≤ 8 mm
2 – 3 GHz: ≤ 5 mm*</td><td>3 – 4 GHz: ≤ 5 mm*
4 – 6 GHz: ≤ 4 mm*</td></tr>
<tr><td rowspan="3">Maximum zoom scan spatial resolution, normal to phantom surface</td><td colspan="2">uniform grid: $\Delta z_{Zoom}(n)$</td><td>≤ 5 mm</td><td>3 – 4 GHz: ≤ 4 mm
4 – 5 GHz: ≤ 3 mm
5 – 6 GHz: ≤ 2 mm</td></tr>
<tr><td rowspan="2">graded grid</td><td>$\Delta z_{Zoom}(1)$: between 1st two points closest to phantom surface</td><td>≤ 4 mm</td><td>3 – 4 GHz: ≤ 3 mm
4 – 5 GHz: ≤ 2.5 mm
5 – 6 GHz: ≤ 2 mm</td></tr>
<tr><td>$\Delta z_{Zoom}(n>1)$: between subsequent points</td><td colspan="2">≤ 1.5·$\Delta z_{Zoom}(n-1)$ mm</td></tr>
<tr><td>Minimum zoom scan volume</td><td colspan="2">x, y, z</td><td>≥ 30 mm</td><td>3 – 4 GHz: ≥ 28 mm
4 – 5 GHz: ≥ 25 mm
5 – 6 GHz: ≥ 22 mm</td></tr>
<tr><td colspan="5">Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see IEEE Std 1528-2013 for details.
* When zoom scan is required and the reported SAR from the area scan based 1-g SAR estimation procedures of KDB Publication 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.</td></tr>
</table>

Volume Scan Procedures

The volume scan is used for assess overlapping SAR distributions for antennas transmitting in different frequency bands. It is equivalent to an oversized zoom scan used in standalone measurements. The measurement volume will be used to enclose all the simultaneous transmitting antennas. For antennas transmitting simultaneously in different frequency bands, the volume scan is measured separately in each frequency band. In order to sum correctly to compute the 1g aggregate SAR, the EUT remain in the same test position for all measurements and all volume scan use the same spatial resolution and grid spacing. When all volume scan were completed, the software, SEMCAD post-processor scan combine and subsequently superpose these measurement data to calculating the multiband SAR.

SAR Averaged Methods

In MVG, the interpolation and extrapolation are both based on the modified Quadratic Shepard's method. The

interpolation scheme combines a least-square fitted function method and a weighted average method which are the two basic types of computational interpolation and approximation.

Extrapolation routines are used to obtain SAR values between the lowest measurement points and the inner phantom surface. The extrapolation distance is determined by the surface detection distance and the probe sensor offset. The uncertainty increases with the extrapolation distance. To keep the uncertainty within 1% for the 1g and 10g cubes, the extrapolation distance should not be larger than 5 mm.

Power Drift Monitoring

All SAR testing is under the EUT install full charged battery and transmit maximum output power. In MVG 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 dB. If the power drifts more than 5%, the SAR will be retested.

Power Drift measurement

The drift job measures the field at the same location as the most recent reference job within the same procedure, and with the same settings. The drift measurement gives the field difference in dB from the reading conducted within the last reference measurement. Several drift measurements are possible for

Measurement Uncertainty

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

8. Conducted Output Power

Band	WCDMA Band II			WCDMA Band IV			WCDMA Band V		
Channel	9262	9400	9538	1312	1413	1513	4132	4183	4233
Frequency	1852.40	1880.00	1907.60	1712.40	1732.60	1752.60	826.40	836.60	846.60
RMC 12.2Kbps	20.34	20.57	**20.86**	**22.10**	21.77	21.73	22.77	**22.81**	22.69
HSDPA Subtest-1	19.95	20.23	20.47	21.82	21.48	21.44	22.52	22.52	22.39
HSDPA Subtest-2	19.49	19.76	20.01	21.34	21.01	20.99	22.02	22.06	21.93
HSDPA Subtest-3	19.49	19.77	20.01	21.34	21.04	20.97	22.05	22.03	21.90
HSDPA Subtest-4	19.49	19.75	20.05	21.32	21.00	20.95	22.01	22.04	21.91
HSUPA Subtest-1	19.27	20.04	20.20	21.03	21.31	21.31	22.44	22.35	22.24
HSUPA Subtest-2	18.41	18.79	19.01	20.42	20.12	20.01	21.04	21.01	20.95
HSUPA Subtest-3	18.99	19.26	19.52	20.86	20.57	20.51	21.42	21.52	21.53
HSUPA Subtest-4	17.94	18.15	18.42	19.78	19.52	19.45	20.41	20.50	20.31
HSUPA Subtest-5	19.90	20.22	20.48	21.83	21.53	21.47	22.58	22.57	22.45

Note:
1. According to the power listed above, the HSDPA and HSUPA were not determined for SAR testing.
2. The default test configuration is to measure SAR with an established radio link between the EUT and a communication test set using a 12.2kbps RMC(reference measurement channel) configuration in test loop mode
3. The device do not support power reduction, so power of hotspot activated as the same as hotspot disabled

WLAN 2.4G						
Mode	802.11b			802.11g		
Channel	1	6	11	1	6	11
Frequency	2412	2437	2462	2412	2437	2462
Average Power (dBm)	16.75	17.41	**17.57**	17.49	17.20	16.45
Mode	802.11n(HT20)			802.11n(HT40)		
Channel	1	6	11	3	6	9
Frequency	2412	2437	2462	2422	2437	2452
Average Power (dBm)	17.58	17.09	17.40	17.51	17.08	17.10

Note
1. Per KDB 248227 D01 v02r02, choose the highest output power channel to test SAR and determine further SAR exclusion.
2. The output power of all data rate were pre-scan, just the worst case (the lowest data rate) of all mode were shown in report

WLAN 5G U-NII-1 (5.150~5.250)						
Mode	IEEE 802.11a			IEEE 802.11n HT20		
Channel	36	44	48	36	44	48
Frequency	5180	5220	5240	5180	5220	5240
Average Power (dBm)	14.73	14.19	15.40	14.53	14.93	15.35
Mode	IEEE 802.11n HT40			IEEE 802.11ac VHT20		
Channel	38		46	36	44	48
Frequency	5190		5230	5180	5220	5240
Average Power (dBm)	15.29		13.16	14.50	14.92	15.29
Mode	IEEE 802.11ac VHT40			IEEE 802.11ac VHT80		
Channel	38		46	42		
Frequency	5190		5230	5210		
Average Power (dBm)	15.42		13.15	**15.46**		
WLAN 5G U-NII-2a (5.250~5.350)						
Mode	IEEE 802.11a			IEEE 802.11n HT20		
Channel	52	60	64	52	60	64
Frequency	5260	5300	5320	5260	5300	5320
Average Power (dBm)	15.92	**16.18**	14.22	15.86	16.09	14.12
Mode	IEEE 802.11n HT40			IEEE 802.11ac VHT20		
Channel	54		62	52	60	64
Frequency	5270		5310	5260	5300	5320
Average Power (dBm)	14.48		14.54	15.81	16.08	15.76
Mode	IEEE 802.11ac VHT40			IEEE 802.11ac VHT80		
Channel	54		62	58		
Frequency	5270		5310	5290		
Average Power (dBm)	14.49		14.51	14.52		
WLAN 5G U-NII-2c (5.470~5.725)						
Mode	IEEE 802.11a			IEEE 802.11n HT20		
Channel	100	116	140	100	116	140
Frequency	5500	5580	5700	5500	5580	5700
Average Power (dBm)	15.03	14.32	**16.32**	14.92	14.23	16.17
Mode	IEEE 802.11n HT40			IEEE 802.11ac VHT20		
Channel	102	110	134	100	120	140
Frequency	5510	5550	5670	5500	5600	5700
Average Power (dBm)	14.91	14.41	15.22	14.90	14.25	16.18
Mode	IEEE 802.11ac VHT40			IEEE 802.11ac VHT80		
Channel	102	110	134	106	122	
Frequency	5510	5550	5670	5530	5610	
Average Power (dBm)	14.98	14.48	15.28	14.73	14.55	
WLAN 5G U-NII-3 (5.725~5.850)						
Mode	IEEE 802.11a			IEEE 802.11n HT20		
Channel	149	157	165	149	157	165
Frequency	5745	5785	5825	5745	5785	5825
Average Power (dBm)	15.09	14.12	13.49	14.98	13.04	13.30

Mode	IEEE 802.11n HT40		IEEE 802.11ac VHT20		
Channel	151	159	149	157	165
Frequency	5755	5795	5745	5785	5825
Average Power (dBm)	15.25	13.63	14.99	13.02	13.27
Mode	IEEE 802.11ac VHT40		IEEE 802.11ac VHT80		
Channel	151	159	155		
Frequency	5755	5795	5775		
Average Power (dBm)	**15.30**	13.51	14.29		

Bluetooth						
Mode	GFSK			Pi/4DQPSK		
Channel	1	40	79	1	40	79
Frequency	2402	2441	2480	2402	2441	2480
Average Power (dBm)	7.80	7.62	**9.27**	7.88	7.27	8.68
Mode	8DPSK			BLE(Up: 1Mbps, Down: Up: 2Mbps)		
Channel	1	40	79	0	20	39
Frequency	2402	2441	2480	2402	2440	2480
Average Power (dBm)	8.06	7.77	8.91	1.08	1.23	1.29
				3.72	4.03	3.61

BT

Channel	Frequency (GHz)	Max. Tune-up Power (dBm)	Max. Power (mW)	Test distance (cm)	Exclusion thresholds for 1-g SAR	RF Exposure Evaluation Required
79	2480	9.50	8.91	1.0	10.17	No
79	2480	9.50	8.91	2.5	58.28	No

2.4G

Channel	Frequency (GHz)	Max. Tune-up Power (dBm)	Max. Power (mW)	Test distance (cm)	Exclusion thresholds for 1-g SAR	RF Exposure Evaluation Required
11	2462	18.00	63.10	1.0	10.22	Yes
11	2462	18.00	63.10	2.5	58.47	Yes

5G
U-NII-1

Channel	Frequency (GHz)	Max. Tune-up Power (dBm)	Max. Power (mW)	Test distance (cm)	Exclusion thresholds for 1-g SAR	RF Exposure Evaluation Required
42	5210	15.50	35.48	1.0	6.28	Yes
42	5210	15.50	35.48	2.5	41.68	No

U-NII-2a

Channel	Frequency (GHz)	Max. Tune-up Power (dBm)	Max. Power (mW)	Test distance (cm)	Exclusion thresholds for 1-g SAR	RF Exposure Evaluation Required
60	5300	16.50	44.67	1.0	6.21	Yes
60	5300	16.50	44.67	2.5	41.36	Yes

U-NII-2c

Channel	Frequency (GHz)	Max. Tune-up Power (dBm)	Max. Power (mW)	Test distance (cm)	Exclusion thresholds for 1-g SAR	RF Exposure Evaluation Required
140	5700	16.50	44.67	1.0	5.92	Yes
140	5700	16.50	44.67	2.5	40.02	Yes

U-NII-3

Channel	Frequency (GHz)	Max. Tune-up Power (dBm)	Max. Power (mW)	Test distance (cm)	Exclusion thresholds for 1-g SAR	RF Exposure Evaluation Required
151	5755	15.50	35.48	1.0	5.88	Yes
151	5755	15.50	35.48	2.5	39.85	No

Note

1. Per KDB 447498 D04 Interim General RF Exposure Guidance v01, the 1-g SAR test exclusion thresholds for 300 MHz to 6 GHz at *test separation distances* ≤ 40 cm are determined by:

$$P_{\text{th}}\,(\text{mW}) = ERP_{20\,\text{cm}}\,(\text{mW}) = \begin{cases} 2040f & 0.3\ \text{GHz} \le f < 1.5\ \text{GHz} \\ 3060 & 1.5\ \text{GHz} \le f \le 6\ \text{GHz} \end{cases} \quad \text{(B. 1)}$$

$$P_{\text{th}}\,(\text{mW}) = \begin{cases} ERP_{20\,\text{cm}}(d/20\ \text{cm})^{x} & d \le 20\ \text{cm} \\ ERP_{20\,\text{cm}} & 20\ \text{cm} < d \le 40\ \text{cm} \end{cases} \quad \text{(B. 2)}$$

where

$$x = -\log_{10}\left(\frac{60}{ERP_{20\,\text{cm}}\sqrt{f}}\right)$$

and f is in GHz, d is the separation distance (cm), and $ERP_{20\text{cm}}$ is per Formula (B.1).

2. Base on the result of note1, RF exposure evaluation of BT is not required.
3. Per KDB 248227 D01 v02r02, choose the highest output power channel to test SAR and determine further SAR exclusion.
4. The output power of all data rate were prescan, just the worst case (the lowest data rate) of all mode were shown in report.

Conducted Power of LTE Band 2						
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel
				18607	18900	19193
1.4MHz	QPSK	1	0	20.52	20.97	21.04
			2	20.65	21.05	21.04
			5	20.55	21.01	21.04
		3	0	20.59	21.00	21.00
			1	20.58	20.99	20.96
			3	20.62	20.95	21.01
		6	0	19.69	20.04	20.07
	16QAM	1	0	19.85	20.01	20.16
			2	19.94	20.03	20.26
			5	19.81	19.97	20.19
		3	0	19.64	19.93	20.01
			1	19.65	19.91	19.94
			3	19.62	19.86	19.95
		6	0	18.61	19.10	18.96
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel
				18615	18900	19185
3MHz	QPSK	1	0	20.69	21.12	21.11
			8	20.65	21.07	21.09
			14	20.57	21.02	21.14
		8	0	19.69	20.08	20.14
			4	19.71	20.10	20.14
			7	19.69	20.04	20.13
		15	0	19.67	20.07	20.15
	16QAM	1	0	19.89	20.26	20.01
			8	19.89	20.31	20.10
			14	19.88	20.17	20.05
		8	0	18.79	19.20	19.24
			4	18.79	19.21	19.19
			7	18.77	19.18	19.22
		15	0	18.76	19.10	19.09

Conducted Power of LTE Band 2						
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel
				18625	18900	19175
5MHz	QPSK	1	0	20.79	21.14	21.16
			12	20.86	21.27	21.27
			24	20.75	21.08	21.18
		12	0	19.73	20.11	20.09
			6	19.73	20.12	20.10
			13	19.77	20.07	20.14
		25	0	19.76	20.11	20.11
	16QAM	1	0	19.82	20.43	20.19
			12	19.96	20.51	20.36
			24	19.89	20.32	20.23
		12	0	18.84	19.29	19.24
			6	18.84	19.30	19.23
			13	18.78	19.19	19.22
		25	0	18.81	19.15	19.22
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel
				18650	18900	19150
10MHz	QPSK	1	0	20.71	21.25	20.92
			24	20.71	21.07	21.10
			49	20.87	21.04	21.08
		25	0	19.72	20.12	20.01
			12	19.70	20.13	20.01
			25	19.81	20.06	20.15
		50	0	19.76	20.06	20.07
	16QAM	1	0	20.06	20.47	19.88
			24	20.00	20.30	20.05
			49	20.09	20.27	20.06
		25	0	18.75	19.23	19.14
			12	18.77	19.27	19.13
			25	18.84	19.10	19.22
		50	0	18.84	19.18	19.14

Conducted Power of LTE Band 2						
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel
				18675	18900	19125
15MHz	QPSK	1	0	20.54	21.13	20.75
			38	20.69	21.01	20.95
			74	20.81	20.92	21.05
		38	0	19.77	20.05	19.94
			18	19.76	20.05	19.95
			37	19.80	20.05	19.95
		75	0	19.80	20.05	19.95
	16QAM	1	0	19.81	20.43	19.75
			38	20.01	20.40	19.97
			74	20.05	20.26	20.03
		38	0	19.78	20.05	19.95
			18	19.76	20.05	19.95
			37	19.75	20.04	19.95
		75	0	18.84	19.16	19.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel
				18700	18900	19100
20MHz	QPSK	1	0	20.64	**21.24**	20.67
			49	20.85	21.11	20.81
			99	21.13	21.01	20.96
		50	0	19.71	20.11	19.87
			25	19.71	**20.12**	19.88
			50	20.02	20.02	20.00
		100	0	19.98	20.06	19.95
	16QAM	1	0	19.80	20.39	19.84
			49	19.96	20.32	19.97
			99	20.15	20.24	20.17
		50	0	18.78	19.23	18.94
			25	18.76	19.24	18.94
			50	19.01	19.11	19.14
		100	0	19.04	19.16	19.07

LTE Band 4

Conducted Power of LTE Band 4						
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel
				19957	20175	20393
1.4MHz	QPSK	1	0	21.81	21.69	21.55
			2	21.87	21.71	21.61
			5	21.80	21.67	21.56
		3	0	21.85	21.63	21.61
			1	21.85	21.61	21.60
			3	21.83	21.63	21.56
		6	0	20.84	20.65	20.59
	16QAM	1	0	21.05	20.61	20.79
			2	21.19	20.71	20.91
			5	21.08	20.59	20.83
		3	0	20.82	20.58	20.61
			1	20.84	20.58	20.62
			3	20.86	20.54	20.58
		6	0	20.00	19.72	19.74
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel
				19965	20175	20385
3MHz	QPSK	1	0	21.86	21.74	21.69
			8	21.86	21.72	21.64
			14	21.86	21.68	21.61
		8	0	20.96	20.68	20.73
			4	20.94	20.77	20.74
			7	20.94	20.69	20.69
		15	0	20.92	20.75	20.69
	16QAM	1	0	21.15	20.87	20.58
			8	21.18	20.93	20.66
			14	21.20	20.85	20.63
		8	0	20.03	19.78	19.78
			4	20.03	19.78	19.76
			7	20.02	19.76	19.74
		15	0	20.04	19.67	19.65

Conducted Power of LTE Band 4						
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel
				19975	20175	20375
5MHz	QPSK	1	0	21.98	21.82	21.72
			12	22.09	21.87	21.79
			24	21.94	21.72	21.67
		12	0	20.97	20.73	20.71
			6	20.97	20.75	20.70
			13	20.99	20.68	20.63
		25	0	20.96	20.70	20.69
	16QAM	1	0	21.12	21.03	20.82
			12	21.22	21.09	20.93
			24	21.09	20.96	20.77
		12	0	20.04	19.83	19.78
			6	20.06	19.81	19.76
			13	20.04	19.80	19.78
		25	0	20.07	19.76	19.75
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel
				20000	20175	20350
10MHz	QPSK	1	0	21.88	21.69	21.64
			24	21.91	21.70	21.69
			49	21.84	21.61	21.59
		25	0	20.98	20.76	20.66
			12	20.98	20.76	20.67
			25	20.90	20.67	20.66
		50	0	20.96	20.74	20.71
	16QAM	1	0	21.22	21.07	20.67
			24	21.25	20.92	20.71
			49	21.15	20.89	20.61
		25	0	20.03	19.83	19.79
			12	19.98	19.81	19.80
			25	19.97	19.78	19.80
		50	0	19.96	19.75	19.73

Conducted Power of LTE Band 4						
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel
				20025	20175	20325
15MHz	QPSK	1	0	21.94	21.73	21.69
			38	21.93	21.69	21.67
			74	21.76	21.62	21.60
		38	0	20.84	20.76	20.72
			18	20.84	20.76	20.72
			37	20.84	20.75	20.71
		75	0	20.84	20.75	20.71
	16QAM	1	0	21.27	21.21	20.69
			38	21.33	21.06	20.65
			74	21.09	20.97	20.62
		38	0	20.85	20.76	20.73
			18	20.84	20.76	20.71
			37	20.84	20.75	20.71
		75	0	19.92	19.79	19.85
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel
				20050	20175	20300
20MHz	QPSK	1	0	**22.05**	21.85	21.54
			49	22.03	21.81	21.49
			99	21.76	21.73	21.48
		50	0	**21.06**	20.79	20.72
			25	21.06	20.79	20.71
			50	20.81	20.73	20.65
		100	0	20.89	20.77	20.74
	16QAM	1	0	21.19	21.20	20.73
			49	21.23	20.99	20.72
			99	20.90	21.01	20.72
		50	0	20.15	19.89	19.79
			25	20.15	19.90	19.79
			50	19.89	19.78	19.81
		100	0	19.97	19.80	19.81

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LTE Band 5

Conducted Power of LTE Band 5						
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel
				20407	20525	20643
1.4MHz	QPSK	1	0	22.46	22.48	22.25
			2	22.44	22.52	22.21
			5	22.45	22.52	22.17
		3	0	22.49	22.56	22.27
			1	22.49	22.54	22.26
			3	22.54	22.50	22.26
		6	0	21.47	21.50	21.24
	16QAM	1	0	21.71	21.50	21.43
			2	21.77	21.57	21.50
			5	21.69	21.52	21.42
		3	0	21.52	21.48	21.23
			1	21.54	21.48	21.23
			3	21.51	21.45	21.21
		6	0	20.44	20.62	20.40
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel
				20415	20525	20635
3MHz	QPSK	1	0	22.43	22.53	22.41
			8	22.43	22.49	22.32
			14	22.45	22.53	22.25
		8	0	21.51	21.60	21.40
			4	21.50	21.55	21.43
			7	21.51	21.54	21.37
		15	0	21.53	21.60	21.34
	16QAM	1	0	21.82	21.82	21.30
			8	21.78	21.81	21.28
			14	21.75	21.76	21.23
		8	0	20.67	20.67	20.46
			4	20.66	20.67	20.48
			7	20.66	20.68	20.46
		15	0	20.63	20.60	20.39

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Conducted Power of LTE Band 5						
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel
				20425	20525	20625
5MHz	QPSK	1	0	22.58	22.59	22.46
			12	22.59	22.63	22.52
			24	22.54	22.56	22.25
		12	0	21.56	21.62	21.43
			6	21.55	21.62	21.50
			13	21.56	21.56	21.37
		25	0	21.55	21.59	21.44
	16QAM	1	0	21.66	21.92	21.51
			12	21.78	22.04	21.59
			24	21.68	21.92	21.43
		12	0	20.70	20.80	20.53
			6	20.70	20.78	20.56
			13	20.63	20.70	20.48
		25	0	20.64	20.69	20.50
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel
				20450	20525	20600
10MHz	QPSK	1	0	22.43	**22.51**	22.37
			24	22.43	22.50	22.40
			49	22.44	22.44	22.22
		25	0	21.55	21.60	21.43
			12	21.55	**21.61**	21.38
			25	21.58	21.55	21.45
		50	0	21.54	21.56	21.37
	16QAM	1	0	21.85	21.80	21.40
			24	21.77	21.81	21.39
			49	21.74	21.73	21.25
		25	0	20.62	20.73	20.53
			12	20.62	20.73	20.52
			25	20.67	20.66	20.55
		50	0	20.61	20.68	20.44

LTE Band 7

Conducted Power of LTE Band 7						
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel
				20775	21100	21425
5MHz	QPSK	1	0	20.95	20.88	20.63
			12	21.06	21.02	20.74
			24	21.00	20.95	20.70
		12	0	19.96	19.83	19.58
			6	19.95	19.79	19.56
			13	19.99	19.85	19.58
		25	0	19.98	19.82	19.58
	16QAM	1	0	19.99	20.04	19.60
			12	20.11	20.11	19.76
			24	20.13	20.05	19.72
		12	0	18.95	18.81	18.55
			6	18.96	18.82	18.55
			13	19.02	18.87	18.62
		25	0	18.96	18.78	18.58
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel
				20800	21100	21400
10MHz	QPSK	1	0	20.86	20.84	20.59
			24	20.90	20.86	20.53
			49	20.88	20.82	20.66
		25	0	19.99	19.82	19.62
			12	19.97	19.81	19.61
			25	19.93	19.88	19.62
		50	0	19.86	19.80	19.65
	16QAM	1	0.00	20.11	19.92	19.54
			25.00	20.22	19.92	19.48
			49.00	20.21	19.94	19.59
		25	0.00	18.97	18.78	18.66
			13.00	19.00	18.80	18.66
			25.00	18.95	18.89	18.65
		50	0.00	18.91	18.82	18.65

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Conducted Power of LTE Band 7						
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel
				20825	21100	21375
15MHz	QPSK	1	0	20.91	20.88	20.61
			38	20.92	20.92	20.63
			74	20.94	20.84	20.66
		38	0	19.91	19.92	19.59
			18	19.92	19.88	19.59
			37	19.92	19.88	19.57
		75	0	19.91	19.89	19.58
	16QAM	1	0	20.12	20.06	19.63
			38	20.27	20.07	19.61
			74	20.29	20.12	19.58
		38	0	19.92	19.89	19.57
			18	19.91	19.88	19.57
			37	19.91	19.88	19.58
		75	0	18.99	18.92	18.71
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel
				20850	21100	21350
20MHz	QPSK	1	0	20.98	21.00	20.52
			49	20.93	20.94	20.50
			99	**21.01**	20.78	20.58
		50	0	19.94	19.80	19.74
			25	19.93	19.78	19.77
			50	**19.95**	19.92	19.63
		100	0	19.98	19.87	19.73
	16QAM	1	0	20.05	20.06	19.81
			49	20.10	19.99	19.68
			99	20.09	20.00	19.63
		50	0	18.96	18.78	18.85
			25	18.97	18.81	18.88
			50	19.02	18.90	18.72
		100	0	18.97	18.83	18.81

LTE Band 12

Conducted Power of LTE Band 12						
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel
				23017	23095	23173
1.4MHz	QPSK	1	0	22.62	22.77	22.69
			2	22.64	22.81	22.76
			5	22.61	22.75	22.68
		3	0	22.65	22.79	22.79
			1	22.65	22.76	22.78
			3	22.65	22.74	22.74
		6	0	21.63	21.82	21.73
	16QAM	1	0	21.86	21.93	21.69
			2	21.95	21.98	21.72
			5	21.91	21.89	21.65
		3	0	21.72	21.81	21.73
			1	21.70	21.84	21.73
			3	21.70	21.76	21.70
		6	0	20.61	20.74	20.83
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel
				23025	23095	23165
3MHz	QPSK	1	0	22.63	22.77	22.78
			8	22.73	22.86	22.76
			14	22.63	22.85	22.74
		8	0	21.74	21.91	21.77
			4	21.76	21.92	21.77
			7	21.69	21.88	21.80
		15	0	21.80	21.88	21.85
	16QAM	1	0	21.95	21.96	21.72
			8	22.11	22.02	21.78
			14	21.98	21.96	21.72
		8	0	20.90	20.97	20.90
			4	20.95	20.91	20.93
			7	20.93	20.91	20.86
		15	0	20.96	20.88	20.82

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Conducted Power of LTE Band 12						
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel
				23035	23095	23155
5MHz	QPSK	1	0	22.74	22.81	22.75
			12	22.89	22.98	22.91
			24	22.83	22.88	22.76
		12	0	21.81	21.87	21.78
			6	21.82	21.87	21.75
			13	21.88	21.89	21.79
		25	0	21.77	21.85	21.74
	16QAM	1	0	21.86	22.07	21.88
			12	22.02	22.18	22.05
			24	21.94	22.07	21.87
		12	0	20.94	20.98	20.90
			6	20.95	20.99	20.90
			13	20.96	20.92	20.96
		25	0	20.90	20.92	20.84
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel
				23060	23095	23130
10MHz	QPSK	1	0	22.61	22.70	**22.87**
			24	22.72	22.86	22.77
			49	22.78	22.71	22.83
		25	0	21.80	21.96	21.86
			12	21.79	21.97	**21.88**
			25	21.92	21.87	21.83
		50	0	21.85	21.88	21.86
	16QAM	1	0	22.00	22.04	21.80
			24	22.07	22.06	21.81
			49	22.02	22.01	21.87
		25	0	20.93	21.05	20.97
			12	20.92	21.05	20.99
			25	20.96	20.97	21.00
		50	0	20.97	20.97	20.93

LTE Band 13

Conducted Power of LTE Band 13						
Bandwidth	Modulation	RB size	RB offset	Channel 23205	Channel 23230	Channel 23255
5MHz	QPSK	1	0	22.71	22.76	22.79
			12	22.86	22.89	22.77
			24	22.85	22.78	22.80
		12	0	21.76	21.88	21.73
			6	21.77	21.87	21.73
			13	21.82	21.80	21.71
		25	0	21.73	21.84	21.71
	16QAM	1	0	21.77	21.89	22.04
			12	21.95	22.00	22.05
			24	21.99	21.91	21.90
		12	0	20.76	20.95	20.88
			6	20.84	20.96	20.87
			13	20.89	20.93	20.77
		25	0	20.83	20.92	20.78

Bandwidth	Modulation	RB size	RB offset	Channel 23230
10MHz	QPSK	1	0	22.53
			24	22.71
			49	**22.73**
		25	0	21.86
			12	**21.88**
			25	21.81
		50	0	21.85
	16QAM	1	0	21.85
			24	22.06
			49	21.91
		25	0	20.92
			12	20.94
			25	20.87
		50	0	20.91

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LTE Band 17

Conducted Power of LTE Band 17						
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel
				23755	23790	23825
5MHz	QPSK	1	0	22.79	22.88	22.74
			12	22.96	22.93	22.87
			24	22.81	22.93	22.74
		12	0	21.81	21.88	21.71
			6	21.82	21.88	21.75
			13	21.89	21.84	21.82
		25	0	21.87	21.85	21.70
	16QAM	1	0	21.91	22.14	21.87
			12	22.02	22.24	22.03
			24	21.94	22.21	21.87
		12	0	20.87	20.95	20.83
			6	20.87	20.92	20.86
			13	20.91	20.96	20.94
		25	0	20.98	20.90	20.82
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel
				23780	23790	23800
10MHz	QPSK	1	0	22.72	22.71	**22.83**
			24	22.75	22.80	22.78
			49	22.76	22.79	22.81
		25	0	21.85	21.93	21.86
			12	21.87	21.87	**21.89**
			25	21.82	21.84	21.85
		50	0	21.91	21.90	21.87
	16QAM	1	0	22.04	22.04	21.81
			24	22.04	22.06	21.78
			49	22.11	22.13	21.83
		25	0	20.91	20.94	20.98
			12	20.91	20.95	20.97
			25	20.89	20.93	20.94
		50	0	20.90	20.97	20.94

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LTE Band 25

Conducted Power of LTE Band 25						
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel
				26047	26365	26683
1.4MHz	QPSK	1	0	20.77	20.94	21.53
			2	20.83	20.96	21.55
			5	20.76	20.88	21.52
		3	0	20.77	20.92	21.44
			1	20.78	20.93	21.42
			3	20.76	20.89	21.40
		6	0	19.85	19.95	20.65
	16QAM	1	0	20.04	20.08	20.58
			2	20.13	20.19	20.65
			5	19.98	20.08	20.60
		3	0	19.79	19.89	20.31
			1	19.82	19.91	20.33
			3	19.78	19.93	20.32
		6	0	18.94	18.84	19.65
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel
				26055	26365	26675
3MHz	QPSK	1	0	20.82	21.07	21.59
			8	20.87	21.01	21.57
			14	20.84	20.98	21.58
		8	0	19.94	20.06	20.62
			4	19.93	20.07	20.66
			7	19.92	19.99	20.67
		15	0	19.89	20.03	20.54
	16QAM	1	0	20.19	20.24	20.50
			8	20.20	20.24	20.51
			14	20.12	20.17	20.50
		8	0	19.03	19.13	19.63
			4	19.01	19.10	19.61
			7	19.02	19.10	19.62
		15	0	19.01	19.04	19.49

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Conducted Power of LTE Band 25						
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel
				26065	26365	26665
5MHz	QPSK	1	0	20.97	21.15	21.69
			12	21.02	21.19	21.75
			24	20.99	21.09	21.66
		12	0	19.92	20.10	20.59
			6	19.92	20.08	20.58
			13	19.93	20.05	20.60
		25	0	19.93	20.08	20.59
	16QAM	1	0	20.10	20.48	20.67
			12	20.12	20.44	20.69
			24	20.11	20.32	20.67
		12	0	19.05	19.25	19.67
			6	19.05	19.25	19.65
			13	19.00	19.13	19.62
		25	0	19.06	19.17	19.61
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel
				26090	26365	26640
10MHz	QPSK	1	0	21.08	21.37	21.49
			24	20.94	21.02	21.53
			49	21.21	21.17	21.56
		25	0	19.99	20.15	20.52
			12	19.99	20.15	20.55
			25	20.08	20.01	20.62
		50	0	20.04	20.07	20.59
	16QAM	1	0	20.50	20.67	20.48
			24	20.19	20.30	20.45
			49	20.43	20.37	20.51
		25	0	19.06	19.23	19.65
			12	19.04	19.19	19.62
			25	19.13	19.14	19.58
		50	0	19.08	19.17	19.61

Conducted Power of LTE Band 25						
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel
				26115	26365	26615
15MHz	QPSK	1	0	20.80	21.27	21.45
			38	20.83	21.01	21.48
			74	21.03	21.03	21.63
		38	0	19.97	20.05	20.52
			18	19.93	20.05	20.52
			37	19.93	20.07	20.52
		75	0	19.92	20.07	20.55
	16QAM	1	0	20.17	20.55	20.41
			38	20.14	20.38	20.49
			74	20.22	20.38	20.55
		38	0	19.95	20.07	20.54
			18	19.97	20.07	20.52
			37	19.92	20.07	20.51
		75	0	19.00	19.19	19.62
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel
				26140	26365	26590
20MHz	QPSK	1	0	21.10	21.53	21.17
			49	21.04	21.03	21.30
			99	21.46	21.28	**21.54**
		50	0	19.99	20.24	20.31
			25	19.99	20.23	20.31
			50	20.18	20.10	**20.55**
		100	0	20.22	20.13	20.40
	16QAM	1	0	20.28	20.66	20.28
			49	20.09	20.32	20.51
			99	20.48	20.43	20.63
		50	0	19.05	19.26	19.39
			25	19.02	19.26	19.37
			50	19.27	19.12	19.68
		100	0	19.22	19.21	19.41

LTE Band 26

Conducted Power of LTE Band 26						
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel
				26697	26740	26783
1.4MHz	QPSK	1	0	22.60	22.52	22.36
			2	22.62	22.53	22.44
			5	22.55	22.48	22.36
		3	0	22.61	22.53	22.49
			1	22.64	22.60	22.44
			3	22.57	22.54	22.43
		6	0	21.62	21.56	21.46
	16QAM	1	0	21.87	21.71	21.72
			2	21.92	21.83	21.76
			5	21.79	21.72	21.65
		3	0	21.61	21.56	21.44
			1	21.60	21.53	21.50
			3	21.56	21.55	21.44
		6	0	20.76	20.55	20.55
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel
				26705	26740	26775
3MHz	QPSK	1	0	22.61	22.55	22.52
			8	22.56	22.52	22.49
			14	22.50	22.49	22.42
		8	0	21.72	21.62	21.53
			4	21.65	21.59	21.53
			7	21.60	21.54	21.49
		15	0	21.67	21.58	21.50
	16QAM	1	0	21.95	21.85	21.48
			8	21.85	21.82	21.48
			14	21.87	21.79	21.49
		8	0	20.77	20.69	20.64
			4	20.81	20.67	20.64
			7	20.77	20.72	20.61
		15	0	20.78	20.60	20.56

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Conducted Power of LTE Band 26						
Bandwidth	Modulation	RB size	RB offset	Channel 26715	Channel 26740	Channel 26765
5MHz	QPSK	1	0	22.70	22.62	22.54
			12	22.77	22.68	22.63
			24	22.54	22.51	22.50
		12	0	21.74	21.62	21.55
			6	21.73	21.61	21.53
			13	21.69	21.57	21.48
		25	0	21.67	21.58	21.54
	16QAM	1	0	21.80	21.96	21.74
			12	21.89	21.98	21.76
			24	21.79	21.88	21.63
		12	0	20.84	20.75	20.67
			6	20.80	20.77	20.68
			13	20.78	20.72	20.63
		25	0	20.77	20.67	20.64
Bandwidth	Modulation	RB size	RB offset	Channel 26740		
10MHz	QPSK	1	0	22.58		
			24	22.46		
			49	22.41		
		25	0	21.67		
			12	21.62		
			25	21.58		
		50	0	21.60		
	16QAM	1	0	21.90		
			24	21.81		
			49	21.75		
		25	0	20.70		
			12	20.71		
			25	20.65		
		50	0	20.66		

Conducted Power of LTE Band 26				
Bandwidth	Modulation	RB size	RB offset	Channel
				26765
15MHz	QPSK	1	0	**22.61**
			38	22.40
			74	22.37
		38	0	**21.50**
			18	21.49
			37	21.49
		75	0	21.49
	16QAM	1	0	21.90
			38	21.80
			74	21.72
		38	0	21.49
			18	21.49
			37	21.49
		75	0	20.58

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LTE Band 41

Conducted Power of LTE Band 41						
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel
				39675	40620	41565
5MHz	QPSK	1	0	20.60	21.00	21.45
			12	20.72	21.02	21.52
			24	20.67	21.00	21.47
		12	0	19.77	20.01	20.50
			6	19.71	20.01	20.54
			13	19.75	20.00	20.57
		25	0	19.85	20.06	20.56
	16QAM	1	0	20.12	20.37	20.83
			12	20.27	20.57	20.97
			24	20.13	20.44	20.89
		12	0	18.87	19.08	19.71
			6	18.88	19.10	19.65
			13	18.94	19.17	19.70
		25	0	18.94	19.17	19.66
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel
				39700	40620	41540
10MHz	QPSK	1	0	20.54	20.90	21.57
			24	20.72	20.99	21.57
			49	20.69	21.00	21.54
		25	0	19.81	20.03	20.60
			12	19.83	19.95	20.57
			25	19.76	20.04	20.62
		50	0	19.69	20.04	20.66
	16QAM	1	0	20.21	20.27	20.56
			24	20.17	20.49	20.58
			49	20.15	20.50	20.60
		25	0	18.92	19.10	19.66
			12	18.98	19.19	19.75
			25	18.92	19.30	19.72
		50	0	18.87	19.19	19.71

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Conducted Power of LTE Band 41						
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel
				39725	40620	41515
15MHz	QPSK	1	0	20.70	20.88	21.60
			38	20.68	20.96	21.72
			74	20.79	20.89	21.70
		38	0	19.69	19.94	20.55
			18	19.65	19.94	20.53
			37	19.69	19.94	20.62
		75	0	19.65	19.96	20.53
	16QAM	1	0	20.16	20.42	20.61
			38	20.14	20.39	20.78
			74	20.21	20.40	20.80
		38	0	19.68	19.92	20.53
			18	19.67	19.96	20.53
			37	19.72	19.96	20.53
		75	0	18.84	19.10	19.73
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel
				39750	40620	41490
20MHz	QPSK	1	0	20.84	20.92	21.40
			49	20.83	20.96	21.54
			99	20.75	21.10	**21.57**
		50	0	19.76	19.93	**20.59**
			25	19.71	19.93	20.56
			50	19.72	20.14	20.65
		100	0	19.82	20.06	20.64
	16QAM	1	0	20.06	20.18	20.18
			49	20.06	20.24	20.30
			99	19.96	20.40	20.37
		50	0	18.94	19.09	19.68
			25	18.96	19.15	19.74
			50	18.87	19.25	19.85
		100	0	18.91	19.16	19.72

LTE Band 66

Conducted Power of LTE Band 66						
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel
				131979	132322	132665
1.4MHz	QPSK	1	0	21.97	21.58	21.51
			2	22.02	21.63	21.54
			5	21.96	21.59	21.46
		3	0	21.97	21.64	21.57
			1	21.95	21.61	21.53
			3	22.00	21.59	21.52
		6	0	21.00	20.67	20.56
	16QAM	1	0	21.17	20.54	20.78
			2	21.33	20.70	20.86
			5	21.21	20.61	20.78
		3	0	21.04	20.55	20.54
			1	21.03	20.55	20.53
			3	20.98	20.52	20.54
		6	0	19.93	19.69	19.71
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel
				131987	132322	132657
3MHz	QPSK	1	0	21.82	21.52	21.56
			8	21.98	21.66	21.62
			14	21.83	21.60	21.53
		8	0	21.02	20.68	20.64
			4	21.08	20.64	20.63
			7	21.00	20.66	20.61
		15	0	21.04	20.65	20.63
	16QAM	1	0	21.13	20.75	20.51
			8	21.30	20.86	20.66
			14	21.14	20.74	20.54
		8	0	20.15	19.72	19.72
			4	20.15	19.73	19.67
			7	20.15	19.73	19.75
		15	0	20.08	19.62	19.62

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Conducted Power of LTE Band 66						
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel
				131997	132322	132647
5MHz	QPSK	1	0	21.96	21.58	21.58
			12	22.17	21.79	21.78
			24	21.94	21.56	21.51
		12	0	21.06	20.57	20.63
			6	21.06	20.59	20.57
			13	21.02	20.56	20.57
		25	0	21.01	20.60	20.59
	16QAM	1	0	21.05	20.79	20.62
			12	21.38	21.09	20.94
			24	21.09	20.85	20.70
		12	0	20.09	19.70	19.65
			6	20.10	19.72	19.66
			13	20.08	19.72	19.65
		25	0	20.13	19.69	19.68
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel
				132022	132322	132622
10MHz	QPSK	1	0	22.00	21.56	21.62
			24	22.02	21.67	21.68
			49	21.92	21.67	21.58
		25	0	21.04	20.62	20.55
			12	21.05	20.64	20.54
			25	21.01	20.65	20.61
		50	0	21.03	20.62	20.55
	16QAM	1	0	21.32	20.86	20.53
			24	21.36	20.89	20.68
			49	21.25	20.89	20.61
		25	0	20.14	19.69	19.57
			12	20.14	19.66	19.57
			25	20.09	19.72	19.69
		50	0	20.11	19.69	19.53

Conducted Power of LTE Band 66						
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel
				132047	132322	132597
15MHz	QPSK	1	0	22.01	21.58	21.65
			38	22.05	21.74	21.79
			74	21.82	21.75	21.65
		38	0	20.86	20.54	20.50
			18	20.82	20.55	20.53
			37	20.83	20.56	20.50
		75	0	20.87	20.57	20.53
	16QAM	1	0	21.30	20.96	20.63
			38	21.44	21.15	20.72
			74	21.15	21.17	20.65
		38	0	20.82	20.55	20.52
			18	20.83	20.55	20.54
			37	20.80	20.55	20.53
		75	0	19.83	19.70	19.61
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel
				132072	132322	132572
20MHz	QPSK	1	0	22.11	21.78	21.65
			49	**22.15**	21.81	21.63
			99	21.79	21.81	21.45
		50	0	21.01	20.58	20.63
			25	**21.05**	20.61	20.56
			50	20.82	20.62	20.46
		100	0	20.85	20.58	20.55
	16QAM	1	0	21.24	20.95	20.81
			49	21.29	21.02	20.74
			99	20.92	21.11	20.72
		50	0	20.07	19.69	19.70
			25	20.07	19.62	19.70
			50	19.91	19.71	19.51
		100	0	19.89	19.66	19.60

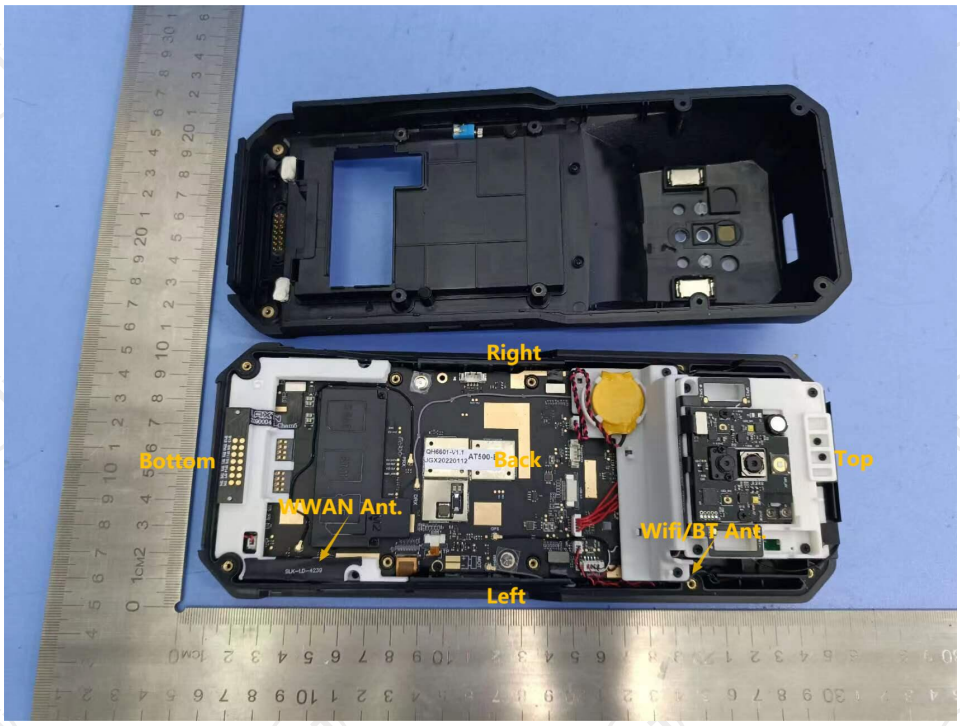
Conducted Power of LTE Band 71						
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel
				133147	133297	133447
5MHz	QPSK	1	0	23.20	23.13	23.22
			12	23.19	23.21	23.19
			24	23.02	23.22	23.17
		12	0	22.15	22.10	22.16
			6	22.14	22.10	22.14
			13	22.05	22.08	22.05
		25	0	22.08	22.12	22.17
	16QAM	1	0	22.23	22.44	22.26
			12	22.30	22.48	22.29
			24	22.20	22.46	22.26
		12	0	21.21	21.26	21.29
			6	21.26	21.25	21.28
			13	21.11	21.22	21.21
		25	0	21.21	21.13	21.28
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel
				133172	133297	133422
10MHz	QPSK	1	0	23.10	23.10	23.14
			24	23.02	23.07	23.17
			49	23.04	23.12	23.11
		25	0	22.14	22.18	22.14
			12	22.13	22.17	22.20
			25	22.18	22.13	22.16
		50	0	22.23	22.13	22.15
	16QAM	1	0	22.40	22.36	22.14
			24	22.26	22.32	22.11
			49	22.27	22.32	22.06
		25	0	21.24	21.24	21.24
			12	21.22	21.23	21.27
			25	21.20	21.18	21.27
		50	0	21.24	21.24	21.22

Conducted Power of LTE Band 71						
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel
				133197	133297	133397
15MHz	QPSK	1	0	23.11	23.12	23.16
			38	22.95	23.07	23.09
			74	22.97	23.15	23.12
		38	0	22.36	22.46	22.16
			18	22.23	22.44	22.10
			37	22.30	22.54	22.11
		75	0	22.10	22.11	22.09
	16QAM	1	0	22.38	22.47	22.16
			38	22.22	22.45	22.10
			74	22.27	22.53	22.13
		38	0	22.34	22.47	22.16
			18	22.21	22.43	22.12
			37	22.30	22.55	22.13
		75	0	21.19	21.18	21.20
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel
				133222	133297	133372
20MHz	QPSK	1	0	**23.23**	23.12	23.04
			49	23.14	23.13	23.06
			99	23.09	23.15	23.07
		50	0	22.26	22.16	22.08
			25	**22.26**	22.17	22.08
			50	22.12	22.16	22.16
		100	0	22.20	22.13	22.09
	16QAM	1	0	22.36	22.33	22.20
			49	22.23	22.38	22.31
			99	22.23	22.41	22.29
		50	0	21.26	21.28	21.23
			25	21.26	21.27	21.23
			50	21.19	21.27	21.24
		100	0	21.24	21.19	21.17

9. Exposure Position Consideration

9.1. EUT Antenna Information

Antenna information:



WWAN Main Antenna	GSM/UMTS/LTE TX/RX
WLAN/BT Antenna	WLAN/BT TX/RX

Note:
1) Per KDB648474 D04,10-g extremity SAR is not required when Body-Worn mode 1-g reported SAR<1.2W/Kg.
2) According to the KDB941225 D06 Hot Spot SAR v02, the edges with less than 25 mm distance to the antennas need to be tested for SAR.

Distance of The Antenna to the EUT surface and edge (mm）						
Antenna	Front Side (mm)	Back Side (mm)	Left Edge (mm)	Right Edge (mm)	Top Edge (mm)	Bottom Edge (mm)
WWAN	<25	<25	<25	85	220	<25
BT/WLAN	<25	<25	<25	85	60	170

9.2. Test Position Consideration

Test Positions						
Mode	Front Side	Back Side	Left Edge	Right Edge	Top Edge	Bottom Edge
WWAN	Yes	Yes	Yes	No	No	Yes
WIFI/BT	Yes	Yes	Yes	No	No	No

10. SAR Test Results Summary

10.1. Hotspot/Body-worn 1g SAR Data

Band	Mode	Test Position with 10 mm	CH.	Freq. (MHz)	Ave. Power (dBm)	Tune-Up Limit (dBm)	Power Drift (%)	Meas. SAR1g (W/kg)	Scaling Factor	Reported SAR1g (W/kg)	Limit (W/Kg)
WCDMA Band II	RMC	Front	9538	1907.6	20.86	21.00	1.192	0.375	1.033	**0.387**	
		Back	9538	1907.6	20.86	21.00	2.041	0.361	1.033	0.373	
		Left	9538	1907.6	20.86	21.00	3.225	0.215	1.033	0.222	
		Bottom	9538	1907.6	20.86	21.00	1.098	0.210	1.033	0.217	
WCDMA Band IV	RMC	Front	1312	1712.4	22.10	22.50	-1.113	0.247	1.096	**0.271**	
		Back	1312	1712.4	22.10	22.50	-3.001	0.231	1.096	0.253	
		Left	1312	1712.4	22.10	22.50	-0.254	0.201	1.096	0.220	
		Bottom	1312	1712.4	22.10	22.50	0.222	0.181	1.096	0.198	
WCDMA Band V	RMC	Front	4183	836.6	22.81	23.00	1.511	0.202	1.045	**0.211**	
		Back	4183	836.6	22.81	23.00	0.115	0.185	1.045	0.193	
		Left	4183	836.6	22.81	23.00	0.121	0.177	1.045	0.185	
		Bottom	4183	836.6	22.81	23.00	-0.102	0.143	1.045	0.149	
2.4G WIFI	802.11b	Front	11	2462	17.57	18.00	0.992	0.724	1.104	**0.799**	
		Back	11	2462	17.57	18.00	-1.750	0.655	1.104	0.723	**1.60**
		Left	11	2462	17.57	18.00	1.115	0.512	1.104	0.565	
5G WIFI U-NII-1	802.11ac	Front	42	5210	15.46	15.50	-0.939	0.579	1.009	**0.584**	
		Back	42	5210	15.46	15.50	0.855	0.410	1.009	0.414	
		Left	42	5210	15.46	15.50	1.091	0.399	1.009	0.403	
5G WIFI U-NII-2a	802.11a	Front	60	5300	16.18	16.50	-0.399	0.388	1.076	**0.417**	
		Back	60	5300	16.18	16.50	4.500	0.310	1.076	0.334	
		Left	60	5300	16.18	16.50	-2.014	0.255	1.076	0.274	
5G WIFI U-NII-2c	802.11a	Front	140	5700	16.32	16.50	-3.579	0.513	1.042	**0.535**	
		Back	140	5700	16.32	16.50	-3.100	0.412	1.042	0.429	
		Left	140	5700	16.32	16.50	1.125	0.357	1.042	0.372	
5G WIFI U-NII-3	802.11ac	Front	151	5755	15.30	15.50	2.611	0.185	1.047	**0.194**	
		Back	151	5755	15.30	15.50	0.304	0.166	1.047	0.174	
		Left	151	5755	15.30	15.50	0.111	0.141	1.047	0.148	

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Band	Mode	Test Position with 10 mm	CH.	Freq. (MHz)	RB allocation	RB offset	Ave. Power (dBm)	Tune-Up Limit (dBm)	Power Drift (%)	Meas. SAR1g (W/kg)	Scaling Factor	Reported SAR1g (W/kg)
LTE Band 2	QPSK (20MHz)	Front	18900	1880.0	1	0	21.24	21.50	0.591	0.551	1.062	**0.585**
					50	25	20.12	20.50	0.600	0.533	1.091	0.582
		Back	18900	1880.0	1	0	21.24	21.50	0.512	0.412	1.062	0.438
					50	25	20.12	20.50	0.115	0.385	1.091	0.420
		Left	18900	1880.0	1	0	21.24	21.50	0.121	0.312	1.062	0.331
					50	25	20.12	20.50	-0.102	0.310	1.091	0.338
		Bottom	18900	1880.0	1	0	21.24	21.50	1.025	0.104	1.062	0.110
					50	25	20.12	20.50	0.102	0.100	1.091	0.109
LTE Band 4	QPSK (20MHz)	Front	20050	1720.0	1	0	22.05	22.50	-1.759	0.334	1.109	**0.370**
					50	0	21.06	21.50	0.600	0.332	1.107	0.368
		Back	20050	1720.0	1	0	22.05	22.50	0.512	0.216	1.109	0.240
					50	0	21.06	21.50	0.115	0.214	1.107	0.237
		Left	20050	1720.0	1	0	22.05	22.50	0.121	0.142	1.109	0.157
					50	0	21.06	21.50	-0.102	0.140	1.107	0.155
		Bottom	20050	1720.0	1	0	22.05	22.50	1.025	0.102	1.109	0.113
					50	0	21.06	21.50	2.014	0.099	1.107	0.110
LTE Band 5	QPSK (10MHz)	Front	20525	836.5	1	0	22.51	23.00	0.581	0.372	1.119	**0.416**
					25	12	21.61	22.00	-2.004	0.369	1.094	0.404
		Back	20525	836.5	1	0	22.51	23.00	4.500	0.255	1.119	0.285
					25	12	21.61	22.00	-2.014	0.249	1.094	0.272
		Left	20525	836.5	1	0	22.51	23.00	1.520	0.195	1.119	0.218
					25	12	21.61	22.00	-0.004	0.188	1.094	0.206
		Bottom	20525	836.5	1	0	22.51	23.00	1.014	0.135	1.119	0.151
					25	12	21.61	22.00	0.441	0.141	1.094	0.154
LTE Band 7	QPSK (20MHz)	Front	20850	2510.0	1	99	21.01	21.50	-3.109	0.157	1.119	**0.176**
					50	50	19.95	20.00	2.110	0.155	1.094	0.170
		Back	20850	2510.0	1	99	21.01	21.50	-1.004	0.105	1.119	0.117
					50	50	19.95	20.00	4.010	0.100	1.094	0.109
		Left	20850	2510.0	1	99	21.01	21.50	2.001	0.091	1.119	0.102
					50	50	19.95	20.00	3.144	0.090	1.094	0.098
		Bottom	20850	2510.0	1	99	21.01	21.50	0.441	0.066	1.119	0.074
					50	50	19.95	20.00	1.004	0.071	1.094	0.078
LTE Band 12	QPSK (10MHz)	Front	23130	711.0	1	0	22.87	23.00	2.691	0.119	1.030	**0.123**
					25	12	21.88	22.00	0.950	0.115	1.028	0.118
		Back	23130	711.0	1	0	22.87	23.00	0.220	0.099	1.030	0.102
					25	12	21.88	22.00	1.400	0.091	1.028	0.094
		Left	23130	711.0	1	0	22.87	23.00	0.009	0.067	1.030	0.069
					25	12	21.88	22.00	-1.400	0.065	1.028	0.067
		Bottom	23130	711.0	1	0	22.87	23.00	0.050	0.051	1.030	0.053
					25	12	21.88	22.00	1.041	0.052	1.028	0.053

Band	Mode	Test Position with 10 mm	CH.	Freq. (MHz)	RB allocation	RB offset	Ave. Power (dBm)	Tune-Up Limit (dBm)	Power Drift (%)	Meas. SAR1g (W/kg)	Scaling Factor	Reported SAR1g (W/kg)
LTE Band 13	QPSK (10MHz)	Front	23230	782.0	1	49	22.73	23.00	1.701	0.139	1.064	**0.148**
					25	12	21.88	22.00	-0.390	0.136	1.028	0.140
		Back	23230	782.0	1	49	22.73	23.00	-1.005	0.111	1.064	0.118
					25	12	21.88	22.00	2.034	0.110	1.028	0.113
		Left	23230	782.0	1	49	22.73	23.00	-3.570	0.099	1.064	0.105
					25	12	21.88	22.00	-0.210	0.095	1.028	0.098
		Bottom	23230	782.0	1	49	22.73	23.00	1.005	0.077	1.064	0.082
					25	12	21.88	22.00	2.620	0.072	1.028	0.074
LTE Band 17	QPSK (10MHz)	Front	23800	711.0	1	0	22.83	23.00	0.941	0.175	1.040	**0.182**
					25	12	21.89	22.00	1.001	0.169	1.026	0.173
		Back	23800	711.0	1	0	22.83	23.00	2.014	0.144	1.040	0.150
					25	12	21.89	22.00	0.441	0.141	1.026	0.145
		Left	23800	711.0	1	0	22.83	23.00	-0.930	0.121	1.040	0.126
					25	12	21.89	22.00	0.110	0.119	1.026	0.122
		Bottom	23800	711.0	1	0	22.83	23.00	1.204	0.098	1.040	0.102
					25	12	21.89	22.00	-0.390	0.097	1.026	0.100
LTE Band 25	QPSK (20MHz)	Front	26590	1905.0	1	99	21.54	22.00	-0.769	0.361	1.112	**0.401**
					50	50	20.55	21.00	1.201	0.351	1.109	0.389
		Back	26590	1905.0	1	99	21.54	22.00	0.213	0.322	1.112	0.358
					50	50	20.55	21.00	-1.220	0.320	1.109	0.355
		Left	26590	1905.0	1	99	21.54	22.00	-1.104	0.211	1.112	0.235
					50	50	20.55	21.00	1.200	0.201	1.109	0.223
		Bottom	26590	1905.0	1	99	21.54	22.00	2.310	0.154	1.112	0.171
					50	50	20.55	21.00	1.520	0.151	1.109	0.167
LTE Band 26	QPSK (15MHz)	Front	26765	821.5	1	0	22.61	23.00	-3.489	0.391	1.094	**0.428**
					38	0	21.50	22.00	0.600	0.333	1.122	0.374
		Back	26765	821.5	1	0	22.61	23.00	0.512	0.301	1.094	0.329
					38	0	21.50	22.00	0.115	0.299	1.122	0.335
		Left	26765	821.5	1	0	22.61	23.00	0.121	0.185	1.094	0.202
					38	0	21.50	22.00	-0.102	0.180	1.122	0.202
		Bottom	26765	821.5	1	0	22.61	23.00	0.600	0.126	1.094	0.138
					38	0	21.50	22.00	0.512	0.122	1.122	0.137
LTE Band 41	QPSK (20MHz)	Front	41490	2680.0	1	99	21.57	22.00	-1.579	0.451	1.104	**0.498**
					50	0	20.59	21.00	1.712	0.446	1.099	0.490
		Back	41490	2680.0	1	99	21.57	22.00	0.228	0.401	1.104	0.443
					50	0	20.59	21.00	-0.147	0.399	1.099	0.439
		Left	41490	2680.0	1	99	21.57	22.00	2.954	0.311	1.104	0.343
					50	0	20.59	21.00	2.554	0.301	1.099	0.331
		Bottom	41490	2680.0	1	99	21.57	22.00	-0.227	0.214	1.104	0.236
					50	0	20.59	21.00	0.950	0.211	1.099	0.232

Band	Mode	Test Position with 10 mm	CH.	Freq. (MHz)	RB allocation	RB offset	Ave. Power (dBm)	Tune-Up Limit (dBm)	Power Drift (%)	Meas. SAR1g (W/kg)	Scaling Factor	Reported SAR1g (W/kg)
LTE Band 66	QPSK (20MHz)	Front	132072	1720.0	1	49	22.15	22.50	-1.379	0.664	1.084	**0.720**
					50	25	21.05	21.50	1.025	0.601	1.109	0.667
		Back	132072	1720.0	1	49	22.15	22.50	3.006	0.555	1.084	0.602
					50	25	21.05	21.50	-0.124	0.512	1.109	0.568
		Left	132072	1720.0	1	49	22.15	22.50	1.004	0.417	1.084	0.452
					50	25	21.05	21.50	2.051	0.401	1.109	0.445
		Bottom	132072	1720.0	1	49	22.15	22.50	3.045	0.225	1.084	0.244
					50	25	21.05	21.50	-2.044	0.220	1.109	0.244
LTE Band 71	QPSK (20MHz)	Front	133222	673.0	1	0	23.23	23.50	1.291	0.592	1.064	**0.630**
					50	25	22.26	22.50	-0.203	0.588	1.057	0.622
		Back	133222	673.0	1	0	23.23	23.50	-0.111	0.412	1.064	0.438
					50	25	22.26	22.50	1.023	0.410	1.057	0.433
		Left	133222	673.0	1	0	23.23	23.50	2.001	0.311	1.064	0.331
					50	25	22.26	22.50	1.005	0.305	1.057	0.322
		Bottom	133222	673.0	1	0	23.23	23.50	-3.026	0.111	1.064	0.118
					50	25	22.26	22.50	2.051	0.102	1.057	0.108

10.2. Front-of-face 1g SAR Data

Band	Mode	Test Position with 25 mm	CH.	Freq. (MHz)	Ave. Power (dBm)	Tune-Up Limit (dBm)	Power Drift (%)	Meas. SAR1g (W/kg)	Scaling Factor	Reported SAR1g (W/kg)	Limit (W/Kg)
WCDMA Band II	RMC	Front	9538	1907.6	20.86	21.00	1.996	0.064	1.033	0.066	**1.60**
WCDMA Band IV	RMC	Front	1312	1712.4	22.1	22.50	1.014	0.057	1.096	0.062	
WCDMA Band V	RMC	Front	4183	836.6	22.81	23.00	-0.132	0.076	1.045	0.079	
2.4G WIFI	802.11b	Front	11	2462	17.57	18.00	1.116	0.085	1.104	0.094	
5G WIFI U-NII-1	802.11ac	Front	42	5210	15.46	15.50	-1.010	0.082	1.009	0.083	
5G WIFI U-NII-2a	802.11a	Front	60	5300	16.18	16.50	-2.589	0.089	1.076	0.096	
5G WIFI U-NII-2c	802.11a	Front	140	5700	16.32	16.50	1.541	0.073	1.042	0.076	
5G WIFI U-NII-3	802.11ac	Front	151	5755	15.3	15.50	-1.509	0.099	1.047	**0.104**	

Band	Mode	Test Position with 25 mm	CH.	Freq. (MHz)	RB allocation	RB offset	Ave. Power (dBm)	Tune-Up Limit (dBm)	Power Drift (%)	Meas. SAR1g (W/kg)	Scaling Factor	Reported SAR1g (W/kg)
LTE Band 2	QPSK (20MHz)	Front	18900	1880	1	0	21.24	21.50	1.371	0.080	1.062	0.085
					50	25	20.12	20.50	0.600	0.077	1.091	0.084
LTE Band 4	QPSK (20MHz)	Front	20050	1720	1	0	22.05	22.50	-0.359	0.042	1.109	0.047
					50	0	21.06	21.50	0.152	0.040	1.107	0.044
LTE Band 5	QPSK (10MHz)	Front	20525	836.5	1	0	22.51	23.00	4.491	0.063	1.119	0.070
					25	12	21.61	22.00	-2.004	0.062	1.094	0.068
LTE Band 7	QPSK (20MHz)	Front	20850	2510	1	99	21.01	21.50	-2.749	0.071	1.119	0.079
					50	50	19.95	20.00	2.110	0.069	1.094	0.075
LTE Band 12	QPSK (10MHz)	Front	23130	711	1	0	22.87	23.00	1.951	0.074	1.03	0.076
					25	12	21.88	22.00	0.950	0.071	1.028	0.073
LTE Band 13	QPSK (10MHz)	Front	23230	782	1	49	22.73	23.00	1.171	0.108	1.064	0.115
					25	12	21.88	22.00	-0.390	0.102	1.028	0.105
LTE Band 17	QPSK (10MHz)	Front	23800	711	1	0	22.83	23.00	1.391	0.050	1.040	0.052
					25	12	21.89	22.00	1.001	0.048	1.026	0.049
LTE Band 25	QPSK (20MHz)	Front	26590	1905	1	99	21.54	22.00	-1.489	0.113	1.112	0.126
					50	50	20.55	21.00	1.201	0.110	1.109	0.122
LTE Band 26	QPSK (15MHz)	Front	26765	821.5	1	0	22.61	23.00	-1.089	0.122	1.094	**0.133**
					38	0	21.50	22.00	0.016	0.118	1.122	0.132
LTE Band 41	QPSK (20MHz)	Front	41490	2680	1	99	21.57	22.00	1.391	0.057	1.104	0.063
					50	0	20.59	21.00	1.712	0.055	1.099	0.060
LTE Band 66	QPSK (20MHz)	Front	132072	1720	1	49	22.15	22.50	-0.929	0.078	1.084	0.085
					50	25	21.05	21.50	1.025	0.077	1.109	0.085
LTE Band 71	QPSK (20MHz)	Front	133222	673	1	0	23.23	23.50	1.371	0.081	1.064	0.086
					50	25	22.26	22.50	-0.203	0.079	1.057	0.084

Note:

1. Per KDB 447498 D01 v06, for each exposure position, if the highest output power channel Reported SAR ≤ 0.8W/kg, other channels SAR testing is not necessary.
2. Per KDB 447498 D01 v06, the report SAR is measured SAR value adjusted for maximum tune-up tolerance. Scaling Factor=10^[(tune-up limit power(dBm) - Ave.power power (dBm))/10], where tune-up limit is the maximum rated power among all production units.
   Reported SAR(W/kg)=Measured SAR (W/kg)*Scaling Factor.
4. Per KDB865664D01 v01r04 perform a second repeated measurement only the ratio of largest to smallest SAR for the original and first repeated measurement is >1.20 or when the original or repeated measurement is ≥ 1.45W/kg.
5. Perform a second measurement only if the original, first and second repeated measurement is ≥1.5w/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurement is >1.20.

10.3. Simultaneous Transmission Conclusion

Multi-Band Simultaneous Transmission Considerations

According to FCC KDB Publication 447498 D01v05r02, transmitters are considered to be transmitting simultaneously when there is overlapping transmission, with the exception of transmissions during network hand-offs with maximum hand-off duration less than 30 seconds. Possible transmission paths for the EUT are shown in below Figure and are color-coded to indicate communication modes which share the same path. Modes which share the same transmission path cannot transmit simultaneously with one another.

Simultaneous Transmission Paths

Simultaneous Transmission Procedures

This device contains transmitters that may operate simultaneously. Therefore simultaneous transmission analysis is required. Per FCC KDB 447498 D01v05r02, simultaneous transmission SAR test exclusion may be applied when the sum of the 1-g SAR for all the simultaneous transmitting antennas in a specific a physical test configuration is ≤ 1.6 W/kg. When standalone SAR is not required to be measured, per FCC KDB 447498 D01v05r02 4.3.2.2), the following equation must be used to estimate the standalone 1g SAR and 10g extremity SAR for simultaneous transmission assessment involving that transmitter.

$$\text{Estimated SAR} = \frac{\sqrt{f(GHz)}}{7.5(18.75)} \cdot \frac{\text{Max. power of channel, mW}}{\text{Min. Separation Distance, mm}}$$

Mode	Max. tune-up Power (dBm)	Exposure Position	Body-worn	Front-of-face
		Test Distance (mm)	10	25
BT	9.50	Estimated SAR (W/kg)	0.187	0.075

Note:

1. When the minimum *test separation distance* is < 5 mm, a distance of 5 mm according is applied to determine estimated SAR.
2. (max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)]·[√f(GHz)/x] W/kg for test separation distances ≤ 50 mm; where x = 7.5 for 1-g SAR, and x = 18.75 for 10-g SAR.
3. Both Body and Front-of-face exposure require 1-g SAR.

Simultaneous Transmission Possibilities

The Simultaneous Transmission Possibilities of this device are as below:

NO.	Configuration	Body-worn	Front-of-face
1	WWAN+WIFI(2.4g)	Yes	Yes
2	WWAN+WIFI(5g)	Yes	Yes
3	WWAN+BT	Yes	Yes

10.4. SAR Simultaneous Transmission Analysis

Body-worn

Band	Test Position	Scaled SAR				Σ SAR (W/kg) Body-Worn+ WIFI 2.4G	Σ SAR (W/kg) Body-Worn+ WIFI 5 G	Σ SAR (W/kg) Body-Worn+ BT	SPLSR	Remark
		Body-Worn	WIFI 2.4G	WIFI 5 G	BT					
WCDMA Band II	Front	0.387	0.799	0.584	0.187	**1.186**	0.971	0.574	N/A	N/A
	Back	0.373	0.723	0.429	0.187	1.096	0.802	0.560	N/A	N/A
	Left	0.222	0.565	0.403	0.187	0.787	0.625	0.409	N/A	N/A
	Bottom	0.217	/	/	/	0.217	0.217	0.217	N/A	N/A
WCDMA Band IV	Front	0.271	0.799	0.584	0.187	1.070	0.855	0.458	N/A	N/A
	Back	0.253	0.723	0.429	0.187	0.976	0.682	0.440	N/A	N/A
	Left	0.220	0.565	0.403	0.187	0.785	0.623	0.407	N/A	N/A
	Bottom	0.198	/	/	/	0.198	0.198	0.198	N/A	N/A
WCDMA Band V	Front	0.211	0.799	0.584	0.187	1.010	0.795	0.398	N/A	N/A
	Back	0.193	0.723	0.429	0.187	0.916	0.622	0.380	N/A	N/A
	Left	0.185	0.565	0.403	0.187	0.750	0.588	0.372	N/A	N/A
	Bottom	0.149	/	/	/	0.149	0.149	0.149	N/A	N/A

Band	Test Position	RB allocation	Scaled				Σ SAR (W/kg) Body-Worn+ WIFI 2.4G	Σ SAR (W/kg) Body-Worn+ WIFI 5 G	Σ SAR (W/kg) Body-Worn+ BT	SPLSR	Remark
			Body-Worn	WIFI 2.4G	WIFI 5 G	Bluetooth					
LTE Band 2 QPSK (20MHz)	Front	1	0.585	0.799	0.584	0.187	**1.384**	1.169	0.772	N/A	N/A
		50	0.582	0.799	0.584	0.187	1.381	1.166	0.769	N/A	N/A
	Back	1	0.438	0.723	0.429	0.187	1.161	0.867	0.625	N/A	N/A
		50	0.420	0.723	0.429	0.187	1.143	0.849	0.607	N/A	N/A
	Left	1	0.331	0.565	0.403	0.187	0.896	0.734	0.518	N/A	N/A
		50	0.338	0.565	0.403	0.187	0.903	0.741	0.525	N/A	N/A
	Bottom	1	0.110	/	/	/	0.110	0.110	0.110	N/A	N/A
		50	0.109	/	/	/	0.109	0.109	0.109	N/A	N/A
LTE Band 4 QPSK (20MHz)	Front	1	0.370	0.799	0.584	0.187	1.169	0.954	0.557	N/A	N/A
		50	0.368	0.799	0.584	0.187	1.167	0.952	0.555	N/A	N/A
	Back	1	0.240	0.723	0.429	0.187	0.963	0.669	0.427	N/A	N/A
		50	0.237	0.723	0.429	0.187	0.960	0.666	0.424	N/A	N/A
	Left	1	0.157	0.565	0.403	0.187	0.722	0.560	0.344	N/A	N/A
		50	0.155	0.565	0.403	0.187	0.720	0.558	0.342	N/A	N/A
	Bottom	1	0.113	/	/	/	0.113	0.113	0.113	N/A	N/A
		50	0.110	/	/	/	0.110	0.110	0.110	N/A	N/A
LTE Band 5 QPSK (10MHz)	Front	1	0.416	0.799	0.584	0.187	1.215	1.000	0.603	N/A	N/A
		25	0.404	0.799	0.584	0.187	1.203	0.988	0.591	N/A	N/A
	Back	1	0.285	0.723	0.429	0.187	1.008	0.714	0.472	N/A	N/A
		25	0.272	0.723	0.429	0.187	0.995	0.701	0.459	N/A	N/A
	Left	1	0.218	0.565	0.403	0.187	0.783	0.621	0.405	N/A	N/A
		25	0.206	0.565	0.403	0.187	0.771	0.609	0.393	N/A	N/A
	Bottom	1	0.151	/	/	/	0.151	0.151	0.151	N/A	N/A
		25	0.154	/	/	/	0.154	0.154	0.154	N/A	N/A

Band	Test Position	RB allocation	Scaled				Σ SAR (W/kg) Body-Worn+ WIFI 2.4G	Σ SAR (W/kg) Body-Worn+ WIFI 5 G	Σ SAR (W/kg) Body-Worn+ BT	SPLSR	Remark
			Body-Worn	WIFI 2.4G	WIFI 5 G	Bluetooth					
LTE Band 7 QPSK (20MHz)	Front	1	0.176	0.799	0.584	0.187	0.975	0.760	0.363	N/A	N/A
		50	0.170	0.799	0.584	0.187	0.969	0.754	0.357	N/A	N/A
	Back	1	0.117	0.723	0.429	0.187	0.840	0.546	0.304	N/A	N/A
		50	0.109	0.723	0.429	0.187	0.832	0.538	0.296	N/A	N/A
	Left	1	0.102	0.565	0.403	0.187	0.667	0.505	0.289	N/A	N/A
		50	0.098	0.565	0.403	0.187	0.663	0.501	0.285	N/A	N/A
	Bottom	1	0.074	/	/	/	0.074	0.074	0.074	N/A	N/A
		50	0.078	/	/	/	0.078	0.078	0.078	N/A	N/A
LTE Band 12 QPSK (10MHz)	Front	1	0.123	0.799	0.584	0.187	0.922	0.707	0.310	N/A	N/A
		25	0.118	0.799	0.584	0.187	0.917	0.702	0.305	N/A	N/A
	Back	1	0.102	0.723	0.429	0.187	0.825	0.531	0.289	N/A	N/A
		25	0.094	0.723	0.429	0.187	0.817	0.523	0.281	N/A	N/A
	Left	1	0.069	0.565	0.403	0.187	0.634	0.472	0.256	N/A	N/A
		25	0.067	0.565	0.403	0.187	0.632	0.470	0.254	N/A	N/A
	Bottom	1	0.053	/	/	/	0.053	0.053	0.053	N/A	N/A
		25	0.053	/	/	/	0.053	0.053	0.053	N/A	N/A
LTE Band 13 QPSK (10MHz)	Front	1	0.148	0.799	0.584	0.187	0.947	0.732	0.335	N/A	N/A
		25	0.140	0.799	0.584	0.187	0.939	0.724	0.327	N/A	N/A
	Back	1	0.118	0.723	0.429	0.187	0.841	0.547	0.305	N/A	N/A
		25	0.113	0.723	0.429	0.187	0.836	0.542	0.300	N/A	N/A
	Left	1	0.105	0.565	0.403	0.187	0.670	0.508	0.292	N/A	N/A
		25	0.098	0.565	0.403	0.187	0.663	0.501	0.285	N/A	N/A
	Bottom	1	0.082	/	/	/	0.082	0.082	0.082	N/A	N/A
		25	0.074	/	/	/	0.074	0.074	0.074	N/A	N/A
LTE Band 17 QPSK (10MHz)	Front	1	0.182	0.799	0.584	0.187	0.981	0.766	0.369	N/A	N/A
		25	0.173	0.799	0.584	0.187	0.972	0.757	0.360	N/A	N/A
	Back	1	0.150	0.723	0.429	0.187	0.873	0.579	0.337	N/A	N/A
		25	0.145	0.723	0.429	0.187	0.868	0.574	0.332	N/A	N/A
	Left	1	0.126	0.565	0.403	0.187	0.691	0.529	0.313	N/A	N/A
		25	0.122	0.565	0.403	0.187	0.687	0.525	0.309	N/A	N/A
	Bottom	1	0.102	/	/	/	0.102	0.102	0.102	N/A	N/A
		25	0.100	/	/	/	0.100	0.100	0.100	N/A	N/A
LTE Band 25 QPSK (20MHz)	Front	1	0.401	0.799	0.584	0.187	**1.200**	0.985	0.588	N/A	N/A
		50	0.389	0.799	0.584	0.187	1.188	0.973	0.576	N/A	N/A
	Back	1	0.358	0.723	0.429	0.187	1.081	0.787	0.545	N/A	N/A
		50	0.355	0.723	0.429	0.187	1.078	0.784	0.542	N/A	N/A
	Left	1	0.235	0.565	0.403	0.187	0.800	0.638	0.422	N/A	N/A
		50	0.223	0.565	0.403	0.187	0.788	0.626	0.410	N/A	N/A
	Bottom	1	0.171	/	/	/	0.171	0.171	0.171	N/A	N/A
		50	0.167	/	/	/	0.167	0.167	0.167	N/A	N/A

Band	Test Position	RB allocation	Scaled				Σ SAR (W/kg) Body-Worn+ WIFI 2.4G	Σ SAR (W/kg) Body-Worn+ WIFI 5 G	Σ SAR (W/kg) Body-Worn+ BT	SPLSR	Remark
			Body-Worn	WIFI 2.4G	WIFI 5 G	Bluetooth					
LTE Band 26 QPSK (15MHz)	Front	1	0.428	0.799	0.584	0.187	1.227	1.012	0.615	N/A	N/A
		38	0.374	0.799	0.584	0.187	1.173	0.958	0.561	N/A	N/A
	Back	1	0.329	0.723	0.429	0.187	1.052	0.758	0.516	N/A	N/A
		38	0.335	0.723	0.429	0.187	1.058	0.764	0.522	N/A	N/A
	Left	1	0.202	0.565	0.403	0.187	0.767	0.605	0.389	N/A	N/A
		38	0.202	0.565	0.403	0.187	0.767	0.605	0.389	N/A	N/A
	Bottom	1	0.138	/	/	/	0.138	0.138	0.138	N/A	N/A
		38	0.137	/	/	/	0.137	0.137	0.137	N/A	N/A
LTE Band 41 QPSK (20MHz)	Front	1	0.498	0.799	0.584	0.187	1.297	1.082	0.685	N/A	N/A
		50	0.490	0.799	0.584	0.187	1.289	1.074	0.677	N/A	N/A
	Back	1	0.443	0.723	0.429	0.187	1.166	0.872	0.63	N/A	N/A
		50	0.439	0.723	0.429	0.187	1.162	0.868	0.626	N/A	N/A
	Left	1	0.343	0.565	0.403	0.187	0.908	0.746	0.53	N/A	N/A
		50	0.331	0.565	0.403	0.187	0.896	0.734	0.518	N/A	N/A
	Bottom	1	0.236	/	/	/	0.236	0.236	0.236	N/A	N/A
		50	0.232	/	/	/	0.232	0.232	0.232	N/A	N/A
LTE Band 66 QPSK (20MHz)	Front	1	0.720	0.799	0.584	0.187	**1.519**	1.304	0.907	N/A	N/A
		50	0.667	0.799	0.584	0.187	1.466	1.251	0.854	N/A	N/A
	Back	1	0.602	0.723	0.429	0.187	1.325	1.031	0.789	N/A	N/A
		50	0.568	0.723	0.429	0.187	1.291	0.997	0.755	N/A	N/A
	Left	1	0.452	0.565	0.403	0.187	1.017	0.855	0.639	N/A	N/A
		50	0.445	0.565	0.403	0.187	1.010	0.848	0.632	N/A	N/A
	Bottom	1	0.244	/	/	/	0.244	0.244	0.244	N/A	N/A
		50	0.244	/	/	/	0.244	0.244	0.244	N/A	N/A
LTE Band 71 QPSK (20MHz)	Front	1	0.630	0.799	0.584	0.187	1.429	1.214	0.817	N/A	N/A
		50	0.622	0.799	0.584	0.187	1.421	1.206	0.809	N/A	N/A
	Back	1	0.438	0.723	0.429	0.187	1.161	0.867	0.625	N/A	N/A
		50	0.433	0.723	0.429	0.187	1.156	0.862	0.620	N/A	N/A
	Left	1	0.331	0.565	0.403	0.187	0.896	0.734	0.518	N/A	N/A
		50	0.322	0.565	0.403	0.187	0.887	0.725	0.509	N/A	N/A
	Bottom	1	0.118	/	/	/	0.118	0.118	0.118	N/A	N/A
		50	0.108	/	/	/	0.108	0.108	0.108	N/A	N/A

Front-of-face

Band	Test Position	Scaled SAR				Σ SAR (W/kg) Body-Worn+ WIFI 2.4G	Σ SAR (W/kg) Body-Worn+ WIFI 5 G	Σ SAR (W/kg) Body-Worn+ BT	SPLSR	Remark
		Body-Worn	WIFI 2.4G	WIFI 5 G	BT					
WCDMA Band II	Front	0.066	0.094	0.104	0.075	0.160	0.170	0.141	N/A	N/A
WCDMA Band IV	Front	0.062	0.094	0.104	0.075	0.156	0.166	0.137	N/A	N/A
WCDMA Band V	Front	0.079	0.094	0.104	0.075	0.173	**0.183**	0.154	N/A	N/A

Band	Test Position	RB allocation	Scaled				Σ SAR (W/kg) Body-Worn+ WIFI 2.4G	Σ SAR (W/kg) Body-Worn+ WIFI 5 G	Σ SAR (W/kg) Body-Worn+ BT	SPLSR	Remark
			Body-Worn	WIFI 2.4G	WIFI 5 G	Blueto oth					
LTE Band 2 QPSK (20MHz)	Front	1	0.085	0.094	0.104	0.075	0.179	0.189	0.160	N/A	N/A
		50	0.084	0.094	0.104	0.075	0.178	0.188	0.159	N/A	N/A
LTE Band 4 QPSK (20MHz)	Front	1	0.047	0.094	0.104	0.075	0.141	0.151	0.122	N/A	N/A
		50	0.044	0.094	0.104	0.075	0.138	0.148	0.119	N/A	N/A
LTE Band 5 QPSK (10MHz)	Front	1	0.070	0.094	0.104	0.075	0.164	0.174	0.145	N/A	N/A
		25	0.068	0.094	0.104	0.075	0.162	0.172	0.143	N/A	N/A
LTE Band 7 QPSK (20MHz)	Front	1	0.079	0.094	0.104	0.075	0.173	0.183	0.154	N/A	N/A
		50	0.075	0.094	0.104	0.075	0.169	0.179	0.150	N/A	N/A
LTE Band 12 QPSK (10MHz)	Front	1	0.076	0.094	0.104	0.075	0.170	0.180	0.151	N/A	N/A
		25	0.073	0.094	0.104	0.075	0.167	0.177	0.148	N/A	N/A
LTE Band 13 QPSK (10MHz)	Front	1	0.115	0.094	0.104	0.075	0.209	0.219	0.190	N/A	N/A
		25	0.105	0.094	0.104	0.075	0.199	0.209	0.180	N/A	N/A
LTE Band 17 QPSK (10MHz)	Front	1	0.052	0.094	0.104	0.075	0.146	0.156	0.127	N/A	N/A
		25	0.049	0.094	0.104	0.075	0.143	0.153	0.124	N/A	N/A
LTE Band 25 QPSK (20MHz)	Front	1	0.126	0.094	0.104	0.075	0.220	**0.230**	0.201	N/A	N/A
		50	0.122	0.094	0.104	0.075	0.216	0.226	0.197	N/A	N/A
LTE Band 26 QPSK (15MHz)	Front	1	0.133	0.094	0.104	0.075	0.227	0.237	0.208	N/A	N/A
		38	0.132	0.094	0.104	0.075	0.226	0.236	0.207	N/A	N/A
LTE Band 41 QPSK (20MHz)	Front	1	0.063	0.094	0.104	0.075	0.157	0.167	0.138	N/A	N/A
		50	0.060	0.094	0.104	0.075	0.154	0.164	0.135	N/A	N/A
LTE Band 66 QPSK (20MHz)	Front	1	0.085	0.094	0.104	0.075	0.179	0.189	0.160	N/A	N/A
		50	0.085	0.094	0.104	0.075	0.179	0.189	0.160	N/A	N/A
LTE Band 71 QPSK (20MHz)	Front	1	0.086	0.094	0.104	0.075	0.180	0.190	0.161	N/A	N/A
		50	0.084	0.094	0.104	0.075	0.178	0.188	0.159	N/A	N/A

Simultaneous Transmission Conclusion

The above numerical summed SAR results for all the case simultaneous transmission conditions were below the SAR limit. Therefore, the above analysis is sufficient to determine that simultaneous transmission cases will not exceed the SAR limit and therefore measured volumetric simultaneous SAR summation is not required per FCC KDB Publication 447498 D01v05r02.

10.5. Measurement Uncertainty (450MHz-3GHz)

UNCERTAINTY EVALUATION FOR HEADSET SAR									
Uncertainty Component	Description	Uncertainty Value(%)	Probably Distribution	Div.	(Ci) 1g	(Ci) 10g	Std. Unc. 1g(%)	Std. Unc. 10g(%)	v
Measurement system									
Probe calibration	7.2.1	5.8	N	1	1	1	5.8	5.8	∞
Axial isotropy	7.2.1.1	3.5	R	$\sqrt{3}$	$(1\text{-}C_p)^{1/2}$	$(1\text{-}C_p)^{1/2}$	1.43	1.43	∞
Hemispherical isotropy	7.2.1.1	5.9	R	$\sqrt{3}$	$\sqrt{C_p}$	$\sqrt{C_p}$	2.41	2.41	∞
Boundary Effects	7.2.1.4	1.00	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Linearity	7.2.1.2	4.70	R	$\sqrt{3}$	1	1	2.71	2.71	∞
System detection limits	7.2.1.2	1	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Modulation Response	7.2.1.3	3	N	1	1	1	3.00	3.00	∞
Readout Electronics	7.2.1.5	0.5	N	1	1	1	0.50	0.50	∞
Response Time	7.2.1.6	0	R	$\sqrt{3}$	1	1	0.00	0.00	∞
Integration Time	7.2.1.7	1.4	R	$\sqrt{3}$	1	1	0.81	0.81	∞
RF Ambient Conditions-Noise	7.2.3.7	3	R	$\sqrt{3}$	1	1	1.73	1.73	∞
RF Ambient Conditions-Reflection	7.2.3.7	3	R	$\sqrt{3}$	1	1	1.73	1.73	∞
Probe positioned mechanical Tolerance	7.2.2.1	1.4	R	$\sqrt{3}$	1	1	0.81	0.81	∞
Probe positioning with respect to phantom shell	7.2.2.3	1.4	R	$\sqrt{3}$	1	1	0.81	0.81	∞
Extrapolation interpolation and integration algorithms for Max.SAR evaluation	7.2.4	2.3	R	1	1	1	1.33	1.33	∞
Test sample related									
Test sample positioning	7.2.2.4.4	2.6	N	1	1	1	2.60	2.60	∞
Device holder uncertainty	7.2.2.4.2 7.2.2.4.3	3	N	1	1	1	3.00	3.00	∞
output power variation-SAR drift measurement	7.2.3.6	5	R	$\sqrt{3}$	1	1	2.89	2.89	∞
SAR scaling	7.2.5	2	R	$\sqrt{3}$	1	1	1.15	1.15	∞
Phantom and tissue parameters									
Phantom uncertainty (shape and thickness tolerances)	7.2.2.2	4	R	$\sqrt{3}$	1	1	2.31	2.31	∞
uncertainty in SAR correction for deviation (in permittivity and conductivity)	7.2.6	2	N	1	1	0.84	2.00	1.68	∞
Liquid conductivity (temperature uncertainty)	7.2.3.5	2.5	N	1	0.78	0.71	1.95	1.78	∞
Liquid conductivity -measurement uncertainty	7.2.3.3	4	N	1	0.23	0.26	0.92	1.04	∞
Liquid permittivity (temperature uncertainty)	7.2.3.5	2.5	N	1	0.78	0.71	1.95	1.78	∞
Liquid permittivity measurement uncertainty	7.2.3.4	5	N	1	0.23	0.26	1.15	1.30	∞
Combined standard uncertainty			RSS				10.83	10.54	
Expanded uncertainty (95%CONFIDENCEINTERVAL			k				21.26	21.08	

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UNCERTAINTY FOR PERFORMANCE CHECK

Uncertainty Component	Description	Uncertainty Value(%)	Probably Distribution	Div.	(Ci) 1g	(Ci) 10g	Std. Unc. 1g(%)	Std. Unc. 10g(%)	v
Measurement system									
Probe calibration	7.2.1	5.8	N	1	1	1	5.8	5.8	∞
Axial isotropy	7.2.1.1	3.5	R	$\sqrt{3}$	$(1\text{-}C_p)^{1/2}$	$(1\text{-}C_p)^{1/2}$	1.43	1.43	∞
Hemispherical isotropy	7.2.1.1	5.9	R	$\sqrt{3}$	$\sqrt{C_p}$	$\sqrt{C_p}$	2.41	2.41	∞
Boundary Effects	7.2.1.4	1.00	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Linearity	7.2.1.2	4.70	R	$\sqrt{3}$	1	1	2.71	2.71	∞
System detection limits	7.2.1.2	1	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Modulation Response	7.2.1.3	3	N	1	1	1	0.00	0.00	∞
Readout Electronics	7.2.1.5	0.5	N	1	1	1	0.50	0.50	∞
Response Time	7.2.1.6	0	R	$\sqrt{3}$	1	1	0.00	0.00	∞
Integration Time	7.2.1.7	1.4	R	$\sqrt{3}$	1	1	0.81	0.81	∞
RF Ambient Conditions-Noise	7.2.3.7	3	R	$\sqrt{3}$	1	1	1.73	1.73	∞
RF Ambient Conditions-Reflection	7.2.3.7	3	R	$\sqrt{3}$	1	1	1.73	1.73	∞
Probe positioned mechanical Tolerance	7.2.2.1	1.4	R	$\sqrt{3}$	1	1	0.81	0.81	∞
Probe positioning with respect to phantom shell	7.2.2.3	1.4	R	$\sqrt{3}$	1	1	0.81	0.81	∞
Extrapolation interpolation and integration algorithms for Max.SAR evaluation	7.2.4	2.3	R	1	1	1	1.33	1.33	∞
Dipole									
Deviation of experimental source from numerical source		4	N	1	1	1	4.00	4.00	∞
Input power and SAR drift measurement	7.2.3.6	5	R	$\sqrt{3}$	1	1	2.89	2.89	∞
Dipole axis to liquid distance		2	R	$\sqrt{3}$	1	1			∞
Phantom and tissue parameters									
Phantom uncertainty (shape and thickness tolerances)	7.2.2.2	4	R	$\sqrt{3}$	1	1	2.31	2.31	∞
uncertainty in SAR correction for deviation (in permittivity and conductivity)	7.2.6	2	N	1	1	0.84	2.00	1.68	∞
Liquid conductivity (temperature uncertainty)	7.2.3.5	2.5	N	1	0.78	0.71	1.95	1.78	∞
Liquid conductivity -measurement uncertainty	7.2.3.3	4	N	1	0.23	0.26	0.92	1.04	∞
Liquid permittivity (temperature uncertainty)	7.2.3.5	2.5	N	1	0.78	0.71	1.95	1.78	∞
Liquid permittivity measurement uncertainty	7.2.3.4	5	N	1	0.23	0.26	1.15	1.30	∞
Combined standard uncertainty			RSS				10.15	10.05	
Expanded uncertainty (95%CONFIDENCEINTERVAL			k				20.29	20.10	

10.6. Test Equipment List

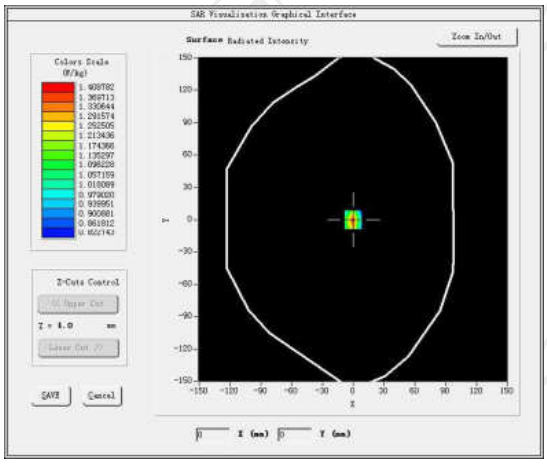
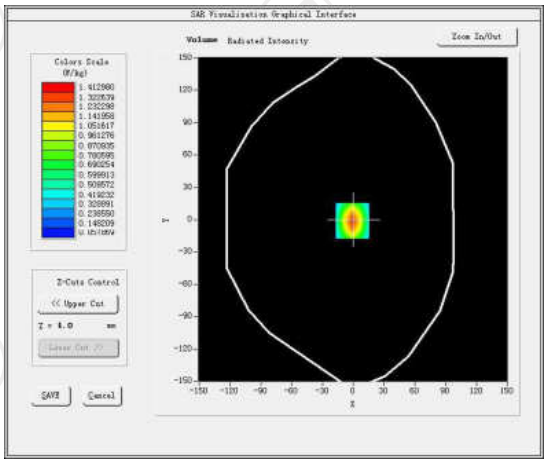
Test Equipment	Manufacturer	Model	Serial Number	Calibration	
				Calibration Date (D.M.Y)	Calibration Due (D.M.Y)
PC	Lenovo	H3050	N/A	N/A	N/A
Signal Generator	Angilent	N5182A	MY47070282	Jun. 08, 2022	Jun. 07, 2023
Multimeter	Keithley	Multimeter 2000	4078275	Jun. 08, 2022	Jun. 07, 2023
Network Analyzer	Agilent	8753E	US38432457	Jun. 08, 2022	Jun. 07, 2023
Wireless Communication Test Set	R & S	CMU200	111382	Jun. 08, 2022	Jun. 07, 2023
Wideband Radio Communication Tester	R&S	CMW500	114220	Jun. 08, 2022	Jun. 07, 2023
Power Meter	Agilent	E4418B	GB43312526	Jun. 08, 2022	Jun. 07, 2023
Power Meter	Agilent	E4416A	MY45101555	Jun. 08, 2022	Jun. 07, 2023
Power Meter	Agilent	N1912A	MY50001018	Jun. 08, 2022	Jun. 07, 2023
Power Sensor	Agilent	E9301A	MY41497725	Jun. 08, 2022	Jun. 07, 2023
Power Sensor	Agilent	E9327A	MY44421198	Jun. 08, 2022	Jun. 07, 2023
Power Sensor	Agilent	E9323A	MY53070005	Jun. 08, 2022	Jun. 07, 2023
Power Amplifier	PE	PE15A4019	112342	N/A	N/A
Directional Coupler	Agilent	722D	MY52180104	N/A	N/A
Attenuator	Chensheng	FF779	134251	N/A	N/A
E-Field PROBE	MVG	SSE2	SN 36/20 EPGO346	Jun. 05, 2022	Jun. 04, 2023
DIPOLE 750	MVG	SID750	SN 16/15 DIP 0G750-368	Jun. 05, 2022	Jun. 04, 2023
DIPOLE 835	MVG	SID835	SN 16/15 DIP 0G835-369	Jun. 05, 2022	Jun. 04, 2023
DIPOLE 1800	MVG	SID 1800	SN 16/15 DIP 1G800-371	Jun. 05, 2022	Jun. 04, 2023
DIPOLE 1900	MVG	SID1900	SN 16/15 DIP 1G900-372	Jun. 05, 2022	Jun. 04, 2023
DIPOLE 2450	MVG	SID 2450	SN 16/15 DIP 2G450-374	Jun. 05, 2022	Jun. 04, 2023
DIPOLE 2600	MVG	SID 2600	SN 16/15 DIP 2G600-375	Jun. 05, 2022	Jun. 04, 2023
DIPOLE 5200-5800	MVG	SID 5000	SN 13/14 WGA32	May 15, 2022	May 14, 2023
Limesar Dielectric Probe	MVG	SCLMP	SN 19/15 OCPG71	Jun. 05, 2022	Jun. 04, 2023
Communication Antenna	MVG	ANTA59	SN 39/14 ANTA59	N/A	N/A
Mobile Phone Position Device	MVG	MSH101	SN 19/15 MSH101	N/A	N/A
Dummy Probe	MVG	DP66	SN 13/15 DP66	N/A	N/A
SAM PHANTOM	MVG	SAM120	SN 19/15 SAM120	N/A	N/A
PHANTOM TABLE	MVG	TABP101	SN 19/15 TABP101	N/A	N/A
Robot TABLE	MVG	TABP61	SN 19/15 TABP61	N/A	N/A
6 AXIS ROBOT	KUKA	KR6-R900	501822	N/A	N/A

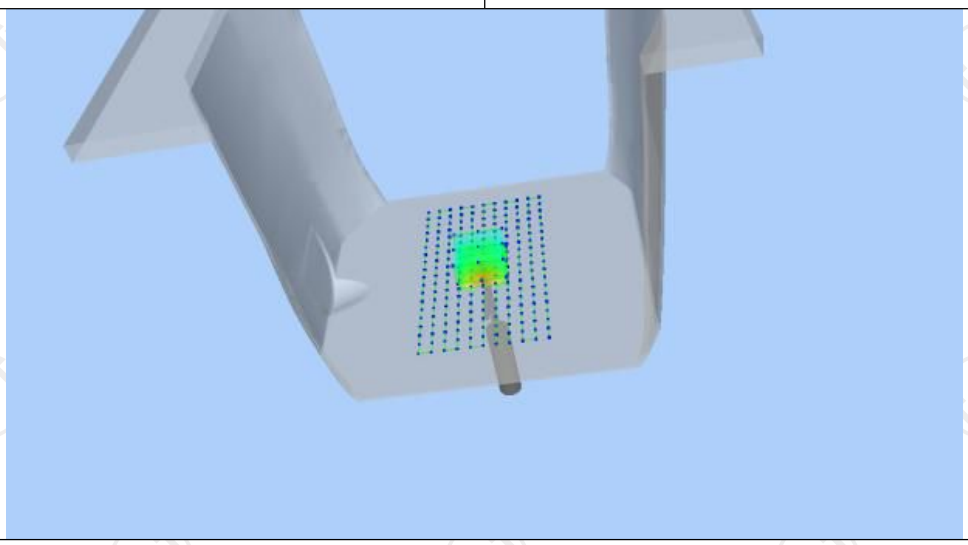
Note: *1.N/A means this equipment no need to calibrate*
2.Each Time means this device need to calibrate every use time
3. The dipole was not damaged properly repaired.
4. The measured SAR deviates from the calibrated SAR value by less than 10%
5. The most recent return-loss result meets the required 20 dB minimum return-loss requirement
6. The most recent measurement of the real or imaginary parts of the impedance deviates by less than 5 Ω from the previous measurement.

11. System Check Results

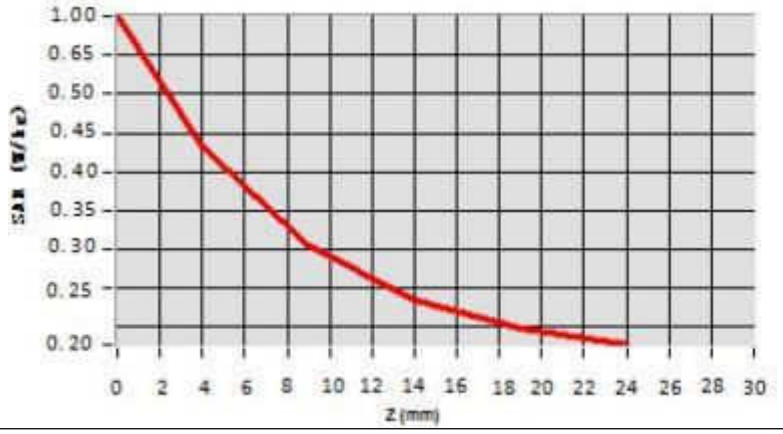
Date of measurement: 09/19/2022 Test mode: 750 (Body)
Product Description: Validation
Dipole Model: SID750
E-Field Probe: SSE2 (SN 36/20 EPGO346)

Phantom	Validation plane
Input Power	100mW
Crest Factor	1.0
Probe Conversion factor	1.78
Frequency (MHz)	750.000000
Relative permittivity (real part)	55.381166
Relative permittivity (imaginary part)	20.148160
Conductivity (S/m)	0.921243
Variation (%)	-0.150000
SAR 10g (W/Kg)	0.600414
SAR 1g (W/Kg)	0.870441

SURFACE SAR	**VOLUME SAR**
	



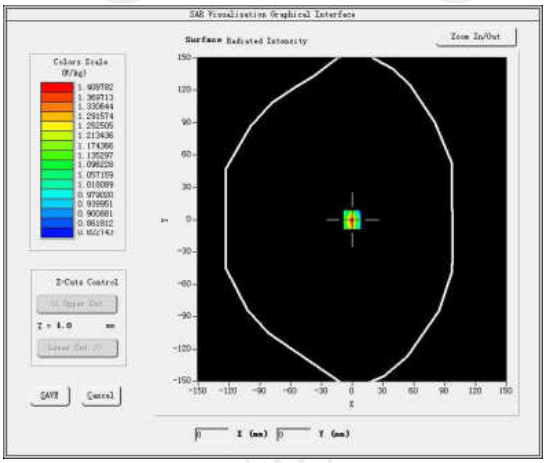
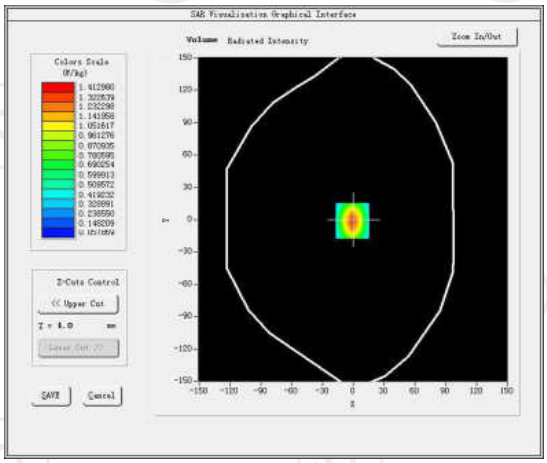
Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	1.014	0.4420	0.3029	0.2419	0.2240

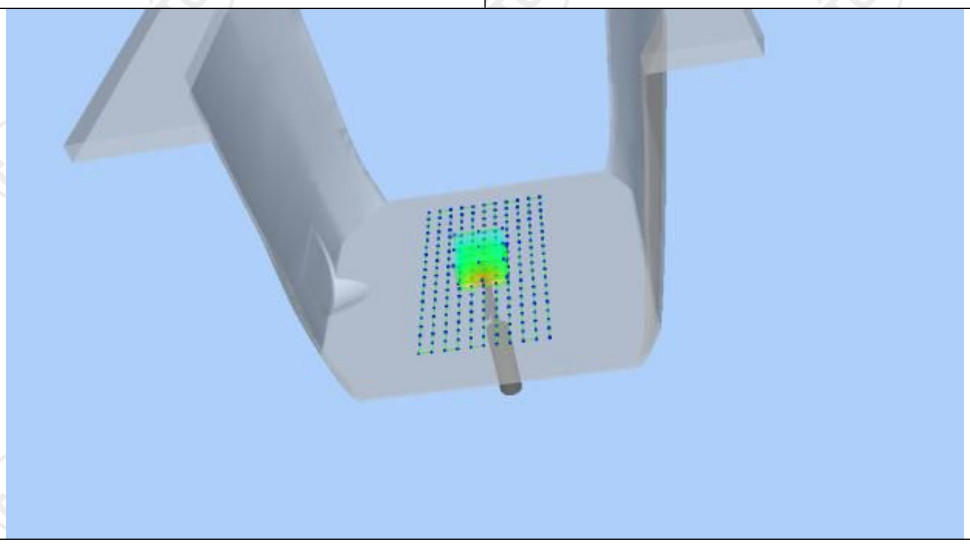


Hot spot position

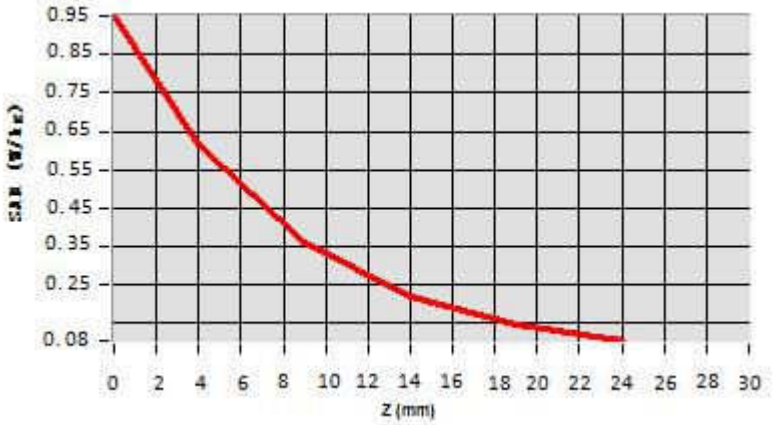
Date of measurement: 09/19/2022Test mode: 835 (Body)
Product Description: Validation
Dipole Model: SID835
E-Field Probe: SSE2 (SN 36/20 EPGO346)

Phantom	Validation plane
Input Power	100mW
Crest Factor	8.0
Probe Conversion factor	1.86
Frequency (MHz)	835.000000
Relative permittivity (real part)	55.242077
Relative permittivity (imaginary part)	21.378187
Conductivity (S/m)	0.938883
Variation (%)	-0.150000
SAR 10g (W/Kg)	**0.630123**
SAR 1g (W/Kg)	**0.950446**

SURFACE SAR	**VOLUME SAR**
	



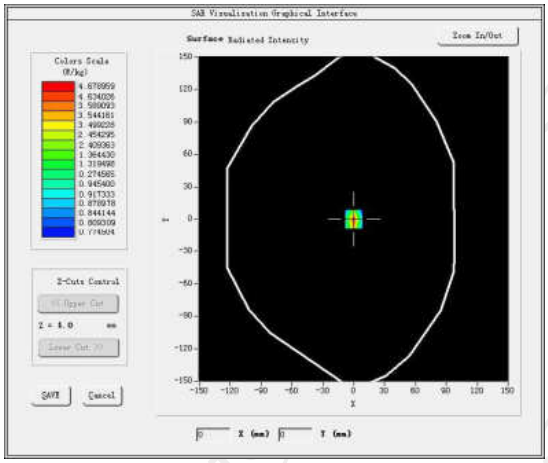
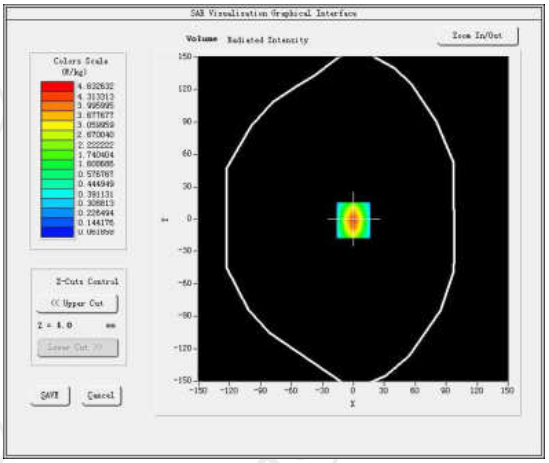
Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.9625	0.6022	0.3594	0.2202	0.0725

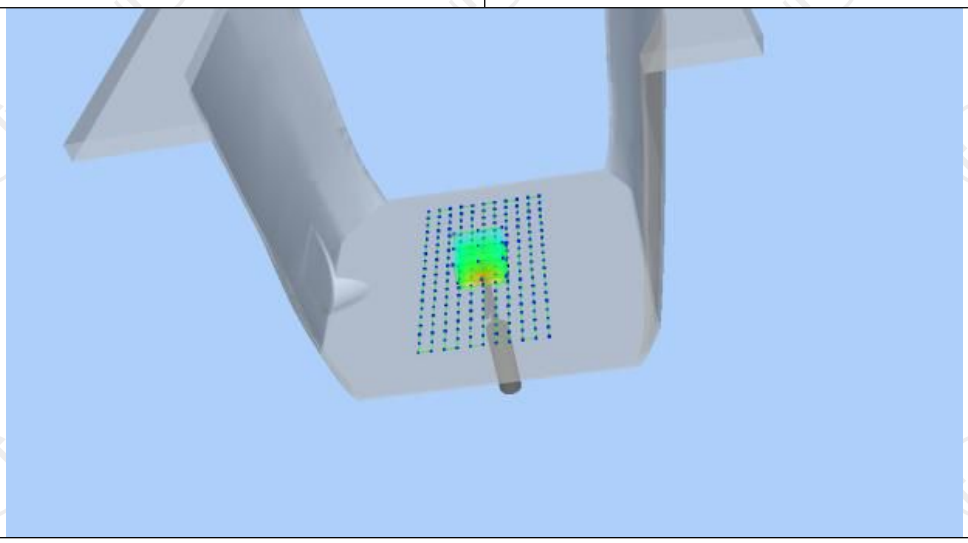


Hot spot position

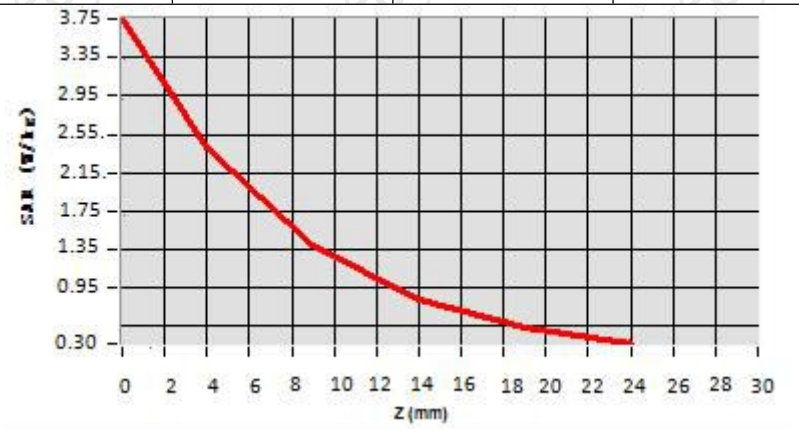
Date of measurement: 09/20/2022Test mode: 1800MHz (Body)
Product Description: Validation
Dipole Model: SID1800
E-Field Probe: SSE2 (SN 36/20 EPGO346)

Phantom	Validation plane
Input Power	100mW
Crest Factor	1.0
Probe Conversion factor	2.16
Frequency (MHz)	1800.000000
Relative permittivity (real part)	53.292699
Relative permittivity (imaginary part)	15.200000
Conductivity (S/m)	1.530000
Variation (%)	3.050000
SAR 10g (W/Kg)	**2.046187**
SAR 1g (W/Kg)	**3.779347**

SURFACE SAR	**VOLUME SAR**
	



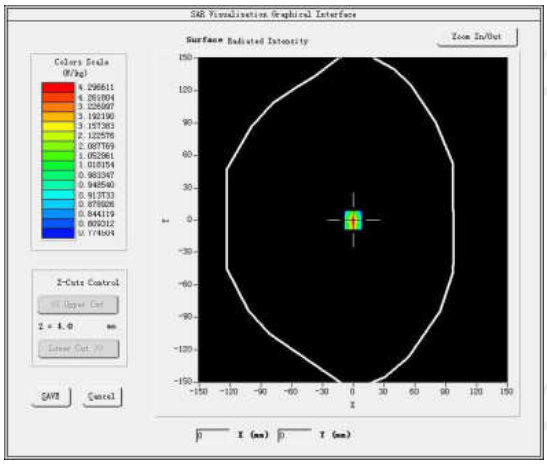
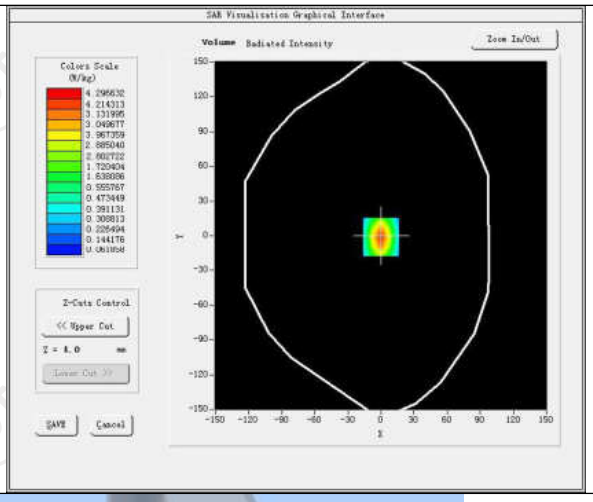
Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	3.7545	2.4524	1.3520	0.8214	0.5525

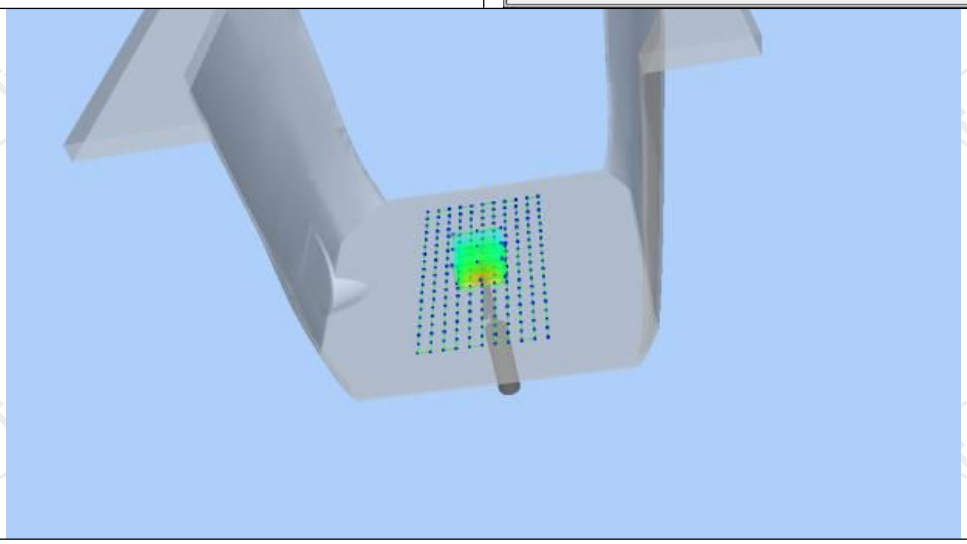


Hot spot position

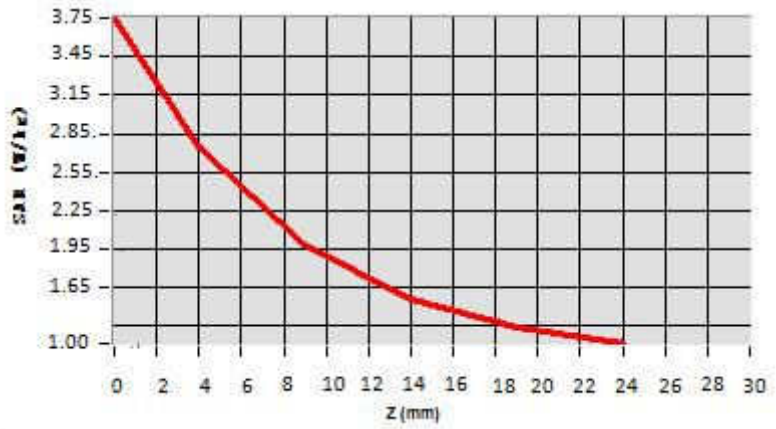
Date of measurement: 09/20/2022Test mode: 1900MHz (Body)
Product Description: Validation
Dipole Model: SID1900
E-Field Probe: SSE2 (SN 36/20 EPGO346)

Phantom	Validation plane
Input Power	100mW
Crest Factor	8.0
Probe Conversion factor	2.32
Frequency (MHz)	1900.000000
Relative permittivity (real part)	52.230999
Relative permittivity (imaginary part)	14.329440
Conductivity (S/m)	1.580354
Variation (%)	1.250000
SAR 10g (W/Kg)	**1.990255**
SAR 1g (W/Kg)	**3.770412**

SURFACE SAR	**VOLUME SAR**
	



Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	3.7752	2.7154	1.9525	1.5694	0.9014



Hot spot position