FCC SAR TEST REPORT

Application No.:	SUCR2403000046
Applicant:	Xiaomi Communications Co., Ltd.
Manufacturer:	Xiaomi Communications Co., Ltd.
Product Name:	Mobile Phone
Model No.(EUT):	2404APC5FG
Trade Mark:	Redmi
FCC ID:	2AFZZPC5FG
Standards:	FCC 47CFR §2.1093
Date of Receipt:	2024-03-06
Date of Test:	2024-03-13 to 2024-03-25
Date of Issue:	2024-03-25
Test conclusion:	**PASS ***

* In the configuration tested, the EUT detailed in this report complied with the standards specified above.

Authorized Signature:

Well Wei

Well Wei
Wireless Laboratory Manager

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REVISION HISTORY

Report Number	Revision	Description	Issue Date
SUCR2403000046	01	Original	2024-03-25

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TEST SUMMARY

Frequency Band	Maximum Reported SAR(W/kg)			
	Head	Body-worn	Hotspot	Product specific 10g SAR
GSM850	0.69	0.13	0.32	/
GSM1900	0.88	0.40	0.48	/
WCDMA Band II	1.05	1.01	0.79	/
WCDMA Band IV	0.84	0.94	0.65	/
WCDMA Band V	0.95	0.31	0.53	/
LTE Band 2	0.80	0.79	0.79	/
LTE Band 4	0.76	1.01	0.72	/
LTE Band 5	1.09	0.29	0.46	/
LTE Band 7	1.01	0.79	0.67	/
LTE Band 38	0.50	0.57	0.53	/
LTE Band 41	0.50	0.57	0.53	/
LTE Band 66	0.76	1.01	0.72	/
WI-FI (2.4GHz)	0.33	0.09	0.17	/
WI-FI (5GHz)	0.57	0.52	0.77	1.44
BT	0.09	0.03	0.05	/
NFC	/	/	/	<0.1
SAR Limited(W/kg)	1.6			4.0
Maximum Simultaneous Transmission SAR (W/kg)				
Scenario	Head	Body-worn	Hotspot	Product specific 10g SAR
Sum SAR	1.55	1.55	1.57	1.44
SPLSR	/	/	/	/
SPLSR Limited	0.04			0.1

Note:
1) According to TCB workshop October,2014 RF Exposure Procedures Update (Overlapping Bands): SAR for LTE Band 4 (Frequency range:1710 - 1755 MHz)/LTE Band 38 (Frequency range:2570 - 2620 MHz) is respectively covered by LTE Band 66 (Frequency range:1710 - 1780 MHz)/LTE Band41 (Frequency range:2496 - 2690 MHz) due to similar frequency range, same maximum tune up limit and same channel bandwidth.

Reviewed by
Nick Hu

Prepared by
Leon Xu

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1 EUT Antenna Locations (Back View)

The EUT Antenna Locations (Back View) can refer to Appendix D.

Note:
1) The test device is a smart phone. The overall diagonal dimension of this device is 176 mm. Per KDB 648474 D04, because the diagonal distance of this device is ≥160mm, so it is a phablet.
2) Ant 1 is sensor pad 1
Ant 4 is sensor pad 2

According to the distance between LTE/WCDMA/GSM&WIFI&BT antennas and the sides of the EUT we can draw the conclusion that:

EUT Sides for SAR Testing							
Mode	Exposure Condition	Front	Back	Left	Right	Top	Bottom
Ant 1	Hotspot/Product specific 10g SAR	Yes	Yes	Yes	Yes	No	Yes
Ant 4	Hotspot/Product specific 10g SAR	Yes	Yes	Yes	No	Yes	No
Ant 7	Hotspot/Product specific 10g SAR	Yes	Yes	No	Yes	Yes	No

Table 1：EUT Sides for SAR Testing

Note:
1) When the antenna-to-edge distance is greater than 2.5cm, such position does not need to be tested.

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2 General Information

2.1 Details of Client

Applicant:	Xiaomi Communications Co., Ltd.
Address:	#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085
Manufacturer:	Xiaomi Communications Co., Ltd.
Address:	#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085

2.2 Test Location

Company:	SGS-CSTC Standards Technical Services (Suzhou) Co., Ltd.
Address:	South of No. 6 Plant, No. 1, Runsheng Road, Suzhou Industrial Park, Suzhou Area, China (Jiangsu) Pilot Free Trade Zone
Post code:	215000
Test Engineer:	Alan-Zhang

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SGS-CSTC Standards Technical Services (Suzhou) Co., Ltd. Wireless Laboratory

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2.3 Test Facility

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

• A2LA (Certificate No. 6336.01)

SGS-CSTC STANDARDS TECHNICAL SERVICES (SUZHOU) CO., LTD. is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 6336.01.

• Innovation, Science and Economic Development Canada

SGS-CSTC STANDARDS TECHNICAL SERVICES (SUZHOU) CO., LTD. has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0120.

IC#: 27594.

• FCC –Designation Number: CN1312

SGS-CSTC STANDARDS TECHNICAL SERVICES (SUZHOU) CO., LTD. has been recognized as an accredited testing laboratory.

Designation Number: CN1312.

Test Firm Registration Number: 717327

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2.4 General Description of EUT

Device Type :	portable device		
Exposure Category:	uncontrolled environment / general population		
Product Name:	Mobile Phone		
Model No.(EUT):	2404APC5FG		
FCC ID:	2AFZZPC5FG		
Trade Mark:	POCO		
Product Phase:	Identical Prototype		
IMEI:	1#:860919070009741/860919070009758 2#:860919070009428/860919070009436		
Hardware Version:	1351N19A		
Software Version:	Xiaomi HyperOS 1.0		
Device Operating Configurations :			
Modulation Mode:	**GSM:** GMSK, 8PSK; **WCDMA:** QPSK,16QAM; **LTE:** QPSK,16QAM,64QAM; **WIFI:** DSSS, OFDM, OFDMA; **BT:** GFSK, π/4DQPSK,8DPSK **NFC**:ASK;		
Device Class:	B		
GPRS Multi-slots Class:	33	EGPRS Multi-slots Class:	33
HSDPA UE Category:	24	HSUPA UE Category	7
DC-HSDPA UE Category:	24		
Power Class	4,tested with power level 5(GSM850)		
	1,tested with power level 0(GSM1900)		
	3, tested with power control “all 1”(WCDMA Band)		
	3, tested with power control Max Power(LTE Band)		
Frequency Bands:	Band	Tx (MHz)	Rx (MHz)
	GSM850	824 - 849	869 - 894
	GSM1900	1850 - 1910	1930 - 1990
	WCDMA Band II	1850 - 1910	1930 - 1990
	WCDMA Band IV	1710 - 1755	2110 - 2155
	WCDMA Band V	824 - 849	869 - 894
	LTE Band 2	1850 - 1910	1930 - 1990
	LTE Band 4	1710 - 1755	2110 - 2155
	LTE Band 5	824 - 849	869 - 894
	LTE Band 7	2500 - 2570	2620 - 2690
	LTE Band 38	2570 - 2620	2570 - 2620
	LTE Band 41	2496 - 2690	2496 - 2690
	LTE Band 66	1710 - 1780	2110 - 2200
	NFC	13.56	13.56
	Bluetooth	2400 - 2483.5	2400 - 2483.5
	Wi-Fi 2.4G	2402 - 2462	2402 - 2462
	Wi-Fi 5G	5150 - 5250	5150 - 5250
		5250 - 5350	5250 - 5350
		5470 - 5725	5470 - 5725

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		5725 - 5850	5725 - 5850
RF Cable:	☒ Provided by the aplicant ☐ Provided by the laboratory		
1# Battery Information:	Model:	BN5T	
	Normal Voltage:	+3.84V	
	Rated capacity:	4930mAh	
	Brand Name:	NVT	
2# Battery Information:	Model:	BN5T	
	Normal Voltage:	+3.84V	
	Rated capacity:	4930mAh	
	Brand Name:	Sunwoda	
3# Battery Information:	Model:	BN5T	
	Normal Voltage:	+3.84V	
	Rated capacity:	4930mAh	
	Brand Name:	Cosmx	

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2.4.1 Power reduction specification

This device uses a single fixed level of power reduction through static table look-up for SAR compliance and it is triggered by a single event or operation

1) A fixed level power reduction is applied for some frequency bands when hotspot mode becomes active. When the hotspot is disabled, the power value will be recovered.

2) A fixed level power reduction is applied for some frequency bands when handset operate "held to the ear" condition, the power reduction triggered by audio receiver detection. The audio receiver detection is used to determine head or body scenario.

3) The proximity sensor is used to indicate when the device is held close to a user's body exposure condition. It utilizes the proximity sensor to reduce the output power in specific wireless and operating modes of main antenna to ensure SAR compliance (Refer to section 5.4 for detailed proximity Sensor information and validation data per KDB 616217).

The detailed power reduction information can be referred to Appendix E.

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2.5 Test Specification

Identity	Document Title
FCC 47CFR §2.1093	Radiofrequency Radiation Exposure Evaluation: Portable Devices
ANSI/IEEE C95.1-1992	IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz – 300 GHz.
IEEE 1528-2013	Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques
IEC/IEEE 62209-1528:2020	Measurement procedure for the assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices – Part 1528: Human models, instrumentation, and procedures (Frequency range of 4 MHz to 10 GHz)
KDB 941225 D01	3G SAR Measurement Procedures v03r01
KDB 941225 D05	SAR for LTE Devices v02r05
KDB 941225 D05A	LTE Rel.10 KDB Inquiry Sheet v01r02
KDB 941225 D06	Hotspot Mode SAR v02r01
KDB 248227 D01	SAR Guidance for IEEE 802 11 Wi-Fi SAR v02r02
KDB 648474 D04	Handset SAR v01r03
KDB 447498 D04	General RF Exposure Guidance v01
KDB 865664 D01	SAR Measurement 100 MHz to 6 GHz v01r04
KDB 865664 D02	RF Exposure Reporting v01r02
KDB 690783 D01	SAR Listings on Grants v01r03
KDB 616217 D04	SAR for laptop and tablets v01r02

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Member of the SGS Group (SGS SA)

2.6 RF exposure limits

Human Exposure	Uncontrolled Environment General Population	Controlled Environment Occupational
Spatial Peak SAR* (Brain*Trunk)	**1.60 mW/g**	8.00 mW/g
Spatial Average SAR** (Whole Body)	0.08 mW/g	0.40 mW/g
Spatial Peak SAR*** (Hands/Feet/Ankle/Wrist)	**4.00 mW/g**	20.00 mW/g

Notes:

* 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

** The Spatial Average value of the SAR averaged over the whole body.

*** 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.

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

Controlled Environments are defined as locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, (i.e. as a result of employment or occupation.)

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3 Laboratory Environment

Temperature	Min. = 18°C, Max. = 25 °C
Relative humidity	Min. = 30%, Max. = 70%
Ambient noise is checked and found very low and in compliance with requirement of standards. Reflection of surrounding objects is minimized and in compliance with requirement of standards.	

Table 2: The Ambient Conditions

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4 SAR Measurements System Configuration

4.1 The SAR Measurement System

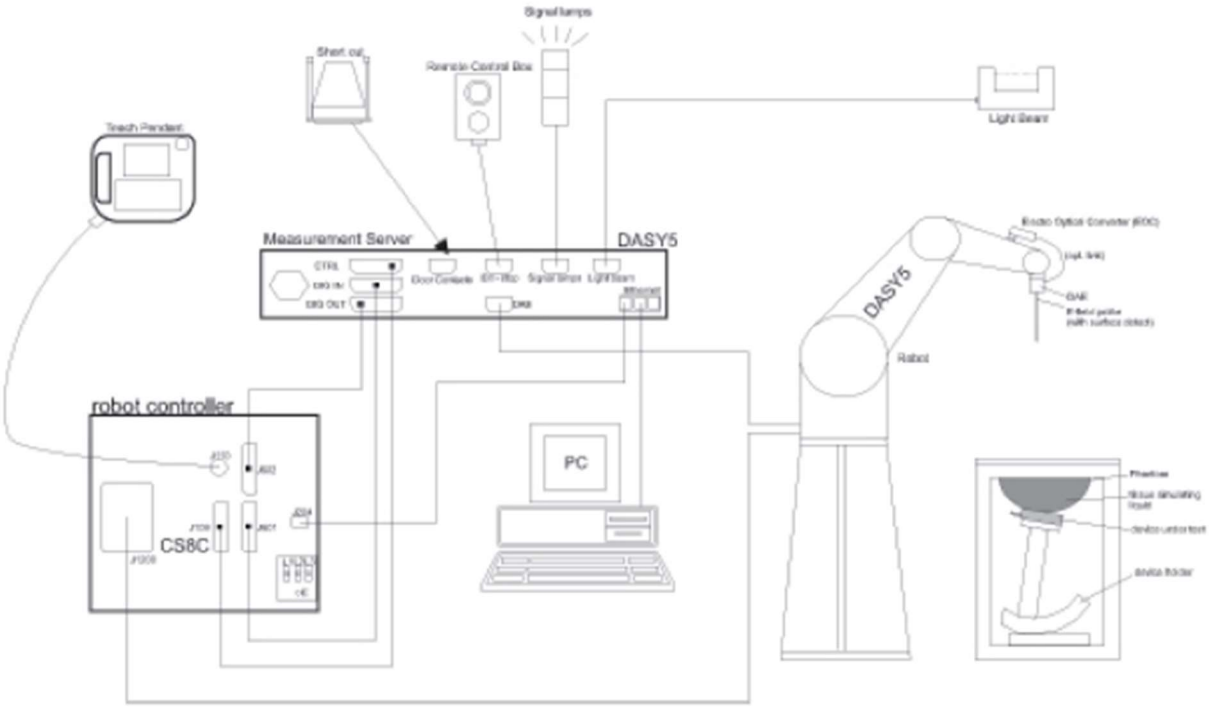
This SAR Measurement System uses a Computer-controlled 3-D stepper motor system (SPEAG DASY5 professional system). A E-field probe is used to determine the internal electric fields. The SAR can be obtained from the equation SAR= σ (|Ei|2)/ ρ where σ and ρ are the conductivity and mass density of the tissue-Simulate.

The DASY5 system for performing compliance tests consists of the following items:
A standard high precision 6-axis robot (Stabile RX family) with controller, teach pendant and software .An arm extension for accommodation the data acquisition electronics (DAE).

A dosimetric probe, i.e., an isotropic E-field probe optimized and calibrated for usage in tissue simulating liquid. The probe is equipped with an optical surface detector system.

A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.

The Electro-optical converter (EOC) performs the conversion between optical and electrical of the signals for the digital communication to DAE and for the analog signal from the optical surface detection. The EOC is connected to the measurement server.



F-1. SAR Measurement System Configuration

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- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- A probe alignment unit which improves the (absolute) accuracy of the probe positioning.
- A computer operating Windows 7.
- DASY5 software.
- Remote control with teach pendant and additional circuitry for robot safety such as warning lamps, etc.
- The SAM twin phantom enabling testing left-hand, right-hand and Body Worn usage.
- The device holder for handheld mobile phones.
- Tissue simulating liquid mixed according to the given recipes.
- Validation dipole kits allowing to validating the proper functioning of the system.

4.2 Isotropic E-field Probe EX3DV4

	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Calibration	ISO/IEC 17025 calibration service available.
Frequency	10 MHz to > 6 GHz Linearity: ± 0.2 dB (30 MHz to 6 GHz)
Directivity	± 0.3 dB in TSL (rotation around probe axis) ± 0.5 dB in TSL (rotation normal to probe axis)
Dynamic Range	10 µW/g to > 100 mW/g Linearity: ± 0.2 dB (noise: typically < 1 µW/g)
Dimensions	Overall length: 337 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm
Application	High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields); the only probe that enables compliance testing for frequencies up to 6 GHz with precision of better 30%.
Compatibility	DASY3, DASY4, DASY52 SAR and higher, EASY4/MRI

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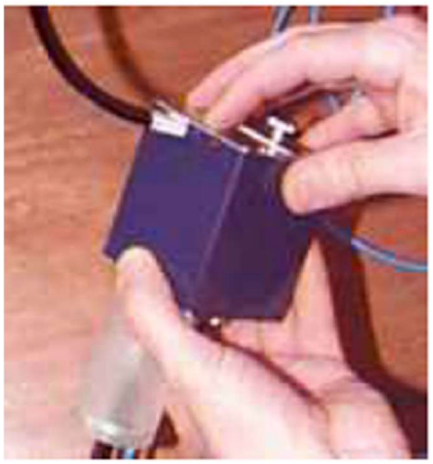
4.3 Data Acquisition Electronics (DAE)

Model	DAE
Construction	Signal amplifier, multiplexer, A/D converter and control logic. Serial optical link for communication with DASY4/5 embedded system (fully remote controlled). Two step probe touch detector for mechanical surface detection and emergency robot stop.
Measurement Range	-100 to +300 mV (16 bit resolution and two range settings: 4mV,400mV)
Input Offset Voltage	< 5µV (with auto zero)
Input Bias Current	< 50 f A
Dimensions	60 x 60 x 68 mm



4.4 SAM Twin Phantom

Material	Vinylester, glass fiber reinforced (VE-GF)
Liquid Compatibility	Compatible with all SPEAG tissue simulating liquids (incl. DGBE type)
Shell Thickness	2 ± 0.2 mm (6 ± 0.2 mm at ear point)
Dimensions (incl. Wooden Support)	Length: 1000 mm Width: 500 mm Height: adjustable feet
Filling Volume	approx. 25 liters
Wooden Support	SPEAG standard phantom table

The shell corresponds to the specifications of the Specific Anthropomorphic Mannequin (SAM) phantom defined in IEEE 1528 and IEC 62209-1. It enables the dosimetric evaluation of left and right hand phone usage as well as body mounted usage at the flat phantom region. A cover prevents evaporation of the liquid. Reference markings on the phantom allow the complete setup of all predefined phantom positions and measurement grids by teaching three points with the robot.

Twin SAM V5.0 has the same shell geometry and is manufactured from the same material as Twin SAM V4.0, but has reinforced top structure.

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4.5 ELI Phantom

Material	Vinylester, glass fiber reinforced (VE-GF)
Liquid Compatibility	Compatible with all SPEAG tissue simulating liquids (incl. DGBE type)
Shell Thickness	2.0 ± 0.2 mm (bottom plate)
Dimensions	Major axis: 600 mm Minor axis: 400 mm
Filling Volume	approx. 30 liters
Wooden Support	SPEAG standard phantom table

The ELI phantom is used for compliance testing of handheld and body-mounted wireless devices in the frequency range of 4 MHz to 10 GHz. ELI is fully compatible with the IEC/IEEE 62209-1528 standard and all known tissue simulating liquids. ELI has been optimized regarding its performance and can be integrated into our standard phantom tables. A cover prevents evaporation of the liquid. Reference markings on the phantom allow installation of the complete setup, including all predefined phantom positions and measurement grids, by teaching three points. The phantom is compatible with all of SPEAG's dosimetric probes and dipoles.

ELI V5.0 and higher has the same shell geometry and is manufactured from the same material as ELI V4.0 but has a reinforced top structure.

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4.6 Device Holder for Transmitters

F-2. **Device Holder for Transmitters**

- The DASY device holder is designed to cope with different positions given in the standard. It has two scales for the device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear reference points). The rotation centres for both scales are the ear reference point (ERP). Thus the device needs no repositioning when changing the angles.
- The DASY device holder has been made out of low-loss POM material having the following dielectric parameters: relative permittivity ε=3 and loss tangent δ=0.02. The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the influence of the clamp on the test results could thus be lowered.

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4.7 Measurement procedure

4.7.1 Scanning procedure

Step 1: Power reference measurement

The “reference” and “drift” measurements are located at the beginning and end of the batch process. They measure the field drift at one single point in the liquid over the complete procedure.

Step 2: *Area scan*

The SAR distribution at the exposed side of the head was measured at a distance of 4mm from the inner surface of the shell. The area covered the entire dimension of the head and the horizontal grid spacing was 15mm*15mm or 12mm*12mm or 10mm*10mm.Based on the area scan data, the area of the maximum absorption was determined by spline interpolation.

Step 3: *Zoom scan*

Around this point, a volume of 32mm*32mm*30mm (f≤2GHz), 30mm*30mm*30mm (f for 2-3GHz) and 24mm*24mm*22mm (f for 5-6GHz) was assessed by measuring 5x5x7 points (f≤2GHz), 7x7x7 points (f for 2-3GHz) and 7x7x12 points (f for 5-6GHz). On this basis of this data set, the spatial peak SAR value was evaluated with the following procedure:

The data at the surface was extrapolated, since the centre of the dipoles is 2.0mm away from the tip of the probe and the distance between the surface and the lowest measuring point is 1.2mm. (This can be variable. Refer to the probe specification).The extrapolation was based on a least square algorithm. A polynomial of the fourth order was calculated through the points in z-axes. This polynomial was then used to evaluate the points between the surface and the probe tip. The maximum interpolated value was searched with a straight-forward algorithm. Around this maximum the SAR values averaged over the spatial volumes (1g or 10g) were computed using the 3D-Spline interpolation algorithm. The volume was integrated with the trapezoidal algorithm. One thousand points were interpolated to calculate the average. All neighbouring volumes were evaluated until no neighboring volume with a higher average value was found.

The area and zoom scan resolutions specified in the table below must be applied to the SAR measurements Probe boundary effect error compensation is required for measurements with the probe tip closer than half a probe tip diameter to the phantom surface. Both the probe tip diameter and sensor offset distance must satisfy measurement protocols; to ensure probe boundary effect errors are minimized and the higher fields closest to the phantom surface can be correctly measured and extrapolated to the phantom surface for computing 1-g SAR. Tolerances of the post-processing algorithms must be verified by the test laboratory for the scan resolutions used in the SAR measurements, according to the reference distribution functions specified in IEEE Std. 1528-2013.

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			≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface			5 ± 1 mm	½·δ·ln(2) ± 0.5 mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location			30° ± 1°	20° ± 1°
Maximum area scan spatial resolution: Δx_{Area}, Δy_{Area}			≤ 2 GHz: ≤ 15 mm 2 – 3 GHz: ≤ 12 mm	3 – 4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm
			When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	
Maximum zoom scan spatial resolution: Δx_{Zoom}, Δy_{Zoom}			≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$		≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm
	graded grid	$\Delta z_{Zoom}(1)$: between 1st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{Zoom}(n>1)$: between subsequent points	≤ 1.5·$\Delta z_{Zoom}(n-1)$	
Minimum zoom scan volume	x, y, z		≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm

Step 4: Power reference measurement (drift)

The Power Drift Measurement job measures the field at the same location as the most recent power reference measurement job within the same procedure, and with the same settings. The indicated drift is mainly the variation of the DUT's output power and should vary max. ± 5 %

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4.7.2 Data Storage

The DASY 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 with the extension ".DAE4". 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], [m W/g], [m W/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.

4.7.3 Data Evaluation by SEMCAD

The SEMCAD 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	ε
	- 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 DASY components. In the direct measuring mode of the multimeter 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:

$$V_i = U_i + U_i^2 \cdot cf / dcp_i$$

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 (DASY parameter)
dcp i = diode compression point (DASY parameter)

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

E-field probes:

$$E_i = (V_i / Norm_i \cdot ConvF)^{1/2}$$

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H-field probes:

$$H_i = (V_i)^{1/2} \cdot (a_{i0} + a_{i1} f + a_{i2} f^2) / f$$

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):

$$E_{tot} = (E_x^2 + E_Y^2 + E_z^2)^{1/2}$$

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

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

with SAR = local specific absorption rate in mW/g
Etot = total field strength in V/m
σ= conductivity in [mho/m] or [Siemens/m]
ε= 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.

$$P_{pwe} = Etot^2{}_2 / 3770 \text{ or } \quad P_{pwe} = Htot^2 \cdot 37.7$$

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

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5 SAR measurement variability and uncertainty

5.1 SAR measurement variability

Per KDB865664 D01 SAR measurement 100 MHz to 6 GHz v01r04, SAR measurement variability must be assessed for each frequency band, which is determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements. The additional measurements are repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device should be returned to ambient conditions (normal room temperature) with the battery fully charged before it is re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results.
1) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg; steps 2) through 4) do not apply.
2) When the original highest measured SAR is ⩾ 0.80 W/kg, repeat that measurement once.
3) Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is ⩾ 1.45 W/kg (~ 10% from the 1-g SAR limit).
4) Perform a third repeated measurement only if the original, first or second repeated measurement is ⩾1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.
The same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds.

5.2 SAR measurement uncertainty

Per KDB865664 D01 SAR Measurement 100 MHz to 6 GHz, when the highest measured 1-g SAR within a frequency band is < 1.5 W/kg, the extensive SAR measurement uncertainty analysis described in IEEE Std 1528-2013 is not required in SAR reports submitted for equipment approval. The equivalent ratio (1.5/1.6) is applied to extremity and occupational exposure conditions.

IEC- 62209-1528 sets out the general test methods to be followed when carrying out an RF exposure compliance assessment of wireless devices implementing device-based time-averaging methods for the management and/or mitigation of specific absorption rate (SAR) in the 4 MHz to 6 GHz frequency band. It does not cover requirements that are based on power density above 6 GHz or requirements to protect against nerve stimulation for the frequency range from 3 kHz to 10MHz.

Measurements and results are all in compliance with the standards listed. All measurements and results are recorded and maintained at the laboratory performing the tests and measurement uncertainties are taken into account when comparing measurements to pass/ fail criteria. The Expanded uncertainty (95% CONFIDENCE INTERVAL) is **23.34%**.

a	b	c	d	e = f(d,k)	g	i = C*g/e	K
Uncertainty Component	Section in P1528	Tol (%)	Prob.Dist.	Div.	Ci (1g)	1g ui (%)	Vi(Veff)
Measurement system							
Probe calibration	7.2.2.1	7.4	N	1	1	7.40	∞

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Axial isotropy	7.2.2.2	1.2	R	$\sqrt{3}$	1	0.69	∞
hemispherical isotropy	7.2.2.2	3.2	R	$\sqrt{3}$	1	1.85	∞
Linearity	7.2.2.3	0.9	R	$\sqrt{3}$	1	0.52	∞
Probe modulation response	7.2.2.4	0	R	$\sqrt{3}$	1	0.00	∞
Detection limits	7.2.2.5	0.25	R	$\sqrt{3}$	1	0.14	∞
Boundary effect	7.2.2.6	1.0	R	$\sqrt{3}$	1	0.58	∞
Readout electronics	7.2.2.7	0.3	N	1	1	0.30	∞
Response time	7.2.2.8	0	R	$\sqrt{3}$	1	0.00	∞
Integration time	7.2.2.9	2.6	R	$\sqrt{3}$	1	1.50	∞
RF ambient conditions – noise	7.2.4.5	3	R	$\sqrt{3}$	1	1.73	∞
RF ambient conditions – reflections	7.2.4.5	3	R	$\sqrt{3}$	1	1.73	∞
Probe positioner mech. restrictions	7.2.3.1	1.5	R	$\sqrt{3}$	1	0.87	∞
Probe positioning with respect to phantom shell	7.2.3.3	2.9	R	$\sqrt{3}$	1	1.67	∞
Post-processing	7.2.5	1	R	$\sqrt{3}$	1	0.58	∞
Test sample related							
Device holder uncertainty	7.2.3.4.2	3.6	N	1	1	3.60	∞
Test sample positioning	7.2.3.4.3	3.7	N	1	1	3.70	9
Power scaling	L.3	5.0	R	$\sqrt{3}$	1	2.89	∞
Drift of output power (measured SAR drift)	7.2.2.10	5	R	$\sqrt{3}$	1	2.89	∞
Phantom and set-up							
Phantom uncertainty (shape and thickness tolerances)	7.2.3.2	4	R	$\sqrt{3}$	1	2.31	∞
Algorithm for correcting SAR for deviations in permittivity and conductivity	7.2.4.3	1.9	N	1	1	1.90	∞
Liquid conductivity (meas.)	7.2.4.3	5.78	N	1	0.78	4.51	4
Liquid permittivity (meas.)	7.2.4.3	0.62	N	1	0.23	0.14	5
Liquid permittivity – temperature uncertainty	7.2.4.4	0.2	R	$\sqrt{3}$	0.78	0.09	∞
Liquid conductivity – temperature uncertainty	7.2.4.4	5.37	R	$\sqrt{3}$	0.23	0.71	∞
Combined standard uncertainty	**RSS**					11.67	417

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Expanded uncertainty (95% CONFIDENCE INTERVAL)	**K=2**	**23.34**	

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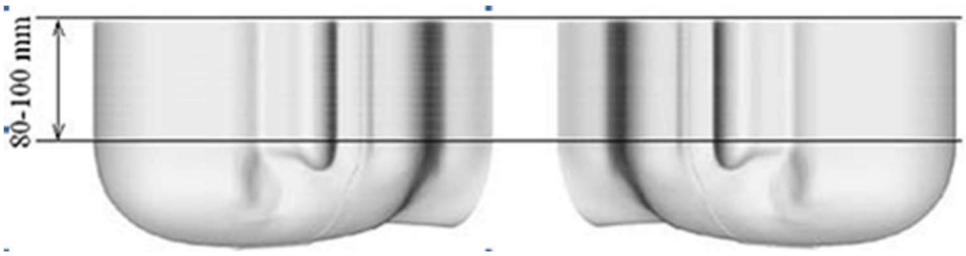
6 Description of Test Position

6.1 Head Exposure Condition

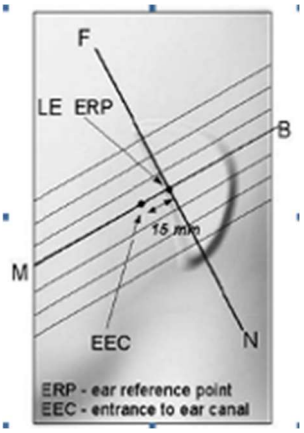
6.1.1 SAM Phantom Shape

F-3. Front, back, and side views of SAM (model for the phantom shell). Full-head model is for illustration purposes only-procedures in this recommended practice are intended primarily for the phantom setup.

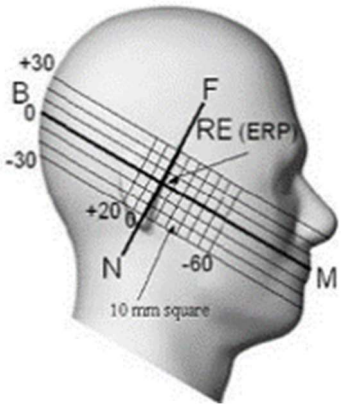
Note: The centre strip including the nose region has a different thickness tolerance.



F-4. Sagittally bisected phantom with extended perimeter (shown placed on its side as used for SAR measurements)



F-5. Close-up side view of phantom, showing the ear region, N-F and B-M lines, and seven cross-sectional plane locations



F-6. Side view of the phantom showing relevant markings and seven cross-sectional plane locations

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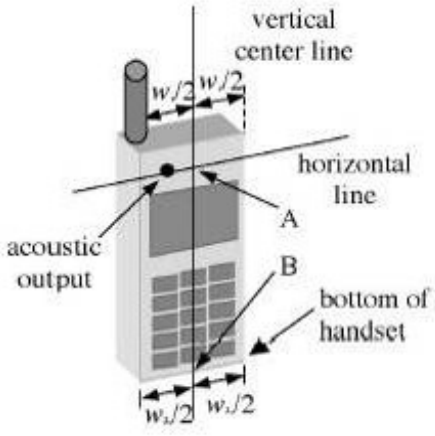
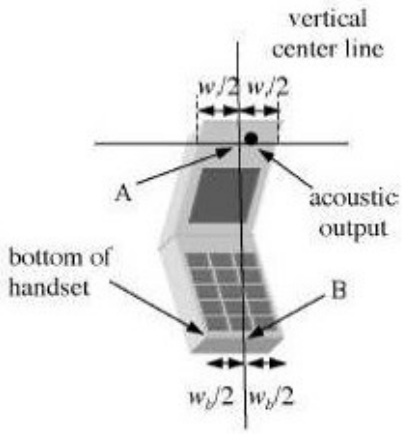
6.1.2 EUT constructions



F-7. Handset vertical and horizontal reference lines-“fixed case”



F-8. Handset vertical and horizontal reference lines-“clam-shell case”

6.1.3 Definition of the “cheek” position

a) Position the device with the vertical centre line of the body of the device and the horizontal line crossing the centre of the ear piece in a plane parallel to the sagittal plane of the phantom ("initial position"). While maintaining the device in this plane, align the vertical centre line with the reference plane containing the three ear and mouth reference points (M, RE and LE) and align the centre of the ear piece with the line RE-LE.
b) Translate the mobile phone box towards the phantom with the ear piece aligned with the line LE-RE until telephone touches the ear. While maintaining the device in the reference plane and maintaining the phone contact with the ear, move the bottom of the box until any point on the front side is in contact with the cheek of the phantom or until contact with the ear is lost.

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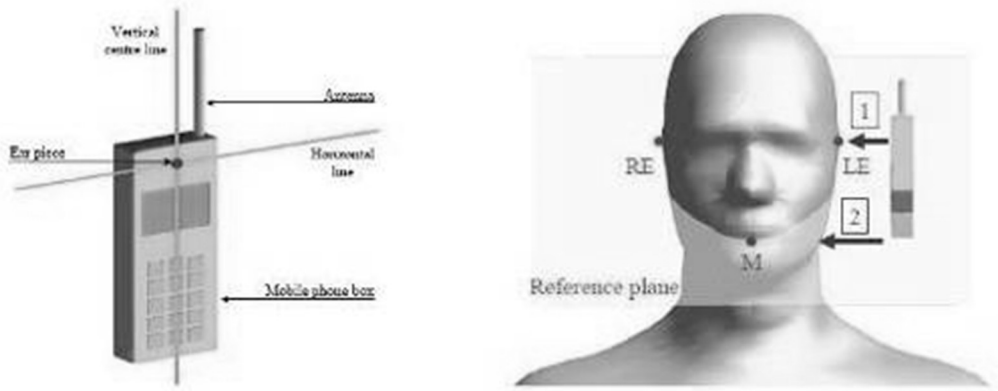
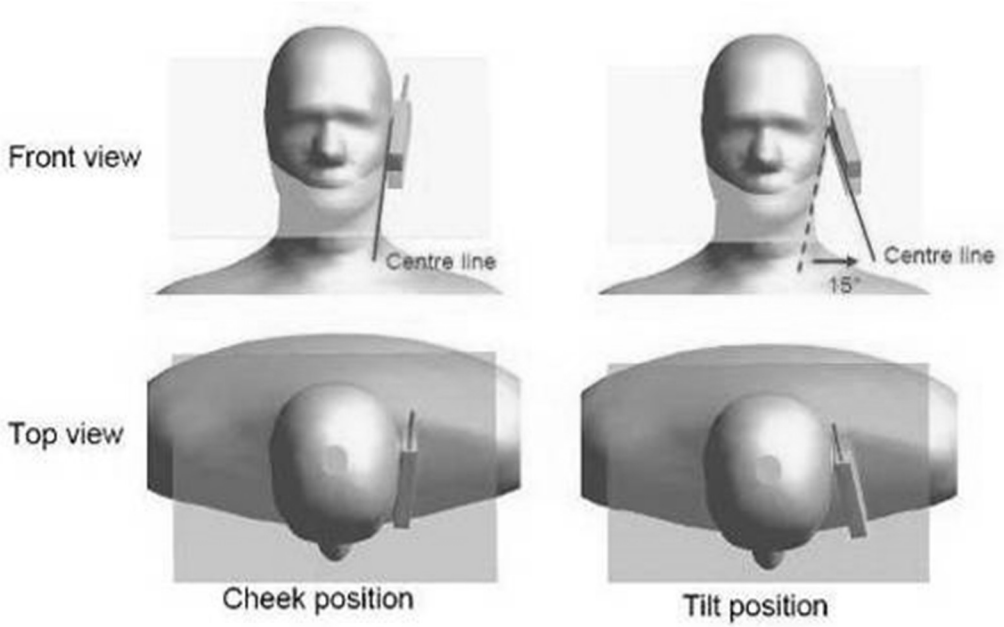
6.1.4 Definition of the “tilted” position

a) Position the device in the “cheek” position described above;
b) While maintaining the device in the reference plane described above and pivoting against the ear, move it outward away from the mouth by an angle of 15 degrees or until contact with the ear is lost.



F-9. **Definition of the reference lines and points, on the phone and on the phantom and initial position**



F-10. **“Cheek” and “tilt” positions of the mobile phone on the left side**

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6.2 Body Exposure Condition

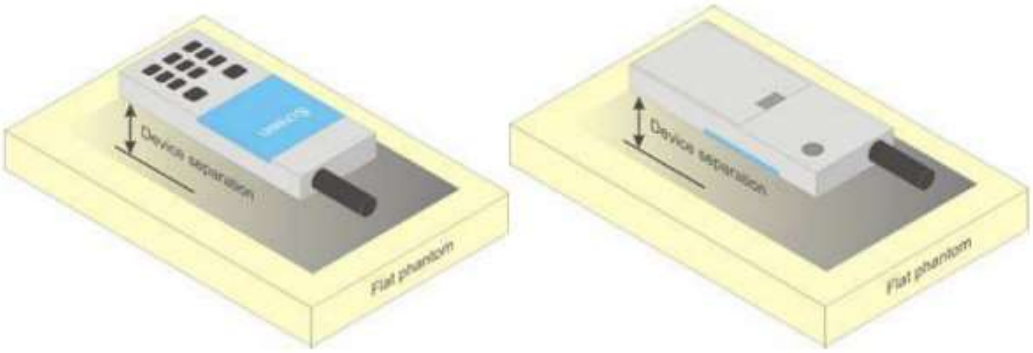
6.2.1 Body-worn accessory exposure conditions

Body-worn operating configurations should be tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in normal use configurations.

Body-worn operating configurations are tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in a normal use configuration. Per FCC KDB Publication 648474 D04, Body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in FCC KDB Publication 447498 D01 should be used to test for body-worn accessory SAR compliance, without a headset connected to it. This enables the test results for such configuration to be compatible with that required for hotspot mode when the body-worn accessory test separation distance is greater than or equal to that required for hotspot mode, when applicable. When the reported SAR for a body-worn accessory, measured without a headset connected to the handset, is > 1.2 W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset.

Accessories for Body-worn operation configurations are divided into two categories: those that do not contain metallic components and those that do contain metallic components. When multiple accessories that do not contain metallic components are supplied with the device, the device is tested with only the accessory that dictates the closest spacing to the body. Then multiple accessories that contain metallic components are tested with the device with each accessory. If multiple accessories share an identical metallic component (i.e. the same metallic belt-clip used with different holsters with no other metallic components) only the accessory that dictates the closest spacing to the body is tested.

Body-worn accessories may not always be supplied or available as options for some devices intended to be authorized for body-worn use. In this case, a test configuration with a separation distance between the back of the device and the flat phantom is used. Test position spacing was documented. Transmitters that are designed to operate in front of a person's face, as in push-to-talk configurations, are tested for SAR compliance with the front of the device positioned to face the flat phantom in head fluid. For devices that are carried next to the body such as a shoulder, waist or chest-worn transmitters, SAR compliance is tested with the accessories, including headsets and microphones, attached to the device and positioned against a flat phantom in a normal use configuration.



F-11. **Test positions for body-worn devices**

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6.2.2 Wireless Router exposure conditions

Some battery-operated handsets have the capability to transmit and receive user data through simultaneous transmission of WIFI simultaneously with a separate licensed transmitter. The FCC has provided guidance in FCC KDB Publication 941225 D06 where SAR test considerations for handsets (L x W ≥ 9 cm x 5 cm) are based on a composite test separation distance of 10 mm from the front, back and edges of the device containing transmitting antennas within 2.5 cm of their edges, determined from general mixed use conditions for this type of devices. For devices with form factors smaller than 9 cm x 5 cm, a test separation distance of 5 mm is required.

6.3 Extremity exposure conditions

Per FCC KDB 648474 D04, for smart phones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm that provide similar mobile web access and multimedia support found in mini-tablets or UMPC mini-tablets that support voice calls next to the ear, the device is marketed as “Phablet”.
The UMPC mini-tablet procedures must also be applied to test the SAR of all surfaces and edges with an antenna located at ≤ 25 mm from that surface or edge, in direct contact with a flat phantom, for Product Specific 10-g SAR according to the body-equivalent tissue dielectric parameters in KDB 865664 to address interactive hand use exposure conditions. The UMPC mini-tablet 1-g SAR at 5 mm is not required. When hotspot mode applies, Product Specific 10-g SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg; however, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold.
Due to the SAR result, hotspot power levels extrapolated to Sensor Power Levels，no frequency bands need to test with 0mm for the Product Specific 10-g SAR are not required.

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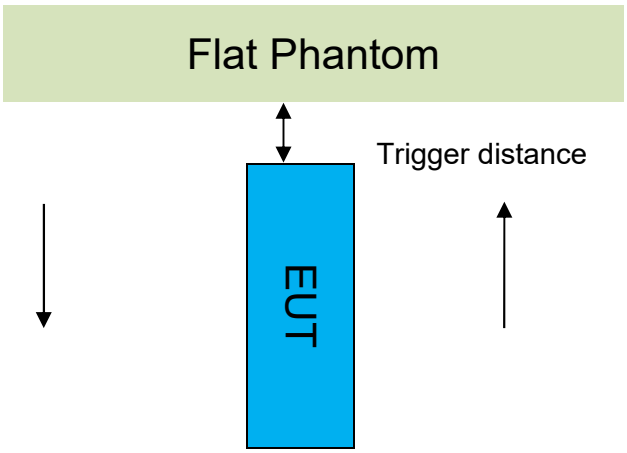
6.4 Proximity Sensor Triggering Test

Proximity sensor triggering distances：

The Proximity sensor triggering was applied to WWAN antenna. Proximity sensor triggering distance testing was performed according to the procedures outlined in KDB 616217 D04 section 6.2, and EUT moving further away from the flat phantom and EUT moving toward the flat phantom were both assessed.



Proximity Sensor Triggering Distance(mm)				
Ant1				
Position	Front Side	Back Side	Right Side	Bottom Side
Minimum	11	16	16	16
Required SAR Test	10	15	15	15
Ant4				
Position	Front Side	Back Side	Left Side	Top Side
Minimum	10	10	10	10
Required SAR Test	9	9	9	9

Note:

SAR tests with proximity sensor power reduction are only required for the sides of frequency bands in the table above. For the other sides or other frequency bands of the device, SAR is still tested at the maximum power level with sensor off.

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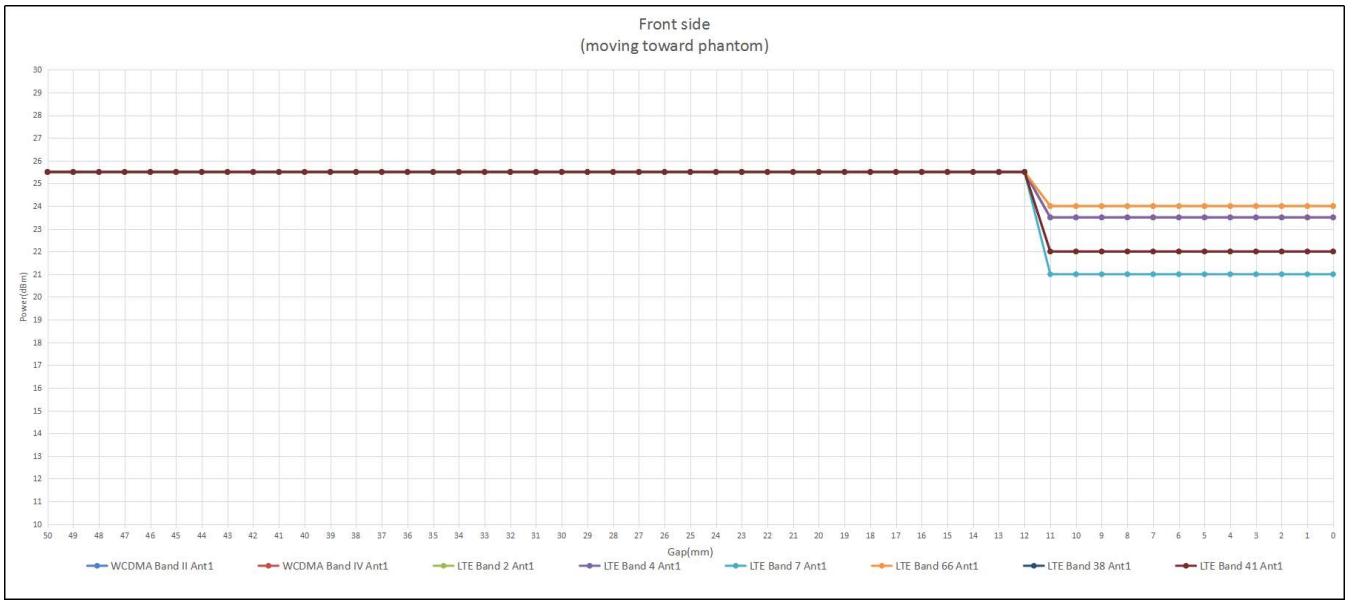
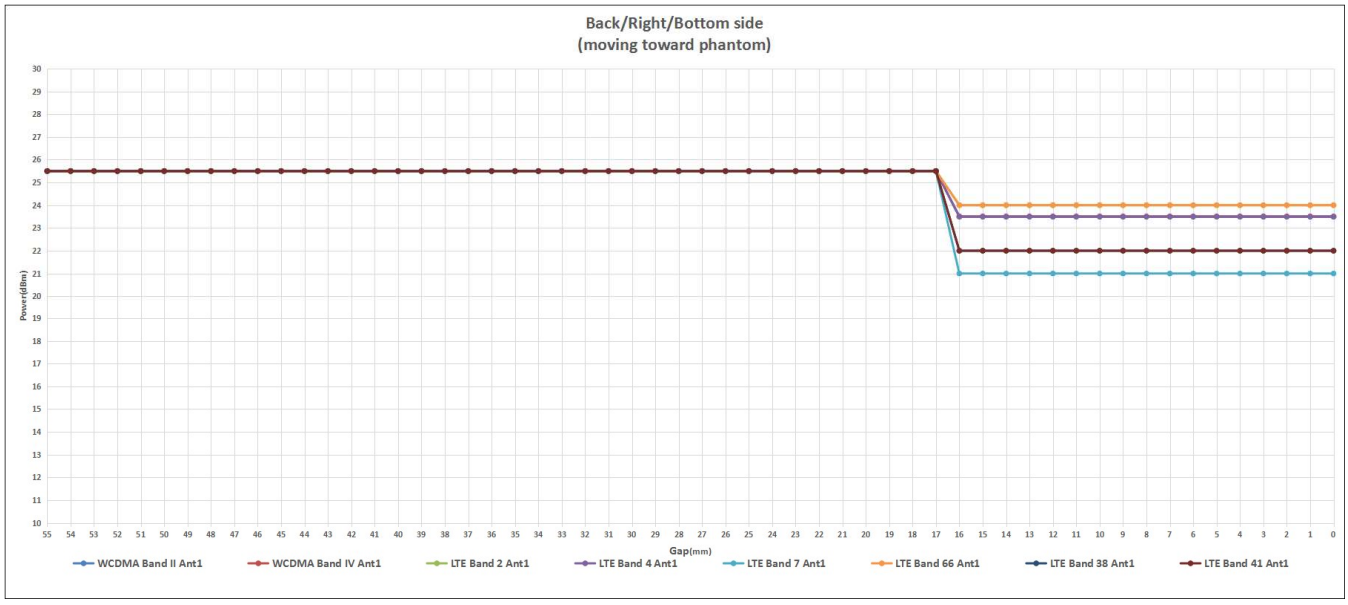
- Ant 1 DUT Moving Toward(Trigger)the Phantom





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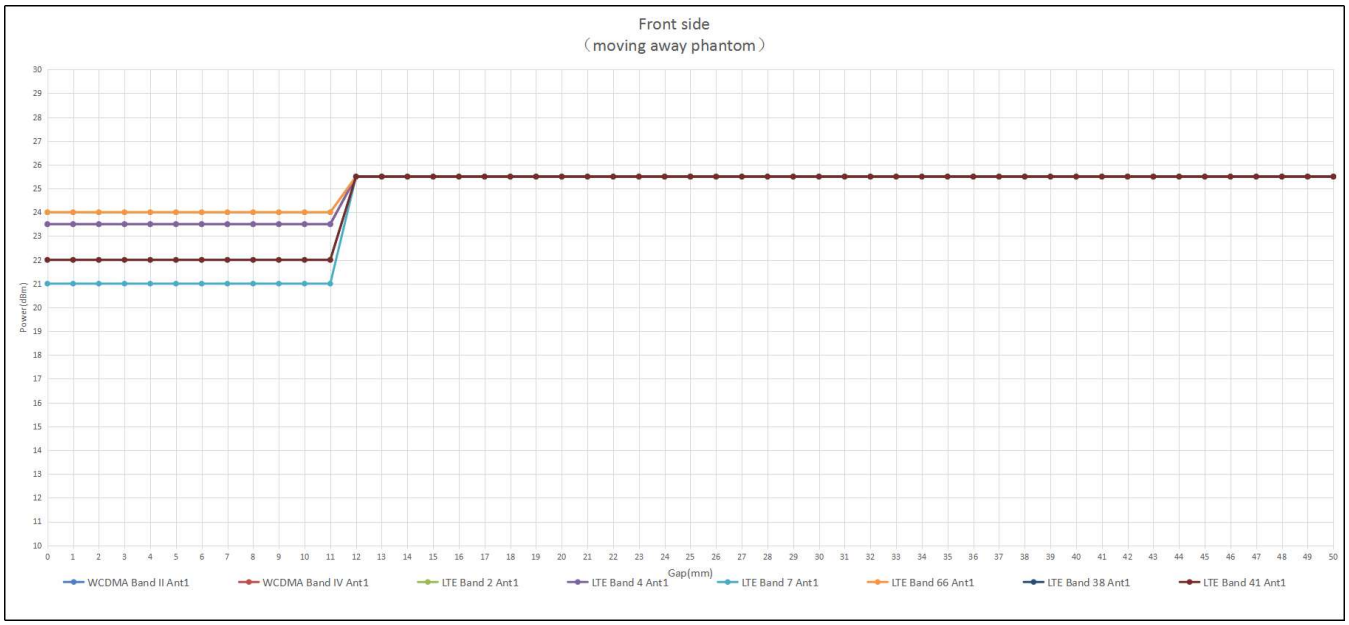
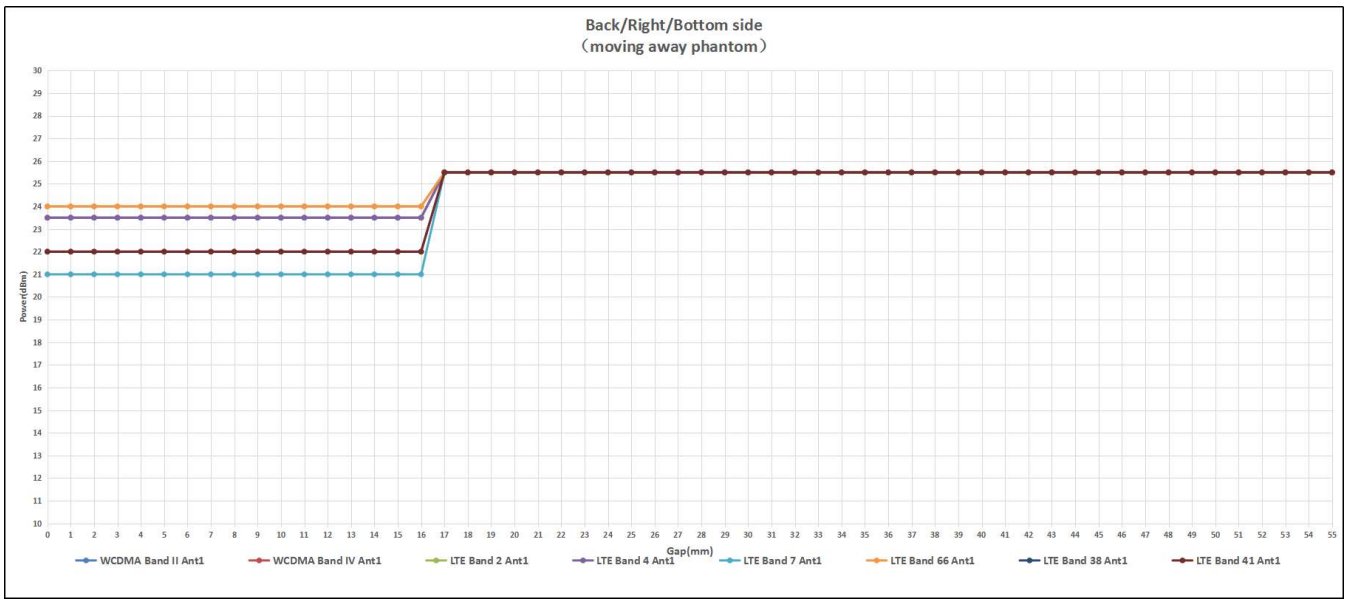
- Ant 1 DUT Moving Away(Release) from the Phantom





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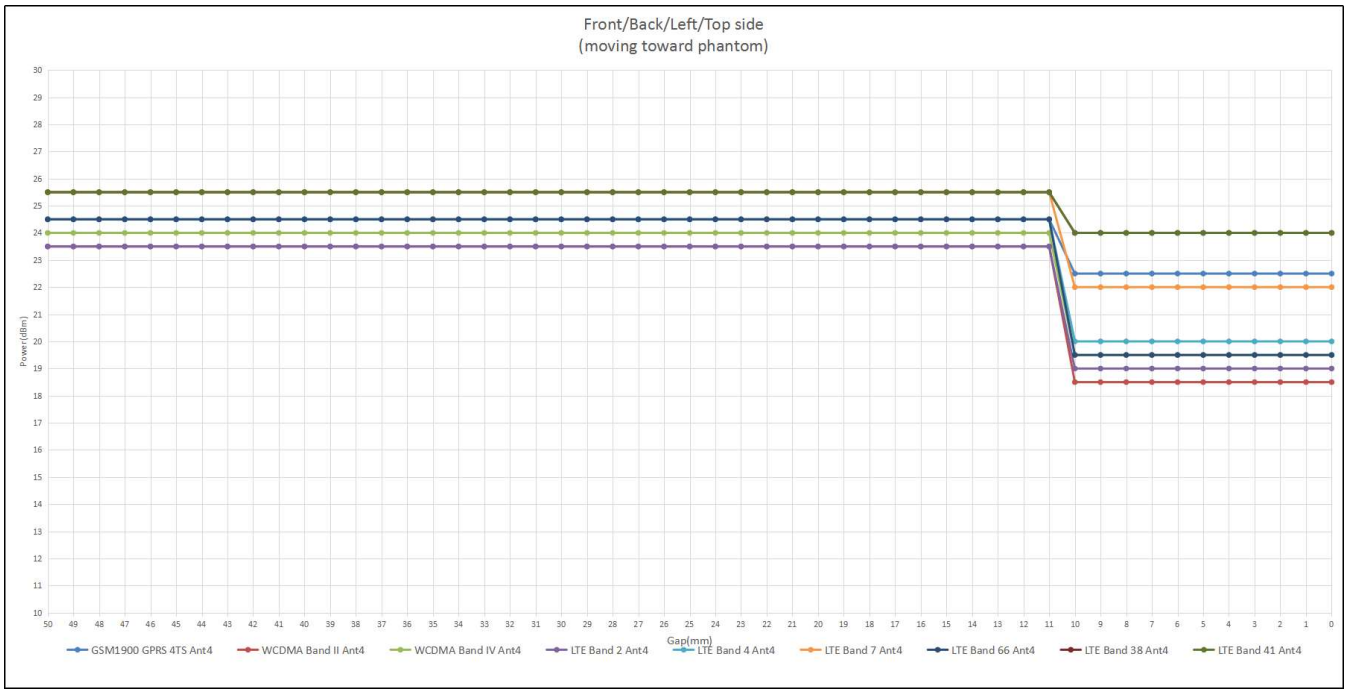
- Ant 4 DUT Moving Toward(Trigger)the Phantom



- Ant 4 DUT Moving Away(Release) from the Phantom

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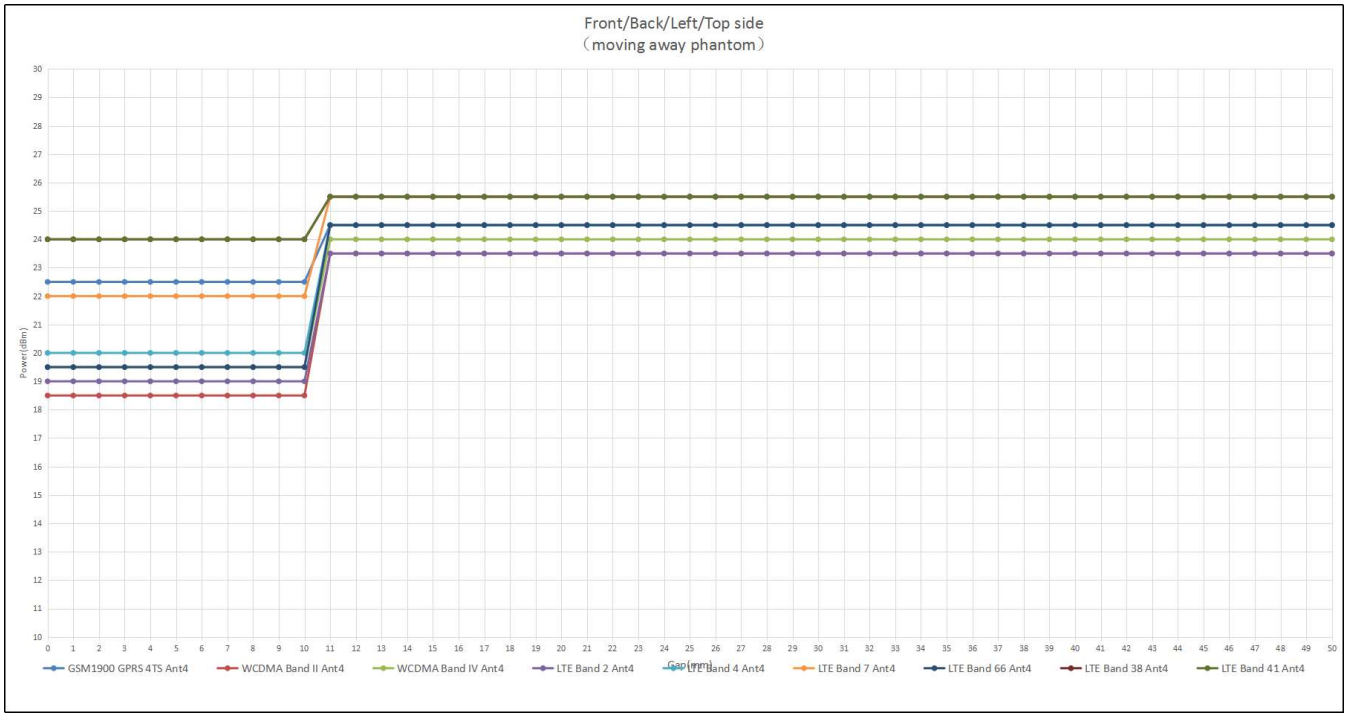

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Proximity sensor coverage

If a sensor is spatially offset from the antenna(s), it is necessary to verify sensor triggering for conditions where the antenna is next to the user but the sensor is laterally further away to ensure sensor coverage is sufficient for reducing the power to maintain compliance. For p-sensor coverage testing, the device is moved and “along the direction of maximum antenna and sensor offset”.

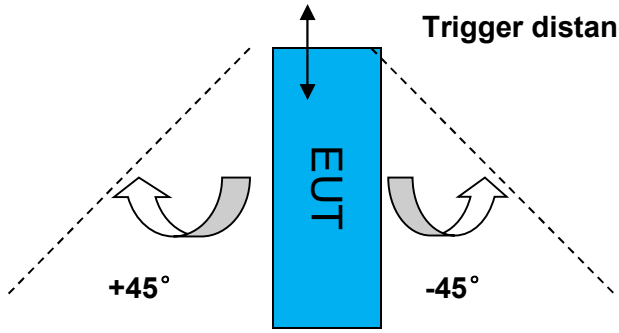
The proximity sensor and main antenna use same metallic electrode, so there is no spatial offset.

Device tilt angle influences to proximity sensor triggering

The influence of device tilt angles to proximity sensor triggering was determined by positioning each tablet edge that contains a transmitting antenna, perpendicular to the flat phantom.

Rotating the tablet around the edge next to the phantom in ≤ 10° increments until the tablet is ± 45° from the vertical position at 0°, and the maximum output power remains in the reduced mode.

Flat Phantom



Summary of Tablet Tilt Angle Influence to Proximity Sensor Triggering for Top Side												
Band (MHz)	Minimum trigger distance Per KDB616217§6.2	Minimum trigger distance at which power reduction was maintained over ±45°	Power Reduction Status									
			-45°	-35°	-25°	-15°	-5°	0°	5°	15°	25°	35°	45°
Ant1	Bottom side:16mm	Bottom side:16mm	on	on	on	on	on	on	on	on	on	on	on
Ant4	Top side:10mm	Top side:10mm	on	on	on	on	on	on	on	on	on	on	on

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7 SAR System Verification Procedure

7.1 Tissue Simulate Liquid

7.1.1 Recipes for Tissue Simulate Liquid

The bellowing tables give the recipes for tissue simulating liquids to be used in different frequency bands：

Ingredients (% by weight)	Frequency (MHz)				
	450	700-900	1750-2000	2300-2500	2500-2700
Water	38.56	40.30	55.24	55.00	54.92
Salt (NaCl)	3.95	1.38	0.31	0.2	0.23
Sucrose	56.32	57.90	0	0	0
HEC	0.98	0.24	0	0	0
Bactericide	0.19	0.18	0	0	0
Tween	0	0	44.45	44.80	44.85
Salt: 99+% Pure Sodium Chloride Water: De-ionized, 16 MΩ+ resistivity Tween: Polyoxyethylene (20) sorbitan monolaurate			Sucrose: 98+% Pure Sucrose HEC: Hydroxyethyl Cellulose		
HSL13MHz is composed of the following ingredients： Water：50-90% Non-ionic detergents：5-50% Nacl：0-2% Preservative：0.03-0.1% HSL5GHz is composed of the following ingredients： Water：50-65% Mineral oil：10-30% Emulsifiers：8-25% Sodium salt：0-1.5%					

Table 3：Recipe of Tissue Simulate Liquid

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7.1.2 Measurement for Tissue Simulate Liquid

The Conductivity (σ) and Permittivity (ρ) are listed in bellow table. For the SAR measurement given in this report. The temperature variation of the Tissue Simulate Liquids was 22±2°C.

Measurement for Tissue Simulate Liquid							
Tissue Type	Measured Frequency（MHz）	Target Tissue (±5%)		Measured Tissue		Liquid Temp.	Test Date
		ε_r	σ(S/m)	ε_r	σ(S/m)	(℃)	
13 Head	13	55	0.75	54.211	0.737	22.6	2024/3/20
835 Head	835	41.5	0.9	40.380	0.880	22.8	2024/3/13
1750 Head	1750	40.1	1.37	40.308	1.372	22.7	2024/3/15
1950 Head	1950	40	1.4	40.038	1.420	22.9	2024/3/23
2450 Head	2450	39.2	1.8	38.504	1.819	23.0	2024/3/17
2600 Head	2600	39	1.96	37.545	1.962	23.1	2024/3/25
5250 Head	5250	35.9	4.66	35.503	4.706	23.0	2024/3/21
5600 Head	5600	35.5	5.07	34.831	5.178	23.0	2024/3/21
5750 Head	5750	35.4	5.22	34.459	5.362	23.0	2024/3/21

Table 4：Measurement result of Tissue electric parameters.

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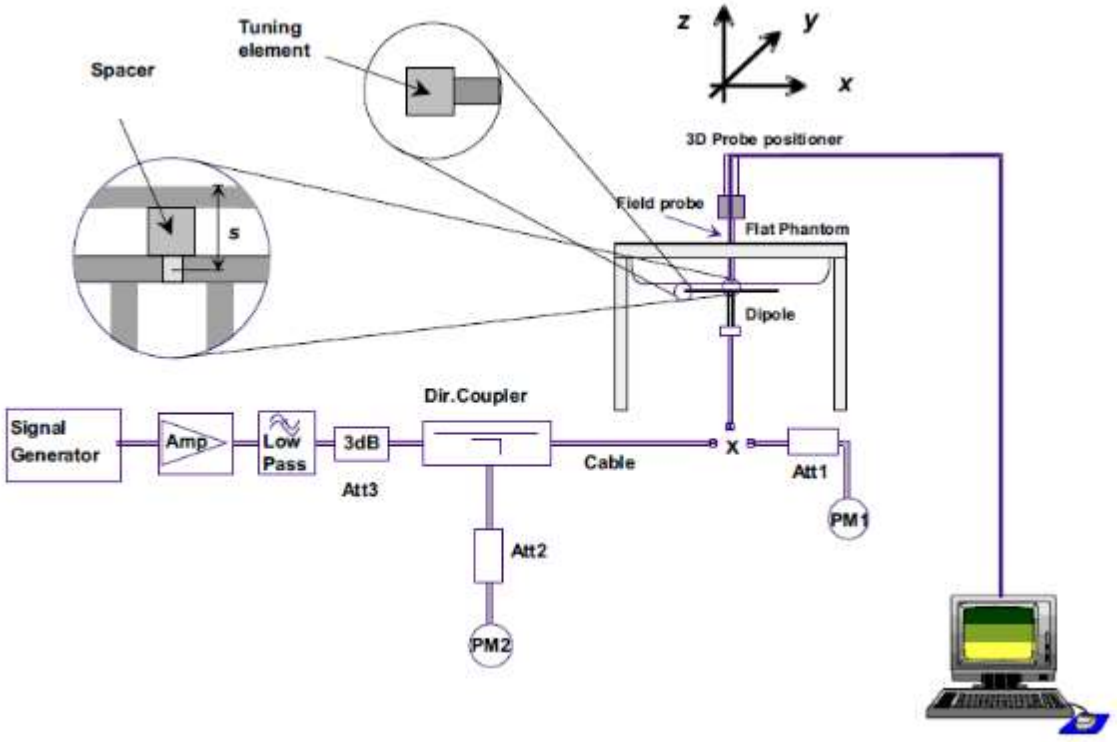
7.2 SAR System Check

The microwave circuit arrangement for system Check is sketched in F-12. The daily system accuracy verification occurs within the flat section of the SAM phantom. A SAR measurement was performed to see if the measured SAR was within +/- 10% from the target SAR values. The tests were conducted on the same days as the measurement of the EUT. The obtained results from the system accuracy verification are displayed in the following table (A power level of 250mW (below 3GHz) or 100mW (3-6GHz) was input to the dipole antenna). During the tests, the ambient temperature of the laboratory was in the range 22±2°C, the relative humidity was in the range 60% and the liquid depth above the ear reference points was above 15±0.5 cm in all the cases. It is seen that the system is operating within its specification, as the results are within acceptable tolerance of the reference values.



F-12. the microwave circuit arrangement used for SAR system check

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7.2.1 Justification for Extended SAR Dipole Calibrations

1) Referring to KDB865664 D01 requirements for dipole calibration, instead of the typical annual calibration recommended by measurement standards, longer calibration intervals of up to three years may be considered when it is demonstrated that the SAR target, impedance and return loss of a dipole have remain stable according to the following requirements. Each measured dipole is expected to evaluate with the following criteria at least on annual interval in Appendix C.
a) There is no physical damage on the dipole;
b) System check with specific dipole is within 10% of calibrated value;
c) Return-loss is within 10% of calibrated measurement;
d) Impedance is within 5Ω from the previous measurement.

2) Network analyzer probe calibration against air, distilled water and a shorting block performed before measuring liquid parameters.

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7.2.2 Summary System Check Result(s)

SAR System Validation Result(s)											
Validation Kit		Measured SAR 250mW	Measured SAR 250mW	Measured SAR (normalized to 1W)	Measured SAR (normalized to 1W)	Target SAR (normalized to 1W)	Target SAR (normalized to 1W)	Deviation (Within ±10%)		Liquid Temp. (℃)	Test Date
		1g (W/kg)	10g (W/kg)	1g (W/kg)	10g (W/kg)	1-g(W/kg)	10-g(W/kg)	1-g(W/kg)	10-g(W/kg)		
CLA-13	Head	0.11	0.07	0.44	0.28	0.42	0.27	5.46%	3.76%	22.6	2024/3/20
D835V2	Head	2.19	1.47	8.76	5.88	9.52	6.17	-7.98%	-4.70%	22.8	2024/3/13
D1750V2	Head	9.52	5.07	38.08	20.28	35.30	18.70	7.88%	8.45%	22.7	2024/3/15
D1950V2	Head	10.70	5.51	42.80	22.04	39.70	20.30	7.81%	8.57%	22.9	2024/3/23
D2450V2	Head	12.50	5.58	50.00	22.32	52.20	24.50	-4.21%	-8.90%	23.0	2024/3/17
D2600V2	Head	14.40	6.75	57.60	27.00	57.10	25.40	0.88%	6.30%	23.1	2024/3/25
Validation Kit		Measured SAR 100mW	Measured SAR 100mW	Measured SAR (normalized to 1W)	Measured SAR (normalized to 1W)	Target SAR (normalized to 1W)	Target SAR (normalized to 1W)	Deviation (Within ±10%)		Liquid Temp. (℃)	Test Date
		1g (W/kg)	10g (W/kg)	1g (W/kg)	10g (W/kg)	1-g(W/kg)	10-g(W/kg)	1-g(W/kg)	10-g(W/kg)		
D5GHzV2	Head(5.25GHz)	7.20	2.05	72.00	20.50	78.00	21.80	-7.69%	-5.96%	23.0	2024/3/21
	Head(5.6GHz)	8.15	2.30	81.50	23.00	79.90	22.50	2.00%	2.22%	23.0	2024/3/21
	Head(5.75GHz)	8.26	2.31	82.60	23.10	76.40	21.20	8.12%	8.96%	23.0	2024/3/21

Table 5：SAR System Check Result.

7.2.3 Detailed System Check Results

Please see the Appendix A

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8 Test Configuration

8.1 3G SAR Test Reduction Procedure

According to KDB 941225D01, in the following procedures, the mode tested for SAR is referred to as the primary mode. The equivalent modes considered for SAR test reduction are denoted as secondary modes. Both primary and secondary modes must be in the same frequency band. When the maximum output power and tune-up tolerance specified for production units in a secondary mode is ≤ ¼ dB higher than the primary mode or when the highest reported SAR of the primary mode is scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for the secondary mode. This is referred to as the 3G SAR test reduction procedure in the following SAR test guidance, where the primary mode is identified in the applicable wireless mode test procedures and the secondary mode is wireless mode being considered for SAR test reduction by that procedure. When the 3G SAR test reduction procedure is not satisfied, it is identified as “otherwise” in the applicable procedures; SAR measurement is required for the secondary mode.

8.2 Operation Configurations

8.2.1 GSM Test Configuration

SAR tests for GSM 850 and GSM 1900, a communication link is set up with a base station by air link. Using CMW500 the power lever is set to “5”and “0” in SAR of GSM 850 and GSM 1900. The tests in the band of GSM 850 and GSM 1900 are performed in the mode of GPRS/EGPRS function. Since the GPRS class is 33 for this EUT, it has at most 4 timeslots in uplink and at most 4 timeslots in downlink, the maximum total timeslot is 5. The EGPRS class is 33 for this EUT, it has at most 4 timeslots in uplink, and at most 4 timeslots in downlink, the maximum total timeslot is 5.

SAR test reduction for GPRS and EDGE modes is determined by the source-based time-averaged output power specified for production units, including tune-up tolerance. The data mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested.

When SAR tests for EGPRS mode is necessary, GMSK modulation should be used to minimize SAR measurement error due to higher peak-to-average power (PAR) ratios inherent in 8-PSK.

The 3G SAR test reduction procedure is applied to 8-PSK EDGE with GMSK GPRS/EDGE as the primary mode

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8.2.2 WCDMA Test Configuration

1）. Output Power Verification

Maximum output power is verified on the high, middle and low channels according to procedures described in section 5.2 of 3GPP TS 34.121, using the appropriate RMC or AMR with TPC (transmit power control) set to all "1's" for WCDMA/HSDPA or by applying the required inner loop power control procedures to maintain maximum output power while HSUPA is active. Results for all applicable physical channel configurations (DPCCH, DPDCHn and spreading codes, HSDPA, HSPA) are required in the SAR report. All configurations that are not supported by the handset or cannot be measured due to technical or equipment limitations must be clearly identified.

2）. Head SAR

SAR for next to the ear head exposure is measured using a 12.2 kbps RMC with TPC bits configured to all "1's". The 3G SAR test reduction procedure is applied to AMR configurations with 12.2 kbps RMC as the primary mode. Otherwise, SAR is measured for 12.2 kbps AMR in 3.4 kbps SRB (signaling radio bearer) using the highest reported SAR configuration in 12.2 kbps RMC for head exposure

3）. Body SAR

SAR for body configurations is measured using a 12.2 kbps RMC with TPC bits configured to all "1's". The 3G SAR test reduction procedure is applied to other spreading codes and multiple DPDCHn configurations supported by the handset with 12.2 kbps RMC as the primary mode. Otherwise, SAR is measured using an applicable RMC configuration with the corresponding spreaing code or DPDCHn, for the highest reported body-worn accessory exposure SAR configuration in 12.2 kbps RMC. When more than 2 DPDCHn are supported by the handset, it may be necessary to configure additional DPDCHn using FTM (Factory Test Mode) or other chipset based test approaches with parameters similar to those used in 384 kbps and 768 kbps RMC.

4）. HSDPA / HSUPA / DC-HSDPA

According to KDB 941225 D01v03, RMC 12.2kbps setting is used to evaluate SAR. If the maximum output power and tune-up tolerance specified for production units in HSDPA / HSUPA / DC-HSDPA is ≤ ¼ dB higher than RMC 12.2Kbps or when the highest reported SAR of the RMC12.2Kbps is scaled by the ratio of specified maximum output power and tune-up tolerance of HSDPA / HSUPA / DC-HSDPA to RMC12.2Kbps and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA

a) HSDPA

HSDPA is configured according to the applicable UE category of a test device. The number of HS-DSCH/HS-PDSCHs, HARQ processes, minimum inter-TTI interval, transport block sizes and RV coding sequence are defined by the H-set. To maintain a consistent test configuration and stable transmission conditions, QPSK is used in the H-set for SAR testing. HS-DPCCH should be configured with a CQI feedback cycle of 4 ms and a CQI repetition factor of 2 to maintain a constant rate of active CQI slots. DPCCH and DPDCH gain factors(βc, βd), and HS-DPCCH power offset parameters (ΔACK, ΔNACK, ΔCQI) are set according to values indicated in the following table The CQI value is determined by the UE category, transport block size, number of HS-PDSCHs and modulation used in the H-set.

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Sub-test	βc	Bd	βd(SF)	βc/βd	βhs	CM(dB)	MPR (dB)
1	2/15	15/15	64	2/15	4/15	0.0	0
2	12/15(3)	15/15(3)	64	12/15(3)	24/15	1.0	0
3	15/15	8/15	64	15/8	30/15	1.5	0.5
4	15/15	4/15	64	15/4	30/15	1.5	0.5

Note1: △ACK, △NACK and △CQI= 8 Ahs = βhs/βc=30/15 βhs=30/15*βc
Note2:For the HS-DPCCH power mask requirement test in clause 5.2C,5.7A,and the Error Vector Magnitude(EVM) with HS-DPCCH test in clause 5.13.1.A,and HSDPA EVM with phase discontinuity in clause 5.13.1AA, △ACK and △NACK= 8 (Ahs=30/15) with βhs=30/15*βc,and △CQI=
7 (Ahs=24/15) with βhs=24/15*βc.
Note3: CM=1 forβc/βd =12/15, βhs/βc=24/15. For all other combinations of DPDCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.

The measurements were performed with a Fixed Reference Channel (FRC) and H-Set 1 QPSK.

Parameter	Value
Nominal average inf. bit rate	534 kbit/s
Inter-TTI Distance	3 TTI"s
Number of HARQ Processes	2 Processes
Information Bit Payload	3202 Bits
MAC-d PDU size	336 Bits
Number Code Blocks	1 Block
Binary Channel Bits Per TTI	4800 Bits
Total Available SMLs in UE	19200 SMLs
Number of SMLs per HARQ Process	9600 SMLs
Coding Rate	0.67
Number of Physical Channel Codes	5

Table 6：settings of required H-Set 1 QPSK acc. to 3GPP 34.121

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HS-DSCH Category	Maximum HS-DSCH Codes Received	Minimum Inter-TTI Interval	MaximumH S-DSCH Transport BlockBits/HS-DSCH TTI	Total Soft Channel Bits
1	5	3	7298	19200
2	5	3	7298	28800
3	5	2	7298	28800
4	5	2	7298	38400
5	5	1	7298	57600
6	5	1	7298	67200
7	10	1	14411	115200
8	10	1	14411	134400
9	15	1	25251	172800
10	15	1	27952	172800
11	5	2	3630	14400
12	5	1	3630	28800
13	15	1	34800	259200
14	15	1	42196	259200
15	15	1	23370	345600
16	15	1	27952	345600

Table 7：HSDPA UE category

b) HSUPA

Due to inner loop power control requirements in HSUPA, a commercial communication test set should be used for the output power and SAR tests. The 12.2 kbps RMC, FRC H-set 1 and E-DCH configurations for HSUPA should be configured according to the values indicated below as well as other applicable procedures described in the „WCDMA Handset" and „Release 5 HSUPA Data Device" sections of 3G device.

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

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

Note 2: CM = 1 for $\beta_c/\beta_d = 12/15$, $\beta_{hs}/\beta_c = 24/15$. For all other combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference

Note 3 : For subtest 1 the β_c/β_d ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 10/15$ and $\beta_d = 15/15$

Note 4 : For subtest 5 the β_c/β_d ratio of 15/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 14/15$ and $\beta_d = 15/15$

Note 5 : Testing UE using E-DPDCH Physical Layer category 1 Sub-test 3 is not required according to TS 25.306 Table 5.1g

Note 6: β_{ed} can not be set directly; it is set by Absolute Grant Value.

Table 8: Subtests for UMTS Release 6 HSUPA

UE E-DCH Category	Maximum E-DCH Codes Transmitted	Number of HARQ Processes	E-DCH TTI(ms)	Minimum Speading Factor	Maximum E-DCH Transport Block Bits	Max Rate (Mbps)
1	1	4	10	4	7110	0.7296
2	2	8	2	4	2798	1.4592
	2	4	10	4	14484	
3	2	4	10	4	14484	1.4592
4	2	8	2	2	5772	2.9185
	2	4	10	2	20000	2.00
5	2	4	10	2	20000	2.00
6 (No DPDCH)	4	8	10	2SF2&2SF4	11484	5.76
	4	4	2		20000	2.00
7 (No DPDCH)	4	8	2	2SF2&2SF4	22996	?
	4	4	10		20000	?

NOTE: When 4 codes are transmitted in parallel, two codes shall be transmitted with SF2 and two with SF4.UE categories 1 to 6 support QPSK only. UE category 7 supports QPSK and 16QAM.(TS25.306-7.3.0).

Table 9: HSUPA UE category

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c) DC-HSDPA

SAR is required for Rel. 8 DC-HSDPA when SAR is required for Rel. 5 HSDPA; otherwise, the 3G SAR test reduction procedure is applied to DC-HSDPA with 12.2 kbps RMC as the primary mode. Power is measured for DC-HSDPA according to the H-Set 12, FRC configuration in Table C.8.1.12 of 3GPP TS 34.121-1 to determine SAR test reduction. A primary and a Second serving HS-DSCH Cell are required to perform the power measurement and for the results to be acceptable.
The following tests were completed according to procedures in section 7.3.13 of 3GPP TS 34.108 v9.5.0.
A summary of these settings are illustrated below:
Downlink Physical Channels are set as per 3GPP TS34.121-1 v9.0.0 E.5.0

Table E.5.0: Levels for HSDPA connection setup

Parameter During Connection setup	Unit	Value
P-CPICH_Ec/Ior	dB	-10
P-CCPCH and SCH_Ec/Ior	dB	-12
PICH _Ec/Ior	dB	-15
HS-PDSCH	dB	off
HS-SCCH_1	dB	off
DPCH_Ec/Ior	dB	-5
OCNS_Ec/Ior	dB	-3.1

Call is set up as per 3GPP TS34.108 v9.5.0 sub clause 7.3.13.
The configurations of the fixed reference channels for HSDPA RF tests are described in 3GPP TS 34.121, annex C for FDD and 3GPP TS 34.122.
The measurements were performed with a Fixed Reference Channel (FRC) H-Set 12 with QPSK.

Parameter	Value
Nominal average inf. bit rate	60 kbit/s
Inter-TTI Distance	1 TTI's
Number of HARQ Processes	6 Processes
Information Bit Payload	120 Bits
Number Code Blocks	1 Block
Binary Channel Bits Per TTI	960 Bits
Total Available SMLs in UE	19200 SMLs
Number of SMLs per HARQ Process	3200 SMLs
Coding Rate	0.15
Number of Physical Channel Codes	1

Table 10： settings of required H-Set 12 QPSK acc. to 3GPP 34.121

Note:
1. The RMC is intended to be used for DC-HSDPA mode and both cells shall transmit with identical parameters as listed in the table above.
2. Maximum number of transmission is limited to 1,i.e.,retransmission is not allowed. The redundancy and constellation version 0 shall be used.

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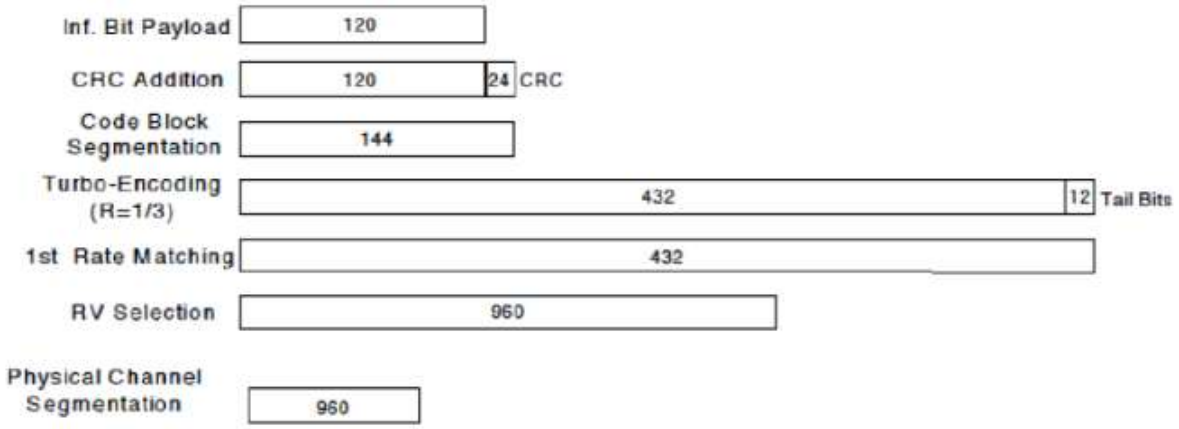

Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

The following 4 Sub-tests for HSDPA were completed according to Release 5 procedures. A summary of subtest settings are illustrated below:

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{hs} (1)	CM(dB)(2)	MPR (dB)
1	2/15	15/15	64	2/15	4/15	0.0	0
2	12/15(3)	15/15(3)	64	12/15(3)	24/15	1.0	0
3	15/15	8/15	64	15/8	30/15	1.5	0.5
4	15/15	4/15	64	15/4	30/15	1.5	0.5

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

Note 2: CM=1 for $\beta_c/\beta_d = 12/15$, $\beta_{hs}/\beta_c = 24/15$. For all other combinations of DPDCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.

Note 3: For subtest 2 the β_c/β_d ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 11/15$ and $\beta_d = 15/15$

Up commands are set continuously to set the UE to Max power.

Note:

1. The Dual Carriers transmission only applies to HSDPA physical channels
2. The Dual Carriers belong to the same Node and are on adjacent carriers.
3. The Dual Carriers do not support MIMO to serve UEs configured for dual cell operation
4. The Dual Carriers operate in the same frequency band.
5. The device doesn't support the modulation of 16QAM in uplink but 64QAM in downlink for DC-HSDPA mode.
6. The device doesn’t support carrier aggregation for it just can operate in Release 8.

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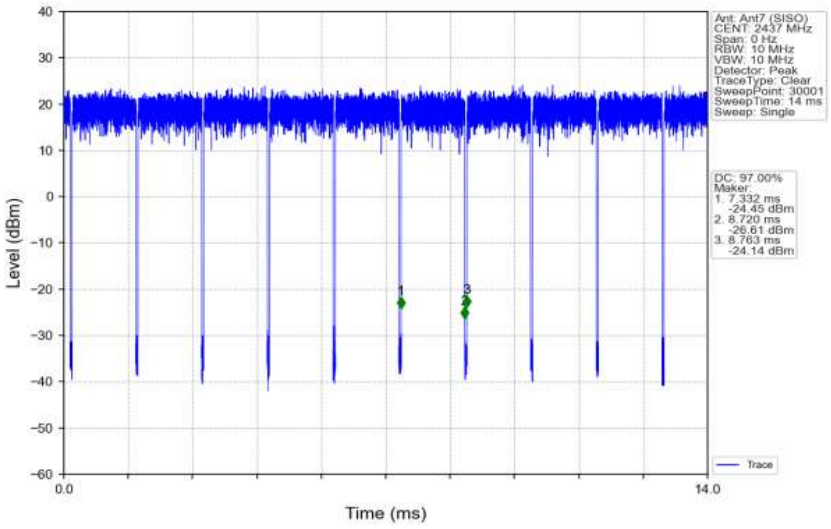
8.2.3 WiFi Test Configuration

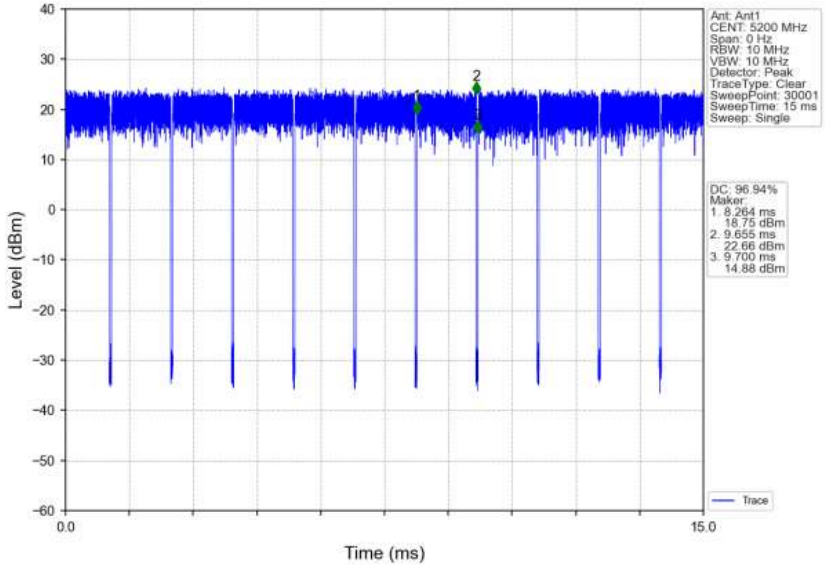
A Wi-Fi device must be configured to transmit continuously at the required data rate, channel bandwidth and signal modulation, using the highest transmission duty factor supported by the test mode tools for SAR measurement.

8.2.3.1 Duty cycle

Wi-Fi 2.4GHz 802.11g:
Duty cycle=97.00%



Wi-Fi 5GHz 802.11a 40CH:
Duty cycle=96.94%



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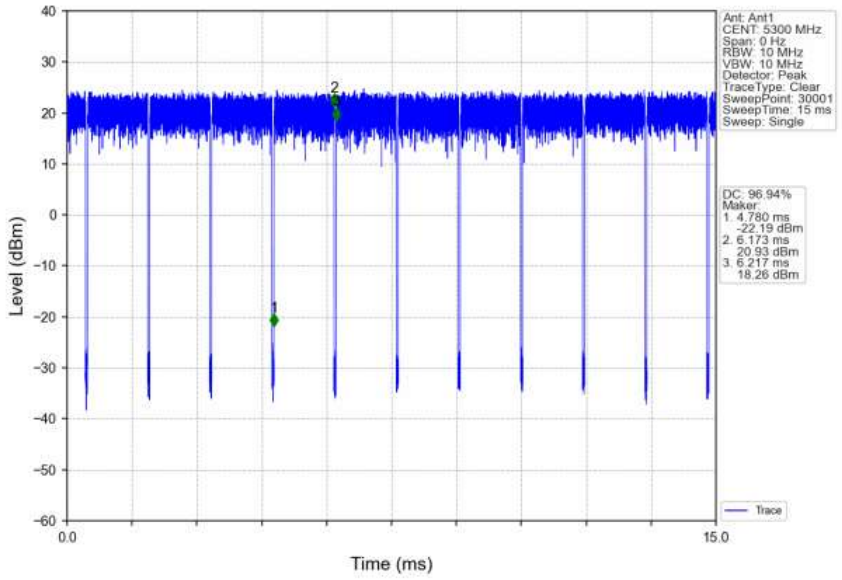
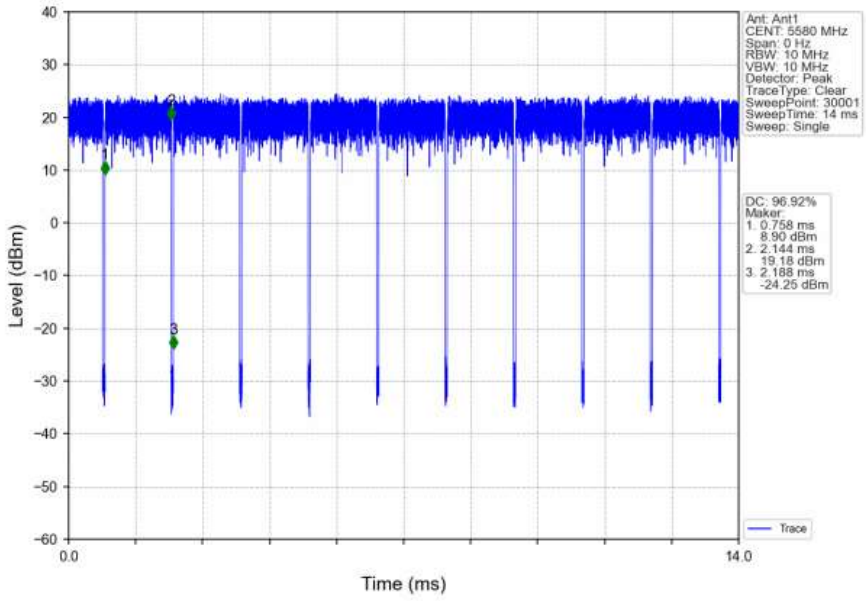
Wi-Fi 5GHz 802.11a 60CH:
Duty cycle=96.94%



Wi-Fi 5GHz 802.11a 116CH:
Duty cycle=96.92%



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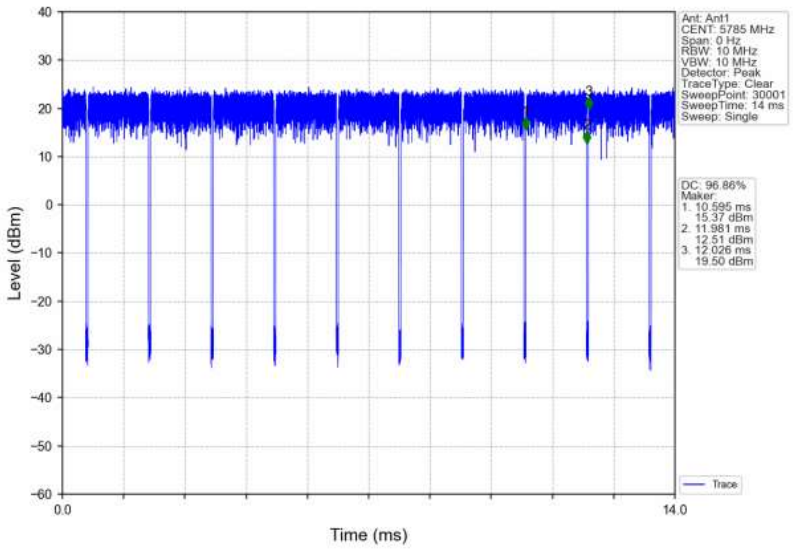
Wi-Fi 5GHz 802.11a 157CH:
Duty cycle=96.86%



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8.2.3.2 Initial Test Position SAR Test Reduction Procedure

DSSS and OFDM configurations are considered separately according to the required SAR procedures. SAR is measured in the initial test position using the 802.11 transmission mode configuration required by the DSSS procedure or initial test configuration and subsequent test configuration(s) according to the OFDM procedures. The initial test position procedure is described in the following:

1）. When the reported SAR of the initial test position is ≤ 0.4 W/kg, further SAR measurement is not required for the other (remaining) test positions in that exposure configuration and 802.11 transmission mode combinations within the frequency band or aggregated band. SAR is also not required for that exposure configuration in the subsequent test configuration(s).
2）. When the reported SAR of the initial test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position using subsequent highest extrapolated or estimated 1-g SAR conditions determined by area scans or next closest/smallest test separation distance and maximum RF coupling test positions based on manufacturer justification, on the highest maximum output power channel, until the reported SAR is ≤ 0.8 W/kg or all required test positions (left, right, touch, tilt or subsequent surfaces and edges) are tested.
3）. For all positions/configurations tested using the initial test position and subsequent test positions, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel(s) until the reported SAR is ≤ 1.2 W/kg or all required channels are tested. a) Additional power measurements may be required for this step, which should be limited to those necessary for identifying the subsequent highest output power channels.

8.2.3.3 Initial Test Configuration Procedures

An initial test configuration is determined for OFDM transmission modes according to the channel bandwidth, modulation and data rate combination(s) with the highest maximum output power specified for production units in each standalone and aggregated frequency band. SAR is measured using the highest measured maximum output power channel. For configurations with the same specified or measured maximum output power, additional transmission mode and test channel selection procedures are required. SAR test reduction for subsequent highest output test channels is determined according to *reported* SAR of the initial test configuration.
For next to the ear, hotspot mode and UMC mini-tablet exposure configurations where multiple test positions are required, the initial test position procedure is applied to minimize the number of test positions required for SAR measurement using the initial test configuration transmission mode. For fixed exposure conditions that do not have multiple SAR test positions, SAR is measured in the transmission mode determined by the initial test configuration.
When the *reported* SAR of the initial test configuration is > 0.8 W/kg, SAR measurement is required for subsequent next highest measured output power channel(s) in the initial test configuration until *reported* SAR is ≤ 1.2 W/kg or all required channels are tested.

8.2.3.4 Subsequent Test Configuration Procedures

SAR measurement requirements for the remaining 802.11 transmission mode configurations that have not been tested in the initial test configuration are determined separately for each standalone and aggregated frequency band, in each exposure condition, according to the maximum output power specified for production units. The initial test position procedure is applied to next to the ear, UMPC mini-tablet and hotspot mode configurations. When the same maximum output power is specified for multiple transmission modes, additional power measurements may be required to determine if SAR measurements are required for subsequent highest output power channels in a subsequent test configuration. The subsequent test configuration and SAR measurement procedures are described in the following.

1）. When SAR test exclusion provisions of KDB Publication 447498 are applicable and SAR measurement is not required for the initial test configuration, SAR is also not required for the next highest maximum output power transmission mode subsequent test configuration(s) in that frequency band or aggregated

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band and exposure configuration.

2）. When the highest *reported* SAR for the initial test configuration (when applicable, include subsequent highest output channels), according to the initial test position or fixed exposure position requirements, is adjusted by the ratio of the subsequent test configuration to initial test configuration specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg, SAR is not required for that subsequent test configuration.

3）. The number of channels in the initial test configuration and subsequent test configuration can be different due to differences in channel bandwidth. When SAR measurement is required for a subsequent test configuration and the channel bandwidth is smaller than that in the initial test configuration, all channels in the subsequent test configuration that overlap with the larger bandwidth channel tested in the initial test configuration should be used to determine the highest maximum output power channel. This step requires additional power measurement to identify the highest maximum output power channel in the subsequent test configuration to determine SAR test reduction.

a) SAR should first be measured for the channel with highest measured output power in the subsequent test configuration.

b) SAR for subsequent highest measured maximum output power channels in the subsequent test configuration is required only when the *reported* SAR of the preceding higher maximum output power channel(s) in the subsequent test configuration is > 1.2 W/kg or until all required channels are tested. i) For channels with the same measured maximum output power, SAR should be measured using the channel closest to the center frequency of the larger channel bandwidth channel in the initial test configuration.

4）. SAR measurements for the remaining highest specified maximum output power OFDM transmission mode configurations that have not been tested in the initial test configuration (highest maximum output) or subsequent test configuration(s) (subsequent next highest maximum output power) is determined by recursively applying the subsequent test configuration procedures in this section to the remaining configurations according to the following:

a) replace “subsequent test configuration” with “next subsequent test configuration” (i.e., subsequent next highest specified maximum output power configuration)

b) replace “initial test configuration” with “all tested higher output power configurations”

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8.2.3.5 2.4 GHz WiFi SAR Procedures

Separate SAR procedures are applied to DSSS and OFDM configurations in the 2.4 GHz band to simplify DSSS test requirements. For 802.11b DSSS SAR measurements, DSSS SAR procedure applies to fixed exposure test position and initial test position procedure applies to multiple exposure test positions. When SAR measurement is required for an OFDM configuration, the initial test configuration, subsequent test configuration and initial test position procedures are applied. The SAR test exclusion requirements for 802.11g/n OFDM configurations are described in following.

- **802.11b DSSS SAR Test Requirements**

SAR is measured for 2.4 GHz 802.11b DSSS using either a fixed test position or, when applicable, the initial test position procedure. SAR test reduction is determined according to the following:

1）. When the reported SAR of the highest measured maximum output power channel for the exposure configuration is ≤ 0.8 W/kg, no further SAR testing is required for 802.11b DSSS in that exposure configuration.

2）. When the reported SAR is > 0.8 W/kg, SAR is required for that exposure configuration using the next highest measured output power channel. When any reported SAR is > 1.2 W/kg, SAR is required for the third channel; i.e., all channels require testing.

- **2.4 GHz 802.11g/n OFDM SAR Test Exclusion Requirements**

When SAR measurement is required for 2.4 GHz 802.11g/n OFDM configurations, the measurement and test reduction procedures for OFDM are applied (section 5.3, including sub-sections). SAR is not required for the following 2.4 GHz OFDM conditions.

1）. When KDB Publication 447498 SAR test exclusion applies to the OFDM configuration.

2）. When the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.

- **SAR Test Requirements for OFDM configurations**

When SAR measurement is required for 802.11 g/n OFDM configurations, each standalone and frequency aggregated band is considered separately for SAR test reduction. In applying the initial test configuration and subsequent test configuration procedures, the 802.11 transmission configuration with the highest specified maximum output power and the channel within a test configuration with the highest measured maximum output power should be clearly distinguished to apply the procedures.

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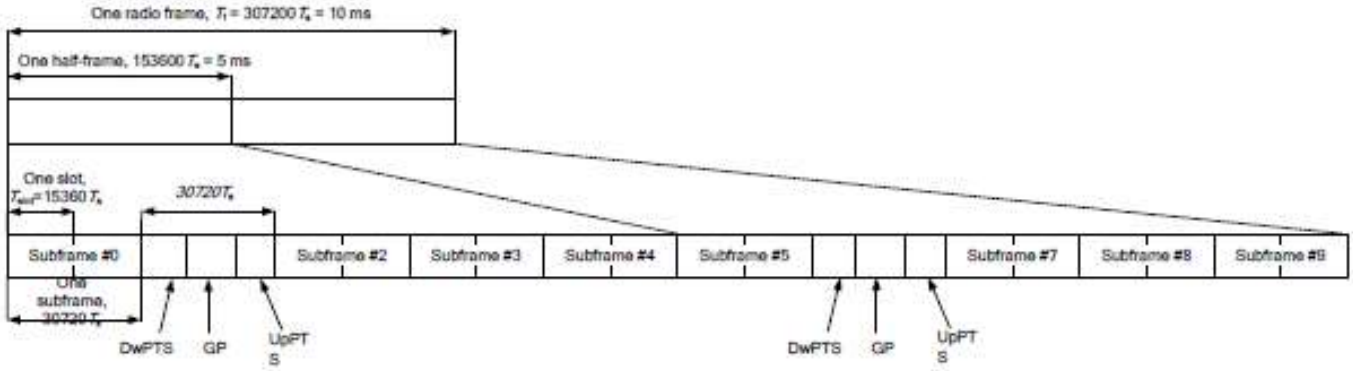
8.2.4 LTE Test Configuration

LTE modes were tested according to FCC KDB 941225 D05 publication. Please see notes after the tabulated SAR data for required test configurations. Establishing connections with base station simulators ensure a consistent means for testing SAR and are recommended for evaluating SAR [4]. The Anritsu MT8820C was used for LTE output power measurements and SAR testing. Max power control was used so the UE transmits with maximum output power during SAR testing. SAR must be measured with the maximum TTI (transmit time interval) supported by the device in each LTE configuration.

TDD LTE test consideration

For Time-Division Duplex (TDD) systems, SAR must be tested using a fixed periodic duty factor according to the highest transmission duty factor implemented for the device and supported by the defined 3GPP LTE TDD configurations.
SAR was tested with the highest transmission duty factor (63.33%) using Uplink-downlink configuration 0 and Special subframe configuration 7.
LTE TDD Band support 3GPP TS 36.211 section 4.2 for Type 2 Frame Structure and Table 4.2-2 for uplink-downlink configurations and Table 4.2-1 for Special subframe configurations.

Frame structure type 2:



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Configuration of special subframe (lengths of DwPTS/GP/UpPTS).

Special subframe configuration	Normal cyclic prefix in downlink			Extended cyclic prefix in downlink		
	DwPTS	UpPTS		DwPTS	UpPTS	
		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink
0	6592.Ts	2192.Ts	2560.Ts	7680.Ts	2192.Ts	2560.Ts
1	19760.Ts			20480.Ts		
2	21952.Ts			23040.Ts		
3	24144.Ts			25600.Ts		
4	26336.Ts			7680.Ts	4384.Ts	5120.Ts
5	6592.Ts	4384.Ts	5120.Ts	20480.Ts		
6	19760.Ts			23040.Ts		
7	21952.Ts			25600.Ts		
8	24144.Ts			-	-	-
9	13168.Ts			-	-	-

Uplink-downlink configurations.

Uplink-downlink configuration	Downlink-to-Uplink Switch-point periodicity	Subframe number									
		0	1	2	3	4	5	6	7	8	9
0	5 ms	D	S	U	U	U	D	S	U	U	U
1	5 ms	D	S	U	U	D	D	S	U	U	D
2	5 ms	D	S	U	D	D	D	S	U	D	D
3	10 ms	D	S	U	U	U	D	D	D	D	D
4	10 ms	D	S	U	U	D	D	D	D	D	D
5	10 ms	D	S	U	D	D	D	D	D	D	D
6	5 ms	D	S	U	U	U	D	S	U	U	D

Calculated Duty Cycle=[Extended cyclic prefix in uplink x (Ts) x # of S + # of U]/10ms

Uplink-Downlink Configuration	Downlink-to-Uplink Switch-point Periodicity	Subframe Number										Calculated Duty Cycle (%)
		0	1	2	3	4	5	6	7	8	9	
0	5 ms	D	S	U	U	U	D	S	U	U	U	63.33
1	5 ms	D	S	U	U	D	D	S	U	U	D	43.33
2	5 ms	D	S	U	D	D	D	S	U	D	D	23.33
3	10 ms	D	S	U	U	U	D	D	D	D	D	31.67
4	10 ms	D	S	U	U	D	D	D	D	D	D	21.67
5	10 ms	D	S	U	D	D	D	D	D	D	D	11.67
6	5 ms	D	S	U	U	U	D	S	U	U	D	53.33

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A) Spectrum Plots for RB Configurations

A properly configured base station simulator was used for SAR tests and power measurements. Therefore, spectrum plots for RB configurations were not required to be included in this report.

B) MPR

MPR is permanently implemented for this device by the manufacturer. The specific manufacturer target MPR is indicated alongside the SAR results. MPR is enabled for this device, according to 3GPP TS36.101 Section 6.2.3 – 6.2.5 under Table 6.2.3-1.

Modulation	Channel bandwidth / Transmission bandwidth (N_{RB})						MPR (dB)
	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1
16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1
16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2
64 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 2
64 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 3

C) A-MPR

A-MPR (Additional MPR) has been disabled for all SAR tests by setting NS=01 on the base station simulator.

D) Largest channel bandwidth standalone SAR test requirements

1) QPSK with 1 RB allocation

Start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel. When the reported SAR is ≤ 0.8 W/kg, testing of the remaining RB offset configurations and required test channels is not required for 1 RB allocation; otherwise, SAR is required for the remaining required test channels and only for the RB offset configuration with the highest output power for that channel. When the reported SAR of a required test channel is > 1.45 W/kg, SAR is required for all three RB offset configurations for that required test channel.

2) QPSK with 50% RB allocation

The procedures required for 1 RB allocation in 1) are applied to measure the SAR for QPSK with 50% RB allocation.

3) QPSK with 100% RB allocation

For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation in 1) and 2) are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.

4) Higher order modulations

For each modulation besides QPSK; e.g., 16-QAM, 64-QAM, apply the QPSK procedures in above sections to determine the QAM configurations that may need SAR measurement. For each configuration identified as required for testing, SAR is required only when the highest maximum output power for the configuration in the higher order modulation is > ½ dB higher than the same configuration in QPSK or when the reported SAR for the QPSK configuration is > 1.45 W/kg.

E) Other channel bandwidth standalone SAR test requirements

For the other channel bandwidths used by the device in a frequency band, apply all the procedures required for the largest channel bandwidth in section A) to determine the channels and RB configurations that need SAR testing and only measure SAR when the highest maximum output power of a configuration requiring testing in the smaller channel bandwidth is > ½ dB higher than the equivalent channel configurations in the largest channel bandwidth configuration or the reported SAR of a configuration for the largest channel bandwidth is > 1.45 W/kg.

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9 Test Result

9.1 Measurement of RF conducted Power

The detailed conducted power table can refer to Appendix E.

Note:

1）. For GSM SAR the time based average power is relevant. The difference in between depends on the duty cycle of the TDMA signal:

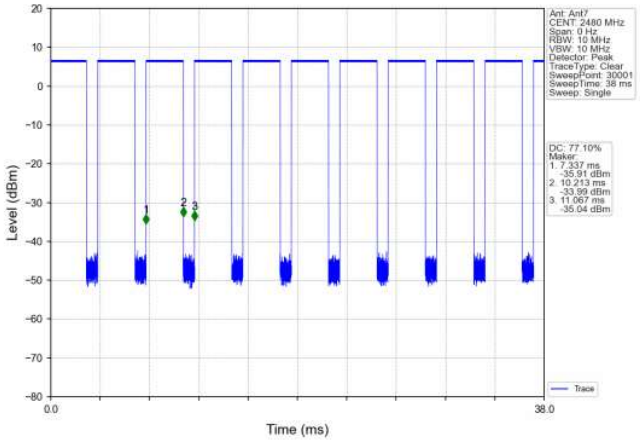
No. of timeslots	1	2	3	4
Duty Cycle	1:8.3	1:4.15	1:2.77	1:2.075
Time based avg. power compared to slotted avg. power	-9.19	-6.18	-4.42	-3.17

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

3）. When the maximum output power variation across the required test channels is > ½ dB, instead of the middle channel, the highest output power channel must be used

4）. For conducted power of WIFI must be measured at each transmit antenna port according to the DSSS and OFDM transmission configurations in each standalone and aggregated frequency band. For each transmission mode configuration, power must be measured for the highest and lowest channels; and at the mid-band channel(s) when there are at least 3 channels. For configurations with multiple mid-band channels, due to an even number of channels, both channels should be measured. Power measurement is required for the transmission mode configuration with the highest maximum output power specified for production units.
1) When the same highest maximum output power specification applies to multiple transmission modes, the largest channel bandwidth configuration with the lowest order modulation and lowest data rate is measured.
2) When the same highest maximum output power is specified for multiple largest channel bandwidth configurations with the same lowest order modulation or lowest order modulation and lowest data rate, power measurement is required for all equivalent 802.11 configurations with the same maximum output power.

5）. The conducted power of BT is measured with RMS detector.
BT DH5 Duty Cycle=77.10%



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9.2 Measurement of SAR Data

Note:

1) This report. Graph results refer to Appendix B.
2) Per KDB447498 D01, testing of other required channels within the operating mode of a frequency band is not required when the reported 1-g or 10-g SAR for the mid-band or highest output power channel is:
   - ≤ 0.8W/kg for 1-g or 2.0W/kg for 10-g respectively, when the transmission band is ≤ 100MHz.
   - ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz.
   - ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz.
3) Maximum bandwidth does not support at least three non-overlapping channels in certain channel bandwidths. When a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

WiFi 2.4G:

1) When the highest reported SAR for the initial test configuration is adjusted by the ratio of the subsequent test configuration to initial test configuration specified maximum output power and the adjusted SAR is ⩽ 1.2 W/kg, SAR test for the other 802.11 modes are not required.

WiFi 5G:

1) When the same maximum output power is specified for both bands, begin SAR measurement in U-NII-2A band by applying the OFDM SAR requirements. As the highest reported SAR for a test configuration is ⩽ 1.2 W/kg, SAR is not required for U-NII-1 band for that configuration.
2) For Wi-Fi 5G, U-NII-2A (5250-5350 MHz) and U-NII-2C (5470-5725 MHz) bands does not support hotspot function.
3) When the highest reported SAR for the initial test configuration is adjusted by the ratio of the subsequent test configuration to initial test configuration specified maximum output power and the adjusted SAR is ⩽ 1.2 W/kg, SAR test for the other 802.11 modes are not required.

NFC:

1) NFC SAR is measured for all edges and surfaces of the device.
2) NFC 13.56MHz antenna por is not available on the device to support conducted power measurement, therefore the measured results are referred to as reported SAR.
3) NFC SAR test tissue-simulating liquid parameter refer to IEC/IEEE 62209-1528 2020.

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9.2.1 SAR Result of GSM850

GSM850 SAR Test Record										
Ant 1 Test Record										
Test position	**Test mode**	**Test ch./Freq.**	**Duty Cycle**	**SAR (W/kg) 1-g**	**Power drift (dB)**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaled factor**	**Scaled SAR 1-g (W/kg)**	**Liquid Temp.(℃)**
Head Test Data										
Left cheek	GPRS 4TS	190/836.6	1:2.075	0.101	0.03	26.94	27.50	1.138	0.115	22.8
Left tilted	GPRS 4TS	190/836.6	1:2.075	0.058	0.16	26.94	27.50	1.138	0.066	22.8
Right cheek	GPRS 4TS	190/836.6	1:2.075	0.111	-0.10	26.94	27.50	1.138	0.126	22.8
Right tilted	GPRS 4TS	190/836.6	1:2.075	0.062	0.14	26.94	27.50	1.138	0.071	22.8
Body worn Test data(Separate 15mm)										
Front side	GPRS 4TS	190/836.6	1:2.075	0.089	0.15	26.94	27.50	1.138	0.101	22.8
Back side	GPRS 4TS	190/836.6	1:2.075	0.107	-0.07	26.94	27.50	1.138	0.122	22.8
Hotspot Test data(Separate 10mm)										
Front side	GPRS 4TS	190/836.6	1:2.075	0.095	-0.09	26.94	27.50	1.138	0.108	22.8
Back side	GPRS 4TS	190/836.6	1:2.075	0.199	-0.13	26.94	27.50	1.138	0.226	22.8
Left side	GPRS 4TS	190/836.6	1:2.075	0.067	-0.11	26.94	27.50	1.138	0.076	22.8
Right side	GPRS 4TS	190/836.6	1:2.075	0.120	0.02	26.94	27.50	1.138	0.137	22.8
Bottom side	GPRS 4TS	190/836.6	1:2.075	0.167	-0.19	26.94	27.50	1.138	0.190	22.8
Ant 4 Test Record										
Test position	**Test mode**	**Test ch./Freq.**	**Duty Cycle**	**SAR (W/kg) 1-g**	**Power drift (dB)**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaled factor**	**Scaled SAR 1-g (W/kg)**	**Liquid Temp.(℃)**
Head Test Data										
Left cheek	GPRS 4TS	190/836.6	1:2.075	0.590	0.05	27.26	27.50	1.057	0.624	22.8
Left tilted	GPRS 4TS	190/836.6	1:2.075	0.516	0.05	27.26	27.50	1.057	0.545	22.8
Right cheek	GPRS 4TS	190/836.6	1:2.075	0.655	0.01	27.26	27.50	1.057	0.692	22.8
Right tilted	GPRS 4TS	190/836.6	1:2.075	0.531	0.10	27.26	27.50	1.057	0.561	22.8
Body worn Test data(Separate 15mm)										
Front side	GPRS 4TS	190/836.6	1:2.075	0.100	-0.11	27.26	27.50	1.057	0.106	22.8
Back side	GPRS 4TS	190/836.6	1:2.075	0.121	-0.01	27.26	27.50	1.057	0.128	22.8
Hotspot Test data(Separate 10mm)										
Front side	GPRS 4TS	190/836.6	1:2.075	0.170	0.05	27.26	27.50	1.057	0.180	22.8
Back side	GPRS 4TS	190/836.6	1:2.075	0.301	0.18	27.26	27.50	1.057	0.318	22.8
Left side	GPRS 4TS	190/836.6	1:2.075	0.092	-0.08	27.26	27.50	1.057	0.097	22.8
Top side	GPRS 4TS	190/836.6	1:2.075	0.165	-0.17	27.26	27.50	1.057	0.174	22.8

Table 11： SAR of GSM850 for Head and Body.

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9.2.2 SAR Result of GSM1900

GSM1900 SAR Test Record										
Ant 1 Test Record										
Test position	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(℃)
Head Test Data										
Left cheek	GPRS 4TS	661/1880	1:2.075	0.074	-0.04	23.98	24.50	1.127	0.083	22.9
Left tilted	GPRS 4TS	661/1880	1:2.075	0.060	0.01	23.98	24.50	1.127	0.068	22.9
Right cheek	GPRS 4TS	661/1880	1:2.075	0.063	-0.15	23.98	24.50	1.127	0.071	22.9
Right tilted	GPRS 4TS	661/1880	1:2.075	0.048	-0.09	23.98	24.50	1.127	0.054	22.9
Body worn Test data(Separate 15mm)										
Front side	GPRS 4TS	661/1880	1:2.075	0.117	-0.05	23.98	24.50	1.127	0.132	22.9
Back side	GPRS 4TS	661/1880	1:2.075	0.191	-0.11	23.98	24.50	1.127	0.215	22.9
Hotspot Test data(Separate 10mm)										
Front side	GPRS 4TS	661/1880	1:2.075	0.215	0.06	23.98	24.50	1.127	0.242	22.9
Back side	GPRS 4TS	661/1880	1:2.075	0.320	0.03	23.98	24.50	1.127	0.361	22.9
Left side	GPRS 4TS	661/1880	1:2.075	0.155	0.01	23.98	24.50	1.127	0.175	22.9
Right side	GPRS 4TS	661/1880	1:2.075	0.000	0.05	23.98	24.50	1.127	0.000	22.9
Bottom side	GPRS 4TS	661/1880	1:2.075	0.354	-0.09	23.98	24.50	1.127	0.399	22.9
Ant 4 Test Record										
Test position	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(℃)
Head Test Data										
Left cheek	GPRS 4TS	661/1880	1:2.075	0.468	0.16	21.08	21.50	1.102	0.516	22.9
Left tilted	GPRS 4TS	661/1880	1:2.075	0.590	0.09	21.08	21.50	1.102	0.650	22.9
Right cheek	GPRS 4TS	661/1880	1:2.075	0.615	0.09	21.08	21.50	1.102	0.677	22.9
Right tilted	GPRS 4TS	661/1880	1:2.075	0.752	-0.09	21.08	21.50	1.102	0.828	22.9
Right tilted	GPRS 4TS	512/1850.2	1:2.075	0.766	0.05	20.88	21.50	1.153	0.884	22.9
Right tilted	GPRS 4TS	810/1909.8	1:2.075	0.757	-0.19	21.00	21.50	1.122	0.849	22.9
Body worn Test data(Separate 15mm)										
Front side	GPRS 4TS	661/1880	1:2.075	0.121	-0.08	23.95	24.50	1.135	0.137	22.9
Back side	GPRS 4TS	661/1880	1:2.075	0.356	-0.09	23.95	24.50	1.135	0.404	22.9
Hotspot Test data(Separate 10mm)										
Front side	GPRS 4TS	661/1880	1:2.075	0.148	0.17	21.08	21.50	1.102	0.163	22.9
Back side	GPRS 4TS	661/1880	1:2.075	0.428	0.00	21.08	21.50	1.102	0.471	22.9
Left side	GPRS 4TS	661/1880	1:2.075	0.001	0.05	21.08	21.50	1.102	0.001	22.9
Top side	GPRS 4TS	661/1880	1:2.075	0.439	0.11	21.08	21.50	1.102	0.484	22.9

Table 12： SAR of GSM1900 for Head and Body.

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9.2.3 SAR Result of WCDMA Band II

W B2 SAR Test Record										
Ant 1 Test Record										
Test position	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(℃)
Head Test Data										
Left cheek	RMC	9400/1880	1:1	0.175	0.05	24.11	25.50	1.377	0.241	22.9
Left tilted	RMC	9400/1880	1:1	0.165	0.13	24.11	25.50	1.377	0.227	22.9
Right cheek	RMC	9400/1880	1:1	0.154	0.04	24.11	25.50	1.377	0.212	22.9
Right tilted	RMC	9400/1880	1:1	0.123	0.12	24.11	25.50	1.377	0.169	22.9
Body worn Test data(Separate 15mm)										
Front side	RMC	9400/1880	1:1	0.287	-0.15	24.11	25.50	1.377	0.395	22.9
Back side	RMC	9400/1880	1:1	0.446	0.15	24.11	25.50	1.377	0.614	22.9
Hotspot Test data(Separate 10mm)										
Front side	RMC	9400/1880	1:1	0.318	0.09	22.19	23.50	1.352	0.430	22.9
Back side	RMC	9400/1880	1:1	0.499	0.09	22.19	23.50	1.352	0.675	22.9
Left side	RMC	9400/1880	1:1	0.234	0.10	22.19	23.50	1.352	0.316	22.9
Right side	RMC	9400/1880	1:1	0.065	-0.04	22.19	23.50	1.352	0.088	22.9
Bottom side	RMC	9400/1880	1:1	0.587	-0.01	22.19	23.50	1.352	0.794	22.9
Bottom side - 2# Battery	RMC	9400/1880	1:1	0.535	0.09	22.19	23.50	1.352	0.723	22.9
Bottom side - 3# Battery	RMC	9400/1880	1:1	0.564	0.05	22.19	23.50	1.352	0.763	22.9
Ant 4 Test Record										
Test position	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(℃)
Head Test Data										
Left cheek	RMC	9400/1880	1:1	0.544	-0.14	17.81	18.50	1.172	0.638	22.9
Left tilted	RMC	9400/1880	1:1	0.681	-0.19	17.81	18.50	1.172	0.798	22.9
Right cheek	RMC	9400/1880	1:1	0.730	-0.11	17.81	18.50	1.172	0.856	22.9
Right cheek	RMC	9262/1852.4	1:1	0.716	0.07	17.74	18.50	1.191	0.853	22.9
Right cheek	RMC	9538/1907.6	1:1	0.726	0.02	17.73	18.50	1.194	0.867	22.9
Right tilted	RMC	9400/1880	1:1	0.898	0.05	17.81	18.50	1.172	1.053	22.9
Right tilted - Repeat SAR	RMC	9400/1880	1:1	0.896	0.11	17.81	18.50	1.172	1.050	22.9
Right tilted	RMC	9262/1852.4	1:1	0.860	-0.01	17.74	18.50	1.191	1.024	22.9
Right tilted	RMC	9538/1907.6	1:1	0.878	0.05	17.73	18.50	1.194	1.048	22.9
Body worn Test data(Separate 15mm)										
Front side	RMC	9400/1880	1:1	0.304	-0.08	22.34	23.50	1.306	0.397	22.9
Back side	RMC	9400/1880	1:1	0.773	-0.06	22.34	23.50	1.306	1.010	22.9
Back side	RMC	9262/1852.4	1:1	0.749	-0.10	22.25	23.50	1.334	0.999	22.9
Back side	RMC	9538/1907.6	1:1	0.759	-0.01	22.27	23.50	1.327	1.007	22.9
Hotspot Test data(Separate 10mm)										
Front side	RMC	9400/1880	1:1	0.193	-0.12	17.81	18.50	1.172	0.226	22.9
Back side	RMC	9400/1880	1:1	0.517	-0.12	17.81	18.50	1.172	0.606	22.9
Left side	RMC	9400/1880	1:1	0.001	-0.05	17.81	18.50	1.172	0.001	22.9

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Top side	RMC	9400/1880	1:1	0.546	0.02	17.81	18.50	1.172	0.640	22.9

Table 13： SAR of WCDMA Band II for Head and Body.

Test Position	Channel/ Frequency (MHz)	Measured SAR (1g)	1st Repeated SAR (1g)	Ratio	2nd Repeated SAR (1g)	3rd Repeated SAR (1g)
Right tilted	9400/1880	0.898	0.896	1.002232143	N/A	N/A
Note: 1) When the original highest measured SAR is ≥ 0.80 W/kg, the measurement was repeated once.						
2) A second repeated measurement was preformed only if the ratio of largest to smallest SAR for the original and first repeated measurements was > 1.20 or when the original or repeated measurement was ≥ 1.45 W/kg (~ 10% from the 1-g SAR limit).						
3) A third repeated measurement was preformed only if the original, first or second repeated measurement was ⩾ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.						
4) Repeated measurements are not required when the original highest measured SAR is < 0.80 W/kg						

9.2.4 SAR Result of WCDMA Band IV

W B4 SAR Test Record										
Ant 1 Test Record										
Test position	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(℃)
Head Test Data										
Left cheek	RMC	1412/1732.4	1:1	0.165	0.10	24.35	25.50	1.303	0.215	22.7
Left tilted	RMC	1412/1732.4	1:1	0.123	0.18	24.35	25.50	1.303	0.160	22.7
Right cheek	RMC	1412/1732.4	1:1	0.171	-0.12	24.35	25.50	1.303	0.223	22.7
Right tilted	RMC	1412/1732.4	1:1	0.097	-0.10	24.35	25.50	1.303	0.126	22.7
Body worn Test data(Separate 15mm)										
Front side	RMC	1412/1732.4	1:1	0.187	-0.10	24.35	25.50	1.303	0.244	22.7
Back side	RMC	1412/1732.4	1:1	0.279	-0.03	24.35	25.50	1.303	0.364	22.7
Hotspot Test data(Separate 10mm)										
Front side	RMC	1412/1732.4	1:1	0.217	0.14	22.61	23.50	1.227	0.266	22.7
Back side	RMC	1412/1732.4	1:1	0.323	0.11	22.61	23.50	1.227	0.396	22.7
Left side	RMC	1412/1732.4	1:1	0.119	-0.18	22.61	23.50	1.227	0.146	22.7
Right side	RMC	1412/1732.4	1:1	0.066	0.13	22.61	23.50	1.227	0.081	22.7
Bottom side	RMC	1412/1732.4	1:1	0.528	0.09	22.61	23.50	1.227	0.648	22.7
Ant 4 Test Record										
Test position	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(℃)
Head Test Data										
Left cheek	RMC	1412/1732.4	1:1	0.483	-0.12	16.80	17.50	1.175	0.567	22.7
Left tilted	RMC	1412/1732.4	1:1	0.591	-0.17	16.80	17.50	1.175	0.694	22.7
Right cheek	RMC	1412/1732.4	1:1	0.601	-0.16	16.80	17.50	1.175	0.706	22.7
Right tilted	RMC	1412/1732.4	1:1	0.714	0.08	16.80	17.50	1.175	0.839	22.7
Right tilted	RMC	1312/1712.4	1:1	0.694	-0.09	16.73	17.50	1.194	0.829	22.7
Right tilted	RMC	1513/1752.6	1:1	0.707	-0.02	16.77	17.50	1.183	0.836	22.7
Body worn Test data(Separate 15mm)										

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Front side	RMC	1412/1732.4	1:1	0.319	0.03	23.16	24.00	1.213	0.387	22.7
Back side	RMC	1412/1732.4	1:1	0.771	-0.01	23.16	24.00	1.213	0.936	22.7
Back side	RMC	1312/1712.4	1:1	0.751	-0.06	23.11	24.00	1.227	0.922	22.7
Back side	RMC	1513/1752.6	1:1	0.746	-0.15	23.08	24.00	1.236	0.922	22.7
Hotspot Test data(Separate 10mm)										
Front side	RMC	1412/1732.4	1:1	0.156	-0.17	16.80	17.50	1.175	0.183	22.7
Back side	RMC	1412/1732.4	1:1	0.393	-0.14	16.80	17.50	1.175	0.462	22.7
Left side	RMC	1412/1732.4	1:1	0.001	0.17	16.80	17.50	1.175	0.001	22.7
Top side	RMC	1412/1732.4	1:1	0.397	-0.13	16.80	17.50	1.175	0.466	22.7

Table 14： SAR of WCDMA Band IV for Head and Body.

9.2.5 SAR Result of WCDMA Band V

W B5 SAR Test Record										
Ant 1 Test Record										
Test position	**Test mode**	**Test ch./Freq.**	**Duty Cycle**	**SAR (W/kg) 1-g**	**Power drift (dB)**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaled factor**	**Scaled SAR 1-g (W/kg)**	**Liquid Temp.(℃)**
Head Test Data										
Left cheek	RMC	4182/836.4	1:1	0.190	-0.06	24.12	25.50	1.374	0.261	22.8
Left tilted	RMC	4182/836.4	1:1	0.105	-0.09	24.12	25.50	1.374	0.144	22.8
Right cheek	RMC	4182/836.4	1:1	0.212	-0.11	24.12	25.50	1.374	0.291	22.8
Right tilted	RMC	4182/836.4	1:1	0.113	-0.16	24.12	25.50	1.374	0.155	22.8
Body worn Test data(Separate 15mm)										
Front side	RMC	4182/836.4	1:1	0.128	0.03	24.12	25.50	1.374	0.176	22.8
Back side	RMC	4182/836.4	1:1	0.178	0.19	24.12	25.50	1.374	0.245	22.8
Hotspot Test data(Separate 10mm)										
Front side	RMC	4182/836.4	1:1	0.222	0.11	24.12	25.50	1.374	0.305	22.8
Back side	RMC	4182/836.4	1:1	0.387	0.01	24.12	25.50	1.374	0.532	22.8
Left side	RMC	4182/836.4	1:1	0.122	-0.13	24.12	25.50	1.374	0.168	22.8
Right side	RMC	4182/836.4	1:1	0.184	-0.04	24.12	25.50	1.374	0.253	22.8
Bottom side	RMC	4182/836.4	1:1	0.302	0.17	24.12	25.50	1.374	0.415	22.8
Ant 4 Test Record										
Test position	**Test mode**	**Test ch./Freq.**	**Duty Cycle**	**SAR (W/kg) 1-g**	**Power drift (dB)**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaled factor**	**Scaled SAR 1-g (W/kg)**	**Liquid Temp.(℃)**
Head Test Data										
Left cheek	RMC	4182/836.4	1:1	0.715	0.01	22.38	23.50	1.294	0.925	22.8
Left cheek	RMC	4132/826.4	1:1	0.686	0.14	22.27	23.50	1.327	0.911	22.8
Left cheek	RMC	4233/846.6	1:1	0.702	0.19	22.37	23.50	1.297	0.911	22.8
Left tilted	RMC	4182/836.4	1:1	0.614	-0.11	22.38	23.50	1.294	0.795	22.8
Right cheek	RMC	4182/836.4	1:1	0.733	0.05	22.38	23.50	1.294	0.949	22.8
Right cheek	RMC	4132/826.4	1:1	0.698	-0.01	22.27	23.50	1.327	0.927	22.8
Right cheek	RMC	4233/846.6	1:1	0.713	0.05	22.37	23.50	1.297	0.925	22.8
Right tilted	RMC	4182/836.4	1:1	0.561	0.19	22.38	23.50	1.294	0.726	22.8
Body worn Test data(Separate 15mm)										
Front side	RMC	4182/836.4	1:1	0.123	0.15	23.96	25.50	1.426	0.175	22.8
Back side	RMC	4182/836.4	1:1	0.216	-0.02	23.96	25.50	1.426	0.308	22.8
Hotspot Test data(Separate 10mm)										
Front side	RMC	4182/836.4	1:1	0.177	-0.10	22.38	23.50	1.294	0.229	22.8

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Back side	RMC	4182/836.4	1:1	0.309	-0.14	22.38	23.50	1.294	0.400	22.8
Left side	RMC	4182/836.4	1:1	0.104	-0.10	22.38	23.50	1.294	0.135	22.8
Top side	RMC	4182/836.4	1:1	0.160	-0.04	22.38	23.50	1.294	0.207	22.8

Table 15： SAR of WCDMA Band V for Head and Body.

9.2.6 SAR Result of LTE Band 2

LTE Band 2 SAR Test Record											
Ant 1 Test Record											
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(℃)
Head Test Data(1RB)											
Left cheek	20	QPSK 1_0	18900/1880	1:1	0.163	0.11	24.07	25.50	1.390	0.227	22.9
Left tilted	20	QPSK 1_0	18900/1880	1:1	0.177	-0.14	24.07	25.50	1.390	0.246	22.9
Right cheek	20	QPSK 1_0	18900/1880	1:1	0.134	0.11	24.07	25.50	1.390	0.186	22.9
Right tilted	20	QPSK 1_0	18900/1880	1:1	0.122	0.08	24.07	25.50	1.390	0.170	22.9
Head Test Data(50%RB)											
Left cheek	20	QPSK 50_0	18900/1880	1:1	0.126	-0.01	22.98	24.50	1.419	0.179	22.9
Left tilted	20	QPSK 50_0	18900/1880	1:1	0.129	0.02	22.98	24.50	1.419	0.183	22.9
Right cheek	20	QPSK 50_0	18900/1880	1:1	0.110	0.13	22.98	24.50	1.419	0.156	22.9
Right tilted	20	QPSK 50_0	18900/1880	1:1	0.095	0.16	22.98	24.50	1.419	0.135	22.9
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_0	18900/1880	1:1	0.281	-0.17	24.07	25.50	1.390	0.391	22.9
Back side	20	QPSK 1_0	18900/1880	1:1	0.446	0.06	24.07	25.50	1.390	0.620	22.9
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_0	18900/1880	1:1	0.228	-0.11	22.98	24.50	1.419	0.324	22.9
Back side	20	QPSK 50_0	18900/1880	1:1	0.363	-0.04	22.98	24.50	1.419	0.515	22.9
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_0	18900/1880	1:1	0.356	-0.17	22.88	24.00	1.294	0.461	22.9
Back side	20	QPSK 1_0	18900/1880	1:1	0.561	0.02	22.88	24.00	1.294	0.726	22.9
Left side	20	QPSK 1_0	18900/1880	1:1	0.273	0.11	22.88	24.00	1.294	0.353	22.9
Right side	20	QPSK 1_0	18900/1880	1:1	0.077	0.14	22.88	24.00	1.294	0.100	22.9
Bottom side	20	QPSK 1_0	18900/1880	1:1	0.574	0.16	22.88	24.00	1.294	0.743	22.9
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_0	18900/1880	1:1	0.357	0.16	22.81	24.00	1.315	0.470	22.9
Back side	20	QPSK 50_0	18900/1880	1:1	0.572	-0.11	22.81	24.00	1.315	0.752	22.9
Left side	20	QPSK 50_0	18900/1880	1:1	0.279	-0.12	22.81	24.00	1.315	0.367	22.9
Right side	20	QPSK 50_0	18900/1880	1:1	0.077	0.06	22.81	24.00	1.315	0.101	22.9
Bottom side	20	QPSK 50_0	18900/1880	1:1	0.597	0.08	22.81	24.00	1.315	0.785	22.9
Ant 4 Test Record											
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(℃)
Head Test Data(1RB)											
Left cheek	20	QPSK 1_0	18900/1880	1:1	0.387	-0.18	17.13	18.00	1.222	0.473	22.9
Left tilted	20	QPSK 1_0	18900/1880	1:1	0.494	-0.13	17.13	18.00	1.222	0.604	22.9
Right cheek	20	QPSK 1_0	18900/1880	1:1	0.513	0.04	17.13	18.00	1.222	0.627	22.9

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Right tilted	20	QPSK 1_0	18900/1880	1:1	0.633	0.08	17.13	18.00	1.222	0.773	22.9
Head Test Data(50%RB)											
Left cheek	20	QPSK 50_0	18900/1880	1:1	0.393	0.03	17.04	18.00	1.247	0.490	22.9
Left tilted	20	QPSK 50_0	18900/1880	1:1	0.510	0.17	17.04	18.00	1.247	0.636	22.9
Right cheek	20	QPSK 50_0	18900/1880	1:1	0.518	0.13	17.04	18.00	1.247	0.646	22.9
Right tilted	20	QPSK 50_0	18900/1880	1:1	0.638	0.14	17.04	18.00	1.247	0.796	22.9
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_0	18900/1880	1:1	0.225	-0.10	22.34	23.50	1.306	0.294	22.9
Back side	20	QPSK 1_0	18900/1880	1:1	0.599	0.11	22.34	23.50	1.306	0.782	22.9
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_0	18900/1880	1:1	0.229	0.06	22.30	23.50	1.318	0.302	22.9
Back side	20	QPSK 50_0	18900/1880	1:1	0.601	-0.01	22.30	23.50	1.318	0.792	22.9
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_0	18900/1880	1:1	0.141	-0.06	17.13	18.00	1.222	0.172	22.9
Back side	20	QPSK 1_0	18900/1880	1:1	0.383	-0.18	17.13	18.00	1.222	0.468	22.9
Left side	20	QPSK 1_0	18900/1880	1:1	0.001	-0.12	17.13	18.00	1.222	0.001	22.9
Top side	20	QPSK 1_0	18900/1880	1:1	0.389	-0.15	17.13	18.00	1.222	0.475	22.9
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_0	18900/1880	1:1	0.139	-0.08	17.04	18.00	1.247	0.173	22.9
Back side	20	QPSK 50_0	18900/1880	1:1	0.387	-0.08	17.04	18.00	1.247	0.483	22.9
Left side	20	QPSK 50_0	18900/1880	1:1	0.001	-0.19	17.04	18.00	1.247	0.001	22.9
Top side	20	QPSK 50_0	18900/1880	1:1	0.410	0.12	17.04	18.00	1.247	0.511	22.9

Table 16： SAR of LTE Band 2 for Head and Body.

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9.2.7 SAR Result of LTE Band 5

LTE Band 5 SAR Test Record											
Ant 1 Test Record											
Test position	**BW.**	**Test mode**	**Test ch./Freq.**	**Duty Cycle**	**SAR (W/kg) 1-g**	**Power drift (dB)**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaled factor**	**Scaled SAR 1-g (W/kg)**	**Liquid Temp.(℃)**
Head Test Data(1RB)											
Left cheek	10	QPSK 1_0	20525/836.5	1:1	0.199	-0.01	24.15	25.50	1.365	0.272	22.8
Left tilted	10	QPSK 1_0	20525/836.5	1:1	0.101	-0.05	24.15	25.50	1.365	0.138	22.8
Right cheek	10	QPSK 1_0	20525/836.5	1:1	0.158	-0.17	24.15	25.50	1.365	0.216	22.8
Right tilted	10	QPSK 1_0	20525/836.5	1:1	0.087	-0.11	24.15	25.50	1.365	0.119	22.8
Head Test Data(50%RB)											
Left cheek	10	QPSK 25_0	20525/836.5	1:1	0.158	0.02	23.04	24.50	1.400	0.221	22.8
Left tilted	10	QPSK 25_0	20525/836.5	1:1	0.083	-0.07	23.04	24.50	1.400	0.116	22.8
Right cheek	10	QPSK 25_0	20525/836.5	1:1	0.152	-0.04	23.04	24.50	1.400	0.213	22.8
Right tilted	10	QPSK 25_0	20525/836.5	1:1	0.079	0.00	23.04	24.50	1.400	0.111	22.8
Body worn Test data(Separate 15mm 1RB)											
Front side	10	QPSK 1_0	20525/836.5	1:1	0.114	0.09	24.15	25.50	1.365	0.156	22.8
Back side	10	QPSK 1_0	20525/836.5	1:1	0.156	-0.04	24.15	25.50	1.365	0.213	22.8
Body worn Test data(Separate 15mm 50%RB)											
Front side	10	QPSK 25_0	20525/836.5	1:1	0.098	-0.14	23.04	24.50	1.400	0.137	22.8
Back side	10	QPSK 25_0	20525/836.5	1:1	0.132	0.17	23.04	24.50	1.400	0.185	22.8
Hotspot Test data(Separate 10mm 1RB)											
Front side	10	QPSK 1_0	20525/836.5	1:1	0.178	-0.13	24.15	25.50	1.365	0.243	22.8
Back side	10	QPSK 1_0	20525/836.5	1:1	0.333	0.07	24.15	25.50	1.365	0.454	22.8
Left side	10	QPSK 1_0	20525/836.5	1:1	0.108	0.15	24.15	25.50	1.365	0.147	22.8
Right side	10	QPSK 1_0	20525/836.5	1:1	0.160	0.04	24.15	25.50	1.365	0.218	22.8
Bottom side	10	QPSK 1_0	20525/836.5	1:1	0.234	0.18	24.15	25.50	1.365	0.319	22.8
Hotspot Test data(Separate 10mm 50%RB)											
Front side	10	QPSK 25_0	20525/836.5	1:1	0.144	0.05	23.04	24.50	1.400	0.202	22.8
Back side	10	QPSK 25_0	20525/836.5	1:1	0.276	-0.14	23.04	24.50	1.400	0.386	22.8
Left side	10	QPSK 25_0	20525/836.5	1:1	0.089	0.13	23.04	24.50	1.400	0.125	22.8
Right side	10	QPSK 25_0	20525/836.5	1:1	0.130	0.12	23.04	24.50	1.400	0.182	22.8
Bottom side	10	QPSK 25_0	20525/836.5	1:1	0.187	-0.11	23.04	24.50	1.400	0.262	22.8
Ant 4 Test Record											
Test position	**BW.**	**Test mode**	**Test ch./Freq.**	**Duty Cycle**	**SAR (W/kg) 1-g**	**Power drift (dB)**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaled factor**	**Scaled SAR 1-g (W/kg)**	**Liquid Temp.(℃)**
Head Test Data(1RB)											
Left cheek	10	QPSK 1_0	20525/836.5	1:1	0.764	-0.17	23.51	24.50	1.256	0.960	22.8
Left tilted	10	QPSK 1_0	20525/836.5	1:1	0.688	0.10	23.51	24.50	1.256	0.864	22.8
Right cheek	10	QPSK 1_0	20525/836.5	1:1	0.834	0.08	23.51	24.50	1.256	1.048	22.8
Right tilted	10	QPSK 1_0	20525/836.5	1:1	0.635	-0.12	23.51	24.50	1.256	0.798	22.8
Head Test Data(50%RB)											
Left cheek	10	QPSK 25_0	20525/836.5	1:1	0.779	-0.10	23.47	24.50	1.268	0.988	22.8
Left tilted	10	QPSK 25_0	20525/836.5	1:1	0.701	-0.05	23.47	24.50	1.268	0.889	22.8
Right cheek	10	QPSK 25_0	20525/836.5	1:1	0.856	0.12	23.47	24.50	1.268	1.085	22.8
Right cheek - Repeat SAR	10	QPSK 25_0	20525/836.5	1:1	0.853	0.08	23.47	24.50	1.268	1.081	22.8
Right cheek - 2# Battery	10	QPSK 25_0	20525/836.5	1:1	0.828	-0.16	23.47	24.50	1.268	1.050	22.8

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Right cheek - 3# Battery	10	QPSK 25_0	20525/836.5	1:1	0.816	0.02	23.47	24.50	1.268	1.034	22.8
Right cheek	10	QPSK 25_0	20525/836.5	1:1	0.856	0.12	23.47	24.50	1.268	1.085	22.8
Right tilted	10	QPSK 25_0	20525/836.5	1:1	0.650	0.19	23.47	24.50	1.268	0.824	22.8
Head Test Data(100%RB)											
Left cheek	10	QPSK 50_0	20525/836.5	1:1	0.763	0.15	23.39	24.50	1.291	0.985	22.8
Left tilted	10	QPSK 50_0	20525/836.5	1:1	0.692	0.04	23.39	24.50	1.291	0.894	22.8
Right cheek	10	QPSK 50_0	20525/836.5	1:1	0.831	0.02	23.39	24.50	1.291	1.073	22.8
Right tilted	10	QPSK 50_0	20525/836.5	1:1	0.644	-0.10	23.39	24.50	1.291	0.832	22.8
Body worn Test data(Separate 15mm 1RB)											
Front side	10	QPSK 1_0	20525/836.5	1:1	0.131	-0.01	24.06	25.50	1.393	0.183	22.8
Back side	10	QPSK 1_0	20525/836.5	1:1	0.207	-0.01	24.06	25.50	1.393	0.288	22.8
Body worn Test data(Separate 15mm 50%RB)											
Front side	10	QPSK 25_0	20525/836.5	1:1	0.108	-0.03	23.02	24.50	1.406	0.152	22.8
Back side	10	QPSK 25_0	20525/836.5	1:1	0.173	-0.09	23.02	24.50	1.406	0.243	22.8
Hotspot Test data(Separate 10mm 1RB)											
Front side	10	QPSK 1_0	20525/836.5	1:1	0.205	0.14	23.51	24.50	1.256	0.257	22.8
Back side	10	QPSK 1_0	20525/836.5	1:1	0.362	-0.15	23.51	24.50	1.256	0.455	22.8
Left side	10	QPSK 1_0	20525/836.5	1:1	0.089	0.05	23.51	24.50	1.256	0.112	22.8
Top side	10	QPSK 1_0	20525/836.5	1:1	0.146	0.18	23.51	24.50	1.256	0.183	22.8
Hotspot Test data(Separate 10mm 50%RB)											
Front side	10	QPSK 25_0	20525/836.5	1:1	0.164	-0.16	23.47	24.50	1.268	0.208	22.8
Back side	10	QPSK 25_0	20525/836.5	1:1	0.275	0.10	23.47	24.50	1.268	0.349	22.8
Left side	10	QPSK 25_0	20525/836.5	1:1	0.093	0.00	23.47	24.50	1.268	0.118	22.8
Top side	10	QPSK 25_0	20525/836.5	1:1	0.139	-0.07	23.47	24.50	1.268	0.176	22.8

Table 17： SAR of LTE Band 5 for Head and Body.

Test Position	Channel/ Frequency (MHz)	Measured SAR (1g)	1st Repeated SAR (1g)	Ratio	2nd Repeated SAR (1g)	3rd Repeated SAR (1g)
Right cheek	20525/836.5	0.856	0.853	1.003516999	N/A	N/A
Note: 1) When the original highest measured SAR is ≥ 0.80 W/kg, the measurement was repeated once.						
2) A second repeated measurement was preformed only if the ratio of largest to smallest SAR for the original and first repeated measurements was > 1.20 or when the original or repeated measurement was ≥ 1.45 W/kg (~ 10% from the 1-g SAR limit).						
3) A third repeated measurement was preformed only if the original, first or second repeated measurement was ⩾ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.						
4) Repeated measurements are not required when the original highest measured SAR is < 0.80 W/kg						

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9.2.8 SAR Result of LTE Band 7

LTE Band 7 SAR Test Record											
Ant 1 Test Record											
Test position	**BW.**	**Test mode**	**Test ch./Freq.**	**Duty Cycle**	**SAR (W/kg) 1-g**	**Power drift (dB)**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaled factor**	**Scaled SAR 1-g (W/kg)**	**Liquid Temp.(℃)**
Head Test Data(1RB)											
Left cheek	20	QPSK 1_0	21100/2535	1:1	0.035	0.11	24.01	25.50	1.409	0.049	23.1
Left tilted	20	QPSK 1_0	21100/2535	1:1	0.018	0.03	24.01	25.50	1.409	0.025	23.1
Right cheek	20	QPSK 1_0	21100/2535	1:1	0.042	-0.13	24.01	25.50	1.409	0.059	23.1
Right tilted	20	QPSK 1_0	21100/2535	1:1	0.024	0.03	24.01	25.50	1.409	0.034	23.1
Head Test Data(50%RB)											
Left cheek	20	QPSK 50_0	21100/2535	1:1	0.021	0.15	22.97	24.50	1.422	0.030	23.1
Left tilted	20	QPSK 50_0	21100/2535	1:1	0.012	0.09	22.97	24.50	1.422	0.017	23.1
Right cheek	20	QPSK 50_0	21100/2535	1:1	0.035	0.16	22.97	24.50	1.422	0.050	23.1
Right tilted	20	QPSK 50_0	21100/2535	1:1	0.018	-0.06	22.97	24.50	1.422	0.026	23.1
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_0	21100/2535	1:1	0.347	-0.07	24.01	25.50	1.409	0.489	23.1
Back side	20	QPSK 1_0	21100/2535	1:1	0.563	-0.03	24.01	25.50	1.409	0.793	23.1
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_0	21100/2535	1:1	0.284	-0.19	22.97	24.50	1.422	0.404	23.1
Back side	20	QPSK 50_0	21100/2535	1:1	0.483	0.19	22.97	24.50	1.422	0.687	23.1
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_0	21100/2535	1:1	0.192	-0.12	19.19	20.50	1.352	0.260	23.1
Back side	20	QPSK 1_0	21100/2535	1:1	0.313	0.10	19.19	20.50	1.352	0.423	23.1
Left side	20	QPSK 1_0	21100/2535	1:1	0.044	-0.16	19.19	20.50	1.352	0.059	23.1
Right side	20	QPSK 1_0	21100/2535	1:1	0.036	-0.14	19.19	20.50	1.352	0.049	23.1
Bottom side	20	QPSK 1_0	21100/2535	1:1	0.468	0.07	19.19	20.50	1.352	0.633	23.1
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_0	21100/2535	1:1	0.184	0.04	19.03	20.50	1.403	0.258	23.1
Back side	20	QPSK 50_0	21100/2535	1:1	0.313	0.03	19.03	20.50	1.403	0.439	23.1
Left side	20	QPSK 50_0	21100/2535	1:1	0.040	-0.09	19.03	20.50	1.403	0.056	23.1
Right side	20	QPSK 50_0	21100/2535	1:1	0.037	-0.06	19.03	20.50	1.403	0.052	23.1
Bottom side	20	QPSK 50_0	21100/2535	1:1	0.475	-0.01	19.03	20.50	1.403	0.666	23.1
Ant 4 Test Record											
Test position	**BW.**	**Test mode**	**Test ch./Freq.**	**Duty Cycle**	**SAR (W/kg) 1-g**	**Power drift (dB)**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaled factor**	**Scaled SAR 1-g (W/kg)**	**Liquid Temp.(℃)**
Head Test Data(1RB)											
Left cheek	20	QPSK 1_0	21100/2535	1:1	0.360	-0.12	21.17	22.50	1.358	0.489	23.1
Left tilted	20	QPSK 1_0	21100/2535	1:1	0.459	-0.04	21.17	22.50	1.358	0.623	23.1
Right cheek	20	QPSK 1_0	21100/2535	1:1	0.693	0.02	21.17	22.50	1.358	0.941	23.1
Right cheek	20	QPSK 1_0	20850/2510	1:1	0.671	-0.05	21.10	22.50	1.380	0.926	23.1

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Right cheek	20	QPSK 1_0	21350/2560	1:1	0.682	0.09	21.13	22.50	1.371	0.935	23.1
Right tilted	20	QPSK 1_0	21100/2535	1:1	0.736	-0.02	21.17	22.50	1.358	1.000	23.1
Right tilted	20	QPSK 1_0	20850/2510	1:1	0.706	-0.09	21.10	22.50	1.380	0.975	23.1
Right tilted	20	QPSK 1_0	21350/2560	1:1	0.712	0.09	21.13	22.50	1.371	0.976	23.1
Head Test Data(50%RB)											
Left cheek	20	QPSK 50_0	21100/2535	1:1	0.366	-0.11	21.16	22.50	1.361	0.498	23.1
Left tilted	20	QPSK 50_0	21100/2535	1:1	0.466	-0.17	21.16	22.50	1.361	0.634	23.1
Right cheek	20	QPSK 50_0	21100/2535	1:1	0.725	0.11	21.16	22.50	1.361	0.987	23.1
Right cheek	20	QPSK 50_0	20850/2510	1:1	0.701	-0.07	21.08	22.50	1.387	0.972	23.1
Right cheek	20	QPSK 50_0	21350/2560	1:1	0.713	0.00	21.11	22.50	1.377	0.982	23.1
Right tilted	20	QPSK 50_0	21100/2535	1:1	0.743	0.01	21.16	22.50	1.361	1.012	23.1
Right tilted	20	QPSK 50_0	20850/2510	1:1	0.726	-0.09	21.08	22.50	1.387	1.007	23.1
Right tilted	20	QPSK 50_0	21350/2560	1:1	0.733	0.13	21.11	22.50	1.377	1.009	23.1
Head Test Data(100%RB)											
Right cheek	20	QPSK 100_0	21100/2535	1:1	0.688	-0.14	21.11	22.50	1.377	0.948	23.1
Right tilted	20	QPSK 100_0	21100/2535	1:1	0.725	-0.03	21.11	22.50	1.377	0.998	23.1
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_0	21100/2535	1:1	0.170	0.10	24.17	25.50	1.358	0.231	23.1
Back side	20	QPSK 1_0	21100/2535	1:1	0.330	0.13	24.17	25.50	1.358	0.448	23.1
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_0	21100/2535	1:1	0.139	0.15	23.23	24.50	1.340	0.186	23.1
Back side	20	QPSK 50_0	21100/2535	1:1	0.272	0.13	23.23	24.50	1.340	0.364	23.1
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_0	21100/2535	1:1	0.155	0.18	20.72	22.00	1.343	0.208	23.1
Back side	20	QPSK 1_0	21100/2535	1:1	0.322	-0.02	20.72	22.00	1.343	0.432	23.1
Left side	20	QPSK 1_0	21100/2535	1:1	0.164	-0.14	20.72	22.00	1.343	0.220	23.1
Top side	20	QPSK 1_0	21100/2535	1:1	0.426	-0.12	20.72	22.00	1.343	0.572	23.1
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_0	21100/2535	1:1	0.153	0.11	20.69	22.00	1.352	0.207	23.1
Back side	20	QPSK 50_0	21100/2535	1:1	0.356	0.08	20.69	22.00	1.352	0.481	23.1
Left side	20	QPSK 50_0	21100/2535	1:1	0.163	0.15	20.69	22.00	1.352	0.220	23.1
Top side	20	QPSK 50_0	21100/2535	1:1	0.425	-0.11	20.69	22.00	1.352	0.575	23.1

Table 18： SAR of LTE Band 7 for Head and Body.

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9.2.9 SAR Result of LTE Band 41

LTE Band 41 SAR Test Record											
Ant 1 Test Record											
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(℃)
Head Test Data(1RB)											
Left cheek	20	QPSK 1_0	40620/2593	1:1.58	0.031	0.03	24.35	25.50	1.303	0.040	23.1
Left tilted	20	QPSK 1_0	40620/2593	1:1.58	0.014	0.07	24.35	25.50	1.303	0.018	23.1
Right cheek	20	QPSK 1_0	40620/2593	1:1.58	0.033	-0.02	24.35	25.50	1.303	0.043	23.1
Right tilted	20	QPSK 1_0	40620/2593	1:1.58	0.018	-0.05	24.35	25.50	1.303	0.023	23.1
Head Test Data(50%RB)											
Left cheek	20	QPSK 50_0	40620/2593	1:1.58	0.022	-0.18	23.30	24.50	1.318	0.029	23.1
Left tilted	20	QPSK 50_0	40620/2593	1:1.58	0.011	-0.04	23.30	24.50	1.318	0.015	23.1
Right cheek	20	QPSK 50_0	40620/2593	1:1.58	0.028	0.18	23.30	24.50	1.318	0.037	23.1
Right tilted	20	QPSK 50_0	40620/2593	1:1.58	0.016	0.16	23.30	24.50	1.318	0.021	23.1
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_0	40620/2593	1:1.58	0.212	0.05	24.35	25.50	1.303	0.276	23.1
Back side	20	QPSK 1_0	40620/2593	1:1.58	0.436	-0.05	24.35	25.50	1.303	0.568	23.1
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_0	40620/2593	1:1.58	0.218	-0.11	23.30	24.50	1.318	0.287	23.1
Back side	20	QPSK 50_0	40620/2593	1:1.58	0.392	0.07	23.30	24.50	1.318	0.517	23.1
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_0	40620/2593	1:1.58	0.159	-0.15	20.11	21.00	1.227	0.195	23.1
Back side	20	QPSK 1_0	40620/2593	1:1.58	0.266	-0.12	20.11	21.00	1.227	0.326	23.1
Left side	20	QPSK 1_0	40620/2593	1:1.58	0.030	-0.06	20.11	21.00	1.227	0.037	23.1
Right side	20	QPSK 1_0	40620/2593	1:1.58	0.025	0.00	20.11	21.00	1.227	0.031	23.1
Bottom side	20	QPSK 1_0	40620/2593	1:1.58	0.433	-0.09	20.11	21.00	1.227	0.531	23.1
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_0	40620/2593	1:1.58	0.162	0.03	20.00	21.00	1.259	0.204	23.1
Back side	20	QPSK 50_0	40620/2593	1:1.58	0.272	0.01	20.00	21.00	1.259	0.342	23.1
Left side	20	QPSK 50_0	40620/2593	1:1.58	0.032	-0.13	20.00	21.00	1.259	0.040	23.1
Right side	20	QPSK 50_0	40620/2593	1:1.58	0.033	-0.09	20.00	21.00	1.259	0.042	23.1
Bottom side	20	QPSK 50_0	40620/2593	1:1.58	0.421	-0.15	20.00	21.00	1.259	0.530	23.1
Ant 4 Test Record											
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(℃)
Head Test Data(1RB)											

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Left cheek	20	QPSK 1_0	40620/2593	1:1.58	0.217	0.11	22.05	23.00	1.245	0.270	23.1
Left tilted	20	QPSK 1_0	40620/2593	1:1.58	0.318	0.13	22.05	23.00	1.245	0.396	23.1
Right cheek	20	QPSK 1_0	40620/2593	1:1.58	0.353	0.02	22.05	23.00	1.245	0.439	23.1
Right tilted	20	QPSK 1_0	40620/2593	1:1.58	0.371	-0.08	22.05	23.00	1.245	0.462	23.1
Head Test Data(50%RB)											
Left cheek	20	QPSK 50_0	40620/2593	1:1.58	0.224	0.03	21.86	23.00	1.300	0.291	23.1
Left tilted	20	QPSK 50_0	40620/2593	1:1.58	0.324	-0.13	21.86	23.00	1.300	0.421	23.1
Right cheek	20	QPSK 50_0	40620/2593	1:1.58	0.356	0.12	21.86	23.00	1.300	0.463	23.1
Right tilted	20	QPSK 50_0	40620/2593	1:1.58	0.381	0.02	21.86	23.00	1.300	0.495	23.1
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_0	40620/2593	1:1.58	0.084	0.13	24.55	25.50	1.245	0.105	23.1
Back side	20	QPSK 1_0	40620/2593	1:1.58	0.179	0.08	24.55	25.50	1.245	0.223	23.1
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_0	40620/2593	1:1.58	0.068	-0.04	23.49	24.50	1.262	0.086	23.1
Back side	20	QPSK 50_0	40620/2593	1:1.58	0.148	-0.08	23.49	24.50	1.262	0.187	23.1
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_0	40620/2593	1:1.58	0.088	0.09	22.05	23.00	1.245	0.110	23.1
Back side	20	QPSK 1_0	40620/2593	1:1.58	0.206	0.19	22.05	23.00	1.245	0.256	23.1
Left side	20	QPSK 1_0	40620/2593	1:1.58	0.113	-0.09	22.05	23.00	1.245	0.141	23.1
Top side	20	QPSK 1_0	40620/2593	1:1.58	0.290	0.15	22.05	23.00	1.245	0.361	23.1
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_0	40620/2593	1:1.58	0.091	0.01	21.86	23.00	1.300	0.118	23.1
Back side	20	QPSK 50_0	40620/2593	1:1.58	0.224	-0.10	21.86	23.00	1.300	0.291	23.1
Left side	20	QPSK 50_0	40620/2593	1:1.58	0.113	0.19	21.86	23.00	1.300	0.147	23.1
Top side	20	QPSK 50_0	40620/2593	1:1.58	0.299	0.03	21.86	23.00	1.300	0.389	23.1

Table 19： SAR of LTE Band 41 for Head and Body.

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9.2.10 SAR Result of LTE Band 66

LTE Band 66 SAR Test Record											
Ant 1 Test Record											
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(℃)
Head Test Data(1RB)											
Left cheek	20	QPSK 1_0	132322/1745	1:1	0.161	-0.13	24.14	25.50	1.368	0.220	22.7
Left tilted	20	QPSK 1_0	132322/1745	1:1	0.105	0.07	24.14	25.50	1.368	0.144	22.7
Right cheek	20	QPSK 1_0	132322/1745	1:1	0.148	0.01	24.14	25.50	1.368	0.202	22.7
Right tilted	20	QPSK 1_0	132322/1745	1:1	0.096	-0.04	24.14	25.50	1.368	0.131	22.7
Head Test Data(50%RB)											
Left cheek	20	QPSK 50_0	132322/1745	1:1	0.134	-0.12	23.16	24.50	1.361	0.182	22.7
Left tilted	20	QPSK 50_0	132322/1745	1:1	0.085	0.13	23.16	24.50	1.361	0.116	22.7
Right cheek	20	QPSK 50_0	132322/1745	1:1	0.129	0.08	23.16	24.50	1.361	0.176	22.7
Right tilted	20	QPSK 50_0	132322/1745	1:1	0.078	0.07	23.16	24.50	1.361	0.106	22.7
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_0	132322/1745	1:1	0.213	0.16	24.14	25.50	1.368	0.291	22.7
Back side	20	QPSK 1_0	132322/1745	1:1	0.300	0.15	24.14	25.50	1.368	0.410	22.7
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_0	132322/1745	1:1	0.175	-0.18	23.16	24.50	1.361	0.238	22.7
Back side	20	QPSK 50_0	132322/1745	1:1	0.246	0.06	23.16	24.50	1.361	0.335	22.7
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_0	132322/1745	1:1	0.278	0.19	22.89	24.00	1.291	0.359	22.7
Back side	20	QPSK 1_0	132322/1745	1:1	0.396	-0.06	22.89	24.00	1.291	0.511	22.7
Left side	20	QPSK 1_0	132322/1745	1:1	0.171	0.16	22.89	24.00	1.291	0.221	22.7
Right side	20	QPSK 1_0	132322/1745	1:1	0.091	0.09	22.89	24.00	1.291	0.118	22.7
Bottom side	20	QPSK 1_0	132322/1745	1:1	0.554	0.09	22.89	24.00	1.291	0.715	22.7
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_0	132322/1745	1:1	0.288	-0.16	22.83	24.00	1.309	0.377	22.7
Back side	20	QPSK 50_0	132322/1745	1:1	0.411	0.03	22.83	24.00	1.309	0.538	22.7
Left side	20	QPSK 50_0	132322/1745	1:1	0.180	0.00	22.83	24.00	1.309	0.236	22.7
Right side	20	QPSK 50_0	132322/1745	1:1	0.095	0.18	22.83	24.00	1.309	0.124	22.7
Bottom side	20	QPSK 50_0	132322/1745	1:1	0.545	-0.11	22.83	24.00	1.309	0.714	22.7
Ant 4 Test Record											
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(℃)
Head Test Data(1RB)											
Left cheek	20	QPSK 1_0	132322/1745	1:1	0.385	0.08	16.14	17.00	1.219	0.469	22.7
Left tilted	20	QPSK 1_0	132322/1745	1:1	0.479	0.15	16.14	17.00	1.219	0.584	22.7
Right cheek	20	QPSK 1_0	132322/1745	1:1	0.483	-0.12	16.14	17.00	1.219	0.589	22.7
Right tilted	20	QPSK 1_0	132322/1745	1:1	0.586	0.15	16.14	17.00	1.219	0.714	22.7
Head Test Data(50%RB)											
Left cheek	20	QPSK 50_0	132322/1745	1:1	0.387	-0.05	15.92	17.00	1.282	0.496	22.7
Left tilted	20	QPSK 50_0	132322/1745	1:1	0.483	-0.08	15.92	17.00	1.282	0.619	22.7

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Right cheek	20	QPSK 50_0	132322/1745	1:1	0.484	0.18	15.92	17.00	1.282	0.621	22.7
Right tilted	20	QPSK 50_0	132322/1745	1:1	0.590	0.04	15.92	17.00	1.282	0.757	22.7
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_0	132322/1745	1:1	0.319	0.15	23.65	24.50	1.216	0.388	22.7
Back side	20	QPSK 1_0	132322/1745	1:1	0.768	-0.10	23.65	24.50	1.216	0.934	22.7
Back side	20	QPSK 1_0	132072/1720	1:1	0.728	-0.14	23.57	24.50	1.239	0.902	22.7
Back side	20	QPSK 1_0	132572/1770	1:1	0.742	0.00	23.59	24.50	1.233	0.915	22.7
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_0	132322/1745	1:1	0.339	0.03	23.51	24.50	1.256	0.426	22.7
Back side	20	QPSK 50_0	132322/1745	1:1	0.805	-0.08	23.51	24.50	1.256	1.011	22.7
Back side - Repeat SAR	20	QPSK 50_0	132322/1745	1:1	0.803	0.05	23.51	24.50	1.256	1.009	22.7
Back side - 2# Battery	20	QPSK 50_0	132322/1745	1:1	0.769	0.05	23.51	24.50	1.256	0.966	22.7
Back side - 3# Battery	20	QPSK 50_0	132322/1745	1:1	0.777	0.01	23.51	24.50	1.256	0.976	22.7
Back side	20	QPSK 50_0	132072/1720	1:1	0.723	-0.12	23.49	24.50	1.262	0.912	22.7
Back side	20	QPSK 50_0	132572/1770	1:1	0.745	-0.19	23.50	24.50	1.259	0.938	22.7
Body worn Test data(Separate 15mm 100%RB)											
Back side	20	QPSK 100_0	132322/1745	1:1	0.724	-0.17	23.51	24.50	1.256	0.909	22.7
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_0	132322/1745	1:1	0.141	-0.02	16.14	17.00	1.219	0.172	22.7
Back side	20	QPSK 1_0	132322/1745	1:1	0.341	0.06	16.14	17.00	1.219	0.416	22.7
Left side	20	QPSK 1_0	132322/1745	1:1	0.001	0.19	16.14	17.00	1.219	0.001	22.7
Top side	20	QPSK 1_0	132322/1745	1:1	0.345	0.19	16.14	17.00	1.219	0.421	22.7
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_0	132322/1745	1:1	0.154	-0.19	15.92	17.00	1.282	0.197	22.7
Back side	20	QPSK 50_0	132322/1745	1:1	0.375	-0.18	15.92	17.00	1.282	0.481	22.7
Left side	20	QPSK 50_0	132322/1745	1:1	0.001	0.13	15.92	17.00	1.282	0.001	22.7
Top side	20	QPSK 50_0	132322/1745	1:1	0.376	0.19	15.92	17.00	1.282	0.482	22.7

Table 20： SAR of LTE Band 66 for Head and Body.

Test Position	Channel/ Frequency (MHz)	Measured SAR (1g)	1st Repeated SAR (1g)	Ratio	2nd Repeated SAR (1g)	3rd Repeated SAR (1g)
Back side	132322/1745	0.805	0.803	1.00249066	N/A	N/A
Note: 1) When the original highest measured SAR is ≥ 0.80 W/kg, the measurement was repeated once.						
2) A second repeated measurement was preformed only if the ratio of largest to smallest SAR for the original and first repeated measurements was > 1.20 or when the original or repeated measurement was ≥ 1.45 W/kg (~ 10% from the 1-g SAR limit).						
3) A third repeated measurement was preformed only if the original, first or second repeated measurement was ⩾ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.						
4) Repeated measurements are not required when the original highest measured SAR is < 0.80 W/kg						

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9.2.11 SAR Result of WIFI 2.4G

Wi-Fi 2.4G SAR Test Record											
Ant7 Test Record											
Test position	Test mode	Test ch./Freq.	Duty Cycle	Duty Cycle Scaled factor	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(℃)
Head Test data											
Left cheek	802.11g	6/2437	97.00%	1.031	0.286	-0.07	16.52	17.00	1.117	0.329	23
Left tilted	802.11g	6/2437	97.00%	1.031	0.224	0.05	16.52	17.00	1.117	0.258	23
Right cheek	802.11g	6/2437	97.00%	1.031	0.163	-0.16	16.52	17.00	1.117	0.188	23
Right tilted	802.11g	6/2437	97.00%	1.031	0.115	0.02	16.52	17.00	1.117	0.132	23
Body worn Test data(Separate 15mm)											
Front side	802.11g	6/2437	97.00%	1.031	0.048	-0.07	16.52	17.00	1.117	0.055	23
Back side	802.11g	6/2437	97.00%	1.031	0.074	0.01	16.52	17.00	1.117	0.085	23
Hotspot Test data (Separate 10mm)											
Front side	802.11g	6/2437	97.00%	1.031	0.075	0.06	16.52	17.00	1.117	0.086	23
Back side	802.11g	6/2437	97.00%	1.031	0.147	0.02	16.52	17.00	1.117	0.169	23
Right side	802.11g	6/2437	97.00%	1.031	0.081	0.08	16.52	17.00	1.117	0.093	23
Top side	802.11g	6/2437	97.00%	1.031	0.043	0.04	16.52	17.00	1.117	0.050	23

Table 21： SAR of WIFI 2.4G for Head and Body.

Note: When the highest reported SAR for the initial test configuration is adjusted by the ratio of the subsequent test configuration to initial test configuration specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg, SAR test for the other 802.11 modes are not required.

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9.2.1 SAR Result of WIFI 5G

Wi-Fi 5G SAR Test Record											
Ant7 Test Record											
Test position	**Test mode**	**Test ch./Freq.**	**Duty Cycle**	**Duty Cycle Scaled factor**	**SAR (W/kg) 1-g**	**Power drift (dB)**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaled factor**	**Scaled SAR 1-g (W/kg)**	**Liquid Temp.(℃)**
Head Test data of U-NII-2A Receiver on											
Left cheek	802.11a	60/5300	96.94%	1.032	0.340	0.07	12.23	12.50	1.064	0.373	23
Left tilted	802.11a	60/5300	96.94%	1.032	0.440	-0.02	12.23	12.50	1.064	0.483	23
Right cheek	802.11a	60/5300	96.94%	1.032	0.199	-0.16	12.23	12.50	1.064	0.218	23
Right tilted	802.11a	60/5300	96.94%	1.032	0.245	0.06	12.23	12.50	1.064	0.269	23
Head Test data of U-NII-2C Receiver on											
Left cheek	802.11a	116/5580	96.92%	1.032	0.429	-0.10	14.30	14.50	1.047	0.463	23
Left tilted	802.11a	116/5580	96.92%	1.032	0.524	0.04	14.30	14.50	1.047	0.566	23
Right cheek	802.11a	116/5580	96.92%	1.032	0.360	-0.05	14.30	14.50	1.047	0.389	23
Right tilted	802.11a	116/5580	96.92%	1.032	0.413	-0.18	14.30	14.50	1.047	0.446	23
Head Test data of U-NII-3 Receiver on											
Left cheek	802.11a	157/5785	96.86%	1.032	0.340	0.18	15.68	16.00	1.076	0.378	23
Left tilted	802.11a	157/5785	96.86%	1.032	0.426	-0.04	15.68	16.00	1.076	0.473	23
Right cheek	802.11a	157/5785	96.86%	1.032	0.334	-0.06	15.68	16.00	1.076	0.371	23
Right tilted	802.11a	157/5785	96.86%	1.032	0.404	0.17	15.68	16.00	1.076	0.449	23
Body worn Test data of U-NII-2A(Separate 15mm)											
Front side	802.11a	60/5300	96.94%	1.032	0.101	0.13	16.58	17.00	1.102	0.115	23
Back side	802.11a	60/5300	96.94%	1.032	0.453	0.01	16.58	17.00	1.102	0.515	23
Body worn Test data of U-NII-2C(Separate 15mm)											
Front side	802.11a	116/5580	96.92%	1.032	0.082	-0.14	16.51	17.00	1.119	0.095	23
Back side	802.11a	116/5580	96.92%	1.032	0.351	-0.05	16.51	17.00	1.119	0.405	23
Body worn Test data of U-NII-3(Separate 15mm)											
Front side	802.11a	157/5785	96.86%	1.032	0.061	0.19	16.46	17.00	1.132	0.071	23
Back side	802.11a	157/5785	96.86%	1.032	0.277	0.01	16.46	17.00	1.132	0.324	23
Hotspot Test data of U-NII-1(Separate 10mm)											
Front side	802.11a	40/5200	96.94%	1.032	0.144	-0.11	16.46	17.00	1.132	0.168	23
Back side	802.11a	40/5200	96.94%	1.032	0.655	0.01	16.46	17.00	1.132	0.765	23
Right side	802.11a	40/5200	96.94%	1.032	0.127	-0.01	16.46	17.00	1.132	0.148	23
Top side	802.11a	40/5200	96.94%	1.032	0.619	0.16	16.46	17.00	1.132	0.723	23
Hotspot Test data of U-NII-3(Separate 10mm)											
Front side	802.11a	157/5785	96.86%	1.032	0.104	-0.01	16.46	17.00	1.132	0.122	23
Back side	802.11a	157/5785	96.86%	1.032	0.382	-0.09	16.46	17.00	1.132	0.447	23
Right side	802.11a	157/5785	96.86%	1.032	0.117	0.14	16.46	17.00	1.132	0.137	23
Top side	802.11a	157/5785	96.86%	1.032	0.322	-0.16	16.46	17.00	1.132	0.376	23
Test position	**Test mode**	**Test ch./Freq.**	**Duty Cycle**	**Duty Cycle Scaled factor**	**SAR (W/kg) 10-g**	**Power drift (dB)**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaled factor**	**Scaled SAR 10-g (W/kg)**	**Liquid Temp.(℃)**
Product specific 10gSAR Test data of U-NII-2A(Separate 0mm)											
Front side	802.11a	60/5300	96.94%	1.032	0.360	-0.19	16.58	17.00	1.102	0.409	23
Back side	802.11a	60/5300	96.94%	1.032	0.727	-0.04	16.58	17.00	1.102	0.826	23
Right side	802.11a	60/5300	96.94%	1.032	0.207	0.07	16.58	17.00	1.102	0.235	23

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Top side	802.11a	60/5300	96.94%	1.032	1.270	0.11	16.58	17.00	1.102	1.443	23
Top side - 2# Battery	802.11a	60/5300	96.94%	1.032	1.050	0.02	16.58	17.00	1.102	1.193	23
Top side - 3# Battery	802.11a	60/5300	96.94%	1.032	1.130	0.07	16.58	17.00	1.102	1.284	23
Product specific 10gSAR Test data of U-NII-2C(Separate 0mm)											
Front side	802.11a	116/5580	96.92%	1.032	0.307	-0.05	16.51	17.00	1.119	0.355	23
Back side	802.11a	116/5580	96.92%	1.032	0.626	-0.04	16.51	17.00	1.119	0.723	23
Right side	802.11a	116/5580	96.92%	1.032	0.218	-0.13	16.51	17.00	1.119	0.252	23
Top side	802.11a	116/5580	96.92%	1.032	1.220	0.06	16.51	17.00	1.119	1.409	23

Table 22： SAR of WIFI 5G for Head and Body.

Note:

1) As the 802.11a highest reported SAR is smaller than 1.2 W/kg , and the tune-up of the other 802.11 modes are not higher than 802.11a,therefore the adjusted SAR is ≤ 1.2 W/kg for other 802.11 modes, SAR test for the other 802.11 modes are not required. For Product specific 10gSAR the highest reported SAR is smaller than 3.0 W/kg, SAR test for the other 802.11 modes are also not required.

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9.2.2 SAR Result of BT

Bluetooth SAR Test Record											
Ant7 Test Record											
Test position	Test mode	Test ch./Freq.	Duty Cycle	Duty Cycle Scaled factor	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(℃)
Head Test data											
Left cheek	DH5	78/2480	77.10%	1.297	0.047	-0.05	10.52	12.00	1.406	0.086	23
Left tilted	DH5	78/2480	77.10%	1.297	0.035	0.01	10.52	12.00	1.406	0.064	23
Right cheek	DH5	78/2480	77.10%	1.297	0.031	0.16	10.52	12.00	1.406	0.057	23
Right tilted	DH5	78/2480	77.10%	1.297	0.025	0.02	10.52	12.00	1.406	0.046	23
Body worn Test data(Separate 15mm)											
Front side	DH5	78/2480	77.10%	1.297	0.007	0.03	10.52	12.00	1.406	0.013	23
Back side	DH5	78/2480	77.10%	1.297	0.014	-0.04	10.52	12.00	1.406	0.026	23
Hotspot Test data (Separate 10mm)											
Front side	DH5	78/2480	77.10%	1.297	0.015	-0.16	10.52	12.00	1.406	0.027	23
Back side	DH5	78/2480	77.10%	1.297	0.028	-0.15	10.52	12.00	1.406	0.051	23
Right side	DH5	78/2480	77.10%	1.297	0.025	0.05	10.52	12.00	1.406	0.046	23
Top side	DH5	78/2480	77.10%	1.297	0.011	0.07	10.52	12.00	1.406	0.020	23

Table 23： SAR of BT for Head and Body.

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9.2.3 SAR Result of NFC

NFC SAR Test Record									
Test position	Test mode	Test ch./Freq.	Duty Cycle	Duty Cycle Scaled factor	SAR (W/kg) 10-g	Power drift (dB)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(℃)
NFC Test data (Separate 0mm)									
Front side	NFC	13.56MHz	100.00%	1.000	0.001	0.03	1.000	0.001	22.6
Back side	NFC	13.56MHz	100.00%	1.000	0.011	0.01	1.000	0.011	22.6
Left side	NFC	13.56MHz	100.00%	1.000	0.001	0.05	1.000	0.001	22.6
Right side	NFC	13.56MHz	100.00%	1.000	0.001	0.01	1.000	0.001	22.6
Top side	NFC	13.56MHz	100.00%	1.000	0.001	0.09	1.000	0.001	22.6
Bottom side	NFC	13.56MHz	100.00%	1.000	0.001	0.03	1.000	0.001	22.6

Table 24： SAR of NFC for Body.

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9.3 Multiple Transmitter Evaluation

9.3.1 Simultaneous SAR SAR test evaluation

•Simultaneous Transmission Possibilities

NO	Simultaneous Tx Combination	Head	Body- worn	Hotspot	Product Specific 10-g (0mm)
1	WWAN+WLAN2.4GHz	Y	Y	Y	Y
2	WWAN+WLAN5GHz+BT	Y	Y	Y	Y

Note:

1) Per FCC KDB Publication 648474 D04 Handset SAR, Phablet SAR tests were not required it wireless router 1g SAR(Scaled to the maximum output power ,including tolerance) ＜ 1.2 W/Kg. Therefore, no further analysis beyond tables included in this section was required to determine that possible Simultaneous transmission scenarios would not exceed the SAR limit.

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9.3.2 Simultaneous Transmission SAR Summation Scenario

Head:

Test position		SARmax (W/kg)				Summed SAR	
		Main	WiFi 2.4G	WiFi 5G	BT		
		1	2	3	4	1+2	1+3+4
GSM850	Left cheek	0.624	0.329	0.463	0.086	0.953	1.173
	Left tilted	0.545	0.258	0.566	0.064	0.803	1.175
	Right cheek	0.692	0.188	0.389	0.057	0.880	1.138
	Right tilted	0.561	0.132	0.449	0.046	0.693	1.056
GSM1900	Left cheek	0.516	0.329	0.463	0.086	0.845	1.065
	Left tilted	0.650	0.258	0.566	0.064	0.908	1.280
	Right cheek	0.677	0.188	0.389	0.057	0.865	1.123
	Right tilted	0.884	0.132	0.449	0.046	1.016	1.379
WCDMA II	Left cheek	0.638	0.329	0.463	0.086	0.967	1.187
	Left tilted	0.798	0.258	0.566	0.064	1.056	1.428
	Right cheek	0.867	0.188	0.389	0.057	1.055	1.313
	Right tilted	1.053	0.132	0.449	0.046	1.185	1.548
WCDMA IV	Left cheek	0.567	0.329	0.463	0.086	0.896	1.116
	Left tilted	0.694	0.258	0.566	0.064	0.952	1.324
	Right cheek	0.706	0.188	0.389	0.057	0.894	1.152
	Right tilted	0.839	0.132	0.449	0.046	0.971	1.334
WCDMA V	Left cheek	0.925	0.329	0.463	0.086	1.254	1.474
	Left tilted	0.795	0.258	0.566	0.064	1.053	1.425
	Right cheek	0.949	0.188	0.389	0.057	1.137	1.395
	Right tilted	0.726	0.132	0.449	0.046	0.858	1.221
LTE Band 2	Left cheek	0.490	0.329	0.463	0.086	0.819	1.039
	Left tilted	0.636	0.258	0.566	0.064	0.894	1.266
	Right cheek	0.646	0.188	0.389	0.057	0.834	1.092
	Right tilted	0.796	0.132	0.449	0.046	0.928	1.291
LTE Band 5	Left cheek	0.988	0.329	0.463	0.086	1.317	1.537
	Left tilted	0.894	0.258	0.566	0.064	1.152	1.524
	Right cheek	1.085	0.188	0.389	0.057	1.273	1.531
	Right tilted	0.832	0.132	0.449	0.046	0.964	1.327
LTE Band 7	Left cheek	0.498	0.329	0.463	0.086	0.827	1.047
	Left tilted	0.634	0.258	0.566	0.064	0.892	1.264
	Right cheek	0.987	0.188	0.389	0.057	1.175	1.433
	Right tilted	1.012	0.132	0.449	0.046	1.144	1.507
LTE Band 41	Left cheek	0.291	0.329	0.463	0.086	0.620	0.840
	Left tilted	0.421	0.258	0.566	0.064	0.679	1.051
	Right cheek	0.463	0.188	0.389	0.057	0.651	0.909
	Right tilted	0.495	0.132	0.449	0.046	0.627	0.990
LTE Band 66	Left cheek	0.496	0.329	0.463	0.086	0.825	1.045
	Left tilted	0.619	0.258	0.566	0.064	0.877	1.249
	Right cheek	0.621	0.188	0.389	0.057	0.809	1.067
	Right tilted	0.757	0.132	0.449	0.046	0.889	1.252

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Simultaneous Transmission SAR Summation Scenario for WLAN Body:
Body-worn:

Test position		SARmax (W/kg)				Summed SAR	
		Main	WiFi 2.4G	WiFi 5G	BT		
		1	2	3	4	1+2	1+3+4
GSM850	Front side	0.106	0.055	0.115	0.013	0.161	0.234
	Back side	0.128	0.085	0.515	0.026	0.213	0.669
GSM1900	Front side	0.137	0.055	0.115	0.013	0.192	0.265
	Back side	0.404	0.085	0.515	0.026	0.489	0.945
WCDMA II	Front side	0.397	0.055	0.115	0.013	0.452	0.525
	Back side	1.010	0.085	0.515	0.026	1.095	1.551
WCDMA IV	Front side	0.387	0.055	0.115	0.013	0.442	0.515
	Back side	0.936	0.085	0.515	0.026	1.021	1.477
WCDMA V	Front side	0.176	0.055	0.115	0.013	0.231	0.304
	Back side	0.308	0.085	0.515	0.026	0.393	0.849
LTE Band 2	Front side	0.391	0.055	0.115	0.013	0.446	0.519
	Back side	0.792	0.085	0.515	0.026	0.877	1.333
LTE Band 5	Front side	0.183	0.055	0.115	0.013	0.238	0.311
	Back side	0.288	0.085	0.515	0.026	0.373	0.829
LTE Band 7	Front side	0.489	0.055	0.115	0.013	0.544	0.617
	Back side	0.793	0.085	0.515	0.026	0.878	1.334
LTE Band 41	Front side	0.287	0.055	0.115	0.013	0.342	0.415
	Back side	0.568	0.085	0.515	0.026	0.653	1.109
LTE Band 66	Front side	0.426	0.055	0.115	0.013	0.481	0.554
	Back side	1.011	0.085	0.515	0.026	1.096	1.552

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Hotspot:

Test position		SARmax (W/kg)				Summed SAR	
		Main	WiFi 2.4G	WiFi 5G	BT		
		1	2	3	4	1+2	1+3+4
GSM850	Front side	0.180	0.086	0.168	0.027	0.266	0.375
	Back side	0.318	0.169	0.765	0.051	0.487	1.134
	Left side	0.097	0.000	0.000	0.000	0.097	0.097
	Right side	0.137	0.093	0.148	0.046	0.230	0.331
	Top side	0.174	0.050	0.723	0.020	0.224	0.917
	Bottom side	0.190	0.000	0.000	0.000	0.190	0.190
GSM1900	Front side	0.242	0.086	0.168	0.027	0.328	0.437
	Back side	0.471	0.169	0.765	0.051	0.640	1.287
	Left side	0.175	0.000	0.000	0.000	0.175	0.175
	Right side	0.000	0.093	0.148	0.046	0.093	0.194
	Top side	0.484	0.050	0.723	0.020	0.534	1.227
	Bottom side	0.399	0.000	0.000	0.000	0.399	0.399
WCDMA II	Front side	0.430	0.086	0.168	0.027	0.516	0.625
	Back side	0.675	0.169	0.765	0.051	0.844	1.491
	Left side	0.316	0.000	0.000	0.000	0.316	0.316
	Right side	0.088	0.093	0.148	0.046	0.181	0.282
	Top side	0.640	0.050	0.723	0.020	0.690	1.383
	Bottom side	0.794	0.000	0.000	0.000	0.794	0.794
WCDMA IV	Front side	0.266	0.086	0.168	0.027	0.352	0.461
	Back side	0.462	0.169	0.765	0.051	0.631	1.278
	Left side	0.146	0.000	0.000	0.000	0.146	0.146
	Right side	0.081	0.093	0.148	0.046	0.174	0.275
	Top side	0.466	0.050	0.723	0.020	0.516	1.209
	Bottom side	0.648	0.000	0.000	0.000	0.648	0.648
WCDMA V	Front side	0.305	0.086	0.168	0.027	0.391	0.500
	Back side	0.532	0.169	0.765	0.051	0.701	1.348
	Left side	0.168	0.000	0.000	0.000	0.168	0.168
	Right side	0.253	0.093	0.148	0.046	0.346	0.447
	Top side	0.207	0.050	0.723	0.020	0.257	0.950
	Bottom side	0.415	0.000	0.000	0.000	0.415	0.415
LTE Band 2	Front side	0.470	0.086	0.168	0.027	0.556	0.665
	Back side	0.752	0.169	0.765	0.051	0.921	1.568
	Left side	0.367	0.000	0.000	0.000	0.367	0.367
	Right side	0.101	0.093	0.148	0.046	0.194	0.295
	Top side	0.511	0.050	0.723	0.020	0.561	1.254
	Bottom side	0.785	0.000	0.000	0.000	0.785	0.785
LTE Band 5	Front side	0.257	0.086	0.168	0.027	0.343	0.452
	Back side	0.455	0.169	0.765	0.051	0.624	1.271
	Left side	0.147	0.000	0.000	0.000	0.147	0.147
	Right side	0.218	0.093	0.148	0.046	0.311	0.412
	Top side	0.183	0.050	0.723	0.020	0.233	0.926
	Bottom side	0.319	0.000	0.000	0.000	0.319	0.319
LTE Band 7	Front side	0.260	0.086	0.168	0.027	0.346	0.455
	Back side	0.481	0.169	0.765	0.051	0.650	1.297
	Left side	0.220	0.000	0.000	0.000	0.220	0.220
	Right side	0.052	0.093	0.148	0.046	0.145	0.246
	Top side	0.575	0.050	0.723	0.020	0.625	1.318
	Bottom side	0.666	0.000	0.000	0.000	0.666	0.666
LTE Band 41	Front side	0.204	0.086	0.168	0.027	0.290	0.399
	Back side	0.342	0.169	0.765	0.051	0.511	1.158

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	Left side	0.147	0.000	0.000	0.000	0.147	0.147
	Right side	0.042	0.093	0.148	0.046	0.135	0.236
	Top side	0.389	0.050	0.723	0.020	0.439	1.132
	Bottom side	0.531	0.000	0.000	0.000	0.531	0.531
LTE Band 66	Front side	0.377	0.086	0.168	0.027	0.463	0.572
	Back side	0.538	0.169	0.765	0.051	0.707	1.354
	Left side	0.236	0.000	0.000	0.000	0.236	0.236
	Right side	0.124	0.093	0.148	0.046	0.217	0.318
	Top side	0.482	0.050	0.723	0.020	0.532	1.225
	Bottom side	0.715	0.000	0.000	0.000	0.715	0.715

检验检测专用章
Inspection & Testing Services
SGS-CSTC Standards Technical Services (Suzhou) Co., Ltd.
Wireless Laboratory

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10 Equipment list

Test Platform		SPEAG DASY5 Professional				
Description		SAR Test System (Frequency range 10MHz-6GHz)				
Software Reference		DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)				
Hardware Reference						
Equipment		Manufacturer	Model	Serial Number	Calibration Date	Due date of calibration
☒	E-Field Probe	SPEAG	EX3DV4	3962	2023-06-29	2024-06-28
☒	E-Field Probe	SPEAG	EX3DV4	7735	2023-12-19	2024-12-18
☒	Twin Phantom	SPEAG	SAM 8	1824	NCR	NCR
☒	Twin Phantom	SPEAG	ELI5	1143	NCR	NCR
☒	DAE	SPEAG	DAE4	1324	2023-12-08	2024-12-07
☒	DAE	SPEAG	DAE4	1327	2023-11-17	2024-11-16
☒	Validation Kits	SPEAG	CLA13	1032	2023-02-09	2026-02-08
☒	Validation Kits	SPEAG	D835V2	4d161	2023-08-25	2026-08-24
☒	Validation Kits	SPEAG	D1750V2	1038	2021-12-16	2024-12-15
☒	Validation Kits	SPEAG	D1950V3	1218	2023-05-04	2026-05-03
☒	Validation Kits	SPEAG	D2450V2	922	2023-08-28	2026-08-27
☒	Validation Kits	SPEAG	D2600V2	1180	2021-05-12	2024-05-11
☒	Validation Kits	SPEAG	D5GHzV2	1313	2022-01-25	2025-01-24
☒	Dielectric parameter probes	SPEAG	DAKS-3.5	1120	2023-06-06	2024-06-05
☒	Vector Network Analyzer and Vector Reflectometer	SPEAG	DAKS_VNA R140	0050920	2023-06-06	2024-06-05
☒	Universal Radio Communication Tester	R&S	CMW500	111637	2023-09-13	2024-09-12
☒	RF Bi-Directional Coupler	Agilent	86205-60001	MY31400031	NCR	NCR
☒	Signal Generator	R&S	SMB100A	182393	2024-02-05	2025-02-04
☒	Preamplifier	Qiji	YX28980933	202104001	NCR	NCR
☒	Power Sensor	Keysight	U2002H	121251	2023-09-13	2024-09-12
☒	Attenuator	SHX	TS2-3dB	30704	NCR	NCR
☒	Coaxial low pass filter	Mini-Circuits	VLF-2500(+)	NA	NCR	NCR
☒	Coaxial low pass filter	Microlab Fxr	LA-F13	NA	NCR	NCR
☒	DC POWER SUPPLY	SAKO	SK1730SL5A	NA	NCR	NCR
☒	Speed reading thermometer	LKM	DTM3000	SUW201-19-02	2023-09-15	2024-09-14
☒	Humidity and Temperature Indicator	MingGao	MingGao	NA	2023-09-15	2024-09-14

Note: All the equipments are within the valid period when the tests are performed.

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11 Calibration certificate

Please see the Appendix C

12 Photographs

Please see the Appendix D

Appendix A: Detailed System Check Results

Appendix B: Detailed Test Results

Appendix C: Calibration certificate

Appendix D: Photographs

Appendix E: Conducted RF Output Power

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