FCC SAR TEST REPORT

Application No:	ZR/2020/30006
Applicant:	Samsung Electronics. Co., Ltd.
Manufacturer:	Samsung Electronics. Co., Ltd.
Product Name:	Mobile phone
Model No.(EUT):	SM-S111DL, SM-A015U1
Trade Mark:	SAMSUNG
FCC ID:	ZCASMS111DL
Standards:	FCC 47CFR §2.1093
Date of Receipt:	2020-03-04
Date of Test:	2020-03-06 to 2020-03-27
Date of Issue:	2020-03-28
Test Result:	**PASS ***

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

Authorized Signature:

Derek Yang

Wireless Laboratory Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

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REVISION HISTORY

Report Number	Revision	Description	Issue Date
ZR/2020/3000601	01	Original	2020-03-24
ZR/2020/3000601	02	1st revised	2020-03-28

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Shenzhen Branch Testing Center, EEC Laboratory.
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TEST SUMMARY

Frequency Band	Maximum Reported SAR1g(W/kg)		
	Head	Body-worn	Hotspot
GSM850	0.50	0.62	0.70
GSM1900	0.39	0.24	0.71
WCDMA Band II	0.29	0.52	0.91
WCDMA Band IV	0.13	0.80	0.93
WCDMA Band V	0.45	0.55	0.61
LTE Band 2	0.34	0.45	1.02
LTE Band 4	0.18	0.66	1.08
LTE Band 5	**0.66**	0.63	0.74
LTE Band 7	0.24	0.61	**1.12**
LTE Band 12	0.34	0.43	0.61
LTE Band 13	0.42	0.50	0.54
LTE Band 14	0.38	0.43	0.48
LTE Band 66	0.19	0.68	1.05
LTE Band 71	0.45	0.42	0.47
WI-FI (2.4GHz)	0.48	0.08	0.21
WI-FI (5GHz)	0.35	**1.04**	1.11
BT	/	/	/
SAR Limited(W/kg)	1.6		
Maximum Simultaneous Transmission SAR (W/kg)			
Scenario	Head	Body-worn	Hotspot
Sum SAR	1.14	1.58	1.58
SPLSR	N/A	0.04	0.04
SPLSR Limited	0.04		

Approved & Released by

Simon Ling

SAR Manager

Tested by

Jackson Li

SAR Engineer

CONTENTS

1 General Information

1.1 Details of Client

Applicant:	Samsung Electronics. Co., Ltd.
Address:	19 Chapin Rd.,Building D Pine Brook, NJ 07058
Manufacturer:	Samsung Electronics. Co., Ltd.
Address:	Samsung R5, Maetan dong 129, Samsung ro Youngtong gu, Suwon city 443 742, Korea

1.2 Test Location

Company: SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch E&E Lab

Address: No. 1 Workshop, M-10, Middle section, Science & Technology Park, Shenzhen, Guangdong, China

Post code: 518057

Telephone: +86 (0) 755 2601 2053

Fax: +86 (0) 755 2671 0594

E-mail: ee.shenzhen@sgs.com

1.3 Test Facility

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

• CNAS (No. CNAS L2929)

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

• A2LA (Certificate No. 3816.01)

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation (A2LA). Certificate No. 3816.01.

• VCCI

The 10m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-823, R-4188, T-1153 and C-2383 respectively.

• FCC –Designation Number: CN1178

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

• Industry Canada (IC)

Two 3m Semi-anechoic chambers and the 10m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1, 4620C-2, 4620C-3.

1.4 General Description of EUT

Product Name:	Mobile phone		
Model No.(EUT):	SM-S111DL, SM-A015U1		
Trade Mark:	SAMSUNG		
Product Phase:	production unit		
Device Type:	portable device		
Exposure Category:	uncontrolled environment / general population		
SN:	R9GM8009XQJ/ R9JMC05LSHJ/ R9JMC05LSEJ/ R9JMC05LJFJ		
FCC ID:	ZCASMS111DL		
Hardware Version:	REV3.0		
Software Version:	S111DL.001(S111DLUDE0ATB3) A015U1.001(A015U1UEE0ATC2)		
Antenna Type:	Inner Antenna		
Device Operating Configurations:			
Modulation Mode:	**GSM:** GMSK, 8PSK; **WCDMA**: QPSK; **LTE:** QPSK,16QAM, 64QAM; **WIFI:** DSSS; OFDM; **BT:** GFSK, π/4DQPSK,8DPSK		
Device Class:	B		
GPRS Multi-slots Class:	33	EGPRS Multi-Slots Class:	33
HSDPA UE Category:	14	HSUPA UE Category	6
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 II/IV/V)		
	3, tested with power control Max Power(LTE Band 2/4/5/7/12/13/14/66/71)		
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 12	699~716	729~746
	LTE Band 13	777~787	746~756
	LTE Band 14	788~798	758~768
	LTE Band 66	1710~1780	2110~2180
	LTE Band 71	663~698	617~652
	WIFI(2.4GHz)	2412~2462	2412~2462
	WIFI(5GHz)	5150~5250	5150~5250
		5250~5350	5250~5350
		5470~5725	5470~5725
		5725~5850	5725~5850
	BT	2402~2480	2402~2480

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Battery Information:	Model:	QL1695
	Normal Voltage:	3.85V
	Rated capacity:	3000mAh
	Manufacturer:	Ningde Amperex Technology Limited
Headset Information:	Model:	EHS61ASFWE
	Manufacturer:	DONGGUAN YOUNGBO ELECTRONICS CO.,LTD

Remark:

The only difference between the SM-A015U1 and the SM-S111DL is:

Model	SM-S111DL	SM-A015U1
HW version	REV3.0	REV3.0
SW version	S111DL.001	A015U1.001

1. H/W

SM-A015U1 and SM-S111DL both have the same HW design;

2. S/W

- There is no Protocol Stack related changes.

- All applications of SUPL, AGPS, RCS, VoLTE, MMS, SMS, DM, FUMO, USAT/ USIM feature is same as base.

Considering to the difference, we were only tested the SM-S111DL model in this report for SAR test, and the SM-A015U1 model refer to the report of the SM-S111DL model.

1.4.1 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) This device uses the receiver to indicate whether the user is making a voice call in head scenario or not. The selection between head and body power levels is based on the receiver detection mechanism. A fixed level power reduction is applied for some frequency bands when the audio receiver is on.

2) 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 3.3 for detailed proximity Sensor information and validation data per KDB 616217).

The following tables summarize the key power reduction information. The detailed full power which is the Max. power the state can use and reduced tune-up specifications and conducted power measurement results are provided in Section 5.3 of this report.

Main antenna Power Reduction Level Amount (dB)							
Power Reduction Scenario	GSM1900	WCDMA Band II	WCDMA Band IV	LTE Band 2	LTE Band 4	LTE Band 7	LTE Band 66
Sensor off	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sensor on	3.5	3.7	4.7	3.2	5.2	3.5	5.7

WWLN antenna Power Reduction Level Amount (dB)			
Power Reduction Scenario	WiFi2.4G	WiFi5G(Ch36~142)	WiFi5G(Ch149~165)
Receiver off	0.0	0.0	0.0
Receiver on	1.0	2.5	0.5

1.5 Test Specification

Identity	Document Title
FCC 47CFR §2.1093	Radiofrequency Radiation Exposure Evaluation: Portable Devices
ANSI/IEEE Std 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
KDB 941225 D01	3G SAR Measurement Procedures v03r01
KDB 941225 D05	SAR for LTE Devices v02r05
KDB 941225 D06	Hotspot Mode SAR v02r01
KDB 248227 D01	SAR Guidance for IEEE 802 11 Wi-Fi SAR v02r02
KDB 447498 D01	General RF Exposure Guidance v06
KDB 865664 D01	SAR Measurement 100 MHz to 6 GHz v01r04
KDB 865664 D02	RF Exposure Reporting v01r02
KDB 616217 D04	SAR for laptop and tablets v01r02

1.6 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.)

2 SAR Measurements System Configuration

2.1 The SAR Measurement System

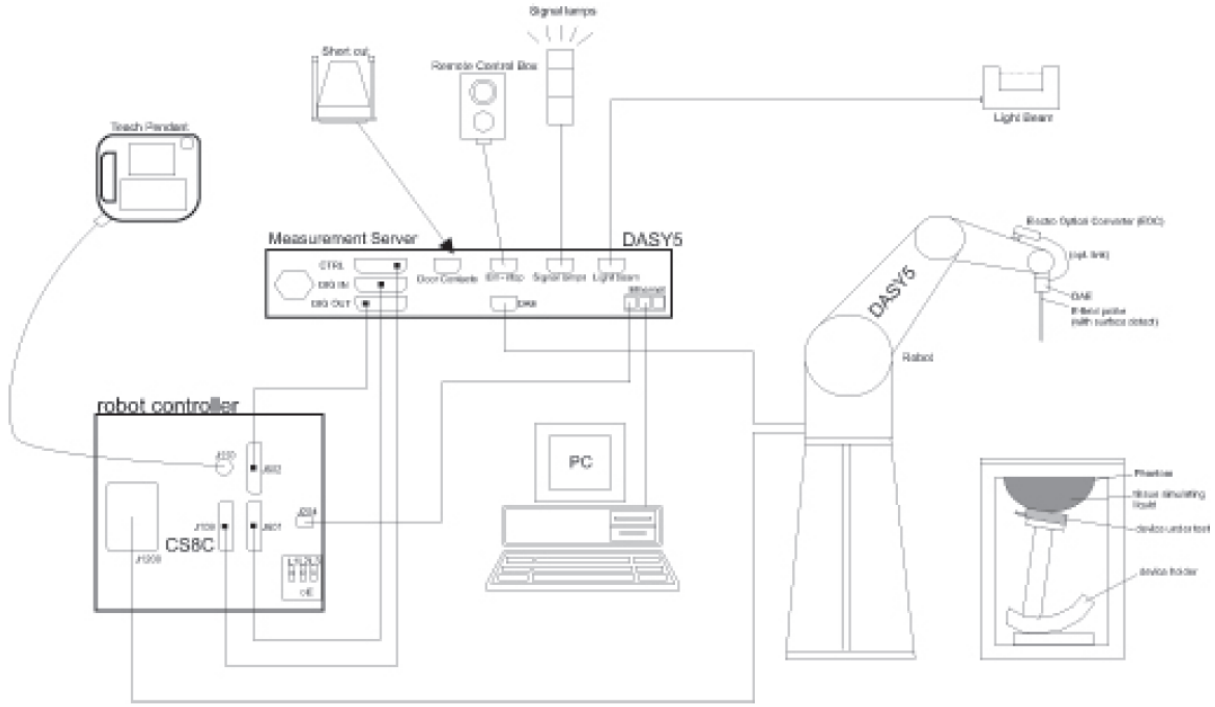
This SAR Measurement System uses a Computer-controlled 3-D stepper motor system (SPEAG DASY5 professional system). A E-field probe is used to determine the internal electric fields. The SAR can be obtained from the equation SAR= σ (|Ei|2)/ ρ where σ and ρ are the conductivity and mass density of the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

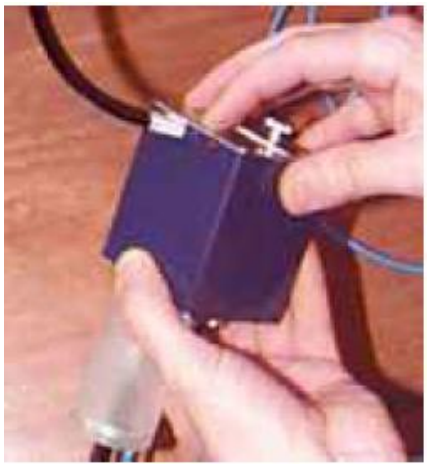
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- A probe alignment unit which improves the (absolute) accuracy of the probe positioning.
- A computer operating Windows 7.
- DASY5 software.
- 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.

2.2 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

2.3 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



2.4 SAM Twin Phantom

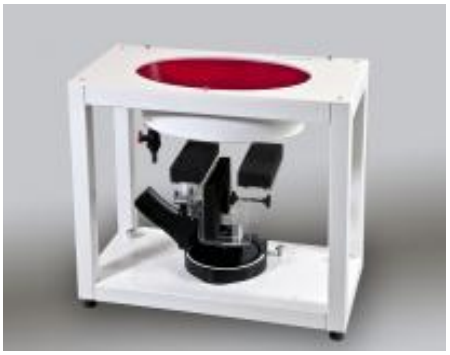
Material	Vinylester, glass fiber reinforced (VE-GF)
Liquid Compatibility	Compatible with all SPEAG tissue simulating liquids (incl. DGBE type)
Shell Thickness	2 ± 0.2 mm (6 ± 0.2 mm at ear point)
Dimensions (incl. Wooden Support)	Length: 1000 mm Width: 500 mm Height: adjustable feet
Filling Volume	approx.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

2.5 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



Phantom for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI is fully compatible with the IEC 62209-2 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 SPEAG dosimetric probes and dipoles.

ELI V5.0 has the same shell geometry and is manufactured from the same material as ELI4, but has reinforced top structure.

2.6 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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2.7 Measurement procedure

2.7.1 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 30mm*30mm*30mm (fine resolution volume scan, zoom scan) was assessed by measuring 5x5x7 points (≤2GHz) and 7x7x7 points (≥2GHz). 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.

			≤ 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

Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details.

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

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 %

2.7.2 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 “DAE”. 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.

2.7.3 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:

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

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.

$$P_{pwe} = E_{tot}{}^2{}_2 / 3770 \text{ or } \quad P_{pwe} = H_{tot}^2 \cdot 37.7$$

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

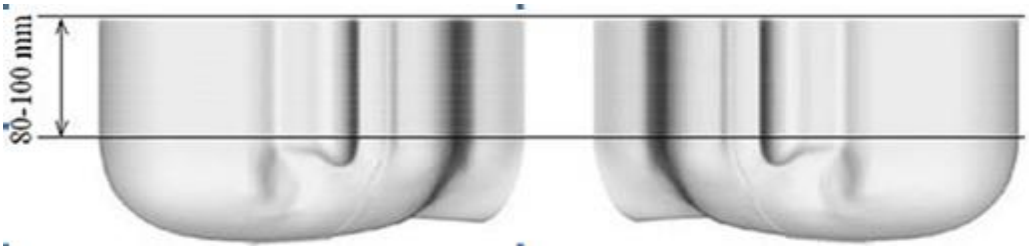
3 Description of Test Position

3.1 Head Exposure Condition

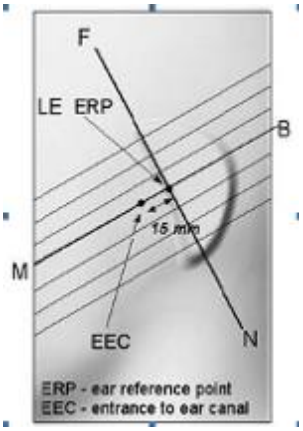
3.1.1 SAM Phantom Shape

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.

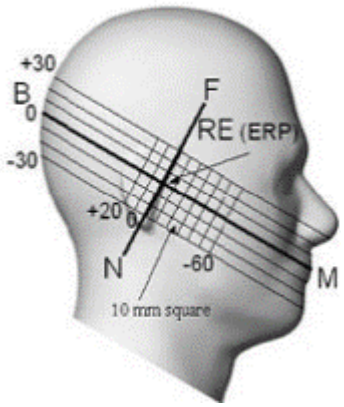
Note: The centre strip including the nose region has a different thickness tolerance.



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

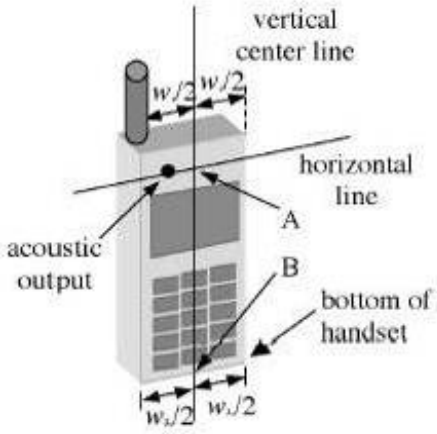


F-5. Close-up side view of phantom, showing the ear region, N-F and B-M lines, and seven cross-sectional plane locations

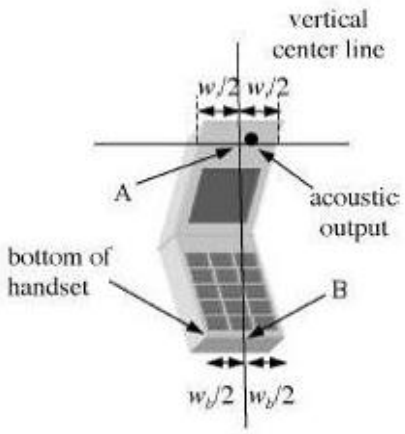


F-6. Side view of the phantom showing relevant markings and seven cross-sectional plane locations

3.1.2 EUT constructions



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



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

3.1.3 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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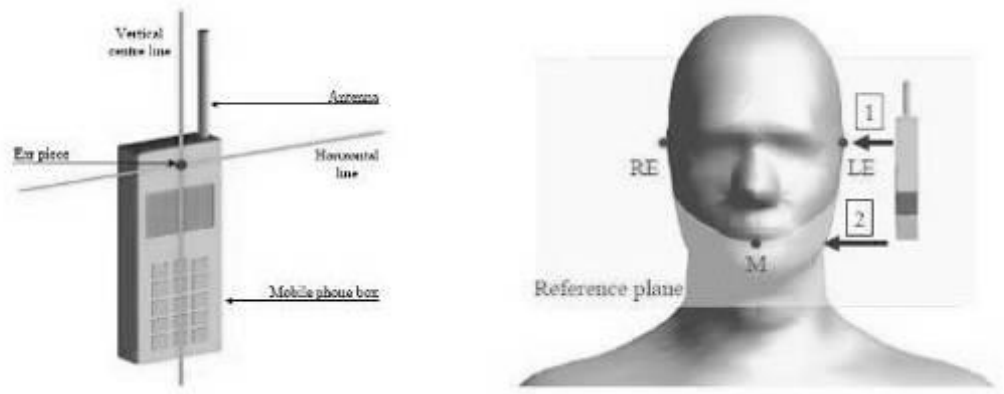
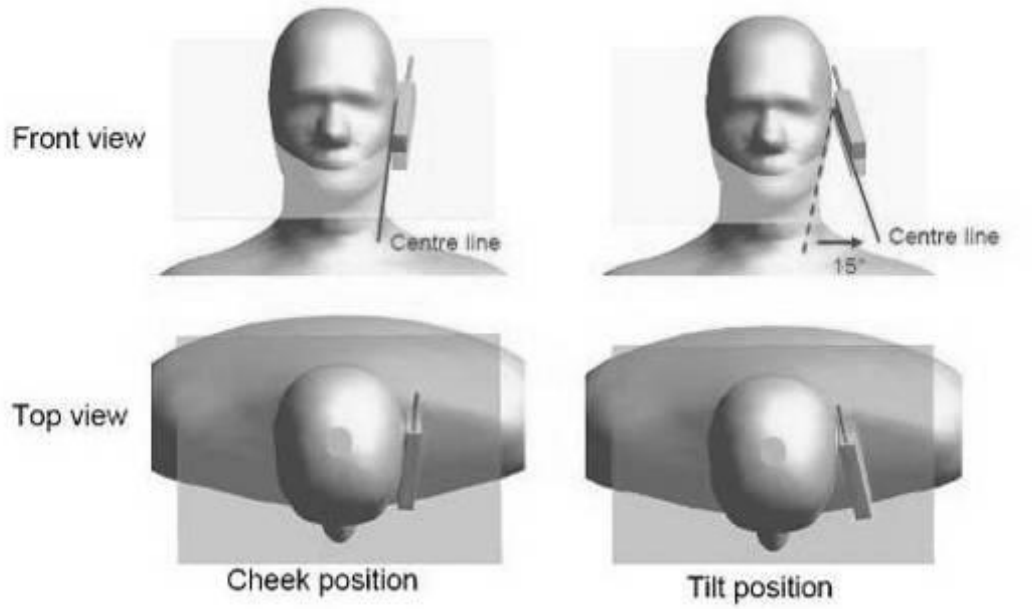
3.1.4 Definition of the "tilted" position

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**

3.2 Body Exposure Condition

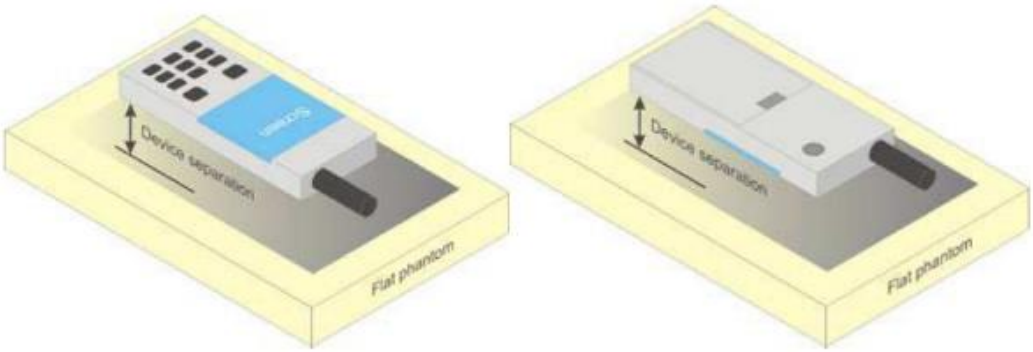
3.2.1 Body-worn accessory exposure conditions

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**

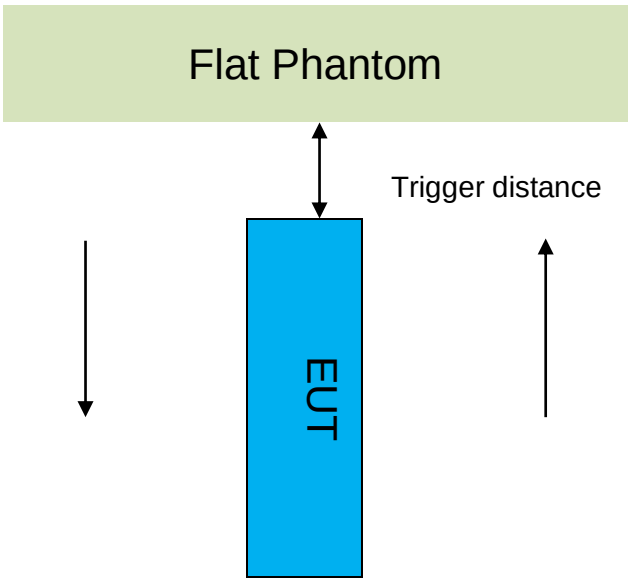
3.2.2 Wireless Router exposure conditions

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.

3.3 Proximity Sensor Triggering Test

1) Proximity sensor triggering distances

The Proximity sensor triggering was applied to GSM1900; WCDMA Band II/IV; LTE Band 2/4/7/66. 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)			
Position	Front	Back	Bottom
Minimum	15	20	20
Required SAR Test	/	19	19

Band	Sensor Trigger Distance	Power reduction (dB)
GSM 1900	Front side: 15mm Back side: 20mm Bottom side: 20mm	3.5
WCDMA Band II	Front side: 15mm Back side: 20mm Bottom side: 20mm	3.7
WCDMA Band IV	Front side: 15mm Back side: 20mm Bottom side: 20mm	4.7
LTE Band 2	Front side: 15mm Back side: 20mm Bottom side: 20mm	3.2
LTE Band 4	Front side: 15mm Back side: 20mm Bottom side: 20mm	5.2
LTE Band 7	Front side: 15mm Back side: 20mm Bottom side: 20mm	3.5
LTE Band 66	Front side: 15mm Back side: 20mm Bottom side: 20mm	5.7

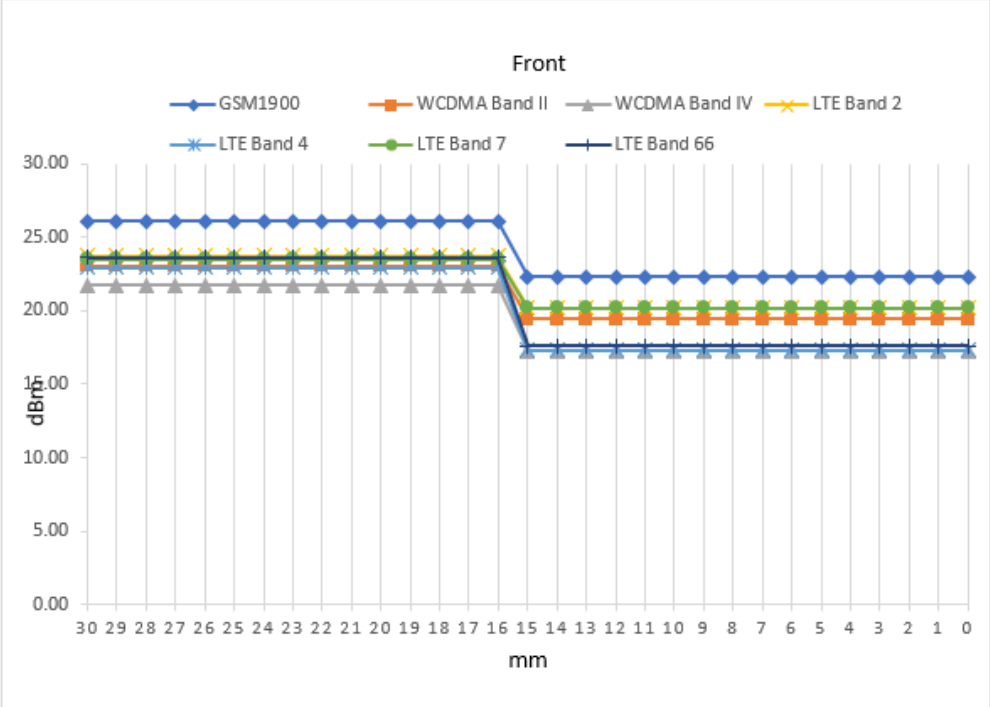
Note: SAR tests with proximity sensor power reduction are only required for the sides of frequency bands in the table above. For the other sides or other frequency bands of the device, SAR is still tested at the maximum power level with sensor off.

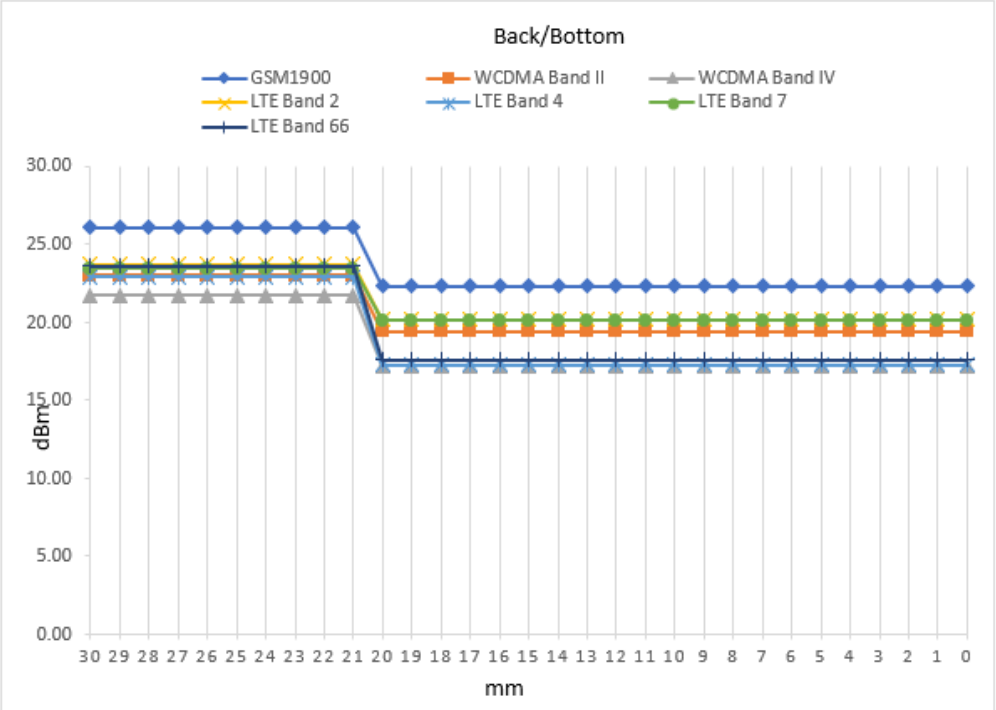
Note:

1) For body-worn SAR, additional SAR test with sensor on is required since the sensor triggering distance is > 15mm for Back side. Body-worn SAR is tested at the full power level, and additional SAR test with sensor off is required at the conservative sensor triggering distance minus 1mm for the required test positions.

2) For hotspot SAR, additional SAR test with sensor on is required since the sensor triggering distance is > 10mm for 10mm, additional SAR test with sensor off is required at the conservative sensor triggering distance minus 1mm for the required test positions.

- DUT Moving Toward（Trigger）the Phantom





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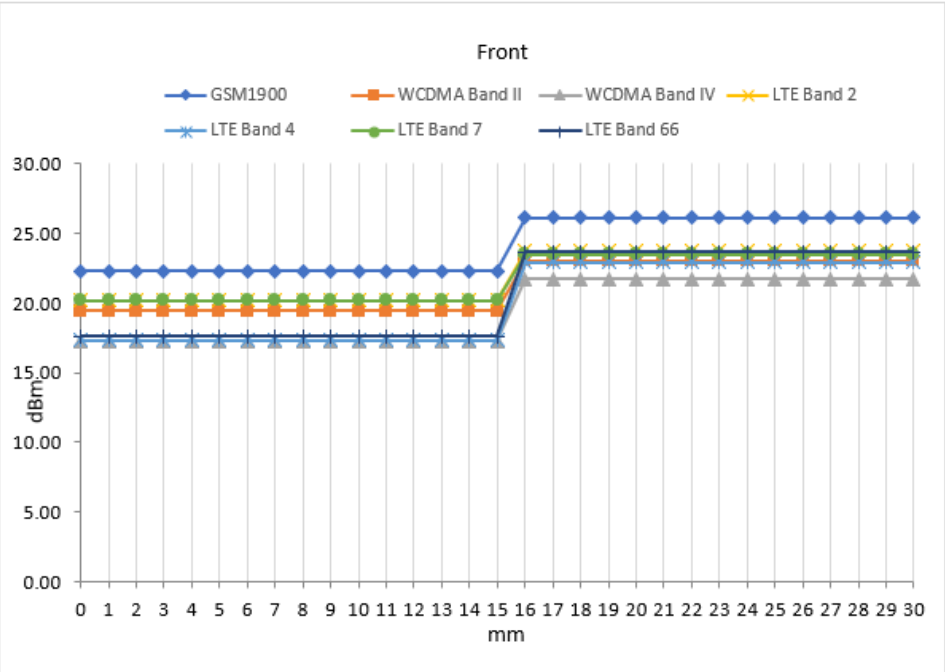
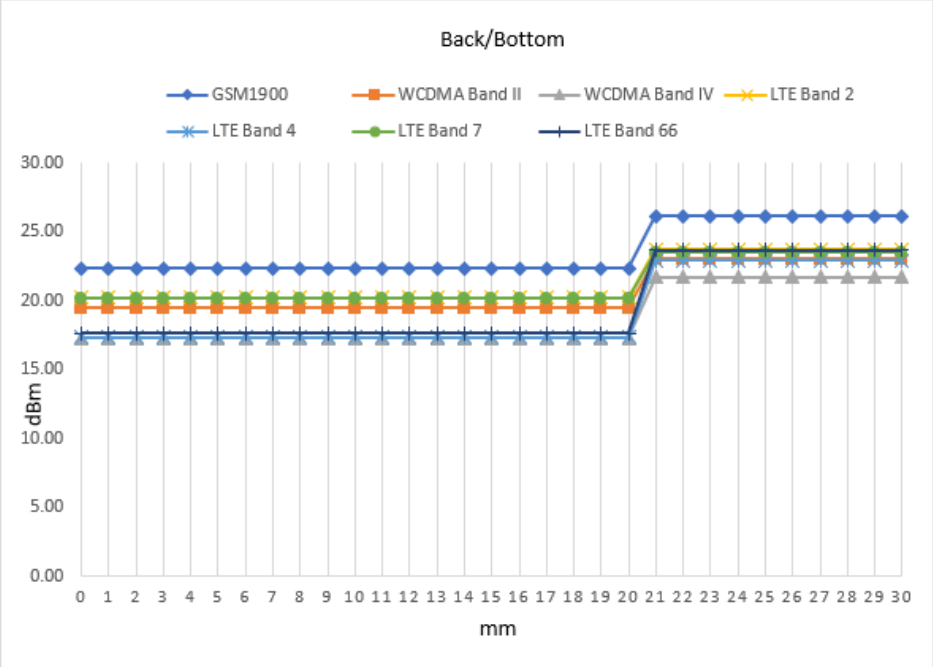
- DUT Moving Away（Release）from the Phantom





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2) Proximity sensor coverage

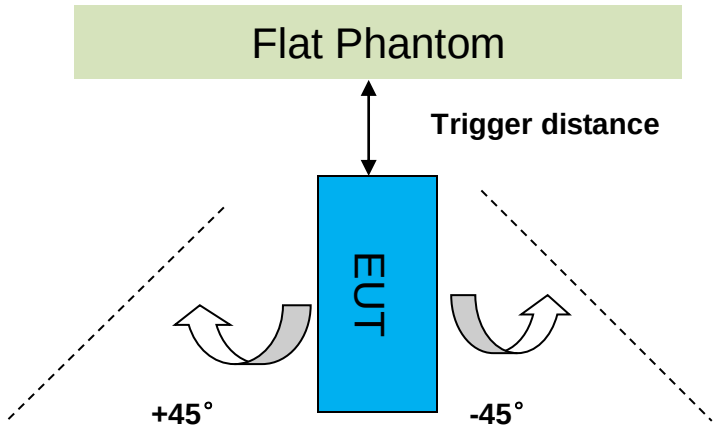
If a sensor is spatially offset from the antenna(s), it is necessary to verify sensor triggering for conditions where the antenna is next to the user but the sensor is laterally further away to ensure sensor coverage is sufficient for reducing the power to maintain compliance. For p-sensor coverage testing,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

3) 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 at 20mm separation.

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.



The Sensor Triggering Distance(mm)	
Position	Bottom
Minimum	20
Required SAR Test	19

Summary of Tablet Tilt Angle Influence to Proximity Sensor Triggering for Right 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°
GSM1900	20mm	20mm	on	on	on	on	on	on	on	on	on	on	on
WCDMA Band II	20mm	20mm	on	on	on	on	on	on	on	on	on	on	on
WCDMA Band IV	20mm	20mm	on	on	on	on	on	on	on	on	on	on	on
LTE Band 2	20mm	20mm	on	on	on	on	on	on	on	on	on	on	on
LTE Band 4	20mm	20mm	on	on	on	on	on	on	on	on	on	on	on
LTE Band 7	20mm	20mm	on	on	on	on	on	on	on	on	on	on	on
LTE Band 66	20mm	20mm	on	on	on	on	on	on	on	on	on	on	on

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4 SAR System Verification Procedure

4.1 Tissue Simulate Liquid

4.1.1 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		
HSL5GHz is composed of the following ingredients： Water：50-65% Mineral oil：10-30% Emulsifiers：8-25% Sodium salt：0-1.5%					

Table 1： Recipe of Tissue Simulate Liquid

4.1.2 Measurement for Tissue Simulate Liquid

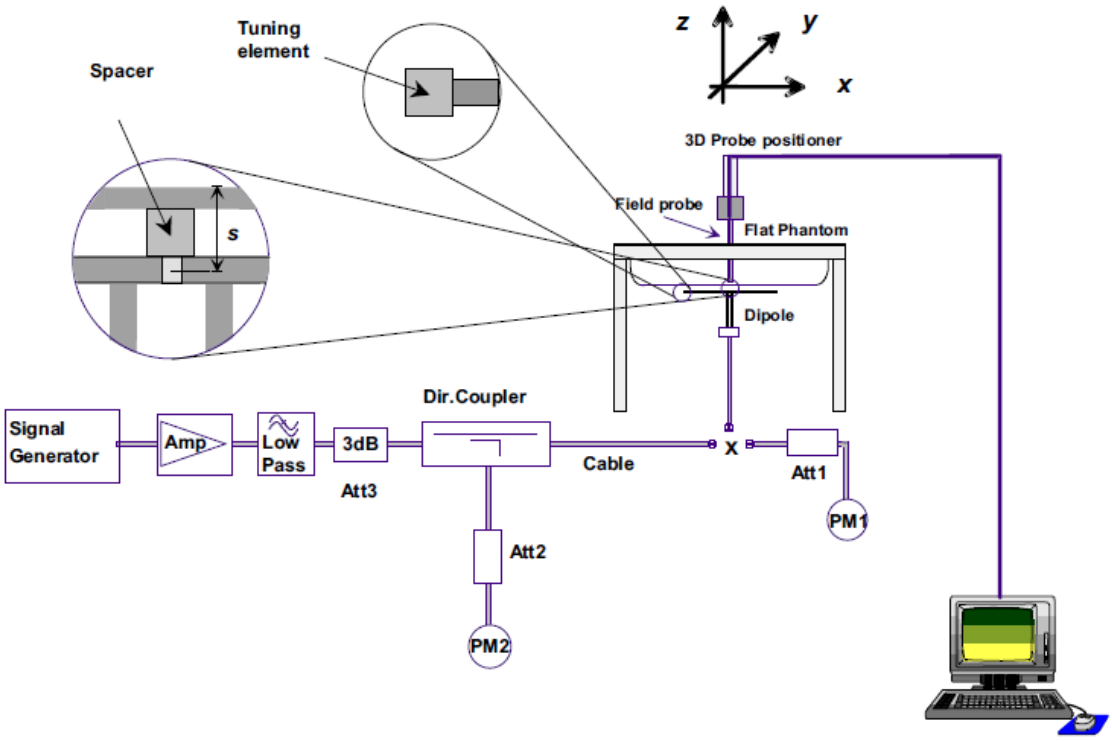
The dielectric properties for this Tissue Simulate Liquids were measured by using the Agilent Model 85070E Dielectric Probe in conjunction with Agilent E5071C Network Analyzer (300 KHz-8500 MHz). The Conductivity (σ) and Permittivity (ρ) are listed in Table 2. For the SAR measurement given in this report. The temperature variation of the Tissue Simulate Liquids was 22±2°C.

Tissue Type	Measured Frequency (MHz)	Target Tissue (±5%)		Measured Tissue		Liquid Temp.	Measured Date
		ε_r	σ(S/m)	ε_r	σ(S/m)	(℃)	
750 Head	750	41.9 (39.81~44)	0.89 (0.85~0.94)	42.729	0.886	22.1	2020/03/12
750 Head	750	41.9 (39.81~44)	0.89 (0.85~0.94)	42.631	0.861	22.1	2020/03/14
835 Head	835	41.5 (39.43~43.58)	0.90 (0.86~0.95)	43.209	0.944	22.1	2020/03/06
835 Head	835	41.5 (39.43~43.58)	0.90 (0.86~0.95)	43.361	0.945	22.1	2020/03/11
835 Head	835	41.5 (39.43~43.58)	0.90 (0.86~0.95)	40.752	0.887	22.1	2020/03/27
1750 Head	1750	40.1 (38.10~42.11)	1.37 (1.30~1.44)	38.467	1.328	22.2	2020/03/15
1900 Head	1900	40 (38.00~42.00)	1.4 (1.33~1.47)	40.640	1.372	22.3	2020/03/17
1900 Head	1900	40 (38.00~42.00)	1.4 (1.33~1.47)	41.472	1.426	22.3	2020/03/27
2450 Head	2450	39.2 (37.24~41.16)	1.8 (1.71~1.89)	39.489	1.809	22.0	2020/03/13
2600 Head	2600	39.0 (37.05~40.95)	1.96 (1.86~2.06)	38.949	1.978	22.1	2020/03/09
5250 Head	5250	35.9 (34.11~37.70)	4.71 (4.47~4.95)	36.861	4.872	22.2	2020/03/20
5600 Head	5600	35.5 (33.73~37.30)	5.07 (4.82~5.32)	35.993	5.265	22.2	2020/03/20
5750 Head	5750	35.4 (33.63~37.17)	5.22 (4.96~5.48)	35.812	5.463	22.2	2020/03/20

Table 2： Measurement result of Tissue electric parameters

4.2 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 3(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

4.2.1 Summary System Check 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) (±10%)	Target SAR (normalized to 1W) (±10%)	Liquid Temp. (℃)	Measured Date
		1g (W/kg)	10g (W/kg)	1g (W/kg)	10g (W/kg)	1-g(W/kg)	10-g(W/kg)		
D750V3	Head	1.97	1.30	7.88	5.20	8.39 (7.55~9.23)	5.63 (5.07~6.19)	22.1	2020/03/12
D750V3	Head	2.17	1.42	8.68	5.68	8.39 (7.55~9.23)	5.63 (5.07~6.19)	22.1	2020/03/14
D835V2	Head	2.62	1.72	10.48	6.88	9.64 (8.68~10.60)	6.29 (5.66~6.92)	22.1	2020/03/06
D835V2	Head	2.59	1.69	10.36	6.76	9.64 (8.68~10.60)	6.29 (5.66~6.92)	22.1	2020/03/11
D835V2	Head	2.46	1.61	9.84	6.44	9.64 (8.68~10.60)	6.29 (5.66~6.92)	22.1	2020/03/27
D1750V2	Head	9.22	4.91	36.88	19.64	36.3 (32.67~39.93)	19.2 (17.28~21.12)	22.2	2020/03/15
D1900V2	Head	10.10	5.24	40.40	20.96	39.3 (35.37~43.23)	20.2 (18.18~22.22)	22.2	2020/03/17
D1900V2	Head	10.60	5.46	42.40	21.84	39.3 (35.37~43.23)	20.2 (18.18~22.22)	22.2	2020/03/27
D2450V2	Head	13.00	6.08	52.00	24.32	51.9 (46.71~57.09)	23.8 (21.42~26.18)	22.0	2020/03/13
D2600V2	Head	14.00	6.26	56.00	25.04	56.8 (51.12~62.48)	24.9 (22.41~27.39)	22.1	2020/03/09
Validation Kit		**Measured SAR 100mW**	**Measured SAR 100mW**	**Measured SAR (normalized to 1W)**	**Measured SAR (normalized to 1W)**	**Target SAR (normalized to 1W) (±10%)**	**Target SAR (normalized to 1W) (±10%)**	**Liquid Temp. (℃)**	**Measured Date**
		1g (W/kg)	10g (W/kg)	1g (W/kg)	10g (W/kg)	1-g(W/kg)	10-g(W/kg)		
D5GHzV2	Head (5.25GHz)	7.25	2.06	72.50	20.60	75.2 (67.68~82.72)	21.5 (19.35~23.65)	22.2	2020/03/20
	Head (5.6GHz)	8.09	2.28	80.90	22.80	80 (72~88)	22.7 (20.43~24.97)	22.2	2020/03/20
	Head (5.75GHz)	8.11	2.31	81.10	23.10	78.7 (70.83~86.57)	22.3 (20.07~24.53)	22.2	2020/03/20

Table 3： SAR System Check Result

4.2.2 Detailed System Check Results

Please see the Appendix A

5 Test results and Measurement Data

5.1 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.

5.2 Operation Configurations

5.2.1 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

5.2.2 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.

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

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 5： 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.

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{hs}(1)	β_{ec}	β_{ed}	β_{ed} (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 6： 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	?

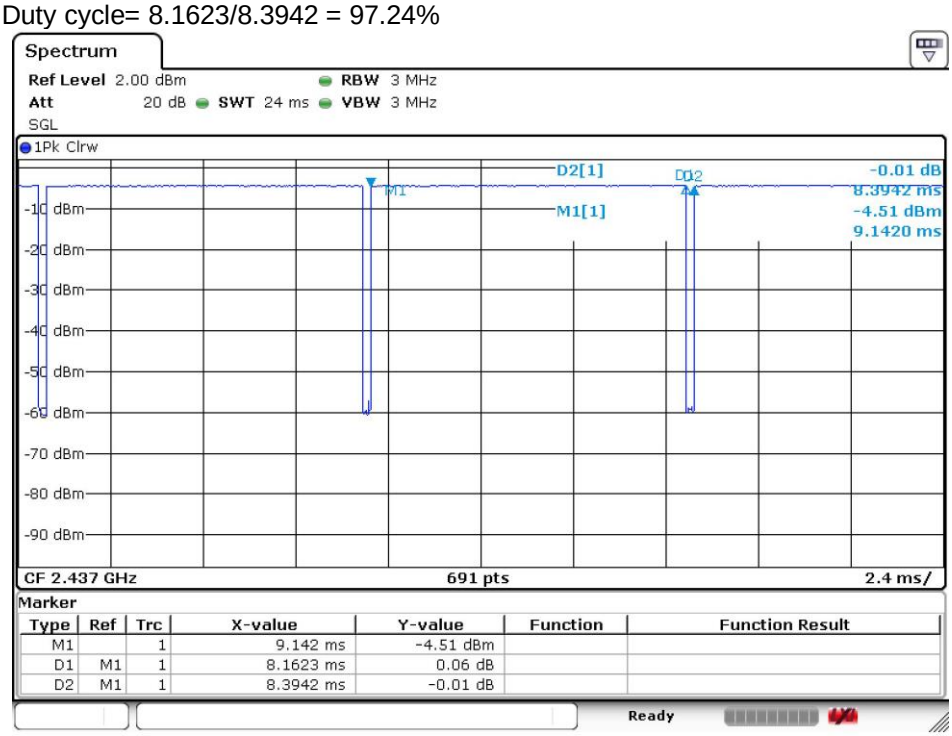
NOTE: When 4 codes are transmitted in parallel, two codes shall be transmitted with SF2 and two with SF4.UE categories 1 to 6 support QPSK only. UE category 7 supports QPSK and 16QAM.(TS25.306-7.3.0).

Table 7： HSUPA UE category

5.2.3 WiFi Test Configuration

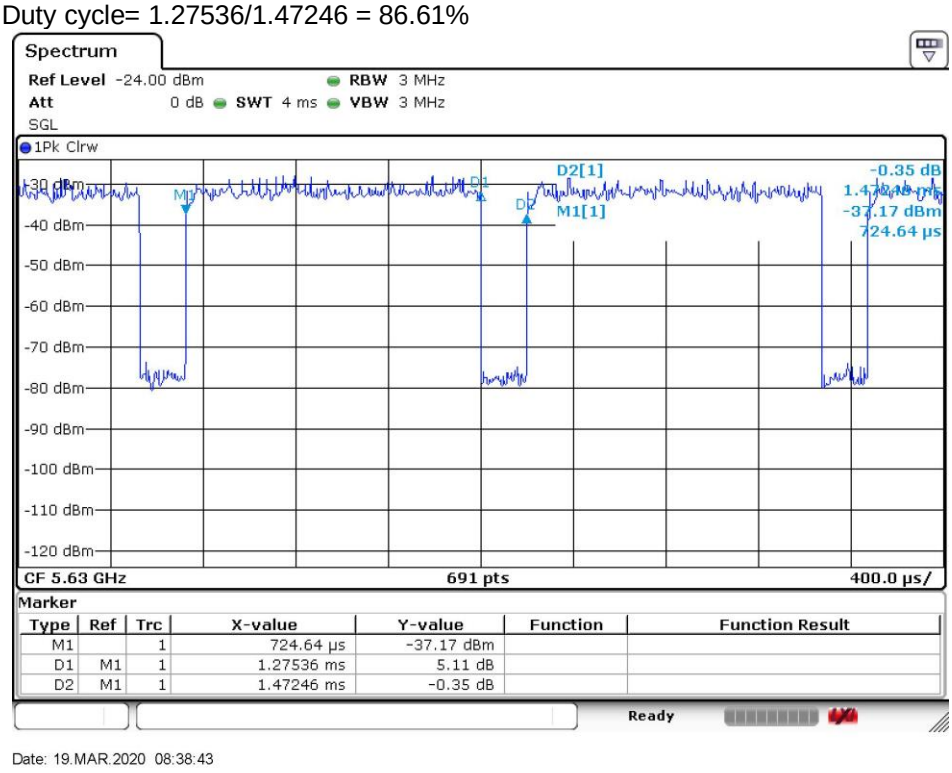
A Wi-Fi device must be configured to transmit continuously at the required data rate, channel bandwidth and signal modulation, using the highest transmission duty factor supported by the test mode tools for SAR measurement.

- WIFI 2.4G 802.11b
  Duty cycle= 8.1623/8.3942 = 97.24%



Date: 19.MAR.2020 08:41:14

- WIFI 5G 802.11n-HT40
  Duty cycle= 1.27536/1.47246 = 86.61%



Date: 19.MAR.2020 08:38:43

5.2.3.1 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.

5.2.3.2 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.

5.2.3.3 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 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”

5.2.3.4 2.4 GHz 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.

5.2.3.5 5 GHz WiFi SAR Procedures

- **U-NII-1 and U-NII-2A Bands**
  For devices that operate in only one of the U-NII-1 and U-NII-2A bands, the normally required SAR procedures for OFDM configurations are applied. For devices that operate in both U-NII bands using the same transmitter and antenna(s), SAR test reduction is determined according to the following：

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. If 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 (802.11 mode and exposure condition); otherwise, both bands are tested independently for SAR.
2) When different maximum output power is specified for the bands, begin SAR measurement in the band with higher specified maximum output power. The highest reported SAR for the tested configuration is adjusted by the ratio of lower to higher specified maximum output power for the two bands. When the adjusted SAR is ≤ 1.2 W/kg, SAR is not required for the band with lower maximum output power in that test configuration; otherwise, both bands are tested independently for SAR.
3) The two U-NII bands may be aggregated to support a 160 MHz channel on channel number 50. Without additional testing, the maximum output power for this is limited to the lower of the maximum output power certified for the two bands. When SAR measurement is required for at least one of the bands and the highest reported SAR adjusted by the ratio of specified maximum output power of aggregated to standalone band is > 1.2 W/kg, SAR is required for the 160 MHz channel. This procedure does not apply to an aggregated band with maximum output higher than the standalone band(s); the aggregated band must be tested independently for SAR. SAR is not required when the 160 MHz channel is operating at a reduced maximum power and also qualifies for SAR test exclusion.

- **U-NII-2C and U-NII-3 Bands**
  The frequency range covered by these bands is 380 MHz (5.47 – 5.85 GHz), which requires a minimum of at least two SAR probe calibration frequency points to support SAR measurements. when Terminal Doppler Weather Radar (TDWR) restriction applies, all channels that operate at 5.60 – 5.65 GHz must be included to apply the SAR test reduction and measurement procedures.

  When the same transmitter and antenna(s) are used for U-NII-2C band and U-NII-3 band or 5.8 GHz band of §15.247, the bands may be aggregated to enable additional channels with 20, 40 or 80 MHz bandwidth to span across the band gap, as illustrated in Appendix B. The maximum output power for the additional band gap channels is limited to the lower of those certified for the bands. Unless band gap channels are permanently disabled, they must be considered for SAR testing. The frequency range covered by these bands is 380 MHz (5.47 – 5.85 GHz), which requires a minimum of at least two SAR probe calibration frequency points to support SAR measurements. To maintain SAR measurement accuracy and to facilitate test reduction, the channels in U-NII-2C band above 5.65 GHz may be grouped with the 5.8 GHz channels in U-NII-3 or §15.247 band to enable two SAR probe calibration frequency points to cover the bands, including the band gap channels. When band gap channels are supported and the bands are not aggregated for SAR testing, band gap channels must be considered independently in each band according to the normally required OFDM SAR measurement and probe calibration frequency points requirements.

- **OFDM Transmission Mode SAR Test Configuration and Channel Selection Requirements**
  The initial test configuration for 5 GHz OFDM transmission modes is determined by the 802.11 configuration with the highest maximum output power specified for production units, including tune-up tolerance, in each standalone and aggregated frequency band. SAR for the initial test configuration is measured using the highest maximum output power channel determined by the default power measurement procedures. When multiple configurations in a frequency band have the same specified maximum output power, the initial test configuration is determined according to the following steps applied sequentially.
  1) The largest channel bandwidth configuration is selected among the multiple configurations with the same specified maximum output power.
  2) If multiple configurations have the same specified maximum output power and largest channel bandwidth, the lowest order modulation among the largest channel bandwidth configurations is selected.
  3) If multiple configurations have the same specified maximum output power, largest channel bandwidth and lowest order modulation, the lowest data rate configuration among these configurations is selected.
  4) When multiple transmission modes (802.11a/g/n/ac) have the same specified maximum output power, largest channel bandwidth, lowest order modulation and lowest data rate, the lowest order 802.11 mode is selected; i.e., 802.11a is chosen over 802.11n then 802.11ac or 802.11g is chosen over 802.11n. After an initial test configuration is determined, if multiple test channels have the same measured maximum output power, the channel chosen for SAR measurement is determined according to the following. These channel selection procedures apply to both the initial test configuration and subsequent test configuration(s), with respect to the default power measurement procedures or additional power measurements required for further SAR test reduction. The same procedures also apply to subsequent highest output power channel(s) selection.
     a) The channel closest to mid-band frequency is selected for SAR measurement.
     b) For channels with equal separation from mid-band frequency; for example, high and low channels or two mid-band channels, the higher frequency (number) channel is selected for SAR measurement.

- **SAR Test Requirements for OFDM configurations**

When SAR measurement is required for 802.11 a/n/ac OFDM configurations, each standalone and frequency aggregated band is considered separately for SAR test reduction. When the same transmitter and antenna(s) are used for U-NII-1 and U-NII-2A bands, additional SAR test reduction applies. When band gap channels between U-NII-2C band and 5.8 GHz U-NII-3 or §15.247 band are supported, the highest maximum output power transmission mode configuration and maximum output power channel across the bands must be used to determine SAR test reduction, according to the initial test configuration and subsequent test configuration requirements. 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.

5.2.4 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 MT8821C 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.

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.

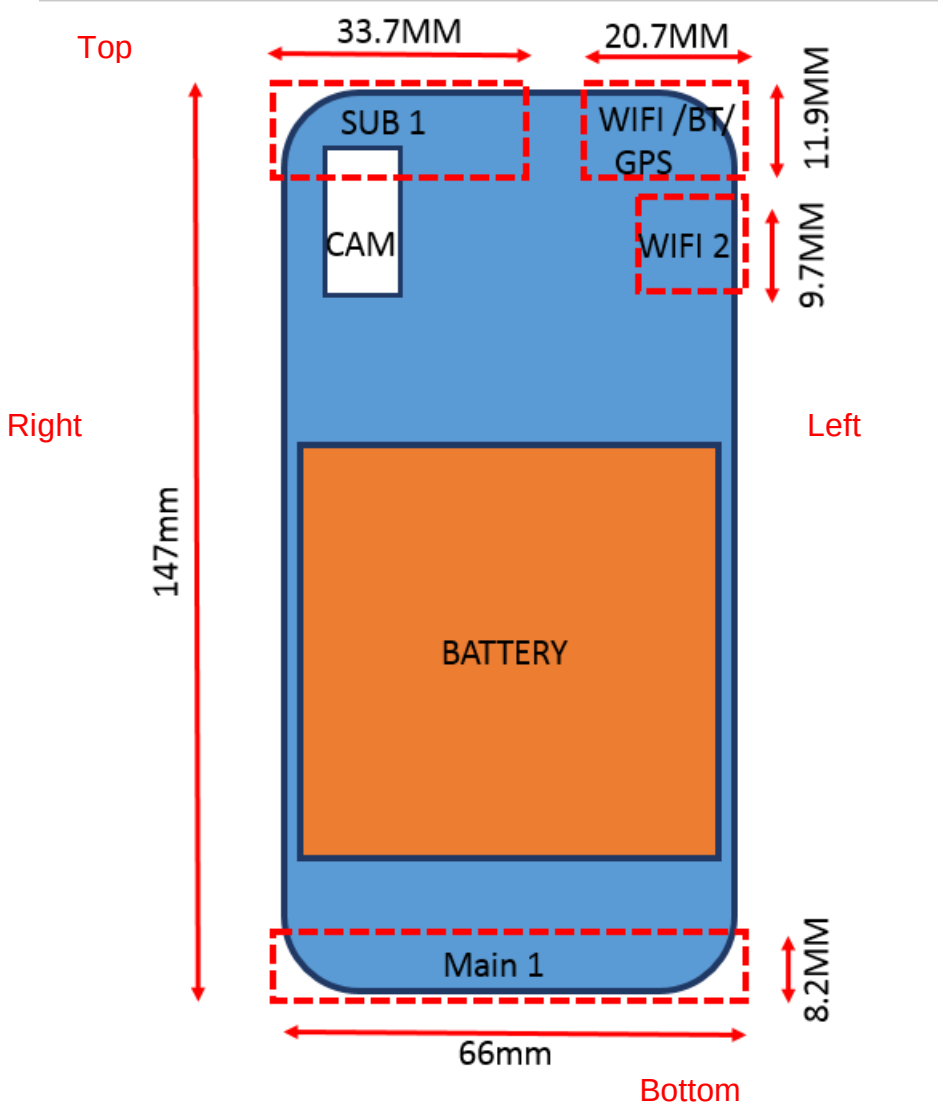
4) Higher order modulations

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.

5.2.5 DUT Antenna Locations



Note:

1) The test device is a mobile phone. The display diagonal dimension is 142mm and the overall diagonal dimension of this device is 156 mm.

2) The WIFI2 antenna is WIFI5G antenna, The WIFI/BT/GPS antenna is WIFI2.4G/BT/GPS antenna.

5.2.6 EUT side for SAR Testing

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

EUT Sides for SAR Testing						
Mode	Front	Back	Left	Right	Top	Bottom
Main Antenna	Yes	Yes	Yes	Yes	No	Yes
Wi-Fi 2.4G & BT Antenna	Yes	Yes	Yes	No	Yes	No
Wi-Fi 5G Antenna	Yes	Yes	Yes	No	Yes	No

Table 8： EUT Sides for SAR Testing
Note: When the antenna-to-edge distance is greater than 2.5cm, such position does not need to be tested.

5.2.7 Stand-alone SAR test evaluation

Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Test Exclusion Threshold condition is satisfied. These test exclusion conditions are based on source-based time-averaged maximum conducted output power of the RF channel requiring evaluation, adjusted for tune-up tolerance, and the minimum test separation distance required for the exposure conditions.

Freq. Band	Frequency (GHz)	Position	Average Power		Test Separation (mm)	Calculate Value	Exclusion Threshold	Exclusion (Y/N)
			dBm	mW				
Wi-Fi	2.45	Head	19.00	79.43	0	24.9	3	N
		Body-worn	19.50	89.13	15	9.3	3	N
		hotspot	19.50	89.13	10	14.0	3	N
Wi-Fi	5	Head	15.00	31.62	0	14.1	3	N
		Body-worn	17.50	56.23	15	8.4	3	N
		hotspot	17.50	56.23	10	12.6	3	N
Bluetooth	2.48	Head	8.00	6.31	0	2.0	3	Y
		Body-worn	8.00	6.31	15	0.7	3	Y
		hotspot	8.00	6.31	10	1.0	3	Y

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:
[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] · [√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where
• f(GHz) is the RF channel transmit frequency in GHz
• Power and distance are rounded to the nearest mW and mm before calculation
• The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

5.3 Measurement of RF conducted Power

5.3.1 Conducted Power of GSM

GSM 850										
Burst Output Power(dBm)					Tune up	Division Factors	Frame-Average Output Power(dBm)			Tune up
Channel		128	190	251			128	190	251	
GSM(GMSK)	GSM	32.40	32.57	32.71	33.50	-9.19	23.21	23.38	23.52	24.31
GPRS/EGPRS (GMSK)	1 TX Slot	32.38	32.55	32.70	33.50	-9.19	23.19	23.36	23.51	24.31
	2 TX Slots	30.69	30.70	30.71	32.00	-6.18	24.51	24.52	24.53	25.82
	3 TX Slots	29.03	29.05	29.01	31.00	-4.42	24.61	24.63	24.59	**26.58**
	4 TX Slots	28.21	28.28	28.23	29.00	-3.17	25.04	25.11	25.06	25.83
EGPRS(8PSK)	1 TX Slot	27.07	27.15	27.04	28.00	-9.19	17.88	17.96	17.85	18.81
	2 TX Slots	24.19	24.24	24.20	25.00	-6.18	18.01	18.06	18.02	18.82
	3 TX Slots	23.07	23.16	23.04	24.00	-4.42	18.65	18.74	18.62	19.58
	4 TX Slots	22.88	22.91	22.78	23.50	-3.17	19.71	19.74	19.61	20.33
GSM 1900 (Sensor off)										
Burst Output Power(dBm)					Tune up	Division Factors	Frame-Average Output Power(dBm)			Tune up
Channel		512	661	810			512	661	810	
GSM(GMSK)	GSM	30.49	30.30	30.27	30.50	-9.19	21.30	21.11	21.08	21.31
GPRS/EGPRS (GMSK)	1 TX Slot	30.49	30.29	30.28	30.50	-9.19	21.30	21.10	21.09	21.31
	2 TX Slots	27.52	27.69	27.61	28.50	-6.18	21.34	21.51	21.43	22.32
	3 TX Slots	26.05	26.11	26.04	27.00	-4.42	21.63	21.69	21.62	**22.58**
	4 TX Slots	25.01	24.97	25.02	25.50	-3.17	21.84	21.80	21.85	22.33
EGPRS(8PSK)	1 TX Slot	26.76	26.81	26.74	27.50	-9.19	17.57	17.62	17.55	18.31
	2 TX Slots	24.68	24.71	24.69	25.50	-6.18	18.50	18.53	18.51	19.32
	3 TX Slots	23.01	23.09	23.07	24.00	-4.42	18.59	18.67	18.65	19.58
	4 TX Slots	21.89	21.94	21.87	23.00	-3.17	18.72	18.77	18.70	19.83

GSM 1900 (Sensor on)										
Burst Output Power(dBm)					Tune up	Division Factors	Frame-Average Output Power(dBm)			Tune up
Channel		512	661	810			512	661	810	
GSM(GMSK)	GSM	27.26	27.20	27.25	28.00	-9.19	18.07	18.01	18.06	18.81
GPRS/EGPRS (GMSK)	1 TX Slot	27.24	27.20	27.27	28.00	-9.19	18.05	18.01	18.08	18.81
	2 TX Slots	24.29	24.33	24.32	25.00	-6.18	18.11	18.15	18.14	18.82
	3 TX Slots	22.31	22.32	22.29	23.50	-4.42	17.89	17.90	17.87	19.08
	4 TX Slots	22.09	22.10	22.07	23.00	-3.17	18.92	18.93	18.90	**19.83**
EGPRS(8PSK)	1 TX Slot	24.34	24.31	24.35	25.00	-9.19	15.15	15.12	15.16	15.81
	2 TX Slots	21.70	21.63	21.65	22.00	-6.18	15.52	15.45	15.47	15.82
	3 TX Slots	20.41	20.43	20.37	21.00	-4.42	15.99	16.01	15.95	16.58
	4 TX Slots	19.17	19.15	19.20	21.00	-3.17	16.00	15.98	16.03	17.83

Table 9： Conducted Power of GSM.

Note:

1）. CMW500 measures GSM peak and average output power for active timeslots. For 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

5.3.2 Conducted Power of WCDMA

WCDMA Band II (Sensor off)					
Average Conducted Power(dBm)					
Channel		9262	9400	9538	Tune up
WCDMA	12.2kbps RMC	23.06	23.13	23.09	23.70
	12.2kbps AMR	23.05	23.09	23.04	23.70
HSDPA	Subtest 1	22.22	22.13	22.41	23.00
	Subtest 2	22.17	22.13	22.35	23.00
	Subtest 3	21.69	21.57	21.90	22.50
	Subtest 4	21.68	21.56	21.98	22.50
HSUPA	Subtest 1	22.06	21.67	22.36	22.60
	Subtest 2	20.67	21.02	21.18	21.70
	Subtest 3	20.75	20.60	21.03	21.70
	Subtest 4	21.03	21.27	21.29	22.00
	Subtest 5	22.10	22.00	22.30	22.70
WCDMA Band II (Sensor on)					
Average Conducted Power(dBm)					
Channel		9262	9400	9538	Tune up
WCDMA	12.2kbps RMC	19.42	19.46	19.45	20.00
	12.2kbps AMR	19.47	19.42	19.41	20.00
HSDPA	Subtest 1	18.17	18.06	18.32	20.00
	Subtest 2	18.17	18.07	18.36	19.00
	Subtest 3	17.67	17.59	17.88	19.00
	Subtest 4	17.66	17.58	17.88	19.00
HSUPA	Subtest 1	17.58	17.96	17.85	19.00
	Subtest 2	17.06	16.89	17.36	18.00
	Subtest 3	16.78	16.60	16.98	18.00
	Subtest 4	17.03	16.94	17.55	18.00
	Subtest 5	18.10	18.00	18.30	19.00
WCDMA Band IV (Sensor off)					
Average Conducted Power(dBm)					
Channel		1312	1412	1513	Tune up
WCDMA	12.2kbps RMC	21.73	21.72	21.76	22.20
	12.2kbps AMR	21.70	21.70	21.72	22.20
HSDPA	Subtest 1	20.65	20.70	20.77	21.70
	Subtest 2	20.66	20.73	20.82	21.70
	Subtest 3	20.29	20.25	20.34	20.70
	Subtest 4	20.29	20.25	20.34	20.70
HSUPA	Subtest 1	20.35	20.62	20.44	21.70
	Subtest 2	19.58	19.38	19.67	19.70
	Subtest 3	19.27	19.37	19.37	19.70
	Subtest 4	19.26	19.24	19.33	19.70
	Subtest 5	20.60	20.60	20.70	21.70

WCDMA Band IV (Sensor on)					
Average Conducted Power(dBm)					
Channel		1312	1412	1513	Tune up
WCDMA	12.2kbps RMC	17.20	17.25	17.21	17.50
	12.2kbps AMR	17.02	17.21	17.16	17.50
HSDPA	Subtest 1	15.96	16.07	16.07	17.50
	Subtest 2	15.84	16.03	16.04	17.00
	Subtest 3	15.35	15.54	15.55	17.00
	Subtest 4	15.35	15.53	15.54	16.50
HSUPA	Subtest 1	15.37	15.71	15.40	16.50
	Subtest 2	14.80	14.99	15.09	16.50
	Subtest 3	14.70	14.95	15.02	16.50
	Subtest 4	15.37	15.19	15.30	16.50
	Subtest 5	15.80	16.00	16.00	17.00
WCDMA Band V					
Average Conducted Power(dBm)					
Channel		4132	4182	4233	Tune up
WCDMA	12.2kbps RMC	24.08	24.13	24.19	25.00
	12.2kbps AMR	24.01	24.11	24.10	25.00
HSDPA	Subtest 1	22.91	23.00	23.14	24.00
	Subtest 2	22.99	23.04	23.15	24.00
	Subtest 3	22.52	22.56	22.68	23.00
	Subtest 4	22.52	22.57	22.68	23.00
HSUPA	Subtest 1	22.18	22.55	22.88	23.50
	Subtest 2	21.80	21.97	22.00	23.00
	Subtest 3	21.53	21.69	21.74	22.80
	Subtest 4	22.10	22.15	22.57	23.20
	Subtest 5	22.80	22.80	22.90	24.00

Table 10：Conducted Power of WCDMA.

Note:

1) 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.

5.3.3 Conducted Power of LTE

LTE Band 2(Sensor off)				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel 18607	Channel 18900	Channel 19193	Tune up
1.4MHz	QPSK	1	0	23.43	23.41	23.56	24.20
		1	2	23.62	23.17	23.74	24.20
		1	5	23.44	23.33	23.52	24.20
		3	0	23.62	23.41	23.90	24.20
		3	2	23.66	23.51	23.87	24.20
		3	3	23.71	23.51	23.88	24.20
		6	0	22.63	22.38	22.65	23.20
	16QAM	1	0	22.82	21.86	23.18	23.20
		1	2	22.60	21.67	23.12	23.20
		1	5	22.82	21.98	22.88	23.20
		3	0	22.50	22.30	22.86	23.20
		3	2	22.57	22.34	22.44	23.20
		3	3	22.48	22.27	22.67	23.20
		6	0	21.68	21.50	21.67	22.20
	64QAM	1	0	21.97	21.56	21.53	22.20
		1	2	21.76	21.67	21.69	22.20
		1	5	21.98	21.28	21.58	22.20
		3	0	21.60	21.55	21.84	22.20
		3	2	21.69	21.62	21.54	22.20
		3	3	21.59	21.40	21.80	22.20
		6	0	20.46	20.53	20.51	21.20
Bandwidth	Modulation	RB size	RB offset	Channel 18615	Channel 18900	Channel 19185	Tune up
3MHz	QPSK	1	0	23.65	23.32	23.64	24.20
		1	7	23.74	23.45	23.75	24.20
		1	14	23.72	23.55	23.74	24.20
		8	0	22.58	22.42	22.66	23.20
		8	4	22.60	22.40	22.73	23.20
		8	7	22.60	22.41	22.72	23.20
		15	0	22.55	22.43	22.65	23.20
	16QAM	1	0	22.62	21.93	22.98	23.20
		1	7	22.65	22.54	22.76	23.20
		1	14	22.53	23.05	22.26	23.20
		8	0	21.81	21.48	21.85	22.20
		8	4	21.72	21.47	21.85	22.20
		8	7	21.90	21.56	21.90	22.20
		15	0	21.65	21.49	21.76	22.20
	64QAM	1	0	21.73	21.67	21.64	22.20
		1	7	21.82	21.65	21.89	22.20
		1	14	21.70	21.82	21.44	22.20
		8	0	20.63	20.27	20.61	21.20
		8	4	20.48	20.24	20.67	21.20
		8	7	20.70	20.27	20.67	21.20
		15	0	20.45	20.32	20.51	21.20

Bandwidth	Modulation	RB size	RB offset	Channel 18625	Channel 18900	Channel 19175	Tune up
5MHz	QPSK	1	0	23.49	23.21	23.59	24.20
		1	13	23.70	23.43	23.60	24.20
		1	24	23.64	23.35	23.49	24.20
		12	0	22.63	22.43	22.63	23.20
		12	6	22.64	22.43	22.75	23.20
		12	13	22.50	22.37	22.61	23.20
		25	0	22.59	22.38	22.69	23.20
	16QAM	1	0	22.40	21.82	22.63	23.20
		1	13	22.42	21.90	22.79	23.20
		1	24	22.76	21.84	22.02	23.20
		12	0	21.68	21.21	21.69	22.20
		12	6	21.82	21.30	21.78	22.20
		12	13	21.78	21.52	21.85	22.20
		25	0	21.72	21.50	21.88	22.20
	64QAM	1	0	21.58	21.56	21.76	22.20
		1	13	21.51	21.49	21.92	22.20
		1	24	21.42	21.73	21.29	22.20
		12	0	20.39	20.47	20.38	21.20
		12	6	20.60	20.32	20.52	21.20
		12	13	20.61	20.24	20.57	21.20
		25	0	20.54	20.28	20.61	21.20
Bandwidth	Modulation	RB size	RB offset	Channel 18650	Channel 18900	Channel 19150	Tune up
10MHz	QPSK	1	0	23.31	23.15	23.45	24.20
		1	25	23.64	23.74	23.86	24.20
		1	49	23.27	23.46	23.56	24.20
		25	0	22.57	22.36	22.66	23.20
		25	13	22.63	22.40	22.66	23.20
		25	25	22.55	22.37	22.72	23.20
		50	0	22.57	22.35	22.69	23.20
	16QAM	1	0	22.60	21.85	22.08	23.20
		1	25	22.74	22.09	22.39	23.20
		1	49	22.10	21.96	22.08	23.20
		25	0	21.51	21.52	21.72	22.20
		25	13	21.68	21.67	21.80	22.20
		25	25	21.66	21.44	21.80	22.20
		50	0	21.67	21.51	21.79	22.20
	64QAM	1	0	21.72	21.62	21.20	22.20
		1	25	21.89	21.25	21.54	22.20
		1	49	21.26	21.74	21.47	22.20
		25	0	20.29	20.34	20.48	21.20
		25	13	20.41	20.40	20.60	21.20
		25	25	20.46	20.25	20.54	21.20
		50	0	20.46	20.23	20.60	21.20

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Bandwidth	Modulation	RB size	RB offset	Channel 18675	Channel 18900	Channel 19125	Tune up
15MHz	QPSK	1	0	23.59	23.19	23.43	24.20
		1	38	23.81	23.54	23.86	24.20
		1	74	23.70	23.36	23.48	24.20
		36	0	22.78	22.46	22.78	23.20
		36	18	22.69	22.47	22.76	23.20
		36	39	22.58	22.57	22.78	23.20
		75	0	22.70	22.44	22.73	23.20
	16QAM	1	0	22.51	22.30	22.73	23.20
		1	38	22.32	21.75	22.44	23.20
		1	74	21.91	22.50	22.44	23.20
		36	0	21.70	21.49	21.83	22.20
		36	18	21.81	21.50	21.82	22.20
		36	39	21.68	21.60	21.78	22.20
		75	0	21.94	21.61	21.76	22.20
	64QAM	1	0	21.67	21.42	21.88	22.20
		1	38	21.48	21.57	21.62	22.20
		1	74	21.66	21.64	21.59	22.20
		36	0	20.45	20.29	20.63	21.20
		36	18	20.55	20.27	20.59	21.20
		36	39	20.45	20.38	20.56	21.20
		75	0	20.75	20.40	20.57	21.20
Bandwidth	Modulation	RB size	RB offset	Channel 18700	Channel 18900	Channel 19100	Tune up
20MHz	QPSK	1	0	23.65	23.21	23.48	24.20
		1	50	23.98	23.72	23.95	24.20
		1	99	23.33	23.58	23.29	24.20
		50	0	22.83	22.60	22.81	23.20
		50	25	22.69	22.54	22.86	23.20
		50	50	22.57	22.62	22.66	23.20
		100	0	22.71	22.46	22.83	23.20
	16QAM	1	0	22.65	22.02	22.31	23.20
		1	50	22.62	23.00	23.01	23.20
		1	99	22.12	21.69	22.04	23.20
		50	0	21.90	21.51	21.91	22.20
		50	25	21.76	21.47	21.83	22.20
		50	50	21.76	21.70	21.74	22.20
		100	0	21.76	21.62	21.89	22.20
	64QAM	1	0	21.75	21.84	21.45	22.20
		1	50	21.78	21.54	21.62	22.20
		1	99	21.44	21.65	21.74	22.20
		50	0	20.68	20.29	20.65	21.20
		50	25	20.51	20.25	20.62	21.20
		50	50	20.56	20.40	20.52	21.20
		100	0	20.53	20.40	20.67	21.20

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LTE Band 2(Sensor on)				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel 18607	Channel 18900	Channel 19193	Tune up
1.4MHz	QPSK	1	0	20.07	19.56	20.08	21.00
		1	2	20.14	19.55	20.03	21.00
		1	5	20.11	19.51	19.96	21.00
		3	0	20.20	19.88	20.24	21.00
		3	2	20.17	19.93	20.35	21.00
		3	3	20.14	19.90	20.26	21.00
		6	0	18.96	18.83	19.22	20.00
	16QAM	1	0	18.81	19.15	19.01	20.00
		1	2	18.87	18.64	19.06	20.00
		1	5	18.10	18.52	18.55	20.00
		3	0	19.01	18.79	19.16	20.00
		3	2	19.11	19.03	19.26	20.00
		3	3	19.46	19.29	19.35	20.00
		6	0	18.05	17.56	18.49	19.00
	64QAM	1	0	17.92	18.31	18.16	19.00
		1	2	17.97	17.79	18.23	19.00
		1	5	17.19	17.68	17.64	19.00
		3	0	18.10	17.93	18.29	19.00
		3	2	18.28	18.13	18.36	19.00
		3	3	18.62	18.46	18.52	19.00
		6	0	17.05	17.26	17.16	18.00
Bandwidth	Modulation	RB size	RB offset	Channel 18615	Channel 18900	Channel 19185	Tune up
3MHz	QPSK	1	0	19.97	19.72	20.31	21.00
		1	7	20.07	19.78	20.33	21.00
		1	14	20.15	19.91	20.29	21.00
		8	0	19.26	18.86	19.41	20.00
		8	4	19.25	19.03	19.29	20.00
		8	7	19.22	18.91	19.19	20.00
		15	0	19.19	18.87	19.26	20.00
	16QAM	1	0	19.18	18.83	19.80	20.00
		1	7	19.15	19.09	18.80	20.00
		1	14	18.40	18.77	18.80	20.00
		8	0	18.27	17.89	18.41	19.00
		8	4	18.20	17.86	18.35	19.00
		8	7	18.46	17.98	18.20	19.00
		15	0	17.97	17.80	18.41	19.00
	64QAM	1	0	18.30	17.98	18.89	19.00
		1	7	18.30	18.22	17.98	19.00
		1	14	17.58	17.90	17.95	19.00
		8	0	17.37	17.00	17.51	18.00
		8	4	17.38	16.99	17.44	18.00
		8	7	17.57	17.08	17.36	18.00
		15	0	17.14	16.93	17.51	18.00

Bandwidth	Modulation	RB size	RB offset	Channel 18625	Channel 18900	Channel 19175	Tune up
5MHz	QPSK	1	0	19.86	19.61	20.03	21.00
		1	13	20.00	19.79	20.11	21.00
		1	24	20.03	19.96	20.03	21.00
		12	0	19.12	18.96	19.30	20.00
		12	6	19.13	18.90	19.29	20.00
		12	13	19.08	18.94	19.24	20.00
		25	0	19.09	18.89	19.25	20.00
	16QAM	1	0	18.52	18.11	18.44	20.00
		1	13	19.09	18.43	18.32	20.00
		1	24	19.01	18.62	18.48	20.00
		12	0	18.23	17.77	18.21	19.00
		12	6	18.34	17.85	18.19	19.00
		12	13	18.25	17.96	18.14	19.00
		25	0	18.25	17.88	18.20	19.00
	64QAM	1	0	17.61	17.25	17.53	19.00
		1	13	18.20	17.58	17.43	19.00
		1	24	18.14	17.75	17.59	19.00
		12	0	17.32	16.88	17.31	18.00
		12	6	17.49	17.01	17.36	18.00
		12	13	17.37	17.09	17.29	18.00
		25	0	17.34	17.03	17.34	18.00
Bandwidth	Modulation	RB size	RB offset	Channel 18650	Channel 18900	Channel 19150	Tune up
10MHz	QPSK	1	0	20.00	19.72	19.82	21.00
		1	25	20.14	19.86	20.32	21.00
		1	49	19.75	19.83	20.05	21.00
		25	0	19.21	18.96	19.22	20.00
		25	13	19.19	19.00	19.23	20.00
		25	25	19.18	18.98	19.33	20.00
		50	0	19.22	18.97	19.16	20.00
	16QAM	1	0	18.51	18.57	18.87	20.00
		1	25	19.31	18.87	19.75	20.00
		1	49	18.57	18.41	18.90	20.00
		25	0	18.21	18.03	18.26	19.00
		25	13	18.20	17.89	18.25	19.00
		25	25	18.07	18.05	18.39	19.00
		50	0	18.29	17.85	18.41	19.00
	64QAM	1	0	17.66	17.66	18.02	19.00
		1	25	18.47	18.03	18.86	19.00
		1	49	17.69	17.55	18.05	19.00
		25	0	17.35	17.19	17.43	18.00
		25	13	17.36	17.07	17.39	18.00
		25	25	17.25	17.16	17.51	18.00
		50	0	17.40	17.01	17.59	18.00

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Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				18675	18900	19125	
15MHz	QPSK	1	0	19.75	19.69	20.02	21.00
		1	38	20.05	19.92	20.26	21.00
		1	74	19.80	19.81	20.02	21.00
		36	0	19.18	18.92	19.30	20.00
		36	18	19.17	18.96	19.22	20.00
		36	39	19.08	19.09	19.23	20.00
		75	0	19.17	18.96	19.23	20.00
	16QAM	1	0	18.93	18.99	18.79	20.00
		1	38	18.77	18.37	18.83	20.00
		1	74	18.32	18.08	18.34	20.00
		36	0	18.15	17.88	18.23	19.00
		36	18	18.28	17.76	18.23	19.00
		36	39	18.00	18.02	18.13	19.00
		75	0	18.18	17.90	18.22	19.00
	64QAM	1	0	18.02	18.14	17.96	19.00
		1	38	17.95	17.54	17.92	19.00
		1	74	17.41	17.19	17.47	19.00
		36	0	17.02	16.99	17.14	18.00
		36	18	17.16	16.92	17.25	18.00
		36	39	17.10	17.20	17.24	18.00
		75	0	17.26	17.07	17.13	18.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				18700	18900	19100	
20MHz	QPSK	1	0	19.95	19.37	19.88	21.00
		1	50	20.26	20.18	20.35	21.00
		1	99	19.70	19.81	19.94	21.00
		50	0	19.23	18.88	19.23	20.00
		50	25	19.20	19.01	19.32	20.00
		50	50	19.10	19.05	19.19	20.00
		100	0	19.11	19.01	19.32	20.00
	16QAM	1	0	18.84	18.18	18.67	20.00
		1	50	18.64	19.18	19.48	20.00
		1	99	18.22	18.40	18.71	20.00
		50	0	18.02	17.84	18.19	19.00
		50	25	18.26	18.03	18.26	19.00
		50	50	18.23	18.23	18.22	19.00
		100	0	18.15	17.93	18.35	19.00
	64QAM	1	0	18.00	17.28	17.83	19.00
		1	50	17.81	18.29	18.65	19.00
		1	99	17.31	17.52	17.82	19.00
		50	0	17.11	17.00	17.11	18.00
		50	25	17.06	17.19	17.25	18.00
		50	50	17.15	17.03	17.21	18.00
		100	0	17.18	17.04	17.05	18.00

LTE Band 4(Sensor off)				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel 19957	Channel 20175	Channel 20393	Tune up
1.4MHz	QPSK	1	0	22.41	22.44	22.64	23.20
		1	2	22.56	22.58	22.66	23.20
		1	5	22.54	22.38	22.68	23.20
		3	0	22.63	22.72	22.83	23.20
		3	2	22.76	22.75	22.83	23.20
		3	3	22.77	22.66	22.91	23.20
		6	0	21.41	21.56	21.66	22.20
	16QAM	1	0	21.39	21.77	21.79	22.20
		1	2	21.40	22.00	22.17	22.20
		1	5	20.85	21.19	22.17	22.20
		3	0	21.42	21.63	21.59	22.20
		3	2	21.40	21.60	21.67	22.20
		3	3	21.43	21.42	21.68	22.20
		6	0	20.49	20.66	20.75	21.20
	64QAM	1	0	19.63	19.68	19.69	21.20
		1	2	19.74	19.94	20.15	21.20
		1	5	19.75	19.89	20.15	21.20
		3	0	19.64	19.63	19.53	21.20
		3	2	19.78	19.59	19.64	21.20
		3	3	19.79	19.63	19.64	21.20
		6	0	19.19	19.16	19.05	20.20
Bandwidth	Modulation	RB size	RB offset	Channel 19965	Channel 20175	Channel 20385	Tune up
3MHz	QPSK	1	0	22.42	22.54	22.60	23.20
		1	7	22.47	22.69	22.80	23.20
		1	14	22.48	22.65	22.69	23.20
		8	0	21.47	21.79	21.59	22.20
		8	4	21.59	21.64	21.64	22.20
		8	7	21.50	21.64	21.71	22.20
		15	0	21.53	21.59	21.60	22.20
	16QAM	1	0	21.64	20.94	21.16	22.20
		1	7	21.18	22.06	21.14	22.20
		1	14	20.93	21.92	21.66	22.20
		8	0	20.21	20.79	20.65	21.20
		8	4	20.70	20.66	20.69	21.20
		8	7	20.29	20.72	20.95	21.20
		15	0	20.55	20.62	20.68	21.20
	64QAM	1	0	19.64	19.86	19.82	21.20
		1	7	19.79	19.99	19.74	21.20
		1	14	19.83	19.87	19.58	21.20
		8	0	19.18	19.11	19.32	20.20
		8	4	19.35	19.22	19.11	20.20
		8	7	19.22	19.18	19.29	20.20
		15	0	19.47	19.25	19.36	20.20

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Bandwidth	Modulation	RB size	RB offset	Channel 19975	Channel 20175	Channel 20375	Tune up
5MHz	QPSK	1	0	22.19	22.38	22.26	23.20
		1	13	22.57	22.45	22.49	23.20
		1	24	22.51	22.46	22.55	23.20
		12	0	21.56	21.58	21.60	22.20
		12	6	21.51	21.65	21.64	22.20
		12	13	21.48	21.57	21.61	22.20
		25	0	21.45	21.60	21.59	22.20
	16QAM	1	0	21.33	21.51	21.57	22.20
		1	13	21.76	21.88	20.97	22.20
		1	24	21.35	21.33	21.79	22.20
		12	0	20.27	20.53	20.68	21.20
		12	6	20.44	20.47	20.70	21.20
		12	13	20.56	20.53	20.70	21.20
		25	0	20.65	20.65	20.71	21.20
	64QAM	1	0	19.92	19.87	19.93	21.20
		1	13	19.74	19.84	19.87	21.20
		1	24	19.86	19.98	19.78	21.20
		12	0	19.11	19.39	19.48	20.20
		12	6	19.29	19.33	19.60	20.20
		12	13	19.42	19.40	19.58	20.20
		25	0	19.47	19.48	19.59	20.20

Bandwidth	Modulation	RB size	RB offset	Channel 20000	Channel 20175	Channel 20350	Tune up
10MHz	QPSK	1	0	22.24	22.19	22.46	23.20
		1	25	22.93	22.91	22.82	23.20
		1	49	22.47	22.56	22.65	23.20
		25	0	21.51	21.61	21.53	22.20
		25	13	21.65	21.56	21.60	22.20
		25	25	21.55	21.66	21.57	22.20
		50	0	21.66	21.57	21.54	22.20
	16QAM	1	0	20.78	20.70	20.54	22.20
		1	25	21.15	21.45	21.49	22.20
		1	49	20.51	21.46	20.93	22.20
		25	0	20.66	20.56	20.70	21.20
		25	13	20.82	20.80	20.63	21.20
		25	25	20.58	20.82	20.68	21.20
		50	0	20.65	20.55	20.68	21.20
	64QAM	1	0	19.78	19.75	20.14	21.20
		1	25	19.85	19.89	20.22	21.20
		1	49	19.86	19.96	20.05	21.20
		25	0	19.18	19.01	19.17	20.20
		25	13	19.31	19.24	19.18	20.20
		25	25	18.98	19.27	19.15	20.20
		50	0	19.08	19.11	19.11	20.20

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Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20025	20175	20325	
15MHz	QPSK	1	0	22.51	22.72	22.66	23.20
		1	38	22.74	22.80	22.75	23.20
		1	74	22.49	22.79	22.82	23.20
		36	0	21.75	21.60	21.59	22.20
		36	18	21.68	21.59	21.62	22.20
		36	39	21.74	21.71	21.67	22.20
		75	0	21.71	21.62	21.64	22.20
	16QAM	1	0	21.52	21.21	21.31	22.20
		1	38	21.29	22.09	21.90	22.20
		1	74	21.48	21.32	20.78	22.20
		36	0	20.63	20.63	20.75	21.20
		36	18	20.77	20.71	20.64	21.20
		36	39	20.56	20.74	20.63	21.20
		75	0	20.78	20.78	20.66	21.20
	64QAM	1	0	19.93	19.68	19.91	21.20
		1	38	19.81	20.62	20.34	21.20
		1	74	19.98	19.77	19.82	21.20
		36	0	19.20	19.22	19.19	20.20
		36	18	19.32	19.27	19.05	20.20
		36	39	19.06	19.19	19.06	20.20
		75	0	19.27	19.29	19.11	20.20
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20050	20175	20300	
20MHz	QPSK	1	0	22.33	22.45	22.58	23.20
		1	50	22.77	22.92	22.86	23.20
		1	99	22.40	22.50	22.94	23.20
		50	0	21.76	21.65	21.85	22.20
		50	25	21.78	21.60	21.71	22.20
		50	50	21.76	21.61	21.65	22.20
		100	0	21.74	21.67	21.71	22.20
	16QAM	1	0	21.02	21.77	22.04	22.20
		1	50	21.10	21.39	22.14	22.20
		1	99	21.05	21.18	21.30	22.20
		50	0	20.91	20.57	20.79	21.20
		50	25	20.84	20.65	20.86	21.20
		50	50	20.85	20.81	20.82	21.20
		100	0	20.78	20.70	20.84	21.20
	64QAM	1	0	19.95	20.14	20.04	21.20
		1	50	19.87	19.90	20.05	21.20
		1	99	19.99	19.70	19.75	21.20
		50	0	19.50	19.06	19.37	20.20
		50	25	19.33	19.21	19.43	20.20
		50	50	19.43	19.27	19.36	20.20
		100	0	19.33	19.28	19.43	20.20

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LTE Band 4(Sensor on)				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel 19957	Channel 20175	Channel 20393	Tune up
1.4MHz	QPSK	1	0	16.98	17.05	17.06	18.00
		1	2	16.94	17.13	17.14	18.00
		1	5	17.07	17.20	16.98	18.00
		3	0	16.98	17.17	17.12	18.00
		3	2	17.00	17.14	17.17	18.00
		3	3	17.20	17.16	17.11	18.00
		6	0	16.04	15.89	16.03	17.00
	16QAM	1	0	15.38	15.94	15.69	17.00
		1	2	15.98	16.23	16.05	17.00
		1	5	15.25	15.25	15.97	17.00
		3	0	15.89	15.92	15.98	17.00
		3	2	16.34	16.31	16.41	17.00
		3	3	16.03	16.04	16.13	17.00
		6	0	14.87	14.89	15.29	16.00
	64QAM	1	0	15.35	15.34	15.52	16.00
		1	2	15.28	15.21	15.46	16.00
		1	5	15.45	15.25	15.97	16.00
		3	0	15.19	15.62	15.98	16.00
		3	2	15.26	15.31	15.45	16.00
		3	3	15.12	15.21	15.32	16.00
		6	0	14.36	14.68	14.73	15.00
Bandwidth	Modulation	RB size	RB offset	Channel 19965	Channel 20175	Channel 20385	Tune up
3MHz	QPSK	1	0	17.01	16.96	16.88	18.00
		1	7	17.04	17.03	17.00	18.00
		1	14	17.03	16.96	16.92	18.00
		8	0	16.10	15.96	15.94	17.00
		8	4	16.00	15.98	15.97	17.00
		8	7	16.03	15.93	16.02	17.00
		15	0	16.08	15.94	15.92	17.00
	16QAM	1	0	15.74	15.08	16.23	17.00
		1	7	15.82	16.24	15.83	17.00
		1	14	15.90	15.68	15.96	17.00
		8	0	15.02	15.04	15.12	16.00
		8	4	14.97	15.12	15.20	16.00
		8	7	14.95	14.90	15.26	16.00
		15	0	15.01	15.02	15.10	16.00
	64QAM	1	0	15.17	14.51	15.71	16.00
		1	7	15.16	15.63	15.16	16.00
		1	14	15.40	15.18	15.38	16.00
		8	0	14.58	14.55	14.76	15.00
		8	4	14.57	14.72	14.86	15.00
		8	7	14.53	14.60	14.93	15.00
		15	0	14.65	14.54	14.70	15.00

Bandwidth	Modulation	RB size	RB offset	Channel 19975	Channel 20175	Channel 20375	Tune up
5MHz	QPSK	1	0	16.81	17.11	17.08	18.00
		1	13	16.96	17.30	17.17	18.00
		1	24	16.91	17.05	17.08	18.00
		12	0	16.06	15.96	16.03	17.00
		12	6	16.02	16.00	15.99	17.00
		12	13	16.02	15.98	16.04	17.00
		25	0	16.07	15.97	16.02	17.00
	16QAM	1	0	16.26	15.78	15.66	17.00
		1	13	15.66	15.87	15.27	17.00
		1	24	15.18	15.18	15.33	17.00
		12	0	14.93	14.94	15.10	16.00
		12	6	15.03	15.01	15.13	16.00
		12	13	15.12	14.99	15.14	16.00
		25	0	14.89	14.96	15.19	16.00
	64QAM	1	0	15.65	15.63	15.69	16.00
		1	13	15.16	15.49	15.74	16.00
		1	24	15.64	15.57	15.67	16.00
		12	0	14.44	14.56	14.74	15.00
		12	6	14.57	14.62	14.79	15.00
		12	13	14.75	14.57	14.82	15.00
		25	0	14.50	14.54	14.71	15.00
Bandwidth	Modulation	RB size	RB offset	Channel 20000	Channel 20175	Channel 20350	Tune up
10MHz	QPSK	1	0	16.75	16.78	16.88	18.00
		1	25	17.28	17.22	17.12	18.00
		1	49	16.86	16.99	17.17	18.00
		25	0	16.04	16.08	16.04	17.00
		25	13	16.18	15.93	16.15	17.00
		25	25	16.11	16.20	16.04	17.00
		50	0	16.22	16.12	16.06	17.00
	16QAM	1	0	15.33	15.02	15.60	17.00
		1	25	15.62	16.20	16.52	17.00
		1	49	15.65	15.78	15.59	17.00
		25	0	14.97	14.88	15.11	16.00
		25	13	15.10	15.06	15.03	16.00
		25	25	15.28	14.96	15.16	16.00
		50	0	15.09	14.89	15.18	16.00
	64QAM	1	0	15.72	15.44	15.61	16.00
		1	25	15.38	15.58	15.83	16.00
		1	49	15.21	15.28	15.32	16.00
		25	0	14.60	14.49	14.77	15.00
		25	13	14.65	14.57	14.73	15.00
		25	25	14.90	14.57	14.81	15.00
		50	0	14.63	14.55	14.88	15.00

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Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20025	20175	20325	
15MHz	QPSK	1	0	16.72	17.04	17.08	18.00
		1	38	17.08	17.23	17.12	18.00
		1	74	17.05	17.03	17.10	18.00
		36	0	16.14	16.03	16.19	17.00
		36	18	16.17	15.94	16.09	17.00
		36	39	16.16	16.19	16.09	17.00
		75	0	16.19	16.13	16.02	17.00
	16QAM	1	0	15.94	15.70	15.89	17.00
		1	38	15.45	16.13	16.01	17.00
		1	74	15.67	15.69	15.29	17.00
		36	0	14.98	14.80	15.11	16.00
		36	18	15.14	14.89	15.16	16.00
		36	39	15.03	15.31	15.03	16.00
		75	0	15.20	14.81	15.05	16.00
	64QAM	1	0	15.87	15.46	15.62	16.00
		1	38	15.95	15.50	15.32	16.00
		1	74	15.87	15.76	15.42	16.00
		36	0	14.53	14.34	14.72	15.00
		36	18	14.64	14.48	14.72	15.00
		36	39	14.59	14.96	14.71	15.00
		75	0	14.88	14.50	14.69	15.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20050	20175	20300	
20MHz	QPSK	1	0	16.49	16.81	16.90	18.00
		1	50	17.06	17.31	17.29	18.00
		1	99	16.90	16.94	17.00	18.00
		50	0	16.16	16.06	16.29	17.00
		50	25	16.17	15.88	16.20	17.00
		50	50	16.14	16.16	16.10	17.00
		100	0	16.13	16.07	16.34	17.00
	16QAM	1	0	16.01	16.08	16.02	17.00
		1	50	16.00	15.86	16.69	17.00
		1	99	16.09	16.05	15.45	17.00
		50	0	15.06	15.07	15.36	16.00
		50	25	15.03	15.07	15.23	16.00
		50	50	15.15	14.85	15.09	16.00
		100	0	15.18	15.13	15.07	16.00
	64QAM	1	0	15.88	15.48	15.41	16.00
		1	50	15.61	15.30	15.61	16.00
		1	99	15.40	15.42	15.85	16.00
		50	0	14.73	14.60	14.75	15.00
		50	25	14.55	14.64	14.93	15.00
		50	50	14.67	14.54	14.78	15.00
		100	0	14.71	14.63	14.69	15.00

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LTE Band 5				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel 20407	Channel 20525	Channel 20643	Tune up
1.4MHz	QPSK	1	0	24.01	24.08	24.17	25.50
		1	2	24.07	24.17	24.20	25.50
		1	5	24.09	24.20	24.19	25.50
		3	0	24.24	24.37	24.28	25.50
		3	2	24.16	24.40	24.30	25.50
		3	3	24.23	24.35	24.30	25.50
		6	0	23.11	23.30	23.28	24.50
	16QAM	1	0	23.18	23.16	22.98	24.50
		1	2	23.61	23.09	22.88	24.50
		1	5	23.23	23.19	22.87	24.50
		3	0	23.11	22.95	23.32	24.50
		3	2	23.15	22.97	23.41	24.50
		3	3	22.99	22.90	23.34	24.50
		6	0	22.14	22.16	22.34	23.50
	64QAM	1	0	21.71	21.91	21.59	23.50
		1	2	22.28	21.93	21.58	23.50
		1	5	22.17	21.81	21.56	23.50
		3	0	21.88	21.75	21.91	23.50
		3	2	21.98	21.83	21.94	23.50
		3	3	21.77	21.66	22.15	23.50
		6	0	20.78	20.86	20.94	22.50
Bandwidth	Modulation	RB size	RB offset	Channel 20415	Channel 20525	Channel 20635	Tune up
3MHz	QPSK	1	0	24.04	24.04	24.28	25.50
		1	7	24.37	24.22	24.51	25.50
		1	14	24.20	24.39	24.24	25.50
		8	0	23.23	23.37	23.40	24.50
		8	4	23.26	23.41	23.44	24.50
		8	7	23.30	23.37	23.43	24.50
		15	0	23.17	23.37	23.43	24.50
	16QAM	1	0	23.20	23.02	23.18	24.50
		1	7	23.23	23.81	23.59	24.50
		1	14	22.64	23.43	23.61	24.50
		8	0	22.37	22.48	22.51	23.50
		8	4	22.38	22.29	22.61	23.50
		8	7	22.37	22.45	22.47	23.50
		15	0	22.16	22.50	22.55	23.50
	64QAM	1	0	21.90	21.54	22.09	23.50
		1	7	21.82	22.02	22.11	23.50
		1	14	21.73	22.15	22.04	23.50
		8	0	20.78	21.03	20.93	22.50
		8	4	20.91	20.86	21.17	22.50
		8	7	20.92	20.86	21.00	22.50
		15	0	20.75	20.94	20.96	22.50

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Bandwidth	Modulation	RB size	RB offset	Channel 20425	Channel 20525	Channel 20625	Tune up
5MHz	QPSK	1	0	23.89	24.30	24.11	25.50
		1	13	24.06	24.57	24.50	25.50
		1	24	24.08	24.36	24.11	25.50
		12	0	23.32	23.38	23.55	24.50
		12	6	23.39	23.39	23.60	24.50
		12	13	23.32	23.36	23.46	24.50
		25	0	23.25	23.46	23.54	24.50
	16QAM	1	0	22.93	22.72	23.23	24.50
		1	13	23.09	23.70	23.35	24.50
		1	24	22.69	22.62	23.69	24.50
		12	0	22.23	22.35	22.56	23.50
		12	6	22.38	22.43	22.64	23.50
		12	13	22.32	22.54	22.57	23.50
		25	0	22.36	22.49	22.62	23.50
	64QAM	1	0	21.97	21.88	22.01	23.50
		1	13	22.01	22.05	22.21	23.50
		1	24	21.95	21.79	22.02	23.50
		12	0	20.66	20.92	21.16	22.50
		12	6	20.88	21.00	21.15	22.50
		12	13	20.83	21.09	21.02	22.50
		25	0	20.80	21.09	21.18	22.50

Bandwidth	Modulation	RB size	RB offset	Channel 20450	Channel 20525	Channel 20600	Tune up
10MHz	QPSK	1	0	24.13	24.22	24.33	25.50
		1	25	24.54	24.55	24.64	25.50
		1	49	24.32	24.19	24.34	25.50
		25	0	23.43	23.50	23.58	24.50
		25	13	23.57	23.54	23.68	24.50
		25	25	23.41	23.53	23.61	24.50
		50	0	23.48	23.59	23.60	24.50
	16QAM	1	0	23.39	23.20	23.23	24.50
		1	25	23.12	23.72	23.38	24.50
		1	49	22.67	23.21	23.04	24.50
		25	0	22.40	22.37	22.56	23.50
		25	13	22.51	22.52	22.71	23.50
		25	25	22.39	22.48	22.49	23.50
		50	0	22.45	22.56	22.52	23.50
	64QAM	1	0	22.06	21.82	22.01	23.50
		1	25	21.94	22.07	21.90	23.50
		1	49	21.95	21.82	21.91	23.50
		25	0	20.94	20.79	21.03	22.50
		25	13	21.03	20.93	21.28	22.50
		25	25	20.91	21.01	20.95	22.50
		50	0	20.97	21.07	21.03	22.50

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LTE Band 7(Sensor off)				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel 20775	Channel 21100	Channel 21425	Tune up
5MHz	QPSK	1	0	23.37	23.24	23.55	24.50
		1	13	23.48	23.59	23.56	24.50
		1	24	23.04	23.40	23.32	24.50
		12	0	22.60	22.46	22.71	23.50
		12	6	22.55	22.61	22.75	23.50
		12	13	22.41	22.49	22.63	23.50
		25	0	22.61	22.52	22.67	23.50
	16QAM	1	0	22.20	22.14	22.67	23.50
		1	13	22.38	22.33	22.95	23.50
		1	24	21.60	21.96	22.60	23.50
		12	0	21.44	21.66	21.75	22.50
		12	6	21.44	21.74	21.67	22.50
		12	13	21.31	21.62	21.78	22.50
		25	0	21.58	21.62	21.83	22.50
	64QAM	1	0	21.74	21.69	22.07	22.50
		1	13	21.88	21.88	22.05	22.50
		1	24	21.87	21.79	22.17	22.50
		12	0	20.79	21.04	21.14	21.50
		12	6	20.78	21.12	21.00	21.50
		12	13	20.63	20.99	21.16	21.50
		25	0	20.94	20.92	21.15	21.50
Bandwidth	Modulation	RB size	RB offset	Channel 20800	Channel 21100	Channel 21400	Tune up
10MHz	QPSK	1	0	23.30	23.41	23.55	24.50
		1	25	23.63	23.60	23.59	24.50
		1	49	23.25	23.41	23.46	24.50
		25	0	22.60	22.47	22.81	23.50
		25	13	22.54	22.53	22.77	23.50
		25	25	22.53	22.47	22.72	23.50
		50	0	22.45	22.48	22.81	23.50
	16QAM	1	0	21.85	21.88	22.52	23.50
		1	25	21.88	22.05	23.08	23.50
		1	49	21.88	22.39	22.09	23.50
		25	0	21.72	21.70	21.59	22.50
		25	13	21.65	21.59	21.95	22.50
		25	25	21.58	21.70	21.91	22.50
		50	0	21.49	21.48	21.65	22.50
	64QAM	1	0	21.85	21.88	22.02	22.50
		1	25	21.81	22.05	22.12	22.50
		1	49	21.88	22.09	22.01	22.50
		25	0	21.04	21.10	20.96	21.50
		25	13	21.01	20.90	21.35	21.50
		25	25	20.94	21.01	21.22	21.50
		50	0	20.79	20.80	21.04	21.50

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Bandwidth	Modulation	RB size	RB offset	Channel 20825	Channel 21100	Channel 21375	Tune up
15MHz	QPSK	1	0	23.36	23.37	23.68	24.50
		1	38	23.28	23.31	23.75	24.50
		1	74	23.38	23.45	23.76	24.50
		36	0	22.59	22.57	22.77	23.50
		36	18	22.63	22.57	22.77	23.50
		36	39	22.54	22.42	22.73	23.50
		75	0	22.60	22.51	22.77	23.50
	16QAM	1	0	22.37	22.20	22.60	23.50
		1	38	23.08	22.36	23.07	23.50
		1	74	22.07	22.39	22.11	23.50
		36	0	21.61	21.47	21.86	22.50
		36	18	21.49	21.66	21.76	22.50
		36	39	21.61	21.37	21.70	22.50
		75	0	21.56	21.56	21.73	22.50
	64QAM	1	0	22.02	22.12	22.16	22.50
		1	38	21.98	22.06	21.96	22.50
		1	74	22.07	22.09	21.98	22.50
		36	0	20.99	20.78	21.17	21.50
		36	18	20.83	21.05	21.14	21.50
		36	39	20.98	20.70	21.02	21.50
		75	0	20.95	20.92	21.07	21.50
Bandwidth	Modulation	RB size	RB offset	Channel 20850	Channel 21100	Channel 21350	Tune up
20MHz	QPSK	1	0	23.32	23.27	23.61	24.50
		1	50	23.53	23.49	23.99	24.50
		1	99	23.34	23.26	23.49	24.50
		50	0	22.59	22.62	22.78	23.50
		50	25	22.66	22.51	22.72	23.50
		50	50	22.61	22.47	22.75	23.50
		100	0	22.64	22.59	22.77	23.50
	16QAM	1	0	22.44	22.23	22.17	23.50
		1	50	22.73	22.35	22.99	23.50
		1	99	22.28	21.67	22.73	23.50
		50	0	21.56	21.46	21.68	22.50
		50	25	21.50	21.56	21.62	22.50
		50	50	21.72	21.59	21.77	22.50
		100	0	21.49	21.47	21.74	22.50
	64QAM	1	0	21.99	21.78	21.71	22.50
		1	50	22.33	21.94	22.03	22.50
		1	99	21.81	21.88	22.23	22.50
		50	0	20.90	20.76	21.08	21.50
		50	25	20.84	20.95	20.93	21.50
		50	50	21.02	20.92	21.08	21.50
		100	0	20.85	20.80	21.13	21.50

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LTE Band 7(Sensor on)				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel 20775	Channel 21100	Channel 21425	Tune up
5MHz	QPSK	1	0	19.66	19.76	20.15	21.00
		1	13	19.83	20.13	20.12	21.00
		1	24	19.69	19.92	20.01	21.00
		12	0	19.05	18.95	19.28	20.00
		12	6	19.05	19.00	19.33	20.00
		12	13	18.99	18.89	19.20	20.00
		25	0	18.97	19.02	19.24	20.00
	16QAM	1	0	18.85	18.70	19.11	20.00
		1	13	18.91	18.23	19.31	20.00
		1	24	18.51	18.33	19.11	20.00
		12	0	17.93	17.75	18.05	19.00
		12	6	18.01	18.01	18.33	19.00
		12	13	17.82	18.14	18.24	19.00
		25	0	17.98	17.97	18.33	19.00
	64QAM	1	0	18.15	18.27	18.29	19.00
		1	13	18.25	18.08	18.12	19.00
		1	24	18.21	18.29	18.07	19.00
		12	0	17.10	17.43	17.25	18.00
		12	6	17.14	17.14	17.49	18.00
		12	13	17.24	17.29	17.37	18.00
		25	0	17.15	17.10	17.43	18.00
Bandwidth	Modulation	RB size	RB offset	Channel 20800	Channel 21100	Channel 21400	Tune up
10MHz	QPSK	1	0	19.69	19.69	19.86	21.00
		1	25	19.86	20.11	20.11	21.00
		1	49	19.51	19.66	20.13	21.00
		25	0	19.07	19.09	19.26	20.00
		25	13	19.05	19.04	19.33	20.00
		25	25	18.96	18.99	19.22	20.00
		50	0	18.97	19.00	19.23	20.00
	16QAM	1	0	18.52	18.46	19.13	20.00
		1	25	18.45	19.54	19.49	20.00
		1	49	18.25	18.53	18.58	20.00
		25	0	18.12	18.03	18.21	19.00
		25	13	17.97	18.06	18.44	19.00
		25	25	18.03	17.99	18.40	19.00
		50	0	18.00	17.94	18.17	19.00
	64QAM	1	0	18.21	18.16	18.06	19.00
		1	25	18.20	18.32	18.19	19.00
		1	49	18.18	18.14	18.28	19.00
		25	0	17.30	17.19	17.40	18.00
		25	13	17.11	17.20	17.59	18.00
		25	25	17.20	17.19	17.54	18.00
		50	0	17.14	17.09	17.27	18.00

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Bandwidth	Modulation	RB size	RB offset	Channel 20825	Channel 21100	Channel 21375	Tune up
15MHz	QPSK	1	0	19.79	19.94	20.08	21.00
		1	38	20.09	19.97	20.12	21.00
		1	74	19.82	19.81	19.96	21.00
		36	0	19.06	19.05	19.24	20.00
		36	18	19.12	19.05	19.25	20.00
		36	39	18.99	18.92	19.19	20.00
		75	0	19.00	19.01	19.28	20.00
	16QAM	1	0	18.60	18.33	18.68	20.00
		1	38	19.18	18.55	19.03	20.00
		1	74	18.53	19.06	18.65	20.00
		36	0	17.92	18.09	18.18	19.00
		36	18	17.97	18.13	18.22	19.00
		36	39	17.93	17.91	18.25	19.00
		75	0	18.05	17.93	18.25	19.00
	64QAM	1	0	18.36	18.16	18.06	19.00
		1	38	18.14	18.25	18.03	19.00
		1	74	18.26	18.36	18.35	19.00
		36	0	17.05	17.24	17.30	18.00
		36	18	17.12	17.30	17.41	18.00
		36	39	17.11	17.03	17.39	18.00
		75	0	17.23	17.07	17.35	18.00
Bandwidth	Modulation	RB size	RB offset	Channel 20850	Channel 21100	Channel 21350	Tune up
20MHz	QPSK	1	0	19.80	19.77	19.75	21.00
		1	50	20.07	19.98	20.16	21.00
		1	99	19.55	19.71	19.83	21.00
		50	0	19.00	19.06	19.14	20.00
		50	25	19.11	19.02	19.28	20.00
		50	50	19.00	18.90	19.19	20.00
		100	0	19.00	19.04	19.24	20.00
	16QAM	1	0	18.65	18.53	18.80	20.00
		1	50	18.78	18.84	19.14	20.00
		1	99	18.75	18.27	18.46	20.00
		50	0	17.94	18.14	18.20	19.00
		50	25	18.11	18.08	18.37	19.00
		50	50	17.95	17.79	18.02	19.00
		100	0	17.91	17.95	18.27	19.00
	64QAM	1	0	18.15	18.23	18.36	19.00
		1	50	18.18	18.34	18.11	19.00
		1	99	18.08	18.27	18.14	19.00
		50	0	17.06	17.25	17.32	18.00
		50	25	17.21	17.23	17.52	18.00
		50	50	17.09	16.95	17.15	18.00
		100	0	17.02	17.11	17.41	18.00

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LTE FDD Band 12				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel 23017	Channel 23095	Channel 23173	Tune up
1.4MHz	QPSK	1	0	24.36	24.52	24.40	25.50
		1	2	24.45	24.71	24.51	25.50
		1	5	24.46	24.74	24.52	25.50
		3	0	24.60	24.71	24.56	25.50
		3	2	24.58	24.66	24.91	25.50
		3	3	24.59	24.77	24.63	25.50
		6	0	23.65	23.69	23.64	24.50
	16QAM	1	0	22.87	23.91	23.16	24.50
		1	2	22.79	23.36	23.00	24.50
		1	5	23.15	23.13	23.33	24.50
		3	0	23.41	23.38	23.09	24.50
		3	2	23.64	23.74	23.38	24.50
		3	3	23.58	23.63	23.48	24.50
		6	0	22.43	22.53	22.39	23.50
	64QAM	1	0	22.42	22.44	22.45	23.50
		1	2	22.38	22.37	22.56	23.50
		1	5	22.75	22.67	22.62	23.50
		3	0	22.26	22.46	22.59	23.50
		3	2	23.21	23.32	22.91	23.50
		3	3	23.18	23.15	23.03	23.50
		6	0	21.63	21.53	21.39	22.50
Bandwidth	Modulation	RB size	RB offset	Channel 23025	Channel 23095	Channel 23165	Tune up
3MHz	QPSK	1	0	24.52	24.53	24.45	25.50
		1	7	24.35	24.79	24.48	25.50
		1	14	24.35	24.79	24.37	25.50
		8	0	23.69	23.76	23.68	24.50
		8	4	23.54	23.96	23.59	24.50
		8	7	23.68	23.83	23.62	24.50
		15	0	23.67	23.85	23.64	24.50
	16QAM	1	0	23.66	23.33	23.09	24.50
		1	7	23.28	23.55	23.84	24.50
		1	14	23.13	23.52	23.84	24.50
		8	0	22.42	22.52	22.72	23.50
		8	4	22.71	22.54	22.75	23.50
		8	7	22.68	22.75	22.68	23.50
		15	0	22.67	22.80	22.38	23.50
	64QAM	1	0	23.16	22.85	22.63	23.50
		1	7	22.24	22.59	23.37	23.50
		1	14	22.63	22.61	23.42	23.50
		8	0	21.34	21.44	21.76	22.50
		8	4	21.68	21.50	21.72	22.50
		8	7	21.75	21.80	21.67	22.50
		15	0	21.57	21.86	21.37	22.50

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Bandwidth	Modulation	RB size	RB offset	Channel 23035	Channel 23095	Channel 23155	Tune up
5MHz	QPSK	1	0	24.26	24.54	24.56	25.50
		1	13	24.49	24.49	24.35	25.50
		1	24	24.57	24.52	24.65	25.50
		12	0	23.70	23.85	23.72	24.50
		12	6	23.68	23.95	23.76	24.50
		12	13	23.67	23.85	23.58	24.50
		25	0	23.73	23.84	23.73	24.50
	16QAM	1	0	23.00	23.78	23.56	24.50
		1	13	23.37	23.90	24.09	24.50
		1	24	22.82	23.57	23.18	24.50
		12	0	22.48	22.74	22.58	23.50
		12	6	22.70	22.86	22.60	23.50
		12	13	22.67	22.82	22.45	23.50
		25	0	22.75	22.96	22.54	23.50
	64QAM	1	0	22.55	22.91	22.64	23.50
		1	13	22.92	22.97	23.27	23.50
		1	24	22.37	22.72	22.35	23.50
		12	0	21.56	21.75	21.55	22.50
		12	6	21.65	21.76	21.57	22.50
		12	13	21.68	21.91	21.52	22.50
		25	0	21.85	22.02	21.63	22.50
Bandwidth	Modulation	RB size	RB offset	Channel 23060	Channel 23095	Channel 23130	Tune up
10MHz	QPSK	1	0	24.58	24.66	24.75	25.50
		1	25	24.81	24.92	24.81	25.50
		1	49	24.87	24.68	24.83	25.50
		25	0	23.77	23.80	24.02	24.50
		25	13	23.96	23.91	23.90	24.50
		25	25	24.04	23.99	23.83	24.50
		50	0	24.02	23.97	24.02	24.50
	16QAM	1	0	23.17	23.43	23.07	24.50
		1	25	23.42	23.99	23.95	24.50
		1	49	23.44	24.23	23.16	24.50
		25	0	22.87	22.79	22.97	23.50
		25	13	22.94	23.00	23.05	23.50
		25	25	23.08	22.91	23.17	23.50
		50	0	23.05	22.90	23.13	23.50
	64QAM	1	0	22.71	23.02	22.57	23.50
		1	25	22.84	22.54	22.52	23.50
		1	49	22.54	22.73	22.69	23.50
		25	0	21.31	21.27	21.53	22.50
		25	13	21.57	21.43	21.55	22.50
		25	25	21.56	21.40	21.67	22.50
		50	0	21.57	21.44	21.72	22.50

LTE FDD Band 13				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel 23205	Channel 23230	Channel 23255	Tune up
5MHz	QPSK	1	0	23.90	24.03	23.67	25.00
		1	13	23.92	23.86	24.21	25.00
		1	24	23.66	24.14	23.90	25.00
		12	0	22.97	23.04	23.16	24.00
		12	6	23.07	23.10	23.20	24.00
		12	13	23.13	23.21	23.31	24.00
		25	0	22.98	23.08	23.17	24.00
	16QAM	1	0	22.97	22.54	22.92	24.00
		1	13	23.13	22.15	23.21	24.00
		1	24	22.49	23.38	22.85	24.00
		12	0	21.90	21.90	22.19	23.00
		12	6	22.17	22.00	22.21	23.00
		12	13	22.22	22.16	22.43	23.00
		25	0	22.14	22.26	22.43	23.00
	64QAM	1	0	21.88	21.84	21.99	23.00
		1	13	22.23	21.91	22.27	23.00
		1	24	21.94	22.29	21.88	23.00
		12	0	21.84	21.82	21.75	22.00
		12	6	21.67	21.54	21.71	22.00
		12	13	21.78	21.68	21.98	22.00
		25	0	21.74	21.80	21.96	22.00
Bandwidth	Modulation	RB size	RB offset	Channel NA	Channel 23230	Channel NA	Tune up
10MHz	QPSK	1	0	NA	23.85	NA	25.00
		1	25	NA	24.24	NA	25.00
		1	49	NA	23.93	NA	25.00
		25	0	NA	23.09	NA	24.00
		25	13	NA	23.14	NA	24.00
		25	25	NA	23.34	NA	24.00
		50	0	NA	23.13	NA	24.00
	16QAM	1	0	NA	22.68	NA	24.00
		1	25	NA	22.81	NA	24.00
		1	49	NA	22.90	NA	24.00
		25	0	NA	22.11	NA	23.00
		25	13	NA	22.22	NA	23.00
		25	25	NA	22.36	NA	23.00
		50	0	NA	22.24	NA	23.00
	64QAM	1	0	NA	21.68	NA	23.00
		1	25	NA	21.81	NA	23.00
		1	49	NA	22.09	NA	23.00
		25	0	NA	21.67	NA	22.00
		25	13	NA	21.74	NA	22.00
		25	25	NA	21.90	NA	22.00
		50	0	NA	21.74	NA	22.00

LTE FDD Band 14				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel 23305	Channel 23330	Channel 23355	Tune up
5MHz	QPSK	1	0	24.06	23.96	23.80	25.00
		1	13	24.01	23.86	24.06	25.00
		1	24	24.02	23.96	24.14	25.00
		12	0	23.30	23.09	23.13	24.00
		12	6	23.21	23.05	23.13	24.00
		12	13	23.13	22.95	23.17	24.00
		25	0	23.16	23.16	23.14	24.00
	16QAM	1	0	22.77	23.30	22.64	24.00
		1	13	23.33	22.90	22.91	24.00
		1	24	22.43	22.52	23.05	24.00
		12	0	22.33	22.08	21.94	23.00
		12	6	22.26	22.10	21.95	23.00
		12	13	22.09	22.06	22.30	23.00
		25	0	22.22	22.30	22.31	23.00
	64QAM	1	0	21.99	22.24	22.33	23.00
		1	13	22.40	22.04	22.38	23.00
		1	24	22.34	22.11	22.03	23.00
		12	0	21.26	21.03	20.95	22.00
		12	6	21.27	21.04	20.91	22.00
		12	13	21.00	21.02	21.36	22.00
		25	0	21.30	21.21	21.38	22.00
Bandwidth	Modulation	RB size	RB offset	Channel NA	Channel 23330	Channel NA	Tune up
10MHz	QPSK	1	0	NA	24.34	NA	25.00
		1	25	NA	24.54	NA	25.00
		1	49	NA	24.12	NA	25.00
		25	0	NA	23.22	NA	24.00
		25	13	NA	23.18	NA	24.00
		25	25	NA	23.08	NA	24.00
		50	0	NA	23.19	NA	24.00
	16QAM	1	0	NA	22.71	NA	24.00
		1	25	NA	22.73	NA	24.00
		1	49	NA	22.87	NA	24.00
		25	0	NA	22.14	NA	23.00
		25	13	NA	22.13	NA	23.00
		25	25	NA	22.11	NA	23.00
		50	0	NA	22.16	NA	23.00
	64QAM	1	0	NA	22.21	NA	23.00
		1	25	NA	22.23	NA	23.00
		1	49	NA	22.37	NA	23.00
		25	0	NA	21.14	NA	22.00
		25	13	NA	21.13	NA	22.00
		25	25	NA	21.11	NA	22.00
		50	0	NA	21.16	NA	22.00

LTE Band 66(Sensor off)				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel 131979	Channel 132322	Channel 132665	Tune up
1.4MHz	QPSK	1	0	22.74	23.29	23.03	23.70
		1	2	22.97	23.38	23.18	23.70
		1	5	22.79	23.28	23.25	23.70
		3	0	23.03	23.43	23.26	23.70
		3	2	23.13	23.52	23.33	23.70
		3	3	23.09	23.41	23.34	23.70
		6	0	22.05	22.47	22.35	22.70
	16QAM	1	0	22.20	22.35	21.74	22.70
		1	2	21.46	22.58	22.11	22.70
		1	5	21.55	21.99	21.86	22.70
		3	0	21.66	22.40	22.00	22.70
		3	2	21.91	22.46	22.25	22.70
		3	3	21.99	22.57	21.98	22.70
		6	0	20.92	21.53	21.27	21.70
	64QAM	1	0	19.99	19.89	19.96	21.70
		1	2	19.78	20.48	20.03	21.70
		1	5	19.85	19.99	19.83	21.70
		3	0	19.91	19.97	19.95	21.70
		3	2	19.85	19.75	19.86	21.70
		3	3	19.84	19.72	19.78	21.70
		6	0	19.32	19.36	19.40	20.70
Bandwidth	Modulation	RB size	RB offset	Channel 131987	Channel 132322	Channel 132657	Tune up
3MHz	QPSK	1	0	22.79	23.46	22.96	23.70
		1	7	23.17	23.50	23.24	23.70
		1	14	22.80	23.45	23.11	23.70
		8	0	21.91	22.53	22.30	22.70
		8	4	22.13	22.54	22.31	22.70
		8	7	22.04	22.49	22.25	22.70
		15	0	22.05	22.51	22.22	22.70
	16QAM	1	0	22.20	21.92	21.79	22.70
		1	7	21.96	22.64	21.82	22.70
		1	14	21.85	22.55	21.62	22.70
		8	0	21.13	21.57	20.85	21.70
		8	4	20.97	21.50	20.96	21.70
		8	7	21.15	21.58	21.01	21.70
		15	0	21.00	21.59	21.16	21.70
	64QAM	1	0	20.02	19.88	19.79	21.70
		1	7	19.90	20.48	19.79	21.70
		1	14	19.78	20.40	19.92	21.70
		8	0	19.09	19.37	19.29	20.70
		8	4	18.82	19.35	19.36	20.70
		8	7	19.10	19.42	19.25	20.70
		15	0	18.99	19.14	19.03	20.70

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Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				131997	132322	132647	
5MHz	QPSK	1	0	22.72	23.10	22.90	23.70
		1	13	22.95	23.57	23.05	23.70
		1	24	22.91	23.30	22.91	23.70
		12	0	21.96	22.44	22.20	22.70
		12	6	22.01	22.47	22.30	22.70
		12	13	21.98	22.54	22.25	22.70
		25	0	21.95	22.42	22.34	22.70
	16QAM	1	0	21.73	22.24	21.83	22.70
		1	13	21.81	22.14	21.64	22.70
		1	24	21.32	22.18	21.91	22.70
		12	0	20.79	21.30	21.20	21.70
		12	6	20.89	21.25	21.02	21.70
		12	13	21.00	21.43	21.36	21.70
		25	0	20.90	21.52	21.20	21.70
	64QAM	1	0	19.99	20.23	19.71	21.70
		1	13	19.73	20.75	19.82	21.70
		1	24	19.82	20.16	19.86	21.70
		12	0	19.28	19.30	19.05	20.70
		12	6	18.88	19.16	18.92	20.70
		12	13	18.96	19.35	19.33	20.70
		25	0	19.32	19.38	19.11	20.70
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				132022	132322	132622	
10MHz	QPSK	1	0	22.83	23.21	23.09	23.70
		1	25	23.30	23.38	23.21	23.70
		1	49	22.94	23.10	23.04	23.70
		25	0	22.09	22.42	22.32	22.70
		25	13	22.15	22.47	22.30	22.70
		25	25	22.16	22.44	22.26	22.70
		50	0	22.16	22.42	22.26	22.70
	16QAM	1	0	21.41	22.15	21.53	22.70
		1	25	21.58	22.35	22.09	22.70
		1	49	21.93	21.82	21.72	22.70
		25	0	21.09	21.52	21.31	21.70
		25	13	21.31	21.36	21.34	21.70
		25	25	21.16	21.44	21.32	21.70
		50	0	21.23	21.54	21.34	21.70
	64QAM	1	0	19.99	19.96	19.91	21.70
		1	25	19.85	20.18	19.93	21.70
		1	49	19.85	19.78	19.98	21.70
		25	0	18.93	19.34	19.28	20.70
		25	13	19.28	19.36	19.25	20.70
		25	25	19.14	19.35	19.18	20.70
		50	0	19.18	19.34	19.16	20.70

Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				132047	132322	132597	
15MHz	QPSK	1	0	22.88	23.11	23.05	23.70
		1	38	23.20	23.48	23.12	23.70
		1	74	22.98	23.41	23.05	23.70
		36	0	22.08	22.35	22.29	22.70
		36	18	22.11	22.46	22.22	22.70
		36	39	22.18	22.49	22.15	22.70
		75	0	22.16	22.37	22.27	22.70
	16QAM	1	0	21.41	22.21	22.47	22.70
		1	38	21.85	22.15	22.31	22.70
		1	74	21.42	22.15	21.04	22.70
		36	0	21.04	21.22	21.24	21.70
		36	18	21.19	21.47	21.24	21.70
		36	39	21.30	21.41	21.10	21.70
		75	0	21.22	21.39	21.31	21.70
	64QAM	1	0	19.98	20.09	20.35	21.70
		1	38	19.74	20.15	20.27	21.70
		1	74	19.81	20.12	19.82	21.70
		36	0	18.91	19.11	19.06	20.70
		36	18	19.08	19.41	19.07	20.70
		36	39	19.14	19.32	19.05	20.70
		75	0	19.15	19.34	19.28	20.70
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				132072	132322	132572	
20MHz	QPSK	1	0	22.63	22.99	23.08	23.70
		1	50	23.27	23.64	23.30	23.70
		1	99	22.78	23.57	23.05	23.70
		50	0	22.01	22.44	22.33	22.70
		50	25	22.21	22.48	22.31	22.70
		50	50	22.08	22.49	22.09	22.70
		100	0	22.10	22.34	22.27	22.70
	16QAM	1	0	21.43	21.87	22.24	22.70
		1	50	21.73	22.15	22.26	22.70
		1	99	21.15	22.45	21.74	22.70
		50	0	21.07	21.34	21.36	21.70
		50	25	21.18	21.55	21.33	21.70
		50	50	21.11	21.46	21.08	21.70
		100	0	21.13	21.37	21.19	21.70
	64QAM	1	0	19.95	19.85	20.14	21.70
		1	50	19.97	20.07	20.17	21.70
		1	99	20.06	20.84	19.88	21.70
		50	0	18.95	19.16	19.29	20.70
		50	25	19.12	19.38	19.31	20.70
		50	50	18.92	19.29	18.90	20.70
		100	0	19.04	19.32	19.01	20.70

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LTE Band 66(Sensor on)				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel 131979	Channel 132322	Channel 132665	Tune up
1.4MHz	QPSK	1	0	16.98	17.37	17.24	18.00
		1	2	17.12	17.39	17.27	18.00
		1	5	17.07	17.29	17.14	18.00
		3	0	17.00	17.41	17.24	18.00
		3	2	17.12	17.57	17.31	18.00
		3	3	17.12	17.56	17.28	18.00
		6	0	16.01	16.60	16.21	17.00
	16QAM	1	0	15.89	15.61	15.58	17.00
		1	2	16.25	15.82	16.07	17.00
		1	5	15.10	16.03	15.58	17.00
		3	0	15.78	16.22	15.96	17.00
		3	2	16.22	16.30	16.28	17.00
		3	3	16.31	16.21	16.05	17.00
		6	0	14.97	15.80	15.23	16.00
	64QAM	1	0	15.89	15.61	15.58	16.00
		1	2	15.84	15.82	15.22	16.00
		1	5	15.51	15.64	15.52	16.00
		3	0	15.78	15.46	15.64	16.00
		3	2	15.12	15.66	15.25	16.00
		3	3	15.63	15.85	15.31	16.00
		6	0	13.76	14.79	14.16	15.00
Bandwidth	Modulation	RB size	RB offset	Channel 131987	Channel 132322	Channel 132657	Tune up
3MHz	QPSK	1	0	17.00	17.42	17.27	18.00
		1	7	17.24	17.56	17.19	18.00
		1	14	17.01	17.28	17.22	18.00
		8	0	16.04	16.23	16.24	17.00
		8	4	16.07	16.25	16.27	17.00
		8	7	16.07	16.20	16.17	17.00
		15	0	16.11	16.18	16.25	17.00
	16QAM	1	0	15.93	16.51	16.19	17.00
		1	7	16.10	15.58	16.26	17.00
		1	14	16.00	16.22	16.09	17.00
		8	0	14.95	15.71	15.25	16.00
		8	4	15.16	15.78	15.18	16.00
		8	7	15.28	15.72	15.24	16.00
		15	0	15.01	15.60	15.37	16.00
	64QAM	1	0	15.64	15.68	15.98	16.00
		1	7	15.74	15.18	15.88	16.00
		1	14	15.63	15.84	15.89	16.00
		8	0	13.81	14.77	14.11	15.00
		8	4	13.78	14.81	14.18	15.00
		8	7	13.84	14.79	14.05	15.00
		15	0	13.81	14.72	14.19	15.00

Bandwidth	Modulation	RB size	RB offset	Channel 131997	Channel 132322	Channel 132647	Tune up
5MHz	QPSK	1	0	16.85	17.27	17.07	18.00
		1	13	17.05	17.45	17.18	18.00
		1	24	17.08	17.36	17.20	18.00
		12	0	16.05	16.52	16.25	17.00
		12	6	16.11	16.57	16.26	17.00
		12	13	16.12	16.55	16.34	17.00
		25	0	16.08	16.53	16.23	17.00
	16QAM	1	0	15.24	15.88	16.19	17.00
		1	13	15.13	15.68	16.22	17.00
		1	24	15.70	16.77	15.47	17.00
		12	0	14.81	15.60	15.14	16.00
		12	6	15.13	15.54	15.25	16.00
		12	13	15.09	15.71	15.24	16.00
		25	0	15.22	15.57	15.33	16.00
	64QAM	1	0	15.62	15.48	15.99	16.00
		1	13	15.85	15.35	15.86	16.00
		1	24	15.38	15.62	15.75	16.00
		12	0	13.91	14.62	14.23	15.00
		12	6	13.97	14.83	14.19	15.00
		12	13	13.90	14.83	14.16	15.00
		25	0	13.90	14.74	14.13	15.00

Bandwidth	Modulation	RB size	RB offset	Channel 132022	Channel 132322	Channel 132622	Tune up
10MHz	QPSK	1	0	16.63	17.33	17.26	18.00
		1	25	17.01	17.39	17.21	18.00
		1	49	16.98	17.25	17.04	18.00
		25	0	16.13	16.45	16.26	17.00
		25	13	16.09	16.43	16.25	17.00
		25	25	16.22	16.42	16.24	17.00
		50	0	16.13	16.49	16.25	17.00
	16QAM	1	0	15.41	15.86	15.93	17.00
		1	25	16.67	16.50	16.41	17.00
		1	49	16.55	16.99	16.56	17.00
		25	0	15.07	15.45	15.19	16.00
		25	13	15.02	15.59	15.16	16.00
		25	25	15.22	15.53	15.22	16.00
		50	0	14.98	15.43	15.23	16.00
	64QAM	1	0	15.42	15.62	15.59	16.00
		1	25	15.69	15.48	15.22	16.00
		1	49	15.54	15.63	15.24	16.00
		25	0	14.17	14.26	14.15	15.00
		25	13	14.38	14.64	14.13	15.00
		25	25	14.21	14.47	13.98	15.00
		50	0	14.19	14.42	14.00	15.00

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Bandwidth	Modulation	RB size	RB offset	Channel 132047	Channel 132322	Channel 132597	Tune up
15MHz	QPSK	1	0	16.89	17.37	17.18	18.00
		1	38	17.29	17.42	17.37	18.00
		1	74	16.99	17.42	17.01	18.00
		36	0	16.15	16.41	16.33	17.00
		36	18	16.27	16.43	16.25	17.00
		36	39	16.27	16.43	16.17	17.00
		75	0	16.21	16.47	16.25	17.00
	16QAM	1	0	15.53	16.68	15.60	17.00
		1	38	15.85	16.46	15.77	17.00
		1	74	16.13	15.52	15.99	17.00
		36	0	14.99	15.28	15.26	16.00
		36	18	15.14	15.54	15.25	16.00
		36	39	15.07	15.48	15.10	16.00
		75	0	15.10	15.41	15.17	16.00
	64QAM	1	0	15.26	15.68	15.29	16.00
		1	38	15.55	15.26	15.48	16.00
		1	74	15.81	15.19	15.63	16.00
		36	0	14.14	14.37	14.38	15.00
		36	18	14.46	14.74	14.34	15.00
		36	39	14.20	14.67	13.92	15.00
		75	0	14.15	14.49	14.16	15.00
Bandwidth	Modulation	RB size	RB offset	Channel 132072	Channel 132322	Channel 132572	Tune up
20MHz	QPSK	1	0	16.83	17.00	17.33	18.00
		1	50	17.19	17.61	17.38	18.00
		1	99	16.99	17.63	16.90	18.00
		50	0	16.10	16.52	16.28	17.00
		50	25	16.23	16.47	16.22	17.00
		50	50	16.29	16.46	16.18	17.00
		100	0	16.19	16.49	16.34	17.00
	16QAM	1	0	15.49	16.47	16.26	17.00
		1	50	16.45	16.97	16.12	17.00
		1	99	16.00	16.85	15.61	17.00
		50	0	15.09	15.37	15.32	16.00
		50	25	15.23	15.54	15.26	16.00
		50	50	15.18	15.48	15.19	16.00
		100	0	15.08	15.32	15.17	16.00
	64QAM	1	0	15.12	15.89	15.93	16.00
		1	50	15.55	15.96	15.82	16.00
		1	99	15.64	15.54	15.28	16.00
		50	0	14.19	14.66	14.59	15.00
		50	25	14.45	14.75	14.57	15.00
		50	50	14.29	14.65	14.41	15.00
		100	0	14.21	14.49	14.35	15.00

LTE Band 71				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel 133147	Channel 133297	Channel 133447	Tune up
5MHz	QPSK	1	0	23.95	24.05	23.70	25.00
		1	13	23.94	23.85	24.26	25.00
		1	24	23.61	24.09	23.85	25.00
		12	0	22.97	23.06	23.16	24.00
		12	6	23.07	23.13	23.19	24.00
		12	13	23.14	23.23	23.29	24.00
		25	0	22.96	23.03	23.21	24.00
	16QAM	1	0	22.94	22.50	22.89	24.00
		1	13	23.10	22.11	23.17	24.00
		1	24	22.51	23.40	22.86	24.00
		12	0	21.92	21.95	22.18	23.00
		12	6	22.13	22.00	22.26	23.00
		12	13	22.20	22.12	22.41	23.00
		25	0	22.14	22.28	22.42	23.00
	64QAM	1	0	22.54	21.93	22.45	23.00
		1	13	22.60	22.54	22.65	23.00
		1	24	22.04	22.89	22.35	23.00
		12	0	20.88	20.92	21.09	22.00
		12	6	21.13	20.91	21.09	22.00
		12	13	21.06	20.98	21.39	22.00
		25	0	20.96	21.26	21.25	22.00
Bandwidth	Modulation	RB size	RB offset	Channel 133172	Channel 133297	Channel 133422	Tune up
10MHz	QPSK	1	0	23.94	24.00	23.68	25.00
		1	25	23.93	23.90	24.23	25.00
		1	49	23.60	24.13	23.89	25.00
		25	0	22.94	23.02	23.13	24.00
		25	13	23.07	23.18	23.16	24.00
		25	25	23.18	23.24	23.34	24.00
		50	0	22.91	23.02	23.19	24.00
	16QAM	1	0	22.89	22.55	22.92	24.00
		1	25	23.14	22.13	23.22	24.00
		1	49	22.52	23.44	22.89	24.00
		25	0	21.94	21.93	22.20	23.00
		25	13	22.11	22.05	22.24	23.00
		25	25	22.15	22.09	22.36	23.00
		50	0	22.19	22.32	22.44	23.00
	64QAM	1	0	22.35	22.14	22.50	23.00
		1	25	22.61	22.59	22.62	23.00
		1	49	21.98	22.34	22.40	23.00
		25	0	20.87	20.82	21.16	22.00
		25	13	21.00	20.94	21.21	22.00
		25	25	20.97	20.96	21.17	22.00
		50	0	21.00	21.18	21.37	22.00

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Bandwidth	Modulation	RB size	RB offset	Channel 133197	Channel 133297	Channel 133397	Tune up
15MHz	QPSK	1	0	23.96	23.95	23.64	25.00
		1	38	23.95	23.93	24.22	25.00
		1	74	23.61	24.17	23.87	25.00
		36	0	22.95	23.01	23.08	24.00
		36	18	23.07	23.16	23.15	24.00
		36	39	23.17	23.27	23.37	24.00
		75	0	22.96	23.03	23.18	24.00
	16QAM	1	0	22.90	22.59	22.87	24.00
		1	38	23.19	22.08	23.22	24.00
		1	74	22.53	23.45	22.90	24.00
		36	0	21.98	21.94	22.19	23.00
		36	18	22.09	22.05	22.26	23.00
		36	39	22.16	22.12	22.41	23.00
		75	0	22.23	22.34	22.46	23.00
	64QAM	1	0	22.38	22.17	22.28	23.00
		1	38	22.67	22.60	22.74	23.00
		1	74	22.46	22.69	22.44	23.00
		36	0	20.90	20.94	20.99	22.00
		36	18	21.07	21.05	21.10	22.00
		36	39	20.96	20.95	21.32	22.00
		75	0	21.03	21.22	21.39	22.00
Bandwidth	Modulation	RB size	RB offset	Channel 133222	Channel 133297	Channel 133372	Tune up
20MHz	QPSK	1	0	23.93	23.91	23.59	25.00
		1	50	23.92	23.96	24.27	25.00
		1	99	23.60	24.19	23.90	25.00
		50	0	22.92	22.98	23.07	24.00
		50	25	23.04	23.15	23.13	24.00
		50	50	23.16	23.24	23.41	24.00
		100	0	22.97	23.08	23.14	24.00
	16QAM	1	0	22.89	22.60	22.89	24.00
		1	50	23.22	22.10	23.21	24.00
		1	99	22.54	23.45	22.88	24.00
		50	0	21.96	21.90	22.17	23.00
		50	25	22.07	22.04	22.22	23.00
		50	50	22.15	22.08	22.42	23.00
		100	0	22.19	22.32	22.43	23.00
	64QAM	1	0	22.38	22.07	22.48	23.00
		1	50	22.74	22.67	22.66	23.00
		1	99	22.27	22.98	22.32	23.00
		50	0	20.80	20.80	21.02	22.00
		50	25	21.03	21.03	21.17	22.00
		50	50	21.03	21.05	21.35	22.00
		100	0	21.09	21.12	21.31	22.00

Table 11：Conducted Power of LTE.

5.3.4 Conducted Power of WIFI and BT

2.4GHz Receiver off	Channel	Frequency (MHz)	Data Rate(Mbps)	Tune up	Average Power (dBm)	SAR Test
802.11b	1	2412	1	19.50	**18.88**	Yes
	6	2437		19.50	18.89	NO
	11	2462		19.50	18.85	NO
802.11g	1	2412	6	19.50	18.62	NO
	6	2437		19.50	18.75	NO
	11	2462		19.50	18.57	NO
802.11n HT20 SISO	1	2412	6.5	19.60	18.55	NO
	6	2437		19.60	18.72	NO
	11	2462		19.60	18.61	NO
802.11n HT40 SISO	3	2422	13.5	19.60	19.15	NO
	6	2437		19.60	18.97	NO
	9	2452		19.60	18.74	NO

2.4GHz Receiver on	Channel	Frequency (MHz)	Data Rate(Mbps)	Tune up	Average Power (dBm)	SAR Test
802.11b	1	2412	1	19.00	**17.63**	Yes
	6	2437		19.00	17.94	NO
	11	2462		19.00	17.66	NO
802.11g	1	2412	6	19.00	17.56	NO
	6	2437		19.00	17.67	NO
	11	2462		19.00	17.47	NO
802.11n HT20 SISO	1	2412	6.5	19.00	17.51	NO
	6	2437		19.00	17.68	NO
	11	2462		19.00	17.52	NO
802.11n HT40 SISO	3	2422	13.5	18.00	18.06	NO
	6	2437		18.00	18.00	NO
	9	2452		18.00	17.72	NO

5GHz Receiver off	mode	Channel	Frequency (MHz)	Data Rate(Mbps)	Tune up	Average Power (dBm)	SAR Test
802.11a	U-NII-1	36	5180	6	19.00	18.46	NO
		40	5200		19.00	18.53	NO
		44	5220		19.00	18.55	NO
		48	5240		19.00	18.36	NO
	U-NII-2A	52	5260		19.00	18.46	NO
		56	5280		19.00	18.34	NO
		60	5300		19.00	18.57	NO
		64	5320		19.00	18.29	NO
	U-NII-2C	100	5500		19.00	17.97	NO
		104	5520		19.00	18.01	NO
		108	5540		19.00	17.93	NO
		112	5560		19.00	17.83	NO
		116	5580		19.00	17.91	NO
		120	5600		19.00	17.84	NO
		124	5620		19.00	18.02	NO
		128	5640		19.00	18.27	NO
		132	5660		19.00	17.96	NO
		136	5680		19.00	17.96	NO
		140	5700		19.00	17.76	NO
		144	5720		19.00	17.86	NO
	U-NII-3	149	5745		17.00	16.11	NO
		153	5765		17.00	16.22	NO
		157	5785		17.00	16.03	NO
		161	5805		17.00	16.06	NO
		165	5825		17.00	15.92	NO
5GHz	mode	Channel	Frequency (MHz)	Data Rate(Mbps)	Tune up	Average Power (dBm)	SAR Test
802.11n-HT20	U-NII-1	36	5180	MCS0	19.00	18.07	NO
		40	5200		19.00	18.16	NO
		44	5220		19.00	18.11	NO
		48	5240		19.00	18.13	NO
	U-NII-2A	52	5260		19.00	18.06	NO
		56	5280		19.00	18.13	NO
		60	5300		19.00	18.09	NO
		64	5320		19.00	18.03	NO
	U-NII-2C	100	5500		19.00	17.85	NO
		104	5520		19.00	17.81	NO
		108	5540		19.00	17.79	NO
		112	5560		19.00	17.75	NO
		116	5580		19.00	17.62	NO
		120	5600		19.00	17.68	NO
		124	5620		19.00	17.83	NO
		128	5640		19.00	17.84	NO
		132	5660		19.00	17.79	NO
		136	5680		19.00	17.80	NO
		140	5700		19.00	17.67	NO

		144	5720		19.00	17.65	NO
	U-NII-3	149	5745		17.00	15.96	NO
		153	5765		17.00	15.89	NO
		157	5785		17.00	15.93	NO
		161	5805		17.00	15.86	NO
		165	5825		17.00	15.76	NO
5GHz	mode	Channel	Frequency (MHz)	Data Rate(Mbps)	Tune up	Average Power (dBm)	SAR Test
802.11n-HT40	U-NII-1	38	5190	MCS0	19.00	**18.52**	Yes
		46	5230		19.00	**18.53**	Yes
	U-NII-2A	54	5270		19.00	**18.09**	Yes
		62	5310		19.00	**18.10**	Yes
	U-NII-2C	102	5510		19.00	**18.08**	Yes
		110	5550		19.00	18.06	NO
		118	5590		19.00	18.04	NO
		126	5630		19.00	**18.09**	Yes
		134	5670		19.00	18.04	NO
		142	5710		19.00	**18.06**	Yes
	U-NII-3	151	5755		17.00	**16.45**	Yes
		159	5795		17.00	16.42	NO

5GHz Receiver on	mode	Channel	Frequency (MHz)	Data Rate(Mbps)	Tune up	Average Power (dBm)	SAR Test
802.11a	U-NII-1	36	5180	6	16.00	15.86	NO
		40	5200		16.00	15.91	NO
		44	5220		16.00	15.88	NO
		48	5240		16.00	15.83	NO
	U-NII-2A	52	5260		16.00	15.94	NO
		56	5280		16.00	15.87	NO
		60	5300		16.00	15.88	NO
		64	5320		16.00	15.74	NO
	U-NII-2C	100	5500		16.00	15.49	NO
		104	5520		16.00	15.54	NO
		108	5540		16.00	15.45	NO
		112	5560		16.00	15.24	NO
		116	5580		16.00	15.35	NO
		120	5600		16.00	15.28	NO
		124	5620		16.00	15.47	NO
		128	5640		16.00	15.76	NO
		132	5660		16.00	15.42	NO
		136	5680		16.00	15.40	NO
		140	5700		16.00	15.34	NO
		144	5720		16.00	15.40	NO
	U-NII-3	149	5745		16.00	15.44	NO
		153	5765		16.00	15.38	NO
		157	5785		16.00	15.43	NO
		161	5805		16.00	15.36	NO
		165	5825		16.00	15.26	NO

5GHz	mode	Channel	Frequency(MHz)	Data Rate(Mbps)	Tune up	Average Power (dBm)	SAR Test
802.11n-HT20	U-NII-1	36	5180	MCS0	16.00	15.96	NO
		40	5200		16.00	15.87	NO
		44	5220		16.00	15.95	NO
		48	5240		16.00	15.94	NO
	U-NII-2A	52	5260		16.00	15.93	NO
		56	5280		16.00	15.98	NO
		60	5300		16.00	15.93	NO
		64	5320		16.00	15.87	NO
	U-NII-2C	100	5500		16.00	15.66	NO
		104	5520		16.00	15.65	NO
		108	5540		16.00	15.56	NO
		112	5560		16.00	15.48	NO
		116	5580		16.00	15.44	NO
		120	5600		16.00	15.46	NO
		124	5620		16.00	15.61	NO
		128	5640		16.00	15.63	NO
		132	5660		16.00	15.57	NO
		136	5680		16.00	15.64	NO
		140	5700		16.00	15.48	NO
		144	5720		16.00	15.43	NO
	U-NII-3	149	5745		16.00	15.53	NO
		153	5765		16.00	15.41	NO
		157	5785		16.00	15.47	NO
		161	5805		16.00	15.34	NO
		165	5825		16.00	15.33	NO

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5GHz	mode	Channel	Frequency (MHz)	Data Rate(Mbps)	Tune up	Average Power (dBm)	SAR Test
802.11n-HT40	U-NII-1	38	5190	MCS0	16	15.54	NO
		46	5230		16	15.59	NO
	U-NII-2A	54	5270		16	15.66	NO
		62	5310		16	**15.69**	Yes
	U-NII-2C	102	5510		16	15.83	NO
		110	5550		16	15.78	NO
		118	5590		16	15.87	NO
		126	5630		16	15.84	NO
		134	5670		16	**15.92**	Yes
		142	5710		16	15.87	NO
	U-NII-3	151	5755		16	15.97	NO
		159	5795		16	**15.98**	Yes

Table 12：Conducted Power of WIFI.

Note:

a) Power must be measured at each transmit antenna port according to the DSSS and OFDM transmission configurations in each standalone and aggregated frequency band.

b) 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.

c) 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.

BT			Tune up (dBm)	Average Conducted Power(dBm)
Modulation	Channel	Frequency (MHz)		
GFSK	0	2402	8.0	5.96
	39	2441	8.0	7.38
	78	2480	8.0	6.68
π/4DQPSK	0	2402	8.0	3.54
	39	2441	8.0	5.04
	78	2480	8.0	4.28
8DPSK	0	2402	8.0	3.48
	39	2441	8.0	5.01
	78	2480	8.0	4.22
BLE			Tune up (dBm)	Average Conducted Power(dBm)
Modulation	Channel	Frequency (MHz)		
GFSK	0	2402	-2.0	-4.01
	19	2440	-2.0	-2.69
	39	2480	-2.0	-3.39

Table 13：Conducted Power of BT.

5.4 Measurement of SAR Data

5.4.1 SAR Result of GSM850

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(W/kg)	Liquid Temp
Head Test data										
Left cheek	GSM	190/836.6	1:8.3	0.381	0.13	32.57	33.50	1.239	0.472	22.1
Left tilted	GSM	190/836.6	1:8.3	0.238	0.10	32.57	33.50	1.239	0.295	22.1
Right cheek	GSM	190/836.6	1:8.3	0.405	0.04	32.57	33.50	1.239	**0.502**	22.1
Right tilted	GSM	190/836.6	1:8.3	0.233	0.03	32.57	33.50	1.239	0.289	22.1
Left cheek	GPRS 3TS	190/836.6	1:2.77	0.264	0.06	29.05	31.00	1.567	0.414	22.1
Left tilted	GPRS 3TS	190/836.6	1:2.77	0.131	0.09	29.05	31.00	1.567	0.205	22.1
Right cheek	GPRS 3TS	190/836.6	1:2.77	0.289	0.08	29.05	31.00	1.567	0.453	22.1
Right tilted	GPRS 3TS	190/836.6	1:2.77	0.155	-0.04	29.05	31.00	1.567	0.243	22.1
Body worn Test data(Separate 15mm)										
Front side	GSM	190/836.6	1:8.3	0.422	0.09	32.57	33.50	1.239	0.523	22.1
Back side	GSM	190/836.6	1:8.3	0.498	0.07	32.57	33.50	1.239	**0.617**	22.1
Hotspot Test data(Separate 10mm)										
Front side	GPRS 3TS	190/836.6	1:2.77	0.388	0.06	29.05	31.00	1.567	0.608	22.1
Back side	GPRS 3TS	190/836.6	1:2.77	0.448	-0.05	29.05	31.00	1.567	**0.702**	22.1
Left side	GPRS 3TS	190/836.6	1:2.77	0.401	0.02	29.05	31.00	1.567	0.628	22.1
Right side	GPRS 3TS	190/836.6	1:2.77	0.375	-0.13	29.05	31.00	1.567	0.588	22.1
Bottom side	GPRS 3TS	190/836.6	1:2.77	0.160	0.09	29.05	31.00	1.567	0.251	22.1

Table 14：SAR of GSM850 for Head and Body.

Note:

1) The maximum Scaled SAR value is marked in bold. Graph results refer to Appendix B.

2) Per FCC KDB Publication 447498 D01, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is not required for such test configuration(s).

3) When multiple slots can be used, SAR should be tested to account for the maximum source-based time-averaged output power.

5.4.2 SAR Result of GSM1900

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(W/kg)	Liquid Temp
Head Test data										
Left cheek	GSM	661/1880	1:8.3	0.143	-0.06	30.30	30.50	1.047	0.150	22.3
Left tilted	GSM	661/1880	1:8.3	0.129	-0.03	30.30	30.50	1.047	0.135	22.3
Right cheek	GSM	661/1880	1:8.3	0.182	0.13	30.30	30.50	1.047	0.191	22.3
Right tilted	GSM	661/1880	1:8.3	0.103	0.07	30.30	30.50	1.047	0.108	22.3
Left cheek	GPRS 3TS	661/1880	1:2.77	0.196	0.05	26.11	27.00	1.227	0.241	22.3
Left tilted	GPRS 3TS	661/1880	1:2.77	0.193	0.18	26.11	27.00	1.227	0.237	22.3
Right cheek	GPRS 3TS	661/1880	1:2.77	0.314	-0.03	26.11	27.00	1.227	**0.385**	22.3
Right tilted	GPRS 3TS	661/1880	1:2.77	0.137	-0.17	26.11	27.00	1.227	0.168	22.3
Body worn Test data sensor off										
Front side-15mm	GSM	661/1880	1:8.3	0.206	0.02	30.30	30.50	1.047	0.216	22.3
Back side-19mm	GSM	661/1880	1:8.3	0.198	0.03	30.30	30.50	1.047	0.207	22.3
Body worn Test data(Separate 15mm) sensor on										
Back side	GSM	661/1880	1:8.3	0.202	0.08	27.20	28.00	1.202	**0.243**	22.3
Hotspot Test data sensor off										
Front side-15mm	GPRS 3TS	661/1880	1:2.77	0.220	-0.18	26.11	27.00	1.227	0.270	22.3
Back side-19mm	GPRS 3TS	661/1880	1:2.77	0.231	-0.07	26.11	27.00	1.227	0.284	22.3
Left side -10mm	GPRS 3TS	661/1880	1:2.77	0.136	0.06	26.11	27.00	1.227	0.167	22.3
Right side -10mm	GPRS 3TS	661/1880	1:2.77	0.172	0.13	26.11	27.00	1.227	0.211	22.3
Bottom side-19mm	GPRS 3TS	661/1880	1:2.77	0.328	-0.02	26.11	27.00	1.227	0.403	22.3
Hotspot Test data(Separate 10mm) sensor on										
Front side	GPRS 4TS	661/1880	1:2.075	0.264	0.08	22.10	23.00	1.230	0.325	22.3
Back side	GPRS 4TS	661/1880	1:2.075	0.473	0.04	22.10	23.00	1.230	0.582	22.3
Bottom side	GPRS 4TS	661/1880	1:2.075	0.577	0.03	22.10	23.00	1.230	**0.710**	22.3

Table 15：SAR of GSM1900 for Head and Body.

Note:

1) The maximum Scaled SAR value is marked in bold. Graph results refer to Appendix B.

2) Per FCC KDB Publication 447498 D01, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is not required for such test configuration(s).

3) When multiple slots can be used, SAR should be tested to account for the maximum source-based time-averaged output power.

5.4.3 SAR Result of WCDMA Band II

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(W/kg)	Liquid Temp
Head Test data										
Left cheek	RMC	9400/1880	1:1	0.223	0.07	23.13	23.70	1.140	0.254	22.3
Left tilted	RMC	9400/1880	1:1	0.215	0.11	23.13	23.70	1.140	0.245	22.3
Right cheek	RMC	9400/1880	1:1	0.254	0.03	23.13	23.70	1.140	**0.290**	22.3
Right tilted	RMC	9400/1880	1:1	0.158	0.18	23.13	23.70	1.140	0.180	22.3
Body worn Test data sensor off										
Front side-15mm	RMC	9400/1880	1:1	0.314	-0.06	23.13	23.70	1.140	0.358	22.3
Back side-19mm	RMC	9400/1880	1:1	0.454	0.01	23.13	23.70	1.140	**0.518**	22.3
Body worn Test data(Separate 15mm) sensor on										
Back side	RMC	9400/1880	1:1	0.241	0.01	19.46	20.00	1.132	0.273	22.3
Hotspot Test data sensor off										
Front side-15mm	RMC	9400/1880	1:1	0.314	-0.06	23.13	23.70	1.140	0.358	22.3
Back side-19mm	RMC	9400/1880	1:1	0.454	0.01	23.13	23.70	1.140	0.518	22.3
Left side -10mm	RMC	9400/1880	1:1	0.200	0.04	23.13	23.70	1.140	0.228	22.3
Right side -10mm	RMC	9400/1880	1:1	0.287	0.04	23.13	23.70	1.140	0.327	22.3
Bottom side-19mm	RMC	9400/1880	1:1	0.489	0.18	23.13	23.70	1.140	0.558	22.3
Hotspot Test data(Separate 10mm) sensor on										
Front side	RMC	9400/1880	1:1	0.270	0.01	19.46	20.00	1.132	0.306	22.3
Back side	RMC	9400/1880	1:1	0.426	-0.03	19.46	20.00	1.132	0.482	22.3
Bottom side	RMC	9400/1880	1:1	0.710	0.03	19.46	20.00	1.132	0.804	22.3
Bottom side	RMC	9262/1852.4	1:1	0.798	0.01	19.42	20.00	1.143	**0.912**	22.3
Bottom side	RMC	9538/1907.6	1:1	0.621	0.06	19.45	20.00	1.135	0.705	22.3

Table 16：SAR of WCDMA Band II for Head and Body.

Note:

1) The maximum Scaled SAR value is marked in bold. Graph results refer to Appendix B.

2) Per FCC KDB Publication 447498 D01, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is not required for such test configuration(s).

5.4.4 SAR Result of WCDMA Band IV

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(W/kg)	Liquid Temp
Head Test data										
Left cheek	RMC	1412/1732.4	1:1	0.066	0.07	21.75	22.20	1.109	0.073	22.2
Left tilted	RMC	1412/1732.4	1:1	0.057	0.02	21.75	22.20	1.109	0.064	22.2
Right cheek	RMC	1412/1732.4	1:1	0.118	0.02	21.75	22.20	1.109	**0.131**	22.2
Right tilted	RMC	1412/1732.4	1:1	0.053	0.17	21.75	22.20	1.109	0.059	22.2
Body worn Test data sensor off										
Front side-15mm	RMC	1412/1732.4	1:1	0.397	-0.04	21.75	22.20	1.109	0.440	22.2
Back side-19mm	RMC	1412/1732.4	1:1	0.718	0.08	21.75	22.20	1.109	**0.796**	22.2
Body worn Test data(Separate 15mm) sensor on										
Back side	RMC	1412/1732.4	1:1	0.284	0.16	17.25	17.50	1.059	0.301	22.2
Hotspot Test data sensor off										
Front side-15mm	RMC	1412/1732.4	1:1	0.397	-0.04	21.75	22.20	1.109	0.440	22.2
Back side-19mm	RMC	1412/1732.4	1:1	0.718	0.08	21.75	22.20	1.109	0.796	22.2
Left side -10mm	RMC	1412/1732.4	1:1	0.029	0.04	21.75	22.20	1.109	0.032	22.2
Right side -10mm	RMC	1412/1732.4	1:1	0.122	0.05	21.75	22.20	1.109	0.135	22.2
Bottom side-19mm	RMC	1412/1732.4	1:1	0.764	0.14	21.75	22.20	1.109	0.847	22.2
Bottom side-19mm	RMC	1312/1712.4	1:1	0.797	0.07	21.73	22.20	1.114	0.888	22.2
Bottom side-19mm	RMC	1513/1752.6	1:1	0.601	-0.01	21.76	22.20	1.107	0.665	22.2
Hotspot Test data(Separate 10mm) sensor on										
Front side	RMC	1412/1732.4	1:1	0.284	-0.01	17.25	17.50	1.059	0.301	22.2
Back side	RMC	1412/1732.4	1:1	0.511	-0.03	17.25	17.50	1.059	0.541	22.2
Bottom side	RMC	1412/1732.4	1:1	0.790	0.02	17.25	17.50	1.059	0.837	22.2
Bottom side	RMC	1312/1712.4	1:1	0.870	0.01	17.20	17.50	1.072	**0.932**	22.2
Bottom side-Repeat	RMC	1312/1712.4	1:1	0.845	0.04	17.20	17.50	1.072	0.905	22.2
Bottom side	RMC	1513/1752.6	1:1	0.649	0.03	17.21	17.50	1.069	0.694	22.2

Table 17：SAR of WCDMA Band IV for Head and Body.

Note:

1) The maximum Scaled SAR value is marked in bold. Graph results refer to Appendix B.

2) Per FCC KDB Publication 447498 D01, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is not required for such test configuration(s).

Test Position	Channel/ Frequency (MHz)	Measured SAR (1g)	1st Repeated SAR (1g)	Ratio	2nd Repeated SAR (1g)	3rd Repeated SAR (1g)
Bottom side 10mm	1312/1712.4	0.870	0.845	1.030	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 performed 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 performed 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						

Table 18：SAR Measurement Variability Results.

5.4.5 SAR Result of WCDMA Band V

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(W/kg)	Liquid Temp
Head Test data										
Left cheek	RMC	4182/836.4	1:1	0.366	0.07	24.13	25.00	1.222	**0.447**	22.1
Left tilted	RMC	4182/836.4	1:1	0.222	-0.04	24.13	25.00	1.222	0.271	22.1
Right cheek	RMC	4182/836.4	1:1	0.343	0.02	24.13	25.00	1.222	0.419	22.1
Right tilted	RMC	4182/836.4	1:1	0.208	-0.02	24.13	25.00	1.222	0.254	22.1
Body worn Test data(Separate 15mm)										
Front side	RMC	4182/836.4	1:1	0.387	-0.04	24.13	25.00	1.222	0.473	22.1
Back side	RMC	4182/836.4	1:1	0.448	0.00	24.13	25.00	1.222	**0.547**	22.1
Hotspot Test data(Separate 10mm)										
Front side	RMC	4182/836.4	1:1	0.379	0.02	24.13	25.00	1.222	0.463	22.1
Back side	RMC	4182/836.4	1:1	0.501	0.03	24.13	25.00	1.222	**0.612**	22.1
Left side	RMC	4182/836.4	1:1	0.409	-0.16	24.13	25.00	1.222	0.500	22.1
Right side	RMC	4182/836.4	1:1	0.429	0.04	24.13	25.00	1.222	0.524	22.1
Bottom side	RMC	4182/836.4	1:1	0.063	0.02	24.13	25.00	1.222	0.077	22.1

Table 19：SAR of WCDMA Band V for Head and Body.

Note:

1) The maximum Scaled SAR value is marked in bold. Graph results refer to Appendix B.

2) Per FCC KDB Publication 447498 D01, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is not required for such test configuration(s).

5.4.6 SAR Result of LTE Band 2

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(W/kg)	Liquid Temp.
Head Test data(1RB)											
Left cheek	20	QPSK 1RB_50	18700/1860	1:1	0.266	-0.11	23.98	24.20	1.052	0.280	22.3
Left tilted	20	QPSK 1RB_50	18700/1860	1:1	0.201	-0.03	23.98	24.20	1.052	0.211	22.3
Right cheek	20	QPSK 1RB_50	18700/1860	1:1	0.325	0.13	23.98	24.20	1.052	**0.342**	22.3
Right tilted	20	QPSK 1RB_50	18700/1860	1:1	0.143	0.08	23.98	24.20	1.052	0.150	22.3
Head Test data(50%RB)											
Left cheek	20	QPSK 50RB_25	18900/1880	1:1	0.185	-0.04	22.86	23.20	1.081	0.200	22.3
Left tilted	20	QPSK 50RB_25	18900/1880	1:1	0.128	-0.07	22.86	23.20	1.081	0.138	22.3
Right cheek	20	QPSK 50RB_25	18900/1880	1:1	0.250	-0.03	22.86	23.20	1.081	0.270	22.3
Right tilted	20	QPSK 50RB_25	18900/1880	1:1	0.098	0.05	22.86	23.20	1.081	0.106	22.3
Body worn Test data(Separate 15mm 1RB) sensor off											
Front side-15mm	20	QPSK 1RB_50	18700/1860	1:1	0.335	-0.06	23.98	24.20	1.052	0.352	22.3
Back side-19mm	20	QPSK 1RB_50	18700/1860	1:1	0.427	0.09	23.98	24.20	1.052	**0.449**	22.3
Body worn Test data (Separate 15mm 50%RB) sensor off											
Front side-15mm	20	QPSK 50RB_25	18900/1880	1:1	0.286	0.17	22.86	23.20	1.081	0.309	22.3
Back side-19mm	20	QPSK 50RB_25	18900/1880	1:1	0.225	0.12	22.86	23.20	1.081	0.243	22.3
Body worn Test data(Separate 15mm 1RB)sensor on											
Back side	20	QPSK 1RB_50	18700/1860	1:1	0.292	-0.05	20.35	21.00	1.161	0.339	22.3
Body worn Test data (Separate 15mm 50%RB) sensor on											
Back side	20	QPSK 50RB_25	18900/1880	1:1	0.204	0.12	19.32	20.00	1.169	0.239	22.3
Hotspot Test data(1RB) sensor off											
Front side-15mm	20	QPSK 1RB_50	18700/1860	1:1	0.385	-0.12	23.98	24.20	1.052	0.405	22.3
Back side-19mm	20	QPSK 1RB_50	18700/1860	1:1	0.427	0.09	23.98	24.20	1.052	0.449	22.3
Left side -10mm	20	QPSK 1RB_50	18700/1860	1:1	0.229	-0.03	23.98	24.20	1.052	0.241	22.3
Right side -10mm	20	QPSK 1RB_50	18700/1860	1:1	0.314	0.14	23.98	24.20	1.052	0.330	22.3
Bottom side-19mm	20	QPSK 1RB_50	18700/1860	1:1	0.447	-0.02	23.98	24.20	1.052	0.470	22.3
Hotspot Test data (50%RB) sensor off											
Front side-15mm	20	QPSK 50RB_25	18900/1880	1:1	0.286	0.17	22.86	23.20	1.081	0.309	22.3
Back side-19mm	20	QPSK 50RB_25	18900/1880	1:1	0.225	0.12	22.86	23.20	1.081	0.243	22.3
Left side -10mm	20	QPSK 50RB_25	18900/1880	1:1	0.226	-0.13	22.86	23.20	1.081	0.244	22.3
Right side -10mm	20	QPSK 50RB_25	18900/1880	1:1	0.231	-0.12	22.86	23.20	1.081	0.250	22.3
Bottom side-19mm	20	QPSK 50RB_25	18900/1880	1:1	0.309	0.01	22.86	23.20	1.081	0.334	22.3

Hotspot Test data(Separate 10mm 1RB) sensor on											
Front side	20	QPSK 1RB_50	19100/1900	1:1	0.317	-0.02	20.35	21.00	1.161	0.368	22.3
Back side	20	QPSK 1RB_50	19100/1900	1:1	0.518	-0.02	20.35	21.00	1.161	0.602	22.3
Bottom side	20	QPSK 1RB_50	19100/1900	1:1	0.751	-0.03	20.35	21.00	1.161	0.872	22.3
Bottom side	20	QPSK 1RB_50	18700/1860	1:1	0.861	-0.06	20.26	21.00	1.186	**1.021**	22.3
Bottom side-repeat	20	QPSK 1RB_50	18700/1860	1:1	0.842	0.02	20.26	21.00	1.186	0.998	22.3
Bottom side	20	QPSK 1RB_50	18900/1880	1:1	0.782	0.13	20.18	21.00	1.208	0.945	22.3
Hotspot Test data (Separate 10mm 50%RB)											
Front side	20	QPSK 50RB_25	19100/1900	1:1	0.251	0.01	19.32	20.00	1.169	0.294	22.3
Back side	20	QPSK 50RB_25	19100/1900	1:1	0.448	-0.01	19.32	20.00	1.169	0.524	22.3
Bottom side	20	QPSK 50RB_25	19100/1900	1:1	0.564	0.00	19.32	20.00	1.169	0.660	22.3
Hotspot Test data (Separate 10mm 100%RB)											
Bottom side	20	QPSK 100RB_0	19100/1900	1:1	0.596	0.02	19.32	20.00	1.169	0.697	22.3

Table 20：SAR of LTE Band 2 for Head and Body.

Note:

1) The maximum Scaled SAR value is marked in bold. Graph results refer to Appendix B.

2) Per FCC KDB Publication 447498 D01, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is not required for such test configuration(s).

Test Position	**Channel/ Frequency (MHz)**	**Measured SAR (1g)**	**1st Repeated SAR (1g)**	**Ratio**	**2nd Repeated SAR (1g)**	**3rd Repeated SAR (1g)**
Bottom side 10mm	18700/1860	0.861	0.842	1.023	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 performed 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 performed 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						

Table 21：SAR Measurement Variability Results.

5.4.7 SAR Result of LTE Band 4

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(W/kg)	Liquid Temp.
Head Test data(1RB)											
Left cheek	20	QPSK 1RB_99	20300/1745	1:1	0.086	-0.01	22.94	23.20	1.062	0.092	22.2
Left tilted	20	QPSK 1RB_99	20300/1745	1:1	0.060	0.05	22.94	23.20	1.062	0.064	22.2
Right cheek	20	QPSK 1RB_99	20300/1745	1:1	0.165	0.06	22.94	23.20	1.062	**0.175**	22.2
Right tilted	20	QPSK 1RB_99	20300/1745	1:1	0.055	0.08	22.94	23.20	1.062	0.058	22.2
Head Test data(50%RB)											
Left cheek	20	QPSK 50RB_0	20300/1745	1:1	0.060	0.03	21.85	22.20	1.084	0.065	22.2
Left tilted	20	QPSK 50RB_0	20300/1745	1:1	0.045	0.06	21.85	22.20	1.084	0.049	22.2
Right cheek	20	QPSK 50RB_0	20300/1745	1:1	0.119	0.01	21.85	22.20	1.084	0.129	22.2
Right tilted	20	QPSK 50RB_0	20300/1745	1:1	0.046	0.02	21.85	22.20	1.084	0.049	22.2
Body worn Test data(1RB) sensor off											
Front side-15mm	20	QPSK 1RB_99	20300/1745	1:1	0.465	0.04	22.94	23.20	1.062	0.494	22.2
Back side-19mm	20	QPSK 1RB_99	20300/1745	1:1	0.622	-0.13	22.94	23.20	1.062	**0.660**	22.2
Body worn Test data(50%RB) sensor off											
Front side-15mm	20	QPSK 50RB_0	20300/1745	1:1	0.358	-0.17	21.85	22.20	1.084	0.388	22.2
Back side-19mm	20	QPSK 50RB_0	20300/1745	1:1	0.581	0.03	21.85	22.20	1.084	0.630	22.2
Body worn Test data(Separate 15mm 1RB) sensor on											
Back side	20	QPSK 1RB_50	20175/1732.5	1:1	0.311	0.07	17.31	18.00	1.172	0.365	22.2
Body worn Test data (Separate 15mm 50%RB) sensor on											
Back side	20	QPSK 50RB_0	20300/1745	1:1	0.234	-0.09	16.29	17.00	1.178	0.276	22.2
Hotspot Test data(1RB) sensor off											
Front side-15mm	20	QPSK 1RB_99	20300/1745	1:1	0.465	0.04	22.94	23.20	1.062	0.494	22.2
Back side-19mm	20	QPSK 1RB_99	20300/1745	1:1	0.622	-0.13	22.94	23.20	1.062	0.660	22.2
Left side -10mm	20	QPSK 1RB_99	20300/1745	1:1	0.024	0.01	22.94	23.20	1.062	0.026	22.2
Right side -10mm	20	QPSK 1RB_99	20300/1745	1:1	0.109	0.17	22.94	23.20	1.062	0.116	22.2
Bottom side-19mm	20	QPSK 1RB_99	20300/1745	1:1	0.734	0.08	22.94	23.20	1.062	0.779	22.2
Hotspot Test data (50%RB) sensor off											
Front side-15mm	20	QPSK 50RB_0	20300/1745	1:1	0.358	-0.17	21.85	22.20	1.084	0.388	22.2
Back side-19mm	20	QPSK 50RB_0	20300/1745	1:1	0.581	0.03	21.85	22.20	1.084	0.630	22.2
Left side -10mm	20	QPSK 50RB_0	20300/1745	1:1	0.017	0.05	21.85	22.20	1.084	0.019	22.2
Right side -10mm	20	QPSK 50RB_0	20300/1745	1:1	0.091	0.03	21.85	22.20	1.084	0.098	22.2
Bottom side-19mm	20	QPSK 50RB_0	20300/1745	1:1	0.690	0.15	21.85	22.20	1.084	0.748	22.2

Hotspot Test data(Separate 10mm 1RB) sensor on											
Front side	20	QPSK 1RB_50	20175/1732.5	1:1	0.302	-0.07	17.31	18.00	1.172	0.354	22.2
Back side	20	QPSK 1RB_50	20175/1732.5	1:1	0.700	0.04	17.31	18.00	1.172	0.821	22.2
Back side	20	QPSK 1RB_50	20050/1720	1:1	0.810	0.09	17.06	18.00	1.242	1.006	22.2
Back side	20	QPSK 1RB_50	20300/1745	1:1	0.591	0.08	17.29	18.00	1.178	0.696	22.2
Bottom side	20	QPSK 1RB_50	20175/1732.5	1:1	0.861	0.04	17.31	18.00	1.172	1.009	22.2
Bottom side	20	QPSK 1RB_50	20050/1720	1:1	0.872	-0.08	17.06	18.00	1.242	**1.083**	22.2
Bottom side-repeat	20	QPSK 1RB_50	20050/1720	1:1	0.846	-0.02	17.06	18.00	1.242	1.050	22.2
Bottom side	20	QPSK 1RB_50	20300/1745	1:1	0.734	-0.03	17.29	18.00	1.178	0.864	22.2
Hotspot Test data (Separate 10mm 50%RB)											
Front side	20	QPSK 50RB_0	20300/1745	1:1	0.234	0.19	16.29	17.00	1.178	0.276	22.2
Back side	20	QPSK 50RB_0	20300/1745	1:1	0.483	0.05	16.29	17.00	1.178	0.569	22.2
Bottom side	20	QPSK 50RB_0	20300/1745	1:1	0.557	-0.06	16.29	17.00	1.178	0.656	22.2
Hotspot Test data (Separate 10mm 100%RB)											
Bottom side	20	QPSK 100RB_0	20300/1745	1:1	0.554	0.13	16.34	17.00	1.164	0.645	22.2

Table 22：SAR of LTE Band 4 for Head and Body.

Note:

1) The maximum Scaled SAR value is marked in bold. Graph results refer to Appendix B.

2) Per FCC KDB Publication 447498 D01, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is not required for such test configuration(s).

Test Position	Channel/ Frequency (MHz)	Measured SAR (1g)	1st Repeated SAR (1g)	Ratio	2nd Repeated SAR (1g)	3rd Repeated SAR (1g)
Bottom side 10mm	20050/1720	0.872	0.846	1.031	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 performed 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 performed 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						

Table 23：SAR Measurement Variability Results.

5.4.8 SAR Result of LTE Band 5

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(W/kg)	Liquid Temp.
Head Test data(1RB)											
Left cheek	10	QPSK 1RB_25	20600/844	1:1	0.489	-0.04	24.64	25.50	1.219	0.596	22.1
Left tilted	10	QPSK 1RB_25	20600/844	1:1	0.190	0.02	24.64	25.50	1.219	0.232	22.1
Right cheek	10	QPSK 1RB_25	20600/844	1:1	0.542	-0.08	24.64	25.50	1.219	**0.661**	22.1
Right tilted	10	QPSK 1RB_25	20600/844	1:1	0.274	0.01	24.64	25.50	1.219	0.334	22.1
Head Test data(50%RB)											
Left cheek	10	QPSK 25RB_13	20600/844	1:1	0.404	-0.03	23.68	24.5	1.208	0.488	22.1
Left tilted	10	QPSK 25RB_13	20600/844	1:1	0.165	-0.13	23.68	24.5	1.208	0.199	22.1
Right cheek	10	QPSK 25RB_13	20600/844	1:1	0.415	0.02	23.68	24.5	1.208	0.501	22.1
Right tilted	10	QPSK 25RB_13	20600/844	1:1	0.222	0.03	23.68	24.5	1.208	0.268	22.1
Body worn Test data(Separate 15mm 1RB)											
Front side	10	QPSK 1RB_25	20600/844	1:1	0.291	0.04	24.64	25.50	1.219	0.355	22.1
Back side	10	QPSK 1RB_25	20600/844	1:1	0.518	-0.05	24.64	25.50	1.219	**0.631**	22.1
Body worn Test data (Separate 15mm 50%RB)											
Front side	10	QPSK 25RB_13	20600/844	1:1	0.256	-0.12	23.68	24.50	1.208	0.309	22.1
Back side	10	QPSK 25RB_13	20600/844	1:1	0.294	0.09	23.68	24.50	1.208	0.355	22.1
Hotspot Test data(Separate 10mm 1RB)											
Front side	10	QPSK 1RB_25	20600/844	1:1	0.322	0.08	24.64	25.50	1.219	0.393	22.1
Back side	10	QPSK 1RB_25	20600/844	1:1	0.604	-0.04	24.64	25.50	1.219	**0.736**	22.1
Left side	10	QPSK 1RB_25	20600/844	1:1	0.353	0.02	24.64	25.50	1.219	0.430	22.1
Right side	10	QPSK 1RB_25	20600/844	1:1	0.425	-0.11	24.64	25.50	1.219	0.518	22.1
Bottom side	10	QPSK 1RB_25	20600/844	1:1	0.104	0.17	24.64	25.50	1.219	0.127	22.1
Hotspot Test data (Separate 10mm 50%RB)											
Front side	10	QPSK 25RB_13	20600/844	1:1	0.274	-0.06	23.68	24.50	1.208	0.331	22.1
Back side	10	QPSK 25RB_13	20600/844	1:1	0.338	0.13	23.68	24.50	1.208	0.408	22.1
Left side	10	QPSK 25RB_13	20600/844	1:1	0.319	0.02	23.68	24.50	1.208	0.385	22.1
Right side	10	QPSK 25RB_13	20600/844	1:1	0.359	0.10	23.68	24.50	1.208	0.434	22.1
Bottom side	10	QPSK 25RB_13	20600/844	1:1	0.092	-0.07	23.68	24.50	1.208	0.111	22.1

Table 24：SAR of LTE Band 5 for Head and Body.

Note:

1) The maximum Scaled SAR value is marked in bold. Graph results refer to Appendix B.

2) Per FCC KDB Publication 447498 D01, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is not required for such test configuration(s)

5.4.9 SAR Result of LTE Band 7

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(W/kg)	Liquid Temp.
Head Test data(1RB)											
Left cheek	20	QPSK 1RB_50	21350/2560	1:1	0.066	0.06	23.99	24.50	1.125	0.074	22.1
Left tilted	20	QPSK 1RB_50	21350/2560	1:1	0.054	0.07	23.99	24.50	1.125	0.061	22.1
Right cheek	20	QPSK 1RB_50	21350/2560	1:1	0.217	-0.06	23.99	24.50	1.125	**0.244**	22.1
Right tilted	20	QPSK 1RB_50	21350/2560	1:1	0.031	0.14	23.99	24.50	1.125	0.035	22.1
Head Test data(50%RB)											
Left cheek	20	QPSK 50RB_0	21350/2560	1:1	0.048	0.02	22.78	23.50	1.180	0.056	22.1
Left tilted	20	QPSK 50RB_0	21350/2560	1:1	0.039	0.00	22.78	23.50	1.180	0.046	22.1
Right cheek	20	QPSK 50RB_0	21350/2560	1:1	0.141	0.09	22.78	23.50	1.180	0.166	22.1
Right tilted	20	QPSK 50RB_0	21350/2560	1:1	0.026	0.04	22.78	23.50	1.180	0.031	22.1
Body worn Test data(1RB) sensor off											
Front side-15mm	20	QPSK 1RB_50	21350/2560	1:1	0.303	0.12	23.99	24.50	1.125	0.341	22.1
Back side-19mm	20	QPSK 1RB_50	21350/2560	1:1	0.542	-0.18	23.99	24.50	1.125	**0.610**	22.1
Body worn Test data (50%RB) sensor off											
Front side-15mm	20	QPSK 50RB_0	21350/2560	1:1	0.256	0.04	22.78	23.50	1.180	0.302	22.1
Back side-19mm	20	QPSK 50RB_0	21350/2560	1:1	0.446	0.06	22.78	23.50	1.180	0.526	22.1
Body worn Test data(Separate 15mm 1RB) sensor on											
Back side	20	QPSK 1RB_50	21350/2560	1:1	0.362	0.09	20.16	21.00	1.213	0.439	22.1
Body worn Test data (Separate 15mm 50%RB) sensor on											
Back side	20	QPSK 50RB_0	21350/2560	1:1	0.277	0.02	19.28	20.00	1.180	0.327	22.1
Hotspot Test data(1RB) sensor off											
Front side-15mm	20	QPSK 1RB_50	21350/2560	1:1	0.303	0.12	23.99	24.50	1.125	0.341	22.1
Back side-19mm	20	QPSK 1RB_50	21350/2560	1:1	0.542	-0.18	23.99	24.50	1.125	0.610	22.1
Left side -10mm	20	QPSK 1RB_50	21350/2560	1:1	0.097	0.11	23.99	24.50	1.125	0.109	22.1
Right side -10mm	20	QPSK 1RB_50	21350/2560	1:1	0.029	0.07	23.99	24.50	1.125	0.032	22.1
Bottom side-19mm	20	QPSK 1RB_50	21350/2560	1:1	0.474	0.15	23.99	24.50	1.125	0.533	22.1
Hotspot Test data (50%RB) sensor off											
Front side-15mm	20	QPSK 50RB_0	21350/2560	1:1	0.256	0.04	22.78	23.50	1.180	0.302	22.1
Back side-19mm	20	QPSK 50RB_0	21350/2560	1:1	0.446	0.06	22.78	23.50	1.180	0.526	22.1
Left side -10mm	20	QPSK 50RB_0	21350/2560	1:1	0.083	0.08	22.78	23.50	1.180	0.098	22.1
Right side -10mm	20	QPSK 50RB_0	21350/2560	1:1	0.026	0.04	22.78	23.50	1.180	0.031	22.1
Bottom side-19mm	20	QPSK 50RB_0	21350/2560	1:1	0.398	0.11	22.78	23.50	1.180	0.470	22.1

Hotspot Test data(Separate 10mm 1RB) sensor on											
Front side	20	QPSK 1RB_50	21350/2560	1:1	0.281	0.07	20.16	21.00	1.213	0.341	22.1
Back side	20	QPSK 1RB_50	21350/2560	1:1	0.771	0.08	20.16	21.00	1.213	0.936	22.1
Back side	20	QPSK 1RB_50	20850/2510	1:1	0.726	0.01	20.07	21.00	1.239	0.899	22.1
Back side	20	QPSK 1RB_50	21100/2535.5	1:1	0.888	-0.03	19.98	21.00	1.265	**1.123**	22.1
Bottom side	20	QPSK 1RB_50	21350/2560	1:1	0.608	0.07	20.16	21.00	1.213	0.738	22.1
Back side-repeat	20	QPSK 1RB_50	21100/2535.5	1:1	0.882	0.08	19.98	21.00	1.265	1.115	22.1
Hotspot Test data (Separate 10mm 50%RB) sensor on											
Front side	20	QPSK 50RB_25	21350/2560	1:1	0.217	0.03	19.28	20.00	1.180	0.256	22.1
Back side	20	QPSK 50RB_25	21350/2560	1:1	0.635	0.01	19.28	20.00	1.180	0.750	22.1
Bottom side	20	QPSK 50RB_25	21350/2560	1:1	0.507	0.11	19.28	20.00	1.180	0.598	22.1
Hotspot Test data (Separate 10mm 100%RB) sensor on											
Back side	20	QPSK 100RB_0	21350/2560	1:1	0.628	0.05	19.24	20.00	1.191	0.748	22.1

Table 25：SAR of LTE Band 7 for Head and Body.

Note:

1) The maximum Scaled SAR value is marked in bold. Graph results refer to Appendix B.

2) Per FCC KDB Publication 447498 D01, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is not required for such test configuration(s)

Test Position	Channel/ Frequency (MHz)	Measured SAR (1g)	1st Repeated SAR (1g)	Ratio	2nd Repeated SAR (1g)	3rd Repeated SAR (1g)
Bottom side 10mm	21100/2535.5	0.888	0.882	1.007	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 performed 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 performed 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						

Table 26：SAR Measurement Variability Results.

5.4.10SAR Result of LTE Band 12

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(W/kg)	Liquid Temp.
Head Test data(1RB)											
Left cheek	10	QPSK 1RB_25	23095/707.5	1:1	0.275	-0.04	24.92	25.50	1.143	0.314	22.1
Left tilted	10	QPSK 1RB_25	23095/707.5	1:1	0.108	0.19	24.92	25.50	1.143	0.123	22.1
Right cheek	10	QPSK 1RB_25	23095/707.5	1:1	0.295	0.18	24.92	25.50	1.143	**0.337**	22.1
Right tilted	10	QPSK 1RB_25	23095/707.5	1:1	0.147	0.04	24.92	25.50	1.143	0.168	22.1
Head Test data(50%RB)											
Left cheek	10	QPSK 25RB_25	23060/704	1:1	0.215	-0.17	24.04	24.50	1.112	0.239	22.1
Left tilted	10	QPSK 25RB_25	23060/704	1:1	0.089	0.12	24.04	24.50	1.112	0.098	22.1
Right cheek	10	QPSK 25RB_25	23060/704	1:1	0.221	-0.11	24.04	24.50	1.112	0.246	22.1
Right tilted	10	QPSK 25RB_25	23060/704	1:1	0.115	0.06	24.04	24.50	1.112	0.128	22.1
Body worn Test data(Separate 15mm 1RB)											
Front side	10	QPSK 1RB_25	23095/707.5	1:1	0.227	-0.19	24.92	25.50	1.143	0.259	22.1
Back side	10	QPSK 1RB_25	23095/707.5	1:1	0.376	0.03	24.92	25.50	1.143	**0.430**	22.1
Body worn Test data (Separate 15mm 50%RB)											
Front side	10	QPSK 25RB_0	23130/711	1:1	0.214	0.12	24.02	24.50	1.117	0.239	22.1
Back side	10	QPSK 25RB_0	23130/711	1:1	0.282	0.11	24.02	24.50	1.117	0.315	22.1
Hotspot Test data(Separate 10mm 1RB)											
Front side	10	QPSK 1RB_25	23095/707.5	1:1	0.233	-0.14	24.92	25.50	1.143	0.266	22.1
Back side	10	QPSK 1RB_25	23095/707.5	1:1	0.530	0.08	24.92	25.50	1.143	**0.606**	22.1
Left side	10	QPSK 1RB_25	23095/707.5	1:1	0.221	-0.07	24.92	25.50	1.143	0.253	22.1
Right side	10	QPSK 1RB_25	23095/707.5	1:1	0.270	0.09	24.92	25.50	1.143	0.309	22.1
Bottom side	10	QPSK 1RB_25	23095/707.5	1:1	0.068	0.16	24.92	25.50	1.143	0.078	22.1
Hotspot Test data (Separate 10mm 50%RB)											
Front side	10	QPSK 25RB_0	23130/711	1:1	0.228	0.01	24.02	24.50	1.117	0.255	22.1
Back side	10	QPSK 25RB_0	23130/711	1:1	0.325	-0.02	24.02	24.50	1.117	0.363	22.1
Left side	10	QPSK 25RB_0	23130/711	1:1	0.192	0.05	24.02	24.50	1.117	0.214	22.1
Right side	10	QPSK 25RB_0	23130/711	1:1	0.241	0.04	24.02	24.50	1.117	0.269	22.1
Bottom side	10	QPSK 25RB_0	23130/711	1:1	0.064	-0.01	24.02	24.50	1.117	0.071	22.1

Table 27：SAR of LTE Band 12 for Head and Body.

Note:

1) The maximum Scaled SAR value is marked in bold. Graph results refer to Appendix B.

2) Per FCC KDB Publication 447498 D01, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is not required for such test configuration(s)

5.4.11SAR Result of LTE Band 13

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(W/kg)	Liquid Temp.
Head Test data(1RB)											
Left cheek	10	QPSK 1RB_25	23230/782	1:1	0.314	0.13	24.24	25.00	1.191	0.374	22.1
Left tilted	10	QPSK 1RB_25	23230/782	1:1	0.149	0.07	24.24	25.00	1.191	0.177	22.1
Right cheek	10	QPSK 1RB_25	23230/782	1:1	0.350	0.05	24.24	25.00	1.191	**0.417**	22.1
Right tilted	10	QPSK 1RB_25	23230/782	1:1	0.180	0.07	24.24	25.00	1.191	0.214	22.1
Head Test data(50%RB)											
Left cheek	10	QPSK 25RB_25	23230/782	1:1	0.257	0.04	23.34	24.00	1.164	0.299	22.1
Left tilted	10	QPSK 25RB_25	23230/782	1:1	0.110	0.12	23.34	24.00	1.164	0.128	22.1
Right cheek	10	QPSK 25RB_25	23230/782	1:1	0.276	0.01	23.34	24.00	1.164	0.321	22.1
Right tilted	10	QPSK 25RB_25	23230/782	1:1	0.144	0.04	23.34	24.00	1.164	0.168	22.1
Body worn Test data(Separate 15mm 1RB)											
Front side	10	QPSK 1RB_25	23230/782	1:1	0.280	-0.12	24.24	25.00	1.191	0.334	22.1
Back side	10	QPSK 1RB_25	23230/782	1:1	0.422	-0.09	24.24	25.00	1.191	**0.503**	22.1
Body worn Test data (Separate 15mm 50%RB)											
Front side	10	QPSK 25RB_25	23230/782	1:1	0.230	0.09	23.34	24.00	1.164	0.268	22.1
Back side	10	QPSK 25RB_25	23230/782	1:1	0.270	0.16	23.34	24.00	1.164	0.314	22.1
Hotspot Test data(Separate 10mm 1RB)											
Front side	10	QPSK 1RB_25	23230/782	1:1	0.297	0.07	24.24	25.00	1.191	0.354	22.1
Back side	10	QPSK 1RB_25	23230/782	1:1	0.456	-0.01	24.24	25.00	1.191	**0.543**	22.1
Left side	10	QPSK 1RB_25	23230/782	1:1	0.293	-0.15	24.24	25.00	1.191	0.349	22.1
Right side	10	QPSK 1RB_25	23230/782	1:1	0.354	0.04	24.24	25.00	1.191	0.422	22.1
Bottom side	10	QPSK 1RB_25	23230/782	1:1	0.081	0.08	24.24	25.00	1.191	0.096	22.1
Hotspot Test data (Separate 10mm 50%RB)											
Front side	10	QPSK 25RB_25	23230/782	1:1	0.244	0.10	23.34	24.00	1.164	0.284	22.1
Back side	10	QPSK 25RB_25	23230/782	1:1	0.311	0.12	23.34	24.00	1.164	0.362	22.1
Left side	10	QPSK 25RB_25	23230/782	1:1	0.219	0.18	23.34	24.00	1.164	0.255	22.1
Right side	10	QPSK 25RB_25	23230/782	1:1	0.269	-0.08	23.34	24.00	1.164	0.313	22.1
Bottom side	10	QPSK 25RB_25	23230/782	1:1	0.065	0.13	23.34	24.00	1.164	0.076	22.1

Table 28：SAR of LTE Band 13 for Head and Body.

Note:

1) The maximum Scaled SAR value is marked in bold. Graph results refer to Appendix B.

2) Per FCC KDB Publication 447498 D01, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is not required for such test configuration(s)

5.4.12SAR Result of LTE Band 14

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(W/kg)	Liquid Temp.
Head Test data(1RB)											
Left cheek	10	QPSK 1RB_25	23330/793	1:1	0.318	0.12	24.54	25.00	1.112	0.354	22.1
Left tilted	10	QPSK 1RB_25	23330/793	1:1	0.146	0.06	24.54	25.00	1.112	0.162	22.1
Right cheek	10	QPSK 1RB_25	23330/793	1:1	0.338	0.15	24.54	25.00	1.112	**0.376**	22.1
Right tilted	10	QPSK 1RB_25	23330/793	1:1	0.163	0.17	24.54	25.00	1.112	0.181	22.1
Head Test data(50%RB)											
Left cheek	10	QPSK 25RB_0	23330/793	1:1	0.249	0.03	23.22	24.00	1.197	0.298	22.1
Left tilted	10	QPSK 25RB_0	23330/793	1:1	0.105	0.01	23.22	24.00	1.197	0.126	22.1
Right cheek	10	QPSK 25RB_0	23330/793	1:1	0.254	0.11	23.22	24.00	1.197	0.304	22.1
Right tilted	10	QPSK 25RB_0	23330/793	1:1	0.126	0.09	23.22	24.00	1.197	0.151	22.1
Body worn Test data(Separate 15mm 1RB)											
Front side	10	QPSK 1RB_25	23330/793	1:1	0.277	0.01	24.54	25.00	1.112	0.308	22.1
Back side	10	QPSK 1RB_25	23330/793	1:1	0.388	0.07	24.54	25.00	1.112	**0.431**	22.1
Body worn Test data (Separate 15mm 50%RB)											
Front side	10	QPSK 25RB_0	23330/793	1:1	0.222	0.04	23.22	24.00	1.197	0.266	22.1
Back side	10	QPSK 25RB_0	23330/793	1:1	0.238	0.12	23.22	24.00	1.197	0.285	22.1
Hotspot Test data(Separate 10mm 1RB)											
Front side	10	QPSK 1RB_25	23330/793	1:1	0.307	0.04	24.54	25.00	1.112	0.341	22.1
Back side	10	QPSK 1RB_25	23330/793	1:1	0.427	0.11	24.54	25.00	1.112	**0.475**	22.1
Left side	10	QPSK 1RB_25	23330/793	1:1	0.317	-0.03	24.54	25.00	1.112	0.352	22.1
Right side	10	QPSK 1RB_25	23330/793	1:1	0.347	0.19	24.54	25.00	1.112	0.386	22.1
Bottom side	10	QPSK 1RB_25	23330/793	1:1	0.103	0.04	24.54	25.00	1.112	0.115	22.1
Hotspot Test data (Separate 10mm 50%RB)											
Front side	10	QPSK 25RB_0	23330/793	1:1	0.243	-0.11	23.22	24.00	1.197	0.291	22.1
Back side	10	QPSK 25RB_0	23330/793	1:1	0.279	0.16	23.22	24.00	1.197	0.334	22.1
Left side	10	QPSK 25RB_0	23330/793	1:1	0.228	0.05	23.22	24.00	1.197	0.273	22.1
Right side	10	QPSK 25RB_0	23330/793	1:1	0.261	0.07	23.22	24.00	1.197	0.312	22.1
Bottom side	10	QPSK 25RB_0	23330/793	1:1	0.075	0.06	23.22	24.00	1.197	0.090	22.1

Table 29：SAR of LTE Band 14 for Head and Body.

Note:

3) The maximum Scaled SAR value is marked in bold. Graph results refer to Appendix B.

4) Per FCC KDB Publication 447498 D01, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is not required for such test configuration(s)

5.4.13SAR Result of LTE Band 66

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(W/kg)	Liquid Temp.
Head Test data(1RB)											
Left cheek	20	QPSK 1RB_50	132322/1745	1:1	0.131	0.01	23.64	23.70	1.014	0.133	22.1
Left tilted	20	QPSK 1RB_50	132322/1745	1:1	0.097	0.01	23.64	23.70	1.014	0.098	22.1
Right cheek	20	QPSK 1RB_50	132322/1745	1:1	0.184	0.02	23.64	23.70	1.014	**0.187**	22.1
Right tilted	20	QPSK 1RB_50	132322/1745	1:1	0.078	-0.04	23.64	23.70	1.014	0.079	22.1
Head Test data(50%RB)											
Left cheek	20	QPSK 50RB_50	132322/1745	1:1	0.100	0.03	22.49	22.70	1.050	0.105	22.1
Left tilted	20	QPSK 50RB_50	132322/1745	1:1	0.085	0.01	22.49	22.70	1.050	0.089	22.1
Right cheek	20	QPSK 50RB_50	132322/1745	1:1	0.155	-0.08	22.49	22.70	1.050	0.163	22.1
Right tilted	20	QPSK 50RB_50	132322/1745	1:1	0.063	0.03	22.49	22.70	1.050	0.066	22.1
Body worn Test data(1RB) sensor off											
Front side-15mm	20	QPSK 1RB_50	132322/1745	1:1	0.516	0.01	23.64	23.70	1.014	0.523	22.1
Back side-19mm	20	QPSK 1RB_50	132322/1745	1:1	0.671	-0.14	23.64	23.70	1.014	**0.680**	22.1
Body worn Test data (50%RB) sensor off											
Front side-15mm	20	QPSK 50RB_50	132322/1745	1:1	0.419	0.03	22.49	22.70	1.050	0.440	22.1
Back side-19mm	20	QPSK 50RB_50	132322/1745	1:1	0.435	0.04	22.49	22.70	1.050	0.457	22.1
Body worn Test data(Separate 15mm 1RB) sensor on											
Back side	20	QPSK 1RB_99	132322/1745	1:1	0.265	-0.05	17.63	18.00	1.089	0.289	22.2
Body worn Test data (Separate 15mm 50%RB) sensor on											
Back side	20	QPSK 50RB_0	132322/1745	1:1	0.242	0.03	16.52	17.00	1.117	0.270	22.2
Hotspot Test data(1RB) sensor off											
Front side-15mm	20	QPSK 1RB_50	132322/1745	1:1	0.516	0.01	23.64	23.70	1.014	0.523	22.1
Back side-19mm	20	QPSK 1RB_50	132322/1745	1:1	0.671	-0.14	23.64	23.70	1.014	0.680	22.1
Left side -10mm	20	QPSK 1RB_50	132322/1745	1:1	0.041	0.03	23.64	23.70	1.014	0.042	22.1
Right side -10mm	20	QPSK 1RB_50	132322/1745	1:1	0.171	0.01	23.64	23.70	1.014	0.173	22.1
Bottom side-19mm	20	QPSK 1RB_50	132322/1745	1:1	0.899	-0.02	23.64	23.70	1.014	0.912	22.1
Bottom side-19mm	20	QPSK 1RB_50	132072/1720	1:1	1.040	-0.04	23.64	23.70	1.014	**1.054**	22.1
Bottom side-19mm	20	QPSK 1RB_50	132572/1770	1:1	0.743	0.07	23.64	23.70	1.014	0.753	22.1
Bottom side-19mm-repeat	20	QPSK 1RB_50	132072/1720	1:1	1.020	0.01	23.64	23.70	1.014	1.034	22.1
Hotspot Test data (50%RB) sensor off											
Front side-15mm	20	QPSK 50RB_50	132322/1745	1:1	0.419	0.03	22.49	22.70	1.050	0.440	22.1
Back side-19mm	20	QPSK 50RB_50	132322/1745	1:1	0.435	0.04	22.49	22.70	1.050	0.457	22.1
Left side -10mm	20	QPSK 50RB_50	132322/1745	1:1	0.031	0.15	22.49	22.70	1.050	0.033	22.1
Right side -10mm	20	QPSK 50RB_50	132322/1745	1:1	0.138	0.04	22.49	22.70	1.050	0.145	22.1
Bottom side-19mm	20	QPSK 50RB_50	132322/1745	1:1	0.585	0.02	22.49	22.70	1.050	0.614	22.1
Hotspot Test data (Separate 10mm 100%RB) sensor off											
Bottom side	20	QPSK 100RB_0	132322/1745	1:1	0.559	0.10	16.49	17.00	1.125	0.629	22.3

Hotspot Test data(Separate 10mm 1RB) sensor on											
Front side	20	QPSK 1RB_99	132322/1745	1:1	0.306	-0.03	17.63	18.00	1.089	0.333	22.3
Back side	20	QPSK 1RB_99	132322/1745	1:1	0.609	0.16	17.63	18.00	1.089	0.663	22.3
Bottom side	20	QPSK 1RB_99	132322/1745	1:1	0.700	0.02	17.63	18.00	1.089	0.762	22.3
Hotspot Test data (Separate 10mm 50%RB) sensor on											
Front side	20	QPSK 50RB_0	132322/1745	1:1	0.240	0.12	16.52	17.00	1.117	0.268	22.3
Back side	20	QPSK 50RB_0	132322/1745	1:1	0.470	-0.12	16.52	17.00	1.117	0.525	22.3
Bottom side	20	QPSK 50RB_0	132322/1745	1:1	0.565	-0.09	16.52	17.00	1.117	0.631	22.3
Hotspot Test data (Separate 10mm 100%RB) sensor on											
Bottom side	20	QPSK 100RB_0	132322/1745	1:1	0.559	0.05	16.49	17.00	1.125	0.629	22.3

Table 30：SAR of LTE Band 66 for Head and Body.

Note:

1) The maximum Scaled SAR value is marked in bold. Graph results refer to Appendix B.

2) Per FCC KDB Publication 447498 D01, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is not required for such test configuration(s)

Test Position	Channel/ Frequency (MHz)	Measured SAR (1g)	1st Repeated SAR (1g)	Ratio	2nd Repeated SAR (1g)	3rd Repeated SAR (1g)
Bottom side-19mm	132072/1720	1.040	1.020	1.020	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 performed 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 performed 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						

Table 31：SAR Measurement Variability Results.

5.4.14 SAR Result of LTE Band 71

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(W/kg)	Liquid Temp.
Head Test data(1RB)											
Left cheek	20	QPSK 1RB_50	133372/688	1:1	0.329	0.13	24.27	25.00	1.183	0.389	22.1
Left tilted	20	QPSK 1RB_50	133372/688	1:1	0.153	-0.11	24.27	25.00	1.183	0.181	22.1
Right cheek	20	QPSK 1RB_50	133372/688	1:1	0.380	0.10	24.27	25.00	1.183	**0.450**	22.1
Right tilted	20	QPSK 1RB_50	133372/688	1:1	0.206	0.15	24.27	25.00	1.183	0.244	22.1
Head Test data(50%RB)											
Left cheek	20	QPSK 50RB_50	133372/688	1:1	0.249	0.03	23.41	24.00	1.146	0.285	22.1
Left tilted	20	QPSK 50RB_50	133372/688	1:1	0.119	0.09	23.41	24.00	1.146	0.136	22.1
Right cheek	20	QPSK 50RB_50	133372/688	1:1	0.299	0.14	23.41	24.00	1.146	0.343	22.1
Right tilted	20	QPSK 50RB_50	133372/688	1:1	0.165	-0.04	23.41	24.00	1.146	0.189	22.1
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1RB_50	133372/688	1:1	0.268	0.03	24.27	25.00	1.183	0.317	22.1
Back side	20	QPSK 1RB_50	133372/688	1:1	0.355	0.01	24.27	25.00	1.183	**0.420**	22.1
Body worn Test data (Separate 15mm 50%RB)											
Front side	20	QPSK 50RB_50	133372/688	1:1	0.214	0.12	23.41	24.00	1.146	0.245	22.1
Back side	20	QPSK 50RB_50	133372/688	1:1	0.239	0.01	23.41	24.00	1.146	0.274	22.1
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1RB_50	133372/688	1:1	0.303	-0.12	24.27	25.00	1.183	0.358	22.1
Back side	20	QPSK 1RB_50	133372/688	1:1	0.398	0.11	24.27	25.00	1.183	**0.471**	22.1
Left side	20	QPSK 1RB_50	133372/688	1:1	0.365	0.03	24.27	25.00	1.183	0.432	22.1
Right side	20	QPSK 1RB_50	133372/688	1:1	0.386	0.06	24.27	25.00	1.183	0.457	22.1
Bottom side	20	QPSK 1RB_50	133372/688	1:1	0.077	0.00	24.27	25.00	1.183	0.091	22.1
Hotspot Test data (Separate 10mm 50%RB)											
Front side	20	QPSK 50RB_50	133372/688	1:1	0.234	-0.10	23.41	24.00	1.146	0.268	22.1
Back side	20	QPSK 50RB_50	133372/688	1:1	0.368	0.09	23.41	24.00	1.146	0.422	22.1
Left side	20	QPSK 50RB_50	133372/688	1:1	0.332	0.02	23.41	24.00	1.146	0.380	22.1
Right side	20	QPSK 50RB_50	133372/688	1:1	0.384	0.40	23.41	24.00	1.146	0.440	22.1
Bottom side	20	QPSK 50RB_50	133372/688	1:1	0.071	0.11	23.41	24.00	1.146	0.081	22.1

Table 32：SAR of LTE Band 71 for Head and Body.

Note:

3) The maximum Scaled SAR value is marked in bold. Graph results refer to Appendix B.

4) Per FCC KDB Publication 447498 D01, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is not required for such test configuration(s)

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5.4.15SAR Result of WIFI 2.4GHz

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 (W/kg)	Liquid Temp.
Head Test data											
Left cheek	802.11b	6/2437	97.24%	1.028	0.213	0.06	17.94	19.00	1.276	0.280	22.0
Left tilted	802.11b	6/2437	97.24%	1.028	0.223	0.03	17.94	19.00	1.276	0.293	22.0
Right cheek	802.11b	6/2437	97.24%	1.028	0.362	0.01	17.94	19.00	1.276	**0.475**	22.0
Right tilted	802.11b	6/2437	97.24%	1.028	0.220	0.06	17.94	19.00	1.276	0.289	22.0
Body worn Test data(Separate 15mm)											
Front side	802.11b	6/2437	97.24%	1.028	0.063	0.03	18.89	19.50	1.000	0.065	22.0
Back side	802.11b	6/2437	97.24%	1.028	0.074	-0.04	18.89	19.50	1.000	**0.076**	22.0
Hotspot Test data (Separate 10mm)											
Front side	802.11b	6/2437	97.24%	1.028	0.094	-0.01	18.89	19.50	1.000	0.097	22.0
Back side	802.11b	6/2437	97.24%	1.028	0.162	0.04	18.89	19.50	1.000	0.167	22.0
Left side	802.11b	6/2437	97.24%	1.028	0.065	0.05	18.89	19.50	1.000	0.067	22.0
Top side	802.11b	6/2437	97.24%	1.028	0.200	0.10	18.89	19.50	1.000	**0.206**	22.0

Table 33：SAR of WIFI 2.4GHz for Head and Body.

Note:

1) The maximum Scaled SAR value is marked in bold. Graph Results refer to Appendix B

2) If the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is not required for such test configuration(s).

3) Per KDB248227D01, for Body SAR test of WiFi 2.4G, SAR is measured for 2.4 GHz 802.11b DSSS using the initial test position procedure.The highest reported SAR for DSSS is adjusted by the ratio of OFDM 802.11g/n to DSSS specified maximum output power and the adjusted SAR is < 1.2 W/kg, so SAR for 802.11g/n is not required.

Mode	Tune-up (dBm)	Tune-up (mW)	Max Reported SAR(W/kg)	Adjusted SAR(W/kg)	SAR test
Head					
802.11b	19.00	79.43	0.475	/	Yes
802.11g	19.00	79.43	/	0.475	No
802.1n 20M	19.00	79.43	/	0.475	No
802.11n 40M	18.00	63.10	/	0.377	No
Body worn					
802.11b	19.50	89.13	0.076	/	Yes
802.11g	19.50	89.13	/	0.076	No
802.1n 20M	19.60	91.20	/	0.078	No
802.11n 40M	19.60	91.20	/	0.078	No
Hotspot					
802.11b	19.50	89.13	0.206	/	Yes
802.11g	19.50	89.13	/	0.206	No
802.1n 20M	19.60	91.20	/	0.211	No
802.11n 40M	19.60	91.20	/	0.211	No

5.4.16SAR Result of WIFI 5GHz

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(W/kg)	Liquid Temp.
Head Test data of U-NII-2A											
Left cheek	802.11n-HT40	62/5310	86.61%	1.155	0.138	0.00	15.69	16.00	1.074	0.171	22.2
Left tilted	802.11n-HT40	62/5310	86.61%	1.155	0.042	0.00	15.69	16.00	1.074	0.052	22.2
Right cheek	802.11n-HT40	62/5310	86.61%	1.155	0.280	0.02	15.69	16.00	1.074	**0.347**	22.2
Right tilted	802.11n-HT40	62/5310	86.61%	1.155	0.192	0.19	15.69	16.00	1.074	0.238	22.2
Head Test data of U-NII-2C											
Left cheek	802.11n-HT40	134/5670	86.61%	1.155	0.117	0.01	15.92	16.00	1.019	0.138	22.2
Left tilted	802.11n-HT40	134/5670	86.61%	1.155	0.041	-0.17	15.92	16.00	1.019	0.048	22.2
Right cheek	802.11n-HT40	134/5670	86.61%	1.155	0.140	0.15	15.92	16.00	1.019	0.165	22.2
Right tilted	802.11n-HT40	134/5670	86.61%	1.155	0.144	0.06	15.92	16.00	1.019	0.169	22.2
Head Test data of U-NII-3											
Left cheek	802.11n-HT40	159/5795	86.61%	1.155	0.116	-0.17	15.98	16.00	1.005	0.135	22.2
Left tilted	802.11n-HT40	159/5795	86.61%	1.155	0.129	0.08	15.98	16.00	1.005	0.150	22.2
Right cheek	802.11n-HT40	159/5795	86.61%	1.155	0.130	-0.12	15.98	16.00	1.005	0.151	22.2
Right tilted	802.11n-HT40	159/5795	86.61%	1.155	0.123	0.05	15.98	16.00	1.005	0.143	22.2
Body worn Test data of U-NII-2A (Separate 15mm)											
Front side	802.11n-HT40	62/5310	86.61%	1.155	0.050	0.00	18.10	19.00	1.230	0.071	22.2
Back side	802.11n-HT40	62/5310	86.61%	1.155	0.610	0.04	18.10	19.00	1.230	0.866	22.2
Back side	802.11n-HT40	54/5270	86.61%	1.155	0.727	0.08	18.09	19.00	1.233	**1.035**	22.2
Body worn Test data of U-NII-2C(Separate 15mm)											
Front side	802.11n-HT40	126/5630	86.61%	1.155	0.040	0.00	18.09	19.00	1.233	0.056	22.2
Back side	802.11n-HT40	126/5630	86.61%	1.155	0.647	0.09	18.09	19.00	1.233	0.921	22.2
Back side	802.11n-HT40	102/5510	86.61%	1.155	0.672	0.05	18.08	19.00	1.236	0.959	22.2
Back side	802.11n-HT40	142/5710	86.61%	1.155	0.624	-0.14	18.06	19.00	1.242	0.895	22.2
Body worn Test data of U-NII-3(Separate 15mm)											
Front side	802.11n-HT40	151/5755	86.61%	1.155	0.025	0.07	16.45	17.00	1.135	0.033	22.2
Back side	802.11n-HT40	151/5755	86.61%	1.155	0.382	0.18	16.45	17.00	1.135	0.501	22.2
Hotspot Test data of U-NII-1(Separate 10mm)											
Front side	802.11n-HT40	46/5230	86.61%	1.155	0.095	0.01	18.53	19.00	1.114	0.122	22.2
Back side	802.11n-HT40	46/5230	86.61%	1.155	0.850	0.16	18.53	19.00	1.114	1.094	22.2
Back side	802.11n-HT40	38/5190	86.61%	1.155	0.860	0.19	18.52	19.00	1.117	**1.109**	22.2
Left side	802.11n-HT40	46/5230	86.61%	1.155	0.575	0.02	18.53	19.00	1.114	0.740	22.2
Top side	802.11n-HT40	46/5230	86.61%	1.155	0.183	0.03	18.53	19.00	1.114	0.235	22.2
Back side-repeat	802.11n-HT40	38/5190	86.61%	1.155	0.843	-0.01	18.52	19.00	1.117	1.087	22.2

Hotspot Test data of U-NII-3 (Separate 10mm)											
Front side	802.11n-HT40	151/5755	86.61%	1.155	0.092	0.04	16.45	17.00	1.135	0.120	22.2
Back side	802.11n-HT40	151/5755	86.61%	1.155	0.577	-0.06	16.45	17.00	1.135	0.756	22.2
Left side	802.11n-HT40	151/5755	86.61%	1.155	0.330	0.01	16.45	17.00	1.135	0.432	22.2
Top side	802.11n-HT40	151/5755	86.61%	1.155	0.169	-0.04	16.45	17.00	1.135	0.221	22.2

Table 34：SAR of WIFI 5GHz for Head and Body.

Note:

1) The maximum Scaled SAR value is marked in bold. Graph Results refer to Appendix B

2) If the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is not required for such test configuration(s).

3) Each channel was tested at the lowest data rate.

4) Per KDB248227D01, 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.

5) For Wi-Fi 5G, U-NII-2A (5250-5350 MHz) and U-NII-2C (5470-5725 MHz) bands does not support hotspot function.

6) Per KDB248227D01, 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.

5.5 Multiple Transmitter Evaluation

5.5.1 Simultaneous SAR SAR test evaluation

1) Simultaneous Transmission

NO.	Simultaneous Transmission Configuration	Head	Body worn	Hotspot
1	GSM(Voice) + WiFi	Yes	Yes	No
2	GSM(Voice) + BT	Yes	Yes	No
3	WCDMA(Voice) + WiFi	Yes	Yes	No
4	WCDMA(Voice) + BT	Yes	Yes	No
5	GPRS / EDGE(Data) + WiFi	No	No	Yes
6	GPRS / EDGE(Data) + BT	No	No	Yes
7	WCDMA(Data) + WiFi	No	No	Yes
8	WCDMA(Data) + BT	No	No	Yes
9	LTE(Data) + WiFi	Yes	Yes	Yes
10	LTE(Data) + BT	Yes	Yes	Yes
11	BT+WIFI (They share the same antenna and cannot transmit at the same time by design.)	No	No	No

Note:
1) Wi-Fi 2.4G can't transmit simultaneously with Bluetooth.
2) The device does not support DTM function.
3) For Wi-Fi 5G, U-NII-2A (5250-5350 MHz) and U-NII-2C (5470-5725 MHz) bands does not support hotspot function.

5.5.2 Estimated SAR

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

• (max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)]·[√f(GHz)/x] W/kg for test separation distances ≤ 50 mm;

Where x = 7.5 for 1-g SAR, and x = 18.75 for 10-g SAR.

• 0.4 W/kg for 1-g SAR and 1.0 W/kg for 10-g SAR, when the test separation distances is > 50 mm.

Estimated SAR Result

Freq. Band	Frequency (GHz)	Test Position	max. power(dBm)	Test Separation (mm)	Estimated 1g SAR (W/kg)
Bluetooth	2.48	Head	8.0	0	0.265
		Body-worn	8.0	15	0.088
		hotspot	8.0	10	0.132

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5.5.3 Simultaneous Transmission SAR Summation Scenario

Test position		Main Antenna SARmax (W/kg)														WiFi/BT Antenna SARmax (W/kg)			Summed 1g SARmax (W/kg)	SPLSR
		GSM850	GSM1900	WCDMA Band II	WCDMA Band IV	WCDMA Band V	LTE Band 2	LTE Band 4	LTE Band 5	LTE Band 7	LTE Band 12	LTE Band 13	LTE Band 14	LTE Band 66	LTE Band 71	WLAN 2.4G	WLAN 5G	BT		
Head	Left Touch	0.472	0.241	0.254	0.073	0.447	0.280	0.092	0.596	0.074	0.314	0.374	0.354	0.133	0.389	0.280	0.171	0.265	0.876	/
	Left Tilt	0.295	0.237	0.245	0.064	0.271	0.211	0.064	0.232	0.061	0.123	0.177	0.162	0.098	0.181	0.293	0.150	0.265	0.588	/
	Right Touch	0.502	0.385	0.290	0.131	0.419	0.342	0.175	0.661	0.244	0.337	0.417	0.376	0.187	0.450	0.475	0.347	0.265	1.136	/
	Right Tilt	0.289	0.168	0.180	0.059	0.254	0.150	0.058	0.334	0.035	0.168	0.214	0.181	0.079	0.244	0.289	0.238	0.265	0.623	/
Body-worn	Front	0.523	0.216	0.358	0.440	0.473	0.352	0.494	0.355	0.341	0.259	0.334	0.308	0.523	0.317	0.065	0.071	0.088	0.611	/
	Back	0.617	0.243	0.518	0.796	0.547	0.449	0.660	0.631	0.610	0.430	0.503	0.431	0.680	0.420	0.076	1.035	0.088	1.831	Yes
Hotspot	Front	0.608	0.325	0.358	0.440	0.463	0.405	0.494	0.393	0.341	0.266	0.354	0.341	0.523	0.358	0.097	0.122	0.132	0.740	/
	Back	0.702	0.582	0.518	0.796	0.612	0.602	1.006	0.736	1.123	0.606	0.543	0.475	0.680	0.471	0.167	1.109	0.132	2.232	Yes
	Left	0.628	0.167	0.228	0.032	0.500	0.244	0.026	0.430	0.109	0.253	0.349	0.352	0.042	0.432	0.067	0.740	0.132	1.368	/
	Right	0.588	0.211	0.327	0.135	0.524	0.330	0.116	0.518	0.032	0.309	0.422	0.386	0.173	0.457	/	/	/	0.588	/
	Top	/	/	/	/	/	/	/	/	/	/	/	/	/	/	0.206	0.235	0.132	0.235	/
	Bottom	0.251	0.710	0.912	0.932	0.077	1.021	1.083	0.127	0.738	0.078	0.096	0.115	1.054	0.091	/	/	/	1.083	/

Test position		Main Antenna SARmax (W/kg)														WiFi/BT Antenna SARmax (W/kg)		Summed 1g SARmax (W/kg)	SPLSR
		GSM850	GSM1900	WCDMA Band II	WCDMA Band IV	WCDMA Band V	LTE Band 2	LTE Band 4	LTE Band 5	LTE Band 7	LTE Band 12	LTE Band 13	LTE Band 14	LTE Band 66	LTE Band 71	WLAN 2.4G	BT		
Body-worn	Back side	0.617	/	/	/	/	/	/	/	/	/	/	/	/	/	0.076	0.088	0.705	/
	Back side	/	0.243	/	/	/	/	/	/	/	/	/	/	/	/	0.076	0.088	0.331	/
	Back side	/	/	0.518	/	/	/	/	/	/	/	/	/	/	/	0.076	0.088	0.606	/
	Back side	/	/	/	0.796	/	/	/	/	/	/	/	/	/	/	0.076	0.088	0.884	/
	Back side	/	/	/	/	0.547	/	/	/	/	/	/	/	/	/	0.076	0.088	0.635	/
	Back side	/	/	/	/	/	0.449	/	/	/	/	/	/	/	/	0.076	0.088	0.537	/
	Back side	/	/	/	/	/	/	0.660	/	/	/	/	/	/	/	0.076	0.088	0.748	/
	Back side	/	/	/	/	/	/	/	0.631	/	/	/	/	/	/	0.076	0.088	0.719	/
	Back side	/	/	/	/	/	/	/	/	0.610	/	/	/	/	/	0.076	0.088	0.698	/
	Back side	/	/	/	/	/	/	/	/	/	0.430	/	/	/	/	0.076	0.088	0.518	/
	Back side	/	/	/	/	/	/	/	/	/	/	0.503	/	/	/	0.076	0.088	0.591	/
	Back side	/	/	/	/	/	/	/	/	/	/	/	0.431	/	/	0.076	0.088	0.519	/
	Back side	/	/	/	/	/	/	/	/	/	/	/	/	0.680	/	0.076	0.088	0.768	/
	Back side	/	/	/	/	/	/	/	/	/	/	/	/	/	0.420	0.076	0.088	0.508	/

Test position		Main Antenna SARmax (W/kg)														WiFi Antenna SARmax (W/kg)	Summed 1g SARmax (W/kg)	SPLSR	Case No
		GSM850	GSM1900	WCDMA Band II	WCDMA Band IV	WCDMA Band V	LTE Band 2	LTE Band 4	LTE Band 5	LTE Band 7	LTE Band 12	LTE Band 13	LTE Band 14	LTE Band 66	LTE Band 71	WLAN 5G			
Body-worn	Back side	0.617	/	/	/	/	/	/	/	/	/	/	/	/	/	1.035	1.652	0.04	1#
	Back side	/	0.243	/	/	/	/	/	/	/	/	/	/	/	/	1.035	1.278	/	/
	Back side	/	/	0.518	/	/	/	/	/	/	/	/	/	/	/	1.035	1.553	/	/
	Back side	/	/	/	0.796	/	/	/	/	/	/	/	/	/	/	1.035	1.831	0.02	2#
	Back side	/	/	/	/	0.547	/	/	/	/	/	/	/	/	/	1.035	1.582	/	/
	Back side	/	/	/	/	/	0.449	/	/	/	/	/	/	/	/	1.035	1.484	/	/
	Back side	/	/	/	/	/	/	0.660	/	/	/	/	/	/	/	1.035	1.695	0.02	3#
	Back side	/	/	/	/	/	/	/	0.631	/	/	/	/	/	/	1.035	1.666	0.03	4#
	Back side	/	/	/	/	/	/	/	/	0.610	/	/	/	/	/	1.035	1.645	0.02	5#
	Back side	/	/	/	/	/	/	/	/	/	0.430	/	/	/	/	1.035	1.465	/	/
	Back side	/	/	/	/	/	/	/	/	/	/	0.503	/	/	/	1.035	1.538	/	/
	Back side	/	/	/	/	/	/	/	/	/	/	/	0.431	/	/	1.035	1.466	/	/
	Back side	/	/	/	/	/	/	/	/	/	/	/	/	0.680	/	1.035	1.715	0.02	6#
	Back side	/	/	/	/	/	/	/	/	/	/	/	/	/	0.420	1.035	1.455	/	/

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Test position		Main Antenna SARmax (W/kg)														WiFi/BT Antenna		Summed 1g SARmax	SPLSR
		GSM850	GSM1900	WCDMA Band II	WCDMA Band IV	WCDMA Band V	LTE Band 2	LTE Band 4	LTE Band 5	LTE Band 7	LTE Band 12	LTE Band 13	LTE Band 14	LTE Band 66	LTE Band 71	WLAN 2.4G	BT		
Hotspot	Back side	0.702	/	/	/	/	/	/	/	/	/	/	/	/	/	0.167	0.132	0.869	/
	Back side	/	0.582	/	/	/	/	/	/	/	/	/	/	/	/	0.167	0.132	0.749	/
	Back side	/	/	0.518	/	/	/	/	/	/	/	/	/	/	/	0.167	0.132	0.685	/
	Back side	/	/	/	0.796	/	/	/	/	/	/	/	/	/	/	0.167	0.132	0.963	/
	Back side	/	/	/	/	0.612	/	/	/	/	/	/	/	/	/	0.167	0.132	0.779	/
	Back side	/	/	/	/	/	0.602	/	/	/	/	/	/	/	/	0.167	0.132	0.769	/
	Back side	/	/	/	/	/	/	1.006	/	/	/	/	/	/	/	0.167	0.132	1.173	/
	Back side	/	/	/	/	/	/	/	0.736	/	/	/	/	/	/	0.167	0.132	0.903	/
	Back side	/	/	/	/	/	/	/	/	1.123	/	/	/	/	/	0.167	0.132	1.290	/
	Back side	/	/	/	/	/	/	/	/	/	0.606	/	/	/	/	0.167	0.132	0.773	/
	Back side	/	/	/	/	/	/	/	/	/	/	0.543	/	/	/	0.167	0.132	0.710	/
	Back side	/	/	/	/	/	/	/	/	/	/	/	0.475	/	/	0.167	0.132	0.642	/
	Back side	/	/	/	/	/	/	/	/	/	/	/	/	0.680	/	0.167	0.132	0.847	/
	Back side	/	/	/	/	/	/	/	/	/	/	/	/	/	0.471	0.167	0.132	0.638	/

Test position		Main Antenna SARmax (W/kg)														WiFi Antenna SARmax (W/kg)	Summed 1g SARmax (W/kg)	SPLSR	Case No
		GSM850	GSM1900	WCDMA Band II	WCDMA Band IV	WCDMA Band V	LTE Band 2	LTE Band 4	LTE Band 5	LTE Band 7	LTE Band 12	LTE Band 13	LTE Band 14	LTE Band 66	LTE Band 71	WLAN 5G			
Hotspot	Back side	0.702	/	/	/	/	/	/	/	/	/	/	/	/	/	1.109	1.811	0.04	7#
	Back side	/	0.582	/	/	/	/	/	/	/	/	/	/	/	/	1.109	1.691	0.02	8#
	Back side	/	/	0.518	/	/	/	/	/	/	/	/	/	/	/	1.109	1.627	0.02	9#
	Back side	/	/	/	0.796	/	/	/	/	/	/	/	/	/	/	1.109	1.905	0.02	10#
	Back side	/	/	/	/	0.612	/	/	/	/	/	/	/	/	/	1.109	1.721	0.04	11#
	Back side	/	/	/	/	/	0.602	/	/	/	/	/	/	/	/	1.109	1.711	0.02	12#
	Back side	/	/	/	/	/	/	1.006	/	/	/	/	/	/	/	1.109	2.115	0.03	13#
	Back side	/	/	/	/	/	/	/	0.736	/	/	/	/	/	/	1.109	1.845	0.04	14#
	Back side	/	/	/	/	/	/	/	/	1.123	/	/	/	/	/	1.109	2.232	0.03	15#
	Back side	/	/	/	/	/	/	/	/	/	0.606	/	/	/	/	1.109	1.715	0.04	16#
	Back side	/	/	/	/	/	/	/	/	/	/	0.543	/	/	/	1.109	1.652	0.04	17#
	Back side	/	/	/	/	/	/	/	/	/	/	/	0.475	/	/	1.109	1.584	/	/
	Back side	/	/	/	/	/	/	/	/	/	/	/	/	0.680	/	1.109	1.789	0.02	18#
	Back side	/	/	/	/	/	/	/	/	/	/	/	/	/	0.471	1.109	1.580	/	/

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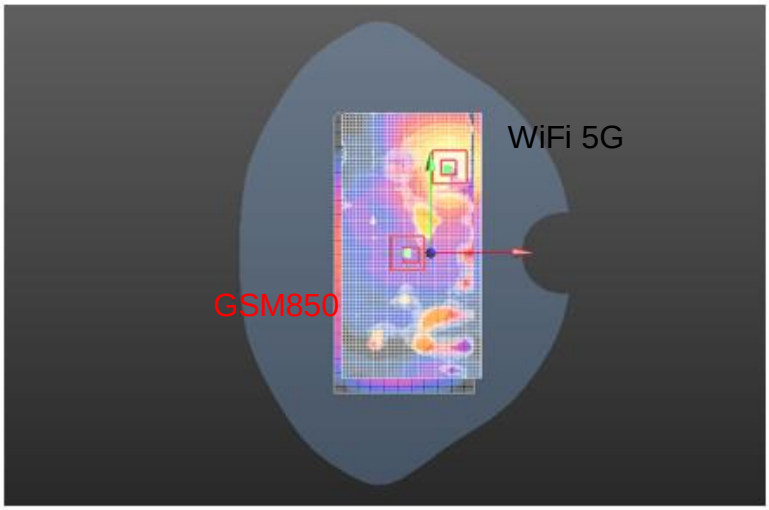
5.5.4SPLSR Evaluation Analysis

According to KDB447498 D01v06, When the sum of SAR is larger than the limit, SAR test exclusion is determined by the SAR to peak location separation ratio(SPLSR).When the SAR to peak location ratio for each pair of antennas is ≤1-g 0.04 and 10-g 0.10，simultaneous SAR evaluation is not required.
When SAR is measured for both antennas in the pair, the peak location separation distance is computed by the following fomula:

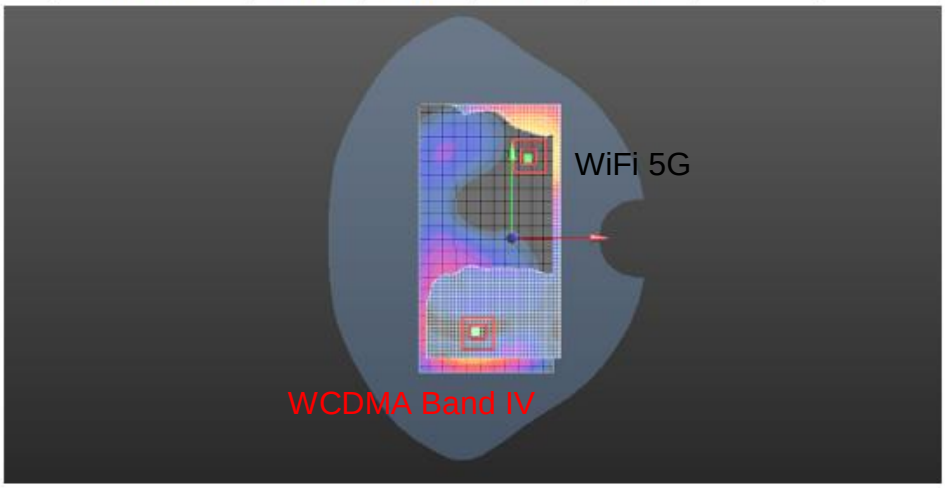
$$\text{Distance}_{Tx1\text{-}Tx2} = R_i = \sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2 + (z_1 - z_2)^2}$$

$$\text{SPLS Ratio} = (SAR_1 + SAR_2)^{1.5}/R_i$$

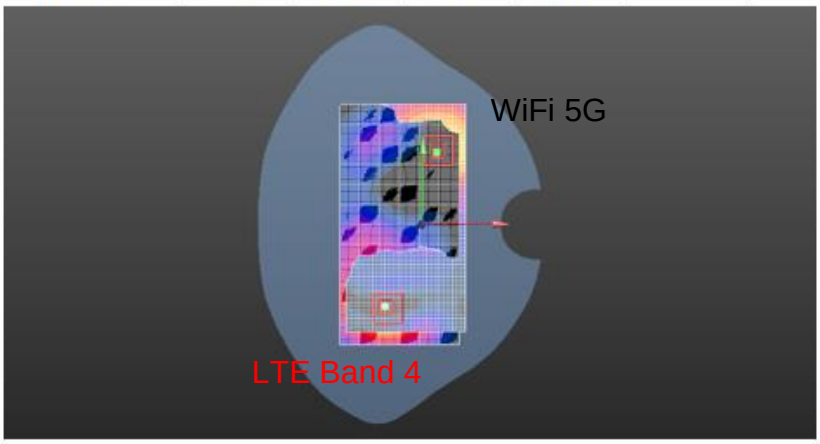
Case No.	Position	Band	SAR (W/kg)	SAR peak location (cm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				X	Y	Z				
1#	Back side	GSM 850	0.617	-0.44	0.55	-0.33	58.776	**1.652**	0.04	Not Required
		WI-FI5G	1.035	2.88	5.4	-0.37				



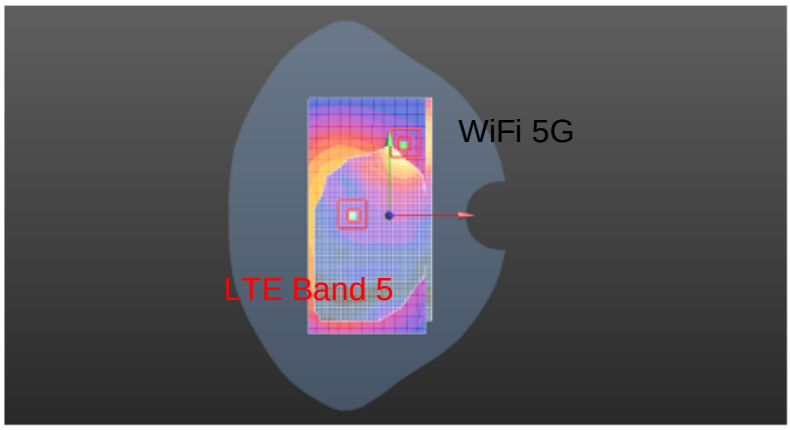
Case No.	Position	Band	SAR (W/kg)	SAR peak location (cm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				X	Y	Z				
2#	Back side	WCDMA Band IV	0.796	-0.75	-6.3	-0.05	122.544	**1.831**	0.02	Not Required
		WI-FI5G	1.035	2.88	5.4	-0.37				



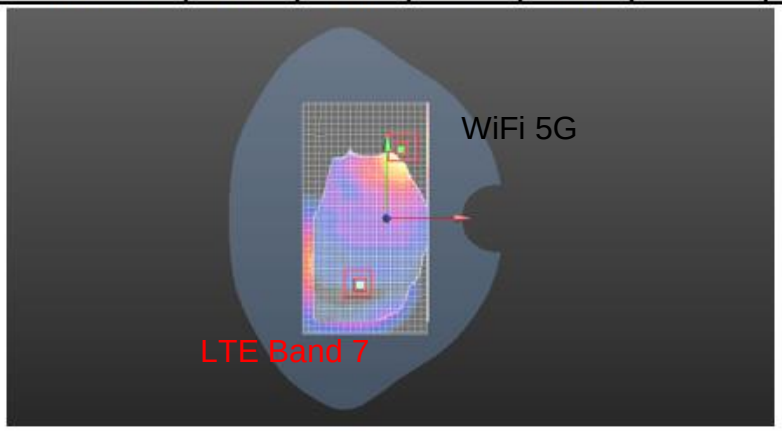
Case No.	Position	Band	SAR (W/kg)	SAR peak location (cm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				X	Y	Z				
3#	Back side	LTE Band 4	0.66	-0.89	-6.15	-0.05	121.539	**1.695**	0.02	Not Required
		WI-FI5G	1.035	2.88	5.4	-0.37				



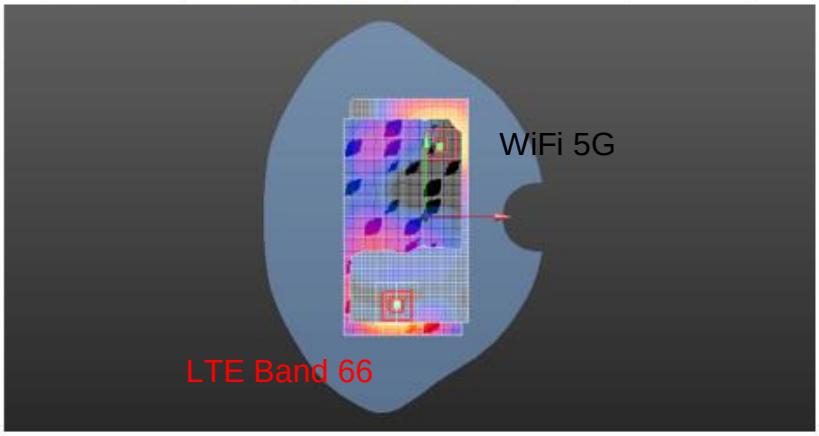
Case No.	Position	Band	SAR (W/kg)	SAR peak location (cm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				X	Y	Z				
4#	Back side	LTE Band 5	0.631	-1.05	0	-0.42	66.789	**1.666**	0.03	Not Required
		WI-FI5G	1.035	2.88	5.4	-0.37				



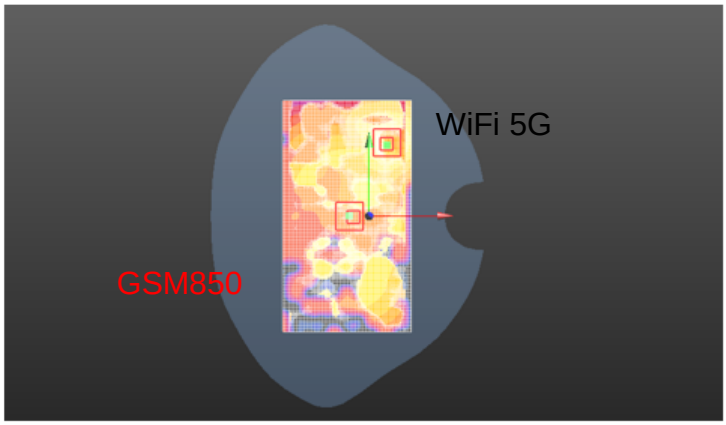
Case No.	Position	Band	SAR (W/kg)	SAR peak location (cm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				X	Y	Z				
5#	Back side	LTE Band 7	0.61	0.04	-5.16	-0.32	109.353	**1.645**	0.02	Not Required
		WI-FI5G	1.035	2.88	5.4	-0.37				



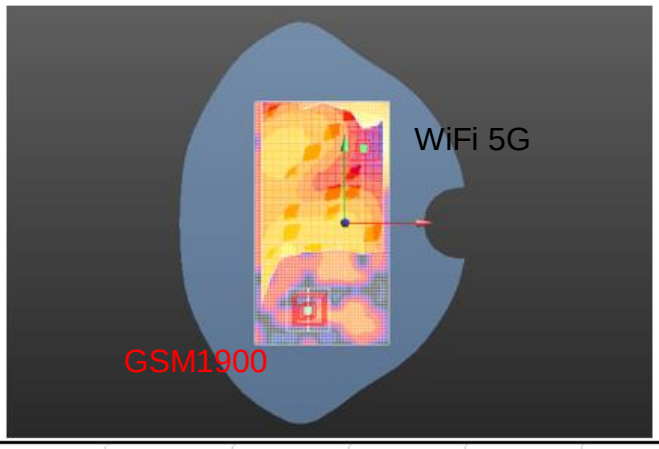
Case No.	Position	Band	SAR (W/kg)	SAR peak location (cm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				X	Y	Z				
6#	Back side	LTE Band 66	0.68	-0.61	-6.76	-0.04	126.552	**1.715**	0.02	Not Required
		WI-FI5G	1.035	2.88	5.4	-0.37				



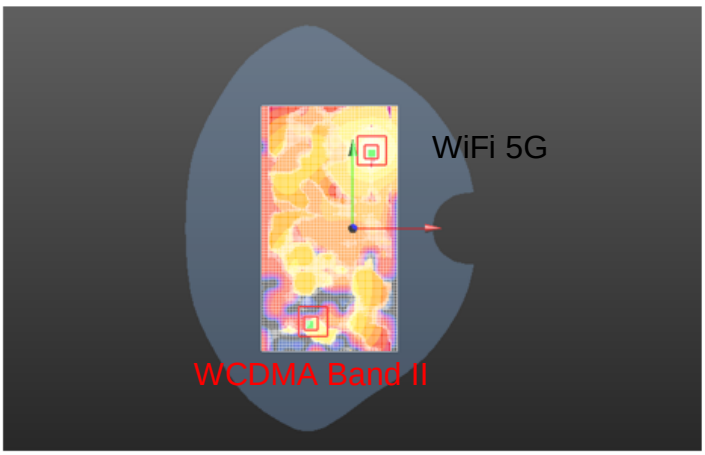
Case No.	Position	Band	SAR (W/kg)	SAR peak location (cm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				X	Y	Z				
7#	Back side	GSM 850	0.702	0.31	0	-0.4	61.689	**1.811**	0.04	Not Required
		WI-FI5G	1.109	2.94	5.58	-0.36				



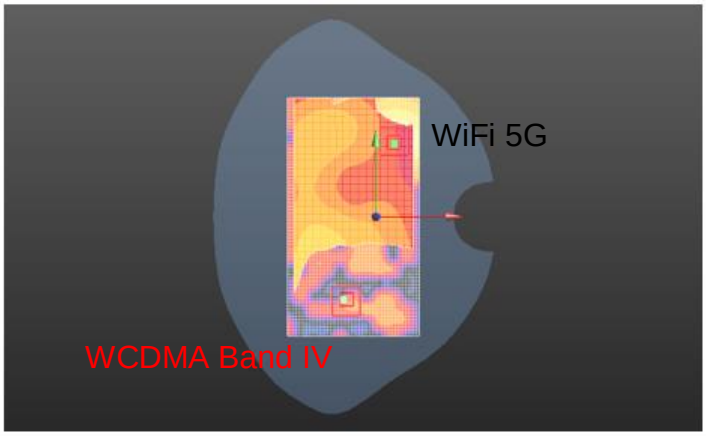
Case No.	Position	Band	SAR (W/kg)	SAR peak location (cm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				X	Y	Z				
8#	Back side	GSM1900	0.582	-1.37	-6.61	-0.06	129.330	**1.691**	0.02	Not Required
		WI-FI5G	1.109	2.94	5.58	-0.36				



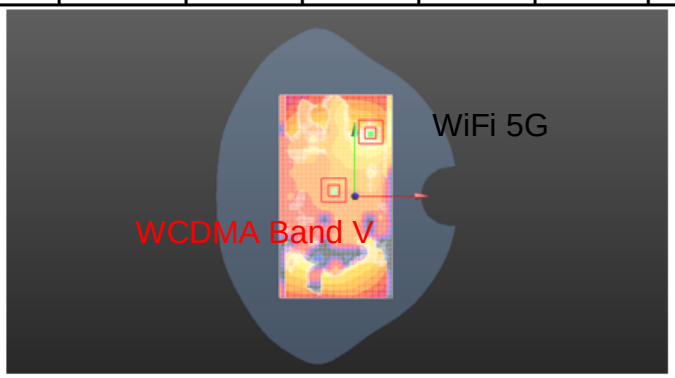
Case No.	Position	Band	SAR (W/kg)	SAR peak location (cm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				X	Y	Z				
9#	Back side	WCDMA Band II	0.518	-1.66	-6.89	-0.34	132.914	**1.627**	0.02	Not Required
		WI-FI5G	1.109	2.94	5.58	-0.36				



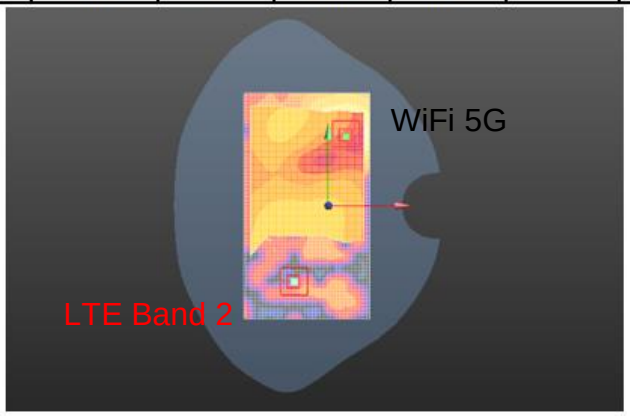
Case No.	Position	Band	SAR (W/kg)	SAR peak location (cm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				X	Y	Z				
10#	Back side	WCDMA Band IV	0.796	-0.75	-6.3	-0.05	124.437	**1.905**	0.02	Not Required
		WI-FI5G	1.109	2.94	5.58	-0.36				



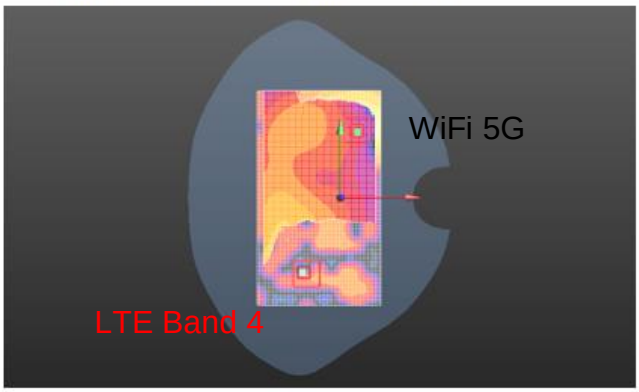
Case No.	Position	Band	SAR (W/kg)	SAR peak location (cm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				X	Y	Z				
11#	Back side	WCDMA Band V	0.612	-0.15	0.45	-0.41	59.889	**1.721**	0.04	Not Required
		WI-FI5G	1.109	2.94	5.58	-0.36				



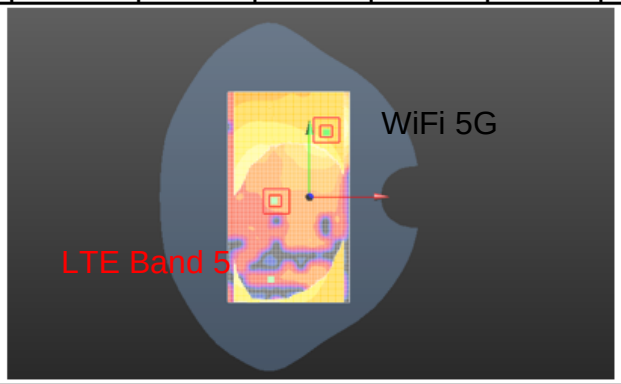
Case No.	Position	Band	SAR (W/kg)	SAR peak location (cm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				X	Y	Z				
12#	Back side	LTE Band 2	0.602	-1.21	-6.1	-0.09	123.983	**1.711**	0.02	Not Required
		WI-FI5G	1.109	2.94	5.58	-0.36				



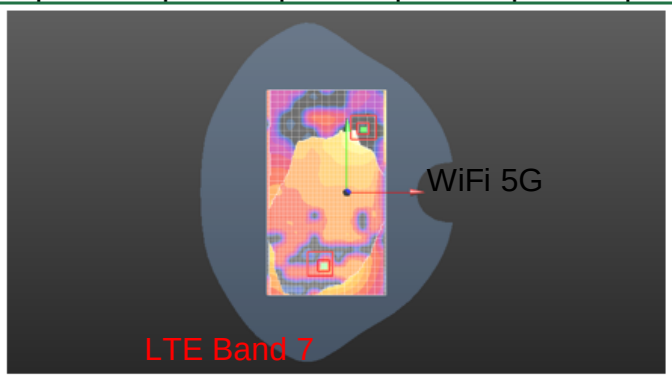
Case No.	Position	Band	SAR (W/kg)	SAR peak location (cm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				X	Y	Z				
13#	Back side	LTE Band 4	1.006	-1.19	-5.98	-0.06	122.793	**2.115**	0.03	Not Required
		WI-FI5G	1.109	2.94	5.58	-0.36				



Case No.	Position	Band	SAR (W/kg)	SAR peak location (cm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				X	Y	Z				
14#	Back side	LTE Band 5	0.736	-1.2	-0.3	-0.42	71.915	**1.845**	0.03	Not Required
		WI-FI5G	1.109	2.94	5.58	-0.36				

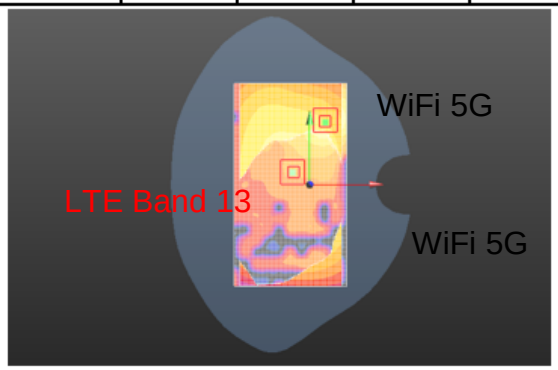


Case No.	Position	Band	SAR (W/kg)	SAR peak location (cm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				X	Y	Z				
15#	Back side	LTE Band 7	1.123	-0.04	-6.28	-0.3	122.288	**2.232**	0.03	Not Required
		WI-FI5G	1.109	2.94	5.58	-0.36				

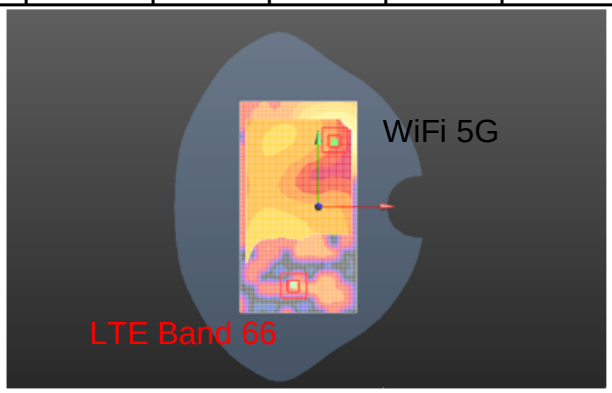


Case No.	Position	Band	SAR (W/kg)	SAR peak location (cm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				X	Y	Z				
16#	Back side	LTE Band 12	0.606	0	0	-0.4	63.073	**1.715**	0.04	Not Required
		WI-FI5G	1.109	2.94	5.58	-0.36				

Case No.	Position	Band	SAR (W/kg)	SAR peak location (cm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				X	Y	Z				
17#	Back side	LTE Band 13	0.543	0.15	1.05	-0.39	53.203	**1.652**	0.04	Not Required
		WI-FI5G	1.109	2.94	5.58	-0.36				



Case No.	Position	Band	SAR (W/kg)	SAR peak location (cm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				X	Y	Z				
18#	Back side	LTE Band 66	0.68	-0.61	-6.76	-0.04	128.445	**1.789**	0.02	Not Required
		WI-FI5G	1.109	2.94	5.58	-0.36				



6 Equipment list

Test Platform	SPEAG DASY5 Professional
Location	SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch
Description	SAR Test System (Frequency range 300MHz-6GHz)
Software Reference	DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Hardware Reference

Equipment		Manufacturer	Model	Serial Number	Calibration Date	Due date of calibration
☒	Twin Phantom	SPEAG	SAM 3	1912	NCR	NCR
☒	Twin Phantom	SPEAG	SAM 7	1027	NCR	NCR
☒	Twin Phantom	SPEAG	SAM 8	1063	NCR	NCR
☒	DAE	SPEAG	DAE4	1267	2019-12-17	2020-12-16
☒	DAE	SPEAG	DAE4	896	2019-09-18	2020-09-17
☒	DAE	SPEAG	DAE4	799	2020-02-10	2021-02-09
☒	E-Field Probe	SPEAG	EX3DV4	3923	2019-10-22	2020-10-21
☒	E-Field Probe	SPEAG	EX3DV4	3793	2019-03-25	2020-03-24
☒	Validation Kits	SPEAG	D750V3	1160	2019-05-22	2022-05-21
☒	Validation Kits	SPEAG	D835V2	4d105	2019-12-17	2022-12-16
☒	Validation Kits	SPEAG	D1750V2	1149	2019-05-21	2022-05-20
☒	Validation Kits	SPEAG	D1900V2	5d028	2019-12-17	2022-12-16
☒	Validation Kits	SPEAG	D2450V2	733	2019-12-17	2022-12-16
☒	Validation Kits	SPEAG	D2600V2	1125	2019-05-20	2022-05-19
☒	Agilent Network Analyzer	Agilent	E5071C	MY46523590	2019-04-12	2020-04-11
☒	Dielectric Probe Kit	Agilent	85070E	US01440210	NCR	NCR
☒	Universal Radio Communication Tester	R&S	CMW500	103990	2019-04-09	2020-04-08
☒	Radio Communication Analyzer	Anritsu	MT8821C	6201502984	2019-06-25	2020-06-24
☒	RF Bi-Directional Coupler	Agilent	86205-60001	MY31400031	NCR	NCR
☒	Signal Generator	Agilent	N5171B	MY53050736	2019-04-12	2020-04-11
☒	Preamplifier	Mini-Circuits	ZHL-42W	15542	NCR	NCR
☒	Preamplifier	Compliance Directions Systems Inc.	AMP28-3W	073501433	NCR	NCR
☒	Power Meter	Agilent	E4416A	GB41292095	2019-04-12	2020-04-11
☒	Power Sensor	Agilent	8481H	MY41091234	2019-04-12	2020-04-11
☒	Power Sensor	R&S	NRP-Z92	100025	2019-04-12	2020-04-11

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☒	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	MingGao	T809	NA	2019-04-15	2020-04-15
☒	Humidity and Temperature Indicator	KIMTOKA	KIMTOKA	NA	2019-04-15	2020-04-15

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

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7 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.

8 Calibration certificate

Please see the Appendix C

9 Photographs

Please see the Appendix D

Appendix A: Detailed System Check Results

Appendix B: Detailed Test Results

Appendix C: Calibration certificate

Appendix D: Photographs

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