



FCC SAR TEST REPORT

Report No: ZR/2020/A000703
Applicant: Motorola Mobility LLC
Manufacturer: Motorola Mobility LLC
Product Name: Mobile Phone
Model No.(EUT): XT2091-4
Trade Mark: Motorola
FCC ID: IHDT56ZK1
Standards: FCC 47CFR §2.1093
Date of Receipt: 2020-10-14
Date of Test: 2020-10-15 to 2020-10-17
Date of Issue: 2020-11-10
Test conclusion: **PASS ***

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

Authorized Signature:

Derek Yang

Wireless Laboratory Manager

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REVISION HISTORY

Report Number	Revision	Description	Issue Date
ZR/2020/A000703	01	Original	2020-11-10



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TEST SUMMARY

Frequency Band	Maximum Reported SAR(W/kg)			
	Head	Body-worn	Hotspot	Product Specific 10-g SAR
GSM850	0.27	1.29	1.49	0.93
GSM1900	<0.10	0.99	0.80	1.60
WCDMA Band II	0.23	1.25	1.45	2.85
WCDMA Band IV	0.28	1.40	1.40	3.04
WCDMA Band V	0.30	1.18	1.18	/
LTE Band 2	0.18	1.35	1.35	3.28
LTE Band 4	0.29	1.40	1.29	2.74
LTE Band 5	0.31	1.35	1.35	1.30
LTE Band 7	0.45	1.41	1.41	3.38
LTE Band 66	0.25	1.39	1.31	2.52
WI-FI (2.4GHz)	1.04	0.87	0.87	/
WI-FI (5GHz)	1.03	0.74	1.10	1.43
BT	0.11	<0.10	<0.10	/
SAR Limited(W/kg)	1.6			4.0
Maximum Simultaneous Transmission SAR (W/kg)				
Scenario	Head	Body-worn	Hotspot	Product Specific 10-g SAR
Sum SAR	1.49	1.56	1.49	3.60
SPLSR	NA	0.03	0.02	NA
SPLSR Limited	0.04			0.1
Note: The Simultaneous transmission SAR is the same test position of the WWAN antenna + WiFi/BT antenna.				

Approved & Released by

Simon Ling

SAR Manager

Tested by

Jackson Li

SAR Engineer



SGS-CSTC Standards Technical Services Co., Ltd.
Shenzhen Branch

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1 General Information

1.1 Details of Client

Applicant:	Motorola Mobility LLC
Address:	222 W Merchandise Mart Plaza, Suite 1800, Chicago IL 60654, USA
Manufacturer:	Motorola Mobility LLC
Address:	222 W Merchandise Mart Plaza, Suite 1800, Chicago IL 60654, USA

1.2 Test Location

Company: SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch E&E Lab
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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 17025:2017 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**

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- **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)**

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

CAB identifier: CN0006

IC#: 4620C.



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1.4 General Description of EUT

Product Name:	Mobile Phone		
Model No.(EUT):	XT2091-4		
Trade Mark:	Motorola		
FCC ID:	IHDT56ZK1		
Device Type :	portable device		
Exposure Category:	uncontrolled environment / general population		
Product Phase:	Identical Prototype		
SN:	NU2LV20112/NU2LV20111		
Hardware Version:	DVT2		
Software Version:	QZC30.Q4-22		
Antenna Type:	Inner Antenna		
Device Operating Configurations :			
Modulation Mode:	GSM: GMSK, 8PSK; WCDMA: QPSK; LTE: QPSK,16QAM,64QAM WIFI: DSSS, OFDM; BT: GFSK, $\pi/4$ DQPSK,8DPSK		
Device Class:	B		
GPRS Multi-slots Class:	12	EGPRS Multi-slots Class:	12
HSDPA UE Category:	24	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 2/4/5/7/66)		
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 66	1710~1780	2110~2200
	Bluetooth	2402~2480	2402~2480
	Wi-Fi 2.4G	2412~2462	2412~2462
	Wi-Fi 5G	5150~5350	5150~5350
		5470~5725	5470~5725
5725~5850		5725~5850	
Battery Information:	Model:	MC50	
	Normal Voltage:	+3.87V	
	Rated capacity:	5610mAh	
	Manufacturer:	Ningde Amperex Technology Limited	
Headset Information:	Model:	NLD-EM301K-15SF v1	
	Manufacturer:	New Leader	



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Remark:

The original and the Variant difference is PA and filter, GSM part PA amplification, 3G/4G part of the switch , details as below, the others are the same.

N O.	Item group name	1st model	Material description	manufacturer	2nd model	Material description	manufacturer
1	Filter duplex	SFH780AA402	LTE Single ended filter;;Band28, 780.5MHz;1.1*0.9*0.55mm	WISOL	MS11U780M-RX28C	LTE Single ended filter;;Band28,780MHz;1.1*0.9*	Microgate
2	Filter duplex	SFWG62DBB02	Duplex single ended filter ;Band25/Band66;1.5*1.1*0.6mm	WISOL	SAWFD1G96AC2F0A	Duplex single ended filter ;Band25/Band66;1.5*1.1*0.5mm	MURATA
3	Filter duplex	SFX836EYJ02	Duplex single ended filter ;Band5,836.5/881.5MHz;1.8*1.4*0.6	WISOL	SAYEY836MBA0F0A	Duplex single ended filter ;Band5,836.5/881.5MHz;1.8*1.4*0.6	MURATA
4	Filter duplex	SFX897FYT02	Duplex single ended filter ;Band8;897.5/942.5MHz;1.8*1.4*0.6	WISOL	MS18U897M-DU08C	Duplex single ended filter ;Band8,897.5/942.5MHz;1.8*1.4*0.6	Microgate
5	RF power amplifier	SKY77928-21	SWITCH+PA;3P18T;GGE/TD/TLE;5.5*5.5*0.8mm	SKY/Skyworks	FX5808TR1	SWITCH+PA;3P18T;GGE/TD/TLE;5.5*5.5*0.8mm	lanus

Note:

According to the difference description above, for GSM850/GSM1900 are all tested and update the conducted power, for the WCDMA/LTE bands are tested the worst case on the original report ZR/2020/8000602 and WiFi/BT bands refer to the original report ZR/2020/8000602.



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1.4.1 DUT Antenna Locations

Back View



Ant1:	GP5+2.4G WIFI antenna
Ant2:	5G WIFI antenna
Ant3:	Diversity LB/MB Antenna WCDMA B1/2/4/5/8/19 FDD LTE B1/B2/B3/B4/B5/B8/B19/B28/B66
Ant4:	Diversity HB Antenna FDD LTE B7
Ant5:	Main LB/MB Antenna GSM B2/3/5/8 WCDMA B1/2/4/5/8 FDD LTE B1/2/3/4/5/8/19/28/66
Ant6:	Main HB Antenna FDD LTE B7

Note:

- 1) Main Antenna: GSM850/1900, WCDMA Band II/IV/V, LTE Band 2/4/5/7/66, the Div ant only for Rx.
- 2) The test device is a smart phone. The overall diagonal dimension of this device is 179.1 mm. Per KDB 648474 D04, because the diagonal distance of this device is ≥ 160 mm, so it is a phablet.

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

EUT Sides for SAR Testing							
Mode	Exposure Condition	Front	Back	Left	Right	Top	Bottom
Main Antenna(ANT5)	Hotspot/Product specific 10g SAR	Yes	Yes	Yes	Yes	No	Yes
Main Antenna(ANT6)	Hotspot/Product specific 10g SAR	Yes	Yes	Yes	No	No	Yes
WIFI 2.4G/BT(ANT1)	Hotspot/Product specific 10g SAR	Yes	Yes	No	Yes	Yes	No
WIFI 5G(ANT2)	Hotspot/Product specific 10g SAR	Yes	Yes	No	Yes	Yes	No

Table 1: EUT Sides for SAR Testing

Note:

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



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1.5 Test Specification

Identity	Document Title
FCC 47CFR §2.1093	Radiofrequency Radiation Exposure Evaluation: Portable Devices
ANSI/IEEE C95.1-1992	IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz – 300 GHz.
IEEE 1528-2013	Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques
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 648474 D04	Handset SAR v01r03
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 690783 D01	SAR Listings on Grants v01r03
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 Laboratory Environment

Temperature	Min. = 18°C, Max. = 25 °C
Relative humidity	Min. = 30%, Max. = 70%
Ground system resistance	< 0.5 Ω
Ambient noise is checked and found very low and in compliance with requirement of standards. Reflection of surrounding objects is minimized and in compliance with requirement of standards.	

Table 2: The Ambient Conditions



3 SAR Measurements System Configuration

3.1 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 $SAR = \sigma (|E|^2) / \rho$ where σ and ρ are the conductivity and mass density of the tissue-Simulate.

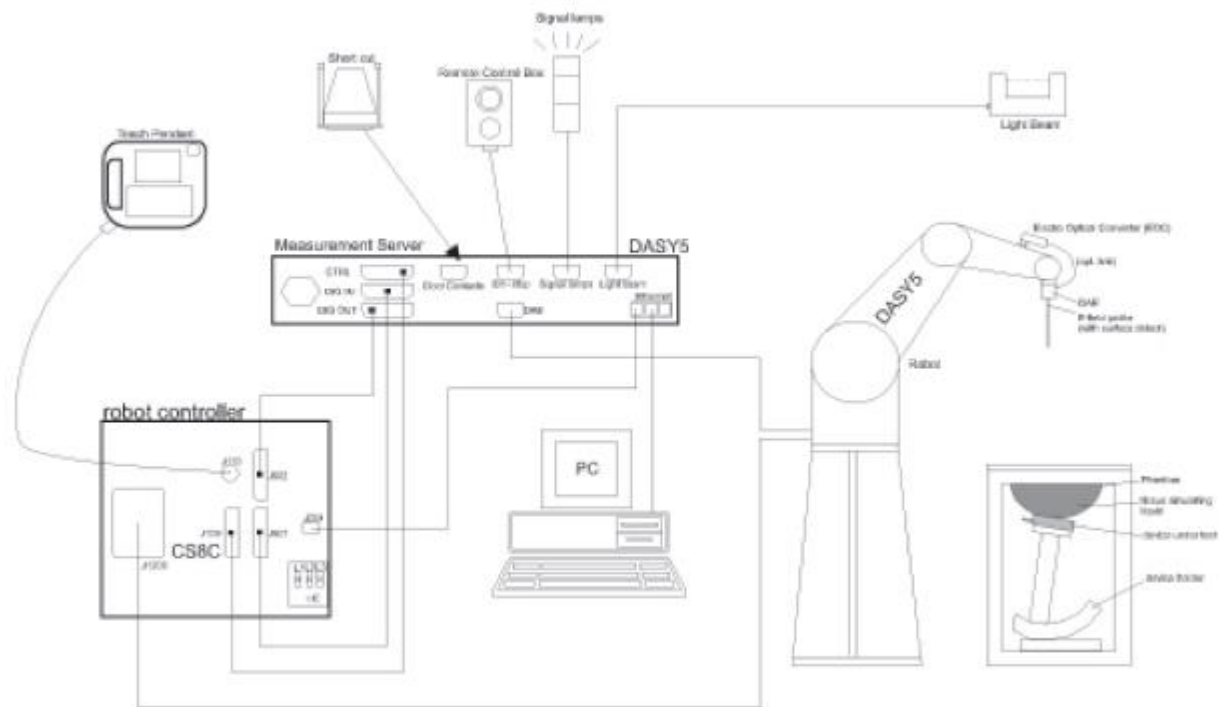
The DASY5 system for performing compliance tests consists of the following items:

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.

3.2 Isotropic E-field Probe EX3DV4

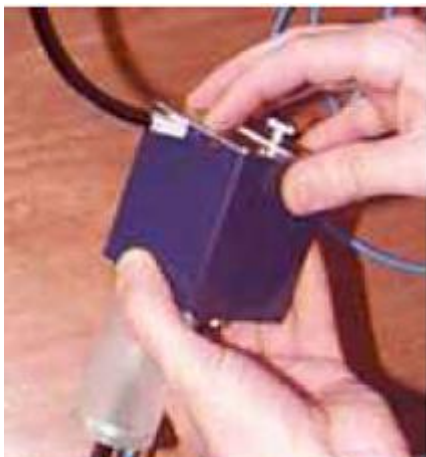
	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Calibration	ISO/IEC 17025 calibration service available.
Frequency	10 MHz to > 6 GHz Linearity: ± 0.2 dB (30 MHz to 6 GHz)
Directivity	± 0.3 dB in TSL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



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3.3 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	

3.4 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.

3.5 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.



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3.6 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 $\epsilon=3$ and loss tangent $\delta=0.02$. 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.



3.7 Measurement procedure

3.7.1 Scanning procedure

Step 1: Power reference measurement

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

Step 2: Area scan

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

Step 3: Zoom scan

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

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

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



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		$\leq 3 \text{ GHz}$	$> 3 \text{ GHz}$
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface		$5 \pm 1 \text{ mm}$	$\frac{1}{2} \cdot \delta \cdot \ln(2) \pm 0.5 \text{ mm}$
Maximum probe angle from probe axis to phantom surface normal at the measurement location		$30^\circ \pm 1^\circ$	$20^\circ \pm 1^\circ$
Maximum area scan spatial resolution: $\Delta x_{\text{Area}}, \Delta y_{\text{Area}}$	$\leq 2 \text{ GHz}: \leq 15 \text{ mm}$ $2 - 3 \text{ GHz}: \leq 12 \text{ mm}$		$3 - 4 \text{ GHz}: \leq 12 \text{ mm}$ $4 - 6 \text{ GHz}: \leq 10 \text{ mm}$
	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 $\leq$ 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: $\Delta x_{\text{Zoom}}, \Delta y_{\text{Zoom}}$		$\leq 2 \text{ GHz}: \leq 8 \text{ mm}$ $2 - 3 \text{ GHz}: \leq 5 \text{ mm}^*$	$3 - 4 \text{ GHz}: \leq 5 \text{ mm}^*$ $4 - 6 \text{ GHz}: \leq 4 \text{ mm}^*$
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{\text{Zoom}}(n)$		$3 - 4 \text{ GHz}: \leq 4 \text{ mm}$ $4 - 5 \text{ GHz}: \leq 3 \text{ mm}$ $5 - 6 \text{ GHz}: \leq 2 \text{ mm}$
	graded grid	$\Delta z_{\text{Zoom}}(1)$: between 1 st two points closest to phantom surface	$3 - 4 \text{ GHz}: \leq 3 \text{ mm}$ $4 - 5 \text{ GHz}: \leq 2.5 \text{ mm}$ $5 - 6 \text{ GHz}: \leq 2 \text{ mm}$
		$\Delta z_{\text{Zoom}}(n>1)$: between subsequent points	$\leq 1.5 \cdot \Delta z_{\text{Zoom}}(n-1)$
Minimum zoom scan volume	x, y, z	$\geq 30 \text{ mm}$	$3 - 4 \text{ GHz}: \geq 28 \text{ mm}$ $4 - 5 \text{ GHz}: \geq 25 \text{ mm}$ $5 - 6 \text{ GHz}: \geq 22 \text{ mm}$

Step 4: Power reference measurement (drift)

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



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3.7.2 Data Storage

The DASY software stores the acquired data from the data acquisition electronics as raw data (in microvolt readings from the probe sensors), together with all necessary software parameters for the data evaluation (probe calibration data, liquid parameters and device frequency and modulation data) in measurement files with the extension “.DAE4”. The software evaluates the desired unit and format for output each time the data is visualized or exported. This allows verification of the complete software setup even after the measurement and allows correction of incorrect parameter settings. For example, if a measurement has been performed with a wrong crest factor parameter in the device setup, the parameter can be corrected afterwards and the data can be re-evaluated. The measured data can be visualized or exported in different units or formats, depending on the selected probe type ([V/m], [A/m], [°C], [m W/g], [m W/cm²], [dBrel], etc.). Some of these units are not available in certain situations or show meaningless results, e.g., a SAR output in a lossless media will always be zero. Raw data can also be exported to perform the evaluation with other software packages.

3.7.3 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:

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

With V_i = compensated signal of channel i ($i = x, y, z$)

U_i = input signal of channel i ($i = x, y, z$)

cf = crest factor of exciting field (DASY parameter)

dcpi = diode compression point (DASY parameter)

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

E-field probes:

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



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H-field probes:

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

With V_i = 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

a_{ij} = sensor sensitivity factors for H-field probes

f = carrier frequency [GHz]

E_i = electric field strength of channel i in V/m

H_i = 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.

$$SAR = (E_{tot}^2 \cdot \sigma) / (\epsilon \cdot 1000)$$

with SAR = local specific absorption rate in mW/g

E_{tot} = 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.

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

with P_{pwe} = equivalent power density of a plane wave in mW/cm²

E_{tot} = total electric field strength in V/m

H_{tot} = total magnetic field strength in A/m



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4 SAR measurement variability and uncertainty

4.1 SAR measurement variability

Per KDB865664 D01 SAR measurement 100 MHz to 6 GHz v01r04, SAR measurement variability must be assessed for each frequency band, which is determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements. The additional measurements are repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device should be returned to ambient conditions (normal room temperature) with the battery fully charged before it is re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results.

- 1) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg; steps 2) through 4) do not apply.
 - 2) When the original highest measured SAR is ≥ 0.80 W/kg, repeat that measurement once.
 - 3) Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is ≥ 1.45 W/kg ($\sim 10\%$ from the 1-g SAR limit).
 - 4) Perform a third repeated measurement only if the original, first or second repeated measurement is ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20 .
- The same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds.

4.2 SAR measurement uncertainty

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



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5 Description of Test Position

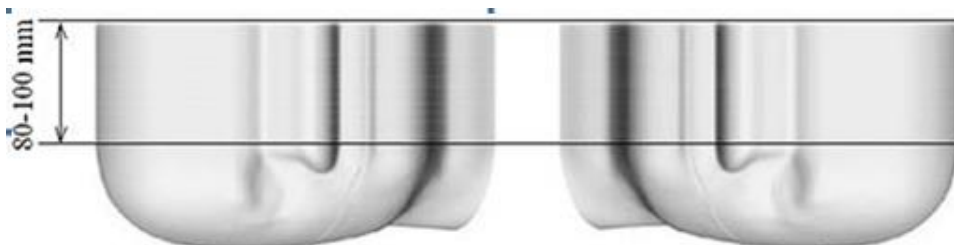
5.1 Head Exposure Condition

5.1.1 SAM Phantom Shape

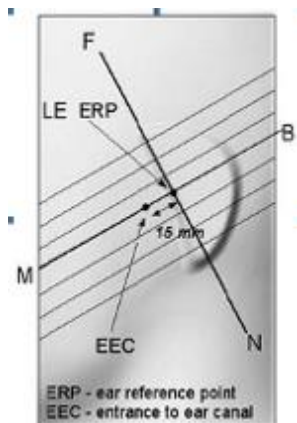


F-3. Front, back, and side views of SAM (model for the phantom shell). Full-head model is for illustration purposes only-procedures in this recommended practice are intended primarily for the phantom setup.

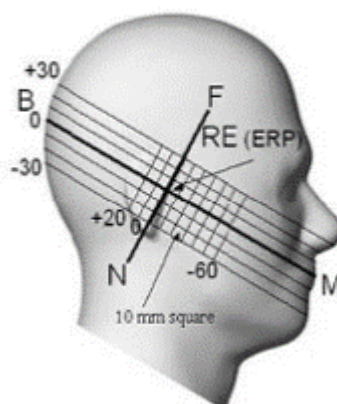
Note: The centre strip including the nose region has a different thickness tolerance.



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

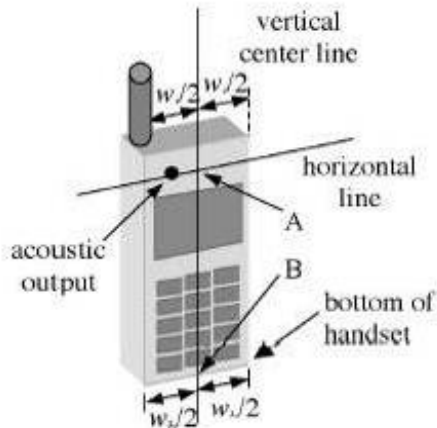


F-5. Close-up side view of phantom, showing the ear region, N-F and B-M lines, and seven cross-sectional plane locations

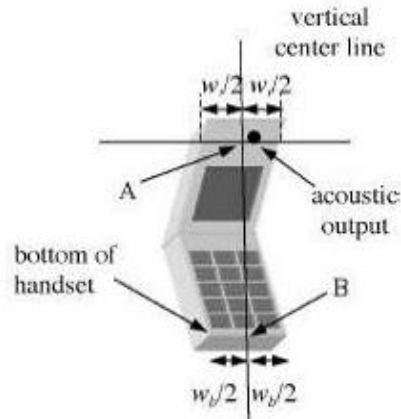


F-6. Side view of the phantom showing relevant markings and seven cross-sectional plane locations

5.1.2 EUT constructions



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



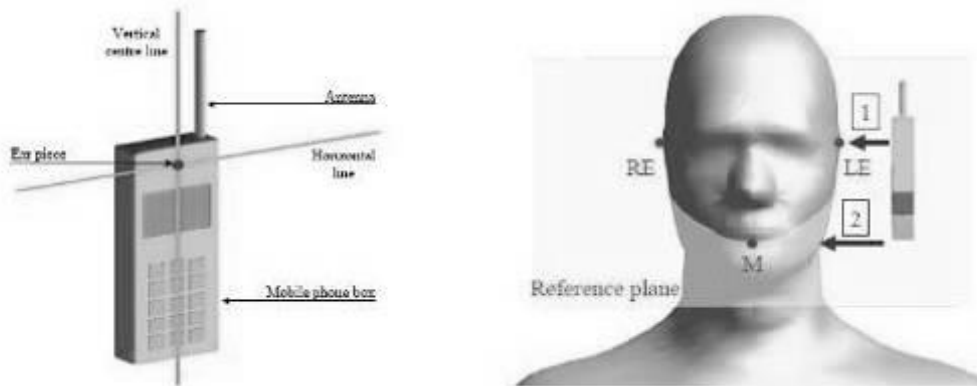
F-8. Handset vertical and horizontal reference lines-"clam-shell case"

5.1.3 Definition of the "cheek" position

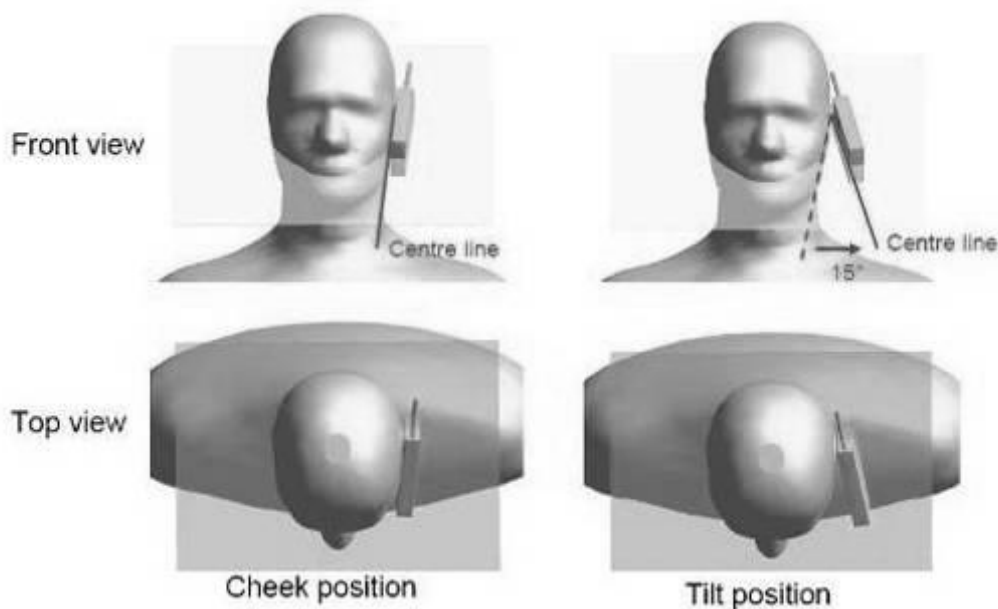
- Position the device with the vertical centre line of the body of the device and the horizontal line crossing the centre of the ear piece in a plane parallel to the sagittal plane of the phantom ("initial position"). While maintaining the device in this plane, align the vertical centre line with the 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.
- 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.

5.1.4 Definition of the “tilted” position

- Position the device in the “cheek” position described above;
- 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

5.2 Body Exposure Condition

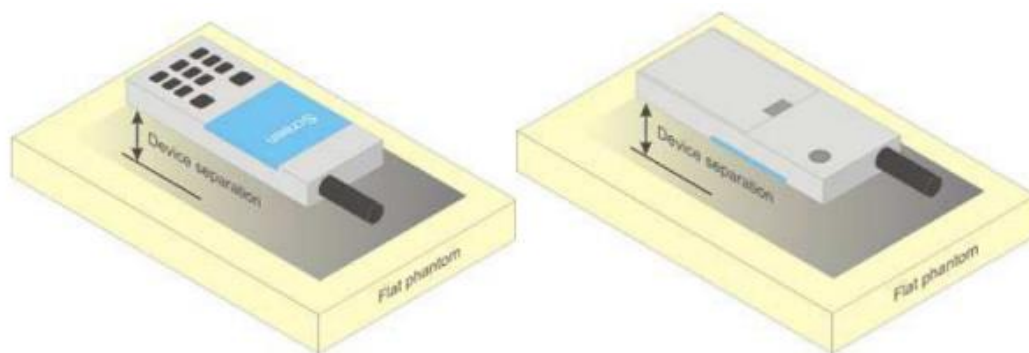
5.2.1 Body-worn accessory exposure conditions

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 $> 1.2 \text{ W/kg}$, 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



5.2.2 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 ($L \times W \geq 9 \text{ cm} \times 5 \text{ cm}$) 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 $9 \text{ cm} \times 5 \text{ cm}$, a test separation distance of 5 mm is required. Although this handset $L \times W$ is $\geq 9 \text{ cm} \times 5 \text{ cm}$, a test separation distance of 5 mm is form client.

5.3 Extremity exposure conditions

Per FCC KDB 648474D04, for smart phones with a display diagonal dimension $> 15.0 \text{ cm}$ or an overall diagonal dimension $> 16.0 \text{ cm}$ that provide similar mobile web access and multimedia support found in mini-tablets or UMPC mini-tablets that support voice calls next to the ear, the device is marketed as "Phablet".

The UMPC mini-tablet procedures must also be applied to test the SAR of all surfaces and edges with an antenna located at $\leq 25 \text{ mm}$ from that surface or edge, in direct contact with a flat phantom, for Product Specific 10-g SAR according to the body-equivalent tissue dielectric parameters in KDB 865664 to address interactive hand use exposure conditions. The UMPC mini-tablet 1-g SAR at 5 mm is not required. When hotspot mode applies, Product Specific 10-g SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR $> 1.2 \text{ W/kg}$; however, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold.

Due to the SAR result, GSM850/1900&WCDMA Band II/IV<E Band 2/4/5/7/66 need to test with 0mm for the Product Specific 10 g SAR, the others are not required.



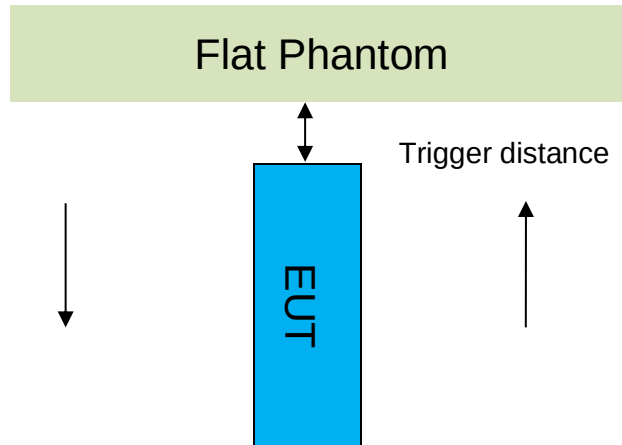
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5.4 Proximity Sensor Triggering Test

1) Proximity sensor triggering distances:

The Proximity sensor triggering was applied to GSM1900, WCDMA Band II/IV, LTE B2/4/7/66. 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 side	Back side	Left side	Right side	Bottom side
Minimum(for 5mm)	11	18	8	12	14
Required SAR Test	10	17	7	11	13
Minimum(for 0mm)	5	7	5	6	8
Required SAR Test	4	6	4	5	7

Band	Sensor Trigger Distance	Power reduction (dB)	Sensor Trigger Distance	Power reduction (dB)
GSM1900	Front side: 11mm	3.0	Front side: 5mm	0
	Back side: 18mm		Back side: 7mm	
	Right side: 12mm		Right side: 6mm	
	Bottom side: 14mm		Bottom side: 8mm	
WCDMA Band II	Front side: 11mm	6.0	Front side: 5mm	4.0
	Back side: 18mm		Back side: 7mm	
	Right side: 12mm		Right side: 6mm	
	Bottom side: 14mm		Bottom side: 8mm	
WCDMA Band IV	Front side: 11mm	6.0	Front side: 5mm	3.0
	Back side: 18mm		Back side: 7mm	
	Right side: 12mm		Right side: 6mm	
	Bottom side: 14mm		Bottom side: 8mm	
LTE Band 2	Front side: 11mm	6.0	Front side: 5mm	3.0
	Back side: 18mm		Back side: 7mm	
	Right side: 12mm		Right side: 6mm	
	Bottom side: 14mm		Bottom side: 8mm	
LTE Band 4	Front side: 11mm	6.0	Front side: 5mm	3.0
	Back side: 18mm		Back side: 7mm	
	Right side: 12mm		Right side: 6mm	
	Bottom side: 14mm		Bottom side: 8mm	
LTE Band 7	Front side: 11mm	3.5	Front side: 5mm	2.0
	Back side: 18mm		Back side: 7mm	
	Left side: 8mm		Left side: 5mm	
	Bottom side: 14mm		Bottom side: 8mm	
LTE Band 66	Front side: 11mm	6.0	Front side: 5mm	3.0
	Back side: 18mm		Back side: 7mm	
	Right side: 12mm		Right side: 6mm	
	Bottom side: 14mm		Bottom side: 8mm	

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



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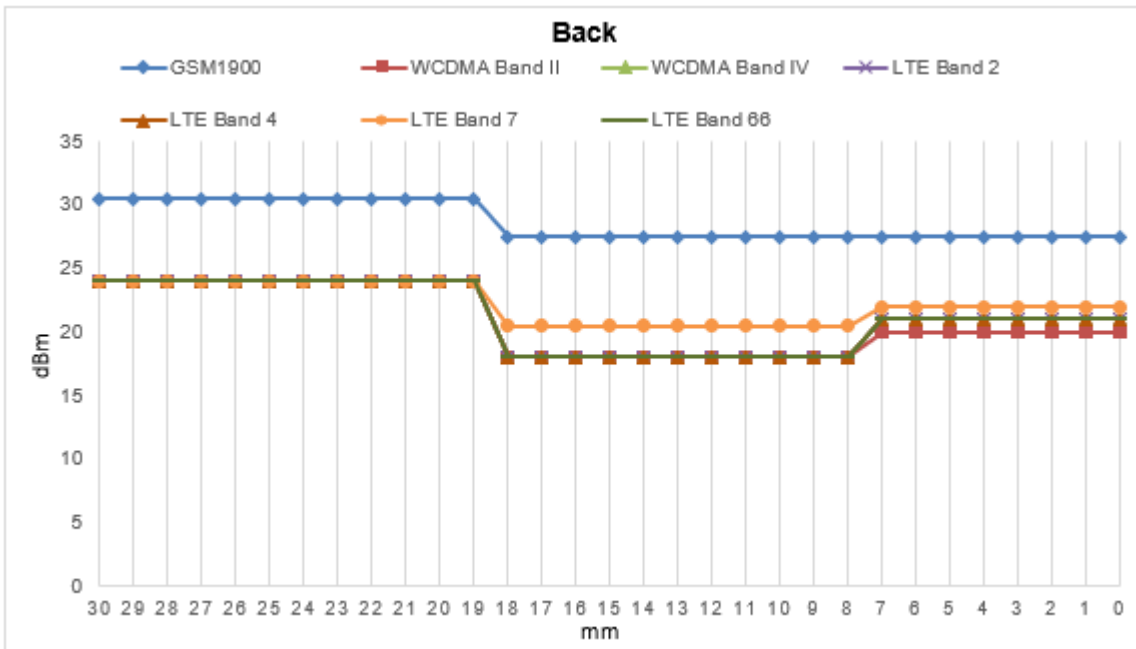
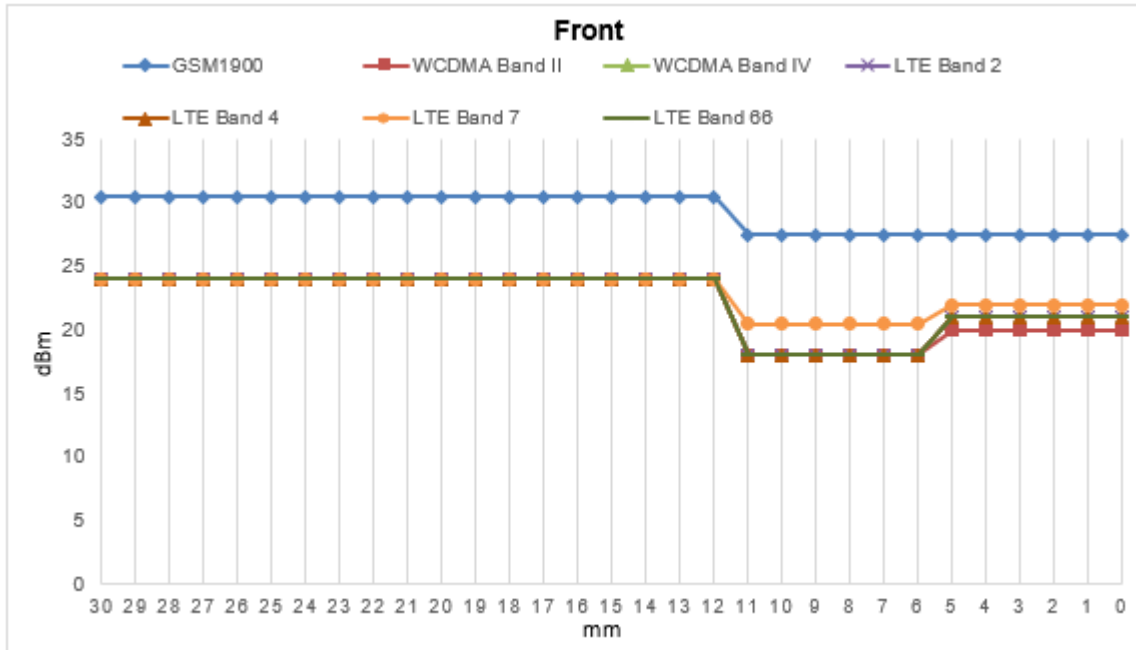
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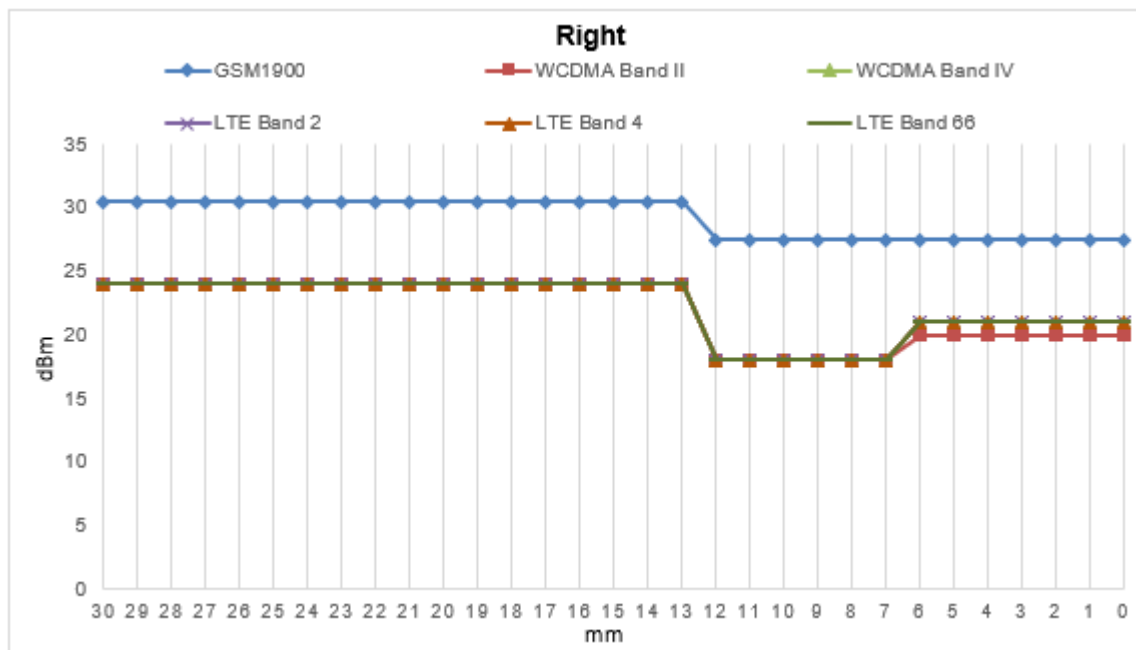
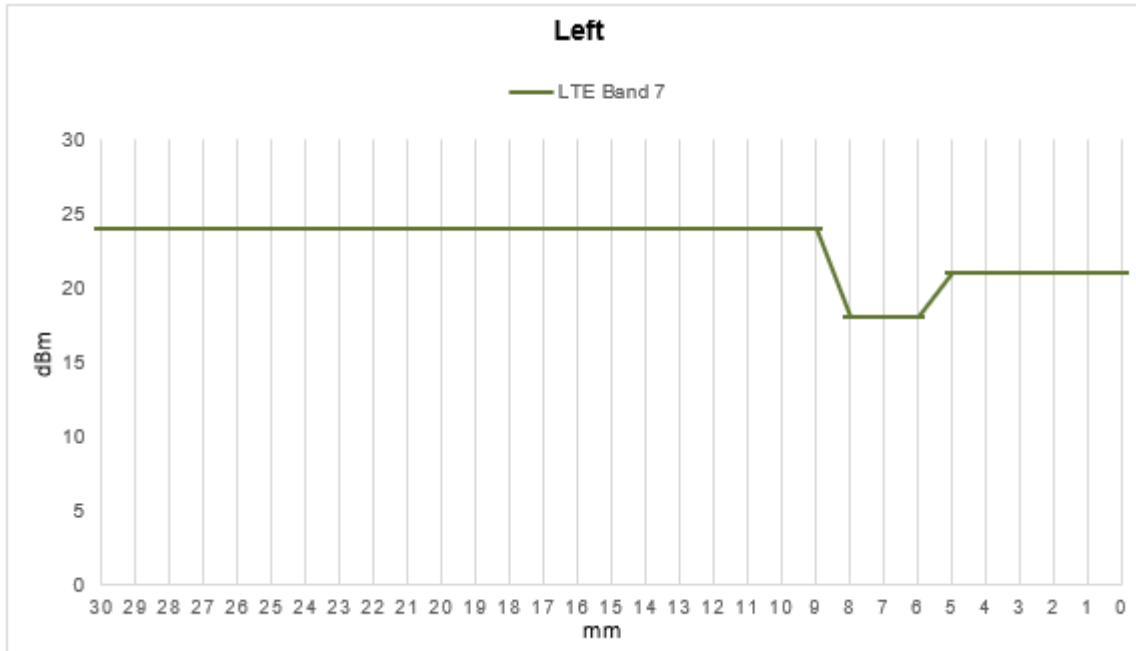
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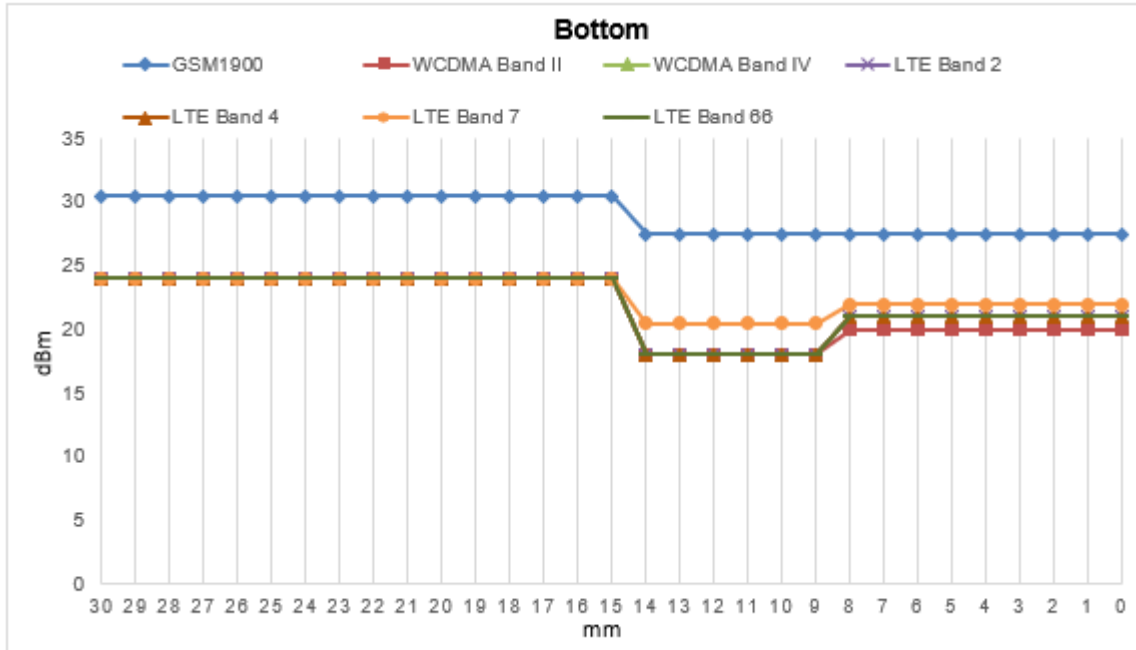
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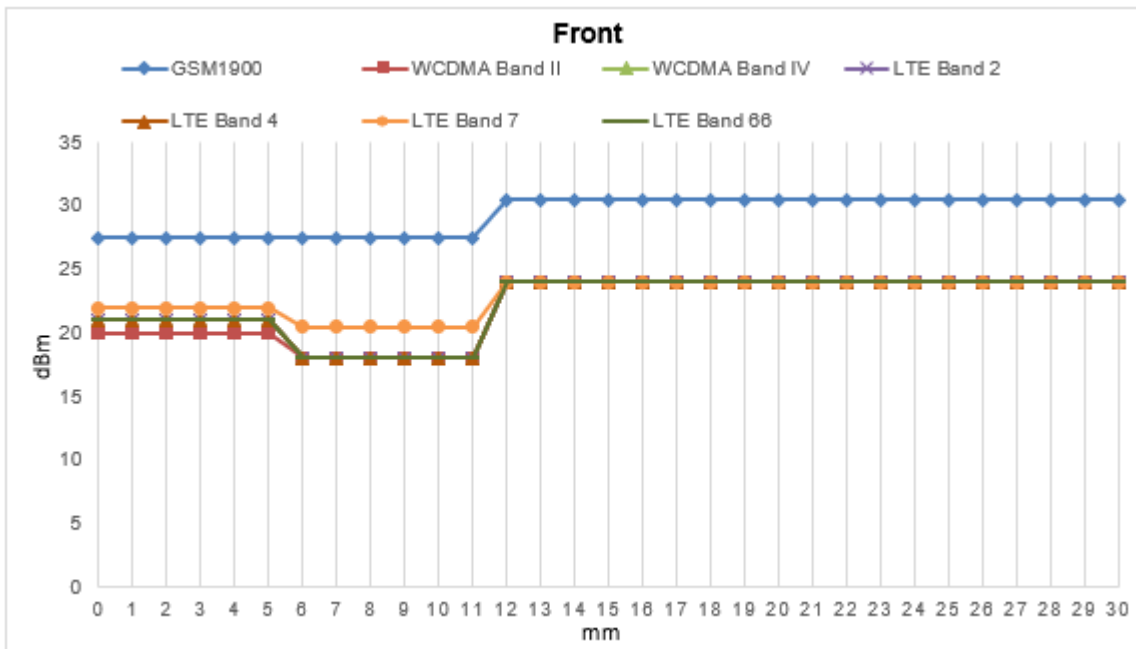
● DUT Moving Toward(Trigger)the Phantom

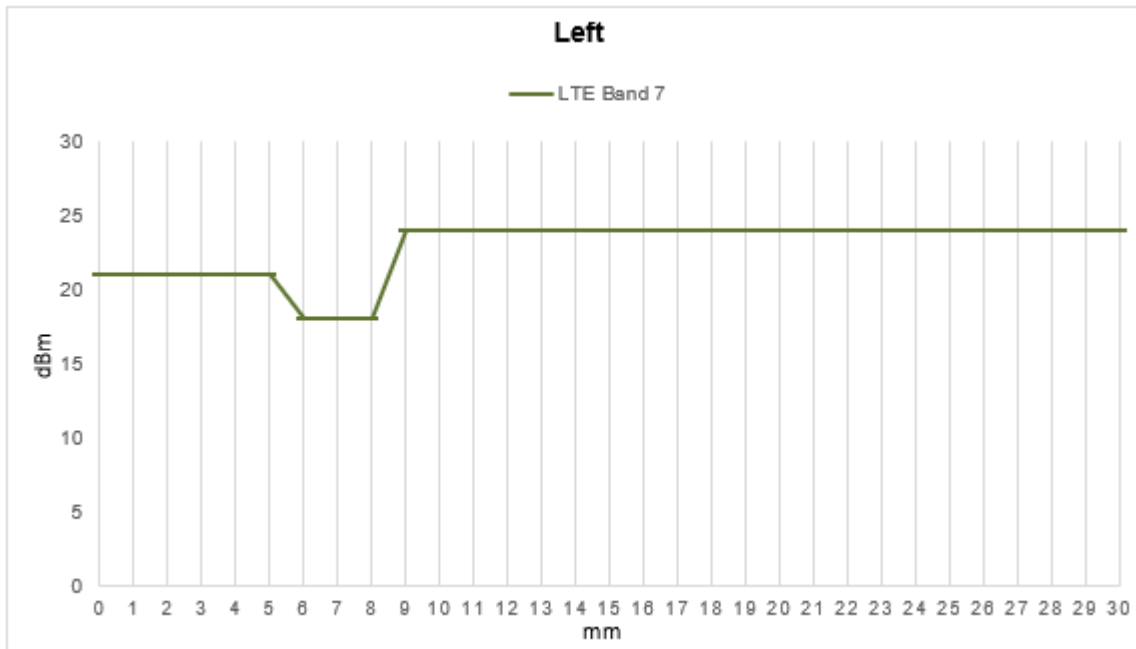
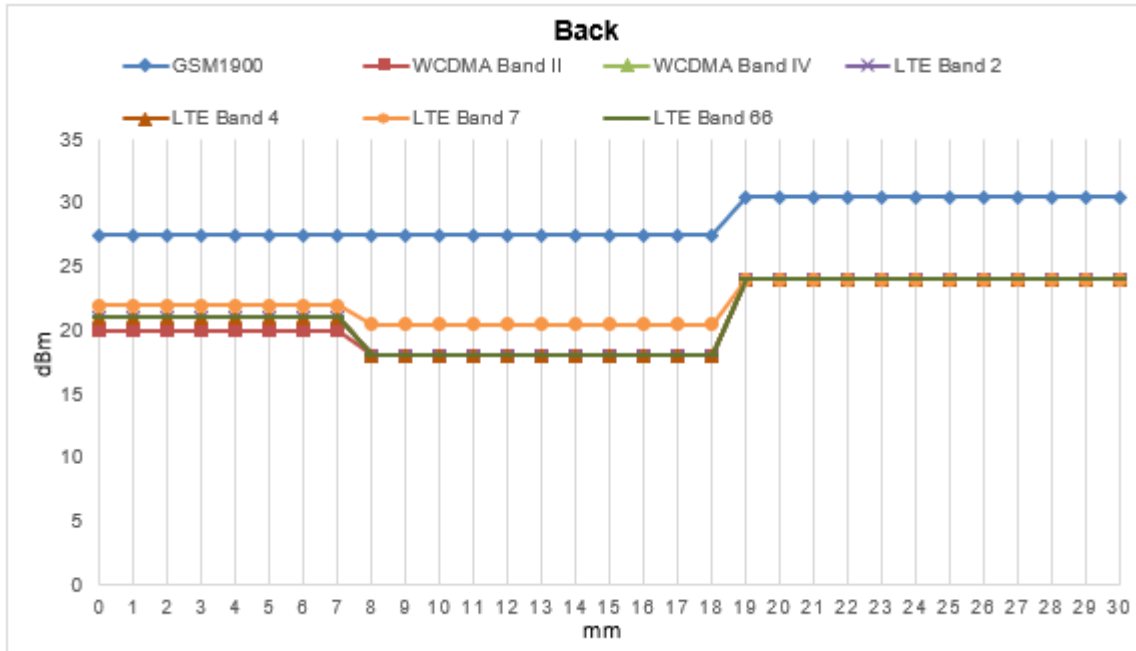


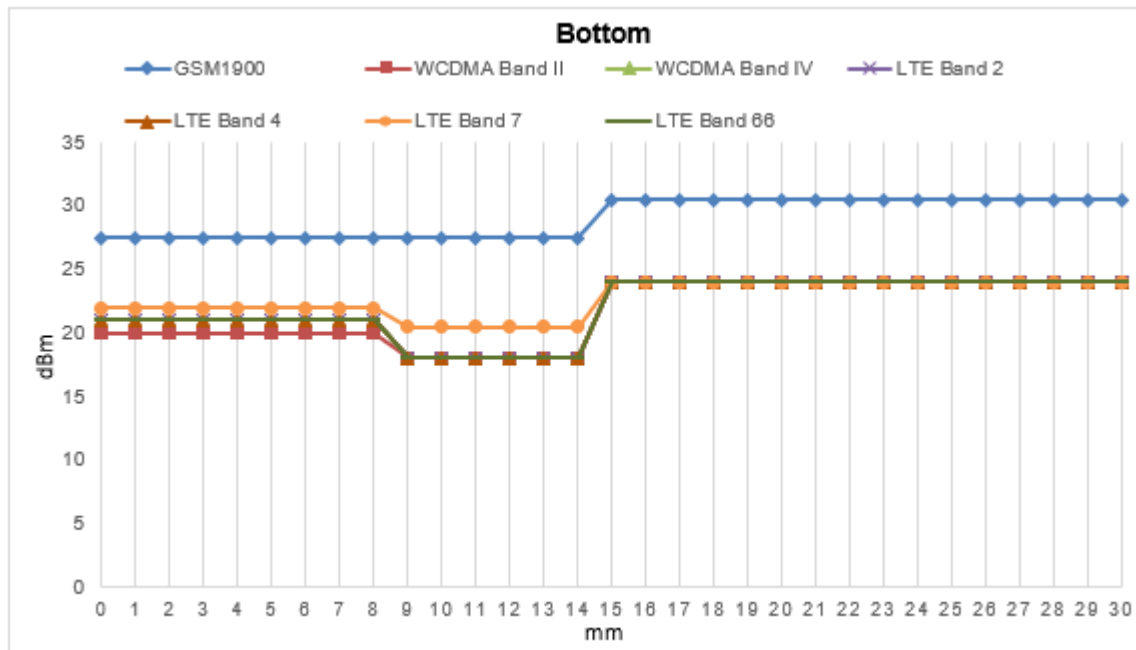
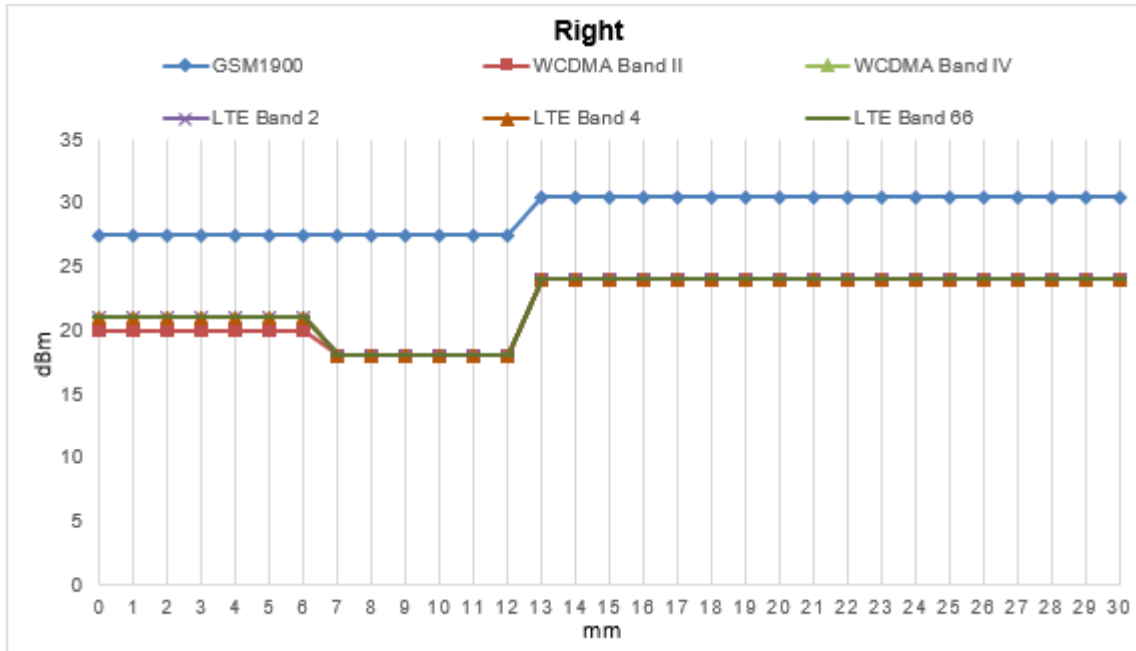




● DUT Moving Away(Release) from the Phantom







2) Proximity sensor coverage

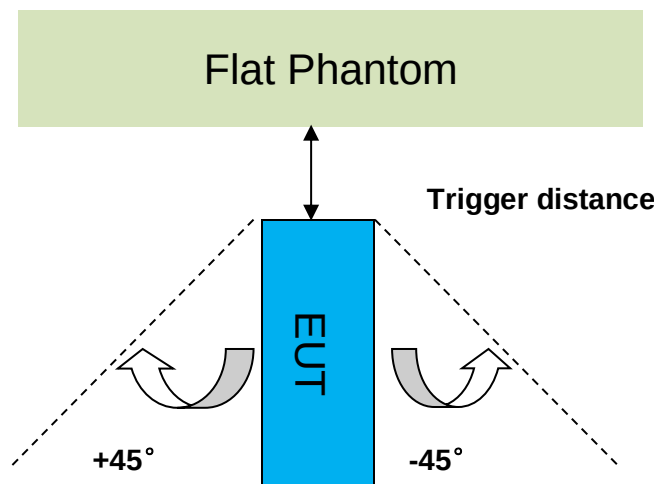
If a sensor is spatially offset from the antenna(s), it is necessary to verify sensor triggering for conditions where the antenna is next to the user but the sensor is laterally further away to ensure sensor coverage is sufficient for reducing the power to maintain compliance. For p-sensor coverage testing, 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 16mm separation.

Rotating the tablet around the edge next to the phantom in $\leq 10^\circ$ increments until the tablet is $\pm 45^\circ$ from the vertical position at 0° , and the maximum output power remains in the reduced mode.



Summary of Tablet Tilt Angle Influence to Proximity Sensor Triggering

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	Bottom side:14mm, 8mm	Bottom side:14mm, 8mm	on	on	on	on	on	on	on	on	on	on	on	
WCDMA Band II	Bottom side:14mm, 8mm	Bottom side:14mm, 8mm	on	on	on	on	on	on	on	on	on	on	on	
WCDMA Band IV	Bottom side:14mm, 8mm	Bottom side:14mm, 8mm	on	on	on	on	on	on	on	on	on	on	on	
LTE Band 2	Bottom side:14mm, 8mm	Bottom side:14mm, 8mm	on	on	on	on	on	on	on	on	on	on	on	
LTE Band 4	Bottom side:14mm, 8mm	Bottom side:14mm, 8mm	on	on	on	on	on	on	on	on	on	on	on	
LTE Band 7	Bottom side:14mm, 8mm	Bottom side:14mm, 8mm	on	on	on	on	on	on	on	on	on	on	on	
LTE Band 66	Bottom side:14mm, 8mm	Bottom side:14mm, 8mm	on	on	on	on	on	on	on	on	on	on	on	



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6 SAR System Verification Procedure

6.1 Tissue Simulate Liquid

6.1.1 Recipes for Tissue Simulate Liquid

The following 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 3: Recipe of Tissue Simulate Liquid



6.1.2 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 bellow table. For the SAR measurement given in this report. The temperature variation of the Tissue Simulate Liquids was $22\pm 2^{\circ}\text{C}$.

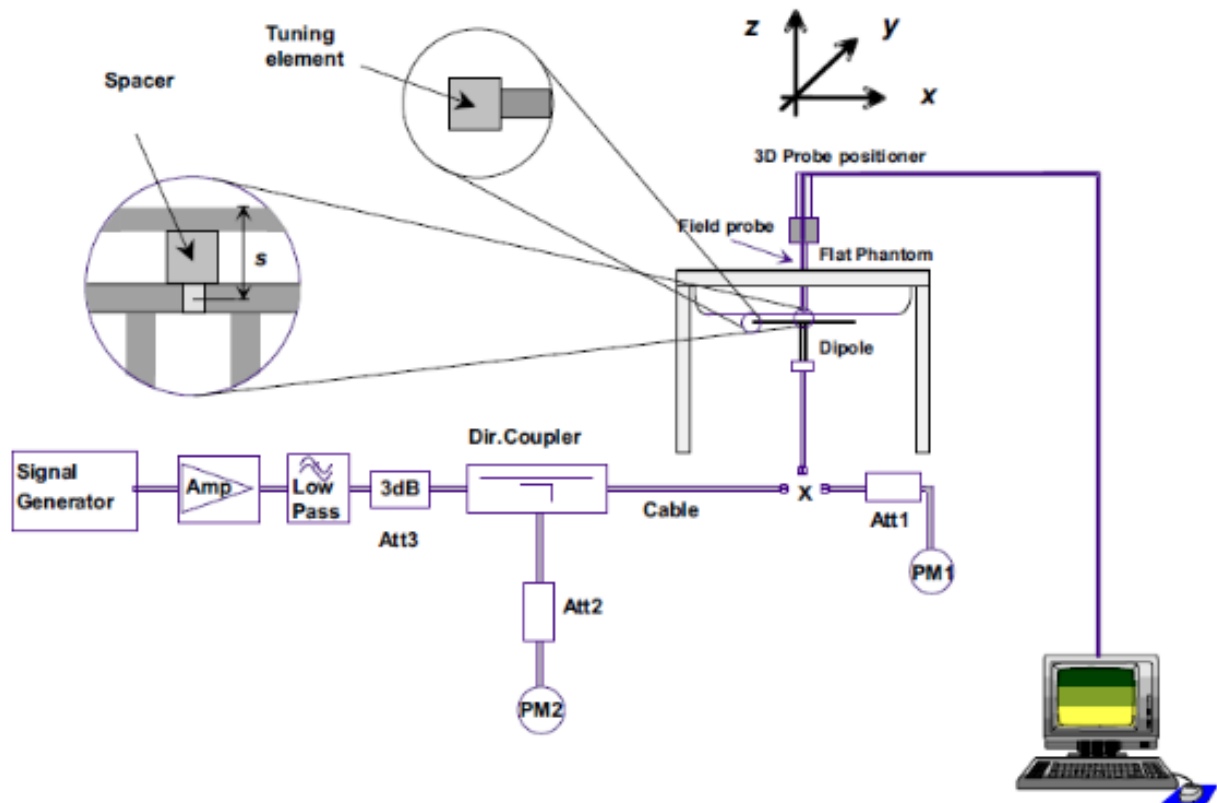
Tissue Type	Measured Frequency (MHz)	Target Tissue ($\pm 5\%$)		Measured Tissue		Liquid Temp. ($^{\circ}\text{C}$)	Measured Date
		ϵ_r	$\sigma(\text{S/m})$	ϵ_r	$\sigma(\text{S/m})$		
835 Head	835	41.5 (39.43~43.58)	0.90 (0.86~0.95)	42.875	0.946	22.1	2020/10/15
1750 Head	1750	40.1 (38.10~42.11)	1.37 (1.30~1.44)	40.439	1.325	22.2	2020/10/17
1900 Head	1900	40.0 (38.00~42.00)	1.40 (1.33~1.47)	40.341	1.394	22.3	2020/10/16
2600 Head	2600	39.0 (37.05~40.95)	1.96 (1.86~2.06)	37.439	2.028	22.1	2020/10/17

Table 4: Measurement result of Tissue electric parameters



6.2 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 $\pm 10\%$ from the target SAR values. The tests were conducted on the same days as the measurement of the EUT. The obtained results from the system accuracy verification are displayed in the following table (A power level of 250mW (below 3GHz) or 100mW (3-6GHz) was input to the dipole antenna). During the tests, the ambient temperature of the laboratory was in the range $22 \pm 2^\circ\text{C}$, 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



6.2.1 Justification for Extended SAR Dipole Calibrations

1) Referring to KDB865664 D01 requirements for dipole calibration, instead of the typical annual calibration recommended by measurement standards, longer calibration intervals of up to three years may be considered when it is demonstrated that the SAR target, impedance and return loss of a dipole have remain stable according to the following requirements. Each measured dipole is expected to evaluate with the following criteria at least on annual interval in Appendix C.

- a) There is no physical damage on the dipole;
- b) System check with specific dipole is within 10% of calibrated value;
- c) Return-loss is within 10% of calibrated measurement;
- d) Impedance is within 5Ω from the previous measurement.

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



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6.2.2 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. (°C)	Measured Date
		1g (W/kg)	10g (W/kg)	1g (W/kg)	10g (W/kg)	1-g(W/kg)	10-g(W/kg)		
D835V2	Head	2.62	1.71	10.48	6.84	9.64 (8.68~10.60)	6.29 (5.66~6.92)	22.1	2020/10/15
D1750V2	Head	9.46	5.02	37.84	20.08	36.3 (32.67~39.93)	19.2 (17.28~21.12)	22.2	2020/10/17
D1900V2	Head	10.30	5.33	41.20	21.32	39.3 (35.37~43.23)	20.2 (18.18~22.22)	22.3	2020/10/16
D2600V2	Head	14.30	6.41	57.20	25.64	56.8 (51.12~62.48)	24.9 (22.41~27.39)	22.1	2020/10/17

Table 5: SAR System Check Result

6.2.3 Detailed System Check Results

Please see the Appendix A



7 Test Configuration

7.1 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 $\leq \frac{1}{4}$ 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.

7.2 Operation Configurations

7.2.1 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 12 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 12 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



7.2.2 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 spreading 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 $\leq \frac{1}{4}$ 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(β_c , β_d), and HS-DPCCH power offset parameters (Δ_{ACK} , Δ_{NACK} , Δ_{CQI}) are set according to values indicated in the following table. The CQI value is determined by the UE category, transport block size, number of HS-PDSCHs and modulation used in the H-set.



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Sub-test	βc	Bd	$\beta d(SF)$	$\beta c/\beta d$	β_{hs}	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: ΔACK , $\Delta NACK$ and $\Delta CQI = 8$ Ahs = $\beta_{hs}/\beta c = 30/15$ $\beta_{hs} = 30/15 * \beta c$
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, ΔACK and $\Delta NACK = 8$ (Ahs = 30/15) with $\beta_{hs} = 30/15 * \beta c$, and $\Delta CQI = 7$ (Ahs = 24/15) with $\beta_{hs} = 24/15 * \beta c$.
Note3: CM = 1 for $\beta c/\beta d = 12/15$, $\beta_{hs}/\beta c = 24/15$. For all other combinations of DPDCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.

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

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

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



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

Table 7: HSDPA UE category

b) HSUPA

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

Sub-test ¹	$\beta_{\text{e}}^{\text{2}}$	$\beta_{\text{d}}^{\text{3}}$	β_{d} (SF) ⁴	$\beta_{\text{e}}/\beta_{\text{d}}^{\text{5}}$	$\beta_{\text{hs}}^{\text{6}}$ ⁷	$\beta_{\text{e}}^{\text{8}}$	$\beta_{\text{ed}}^{\text{9}}$	β_{e} (SF) ¹⁰	$\beta_{\text{ed}}^{\text{11}}$ (code) ¹²	CM ¹³ (dB) ¹⁴	MP R ¹⁵ (dB) ¹⁶	AG ¹⁷ (dB) Inde x ¹⁸	E- TFC I ¹⁹
1 ²⁰	11/15 ⁽³⁾	15/15 ⁽³⁾	64 ²¹	11/15 ⁽³⁾	22/15 ²²	209/22 5 ²³	1039/225 ²⁴	4 ²⁵	1 ²⁶	1.0 ²⁷	0.0 ²⁸	20 ²⁹	75 ³⁰
2 ³¹	6/15 ³²	15/15 ³³	64 ³⁴	6/15 ³⁵	12/15 ³⁶	12/15 ³⁷	94/75 ³⁸	4 ³⁹	1 ⁴⁰	3.0 ⁴¹	2.0 ⁴²	12 ⁴³	67 ⁴⁴
3 ⁴⁵	15/15 ⁴⁶	9/15 ⁴⁷	64 ⁴⁸	15/9 ⁴⁹	30/15 ⁵⁰	30/15 ⁵¹	$\beta_{\text{ed1}}:47/1$ 5 ⁵² $\beta_{\text{ed2}}:47/1$ 5 ⁵³	4 ⁵⁴	2 ⁵⁵	2.0 ⁵⁶	1.0 ⁵⁷	15 ⁵⁸	92 ⁵⁹
4 ⁶⁰	2/15 ⁶¹	15/15 ⁶²	64 ⁶³	2/15 ⁶⁴	4/15 ⁶⁵	2/15 ⁶⁶	56/75 ⁶⁷	4 ⁶⁸	1 ⁶⁹	3.0 ⁷⁰	2.0 ⁷¹	17 ⁷²	71 ⁷³
5 ⁷⁴	15/15 ⁽⁴⁾	15/15 ⁽⁴⁾	64 ⁷⁵	15/15 ⁽⁴⁾	30/15 ⁷⁶	24/15 ⁷⁷	134/15 ⁷⁸	4 ⁷⁹	1 ⁸⁰	1.0 ⁸¹	0.0 ⁸²	21 ⁸³	81 ⁸⁴
Note 1: ΔACK, ΔNACK and $\Delta \text{CQI} = 8$ $A_{\text{hs}} = \beta_{\text{hs}}/\beta_{\text{e}} = 30/15$ $\beta_{\text{hs}} = 30/15 * \beta_{\text{e}}$ Note 2: CM = 1 for $\beta_{\text{e}}/\beta_{\text{d}} = 12/15$, $\beta_{\text{hs}}/\beta_{\text{e}} = 24/15$. For all other combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference⁸⁵ Note 3 : For subtest 1 the $\beta_{\text{e}}/\beta_{\text{d}}$ 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 $\beta_{\text{e}} = 10/15$ and $\beta_{\text{d}} = 15/15$⁸⁶ Note 4 : For subtest 5 the $\beta_{\text{e}}/\beta_{\text{d}}$ 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 $\beta_{\text{e}} = 14/15$ and $\beta_{\text{d}} = 15/15$⁸⁷ Note 5 : Testing UE using E-DPDCH Physical Layer category 1 Sub-test 3 is not required according to TS 25.306 Table 5.1g⁸⁸ Note 6: β_{ed} can not be set directly; it is set by Absolute Grant Value.⁸⁹													

Table 8: Subtests for UMTS Release 6 HSUPA

UE E-DCH Category	Maximum E-DCH Codes Transmitted	Number of HARQ Processes	E-DCH TTI(ms)	Minimum Spreading 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&2SF	11484	5.76
	4	4	2	4	20000	2.00
7 (No DPDCH)	4	8	2	2SF2&2SF	22996	?
	4	4	10	4	20000	?
NOTE: When 4 codes are transmitted in parallel, two codes shall be transmitted with SF2 and two with SF4. UE categories 1 to 6 support QPSK only. UE category 7 supports QPSK and 16QAM. (TS25.306-7.3.0).						

Table 9: HSUPA UE category



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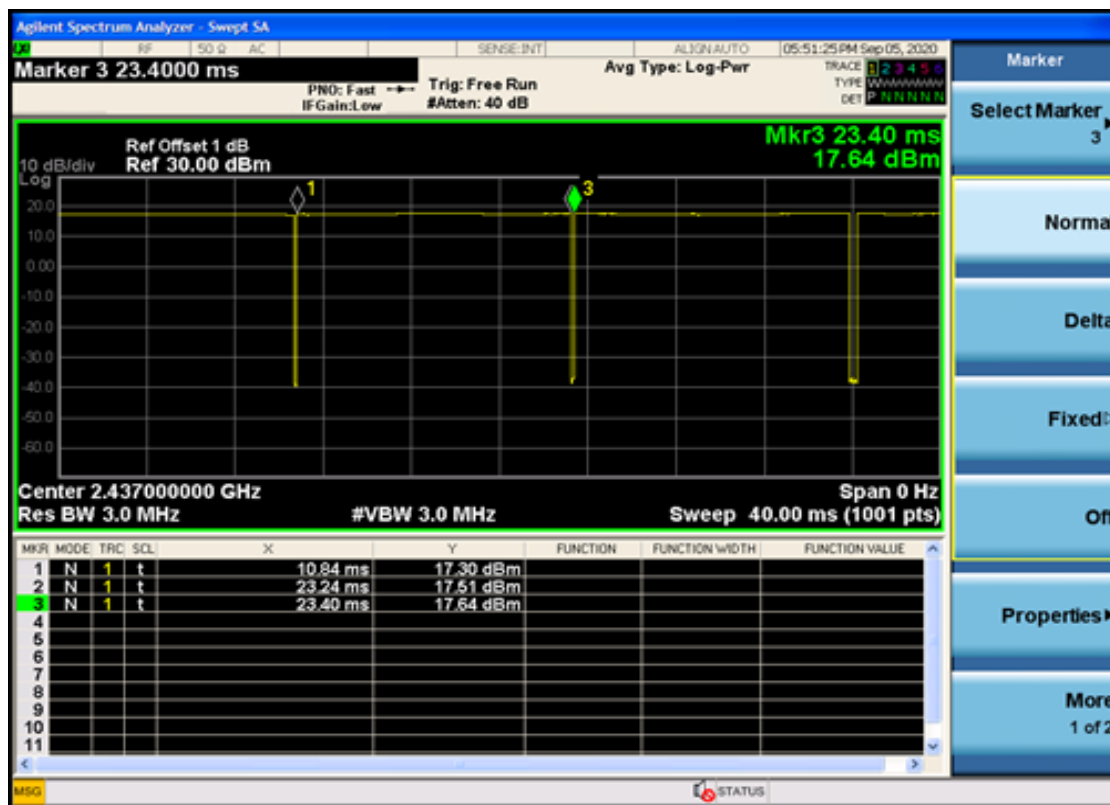
7.2.3 WiFi Test Configuration

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.

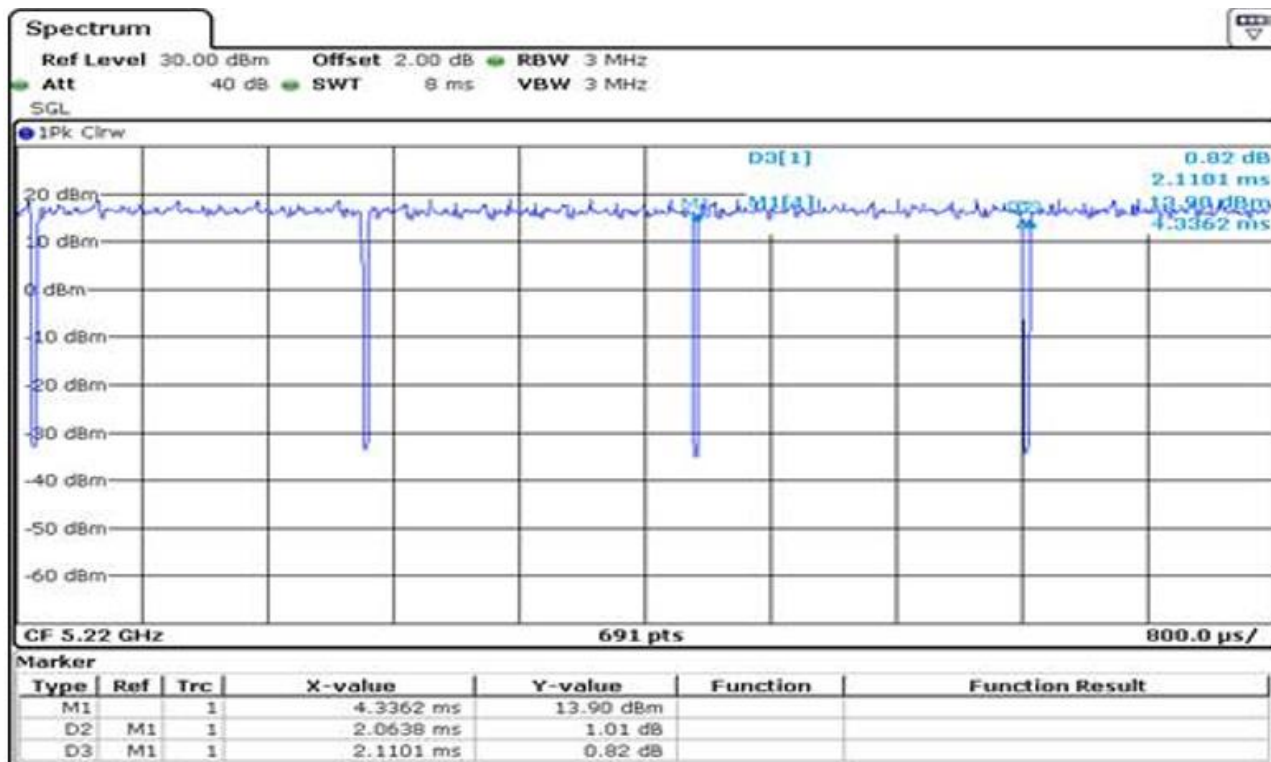
7.2.3.1 Duty cycle

1) Wi-Fi 2.4GHz 802.11b:

Duty cycle=17.51/17.64=99.26%



2) Wi-Fi 5GHz 802.11a:
Duty cycle=2.0638/2.1101=97.81%





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.

7.2.3.2 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.

7.2.3.3 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.



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- 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"



7.2.3.4 2.4 GHz WiFi SAR Procedures

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

- **802.11b DSSS SAR Test Requirements**

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

- 1) . When the reported SAR of the highest measured maximum output power channel for the exposure configuration is ≤ 0.8 W/kg, no further SAR testing is required for 802.11b DSSS in that exposure configuration.
- 2) . When the reported SAR is > 0.8 W/kg, SAR is required for that exposure configuration using the next highest measured output power channel. When any reported SAR is > 1.2 W/kg, SAR is required for the third channel; i.e., all channels require testing.

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

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

- 1) . When KDB Publication 447498 SAR test exclusion applies to the OFDM configuration.
- 2) . When the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.

- **SAR Test Requirements for OFDM configurations**

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



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7.2.3.5 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.



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• **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.



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7.2.4 LTE Test Configuration

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

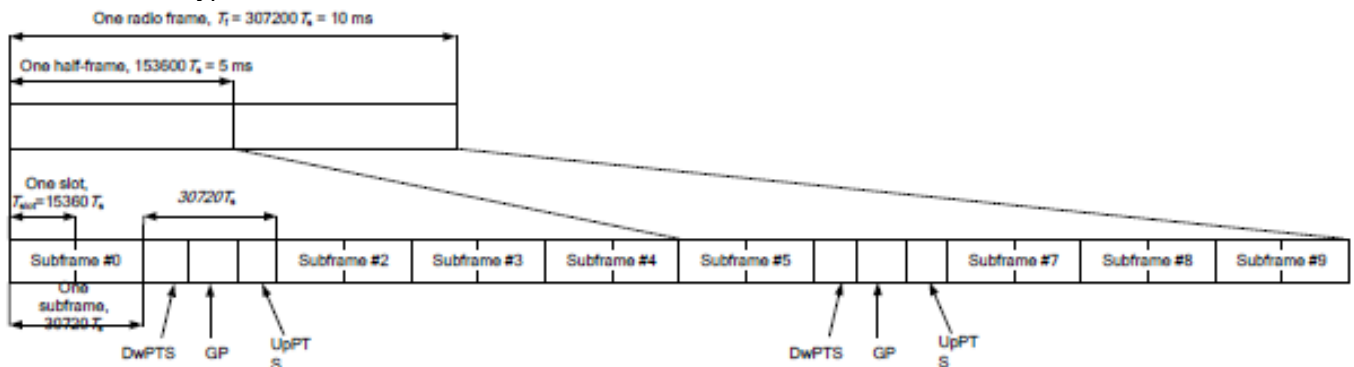
TDD LTE test consideration

For Time-Division Duplex (TDD) systems, SAR must be tested using a fixed periodic duty factor according to the highest transmission duty factor implemented for the device and supported by the defined 3GPP LTE TDD configurations.

SAR was tested with the highest transmission duty factor (63.33%) using Uplink-downlink configuration 0 and Special subframe configuration 7.

LTE TDD Band support 3GPP TS 36.211 section 4.2 for Type 2 Frame Structure and Table 4.2-2 for uplink-downlink configurations and Table 4.2-1 for Special subframe configurations.

Frame structure type 2:



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

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

Uplink-downlink configurations.

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

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

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



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A) Spectrum Plots for RB Configurations

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

B) MPR

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

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

C) A-MPR

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

D) Largest channel bandwidth standalone SAR test requirements

1) QPSK with 1 RB allocation

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

2) QPSK with 50% RB allocation

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

3) QPSK with 100% RB allocation

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

4) Higher order modulations

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

E) Other channel bandwidth standalone SAR test requirements

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

8 Test Result

8.1 Measurement of RF Conducted Power

8.1.1 Conducted Power of Main Antenna

8.1.1.1 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	32.11	32.15	32.15	33.50	-9.19	22.92	22.96	22.96	24.31
GPRS/EGPRS (GMSK)	1 TX Slot	32.08	32.13	32.13	33.50	-9.19	22.89	22.94	22.94	24.31
	2 TX Slots	29.59	29.61	29.70	31.50	-6.18	23.41	23.43	23.52	25.32
	3 TX Slots	27.87	27.66	27.81	29.50	-4.42	23.45	23.24	23.39	25.08
	4 TX Slots	25.93	26.12	26.38	27.50	-3.17	22.76	22.95	23.21	24.33
EGPRS(8PSK)	1 TX Slot	26.66	26.81	26.85	27.50	-9.19	17.47	17.62	17.66	18.31
	2 TX Slots	26.49	26.54	26.61	27.50	-6.18	20.31	20.36	20.43	21.32
	3 TX Slots	24.94	25.07	25.20	26.50	-4.42	20.52	20.65	20.78	22.08
	4 TX Slots	23.54	23.69	23.76	24.50	-3.17	20.37	20.52	20.59	21.33



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GSM 1900 Sensor Off/Hotspot 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	29.38	29.40	29.60	30.50	-9.19	20.19	20.21	20.41	21.31
GPRS/EGPRS (GMSK)	1 TX Slot	29.39	29.36	29.58	30.50	-9.19	20.20	20.17	20.39	21.31
	2 TX Slots	26.17	26.16	26.51	27.00	-6.18	19.99	19.98	20.33	20.82
	3 TX Slots	25.10	25.11	25.14	26.00	-4.42	20.68	20.69	20.72	21.58
	4 TX Slots	22.62	22.68	22.95	24.50	-3.17	19.45	19.51	19.78	21.33
EGPRS(8PSK)	1 TX Slot	25.12	25.08	25.17	27.00	-9.19	15.93	15.89	15.98	17.81
	2 TX Slots	25.02	25.00	25.16	27.00	-6.18	18.84	18.82	18.98	20.82
	3 TX Slots	23.59	23.63	24.03	25.50	-4.42	19.17	19.21	19.61	21.08
	4 TX Slots	22.14	22.27	22.57	24.00	-3.17	18.97	19.10	19.40	20.83
GSM 1900 Sensor On/Hotspot 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	26.18	26.24	26.17	27.50	-9.19	16.99	17.05	16.98	18.31
GPRS/EGPRS (GMSK)	1 TX Slot	26.14	26.24	26.11	27.50	-9.19	16.95	17.05	16.92	18.31
	2 TX Slots	23.20	23.22	23.31	24.00	-6.18	17.02	17.04	17.13	17.82
	3 TX Slots	22.22	22.62	22.02	23.00	-4.42	17.80	18.20	17.60	18.58
	4 TX Slots	20.58	20.66	20.42	21.50	-3.17	17.41	17.49	17.25	18.33
EGPRS(8PSK)	1 TX Slot	22.00	22.11	22.12	23.50	-9.19	12.81	12.92	12.93	14.31
	2 TX Slots	21.80	21.64	21.70	23.50	-6.18	15.62	15.46	15.52	17.32
	3 TX Slots	20.44	20.38	20.60	22.00	-4.42	16.02	15.96	16.18	17.58
	4 TX Slots	19.01	19.12	19.03	20.50	-3.17	15.84	15.95	15.86	17.33

Table 10: 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

8.1.1.2 Conducted Power of WCDMA

WCDMA Band II					
Average Conducted Power(dBm)					
Channel		9262	9400	9538	Tune up
WCDMA	12.2kbps RMC	23.08	23.14	23.06	24.00
	12.2kbps AMR	23.05	23.11	23.05	24.00
HSDPA	Subtest 1	22.35	22.29	22.15	23.00
	Subtest 2	22.30	22.28	22.13	23.00
	Subtest 3	21.80	21.75	21.67	23.00
	Subtest 4	21.81	21.77	21.64	23.00
HSUPA	Subtest 1	22.32	22.27	22.09	22.50
	Subtest 2	20.29	20.27	20.13	22.50
	Subtest 3	21.28	21.25	21.09	22.50
	Subtest 4	20.52	20.54	20.54	22.50
	Subtest 5	22.30	22.20	22.20	22.50
WCDMA Band II (Sensor On)					
Average Conducted Power(dBm)					
Channel		9262	9400	9538	Tune up
WCDMA	12.2kbps RMC	17.09	17.15	17.05	18.00
	12.2kbps AMR	17.00	17.01	17.01	18.00
HSDPA	Subtest 1	15.99	15.98	15.89	17.00
	Subtest 2	15.99	16.05	15.85	17.00
	Subtest 3	14.98	14.96	14.90	16.50
	Subtest 4	15.00	14.99	14.89	16.50
HSUPA	Subtest 1	16.02	16.02	15.82	17.00
	Subtest 2	13.99	14.02	13.86	15.00
	Subtest 3	14.98	15.00	14.82	16.00
	Subtest 4	14.22	14.29	14.27	15.00
	Subtest 5	16.00	15.95	15.93	17.00



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WCDMA Band II (Hotspot On)					
Average Conducted Power(dBm)					
	Channel	9262	9400	9538	Tune up
WCDMA	12.2kbps RMC	15.45	15.58	15.55	16.50
	12.2kbps AMR	15.41	15.56	15.51	16.50
HSDPA	Subtest 1	14.47	14.42	14.46	15.50
	Subtest 2	14.52	14.55	14.33	15.50
	Subtest 3	13.91	14.01	13.87	15.00
	Subtest 4	13.99	14.00	13.99	15.00
HSUPA	Subtest 1	14.54	14.61	14.66	15.50
	Subtest 2	12.56	12.84	12.65	13.50
	Subtest 3	13.36	13.65	13.46	14.50
	Subtest 4	12.89	13.01	13.02	13.50
	Subtest 5	14.55	14.68	14.66	15.50
WCDMA Band II (Handheld)					
Average Conducted Power(dBm)					
	Channel	9262	9400	9538	Tune up
WCDMA	12.2kbps RMC	18.82	18.90	18.81	20.00
	12.2kbps AMR	18.81	18.89	18.80	20.00
HSDPA	Subtest 1	17.97	17.98	17.86	19.00
	Subtest 2	17.91	17.88	17.84	19.00
	Subtest 3	17.46	17.43	17.33	18.50
	Subtest 4	17.47	17.34	17.31	18.50
HSUPA	Subtest 1	17.95	17.89	17.99	19.00
	Subtest 2	15.88	15.89	18.74	17.00
	Subtest 3	16.98	16.88	16.91	18.00
	Subtest 4	16.04	16.12	16.30	17.00
	Subtest 5	17.91	17.99	17.85	19.00



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WCDMA Band IV					
Average Conducted Power(dBm)					
	Channel	1312	1412	1513	Tune up
WCDMA	12.2kbps RMC	23.11	23.18	23.09	24.00
	12.2kbps AMR	23.05	23.11	23.01	24.00
HSDPA	Subtest 1	22.29	22.62	22.76	23.00
	Subtest 2	22.30	22.61	22.71	23.00
	Subtest 3	21.81	22.06	22.20	23.00
	Subtest 4	21.78	22.10	22.20	23.00
HSUPA	Subtest 1	22.25	22.48	22.39	22.50
	Subtest 2	20.30	20.56	20.70	22.50
	Subtest 3	21.28	21.53	21.71	22.50
	Subtest 4	20.58	20.60	20.72	22.50
	Subtest 5	22.30	22.32	22.13	22.50
WCDMA Band IV (Sensor On)					
Average Conducted Power(dBm)					
	Channel	1312	1412	1513	Tune up
WCDMA	12.2kbps RMC	16.99	17.09	17.11	18.00
	12.2kbps AMR	16.95	17.05	17.10	18.00
HSDPA	Subtest 1	15.91	15.98	15.85	17.00
	Subtest 2	15.93	15.95	15.79	17.00
	Subtest 3	15.45	15.38	15.33	16.50
	Subtest 4	15.44	15.41	15.39	16.50
HSUPA	Subtest 1	15.96	15.89	15.99	17.00
	Subtest 2	13.89	13.91	16.81	15.00
	Subtest 3	14.98	14.88	14.91	16.00
	Subtest 4	14.05	14.15	14.31	15.00
	Subtest 5	15.90	15.99	15.90	17.00



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WCDMA Band IV (Hotspot On)					
Average Conducted Power(dBm)					
	Channel	1312	1412	1513	Tune up
WCDMA	12.2kbps RMC	15.99	16.11	16.12	17.00
	12.2kbps AMR	15.97	16.09	16.11	17.00
HSDPA	Subtest 1	15.09	15.04	15.01	16.00
	Subtest 2	15.10	15.13	14.92	16.00
	Subtest 3	14.56	14.52	14.48	15.50
	Subtest 4	14.59	14.56	14.49	15.50
HSUPA	Subtest 1	15.06	14.91	15.01	16.00
	Subtest 2	12.91	12.92	15.81	14.00
	Subtest 3	13.99	13.89	13.90	15.00
	Subtest 4	13.05	13.05	13.21	14.00
	Subtest 5	14.98	14.99	14.89	16.00
WCDMA Band IV (Handheld)					
Average Conducted Power(dBm)					
	Channel	1312	1412	1513	Tune up
WCDMA	12.2kbps RMC	19.85	20.05	19.91	21.00
	12.2kbps AMR	19.80	20.02	19.90	21.00
HSDPA	Subtest 1	18.89	18.93	18.94	20.00
	Subtest 2	18.84	18.90	18.85	20.00
	Subtest 3	18.43	18.49	18.44	19.50
	Subtest 4	18.36	18.45	18.41	19.50
HSUPA	Subtest 1	19.01	18.98	18.87	20.00
	Subtest 2	16.89	16.89	16.65	18.00
	Subtest 3	17.98	17.88	17.85	19.00
	Subtest 4	17.10	17.12	17.30	18.00
	Subtest 5	18.99	19.01	18.95	20.00



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WCDMA Band V					
Average Conducted Power(dBm)					
Channel		4132	4182	4233	Tune up
WCDMA	12.2kbps RMC	22.97	23.05	22.91	24.00
	12.2kbps AMR	22.90	23.04	22.89	24.00
HSDPA	Subtest 1	21.76	22.05	21.84	23.00
	Subtest 2	21.79	22.00	21.80	23.00
	Subtest 3	21.31	21.51	21.33	23.00
	Subtest 4	21.27	21.50	21.29	23.00
HSUPA	Subtest 1	21.72	21.96	21.80	22.50
	Subtest 2	20.51	20.62	20.54	22.50
	Subtest 3	20.78	20.89	20.84	22.50
	Subtest 4	20.56	20.57	20.71	22.50
	Subtest 5	21.80	21.90	21.86	22.50

Table 11: Conducted Power of WCDMA

Note:

- 1) when the maximum output power variation across the required test channels is $> \frac{1}{2}$ dB, instead of the middle channel, the highest output power channel must be used.



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8.1.1.3 Conducted Power of LTE

LTE Band 2				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				18607	18900	19193	
1.4MHz	QPSK	1	0	22.87	22.97	22.89	24.00
		1	2	23.05	23.06	22.87	24.00
		1	5	23.11	23.21	22.88	24.00
		3	0	23.24	23.03	23.02	24.00
		3	2	23.05	23.00	22.88	24.00
		3	3	23.10	23.05	22.94	24.00
		6	0	22.13	22.04	21.88	23.00
	16QAM	1	0	22.40	22.58	22.40	23.00
		1	2	22.37	22.48	22.33	23.00
		1	5	22.34	22.19	22.23	23.00
		3	0	22.17	22.06	21.94	23.00
		3	2	22.19	22.14	22.22	23.00
		3	3	22.37	22.12	22.14	23.00
		6	0	21.16	21.06	20.93	22.00
	64QAM	1	0	21.22	21.02	20.90	22.00
		1	2	21.18	21.10	20.89	22.00
		1	5	21.62	21.27	21.36	22.00
		3	0	21.61	21.21	21.39	22.00
		3	2	20.94	21.09	20.95	22.00
		3	3	21.25	20.83	21.15	22.00
		6	0	19.99	19.85	19.82	21.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				18615	18900	19185	
3MHz	QPSK	1	0	23.12	23.08	23.09	24.00
		1	7	22.90	22.76	22.45	24.00
		1	14	22.94	23.02	22.82	24.00
		8	0	22.09	22.05	21.83	23.00
		8	4	22.17	22.01	21.89	23.00
		8	7	22.14	22.02	21.91	23.00
		15	0	22.09	22.07	21.93	23.00
	16QAM	1	0	22.34	22.26	22.12	23.00
		1	7	22.52	22.32	22.20	23.00
		1	14	22.48	22.40	22.19	23.00
		8	0	21.29	21.19	21.01	22.00
		8	4	21.14	21.02	20.79	22.00
		8	7	21.02	21.15	20.95	22.00
		15	0	21.19	21.05	21.02	22.00
	64QAM	1	0	20.94	21.09	20.95	22.00
		1	7	21.25	20.83	21.15	22.00
		1	14	20.75	20.60	20.56	22.00
		8	0	20.17	19.99	19.81	21.00
		8	4	20.08	19.95	19.79	21.00
		8	7	19.86	19.81	19.57	21.00
		15	0	20.00	19.85	19.72	21.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				18625	18900	19175	



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5MHz	QPSK	1	0	23.05	22.96	22.91	24.00
		1	13	23.10	23.04	22.76	24.00
		1	24	23.14	22.96	22.90	24.00
		12	0	22.15	22.07	21.93	23.00
		12	6	22.13	22.03	21.96	23.00
		12	13	22.18	22.04	21.95	23.00
		25	0	22.23	22.03	21.94	23.00
	16QAM	1	0	22.68	22.60	22.41	23.00
		1	13	22.92	22.57	22.66	23.00
		1	24	22.91	22.51	22.69	23.00
		12	0	21.16	20.99	20.97	22.00
		12	6	21.14	20.98	20.90	22.00
		12	13	21.09	20.98	20.91	22.00
		25	0	21.23	21.15	20.84	22.00
	64QAM	1	0	21.04	20.96	20.82	22.00
		1	13	21.22	21.02	20.90	22.00
		1	24	21.18	21.10	20.89	22.00
		12	0	20.09	19.99	19.81	21.00
		12	6	19.94	19.82	19.59	21.00
		12	13	19.82	19.95	19.75	21.00
		25	0	19.99	19.85	19.82	21.00
Bandwidth	Modulation	RB size	RB offset	Channel 18650	Channel 18900	Channel 19150	Tune up
10MHz	QPSK	1	0	23.03	23.01	23.06	24.00
		1	25	23.17	23.15	22.85	24.00
		1	49	23.18	23.10	23.02	24.00
		25	0	22.15	22.10	21.88	23.00
		25	13	22.15	22.10	21.87	23.00
		25	25	22.25	22.06	21.96	23.00
		50	0	22.21	22.07	21.82	23.00
	16QAM	1	0	22.21	22.39	22.69	23.00
		1	25	22.83	22.56	22.30	23.00
		1	49	22.81	22.63	22.42	23.00
		25	0	21.29	21.07	21.06	22.00
		25	13	21.19	20.98	20.96	22.00
		25	25	21.29	21.08	21.06	22.00
		50	0	21.16	21.16	20.92	22.00
	64QAM	1	0	21.38	21.30	21.11	22.00
		1	25	21.62	21.27	21.36	22.00
		1	49	21.61	21.21	21.39	22.00
		25	0	19.96	19.79	19.77	21.00
		25	13	19.94	19.78	19.70	21.00
		25	25	19.89	19.78	19.71	21.00
		50	0	20.03	19.95	19.64	21.00
Bandwidth	Modulation	RB size	RB offset	Channel 18675	Channel 18900	Channel 19125	Tune up
15MHz	QPSK	1	0	22.94	22.87	22.98	24.00
		1	38	23.12	22.80	22.77	24.00
		1	74	23.39	23.14	22.98	24.00
		36	0	22.22	22.15	21.87	23.00
		36	18	22.21	22.08	21.81	23.00
		36	39	22.03	22.11	21.77	23.00



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	16QAM	75	0	22.11	22.09	21.77	23.00
		1	0	22.82	22.41	22.40	23.00
		1	38	22.50	22.17	21.87	23.00
		1	74	22.66	22.22	22.47	23.00
		36	0	21.15	21.09	20.88	22.00
		36	18	21.25	21.04	20.82	22.00
		36	39	21.18	20.87	20.72	22.00
	64QAM	75	0	21.09	21.10	20.83	22.00
		1	0	20.96	21.09	21.04	22.00
		1	38	21.10	21.07	20.99	22.00
		1	74	20.92	20.90	20.81	22.00
		36	0	19.96	19.79	19.77	21.00
		36	18	19.72	19.70	19.61	21.00
		36	39	19.76	19.89	19.84	21.00
		75	0	19.79	19.79	19.78	21.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				18700	18900	19100	
20MHz	QPSK	1	0	23.02	22.86	22.68	24.00
		1	50	22.76	22.83	22.56	24.00
		1	99	23.07	22.87	22.77	24.00
		50	0	21.97	22.21	21.95	23.00
		50	25	22.17	22.15	21.93	23.00
		50	50	22.39	22.00	21.70	23.00
		100	0	22.21	22.06	21.94	23.00
	16QAM	1	0	22.24	22.39	22.25	23.00
		1	50	22.55	22.13	22.45	23.00
		1	99	22.05	21.90	21.86	23.00
		50	0	21.37	21.19	21.01	22.00
		50	25	21.28	21.15	20.99	22.00
		50	50	21.06	21.01	20.77	22.00
		100	0	21.20	21.05	20.92	22.00
	64QAM	1	0	20.91	21.09	21.39	22.00
		1	50	21.53	21.26	21.00	22.00
		1	99	21.51	21.33	21.12	22.00
		50	0	20.09	19.87	19.86	21.00
		50	25	19.99	19.78	19.76	21.00
		50	50	20.09	19.88	19.86	21.00
		100	0	19.96	19.96	19.72	21.00

LTE Band 2 (Sensor On)				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				18607	18900	19193	
1.4MHz	QPSK	1	0	16.22	16.58	16.63	18.00
		1	2	16.41	16.60	16.70	18.00
		1	5	16.38	16.64	16.63	18.00
		3	0	16.53	16.79	16.87	18.00
		3	2	16.31	16.63	16.70	18.00
		3	3	16.69	16.58	16.75	18.00
		6	0	16.59	16.77	16.65	18.00
	16QAM	1	0	16.56	16.80	16.74	18.00



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		1	2	16.64	16.89	16.56	18.00
		1	5	16.59	16.83	16.65	18.00
		3	0	16.72	16.86	16.45	18.00
		3	2	16.75	16.31	16.83	18.00
		3	3	16.80	16.67	16.50	18.00
		6	0	16.78	16.29	16.33	18.00
	64QAM	1	0	16.67	16.77	16.61	18.00
		1	2	16.45	16.57	16.48	18.00
		1	5	16.82	16.70	16.64	18.00
		3	0	16.54	16.46	16.47	18.00
		3	2	16.50	16.47	16.55	18.00
		3	3	16.44	16.30	16.22	18.00
		6	0	16.74	16.71	16.55	18.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				18615	18900	19185	
3MHz	QPSK	1	0	16.62	16.80	16.86	18.00
		1	7	16.55	16.78	16.94	18.00
		1	14	16.51	16.76	16.91	18.00
		8	0	16.56	16.79	16.96	18.00
		8	4	16.96	16.84	16.74	18.00
		8	7	16.86	16.81	16.76	18.00
		15	0	16.79	16.74	16.35	18.00
	16QAM	1	0	16.61	16.84	16.45	18.00
		1	7	16.57	16.82	16.74	18.00
		1	14	16.56	16.87	16.69	18.00
		8	0	16.55	16.75	16.67	18.00
		8	4	16.65	16.63	16.57	18.00
		8	7	16.56	16.80	16.74	18.00
		15	0	16.64	16.89	16.56	18.00
	64QAM	1	0	16.12	16.33	16.11	18.00
		1	7	15.84	16.05	16.06	18.00
		1	14	16.00	16.27	16.11	18.00
		8	0	16.13	16.12	16.23	18.00
		8	4	16.29	16.28	16.33	18.00
		8	7	16.32	16.43	16.26	18.00
		15	0	15.94	16.08	15.94	18.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	18.00
				18625	18900	19175	18.00
5MHz	QPSK	1	0	16.56	16.61	16.60	18.00
		1	13	16.76	16.40	16.54	18.00
		1	24	16.71	16.32	16.30	18.00
		12	0	16.83	16.52	16.39	18.00
		12	6	16.82	16.47	16.36	18.00
		12	13	16.78	16.41	16.35	18.00
		25	0	16.84	16.48	16.38	18.00
	16QAM	1	0	16.56	16.87	16.69	18.00
		1	13	16.55	16.75	16.67	18.00
		1	24	16.65	16.63	16.57	18.00
		12	0	16.86	16.52	16.42	18.00
		12	6	16.82	16.47	16.39	18.00
		12	13	16.77	16.43	16.37	18.00
		25	0	16.80	16.44	16.34	18.00



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		1	0	16.62	16.77	16.48	18.00
		1	13	16.43	16.39	16.53	18.00
		1	24	16.45	16.66	16.68	18.00
	64QAM	12	0	16.57	16.50	16.54	18.00
		12	6	16.72	16.68	16.76	18.00
		12	13	16.67	16.81	16.65	18.00
		25	0	16.36	16.59	16.42	18.00
Bandwidth	Modulation	RB size	RB offset	Channel 18650	Channel 18900	Channel 19150	Tune up
10MHz	QPSK	1	0	16.74	16.85	16.85	18.00
		1	25	16.43	16.75	16.65	18.00
		1	49	16.74	16.65	16.74	18.00
		25	0	16.59	16.77	16.65	18.00
		25	13	16.56	16.80	16.74	18.00
		25	25	16.64	16.89	16.56	18.00
		50	0	16.59	16.83	16.65	18.00
	16QAM	1	0	16.72	16.86	16.45	18.00
		1	25	16.43	16.56	16.35	18.00
		1	49	16.73	16.83	16.45	18.00
		25	0	16.17	16.31	16.74	18.00
		25	13	16.15	16.32	16.74	18.00
		25	25	16.24	16.36	16.65	18.00
		50	0	16.16	16.32	16.74	18.00
	64QAM	1	0	16.01	16.18	16.08	18.00
		1	25	15.84	15.92	16.03	18.00
		1	49	15.99	16.22	16.05	18.00
		25	0	16.01	15.97	16.19	18.00
		25	13	16.29	16.28	16.27	18.00
		25	25	16.30	16.38	16.25	18.00
		50	0	15.85	16.08	15.87	18.00
Bandwidth	Modulation	RB size	RB offset	Channel 18675	Channel 18900	Channel 19125	Tune up
15MHz	QPSK	1	0	16.87	16.75	16.68	18.00
		1	38	16.61	16.49	16.74	18.00
		1	74	16.40	16.27	16.24	18.00
		36	0	16.81	16.69	16.51	18.00
		36	18	16.75	16.62	16.46	18.00
		36	39	16.54	16.53	16.43	18.00
		75	0	16.73	16.63	16.49	18.00
	16QAM	1	0	16.85	16.85	16.85	18.00
		1	38	16.55	16.78	16.77	18.00
		1	74	16.75	16.31	16.83	18.00
		36	0	16.80	16.67	16.50	18.00
		36	18	16.75	16.59	16.47	18.00
		36	39	16.55	16.50	16.42	18.00
		75	0	16.72	16.68	16.43	18.00
	64QAM	1	0	16.59	16.75	16.69	18.00
		1	38	16.50	16.58	16.51	18.00
		1	74	16.71	16.80	16.61	18.00
		36	0	16.51	16.50	16.40	18.00
		36	18	16.47	16.45	16.53	18.00
		36	39	16.44	16.24	16.23	18.00



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Bandwidth	Modulation	75	0	16.71	16.80	16.61	18.00
		RB size	RB offset	Channel 18700	Channel 18900	Channel 19100	Tune up
20MHz	QPSK	1	0	16.81	16.85	16.73	18.00
		1	50	16.95	16.86	16.81	18.00
		1	99	16.44	15.83	16.43	18.00
		50	0	16.58	16.42	16.36	18.00
		50	25	16.51	16.34	16.19	18.00
		50	50	16.60	16.45	16.39	18.00
		100	0	16.61	16.58	16.35	18.00
	16QAM	1	0	16.58	16.42	16.36	18.00
		1	50	16.51	16.34	16.19	18.00
		1	99	16.44	15.83	16.43	18.00
		50	0	16.55	16.49	16.33	18.00
		50	25	16.45	16.36	16.19	18.00
		50	50	16.23	16.25	16.16	18.00
		100	0	16.45	16.38	16.20	18.00
	64QAM	1	0	16.18	16.27	16.12	18.00
		1	50	15.93	15.94	16.05	18.00
		1	99	16.00	16.26	16.21	18.00
		50	0	16.14	16.13	16.19	18.00
		50	25	16.34	16.30	16.39	18.00
		50	50	16.25	16.44	16.26	18.00
		100	0	15.94	16.09	16.03	18.00

LTE Band 2 (Hotspot On)				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel 18607	Channel 18900	Channel 19193	Tune up
				18607	18900	19193	Tune up
1.4MHz	QPSK	1	0	14.88	14.92	14.76	16.50
		1	2	15.05	15.18	14.81	16.50
		1	5	15.38	15.38	15.30	16.50
		3	0	15.32	15.12	15.26	16.50
		3	2	15.20	15.38	15.32	16.50
		3	3	15.20	14.91	15.20	16.50
		6	0	15.18	14.84	15.18	16.50
	16QAM	1	0	15.27	14.98	15.17	16.50
		1	2	15.45	15.14	15.03	16.50
		1	5	15.32	14.98	14.83	16.50
		3	0	15.25	14.94	14.79	16.50
		3	2	15.30	14.90	14.69	16.50
		3	3	15.29	15.50	15.29	16.50
		6	0	14.92	15.32	15.38	16.50
	64QAM	1	0	15.35	15.32	15.30	16.50
		1	2	15.58	15.55	15.41	16.50
		1	5	15.09	15.02	14.94	16.50
		3	0	15.57	15.56	15.53	16.50
		3	2	15.60	15.46	15.53	16.50
		3	3	15.46	15.41	15.37	16.50
		6	0	15.52	15.51	15.53	16.50
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up



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				18615	18900	19185	
3MHz	QPSK	1	0	15.53	15.25	15.09	16.50
		1	7	15.50	15.17	15.02	16.50
		1	14	15.45	15.17	15.07	16.50
		8	0	15.52	15.25	15.07	16.50
		8	4	15.43	15.10	14.92	16.50
		8	7	15.30	14.90	14.69	16.50
		15	0	15.29	15.50	15.29	16.50
	16QAM	1	0	15.27	14.96	15.18	16.50
		1	7	15.52	15.29	15.14	16.50
		1	14	15.54	15.24	15.11	16.50
		8	0	15.45	15.14	15.03	16.50
		8	4	15.32	14.98	14.83	16.50
		8	7	15.53	15.25	15.09	16.50
		15	0	15.50	15.17	15.02	16.50
	64QAM	1	0	15.49	15.45	15.43	16.50
		1	7	15.35	15.38	15.55	16.50
		1	14	15.30	15.30	15.38	16.50
		8	0	15.46	15.63	15.50	16.50
		8	4	15.59	15.54	15.56	16.50
		8	7	15.42	15.49	15.45	16.50
		15	0	15.51	15.50	15.47	16.50
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				18625	18900	19175	
5MHz	QPSK	1	0	15.23	15.41	15.35	16.50
		1	13	15.23	14.94	15.23	16.50
		1	24	15.21	14.87	15.21	16.50
		12	0	15.30	15.01	15.20	16.50
		12	6	15.30	14.98	15.19	16.50
		12	13	15.25	14.94	15.30	16.50
		25	0	15.30	14.99	15.21	16.50
	16QAM	1	0	15.55	15.32	15.17	16.50
		1	13	15.57	15.27	15.14	16.50
		1	24	15.48	15.17	15.06	16.50
		12	0	15.35	15.01	14.86	16.50
		12	6	15.28	14.97	14.82	16.50
		12	13	15.26	14.92	14.82	16.50
		25	0	15.27	14.96	14.84	16.50
	64QAM	1	0	15.63	15.43	15.52	16.50
		1	13	15.57	15.62	15.50	16.50
		1	24	15.36	15.43	15.32	16.50
		12	0	15.49	15.49	15.58	16.50
		12	6	15.49	15.48	15.44	16.50
		12	13	15.46	15.54	15.39	16.50
		25	0	15.57	15.58	15.58	16.50
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				18650	18900	19150	
10MHz	QPSK	1	0	15.56	15.49	15.55	16.50
		1	25	15.47	15.18	15.10	16.50
		1	49	15.54	15.14	15.10	16.50
		25	0	15.56	15.28	15.12	16.50
		25	13	15.53	15.20	15.05	16.50



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	16QAM	25	25	15.48	15.20	15.10	16.50
		50	0	15.55	15.28	15.10	16.50
		1	0	15.46	15.13	14.95	16.50
		1	25	15.33	14.93	14.72	16.50
		1	49	15.32	15.53	15.32	16.50
		25	0	14.95	15.35	15.41	16.50
		25	13	15.32	15.53	15.32	16.50
		25	25	15.27	15.61	15.48	16.50
		50	0	15.34	15.57	15.45	16.50
		1	0	15.46	15.27	15.30	16.50
		1	25	15.42	15.48	15.45	16.50
		1	49	15.20	15.33	15.38	16.50
		25	0	15.36	15.51	15.46	16.50
		25	13	15.59	15.45	15.50	16.50
		25	25	15.42	15.42	15.40	16.50
		50	0	15.46	15.43	15.36	16.50
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				18675	18900	19125	
15MHz	QPSK	1	0	15.45	15.25	15.35	16.50
		1	38	15.12	15.39	15.48	16.50
		1	74	15.53	15.56	15.36	16.50
		36	0	15.15	15.42	15.57	16.50
		36	18	15.12	15.48	15.48	16.50
		36	39	15.18	15.58	15.61	16.50
		75	0	15.17	15.52	15.53	16.50
		1	0	15.51	15.61	15.63	16.50
	16QAM	1	38	15.51	15.62	15.34	16.50
		1	74	15.25	15.36	15.55	16.50
		36	0	15.12	15.43	15.59	16.50
		36	18	15.10	15.44	15.51	16.50
		36	39	15.17	15.56	15.57	16.50
		75	0	15.16	15.52	15.55	16.50
		1	0	15.46	15.23	15.30	16.50
		1	38	15.38	15.46	15.37	16.50
	64QAM	1	74	15.20	15.30	15.34	16.50
		36	0	15.28	15.46	15.41	16.50
		36	18	15.53	15.39	15.45	16.50
		36	39	15.42	15.36	15.32	16.50
		75	0	15.41	15.43	15.33	16.50
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				18700	18900	19100	
20MHz	QPSK	1	0	15.55	15.56	15.35	16.50
		1	50	15.65	15.63	15.39	16.50
		1	99	15.19	14.33	15.02	16.50
		50	0	15.27	15.09	15.07	16.50
		50	25	15.21	15.03	14.89	16.50
		50	50	15.28	15.10	15.08	16.50
		100	0	15.21	15.11	14.84	16.50
	16QAM	1	0	15.41	15.41	15.33	16.50
		1	50	15.35	15.15	15.29	16.50
		1	99	15.44	14.63	15.02	16.50
		50	0	15.25	15.16	15.01	16.50



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		50	25	15.18	15.06	15.35	16.50
		50	50	15.41	15.35	15.35	16.50
		100	0	15.15	15.08	15.41	16.50
	64QAM	1	0	15.58	15.43	15.45	16.50
		1	50	15.52	15.58	15.44	16.50
		1	99	15.31	15.37	15.28	16.50
		50	0	15.44	15.49	15.58	16.50
		50	25	15.47	15.48	15.41	16.50
		50	50	15.38	15.52	15.31	16.50
		100	0	15.53	15.57	15.51	16.50

LTE Band 2 (Handheld)				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				18607	18900	19193	
1.4MHz	QPSK	1	0	19.40	19.48	19.83	21.00
		1	2	19.62	19.48	19.28	21.00
		1	5	19.60	19.44	19.28	21.00
		3	0	19.52	19.31	19.20	21.00
		3	2	19.41	19.50	19.61	21.00
		3	3	19.46	19.27	19.33	21.00
		6	0	19.41	19.61	19.50	21.00
	16QAM	1	0	19.67	19.50	19.47	21.00
		1	2	19.94	19.80	19.84	21.00
		1	5	19.75	19.42	19.28	21.00
		3	0	19.84	19.20	18.92	21.00
		3	2	19.79	19.50	19.34	21.00
		3	3	19.97	19.80	19.77	21.00
		6	0	19.79	19.61	18.63	21.00
	64QAM	1	0	19.31	19.47	19.41	21.00
		1	2	19.45	19.46	19.55	21.00
		1	5	19.37	19.46	19.42	21.00
		3	0	19.49	19.44	19.56	21.00
		3	2	19.45	19.55	19.62	21.00
		3	3	19.43	19.57	19.59	21.00
		6	0	19.47	19.49	19.51	21.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				18615	18900	19185	
3MHz	QPSK	1	0	19.84	19.20	18.92	21.00
		1	7	19.79	19.50	19.34	21.00
		1	14	19.76	19.43	19.30	21.00
		8	0	19.71	19.41	19.35	21.00
		8	4	19.80	19.49	19.33	21.00
		8	7	19.85	19.85	19.82	21.00
		15	0	19.93	19.58	19.92	21.00
	16QAM	1	0	19.60	19.03	19.51	21.00
		1	7	19.67	19.56	19.38	21.00
		1	14	19.58	19.45	19.41	21.00
		8	0	19.63	19.50	19.29	21.00
		8	4	19.55	19.45	19.28	21.00
		8	7	19.50	19.33	19.27	21.00



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		15	0	19.56	19.47	19.32	21.00
	64QAM	1	0	19.65	19.55	19.65	21.00
		1	7	19.46	19.71	19.59	21.00
		1	14	19.32	19.31	19.20	21.00
		8	0	19.57	19.46	19.59	21.00
		8	4	19.53	19.45	19.61	21.00
		8	7	19.58	19.57	19.62	21.00
		15	0	19.42	19.59	19.55	21.00
Bandwidth	Modulation	RB size	RB offset	Channel 18625	Channel 18900	Channel 19175	Tune up
5MHz	QPSK	1	0	19.45	19.54	19.65	21.00
		1	13	19.50	19.31	19.37	21.00
		1	24	19.45	19.65	19.54	21.00
		12	0	19.71	19.54	19.51	21.00
		12	6	19.63	19.49	19.31	21.00
		12	13	19.36	19.37	19.19	21.00
		25	0	19.51	19.61	19.29	21.00
		25	0	19.51	19.61	19.29	21.00
	16QAM	1	0	19.54	19.54	19.65	21.00
		1	13	19.97	19.62	19.96	21.00
		1	24	19.64	19.07	19.55	21.00
		12	0	19.71	19.60	19.42	21.00
		12	6	19.62	19.49	19.45	21.00
		12	13	19.36	19.36	19.61	21.00
		25	0	19.59	19.49	19.45	21.00
		25	0	19.59	19.49	19.45	21.00
	64QAM	1	0	16.56	19.52	19.46	21.00
		1	13	19.76	19.87	19.73	21.00
		1	24	19.40	19.48	19.56	21.00
		12	0	19.47	19.45	19.62	21.00
		12	6	19.54	19.56	19.60	21.00
		12	13	19.52	19.53	19.52	21.00
		25	0	19.50	19.60	19.59	21.00
		25	0	19.50	19.60	19.59	21.00
Bandwidth	Modulation	RB size	RB offset	Channel 18650	Channel 18900	Channel 19150	Tune up
10MHz	QPSK	1	0	19.56	19.65	19.54	21.00
		1	25	19.51	19.65	19.65	21.00
		1	49	19.64	19.43	19.54	21.00
		25	0	19.67	19.54	19.33	21.00
		25	13	19.59	19.49	19.32	21.00
		25	25	19.54	19.37	19.31	21.00
		50	0	19.60	19.51	19.36	21.00
		50	0	19.60	19.51	19.36	21.00
	16QAM	1	0	19.41	19.65	19.98	21.00
		1	25	19.97	19.69	19.60	21.00
		1	49	19.44	19.52	19.87	21.00
		25	0	19.66	19.52	19.32	21.00
		25	13	19.64	19.48	19.32	21.00
		25	25	19.56	19.35	19.24	21.00
		50	0	19.61	19.57	19.36	21.00
		50	0	19.61	19.57	19.36	21.00
	64QAM	1	0	19.63	19.83	19.46	21.00
		1	25	19.73	19.82	19.76	21.00
		1	49	19.69	19.63	19.48	21.00
		25	0	19.42	19.37	19.54	21.00
		25	13	19.43	19.46	19.47	21.00
		25	13	19.43	19.46	19.47	21.00
		25	13	19.43	19.46	19.47	21.00
		25	13	19.43	19.46	19.47	21.00



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		25	25	19.53	19.60	19.60	21.00
		50	0	19.49	19.51	19.48	21.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				18675	18900	19125	
15MHz	QPSK	1	0	19.98	19.84	19.88	21.00
		1	38	19.79	19.46	19.32	21.00
		1	74	19.88	19.24	18.96	21.00
		36	0	19.83	19.54	19.38	21.00
		36	18	19.80	19.47	19.34	21.00
		36	39	19.75	19.45	19.39	21.00
		75	0	19.84	19.53	19.37	21.00
	16QAM	1	0	19.89	19.89	19.86	21.00
		1	38	19.87	19.79	19.73	21.00
		1	74	19.88	19.68	19.67	21.00
		36	0	19.81	19.50	19.37	21.00
		36	18	19.79	19.49	19.32	21.00
		36	39	19.74	19.42	19.34	21.00
		75	0	19.79	19.49	19.34	21.00
	64QAM	1	0	19.55	19.63	19.51	21.00
		1	38	19.62	19.41	19.86	21.00
		1	74	19.39	19.51	19.57	21.00
		36	0	19.47	19.47	19.57	21.00
		36	18	19.63	19.54	19.59	21.00
		36	39	19.54	19.57	19.50	21.00
		75	0	19.50	19.48	19.64	21.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				18700	18900	19100	
20MHz	QPSK	1	0	19.86	19.84	19.68	21.00
		1	50	20.01	19.87	19.81	21.00
		1	99	19.83	19.65	18.67	21.00
		50	0	19.94	19.66	19.52	21.00
		50	25	19.94	19.62	19.50	21.00
		50	50	19.95	19.70	19.55	21.00
		100	0	19.93	19.63	19.51	21.00
	16QAM	1	0	19.84	19.84	19.87	21.00
		1	50	19.68	19.91	19.82	21.00
		1	99	19.78	19.80	19.75	21.00
		50	0	19.97	19.69	19.53	21.00
		50	25	19.91	19.62	19.48	21.00
		50	50	19.87	19.55	19.47	21.00
		100	0	19.94	19.62	19.49	21.00
	64QAM	1	0	19.54	19.62	19.51	21.00
		1	50	19.84	19.91	19.72	21.00
		1	99	19.43	19.54	19.61	21.00
		50	0	19.38	19.49	19.64	21.00
		50	25	19.56	19.65	19.57	21.00
		50	50	19.36	19.46	19.56	21.00
		100	0	19.57	19.54	19.56	21.00

LTE Band 4				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				19957	20175	20393	
1.4MHz	QPSK	1	0	22.84	22.74	23.02	24.00
		1	2	22.78	22.82	22.83	24.00
		1	5	22.78	22.86	22.90	24.00
		3	0	23.11	23.00	22.88	24.00
		3	2	22.82	22.93	22.93	24.00
		3	3	22.91	22.99	22.83	24.00
		6	0	21.72	21.79	21.80	23.00
	16QAM	1	0	22.20	22.29	22.30	23.00
		1	2	22.16	22.26	22.07	23.00
		1	5	22.21	22.27	22.20	23.00
		3	0	21.98	21.86	21.84	23.00
		3	2	21.77	21.97	21.82	23.00
		3	3	21.86	21.99	21.91	23.00
		6	0	20.85	21.01	20.98	22.00
	64QAM	1	0	21.12	21.30	21.32	22.00
		1	2	21.15	21.37	21.21	22.00
		1	5	21.19	21.20	21.45	22.00
		3	0	20.77	20.87	20.67	22.00
		3	2	20.91	20.97	20.90	22.00
		3	3	21.19	21.18	21.19	22.00
		6	0	19.68	19.79	19.67	21.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				19965	20175	20385	
3MHz	QPSK	1	0	22.85	22.74	22.69	24.00
		1	7	22.59	22.62	22.59	24.00
		1	14	22.82	22.76	22.85	24.00
		8	0	21.95	21.93	21.85	23.00
		8	4	21.87	21.91	21.94	23.00
		8	7	21.84	21.90	21.88	23.00
		15	0	21.80	21.85	21.90	23.00
	16QAM	1	0	22.02	22.30	22.13	23.00
		1	7	22.07	22.17	21.97	23.00
		1	14	22.14	22.22	22.37	23.00
		8	0	20.85	21.04	20.85	22.00
		8	4	21.03	21.05	20.76	22.00
		8	7	20.79	21.05	20.81	22.00
		15	0	20.92	20.93	20.88	22.00
	64QAM	1	0	20.98	21.12	20.98	22.00
		1	7	20.86	20.80	20.50	22.00
		1	14	21.26	21.07	21.07	22.00
		8	0	20.78	20.66	20.64	21.00
		8	4	20.57	20.77	20.62	21.00
		8	7	20.66	20.79	20.71	21.00
		15	0	20.85	21.04	20.85	21.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				19975	20175	20375	



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5MHz	QPSK	1	0	22.46	22.69	22.79	24.00
		1	13	22.86	22.94	22.76	24.00
		1	24	22.77	22.92	22.85	24.00
		12	0	21.81	21.92	21.83	23.00
		12	6	21.88	21.86	21.85	23.00
		12	13	21.78	21.89	21.85	23.00
		25	0	21.86	21.98	21.86	23.00
	16QAM	1	0	22.49	22.48	22.49	23.00
		1	13	22.56	22.65	22.53	23.00
		1	24	22.46	22.22	22.38	23.00
		12	0	20.83	21.05	20.97	22.00
		12	6	20.80	20.99	20.91	22.00
		12	13	20.83	20.84	20.80	22.00
		25	0	20.88	20.99	20.87	22.00
	64QAM	1	0	21.01	21.12	21.01	22.00
		1	13	20.76	20.86	20.79	22.00
		1	24	21.03	21.05	20.97	22.00
		12	0	19.64	19.80	19.66	21.00
		12	6	19.72	19.70	19.61	21.00
		12	13	19.57	19.81	19.69	21.00
		25	0	19.70	19.69	19.70	21.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20000	20175	20350	
10MHz	QPSK	1	0	22.69	22.84	22.79	24.00
		1	25	22.88	22.85	22.69	24.00
		1	49	23.15	23.08	23.10	24.00
		25	0	21.84	21.92	21.90	23.00
		25	13	21.87	21.98	21.95	23.00
		25	25	21.92	22.03	21.93	23.00
		50	0	22.00	22.06	21.95	23.00
	16QAM	1	0	22.42	22.60	22.62	23.00
		1	25	22.45	22.67	22.51	23.00
		1	49	22.49	22.50	22.75	23.00
		25	0	21.11	21.12	21.01	22.00
		25	13	20.99	20.99	20.98	22.00
		25	25	20.96	21.09	21.04	22.00
		50	0	21.10	21.07	20.99	22.00
	64QAM	1	0	21.19	21.18	21.19	22.00
		1	25	21.26	21.35	21.23	22.00
		1	49	21.16	20.92	21.08	22.00
		25	0	19.80	19.97	19.87	21.00
		25	13	19.64	19.88	19.80	21.00
		25	25	19.77	19.87	19.70	21.00
		50	0	19.87	20.00	19.73	21.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20025	20175	20325	
15MHz	QPSK	1	0	23.05	23.03	23.15	24.00
		1	38	22.93	23.01	22.74	24.00
		1	74	23.27	23.24	23.23	24.00
		36	0	21.85	21.90	21.86	23.00
		36	18	21.85	21.88	21.79	23.00
		36	39	21.84	21.95	21.96	23.00



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	16QAM	75	0	21.93	22.02	21.76	23.00
		1	0	22.28	22.42	22.28	23.00
		1	38	22.16	22.10	21.80	23.00
		1	74	22.56	22.37	22.37	23.00
		36	0	20.84	21.00	20.86	22.00
		36	18	20.92	20.90	20.81	22.00
		36	39	20.77	21.01	20.89	22.00
		75	0	20.90	20.89	20.90	22.00
	64QAM	1	0	20.72	21.00	20.83	22.00
		1	38	20.77	20.87	20.67	22.00
		1	74	20.84	20.92	21.07	22.00
		36	0	19.96	19.79	19.77	21.00
		36	18	19.94	19.78	19.70	21.00
		36	39	19.82	19.95	19.75	21.00
		75	0	19.99	19.85	19.82	21.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20050	20175	20300	
20MHz	QPSK	1	0	22.69	22.79	22.92	24.00
		1	50	22.58	22.84	22.76	24.00
		1	99	23.02	23.03	23.01	24.00
		50	0	21.95	22.10	21.99	23.00
		50	25	21.85	21.99	22.00	23.00
		50	50	22.11	22.13	21.97	23.00
		100	0	21.97	22.01	21.93	23.00
	16QAM	1	0	22.31	22.42	22.31	23.00
		1	50	22.06	22.16	22.09	23.00
		1	99	22.33	22.35	22.27	23.00
		50	0	21.00	21.17	21.07	22.00
		50	25	20.84	21.08	21.00	22.00
		50	50	20.97	21.07	20.90	22.00
		100	0	21.07	21.20	20.93	22.00
	64QAM	1	0	20.90	20.99	21.00	22.00
		1	50	20.86	20.96	20.77	22.00
		1	99	20.91	20.97	20.90	22.00
		50	0	19.91	19.92	19.81	21.00
		50	25	19.79	19.79	19.78	21.00
		50	50	19.76	19.89	19.84	21.00
		100	0	19.90	19.87	19.79	21.00

LTE Band 4 (Sensor On)				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				19957	20175	20393	
1.4MHz	QPSK	1	0	16.54	16.53	16.43	18.00
		1	2	16.73	16.63	16.49	18.00
		1	5	16.85	16.85	16.85	18.00
		3	0	16.55	16.78	16.77	18.00
		3	2	16.75	16.31	16.83	18.00
		3	3	16.80	16.67	16.50	18.00
		6	0	16.78	16.29	16.33	18.00
	16QAM	1	0	16.82	16.47	16.36	18.00



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		1	2	16.78	16.42	16.32	18.00
		1	5	16.54	16.53	16.43	18.00
		3	0	16.73	16.63	16.49	18.00
		3	2	16.85	16.85	16.85	18.00
		3	3	16.55	16.78	16.77	18.00
		6	0	16.15	16.32	16.74	18.00
	64QAM	1	0	16.57	16.81	16.74	18.00
		1	2	16.65	16.67	16.69	18.00
		1	5	16.61	16.75	16.69	18.00
		3	0	16.46	16.63	16.53	18.00
		3	2	16.70	16.79	16.69	18.00
		3	3	16.54	16.43	16.42	18.00
		6	0	16.40	16.46	16.53	18.00
Bandwidth	Modulation	RB size	RB offset	Channel 19965	Channel 20175	Channel 20385	Tune up
3MHz	QPSK	1	0	16.45	16.36	16.19	18.00
		1	7	16.23	16.25	16.16	18.00
		1	14	16.45	16.38	16.20	18.00
		8	0	16.75	16.31	16.83	18.00
		8	4	16.80	16.67	16.50	18.00
		8	7	16.78	16.29	16.33	18.00
		15	0	16.61	16.84	16.45	18.00
	16QAM	1	0	16.57	16.82	16.74	18.00
		1	7	16.50	16.81	16.68	18.00
		1	14	16.78	16.42	16.32	18.00
		8	0	16.73	16.41	16.38	18.00
		8	4	16.82	16.49	16.35	18.00
		8	7	16.57	16.81	16.74	18.00
		15	0	16.65	16.67	16.69	18.00
	64QAM	1	0	16.61	16.75	16.69	18.00
		1	7	16.46	16.63	16.53	18.00
		1	14	16.70	16.79	16.69	18.00
		8	0	16.54	16.43	16.42	18.00
		8	4	16.40	16.46	16.53	18.00
		8	7	16.49	16.23	16.22	18.00
		15	0	16.77	16.68	16.63	18.00
Bandwidth	Modulation	RB size	RB offset	Channel 19975	Channel 20175	Channel 20375	Tune up
5MHz	QPSK	1	0	16.54	15.62	16.66	18.00
		1	13	16.49	16.76	16.93	18.00
		1	24	16.46	16.76	16.88	18.00
		12	0	16.62	16.80	16.86	18.00
		12	6	16.55	16.78	16.94	18.00
		12	13	16.51	16.76	16.91	18.00
		25	0	16.56	16.79	16.96	18.00
	16QAM	1	0	16.96	16.84	16.74	18.00
		1	13	16.86	16.81	16.76	18.00
		1	24	16.79	16.74	16.35	18.00
		12	0	16.61	16.84	16.45	18.00
		12	6	16.57	16.82	16.74	18.00
		12	13	16.50	16.81	16.68	18.00
		25	0	16.55	16.81	16.74	18.00



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		1	0	16.65	16.76	16.67	18.00
		1	13	16.42	16.55	16.56	18.00
		1	24	16.75	16.76	16.69	18.00
	64QAM	12	0	16.55	16.48	16.44	18.00
		12	6	16.41	16.43	16.53	18.00
		12	13	16.44	16.33	16.31	18.00
		25	0	16.81	16.60	16.54	18.00
Bandwidth	Modulation	RB size	RB offset	Channel 20000	Channel 20175	Channel 20350	Tune up
10MHz	QPSK	1	0	16.74	16.65	16.45	18.00
		1	25	16.74	16.40	16.30	18.00
		1	49	16.78	16.29	16.33	18.00
		25	0	16.82	16.47	16.36	18.00
		25	13	16.78	16.42	16.32	18.00
		25	25	16.73	16.41	16.38	18.00
		50	0	16.82	16.49	16.35	18.00
	16QAM	1	0	16.80	16.45	16.36	18.00
		1	25	16.62	16.35	16.35	18.00
		1	49	16.68	16.45	16.45	18.00
		25	0	16.80	16.48	16.35	18.00
		25	13	16.77	16.41	16.30	18.00
		25	25	16.73	16.39	16.31	18.00
		50	0	16.76	16.44	16.33	18.00
	64QAM	1	0	16.68	16.72	16.71	18.00
		1	25	16.50	16.53	16.48	18.00
		1	49	16.71	16.80	16.70	18.00
		25	0	16.52	16.46	16.48	18.00
		25	13	16.46	16.45	16.56	18.00
		25	25	16.46	16.23	16.24	18.00
		50	0	16.76	16.60	16.64	18.00
Bandwidth	Modulation	RB size	RB offset	Channel 20025	Channel 20175	Channel 20325	Tune up
15MHz	QPSK	1	0	16.85	16.75	16.65	18.00
		1	38	16.74	16.72	16.81	18.00
		1	74	16.57	16.81	16.74	18.00
		36	0	16.65	16.67	16.69	18.00
		36	18	16.57	16.82	16.89	18.00
		36	39	16.51	16.74	16.82	18.00
		75	0	16.61	16.76	16.77	18.00
	16QAM	1	0	16.85	16.74	16.81	18.00
		1	38	16.80	16.74	16.86	18.00
		1	74	16.74	16.81	16.74	18.00
		36	0	16.62	16.76	16.73	18.00
		36	18	16.59	16.72	16.65	18.00
		36	39	16.51	16.86	16.85	18.00
		75	0	16.57	16.83	16.72	18.00
	64QAM	1	0	16.68	16.79	16.72	18.00
		1	38	16.73	16.83	16.74	18.00
		1	74	16.53	16.80	16.70	18.00
		36	0	16.51	16.50	16.52	18.00
		36	18	16.50	16.53	16.51	18.00
		36	39	16.54	16.58	16.55	18.00



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Bandwidth	Modulation	75	0	16.63	16.72	16.65	18.00
		RB size	RB offset	Channel 20050	Channel 20175	Channel 20300	Tune up
20MHz	QPSK	1	0	16.61	16.87	16.70	18.00
		1	50	16.79	16.97	16.95	18.00
		1	99	16.50	16.81	16.84	18.00
		50	0	16.32	16.59	16.67	18.00
		50	25	16.22	16.58	16.63	18.00
		50	50	16.41	16.71	16.70	18.00
		100	0	16.38	16.64	16.63	18.00
	16QAM	1	0	16.53	16.79	16.87	18.00
		1	50	16.31	16.63	16.70	18.00
		1	99	16.69	16.58	16.75	18.00
		50	0	16.30	16.55	16.62	18.00
		50	25	16.20	16.56	16.62	18.00
		50	50	16.39	16.62	16.70	18.00
		100	0	16.39	16.67	16.62	18.00
	64QAM	1	0	16.53	16.56	16.35	18.00
		1	50	16.26	16.34	16.41	18.00
		1	99	16.30	16.65	16.42	18.00
		50	0	16.45	16.56	16.48	18.00
		50	25	16.63	16.61	16.67	18.00
		50	50	16.64	16.71	16.44	18.00
		100	0	16.33	16.40	16.33	18.00

LTE Band 4 (Hotspot On)				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				19957	20175	20393	
1.4MHz	QPSK	1	0	15.38	15.70	15.83	17.00
		1	2	15.55	15.77	15.95	17.00
		1	5	15.51	15.72	15.92	17.00
		3	0	15.46	15.72	15.89	17.00
		3	2	15.52	15.77	15.94	17.00
		3	3	15.68	15.95	15.97	17.00
		6	0	15.64	15.82	15.96	17.00
	16QAM	1	0	15.57	15.84	15.71	17.00
		1	2	15.67	15.93	15.62	17.00
		1	5	15.58	15.85	15.86	17.00
		3	0	15.64	15.91	15.85	17.00
		3	2	15.42	15.34	15.18	17.00
		3	3	15.49	15.34	15.15	17.00
		6	0	15.55	15.82	15.83	17.00
	64QAM	1	0	15.80	15.48	15.58	17.00
		1	2	15.80	15.79	15.97	17.00
		1	5	15.63	15.48	15.63	17.00
		3	0	15.93	15.94	15.85	17.00
		3	2	15.85	15.81	15.80	17.00
		3	3	15.76	15.72	15.69	17.00
		6	0	15.77	15.87	15.77	17.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up



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				19965	20175	20385	
3MHz	QPSK	1	0	15.87	15.95	15.84	17.00
		1	7	15.78	15.99	15.84	17.00
		1	14	15.70	16.01	15.86	17.00
		8	0	15.55	15.80	15.97	17.00
		8	4	15.71	15.98	16.00	17.00
		8	7	15.52	15.82	15.83	17.00
		15	0	15.44	15.77	15.84	17.00
	16QAM	1	0	15.62	15.83	15.89	17.00
		1	7	15.60	15.87	15.83	17.00
		1	14	15.58	15.85	15.86	17.00
		8	0	15.64	15.91	15.85	17.00
		8	4	15.61	15.88	15.84	17.00
		8	7	15.84	15.92	15.81	17.00
		15	0	15.75	15.96	15.81	17.00
	64QAM	1	0	15.77	15.85	15.72	17.00
		1	7	15.93	15.75	15.85	17.00
		1	14	15.84	15.81	15.56	17.00
		8	0	15.83	15.85	15.84	17.00
		8	4	15.88	15.87	15.82	17.00
		8	7	15.80	15.79	15.68	17.00
		15	0	15.87	15.82	15.79	17.00
Bandwidth	Modulation	RB size	RB offset	Channel 19975	Channel 20175	Channel 20375	Tune up
5MHz	QPSK	1	0	15.65	15.88	15.84	17.00
		1	13	15.46	15.73	15.89	17.00
		1	24	15.41	15.73	15.86	17.00
		12	0	15.58	15.80	15.98	17.00
		12	6	15.54	15.75	15.95	17.00
		12	13	15.49	15.75	15.92	17.00
		25	0	15.55	15.78	15.95	17.00
	16QAM	1	0	15.90	15.98	15.87	17.00
		1	13	15.81	16.02	15.87	17.00
		1	24	15.73	16.04	15.89	17.00
		12	0	15.58	15.83	16.00	17.00
		12	6	15.54	15.78	15.96	17.00
		12	13	15.49	15.76	15.90	17.00
		25	0	15.52	15.77	15.96	17.00
	64QAM	1	0	15.95	15.75	15.63	17.00
		1	13	15.83	15.70	15.82	17.00
		1	24	15.68	15.74	15.73	17.00
		12	0	15.81	15.89	15.76	17.00
		12	6	15.84	15.82	15.78	17.00
		12	13	15.82	15.77	15.62	17.00
		25	0	15.81	15.90	15.69	17.00
Bandwidth	Modulation	RB size	RB offset	Channel 20000	Channel 20175	Channel 20350	Tune up
10MHz	QPSK	1	0	15.54	15.84	15.65	17.00
		1	25	15.53	15.84	15.95	17.00
		1	49	15.85	15.65	15.84	17.00
		25	0	15.67	15.85	15.99	17.00
		25	13	15.60	15.87	15.74	17.00



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		25	25	15.70	15.96	15.65	17.00
		50	0	15.65	15.90	15.45	17.00
	16QAM	1	0	15.98	15.88	15.91	17.00
		1	25	15.90	16.00	15.88	17.00
		1	49	16.01	15.96	15.99	17.00
		25	0	15.63	15.88	15.87	17.00
		25	13	15.61	15.88	15.89	17.00
		25	25	15.67	15.94	15.88	17.00
		50	0	15.64	15.91	15.87	17.00
		1	0	15.56	15.57	15.58	17.00
	64QAM	1	25	15.65	15.68	15.73	17.00
		1	49	15.58	15.51	15.58	17.00
		25	0	15.74	15.69	15.64	17.00
		25	13	15.79	15.83	15.74	17.00
		25	25	15.90	15.69	15.58	17.00
		50	0	15.84	15.77	15.70	17.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20025	20175	20325	
15MHz	QPSK	1	0	16.02	15.92	15.77	17.00
		1	38	15.68	15.44	15.31	17.00
		1	74	15.45	15.25	15.33	17.00
		36	0	15.51	15.38	15.19	17.00
		36	18	15.45	15.32	15.20	17.00
		36	39	15.38	15.23	15.15	17.00
		75	0	15.45	15.37	15.21	17.00
		1	0	15.52	15.37	15.18	17.00
	16QAM	1	38	15.68	15.44	15.31	17.00
		1	74	15.72	15.24	15.64	17.00
		36	0	15.52	15.37	15.18	17.00
		36	18	15.46	15.31	15.16	17.00
		36	39	15.40	15.20	15.12	17.00
		75	0	15.43	15.42	15.22	17.00
		1	0	15.88	15.70	15.61	17.00
		1	38	15.75	15.62	15.81	17.00
	64QAM	1	74	15.60	15.66	15.67	17.00
		36	0	15.81	15.87	15.76	17.00
		36	18	15.84	15.81	15.71	17.00
		36	39	15.78	15.75	15.62	17.00
		75	0	15.73	15.88	15.64	17.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20050	20175	20300	
20MHz	QPSK	1	0	15.65	15.65	15.55	17.00
		1	50	15.76	16.05	16.03	17.00
		1	99	15.54	16.01	15.82	17.00
		50	0	15.55	15.85	15.86	17.00
		50	25	15.47	15.80	15.87	17.00
		50	50	15.65	15.93	15.92	17.00
		100	0	15.63	15.90	15.86	17.00
		1	0	15.94	15.98	16.02	17.00
	16QAM	1	50	15.71	16.02	16.03	17.00
		1	99	16.01	16.01	15.99	17.00
		50	0	15.56	15.77	15.89	17.00



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		50	25	15.42	15.81	15.88	17.00
		50	50	15.63	15.87	15.94	17.00
		100	0	15.64	15.91	15.85	17.00
	64QAM	1	0	15.74	15.79	15.64	17.00
		1	50	15.89	15.67	15.79	17.00
		1	99	15.82	15.81	15.49	17.00
		50	0	15.79	15.81	15.82	17.00
		50	25	15.88	15.87	15.74	17.00
		50	50	15.77	15.75	15.62	17.00
		100	0	15.79	15.81	15.76	17.00

LTE Band 4 (Handheld)				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel 19957	Channel 20175	Channel 20393	Tune up
1.4MHz	QPSK	1	0	19.64	19.86	19.61	21.00
		1	2	19.64	19.80	19.70	21.00
		1	5	19.95	18.70	18.61	21.00
		3	0	19.83	19.61	19.84	21.00
		3	2	19.34	19.71	19.76	21.00
		3	3	19.53	19.75	19.84	21.00
		6	0	19.50	19.81	19.81	21.00
	16QAM	1	0	19.92	19.41	19.61	21.00
		1	2	19.64	19.80	19.41	21.00
		1	5	19.19	19.53	19.65	21.00
		3	0	19.58	19.87	19.91	21.00
		3	2	19.41	19.69	19.77	21.00
		3	3	19.57	19.60	19.72	21.00
		6	0	19.55	19.70	19.80	21.00
	64QAM	1	0	19.36	19.46	19.57	21.00
		1	2	19.37	19.50	19.63	21.00
		1	5	19.49	19.50	19.50	21.00
		3	0	19.37	19.49	19.59	21.00
		3	2	19.47	19.58	19.54	21.00
		3	3	19.50	19.41	19.54	21.00
		6	0	19.49	19.44	19.59	21.00
Bandwidth	Modulation	RB size	RB offset	Channel 19965	Channel 20175	Channel 20385	Tune up
3MHz	QPSK	1	0	19.41	19.61	19.51	21.00
		1	7	19.23	19.57	19.69	21.00
		1	14	19.62	19.91	19.95	21.00
		8	0	19.45	19.73	19.81	21.00
		8	4	19.95	19.80	19.61	21.00
		8	7	19.68	19.80	19.83	21.00
		15	0	19.74	19.64	19.70	21.00
	16QAM	1	0	19.61	19.63	19.80	21.00
		1	7	19.80	19.64	19.83	21.00
		1	14	19.88	19.70	19.84	21.00
		8	0	19.61	19.64	19.76	21.00
		8	4	19.59	19.74	19.84	21.00
		8	7	19.61	19.70	19.81	21.00



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		15	0	19.59	20.01	19.97	21.00
	64QAM	1	0	19.34	19.31	19.32	21.00
		1	7	19.49	19.57	19.65	21.00
		1	14	19.21	19.32	19.47	21.00
		8	0	19.44	19.45	19.56	21.00
		8	4	19.48	19.43	19.52	21.00
		8	7	19.46	19.55	19.50	21.00
		15	0	19.42	19.50	19.45	21.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				19975	20175	20375	
5MHz	QPSK	1	0	19.45	19.65	19.55	21.00
		1	13	19.27	19.61	19.73	21.00
		1	24	19.66	19.95	19.99	21.00
		12	0	19.49	19.77	19.85	21.00
		12	6	19.38	19.75	19.80	21.00
		12	13	19.57	19.79	19.88	21.00
		25	0	19.54	19.85	19.85	21.00
		25	13	19.54	19.83	19.81	21.00
	16QAM	1	0	19.96	19.45	19.65	21.00
		1	13	19.68	19.84	19.45	21.00
		1	24	19.88	19.85	19.48	21.00
		12	0	19.46	19.75	19.85	21.00
		12	6	19.37	19.75	19.81	21.00
		12	13	19.56	19.80	19.90	21.00
		25	0	19.54	19.83	19.81	21.00
		25	13	19.54	19.83	19.81	21.00
	64QAM	1	0	19.42	19.44	19.59	21.00
		1	13	19.62	19.57	19.67	21.00
		1	24	19.47	19.42	19.43	21.00
		12	0	19.65	19.60	19.72	21.00
		12	6	19.64	19.67	19.73	21.00
		12	13	19.62	19.68	19.65	21.00
		25	0	19.56	19.64	19.63	21.00
		25	13	19.56	19.64	19.63	21.00
Bandwidth	Modulation	RB size	RB offset	19.6	19.67	19.72	Tune up
				20000	20175	20350	
10MHz	QPSK	1	0	19.56	19.86	19.84	21.00
		1	25	19.34	19.67	19.74	21.00
		1	49	19.75	19.68	19.84	21.00
		25	0	19.34	19.66	19.85	21.00
		25	13	19.37	19.70	19.76	21.00
		25	25	19.40	19.81	19.86	21.00
		50	0	19.42	19.78	19.82	21.00
		50	13	19.42	19.78	19.82	21.00
	16QAM	1	0	19.99	19.84	19.65	21.00
		1	25	19.72	19.84	19.87	21.00
		1	49	19.78	19.68	19.74	21.00
		25	0	19.65	19.67	19.84	21.00
		25	13	19.74	19.71	19.78	21.00
		25	25	19.40	19.80	19.83	21.00
		50	0	19.40	19.74	19.81	21.00
		50	13	19.40	19.74	19.81	21.00
	64QAM	1	0	19.64	19.69	19.70	21.00
		1	25	19.58	19.56	19.60	21.00
		1	49	19.52	19.69	19.56	21.00
		25	0	19.62	19.67	19.79	21.00
		25	13	19.66	19.74	19.64	21.00
		25	25	19.66	19.74	19.64	21.00
		25	49	19.66	19.74	19.64	21.00
		25	13	19.66	19.74	19.64	21.00



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		25	25	19.62	19.67	19.70	21.00
		50	0	19.59	19.65	19.72	21.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20025	20175	20325	
15MHz	QPSK	1	0	19.84	19.65	18.84	21.00
		1	38	19.53	19.77	19.93	21.00
		1	74	19.71	19.65	19.84	21.00
		36	0	19.62	19.80	19.98	21.00
		36	18	19.58	19.82	19.99	21.00
		36	39	19.66	19.89	19.65	21.00
		75	0	19.59	19.84	19.87	21.00
	16QAM	1	0	19.84	19.68	19.87	21.00
		1	38	19.92	19.74	19.88	21.00
		1	74	19.65	19.68	19.80	21.00
		36	0	19.63	19.78	19.88	21.00
		36	18	19.58	19.83	19.99	21.00
		36	39	19.65	19.89	19.84	21.00
		75	0	19.60	19.84	19.74	21.00
	64QAM	1	0	19.63	19.49	19.55	21.00
		1	38	19.58	19.65	19.65	21.00
		1	74	19.43	19.49	19.55	21.00
		36	0	19.55	19.72	19.58	21.00
		36	18	19.63	19.73	19.76	21.00
		36	39	19.62	19.63	19.61	21.00
		75	0	19.71	19.75	19.72	21.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20050	20175	20300	
20MHz	QPSK	1	0	19.65	19.74	19.85	21.00
		1	50	19.66	20.05	20.01	21.00
		1	99	19.55	19.87	19.99	21.00
		50	0	19.67	19.90	19.59	21.00
		50	25	19.62	19.87	19.65	21.00
		50	50	19.68	19.91	19.66	21.00
		100	0	19.68	19.90	19.65	21.00
	16QAM	1	0	19.68	19.84	19.74	21.00
		1	50	19.99	18.74	18.65	21.00
		1	99	19.87	19.65	19.88	21.00
		50	0	19.69	19.92	19.74	21.00
		50	25	19.63	19.88	19.85	21.00
		50	50	19.64	19.85	19.80	21.00
		100	0	19.66	19.89	19.86	21.00
	64QAM	1	0	19.35	19.41	19.30	21.00
		1	50	19.64	19.63	19.67	21.00
		1	99	19.41	19.32	19.29	21.00
		50	0	19.54	19.57	19.65	21.00
		50	25	19.59	19.61	19.62	21.00
		50	50	19.64	19.62	19.61	21.00
		100	0	19.65	19.65	19.63	21.00

LTE Band 5				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20407	20525	20643	
1.4MHz	QPSK	1	0	22.77	22.90	22.96	24.00
		1	2	22.41	22.66	22.65	24.00
		1	5	22.96	23.02	22.80	24.00
		3	0	22.45	22.48	22.65	24.00
		3	2	22.44	22.60	22.78	24.00
		3	3	22.57	22.55	22.76	24.00
		6	0	21.49	21.55	21.79	23.00
	16QAM	1	0	21.69	22.21	22.15	23.00
		1	2	21.99	22.21	22.02	23.00
		1	5	22.05	22.16	21.95	23.00
		3	0	21.54	21.51	21.82	23.00
		3	2	21.55	21.62	21.76	23.00
		3	3	21.49	21.62	21.78	23.00
		6	0	20.52	20.58	20.80	22.00
	64QAM	1	0	20.68	20.76	21.04	22.00
		1	2	20.83	20.96	20.61	22.00
		1	5	20.77	20.87	20.67	22.00
		3	0	20.75	20.60	20.56	22.00
		3	2	20.57	20.77	20.62	22.00
		3	3	20.66	20.79	20.71	22.00
		6	0	19.29	19.38	19.41	21.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20415	20525	20635	
3MHz	QPSK	1	0	22.60	22.75	22.86	24.00
		1	7	22.41	22.39	22.84	24.00
		1	14	22.29	22.45	22.55	24.00
		8	0	21.36	21.44	21.59	23.00
		8	4	21.38	21.46	21.59	23.00
		8	7	21.38	21.48	21.59	23.00
		15	0	21.36	21.50	21.61	23.00
	16QAM	1	0	21.88	21.98	22.25	23.00
		1	7	22.13	22.26	21.91	23.00
		1	14	22.00	22.01	22.22	23.00
		8	0	20.44	20.38	20.63	22.00
		8	4	20.43	20.41	20.54	22.00
		8	7	20.38	20.46	20.51	22.00
		15	0	20.39	20.50	20.53	22.00
	64QAM	1	0	20.68	20.76	21.04	22.00
		1	7	20.88	21.03	20.72	22.00
		1	14	20.78	20.82	21.02	22.00
		8	0	19.34	19.24	19.54	21.00
		8	4	19.33	19.30	19.45	21.00
		8	7	19.26	19.34	19.41	21.00
		15	0	19.29	19.38	19.41	21.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20425	20525	20625	



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5MHz	QPSK	1	0	22.68	22.84	22.91	24.00
		1	13	22.46	22.49	22.93	24.00
		1	24	22.37	22.54	22.64	24.00
		12	0	21.44	21.51	21.69	23.00
		12	6	21.48	21.54	21.69	23.00
		12	13	21.47	21.57	21.64	23.00
		25	0	21.43	21.55	21.68	23.00
	16QAM	1	0	21.98	22.06	22.34	23.00
		1	13	22.18	22.33	22.02	23.00
		1	24	22.08	22.12	22.32	23.00
		12	0	20.54	20.44	20.74	22.00
		12	6	20.53	20.50	20.65	22.00
		12	13	20.46	20.54	20.61	22.00
		25	0	20.49	20.58	20.61	22.00
	64QAM	1	0	20.46	20.97	20.92	22.00
		1	13	20.78	20.99	20.78	22.00
		1	24	20.83	20.97	20.73	22.00
		12	0	19.40	19.38	19.69	21.00
		12	6	19.40	19.49	19.61	21.00
		12	13	19.39	19.50	19.67	21.00
		25	0	19.42	19.47	19.69	21.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20450	20525	20600	
10MHz	QPSK	1	0	22.83	22.96	22.96	24.00
		1	25	22.50	22.74	22.72	24.00
		1	49	23.04	23.11	22.98	24.00
		25	0	21.53	21.57	21.75	23.00
		25	13	21.55	21.66	21.89	23.00
		25	25	21.68	21.93	21.82	23.00
		50	0	21.58	21.64	21.85	23.00
	16QAM	1	0	21.76	22.27	22.22	23.00
		1	25	22.08	22.29	22.08	23.00
		1	49	22.13	22.27	22.03	23.00
		25	0	20.60	20.58	20.89	22.00
		25	13	20.60	20.69	20.81	22.00
		25	25	20.59	20.70	20.87	22.00
		50	0	20.62	20.67	20.89	22.00
	64QAM	1	0	20.58	20.68	20.95	22.00
		1	25	20.83	20.96	20.61	22.00
		1	49	20.70	20.71	20.92	22.00
		25	0	19.24	19.18	19.43	21.00
		25	13	19.23	19.21	19.34	21.00
		25	25	19.18	19.26	19.31	21.00
		50	0	19.19	19.30	19.33	21.00

LTE Band 7				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel 20775	Channel 21100	Channel 21425	Tune up
5MHz	QPSK	1	0	22.94	22.87	22.76	24.00
		1	13	23.15	22.83	22.58	24.00
		1	24	23.19	22.89	22.48	24.00
		12	0	21.69	21.31	21.23	23.00
		12	6	21.72	21.38	21.16	23.00
		12	13	21.63	21.30	21.10	23.00
		25	0	21.66	21.41	21.19	23.00
	16QAM	1	0	22.36	22.12	21.69	23.00
		1	13	22.05	21.93	21.90	23.00
		1	24	22.24	21.99	21.68	23.00
		12	0	20.70	20.33	20.06	22.00
		12	6	20.60	20.37	20.19	22.00
		12	13	20.65	20.36	20.09	22.00
		25	0	20.74	20.37	20.26	22.00
	64QAM	1	0	20.88	21.03	20.72	22.00
		1	13	20.78	20.82	21.02	22.00
		1	24	20.68	20.76	21.04	22.00
		12	0	20.83	20.96	20.61	21.00
		12	6	20.46	20.54	20.61	21.00
		12	13	20.49	20.58	20.61	21.00
		25	0	19.29	19.33	19.41	21.00
Bandwidth	Modulation	RB size	RB offset	Channel 20800	Channel 21100	Channel 21400	Tune up
10MHz	QPSK	1	0	22.03	23.05	23.01	24.00
		1	25	23.09	22.84	23.02	24.00
		1	49	23.40	23.09	22.82	24.00
		25	0	21.67	21.46	21.19	23.00
		25	13	21.62	21.36	21.16	23.00
		25	25	21.67	21.47	21.17	23.00
		50	0	21.74	21.46	21.15	23.00
	16QAM	1	0	22.27	22.11	22.17	23.00
		1	25	21.74	21.82	21.88	23.00
		1	49	22.04	21.61	21.80	23.00
		25	0	20.81	20.50	20.22	22.00
		25	13	20.80	20.33	20.20	22.00
		25	25	20.73	20.47	20.23	22.00
		50	0	20.71	20.42	20.21	22.00
	64QAM	1	0	20.73	20.66	20.41	22.00
		1	25	20.96	20.34	20.12	22.00
		1	49	20.70	20.42	20.09	22.00
		25	0	19.62	19.31	19.07	21.00
		25	13	19.62	19.28	19.03	21.00
		25	25	19.55	19.34	18.97	21.00
		50	0	19.60	19.32	19.00	21.00
Bandwidth	Modulation	RB size	RB offset	Channel 20825	Channel 21100	Channel 21375	Tune up
15MHz	QPSK	1	0	23.22	22.86	22.95	24.00



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		1	38	23.17	22.94	22.49	24.00
		1	74	23.19	23.00	22.61	24.00
		36	0	21.70	21.52	21.19	23.00
		36	18	21.67	21.58	21.06	23.00
		36	39	21.72	21.43	21.11	23.00
		75	0	21.73	21.47	21.11	23.00
	16QAM	1	0	22.27	21.61	21.49	23.00
		1	38	21.96	21.83	21.08	23.00
		1	74	21.97	21.96	21.17	23.00
		36	0	20.73	20.47	20.13	22.00
		36	18	20.73	20.44	20.15	22.00
		36	39	20.68	20.43	20.08	22.00
	64QAM	75	0	20.74	20.50	20.13	22.00
		1	0	20.97	20.31	20.19	22.00
		1	38	20.66	20.53	19.78	22.00
		1	74	20.67	20.66	19.87	22.00
		36	0	19.53	19.27	18.93	21.00
		36	18	19.53	19.24	18.95	21.00
		36	39	19.48	19.23	18.88	21.00
		75	0	19.54	19.30	18.93	21.00
		1	0	23.21	23.11	23.16	24.00
		1	50	23.13	23.05	22.54	24.00
		1	99	23.22	22.85	22.55	24.00
	QPSK	50	0	21.81	21.51	21.27	23.00
		50	25	21.81	21.57	21.21	23.00
		50	50	21.85	21.49	21.12	23.00
		100	0	21.78	21.48	21.15	23.00
	16QAM	1	0	22.03	21.96	21.71	23.00
		1	50	22.26	21.64	21.42	23.00
		1	99	22.00	21.72	21.39	23.00
		50	0	20.82	20.51	20.27	22.00
		50	25	20.82	20.48	20.23	22.00
		50	50	20.75	20.54	20.17	22.00
	64QAM	100	0	20.80	20.52	20.20	22.00
		1	0	20.97	20.81	20.87	22.00
		1	50	20.44	20.52	20.58	22.00
		1	99	20.74	20.31	20.50	22.00
		50	0	19.61	19.30	19.02	21.00
		50	25	19.60	19.13	19.00	21.00
		50	50	19.53	19.27	19.03	21.00
		100	0	19.51	19.22	19.01	21.00

LTE Band 7 (Sensor On)				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20775	21100	21425	
5MHz	QPSK	1	0	18.87	19.06	18.95	20.50
		1	13	18.95	19.04	19.01	20.50
		1	24	19.03	19.09	18.97	20.50



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		12	0	19.07	19.17	19.05	20.50
		12	6	19.07	19.03	19.02	20.50
		12	13	19.01	19.07	18.99	20.50
		25	0	19.13	19.06	18.89	20.50
	16QAM	1	0	19.14	19.19	19.01	20.50
		1	13	19.08	19.05	19.17	20.50
		1	24	19.14	19.23	18.68	20.50
		12	0	19.14	19.22	18.95	20.50
		12	6	19.12	19.16	18.97	20.50
		12	13	19.03	19.12	19.12	20.50
		25	0	19.10	19.05	18.95	20.50
	64QAM	1	0	19.08	19.13	18.94	20.50
		1	13	18.97	18.94	19.08	20.50
		1	24	19.11	19.15	18.54	20.50
		12	0	19.10	19.13	18.85	20.50
		12	6	19.06	19.15	18.94	20.50
		12	13	18.92	18.99	18.97	20.50
		25	0	19.07	18.99	18.93	20.50
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20800	21100	21400	
10MHz	QPSK	1	0	19.03	19.14	19.10	20.50
		1	25	19.15	18.97	19.08	20.50
		1	49	19.13	19.07	18.92	20.50
		25	0	19.10	19.17	19.01	20.50
		25	13	19.04	19.09	19.01	20.50
		25	25	19.06	19.08	19.06	20.50
		50	0	19.14	19.09	19.07	20.50
	16QAM	1	0	19.21	19.17	19.23	20.50
		1	25	18.98	19.20	19.15	20.50
		1	49	19.22	19.14	18.63	20.50
		25	0	19.08	19.05	19.11	20.50
		25	13	19.06	19.09	19.04	20.50
		25	25	18.92	19.09	18.85	20.50
		50	0	19.10	19.07	19.11	20.50
	64QAM	1	0	19.12	19.12	19.10	20.50
		1	25	18.93	19.12	19.02	20.50
		1	49	19.17	19.11	18.54	20.50
		25	0	19.04	18.95	19.01	20.50
		25	13	19.02	18.99	18.99	20.50
		25	25	18.78	19.06	18.85	20.50
		50	0	19.00	18.96	18.98	20.50
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20825	21100	21375	
15MHz	QPSK	1	0	19.15	19.10	19.02	20.50
		1	38	19.02	19.13	18.92	20.50
		1	74	18.96	19.00	18.76	20.50
		36	0	19.10	19.17	19.02	20.50
		36	18	19.02	19.16	18.90	20.50
		36	39	18.96	19.09	18.96	20.50
		75	0	19.11	19.20	18.96	20.50
	16QAM	1	0	19.15	19.18	19.14	20.50
		1	38	19.22	19.07	19.14	20.50



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		1	74	19.16	19.20	18.81	20.50
		36	0	19.05	19.16	18.98	20.50
		36	18	19.00	19.09	19.00	20.50
		36	39	19.08	19.10	19.01	20.50
		75	0	18.92	19.14	19.12	20.50
	64QAM	1	0	19.00	19.10	19.00	20.50
		1	38	19.20	19.07	19.01	20.50
		1	74	19.08	19.09	18.81	20.50
		36	0	19.04	19.08	18.90	20.50
		36	18	18.99	18.95	18.94	20.50
		36	39	18.97	19.07	18.93	20.50
		75	0	18.91	19.12	18.97	20.50
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20850	21100	21350	
20MHz	QPSK	1	0	19.38	19.34	19.17	20.50
		1	50	19.28	19.35	19.08	20.50
		1	99	19.45	19.43	19.28	20.50
		50	0	19.31	19.40	19.21	20.50
		50	25	19.24	19.39	19.22	20.50
		50	50	19.43	19.42	19.24	20.50
		100	0	19.34	19.31	19.32	20.50
	16QAM	1	0	19.17	19.23	19.22	20.50
		1	50	19.15	19.11	19.10	20.50
		1	99	19.04	19.21	18.91	20.50
		50	0	19.03	19.22	19.05	20.50
		50	25	18.97	19.22	19.05	20.50
		50	50	18.98	19.18	19.15	20.50
		100	0	18.95	19.17	19.01	20.50
	64QAM	1	0	19.16	19.16	19.08	20.50
		1	50	19.05	19.08	19.03	20.50
		1	99	18.93	19.20	18.76	20.50
		50	0	18.91	19.11	18.93	20.50
		50	25	18.91	19.09	18.92	20.50
		50	50	18.84	19.14	19.05	20.50
		100	0	18.84	19.06	18.90	20.50



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LTE Band 7 (Hotspot On)				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20775	21100	21425	
5MHz	QPSK	1	0	18.87	19.06	18.95	20.50
		1	13	18.95	19.04	19.01	20.50
		1	24	19.03	19.09	18.97	20.50
		12	0	19.07	19.17	19.05	20.50
		12	6	19.07	19.03	19.02	20.50
		12	13	19.01	19.07	18.99	20.50
		25	0	19.13	19.06	18.89	20.50
	16QAM	1	0	19.14	19.19	19.01	20.50
		1	13	19.08	19.05	19.17	20.50
		1	24	19.14	19.23	18.68	20.50
		12	0	19.14	19.22	18.95	20.50
		12	6	19.12	19.16	18.97	20.50
		12	13	19.03	19.12	19.12	20.50
		25	0	19.10	19.05	18.95	20.50
	64QAM	1	0	19.08	19.13	18.94	20.50
		1	13	18.97	18.94	19.08	20.50
		1	24	19.11	19.15	18.54	20.50
		12	0	19.10	19.13	18.85	20.50
		12	6	19.06	19.15	18.94	20.50
		12	13	18.92	18.99	18.97	20.50
		25	0	19.07	18.99	18.93	20.50
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20800	21100	21400	
10MHz	QPSK	1	0	19.03	19.14	19.10	20.50
		1	25	19.15	18.97	19.08	20.50
		1	49	19.13	19.07	18.92	20.50
		25	0	19.10	19.17	19.01	20.50
		25	13	19.04	19.09	19.01	20.50
		25	25	19.06	19.08	19.06	20.50
		50	0	19.14	19.09	19.07	20.50
	16QAM	1	0	19.21	19.17	19.23	20.50
		1	25	18.98	19.20	19.15	20.50
		1	49	19.22	19.14	18.63	20.50
		25	0	19.08	19.05	19.11	20.50
		25	13	19.06	19.09	19.04	20.50
		25	25	18.92	19.09	18.85	20.50
		50	0	19.10	19.07	19.11	20.50
	64QAM	1	0	19.12	19.12	19.10	20.50
		1	25	18.93	19.12	19.02	20.50
		1	49	19.17	19.11	18.54	20.50
		25	0	19.04	18.95	19.01	20.50
		25	13	19.02	18.99	18.99	20.50
		25	25	18.78	19.06	18.85	20.50
		50	0	19.00	18.96	18.98	20.50
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20825	21100	21375	



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15MHz	QPSK	1	0	19.15	19.10	19.02	20.50
		1	38	19.02	19.13	18.92	20.50
		1	74	18.96	19.00	18.76	20.50
		36	0	19.10	19.17	19.02	20.50
		36	18	19.02	19.16	18.90	20.50
		36	39	18.96	19.09	18.96	20.50
		75	0	19.11	19.20	18.96	20.50
	16QAM	1	0	19.15	19.18	19.14	20.50
		1	38	19.22	19.07	19.14	20.50
		1	74	19.16	19.20	18.81	20.50
		36	0	19.05	19.16	18.98	20.50
		36	18	19.00	19.09	19.00	20.50
		36	39	19.08	19.10	19.01	20.50
		75	0	18.92	19.14	19.12	20.50
	64QAM	1	0	19.00	19.10	19.00	20.50
		1	38	19.20	19.07	19.01	20.50
		1	74	19.08	19.09	18.81	20.50
		36	0	19.04	19.08	18.90	20.50
		36	18	18.99	18.95	18.94	20.50
		36	39	18.97	19.07	18.93	20.50
		75	0	18.91	19.12	18.97	20.50
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20850	21100	21350	
20MHz	QPSK	1	0	19.38	19.34	19.17	20.50
		1	50	19.28	19.35	19.08	20.50
		1	99	19.45	19.43	19.28	20.50
		50	0	19.31	19.40	19.21	20.50
		50	25	19.24	19.39	19.22	20.50
		50	50	19.43	19.42	19.24	20.50
		100	0	19.34	19.32	19.33	20.50
	16QAM	1	0	19.17	19.23	19.22	20.50
		1	50	19.15	19.11	19.10	20.50
		1	99	19.04	19.21	18.91	20.50
		50	0	19.03	19.22	19.05	20.50
		50	25	18.97	19.22	19.05	20.50
		50	50	18.98	19.18	19.15	20.50
		100	0	18.95	19.17	19.01	20.50
	64QAM	1	0	19.16	19.16	19.08	20.50
		1	50	19.05	19.08	19.03	20.50
		1	99	18.93	19.20	18.76	20.50
		50	0	18.91	19.11	18.93	20.50
		50	25	18.91	19.09	18.92	20.50
		50	50	18.84	19.14	19.05	20.50
		100	0	18.84	19.06	18.90	20.50

LTE Band 7 (Handheld)				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20775	21100	21425	
5MHz	QPSK	1	0	20.32	20.07	19.97	22.00
		1	13	20.51	20.66	20.60	22.00
		1	24	20.78	20.80	20.82	22.00
		12	0	20.52	20.63	20.56	22.00
		12	6	20.53	20.62	20.52	22.00
		12	13	20.58	20.71	20.63	22.00
		25	0	20.52	20.67	20.57	22.00
	16QAM	1	0	20.73	20.58	20.81	22.00
		1	13	20.60	20.74	20.64	22.00
		1	24	20.83	20.81	20.81	22.00
		12	0	20.54	20.67	20.59	22.00
		12	6	20.52	20.61	20.54	22.00
		12	13	20.55	20.66	20.58	22.00
		25	0	20.55	20.67	20.59	22.00
	64QAM	1	0	20.59	20.81	20.70	22.00
		1	13	20.50	20.62	20.50	22.00
		1	24	20.66	20.74	20.70	22.00
		12	0	19.66	19.74	19.69	21.00
		12	6	19.63	19.62	19.66	21.00
		12	13	19.59	19.75	19.66	21.00
		25	0	19.57	19.73	19.62	21.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20800	21100	21400	
10MHz	QPSK	1	0	20.17	19.94	19.91	22.00
		1	25	20.54	20.74	20.67	22.00
		1	49	20.49	20.64	20.57	22.00
		25	0	20.57	20.66	20.56	22.00
		25	13	20.55	20.63	20.56	22.00
		25	25	20.50	20.66	20.57	22.00
		50	0	20.54	20.67	20.59	22.00
	16QAM	1	0	20.71	20.83	20.73	22.00
		1	25	20.69	20.83	20.71	22.00
		1	49	20.64	20.77	20.70	22.00
		25	0	20.54	20.63	20.56	22.00
		25	13	20.50	20.60	20.51	22.00
		25	25	20.49	20.61	20.52	22.00
		50	0	20.53	20.68	20.61	22.00
	64QAM	1	0	20.59	20.75	20.56	22.00
		1	25	20.57	20.70	20.57	22.00
		1	49	20.46	20.66	20.62	22.00
		25	0	19.55	19.74	19.64	21.00
		25	13	19.53	19.63	19.53	21.00
		25	25	19.59	19.64	19.55	21.00
		50	0	19.63	19.71	19.70	21.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20825	21100	21375	



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15MHz	QPSK	1	0	20.08	19.85	19.92	22.00
		1	38	20.57	20.61	20.58	22.00
		1	74	20.61	20.68	20.59	22.00
		36	0	20.45	20.56	20.52	22.00
		36	18	20.52	20.55	20.55	22.00
		36	39	20.54	20.60	20.61	22.00
		75	0	20.48	20.55	20.54	22.00
	16QAM	1	0	20.54	20.62	20.71	22.00
		1	38	20.65	20.71	20.69	22.00
		1	74	20.78	20.79	20.75	22.00
		36	0	20.45	20.50	20.47	22.00
		36	18	20.47	20.57	20.53	22.00
		36	39	20.50	20.59	20.57	22.00
		75	0	20.50	20.56	20.56	22.00
	64QAM	1	0	20.45	20.45	20.52	22.00
		1	38	20.55	20.53	20.51	22.00
		1	74	20.67	20.67	20.62	22.00
		36	0	19.51	19.51	19.56	21.00
		36	18	19.58	19.69	19.54	21.00
		36	39	19.51	19.64	19.68	21.00
		75	0	19.62	19.67	19.61	21.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20850	21100	21350	
20MHz	QPSK	1	0	20.61	20.74	20.72	22.00
		1	50	20.63	20.73	20.71	22.00
		1	99	20.79	20.72	20.78	22.00
		50	0	20.48	20.54	20.59	22.00
		50	25	20.57	20.57	20.57	22.00
		50	50	20.75	20.73	20.72	22.00
		100	0	20.59	20.57	20.55	22.00
	16QAM	1	0	20.45	20.45	20.52	22.00
		1	50	20.55	20.53	20.51	22.00
		1	99	20.67	20.67	20.62	22.00
		50	0	20.48	20.54	20.59	22.00
		50	25	20.55	20.60	20.55	22.00
		50	50	20.60	20.64	20.58	22.00
		100	0	20.56	20.60	20.58	22.00
	64QAM	1	0	20.50	20.60	20.63	22.00
		1	50	20.45	20.59	20.62	22.00
		1	99	20.65	20.67	20.70	22.00
		50	0	19.49	19.65	19.71	21.00
		50	25	19.62	19.62	19.62	21.00
		50	50	19.67	19.68	19.69	21.00
		100	0	19.65	19.66	19.69	21.00

LTE Band 66				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				131979	132322	132665	
1.4MHz	QPSK	1	0	22.33	22.63	22.37	24.00
		1	2	22.34	22.42	22.20	24.00
		1	5	22.24	22.68	22.24	24.00
		3	0	22.32	22.43	22.25	24.00
		3	2	22.42	22.72	22.25	24.00
		3	3	22.28	22.39	22.19	24.00
		6	0	21.30	21.44	21.15	23.00
	16QAM	1	0	21.75	22.19	21.86	23.00
		1	2	21.53	21.81	21.72	23.00
		1	5	21.80	22.18	21.31	23.00
		3	0	21.27	21.48	21.13	23.00
		3	2	21.55	21.31	21.47	23.00
		3	3	21.41	21.23	21.27	23.00
		6	0	20.53	20.37	20.28	22.00
	64QAM	1	0	20.73	20.66	20.41	22.00
		1	2	20.96	20.34	20.12	22.00
		1	5	20.70	20.42	20.09	22.00
		3	0	20.63	20.29	20.44	21.00
		3	2	20.50	20.48	20.37	21.00
		3	3	20.67	20.66	20.65	21.00
		6	0	19.48	19.23	18.88	21.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				131987	132322	132657	
3MHz	QPSK	1	0	22.52	22.72	22.32	24.00
		1	7	22.41	22.43	22.17	24.00
		1	14	22.31	22.49	22.28	24.00
		8	0	21.36	21.51	21.30	23.00
		8	4	21.37	21.42	21.31	23.00
		8	7	21.38	21.37	21.28	23.00
		15	0	21.32	21.36	21.27	23.00
	16QAM	1	0	21.71	21.61	21.56	23.00
		1	7	21.22	21.53	21.67	23.00
		1	14	21.83	22.15	21.38	23.00
		8	0	20.57	20.60	20.33	22.00
		8	4	20.30	20.59	20.40	22.00
		8	7	20.51	20.46	20.31	22.00
		15	0	20.40	20.54	20.30	22.00
	64QAM	1	0	20.86	20.80	20.50	22.00
		1	7	21.26	21.07	21.07	22.00
		1	14	20.78	20.66	20.64	22.00
		8	0	19.33	19.30	19.45	21.00
		8	4	19.26	19.34	19.41	21.00
		8	7	19.29	19.38	19.41	21.00
		15	0	19.42	19.47	19.69	21.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				131997	132322	132647	



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5MHz	QPSK	1	0	22.52	22.54	22.39	24.00
		1	13	22.27	22.39	22.22	24.00
		1	24	22.33	22.34	22.12	24.00
		12	0	21.37	21.43	21.31	23.00
		12	6	21.28	21.48	21.28	23.00
		12	13	21.34	21.41	21.19	23.00
		25	0	21.34	21.51	21.36	23.00
	16QAM	1	0	21.74	21.32	21.52	23.00
		1	13	21.32	21.86	21.84	23.00
		1	24	21.57	21.18	21.69	23.00
		12	0	20.42	20.52	20.38	22.00
		12	6	20.38	20.52	20.38	22.00
		12	13	20.32	20.44	20.27	22.00
		25	0	20.40	20.57	20.35	22.00
	64QAM	1	0	20.84	20.16	20.51	22.00
		1	13	20.65	20.33	20.22	22.00
		1	24	20.99	20.77	20.54	22.00
		12	0	19.14	19.39	19.29	21.00
		12	6	19.26	19.41	19.13	21.00
		12	13	19.27	19.32	19.16	21.00
		25	0	19.30	19.45	19.27	21.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				132022	132322	132622	
10MHz	QPSK	1	0	22.67	22.72	22.73	24.00
		1	25	22.22	22.50	22.20	24.00
		1	49	22.41	22.83	22.55	24.00
		25	0	21.27	21.48	21.36	23.00
		25	13	21.24	21.45	21.30	23.00
		25	25	21.50	21.47	21.31	23.00
		50	0	21.43	21.46	21.25	23.00
	16QAM	1	0	21.98	21.69	22.10	23.00
		1	25	21.93	21.59	21.74	23.00
		1	49	21.80	21.78	21.67	23.00
		25	0	20.40	20.41	20.33	22.00
		25	13	20.36	20.48	20.40	22.00
		25	25	20.67	20.40	20.48	22.00
		50	0	20.42	20.49	20.33	22.00
	64QAM	1	0	20.50	20.31	20.41	22.00
		1	25	20.49	21.00	20.47	22.00
		1	49	20.65	20.61	20.60	22.00
		25	0	19.37	19.36	19.27	21.00
		25	13	19.35	19.54	19.21	21.00
		25	25	19.56	19.50	19.27	21.00
		50	0	19.48	19.54	19.41	21.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				132047	132322	132597	
15MHz	QPSK	1	0	22.61	22.52	22.73	24.00
		1	38	22.35	22.34	22.41	24.00
		1	74	22.66	22.68	22.63	24.00
		36	0	21.53	21.62	21.46	23.00
		36	18	21.45	21.61	21.47	23.00
		36	39	21.63	21.58	21.50	23.00



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	16QAM	75	0	21.64	21.63	21.60	23.00
		1	0	21.80	21.61	21.71	23.00
		1	38	21.79	22.30	21.77	23.00
		1	74	21.95	21.91	21.90	23.00
		36	0	20.57	20.56	20.47	22.00
		36	18	20.55	20.74	20.41	22.00
		36	39	20.76	20.70	20.47	22.00
		75	0	20.68	20.74	20.61	22.00
	64QAM	1	0	20.44	20.02	20.22	22.00
		1	38	20.02	20.56	20.54	22.00
		1	74	20.27	19.88	20.39	22.00
		36	0	19.22	19.32	19.18	21.00
		36	18	19.18	19.32	19.18	21.00
		36	39	19.12	19.24	19.07	21.00
		75	0	19.20	19.37	19.15	21.00
Bandwidth	Modulation	RB size	RB offset	Channel 132072	Channel 132322	Channel 132572	Tune up
20MHz	QPSK	1	0	22.75	22.85	22.64	24.00
		1	50	22.61	22.52	22.42	24.00
		1	99	22.78	23.01	22.70	24.00
		50	0	21.47	21.56	21.47	23.00
		50	25	21.45	21.51	21.38	23.00
		50	50	21.47	21.59	21.50	23.00
		100	0	21.48	21.58	21.42	23.00
	16QAM	1	0	22.14	21.46	21.81	23.00
		1	50	21.95	21.63	21.52	23.00
		1	99	22.29	22.07	21.84	23.00
		50	0	20.34	20.59	20.49	22.00
		50	25	20.46	20.61	20.33	22.00
		50	50	20.47	20.52	20.36	22.00
		100	0	20.50	20.65	20.47	22.00
	64QAM	1	0	20.68	20.39	20.80	22.00
		1	50	20.63	20.29	20.44	22.00
		1	99	20.50	20.48	20.37	22.00
		50	0	19.20	19.21	19.13	21.00
		50	25	19.16	19.28	19.20	21.00
		50	50	19.47	19.20	19.28	21.00
		100	0	19.22	19.29	19.13	21.00

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	16.45	16.55	15.45	18.00
		1	2	16.54	16.56	16.65	18.00
		1	5	16.56	16.56	16.64	18.00
		3	0	16.52	16.64	16.70	18.00
		3	2	16.55	16.58	16.68	18.00
		3	3	16.50	16.54	16.65	18.00
		6	0	16.58	16.53	16.67	18.00
	16QAM	1	0	16.85	16.90	16.97	18.00



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		1	2	16.85	16.87	19.81	18.00
		1	5	16.78	16.81	19.84	18.00
		3	0	16.52	16.62	16.71	18.00
		3	2	16.58	16.56	16.67	18.00
		3	3	16.51	16.57	16.68	18.00
		6	0	16.56	16.56	16.65	18.00
	64QAM	1	0	16.67	16.73	16.83	18.00
		1	2	16.66	16.68	16.80	18.00
		1	5	16.69	16.72	16.76	18.00
		3	0	16.42	16.49	16.61	18.00
		3	2	16.45	16.44	16.48	18.00
		3	3	16.37	16.41	16.54	18.00
		6	0	16.41	16.40	16.51	18.00
Bandwidth	Modulation	RB size	RB offset	Channel 131987	Channel 132322	Channel 132657	Tune up
3MHz	QPSK	1	0	16.45	16.51	16.56	18.00
		1	7	16.55	16.51	16.60	18.00
		1	14	16.72	16.71	16.78	18.00
		8	0	16.58	16.57	16.65	18.00
		8	4	16.54	16.49	16.63	18.00
		8	7	16.57	16.56	16.67	18.00
		15	0	16.56	16.55	16.67	18.00
	16QAM	1	0	16.58	16.74	16.85	18.00
		1	7	16.65	16.66	16.74	18.00
		1	14	16.54	16.74	16.77	18.00
		8	0	16.60	16.56	16.64	18.00
		8	4	16.55	16.52	16.63	18.00
		8	7	16.58	16.56	16.67	18.00
		15	0	16.59	16.56	16.68	18.00
	64QAM	1	0	16.81	19.80	19.85	18.00
		1	7	16.74	16.59	16.71	18.00
		1	14	19.80	16.85	16.38	18.00
		8	0	16.43	16.42	16.50	18.00
		8	4	16.43	16.44	16.48	18.00
		8	7	16.45	16.44	16.55	18.00
		15	0	16.42	16.48	16.55	18.00
Bandwidth	Modulation	RB size	RB offset	Channel 131997	Channel 132322	Channel 132647	Tune up
5MHz	QPSK	1	0	16.25	16.20	16.22	18.00
		1	13	16.51	16.40	16.49	18.00
		1	24	16.54	16.48	16.55	18.00
		12	0	16.46	16.45	16.52	18.00
		12	6	16.54	16.47	16.54	18.00
		12	13	16.51	16.50	16.56	18.00
		25	0	16.56	16.43	16.54	18.00
	16QAM	1	0	16.74	16.70	16.78	18.00
		1	13	16.80	16.66	16.78	18.00
		1	24	16.83	16.75	16.76	18.00
		12	0	16.47	16.50	16.46	18.00
		12	6	16.55	16.48	16.53	18.00
		12	13	16.49	16.50	16.55	18.00
		25	0	16.54	16.44	16.54	18.00



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		1	0	16.57	16.59	16.63	18.00
		1	13	16.63	16.54	16.60	18.00
		1	24	16.73	16.66	16.61	18.00
	64QAM	12	0	16.38	16.35	16.34	18.00
		12	6	16.45	16.32	16.40	18.00
		12	13	16.36	16.38	16.44	18.00
		25	0	16.36	16.31	16.38	18.00
Bandwidth	Modulation	RB size	RB offset	Channel 132022	Channel 132322	Channel 132622	Tune up
10MHz	QPSK	1	0	16.34	16.09	16.56	18.00
		1	25	16.53	16.68	16.62	18.00
		1	49	16.80	16.80	16.84	18.00
		25	0	16.54	16.65	16.58	18.00
		25	13	16.55	16.64	16.54	18.00
		25	25	16.60	16.73	16.65	18.00
		50	0	16.54	16.69	16.59	18.00
	16QAM	1	0	16.75	16.84	16.83	18.00
		1	25	16.62	16.76	16.66	18.00
		1	49	16.85	16.85	16.80	18.00
		25	0	16.56	16.69	16.61	18.00
		25	13	16.54	16.63	16.56	18.00
		25	25	16.57	16.68	16.60	18.00
		50	0	16.57	16.69	16.61	18.00
	64QAM	1	0	16.61	16.83	16.72	18.00
		1	25	16.52	16.64	16.52	18.00
		1	49	16.68	16.84	16.72	18.00
		25	0	16.48	16.56	16.51	18.00
		25	13	16.45	16.44	16.48	18.00
		25	25	16.41	16.57	16.48	18.00
		50	0	16.39	16.55	16.44	18.00
Bandwidth	Modulation	RB size	RB offset	Channel 132047	Channel 132322	Channel 132597	Tune up
15MHz	QPSK	1	0	16.45	16.55	16.45	18.00
		1	38	16.56	16.76	16.69	18.00
		1	74	16.51	16.66	16.59	18.00
		36	0	16.59	16.68	16.58	18.00
		36	18	16.57	16.65	16.58	18.00
		36	39	16.52	16.68	16.59	18.00
		75	0	16.56	16.69	16.61	18.00
	16QAM	1	0	16.73	16.85	16.75	18.00
		1	38	16.71	16.85	16.73	18.00
		1	74	16.66	16.79	16.72	18.00
		36	0	16.56	16.65	16.58	18.00
		36	18	16.52	16.62	16.53	18.00
		36	39	16.51	16.63	16.54	18.00
		75	0	16.55	16.70	16.63	18.00
	64QAM	1	0	16.61	16.77	16.58	18.00
		1	38	16.59	16.72	16.59	18.00
		1	74	16.48	16.68	16.64	18.00
		36	0	16.37	16.56	16.46	18.00
		36	18	16.35	16.45	16.35	18.00
		36	39	16.41	16.46	16.37	18.00



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Bandwidth	Modulation	75	0	16.45	16.53	16.52	18.00
		RB size	RB offset	Channel	Channel	Channel	Tune up
20MHz	QPSK	1	0	132072	132322	132572	18.00
		1	50	16.27	16.27	16.19	18.00
		1	99	16.54	16.53	16.49	18.00
		1	99	16.58	16.88	16.56	18.00
		50	0	16.56	16.46	16.44	18.00
		50	25	16.58	16.47	16.49	18.00
		50	50	16.59	16.60	16.55	18.00
	16QAM	100	0	16.53	16.56	16.53	18.00
		1	0	16.74	16.74	16.64	18.00
		1	50	16.82	16.72	16.76	18.00
		1	99	16.87	16.75	16.80	18.00
		50	0	16.55	16.44	16.47	18.00
		50	25	16.57	16.50	16.52	18.00
		50	50	16.58	16.46	16.57	18.00
	64QAM	100	0	16.56	16.44	16.52	18.00
		1	0	16.62	16.61	16.46	18.00
		1	50	16.71	16.61	16.59	18.00
		1	99	16.77	16.59	16.63	18.00
		50	0	16.36	16.30	16.38	18.00
		50	25	16.47	16.40	16.35	18.00
		50	50	16.49	16.34	16.45	18.00
		100	0	16.48	16.36	16.39	18.00

LTE Band 66 (Hotspot On)				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				131979	132322	132665	
1.4MHz	QPSK	1	0	15.95	15.91	15.93	17.00
		1	2	15.92	15.66	15.68	17.00
		1	5	15.82	15.54	15.54	17.00
		3	0	15.96	15.64	15.72	17.00
		3	2	15.88	15.63	15.55	17.00
		3	3	15.87	15.60	15.58	17.00
		6	0	15.98	15.60	15.64	17.00
	16QAM	1	0	15.90	15.96	15.73	17.00
		1	2	15.89	15.73	15.81	17.00
		1	5	15.89	15.72	15.77	17.00
		3	0	15.98	15.67	15.76	17.00
		3	2	15.95	15.62	15.64	17.00
		3	3	15.89	15.59	15.60	17.00
		6	0	15.94	15.68	15.73	17.00
	64QAM	1	0	15.90	15.89	15.65	17.00
		1	2	15.83	15.67	15.75	17.00
		1	5	15.77	15.63	15.71	17.00
		3	0	15.83	15.67	15.72	17.00
		3	2	15.86	15.56	15.50	17.00
		3	3	15.76	15.51	15.58	17.00
		6	0	15.86	15.56	15.73	17.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up



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				131987	132322	132657	
3MHz	QPSK	1	0	15.91	15.91	15.81	17.00
		1	7	15.88	15.61	15.59	17.00
		1	14	15.80	15.43	15.44	17.00
		8	0	15.92	15.64	15.66	17.00
		8	4	15.82	15.58	15.47	17.00
		8	7	15.81	15.59	15.50	17.00
		15	0	15.92	15.56	15.59	17.00
	16QAM	1	0	15.82	15.88	15.71	17.00
		1	7	15.83	15.62	15.77	17.00
		1	14	15.88	15.60	15.70	17.00
		8	0	15.88	15.60	15.70	17.00
		8	4	15.85	15.50	15.62	17.00
		8	7	15.85	15.50	15.60	17.00
		15	0	15.90	15.62	15.67	17.00
	64QAM	1	0	15.77	15.82	15.64	17.00
		1	7	15.75	15.58	15.63	17.00
		1	14	15.87	15.45	15.64	17.00
		8	0	15.84	15.46	15.70	17.00
		8	4	15.73	15.43	15.61	17.00
		8	7	15.84	15.39	15.52	17.00
		15	0	15.87	15.57	15.56	17.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				131997	132322	132647	
5MHz	QPSK	1	0	15.88	15.86	15.93	17.00
		1	13	15.84	15.57	15.58	17.00
		1	24	15.81	15.45	15.47	17.00
		12	0	15.96	15.57	15.60	17.00
		12	6	15.87	15.59	15.53	17.00
		12	13	15.79	15.48	15.46	17.00
		25	0	15.95	15.57	15.57	17.00
	16QAM	1	0	15.80	15.88	15.66	17.00
		1	13	15.82	15.67	15.78	17.00
		1	24	15.77	15.67	15.76	17.00
		12	0	15.93	15.67	15.70	17.00
		12	6	15.87	15.61	15.59	17.00
		12	13	15.83	15.51	15.52	17.00
		25	0	15.90	15.56	15.61	17.00
	64QAM	1	0	15.76	15.79	15.53	17.00
		1	13	15.81	15.60	15.63	17.00
		1	24	15.63	15.59	15.67	17.00
		12	0	15.91	15.67	15.69	17.00
		12	6	15.77	15.60	15.56	17.00
		12	13	15.70	15.39	15.37	17.00
		25	0	15.81	15.56	15.53	17.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				132022	132322	132622	
10MHz	QPSK	1	0	15.85	15.80	15.90	17.00
		1	25	15.84	15.60	15.61	17.00
		1	49	15.78	15.43	15.54	17.00
		25	0	15.88	15.55	15.66	17.00
		25	13	15.87	15.59	15.47	17.00



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		25	25	15.78	15.48	15.56	17.00
		50	0	15.94	15.51	15.53	17.00
	16QAM	1	0	15.90	15.87	15.71	17.00
		1	25	15.81	15.71	15.80	17.00
		1	49	15.85	15.66	15.77	17.00
		25	0	15.96	15.57	15.68	17.00
		25	13	15.90	15.59	15.63	17.00
		25	25	15.80	15.53	15.58	17.00
		50	0	15.82	15.67	15.68	17.00
		1	0	15.86	15.87	15.57	17.00
	64QAM	1	25	15.67	15.63	15.67	17.00
		1	49	15.72	15.63	15.76	17.00
		25	0	15.91	15.56	15.57	17.00
		25	13	15.90	15.54	15.50	17.00
		25	25	15.70	15.49	15.43	17.00
		50	0	15.68	15.55	15.65	17.00
		1	0	15.86	15.87	15.57	17.00
		1	25	15.67	15.63	15.67	17.00
		1	49	15.72	15.63	15.76	17.00
		25	0	15.91	15.56	15.57	17.00
		25	13	15.90	15.54	15.50	17.00
		25	25	15.70	15.49	15.43	17.00
		50	0	15.68	15.55	15.65	17.00
		1	0	15.86	15.87	15.57	17.00
		1	25	15.67	15.63	15.67	17.00
		1	49	15.72	15.63	15.76	17.00
		25	0	15.91	15.56	15.57	17.00
		25	13	15.90	15.54	15.50	17.00
		25	25	15.70	15.49	15.43	17.00
		50	0	15.68	15.55	15.65	17.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				132047	132322	132597	
15MHz	QPSK	1	0	15.87	15.88	15.82	17.00
		1	38	15.80	15.63	15.63	17.00
		1	74	15.77	15.44	15.51	17.00
		36	0	15.92	15.60	15.67	17.00
		36	18	15.88	15.54	15.47	17.00
		36	39	15.83	15.50	15.53	17.00
		75	0	15.96	15.52	15.53	17.00
		1	0	15.84	15.85	15.67	17.00
	16QAM	1	38	15.85	15.73	15.80	17.00
		1	74	15.79	15.68	15.75	17.00
		36	0	15.90	15.61	15.68	17.00
		36	18	15.85	15.55	15.62	17.00
		36	39	15.83	15.54	15.53	17.00
		75	0	15.89	15.57	15.66	17.00
		1	0	15.72	15.82	15.61	17.00
		1	38	15.76	15.64	15.65	17.00
	64QAM	1	74	15.78	15.59	15.63	17.00
		36	0	15.81	15.54	15.60	17.00
		36	18	15.80	15.47	15.53	17.00
		36	39	15.76	15.41	15.41	17.00
		75	0	15.76	15.44	15.54	17.00
		1	0	15.84	15.81	15.80	17.00
		1	50	15.81	15.77	15.81	17.00
		1	99	15.86	16.06	15.62	17.00
		50	0	15.65	15.75	15.65	17.00
		50	25	15.55	15.74	15.62	17.00
		50	50	15.71	15.76	15.69	17.00
		100	0	15.82	15.84	15.69	17.00
	16QAM	1	0	16.01	16.05	15.74	17.00
		1	50	15.99	15.80	15.84	17.00
		1	99	15.98	15.83	15.77	17.00
		50	0	16.00	15.70	15.79	17.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				132072	132322	132572	
20MHz	QPSK	1	0	15.84	15.81	15.80	17.00
		1	50	15.81	15.77	15.81	17.00
		1	99	15.86	16.06	15.62	17.00
		50	0	15.65	15.75	15.65	17.00
		50	25	15.55	15.74	15.62	17.00
		50	50	15.71	15.76	15.69	17.00
		100	0	15.82	15.84	15.69	17.00
	16QAM	1	0	16.01	16.05	15.74	17.00
		1	50	15.99	15.80	15.84	17.00
		1	99	15.98	15.83	15.77	17.00
		50	0	16.00	15.70	15.79	17.00



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		50	25	16.05	15.72	15.68	17.00
		50	50	15.89	15.59	15.70	17.00
		100	0	16.04	15.68	15.79	17.00
	64QAM	1	0	15.93	15.97	15.61	17.00
		1	50	15.94	15.75	15.74	17.00
		1	99	15.85	15.82	15.69	17.00
		50	0	15.97	15.58	15.68	17.00
		50	25	16.02	15.71	15.55	17.00
		50	50	15.79	15.51	15.59	17.00
		100	0	15.99	15.63	15.64	17.00

LTE Band 66 (Handheld)				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				131979	132322	132665	
1.4MHz	QPSK	1	0	19.93	19.75	19.94	21.00
		1	2	19.94	19.98	19.66	21.00
		1	5	19.91	19.76	19.72	21.00
		3	0	19.98	19.70	19.73	21.00
		3	2	19.93	19.88	19.84	21.00
		3	3	19.95	19.80	19.77	21.00
		6	0	19.85	19.79	19.68	21.00
	16QAM	1	0	20.01	20.02	19.75	21.00
		1	2	19.99	20.00	20.04	21.00
		1	5	19.98	19.96	19.88	21.00
		3	0	19.94	19.86	19.77	21.00
		3	2	20.02	19.85	19.87	21.00
		3	3	19.84	19.80	19.75	21.00
		6	0	19.96	19.82	19.93	21.00
	64QAM	1	0	19.92	19.99	19.74	21.00
		1	2	19.86	19.97	19.90	21.00
		1	5	19.86	19.86	19.78	21.00
		3	0	19.93	19.85	19.74	21.00
		3	2	19.98	19.81	19.76	21.00
		3	3	19.74	19.79	19.64	21.00
		6	0	19.85	19.77	19.82	21.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				131987	132322	132657	
3MHz	QPSK	1	0	19.87	19.91	19.93	21.00
		1	7	19.93	19.69	19.82	21.00
		1	14	19.86	19.76	19.66	21.00
		8	0	19.93	19.91	19.76	21.00
		8	4	19.97	19.77	19.82	21.00
		8	7	19.86	19.73	19.74	21.00
		15	0	19.85	19.77	19.80	21.00
	16QAM	1	0	19.96	19.95	19.96	21.00
		1	7	19.91	19.99	19.97	21.00
		1	14	19.95	19.88	20.05	21.00
		8	0	19.99	19.89	19.78	21.00
		8	4	20.03	19.86	19.78	21.00
		8	7	19.95	19.86	19.78	21.00



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		15	0	20.05	19.82	19.84	21.00
	64QAM	1	0	19.90	19.92	19.84	21.00
		1	7	19.84	19.98	19.93	21.00
		1	14	19.80	19.85	20.04	21.00
		8	0	19.90	19.75	19.64	21.00
		8	4	19.98	19.85	19.78	21.00
		8	7	19.90	19.75	19.66	21.00
		15	0	19.96	19.72	19.83	21.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				131997	132322	132647	
5MHz	QPSK	1	0	19.94	19.78	19.86	21.00
		1	13	19.87	19.91	19.86	21.00
		1	24	19.76	19.69	19.80	21.00
		12	0	20.00	19.76	19.97	21.00
		12	6	19.92	19.84	19.85	21.00
		12	13	19.81	19.82	19.81	21.00
		25	0	19.96	19.88	19.88	21.00
	16QAM	1	0	20.04	19.98	20.03	21.00
		1	13	20.05	19.95	19.89	21.00
		1	24	20.05	19.77	19.94	21.00
		12	0	20.02	19.79	19.88	21.00
		12	6	20.02	19.92	19.82	21.00
		12	13	19.91	19.73	19.78	21.00
		25	0	19.89	19.91	19.84	21.00
	64QAM	1	0	19.93	19.87	19.92	21.00
		1	13	19.94	19.87	19.86	21.00
		1	24	19.90	19.62	19.86	21.00
		12	0	19.97	19.77	19.88	21.00
		12	6	19.95	19.85	19.79	21.00
		12	13	19.86	19.58	19.68	21.00
		25	0	19.85	19.81	19.80	21.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				132022	132322	132622	
10MHz	QPSK	1	0	19.84	19.83	19.96	21.00
		1	25	20.02	19.94	20.01	21.00
		1	49	20.04	19.94	19.75	21.00
		25	0	20.05	19.85	19.98	21.00
		25	13	20.03	19.83	20.00	21.00
		25	25	19.96	19.85	19.99	21.00
		50	0	19.95	19.96	19.92	21.00
	16QAM	1	0	19.87	19.94	19.81	21.00
		1	25	20.04	20.01	20.01	21.00
		1	49	20.08	19.91	19.56	21.00
		25	0	19.93	19.94	19.99	21.00
		25	13	20.02	19.88	19.98	21.00
		25	25	19.96	19.86	20.01	21.00
		50	0	20.01	19.89	19.95	21.00
	64QAM	1	0	19.84	19.80	19.66	21.00
		1	25	19.91	20.00	19.97	21.00
		1	49	19.98	19.89	19.53	21.00
		25	0	19.91	19.85	19.92	21.00
		25	13	20.02	19.81	19.89	21.00



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		25	25	19.96	19.86	19.98	21.00
		50	0	19.94	19.83	19.95	21.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				132047	132322	132597	
15MHz	QPSK	1	0	19.96	19.86	19.92	21.00
		1	38	19.79	19.89	19.82	21.00
		1	74	20.00	20.02	20.08	21.00
		36	0	19.90	19.98	20.07	21.00
		36	18	19.90	19.74	19.86	21.00
		36	39	19.95	19.87	20.00	21.00
		75	0	19.89	19.90	19.98	21.00
	16QAM	1	0	20.04	19.96	19.84	21.00
		1	38	19.91	19.94	20.05	21.00
		1	74	20.11	20.01	20.06	21.00
		36	0	19.98	19.96	20.07	21.00
		36	18	19.90	19.91	19.94	21.00
		36	39	19.99	19.79	20.00	21.00
		75	0	19.91	19.98	20.09	21.00
	64QAM	1	0	19.90	19.85	19.74	21.00
		1	38	19.87	19.80	20.01	21.00
		1	74	20.07	19.88	19.97	21.00
		36	0	19.98	19.96	20.02	21.00
		36	18	19.80	19.84	19.89	21.00
		36	39	19.93	19.72	19.95	21.00
		75	0	19.81	19.84	20.07	21.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				132072	132322	132572	
20MHz	QPSK	1	0	19.99	19.89	19.99	21.00
		1	50	19.97	19.89	19.98	21.00
		1	99	20.09	20.13	20.07	21.00
		50	0	20.00	20.01	19.93	21.00
		50	25	19.84	19.96	19.89	21.00
		50	50	20.01	20.02	19.94	21.00
		100	0	19.92	20.07	20.06	21.00
	16QAM	1	0	20.01	20.05	20.10	21.00
		1	50	20.02	20.08	20.01	21.00
		1	99	19.97	19.80	19.91	21.00
		50	0	20.03	20.08	20.03	21.00
		50	25	19.88	20.03	20.09	21.00
		50	50	19.90	19.81	20.08	21.00
		100	0	20.02	20.03	20.08	21.00
	64QAM	1	0	19.88	19.97	19.98	21.00
		1	50	20.02	19.93	19.91	21.00
		1	99	19.92	19.80	19.84	21.00
		50	0	19.99	20.00	20.12	21.00
		50	25	19.87	19.99	20.00	21.00
		50	50	19.88	19.75	19.98	21.00
		100	0	19.88	19.99	20.08	21.00

Table 12: Conducted Power of LTE

8.1.2 Conducted Power of WIFI and BT

Mode full power	Channel	Frequency(MHz)	Data Rate(Mbps)	Tune up	Average Power (dBm)	SAR Test
802.11b	1	2412	1	19.50	18.74	Yes
	6	2437		19.50	18.79	Yes
	11	2462		19.50	18.87	Yes
802.11g	1	2412	6	15.00	14.08	No
	6	2437		15.00	14.20	No
	11	2462		15.00	14.19	No
802.11n HT20 SISO	1	2412	6.5	14.50	13.48	No
	6	2437		14.50	13.70	No
	11	2462		14.50	13.69	No
802.11n HT40 SISO	3	2422	13.5	14.50	13.85	No
	6	2437		14.50	14.23	No
	9	2452		14.50	13.90	No

Mode reduce power	Channel	Frequency(MHz)	Data Rate(Mbps)	Tune up	Average Power (dBm)	SAR Test
802.11b	1	2412	1	19.00	18.09	Yes
	6	2437		19.00	18.10	Yes
	11	2462		19.00	18.13	Yes
802.11g	1	2412	6	15.00	14.08	No
	6	2437		15.00	14.20	No
	11	2462		15.00	14.19	No
802.11n HT20 SISO	1	2412	6.5	14.50	13.48	No
	6	2437		14.50	13.70	No
	11	2462		14.50	13.69	No
802.11n HT40 SISO	3	2422	13.5	14.50	13.85	No
	6	2437		14.50	14.23	No
	9	2452		14.50	13.90	No



5GHz	mode	Channel	Frequency(MHz)	Data Rate(Mbps)	Tune up	Average Power (dBm)	SAR Test
802.11a	U-NII-1	36	5180	6	18.00	17.33	No
		40	5200		18.00	17.7	No
		44	5220		18.00	17.31	No
		48	5240		18.00	17.69	No
	U-NII-2A	52	5260		18.00	17.72	No
		56	5280		18.00	17.54	No
		60	5300		18.00	17.73	Yes
		64	5320		18.00	17.51	No
	U-NII-2C	100	5500		18.00	17.29	Yes
		104	5520		18.00	17.24	No
		108	5540		18.00	17.13	No
		112	5560		18.00	17.21	No
		116	5580		18.00	17.42	Yes
		120	5600		18.00	17.12	No
		124	5620		18.00	17.11	No
		128	5640		18.00	17.22	No
		132	5660		18.00	17.23	No
		136	5680		18.00	17.2	No
		140	5700		18.00	17.24	Yes
		144	5720		18.00	17.12	No
	U-NII-3	149	5745		18.00	17.56	No
		153	5765		18.00	17.51	No
		157	5785		18.00	17.62	Yes
		161	5805		18.00	17.51	No
		165	5825		18.00	17.54	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	17.50	16.72	No
		40	5200		17.50	16.86	No
		44	5220		17.50	17.08	No
		48	5240		17.50	17.29	No
	U-NII-2A	52	5260		17.50	17.27	No
		56	5280		17.50	17.08	No
		60	5300		17.50	16.93	No
		64	5320		17.50	16.52	No
	U-NII-2C	100	5500		17.50	16.79	No
		104	5520		17.50	16.80	No
		108	5540		17.50	16.79	No
		112	5560		17.50	16.75	No
		116	5580		17.50	16.75	No
		120	5600		17.50	16.59	No
		124	5620		17.50	16.62	No
		128	5640		17.50	16.65	No
		132	5660		17.50	16.54	No
		136	5680		17.50	16.51	No



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	U-NII-3	140	5700		17.50	16.69	No
		144	5720		17.50	16.67	No
		149	5745		17.50	16.89	No
		153	5765		17.50	17.05	No
		157	5785		17.50	17.10	No
		161	5805		17.50	17.19	No
		165	5825		17.50	17.16	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	15.00	14.34	No
		46	5230		15.00	14.72	No
	U-NII-2A	54	5270		15.00	14.74	No
		62	5310		15.00	14.49	No
	U-NII-2C	102	5510		15.00	14.58	No
		110	5550		15.00	14.35	No
		118	5590		15.00	14.34	No
		126	5630		15.00	14.11	No
		134	5670		15.00	14.15	No
		142	5710		15.00	14.08	No
	U-NII-3	151	5755		15.00	14.47	No
		159	5795		15.00	14.84	No
5GHz	mode	Channel	Frequency(MHz)	Data Rate(Mbps)	Tune up	Average Power (dBm)	SAR Test
802.11ac-20	U-NII-1	36	5180	MCS0	16.00	15.02	No
		40	5200		16.00	15.16	No
		44	5220		16.00	15.38	No
		48	5240		16.00	15.59	No
	U-NII-2A	52	5260		16.00	15.57	No
		56	5280		16.00	15.38	No
		60	5300		16.00	15.23	No
		64	5320		16.00	14.82	No
	U-NII-2C	100	5500		16.00	15.09	No
		104	5520		16.00	15.10	No
		108	5540		16.00	15.09	No
		112	5560		16.00	15.05	No
		116	5580		16.00	15.05	No
		120	5600		16.00	14.89	No
		124	5620		16.00	14.92	No
		128	5640		16.00	14.95	No
		132	5660		16.00	14.84	No
		136	5680		16.00	14.81	No
		140	5700		16.00	14.99	No
		144	5720		16.00	14.97	No
	U-NII-3	149	5745		16.00	15.19	No
		153	5765		16.00	15.35	No
		157	5785		16.00	15.40	No
		161	5805		16.00	15.49	No



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5GHz	mode	165 Channel	5825 Frequency(MHz)	Data Rate(Mbps)	16.00 Tune up	15.46 Average Power (dBm)	No SAR Test
802.11ac-40	U-NII-1	38	5190	MCS0	16.00	15.34	No
		46	5230		16.00	15.72	No
	U-NII-2A	54	5270		16.00	15.74	No
		62	5310		16.00	15.49	No
	U-NII-2C	102	5510		16.00	15.58	No
		110	5550		16.00	15.35	No
		118	5590		16.00	15.34	No
		126	5630		16.00	15.11	No
		134	5670		16.00	15.15	No
		142	5710		16.00	15.08	No
	U-NII-3	151	5755		16.00	15.47	No
		159	5795		16.00	15.84	No
5GHz	mode	Channel	Frequency(MHz)	Data Rate(Mbps)	Tune up	Average Power (dBm)	SAR Test
802.11ac 80M	U-NII-1	42	5210	MCS0	14.50	13.69	No
	U-NII-2A	58	5290		14.50	13.83	No
	U-NII-2C	106	5530		14.50	12.52	No
		122	5610		14.50	13.43	No
		138	5690		14.50	12.93	No
	U-NII-3	155	5775		14.50	13.74	No

5GHz-Hotspot on	mode	Channel	Frequency(MHz)	Data Rate(Mbps)	Tune up	Average Power (dBm)	SAR Test
802.11a	U-NII-1	36	5180	6	17.00	16.36	Yes
		40	5200		17.00	16.59	Yes
		44	5220		17.00	16.24	No
		48	5240		17.00	16.34	Yes
	U-NII-3	149	5745		16.00	15.56	Yes
		153	5765		16.00	15.48	No
		157	5785		16.00	15.59	Yes
		161	5805		16.00	15.51	No
		165	5825		16.00	15.52	Yes

Table 13: Conducted Power of WiFi

Note:

- Power must be measured at each transmit antenna port according to the DSSS and OFDM transmission configurations in each standalone and aggregated frequency band.
- Power measurement is required for the transmission mode configuration with the highest maximum output power specified for production units.
 - 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.
 - 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.
- 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.



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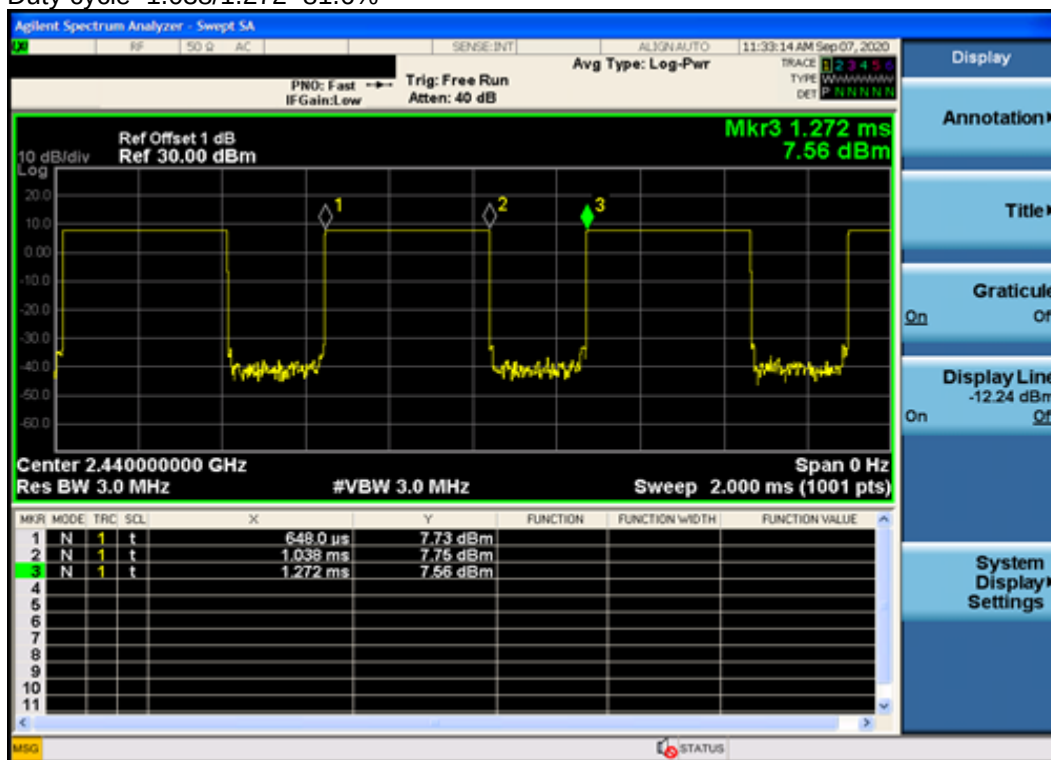
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Table 14: BT		Average Conducted Power(dBm)			
Band	Channel	0	39	78	Tune up
BT	GFSK	12.83	12.75	12.69	13.50
	$\pi/4$ DQPSK	10.21	10.11	10.08	11.00
	8DPSK	10.35	10.27	10.31	11.00
Band	Channel	0	19	39	Tune up
BLE	GFSK	7.22	7.41	7.71	8.00

Table 15: Conducted Power of BT

Bluetooth DH5(GFSK):

Duty cycle=1.038/1.272=81.6%



8.2 Stand-alone SAR test evaluation

Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and Product specific 10g 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 (Yes/No)
			dBm	mW				
Wi-Fi	2.462	Head	19.00	79.43	0	24.9	3	No
		Body-worn	19.50	89.13	5	28.0	3	No
		hotspot	19.50	89.13	5	28.0	3	No
Wi-Fi	5	Head	18.00	63.10	0	28.2	3	No
		Body-worn	18.00	63.10	5	28.2	3	No
		hotspot	17.00	50.12	5	22.4	3	No
Bluetooth	2.48	Head	13.50	22.39	0	7.1	3	No
		Body-worn	13.50	22.39	5	7.1	3	No
		hotspot	13.50	22.39	5	7.1	3	No

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:

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

- $f(\text{GHz})$ 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.

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:

- $(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm}) \cdot [\sqrt{f(\text{GHz})}/x] \text{ W/kg}$ for test separation distances ≤ 50 mm;

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

When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.



8.3 Measurement of SAR Data

8.3.1 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	0.196	0.18	32.15	33.50	1.365	0.267	22.1
Left tilted	GSM	190/836.6	1:8.3	0.104	0.11	32.15	33.50	1.365	0.142	22.1
Right cheek	GSM	190/836.6	1:8.3	0.193	0.15	32.15	33.50	1.365	0.263	22.1
Right tilted	GSM	190/836.6	1:8.3	0.100	0.02	32.15	33.50	1.365	0.136	22.1
Body worn Test data(Separate 5mm)										
Front side	GSM	190/836.6	1:8.3	0.479	0.05	32.15	33.50	1.365	0.654	22.1
Back side	GSM	190/836.6	1:8.3	0.867	0.08	32.15	33.50	1.365	1.183	22.1
Back side	GSM	128/824.2	1:8.3	0.913	0.02	32.11	33.50	1.377	1.257	22.1
Back side	GSM	251/848.8	1:8.3	0.815	0.05	32.15	33.50	1.365	1.112	22.1
Back side with headset	GSM	128/824.2	1:8.3	0.937	-0.04	32.11	33.50	1.377	1.290	22.1
Back side with headset repeat	GSM	128/824.2	1:8.3	0.930	0.14	32.11	33.50	1.377	1.281	22.1
Hotspot Test data(Separate 5mm)										
Front side	GPRS 2TS	190/836.6	1:4.15	0.491	-0.09	29.61	31.50	1.545	0.759	22.1
Back side	GPRS 2TS	190/836.6	1:4.15	0.908	-0.07	29.61	31.50	1.545	1.403	22.1
Left side	GPRS 2TS	190/836.6	1:4.15	0.271	0.18	29.61	31.50	1.545	0.419	22.1
Right side	GPRS 2TS	190/836.6	1:4.15	0.404	0.27	29.61	31.50	1.545	0.624	22.1
Bottom side	GPRS 2TS	190/836.6	1:4.15	0.276	0.13	29.61	31.50	1.545	0.426	22.1
Back side	GPRS 2TS	128/824.2	1:4.15	0.959	-0.06	29.59	31.50	1.552	1.489	22.1
Back side repeat	GPRS 2TS	128/824.2	1:4.15	0.948	0.13	29.59	31.50	1.552	1.472	22.1
Back side	GPRS 2TS	251/848.8	1:4.15	0.785	-0.01	29.70	31.50	1.514	1.188	22.1
Test position	Test mode	Test Ch./Freq.	Duty Cycle	SAR (W/kg)10-g	Power Drift(dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR(W/kg)	Liquid Temp
Product specific 10g SAR Test data(Separate 0mm)										
Back side	GPRS 2TS	190/836.6	1:8.3	0.601	0.05	29.61	31.50	1.545	0.929	22.1

Table 16: SAR of GSM850 for Head, Body and Product specific 10g SAR(Variant).

Note:

- The maximum Scaled SAR value is marked in bold. Graph results refer to Appendix B.
- Per KDB447498 D01, testing of other required channels within the operating mode of a frequency band is not required when the reported 1-g or 10-g SAR for the mid-band or highest output power channel is:
 - $\leq 0.8\text{W/kg}$ for 1-g or 2.0W/kg for 10-g respectively, when the transmission band is $\leq 100\text{MHz}$.
 - $\leq 0.6\text{ W/kg}$ or 1.5 W/kg , for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz.
 - $\leq 0.4\text{ W/kg}$ or 1.0 W/kg , for 1-g or 10-g respectively, when the transmission band is $\geq 200\text{ MHz}$.

Test Position	Channel/ Frequency	Measured SAR (1g)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
	(MHz)		SAR (1g)		SAR (1g)	SAR (1g)
Back side with headset	128/824.2	0.937	0.930	1.008	N/A	N/A
Back side	128/824.2	0.959	0.948	1.012	N/A	N/A

Note: 1) When the original highest measured SAR is $\geq 0.80\text{ W/kg}$, 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 $\geq 1.45\text{ W/kg}$ ($\sim 10\%$ from the 1-g SAR limit).

3) A third repeated measurement was performed only if the original, first or second repeated measurement was $\geq 1.5\text{ W/kg}$ 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 $< 0.80\text{ W/kg}$



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8.3.2 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	0.017	0.05	29.40	30.50	1.288	0.022	22.3
Left tilted	GSM	661/1880	1:8.3	0.017	-0.06	29.40	30.50	1.288	0.021	22.3
Right cheek	GSM	661/1880	1:8.3	0.021	0.09	29.40	30.50	1.288	0.027	22.3
Right tilted	GSM	661/1880	1:8.3	0.012	-0.14	29.40	30.50	1.288	0.016	22.3
Body worn Test data(Separate 5mm) sensor on										
Front side	GSM	661/1880	1:8.3	0.271	0.09	26.24	27.50	1.337	0.362	22.3
Back side	GSM	661/1880	1:8.3	0.665	0.15	26.24	27.50	1.337	0.889	22.3
Back side	GSM	512/1850.2	1:8.3	0.717	0.08	26.18	27.50	1.355	0.972	22.3
Back side	GSM	810/1909.8	1:8.3	0.636	0.06	26.17	27.50	1.358	0.864	22.3
Back side with headset	GSM	512/1850.2	1:8.3	0.727	0.02	26.18	27.50	1.355	0.985	22.3
Body worn Test data(Separate 5mm) sensor off										
Front side-10mm	GSM	661/1880	1:8.3	0.129	0.07	29.40	30.50	1.288	0.166	22.3
Back side-17mm	GSM	661/1880	1:8.3	0.142	0.19	29.40	30.50	1.288	0.183	22.3
Hotspot Test data(Separate 5mm)										
Front side	GPRS 3TS	661/1880	1:2.77	0.280	0.04	22.62	23.00	1.091	0.306	22.3
Back side	GPRS 3TS	661/1880	1:2.77	0.680	0.15	22.62	23.00	1.091	0.742	22.3
Left side	GPRS 3TS	661/1880	1:2.77	0.061	0.03	22.62	23.00	1.091	0.066	22.3
Right side	GPRS 3TS	661/1880	1:2.77	0.042	-0.12	22.62	23.00	1.091	0.046	22.3
Bottom side	GPRS 3TS	661/1880	1:2.77	0.729	-0.07	22.62	23.00	1.091	0.796	22.3
Test position	Test mode	Test Ch./Freq.	Duty Cycle	SAR (W/kg)10-g	Power Drift(dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR(W/kg)	Liquid Temp
Product specific 10g SAR Test data(Separate 0mm)										
Back side	GPRS 3TS	661/1880	1:2.77	0.831	0.07	25.11	26.00	1.227	1.020	22.3
Bottom side	GPRS 3TS	661/1880	1:2.77	1.300	-0.03	25.11	26.00	1.227	1.596	22.3

Table 17: SAR of GSM1900 for Head, Body and Product specific 10g SAR(Variant).

Note:

- The maximum Scaled SAR value is marked in bold. Graph results refer to Appendix B.
- Per KDB447498 D01, testing of other required channels within the operating mode of a frequency band is not required when the reported 1-g or 10-g SAR for the mid-band or highest output power channel is:
 - ≤ 0.8W/kg for 1-g or 2.0W/kg for 10-g respectively, when the transmission band is ≤ 100MHz.
 - ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz.
 - ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz.

8.3.3 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	0.149	0.03	23.14	24.00	1.219	0.182	22.3
Left tilted	RMC	9400/1880	1:1	0.142	0.01	23.14	24.00	1.219	0.173	22.3
Right cheek	RMC	9400/1880	1:1	0.191	-0.08	23.14	24.00	1.219	0.233	22.3
Right tilted	RMC	9400/1880	1:1	0.146	0.03	23.14	24.00	1.219	0.178	22.3
Body Worn Test data(Separate 5mm) sensor on										
Front side	RMC	9400/1880	1:1	0.551	0.03	17.15	18.00	1.216	0.670	22.3
Back side	RMC	9400/1880	1:1	1.030	-0.07	17.15	18.00	1.216	1.253	22.3
Back side	RMC	9262/1852.4	1:1	0.887	0.03	17.09	18.00	1.233	1.094	22.3
Back side	RMC	9538/1907.6	1:1	0.809	0.01	17.05	18.00	1.245	1.007	22.3
Back side with headset	RMC	9400/1880	1:1	0.982	0.02	17.15	18.00	1.216	1.194	22.3
Body Worn Test data(Separate 5mm) sensor off										
Front side-10mm	RMC	9400/1880	1:1	0.881	0.03	23.14	24.00	1.219	1.074	22.3
Back side-17mm	RMC	9400/1880	1:1	0.680	0.01	23.14	24.00	1.219	0.829	22.3
Front side-10mm	RMC	9262/1852.4	1:1	0.962	0.03	23.08	24.00	1.236	1.189	22.3
Front side-10mm	RMC	9538/1907.6	1:1	0.847	0.02	23.06	24.00	1.242	1.052	22.3
Back side-17mm	RMC	9262/1852.4	1:1	0.656	0.01	23.08	24.00	1.236	0.811	22.3
Back side-17mm	RMC	9538/1907.6	1:1	0.681	0.03	23.06	24.00	1.242	0.846	22.3
Hotspot Test data(Separate 5mm)										
Front side	RMC	9400/1880	1:1	0.551	0.03	17.15	18.00	1.216	0.670	22.3
Back side	RMC	9400/1880	1:1	1.030	-0.03	17.15	18.00	1.216	1.253	22.3
Left side	RMC	9400/1880	1:1	0.082	-0.03	15.58	16.50	1.236	0.102	22.3
Right side	RMC	9400/1880	1:1	0.022	0.06	15.58	16.50	1.236	0.027	22.3
Bottom side	RMC	9400/1880	1:1	1.170	0.02	15.58	16.50	1.236	1.446	22.3
Bottom side-repeat	RMC	9400/1880	1:1	1.140	0.01	15.58	16.50	1.236	1.409	22.3
Back side	RMC	9262/1852.4	1:1	0.887	0.03	17.09	18.00	1.233	1.094	22.3
Back side	RMC	9538/1907.6	1:1	0.809	0.01	17.05	18.00	1.245	1.007	22.3
Bottom side	RMC	9262/1852.4	1:1	1.070	0.03	15.45	16.50	1.274	1.363	22.3
Bottom side	RMC	9538/1907.6	1:1	1.110	0.01	15.55	16.50	1.245	1.381	22.3
Test position	Test mode	Test Ch./Freq.	Duty Cycle	SAR (W/kg)10-g	Power Drift(dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR(W/kg)	Liquid Temp
Product specific 10g SAR Test data(Separate 0mm) sensor on										
Front side	RMC	9400/1880	1:1	0.862	-0.03	18.90	20.00	1.288	1.110	22.3
Back side	RMC	9400/1880	1:1	1.770	-0.01	18.90	20.00	1.288	2.280	22.3
Bottom side	RMC	9400/1880	1:1	2.120	0.03	18.90	20.00	1.288	2.731	22.3
Back side	RMC	9262/1852.4	1:1	1.850	-0.03	18.82	20.00	1.312	2.428	22.3
Back side	RMC	9538/1907.6	1:1	1.730	0.05	18.81	20.00	1.315	2.275	22.3
Bottom side	RMC	9262/1852.4	1:1	2.170	0.01	18.82	20.00	1.312	2.847	22.3
Bottom side	RMC	9538/1907.6	1:1	2.120	0.05	18.81	20.00	1.315	2.788	22.3
Product specific 10g SAR Test data(Separate 0mm) sensor off										
Front side-4mm	RMC	9400/1880	1:1	0.991	0.03	23.14	24.00	1.219	1.208	22.3
Back side-6mm	RMC	9400/1880	1:1	1.410	0.01	23.14	24.00	1.219	1.719	22.3
Right side-5mm	RMC	9400/1880	1:1	0.115	0.03	23.14	24.00	1.219	0.140	22.3
Bottom side-7mm	RMC	9400/1880	1:1	1.540	0.05	23.14	24.00	1.219	1.877	22.3

Table 18: SAR of WCDMA Band II for Head, Body and Product specific 10g SAR(original report ZR/2020/8000602).

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										
Right cheek	RMC	9400/1880	1:1	0.107	0.08	23.14	24.00	1.219	0.130	22.3
Body Worn Test data(Separate 5mm) sensor on										
Back side-repeat	RMC	9400/1880	1:1	0.857	-0.06	17.15	18.00	1.216	1.042	22.3
Hotspot Test data(Separate 5mm)										
Bottom side	RMC	9400/1880	1:1	1.170	0.02	15.58	16.50	1.236	1.446	22.3
Test position	Test mode	Test Ch./Freq.	Duty Cycle	SAR (W/kg)10-g	Power Drift(dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR(W/kg)	Liquid Temp
Product specific 10g SAR Test data(Separate 0mm) sensor on										
Bottom side	RMC	9262/1852.4	1:1	1.740	-0.15	18.82	20.00	1.312	2.283	22.3

Table 19: SAR of WCDMA Band II for Head, Body and Product specific 10g SAR(Variant).

Note:

- The maximum Scaled SAR value is marked in bold. Graph results refer to Appendix B.
- Per KDB447498 D01, testing of other required channels within the operating mode of a frequency band is not required when the reported 1-g or 10-g SAR for the mid-band or highest output power channel is:
 - ≤ 0.8W/kg for 1-g or 2.0W/kg for 10-g respectively, when the transmission band is ≤ 100MHz.
 - ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz.
 - ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz.

Test Position	Channel/ Frequency	Measured SAR (1g)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
	(MHz)		SAR (1g)		SAR (1g)	SAR (1g)
Bottom side	9400/1880	1.170	1.140	1.026	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



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8.3.4 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	0.181	0.01	23.18	24.00	1.208	0.219	22.3
Left tilted	RMC	1412/1732.4	1:1	0.147	-0.04	23.18	24.00	1.208	0.178	22.3
Right cheek	RMC	1412/1732.4	1:1	0.229	0.02	23.18	24.00	1.208	0.277	22.3
Right tilted	RMC	1412/1732.4	1:1	0.156	0.07	23.18	24.00	1.208	0.188	22.3
Body Worn Test data(Separate 5mm) sensor on										
Front side	RMC	1412/1732.4	1:1	0.510	0.05	17.09	18.00	1.233	0.629	22.3
Back side	RMC	1412/1732.4	1:1	0.989	0.01	17.09	18.00	1.233	1.220	22.3
Back side	RMC	1312/1712.4	1:1	0.964	0.05	16.99	18.00	1.262	1.216	22.3
Back side	RMC	1513/1752.6	1:1	1.140	0.02	17.11	18.00	1.227	1.399	22.3
Back side-repeat	RMC	1513/1752.6	1:1	1.120	-0.06	17.11	18.00	1.227	1.375	22.3
Back side with headset	RMC	1513/1752.6	1:1	0.984	0.03	17.11	18.00	1.227	1.208	22.3
Body Worn Test data(Separate 5mm) sensor off										
Front side-10mm	RMC	1412/1732.4	1:1	0.945	0.03	23.18	24.00	1.208	1.141	22.3
Back side-17mm	RMC	1412/1732.4	1:1	0.613	0.01	23.18	24.00	1.208	0.740	22.3
Front side-10mm	RMC	1312/1712.4	1:1	0.917	0.05	23.11	24.00	1.227	1.126	22.3
Front side-10mm	RMC	1513/1752.6	1:1	0.912	-0.03	23.09	24.00	1.233	1.125	22.3
Hotspot Test data(Separate 5mm)										
Front side	RMC	1412/1732.4	1:1	0.510	0.05	17.09	18.00	1.233	0.629	22.3
Back side	RMC	1412/1732.4	1:1	0.989	0.01	17.09	18.00	1.233	1.220	22.3
Left side	RMC	1412/1732.4	1:1	0.063	0.01	16.11	17.00	1.227	0.077	22.3
Right side	RMC	1412/1732.4	1:1	0.055	0.03	16.11	17.00	1.227	0.068	22.3
Bottom side	RMC	1412/1732.4	1:1	1.070	0.02	16.11	17.00	1.227	1.313	22.3
Back side	RMC	1312/1712.4	1:1	0.964	0.05	16.99	18.00	1.262	1.216	22.3
Back side	RMC	1513/1752.6	1:1	1.140	-0.03	17.11	18.00	1.227	1.399	22.3
Bottom side	RMC	1312/1712.4	1:1	1.110	0.05	15.99	17.00	1.262	1.401	22.3
Bottom side	RMC	1513/1752.6	1:1	1.030	0.03	16.12	17.00	1.225	1.261	22.3
Test position	Test mode	Test Ch./Freq.	Duty Cycle	SAR (W/kg)10-g	Power Drift(dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR(W/kg)	Liquid Temp
Product specific 10g SAR Test data(Separate 0mm) sensor on										
Front side	RMC	1412/1732.4	1:1	1.200	-0.07	20.05	21.00	1.245	1.493	22.3
Back side	RMC	1412/1732.4	1:1	2.090	-0.05	20.05	21.00	1.245	2.601	22.3
Bottom side	RMC	1412/1732.4	1:1	1.890	0.07	20.05	21.00	1.245	2.352	22.3
Back side	RMC	1312/1712.4	1:1	2.140	0.03	19.85	21.00	1.303	2.789	22.3
Back side	RMC	1513/1752.6	1:1	2.060	0.08	19.91	21.00	1.285	2.648	22.3
Bottom side	RMC	1312/1712.4	1:1	2.160	0.04	19.85	21.00	1.303	2.815	22.3
Bottom side	RMC	1513/1752.6	1:1	2.000	0.04	19.91	21.00	1.285	2.571	22.3
Product specific 10g SAR Test data(Separate 0mm) sensor off										
Front side-4mm	RMC	1412/1732.4	1:1	1.300	0.03	23.18	24.00	1.208	1.570	22.3
Back side-6mm	RMC	1412/1732.4	1:1	1.500	0.01	23.18	24.00	1.208	1.812	22.3
Right side-5mm	RMC	1412/1732.4	1:1	0.198	0.05	23.18	24.00	1.208	0.239	22.3
Bottom side-7mm	RMC	1412/1732.4	1:1	1.500	0.02	23.18	24.00	1.208	1.812	22.3

Table 20: SAR of WCDMA Band IV for Head, Body and Product specific 10g SAR(original report ZR/2020/8000602).



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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										
Right cheek	RMC	1412/1732.4	1:1	0.198	0.01	23.18	24.00	1.208	0.239	22.3
Body Worn Test data(Separate 5mm) sensor on										
Back side	RMC	1513/1752.6	1:1	1.050	0.14	17.11	18.00	1.227	1.289	22.3
Hotspot Test data(Separate 5mm)										
Bottom side	RMC	1312/1712.4	1:1	1.090	0.05	15.99	17.00	1.262	1.375	22.3
Test position	Test mode	Test Ch./Freq.	Duty Cycle	SAR (W/kg)10-g	Power Drift(dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR(W/kg)	Liquid Temp
Product specific 10g SAR Test data(Separate 0mm) sensor on										
Bottom side	RMC	1312/1712.4	1:1	2.330	-0.10	19.85	21.00	1.303	3.036	22.3

Table 21: SAR of WCDMA Band IV for Head, Body and Product specific 10g SAR(Variant).

Note:

- The maximum Scaled SAR value is marked in bold. Graph results refer to Appendix B.
- Per KDB447498 D01, testing of other required channels within the operating mode of a frequency band is not required when the reported 1-g or 10-g SAR for the mid-band or highest output power channel is:
 - ≤ 0.8W/kg for 1-g or 2.0W/kg for 10-g respectively, when the transmission band is ≤ 100MHz.
 - ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz.
 - ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz.

Test Position	Channel/ Frequency	Measured SAR (1g)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
	(MHz)		SAR (1g)		SAR (1g)	SAR (1g)
Back side	1513/1752.6	1.140	1.120	1.018	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



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8.3.5 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	0.201	0.03	23.05	24.00	1.245	0.250	22.1
Left tilted	RMC	4182/836.4	1:1	0.119	0.02	23.05	24.00	1.245	0.148	22.1
Right cheek	RMC	4182/836.4	1:1	0.222	0.04	23.05	24.00	1.245	0.276	22.1
Right tilted	RMC	4182/836.4	1:1	0.130	0.01	23.05	24.00	1.245	0.162	22.1
Body Worn Test data(Separate 5mm)										
Front side	RMC	4182/836.4	1:1	0.431	0.03	23.05	24.00	1.245	0.536	22.1
Back side	RMC	4182/836.4	1:1	0.892	0.07	23.05	24.00	1.245	1.110	22.1
Back side	RMC	4132/826.4	1:1	0.891	0.02	22.97	24.00	1.268	1.129	22.1
Back side	RMC	4233/846.6	1:1	0.915	-0.09	22.91	24.00	1.285	1.176	22.1
Back side-repeat	RMC	4233/846.6	1:1	0.873	0.01	23.05	24.00	1.245	1.086	22.1
Hotspot Test data(Separate 5mm)										
Front side	RMC	4182/836.4	1:1	0.431	0.03	23.05	24.00	1.245	0.536	22.1
Back side	RMC	4182/836.4	1:1	0.892	0.07	23.05	24.00	1.245	1.110	22.1
Left side	RMC	4182/836.4	1:1	0.192	0.01	23.05	24.00	1.245	0.239	22.1
Right side	RMC	4182/836.4	1:1	0.266	0.03	23.05	24.00	1.245	0.331	22.1
Bottom side	RMC	4182/836.4	1:1	0.428	0.05	23.05	24.00	1.245	0.533	22.1
Back side	RMC	4132/826.4	1:1	0.891	0.02	22.97	24.00	1.268	1.129	22.1
Back side	RMC	4233/846.6	1:1	0.915	-0.09	22.91	24.00	1.285	1.176	22.1

Table 22: SAR of WCDMA Band V for Head, Body(original report ZR/2020/8000602).



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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										
Right cheek	RMC	4182/836.4	1:1	0.241	0.06	23.05	24.00	1.245	0.300	22.1
Body Worn Test data(Separate 5mm)										
Back side	RMC	4233/846.6	1:1	0.895	-0.09	22.91	24.00	1.285	1.150	22.1
Hotspot Test data(Separate 5mm)										
Back side	RMC	4233/846.6	1:1	0.895	-0.09	22.91	24.00	1.285	1.150	22.1

Table 23: SAR of WCDMA Band V for Head, Body(Variant).

Note:

- 1) The maximum Scaled SAR value is marked in bold. Graph results refer to Appendix B.
- 2) Per KDB447498 D01, testing of other required channels within the operating mode of a frequency band is not required when the reported 1-g or 10-g SAR for the mid-band or highest output power channel is:
 - $\leq 0.8\text{W/kg}$ for 1-g or 2.0W/kg for 10-g respectively, when the transmission band is $\leq 100\text{MHz}$.
 - $\leq 0.6\text{ W/kg}$ or 1.5 W/kg , for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz.
 - $\leq 0.4\text{ W/kg}$ or 1.0 W/kg , for 1-g or 10-g respectively, when the transmission band is $\geq 200\text{ MHz}$.

Test Position	Channel/ Frequency	Measured SAR (1g)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
	(MHz)		SAR (1g)		SAR (1g)	SAR (1g)
Back side	4233/846.6	0.915	0.873	1.048	N/A	N/A

Note: 1) When the original highest measured SAR is $\geq 0.80\text{ W/kg}$, 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 $\geq 1.45\text{ W/kg}$ ($\sim 10\%$ from the 1-g SAR limit).

3) A third repeated measurement was performed only if the original, first or second repeated measurement was $\geq 1.5\text{ W/kg}$ 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 $< 0.80\text{ W/kg}$



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8.3.6 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_99	18700/1860	1:1	0.126	0.05	23.07	24.00	1.239	0.156	22.3
Left tilted	20	QPSK 1RB_99	18700/1860	1:1	0.123	0.03	23.07	24.00	1.239	0.152	22.3
Right cheek	20	QPSK 1RB_99	18700/1860	1:1	0.142	0.09	23.07	24.00	1.239	0.176	22.3
Right tilted	20	QPSK 1RB_99	18700/1860	1:1	0.124	0.01	23.07	24.00	1.239	0.154	22.3
Head Test data(50%RB)											
Left cheek	20	QPSK 50RB_50	18700/1860	1:1	0.080	0.03	22.39	23.00	1.151	0.092	22.3
Left tilted	20	QPSK 50RB_50	18700/1860	1:1	0.079	0.02	22.39	23.00	1.151	0.091	22.3
Right cheek	20	QPSK 50RB_50	18700/1860	1:1	0.106	0.03	22.39	23.00	1.151	0.122	22.3
Right tilted	20	QPSK 50RB_50	18700/1860	1:1	0.069	0.05	22.39	23.00	1.151	0.079	22.3
Body worn Test data(Separate 5mm 1RB) sensor on											
Front side	20	QPSK 1RB_50	18700/1860	1:1	0.343	0.01	16.95	18.00	1.274	0.437	22.3
Back side	20	QPSK 1RB_50	18700/1860	1:1	0.959	0.03	16.95	18.00	1.274	1.221	22.3
Back side	20	QPSK 1RB_50	18900/1880	1:1	0.941	-0.06	16.86	18.00	1.300	1.223	22.3
Back side	20	QPSK 1RB_50	19100/1900	1:1	0.915	0.08	16.81	18.00	1.315	1.203	22.3
Body worn Test data (Separate 5mm 50%RB) sensor on											
Front side	20	QPSK 50RB_50	18700/1860	1:1	0.362	-0.05	16.60	18.00	1.380	0.500	22.3
Back side	20	QPSK 50RB_50	18700/1860	1:1	0.938	0.10	16.60	18.00	1.380	1.295	22.3
Back side	20	QPSK 50RB_50	18900/1880	1:1	0.908	-0.16	16.45	18.00	1.429	1.297	22.3
Back side	20	QPSK 50RB_50	19100/1900	1:1	0.921	-0.01	16.39	18.00	1.449	1.334	22.3
Body worn Test data (Separate 5mm 100%RB) sensor on											
Back side	20	QPSK 100RB_0	18700/1860	1:1	0.981	-0.04	16.61	18.00	1.377	1.351	22.3
Back side-repeat	20	QPSK 100RB_0	18700/1860	1:1	0.976	0.04	16.61	18.00	1.377	1.344	22.3
Back side with headset	20	QPSK 100RB_0	18700/1860	1:1	0.939	-0.01	16.61	18.00	1.377	1.293	22.3
Body worn Test data(Separate 5mm 1RB) sensor off											
Front side-10mm	20	QPSK 1RB_99	18700/1860	1:1	0.853	0.03	23.07	24.00	1.239	1.057	22.3
Back side-17mm	20	QPSK 1RB_99	18700/1860	1:1	0.662	0.01	23.07	24.00	1.239	0.820	22.3
Front side-10mm	20	QPSK 1RB_99	18900/1880	1:1	0.603	0.01	22.87	24.00	1.297	0.782	22.3
Front side-10mm	20	QPSK 1RB_99	19100/1900	1:1	0.634	0.02	22.77	24.00	1.327	0.842	22.3
Back side-17mm	20	QPSK 1RB_99	18900/1880	1:1	0.609	0.03	22.87	24.00	1.297	0.790	22.3
Back side-17mm	20	QPSK 1RB_99	19100/1900	1:1	0.660	0.01	22.77	24.00	1.327	0.876	22.3
Hotspot Test data(Separate 5mm 1RB)											
Front side	20	QPSK 1RB_50	18700/1860	1:1	0.343	0.01	16.95	18.00	1.274	0.437	22.3
Back side	20	QPSK 1RB_50	18700/1860	1:1	0.959	0.03	16.95	18.00	1.274	1.221	22.3
Left side	20	QPSK 1RB_50	18700/1860	1:1	0.077	0.02	15.65	16.50	1.216	0.094	22.3
Right side	20	QPSK 1RB_50	18700/1860	1:1	0.039	-0.02	15.65	16.50	1.216	0.047	22.3
Bottom side	20	QPSK 1RB_50	18700/1860	1:1	0.948	0.03	15.65	16.50	1.216	1.153	22.3
Back side	20	QPSK 1RB_50	18900/1880	1:1	0.941	-0.06	16.86	18.00	1.300	1.223	22.3
Back side	20	QPSK 1RB_50	19100/1900	1:1	0.915	0.08	16.81	18.00	1.315	1.203	22.3
Bottom side	20	QPSK 1RB_50	18900/1880	1:1	0.928	0.08	15.63	16.50	1.222	1.134	22.3
Bottom side	20	QPSK 1RB_50	19100/1900	1:1	0.922	-0.03	15.39	16.50	1.291	1.191	22.3
Hotspot Test data (Separate 5mm 50%RB)											
Front side	20	QPSK 50RB_50	18700/1860	1:1	0.362	-0.05	16.60	18.00	1.380	0.500	22.3



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Back side	20	QPSK 50RB_50	18700/1860	1:1	0.938	0.10	16.60	18.00	1.380	1.295	22.3
Left side	20	QPSK 50RB_50	18700/1860	1:1	0.077	0.03	15.28	16.50	1.324	0.102	22.3
Right side	20	QPSK 50RB_50	18700/1860	1:1	0.040	0.01	15.28	16.50	1.324	0.053	22.3
Bottom side	20	QPSK 50RB_50	18700/1860	1:1	0.916	0.03	15.28	16.50	1.324	1.213	22.3
Back side	20	QPSK 50RB_50	18900/1880	1:1	0.908	-0.16	16.45	18.00	1.429	1.297	22.3
Back side	20	QPSK 50RB_50	19100/1900	1:1	0.921	-0.01	16.39	18.00	1.449	1.334	22.3
Bottom side	20	QPSK 50RB_50	18900/1880	1:1	0.936	0.04	15.10	16.50	1.380	1.292	22.3
Bottom side	20	QPSK 50RB_50	19100/1900	1:1	0.959	-0.02	15.08	16.50	1.387	1.330	22.3
Hotspot Test data (Separate 5mm 100%RB)											
Back side	20	QPSK 100RB_0	18700/1860	1:1	0.981	-0.04	16.61	18.00	1.377	1.351	22.3
Bottom side	20	QPSK 100RB_0	18700/1860	1:1	0.969	0.03	15.21	16.50	1.346	1.304	22.3
Test position	BW.	Test mode	Test Ch./Freq.	Duty Cycle	SAR (W/kg)10-g	Power Drift(dB)	Conducted power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR(W/kg)	Liquid Temp.
Product specific 10g SAR Test data(Separate 0mm 1RB) sensor on											
Front side	20	QPSK 1RB_50	18700/1860	1:1	0.921	0.03	20.01	21.00	1.256	1.157	22.3
Back side	20	QPSK 1RB_50	18700/1860	1:1	1.880	0.04	20.01	21.00	1.256	2.361	22.3
Bottom side	20	QPSK 1RB_50	18700/1860	1:1	2.100	-0.01	20.01	21.00	1.256	2.638	22.3
Back side	20	QPSK 1RB_50	18900/1880	1:1	1.910	0.06	19.87	21.00	1.297	2.478	22.3
Back side	20	QPSK 1RB_50	19100/1900	1:1	1.940	0.05	19.81	21.00	1.315	2.552	22.3
Bottom side	20	QPSK 1RB_50	18900/1880	1:1	2.190	0.03	19.87	21.00	1.297	2.841	22.3
Bottom side	20	QPSK 1RB_50	19100/1900	1:1	2.240	0.03	19.81	21.00	1.315	2.946	22.3
Product specific 10g SAR Test data(Separate 0mm 50%RB) sensor on											
Front side	20	QPSK 50RB_50	18700/1860	1:1	0.972	0.03	19.95	21.00	1.274	1.238	22.3
Back side	20	QPSK 50RB_50	18700/1860	1:1	1.990	0.01	19.95	21.00	1.274	2.534	22.3
Bottom side	20	QPSK 50RB_50	18700/1860	1:1	2.240	0.10	19.95	21.00	1.274	2.853	22.3
Back side	20	QPSK 50RB_50	18900/1880	1:1	2.030	0.03	19.70	21.00	1.349	2.738	22.3
Back side	20	QPSK 50RB_50	19100/1900	1:1	1.930	0.03	19.55	21.00	1.396	2.695	22.3
Bottom side	20	QPSK 50RB_50	18900/1880	1:1	2.340	0.05	19.70	21.00	1.349	3.157	22.3
Bottom side	20	QPSK 50RB_50	19100/1900	1:1	2.350	0.09	19.55	21.00	1.396	3.281	22.3
Product specific 10g SAR Test data(Separate 0mm 100%RB) sensor on											
Back side	20	QPSK 100RB_0	18700/1860	1:1	2.040	-0.01	19.93	21.00	1.279	2.610	22.3
Bottom side	20	QPSK 100RB_0	18700/1860	1:1	2.280	0.03	19.93	21.00	1.279	2.917	22.3
Product specific 10g SAR Test data(Separate 0mm) sensor off											
Front side-4mm	20	QPSK 1RB_99	18700/1860	1:1	1.170	-0.01	23.07	24.00	1.239	1.449	22.3
Back side-6mm	20	QPSK 1RB_99	18700/1860	1:1	1.570	0.03	23.07	24.00	1.239	1.945	22.3
Right side-5mm	20	QPSK 1RB_99	18700/1860	1:1	0.136	0.01	23.07	24.00	1.239	0.168	22.3
Bottom side-7mm	20	QPSK 1RB_99	18700/1860	1:1	1.880	0.03	23.07	24.00	1.239	2.329	22.3
Bottom side-7mm	20	QPSK 1RB_99	18900/1880	1:1	1.030	0.04	22.87	24.00	1.297	1.336	22.3
Bottom side-7mm	20	QPSK 1RB_99	19100/1900	1:1	1.130	0.03	22.77	24.00	1.327	1.500	22.3

Table 24: SAR of LTE Band 2 for Head, Body and Product specific 10g SAR(original report ZR/2020/8000602).



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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)											
Right cheek	20	QPSK 1RB_99	18700/1860	1:1	0.139	0.06	23.07	24.00	1.239	0.172	22.3
Body worn Test data (Separate 5mm 100%RB) sensor on											
Back side	20	QPSK 100RB_0	18700/1860	1:1	0.783	-0.03	16.61	18.00	1.377	1.078	22.3
Hotspot Test data (Separate 5mm 100%RB)											
Back side	20	QPSK 100RB_0	18700/1860	1:1	0.783	-0.03	16.61	18.00	1.377	1.078	22.3
Test position	BW.	Test mode	Test Ch./Freq.	Duty Cycle	SAR (W/kg)10-g	Power Drift(dB)	Conducted power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR(W/kg)	Liquid Temp.
Product specific 10g SAR Test data(Separate 0mm 50%RB) sensor on											
Bottom side	20	QPSK 50RB_50	19100/1900	1:1	2.210	-0.06	19.55	21.00	1.396	3.086	22.3

Table 25: SAR of LTE Band 2 for Head, Body and Product specific 10g SAR(Variant).

Note:

- 1) The maximum Scaled SAR value is marked in bold. Graph results refer to Appendix B.
- 2) Per KDB447498 D01, testing of other required channels within the operating mode of a frequency band is not required when the reported 1-g or 10-g SAR for the mid-band or highest output power channel is:
 - $\leq 0.8\text{W/kg}$ for 1-g or 2.0W/kg for 10-g respectively, when the transmission band is $\leq 100\text{MHz}$.
 - $\leq 0.6\text{ W/kg}$ or 1.5 W/kg , for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz.
 - $\leq 0.4\text{ W/kg}$ or 1.0 W/kg , for 1-g or 10-g respectively, when the transmission band is $\geq 200\text{ MHz}$.

Test Position	Channel/ Frequency	Measured SAR (1g)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
	(MHz)		SAR (1g)		SAR (1g)	SAR (1g)
Back side	18700/1860	0.981	0.976	1.005	N/A	N/A

Note: 1) When the original highest measured SAR is $\geq 0.80\text{ W/kg}$, 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 $\geq 1.45\text{ W/kg}$ (~ 10% from the 1-g SAR limit).

3) A third repeated measurement was performed only if the original, first or second repeated measurement was $\geq 1.5\text{ W/kg}$ 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 $< 0.80\text{ W/kg}$



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8.3.7 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	20175/1732.5	1:1	0.167	0.03	23.03	24.00	1.250	0.209	22.3
Left tilted	20	QPSK 1RB_99	20175/1732.5	1:1	0.122	0.01	23.03	24.00	1.250	0.153	22.3
Right cheek	20	QPSK 1RB_99	20175/1732.5	1:1	0.235	0.07	23.03	24.00	1.250	0.294	22.3
Right tilted	20	QPSK 1RB_99	20175/1732.5	1:1	0.095	0.05	23.03	24.00	1.250	0.119	22.3
Head Test data(50%RB)											
Left cheek	20	QPSK 50RB_50	20175/1732.5	1:1	0.092	0.03	22.13	23.00	1.222	0.112	22.3
Left tilted	20	QPSK 50RB_50	20175/1732.5	1:1	0.071	0.01	22.13	23.00	1.222	0.087	22.3
Right cheek	20	QPSK 50RB_50	20175/1732.5	1:1	0.125	0.01	22.13	23.00	1.222	0.153	22.3
Right tilted	20	QPSK 50RB_50	20175/1732.5	1:1	0.053	0.03	22.13	23.00	1.222	0.065	22.3
Body worn Test data(Separate 5mm 1RB) sensor on											
Front side	20	QPSK 1RB_50	20175/1732.5	1:1	0.495	0.10	16.97	18.00	1.268	0.627	22.3
Back side	20	QPSK 1RB_50	20175/1732.5	1:1	0.815	-0.03	16.97	18.00	1.268	1.033	22.3
Back side	20	QPSK 1RB_50	20050/1720	1:1	0.918	-0.01	16.79	18.00	1.321	1.213	22.3
Back side	20	QPSK 1RB_50	20300/1745	1:1	0.980	0.08	16.95	18.00	1.274	1.248	22.3
Body worn Test data (Separate 5mm 50%RB) sensor on											
Front side	20	QPSK 50RB_50	20175/1732.5	1:1	0.467	-0.02	16.71	18.00	1.346	0.629	22.3
Back side	20	QPSK 50RB_50	20175/1732.5	1:1	0.786	-0.08	16.71	18.00	1.346	1.058	22.3
Back side	20	QPSK 50RB_50	20050/1720	1:1	0.878	0.12	16.41	18.00	1.442	1.266	22.3
Back side	20	QPSK 50RB_50	20300/1745	1:1	0.886	0.01	16.70	18.00	1.349	1.195	22.3
Back side with headset	20	QPSK 50RB_50	20050/1720	1:1	0.803	-0.14	16.41	18.00	1.442	1.158	22.3
Body worn Test data (Separate 5mm 100%RB) sensor on											
Back side	20	QPSK 100RB_0	20175/1732.5	1:1	0.890	0.12	16.64	18.00	1.368	1.217	22.3
Body worn Test data(Separate 5mm 1RB) sensor off											
Front side-10mm	20	QPSK 1RB_99	20175/1732.5	1:1	0.862	0.06	23.03	24.00	1.250	1.078	22.3
Back side-17mm	20	QPSK 1RB_99	20175/1732.5	1:1	0.704	-0.03	23.03	24.00	1.250	0.880	22.3
Front side-10mm	20	QPSK 1RB_99	20050/1720	1:1	0.887	-0.04	23.02	24.00	1.253	1.112	22.3
Front side-10mm	20	QPSK 1RB_99	20300/1745	1:1	0.845	0.08	23.01	24.00	1.256	1.061	22.3
Back side-17mm	20	QPSK 1RB_99	20050/1720	1:1	0.679	-0.05	23.02	24.00	1.253	0.851	22.3
Back side-17mm	20	QPSK 1RB_99	20300/1745	1:1	0.662	0.06	23.01	24.00	1.256	0.831	22.3
Hotspot Test data(Separate 5mm 1RB)											
Front side	20	QPSK 1RB_50	20175/1732.5	1:1	0.495	0.10	16.97	18.00	1.268	0.627	22.3
Back side	20	QPSK 1RB_50	20175/1732.5	1:1	0.815	-0.03	16.97	18.00	1.268	1.033	22.3
Left side	20	QPSK 1RB_50	20175/1732.5	1:1	0.071	0.03	16.05	17.00	1.245	0.088	22.3
Right side	20	QPSK 1RB_50	20175/1732.5	1:1	0.086	-0.05	16.05	17.00	1.245	0.107	22.3
Bottom side	20	QPSK 1RB_50	20175/1732.5	1:1	0.951	0.06	16.05	17.00	1.245	1.184	22.3
Back side	20	QPSK 1RB_50	20050/1720	1:1	0.918	-0.01	16.79	18.00	1.321	1.213	22.3
Back side	20	QPSK 1RB_50	20300/1745	1:1	0.980	0.08	16.95	18.00	1.274	1.248	22.3
Bottom side	20	QPSK 1RB_50	20050/1720	1:1	0.939	0.01	15.76	17.00	1.330	1.249	22.3
Bottom side	20	QPSK 1RB_50	20300/1745	1:1	0.906	0.05	16.03	17.00	1.250	1.133	22.3
Hotspot Test data (Separate 5mm 50%RB)											
Front side	20	QPSK 50RB_50	20175/1732.5	1:1	0.467	-0.02	16.71	18.00	1.346	0.629	22.3
Back side	20	QPSK 50RB_50	20175/1732.5	1:1	0.786	-0.08	16.71	18.00	1.346	1.058	22.3





Left side	20	QPSK 50RB_50	20175/1732.5	1:1	0.078	0.03	15.93	17.00	1.279	0.100	22.3
Right side	20	QPSK 50RB_50	20175/1732.5	1:1	0.086	-0.02	15.93	17.00	1.279	0.110	22.3
Bottom side	20	QPSK 50RB_50	20175/1732.5	1:1	0.924	0.01	15.93	17.00	1.279	1.182	22.3
Back side	20	QPSK 50RB_50	20050/1720	1:1	0.878	0.03	16.41	18.00	1.442	1.266	22.3
Back side	20	QPSK 50RB_50	20300/1745	1:1	0.886	0.01	16.70	18.00	1.349	1.195	22.3
Bottom side	20	QPSK 50RB_50	20050/1720	1:1	0.944	0.07	15.65	17.00	1.365	1.288	22.3
Bottom side	20	QPSK 50RB_50	20300/1745	1:1	0.906	0.02	15.92	17.00	1.282	1.162	22.3
Hotspot Test data (Separate 5mm 100%RB)											
Back side	20	QPSK 100RB_0	20175/1732.5	1:1	0.890	0.12	16.64	18.00	1.368	1.217	22.3
Bottom side	20	QPSK 100RB_0	20175/1732.5	1:1	0.986	0.03	15.90	17.00	1.288	1.270	22.3
Bottom side-repeat	20	QPSK 100RB_0	20175/1732.5	1:1	0.981	0.04	15.90	17.00	1.288	1.264	22.3
Test position	BW.	Test mode	Test Ch./Freq.	Duty Cycle	SAR (W/kg)10-g	Power Drift(dB)	Conducted power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR(W/kg)	Liquid Temp.
Product specific 10g SAR Test data(Separate 0mm 1RB) sensor on											
Front side	20	QPSK 1RB_50	20175/1732.5	1:1	1.170	0.02	20.05	21.00	1.245	1.456	22.3
Back side	20	QPSK 1RB_50	20175/1732.5	1:1	2.030	0.01	20.05	21.00	1.245	2.526	22.3
Bottom side	20	QPSK 1RB_50	20175/1732.5	1:1	1.760	0.01	20.05	21.00	1.245	2.190	22.3
Back side	20	QPSK 1RB_50	20050/1720	1:1	2.000	0.05	19.66	21.00	1.361	2.723	22.3
Back side	20	QPSK 1RB_50	20300/1745	1:1	2.040	0.03	20.01	21.00	1.256	2.562	22.3
Bottom side	20	QPSK 1RB_50	20050/1720	1:1	1.790	0.05	19.66	21.00	1.361	2.437	22.3
Bottom side	20	QPSK 1RB_50	20300/1745	1:1	1.990	0.03	20.01	21.00	1.256	2.499	22.3
Product specific 10g SAR Test data(Separate 0mm 50%RB) sensor on											
Front side	20	QPSK 50RB_50	20175/1732.5	1:1	1.130	0.01	19.91	21.00	1.285	1.452	22.3
Back side	20	QPSK 50RB_50	20175/1732.5	1:1	1.980	0.05	19.91	21.00	1.285	2.545	22.3
Bottom side	20	QPSK 50RB_50	20175/1732.5	1:1	1.750	0.05	19.91	21.00	1.285	2.249	22.3
Back side	20	QPSK 50RB_50	20050/1720	1:1	1.960	0.03	19.68	21.00	1.355	2.656	22.3
Back side	20	QPSK 50RB_50	20300/1745	1:1	2.010	0.05	19.66	21.00	1.361	2.737	22.3
Bottom side	20	QPSK 50RB_50	20050/1720	1:1	1.840	0.06	19.68	21.00	1.355	2.494	22.3
Bottom side	20	QPSK 50RB_50	20300/1745	1:1	1.970	0.01	19.66	21.00	1.361	2.682	22.3
Product specific 10g SAR Test data(Separate 0mm 100%RB) sensor on											
Back side	20	QPSK 100RB_0	20175/1732.5	1:1	1.980	0.03	19.90	21.00	1.288	2.551	22.3
Bottom side	20	QPSK 100RB_0	20175/1732.5	1:1	1.810	0.03	19.90	21.00	1.288	2.332	22.3
Product specific 10g SAR Test data(Separate 0mm 1RB) sensor off											
Front side-4mm	20	QPSK 1RB_99	20175/1732.5	1:1	1.500	0.05	23.03	24.00	1.250	1.875	22.3
Back side-6mm	20	QPSK 1RB_99	20175/1732.5	1:1	1.680	0.03	23.03	24.00	1.250	2.100	22.3
Right side-5mm	20	QPSK 1RB_99	20175/1732.5	1:1	0.230	0.06	23.03	24.00	1.250	0.288	22.3
Bottom side-7mm	20	QPSK 1RB_99	20175/1732.5	1:1	1.760	0.01	23.03	24.00	1.250	2.200	22.3
Back side-6mm	20	QPSK 1RB_99	20050/1720	1:1	1.630	0.01	23.02	24.00	1.253	2.043	22.3
Back side-6mm	20	QPSK 1RB_99	20300/1745	1:1	1.590	0.05	23.01	24.00	1.256	1.997	22.3
Bottom side-7mm	20	QPSK 1RB_99	20050/1720	1:1	1.780	0.05	23.02	24.00	1.253	2.231	22.3
Bottom side-7mm	20	QPSK 1RB_99	20300/1745	1:1	1.730	0.03	23.01	24.00	1.256	2.173	22.3

Table 26: SAR of LTE Band 4 for Head, Body and Product specific 10g SAR(original report ZR/2020/8000602).



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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)											
Right cheek	20	QPSK 1RB_99	20175/1732.5	1:1	0.232	0.03	23.03	24.00	1.250	0.290	22.3
Body worn Test data (Separate 5mm 50%RB) sensor on											
Back side	20	QPSK 50RB_50	20050/1720	1:1	0.967	0.02	16.41	18.00	1.442	1.395	22.3
Hotspot Test data (Separate 5mm 50%RB)											
Bottom side	20	QPSK 50RB_50	20050/1720	1:1	0.929	-0.03	15.65	17.00	1.365	1.268	22.3
Test position	BW.	Test mode	Test Ch./Freq.	Duty Cycle	SAR (W/kg)10-g	Power Drift(dB)	Conducted power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR(W/kg)	Liquid Temp.
Product specific 10g SAR Test data(Separate 0mm 50%RB) sensor on											
Back side	20	QPSK 50RB_50	20300/1745	1:1	1.960	0.01	19.66	21.00	1.361	2.668	22.3

Table 27: SAR of LTE Band 4 for Head, Body and Product specific 10g SAR(Variant).

Note:

- 1) The maximum Scaled SAR value is marked in bold. Graph results refer to Appendix B.
- 2) Per KDB447498 D01, testing of other required channels within the operating mode of a frequency band is not required when the reported 1-g or 10-g SAR for the mid-band or highest output power channel is:
 - $\leq 0.8\text{W/kg}$ for 1-g or 2.0W/kg for 10-g respectively, when the transmission band is $\leq 100\text{MHz}$.
 - $\leq 0.6\text{ W/kg}$ or 1.5 W/kg , for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz.
 - $\leq 0.4\text{ W/kg}$ or 1.0 W/kg , for 1-g or 10-g respectively, when the transmission band is $\geq 200\text{ MHz}$.

Test Position	Channel/ Frequency	Measured SAR (1g)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
	(MHz)		SAR (1g)		SAR (1g)	SAR (1g)
Bottom side	20175/1732.5	0.986	0.981	1.005	N/A	N/A

Note: 1) When the original highest measured SAR is $\geq 0.80\text{ W/kg}$, 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 $\geq 1.45\text{ W/kg}$ (~ 10% from the 1-g SAR limit).

3) A third repeated measurement was performed only if the original, first or second repeated measurement was $\geq 1.5\text{ W/kg}$ 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 $< 0.80\text{ W/kg}$



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8.3.8 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_49	20525/836.5	1:1	0.234	-0.13	23.11	24.00	1.227	0.287	22.1
Left tilted	10	QPSK 1RB_49	20525/836.5	1:1	0.107	-0.01	23.11	24.00	1.227	0.131	22.1
Right cheek	10	QPSK 1RB_49	20525/836.5	1:1	0.181	0.03	23.11	24.00	1.227	0.222	22.1
Right tilted	10	QPSK 1RB_49	20525/836.5	1:1	0.119	0.05	23.11	24.00	1.227	0.146	22.1
Head Test data(50%RB)											
Left cheek	10	QPSK 25RB_25	20525/836.5	1:1	0.138	0.10	21.93	23.00	1.279	0.177	22.1
Left tilted	10	QPSK 25RB_25	20525/836.5	1:1	0.079	0.03	21.93	23.00	1.279	0.101	22.1
Right cheek	10	QPSK 25RB_25	20525/836.5	1:1	0.141	0.06	21.93	23.00	1.279	0.180	22.1
Right tilted	10	QPSK 25RB_25	20525/836.5	1:1	0.089	0.01	21.93	23.00	1.279	0.114	22.1
Body Worn Test data(Separate 5mm 1RB)											
Front side	10	QPSK 1RB_49	20525/836.5	1:1	0.377	0.01	23.11	24.00	1.227	0.463	22.1
Back side	10	QPSK 1RB_49	20525/836.5	1:1	0.975	0.06	23.11	24.00	1.227	1.197	22.1
Back side-repeat	10	QPSK 1RB_49	20525/836.5	1:1	0.968	0.01	23.11	24.00	1.227	1.188	22.1
Back side	10	QPSK 1RB_49	20450/829	1:1	0.966	0.04	23.04	24.00	1.247	1.205	22.1
Back side	10	QPSK 1RB_49	20600/844	1:1	0.951	0.02	22.98	24.00	1.265	1.203	22.1
Back side with headset	10	QPSK 1RB_49	20450/829	1:1	0.953	0.06	23.04	24.00	1.247	1.189	22.1
Body Worn Test data(Separate 5mm 50%RB)											
Front side	10	QPSK 25RB_25	20525/836.5	1:1	0.296	0.08	21.93	23.00	1.279	0.379	22.1
Back side	10	QPSK 25RB_25	20525/836.5	1:1	0.585	0.03	21.93	23.00	1.279	0.748	22.1
Body Worn Test data(Separate 5mm 100%RB)											
Back side	10	QPSK 50RB_0	20600/844	1:1	0.591	0.04	21.85	23.00	1.303	0.770	22.1
Hotspot Test data(Separate 5mm 1RB)											
Front side	10	QPSK 1RB_49	20525/836.5	1:1	0.377	0.03	23.11	24.00	1.227	0.463	22.1
Back side	10	QPSK 1RB_49	20525/836.5	1:1	0.975	0.06	23.11	24.00	1.227	1.197	22.1
Left side	10	QPSK 1RB_49	20525/836.5	1:1	0.205	0.01	23.11	24.00	1.227	0.252	22.1
Right side	10	QPSK 1RB_49	20525/836.5	1:1	0.132	0.04	23.11	24.00	1.227	0.162	22.1
Bottom side	10	QPSK 1RB_49	20525/836.5	1:1	0.381	0.02	23.11	24.00	1.227	0.468	22.1
Back side	10	QPSK 1RB_49	20450/829	1:1	0.966	0.04	23.04	24.00	1.247	1.205	22.1
Back side	10	QPSK 1RB_49	20600/844	1:1	0.951	0.02	22.98	24.00	1.265	1.203	22.1
Hotspot Test data (Separate 5mm 50%RB)											
Front side	10	QPSK 25RB_25	20525/836.5	1:1	0.296	0.01	21.93	23.00	1.279	0.379	22.1
Back side	10	QPSK 25RB_25	20525/836.5	1:1	0.585	0.03	21.93	23.00	1.279	0.748	22.1
Left side	10	QPSK 25RB_25	20525/836.5	1:1	0.244	0.03	21.93	23.00	1.279	0.312	22.1
Right side	10	QPSK 25RB_25	20525/836.5	1:1	0.116	0.05	21.93	23.00	1.279	0.148	22.1
Bottom side	10	QPSK 25RB_25	20525/836.5	1:1	0.363	0.01	21.93	23.00	1.279	0.464	22.1
Hotspot Test data (Separate 5mm 100%RB)											
Back side	10	QPSK 50RB_0	20600/844	1:1	0.591	0.04	21.85	23.00	1.303	0.770	22.1
Test position	BW.	Test mode	Test Ch./Freq.	Duty Cycle	SAR (W/kg)10-g	Power Drift(dB)	Conducted power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR(W/kg)	Liquid Temp.
Product specific 10g SAR Test data(Separate 0mm 1RB)											
Back side	10	QPSK 1RB_49	20525/836.5	1:1	0.823	0.07	23.11	24.00	1.227	1.010	22.1
Product specific 10g SAR Test data(Separate 0mm 50%RB)											
Back side	10	QPSK 25RB_25	20525/836.5	1:1	0.654	0.01	21.93	23.00	1.279	0.837	22.1

Table 28: SAR of LTE Band 5 for Head, Body and Product specific 10g SAR(original report ZR/2020/8000602).





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_49	20525/836.5	1:1	0.256	0.01	23.11	24.00	1.227	0.314	22.1
Body Worn Test data(Separate 5mm 1RB)											
Back side	10	QPSK 1RB_49	20450/829	1:1	1.080	0.00	23.04	24.00	1.247	1.347	22.1
Hotspot Test data(Separate 5mm 1RB)											
Back side	10	QPSK 1RB_49	20450/829	1:1	1.080	0.00	23.04	24.00	1.247	1.347	22.1
Test position	BW.	Test mode	Test Ch./Freq.	Duty Cycle	SAR (W/kg)10-g	Power Drift(dB)	Conducted power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR(W/kg)	Liquid Temp.
Product specific 10g SAR Test data(Separate 0mm 1RB)											
Back side	10	QPSK 1RB_49	20525/836.5	1:1	1.060	0.01	23.11	24.00	1.227	1.301	22.1

Table 29: SAR of LTE Band 5 for Head, Body and Product specific 10g SAR(Variant).

Note:

- 1) The maximum Scaled SAR value is marked in bold. Graph results refer to Appendix B.
- 2) Per KDB447498 D01, testing of other required channels within the operating mode of a frequency band is not required when the reported 1-g or 10-g SAR for the mid-band or highest output power channel is:
 - $\leq 0.8\text{W/kg}$ for 1-g or 2.0W/kg for 10-g respectively, when the transmission band is $\leq 100\text{MHz}$.
 - $\leq 0.6\text{ W/kg}$ or 1.5 W/kg , for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
 - $\leq 0.4\text{ W/kg}$ or 1.0 W/kg , for 1-g or 10-g respectively, when the transmission band is $\geq 200\text{ MHz}$.

Test Position	Channel/ Frequency	Measured SAR (1g)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
	(MHz)		SAR (1g)		SAR (1g)	SAR (1g)
Back side	20525/836.5	0.975	0.968	1.007	N/A	N/A

Note: 1) When the original highest measured SAR is $\geq 0.80\text{ W/kg}$, 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 $\geq 1.45\text{ W/kg}$ ($\sim 10\%$ from the 1-g SAR limit).

3) A third repeated measurement was performed only if the original, first or second repeated measurement was $\geq 1.5\text{ W/kg}$ 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 $< 0.80\text{ W/kg}$



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8.3.9 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_99	20850/2510	1:1	0.372	-0.16	23.22	24.00	1.197	0.445	22.1
Left tilted	20	QPSK 1RB_99	20850/2510	1:1	0.187	0.01	23.22	24.00	1.197	0.224	22.1
Right cheek	20	QPSK 1RB_99	20850/2510	1:1	0.290	0.05	23.22	24.00	1.197	0.347	22.1
Right tilted	20	QPSK 1RB_99	20850/2510	1:1	0.279	0.01	23.22	24.00	1.197	0.334	22.1
Head Test data(50%RB)											
Left cheek	20	QPSK 50RB_50	20850/2510	1:1	0.235	0.03	21.85	23.00	1.303	0.306	22.1
Left tilted	20	QPSK 50RB_50	20850/2510	1:1	0.104	0.01	21.85	23.00	1.303	0.136	22.1
Right cheek	20	QPSK 50RB_50	20850/2510	1:1	0.164	0.03	21.85	23.00	1.303	0.214	22.1
Right tilted	20	QPSK 50RB_50	20850/2510	1:1	0.159	0.03	21.85	23.00	1.303	0.207	22.1
Body worn Test data(Separate 5mm 1RB) sensor on											
Front side	20	QPSK 1RB_99	20850/2510	1:1	0.784	0.04	19.45	20.50	1.274	0.998	22.1
Back side	20	QPSK 1RB_99	20850/2510	1:1	0.885	-0.05	19.45	20.50	1.274	1.127	22.1
Front side	20	QPSK 1RB_99	21100/2535.5	1:1	0.742	0.05	19.43	20.50	1.279	0.949	22.1
Front side	20	QPSK 1RB_99	21350/2560	1:1	0.795	0.03	19.28	20.50	1.324	1.053	22.1
Back side	20	QPSK 1RB_99	21100/2535.5	1:1	1.100	-0.01	19.43	20.50	1.279	1.407	22.1
Back side-repeat	20	QPSK 1RB_99	21100/2535.5	1:1	1.040	-0.06	19.43	20.50	1.279	1.331	22.1
Back side	20	QPSK 1RB_99	21350/2560	1:1	0.829	0.00	19.28	20.50	1.324	1.098	22.1
Back side with headset	20	QPSK 1RB_99	21100/2535.5	1:1	0.889	0.06	19.43	20.50	1.279	1.137	22.1
Body worn Test data (Separate 5mm 50%RB) sensor on											
Front side	20	QPSK 50RB_50	20850/2510	1:1	0.859	0.05	19.43	20.50	1.279	1.099	22.1
Back side	20	QPSK 50RB_50	20850/2510	1:1	0.967	-0.09	19.43	20.50	1.279	1.237	22.1
Front side	20	QPSK 50RB_50	21100/2535.5	1:1	0.879	0.08	19.42	20.50	1.282	1.127	22.1
Front side	20	QPSK 50RB_50	21350/2560	1:1	0.751	0.06	19.24	20.50	1.337	1.004	22.1
Back side	20	QPSK 50RB_50	21100/2535.5	1:1	0.988	0.09	19.42	20.50	1.282	1.267	22.1
Back side	20	QPSK 50RB_50	21350/2560	1:1	0.923	0.06	19.24	20.50	1.337	1.234	22.1
Body worn Test data (Separate 5mm 100%RB) sensor on											
Front side	20	QPSK 100RB_0	20850/2510	1:1	0.823	0.05	19.34	20.50	1.306	1.075	22.1
Back side	20	QPSK 100RB_0	20850/2510	1:1	1.000	-0.04	19.34	20.50	1.306	1.306	22.1
Body worn Test data(Separate 5mm 1RB) sensor off											
Front side-10mm	20	QPSK 1RB_99	20850/2510	1:1	0.771	-0.05	23.22	24.00	1.197	0.923	22.1
Back side-17mm	20	QPSK 1RB_99	20850/2510	1:1	0.372	-0.01	23.22	24.00	1.197	0.445	22.1
Front side-10mm	20	QPSK 1RB_99	21100/2535.5	1:1	0.745	0.00	22.85	24.00	1.303	0.971	22.1
Front side-10mm	20	QPSK 1RB_99	21350/2560	1:1	0.687	-0.05	22.55	24.00	1.396	0.959	22.1
Hotspot Test data(Separate 5mm 1RB)											
Front side	20	QPSK 1RB_99	20850/2510	1:1	0.784	0.04	19.45	20.50	1.274	0.998	22.1
Back side	20	QPSK 1RB_99	20850/2510	1:1	0.885	-0.05	19.45	20.50	1.274	1.127	22.1
Left side	20	QPSK 1RB_99	20850/2510	1:1	0.445	0.03	19.45	20.50	1.274	0.567	22.1
Bottom side	20	QPSK 1RB_99	20850/2510	1:1	0.807	0.03	19.45	20.50	1.274	1.028	22.1
Front side	20	QPSK 1RB_99	21100/2535.5	1:1	0.742	0.05	19.43	20.50	1.279	0.949	22.1
Front side	20	QPSK 1RB_99	21350/2560	1:1	0.795	0.03	19.28	20.50	1.324	1.053	22.1
Back side	20	QPSK 1RB_99	21100/2535.5	1:1	1.100	-0.01	19.43	20.50	1.279	1.407	22.1
Back side	20	QPSK 1RB_99	21350/2560	1:1	0.829	0.00	19.28	20.50	1.324	1.098	22.1
Bottom side	20	QPSK 1RB_99	21100/2535.5	1:1	0.803	0.08	19.43	20.50	1.279	1.027	22.1
Bottom side	20	QPSK 1RB_99	21350/2560	1:1	0.792	0.08	19.28	20.50	1.324	1.049	22.1
Hotspot Test data (Separate 5mm 50%RB)											
Front side	20	QPSK 50RB_50	20850/2510	1:1	0.859	0.05	19.43	20.50	1.279	1.099	22.1
Back side	20	QPSK 50RB_50	20850/2510	1:1	0.967	-0.09	19.43	20.50	1.279	1.237	22.1



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Left side	20	QPSK 50RB_50	20850/2510	1:1	0.486	-0.03	19.43	20.50	1.279	0.622	22.1
Bottom side	20	QPSK 50RB_50	20850/2510	1:1	0.742	0.04	19.43	20.50	1.279	0.949	22.1
Front side	20	QPSK 50RB_50	21100/2535.5	1:1	0.879	0.08	19.42	20.50	1.282	1.127	22.1
Front side	20	QPSK 50RB_50	21350/2560	1:1	0.751	0.06	19.24	20.50	1.337	1.004	22.1
Back side	20	QPSK 50RB_50	21100/2535.5	1:1	0.988	0.09	19.42	20.50	1.282	1.267	22.1
Back side	20	QPSK 50RB_50	21350/2560	1:1	0.923	0.06	19.24	20.50	1.337	1.234	22.1
Bottom side	20	QPSK 50RB_50	21100/2535.5	1:1	0.769	0.04	19.42	20.50	1.282	0.986	22.1
Bottom side	20	QPSK 50RB_50	21350/2560	1:1	0.694	0.03	19.24	20.50	1.337	0.928	22.1
Hotspot Test data (Separate 5mm 100%RB)											
Front side	20	QPSK 100RB_0	20850/2510	1:1	0.823	0.05	19.34	20.50	1.306	1.075	22.1
Back side	20	QPSK 100RB_0	20850/2510	1:1	1.000	-0.04	19.34	20.50	1.306	1.306	22.1
Bottom side	20	QPSK 100RB_0	20850/2510	1:1	0.718	-0.03	19.34	20.50	1.306	0.938	22.1
Test position	BW.	Test mode	Test Ch./Freq.	Duty Cycle	SAR (W/kg)10-g	Power Drift(dB)	Conducted power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR(W/kg)	Liquid Temp.
Product specific 10g SAR Test data(Separate 0mm 1RB) sensor on											
Front side	20	QPSK 1RB_99	20850/2510	1:1	1.900	-0.01	20.79	22.00	1.321	2.510	22.1
Back side	20	QPSK 1RB_99	20850/2510	1:1	2.480	0.04	20.79	22.00	1.321	3.277	22.1
Left side	20	QPSK 1RB_99	20850/2510	1:1	1.360	0.09	20.79	22.00	1.321	1.797	22.1
Bottom side	20	QPSK 1RB_99	20850/2510	1:1	1.270	0.04	20.79	22.00	1.321	1.678	22.1
Front side	20	QPSK 1RB_0	21100/2535.5	1:1	1.950	-0.02	20.74	22.00	1.337	2.606	22.1
Front side	20	QPSK 1RB_99	21350/2560	1:1	1.960	-0.04	20.78	22.00	1.324	2.596	22.1
Back side	20	QPSK 1RB_0	21100/2535.5	1:1	2.530	0.01	20.74	22.00	1.337	3.382	22.1
Back side	20	QPSK 1RB_99	21350/2560	1:1	2.550	0.01	20.78	22.00	1.324	3.377	22.1
Back side-repeat	20	QPSK 1RB_99	21350/2560	1:1	2.490	0.08	20.78	22.00	1.324	3.298	22.1
Product specific 10g SAR Test data(Separate 0mm 50%RB) sensor on											
Front side	20	QPSK 50RB_50	20850/2510	1:1	1.880	-0.03	20.75	22.00	1.334	2.507	22.1
Back side	20	QPSK 50RB_50	20850/2510	1:1	1.650	-0.06	20.75	22.00	1.334	2.200	22.1
Left side	20	QPSK 50RB_50	20850/2510	1:1	0.940	0.02	20.75	22.00	1.334	1.254	22.1
Bottom side	20	QPSK 50RB_50	20850/2510	1:1	1.030	0.03	20.75	22.00	1.334	1.374	22.1
Front side	20	QPSK 50RB_50	21100/2535.5	1:1	1.700	-0.01	20.73	22.00	1.340	2.277	22.1
Front side	20	QPSK 50RB_50	21350/2560	1:1	1.660	-0.01	20.72	22.00	1.343	2.229	22.1
Back side	20	QPSK 50RB_50	21100/2535.5	1:1	1.700	0.05	20.73	22.00	1.340	2.277	22.1
Back side	20	QPSK 50RB_50	21350/2560	1:1	1.670	0.03	20.72	22.00	1.343	2.242	22.1
Product specific 10g SAR Test data(Separate 0mm 100%RB) sensor on											
Front side	20	QPSK 100RB_0	20850/2510	1:1	1.660	-0.02	20.59	22.00	1.384	2.297	22.1
Back side	20	QPSK 100RB_0	20850/2510	1:1	1.840	0.04	20.59	22.00	1.384	2.546	22.1
Product specific 10g SAR Test data(Separate 0mm 1RB) sensor off											
Front side-4mm	20	QPSK 1RB_99	20850/2510	1:1	0.900	0.01	23.22	24.00	1.197	1.077	22.1
Back side-6mm	20	QPSK 1RB_99	20850/2510	1:1	0.785	0.05	23.22	24.00	1.197	0.939	22.1
Left side-4mm	20	QPSK 1RB_99	20850/2510	1:1	0.757	0.04	23.22	24.00	1.197	0.906	22.1
Bottom side-7mm	20	QPSK 1RB_99	20850/2510	1:1	0.806	0.06	23.22	24.00	1.197	0.965	22.1

Table 30: SAR of LTE Band 7 for Head, Body and Product specific 10g SAR(original report ZR/2020/8000602).

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	20850/2510	1:1	0.278	0.03	23.22	24.00	1.197	0.333	22.1
Body worn Test data(Separate 5mm 1RB) sensor on											
Back side	20	QPSK 1RB_99	21100/2535.5	1:1	0.861	0.01	19.43	20.50	1.279	1.102	22.1
Hotspot Test data(Separate 5mm 1RB)											
Back side	20	QPSK 1RB_99	21100/2535.5	1:1	0.861	0.01	19.43	20.50	1.279	1.102	22.1
Test position	BW.	Test mode	Test Ch./Freq.	Duty Cycle	SAR (W/kg)10-g	Power Drift(dB)	Conducted power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR(W/kg)	Liquid Temp.
Product specific 10g SAR Test data(Separate 0mm 1RB) sensor on											
Back side	20	QPSK 1RB_0	21100/2535.5	1:1	2.280	0.01	20.74	22.00	1.337	3.047	22.1

Table 31: SAR of LTE Band 7 for Head, Body and Product specific 10g SAR(Variant).

Note:

- The maximum Scaled SAR value is marked in bold. Graph results refer to Appendix B.
- Per KDB447498 D01, testing of other required channels within the operating mode of a frequency band is not required when the reported 1-g or 10-g SAR for the mid-band or highest output power channel is:
 - $\leq 0.8\text{W/kg}$ for 1-g or 2.0W/kg for 10-g respectively, when the transmission band is $\leq 100\text{MHz}$.
 - $\leq 0.6\text{ W/kg}$ or 1.5 W/kg , for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz .
 - $\leq 0.4\text{ W/kg}$ or 1.0 W/kg , for 1-g or 10-g respectively, when the transmission band is $\geq 200\text{ MHz}$.

Test Position	Channel/ Frequency	Measured SAR (1g)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
	(MHz)		SAR (1g)		SAR (1g)	SAR (1g)
Back side	21100/2535.5	1.100	1.040	1.058	N/A	N/A

Note: 1) When the original highest measured SAR is $\geq 0.80\text{ W/kg}$, 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 $\geq 1.45\text{ W/kg}$ ($\sim 10\%$ from the 1-g SAR limit).

3) A third repeated measurement was performed only if the original, first or second repeated measurement was $\geq 1.5\text{ W/kg}$ 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 $< 0.80\text{ W/kg}$



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8.3.10 SAR 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_99	132322/1745	1:1	0.143	0.03	23.01	24.00	1.256	0.180	22.1
Left tilted	20	QPSK 1RB_99	132322/1745	1:1	0.117	0.02	23.01	24.00	1.256	0.147	22.1
Right cheek	20	QPSK 1RB_99	132322/1745	1:1	0.196	0.06	23.01	24.00	1.256	0.246	22.1
Right tilted	20	QPSK 1RB_99	132322/1745	1:1	0.098	0.01	23.01	24.00	1.256	0.123	22.1
Head Test data(50%RB)											
Left cheek	20	QPSK 50RB_50	132322/1745	1:1	0.098	0.06	21.59	23.00	1.384	0.136	22.1
Left tilted	20	QPSK 50RB_50	132322/1745	1:1	0.079	-0.01	21.59	23.00	1.384	0.109	22.1
Right cheek	20	QPSK 50RB_50	132322/1745	1:1	0.132	-0.14	21.59	23.00	1.384	0.183	22.1
Right tilted	20	QPSK 50RB_50	132322/1745	1:1	0.063	0.03	21.59	23.00	1.384	0.087	22.1
Body worn Test data(Separate 5mm 1RB) sensor on											
Front side	20	QPSK 1RB_99	132322/1745	1:1	0.456	0.03	16.88	18.00	1.294	0.590	22.1
Back side	20	QPSK 1RB_99	132322/1745	1:1	0.880	-0.07	16.88	18.00	1.294	1.139	22.1
Back side	20	QPSK 1RB_99	132072/1720	1:1	0.930	-0.02	16.58	18.00	1.387	1.290	22.1
Back side	20	QPSK 1RB_99	132572/1770	1:1	0.931	-0.06	16.56	18.00	1.393	1.297	22.1
Back side with headset	20	QPSK 1RB_99	132572/1770	1:1	0.855	-0.02	16.56	18.00	1.393	1.191	22.1
Body worn Test data (Separate 5mm 50%RB) sensor on											
Front side	20	QPSK 50RB_50	132322/1745	1:1	0.409	-0.01	16.60	18.00	1.380	0.565	22.1
Back side	20	QPSK 50RB_50	132322/1745	1:1	0.805	-0.03	16.60	18.00	1.380	1.111	22.1
Back side	20	QPSK 50RB_50	132072/1720	1:1	0.902	0.01	16.59	18.00	1.384	1.248	22.1
Back side	20	QPSK 50RB_50	132572/1770	1:1	0.887	-0.06	16.55	18.00	1.396	1.239	22.1
Body worn Test data (Separate 5mm 100%RB) sensor on											
Back side	20	QPSK 100RB_0	132322/1745	1:1	0.862	-0.06	16.56	18.00	1.393	1.201	22.1
Body worn Test data(Separate 5mm 1RB) sensor off											
Front side-10mm	20	QPSK 1RB_99	132322/1745	1:1	0.869	-0.04	23.01	24.00	1.256	1.091	22.1
Back side-17mm	20	QPSK 1RB_99	132322/1745	1:1	0.665	0.02	23.01	24.00	1.256	0.835	22.1
Front side-10mm	20	QPSK 1RB_99	132072/1720	1:1	0.816	-0.06	22.78	24.00	1.324	1.081	22.1
Front side-10mm	20	QPSK 1RB_99	132572/1770	1:1	0.805	0.08	22.70	24.00	1.349	1.086	22.1
Back side-17mm	20	QPSK 1RB_99	132072/1720	1:1	0.704	0.01	22.78	24.00	1.324	0.932	22.1
Back side-17mm	20	QPSK 1RB_99	132572/1770	1:1	0.707	-0.01	22.70	24.00	1.349	0.954	22.1
Hotspot Test data(Separate 5mm 1RB)											
Front side	20	QPSK 1RB_99	132322/1745	1:1	0.456	0.03	16.88	18.00	1.294	0.590	22.1
Back side	20	QPSK 1RB_99	132322/1745	1:1	0.880	-0.07	16.88	18.00	1.294	1.139	22.1
Left side	20	QPSK 1RB_99	132322/1745	1:1	0.102	0.08	16.06	17.00	1.242	0.127	22.1
Right side	20	QPSK 1RB_99	132322/1745	1:1	0.132	0.02	16.06	17.00	1.242	0.164	22.1
Bottom side	20	QPSK 1RB_99	132322/1745	1:1	0.884	0.01	16.06	17.00	1.242	1.098	22.1
Back side	20	QPSK 1RB_99	132072/1720	1:1	0.938	0.02	16.58	18.00	1.387	1.301	22.1
Back side	20	QPSK 1RB_99	132572/1770	1:1	0.939	-0.06	16.56	18.00	1.393	1.308	22.1
Bottom side	20	QPSK 1RB_99	132072/1720	1:1	0.803	0.01	15.86	17.00	1.300	1.044	22.3
Bottom side	20	QPSK 1RB_99	132572/1770	1:1	0.956	0.01	15.62	17.00	1.374	1.314	22.3
Bottom side-repeat	20	QPSK 1RB_99	132572/1770	1:1	0.949	0.04	15.62	17.00	1.374	1.304	22.3
Hotspot Test data (Separate 5mm 50%RB)											
Front side	20	QPSK 50RB_50	132322/1745	1:1	0.409	-0.01	16.60	18.00	1.380	0.565	22.1



Back side	20	QPSK 50RB_50	132322/1745	1:1	0.805	-0.03	16.60	18.00	1.380	1.111	22.1
Left side	20	QPSK 50RB_50	132322/1745	1:1	0.095	0.03	15.76	17.00	1.330	0.127	22.1
Right side	20	QPSK 50RB_50	132322/1745	1:1	0.113	-0.01	15.76	17.00	1.330	0.150	22.1
Bottom side	20	QPSK 50RB_50	132322/1745	1:1	0.818	0.05	15.76	17.00	1.330	1.088	22.1
Back side	20	QPSK 50RB_50	132072/1720	1:1	0.902	0.03	16.59	18.00	1.384	1.248	22.1
Back side	20	QPSK 50RB_50	132572/1770	1:1	0.887	-0.06	16.55	18.00	1.396	1.239	22.1
Bottom side	20	QPSK 50RB_50	132072/1720	1:1	0.740	-0.06	15.71	17.00	1.346	0.996	22.3
Bottom side	20	QPSK 50RB_50	132572/1770	1:1	0.883	0.02	15.69	17.00	1.352	1.194	22.3
Hotspot Test data (Separate 5mm 100%RB)											
Back side	20	QPSK 100RB_0	132322/1745	1:1	0.785	0.06	16.56	18.00	1.393	1.094	22.1
Bottom side	20	QPSK 100RB_0	132322/1745	1:1	0.816	0.02	15.84	17.00	1.306	1.066	22.1
Test position	BW.	Test mode	Test Ch./Freq.	Duty Cycle	SAR (W/kg)10-g	Power Drift(dB)	Conducted power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR(W/kg)	Liquid Temp.
Product specific 10g SAR Test data(Separate 0mm 1RB) sensor on											
Front side	20	QPSK 1RB_99	132322/1745	1:1	1.190	-0.04	20.13	21.00	1.222	1.454	22.1
Back side	20	QPSK 1RB_99	132322/1745	1:1	2.060	-0.01	20.13	21.00	1.222	2.517	22.1
Bottom side	20	QPSK 1RB_99	132322/1745	1:1	1.790	0.04	20.13	21.00	1.222	2.187	22.1
Back side	20	QPSK 1RB_99	132072/1720	1:1	2.020	-0.07	20.09	21.00	1.233	2.491	22.1
Back side	20	QPSK 1RB_99	132572/1770	1:1	2.010	-0.04	20.07	21.00	1.239	2.490	22.1
Bottom side	20	QPSK 1RB_99	132072/1720	1:1	1.820	-0.06	20.09	21.00	1.233	2.244	22.1
Bottom side	20	QPSK 1RB_99	132572/1770	1:1	1.840	0.09	20.07	21.00	1.239	2.279	22.1
Product specific 10g SAR Test data(Separate 0mm 50%RB) sensor on											
Front side	20	QPSK 50RB_50	132322/1745	1:1	1.080	-0.05	20.02	21.00	1.253	1.353	22.1
Back side	20	QPSK 50RB_50	132322/1745	1:1	1.930	-0.03	20.02	21.00	1.253	2.419	22.1
Bottom side	20	QPSK 50RB_50	132322/1745	1:1	1.610	0.01	20.02	21.00	1.253	2.018	22.1
Back side	20	QPSK 50RB_50	132072/1720	1:1	1.820	-0.03	20.01	21.00	1.256	2.286	22.1
Back side	20	QPSK 50RB_50	132572/1770	1:1	1.850	0.09	19.94	21.00	1.276	2.361	22.1
Bottom side	20	QPSK 50RB_50	132072/1720	1:1	1.650	-0.01	20.01	21.00	1.256	2.072	22.1
Bottom side	20	QPSK 50RB_50	132572/1770	1:1	1.680	0.09	19.94	21.00	1.276	2.144	22.1
Product specific 10g SAR Test data(Separate 0mm 100%RB) sensor on											
Back side	20	QPSK 100RB_0	132322/1745	1:1	1.910	-0.05	20.07	21.00	1.239	2.366	22.1
Bottom side	20	QPSK 100RB_0	132322/1745	1:1	1.610	0.11	20.07	21.00	1.239	1.994	22.1
Product specific 10g SAR Test data(Separate 0mm 1RB) sensor off											
Front side-4mm	20	QPSK 1RB_99	132322/1745	1:1	1.520	-0.01	23.01	24.00	1.256	1.909	22.1
Back side-6mm	20	QPSK 1RB_99	132322/1745	1:1	1.670	-0.07	23.01	24.00	1.256	2.098	22.1
Bottom side-7mm	20	QPSK 1RB_99	132322/1745	1:1	1.750	-0.06	23.01	24.00	1.256	2.198	22.1
Back side-6mm	20	QPSK 1RB_99	132072/1720	1:1	1.600	-0.04	22.78	24.00	1.324	2.119	22.3
Back side-6mm	20	QPSK 1RB_99	132572/1770	1:1	1.630	0.04	22.70	24.00	1.349	2.199	22.3
Bottom side-7mm	20	QPSK 1RB_99	132072/1720	1:1	1.700	0.09	22.78	24.00	1.324	2.251	22.3
Bottom side-7mm	20	QPSK 1RB_99	132572/1770	1:1	1.630	0.01	22.70	24.00	1.349	2.199	22.3

Table 32: SAR of LTE Band 66 for Head, Body and Product specific 10g SAR(original report ZR/2020/8000602).

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)											
Right cheek	20	QPSK 1RB_99	132322/1745	1:1	0.193	0.08	23.01	24.00	1.256	0.242	22.1
Body worn Test data(Separate 5mm 1RB) sensor on											
Back side	20	QPSK 1RB_99	132572/1770	1:1	0.997	0.02	16.56	18.00	1.393	1.389	22.1
Hotspot Test data(Separate 5mm 1RB)											
Bottom side	20	QPSK 1RB_99	132572/1770	1:1	0.936	-0.03	15.62	17.00	1.374	1.286	22.3
Test position	BW.	Test mode	Test Ch./Freq.	Duty Cycle	SAR (W/kg)10-g	Power Drift(dB)	Conducted power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR(W/kg)	Liquid Temp.
Product specific 10g SAR Test data(Separate 0mm 1RB) sensor on											
Back side	20	QPSK 1RB_99	132322/1745	1:1	2.030	0.02	20.13	21.00	1.222	2.480	22.1

Table 33: SAR of LTE Band 66 for Head, Body and Product specific 10g SAR(Variant).

Note:

- 1) The maximum Scaled SAR value is marked in bold. Graph results refer to Appendix B.
- 2) Per KDB447498 D01, testing of other required channels within the operating mode of a frequency band is not required when the reported 1-g or 10-g SAR for the mid-band or highest output power channel is:
 - $\leq 0.8\text{W/kg}$ for 1-g or 2.0W/kg for 10-g respectively, when the transmission band is $\leq 100\text{MHz}$.
 - $\leq 0.6\text{ W/kg}$ or 1.5 W/kg , for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz .
 - $\leq 0.4\text{ W/kg}$ or 1.0 W/kg , for 1-g or 10-g respectively, when the transmission band is $\geq 200\text{ MHz}$.

Test Position	Channel/ Frequency (MHz)	Measured SAR (1g)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
			SAR (1g)		SAR (1g)	SAR (1g)
Bottom side	132572/1770	0.956	0.949	1.007	N/A	N/A

Note: 1) When the original highest measured SAR is $\geq 0.80\text{ W/kg}$, 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 $\geq 1.45\text{ W/kg}$ (~ 10% from the 1-g SAR limit).

3) A third repeated measurement was performed only if the original, first or second repeated measurement was $\geq 1.5\text{ W/kg}$ 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 $< 0.80\text{ W/kg}$



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8.3.11 SAR Result of WIFI 2.4G

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	11/2462	99.26%	1.007	0.851	0.01	18.13	19.00	1.222	1.040	22.0
Left cheek-repeat	802.11b	11/2462	99.26%	1.007	0.839	0.04	18.13	19.00	1.222	1.025	22.0
Left tilted	802.11b	11/2462	99.26%	1.007	0.654	0.03	18.13	19.00	1.222	0.799	22.0
Right cheek	802.11b	11/2462	99.26%	1.007	0.304	0.01	18.13	19.00	1.222	0.371	22.0
Right tilted	802.11b	11/2462	99.26%	1.007	0.185	0.05	18.13	19.00	1.222	0.226	22.0
Left cheek	802.11b	6/2437	99.26%	1.007	0.806	0.01	18.10	19.00	1.230	0.992	22.0
Left cheek	802.11b	1/2412	99.26%	1.007	0.785	0.01	18.09	19.00	1.233	0.968	22.0
Body worn Test data (Separate 5mm)											
Front side	802.11b	11/2462	99.26%	1.007	0.317	0.03	18.87	19.50	1.156	0.366	22.0
Back side	802.11b	11/2462	99.26%	1.007	0.750	0.14	18.87	19.50	1.156	0.867	22.0
Back side	802.11b	6/2437	99.26%	1.007	0.658	0.06	18.79	19.50	1.178	0.775	22.0
Back side	802.11b	1/2412	99.26%	1.007	0.687	0.06	18.74	19.50	1.191	0.818	22.0
Hotspot Test data (Separate 5mm)											
Front side	802.11b	11/2462	99.26%	1.007	0.317	0.03	18.87	19.50	1.156	0.366	22.0
Back side	802.11b	11/2462	99.26%	1.007	0.750	0.14	18.87	19.50	1.156	0.867	22.0
Right side	802.11b	11/2462	99.26%	1.007	0.217	0.03	18.87	19.50	1.156	0.251	22.0
Top side	802.11b	11/2462	99.26%	1.007	0.387	-0.05	18.87	19.50	1.156	0.447	22.0
Back side	802.11b	6/2437	99.26%	1.007	0.658	0.06	18.79	19.50	1.178	0.775	22.0
Back side	802.11b	1/2412	99.26%	1.007	0.687	0.06	18.74	19.50	1.191	0.818	22.0

Table 34: SAR of WIFI 2.4G for Head and Body(original report ZR/2020/8000602).

Note:

- 1) The maximum Scaled SAR value is marked in bold. Graph results refer to Appendix B.
- 2) 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.

Test Position	Channel/ Frequency	Measured SAR (1g)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
	(MHz)		SAR (1g)		SAR (1g)	SAR (1g)
Left cheek	11/2462	0.851	0.839	1.014	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 ($\sim 10\%$ 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



8.3.12 SAR Result of WIFI 5G

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	802.11a	60/5300	97.81%	1.022	0.370	-0.02	17.73	18.00	1.064	0.403	22.2
Left tilted	802.11a	60/5300	97.81%	1.022	0.684	-0.04	17.73	18.00	1.064	0.744	22.2
Right cheek	802.11a	60/5300	97.81%	1.022	0.559	0.03	17.73	18.00	1.064	0.608	22.2
Right tilted	802.11a	60/5300	97.81%	1.022	0.711	0.00	17.73	18.00	1.064	0.774	22.2
Head Test data of U-NII-2C											
Left cheek	802.11a	116/5580	97.81%	1.022	0.353	-0.02	17.42	18.00	1.143	0.412	22.2
Left tilted	802.11a	116/5580	97.81%	1.022	0.665	-0.06	17.42	18.00	1.143	0.777	22.2
Right cheek	802.11a	116/5580	97.81%	1.022	0.536	0.04	17.42	18.00	1.143	0.626	22.2
Right tilted	802.11a	116/5580	97.81%	1.022	0.692	0.05	17.42	18.00	1.143	0.809	22.2
Right tilted	802.11a	100/5500	97.81%	1.022	0.851	0.06	17.29	18.00	1.178	1.025	22.2
Right tilted	802.11a	140/5700	97.81%	1.022	0.558	0.03	17.24	18.00	1.191	0.680	22.2
Head Test data of U-NII-3											
Left cheek	802.11a	157/5785	97.81%	1.022	0.387	0.04	17.62	18.00	1.091	0.432	22.2
Left tilted	802.11a	157/5785	97.81%	1.022	0.699	0.06	17.62	18.00	1.091	0.780	22.2
Right cheek	802.11a	157/5785	97.81%	1.022	0.450	0.02	17.62	18.00	1.091	0.502	22.2
Right tilted	802.11a	157/5785	97.81%	1.022	0.617	0.05	17.62	18.00	1.091	0.688	22.2
Body worn Test data of U-NII-2A (Separate 5mm)											
Front side	802.11a	60/5300	97.81%	1.022	0.233	-0.05	17.73	18.00	1.064	0.253	22.2
Back side	802.11a	60/5300	97.81%	1.022	0.629	-0.02	17.73	18.00	1.064	0.684	22.2
Body worn Test data of U-NII-2C (Separate 5mm)											
Front side	802.11a	116/5580	97.81%	1.022	0.210	0.03	17.42	18.00	1.143	0.245	22.2
Back side	802.11a	116/5580	97.81%	1.022	0.637	0.05	17.42	18.00	1.143	0.744	22.2
Body worn Test data of U-NII-3 (Separate 5mm)											
Front side	802.11a	157/5785	97.81%	1.022	0.241	0.01	17.62	18.00	1.091	0.381	22.2
Back side	802.11a	157/5785	97.81%	1.022	0.621	0.06	17.62	18.00	1.091	0.693	22.2
Hotspot Test data of U-NII-1 (Separate 5mm)											
Front side	802.11a	40/5200	97.81%	1.022	0.142	0.03	16.59	17.00	1.099	0.160	22.2
Back side	802.11a	40/5200	97.81%	1.022	0.376	0.07	16.59	17.00	1.099	0.422	22.2
Right side	802.11a	40/5200	97.81%	1.022	0.064	0.04	16.59	17.00	1.099	0.072	22.2
Top side	802.11a	40/5200	97.81%	1.022	0.892	-0.04	16.59	17.00	1.099	1.002	22.2
Top side	802.11a	36/5180	97.81%	1.022	0.840	0.04	16.36	17.00	1.159	0.995	22.2
Top side	802.11a	48/5240	97.81%	1.022	0.920	0.06	16.34	17.00	1.164	1.095	22.2
Hotspot Test data of U-NII-3 (Separate 5mm)											
Front side	802.11a	157/5785	97.81%	1.022	0.139	0.04	15.59	16.00	1.099	0.156	22.2
Back side	802.11a	157/5785	97.81%	1.022	0.535	0.03	15.59	16.00	1.099	0.601	22.2



Right side	802.11a	157/5785	97.81%	1.022	0.140	0.01	15.59	16.00	1.099	0.157	22.2
Top side	802.11a	157/5785	97.81%	1.022	0.868	0.00	15.59	16.00	1.099	0.975	22.2
Top side	802.11a	149/5745	97.81%	1.022	0.818	0.08	15.56	16.00	1.107	0.925	22.2
Top side	802.11a	165/5825	97.81%	1.022	0.952	0.07	15.52	16.00	1.117	1.087	22.2
Top side-repeat	802.11a	165/5825	97.81%	1.022	0.950	-0.01	15.52	16.00	1.117	1.085	22.2
Test position	Test mode	Test Ch./Freq.	Duty Cycle	Duty Cycle Scaled factor	SAR (W/kg)10-g	Power drift(dB)	Conducted power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR(W/kg)	Liquid Temp.
Product specific 10gSAR Test data of U-NII-2A(Separate 0mm)											
Front side	802.11a	60/5300	97.81%	1.022	0.248	0.08	17.73	18.00	1.064	0.270	22.2
Back side	802.11a	60/5300	97.81%	1.022	0.454	0.02	17.73	18.00	1.064	0.494	22.2
Right side	802.11a	60/5300	97.81%	1.022	0.099	0.01	17.73	18.00	1.064	0.108	22.2
Top side	802.11a	60/5300	97.81%	1.022	1.310	-0.09	17.73	18.00	1.064	1.425	22.2
Product specific 10gSAR Test data of U-NII-2C(Separate 0mm)											
Front side	802.11a	116/5580	97.81%	1.022	0.264	0.01	17.42	18.00	1.143	0.308	22.2
Back side	802.11a	116/5580	97.81%	1.022	0.424	0.09	17.42	18.00	1.143	0.495	22.2
Right side	802.11a	116/5580	97.81%	1.022	0.161	0.01	17.42	18.00	1.143	0.188	22.2
Top side	802.11a	116/5580	97.81%	1.022	1.150	0.07	17.42	18.00	1.143	1.344	22.2

Table 35: SAR of WIFI 5G for Head, Body and Product specific 10g SAR(original report ZR/2020/8000602).
Note:

- 1) The maximum Scaled SAR value is marked in bold. Graph results refer to Appendix B.
- 2) 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.

Test Position	Channel/ Frequency	Measured SAR (1g)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
	(MHz)		SAR (1g)		SAR (1g)	SAR (1g)
Top side	165/5825	0.952	0.950	1.002	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



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8.3.13 SAR Result of BT

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	DH5	0/2402	81.60%	1.225	0.091	0.02	12.83	13.50	1.167	0.106	22.0
Left tilted	DH5	0/2402	81.60%	1.225	0.082	0.03	12.83	13.50	1.167	0.096	22.0
Right cheek	DH5	0/2402	81.60%	1.225	0.012	0.01	12.83	13.50	1.167	0.014	22.0
Right tilted	DH5	0/2402	81.60%	1.225	0.011	0.02	12.83	13.50	1.167	0.013	22.0
Hotspot Test data (Separate 5mm)											
Front side	DH5	0/2402	81.60%	1.225	0.012	0.03	12.83	13.50	1.167	0.014	22.0
Back side	DH5	0/2402	81.60%	1.225	0.051	-0.09	12.83	13.50	1.167	0.060	22.0
Right side	DH5	0/2402	81.60%	1.225	0.010	0.03	12.83	13.50	1.167	0.012	22.0
Top side	DH5	0/2402	81.60%	1.225	0.012	0.04	12.83	13.50	1.167	0.014	22.0

Table 36: SAR of BT for Head and Body(original report ZR/2020/8000602).

Note:

- 1) The maximum Scaled SAR value is marked in bold. Graph results refer to Appendix B.
- 2) Per KDB447498 D01, testing of other required channels within the operating mode of a frequency band is not required when the reported 1-g or 10-g SAR for the mid-band or highest output power channel is:
 - $\leq 0.8\text{W/kg}$ for 1-g or 2.0W/kg for 10-g respectively, when the transmission band is $\leq 100\text{MHz}$.
 - $\leq 0.6\text{ W/kg}$ or 1.5 W/kg , for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz.
 - $\leq 0.4\text{ W/kg}$ or 1.0 W/kg , for 1-g or 10-g respectively, when the transmission band is $\geq 200\text{ MHz}$.



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8.4 Multiple Transmitter Evaluation

8.4.1 Simultaneous SAR test evaluation

- Simultaneous Transmission Possibilities

NO.	Simultaneous Tx Combination	Head	Body	Hotspot	Product Specific 10-g (0mm)
1	WWAN + WiFi 2.4G	Yes	Yes	Yes	Yes
2	WWAN + WiFi 5G	Yes	Yes	Yes	Yes
3	WWAN + WiFi 5G + BT	Yes	Yes	Yes	Yes

Note:

- WiFi 2.4G and Bluetooth can't transmit simultaneously.
- The device does not support DTM function.



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8.4.2 Simultaneous Transmission SAR Summation Scenario

Head			Reported SAR				Summed SAR		
WWAN Band		Exposure Position	1	2	3	4	1+2	1+3	1+3+4
			WWAN	2.4GHz WLAN	5GHz WLAN	Bluetooth	Summed	Summed	Summed
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
GSM	GSM850	Left Cheek	0.267	1.040	0.432	0.106	1.306	0.698	0.804
		Left Tilted	0.142	0.799	0.780	0.096	0.940	0.921	1.017
		Right Cheek	0.263	0.371	0.626	0.014	0.633	0.888	0.902
		Right Tilted	0.136	0.226	1.025	0.013	0.362	1.161	1.174
	GSM1900	Left Cheek	0.022	1.040	0.432	0.106	1.062	0.454	0.560
		Left Tilted	0.021	0.799	0.780	0.096	0.820	0.801	0.897
		Right Cheek	0.027	0.371	0.626	0.014	0.398	0.653	0.667
		Right Tilted	0.016	0.226	1.025	0.013	0.242	1.041	1.054
WCDMA	WCDMA II	Left Cheek	0.182	1.040	0.432	0.106	1.222	0.614	0.720
		Left Tilted	0.173	0.799	0.780	0.096	0.972	0.953	1.049
		Right Cheek	0.233	0.371	0.626	0.014	0.604	0.859	0.873
		Right Tilted	0.178	0.226	1.025	0.013	0.404	1.203	1.216
	WCDMA IV	Left Cheek	0.219	1.040	0.432	0.106	1.259	0.651	0.757
		Left Tilted	0.178	0.799	0.780	0.096	0.977	0.958	1.054
		Right Cheek	0.277	0.371	0.626	0.014	0.648	0.903	0.917
		Right Tilted	0.188	0.226	1.025	0.013	0.414	1.213	1.226
	WCDMA V	Left Cheek	0.250	1.040	0.432	0.106	1.290	0.682	0.788
		Left Tilted	0.148	0.799	0.780	0.096	0.947	0.928	1.024
		Right Cheek	0.300	0.371	0.626	0.014	0.671	0.926	0.940
		Right Tilted	0.162	0.226	1.025	0.013	0.388	1.187	1.200
LTE	LTE Band 2	Left Cheek	0.156	1.040	0.432	0.106	1.196	0.588	0.694
		Left Tilted	0.152	0.799	0.780	0.096	0.951	0.932	1.028
		Right Cheek	0.181	0.371	0.626	0.014	0.552	0.807	0.821
		Right Tilted	0.154	0.226	1.025	0.013	0.380	1.179	1.192
	LTE Band 4	Left Cheek	0.209	1.040	0.432	0.106	1.249	0.641	0.747
		Left Tilted	0.153	0.799	0.780	0.096	0.952	0.933	1.029
		Right Cheek	0.298	0.371	0.626	0.014	0.669	0.924	0.938
		Right Tilted	0.119	0.226	1.025	0.013	0.345	1.144	1.157
	LTE Band 5	Left Cheek	0.314	1.040	0.432	0.106	1.354	0.746	0.852
		Left Tilted	0.131	0.799	0.780	0.096	0.930	0.911	1.007
		Right Cheek	0.222	0.371	0.626	0.014	0.593	0.848	0.862
		Right Tilted	0.146	0.226	1.025	0.013	0.372	1.171	1.184
	LTE Band 7	Left Cheek	0.445	1.040	0.432	0.106	1.485	0.877	0.983
		Left Tilted	0.224	0.799	0.780	0.096	1.023	1.004	1.100
		Right Cheek	0.347	0.371	0.626	0.014	0.718	0.973	0.987
		Right Tilted	0.334	0.226	1.025	0.013	0.560	1.359	1.372
	LTE Band 66	Left Cheek	0.180	1.040	0.432	0.106	1.220	0.612	0.718
		Left Tilted	0.147	0.799	0.780	0.096	0.946	0.927	1.023
		Right Cheek	0.246	0.371	0.626	0.014	0.617	0.872	0.886
		Right Tilted	0.123	0.226	1.025	0.013	0.349	1.148	1.161



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Body worn			Reported SAR				Summed SAR			
WWAN Band		Exposure Position	1	2	3	4	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)	1+3+4 Summed 1g SAR (W/kg)	SN
			WWAN	2.4GHz WLAN	5GHz WLAN	Bluetooth				
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)				
GSM	GSM850	Front at 5mm	0.654	0.366	0.253	0.014	1.020	0.907	0.921	5&6
		Back at 5mm	1.290	0.867	0.744	0.060	2.157	2.034	2.094	
	GSM1900	Front at 5mm	0.362	0.366	0.253	0.012	0.728	0.615	0.627	7&8
		Back at 5mm	0.985	0.867	0.744	0.014	1.852	1.729	1.743	
		Front at 10mm	0.166	/	/	/	0.166	0.166	0.166	
		Back at 17mm	0.183	/	/	/	0.183	0.183	0.183	
WCDMA	WCDMA II	Front at 5mm	0.670	0.366	0.253	0.012	1.036	0.923	0.935	9&10
		Back at 5mm	1.253	0.867	0.744	0.014	2.120	1.997	2.011	
		Front at 10mm	1.189	/	/	/	1.189	1.189	1.189	
		Back at 17mm	0.846	/	/	/	0.846	0.846	0.846	
	WCDMA IV	Front at 5mm	0.629	0.366	0.253	0.012	0.995	0.882	0.894	11&12
		Back at 5mm	1.399	0.867	0.744	0.014	2.266	2.143	2.157	
		Front at 10mm	1.141	/	/	/	1.141	1.141	1.141	
		Back at 17mm	0.800	/	/	/	0.800	0.800	0.800	
	WCDMA V	Front at 5mm	0.536	0.366	0.253	0.012	0.902	0.789	0.801	13&14
		Back at 5mm	1.176	0.867	0.744	0.014	2.043	1.920	1.934	
LTE	LTE Band 2	Front at 5mm	0.500	0.366	0.253	0.012	0.866	0.753	0.765	15&16
		Back at 5mm	1.334	0.867	0.744	0.014	2.201	2.078	2.092	
		Front at 10mm	1.057	/	/	/	1.057	1.057	1.057	
		Back at 17mm	0.876	/	/	/	0.876	0.876	0.876	
	LTE Band 4	Front at 5mm	0.629	0.366	0.253	0.012	0.995	0.882	0.894	17&18
		Back at 5mm	1.395	0.867	0.744	0.014	2.262	2.139	2.153	
		Front at 10mm	1.112	/	/	/	1.112	1.112	1.112	
		Back at 17mm	0.851	/	/	/	0.851	0.851	0.851	
	LTE Band 5	Front at 5mm	0.463	0.366	0.253	0.012	0.829	0.716	0.728	19&20
		Back at 5mm	1.347	0.867	0.744	0.014	2.214	2.091	2.105	
	LTE Band 7	Front at 5mm	1.127	0.366	0.253	0.012	1.493	1.380	1.392	21&22
		Back at 5mm	1.407	0.867	0.744	0.014	2.274	2.151	2.165	
		Front at 10mm	0.971	/	/	/	0.971	0.971	0.971	
		Back at 17mm	0.445	/	/	/	0.445	0.445	0.445	
	LTE Band 66	Front at 5mm	0.590	0.366	0.253	0.012	0.956	0.843	0.855	23&24
		Back at 5mm	1.389	0.867	0.744	0.014	2.256	2.133	2.147	
		Front at 10mm	1.091	/	/	/	1.091	1.091	1.091	
		Back at 17mm	0.954	/	/	/	0.954	0.954	0.954	



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Hotspot			Reported SAR				Summed SAR			
WWAN Band		Exposure Position	1	2	3	4	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)	1+3+4 Summed 1g SAR (W/kg)	SN
			WWAN	2.4GHz WLAN	5GHz WLAN	Bluetooth				
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)				
GSM	GSM850	Front at 5mm	0.759	0.366	0.160	0.014	1.125	0.919	0.933	1&2
		Back at 5mm	1.489	0.867	0.601	0.060	2.356	2.090	2.150	
		Left side at 5mm	0.419	/	/	/	/	/	/	
		Right side at 5mm	0.624	0.251	0.157	0.012	0.875	0.781	0.793	
		Top side at 5mm	/	0.447	1.095	0.014	/	/	/	
		Bottom side at 5mm	0.426	/	/	/	/	/	/	
	GSM1900	Front at 5mm	0.306	0.366	0.160	0.014	0.672	0.466	0.480	3
		Back at 5mm	0.742	0.867	0.601	0.060	1.609	1.343	1.403	
		Left side at 5mm	0.066	/	/	/	0.066	0.066	0.066	
		Right side at 5mm	0.046	0.251	0.157	0.012	0.297	0.203	0.215	
		Top side at 5mm	/	0.447	1.095	0.014	0.447	1.095	1.109	
		Bottom side at 5mm	0.796	/	/	/	0.796	0.796	0.796	
WCDMA	WCDMA II	Front at 5mm	0.670	0.366	0.160	0.014	1.036	0.830	0.844	9&10
		Back at 5mm	1.253	0.867	0.601	0.060	2.120	1.854	1.914	
		Left side at 5mm	0.102	/	/	/	0.102	0.102	0.102	
		Right side at 5mm	0.027	0.251	0.157	0.012	0.278	0.184	0.196	
		Top side at 5mm	/	0.447	1.095	0.014	0.447	1.095	1.109	
		Bottom side at 5mm	1.446	/	/	/	1.446	1.446	1.446	
	WCDMA IV	Front at 5mm	0.629	0.366	0.160	0.014	0.995	0.789	0.803	11&12
		Back at 5mm	1.399	0.867	0.601	0.060	2.266	2.000	2.060	
		Left side at 5mm	0.077	/	/	/	0.077	0.077	0.077	
		Right side at 5mm	0.068	0.251	0.157	0.012	0.319	0.225	0.237	
		Top side at 5mm	/	0.447	1.095	0.014	0.447	1.095	1.109	
		Bottom side at 5mm	1.401	/	/	/	1.401	1.401	1.401	
	WCDMA V	Front at 5mm	0.536	0.366	0.160	0.014	0.902	0.696	0.710	13&14
		Back at 5mm	1.176	0.867	0.601	0.060	2.043	1.777	1.837	
		Left side at 5mm	0.239	/	/	/	0.239	0.239	0.239	
		Right side at 5mm	0.331	0.251	0.157	0.012	0.582	0.488	0.500	
		Top side at 5mm	/	0.447	1.095	0.014	0.447	1.095	1.109	
		Bottom side at 5mm	0.533	/	/	/	0.533	0.533	0.533	
LTE	LTE Band 2	Front at 5mm	0.500	0.366	0.160	0.014	0.866	0.660	0.674	15&16
		Back at 5mm	1.334	0.867	0.601	0.060	2.201	1.935	1.995	
		Left side at 5mm	0.102	/	/	/	0.102	0.102	0.102	
		Right side at 5mm	0.053	0.251	0.157	0.012	0.304	0.210	0.222	
		Top side at 5mm	/	0.447	1.095	0.014	0.447	1.095	1.109	
		Bottom side at 5mm	1.330	/	/	/	1.330	1.330	1.330	
	LTE Band 4	Front at 5mm	0.629	0.366	0.160	0.014	0.995	0.789	0.803	17&18
		Back at 5mm	1.273	0.867	0.601	0.060	2.140	1.874	1.934	
		Left side at 5mm	0.100	/	/	/	0.100	0.100	0.100	
		Right side at 5mm	0.110	0.251	0.157	0.012	0.361	0.267	0.279	
		Top side at 5mm	/	0.447	1.095	0.014	0.447	1.095	1.109	
		Bottom side at 5mm	1.288	/	/	/	1.288	1.288	1.288	
	LTE Band 5	Front at 5mm	0.463	0.366	0.160	0.014	0.829	0.623	0.637	19&20
		Back at 5mm	1.347	0.867	0.601	0.060	2.214	1.948	2.008	
		Left side at 5mm	0.252	/	/	/	0.252	0.252	0.252	
		Right side at 5mm	0.162	0.251	0.157	0.012	0.413	0.319	0.331	
		Top side at 5mm	/	0.447	1.095	0.014	0.447	1.095	1.109	
		Bottom side at 5mm	1.288	/	/	/	1.288	1.288	1.288	



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		Bottom side at 5mm	0.468	/	/	/	0.468	0.468	0.468	
	LTE Band 7	Front at 5mm	1.127	0.366	0.160	0.014	1.493	1.287	1.301	
		Back at 5mm	1.407	0.867	0.601	0.060	2.274	2.008	2.068	21&22
		Left side at 5mm	0.622	/	/	/	0.622	0.622	0.622	
		Right side at 5mm	0.246	0.251	0.157	0.012	0.497	0.403	0.415	
		Top side at 5mm	/	0.447	1.095	0.014	0.447	1.095	1.109	
		Bottom side at 5mm	1.049	/	/	/	1.049	1.049	1.049	
	LTE Band 66	Front at 5mm	0.590	0.366	0.160	0.014	0.956	0.750	0.764	
		Back at 5mm	1.308	0.867	0.601	0.060	2.175	1.909	1.969	23&24
		Left side at 5mm	0.127	/	/	/	0.127	0.127	0.127	
		Right side at 5mm	0.164	0.251	0.157	0.012	0.415	0.321	0.333	
		Top side at 5mm	/	0.447	1.095	0.014	0.447	1.095	1.109	
		Bottom side at 5mm	1.314	/	/	/	1.314	1.314	1.314	

Product specific 10g SAR			Reported SAR				Summed SAR		
WWAN Band	Exposure Position		1	2	3	4	1+2 Summed 10g SAR (W/kg)	1+3 Summed 10g SAR (W/kg)	1+3+4 Summed 10g SAR (W/kg)
		WWAN	2.4GHz WLAN	5GHz WLAN	Bluetooth				
		10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)				
GSM	GSM850	Front at 0mm	/	/	0.308	/	/	0.308	0.308
		Back at 0mm	0.929	/	0.495	/	0.929	1.424	1.424
		Left side at 0mm	/	/	/	/	/	/	/
		Right side at 0mm	/	/	0.188	/	/	0.188	0.188
		Top side at 0mm	/	/	1.425	/	/	1.425	1.425
		Bottom side at 0mm	/	/	/	/	/	/	/
	GSM1900	Front at 0mm	/	/	0.308	/	/	0.308	0.308
		Back at 0mm	1.02	/	0.495	/	1.020	1.515	1.515
		Left side at 0mm	/	/	/	/	/	/	/
		Right side at 0mm	/	/	0.188	/	/	0.188	0.188
		Top side at 0mm	/	/	1.425	/	/	1.425	1.425
		Bottom side at 0mm	1.596	/	/	/	1.596	1.596	1.596
WCDMA	WCDMA II	Front at 0mm	1.261	/	0.308	/	1.261	1.569	1.569
		Back at 0mm	2.428	/	0.495	/	2.428	2.923	2.923
		Left side at 0mm	/	/	/	/	/	/	/
		Right side at 0mm	/	/	0.188	/	/	0.188	0.188
		Top side at 0mm	/	/	1.425	/	/	1.425	1.425
		Bottom side at 0mm	2.847	/	/	/	2.847	2.847	2.847
	WCDMA IV	Front at 0mm	1.493	/	0.308	/	1.493	1.801	1.801
		Back at 0mm	2.789	/	0.495	/	2.789	3.284	3.284
		Left side at 0mm	/	/	/	/	/	/	/
		Right side at 0mm	/	/	0.188	/	/	0.188	0.188
		Top side at 0mm	/	/	1.425	/	/	1.425	1.425
		Bottom side at 0mm	3.036	/	/	/	3.036	3.036	3.036
LTE	LTE Band 2	Front at 0mm	1.238	/	0.308	/	1.238	1.546	1.546
		Back at 0mm	2.738	/	0.495	/	2.738	3.233	3.233
		Left side at 0mm	/	/	/	/	/	/	/
		Right side at 0mm	/	/	0.188	/	/	0.188	0.188
		Top side at 0mm	/	/	1.425	/	/	1.425	1.425
		Bottom side at 0mm	3.281	/	/	/	3.281	3.281	3.281
	LTE Band 4	Front at 0mm	1.456	/	0.308	/	1.456	1.764	1.764
		Back at 0mm	2.737	/	0.495	/	2.737	3.232	3.232
		Left side at 0mm	/	/	/	/	/	/	/



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		Right side at 0mm	/	/	0.188	/	/	0.188	0.188
		Top side at 0mm	/	/	1.425	/	/	1.425	1.425
		Bottom side at 0mm	2.682	/	/	/	2.682	2.682	2.682
	LTE Band 5	Front at 0mm	/	/	0.308	/	/	0.308	0.308
		Back at 0mm	1.301	/	0.495	/	1.301	1.796	1.796
		Left side at 0mm	/	/	/	/	/	/	/
		Right side at 0mm	/	/	0.188	/	/	0.188	0.188
		Top side at 0mm	/	/	1.425	/	/	1.425	1.425
		Bottom side at 0mm	/	/	/	/	/	/	/
	LTE Band 7	Front at 0mm	2.507	/	0.308	/	2.507	2.815	2.815
		Back at 0mm	3.105	/	0.495	/	3.105	3.600	3.600
		Left side at 0mm	1.628	/	/	/	1.628	1.628	1.628
		Right side at 0mm	/	/	0.188	/	/	0.188	0.188
		Top side at 0mm	/	/	1.425	/	/	1.425	1.425
		Bottom side at 0mm	1.342	/	/	/	1.342	1.342	1.342
	LTE Band 66	Front at 0mm	1.454	/	0.308	/	1.454	1.762	1.762
		Back at 0mm	2.517	/	0.495	/	2.517	3.012	3.012
		Left side at 0mm	/	/	/	/	/	/	/
		Right side at 0mm	/	/	0.188	/	/	0.188	0.188
		Top side at 0mm	/	/	1.425	/	/	1.425	1.425
		Bottom side at 0mm	2.279	/	/	/	2.279	2.279	2.279

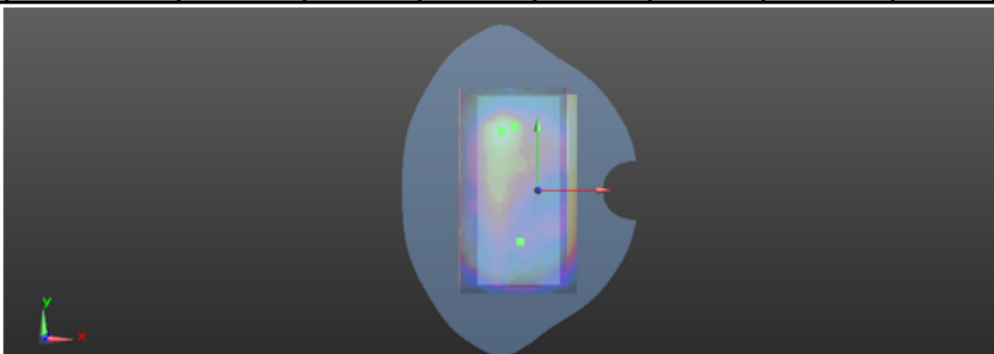
8.4.3 SPLSR Evaluation and Analysis

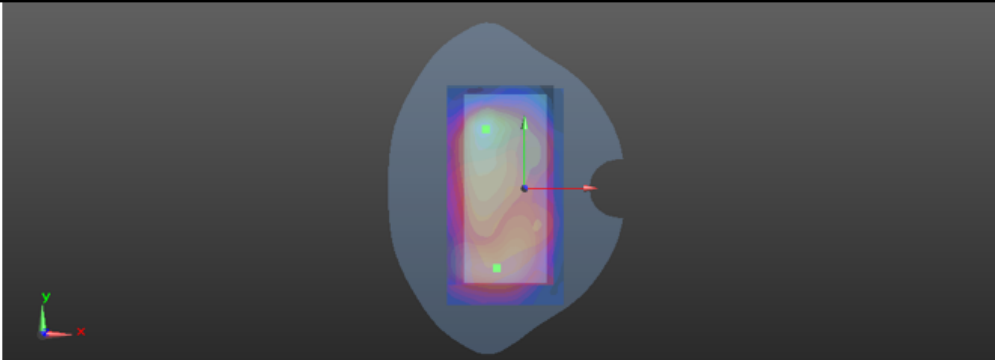
According to KDB447498 D01, When the sum of SAR is larger than the limit, SAR test exclusion is determined by the SAR to peak location separation ratio(SPLSR). When the SAR to peak location ratio for each pair of antennas is $\leq 1\text{-g } 0.04$ and $10\text{-g } 0.10$, simultaneous SAR evaluation is not required. When SAR is measured for both antennas in the pair, the peak location separation distance is computed by the following formula:

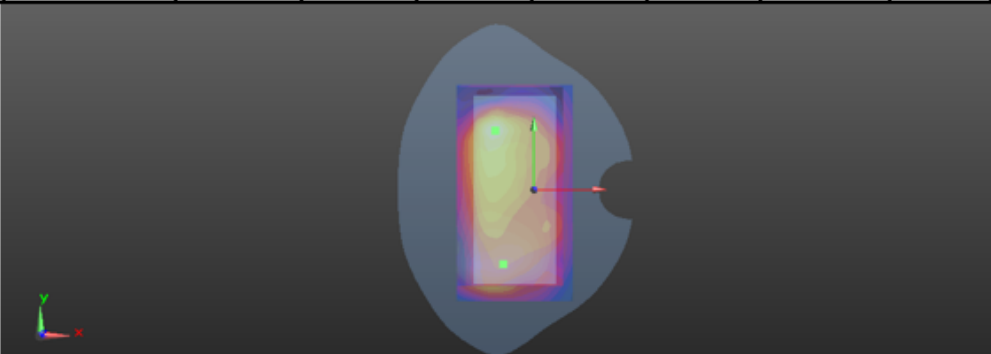
$$\text{Distance}_{T_{x1}-T_{x2}} = R_i = \sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2 + (z_1 - z_2)^2}$$

$$\text{SPLS Ratio} = (\text{SAR}_1 + \text{SAR}_2)^{1.5} / R_i$$

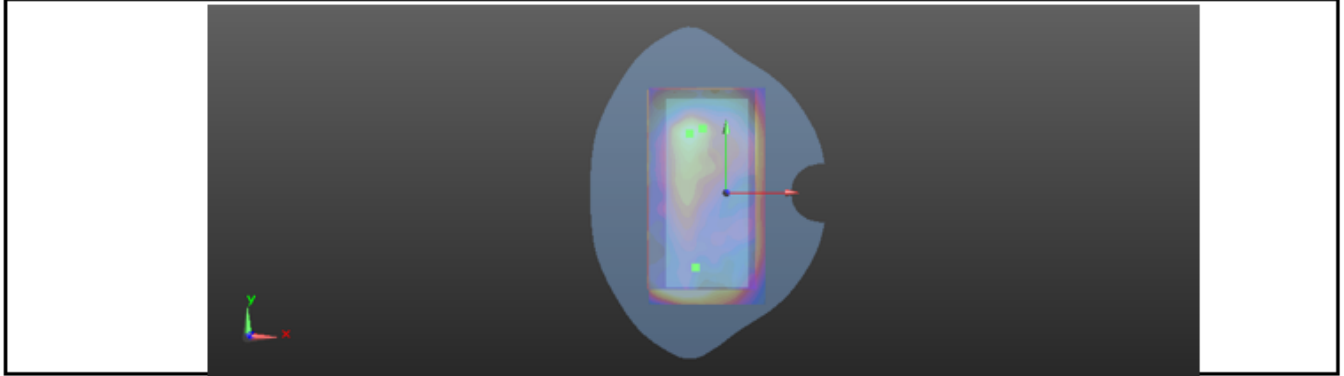
Case No.	Position	Band	SAR (W/kg)	SAR peak location (cm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				X	Y	Z				
1#	Back side	GSM 850	1.489	12.7	-46.5	-3.02	108.89	2.356	0.03	Not Required
		Wi-Fi 2.4G	0.867	-15.2	55.4	-29.4				

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	GSM 850	1.489	12.7	-46.5	-3.02	105.703	2.090	0.03	Not Required
		Wi-Fi 5G	0.601	-3.2	58	-2.78				
		BT	0.060	-13.8	57.4	-2.99				
	Back side	GSM 850	1.489	12.7	-46.5	-3.02	107.226	1.549	0.02	Not Required
		BT	0.060	-13.8	57.4	-2.99				
		Wi-Fi 5G	0.601	-3.2	58	-2.78				
										

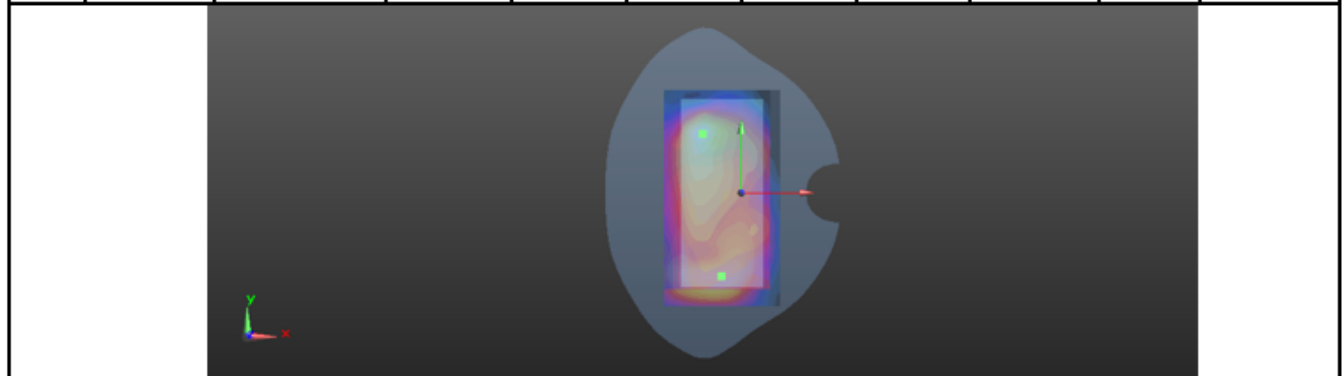
Case No.	Position	Band	SAR (W/kg)	SAR peak location (cm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				X	Y	Z				
3#	Back side	GSM 1900	0.742	-6.4	-68.8	-1.1	127.687	1.609	0.02	Not Required
		Wi-Fi 2.4G	0.867	-15.2	55.4	-29.4				
										

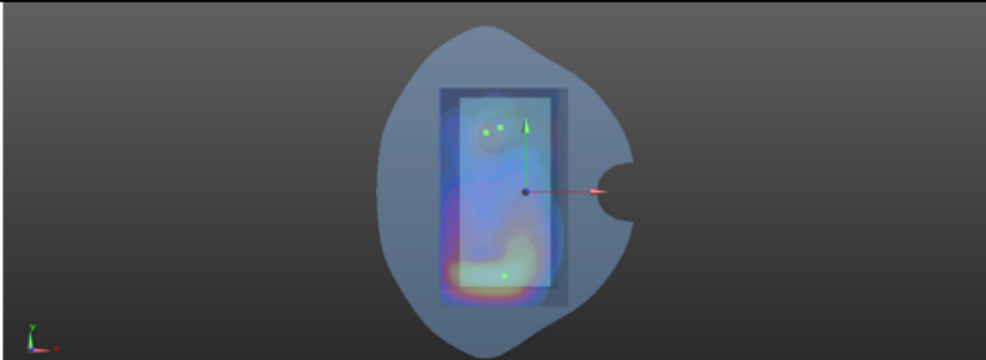
Case No.	Position	Band	SAR (W/kg)	SAR peak location (cm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				X	Y	Z				
5#	Back side	GSM 850	1.290	-11	-68.6	-1.06	124.085	2.157	0.03	Not Required
		Wi-Fi 2.4G	0.867	-15.2	55.4	-2.94				
										

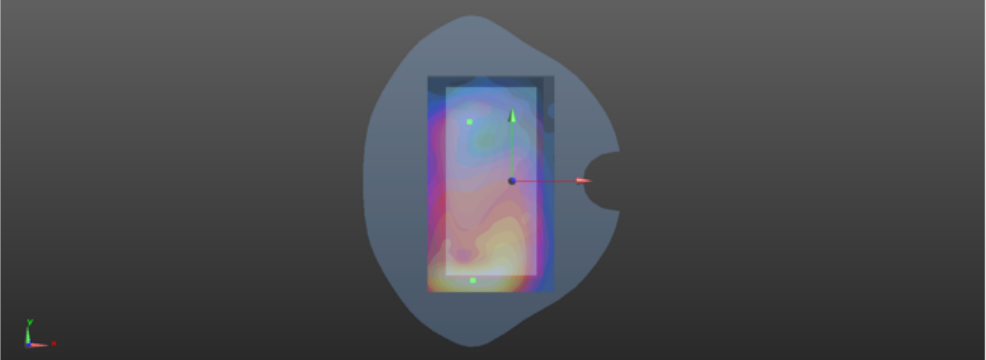
Case No.	Position	Band	SAR (W/kg)	SAR peak location (cm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				X	Y	Z				
6#	Back side	GSM 850	1.290	-11	-68.6	-1.06	126.852	2.148	0.02	Not Required
		Wi-Fi 5G	0.858	-3.2	58	-2.78				
		BT	0.060	-13.8	57.4	-2.99				
	Back side	GSM 850	1.290	-11	-68.6	-1.06	126.046	1.350	0.01	Not Required
		BT	0.060	-13.8	57.4	-2.99				
		Wi-Fi 5G	0.858	-3.2	58	-2.78				

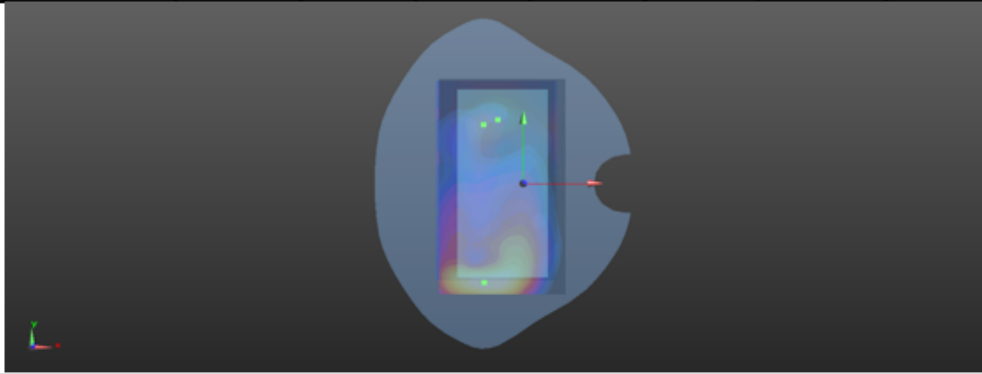


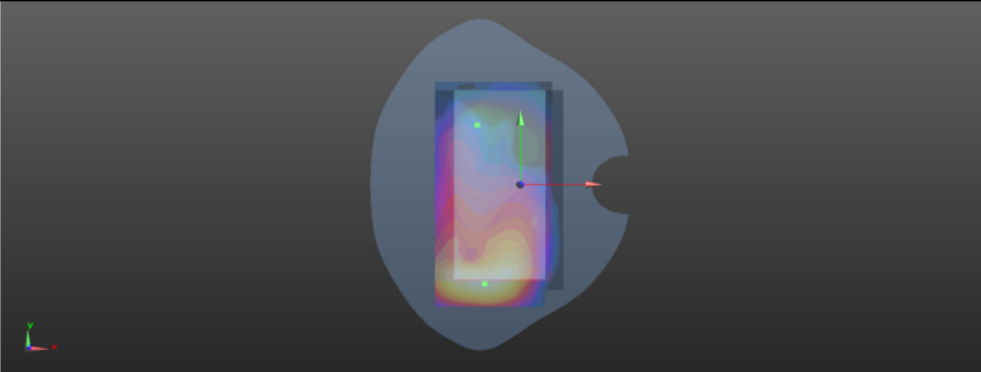
Case No.	Position	Band	SAR (W/kg)	SAR peak location (cm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				X	Y	Z				
7#	Back side	GSM 1900	0.985	-8.5	-76.6	-0.97	132.185	1.852	0.02	Not Required
		Wi-Fi 2.4G	0.867	-15.2	55.4	-2.94				

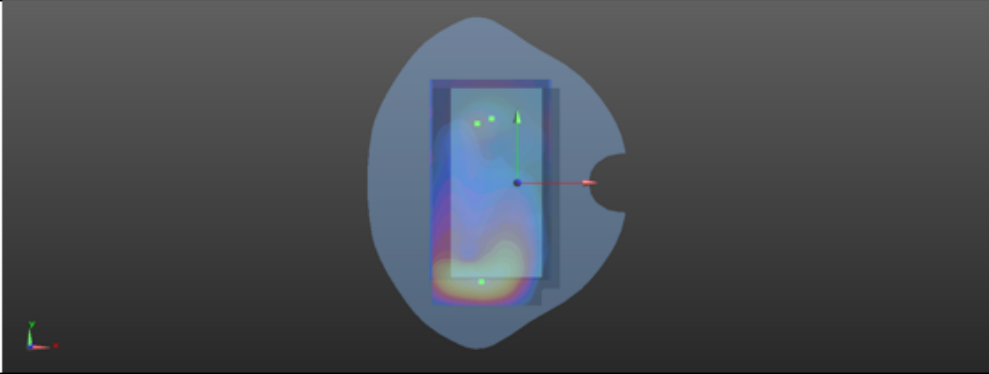


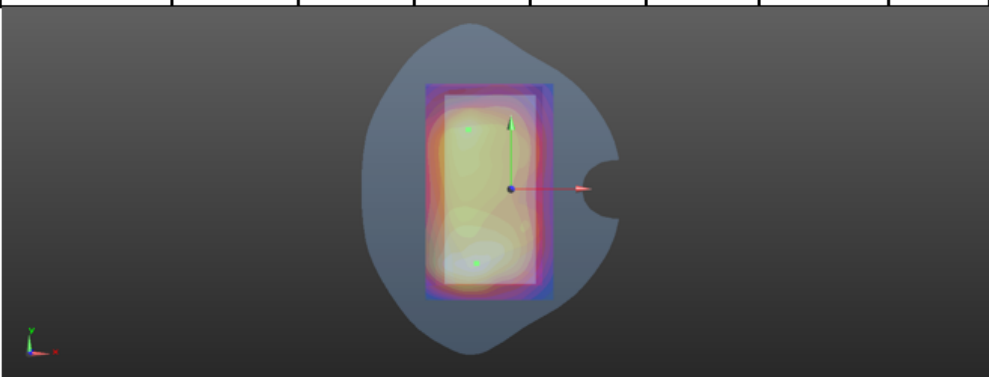
Case No.	Position	Band	SAR (W/kg)	SAR peak location (cm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				X	Y	Z				
8#	Back side	GSM 1900	0.985	-8.5	-76.6	-0.97	134.716	1.729	0.02	Not Required
		Wi-Fi 5G	0.744	-3.2	58	-2.78				
		BT	0.060	-13.8	57.4	-2.99				
	Back side	GSM 1900	0.985	-8.5	-76.6	-0.97	134.120	1.045	0.01	Not Required
		BT	0.060	-13.8	57.4	-2.99				
		Wi-Fi 5G	0.744	-3.2	58	-2.78				
										

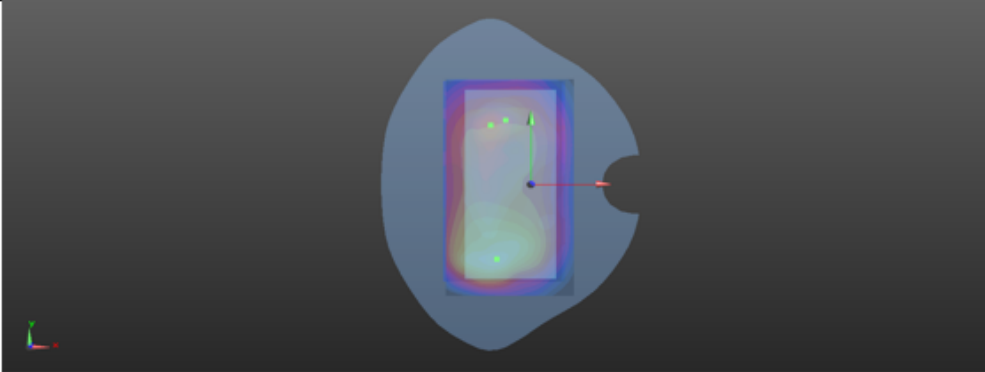
Case No.	Position	Band	SAR (W/kg)	SAR peak location (cm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				X	Y	Z				
9#	Back side	WCDMA Band II	1.253	-7.5	-89.5	-0.72	145.121	2.120	0.02	Not Required
		Wi-Fi 2.4G	0.867	-15.2	55.4	-2.94				
										

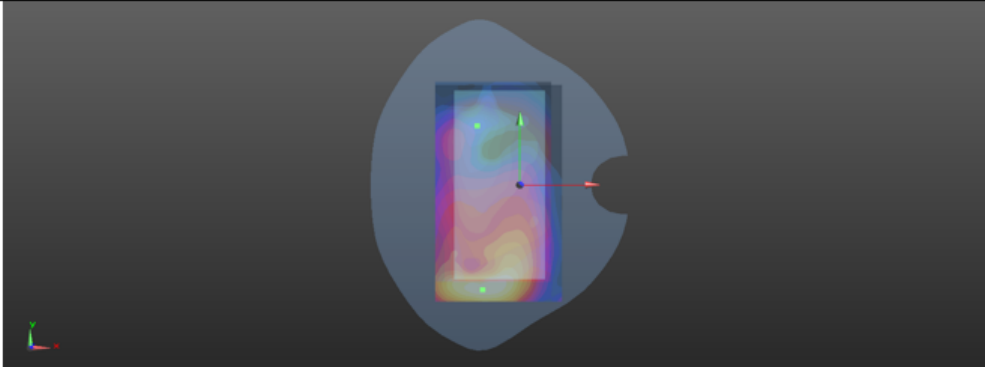
Case No.	Position	Band	SAR (W/kg)	SAR peak location (cm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				X	Y	Z				
10#	Back side	WCDMA Band II	1.253	-7.5	-89.5	-0.72	147.577	1.997	0.02	Not Required
		Wi-Fi 5G	0.744	-3.2	58	-2.78				
		BT	0.060	-13.8	57.4	-2.99				
	Back side	WCDMA Band II	1.253	-7.5	-89.5	-0.72	147.053	1.313	0.01	Not Required
		BT	0.060	-13.8	57.4	-2.99				
		Wi-Fi 5G	0.744	-3.2	58	-2.78				
										

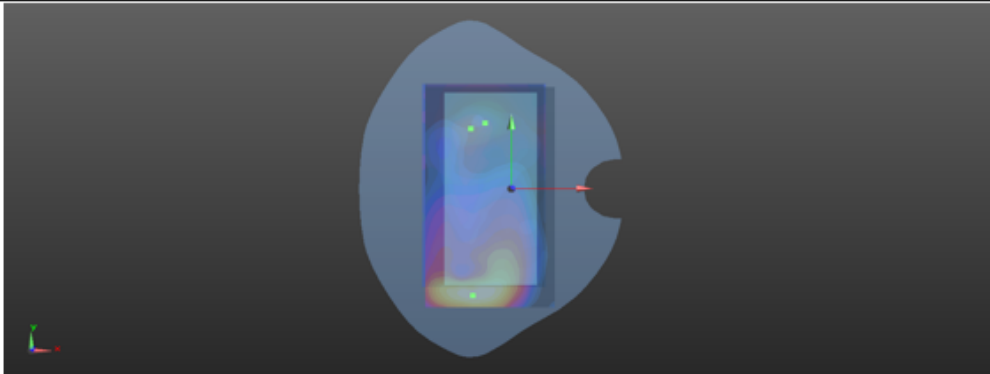
Case No.	Position	Band	SAR (W/kg)	SAR peak location (cm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				X	Y	Z				
11#	Back side	WCDMA Band IV	1.399	-18.9	-85.8	-0.95	141.262	2.266	0.02	Not Required
		Wi-Fi 2.4G	0.867	-15.2	55.4	-2.94				
										

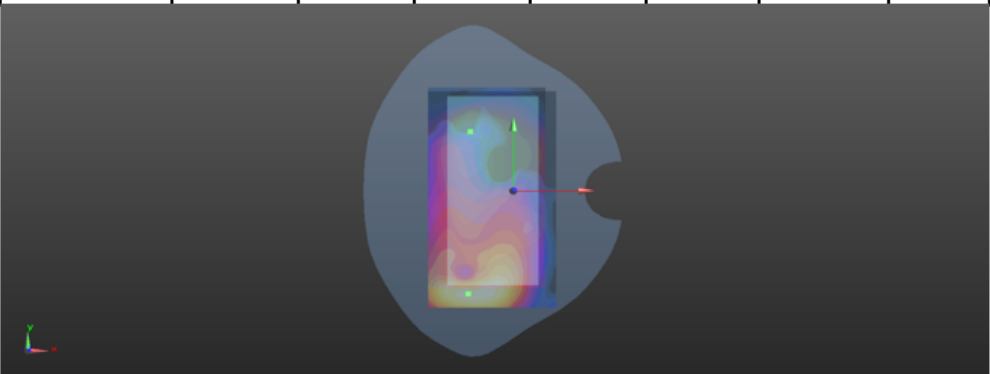
Case No.	Position	Band	SAR (W/kg)	SAR peak location (cm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				X	Y	Z				
12#	Back side	WCDMA Band IV	1.399	-18.9	-85.8	-0.95	144.666	2.143	0.02	Not Required
		Wi-Fi 5G	0.744	-3.2	58	-2.78				
		BT	0.060	-13.8	57.4	-2.99				
	Back side	WCDMA Band IV	1.399	-18.9	-85.8	-0.95	143.305	1.459	0.01	Not Required
		BT	0.060	-13.8	57.4	-2.99				
		Wi-Fi 5G	0.744	-3.2	58	-2.78				
										

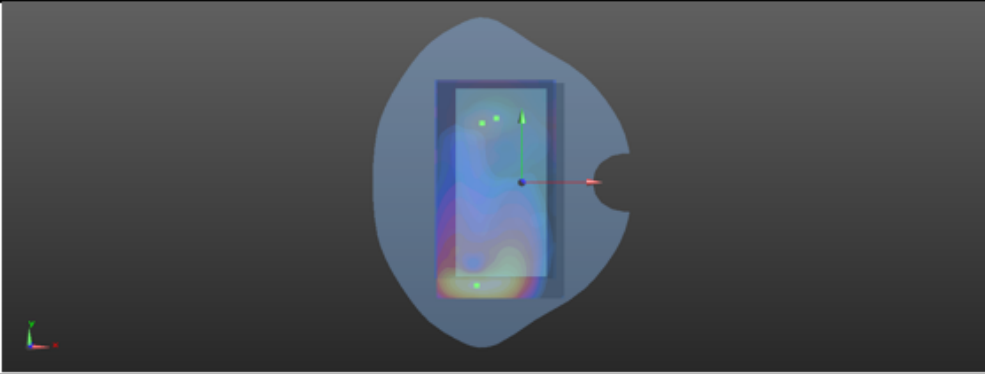
Case No.	Position	Band	SAR (W/kg)	SAR peak location (cm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				X	Y	Z				
13#	Back side	WCDMA Band V	1.176	-6.2	-65.4	-1.03	121.150	2.043	0.02	Not Required
		Wi-Fi 2.4G	0.867	-15.2	55.4	-2.94				
										

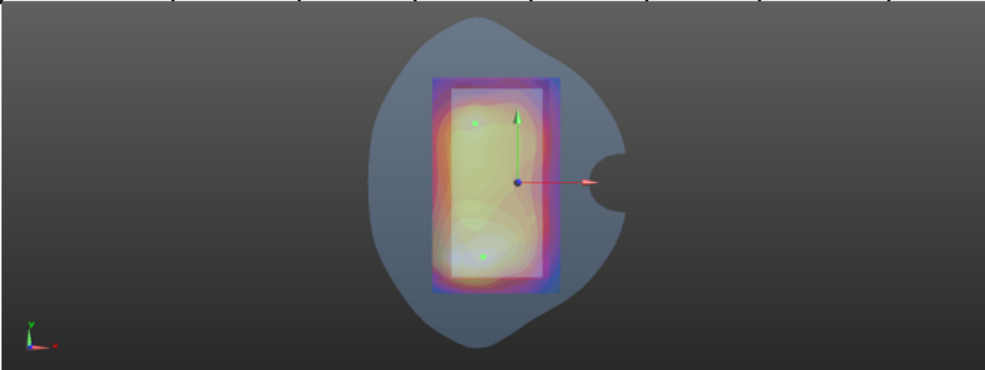
Case No.	Position	Band	SAR (W/kg)	SAR peak location (cm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				X	Y	Z				
14#	Back side	WCDMA Band V	1.176	-6.2	-65.4	-1.03	123.449	1.920	0.02	Not Required
		Wi-Fi 5G	0.744	-3.2	58	-2.78				
		BT	0.060	-13.8	57.4	-2.99				
	Back side	WCDMA Band V	1.176	-6.2	-65.4	-1.03	123.051	1.236	0.01	Not Required
		BT	0.060	-13.8	57.4	-2.99				
		Wi-Fi 5G	0.744	-3.2	58	-2.78				
										

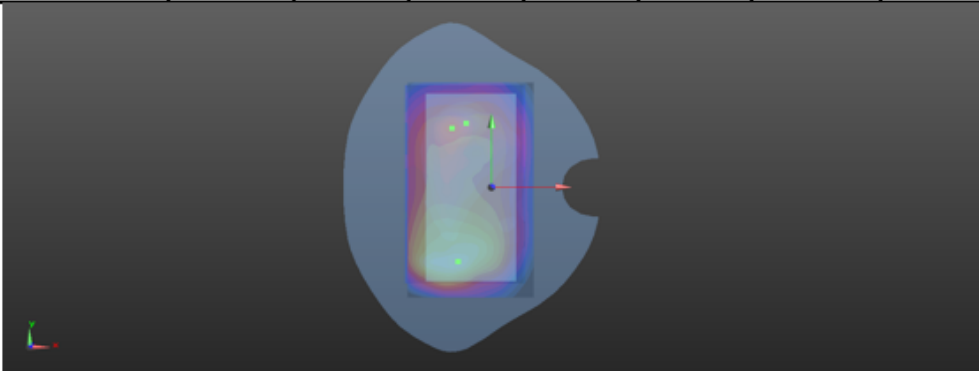
Case No.	Position	Band	SAR (W/kg)	SAR peak location (cm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				X	Y	Z				
15#	Back side	LTE Band 2	1.334	-9.2	-92.9	-0.81	148.437	2.201	0.02	Not Required
		Wi-Fi 2.4G	0.867	-15.2	55.4	-2.94				
										

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 2	1.334	-9.2	-92.9	-0.81	151.032	2.078	0.02	Not Required
		Wi-Fi 5G	0.744	-3.2	58	-2.78				
		BT	0.060	-13.8	57.4	-2.99				
	Back side	LTE Band 2	1.334	-9.2	-92.9	-0.81	150.386	1.394	0.01	Not Required
		BT	0.060	-13.8	57.4	-2.99				
		Wi-Fi 5G	0.744	-3.2	58	-2.78				
										

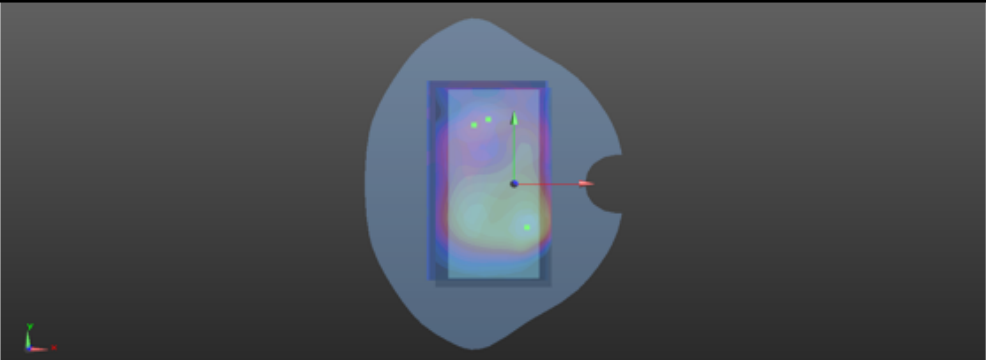
Case No.	Position	Band	SAR (W/kg)	SAR peak location (cm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				X	Y	Z				
17#	Back side	LTE Band 4	1.266	-16.8	-93	-0.81	148.424	2.133	0.02	Not Required
		Wi-Fi 2.4G	0.867	-15.2	55.4	-2.94				
										

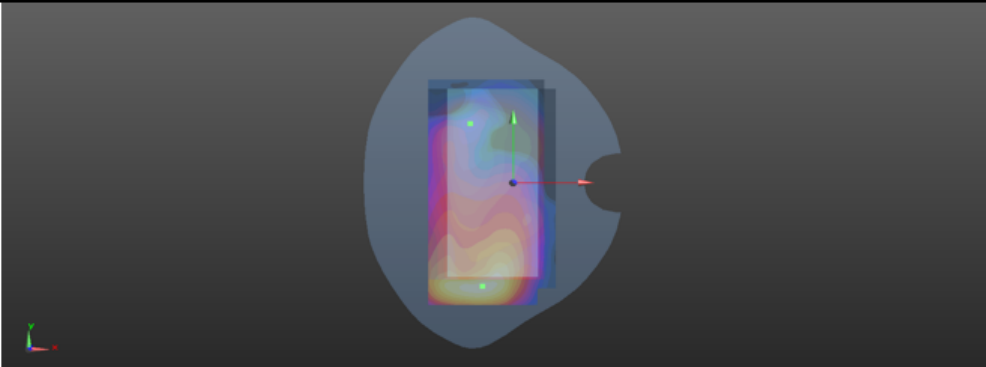
Case No.	Position	Band	SAR (W/kg)	SAR peak location (cm)			3D distance (mm)	Summed SAR (W/kg)	SPL SR Results	Simultaneous SAR
				X	Y	Z				
18#	Back side	LTE Band 4	1.266	-16.8	-93	-0.81	151.624	2.010	0.02	Not Required
		Wi-Fi 5G	0.744	-3.2	58	-2.78				
		BT	0.060	-13.8	57.4	-2.99				
	Back side	LTE Band 4	1.266	-16.8	-93	-0.81	150.446	1.326	0.01	Not Required
		BT	0.060	-13.8	57.4	-2.99				
		Wi-Fi 5G	0.744	-3.2	58	-2.78				
										

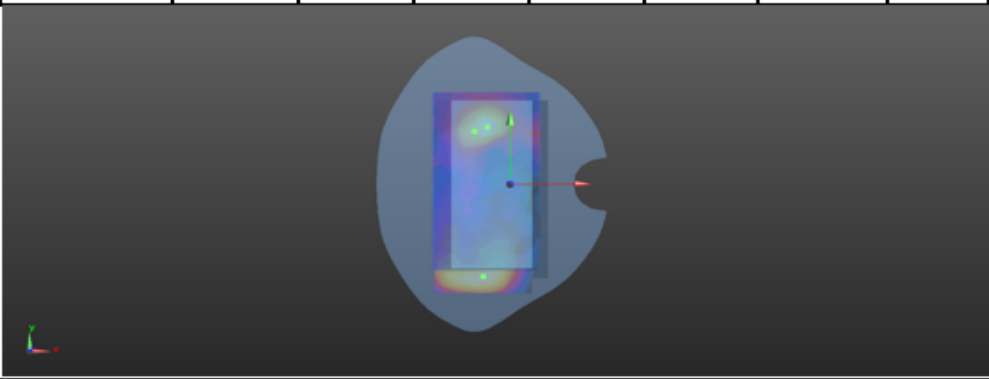
Case No.	Position	Band	SAR (W/kg)	SAR peak location (cm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				X	Y	Z				
19#	Back side	LTE Band 5	1.205	-11	-67	-1.06	122.486	2.072	0.02	Not Required
		Wi-Fi 2.4G	0.867	-15.2	55.4	-2.94				
										

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				
20#	Back side	LTE Band 5	1.205	-11	-67	-1.06	125.255	1.949	0.02	Not Required
		Wi-Fi 5G	0.744	-3.2	58	-2.78				
		BT	0.060	-13.8	57.4	-2.99				
	Back side	LTE Band 5	1.205	-11	-67	-1.06	124.446	1.265	0.01	Not Required
		BT	0.060	-13.8	57.4	-2.99				
		Wi-Fi 5G	0.744	-3.2	58	-2.78				
										

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				
21#	Back side	LTE Band 7	1.407	28.6	-40	-2.78	104.974	2.274	0.03	Not Required
		Wi-Fi 2.4G	0.867	-15.2	55.4	-2.94				

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				
22#	Back side	LTE Band 7	1.407	28.6	-40	-2.78	103.030	2.151	0.03	Not Required
		Wi-Fi 5G	0.744	-3.2	58	-2.78				
		BT	0.060	-13.8	57.4	-2.99				
	Back side	LTE Band 7	1.407	28.6	-40	-2.78	106.229	1.467	0.02	Not Required
		BT	0.060	-13.8	57.4	-2.99				
		Wi-Fi 5G	0.744	-3.2	58	-2.78				
										

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				
23#	Back side	LTE Band 66	1.308	-19.2	-91.9	-0.85	147.369	2.175	0.02	Not Required
		Wi-Fi 2.4G	0.867	-15.2	55.4	-2.94				
										

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				
24#	Back side	LTE Band 66	1.334	-19.2	-91.9	-0.85	150.764	2.078	0.02	Not Required
		Wi-Fi 5G	0.744	-3.2	58	-2.78				
		BT	0.060	-13.8	57.4	-2.99				
	Back side	LTE Band 66	1.334	-19.2	-91.9	-0.85	149.413	1.394	0.01	Not Required
		BT	0.060	-13.8	57.4	-2.99				
		Wi-Fi 5G	0.744	-3.2	58	-2.78				
										



9 Equipment list

Test Platform		SPEAG DASY5 Professional				
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 10	1563	NCR	NCR
☒	DAE	SPEAG	DAE4	1267	2020-06-12	2021-06-11
☒	E-Field Probe	SPEAG	EX3DV4	3962	2020-04-01	2021-03-31
☒	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	D2600V2	1125	2019-05-20	2022-05-19
☒	Agilent Network Analyzer	Agilent	E5071C	MY46523590	2020-04-02	2021-04-01
☒	Dielectric Probe Kit	Agilent	85070E	US01440210	NCR	NCR
☒	Radio Communication Analyzer	Anritsu Corporation	MT8820C	6201010267	2020-04-02	2021-04-01
☒	Universal Radio Communication Tester	R&S	CMW500	124587	2020-04-02	2021-04-01
☒	RF Bi-Directional Coupler	Agilent	86205-60001	MY31400031	NCR	NCR
☒	Signal Generator	Agilent	N5171B	MY53050736	2020-04-15	2021-04-14
☒	Preamplifier	Mini-Circuits	ZHL-42W	15542	NCR	NCR
☒	Preamplifier	Compliance Directions Systems Inc.	AMP28-3W	073501433	NCR	NCR
☒	Power Meter	Agilent	E4416A	GB41292095	2020-04-15	2021-04-14
☒	Power Sensor	Agilent	8481H	MY41091234	2020-04-15	2021-04-14
☒	Power Sensor	R&S	NRP-Z92	100025	2020-04-16	2021-04-15
☒	Speed reading thermometer	MingGao	T809	NA	2020-04-15	2021-04-14

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





10 Calibration certificate

Please see the Appendix C

11 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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Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

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