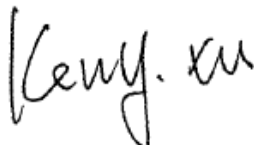


SAR TEST REPORT

Application No.: SZCR2408003329TL
Applicant: GL Technologies (Hong Kong) Limited
Address of Applicant: Unit 601, Building 5W, Hong Kong Science Park, Shatin, N.T., Hong Kong
Manufacturer: GL Technologies (Hong Kong) Limited
Address of Manufacturer: Unit 601, Building 5W, Hong Kong Science Park, Shatin, N.T., Hong Kong
Factory: Shenzhen Guanglian Zhitong Technology Co., LTD
Address of Factory: Room 305-306, Skyworth Digital Building, Shiyuan Street, Baoan District, Shenzhen, China
EUT Description: DUAL-SIM Wi-Fi 6 Router
Model No.: GL-XE2000
Trade Mark: GL.iNET
FCC ID: 2AFIW-XE2000
Standards: FCC 47CFR §2.1093
Date of Receipt: 2024-08-30
Date of Test: 2024-09-01 to 2024-10-12
Date of Issue: 2024-11-04

Test Result :	PASS *
----------------------	---------------

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



Keny Xu
EMC Laboratory Manager



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

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

SZSAR-TRF-01 Rev. A/0 May15,2023

Report No.: SZCR240800332905

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Revision Record			
Version	Description	Date	Remark
01		2024-11-04	

Authorized for issue by:			
		<i>Benson Wang</i>	
		Benson Wang/Project Engineer	
		<i>Eric Fu</i>	
		Eric Fu/Reviewer	



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TEST SUMMARY

Frequency Band	Maximum Reported SAR(W/kg)
	Limbs 10g SAR
LTE Band 2	0.87
LTE Band 4	1.08
LTE Band 5	0.64
LTE Band 7	0.63
LTE Band 12	0.71
LTE Band 13	0.68
LTE Band 14	0.68
LTE Band 25	0.79
LTE Band 26	0.67
LTE Band 30	0.73
LTE Band 41	0.55
LTE Band 66	0.86
LTE Band 71	0.52
WIFI 2.4G	0.70
WIFI 5G	0.94
SAR Limited(W/kg)	4.0
Maximum Simultaneous Transmission SAR (W/kg)	
Scenario	Limbs 10g SAR
Sum SAR	1.67
SPLSR	/
SPLSR Limited	0.1



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1 General Information

1.1 General Description of EUT

Product Name:	DUAL-SIM Wi-Fi 6 Router		
Model No.:	GL-XE2000		
Trade Mark:	GL.iNET		
Product Phase:	production unit		
Device Type:	portable device		
Exposure Category:	uncontrolled environment / general population		
IMEI:	865749060096555		
Hardware Version:	V1.0		
Software Version:	V4.0		
Antenna Type:	Dipole Antenna		
Device Operating Configurations:			
Modulation Mode:	LTE: QPSK,16QAM,64QAM, WIFI: DSSS,OFDM,OFDMA;		
Power Class:	3, tested with power control "max power"(LTE Band)		
Frequency Bands:	Band	Tx(MHz)	Rx(MHz)
	LTE Band 2	1850 ~1910	1930 ~1990
	LTE Band 4	1710~1755	2110~2155
	LTE Band 5	824~849	869-894
	LTE Band 7	2500~2570	2620~2690
	LTE Band 12	699~716	729~746
	LTE Band 13	777~787	746~756
	LTE Band 14	788~798	758~768
	LTE Band 25	1850~1915	1930~1995
	LTE Band 26	814~849	859~894
	LTE Band 30	2305~ 2315	2350~2360
	LTE Band 41	2496~2690	2496~2690
	LTE Band 48	3550~3700	3550~3700
	LTE Band 66	1710~1780	2110~2200
	LTE Band 71	663~698	617~652
	WIFI 2.4G	2412~2462	2412~2462
	WIFI 5G	5150~5250	5150~5250
		5250~5350	5250~5350
5470~5725		5470~5725	
5725~5850		5725~5850	



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Report No.: SZCR240800332905

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	DSF	
RF Cable:	<input checked="" type="checkbox"/> Provided by applicant	<input type="checkbox"/> Provided by the laboratory
Battery Information:	Model:	AEC5860102-2S1P
	Normal Voltage:	DC 7.6V
	Rated capacity:	5900mAh
	Manufacturer:	Apower Electronics Co., Ltd.

Note: *Since the above data and/or information is provided by the client relevant results or conclusions of this report are only made for these data and/or information, SGS is not responsible for the authenticity, integrity and results of the data and information and/or the validity of the conclusion.

Remark:

As above information is provided and confirmed by the applicant. SGS is not liable to the accuracy, suitability, reliability or/and integrity of the information.

Note: LTE Module FCC ID: XMR2022EG120KNA



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1.1.1 DUT Antenna Locations (Back View)

The DUT Antenna Locations can be referred to Appendix D



1.2 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 248227 D01	SAR Guidance for IEEE 802.11 Wi-Fi SAR v02r02
KDB 447498 D04	Interim General RF Exposure Guidance v01
KDB 865664 D01	SAR Measurement 100 MHz to 6 GHz v01r04
KDB 865664 D02	RF Exposure Reporting v01r02



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1.3 RF exposure limits

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

Notes:

* The Spatial Peak value of the SAR averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time

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

*** The Spatial Peak value of the SAR averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.

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

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



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1.4 Test Location

All tests were performed at:

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No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Nanshan District, Shenzhen, Guangdong, China. 518057.

Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.

1.5 Test Facility

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

• **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 (Member No. 1937)**

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen EMC laboratory have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

• **FCC –Designation Number: CN1336**

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

Designation Number: CN1336. Test Firm Registration Number: 787754.

• **Innovation, Science and Economic Development Canada**

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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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.	



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3 SAR Measurements System Configuraion

3.1 The SAR Measurement System

This SAR Measurement System uses a Computer-controlled 3-D stepper motor system (SPEAG DASY 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.

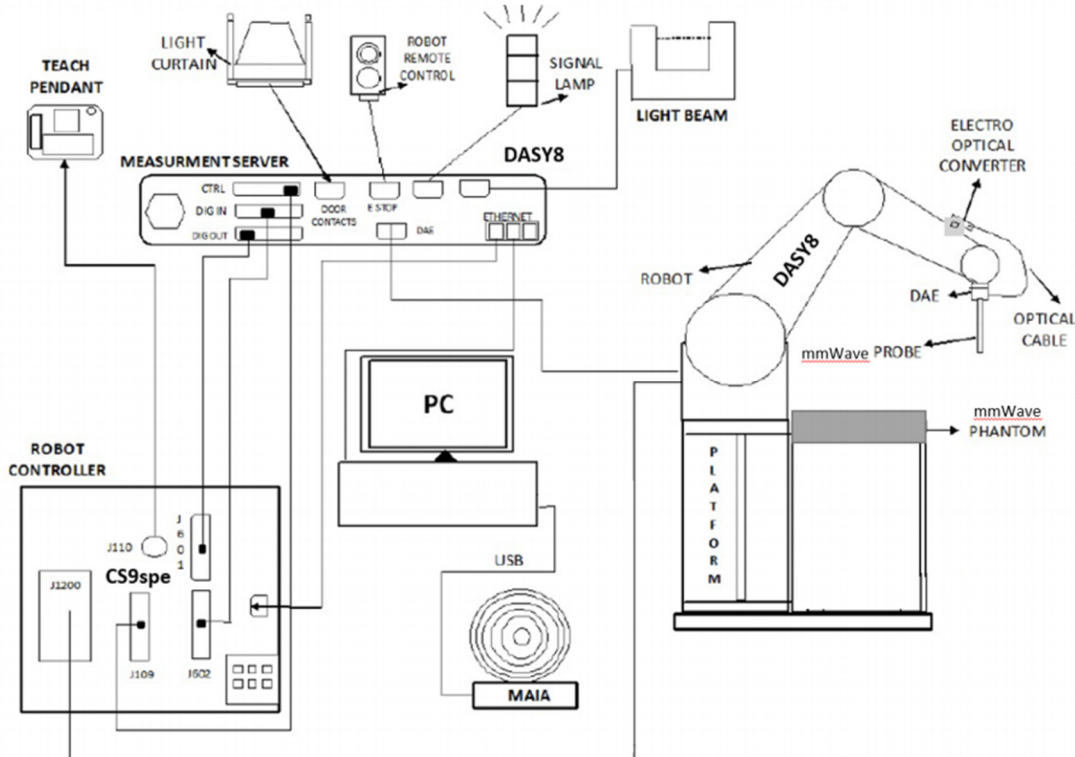
The DASY system for performing compliance tests consists of the following items:

A standard high precision 6-axis robot (Stabile RX family) with controller, teach pendant and software. An arm extension for accommodation the data acquisition electronics (DAE).

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

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

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



F-1. SAR Measurement System Configuration



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SZSAR-TRF-01 Rev. A/0 May15,2023

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




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3.2 Isotropic E-field Probe EX3DV4

	<p>Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)</p>
<p>Calibration</p>	<p>ISO/IEC 17025 calibration service available.</p>
<p>Frequency</p>	<p>10 MHz to > 6 GHz Linearity: ± 0.2 dB (30 MHz to 6 GHz)</p>
<p>Directivity</p>	<p>± 0.3 dB in TSL (rotation around probe axis) ± 0.5 dB in TSL (rotation normal to probe axis)</p>
<p>Dynamic Range</p>	<p>10 μW/g to > 100 mW/g Linearity: ± 0.2 dB (noise: typically < 1 μW/g)</p>
<p>Dimensions</p>	<p>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</p>
<p>Application</p>	<p>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%.</p>
<p>Compatibility</p>	<p>DASY52 SAR and higher, EASY4/MRI</p>




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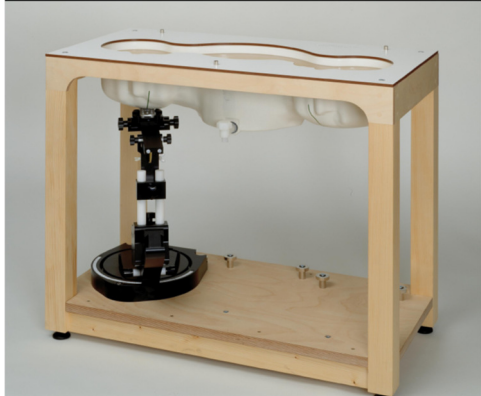
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3.3 Data Acquisition Electronics (DAE)

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	

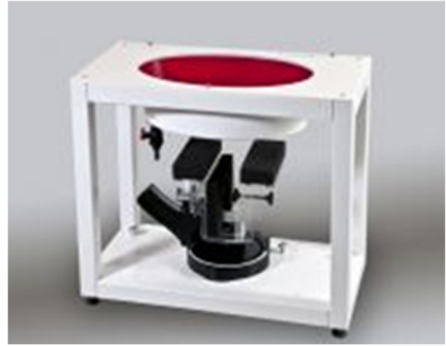
3.4 SAM Twin Phantom

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	pprox.. 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	pprox.. 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.



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

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. $\pm 5\%$



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

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:

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

- 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)
- dcp I = diode compression point (DASY parameter)

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

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



H-field probes:

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

With 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.

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

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 KDB 865664 D01 SAR measurement 100 MHz to 6 GHz v01r04, SAR measurement variability must be assessed for each frequency band, which is determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements. The additional measurements are repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device should be returned to ambient conditions (normal room temperature) with the battery fully charged before it is re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results.

- 1) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg; steps 2) through 4) do not apply.
- 2) When the original highest measured SAR is ≥ 0.80 W/kg, repeat that measurement once.
- 3) Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is ≥ 1.45 W/kg (~ 10% from the 1-g SAR limit).
- 4) Perform a third repeated measurement only if the original, first or second repeated measurement is ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20 .

The same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds.

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 Extremity exposure conditions

Per FCC KDB 447498 D01, devices that are designed or intended for use on extremities, or mainly operated in extremity only exposure conditions, i.e., hands, wrists, feet and ankles, may require extremity SAR evaluation.



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6 SAR System Verificaion Procedure

6.1 Tissue Simulate Liquid

6.1.1 Recipes for Tissue Simulate Liquid

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

Ingredients (% by weight)	Frequency (MHz)				
	450	700-1000	1700-2000	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: (Manufactured by SPEAG)					
Water: 50-65%					
Mineral oil: 10-30%					
Emulsifiers: 8-25%					
Sodium salt: 0-1.5%					

Table 1 : Recipe of Tissue Simulate Liquid



6.1.2 Measurement for Tissue Simulate Liquid

The Conductivity (σ) and Permittivity (ϵ_r) are listed in Table 2. For the SAR measurement given in this report. The temperature variation of the Tissue Simulate Liquids was $22\pm 2^\circ\text{C}$.

Measurement for Tissue Simulate Liquid									
Tissue Type	Measured Frequency (MHz)	Measured Tissue		Target Tissue ($\pm 5\%$)		Deviation (Within $\pm 5\%$)		Liquid Temp. ($^\circ\text{C}$)	Test Date
		ϵ_r	$\sigma(\text{S/m})$	ϵ_r	$\sigma(\text{S/m})$	ϵ_r	$\sigma(\text{S/m})$		
750 Head	750	43.900	0.855	41.90	0.89	4.77%	-3.93%	22.3	2024/9/4
835 Head	835	43.300	0.910	41.50	0.90	4.34%	1.11%	22.3	2024/9/3
1750 Head	1750	40.400	1.340	40.10	1.37	0.75%	-2.19%	22.3	2024/9/2
1950 Head	1950	40.000	1.380	40.00	1.40	0.00%	-1.43%	22.3	2024/9/1
2300 Head	2300	40.600	1.640	39.50	1.67	2.78%	-1.80%	22.3	2024/9/5
2450 Head	2450	40.500	1.800	39.20	1.80	3.32%	0.00%	22.1	2024/10/11
2600 Head	2600	39.700	1.960	39.00	1.96	1.79%	0.00%	22.3	2024/9/5
3700 Head	3700	37.000	3.050	37.70	3.12	-1.86%	-2.24%	22.3	2024/9/6
5250 Head	5250	36.800	4.790	35.90	4.66	2.51%	2.79%	22.3	2024/10/12
5600 Head	5600	36.000	5.290	35.50	5.07	1.41%	4.34%	22.3	2024/10/12
5750 Head	5750	35.800	5.340	35.40	5.22	1.13%	2.30%	22.3	2024/10/12

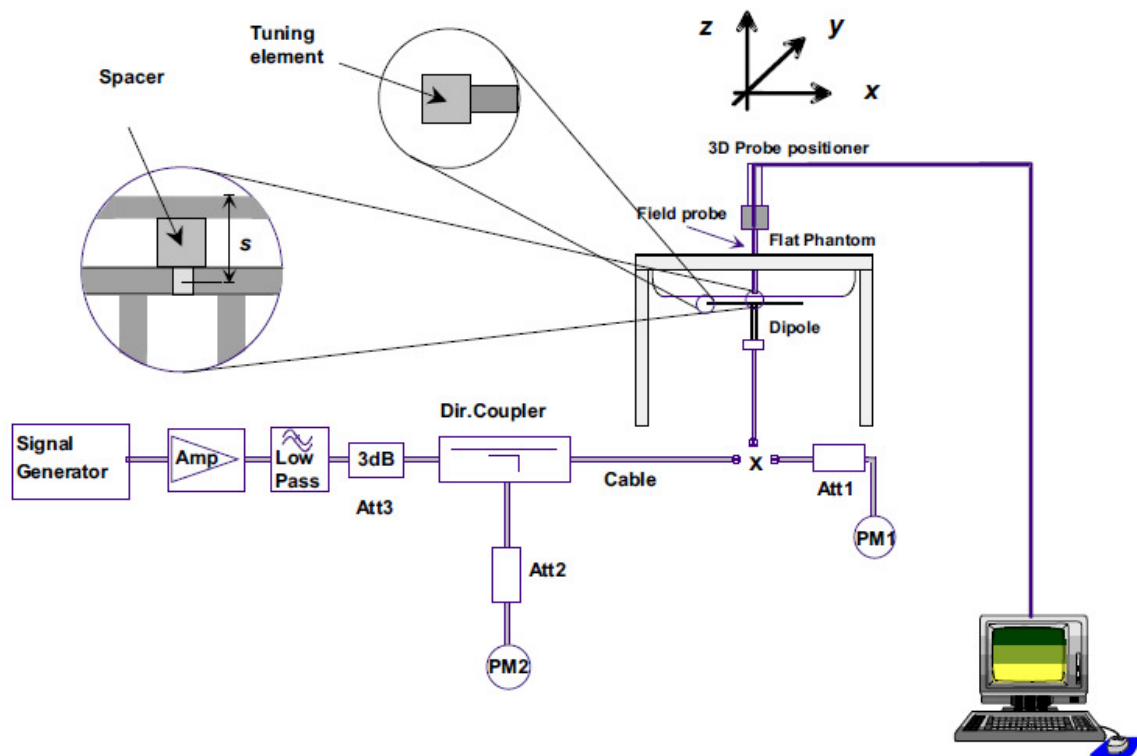
Table 2 : Measurement result of Tissue electric parameters



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



F-12.The microwave circuit arrangement used for SAR system Check



6.2.1 Justification for Extended SAR Dipole Calibrations

1) 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 20% 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)

SAR System Validation Result(s)											
Validation Kit		Measured SAR 250mW	Measured SAR 250mW	Measured SAR (normalized to 1W)	Measured SAR (normalized to 1W)	Target SAR (normalized to 1W)	Target SAR (normalized to 1W)	Deviation (Within ±10%)		Liquid Temp. (°C)	Test Date
		1g (W/kg)	10g (W/kg)	1g (W/kg)	10g (W/kg)	1-g(W/kg)	10-g(W/kg)	1-g(W/kg)	10-g(W/kg)		
D750V3	Head	1.95	1.29	7.80	5.16	8.37	5.53	-6.81%	-6.69%	22.3	2024/9/4
D835V2	Head	2.44	1.58	9.76	6.32	9.53	6.29	2.41%	0.48%	22.3	2024/9/3
D1750V2	Head	8.95	4.83	35.80	19.32	36.60	19.30	-2.19%	0.10%	22.3	2024/9/2
D1950V3	Head	10.13	5.31	40.52	21.24	40.50	20.80	0.05%	2.12%	22.3	2024/9/1
D2300V2	Head	11.36	5.47	45.44	21.88	48.70	23.30	-6.69%	-6.09%	22.3	2024/9/5
D2450V2	Head	12.53	6.01	50.12	24.04	52.20	24.30	-3.98%	-1.07%	22.1	2024/10/11
D2600V2	Head	13.98	6.41	55.92	25.64	57.70	25.80	-3.08%	-0.62%	22.3	2024/9/5
Validation Kit		Measured SAR 100mW	Measured SAR 100mW	Measured SAR (normalized to 1W)	Measured SAR (normalized to 1W)	Target SAR (normalized to 1W)	Target SAR (normalized to 1W)	Deviation (Within ±10%)		Liquid Temp. (°C)	Test Date
		1g (W/kg)	10g (W/kg)	1g (W/kg)	10g (W/kg)	1-g(W/kg)	10-g(W/kg)	1-g(W/kg)	10-g(W/kg)		
D3700V2	Head(3.7GHz)	6.32	2.43	63.20	24.30	66.10	24.70	-4.39%	-1.62%	22.3	2024/9/6
D5GHzV2	Head(5.25GHz)	7.92	2.31	79.20	23.10	77.30	22.10	2.46%	4.52%	22.3	2024/10/12
	Head(5.6GHz)	7.89	2.27	78.90	22.70	81.30	23.10	-2.95%	-1.73%	22.3	2024/10/12
	Head(5.75GHz)	7.59	2.18	75.90	21.80	77.10	21.30	-1.56%	2.35%	22.3	2024/10/12

Table 3 : SAR System Check Result

6.2.3 Detailed System Check Results

Please see the Appendix A



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 No.1 Workshop, M-10, Middle Section, Science & Technology Park, Nanshan District, Shenzhen, Guangdong, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgs.com.cn
 中国·广东·深圳市南山区科技园中区M-10栋1号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

7 Test Configuration

7.1 Operation Configurations

7.1.1 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.

7.1.1.1 Duty cycle

1) Wi-Fi 2.4GHz 802.11b Duty cycle=99.92%

2) Wi-Fi 5GHz 802.11n40 Duty cycle=99.92%



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7.1.1.2 Initial Test Position SAR Test Reduction Procedure

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

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



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7.1.1.3 Subsequent Test Configuration Procedures

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

- 1) . When SAR test exclusion provisions of KDB Publication 447498 are applicable and SAR measurement is not required for the initial test configuration, SAR is also not required for the next highest maximum output power transmission mode subsequent test configuration(s) in that frequency band or aggregated band and exposure configuration.
- 2) . When the highest reported SAR for the initial test configuration (when applicable, include subsequent highest output channels), according to the initial test position or fixed exposure position requirements, is adjusted by the ratio of the subsequent test configuration to initial test configuration specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg, SAR is not required for that subsequent test configuration.
- 3) . The number of channels in the initial test configuration and subsequent test configuration can be different due to differences in channel bandwidth. When SAR measurement is required for a subsequent test configuration and the channel bandwidth is smaller than that in the initial test configuration, all channels in the subsequent test configuration that overlap with the larger bandwidth channel tested in the initial test configuration should be used to determine the highest maximum output power channel. This step requires additional power measurement to identify the highest maximum output power channel in the subsequent test configuration to determine SAR test reduction.
 - a) SAR should first be measured for the channel with highest measured output power in the subsequent test configuration.
 - b) SAR for subsequent highest measured maximum output power channels in the subsequent test configuration is required only when the reported SAR of the preceding higher maximum output power channel(s) in the subsequent test configuration is > 1.2 W/kg or until all required channels are tested. i) For channels with the same measured maximum output power, SAR should be measured using the channel closest to the center frequency of the larger channel bandwidth channel in the initial test configuration.
- 4) . SAR measurements for the remaining highest specified maximum output power OFDM transmission mode configurations that have not been tested in the initial test configuration (highest maximum output) or subsequent test configuration(s) (subsequent next highest maximum output power) is determined by recursively applying the subsequent test configuration procedures in this section to the remaining configurations according to the following:
 - a) replace “subsequent test configuration” with “next subsequent test configuration” (i.e., subsequent next highest specified maximum output power configuration)
 - b) replace “initial test configuration” with “all tested higher output power configurations”



7.1.1.4 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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7.1.1.5 5 GHz WiFi SAR Procedures

- **U-NII-1 and U-NII-2A Bands**

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

- 1) When the same maximum output power is specified for both bands, begin SAR measurement in U-NII-2A band by applying the OFDM SAR requirements. If the highest reported SAR for a test configuration is ≤ 1.2 W/kg, SAR is not required for U-NII-1 band for that configuration (802.11 mode and exposure condition); otherwise, both bands are tested independently for SAR.
- 2) When different maximum output power is specified for the bands, begin SAR measurement in the band with higher specified maximum output power. The highest reported SAR for the tested configuration is adjusted by the ratio of lower to higher specified maximum output power for the two bands. When the adjusted SAR is ≤ 1.2 W/kg, SAR is not required for the band with lower maximum output power in that test configuration; otherwise, both bands are tested independently for SAR.
- 3) The two U-NII bands may be aggregated to support a 160 MHz channel on channel number 50. Without additional testing, the maximum output power for this is limited to the lower of the maximum output power certified for the two bands. When SAR measurement is required for at least one of the bands and the highest reported SAR adjusted by the ratio of specified maximum output power of aggregated to standalone band is > 1.2 W/kg, SAR is required for the 160 MHz channel. This procedure does not apply to an aggregated band with maximum output higher than the standalone band(s); the aggregated band must be tested independently for SAR. SAR is not required when the 160 MHz channel is operating at a reduced maximum power and also qualifies for SAR test exclusion.

- **U-NII-2C and U-NII-3 Bands**

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

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



- **OFDM Transmission Mode SAR Test Configuration and Channel Selection Requirements**

The initial test configuration for 5 GHz OFDM transmission modes is determined by the 802.11 configuration with the highest maximum output power specified for production units, including tune-up tolerance, in each standalone and aggregated frequency band. SAR for the initial test configuration is measured using the highest maximum output power channel determined by the default power measurement procedures. When multiple configurations in a frequency band have the same specified maximum output power, the initial test configuration is determined according to the following steps applied sequentially.

- 1) The largest channel bandwidth configuration is selected among the multiple configurations with the same specified maximum output power.
- 2) If multiple configurations have the same specified maximum output power and largest channel bandwidth, the lowest order modulation among the largest channel bandwidth configurations is selected.
- 3) If multiple configurations have the same specified maximum output power, largest channel bandwidth and lowest order modulation, the lowest data rate configuration among these configurations is selected.
- 4) When multiple transmission modes (802.11a/g/n/ac) have the same specified maximum output power, largest channel bandwidth, lowest order modulation and lowest data rate, the lowest order 802.11 mode is selected; i.e., 802.11a is chosen over 802.11n then 802.11ac or 802.11g is chosen over 802.11n. After an initial test configuration is determined, if multiple test channels have the same measured maximum output power, the channel chosen for SAR measurement is determined according to the following. These channel selection procedures apply to both the initial test configuration and subsequent test configuration(s), with respect to the default power measurement procedures or additional power measurements required for further SAR test reduction. The same procedures also apply to subsequent highest output power channel(s) selection.
 - a) The channel closest to mid-band frequency is selected for SAR measurement.
 - b) For channels with equal separation from mid-band frequency; for example, high and low channels or two mid-band channels, the higher frequency (number) channel is selected for SAR measurement.

- **SAR Test Requirements for OFDM configurations**

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



7.1.2 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 Radio Communication Analyzer 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:

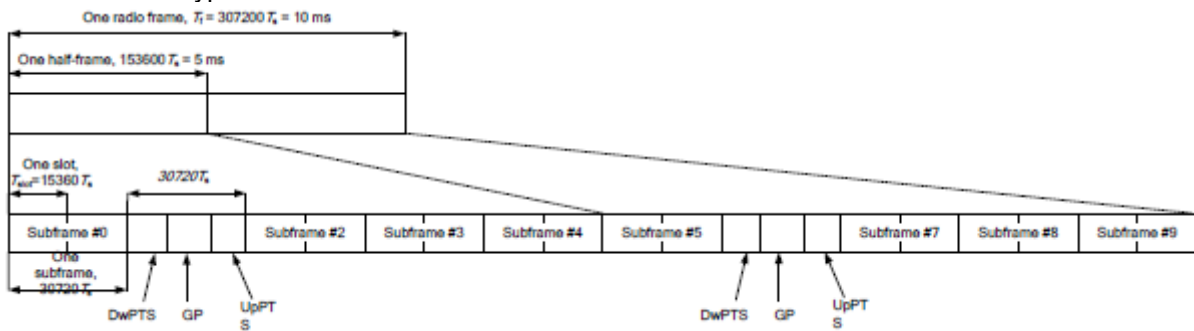


Table 4.2-1: Configuration of special subframe (lengths of DwPTS/GP/UpPTS).

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



6	19760.Ts			23040.Ts		
7	21952.Ts			25600.Ts		
8	24144.Ts			-	-	-
9	13168.Ts			-	-	-

Table 4.2-2: 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	

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						MPR (dB)
	1.4	3	5	10	15	20	



	MHz	MHz	MHz	MHz	MHz	MHz	
QPSK	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	0
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	1
16QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	1
16QAM	> 5	> 4	> 8	> 12	> 16	> 18	2
64QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	2
64QAM	> 5	> 4	> 8	> 12	> 16	> 18	3
256QAM	≥1						5

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 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	22.87	23.09	24.00	
		1	2	22.90	22.96	23.22	24.00	
		1	5	22.84	22.89	23.22	24.00	
		3	0	22.23	22.23	23.08	24.00	
		3	2	22.15	22.32	23.07	24.00	
		3	3	22.00	22.19	23.03	24.00	
		6	0	21.88	21.89	22.41	23.50	
	16QAM	1	0	22.23	22.29	22.41	23.00	
		1	2	22.00	22.19	22.55	23.00	
		1	5	22.07	22.27	22.50	23.00	
		3	0	21.30	21.71	22.14	23.00	
		3	2	21.60	21.68	21.82	23.00	
		3	3	21.98	22.16	22.16	23.00	
		6	0	21.00	21.05	21.49	23.00	
	64QAM	1	0	22.10	22.07	22.18	23.00	
		1	2	22.13	22.11	22.36	23.00	
		1	5	21.95	22.10	22.37	23.00	
		3	0	21.82	21.53	22.06	23.00	
		3	2	21.85	21.24	21.30	23.00	
		3	3	21.46	21.05	22.01	23.00	
		6	0	20.88	20.92	21.29	22.00	
	Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
					18615	18900	19185	
	3MHz	QPSK	1	0	22.90	22.95	23.14	24.00
1			7	22.92	22.96	23.22	24.00	
1			14	22.90	22.95	23.27	24.00	
8			0	22.72	22.47	23.15	23.50	
8			4	22.11	22.77	23.00	23.50	
8			7	22.19	22.17	23.23	23.50	
15			0	21.96	22.00	22.35	23.50	
16QAM		1	0	22.12	22.20	22.45	23.50	



		1	7	22.32	22.33	22.56	23.50
		1	14	22.23	22.25	22.43	23.50
		8	0	21.94	21.80	22.00	22.50
		8	4	21.50	21.25	21.90	22.50
		8	7	21.05	21.71	21.68	22.50
		15	0	21.04	21.04	21.47	22.50
	64QAM	1	0	21.10	21.20	21.41	22.50
		1	7	21.11	21.16	21.40	22.50
		1	14	21.15	21.20	21.53	22.50
		8	0	20.88	20.49	21.32	22.00
		8	4	20.05	20.71	20.66	22.00
		8	7	21.13	20.34	20.68	22.00
		15	0	20.04	20.03	20.45	22.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				18625	18900	19175	
5MHz	QPSK	1	0	22.98	22.95	23.20	24.00
		1	13	22.95	23.03	23.35	24.00
		1	24	22.92	23.01	23.28	24.00
		12	0	22.25	22.69	22.68	23.50
		12	6	22.61	22.83	23.14	23.50
		12	13	22.49	22.77	22.99	23.50
		25	0	21.99	22.00	22.44	23.50
	16QAM	1	0	22.24	22.17	22.42	23.50
		1	13	22.19	22.27	22.62	23.50
		1	24	22.16	22.30	22.54	23.50
		12	0	21.41	21.94	22.04	22.50
		12	6	22.16	21.10	21.50	22.50
		12	13	21.94	21.57	22.33	22.50
		25	0	21.02	21.05	21.43	22.50
	64QAM	1	0	21.25	21.19	21.48	22.50
		1	13	21.20	21.29	21.57	22.50
		1	24	21.20	21.27	21.46	22.50
		12	0	20.51	20.98	20.97	22.00
		12	6	21.03	20.83	21.12	22.00
		12	13	20.51	20.82	20.74	22.00
		25	0	20.02	20.06	20.48	22.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				18650	18900	19150	
10MHz	QPSK	1	0	22.92	22.94	23.28	24.00
		1	25	22.92	22.99	23.19	24.00



		1	49	22.92	23.01	23.20	24.00	
		25	0	22.89	22.64	22.82	23.50	
		25	13	22.17	22.95	22.80	23.50	
		25	25	22.53	22.33	23.08	23.50	
		50	0	21.99	22.03	22.45	23.50	
	16QAM	1	0	22.22	22.29	22.55	23.50	
		1	25	22.20	22.23	22.50	23.50	
		1	49	22.30	22.41	22.49	23.50	
		25	0	22.00	21.46	21.86	22.50	
		25	13	21.69	21.22	22.30	22.50	
		25	25	21.12	22.29	22.18	22.50	
		50	0	21.04	21.08	21.50	22.50	
	64QAM	1	0	21.10	21.19	21.61	22.50	
		1	25	21.17	21.31	21.45	22.50	
		1	49	21.15	21.29	21.44	22.50	
		25	0	20.11	21.02	21.25	22.00	
		25	13	21.08	20.29	21.20	22.00	
		25	25	21.02	20.89	21.13	22.00	
		50	0	20.03	20.04	20.47	22.00	
	Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
					18675	18900	19125	
15MHz	QPSK	1	0	22.94	22.92	23.20	24.00	
		1	38	22.94	22.97	23.24	24.00	
		1	74	22.90	22.99	23.21	24.00	
		36	0	22.74	22.08	22.67	23.50	
		36	18	22.69	22.86	23.06	23.50	
		36	39	22.48	22.23	23.15	23.50	
		75	0	22.01	22.02	22.40	23.50	
	16QAM	1	0	22.22	22.15	22.46	23.50	
		1	38	22.25	22.35	22.49	23.50	
		1	74	22.18	22.28	22.50	23.50	
		36	0	21.18	21.35	21.64	22.50	
		36	18	21.65	21.77	22.26	22.50	
		36	39	22.03	21.14	22.06	22.50	
		75	0	20.98	21.09	21.44	22.50	
	64QAM	1	0	21.24	21.16	21.47	22.50	
		1	38	21.17	21.29	21.41	22.50	
		1	74	21.09	21.21	21.37	22.50	
		36	0	20.77	20.95	21.07	22.00	
		36	18	20.07	20.17	20.58	22.00	



Bandwidth	Modulation	RB size	RB offset	36	39	20.95	20.12	20.95	22.00
				75	0	20.02	20.08	20.42	22.00
				Channel	Channel	Channel	Tune up		
				18700	18900	19100			
20MHz	QPSK	1	0	22.84	22.82	23.17	24.00		
		1	50	22.91	23.03	23.28	24.00		
		1	99	22.78	22.86	23.19	24.00		
		50	0	22.71	22.79	22.77	23.50		
		50	25	22.18	22.52	22.92	23.50		
		50	50	22.63	22.52	22.49	23.50		
		100	0	21.89	22.01	22.34	23.50		
	16QAM	1	0	22.12	22.09	22.39	23.50		
		1	50	22.11	22.41	22.58	23.50		
		1	99	22.09	22.10	22.39	23.50		
		50	0	21.89	21.72	21.78	22.50		
		50	25	21.01	21.75	21.65	22.50		
		50	50	21.73	21.28	21.83	22.50		
		100	0	20.91	21.02	21.39	22.50		
	64QAM	1	0	21.06	21.06	21.39	22.50		
		1	50	21.18	21.35	21.53	22.50		
		1	99	21.01	21.18	21.40	22.50		
		50	0	20.39	20.73	21.01	22.00		
		50	25	20.00	20.80	21.25	22.00		
		50	50	20.49	21.11	20.96	22.00		
		100	0	20.09	20.07	20.42	22.00		

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	22.85	23.06	23.02	24.00
		1	2	22.98	23.11	23.09	24.00
		1	5	22.85	22.96	22.95	24.00
		3	0	22.15	22.34	22.31	24.00
		3	2	22.11	22.74	22.94	24.00
		3	3	22.14	22.35	22.87	24.00
		6	0	21.88	22.00	22.02	23.50
	16QAM	1	0	22.13	22.32	22.37	23.00
		1	2	22.27	22.39	22.42	23.00
		1	5	22.30	22.48	22.21	23.00



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		3	0	22.43	21.53	21.18	23.00	
		3	2	22.93	21.75	21.88	23.00	
		3	3	22.93	21.71	21.47	23.00	
		6	0	22.93	21.13	21.13	23.00	
	64QAM	1	0	21.10	21.17	21.19	22.00	
		1	2	21.22	21.34	21.32	22.00	
		1	5	21.14	21.22	21.22	22.00	
		3	0	20.38	20.15	20.71	22.00	
		3	2	20.55	21.19	20.21	22.00	
		3	3	21.08	20.32	20.11	22.00	
		6	0	20.09	20.06	20.05	22.00	
Bandwidth		Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
	19965				20175	20385		
3MHz	QPSK	1	0	22.96	23.01	23.04	24.00	
		1	7	22.96	23.05	23.08	24.00	
		1	14	22.90	23.02	23.00	24.00	
		8	0	22.28	23.01	22.08	23.50	
		8	4	22.78	22.75	22.67	23.50	
		8	7	22.46	22.39	22.94	23.50	
		15	0	21.94	22.06	22.07	23.50	
	16QAM	1	0	22.24	22.30	22.31	23.50	
		1	7	22.30	22.39	22.42	23.50	
		1	14	22.21	22.35	22.30	23.50	
		8	0	22.01	21.47	21.37	22.50	
		8	4	21.64	21.15	21.18	22.50	
		8	7	21.61	21.58	21.35	22.50	
		15	0	21.01	21.13	21.13	22.50	
	64QAM	1	0	21.26	21.25	21.29	22.50	
		1	7	21.14	21.32	21.27	22.50	
		1	14	21.23	21.22	21.31	22.50	
		8	0	20.75	20.63	20.23	22.00	
		8	4	20.49	20.77	20.84	22.00	
		8	7	20.99	20.70	20.23	22.00	
		15	0	20.03	20.10	20.15	22.00	
	Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
					19975	20175	20375	
	5MHz	QPSK	1	0	22.96	23.07	23.06	24.00
1			13	22.92	23.03	23.08	24.00	
1			24	22.93	23.08	23.07	24.00	
12			0	22.32	22.86	22.84	23.50	



		12	6	22.09	22.85	22.85	23.50
		12	13	22.35	23.01	22.89	23.50
		25	0	21.94	22.06	22.07	23.50
	16QAM	1	0	22.21	22.34	22.31	23.50
		1	13	22.35	22.46	22.45	23.50
		1	24	22.31	22.47	22.40	23.50
		12	0	21.33	21.90	21.17	22.50
		12	6	21.52	21.98	21.53	22.50
		12	13	21.66	21.47	21.13	22.50
		25	0	21.04	21.12	21.12	22.50
	64QAM	1	0	21.22	21.26	21.31	22.50
		1	13	21.31	21.27	21.28	22.50
		1	24	21.21	21.34	21.33	22.50
		12	0	20.68	20.84	21.05	22.00
		12	6	20.09	21.10	20.44	22.00
		12	13	21.03	20.60	21.06	22.00
25		0	20.02	20.13	20.12	22.00	
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20000	20175	20350	
10MHz	QPSK	1	0	22.94	23.09	23.03	24.00
		1	25	22.97	23.13	23.05	24.00
		1	49	22.98	23.12	23.11	24.00
		25	0	22.88	22.29	22.72	23.50
		25	13	22.51	22.91	22.57	23.50
		25	25	22.91	22.68	23.02	23.50
		50	0	21.98	22.07	22.05	23.50
	16QAM	1	0	22.36	22.34	22.28	23.50
		1	25	22.38	22.34	22.34	23.50
		1	49	22.20	22.40	22.44	23.50
		25	0	21.87	21.80	22.11	22.50
		25	13	21.47	21.55	21.46	22.50
		25	25	21.13	21.95	22.26	22.50
		50	0	21.02	21.13	21.09	22.50
	64QAM	1	0	21.15	21.24	21.26	22.50
		1	25	21.26	21.45	21.33	22.50
		1	49	21.13	21.37	21.27	22.50
		25	0	20.76	21.27	20.67	22.00
		25	13	20.26	21.00	21.10	22.00
		25	25	20.12	20.86	20.94	22.00
		50	0	20.07	20.18	20.10	22.00



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Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20025	20175	20325	
15MHz	QPSK	1	0	22.86	22.96	23.08	24.00
		1	38	22.99	23.12	23.04	24.00
		1	74	23.00	23.10	23.14	24.00
		36	0	22.79	22.83	22.19	23.50
		36	18	22.51	22.43	23.04	23.50
		36	39	22.23	22.76	22.91	23.50
		75	0	21.98	22.11	22.17	23.50
	16QAM	1	0	22.29	22.23	22.46	23.50
		1	38	22.32	22.59	22.26	23.50
		1	74	22.28	22.39	22.33	23.50
		36	0	21.28	21.41	21.65	22.50
		36	18	21.74	21.29	22.15	22.50
		36	39	21.05	21.31	21.71	22.50
		75	0	21.01	21.14	21.18	22.50
	64QAM	1	0	21.14	21.27	21.37	22.50
		1	38	21.18	21.30	21.31	22.50
		1	74	21.20	21.28	21.38	22.50
		36	0	20.31	20.55	20.88	22.00
		36	18	20.59	20.47	20.33	22.00
		36	39	20.21	20.35	20.80	22.00
		75	0	20.05	20.14	20.20	22.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20050	20175	20300	
20MHz	QPSK	1	0	22.81	22.89	23.04	24.00
		1	50	22.94	23.13	23.06	24.00
		1	99	23.05	23.06	23.03	24.00
		50	0	22.96	22.37	22.39	23.50
		50	25	22.10	22.74	22.35	23.50
		50	50	22.11	22.64	22.14	23.50
		100	0	22.00	22.05	22.12	23.50
	16QAM	1	0	22.17	22.14	22.27	23.50
		1	50	22.29	22.40	22.31	23.50
		1	99	22.44	22.32	22.33	23.50
		50	0	22.20	21.96	21.45	22.50
		50	25	21.01	21.92	21.74	22.50
		50	50	21.29	21.11	22.11	22.50
		100	0	21.00	21.11	21.17	22.50
	64QAM	1	0	21.14	21.21	21.24	22.50



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		1	50	21.17	21.35	21.30	22.50
		1	99	21.31	21.31	21.34	22.50
		50	0	21.30	20.57	20.37	22.00
		50	25	21.11	21.12	21.02	22.00
		50	50	21.10	21.04	20.22	22.00
		100	0	20.07	20.14	20.18	22.00

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	23.00	22.98	22.91	24.00	
		1	2	23.12	23.09	22.93	24.00	
		1	5	22.98	22.97	22.83	24.00	
		3	0	22.74	22.70	22.39	24.00	
		3	2	22.56	22.07	22.59	24.00	
		3	3	22.36	22.57	22.76	24.00	
		6	0	22.05	22.01	21.97	23.50	
	16QAM	1	0	22.24	22.24	22.19	23.00	
		1	2	22.32	22.33	22.20	23.00	
		1	5	22.18	22.29	22.09	23.00	
		3	0	22.30	21.39	21.58	23.00	
		3	2	22.38	21.67	21.16	23.00	
		3	3	22.91	21.47	21.50	23.00	
		6	0	22.93	21.09	21.10	23.00	
	64QAM	1	0	21.20	21.23	21.04	22.00	
		1	2	21.25	21.28	21.13	22.00	
		1	5	21.13	21.20	21.19	22.00	
		3	0	20.85	20.98	20.23	22.00	
		3	2	21.05	20.05	20.16	22.00	
		3	3	20.73	20.25	20.13	22.00	
		6	0	20.06	20.05	20.09	22.00	
	Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
	3MHz	QPSK			20415	20525	20635	
			1	0	23.06	23.11	22.96	24.00
1			7	23.03	23.06	22.95	24.00	
1			14	23.00	23.07	22.91	24.00	
8			0	22.46	22.78	22.75	23.50	
8			4	22.36	22.88	22.28	23.50	
8			7	22.96	22.63	22.27	23.50	



		15	0	22.11	22.12	22.03	23.50
	16QAM	1	0	22.30	22.42	22.28	23.50
		1	7	22.39	22.44	22.26	23.50
		1	14	22.35	22.38	22.14	23.50
		8	0	21.83	21.91	21.72	22.50
		8	4	21.60	22.28	21.17	22.50
		8	7	21.40	22.14	21.86	22.50
		15	0	21.10	21.16	21.01	22.50
	64QAM	1	0	21.21	21.37	21.13	22.50
		1	7	21.21	21.32	21.10	22.50
		1	14	21.20	21.20	21.11	22.50
		8	0	20.49	20.20	20.10	22.00
		8	4	20.92	20.88	20.28	22.00
		8	7	20.29	21.17	20.22	22.00
		15	0	20.10	20.16	20.00	22.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20425	20525	20625	
5MHz	QPSK	1	0	23.05	23.10	22.98	24.00
		1	13	23.07	23.07	22.92	24.00
		1	24	23.01	23.05	22.90	24.00
		12	0	22.60	22.60	22.60	23.50
		12	6	22.31	22.74	22.55	23.50
		12	13	22.83	22.81	22.23	23.50
		25	0	22.09	22.11	22.02	23.50
	16QAM	1	0	22.37	22.39	22.27	23.50
		1	13	22.37	22.38	22.21	23.50
		1	24	22.36	22.30	22.19	23.50
		12	0	21.61	22.11	21.77	22.50
		12	6	22.34	22.14	21.45	22.50
		12	13	21.16	21.68	22.16	22.50
		25	0	21.12	21.11	21.00	22.50
	64QAM	1	0	21.22	21.27	21.23	22.50
		1	13	21.30	21.25	21.13	22.50
		1	24	21.20	21.28	21.11	22.50
		12	0	20.49	20.87	20.90	22.00
		12	6	20.15	20.76	20.06	22.00
		12	13	20.24	20.28	20.22	22.00
		25	0	20.11	20.11	20.01	22.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20450	20525	20600	



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10MHz	QPSK	1	0	23.05	23.19	23.05	24.00
		1	25	23.04	23.07	23.02	24.00
		1	49	23.09	22.97	22.88	24.00
		25	0	23.02	22.74	22.76	23.50
		25	13	22.53	22.89	22.23	23.50
		25	25	22.36	22.55	22.74	23.50
		50	0	22.18	22.17	22.06	23.50
	16QAM	1	0	22.36	22.37	22.38	23.50
		1	25	22.33	22.36	22.17	23.50
		1	49	22.39	22.27	22.21	23.50
		25	0	21.65	21.31	21.07	22.50
		25	13	21.34	22.03	21.29	22.50
		25	25	22.31	21.41	21.67	22.50
		50	0	21.20	21.20	21.06	22.50
	64QAM	1	0	21.27	21.38	21.20	22.50
		1	25	21.28	21.28	21.15	22.50
		1	49	21.29	21.20	21.12	22.50
		25	0	21.23	20.93	20.80	22.00
		25	13	20.40	20.62	21.00	22.00
		25	25	20.74	20.94	20.52	22.00
		50	0	20.18	20.19	20.07	22.00



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LTE Band 7				Conducted Power(dBm)				
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up	
				20775	21100	21425		
5MHz	QPSK	1	0	22.82	22.91	22.74	24.00	
		1	13	22.87	22.86	22.69	24.00	
		1	24	22.85	22.88	22.76	24.00	
		12	0	22.73	22.24	22.58	23.50	
		12	6	22.29	22.32	22.23	23.50	
		12	13	22.35	22.52	22.19	23.50	
	16QAM	1	0	22.03	22.07	21.93	23.50	
		1	13	22.09	22.06	22.02	23.50	
		1	24	22.05	22.10	21.92	23.50	
		12	0	21.96	21.77	21.35	22.50	
		12	6	21.13	20.99	21.24	22.50	
		12	13	21.78	22.05	21.24	22.50	
	64QAM	25	0	20.82	20.98	20.82	22.50	
		1	0	21.09	20.97	20.89	22.50	
		1	13	21.01	21.12	20.97	22.50	
		1	24	20.88	21.03	20.89	22.50	
		12	0	20.74	20.40	19.91	21.50	
		12	6	20.75	20.16	20.00	21.50	
	10MHz	QPSK	12	13	20.88	20.01	19.96	21.50
			25	0	19.86	19.96	19.80	21.00
			1	0	22.86	22.87	22.78	24.00
1			25	22.73	22.85	22.71	24.00	
1			49	22.79	22.91	22.69	24.00	
25			0	22.08	22.35	22.24	23.50	
16QAM		25	13	22.74	22.68	22.17	23.50	
		25	25	22.29	22.73	22.34	23.50	
		50	0	21.86	21.98	21.81	23.50	
		1	0	22.06	22.18	22.02	23.50	
		1	25	21.95	22.18	21.87	23.50	
		1	49	22.01	22.09	22.02	23.50	
		25	0	21.88	21.43	21.68	22.50	
		25	13	21.66	21.51	20.92	22.50	
		25	25	21.52	21.57	21.10	22.50	



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Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up	
				20825	21100	21375		
15MHz	64QAM	50	0	20.83	20.97	20.85	22.50	
		1	0	20.91	21.07	20.96	22.50	
		1	25	20.89	21.07	20.98	22.50	
		1	49	20.95	21.13	20.95	22.50	
		25	0	19.95	20.15	20.19	21.50	
		25	13	20.64	20.95	20.75	21.50	
		25	25	19.93	20.89	20.43	21.50	
	50	0	19.85	19.99	19.81	21.00		
	15MHz	QPSK	1	0	22.86	22.87	22.78	24.00
			1	38	22.73	22.85	22.71	24.00
			1	74	22.79	22.91	22.69	24.00
			36	0	22.61	22.39	22.67	23.50
			36	18	22.67	22.79	22.01	23.50
			36	39	22.56	22.30	22.25	23.50
			75	0	21.86	21.98	21.81	23.50
		16QAM	1	0	22.06	22.18	22.02	23.50
			1	38	21.95	22.18	21.87	23.50
			1	74	22.01	22.09	22.02	23.50
			36	0	21.59	21.77	21.13	22.50
			36	18	20.83	21.22	21.49	22.50
			36	39	21.18	21.19	21.51	22.50
75			0	20.83	20.97	20.85	22.50	
64QAM		1	0	20.91	21.07	20.96	22.50	
		1	38	20.89	21.07	20.98	22.50	
		1	74	20.95	21.13	20.95	22.50	
		36	0	19.94	20.12	20.03	21.50	
		36	18	20.42	20.33	20.49	21.50	
		36	39	20.52	20.21	20.48	21.50	
		75	0	19.85	19.99	19.81	21.00	
20MHz	QPSK	1	0	22.81	22.84	22.78	24.00	
		1	50	22.80	22.89	22.75	24.00	
1		99	22.84	22.91	22.71	24.00		
50		0	21.93	22.55	21.99	23.50		
50		25	21.93	22.20	22.58	23.50		
50		50	22.34	22.16	22.19	23.50		
100		0	21.91	21.98	21.83	23.50		



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16QAM	1	0	22.00	22.07	22.05	23.50
	1	50	22.00	22.09	21.97	23.50
	1	99	22.10	22.12	21.85	23.50
	50	0	20.93	22.06	21.83	22.50
	50	25	21.85	22.08	21.52	22.50
	50	50	21.98	21.71	21.45	22.50
	100	0	20.89	20.97	20.84	22.50
64QAM	1	0	20.85	21.09	21.01	22.50
	1	50	20.99	21.10	20.94	22.50
	1	99	21.07	21.03	20.86	22.50
	50	0	20.63	20.53	20.28	21.50
	50	25	20.69	20.01	20.66	21.50
	50	50	20.06	20.20	20.40	21.50
	100	0	19.90	19.96	19.85	21.00

LTE FDD Band 12				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				23017	23095	23173	
1.4MHz	QPSK	1	0	22.95	22.91	22.87	24.00
		1	2	23.01	23.04	22.90	24.00
		1	5	22.93	22.90	22.83	24.00
		3	0	22.71	22.34	22.66	24.00
		3	2	22.25	22.11	22.63	24.00
		3	3	22.04	22.18	22.64	24.00
		6	0	21.99	21.97	21.96	23.50
	16QAM	1	0	22.31	22.15	22.13	23.00
		1	2	22.27	22.33	22.18	23.00
		1	5	22.09	22.27	22.02	23.00
		3	0	22.63	22.25	21.09	23.00
		3	2	22.25	21.45	21.99	23.00
		3	3	22.39	22.00	21.58	23.00
		6	0	22.93	21.06	21.04	23.00
	64QAM	1	0	21.12	21.19	20.98	22.00
		1	2	21.20	21.20	21.09	22.00
		1	5	21.14	21.06	21.02	22.00
		3	0	20.18	20.21	20.84	21.50
		3	2	20.93	20.59	20.48	21.50
		3	3	20.53	20.86	20.09	21.50



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Bandwidth	Modulation	RB size	RB offset	6	0	19.98	20.01	19.98	21.50
				Channel	Channel	Channel	Tune up		
				23025	23095	23165			
3MHz	QPSK	1	0	23.02	23.00	22.97	24.00		
		1	7	23.02	23.00	22.94	24.00		
		1	14	22.91	22.97	22.89	24.00		
		8	0	22.89	22.25	22.74	23.50		
		8	4	22.57	22.55	22.46	23.50		
		8	7	22.40	22.30	22.27	23.50		
		15	0	22.06	22.05	22.04	23.50		
	16QAM	1	0	22.28	22.28	22.17	23.00		
		1	7	22.18	22.24	22.12	23.00		
		1	14	22.21	22.16	22.04	23.00		
		8	0	21.54	21.44	21.60	23.00		
		8	4	21.92	21.97	21.32	23.00		
		8	7	22.09	21.68	21.45	23.00		
		15	0	21.09	21.12	21.07	23.00		
	64QAM	1	0	21.19	21.24	21.12	22.00		
		1	7	21.12	21.19	21.09	22.00		
		1	14	21.13	21.20	21.09	22.00		
		8	0	20.95	20.25	20.77	21.50		
		8	4	21.01	20.24	20.59	21.50		
		8	7	20.59	20.87	20.29	21.50		
		15	0	20.10	20.08	20.08	21.50		
	Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up	
					23035	23095	23155		
	5MHz	QPSK	1	0	23.04	22.98	23.03	24.00	
1			13	22.94	23.01	22.99	24.00		
1			24	22.96	23.00	22.90	24.00		
12			0	22.21	22.99	22.10	23.50		
12			6	22.53	22.74	22.84	23.50		
12			13	22.53	22.49	22.70	23.50		
25			0	22.10	22.09	22.01	23.50		
16QAM		1	0	22.33	22.23	22.35	23.00		
		1	13	22.22	22.33	22.14	23.00		
		1	24	22.23	22.28	22.14	23.00		
		12	0	22.12	22.04	22.11	23.00		
		12	6	22.12	21.26	21.81	23.00		
		12	13	21.54	21.88	21.44	23.00		
		25	0	21.14	21.11	21.03	23.00		



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		1	0	21.26	21.23	21.25	22.00
		1	13	21.15	21.20	21.13	22.00
		1	24	21.11	21.24	21.07	22.00
	64QAM	12	0	20.55	20.50	20.07	21.50
		12	6	20.36	21.14	20.21	21.50
		12	13	20.44	20.13	20.85	21.50
		25	0	20.13	20.07	20.04	21.50
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				23060	23095	23130	
10MHz	QPSK	1	0	23.05	22.90	23.03	24.00
		1	25	22.99	22.99	23.00	24.00
		1	49	22.98	22.93	22.87	24.00
		25	0	22.57	22.53	22.29	23.50
		25	13	22.92	22.24	22.70	23.50
		25	25	22.86	22.36	22.47	23.50
		50	0	22.13	22.08	22.04	23.50
	16QAM	1	0	22.26	22.22	22.28	23.00
		1	25	22.25	22.26	22.36	23.00
		1	49	22.30	22.20	22.07	23.00
		25	0	21.17	22.20	21.83	23.00
		25	13	22.17	21.65	21.47	23.00
		25	25	22.02	21.80	21.71	23.00
		50	0	21.16	21.07	21.03	23.00
	64QAM	1	0	21.22	21.09	21.13	22.00
		1	25	21.19	21.24	21.24	22.00
		1	49	21.12	21.08	21.01	22.00
		25	0	21.02	20.21	20.08	21.50
		25	13	20.85	20.28	20.94	21.50
		25	25	20.61	20.65	20.06	21.50
		50	0	20.16	20.08	20.03	21.50



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LTE FDD Band 13				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				23205	23230	23255	
5MHz	QPSK	1	0	22.97	23.00	23.06	24.00
		1	13	22.95	23.08	23.07	24.00
		1	24	23.00	23.04	23.02	24.00
		12	0	22.29	22.25	22.55	23.50
		12	6	22.89	22.49	22.72	23.50
		12	13	22.34	22.90	22.26	23.50
		25	0	22.10	22.12	22.11	23.50
	16QAM	1	0	22.16	22.29	22.28	23.00
		1	13	22.25	22.38	22.37	23.00
		1	24	22.27	22.29	22.32	23.00
		12	0	21.37	22.11	21.41	23.00
		12	6	21.49	21.43	21.75	23.00
		12	13	21.67	21.92	22.32	23.00
		25	0	21.13	21.15	21.15	23.00
	64QAM	1	0	21.16	21.15	21.22	22.00
		1	13	21.16	21.26	21.30	22.00
		1	24	21.26	21.22	21.23	22.00
		12	0	20.94	20.41	20.53	21.50
		12	6	20.91	20.79	20.39	21.50
		12	13	20.69	20.21	20.77	21.50
		25	0	20.14	20.10	20.11	21.50
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
10MHz	QPSK	1	0	/	23230	/	24.00
		1	25	/	23.09	/	24.00
		1	49	/	22.98	/	24.00
		25	0	/	22.62	/	23.50
		25	13	/	22.71	/	23.50
		25	25	/	22.86	/	23.50
		50	0	/	22.13	/	23.50
	16QAM	1	0	/	22.21	/	23.00
		1	25	/	22.29	/	23.00
		1	49	/	22.25	/	23.00
		25	0	/	21.25	/	23.00
		25	13	/	22.11	/	23.00
		25	25	/	22.10	/	23.00



		50	0	/	21.14	/	23.00
64QAM		1	0	/	21.20	/	22.00
		1	25	/	21.27	/	22.00
		1	49	/	21.12	/	22.00
		25	0	/	20.86	/	21.50
		25	13	/	21.10	/	21.50
		25	25	/	20.75	/	21.50
		50	0	/	20.15	/	21.50

LTE Band 14				Conducted Power(dBm)				
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up	
				23305	23330	23355		
5MHz	QPSK	1	0	23.12	23.11	23.09	24.00	
		1	13	23.10	23.12	23.12	24.00	
		1	24	23.04	23.06	23.01	24.00	
		12	0	22.77	22.97	22.34	23.50	
		12	6	22.80	22.90	23.00	23.50	
		12	13	22.84	23.01	22.18	23.50	
	16QAM	25	0	22.19	22.20	22.16	23.50	
		1	0	22.35	22.32	22.32	23.00	
		1	13	22.33	22.49	22.41	23.00	
		1	24	22.33	22.34	22.32	23.00	
		12	0	21.28	21.51	21.90	23.00	
		12	6	21.53	22.25	21.95	23.00	
	64QAM	12	13	21.46	22.09	21.48	23.00	
		25	0	21.24	21.22	21.19	23.00	
		1	0	21.28	21.30	21.22	22.00	
		1	13	21.30	21.35	21.19	22.00	
		1	24	21.27	21.25	21.16	22.00	
		12	0	20.57	20.37	20.53	21.50	
	10MHz	QPSK	12	6	20.24	21.11	21.03	21.50
			12	13	20.81	21.21	20.85	21.50
	25		0	20.18	20.17	20.20	21.50	
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up	
				/	23330	/		
		1	0	/	23.15	/	24.00	
		1	25	/	23.15	/	24.00	
		1	49	/	23.03	/	24.00	



		25	0	/	22.22	/	23.50
		25	13	/	22.94	/	23.50
		25	25	/	22.21	/	23.50
		50	0	/	22.19	/	23.50
	16QAM	1	0	/	22.38	/	23.00
		1	25	/	22.42	/	23.00
		1	49	/	22.25	/	23.00
		25	0	/	21.19	/	23.00
		25	13	/	21.34	/	23.00
		25	25	/	22.21	/	23.00
		50	0	/	21.19	/	23.00
	64QAM	1	0	/	21.26	/	22.00
		1	25	/	21.37	/	22.00
		1	49	/	21.15	/	22.00
		25	0	/	20.27	/	21.50
		25	13	/	20.71	/	21.50
		25	25	/	20.59	/	21.50
		50	0	/	20.20	/	21.50

LTE Band 25				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				26047	26365	26683	
1.4MHz	QPSK	1	0	22.66	22.95	22.89	24.00
		1	2	23.00	23.02	22.90	24.00
		1	5	22.86	22.91	22.91	24.00
		3	0	22.60	22.24	22.50	23.50
		3	1	22.51	22.22	22.36	23.50
		3	3	22.63	22.27	22.49	23.50
		6	0	21.93	21.98	22.06	23.00
	16QAM	1	0	22.21	22.34	22.06	23.00
		1	2	22.28	22.40	22.09	23.00
		1	5	21.79	22.19	21.95	23.00
		3	0	22.73	21.33	21.08	23.00
		3	1	22.18	21.56	21.73	23.00
		3	3	22.76	22.06	21.82	23.00
		6	0	22.93	21.09	21.02	23.00
	64QAM	1	0	21.12	21.14	20.99	22.00
		1	2	21.28	21.33	21.02	22.00



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Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				26055	26365	26675	
3MHz	QPSK	1	5	21.09	21.22	20.98	22.00
		3	0	20.76	20.22	20.57	21.50
		3	1	20.70	20.57	20.34	21.50
		3	3	20.11	20.02	20.40	21.50
		6	0	19.97	20.01	20.00	21.50
	16QAM	1	0	22.95	22.99	22.99	24.00
		1	7	22.97	23.04	22.97	24.00
		1	14	22.98	23.00	22.89	24.00
		8	0	22.39	22.80	22.33	23.50
		8	4	22.90	22.95	22.55	23.50
		8	7	22.75	22.09	22.11	23.50
		15	0	22.04	22.05	22.10	23.00
		1	0	22.23	22.23	22.11	23.00
		1	7	22.28	22.43	22.15	23.00
		1	14	22.29	22.36	22.00	23.00
		8	0	21.59	21.90	21.64	23.00
		8	4	21.72	22.03	21.14	23.00
		8	7	22.22	21.35	21.46	23.00
		15	0	21.09	21.15	21.04	23.00
		64QAM	1	0	21.23	21.15	21.05
1	7		21.21	21.25	21.05	22.00	
1	14		21.20	21.20	21.04	22.00	
8	0		21.03	20.90	20.66	21.50	
8	4		20.30	20.83	20.15	21.50	
8	7		20.73	20.48	20.87	21.50	
15	0		20.11	20.15	20.07	21.50	
5MHz	QPSK	1	0	23.00	23.07	22.96	24.00
		1	13	22.97	23.03	22.98	24.00
1		24	22.99	23.07	22.90	24.00	
12		0	22.29	22.52	22.67	23.50	
12		6	22.56	22.15	22.30	23.50	
12		13	22.63	22.52	22.43	23.50	
25		0	22.06	22.07	22.08	23.50	
16QAM	1	0	22.27	22.33	22.24	23.00	
	1	13	22.17	22.36	22.22	23.00	
	1	24	22.30	22.33	21.99	23.00	



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		12	0	21.39	21.87	21.24	23.00	
		12	6	21.81	21.19	21.69	23.00	
		12	13	21.31	21.73	21.47	23.00	
		25	0	21.13	21.15	21.04	23.00	
	64QAM	1	0	21.26	21.32	21.18	22.00	
		1	13	21.22	21.27	21.07	22.00	
		1	24	21.18	21.31	21.01	22.00	
		12	0	21.07	21.09	20.48	21.50	
		12	6	20.76	20.54	20.81	21.50	
		12	13	20.64	20.84	20.74	21.50	
		25	0	20.10	20.10	20.05	21.50	
Bandwidth		Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
					26090	26365	26640	
10MHz	QPSK	1	0	22.94	23.01	23.05	24.00	
		1	25	23.00	23.05	23.00	24.00	
		1	49	22.98	23.07	22.95	24.00	
		25	0	22.52	22.81	22.41	23.50	
		25	13	22.92	22.14	22.32	23.50	
		25	25	22.36	22.31	22.56	23.50	
		50	0	22.10	22.11	22.09	23.50	
	16QAM	1	0	22.33	22.29	22.32	23.00	
		1	25	22.27	22.32	22.27	23.00	
		1	49	22.21	22.36	22.01	23.00	
		25	0	21.20	21.82	21.74	23.00	
		25	13	22.20	21.81	21.13	23.00	
		25	25	21.29	22.23	21.33	23.00	
		50	0	21.07	21.16	21.11	23.00	
	64QAM	1	0	21.26	21.26	21.21	22.00	
		1	25	21.26	21.31	21.23	22.00	
		1	49	21.18	21.35	21.14	22.00	
		25	0	20.92	20.26	20.74	21.50	
		25	13	21.11	20.11	20.71	21.50	
		25	25	20.42	21.19	20.52	21.50	
		50	0	20.09	20.11	20.11	21.50	
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up	
				26115	26365	26615		
15MHz	QPSK	1	0	22.95	22.97	22.91	24.00	
		1	38	23.02	23.09	23.03	24.00	
		1	74	22.96	23.05	22.82	24.00	
		36	0	22.11	22.61	22.30	23.50	



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		36	18	22.42	22.72	22.31	23.50
		36	39	22.50	23.01	22.24	23.50
		75	0	22.07	22.11	22.05	23.50
	16QAM	1	0	22.28	22.34	22.23	23.00
		1	38	22.22	22.48	22.26	23.00
		1	74	22.16	22.42	22.02	23.00
		36	0	21.49	22.16	21.53	23.00
		36	18	22.07	21.32	21.18	23.00
		36	39	22.12	21.45	21.58	23.00
		75	0	21.08	21.16	21.04	23.00
	64QAM	1	0	21.28	21.23	21.13	22.00
		1	38	21.24	21.29	21.26	22.00
		1	74	21.21	21.28	21.08	22.00
		36	0	20.87	21.13	20.22	21.50
		36	18	20.40	20.67	20.18	21.50
		36	39	20.14	20.64	20.97	21.50
75		0	20.10	20.11	20.10	21.50	
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				26140	26365	26590	
20MHz	QPSK	1	0	22.91	22.89	22.95	24.00
		1	50	22.95	23.05	23.01	24.00
		1	99	22.87	23.01	22.86	24.00
		50	0	22.71	22.98	22.38	23.50
		50	25	22.82	22.70	22.18	23.50
		50	50	22.01	22.48	22.46	23.50
		100	0	21.96	22.05	22.14	23.50
	16QAM	1	0	22.20	22.25	22.20	23.00
		1	50	22.22	22.34	22.38	23.00
		1	99	22.10	22.25	22.01	23.00
		50	0	21.55	21.80	21.72	23.00
		50	25	21.71	21.14	21.55	23.00
		50	50	21.77	21.91	21.16	23.00
		100	0	21.00	21.11	21.15	23.00
	64QAM	1	0	21.09	21.15	21.11	22.00
		1	50	21.20	21.33	21.23	22.00
		1	99	21.04	21.22	21.01	22.00
		50	0	20.91	21.16	20.83	21.50
		50	25	20.24	21.00	20.89	21.50
		50	50	20.13	20.36	20.27	21.50
		100	0	19.99	20.10	20.13	21.50



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LTE Band 26				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				26697	26865	27033	
1.4MHz	QPSK	1	0	22.86	22.77	22.73	24.00
		1	2	22.94	22.88	22.83	24.00
		1	5	22.83	22.77	22.74	24.00
		3	0	22.49	22.25	22.61	24.00
		3	2	22.82	22.63	22.44	24.00
		3	3	22.19	22.15	22.32	24.00
		6	0	21.91	21.80	21.86	23.50
	16QAM	1	0	22.14	22.08	22.03	23.00
		1	2	22.29	22.14	22.09	23.00
		1	5	22.16	21.99	21.99	23.00
		3	0	22.30	21.71	21.13	23.00
		3	2	22.53	21.40	21.99	23.00
		3	3	22.45	21.22	21.18	23.00
		6	0	22.93	21.08	21.07	23.00
	64QAM	1	0	21.10	20.92	20.97	22.00
		1	2	21.15	20.98	21.02	22.00
		1	5	21.04	20.96	20.99	22.00
		3	0	20.08	20.27	20.42	21.50
		3	2	20.95	20.72	20.16	21.50
		3	3	20.58	20.28	20.64	21.50
		6	0	19.93	19.83	19.86	21.50
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				26705	26865	27025	
3MHz	QPSK	1	0	22.96	22.87	22.89	24.00
		1	7	22.94	22.87	22.82	24.00
		1	14	22.91	22.80	22.83	24.00
		8	0	22.82	22.13	21.97	23.50
		8	4	21.99	22.32	22.62	23.50
		8	7	22.38	22.64	22.43	23.50
		15	0	21.98	21.93	21.96	23.50
	16QAM	1	0	22.28	22.22	22.01	23.00
		1	7	22.18	22.08	21.98	23.00



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		1	14	22.20	22.16	22.02	23.00	
		8	0	22.17	21.23	21.30	23.00	
		8	4	21.58	21.86	21.44	23.00	
		8	7	21.97	21.42	21.20	23.00	
		15	0	20.97	20.97	20.94	22.50	
	64QAM	1	0	22.02	22.05	22.00	22.50	
		1	7	22.11	21.88	22.00	22.50	
		1	14	22.07	22.01	21.92	22.50	
		8	0	21.91	21.38	21.18	22.50	
		8	4	22.03	21.31	21.29	22.50	
		8	7	21.18	21.98	20.99	22.50	
		15	0	21.02	20.95	20.94	21.50	
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up	
				26715	26865	27015		
5MHz	QPSK	1	0	22.93	22.88	22.90	24.00	
		1	13	22.95	22.87	22.86	24.00	
		1	24	22.87	22.81	22.83	24.00	
		12	0	22.86	22.23	22.63	23.50	
		12	6	22.66	22.55	22.58	23.50	
		12	13	22.41	22.33	22.83	23.50	
		25	0	21.98	21.96	21.96	23.50	
	16QAM	1	0	22.23	22.22	22.18	22.50	
		1	13	22.27	22.19	22.09	22.50	
		1	24	22.19	22.04	22.05	22.50	
		12	0	21.58	20.98	21.43	22.50	
		12	6	22.03	21.84	21.06	22.50	
		12	13	21.13	21.07	21.82	22.50	
		25	0	21.01	20.96	20.93	21.50	
	64QAM	1	0	21.09	21.06	21.15	21.50	
		1	13	21.07	21.03	21.07	21.50	
		1	24	21.02	21.06	20.94	21.50	
		12	0	20.94	20.50	20.23	21.50	
		12	6	20.78	20.63	20.09	21.50	
		12	13	20.50	20.19	20.06	21.50	
		25	0	20.00	19.98	19.95	20.50	
	Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
					26740	26865	26990	
	10MHz	QPSK	1	0	22.94	22.90	23.02	24.00
1			25	22.92	22.89	22.89	24.00	
1			49	22.83	22.94	22.81	24.00	



		25	0	22.71	22.19	22.35	23.50	
		25	13	22.70	22.38	22.29	23.50	
		25	25	22.26	22.77	22.76	23.50	
		50	0	22.00	21.91	21.96	23.50	
	16QAM	1	0	22.22	22.11	22.28	22.50	
		1	25	22.26	22.11	22.18	22.50	
		1	49	22.18	22.17	21.99	22.50	
		25	0	21.55	21.76	21.98	22.50	
		25	13	21.55	21.86	21.97	22.50	
		25	25	21.70	21.01	20.99	22.50	
	64QAM	50	0	21.02	20.94	20.97	21.50	
		1	0	21.14	21.16	21.22	21.50	
		1	25	21.13	21.08	21.16	21.50	
		1	49	21.07	21.14	20.98	21.50	
		25	0	20.12	20.33	20.47	21.50	
		25	13	20.03	20.19	20.33	21.50	
		25	25	20.48	20.26	20.30	21.50	
		50	0	20.01	19.93	19.98	20.50	
Bandwidth		Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
15MHz		QPSK	1	0	22.98	22.91	22.92	24.00
			1	38	22.87	22.89	22.98	24.00
			1	74	22.82	22.91	22.81	24.00
	36		0	22.40	22.43	22.32	23.50	
	36		18	22.80	22.07	22.50	23.50	
	36		39	21.94	22.69	22.47	23.50	
	75		0	21.93	21.88	21.87	23.50	
	16QAM	1	0	22.17	22.25	22.22	22.50	
		1	38	22.21	22.09	22.18	22.50	
		1	74	22.19	22.18	22.07	22.50	
		36	0	21.76	22.08	21.82	22.50	
		36	18	21.99	21.04	21.53	22.50	
		36	39	21.48	21.75	21.31	22.50	
		75	0	20.94	20.89	20.87	21.50	
	64QAM	1	0	21.18	21.07	21.05	21.50	
		1	38	21.02	21.03	21.17	21.50	
		1	74	21.05	21.12	20.98	21.50	
		36	0	20.80	20.61	20.85	21.50	
		36	18	20.64	19.97	20.59	21.50	
		36	39	20.71	20.22	19.99	21.50	



		75	0	19.92	19.91	19.84	20.50
--	--	----	---	-------	-------	-------	-------

LTE Band 30				Conducted Power(dBm)				
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up	
				27685	27710	27735		
5MHz	QPSK	1	0	22.73	22.06	22.45	23.50	
		1	13	22.00	22.24	22.36	23.50	
		1	24	22.50	22.52	22.38	23.50	
		12	0	22.17	22.02	22.01	23.00	
		12	6	22.40	22.38	22.12	23.00	
		12	13	21.91	21.80	22.26	23.00	
		25	0	21.62	21.69	21.54	23.00	
	16QAM	1	0	21.87	21.39	21.57	22.50	
		1	13	21.31	21.41	21.63	22.50	
		1	24	21.67	21.65	21.54	22.50	
		12	0	21.60	21.19	20.78	22.50	
		12	6	20.86	21.37	20.66	22.50	
		12	13	20.90	21.35	20.71	22.50	
		25	0	20.64	20.63	20.57	22.50	
	64QAM	1	0	20.92	20.40	20.69	21.50	
		1	13	20.28	20.37	20.53	21.50	
		1	24	20.62	20.60	20.56	21.50	
		12	0	20.57	20.53	20.45	21.00	
		12	6	19.87	20.37	20.13	21.00	
		12	13	20.10	20.59	19.57	21.00	
		25	0	19.65	19.65	19.51	21.00	
	Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
	10MHz	QPSK	1	0	/	22.50	/	23.50
			1	25	/	22.17	/	23.50
1			49	/	22.49	/	23.50	
25			0	/	22.16	/	23.00	
25			13	/	22.45	/	23.00	
25			25	/	21.85	/	23.00	
50			0	/	21.72	/	23.00	
16QAM		1	0	/	20.98	/	22.50	
		1	25	/	21.35	/	22.50	
		1	49	/	21.74	/	22.50	
		25	0	/	20.94	/	22.50	
		/	/	/	/	27710	/	/



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64QAM	25	13	/	21.65	/	22.50
	25	25	/	21.66	/	22.50
	50	0	/	20.65	/	22.50
	1	0	/	20.17	/	21.50
	1	25	/	20.27	/	21.50
	1	49	/	20.60	/	21.50
	25	0	/	19.78	/	21.00
	25	13	/	20.05	/	21.00
	25	25	/	20.01	/	21.00
	50	0	/	19.69	/	21.00

LTE Band 41 2496 - 2690				Conducted Power(dBm)						
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Channel	Channel	Tune up	
				39675	40148	40620	41093	41565		
5MHz	QPSK	1	0	22.67	22.58	22.82	22.65	22.62	24.00	
		1	13	22.7	22.78	22.87	22.74	22.62	24.00	
		1	24	22.69	22.78	22.82	22.72	22.56	24.00	
		12	0	22.64	22.62	22.60	21.66	21.85	23.50	
		12	6	22.61	22.58	21.93	22.47	22.28	23.50	
		12	13	22.06	22.23	22.17	22.30	22.20	23.50	
		25	0	21.75	21.56	21.91	21.74	21.7	23.50	
	16QAM	1	0	21.73	21.63	21.87	21.76	21.58	22.50	
		1	13	21.76	21.81	21.92	21.62	21.65	22.50	
		1	24	21.75	21.77	21.88	21.55	21.6	22.50	
		12	0	21.52	21.43	21.08	20.89	20.87	22.50	
		12	6	20.88	20.72	20.94	21.30	21.37	22.50	
		12	13	21.40	21.49	21.23	20.77	20.68	22.50	
		25	0	20.79	20.65	20.90	20.58	20.68	21.50	
	64QAM	1	0	20.33	20.25	20.53	20.35	20.25	21.50	
		1	13	20.37	20.42	20.54	20.48	20.29	21.50	
		1	24	20.37	20.38	20.54	20.39	20.21	21.50	
		12	0	19.87	20.03	20.18	20.22	20.19	21.50	
		12	6	20.29	20.38	20.13	19.65	19.75	21.50	
		12	13	20.27	20.20	20.49	20.12	20.10	21.50	
		25	0	19.83	19.78	19.91	19.75	19.73	20.50	
	10MHz	QPSK	1	0	22.77	22.94	22.88	22.63	22.66	24.00
			1	25	22.77	22.76	22.86	22.59	22.62	24.00



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		1	49	22.74	22.93	22.88	22.69	22.63	24.00	
		25	0	22.56	22.47	22.09	22.04	22.05	23.50	
		25	13	22.07	22.06	22.02	22.45	22.49	23.50	
		25	25	22.70	22.64	21.94	22.54	22.42	23.50	
		50	0	21.87	21.86	21.94	21.73	21.76	23.50	
	16QAM	1	0	21.86	21.91	21.91	21.47	21.66	22.50	
		1	25	21.82	21.68	21.89	21.71	21.63	22.50	
		1	49	21.81	21.84	21.91	21.61	21.58	22.50	
		25	0	21.15	21.15	21.84	21.13	20.97	22.50	
		25	13	21.36	21.38	21.05	21.37	21.50	22.50	
		25	25	21.72	21.85	21.24	21.09	21.02	22.50	
		50	0	20.89	20.79	20.93	20.54	20.73	21.50	
	64QAM	1	0	20.46	20.39	20.51	20.20	20.28	21.50	
		1	25	20.41	20.22	20.52	20.16	20.28	21.50	
		1	49	20.42	20.60	20.50	20.18	20.27	21.50	
		25	0	20.42	20.36	19.94	20.35	20.19	21.50	
		25	13	20.38	20.45	20.46	19.95	19.94	21.50	
		25	25	20.22	20.37	20.15	20.07	20.12	21.50	
		50	0	19.88	19.92	19.92	19.75	19.74	20.50	
	Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Channel	Channel	Tune up
					39725	40173	40620	41068	41515	
	15MHz	QPSK	1	0	22.71	22.54	22.87	22.72	22.6	24.00
			1	38	22.67	22.71	22.84	22.47	22.62	24.00
			1	74	22.72	22.54	22.85	22.78	22.61	24.00
			36	0	22.31	22.42	22.31	22.50	22.33	23.50
			36	18	22.12	22.15	22.79	21.99	21.94	23.50
			36	39	22.71	22.74	22.23	22.09	22.26	23.50
			75	0	21.79	21.63	21.91	21.59	21.74	23.50
16QAM		1	0	21.77	21.66	21.90	21.50	21.57	22.50	
		1	38	21.75	21.77	21.92	21.69	21.63	22.50	
		1	74	21.78	21.73	21.95	21.79	21.64	22.50	
		36	0	21.33	21.32	21.81	20.85	20.98	22.50	
		36	18	21.28	21.09	21.01	21.00	21.05	22.50	
		36	39	21.45	21.28	21.77	21.42	21.26	22.50	
		75	0	20.81	20.90	20.92	20.84	20.71	21.50	
64QAM		1	0	20.37	20.55	20.49	20.37	20.21	21.50	
		1	38	20.35	20.39	20.56	20.34	20.25	21.50	
		1	74	20.37	20.40	20.53	20.40	20.26	21.50	
		36	0	20.00	19.92	20.06	20.02	20.10	21.50	
		36	18	20.19	20.30	20.23	20.40	20.22	21.50	



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Bandwidth	Modulation	36	39	19.96	19.92	20.48	19.60	19.79	21.50
		75	0	19.80	19.80	19.92	19.82	19.75	20.50
		RB size	RB offset	Channel	Channel	Channel	Channel	Channel	Tune up
				39750	40185	40620	41055	41490	
20MHz	QPSK	1	0	22.68	22.61	22.82	22.86	22.69	24.00
		1	50	22.69	22.64	22.83	22.79	22.72	24.00
		1	99	22.72	22.57	22.82	22.69	22.62	24.00
		50	0	21.97	21.93	21.94	21.94	22.09	23.50
		50	25	22.38	22.57	22.65	22.01	22.08	23.50
		50	50	21.82	21.79	22.16	22.04	21.99	23.50
		100	0	21.80	21.61	21.93	21.77	21.76	23.50
	16QAM	1	0	21.78	21.81	21.90	21.67	21.71	22.50
		1	50	21.73	21.58	21.88	21.76	21.74	22.50
		1	99	21.77	21.68	21.87	21.77	21.61	22.50
		50	0	21.09	21.22	21.66	21.31	21.15	22.50
		50	25	21.31	21.28	21.42	21.03	20.86	22.50
		50	50	21.51	21.66	21.06	20.92	20.87	22.50
		100	0	20.8	20.92	20.96	20.56	20.75	21.50
	64QAM	1	0	20.37	20.52	20.47	20.41	20.37	21.50
		1	50	20.36	20.21	20.53	20.55	20.38	21.50
		1	99	20.38	20.49	20.50	20.28	20.24	21.50
		50	0	19.84	19.97	20.49	20.29	20.13	21.50
		50	25	19.80	19.65	20.03	19.89	19.88	21.50
		50	50	19.91	20.08	20.08	20.04	20.20	21.50
		100	0	19.78	19.80	19.96	19.65	19.73	20.50



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LTE Band 48				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				55265	55990	56715	
5MHz	QPSK	1	0	22.52	22.51	22.60	24.00
		1	13	22.47	22.48	22.58	24.00
		1	24	22.51	22.50	22.60	24.00
		12	0	21.73	22.07	21.93	23.50
		12	6	22.09	22.15	21.93	23.50
		12	13	21.67	22.19	21.96	23.50
		25	0	21.51	21.60	21.69	23.00
	16QAM	1	0	21.59	21.56	21.57	23.00
		1	13	21.51	21.53	21.54	23.00
		1	24	21.59	21.55	21.58	23.00
		12	0	21.33	21.07	21.13	22.00
		12	6	21.20	20.67	21.11	22.00
		12	13	20.68	21.44	21.22	22.00
		25	0	20.51	20.58	20.64	22.00
	64QAM	1	0	20.20	20.20	20.27	21.50
		1	13	20.15	20.19	20.23	21.50
		1	24	20.18	20.24	20.27	21.50
		12	0	20.17	19.92	20.02	21.00
		12	6	19.60	20.13	20.12	21.00
		12	13	19.70	19.68	20.22	21.00
		25	0	19.59	19.62	19.67	21.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				55290	55990	56690	
10MHz	QPSK	1	0	22.49	22.50	22.55	24.00
		1	25	22.50	22.52	22.56	24.00
		1	49	22.55	22.54	22.62	24.00
		25	0	22.54	22.26	21.80	23.50
		25	13	22.46	22.02	22.12	23.50
		25	25	22.09	22.15	22.06	23.50
		50	0	21.56	21.57	21.71	23.00
	16QAM	1	0	21.49	21.53	21.54	23.00
		1	25	21.55	21.52	21.57	23.00
		1	49	21.55	21.56	21.55	23.00
		25	0	21.07	21.00	21.17	22.00
		25	13	21.54	20.92	21.02	22.00
		25	25	21.48	21.33	20.99	22.00
		50	0	20.60	20.62	20.68	22.00
	64QAM	1	0	20.11	20.18	20.23	21.50
		1	25	20.14	20.18	20.25	21.50
		1	49	20.22	20.24	20.27	21.50
		25	0	19.76	19.73	19.96	21.00
		25	13	20.15	19.77	19.87	21.00
		25	25	20.04	19.79	19.93	21.00
		50	0	19.58	19.59	19.71	21.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				55315	55990	56665	



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15MHz	QPSK	1	0	22.40	22.45	22.48	24.00
		1	38	22.52	22.50	22.53	24.00
		1	74	22.55	22.58	22.60	24.00
		36	0	22.27	21.97	22.29	23.50
		36	18	21.78	22.47	21.78	23.50
		36	39	21.55	21.98	22.00	23.50
		75	0	21.52	21.58	21.66	23.00
	16QAM	1	0	21.49	21.48	21.51	23.00
		1	38	21.58	21.56	21.54	23.00
		1	74	21.65	21.62	21.61	23.00
		36	0	21.61	20.76	21.00	22.00
		36	18	21.47	21.50	21.07	22.00
		36	39	20.86	21.27	20.87	22.00
		75	0	20.56	20.59	20.66	22.00
	64QAM	1	0	20.12	20.13	20.16	21.50
		1	38	20.19	20.18	20.22	21.50
		1	74	20.28	20.31	20.30	21.50
		36	0	20.01	19.83	20.24	21.00
		36	18	19.88	19.95	20.05	21.00
		36	39	20.17	19.86	20.26	21.00
		75	0	19.58	19.59	19.66	21.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				55340	55990	56640	
20MHz	QPSK	1	0	22.43	22.50	22.67	24.00
		1	50	22.51	22.58	22.61	24.00
		1	99	22.57	22.54	22.66	24.00
		50	0	22.04	22.06	22.34	23.50
		50	25	21.96	22.35	22.44	23.50
		50	50	21.80	22.45	22.51	23.50
		100	0	21.53	21.66	21.80	23.00
	16QAM	1	0	21.51	21.54	21.57	23.00
		1	50	21.60	21.63	21.61	23.00
		1	99	21.65	21.69	21.66	23.00
		50	0	21.40	21.41	21.14	22.00
		50	25	21.37	21.51	21.56	22.00
		50	50	21.30	21.39	21.35	22.00
		100	0	20.71	20.67	20.77	22.00
	64QAM	1	0	20.10	20.20	20.25	21.50
		1	50	20.16	20.25	20.31	21.50
		1	99	20.24	20.36	20.37	21.50
		50	0	20.24	19.96	20.14	21.00
		50	25	20.02	20.24	20.11	21.00
		50	50	20.10	20.03	20.19	21.00
		100	0	19.68	19.69	19.74	21.00



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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	23.05	23.27	23.22	24.00
		1	2	23.28	23.30	23.37	24.00
		1	5	23.21	23.23	23.21	24.00
		3	0	22.59	22.36	22.38	24.00
		3	1	23.13	22.81	23.14	24.00
		3	3	22.87	23.02	23.13	24.00
		6	0	22.26	22.33	22.33	23.50
	16QAM	1	0	22.45	22.66	22.55	23.00
		1	2	22.55	22.69	22.58	23.00
		1	5	22.50	22.61	22.61	23.00
		3	0	22.79	21.93	22.28	23.00
		3	1	22.89	22.07	21.89	23.00
		3	3	22.84	22.27	22.49	23.00
		6	0	22.93	21.44	21.49	23.00
	64QAM	1	0	21.35	21.48	21.54	22.00
		1	2	21.53	21.59	21.54	22.00
		1	5	21.39	21.53	21.57	22.00
		3	0	20.51	21.52	21.54	22.00
		3	1	21.23	20.94	21.27	22.00
		3	3	20.46	20.41	20.49	22.00
		6	0	20.31	20.38	20.37	21.50
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
3MHz	QPSK	1	0	23.21	23.33	23.31	24.00
		1	7	23.22	23.35	23.35	24.00
		1	14	23.24	23.32	23.30	24.00
		8	0	22.71	23.11	23.24	23.50
		8	4	22.87	22.78	22.47	23.50
		8	7	22.51	22.60	22.74	23.50
		15	0	22.35	22.41	22.40	23.50
	16QAM	1	0	22.50	22.65	22.56	23.00
		1	7	22.57	22.63	22.63	23.00
		1	14	22.47	22.60	22.57	23.00
		8	0	21.67	21.88	21.85	23.00
		8	4	21.60	22.05	22.02	23.00
		8	7	21.47	21.93	21.52	23.00
		15	0	21.40	21.47	21.45	23.00
		131987	132322	132657			



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		1	0	21.52	21.51	21.43	22.00	
		1	7	21.50	21.56	21.57	22.00	
		1	14	21.49	21.57	21.59	22.00	
	64QAM	8	0	21.28	20.59	21.30	21.50	
		8	4	20.78	20.99	20.52	21.50	
		8	7	20.74	21.23	21.09	21.50	
		15	0	20.36	20.43	20.44	21.50	
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up	
				131997	132322	132647		
5MHz	QPSK	1	0	23.24	23.30	23.28	24.00	
		1	13	23.24	23.35	23.38	24.00	
		1	24	23.24	23.31	23.28	24.00	
		12	0	22.73	23.24	23.12	23.50	
		12	6	22.64	22.55	22.64	23.50	
		12	13	23.18	22.89	23.25	23.50	
		25	0	22.35	22.39	22.39	23.50	
	16QAM	1	0	22.60	22.64	22.54	23.00	
		1	13	22.59	22.63	22.52	23.00	
		1	24	22.55	22.57	22.61	23.00	
		12	0	22.01	22.09	21.87	23.00	
		12	6	21.55	21.84	22.09	23.00	
		12	13	22.01	22.33	22.25	23.00	
		25	0	21.34	21.43	21.40	23.00	
	64QAM	1	0	21.47	21.67	21.55	22.00	
		1	13	21.51	21.63	21.57	22.00	
		1	24	21.46	21.55	21.57	22.00	
		12	0	21.15	20.84	21.40	21.50	
		12	6	20.40	20.57	21.38	21.50	
		12	13	20.98	21.15	21.40	21.50	
		25	0	20.40	20.43	20.43	21.50	
	Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
					132022	132322	132622	
	10MHz	QPSK	1	0	23.25	23.33	23.26	24.00
			1	25	23.25	23.29	23.30	24.00
			1	49	23.31	23.36	23.33	24.00
			25	0	22.49	22.92	22.87	23.50
			25	13	22.63	22.77	23.30	23.50
25			25	22.51	22.98	23.15	23.50	
50			0	22.35	22.42	22.40	23.50	
16QAM		1	0	22.58	22.65	22.47	23.00	



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		1	25	22.51	22.65	22.49	23.00	
		1	49	22.54	22.65	22.65	23.00	
		25	0	21.44	22.44	21.71	23.00	
		25	13	22.39	22.33	22.40	23.00	
		25	25	22.04	22.50	22.05	23.00	
		50	0	21.41	21.42	21.40	23.00	
		64QAM	1	0	21.50	21.54	21.52	22.00
			1	25	21.51	21.59	21.52	22.00
			1	49	21.47	21.56	21.52	22.00
			25	0	21.22	21.48	21.47	21.50
			25	13	20.75	21.26	21.05	21.50
			25	25	20.79	21.48	20.95	21.50
			50	0	20.41	20.45	20.38	21.50
		Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel
132047	132322					132597		
15MHz	QPSK	1	0	23.18	23.28	23.19	24.00	
		1	38	23.29	23.36	23.28	24.00	
		1	74	23.36	23.37	23.32	24.00	
		36	0	22.58	22.77	22.95	23.50	
		36	18	22.46	22.73	23.31	23.50	
		36	39	22.69	22.78	22.45	23.50	
		75	0	22.37	22.37	22.37	23.50	
	16QAM	1	0	22.54	22.58	22.56	23.00	
		1	38	22.53	22.70	22.59	23.00	
		1	74	22.53	22.68	22.71	23.00	
		36	0	22.13	21.42	22.16	23.00	
		36	18	21.49	21.79	22.23	23.00	
		36	39	22.45	21.90	21.94	23.00	
		75	0	21.44	21.39	21.36	23.00	
	64QAM	1	0	21.40	21.55	21.50	22.00	
		1	38	21.53	21.64	21.49	22.00	
		1	74	21.58	21.58	21.53	22.00	
		36	0	20.64	21.14	20.97	21.50	
		36	18	21.32	20.85	21.08	21.50	
		36	39	21.41	21.07	20.86	21.50	
		75	0	20.40	20.42	20.39	21.50	
	Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
					132072	132322	132572	
	20MHz	QPSK	1	0	23.16	23.24	23.13	24.00
			1	50	23.28	23.35	23.28	24.00



		1	99	23.41	23.42	23.31	24.00
		50	0	22.85	22.86	23.03	23.50
		50	25	22.46	23.30	23.28	23.50
		50	50	23.03	22.58	22.44	23.50
		100	0	22.39	22.39	22.31	23.50
	16QAM	1	0	22.48	22.58	22.39	23.00
		1	50	22.48	22.63	22.53	23.00
		1	99	22.67	22.71	22.60	23.00
		50	0	21.46	22.63	21.52	23.00
		50	25	21.99	21.95	22.52	23.00
		50	50	22.66	21.83	21.68	23.00
		100	0	21.36	21.41	21.33	23.00
	64QAM	1	0	21.39	21.48	21.42	22.00
		1	50	21.46	21.58	21.46	22.00
		1	99	21.62	21.54	21.59	22.00
		50	0	21.15	21.02	20.38	21.50
		50	25	20.68	21.37	21.46	21.50
		50	50	21.04	20.73	20.51	21.50
		100	0	20.41	20.44	20.37	21.50

LTE Band 71				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				133147	133297	133447	
5MHz	QPSK	1	0	23.31	23.35	23.25	24.00
		1	13	23.40	23.29	23.25	24.00
		1	24	23.31	23.19	23.16	24.00
		12	0	23.10	22.68	22.79	23.50
		12	6	22.86	22.80	22.69	23.50
		12	13	22.72	23.15	22.65	23.50
		25	0	22.48	22.29	22.24	23.50
	16QAM	1	0	22.65	22.59	22.54	23.00
		1	13	22.64	22.64	22.43	23.00
		1	24	22.52	22.44	22.51	23.00
		12	0	21.75	21.72	21.46	23.00
		12	6	22.34	22.38	21.40	23.00
		12	13	21.98	21.77	21.30	23.00
		25	0	21.49	21.34	21.25	23.00
	64QAM	1	0	21.66	21.50	21.49	22.00
		1	13	21.58	21.48	21.42	22.00
		1	24	21.55	21.40	21.36	22.00



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Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up	
				133172	133297	133422		
10MHz	QPSK	12	0	20.58	21.39	20.49	21.50	
		12	6	21.46	20.40	20.48	21.50	
		12	13	21.46	20.42	20.66	21.50	
		25	0	20.48	20.35	20.26	21.50	
		1	0	23.42	23.37	23.30	24.00	
		1	25	23.34	23.28	23.28	24.00	
		1	49	23.30	23.26	23.11	24.00	
	16QAM	25	0	22.83	22.85	22.63	23.50	
		25	13	22.49	22.40	22.86	23.50	
		25	25	22.75	23.17	22.69	23.50	
		50	0	22.41	22.31	22.19	23.50	
		1	0	22.73	22.70	22.48	23.00	
		1	25	22.57	22.52	22.52	23.00	
		1	49	22.56	22.58	22.34	23.00	
	64QAM	25	0	22.00	21.83	22.09	23.00	
		25	13	22.14	21.54	21.42	23.00	
		25	25	21.82	21.83	21.99	23.00	
		50	0	21.43	21.33	21.23	23.00	
		1	0	21.64	21.63	21.48	22.00	
		1	25	21.58	21.53	21.44	22.00	
		1	49	21.49	21.44	21.34	22.00	
	15MHz	QPSK	25	0	20.69	20.89	20.53	21.50
			25	13	20.50	20.78	20.56	21.50
			25	25	21.23	20.38	20.24	21.50
			50	0	20.44	20.31	20.21	21.50
			1	0	23.36	23.46	23.29	24.00
			1	38	23.35	23.32	23.21	24.00
			1	74	23.29	23.26	23.19	24.00
16QAM		36	0	22.75	22.74	22.57	23.50	
		36	18	22.80	22.42	22.72	23.50	
		36	39	23.04	22.78	23.15	23.50	
		75	0	22.46	22.30	22.20	23.50	
		1	0	22.65	22.74	22.56	23.00	
		1	38	22.55	22.50	22.49	23.00	
		1	74	22.54	22.51	22.52	23.00	
		36	0	22.04	22.13	22.17	23.00	



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		36	18	21.97	22.08	22.43	23.00	
		36	39	22.12	21.82	21.69	23.00	
		75	0	21.49	21.31	21.25	23.00	
	64QAM	1	0	21.60	21.69	21.41	22.00	
		1	38	21.53	21.52	21.41	22.00	
		1	74	21.52	21.39	21.35	22.00	
		36	0	20.90	21.28	20.92	21.50	
		36	18	20.66	20.83	20.30	21.50	
		36	39	21.16	21.26	20.49	21.50	
		75	0	20.48	20.36	20.28	21.50	
Bandwidth		Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
					133222	133322	133372	
20MHz	QPSK	1	0	23.35	23.43	23.40	24.00	
		1	50	23.23	23.44	23.27	24.00	
		1	99	23.20	23.20	23.15	24.00	
		50	0	23.19	22.68	22.87	23.50	
		50	25	22.74	23.09	22.67	23.50	
		50	50	22.80	22.48	22.50	23.50	
		100	0	22.41	22.27	22.26	23.50	
	16QAM	1	0	22.65	22.69	22.59	23.00	
		1	50	22.66	22.54	22.62	23.00	
		1	99	22.42	22.45	22.39	23.00	
		50	0	21.74	21.71	21.52	23.00	
		50	25	21.80	22.27	22.31	23.00	
		50	50	21.45	21.84	22.19	23.00	
		100	0	21.41	21.27	21.25	23.00	
	64QAM	1	0	21.61	21.61	21.55	22.00	
		1	50	21.65	21.48	21.43	22.00	
		1	99	21.42	21.37	21.31	22.00	
		50	0	20.87	20.63	21.15	21.50	
		50	25	21.10	20.96	20.35	21.50	
		50	50	20.47	21.04	20.39	21.50	
		100	0	20.46	20.29	20.27	21.50	



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8.1.2 Conducted Power of WIFI

WIFI 2.4G Ant 1					
Mode	Channel	Frequency(MHz)	Data Rate(Mbps)	Average Power (dBm)	Tune up
802.11b	1	2412	1	18.91	20.00
	6	2437		18.52	20.00
	11	2462		18.32	20.00
802.11g	1	2412	6	19.31	20.00
	6	2437		19.36	20.00
	11	2462		19.54	20.00
802.11n HT20	1	2412	6.5	14.48	16.00
	6	2437		14.53	16.00
	11	2462		14.03	16.00
802.11n HT40	3	2422	13.5	14.18	16.00
	6	2437		14.20	16.00
	9	2452		14.86	16.00
802.11ac VHT20	1	2412	MCS0	14.57	16.00
	6	2437		14.57	16.00
	11	2462		14.08	16.00
802.11ac VHT40	3	2422	MCS0	14.34	16.00
	6	2437		14.18	16.00
	9	2452		14.43	16.00

WIFI 2.4G Ant 2					
Mode	Channel	Frequency(MHz)	Data Rate(Mbps)	Average Power (dBm)	Tune up
802.11b	1	2412	1	19.44	20.00
	6	2437		19.60	20.00
	11	2462		19.16	20.00
802.11g	1	2412	6	19.64	20.00
	6	2437		19.75	20.00
	11	2462		19.14	20.00
802.11n HT20	1	2412	6.5	14.46	16.00
	6	2437		14.53	16.00
	11	2462		14.64	16.00
802.11n HT40	3	2422	13.5	14.98	16.00
	6	2437		14.99	16.00
	9	2452		15.03	16.00
802.11ac VHT20	1	2412	MCS0	14.86	16.00
	6	2437		14.62	16.00



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	11	2462		14.80	16.00
802.11ac VHT40	3	2422	MCS0	14.75	16.00
	6	2437		14.69	16.00
	9	2452		14.79	16.00

WIFI 2.4G MIMO					
Mode	Channel	Frequency(MHz)	Data Rate(Mbps)	Average Power (dBm)	Tune up
802.11n HT20	1	2412	6.5	17.48	19.00
	6	2437		17.54	19.00
	11	2462		17.16	19.00
802.11n HT40	3	2422	13.5	17.48	19.00
	6	2437		17.62	19.00
	9	2452		17.66	19.00
802.11ax HE20	1	2412	MCS0	17.73	19.00
	6	2437		17.61	19.00
	11	2462		17.33	19.00
802.11ax HE40	3	2422	MCS0	17.56	19.00
	6	2437		17.45	19.00
	9	2452		17.62	19.00

WIFI 5G Ant 1						
Mode	5GHz	Channel	Frequency(MHz)	Data Rate(Mbps)	Average Power (dBm)	Tune up
802.11a	U-NII-1	36	5180	6	22.78	24.00
		40	5200		22.90	24.00
		44	5220		22.76	24.00
		48	5240		22.82	24.00
	U-NII-2A	52	5260		19.33	20.00
		56	5280		19.01	20.00
		60	5300		19.00	20.00
		64	5320		19.49	20.00
	U-NII-2C	100	5500		19.49	20.00
		104	5520		19.47	20.00
		108	5540		19.43	20.00
		112	5560		19.48	20.00
		116	5580		19.52	20.00
		120	5600		19.50	20.00
		124	5620		19.49	20.00
		128	5640		19.48	20.00
	132	5660	19.51	20.00		
	136	5680	19.53	20.00		



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Mode	5GHz	Channel	Frequency(MHz)	Data Rate(Mbps)	Average Power (dBm)	Tune up	
802.11n-HT20	U-NII-3	140	5700	MCS0	19.57	20.00	
		149	5745		23.27	25.00	
		153	5765		23.43	25.00	
		157	5785		23.57	25.00	
		161	5805		23.67	25.00	
		165	5825		24.00	25.00	
	U-NII-1	36	5180		20.44	22.00	
		40	5200		20.72	22.00	
		44	5220		20.69	22.00	
		48	5240		20.99	22.00	
		U-NII-2A	52		5260	17.83	19.00
			56		5280	17.68	19.00
			60		5300	17.69	19.00
			64		5320	18.13	19.00
		U-NII-2C	100		5500	17.13	19.00
			104		5520	17.11	19.00
			108		5540	17.13	19.00
			112		5560	17.15	19.00
			116		5580	17.16	19.00
			120		5600	17.13	19.00
			124		5620	17.10	19.00
128	5640		17.09	19.00			
U-NII-3	132	5660	17.11	19.00			
	136	5680	17.10	19.00			
	140	5700	17.07	19.00			
	149	5745	23.05	25.00			
	153	5765	23.06	25.00			
	157	5785	23.12	25.00			
	161	5805	23.10	25.00			
165	5825	23.73	25.00				
Mode	5GHz	Channel	Frequency(MHz)	Data Rate(Mbps)	Average Power (dBm)	Tune up	
802.11n-HT40	U-NII-1	38	5190	MCS0	20.50	22.00	
		46	5230		20.56	22.00	
	U-NII-2A	54	5270		20.41	22.00	
		62	5310		20.86	22.00	
	U-NII-2C	102	5510		18.69	19.00	
		110	5550		18.95	19.00	
		118	5590		18.53	19.00	
		126	5630		18.58	19.00	
		134	5670		18.86	19.00	



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Mode	5GHz	Channel	Frequency(MHz)	Data Rate(Mbps)	Average Power (dBm)	Tune up
802.11ac VHT20	U-NII-1	142	5710	MCS0	18.53	19.00
		151	5755		23.73	25.00
		159	5795		24.27	25.00
		36	5180		21.70	23.00
	U-NII-2A	40	5200		21.79	23.00
		44	5220		21.33	23.00
		48	5240		21.91	23.00
		52	5260		17.69	19.00
	U-NII-2C	56	5280		17.59	19.00
		60	5300		17.68	19.00
		64	5320		18.03	19.00
		100	5500		17.01	18.00
		104	5520		16.96	18.00
		108	5540		16.93	18.00
		112	5560		16.98	18.00
116		5580	16.96	18.00		
U-NII-3	120	5600	16.95	18.00		
	124	5620	16.87	18.00		
	128	5640	16.95	18.00		
	132	5660	16.89	18.00		
	136	5680	16.87	18.00		
U-NII-3	140	5700	16.99	18.00		
	149	5745	23.06	25.00		
	153	5765	23.10	25.00		
	157	5785	23.34	25.00		
	161	5805	23.12	25.00		
802.11ac VHT40	U-NII-1	165	5825	23.63	25.00	
		38	5190	20.36	22.00	
	U-NII-2A	46	5230	20.35	22.00	
		54	5270	20.41	22.00	
	U-NII-2C	62	5310	20.89	22.00	
102		5510	18.52	19.00		
110		5550	18.88	19.00		
118		5590	18.88	19.00		
U-NII-3	126	5630	18.86	19.00		
	134	5670	18.81	19.00		
	151	5755	23.69	25.00		
		159	5795	24.39	25.00	



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Mode	5GHz	Channel	Frequency(MHz)	Data Rate(Mbps)	Average Power (dBm)	Tune up
802.11ac VHT80	U-NII-1	42	5210	MCS0	17.88	19.00
	U-NII-2A	58	5290		18.06	19.00
	U-NII-2C	106	5530		17.09	18.00
		122	5610		16.77	18.00
	U-NII-3	155	5775		23.73	25.00
Mode	5GHz	Channel	Frequency(MHz)	Data Rate(Mbps)	Average Power (dBm)	Tune up
802.11ac VHT160	U-NII-1 & U-NII-2A	50	5250	MCS0	15.92	17.00
	U-NII-2C	114	5570		16.52	17.00
Mode	5GHz	Channel	Frequency(MHz)	Data Rate(Mbps)	Average Power (dBm)	Tune up
802.11ax HEW20	U-NII-1	36	5180	MCS0	21.87	23.00
		40	5200		22.03	23.00
		44	5220		21.54	23.00
		48	5240		22.00	23.00
	U-NII-2A	52	5260		17.58	19.00
		56	5280		17.55	19.00
		60	5300		17.89	19.00
		64	5320		18.22	19.00
	U-NII-2C	100	5500		17.82	19.00
		104	5520		17.82	19.00
		108	5540		17.79	19.00
		112	5560		17.85	19.00
		116	5580		18.01	19.00
		120	5600		18.00	19.00
		124	5620		17.98	19.00
		128	5640		17.96	19.00
		132	5660		18.01	19.00
		136	5680		18.02	19.00
	U-NII-3	140	5700		18.28	19.00
		149	5745		23.11	25.00
		153	5765		23.10	25.00
		157	5785		23.37	25.00
		161	5805		23.45	25.00
		165	5825		23.96	25.00
Mode	5GHz	Channel	Frequency(MHz)	Data Rate(Mbps)	Average Power (dBm)	Tune up
802.11ax HEW40	U-NII-1	38	5190	MCS0	20.04	22.00
		46	5230		20.20	22.00
	U-NII-2A	54	5270		20.20	22.00
		62	5310		20.64	22.00



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802.11ax HEW80	U-NII-2C	102	5510	MCS0	18.20	19.00	
		110	5550		18.63	19.00	
		118	5590		18.55	19.00	
		126	5630		18.59	19.00	
		134	5670		18.65	19.00	
	U-NII-3	151	5755		23.58	25.00	
		159	5795		24.15	25.00	
		U-NII-1	42		5210	17.80	19.00
		U-NII-2A	58		5290	18.08	19.00
		U-NII-2C	106		5530	17.02	18.00
802.11ax HEW160	U-NII-1 & U-NII-2A	50	5250	MCS0	16.01	17.00	
		U-NII-2C	114		5570	16.64	17.00

WIFI 5G Ant 2							
Mode	5GHz	Channel	Frequency(MHz)	Data Rate(Mbps)	Average Power (dBm)	Tune up	
802.11a	U-NII-1	36	5180	6	22.79	24.00	
		40	5200		22.83	24.00	
		44	5220		22.75	24.00	
		48	5240		23.18	24.00	
	U-NII-2A	52	5260		18.92	20.00	
		56	5280		18.56	20.00	
		60	5300		18.84	20.00	
		64	5320		19.31	20.00	
		100	5500		19.12	20.00	
		104	5520		18.11	20.00	
		108	5540		19.12	20.00	
		112	5560		19.12	20.00	
	U-NII-2C	116	5580		19.87	20.00	
		120	5600		19.54	20.00	
		124	5620		19.65	20.00	
		128	5640		19.43	20.00	
		132	5660		19.45	20.00	
		136	5680		19.54	20.00	
		140	5700		19.53	20.00	
		U-NII-3	149		5745	24.04	25.00
			153		5765	24.02	25.00



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Mode	5GHz	Channel	Frequency(MHz)	Data Rate(Mbps)	Average Power (dBm)	Tune up
802.11n-HT20	U-NII-1	157	5785	MCS0	24.66	25.00
		161	5805		24.41	25.00
		165	5825		24.47	25.00
		36	5180		20.35	22.00
	U-NII-2A	40	5200		20.45	22.00
		44	5220		20.32	22.00
		48	5240		20.92	22.00
		52	5260		17.44	19.00
	U-NII-2C	56	5280		17.43	19.00
		60	5300		17.53	19.00
		64	5320		17.85	19.00
		100	5500		17.15	19.00
		104	5520		17.11	19.00
		108	5540		17.12	19.00
		112	5560		17.12	19.00
		116	5580		17.41	19.00
		120	5600		17.13	19.00
		124	5620		17.15	19.00
		128	5640		17.14	19.00
		132	5660		17.11	19.00
U-NII-3	136	5680	17.09	19.00		
	140	5700	17.11	19.00		
	149	5745	23.59	25.00		
	153	5765	23.57	25.00		
	157	5785	24.19	25.00		
802.11n-HT40	U-NII-1	161	5805	24.09	25.00	
		165	5825	24.01	25.00	
	U-NII-2A	38	5190	20.39	22.00	
		46	5230	20.81	22.00	
		54	5270	20.35	22.00	
		62	5310	20.60	22.00	
	U-NII-2C	102	5510	17.48	19.00	
		110	5550	17.82	19.00	
118		5590	17.67	19.00		
126		5630	17.64	19.00		
134		5670	17.99	19.00		
142		5710	17.65	19.00		
U-NII-3	151	5755	24.11	25.00		
	159	5795	24.87	25.00		



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Mode	5GHz	Channel	Frequency(MHz)	Data Rate(Mbps)	Average Power (dBm)	Tune up
802.11ac VHT20	U-NII-1	36	5180	MCS0	21.58	23.00
		40	5200		21.78	23.00
		44	5220		21.09	23.00
		48	5240		22.11	23.00
	U-NII-2A	52	5260		17.44	19.00
		56	5280		17.43	19.00
		60	5300		17.47	19.00
		64	5320		17.86	19.00
	U-NII-2C	100	5500		16.56	18.00
		104	5520		16.89	18.00
		108	5540		16.97	18.00
		112	5560		17.02	18.00
		116	5580		17.39	18.00
		120	5600		16.89	18.00
		124	5620		16.95	18.00
		128	5640		16.87	18.00
		132	5660		16.98	18.00
		136	5680		16.89	18.00
	U-NII-3	140	5700		16.96	18.00
		149	5745		23.40	25.00
153		5765	23.25	25.00		
157		5785	23.40	25.00		
161		5805	23.34	25.00		
		165	5825	23.78	25.00	
Mode	5GHz	Channel	Frequency(MHz)	Data Rate(Mbps)	Average Power (dBm)	Tune up
802.11ac VHT40	U-NII-1	38	5190	MCS0	20.35	22.00
		46	5230		20.79	22.00
	U-NII-2A	54	5270		20.32	22.00
		62	5310		20.53	22.00
	U-NII-2C	102	5510		17.45	19.00
		110	5550		17.75	19.00
		118	5590		17.25	19.00
		126	5630		17.02	19.00
	U-NII-3	134	5670		17.93	19.00
		151	5755		23.11	25.00
		159	5795	24.07	25.00	
Mode	5GHz	Channel	Frequency(MHz)	Data Rate(Mbps)	Average Power (dBm)	Tune up
802.11ac VHT80	U-NII-1	42	5210	MCS0	17.96	19.00
	U-NII-2A	58	5290		18.13	19.00



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Mode	5GHz	Channel	Frequency(MHz)	Data Rate(Mbps)	Average Power (dBm)	Tune up		
	U-NII-2C	106	5530	MCS0	15.50	17.00		
		122	5610		15.24	17.00		
	U-NII-3	155	5775		24.05	25.00		
Mode	5GHz	Channel	Frequency(MHz)	Data Rate(Mbps)	Average Power (dBm)	Tune up		
802.11ac VHT160	U-NII-1 & U-NII-2A	50	5250	MCS0	14.34	16.00		
	U-NII-2C	114	5570		16.48	17.00		
Mode	5GHz	Channel	Frequency(MHz)	Data Rate(Mbps)	Average Power (dBm)	Tune up		
802.11ax HEW20	U-NII-1	36	5180	MCS0	21.66	23.00		
		40	5200		21.92	23.00		
		44	5220		21.69	23.00		
		48	5240		22.26	23.00		
	U-NII-2A	52	5260		17.62	19.00		
		56	5280		17.61	19.00		
		60	5300		17.77	19.00		
		64	5320		18.14	19.00		
	U-NII-2C	100	5500		17.16	19.00		
		104	5520		17.14	19.00		
		108	5540		17.18	19.00		
		112	5560		17.34	19.00		
		116	5580		17.65	19.00		
		120	5600		17.64	19.00		
		124	5620		17.11	19.00		
		128	5640		17.12	19.00		
	U-NII-3	132	5660		17.05	19.00		
		136	5680		17.09	19.00		
		140	5700		17.08	19.00		
		149	5745		23.78	25.00		
		153	5765		23.88	25.00		
		157	5785		24.25	25.00		
		161	5805		23.55	25.00		
		165	5825		23.50	25.00		
	Mode	5GHz	Channel		Frequency(MHz)	Data Rate(Mbps)	Average Power (dBm)	Tune up
	802.11ax HEW40	U-NII-1	38		5190	MCS0	20.03	22.00
			46		5230		20.50	22.00
		U-NII-2A	54		5270		20.09	22.00
62			5310	20.14	22.00			
U-NII-2C		102	5510	17.05	19.00			
		110	5550	17.37	19.00			
		118	5590	17.59	19.00			
		126	5630	17.54	19.00			



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Mode	5GHz	Channel	Frequency(MHz)	Data Rate(Mbps)	Average Power (dBm)	Tune up
U-NII-3	5GHz	134	5670	MCS0	17.63	19.00
		151	5755		23.05	25.00
		159	5795		23.85	25.00
802.11ax HEW80	5GHz	42	5210	MCS0	17.79	19.00
		58	5290		17.84	19.00
		106	5530		15.33	17.00
		122	5610		15.20	17.00
		155	5775		23.96	25.00
802.11ax HEW160	5GHz	50	5250	MCS0	14.30	16.00
		114	5570		16.39	17.00

WIFI 5G MIMO							
Mode	5GHz	Channel	Frequency(MHz)	Data Rate(Mbps)	Average Power (dBm)	Tune up	
802.11n-HT20	U-NII-1	36	5180	MCS0	23.41	25.00	
		40	5200		23.6	25.00	
		44	5220		23.52	25.00	
		48	5240		23.97	25.00	
	U-NII-2A	52	5260		20.65	22.00	
		56	5280		20.57	22.00	
		60	5300		20.62	22.00	
		64	5320		21.00	22.00	
	U-NII-2C	100	5500		20.05	22.00	
		104	5520		20.12	22.00	
		108	5540		20.14	22.00	
		112	5560		20.15	22.00	
		116	5580		20.30	22.00	
		120	5600		20.14	22.00	
		124	5620		20.14	22.00	
		128	5640		20.13	22.00	
		132	5660		20.12	22.00	
		136	5680		20.11	22.00	
	U-NII-3	140	5700		20.10	22.00	
		149	5745		26.25	28.00	
		153	5765		26.29	28.00	
		157	5785		26.70	28.00	
		161	5805		26.63	28.00	
			165		5825	26.88	28.00



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Mode	5GHz	Channel	Frequency(MHz)	Data Rate(Mbps)	Average Power (dBm)	Tune up		
802.11n-HT40	U-NII-1	38	5190	MCS0	23.46	25.00		
		46	5230		23.7	25.00		
	U-NII-2A	54	5270		23.39	25.00		
		62	5310		23.74	25.00		
	U-NII-2C	102	5510		21.14	22.00		
		110	5550		21.47	22.00		
		118	5590		21.13	22.00		
		126	5630		21.15	22.00		
		134	5670		21.46	22.00		
		142	5710		21.12	22.00		
	U-NII-3	151	5755		26.93	28.00		
		159	5795		27.59	28.00		
	Mode	5GHz	Channel		Frequency(MHz)	Data Rate(Mbps)	Average Power (dBm)	Tune up
	802.11ac VHT20	U-NII-1	36		5180	MCS0	24.65	26.00
40			5200	24.8	26.00			
44			5220	24.22	26.00			
48			5240	25.02	26.00			
U-NII-2A		52	5260	20.58	22.00			
		56	5280	20.52	22.00			
		60	5300	20.59	22.00			
		64	5320	20.96	22.00			
U-NII-2C		100	5500	19.80	21.00			
		104	5520	19.94	21.00			
		108	5540	19.96	21.00			
		112	5560	20.01	21.00			
		116	5580	20.19	21.00			
		120	5600	19.93	21.00			
		124	5620	19.92	21.00			
		128	5640	19.92	21.00			
		132	5660	19.95	21.00			
		136	5680	19.89	21.00			
U-NII-3		140	5700	19.99	21.00			
		149	5745	26.15	28.00			
		153	5765	26.14	28.00			
		157	5785	26.38	28.00			
		161	5805	26.24	28.00			
		165	5825	26.72	28.00			
Mode		5GHz	Channel	Frequency(MHz)	Data Rate(Mbps)		Average Power (dBm)	Tune up
802.11ac		U-NII-1	38	5190	MCS0		23.37	25.00



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VHT40	U-NII-2A	46	5230		23.59	25.00
		54	5270		23.38	25.00
		62	5310		23.72	25.00
	U-NII-2C	102	5510		21.03	22.00
		110	5550		21.36	22.00
		118	5590		21.15	22.00
		126	5630		21.05	22.00
	U-NII-3	134	5670		21.4	22.00
		151	5755		26.42	28.00
		159	5795		27.24	28.00
Mode	5GHz	Channel	Frequency(MHz)	Data Rate(Mbps)	Average Power (dBm)	Tune up
802.11ac VHT80	U-NII-1	42	5210	MCS0	20.93	22.00
	U-NII-2A	58	5290		21.11	22.00
	U-NII-2C	106	5530		19.38	21.00
		122	5610		19.08	21.00
U-NII-3	155	5775	26.90	28.00		
Mode	5GHz	Channel	Frequency(MHz)	Data Rate(Mbps)	Average Power (dBm)	Tune up
802.11ac VHT160	U-NII-1 & U-NII-2A	50	5250	MCS0	18.21	20.00
	U-NII-2C	114	5570		19.51	20.00
Mode	5GHz	Channel	Frequency(MHz)	Data Rate(Mbps)	Average Power (dBm)	Tune up
802.11ax HEW20	U-NII-1	36	5180	MCS0	24.78	26.00
		40	5200		24.99	26.00
		44	5220		24.63	26.00
		48	5240		25.14	26.00
	U-NII-2A	52	5260		20.61	22.00
		56	5280		20.59	22.00
		60	5300		20.84	22.00
		64	5320		21.19	22.00
	U-NII-2C	100	5500		20.51	22.00
		104	5520		20.50	22.00
		108	5540		20.51	22.00
		112	5560		20.61	22.00
		116	5580		20.84	22.00
		120	5600		20.83	22.00
		124	5620		20.58	22.00
		128	5640		20.57	22.00
	U-NII-3	132	5660		20.54	22.00
		136	5680		20.50	22.00
		140	5700		20.65	22.00
		149	5745		26.47	28.00



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		153	5765		26.52	28.00
		157	5785		26.84	28.00
		161	5805		26.51	28.00
		165	5825		26.75	28.00
Mode	5GHz	Channel	Frequency(MHz)	Data Rate(Mbps)	Average Power (dBm)	Tune up
802.11ax HEW40	U-NII-1	38	5190	MCS0	23.05	25.00
		46	5230		23.36	25.00
	U-NII-2A	54	5270		23.16	25.00
		62	5310		23.41	25.00
	U-NII-2C	102	5510		20.67	22.00
		110	5550		21.06	22.00
		118	5590		21.11	22.00
		126	5630		21.11	22.00
		134	5670		21.18	22.00
	U-NII-3	151	5755		26.26	28.00
		159	5795		27.01	28.00
	Mode	5GHz	Channel		Frequency(MHz)	Data Rate(Mbps)
802.11ax HEW80	U-NII-1	42	5210	MCS0	20.81	22.00
	U-NII-2A	58	5290		20.97	22.00
	U-NII-2C	106	5530		19.27	21.00
		122	5610		19.01	21.00
	U-NII-3	155	5775		26.82	28.00
Mode	5GHz	Channel	Frequency(MHz)	Data Rate(Mbps)	Average Power (dBm)	Tune up
802.11ax HEW160	U-NII-1 & U-NII-2A	50	5250	MCS0	18.25	20.00
	U-NII-2C	114	5570		19.53	20.00



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中国·广东·深圳市南山区科技园中区M-10栋1号厂房 邮编:518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

8.2 Measurement of SAR Data

Note:

- 1) The maximum Scaled SAR value is marked in bold. Graph results refer to Appendix B.
- 2) Per KDB447498 D04, 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 $\geq 200\text{ MHz}$.

WiFi 2.4G:

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

WiFi 5G:

- 1) When the same maximum output power is specified for both bands, begin SAR measurement in U-NII-2A band by applying the OFDM SAR requirements. As the highest reported SAR for a test configuration is $\leq 1.2\text{ W/kg}$, SAR is not required for U-NII-1 band for that configuration.
- 2) For Wi-Fi 5G, U-NII-2A (5250-5350 MHz) and U-NII-2C (5470-5725 MHz) bands does not support hotspot function.

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 $\leq 1.2\text{ W/kg}$, SAR test for the other 802.11 modes are not required.



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8.2.1 SAR Result of LTE Band 2

LTE Band 2 SAR Test Record												
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 10-g (W/kg)	Liquid Temp.(°C)
Limbs Test data (Separate 15mm 1RB)												
Front side	20	QPSK 1_50	19100/1900	1:1	0.834	0.486	0.17	23.28	24.00	1.180	0.574	22.3
Back side	20	QPSK 1_50	19100/1900	1:1	1.220	0.738	0.03	23.28	24.00	1.180	0.871	22.3
Left side	20	QPSK 1_50	19100/1900	1:1	0.771	0.447	0.19	23.28	24.00	1.180	0.528	22.3
Right side	20	QPSK 1_50	19100/1900	1:1	0.774	0.450	0.04	23.28	24.00	1.180	0.531	22.3
Top side	20	QPSK 1_50	19100/1900	1:1	0.084	0.059	0.15	23.28	24.00	1.180	0.070	22.3
Limbs Test data (Separate 15mm 50%RB)												
Front side	20	QPSK 50_25	19100/1900	1:1	0.688	0.400	-0.10	22.92	23.50	1.143	0.457	22.3
Back side	20	QPSK 50_25	19100/1900	1:1	0.803	0.463	-0.09	22.92	23.50	1.143	0.529	22.3
Left side	20	QPSK 50_25	19100/1900	1:1	0.643	0.371	-0.10	22.92	23.50	1.143	0.424	22.3
Right side	20	QPSK 50_25	19100/1900	1:1	0.642	0.373	0.17	22.92	23.50	1.143	0.426	22.3
Top side	20	QPSK 50_25	19100/1900	1:1	0.058	0.038	0.07	22.92	23.50	1.143	0.043	22.3



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 No.1 Workshop, M-10, Middle Section, Science & Technology Park, Nanshan District, Shenzhen, Guangdong, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
 中国·广东·深圳市南山区科技园中区M-10栋1号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

8.2.2 SAR Result of LTE Band 4

LTE Band 4 SAR Test Record												
Test position	BW	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 10-g (W/kg)	Liquid Temp.(°C)
Limbs Test data (Separate 15mm 1RB)												
Front side	20	QPSK 1_50	20175/1732.5	1:1	0.987	0.590	0.07	23.13	24.00	1.222	0.721	22.3
Back side	20	QPSK 1_50	20175/1732.5	1:1	1.410	0.880	-0.01	23.13	24.00	1.222	1.075	22.3
Left side	20	QPSK 1_50	20175/1732.5	1:1	0.838	0.502	0.18	23.13	24.00	1.222	0.613	22.3
Right side	20	QPSK 1_50	20175/1732.5	1:1	0.871	0.524	-0.08	23.13	24.00	1.222	0.640	22.3
Top side	20	QPSK 1_50	20175/1732.5	1:1	0.083	0.055	-0.03	23.13	24.00	1.222	0.067	22.3
Limbs Test data (Separate 15mm 50%RB)												
Front side	20	QPSK 50_0	20050/1720	1:1	0.772	0.460	-0.14	22.96	23.50	1.132	0.521	22.3
Back side	20	QPSK 50_0	20050/1720	1:1	0.890	0.532	0.07	22.96	23.50	1.132	0.602	22.3
Left side	20	QPSK 50_0	20050/1720	1:1	0.650	0.389	0.11	22.96	23.50	1.132	0.441	22.3
Right side	20	QPSK 50_0	20050/1720	1:1	0.676	0.407	0.11	22.96	23.50	1.132	0.461	22.3
Top side	20	QPSK 50_0	20050/1720	1:1	0.061	0.039	-0.14	22.96	23.50	1.132	0.044	22.3



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8.2.3 SAR Result of LTE Band 5

LTE Band 5 SAR Test Record												
Test position	BW	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 10-g (W/kg)	Liquid Temp.(°C)
Limbs Test data (Separate 15mm 1RB)												
Front side	10	QPSK 1_0	20525/836.5	1:1	0.758	0.534	0.02	23.19	24.00	1.205	0.643	22.3
Back side	10	QPSK 1_0	20525/836.5	1:1	0.644	0.427	-0.02	23.19	24.00	1.205	0.515	22.3
Left side	10	QPSK 1_0	20525/836.5	1:1	0.489	0.325	-0.10	23.19	24.00	1.205	0.392	22.3
Right side	10	QPSK 1_0	20525/836.5	1:1	0.535	0.354	0.09	23.19	24.00	1.205	0.427	22.3
Top side	10	QPSK 1_0	20525/836.5	1:1	0.026	0.011	-0.14	23.19	24.00	1.205	0.013	22.3
Limbs Test data (Separate 15mm 50%RB)												
Front side	10	QPSK 25_0	20450/829	1:1	0.524	0.347	0.10	23.02	23.50	1.117	0.388	22.3
Back side	10	QPSK 25_0	20450/829	1:1	0.500	0.331	0.11	23.02	23.50	1.117	0.370	22.3
Left side	10	QPSK 25_0	20450/829	1:1	0.435	0.288	-0.08	23.02	23.50	1.117	0.322	22.3
Right side	10	QPSK 25_0	20450/829	1:1	0.426	0.283	-0.19	23.02	23.50	1.117	0.316	22.3
Top side	10	QPSK 25_0	20450/829	1:1	0.022	0.008	0.04	23.02	23.50	1.117	0.009	22.3



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8.2.4 SAR Result of LTE Band 7

LTE Band 7 SAR Test Record												
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 10-g (W/kg)	Liquid Temp.(°C)
Limbs Test data (Separate 15mm 1RB)												
Front side	20	QPSK 1_99	21100/2535	1:1	0.788	0.404	-0.08	22.91	24.00	1.285	0.519	22.3
Back side	20	QPSK 1_99	21100/2535	1:1	0.932	0.490	0.01	22.91	24.00	1.285	0.630	22.3
Left side	20	QPSK 1_99	21100/2535	1:1	0.516	0.269	0.04	22.91	24.00	1.285	0.346	22.3
Right side	20	QPSK 1_99	21100/2535	1:1	0.560	0.291	0.18	22.91	24.00	1.285	0.374	22.3
Top side	20	QPSK 1_99	21100/2535	1:1	0.076	0.045	0.11	22.91	24.00	1.285	0.058	22.3
Limbs Test data (Separate 15mm 50%RB)												
Front side	20	QPSK 50_25	21350/2560	1:1	0.669	0.343	0.06	22.58	23.50	1.236	0.424	22.3
Back side	20	QPSK 50_25	21350/2560	1:1	0.755	0.383	-0.19	22.58	23.50	1.236	0.473	22.3
Left side	20	QPSK 50_25	21350/2560	1:1	0.441	0.229	-0.05	22.58	23.50	1.236	0.283	22.3
Right side	20	QPSK 50_25	21350/2560	1:1	0.475	0.246	-0.15	22.58	23.50	1.236	0.304	22.3
Top side	20	QPSK 50_25	21350/2560	1:1	0.067	0.042	0.02	22.58	23.50	1.236	0.052	22.3



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8.2.5 SAR Result of LTE Band 12

LTE Band 12 SAR Test Record												
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 10-g (W/kg)	Liquid Temp.(°C)
Limbs Test data (Separate 15mm 1RB)												
Front side	10	QPSK 1_0	23060/704	1:1	0.730	0.485	0.16	23.05	24.00	1.245	0.604	22.3
Back side	10	QPSK 1_0	23060/704	1:1	0.816	0.574	0.02	23.05	24.00	1.245	0.714	22.3
Left side	10	QPSK 1_0	23060/704	1:1	0.600	0.400	0.04	23.05	24.00	1.245	0.498	22.3
Right side	10	QPSK 1_0	23060/704	1:1	0.618	0.410	-0.12	23.05	24.00	1.245	0.510	22.3
Top side	10	QPSK 1_0	23060/704	1:1	0.032	0.018	0.17	23.05	24.00	1.245	0.022	22.3
Limbs Test data (Separate 15mm 50%RB)												
Front side	10	QPSK 25_13	23060/704	1:1	0.613	0.406	-0.09	22.92	23.50	1.143	0.464	22.3
Back side	10	QPSK 25_13	23060/704	1:1	0.680	0.449	0.05	22.92	23.50	1.143	0.513	22.3
Left side	10	QPSK 25_13	23060/704	1:1	0.501	0.334	-0.15	22.92	23.50	1.143	0.382	22.3
Right side	10	QPSK 25_13	23060/704	1:1	0.507	0.337	0.01	22.92	23.50	1.143	0.385	22.3
Top side	10	QPSK 25_13	23060/704	1:1	0.021	0.013	0.12	22.92	23.50	1.143	0.015	22.3



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8.2.6 SAR Result of LTE Band 13

LTE Band 13 SAR Test Record												
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 10-g (W/kg)	Liquid Temp.(°C)
Limbs Test data (Separate 15mm 1RB)												
Front side	10	QPSK 1_25	23230/782	1:1	0.646	0.427	0.10	23.09	24.00	1.233	0.527	22.3
Back side	10	QPSK 1_25	23230/782	1:1	0.776	0.548	-0.02	23.09	24.00	1.233	0.676	22.3
Left side	10	QPSK 1_25	23230/782	1:1	0.425	0.282	0.16	23.09	24.00	1.233	0.348	22.3
Right side	10	QPSK 1_25	23230/782	1:1	0.541	0.357	-0.08	23.09	24.00	1.233	0.440	22.3
Top side	10	QPSK 1_25	23230/782	1:1	0.027	0.014	0.09	23.09	24.00	1.233	0.017	22.3
Limbs Test data (Separate 15mm 50%RB)												
Front side	10	QPSK 25_25	23230/782	1:1	0.531	0.350	0.08	22.86	23.50	1.159	0.406	22.3
Back side	10	QPSK 25_25	23230/782	1:1	0.578	0.381	-0.04	22.86	23.50	1.159	0.441	22.3
Left side	10	QPSK 25_25	23230/782	1:1	0.425	0.283	0.05	22.86	23.50	1.159	0.328	22.3
Right side	10	QPSK 25_25	23230/782	1:1	0.440	0.289	0.06	22.86	23.50	1.159	0.335	22.3
Top side	10	QPSK 25_25	23230/782	1:1	0.020	0.009	0.19	22.86	23.50	1.159	0.010	22.3



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8.2.7 SAR Result of LTE Band 14

LTE Band 14 SAR Test Record												
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 10-g (W/kg)	Liquid Temp.(°C)
Limbs Test data (Separate 15mm 1RB)												
Front side	10	QPSK 1_0	23330/793	1:1	0.682	0.449	-0.17	23.15	24.00	1.216	0.546	22.3
Back side	10	QPSK 1_0	23330/793	1:1	0.796	0.559	-0.02	23.15	24.00	1.216	0.680	22.3
Left side	10	QPSK 1_0	23330/793	1:1	0.549	0.365	0.01	23.15	24.00	1.216	0.444	22.3
Right side	10	QPSK 1_0	23330/793	1:1	0.565	0.372	-0.13	23.15	24.00	1.216	0.452	22.3
Top side	10	QPSK 1_0	23330/793	1:1	0.019	0.011	0.11	23.15	24.00	1.216	0.013	22.3
Limbs Test data (Separate 15mm 50%RB)												
Front side	10	QPSK 25_13	23330/793	1:1	0.559	0.369	0.19	22.94	23.50	1.138	0.420	22.3
Back side	10	QPSK 25_13	23330/793	1:1	0.617	0.406	0.03	22.94	23.50	1.138	0.462	22.3
Left side	10	QPSK 25_13	23330/793	1:1	0.453	0.302	0.18	22.94	23.50	1.138	0.344	22.3
Right side	10	QPSK 25_13	23330/793	1:1	0.465	0.306	-0.10	22.94	23.50	1.138	0.348	22.3
Top side	10	QPSK 25_13	23330/793	1:1	0.013	0.007	0.02	22.94	23.50	1.138	0.008	22.3



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8.2.8 SAR Result of LTE Band 25

LTE Band 25 SAR Test Record												
Test position	BW	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 10-g (W/kg)	Liquid Temp.(°C)
Limbs Test data (Separate 15mm 1RB)												
Front side	20	QPSK 1_50	26365/1882.5	1:1	0.868	0.507	0.05	23.05	24.00	1.245	0.631	22.3
Back side	20	QPSK 1_50	26365/1882.5	1:1	1.050	0.638	0.00	23.05	24.00	1.245	0.794	22.3
Left side	20	QPSK 1_50	26365/1882.5	1:1	0.742	0.433	-0.01	23.05	24.00	1.245	0.539	22.3
Right side	20	QPSK 1_50	26365/1882.5	1:1	0.745	0.431	0.07	23.05	24.00	1.245	0.536	22.3
Top side	20	QPSK 1_50	26365/1882.5	1:1	0.078	0.051	-0.15	23.05	24.00	1.245	0.063	22.3
Limbs Test data (Separate 15mm 50%RB)												
Front side	20	QPSK 50_0	26365/1882.5	1:1	0.723	0.422	0.12	22.98	23.50	1.127	0.476	22.3
Back side	20	QPSK 50_0	26365/1882.5	1:1	0.786	0.454	-0.04	22.98	23.50	1.127	0.512	22.3
Left side	20	QPSK 50_0	26365/1882.5	1:1	0.620	0.361	-0.16	22.98	23.50	1.127	0.407	22.3
Right side	20	QPSK 50_0	26365/1882.5	1:1	0.619	0.357	0.17	22.98	23.50	1.127	0.402	22.3
Top side	20	QPSK 50_0	26365/1882.5	1:1	0.064	0.041	0.19	22.98	23.50	1.127	0.046	22.3



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8.2.9 SAR Result of LTE Band 26

LTE Band 26 SAR Test Record												
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 10-g (W/kg)	Liquid Temp.(°C)
Limbs Test data (Separate 15mm 1RB)												
Front side	15	QPSK 1_0	26765/821.5	1:1	0.757	0.533	-0.03	22.98	24.00	1.265	0.674	22.3
Back side	15	QPSK 1_0	26765/821.5	1:1	0.657	0.433	-0.05	22.98	24.00	1.265	0.548	22.3
Left side	15	QPSK 1_0	26765/821.5	1:1	0.547	0.362	0.00	22.98	24.00	1.265	0.458	22.3
Right side	15	QPSK 1_0	26765/821.5	1:1	0.539	0.359	-0.19	22.98	24.00	1.265	0.454	22.3
Top side	15	QPSK 1_0	26765/821.5	1:1	0.042	0.025	-0.05	22.98	24.00	1.265	0.032	22.3
Limbs Test data (Separate 15mm 50%RB)												
Front side	15	QPSK 36_18	26765/821.5	1:1	0.536	0.355	0.13	22.80	23.50	1.175	0.417	22.3
Back side	15	QPSK 36_18	26765/821.5	1:1	0.540	0.356	0.15	22.80	23.50	1.175	0.418	22.3
Left side	15	QPSK 36_18	26765/821.5	1:1	0.449	0.295	-0.05	22.80	23.50	1.175	0.347	22.3
Right side	15	QPSK 36_18	26765/821.5	1:1	0.445	0.295	0.00	22.80	23.50	1.175	0.347	22.3
Top side	15	QPSK 36_18	26765/821.5	1:1	0.036	0.021	-0.10	22.80	23.50	1.175	0.025	22.3



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8.2.10 SAR Result of LTE Band 30

LTE Band 30 SAR Test Record												
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 10-g (W/kg)	Liquid Temp.(°C)
Limbs Test data (Separate 15mm 1RB)												
Front side	10	QPSK 1_0	27710/2310	1:1	0.581	0.313	-0.09	22.50	23.50	1.259	0.394	22.3
Back side	10	QPSK 1_0	27710/2310	1:1	1.040	0.580	-0.01	22.50	23.50	1.259	0.730	22.3
Left side	10	QPSK 1_0	27710/2310	1:1	0.806	0.428	-0.05	22.50	23.50	1.259	0.539	22.3
Right side	10	QPSK 1_0	27710/2310	1:1	0.678	0.363	-0.11	22.50	23.50	1.259	0.457	22.3
Top side	10	QPSK 1_0	27710/2310	1:1	0.067	0.042	0.01	22.50	23.50	1.259	0.053	22.3
Limbs Test data (Separate 15mm 50%RB)												
Front side	10	QPSK 25_13	27710/2310	1:1	0.508	0.272	0.02	22.45	23.00	1.135	0.309	22.3
Back side	10	QPSK 25_13	27710/2310	1:1	0.847	0.450	-0.07	22.45	23.00	1.135	0.511	22.3
Left side	10	QPSK 25_13	27710/2310	1:1	0.670	0.355	0.08	22.45	23.00	1.135	0.403	22.3
Right side	10	QPSK 25_13	27710/2310	1:1	0.550	0.294	-0.03	22.45	23.00	1.135	0.334	22.3
Top side	10	QPSK 25_13	27710/2310	1:1	0.058	0.034	0.04	22.45	23.00	1.135	0.039	22.3



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8.2.11 SAR Result of LTE Band 41

LTE Band 41 SAR Test Record												
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 10-g (W/kg)	Liquid Temp.(°C)
Limbs Test data (Separate 15mm 1RB)												
Front side	20	QPSK 1_0	41055/2636.5	1:1.58	0.559	0.284	0.08	22.86	24.00	1.300	0.369	22.3
Back side	20	QPSK 1_0	41055/2636.5	1:1.58	0.815	0.425	-0.04	22.86	24.00	1.300	0.553	22.3
Left side	20	QPSK 1_0	41055/2636.5	1:1.58	0.478	0.244	0.12	22.86	24.00	1.300	0.317	22.3
Right side	20	QPSK 1_0	41055/2636.5	1:1.58	0.445	0.232	-0.18	22.86	24.00	1.300	0.302	22.3
Top side	20	QPSK 1_0	41055/2636.5	1:1.58	0.069	0.040	-0.10	22.86	24.00	1.300	0.052	22.3
Limbs Test data (Separate 15mm 50%RB)												
Front side	20	QPSK 50_25	40620/2593	1:1.58	0.414	0.211	-0.08	22.65	23.50	1.216	0.257	22.3
Back side	20	QPSK 50_25	40620/2593	1:1.58	0.518	0.264	0.16	22.65	23.50	1.216	0.321	22.3
Left side	20	QPSK 50_25	40620/2593	1:1.58	0.335	0.171	0.14	22.65	23.50	1.216	0.208	22.3
Right side	20	QPSK 50_25	40620/2593	1:1.58	0.328	0.171	0.17	22.65	23.50	1.216	0.208	22.3
Top side	20	QPSK 50_25	40620/2593	1:1.58	0.057	0.034	-0.14	22.65	23.50	1.216	0.041	22.3



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8.2.12 SAR Result of LTE Band 48

LTE Band 48 SAR Test Record												
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 10-g (W/kg)	Liquid Temp.(°C)
Limbs Test data (Separate 15mm 1RB)												
Front side	20	QPSK 1_0	56640/3690	1:1.58	0.366	0.165	-0.03	22.67	24.00	1.358	0.224	22.3
Back side	20	QPSK 1_0	56640/3690	1:1.58	0.446	0.202	0.02	22.67	24.00	1.358	0.274	22.3
Left side	20	QPSK 1_0	56640/3690	1:1.58	0.327	0.151	-0.07	22.67	24.00	1.358	0.205	22.3
Right side	20	QPSK 1_0	56640/3690	1:1.58	0.271	0.122	0.07	22.67	24.00	1.358	0.166	22.3
Top side	20	QPSK 1_0	56640/3690	1:1.58	0.123	0.059	0.16	22.67	24.00	1.358	0.080	22.3
Limbs Test data (Separate 15mm 50%RB)												
Front side	20	QPSK 50_50	56640/3690	1:1.58	0.282	0.127	-0.17	22.51	23.50	1.256	0.160	22.3
Back side	20	QPSK 50_50	56640/3690	1:1.58	0.302	0.133	-0.18	22.51	23.50	1.256	0.167	22.3
Left side	20	QPSK 50_50	56640/3690	1:1.58	0.250	0.116	0.09	22.51	23.50	1.256	0.146	22.3
Right side	20	QPSK 50_50	56640/3690	1:1.58	0.202	0.091	0.13	22.51	23.50	1.256	0.114	22.3
Top side	20	QPSK 50_50	56640/3690	1:1.58	0.089	0.034	-0.17	22.51	23.50	1.256	0.043	22.3



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8.2.13 SAR Result of LTE Band 66

LTE Band 66 SAR Test Record												
Test position	BW	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 10-g (W/kg)	Liquid Temp.(°C)
Limbs Test data (Separate 15mm 1RB)												
Front side	20	QPSK 1_99	132322/1745	1:1	0.955	0.577	-0.09	23.42	24.00	1.143	0.659	22.3
Back side	20	QPSK 1_99	132322/1745	1:1	1.200	0.749	-0.03	23.42	24.00	1.143	0.856	22.3
Left side	20	QPSK 1_99	132322/1745	1:1	0.822	0.495	0.07	23.42	24.00	1.143	0.566	22.3
Right side	20	QPSK 1_99	132322/1745	1:1	0.860	0.517	0.19	23.42	24.00	1.143	0.591	22.3
Top side	20	QPSK 1_99	132322/1745	1:1	0.067	0.044	-0.11	23.42	24.00	1.143	0.050	22.3
Limbs Test data (Separate 15mm 50%RB)												
Front side	20	QPSK 50_25	132322/1745	1:1	0.789	0.477	-0.07	23.30	23.50	1.047	0.499	22.3
Back side	20	QPSK 50_25	132322/1745	1:1	0.913	0.548	-0.06	23.30	23.50	1.047	0.574	22.3
Left side	20	QPSK 50_25	132322/1745	1:1	0.675	0.406	-0.12	23.30	23.50	1.047	0.425	22.3
Right side	20	QPSK 50_25	132322/1745	1:1	0.706	0.423	-0.12	23.30	23.50	1.047	0.443	22.3
Top side	20	QPSK 50_25	132322/1745	1:1	0.053	0.037	0.05	23.30	23.50	1.047	0.039	22.3



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8.2.14 SAR Result of LTE Band 71

LTE Band 71 SAR Test Record												
Test position	BW	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 10-g (W/kg)	Liquid Temp.(°C)
Limbs Test data (Separate 15mm 1RB)												
Front side	20	QPSK 1_50	133322/683	1:1	0.644	0.456	-0.02	23.44	24.00	1.138	0.519	22.3
Back side	20	QPSK 1_50	133322/683	1:1	0.513	0.334	0.13	23.44	24.00	1.138	0.380	22.3
Left side	20	QPSK 1_50	133322/683	1:1	0.612	0.404	-0.16	23.44	24.00	1.138	0.460	22.3
Right side	20	QPSK 1_50	133322/683	1:1	0.624	0.410	0.10	23.44	24.00	1.138	0.466	22.3
Top side	20	QPSK 1_50	133322/683	1:1	0.033	0.012	-0.08	23.44	24.00	1.138	0.014	22.3
Limbs Test data (Separate 15mm 50%RB)												
Front side	20	QPSK 50_0	133222/673	1:1	0.644	0.423	-0.12	23.19	23.50	1.074	0.454	22.3
Back side	20	QPSK 50_0	133222/673	1:1	0.404	0.268	0.06	23.19	23.50	1.074	0.288	22.3
Left side	20	QPSK 50_0	133222/673	1:1	0.488	0.323	0.10	23.19	23.50	1.074	0.347	22.3
Right side	20	QPSK 50_0	133222/673	1:1	0.503	0.331	-0.11	23.19	23.50	1.074	0.355	22.3
Top side	20	QPSK 50_0	133222/673	1:1	0.028	0.011	0.02	23.19	23.50	1.074	0.012	22.3



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8.2.15 SAR Result of WIFI 2.4G

Wi-Fi 2.4G SAR Test Record												
MIMO Test Record												
Test position	Test mode	Test ch./Freq.	Duty Cycle	Duty Cycle Scaled factor	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 10-g (W/kg)	Liquid Temp.(°C)
Limbs Test data (Separate 15mm)												
Front side	802.11nHT40	6/2437	96.34%	1.038	0.841	0.490	-0.02	17.62	19.00	1.374	0.699	22.1
Back side	802.11nHT40	6/2437	96.34%	1.038	0.336	0.203	-0.17	17.62	19.00	1.374	0.290	22.1
Left side	802.11nHT40	6/2437	96.34%	1.038	0.243	0.148	0.17	17.62	19.00	1.374	0.211	22.1
Right side	802.11nHT40	6/2437	96.34%	1.038	0.185	0.114	0.11	17.62	19.00	1.374	0.163	22.1
Top side	802.11nHT40	6/2437	96.34%	1.038	0.355	0.209	-0.18	17.62	19.00	1.374	0.298	22.1



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8.2.16 SAR Result of WIFI 5G

Wi-Fi 5G SAR Test Record												
MIMO Test Record												
Test position	Test mode	Test ch./Freq.	Duty Cycle	Duty Cycle Scaled factor	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 10-g (W/kg)	Liquid Temp.(°C)
Body Test data of U-NII-I (Separate 15mm)												
Front side	802.11ac VHT20	48/5240	96.52%	1.036	1.200	0.538	-0.11	25.02	26.00	1.253	0.698	22.3
Back side	802.11ac VHT20	48/5240	96.52%	1.036	0.656	0.307	-0.13	25.02	26.00	1.253	0.399	22.3
Left side	802.11ac VHT20	48/5240	96.52%	1.036	0.523	0.248	-0.19	25.02	26.00	1.253	0.322	22.3
Right side	802.11ac VHT20	48/5240	96.52%	1.036	0.395	0.187	-0.07	25.02	26.00	1.253	0.243	22.3
Top side	802.11ac VHT20	48/5240	96.52%	1.036	0.481	0.218	-0.13	25.02	26.00	1.253	0.283	22.3
Body Test data of U-NII-2C (Separate 15mm)												
Front side	802.11n-HT40	110/5550	96.38%	1.038	0.523	0.238	-0.05	21.47	22.00	1.130	0.279	22.3
Back side	802.11n-HT40	110/5550	96.38%	1.038	0.265	0.121	-0.08	21.47	22.00	1.130	0.142	22.3
Left side	802.11n-HT40	110/5550	96.38%	1.038	0.275	0.128	-0.14	21.47	22.00	1.130	0.150	22.3
Right side	802.11n-HT40	110/5550	96.38%	1.038	0.204	0.094	-0.17	21.47	22.00	1.130	0.110	22.3
Top side	802.11n-HT40	110/5550	96.38%	1.038	0.273	0.127	-0.05	21.47	22.00	1.130	0.149	22.3
Body Test data of U-NII-3 (Separate 15mm)												
Front side	802.11ac VHT80	155/5775	98.78%	1.012	1.670	0.724	-0.06	26.90	28.00	1.288	0.944	22.3
Back side	802.11ac VHT80	155/5775	98.78%	1.012	0.540	0.245	0.17	26.90	28.00	1.288	0.320	22.3
Left side	802.11ac VHT80	155/5775	98.78%	1.012	0.414	0.192	-0.18	26.90	28.00	1.288	0.250	22.3
Right side	802.11ac VHT80	155/5775	98.78%	1.012	0.424	0.199	0.11	26.90	28.00	1.288	0.260	22.3
Top side	802.11ac VHT80	155/5775	98.78%	1.012	0.720	0.323	0.03	26.90	28.00	1.288	0.421	22.3



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8.3 Multiple Transmitter Evaluation

8.3.1 Simultaneous SAR test evaluation

No.	Simultaneous Tx Combination	Limbs
1	WWAN + WLAN 2.4GHz	Yes
2	WWAN + WLAN 5GHz	Yes



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8.3.2 Simultaneous Transmission SAR Summation Scenario

Test position		SARmax (W/kg)			Summed SAR	
		WWAN	WiFi 2.4G	WiFi 5G	1+2	1+3
		1	2	3		
LTE B2	Front side	0.574	0.699	0.944	1.273	1.518
	Back side	0.871	0.290	0.399	1.161	1.270
	Left side	0.528	0.211	0.322	0.739	0.850
	Right side	0.531	0.163	0.260	0.694	0.791
	Top side	0.070	0.298	0.421	0.368	0.491
LTE B4	Front side	0.721	0.699	0.944	1.420	1.665
	Back side	1.075	0.290	0.399	1.365	1.474
	Left side	0.613	0.211	0.322	0.824	0.935
	Right side	0.640	0.163	0.260	0.803	0.900
	Top side	0.067	0.298	0.421	0.365	0.488
LTE B5	Front side	0.643	0.699	0.944	1.342	1.587
	Back side	0.515	0.290	0.399	0.805	0.914
	Left side	0.392	0.211	0.322	0.603	0.714
	Right side	0.427	0.163	0.260	0.590	0.687
	Top side	0.013	0.298	0.421	0.311	0.434
LTE B7	Front side	0.519	0.699	0.944	1.218	1.463
	Back side	0.630	0.290	0.399	0.920	1.029
	Left side	0.346	0.211	0.322	0.557	0.668
	Right side	0.374	0.163	0.260	0.537	0.634
	Top side	0.058	0.298	0.421	0.356	0.479
LTE B12	Front side	0.604	0.699	0.944	1.303	1.548
	Back side	0.714	0.290	0.399	1.004	1.113
	Left side	0.498	0.211	0.322	0.709	0.820
	Right side	0.510	0.163	0.260	0.673	0.770
	Top side	0.022	0.298	0.421	0.320	0.443
LTE B13	Front side	0.527	0.699	0.944	1.226	1.471
	Back side	0.676	0.290	0.399	0.966	1.075
	Left side	0.348	0.211	0.322	0.559	0.670
	Right side	0.440	0.163	0.260	0.603	0.700
	Top side	0.017	0.298	0.421	0.315	0.438
LTE B14	Front side	0.546	0.699	0.944	1.245	1.490
	Back side	0.680	0.290	0.399	0.970	1.079
	Left side	0.444	0.211	0.322	0.655	0.766
	Right side	0.452	0.163	0.260	0.615	0.712
	Top side	0.013	0.298	0.421	0.311	0.434
LTE B25	Front side	0.631	0.699	0.944	1.330	1.575
	Back side	0.794	0.290	0.399	1.084	1.193
	Left side	0.539	0.211	0.322	0.750	0.861
	Right side	0.536	0.163	0.260	0.699	0.796
	Top side	0.063	0.298	0.421	0.361	0.484
LTE B26	Front side	0.674	0.699	0.944	1.373	1.618
	Back side	0.548	0.290	0.399	0.838	0.947
	Left side	0.458	0.211	0.322	0.669	0.780
	Right side	0.454	0.163	0.260	0.617	0.714



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	Top side	0.032	0.298	0.421	0.330	0.453
LTE B30	Front side	0.394	0.699	0.944	1.093	1.338
	Back side	0.730	0.290	0.399	1.020	1.129
	Left side	0.539	0.211	0.322	0.750	0.861
	Right side	0.457	0.163	0.260	0.620	0.717
	Top side	0.053	0.298	0.421	0.351	0.474
LTE B41	Front side	0.369	0.699	0.944	1.068	1.313
	Back side	0.553	0.290	0.399	0.843	0.952
	Left side	0.317	0.211	0.322	0.528	0.639
	Right side	0.302	0.163	0.260	0.465	0.562
	Top side	0.052	0.298	0.421	0.350	0.473
LTE B48	Front side	0.224	0.699	0.944	0.923	1.168
	Back side	0.274	0.290	0.399	0.564	0.673
	Left side	0.205	0.211	0.322	0.416	0.527
	Right side	0.166	0.163	0.260	0.329	0.426
	Top side	0.080	0.298	0.421	0.378	0.501
LTE B66	Front side	0.659	0.699	0.944	1.358	1.603
	Back side	0.856	0.290	0.399	1.146	1.255
	Left side	0.566	0.211	0.322	0.777	0.888
	Right side	0.591	0.163	0.260	0.754	0.851
	Top side	0.050	0.298	0.421	0.348	0.471
LTE B71	Front side	0.519	0.699	0.944	1.218	1.463
	Back side	0.380	0.290	0.399	0.670	0.779
	Left side	0.460	0.211	0.322	0.671	0.782
	Right side	0.466	0.163	0.260	0.629	0.726
	Top side	0.014	0.298	0.421	0.312	0.435



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9 Equipment list

Test Platform		SPEAG DASY Professional				
Description		SAR Test System (Frequency range 300MHz-6GHz)				
Software Reference		cDASY8 V16.2.4.2524				
Hardware Reference						
Equipment	Manufacturer	Model	Inventory No.	Calibration Date	Due date of calibration	
<input checked="" type="checkbox"/>	Test Phantom	SPEAG	SAM Twin	SZ-WSR-A-026	NCR	NCR
<input checked="" type="checkbox"/>	Test Phantom	SPEAG	SAM Twin	SZ-WSR-A-027	NCR	NCR
<input checked="" type="checkbox"/>	DAE	SPEAG	DAE4	SZ-WSR-M-029	2024/1/3	2025/1/2
<input checked="" type="checkbox"/>	DAE	SPEAG	DAE4ip	SZ-WSR-M-074	2024/8/8	2025/8/7
<input checked="" type="checkbox"/>	E-Field Probe	SPEAG	EX3DV4	SZ-WSR-M-079	2023/9/11	2024/9/10
<input checked="" type="checkbox"/>	E-Field Probe	SPEAG	EX3DV4	SZ-WSR-M-027	2024/7/17	2025/7/16
<input checked="" type="checkbox"/>	Validation Kits	SPEAG	D750V3	SZ-WSR-M-032	2022/06/06	2025/06/05
<input checked="" type="checkbox"/>	Validation Kits	SPEAG	D835V2	SZ-WSR-M-033	2022/11/02	2025/11/01
<input checked="" type="checkbox"/>	Validation Kits	SPEAG	D1750V2	SZ-WSR-M-035	2022/06/17	2025/06/16
<input checked="" type="checkbox"/>	Validation Kits	SPEAG	D1950V3	SZ-WSR-M-037	2022/10/31	2025/10/30
<input checked="" type="checkbox"/>	Validation Kits	SPEAG	D2300V2	SZ-WSR-M-038	2022/06/16	2025/06/15
<input checked="" type="checkbox"/>	Validation Kits	SPEAG	D2450V2	SZ-WSR-M-039	2022/11/02	2025/11/01
<input checked="" type="checkbox"/>	Validation Kits	SPEAG	D2600V2	SZ-WSR-M-040	2022/06/14	2025/06/13
<input checked="" type="checkbox"/>	Validation Kits	SPEAG	D3700V2	SZ-WSR-M-042	2022/09/15	2025/09/14
<input checked="" type="checkbox"/>	Validation Kits	SPEAG	D5GHzV2	SZ-WSR-M-046	2022/11/01	2025/10/31
<input checked="" type="checkbox"/>	Dielectric parameter probes	SPEAG	DAKS-3.5	SZ-WSR-M-053	2024/06/26	2025/06/25
<input checked="" type="checkbox"/>	Vector Network Analyzer and Vector Reflectometer	SPEAG	DAKS_VNA R140	SZ-WSR-M-054	2024/06/26	2025/06/25
<input checked="" type="checkbox"/>	RF Bi-Directional Coupler	Agilent	86205-60001	SZ-WSR-A-004	NCR	NCR
<input checked="" type="checkbox"/>	Signal Generator	Agilent	N5171B	SZ-WSR-M-006	2024/01/30	2025/01/29
<input checked="" type="checkbox"/>	Preamplifier	Mini-Circuits	ZHL-42W	SZ-WSR-A-001	NCR	NCR
<input checked="" type="checkbox"/>	Preamplifier	Compliance Directions Systems Inc.	AMP28-3W	SZ-WSR-A-002	NCR	NCR
<input checked="" type="checkbox"/>	Power Meter	Agilent	E4416A	SZ-WSR-M-007	2024/01/30	2025/01/29
<input checked="" type="checkbox"/>	Power Sensor	Agilent	8481H	SZ-WSR-M-008	2024/01/30	2025/01/29
<input checked="" type="checkbox"/>	Power Sensor	R&S	NRP-Z92	SZ-WSR-M-009	2024/01/30	2025/01/29
<input checked="" type="checkbox"/>	Attenuator	SHX	TS2-3dB	SZ-WSR-A-012	NCR	NCR
<input checked="" type="checkbox"/>	Speed reading thermometer	Zhengzhou Boyang Instrument	TP3001	SZ-WSR-M-014	2024/05/30	2025/05/29
<input checked="" type="checkbox"/>	Temperature	MingGao	T809	SZ-WSR-M-015	2024/05/30	2025/05/29
<input checked="" type="checkbox"/>	Temperature	MingGao	T809	SZ-WSR-M-016	2024/05/30	2025/05/29
<input checked="" type="checkbox"/>	Humidity and Temperature Indicator	CHIGAO	HTC-1	SZ-WSR-M-011	2024/05/28	2025/05/27

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



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 中国·广东·深圳市南山区科技园中区M-10栋1号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

10 Measurement Uncertainty

Measurements and results are all in compliance with the standards listed. All measurements and results are recorded and maintained at the laboratory performing the tests and measurement uncertainties are taken into account when comparing measurements to pass/ fail criteria. The expanded uncertainty (95% CONFIDENCE INTERVAL) is 21.02%.

a	b	c	d	e = f(d,k)	g	i = C*g/e	K
Uncertainty Component	Section in IEC/EN 62209-1	Tol (%)	Prob. Dist.	Div.	Ci (10g)	10g ui (%)	Vi (Veff)
Probe calibration	7.2.1	6.65	N	1	1	6.65	∞
Axial isotropy	7.2.1.2	0.5	R	$\sqrt{3}$	$(1 - C_p)^{1/2}$	0.20	∞
hemispherical isotropy	7.2.1.2	2.6	R	$\sqrt{3}$	$\sqrt{C_p}$	1.06	∞
Boundary effect	7.2.1.5	1.0	R	$\sqrt{3}$	1	0.58	∞
Linearity	7.2.1.3	0.6	R	$\sqrt{3}$	1	0.35	∞
System detection limit	7.2.1.4	0.25	R	$\sqrt{3}$	1	0.14	∞
Readout electronics	7.2.1.6	0.3	N	1	1	0.30	∞
Response time	7.2.1.7	0	R	$\sqrt{3}$	1	0.00	∞
Integration time	7.2.1.8	2.6	R	$\sqrt{3}$	1	1.50	∞
RF ambient Condition -Noise	7.2.3.6	3	R	$\sqrt{3}$	1	1.73	∞
RF ambient Condition - reflections	7.2.3.6	3	R	$\sqrt{3}$	1	1.73	∞
Probe positioning- mechanical tolerance	7.2.2.1	1.5	R	$\sqrt{3}$	1	0.87	∞
Probe positioning- with respect to phantom	7.2.2.3	2.9	R	$\sqrt{3}$	1	1.67	∞
Max. SAR evaluation	7.2.4	1	R	$\sqrt{3}$	1	0.58	∞
Test sample positioning	7.2.2.4	4.0	N	1	1	4.0	9
Device holder uncertainty	7.2.2.4.2	3.6	N	1	1	3.60	∞
Output power variation -SAR drift measurement	7.2.3.5	5	R	$\sqrt{3}$	1	2.89	∞
Phantom uncertainty (shape and thickness tolerances)	7.2.2.2	4	R	$\sqrt{3}$	1	2.31	∞
Liquid conductivity - deviation from target values	7.2.3.3	5	R	$\sqrt{3}$	0.43	1.24	∞
Liquid conductivity - measurement uncertainty	7.2.3.3	5.78	N	1	0.43	2.49	5
Liquid permittivity - deviation from target values	7.2.3.4	5	R	$\sqrt{3}$	0.49	1.41	∞
Liquid permittivity - measurement uncertainty	7.2.3.4	0.62	N	1	0.49	0.30	5
Combined standard uncertainty				RSS		10.51	334
Expanded uncertainty (95% CONFIDENCE INTERVAL)				k=2		21.02	



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11 Calibration certificate

Please see the Appendix C

12 Photographs

Please see the Appendix D

Appendix A: Detailed System Check Results

Appendix B: Detailed Test Results

Appendix C: Calibration certificate

Appendix D: Photographs

--- End of report ---



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

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