FCC SAR TEST REPORT

FCC ID	:	**NM82Q6U100**
Equipment	:	**Smart Hub**
Model Name	:	**2Q6U100**
Applicant	:	**HTC Corporation** **No.88, Sec. 3, Zhongxing Rd., Xindian Dist., New Taipei City 231, Taiwan (R.O.C.)**
Manufacturer	:	**HTC Corporation** **No.88, Sec. 3, Zhongxing Rd., Xindian Dist., New Taipei City 231, Taiwan (R.O.C.)**
Standard	:	**FCC 47 CFR Part 2 (2.1093)** **ANSI/IEEE C95.1-1992** **IEEE 1528-2013**

The product was received on Jan. 09, 2019 and testing was started from Jan. 10, 2019 and completed on Mar. 05, 2019. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

The test results in this variant report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

Approved by: Cona Huang / Deputy Manager

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History of this test report

Report No.	Version	Description	Issued Date
FA8D2018A	01	Initial issue of report	Mar. 13, 2019

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for HTC Corporation, Smart Hub, 2Q6U100, are as follows.

Equipment Class	Frequency Band	Highest SAR Summary Hotspot (Separation 10mm) 1g SAR (W/kg)	Highest Simultaneous Transmission 1g SAR (W/kg)
Licensed	LTE Band 7	0.80	1.15
	LTE Band 12	0.21	
	LTE Band 13	0.24	
	LTE Band 2 / 25	0.54	
	LTE Band 5 / 26	0.15	
	LTE Band 41	0.61	
	Sub-6G n41	0.13	
	LTE Band 4 / 66	0.95	
	LTE Band 71	0.16	
DTS	2.4GHz WLAN	0.08	1.04
NII	5GHz WLAN	0.28	1.15
DSS	Bluetooth	0.01	1.05
Date of Testing:		2019/1/10 ~ 2019/3/5	

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code: 1190) and the FCC designation No. TW1190 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC test. This device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6 W/kg)specified in FCC 47 CFR part 2 (2.1093) and ANSI/IEEE C95.1-1992, and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528-2013 and FCC KDB publications

Reviewed by: Jason Wang
Report Producer: Wan Liu

2. Guidance Applied

The Specific Absorption Rate (SAR) testing specification, method, and procedure for this device is in accordance with the following standards:

- FCC 47 CFR Part 2 (2.1093)
- ANSI/IEEE C95.1-1992
- IEEE 1528-2013
- FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04
- FCC KDB 865664 D02 SAR Reporting v01r02
- FCC KDB 447498 D01 General RF Exposure Guidance v06
- FCC KDB 248227 D01 802.11 Wi-Fi SAR v02r02
- FCC KDB 941225 D05 SAR for LTE Devices v02r05
- FCC KDB 941225 D05A Rel.10 LTE SAR Test Guidance v01r02
- FCC KDB 941225 D06 Hotspot Mode SAR v02r01

3. Equipment Under Test (EUT) Information

3.1 General Information

Product Feature & Specification	
Equipment Name	Smart Hub
Model Name	2Q6U100
FCC ID	NM82Q6U100
IMEI Code	353002100012219
Wireless Technology and Frequency Range	LTE Band 2: 1850.7 MHz ~ 1909.3 MHz LTE Band 4: 1710.7 MHz ~ 1754.3 MHz LTE Band 5: 824.7 MHz ~ 848.3 MHz LTE Band 7: 2502.5 MHz ~ 2567.5 MHz LTE Band 12: 699.7 MHz ~ 715.3 MHz LTE Band 13: 779.5 MHz ~ 784.5 MHz LTE Band 25: 1850.7 MHz ~ 1914.3 MHz LTE Band 26: 814.7 MHz ~ 848.3 MHz LTE Band 41: 2498.5 MHz ~ 2687.5 MHz LTE Band 66: 1710.7 MHz ~ 1779.3 MHz LTE Band 71: 665.5 MHz ~ 695.5 MHz Sub 6G n41: 2506.02 MHz ~ 2679.99 MHz WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz WLAN 5.3GHz Band: 5260 MHz ~ 5320 MHz WLAN 5.5GHz Band: 5500 MHz ~ 5720MHz WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz 802.11ad: 60GHz
Mode	LTE / Sub 6G n41: QPSK, 16QAM, 64QAM 802.11a/b/g/n/ac HT20/HT40/VHT20/VHT40/VHT80 802.11ad Bluetooth BR/EDR/LE/HS
Sub-6G operation	Non-Standalone (NSA) mode
EN-DC combination	DC_41A_n41A, DC_n41AA
EUT Stage	Identical Prototype

3.2 General LTE SAR Test and Reporting Considerations

Summarized necessary items addressed in KDB 941225 D05 v02r05	
FCC ID	NM82Q6U100
Equipment Name	Smart Hub
Operating Frequency Range of each LTE transmission band	LTE Band 2: 1850.7 MHz ~ 1909.3 MHz LTE Band 4: 1710.7 MHz ~ 1754.3 MHz LTE Band 5: 824.7 MHz ~ 848.3 MHz LTE Band 7: 2502.5 MHz ~ 2567.5 MHz LTE Band 12: 699.7 MHz ~ 715.3 MHz LTE Band 13: 779.5 MHz ~ 784.5 MHz LTE Band 25: 1850.7 MHz ~ 1914.3 MHz LTE Band 26: 814.7 MHz ~ 848.3 MHz LTE Band 41: 2498.5 MHz ~ 2687.5 MHz LTE Band 66: 1710.7 MHz ~ 1779.3 MHz LTE Band 71: 665.5 MHz ~ 695.5 MHz Sub 6G n41: 2506.02 MHz ~ 2679.99 MHz
Channel Bandwidth	LTE Band 02:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 04:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 05:1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 07: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 12:1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 13: 5MHz, 10MHz LTE Band 25:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 26:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz LTE Band 41: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 66:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 71: 5MHz, 10MHz, 15MHz, 20MHz Sub 6G n41: 20MHz, 40MHz, 60MHz, 80MHz, 100MHz
uplink modulations used	QPSK / 16QAM / 64QAM.
LTE Voice / Data requirements	Data only
LTE MPR permanently built-in by design	**Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3**
LTE A-MPR	In the base station simulator configuration, Network Setting value is set to NS_01 to disable A-MPR during SAR testing and the LTE SAR tests was transmitting on all TTI frames (Maximum TTI)
Spectrum plots for RB configuration	A properly configured base station simulator was used for the SAR and power measurement; therefore, spectrum plots for each RB allocation and offset configuration are not included in the SAR report.
LTE Carrier Aggregation Combinations	Inter-Band and Intra-Band possible combinations and the detail power measurement please referred to section 11.
LTE Carrier Aggregation Additional Information	2. This device supports maximum of 5 carriers in the downlink and 2 carriers in the uplink. Additional following LTE Release features are not supported: Relay, HetNet, Enhanced MIMO, eICI, WiFi Offloading, MDH, eMBMA, Cross-Carrier Scheduling, Enhanced SC-FDMA.

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

Transmission (H, M, L) channel numbers and frequencies in each LTE band

LTE Band 2

	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	18607	1850.7	18615	1851.5	18625	1852.5	18650	1855	18675	1857.5	18700	1860
M	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880
H	19193	1909.3	19185	1908.5	19175	1907.5	19150	1905	19125	1902.5	19100	1900

LTE Band 4												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	19957	1710.7	19965	1711.5	19975	1712.5	20000	1715	20025	1717.5	20050	1720
M	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5
H	20393	1754.3	20385	1753.5	20375	1752.5	20350	1750	20325	1747.5	20300	1745

LTE Band 5								
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	20407	824.7	20415	825.5	20425	826.5	20450	829
M	20525	836.5	20525	836.5	20525	836.5	20525	836.5
H	20643	848.3	20635	847.5	20625	846.5	20600	844

LTE Band 7								
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	20775	2502.5	20800	2505	20825	2507.5	20850	2510
M	21100	2535	21100	2535	21100	2535	21100	2535
H	21425	2567.5	21400	2565	21375	2562.5	21350	2560

LTE Band 12								
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	23017	699.7	23025	700.5	23035	701.5	23060	704
M	23095	707.5	23095	707.5	23095	707.5	23095	707.5
H	23173	715.3	23165	714.5	23155	713.5	23130	711

LTE Band 13				
	Bandwidth 5 MHz		Bandwidth 10 MHz	
	Channel #	Freq.(MHz)	Channel #	Freq.(MHz)
L	23205	779.5	23230	782
M	23230	782		
H	23255	784.5		

LTE Band 25												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	26047	1850.7	26055	1851.5	26065	1852.5	26090	1855	26115	1857.5	26140	1860
M	26340	1880	26340	1880	26340	1880	26340	1880	26340	1880	26340	1880
H	26683	1914.3	26675	1913.5	26665	1912.5	26640	1910	26615	1907.5	26590	1905

LTE Band 26										
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	26697	814.7	26705	815.5	26715	816.5	26740	819	26765	821.5
M	26865	831.5	26865	831.5	26865	831.5	26865	831.5	26865	831.5
H	27033	848.3	27025	847.5	27015	846.5	26990	844	26965	841.5

LTE Band 41								
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	39675	2498.5	39700	2501	39725	2503.5	39750	2506
L M	40148	2545.8	40160	2547	40173	2548.3	40185	2549.5
M	40620	2593	40620	2593	40620	2593	40620	2593
H M	41093	2640.3	41080	2639	41068	2637.8	41055	2636.5
H	41565	2687.5	41540	2685	41515	2682.5	41490	2680

LTE Band 66												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	131979	1710.7	131987	1711.5	131997	1712.5	132022	1715	132047	1717.5	132072	1720
M	132322	1745	132322	1745	132322	1745	132322	1745	132322	1745	132322	1745
H	132665	1779.3	132657	1778.5	132647	1777.5	132622	1775	132597	1772.5	132572	1770

LTE Band 71								
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	133147	665.5	133172	668	133197	670.5	133222	673
M	133247	675.5	133272	678	133297	680.5	133322	683
H	133447	695.5	133422	693	133397	690.5	133372	688

Sub-6G n41								
	Bandwidth 40 MHz		Bandwidth 60 MHz		Bandwidth 80 MHz		Bandwidth 100 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	503202	2516.01	505200	2526	507204	2536.02	509202	2546.01
M	518598	2592.99	518598	2592.99	518598	2592.99	518598	2592.99
H	534000	2670	531996	2659.98	529998	2649.99	528000	2640

4. RF Exposure Limits

4.1 Uncontrolled Environment

Uncontrolled Environments are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure. The general population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity.

4.2 Controlled Environment

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). In general, occupational/controlled exposure limits are applicable to situations in which persons are exposed as a consequence of their employment, who have been made fully aware of the potential for exposure and can exercise control over their exposure. The exposure category is also applicable when the exposure is of a transient nature due to incidental passage through a location where the exposure levels may be higher than the general population/uncontrolled limits, but the exposed person is fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Limits for Occupational/Controlled Exposure (W/kg)

Whole-Body	Partial-Body	Hands, Wrists, Feet and Ankles
0.4	8.0	20.0

Limits for General Population/Uncontrolled Exposure (W/kg)

Whole-Body	Partial-Body	Hands, Wrists, Feet and Ankles
0.08	1.6	4.0

1. Whole-Body SAR is averaged over the entire body, partial-body SAR is averaged over any 1gram of tissue defined as a tissue volume in the shape of a cube. SAR for hands, wrists, feet and ankles is averaged over any 10 grams of tissue defined as a tissue volume in the shape of a cube.

5. Specific Absorption Rate (SAR)

5.1 Introduction

SAR is related to the rate at which energy is absorbed per unit mass in an object exposed to a radio field. The SAR distribution in a biological body is complicated and is usually carried out by experimental techniques or numerical modeling. The standard recommends limits for two tiers of groups, occupational/controlled and general population/uncontrolled, based on a person's awareness and ability to exercise control over his or her exposure. In general, occupational/controlled exposure limits are higher than the limits for general population/uncontrolled.

5.2 SAR Definition

The SAR definition is the time derivative (rate) of the incremental energy (dW) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dv) of a given density (ρ). The equation description is as below:

$$\mathbf{SAR} = \frac{\mathbf{d}}{\mathbf{dt}}\left(\frac{\mathbf{dW}}{\mathbf{dm}}\right) = \frac{\mathbf{d}}{\mathbf{dt}}\left(\frac{\mathbf{dW}}{\boldsymbol{\rho}\mathbf{dv}}\right)$$

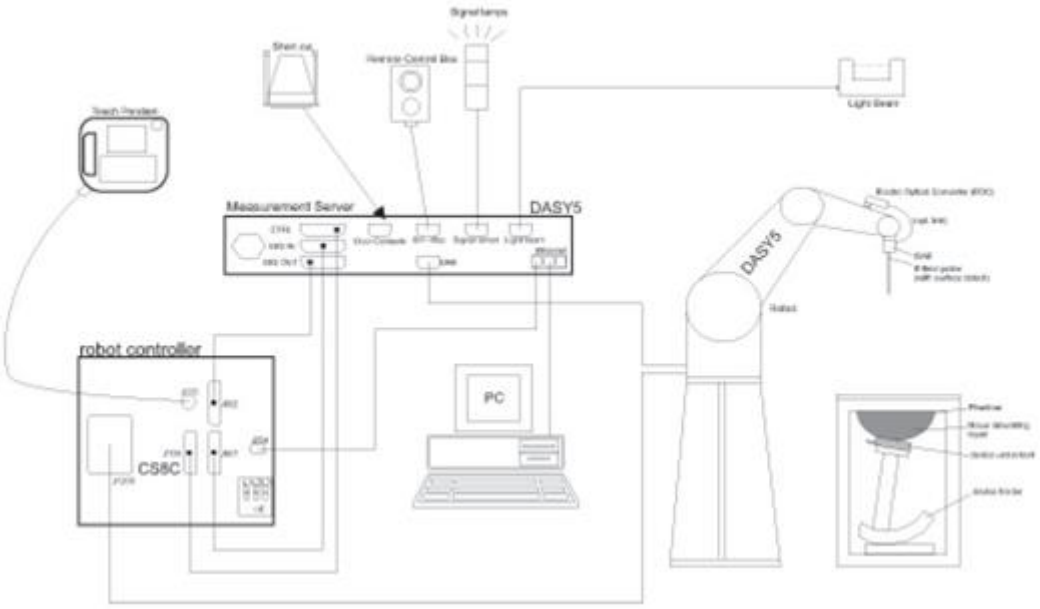
SAR is expressed in units of Watts per kilogram (W/kg)

$$\mathbf{SAR} = \frac{\boldsymbol{\sigma}|\mathbf{E}|^{\mathbf{2}}}{\boldsymbol{\rho}}$$

Where: σ is the conductivity of the tissue, ρ is the mass density of the tissue and E is the RMS electrical field strength.

6. System Description and Setup

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



- A standard high precision 6-axis robot with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- An isotropic Field probe optimized and calibrated for the targeted measurement.
- 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 from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server.
- 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.
- The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
- A computer running WinXP or Win7 and the DASY5 software.
- Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.
- The phantom, the device holder and other accessories according to the targeted measurement.

6.1 E-Field Probe

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

<ES3DV3 Probe>

Construction	Symmetric design with triangular core Interleaved sensors Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	
Frequency	10 MHz – 4 GHz; Linearity: ±0.2 dB (30 MHz – 4 GHz)	
Directivity	±0.2 dB in TSL (rotation around probe axis) ±0.3 dB in TSL (rotation normal to probe axis)	
Dynamic Range	5 µW/g – >100 mW/g; Linearity: ±0.2 dB	
Dimensions	Overall length: 337 mm (tip: 20 mm) Tip diameter: 3.9 mm (body: 12 mm) Distance from probe tip to dipole centers: 3.0 mm	

<EX3DV4 Probe>

Construction	Symmetric design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	
Frequency	10 MHz – >6 GHz Linearity: ±0.2 dB (30 MHz – 6 GHz)	
Directivity	±0.3 dB in TSL (rotation around probe axis) ±0.5 dB in TSL (rotation normal to probe axis)	
Dynamic Range	10 µW/g – >100 mW/g Linearity: ±0.2 dB (noise: typically <1 µW/g)	
Dimensions	Overall length: 337 mm (tip: 20 mm) Tip diameter: 2.5 mm (body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm	

6.2 Data Acquisition Electronics (DAE)

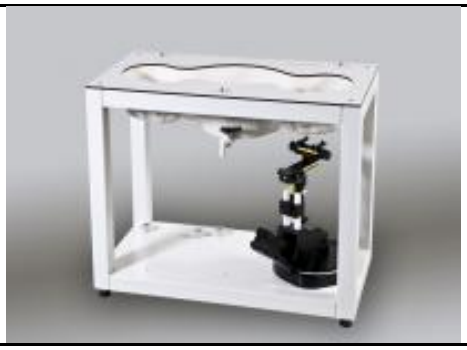
The data acquisition electronics (DAE) consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder and control logic unit. Transmission to the measurement server is accomplished through an optical downlink for data and status information as well as an optical uplink for commands and the clock.

The input impedance of the DAE is 200 MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.

Fig 5.1 Photo of DAE

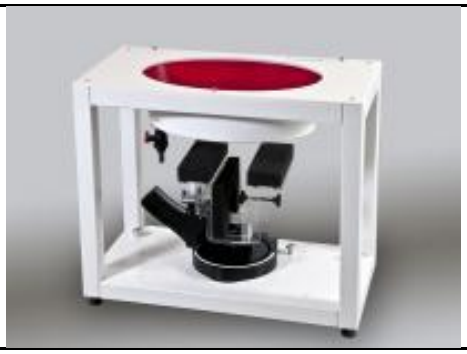
6.3 Phantom

<SAM Twin Phantom>

Shell Thickness	2 ± 0.2 mm; Center ear point: 6 ± 0.2 mm	
Filling Volume	Approx. 25 liters	
Dimensions	Length: 1000 mm; Width: 500 mm; Height: adjustable feet	
Measurement Areas	Left Hand, Right Hand, Flat Phantom	

The bottom plate contains three pair of bolts for locking the device holder. The device holder positions are adjusted to the standard measurement positions in the three sections. A white cover is provided to tap the phantom during off-periods to prevent water evaporation and changes in the liquid parameters. On the phantom top, three reference markers are provided to identify the phantom position with respect to the robot.

<ELI Phantom>

Shell Thickness	2 ± 0.2 mm (sagging: <1%)	
Filling Volume	Approx. 30 liters	
Dimensions	Major ellipse axis: 600 mm Minor axis: 400 mm	

The ELI phantom is intended for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI4 is fully compatible with standard and all known tissue simulating liquids.

6.4 Device Holder

<Mounting Device for Hand-Held Transmitter>

In combination with the Twin SAM V5.0/V5.0c or ELI phantoms, the Mounting Device for Hand-Held Transmitters enables rotation of the mounted transmitter device to specified spherical coordinates. At the heads, the rotation axis is at the ear opening. Transmitter devices can be easily and accurately positioned according to IEC 62209-1, IEEE 1528, FCC, or other specifications. The device holder can be locked for positioning at different phantom sections (left head, right head, flat). And upgrade kit to Mounting Device to enable easy mounting of wider devices like big smart-phones, e-books, small tablets, etc. It holds devices with width up to 140 mm.

Mounting Device for Hand-Held Transmitters

Mounting Device Adaptor for Wide-Phones

<Mounting Device for Laptops and other Body-Worn Transmitters>

The extension is lightweight and made of POM, acrylic glass and foam. It fits easily on the upper part of the mounting device in place of the phone positioned. The extension is fully compatible with the SAM Twin and ELI phantoms.

Mounting Device for Laptops

7. Measurement Procedures

The measurement procedures are as follows:

<Conducted power measurement>

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

<SAR measurement>

(a) Use base station simulator to configure EUT WWAN transmission in radiated connection, and engineering software to configure EUT WLAN/BT continuously transmission, at maximum RF power, in the highest power channel.
(b) Place the EUT in the positions as Appendix D demonstrates.
(c) Set scan area, grid size and other setting on the DASY software.
(d) Measure SAR results for the highest power channel on each testing position.
(e) Find out the largest SAR result on these testing positions of each band
(f) Measure SAR results for other channels in worst SAR testing position if the reported SAR of highest power channel is larger than 0.8 W/kg

According to the test standard, the recommended procedure for assessing the peak spatial-average SAR value consists of the following steps:

(a) Power reference measurement
(b) Area scan
(c) Zoom scan
(d) Power drift measurement

7.1 Spatial Peak SAR Evaluation

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

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

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

(a) Extraction of the measured data (grid and values) from the Zoom Scan
(b) Calculation of the SAR value at every measurement point based on all stored data (A/D values and measurement parameters)
(c) Generation of a high-resolution mesh within the measured volume
(d) Interpolation of all measured values form the measurement grid to the high-resolution grid
(e) Extrapolation of the entire 3-D field distribution to the phantom surface over the distance from sensor to surface
(f) Calculation of the averaged SAR within masses of 1g and 10g

7.2 Power Reference Measurement

The Power Reference Measurement and Power Drift Measurements are for monitoring the power drift of the device under test in the batch process. The minimum distance of probe sensors to surface determines the closest measurement point to phantom surface. This distance cannot be smaller than the distance of sensor calibration points to probe tip as defined in the probe properties.

7.3 Area Scan

The area scan is used as a fast scan in two dimensions to find the area of high field values, before doing a fine measurement around the hot spot. The sophisticated interpolation routines implemented in DASY software can find the maximum found in the scanned area, within a range of the global maximum. The range (in dB0 is specified in the standards for compliance testing. For example, a 2 dB range is required in IEEE standard 1528 and IEC 62209 standards, whereby 3 dB is a requirement when compliance is assessed in accordance with the ARIB standard (Japan), if only one zoom scan follows the area scan, then only the absolute maximum will be taken as reference. For cases where multiple maximums are detected, the number of zoom scans has to be increased accordingly.

Area scan parameters extracted from FCC KDB 865664 D01v01r04 SAR measurement 100 MHz to 6 GHz.

	≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface	5 ± 1 mm	½·δ·ln(2) ± 0.5 mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location	30° ± 1°	20° ± 1°
Maximum area scan spatial resolution: Δx_{Area}, Δy_{Area}	≤ 2 GHz: ≤ 15 mm 2 – 3 GHz: ≤ 12 mm	3 – 4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm
	When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	

7.4 Zoom Scan

Zoom scans are used assess the peak spatial SAR values within a cubic averaging volume containing 1 gram and 10 gram of simulated tissue. The zoom scan measures points (refer to table below) within a cube shoes base faces are centered on the maxima found in a preceding area scan job within the same procedure. When the measurement is done, the zoom scan evaluates the averaged SAR for 1 gram and 10 gram and displays these values next to the job's label.

Zoom scan parameters extracted from FCC KDB 865664 D01v01r04 SAR measurement 100 MHz to 6 GHz.

			≤ 3 GHz	> 3 GHz
Maximum zoom scan spatial resolution: Δx_{Zoom}, Δy_{Zoom}			≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$		≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm
	graded grid	$\Delta z_{Zoom}(1)$: between 1st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{Zoom}(n>1)$: between subsequent points	≤ 1.5·$\Delta z_{Zoom}(n-1)$	
Minimum zoom scan volume	x, y, z		≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm

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

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

7.5 Volume Scan Procedures

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

7.6 Power Drift Monitoring

All SAR testing is under the EUT install full charged battery and transmit maximum output power. In DASY measurement software, the power reference measurement and power drift measurement procedures are used for monitoring the power drift of EUT during SAR test. Both these procedures measure the field at a specified reference position before and after the SAR testing. The software will calculate the field difference in dB. If the power drifts more than 5%, the SAR will be retested.

8. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	750MHz System Validation Kit	D750V3	1012	Sep. 05, 2018	Sep. 04, 2019
SPEAG	835MHz System Validation Kit	D835V2	499	Sep. 06, 2018	Sep. 05, 2019
SPEAG	1750MHz System Validation Kit	D1750V2	1068	Nov. 19, 2018	Nov. 18, 2019
SPEAG	1900MHz System Validation Kit	D1900V2	5d041	Sep. 11, 2018	Sep. 10, 2019
SPEAG	2450MHz System Validation Kit	D2450V2	736	Aug. 31, 2018	Aug. 30, 2019
SPEAG	2600MHz System Validation Kit	D2600V2	1008	Aug. 31, 2018	Aug. 30, 2019
SPEAG	5GHz System Validation Kit	D5GHzV2	1006	Sep. 27, 2018	Sep. 26, 2019
SPEAG	Data Acquisition Electronics	DAE4	914	Dec. 11, 2018	Dec. 10, 2019
SPEAG	Data Acquisition Electronics	DAE4	918	Jun. 20, 2018	Jun. 19, 2019
SPEAG	Data Acquisition Electronics	DAE4	1326	Sep. 18, 2018	Sep. 17, 2019
SPEAG	Data Acquisition Electronics	DAE4	1424	Jan. 18, 2018	Jan. 17, 2019
SPEAG	Dosimetric E-Field Probe	ES3DV3	3169	May. 28, 2018	May. 27, 2019
SPEAG	Dosimetric E-Field Probe	EX3DV4	3642	Apr. 27, 2018	Apr. 26, 2019
SPEAG	Dosimetric E-Field Probe	EX3DV4	3976	Jan. 23, 2018	Jan. 22, 2019
SPEAG	Dosimetric E-Field Probe	EX3DV4	7375	Dec. 13, 2018	Dec. 12, 2019
SPEAG	Dosimetric E-Field Probe	EX3DV4	7515	Oct. 03, 2018	Oct. 02, 2019
WonDer	Thermometer	WD-5016	TM131-1	Mar. 16, 2018	Mar. 15, 2019
WonDer	Thermometer	WD-5016	TM132-1	Mar. 16, 2018	Mar. 15, 2019
RCPTWN	Thermometer	HTC-1	TM685-2	Mar. 16, 2018	Mar. 15, 2019
Anritsu	Radio Communication Analyzer	MT8821C	6201341950	Apr. 17, 2018	Apr. 16, 2019
Agilent	Wireless Communication Test Set	E5515C	MY50266977	May. 21, 2018	May. 20, 2019
R&S	BT Base Station	CBT32	100519	May. 30, 2018	May. 29, 2019
SPEAG	Device Holder	N/A	N/A	N/A	N/A
Anritsu	Signal Generator	MG3710A	6201502524	Dec. 11, 2018	Dec. 10, 2019
Agilent	ENA Network Analyzer	E5071C	MY46104758	Sep. 19, 2018	Sep. 18, 2019
SPEAG	Dielectric Probe Kit	DAK-3.5	1126	Sep. 19, 2018	Sep. 18, 2019
LINE SEIKI	Digital Thermometer	DTM3000-spezial	3169	Sep. 11, 2018	Sep. 10, 2019
Anritsu	Power Meter	ML2495A	1419002	May. 18, 2018	May. 17, 2019
Anritsu	Power Sensor	MA2411B	1339124	May. 18, 2018	May. 17, 2019
Anritsu	Power Meter	ML2495A	1240001	Sep. 13, 2018	Sep. 12, 2019
Anritsu	Power Sensor	MA2411B	1207349	Sep. 13, 2018	Sep. 12, 2019
Agilent	Spectrum Analyzer	E4408B	MY44211028	Aug. 28, 2018	Aug. 27, 2019
Anritsu	Spectrum Analyzer	MS2830A	6201396378	Jun. 23, 2018	Jun. 22, 2019
Mini-Circuits	Power Amplifier	ZVE-8G+	6382	Aug. 09, 2018	Aug. 08, 2019
Mini-Circuits	Power Amplifier	ZHL-42W+	15542	Aug. 09, 2018	Aug. 08, 2019
ATM	Dual Directional Coupler	C122H-10	P610410z-02	Note 1	
Woken	Attenuator 1	WK0602-XX	N/A	Note 1	
PE	Attenuator 2	PE7005-10	N/A	Note 1	
PE	Attenuator 3	PE7005- 3	N/A	Note 1	

General Note:

1. Prior to system verification and validation, the path loss from the signal generator to the system check source and the power meter, which includes the amplifier, cable, attenuator and directional coupler, was measured by the network analyzer. The reading of the power meter was offset by the path loss difference between the path to the power meter and the path to the system check source to monitor the actual power level fed to the system check source.

9. System Verification

9.1 Tissue Simulating Liquids

For the measurement of the field distribution inside the SAM phantom with DASY, the phantom must be filled with around 25 liters of homogeneous body tissue simulating liquid. For head SAR testing, the liquid height from the ear reference point (ERP) of the phantom to the liquid top surface is larger than 15 cm, which is shown in Fig. 10.1. For body SAR testing, the liquid height from the center of the flat phantom to the liquid top surface is larger than 15 cm, which is shown in Fig. 10.2.

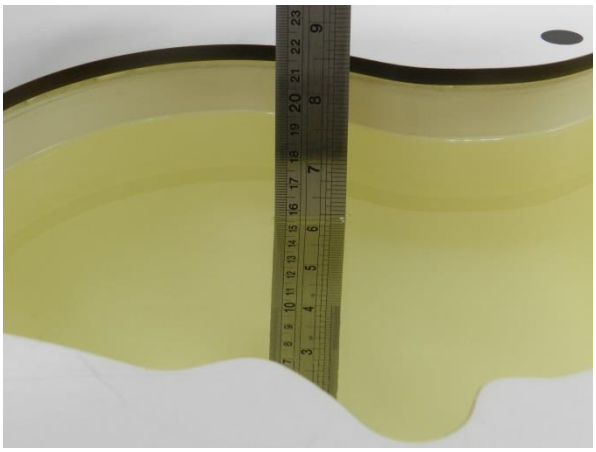


Fig 10.1Photo of Liquid Height for Head SAR

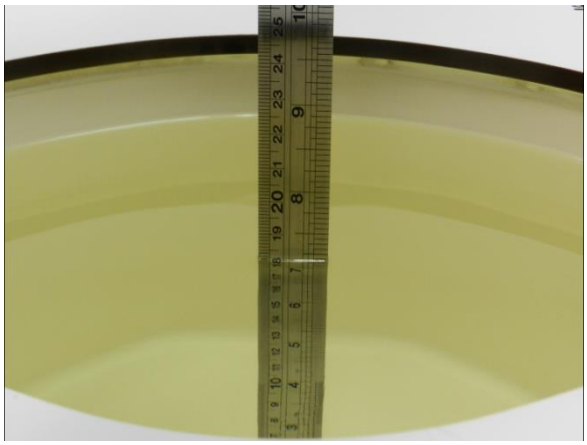


Fig 10.2 Photo of Liquid Height for Body SAR

9.2 Tissue Verification

The following tissue formulations are provided for reference only as some of the parameters have not been thoroughly verified. The composition of ingredients may be modified accordingly to achieve the desired target tissue parameters required for routine SAR evaluation.

Frequency (MHz)	Water (%)	Sugar (%)	Cellulose (%)	Salt (%)	Preventol (%)	DGBE (%)	Conductivity (σ)	Permittivity (εr)
For Head								
750	41.1	57.0	0.2	1.4	0.2	0	0.89	41.9
835	40.3	57.9	0.2	1.4	0.2	0	0.90	41.5
900	40.3	57.9	0.2	1.4	0.2	0	0.97	41.5
1800, 1900, 2000	55.2	0	0	0.3	0	44.5	1.40	40.0
2450	55.0	0	0	0	0	45.0	1.80	39.2
2600	54.8	0	0	0.1	0	45.1	1.96	39.0
For Body								
750	51.7	47.2	0	0.9	0.1	0	0.96	55.5
835	50.8	48.2	0	0.9	0.1	0	0.97	55.2
900	50.8	48.2	0	0.9	0.1	0	1.05	55.0
1800, 1900, 2000	70.2	0	0	0.4	0	29.4	1.52	53.3
2450	68.6	0	0	0	0	31.4	1.95	52.7
2600	68.1	0	0	0.1	0	31.8	2.16	52.5

Simulating Liquid for 5GHz, Manufactured by SPEAG

Ingredients	(% by weight)
Water	64~78%
Mineral oil	11~18%
Emulsifiers	9~15%
Additives and Salt	2~3%

<Tissue Dielectric Parameter Check Results>

Frequency (MHz)	Tissue Type	Liquid Temp. (℃)	Conductivity (σ)	Permittivity (ε_r)	Conductivity Target (σ)	Permittivity Target (ε_r)	Delta (σ) (%)	Delta (ε_r) (%)	Limit (%)	Date
750	MSL	22.6	0.967	53.668	0.96	55.50	0.73	-3.30	±5	2019/1/14
750	MSL	22.6	0.990	56.454	0.96	55.50	3.13	1.72	±5	2019/1/14
750	MSL	22.3	0.972	54.183	0.96	55.50	1.25	-2.37	±5	2019/1/17
750	MSL	22.5	0.993	56.504	0.96	55.50	3.44	1.81	±5	2019/1/18
835	MSL	22.6	0.948	55.077	0.97	55.20	-2.27	-0.22	±5	2019/1/12
835	MSL	22.5	0.954	55.197	0.97	55.20	-1.65	-0.01	±5	2019/1/18
1750	MSL	22.2	1.478	55.088	1.49	53.40	-0.81	3.16	±5	2019/1/10
1750	MSL	22.3	1.473	55.008	1.49	53.40	-1.14	3.01	±5	2019/1/16
1900	MSL	22.2	1.521	52.396	1.52	53.30	0.07	-1.70	±5	2019/1/10
1900	MSL	22.3	1.534	52.476	1.52	53.30	0.92	-1.55	±5	2019/1/16
2450	MSL	22.2	1.989	52.453	1.95	52.70	2.00	-0.47	±5	2019/1/15
2600	MSL	22.4	2.214	52.021	2.16	52.50	2.50	-0.91	±5	2019/1/11
2600	MSL	22.3	2.212	52.864	2.16	52.50	2.41	0.69	±5	2019/2/19
2600	MSL	22.5	2.214	52.728	2.16	52.50	2.50	0.43	±5	2019/3/5
5250	MSL	22.1	5.455	48.601	5.36	48.95	1.77	-0.71	±5	2019/1/15
5250	MSL	22.1	5.455	48.601	5.36	48.95	1.77	-0.71	±5	2019/1/15
5250	MSL	22.3	5.504	47.488	5.36	48.95	2.69	-2.99	±5	2019/2/28
5600	MSL	22.3	5.963	46.846	5.77	48.50	3.34	-3.41	±5	2019/2/28
5750	MSL	22.1	6.142	47.819	5.94	48.28	3.40	-0.95	±5	2019/1/15

9.3 System Performance Check Results

Comparing to the original SAR value provided by SPEAG, the verification data should be within its specification of 10 %. Below table shows the target SAR and measured SAR after normalized to 1W input power. The table below indicates the system performance check can meet the variation criterion and the plots can be referred to Appendix A of this report.

Date	Frequency (MHz)	Tissue Type	Input Power (mW)	Dipole S/N	Probe S/N	DAE S/N	Measured 1g SAR (W/kg)	Targeted 1g SAR (W/kg)	Normalized 1g SAR (W/kg)	Deviation (%)
2019/1/14	750	MSL	250	D750V3-1012	EX3DV4 - SN3976	DAE4 Sn1424	2.24	8.76	8.96	2.28
2019/1/14	750	MSL	250	D750V3-1012	EX3DV4 - SN3976	DAE4 Sn1424	2.30	8.76	9.2	5.02
2019/1/17	750	MSL	250	D750V3-1012	ES3DV3 - SN3169	DAE4 Sn1326	2.32	8.76	9.28	5.94
2019/1/18	750	MSL	250	D750V3-1012	ES3DV3 - SN3169	DAE4 Sn1326	2.34	8.76	9.36	6.85
2019/1/12	835	MSL	250	D835V2-499	ES3DV3 - SN3169	DAE4 Sn1326	2.37	9.82	9.48	-3.46
2019/1/18	835	MSL	250	D835V2-499	ES3DV3 - SN3169	DAE4 Sn1326	2.37	9.82	9.48	-3.46
2019/1/10	1750	MSL	250	D1750V2-1068	ES3DV3 - SN3169	DAE4 Sn1326	9.39	37.00	37.56	1.51
2019/1/16	1750	MSL	250	D1750V2-1068	EX3DV4 - SN7515	DAE4 Sn918	9.41	37.00	37.64	1.73
2019/1/10	1900	MSL	250	D1900V2-5d041	ES3DV3 - SN3169	DAE4 Sn1326	9.88	40.20	39.52	-1.69
2019/1/16	1900	MSL	250	D1900V2-5d041	EX3DV4 - SN7515	DAE4 Sn918	10.50	40.20	42	4.48
2019/1/15	2450	MSL	250	D2450V2-736	EX3DV4 - SN3976	DAE4 Sn1424	13.60	51.50	54.4	5.63
2019/1/11	2600	MSL	250	D2600V2-1008	ES3DV3 - SN3169	DAE4 Sn1326	14.30	55.30	57.2	3.44
2019/2/19	2600	MSL	250	D2600V2-1008	EX3DV4 - SN7375	DAE4 Sn914	14.00	55.30	56	1.27
2019/3/5	2600	MSL	250	D2600V2-1008	EX3DV4 - SN7515	DAE4 Sn918	13.30	55.30	53.2	-3.80
2019/1/15	5250	MSL	100	D5GHzV2-1006-5250	EX3DV4 - SN3976	DAE4 Sn1424	7.49	78.30	74.9	-4.34
2019/1/15	5250	MSL	100	D5GHzV2-1006-5250	EX3DV4 - SN7515	DAE4 Sn918	7.67	78.30	76.7	-2.04
2019/2/28	5250	MSL	100	D5GHzV2-1006-5250	EX3DV4 - SN3642	DAE4 Sn1326	7.87	78.30	78.7	0.51
2019/2/28	5600	MSL	100	D5GHzV2-1006-5600	EX3DV4 - SN3642	DAE4 Sn1326	8.38	81.00	83.8	3.46
2019/1/15	5750	MSL	100	D5GHzV2-1006-5750	EX3DV4 - SN7515	DAE4 Sn918	7.43	77.40	74.3	-4.01

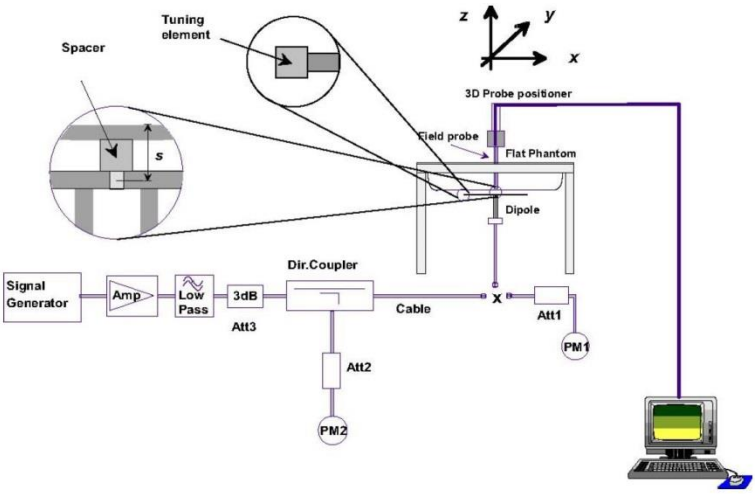


Fig 8.3.1 System Performance Check Setup

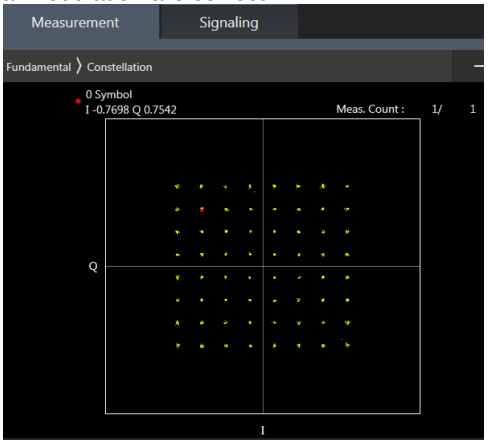
Fig 8.3.2 Setup Photo

10. Conducted RF Output Power (Unit: dBm)

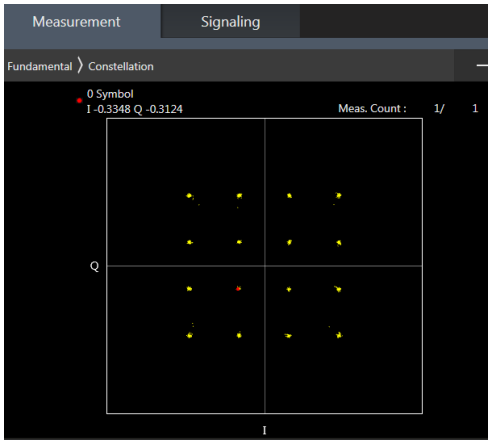
<LTE Conducted Power>

General Note:

1. Anritsu MT8820C base station simulator was used to setup the connection with EUT; the frequency band, channel bandwidth, RB allocation configuration, modulation type are set in the base station simulator to configure EUT transmitting at maximum power and at different configurations which are requested to be reported to FCC, for conducted power measurement and SAR testing.
2. Per KDB 941225 D05v02r05, when a properly configured base station simulator is used for the SAR and power measurements, spectrum plots for each RB allocation and offset configuration is not required.
3. Per KDB 941225 D05v02r05, 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.
4. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
5. Per KDB 941225 D05v02r05, 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 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.
6. Per KDB 941225 D05v02r05, 16QAM output power for each RB allocation configuration is > not ½ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, 16QAM SAR testing is not required.
7. Per KDB 941225 D05v02r05, Smaller bandwidth output power for each RB allocation configuration is > not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
8. For LTE B12 / B26 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
9. LTE band 2/4/5 SAR test was covered by Band 25/66/26; according to April 2015 TCB workshop, SAR test for overlapping LTE bands can be reduced if
   a. the maximum output power, including tolerance, for the smaller band is ≤ the larger band to qualify for the SAR test exclusion
   b. the channel bandwidth and other operating parameters for the smaller band are fully supported by the larger band
10. According to 2017 TCB workshop, for 64 QAM and 16 QAM should be verified by checking the signal constellation with a call box to avoid incorrect maximum power levels due to MPR and other requirements associated with signal modulation, and the following figure is taken from the "Fundamental Measurement >> Modulation Analysis >> constellation" mode of the device connect to the MT8821C base station, therefore, the device 64QAM and 16QAM signal modulation are correct.



64QAM



16QAM

<LTE Band 2>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				18700	18900	19100		
Frequency (MHz)				1860	1880	1900		
20	QPSK	1	0	24.15	24.10	24.16	25	0
20	QPSK	1	49	23.45	23.80	23.58		
20	QPSK	1	99	23.96	24.07	24.04		
20	QPSK	50	0	23.26	23.22	23.28	24	1
20	QPSK	50	24	23.13	23.17	23.22		
20	QPSK	50	50	23.08	23.14	23.20		
20	QPSK	100	0	23.13	23.16	23.23		
20	16QAM	1	0	23.37	23.38	23.33	24	1
20	16QAM	1	49	23.05	23.14	22.90		
20	16QAM	1	99	23.24	23.38	23.32		
20	16QAM	50	0	22.19	22.22	22.28	23	2
20	16QAM	50	24	22.13	22.17	22.24		
20	16QAM	50	50	22.08	22.13	22.19		
20	16QAM	100	0	22.11	22.16	22.21		
20	64QAM	1	0	22.34	22.33	22.27	23	2
20	64QAM	1	49	21.65	21.79	22.08		
20	64QAM	1	99	22.19	22.30	22.29		
20	64QAM	50	0	21.21	21.24	21.28	22	3
20	64QAM	50	24	21.13	21.19	21.25		
20	64QAM	50	50	21.10	21.13	21.20		
20	64QAM	100	0	21.14	21.18	21.24		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	24.13	24.12	24.11	25	0
15	QPSK	1	37	23.96	23.59	23.64		
15	QPSK	1	74	23.99	24.03	24.08		
15	QPSK	36	0	23.20	23.21	23.27	24	1
15	QPSK	36	20	23.16	23.20	23.24		
15	QPSK	36	39	23.09	23.16	23.19		
15	QPSK	75	0	23.14	23.20	23.24		
15	16QAM	1	0	23.49	23.39	23.47	24	1
15	16QAM	1	37	23.24	22.90	22.88		
15	16QAM	1	74	23.29	23.31	23.40		
15	16QAM	36	0	22.20	22.23	22.26	23	2
15	16QAM	36	20	22.16	22.21	22.26		
15	16QAM	36	39	22.11	22.14	22.21		
15	16QAM	75	0	22.16	22.21	22.25		
15	64QAM	1	0	22.43	22.36	22.45	23	2
15	64QAM	1	37	22.24	21.47	21.80		
15	64QAM	1	74	22.22	22.27	22.35		
15	64QAM	36	0	21.25	21.24	21.31	22	3
15	64QAM	36	20	21.20	21.23	21.28		
15	64QAM	36	39	21.13	21.19	21.24		
15	64QAM	75	0	21.17	21.19	21.26		

Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	23.93	23.95	23.96	25	0
10	QPSK	1	25	23.92	23.93	23.57		
10	QPSK	1	49	23.89	23.93	23.90		
10	QPSK	25	0	23.02	23.03	23.08	24	1
10	QPSK	25	12	23.01	23.03	23.08		
10	QPSK	25	25	22.95	23.00	23.05		
10	QPSK	50	0	23.01	23.02	23.08		
10	16QAM	1	0	23.24	23.22	23.32	24	1
10	16QAM	1	25	23.20	23.24	22.90		
10	16QAM	1	49	23.19	23.21	23.19		
10	16QAM	25	0	22.02	22.03	22.11	23	2
10	16QAM	25	12	22.02	22.03	22.11		
10	16QAM	25	25	21.95	21.99	22.07		
10	16QAM	50	0	22.01	22.03	22.09		
10	64QAM	1	0	22.27	22.28	22.22	23	2
10	64QAM	1	25	22.19	22.20	21.84		
10	64QAM	1	49	22.14	22.17	22.19		
10	64QAM	25	0	21.04	21.07	21.13	22	3
10	64QAM	25	12	21.03	21.04	21.12		
10	64QAM	25	25	20.97	21.00	21.08		
10	64QAM	50	0	21.01	21.04	21.12		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	23.95	23.86	23.95	25	0
5	QPSK	1	12	23.96	23.95	24.02		
5	QPSK	1	24	23.93	23.92	23.97		
5	QPSK	12	0	23.09	23.03	23.08	24	1
5	QPSK	12	7	23.10	23.12	23.12		
5	QPSK	12	13	23.05	23.07	23.12		
5	QPSK	25	0	23.06	23.07	23.07		
5	16QAM	1	0	23.23	23.20	23.21	24	1
5	16QAM	1	12	23.27	23.28	23.35		
5	16QAM	1	24	23.20	23.22	23.28		
5	16QAM	12	0	22.10	22.04	22.12	23	2
5	16QAM	12	7	22.12	22.13	22.13		
5	16QAM	12	13	22.06	22.09	22.15		
5	16QAM	25	0	22.07	22.07	22.08		
5	64QAM	1	0	22.23	22.13	22.24	23	2
5	64QAM	1	12	22.23	22.22	22.27		
5	64QAM	1	24	22.16	22.16	22.23		
5	64QAM	12	0	21.14	21.07	21.15	22	3
5	64QAM	12	7	21.16	21.18	21.20		
5	64QAM	12	13	21.10	21.12	21.20		
5	64QAM	25	0	21.07	21.08	21.11		

Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	23.92	23.89	24.02	25	0
3	QPSK	1	8	24.00	23.99	24.07		
3	QPSK	1	14	23.90	23.93	24.01		
3	QPSK	8	0	23.04	22.96	23.08	24	1
3	QPSK	8	4	23.03	23.04	23.11		
3	QPSK	8	7	23.02	23.03	23.09		
3	QPSK	15	0	23.05	23.09	23.10		
3	16QAM	1	0	23.24	23.16	23.33	24	1
3	16QAM	1	8	23.29	23.32	23.39		
3	16QAM	1	14	23.19	23.23	23.27		
3	16QAM	8	0	22.13	22.05	22.15	23	2
3	16QAM	8	4	22.11	22.13	22.18		
3	16QAM	8	7	22.08	22.10	22.16		
3	16QAM	15	0	22.08	22.09	22.15		
3	64QAM	1	0	22.24	22.16	22.26	23	2
3	64QAM	1	8	22.25	22.26	22.32		
3	64QAM	1	14	22.15	22.21	22.29		
3	64QAM	8	0	21.11	21.06	21.19	22	3
3	64QAM	8	4	21.11	21.12	21.17		
3	64QAM	8	7	21.09	21.10	21.15		
3	64QAM	15	0	21.09	21.08	21.16		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	23.84	23.82	23.91	25	0
1.4	QPSK	1	3	23.90	23.92	23.95		
1.4	QPSK	1	5	23.84	23.85	23.89		
1.4	QPSK	3	0	23.87	23.86	23.90		
1.4	QPSK	3	1	23.91	23.90	23.94		
1.4	QPSK	3	3	23.83	23.85	23.91		
1.4	QPSK	6	0	22.96	22.95	23.02	24	1
1.4	16QAM	1	0	23.15	23.16	23.19	24	1
1.4	16QAM	1	3	23.21	23.23	23.27		
1.4	16QAM	1	5	23.13	23.11	23.17		
1.4	16QAM	3	0	22.92	22.96	23.00		
1.4	16QAM	3	1	22.96	22.99	23.00		
1.4	16QAM	3	3	22.93	22.93	22.93		
1.4	16QAM	6	0	22.02	22.02	22.08	23	2
1.4	64QAM	1	0	22.11	22.10	22.16	23	2
1.4	64QAM	1	3	22.18	22.20	22.21		
1.4	64QAM	1	5	22.10	22.13	22.16		
1.4	64QAM	3	0	22.11	22.09	22.13		
1.4	64QAM	3	1	22.16	22.16	22.19		
1.4	64QAM	3	3	22.07	22.11	22.16		
1.4	64QAM	6	0	20.96	20.96	21.03	22	3

<LTE Band 4>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20050	20175	20300		
Frequency (MHz)				1720	1732.5	1745		
20	QPSK	1	0	24.29	24.27	24.28	25	0
20	QPSK	1	49	24.06	24.05	24.07		
20	QPSK	1	99	24.01	24.03	24.07		
20	QPSK	50	0	23.30	23.31	23.30	24	1
20	QPSK	50	24	23.24	23.26	23.23		
20	QPSK	50	50	23.18	23.19	23.21		
20	QPSK	100	0	23.22	23.24	23.23		
20	16QAM	1	0	23.50	23.42	23.50	24	1
20	16QAM	1	49	23.35	23.35	23.41		
20	16QAM	1	99	23.33	23.34	23.39		
20	16QAM	50	0	22.30	22.29	22.31	23	2
20	16QAM	50	24	22.23	22.21	22.25		
20	16QAM	50	50	22.19	22.17	22.21		
20	16QAM	100	0	22.21	22.20	22.23		
20	64QAM	1	0	22.42	22.49	22.46	23	2
20	64QAM	1	49	22.31	22.30	22.36		
20	64QAM	1	99	22.30	22.33	22.34		
20	64QAM	50	0	21.32	21.30	21.32	22	3
20	64QAM	50	24	21.25	21.23	21.25		
20	64QAM	50	50	21.20	21.18	21.23		
20	64QAM	100	0	21.24	21.25	21.25		
Channel				20025	20175	20325	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	24.24	24.28	24.27	25	0
15	QPSK	1	37	24.04	24.06	24.13		
15	QPSK	1	74	24.06	24.11	24.17		
15	QPSK	36	0	23.28	23.29	23.33	24	1
15	QPSK	36	20	23.25	23.27	23.30		
15	QPSK	36	39	23.17	23.20	23.25		
15	QPSK	75	0	23.23	23.25	23.29		
15	16QAM	1	0	23.47	23.46	23.50	24	1
15	16QAM	1	37	23.35	23.36	23.41		
15	16QAM	1	74	23.38	23.41	23.46		
15	16QAM	36	0	22.27	22.28	22.32	23	2
15	16QAM	36	20	22.24	22.25	22.30		
15	16QAM	36	39	22.17	22.19	22.24		
15	16QAM	75	0	22.22	22.23	22.28		
15	64QAM	1	0	22.45	22.45	22.50	23	2
15	64QAM	1	37	22.32	22.37	22.39		
15	64QAM	1	74	22.36	22.37	22.46		
15	64QAM	36	0	21.31	21.31	21.36	22	3
15	64QAM	36	20	21.26	21.29	21.33		
15	64QAM	36	39	21.20	21.22	21.27		
15	64QAM	75	0	21.23	21.25	21.29		

Channel				20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	24.03	24.08	24.10	25	0
10	QPSK	1	25	23.98	24.02	24.03		
10	QPSK	1	49	23.90	23.92	23.97		
10	QPSK	25	0	23.11	23.12	23.17	24	1
10	QPSK	25	12	23.08	23.11	23.14		
10	QPSK	25	25	23.04	23.05	23.12		
10	QPSK	50	0	23.08	23.10	23.15		
10	16QAM	1	0	23.40	23.37	23.46	24	1
10	16QAM	1	25	23.31	23.31	23.37		
10	16QAM	1	49	23.27	23.24	23.30		
10	16QAM	25	0	22.10	22.11	22.17	23	2
10	16QAM	25	12	22.08	22.10	22.16		
10	16QAM	25	25	22.03	22.09	22.11		
10	16QAM	50	0	22.07	22.07	22.16		
10	64QAM	1	0	22.28	22.28	22.42	23	2
10	64QAM	1	25	22.27	22.26	22.34		
10	64QAM	1	49	22.18	22.24	22.29		
10	64QAM	25	0	21.11	21.12	21.18	22	3
10	64QAM	25	12	21.10	21.10	21.16		
10	64QAM	25	25	21.06	21.04	21.13		
10	64QAM	50	0	21.10	21.11	21.15		
Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	23.92	23.94	23.97	25	0
5	QPSK	1	12	24.02	24.05	24.03		
5	QPSK	1	24	23.95	23.97	24.00		
5	QPSK	12	0	23.12	23.12	23.12	24	1
5	QPSK	12	7	23.16	23.17	23.19		
5	QPSK	12	13	23.11	23.14	23.15		
5	QPSK	25	0	23.12	23.13	23.15		
5	16QAM	1	0	23.24	23.22	23.28	24	1
5	16QAM	1	12	23.35	23.34	23.39		
5	16QAM	1	24	23.28	23.25	23.29		
5	16QAM	12	0	22.16	22.09	22.12	23	2
5	16QAM	12	7	22.18	22.18	22.21		
5	16QAM	12	13	22.11	22.11	22.17		
5	16QAM	25	0	22.12	22.12	22.15		
5	64QAM	1	0	22.21	22.21	22.30	23	2
5	64QAM	1	12	22.29	22.28	22.34		
5	64QAM	1	24	22.26	22.27	22.29		
5	64QAM	12	0	21.18	21.14	21.17	22	3
5	64QAM	12	7	21.22	21.23	21.24		
5	64QAM	12	13	21.18	21.14	21.19		
5	64QAM	25	0	21.14	21.18	21.17		

Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	23.98	23.98	24.01	25	0
3	QPSK	1	8	24.07	24.06	24.11		
3	QPSK	1	14	24.01	24.02	24.03		
3	QPSK	8	0	23.10	23.04	23.09	24	1
3	QPSK	8	4	23.11	23.10	23.16		
3	QPSK	8	7	23.07	23.08	23.12		
3	QPSK	15	0	23.13	23.16	23.18		
3	16QAM	1	0	23.31	23.25	23.34	24	1
3	16QAM	1	8	23.37	23.39	23.44		
3	16QAM	1	14	23.30	23.32	23.36		
3	16QAM	8	0	22.15	22.11	22.19	23	2
3	16QAM	8	4	22.17	22.17	22.22		
3	16QAM	8	7	22.14	22.14	22.18		
3	16QAM	15	0	22.13	22.13	22.19		
3	64QAM	1	0	22.18	22.26	22.28	23	2
3	64QAM	1	8	22.33	22.35	22.40		
3	64QAM	1	14	22.29	22.28	22.32		
3	64QAM	8	0	21.15	21.09	21.17	22	3
3	64QAM	8	4	21.16	21.18	21.23		
3	64QAM	8	7	21.14	21.13	21.18		
3	64QAM	15	0	21.14	21.13	21.18		
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	23.81	23.93	23.85	25	0
1.4	QPSK	1	3	23.96	23.99	24.05		
1.4	QPSK	1	5	23.89	23.88	23.95		
1.4	QPSK	3	0	23.92	23.96	23.86		
1.4	QPSK	3	1	23.95	23.98	23.92		
1.4	QPSK	3	3	23.90	23.90	23.93		
1.4	QPSK	6	0	22.98	23.01	23.00	24	1
1.4	16QAM	1	0	23.15	23.19	23.21	24	1
1.4	16QAM	1	3	23.29	23.26	23.37		
1.4	16QAM	1	5	23.22	23.20	23.28		
1.4	16QAM	3	0	22.99	23.02	22.98		
1.4	16QAM	3	1	23.05	23.02	23.03		
1.4	16QAM	3	3	22.97	22.96	23.00		
1.4	16QAM	6	0	22.05	22.04	22.07	23	2
1.4	64QAM	1	0	22.12	22.19	22.22	23	2
1.4	64QAM	1	3	22.25	22.23	22.34		
1.4	64QAM	1	5	22.18	22.17	22.24		
1.4	64QAM	3	0	22.13	22.16	22.14		
1.4	64QAM	3	1	22.20	22.22	22.21		
1.4	64QAM	3	3	22.15	22.12	22.20		
1.4	64QAM	6	0	21.00	21.02	20.99	22	3

<LTE Band 5>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20450	20525	20600		
Frequency (MHz)				829	836.5	844		
10	QPSK	1	0	24.17	24.11	24.21	25	0
10	QPSK	1	25	23.64	23.90	23.33		
10	QPSK	1	49	24.07	23.99	24.03		
10	QPSK	25	0	23.24	23.29	23.22	24	1
10	QPSK	25	12	23.19	23.21	23.18		
10	QPSK	25	25	23.09	23.14	23.07		
10	QPSK	50	0	23.20	23.21	23.23		
10	16QAM	1	0	23.36	23.36	23.28	24	1
10	16QAM	1	25	23.02	22.64	23.04		
10	16QAM	1	49	23.23	23.21	23.23		
10	16QAM	25	0	22.22	22.23	22.27	23	2
10	16QAM	25	12	22.23	22.17	22.20		
10	16QAM	25	25	22.10	22.13	22.05		
10	16QAM	50	0	22.21	22.17	22.17		
10	64QAM	1	0	22.23	22.40	22.27	23	2
10	64QAM	1	25	22.08	21.88	21.89		
10	64QAM	1	49	22.35	22.22	21.25		
10	64QAM	25	0	21.27	21.21	21.22	22	3
10	64QAM	25	12	21.23	21.19	21.20		
10	64QAM	25	25	21.12	21.06	21.09		
10	64QAM	50	0	21.21	21.18	21.19		
Channel				20425	20525	20625	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	QPSK	1	0	24.00	24.06	24.06	25	0
5	QPSK	1	12	24.07	24.15	24.10		
5	QPSK	1	24	24.11	24.07	24.03		
5	QPSK	12	0	23.22	23.20	23.19	24	1
5	QPSK	12	7	23.32	23.27	23.25		
5	QPSK	12	13	23.22	23.22	23.18		
5	QPSK	25	0	23.21	23.19	23.13		
5	16QAM	1	0	23.30	23.26	23.31	24	1
5	16QAM	1	12	23.34	23.40	23.36		
5	16QAM	1	24	23.29	23.34	23.22		
5	16QAM	12	0	22.16	22.18	22.16	23	2
5	16QAM	12	7	22.30	22.26	22.27		
5	16QAM	12	13	22.27	22.20	22.19		
5	16QAM	25	0	22.24	22.23	22.19		
5	64QAM	1	0	22.26	22.34	22.24	23	2
5	64QAM	1	12	22.32	22.33	22.40		
5	64QAM	1	24	22.27	22.26	22.24		
5	64QAM	12	0	21.23	21.21	21.20	22	3
5	64QAM	12	7	21.34	21.29	21.33		
5	64QAM	12	13	21.31	21.32	21.35		
5	64QAM	25	0	21.27	21.30	21.31		

Channel				20415	20525	20635	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				825.5	836.5	847.5		
3	QPSK	1	0	24.07	24.09	24.06	25	0
3	QPSK	1	8	24.20	24.19	24.13		
3	QPSK	1	14	24.14	24.16	24.10		
3	QPSK	8	0	23.15	23.17	23.17	24	1
3	QPSK	8	4	23.29	23.18	23.20		
3	QPSK	8	7	23.24	23.18	23.16		
3	QPSK	15	0	23.24	23.23	23.21		
3	16QAM	1	0	23.33	23.36	23.34	24	1
3	16QAM	1	8	23.35	23.49	23.43		
3	16QAM	1	14	23.38	23.42	23.26		
3	16QAM	8	0	22.24	22.24	22.25	23	2
3	16QAM	8	4	22.26	22.23	22.30		
3	16QAM	8	7	22.30	22.28	22.21		
3	16QAM	15	0	22.29	22.22	22.21		
3	64QAM	1	0	22.27	22.29	22.26	23	2
3	64QAM	1	8	22.36	22.45	22.39		
3	64QAM	1	14	22.30	22.33	22.36		
3	64QAM	8	0	21.19	21.23	21.22	22	3
3	64QAM	8	4	21.23	21.25	21.27		
3	64QAM	8	7	21.26	21.24	21.22		
3	64QAM	15	0	21.27	21.26	21.25		
Channel				20407	20525	20643	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				824.7	836.5	848.3		
1.4	QPSK	1	0	23.95	23.98	24.00	25	0
1.4	QPSK	1	3	24.13	24.10	24.07		
1.4	QPSK	1	5	23.95	24.04	24.02		
1.4	QPSK	3	0	24.00	24.02	24.07		
1.4	QPSK	3	1	24.07	24.02	24.08		
1.4	QPSK	3	3	24.02	24.06	24.04		
1.4	QPSK	6	0	23.12	23.18	23.13	24	1
1.4	16QAM	1	0	23.25	23.24	23.25	24	1
1.4	16QAM	1	3	23.40	23.26	23.34		
1.4	16QAM	1	5	23.24	23.27	23.20		
1.4	16QAM	3	0	23.03	23.08	23.09		
1.4	16QAM	3	1	23.07	23.10	23.12		
1.4	16QAM	3	3	23.07	23.10	23.06		
1.4	16QAM	6	0	22.17	22.16	22.24	23	2
1.4	64QAM	1	0	22.21	22.25	22.25	23	2
1.4	64QAM	1	3	22.35	22.38	22.38		
1.4	64QAM	1	5	22.21	22.28	22.17		
1.4	64QAM	3	0	22.13	22.15	22.16		
1.4	64QAM	3	1	22.19	22.21	22.22		
1.4	64QAM	3	3	22.15	22.20	22.18		
1.4	64QAM	6	0	21.18	21.22	21.15	22	3

<LTE Band 7>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20850	21100	21350		
Frequency (MHz)				2510	2535	2560		
20	QPSK	1	0	24.09	24.13	24.11	25	0
20	QPSK	1	49	23.77	23.87	23.45		
20	QPSK	1	99	23.98	24.03	23.96		
20	QPSK	50	0	23.16	23.22	23.17	24	1
20	QPSK	50	24	23.15	23.19	23.07		
20	QPSK	50	50	23.15	23.21	23.16		
20	QPSK	100	0	23.16	23.21	23.03		
20	16QAM	1	0	23.36	23.43	23.38	24	1
20	16QAM	1	49	22.91	22.89	22.83		
20	16QAM	1	99	23.46	23.44	23.46		
20	16QAM	50	0	22.17	22.25	22.18	23	2
20	16QAM	50	24	22.17	22.22	22.16		
20	16QAM	50	50	22.19	22.23	22.16		
20	16QAM	100	0	22.16	22.21	22.15		
20	64QAM	1	0	22.29	22.33	22.26	23	2
20	64QAM	1	49	22.11	22.16	21.96		
20	64QAM	1	99	22.39	22.35	22.37		
20	64QAM	50	0	21.19	21.23	21.20	22	3
20	64QAM	50	24	21.20	21.22	21.18		
20	64QAM	50	50	21.18	21.23	21.19		
20	64QAM	100	0	21.20	21.23	21.17		
Channel				20825	21100	21375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2507.5	2535	2562.5		
15	QPSK	1	0	24.00	24.03	23.88	25	0
15	QPSK	1	37	23.54	23.57	23.09		
15	QPSK	1	74	24.06	24.08	24.03		
15	QPSK	36	0	23.13	23.18	23.02	24	1
15	QPSK	36	20	23.15	23.21	23.13		
15	QPSK	36	39	23.14	23.18	23.14		
15	QPSK	75	0	23.15	23.20	23.05		
15	16QAM	1	0	23.40	23.41	23.21	24	1
15	16QAM	1	37	22.57	22.92	22.45		
15	16QAM	1	74	23.46	23.45	23.46		
15	16QAM	36	0	22.13	22.21	22.07	23	2
15	16QAM	36	20	22.17	22.22	22.14		
15	16QAM	36	39	22.16	22.21	22.14		
15	16QAM	75	0	22.14	22.20	22.13		
15	64QAM	1	0	22.33	22.34	22.11	23	2
15	64QAM	1	37	21.78	21.85	21.36		
15	64QAM	1	74	22.35	22.39	22.39		
15	64QAM	36	0	21.19	21.22	21.15	22	3
15	64QAM	36	20	21.19	21.24	21.17		
15	64QAM	36	39	21.18	21.23	21.17		
15	64QAM	75	0	21.17	21.20	21.15		

Channel				20800	21100	21400	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2505	2535	2565		
10	QPSK	1	0	23.82	23.87	23.56	25	0
10	QPSK	1	25	23.43	23.55	23.45		
10	QPSK	1	49	23.84	23.95	23.86		
10	QPSK	25	0	22.92	23.02	22.93	24	1
10	QPSK	25	12	22.96	23.01	22.95		
10	QPSK	25	25	22.92	23.01	22.93		
10	QPSK	50	0	22.94	23.01	22.94		
10	16QAM	1	0	23.23	23.23	22.84	24	1
10	16QAM	1	25	22.83	22.90	22.80		
10	16QAM	1	49	23.24	23.26	23.24		
10	16QAM	25	0	21.94	22.02	21.94	23	2
10	16QAM	25	12	21.96	22.02	21.99		
10	16QAM	25	25	21.94	22.02	21.95		
10	16QAM	50	0	21.96	22.02	21.95		
10	64QAM	1	0	22.16	22.22	21.72	23	2
10	64QAM	1	25	21.67	21.85	21.74		
10	64QAM	1	49	22.16	22.23	22.11		
10	64QAM	25	0	20.94	21.04	20.97	22	3
10	64QAM	25	12	20.98	21.03	20.97		
10	64QAM	25	25	20.97	21.02	20.96		
10	64QAM	50	0	20.97	21.03	20.96		
Channel				20775	21100	21425	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	QPSK	1	0	23.79	23.85	23.74	25	0
5	QPSK	1	12	23.40	23.95	23.90		
5	QPSK	1	24	23.81	23.93	23.90		
5	QPSK	12	0	22.89	22.99	22.97	24	1
5	QPSK	12	7	22.93	23.05	23.02		
5	QPSK	12	13	22.89	23.06	22.98		
5	QPSK	25	0	22.91	23.01	22.99		
5	16QAM	1	0	23.20	23.23	23.00	24	1
5	16QAM	1	12	22.80	23.34	23.26		
5	16QAM	1	24	23.21	23.27	23.28		
5	16QAM	12	0	21.91	22.06	22.03	23	2
5	16QAM	12	7	21.93	22.07	22.05		
5	16QAM	12	13	21.91	22.07	21.99		
5	16QAM	25	0	21.93	22.04	22.01		
5	64QAM	1	0	22.13	22.14	21.86	23	2
5	64QAM	1	12	21.64	22.26	22.18		
5	64QAM	1	24	22.13	22.21	22.20		
5	64QAM	12	0	20.91	21.10	21.05	22	3
5	64QAM	12	7	20.95	21.11	21.09		
5	64QAM	12	13	20.94	21.15	21.04		
5	64QAM	25	0	20.94	21.04	21.01		

<LTE Band 12>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				23060	23095	23130		
Frequency (MHz)				704	707.5	711		
10	QPSK	1	0	24.03	23.99	23.97	25	0
10	QPSK	1	25	23.62	23.61	23.59		
10	QPSK	1	49	23.92	23.89	23.92		
10	QPSK	25	0	23.10	23.11	23.11	24	1
10	QPSK	25	12	23.11	23.10	23.07		
10	QPSK	25	25	23.06	23.08	23.06		
10	QPSK	50	0	23.11	23.12	23.11		
10	16QAM	1	0	23.16	23.16	23.23	24	1
10	16QAM	1	25	22.86	22.88	22.91		
10	16QAM	1	49	23.35	23.22	23.22		
10	16QAM	25	0	22.11	22.10	22.10	23	2
10	16QAM	25	12	22.10	22.11	22.12		
10	16QAM	25	25	22.07	22.07	22.04		
10	16QAM	50	0	22.09	22.10	22.10		
10	64QAM	1	0	22.15	22.18	22.19	23	2
10	64QAM	1	25	21.84	21.86	21.88		
10	64QAM	1	49	22.31	22.21	22.18		
10	64QAM	25	0	21.11	21.11	21.12	22	3
10	64QAM	25	12	21.11	21.12	21.12		
10	64QAM	25	25	21.09	21.10	21.08		
10	64QAM	50	0	21.11	21.11	21.11		
Channel				23035	23095	23155	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				701.5	707.5	713.5		
5	QPSK	1	0	23.89	23.89	23.87	25	0
5	QPSK	1	12	24.00	24.00	24.01		
5	QPSK	1	24	23.97	23.94	23.95		
5	QPSK	12	0	23.06	23.05	23.05	24	1
5	QPSK	12	7	23.15	23.15	23.14		
5	QPSK	12	13	23.12	23.13	23.12		
5	QPSK	25	0	23.11	23.12	23.10		
5	16QAM	1	0	23.12	23.16	23.13	24	1
5	16QAM	1	12	23.22	23.27	23.24		
5	16QAM	1	24	23.23	23.21	23.23		
5	16QAM	12	0	22.05	22.06	22.05	23	2
5	16QAM	12	7	22.17	22.19	22.14		
5	16QAM	12	13	22.12	22.14	22.12		
5	16QAM	25	0	22.12	22.13	22.10		
5	64QAM	1	0	22.10	22.13	22.14	23	2
5	64QAM	1	12	22.18	22.26	22.20		
5	64QAM	1	24	22.21	22.18	22.15		
5	64QAM	12	0	21.09	21.12	21.10	22	3
5	64QAM	12	7	21.20	21.21	21.20		
5	64QAM	12	13	21.19	21.18	21.19		
5	64QAM	25	0	21.15	21.13	21.13		

Channel				23025	23095	23165	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				700.5	707.5	714.5		
3	QPSK	1	0	23.91	23.94	23.94	25	0
3	QPSK	1	8	24.00	24.02	24.01		
3	QPSK	1	14	24.01	24.01	24.00		
3	QPSK	8	0	23.02	23.04	23.00	24	1
3	QPSK	8	4	23.11	23.10	23.09		
3	QPSK	8	7	23.08	23.07	23.04		
3	QPSK	15	0	23.13	23.11	23.10		
3	16QAM	1	0	23.15	23.20	23.22	24	1
3	16QAM	1	8	23.31	23.31	23.31		
3	16QAM	1	14	23.27	23.27	23.20		
3	16QAM	8	0	22.10	22.09	22.07	23	2
3	16QAM	8	4	22.16	22.18	22.15		
3	16QAM	8	7	22.13	22.14	22.11		
3	16QAM	15	0	22.12	22.13	22.12		
3	64QAM	1	0	22.16	22.13	22.15	23	2
3	64QAM	1	8	22.23	22.29	22.24		
3	64QAM	1	14	22.24	22.24	22.21		
3	64QAM	8	0	21.10	21.11	21.07	22	3
3	64QAM	8	4	21.17	21.17	21.15		
3	64QAM	8	7	21.16	21.13	21.10		
3	64QAM	15	0	21.13	21.15	21.10		
Channel				23017	23095	23173	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				699.7	707.5	715.3		
1.4	QPSK	1	0	23.83	23.84	23.84	25	0
1.4	QPSK	1	3	23.94	23.98	23.95		
1.4	QPSK	1	5	23.89	23.87	23.84		
1.4	QPSK	3	0	23.89	23.84	23.81		
1.4	QPSK	3	1	23.94	23.94	23.87		
1.4	QPSK	3	3	23.88	23.88	23.88		
1.4	QPSK	6	0	23.00	23.01	22.95	24	1
1.4	16QAM	1	0	23.07	23.09	23.03	24	1
1.4	16QAM	1	3	23.22	23.24	23.19		
1.4	16QAM	1	5	23.14	23.12	23.12		
1.4	16QAM	3	0	22.97	22.89	22.89		
1.4	16QAM	3	1	23.01	23.01	22.90		
1.4	16QAM	3	3	22.94	22.96	22.93		
1.4	16QAM	6	0	22.04	22.07	22.00	23	2
1.4	64QAM	1	0	22.06	22.06	22.03	23	2
1.4	64QAM	1	3	22.17	22.21	22.16		
1.4	64QAM	1	5	22.11	22.09	22.07		
1.4	64QAM	3	0	22.08	22.04	22.00		
1.4	64QAM	3	1	22.13	22.17	22.09		
1.4	64QAM	3	3	22.11	22.13	22.07		
1.4	64QAM	6	0	20.98	21.02	20.93	22	3

<LTE Band 13>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel					23230			
Frequency (MHz)					782			
10	QPSK	1	0		23.49		25	0
10	QPSK	1	25		23.60			
10	QPSK	1	49		23.92			
10	QPSK	25	0		22.60		24	1
10	QPSK	25	12		23.09			
10	QPSK	25	25		23.04			
10	QPSK	50	0		23.09			
10	16QAM	1	0		22.75		24	1
10	16QAM	1	25		22.85			
10	16QAM	1	49		23.18			
10	16QAM	25	0		21.75		23	2
10	16QAM	25	12		22.11			
10	16QAM	25	25		22.04			
10	16QAM	50	0		22.10			
10	64QAM	1	0		21.73		23	2
10	64QAM	1	25		21.83			
10	64QAM	1	49		22.18			
10	64QAM	25	0		20.77		22	3
10	64QAM	25	12		21.13			
10	64QAM	25	25		21.05			
10	64QAM	50	0		21.13			
Channel				23205	23230	23255	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				779.5	782	784.5		
5	QPSK	1	0	23.50	23.21	23.81	25	0
5	QPSK	1	12	23.06	23.87	23.88		
5	QPSK	1	24	23.90	23.89	23.91		
5	QPSK	12	0	22.16	23.06	23.07	24	1
5	QPSK	12	7	22.27	23.09	23.10		
5	QPSK	12	13	23.05	23.12	23.10		
5	QPSK	25	0	22.44	23.07	23.07		
5	16QAM	1	0	22.74	22.46	23.25	24	1
5	16QAM	1	12	22.33	23.26	23.27		
5	16QAM	1	24	23.25	23.26	23.26		
5	16QAM	12	0	21.29	22.08	22.08	23	2
5	16QAM	12	7	21.37	22.10	22.12		
5	16QAM	12	13	22.11	22.14	22.11		
5	16QAM	25	0	21.63	22.08	22.07		
5	64QAM	1	0	21.71	21.43	22.22	23	2
5	64QAM	1	12	21.30	22.23	22.22		
5	64QAM	1	24	22.22	22.21	22.21		
5	64QAM	12	0	20.36	21.12	21.12	22	3
5	64QAM	12	7	20.45	21.17	21.15		
5	64QAM	12	13	21.15	21.16	21.17		
5	64QAM	25	0	20.66	21.10	21.08		

<LTE Band 25>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				26140	26340	26590		
Frequency (MHz)				1860	1880	1905		
20	QPSK	1	0	24.10	24.13	24.19	25	0
20	QPSK	1	49	23.78	23.62	23.82		
20	QPSK	1	99	24.00	24.00	24.02		
20	QPSK	50	0	23.24	23.26	23.29	24	1
20	QPSK	50	24	23.17	23.24	23.23		
20	QPSK	50	50	23.13	23.19	23.22		
20	QPSK	100	0	23.18	23.23	23.25		
20	16QAM	1	0	23.42	23.39	23.41	24	1
20	16QAM	1	49	22.81	23.18	23.16		
20	16QAM	1	99	23.30	23.33	23.28		
20	16QAM	50	0	22.25	22.27	22.31	23	2
20	16QAM	50	24	22.19	22.22	22.25		
20	16QAM	50	50	22.14	22.19	22.20		
20	16QAM	100	0	22.17	22.21	22.25		
20	64QAM	1	0	22.35	22.37	22.42	23	2
20	64QAM	1	49	22.01	22.10	22.15		
20	64QAM	1	99	22.24	22.24	22.32		
20	64QAM	50	0	21.25	21.29	21.33	22	3
20	64QAM	50	24	21.17	21.24	21.27		
20	64QAM	50	50	21.14	21.21	21.24		
20	64QAM	100	0	21.20	21.22	21.26		
Channel				26115	26340	26615	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1907.5		
15	QPSK	1	0	24.16	24.15	24.15	25	0
15	QPSK	1	37	24.04	23.59	23.19		
15	QPSK	1	74	24.04	24.03	24.11		
15	QPSK	36	0	23.25	23.26	23.29	24	1
15	QPSK	36	20	23.22	23.26	23.26		
15	QPSK	36	39	23.16	23.20	23.20		
15	QPSK	75	0	23.21	23.23	23.26		
15	16QAM	1	0	23.50	23.44	23.45	24	1
15	16QAM	1	37	23.33	22.46	22.88		
15	16QAM	1	74	23.33	23.37	23.36		
15	16QAM	36	0	22.25	22.27	22.29	23	2
15	16QAM	36	20	22.23	22.25	22.27		
15	16QAM	36	39	22.16	22.19	22.22		
15	16QAM	75	0	22.20	22.25	22.26		
15	64QAM	1	0	22.50	22.41	22.46	23	2
15	64QAM	1	37	22.23	21.47	21.89		
15	64QAM	1	74	22.28	22.34	22.34		
15	64QAM	36	0	21.29	21.30	21.32	22	3
15	64QAM	36	20	21.25	21.28	21.31		
15	64QAM	36	39	21.19	21.24	21.27		
15	64QAM	75	0	21.21	21.25	21.29		

Channel				26090	26340	26640	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1910		
10	QPSK	1	0	23.94	24.00	23.96	25	0
10	QPSK	1	25	23.92	23.95	23.59		
10	QPSK	1	49	23.84	23.87	23.90		
10	QPSK	25	0	23.04	23.04	23.09	24	1
10	QPSK	25	12	23.03	23.05	23.07		
10	QPSK	25	25	23.01	23.00	23.04		
10	QPSK	50	0	23.03	23.05	23.09		
10	16QAM	1	0	23.26	23.32	23.23	24	1
10	16QAM	1	25	23.22	23.24	22.84		
10	16QAM	1	49	23.18	23.22	23.22		
10	16QAM	25	0	22.06	22.08	22.08	23	2
10	16QAM	25	12	22.04	22.07	22.08		
10	16QAM	25	25	21.98	22.01	22.05		
10	16QAM	50	0	22.02	22.05	22.08		
10	64QAM	1	0	22.27	22.25	22.27	23	2
10	64QAM	1	25	22.19	22.20	21.81		
10	64QAM	1	49	22.13	22.19	22.18		
10	64QAM	25	0	21.06	21.07	21.11	22	3
10	64QAM	25	12	21.06	21.07	21.11		
10	64QAM	25	25	21.00	21.03	21.08		
10	64QAM	50	0	21.05	21.08	21.10		
Channel				26065	26340	26665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1912.5		
5	QPSK	1	0	23.91	23.86	23.97	25	0
5	QPSK	1	12	23.94	23.96	23.98		
5	QPSK	1	24	23.87	23.90	23.99		
5	QPSK	12	0	23.06	23.01	23.04	24	1
5	QPSK	12	7	23.09	23.11	23.07		
5	QPSK	12	13	23.03	23.06	23.07		
5	QPSK	25	0	23.05	23.06	23.03		
5	16QAM	1	0	23.21	23.15	23.18	24	1
5	16QAM	1	12	23.25	23.26	23.26		
5	16QAM	1	24	23.17	23.18	23.27		
5	16QAM	12	0	22.08	22.04	22.08	23	2
5	16QAM	12	7	22.12	22.10	22.09		
5	16QAM	12	13	22.07	22.08	22.08		
5	16QAM	25	0	22.07	22.06	22.04		
5	64QAM	1	0	22.23	22.15	22.21	23	2
5	64QAM	1	12	22.21	22.24	22.24		
5	64QAM	1	24	22.15	22.19	22.21		
5	64QAM	12	0	21.15	21.08	21.09	22	3
5	64QAM	12	7	21.19	21.17	21.13		
5	64QAM	12	13	21.11	21.14	21.14		
5	64QAM	25	0	21.08	21.08	21.08		

Channel				26055	26340	26675	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1913.5		
3	QPSK	1	0	23.86	23.87	23.95	25	0
3	QPSK	1	8	23.89	24.02	24.03		
3	QPSK	1	14	23.82	23.94	23.97		
3	QPSK	8	0	23.01	22.99	23.00	24	1
3	QPSK	8	4	23.04	23.08	23.03		
3	QPSK	8	7	22.98	23.03	23.04		
3	QPSK	15	0	23.00	23.07	23.02		
3	16QAM	1	0	23.16	23.20	23.17	24	1
3	16QAM	1	8	23.20	23.30	23.28		
3	16QAM	1	14	23.12	23.24	23.24		
3	16QAM	8	0	22.03	22.08	22.07	23	2
3	16QAM	8	4	22.07	22.15	22.08		
3	16QAM	8	7	22.02	22.13	22.11		
3	16QAM	15	0	22.02	22.09	22.07		
3	64QAM	1	0	22.18	22.17	22.19	23	2
3	64QAM	1	8	22.16	22.25	22.29		
3	64QAM	1	14	22.10	22.22	22.18		
3	64QAM	8	0	21.10	21.06	21.09	22	3
3	64QAM	8	4	21.14	21.14	21.11		
3	64QAM	8	7	21.06	21.12	21.11		
3	64QAM	15	0	21.03	21.12	21.06		
Channel				26047	26340	26683	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1914.3		
1.4	QPSK	1	0	23.84	23.81	23.84	25	0
1.4	QPSK	1	3	23.91	23.91	23.96		
1.4	QPSK	1	5	23.79	23.82	23.88		
1.4	QPSK	3	0	23.85	23.90	23.88		
1.4	QPSK	3	1	23.91	23.92	23.96		
1.4	QPSK	3	3	23.89	23.88	23.92		
1.4	QPSK	6	0	22.96	22.98	22.99	24	1
1.4	16QAM	1	0	23.15	23.14	23.13	24	1
1.4	16QAM	1	3	23.22	23.22	23.23		
1.4	16QAM	1	5	23.12	23.14	23.14		
1.4	16QAM	3	0	22.94	22.94	22.96		
1.4	16QAM	3	1	22.99	23.00	22.98		
1.4	16QAM	3	3	22.92	22.93	22.94		
1.4	16QAM	6	0	22.03	22.04	22.04	23	2
1.4	64QAM	1	0	22.12	22.13	22.11	23	2
1.4	64QAM	1	3	22.20	22.17	22.21		
1.4	64QAM	1	5	22.08	22.11	22.11		
1.4	64QAM	3	0	22.11	22.13	22.08		
1.4	64QAM	3	1	22.16	22.18	22.17		
1.4	64QAM	3	3	22.10	22.12	22.10		
1.4	64QAM	6	0	20.98	20.97	21.01	22	3

<LTE Band 26>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				26765	26865	26965		
Frequency (MHz)				821.5	831.5	841.5		
15	QPSK	1	0	24.13	24.23	24.17	25	0
15	QPSK	1	37	23.67	23.72	23.22		
15	QPSK	1	74	24.18	24.22	24.06		
15	QPSK	36	0	23.37	23.43	23.37	24	1
15	QPSK	36	20	23.32	23.38	23.33		
15	QPSK	36	39	23.28	23.31	23.25		
15	QPSK	75	0	23.33	23.37	22.62		
15	16QAM	1	0	23.43	23.45	23.42	24	1
15	16QAM	1	37	22.59	22.66	22.91		
15	16QAM	1	74	23.50	23.50	23.43		
15	16QAM	36	0	22.38	22.40	22.38	23	2
15	16QAM	36	20	22.34	22.37	22.35		
15	16QAM	36	39	22.28	22.30	22.25		
15	16QAM	75	0	22.34	22.36	22.26		
15	64QAM	1	0	22.38	22.46	22.45	23	2
15	64QAM	1	37	21.85	21.59	21.54		
15	64QAM	1	74	22.46	22.45	22.35		
15	64QAM	36	0	21.37	21.46	21.39	22	3
15	64QAM	36	20	21.36	21.40	21.35		
15	64QAM	36	39	21.30	21.32	21.28		
15	64QAM	75	0	21.33	21.36	20.97		
Channel				26740	26865	26990	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				819	831.5	844		
10	QPSK	1	0	23.96	24.09	24.13	25	0
10	QPSK	1	25	23.62	23.71	23.65		
10	QPSK	1	49	24.04	24.05	24.00		
10	QPSK	25	0	23.15	23.21	23.16	24	1
10	QPSK	25	12	23.15	23.18	23.15		
10	QPSK	25	25	23.09	23.13	23.07		
10	QPSK	50	0	23.14	23.17	23.13		
10	16QAM	1	0	23.31	23.40	23.47	24	1
10	16QAM	1	25	22.99	23.07	22.98		
10	16QAM	1	49	23.39	23.42	23.31		
10	16QAM	25	0	22.15	22.21	22.17	23	2
10	16QAM	25	12	22.14	22.20	22.14		
10	16QAM	25	25	22.09	22.14	22.08		
10	16QAM	50	0	22.13	22.18	22.15		
10	64QAM	1	0	22.18	22.33	22.41	23	2
10	64QAM	1	25	21.84	21.94	21.96		
10	64QAM	1	49	22.36	22.30	22.18		
10	64QAM	25	0	21.16	21.21	21.19	22	3
10	64QAM	25	12	21.16	21.20	21.16		
10	64QAM	25	25	21.09	21.15	21.10		
10	64QAM	50	0	21.14	21.19	21.15		

Channel				26715	26865	27015	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				816.5	831.5	846.5		
5	QPSK	1	0	23.87	23.96	23.98	25	0
5	QPSK	1	12	23.99	24.09	24.01		
5	QPSK	1	24	23.98	24.08	23.81		
5	QPSK	12	0	23.10	23.16	23.10	24	1
5	QPSK	12	7	23.20	23.25	23.15		
5	QPSK	12	13	23.13	23.21	23.09		
5	QPSK	25	0	23.15	23.16	23.08		
5	16QAM	1	0	23.21	23.34	23.29	24	1
5	16QAM	1	12	23.31	23.44	23.37		
5	16QAM	1	24	23.32	23.40	23.21		
5	16QAM	12	0	22.09	22.19	22.12	23	2
5	16QAM	12	7	22.21	22.28	22.16		
5	16QAM	12	13	22.16	22.23	22.10		
5	16QAM	25	0	22.15	22.16	22.08		
5	64QAM	1	0	22.17	22.29	22.20	23	2
5	64QAM	1	12	22.26	22.33	22.30		
5	64QAM	1	24	22.19	22.32	22.14		
5	64QAM	12	0	21.16	21.22	21.15	22	3
5	64QAM	12	7	21.22	21.31	21.21		
5	64QAM	12	13	21.22	21.25	21.16		
5	64QAM	25	0	21.17	21.17	21.09		
Channel				26705	26865	27025	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				815.5	831.5	847.5		
3	QPSK	1	0	23.95	24.01	24.03	25	0
3	QPSK	1	8	24.08	24.11	24.06		
3	QPSK	1	14	24.02	24.11	23.70		
3	QPSK	8	0	23.06	23.14	23.10	24	1
3	QPSK	8	4	23.13	23.22	23.11		
3	QPSK	8	7	23.13	23.17	23.08		
3	QPSK	15	0	23.12	23.14	23.10		
3	16QAM	1	0	23.26	23.32	23.34	24	1
3	16QAM	1	8	23.36	23.50	23.41		
3	16QAM	1	14	23.33	23.44	23.10		
3	16QAM	8	0	22.15	22.20	22.16	23	2
3	16QAM	8	4	22.22	22.27	22.16		
3	16QAM	8	7	22.18	22.24	22.12		
3	16QAM	15	0	22.14	22.18	22.14		
3	64QAM	1	0	22.21	22.31	22.31	23	2
3	64QAM	1	8	22.28	22.44	22.28		
3	64QAM	1	14	22.23	22.37	22.16		
3	64QAM	8	0	21.13	21.19	21.17	22	3
3	64QAM	8	4	21.20	21.28	21.16		
3	64QAM	8	7	21.17	21.25	21.12		
3	64QAM	15	0	21.15	21.17	21.13		

Channel				26697	26865	27033	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				814.7	831.5	848.3		
1.4	QPSK	1	0	23.86	23.92	23.92	25	0
1.4	QPSK	1	3	23.96	24.07	23.96		
1.4	QPSK	1	5	23.91	23.98	23.62		
1.4	QPSK	3	0	23.94	23.95	23.94		
1.4	QPSK	3	1	24.01	24.03	23.96		
1.4	QPSK	3	3	23.92	24.01	23.82		
1.4	QPSK	6	0	23.05	23.10	23.01	24	1
1.4	16QAM	1	0	23.19	23.26	23.24	24	1
1.4	16QAM	1	3	23.31	23.39	23.27		
1.4	16QAM	1	5	23.24	23.35	22.99		
1.4	16QAM	3	0	23.04	23.03	22.97		
1.4	16QAM	3	1	23.05	23.11	23.02		
1.4	16QAM	3	3	23.01	23.13	23.00		
1.4	16QAM	6	0	22.11	22.18	22.06	23	2
1.4	64QAM	1	0	22.10	22.20	22.12	23	2
1.4	64QAM	1	3	22.22	22.32	22.18		
1.4	64QAM	1	5	22.14	22.28	22.05		
1.4	64QAM	3	0	22.12	22.15	22.11		
1.4	64QAM	3	1	22.17	22.25	22.17		
1.4	64QAM	3	3	22.18	22.25	22.11		
1.4	64QAM	6	0	21.04	21.12	20.99	22	3

<LTE Band 66>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				132072	132322	132572		
Frequency (MHz)				1720	1745	1770		
20	QPSK	1	0	23.48	24.22	23.90	25	0
20	QPSK	1	49	24.02	24.11	23.51		
20	QPSK	1	99	23.98	24.10	23.35		
20	QPSK	50	0	23.00	23.23	23.32	24	1
20	QPSK	50	24	23.21	23.19	23.25		
20	QPSK	50	50	23.14	23.12	23.30		
20	QPSK	100	0	23.14	23.26	23.26		
20	16QAM	1	0	22.80	23.36	23.50	24	1
20	16QAM	1	49	23.41	23.50	23.02		
20	16QAM	1	99	23.48	23.44	22.83		
20	16QAM	50	0	22.02	22.20	22.39	23	2
20	16QAM	50	24	22.16	22.33	22.32		
20	16QAM	50	50	22.17	22.14	22.19		
20	16QAM	100	0	22.11	22.20	22.31		
20	64QAM	1	0	21.46	22.33	22.48	23	2
20	64QAM	1	49	22.31	22.46	21.97		
20	64QAM	1	99	22.38	22.27	22.49		
20	64QAM	50	0	20.80	21.21	21.37	22	3
20	64QAM	50	24	21.14	21.25	21.15		
20	64QAM	50	50	21.18	21.31	21.26		
20	64QAM	100	0	21.13	21.23	21.31		
Channel				132047	132322	132597	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1745	1772.5		
15	QPSK	1	0	23.22	24.20	24.06	25	0
15	QPSK	1	37	23.95	24.07	23.52		
15	QPSK	1	74	23.95	24.02	23.38		
15	QPSK	36	0	23.00	23.36	23.20	24	1
15	QPSK	36	20	23.17	23.22	23.22		
15	QPSK	36	39	23.11	23.19	23.03		
15	QPSK	75	0	23.16	23.29	23.17		
15	16QAM	1	0	22.56	23.46	23.50	24	1
15	16QAM	1	37	23.27	23.44	22.96		
15	16QAM	1	74	23.45	23.28	22.60		
15	16QAM	36	0	22.37	22.35	22.37	23	2
15	16QAM	36	20	22.22	22.20	22.29		
15	16QAM	36	39	22.09	22.09	22.09		
15	16QAM	75	0	22.13	22.25	22.22		
15	64QAM	1	0	21.29	22.48	22.33	23	2
15	64QAM	1	37	22.14	22.24	21.30		
15	64QAM	1	74	22.32	22.37	21.58		
15	64QAM	36	0	20.94	21.33	21.30	22	3
15	64QAM	36	20	21.07	21.25	21.32		
15	64QAM	36	39	21.12	21.23	21.26		
15	64QAM	75	0	21.05	21.17	21.24		

Channel				132022	132322	132622	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1745	1775		
10	QPSK	1	0	23.15	24.01	24.02	25	0
10	QPSK	1	25	23.98	23.98	23.94		
10	QPSK	1	49	23.91	23.93	23.32		
10	QPSK	25	0	22.88	23.10	23.09	24	1
10	QPSK	25	12	23.09	23.07	23.07		
10	QPSK	25	25	23.05	23.04	22.94		
10	QPSK	50	0	23.07	23.07	23.06		
10	16QAM	1	0	23.34	23.44	23.38	24	1
10	16QAM	1	25	23.34	23.38	23.32		
10	16QAM	1	49	23.28	23.34	22.67		
10	16QAM	25	0	21.94	22.09	22.08	23	2
10	16QAM	25	12	21.90	22.09	22.07		
10	16QAM	25	25	21.96	22.04	22.02		
10	16QAM	50	0	21.84	22.09	22.06		
10	64QAM	1	0	21.31	22.32	22.32	23	2
10	64QAM	1	25	21.31	22.25	22.25		
10	64QAM	1	49	22.16	22.22	21.59		
10	64QAM	25	0	20.91	21.11	21.09	22	3
10	64QAM	25	12	20.79	21.10	21.08		
10	64QAM	25	25	20.97	21.06	21.04		
10	64QAM	50	0	20.74	21.08	21.08		
Channel				131997	132322	132647	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1745	1777.5		
5	QPSK	1	0	23.07	23.98	24.09	25	0
5	QPSK	1	12	24.00	23.99	23.96		
5	QPSK	1	24	23.88	24.00	23.25		
5	QPSK	12	0	22.90	23.01	23.11	24	1
5	QPSK	12	7	23.12	23.11	23.08		
5	QPSK	12	13	23.04	23.08	22.84		
5	QPSK	25	0	23.12	23.02	22.96		
5	16QAM	1	0	23.42	23.48	23.30	24	1
5	16QAM	1	12	23.40	23.39	23.29		
5	16QAM	1	24	23.30	23.42	22.61		
5	16QAM	12	0	22.03	22.09	22.18	23	2
5	16QAM	12	7	21.83	22.06	22.16		
5	16QAM	12	13	21.86	22.14	22.00		
5	16QAM	25	0	21.81	22.05	21.97		
5	64QAM	1	0	21.38	22.41	22.34	23	2
5	64QAM	1	12	21.30	22.33	22.17		
5	64QAM	1	24	22.06	22.27	21.64		
5	64QAM	12	0	20.91	21.13	21.00	22	3
5	64QAM	12	7	20.76	21.05	21.13		
5	64QAM	12	13	20.91	21.04	20.99		
5	64QAM	25	0	20.83	21.14	20.99		

Channel				131987	132322	132657	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1745	1778.5		
3	QPSK	1	0	23.14	24.07	23.97	25	0
3	QPSK	1	8	24.05	23.91	23.88		
3	QPSK	1	14	23.89	24.03	23.36		
3	QPSK	8	0	22.85	23.13	22.99	24	1
3	QPSK	8	4	23.04	23.13	23.15		
3	QPSK	8	7	22.97	23.10	22.92		
3	QPSK	15	0	23.06	23.05	23.02		
3	16QAM	1	0	23.40	23.32	23.30	24	1
3	16QAM	1	8	23.34	23.34	23.22		
3	16QAM	1	14	23.21	23.39	22.62		
3	16QAM	8	0	21.87	22.07	22.16	23	2
3	16QAM	8	4	21.86	22.01	22.02		
3	16QAM	8	7	21.89	22.07	21.92		
3	16QAM	15	0	21.88	22.03	22.11		
3	64QAM	1	0	21.31	22.27	22.30	23	2
3	64QAM	1	8	21.29	22.21	22.24		
3	64QAM	1	14	22.16	22.13	21.53		
3	64QAM	8	0	20.94	21.18	21.11	22	3
3	64QAM	8	4	20.86	21.02	21.15		
3	64QAM	8	7	20.91	21.08	21.10		
3	64QAM	15	0	20.73	20.99	21.13		
Channel				131979	132322	132665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1745	1779.3		
1.4	QPSK	1	0	23.00	23.89	23.78	25	0
1.4	QPSK	1	3	23.20	23.91	23.30		
1.4	QPSK	1	5	23.22	24.00	23.13		
1.4	QPSK	3	0	23.01	23.85	23.18		
1.4	QPSK	3	1	23.02	24.01	23.30		
1.4	QPSK	3	3	23.12	23.95	23.12		
1.4	QPSK	6	0	22.74	23.01	22.45	24	1
1.4	16QAM	1	0	22.33	23.17	22.51	24	1
1.4	16QAM	1	3	22.38	23.29	22.47		
1.4	16QAM	1	5	22.43	23.25	22.34		
1.4	16QAM	3	0	22.09	22.98	22.27		
1.4	16QAM	3	1	22.16	23.03	22.30		
1.4	16QAM	3	3	22.16	23.04	22.16		
1.4	16QAM	6	0	21.79	22.02	21.74	23	2
1.4	64QAM	1	0	21.00	22.19	21.34	23	2
1.4	64QAM	1	3	21.05	22.32	21.44		
1.4	64QAM	1	5	21.18	22.22	21.36		
1.4	64QAM	3	0	21.14	22.16	21.33		
1.4	64QAM	3	1	21.12	22.19	21.45		
1.4	64QAM	3	3	21.22	22.18	21.36		
1.4	64QAM	6	0	20.73	21.01	20.73	22	3

<LTE Band 71>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				133222	133322	133372		
Frequency (MHz)				673	683	688		
20	QPSK	1	0	24.19	24.21	24.22	24.5	0
20	QPSK	1	49	24.10	24.09	24.09		
20	QPSK	1	99	24.07	24.07	24.06		
20	QPSK	50	0	23.30	23.31	23.32	23.5	1
20	QPSK	50	24	23.27	23.25	23.27		
20	QPSK	50	50	23.20	23.21	23.21		
20	QPSK	100	0	23.26	23.25	23.27		
20	16QAM	1	0	23.45	23.46	23.48	23.5	1
20	16QAM	1	49	23.47	23.48	23.48		
20	16QAM	1	99	23.45	23.47	23.49		
20	16QAM	50	0	22.32	22.32	22.32	22.5	2
20	16QAM	50	24	22.27	22.28	22.28		
20	16QAM	50	50	22.22	22.21	22.22		
20	16QAM	100	0	22.25	22.25	22.25		
20	64QAM	1	0	22.49	22.45	22.49	22.5	2
20	64QAM	1	49	22.40	22.39	22.39		
20	64QAM	1	99	22.38	22.32	22.36		
20	64QAM	50	0	21.34	21.34	21.32	21.5	3
20	64QAM	50	24	21.25	21.27	21.27		
20	64QAM	50	50	21.23	21.22	21.22		
20	64QAM	100	0	21.27	21.26	21.27		
Channel				133197	133297	133397	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				670.5	680.5	690.5		
15	QPSK	1	0	24.17	24.18	24.19	24.5	0
15	QPSK	1	37	23.59	23.58	23.19		
15	QPSK	1	74	23.26	23.27	23.27		
15	QPSK	36	0	23.25	23.28	23.27	23.5	1
15	QPSK	36	20	23.23	23.23	23.23		
15	QPSK	36	39	23.11	23.11	23.11		
15	QPSK	75	0	23.21	23.21	23.21		
15	16QAM	1	0	23.48	23.50	23.49	23.5	1
15	16QAM	1	37	22.56	22.57	22.97		
15	16QAM	1	74	22.60	22.60	22.60		
15	16QAM	36	0	22.24	22.26	22.25	22.5	2
15	16QAM	36	20	22.22	22.22	22.23		
15	16QAM	36	39	22.17	22.16	22.16		
15	16QAM	75	0	22.23	22.22	22.23		
15	64QAM	1	0	22.40	22.40	22.39	22.5	2
15	64QAM	1	37	21.85	21.81	21.44		
15	64QAM	1	74	21.53	21.53	21.53		
15	64QAM	36	0	21.29	21.28	21.29	21.5	3
15	64QAM	36	20	21.24	21.25	21.26		
15	64QAM	36	39	21.16	21.20	21.19		
15	64QAM	75	0	21.22	21.22	21.22		

Channel				133172	133272	133422	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				668	678	693		
10	QPSK	1	0	24.01	24.03	24.01	24.5	0
10	QPSK	1	25	23.97	23.99	23.98		
10	QPSK	1	49	23.31	23.31	23.31		
10	QPSK	25	0	23.10	23.09	23.09	23.5	1
10	QPSK	25	12	23.06	23.07	23.08		
10	QPSK	25	25	22.93	22.92	22.93		
10	QPSK	50	0	23.07	23.06	23.06		
10	16QAM	1	0	23.39	23.42	23.37	23.5	1
10	16QAM	1	25	23.33	23.33	23.31		
10	16QAM	1	49	22.64	22.64	22.64		
10	16QAM	25	0	22.09	22.10	22.11	22.5	2
10	16QAM	25	12	22.09	22.08	22.08		
10	16QAM	25	25	22.02	22.02	22.02		
10	16QAM	50	0	22.07	22.08	22.08		
10	64QAM	1	0	22.28	22.30	22.34	22.5	2
10	64QAM	1	25	22.24	22.24	22.24		
10	64QAM	1	49	21.58	21.58	21.58		
10	64QAM	25	0	21.09	21.09	21.09	21.5	3
10	64QAM	25	12	21.09	21.08	21.08		
10	64QAM	25	25	21.05	21.04	21.05		
10	64QAM	50	0	21.08	21.06	21.06		
Channel				133147	133247	133447	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				665.5	675.5	695.5		
5	QPSK	1	0	23.90	23.91	23.92	24.5	0
5	QPSK	1	12	23.48	23.49	23.49		
5	QPSK	1	24	23.19	23.20	23.20		
5	QPSK	12	0	23.03	23.01	23.02	23.5	1
5	QPSK	12	7	22.86	22.86	22.87		
5	QPSK	12	13	22.67	22.67	22.67		
5	QPSK	25	0	22.77	22.77	22.77		
5	16QAM	1	0	23.24	23.24	23.24	23.5	1
5	16QAM	1	12	22.83	22.81	22.81		
5	16QAM	1	24	22.53	22.52	22.53		
5	16QAM	12	0	22.05	22.05	22.05	22.5	2
5	16QAM	12	7	21.98	21.98	21.98		
5	16QAM	12	13	21.78	21.78	21.78		
5	16QAM	25	0	21.90	21.90	21.90		
5	64QAM	1	0	22.20	22.21	22.22	22.5	2
5	64QAM	1	12	21.78	21.76	21.77		
5	64QAM	1	24	21.46	21.45	21.47		
5	64QAM	12	0	21.10	21.09	21.10	21.5	3
5	64QAM	12	7	21.08	21.08	21.08		
5	64QAM	12	13	20.87	20.88	20.88		
5	64QAM	25	0	20.98	20.98	20.98		

<TDD LTE SAR Measurement>

TDD LTE configuration setup for SAR measurement

SAR was tested with a fixed periodic duty factor according to the highest transmission duty factor implemented for the device and supported by 3GPP.

a. 3GPP TS 36.211 section 4.2 for Type 2 Frame Structure and Table 4.2-2 for uplink-downlink configurations
b. "special subframe S" contains both uplink and downlink transmissions, it has been taken into consideration to determine the transmission duty factor according to the worst case uplink and downlink cyclic prefix requirements for UpPTS
c. Establishing connections with base station simulators ensure a consistent means for testing SAR and recommended for evaluating SAR. The Anritsu MT8820C (firmware: #22.52#004) was used for LTE output power measurements and SAR testing.

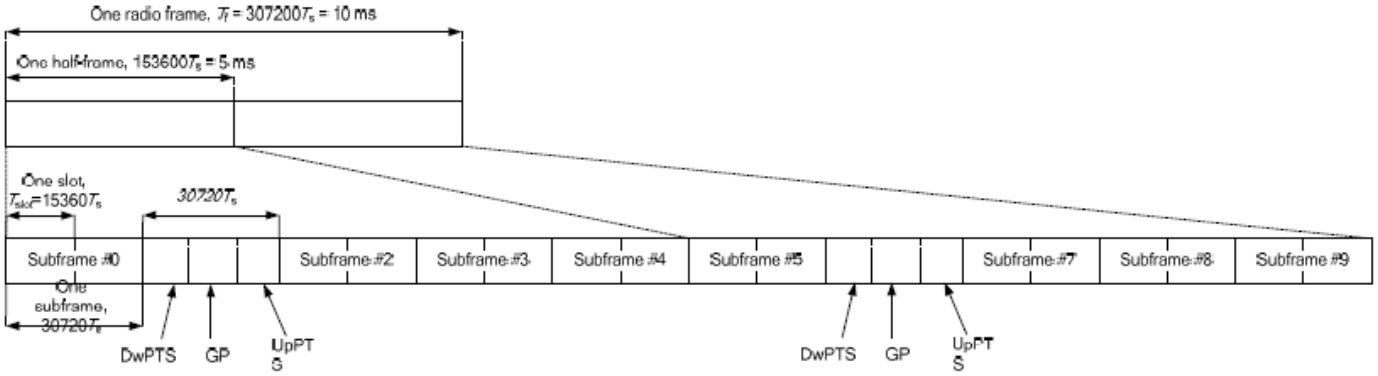


Figure 4.2-1: Frame structure type 2 (for 5 ms switch-point periodicity).

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

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	$6592 \cdot T_s$	$2192 \cdot T_s$	$2560 \cdot T_s$	$7680 \cdot T_s$	$2192 \cdot T_s$	$2560 \cdot T_s$
1	$19760 \cdot T_s$			$20480 \cdot T_s$		
2	$21952 \cdot T_s$			$23040 \cdot T_s$		
3	$24144 \cdot T_s$			$25600 \cdot T_s$		
4	$26336 \cdot T_s$			$7680 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$
5	$6592 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$	$20480 \cdot T_s$		
6	$19760 \cdot T_s$			$23040 \cdot T_s$		
7	$21952 \cdot T_s$			$12800 \cdot T_s$		
8	$24144 \cdot T_s$			-	-	-
9	$13168 \cdot T_s$			-	-	-

Special subframe (30720·T_s): Normal cyclic prefix in downlink (UpPTS)			
	Special subframe configuration	**Normal cyclic prefix in uplink**	**Extended cyclic prefix in uplink**
Uplink duty factor in one special subframe	**0~4**	7.13%	8.33%
	5~9	14.3%	16.7%

Special subframe(30720·T_s): Extended cyclic prefix in downlink (UpPTS)			
	Special subframe configuration	**Normal cyclic prefix in uplink**	**Extended cyclic prefix in uplink**
Uplink duty factor in one special subframe	**0~3**	7.13%	8.33%
	4~7	14.3%	16.7%

The highest duty factor is resulted from:

i. Uplink-downlink configuration: 0. In a half-frame consisted of 5 subfames, uplink operation is in 3 uplink subframes and 1 special subframe.

ii. special subframe configuration: 5-9 for normal cyclic prefix in downlink, 4-7 for extended cyclic prefix in downlink

iii. for special subframe with extended cyclic prefix in uplink, the total uplink duty factor in one half-frame is: (3+0.167)/5 = 63.3%

iv. for special subframe with normal cyclic prefix in uplink, the total uplink duty factor in one half-frame is: (3+0.143)/5 = 62.9%

v. For TDD LTE SAR measurement, the duty cycle 1:1.59 (62.9 %) was used perform testing and considering the theoretical duty cycle of 63.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 62.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix 63.3%/62.9% = 1.006 is applied to scale-up the measured SAR result. The scaled TDD LTE SAR = measured SAR (W/kg)* Tune-up Scaling Factor* scaling factor for extended cyclic prefix.

<LTE Band 41 power class 3>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Low Middle Ch. / Freq.	Power Middle Ch. / Freq.	Power High Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				39750	40185	40620	41055	41490		
Frequency (MHz)				2506	2549.5	2593	2636.5	2680		
20	QPSK	1	0	24.15	24.15	24.28	24.22	24.23	25	0
20	QPSK	1	49	23.54	23.44	24.10	24.05	24.07		
20	QPSK	1	99	24.09	24.02	24.01	24.00	23.89		
20	QPSK	50	0	23.33	23.31	23.35	23.30	23.32	24	1
20	QPSK	50	24	23.25	23.26	23.25	23.20	23.27		
20	QPSK	50	50	23.22	23.21	23.16	23.16	23.20		
20	QPSK	100	0	23.27	23.22	23.28	23.23	23.26		
20	16QAM	1	0	23.32	23.30	23.48	23.36	23.40	24	1
20	16QAM	1	49	23.06	22.74	23.28	23.23	23.20		
20	16QAM	1	99	23.27	23.16	23.17	23.13	23.06		
20	16QAM	50	0	22.33	22.35	22.37	22.33	22.37	23	2
20	16QAM	50	24	22.30	22.29	22.29	22.26	22.27		
20	16QAM	50	50	22.26	22.22	22.28	22.21	22.19		
20	16QAM	100	0	22.32	22.30	22.31	22.29	22.31		
20	64QAM	1	0	21.94	21.95	22.02	22.02	21.99	23	2
20	64QAM	1	49	21.23	21.56	21.85	21.81	21.81		
20	64QAM	1	99	21.86	21.78	21.75	21.70	21.67		
20	64QAM	50	0	21.34	21.35	21.29	21.31	21.31	22	3
20	64QAM	50	24	21.30	21.14	21.26	21.27	21.29		
20	64QAM	50	50	21.23	21.22	21.20	21.19	21.20		
20	64QAM	100	0	21.31	21.28	21.22	21.27	21.29		
Channel				39725	40173	40620	41068	41515	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2503.5	2548.3	2593	2637.8	2682.5		
15	QPSK	1	0	24.19	24.26	24.27	24.20	24.16	25	0
15	QPSK	1	37	23.50	24.04	24.05	24.11	24.07		
15	QPSK	1	74	24.11	24.12	24.09	24.02	24.00		
15	QPSK	36	0	23.32	23.28	23.26	23.26	23.25	24	1
15	QPSK	36	20	23.31	23.23	23.25	23.19	23.19		
15	QPSK	36	39	23.23	23.14	23.14	23.14	23.13		
15	QPSK	75	0	23.28	23.23	23.22	23.19	23.20		
15	16QAM	1	0	23.40	23.45	23.39	23.35	23.36	24	1
15	16QAM	1	37	22.65	23.24	23.32	23.17	23.22		
15	16QAM	1	74	23.36	23.26	23.20	23.24	23.14		
15	16QAM	36	0	22.26	22.22	22.24	22.22	22.23	23	2
15	16QAM	36	20	22.34	22.23	22.17	22.18	22.17		
15	16QAM	36	39	22.24	22.17	22.20	22.18	22.13		
15	16QAM	75	0	22.34	22.22	22.27	22.25	22.24		
15	64QAM	1	0	22.01	22.05	22.03	21.99	21.96	23	2
15	64QAM	1	37	21.54	21.77	21.77	21.75	21.71		
15	64QAM	1	74	21.88	21.90	21.82	21.85	21.74		
15	64QAM	36	0	21.32	21.28	21.25	21.28	21.26	22	3
15	64QAM	36	20	21.20	21.21	21.17	21.20	21.22		
15	64QAM	36	39	21.25	21.17	21.13	21.16	21.12		
15	64QAM	75	0	21.31	21.25	21.26	21.26	21.25		

Channel				39700	40160	40620	41080	41540	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2501	2547	2593	2639	2685		
10	QPSK	1	0	23.92	23.90	23.94	23.91	23.88	25	0
10	QPSK	1	25	23.83	23.95	23.95	23.91	23.92		
10	QPSK	1	49	23.96	23.87	23.85	23.84	23.81		
10	QPSK	25	0	23.12	23.07	23.01	23.03	23.02	24	1
10	QPSK	25	12	23.10	23.06	23.02	23.07	23.04		
10	QPSK	25	25	23.06	23.01	22.99	23.01	22.95		
10	QPSK	50	0	23.13	23.08	23.05	23.08	23.03		
10	16QAM	1	0	23.12	23.13	23.14	23.11	23.03	24	1
10	16QAM	1	25	22.89	23.16	23.11	23.06	23.02		
10	16QAM	1	49	23.05	23.07	22.95	22.98	22.87		
10	16QAM	25	0	22.15	22.07	22.08	22.10	22.07	23	2
10	16QAM	25	12	22.15	22.05	22.03	22.09	22.06		
10	16QAM	25	25	22.09	22.03	22.02	22.01	21.96		
10	16QAM	50	0	22.16	22.10	22.11	22.11	22.08		
10	64QAM	1	0	21.82	21.81	21.82	21.79	21.76	23	2
10	64QAM	1	25	21.38	21.72	21.71	21.69	21.65		
10	64QAM	1	49	21.75	21.68	21.65	21.65	21.60		
10	64QAM	25	0	21.21	21.16	21.15	21.18	21.14	22	3
10	64QAM	25	12	21.16	21.12	21.14	21.12	21.12		
10	64QAM	25	25	21.27	21.08	21.08	21.04	21.02		
10	64QAM	50	0	21.17	21.11	21.12	21.10	21.07		
Channel				39675	40148	40620	41093	41565	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2498.5	2545.8	2593	2640.30	2687.5		
5	QPSK	1	0	24.15	23.92	23.93	23.96	23.94	25	0
5	QPSK	1	12	24.09	24.02	24.04	24.00	23.92		
5	QPSK	1	24	24.03	23.97	23.95	23.92	23.84		
5	QPSK	12	0	23.14	23.13	23.06	23.05	23.07	24	1
5	QPSK	12	7	23.18	23.14	23.06	23.13	23.09		
5	QPSK	12	13	23.18	23.12	23.08	23.10	23.03		
5	QPSK	25	0	23.18	23.11	23.04	23.13	23.05		
5	16QAM	1	0	23.30	23.12	23.12	23.07	23.11	24	1
5	16QAM	1	12	23.25	23.22	23.18	23.18	23.10		
5	16QAM	1	24	23.25	23.13	23.15	23.10	23.03		
5	16QAM	12	0	22.18	22.06	22.07	22.04	22.06	23	2
5	16QAM	12	7	22.16	22.11	22.04	22.13	22.05		
5	16QAM	12	13	22.13	22.07	22.07	22.11	21.99		
5	16QAM	25	0	22.20	22.14	22.08	22.18	22.07		
5	64QAM	1	0	21.91	21.70	21.69	21.70	21.68	23	2
5	64QAM	1	12	21.83	21.82	21.81	21.78	21.73		
5	64QAM	1	24	21.91	21.77	21.74	21.69	21.65		
5	64QAM	12	0	21.22	21.16	21.13	21.14	21.12	22	3
5	64QAM	12	7	21.26	21.22	21.12	21.25	21.17		
5	64QAM	12	13	21.24	21.16	21.15	21.18	21.11		
5	64QAM	25	0	21.26	21.19	21.17	21.18	21.11		

<LTE Band 41 power class 2>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Low Middle Ch. / Freq.	Power Middle Ch. / Freq.	Power High Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				39750	40185	40620	41055	41490		
Frequency (MHz)				2506	2549.5	2593	2636.5	2680		
20	QPSK	1	0	25.91	25.91	26.04	25.45	25.91	27	0
20	QPSK	1	49	25.39	25.38	25.86	25.20	25.83		
20	QPSK	1	99	25.44	25.80	25.78	25.10	25.69		
20	QPSK	50	0	25.19	25.16	25.18	24.61	25.11	26	1
20	QPSK	50	24	25.16	25.12	25.10	24.49	25.08		
20	QPSK	50	50	25.01	25.05	25.05	24.47	25.01		
20	QPSK	100	0	25.17	25.12	25.12	24.34	25.01		
20	16QAM	1	0	25.33	25.32	25.44	24.89	25.26	26	1
20	16QAM	1	49	24.80	24.80	25.24	24.41	25.20		
20	16QAM	1	99	24.78	25.17	25.14	24.46	25.11		
20	16QAM	50	0	24.25	24.23	24.26	23.37	24.18	25	2
20	16QAM	50	24	24.23	24.18	24.19	23.53	24.15		
20	16QAM	50	50	24.05	24.13	24.10	23.40	24.04		
20	16QAM	100	0	24.21	24.16	24.17	23.53	24.12		
20	64QAM	1	0	24.14	24.12	24.24	23.69	23.98	25	2
20	64QAM	1	49	23.59	23.62	24.06	23.38	23.99		
20	64QAM	1	99	23.55	23.98	23.95	23.27	23.89		
20	64QAM	50	0	23.25	23.19	23.22	22.67	23.14	24	3
20	64QAM	50	24	23.19	23.15	23.15	22.57	23.16		
20	64QAM	50	50	23.06	23.09	23.09	22.42	23.04		
20	64QAM	100	0	23.18	23.15	23.15	22.53	23.12		
Channel				39725	40173	40620	41068	41515	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2503.5	2548.3	2593	2637.8	2682.5		
15	QPSK	1	0	25.99	26.02	26.03	25.15	26.01	27	0
15	QPSK	1	37	25.47	25.95	25.98	25.04	26.02		
15	QPSK	1	74	25.91	25.90	25.89	25.00	25.95		
15	QPSK	36	0	25.18	25.12	25.14	24.05	25.17	26	1
15	QPSK	36	20	25.15	25.12	25.12	24.13	25.15		
15	QPSK	36	39	25.09	25.03	25.03	24.04	25.08		
15	QPSK	75	0	25.15	25.09	25.10	24.03	25.13		
15	16QAM	1	0	25.31	25.39	25.40	24.53	25.43	26	1
15	16QAM	1	37	24.84	25.26	25.27	24.32	25.31		
15	16QAM	1	74	25.17	25.20	25.21	24.16	25.21		
15	16QAM	36	0	24.20	24.14	24.15	23.26	24.19	25	2
15	16QAM	36	20	24.19	24.12	24.09	23.13	24.16		
15	16QAM	36	39	24.11	24.07	24.04	23.04	24.08		
15	16QAM	75	0	24.21	24.15	24.09	23.13	24.16		
15	64QAM	1	0	24.15	24.20	24.20	23.32	24.25	25	2
15	64QAM	1	37	23.59	24.07	24.08	23.11	24.10		
15	64QAM	1	74	24.00	24.03	23.98	23.05	24.03		
15	64QAM	36	0	23.20	23.18	23.19	22.30	23.22	24	3
15	64QAM	36	20	23.18	23.17	23.17	22.20	23.24		
15	64QAM	36	39	23.16	23.07	23.08	22.13	23.12		
15	64QAM	75	0	23.20	23.15	23.14	22.00	23.17		

Channel				39700	40160	40620	41080	41540	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2501	2547	2593	2639	2685		
10	QPSK	1	0	25.88	25.86	25.86	25.41	25.83	27	0
10	QPSK	1	25	25.63	25.84	25.84	25.42	25.79		
10	QPSK	1	49	25.84	25.80	25.80	25.37	25.73		
10	QPSK	25	0	25.08	25.07	25.08	24.71	25.00	26	1
10	QPSK	25	12	25.08	25.06	25.04	24.70	24.97		
10	QPSK	25	25	25.05	25.00	24.99	24.67	24.95		
10	QPSK	50	0	25.08	25.05	25.07	24.53	24.99		
10	16QAM	1	0	25.23	25.27	25.30	24.79	25.23	26	1
10	16QAM	1	25	24.97	25.27	25.26	24.80	25.16		
10	16QAM	1	49	25.23	25.16	25.16	24.73	25.07		
10	16QAM	25	0	24.12	24.11	24.15	23.72	24.08	25	2
10	16QAM	25	12	24.12	24.10	24.07	23.71	24.03		
10	16QAM	25	25	24.09	24.08	24.04	23.67	23.97		
10	16QAM	50	0	24.16	24.08	24.10	23.62	24.05		
10	64QAM	1	0	24.05	24.07	24.09	23.56	24.07	25	2
10	64QAM	1	25	23.84	24.05	24.05	23.58	23.99		
10	64QAM	1	49	24.04	23.99	23.95	23.51	23.93		
10	64QAM	25	0	23.22	23.16	23.20	22.84	23.11	24	3
10	64QAM	25	12	23.20	23.19	23.13	22.83	23.08		
10	64QAM	25	25	23.15	23.17	23.13	22.72	23.06		
10	64QAM	50	0	23.12	23.08	23.10	22.66	23.05		
Channel				39675	40148	40620	41093	41565	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2498.5	2545.8	2593	2640.30	2687.5		
5	QPSK	1	0	26.03	25.86	25.87	25.41	25.86	27	0
5	QPSK	1	12	25.97	25.93	25.93	25.41	25.86		
5	QPSK	1	24	25.95	25.86	25.82	25.35	25.80		
5	QPSK	12	0	25.18	25.09	25.07	24.73	25.03	26	1
5	QPSK	12	7	25.19	25.13	25.07	24.74	25.06		
5	QPSK	12	13	25.14	25.09	25.09	24.66	25.02		
5	QPSK	25	0	25.16	25.05	25.00	24.53	25.00		
5	16QAM	1	0	25.41	25.20	25.21	24.75	25.20	26	1
5	16QAM	1	12	25.39	25.32	25.33	24.78	25.23		
5	16QAM	1	24	25.40	25.22	25.26	24.72	25.10		
5	16QAM	12	0	24.21	24.16	24.09	23.70	24.09	25	2
5	16QAM	12	7	24.22	24.18	24.14	23.73	24.14		
5	16QAM	12	13	24.21	24.12	24.15	23.67	24.08		
5	16QAM	25	0	24.21	24.14	24.07	23.57	24.08		
5	64QAM	1	0	24.21	24.05	24.04	23.54	24.03	25	2
5	64QAM	1	12	24.19	24.09	24.11	23.57	24.04		
5	64QAM	1	24	24.18	24.09	24.06	23.53	23.94		
5	64QAM	12	0	23.30	23.24	23.15	22.88	23.16	24	3
5	64QAM	12	7	23.30	23.29	23.20	22.87	23.16		
5	64QAM	12	13	23.27	23.23	23.22	22.86	23.07		
5	64QAM	25	0	23.26	23.24	23.13	22.68	23.07		

<Band 41 Power Class 2 and Power Class 3 Linearity>

This device support Power Class 2 and Power Class 3 operations for LTE Band 41. The highest available duty cycle for Power Class 2 operation is 43.3% using UL-DL configuration 1. Per FCC Guidance based on the device behavior, all SAR tests were performed using Power Class 3. Power Class 2 is tested using the highest SAR test configuration in Power Class 3 for each LTE configuration and exposure condition combination, according to the highest time averaged power for all applicable uplink-downlink configurations in Power Class 2. When the reported SAR vs. output power is linearly scaled with < 10% discrepancy between power classes and all reported SAR are < 1.4 W/kg, Separate SAR testing for Power Class 2 is not required

	LTE Band 41 (Power Class 3)	LTE Band 41 (Power Class 2)
Maximum Tune up Power (dBm)	25	27
Reported 1g SAR (W/kg)	0.564	0.607
Duty Cycle	63.30%	43.30%
Frame Averaged (mW)	200.17	217.01
Linearity SAR(W/kg)	0.61	
% deviation from expected linearity		-0.73%

<LTE Carrier Aggregation combinations>

General Note:

1. This device supports Carrier Aggregation on downlink for inter and intra band, and Uplink CA for intra band. For the device supports combination bands and configurations are according to 3GPP.
2. In applying the existing power measurement procedure of KDB 941225 D05A for DL CA SAR test exclusion, only the subset with the largest number of combinations of the frequency band and CCs in each row need consideration, and that configurations require power measurement should be highlighted in the below table.

2CC Downlink Carrier Aggregation				3CC Downlink Carrier Aggregation			
Number	Combination	Restriction	Covered by Measurement Superset	Number	Combination	Restriction	Covered by Measurement Superset
1	25A-25A	25A(4X4)-25A(4X4)		12	25A-25A-26A	25A(4X4)-25A(4X4)	
2	25A-26A	25A(4X4)	3CC-12	13	25A-41C	25A(4X4)-41C(4X4)	
3	25A-41A	25A(4X4)-41A(4X4)	3CC-13	14	41D		5CC-19
4	41A-41A	41A(4X4)-41A(4X4)	5CC-18				
5	41C	41C(4X4)	5CC-19				
6	7A-7A						
7	7C						
8	2A-12A						
9	4A-12A						
10	2A-66A						
11	12A-66A						
4CC Downlink Carrier Aggregation				5CC Downlink Carrier Aggregation			
Number	Combination	Restriction	Covered by Measurement Superset	Number	Combination	Restriction	Covered by Measurement Superset
15	41C-41C	41C(4X4)-41C(4X4)	5CC-18	18	41C-41D	41C(4X4)-41D(4X4)	
16	41A-41D	41A(4X4)-41D(4X4)	5CC-18	19	41F		
17	41E		5CC-19				

2CC Uplink Carrier Aggregation			
Number	Combination	Restriction	Covered by Measurement Superset
20	41C		

<Power verification when LTE Carrier Aggregation Active>

General Note:

i. According to KDB941225 D05A v01r02, Uplink maximum output power measurement with downlink carrier aggregation active should be measured, using the highest output channel measured without downlink carrier aggregation, to confirm that uplink maximum output power with downlink carrier aggregation active remains within the specified tune-up tolerance limits and not more than ¼ dB higher than the maximum output measured without downlink carrier aggregation active.

ii. Uplink maximum output power with downlink carrier aggregation active does not show more than ¼ dB higher than the maximum output power without downlink carrier aggregation active, therefore SAR evaluation with downlink carrier aggregation active can be excluded.

iii. The device supports downlink two carrier aggregation. For power measurement were control and acknowledge data is sent on uplink channels that operate identical to specifications when downlink carrier aggregation is inactive.

iv. Selected highest measured power when downlink carrier aggregation is inactive for conducted power comparison with downlink carrier aggregation is active, to confirm that when downlink carrier aggregation is active uplink maximum output power remains within the specified tune-up tolerance limits and not more than ¼ dB higher than the maximum output power measured when downlink carrier aggregation inactive.

v. For non-contiguous intra-band CA, the SCC selected to provide maximum separation from the PCC and must remain fully within the downlink transmission band.

vi. For Intra-band, contiguous CA, the downlink channels selected to perform the uplink power measurement must satisfy 3GPP channel spacing (5.4.1A of 3GPP TS 36.521 or equivalent) and channel bandwidth (5.4.2A) requirements.

$$\text{Nominal channel spacing} = \left\lfloor \frac{BW_{Channel(1)} + BW_{Channel(2)} - 0.1\left|BW_{Channel(1)} - BW_{Channel(2)}\right|}{0.6} \right\rfloor 0.3 \ \ [\text{MHz}]$$

<Two Carrier power verification>

Configure		PCC							SCC				Power	
		LTE Band	BW (MHz)	UL Freq. (MHz)	UL Channel	Mod.	UL# RB	UL RB Offset	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	With CA Tx.Power (dBm)	W/O CA Tx.Power (dBm)
Inter-Band		2	20	1900	19100	QPSK	1	0	12	10	737.5	5095	24.15	24.16
		4	20	1720	20050	QPSK	1	0	12	10	737.5	5095	24.22	24.29
		2	20	1900	19100	QPSK	1	0	66	20	2155	66886	24.13	24.16
		12	10	704	23060	QPSK	1	0	66	20	2155	66886	24.02	24.03
Intra-Band	Non-Contiguous	7	20	2535	21100	QPSK	1	0	7	5	2687.5	3425	24.11	24.13
		25	20	1905	26590	QPSK	1	0	25	5	1932.5	8065	24.15	24.19
	Contiguous	7	20	2535	21100	QPSK	1	0	7	20	2674.80	3298	24.10	24.13

<Three Carrier power verification>

Configure	PCC							SCC1				SCC2				Power	
	LTE Band	BW (MHz)	UL Freq. (MHz)	UL Channel	Mod.	UL# RB	UL RB Offset	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	With CA Tx.Power (dBm)	W/O CA Tx.Power (dBm)
Inter-Band	25	20	1905	26590	QPSK	1	0	25	5	1932.5	8065	26	15	876.5	8865	24.15	24.19
	25	20	1905	26590	QPSK	1	0	41	20	2593	40620	41	20	2612.8	40818	24.16	24.19

<Five Carrier power verification>

Configure		PCC							SCC1				SCC2				SCC3				SCC4				Power	
		LTE Band	BW (MHz)	UL Freq. (MHz)	UL Channel	Mod.	UL# RB	UL RB Offset	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	With CA Tx.Power (dBm)	W/O CA Tx.Power (dBm)
Intra-Band	Non-Contiguous	41	20	2593	40620	QPSK	1	0	41	20	2612.80	40818	41	5	2624.50	40935	41	20	2644.30	41133	41	20	2664.10	41331	24.25	24.28
	Contiguous	41	20	2593	40620	QPSK	1	0	41	20	2612.80	40818	41	20	2632.60	41016	41	20	2652.40	41214	41	20	2672.20	41412	24.27	24.28

<Power measurement when Uplink LTE Carrier Aggregation Active>

<Intra-Band Uplink carrier aggregation>

General Note:

i. The device supports intra-band uplink carrier aggregation for LTE B41 with a maximum of two 20MHz component carriers. For intra band contiguous carrier aggregation scenarios, 3GPP 36.101 table 6.2.2A-1 specifies that the aggregate maximum allowed output power is equivalent to the single carrier scenario. 3GPP 36.101 6.2.3A allows for several dB of MPR to be applied when not-contiguous RB allocation is implemented. The conducted power and MPR setting in this device are permanently implemented pre 3GPP requirement.

ii. According TCB workshop, the output power with uplink CA active was measured for the configuration with the highest reported SAR with single carrier for each exposure condition. The power was measured with wideband signal integration over both component carriers.

iii. Uplink CA is only operating with power class3, and additional SAR measurement for LTE UL CA whit other DL CA combinations active were not required since the maximum output power for this configuration was not > 0.25dB higher than the maximum output power for UL CA active.

CA_41C									
Combination 20MHz+20MHz (100RB+100RB)									
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
39750	39948	QPSK	1	0	0	0	1	0	21.68	23
40185	39987	QPSK	1	0	1	99	2	0	21.97	23
40620	40422	QPSK	1	0	1	99	2	0	21.9	23
41055	40857	QPSK	1	0	1	99	2	0	21.8	23
41490	41292	QPSK	1	0	1	99	2	0	21.8	23

<Sub-6G n41 >

General Note:

1. The device support EN-DC sub-6G n41 in NSA mode, the combination is: DC_41A_n41A, DC_n41AA.
2. In NSA mode, LTE signal and 5G NR signal can be considered as uncorrelated, so testing the standalone SAR and use the SAR summation / SPLSR analysis to address the compliance via FCC test guidance.
3. 5G NR TDD operation does not have the fixed UL/DL frame structure, but during the transmitting/receiving it can be operated in the slot structure of 100% UL duty cycle, therefore for SAR testing was used 100% duty cycle as conservative evaluation. For the purpose of test 5G NR standalone SAR, and also test SAR level at 100% TX duty cycle, we used the QRCT test tool to set the required bandwidth/RB allocation /modulation/channel according to FCC guidance.

Band	Modulations	Single carrier TDD B41		Single carrier n41	
		Bandwidth	Max. Tune-up	Band width	Max. Tune-up
Power Class 2 DC_41A_n41A DC_n41AA	QPSK	20	24	40 60 80 100	24
	16QAM		24		24
	64QAM		23		24

<Single carrier power measurement>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Tune-up limit (dBm)	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				509202		518598	528000	
Frequency (MHz)				2546.01		2592.99	2640	
100	QPSK	1	1	23.50	24.0	23.90	23.88	24.0
100	QPSK	1	271	23.06	24.0	23.00	22.32	
100	QPSK	137	68	23.50	24.0	23.07	22.40	
100	QPSK	1	0	23.18	24.0	23.84	23.23	24.0
100	QPSK	1	272	23.11	24.0	23.10	22.00	
100	QPSK	273	0	22.90	23.0	23.40	22.20	
100	16QAM	1	1	23.40	24.0	23.50	23.70	24.0
100	16QAM	1	271	23.46	24.0	23.38	22.50	
100	16QAM	137	68	23.77	24.0	23.33	23.25	
100	16QAM	1	0	23.51	24.0	23.77	23.65	24.0
100	16QAM	1	272	23.62	24.0	23.69	22.56	
100	16QAM	273	0	22.89	23.0	23.40	22.60	
100	64QAM	1	1	23.76	24.0	23.01	23.08	24.0
100	64QAM	1	271	23.68	24.0	23.43	23.00	
100	64QAM	137	68	23.48	24.0	23.50	22.77	
100	64QAM	1	0	23.68	24.0	23.40	23.65	24.0
100	64QAM	1	272	23.60	24.0	23.44	22.50	
100	64QAM	273	0	22.94	23.0	23.53	23.89	
Channel				507204	Tune-up limit (dBm)	518598	529998	Tune-up limit (dBm)
Frequency (MHz)				2536.02		2592.99	2649.99	
80	QPSK	1	1	23.89	24.0	23.32	23.27	24.0
80	QPSK	1	215	23.00	24.0	23.35	23.87	
80	QPSK	109	54	23.50	24.0	23.89	23.87	
80	QPSK	1	0	23.65	24.0	23.42	23.60	24.0
80	QPSK	1	216	23.75	24.0	23.87	23.78	
80	QPSK	217	0	22.99	23.0	23.85	23.62	
80	16QAM	1	1	23.82	24.0	23.92	23.54	24.0
80	16QAM	1	215	23.25	24.0	23.54	23.89	
80	16QAM	109	54	23.45	24.0	23.53	23.89	
80	16QAM	1	0	23.77	24.0	23.65	23.82	24.0
80	16QAM	1	216	23.23	24.0	23.15	23.88	
80	16QAM	217	0	22.78	23.0	23.58	23.01	
80	64QAM	1	1	23.85	24.0	23,25	23.43	24.0
80	64QAM	1	215	23.77	24.0	23.62	23.53	

80	64QAM	109	54	23.33	24.0	23.90	23.00	
80	64QAM	1	0	23.76	24.0	23.86	23.65	24.0
80	64QAM	1	216	23.56	24.0	23.90	23.62	
80	64QAM	217	0	22.97	23.0	23.12	23.75	
Channel				505200	Tune-up limit (dBm)	518598	531996	Tune-up limit (dBm)
Frequency (MHz)				2526		2592.99	2659.98	
60	QPSK	1	1	23.65	24.0	23.41	23.82	24.0
60	QPSK	1	160	23.48	24.0	23.72	23.82	
60	QPSK	81	40	23.54	24.0	23.83	23.60	
60	QPSK	1	0	23.36	24.0	23.53	23.70	24.0
60	QPSK	1	161	23.37	24.0	23.78	23.85	
60	QPSK	162	0	22.65	23.0	23.55	23.40	
60	16QAM	1	1	23.13	24.0	23.54	23.50	24.0
60	16QAM	1	160	23.24	24.0	23.40	23.78	
60	16QAM	81	40	23.32	24.0	23.27	23.92	
60	16QAM	1	0	23.62	24.0	23.75	23.40	24.0
60	16QAM	1	161	23.35	24.0	23.62	23.87	
60	16QAM	162	0	22.70	23.0	23.17	23.50	
60	64QAM	1	1	23.58	24.0	23.07	23.95	24.0
60	64QAM	1	160	23.74	24.0	23.31	23.52	
60	64QAM	81	40	23.43	24.0	23.44	23.63	
60	64QAM	1	0	23.53	24.0	23.50	23.80	24.0
60	64QAM	1	161	23.76	24.0	23.50	23.82	
60	64QAM	162	0	22.51	23.0	23.78	23.56	
Channel				503202	Tune-up limit (dBm)	518598	534000	Tune-up limit (dBm)
Frequency (MHz)				2516.01		2592.99	2670	
40	QPSK	1	1	23.09	24.0	23.15	23.78	24.0
40	QPSK	1	104	23.13	24.0	23.53	23.52	
40	QPSK	53	26	23.55	24.0	23.13	23.89	
40	QPSK	1	0	23.51	24.0	23.66	23.85	24.0
40	QPSK	1	105	23.10	24.0	23.40	23.46	
40	QPSK	106	0	22.34	23.0	23.80	23.39	
40	16QAM	1	1	23.78	24.0	23.52	23.58	24.0
40	16QAM	1	104	23.72	24.0	23.81	23.04	
40	16QAM	53	26	23.75	24.0	23.63	23.29	
40	16QAM	1	0	23.30	24.0	23.82	23.83	24.0
40	16QAM	1	105	23.44	24.0	23.71	23.55	
40	16QAM	106	0	22.72	23.0	23.47	23.08	
40	64QAM	1	1	23.50	24.0	23.34	23.58	24.0
40	64QAM	1	104	23.34	24.0	23.65	23.41	
40	64QAM	53	26	23.42	24.0	23.67	23.13	
40	64QAM	1	0	23.55	24.0	23.47	23.59	24.0
40	64QAM	1	105	23.44	24.0	23.43	23.40	
40	64QAM	106	0	22.86	23.0	23.04	23.88	

<WLAN Conducted Power>

General Note:

1. For each antenna, transmit power in SISO operation is larger than (or equal to) the power in MIMO operation, RF exposure compliance of MIMO mode can be deduced from the compliance simultaneous transmission of antennas operating in SISO mode.
2. Per KDB 248227 D01v02r02, the simultaneous SAR provisions in KDB publication 447498 should be applied to determine simultaneous transmission SAR test exclusion for WiFi MIMO. If the sum of 1g single transmission chain SAR measurements is < 1.6W/kg and SAR peak to location ratio ≤ 0.04, no additional SAR measurements for MIMO.
3. Per KDB 248227 D01v02r02, SAR test reduction is determined according to 802.11 transmission mode configurations and certain exposure conditions with multiple test positions. In the 2.4 GHz band, separate SAR procedures are applied to DSSS and OFDM configurations to simplify DSSS test requirements. For OFDM, in both 2.4 and 5 GHz bands, an initial test configuration must be determined for each standalone and aggregated frequency band, according to the transmission mode configuration with the highest maximum output power specified for production units to perform SAR measurements. If the same highest maximum output power applies to different combinations of channel bandwidths, modulations and data rates, additional procedures are applied to determine which test configurations require SAR measurement. When applicable, an initial test position may be applied to reduce the number of SAR measurements required for next to the ear, UMPC mini-tablet or hotspot mode configurations with multiple test positions.
4. For 2.4 GHz 802.11b DSSS, either the initial test position procedure for multiple exposure test positions or the DSSS procedure for fixed exposure position is applied; these are mutually exclusive. For 2.4 GHz and 5 GHz OFDM configurations, the initial test configuration is applied to measure SAR using either the initial test position procedure for multiple exposure test position configurations or the initial test configuration procedures for fixed exposure test conditions. Based on the reported SAR of the measured configurations and maximum output power of the transmission mode configurations that are not included in the initial test configuration, the subsequent test configuration and initial test position procedures are applied to determine if SAR measurements are required for the remaining OFDM transmission configurations. In general, the number of test channels that require SAR measurement is minimized based on maximum output power measured for the test sample(s).
5. For OFDM transmission configurations in the 2.4 GHz and 5 GHz bands, When the same maximum power is specified for multiple transmission modes in a frequency band, the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order 802.11a/g/n/ac mode is used for SAR measurement, on the highest measured output power channel for each frequency band.
6. 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.18 The initial test position procedure is described in the following:
    a. When the reported SAR of the initial test position is ≤ 0.4 W/kg, further SAR measurement is not required for the other test positions in that exposure configuration and 802.11 transmission mode combinations within the frequency band or aggregated band.
    b. When the reported SAR of the test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position to measure the subsequent next closet/smallest test separation distance and maximum coupling test position on the highest maximum output power channel, until the report SAR is ≤ 0.8 W/kg or all required test position are tested.
    c. For all positions/configurations, 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.

<2.4GHz WLAN ANT 0>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN	802.11b 1Mbps	1	2412	17.68	18.00	98.69
		6	2437	17.92	18.00	
		11	2462	17.98	18.00	
	802.11g 6Mbps	1	2412	17.61	18.00	98.33
		6	2437	17.81	18.00	
		11	2462	17.90	18.00	
	802.11n-HT20 MCS0	1	2412	16.93	17.00	97.96
		6	2437	16.99	17.00	
		11	2462	16.98	17.00	
	802.11n-HT40 MCS0	3	2422	16.36	16.50	95.00
		6	2437	16.49	16.50	
		9	2452	16.11	16.50	
	802.11ac-VHT20 MCS0	1	2412	16.82	17.00	98.48
		6	2437	16.96	17.00	
		11	2462	16.95	17.00	
	802.11ac-VHT40 MCS0	3	2422	16.35	16.50	94.53
		6	2437	16.48	16.50	
		9	2452	16.09	16.50	

<2.4GHz WLAN ANT 1>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN	802.11b 1Mbps	1	2412	17.98	18.00	98.73
		6	2437	17.99	18.00	
		11	2462	17.72	18.00	
	802.11g 6Mbps	1	2412	17.87	18.00	98.57
		6	2437	17.62	18.00	
		11	2462	17.57	18.00	
	802.11n-HT20 MCS0	1	2412	16.92	17.00	98.47
		6	2437	16.87	17.00	
		11	2462	16.70	17.00	
	802.11n-HT40 MCS0	3	2422	16.10	16.50	94.50
		6	2437	16.09	16.50	
		9	2452	16.05	16.50	
	802.11ac-VHT20 MCS0	1	2412	16.43	17.00	97.72
		6	2437	16.23	17.00	
		11	2462	16.20	17.00	
	802.11ac-VHT40 MCS0	3	2422	16.08	16.50	94.53
		6	2437	16.06	16.50	
		9	2452	16.01	16.50	

<2.4GHz WLAN ANT 0+1>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN	802.11n-HT20 MCS0	1	2412	19.82	20.00	98.48
		6	2437	19.84	20.00	
		11	2462	19.71	20.00	
	802.11n-HT40 MCS0	3	2422	19.48	19.50	95.00
		6	2437	19.50	19.50	
		9	2452	19.32	19.50	
	802.11ac-VHT20 MCS0	1	2412	19.68	20.00	98.23
		6	2437	19.66	20.00	
		11	2462	19.51	20.00	
	802.11ac-VHT40 MCS0	3	2422	19.45	19.50	94.53
		6	2437	19.48	19.50	
		9	2452	19.29	19.50	

<5GHz WLAN ANT0>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN	802.11a 6Mbps	36	5180	17.41	17.50	97.73
		40	5200	17.30	17.50	
		44	5220	17.31	17.50	
		48	5240	17.16	17.50	
	802.11n-HT20 MCS0	36	5180	17.35	17.50	97.36
		40	5200	17.26	17.50	
		44	5220	17.24	17.50	
		48	5240	17.14	17.50	
	802.11n-HT40 MCS0	38	5190	17.38	17.50	97.73
		46	5230	17.45	17.50	
	802.11ac-VHT20 MCS0	36	5180	17.32	17.50	97.36
		40	5200	17.26	17.50	
		44	5220	17.22	17.50	
		48	5240	17.12	17.50	
	802.11ac-VHT40 MCS0	38	5190	17.25	17.50	97.73
		46	5230	17.43	17.50	
	802.11ac-VHT80 MCS0	42	5210	17.10	17.50	92.22

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN	802.11a 6Mbps	52	5260	17.20	17.50	97.73
		56	5280	17.19	17.50	
		60	5300	17.23	17.50	
		64	5320	17.18	17.50	
	802.11n-HT20 MCS0	52	5260	17.07	17.50	97.36
		56	5280	17.11	17.50	
		60	5300	17.17	17.50	
		64	5320	17.10	17.50	
	802.11n-HT40 MCS0	54	5270	17.40	17.50	97.73
		62	5310	17.30	17.50	
	802.11ac-VHT20 MCS0	52	5260	17.06	17.50	97.36
		56	5280	17.10	17.50	
		60	5300	17.12	17.50	
		64	5320	17.02	17.50	
	802.11ac-VHT40 MCS0	54	5270	17.39	17.50	97.73
		62	5310	17.29	17.50	
	802.11ac-VHT80 MCS0	58	5290	17.30	17.50	92.22

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN	802.11a 6Mbps	100	5500	15.52	16.00	97.73
		116	5580	17.44	17.50	
		132	5660	17.37	17.50	
		140	5700	15.47	16.00	
	802.11n-HT20 MCS0	100	5500	14.06	14.50	97.36
		116	5580	17.30	17.50	
		132	5660	17.33	17.50	
		140	5700	14.03	14.50	
	802.11n-HT40 MCS0	102	5510	17.45	17.50	97.73
		110	5550	17.36	17.50	
		134	5670	17.42	17.50	
	802.11ac-VHT20 MCS0	100	5500	14.04	14.50	97.36
		116	5580	17.28	17.50	
		132	5660	17.20	17.50	
		140	5700	14.01	14.50	
	802.11ac-VHT40 MCS0	102	5510	17.35	17.50	97.73
		110	5550	17.33	17.50	
		134	5670	17.40	17.50	
	802.11ac-VHT80 MCS0	106	5530	16.55	17.50	92.22

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN	802.11a MCS0	149	5745	17.24	17.50	97.73
		157	5785	17.04	17.50	
		165	5825	17.15	17.50	
	802.11n-HT20 MCS0	149	5745	17.49	17.50	97.36
		157	5785	17.42	17.50	
		165	5825	17.42	17.50	
	802.11n-HT40 MCS0	151	5755	17.48	17.50	97.73
		159	5795	17.11	17.50	
	802.11ac-VHT20 MCS0	149	5745	17.44	17.50	97.36
		157	5785	17.40	17.50	
		165	5825	17.37	17.50	
	802.11ac-VHT40 MCS0	151	5755	17.44	17.50	97.73
		159	5795	17.06	17.50	
	802.11ac-VHT80 MCS0	155	5775	17.35	17.50	92.22

<5GHz WLAN ANT1>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN	802.11a 6Mbps	36	5180	17.35	17.50	96.99
		40	5200	17.24	17.50	
		44	5220	17.19	17.50	
		48	5240	17.32	17.50	
	802.11n-HT20 MCS0	36	5180	17.34	17.50	97.37
		40	5200	17.24	17.50	
		44	5220	17.14	17.50	
		48	5240	17.29	17.50	
	802.11n-HT40 MCS0	38	5190	17.03	17.50	97.73
		46	5230	17.28	17.50	
	802.11ac-VHT20 MCS0	36	5180	17.32	17.50	97.36
		40	5200	17.20	17.50	
		44	5220	17.13	17.50	
		48	5240	17.28	17.50	
	802.11ac-VHT40 MCS0	38	5190	17.01	17.50	97.73
		46	5230	17.26	17.50	
	802.11ac-VHT80 MCS0	42	5210	17.13	17.50	92.02

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN	802.11a 6Mbps	52	5260	17.50	17.50	96.99
		56	5280	17.33	17.50	
		60	5300	17.24	17.50	
		64	5320	17.41	17.50	
	802.11n-HT20 MCS0	52	5260	17.39	17.50	97.37
		56	5280	17.21	17.50	
		60	5300	17.10	17.50	
		64	5320	17.26	17.50	
	802.11n-HT40 MCS0	54	5270	17.17	17.50	97.73
		62	5310	17.18	17.50	
	802.11ac-VHT20 MCS0	52	5260	17.34	17.50	97.36
		56	5280	17.15	17.50	
		60	5300	17.05	17.50	
		64	5320	17.22	17.50	
	802.11ac-VHT40 MCS0	54	5270	17.14	17.50	97.73
		62	5310	17.15	17.50	
	802.11ac-VHT80 MCS0	58	5290	17.19	17.50	92.02

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN	802.11a 6Mbps	100	5500	17.37	17.50	96.99
		116	5580	17.35	17.50	
		132	5660	17.18	17.50	
		140	5700	17.05	17.50	
	802.11n-HT20 MCS0	100	5500	14.08	14.50	97.37
		116	5580	17.23	17.50	
		132	5660	17.23	17.50	
		140	5700	14.02	14.50	
	802.11n-HT40 MCS0	102	5510	17.04	17.50	97.73
		110	5550	17.39	17.50	
		134	5670	17.05	17.50	
	802.11ac-VHT20 MCS0	100	5500	14.03	14.50	97.36
		116	5580	17.22	17.50	
		132	5660	17.23	17.50	
		140	5700	14.01	14.50	
	802.11ac-VHT40 MCS0	102	5510	17.03	17.50	97.73
		110	5550	17.38	17.50	
		134	5670	17.04	17.50	
	802.11ac-VHT80 MCS0	106	5530	16.76	17.50	92.02

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN	802.11a MCS0	149	5745	17.19	17.50	96.99
		157	5785	17.10	17.50	
		165	5825	17.47	17.50	
	802.11n-HT20 MCS0	149	5745	17.43	17.50	97.37
		157	5785	17.41	17.50	
		165	5825	17.43	17.50	
	802.11n-HT40 MCS0	151	5755	17.27	17.50	97.73
		159	5795	17.23	17.50	
	802.11ac-VHT20 MCS0	149	5745	17.40	17.50	97.36
		157	5785	17.39	17.50	
		165	5825	17.34	17.50	
	802.11ac-VHT40 MCS0	151	5755	17.17	17.50	97.73
		159	5795	17.14	17.50	
	802.11ac-VHT80 MCS0	155	5775	17.31	17.50	92.02

<5GHz WLAN ANT0+1>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN	802.11n-HT20 MCS0	36	5180	20.49	20.50	97.36
		40	5200	20.47	20.50	
		44	5220	20.48	20.50	
		48	5240	20.46	20.50	
	802.11n-HT40 MCS0	38	5190	20.40	20.50	97.36
		46	5230	20.49	20.50	
	802.11ac-VHT20 MCS0	36	5180	20.48	20.50	97.36
		40	5200	20.46	20.50	
		44	5220	20.47	20.50	
		48	5240	20.45	20.50	
	802.11ac-VHT40 MCS0	38	5190	20.27	20.50	97.36
		46	5230	20.47	20.50	
	802.11ac-VHT80 MCS0	42	5210	20.38	20.50	92.00

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN	802.11n-HT20 MCS0	52	5260	20.40	20.50	97.36
		56	5280	20.35	20.50	
		60	5300	20.43	20.50	
		64	5320	20.47	20.50	
	802.11n-HT40 MCS0	54	5270	20.47	20.50	97.36
		62	5310	20.43	20.50	
	802.11ac-VHT20 MCS0	52	5260	20.24	20.50	97.36
		56	5280	20.31	20.50	
		60	5300	20.42	20.50	
		64	5320	20.44	20.50	
	802.11ac-VHT40 MCS0	54	5270	20.42	20.50	97.36
		62	5310	20.40	20.50	
	802.11ac-VHT80 MCS0	58	5290	20.32	20.50	92.00

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN	802.11n-HT20 MCS0	100	5500	17.31	17.50	97.36
		116	5580	20.49	20.50	
		132	5660	20.40	20.50	
		140	5700	17.07	17.50	
	802.11n-HT40 MCS0	102	5510	20.46	20.50	97.36
		110	5550	20.49	20.50	
		134	5670	20.48	20.50	
	802.11ac-VHT20 MCS0	100	5500	17.28	17.50	97.36
		116	5580	20.48	20.50	
		132	5660	20.36	20.50	
		140	5700	17.05	17.50	
	802.11ac-VHT40 MCS0	102	5510	20.36	20.50	97.36
		110	5550	20.45	20.50	
		134	5670	20.43	20.50	
	802.11ac-VHT80 MCS0	106	5530	19.86	20.50	92.00

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN	802.11n-HT20 MCS0	149	5745	20.18	20.50	97.36
		157	5785	20.16	20.50	
		165	5825	20.36	20.50	
	802.11n-HT40 MCS0	151	5755	20.04	20.50	97.36
		159	5795	20.41	20.50	
	802.11ac-VHT20 MCS0	149	5745	20.15	20.50	97.36
		157	5785	20.04	20.50	
		165	5825	20.23	20.50	
	802.11ac-VHT40 MCS0	151	5755	20.02	20.50	97.36
		159	5795	20.35	20.50	
	802.11ac-VHT80 MCS0	155	5775	20.37	20.50	92.00

<2.4GHz Bluetooth>

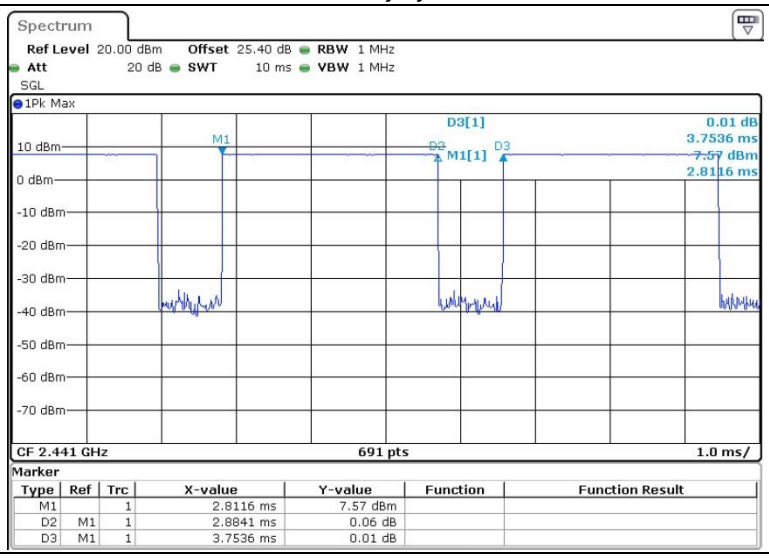
Mode	Channel	Frequency (MHz)	Average power (dBm)		
			1Mbps	2Mbps	3Mbps
BR / EDR	CH 00	2402	9.88	8.51	8.43
	CH 39	2441	8.76	7.40	7.38
	CH 78	2480	9.58	8.08	8.18
Tune-up Limit			10.00	9.00	9.00

Mode	Channel	Frequency (MHz)	Average power (dBm)	
			1Mbps	2Mbps
LE	CH 00	2402	7.64	7.83
	CH 19	2440	7.11	7.20
	CH 39	2480	4.75	4.81
Tune-up Limit			8.0	8.0

General Note:

1. For 2.4GHz Bluetooth SAR testing was selected 1Mbps due to its highest average power and duty cycle is 76.84% considered in SAR testing, and the duty cycle would be scaled to theoretical 83.3% in reported SAR calculation.

BT Duty cycle



11. RF Exposure Position Consideration

Antenna Distance						
Antenna	Front (mm)	Back (mm)	To Left Side (mm)	To Right Side (mm)	To Top Side (mm)	To Bottom Side (mm)
WWAN Antenna 0	<25	<25	<25	123	<25	<25
WWAN Antenna 1	<25	<25	60	<25	96	<25
WWAN Antenna 2	<25	<25	38	27	85	<25
Sub-6G n41 Antenna 5	<25	<25	<25	107	78	<25
WLAN/BT Antenna 0	<25	<25	<25	100	85	<25
WLAN Antenna 1	<25	<25	105	<25	75	<25

Test Required						
Antenna	Front (mm)	Back (mm)	To Left Side (mm)	To Right Side (mm)	To Top Side (mm)	To Bottom Side (mm)
WWAN Antenna 0	<25	<25	<25	123	<25	<25
WWAN Antenna 1	<25	<25	60	<25	96	<25
WWAN Antenna 2	<25	<25	38	27	85	<25
Sub-6G n41 Antenna 5	<25	<25	<25	107	78	<25
WLAN/BT Antenna 0	<25	<25	<25	100	85	<25
WLAN Antenna 1	<25	<25	105	<25	75	<25

General Note:

1. Referring to KDB 941225 D06 v02r01, when the overall device length and width are ≥ 9cm*5cm, the test distance is 10 mm. SAR must be measured for all sides and surfaces with a transmitting antenna located within 25mm from that surface or edge

12. SAR Test Results

General Note:

1. Per KDB 447498 D01v06, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
   a. Tune-up scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
   b. For SAR testing of WLAN signal with non-100% duty cycle, the measured SAR is scaled-up by the duty cycle scaling factor which is equal to "1/(duty cycle)"
   c. For WWAN: Reported SAR(W/kg)= Measured SAR(W/kg)*Tune-up Scaling Factor
   d. For WLAN/Bluetooth: Reported SAR(W/kg)= Measured SAR(W/kg)* Duty Cycle scaling factor * Tune-up scaling factor
   e. For TDD LTE SAR measurement, the duty cycle 1:1.59 (62.9 %) was used perform testing and considering the theoretical duty cycle of 63.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 62.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix 63.3%/62.9% = 1.006 is applied to scale-up the measured SAR result. The Reported TDD LTE SAR = measured SAR (W/kg)* Tune-up Scaling Factor* scaling factor for extended cyclic prefix.
2. Per KDB 447498 D01v06, for each exposure position, testing of other required channels within the operating mode of a frequency band is not required when the *reported* 1-g or 10-g SAR for the mid-band or highest output power channel is:
   - ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
   - ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
   - ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz
3. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥0.8W/kg.
4. The device support EN-DC sub-6G n41 in NSA mode, the combination is: DC_41A_n41A, DC_n41AA.
5. In NSA mode, LTE signal and 5G NR signal can be considered as uncorrelated, so testing the standalone SAR and use the SAR summation / SPLSR analysis to address the compliance via FCC test guidance.
6. 5G NR TDD operation does not have the fixed UL/DL frame structure, but during the transmitting/receiving it can be operated in the slot structure of 100% UL duty cycle, therefore for SAR testing was used 100% duty cycle as conservative evaluation. For the purpose of test 5G NR standalone SAR, and also test SAR level at 100% TX duty cycle, we used the QRCT test tool to set the required bandwidth/RB allocation /modulation/channel according to FCC guidance.

LTE Note:

1. Per KDB 941225 D05v02r05, 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.
2. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
3. Per KDB 941225 D05v02r05, 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 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. Per KDB 941225 D05v02r05, 16QAM output power for each RB allocation configuration is > not ½ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, 16QAM SAR testing is not required.
5. Per KDB 941225 D05v02r05, Smaller bandwidth output power for each RB allocation configuration is > not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
6. For LTE B12 / B26 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
7. LTE band 2/4/5 SAR test was covered by Band 25/66/26; according to TCB workshop, SAR test for overlapping LTE bands can be reduced if
   a. The maximum output power, including tolerance, for the smaller band is ≤ the larger band to qualify for the SAR test exclusion.
   b. The channel bandwidth and other operating parameters for the smaller band are fully supported by the larger band.

WLAN Note:

1. Per KDB 248227 D01v02r02, for 2.4GHz 802.11g/n SAR testing is not required 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.
2. Per KDB 248227 D01v02r02, U-NII-1 SAR testing is not required when the U-NII-2A band highest reported SAR for a test configuration is ≤ 1.2 W/kg, SAR is not required for U-NII-1 band.
3. When the reported SAR of the test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position to measure the subsequent next closet/smallest test separation distance and maximum coupling test position on the highest maximum output power channel, until the report SAR is ≤ 0.8 W/kg or all required test position are tested.
4. For all positions / configurations, 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.
5. For WLAN SAR testing was performed on single antenna RF power in SISO mode is larger or equal to the single antenna RF power in MIMO mode, and for RF exposure assessment of MIMO mode simultaneous transmission exclusion analysis was performed with SAR test results of each antenna in SISO mode.
6. Per KDB 248227 D01v02r02, the simultaneous SAR provisions in KDB publication 447498 should be applied to determine simultaneous transmission SAR test exclusion for WiFi MIMO. If the sum of 1g single transmission chain SAR measurements is < 1.6W/kg and SAR peak to location ratio ≤ 0.04, no additional SAR measurements for MIMO.
7. During SAR testing the WLAN transmission was verified using a spectrum analyzer.

12.1 Body SAR

<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
01	LTE Band 7_Ant 2	20M	QPSK	1	0	Front	10mm	21100	2535	24.13	25.00	1.222	-0.04	0.653	0.798
	LTE Band 7_Ant 2	20M	QPSK	50	0	Front	10mm	21100	2535	23.22	24.00	1.197	-0.09	0.542	0.649
	LTE Band 7_Ant 2	20M	QPSK	1	0	Back	10mm	21100	2535	24.13	25.00	1.222	0.03	0.009	0.011
	LTE Band 7_Ant 2	20M	QPSK	50	0	Back	10mm	21100	2535	23.22	24.00	1.197	0.09	0.007	0.008
	LTE Band 7_Ant 2	20M	QPSK	1	0	Bottom Side	10mm	21100	2535	24.13	25.00	1.222	0.11	0.212	0.259
	LTE Band 7_Ant 2	20M	QPSK	50	0	Bottom Side	10mm	21100	2535	23.22	24.00	1.197	0.1	0.169	0.202
	LTE Band 12_Ant 0	10M	QPSK	1	0	Front	10mm	23095	707.5	23.99	25.00	1.262	-0.05	0.166	0.209
	LTE Band 12_Ant 0	10M	QPSK	25	0	Front	10mm	23095	707.5	23.11	24.00	1.227	0.03	0.111	0.136
02	LTE Band 12_Ant 0	10M	QPSK	1	0	Back	10mm	23095	707.5	23.99	25.00	1.262	-0.01	0.169	0.213
	LTE Band 12_Ant 0	10M	QPSK	25	0	Back	10mm	23095	707.5	23.11	24.00	1.227	-0.17	0.117	0.144
	LTE Band 12_Ant 0	10M	QPSK	1	0	Left Side	10mm	23095	707.5	23.99	25.00	1.262	0.01	0.102	0.129
	LTE Band 12_Ant 0	10M	QPSK	25	0	Left Side	10mm	23095	707.5	23.11	24.00	1.227	-0.04	0.064	0.079
	LTE Band 12_Ant 0	10M	QPSK	1	0	Top Side	10mm	23095	707.5	23.99	25.00	1.262	0.01	0.135	0.170
	LTE Band 12_Ant 0	10M	QPSK	25	0	Top Side	10mm	23095	707.5	23.11	24.00	1.227	0.1	0.090	0.110
	LTE Band 12_Ant 0	10M	QPSK	1	0	Bottom Side	10mm	23095	707.5	23.99	25.00	1.262	0	0.140	0.177
	LTE Band 12_Ant 0	10M	QPSK	25	0	Bottom Side	10mm	23095	707.5	23.11	24.00	1.227	-0.09	0.093	0.114
	LTE Band 12_Ant 1	10M	QPSK	1	0	Front	10mm	23095	707.5	23.99	25.00	1.262	0.13	0.013	0.016
	LTE Band 12_Ant 1	10M	QPSK	25	0	Front	10mm	23095	707.5	23.11	24.00	1.227	0.18	0.008	0.010
	LTE Band 12_Ant 1	10M	QPSK	1	0	Back	10mm	23095	707.5	23.99	25.00	1.262	0.18	0.007	0.009
	LTE Band 12_Ant 1	10M	QPSK	25	0	Back	10mm	23095	707.5	23.11	24.00	1.227	0.17	0.004	0.005
	LTE Band 12_Ant 1	10M	QPSK	1	0	Right Side	10mm	23095	707.5	23.99	25.00	1.262	0.15	0.007	0.009
	LTE Band 12_Ant 1	10M	QPSK	25	0	Right Side	10mm	23095	707.5	23.11	24.00	1.227	-0.04	0.004	0.005
	LTE Band 12_Ant 1	10M	QPSK	1	0	Bottom Side	10mm	23095	707.5	23.99	25.00	1.262	0.09	0.022	0.028
	LTE Band 12_Ant 1	10M	QPSK	25	0	Bottom Side	10mm	23095	707.5	23.11	24.00	1.227	-0.09	0.012	0.015
	LTE Band 13_Ant 0	10M	QPSK	1	49	Front	10mm	23230	782	23.92	25.00	1.282	-0.05	0.145	0.186
	LTE Band 13_Ant 0	10M	QPSK	25	12	Front	10mm	23230	782	23.09	24.00	1.233	0.01	0.099	0.122
	LTE Band 13_Ant 0	10M	QPSK	1	49	Back	10mm	23230	782	23.92	25.00	1.282	0	0.131	0.168
	LTE Band 13_Ant 0	10M	QPSK	25	12	Back	10mm	23230	782	23.09	24.00	1.233	0	0.092	0.113
03	LTE Band 13_Ant 0	10M	QPSK	1	49	Left Side	10mm	23230	782	23.92	25.00	1.282	0.08	0.184	0.236
	LTE Band 13_Ant 0	10M	QPSK	25	12	Left Side	10mm	23230	782	23.09	24.00	1.233	-0.1	0.117	0.144
	LTE Band 13_Ant 0	10M	QPSK	1	49	Top Side	10mm	23230	782	23.92	25.00	1.282	0.06	0.100	0.128
	LTE Band 13_Ant 0	10M	QPSK	25	12	Top Side	10mm	23230	782	23.09	24.00	1.233	-0.09	0.070	0.086
	LTE Band 13_Ant 0	10M	QPSK	1	49	Bottom Side	10mm	23230	782	23.92	25.00	1.282	0.05	0.112	0.144
	LTE Band 13_Ant 0	10M	QPSK	25	12	Bottom Side	10mm	23230	782	23.09	24.00	1.233	-0.15	0.080	0.099
	LTE Band 13_Ant 1	10M	QPSK	1	49	Front	10mm	23230	782	23.92	25.00	1.282	0.12	0.025	0.032
	LTE Band 13_Ant 1	10M	QPSK	25	12	Front	10mm	23230	782	23.09	24.00	1.233	0.09	0.019	0.023
	LTE Band 13_Ant 1	10M	QPSK	1	49	Back	10mm	23230	782	23.92	25.00	1.282	0.08	0.019	0.024
	LTE Band 13_Ant 1	10M	QPSK	25	12	Back	10mm	23230	782	23.09	24.00	1.233	0.14	0.014	0.017
	LTE Band 13_Ant 1	10M	QPSK	1	49	Right Side	10mm	23230	782	23.92	25.00	1.282	0.02	0.012	0.015
	LTE Band 13_Ant 1	10M	QPSK	25	12	Right Side	10mm	23230	782	23.09	24.00	1.233	0.07	0.008	0.010
	LTE Band 13_Ant 1	10M	QPSK	1	49	Bottom Side	10mm	23230	782	23.92	25.00	1.282	0.01	0.013	0.017
	LTE Band 13_Ant 1	10M	QPSK	25	12	Bottom Side	10mm	23230	782	23.09	24.00	1.233	-0.16	0.009	0.011

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 25_Ant 0	20M	QPSK	1	0	Front	10mm	26590	1905	24.19	25.00	1.205	-0.02	0.051	0.061
	LTE Band 25_Ant 0	20M	QPSK	50	0	Front	10mm	26590	1905	23.29	24.00	1.178	0.15	0.036	0.042
	LTE Band 25_Ant 0	20M	QPSK	1	0	Back	10mm	26590	1905	24.19	25.00	1.205	0.07	0.097	0.117
	LTE Band 25_Ant 0	20M	QPSK	50	0	Back	10mm	26590	1905	23.29	24.00	1.178	0.02	0.064	0.075
04	LTE Band 25_Ant 0	20M	QPSK	1	0	Left Side	10mm	26590	1905	24.19	25.00	1.205	0.11	0.451	0.543
	LTE Band 25_Ant 0	20M	QPSK	50	0	Left Side	10mm	26590	1905	23.29	24.00	1.178	0.09	0.291	0.343
	LTE Band 25_Ant 0	20M	QPSK	1	0	Top Side	10mm	26590	1905	24.19	25.00	1.205	0.03	0.028	0.034
	LTE Band 25_Ant 0	20M	QPSK	50	0	Top Side	10mm	26590	1905	23.29	24.00	1.178	0.06	0.015	0.018
	LTE Band 25_Ant 0	20M	QPSK	1	0	Bottom Side	10mm	26590	1905	24.19	25.00	1.205	0.07	0.027	0.033
	LTE Band 25_Ant 0	20M	QPSK	50	0	Bottom Side	10mm	26590	1905	23.29	24.00	1.178	-0.16	0.016	0.019
	LTE Band 25_Ant 1	20M	QPSK	1	0	Front	10mm	26590	1905	24.19	25.00	1.205	-0.06	0.032	0.039
	LTE Band 25_Ant 1	20M	QPSK	50	0	Front	10mm	26590	1905	23.29	24.00	1.178	-0.05	0.015	0.018
	LTE Band 25_Ant 1	20M	QPSK	1	0	Back	10mm	26590	1905	24.19	25.00	1.205	-0.13	0.039	0.047
	LTE Band 25_Ant 1	20M	QPSK	50	0	Back	10mm	26590	1905	23.29	24.00	1.178	-0.16	0.025	0.029
	LTE Band 25_Ant 1	20M	QPSK	1	0	Right Side	10mm	26590	1905	24.19	25.00	1.205	0.07	0.041	0.049
	LTE Band 25_Ant 1	20M	QPSK	50	0	Right Side	10mm	26590	1905	23.29	24.00	1.178	-0.15	0.028	0.033
	LTE Band 25_Ant 1	20M	QPSK	1	0	Bottom Side	10mm	26590	1905	24.19	25.00	1.205	0.15	0.324	0.390
	LTE Band 25_Ant 1	20M	QPSK	50	0	Bottom Side	10mm	26590	1905	23.29	24.00	1.178	0.18	0.211	0.248
	LTE Band 26_Ant 0	15M	QPSK	1	0	Front	10mm	26865	831.5	24.23	25.00	1.194	0.03	0.125	0.149
	LTE Band 26_Ant 0	15M	QPSK	36	0	Front	10mm	26865	831.5	23.43	24.00	1.140	0.04	0.084	0.096
	LTE Band 26_Ant 0	15M	QPSK	1	0	Back	10mm	26865	831.5	24.23	25.00	1.194	-0.01	0.094	0.112
	LTE Band 26_Ant 0	15M	QPSK	36	0	Back	10mm	26865	831.5	23.43	24.00	1.140	0.07	0.061	0.070
05	LTE Band 26_Ant 0	15M	QPSK	1	0	Left Side	10mm	26865	831.5	24.23	25.00	1.194	0.1	0.128	0.153
	LTE Band 26_Ant 0	15M	QPSK	36	0	Left Side	10mm	26865	831.5	23.43	24.00	1.140	0.09	0.080	0.091
	LTE Band 26_Ant 0	15M	QPSK	1	0	Top Side	10mm	26865	831.5	24.23	25.00	1.194	0.01	0.099	0.118
	LTE Band 26_Ant 0	15M	QPSK	36	0	Top Side	10mm	26865	831.5	23.43	24.00	1.140	-0.03	0.063	0.072
	LTE Band 26_Ant 0	15M	QPSK	1	0	Bottom Side	10mm	26865	831.5	24.23	25.00	1.194	0.03	0.101	0.121
	LTE Band 26_Ant 0	15M	QPSK	36	0	Bottom Side	10mm	26865	831.5	23.43	24.00	1.140	-0.01	0.065	0.074
	LTE Band 26_Ant 1	15M	QPSK	1	0	Front	10mm	26865	831.5	24.23	25.00	1.194	0.1	0.042	0.050
	LTE Band 26_Ant 1	15M	QPSK	36	0	Front	10mm	26865	831.5	23.43	24.00	1.140	-0.06	0.026	0.030
	LTE Band 26_Ant 1	15M	QPSK	1	0	Back	10mm	26865	831.5	24.23	25.00	1.194	0.09	0.037	0.044
	LTE Band 26_Ant 1	15M	QPSK	36	0	Back	10mm	26865	831.5	23.43	24.00	1.140	-0.03	0.024	0.027
	LTE Band 26_Ant 1	15M	QPSK	1	0	Right Side	10mm	26865	831.5	24.23	25.00	1.194	0.13	0.024	0.029
	LTE Band 26_Ant 1	15M	QPSK	36	0	Right Side	10mm	26865	831.5	23.43	24.00	1.140	-0.19	0.015	0.017
	LTE Band 26_Ant 1	15M	QPSK	1	0	Bottom Side	10mm	26865	831.5	24.23	25.00	1.194	0.07	0.036	0.043
	LTE Band 26_Ant 1	15M	QPSK	36	0	Bottom Side	10mm	26865	831.5	23.43	24.00	1.140	-0.13	0.023	0.026

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 66_Ant 0	20M	QPSK	1	0	Front	10mm	132322	1745	24.22	25.00	1.197	0.04	0.054	0.065
	LTE Band 66_Ant 0	20M	QPSK	50	0	Front	10mm	132572	1770	23.32	24.00	1.169	0.04	0.037	0.043
	LTE Band 66_Ant 0	20M	QPSK	1	0	Back	10mm	132322	1745	24.22	25.00	1.197	-0.01	0.080	0.096
	LTE Band 66_Ant 0	20M	QPSK	50	0	Back	10mm	132572	1770	23.32	24.00	1.169	0.02	0.055	0.064
	LTE Band 66_Ant 0	20M	QPSK	1	0	Left Side	10mm	132322	1745	24.22	25.00	1.197	0.07	0.447	0.535
	LTE Band 66_Ant 0	20M	QPSK	50	0	Left Side	10mm	132572	1770	23.32	24.00	1.169	0.05	0.254	0.297
	LTE Band 66_Ant 0	20M	QPSK	1	0	Top Side	10mm	132322	1745	24.22	25.00	1.197	0.05	0.015	0.018
	LTE Band 66_Ant 0	20M	QPSK	50	0	Top Side	10mm	132572	1770	23.32	24.00	1.169	-0.09	0.005	0.006
	LTE Band 66_Ant 0	20M	QPSK	1	0	Bottom Side	10mm	132322	1745	24.22	25.00	1.197	0.06	0.017	0.020
	LTE Band 66_Ant 0	20M	QPSK	50	0	Bottom Side	10mm	132572	1770	23.32	24.00	1.169	-0.07	0.008	0.010
	LTE Band 66_Ant 1	20M	QPSK	1	0	Front	10mm	132322	1745	24.22	25.00	1.197	-0.02	0.087	0.104
	LTE Band 66_Ant 1	20M	QPSK	50	0	Front	10mm	132572	1770	23.32	24.00	1.169	-0.08	0.050	0.058
	LTE Band 66_Ant 1	20M	QPSK	1	0	Back	10mm	132322	1745	24.22	25.00	1.197	-0.01	0.068	0.081
	LTE Band 66_Ant 1	20M	QPSK	50	0	Back	10mm	132572	1770	23.32	24.00	1.169	-0.11	0.043	0.050
	LTE Band 66_Ant 1	20M	QPSK	1	0	Right Side	10mm	132322	1745	24.22	25.00	1.197	-0.04	0.046	0.055
	LTE Band 66_Ant 1	20M	QPSK	50	0	Right Side	10mm	132572	1770	23.32	24.00	1.169	0.05	0.027	0.032
	LTE Band 66_Ant 1	20M	QPSK	1	0	Bottom Side	10mm	132322	1745	24.22	25.00	1.197	0.07	0.728	0.871
	LTE Band 66_Ant 1	20M	QPSK	1	0	Bottom Side	10mm	132072	1720	23.48	25.00	1.419	-0.01	0.594	0.843
06	LTE Band 66_Ant 1	20M	QPSK	1	0	Bottom Side	10mm	132572	1770	23.90	25.00	1.288	0	0.737	0.949
	LTE Band 66_Ant 1	20M	QPSK	50	0	Bottom Side	10mm	132572	1770	23.32	24.00	1.169	0.02	0.466	0.545
	LTE Band 66_Ant 1	20M	QPSK	100	0	Bottom Side	10mm	132572	1770	23.26	24.00	1.186	0.03	0.448	0.531
	LTE Band 71_Ant 0	20M	QPSK	1	0	Front	10mm	133322	683	24.21	24.50	1.069	-0.01	0.120	0.128
	LTE Band 71_Ant 0	20M	QPSK	50	0	Front	10mm	133322	683	23.31	23.50	1.045	-0.02	0.085	0.089
07	LTE Band 71_Ant 0	20M	QPSK	1	0	Back	10mm	133322	683	24.21	24.50	1.069	0.01	0.151	0.161
	LTE Band 71_Ant 0	20M	QPSK	50	0	Back	10mm	133322	683	23.31	23.50	1.045	-0.1	0.106	0.111
	LTE Band 71_Ant 0	20M	QPSK	1	0	Left Side	10mm	133322	683	24.21	24.50	1.069	-0.08	0.080	0.086
	LTE Band 71_Ant 0	20M	QPSK	50	0	Left Side	10mm	133322	683	23.31	23.50	1.045	-0.09	0.058	0.061
	LTE Band 71_Ant 0	20M	QPSK	1	0	Top Side	10mm	133322	683	24.21	24.50	1.069	0.03	0.140	0.150
	LTE Band 71_Ant 0	20M	QPSK	50	0	Top Side	10mm	133322	683	23.31	23.50	1.045	0.06	0.100	0.104
	LTE Band 71_Ant 0	20M	QPSK	1	0	Bottom Side	10mm	133322	683	24.21	24.50	1.069	0.01	0.146	0.156
	LTE Band 71_Ant 0	20M	QPSK	50	0	Bottom Side	10mm	133322	683	23.31	23.50	1.045	-0.12	0.096	0.100
	LTE Band 71_Ant 1	20M	QPSK	1	0	Front	10mm	133322	683	24.21	24.50	1.069	0.02	0.012	0.013
	LTE Band 71_Ant 1	20M	QPSK	50	0	Front	10mm	133322	683	23.31	23.50	1.045	-0.06	0.008	0.008
	LTE Band 71_Ant 1	20M	QPSK	1	0	Back	10mm	133322	683	24.21	24.50	1.069	0.07	0.009	0.010
	LTE Band 71_Ant 1	20M	QPSK	36	0	Back	10mm	133322	683	23.31	23.50	1.045	-0.09	0.006	0.006
	LTE Band 71_Ant 1	20M	QPSK	1	0	Right Side	10mm	133322	683	24.21	24.50	1.069	0.06	0.006	0.006
	LTE Band 71_Ant 1	20M	QPSK	50	0	Right Side	10mm	133322	683	23.31	23.50	1.045	-0.03	0.004	0.004
	LTE Band 71_Ant 1	20M	QPSK	1	0	Bottom Side	10mm	133322	683	24.21	24.50	1.069	0.04	0.031	0.033
	LTE Band 71_Ant 1	20M	QPSK	50	0	Bottom Side	10mm	133322	683	23.31	23.50	1.045	-0.15	0.021	0.022

<TDD LTE SAR>

Note	Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
PC3		LTE Band 41_Ant 2	20M	QPSK	1	0	Front	10mm	40620	2593	24.28	25.00	1.180	62.9	1.006	-0.01	0.475	0.564
PC3		LTE Band 41_Ant 2	20M	QPSK	50	0	Front	10mm	40620	2593	23.35	24.00	1.161	62.9	1.006	-0.16	0.304	0.355
PC3		LTE Band 41_Ant 2	20M	QPSK	1	0	Back	10mm	40620	2593	24.28	25.00	1.180	62.9	1.006	0.03	0.009	0.010
PC3		LTE Band 41_Ant 2	20M	QPSK	50	0	Back	10mm	40620	2593	23.35	24.00	1.161	62.9	1.006	0.14	0.004	0.005
PC3		LTE Band 41_Ant 2	20M	QPSK	1	0	Bottom Side	10mm	40620	2593	24.28	25.00	1.180	62.9	1.006	0.15	0.145	0.172
PC3		LTE Band 41_Ant 2	20M	QPSK	50	0	Bottom Side	10mm	40620	2593	23.35	24.00	1.161	62.9	1.006	0.08	0.093	0.109
PC2	08	LTE Band 41_Ant 2	20M	QPSK	1	0	Front	10mm	40620	2593	26.04	27.00	1.247	42.9	1.009	-0.05	0.482	0.607
Intra UL CA		LTE Band 41C_Ant 2	20M	QPSK	1	0	Front	10mm	40185 + 39987	2549.5	21.97	23.00	1.268	62.9	1.006	-0.13	0.142	0.181

<Sub-6G n41 SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	Sub-6G n41_Ant 5	100M	QPSK	1	1	Front	10mm	518598	2592.99	23.90	24.00	1.023	100	1.000	-0.11	0.024	0.025
	Sub-6G n41_Ant 5	100M	QPSK	137	68	Front	10mm	509202	2546.01	23.50	24.00	1.122	100	1.000	-0.1	0.035	0.039
	Sub-6G n41_Ant 5	100M	QPSK	1	1	Back	10mm	518598	2592.99	23.90	24.00	1.023	100	1.000	0.08	0.111	0.114
09	Sub-6G n41_Ant 5	100M	QPSK	137	68	Back	10mm	509202	2546.01	23.50	24.00	1.122	100	1.000	-0.14	0.115	0.129
	Sub-6G n41_Ant 5	100M	QPSK	1	1	Left Side	10mm	518598	2592.99	23.90	24.00	1.023	100	1.000	0.01	0.113	0.116
	Sub-6G n41_Ant 5	100M	QPSK	137	68	Left Side	10mm	509202	2546.01	23.50	24.00	1.122	100	1.000	-0.13	0.104	0.117
	Sub-6G n41_Ant 5	100M	QPSK	1	1	Bottom Side	10mm	518598	2592.99	23.90	24.00	1.023	100	1.000	0.12	0.053	0.054
	Sub-6G n41_Ant 5	100M	QPSK	137	68	Bottom Side	10mm	509202	2546.01	23.50	24.00	1.122	100	1.000	0.04	0.043	0.048

<WLAN SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN2.4GHz_Ant 0	802.11b 1Mbps	Front	10mm	11	2462	17.98	18.00	1.005	98.69	1.013	0.04	0.044	0.045
	WLAN2.4GHz_Ant 0	802.11b 1Mbps	Back	10mm	11	2462	17.98	18.00	1.005	98.69	1.013	-0.03	0.007	0.008
	WLAN2.4GHz_Ant 0	802.11b 1Mbps	Left Side	10mm	11	2462	17.98	18.00	1.005	98.69	1.013	0.12	0.039	0.040
	WLAN2.4GHz_Ant 0	802.11b 1Mbps	Bottom Side	10mm	11	2462	17.98	18.00	1.005	98.69	1.013	-0.16	0.027	0.027
	WLAN2.4GHz_Ant 1	802.11b 1Mbps	Front	10mm	6	2437	17.99	18.00	1.002	98.73	1.013	0.1	0.035	0.036
	WLAN2.4GHz_Ant 1	802.11b 1Mbps	Back	10mm	6	2437	17.99	18.00	1.002	98.73	1.013	-0.05	0.037	0.038
10	WLAN2.4GHz_Ant 1	802.11b 1Mbps	Right Side	10mm	6	2437	17.99	18.00	1.002	98.73	1.013	0.08	0.075	0.076
	WLAN2.4GHz_Ant 1	802.11b 1Mbps	Bottom Side	10mm	6	2437	17.99	18.00	1.002	98.73	1.013	0.02	0.067	0.068
	WLAN5GHz_Ant 0	802.11ac-VHT80 MCS0	Front	10mm	58	5290	17.30	17.50	1.047	92.22	1.084	-0.05	0.190	0.216
	WLAN5GHz_Ant 0	802.11ac-VHT80 MCS0	Back	10mm	58	5290	17.30	17.50	1.047	92.22	1.084	0	0.005	0.006
	WLAN5GHz_Ant 0	802.11ac-VHT80 MCS0	Left Side	10mm	58	5290	17.30	17.50	1.047	92.22	1.084	0.16	0.012	0.014
	WLAN5GHz_Ant 0	802.11ac-VHT80 MCS0	Bottom Side	10mm	58	5290	17.30	17.50	1.047	92.22	1.084	0.12	0.099	0.112
	WLAN5GHz_Ant 1	802.11ac-VHT80 MCS0	Front	10mm	58	5290	17.19	17.50	1.074	92.02	1.087	0	0.001	0.001
	WLAN5GHz_Ant 1	802.11ac-VHT80 MCS0	Back	10mm	58	5290	17.19	17.50	1.074	92.02	1.087	0.11	0.037	0.043
11	WLAN5GHz_Ant 1	802.11ac-VHT80 MCS0	Right Side	10mm	58	5290	17.19	17.50	1.074	92.02	1.087	0.14	0.241	0.281
	WLAN5GHz_Ant 1	802.11ac-VHT80 MCS0	Bottom Side	10mm	58	5290	17.19	17.50	1.074	92.02	1.087	-0.08	0.067	0.078
	WLAN5GHz_Ant 0	802.11ac-VHT80 MCS0	Front	10mm	106	5530	16.55	17.50	1.245	92.22	1.084	0.05	0.136	0.183
	WLAN5GHz_Ant 0	802.11ac-VHT80 MCS0	Back	10mm	106	5530	16.55	17.50	1.245	92.22	1.084	0	0.007	0.009
	WLAN5GHz_Ant 0	802.11ac-VHT80 MCS0	Left Side	10mm	106	5530	16.55	17.50	1.245	92.22	1.084	0.13	0.011	0.015
	WLAN5GHz_Ant 0	802.11ac-VHT80 MCS0	Bottom Side	10mm	106	5530	16.55	17.50	1.245	92.22	1.084	-0.01	0.063	0.085
	WLAN5GHz_Ant 1	802.11ac-VHT80 MCS0	Front	10mm	106	5530	16.76	17.50	1.186	92.02	1.087	0	0.001	0.001
	WLAN5GHz_Ant 1	802.11ac-VHT80 MCS0	Back	10mm	106	5530	16.76	17.50	1.186	92.02	1.087	-0.06	0.054	0.070
12	WLAN5GHz_Ant 1	802.11ac-VHT80 MCS0	Right Side	10mm	106	5530	16.76	17.50	1.186	92.02	1.087	-0.02	0.168	0.217
	WLAN5GHz_Ant 1	802.11ac-VHT80 MCS0	Bottom Side	10mm	106	5530	16.76	17.50	1.186	92.02	1.087	0.05	0.052	0.067
	WLAN5GHz_Ant 0	802.11ac-VHT80 MCS0	Front	10mm	155	5775	17.35	17.50	1.035	92.22	1.084	-0.1	0.072	0.081
	WLAN5GHz_Ant 0	802.11ac-VHT80 MCS0	Back	10mm	155	5775	17.35	17.50	1.035	92.22	1.084	-0.17	0.009	0.011
	WLAN5GHz_Ant 0	802.11ac-VHT80 MCS0	Left Side	10mm	155	5775	17.35	17.50	1.035	92.22	1.084	0.12	0.007	0.008
	WLAN5GHz_Ant 0	802.11ac-VHT80 MCS0	Bottom Side	10mm	155	5775	17.35	17.50	1.035	92.22	1.084	-0.11	0.044	0.049
	WLAN5GHz_Ant 1	802.11ac-VHT80 MCS0	Front	10mm	155	5775	17.31	17.50	1.045	92.02	1.087	-0.1	0.035	0.040
	WLAN5GHz_Ant 1	802.11ac-VHT80 MCS0	Back	10mm	155	5775	17.31	17.50	1.045	92.02	1.087	-0.07	0.064	0.073
13	WLAN5GHz_Ant 1	802.11ac-VHT80 MCS0	Right Side	10mm	155	5775	17.31	17.50	1.045	92.02	1.087	-0.12	0.139	0.158
	WLAN5GHz_Ant 1	802.11ac-VHT80 MCS0	Bottom Side	10mm	155	5775	17.31	17.50	1.045	92.02	1.087	-0.18	0.082	0.093

<Bluetooth SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
14	Bluetooth_Ant 0	1Mbps	Front	10mm	0	2402	9.88	10.00	1.028	76.84	1.084	-0.05	0.004	0.005
	Bluetooth_Ant 0	1Mbps	Back	10mm	0	2402	9.88	10.00	1.028	76.84	1.084	0.13	0.001	0.001
	Bluetooth_Ant 0	1Mbps	Left Side	10mm	0	2402	9.88	10.00	1.028	76.84	1.084	0.13	0.004	0.004
	Bluetooth_Ant 0	1Mbps	Bottom Side	10mm	0	2402	9.88	10.00	1.028	76.84	1.084	0.13	0.004	0.004

13. Simultaneous Transmission Analysis

Simultaneous transmission combination scenarios	LTE Ant 0	LTE Ant 1	LTE Ant 2	Sub-6G n41 Ant 5	2.4GHz WLAN/BT Ant 0	2.4GHz WLAN Ant 1	5GHz WLAN Ant 0	5GHz WLAN Ant 1	802.11ad (Left Antenna module)	802.11ad (Right Antenna module)
1	☑				☑	☑			☑	
2		☑			☑	☑			☑	
3			☑	☑	☑	☑			☑	
4	☑						☑	☑	☑	
5		☑					☑	☑	☑	
6			☑	☑			☑	☑	☑	
7	☑				☑			☑	☑	
8		☑			☑			☑	☑	
9			☑	☑	☑			☑	☑	
10	☑				☑	☑				☑
11		☑			☑	☑				☑
12			☑	☑	☑	☑				☑
13	☑						☑	☑		☑
14		☑					☑	☑		☑
15			☑	☑			☑	☑		☑
16	☑				☑			☑		☑
17		☑			☑			☑		☑
18			☑	☑	☑			☑		☑

General Note:

1. The 802.11ad RF exposure and simultaneous transmission analysis with 802.11ad are evaluated in the FCC ID: NM82Q6U100 (Sporton SAR Report No. FA8D2018B).
2. For WLAN SAR testing was performed on single antenna RF power in SISO mode is larger or equal to the single antenna RF power in MIMO mode, and for RF exposure assessment of MIMO mode simultaneous transmission exclusion analysis was performed with SAR test results of each antenna in SISO mode.
3. WLAN and Bluetooth share the same antenna, and cannot transmit simultaneously.
4. EUT will choose either WLAN 2.4GHz or WLAN 5GHz according to the network signal condition; therefore, 2.4GHz WLAN and 5GHz WLAN will not operate simultaneously at any moment.
5. The Scaled SAR summation is calculated based on the same configuration and test position.
6. Per KDB 447498 D01v06, simultaneous transmission SAR is compliant if,
   i) Scalar SAR summation < 1.6W/kg.
   ii) SPLSR = (SAR1 + SAR2)^1.5 / (min. separation distance, mm), and the peak separation distance is determined from the square root of [(x1-x2)2 + (y1-y2)2 + (z1-z2)2], where (x1, y1, z1) and (x2, y2, z2) are the coordinates of the extrapolated peak SAR locations in the zoom scan.
   iii) If SPLSR ≤ 0.04, simultaneously transmission SAR measurement is not necessary.
   iv) Simultaneously transmission SAR measurement, and the reported multi-band SAR < 1.6W/kg.

13.1 Body Exposure Conditions

WWAN Band		Exposure Position	1	2	3	4	5	6	1+2+3 Summed 1g SAR (W/kg)	1+4+5 Summed 1g SAR (W/kg)	1+3+6 Summed 1g SAR (W/kg)	1+5+6 Summed 1g SAR (W/kg)
			WWAN	2.4GHz WLAN Ant 0	2.4GHz WLAN Ant 1	5GHz WLAN Ant 0	5GHz WLAN Ant 1	Bluetooth Ant 0				
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)				
LTE	LTE Band 12_Ant 0	Front	0.209	0.045	0.036	0.216	0.040	0.005	**0.290**	**0.465**	**0.250**	**0.254**
		Back	0.213	0.008	0.038	0.011	0.073	0.001	**0.259**	**0.297**	**0.252**	**0.287**
		Left side	0.129	0.040		0.015		0.004	**0.169**	**0.144**	**0.133**	**0.133**
		Right side			0.076		0.281		**0.076**	**0.281**	**0.076**	**0.281**
		Top side	0.170						**0.170**	**0.170**	**0.170**	**0.170**
		Bottom side	0.177	0.027	0.068	0.112	0.093	0.004	**0.272**	**0.382**	**0.249**	**0.274**
	LTE Band 13_Ant 0	Front	0.186	0.045	0.036	0.216	0.040	0.005	**0.267**	**0.442**	**0.227**	**0.231**
		Back	0.168	0.008	0.038	0.011	0.073	0.001	**0.214**	**0.252**	**0.207**	**0.242**
		Left side	0.236	0.040		0.015		0.004	**0.276**	**0.251**	**0.240**	**0.240**
		Right side			0.076		0.281		**0.076**	**0.281**	**0.076**	**0.281**
		Top side	0.128						**0.128**	**0.128**	**0.128**	**0.128**
		Bottom side	0.144	0.027	0.068	0.112	0.093	0.004	**0.239**	**0.349**	**0.216**	**0.241**
	LTE Band 25_Ant 0	Front	0.061	0.045	0.036	0.216	0.040	0.005	**0.142**	**0.317**	**0.102**	**0.106**
		Back	0.117	0.008	0.038	0.011	0.073	0.001	**0.163**	**0.201**	**0.156**	**0.191**
		Left side	0.543	0.040		0.015		0.004	**0.583**	**0.558**	**0.547**	**0.547**
		Right side			0.076		0.281		**0.076**	**0.281**	**0.076**	**0.281**
		Top side	0.034						**0.034**	**0.034**	**0.034**	**0.034**
		Bottom side	0.033	0.027	0.068	0.112	0.093	0.004	**0.128**	**0.238**	**0.105**	**0.130**
	LTE Band 26_Ant 0	Front	0.149	0.045	0.036	0.216	0.040	0.005	**0.230**	**0.405**	**0.190**	**0.194**
		Back	0.112	0.008	0.038	0.011	0.073	0.001	**0.158**	**0.196**	**0.151**	**0.186**
		Left side	0.153	0.040		0.015		0.004	**0.193**	**0.168**	**0.157**	**0.157**
		Right side			0.076		0.281		**0.076**	**0.281**	**0.076**	**0.281**
		Top side	0.118						**0.118**	**0.118**	**0.118**	**0.118**
		Bottom side	0.121	0.027	0.068	0.112	0.093	0.004	**0.216**	**0.326**	**0.193**	**0.218**
	LTE Band 66_Ant 0	Front	0.065	0.045	0.036	0.216	0.040	0.005	**0.146**	**0.321**	**0.106**	**0.110**
		Back	0.096	0.008	0.038	0.011	0.073	0.001	**0.142**	**0.180**	**0.135**	**0.170**
		Left side	0.535	0.040		0.015		0.004	**0.575**	**0.550**	**0.539**	**0.539**
		Right side			0.076		0.281		**0.076**	**0.281**	**0.076**	**0.281**
		Top side	0.006						**0.006**	**0.006**	**0.006**	**0.006**
		Bottom side	0.010	0.027	0.068	0.112	0.093	0.004	**0.105**	**0.215**	**0.082**	**0.107**
	LTE Band 71_Ant 0	Front	0.128	0.045	0.036	0.216	0.040	0.005	**0.209**	**0.384**	**0.169**	**0.173**
		Back	0.161	0.008	0.038	0.011	0.073	0.001	**0.207**	**0.245**	**0.200**	**0.235**
		Left side	0.086	0.040		0.015		0.004	**0.126**	**0.101**	**0.090**	**0.090**
		Right side			0.076		0.281		**0.076**	**0.281**	**0.076**	**0.281**
		Top side	0.150						**0.150**	**0.150**	**0.150**	**0.150**
		Bottom side	0.156	0.027	0.068	0.112	0.093	0.004	**0.251**	**0.361**	**0.228**	**0.253**

WWAN Band		Exposure Position	1 WWAN 1g SAR (W/kg)	2 2.4GHz WLAN Ant 0 1g SAR (W/kg)	3 2.4GHz WLAN Ant 1 1g SAR (W/kg)	4 5GHz WLAN Ant 0 1g SAR (W/kg)	5 5GHz WLAN Ant 1 1g SAR (W/kg)	6 Bluetooth Ant 0 1g SAR (W/kg)	1+2+3 Summed 1g SAR (W/kg)	1+4+5 Summed 1g SAR (W/kg)	1+3+6 Summed 1g SAR (W/kg)	1+5+6 Summed 1g SAR (W/kg)
LTE	LTE Band 12_Ant 1	Front	0.016	0.045	0.036	0.216	0.040	0.005	**0.097**	**0.272**	**0.057**	**0.061**
		Back	0.009	0.008	0.038	0.011	0.073	0.001	**0.055**	**0.093**	**0.048**	**0.083**
		Left side		0.040		0.015		0.004	**0.040**	**0.015**	**0.004**	**0.004**
		Right side	0.009		0.076		0.281		**0.085**	**0.290**	**0.085**	**0.290**
		Bottom side	0.028	0.027	0.068	0.112	0.093	0.004	**0.123**	**0.233**	**0.100**	**0.125**
	LTE Band 13_Ant 1	Front	0.032	0.045	0.036	0.216	0.040	0.005	**0.113**	**0.288**	**0.073**	**0.077**
		Back	0.024	0.008	0.038	0.011	0.073	0.001	**0.070**	**0.108**	**0.063**	**0.098**
		Left side		0.040		0.015		0.004	**0.040**	**0.015**	**0.004**	**0.004**
		Right side	0.015		0.076		0.281		**0.091**	**0.296**	**0.091**	**0.296**
		Bottom side	0.017	0.027	0.068	0.112	0.093	0.004	**0.112**	**0.222**	**0.089**	**0.114**
	LTE Band 25_Ant 1	Front	0.039	0.045	0.036	0.216	0.040	0.005	**0.120**	**0.295**	**0.080**	**0.084**
		Back	0.047	0.008	0.038	0.011	0.073	0.001	**0.093**	**0.131**	**0.086**	**0.121**
		Left side		0.040		0.015		0.004	**0.040**	**0.015**	**0.004**	**0.004**
		Right side	0.049		0.076		0.281		**0.125**	**0.330**	**0.125**	**0.330**
		Bottom side	0.390	0.027	0.068	0.112	0.093	0.004	**0.485**	**0.595**	**0.462**	**0.487**
	LTE Band 26_Ant 1	Front	0.050	0.045	0.036	0.216	0.040	0.005	**0.131**	**0.306**	**0.091**	**0.095**
		Back	0.044	0.008	0.038	0.011	0.073	0.001	**0.090**	**0.128**	**0.083**	**0.118**
		Left side		0.040		0.015		0.004	**0.040**	**0.015**	**0.004**	**0.004**
		Right side	0.029		0.076		0.281		**0.105**	**0.310**	**0.105**	**0.310**
		Bottom side	0.043	0.027	0.068	0.112	0.093	0.004	**0.138**	**0.248**	**0.115**	**0.140**
	LTE Band 66_Ant 1	Front	0.104	0.045	0.036	0.216	0.040	0.005	**0.185**	**0.360**	**0.145**	**0.149**
		Back	0.081	0.008	0.038	0.011	0.073	0.001	**0.127**	**0.165**	**0.120**	**0.155**
		Left side		0.040		0.015		0.004	**0.040**	**0.015**	**0.004**	**0.004**
		Right side	0.055		0.076		0.281		**0.131**	**0.336**	**0.131**	**0.336**
		Bottom side	0.949	0.027	0.068	0.112	0.093	0.004	**1.044**	**1.154**	**1.021**	**1.046**
	LTE Band 71_Ant 1	Front	0.013	0.045	0.036	0.216	0.040	0.005	**0.094**	**0.269**	**0.054**	**0.058**
		Back	0.010	0.008	0.038	0.011	0.073	0.001	**0.056**	**0.094**	**0.049**	**0.084**
		Left side		0.040		0.015		0.004	**0.040**	**0.015**	**0.004**	**0.004**
		Right side	0.006		0.076		0.281		**0.082**	**0.287**	**0.082**	**0.287**
		Bottom side	0.033	0.027	0.068	0.112	0.093	0.004	**0.128**	**0.238**	**0.105**	**0.130**

WWAN Band		Exposure Position	1 WWAN 1g SAR (W/kg)	2 2.4GHz WLAN Ant 0 1g SAR (W/kg)	3 2.4GHz WLAN Ant 1 1g SAR (W/kg)	4 5GHz WLAN Ant 0 1g SAR (W/kg)	5 5GHz WLAN Ant 1 1g SAR (W/kg)	6 Bluetooth Ant 0 1g SAR (W/kg)	7 Sub-6G n41 Ant 5 1g SAR (W/kg)	1+2+3+7 Summed 1g SAR (W/kg)	1+4+5+7 Summed 1g SAR (W/kg)	1+3+6+7 Summed 1g SAR (W/kg)	1+5+6+7 Summed 1g SAR (W/kg)
LTE	LTE Band 7_Ant 2	Front	0.798	0.045	0.036	0.216	0.040	0.005		**0.879**	**1.054**	**0.839**	**0.843**
		Back	0.011	0.008	0.038	0.011	0.073	0.001		**0.057**	**0.095**	**0.050**	**0.085**
		Left side		0.040		0.015		0.004		**0.040**	**0.015**	**0.004**	**0.004**
		Right side			0.076		0.281			**0.076**	**0.281**	**0.076**	**0.281**
		Bottom side	0.259	0.027	0.068	0.112	0.093	0.004		**0.354**	**0.464**	**0.331**	**0.356**
	LTE Band 41_Ant 2	Front	0.607	0.045	0.036	0.216	0.040	0.005	0.039	**0.727**	**0.902**	**0.687**	**0.691**
		Back	0.010	0.008	0.038	0.011	0.073	0.001	0.129	**0.185**	**0.223**	**0.178**	**0.213**
		Left side		0.040		0.015		0.004	0.117	**0.157**	**0.132**	**0.121**	**0.121**
		Right side			0.076		0.281			**0.076**	**0.281**	**0.076**	**0.281**
		Bottom side	0.172	0.027	0.068	0.112	0.093	0.004	0.054	**0.321**	**0.431**	**0.298**	**0.323**

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14. Uncertainty Assessment

Per KDB 865664 D01 SAR measurement 100MHz to 6GHz, when the highest measured 1-g SAR within a frequency band is < 1.5 W/kg and the measured 10-g SAR within a frequency band is < 3.75 W/kg. The expanded SAR measurement uncertainty must be ≤ 30%, for a confidence interval of k = 2. If these conditions are met, extensive SAR measurement uncertainty analysis described in IEEE Std 1528-2013 is not required in SAR reports submitted for equipment approval. For this device, the highest measured 1-g SAR is less 1.5W/kg. Therefore, the measurement uncertainty table is not required in this report.

15. References

[1] FCC 47 CFR Part 2 “Frequency Allocations and Radio Treaty Matters; General Rules and Regulations”

[2] ANSI/IEEE Std. C95.1-1992, “IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz”, September 1992

[3] IEEE Std. 1528-2013, “IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques”, Sep 2013

[4] SPEAG DASY System Handbook

[5] FCC KDB 248227 D01 v02r02, “SAR Guidance for IEEE 802.11 (WiFi) Transmitters”, Oct 2015.

[6] FCC KDB 447498 D01 v06, “Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies”, Oct 2015

[7] FCC KDB 941225 D05 v02r05, “SAR Evaluation Considerations for LTE Devices”, Dec 2015

[8] FCC KDB 941225 D05A v01r02, “Rel. 10 LTE SAR Test Guidance and KDB Inquiries”, Oct 2015

[9] FCC KDB 941225 D06 v02r01, "SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities", Oct 2015.

[10] FCC KDB 865664 D01 v01r04, "SAR Measurement Requirements for 100 MHz to 6 GHz", Aug 2015.

[11] FCC KDB 865664 D02 v01r02, “RF Exposure Compliance Reporting and Documentation Considerations” Oct 2015.