FCC SAR TEST REPORT

FCC ID	:	**PKRISGM2100**
Equipment	:	**Wireless Hotspot Modem**
Brand Name	:	**Inseego**
Model Name	:	**M2100**
Applicant	:	**Inseego Corporation** **9710 Scranton Road Suite 200, San Diego,, CA 92121**
Manufacturer	:	**Inseego Corporation** **9710 Scranton Road Suite 200, San Diego,, CA 92121**
Standard	:	**FCC 47 CFR Part 2 (2.1093)**

The product was received on Jun. 19, 2020 and testing was started from Jun. 24, 2020 and completed on Jul. 13, 2020. 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 test results in this 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
FA041648-02A	01	Initial issue of report	Jul. 28, 2020

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **Inseego Corporation, Wireless Hotspot Modem, M2100**, are as follows.

Equipment Class	Frequency Band		Highest SAR Summary Body (Separation 10mm) 1g SAR (W/kg)	Highest Simultaneous Transmission 1g SAR (W/kg)
Licensed	WCDMA	WCDMA II	0.69	1.55
		WCDMA IV	0.57	
		WCDMA V	1.00	
	LTE	LTE Band 2	1.00	
		LTE Band 5	0.68	
		LTE Band 7	0.64	
		LTE Band 12 / 17	0.99	
		LTE Band 13	0.73	
		LTE Band 14	0.75	
		LTE Band 48	0.54	
		LTE Band 4 / 66	1.00	
	5G NR	FR1 n2	1.00	
		FR1 n5	0.96	
		FR1 n66	1.00	
Date of Testing:			2020/6/24 ~ 2020/7/13	

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: Daisy Peng

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 941225 D01 3G SAR Procedures v03r01
- 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	Wireless Hotspot Modem
Brand Name	Inseego
Model Name	M2100
FCC ID	PKRISGM2100
IMEI Code	990016240002749
Wireless Technology and Frequency Range	WCDMA Band II: 1850 MHz ~ 1910 MHz WCDMA Band IV: 1710 MHz ~ 1755 MHz WCDMA Band V: 824 MHz ~ 849 MHz LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2500 MHz ~ 2570 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 13: 777 MHz ~ 787 MHz LTE Band 14: 788 MHz ~ 798 MHz LTE Band 17: 704 MHz ~ 716 MHz LTE Band 48: 3550 MHz ~ 3700 MHz LTE Band 66: 1710 MHz ~ 1780 MHz 5G NR n2 : 1850 MHz ~ 1910 MHz 5G NR n5 : 824 MHz ~ 849 MHz 5G NR n66 : 1710 MHz ~ 1780 MHz WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz WLAN 5.2GHz Band: 5150 MHz ~ 5250 MHz WLAN 5.8GHz Band: 5725 MHz ~ 5825 MHz
Mode	RMC/AMR 12.2Kbps HSDPA HSUPA DC-HSDPA LTE: QPSK, 16QAM, 64QAM, 256QAM 5G NR: DFT-s-OFDM/CP-OFDM, Pi/2 BPSK/QPSK/16QAM/64QAM/256QAM WLAN: 802.11a/b/g/n/ac HT20/HT40/VHT20/VHT40/VHT80
EUT Stage	Production Unit

Remark:
1. There are two batteries selected battery 1 as the main testing and battery 2 will select worst case found in battery 1 performs.
2. The WLAN SAR result is referring to RF exposure lab SAR evaluation report, report no.: SAR.20200501.

Accessories Information				
Battery 1	Brand Name	Inseego		
	Manufacturer	Ningbo Veken Battery Co., Ltd	Model Name	160007
	Power Rating	3.85Vdc, 3600 mAh typical	Type	Li-ion polymer
Battery 2	Brand Name	Inseego		
	Manufacturer	Ningbo Veken Battery Co., Ltd	Model Name	160006
	Power Rating	3.85Vdc, 5050 mAh typical	Type	Li-ion polymer

3.2 General LTE SAR Test and Reporting Considerations

Summarized necessary items addressed in KDB 941225 D05 v02r05	
FCC ID	PKRISGM2100
Equipment Name	Wireless Hotspot Modem
Operating Frequency Range of each LTE transmission band	LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2500 MHz ~ 2570 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 13: 777 MHz ~ 787 MHz LTE Band 14: 788 MHz ~ 798 MHz LTE Band 17: 704 MHz ~ 716 MHz LTE Band 48: 3550 MHz ~ 3700 MHz LTE Band 66: 1710 MHz ~ 1780 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 14: 5MHz, 10MHz LTE Band 17: 5MHz, 10MHz LTE Band 48: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 66:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz
uplink modulations used	QPSK / 16QAM / 64QAM / 256QAM
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** 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
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	Intra-Band possible combinations and the detail power measurement please referred to section 12.
LTE Carrier Aggregation Additional Information	1. This device supports LTE Carrier Aggregation (CA) in the uplink for LTE B5/B48/B66 with two component carriers in the uplink. SAR Measurements and conducted powers were evaluated per FCC Guidance. 2. This device supports maximum of 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.

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 14				
	Bandwidth 5 MHz		Bandwidth 10 MHz	
	Channel #	Channel #	Channel #	Freq.(MHz)
L	23305	790.5	23330	793
M	23330	793		
H	23355	795.5		

LTE Band 17				
	Bandwidth 5 MHz		Bandwidth 10 MHz	
	Channel #	Freq.(MHz)	Channel #	Freq. (MHz)
L	23755	706.5	23780	709
M	23790	710	23790	710
H	23825	713.5	23800	711

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 48								
	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	55265	3552.5	55290	3555	55315	3557.5	55340	3560
L M	55810	3607	55815	3607.5	55820	3608	55830	3609
M H	56170	3643	56165	3642.5	56160	3642	56150	3641
H	56715	3697.5	56690	3695	56665	3692.5	56640	3690

5G NR Information	
FCC ID	PKRISGM2100
Equipment Name	Wireless Hotspot Modem
Operating Frequency Range of each 5G NR transmission band	5G NR n2 : 1850 MHz ~ 1910 MHz 5G NR n5 : 824 MHz ~ 849 MHz 5G NR n66 : 1710 MHz ~ 1780 MHz
Channel Bandwidth	5G NR n2: 5MHz, 10MHz, 15MHz, 20MHz 5G NR n5: 5MHz, 10MHz, 15MHz, 20MHz 5G NR n66: 5MHz, 10MHz, 15MHz, 20MHz
SCS	FDD: SCS15KHz, TDD: SCS30KHz
uplink modulations used	DFT-s-OFDM: PI/2 BPSK / QPSK / 16QAM / 64QAM / 256QAM CP-OFDM QPSK / 16QAM / 64QAM / 256QAM
A-MPR (Additional MPR) disabled for SAR Testing?	Yes
LTE Anchor Bands for n2	LTE B5/13/48/66
LTE Anchor Bands for n5	LTE B2/48/66
LTE Anchor Bands for n66	LTE B2/5/13/48

Transmission (H, M, L) channel numbers and frequencies in each 5G NR band

NR Band 2

	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	370500	1852.5	371000	1855	371500	1857.5	372000	1860
M	376000	1880	376000	1880	376000	1880	376000	1880
H	381500	1907.5	381000	1905	380500	1902.5	380000	1900

NR Band 5

	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	165300	826.5	165800	829	166300	831.5	166800	834
M	167300	836.5	167300	836.5	167300	836.5	167300	836.5
H	169300	846.5	168800	844	168300	841.5	167800	839

NR Band 66

	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	342500	1712.5	343000	1715	343500	1717.5	344000	1720
M	349000	1745	349000	1745	349000	1745	349000	1745
H	355500	1777.5	355000	1775	354500	1772.5	354000	1770

4. Smart Transmit feature for RF Exposure compliance

The Smart Transmit algorithm maintains the time-averaged transmit power, in turn, time-averaged RF exposure of SAR_design_target or PD_design_target, below the predefined time-averaged power limit (i.e., input.power.limit for 5G mmW NR), for each characterized technology and band (refer to RF exposure part0 report)

Smart Transmit allows the device to transmit at higher power instantaneously, as high as Pmax, when needed, but enforces power limiting to maintain time-averaged transmit power to Plimit. Below table shows Plimit EFS settings and maximum tune up output power Pmax configured for this EUT for various transmit conditions (Device State Index DSI).

<P_{limit} for supported technologies and bands (P_{limit} in EFS file)>

Exposure Scenario:		Body	Pmax(*)
Averaging volume:		1g	
Spacing:		10	
DSI		0	
Band	Antenna	Plimit corresponding to SAR design target	
WCDMA_B2	0	21.7	23.0
WCDMA_B4	0	20.6	23.0
WCDMA_B5	0	22.7	23.0
LTE_B2	0	21.6	23.0
LTE_B2	8	21.2	23.0
LTE_B4	0	21.3	23.0
LTE_B4	8	23.0	23.0
LTE_B5	0	21.8	23.0
LTE_B7	0	20.7	23.0
LTE_B12	0	23.4	23.0
LTE_B13	0	23.3	23.0
LTE_B14	0	23.3	23.0
LTE_B48**	4	16.5	16.5
LTE_B66	0	21.3	23.0
LTE_B66	8	23.0	23.0
5G FR1_n2	0	21.0	23.0
5G FR1_n2	8	20.6	23.0
5G FR1_n5	0	23.0	23.0
5G FR1_n66	0	21.6	23.0
5G FR1_n66	8	23.1	23.0

Remark: Ant 8 for transmission only for LTE Inter-Band ULCA, and LTE anchor band of 5GNR EN-DC combination

*P_{max} is used for RF tune up procedure. The maximum allowed output power is equal to Pmax + 1dB uncertainty.

**All P_{limit} power levels entered in the Table correspond to average power levels after accounting for duty cycle in the case TDD modulation schemes (for e.g., GSM & LTE TDD & NR TDD).

The max allowed output power is the P_{limit} + 1dB device uncertainty, and if P_{limit} is higher than P_{max}, the device output power will be P_{max} instead.

5. RF Exposure Limits

5.1 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.

5.2 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.

6. Specific Absorption Rate (SAR)

6.1 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.

6.2 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:

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

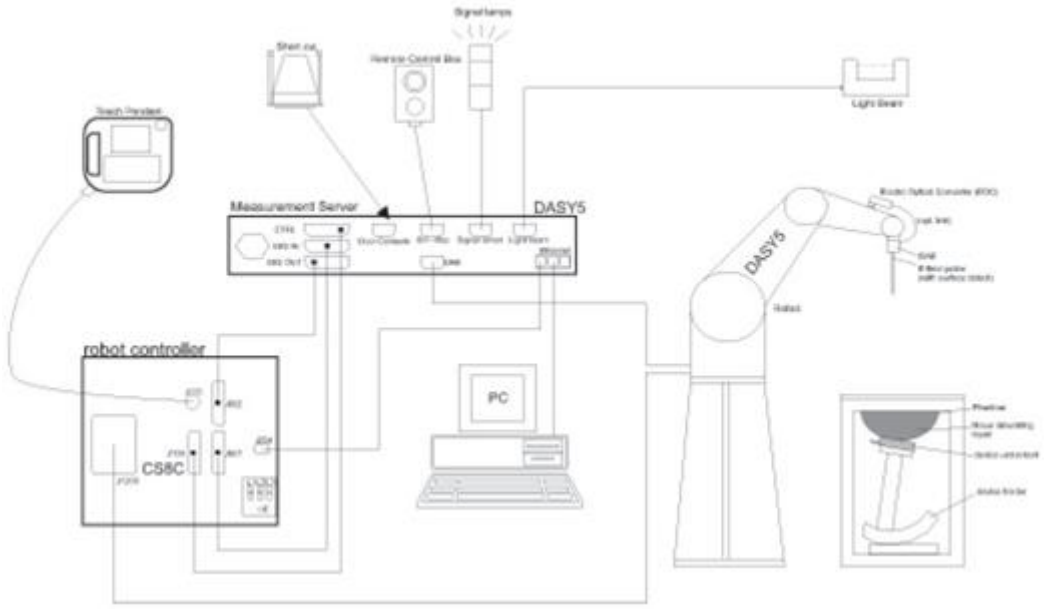
SAR is expressed in units of Watts per kilogram (W/kg)

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

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

7. 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.

7.1 Test Side Location

Sporton Lab and below test site location are accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code: 1190 and 0007) and the FCC designation No. TW1190 and TW0007 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC test.

Test Side	SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory			
Test Site Location	TW1190 No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, CHINESE TAIPEI		TW0007 No. 58, Aly. 75, Ln. 564, Wehnua 3rd, Rd., Guishan Dist., Taoyuan City, CHINESE TAIPEI	
Test Site No.	SAR01-HY	SAR03-HY	SAR08-HY	SAR09-HY
	SAR04-HY	SAR05-HY	SAR11-HY	SAR12-HY
	SAR06-HY	SAR10-HY		

7.2 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	

7.3 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.

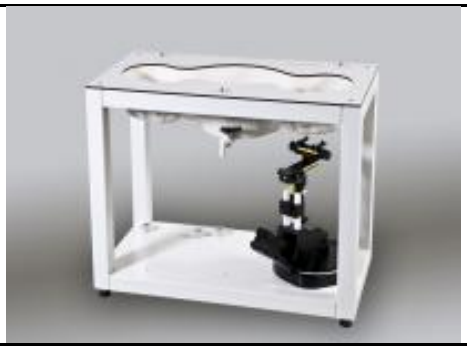
The input impedance of the DAE is 200 MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.

Fig 5.1 Photo of DAE

7.4 Phantom

<SAM Twin Phantom>

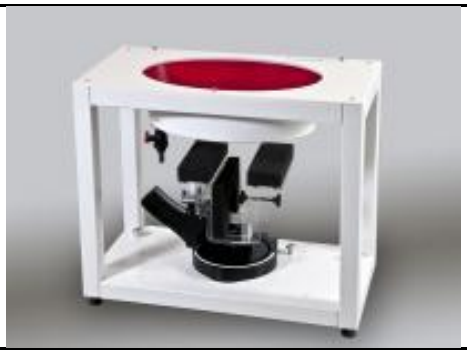
Shell Thickness	2 ± 0.2 mm; Center ear point: 6 ± 0.2 mm
Filling Volume	Approx. 25 liters
Dimensions	Length: 1000 mm; Width: 500 mm; Height: adjustable feet
Measurement Areas	Left Hand, Right Hand, Flat Phantom



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.

7.5 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

8. 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

8.1 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

8.2 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.

8.3 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.	

8.4 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.

8.5 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.

8.6 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.

9. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	750MHz System Validation Kit(2)	D750V3	1107	Mar. 08, 2019	Mar. 06, 2021
SPEAG	835MHz System Validation Kit	D835V2	4d167	Nov. 25, 2019	Nov. 24, 2020
SPEAG	1750MHz System Validation Kit(2)	D1750V2	1112	Mar. 07, 2019	Mar. 05, 2021
SPEAG	1900MHz System Validation Kit(2)	D1900V2	5d185	Mar. 07, 2019	Mar. 05, 2021
SPEAG	2600MHz System Validation Kit(2)	D2600V2	1078	Mar. 06, 2019	Mar. 04, 2021
SPEAG	3500MHz System Validation Kit(2)	D3500V2	1014	Jan. 29, 2019	Jan. 27, 2021
SPEAG	3700MHz System Validation Kit(2)	D3700V2	1006	Mar. 05, 2019	Mar. 03, 2021
SPEAG	Data Acquisition Electronics	DAE4	376	Dec. 06, 2019	Dec. 05, 2020
SPEAG	Data Acquisition Electronics	DAE4	916	Dec. 17, 2019	Dec. 16, 2020
SPEAG	Data Acquisition Electronics	DAE4	1399	Feb. 18, 2020	Feb. 17, 2021
SPEAG	Dosimetric E-Field Probe	ES3DV3	3184	Sep. 25, 2019	Sep. 24, 2020
SPEAG	Dosimetric E-Field Probe	ES3DV3	3270	Sep. 25, 2019	Sep. 24, 2020
SPEAG	Dosimetric E-Field Probe	EX3DV4	3642	Apr. 29, 2020	Apr. 28, 2021
SPEAG	Dosimetric E-Field Probe	EX3DV4	3925	Sep. 20, 2019	Sep. 19, 2020
RCPTWN	Thermometer	HTC-1	TM685-1	Nov. 12, 2019	Nov. 11, 2020
RCPTWN	Thermometer	HTC-1	TM560-2	Nov. 12, 2019	Nov. 11, 2020
Anritsu	Radio Communication Analyzer	MT8821C	6201341950	Oct. 31, 2019	Oct. 30, 2020
Agilent	Wireless Communication Test Set	E5515C	MY50266977	May. 24, 2020	May. 23, 2021
R&S	BT Base Station	CBT	100815	Feb. 15, 2020	Feb. 14, 2021
SPEAG	Device Holder	N/A	N/A	N/A	N/A
Anritsu	Signal Generator	MG3710A	6201502524	Nov. 20, 2019	Nov. 19, 2020
Agilent	ENA Network Analyzer	E5071C	MY46104758	Sep. 06, 2019	Sep. 05, 2020
SPEAG	Dielectric Probe Kit	DAK-3.5	1126	Sep. 18, 2019	Sep. 17, 2020
LINE SEIKI	Digital Thermometer	DTM3000-spezial	3169	Sep. 10, 2019	Sep. 09, 2020
Anritsu	Power Meter	ML2495A	1036004	Aug. 08, 2019	Aug. 07, 2020
Anritsu	Power Sensor	MA2411B	1027253	Aug. 08, 2019	Aug. 07, 2020
Anritsu	Power Meter	ML2495A	1218006	Oct. 14, 2019	Oct. 13, 2020
Anritsu	Power Sensor	MA2411B	1207363	Oct. 14, 2019	Oct. 13, 2020
Agilent	Spectrum Analyzer	E4408B	MY44211028	Aug. 27, 2019	Aug. 26, 2020
Anritsu	Spectrum Analyzer	N9010A	MY53470118	Mar. 12, 2020	Mar. 11, 2021
Mini-Circuits	Power Amplifier	ZVE-8G+	6418	Oct. 16, 2019	Oct. 15, 2020
Mini-Circuits	Power Amplifier	ZVE-8G+	6382	Aug. 12, 2019	Aug. 11, 2020
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.
2. The dipole calibration interval can be extended to 3 years with justification according to KDB 865664 D01. The dipoles are also not physically damaged, or repaired during the interval. The justification data in appendix C can be found which the return loss is < -20dB, within 20% of prior calibration, the impedance is within 5 ohm of prior calibration for each dipole.

10. System Verification

10.1 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.

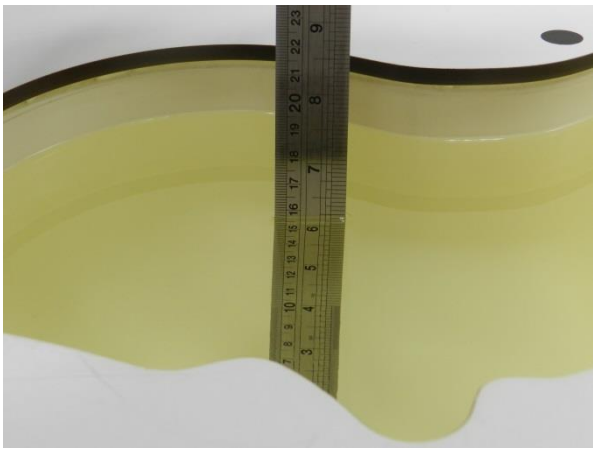


Fig 10.1Photo of Liquid Height for Head SAR

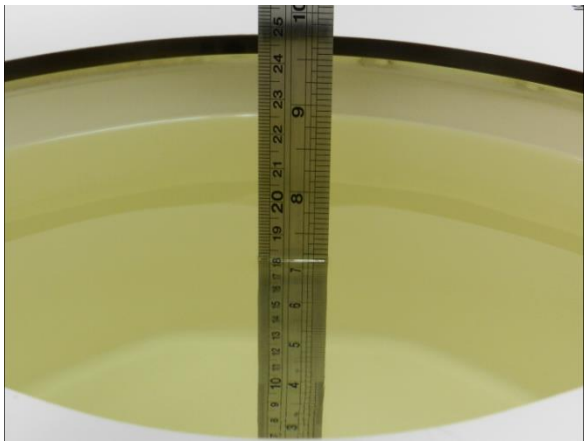


Fig 10.2 Photo of Liquid Height for Body SAR

10.2 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)
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

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)	Liquid Temp. (℃)	Conductivity (σ)	Permittivity (ε_r)	Conductivity Target (σ)	Permittivity Target (ε_r)	Delta (σ) (%)	Delta (ε_r) (%)	Limit (%)	Date
750	22.7	0.906	43.146	0.89	41.90	1.80	2.97	±5	2020/6/29
750	22.3	0.889	41.276	0.89	41.90	-0.11	-1.49	±5	2020/7/8
835	22.7	0.921	43.306	0.90	41.50	2.33	4.35	±5	2020/6/25
835	22.3	0.884	41.831	0.90	41.50	-1.78	0.80	±5	2020/7/1
835	22.6	0.926	43.406	0.90	41.50	2.89	4.59	±5	2020/7/11
1750	22.9	1.377	40.065	1.37	40.10	0.51	-0.09	±5	2020/6/24
1750	22.7	1.389	41.024	1.37	40.10	1.39	2.30	±5	2020/7/1
1750	22.5	1.396	39.267	1.37	40.10	1.90	-2.08	±5	2020/7/9
1750	22.8	1.385	40.891	1.37	40.10	1.09	1.97	±5	2020/7/13
1900	22.9	1.426	39.641	1.40	40.00	1.86	-0.90	±5	2020/6/24
1900	22.7	1.401	39.575	1.40	40.00	0.07	-1.06	±5	2020/7/1
1900	22.8	1.452	38.360	1.40	40.00	3.71	-4.10	±5	2020/7/13
2600	22.7	1.951	39.725	1.96	39.00	-0.46	1.86	±5	2020/6/25
3500	22.2	3.028	38.445	2.91	37.90	4.05	1.44	±5	2020/7/10
3700	22.2	3.243	38.243	3.12	37.70	3.94	1.44	±5	2020/7/10

10.3 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)	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 (%)
2020/6/29	750	250	D750V3-1107	ES3DV3 - SN3184	DAE4 Sn916	2.16	8.32	8.64	3.85
2020/7/8	750	250	D750V3-1107	EX3DV4 - SN3642	DAE4 Sn376	2.16	8.32	8.64	3.85
2020/6/25	835	250	D835V2-4d167	ES3DV3 - SN3184	DAE4 Sn916	2.26	9.55	9.04	-5.34
2020/7/1	835	250	D835V2-4d167	EX3DV4 - SN3925	DAE4 Sn376	2.37	9.55	9.48	-0.73
2020/7/11	835	250	D835V2-4d167	EX3DV4 - SN3642	DAE4 Sn376	2.33	9.55	9.32	-2.41
2020/6/24	1750	250	D1750V2-1112	ES3DV3 - SN3184	DAE4 Sn916	8.86	36.70	35.44	-3.43
2020/7/1	1750	250	D1750V2-1112	ES3DV3 - SN3270	DAE4 Sn1399	9.52	36.70	38.08	3.76
2020/7/9	1750	250	D1750V2-1112	EX3DV4 - SN3642	DAE4 Sn376	9.85	36.70	39.4	7.36
2020/7/13	1750	250	D1750V2-1112	ES3DV3 - SN3184	DAE4 Sn916	8.91	36.70	35.64	-2.89
2020/6/24	1900	250	D1900V2-5d185	ES3DV3 - SN3184	DAE4 Sn916	9.68	39.40	38.72	-1.73
2020/7/1	1900	250	D1900V2-5d185	ES3DV3 - SN3270	DAE4 Sn1399	10.10	39.40	40.4	2.54
2020/7/13	1900	250	D1900V2-5d185	ES3DV3 - SN3184	DAE4 Sn916	9.85	39.40	39.4	0.00
2020/6/25	2600	250	D2600V2-1078	ES3DV3 - SN3184	DAE4 Sn916	13.50	57.60	54	-6.25
2020/7/10	3500	100	D3500V2-1014	EX3DV4 - SN3642	DAE4 Sn376	6.65	67.90	66.5	-2.06
2020/7/10	3700	100	D3700V2-1006	EX3DV4 - SN3642	DAE4 Sn376	6.60	67.30	66	-1.93

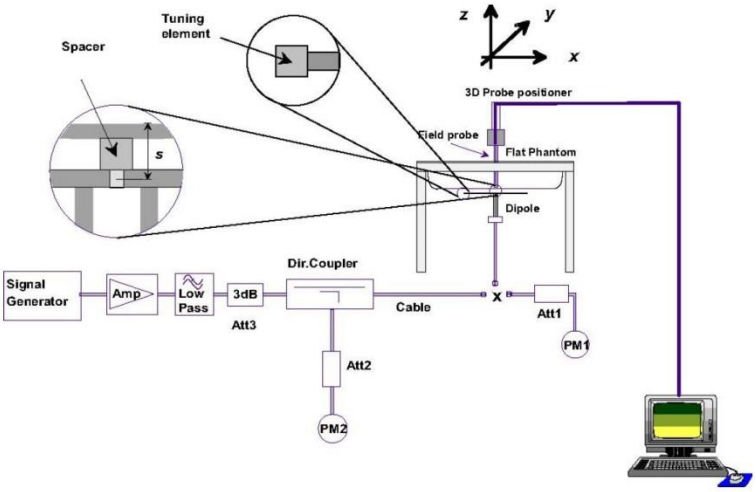


Fig 8.3.1 System Performance Check Setup

Fig 8.3.2 Setup Photo

11. RF Exposure Positions

11.1 Wireless Router

Some battery-operated handsets have the capability to transmit and receive user through simultaneous transmission of WIFI simultaneously with a separate licensed transmitter. The FCC has provided guidance in FCC KDB Publication 941225 D06 v02r01 where SAR test considerations for handsets (L x W ≥ 9 cm x 5 cm) are based on a composite test separation distance of 10mm from the front, back and edges of the device containing transmitting antennas within 2.5cm of their edges, determined form general mixed use conditions for this type of devices. Since the hotspot SAR results may overlap with the body-worn accessory SAR requirements, the more conservative configurations can be considered, thus excluding some body-worn accessory SAR tests.

When the user enables the personal wireless router functions for the handset, actual operations include simultaneous transmission of both the WIFI transmitter and another licensed transmitter. Both transmitters often do not transmit at the same transmitting frequency and thus cannot be evaluated for SAR under actual use conditions due to the limitations of the SAR assessment probes. Therefore, SAR must be evaluated for each frequency transmission and mode separately and spatially summed with the WIFI transmitter according to FCC KDB Publication 447498 D01v06 publication procedures. The “Portable Hotspot” feature on the handset was NOT activated during SAR assessments, to ensure the SAR measurements were evaluated for a single transmission frequency RF signal at a time.

12. UMTS/LTE Output Power (Unit: dBm)

<WCDMA Conducted Power>

1. The following tests were conducted according to the test requirements outlines in 3GPP TS 34.121 specification.
2. The procedures in KDB 941225 D01v03r01 are applied for 3GPP Rel. 6 HSPA to configure the device in the required sub-test mode(s) to determine SAR test exclusion.
3. For DC-HSDPA, the device was configured according to the H-Set 12, Fixed Reference Channel (FRC) configuration in Table C.8.1.12 of 3GPP TS 34.121-1, with the primary and the secondary serving HS-DSCH Cell enabled during the power measurement.

A summary of these settings are illustrated below:

HSDPA Setup Configuration:

a. The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration.
b. The RF path losses were compensated into the measurements.
c. A call was established between EUT and Base Station with following setting:
   i. Set Gain Factors (β_c and β_d) and parameters were set according to each
   ii. Specific sub-test in the following table, C10.1.4, quoted from the TS 34.121
   iii. Set RMC 12.2Kbps + HSDPA mode.
   iv. Set Cell Power = -86 dBm
   v. Set HS-DSCH Configuration Type to FRC (H-set 1, QPSK)
   vi. Select HSDPA Uplink Parameters
   vii. Set Delta ACK, Delta NACK and Delta CQI = 8
   viii. Set Ack-Nack Repetition Factor to 3
   ix. Set CQI Feedback Cycle (k) to 4 ms
   x. Set CQI Repetition Factor to 2
   xi. Power Ctrl Mode = All Up bits
d. The transmitted maximum output power was recorded.

Table C.10.1.4: β values for transmitter characteristics tests with HS-DPCCH

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{HS} (Note1, Note 2)	CM (dB) (Note 3)	MPR (dB) (Note 3)
1	2/15	15/15	64	2/15	4/15	0.0	0.0
2	12/15 (Note 4)	15/15 (Note 4)	64	12/15 (Note 4)	24/15	1.0	0.0
3	15/15	8/15	64	15/8	30/15	1.5	0.5
4	15/15	4/15	64	15/4	30/15	1.5	0.5

Note 1: Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 30/15 with β_{hs} = 30/15 * β_c.

Note 2: For the HS-DPCCH power mask requirement test in clause 5.2C, 5.7A, and the Error Vector Magnitude (EVM) with HS-DPCCH test in clause 5.13.1A, and HSDPA EVM with phase discontinuity in clause 5.13.1AA, Δ_{ACK} and Δ_{NACK} = 30/15 with β_{hs} = 30/15 * β_c, and Δ_{CQI} = 24/15 with β_{hs} = 24/15 * β_c.

Note 3: CM = 1 for β_c/β_d =12/15, β_{hs}/β_c=24/15. For all other combinations of DPDCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.

Note 4: For subtest 2 the β_c/β_d ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to β_c = 11/15 and β_d = 15/15.

Setup Configuration

HSUPA Setup Configuration:

a. The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration.
b. The RF path losses were compensated into the measurements.
c. A call was established between EUT and Base Station with following setting * :
   i. Call Configs = 5.2B, 5.9B, 5.10B, and 5.13.2B with QPSK
   ii. Set the Gain Factors (β_c and β_d) and parameters (AG Index) were set according to each specific sub-test in the following table, C11.1.3, quoted from the TS 34.121
   iii. Set Cell Power = -86 dBm
   iv. Set Channel Type = 12.2k + HSPA
   v. Set UE Target Power
   vi. Power Ctrl Mode= Alternating bits
   vii. Set and observe the E-TFCI
   viii. Confirm that E-TFCI is equal to the target E-TFCI of 75 for sub-test 1, and other subtest's E-TFCI
d. The transmitted maximum output power was recorded.

Table C.11.1.3: β values for transmitter characteristics tests with HS-DPCCH and E-DCH

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{HS} (Note1)	β_{ec}	β_{ed} (Note 4) (Note 5)	β_{ed} (SF)	β_{ed} (Codes)	CM (dB) (Note 2)	MPR (dB) (Note 2) (Note 6)	AG Index (Note 5)	E-TFCI
1	11/15 (Note 3)	15/15 (Note 3)	64	11/15 (Note 3)	22/15	209/225	1309/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	$\beta_{ed}1$: 47/15 $\beta_{ed}2$: 47/15	4 4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15	0	-	-	5/15	5/15	47/15	4	1	1.0	0.0	12	67

Note 1: For sub-test 1 to 4, Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 30/15 with β_{hs} = 30/15 * β_c. For sub-test 5, Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 5/15 with β_{hs} = 5/15 * β_c.

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

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

Note 4: In case of testing by UE using E-DPDCH Physical Layer category 1, Sub-test 3 is omitted according to TS25.306 Table 5.1g.

Note 5: β_{ed} can not be set directly; it is set by Absolute Grant Value.

Note 6: For subtests 2, 3 and 4, UE may perform E-DPDCH power scaling at max power which could results in slightly smaller MPR values.

Setup Configuration

DC-HSDPA 3GPP release 8 Setup Configuration:

a. The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration below
b. The RF path losses were compensated into the measurements.
c. A call was established between EUT and Base Station with following setting:
   i. Set RMC 12.2Kbps + HSDPA mode.
   ii. Set Cell Power = -25 dBm
   iii. Set HS-DSCH Configuration Type to FRC (H-set 12, QPSK)
   iv. Select HSDPA Uplink Parameters
   v. Set Gain Factors (β_c and β_d) and parameters were set according to each Specific sub-test in the following table, C10.1.4, quoted from the TS 34.121
      a). Subtest 1: β_c/β_d=2/15
      b). Subtest 2: β_c/β_d=12/15
      c). Subtest 3: β_c/β_d=15/8
      d). Subtest 4: β_c/β_d=15/4
   vi. Set Delta ACK, Delta NACK and Delta CQI = 8
   vii. Set Ack-Nack Repetition Factor to 3
   viii. Set CQI Feedback Cycle (k) to 4 ms
   ix. Set CQI Repetition Factor to 2
   x. Power Ctrl Mode = All Up bits
d. The transmitted maximum output power was recorded.

The following tests were conducted according to the test requirements outlines in 3GPP TS 34.121 specification.
A summary of these settings are illustrated below:

C.8.1.12 Fixed Reference Channel Definition H-Set 12

Table C.8.1.12: Fixed Reference Channel H-Set 12

Parameter	Unit	Value
Nominal Avg. Inf. Bit Rate	kbps	60
Inter-TTI Distance	TTI's	1
Number of HARQ Processes	Proces ses	6
Information Bit Payload (N_{INF})	Bits	120
Number Code Blocks	Blocks	1
Binary Channel Bits Per TTI	Bits	960
Total Available SML's in UE	SML's	19200
Number of SML's per HARQ Proc.	SML's	3200
Coding Rate		0.15
Number of Physical Channel Codes	Codes	1
Modulation		QPSK
Note 1: The RMC is intended to be used for DC-HSDPA mode and both cells shall transmit with identical parameters as listed in the table.		
Note 2: Maximum number of transmission is limited to 1, i.e., retransmission is not allowed. The redundancy and constellation version 0 shall be used.		

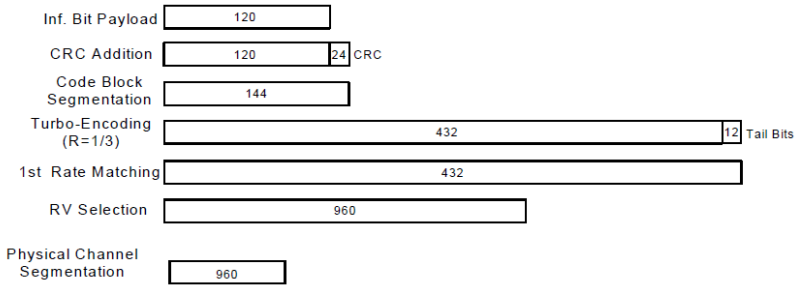


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

Setup Configuration

<WCDMA Conducted Power>

General Note:

1. Per KDB 941225 D01v03r01, for SAR testing is measured using a 12.2 kbps RMC with TPC bits configured to all "1's".
2. Per KDB 941225 D01v03r01, RMC 12.2kbps setting is used to evaluate SAR. The maximum output power and tune-up tolerance specified for production units in HSDPA / HSUPA / DC-HSDPA is ≤ ¼ dB higher than RMC 12.2Kbps or when the highest reported SAR of the RMC12.2Kbps is scaled by the ratio of specified maximum output power and tune-up tolerance of HSDPA / HSUPA / DC-HSDPA to RMC12.2Kbps and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA, and according to the following RF output power, the output power results of the secondary modes (HSUPA, HSDPA, DC-HSDPA) are less than ¼ dB higher than the primary modes; therefore, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA.

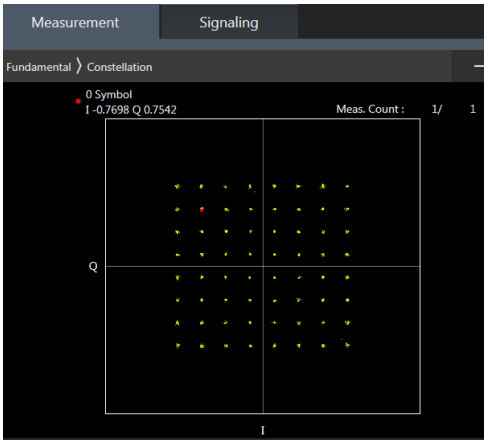
<Ant 0>

Band		WCDMA II			Tune-up Limit (dBm)	WCDMA IV			Tune-up Limit (dBm)	WCDMA V			Tune-up Limit (dBm)
TX Channel		9262	9400	9538		1312	1413	1513		4132	4182	4233	
Rx Channel		9662	9800	9938		1537	1638	1738		4357	4407	4458	
Frequency (MHz)		1852.4	1880	1907.6		1712.4	1732.6	1752.6		826.4	836.4	846.6	
3GPP Rel 99	AMR 12.2Kbps	21.80	22.39	22.27	22.70	20.27	20.77	20.75	21.60	22.45	22.54	22.61	23.70
3GPP Rel 99	RMC 12.2Kbps	21.85	22.42	22.30	22.70	20.29	20.81	20.80	21.60	22.53	22.65	22.69	23.70
3GPP Rel 6	HSDPA Subtest-1	21.43	21.43	21.33	21.70	19.81	19.80	19.81	20.60	21.45	21.56	21.64	22.70
3GPP Rel 6	HSDPA Subtest-2	21.41	21.41	21.34	21.70	19.81	19.84	19.84	20.60	21.48	21.60	21.71	22.70
3GPP Rel 6	HSDPA Subtest-3	20.93	20.94	20.98	21.20	19.38	19.33	19.31	20.10	20.99	21.08	21.14	22.20
3GPP Rel 6	HSDPA Subtest-4	20.94	20.93	20.91	21.20	19.31	19.34	19.36	20.10	20.96	21.09	21.15	22.20
3GPP Rel 8	DC-HSDPA Subtest-1	21.35	21.38	21.26	21.70	19.76	19.73	19.80	20.60	21.38	21.56	21.63	22.70
3GPP Rel 8	DC-HSDPA Subtest-2	21.32	21.34	21.33	21.70	19.72	19.80	19.77	20.60	21.46	21.60	21.65	22.70
3GPP Rel 8	DC-HSDPA Subtest-3	20.93	20.92	20.94	21.20	19.32	19.31	19.28	20.10	20.92	21.05	21.06	22.20
3GPP Rel 8	DC-HSDPA Subtest-4	20.91	20.93	20.89	21.20	19.27	19.33	19.33	20.10	20.93	21.03	21.10	22.20
3GPP Rel 6	HSUPA Subtest-1	20.89	21.46	21.35	21.70	19.77	19.78	19.78	20.60	21.55	21.61	21.64	22.70
3GPP Rel 6	HSUPA Subtest-2	18.91	19.44	19.36	19.70	17.79	17.76	17.85	18.60	19.60	19.62	19.65	20.70
3GPP Rel 6	HSUPA Subtest-3	19.92	20.44	20.37	20.70	18.79	18.80	18.77	19.60	20.56	20.61	20.63	21.70
3GPP Rel 6	HSUPA Subtest-4	18.91	19.45	19.36	19.70	17.81	17.82	17.79	18.60	19.53	19.60	19.64	20.70
3GPP Rel 6	HSUPA Subtest-5	20.90	21.50	21.40	21.70	19.80	19.80	19.80	20.60	21.60	21.60	21.60	22.70

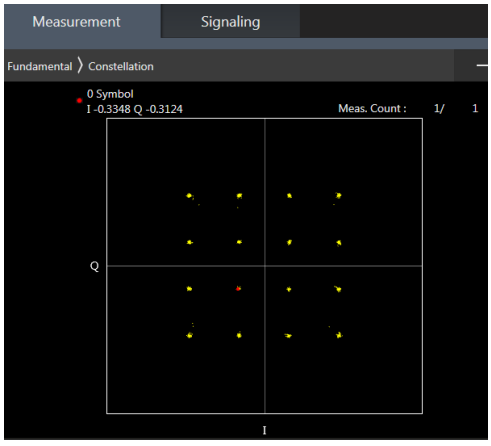
<LTE Conducted Power>

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 B4/B5/B12/B17 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 4/17 SAR test was covered by Band 66/12; 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 Ant 0>

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	21.66	21.90	22.02	22.6	0
20	QPSK	1	49	21.63	22.03	21.96		
20	QPSK	1	99	21.75	21.99	21.94		
20	QPSK	50	0	21.73	22.09	22.05	22.6	0
20	QPSK	50	24	21.84	22.15	22.17		
20	QPSK	50	50	21.89	22.20	22.14		
20	QPSK	100	0	21.84	22.11	22.15		
20	16QAM	1	0	21.97	22.25	22.41	22.6	0
20	16QAM	1	49	21.97	22.39	22.40		
20	16QAM	1	99	22.10	22.32	22.29		
20	16QAM	50	0	21.64	21.82	21.77	22	0.6
20	16QAM	50	24	21.78	21.86	21.87		
20	16QAM	50	50	21.81	21.91	21.86		
20	16QAM	100	0	21.73	21.81	21.87		
20	64QAM	1	0	21.78	21.85	21.99	22	0.6
20	64QAM	1	49	21.74	22.00	21.66		
20	64QAM	1	99	21.95	21.95	21.90		
20	64QAM	50	0	20.66	20.82	20.81	21	1.6
20	64QAM	50	24	20.77	20.87	20.84		
20	64QAM	50	50	20.83	20.94	20.84		
20	64QAM	100	0	20.77	20.83	20.84		
20	256QAM	1	0	18.80	18.99	19.08	20	2.6
20	256QAM	1	49	19.21	19.14	19.15		
20	256QAM	1	99	19.13	19.12	19.17		
20	256QAM	50	0	18.62	18.98	19.00	20	2.6
20	256QAM	50	24	18.71	19.04	19.05		
20	256QAM	50	50	18.88	19.02	19.04		
20	256QAM	100	0	18.69	18.96	18.99		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	21.66	21.97	22.04	22.6	0
15	QPSK	1	37	21.67	22.05	21.98		
15	QPSK	1	74	21.75	22.03	21.99		
15	QPSK	36	0	21.71	22.08	22.04	22.6	0
15	QPSK	36	20	21.84	22.11	22.14		
15	QPSK	36	39	21.80	22.19	22.14		
15	QPSK	75	0	21.81	22.07	22.06		
15	16QAM	1	0	21.98	22.30	22.31	22.6	0
15	16QAM	1	37	22.00	22.33	22.30		
15	16QAM	1	74	22.07	22.36	22.31		
15	16QAM	36	0	21.63	21.99	21.95	22	0.6
15	16QAM	36	20	21.74	21.82	21.85		
15	16QAM	36	39	21.71	21.91	21.84		
15	16QAM	75	0	21.74	21.81	21.78		
15	64QAM	1	0	21.76	21.85	21.90	22	0.6

15	64QAM	1	37	21.82	22.00	21.64		
15	64QAM	1	74	21.88	21.93	21.95		
15	64QAM	36	0	20.67	20.81	20.65	21	1.6
15	64QAM	36	20	20.76	20.85	20.70		
15	64QAM	36	39	20.74	20.94	20.87		
15	64QAM	75	0	20.74	20.81	20.69		
15	256QAM	1	0	18.71	18.89	19.05	20	2.6
15	256QAM	1	37	19.17	19.11	19.06		
15	256QAM	1	74	19.06	19.05	19.07		
15	256QAM	36	0	18.62	18.94	18.92	20	2.6
15	256QAM	36	20	18.67	18.96	19.00		
15	256QAM	36	39	18.78	18.92	19.04		
15	256QAM	75	0	18.66	18.93	18.95		
Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	21.67	21.89	21.99	22.6	0
10	QPSK	1	25	21.56	21.97	21.92		
10	QPSK	1	49	21.65	22.01	21.99		
10	QPSK	25	0	21.73	22.03	22.01	22.6	0
10	QPSK	25	12	21.77	22.00	22.06		
10	QPSK	25	25	21.79	22.14	22.13		
10	QPSK	50	0	21.78	22.07	22.04		
10	16QAM	1	0	22.11	22.29	22.36	22.6	0
10	16QAM	1	25	21.96	22.38	22.36		
10	16QAM	1	49	22.05	22.36	22.38		
10	16QAM	25	0	21.62	21.96	21.94	22	0.6
10	16QAM	25	12	21.69	22.00	21.99		
10	16QAM	25	25	21.70	21.88	21.82		
10	16QAM	50	0	21.68	21.79	21.78		
10	64QAM	1	0	21.83	21.89	21.79	22	0.6
10	64QAM	1	25	21.81	22.00	21.94		
10	64QAM	1	49	21.86	22.00	21.95		
10	64QAM	25	0	20.68	20.78	20.64	21	1.6
10	64QAM	25	12	20.69	20.85	20.81		
10	64QAM	25	25	20.70	20.91	20.87		
10	64QAM	50	0	20.72	20.85	20.67		
10	256QAM	1	0	18.71	18.97	18.98	20	2.6
10	256QAM	1	25	19.17	19.04	19.09		
10	256QAM	1	49	19.06	19.05	19.04		
10	256QAM	25	0	18.56	18.80	18.86	20	2.6
10	256QAM	25	12	18.57	18.93	19.00		
10	256QAM	25	25	18.78	18.95	18.86		
10	256QAM	50	0	18.54	18.92	18.96		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	21.62	21.93	21.99	22.6	0
5	QPSK	1	12	21.64	22.08	22.03		
5	QPSK	1	24	21.67	22.10	22.04		
5	QPSK	12	0	21.71	22.07	22.07	22.6	0
5	QPSK	12	7	21.75	22.15	22.14		

5	QPSK	12	13	21.76	22.17	22.12		
5	QPSK	25	0	21.73	22.08	22.11		
5	16QAM	1	0	21.98	22.29	22.34	22.6	0
5	16QAM	1	12	21.94	22.32	22.33		
5	16QAM	1	24	21.99	22.39	22.38		
5	16QAM	12	0	21.67	21.82	21.83	22	0.6
5	16QAM	12	7	21.71	21.85	21.89		
5	16QAM	12	13	21.68	21.90	21.84		
5	16QAM	25	0	21.66	21.81	21.84		
5	64QAM	1	0	21.81	21.93	21.88	22	0.6
5	64QAM	1	12	21.76	21.99	21.95		
5	64QAM	1	24	21.80	22.00	21.99		
5	64QAM	12	0	20.70	20.84	20.84	21	1.6
5	64QAM	12	7	20.73	20.90	20.92		
5	64QAM	12	13	20.73	20.97	20.91		
5	64QAM	25	0	20.67	20.83	20.84		
5	256QAM	1	0	18.55	18.85	19.00	20	2.6
5	256QAM	1	12	19.01	18.88	19.04		
5	256QAM	1	24	19.00	18.99	19.09		
5	256QAM	12	0	18.51	18.91	18.87	20	2.6
5	256QAM	12	7	18.58	18.88	19.01		
5	256QAM	12	13	18.74	18.92	18.94		
5	256QAM	25	0	18.48	18.79	18.80		
Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	21.60	21.91	21.95	22.6	0
3	QPSK	1	8	21.63	22.10	22.09		
3	QPSK	1	14	21.64	22.06	22.00		
3	QPSK	8	0	21.73	22.02	22.10	22.6	0
3	QPSK	8	4	21.75	22.09	22.15		
3	QPSK	8	7	21.72	22.14	22.09		
3	QPSK	15	0	21.74	22.08	22.07		
3	16QAM	1	0	21.97	22.27	22.31	22.6	0
3	16QAM	1	8	22.03	22.38	22.37		
3	16QAM	1	14	22.00	22.38	22.39		
3	16QAM	8	0	21.68	21.85	21.86	22	0.6
3	16QAM	8	4	21.75	21.87	21.91		
3	16QAM	8	7	21.70	21.91	21.90		
3	16QAM	15	0	21.69	21.82	21.86		
3	64QAM	1	0	21.81	21.91	21.93	22	0.6
3	64QAM	1	8	21.87	22.00	22.00		
3	64QAM	1	14	21.82	21.98	21.99		
3	64QAM	8	0	20.68	20.82	20.85	21	1.6
3	64QAM	8	4	20.73	20.88	20.88		
3	64QAM	8	7	20.70	20.93	20.85		
3	64QAM	15	0	20.67	20.83	20.84		
3	256QAM	1	0	18.63	18.79	18.84	20	2.6
3	256QAM	1	8	19.00	18.97	19.07		
3	256QAM	1	14	19.01	18.80	18.91		
3	256QAM	8	0	18.39	18.76	18.70	20	2.6

3	256QAM	8	4	18.52	18.77	18.88		
3	256QAM	8	7	18.70	18.78	18.74		
3	256QAM	15	0	18.58	18.73	18.87		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	21.56	21.92	21.94	22.6	0
1.4	QPSK	1	3	21.62	22.04	22.00		
1.4	QPSK	1	5	21.56	22.00	21.90		
1.4	QPSK	3	0	21.61	21.96	21.94		
1.4	QPSK	3	1	21.63	22.00	21.97		
1.4	QPSK	3	3	21.62	22.01	21.93		
1.4	QPSK	6	0	21.68	22.02	22.02	22.6	0
1.4	16QAM	1	0	21.87	22.24	22.26	22.6	0
1.4	16QAM	1	3	21.97	22.27	22.33		
1.4	16QAM	1	5	21.93	22.31	22.24		
1.4	16QAM	3	0	21.69	22.02	22.06		
1.4	16QAM	3	1	21.74	22.11	22.11		
1.4	16QAM	3	3	21.68	22.09	22.07		
1.4	16QAM	6	0	21.63	21.79	21.83	22	0.6
1.4	64QAM	1	0	21.72	21.87	21.89	22	0.6
1.4	64QAM	1	3	21.81	22.00	21.98		
1.4	64QAM	1	5	21.73	21.96	21.91		
1.4	64QAM	3	0	21.71	21.88	21.85		
1.4	64QAM	3	1	21.78	21.91	21.90		
1.4	64QAM	3	3	21.73	21.94	21.87		
1.4	64QAM	6	0	20.60	20.96	20.95	21	1.6
1.4	256QAM	1	0	18.60	18.79	18.84	20	2.6
1.4	256QAM	1	3	19.02	18.96	18.76		
1.4	256QAM	1	5	18.82	18.85	18.93		
1.4	256QAM	3	0	18.31	18.89	18.69		
1.4	256QAM	3	1	18.52	18.69	18.84		
1.4	256QAM	3	3	18.60	18.74	18.88		
1.4	256QAM	6	0	18.45	18.81	18.66	20	2.6

<LTE Band 2 Ant 8>

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	21.35	21.54	21.42	22.2	0
20	QPSK	1	49	21.47	21.62	21.43		
20	QPSK	1	99	21.46	21.52	21.26		
20	QPSK	50	0	21.28	21.54	21.18	22.2	0
20	QPSK	50	24	21.36	21.61	21.40		
20	QPSK	50	50	21.35	21.58	21.19		
20	QPSK	100	0	21.40	21.54	21.23		
20	16QAM	1	0	21.13	21.32	21.09	22.2	0
20	16QAM	1	49	21.17	21.34	21.01		
20	16QAM	1	99	21.24	21.24	20.92		
20	16QAM	50	0	21.30	21.51	21.23	22.2	0
20	16QAM	50	24	21.37	21.57	21.24		
20	16QAM	50	50	21.42	21.56	21.16		
20	16QAM	100	0	21.40	21.45	21.19		
20	64QAM	1	0	21.33	21.23	21.35	22.2	0
20	64QAM	1	49	21.25	21.49	21.15		
20	64QAM	1	99	21.36	21.40	20.93		
20	64QAM	50	0	20.71	20.96	20.71	21.2	1
20	64QAM	50	24	20.90	20.99	20.77		
20	64QAM	50	50	20.89	21.00	20.61		
20	64QAM	100	0	20.85	20.98	20.71		
20	256QAM	1	0	18.56	18.43	18.59	20.2	2
20	256QAM	1	49	18.37	18.66	18.23		
20	256QAM	1	99	18.48	18.62	18.20		
20	256QAM	50	0	18.78	19.08	18.73	20.2	2
20	256QAM	50	24	18.83	19.02	18.75		
20	256QAM	50	50	18.84	18.98	18.67		
20	256QAM	100	0	18.95	19.09	18.74		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	21.34	21.50	21.41	22.2	0
15	QPSK	1	37	21.39	21.54	21.43		
15	QPSK	1	74	21.43	21.47	21.22		
15	QPSK	36	0	21.22	21.49	21.17	22.2	0
15	QPSK	36	20	21.31	21.61	21.30		
15	QPSK	36	39	21.25	21.50	21.15		
15	QPSK	75	0	21.36	21.48	21.20		
15	16QAM	1	0	21.11	21.24	21.05	22.2	0
15	16QAM	1	37	21.13	21.31	20.99		
15	16QAM	1	74	21.21	21.17	20.86		
15	16QAM	36	0	21.28	21.49	21.23	22.2	0
15	16QAM	36	20	21.27	21.55	21.24		
15	16QAM	36	39	21.34	21.49	21.06		
15	16QAM	75	0	21.37	21.43	21.17		
15	64QAM	1	0	21.27	21.19	21.31	22.2	0

15	64QAM	1	37	21.25	21.40	21.10		
15	64QAM	1	74	21.26	21.34	20.83		
15	64QAM	36	0	20.68	20.95	20.66	21.2	1
15	64QAM	36	20	20.89	20.95	20.70		
15	64QAM	36	39	20.83	20.90	20.52		
15	64QAM	75	0	20.85	20.97	20.70		
15	256QAM	1	0	18.47	18.41	18.52	20.2	2
15	256QAM	1	37	18.32	18.58	18.18		
15	256QAM	1	74	18.43	18.52	18.19		
15	256QAM	36	0	18.71	19.01	18.69	20.2	2
15	256QAM	36	20	18.78	18.92	18.72		
15	256QAM	36	39	18.81	18.89	18.61		
15	256QAM	75	0	18.86	18.99	18.68		
Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	21.32	21.53	21.36	22.2	0
10	QPSK	1	25	21.47	21.59	21.38		
10	QPSK	1	49	21.43	21.46	21.19		
10	QPSK	25	0	21.19	21.50	21.15	22.2	0
10	QPSK	25	12	21.34	21.51	21.38		
10	QPSK	25	25	21.25	21.57	21.18		
10	QPSK	50	0	21.40	21.48	21.20		
10	16QAM	1	0	21.08	21.22	21.05	22.2	0
10	16QAM	1	25	21.11	21.26	20.94		
10	16QAM	1	49	21.18	21.14	20.84		
10	16QAM	25	0	21.21	21.46	21.18	22.2	0
10	16QAM	25	12	21.34	21.56	21.14		
10	16QAM	25	25	21.37	21.54	21.13		
10	16QAM	50	0	21.32	21.40	21.10		
10	64QAM	1	0	21.26	21.23	21.29	22.2	0
10	64QAM	1	25	21.17	21.43	21.15		
10	64QAM	1	49	21.32	21.31	20.92		
10	64QAM	25	0	20.69	20.87	20.70	21.2	1
10	64QAM	25	12	20.80	20.99	20.74		
10	64QAM	25	25	20.89	20.98	20.60		
10	64QAM	50	0	20.85	20.96	20.68		
10	256QAM	1	0	18.51	18.37	18.58	20.2	2
10	256QAM	1	25	18.31	18.65	18.21		
10	256QAM	1	49	18.39	18.62	18.16		
10	256QAM	25	0	18.78	19.00	18.73	20.2	2
10	256QAM	25	12	18.81	18.96	18.72		
10	256QAM	25	25	18.82	18.89	18.64		
10	256QAM	50	0	18.93	19.08	18.68		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	21.30	21.53	21.39	22.2	0
5	QPSK	1	12	21.46	21.60	21.36		
5	QPSK	1	24	21.44	21.43	21.20		
5	QPSK	12	0	21.26	21.47	21.12	22.2	0
5	QPSK	12	7	21.32	21.55	21.35		

5	QPSK	12	13	21.34	21.57	21.16		
5	QPSK	25	0	21.36	21.53	21.16		
5	16QAM	1	0	21.08	21.23	21.06		
5	16QAM	1	12	21.08	21.34	20.98	22.2	0
5	16QAM	1	24	21.23	21.19	20.83		
5	16QAM	12	0	21.20	21.41	21.14		
5	16QAM	12	7	21.31	21.53	21.14	22.2	0
5	16QAM	12	13	21.34	21.54	21.14		
5	16QAM	25	0	21.38	21.41	21.14		
5	64QAM	1	0	21.28	21.14	21.30		
5	64QAM	1	12	21.24	21.44	21.10	22.2	0
5	64QAM	1	24	21.30	21.33	20.86		
5	64QAM	12	0	20.68	20.88	20.70		
5	64QAM	12	7	20.90	20.96	20.75	21.2	1
5	64QAM	12	13	20.80	20.90	20.51		
5	64QAM	25	0	20.81	21.00	20.68		
5	256QAM	1	0	18.52	18.33	18.53		
5	256QAM	1	12	18.34	18.60	18.23	20.2	2
5	256QAM	1	24	18.38	18.58	18.11		
5	256QAM	12	0	18.78	19.00	18.66		
5	256QAM	12	7	18.80	18.97	18.69	20.2	2
5	256QAM	12	13	18.79	18.95	18.66		
5	256QAM	25	0	18.87	19.07	18.67		
Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	21.28	21.47	21.41		
3	QPSK	1	8	21.40	21.60	21.36	22.2	0
3	QPSK	1	14	21.44	21.47	21.18		
3	QPSK	8	0	21.27	21.50	21.17		
3	QPSK	8	4	21.27	21.53	21.30	22.2	0
3	QPSK	8	7	21.30	21.55	21.17		
3	QPSK	15	0	21.38	21.50	21.14		
3	16QAM	1	0	21.11	21.23	21.07		
3	16QAM	1	8	21.15	21.33	21.00	22.2	0
3	16QAM	1	14	21.15	21.22	20.83		
3	16QAM	8	0	21.29	21.45	21.19		
3	16QAM	8	4	21.33	21.54	21.15	22.2	0
3	16QAM	8	7	21.33	21.49	21.07		
3	16QAM	15	0	21.37	21.44	21.17		
3	64QAM	1	0	21.33	21.15	21.30		
3	64QAM	1	8	21.24	21.45	21.06	22.2	0
3	64QAM	1	14	21.29	21.30	20.86		
3	64QAM	8	0	20.61	20.86	20.66		
3	64QAM	8	4	20.82	20.93	20.72	21.2	1
3	64QAM	8	7	20.87	21.00	20.51		
3	64QAM	15	0	20.82	21.00	20.64		
3	256QAM	1	0	18.52	18.38	18.58		
3	256QAM	1	8	18.34	18.62	18.17	20.2	2
3	256QAM	1	14	18.39	18.53	18.20		
3	256QAM	8	0	18.70	18.99	18.73	20.2	2

3	256QAM	8	4	18.74	19.01	18.67		
3	256QAM	8	7	18.77	18.91	18.60		
3	256QAM	15	0	18.90	19.05	18.71		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	21.29	21.47	21.35	22.2	0
1.4	QPSK	1	3	21.47	21.61	21.41		
1.4	QPSK	1	5	21.40	21.49	21.18		
1.4	QPSK	3	0	21.22	21.52	21.18		
1.4	QPSK	3	1	21.31	21.54	21.38		
1.4	QPSK	3	3	21.27	21.50	21.17		
1.4	QPSK	6	0	21.40	21.48	21.18	22.2	0
1.4	16QAM	1	0	21.09	21.31	21.00	22.2	0
1.4	16QAM	1	3	21.15	21.26	20.91		
1.4	16QAM	1	5	21.21	21.24	20.92		
1.4	16QAM	3	0	21.23	21.45	21.20		
1.4	16QAM	3	1	21.33	21.52	21.19		
1.4	16QAM	3	3	21.35	21.52	21.09		
1.4	16QAM	6	0	21.36	21.44	21.16	22.2	0
1.4	64QAM	1	0	21.31	21.14	21.35	22.2	0
1.4	64QAM	1	3	21.18	21.42	21.06		
1.4	64QAM	1	5	21.28	21.35	20.89		
1.4	64QAM	3	0	20.67	20.93	20.68		
1.4	64QAM	3	1	20.82	21.01	20.73		
1.4	64QAM	3	3	20.88	20.94	20.54		
1.4	64QAM	6	0	20.77	20.97	20.61	21.2	1
1.4	256QAM	1	0	18.46	18.43	18.51	20.2	2
1.4	256QAM	1	3	18.31	18.59	18.17		
1.4	256QAM	1	5	18.39	18.54	18.18		
1.4	256QAM	3	0	18.77	19.00	18.68		
1.4	256QAM	3	1	18.74	18.99	18.74		
1.4	256QAM	3	3	18.77	18.91	18.60		
1.4	256QAM	6	0	18.85	19.05	18.67	20.2	2

<LTE Band 4 Ant 0>

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	21.48	21.50	21.49	22.3	0
20	QPSK	1	49	21.32	21.29	21.31		
20	QPSK	1	99	21.29	21.28	21.27		
20	QPSK	50	0	21.54	21.52	21.52	22.3	0
20	QPSK	50	24	21.55	21.52	21.53		
20	QPSK	50	50	21.46	21.36	21.45		
20	QPSK	100	0	21.53	21.44	21.51		
20	16QAM	1	0	21.82	21.75	21.66	22.3	0
20	16QAM	1	49	21.71	21.55	21.74		
20	16QAM	1	99	21.66	21.54	21.69		
20	16QAM	50	0	21.54	21.45	21.01	22.3	0
20	16QAM	50	24	21.58	21.12	21.28		
20	16QAM	50	50	21.50	20.85	21.47		
20	16QAM	100	0	21.54	21.06	21.14		
20	64QAM	1	0	20.10	21.22	20.00	21.8	0.5
20	64QAM	1	49	21.48	20.02	20.71		
20	64QAM	1	99	20.61	20.00	21.52		
20	64QAM	50	0	19.68	19.71	19.13	20.8	1.5
20	64QAM	50	24	20.09	19.16	19.47		
20	64QAM	50	50	19.98	19.02	19.85		
20	64QAM	100	0	19.75	19.30	19.38		
20	256QAM	1	0	19.08	19.19	18.14	19.8	2.5
20	256QAM	1	49	19.07	19.10	18.14		
20	256QAM	1	99	18.65	18.73	18.10		
20	256QAM	50	0	19.02	19.10	18.02	19.8	2.5
20	256QAM	50	24	18.92	19.02	17.95		
20	256QAM	50	50	18.79	18.80	17.95		
20	256QAM	100	0	19.03	19.11	17.94		
Channel				20025	20175	20325	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	21.50	21.50	21.49	22.3	0
15	QPSK	1	37	21.33	21.32	21.36		
15	QPSK	1	74	21.33	21.30	21.34		
15	QPSK	36	0	21.59	21.51	21.52	22.3	0
15	QPSK	36	20	21.52	21.52	21.46		
15	QPSK	36	39	21.47	21.41	21.47		
15	QPSK	75	0	21.51	21.43	21.45		
15	16QAM	1	0	21.79	21.74	21.48	22.3	0
15	16QAM	1	37	21.69	21.54	21.70		
15	16QAM	1	74	21.67	21.49	21.70		
15	16QAM	36	0	21.28	21.34	21.14	22.3	0
15	16QAM	36	20	21.53	20.91	21.49		
15	16QAM	36	39	21.50	20.70	21.51		
15	16QAM	75	0	21.51	20.96	21.41		
15	64QAM	1	0	20.04	21.12	20.00	21.8	0.5

15	64QAM	1	37	20.96	20.02	20.73		
15	64QAM	1	74	21.29	20.00	21.48		
15	64QAM	36	0	19.35	19.46	19.23	20.8	1.5
15	64QAM	36	20	19.93	19.04	19.69		
15	64QAM	36	39	20.13	19.00	20.01		
15	64QAM	75	0	19.70	19.10	19.51		
15	256QAM	1	0	19.02	19.12	18.05	19.8	2.5
15	256QAM	1	37	19.06	19.01	18.14		
15	256QAM	1	74	18.56	18.65	18.02		
15	256QAM	36	0	18.97	19.04	17.94	19.8	2.5
15	256QAM	36	20	18.92	18.94	17.86		
15	256QAM	36	39	18.77	18.77	17.91		
15	256QAM	75	0	19.00	19.03	17.89		
Channel				20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	21.40	21.43	21.45	22.3	0
10	QPSK	1	25	21.36	21.40	21.43		
10	QPSK	1	49	21.38	21.38	21.43		
10	QPSK	25	0	21.50	21.48	21.49	22.3	0
10	QPSK	25	12	21.52	21.59	21.51		
10	QPSK	25	25	21.51	21.46	21.59		
10	QPSK	50	0	21.53	21.42	21.53		
10	16QAM	1	0	21.78	21.68	21.80	22.3	0
10	16QAM	1	25	21.75	21.64	21.80		
10	16QAM	1	49	21.77	21.49	21.80		
10	16QAM	25	0	21.18	21.19	21.50	22.3	0
10	16QAM	25	12	21.42	20.96	21.53		
10	16QAM	25	25	21.55	20.74	21.57		
10	16QAM	50	0	21.34	20.85	21.50		
10	64QAM	1	0	20.00	20.47	20.19	21.8	0.5
10	64QAM	1	25	20.64	20.02	21.19		
10	64QAM	1	49	21.17	20.00	21.51		
10	64QAM	25	0	19.26	19.28	19.66	20.8	1.5
10	64QAM	25	12	19.59	19.01	19.95		
10	64QAM	25	25	19.89	19.00	20.16		
10	64QAM	50	0	19.49	19.01	19.77		
10	256QAM	1	0	19.01	19.09	18.00	19.8	2.5
10	256QAM	1	25	19.02	18.97	18.09		
10	256QAM	1	49	18.46	18.59	17.92		
10	256QAM	25	0	18.94	18.95	17.85	19.8	2.5
10	256QAM	25	12	18.90	18.88	17.83		
10	256QAM	25	25	18.68	18.68	17.88		
10	256QAM	50	0	18.99	18.99	17.84		
Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	21.40	21.39	21.46	22.3	0
5	QPSK	1	12	21.46	21.47	21.44		
5	QPSK	1	24	21.44	21.45	21.49		
5	QPSK	12	0	21.49	21.49	21.56	22.3	0
5	QPSK	12	7	21.51	21.54	21.59		

5	QPSK	12	13	21.52	21.56	21.58		
5	QPSK	25	0	21.50	21.45	21.54		
5	16QAM	1	0	21.75	21.56	21.76		
5	16QAM	1	12	21.72	21.61	21.75	22.3	0
5	16QAM	1	24	21.79	21.65	21.81		
5	16QAM	12	0	21.07	21.12	21.55		
5	16QAM	12	7	21.20	21.03	21.58	22.3	0
5	16QAM	12	13	21.32	20.89	21.56		
5	16QAM	25	0	21.12	20.97	21.56		
5	64QAM	1	0	20.11	20.49	20.87		
5	64QAM	1	12	20.31	20.16	21.27	21.8	0.5
5	64QAM	1	24	20.41	20.00	21.52		
5	64QAM	12	0	19.21	19.26	20.17		
5	64QAM	12	7	19.32	19.12	20.34	20.8	1.5
5	64QAM	12	13	19.43	19.00	20.41		
5	64QAM	25	0	19.26	19.01	20.13		
5	256QAM	1	0	18.96	19.02	18.04		
5	256QAM	1	12	18.98	18.93	18.01	19.8	2.5
5	256QAM	1	24	18.48	18.50	17.99		
5	256QAM	12	0	18.89	18.96	17.89		
5	256QAM	12	7	18.83	18.74	17.81	19.8	2.5
5	256QAM	12	13	18.68	18.71	17.76		
5	256QAM	25	0	18.98	18.89	17.84		
Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	21.38	21.39	21.42		
3	QPSK	1	8	21.50	21.51	21.53	22.3	0
3	QPSK	1	14	21.41	21.45	21.48		
3	QPSK	8	0	21.48	21.41	21.53		
3	QPSK	8	4	21.55	21.55	21.57	22.3	0
3	QPSK	8	7	21.54	21.53	21.52		
3	QPSK	15	0	21.49	21.46	21.55		
3	16QAM	1	0	21.74	21.52	21.74		
3	16QAM	1	8	21.78	21.65	21.81	22.3	0
3	16QAM	1	14	21.78	21.64	21.77		
3	16QAM	8	0	20.99	21.04	21.58		
3	16QAM	8	4	21.06	20.99	21.59	22.3	0
3	16QAM	8	7	21.08	20.88	21.54		
3	16QAM	15	0	21.02	20.93	21.56		
3	64QAM	1	0	20.11	20.27	21.15		
3	64QAM	1	8	20.26	20.16	21.49	21.8	0.5
3	64QAM	1	14	20.28	20.00	21.59		
3	64QAM	8	0	19.13	19.10	20.28		
3	64QAM	8	4	19.19	19.10	20.44	20.8	1.5
3	64QAM	8	7	19.18	19.00	20.45		
3	64QAM	15	0	19.12	19.00	20.36		
3	256QAM	1	0	18.82	18.92	17.99		
3	256QAM	1	8	18.89	18.88	17.99	19.8	2.5
3	256QAM	1	14	18.51	18.53	17.94		
3	256QAM	8	0	18.78	18.87	17.83	19.8	2.5

3	256QAM	8	4	18.75	18.84	17.73		
3	256QAM	8	7	18.59	18.64	17.67		
3	256QAM	15	0	18.84	18.90	17.74		
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	21.31	21.34	21.39	22.3	0
1.4	QPSK	1	3	21.38	21.30	21.45		
1.4	QPSK	1	5	21.32	21.24	21.37		
1.4	QPSK	3	0	21.34	21.26	21.40		
1.4	QPSK	3	1	21.38	21.31	21.44		
1.4	QPSK	3	3	21.39	21.27	21.42		
1.4	QPSK	6	0	21.45	21.34	21.49	22.3	0
1.4	16QAM	1	0	21.69	21.56	21.66	22.3	0
1.4	16QAM	1	3	21.75	21.59	21.76		
1.4	16QAM	1	5	21.69	21.58	21.65		
1.4	16QAM	3	0	21.46	21.32	21.49		
1.4	16QAM	3	1	21.49	21.35	21.52		
1.4	16QAM	3	3	21.45	21.33	21.48		
1.4	16QAM	6	0	20.99	20.96	21.55	22.3	0
1.4	64QAM	1	0	20.08	20.13	21.32	21.8	0.5
1.4	64QAM	1	3	20.14	20.12	21.49		
1.4	64QAM	1	5	20.11	20.02	21.47		
1.4	64QAM	3	0	20.08	20.08	21.34		
1.4	64QAM	3	1	20.18	20.12	21.43		
1.4	64QAM	3	3	20.09	20.03	21.40		
1.4	64QAM	6	0	19.03	19.00	20.35	20.8	1.5
1.4	256QAM	1	0	18.94	19.00	17.92	19.8	2.5
1.4	256QAM	1	3	18.97	18.94	18.08		
1.4	256QAM	1	5	18.47	18.50	17.92		
1.4	256QAM	3	0	18.85	18.91	17.85		
1.4	256QAM	3	1	18.74	18.85	17.70		
1.4	256QAM	3	3	18.73	18.66	17.81		
1.4	256QAM	6	0	18.96	18.93	17.77	19.8	2.5

<LTE Band 4 Ant 8>

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	22.84	22.85	23.02	24	0
20	QPSK	1	49	22.47	22.54	22.70		
20	QPSK	1	99	22.64	22.55	22.77		
20	QPSK	50	0	22.67	22.83	22.90	23	1
20	QPSK	50	24	22.81	22.86	22.82		
20	QPSK	50	50	22.74	22.80	23.00		
20	QPSK	100	0	22.69	22.84	22.82		
20	16QAM	1	0	22.66	22.63	22.73	23	1
20	16QAM	1	49	22.53	22.56	22.74		
20	16QAM	1	99	22.64	22.75	22.73		
20	16QAM	50	0	22.21	22.31	22.43	23	1
20	16QAM	50	24	22.28	22.35	22.37		
20	16QAM	50	50	22.30	22.33	22.47		
20	16QAM	100	0	22.25	22.31	22.32		
20	64QAM	1	0	22.11	21.95	21.99	23	1
20	64QAM	1	49	21.75	21.85	21.99		
20	64QAM	1	99	21.90	22.27	21.92		
20	64QAM	50	0	21.26	21.30	21.47	22	2
20	64QAM	50	24	21.24	21.30	21.37		
20	64QAM	50	50	21.20	21.33	21.45		
20	64QAM	100	0	21.29	21.27	21.33		
20	256QAM	1	0	19.28	19.14	19.23	22	2
20	256QAM	1	49	18.99	19.05	19.25		
20	256QAM	1	99	19.14	19.44	19.26		
20	256QAM	50	0	19.12	19.24	19.31	22	2
20	256QAM	50	24	19.25	19.28	19.26		
20	256QAM	50	50	19.15	19.21	19.40		
20	256QAM	100	0	19.23	19.38	19.34		
Channel				20025	20175	20325	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	22.66	22.73	22.81	24	0
15	QPSK	1	37	22.55	22.69	22.83		
15	QPSK	1	74	22.49	22.71	22.74		
15	QPSK	36	0	22.65	22.85	22.86	23	1
15	QPSK	36	20	22.72	22.90	22.90		
15	QPSK	36	39	22.72	22.84	22.87		
15	QPSK	75	0	22.73	22.85	22.90		
15	16QAM	1	0	22.61	22.71	22.76	23	1
15	16QAM	1	37	22.47	22.58	22.75		
15	16QAM	1	74	22.47	22.72	22.73		
15	16QAM	36	0	22.20	22.29	22.44	23	1
15	16QAM	36	20	22.29	22.40	22.47		
15	16QAM	36	39	22.24	22.30	22.48		
15	16QAM	75	0	22.23	22.35	22.37		
15	64QAM	1	0	22.07	21.99	21.71	23	1

15	64QAM	1	37	22.00	21.94	22.38		
15	64QAM	1	74	21.79	22.00	22.18		
15	64QAM	36	0	21.29	21.32	21.45	22	2
15	64QAM	36	20	21.28	21.32	21.49		
15	64QAM	36	39	21.26	21.33	21.43		
15	64QAM	75	0	21.26	21.31	21.39		
15	256QAM	1	0	19.30	19.27	19.63	22	2
15	256QAM	1	37	19.21	19.10	19.48		
15	256QAM	1	74	18.88	19.49	19.49		
15	256QAM	36	0	19.20	19.32	19.47	22	2
15	256QAM	36	20	19.31	19.36	19.49		
15	256QAM	36	39	19.23	19.38	19.51		
15	256QAM	75	0	19.22	19.32	19.39		
Channel				20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	22.64	22.65	22.82	24	0
10	QPSK	1	25	22.47	22.54	22.70		
10	QPSK	1	49	22.64	22.55	22.77		
10	QPSK	25	0	22.67	22.83	22.90	23	1
10	QPSK	25	12	22.81	22.86	22.82		
10	QPSK	25	25	22.74	22.80	22.94		
10	QPSK	50	0	22.69	22.84	22.82		
10	16QAM	1	0	22.66	22.63	22.73	23	1
10	16QAM	1	25	22.53	22.56	22.74		
10	16QAM	1	49	22.64	22.75	22.73		
10	16QAM	25	0	22.21	22.31	22.43	23	1
10	16QAM	25	12	22.28	22.35	22.37		
10	16QAM	25	25	22.30	22.33	22.47		
10	16QAM	50	0	22.25	22.31	22.32		
10	64QAM	1	0	22.11	21.95	21.99	23	1
10	64QAM	1	25	21.75	21.85	21.99		
10	64QAM	1	49	21.90	22.27	21.92		
10	64QAM	25	0	21.26	21.30	21.47	22	2
10	64QAM	25	12	21.24	21.30	21.37		
10	64QAM	25	25	21.20	21.33	21.45		
10	64QAM	50	0	21.29	21.27	21.33		
10	256QAM	1	0	19.28	19.14	19.23	22	2
10	256QAM	1	25	18.99	19.05	19.25		
10	256QAM	1	49	19.14	19.44	19.26		
10	256QAM	25	0	19.12	19.24	19.31	22	2
10	256QAM	25	12	19.25	19.28	19.26		
10	256QAM	25	25	19.15	19.21	19.40		
10	256QAM	50	0	19.23	19.38	19.34		
Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	22.61	22.66	22.80	24	0
5	QPSK	1	12	22.50	22.60	22.79		
5	QPSK	1	24	22.42	22.64	22.74		
5	QPSK	12	0	22.60	22.79	22.94	23	1
5	QPSK	12	7	22.71	22.88	22.89		

5	QPSK	12	13	22.65	22.84	22.88		
5	QPSK	25	0	22.66	22.85	22.88		
5	16QAM	1	0	22.59	22.69	22.69		
5	16QAM	1	12	22.38	22.57	22.74	23	1
5	16QAM	1	24	22.44	22.65	22.70		
5	16QAM	12	0	22.20	22.27	22.44		
5	16QAM	12	7	22.23	22.31	22.47	23	1
5	16QAM	12	13	22.19	22.27	22.42		
5	16QAM	25	0	22.16	22.25	22.37		
5	64QAM	1	0	22.05	21.96	21.62		
5	64QAM	1	12	21.90	21.90	22.35	23	1
5	64QAM	1	24	21.75	21.90	22.09		
5	64QAM	12	0	21.22	21.28	21.44		
5	64QAM	12	7	21.19	21.29	21.46	22	2
5	64QAM	12	13	21.16	21.24	21.39		
5	64QAM	25	0	21.25	21.24	21.29		
5	256QAM	1	0	19.20	19.18	19.59		
5	256QAM	1	12	19.15	19.09	19.42	22	2
5	256QAM	1	24	18.84	19.47	19.42		
5	256QAM	12	0	19.20	19.22	19.39		
5	256QAM	12	7	19.30	19.30	19.44	22	2
5	256QAM	12	13	19.21	19.36	19.44		
5	256QAM	25	0	19.17	19.29	19.38		
Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	22.62	22.66	22.76		
3	QPSK	1	8	22.52	22.69	22.78	24	0
3	QPSK	1	14	22.39	22.71	22.64		
3	QPSK	8	0	22.60	22.79	22.93		
3	QPSK	8	4	22.67	22.80	22.94	23	1
3	QPSK	8	7	22.64	22.79	22.88		
3	QPSK	15	0	22.71	22.82	22.80		
3	16QAM	1	0	22.60	22.66	22.75		
3	16QAM	1	8	22.37	22.52	22.72	23	1
3	16QAM	1	14	22.39	22.63	22.73		
3	16QAM	8	0	22.12	22.19	22.35		
3	16QAM	8	4	22.26	22.37	22.47	23	1
3	16QAM	8	7	22.19	22.28	22.39		
3	16QAM	15	0	22.17	22.31	22.30		
3	64QAM	1	0	22.00	21.97	21.68		
3	64QAM	1	8	21.90	21.89	22.35	23	1
3	64QAM	1	14	21.79	21.91	22.11		
3	64QAM	8	0	21.20	21.32	21.42		
3	64QAM	8	4	21.23	21.30	21.42	22	2
3	64QAM	8	7	21.25	21.27	21.37		
3	64QAM	15	0	21.17	21.23	21.29		
3	256QAM	1	0	19.26	19.18	19.62		
3	256QAM	1	8	19.16	19.08	19.39	22	2
3	256QAM	1	14	18.82	19.47	19.42		
3	256QAM	8	0	19.11	19.28	19.40	22	2

3	256QAM	8	4	19.31	19.34	19.43		
3	256QAM	8	7	19.23	19.34	19.51		
3	256QAM	15	0	19.12	19.28	19.31		
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	22.57	22.63	22.86	24	0
1.4	QPSK	1	3	22.66	22.75	22.93		
1.4	QPSK	1	5	22.67	22.71	22.84		
1.4	QPSK	3	0	22.68	22.69	22.89		
1.4	QPSK	3	1	22.65	22.79	22.91		
1.4	QPSK	3	3	22.62	22.76	22.89		
1.4	QPSK	6	0	22.73	22.86	22.99	23	1
1.4	16QAM	1	0	22.61	22.55	22.76	23	1
1.4	16QAM	1	3	22.64	22.70	22.82		
1.4	16QAM	1	5	22.63	22.62	22.81		
1.4	16QAM	3	0	22.77	22.85	22.99		
1.4	16QAM	3	1	22.88	22.94	22.99		
1.4	16QAM	3	3	22.84	22.94	22.98		
1.4	16QAM	6	0	22.28	22.29	22.45	23	1
1.4	64QAM	1	0	21.76	21.83	22.06	23	1
1.4	64QAM	1	3	21.84	21.93	22.18		
1.4	64QAM	1	5	21.77	21.93	22.06		
1.4	64QAM	3	0	22.19	22.26	22.50		
1.4	64QAM	3	1	22.26	22.34	22.46		
1.4	64QAM	3	3	22.19	22.36	22.47		
1.4	64QAM	6	0	21.35	21.43	21.56	22	2
1.4	256QAM	1	0	19.01	19.07	19.27	22	2
1.4	256QAM	1	3	19.14	19.32	19.38		
1.4	256QAM	1	5	19.05	19.21	19.28		
1.4	256QAM	3	0	19.26	19.29	19.51		
1.4	256QAM	3	1	19.32	19.40	19.58		
1.4	256QAM	3	3	19.26	19.38	19.52		
1.4	256QAM	6	0	19.20	19.31	19.49	22	2

<LTE Band 5 Ant 0>

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	21.44	21.48	21.52	22.8	0
10	QPSK	1	25	21.38	21.43	21.49		
10	QPSK	1	49	21.43	21.44	21.46		
10	QPSK	25	0	21.46	21.53	21.59	22.8	0
10	QPSK	25	12	21.54	21.61	21.62		
10	QPSK	25	25	21.49	21.56	21.60		
10	QPSK	50	0	21.48	21.60	21.60		
10	16QAM	1	0	21.69	21.85	21.95	22.8	0
10	16QAM	1	25	21.68	21.82	21.92		
10	16QAM	1	49	21.73	21.83	21.84		
10	16QAM	25	0	21.42	21.55	21.59	22	0.8
10	16QAM	25	12	21.52	21.60	21.64		
10	16QAM	25	25	21.47	21.57	21.59		
10	16QAM	50	0	21.51	21.61	21.57		
10	64QAM	1	0	21.61	21.73	21.65	22	0.8
10	64QAM	1	25	21.60	21.79	21.73		
10	64QAM	1	49	21.59	21.76	20.84		
10	64QAM	25	0	20.71	20.78	20.79	21	1.8
10	64QAM	25	12	20.78	20.75	20.77		
10	64QAM	25	25	20.76	20.75	20.49		
10	64QAM	50	0	20.74	20.80	20.76		
10	256QAM	1	0	18.70	18.77	18.91	20	2.8
10	256QAM	1	25	18.85	18.92	18.85		
10	256QAM	1	49	18.92	18.94	18.84		
10	256QAM	25	0	18.62	18.67	18.67	20	2.8
10	256QAM	25	12	18.75	18.81	18.80		
10	256QAM	25	25	18.66	18.71	18.67		
10	256QAM	50	0	18.76	18.77	18.77		
Channel				20425	20525	20625	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	QPSK	1	0	21.54	21.48	21.56	22.8	0
5	QPSK	1	12	21.42	21.51	21.58		
5	QPSK	1	24	21.41	21.45	21.50		
5	QPSK	12	0	21.58	21.54	21.62	22.8	0
5	QPSK	12	7	21.53	21.59	21.61		
5	QPSK	12	13	21.50	21.52	21.62		
5	QPSK	25	0	21.44	21.56	21.62		
5	16QAM	1	0	21.79	21.82	21.93	22.8	0
5	16QAM	1	12	21.66	21.79	21.89		
5	16QAM	1	24	21.67	21.83	21.87		
5	16QAM	12	0	21.53	21.60	21.64	22	0.8
5	16QAM	12	7	21.47	21.59	21.63		
5	16QAM	12	13	21.42	21.59	21.62		
5	16QAM	25	0	21.51	21.62	21.61		
5	64QAM	1	0	21.74	21.78	21.80	22	0.8

5	64QAM	1	12	21.58	21.70	21.52		
5	64QAM	1	24	21.65	21.78	20.98		
5	64QAM	12	0	20.76	20.77	20.77	21	1.8
5	64QAM	12	7	20.80	20.75	20.55		
5	64QAM	12	13	20.77	20.79	20.23		
5	64QAM	25	0	20.79	20.78	20.51		
5	256QAM	1	0	18.67	18.69	18.84	20.2	2.6
5	256QAM	1	12	18.82	18.87	18.82		
5	256QAM	1	24	18.88	18.86	18.79		
5	256QAM	12	0	18.55	18.65	18.58	20.2	2.6
5	256QAM	12	7	18.73	18.79	18.71		
5	256QAM	12	13	18.60	18.62	18.61		
5	256QAM	25	0	18.66	18.71	18.77		
Channel				20415	20525	20635	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				825.5	836.5	847.5		
3	QPSK	1	0	21.48	21.45	21.54	22.8	0
3	QPSK	1	8	21.48	21.54	21.59		
3	QPSK	1	14	21.37	21.45	21.46		
3	QPSK	8	0	21.59	21.54	21.56	22.8	0
3	QPSK	8	4	21.55	21.57	21.64		
3	QPSK	8	7	21.46	21.53	21.58		
3	QPSK	15	0	21.49	21.53	21.57		
3	16QAM	1	0	21.79	21.76	21.91	22.8	0
3	16QAM	1	8	21.77	21.86	21.94		
3	16QAM	1	14	21.65	21.76	21.82		
3	16QAM	8	0	21.56	21.61	21.69	22	0.8
3	16QAM	8	4	21.54	21.67	21.73		
3	16QAM	8	7	21.45	21.61	21.69		
3	16QAM	15	0	21.46	21.62	21.61		
3	64QAM	1	0	21.69	21.75	21.54	22	0.8
3	64QAM	1	8	21.73	21.79	21.30		
3	64QAM	1	14	21.59	21.71	21.13		
3	64QAM	8	0	20.76	20.79	20.37	21	1.8
3	64QAM	8	4	20.78	20.80	20.24		
3	64QAM	8	7	20.77	20.80	20.15		
3	64QAM	15	0	20.78	20.80	20.25		
3	256QAM	1	0	18.60	18.63	18.76	20.2	2.6
3	256QAM	1	8	18.79	18.82	18.76		
3	256QAM	1	14	18.85	18.84	18.70		
3	256QAM	8	0	18.51	18.58	18.56	20.2	2.6
3	256QAM	8	4	18.68	18.78	18.71		
3	256QAM	8	7	18.57	18.61	18.58		
3	256QAM	15	0	18.57	18.65	18.74		
Channel				20407	20525	20643	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				824.7	836.5	848.3		
1.4	QPSK	1	0	21.39	21.37	21.43	22.8	0
1.4	QPSK	1	3	21.28	21.44	21.52		
1.4	QPSK	1	5	21.22	21.35	21.43		
1.4	QPSK	3	0	21.28	21.38	21.40		
1.4	QPSK	3	1	21.38	21.37	21.46		

1.4	QPSK	3	3	21.25	21.41	21.32		
1.4	QPSK	6	0	21.36	21.45	21.43	22.8	0
1.4	16QAM	1	0	21.59	21.68	21.70	22.8	0
1.4	16QAM	1	3	21.71	21.79	21.76		
1.4	16QAM	1	5	21.52	21.71	21.67		
1.4	16QAM	3	0	21.48	21.47	21.48		
1.4	16QAM	3	1	21.42	21.51	21.50		
1.4	16QAM	3	3	21.41	21.52	21.45		
1.4	16QAM	6	0	21.37	21.56	21.53	22	0.8
1.4	64QAM	1	0	21.58	21.63	21.23	22	0.8
1.4	64QAM	1	3	21.54	21.73	21.22		
1.4	64QAM	1	5	21.54	21.66	21.14		
1.4	64QAM	3	0	21.52	21.57	21.16		
1.4	64QAM	3	1	21.55	21.63	21.16		
1.4	64QAM	3	3	21.60	21.65	21.10		
1.4	64QAM	6	0	20.71	20.71	20.03	21	1.8
1.4	256QAM	1	0	18.50	18.62	18.72	20.2	2.6
1.4	256QAM	1	3	18.76	18.76	18.68		
1.4	256QAM	1	5	18.84	18.75	18.71		
1.4	256QAM	3	0	18.46	18.48	18.39		
1.4	256QAM	3	1	18.65	18.78	18.67		
1.4	256QAM	3	3	18.44	18.55	18.47		
1.4	256QAM	6	0	18.50	18.63	18.71	20.2	2.6

<LTE Band 7 Ant 0>

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	20.89	21.02	21.19	21.7	0
20	QPSK	1	49	20.96	21.11	21.33		
20	QPSK	1	99	21.08	21.24	21.37		
20	QPSK	50	0	21.01	21.17	21.37	21.7	0
20	QPSK	50	24	21.14	21.20	21.51		
20	QPSK	50	50	21.12	21.29	21.52		
20	QPSK	100	0	21.09	21.29	21.42		
20	16QAM	1	0	21.26	21.37	21.55	21.7	0
20	16QAM	1	49	21.31	21.46	21.66		
20	16QAM	1	99	21.42	21.60	21.70		
20	16QAM	50	0	21.00	21.18	21.39	21.7	0
20	16QAM	50	24	21.13	21.21	21.51		
20	16QAM	50	50	21.15	21.32	21.50		
20	16QAM	100	0	21.10	21.28	21.40		
20	64QAM	1	0	20.92	21.20	21.42	21.7	0
20	64QAM	1	49	21.17	21.30	21.58		
20	64QAM	1	99	21.28	21.25	20.92		
20	64QAM	50	0	20.34	20.63	20.60	21	0.7
20	64QAM	50	24	20.99	20.29	20.55		
20	64QAM	50	50	21.00	20.16	20.20		
20	64QAM	100	0	20.88	20.35	20.15		
20	256QAM	1	0	19.44	19.50	19.49	20	1.7
20	256QAM	1	49	19.39	19.49	19.44		
20	256QAM	1	99	18.98	19.05	19.05		
20	256QAM	50	0	19.37	19.43	19.43	20	1.7
20	256QAM	50	24	19.39	19.48	19.40		
20	256QAM	50	50	19.38	19.40	19.38		
20	256QAM	100	0	19.45	19.48	19.39		
Channel				20825	21100	21375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2507.5	2535	2562.5		
15	QPSK	1	0	20.96	21.09	21.35	21.7	0
15	QPSK	1	37	20.99	21.16	21.39		
15	QPSK	1	74	21.07	21.24	21.45		
15	QPSK	36	0	21.03	21.22	21.44	21.7	0
15	QPSK	36	20	21.15	21.31	21.49		
15	QPSK	36	39	21.15	21.34	21.55		
15	QPSK	75	0	21.13	21.30	21.45		
15	16QAM	1	0	21.29	21.46	21.67	21.7	0
15	16QAM	1	37	21.33	21.53	21.67		
15	16QAM	1	74	21.40	21.55	21.69		
15	16QAM	36	0	21.05	21.20	21.44	21.7	0
15	16QAM	36	20	21.16	21.31	21.45		
15	16QAM	36	39	21.16	21.32	21.54		
15	16QAM	75	0	21.13	21.31	21.44		
15	64QAM	1	0	20.87	21.31	21.54	21.7	0

15	64QAM	1	37	21.24	21.26	21.39		
15	64QAM	1	74	21.26	21.20	20.83		
15	64QAM	36	0	20.12	20.55	20.63	21	0.7
15	64QAM	36	20	20.87	20.21	20.35		
15	64QAM	36	39	21.00	20.09	19.95		
15	64QAM	75	0	20.68	20.27	20.13		
15	256QAM	1	0	19.38	19.40	19.44	20	1.7
15	256QAM	1	37	19.39	19.45	19.40		
15	256QAM	1	74	18.92	19.01	19.03		
15	256QAM	36	0	19.32	19.34	19.41	20	1.7
15	256QAM	36	20	19.39	19.48	19.35		
15	256QAM	36	39	19.28	19.37	19.31		
15	256QAM	75	0	19.38	19.48	19.38		
Channel				20800	21100	21400	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2505	2535	2565		
10	QPSK	1	0	20.87	21.09	21.29	21.7	0
10	QPSK	1	25	20.88	21.10	21.33		
10	QPSK	1	49	20.93	21.15	21.34		
10	QPSK	25	0	21.08	21.21	21.42	21.7	0
10	QPSK	25	12	21.11	21.22	21.46		
10	QPSK	25	25	21.10	21.29	21.52		
10	QPSK	50	0	21.11	21.29	21.44		
10	16QAM	1	0	21.28	21.41	21.64	21.7	0
10	16QAM	1	25	21.28	21.47	21.68		
10	16QAM	1	49	21.35	21.52	21.69		
10	16QAM	25	0	21.05	21.20	21.37	21.7	0
10	16QAM	25	12	21.10	21.21	21.39		
10	16QAM	25	25	21.09	21.28	21.50		
10	16QAM	50	0	21.09	21.27	21.40		
10	64QAM	1	0	20.86	21.32	21.41	21.7	0
10	64QAM	1	25	21.22	21.35	21.15		
10	64QAM	1	49	21.26	21.22	20.63		
10	64QAM	25	0	19.86	20.42	20.18	21	0.7
10	64QAM	25	12	20.25	20.27	20.04		
10	64QAM	25	25	20.72	20.11	19.70		
10	64QAM	50	0	20.14	20.17	19.82		
10	256QAM	1	0	19.34	19.46	19.48	20	1.7
10	256QAM	1	25	19.34	19.45	19.40		
10	256QAM	1	49	18.91	19.05	18.96		
10	256QAM	25	0	19.28	19.38	19.37	20	1.7
10	256QAM	25	12	19.30	19.42	19.39		
10	256QAM	25	25	19.29	19.31	19.38		
10	256QAM	50	0	19.39	19.47	19.34		
Channel				20775	21100	21425	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	QPSK	1	0	20.92	21.04	21.36	21.7	0
5	QPSK	1	12	20.95	21.16	21.39		
5	QPSK	1	24	20.96	21.17	21.37		
5	QPSK	12	0	21.04	21.18	21.49	21.7	0
5	QPSK	12	7	21.07	21.25	21.48		

5	QPSK	12	13	21.07	21.27	21.50		
5	QPSK	25	0	21.05	21.31	21.50		
5	16QAM	1	0	21.25	21.39	21.68	21.7	0
5	16QAM	1	12	21.28	21.48	21.66		
5	16QAM	1	24	21.27	21.48	21.65		
5	16QAM	12	0	21.08	21.24	21.49	21.7	0
5	16QAM	12	7	21.10	21.29	21.49		
5	16QAM	12	13	21.08	21.27	21.43		
5	16QAM	25	0	21.09	21.27	21.48		
5	64QAM	1	0	20.81	21.34	20.98	21.7	0
5	64QAM	1	12	20.90	21.28	20.75		
5	64QAM	1	24	21.15	21.17	20.50		
5	64QAM	12	0	19.72	20.28	19.79	21	0.7
5	64QAM	12	7	19.86	20.25	19.74		
5	64QAM	12	13	20.05	20.16	19.55		
5	64QAM	25	0	19.83	20.24	19.59		
5	64QAM	1	0	19.41	19.42	19.47	20	1.7
5	64QAM	1	12	19.33	19.42	19.35		
5	64QAM	1	24	18.94	19.01	18.98		
5	64QAM	12	0	19.35	19.35	19.34	20	1.7
5	64QAM	12	7	19.37	19.40	19.33		
5	64QAM	12	13	19.28	19.30	19.36		
5	64QAM	25	0	19.40	19.42	19.32		

<LTE Band 12 Ant 0>

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	23.51	23.57	23.39	24	0
10	QPSK	1	25	23.38	23.21	23.16		
10	QPSK	1	49	23.26	23.18	22.99		
10	QPSK	25	0	23.20	23.25	23.02	24	0
10	QPSK	25	12	23.05	23.20	23.00		
10	QPSK	25	25	22.95	22.92	22.79		
10	QPSK	50	0	23.04	23.05	23.00		
10	16QAM	1	0	23.43	23.39	23.35	24	0
10	16QAM	1	25	23.40	23.33	23.08		
10	16QAM	1	49	23.25	23.27	23.04		
10	16QAM	25	0	22.25	22.16	22.07	23	1
10	16QAM	25	12	22.03	21.98	22.00		
10	16QAM	25	25	21.96	21.90	21.82		
10	16QAM	50	0	22.03	21.97	21.98		
10	64QAM	1	0	22.37	22.28	22.18	23	1
10	64QAM	1	25	22.25	22.27	22.09		
10	64QAM	1	49	22.16	21.97	21.89		
10	64QAM	25	0	21.30	21.12	21.02	22	2
10	64QAM	25	12	21.11	21.04	21.08		
10	64QAM	25	25	21.06	20.99	20.88		
10	64QAM	50	0	21.14	21.05	21.01		
10	256QAM	1	0	19.04	19.08	19.05	20	4
10	256QAM	1	25	18.80	18.86	18.77		
10	256QAM	1	49	18.88	18.92	18.89		
10	256QAM	25	0	18.79	18.89	18.85	20	4
10	256QAM	25	12	18.99	19.03	18.96		
10	256QAM	25	25	19.03	19.10	19.04		
10	256QAM	50	0	18.93	19.01	18.93		
Channel				23035	23095	23155	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				701.5	707.5	713.5		
5	QPSK	1	0	23.55	23.46	23.25	24	0
5	QPSK	1	12	23.54	23.43	23.18		
5	QPSK	1	24	23.43	23.21	23.05		
5	QPSK	12	0	23.25	23.13	22.93	24	0
5	QPSK	12	7	23.23	23.03	22.88		
5	QPSK	12	13	23.12	22.94	22.78		
5	QPSK	25	0	23.15	23.00	22.88		
5	16QAM	1	0	23.54	23.44	23.11	24	0
5	16QAM	1	12	23.36	23.32	22.99		
5	16QAM	1	24	23.35	23.13	22.94		
5	16QAM	12	0	22.30	22.16	21.96	23	1
5	16QAM	12	7	22.22	22.04	21.92		
5	16QAM	12	13	22.14	21.98	21.79		
5	16QAM	25	0	22.17	22.05	21.89		
5	64QAM	1	0	22.50	22.32	22.15	23	1

5	64QAM	1	12	22.35	22.22	22.01		
5	64QAM	1	24	22.27	22.06	21.86		
5	64QAM	12	0	21.31	21.20	21.01	22	2
5	64QAM	12	7	21.25	21.09	20.92		
5	64QAM	12	13	21.18	21.00	20.85		
5	64QAM	25	0	21.19	21.03	20.90		
5	256QAM	1	0	18.97	19.06	18.96	20	4
5	256QAM	1	12	18.80	18.83	18.68		
5	256QAM	1	24	18.78	18.92	18.87		
5	256QAM	12	0	18.69	18.79	18.85	20	4
5	256QAM	12	7	18.97	19.00	18.95		
5	256QAM	12	13	18.95	19.06	18.97		
5	256QAM	25	0	18.88	19.00	18.86		
Channel				23025	23095	23165	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				700.5	707.5	714.5		
3	QPSK	1	0	23.55	23.39	23.22	24	0
3	QPSK	1	8	23.50	23.38	23.18		
3	QPSK	1	14	23.41	23.17	23.04		
3	QPSK	8	0	23.23	23.11	22.87	24	0
3	QPSK	8	4	23.22	22.93	22.87		
3	QPSK	8	7	23.02	22.89	22.71		
3	QPSK	15	0	23.12	22.93	22.87		
3	16QAM	1	0	23.53	23.39	23.11	24	0
3	16QAM	1	8	23.32	23.28	22.95		
3	16QAM	1	14	23.35	23.13	22.90		
3	16QAM	8	0	22.24	22.14	21.96	23	1
3	16QAM	8	4	22.18	22.01	21.82		
3	16QAM	8	7	22.12	21.91	21.78		
3	16QAM	15	0	22.12	21.97	21.79		
3	64QAM	1	0	22.42	22.30	22.10	23	1
3	64QAM	1	8	22.34	22.20	21.93		
3	64QAM	1	14	22.19	22.01	21.76		
3	64QAM	8	0	21.23	21.18	21.01	22	2
3	64QAM	8	4	21.15	21.05	20.83		
3	64QAM	8	7	21.16	20.97	20.79		
3	64QAM	15	0	21.13	21.00	20.83		
3	256QAM	1	0	19.00	19.07	18.98	20	4
3	256QAM	1	8	18.78	18.79	18.69		
3	256QAM	1	14	18.87	18.89	18.86		
3	256QAM	8	0	18.72	18.79	18.83	20	4
3	256QAM	8	4	18.94	19.03	18.95		
3	256QAM	8	7	19.03	19.06	19.04		
3	256QAM	15	0	18.90	18.91	18.91		
Channel				23017	23095	23173	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				699.7	707.5	715.3		
1.4	QPSK	1	0	23.43	23.26	22.98	24	0
1.4	QPSK	1	3	23.48	23.37	23.07		
1.4	QPSK	1	5	23.40	23.17	22.93		
1.4	QPSK	3	0	23.49	23.34	23.04		
1.4	QPSK	3	1	23.51	23.33	23.06		

1.4	QPSK	3	3	23.47	23.20	22.95		
1.4	QPSK	6	0	23.14	22.87	22.69	24	0
1.4	16QAM	1	0	23.39	23.22	23.00	24	0
1.4	16QAM	1	3	23.41	23.35	22.92		
1.4	16QAM	1	5	23.36	23.10	22.89		
1.4	16QAM	3	0	23.15	23.04	22.72		
1.4	16QAM	3	1	23.20	23.05	22.79		
1.4	16QAM	3	3	23.10	22.88	22.70		
1.4	16QAM	6	0	22.19	22.00	21.77	23	1
1.4	64QAM	1	0	21.81	22.21	21.90	23	1
1.4	64QAM	1	3	22.34	22.23	21.95		
1.4	64QAM	1	5	22.23	22.07	21.80		
1.4	64QAM	3	0	22.27	22.08	21.81		
1.4	64QAM	3	1	22.26	22.11	21.83		
1.4	64QAM	3	3	22.22	22.00	21.77		
1.4	64QAM	6	0	21.17	20.92	20.70	22	2
1.4	256QAM	1	0	19.01	18.99	19.01	20	4
1.4	256QAM	1	3	18.70	18.76	18.72		
1.4	256QAM	1	5	18.85	18.92	18.87		
1.4	256QAM	3	0	18.71	18.83	18.81		
1.4	256QAM	3	1	18.92	18.98	18.95		
1.4	256QAM	3	3	18.97	19.05	19.02		
1.4	256QAM	6	0	18.89	19.01	18.86	20	4

<LTE Band 13 Ant 0>

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		22.86		24	0
10	QPSK	1	25		22.85			
10	QPSK	1	49		22.88			
10	QPSK	25	0		22.63		23	1
10	QPSK	25	12		22.70			
10	QPSK	25	25		22.73			
10	QPSK	50	0		22.75			
10	16QAM	1	0		22.91		23	1
10	16QAM	1	25		22.95			
10	16QAM	1	49		22.90			
10	16QAM	25	0		21.69		22	2
10	16QAM	25	12		21.66			
10	16QAM	25	25		21.73			
10	16QAM	50	0		21.70			
10	64QAM	1	0		21.78		22	2
10	64QAM	1	25		21.85			
10	64QAM	1	49		21.84			
10	64QAM	25	0		20.72		21	3
10	64QAM	25	12		20.75			
10	64QAM	25	25		20.80			
10	64QAM	50	0		20.75			
10	256QAM	1	0		18.68		20	4
10	256QAM	1	25		18.69			
10	256QAM	1	49		18.76			
10	256QAM	25	0		18.59		19	4
10	256QAM	25	12		18.68			
10	256QAM	25	25		18.72			
10	256QAM	50	0		18.60			
Channel				23205	23230	23255	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				779.5	782	784.5		
5	QPSK	1	0	22.84	22.85	22.86	24	0
5	QPSK	1	12	22.91	22.92	22.92		
5	QPSK	1	24	22.91	22.93	22.90		
5	QPSK	12	0	22.68	22.71	22.70	23	1
5	QPSK	12	7	22.75	22.69	22.68		
5	QPSK	12	13	22.78	22.76	22.76		
5	QPSK	25	0	22.75	22.68	22.68		
5	16QAM	1	0	22.86	22.85	22.89	23	1
5	16QAM	1	12	22.88	22.88	22.94		
5	16QAM	1	24	22.93	22.94	22.94		
5	16QAM	12	0	21.77	21.71	21.74	22	2
5	16QAM	12	7	21.75	21.70	21.73		
5	16QAM	12	13	21.77	21.76	21.76		
5	16QAM	25	0	21.80	21.69	21.71		
5	64QAM	1	0	21.80	21.85	21.82	22	2

5	64QAM	1	12	21.81	21.87	21.89		
5	64QAM	1	24	21.84	21.88	21.87		
5	64QAM	12	0	20.82	20.77	20.77	21	3
5	64QAM	12	7	20.83	20.74	20.75		
5	64QAM	12	13	20.78	20.79	20.78		
5	64QAM	25	0	20.79	20.72	20.71		
5	256QAM	1	0	18.66	18.54	18.60	20	4
5	256QAM	1	12	18.58	18.52	18.55		
5	256QAM	1	24	18.56	18.49	18.53		
5	256QAM	12	0	18.51	18.47	18.49	19	4
5	256QAM	12	7	18.42	18.46	18.47		
5	256QAM	12	13	18.32	18.45	18.46		
5	256QAM	25	0	18.31	18.42	18.38		

<LTE Band 14 Ant 0>

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					23330			
Frequency (MHz)					793			
10	QPSK	1	0		22.91		24	0
10	QPSK	1	25		22.84			
10	QPSK	1	49		22.78			
10	QPSK	25	0		22.62		23	1
10	QPSK	25	12		22.61			
10	QPSK	25	25		22.66			
10	QPSK	50	0		22.60			
10	16QAM	1	0		22.95		23	1
10	16QAM	1	25		22.96			
10	16QAM	1	49		22.90			
10	16QAM	25	0		21.59		22	2
10	16QAM	25	12		21.58			
10	16QAM	25	25		21.63			
10	16QAM	50	0		21.59			
10	64QAM	1	0		21.84		22	2
10	64QAM	1	25		21.83			
10	64QAM	1	49		21.79			
10	64QAM	25	0		20.62		21	3
10	64QAM	25	12		20.65			
10	64QAM	25	25		20.67			
10	64QAM	50	0		20.65			
10	256QAM	1	0		18.69		20	4
10	256QAM	1	25		18.58			
10	256QAM	1	49		18.51			
10	256QAM	25	0		18.61		19	4
10	256QAM	25	12		18.61			
10	256QAM	25	25		18.66			
10	256QAM	50	0		18.48			
Channel				23305	23330	23355	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				790.5	793	795.5		
5	QPSK	1	0	22.82	22.80	22.77	24	0
5	QPSK	1	12	22.89	22.91	22.86		
5	QPSK	1	24	22.86	22.82	22.78		
5	QPSK	12	0	22.67	22.61	22.56	23	1
5	QPSK	12	7	22.68	22.62	22.66		
5	QPSK	12	13	22.62	22.62	22.57		
5	QPSK	25	0	22.66	22.60	22.53		
5	16QAM	1	0	22.84	22.80	22.81	23	1
5	16QAM	1	12	22.89	22.91	22.89		
5	16QAM	1	24	22.88	22.84	22.80		
5	16QAM	12	0	21.71	21.64	21.62	22	2
5	16QAM	12	7	21.71	21.65	21.65		
5	16QAM	12	13	21.65	21.62	21.62		
5	16QAM	25	0	21.65	21.60	21.57		
5	64QAM	1	0	21.81	21.78	21.77	22	2

5	64QAM	1	12	21.78	21.80	21.79		
5	64QAM	1	24	21.81	21.78	21.78		
5	64QAM	12	0	20.73	20.66	20.63	21	3
5	64QAM	12	7	20.77	20.66	20.72		
5	64QAM	12	13	20.66	20.65	20.64		
5	64QAM	25	0	20.70	20.60	20.57		
5	256QAM	1	0	18.62	18.69	18.66	20	4
5	256QAM	1	12	18.49	18.49	18.52		
5	256QAM	1	24	18.50	18.49	18.43		
5	256QAM	12	0	18.55	18.54	18.57	19	4
5	256QAM	12	7	18.55	18.55	18.57		
5	256QAM	12	13	18.64	18.56	18.65		
5	256QAM	25	0	18.41	18.40	18.44		

<LTE Band 17 Ant 0>

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				23780	23790	23800		
Frequency (MHz)				709	710	711		
10	QPSK	1	0	23.49	23.62	23.35	24	0
10	QPSK	1	25	23.22	23.22	23.23		
10	QPSK	1	49	23.08	23.07	23.04		
10	QPSK	25	0	23.02	23.01	22.98	24	0
10	QPSK	25	12	22.96	22.93	23.00		
10	QPSK	25	25	22.91	22.92	22.83		
10	QPSK	50	0	22.95	22.93	22.97		
10	16QAM	1	0	23.39	23.38	23.29	24	0
10	16QAM	1	25	23.34	23.18	23.18		
10	16QAM	1	49	23.14	23.15	23.03		
10	16QAM	25	0	22.09	22.08	22.01	23	1
10	16QAM	25	12	22.01	21.96	22.03		
10	16QAM	25	25	21.88	21.87	21.81		
10	16QAM	50	0	21.86	21.96	21.92		
10	64QAM	1	0	22.26	22.28	22.25	23	1
10	64QAM	1	25	22.17	22.13	22.22		
10	64QAM	1	49	22.04	21.98	21.87		
10	64QAM	25	0	21.10	21.03	21.05	22	2
10	64QAM	25	12	21.02	20.96	21.01		
10	64QAM	25	25	20.99	20.95	20.87		
10	64QAM	50	0	21.01	20.98	21.02		
10	256QAM	1	0	18.81	18.91	18.84	20	4
10	256QAM	1	25	18.83	18.86	18.76		
10	256QAM	1	49	18.76	18.79	18.71		
10	256QAM	25	0	18.98	18.98	18.95	20	4
10	256QAM	25	12	18.83	18.90	18.87		
10	256QAM	25	25	18.68	18.78	18.74		
10	256QAM	50	0	18.90	18.94	18.90		
Channel				23755	23790	23825	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				706.5	710	713.5		
5	QPSK	1	0	23.46	23.39	23.29	24	0
5	QPSK	1	12	23.38	23.27	23.16		
5	QPSK	1	24	23.29	23.18	23.10		
5	QPSK	12	0	23.08	23.04	22.90	24	0
5	QPSK	12	7	23.11	22.99	22.87		
5	QPSK	12	13	22.98	22.90	22.78		
5	QPSK	25	0	23.01	22.92	22.88		
5	16QAM	1	0	23.35	23.30	23.17	24	0
5	16QAM	1	12	23.33	23.22	23.11		
5	16QAM	1	24	23.21	23.13	23.03		
5	16QAM	12	0	22.15	22.08	21.92	23	1
5	16QAM	12	7	22.10	21.95	21.91		
5	16QAM	12	13	22.05	21.93	21.78		
5	16QAM	25	0	22.02	21.96	21.89		
5	64QAM	1	0	21.97	22.27	22.18	23	1

5	64QAM	1	12	22.26	22.09	21.97		
5	64QAM	1	24	22.22	22.08	21.90		
5	64QAM	12	0	21.14	21.09	20.98	22	2
5	64QAM	12	7	21.16	21.01	20.96		
5	64QAM	12	13	21.03	20.97	20.77		
5	64QAM	25	0	21.04	20.93	20.93		
5	256QAM	1	0	18.82	18.90	18.81	20	4
5	256QAM	1	12	18.82	18.78	18.84		
5	256QAM	1	24	18.76	18.71	18.73		
5	256QAM	12	0	18.89	18.90	18.97	20	4
5	256QAM	12	7	18.90	18.86	18.81		
5	256QAM	12	13	18.78	18.72	18.68		
5	256QAM	25	0	18.85	18.90	18.93		

<LTE Band 66 Ant 0>

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	21.56	21.59	21.52	22.3	0
20	QPSK	1	49	21.44	21.49	21.39		
20	QPSK	1	99	21.39	21.41	21.27		
20	QPSK	50	0	21.59	21.59	21.47	22.3	0
20	QPSK	50	24	21.63	21.56	21.53		
20	QPSK	50	50	21.53	21.58	21.44		
20	QPSK	100	0	21.53	21.45	21.49		
20	16QAM	1	0	22.02	21.96	21.88	22.3	0
20	16QAM	1	49	21.89	21.82	21.75		
20	16QAM	1	99	21.83	21.75	21.61		
20	16QAM	50	0	21.60	21.57	21.48	22.3	0
20	16QAM	50	24	21.64	21.53	21.55		
20	16QAM	50	50	21.59	21.55	21.46		
20	16QAM	100	0	21.57	21.44	21.49		
20	64QAM	1	0	21.80	21.73	21.68	21.8	0.5
20	64QAM	1	49	21.72	21.61	21.60		
20	64QAM	1	99	21.62	21.51	21.52		
20	64QAM	50	0	20.79	20.77	20.69	20.8	1.5
20	64QAM	50	24	20.79	20.73	20.73		
20	64QAM	50	50	20.76	20.73	20.64		
20	64QAM	100	0	20.80	20.69	20.72		
20	256QAM	1	0	18.75	18.67	18.69	19.8	2.5
20	256QAM	1	49	18.73	18.61	18.68		
20	256QAM	1	99	18.69	18.80	18.67		
20	256QAM	50	0	18.69	18.60	18.67	19.8	2.5
20	256QAM	50	24	18.63	18.60	18.62		
20	256QAM	50	50	18.56	18.73	18.61		
20	256QAM	100	0	18.49	18.59	18.57		
Channel				132047	132322	132597	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1745	1772.5		
15	QPSK	1	0	21.42	21.43	21.46	22.3	0
15	QPSK	1	37	21.40	21.42	21.36		
15	QPSK	1	74	21.38	21.37	21.30		
15	QPSK	36	0	21.46	21.49	21.45	22.3	0
15	QPSK	36	20	21.57	21.47	21.52		
15	QPSK	36	39	21.52	21.51	21.44		
15	QPSK	75	0	21.50	21.44	21.37		
15	16QAM	1	0	21.95	21.89	21.88	22.3	0
15	16QAM	1	37	21.94	21.88	21.83		
15	16QAM	1	74	21.84	21.78	21.73		
15	16QAM	36	0	21.52	21.51	21.44	22.3	0
15	16QAM	36	20	21.64	21.53	21.54		
15	16QAM	36	39	21.58	21.55	21.45		
15	16QAM	75	0	21.61	21.49	21.40		
15	64QAM	1	0	21.71	21.61	21.68	21.8	0.5

15	64QAM	1	37	21.80	21.68	21.70		
15	64QAM	1	74	21.68	21.54	21.54		
15	64QAM	36	0	20.78	20.79	20.74	20.8	1.5
15	64QAM	36	20	20.77	20.77	20.76		
15	64QAM	36	39	20.74	20.79	20.69		
15	64QAM	75	0	20.80	20.73	20.61		
15	256QAM	1	0	18.75	18.67	18.60	19.8	2.5
15	256QAM	1	37	18.72	18.59	18.68		
15	256QAM	1	74	18.62	18.72	18.67		
15	256QAM	36	0	18.69	18.52	18.67	19.8	2.5
15	256QAM	36	20	18.59	18.60	18.54		
15	256QAM	36	39	18.49	18.67	18.53		
15	256QAM	75	0	18.46	18.52	18.53		
Channel				132022	132322	132622	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1745	1775		
10	QPSK	1	0	21.54	21.47	21.41	22.3	0
10	QPSK	1	25	21.46	21.43	21.35		
10	QPSK	1	49	21.43	21.40	21.30		
10	QPSK	25	0	21.50	21.45	21.33	22.3	0
10	QPSK	25	12	21.52	21.46	21.32		
10	QPSK	25	25	21.48	21.46	21.37		
10	QPSK	50	0	21.57	21.47	21.38		
10	16QAM	1	0	21.73	21.80	21.66	22.3	0
10	16QAM	1	25	21.73	21.76	21.64		
10	16QAM	1	49	21.73	21.74	21.62		
10	16QAM	25	0	21.60	21.48	21.41	22.3	0
10	16QAM	25	12	21.60	21.51	21.40		
10	16QAM	25	25	21.53	21.54	21.42		
10	16QAM	50	0	21.49	21.47	21.37		
10	64QAM	1	0	21.65	21.60	21.46	21.8	0.5
10	64QAM	1	25	21.65	21.67	21.57		
10	64QAM	1	49	21.56	21.63	21.40		
10	64QAM	25	0	20.78	20.70	20.58	20.8	1.5
10	64QAM	25	12	20.79	20.69	20.59		
10	64QAM	25	25	20.73	20.70	20.61		
10	64QAM	50	0	20.74	20.68	20.55		
10	256QAM	1	0	18.68	18.60	18.61	19.8	2.5
10	256QAM	1	25	18.64	18.44	18.62		
10	256QAM	1	49	18.67	18.70	18.61		
10	256QAM	25	0	18.59	18.47	18.56	19.8	2.5
10	256QAM	25	12	18.57	18.50	18.59		
10	256QAM	25	25	18.45	18.66	18.53		
10	256QAM	50	0	18.34	18.42	18.47		
Channel				131997	132322	132647	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1745	1777.5		
5	QPSK	1	0	21.52	21.40	21.33	22.3	0
5	QPSK	1	12	21.47	21.47	21.33		
5	QPSK	1	24	21.44	21.43	21.32		
5	QPSK	12	0	21.59	21.52	21.43	22.3	0
5	QPSK	12	7	21.62	21.52	21.44		

5	QPSK	12	13	21.54	21.53	21.37		
5	QPSK	25	0	21.50	21.44	21.36		
5	16QAM	1	0	21.74	21.64	21.59		
5	16QAM	1	12	21.53	21.66	21.42	22.3	0
5	16QAM	1	24	21.70	21.68	21.52		
5	16QAM	12	0	21.57	21.52	21.44		
5	16QAM	12	7	21.57	21.53	21.44	22.3	0
5	16QAM	12	13	21.52	21.52	21.39		
5	16QAM	25	0	21.54	21.46	21.41		
5	64QAM	1	0	21.69	21.45	21.40		
5	64QAM	1	12	21.66	21.48	21.35	21.8	0.5
5	64QAM	1	24	21.63	21.46	21.30		
5	64QAM	12	0	20.76	20.74	20.72		
5	64QAM	12	7	20.79	20.77	20.74	20.8	1.5
5	64QAM	12	13	20.75	20.78	20.64		
5	64QAM	25	0	20.75	20.70	20.57		
5	256QAM	1	0	18.64	18.54	18.57		
5	256QAM	1	12	18.58	18.50	18.46	19.8	2.5
5	256QAM	1	24	18.56	18.63	18.62		
5	256QAM	12	0	18.48	18.48	18.62		
5	256QAM	12	7	18.42	18.52	18.43	19.8	2.5
5	256QAM	12	13	18.38	18.57	18.41		
5	256QAM	25	0	18.40	18.40	18.37		
Channel				131987	132322	132657	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1745	1778.5		
3	QPSK	1	0	21.58	21.43	21.39		
3	QPSK	1	8	21.57	21.53	21.44	22.3	0
3	QPSK	1	14	21.49	21.44	21.33		
3	QPSK	8	0	21.68	21.51	21.50		
3	QPSK	8	4	21.69	21.62	21.51	22.3	0
3	QPSK	8	7	21.65	21.57	21.48		
3	QPSK	15	0	21.56	21.47	21.40		
3	16QAM	1	0	21.86	21.74	21.63		
3	16QAM	1	8	21.71	21.72	21.57	22.3	0
3	16QAM	1	14	21.84	21.72	21.64		
3	16QAM	8	0	21.53	21.51	21.42		
3	16QAM	8	4	21.59	21.59	21.44	22.3	0
3	16QAM	8	7	21.52	21.55	21.37		
3	16QAM	15	0	21.60	21.51	21.43		
3	64QAM	1	0	21.70	21.50	21.38		
3	64QAM	1	8	21.75	21.60	21.41	21.8	0.5
3	64QAM	1	14	21.67	21.51	21.28		
3	64QAM	8	0	20.78	20.77	20.76		
3	64QAM	8	4	20.80	20.80	20.80	20.8	1.5
3	64QAM	8	7	20.76	20.80	20.76		
3	64QAM	15	0	20.76	20.71	20.64		
3	256QAM	1	0	18.58	18.39	18.45		
3	256QAM	1	8	18.46	18.43	18.35	19.8	2.5
3	256QAM	1	14	18.48	18.65	18.40		
3	256QAM	8	0	18.43	18.36	18.40	19.8	2.5

3	256QAM	8	4	18.41	18.50	18.45		
3	256QAM	8	7	18.42	18.64	18.40		
3	256QAM	15	0	18.21	18.35	18.37		
Channel				131979	132322	132665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1745	1779.3		
1.4	QPSK	1	0	21.45	21.34	21.26	22.3	0
1.4	QPSK	1	3	21.47	21.40	21.29		
1.4	QPSK	1	5	21.37	21.36	21.18		
1.4	QPSK	3	0	21.46	21.42	21.29		
1.4	QPSK	3	1	21.37	21.35	21.25		
1.4	QPSK	3	3	21.42	21.33	21.27		
1.4	QPSK	6	0	21.49	21.37	21.31	22.3	0
1.4	16QAM	1	0	21.73	21.55	21.60	22.3	0
1.4	16QAM	1	3	21.85	21.67	21.70		
1.4	16QAM	1	5	21.78	21.58	21.56		
1.4	16QAM	3	0	21.43	21.36	21.30		
1.4	16QAM	3	1	21.46	21.40	21.32		
1.4	16QAM	3	3	21.42	21.33	21.24		
1.4	16QAM	6	0	21.81	20.45	21.54	22.3	0
1.4	64QAM	1	0	21.63	20.48	21.17	21.8	0.5
1.4	64QAM	1	3	21.47	20.56	21.32		
1.4	64QAM	1	5	21.63	20.46	21.32		
1.4	64QAM	3	0	21.62	20.51	21.46		
1.4	64QAM	3	1	21.64	20.58	21.41		
1.4	64QAM	3	3	21.55	20.60	21.40		
1.4	64QAM	6	0	20.65	19.00	20.50	20.8	1.5
1.4	256QAM	1	0	18.52	18.44	18.48	19.8	2.5
1.4	256QAM	1	3	18.43	18.28	18.45		
1.4	256QAM	1	5	18.58	18.56	18.35		
1.4	256QAM	3	0	18.36	18.30	18.34		
1.4	256QAM	3	1	18.32	18.44	18.32		
1.4	256QAM	3	3	18.35	18.49	18.42		
1.4	256QAM	6	0	18.30	18.50	18.35	19.8	2.5

<LTE Band 66 Ant 8>

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	23.05	23.20	23.35	24	0
20	QPSK	1	49	22.92	23.18	23.35		
20	QPSK	1	99	23.07	23.26	23.38		
20	QPSK	50	0	22.54	22.72	22.91	23	1
20	QPSK	50	24	22.68	22.73	22.96		
20	QPSK	50	50	22.69	22.87	23.00		
20	QPSK	100	0	22.60	22.75	22.95		
20	16QAM	1	0	22.50	22.65	22.92	23	1
20	16QAM	1	49	22.47	22.69	22.88		
20	16QAM	1	99	22.51	22.81	22.86		
20	16QAM	50	0	21.53	21.75	22.00	23	1
20	16QAM	50	24	21.64	21.78	21.96		
20	16QAM	50	50	21.60	21.90	22.00		
20	16QAM	100	0	21.66	21.71	21.94		
20	64QAM	1	0	21.47	21.37	21.71	23	1
20	64QAM	1	49	21.21	21.58	21.65		
20	64QAM	1	99	21.37	21.49	21.77		
20	64QAM	50	0	20.53	20.84	21.00	22	2
20	64QAM	50	24	20.61	20.74	20.94		
20	64QAM	50	50	20.56	20.90	21.00		
20	64QAM	100	0	20.65	20.67	20.94		
20	256QAM	1	0	18.66	18.61	18.87	22	2
20	256QAM	1	49	18.46	18.78	18.90		
20	256QAM	1	99	18.57	18.71	18.94		
20	256QAM	50	0	18.49	18.70	18.89	22	2
20	256QAM	50	24	18.64	18.77	18.88		
20	256QAM	50	50	18.66	18.79	18.99		
20	256QAM	100	0	18.59	18.74	18.89		
Channel				132047	132322	132597	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1745	1772.5		
15	QPSK	1	0	22.96	23.19	23.28	24	0
15	QPSK	1	37	22.92	23.17	23.30		
15	QPSK	1	74	22.98	23.16	23.37		
15	QPSK	36	0	22.54	22.62	22.89	23	1
15	QPSK	36	20	22.59	22.71	22.89		
15	QPSK	36	39	22.61	22.81	22.92		
15	QPSK	75	0	22.57	22.67	22.92		
15	16QAM	1	0	22.45	22.63	22.88	23	1
15	16QAM	1	37	22.40	22.61	22.84		
15	16QAM	1	74	22.48	22.72	22.80		
15	16QAM	36	0	21.47	21.71	21.96	23	1
15	16QAM	36	20	21.55	21.68	21.93		
15	16QAM	36	39	21.55	21.83	21.96		
15	16QAM	75	0	21.58	21.68	21.85		
15	64QAM	1	0	21.38	21.32	21.63	23	1

15	64QAM	1	37	21.16	21.56	21.61		
15	64QAM	1	74	21.36	21.44	21.74		
15	64QAM	36	0	20.51	20.83	21.00	22	2
15	64QAM	36	20	20.59	20.72	20.88		
15	64QAM	36	39	20.56	20.84	20.90		
15	64QAM	75	0	20.59	20.66	20.85		
15	256QAM	1	0	18.63	18.52	18.80	22	2
15	256QAM	1	37	18.40	18.72	18.82		
15	256QAM	1	74	18.57	18.62	18.92		
15	256QAM	36	0	18.45	18.60	18.83	22	2
15	256QAM	36	20	18.61	18.67	18.87		
15	256QAM	36	39	18.58	18.75	18.92		
15	256QAM	75	0	18.54	18.71	18.81		
Channel				132022	132322	132622	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1745	1775		
10	QPSK	1	0	22.97	23.15	23.29	24	0
10	QPSK	1	25	22.91	23.17	23.27		
10	QPSK	1	49	23.02	23.24	23.28		
10	QPSK	25	0	22.46	22.67	22.90	23	1
10	QPSK	25	12	22.67	22.72	22.86		
10	QPSK	25	25	22.61	22.85	22.90		
10	QPSK	50	0	22.60	22.65	22.89		
10	16QAM	1	0	22.50	22.56	22.87	23	1
10	16QAM	1	25	22.40	22.59	22.81		
10	16QAM	1	49	22.50	22.78	22.79		
10	16QAM	25	0	21.50	21.68	22.00	23	1
10	16QAM	25	12	21.60	21.69	21.90		
10	16QAM	25	25	21.52	21.82	21.98		
10	16QAM	50	0	21.61	21.64	21.87		
10	64QAM	1	0	21.46	21.32	21.69	23	1
10	64QAM	1	25	21.16	21.57	21.65		
10	64QAM	1	49	21.30	21.48	21.76		
10	64QAM	25	0	20.52	20.80	20.92	22	2
10	64QAM	25	12	20.57	20.74	20.86		
10	64QAM	25	25	20.47	20.86	20.99		
10	64QAM	50	0	20.64	20.57	20.89		
10	256QAM	1	0	18.56	18.52	18.83	22	2
10	256QAM	1	25	18.40	18.78	18.83		
10	256QAM	1	49	18.56	18.64	18.94		
10	256QAM	25	0	18.45	18.70	18.84	22	2
10	256QAM	25	12	18.59	18.70	18.78		
10	256QAM	25	25	18.57	18.76	18.92		
10	256QAM	50	0	18.52	18.64	18.84		
Channel				131997	132322	132647	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1745	1777.5		
5	QPSK	1	0	22.98	23.15	23.26	24	0
5	QPSK	1	12	22.92	23.11	23.35		
5	QPSK	1	24	22.97	23.22	23.32		
5	QPSK	12	0	22.51	22.71	22.91	23	1
5	QPSK	12	7	22.66	22.67	22.96		

5	QPSK	12	13	22.54	22.85	22.90		
5	QPSK	25	0	22.54	22.71	22.92		
5	16QAM	1	0	22.48	22.65	22.87		
5	16QAM	1	12	22.46	22.63	22.86	23	1
5	16QAM	1	24	22.50	22.77	22.82		
5	16QAM	12	0	21.48	21.73	21.90		
5	16QAM	12	7	21.54	21.71	21.91	23	1
5	16QAM	12	13	21.54	21.90	22.00		
5	16QAM	25	0	21.56	21.70	21.90		
5	64QAM	1	0	21.47	21.31	21.70		
5	64QAM	1	12	21.18	21.57	21.58	23	1
5	64QAM	1	24	21.33	21.46	21.68		
5	64QAM	12	0	20.50	20.81	20.92		
5	64QAM	12	7	20.54	20.69	20.88	22	2
5	64QAM	12	13	20.55	20.81	20.92		
5	64QAM	25	0	20.61	20.58	20.89		
5	256QAM	1	0	18.62	18.52	18.81		
5	256QAM	1	12	18.46	18.72	18.80	22	2
5	256QAM	1	24	18.47	18.62	18.86		
5	256QAM	12	0	18.45	18.62	18.80		
5	256QAM	12	7	18.55	18.72	18.85	22	2
5	256QAM	12	13	18.61	18.74	18.89		
5	256QAM	25	0	18.49	18.67	18.89		
Channel				131987	132322	132657	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1745	1778.5		
3	QPSK	1	0	22.95	23.17	23.26		
3	QPSK	1	8	22.84	23.18	23.34	24	0
3	QPSK	1	14	22.98	23.26	23.29		
3	QPSK	8	0	22.47	22.62	22.86		
3	QPSK	8	4	22.65	22.71	22.89	23	1
3	QPSK	8	7	22.62	22.87	22.90		
3	QPSK	15	0	22.53	22.65	22.88		
3	16QAM	1	0	22.49	22.63	22.88		
3	16QAM	1	8	22.47	22.63	22.85	23	1
3	16QAM	1	14	22.47	22.73	22.84		
3	16QAM	8	0	21.43	21.67	21.94		
3	16QAM	8	4	21.57	21.78	21.94	23	1
3	16QAM	8	7	21.58	21.81	21.98		
3	16QAM	15	0	21.56	21.69	21.86		
3	64QAM	1	0	21.45	21.29	21.67		
3	64QAM	1	8	21.20	21.57	21.63	23	1
3	64QAM	1	14	21.29	21.44	21.69		
3	64QAM	8	0	20.45	20.81	20.97		
3	64QAM	8	4	20.57	20.73	20.92	22	2
3	64QAM	8	7	20.53	20.87	20.93		
3	64QAM	15	0	20.59	20.60	20.91		
3	256QAM	1	0	18.63	18.53	18.82		
3	256QAM	1	8	18.39	18.68	18.81	22	2
3	256QAM	1	14	18.50	18.64	18.92		
3	256QAM	8	0	18.40	18.65	18.84	22	2

3	256QAM	8	4	18.62	18.70	18.79		
3	256QAM	8	7	18.63	18.75	18.95		
3	256QAM	15	0	18.57	18.64	18.84		
Channel				131979	132322	132665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1745	1779.3		
1.4	QPSK	1	0	22.95	23.11	23.18	24	0
1.4	QPSK	1	3	23.02	23.29	23.23		
1.4	QPSK	1	5	22.95	23.22	23.23		
1.4	QPSK	3	0	22.93	23.20	23.28		
1.4	QPSK	3	1	22.96	23.26	23.30		
1.4	QPSK	3	3	22.91	23.19	23.21		
1.4	QPSK	6	0	22.52	22.81	23.00	23	1
1.4	16QAM	1	0	22.41	22.65	22.79	23	1
1.4	16QAM	1	3	22.48	22.77	22.88		
1.4	16QAM	1	5	22.37	22.66	22.81		
1.4	16QAM	3	0	22.62	22.88	22.98		
1.4	16QAM	3	1	22.72	22.98	22.99		
1.4	16QAM	3	3	22.69	22.95	22.98		
1.4	16QAM	6	0	21.49	21.80	21.99	23	1
1.4	64QAM	1	0	21.21	21.37	21.72	23	1
1.4	64QAM	1	3	21.32	21.59	21.97		
1.4	64QAM	1	5	21.18	21.46	21.73		
1.4	64QAM	3	0	21.57	21.81	21.96		
1.4	64QAM	3	1	21.58	21.86	21.95		
1.4	64QAM	3	3	21.51	21.83	21.93		
1.4	64QAM	6	0	20.65	20.93	20.94	22	2
1.4	256QAM	1	0	18.38	18.55	18.85	22	2
1.4	256QAM	1	3	18.46	18.74	18.94		
1.4	256QAM	1	5	18.36	18.67	18.83		
1.4	256QAM	3	0	18.61	18.76	19.06		
1.4	256QAM	3	1	18.68	18.89	19.11		
1.4	256QAM	3	3	18.61	18.86	19.05		
1.4	256QAM	6	0	18.57	18.81	18.98	22	2

<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.

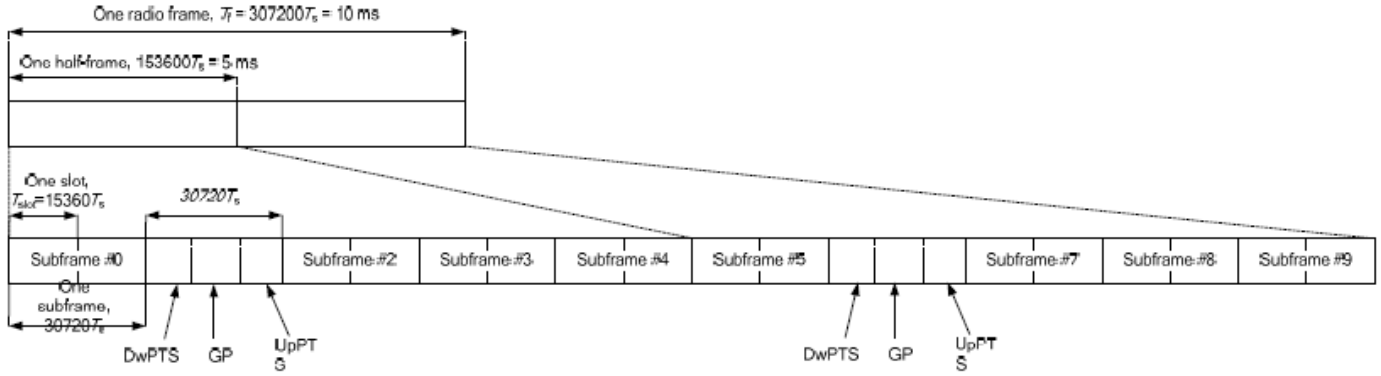


Figure 4.2-1: Frame structure type 2 (for 5 ms switch-point periodicity).

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 48 Ant 4>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Low Middle Ch. / Freq.	Power High Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				55340	55830	56150	56640		
Frequency (MHz)				3560	3609	3641	3690		
20	QPSK	1	0	19.43	19.49	19.37	19.45	19.5	0
20	QPSK	1	49	19.40	19.43	19.46	19.50		
20	QPSK	1	99	19.42	19.38	19.43	19.46		
20	QPSK	50	0	18.81	18.63	18.48	18.97	19	0.5
20	QPSK	50	24	18.83	18.58	18.52	18.98		
20	QPSK	50	50	18.82	18.50	18.61	19.00		
20	QPSK	100	0	18.83	18.53	18.57	18.91		
20	16QAM	1	0	18.78	18.66	18.51	19.00	19	0.5
20	16QAM	1	49	18.76	18.49	18.55	18.99		
20	16QAM	1	99	18.85	18.45	18.66	18.99		
20	16QAM	50	0	17.86	17.63	17.52	17.92	18	1.5
20	16QAM	50	24	17.84	17.61	17.54	17.91		
20	16QAM	50	50	17.85	17.55	17.65	17.98		
20	16QAM	100	0	17.86	17.59	17.63	17.93		
20	64QAM	1	0	17.37	17.21	17.07	17.65	18	1.5
20	64QAM	1	49	17.40	17.14	17.14	17.69		
20	64QAM	1	99	17.47	17.11	17.30	17.71		
20	64QAM	50	0	16.88	16.65	16.53	16.91	17	2.5
20	64QAM	50	24	16.88	16.63	16.56	16.93		
20	64QAM	50	50	16.86	16.56	16.64	16.98		
20	64QAM	100	0	16.86	16.60	16.62	16.90		
20	256QAM	1	0	16.60	16.45	16.32	16.90	17	2.5
20	256QAM	1	49	16.59	16.37	16.31	16.90		
20	256QAM	1	99	16.50	16.37	16.25	16.86		
20	256QAM	50	0	16.47	16.30	16.20	16.82	17	2.5
20	256QAM	50	24	16.41	16.25	16.19	16.77		
20	256QAM	50	50	16.35	16.16	16.15	16.74		
20	256QAM	100	0	16.35	16.08	16.05	16.70		
Channel				55315	55820	56160	56665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				3557.5	3608	3642	3692.5		
15	QPSK	1	0	19.38	19.48	19.34	19.45	19.5	0
15	QPSK	1	37	19.31	19.43	19.40	19.49		
15	QPSK	1	74	19.41	19.34	19.35	19.37		
15	QPSK	36	0	18.81	18.54	18.46	18.91	19	0.5
15	QPSK	36	20	18.83	18.57	18.47	18.93		
15	QPSK	36	39	18.74	18.49	18.55	18.95		
15	QPSK	75	0	18.81	18.44	18.52	18.98		
15	16QAM	1	0	18.69	18.65	18.47	18.93	19	0.5
15	16QAM	1	37	18.76	18.39	18.53	18.95		
15	16QAM	1	74	18.82	18.39	18.58	18.97		
15	16QAM	36	0	17.78	17.56	17.42	17.83	18	1.5
15	16QAM	36	20	17.82	17.52	17.46	17.90		
15	16QAM	36	39	17.81	17.52	17.58	17.93		
15	16QAM	75	0	17.80	17.49	17.53	17.92		
15	64QAM	1	0	17.31	17.18	17.00	17.65	18	1.5

15	64QAM	1	37	17.31	17.12	17.12	17.68		
15	64QAM	1	74	17.47	17.07	17.24	17.63		
15	64QAM	36	0	16.85	16.60	16.53	16.84	17	2.5
15	64QAM	36	20	16.83	16.63	16.49	16.88		
15	64QAM	36	39	16.76	16.48	16.55	16.88		
15	64QAM	75	0	16.84	16.55	16.54	16.86		
15	256QAM	1	0	16.50	16.41	16.28	16.80	17	2.5
15	256QAM	1	37	16.59	16.28	16.26	16.88		
15	256QAM	1	74	16.49	16.32	16.17	16.78		
15	256QAM	36	0	16.43	16.24	16.17	16.81	17	2.5
15	256QAM	36	20	16.31	16.23	16.14	16.73		
15	256QAM	36	39	16.34	16.15	16.09	16.69		
15	256QAM	75	0	16.28	16.02	15.95	16.67		
Channel				55290	55815	56165	56690	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				3555	3607.5	3642.5	3695		
10	QPSK	1	0	19.35	19.41	19.25	19.44	19.5	0
10	QPSK	1	25	19.24	19.37	19.31	19.48		
10	QPSK	1	49	19.38	19.27	19.29	19.46		
10	QPSK	25	0	18.80	18.49	18.44	18.94	19	0.5
10	QPSK	25	12	18.74	18.56	18.45	18.94		
10	QPSK	25	25	18.67	18.40	18.52	18.98		
10	QPSK	50	0	18.76	18.37	18.46	18.97		
10	16QAM	1	0	18.68	18.62	18.37	18.94	19	0.5
10	16QAM	1	25	18.76	18.35	18.49	18.93		
10	16QAM	1	49	18.75	18.39	18.58	18.95		
10	16QAM	25	0	17.78	17.49	17.37	17.85	18	1.5
10	16QAM	25	12	17.79	17.49	17.44	17.81		
10	16QAM	25	25	17.77	17.49	17.51	17.95		
10	16QAM	50	0	17.77	17.46	17.44	17.92		
10	64QAM	1	0	17.22	17.13	16.94	17.65	18	1.5
10	64QAM	1	25	17.30	17.04	17.07	17.60		
10	64QAM	1	49	17.46	16.98	17.22	17.70		
10	64QAM	25	0	16.79	16.60	16.51	16.83	17	2.5
10	64QAM	25	12	16.73	16.55	16.46	16.89		
10	64QAM	25	25	16.72	16.41	16.45	16.88		
10	64QAM	50	0	16.76	16.55	16.49	16.90		
10	256QAM	1	0	16.41	16.36	16.19	16.81	17	2.5
10	256QAM	1	25	16.57	16.28	16.21	16.81		
10	256QAM	1	49	16.46	16.23	16.12	16.85		
10	256QAM	25	0	16.42	16.14	16.14	16.78	17	2.5
10	256QAM	25	12	16.21	16.18	16.07	16.74		
10	256QAM	25	25	16.28	16.08	16.06	16.71		
10	256QAM	50	0	16.28	15.99	15.86	16.69		
Channel				55265	55810	56170	56715	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				3552.5	3607	3643	3697.5		
5	QPSK	1	0	19.34	19.40	19.24	19.42	19.5	0
5	QPSK	1	12	19.19	19.28	19.24	19.40		
5	QPSK	1	24	19.34	19.24	19.29	19.40		
5	QPSK	12	0	18.75	18.43	18.38	18.90	19	0.5
5	QPSK	12	7	18.69	18.56	18.38	18.95		

5	QPSK	12	13	18.61	18.32	18.48	18.98		
5	QPSK	25	0	18.74	18.29	18.36	18.96		
5	16QAM	1	0	18.63	18.52	18.29	18.93	19	0.5
5	16QAM	1	12	18.76	18.32	18.47	18.90		
5	16QAM	1	24	18.66	18.33	18.48	18.89		
5	16QAM	12	0	17.75	17.49	17.32	17.86	18	1.5
5	16QAM	12	7	17.76	17.45	17.42	17.88		
5	16QAM	12	13	17.70	17.40	17.49	17.93		
5	16QAM	25	0	17.67	17.42	17.43	17.88		
5	64QAM	1	0	17.14	17.08	16.91	17.58	18	1.5
5	64QAM	1	12	17.21	16.99	17.01	17.61		
5	64QAM	1	24	17.46	16.94	17.12	17.70		
5	64QAM	12	0	16.74	16.52	16.49	16.90	17	2.5
5	64QAM	12	7	16.70	16.55	16.38	16.83		
5	64QAM	12	13	16.71	16.32	16.40	16.90		
5	64QAM	25	0	16.70	16.46	16.48	16.89		
5	256QAM	1	0	16.37	16.31	16.11	16.89	17	2.5
5	256QAM	1	12	16.55	16.23	16.18	16.87		
5	256QAM	1	24	16.36	16.19	16.09	16.77		
5	256QAM	12	0	16.35	16.10	16.05	16.79	17	2.5
5	256QAM	12	7	16.13	16.12	16.07	16.76		
5	256QAM	12	13	16.25	16.00	16.03	16.65		
5	256QAM	25	0	16.24	15.99	15.76	16.60		

<LTE Uplink carrier aggregation>

<Intra-band>

General Note:

i. The device supports intra-band uplink carrier aggregation for LTE B5/B48/B66 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. The device supports uplink carrier aggregation 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 the 3GPP requirement.

iii. 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.

iv. 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.

v. 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.

2CC Uplink Carrier Aggregation		
Number	Combination	Covered by Measurement Superset
1	5B	
2	48C	
3	66B	
4	66C	

CA_5B										
Combination 10MHz+10MHz (50RB+50RB)										
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				
20450	20549	QPSK	1	0	0	0	1	0	21.59	22.8
20575	20476	QPSK	1	0	1	49	2	0	21.58	22.8
20600	20501	QPSK	1	0	1	49	2	0	21.53	22.8

CA_66B										
Combination 15MHz+5MHz (75RB+25RB)										
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				
132047	132140	QPSK	1	0	0	0	1	0	21.42	22.3
132322	132229	QPSK	1	0	1	24	2	0	21.38	22.3
132597	132504	QPSK	1	0	1	24	2	0	21.24	22.3

CA_66C										
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				
132072	132270	QPSK	1	0	0	0	1	0	21.62	22.3
132322	132124	QPSK	1	0	1	99	2	0	21.58	22.3
132572	132374	QPSK	1	0	1	99	2	0	21.26	22.3

CA_48C										
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				
55340	55538	QPSK	1	0	0	0	1	0	19.49	19.5
55830	55632	QPSK	1	0	1	99	2	0	19.48	19.5
56150	55952	QPSK	1	0	1	99	2	0	19.46	19.5
56640	56442	QPSK	1	0	1	99	2	0	19.47	19.5

13. 5G NR Output Power (Unit: dBm)

General Note:

1. NR implementation of n2, n5, n12, n25, n41, n66 and n71 is limited to EN-DC operations only (NSA), with LTE Bands 2/4/5/7/12/13/14/25/26/30/66/71/41/48 acting as anchor bands, SAR tests for NR Bands and LTE Anchors Bands were performed separately due to limitations in SAR probe calibration factors. the detail EN-DC combination include in section3.3
2. 5G NR support SCS 15KHz / 30KHz, DFT-s/CP-OFDM, PI/2 BPSK/QPSK/16QAM/64QAM/256QAM and support Bandwidth include in section3.3
3. For 5G NR test procedure was following step similar FCC KDB 941225 D05:
   a. For DFT-s-OFDM and CP-OFDM output power measurement reduction, according to 38.101 maximum power reduction for power class 2 and 3, the CP-OFDM mode will not higher than DFT-s-OFDM mode, therefore, similar FCC KDB 941225 D05 procedure for other modulation output power for each RB allocation configuration is > not ½ dB higher than the same configuration in DFT-s-Pi/2 BPSK and the reported SAR for the DFT-s-Pi/2 BPSK configuration is ≤ 1.45 W/kg; CP-OFDM measurement is unnecessary.
   b. For DFT-s-OFDM output power measurement reduction, according to 38.101 maximum power reduction for power class 3, full measurement on Pi/2 BPSK/QPSK/16QAM/64QMA/256QAM with larger bandwidth, for smaller bandwidth output power also spot check 1RB 1offset configuration at Pi/2 BPSK to ensure output power will not ½ dB higher than largest supported bandwidth.
   c. SAR testing start with the largest channel bandwidth and measure SAR for PI/2 BPSK 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.
   d. 50% RB allocation for PI/2 BPSK SAR testing follows 1RB PI/2 BPSK allocation procedure
   e. PI/2 BPSK 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.
   f. QPSK/16QAM/64QAM/256QAM output powers are not ½ dB higher than the same configuration in PI/2 BPSK, also reported SAR for the PI/2 BPSK configuration is less than 1.45 W/kg, QPSK/16QAM/64QAM/256QAM SAR testing are not required.
   g. Smaller bandwidth output power for each RB allocation configuration for this device will 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, smaller bandwidth SAR testing is not required for this device

<3GPP 38.101 MPR for EN-DC>

Table 6.2.2-1 Maximum power reduction (MPR) for power class 3

Modulation		MPR (dB)		
		Edge RB allocations	Outer RB allocations	Inner RB allocations
DFT-s-OFDM	Pi/2 BPSK	≤ 3.5[1]	≤ 1.2[1]	≤ 0.2[1]
		≤ 0.5[2]	≤ 0.5[2]	0[2]
	QPSK	≤ 1		0
	16 QAM	≤ 2		≤ 1
	64 QAM	≤ 2.5		
	256 QAM	≤ 4.5		
CP-OFDM	QPSK	≤ 3		≤ 1.5
	16 QAM	≤ 3		≤ 2
	64 QAM	≤ 3.5		
	256 QAM	≤ 6.5		

NOTE 1: Applicable for UE operating in TDD mode with Pi/2 BPSK modulation and UE indicates support for UE capability *powerBoosting-pi2BPSK* and if the IE *powerBoostPi2BPSK* is set to 1 and 40 % or less slots in radio frame are used for UL transmission for bands n40, n41, n77, n78 and n79. The reference power of 0 dB MPR is 26 dBm.

NOTE 2: Applicable for UE operating in FDD mode, or in TDD mode in bands other than n40, n41, n77, n78 and n79 with Pi/2 BPSK modulation and if the IE *powerBoostPi2BPSK* is set to 0 and if more than 40 % of slots in radio frame are used for UL transmission for bands n40, n41, n77, n78 and n79.

Table 6.2.2-2 Maximum power reduction (MPR) for power class 2

Modulation		MPR (dB)		
		Edge RB allocations	Outer RB allocations	Inner RB allocations
DFT-s-OFDM	Pi/2 BPSK	≤ 3.5	≤ 0.5	0
	QPSK	≤ 3.5	≤ 1	0
	16 QAM	≤ 3.5	≤ 2	≤ 1
	64 QAM	≤ 3.5	≤ 2.5	
	256 QAM	≤ 4.5		
CP-OFDM	QPSK	≤ 3.5	≤ 3	≤ 1.5
	16 QAM	≤ 3.5	≤ 3	≤ 2
	64 QAM	≤ 3.5		
	256 QAM	≤ 6.5		

<EN-DC combination>

FR1 UL EN-DC	
ANT	Band
0 + 8	5A-n2A
0 + 8	13A-n2A
4 + 0	48B-n2A
4 + 0	48C-n2A
0 + 8	66A-n2A
8 + 0	2A-n5A
4 + 0	48A-n5A
4 + 0	48B-n5A
4 + 0	48C-n5A
8 + 0	66A-n5A
8 + 0	2A-n66A
0 + 8	5A-n66A
0 + 8	13A-n66A
4 + 0	48A-n66A
4 + 0	48B-n66A

<n2 Ant8>

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				372000	376000	380000	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1860	1880	1900		
20	PI/2 BPSK	1	1	20.16	20.29	20.11	21.6	0.0
20	PI/2 BPSK	1	53	20.22	20.39	20.13		
20	PI/2 BPSK	1	104	20.21	20.22	20.02		
20	PI/2 BPSK	50	0	20.13	20.30	20.07	21.6	0.0
20	PI/2 BPSK	50	28	20.14	20.37	20.08		
20	PI/2 BPSK	50	56	20.13	20.34	20.00		
20	PI/2 BPSK	100	0	20.13	20.40	20.02	21.6	0.0
20	QPSK	1	1	20.32	20.33	20.31	21.6	0.0
20	QPSK	1	53	20.45	20.54	20.45		
20	QPSK	1	104	20.42	20.34	20.26		
20	QPSK	50	0	20.30	20.41	20.28	21.6	0.0
20	QPSK	50	28	20.28	20.43	20.27		
20	QPSK	50	56	20.30	20.46	20.33		
20	QPSK	100	0	20.31	20.40	20.30	21.6	0.0
20	16QAM	1	1	20.22	20.24	20.20	21.6	0.0
20	16QAM	1	53	20.38	20.48	20.28		
20	16QAM	1	104	20.27	20.34	20.14		
20	16QAM	50	0	20.34	20.52	20.34	21.6	0.0
20	16QAM	50	28	20.37	20.56	20.38		
20	16QAM	50	56	20.39	20.54	20.44		
20	16QAM	100	0	20.34	20.51	20.45	21.6	0.0
20	64QAM	1	1	20.55	20.57	20.51	21.6	0.0
20	64QAM	1	53	20.98	21.18	21.02		
20	64QAM	1	104	20.55	20.66	20.69		
20	64QAM	50	0	20.36	20.54	20.39	21.6	0.0
20	64QAM	50	28	20.40	20.54	20.49		
20	64QAM	50	56	20.43	20.56	20.55		
20	64QAM	100	0	20.32	20.50	20.44	21.6	0.0
20	256QAM	1	1	20.26	20.28	20.20	21.6	0.0
20	256QAM	1	53	20.42	20.63	20.39		
20	256QAM	1	104	20.28	20.29	20.20		
20	256QAM	50	0	19.80	20.00	20.00	21.6	0.0
20	256QAM	50	28	19.80	20.05	20.00		
20	256QAM	50	56	19.83	20.03	19.88		
20	256QAM	100	0	19.82	20.00	19.96	21.6	0.0
Channel				371500	376000	380500	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	PI/2 BPSK	1	1	20.42	20.50	20.33	21.6	0.0
Channel				371000	376000	381000	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	PI/2 BPSK	1	1	20.40	20.45	20.31	21.6	0.0
Channel				370500	376000	381500	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	PI/2 BPSK	1	1	20.33	20.49	20.24	21.6	0.0

<n2 Ant0>

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				372000	376000	380000	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1860	1880	1900		
20	PI/2 BPSK	1	1	20.94	21.06	21.16	22.0	0.0
20	PI/2 BPSK	1	53	21.06	21.37	21.42		
20	PI/2 BPSK	1	104	20.90	21.21	21.11		
20	PI/2 BPSK	50	0	21.02	21.14	21.32	22.0	0.0
20	PI/2 BPSK	50	28	20.27	21.17	21.26		
20	PI/2 BPSK	50	56	21.04	21.16	21.29		
20	PI/2 BPSK	100	0	21.11	21.17	21.28	22.0	0.0
20	QPSK	1	1	20.99	21.11	21.25	22.0	0.0
20	QPSK	1	53	21.10	21.37	21.43		
20	QPSK	1	104	21.04	21.25	21.23		
20	QPSK	50	0	20.91	21.14	21.30	22.0	0.0
20	QPSK	50	28	20.85	21.17	21.27		
20	QPSK	50	56	20.98	21.20	21.25		
20	QPSK	100	0	20.83	21.17	21.26	22.0	0.0
20	16QAM	1	1	21.00	21.28	21.28	22.0	0.0
20	16QAM	1	53	21.13	21.45	21.41		
20	16QAM	1	104	21.03	21.41	21.35		
20	16QAM	50	0	20.90	21.20	21.24	22.0	0.0
20	16QAM	50	28	20.90	21.20	21.22		
20	16QAM	50	56	21.01	21.25	21.27		
20	16QAM	100	0	20.84	21.08	21.18	22.0	0.0
20	64QAM	1	1	21.01	21.26	21.32	22.0	0.0
20	64QAM	1	53	21.23	21.56	21.52		
20	64QAM	1	104	21.02	21.41	21.27		
20	64QAM	50	0	20.83	21.20	21.24	22.0	0.0
20	64QAM	50	28	20.88	21.19	21.18		
20	64QAM	50	56	20.95	21.18	21.21		
20	64QAM	100	0	20.83	21.09	21.26	22.0	0.0
20	256QAM	1	1	20.13	20.47	20.49	22.0	1.0
20	256QAM	1	53	20.35	20.71	20.63		
20	256QAM	1	104	20.22	20.66	20.50		
20	256QAM	50	0	19.84	20.11	20.15	21.0	1.0
20	256QAM	50	28	19.86	20.17	20.14		
20	256QAM	50	56	19.93	20.12	20.14		
20	256QAM	100	0	19.88	20.21	20.22	21.0	1.0
Channel				371500	376000	380500	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	PI/2 BPSK	1	1	21.14	21.22	21.17	22.0	0.0
Channel				371000	376000	381000	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	PI/2 BPSK	1	1	21.10	21.19	21.13	22.0	0.0
Channel				370500	376000	381500	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	PI/2 BPSK	1	1	21.15	21.20	21.18	22.0	0.0

<n5 Ant0>

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				166800	167300	167800	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				834	836.5	839		
20	PI/2 BPSK	1	1	22.95	22.89	22.93	24.0	0.0
20	PI/2 BPSK	1	53	23.30	23.32	23.18		
20	PI/2 BPSK	1	104	22.28	22.04	22.06		
20	PI/2 BPSK	50	0	22.00	22.72	22.70	24.0	0.0
20	PI/2 BPSK	50	28	22.00	22.66	22.02		
20	PI/2 BPSK	50	56	22.90	22.98	22.90		
20	PI/2 BPSK	100	0	22.12	22.14	22.31	23.5	0.5
20	QPSK	1	1	22.53	22.76	23.03	24.0	0.0
20	QPSK	1	53	23.15	23.10	23.12		
20	QPSK	1	104	22.11	22.01	22.12		
20	QPSK	50	0	22.36	22.40	22.53	24.0	0.0
20	QPSK	50	28	22.78	23.00	22.17		
20	QPSK	50	56	22.11	22.31	22.06		
20	QPSK	100	0	21.70	21.94	21.86	23.5	0.5
20	16QAM	1	1	21.65	21.90	22.14	23.0	1.0
20	16QAM	1	53	22.46	22.41	22.37		
20	16QAM	1	104	21.20	21.13	21.18		
20	16QAM	50	0	21.30	21.18	21.47	23.0	1.0
20	16QAM	50	28	21.80	22.20	21.14		
20	16QAM	50	56	21.06	21.38	21.42		
20	16QAM	100	0	20.74	20.95	20.91	22.5	1.5
20	64QAM	1	1	21.00	20.95	21.04	22.0	2.0
20	64QAM	1	53	21.12	21.20	21.13		
20	64QAM	1	104	20.50	20.45	20.02		
20	64QAM	50	0	20.48	20.87	20.37	22.0	2.0
20	64QAM	50	28	20.33	20.24	20.02		
20	64QAM	50	56	20.82	20.67	20.48		
20	64QAM	100	0	20.50	20.70	20.62	22.5	1.5
20	256QAM	1	1	19.62	19.58	19.51	20.0	4.0
20	256QAM	1	53	19.61	19.68	19.56		
20	256QAM	1	104	19.35	19.30	18.88		
20	256QAM	50	0	18.59	18.42	18.05	20.0	4.0
20	256QAM	50	28	18.64	18.49	18.01		
20	256QAM	50	56	19.00	18.60	18.25		
20	256QAM	100	0	18.99	18.63	18.98	20.0	4.0
Channel				166300	167300	168300	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				831.5	836.5	841.5		
15	PI/2 BPSK	1	1	22.76	22.68	22.89	24.0	0.0
Channel				165800	167300	168800	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				829	836.5	844		
10	PI/2 BPSK	1	1	22.79	22.67	22.74	24.0	0.0
Channel				165300	167300	169300	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	PI/2 BPSK	1	1	22.88	22.80	22.84	24.0	0.0

<n66 Ant8>

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				344000	349000	354000	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1720	1745	1770		
20	PI/2 BPSK	1	1	23.07	23.17	23.49	24.0	0.0
20	PI/2 BPSK	1	53	22.92	23.23	23.42		
20	PI/2 BPSK	1	104	23.11	23.23	23.40		
20	PI/2 BPSK	50	0	22.98	23.21	23.43	24.0	0.0
20	PI/2 BPSK	50	28	23.00	23.17	23.38		
20	PI/2 BPSK	50	56	23.01	23.22	23.40		
20	PI/2 BPSK	100	0	22.99	23.25	23.39	23.5	0.5
20	QPSK	1	1	23.23	23.38	23.60	24.0	0.0
20	QPSK	1	53	23.25	23.48	23.61		
20	QPSK	1	104	23.21	23.41	23.54		
20	QPSK	50	0	23.10	23.36	23.50	24.0	0.0
20	QPSK	50	28	23.09	23.38	23.49		
20	QPSK	50	56	23.00	23.28	23.39		
20	QPSK	100	0	23.09	23.33	23.46	23.5	0.5
20	16QAM	1	1	23.00	23.12	23.44	23.5	0.5
20	16QAM	1	53	22.97	23.22	23.32		
20	16QAM	1	104	23.00	23.16	23.32		
20	16QAM	50	0	22.24	22.49	22.61	23.5	0.5
20	16QAM	50	28	23.16	23.30	23.46		
20	16QAM	50	56	22.23	22.41	22.60		
20	16QAM	100	0	22.19	22.43	22.55	23.0	1.0
20	64QAM	1	1	21.92	21.98	22.22	22.5	1.5
20	64QAM	1	53	22.25	22.48	22.63		
20	64QAM	1	104	21.91	21.93	22.17		
20	64QAM	50	0	21.65	21.87	22.02	22.5	1.5
20	64QAM	50	28	21.67	21.83	21.96		
20	64QAM	50	56	21.68	21.85	21.99		
20	64QAM	100	0	21.58	21.74	21.96	22.5	1.5
20	256QAM	1	1	20.25	20.26	20.47	20.5	3.5
20	256QAM	1	53	20.24	20.52	20.66		
20	256QAM	1	104	20.18	20.22	20.42		
20	256QAM	50	0	19.72	19.93	20.10	20.5	3.5
20	256QAM	50	28	19.66	19.90	20.00		
20	256QAM	50	56	19.67	19.82	19.99		
20	256QAM	100	0	19.66	19.86	20.05	20.5	3.5
Channel				343500	349000	354500	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1745	1772.5		
15	PI/2 BPSK	1	1	23.22	23.39	23.46	24.0	0.0
Channel				343000	349000	355000	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1745	1775		
10	PI/2 BPSK	1	1	23.44	23.52	23.56	24.0	0.0
Channel				342500	349000	355500	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1745	1777.5		
5	PI/2 BPSK	1	1	23.39	23.51	23.60	24.0	0.0

<n66 Ant0>

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				344000	349000	354000	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1720	1745	1770		
20	PI/2 BPSK	1	1	21.81	21.75	21.59	22.6	0.0
20	PI/2 BPSK	1	53	21.99	21.92	21.76		
20	PI/2 BPSK	1	104	21.67	21.66	21.43		
20	PI/2 BPSK	50	0	21.86	21.76	21.54	22.6	0.0
20	PI/2 BPSK	50	28	21.70	21.74	21.49		
20	PI/2 BPSK	50	56	21.69	21.72	21.49		
20	PI/2 BPSK	100	0	21.72	21.71	21.52	22.6	0.0
20	QPSK	1	1	21.85	21.88	21.65	22.6	0.0
20	QPSK	1	53	21.80	21.83	21.60		
20	QPSK	1	104	21.73	21.76	21.50		
20	QPSK	50	0	21.82	21.82	21.56	22.6	0.0
20	QPSK	50	28	21.76	21.77	21.51		
20	QPSK	50	56	21.71	21.76	21.49		
20	QPSK	100	0	21.79	21.84	21.56	22.6	0.0
20	16QAM	1	1	21.76	21.77	21.51	22.6	0.0
20	16QAM	1	53	21.66	21.72	21.46		
20	16QAM	1	104	21.68	21.67	21.39		
20	16QAM	50	0	21.83	21.88	21.62	22.6	0.0
20	16QAM	50	28	21.83	21.83	21.57		
20	16QAM	50	56	21.83	21.85	21.56		
20	16QAM	100	0	21.78	21.81	21.55	22.6	0.0
20	64QAM	1	1	21.97	21.98	21.78	22.6	0.0
20	64QAM	1	53	22.34	22.36	22.10		
20	64QAM	1	104	21.84	21.90	21.61		
20	64QAM	50	0	21.75	21.77	21.56	22.6	0.0
20	64QAM	50	28	21.71	21.71	21.48		
20	64QAM	50	56	21.75	21.72	21.46		
20	64QAM	100	0	21.61	21.63	21.46	22.6	0.0
20	256QAM	1	1	20.25	20.29	19.97	21.1	1.5
20	256QAM	1	53	20.39	20.38	20.11		
20	256QAM	1	104	20.11	20.19	19.91		
20	256QAM	50	0	19.82	19.84	19.50	21.1	1.5
20	256QAM	50	28	19.78	19.78	19.45		
20	256QAM	50	56	19.73	19.79	19.47		
20	256QAM	100	0	19.76	19.80	19.50	21.1	1.5
Channel				343500	349000	354500	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1745	1772.5		
15	PI/2 BPSK	1	1	21.84	21.86	21.62	22.6	0.0
Channel				343000	349000	355000	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1745	1775		
10	PI/2 BPSK	1	1	21.89	21.89	21.58	22.6	0.0
Channel				342500	349000	355500	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1745	1777.5		
5	PI/2 BPSK	1	1	21.77	21.86	21.60	22.6	0.0

14. RF Exposure position consideration

Antenna support band	
ANT 0	UMTS B2/B4/B5, LTE B2/B4/B5/B7/B12/B13/B14/B17/B66, NR n2/n5/n66
ANT 4	LTE B48
ANT 8	LTE B2/B4/B66, NR n2/n66

Distance of the Antenna to the EUT surface/edge						
Antennas	Front	Back	Top Side	Bottom Side	Right Side	Left Side
WWAN Ant 0	≤ 25mm	≤ 25mm	≤ 25mm	≤ 25mm	≤ 25mm	>25mm
WWAN Ant 4	≤ 25mm	≤ 25mm	≤ 25mm	≤ 25mm	≤ 25mm	>25mm
WWAN Ant 8	≤ 25mm	≤ 25mm	≤ 25mm	>25mm	>25mm	>25mm

Positions for SAR tests; Hotspot mode						
Antennas	Front	Back	Top Side	Bottom Side	Right Side	Left Side
WWAN Ant 0	Yes	Yes	Yes	Yes	Yes	No
WWAN Ant 4	Yes	Yes	Yes	Yes	Yes	No
WWAN Ant 8	Yes	Yes	Yes	No	No	No

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
2. The detail antenna location refers to appendix D

15. 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 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.

UMTS Note:

1. Per KDB 941225 D01v03r01, for SAR testing is measured using a 12.2 kbps RMC with TPC bits configured to all “1’s”.
2. Per KDB 941225 D01v03r01, RMC 12.2kbps setting is used to evaluate SAR. The maximum output power and tune-up tolerance specified for production units in HSDPA / HSUPA / DC-HSDPA is ≤ ¼ dB higher than RMC 12.2Kbps or when the highest reported SAR of the RMC12.2Kbps is scaled by the ratio of specified maximum output power and tune-up tolerance of HSDPA / HSUPA / DC-HSDPA to RMC12.2Kbps and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA, and according to the following RF output power, the output power results of the secondary modes (HSUPA, HSDPA, DC-HSDPA) are less than ¼ dB higher than the primary modes; therefore, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA.

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 B4/B5/B12/B17 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 4/17 SAR test was covered by Band 66/12; 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.

5G NR Note:

1. For 5G NR test procedure was following step similar FCC KDB 941225 D05:
   a. SAR testing start with the largest channel bandwidth and measure SAR for PI/2 BPSK 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.
   b. 50% RB allocation for PI/2 BPSK SAR testing follows 1RB PI/2 BPSK allocation procedure
   c. PI/2 BPSK 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.
   d. QPSK/16QAM/64QAM/256QAM output powers are not ½ dB higher than the same configuration in PI/2 BPSK, also reported SAR for the PI/2 BPSK configuration is less than 1.45 W/kg, QPSK/16QAM/64QAM/256QAM SAR testing are not required.
   e. Smaller bandwidth output power for each RB allocation configuration for this device will 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, smaller bandwidth SAR testing is not required for this device
   f. For 5G FR1 n5/n12/n41/n71 the maximum bandwidth does not support three non-overlapping channels, 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.

15.1 Body SAR

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Battery	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)
	WCDMA II_Ant 0	RMC 12.2Kbps	Front	10mm	Battery 1	9400	1880	22.42	22.70	1.067	-0.18	0.642	0.685
	WCDMA II_Ant 0	RMC 12.2Kbps	Back	10mm	Battery 1	9400	1880	22.42	22.70	1.067	-0.15	0.569	0.607
	WCDMA II_Ant 0	RMC 12.2Kbps	Right Side	10mm	Battery 1	9400	1880	22.42	22.70	1.067	-0.19	0.178	0.190
	WCDMA II_Ant 0	RMC 12.2Kbps	Top Side	10mm	Battery 1	9400	1880	22.42	22.70	1.067	-0.1	0.110	0.117
	WCDMA II_Ant 0	RMC 12.2Kbps	Bottom Side	10mm	Battery 1	9400	1880	22.42	22.70	1.067	-0.05	0.484	0.516
01	WCDMA II_Ant 0	RMC 12.2Kbps	Front	10mm	Battery 2	9400	1880	22.42	22.70	1.067	-0.11	0.645	0.688
02	WCDMA IV_Ant 0	RMC 12.2Kbps	Front	10mm	Battery 1	1413	1732.6	20.81	21.60	1.199	-0.19	0.474	0.569
	WCDMA IV_Ant 0	RMC 12.2Kbps	Back	10mm	Battery 1	1413	1732.6	20.81	21.60	1.199	-0.12	0.381	0.457
	WCDMA IV_Ant 0	RMC 12.2Kbps	Right Side	10mm	Battery 1	1413	1732.6	20.81	21.60	1.199	-0.07	0.402	0.482
	WCDMA IV_Ant 0	RMC 12.2Kbps	Top Side	10mm	Battery 1	1413	1732.6	20.81	21.60	1.199	-0.17	0.081	0.097
	WCDMA IV_Ant 0	RMC 12.2Kbps	Bottom Side	10mm	Battery 1	1413	1732.6	20.81	21.60	1.199	-0.06	0.247	0.296
	WCDMA IV_Ant 0	RMC 12.2Kbps	Front	10mm	Battery 2	1413	1732.6	20.81	21.60	1.199	-0.11	0.472	0.566
	WCDMA V_Ant 0	RMC 12.2Kbps	Front	10mm	Battery 1	4233	846.6	22.69	23.70	1.262	-0.16	0.677	0.854
	WCDMA V_Ant 0	RMC 12.2Kbps	Front	10mm	Battery 1	4132	826.4	22.53	23.70	1.309	-0.12	0.643	0.842
	WCDMA V_Ant 0	RMC 12.2Kbps	Front	10mm	Battery 1	4182	836.4	22.65	23.70	1.274	-0.12	0.705	0.898
03	WCDMA V_Ant 0	RMC 12.2Kbps	Back	10mm	Battery 1	4233	846.6	22.69	23.70	1.262	-0.08	0.789	0.996
	WCDMA V_Ant 0	RMC 12.2Kbps	Back	10mm	Battery 1	4132	826.4	22.53	23.70	1.309	-0.11	0.756	0.990
	WCDMA V_Ant 0	RMC 12.2Kbps	Back	10mm	Battery 1	4182	836.4	22.65	23.70	1.274	-0.14	0.780	0.993
	WCDMA V_Ant 0	RMC 12.2Kbps	Right Side	10mm	Battery 1	4233	846.6	22.69	23.70	1.262	-0.16	0.096	0.121
	WCDMA V_Ant 0	RMC 12.2Kbps	Top Side	10mm	Battery 1	4233	846.6	22.69	23.70	1.262	-0.12	0.545	0.688
	WCDMA V_Ant 0	RMC 12.2Kbps	Bottom Side	10mm	Battery 1	4233	846.6	22.69	23.70	1.262	-0.16	0.429	0.541
	WCDMA V_Ant 0	RMC 12.2Kbps	Back	10mm	Battery 2	4233	846.6	22.69	23.70	1.262	-0.12	0.736	0.929

<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Battery	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 2_Ant 0	20M	QPSK	1	49	Front	10mm	Battery 1	18900	1880	22.03	22.60	1.140	-0.12	0.653	0.745
	LTE Band 2_Ant 0	20M	QPSK	50	50	Front	10mm	Battery 1	18900	1880	22.20	22.60	1.096	-0.12	0.674	0.739
	LTE Band 2_Ant 0	20M	QPSK	1	49	Back	10mm	Battery 1	18900	1880	22.03	22.60	1.140	-0.15	0.577	0.658
	LTE Band 2_Ant 0	20M	QPSK	50	50	Back	10mm	Battery 1	18900	1880	22.20	22.60	1.096	-0.15	0.586	0.643
	LTE Band 2_Ant 0	20M	QPSK	1	0	Right Side	10mm	Battery 1	18900	1880	22.03	22.60	1.140	-0.18	0.152	0.173
	LTE Band 2_Ant 0	20M	QPSK	50	50	Right Side	10mm	Battery 1	18900	1880	22.20	22.60	1.096	-0.11	0.146	0.160
	LTE Band 2_Ant 0	20M	QPSK	1	49	Top Side	10mm	Battery 1	18900	1880	22.03	22.60	1.140	-0.11	0.105	0.120
	LTE Band 2_Ant 0	20M	QPSK	50	50	Top Side	10mm	Battery 1	18900	1880	22.20	22.60	1.096	-0.12	0.083	0.091
	LTE Band 2_Ant 0	20M	QPSK	1	49	Bottom Side	10mm	Battery 1	18900	1880	22.03	22.60	1.140	-0.07	0.463	0.528
	LTE Band 2_Ant 0	20M	QPSK	50	50	Bottom Side	10mm	Battery 1	18900	1880	22.20	22.60	1.096	-0.05	0.490	0.537
	LTE Band 2_Ant 0	20M	QPSK	1	49	Front	10mm	Battery 2	18900	1880	22.03	22.60	1.140	-0.12	0.643	0.733
	LTE Band 2_Ant 8	20M	QPSK	1	49	Front	10mm	Battery 1	18900	1880	21.62	22.20	1.143	-0.13	0.320	0.366
	LTE Band 2_Ant 8	20M	QPSK	50	24	Front	10mm	Battery 1	18900	1880	21.61	22.20	1.146	-0.14	0.337	0.386
	LTE Band 2_Ant 8	20M	QPSK	1	49	Back	10mm	Battery 1	18900	1880	21.62	22.20	1.143	-0.12	0.505	0.577
	LTE Band 2_Ant 8	20M	QPSK	50	24	Back	10mm	Battery 1	18900	1880	21.61	22.20	1.146	-0.14	0.537	0.615
	LTE Band 2_Ant 8	20M	QPSK	1	49	Top Side	10mm	Battery 1	18900	1880	21.62	22.20	1.143	-0.12	0.802	0.917
	LTE Band 2_Ant 8	20M	QPSK	1	49	Top Side	10mm	Battery 1	18700	1860	21.47	22.20	1.183	-0.04	0.752	0.890
	LTE Band 2_Ant 8	20M	QPSK	1	49	Top Side	10mm	Battery 1	19100	1900	21.43	22.20	1.194	-0.13	0.803	0.959
	LTE Band 2_Ant 8	20M	QPSK	50	24	Top Side	10mm	Battery 1	18900	1880	21.61	22.20	1.146	-0.07	0.848	0.971
	LTE Band 2_Ant 8	20M	QPSK	50	24	Top Side	10mm	Battery 1	18700	1860	21.36	22.20	1.213	-0.07	0.769	0.933
	LTE Band 2_Ant 8	20M	QPSK	50	24	Top Side	10mm	Battery 1	19100	1900	21.40	22.20	1.202	0.03	0.800	0.962
04	LTE Band 2_Ant 8	20M	QPSK	100	0	Top Side	10mm	Battery 1	18900	1880	21.54	22.20	1.164	-0.1	0.858	0.999
	LTE Band 2_Ant 8	20M	QPSK	100	0	Top Side	10mm	Battery 2	18900	1880	21.54	22.20	1.164	-0.1	0.828	0.964
	LTE Band 5_Ant 0	10M	QPSK	1	0	Front	10mm	Battery 1	20525	836.5	21.48	22.80	1.355	-0.12	0.490	0.664
	LTE Band 5_Ant 0	10M	QPSK	25	12	Front	10mm	Battery 1	20525	836.5	21.61	22.80	1.315	-0.11	0.494	0.650
05	LTE Band 5_Ant 0	10M	QPSK	1	0	Back	10mm	Battery 1	20525	836.5	21.48	22.80	1.355	-0.16	0.498	0.675
	LTE Band 5_Ant 0	10M	QPSK	25	12	Back	10mm	Battery 1	20525	836.5	21.61	22.80	1.315	-0.09	0.496	0.652
	LTE Band 5_Ant 0	10M	QPSK	1	0	Right Side	10mm	Battery 1	20525	836.5	21.48	22.80	1.355	-0.03	0.066	0.089
	LTE Band 5_Ant 0	10M	QPSK	25	12	Right Side	10mm	Battery 1	20525	836.5	21.61	22.80	1.315	-0.12	0.073	0.096
	LTE Band 5_Ant 0	10M	QPSK	1	0	Top Side	10mm	Battery 1	20525	836.5	21.48	22.80	1.355	-0.15	0.374	0.507
	LTE Band 5_Ant 0	10M	QPSK	25	12	Top Side	10mm	Battery 1	20525	836.5	21.61	22.80	1.315	-0.18	0.360	0.473
	LTE Band 5_Ant 0	10M	QPSK	1	0	Bottom Side	10mm	Battery 1	20525	836.5	21.48	22.80	1.355	-0.09	0.339	0.459
	LTE Band 5_Ant 0	10M	QPSK	25	12	Bottom Side	10mm	Battery 1	20525	836.5	21.61	22.80	1.315	-0.11	0.342	0.450
	LTE Band 5_Ant 0	10M	QPSK	1	0	Back	10mm	Battery 2	20525	836.5	21.48	22.80	1.355	-0.14	0.488	0.661
	LTE Band 5B_Ant 0	10M	QPSK	1	0	Back	10mm	Battery 1	20450+20549	829	21.59	22.80	1.321	-0.17	0.509	0.673
	LTE Band 7_Ant 0	20M	QPSK	1	99	Front	10mm	Battery 1	21350	2560	21.37	21.70	1.079	-0.12	0.581	0.627
06	LTE Band 7_Ant 0	20M	QPSK	50	50	Front	10mm	Battery 1	21350	2560	21.52	21.70	1.042	-0.12	0.617	0.643
	LTE Band 7_Ant 0	20M	QPSK	1	99	Back	10mm	Battery 1	21350	2560	21.37	21.70	1.079	-0.11	0.425	0.459
	LTE Band 7_Ant 0	20M	QPSK	50	50	Back	10mm	Battery 1	21350	2560	21.52	21.70	1.042	-0.08	0.457	0.476
	LTE Band 7_Ant 0	20M	QPSK	1	99	Right Side	10mm	Battery 1	21350	2560	21.37	21.70	1.079	-0.07	0.267	0.288
	LTE Band 7_Ant 0	20M	QPSK	50	50	Right Side	10mm	Battery 1	21350	2560	21.52	21.70	1.042	-0.05	0.302	0.315
	LTE Band 7_Ant 0	20M	QPSK	1	99	Top Side	10mm	Battery 1	21350	2560	21.37	21.70	1.079	-0.06	0.061	0.066
	LTE Band 7_Ant 0	20M	QPSK	50	50	Top Side	10mm	Battery 1	21350	2560	21.52	21.70	1.042	-0.07	0.066	0.069
	LTE Band 7_Ant 0	20M	QPSK	1	99	Bottom Side	10mm	Battery 1	21350	2560	21.37	21.70	1.079	-0.04	0.395	0.426
	LTE Band 7_Ant 0	20M	QPSK	50	50	Bottom Side	10mm	Battery 1	21350	2560	21.52	21.70	1.042	-0.16	0.420	0.438
	LTE Band 7_Ant 0	20M	QPSK	50	50	Front	10mm	Battery 2	21350	2560	21.52	21.70	1.042	-0.17	0.600	0.625

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Battery	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 12_Ant 0	10M	QPSK	1	0	Front	10mm	Battery 1	23095	707.5	23.57	24.00	1.104	-0.04	0.818	0.903
	LTE Band 12_Ant 0	10M	QPSK	25	0	Front	10mm	Battery 1	23095	707.5	23.25	24.00	1.189	-0.05	0.803	0.954
07	LTE Band 12_Ant 0	10M	QPSK	50	0	Front	10mm	Battery 1	23095	707.5	23.05	24.00	1.245	-0.11	0.793	0.987
	LTE Band 12_Ant 0	10M	QPSK	1	0	Back	10mm	Battery 1	23095	707.5	23.57	24.00	1.104	-0.01	0.809	0.893
	LTE Band 12_Ant 0	10M	QPSK	25	0	Back	10mm	Battery 1	23095	707.5	23.25	24.00	1.189	-0.05	0.791	0.940
	LTE Band 12_Ant 0	10M	QPSK	50	0	Back	10mm	Battery 1	23095	707.5	23.05	24.00	1.245	-0.07	0.765	0.952
	LTE Band 12_Ant 0	10M	QPSK	1	0	Right Side	10mm	Battery 1	23095	707.5	23.57	24.00	1.104	-0.19	0.135	0.149
	LTE Band 12_Ant 0	10M	QPSK	25	0	Right Side	10mm	Battery 1	23095	707.5	23.25	24.00	1.189	-0.09	0.126	0.150
	LTE Band 12_Ant 0	10M	QPSK	1	0	Top Side	10mm	Battery 1	23095	707.5	23.57	24.00	1.104	0.06	0.293	0.323
	LTE Band 12_Ant 0	10M	QPSK	25	0	Top Side	10mm	Battery 1	23095	707.5	23.25	24.00	1.189	-0.06	0.301	0.358
	LTE Band 12_Ant 0	10M	QPSK	1	0	Bottom Side	10mm	Battery 1	23095	707.5	23.57	24.00	1.104	-0.16	0.368	0.406
	LTE Band 12_Ant 0	10M	QPSK	25	0	Bottom Side	10mm	Battery 1	23095	707.5	23.25	24.00	1.189	-0.12	0.387	0.460
	LTE Band 12_Ant 0	10M	QPSK	50	0	Front	10mm	Battery 2	23095	707.5	23.05	24.00	1.245	-0.11	0.781	0.972
	LTE Band 13_Ant 0	10M	QPSK	1	49	Front	10mm	Battery 1	23230	782	22.88	24.00	1.294	-0.08	0.677	0.876
	LTE Band 13_Ant 0	10M	QPSK	25	25	Front	10mm	Battery 1	23230	782	22.73	23.00	1.064	-0.11	0.687	0.731
	LTE Band 13_Ant 0	10M	QPSK	50	0	Front	10mm	Battery 1	23230	782	22.75	23.00	1.059	-0.14	0.676	0.716
08	LTE Band 13_Ant 0	10M	QPSK	1	49	Back	10mm	Battery 1	23230	782	22.88	24.00	1.294	-0.09	0.684	0.885
	LTE Band 13_Ant 0	10M	QPSK	25	25	Back	10mm	Battery 1	23230	782	22.73	23.00	1.064	-0.06	0.679	0.723
	LTE Band 13_Ant 0	10M	QPSK	50	0	Back	10mm	Battery 1	23230	782	22.75	23.00	1.059	-0.09	0.672	0.712
	LTE Band 13_Ant 0	10M	QPSK	1	49	Right Side	10mm	Battery 1	23230	782	22.88	24.00	1.294	-0.01	0.080	0.104
	LTE Band 13_Ant 0	10M	QPSK	25	25	Right Side	10mm	Battery 1	23230	782	22.73	23.00	1.064	-0.11	0.081	0.086
	LTE Band 13_Ant 0	10M	QPSK	1	49	Top Side	10mm	Battery 1	23230	782	22.88	24.00	1.294	-0.08	0.409	0.529
	LTE Band 13_Ant 0	10M	QPSK	25	25	Top Side	10mm	Battery 1	23230	782	22.73	23.00	1.064	-0.11	0.395	0.420
	LTE Band 13_Ant 0	10M	QPSK	1	49	Bottom Side	10mm	Battery 1	23230	782	22.88	24.00	1.294	-0.12	0.403	0.522
	LTE Band 13_Ant 0	10M	QPSK	25	25	Bottom Side	10mm	Battery 1	23230	782	22.73	23.00	1.064	-0.11	0.395	0.420
	LTE Band 13_Ant 0	10M	QPSK	25	25	Front	10mm	Battery 2	23230	782	22.73	23.00	1.064	0.06	0.670	0.713
	LTE Band 14_Ant 0	10M	QPSK	1	0	Front	10mm	Battery 1	23330	793	22.91	24.00	1.285	-0.1	0.679	0.873
	LTE Band 14_Ant 0	10M	QPSK	25	25	Front	10mm	Battery 1	23330	793	22.66	23.00	1.081	-0.12	0.675	0.730
	LTE Band 14_Ant 0	10M	QPSK	50	0	Front	10mm	Battery 1	23330	793	22.60	23.00	1.096	-0.16	0.677	0.742
09	LTE Band 14_Ant 0	10M	QPSK	1	0	Back	10mm	Battery 1	23330	793	22.91	24.00	1.285	-0.1	0.702	0.902
	LTE Band 14_Ant 0	10M	QPSK	25	25	Back	10mm	Battery 1	23330	793	22.66	23.00	1.081	-0.09	0.690	0.746
	LTE Band 14_Ant 0	10M	QPSK	50	0	Back	10mm	Battery 1	23330	793	22.60	23.00	1.096	-0.09	0.681	0.747
	LTE Band 14_Ant 0	10M	QPSK	1	0	Right Side	10mm	Battery 1	23330	793	22.91	24.00	1.285	-0.18	0.083	0.107
	LTE Band 14_Ant 0	10M	QPSK	25	25	Right Side	10mm	Battery 1	23330	793	22.66	23.00	1.081	-0.06	0.077	0.083
	LTE Band 14_Ant 0	10M	QPSK	1	0	Top Side	10mm	Battery 1	23330	793	22.91	24.00	1.285	-0.17	0.374	0.481
	LTE Band 14_Ant 0	10M	QPSK	25	25	Top Side	10mm	Battery 1	23330	793	22.66	23.00	1.081	-0.12	0.406	0.439
	LTE Band 14_Ant 0	10M	QPSK	1	0	Bottom Side	10mm	Battery 1	23330	793	22.91	24.00	1.285	-0.05	0.383	0.492
	LTE Band 14_Ant 0	10M	QPSK	25	25	Bottom Side	10mm	Battery 1	23330	793	22.66	23.00	1.081	-0.15	0.401	0.434
	LTE Band 14_Ant 0	10M	QPSK	50	0	Back	10mm	Battery 2	23330	793	22.60	23.00	1.096	0.15	0.654	0.717

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Battery	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	Battery 1	132322	1745	21.59	22.30	1.178	-0.15	0.554	0.652
	LTE Band 66_Ant 0	20M	QPSK	50	24	Front	10mm	Battery 1	132072	1720	21.63	22.30	1.167	-0.11	0.581	0.678
	LTE Band 66_Ant 0	20M	QPSK	1	0	Back	10mm	Battery 1	132322	1745	21.59	22.30	1.178	-0.18	0.453	0.533
	LTE Band 66_Ant 0	20M	QPSK	50	24	Back	10mm	Battery 1	132072	1720	21.63	22.30	1.167	-0.04	0.505	0.589
	LTE Band 66_Ant 0	20M	QPSK	1	0	Right Side	10mm	Battery 1	132322	1745	21.59	22.30	1.178	-0.14	0.624	0.735
	LTE Band 66_Ant 0	20M	QPSK	50	24	Right Side	10mm	Battery 1	132072	1720	21.63	22.30	1.167	-0.02	0.801	0.935
	LTE Band 66_Ant 0	20M	QPSK	50	0	Right Side	10mm	Battery 1	132322	1745	21.59	22.30	1.178	-0.06	0.595	0.701
	LTE Band 66_Ant 0	20M	QPSK	50	24	Right Side	10mm	Battery 1	132572	1770	21.53	22.30	1.194	-0.13	0.420	0.501
	LTE Band 66_Ant 0	20M	QPSK	100	0	Right Side	10mm	Battery 1	132072	1720	21.53	22.30	1.194	-0.03	0.785	0.937
	LTE Band 66_Ant 0	20M	QPSK	1	0	Top Side	10mm	Battery 1	132322	1745	21.59	22.30	1.178	-0.1	0.106	0.125
	LTE Band 66_Ant 0	20M	QPSK	50	24	Top Side	10mm	Battery 1	132072	1720	21.63	22.30	1.167	-0.11	0.088	0.103
	LTE Band 66_Ant 0	20M	QPSK	1	0	Bottom Side	10mm	Battery 1	132322	1745	21.59	22.30	1.178	-0.08	0.379	0.446
	LTE Band 66_Ant 0	20M	QPSK	50	24	Bottom Side	10mm	Battery 1	132072	1720	21.63	22.30	1.167	0.14	0.357	0.417
10	LTE Band 66_Ant 0	20M	QPSK	100	0	Right Side	10mm	Battery 2	132072	1720	21.53	22.30	1.194	-0.13	0.836	0.998
	LTE Band 66B_Ant 0	15M	QPSK	1	0	Right Side	10mm	Battery 2	132047+132140	1717.5	21.42	22.30	1.225	-0.04	0.794	0.972
	LTE Band 66C_Ant 0	20M	QPSK	1	0	Right Side	10mm	Battery 2	132072+132270	1720	21.62	22.30	1.169	-0.04	0.783	0.916
	LTE Band 66_Ant 8	20M	QPSK	1	99	Front	10mm	Battery 1	132572	1770	23.38	24.00	1.153	-0.05	0.293	0.338
	LTE Band 66_Ant 8	20M	QPSK	50	50	Front	10mm	Battery 1	132572	1770	23.00	23.00	1.000	-0.19	0.269	0.269
	LTE Band 66_Ant 8	20M	QPSK	1	99	Back	10mm	Battery 1	132572	1770	23.38	24.00	1.153	-0.18	0.433	0.499
	LTE Band 66_Ant 8	20M	QPSK	50	50	Back	10mm	Battery 1	132572	1770	23.00	23.00	1.000	-0.11	0.397	0.397
	LTE Band 66_Ant 8	20M	QPSK	1	99	Top Side	10mm	Battery 1	132572	1770	23.38	24.00	1.153	-0.03	0.774	0.893
	LTE Band 66_Ant 8	20M	QPSK	1	99	Top Side	10mm	Battery 1	132072	1720	23.07	24.00	1.239	-0.09	0.508	0.629
	LTE Band 66_Ant 8	20M	QPSK	1	99	Top Side	10mm	Battery 1	132322	1745	23.26	24.00	1.186	-0.18	0.679	0.805
	LTE Band 66_Ant 8	20M	QPSK	50	50	Top Side	10mm	Battery 1	132572	1770	23.00	23.00	1.000	-0.13	0.685	0.685
	LTE Band 66_Ant 8	20M	QPSK	100	0	Top Side	10mm	Battery 1	132572	1770	22.95	23.00	1.012	-0.13	0.688	0.696
	LTE Band 66_Ant 8	20M	QPSK	1	99	Top Side	10mm	Battery 2	132572	1770	23.38	24.00	1.153	0.15	0.811	0.935

<TDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Battery	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)
	LTE Band 48_Ant 4	20M	QPSK	1	49	Front	10mm	Battery 1	56640	3690	19.50	19.50	1.000	62.9	1.006	-0.03	0.518	0.521
	LTE Band 48_Ant 4	20M	QPSK	50	50	Front	10mm	Battery 1	56640	3690	19.00	19.00	1.000	62.9	1.006	-0.08	0.424	0.427
	LTE Band 48_Ant 4	20M	QPSK	1	49	Back	10mm	Battery 1	56640	3690	19.50	19.50	1.000	62.9	1.006	-0.17	0.254	0.256
	LTE Band 48_Ant 4	20M	QPSK	50	50	Back	10mm	Battery 1	56640	3690	19.00	19.00	1.000	62.9	1.006	-0.05	0.206	0.207
	LTE Band 48_Ant 4	20M	QPSK	1	49	Right Side	10mm	Battery 1	56640	3690	19.50	19.50	1.000	62.9	1.006	-0.08	0.180	0.181
	LTE Band 48_Ant 4	20M	QPSK	50	50	Right Side	10mm	Battery 1	56640	3690	19.00	19.00	1.000	62.9	1.006	-0.09	0.147	0.148
	LTE Band 48_Ant 4	20M	QPSK	1	49	Top Side	10mm	Battery 1	56640	3690	19.50	19.50	1.000	62.9	1.006	-0.18	0.115	0.116
	LTE Band 48_Ant 4	20M	QPSK	50	50	Top Side	10mm	Battery 1	56640	3690	19.00	19.00	1.000	62.9	1.006	-0.17	0.093	0.094
	LTE Band 48_Ant 4	20M	QPSK	1	49	Bottom Side	10mm	Battery 1	56640	3690	19.50	19.50	1.000	62.9	1.006	0.13	0.060	0.060
	LTE Band 48_Ant 4	20M	QPSK	50	50	Bottom Side	10mm	Battery 1	56640	3690	19.00	19.00	1.000	62.9	1.006	0.15	0.046	0.046
11	LTE Band 48_Ant 4	20M	QPSK	1	49	Front	10mm	Battery 2	56640	3690	19.50	19.50	1.000	62.9	1.006	-0.05	0.537	0.540
	LTE Band 48C_Ant 4	20M	QPSK	1	0	Front	10mm	Battery 2	55340+55538	3560	19.49	19.50	1.002	62.9	1.006	-0.06	0.535	0.539

<5G NR SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Battery	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)
	FR 1 n2_Ant 0	20M	BPSK	1	53	Front	10mm	Battery 1	380000	1900	21.42	22.00	1.143	-0.13	0.552	0.631
	FR 1 n2_Ant 0	20M	BPSK	50	0	Front	10mm	Battery 1	380000	1900	21.32	22.00	1.169	-0.12	0.224	0.262
	FR 1 n2_Ant 0	20M	BPSK	1	53	Back	10mm	Battery 1	380000	1900	21.42	22.00	1.143	0.03	0.475	0.543
	FR 1 n2_Ant 0	20M	BPSK	50	0	Back	10mm	Battery 1	380000	1900	21.32	22.00	1.169	-0.08	0.202	0.236
	FR 1 n2_Ant 0	20M	BPSK	1	53	Right Side	10mm	Battery 1	380000	1900	21.42	22.00	1.143	-0.03	0.123	0.141
	FR 1 n2_Ant 0	20M	BPSK	50	0	Right Side	10mm	Battery 1	380000	1900	21.32	22.00	1.169	0.14	0.061	0.071
	FR 1 n2_Ant 0	20M	BPSK	1	53	Top Side	10mm	Battery 1	380000	1900	21.42	22.00	1.143	-0.13	0.085	0.097
	FR 1 n2_Ant 0	20M	BPSK	50	0	Top Side	10mm	Battery 1	380000	1900	21.32	22.00	1.169	0.04	0.034	0.040
	FR 1 n2_Ant 0	20M	BPSK	1	53	Bottom Side	10mm	Battery 1	380000	1900	21.42	22.00	1.143	0	0.368	0.421
	FR 1 n2_Ant 0	20M	BPSK	50	0	Bottom Side	10mm	Battery 1	380000	1900	21.32	22.00	1.169	-0.07	0.177	0.207
	FR 1 n2_Ant 0	20M	BPSK	1	53	Front	10mm	Battery 2	380000	1900	21.42	22.00	1.143	0.01	0.459	0.525
	FR 1 n2_Ant 8	20M	BPSK	1	53	Front	10mm	Battery 1	376000	1880	20.39	21.60	1.321	0.18	0.269	0.355
	FR 1 n2_Ant 8	20M	BPSK	50	28	Front	10mm	Battery 1	376000	1880	20.37	21.60	1.327	0.14	0.258	0.342
	FR 1 n2_Ant 8	20M	BPSK	1	53	Back	10mm	Battery 1	376000	1880	20.39	21.60	1.321	0.14	0.455	0.601
	FR 1 n2_Ant 8	20M	BPSK	50	28	Back	10mm	Battery 1	376000	1880	20.37	21.60	1.327	0.14	0.412	0.547
	FR 1 n2_Ant 8	20M	BPSK	1	53	Top Side	10mm	Battery 1	376000	1880	20.39	21.60	1.321	-0.09	0.734	0.970
	FR 1 n2_Ant 8	20M	BPSK	1	53	Top Side	10mm	Battery 1	372000	1860	20.22	21.60	1.374	-0.04	0.681	0.936
12	FR 1 n2_Ant 8	20M	BPSK	1	53	Top Side	10mm	Battery 1	380000	1900	20.13	21.60	1.403	-0.08	0.712	0.999
	FR 1 n2_Ant 8	20M	BPSK	50	28	Top Side	10mm	Battery 1	376000	1880	20.37	21.60	1.327	-0.14	0.694	0.921
	FR 1 n2_Ant 8	20M	BPSK	50	28	Top Side	10mm	Battery 1	372000	1860	20.14	21.60	1.400	-0.01	0.627	0.878
	FR 1 n2_Ant 8	20M	BPSK	50	28	Top Side	10mm	Battery 1	380000	1900	20.08	21.60	1.419	-0.12	0.690	0.979
	FR 1 n2_Ant 8	20M	BPSK	100	0	Top Side	10mm	Battery 1	376000	1880	20.40	21.60	1.318	-0.02	0.703	0.927
	FR 1 n2_Ant 8	20M	BPSK	1	53	Top Side	10mm	Battery 2	380000	1900	20.13	21.60	1.403	-0.07	0.672	0.943
	FR 1 n5_Ant 0	20M	BPSK	1	53	Front	10mm	Battery 1	167300	836.5	23.32	24.00	1.169	0.12	0.808	0.945
	FR 1 n5_Ant 0	20M	BPSK	50	56	Front	10mm	Battery 1	167300	836.5	22.98	24.00	1.265	-0.06	0.557	0.704
	FR 1 n5_Ant 0	20M	BPSK	100	0	Front	10mm	Battery 1	167300	836.5	22.14	23.50	1.368	-0.04	0.496	0.678
13	FR 1 n5_Ant 0	20M	BPSK	1	53	Back	10mm	Battery 1	167300	836.5	23.32	24.00	1.169	-0.09	0.823	0.962
	FR 1 n5_Ant 0	20M	BPSK	50	56	Back	10mm	Battery 1	167300	836.5	22.98	24.00	1.265	-0.04	0.549	0.694
	FR 1 n5_Ant 0	20M	BPSK	100	0	Back	10mm	Battery 1	167300	836.5	22.14	23.50	1.368	0.02	0.477	0.652
	FR 1 n5_Ant 0	20M	BPSK	1	53	Right Side	10mm	Battery 1	167300	836.5	23.32	24.00	1.169	-0.15	0.084	0.098
	FR 1 n5_Ant 0	20M	BPSK	50	56	Right Side	10mm	Battery 1	167300	836.5	22.98	24.00	1.265	-0.08	0.089	0.113
	FR 1 n5_Ant 0	20M	BPSK	1	53	Top Side	10mm	Battery 1	167300	836.5	23.32	24.00	1.169	-0.15	0.644	0.753
	FR 1 n5_Ant 0	20M	BPSK	50	56	Top Side	10mm	Battery 1	167300	836.5	22.98	24.00	1.265	0.03	0.478	0.605
	FR 1 n5_Ant 0	20M	BPSK	1	53	Bottom Side	10mm	Battery 1	167300	836.5	23.32	24.00	1.169	-0.15	0.532	0.622
	FR 1 n5_Ant 0	20M	BPSK	50	56	Bottom Side	10mm	Battery 1	167300	836.5	22.98	24.00	1.265	-0.15	0.343	0.434
	FR 1 n5_Ant 0	20M	BPSK	1	53	Back	10mm	Battery 2	167300	836.5	23.32	24.00	1.169	-0.09	0.701	0.820

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Battery	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)
	FR 1 n66_Ant 0	20M	BPSK	1	53	Front	10mm	Battery 1	344000	1720	21.99	22.60	1.151	-0.07	0.710	0.817
	FR 1 n66_Ant 0	20M	BPSK	1	53	Front	10mm	Battery 1	349000	1745	21.92	22.60	1.169	-0.17	0.670	0.784
	FR 1 n66_Ant 0	20M	BPSK	1	53	Front	10mm	Battery 1	354000	1770	21.76	22.60	1.213	0	0.605	0.734
	FR 1 n66_Ant 0	20M	BPSK	50	0	Front	10mm	Battery 1	344000	1720	21.86	22.60	1.186	-0.04	0.637	0.755
	FR 1 n66_Ant 0	20M	BPSK	100	0	Front	10mm	Battery 1	344000	1720	21.72	22.60	1.225	-0.09	0.496	0.607
	FR 1 n66_Ant 0	20M	BPSK	1	53	Back	10mm	Battery 1	344000	1720	21.99	22.60	1.151	-0.05	0.543	0.625
	FR 1 n66_Ant 0	20M	BPSK	50	0	Back	10mm	Battery 1	344000	1720	21.86	22.60	1.186	-0.01	0.525	0.623
	FR 1 n66_Ant 0	20M	BPSK	1	53	Right Side	10mm	Battery 1	344000	1720	21.99	22.60	1.151	0.01	0.719	0.827
	FR 1 n66_Ant 0	20M	BPSK	1	53	Right Side	10mm	Battery 1	349000	1745	21.92	22.60	1.169	-0.03	0.457	0.534
	FR 1 n66_Ant 0	20M	BPSK	1	53	Right Side	10mm	Battery 1	354000	1770	21.76	22.60	1.213	-0.04	0.302	0.366
	FR 1 n66_Ant 0	20M	BPSK	50	0	Right Side	10mm	Battery 1	344000	1720	21.86	22.60	1.186	-0.08	0.759	0.900
	FR 1 n66_Ant 0	20M	BPSK	50	0	Right Side	10mm	Battery 1	349000	1745	21.76	22.60	1.213	-0.18	0.506	0.614
	FR 1 n66_Ant 0	20M	BPSK	50	0	Right Side	10mm	Battery 1	354000	1770	21.54	22.60	1.276	-0.07	0.334	0.426
	FR 1 n66_Ant 0	20M	BPSK	100	0	Right Side	10mm	Battery 1	344000	1720	21.72	22.60	1.225	-0.13	0.548	0.671
	FR 1 n66_Ant 0	20M	BPSK	1	53	Top Side	10mm	Battery 1	344000	1720	21.99	22.60	1.151	-0.19	0.096	0.110
	FR 1 n66_Ant 0	20M	BPSK	50	0	Top Side	10mm	Battery 1	344000	1720	21.86	22.60	1.186	-0.1	0.081	0.096
	FR 1 n66_Ant 0	20M	BPSK	1	53	Bottom Side	10mm	Battery 1	344000	1720	21.99	22.60	1.151	-0.07	0.363	0.418
	FR 1 n66_Ant 0	20M	BPSK	50	0	Bottom Side	10mm	Battery 1	344000	1720	21.86	22.60	1.186	-0.05	0.355	0.421
14	FR 1 n66_Ant 0	20M	BPSK	50	0	Right Side	10mm	Battery 2	344000	1720	21.86	22.60	1.186	0.02	0.843	1.000
	FR 1 n66_Ant 8	20M	BPSK	1	1	Front	10mm	Battery 1	354000	1770	23.49	24.00	1.125	-0.11	0.296	0.333
	FR 1 n66_Ant 8	20M	BPSK	50	0	Front	10mm	Battery 1	354000	1770	23.43	24.00	1.140	0.04	0.262	0.299
	FR 1 n66_Ant 8	20M	BPSK	1	1	Back	10mm	Battery 1	354000	1770	23.49	24.00	1.125	-0.07	0.471	0.530
	FR 1 n66_Ant 8	20M	BPSK	50	0	Back	10mm	Battery 1	354000	1770	23.43	24.00	1.140	-0.01	0.451	0.514
	FR 1 n66_Ant 8	20M	BPSK	1	1	Top Side	10mm	Battery 1	354000	1770	23.49	24.00	1.125	-0.02	0.690	0.776
	FR 1 n66_Ant 8	20M	BPSK	50	0	Top Side	10mm	Battery 1	354000	1770	23.43	24.00	1.140	-0.1	0.509	0.580
	FR 1 n66_Ant 8	20M	BPSK	1	1	Top Side	10mm	Battery 2	354000	1770	23.49	24.00	1.125	0.01	0.748	0.841

15.2 Repeated SAR Measurement

No.	Band	Modulation	Test Position	Gap (mm)	Battery	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Ratio	Reported 1g SAR (W/kg)
1st	LTE Band 2_Ant 8	20M_QPSK_100_0	Top Side	10mm	Battery 1	18900	1880	21.54	22.20	1.164	-0.1	0.858	-	0.999
2nd	LTE Band 2_Ant 8	20M_QPSK_100_0	Top Side	10mm	Battery 1	18900	1880	21.54	22.20	1.164	-0.15	0.782	1.1	0.910
1st	LTE Band 12_Ant 0	10M_QPSK_1_0	Front	10mm	Battery 1	23095	707.5	23.57	24.00	1.104	-0.04	0.818	-	0.903
2nd	LTE Band 12_Ant 0	10M_QPSK_1_0	Front	10mm	Battery 1	23095	707.5	23.57	24.00	1.104	-0.07	0.817	1.0	0.902
1st	FR 1 n5_Ant 0	20M_BPSK_1_53	Back	10mm	Battery 1	167300	836.5	23.32	24.00	1.169	-0.09	0.823	-	0.962
2nd	FR 1 n5_Ant 0	20M_BPSK_1_53	Back	10mm	Battery 1	167300	836.5	23.32	24.00	1.169	0.02	0.818	1.0	0.957
1st	FR 1 n66_Ant 0	20M_BPSK_50_0	Right Side	10mm	Battery 2	344000	1720	21.86	22.60	1.186	0.02	0.843	-	1.000
2nd	FR 1 n66_Ant 0	20M_BPSK_50_0	Right Side	10mm	Battery 2	344000	1720	21.86	22.60	1.186	-0.03	0.840	1.00	0.996

General Note:

1. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥0.8W/kg.
2. Per KDB 865664 D01v01r04, if the ratio among the repeated measurement is ≤ 1.2 and the measured SAR <1.45W/kg, only one repeated measurement is required.
3. The ratio is the difference in percentage between original and repeated *measured SAR*.
4. All measurement SAR result is scaled-up to account for tune-up tolerance and is compliant.

16. Simultaneous Transmission Analysis

16.1 5G NR + LTE + WLAN + BT Sim-Tx analysis

In 5G NR + LTE + WLAN + BT simultaneous transmission, 5G NR and LTE transmission are managed and controlled by Qualcomm® Smart Transmit, while the RF exposure from WLAN and BT radios is managed using legacy approach, i.e., through a fixed power back-off if needed.
Since WLAN and BT do not employ time-averaging, 1gSAR and 10gSAR measurement for WLAN and BT need to be conducted at their corresponding rated power following current FCC test procedures to determine reported SAR values.
Smart Transmit current implementation assumes hotspots from 5G NR and LTE are collocated. Therefore, for a total of 100% exposure margin, if LTE uses x%, then the exposure margin left for 5G NR is capped to (100-x)%. Thus, the compliance equation for LTE + 5G NR is

*x% * A + (100-x)% * B ≤ 1.0,*

Where, A is normalized reported time-averaged SAR exposure ratio from LTE, and A ≤ 1.0; B is normalized reported time-averaged exposure ratio from 5G NR (i.e., PD exposure for 5G FR2 or SAR exposure for 5G FR1), and B ≤1.0.

Let C = normalized reported SAR exposure ratio from WLAN+BT, then for compliance,
*x% * A + (100-x)% * B + C ≤ 1.0* (1)

x% * A + (100-x)% * B ≤ x% * max(A, B) + (100-x)% * max(A, B) ≤ max(A, B)

*x% * A + (100-x)% * B + C ≤ max(A, B) + C ≤ 1.0* (2)

if A + C ≤ 1.0 and B + C ≤ 1.0 can be proven, then “x% * A + (100-x)% * B + C ≤ 1.0”. Therefore simultaneous transmission analysis for 5G NR + LTE + WLAN + BT can be performed in two steps

Step 1: Prove total exposure ratio (TER) of LTE + WLAN + BT < 1
Step 2: Prove total exposure ratio (TER) of 5G NR + WLAN + BT < 1

16.2 Sim-Tx configuration

NO.	Simultaneous Transmission Configurations	Exposure Positions
		Body
1.	UMTS + 2.4GHz WiFi 0 + 2.4GHz WiFi 1	Yes
2.	UMTS + 5GHz WiFi 0 + 5GHz WiFi 1	Yes
3.	LTE+ 2.4GHz WiFi 0 + 2.4GHz WiFi 1	Yes
4.	LTE + 5GHz WiFi 0 + 5GHz WiFi 1	Yes
5.	LTE + 5G FR1 + 2.4GHz WiFi 0 + 2.4GHz WiFi 1	Yes
6.	LTE + 5G FR1 + 5GHz WiFi 0 + 5GHz WiFi 1	Yes

General Note:

1. The worst case WLAN reported SAR for each configuration was used for SAR summation, regardless of whether the WLAN channel has Hotspot capability. Therefore, the following summations represent the absolute worst cases for simultaneous transmission with WLAN.
2. The Scaled SAR summation is calculated based on the same configuration and test position.
3. 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 for 1g SAR, simultaneously transmission SAR measurement is not necessary.
   iv) Simultaneously transmission SAR measurement, and the reported multi-band SAR < 1.6W/kg.
4. The WLAN SAR results according to RF exposure lab SAR evaluation report, report no.: SAR.20200501, are use performed Sim-Tx analysis, and the Sim-Tx analysis is following step:
   a. For WLAN RF exposure assessment of MIMO mode simultaneous transmission exclusion analysis was performed with SAR test results of each antenna in SISO mode
   b. If WLAN RF exposure assessment of MIMO mode simultaneous transmission exclusion analysis was performed with SAR test results of each antenna in SISO mode is > 1.6W/kg, the MIMO SAR result is used.

16.3 Body Exposure Conditions

Step A:

WWAN Band	Exposure Position	1 WWAN 1g SAR (W/kg)	2 2.4GHz Wi-Fi 0 1g SAR (W/kg)	3 2.4GHz Wi-Fi 1 1g SAR (W/kg)	4 5GHz Wi-Fi 0 1g SAR (W/kg)	5 5GHz Wi-Fi 1 1g SAR (W/kg)	1+2+3 Summed 1g SAR (W/kg)	1+4+5 Summed 1g SAR (W/kg)	Note
WCDMA II_Ant 0	Front	0.688	0.120	0.090	0.210	0.300	**0.898**	**1.198**	
	Back	0.607	0.380	0.090	0.570	0.290	**1.077**	**1.467**	
	Left side		0.090	0.020	0.140	0.140	**0.110**	**0.280**	
	Right side	0.190					**0.190**	**0.190**	
	Top side	0.117		0.150		0.290	**0.267**	**0.407**	
	Bottom side	0.516	0.600		0.600		**1.116**	**1.116**	
WCDMA IV_Ant 0	Front	0.569	0.120	0.090	0.210	0.300	**0.779**	**1.079**	
	Back	0.457	0.380	0.090	0.570	0.290	**0.927**	**1.317**	
	Left side		0.090	0.020	0.140	0.140	**0.110**	**0.280**	
	Right side	0.482					**0.482**	**0.482**	
	Top side	0.097		0.150		0.290	**0.247**	**0.387**	
	Bottom side	0.296	0.600		0.600		**0.896**	**0.896**	
WCDMA V_Ant 0	Front	0.898	0.120	0.090	0.210	0.300	**1.108**	**1.408**	
	Back	0.996	0.380	0.090	0.570	0.290	**1.466**	**1.856**	**Go to Step b**
	Left side		0.090	0.020	0.140	0.140	**0.110**	**0.280**	
	Right side	0.121					**0.121**	**0.121**	
	Top side	0.688		0.150		0.290	**0.838**	**0.978**	
	Bottom side	0.541	0.600		0.600		**1.141**	**1.141**	
LTE Band 2_Ant 0	Front	0.745	0.120	0.090	0.210	0.300	**0.955**	**1.255**	
	Back	0.658	0.380	0.090	0.570	0.290	**1.128**	**1.518**	
	Left side		0.090	0.020	0.140	0.140	**0.110**	**0.280**	
	Right side	0.173					**0.173**	**0.173**	
	Top side	0.120		0.150		0.290	**0.270**	**0.410**	
	Bottom side	0.537	0.600		0.600		**1.137**	**1.137**	
LTE Band 2_Ant 8	Front	0.386	0.120	0.090	0.210	0.300	**0.596**	**0.896**	
	Back	0.615	0.380	0.090	0.570	0.290	**1.085**	**1.475**	
	Left side		0.090	0.020	0.140	0.140	**0.110**	**0.280**	
	Right side						**0.000**	**0.000**	
	Top side	0.999		0.150		0.290	**1.149**	**1.289**	
	Bottom side		0.600		0.600		**0.600**	**0.600**	
LTE Band 5_Ant 0	Front	0.664	0.120	0.090	0.210	0.300	**0.874**	**1.174**	
	Back	0.675	0.380	0.090	0.570	0.290	**1.145**	**1.535**	
	Left side		0.090	0.020	0.140	0.140	**0.110**	**0.280**	
	Right side	0.096					**0.096**	**0.096**	
	Top side	0.507		0.150		0.290	**0.657**	**0.797**	
	Bottom side	0.459	0.600		0.600		**1.059**	**1.059**	
LTE Band 7_Ant 0	Front	0.643	0.120	0.090	0.210	0.300	**0.853**	**1.153**	
	Back	0.476	0.380	0.090	0.570	0.290	**0.946**	**1.336**	
	Left side		0.090	0.020	0.140	0.140	**0.110**	**0.280**	
	Right side	0.315					**0.315**	**0.315**	
	Top side	0.069		0.150		0.290	**0.219**	**0.359**	
	Bottom side	0.438	0.600		0.600		**1.038**	**1.038**	
LTE Band 12_Ant 0	Front	0.987	0.120	0.090	0.210	0.300	**1.197**	**1.497**	
	Back	0.952	0.380	0.090	0.570	0.290	**1.422**	**1.812**	
	Left side		0.090	0.020	0.140	0.140	**0.110**	**0.280**	
	Right side	0.150					**0.150**	**0.150**	
	Top side	0.358		0.150		0.290	**0.508**	**0.648**	
	Bottom side	0.460	0.600		0.600		**1.060**	**1.060**	
LTE Band 13_Ant 0	Front	0.876	0.120	0.090	0.210	0.300	**1.086**	**1.386**	
	Back	0.885	0.380	0.090	0.570	0.290	**1.355**	**1.745**	**Go to Step b**
	Left side		0.090	0.020	0.140	0.140	**0.110**	**0.280**	

	Right side	0.104					**0.104**	**0.104**	
	Top side	0.529		0.150		0.290	**0.679**	**0.819**	
	Bottom side	0.522	0.600		0.600		**1.122**	**1.122**	
LTE Band 14_Ant 0	Front	0.873	0.120	0.090	0.210	0.300	**1.083**	**1.383**	
	Back	0.902	0.380	0.090	0.570	0.290	**1.372**	**1.762**	**Go to Step b**
	Left side		0.090	0.020	0.140	0.140	**0.110**	**0.280**	
	Right side	0.107					**0.107**	**0.107**	
	Top side	0.481		0.150		0.290	**0.631**	**0.771**	
	Bottom side	0.492	0.600		0.600		**1.092**	**1.092**	
LTE Band 48_Ant 4	Front	0.540	0.120	0.090	0.210	0.300	**0.750**	**1.050**	
	Back	0.256	0.380	0.090	0.570	0.290	**0.726**	**1.116**	
	Left side		0.090	0.020	0.140	0.140	**0.110**	**0.280**	
	Right side	0.181					**0.181**	**0.181**	
	Top side	0.116		0.150		0.290	**0.266**	**0.406**	
	Bottom side	0.060	0.600		0.600		**0.660**	**0.660**	
LTE Band 66_Ant 0	Front	0.678	0.120	0.090	0.210	0.300	**0.888**	**1.188**	
	Back	0.589	0.380	0.090	0.570	0.290	**1.059**	**1.449**	
	Left side		0.090	0.020	0.140	0.140	**0.110**	**0.280**	
	Right side	0.998					**0.998**	**0.998**	
	Top side	0.125		0.150		0.290	**0.275**	**0.415**	
	Bottom side	0.446	0.600		0.600		**1.046**	**1.046**	
LTE Band 66_Ant 8	Front	0.338	0.120	0.090	0.210	0.300	**0.548**	**0.848**	
	Back	0.499	0.380	0.090	0.570	0.290	**0.969**	**1.359**	
	Left side		0.090	0.020	0.140	0.140	**0.110**	**0.280**	
	Right side						**0.000**	**0.000**	
	Top side	0.935		0.150		0.290	**1.085**	**1.225**	
	Bottom side		0.600		0.600		**0.600**	**0.600**	
5G FR1 n2_Ant 0	Front	0.631	0.120	0.090	0.210	0.300	**0.841**	**1.141**	
	Back	0.543	0.380	0.090	0.570	0.290	**1.013**	**1.403**	
	Left side		0.090	0.020	0.140	0.140	**0.110**	**0.280**	
	Right side	0.141					**0.141**	**0.141**	
	Top side	0.097		0.150		0.290	**0.247**	**0.387**	
	Bottom side	0.421	0.600		0.600		**1.021**	**1.021**	
5G FR1 n2_Ant 8	Front	0.355	0.120	0.090	0.210	0.300	**0.565**	**0.865**	
	Back	0.601	0.380	0.090	0.570	0.290	**1.071**	**1.461**	
	Left side		0.090	0.020	0.140	0.140	**0.110**	**0.280**	
	Right side						**0.000**	**0.000**	
	Top side	0.999		0.150		0.290	**1.149**	**1.289**	
	Bottom side		0.600		0.600		**0.600**	**0.600**	
5G FR1 n5_Ant 0	Front	0.945	0.120	0.090	0.210	0.300	**1.155**	**1.455**	
	Back	0.962	0.380	0.090	0.570	0.290	**1.432**	**1.822**	**Go to Step b**
	Left side		0.090	0.020	0.140	0.140	**0.110**	**0.280**	
	Right side	0.113					**0.113**	**0.113**	
	Top side	0.753		0.150		0.290	**0.903**	**1.043**	
	Bottom side	0.622	0.600		0.600		**1.222**	**1.222**	
5G FR1 n66_Ant 0	Front	0.817	0.120	0.090	0.210	0.300	**1.027**	**1.327**	
	Back	0.625	0.380	0.090	0.570	0.290	**1.095**	**1.485**	
	Left side		0.090	0.020	0.140	0.140	**0.110**	**0.280**	
	Right side	1.000					**1.000**	**1.000**	
	Top side	0.110		0.150		0.290	**0.260**	**0.400**	
	Bottom side	0.421	0.600		0.600		**1.021**	**1.021**	
5G FR1 n66_Ant 8	Front	0.333	0.120	0.090	0.210	0.300	**0.543**	**0.843**	
	Back	0.530	0.380	0.090	0.570	0.290	**1.000**	**1.390**	
	Left side		0.090	0.020	0.140	0.140	**0.110**	**0.280**	
	Right side						**0.000**	**0.000**	
	Top side	0.841		0.150		0.290	**0.991**	**1.131**	
	Bottom side		0.600		0.600		**0.600**	**0.600**	

Step B:

WWAN Band	Exposure Position	1	6	1+6 Summed 1g SAR (W/kg)
		WWAN	5GHz Wi-Fi 0+1	
		1g SAR (W/kg)	1g SAR (W/kg)	
WCDMA V_Ant 0	Back	0.996	0.550	**1.546**
LTE Band 12_Ant 0	Back	0.952	0.550	**1.502**
LTE Band 13_Ant 0	Back	0.885	0.550	**1.435**
LTE Band 14_Ant 0	Back	0.902	0.550	**1.452**
5G FR1 n5_Ant 0	Back	0.962	0.550	**1.512**

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17. 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.

18. 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 447498 D01 v06, “Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies”, Oct 2015

[6] FCC KDB 941225 D01 v03r01, “3G SAR MEAUREMENT PROCEDURES”, 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.