FCC SAR TEST REPORT

FCC ID	:	**XMR2020EM120RGL2**
Equipment	:	**LTE-A Cat 12 M.2 Module**
Brand Name	:	**Quectel Wireless Solutions Company Limited**
Model Name	:	**EM120R-GL**
Applicant	:	**Quectel Wireless Solutions Co., Ltd. Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai 200233, China**
Manufacturer	:	**Quectel Wireless Solutions Co., Ltd. Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai 200233, China**
Standard	:	**FCC 47 CFR Part 2 (2.1093)**

Equipment: Quectel EM120R-GL tested inside of Lenovo Notebook Computer.

The product was received on Nov. 27, 2020 and testing was started from Dec. 18, 2020 and completed on Jan. 15, 2021. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample provide by manufacturer and the test data has been evaluated in accordance with the test procedures given in 47 CFR Part 2.1093 and FCC KDB and has been pass the FCC requirement.

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

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory

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History of this test report

Report No.	Version	Description	Issued Date
FA0D0427	01	Initial issue of report	Feb. 08, 2021

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for Quectel Wireless Solutions Co., Ltd., LTE-A Cat 12 M.2 Module, EM120R-GL, are as follows.

Equipment Class	Frequency Band		Highest SAR Summary Body 1g SAR (W/kg)	Highest Simultaneous Transmission 1g SAR (W/kg)
Licensed	WCDMA	WCDMA II	1.17	1.20
		WCDMA IV	1.17	
		WCDMA V	1.03	
	LTE	LTE Band 5	1.12	
		LTE Band 7	1.18	
		LTE Band 12	1.20	
		LTE Band 13	1.17	
		LTE Band 14	1.17	
		LTE Band 2 / 25	1.12	
		LTE Band 26	1.04	
		LTE Band 30	1.12	
		LTE Band 38	1.09	
		LTE Band 41	1.03	
		LTE Band 48	1.18	
		LTE Band 4 / 66	1.07	
Date of Testing:			2020/12/18 ~ 2021/1/15	

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 for Partial-Body 1g SAR) 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: Paula Chen

2. Guidance Applied

The Specific Absorption Rate (SAR) testing specification, method, and procedure for this device is in accordance with the following standards, the below KDB standard may not including in the TAF code without accreditation.

- FCC 47 CFR Part 2 (2.1093)
- ANSI/IEEE C95.1-1992
- IEEE 1528-2013
- FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04
- FCC KDB 865664 D02 SAR Reporting v01r02
- FCC KDB 447498 D01 General RF Exposure Guidance v06
- FCC KDB 248227 D01 802.11 Wi-Fi SAR v02r02
- FCC KDB 616217 D04 SAR for laptop and tablets v01r02
- 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

3. Equipment Under Test (EUT) Information

3.1 General Information

Product Feature & Specification	
Equipment Name	LTE-A Cat 12 M.2 Module
Brand Name	Quectel Wireless Solutions Company Limited
Model Name	EM120R-GL
FCC ID	XMR2020EM120RGL2
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 25: 1850 MHz ~ 1915 MHz LTE Band 26: 814 MHz ~ 849 MHz LTE Band 30: 2305 MHz ~ 2315 MHz LTE Band 38: 2570 MHz ~ 2620 MHz LTE Band 41: 2496 MHz ~ 2690 MHz LTE Band 48: 3550 MHz ~ 3700 MHz LTE Band 66: 1710 MHz ~ 1780 MHz
Mode	RMC 12.2Kbps HSDPA HSUPA DC-HSDPA LTE: QPSK, 16QAM, 64QAM
Remark: 1. This device had two antenna vendors, RF exposure evaluation is selected AMP as the main tested, JYT is spot check worst case found in AMP.	

WWAN Antenna Information				
Main Antenna	Manufacturer	Amphenol	Peak gain(dBi)	1.95
	Part number	TKC116-16-000-C	Type	PIFA
	Manufacturer	Novocomms/JYT	Peak gain(dBi)	1.83
	Part number	JYAAE0150HR	Type	PIFA

Host Information	
Equipment Name	Notebook Computer
Brand Name	Lenovo
Model Name	TP00129A
Integrated WLAN Module	Brand Name: Intel® Wi-Fi 6E AX201 Model Name: AX201D2W
Integrated UWB Module	Brand Name: Novelda AS Model Name: X4C007
Integrated NFC Module	Brand Name: Foxconn Model Name: T77H747
Wireless Technology and Frequency Range	WLAN 2.4GHz Band: 2400 MHz ~ 2483.5 MHz WLAN 5.2GHz Band: 5150 MHz ~ 5250 MHz WLAN 5.3GHz Band: 5250 MHz ~ 5350 MHz WLAN 5.6GHz Band: 5470 MHz ~ 5725 MHz WLAN 5.8GHz Band: 5725 MHz ~ 5825 MHz Bluetooth: 2400 MHz ~ 2483.5 MHz UWB: 7490 MHz ~ 8450 MHz NFC: 13.56 MHz
Mode	WLAN: 802.11a/b/g/n/ac/ax HT20/HT40/VHT20/VHT40/VHT80/VHT160/HE20/HE40/HE80/HE160 Bluetooth BR/EDR/LE UWB: Pulsed TX with pseudo random bi-phase NFC: ASK
EUT Stage	Production Unit

Remark:

1. The Intel AX201D2W WLAN /BT module is also integrated into Lenove TP00129A host. The WLAN and Bluetooth SAR results are referenced from Intel SAR report, report number: 180117-03.TR11 (FCC ID: PD9AX201D2) and these SAR results are also used to perform simultaneous transmission analysis.
2. The UWB output power is -15 dBm was referring to FCC ID: 2AD9Q-X4C007, test report no.: 2711ERM.002, according to 201810 TCBC workshops the UWB output power is less than 1mW and exempt from power density testing.

3.2 General LTE SAR Test and Reporting Considerations

Summarized necessary items addressed in KDB 941225 D05 v02r05	
FCC ID	XMR2020EM120RGL2
Equipment Name	LTE-A Cat 12 M.2 Module
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 25: 1850 MHz ~ 1915 MHz LTE Band 26: 814 MHz ~ 849 MHz LTE Band 30: 2305 MHz ~ 2315 MHz LTE Band 38: 2570 MHz ~ 2620 MHz LTE Band 41: 2496 MHz ~ 2690 MHz LTE Band 48: 3550 MHz ~ 3700 MHz LTE Band 66: 1710 MHz ~ 1780 MHz
Channel Bandwidth	LTE Band 2:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 4:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 5:1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 7: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 12:1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 13: 5MHz, 10MHz LTE Band 14: 5MHz, 10MHz LTE Band 25:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 26:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz LTE Band 30: 5MHz, 10MHz LTE Band 38: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 41: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 48: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 66:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz
uplink modulations used	QPSK / 16QAM
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.
Power reduction applied to satisfy SAR compliance	Yes, Proximity Sensor
LTE Carrier Aggregation Combinations	Inter-Band and Intra-Band possible combinations and the detail power measurement please referred to section 11.
LTE Carrier Aggregation Additional Information	1. This device supports maximum of 3 carriers in the downlink and 2 carriers in the uplink. Additional following LTE Release features are not supported: Relay, HetNet, Enhanced MIMO, eICI, WiFi Offloading, MDH, eMBMA, Cross-Carrier Scheduling, Enhanced SC-FDMA.

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 25

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

LTE Band 26

	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	26697	814.7	26705	815.5	26715	816.5	26740	819	26765	821.5
M	26865	831.5	26865	831.5	26865	831.5	26865	831.5	26865	831.5

H	27033	848.3	27025	847.5	27015	846.5	26990	844	26965	841.5

LTE Band 30

	Bandwidth 5 MHz		Bandwidth 10 MHz	
	Channel #	Freq.(MHz)	Channel #	Freq.(MHz)
L	27685	2307.5	27710	2310
M	27710	2310		
H	27735	2312.5		

LTE Band 38

	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	37775	2572.5	37800	2575	37825	2577.5	37850	2580
M	38000	2595	38000	2595	38000	2595	38000	2595
H	38225	2617.5	38200	2615	38175	2612.5	38150	2610

LTE Band 41

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

LTE Band 66

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

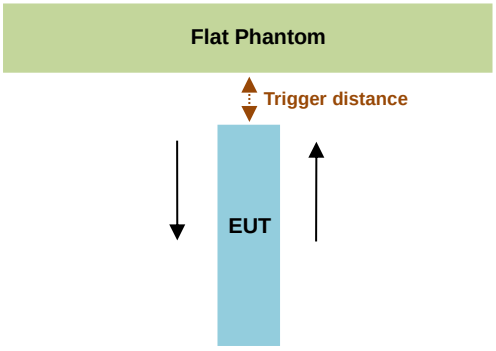
LTE Band 48

	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

4. Proximity Sensor Triggering Test

<Proximity Sensor Triggering Distance (KDB 616217 D04 section 6.2)>:

For the device is fully integrated, touch sensing capacitive sensor. It uses a charge transfer capacitive acquisition method that is capable of near range proximity detection. In this device offers a state of the art capacitive sensing engine with an embedded sampling capacitor and voltage regulator allowing the overall solution cost to be reduced and improving system immunity in noisy environments.
Proximity sensor triggering distance testing was performed according to the procedures outlined in KDB 616217 D04 section 6.2, and EUT moving further away from the flat phantom and EUT moving toward the flat phantom were both assessed. The details are illustrated as following, and the shortest triggering distances were reported and used for SAR assessment.
In the preliminary triggering distance testing, the tissue-equivalent medium for different frequency bands were used for verification; no other frequency bands tissue-equivalent medium was found to result in shortest triggering distance than that for 1900MHz, and the tissue-equivalent medium for 1900MHz was used for formal proximity sensor triggering testing.



Proximity Sensor Trigger Distance (mm)		
Main Antenna		
Position	moving toward	moving away
Minimum	16	19

<Proximity Sensor Triggering Coverage (KDB 616217 D04 section 6.3)>:

Since the antenna and sensor are collocated and all of the peak SAR location is overlapping with the sensor pad for this device, therefore, According to KDB 616217 section6.3, these procedures do not apply and are not required for bottom of laptop due to the antenna and sensor are collocated and the peak SAR location is overlapping with the sensor on this device.

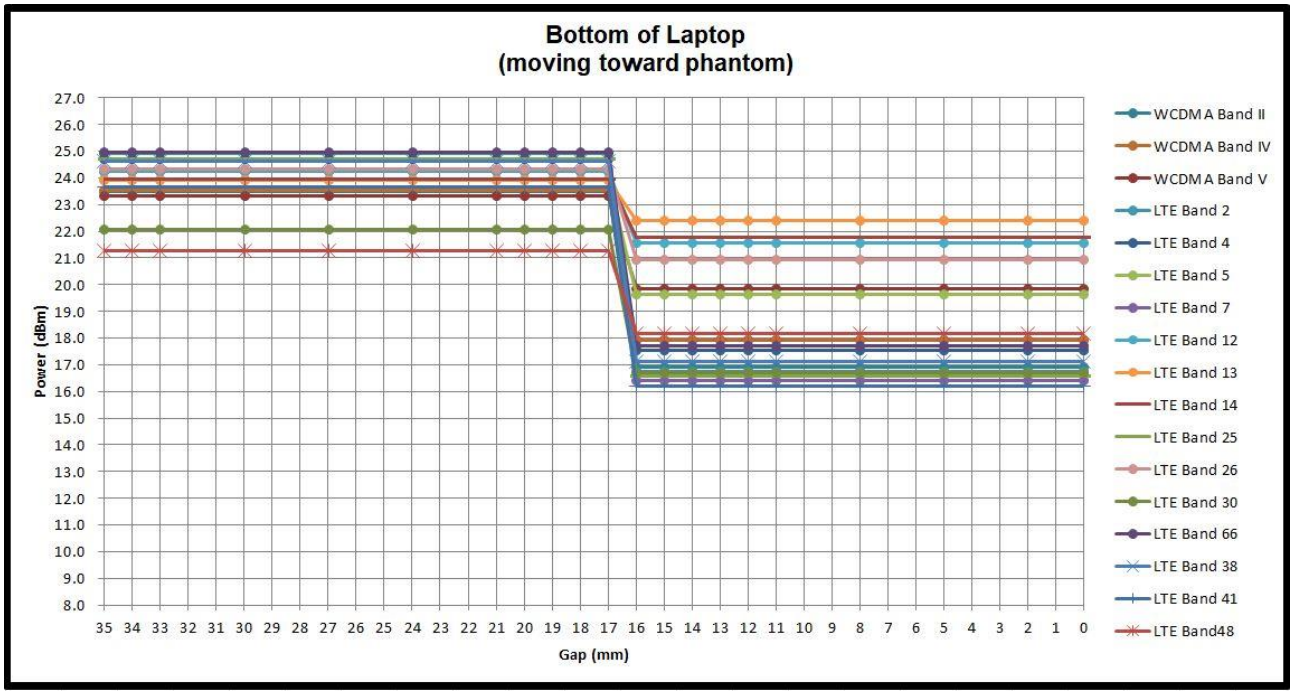
Proximity sensor power reduction

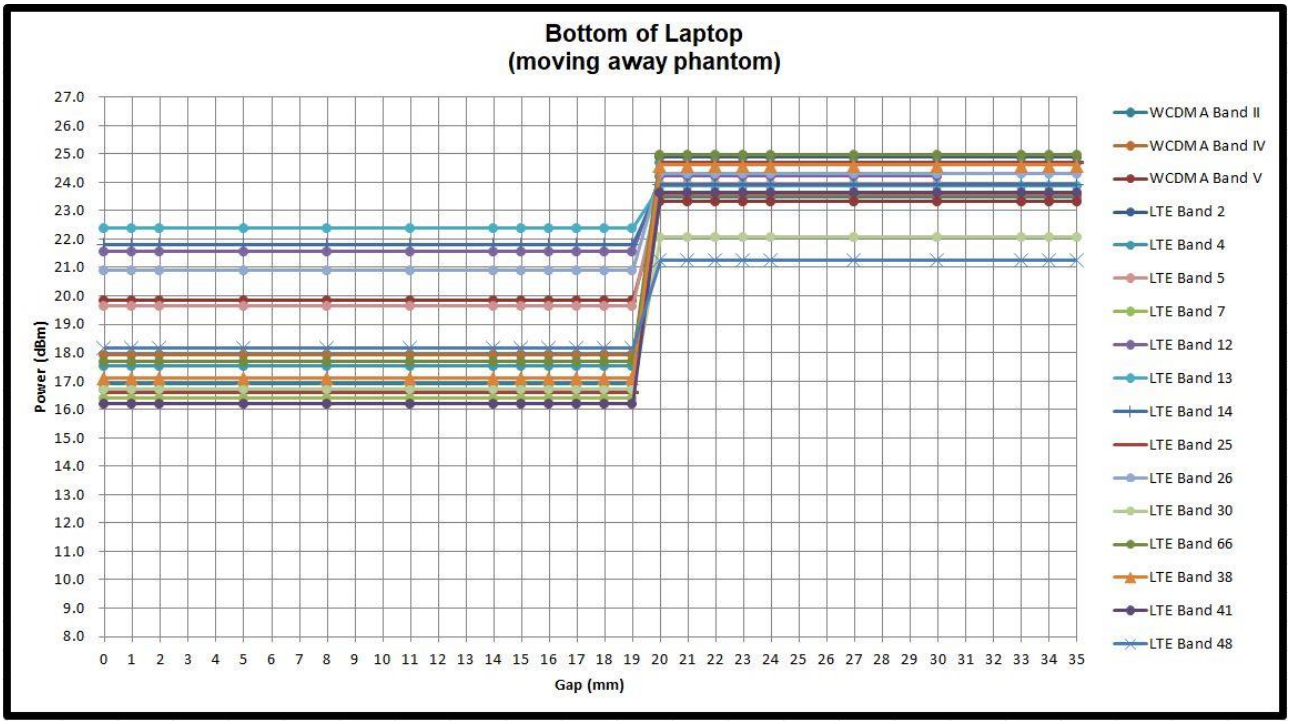
Exposure Position / wireless mode	Bottom of Laptop (1)
WCDMA Band V	5 dB
WCDMA Band II	8 dB
WCDMA Band IV	7 dB
LTE Band 5	4.5 dB
LTE Band 7	8.5 dB
LTE Band 12	3 dB
LTE Band 13	2.5dB
LTE Band 14	3dB
LTE Band 2 / 25	8dB
LTE Band 26	4.5dB
LTE Band 30	5.5dB
LTE Band 38	7.5dB
LTE Band 41	6.5 dB
LTE Band 41_HPUE	9 dB
LTE Band 48	3 dB
LTE Band 4 / 66	7 dB

Remark:

1. (1): Reduced maximum limit applied by activation of proximity sensor.
2. Tests were performed in accordance with KDB 616217 D04 section 6.1, 6.2, 6.3, 6.4 and 6.5 and compliant results are shown as below
3. For verification of compliance of power reduction scheme, additional SAR testing with EUT transmitting at full RF power at a conservative trigger distance was performed:
   - Bottom Face: 15 mm

Power Measurement during Sensor Trigger distance testing





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:

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

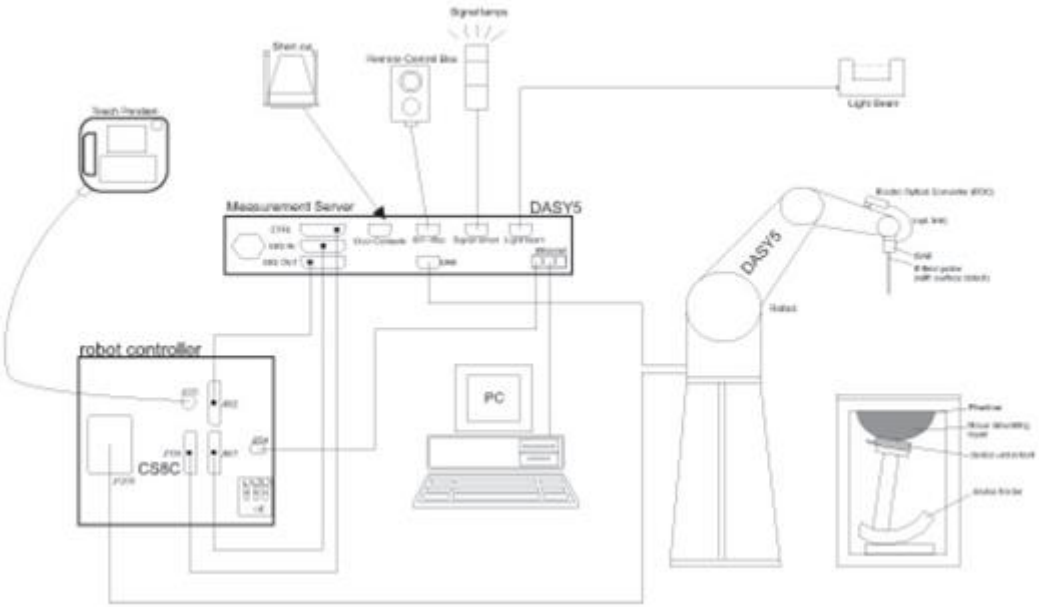
SAR is expressed in units of Watts per kilogram (W/kg)

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

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 Site Location

The SAR measurement facilities used to collect data are within both Sporton Lab list 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 Site	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)

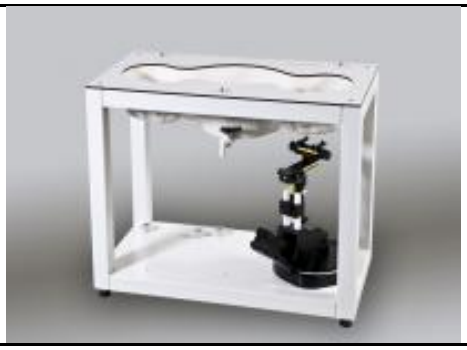
The data acquisition electronics (DAE) consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder and control logic unit. Transmission to the measurement server is accomplished through an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

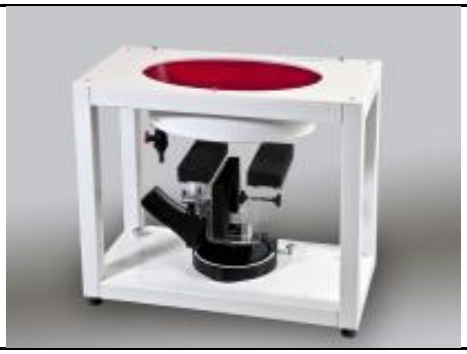
7.4 Phantom

<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	$\leq 1.5 \cdot \Delta z_{Zoom}(n-1)$	
Minimum zoom scan volume	x, y, z		≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm

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(2)	D835V2	499	Sep. 06, 2018	Sep. 03, 2021
SPEAG	1750MHz System Validation Kit(2)	D1750V2	1068	Nov. 19, 2018	Nov. 16, 2021
SPEAG	1900MHz System Validation Kit(2)	D1900V2	5d041	Sep. 11, 2018	Sep. 08, 2021
SPEAG	2300MHz System Validation Kit(2)	D2300V2	1006	Jan. 28, 2019	Jan. 26, 2021
SPEAG	2600MHz System Validation Kit(2)	D2600V2	1008	Aug. 31, 2018	Aug. 28, 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	DAE3	577	Sep. 16, 2020	Sep. 15, 2021
SPEAG	Data Acquisition Electronics	DAE4	1311	Aug. 25, 2020	Aug. 24, 2021
SPEAG	Dosimetric E-Field Probe	EX3DV4	3642	Apr. 29, 2020	Apr. 28, 2021
SPEAG	Dosimetric E-Field Probe	EX3DV4	3931	Oct. 22, 2020	Oct. 21, 2021
RCPTWN	Thermometer	HTC-1	TM685-1	Nov. 10, 2020	Nov. 09, 2021
RCPTWN	Thermometer	HTC-1	TM560-2	Nov. 10, 2020	Nov. 09, 2021
Anritsu	Radio Communication Analyzer	MT8821C	6201341950	Nov. 10, 2020	Nov. 09, 2021
Keysight	Wireless Communication Test Set	E5515C	MY50267236	Mar. 18, 2020	Mar. 17, 2021
SPEAG	Device Holder	N/A	N/A	N/A	N/A
R&S	Signal Generator	SMA100A	101091	Jul. 20, 2020	Jul. 19, 2021
Keysight	ENA Network Analyzer	E5071C	MY46101588	Jun. 10, 2020	Jun. 09, 2021
SPEAG	Dielectric Probe Kit	DAK-3.5	1126	Sep. 16, 2020	Sep. 15, 2021
LINE SEIKI	Digital Thermometer	DTM3000-spezial	3252	Jun. 23, 2020	Jun. 22, 2021
Anritsu	Power Meter	ML2495A	1419002	Aug. 19, 2020	Aug. 18, 2021
Anritsu	Power Sensor	MA2411B	1911176	Aug. 18, 2020	Aug. 17, 2021
Anritsu	Power Meter	ML2495A	1804003	Oct. 21, 2020	Oct. 20, 2021
Anritsu	Power Sensor	MA2411B	1726150	Oct. 21, 2020	Oct. 20, 2021
Anritsu	Spectrum Analyzer	MS2830A	6201396378	Jun. 30, 2020	Jun. 29, 2021
Anritsu	Spectrum Analyzer	N9010A	MY53470118	Mar. 12, 2020	Mar. 11, 2021
Mini-Circuits	Power Amplifier	ZVE-8G+	6418	Oct. 21, 2020	Oct. 20, 2021
Mini-Circuits	Power Amplifier	ZVE-8G+	479102029	Aug. 26, 2020	Aug. 25, 2021
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 Verification

The tissue dielectric parameters of tissue-equivalent media used for SAR measurements must be characterized within a temperature range of 18℃ to 25℃, measured with calibrated instruments and apparatuses, such as network analyzers and temperature probes. The temperature of the tissue-equivalent medium during SAR measurement must also be within 18℃ to 25℃ and within ± 2℃ of the temperature when the tissue parameters are characterized. The tissue dielectric measurement system must be calibrated before use. The dielectric parameters must be measured before the tissue-equivalent medium is used in a series of SAR measurements.
The liquid tissue depth was at least 15cm in the phantom for all SAR testing

<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	22.5	0.891	43.376	0.89	41.90	0.11	3.52	±5	2021/1/13
835	22.5	0.921	42.780	0.90	41.50	2.33	3.08	±5	2021/1/13
1750	22.5	1.362	40.661	1.37	40.10	-0.58	1.40	±5	2020/12/20
1750	22.5	1.390	41.153	1.37	40.10	1.46	2.63	±5	2021/1/12
1900	22.5	1.439	39.113	1.40	40.00	2.79	-2.22	±5	2020/12/19
1900	22.5	1.436	39.110	1.40	40.00	2.57	-2.23	±5	2021/1/12
2300	22.5	1.683	39.425	1.67	39.50	0.78	-0.19	±5	2021/1/14
2600	22.5	2.036	39.946	1.96	39.00	3.88	2.43	±5	2020/12/18
2600	22.5	1.969	38.151	1.96	39.00	0.46	-2.18	±5	2021/1/14
3500	22.6	2.910	37.900	2.91	37.90	0.00	0.00	±5	2021/1/15
3700	22.6	3.119	37.698	3.12	37.70	-0.03	-0.01	±5	2021/1/15

10.2 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 (%)
2021/1/13	750	50	D750V3-1107	EX3DV4 - SN3642	DAE4 Sn1311	0.406	8.32	8.12	-2.40
2021/1/13	835	50	D835V2-499	EX3DV4 - SN3642	DAE4 Sn1311	0.467	9.59	9.34	-2.61
2020/12/20	1750	50	D1750V2-1068	EX3DV4 - SN3931	DAE3 Sn577	1.95	37.10	39	5.12
2021/1/12	1750	50	D1750V2-1068	EX3DV4 - SN3642	DAE4 Sn1311	1.78	37.10	35.6	-4.04
2020/12/19	1900	50	D1900V2-5d041	EX3DV4 - SN3931	DAE3 Sn577	2.19	40.20	43.8	8.96
2021/1/12	1900	50	D1900V2-5d041	EX3DV4 - SN3642	DAE4 Sn1311	1.92	40.20	38.4	-4.48
2021/1/14	2300	250	D2300V2-1006	EX3DV4 - SN3642	DAE4 Sn1311	12.50	48.70	50	2.67
2020/12/18	2600	50	D2600V2-1008	EX3DV4 - SN3931	DAE3 Sn577	2.99	56.40	59.8	6.03
2021/1/14	2600	50	D2600V2-1008	EX3DV4 - SN3642	DAE4 Sn1311	2.69	56.40	53.8	-4.61
2021/1/15	3500	100	D3500V2-1014	EX3DV4 - SN3642	DAE4 Sn1311	6.42	67.90	64.2	-5.45
2021/1/15	3700	100	D3700V2-1006	EX3DV4 - SN3642	DAE4 Sn1311	6.38	67.30	63.8	-5.20

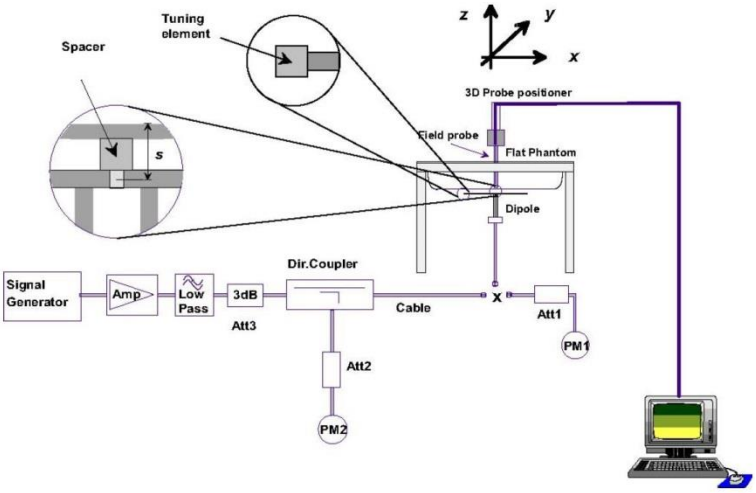


Fig 8.3.1 System Performance Check Setup

Fig 8.3.2 Setup Photo

11. UMTS/CDMA/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 HSPA+ devices supporting 16 QAM in the uplink, power measurements procedure is according to the configurations in Table C.11.1.4 of 3GPP TS 34.121-1.
4. 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	Processes	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.		

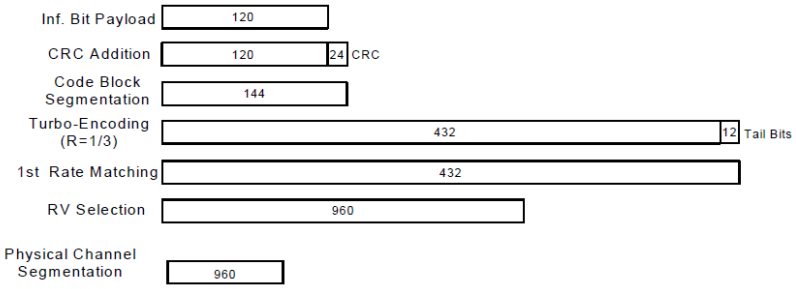


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

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.

Default Power Mode

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	RMC 12.2Kbps	23.54	23.48	23.42	25.00	23.55	23.35	23.42	25.00	23.34	23.38	23.34	25.00
3GPP Rel 6	HSDPA Subtest-1	22.54	22.46	22.39	24.00	22.54	22.34	22.27	24.00	22.19	22.26	22.31	24.00
3GPP Rel 6	HSDPA Subtest-2	22.50	22.46	22.38	24.00	22.46	22.32	22.25	24.00	22.25	22.25	22.31	24.00
3GPP Rel 6	HSDPA Subtest-3	22.04	21.98	21.90	23.50	22.00	21.63	21.79	23.50	21.70	21.71	21.78	23.50
3GPP Rel 6	HSDPA Subtest-4	22.02	21.92	21.85	23.50	21.91	21.65	21.75	23.50	21.65	21.72	21.81	23.50
3GPP Rel 8	DC-HSDPA Subtest-1	23.17	22.83	22.88	24.00	23.20	22.91	22.83	24.00	23.13	22.85	22.89	24.00
3GPP Rel 8	DC-HSDPA Subtest-2	23.12	22.83	22.65	24.00	23.11	22.84	22.68	24.00	23.09	22.79	22.75	24.00
3GPP Rel 8	DC-HSDPA Subtest-3	22.66	22.44	22.30	23.50	22.65	22.46	22.32	23.50	22.69	22.46	22.33	23.50
3GPP Rel 8	DC-HSDPA Subtest-4	22.62	22.55	22.42	23.50	22.60	22.54	22.40	23.50	22.60	22.49	22.48	23.50
3GPP Rel 6	HSUPA Subtest-1	22.42	22.43	22.31	24.00	22.39	22.26	22.31	24.00	22.23	22.27	22.24	24.00
3GPP Rel 6	HSUPA Subtest-2	20.50	20.37	20.31	22.00	20.40	20.23	20.28	22.00	20.25	20.31	20.16	22.00
3GPP Rel 6	HSUPA Subtest-3	21.45	21.44	21.34	23.00	21.45	21.28	21.33	23.00	21.25	21.30	21.22	23.00
3GPP Rel 6	HSUPA Subtest-4	20.48	20.40	20.35	22.00	20.39	20.25	20.35	22.00	20.26	20.30	20.26	22.00
3GPP Rel 6	HSUPA Subtest-5	22.50	22.40	22.30	24.00	22.50	22.30	22.30	24.00	22.20	22.30	22.30	24.00

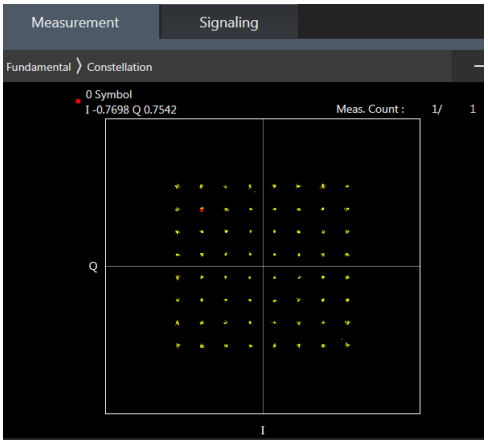
Reduced Power Mode

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	RMC 12.2Kbps	16.88	16.90	16.72	17.00	17.91	17.81	17.88	18.00	19.82	19.83	19.76	20.00
3GPP Rel 6	HSDPA Subtest-1	15.69	15.59	15.57	16.00	16.48	16.38	16.39	17.00	18.22	18.20	18.13	19.00
3GPP Rel 6	HSDPA Subtest-2	15.72	15.61	15.53	16.00	16.52	16.38	16.26	17.00	18.14	18.20	18.25	19.00
3GPP Rel 6	HSDPA Subtest-3	15.27	15.19	15.10	15.50	16.09	15.94	15.93	16.50	17.81	17.96	17.84	18.50
3GPP Rel 6	HSDPA Subtest-4	15.23	15.13	15.12	15.50	15.99	15.93	15.91	16.50	17.77	17.99	17.67	18.50
3GPP Rel 8	DC-HSDPA Subtest-1	15.80	15.85	15.91	16.00	16.54	16.67	16.70	17.00	18.18	18.27	18.19	19.00
3GPP Rel 8	DC-HSDPA Subtest-2	15.77	15.79	15.59	16.00	16.54	16.59	16.36	17.00	18.07	18.20	18.04	19.00
3GPP Rel 8	DC-HSDPA Subtest-3	15.32	15.41	15.25	15.50	16.06	16.17	15.98	16.50	17.74	17.87	17.78	18.50
3GPP Rel 8	DC-HSDPA Subtest-4	15.30	15.39	15.38	15.50	16.11	16.22	16.19	16.50	17.72	17.94	17.83	18.50
3GPP Rel 6	HSUPA Subtest-1	15.36	15.38	15.34	16.00	16.10	16.17	16.07	17.00	18.09	18.17	18.13	19.00
3GPP Rel 6	HSUPA Subtest-2	13.51	13.36	13.27	14.00	14.28	14.19	14.02	15.00	16.37	16.46	16.30	17.00
3GPP Rel 6	HSUPA Subtest-3	14.44	14.46	14.32	15.00	15.19	15.29	15.09	16.00	17.42	17.51	17.21	18.00
3GPP Rel 6	HSUPA Subtest-4	13.45	13.34	13.30	14.00	14.23	14.10	14.10	15.00	16.46	16.51	16.10	17.00
3GPP Rel 6	HSUPA Subtest-5	15.52	15.42	15.31	16.00	16.29	16.21	16.12	17.00	18.18	18.26	18.20	19.00

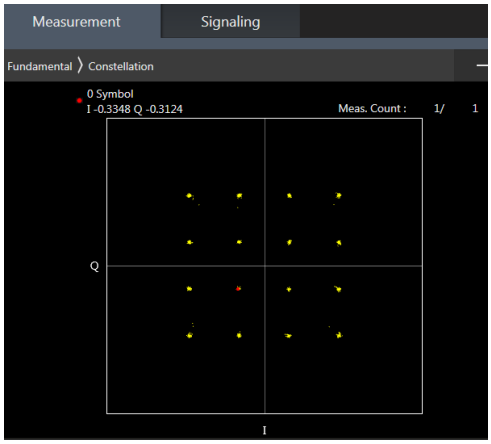
<LTE Conducted Power>

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 B5/B12/B26 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
9. LTE band 2/4 SAR test was covered by Band 25/66; 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

Default Power Mode

<LTE Band 2>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				18700	18900	19100		
Frequency (MHz)				1860	1880	1900		
20	QPSK	1	0	24.92	24.90	24.15	25	0
20	QPSK	1	49	24.76	24.78	24.10		
20	QPSK	1	99	24.71	24.23	24.06		
20	QPSK	50	0	23.99	23.79	23.12	24	1
20	QPSK	50	24	23.88	23.90	23.16		
20	QPSK	50	50	23.59	23.54	23.19		
20	QPSK	100	0	23.69	23.68	23.03		
20	16QAM	1	0	23.90	23.89	23.35	24	1
20	16QAM	1	49	23.75	23.73	23.43		
20	16QAM	1	99	23.94	23.59	23.40		
20	16QAM	50	0	22.82	22.77	22.12	23	2
20	16QAM	50	24	22.88	22.92	22.19		
20	16QAM	50	50	22.60	22.61	22.21		
20	16QAM	100	0	22.69	22.69	22.14		
20	64QAM	1	0	22.38	22.51	21.45	23	2
20	64QAM	1	49	22.64	22.28	21.47		
20	64QAM	1	99	22.80	21.57	21.39		
20	64QAM	50	0	21.44	21.33	20.20	22	3
20	64QAM	50	24	21.58	21.13	20.28		
20	64QAM	50	50	21.53	20.71	20.27		
20	64QAM	100	0	21.38	20.93	20.22		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	24.88	24.86	24.02	25	0
15	QPSK	1	37	24.73	24.76	24.06		
15	QPSK	1	74	24.70	24.15	24.03		
15	QPSK	36	0	23.70	23.78	23.07	24	1
15	QPSK	36	20	23.84	23.88	23.16		
15	QPSK	36	39	23.52	23.49	23.10		
15	QPSK	75	0	23.61	23.59	23.03		
15	16QAM	1	0	23.80	23.87	23.31	24	1
15	16QAM	1	37	23.74	23.67	23.34		
15	16QAM	1	74	23.94	23.51	23.35		
15	16QAM	36	0	22.82	22.67	22.05	23	2
15	16QAM	36	20	22.78	22.82	22.11		
15	16QAM	36	39	22.57	22.54	22.12		
15	16QAM	75	0	22.62	22.66	22.07		
15	64QAM	1	0	22.31	22.44	21.36	23	2
15	64QAM	1	37	22.64	22.23	21.37		
15	64QAM	1	74	22.79	21.53	21.30		
15	64QAM	36	0	21.34	21.23	20.20	22	3
15	64QAM	36	20	21.56	21.06	20.22		
15	64QAM	36	39	21.44	20.67	20.26		
15	64QAM	75	0	21.35	20.93	20.21		
Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	24.84	24.89	24.10	25	0
10	QPSK	1	25	24.66	24.76	24.13		
10	QPSK	1	49	24.62	24.21	24.01		
10	QPSK	25	0	23.69	23.75	23.04	24	1

10	QPSK	25	12	23.83	23.80	23.14		
10	QPSK	25	25	23.57	23.51	23.10		
10	QPSK	50	0	23.62	23.59	22.94		
10	16QAM	1	0	23.85	23.80	23.27	24	1
10	16QAM	1	25	23.71	23.73	23.38		
10	16QAM	1	49	23.88	23.52	23.34		
10	16QAM	25	0	22.81	22.75	22.10	23	2
10	16QAM	25	12	22.81	22.83	22.17		
10	16QAM	25	25	22.53	22.59	22.13		
10	16QAM	50	0	22.64	22.61	22.11		
10	64QAM	1	0	22.29	22.43	21.39	23	2
10	64QAM	1	25	22.63	22.22	21.40		
10	64QAM	1	49	22.80	21.52	21.36		
10	64QAM	25	0	21.35	21.28	20.20	22	3
10	64QAM	25	12	21.48	21.07	20.22		
10	64QAM	25	25	21.52	20.68	20.21		
10	64QAM	50	0	21.36	20.87	20.19		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	24.87	24.82	24.03	25	0
5	QPSK	1	12	24.68	24.71	24.07		
5	QPSK	1	24	24.61	24.13	24.03		
5	QPSK	12	0	23.79	23.74	23.04	24	1
5	QPSK	12	7	23.85	23.84	23.15		
5	QPSK	12	13	23.53	23.51	23.10		
5	QPSK	25	0	23.59	23.67	23.02		
5	16QAM	1	0	23.89	23.87	23.25	24	1
5	16QAM	1	12	23.73	23.71	23.42		
5	16QAM	1	24	23.88	23.54	23.36		
5	16QAM	12	0	22.81	22.73	22.11	23	2
5	16QAM	12	7	22.78	22.85	22.09		
5	16QAM	12	13	22.59	22.57	22.20		
5	16QAM	25	0	22.59	22.68	22.14		
5	64QAM	1	0	22.29	22.44	21.37	23	2
5	64QAM	1	12	22.63	22.21	21.45		
5	64QAM	1	24	22.70	21.52	21.30		
5	64QAM	12	0	21.39	21.24	20.20	22	3
5	64QAM	12	7	21.51	21.13	20.21		
5	64QAM	12	13	21.49	20.64	20.24		
5	64QAM	25	0	21.32	20.87	20.15		
Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	24.85	24.89	24.10	25	0
3	QPSK	1	8	24.67	24.77	24.05		
3	QPSK	1	14	24.68	24.20	23.97		
3	QPSK	8	0	23.69	23.75	23.06	24	1
3	QPSK	8	4	23.85	23.83	23.13		
3	QPSK	8	7	23.59	23.48	23.15		
3	QPSK	15	0	23.60	23.65	22.96		
3	16QAM	1	0	23.87	23.84	23.32	24	1
3	16QAM	1	8	23.72	23.67	23.34		
3	16QAM	1	14	23.91	23.52	23.38		
3	16QAM	8	0	22.76	22.69	22.08	23	2
3	16QAM	8	4	22.86	22.82	22.09		
3	16QAM	8	7	22.55	22.61	22.15		
3	16QAM	15	0	22.60	22.60	22.06		

3	64QAM	1	0	22.34	22.43	21.37	23	2
3	64QAM	1	8	22.55	22.24	21.44		
3	64QAM	1	14	22.75	21.56	21.38		
3	64QAM	8	0	21.41	21.30	20.20	22	3
3	64QAM	8	4	21.58	21.12	20.26		
3	64QAM	8	7	21.44	20.67	20.22		
3	64QAM	15	0	21.34	20.88	20.14		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	24.81	24.88	24.05	25	0
1.4	QPSK	1	3	24.74	24.74	24.13		
1.4	QPSK	1	5	24.71	24.17	24.02		
1.4	QPSK	3	0	24.86	24.88	24.09		
1.4	QPSK	3	1	24.71	24.76	24.12		
1.4	QPSK	3	3	24.62	24.15	23.98		
1.4	QPSK	6	0	23.66	23.68	23.03	24	1
1.4	16QAM	1	0	23.88	23.83	23.28	24	1
1.4	16QAM	1	3	23.72	23.66	23.35		
1.4	16QAM	1	5	23.90	23.59	23.34		
1.4	16QAM	3	0	23.81	23.80	23.32		
1.4	16QAM	3	1	23.70	23.63	23.35		
1.4	16QAM	3	3	23.90	23.56	23.36		
1.4	16QAM	6	0	22.67	22.62	22.08	23	2
1.4	64QAM	1	0	22.31	22.46	21.35	23	2
1.4	64QAM	1	3	22.58	22.23	21.42		
1.4	64QAM	1	5	22.71	21.48	21.30		
1.4	64QAM	3	0	22.37	22.47	21.43		
1.4	64QAM	3	1	22.56	22.25	21.43		
1.4	64QAM	3	3	22.71	21.47	21.37		
1.4	64QAM	6	0	21.38	20.89	20.18	22	3

<LTE Band 4>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20050	20175	20300		
Frequency (MHz)				1720	1732.5	1745		
20	QPSK	1	0	24.74	24.70	24.79	25	0
20	QPSK	1	49	24.32	24.25	24.28		
20	QPSK	1	99	24.23	24.27	24.26		
20	QPSK	50	0	23.93	23.86	23.95	24	1
20	QPSK	50	24	23.92	23.86	23.88		
20	QPSK	50	50	23.70	23.67	23.70		
20	QPSK	100	0	23.78	23.73	23.79		
20	16QAM	1	0	23.75	23.64	23.77	24	1
20	16QAM	1	49	23.96	23.97	23.91		
20	16QAM	1	99	23.59	23.54	23.51		
20	16QAM	50	0	22.81	22.77	22.80	23	2
20	16QAM	50	24	22.92	22.87	22.88		
20	16QAM	50	50	22.69	22.67	22.70		
20	16QAM	100	0	22.81	22.75	22.75		
20	64QAM	1	0	22.70	22.63	22.73	23	2
20	64QAM	1	49	22.94	22.94	22.94		
20	64QAM	1	99	22.51	22.46	22.45		
20	64QAM	50	0	21.87	21.82	21.82	22	3
20	64QAM	50	24	21.94	21.89	21.91		
20	64QAM	50	50	21.74	21.69	21.72		
20	64QAM	100	0	21.80	21.74	21.76		
Channel				20025	20175	20325	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	24.16	24.23	24.18	25	0
15	QPSK	1	37	24.72	24.63	24.70		
15	QPSK	1	74	24.28	24.17	24.21		
15	QPSK	36	0	23.80	23.71	23.77	24	1
15	QPSK	36	20	23.84	23.79	23.88		
15	QPSK	36	39	23.67	23.58	23.66		
15	QPSK	75	0	23.77	23.65	23.73		
15	16QAM	1	0	23.75	23.55	23.74	24	1
15	16QAM	1	37	23.94	23.87	23.83		
15	16QAM	1	74	23.50	23.44	23.48		
15	16QAM	36	0	22.75	22.74	22.78	23	2
15	16QAM	36	20	22.92	22.78	22.88		
15	16QAM	36	39	22.61	22.65	22.62		
15	16QAM	75	0	22.73	22.75	22.66		
15	64QAM	1	0	22.60	22.63	22.70	23	2
15	64QAM	1	37	22.90	22.84	22.93		
15	64QAM	1	74	22.49	22.36	22.35		
15	64QAM	36	0	21.81	21.73	21.76	22	3
15	64QAM	36	20	21.88	21.89	21.90		
15	64QAM	36	39	21.73	21.61	21.72		
15	64QAM	75	0	21.71	21.71	21.66		
Channel				20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	24.20	24.25	24.19	25	0
10	QPSK	1	25	24.71	24.61	24.72		
10	QPSK	1	49	24.31	24.16	24.20		
10	QPSK	25	0	23.75	23.72	23.78	24	1
10	QPSK	25	12	23.84	23.85	23.78		

10	QPSK	25	25	23.66	23.65	23.63		
10	QPSK	50	0	23.75	23.71	23.72		
10	16QAM	1	0	23.69	23.60	23.74	24	1
10	16QAM	1	25	23.95	23.91	23.87		
10	16QAM	1	49	23.54	23.44	23.50		
10	16QAM	25	0	22.72	22.69	22.79	23	2
10	16QAM	25	12	22.84	22.87	22.87		
10	16QAM	25	25	22.69	22.63	22.67		
10	16QAM	50	0	22.78	22.72	22.65		
10	64QAM	1	0	22.70	22.62	22.66	23	2
10	64QAM	1	25	22.94	22.90	22.86		
10	64QAM	1	49	22.44	22.41	22.38		
10	64QAM	25	0	21.79	21.73	21.76	22	3
10	64QAM	25	12	21.93	21.89	21.90		
10	64QAM	25	25	21.69	21.64	21.71		
10	64QAM	50	0	21.80	21.70	21.72		
Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	24.16	24.26	24.22	25	0
5	QPSK	1	12	24.70	24.65	24.74		
5	QPSK	1	24	24.23	24.16	24.23		
5	QPSK	12	0	23.74	23.70	23.70	24	1
5	QPSK	12	7	23.84	23.79	23.82		
5	QPSK	12	13	23.69	23.58	23.62		
5	QPSK	25	0	23.70	23.71	23.79		
5	16QAM	1	0	23.68	23.59	23.77	24	1
5	16QAM	1	12	23.93	23.91	23.86		
5	16QAM	1	24	23.50	23.50	23.45		
5	16QAM	12	0	22.79	22.72	22.80	23	2
5	16QAM	12	7	22.90	22.77	22.83		
5	16QAM	12	13	22.60	22.59	22.63		
5	16QAM	25	0	22.72	22.69	22.71		
5	64QAM	1	0	22.66	22.59	22.64	23	2
5	64QAM	1	12	22.84	22.84	22.89		
5	64QAM	1	24	22.46	22.42	22.42		
5	64QAM	12	0	21.77	21.78	21.76	22	3
5	64QAM	12	7	21.84	21.85	21.84		
5	64QAM	12	13	21.70	21.66	21.72		
5	64QAM	25	0	21.76	21.64	21.66		
Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	24.20	24.27	24.21	25	0
3	QPSK	1	8	24.71	24.64	24.69		
3	QPSK	1	14	24.26	24.17	24.18		
3	QPSK	8	0	23.81	23.66	23.79	24	1
3	QPSK	8	4	23.83	23.76	23.84		
3	QPSK	8	7	23.70	23.64	23.67		
3	QPSK	15	0	23.78	23.72	23.74		
3	16QAM	1	0	23.66	23.57	23.72	24	1
3	16QAM	1	8	23.87	23.91	23.87		
3	16QAM	1	14	23.51	23.49	23.47		
3	16QAM	8	0	22.81	22.67	22.80	23	2
3	16QAM	8	4	22.83	22.80	22.82		
3	16QAM	8	7	22.66	22.64	22.64		
3	16QAM	15	0	22.80	22.74	22.74		
3	64QAM	1	0	22.68	22.61	22.65	23	2

3	64QAM	1	8	22.94	22.86	22.94		
3	64QAM	1	14	22.51	22.44	22.42		
3	64QAM	8	0	21.80	21.73	21.78	22	3
3	64QAM	8	4	21.86	21.82	21.87		
3	64QAM	8	7	21.64	21.65	21.70		
3	64QAM	15	0	21.72	21.70	21.66		
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	24.22	24.20	24.17	25	0
1.4	QPSK	1	3	24.64	24.68	24.78		
1.4	QPSK	1	5	24.30	24.15	24.23		
1.4	QPSK	3	0	24.21	24.19	24.24		
1.4	QPSK	3	1	24.69	24.67	24.70		
1.4	QPSK	3	3	24.31	24.19	24.19		
1.4	QPSK	6	0	23.71	23.66	23.76	24	1
1.4	16QAM	1	0	23.70	23.61	23.73	24	1
1.4	16QAM	1	3	23.93	23.91	23.87		
1.4	16QAM	1	5	23.53	23.52	23.43		
1.4	16QAM	3	0	23.66	23.55	23.70		
1.4	16QAM	3	1	23.86	23.91	23.90		
1.4	16QAM	3	3	23.53	23.52	23.42		
1.4	16QAM	6	0	22.78	22.72	22.65	23	2
1.4	64QAM	1	0	22.66	22.57	22.70	23	2
1.4	64QAM	1	3	22.94	22.90	22.87		
1.4	64QAM	1	5	22.49	22.41	22.38		
1.4	64QAM	3	0	22.62	22.60	22.66		
1.4	64QAM	3	1	22.87	22.93	22.85		
1.4	64QAM	3	3	22.45	22.45	22.41		
1.4	64QAM	6	0	21.75	21.74	21.68	22	3

<LTE Band 5>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20450	20525	20600		
Frequency (MHz)				829	836.5	844		
10	QPSK	1	0	23.95	23.97	23.93	25	0
10	QPSK	1	25	23.93	23.92	23.92		
10	QPSK	1	49	23.93	23.91	23.80		
10	QPSK	25	0	22.83	23.00	22.80	24	1
10	QPSK	25	12	22.75	22.98	22.75		
10	QPSK	25	25	22.69	22.73	22.65		
10	QPSK	50	0	22.72	22.78	22.72		
10	16QAM	1	0	23.18	23.17	23.23	24	1
10	16QAM	1	25	23.18	23.23	23.16		
10	16QAM	1	49	23.15	23.11	23.05		
10	16QAM	25	0	21.76	21.81	21.74	23	2
10	16QAM	25	12	21.96	21.98	21.92		
10	16QAM	25	25	21.70	21.74	21.67		
10	16QAM	50	0	21.75	21.79	21.74		
10	64QAM	1	0	22.22	22.02	22.28	23	2
10	64QAM	1	25	21.88	22.27	21.41		
10	64QAM	1	49	21.92	21.80	21.37		
10	64QAM	25	0	20.82	20.88	20.75	22	3
10	64QAM	25	12	20.98	21.04	20.50		
10	64QAM	25	25	20.72	20.80	20.49		
10	64QAM	50	0	20.79	20.83	20.68		
Channel				20425	20525	20625	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	QPSK	1	0	23.92	23.91	23.87	25	0
5	QPSK	1	12	23.90	23.82	23.92		
5	QPSK	1	24	23.84	23.89	23.72		
5	QPSK	12	0	22.71	22.74	22.63	24	1
5	QPSK	12	7	22.88	22.88	22.86		
5	QPSK	12	13	22.66	22.63	22.61		
5	QPSK	25	0	22.65	22.71	22.72		
5	16QAM	1	0	23.12	23.09	23.22	24	1
5	16QAM	1	12	23.18	23.20	23.06		
5	16QAM	1	24	23.07	23.02	23.00		
5	16QAM	12	0	21.67	21.77	21.67	23	2
5	16QAM	12	7	21.90	21.94	21.87		
5	16QAM	12	13	21.63	21.70	21.57		
5	16QAM	25	0	21.66	21.74	21.65		
5	64QAM	1	0	22.16	21.95	22.18	23	2
5	64QAM	1	12	21.80	22.20	21.37		
5	64QAM	1	24	21.87	21.76	21.35		
5	64QAM	12	0	20.81	20.83	20.67	22	3
5	64QAM	12	7	20.88	20.96	20.47		
5	64QAM	12	13	20.72	20.74	20.41		
5	64QAM	25	0	20.73	20.83	20.64		
Channel				20415	20525	20635	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				825.5	836.5	847.5		
3	QPSK	1	0	23.87	23.92	23.90	25	0
3	QPSK	1	8	23.84	23.89	23.89		
3	QPSK	1	14	23.93	23.91	23.78		
3	QPSK	8	0	22.70	22.80	22.71	24	1
3	QPSK	8	4	22.87	22.95	22.88		

3	QPSK	8	7	22.68	22.69	22.58		
3	QPSK	15	0	22.62	22.78	22.69		
3	16QAM	1	0	23.08	23.15	23.17	24	1
3	16QAM	1	8	23.17	23.13	23.08		
3	16QAM	1	14	23.06	23.08	23.05		
3	16QAM	8	0	21.66	21.78	21.66	23	2
3	16QAM	8	4	21.88	21.93	21.85		
3	16QAM	8	7	21.64	21.65	21.63		
3	16QAM	15	0	21.70	21.71	21.66		
3	64QAM	1	0	22.21	21.93	22.24	23	2
3	64QAM	1	8	21.82	22.19	21.40		
3	64QAM	1	14	21.91	21.78	21.27		
3	64QAM	8	0	20.75	20.81	20.75	22	3
3	64QAM	8	4	20.93	21.00	20.44		
3	64QAM	8	7	20.72	20.75	20.49		
3	64QAM	15	0	20.72	20.79	20.59		
Channel				20407	20525	20643	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				824.7	836.5	848.3		
1.4	QPSK	1	0	23.87	23.88	23.83	25	0
1.4	QPSK	1	3	23.85	23.84	23.91		
1.4	QPSK	1	5	23.90	23.82	23.70		
1.4	QPSK	3	0	23.93	23.90	23.93		
1.4	QPSK	3	1	23.87	23.83	23.83		
1.4	QPSK	3	3	23.91	23.82	23.75		
1.4	QPSK	6	0	22.64	22.78	22.68	24	1
1.4	16QAM	1	0	23.13	23.12	23.14	24	1
1.4	16QAM	1	3	23.13	23.20	23.14		
1.4	16QAM	1	5	23.08	23.11	23.01		
1.4	16QAM	3	0	23.17	23.10	23.15		
1.4	16QAM	3	1	23.08	23.13	23.07		
1.4	16QAM	3	3	23.12	23.10	22.95		
1.4	16QAM	6	0	21.75	21.70	21.71	23	2
1.4	64QAM	1	0	22.17	22.00	22.18	23	2
1.4	64QAM	1	3	21.79	22.27	21.41		
1.4	64QAM	1	5	21.87	21.72	21.34		
1.4	64QAM	3	0	22.12	22.02	22.22		
1.4	64QAM	3	1	21.86	22.27	21.41		
1.4	64QAM	3	3	21.89	21.80	21.28		
1.4	64QAM	6	0	20.70	20.80	20.62	22	3

<LTE Band 7>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20850	21100	21350		
Frequency (MHz)				2510	2535	2560		
20	QPSK	1	0	24.89	24.92	24.85	25	0
20	QPSK	1	49	24.44	24.35	24.65		
20	QPSK	1	99	24.29	24.31	24.44		
20	QPSK	50	0	23.83	23.84	23.74	24	1
20	QPSK	50	24	23.59	23.54	23.50		
20	QPSK	50	50	23.65	23.60	23.51		
20	QPSK	100	0	23.45	23.50	23.42		
20	16QAM	1	0	23.52	23.92	23.54	24	1
20	16QAM	1	49	23.78	23.67	23.94		
20	16QAM	1	99	23.84	23.65	23.91		
20	16QAM	50	0	22.49	22.83	22.86	23	2
20	16QAM	50	24	22.78	22.77	22.74		
20	16QAM	50	50	22.92	22.81	22.67		
20	16QAM	100	0	22.68	22.70	22.63		
20	64QAM	1	0	21.66	22.39	21.94	23	2
20	64QAM	1	49	21.83	21.86	22.28		
20	64QAM	1	99	22.35	21.71	22.62		
20	64QAM	50	0	20.72	21.09	21.14	22	3
20	64QAM	50	24	21.02	20.99	21.05		
20	64QAM	50	50	21.27	21.04	20.92		
20	64QAM	100	0	20.93	20.96	20.84		
Channel				20825	21100	21375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2507.5	2535	2562.5		
15	QPSK	1	0	24.22	24.90	24.35	25	0
15	QPSK	1	37	24.40	24.25	24.61		
15	QPSK	1	74	24.84	24.22	24.85		
15	QPSK	36	0	23.32	23.66	23.68	24	1
15	QPSK	36	20	23.52	23.44	23.47		
15	QPSK	36	39	23.78	23.59	23.47		
15	QPSK	75	0	23.35	23.45	23.39		
15	16QAM	1	0	23.45	23.84	23.50	24	1
15	16QAM	1	37	23.75	23.63	23.94		
15	16QAM	1	74	23.83	23.64	23.88		
15	16QAM	36	0	22.40	22.79	22.76	23	2
15	16QAM	36	20	22.75	22.72	22.67		
15	16QAM	36	39	22.82	22.80	22.67		
15	16QAM	75	0	22.61	22.64	22.62		
15	64QAM	1	0	21.61	22.35	21.86	23	2
15	64QAM	1	37	21.74	21.83	22.21		
15	64QAM	1	74	22.30	21.67	22.55		
15	64QAM	36	0	20.68	21.07	21.05	22	3
15	64QAM	36	20	20.92	20.94	20.95		
15	64QAM	36	39	21.17	20.97	20.88		
15	64QAM	75	0	20.87	20.96	20.82		
Channel				20800	21100	21400	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2505	2535	2565		
10	QPSK	1	0	24.15	24.89	24.43	25	0
10	QPSK	1	25	24.42	24.33	24.63		
10	QPSK	1	49	24.83	24.21	24.85		
10	QPSK	25	0	23.32	23.63	23.68	24	1
10	QPSK	25	12	23.49	23.50	23.44		

10	QPSK	25	25	23.75	23.60	23.51		
10	QPSK	50	0	23.35	23.44	23.40		
10	16QAM	1	0	23.47	23.91	23.52	24	1
10	16QAM	1	25	23.76	23.65	23.88		
10	16QAM	1	49	23.79	23.62	23.82		
10	16QAM	25	0	22.39	22.73	22.85	23	2
10	16QAM	25	12	22.75	22.70	22.67		
10	16QAM	25	25	22.87	22.78	22.59		
10	16QAM	50	0	22.60	22.63	22.59		
10	64QAM	1	0	21.66	22.32	21.90	23	2
10	64QAM	1	25	21.77	21.78	22.25		
10	64QAM	1	49	22.30	21.69	22.56		
10	64QAM	25	0	20.72	21.04	21.13	22	3
10	64QAM	25	12	20.93	20.89	21.01		
10	64QAM	25	25	21.17	20.97	20.88		
10	64QAM	50	0	20.90	20.91	20.82		
Channel				20775	21100	21425	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	QPSK	1	0	24.15	24.89	24.40	25	0
5	QPSK	1	12	24.42	24.33	24.65		
5	QPSK	1	24	24.89	24.25	24.78		
5	QPSK	12	0	23.27	23.59	23.73	24	1
5	QPSK	12	7	23.51	23.53	23.41		
5	QPSK	12	13	23.74	23.57	23.42		
5	QPSK	25	0	23.43	23.50	23.35		
5	16QAM	1	0	23.45	23.87	23.52	24	1
5	16QAM	1	12	23.75	23.57	23.85		
5	16QAM	1	24	23.84	23.58	23.91		
5	16QAM	12	0	22.39	22.79	22.79	23	2
5	16QAM	12	7	22.69	22.68	22.67		
5	16QAM	12	13	22.85	22.80	22.65		
5	16QAM	25	0	22.58	22.60	22.62		
5	64QAM	1	0	21.57	22.35	21.86	23	2
5	64QAM	1	12	21.77	21.76	22.18		
5	64QAM	1	24	22.33	21.65	22.56		
5	64QAM	12	0	20.70	21.08	21.10	22	3
5	64QAM	12	7	21.00	20.92	20.97		
5	64QAM	12	13	21.26	20.94	20.82		
5	64QAM	25	0	20.89	20.89	20.82		

<LTE Band 12>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				23060	23095	23130		
Frequency (MHz)				704	707.5	711		
10	QPSK	1	0	24.21	24.24	24.23	25	0
10	QPSK	1	25	24.19	24.18	24.18		
10	QPSK	1	49	24.13	24.14	24.09		
10	QPSK	25	0	23.12	23.24	23.00	24	1
10	QPSK	25	12	22.86	23.23	23.20		
10	QPSK	25	25	22.86	23.00	22.94		
10	QPSK	50	0	22.85	23.03	22.99		
10	16QAM	1	0	23.05	23.37	23.49	24	1
10	16QAM	1	25	23.44	23.46	23.42		
10	16QAM	1	49	23.49	23.37	23.41		
10	16QAM	25	0	21.91	22.06	21.99	23	2
10	16QAM	25	12	22.23	22.25	22.21		
10	16QAM	25	25	21.99	22.00	21.95		
10	16QAM	50	0	22.03	22.04	22.00		
10	64QAM	1	0	21.23	21.72	22.46	23	2
10	64QAM	1	25	21.72	22.50	22.21		
10	64QAM	1	49	22.46	21.72	22.38		
10	64QAM	25	0	20.07	21.14	21.11	22	3
10	64QAM	25	12	20.82	21.34	20.99		
10	64QAM	25	25	21.05	21.09	20.53		
10	64QAM	50	0	20.91	21.14	21.05		
Channel				23035	23095	23155	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				701.5	707.5	713.5		
5	QPSK	1	0	23.49	24.17	24.10	25	0
5	QPSK	1	12	24.19	24.09	24.14		
5	QPSK	1	24	24.09	24.07	24.09		
5	QPSK	12	0	22.88	23.00	22.93	24	1
5	QPSK	12	7	23.19	23.22	23.15		
5	QPSK	12	13	22.94	22.92	22.90		
5	QPSK	25	0	22.96	23.03	22.89		
5	16QAM	1	0	22.96	23.36	23.45	24	1
5	16QAM	1	12	23.39	23.36	23.39		
5	16QAM	1	24	23.41	23.37	23.31		
5	16QAM	12	0	21.83	21.97	21.94	23	2
5	16QAM	12	7	22.18	22.24	22.15		
5	16QAM	12	13	21.96	22.00	21.91		
5	16QAM	25	0	21.97	21.99	21.90		
5	64QAM	1	0	21.13	21.69	22.46	23	2
5	64QAM	1	12	21.71	22.45	22.20		
5	64QAM	1	24	22.40	21.63	22.33		
5	64QAM	12	0	20.02	21.13	21.07	22	3
5	64QAM	12	7	20.73	21.33	20.99		
5	64QAM	12	13	21.04	20.99	20.46		
5	64QAM	25	0	20.88	21.10	21.01		
Channel				23025	23095	23165	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				700.5	707.5	714.5		
3	QPSK	1	0	23.53	24.15	24.11	25	0
3	QPSK	1	8	24.13	24.13	24.08		
3	QPSK	1	14	24.09	24.05	24.08		
3	QPSK	8	0	22.85	22.99	22.97	24	1
3	QPSK	8	4	23.14	23.13	23.15		

3	QPSK	8	7	22.95	22.96	22.88		
3	QPSK	15	0	22.94	22.99	22.90		
3	16QAM	1	0	22.96	23.29	23.39	24	1
3	16QAM	1	8	23.36	23.43	23.40		
3	16QAM	1	14	23.44	23.37	23.39		
3	16QAM	8	0	21.82	21.99	21.97	23	2
3	16QAM	8	4	22.15	22.24	22.14		
3	16QAM	8	7	21.94	21.95	21.92		
3	16QAM	15	0	22.02	21.97	21.99		
3	64QAM	1	0	21.20	21.63	22.41	23	2
3	64QAM	1	8	21.63	22.49	22.17		
3	64QAM	1	14	22.38	21.72	22.36		
3	64QAM	8	0	20.04	21.06	21.09	22	3
3	64QAM	8	4	20.77	21.24	20.91		
3	64QAM	8	7	20.97	21.06	20.48		
3	64QAM	15	0	20.81	21.12	20.98		
Channel				23017	23095	23173	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				699.7	707.5	715.3		
1.4	QPSK	1	0	23.57	24.18	24.08	25	0
1.4	QPSK	1	3	24.09	24.09	24.17		
1.4	QPSK	1	5	24.11	24.12	23.99		
1.4	QPSK	3	0	23.53	24.14	24.04		
1.4	QPSK	3	1	24.14	24.17	24.08		
1.4	QPSK	3	3	24.03	24.06	24.05		
1.4	QPSK	6	0	22.90	23.01	22.97	24	1
1.4	16QAM	1	0	22.98	23.35	23.48	24	1
1.4	16QAM	1	3	23.43	23.45	23.36		
1.4	16QAM	1	5	23.49	23.37	23.33		
1.4	16QAM	3	0	22.96	23.33	23.44		
1.4	16QAM	3	1	23.44	23.44	23.39		
1.4	16QAM	3	3	23.41	23.37	23.33		
1.4	16QAM	6	0	22.03	21.94	21.90	23	2
1.4	64QAM	1	0	21.20	21.64	22.39	23	2
1.4	64QAM	1	3	21.65	22.46	22.14		
1.4	64QAM	1	5	22.37	21.62	22.33		
1.4	64QAM	3	0	21.17	21.66	22.40		
1.4	64QAM	3	1	21.63	22.43	22.20		
1.4	64QAM	3	3	22.46	21.65	22.38		
1.4	64QAM	6	0	20.89	21.10	21.03	22	3

<LTE Band 13>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				23230				
Frequency (MHz)				782				
10	QPSK	1	0	23.89			25	0
10	QPSK	1	25	23.85				
10	QPSK	1	49	23.85				
10	QPSK	25	0	22.90			24	1
10	QPSK	25	12	22.89				
10	QPSK	25	25	22.62				
10	QPSK	50	0	22.69				
10	16QAM	1	0	23.07			24	1
10	16QAM	1	25	23.18				
10	16QAM	1	49	23.07				
10	16QAM	25	0	21.72			23	2
10	16QAM	25	12	21.90				
10	16QAM	25	25	21.63				
10	16QAM	50	0	21.68				
10	64QAM	1	0	22.11			23	2
10	64QAM	1	25	22.17				
10	64QAM	1	49	22.10				
10	64QAM	25	0	20.78			22	3
10	64QAM	25	12	20.96				
10	64QAM	25	25	20.71				
10	64QAM	50	0	20.76				
Channel				23205	23230	23255	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				779.5	782	784.5		
5	QPSK	1	0	23.85	23.87	23.83	25	0
5	QPSK	1	12	23.83	23.76	23.78		
5	QPSK	1	24	23.75	23.80	23.82		
5	QPSK	12	0	22.81	22.87	22.87	24	1
5	QPSK	12	7	22.83	22.85	22.80		
5	QPSK	12	13	22.52	22.58	22.52		
5	QPSK	25	0	22.61	22.67	22.67		
5	16QAM	1	0	23.00	23.00	23.00	24	1
5	16QAM	1	12	23.18	23.15	23.12		
5	16QAM	1	24	22.98	22.99	23.04		
5	16QAM	12	0	21.71	21.64	21.70	23	2
5	16QAM	12	7	21.89	21.84	21.80		
5	16QAM	12	13	21.54	21.53	21.56		
5	16QAM	25	0	21.67	21.60	21.64		
5	64QAM	1	0	22.04	22.01	22.03	23	2
5	64QAM	1	12	22.17	22.15	22.07		
5	64QAM	1	24	22.04	22.07	22.05		
5	64QAM	12	0	20.78	20.77	20.73	22	3
5	64QAM	12	7	20.89	20.86	20.93		
5	64QAM	12	13	20.61	20.69	20.69		
5	64QAM	25	0	20.69	20.68	20.66		

<LTE Band 14>

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	23.93			25	0
10	QPSK	1	25	23.92				
10	QPSK	1	49	23.81				
10	QPSK	25	0	22.80			24	1
10	QPSK	25	12	22.76				
10	QPSK	25	25	22.71				
10	QPSK	50	0	22.77				
10	16QAM	1	0	23.11			24	1
10	16QAM	1	25	23.12				
10	16QAM	1	49	23.03				
10	16QAM	25	0	21.78			23	2
10	16QAM	25	12	21.94				
10	16QAM	25	25	21.69				
10	16QAM	50	0	21.75				
10	64QAM	1	0	22.17			23	2
10	64QAM	1	25	22.16				
10	64QAM	1	49	22.06				
10	64QAM	25	0	20.85			22	3
10	64QAM	25	12	21.01				
10	64QAM	25	25	20.77				
10	64QAM	50	0	20.82				
Channel				23305	23330	23355	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				790.5	793	795.5		
5	QPSK	1	0	23.91	23.90	23.88	25	0
5	QPSK	1	12	23.82	23.84	23.86		
5	QPSK	1	24	23.74	23.77	23.72		
5	QPSK	12	0	22.78	22.78	22.70	24	1
5	QPSK	12	7	22.75	22.68	22.71		
5	QPSK	12	13	22.69	22.67	22.71		
5	QPSK	25	0	22.71	22.76	22.76		
5	16QAM	1	0	23.05	23.06	23.02	24	1
5	16QAM	1	12	23.02	23.07	23.09		
5	16QAM	1	24	22.96	23.03	22.94		
5	16QAM	12	0	21.69	21.75	21.74	23	2
5	16QAM	12	7	21.88	21.90	21.86		
5	16QAM	12	13	21.64	21.63	21.63		
5	16QAM	25	0	21.66	21.70	21.69		
5	64QAM	1	0	22.09	22.09	22.17	23	2
5	64QAM	1	12	22.07	22.10	22.08		
5	64QAM	1	24	22.05	22.00	22.06		
5	64QAM	12	0	20.75	20.83	20.80	22	3
5	64QAM	12	7	20.99	20.91	21.00		
5	64QAM	12	13	20.74	20.67	20.67		
5	64QAM	25	0	20.74	20.73	20.81		

<LTE Band 25>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				26140	26340	26590		
Frequency (MHz)				1860	1880	1905		
20	QPSK	1	0	24.71	24.86	24.78	25	0
20	QPSK	1	49	24.28	24.79	24.65		
20	QPSK	1	99	24.23	24.64	24.62		
20	QPSK	50	0	23.81	23.91	23.73	24	1
20	QPSK	50	24	23.88	23.90	23.82		
20	QPSK	50	50	23.67	23.71	23.64		
20	QPSK	100	0	23.75	23.78	23.71		
20	16QAM	1	0	23.79	23.91	23.91	24	1
20	16QAM	1	49	23.98	23.99	23.94		
20	16QAM	1	99	23.51	23.93	23.87		
20	16QAM	50	0	22.80	22.84	22.56	23	2
20	16QAM	50	24	22.88	22.90	22.53		
20	16QAM	50	50	22.69	22.71	22.67		
20	16QAM	100	0	22.76	22.76	22.72		
20	64QAM	1	0	22.75	22.97	22.87	23	2
20	64QAM	1	49	22.92	23.00	22.81		
20	64QAM	1	99	22.45	22.88	22.27		
20	64QAM	50	0	21.86	21.87	21.80	22	3
20	64QAM	50	24	21.93	21.96	21.75		
20	64QAM	50	50	21.73	21.77	21.48		
20	64QAM	100	0	21.77	21.78	21.47		
Channel				26115	26340	26615	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1907.5		
15	QPSK	1	0	24.39	24.80	24.71	25	0
15	QPSK	1	37	24.62	24.70	24.58		
15	QPSK	1	74	24.16	24.61	24.59		
15	QPSK	36	0	23.72	23.78	23.68	24	1
15	QPSK	36	20	23.84	23.87	23.73		
15	QPSK	36	39	23.60	23.67	23.59		
15	QPSK	75	0	23.67	23.68	23.64		
15	16QAM	1	0	23.73	23.86	23.86	24	1
15	16QAM	1	37	23.98	23.89	23.94		
15	16QAM	1	74	23.48	23.91	23.79		
15	16QAM	36	0	22.76	22.82	22.54	23	2
15	16QAM	36	20	22.87	22.86	22.45		
15	16QAM	36	39	22.69	22.71	22.65		
15	16QAM	75	0	22.67	22.72	22.62		
15	64QAM	1	0	22.69	22.89	22.82	23	2
15	64QAM	1	37	22.92	22.95	22.73		
15	64QAM	1	74	22.42	22.81	22.19		
15	64QAM	36	0	21.79	21.78	21.80	22	3
15	64QAM	36	20	21.89	21.86	21.74		
15	64QAM	36	39	21.63	21.73	21.38		
15	64QAM	75	0	21.75	21.68	21.40		
Channel				26090	26340	26640	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1910		
10	QPSK	1	0	24.42	24.81	24.68	25	0
10	QPSK	1	25	24.64	24.73	24.62		
10	QPSK	1	49	24.21	24.64	24.59		
10	QPSK	25	0	23.71	23.79	23.67	24	1
10	QPSK	25	12	23.82	23.83	23.82		

10	QPSK	25	25	23.60	23.66	23.60		
10	QPSK	50	0	23.68	23.70	23.63		
10	16QAM	1	0	23.76	23.87	23.90	24	1
10	16QAM	1	25	23.92	23.99	23.92		
10	16QAM	1	49	23.41	23.93	23.87		
10	16QAM	25	0	22.77	22.83	22.56	23	2
10	16QAM	25	12	22.85	22.90	22.43		
10	16QAM	25	25	22.59	22.66	22.62		
10	16QAM	50	0	22.70	22.71	22.70		
10	64QAM	1	0	22.71	22.89	22.82	23	2
10	64QAM	1	25	22.89	22.97	22.74		
10	64QAM	1	49	22.44	22.81	22.18		
10	64QAM	25	0	21.78	21.81	21.71	22	3
10	64QAM	25	12	21.88	21.91	21.73		
10	64QAM	25	25	21.69	21.71	21.48		
10	64QAM	50	0	21.73	21.72	21.46		
Channel				26065	26340	26665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1912.5		
5	QPSK	1	0	24.40	24.76	24.70	25	0
5	QPSK	1	12	24.69	24.72	24.61		
5	QPSK	1	24	24.20	24.59	24.61		
5	QPSK	12	0	23.76	23.81	23.69	24	1
5	QPSK	12	7	23.88	23.82	23.80		
5	QPSK	12	13	23.64	23.71	23.60		
5	QPSK	25	0	23.68	23.68	23.71		
5	16QAM	1	0	23.76	23.87	23.86	24	1
5	16QAM	1	12	23.96	23.91	23.87		
5	16QAM	1	24	23.50	23.91	23.81		
5	16QAM	12	0	22.77	22.76	22.50	23	2
5	16QAM	12	7	22.81	22.86	22.44		
5	16QAM	12	13	22.63	22.69	22.57		
5	16QAM	25	0	22.67	22.67	22.62		
5	64QAM	1	0	22.73	22.95	22.86	23	2
5	64QAM	1	12	22.88	22.98	22.79		
5	64QAM	1	24	22.45	22.81	22.23		
5	64QAM	12	0	21.79	21.87	21.79	22	3
5	64QAM	12	7	21.86	21.91	21.68		
5	64QAM	12	13	21.72	21.75	21.47		
5	64QAM	25	0	21.69	21.75	21.47		
Channel				26055	26340	26675	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1913.5		
3	QPSK	1	0	24.42	24.76	24.73	25	0
3	QPSK	1	8	24.68	24.70	24.65		
3	QPSK	1	14	24.22	24.60	24.62		
3	QPSK	8	0	23.81	23.73	23.64	24	1
3	QPSK	8	4	23.86	23.83	23.74		
3	QPSK	8	7	23.63	23.69	23.54		
3	QPSK	15	0	23.75	23.70	23.61		
3	16QAM	1	0	23.77	23.91	23.84	24	1
3	16QAM	1	8	23.89	23.90	23.93		
3	16QAM	1	14	23.45	23.92	23.83		
3	16QAM	8	0	22.80	22.75	22.50	23	2
3	16QAM	8	4	22.78	22.90	22.46		
3	16QAM	8	7	22.61	22.70	22.58		
3	16QAM	15	0	22.66	22.70	22.68		
3	64QAM	1	0	22.67	22.93	22.80	23	2

3	64QAM	1	8	22.90	22.98	22.77		
3	64QAM	1	14	22.41	22.84	22.20		
3	64QAM	8	0	21.86	21.83	21.79	22	3
3	64QAM	8	4	21.84	21.89	21.70		
3	64QAM	8	7	21.73	21.75	21.48		
3	64QAM	15	0	21.70	21.77	21.38		
Channel				26047	26340	26683	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1914.3		
1.4	QPSK	1	0	24.48	24.80	24.69	25	0
1.4	QPSK	1	3	24.64	24.79	24.64		
1.4	QPSK	1	5	24.19	24.55	24.58		
1.4	QPSK	3	0	24.41	24.76	24.76		
1.4	QPSK	3	1	24.71	24.73	24.56		
1.4	QPSK	3	3	24.21	24.60	24.61		
1.4	QPSK	6	0	23.71	23.70	23.63	24	1
1.4	16QAM	1	0	23.72	23.81	23.85	24	1
1.4	16QAM	1	3	23.93	23.97	23.93		
1.4	16QAM	1	5	23.47	23.89	23.82		
1.4	16QAM	3	0	23.75	23.84	23.90		
1.4	16QAM	3	1	23.97	23.90	23.94		
1.4	16QAM	3	3	23.47	23.90	23.82		
1.4	16QAM	6	0	22.67	22.76	22.68	23	2
1.4	64QAM	1	0	22.74	22.93	22.78	23	2
1.4	64QAM	1	3	22.92	22.97	22.79		
1.4	64QAM	1	5	22.44	22.80	22.21		
1.4	64QAM	3	0	22.75	22.96	22.84		
1.4	64QAM	3	1	22.89	22.94	22.79		
1.4	64QAM	3	3	22.42	22.88	22.26		
1.4	64QAM	6	0	21.71	21.75	21.44	22	3

<LTE Band 26>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				26765	26865	26965		
Frequency (MHz)				821.5	831.5	841.5		
15	QPSK	1	0	24.25	24.31	24.28	25	0
15	QPSK	1	37	24.21	24.30	24.27		
15	QPSK	1	74	24.24	24.26	24.13		
15	QPSK	36	0	23.40	23.45	23.30	24	1
15	QPSK	36	20	23.37	23.42	23.27		
15	QPSK	36	39	23.17	23.22	23.17		
15	QPSK	75	0	23.23	23.26	23.25		
15	16QAM	1	0	23.51	23.56	23.52	24	1
15	16QAM	1	37	23.53	23.56	23.49		
15	16QAM	1	74	23.55	23.55	23.38		
15	16QAM	36	0	22.30	22.37	22.33	23	2
15	16QAM	36	20	22.38	22.43	22.39		
15	16QAM	36	39	22.20	22.23	22.16		
15	16QAM	75	0	22.23	22.29	22.26		
15	64QAM	1	0	22.19	22.54	22.52	23	2
15	64QAM	1	37	22.48	21.96	22.35		
15	64QAM	1	74	21.95	22.39	22.13		
15	64QAM	36	0	20.80	20.75	21.28	22	3
15	64QAM	36	20	21.41	20.64	20.82		
15	64QAM	36	39	21.22	21.10	20.58		
15	64QAM	75	0	21.26	21.04	20.75		
Channel				26740	26865	26990	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				819	831.5	844		
10	QPSK	1	0	24.23	24.29	24.26	25	0
10	QPSK	1	25	24.11	24.24	24.26		
10	QPSK	1	49	24.24	24.25	24.09		
10	QPSK	25	0	23.40	23.36	23.22	24	1
10	QPSK	25	12	23.33	23.38	23.21		
10	QPSK	25	25	23.09	23.18	23.16		
10	QPSK	50	0	23.14	23.19	23.22		
10	16QAM	1	0	23.42	23.55	23.46	24	1
10	16QAM	1	25	23.49	23.55	23.45		
10	16QAM	1	49	23.46	23.46	23.38		
10	16QAM	25	0	22.21	22.36	22.24	23	2
10	16QAM	25	12	22.36	22.38	22.38		
10	16QAM	25	25	22.13	22.18	22.09		
10	16QAM	50	0	22.19	22.21	22.21		
10	64QAM	1	0	22.18	22.50	22.45	23	2
10	64QAM	1	25	22.41	21.93	22.29		
10	64QAM	1	49	21.94	22.31	22.06		
10	64QAM	25	0	20.70	20.72	21.18	22	3
10	64QAM	25	12	21.41	20.58	20.74		
10	64QAM	25	25	21.14	21.01	20.48		
10	64QAM	50	0	21.24	20.96	20.75		
Channel				26715	26865	27015	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				816.5	831.5	846.5		
5	QPSK	1	0	24.19	24.25	24.20	25	0
5	QPSK	1	12	24.20	24.20	24.26		
5	QPSK	1	24	24.21	24.17	24.06		
5	QPSK	12	0	23.35	23.45	23.27	24	1
5	QPSK	12	7	23.33	23.34	23.17		
5	QPSK	12	13	23.17	23.13	23.07		
5	QPSK	25	0	23.13	23.21	23.16		
5	16QAM	1	0	23.47	23.55	23.47	24	1
5	16QAM	1	12	23.48	23.52	23.43		

5	16QAM	1	24	23.53	23.45	23.29		
5	16QAM	12	0	22.20	22.37	22.26	23	2
5	16QAM	12	7	22.30	22.38	22.36		
5	16QAM	12	13	22.16	22.22	22.07		
5	16QAM	25	0	22.19	22.24	22.24		
5	64QAM	1	0	22.11	22.47	22.48	23	2
5	64QAM	1	12	22.45	21.94	22.28		
5	64QAM	1	24	21.93	22.33	22.10		
5	64QAM	12	0	20.70	20.70	21.18	22	3
5	64QAM	12	7	21.33	20.60	20.78		
5	64QAM	12	13	21.17	21.07	20.56		
5	64QAM	25	0	21.24	20.98	20.74		
Channel				26705	26865	27025	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				815.5	831.5	847.5		
3	QPSK	1	0	24.23	24.27	24.25	25	0
3	QPSK	1	8	24.21	24.20	24.24		
3	QPSK	1	14	24.16	24.25	24.06		
3	QPSK	8	0	23.36	23.45	23.30	24	1
3	QPSK	8	4	23.31	23.32	23.18		
3	QPSK	8	7	23.15	23.12	23.11		
3	QPSK	15	0	23.17	23.23	23.16		
3	16QAM	1	0	23.41	23.46	23.45	24	1
3	16QAM	1	8	23.43	23.49	23.44		
3	16QAM	1	14	23.52	23.54	23.37		
3	16QAM	8	0	22.30	22.34	22.31	23	2
3	16QAM	8	4	22.32	22.34	22.35		
3	16QAM	8	7	22.16	22.13	22.08		
3	16QAM	15	0	22.22	22.19	22.25		
3	64QAM	1	0	22.09	22.51	22.50	23	2
3	64QAM	1	8	22.41	21.87	22.34		
3	64QAM	1	14	21.88	22.39	22.10		
3	64QAM	8	0	20.80	20.66	21.23	22	3
3	64QAM	8	4	21.31	20.63	20.73		
3	64QAM	8	7	21.21	21.08	20.50		
3	64QAM	15	0	21.19	21.03	20.74		
Channel				26697	26865	27033	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				814.7	831.5	848.3		
1.4	QPSK	1	0	24.22	24.26	24.27	25	0
1.4	QPSK	1	3	24.13	24.20	24.21		
1.4	QPSK	1	5	24.14	24.17	24.06		
1.4	QPSK	3	0	24.24	24.26	24.27		
1.4	QPSK	3	1	24.16	24.21	24.21		
1.4	QPSK	3	3	24.15	24.20	24.07		
1.4	QPSK	6	0	23.19	23.16	23.15	24	1
1.4	16QAM	1	0	23.48	23.46	23.46	24	1
1.4	16QAM	1	3	23.49	23.52	23.44		
1.4	16QAM	1	5	23.51	23.49	23.32		
1.4	16QAM	3	0	23.48	23.52	23.43		
1.4	16QAM	3	1	23.44	23.47	23.41		
1.4	16QAM	3	3	23.53	23.54	23.29		
1.4	16QAM	6	0	22.19	22.27	22.18	23	2
1.4	64QAM	1	0	22.13	22.53	22.45	23	2
1.4	64QAM	1	3	22.41	21.89	22.30		
1.4	64QAM	1	5	21.88	22.39	22.08		
1.4	64QAM	3	0	22.12	22.45	22.43		
1.4	64QAM	3	1	22.44	21.95	22.27		
1.4	64QAM	3	3	21.93	22.35	22.09		
1.4	64QAM	6	0	21.25	20.99	20.71	22	3

<LTE Band 30>

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				27710				
Frequency (MHz)				2310				
10	QPSK	1	0	22.08			23	0
10	QPSK	1	25	22.00				
10	QPSK	1	49	21.96				
10	QPSK	25	0	21.09			22	1
10	QPSK	25	12	21.04				
10	QPSK	25	25	21.00				
10	QPSK	50	0	20.99				
10	16QAM	1	0	21.05			22	1
10	16QAM	1	25	21.22				
10	16QAM	1	49	21.17				
10	16QAM	25	0	19.98			21	2
10	16QAM	25	12	20.03				
10	16QAM	25	25	20.01				
10	16QAM	50	0	20.03				
10	64QAM	1	0	20.01			21	2
10	64QAM	1	25	20.20				
10	64QAM	1	49	20.20				
10	64QAM	25	0	19.01			20	3
10	64QAM	25	12	19.06				
10	64QAM	25	25	19.05				
10	64QAM	50	0	19.05				
Channel				27685	27710	27735	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2307.5	2310	2312.5		
5	QPSK	1	0	22.00	22.07	22.06	23	0
5	QPSK	1	12	21.92	21.93	21.84		
5	QPSK	1	24	21.84	21.88	21.85		
5	QPSK	12	0	20.95	20.99	20.89	22	1
5	QPSK	12	7	20.95	20.96	20.87		
5	QPSK	12	13	20.88	20.94	20.92		
5	QPSK	25	0	20.88	20.93	20.85		
5	16QAM	1	0	21.03	21.04	21.00	22	1
5	16QAM	1	12	21.06	21.14	21.10		
5	16QAM	1	24	21.08	21.14	21.07		
5	16QAM	12	0	19.91	19.96	19.90	21	2
5	16QAM	12	7	19.92	19.99	19.97		
5	16QAM	12	13	19.85	19.93	19.93		
5	16QAM	25	0	19.99	20.00	19.99		
5	64QAM	1	0	19.93	19.95	19.93	21	2
5	64QAM	1	12	20.07	20.11	20.11		
5	64QAM	1	24	20.04	20.11	20.04		
5	64QAM	12	0	18.93	18.96	18.87	20	3
5	64QAM	12	7	18.95	19.02	18.94		
5	64QAM	12	13	18.96	19.02	18.95		
5	64QAM	25	0	18.95	19.04	18.99		

<LTE Band 66>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				132072	132322	132572		
Frequency (MHz)				1720	1745	1770		
20	QPSK	1	0	24.89	24.85	24.96	25	0
20	QPSK	1	49	24.65	24.63	24.89		
20	QPSK	1	99	24.49	24.43	24.69		
20	QPSK	50	0	23.71	23.71	23.92	24	1
20	QPSK	50	24	23.83	23.80	23.91		
20	QPSK	50	50	23.63	23.61	23.70		
20	QPSK	100	0	23.70	23.67	23.77		
20	16QAM	1	0	23.63	23.65	23.79	24	1
20	16QAM	1	49	23.93	23.89	23.98		
20	16QAM	1	99	23.47	23.42	23.75		
20	16QAM	50	0	22.75	22.73	22.82	23	2
20	16QAM	50	24	22.82	22.81	22.89		
20	16QAM	50	50	22.64	22.62	22.68		
20	16QAM	100	0	22.70	22.69	22.77		
20	64QAM	1	0	22.58	22.66	22.82	23	2
20	64QAM	1	49	22.83	22.80	22.54		
20	64QAM	1	99	22.41	22.31	22.22		
20	64QAM	50	0	21.79	21.73	21.84	22	3
20	64QAM	50	24	21.85	21.82	21.67		
20	64QAM	50	50	21.67	21.64	21.15		
20	64QAM	100	0	21.69	21.67	21.51		
Channel				132047	132322	132597	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1745	1772.5		
15	QPSK	1	0	24.58	24.55	24.86	25	0
15	QPSK	1	37	24.81	24.78	24.84		
15	QPSK	1	74	24.39	24.43	24.69		
15	QPSK	36	0	23.70	23.63	23.76	24	1
15	QPSK	36	20	23.75	23.70	23.85		
15	QPSK	36	39	23.54	23.55	23.68		
15	QPSK	75	0	23.64	23.62	23.73		
15	16QAM	1	0	23.62	23.55	23.78	24	1
15	16QAM	1	37	23.86	23.89	23.95		
15	16QAM	1	74	23.43	23.42	23.71		
15	16QAM	36	0	22.67	22.63	22.82	23	2
15	16QAM	36	20	22.76	22.77	22.83		
15	16QAM	36	39	22.62	22.58	22.61		
15	16QAM	75	0	22.64	22.65	22.71		
15	64QAM	1	0	22.58	22.62	22.75	23	2
15	64QAM	1	37	22.78	22.79	22.52		
15	64QAM	1	74	22.33	22.25	22.12		
15	64QAM	36	0	21.79	21.66	21.76	22	3
15	64QAM	36	20	21.78	21.78	21.57		
15	64QAM	36	39	21.59	21.55	21.12		
15	64QAM	75	0	21.60	21.61	21.43		
Channel				132022	132322	132622	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1745	1775		
10	QPSK	1	0	24.56	24.60	24.88	25	0
10	QPSK	1	25	24.88	24.77	24.81		
10	QPSK	1	49	24.42	24.37	24.67		
10	QPSK	25	0	23.69	23.66	23.76	24	1
10	QPSK	25	12	23.78	23.70	23.88		

10	QPSK	25	25	23.56	23.55	23.69		
10	QPSK	50	0	23.61	23.62	23.72		
10	16QAM	1	0	23.58	23.55	23.74	24	1
10	16QAM	1	25	23.89	23.80	23.91		
10	16QAM	1	49	23.37	23.32	23.66		
10	16QAM	25	0	22.75	22.73	22.77	23	2
10	16QAM	25	12	22.74	22.72	22.88		
10	16QAM	25	25	22.60	22.56	22.66		
10	16QAM	50	0	22.65	22.67	22.77		
10	64QAM	1	0	22.56	22.58	22.81	23	2
10	64QAM	1	25	22.77	22.80	22.49		
10	64QAM	1	49	22.39	22.29	22.19		
10	64QAM	25	0	21.69	21.71	21.82	22	3
10	64QAM	25	12	21.84	21.73	21.60		
10	64QAM	25	25	21.65	21.55	21.13		
10	64QAM	50	0	21.62	21.60	21.50		
Channel				131997	132322	132647	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1745	1777.5		
5	QPSK	1	0	24.57	24.53	24.85	25	0
5	QPSK	1	12	24.79	24.85	24.80		
5	QPSK	1	24	24.40	24.42	24.61		
5	QPSK	12	0	23.67	23.63	23.78	24	1
5	QPSK	12	7	23.76	23.70	23.85		
5	QPSK	12	13	23.57	23.53	23.61		
5	QPSK	25	0	23.61	23.58	23.74		
5	16QAM	1	0	23.56	23.64	23.78	24	1
5	16QAM	1	12	23.92	23.86	23.91		
5	16QAM	1	24	23.43	23.35	23.72		
5	16QAM	12	0	22.65	22.70	22.76	23	2
5	16QAM	12	7	22.78	22.79	22.86		
5	16QAM	12	13	22.61	22.59	22.60		
5	16QAM	25	0	22.67	22.60	22.67		
5	64QAM	1	0	22.48	22.58	22.75	23	2
5	64QAM	1	12	22.80	22.74	22.46		
5	64QAM	1	24	22.37	22.31	22.14		
5	64QAM	12	0	21.72	21.67	21.79	22	3
5	64QAM	12	7	21.82	21.80	21.66		
5	64QAM	12	13	21.65	21.55	21.12		
5	64QAM	25	0	21.67	21.66	21.49		
Channel				131987	132322	132657	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1745	1778.5		
3	QPSK	1	0	24.61	24.61	24.87	25	0
3	QPSK	1	8	24.79	24.79	24.79		
3	QPSK	1	14	24.41	24.34	24.67		
3	QPSK	8	0	23.63	23.68	23.77	24	1
3	QPSK	8	4	23.81	23.74	23.83		
3	QPSK	8	7	23.60	23.61	23.62		
3	QPSK	15	0	23.70	23.61	23.76		
3	16QAM	1	0	23.60	23.56	23.78	24	1
3	16QAM	1	8	23.93	23.79	23.94		
3	16QAM	1	14	23.39	23.38	23.65		
3	16QAM	8	0	22.69	22.69	22.75	23	2
3	16QAM	8	4	22.82	22.75	22.81		
3	16QAM	8	7	22.59	22.53	22.68		
3	16QAM	15	0	22.67	22.68	22.67		
3	64QAM	1	0	22.51	22.56	22.74	23	2

3	64QAM	1	8	22.83	22.73	22.47		
3	64QAM	1	14	22.32	22.23	22.17		
3	64QAM	8	0	21.77	21.64	21.81	22	3
3	64QAM	8	4	21.83	21.78	21.58		
3	64QAM	8	7	21.66	21.55	21.10		
3	64QAM	15	0	21.63	21.59	21.51		
Channel				131979	132322	132665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1745	1779.3		
1.4	QPSK	1	0	24.55	24.59	24.87	25	0
1.4	QPSK	1	3	24.79	24.79	24.87		
1.4	QPSK	1	5	24.41	24.38	24.63		
1.4	QPSK	3	0	24.64	24.55	24.85		
1.4	QPSK	3	1	24.89	24.76	24.87		
1.4	QPSK	3	3	24.43	24.35	24.66		
1.4	QPSK	6	0	23.69	23.62	23.76	24	1
1.4	16QAM	1	0	23.56	23.55	23.73	24	1
1.4	16QAM	1	3	23.91	23.86	23.92		
1.4	16QAM	1	5	23.44	23.37	23.69		
1.4	16QAM	3	0	23.55	23.57	23.78		
1.4	16QAM	3	1	23.91	23.84	23.92		
1.4	16QAM	3	3	23.47	23.42	23.65		
1.4	16QAM	6	0	22.67	22.62	22.75	23	2
1.4	64QAM	1	0	22.48	22.59	22.79	23	2
1.4	64QAM	1	3	22.73	22.70	22.50		
1.4	64QAM	1	5	22.38	22.27	22.19		
1.4	64QAM	3	0	22.56	22.65	22.82		
1.4	64QAM	3	1	22.76	22.77	22.52		
1.4	64QAM	3	3	22.32	22.22	22.22		
1.4	64QAM	6	0	21.66	21.58	21.51	22	3

Reduced Power Mode

<LTE Band 2>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				18700	18900	19100		
Frequency (MHz)				1860	1880	1900		
20	QPSK	1	0	16.69	16.73	16.62	17	0
20	QPSK	1	49	16.40	16.50	16.41		
20	QPSK	1	99	16.37	16.37	16.28		
20	QPSK	50	0	16.35	16.44	16.38	17	0
20	QPSK	50	24	16.38	16.37	16.30		
20	QPSK	50	50	16.22	16.36	16.24		
20	QPSK	100	0	16.35	16.36	16.30		
20	16QAM	1	0	16.38	16.24	16.35	17	0
20	16QAM	1	49	16.23	16.28	16.23		
20	16QAM	1	99	16.11	16.17	16.04		
20	16QAM	50	0	16.20	16.23	16.17	17	0
20	16QAM	50	24	15.96	16.03	15.96		
20	16QAM	50	50	15.95	16.04	15.88		
20	16QAM	100	0	16.07	16.13	16.07		
20	64QAM	1	0	16.29	16.35	16.34	17	0
20	64QAM	1	49	16.25	16.30	16.22		
20	64QAM	1	99	16.10	16.20	16.08		
20	64QAM	50	0	16.23	16.25	16.18	17	0
20	64QAM	50	24	15.96	15.98	15.98		
20	64QAM	50	50	16.04	16.13	15.99		
20	64QAM	100	0	16.28	16.34	16.35		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	16.72	16.67	16.63	17	0
15	QPSK	1	37	16.37	16.52	16.44		
15	QPSK	1	74	16.33	16.37	16.25		
15	QPSK	36	0	16.33	16.45	16.37	17	0
15	QPSK	36	20	16.32	16.34	16.32		
15	QPSK	36	39	16.15	16.34	16.26		
15	QPSK	75	0	16.38	16.33	16.30		
15	16QAM	1	0	16.33	16.26	16.35	17	0
15	16QAM	1	37	16.25	16.31	16.22		
15	16QAM	1	74	16.07	16.18	16.06		
15	16QAM	36	0	16.23	16.20	16.20	17	0
15	16QAM	36	20	15.91	15.99	15.92		
15	16QAM	36	39	15.89	15.99	15.83		
15	16QAM	75	0	16.07	16.08	16.02		
15	64QAM	1	0	16.28	16.33	16.32	17	0
15	64QAM	1	37	16.26	16.31	16.18		
15	64QAM	1	74	16.03	16.13	16.11		
15	64QAM	36	0	16.22	16.25	16.12	17	0
15	64QAM	36	20	15.98	16.01	15.98		
15	64QAM	36	39	16.05	16.12	15.95		
15	64QAM	75	0	16.25	16.33	16.30		
Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	16.70	16.62	16.65	17	0
10	QPSK	1	25	16.36	16.47	16.42		
10	QPSK	1	49	16.33	16.31	16.18		
10	QPSK	25	0	16.28	16.45	16.39	17	0

10	QPSK	25	12	16.27	16.30	16.27		
10	QPSK	25	25	16.17	16.32	16.25		
10	QPSK	50	0	16.37	16.30	16.26		
10	16QAM	1	0	16.32	16.20	16.31	17	0
10	16QAM	1	25	16.27	16.34	16.25		
10	16QAM	1	49	16.09	16.21	16.08		
10	16QAM	25	0	16.24	16.14	16.23	17	0
10	16QAM	25	12	15.92	15.98	15.93		
10	16QAM	25	25	15.88	16.00	15.77		
10	16QAM	50	0	16.06	16.05	15.97		
10	64QAM	1	0	16.23	16.35	16.32	17	0
10	64QAM	1	25	16.25	16.32	16.14		
10	64QAM	1	49	16.04	16.15	16.10		
10	64QAM	25	0	16.18	16.20	16.11	17	0
10	64QAM	25	12	16.00	15.98	15.93		
10	64QAM	25	25	16.08	16.11	15.97		
10	64QAM	50	0	16.19	16.32	16.24		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	16.63	16.58	16.61	17	0
5	QPSK	1	12	16.31	16.49	16.45		
5	QPSK	1	24	16.32	16.32	16.11		
5	QPSK	12	0	16.27	16.38	16.39	17	0
5	QPSK	12	7	16.29	16.30	16.27		
5	QPSK	12	13	16.17	16.25	16.23		
5	QPSK	25	0	16.34	16.26	16.27		
5	16QAM	1	0	16.35	16.20	16.27	17	0
5	16QAM	1	12	16.22	16.32	16.23		
5	16QAM	1	24	16.07	16.23	16.06		
5	16QAM	12	0	16.18	16.13	16.26	17	0
5	16QAM	12	7	15.88	15.98	15.95		
5	16QAM	12	13	15.85	15.93	15.76		
5	16QAM	25	0	16.04	16.07	15.92		
5	64QAM	1	0	16.19	16.37	16.35	17	0
5	64QAM	1	12	16.22	16.28	16.10		
5	64QAM	1	24	15.97	16.10	16.04		
5	64QAM	12	0	16.17	16.18	16.14	17	0
5	64QAM	12	7	16.03	15.97	15.96		
5	64QAM	12	13	16.07	16.08	15.97		
5	64QAM	25	0	16.22	16.34	16.20		
Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	16.64	16.53	16.58	17	0
3	QPSK	1	8	16.25	16.44	16.46		
3	QPSK	1	14	16.27	16.35	16.07		
3	QPSK	8	0	16.25	16.39	16.38	17	0
3	QPSK	8	4	16.27	16.26	16.20		
3	QPSK	8	7	16.13	16.22	16.20		
3	QPSK	15	0	16.30	16.26	16.30		
3	16QAM	1	0	16.31	16.22	16.22	17	0
3	16QAM	1	8	16.24	16.32	16.21		
3	16QAM	1	14	16.05	16.26	16.04		
3	16QAM	8	0	16.15	16.09	16.28	17	0
3	16QAM	8	4	15.90	15.94	15.89		
3	16QAM	8	7	15.80	15.92	15.79		
3	16QAM	15	0	16.07	16.06	15.95		

3	64QAM	1	0	16.12	16.32	16.35	17	0
3	64QAM	1	8	16.15	16.24	16.05		
3	64QAM	1	14	15.91	16.08	16.02		
3	64QAM	8	0	16.16	16.11	16.10	17	0
3	64QAM	8	4	16.00	15.96	15.93		
3	64QAM	8	7	16.09	16.10	15.97		
3	64QAM	15	0	16.15	16.36	16.22		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	16.65	16.51	16.61	17	0
1.4	QPSK	1	3	16.23	16.44	16.41		
1.4	QPSK	1	5	16.22	16.34	16.06		
1.4	QPSK	3	0	16.20	16.37	16.34		
1.4	QPSK	3	1	16.20	16.24	16.19		
1.4	QPSK	3	3	16.13	16.25	16.16		
1.4	QPSK	6	0	16.25	16.23	16.24	17	0
1.4	16QAM	1	0	16.26	16.16	16.15	17	0
1.4	16QAM	1	3	16.18	16.34	16.15		
1.4	16QAM	1	5	16.08	16.25	15.99		
1.4	16QAM	3	0	16.10	16.07	16.29		
1.4	16QAM	3	1	15.93	15.91	15.83		
1.4	16QAM	3	3	15.83	15.87	15.72		
1.4	16QAM	6	0	16.10	16.02	15.93	17	0
1.4	64QAM	1	0	16.06	16.26	16.33	17	0
1.4	64QAM	1	3	16.15	16.19	16.01		
1.4	64QAM	1	5	15.92	16.06	15.95		
1.4	64QAM	3	0	16.13	16.13	16.13		
1.4	64QAM	3	1	15.97	15.89	15.90		
1.4	64QAM	3	3	16.02	16.05	16.00		
1.4	64QAM	6	0	16.17	16.35	16.22	17	0

<LTE Band 4>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20050	20175	20300		
Frequency (MHz)				1720	1732.5	1745		
20	QPSK	1	0	17.36	17.54	17.31	18	0
20	QPSK	1	49	17.03	17.16	17.12		
20	QPSK	1	99	17.00	17.06	16.98		
20	QPSK	50	0	17.07	17.16	17.10	18	0
20	QPSK	50	24	17.08	17.04	16.95		
20	QPSK	50	50	16.85	17.07	16.87		
20	QPSK	100	0	17.07	17.09	16.95		
20	16QAM	1	0	17.04	16.89	17.01	18	0
20	16QAM	1	49	16.96	16.94	16.90		
20	16QAM	1	99	16.82	16.88	16.77		
20	16QAM	50	0	16.93	16.92	16.86	18	0
20	16QAM	50	24	16.67	16.73	16.63		
20	16QAM	50	50	16.65	16.74	16.52		
20	16QAM	100	0	16.70	16.82	16.77		
20	64QAM	1	0	16.94	16.99	17.05	18	0
20	64QAM	1	49	16.97	16.94	16.90		
20	64QAM	1	99	16.77	16.83	16.71		
20	64QAM	50	0	16.94	16.90	16.86	18	0
20	64QAM	50	24	16.59	16.70	16.67		
20	64QAM	50	50	16.69	16.80	16.64		
20	64QAM	100	0	16.97	17.04	17.06		
Channel				20025	20175	20325	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	17.37	17.52	17.31	18	0
15	QPSK	1	37	16.96	17.11	17.12		
15	QPSK	1	74	17.00	16.99	16.93		
15	QPSK	36	0	17.01	17.10	17.05	18	0
15	QPSK	36	20	17.10	17.04	16.90		
15	QPSK	36	39	16.82	17.05	16.82		
15	QPSK	75	0	17.10	17.03	16.98		
15	16QAM	1	0	17.04	16.84	16.95	18	0
15	16QAM	1	37	16.93	16.90	16.89		
15	16QAM	1	74	16.75	16.82	16.75		
15	16QAM	36	0	16.87	16.95	16.82	18	0
15	16QAM	36	20	16.67	16.76	16.59		
15	16QAM	36	39	16.62	16.76	16.51		
15	16QAM	75	0	16.71	16.76	16.71		
15	64QAM	1	0	16.88	17.01	17.07	18	0
15	64QAM	1	37	16.92	16.96	16.93		
15	64QAM	1	74	16.70	16.85	16.67		
15	64QAM	36	0	16.96	16.86	16.81	18	0
15	64QAM	36	20	16.60	16.73	16.68		
15	64QAM	36	39	16.72	16.74	16.65		
15	64QAM	75	0	17.00	16.97	16.99		
Channel				20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	17.30	17.45	17.33	18	0
10	QPSK	1	25	16.89	17.11	17.11		
10	QPSK	1	49	16.95	16.96	16.90		
10	QPSK	25	0	16.94	17.10	16.99	18	0
10	QPSK	25	12	17.13	17.00	16.83		

10	QPSK	25	25	16.78	17.06	16.85		
10	QPSK	50	0	17.03	16.97	17.00		
10	16QAM	1	0	16.97	16.86	16.90	18	0
10	16QAM	1	25	16.88	16.88	16.92		
10	16QAM	1	49	16.74	16.77	16.75		
10	16QAM	25	0	16.84	16.88	16.78	18	0
10	16QAM	25	12	16.67	16.71	16.60		
10	16QAM	25	25	16.55	16.70	16.47		
10	16QAM	50	0	16.68	16.70	16.65		
10	64QAM	1	0	16.86	16.96	17.09	18	0
10	64QAM	1	25	16.93	16.94	16.95		
10	64QAM	1	49	16.66	16.78	16.62		
10	64QAM	25	0	16.93	16.85	16.76	18	0
10	64QAM	25	12	16.58	16.68	16.70		
10	64QAM	25	25	16.70	16.69	16.68		
10	64QAM	50	0	17.00	16.90	16.94		
Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	17.27	17.41	17.29	18	0
5	QPSK	1	12	16.89	17.04	17.13		
5	QPSK	1	24	16.90	16.93	16.90		
5	QPSK	12	0	16.91	17.10	16.92	18	0
5	QPSK	12	7	17.14	16.95	16.78		
5	QPSK	12	13	16.73	17.00	16.80		
5	QPSK	25	0	16.96	17.00	16.97		
5	16QAM	1	0	16.96	16.82	16.90	18	0
5	16QAM	1	12	16.83	16.87	16.88		
5	16QAM	1	24	16.71	16.73	16.73		
5	16QAM	12	0	16.84	16.91	16.75	18	0
5	16QAM	12	7	16.69	16.69	16.56		
5	16QAM	12	13	16.55	16.63	16.46		
5	16QAM	25	0	16.67	16.72	16.64		
5	64QAM	1	0	16.84	16.92	17.04	18	0
5	64QAM	1	12	16.95	16.92	16.93		
5	64QAM	1	24	16.67	16.80	16.58		
5	64QAM	12	0	16.91	16.79	16.77	18	0
5	64QAM	12	7	16.60	16.62	16.66		
5	64QAM	12	13	16.65	16.69	16.64		
5	64QAM	25	0	16.94	16.88	16.92		
Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	17.25	17.41	17.31	18	0
3	QPSK	1	8	16.85	17.02	17.14		
3	QPSK	1	14	16.89	16.91	16.87		
3	QPSK	8	0	16.94	17.10	16.92	18	0
3	QPSK	8	4	17.16	16.90	16.76		
3	QPSK	8	7	16.76	16.95	16.83		
3	QPSK	15	0	16.91	16.98	16.91		
3	16QAM	1	0	16.93	16.79	16.89	18	0
3	16QAM	1	8	16.78	16.89	16.89		
3	16QAM	1	14	16.70	16.67	16.67		
3	16QAM	8	0	16.80	16.86	16.70	18	0
3	16QAM	8	4	16.68	16.70	16.58		
3	16QAM	8	7	16.50	16.63	16.46		
3	16QAM	15	0	16.66	16.73	16.60		
3	64QAM	1	0	16.85	16.89	16.97	18	0

3	64QAM	1	8	16.91	16.85	16.91		
3	64QAM	1	14	16.67	16.80	16.55		
3	64QAM	8	0	16.87	16.82	16.73	18	0
3	64QAM	8	4	16.62	16.58	16.69		
3	64QAM	8	7	16.63	16.68	16.65		
3	64QAM	15	0	16.89	16.86	16.90		
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	17.28	17.35	17.33	18	0
1.4	QPSK	1	3	16.84	17.02	17.07		
1.4	QPSK	1	5	16.92	16.90	16.81		
1.4	QPSK	3	0	16.96	17.04	16.91		
1.4	QPSK	3	1	17.18	16.87	16.69		
1.4	QPSK	3	3	16.76	16.97	16.76		
1.4	QPSK	6	0	16.89	17.00	16.89	18	0
1.4	16QAM	1	0	16.94	16.76	16.88	18	0
1.4	16QAM	1	3	16.78	16.90	16.92		
1.4	16QAM	1	5	16.63	16.64	16.61		
1.4	16QAM	3	0	16.75	16.81	16.64		
1.4	16QAM	3	1	16.66	16.63	16.61		
1.4	16QAM	3	3	16.47	16.58	16.44		
1.4	16QAM	6	0	16.66	16.72	16.58	18	0
1.4	64QAM	1	0	16.88	16.82	16.93	18	0
1.4	64QAM	1	3	16.89	16.85	16.85		
1.4	64QAM	1	5	16.70	16.79	16.48		
1.4	64QAM	3	0	16.80	16.82	16.72		
1.4	64QAM	3	1	16.58	16.53	16.62		
1.4	64QAM	3	3	16.63	16.71	16.62		
1.4	64QAM	6	0	16.86	16.87	16.85	18	0

<LTE Band 5>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20450	20525	20600		
Frequency (MHz)				829	836.5	844		
10	QPSK	1	0	19.51	19.65	19.44	20.5	0
10	QPSK	1	25	19.31	19.49	19.35		
10	QPSK	1	49	19.24	19.30	19.26		
10	QPSK	25	0	19.31	19.48	19.42	20.5	0
10	QPSK	25	12	19.32	19.33	19.23		
10	QPSK	25	25	19.18	19.36	19.10		
10	QPSK	50	0	19.34	19.36	19.21		
10	16QAM	1	0	19.36	19.15	19.26	20.5	0
10	16QAM	1	25	19.29	19.27	19.19		
10	16QAM	1	49	19.07	19.20	19.05		
10	16QAM	25	0	19.22	19.24	19.10	20.5	0
10	16QAM	25	12	18.97	18.96	18.96		
10	16QAM	25	25	18.90	19.03	18.77		
10	16QAM	50	0	18.96	19.08	19.01		
10	64QAM	1	0	19.23	19.25	19.37	20.5	0
10	64QAM	1	25	19.24	19.20	19.13		
10	64QAM	1	49	19.05	19.14	19.02		
10	64QAM	25	0	19.19	19.18	19.17	20.5	0
10	64QAM	25	12	18.84	18.93	18.93		
10	64QAM	25	25	19.02	19.13	18.91		
10	64QAM	50	0	19.30	19.29	19.30		
Channel				20425	20525	20625	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	QPSK	1	0	19.46	19.64	19.40	20.5	0
5	QPSK	1	12	19.28	19.39	19.32		
5	QPSK	1	24	19.22	19.30	19.22		
5	QPSK	12	0	19.31	19.46	19.34	20.5	0
5	QPSK	12	7	19.29	19.23	19.17		
5	QPSK	12	13	19.17	19.34	19.09		
5	QPSK	25	0	19.24	19.28	19.14		
5	16QAM	1	0	19.29	19.08	19.23	20.5	0
5	16QAM	1	12	19.23	19.18	19.13		
5	16QAM	1	24	19.00	19.14	19.02		
5	16QAM	12	0	19.13	19.19	19.07	20.5	0
5	16QAM	12	7	18.87	18.92	18.93		
5	16QAM	12	13	18.85	18.95	18.77		
5	16QAM	25	0	18.93	19.04	18.92		
5	64QAM	1	0	19.18	19.20	19.32	20.5	0
5	64QAM	1	12	19.18	19.20	19.13		
5	64QAM	1	24	18.98	19.07	18.95		
5	64QAM	12	0	19.12	19.17	19.16	20.5	0
5	64QAM	12	7	18.74	18.93	18.88		
5	64QAM	12	13	19.00	19.05	18.87		
5	64QAM	25	0	19.20	19.25	19.29		
Channel				20415	20525	20635	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				825.5	836.5	847.5		
3	QPSK	1	0	19.41	19.57	19.40	20.5	0
3	QPSK	1	8	19.31	19.48	19.26		
3	QPSK	1	14	19.22	19.22	19.24		
3	QPSK	8	0	19.28	19.46	19.35	20.5	0
3	QPSK	8	4	19.32	19.28	19.15		

3	QPSK	8	7	19.16	19.30	19.03		
3	QPSK	15	0	19.25	19.35	19.11		
3	16QAM	1	0	19.36	19.15	19.17	20.5	0
3	16QAM	1	8	19.20	19.25	19.13		
3	16QAM	1	14	19.00	19.15	19.05		
3	16QAM	8	0	19.19	19.19	19.10	20.5	0
3	16QAM	8	4	18.95	18.91	18.94		
3	16QAM	8	7	18.82	19.01	18.72		
3	16QAM	15	0	18.88	19.02	19.00		
3	64QAM	1	0	19.21	19.20	19.27	20.5	0
3	64QAM	1	8	19.23	19.12	19.04		
3	64QAM	1	14	19.01	19.14	19.00		
3	64QAM	8	0	19.14	19.17	19.16	20.5	0
3	64QAM	8	4	18.76	18.88	18.84		
3	64QAM	8	7	18.99	19.06	18.84		
3	64QAM	15	0	19.20	19.24	19.22		
Channel				20407	20525	20643	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				824.7	836.5	848.3		
1.4	QPSK	1	0	19.50	19.61	19.43	20.5	0
1.4	QPSK	1	3	19.29	19.40	19.30		
1.4	QPSK	1	5	19.15	19.30	19.19		
1.4	QPSK	3	0	19.21	19.44	19.32		
1.4	QPSK	3	1	19.27	19.28	19.22		
1.4	QPSK	3	3	19.11	19.28	19.00		
1.4	QPSK	6	0	19.33	19.26	19.11	20.5	0
1.4	16QAM	1	0	19.32	19.15	19.16	20.5	0
1.4	16QAM	1	3	19.21	19.24	19.09		
1.4	16QAM	1	5	19.04	19.15	18.97		
1.4	16QAM	3	0	19.13	19.21	19.10		
1.4	16QAM	3	1	18.97	18.96	18.93		
1.4	16QAM	3	3	18.84	18.98	18.75		
1.4	16QAM	6	0	18.86	19.07	18.95	20.5	0
1.4	64QAM	1	0	19.13	19.15	19.31	20.5	0
1.4	64QAM	1	3	19.14	19.14	19.12		
1.4	64QAM	1	5	18.96	19.11	19.00		
1.4	64QAM	3	0	19.10	19.17	19.09		
1.4	64QAM	3	1	18.77	18.92	18.86		
1.4	64QAM	3	3	18.98	19.04	18.83		
1.4	64QAM	6	0	19.27	19.19	19.26	20.5	0

<LTE Band 7>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20850	21100	21350		
Frequency (MHz)				2510	2535	2560		
20	QPSK	1	0	16.39	16.40	16.31	16.5	0
20	QPSK	1	49	15.70	15.89	15.70		
20	QPSK	1	99	15.63	15.72	15.69		
20	QPSK	50	0	15.71	15.86	15.82	16.5	0
20	QPSK	50	24	15.69	15.72	15.58		
20	QPSK	50	50	15.60	15.73	15.43		
20	QPSK	100	0	15.69	15.70	15.63		
20	16QAM	1	0	15.78	15.48	15.64	16.5	0
20	16QAM	1	49	15.62	15.70	15.54		
20	16QAM	1	99	15.49	15.53	15.40		
20	16QAM	50	0	15.57	15.64	15.48	16.5	0
20	16QAM	50	24	15.33	15.33	15.39		
20	16QAM	50	50	15.29	15.44	15.10		
20	16QAM	100	0	15.33	15.46	15.44		
20	64QAM	1	0	15.57	15.63	15.70	16.5	0
20	64QAM	1	49	15.57	15.57	15.48		
20	64QAM	1	99	15.44	15.51	15.42		
20	64QAM	50	0	15.61	15.59	15.60	16.5	0
20	64QAM	50	24	15.25	15.32	15.28		
20	64QAM	50	50	15.42	15.52	15.30		
20	64QAM	100	0	15.72	15.69	15.64		
Channel				20825	21100	21375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2507.5	2535	2562.5		
15	QPSK	1	0	16.25	16.32	16.17	16.5	0
15	QPSK	1	37	15.68	15.91	15.70		
15	QPSK	1	74	15.64	15.69	15.63		
15	QPSK	36	0	15.69	15.80	15.81	16.5	0
15	QPSK	36	20	15.71	15.73	15.57		
15	QPSK	36	39	15.61	15.74	15.46		
15	QPSK	75	0	15.63	15.63	15.63		
15	16QAM	1	0	15.76	15.50	15.57	16.5	0
15	16QAM	1	37	15.63	15.69	15.51		
15	16QAM	1	74	15.45	15.47	15.41		
15	16QAM	36	0	15.54	15.60	15.44	16.5	0
15	16QAM	36	20	15.34	15.26	15.35		
15	16QAM	36	39	15.22	15.47	15.07		
15	16QAM	75	0	15.35	15.46	15.47		
15	64QAM	1	0	15.54	15.63	15.66	16.5	0
15	64QAM	1	37	15.55	15.53	15.44		
15	64QAM	1	74	15.40	15.47	15.36		
15	64QAM	36	0	15.58	15.52	15.59	16.5	0
15	64QAM	36	20	15.23	15.31	15.21		
15	64QAM	36	39	15.35	15.52	15.25		
15	64QAM	75	0	15.75	15.65	15.66		
Channel				20800	21100	21400	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2505	2535	2565		
10	QPSK	1	0	16.27	16.31	16.16	16.5	0
10	QPSK	1	25	15.67	15.84	15.66		
10	QPSK	1	49	15.57	15.62	15.56		
10	QPSK	25	0	15.68	15.82	15.83	16.5	0
10	QPSK	25	12	15.70	15.74	15.51		

10	QPSK	25	25	15.55	15.68	15.46		
10	QPSK	50	0	15.60	15.60	15.66		
10	16QAM	1	0	15.70	15.48	15.52	16.5	0
10	16QAM	1	25	15.63	15.69	15.52		
10	16QAM	1	49	15.44	15.49	15.42		
10	16QAM	25	0	15.53	15.62	15.37	16.5	0
10	16QAM	25	12	15.35	15.21	15.32		
10	16QAM	25	25	15.17	15.47	15.05		
10	16QAM	50	0	15.38	15.42	15.48		
10	64QAM	1	0	15.48	15.66	15.64	16.5	0
10	64QAM	1	25	15.48	15.49	15.44		
10	64QAM	1	49	15.35	15.44	15.38		
10	64QAM	25	0	15.58	15.46	15.56	16.5	0
10	64QAM	25	12	15.22	15.26	15.17		
10	64QAM	25	25	15.30	15.46	15.25		
10	64QAM	50	0	15.78	15.64	15.59		
Channel				20775	21100	21425	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	QPSK	1	0	16.27	16.30	16.09	16.5	0
5	QPSK	1	12	15.70	15.82	15.68		
5	QPSK	1	24	15.53	15.56	15.58		
5	QPSK	12	0	15.68	15.75	15.82	16.5	0
5	QPSK	12	7	15.71	15.73	15.53		
5	QPSK	12	13	15.51	15.64	15.45		
5	QPSK	25	0	15.59	15.58	15.67		
5	16QAM	1	0	15.66	15.46	15.55	16.5	0
5	16QAM	1	12	15.66	15.69	15.55		
5	16QAM	1	24	15.46	15.44	15.35		
5	16QAM	12	0	15.55	15.61	15.38	16.5	0
5	16QAM	12	7	15.32	15.16	15.34		
5	16QAM	12	13	15.18	15.42	15.04		
5	16QAM	25	0	15.32	15.44	15.49		
5	64QAM	1	0	15.48	15.60	15.64	16.5	0
5	64QAM	1	12	15.43	15.42	15.42		
5	64QAM	1	24	15.28	15.45	15.34		
5	64QAM	12	0	15.54	15.40	15.55	16.5	0
5	64QAM	12	7	15.16	15.19	15.13		
5	64QAM	12	13	15.33	15.41	15.19		
5	64QAM	25	0	15.80	15.67	15.56		

<LTE Band 12>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				23060	23095	23130		
Frequency (MHz)				704	707.5	711		
10	QPSK	1	0	21.44	21.56	21.23	22	0
10	QPSK	1	25	21.29	21.36	21.17		
10	QPSK	1	49	20.71	20.92	20.73		
10	QPSK	25	0	20.75	20.91	20.80	22	0
10	QPSK	25	12	20.72	20.89	20.76		
10	QPSK	25	25	20.66	20.65	20.53		
10	QPSK	50	0	20.56	20.74	20.36		
10	16QAM	1	0	20.64	20.64	20.57	22	0
10	16QAM	1	25	20.76	20.44	20.60		
10	16QAM	1	49	20.64	20.63	20.51		
10	16QAM	25	0	20.45	20.52	20.34	22	0
10	16QAM	25	12	20.54	20.64	20.48		
10	16QAM	25	25	20.27	20.31	20.39		
10	16QAM	50	0	20.32	20.42	20.07		
10	64QAM	1	0	20.34	20.42	20.44	22	0
10	64QAM	1	25	20.55	20.58	20.66		
10	64QAM	1	49	20.56	20.53	20.50		
10	64QAM	25	0	20.37	20.47	20.37	22	0
10	64QAM	25	12	20.61	20.62	20.53		
10	64QAM	25	25	20.19	20.28	20.24		
10	64QAM	50	0	20.39	20.45	20.25		
Channel				23035	23095	23155	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				701.5	707.5	713.5		
5	QPSK	1	0	21.41	21.54	21.26	22	0
5	QPSK	1	12	21.26	21.32	21.15		
5	QPSK	1	24	20.74	20.91	20.68		
5	QPSK	12	0	20.62	20.69	20.60	22	0
5	QPSK	12	7	20.72	20.92	20.75		
5	QPSK	12	13	20.63	20.61	20.51		
5	QPSK	25	0	20.53	20.72	20.31		
5	16QAM	1	0	20.59	20.62	20.59	22	0
5	16QAM	1	12	20.69	20.37	20.55		
5	16QAM	1	24	20.67	20.65	20.47		
5	16QAM	12	0	20.47	20.49	20.30	22	0
5	16QAM	12	7	20.55	20.59	20.50		
5	16QAM	12	13	20.25	20.32	20.42		
5	16QAM	25	0	20.30	20.35	20.02		
5	64QAM	1	0	20.30	20.42	20.38	22	0
5	64QAM	1	12	20.53	20.52	20.60		
5	64QAM	1	24	20.52	20.46	20.53		
5	64QAM	12	0	20.39	20.49	20.31	22	0
5	64QAM	12	7	20.64	20.58	20.46		
5	64QAM	12	13	20.16	20.26	20.22		
5	64QAM	25	0	20.32	20.48	20.26		
Channel				23025	23095	23165	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				700.5	707.5	714.5		
3	QPSK	1	0	21.35	21.52	21.29	22	0
3	QPSK	1	8	21.20	21.35	21.12		
3	QPSK	1	14	20.72	20.94	20.69		
3	QPSK	8	0	20.58	20.62	20.60	22	0
3	QPSK	8	4	20.66	20.87	20.70		

3	QPSK	8	7	20.59	20.62	20.54		
3	QPSK	15	0	20.54	20.70	20.33		
3	16QAM	1	0	20.57	20.56	20.59	22	0
3	16QAM	1	8	20.67	20.37	20.50		
3	16QAM	1	14	20.64	20.65	20.41		
3	16QAM	8	0	20.43	20.44	20.31	22	0
3	16QAM	8	4	20.54	20.62	20.50		
3	16QAM	8	7	20.19	20.33	20.44		
3	16QAM	15	0	20.23	20.35	20.23		
3	64QAM	1	0	20.26	20.45	20.37	22	0
3	64QAM	1	8	20.51	20.51	20.59		
3	64QAM	1	14	20.46	20.40	20.52		
3	64QAM	8	0	20.40	20.49	20.29	22	0
3	64QAM	8	4	20.64	20.52	20.46		
3	64QAM	8	7	20.14	20.23	20.23		
3	64QAM	15	0	20.33	20.51	20.19		
Channel				23017	23095	23173	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				699.7	707.5	715.3		
1.4	QPSK	1	0	21.37	21.49	21.25	22	0
1.4	QPSK	1	3	21.19	21.28	21.12		
1.4	QPSK	1	5	20.74	20.92	20.63		
1.4	QPSK	3	0	20.53	20.63	20.56		
1.4	QPSK	3	1	20.59	20.86	20.70		
1.4	QPSK	3	3	20.53	20.59	20.56		
1.4	QPSK	6	0	20.54	20.73	20.33	22	0
1.4	16QAM	1	0	20.58	20.57	20.59	22	0
1.4	16QAM	1	3	20.66	20.30	20.45		
1.4	16QAM	1	5	20.65	20.61	20.43		
1.4	16QAM	3	0	20.42	20.45	20.32		
1.4	16QAM	3	1	20.52	20.63	20.48		
1.4	16QAM	3	3	20.16	20.30	20.46		
1.4	16QAM	6	0	20.26	20.38	20.24	22	0
1.4	64QAM	1	0	20.27	20.42	20.39	22	0
1.4	64QAM	1	3	20.45	20.45	20.59		
1.4	64QAM	1	5	20.45	20.39	20.47		
1.4	64QAM	3	0	20.33	20.49	20.25		
1.4	64QAM	3	1	20.59	20.53	20.44		
1.4	64QAM	3	3	20.09	20.17	20.23		
1.4	64QAM	6	0	20.31	20.54	20.19	22	0

<LTE Band 13>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				23230				
Frequency (MHz)				782				
10	QPSK	1	0	22.38			22.5	0
10	QPSK	1	25	21.94				
10	QPSK	1	49	21.49				
10	QPSK	25	0	21.88			22.5	0
10	QPSK	25	12	21.53				
10	QPSK	25	25	21.25				
10	QPSK	50	0	21.40				
10	16QAM	1	0	21.28			22.5	0
10	16QAM	1	25	21.01				
10	16QAM	1	49	21.29				
10	16QAM	25	0	21.16			22.5	0
10	16QAM	25	12	21.26				
10	16QAM	25	25	20.95				
10	16QAM	50	0	21.07				
10	64QAM	1	0	21.00			22.5	0
10	64QAM	1	25	21.17				
10	64QAM	1	49	21.11				
10	64QAM	25	0	21.13			22	0.5
10	64QAM	25	12	21.25				
10	64QAM	25	25	20.85				
10	64QAM	50	0	21.12				
Channel				23205	23230	23255	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				779.5	782	784.5		
5	QPSK	1	0	22.03	22.06	22.09	22.5	0
5	QPSK	1	12	21.89	21.79	21.88		
5	QPSK	1	24	21.35	21.41	21.41		
5	QPSK	12	0	21.18	21.21	21.13	22.5	0
5	QPSK	12	7	21.36	21.38	21.41		
5	QPSK	12	13	21.08	21.15	21.13		
5	QPSK	25	0	21.18	21.25	21.26		
5	16QAM	1	0	21.17	21.10	21.08	22.5	0
5	16QAM	1	12	20.93	20.97	20.91		
5	16QAM	1	24	21.16	21.15	21.11		
5	16QAM	12	0	20.95	21.03	20.95	22.5	0
5	16QAM	12	7	21.14	21.08	21.12		
5	16QAM	12	13	20.82	20.83	20.77		
5	16QAM	25	0	20.93	20.92	20.88		
5	64QAM	1	0	20.92	20.95	20.94	22.5	0
5	64QAM	1	12	21.07	21.03	21.07		
5	64QAM	1	24	20.97	20.96	21.04		
5	64QAM	12	0	20.96	20.96	20.95	22	0.5
5	64QAM	12	7	21.05	21.07	21.08		
5	64QAM	12	13	20.76	20.75	20.78		
5	64QAM	25	0	20.93	20.90	20.90		

<LTE Band 14>

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	21.79			22	0
10	QPSK	1	25	21.37				
10	QPSK	1	49	21.26				
10	QPSK	25	0	21.39			22	0
10	QPSK	25	12	21.22				
10	QPSK	25	25	21.06				
10	QPSK	50	0	21.15				
10	16QAM	1	0	20.98			22	0
10	16QAM	1	25	20.84				
10	16QAM	1	49	20.97				
10	16QAM	25	0	20.87			22	0
10	16QAM	25	12	21.00				
10	16QAM	25	25	20.71				
10	16QAM	50	0	20.77				
10	64QAM	1	0	20.80			22	0
10	64QAM	1	25	20.98				
10	64QAM	1	49	20.90				
10	64QAM	25	0	20.80			22	0
10	64QAM	25	12	20.97				
10	64QAM	25	25	20.71				
10	64QAM	50	0	20.85				
Channel				23305	23330	23355	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				790.5	793	795.5		
5	QPSK	1	0	21.43	21.49	21.27	22	0
5	QPSK	1	12	21.27	21.29	21.14		
5	QPSK	1	24	20.70	20.88	20.65		
5	QPSK	12	0	20.60	20.66	20.57	22	0
5	QPSK	12	7	20.66	20.94	20.74		
5	QPSK	12	13	20.59	20.60	20.48		
5	QPSK	25	0	20.52	20.69	20.31		
5	16QAM	1	0	20.56	20.62	20.55	22	0
5	16QAM	1	12	20.67	20.40	20.52		
5	16QAM	1	24	20.65	20.62	20.50		
5	16QAM	12	0	20.45	20.52	20.24	22	0
5	16QAM	12	7	20.57	20.53	20.46		
5	16QAM	12	13	20.28	20.34	20.43		
5	16QAM	25	0	20.30	20.33	20.04		
5	64QAM	1	0	20.30	20.39	20.38	22	0
5	64QAM	1	12	20.53	20.45	20.54		
5	64QAM	1	24	20.46	20.44	20.54		
5	64QAM	12	0	20.39	20.51	20.32	22	0
5	64QAM	12	7	20.60	20.55	20.39		
5	64QAM	12	13	20.11	20.23	20.23		
5	64QAM	25	0	20.34	20.48	20.25		

<LTE Band 25>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				26140	26340	26590		
Frequency (MHz)				1860	1880	1905		
20	QPSK	1	0	16.59	16.77	16.60	17	0
20	QPSK	1	49	16.38	16.46	16.35		
20	QPSK	1	99	16.32	16.36	16.27		
20	QPSK	50	0	16.35	16.44	16.34	17	0
20	QPSK	50	24	16.35	16.30	16.23		
20	QPSK	50	50	16.18	16.34	16.18		
20	QPSK	100	0	16.30	16.34	16.31		
20	16QAM	1	0	16.40	16.23	16.34	17	0
20	16QAM	1	49	16.17	16.27	16.20		
20	16QAM	1	99	16.12	16.10	16.07		
20	16QAM	50	0	16.16	16.25	16.18	17	0
20	16QAM	50	24	15.98	15.98	15.89		
20	16QAM	50	50	15.88	16.06	15.84		
20	16QAM	100	0	16.10	16.15	16.01		
20	64QAM	1	0	16.29	16.37	16.28	17	0
20	64QAM	1	49	16.26	16.24	16.15		
20	64QAM	1	99	16.11	16.23	16.07		
20	64QAM	50	0	16.16	16.26	16.18	17	0
20	64QAM	50	24	15.99	15.94	15.94		
20	64QAM	50	50	16.01	16.08	15.94		
20	64QAM	100	0	16.23	16.32	16.35		
Channel				26115	26340	26615	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1907.5		
15	QPSK	1	0	16.59	16.71	16.56	17	0
15	QPSK	1	37	16.31	16.42	16.34		
15	QPSK	1	74	16.26	16.39	16.23		
15	QPSK	36	0	16.37	16.39	16.30	17	0
15	QPSK	36	20	16.29	16.27	16.20		
15	QPSK	36	39	16.14	16.28	16.17		
15	QPSK	75	0	16.23	16.29	16.24		
15	16QAM	1	0	16.43	16.21	16.29	17	0
15	16QAM	1	37	16.13	16.20	16.18		
15	16QAM	1	74	16.12	16.03	16.03		
15	16QAM	36	0	16.14	16.26	16.14	17	0
15	16QAM	36	20	15.94	15.91	15.89		
15	16QAM	36	39	15.86	16.07	15.79		
15	16QAM	75	0	16.06	16.13	15.95		
15	64QAM	1	0	16.29	16.39	16.27	17	0
15	64QAM	1	37	16.19	16.22	16.10		
15	64QAM	1	74	16.12	16.16	16.09		
15	64QAM	36	0	16.09	16.28	16.21	17	0
15	64QAM	36	20	15.99	15.87	15.96		
15	64QAM	36	39	15.94	16.01	15.91		
15	64QAM	75	0	16.25	16.30	16.34		
Channel				26090	26340	26640	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1910		
10	QPSK	1	0	16.59	16.72	16.52	17	0
10	QPSK	1	25	16.25	16.40	16.28		
10	QPSK	1	49	16.20	16.42	16.24		
10	QPSK	25	0	16.37	16.42	16.23	17	0
10	QPSK	25	12	16.32	16.20	16.21		

10	QPSK	25	25	16.11	16.24	16.17		
10	QPSK	50	0	16.16	16.32	16.27		
10	16QAM	1	0	16.39	16.18	16.32	17	0
10	16QAM	1	25	16.09	16.21	16.13		
10	16QAM	1	49	16.05	16.02	16.03		
10	16QAM	25	0	16.12	16.23	16.10	17	0
10	16QAM	25	12	15.95	15.89	15.85		
10	16QAM	25	25	15.89	16.09	15.76		
10	16QAM	50	0	16.03	16.15	15.95		
10	64QAM	1	0	16.22	16.32	16.20	17	0
10	64QAM	1	25	16.18	16.16	16.12		
10	64QAM	1	49	16.11	16.19	16.06		
10	64QAM	25	0	16.05	16.31	16.20	17	0
10	64QAM	25	12	15.97	15.81	15.94		
10	64QAM	25	25	15.96	15.95	15.84		
10	64QAM	50	0	16.19	16.30	16.28		
Channel				26065	26340	26665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1912.5		
5	QPSK	1	0	16.54	16.71	16.54	17	0
5	QPSK	1	12	16.18	16.33	16.25		
5	QPSK	1	24	16.22	16.38	16.22		
5	QPSK	12	0	16.35	16.42	16.17	17	0
5	QPSK	12	7	16.30	16.14	16.20		
5	QPSK	12	13	16.11	16.18	16.10		
5	QPSK	25	0	16.14	16.33	16.29		
5	16QAM	1	0	16.38	16.17	16.28	17	0
5	16QAM	1	12	16.09	16.22	16.07		
5	16QAM	1	24	16.05	16.05	16.04		
5	16QAM	12	0	16.13	16.23	16.03	17	0
5	16QAM	12	7	15.94	15.82	15.78		
5	16QAM	12	13	15.88	16.03	15.76		
5	16QAM	25	0	16.04	16.10	15.97		
5	64QAM	1	0	16.16	16.33	16.14	17	0
5	64QAM	1	12	16.17	16.14	16.08		
5	64QAM	1	24	16.11	16.14	16.03		
5	64QAM	12	0	15.99	16.34	16.16	17	0
5	64QAM	12	7	15.95	15.82	15.87		
5	64QAM	12	13	15.89	15.98	15.82		
5	64QAM	25	0	16.21	16.30	16.21		
Channel				26055	26340	26675	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1913.5		
3	QPSK	1	0	16.57	16.71	16.52	17	0
3	QPSK	1	8	16.13	16.33	16.22		
3	QPSK	1	14	16.24	16.31	16.18		
3	QPSK	8	0	16.35	16.41	16.12	17	0
3	QPSK	8	4	16.25	16.13	16.18		
3	QPSK	8	7	16.05	16.17	16.08		
3	QPSK	15	0	16.09	16.27	16.30		
3	16QAM	1	0	16.39	16.17	16.29	17	0
3	16QAM	1	8	16.06	16.16	16.09		
3	16QAM	1	14	16.02	16.07	16.01		
3	16QAM	8	0	16.10	16.16	16.01	17	0
3	16QAM	8	4	15.92	15.75	15.80		
3	16QAM	8	7	15.89	15.96	15.72		
3	16QAM	15	0	16.00	16.06	15.97		
3	64QAM	1	0	16.13	16.27	16.10	17	0

3	64QAM	1	8	16.11	16.15	16.07		
3	64QAM	1	14	16.11	16.13	16.03		
3	64QAM	8	0	15.99	16.33	16.13	17	0
3	64QAM	8	4	15.88	15.77	15.84		
3	64QAM	8	7	15.92	15.93	15.85		
3	64QAM	15	0	16.16	16.33	16.18		
Channel				26047	26340	26683	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1914.3		
1.4	QPSK	1	0	16.55	16.71	16.50	17	0
1.4	QPSK	1	3	16.12	16.32	16.17		
1.4	QPSK	1	5	16.19	16.24	16.16		
1.4	QPSK	3	0	16.31	16.41	16.05		
1.4	QPSK	3	1	16.27	16.15	16.20		
1.4	QPSK	3	3	15.99	16.20	16.06		
1.4	QPSK	6	0	16.10	16.25	16.33	17	0
1.4	16QAM	1	0	16.42	16.11	16.30	17	0
1.4	16QAM	1	3	16.05	16.19	16.08		
1.4	16QAM	1	5	15.98	16.00	15.98		
1.4	16QAM	3	0	16.07	16.13	16.01		
1.4	16QAM	3	1	15.87	15.74	15.78		
1.4	16QAM	3	3	15.87	15.89	15.70		
1.4	16QAM	6	0	16.01	16.07	15.99	17	0
1.4	64QAM	1	0	16.07	16.20	16.12	17	0
1.4	64QAM	1	3	16.06	16.11	16.08		
1.4	64QAM	1	5	16.08	16.14	16.04		
1.4	64QAM	3	0	15.95	16.35	16.14		
1.4	64QAM	3	1	15.89	15.76	15.77		
1.4	64QAM	3	3	15.85	15.88	15.87		
1.4	64QAM	6	0	16.13	16.34	16.20	17	0

<LTE Band 26>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				26765	26865	26965		
Frequency (MHz)				821.5	831.5	841.5		
15	QPSK	1	0	19.62	19.70	19.54	20.5	0
15	QPSK	1	37	19.54	19.63	19.47		
15	QPSK	1	74	19.44	19.42	19.42		
15	QPSK	36	0	19.48	19.61	19.50	20.5	0
15	QPSK	36	20	19.24	19.48	19.41		
15	QPSK	36	39	19.34	19.26	19.23		
15	QPSK	75	0	19.11	19.34	19.10		
15	16QAM	1	0	19.33	19.29	19.24	20.5	0
15	16QAM	1	37	19.37	19.17	19.22		
15	16QAM	1	74	19.27	19.20	19.17		
15	16QAM	36	0	19.33	19.21	19.01	20.5	0
15	16QAM	36	20	19.15	19.20	19.09		
15	16QAM	36	39	19.25	19.19	19.20		
15	16QAM	75	0	19.24	19.11	19.13		
15	64QAM	1	0	19.25	19.13	19.13	20.5	0
15	64QAM	1	37	19.16	19.20	19.34		
15	64QAM	1	74	19.17	19.16	19.12		
15	64QAM	36	0	19.13	19.11	19.16	20.5	0
15	64QAM	36	20	19.15	19.16	19.17		
15	64QAM	36	39	19.07	19.12	19.06		
15	64QAM	75	0	19.05	19.06	19.04		
Channel				26740	26865	26990	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				819	831.5	844		
10	QPSK	1	0	19.57	19.61	19.46	20.5	0
10	QPSK	1	25	19.53	19.54	19.37		
10	QPSK	1	49	19.42	19.38	19.32		
10	QPSK	25	0	19.43	19.52	19.45	20.5	0
10	QPSK	25	12	19.17	19.39	19.33		
10	QPSK	25	25	19.31	19.22	19.23		
10	QPSK	50	0	19.11	19.26	19.04		
10	16QAM	1	0	19.27	19.19	19.14	20.5	0
10	16QAM	1	25	19.36	19.16	19.19		
10	16QAM	1	49	19.23	19.17	19.14		
10	16QAM	25	0	19.27	19.16	18.95	20.5	0
10	16QAM	25	12	19.13	19.13	19.02		
10	16QAM	25	25	19.15	19.13	19.16		
10	16QAM	50	0	19.22	19.08	19.11		
10	64QAM	1	0	19.25	19.09	19.10	20.5	0
10	64QAM	1	25	19.08	19.18	19.33		
10	64QAM	1	49	19.14	19.13	19.08		
10	64QAM	25	0	19.03	19.07	19.08	20.5	0
10	64QAM	25	12	19.10	19.09	19.08		
10	64QAM	25	25	19.05	19.12	19.00		
10	64QAM	50	0	18.97	18.97	19.01		
Channel				26715	26865	27015	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				816.5	831.5	846.5		
5	QPSK	1	0	19.55	19.61	19.54	20.5	0
5	QPSK	1	12	19.54	19.59	19.39		
5	QPSK	1	24	19.35	19.32	19.40		
5	QPSK	12	0	19.46	19.57	19.40	20.5	0
5	QPSK	12	7	19.19	19.42	19.34		
5	QPSK	12	13	19.24	19.17	19.17		
5	QPSK	25	0	19.04	19.28	19.01		
5	16QAM	1	0	19.24	19.27	19.15	20.5	0
5	16QAM	1	12	19.29	19.15	19.19		

5	16QAM	1	24	19.17	19.19	19.10		
5	16QAM	12	0	19.25	19.15	18.96	20.5	0
5	16QAM	12	7	19.14	19.20	18.99		
5	16QAM	12	13	19.23	19.12	19.16		
5	16QAM	25	0	19.16	19.07	19.13		
5	64QAM	1	0	19.19	19.09	19.04	20.5	0
5	64QAM	1	12	19.14	19.12	19.33		
5	64QAM	1	24	19.16	19.12	19.04		
5	64QAM	12	0	19.10	19.09	19.12	20.5	0
5	64QAM	12	7	19.13	19.10	19.11		
5	64QAM	12	13	18.98	19.06	18.96		
5	64QAM	25	0	19.00	19.01	19.01		
Channel				26705	26865	27025	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				815.5	831.5	847.5		
3	QPSK	1	0	19.60	19.60	19.53	20.5	0
3	QPSK	1	8	19.48	19.56	19.37		
3	QPSK	1	14	19.44	19.34	19.40		
3	QPSK	8	0	19.46	19.61	19.42	20.5	0
3	QPSK	8	4	19.17	19.46	19.38		
3	QPSK	8	7	19.27	19.21	19.18		
3	QPSK	15	0	19.01	19.33	19.09		
3	16QAM	1	0	19.28	19.22	19.17	20.5	0
3	16QAM	1	8	19.36	19.13	19.18		
3	16QAM	1	14	19.22	19.14	19.09		
3	16QAM	8	0	19.28	19.20	18.96	20.5	0
3	16QAM	8	4	19.13	19.11	19.05		
3	16QAM	8	7	19.22	19.16	19.17		
3	16QAM	15	0	19.23	19.11	19.08		
3	64QAM	1	0	19.24	19.12	19.12	20.5	0
3	64QAM	1	8	19.11	19.13	19.26		
3	64QAM	1	14	19.07	19.06	19.03		
3	64QAM	8	0	19.07	19.09	19.08	20.5	0
3	64QAM	8	4	19.07	19.06	19.11		
3	64QAM	8	7	19.05	19.06	19.01		
3	64QAM	15	0	19.03	19.01	18.95		
Channel				26697	26865	27033	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				814.7	831.5	848.3		
1.4	QPSK	1	0	19.60	19.60	19.50	20.5	0
1.4	QPSK	1	3	19.53	19.55	19.40		
1.4	QPSK	1	5	19.36	19.37	19.38		
1.4	QPSK	3	0	19.42	19.58	19.42		
1.4	QPSK	3	1	19.17	19.44	19.36		
1.4	QPSK	3	3	19.29	19.26	19.20		
1.4	QPSK	6	0	19.02	19.33	19.03	20.5	0
1.4	16QAM	1	0	19.26	19.19	19.20	20.5	0
1.4	16QAM	1	3	19.29	19.17	19.20		
1.4	16QAM	1	5	19.18	19.14	19.13		
1.4	16QAM	3	0	19.27	19.19	18.95		
1.4	16QAM	3	1	19.09	19.11	19.05		
1.4	16QAM	3	3	19.17	19.19	19.16		
1.4	16QAM	6	0	19.24	19.09	19.13	20.5	0
1.4	64QAM	1	0	19.19	19.11	19.06	20.5	0
1.4	64QAM	1	3	19.10	19.20	19.29		
1.4	64QAM	1	5	19.15	19.12	19.09		
1.4	64QAM	3	0	19.04	19.11	19.14		
1.4	64QAM	3	1	19.11	19.13	19.12		
1.4	64QAM	3	3	19.03	19.04	19.06		
1.4	64QAM	6	0	19.00	19.03	18.97	20.5	0

<LTE Band 30>

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				27710				
Frequency (MHz)				2310				
10	QPSK	1	0	16.72			17.5	0
10	QPSK	1	25	16.48				
10	QPSK	1	49	16.39				
10	QPSK	25	0	16.37			17.5	0
10	QPSK	25	12	16.23				
10	QPSK	25	25	16.27				
10	QPSK	50	0	16.36				
10	16QAM	1	0	16.25			17.5	0
10	16QAM	1	25	16.22				
10	16QAM	1	49	16.13				
10	16QAM	25	0	16.25			17.5	0
10	16QAM	25	12	15.96				
10	16QAM	25	25	16.06				
10	16QAM	50	0	16.17				
10	64QAM	1	0	16.38			17.5	0
10	64QAM	1	25	16.19				
10	64QAM	1	49	16.21				
10	64QAM	25	0	16.24			17.5	0
10	64QAM	25	12	15.89				
10	64QAM	25	25	16.05				
10	64QAM	50	0	16.28				
Channel				27685	27710	27735	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2307.5	2310	2312.5		
5	QPSK	1	0	16.64	16.69	16.68	17.5	0
5	QPSK	1	12	16.50	16.47	16.48		
5	QPSK	1	24	16.36	16.40	16.37		
5	QPSK	12	0	16.33	16.31	16.35	17.5	0
5	QPSK	12	7	16.20	16.26	16.26		
5	QPSK	12	13	16.27	16.28	16.29		
5	QPSK	25	0	16.37	16.29	16.35		
5	16QAM	1	0	16.27	16.18	16.24	17.5	0
5	16QAM	1	12	16.23	16.20	16.20		
5	16QAM	1	24	16.08	16.11	16.06		
5	16QAM	12	0	16.23	16.25	16.18	17.5	0
5	16QAM	12	7	15.92	15.90	15.97		
5	16QAM	12	13	16.07	16.03	16.03		
5	16QAM	25	0	16.16	16.15	16.18		
5	64QAM	1	0	16.36	16.38	16.38	17.5	0
5	64QAM	1	12	16.17	16.12	16.16		
5	64QAM	1	24	16.14	16.22	16.17		
5	64QAM	12	0	16.17	16.23	16.21	17.5	0
5	64QAM	12	7	15.86	15.89	15.89		
5	64QAM	12	13	16.03	15.98	16.07		
5	64QAM	25	0	16.22	16.27	16.30		

<LTE Band 66>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				132072	132322	132572		
Frequency (MHz)				1720	1745	1770		
20	QPSK	1	0	17.74	17.82	17.69	18	0
20	QPSK	1	49	17.38	17.52	17.30		
20	QPSK	1	99	16.99	17.19	17.08		
20	QPSK	50	0	17.28	17.32	17.21	18	0
20	QPSK	50	24	17.08	17.11	17.04		
20	QPSK	50	50	17.06	17.01	16.93		
20	QPSK	100	0	16.80	17.01	16.88		
20	16QAM	1	0	17.04	16.99	16.88	18	0
20	16QAM	1	49	17.00	16.89	17.01		
20	16QAM	1	99	16.91	16.95	16.85		
20	16QAM	50	0	16.79	16.90	16.70	18	0
20	16QAM	50	24	16.95	16.90	16.87		
20	16QAM	50	50	16.68	16.75	16.57		
20	16QAM	100	0	16.68	16.76	16.49		
20	64QAM	1	0	16.70	16.75	16.70	18	0
20	64QAM	1	49	16.97	16.97	17.02		
20	64QAM	1	99	16.93	16.90	16.89		
20	64QAM	50	0	16.71	16.81	16.70	18	0
20	64QAM	50	24	16.96	16.91	16.87		
20	64QAM	50	50	16.59	16.63	16.60		
20	64QAM	100	0	16.63	16.77	16.61		
Channel				132047	132322	132597	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1745	1772.5		
15	QPSK	1	0	17.72	17.80	17.72	18	0
15	QPSK	1	37	17.40	17.49	17.32		
15	QPSK	1	74	16.95	17.22	17.09		
15	QPSK	36	0	17.28	17.35	17.22	18	0
15	QPSK	36	20	17.04	17.08	17.04		
15	QPSK	36	39	17.04	16.97	16.89		
15	QPSK	75	0	16.73	17.02	16.89		
15	16QAM	1	0	16.99	16.93	16.86	18	0
15	16QAM	1	37	17.01	16.89	16.96		
15	16QAM	1	74	16.93	16.88	16.87		
15	16QAM	36	0	16.80	16.85	16.72	18	0
15	16QAM	36	20	16.88	16.90	16.81		
15	16QAM	36	39	16.63	16.74	16.54		
15	16QAM	75	0	16.66	16.70	16.52		
15	64QAM	1	0	16.65	16.75	16.72	18	0
15	64QAM	1	37	16.95	16.97	17.02		
15	64QAM	1	74	16.94	16.91	16.86		
15	64QAM	36	0	16.71	16.84	16.70	18	0
15	64QAM	36	20	16.90	16.93	16.84		
15	64QAM	36	39	16.52	16.66	16.63		
15	64QAM	75	0	16.56	16.75	16.62		
Channel				132022	132322	132622	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1745	1775		
10	QPSK	1	0	17.66	17.76	17.67	18	0
10	QPSK	1	25	17.43	17.47	17.26		
10	QPSK	1	49	16.90	17.21	17.06		
10	QPSK	25	0	17.31	17.32	17.22	18	0
10	QPSK	25	12	17.04	17.01	16.99		

10	QPSK	25	25	16.98	17.00	16.83		
10	QPSK	50	0	16.67	16.96	16.92		
10	16QAM	1	0	16.95	16.95	16.81	18	0
10	16QAM	1	25	17.02	16.89	16.96		
10	16QAM	1	49	16.93	16.88	16.85		
10	16QAM	25	0	16.79	16.87	16.74	18	0
10	16QAM	25	12	16.84	16.85	16.79		
10	16QAM	25	25	16.66	16.77	16.49		
10	16QAM	50	0	16.65	16.69	16.50		
10	64QAM	1	0	16.65	16.77	16.74	18	0
10	64QAM	1	25	16.98	16.99	17.02		
10	64QAM	1	49	16.89	16.89	16.86		
10	64QAM	25	0	16.64	16.85	16.63	18	0
10	64QAM	25	12	16.87	16.90	16.80		
10	64QAM	25	25	16.47	16.65	16.60		
10	64QAM	50	0	16.54	16.76	16.56		
Channel				131997	132322	132647	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1745	1777.5		
5	QPSK	1	0	17.64	17.74	17.66	18	0
5	QPSK	1	12	17.40	17.46	17.22		
5	QPSK	1	24	16.84	17.22	17.00		
5	QPSK	12	0	17.30	17.33	17.23	18	0
5	QPSK	12	7	17.01	17.03	16.93		
5	QPSK	12	13	16.92	16.97	16.82		
5	QPSK	25	0	16.64	16.95	16.92		
5	16QAM	1	0	16.97	16.88	16.82	18	0
5	16QAM	1	12	17.02	16.92	16.96		
5	16QAM	1	24	16.87	16.86	16.79		
5	16QAM	12	0	16.78	16.85	16.70	18	0
5	16QAM	12	7	16.86	16.83	16.82		
5	16QAM	12	13	16.64	16.71	16.51		
5	16QAM	25	0	16.66	16.69	16.53		
5	64QAM	1	0	16.62	16.77	16.69	18	0
5	64QAM	1	12	16.91	16.95	17.03		
5	64QAM	1	24	16.86	16.89	16.83		
5	64QAM	12	0	16.64	16.85	16.60	18	0
5	64QAM	12	7	16.80	16.85	16.74		
5	64QAM	12	13	16.44	16.62	16.59		
5	64QAM	25	0	16.55	16.70	16.56		
Channel				131987	132322	132657	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1745	1778.5		
3	QPSK	1	0	17.57	17.74	17.65	18	0
3	QPSK	1	8	17.38	17.49	17.16		
3	QPSK	1	14	16.80	17.21	17.00		
3	QPSK	8	0	17.33	17.36	17.21	18	0
3	QPSK	8	4	16.97	16.98	16.93		
3	QPSK	8	7	16.95	16.90	16.83		
3	QPSK	15	0	16.66	16.90	16.88		
3	16QAM	1	0	16.94	16.86	16.75	18	0
3	16QAM	1	8	16.95	16.95	16.90		
3	16QAM	1	14	16.85	16.85	16.78		
3	16QAM	8	0	16.73	16.86	16.66	18	0
3	16QAM	8	4	16.84	16.80	16.82		
3	16QAM	8	7	16.58	16.72	16.44		
3	16QAM	15	0	16.67	16.67	16.52		
3	64QAM	1	0	16.65	16.72	16.68	18	0

3	64QAM	1	8	16.89	16.95	17.03		
3	64QAM	1	14	16.89	16.86	16.77		
3	64QAM	8	0	16.63	16.78	16.60	18	0
3	64QAM	8	4	16.76	16.81	16.76		
3	64QAM	8	7	16.45	16.62	16.62		
3	64QAM	15	0	16.52	16.65	16.54		
Channel				131979	132322	132665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1745	1779.3		
1.4	QPSK	1	0	17.50	17.72	17.66	18	0
1.4	QPSK	1	3	17.37	17.43	17.10		
1.4	QPSK	1	5	16.78	17.21	16.94		
1.4	QPSK	3	0	17.33	17.31	17.17		
1.4	QPSK	3	1	16.98	16.94	16.94		
1.4	QPSK	3	3	16.98	16.84	16.85		
1.4	QPSK	6	0	16.68	16.91	16.84	18	0
1.4	16QAM	1	0	16.87	16.84	16.68	18	0
1.4	16QAM	1	3	16.90	16.92	16.86		
1.4	16QAM	1	5	16.84	16.85	16.78		
1.4	16QAM	3	0	16.69	16.81	16.62		
1.4	16QAM	3	1	16.79	16.75	16.85		
1.4	16QAM	3	3	16.61	16.75	16.47		
1.4	16QAM	6	0	16.66	16.68	16.51	18	0
1.4	64QAM	1	0	16.64	16.68	16.62	18	0
1.4	64QAM	1	3	16.86	16.98	17.01		
1.4	64QAM	1	5	16.85	16.88	16.76		
1.4	64QAM	3	0	16.62	16.77	16.59		
1.4	64QAM	3	1	16.71	16.77	16.69		
1.4	64QAM	3	3	16.47	16.60	16.55		
1.4	64QAM	6	0	16.55	16.61	16.54	18	0

<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.

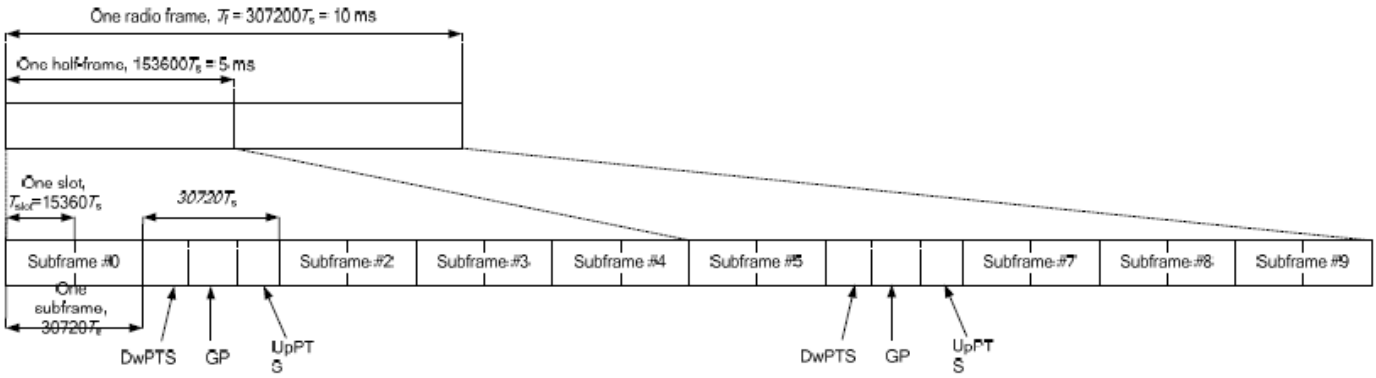


Figure 4.2-1: Frame structure type 2 (for 5 ms switch-point periodicity).

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.

vi. The device supports Power Class 3 uplink-downlink configurations 0 and 6, and Power Class 2 uplink-downlink configurations 1 to 5 operations for LTE Band 41.

vii. The highest available duty cycle for Power Class 2 operation is 43.3% using UL-DL configuration 1, for Power Class 3 operation is 63.3% using UL-DL configuration 0. Per FCC Guidance, all SAR tests were performed using Power Class 3. SAR with Power Class 2 at the available duty factor was additionally performed for the Power Class 3 configuration with the highest SAR among all exposure condition.

Default Power Mode

<LTE Band 38>

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				37850	38000	38150		
Frequency (MHz)				2580	2595	2610		
20	QPSK	1	0	24.60	24.64	24.69	25	0
20	QPSK	1	49	24.53	24.63	24.58		
20	QPSK	1	99	24.18	24.25	24.20		
20	QPSK	50	0	23.77	23.72	23.84	24	1
20	QPSK	50	24	23.74	23.69	23.74		
20	QPSK	50	50	23.56	23.56	23.50		
20	QPSK	100	0	23.56	23.53	23.68		
20	16QAM	1	0	23.71	23.77	23.84	24	1
20	16QAM	1	49	23.65	23.80	23.72		
20	16QAM	1	99	23.36	23.51	23.34		
20	16QAM	50	0	22.74	22.67	22.79	23	2
20	16QAM	50	24	22.86	22.85	22.84		
20	16QAM	50	50	22.61	22.72	22.56		
20	16QAM	100	0	22.64	22.67	22.75		
20	64QAM	1	0	22.00	22.13	22.30	23	2
20	64QAM	1	49	21.57	21.81	21.60		
20	64QAM	1	99	21.27	21.44	21.25		
20	64QAM	50	0	21.15	21.15	21.27	22	3
20	64QAM	50	24	21.17	21.08	21.08		
20	64QAM	50	50	21.00	20.92	20.80		
20	64QAM	100	0	21.00	20.96	20.98		
Channel				37825	38000	38175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2577.5	2595	2612.5		
15	QPSK	1	0	24.55	24.57	24.64	25	0
15	QPSK	1	37	24.53	24.61	24.53		
15	QPSK	1	74	24.16	24.16	24.19		
15	QPSK	36	0	23.61	23.59	23.67	24	1
15	QPSK	36	20	23.70	23.63	23.74		
15	QPSK	36	39	23.46	23.54	23.41		
15	QPSK	75	0	23.49	23.53	23.52		
15	16QAM	1	0	23.71	23.69	23.75	24	1
15	16QAM	1	37	23.59	23.75	23.66		
15	16QAM	1	74	23.34	23.46	23.34		
15	16QAM	36	0	22.67	22.62	22.79	23	2
15	16QAM	36	20	22.82	22.82	22.78		
15	16QAM	36	39	22.52	22.69	22.53		
15	16QAM	75	0	22.60	22.65	22.75		
15	64QAM	1	0	21.90	22.11	22.30	23	2
15	64QAM	1	37	21.52	21.75	21.51		
15	64QAM	1	74	21.25	21.37	21.20		
15	64QAM	36	0	21.11	21.05	21.21	22	3
15	64QAM	36	20	21.09	21.01	21.02		
15	64QAM	36	39	20.91	20.85	20.73		
15	64QAM	75	0	21.00	20.95	20.97		
Channel				37800	38000	38200	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2575	2595	2615		
10	QPSK	1	0	24.50	24.57	24.66	25	0
10	QPSK	1	25	24.50	24.62	24.53		
10	QPSK	1	49	24.09	24.24	24.10		
10	QPSK	25	0	23.63	23.64	23.64	24	1

10	QPSK	25	12	23.71	23.68	23.65		
10	QPSK	25	25	23.53	23.52	23.48		
10	QPSK	50	0	23.49	23.45	23.54		
10	16QAM	1	0	23.69	23.71	23.83	24	1
10	16QAM	1	25	23.60	23.74	23.68		
10	16QAM	1	49	23.29	23.50	23.25		
10	16QAM	25	0	22.67	22.60	22.74	23	2
10	16QAM	25	12	22.86	22.75	22.83		
10	16QAM	25	25	22.56	22.62	22.47		
10	16QAM	50	0	22.63	22.58	22.66		
10	64QAM	1	0	21.98	22.07	22.22	23	2
10	64QAM	1	25	21.51	21.73	21.52		
10	64QAM	1	49	21.26	21.41	21.18		
10	64QAM	25	0	21.08	21.09	21.19	22	3
10	64QAM	25	12	21.17	21.04	21.04		
10	64QAM	25	25	20.96	20.86	20.78		
10	64QAM	50	0	21.00	20.91	20.95		
Channel				37775	38000	38225	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2572.5	2595	2617.5		
5	QPSK	1	0	24.50	24.64	24.63	25	0
5	QPSK	1	12	24.52	24.61	24.56		
5	QPSK	1	24	24.09	24.18	24.15		
5	QPSK	12	0	23.64	23.62	23.64	24	1
5	QPSK	12	7	23.70	23.64	23.66		
5	QPSK	12	13	23.51	23.56	23.41		
5	QPSK	25	0	23.50	23.50	23.58		
5	16QAM	1	0	23.69	23.71	23.78	24	1
5	16QAM	1	12	23.55	23.74	23.70		
5	16QAM	1	24	23.31	23.51	23.29		
5	16QAM	12	0	22.73	22.59	22.70	23	2
5	16QAM	12	7	22.77	22.77	22.82		
5	16QAM	12	13	22.53	22.68	22.49		
5	16QAM	25	0	22.62	22.62	22.69		
5	64QAM	1	0	21.99	22.03	22.27	23	2
5	64QAM	1	12	21.49	21.72	21.53		
5	64QAM	1	24	21.26	21.35	21.17		
5	64QAM	12	0	21.11	21.05	21.27	22	3
5	64QAM	12	7	21.12	21.03	20.98		
5	64QAM	12	13	20.98	20.88	20.76		
5	64QAM	25	0	20.91	20.86	20.97		

<LTE Band 41>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Low Middle Ch. / Freq.	Power Middle Ch. / Freq.	Power High Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				39750	40185	40620	41055	41490		
Frequency (MHz)				2506	2549.5	2593	2636.5	2680		
20	QPSK	1	0	23.68	23.75	23.58	23.64	23.60	24	0
20	QPSK	1	49	23.62	23.62	23.22	23.15	23.18		
20	QPSK	1	99	23.67	23.70	23.22	23.15	23.17		
20	QPSK	50	0	22.78	22.89	22.74	22.86	22.72	23	1
20	QPSK	50	24	22.77	22.80	22.73	22.86	22.70		
20	QPSK	50	50	22.58	22.59	22.55	22.81	22.40		
20	QPSK	100	0	22.60	22.61	22.55	22.84	22.54		
20	16QAM	1	0	22.74	22.76	22.23	22.23	22.21	23	1
20	16QAM	1	49	22.75	22.81	22.65	22.92	22.70		
20	16QAM	1	99	22.70	22.77	22.21	22.27	22.25		
20	16QAM	50	0	21.63	21.67	21.55	21.87	21.70	22	2
20	16QAM	50	24	21.79	21.82	21.76	22.05	21.74		
20	16QAM	50	50	21.56	21.65	21.62	21.84	21.44		
20	16QAM	100	0	21.60	21.62	21.58	21.86	21.56		
20	64QAM	1	0	21.54	21.53	21.31	21.33	21.50	22	2
20	64QAM	1	49	21.47	21.57	21.44	21.81	21.46		
20	64QAM	1	99	21.51	21.57	21.23	21.21	21.35		
20	64QAM	50	0	20.62	20.67	20.55	20.89	20.67	21	3
20	64QAM	50	24	20.79	20.84	20.75	21.07	20.75		
20	64QAM	50	50	20.56	20.64	20.59	20.84	20.43		
20	64QAM	100	0	20.59	20.67	20.57	20.83	20.57		
Channel				39725	40173	40620	41068	41515	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2503.5	2548.3	2593	2637.8	2682.5		
15	QPSK	1	0	23.56	23.57	23.13	23.10	23.12	24	0
15	QPSK	1	37	23.55	23.67	23.48	23.72	23.51		
15	QPSK	1	74	23.65	23.70	23.13	23.09	23.07		
15	QPSK	36	0	22.51	22.54	22.53	22.81	22.56	23	1
15	QPSK	36	20	22.75	22.80	22.64	22.99	22.62		
15	QPSK	36	39	22.57	22.53	22.55	22.80	22.39		
15	QPSK	75	0	22.56	22.57	22.55	22.74	22.46		
15	16QAM	1	0	22.65	22.73	22.22	22.19	22.13	23	1
15	16QAM	1	37	22.69	22.81	22.65	22.98	22.66		
15	16QAM	1	74	22.67	22.69	22.13	22.20	22.22		
15	16QAM	36	0	21.53	21.63	21.53	21.84	21.69	22	2
15	16QAM	36	20	21.76	21.79	21.67	22.04	21.66		
15	16QAM	36	39	21.52	21.65	21.54	21.82	21.42		
15	16QAM	75	0	21.59	21.58	21.50	21.76	21.51		
15	64QAM	1	0	21.46	21.51	21.28	21.25	21.42	22	2
15	64QAM	1	37	21.42	21.56	21.41	21.76	21.40		
15	64QAM	1	74	21.49	21.47	21.19	21.11	21.35		
15	64QAM	36	0	20.52	20.67	20.50	20.89	20.57	21	3
15	64QAM	36	20	20.75	20.74	20.73	20.99	20.67		
15	64QAM	36	39	20.49	20.56	20.54	20.83	20.40		
15	64QAM	75	0	20.51	20.58	20.57	20.83	20.56		
Channel				39700	40160	40620	41080	41540	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2501	2547	2593	2639	2685		
10	QPSK	1	0	23.56	23.64	23.21	23.11	23.19	24	0
10	QPSK	1	25	23.57	23.63	23.55	23.72	23.51		
10	QPSK	1	49	23.62	23.65	23.16	23.12	23.11		
10	QPSK	25	0	22.51	22.58	22.47	22.78	22.52	23	1
10	QPSK	25	12	22.68	22.77	22.67	22.86	22.61		

10	QPSK	25	25	22.55	22.52	22.47	22.76	22.33		
10	QPSK	50	0	22.60	22.61	22.51	22.77	22.44		
10	16QAM	1	0	22.66	22.68	22.21	22.18	22.16	23	1
10	16QAM	1	25	22.72	22.79	22.61	22.97	22.67		
10	16QAM	1	49	22.69	22.71	22.16	22.26	22.19		
10	16QAM	25	0	21.53	21.62	21.51	21.79	21.67	22	2
10	16QAM	25	12	21.79	21.74	21.74	21.84	21.67		
10	16QAM	25	25	21.54	21.58	21.52	21.77	21.39		
10	16QAM	50	0	21.60	21.59	21.52	21.84	21.47		
10	64QAM	1	0	21.47	21.47	21.24	21.28	21.45	22	2
10	64QAM	1	25	21.38	21.53	21.38	21.80	21.46		
10	64QAM	1	49	21.49	21.57	21.13	21.14	21.26		
10	64QAM	25	0	20.52	20.60	20.45	20.79	20.57	21	3
10	64QAM	25	12	20.79	20.75	20.72	21.00	20.75		
10	64QAM	25	25	20.52	20.54	20.51	20.75	20.36		
10	64QAM	50	0	20.50	20.64	20.52	20.76	20.57		
Channel				39675	40148	40620	41093	41565	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2498.5	2545.8	2593	2640.30	2687.5		
5	QPSK	1	0	23.56	23.56	23.20	23.05	23.15	24	0
5	QPSK	1	12	23.59	23.70	23.58	23.68	23.50		
5	QPSK	1	24	23.66	23.69	23.14	23.05	23.16		
5	QPSK	12	0	22.55	22.59	22.49	22.81	22.61	23	1
5	QPSK	12	7	22.67	22.74	22.65	22.97	22.70		
5	QPSK	12	13	22.48	22.56	22.52	22.74	22.36		
5	QPSK	25	0	22.56	22.51	22.51	22.78	22.51		
5	16QAM	1	0	22.71	22.74	22.21	22.20	22.18	23	1
5	16QAM	1	12	22.74	22.80	22.55	22.82	22.64		
5	16QAM	1	24	22.68	22.76	22.13	22.19	22.25		
5	16QAM	12	0	21.57	21.67	21.53	21.80	21.64	22	2
5	16QAM	12	7	21.71	21.74	21.72	21.98	21.70		
5	16QAM	12	13	21.51	21.60	21.57	21.74	21.37		
5	16QAM	25	0	21.55	21.58	21.56	21.82	21.52		
5	64QAM	1	0	21.47	21.46	21.24	21.23	21.46	22	2
5	64QAM	1	12	21.38	21.54	21.42	21.72	21.45		
5	64QAM	1	24	21.49	21.48	21.20	21.11	21.29		
5	64QAM	12	0	20.56	20.59	20.53	20.87	20.58	21	3
5	64QAM	12	7	20.75	20.80	20.71	20.85	20.67		
5	64QAM	12	13	20.52	20.56	20.51	20.74	20.36		
5	64QAM	25	0	20.56	20.58	20.47	20.82	20.51		

<LTE Band 41(HPUE)>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Low Middle Ch. / Freq.	Power Middle Ch. / Freq.	Power High Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				39750	40185	40620	41055	41490		
Frequency (MHz)				2506	2549.5	2593	2636.5	2680		
20	QPSK	1	0	26.03	26.13	25.38	25.20	25.37	26.5	0
20	QPSK	1	49	26.03	26.08	26.01	24.92	25.90		
20	QPSK	1	99	26.07	26.11	25.31	24.83	24.84		
20	QPSK	50	0	25.29	25.44	25.38	24.27	25.00	25.5	1
20	QPSK	50	24	25.26	25.32	25.22	24.17	24.90		
20	QPSK	50	50	25.05	25.13	24.97	24.20	24.63		
20	QPSK	100	0	25.08	25.10	25.01	24.05	24.86		
20	16QAM	1	0	25.35	25.31	24.66	24.41	24.59	25.5	1
20	16QAM	1	49	25.30	25.37	25.28	24.21	25.13		
20	16QAM	1	99	25.31	25.38	24.56	24.14	24.12		
20	16QAM	50	0	24.11	24.16	24.10	23.31	24.04	24.5	2
20	16QAM	50	24	24.28	24.35	24.26	23.29	24.12		
20	16QAM	50	50	24.06	24.15	23.99	23.26	23.71		
20	16QAM	100	0	24.09	24.15	24.06	23.24	23.92		
20	64QAM	1	0	24.28	23.89	23.63	22.55	23.55	24.5	2
20	64QAM	1	49	24.25	23.86	24.22	22.33	23.65		
20	64QAM	1	99	24.25	24.04	23.50	22.27	22.25		
20	64QAM	50	0	23.13	22.90	23.10	21.42	23.00	23.5	3
20	64QAM	50	24	23.27	23.02	23.26	21.41	22.64		
20	64QAM	50	50	23.08	23.02	23.00	21.34	21.86		
20	64QAM	100	0	23.09	22.96	23.05	21.40	22.40		
Channel				39725	40173	40620	41068	41515	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2503.5	2548.3	2593	2637.8	2682.5		
15	QPSK	1	0	25.98	26.04	25.31	25.14	25.30	26.5	0
15	QPSK	1	37	26.02	26.01	25.97	24.90	25.81		
15	QPSK	1	74	26.01	26.02	25.22	24.77	24.74		
15	QPSK	36	0	25.09	25.11	25.00	24.20	24.96	25.5	1
15	QPSK	36	20	25.26	25.31	25.22	24.12	25.05		
15	QPSK	36	39	24.99	25.08	24.91	24.13	24.59		
15	QPSK	75	0	25.04	25.06	24.94	24.00	24.79		
15	16QAM	1	0	25.33	25.23	24.63	24.41	24.51	25.5	1
15	16QAM	1	37	25.20	25.31	25.25	24.14	25.13		
15	16QAM	1	74	25.31	25.37	24.54	24.12	24.02		
15	16QAM	36	0	24.03	24.09	24.00	23.29	24.02	24.5	2
15	16QAM	36	20	24.25	24.27	24.18	23.20	24.08		
15	16QAM	36	39	23.98	24.08	23.90	23.19	23.69		
15	16QAM	75	0	24.01	24.11	24.01	23.21	23.82		
15	64QAM	1	0	24.21	23.84	23.56	22.49	23.51	24.5	2
15	64QAM	1	37	24.21	23.78	24.13	22.28	23.60		
15	64QAM	1	74	24.20	23.95	23.49	22.23	22.21		
15	64QAM	36	0	23.11	22.80	23.09	21.38	22.91	23.5	3
15	64QAM	36	20	23.24	22.94	23.18	21.40	22.63		
15	64QAM	36	39	22.98	23.01	22.96	21.28	21.77		
15	64QAM	75	0	23.07	22.90	23.02	21.40	22.40		
Channel				39700	40160	40620	41080	41540	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2501	2547	2593	2639	2685		
10	QPSK	1	0	25.95	26.11	25.38	25.13	25.29	26.5	0
10	QPSK	1	25	25.96	26.02	26.00	24.92	25.84		
10	QPSK	1	49	26.05	26.02	25.21	24.77	24.83		
10	QPSK	25	0	25.02	25.08	25.00	24.23	25.00	25.5	1
10	QPSK	25	12	25.25	25.28	25.17	24.14	25.03		

10	QPSK	25	25	25.00	25.04	24.92	24.16	24.53		
10	QPSK	50	0	25.05	25.02	24.95	23.97	24.80		
10	16QAM	1	0	25.30	25.25	24.66	24.40	24.50	25.5	1
10	16QAM	1	25	25.27	25.30	25.18	24.12	25.06		
10	16QAM	1	49	25.30	25.28	24.48	24.11	24.04		
10	16QAM	25	0	24.06	24.16	24.08	23.25	23.95	24.5	2
10	16QAM	25	12	24.19	24.34	24.20	23.24	24.02		
10	16QAM	25	25	24.02	24.06	23.99	23.22	23.68		
10	16QAM	50	0	24.02	24.09	24.05	23.17	23.83		
10	64QAM	1	0	24.22	23.80	23.55	22.49	23.55	24.5	2
10	64QAM	1	25	24.18	23.84	24.14	22.23	23.59		
10	64QAM	1	49	24.15	23.95	23.48	22.20	22.18		
10	64QAM	25	0	23.10	22.89	23.03	21.32	22.93	23.5	3
10	64QAM	25	12	23.19	22.93	23.17	21.38	22.54		
10	64QAM	25	25	23.03	22.98	22.98	21.34	21.84		
10	64QAM	50	0	23.05	22.91	22.96	21.39	22.38		
Channel				39675	40148	40620	41093	41565	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2498.5	2545.8	2593	2640.30	2687.5		
5	QPSK	1	0	26.01	26.10	25.31	25.15	25.36	26.5	0
5	QPSK	1	12	25.97	26.06	25.99	24.89	25.80		
5	QPSK	1	24	26.06	26.09	25.22	24.83	24.80		
5	QPSK	12	0	25.03	25.13	25.07	24.19	24.98	25.5	1
5	QPSK	12	7	25.22	25.32	25.17	24.13	25.05		
5	QPSK	12	13	24.97	25.06	24.89	24.13	24.53		
5	QPSK	25	0	25.01	25.00	24.98	23.98	24.85		
5	16QAM	1	0	25.26	25.27	24.66	24.36	24.51	25.5	1
5	16QAM	1	12	25.25	25.31	25.18	24.20	25.10		
5	16QAM	1	24	25.26	25.34	24.55	24.05	24.07		
5	16QAM	12	0	24.04	24.11	24.09	23.22	23.99	24.5	2
5	16QAM	12	7	24.21	24.28	24.19	23.22	24.06		
5	16QAM	12	13	23.99	24.08	23.93	23.26	23.68		
5	16QAM	25	0	24.07	24.07	24.02	23.22	23.86		
5	64QAM	1	0	24.26	23.88	23.55	22.46	23.55	24.5	2
5	64QAM	1	12	24.15	23.80	24.17	22.29	23.57		
5	64QAM	1	24	24.24	24.03	23.49	22.27	22.16		
5	64QAM	12	0	23.13	22.86	23.00	21.34	22.90	23.5	3
5	64QAM	12	7	23.19	22.98	23.22	21.40	22.59		
5	64QAM	12	13	22.99	22.93	22.98	21.24	21.76		
5	64QAM	25	0	23.00	22.88	23.02	21.33	22.40		

<LTE Band 48>

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	21.48	21.29	21.26	21.59	22	0
20	QPSK	1	49	21.40	21.19	21.22	21.51		
20	QPSK	1	99	21.31	21.12	21.12	21.38		
20	QPSK	50	0	20.58	20.30	20.46	20.64	21	1
20	QPSK	50	24	20.49	20.30	20.36	20.44		
20	QPSK	50	50	20.26	20.07	20.08	20.33		
20	QPSK	100	0	20.30	20.10	20.14	20.39		
20	16QAM	1	0	20.58	20.37	20.37	20.62	21	1
20	16QAM	1	49	20.47	20.27	20.32	20.59		
20	16QAM	1	99	20.34	20.16	20.22	20.46		
20	16QAM	50	0	19.41	19.21	19.25	19.45	20	2
20	16QAM	50	24	19.51	19.33	19.38	19.62		
20	16QAM	50	50	19.26	19.06	19.10	19.35		
20	16QAM	100	0	19.30	19.11	19.17	19.40		
20	64QAM	1	0	19.33	19.13	19.13	19.39	20	2
20	64QAM	1	49	19.28	19.05	19.08	19.37		
20	64QAM	1	99	19.14	18.92	19.00	19.24		
20	64QAM	50	0	18.42	18.19	18.22	18.46	19	3
20	64QAM	50	24	18.52	18.32	18.34	18.62		
20	64QAM	50	50	18.23	18.07	18.12	18.36		
20	64QAM	100	0	18.34	18.10	18.16	18.42		
Channel				55315	55820	56160	56665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				3557.5	3608	3642	3692.5		
15	QPSK	1	0	21.48	21.20	21.48	21.20	22	0
15	QPSK	1	37	21.32	21.15	21.32	21.15		
15	QPSK	1	74	21.30	21.09	21.30	21.09		
15	QPSK	36	0	20.37	20.17	20.37	20.17	21	1
15	QPSK	36	20	20.43	20.28	20.43	20.28		
15	QPSK	36	39	20.25	19.97	20.25	19.97		
15	QPSK	75	0	20.20	20.05	20.20	20.05		
15	16QAM	1	0	20.49	20.32	20.49	20.32	21	1
15	16QAM	1	37	20.44	20.22	20.44	20.22		
15	16QAM	1	74	20.27	20.12	20.27	20.12		
15	16QAM	36	0	19.32	19.20	19.32	19.20	20	2
15	16QAM	36	20	19.44	19.25	19.44	19.25		
15	16QAM	36	39	19.23	18.98	19.23	18.98		
15	16QAM	75	0	19.25	19.06	19.25	19.06		
15	64QAM	1	0	19.28	19.03	19.28	19.03	20	2
15	64QAM	1	37	19.18	19.05	19.18	19.05		
15	64QAM	1	74	19.12	18.89	19.12	18.89		
15	64QAM	36	0	18.37	18.17	18.37	18.17	19	3
15	64QAM	36	20	18.49	18.30	18.49	18.30		
15	64QAM	36	39	18.15	18.02	18.15	18.02		
15	64QAM	75	0	18.30	18.00	18.30	18.00		
Channel				55290	55815	56165	56690	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				3555	3607.5	3642.5	3695		
10	QPSK	1	0	21.45	21.28	21.47	21.21	22	0
10	QPSK	1	25	21.33	21.11	21.34	21.17		
10	QPSK	1	49	21.28	21.09	21.27	21.10		
10	QPSK	25	0	20.37	20.11	20.38	20.10	21	1
10	QPSK	25	12	20.40	20.20	20.42	20.29		

10	QPSK	25	25	20.22	20.04	20.24	19.98		
10	QPSK	50	0	20.24	20.01	20.25	20.09		
10	16QAM	1	0	20.56	20.28	20.53	20.32	21	1
10	16QAM	1	25	20.46	20.25	20.37	20.19		
10	16QAM	1	49	20.31	20.09	20.25	20.09		
10	16QAM	25	0	19.38	19.20	19.36	19.15	20	2
10	16QAM	25	12	19.45	19.28	19.43	19.31		
10	16QAM	25	25	19.24	19.03	19.20	18.99		
10	16QAM	50	0	19.24	19.09	19.26	19.07		
10	64QAM	1	0	19.23	19.09	19.29	19.12	20	2
10	64QAM	1	25	19.27	19.03	19.27	19.04		
10	64QAM	1	49	19.10	18.90	19.09	18.90		
10	64QAM	25	0	18.39	18.16	18.41	18.14	19	3
10	64QAM	25	12	18.48	18.24	18.45	18.23		
10	64QAM	25	25	18.22	18.02	18.13	18.05		
10	64QAM	50	0	18.34	18.02	18.27	18.04		
Channel				55265	55810	56170	56715	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				3552.5	3607	3643	3697.5		
5	QPSK	1	0	21.44	21.23	21.45	21.19	22	0
5	QPSK	1	12	21.33	21.12	21.37	21.14		
5	QPSK	1	24	21.31	21.06	21.24	21.05		
5	QPSK	12	0	20.36	20.20	20.35	20.18	21	1
5	QPSK	12	7	20.47	20.27	20.41	20.25		
5	QPSK	12	13	20.17	20.02	20.19	20.06		
5	QPSK	25	0	20.26	20.10	20.26	20.10		
5	16QAM	1	0	20.49	20.33	20.56	20.35	21	1
5	16QAM	1	12	20.47	20.22	20.38	20.25		
5	16QAM	1	24	20.31	20.13	20.28	20.13		
5	16QAM	12	0	19.37	19.16	19.39	19.21	20	2
5	16QAM	12	7	19.50	19.30	19.49	19.28		
5	16QAM	12	13	19.23	19.00	19.20	19.05		
5	16QAM	25	0	19.21	19.11	19.27	19.11		
5	64QAM	1	0	19.32	19.12	19.32	19.07	20	2
5	64QAM	1	12	19.24	19.03	19.26	19.02		
5	64QAM	1	24	19.05	18.90	19.06	18.85		
5	64QAM	12	0	18.33	18.14	18.40	18.13	19	3
5	64QAM	12	7	18.49	18.30	18.42	18.32		
5	64QAM	12	13	18.13	18.05	18.18	18.02		
5	64QAM	25	0	18.25	18.10	18.27	18.02		

Reduced Power Mode

<LTE Band 38>

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				37850	38000	38150		
Frequency (MHz)				2580	2595	2610		
20	QPSK	1	0	17.10	17.16	17.12	17.5	0
20	QPSK	1	49	16.79	16.92	16.54		
20	QPSK	1	99	16.22	16.63	16.38		
20	QPSK	50	0	16.66	16.75	16.59	17.5	0
20	QPSK	50	24	16.40	16.34	16.35		
20	QPSK	50	50	16.32	16.28	16.26		
20	QPSK	100	0	16.07	16.26	16.25		
20	16QAM	1	0	16.34	16.29	16.10	17.5	0
20	16QAM	1	49	16.35	16.32	16.23		
20	16QAM	1	99	16.23	16.23	16.11		
20	16QAM	50	0	16.14	16.28	16.03	17.5	0
20	16QAM	50	24	16.24	16.14	16.21		
20	16QAM	50	50	15.93	16.08	15.79		
20	16QAM	100	0	16.09	16.05	15.87		
20	64QAM	1	0	16.00	16.15	16.07	17.5	0
20	64QAM	1	49	16.22	16.34	16.42		
20	64QAM	1	99	16.32	16.21	16.16		
20	64QAM	50	0	16.04	16.13	15.96	17.5	0
20	64QAM	50	24	16.16	16.23	16.10		
20	64QAM	50	50	15.81	16.05	16.05		
20	64QAM	100	0	15.87	16.00	15.90		
Channel				37825	38000	38175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2577.5	2595	2612.5		
15	QPSK	1	0	17.05	17.09	17.09	17.5	0
15	QPSK	1	37	16.77	16.91	16.51		
15	QPSK	1	74	16.19	16.59	16.32		
15	QPSK	36	0	16.65	16.71	16.58	17.5	0
15	QPSK	36	20	16.43	16.30	16.32		
15	QPSK	36	39	16.29	16.26	16.19		
15	QPSK	75	0	16.03	16.26	16.24		
15	16QAM	1	0	16.27	16.24	16.06	17.5	0
15	16QAM	1	37	16.32	16.29	16.22		
15	16QAM	1	74	16.16	16.18	16.11		
15	16QAM	36	0	16.15	16.21	16.05	17.5	0
15	16QAM	36	20	16.19	16.13	16.17		
15	16QAM	36	39	15.92	16.09	15.77		
15	16QAM	75	0	16.10	15.99	15.86		
15	64QAM	1	0	15.99	16.13	16.09	17.5	0
15	64QAM	1	37	16.17	16.35	16.40		
15	64QAM	1	74	16.30	16.19	16.18		
15	64QAM	36	0	15.99	16.16	15.90	17.5	0
15	64QAM	36	20	16.14	16.26	16.04		
15	64QAM	36	39	15.75	16.04	16.05		
15	64QAM	75	0	15.84	15.99	15.93		
Channel				37800	38000	38200	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2575	2595	2615		
10	QPSK	1	0	17.05	17.10	17.04	17.5	0
10	QPSK	1	25	16.75	16.94	16.52		
10	QPSK	1	49	16.13	16.54	16.25		
10	QPSK	25	0	16.65	16.73	16.54	17.5	0

10	QPSK	25	12	16.40	16.23	16.29		
10	QPSK	25	25	16.22	16.29	16.14		
10	QPSK	50	0	15.96	16.19	16.19		
10	16QAM	1	0	16.27	16.26	15.99	17.5	0
10	16QAM	1	25	16.25	16.26	16.16		
10	16QAM	1	49	16.18	16.14	16.09		
10	16QAM	25	0	16.10	16.15	16.06	17.5	0
10	16QAM	25	12	16.15	16.06	16.11		
10	16QAM	25	25	15.87	16.08	15.76		
10	16QAM	50	0	16.12	15.97	15.79		
10	64QAM	1	0	15.99	16.14	16.04	17.5	0
10	64QAM	1	25	16.12	16.28	16.37		
10	64QAM	1	49	16.33	16.21	16.14		
10	64QAM	25	0	15.97	16.12	15.83	17.5	0
10	64QAM	25	12	16.16	16.29	15.98		
10	64QAM	25	25	15.73	16.04	16.01		
10	64QAM	50	0	15.85	16.02	15.95		
Channel				37775	38000	38225	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2572.5	2595	2617.5		
5	QPSK	1	0	17.07	17.06	17.02	17.5	0
5	QPSK	1	12	16.70	16.92	16.54		
5	QPSK	1	24	16.09	16.54	16.24		
5	QPSK	12	0	16.66	16.71	16.56	17.5	0
5	QPSK	12	7	16.36	16.25	16.29		
5	QPSK	12	13	16.16	16.25	16.13		
5	QPSK	25	0	15.95	16.22	16.20		
5	16QAM	1	0	16.30	16.20	15.98	17.5	0
5	16QAM	1	12	16.21	16.25	16.12		
5	16QAM	1	24	16.13	16.12	16.03		
5	16QAM	12	0	16.13	16.12	16.07	17.5	0
5	16QAM	12	7	16.13	15.99	16.12		
5	16QAM	12	13	15.90	16.04	15.74		
5	16QAM	25	0	16.07	15.95	15.79		
5	64QAM	1	0	15.96	16.11	16.06	17.5	0
5	64QAM	1	12	16.06	16.27	16.37		
5	64QAM	1	24	16.28	16.21	16.15		
5	64QAM	12	0	15.91	16.09	15.76	17.5	0
5	64QAM	12	7	16.15	16.23	15.92		
5	64QAM	12	13	15.72	16.06	16.02		
5	64QAM	25	0	15.87	15.99	15.90		

<LTE Band 41 & Band 41(HPUE)>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Low Middle Ch. / Freq.	Power Middle Ch. / Freq.	Power High Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				39750	40185	40620	41055	41490		
Frequency (MHz)				2506	2549.5	2593	2636.5	2680		
20	QPSK	1	0	16.51	16.59	16.44	16.21	16.20	17.5	0
20	QPSK	1	49	16.03	16.32	16.19	15.85	15.87		
20	QPSK	1	99	15.87	16.00	15.63	16.00	16.00		
20	QPSK	50	0	16.06	16.15	16.14	15.81	15.79	17.5	0
20	QPSK	50	24	15.79	15.86	15.83	15.64	15.60		
20	QPSK	50	50	15.63	15.70	15.79	15.68	15.63		
20	QPSK	100	0	15.65	15.79	15.60	15.72	15.77		
20	16QAM	1	0	15.74	15.81	15.75	15.84	15.87	17.5	0
20	16QAM	1	49	15.89	15.86	15.85	15.79	15.77		
20	16QAM	1	99	15.77	15.80	15.68	15.73	15.73		
20	16QAM	50	0	15.78	15.98	15.95	16.11	16.08	17.5	0
20	16QAM	50	24	16.12	16.09	16.05	15.66	15.74		
20	16QAM	50	50	15.71	15.93	15.79	15.78	15.81		
20	16QAM	100	0	15.81	15.84	15.87	15.88	15.93		
20	64QAM	1	0	15.91	15.95	15.87	16.17	16.15	17.5	0
20	64QAM	1	49	16.19	16.20	16.08	15.92	15.90		
20	64QAM	1	99	15.93	16.08	16.13	15.82	15.84		
20	64QAM	50	0	15.81	16.03	15.84	15.88	15.91	17.5	0
20	64QAM	50	24	15.91	15.96	16.07	15.89	15.94		
20	64QAM	50	50	15.91	15.82	15.62	15.71	15.77		
20	64QAM	100	0	15.75	15.93	15.69	15.57	15.74		
Channel				39725	40173	40620	41068	41515	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2503.5	2548.3	2593	2637.8	2682.5		
15	QPSK	1	0	16.49	16.55	16.37	15.97	15.96	17.5	0
15	QPSK	1	37	15.83	16.15	16.04	15.86	15.86		
15	QPSK	1	74	15.64	15.86	15.72	15.93	15.94		
15	QPSK	36	0	15.86	15.97	16.01	15.84	15.80	17.5	0
15	QPSK	36	20	15.58	15.64	15.60	15.57	15.58		
15	QPSK	36	39	15.59	15.54	15.61	15.69	15.63		
15	QPSK	75	0	15.52	15.52	15.51	15.65	15.77		
15	16QAM	1	0	15.60	15.61	15.61	15.78	15.81	17.5	0
15	16QAM	1	37	15.66	15.67	15.69	15.82	15.75		
15	16QAM	1	74	15.61	15.64	15.52	15.66	15.73		
15	16QAM	36	0	15.65	15.85	15.78	16.13	16.01	17.5	0
15	16QAM	36	20	15.90	15.87	15.85	15.62	15.73		
15	16QAM	36	39	15.52	15.75	15.64	15.81	15.75		
15	16QAM	75	0	15.58	15.67	15.74	15.91	15.86		
15	64QAM	1	0	15.71	15.72	15.64	16.14	16.10	17.5	0
15	64QAM	1	37	16.03	16.04	15.94	15.87	15.88		
15	64QAM	1	74	15.76	15.94	15.93	15.81	15.86		
15	64QAM	36	0	15.68	15.84	15.69	15.83	15.89	17.5	0
15	64QAM	36	20	15.77	15.83	15.86	15.83	15.92		
15	64QAM	36	39	15.71	15.69	15.60	15.71	15.74		
15	64QAM	75	0	15.54	15.77	15.54	15.54	15.77		
Channel				39700	40160	40620	41080	41540	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2501	2547	2593	2639	2685		
10	QPSK	1	0	16.43	16.55	16.30	15.94	15.92	17.5	0
10	QPSK	1	25	15.85	16.18	16.02	15.87	15.82		
10	QPSK	1	49	15.58	15.79	15.71	15.96	15.88		
10	QPSK	25	0	15.81	15.96	16.04	15.77	15.74	17.5	0
10	QPSK	25	12	15.58	15.60	15.60	15.55	15.52		

10	QPSK	25	25	15.59	15.52	15.60	15.70	15.62		
10	QPSK	50	0	15.56	15.51	15.54	15.63	15.76		
10	16QAM	1	0	15.58	15.63	15.62	15.71	15.75	17.5	0
10	16QAM	1	25	15.68	15.60	15.64	15.76	15.75		
10	16QAM	1	49	15.63	15.65	15.53	15.66	15.68		
10	16QAM	25	0	15.67	15.81	15.75	16.07	15.99	17.5	0
10	16QAM	25	12	15.93	15.90	15.88	15.63	15.68		
10	16QAM	25	25	15.53	15.69	15.64	15.75	15.75		
10	16QAM	50	0	15.54	15.68	15.74	15.86	15.83		
10	64QAM	1	0	15.64	15.65	15.63	16.15	16.03	17.5	0
10	64QAM	1	25	16.05	16.05	15.91	15.82	15.88		
10	64QAM	1	49	15.70	15.94	15.87	15.76	15.88		
10	64QAM	25	0	15.69	15.85	15.70	15.86	15.86	17.5	0
10	64QAM	25	12	15.78	15.85	15.89	15.77	15.93		
10	64QAM	25	25	15.70	15.62	15.50	15.71	15.72		
10	64QAM	50	0	15.54	15.77	15.53	15.60	15.73		
Channel				39675	40148	40620	41093	41565	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2498.5	2545.8	2593	2640.30	2687.5		
5	QPSK	1	0	16.37	16.52	16.32	15.87	15.90	17.5	0
5	QPSK	1	12	15.83	16.18	16.03	15.89	15.84		
5	QPSK	1	24	15.59	15.81	15.71	15.97	15.85		
5	QPSK	12	0	15.83	15.95	16.01	15.80	15.72	17.5	0
5	QPSK	12	7	15.59	15.61	15.57	15.70	15.51		
5	QPSK	12	13	15.60	15.52	15.53	15.64	15.55		
5	QPSK	25	0	15.55	15.51	15.55	15.65	15.75		
5	16QAM	1	0	15.53	15.59	15.62	15.69	15.71	17.5	0
5	16QAM	1	12	15.69	15.61	15.57	15.73	15.69		
5	16QAM	1	24	15.64	15.60	15.62	15.62	15.70		
5	16QAM	12	0	15.69	15.79	15.75	16.07	15.97	17.5	0
5	16QAM	12	7	15.96	15.93	15.84	15.58	15.66		
5	16QAM	12	13	15.72	15.65	15.61	15.70	15.77		
5	16QAM	25	0	15.56	15.70	15.67	15.80	15.81		
5	64QAM	1	0	15.65	15.64	15.65	16.13	16.00	17.5	0
5	64QAM	1	12	15.98	15.98	15.88	15.82	15.90		
5	64QAM	1	24	15.65	15.90	15.89	15.75	15.90		
5	64QAM	12	0	15.66	15.85	15.63	15.89	15.80	17.5	0
5	64QAM	12	7	15.77	15.84	15.87	15.76	15.92		
5	64QAM	12	13	15.70	15.60	15.61	15.65	15.68		
5	64QAM	25	0	15.50	15.76	15.58	15.57	15.66		

<LTE Band 48>

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	18.05	18.15	18.22	18.36	19	0
20	QPSK	1	49	17.88	17.88	17.96	18.08		
20	QPSK	1	99	17.84	17.71	17.84	17.72		
20	QPSK	50	0	17.85	17.94	17.98	18.09	19	0
20	QPSK	50	24	17.79	18.07	17.84	18.06		
20	QPSK	50	50	17.76	17.77	17.87	17.86		
20	QPSK	100	0	17.70	17.84	17.76	17.90		
20	16QAM	1	0	17.82	17.87	17.89	17.82	19	0
20	16QAM	1	49	17.86	17.62	17.91	17.65		
20	16QAM	1	99	17.75	17.67	17.82	17.83		
20	16QAM	50	0	17.61	17.70	17.66	17.78	19	0
20	16QAM	50	24	17.78	17.66	17.81	17.76		
20	16QAM	50	50	17.44	17.40	17.56	17.46		
20	16QAM	100	0	17.41	17.46	17.45	17.54		
20	64QAM	1	0	17.38	17.63	17.48	17.58	19	0
20	64QAM	1	49	17.69	17.81	17.74	17.79		
20	64QAM	1	99	17.71	17.76	17.77	17.78		
20	64QAM	50	0	17.58	17.62	17.58	17.73	19	0
20	64QAM	50	24	17.64	17.70	17.75	17.67		
20	64QAM	50	50	17.42	17.45	17.37	17.48		
20	64QAM	100	0	17.44	17.59	17.51	17.72		
Channel				55315	55820	56160	56665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				3557.5	3608	3642	3692.5		
15	QPSK	1	0	18.04	18.16	18.17	18.31	19	0
15	QPSK	1	37	17.90	17.82	17.94	18.01		
15	QPSK	1	74	17.33	17.74	17.44	17.71		
15	QPSK	36	0	17.32	17.41	17.45	17.51	19	0
15	QPSK	36	20	17.46	17.70	17.43	17.72		
15	QPSK	36	39	17.37	17.38	17.44	17.46		
15	QPSK	75	0	17.34	17.41	17.41	17.52		
15	16QAM	1	0	17.46	17.46	17.55	17.47	19	0
15	16QAM	1	37	17.49	17.24	17.54	17.28		
15	16QAM	1	74	17.37	17.24	17.44	17.43		
15	16QAM	36	0	17.25	17.28	17.26	17.40	19	0
15	16QAM	36	20	17.42	17.31	17.44	17.38		
15	16QAM	36	39	17.11	17.07	17.19	17.11		
15	16QAM	75	0	17.08	17.12	17.06	17.17		
15	64QAM	1	0	17.05	17.28	17.09	17.23	19	0
15	64QAM	1	37	17.26	17.48	17.31	17.46		
15	64QAM	1	74	17.37	17.40	17.37	17.40		
15	64QAM	36	0	17.17	17.22	17.18	17.30	19	0
15	64QAM	36	20	17.24	17.36	17.33	17.28		
15	64QAM	36	39	17.08	17.08	17.03	17.13		
15	64QAM	75	0	17.04	17.23	17.12	17.35		
Channel				55290	55815	56165	56690	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				3555	3607.5	3642.5	3695		
10	QPSK	1	0	18.05	18.19	18.10	18.26	19	0
10	QPSK	1	25	17.92	17.77	17.90	17.95		
10	QPSK	1	49	17.27	17.71	17.41	17.74		
10	QPSK	25	0	17.28	17.34	17.38	17.49	19	0
10	QPSK	25	12	17.41	17.63	17.42	17.72		

10	QPSK	25	25	17.40	17.40	17.38	17.39		
10	QPSK	50	0	17.30	17.39	17.39	17.51		
10	16QAM	1	0	17.41	17.49	17.53	17.48	19	0
10	16QAM	1	25	17.48	17.23	17.48	17.27		
10	16QAM	1	49	17.36	17.24	17.37	17.36		
10	16QAM	25	0	17.28	17.28	17.28	17.33	19	0
10	16QAM	25	12	17.43	17.28	17.45	17.33		
10	16QAM	25	25	17.06	17.05	17.13	17.07		
10	16QAM	50	0	17.10	17.06	17.02	17.12		
10	64QAM	1	0	17.07	17.24	17.07	17.26	19	0
10	64QAM	1	25	17.24	17.41	17.34	17.48		
10	64QAM	1	49	17.30	17.36	17.33	17.39		
10	64QAM	25	0	17.17	17.17	17.19	17.25	19	0
10	64QAM	25	12	17.24	17.38	17.34	17.31		
10	64QAM	25	25	17.05	17.02	17.06	17.11		
10	64QAM	50	0	17.05	17.18	17.14	17.30		
Channel				55265	55810	56170	56715	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				3552.5	3607	3643	3697.5		
5	QPSK	1	0	18.06	18.12	18.06	18.29	19	0
5	QPSK	1	12	17.90	17.75	17.83	17.93		
5	QPSK	1	24	17.29	17.74	17.41	17.76		
5	QPSK	12	0	17.29	17.35	17.37	17.42	19	0
5	QPSK	12	7	17.44	17.57	17.42	17.71		
5	QPSK	12	13	17.40	17.39	17.39	17.38		
5	QPSK	25	0	17.28	17.38	17.34	17.51		
5	16QAM	1	0	17.44	17.48	17.56	17.42	19	0
5	16QAM	1	12	17.47	17.17	17.49	17.24		
5	16QAM	1	24	17.33	17.23	17.36	17.37		
5	16QAM	12	0	17.29	17.23	17.31	17.34	19	0
5	16QAM	12	7	17.40	17.25	17.42	17.34		
5	16QAM	12	13	17.00	17.02	17.13	17.08		
5	16QAM	25	0	17.06	17.09	17.01	17.08		
5	64QAM	1	0	17.01	17.25	17.04	17.22	19	0
5	64QAM	1	12	17.26	17.42	17.27	17.51		
5	64QAM	1	24	17.26	17.35	17.30	17.36		
5	64QAM	12	0	17.15	17.12	17.22	17.22	19	0
5	64QAM	12	7	17.22	17.37	17.37	17.25		
5	64QAM	12	13	17.03	17.04	17.06	17.06		
5	64QAM	25	0	17.05	17.14	17.08	17.26		

<LTE Carrier Aggregation combinations>

General Note:

1. This device supports Carrier Aggregation on downlink only for inter and intra band, Uplink CA is not supported. For the device supports combination bands and configurations are according to 3GPP.
2. In applying the existing power measurement procedure of KDB 941225 D05A for DL CA SAR test exclusion, only the subset with the largest number of combinations of the frequency band and CCs in each row need consideration, and that configurations require power measurement should be highlighted in the below table.

2CC Downlink Carrier Aggregation			3CC Downlink Carrier Aggregation			3CC Downlink Carrier Aggregation		
Number	Combination	Covered by Measurement Superset	Number	Combination	Covered by Measurement Superset	Number	Combination	Covered by Measurement Superset
1	2A-2A	69	69	2A-2A-5A		329	13A-48A-48C-66A	
2	2A-4A	74	70	2A-2A-12A		330	13A-48A-48D	
3	2A-5A	78	71	2A-2A-13A		331	13A-48C-48C	
4	2A-12A	81	72	2A-2A-30A		332	13A-48C-66B	
5	2A-13A	83	73	2A-2A-66A		333	13A-48C-66C	
6	2A-14A	85	74	2A-4A-5A		334	13A-48D-66A	
7	2A-29A	87	75	2A-4A-12A		335	13A-48E	
8	2A-30A	88	76	2A-4A-13A		336	25A-25A-41D	
9	2A-66A	91	77	2A-5B		337	25A-41E	
10	2C	92	78	2A-5A-30A		338	2A-12A-30A-66A-66A	
11	4A-4A	93	79	2A-5A-46A		339	2A-13A-48A-48A-66A	
12	4A-5A	96	80	2A-5A-66A		340	2A-13A-48A-48C	
13	4A-12A	97	81	2A-12A-30A		341	2A-13A-48C-66A	
14	4A-13A		82	2A-12A-66A		342	2A-13A-48D	
15	4A-29A	98	83	2A-13A-46A		343	2A-13A-66A-66B	
16	4A-30A		84	2A-13A-66A		344	2A-13A-66A-66C	
17	4A-46A	99	85	2A-14A-30A		345	2A-13A-66D	
18	4A-48A		86	2A-14A-66A		346	2A-14A-30A-66A-66A	
19	5A-7A		87	2A-29A-30A		347	2A-14A-66A-66A-66A	
20	5A-46A	102	88	2A-30A-66A		348	2A-2A-12A-30A-66A	
21	5A-66A	103	89	2A-46A-66A		349	2A-2A-12A-66A-66A	
22	5B	105	90	2A-46C		350	2A-2A-12B-66A	
23	7A-7A		91	2A-66C		351	2A-2A-13A-66A-66A	
24	7A-8A		92	2C-29A		352	2A-2A-13A-66B	
25	7A-32A		93	4A-4A-5A		353	2A-2A-14A-30A-66A	
26	7A-46A		94	4A-4A-12A		354	2A-2A-14A-66A-66A	
27	7C		95	4A-4A-13A		355	2A-2A-5A-30A-66A	
28	12A-30A	108	96	4A-5A-30A		356	2A-2A-5A-66A-66A	
29	12A-66A		97	4A-12A-30A		357	2A-2A-5A-66B	
30	13A-66A	110	98	4A-29A-30A		358	2A-2A-5A-66C	
31	13A-46A	109	99	4A-46A-46A		359	2A-2A-5B-66A	
32	14A-30A	112	100	4A-46C		360	2A-2A-66A-66B	
33	14A-66A		101	5A-30A-66A		361	2A-2A-66A-66C	
34	25A-25A		102	5A-46A-66A		362	2A-2A-7A-12A-66A	
35	25A-26A		103	5A-66A-66A		363	2A-48A-48C-66A	
36	25A-41A	113	104	5A-66C		364	2A-48A-48D	
37	25A-46A		105	5B-30A		365	2A-48C-48C	
38	26A-41A	114	106	5B-66A		366	2A-48D-66A	
39	29A-30A	116	107	7A-20A-32A		367	2A-48E	5CC-405
40	29A-66A	117	108	12A-30A-66A		368	2A-4A-5B-30A	
41	41A-41A	119	109	13A-46A-66A		369	2A-5A-30A-66A-66A	
42	41C		110	13A-66A-66A		370	2A-5A-48A-48A-66A	
43	42C		111	13A-66C		371	2A-5A-48A-48C	
44	46A-66A	121	112	14A-30A-66A		372	2A-5A-48C-66A	
45	48A-48A		113	25A-41C		373	2A-5A-48D	

46	66A-66A	122	114	26A-41C		374	2A-5B-30A-66A	
47	66B	125	115	29A-30A-66A		375	2A-5B-66A-66A	
48	66C	125	116	29A-66A-66A		376	2A-5B-66B	
			117	30A-66A-66A		377	2A-5B-66C	
			118	41A-41A-41A		378	2A-7A-12B-66A	
			119	41D		379	2C-5B-30A	
			120	46A-46A-66A		380	41A-42C-42C	
			121	46C-66A		381	41C-41D	
			122	66A-66A-66A		382	41C-42A-42C	
			123	66A-66B		383	41D-42C	
			124	66A-66C		384	48A-48C-66B	
			125	66D		385	48A-48C-66C	
						386	48A-48D-66A	
						387	48C-48C-66A	
						388	48C-48D	
						389	48C-66A-66A-66A	
						390	48E-66A	
						391	48F	
						392	4A-48E	
						393	4A-4A-5B-30A	
						394	5A-48A-48C-66A	
						395	5A-48C-48C	
						396	5A-48E	
						397	5B-30A-66A-66A	
						398	5B-66A-66B	
						399	5B-66A-66C	
						400	5A-48A-48D	
						401	5A-48D-66A	
						402	2A-12B-66A-66A	
						403	2A-7C-66A-66A	
						404	2A-7A-7A-66A-66A	

<Power verification when LTE Carrier Aggregation Active>

General Note:

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

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

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

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

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

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

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

<Two Carrier power verification>

Configure		PCC							SCC				Power	
		LTE Band	BW (MHz)	UL Freq. (MHz)	UL Channel	Mod.	UL# RB	UL RB Offset	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	With CA Tx.Power (dBm)	W/O CA Tx.Power (dBm)
Inter-Band		4A-48A	20	1745	20300	QPSK	1	0	48	20	3625	55990	24.63	24.79
		5A-7A	10	836.5	20525	QPSK	1	0	7	20	2655	3100	23.93	23.97
		7A-46A	20	2535	21100	QPSK	1	0	46	20	5537.5	50665	24.99	24.92
		25A-26A	20	1880	26340	QPSK	1	0	26	15	876.5	8865	24.77	24.86
		25A-46A	20	1880	26340	QPSK	1	0	46	20	5537.5	50665	24.72	24.86
Intra-Band	Non-Contiguous	7A-7A	20	2535	21100	QPSK	1	0	7	20	2680	3350	24.73	24.92
		25A-25A	20	1860	26140	QPSK	1	0	25	20	1985	8590	24.77	24.86
		48A-48A	20	3690	56640	QPSK	1	0	48	20	3560	55340	21.72	21.59
	Contiguous	7C	20	2535	21100	QPSK	1	0	7	20	2674.8	3298	24.84	24.92

<Three Carrier power verification>

Configure		PCC							SCC1				SCC2				Power	
		LTE Band	BW (MHz)	UL Freq. (MHz)	UL Channel	Mod.	UL# RB	UL RB Offset	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	With CA Tx.Power (dBm)	W/O CA Tx.Power (dBm)
Inter-Band		2A-2A-5A	20	1860	18700	QPSK	1	0	2	20	1980	1100	5	10	881.5	2525	24.75	24.92
		2A-2A-12A	20	1860	18700	QPSK	1	0	2	20	1980	1100	12	10	737.5	5095	24.75	24.92
		2A-2A-13A	20	1860	18700	QPSK	1	0	2	20	1980	1100	13	10	751	5230	24.91	24.92
		2A-2A-30A	20	1860	18700	QPSK	1	0	2	20	1980	1100	30	10	2355	9820	24.96	24.92
		2A-2A-66A	20	1860	18700	QPSK	1	0	2	20	1980	1100	66	20	2155	66886	24.89	24.92
		2A-4A-5A	20	1860	18700	QPSK	1	0	4	20	2132.5	2175	5	10	881.5	2525	24.72	24.92
		2A-4A-12A	20	1860	18700	QPSK	1	0	4	20	2132.5	2175	12	10	737.5	5095	24.70	24.92
		2A-4A-13A	20	1860	18700	QPSK	1	0	4	20	2132.5	2175	13	10	751	5230	24.78	24.92
		2A-5B	20	1860	18700	QPSK	1	0	5	10	881.5	2525	5	10	891.4	2624	24.82	24.92
		2A-5A-30A	20	1860	18700	QPSK	1	0	5	10	881.5	2525	30	10	2355	9820	24.91	24.92
		2A-5A-46A	20	1860	18700	QPSK	1	0	5	10	881.5	2525	46	20	5537.5	50665	24.99	24.92
		2A-5A-66A	20	1860	18700	QPSK	1	0	5	10	881.5	2525	66	20	2155	66886	24.94	24.92
		2A-12A-30A	20	1860	18700	QPSK	1	0	12	10	737.5	5095	30	10	2355	9820	24.85	24.92
		2A-12A-66A	20	1860	18700	QPSK	1	0	12	10	737.5	5095	66	20	2155	66886	24.78	24.92
		2A-13A-46A	20	1860	18700	QPSK	1	0	13	10	751	5230	46	20	5537.5	50665	24.71	24.92
		2A-13A-66A	20	1860	18700	QPSK	1	0	13	10	751	5230	66	20	2155	66886	24.90	24.92
		2A-14A-30A	20	1860	18700	QPSK	1	0	14	10	763	5330	30	10	2355	9820	24.85	24.92
		2A-14A-66A	20	1860	18700	QPSK	1	0	14	10	763	5330	66	20	2155	66886	24.76	24.92
		2A-29A-30A	20	1860	18700	QPSK	1	0	29	10	722.5	9715	30	10	2355	9820	24.94	24.92
		2A-30A-66A	20	1860	18700	QPSK	1	0	30	10	2355	9820	66	20	2155	66886	24.92	24.92
		2A-46A-66A	20	1860	18700	QPSK	1	0	46	20	5537.5	50665	66	20	2155	66886	24.99	24.92
		2A-46C	20	1860	18700	QPSK	1	0	46	20	5537.5	50665	46	20	5557.3	50863	24.81	24.92
		2A-66C	20	1860	18700	QPSK	1	0	66	20	2155	66886	66	20	2174.8	67084	24.72	24.92
		2C-29A	20	1860	18700	QPSK	1	0	2	20	1979.5	919.8	29	10	722.5	9175	24.89	24.92
		4A-4A-5A	20	1745	20300	QPSK	1	0	4	20	2050	2120	5	10	881.5	2525	24.55	24.79
		4A-4A-12A	20	1745	20300	QPSK	1	0	4	20	2050	2120	12	10	737.5	5095	24.73	24.79
		4A-4A-13A	20	1745	20300	QPSK	1	0	4	20	2050	2120	13	10	751	5230	24.88	24.79
		4A-5A-30A	20	1745	20300	QPSK	1	0	5	10	881.5	2525	30	10	2355	9820	24.96	24.79
		4A-12A-30A	20	1745	20300	QPSK	1	0	12	10	737.5	5095	30	10	2355	9820	24.81	24.79
		4A-29A-30A	20	1745	20300	QPSK	1	0	29	10	722.5	9715	30	10	2355	9820	24.79	24.79
		4A-46A-46A	20	1745	20300	QPSK	1	0	46	20	5537.5	50665	46	20	5925	54539	24.61	24.79
		4A-46C	20	1745	20300	QPSK	1	0	46	20	5537.5	50665	46	20	5557.3	50863	24.90	24.79
		5A-30A-66A	10	836.5	20525	QPSK	1	0	30	10	2355	9820	66	20	2155	66886	23.87	23.97
		5A-46A-66A	10	836.5	20525	QPSK	1	0	46	20	5537.5	50665	66	20	2155	66886	23.76	23.97
		5A-66C	10	836.5	20525	QPSK	1	0	66	20	2155	66886	66	20	2174.8	67084	23.83	23.97
		5B-30A	10	836.5	20525	QPSK	1	0	5	10	891.4	2624	30	10	2355	9820	23.90	23.97
		5B-66A	10	836.5	20525	QPSK	1	0	5	10	891.4	2624	66	20	2155	66886	23.91	23.97
		12A-30A-66A	10	707.5	23095	23130	1	0	30	10	2355	9820	66	20	2155	66886	24.15	24.24
		13A-46A-66A	10	782	23230	QPSK	1	0	46	20	5537.5	50665	66	20	2155	66886	23.68	23.89
		13A-66C	10	782	23230	QPSK	1	0	66	20	2155	66886	66	20	2174.8	67084	23.77	23.89
		14A-30A-66A	10	793	23330	QPSK	1	0	30	10	2355	9820	66	20	2155	66886	23.85	23.93
		25A-41C	20	1880	26340	QPSK	1	0	41	20	2593	40620	41	20	2612.8	40818	24.91	24.86
		26A-41C	15	831.5	26865	QPSK	1	0	41	20	2593	40620	41	20	2612.8	40818	24.43	24.31
		30A-66A-66A	10	2310	27710	QPSK	1	0	66	20	2155	66886	66	20	2190	67236	21.98	22.08
Intra-Band	Contiguous	41D	20	2549.5	40185	QPSK	1	0	41	20	2569.3	40383	41	20	2589.1	40581	23.77	23.75
		66D	20	1770	132572	QPSK	1	0	66	20	2209.8	67434	66	20	2229.6	67632	24.87	24.96

<LTE Uplink carrier aggregation>

2CC Uplink Carrier Aggregation	
Number	Combination
1	41C

<Intra-band>

General Note:

i. The device supports intra-band uplink carrier aggregation for LTE B66/B41/B48 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.

<Full power>

CA_41C										
Combination 20MHz+20MHz (100RB+100RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm) Typ. target power with tolerance: +1dbm
			RB Size	RB offset	RB Size	RB offset				
39750	39948	QPSK	1	0	0	0	1	0	23.01	24
40185	39987	QPSK	1	0	1	99	2	0	23.09	24
40620	40422	QPSK	1	0	1	99	2	0	23.05	24

<Reduced Power>

CA_41C										
Combination 20MHz+20MHz (100RB+100RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm) Typ. target power with tolerance: +1dbm
			RB Size	RB offset	RB Size	RB offset				
39750	39948	QPSK	1	0	0	0	1	0	16.2	17.5
40185	39987	QPSK	1	0	1	99	2	0	16.21	17.5
40620	40422	QPSK	1	0	1	99	2	0	16.17	17.5

12. SAR Test Results

General Note:

1. Per KDB 447498 D01v06, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
   a. Tune-up scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
   b. For WWAN: Reported SAR(W/kg)= Measured SAR(W/kg)*Tune-up Scaling Factor
   c. 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 B5/B12/B26 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
7. LTE band 2/4 SAR test was covered by Band 25/66; 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.

12.1 Body SAR

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna Vendor	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
01	WCDMA II	RMC 12.2Kbps	Bottom of Laptop	0mm	AMP	ON	9400	1880	16.90	17.00	1.023	-0.14	1.140	1.167
	WCDMA II	RMC 12.2Kbps	Bottom of Laptop	0mm	AMP	ON	9262	1852.4	16.88	17.00	1.028	-0.07	1.020	1.049
	WCDMA II	RMC 12.2Kbps	Bottom of Laptop	0mm	AMP	ON	9538	1907.6	16.72	17.00	1.067	-0.13	0.941	1.004
	WCDMA II	RMC 12.2Kbps	Bottom of Laptop	0mm	JYT	ON	9400	1880	16.90	17.00	1.023	-0.15	1.080	1.105
	WCDMA II	RMC 12.2Kbps	Bottom of Laptop	0mm	JYT	ON	9262	1852.4	16.88	17.00	1.028	-0.13	1.120	1.151
	WCDMA II	RMC 12.2Kbps	Bottom of Laptop	0mm	JYT	ON	9538	1907.6	16.72	17.00	1.067	-0.13	0.923	0.984
	WCDMA II	RMC 12.2Kbps	Bottom of Laptop	15mm	AMP	OFF	9262	1852.4	23.54	25.00	1.400	-0.01	0.471	0.659
	WCDMA II	RMC 12.2Kbps	Bottom of Laptop	15mm	JYT	OFF	9262	1852.4	23.54	25.00	1.400	-0.06	0.400	0.560
	WCDMA IV	RMC 12.2Kbps	Bottom of Laptop	0mm	AMP	ON	1312	1712.4	17.91	18.00	1.021	-0.06	1.130	1.154
	WCDMA IV	RMC 12.2Kbps	Bottom of Laptop	0mm	AMP	ON	1413	1732.6	17.81	18.00	1.045	-0.14	1.020	1.066
	WCDMA IV	RMC 12.2Kbps	Bottom of Laptop	0mm	AMP	ON	1513	1752.6	17.88	18.00	1.028	-0.12	0.996	1.024
02	WCDMA IV	RMC 12.2Kbps	Bottom of Laptop	0mm	JYT	ON	1312	1712.4	17.91	18.00	1.021	-0.01	1.150	1.174
	WCDMA IV	RMC 12.2Kbps	Bottom of Laptop	0mm	JYT	ON	1413	1732.6	17.81	18.00	1.045	0.01	1.070	1.118
	WCDMA IV	RMC 12.2Kbps	Bottom of Laptop	0mm	JYT	ON	1513	1752.6	17.88	18.00	1.028	0	1.040	1.069
	WCDMA IV	RMC 12.2Kbps	Bottom of Laptop	15mm	AMP	OFF	1312	1712.4	23.55	25.00	1.396	0.03	0.457	0.638
	WCDMA IV	RMC 12.2Kbps	Bottom of Laptop	15mm	JYT	OFF	1312	1712.4	23.55	25.00	1.396	-0.12	0.436	0.609
	WCDMA V	RMC 12.2Kbps	Bottom of Laptop	0mm	AMP	ON	4182	836.4	19.83	20.00	1.040	-0.12	0.841	0.875
	WCDMA V	RMC 12.2Kbps	Bottom of Laptop	0mm	AMP	ON	4132	826.4	19.82	20.00	1.042	0	0.920	0.959
	WCDMA V	RMC 12.2Kbps	Bottom of Laptop	0mm	AMP	ON	4233	846.6	19.76	20.00	1.057	0.04	0.931	0.984
	WCDMA V	RMC 12.2Kbps	Bottom of Laptop	0mm	JYT	ON	4182	836.4	19.83	20.00	1.040	-0.05	0.962	1.000
	WCDMA V	RMC 12.2Kbps	Bottom of Laptop	0mm	JYT	ON	4132	826.4	19.82	20.00	1.042	-0.11	0.938	0.978
03	WCDMA V	RMC 12.2Kbps	Bottom of Laptop	0mm	JYT	ON	4233	846.6	19.76	20.00	1.057	0.02	0.974	1.029
	WCDMA V	RMC 12.2Kbps	Bottom of Laptop	15mm	AMP	OFF	4182	836.4	23.38	25.00	1.452	-0.07	0.344	0.500
	WCDMA V	RMC 12.2Kbps	Bottom of Laptop	15mm	JYT	OFF	4182	836.4	23.38	25.00	1.452	-0.07	0.332	0.482

<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Antenna Vendor	Power Reduction	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 5	10M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	20525	836.5	19.65	20.50	1.216	-0.08	0.856	1.041
	LTE Band 5	10M	QPSK	25	0	Bottom of Laptop	0mm	AMP	ON	20525	836.5	19.48	20.50	1.265	0.06	0.802	1.014
	LTE Band 5	10M	QPSK	50	0	Bottom of Laptop	0mm	AMP	ON	20525	836.5	19.36	20.50	1.300	0.11	0.754	0.980
04	LTE Band 5	10M	QPSK	1	0	Bottom of Laptop	0mm	JYT	ON	20525	836.5	19.65	20.50	1.216	-0.13	0.918	1.116
	LTE Band 5	10M	QPSK	25	0	Bottom of Laptop	0mm	JYT	ON	20525	836.5	19.48	20.50	1.265	0.09	0.855	1.081
	LTE Band 5	10M	QPSK	50	0	Bottom of Laptop	0mm	JYT	ON	20525	836.5	19.36	20.50	1.300	-0.02	0.822	1.069
	LTE Band 5	10M	QPSK	1	0	Bottom of Laptop	15mm	AMP	OFF	20525	836.5	23.97	25.00	1.268	-0.01	0.344	0.436
	LTE Band 5	10M	QPSK	25	0	Bottom of Laptop	15mm	AMP	OFF	20525	836.5	23.00	24.00	1.259	0.07	0.335	0.422
	LTE Band 5	10M	QPSK	1	0	Bottom of Laptop	15mm	JYT	OFF	20525	836.5	23.97	25.00	1.268	-0.05	0.429	0.544
	LTE Band 7	20M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	21100	2535	16.40	16.50	1.023	-0.12	0.941	0.963
	LTE Band 7	20M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	20850	2510	16.39	16.50	1.026	0.18	1.060	1.087
	LTE Band 7	20M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	21350	2560	16.31	16.50	1.045	-0.12	0.922	0.963
	LTE Band 7	20M	QPSK	50	0	Bottom of Laptop	0mm	AMP	ON	21100	2535	15.86	16.50	1.159	0	0.851	0.986
	LTE Band 7	20M	QPSK	50	0	Bottom of Laptop	0mm	AMP	ON	20850	2510	15.71	16.50	1.199	0.01	0.862	1.034
	LTE Band 7	20M	QPSK	50	0	Bottom of Laptop	0mm	AMP	ON	21350	2560	15.82	16.50	1.169	0.07	0.765	0.895
	LTE Band 7	20M	QPSK	100	0	Bottom of Laptop	0mm	AMP	ON	21100	2535	15.70	16.50	1.202	-0.04	0.805	0.968
05	LTE Band 7	20M	QPSK	1	0	Bottom of Laptop	0mm	JYT	ON	21100	2535	16.40	16.50	1.023	-0.02	1.150	1.177
	LTE Band 7	20M	QPSK	1	0	Bottom of Laptop	0mm	JYT	ON	20850	2510	16.39	16.50	1.026	-0.02	1.070	1.097
	LTE Band 7	20M	QPSK	1	0	Bottom of Laptop	0mm	JYT	ON	21350	2560	16.31	16.50	1.045	-0.04	0.866	0.904
	LTE Band 7	20M	QPSK	50	0	Bottom of Laptop	0mm	JYT	ON	21100	2535	15.86	16.50	1.159	0.06	0.895	1.037
	LTE Band 7	20M	QPSK	50	0	Bottom of Laptop	0mm	JYT	ON	20850	2510	15.71	16.50	1.199	-0.13	0.905	1.086
	LTE Band 7	20M	QPSK	50	0	Bottom of Laptop	0mm	JYT	ON	21350	2560	15.82	16.50	1.169	0.01	0.836	0.978
	LTE Band 7	20M	QPSK	100	0	Bottom of Laptop	0mm	JYT	ON	21100	2535	15.70	16.50	1.202	-0.07	0.847	1.018
	LTE Band 7	20M	QPSK	1	0	Bottom of Laptop	15mm	AMP	OFF	21100	2535	24.92	25.00	1.019	-0.13	0.484	0.493
	LTE Band 7	20M	QPSK	50	0	Bottom of Laptop	15mm	AMP	OFF	21100	2535	23.84	24.00	1.038	0.08	0.433	0.449
	LTE Band 7	20M	QPSK	1	0	Bottom of Laptop	15mm	JYT	OFF	21100	2535	24.92	25.00	1.019	-0.07	0.505	0.514
	LTE Band 12	10M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	23095	707.5	21.56	22.00	1.107	-0.1	1.070	1.184
	LTE Band 12	10M	QPSK	25	0	Bottom of Laptop	0mm	AMP	ON	23095	707.5	20.91	22.00	1.285	0.09	0.855	1.099
	LTE Band 12	10M	QPSK	50	0	Bottom of Laptop	0mm	AMP	ON	23095	707.5	20.74	22.00	1.337	-0.01	0.802	1.072
06	LTE Band 12	10M	QPSK	1	0	Bottom of Laptop	0mm	JYT	ON	23095	707.5	21.56	22.00	1.107	-0.13	1.080	1.195
	LTE Band 12	10M	QPSK	25	0	Bottom of Laptop	0mm	JYT	ON	23095	707.5	20.91	22.00	1.285	0.06	0.849	1.091
	LTE Band 12	10M	QPSK	50	0	Bottom of Laptop	0mm	JYT	ON	23095	707.5	20.74	22.00	1.337	0.11	0.811	1.084
	LTE Band 12	10M	QPSK	1	0	Bottom of Laptop	15mm	AMP	OFF	23095	707.5	24.24	25.00	1.191	-0.07	0.224	0.267
	LTE Band 12	10M	QPSK	25	0	Bottom of Laptop	15mm	AMP	OFF	23095	707.5	23.24	24.00	1.191	-0.01	0.215	0.256
	LTE Band 12	10M	QPSK	1	0	Bottom of Laptop	15mm	JYT	OFF	23095	707.5	24.24	25.00	1.191	-0.08	0.331	0.394
07	LTE Band 13	10M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	23230	782	22.38	22.50	1.028	-0.02	1.140	1.172
	LTE Band 13	10M	QPSK	25	0	Bottom of Laptop	0mm	AMP	ON	23230	782	21.88	22.50	1.153	0.15	0.885	1.021
	LTE Band 13	10M	QPSK	50	0	Bottom of Laptop	0mm	AMP	ON	23230	782	21.40	22.50	1.288	0.07	0.802	1.033
	LTE Band 13	10M	QPSK	1	0	Bottom of Laptop	0mm	JYT	ON	23230	782	22.38	22.50	1.028	-0.18	1.130	1.162
	LTE Band 13	10M	QPSK	25	0	Bottom of Laptop	0mm	JYT	ON	23230	782	21.88	22.50	1.153	0.06	0.862	0.994
	LTE Band 13	10M	QPSK	50	0	Bottom of Laptop	0mm	JYT	ON	23230	782	21.40	22.50	1.288	-0.01	0.784	1.010
	LTE Band 13	10M	QPSK	1	0	Bottom of Laptop	15mm	AMP	OFF	23230	782	23.89	25.00	1.291	-0.02	0.286	0.369
	LTE Band 13	10M	QPSK	25	0	Bottom of Laptop	15mm	AMP	OFF	23230	782	22.90	24.00	1.288	0.05	0.233	0.300
	LTE Band 13	10M	QPSK	1	0	Bottom of Laptop	15mm	JYT	OFF	23230	782	23.89	25.00	1.291	-0.01	0.370	0.478

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Antenna Vendor	Power Reduction	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 14	10M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	23330	793	21.79	22.00	1.050	-0.1	1.040	1.092
	LTE Band 14	10M	QPSK	25	0	Bottom of Laptop	0mm	AMP	ON	23330	793	21.39	22.00	1.151	0.01	0.878	1.010
	LTE Band 14	10M	QPSK	50	0	Bottom of Laptop	0mm	AMP	ON	23330	793	21.15	22.00	1.216	-0.13	0.866	1.053
08	LTE Band 14	10M	QPSK	1	0	Bottom of Laptop	0mm	JYT	ON	23330	793	21.79	22.00	1.050	-0.14	1.110	1.165
	LTE Band 14	10M	QPSK	25	0	Bottom of Laptop	0mm	JYT	ON	23330	793	21.39	22.00	1.151	0.07	0.905	1.041
	LTE Band 14	10M	QPSK	50	0	Bottom of Laptop	0mm	JYT	ON	23330	793	21.15	22.00	1.216	-0.03	0.874	1.063
	LTE Band 14	10M	QPSK	1	0	Bottom of Laptop	15mm	AMP	OFF	23330	793	23.93	25.00	1.279	-0.03	0.299	0.383
	LTE Band 14	10M	QPSK	25	0	Bottom of Laptop	15mm	AMP	OFF	23330	793	22.80	24.00	1.318	0.12	0.281	0.370
	LTE Band 14	10M	QPSK	1	0	Bottom of Laptop	15mm	JYT	OFF	23330	793	23.93	25.00	1.279	-0.03	0.385	0.493
	LTE Band 25	20M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	26340	1880	16.77	17.00	1.054	0.04	0.912	0.962
09	LTE Band 25	20M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	26140	1860	16.59	17.00	1.099	-0.06	1.020	1.121
	LTE Band 25	20M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	26590	1905	16.60	17.00	1.096	-0.13	0.955	1.047
	LTE Band 25	20M	QPSK	50	0	Bottom of Laptop	0mm	AMP	ON	26340	1880	16.44	17.00	1.138	0.04	0.805	0.916
	LTE Band 25	20M	QPSK	50	0	Bottom of Laptop	0mm	AMP	ON	26140	1860	16.35	17.00	1.161	-0.03	0.811	0.942
	LTE Band 25	20M	QPSK	50	0	Bottom of Laptop	0mm	AMP	ON	26590	1905	16.34	17.00	1.164	-0.02	0.796	0.927
	LTE Band 25	20M	QPSK	100	0	Bottom of Laptop	0mm	AMP	ON	26340	1880	16.34	17.00	1.164	-0.02	0.788	0.917
	LTE Band 25	20M	QPSK	1	0	Bottom of Laptop	0mm	JYT	ON	26340	1880	16.77	17.00	1.054	0.04	0.905	0.955
	LTE Band 25	20M	QPSK	1	0	Bottom of Laptop	0mm	JYT	ON	26140	1860	16.59	17.00	1.099	-0.03	0.914	1.004
	LTE Band 25	20M	QPSK	1	0	Bottom of Laptop	0mm	JYT	ON	26590	1905	16.60	17.00	1.096	-0.02	0.818	0.897
	LTE Band 25	20M	QPSK	50	0	Bottom of Laptop	0mm	JYT	ON	26340	1880	16.44	17.00	1.138	0.04	0.911	1.036
	LTE Band 25	20M	QPSK	50	0	Bottom of Laptop	0mm	JYT	ON	26140	1860	16.35	17.00	1.161	0.09	0.812	0.943
	LTE Band 25	20M	QPSK	50	0	Bottom of Laptop	0mm	JYT	ON	26590	1905	16.34	17.00	1.164	-0.06	0.803	0.935
	LTE Band 25	20M	QPSK	100	0	Bottom of Laptop	0mm	JYT	ON	26340	1880	16.34	17.00	1.164	-0.14	0.794	0.924
	LTE Band 25	20M	QPSK	1	0	Bottom of Laptop	15mm	AMP	OFF	26340	1880	24.86	25.00	1.033	0.04	0.508	0.525
	LTE Band 25	20M	QPSK	50	0	Bottom of Laptop	15mm	AMP	OFF	26340	1880	23.91	24.00	1.021	-0.06	0.396	0.404
	LTE Band 25	20M	QPSK	1	0	Bottom of Laptop	15mm	JYT	OFF	26340	1880	24.86	25.00	1.033	-0.1	0.501	0.517
	LTE Band 26	15M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	26865	831.5	19.70	20.50	1.202	0.05	0.821	0.987
	LTE Band 26	15M	QPSK	36	0	Bottom of Laptop	0mm	AMP	ON	26865	831.5	19.61	20.50	1.227	0.12	0.744	0.913
	LTE Band 26	15M	QPSK	75	0	Bottom of Laptop	0mm	AMP	ON	26865	831.5	19.34	20.50	1.306	-0.03	0.702	0.917
10	LTE Band 26	15M	QPSK	1	0	Bottom of Laptop	0mm	JYT	ON	26865	831.5	19.70	20.50	1.202	-0.17	0.863	1.038
	LTE Band 26	15M	QPSK	36	0	Bottom of Laptop	0mm	JYT	ON	26865	831.5	19.61	20.50	1.227	0.08	0.766	0.940
	LTE Band 26	15M	QPSK	75	0	Bottom of Laptop	0mm	JYT	ON	26865	831.5	19.34	20.50	1.306	-0.09	0.718	0.938
	LTE Band 26	15M	QPSK	1	0	Bottom of Laptop	15mm	AMP	OFF	26865	831.5	24.31	25.00	1.172	0.07	0.338	0.396
	LTE Band 26	15M	QPSK	36	0	Bottom of Laptop	15mm	AMP	OFF	26865	831.5	23.45	24.00	1.135	-0.12	0.305	0.346
	LTE Band 26	15M	QPSK	1	0	Bottom of Laptop	15mm	JYT	OFF	26865	831.5	24.31	25.00	1.172	-0.06	0.448	0.525
	LTE Band 30	10M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	27710	2310	16.72	17.50	1.197	-0.13	0.883	1.057
	LTE Band 30	10M	QPSK	25	0	Bottom of Laptop	0mm	AMP	ON	27710	2310	16.37	17.50	1.297	0.01	0.765	0.992
	LTE Band 30	10M	QPSK	50	0	Bottom of Laptop	0mm	AMP	ON	27710	2310	16.36	17.50	1.300	0.07	0.711	0.924
11	LTE Band 30	10M	QPSK	1	0	Bottom of Laptop	0mm	JYT	ON	27710	2310	16.72	17.50	1.197	-0.14	0.934	1.118
	LTE Band 30	10M	QPSK	25	0	Bottom of Laptop	0mm	JYT	ON	27710	2310	16.37	17.50	1.297	0.04	0.801	1.039
	LTE Band 30	10M	QPSK	50	0	Bottom of Laptop	0mm	JYT	ON	27710	2310	16.36	17.50	1.300	-0.09	0.760	0.988
	LTE Band 30	10M	QPSK	1	0	Bottom of Laptop	15mm	AMP	OFF	27710	2310	22.08	23.00	1.236	-0.03	0.157	0.194
	LTE Band 30	10M	QPSK	25	0	Bottom of Laptop	15mm	AMP	OFF	27710	2310	21.09	22.00	1.233	0.15	0.132	0.163
	LTE Band 30	10M	QPSK	1	0	Bottom of Laptop	15mm	JYT	OFF	27710	2310	22.08	23.00	1.236	-0.05	0.220	0.272

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Antenna Vendor	Power Reduction	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	20M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	132322	1745	17.82	18.00	1.042	0.02	0.885	0.922
	LTE Band 66	20M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	132072	1720	17.74	18.00	1.062	-0.02	0.890	0.945
12	LTE Band 66	20M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	132572	1770	17.69	18.00	1.074	0.04	0.995	1.069
	LTE Band 66	20M	QPSK	50	0	Bottom of Laptop	0mm	AMP	ON	132322	1745	17.32	18.00	1.169	-0.09	0.802	0.938
	LTE Band 66	20M	QPSK	50	0	Bottom of Laptop	0mm	AMP	ON	132072	1720	17.28	18.00	1.180	0.03	0.811	0.957
	LTE Band 66	20M	QPSK	50	0	Bottom of Laptop	0mm	AMP	ON	132572	1770	17.21	18.00	1.199	0.03	0.820	0.984
	LTE Band 66	20M	QPSK	100	0	Bottom of Laptop	0mm	AMP	ON	132322	1745	17.01	18.00	1.256	-0.09	0.765	0.961
	LTE Band 66	20M	QPSK	1	0	Bottom of Laptop	0mm	JYT	ON	132322	1745	17.82	18.00	1.042	-0.09	0.811	0.845
	LTE Band 66	20M	QPSK	1	0	Bottom of Laptop	0mm	JYT	ON	132072	1720	17.74	18.00	1.062	0.03	0.830	0.881
	LTE Band 66	20M	QPSK	1	0	Bottom of Laptop	0mm	JYT	ON	132572	1770	17.69	18.00	1.074	0.03	0.852	0.915
	LTE Band 66	20M	QPSK	50	0	Bottom of Laptop	0mm	JYT	ON	132322	1745	17.32	18.00	1.169	0.04	0.798	0.933
	LTE Band 66	20M	QPSK	50	0	Bottom of Laptop	0mm	JYT	ON	132072	1720	17.28	18.00	1.180	-0.12	0.801	0.945
	LTE Band 66	20M	QPSK	50	0	Bottom of Laptop	0mm	JYT	ON	132572	1770	17.21	18.00	1.199	0.09	0.803	0.963
	LTE Band 66	20M	QPSK	100	0	Bottom of Laptop	0mm	JYT	ON	132322	1745	17.01	18.00	1.256	-0.04	0.774	0.972
	LTE Band 66	20M	QPSK	1	0	Bottom of Laptop	15mm	AMP	OFF	132572	1770	24.96	25.00	1.009	-0.15	0.476	0.480
	LTE Band 66	20M	QPSK	50	0	Bottom of Laptop	15mm	AMP	OFF	132572	1770	23.92	24.00	1.019	-0.11	0.366	0.373
	LTE Band 66	20M	QPSK	1	0	Bottom of Laptop	15mm	JYT	OFF	132572	1770	24.96	25.00	1.009	0.08	0.510	0.515

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Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Antenna Vendor	Power Reduction	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 38	20M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	38000	2595	17.16	17.50	1.081	62.9	1.006	0.08	0.879	0.956
	LTE Band 38	20M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	37850	2580	17.10	17.50	1.096	62.9	1.006	0	0.802	0.885
	LTE Band 38	20M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	38150	2610	17.12	17.50	1.091	62.9	1.006	-0.09	0.811	0.890
	LTE Band 38	20M	QPSK	50	0	Bottom of Laptop	0mm	AMP	ON	38000	2595	16.75	17.50	1.189	62.9	1.006	0.05	0.795	0.951
	LTE Band 38	20M	QPSK	50	0	Bottom of Laptop	0mm	AMP	ON	37850	2580	16.66	17.50	1.213	62.9	1.006	-0.03	0.705	0.861
	LTE Band 38	20M	QPSK	50	0	Bottom of Laptop	0mm	AMP	ON	38150	2610	16.59	17.50	1.233	62.9	1.006	0.12	0.688	0.853
	LTE Band 38	20M	QPSK	100	0	Bottom of Laptop	0mm	AMP	ON	38150	2610	16.26	17.50	1.330	62.9	1.006	0.13	0.691	0.925
	LTE Band 38	20M	QPSK	1	0	Bottom of Laptop	0mm	JYT	ON	38000	2595	17.16	17.50	1.081	62.9	1.006	-0.09	0.941	1.024
13	LTE Band 38	20M	QPSK	1	0	Bottom of Laptop	0mm	JYT	ON	37850	2580	17.10	17.50	1.096	62.9	1.006	-0.03	0.988	1.090
	LTE Band 38	20M	QPSK	1	0	Bottom of Laptop	0mm	JYT	ON	38150	2610	17.12	17.50	1.091	62.9	1.006	-0.04	0.902	0.990
	LTE Band 38	20M	QPSK	50	0	Bottom of Laptop	0mm	JYT	ON	38000	2595	16.75	17.50	1.189	62.9	1.006	0.05	0.841	1.006
	LTE Band 38	20M	QPSK	50	0	Bottom of Laptop	0mm	JYT	ON	37850	2580	16.66	17.50	1.213	62.9	1.006	-0.09	0.733	0.895
	LTE Band 38	20M	QPSK	50	0	Bottom of Laptop	0mm	JYT	ON	38150	2610	16.59	17.50	1.233	62.9	1.006	-0.07	0.706	0.876
	LTE Band 38	20M	QPSK	100	0	Bottom of Laptop	0mm	JYT	ON	38150	2610	16.26	17.50	1.330	62.9	1.006	0.14	0.712	0.953
	LTE Band 38	20M	QPSK	1	0	Bottom of Laptop	15mm	AMP	OFF	38150	2610	24.69	25.00	1.074	62.9	1.006	0.04	0.298	0.322
	LTE Band 38	20M	QPSK	50	0	Bottom of Laptop	15mm	AMP	OFF	38150	2610	23.84	24.00	1.038	62.9	1.006	-0.05	0.262	0.273
	LTE Band 38	20M	QPSK	1	0	Bottom of Laptop	15mm	JYT	OFF	38150	2610	24.69	25.00	1.074	62.9	1.006	0.06	0.265	0.286

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Antenna Vendor	Power Reduction	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 41	20M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	40185	2549.5	16.59	17.50	1.233	62.9	1.006	-0.1	0.714	0.886
	LTE Band 41	20M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	39750	2506	16.51	17.50	1.256	62.9	1.006	-0.08	0.577	0.729
	LTE Band 41	20M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	40620	2593	16.44	17.50	1.276	62.9	1.006	0.04	0.692	0.888
14	LTE Band 41	20M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	41055	2636.5	16.21	17.50	1.346	62.9	1.006	0.06	0.764	1.034
	LTE Band 41	20M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	41490	2680	16.20	17.50	1.349	62.9	1.006	-0.04	0.609	0.826
	LTE Band 41	20M	QPSK	50	0	Bottom of Laptop	0mm	AMP	ON	40185	2549.5	16.15	17.50	1.365	62.9	1.006	-0.1	0.564	0.775
	LTE Band 41	20M	QPSK	50	0	Bottom of Laptop	0mm	AMP	ON	39750	2506	16.06	17.50	1.393	62.9	1.006	-0.03	0.533	0.747
	LTE Band 41	20M	QPSK	50	0	Bottom of Laptop	0mm	AMP	ON	40620	2593	16.14	17.50	1.368	62.9	1.006	0.15	0.557	0.766
	LTE Band 41	20M	QPSK	50	0	Bottom of Laptop	0mm	AMP	ON	41055	2636.5	15.81	17.50	1.476	62.9	1.006	0.14	0.516	0.766
	LTE Band 41	20M	QPSK	50	0	Bottom of Laptop	0mm	AMP	ON	41490	2680	15.79	17.50	1.483	62.9	1.006	-0.03	0.527	0.786
	LTE Band 41	20M	QPSK	100	0	Bottom of Laptop	0mm	AMP	ON	41490	2680	15.79	17.50	1.483	62.9	1.006	0.01	0.492	0.734
	LTE Band 41	20M	QPSK	1	0	Bottom of Laptop	0mm	JYT	ON	40185	2549.5	16.59	17.50	1.233	62.9	1.006	0.12	0.653	0.810
	LTE Band 41	20M	QPSK	1	0	Bottom of Laptop	0mm	JYT	ON	39750	2506	16.51	17.50	1.256	62.9	1.006	-0.07	0.526	0.664
	LTE Band 41	20M	QPSK	1	0	Bottom of Laptop	0mm	JYT	ON	40620	2593	16.44	17.50	1.276	62.9	1.006	0.01	0.571	0.733
	LTE Band 41	20M	QPSK	1	0	Bottom of Laptop	0mm	JYT	ON	41055	2636.5	16.21	17.50	1.346	62.9	1.006	0.03	0.573	0.775
	LTE Band 41	20M	QPSK	1	0	Bottom of Laptop	0mm	JYT	ON	41490	2680	16.20	17.50	1.349	62.9	1.006	0.16	0.627	0.851
	LTE Band 41	20M	QPSK	50	0	Bottom of Laptop	0mm	JYT	ON	40185	2549.5	16.15	17.50	1.365	62.9	1.006	0.06	0.563	0.773
	LTE Band 41	20M	QPSK	50	0	Bottom of Laptop	0mm	JYT	ON	39750	2506	16.06	17.50	1.393	62.9	1.006	0.14	0.539	0.755
	LTE Band 41	20M	QPSK	50	0	Bottom of Laptop	0mm	JYT	ON	40620	2593	16.14	17.50	1.368	62.9	1.006	0.17	0.522	0.718
	LTE Band 41	20M	QPSK	50	0	Bottom of Laptop	0mm	JYT	ON	41055	2636.5	15.81	17.50	1.476	62.9	1.006	-0.05	0.529	0.785
	LTE Band 41	20M	QPSK	50	0	Bottom of Laptop	0mm	JYT	ON	41490	2680	15.79	17.50	1.483	62.9	1.006	0.03	0.521	0.777
	LTE Band 41	20M	QPSK	100	0	Bottom of Laptop	0mm	JYT	ON	41490	2680	15.79	17.50	1.483	62.9	1.006	0.07	0.502	0.749
	LTE Band 41	20M	QPSK	1	0	Bottom of Laptop	15mm	AMP	OFF	40185	2549.5	23.75	24.00	1.059	62.9	1.006	-0.13	0.275	0.293
	LTE Band 41	20M	QPSK	50	0	Bottom of Laptop	15mm	AMP	OFF	40185	2549.5	22.89	23.00	1.026	62.9	1.006	-0.1	0.214	0.221
	LTE Band 41	20M	QPSK	1	0	Bottom of Laptop	15mm	JYT	OFF	40185	2549.5	23.75	24.00	1.059	62.9	1.006	0.01	0.409	0.436
	LTE Band 41C	20M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	40185	2549.5	16.21	17.50	1.346	62.9	1.006	0.05	0.732	0.991
	LTE Band 41C	20M	QPSK	1	0	Bottom of Laptop	0mm	JYT	ON	40185	2549.5	16.21	17.50	1.346	62.9	1.006	0.09	0.519	0.703
	LTE Band 41C	20M	QPSK	1	0	Bottom of Laptop	0mm	AMP	OFF	40185	2549.5	23.09	24.00	1.233	62.9	1.006	0.01	0.215	0.267
	LTE Band 41C	20M	QPSK	1	0	Bottom of Laptop	0mm	JYT	OFF	40185	2549.5	23.09	24.00	1.233	62.9	1.006	-0.07	0.341	0.423
	LTE Band 41_HPUE	20M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	40185	2549.5	16.59	17.50	1.233	42.9	1.009	0.09	0.568	0.707
	LTE Band 41_HPUE	20M	QPSK	1	0	Bottom of Laptop	0mm	JYT	ON	40185	2549.5	16.59	17.50	1.233	42.9	1.009	0.03	0.415	0.516
	LTE Band 41_HPUE	20M	QPSK	1	0	Bottom of Laptop	15mm	AMP	OFF	40185	2549.5	26.13	26.50	1.089	42.9	1.009	0.02	0.352	0.387
	LTE Band 41_HPUE	20M	QPSK	1	0	Bottom of Laptop	15mm	JYT	OFF	40185	2549.5	26.13	26.50	1.089	42.9	1.009	-0.11	0.498	0.547
	LTE Band 48	20M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	56640	3690	18.36	19.00	1.159	62.9	1.006	-0.12	0.676	0.788
	LTE Band 48	20M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	55340	3560	18.05	19.00	1.245	62.9	1.006	-0.1	0.702	0.879
	LTE Band 48	20M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	55830	3609	18.15	19.00	1.216	62.9	1.006	-0.11	0.738	0.903
	LTE Band 48	20M	QPSK	1	0	Bottom of Laptop	0mm	AMP	ON	56150	3641	18.22	19.00	1.197	62.9	1.006	0	0.648	0.780
	LTE Band 48	20M	QPSK	50	0	Bottom of Laptop	0mm	AMP	ON	56640	3690	18.09	19.00	1.233	62.9	1.006	0.09	0.602	0.747
	LTE Band 48	20M	QPSK	50	0	Bottom of Laptop	0mm	AMP	ON	55340	3560	17.85	19.00	1.303	62.9	1.006	-0.03	0.677	0.888
	LTE Band 48	20M	QPSK	50	0	Bottom of Laptop	0mm	AMP	ON	55830	3609	17.94	19.00	1.276	62.9	1.006	0.02	0.662	0.850
	LTE Band 48	20M	QPSK	50	0	Bottom of Laptop	0mm	AMP	ON	56150	3641	17.98	19.00	1.265	62.9	1.006	0.15	0.619	0.788
	LTE Band 48	20M	QPSK	100	0	Bottom of Laptop	0mm	AMP	ON	56640	3690	17.90	19.00	1.288	62.9	1.006	-0.09	0.593	0.769
15	LTE Band 48	20M	QPSK	1	0	Bottom of Laptop	0mm	JYT	ON	56640	3690	18.36	19.00	1.159	62.9	1.006	-0.05	1.010	1.177
	LTE Band 48	20M	QPSK	1	0	Bottom of Laptop	0mm	JYT	ON	55340	3560	18.05	19.00	1.245	62.9	1.006	0.07	0.788	0.987
	LTE Band 48	20M	QPSK	1	0	Bottom of Laptop	0mm	JYT	ON	55830	3609	18.15	19.00	1.216	62.9	1.006	-0.02	0.796	0.974
	LTE Band 48	20M	QPSK	1	0	Bottom of Laptop	0mm	JYT	ON	56150	3641	18.22	19.00	1.197	62.9	1.006	0.01	0.845	1.017
	LTE Band 48	20M	QPSK	50	0	Bottom of Laptop	0mm	JYT	ON	56640	3690	18.09	19.00	1.233	62.9	1.006	0.02	0.814	1.010
	LTE Band 48	20M	QPSK	50	0	Bottom of Laptop	0mm	JYT	ON	55340	3560	17.85	19.00	1.303	62.9	1.006	-0.12	0.792	1.038
	LTE Band 48	20M	QPSK	50	0	Bottom of Laptop	0mm	JYT	ON	55830	3609	17.94	19.00	1.276	62.9	1.006	0.09	0.785	1.008
	LTE Band 48	20M	QPSK	50	0	Bottom of Laptop	0mm	JYT	ON	56150	3641	17.98	19.00	1.265	62.9	1.006	-0.07	0.803	1.022
	LTE Band 48	20M	QPSK	100	0	Bottom of Laptop	0mm	JYT	ON	56640	3690	17.90	19.00	1.288	62.9	1.006	0.04	0.739	0.958
	LTE Band 48	20M	QPSK	1	0	Bottom of Laptop	15mm	AMP	OFF	56640	3690	21.59	22.00	1.099	62.9	1.006	-0.03	0.153	0.169
	LTE Band 48	20M	QPSK	50	0	Bottom of Laptop	15mm	AMP	OFF	56640	3690	20.64	21.00	1.086	62.9	1.006	0.16	0.122	0.133
	LTE Band 48	20M	QPSK	1	0	Bottom of Laptop	15mm	JYT	OFF	56640	3690	21.59	22.00	1.099	62.9	1.006	0.13	0.124	0.137

12.2 Repeated SAR Measurement

No.	Band	Mode	Test Position	Gap (mm)	Antenna Vendor	Power Reduction	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)	Ratio	Reported 1g SAR (W/kg)
1st	WCDMA II	RMC 12.2Kbps	Bottom of Laptop	0mm	AMP	ON	9400	1880	16.90	17.00	1.023			-0.14	1.140		1.167
2nd	WCDMA II	RMC 12.2Kbps	Bottom of Laptop	0mm	AMP	ON	9400	1880	16.90	17.00	1.023			-0.05	1.100	1.036	1.126
1st	WCDMA IV	RMC 12.2Kbps	Bottom of Laptop	0mm	JYT	ON	1312	1712.4	17.91	18.00	1.021			-0.01	1.150		1.174
2nd	WCDMA IV	RMC 12.2Kbps	Bottom of Laptop	0mm	JYT	ON	1312	1712.4	17.91	18.00	1.021			-0.07	1.100	1.045	1.123
1st	WCDMA V	RMC 12.2Kbps	Bottom of Laptop	0mm	JYT	ON	4233	846.6	19.76	20.00	1.057			0.02	0.974		1.029
2nd	WCDMA V	RMC 12.2Kbps	Bottom of Laptop	0mm	JYT	ON	4233	846.6	19.76	20.00	1.057			-0.01	0.951	1.024	1.005
1st	LTE Band 7	20M_QPSK_1_0	Bottom of Laptop	0mm	JYT	ON	21100	2535	16.40	16.50	1.023			-0.02	1.150		1.177
2nd	LTE Band 7	20M_QPSK_1_0	Bottom of Laptop	0mm	JYT	ON	21100	2535	16.40	16.50	1.023			-0.11	1.120	1.027	1.146
1st	LTE Band 13	10M_QPSK_1_0	Bottom of Laptop	0mm	AMP	ON	23230	782	22.38	22.50	1.028			-0.02	1.140		1.172
2nd	LTE Band 13	10M_QPSK_1_0	Bottom of Laptop	0mm	AMP	ON	23230	782	22.38	22.50	1.028			-0.14	1.090	1.046	1.121
1st	LTE Band 30	10M_QPSK_1_0	Bottom of Laptop	0mm	JYT	ON	27710	2310	16.72	17.50	1.197			-0.14	0.934		1.118
2nd	LTE Band 30	10M_QPSK_1_0	Bottom of Laptop	0mm	JYT	ON	27710	2310	16.72	17.50	1.197			-0.03	0.925	1.010	1.107
1st	LTE Band 48	20M_QPSK_1_0	Bottom of Laptop	0mm	JYT	ON	56640	3690	18.36	19.00	1.159	62.9	1.006	-0.05	1.010		1.177
2nd	LTE Band 48	20M_QPSK_1_0	Bottom of Laptop	0mm	JYT	ON	56640	3690	18.36	19.00	1.159	62.9	1.006	-0.09	0.996	1.014	1.161

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.

12.3 LTE Band 41 Power Class 2 and Power Class 3 Linearity

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

<ON>

	LTE Band 41	LTE Band 41
	(Power Class 3)	(Power Class 2)
Maximum Tune up Power (dBm)	24	26.5
Reported 1g SAR (W/kg)	0.436	0.547
Duty Cycle	63.30%	43.30%
Frame Averaged (mW)	159.00	193.41
Linearity SAR(W/kg)	0.53	
% deviation from expected linearity		3.14%

<OFF>

	LTE Band 41	LTE Band 41
	(Power Class 3)	(Power Class 2)
Maximum Tune up Power (dBm)	17.5	17.5
Reported 1g SAR (W/kg)	1.034	0.707
Duty Cycle	63.30%	43.30%
Frame Averaged (mW)	35.60	24.35
Linearity SAR(W/kg)	0.71	
% deviation from expected linearity		-0.04%

13. Simultaneous Transmission Analysis

NO.	Simultaneous Transmission Configurations	Body
1.	WWAN + WLAN2.4GHz Ant 1 + WLAN 2.4GHz Ant 2	Yes
2.	WWAN + WLAN2.4GHz Ant 1 + Bluetooth Ant 2	Yes
3.	WWAN + WLAN5GHz Ant 1 + WLAN5GHz Ant 2 + Bluetooth Ant 2	Yes

General Note:

1. The Intel AX201D2W WLAN /BT module is also integrated into Lenove TP00129A host. The WLAN and Bluetooth SAR results are referenced from Intel SAR report, report number: 180117-03.TR11 (FCC ID: PD9AX201D2) and these SAR results are also used to perform simultaneous transmission analysis.
2. EUT will choose either WLAN 2.4GHz or WLAN 5GHz according to the network signal condition; therefore, 2.4GHz WLAN and 5GHz WLAN will not operate simultaneously at any moment.
3. The Scaled SAR summation is calculated based on the same configuration and test position.
4. Per KDB 447498 D01v06, simultaneous transmission SAR is compliant if,
   i) Scalar SAR summation < 1.6W/kg.
   ii) SPLSR = (SAR1 + SAR2)^1.5 / (min. separation distance, mm), and the peak separation distance is determined from the square root of [(x1-x2)2 + (y1-y2)2 + (z1-z2)2], where (x1, y1, z1) and (x2, y2, z2) are the coordinates of the extrapolated peak SAR locations in the zoom scan.
   iii) If SPLSR ≤ 0.04, simultaneously transmission SAR measurement is not necessary.
   iv) Simultaneously transmission SAR measurement, and the reported multi-band SAR < 1.6W/kg.
   v) The SPLSR calculated results please refer to section 13.2.

13.1 Body Exposure Conditions

Exposure Position	1	2	3	4	5	6	1+2+3 Summed 1g SAR (W/kg)	1+2+6 Summed 1g SAR (W/kg)	1+4+5+6 Summed 1g SAR (W/kg)	SPLSR	Case No
	Maximum WWAN	2.4GHz WLAN Ant 1	2.4GHz WLAN Ant 2	5GHz WLAN Ant 1	5GHz WLAN Ant 2	Bluetooth Ant 2					
	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)					
Bottom of Laptop at 0mm	1.195	0.460	0.490	0.400	0.530	0.070	2.145	1.725	2.255	**0.02**	**Case 1**

13.2 SPLSR Evaluation and Analysis

General Note:

1. According to antenna location the minimum distance is using for SPLSR analysis
2. Simultaneous transmission SAR test exclusion is determined for each operating configuration and exposure condition according to the reported standalone SAR of each applicable simultaneously transmitting antenna. When the sum of 1-g or 10-g SAR of all simultaneously transmitting antennas in an operating mode and exposure condition combination is within the SAR limit, SAR test exclusion applies to that simultaneous transmission configuration. Therefore, the adjacent transmit antennas will be summed first, and then the SPLSR calculation will be evaluated with the farther transmitted antennas.
3. SPLSR = $(SAR_1 + SAR_2)^{1.5}$ / (*min. separation distance, mm*). If SPLSR ≤ 0.04, simultaneously transmission SAR measurement is not necessary

	Band	Position	SAR (W/kg)	Gap (mm)	Minimum distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 1	Maximum WWAN Main Ant	Bottom of Laptop	1.195	0	216.3	1.66	0.01	Not required
	WLAN2.4G Ant 1		0.46	0				
	WLAN2.4G Ant 1	Bottom of Laptop	0.46	0	42.0	0.95	0.02	Not required
	WLAN2.4G Ant 2		0.49	0				
	Maximum WWAN Main Ant	Bottom of Laptop	1.195	0	228.2	1.69	0.01	Not required
	WLAN2.4G Ant 2		0.49	0				
	WLAN2.4G Ant 1	Bottom of Laptop	0.46	0	42.0	0.53	0.01	Not required
	BT Ant 2		0.07	0				
	Maximum WWAN Main Ant	Bottom of Laptop	1.195	0	216.3	1.60	0.01	Not required
	WLAN5G Ant 1		0.4	0				
	Maximum WWAN Main Ant	Bottom of Laptop	1.195	0	228.2	1.80	0.01	Not required
	WLAN5G Ant 2 + BT Ant 2		0.6	0				
	WLAN5G Ant 1	Bottom of Laptop	0.4	0	42.0	1.00	0.02	Not required
	WLAN5G Ant 2 + BT Ant 2		0.6	0				

Test Engineer： Ken Li, Mood Huang and Willie Huang

14. Uncertainty Assessment

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

Declaration of Conformity:
The test results with all measurement uncertainty excluded is presented in accordance with the regulation limits or requirements declared by manufacturers.
Comments and Explanations:
The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

15. References

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

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

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

[4] SPEAG DASY System Handbook

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

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

[7] FCC KDB 941225 D01 v03r01, “3G SAR MEAUREMENT PROCEDURES”, Oct 2015

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

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

[10] FCC KDB 616217 D04 v01r02, “SAR Evaluation Considerations for Laptop, Notebook, Netbook and Tablet Computers”, Oct 2015

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

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