HCT Co., Ltd.
74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383 KOREA
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SAR TEST REPORT

Applicant Name: **Panasonic Corporation of North America.** Two Riverfront Plaza, 9th Floor, Newark, NJ 07102-5490, USA	**Date of Issue:** Jan. 11. 17, 2022 **Test Report No.:** HCT-SR-2112-FC006-R1 **Test Site: HCT CO., LTD.**

FCC ID: ACJ9TGWW21B

Equipment Type:	**Wireless Module**
Application Type	**Certification**
FCC Rule Part(s):	**47CFR §2.1093**
Model Name:	**WW21B**
Date of Test:	**Nov. 26, 2021 ~ Dec. 14, 2021**

This device has been shown to be capable of compliance for localized specific absorption rate (SAR) for uncontrolled environment/general population exposure limits specified in FCC KDB procedures and had been tested in accordance with the measurement procedures specified in FCC KDB procedures.

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

Tested By

Jee-Ill, Lee
Test Engineer
SAR Team
Certification Division

Reviewed By

Yun-jeang, Heo
Technical Manager
SAR Team
Certification Division

REVISION HISTORY

The revision history for this test report is shown in table.

Revision No.	Date of Issue	Description
0	Dec. 17, 2021	Initial Release
1	Jan. 11, 2022	Revised Antenna Distance

This test results were applied only to the test methods required by the standard.

The above Test Report is not related to the accredited test result by (KS Q) ISO/IEC 17025 and KOLAS(Korea Laboratory Accreditation Scheme), which signed the ILAC-MRA.

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1. ATTESTATION OF TEST RESULT OF DEVICE UNDER TEST

Test Laboratory	
Company Name:	HCT Co., LTD
Address:	74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383, Rep. of Korea
Telephone:	+82 31 645 6300
Fax.:	+82 31 645 6401
Description of EUT	
Applicant Name:	Panasonic Corporation of North America.
FCC ID:	ACJ9TGWW21B
Model:	WW21B
Host Model Name:	FZ-40
EUT Type:	Wireless Module
Application Type:	Certification

Test Result.

Standalone SAR	Considering the distance between the antenna of the WW21B and the bottom side of the Host device[FZ-40], the SAR test of the WW21B was omitted according to KDB 447498 D01 and KDB 616217
Simultaneous Transmission Analysis	For simultaneous transmission analysis with the WLAN Module[WL20B] within the host device, the SAR evaluation value of the WWAN, WLAN antenna was 0.4 W/kg according to FCC KDB 448498.D01 The result of simultaneous Transmission Analys of WWAN module and WLAN modules is 0.986 W/kg.

2. DEVICE UNDER TEST DESCRIPTION

2.1 DUT specification

Device Wireless specification overview		
Band & Mode	**Operating Mode**	**Tx Frequency**
UMTS Band 5	Data	826.4 ㎒ ~ 846.6 ㎒
UMTS Band 4	Data	1 712.4 ㎒ ~ 1 752.6 ㎒
UMTS Band 2	Data	1 852.4 ㎒ ~ 1 907.6 ㎒
LTE Band 2 (PCS)	Data	1 850.7 ㎒ ~ 1 909.3 ㎒
LTE Band 4 (AWS)	Data	1 710.7 ㎒ ~ 1 754.3 ㎒
LTE Band 5	Data	824.7 ㎒ ~ 848.3 ㎒
LTE Band 7	Data	2 502.5 ㎒ ~ 2 567.5 ㎒
LTE Band 12	Data	699.7 ㎒ ~ 715.3 ㎒
LTE Band 13	Data	779.5 ㎒ ~ 784.5 ㎒
LTE Band 14	Data	790.5 ㎒ ~ 795.5 ㎒
LTE Band 17	Data	706.5 ㎒ ~ 713.5 ㎒
LTE Band 25 (PCS)	Data	1 850.7 ㎒ ~ 1 914.3 ㎒
LTE Band 26	Data	814.7 ㎒ ~ 848.3 ㎒
LTE Band 38	Data	2 572.5 ㎒ ~ 2 617.5 ㎒
LTE TDD Band 41	Data	2 498.5 ㎒ ~ 2 687.5 ㎒
LTE TDD Band 48	Data	3 552.5 ㎒ ~ 3697.5 ㎒
LTE Band 66 (AWS)	Data	1 712.5 ㎒ ~ 1 777.5 ㎒
LTE Band 71	Data	665.5 ㎒ ~ 695.5 ㎒
Device Serial Numbers	**Mode**	**Serial Number**
	WWAN	S0P-21-01867

2.2 Nominal and Maximum Output Power Specifications

This device operates using the following maximum output power specifications. SAR values were scaled to the maximum allowed power to determine compliance per the IEEE1528-2013..

2.2.1 Maximum PCE Output Power

Mode/Band		Modulated Average (dBm)		
		3GPP WCDMA	3GPP HSDPA	3GPP HSUPA
UMTS Band 5 (850 MHz)	Maximum	24.5	23.5	23.5
	Nominal	23.5	22.5	22.5
UMTS Band 4 (1700 MHz)	Maximum	24.5	23.5	23.5
	Nominal	23.5	22.5	22.5
UMTS Band 2 (1900 MHz)	Maximum	24.5	23.5	23.5
	Nominal	23.5	22.5	22.5

Mode / Band		Modulated Average (dBm)
LTE Band 2	Maximum	24.0
	Nominal	23.0
LTE Band 4	Maximum	24.0
	Nominal	23.0
LTE Band 5	Maximum	24.0
	Nominal	23.0
LTE Band 7	Maximum	23.5
	Nominal	22.5
LTE Band 7 (UL CA enabled)	Maximum	24.5
	Nominal	23.5
LTE Band 12	Maximum	24.0
	Nominal	23.0
LTE Band 13	Maximum	24.0
	Nominal	23.0
LTE Band 14	Maximum	24.0
	Nominal	23.0
LTE Band 17	Maximum	24.0
	Nominal	23.0
LTE Band 25	Maximum	24.0
	Nominal	23.0
LTE Band 26	Maximum	24.0
	Nominal	23.0
LTE TDD Band 38	Maximum	24.0
	Nominal	23.0
LTE TDD Band 41	Maximum	24.0
	Nominal	23.0
LTE TDD Band 41 (UL CA enabled)	Maximum	24.5
	Nominal	23.5
LTE TDD Band 48	Maximum	12.3
	Nominal	11.3
LTE Band 66	Maximum	24.0
	Nominal	23.0
LTE Band 71	Maximum	24.0
	Nominal	23.0

2.3 LTE information

Item.		Description
Frequency Range	LTE Band 2 (PCS)	1 850.7 MHz ~ 1 909.3 MHz
	LTE Band 4 (AWS)	1 710.7 MHz ~ 1 754.3 MHz
	LTE Band 5 (Cell)	824.7 MHz ~ 848.3 MHz
	LTE Band 7	2 502.5 MHz ~ 2 567.5 MHz
	LTE Band 12	699.7 MHz ~ 715.3 MHz
	LTE Band 13	779.5 MHz ~ 784.5 MHz
	LTE Band 14	790.5 MHz ~ 795.5 MHz
	LTE Band 17	706.5 MHz ~ 713.5 MHz
	LTE Band 25 (PCS)	1 850.7 MHz ~ 1 914.3 MHz
	LTE Band 26 Cell)	814.7 MHz ~ 848.3 MHz
	LTE Band 38	2 572.5 MHz ~ 2 617.5 MHz
	LTE TDD Band 41	2 498.5 MHz ~ 2 687.5 MHz
	LTE TDD Band 42	3402.5 MHz ~ 3597.5 MHz
	LTE TDD Band 48	3 552.5 MHz ~ 3 697.5 MHz
	LTE Band 66 (AWS)	1 712.5 MHz ~ 1 777.5 MHz
	LTE Band 71	665.5 MHz~ 695.5 MHz
Channel Bandwidths	LTE Band 2 (PCS)	1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz
	LTE Band 4 (AWS)	1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz
	LTE Band 5 (Cell)	1.4 MHz, 3 MHz, 5 MHz, 10 MHz
	LTE Band 7	5 MHz, 10 MHz, 15 MHz, 20 MHz
	LTE Band 12	1.4 MHz, 3 MHz, 5 MHz, 10 MHz
	LTE Band 13	5 MHz, 10 MHz
	LTE Band 14	5 MHz, 10 MHz
	LTE Band 17	5 MHz, 10 MHz
	LTE Band 25	1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz
	LTE Band 26	1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz
	LTE Band 38	5 MHz, 10 MHz, 15 MHz, 20 MHz
	LTE TDD Band 41	5 MHz, 10 MHz, 15 MHz, 20 MHz
	LTE TDD Band 48	5 MHz, 10 MHz, 15 MHz, 20 MHz
	LTE Band 66 (AWS)	5 MHz, 10 MHz, 15 MHz, 20 MHz
	LTE Band 71	5 MHz, 10 MHz, 15 MHz, 20 MHz

Ch. No.& Freq.(MHz)		Low	Mid	High
LTE Band 2 (PCS)	1.4 MHz	1 850.7 (18607)	1 880.0 (18900)	1 909.3 (19193)
	3 MHz	1 851.5 (18615)	1 880.0 (18900)	1 908.5 (19185)
	5 MHz	1 852.5 (18625)	1 880.0 (18900)	1 907.5 (19175)
	10 MHz	1 855.0 (18650)	1 880.0 (18900)	1 905.0 (19150)
	15 MHz	1 857.5 (18675)	1 880.0 (18900)	1 902.5 (19125)
	20 MHz	1 860.0 (18700)	1 880.0 (18900)	1 900.0 (19100)
LTE Band 4 (AWS)	1.4 MHz	1 710.7 (19957)	1 732.5 (20175)	1 754.3 (20393)
	3 MHz	1 711.5 (19965)	1 732.5 (20175)	1 753.5 (20385)
	5 MHz	1 712.5 (19975)	1 732.5 (20175)	1 752.5 (20375)
	10 MHz	1 715.0 (20000)	1 732.5 (20175)	1 750.0 (20350)
	15 MHz	1 717.5 (20025)	1 732.5 (20175)	1 747.5 (20325)
	20 MHz	1 720.0 (20050)	1 732.5 (20175)	1 745.0 (20300)
LTE Band 5 (Cell)	1.4 MHz	824.7 (20407)	836.5 (20525)	848.3 (20643)
	3 MHz	825.5 (20415)	836.5 (20525)	847.5 (20635)
	5 MHz	826.5 (20425)	836.5 (20525)	846.5 (20625)
	10 MHz	829.0 (20450)	836.5 (20525)	844.0 (20600)
LTE Band 7	5 MHz	2502.5 (20775)	2535 (21100)	2567.5 (21425)
	10 MHz	2505 (20800)	2535 (21100)	2565 (21400)
	15 MHz	2507.5 (20825)	2535 (21100)	2562.5 (21375)
	20 MHz	2510 (20850)	2535 (21100)	2560 (21350)
LTE Band 12	1.4 MHz	699.7 (23017)	707.5 (23095)	715.3 (23173)
	3 MHz	700.5 (23025)	707.5 (23095)	714.5 (23165)
	5 MHz	701.5 (23035)	707.5 (23095)	713.5 (23155)
	10 MHz	704.0 (23060)	707.5 (23095)	711.0 (23130)
LTE Band 13	5 MHz	779.5 (23205)	782 (23230)	784.5 (23255)
	10 MHz		782 (23230)	
LTE Band 14	5 MHz	790.5 (23305	793 (23330)	795.5 (23355)
	10 MHz		793 (23330)	
LTE Band 17	5 MHz	706.5(23755)	710.0(23790)	713.5(23825)
	10 MHz	709(23780)	710.0(23790)	711(23800)
LTE Band 25(PCS)	1.4 MHz	1 850.7 (26047)	1 882.5 (26365)	1 914.3 (26683)
	3 MHz	1 851.5 (26055)	1 882.5 (26365)	1 913.5 (26675)
	5 MHz	1 852.5 (26065)	1 882.5 (26365)	1 912.5 (26665)
	10 MHz	1 855 (26090)	1 882.5 (26365)	1 910 (26640)
	15 MHz	1 857.5 (26115)	1 882.5 (26365)	1 907.5 (26615)
	20 MHz	1 860 (26140)	1 882.5 (26365)	1 905 (26590)
LTE Band 26 (Cell)	1.4 MHz	814.7 (26697)	831.5 (26865)	848.3 (27033)
	3 MHz	815.5 (26705)	831.5 (26865)	847.5 (27025)
	5 MHz	816.5 (26715)	831.5 (26865)	846.5 (27015)
	10 MHz	819.0 (26740)	831.5 (26865)	844.0 (26990)
	15 MHz	821.5 (26765)	831.5 (26865)	841.5 (26965)
LTE TDD Band 38	5 MHz	2572.5 (37775)	2 595 (38000)	2617.5 (38225)
	10 MHz	2575 (37800)	2 595 (38000)	2615 (38200)
	15 MHz	2577.5 (37825)	2 595 (38000)	2612.5 (38175)
	20 MHz	2580 (37850)	2 595 (38000)	2610 (38150)

Ch. No.& Freq.(㎒)		Low	Mid	High
LTE Band 66 (AWS)	1.4 ㎒	1 710.7 (131979)	1 745 (132322)	1 779.3 (132665)
	3 ㎒	1 711.5 (131987)	1 745 (132322)	1 778.5 (132657)
	5 ㎒	1 712.5 (131997)	1 745 (132322)	1 777.5 (132647)
	10 ㎒	1 715.0 (132022)	1 745 (132322)	1 775.0 (132622)
	15 ㎒	1 717.5 (132047)	1 745 (132322)	1 772.5 (132597)
	20 ㎒	1 720.0 (132072)	1 745 (132322)	1 770.0 (132572)
LTE Band 71	5 ㎒	665.5 (133147)	680.5 (133297)	695.5 (133447)
	10 ㎒	668 (133172)	680.5 (133297)	693 (133422)
	15 ㎒	670.5 (133197)	680.5 (133297)	690.5 (133397)
	20 ㎒	673 (133222)	680.5 (133297)	688 (133372)

LTE TDD Band 41	5 ㎒	2498.5(39675)	2545.8(40148)	2593.0(40620)	2640.3(41093)	2687.5(41565)
	10 ㎒	2501.0(39700)	2547.0(40160)	2593.0(40620)	2639.0(41080)	2685.0(41540)
	15 ㎒	2503.5(39725)	2548.3(41073)	2593.0(40620)	2637.8(41068)	2682.5(41515)
	20 ㎒	2506.0(39750)	2549.5(40185)	2593.0(40620)	2636.5(41055)	2680.0(41490)

LTE TDD Band 48	5 ㎒	3 552.5(55265)	3 600.8(55748)	3 649.2(56232)	3 697.5(56715)
	10 ㎒	3 555(55290)	3 601.7(55757)	3 648.3(56223)	3 695(56690)
	15 ㎒	3 557.5(55315)	3 602.5(55765)	3 647.5(56215)	3 692.5(56665)
	20 ㎒	3 560(55340)	3 603.3(55773)	3 646.7(56207)	3 690(56640)

Item.	Description
UE Category	LTE Rel. 15, UL Category 18 DL Category 20
Modulations Supported in UL	QPSK, 16QAM, 64QAM, 256QAM
LTE MPR Permanently implemented per 3GPP TS 36.101 section 6.2.3	Yes
A-MPR disabled for SAR Testing.	Yes
LTE Carrier Aggregation	Intra-Band & Inter-band DL CA, Intra-Band UL CA, and LAA are supported. Wi-Fi offloading using LTE-U and LWA is not supported. The technical description includes all the possible carrier aggregation combinations.
LTE Release 15 Additional Information	This device does not support full feature on 3GPP Release 15 All uplink communications are identical to the Release 8 specifications. The following LTE release 10 features are not supported: Replay, HetNet, Enhanced MIMO, eICI, WIFI offloading, MDH, eMBHA, Cross-Carrier Scheduling, Enhanced SC-FDMA.

2.4 Test Methodology and Procedures

The tests documented in this report were performed in accordance with FCC CFR § 2.1093, IEEE 1528-2013, ANSI C63.26-2015 the following FCC Published RF exposure KDB procedures:

- FCC KDB Publication 941225 D01 3G SAR Procedures v03r01
- FCC KDB Publication 941225 D05 SAR for LTE Devices v02r05
- FCC KDB Publication 941225 D05A LTE Rel.10 KDB Inquiry sheet v01r02
- FCC KDB Publication 447498 D01 General SAR Guidance v06
- FCC KDB Publication 865664 D01 SAR measurement 100 MHz to 6 GHz v01r04
- FCC KDB Publication 865664 D02 SAR Reporting v01r02
- FCC KDB Publication 690783 D01 SAR Listings on Grants v01r03
- FCC KDB616217 SAR for laptop and tablets v01r02

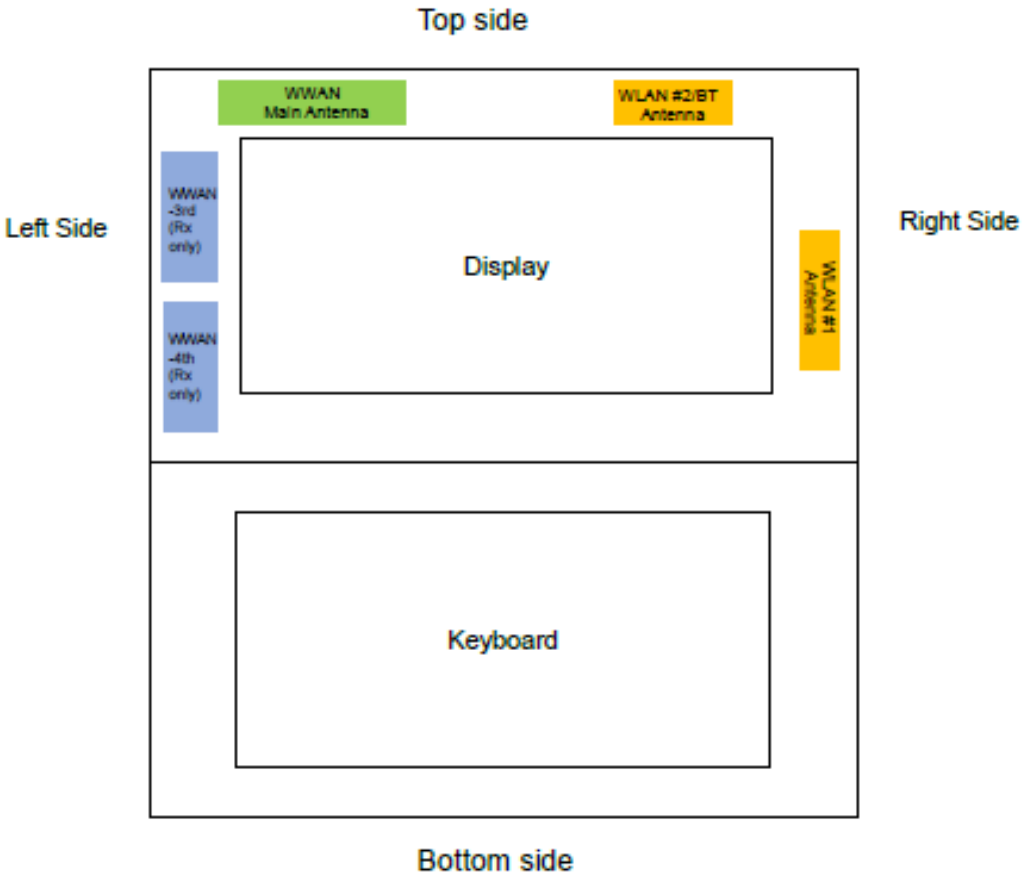
In Addition to the above, the following information was used.

- October 2014 TCB Workshop Notes (Overlapping LTE Bands)
- April 2015 TCB Workshop Notes (Simultaneous transmission summation clarified)
- November 2017 TCBC Workshop Notes (LTE Carrier Aggregation)
- April 2018 TCBC Workshop Notes (LTE DL CA SAR Test Exclusion)
- May 2017 TCBC Workshop Notes (LTE 4x4 Downlink MIMO)

2.5 DUT Antenna Locations

Antenna Distance

<Front View>



Unit:mm

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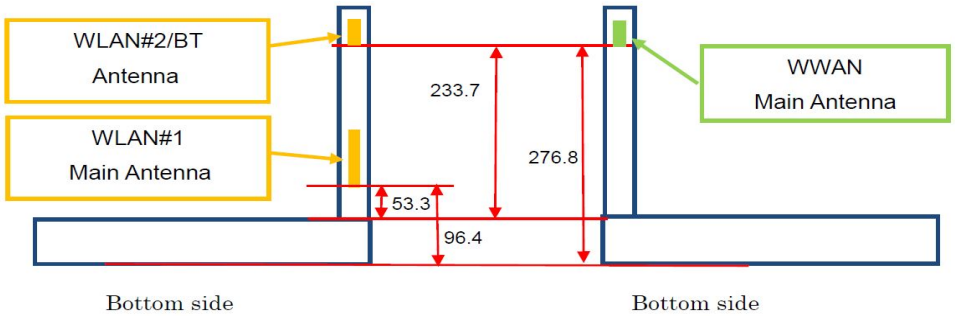
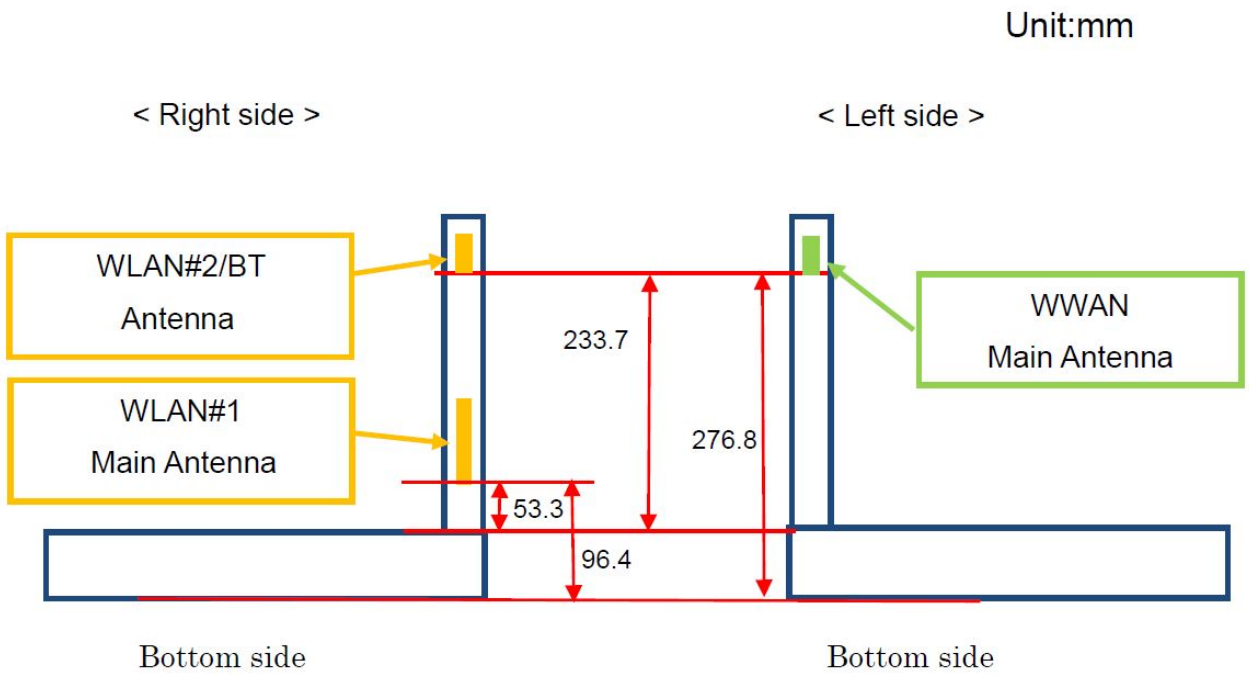


3 SAR Test Considerations within Host Platform

3.1 Laptop host platform test requirements Per KDB Publication 447498 D01 and 616217 D04v01r02

The required minimum test separation distance for incorporating transmitters and antennas into laptop, notebook and netbook computer displays is determined with the display screen opened at an angle of 90° to the keyboard compartment. When antennas are incorporated in the keyboard section of a laptop computer, SAR is required for the bottom surface of the keyboard. Provided tablet use conditions are not supported by the laptop computer, SAR tests for bystander exposure from the edges of the keyboard and display screen of laptop computers are generally not required

While users would normally keep the display open at angles greater than 90°degrees, for SAR testing purposes and to maintain conservativeness, we keep the display open at 90°degrees from the keyboard to perform the SAR measurement.



Considering the distance between the antenna of the WLAN, WWAN and the bottom side of the DUT, the SAR test of WLAN, WWAN were omitted according to KDB 447498 D01 and KDB 616217.

Test Configurations for the WWAN Main Module within Host

Test Configurations	Antenna-to-edge/surface	SAR Required	Note
Bottom Side (Laptop Mode)	276.8 mm	No	SAR is not required since separation distance from antenna to user is more far away

Per FCC KDB Publication 616217 D04v01r02, the bottom surface should be tested for SAR compliance with the laptop touching the phantom. The SAR Exclusion Threshold in KDB 447498 D01v06 can be applied to determine SAR test exclusion for adjacent edge configurations. The closet distance from the antenna to an adjacent tablet edge is used to determine if SAR testing is required for the adjacent edges, with the adjacent edge positioned against the phantom and the edge containing the antenna positioned perpendicular to the phantom

3.2 Estimated SAR Configurations

Antenna	Band	Freq.	Max. Power		Separation Distances (mm)	SAR Test Exclusion Thresholds (test separation distances > 50 mm) mW	Device Conifigurations for SAR Testing
		[MHz]	dBm	mW	Bottom	Bottom	Bottom
WWAN Main #1	UMTS B5	846.6	24.5	281.8	276.8	1443.08	0.4W/Kg (N/A)
	LTE B5	848.3	24	251.2	276.8	1445.49	0.4W/Kg (N/A)
	LTE B12	715.3	24	251.2	276.8	1258.89	0.4W/Kg (N/A)
	LTE B13	784.5	24	251.2	276.8	1355.52	0.4W/Kg (N/A)
	LTE B14	795.5	24	251.2	276.8	1370.97	0.4W/Kg (N/A)
	LTE B17	713.5	24	251.2	276.8	1256.39	0.4W/Kg (N/A)
	LTE B26	848.3	24	251.2	276.8	1445.49	0.4W/Kg (N/A)
	LTE B71	695.5	24	251.2	276.8	1230.77	0.4W/Kg (N/A)
	UMTS B2	1907.6	24	251.2	276.8	2376.60	0.4W/Kg (N/A)
	UMTS B4	1752.8	24	251.2	276.8	2381.30	0.4W/Kg (N/A)
	LTE B2	1880	24	251.2	276.8	2377.40	0.4W/Kg (N/A)
	LTE B4	1754.3	24	251.2	276.8	2381.25	0.4W/Kg (N/A)
	LTE B7	2567.5	24.5	281.8	276.8	2361.61	0.4W/Kg (N/A)
	LTE B25	1914.3	24	251.2	276.8	2376.41	0.4W/Kg (N/A)
	LTE B38	2617.5	24	251.2	276.8	2360.71	0.4W/Kg (N/A)
	LTE B41	2680	24.5	251.2	276.8	2359.63	0.4W/Kg (N/A)
	LTE B48	3697.5	12.3	17.0	276.8	2346.01	0.4W/Kg (N/A)
	LTE B66	1779.3	24	251.2	276.8	2380.45	0.4W/Kg (N/A)
WLAN Aux Ant2	BT	2480	10.5	11.2	276.8	2363.25	0.4W/Kg (N/A)
	Wifi 2.4GHz	2472	22	158.5	276.8	2363.40	0.4W/Kg (N/A)
	Wifi 5GHz	5.825	22	158.5	276.8	2330.15	0.4W/Kg (N/A)

Per FCC KDB447498 D01 General RF Exposure Guidance v06 Sec 4.3.2 b) When an antenna qualifies for the standalone SAR test exclusion of 4.3.1 and also transmits simultaneously with other antennas, the standalone SAR value must be estimated according to the following to determine the simultaneous transmission SAR test exclusion criteria.

1) [(*max. power of channel, including tune-up tolerance, mW*) / (*min. test separation distance, mm*)]·[√f(GHz)/*x*] W/kg, for *test separation distances* ≤ 50 mm;
where *x* = 7.5 for 1-g SAR and *x* = 18.75 for 10-g SAR.
2) 0.4 W/kg for 1-g SAR and 1.0 W/kg for 10-g SAR, when the *test separation distance* is > 50 mm.

For simultaneous transmission analysis with the WLAN Module within the host device, the SAR evaluation value of the WWAN antenna was 0.4 W/kg according to FCC KDB 448498.D01

4. OUTPUT POWER SPECIFICATIONS

This device operates using the following maximum output power specifications. SAR values were scaled to the maximum allowed power to determine compliance per KDB publication 447498 D01v06.

4.1 UMTS Maximum Conducted Output Power

HSPA+

This DUT is only capable of QPSK HSPA+ in uplink. Therefore, the RF conducted power is not measured according to 941225 D01 3G SAR.

UMTS Band 5

3GPP Release Version	Mode	3GPP 34.121	UMTS Band 5[dBm]			
		Subtest	UL 4132 DL 4357	UL 4183 DL 4408	UL 4233 DL 4458	3GPP MPR [dB]
99	UMTS	12.2 kbps RMC	23.58	23.75	23.80	-
99		12.2 kbps AMR				-
5	HSDPA	Subtest 1	22.69	22.81	22.85	0
5		Subtest 2	22.70	22.82	22.84	0
5		Subtest 3	22.18	22.28	22.34	0.5
5		Subtest 4	22.16	22.28	22.32	0.5
6	HSUPA	Subtest 1	22.63	22.76	22.82	0
6		Subtest 2	22.13	22.27	22.38	2
6		Subtest 3	22.62	22.77	22.81	1
6		Subtest 4	22.63	22.77	22.83	2
6		Subtest 5	22.62	22.76	22.82	0
8	DC-HSDPA	Subtest 1	22.53	22.71	22.71	0
8		Subtest 2	22.53	22.70	22.74	0
8		Subtest 3	22.04	22.20	22.21	0.5
8		Subtest 4	22.02	22.20	22.20	0.5

UMTS Average Conducted output powers

UMTS Band 4

3GPP Release Version	Mode	3GPP 34.121	UMTS Band 4 [dBm]			
		Subtest	UL 1312 DL 1537	UL 1412 DL 1637	UL 1513 DL 1738	3GPP MPR [dB]
99	UMTS	12.2 kbps RMC	23.44	23.54	23.77	-
99		12.2 kbps AMR				-
5	HSDPA	Subtest 1	22.41	22.54	22.73	0
5		Subtest 2	22.40	22.18	22.70	0
5		Subtest 3	21.91	21.98	22.18	0.5
5		Subtest 4	21.88	21.96	22.18	0.5
6	HSUPA	Subtest 1	22.52	22.56	22.79	0
6		Subtest 2	21.93	22.01	22.30	2
6		Subtest 3	22.48	22.57	22.79	1
6		Subtest 4	22.46	22.56	22.82	2
6		Subtest 5	22.45	22.55	22.81	0
8	DC-HSDPA	Subtest 1	22.39	22.57	22.65	0
8		Subtest 2	22.37	22.56	22.65	0
8		Subtest 3	21.88	22.04	22.15	0.5
8		Subtest 4	21.88	22.03	22.15	0.5

UMTS Average Conducted output powers

UMTS Band 2

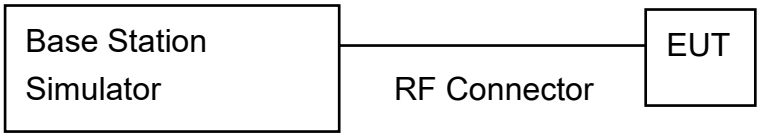
3GPP Release Version	Mode	3GPP 34.121	UMTS Band 2 [dBm]			3GPP MPR
		Subtest	UL 9262 DL 9662	UL 9400 DL 9800	UL 9538 DL 9938	
99	UMTS	12.2 kbps RMC	23.56	23.59	23.64	-
99	UMTS	12.2 kbps AMR				-
5	HSDPA	Subtest 1	22.30	22.35	22.36	0
5		Subtest 2	22.25	22.27	22.28	0
5		Subtest 3	21.76	21.79	21.83	0.5
5		Subtest 4	21.73	21.76	21.79	0.5
6	HSUPA	Subtest 1	22.55	22.59	22.53	0
6		Subtest 2	22.11	22.09	22.06	2
6		Subtest 3	22.59	22.60	22.57	1
6		Subtest 4	22.61	22.59	22.59	2
6		Subtest 5	22.61	22.62	22.59	0
8	DC-HSDPA	Subtest 1	22.27	22.49	22.49	0
8		Subtest 2	22.25	22.48	22.50	0
8		Subtest 3	21.76	21.98	22.00	0.5
8		Subtest 4	21.75	21.98	22.00	0.5

UMTS Average Conducted output powers

DC-HSDPA Configurations

- 3GPP specification TS 34.121-1 Release 8. was used for used for DC-HSDPA guidance.
- H-set 12(QPSK)was conformed to be used during DC-HSDPA measurements.

It is expected by the manufacturer that MPR for some HSPA Subtests may be up to 2 dB more than specified by 3GPP, But also as low as 1 dB according to the chipset implementation in this model to match manufacturer.



4.2 LTE Maximum Conducted Output Power

LTE B4/5/12/13/14/17 at 10 ㎒/15 ㎒/ 20 ㎒ 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 mid channel of the group of overlapping channels should be selected for testing.

- LTE Band 2

LTE Band 2 _ 1.4 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				18607 Ch. 1850.7 ㎒	18900 Ch. 1880 ㎒	19193 Ch. 1909.3 ㎒		
1.4 ㎒	QPSK	1	0	22.98	22.96	22.91	0	0
		1	3	23.03	23.07	22.98	0	0
		1	5	22.98	23.03	22.96	0	0
		3	0	23.01	23.01	22.96	0	0
		3	1	23.09	23.05	22.99	0	0
		3	3	23.03	23.07	22.97	0	0
		6	0	22.10	22.15	22.12	0-1	1
	16QAM	1	0	22.47	22.58	22.31	0-1	1
		1	3	22.52	22.40	22.44	0-1	1
		1	5	22.43	22.54	22.31	0-1	1
		3	0	22.20	22.14	22.21	0-1	1
		3	1	22.30	22.28	22.18	0-1	1
		3	3	22.27	22.17	22.09	0-1	1
		6	0	21.19	21.17	21.13	0-2	2
	64QAM	1	0	21.31	21.33	21.19	0-2	2
		1	3	21.32	21.42	21.30	0-2	2
		1	5	21.31	21.25	21.13	0-2	2
		3	0	21.21	21.19	21.12	0-2	2
		3	1	21.28	21.24	21.15	0-2	2
		3	3	21.26	21.23	21.15	0-2	2
		6	0	20.21	20.21	20.14	0-3	3
	256QAM	1	0	18.17	18.21	18.12	0-5	5
		1	3	18.30	18.32	18.21	0-5	5
		1	5	18.25	18.17	18.23	0-5	5
		3	0	18.22	18.27	18.16	0-5	5
		3	1	18.32	18.33	18.15	0-5	5
		3	3	18.23	18.28	18.21	0-5	5
		6	0	18.18	18.12	18.08	0-5	5

LTE Band 2 _ 3 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				18615 Ch. 1851.5 ㎒	18900 Ch. 1880 ㎒	19185 Ch. 1908.5 ㎒		
3 ㎒	QPSK	1	0	23.11	23.07	23.04	0	0
		1	7	23.09	23.16	23.04	0	0
		1	14	23.14	23.22	23.12	0	0
		8	0	22.15	22.16	22.19	0-1	1
		8	3	22.22	22.24	22.22	0-1	1
		8	7	22.23	22.22	22.15	0-1	1
		15	0	22.17	22.23	22.16	0-1	1
	16QAM	1	0	22.40	22.51	22.42	0-1	1
		1	7	22.34	22.46	22.39	0-1	1
		1	14	22.68	22.47	22.41	0-1	1
		8	0	21.26	21.25	21.22	0-2	2
		8	3	21.31	21.26	21.24	0-2	2
		8	7	21.34	21.29	21.27	0-2	2
		15	0	21.20	21.17	21.23	0-2	2
	64QAM	1	0	21.20	21.27	21.28	0-2	2
		1	7	21.43	21.25	21.21	0-2	2
		1	14	21.25	21.36	21.25	0-2	2
		8	0	20.23	20.18	20.17	0-3	3
		8	3	20.31	20.26	20.25	0-3	3
		8	7	20.22	20.28	20.16	0-3	3
		15	0	20.26	20.26	20.19	0-3	3
	256QAM	1	0	18.31	18.26	18.19	0-5	5
		1	7	18.24	18.33	18.27	0-5	5
		1	14	18.35	18.26	18.18	0-5	5
		8	0	18.25	18.16	18.21	0-5	5
		8	3	18.32	18.17	18.15	0-5	5
		8	7	18.25	18.30	18.21	0-5	5
		15	0	18.28	18.23	18.20	0-5	5

LTE Band 2 _ 5 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				18625 Ch. 1852.5 ㎒	18900 Ch. 1880 ㎒	19175 Ch. 1907.5 ㎒		
5 ㎒	QPSK	1	0	23.11	23.05	23.02	0	0
		1	12	23.14	23.07	23.01	0	0
		1	24	23.12	23.10	23.07	0	0
		12	0	22.17	22.16	22.16	0-1	1
		12	6	22.18	22.21	22.15	0-1	1
		12	11	22.25	22.29	22.22	0-1	1
		25	0	22.22	22.20	22.16	0-1	1
	16QAM	1	0	22.45	22.36	22.37	0-1	1
		1	12	22.49	22.33	22.46	0-1	1
		1	24	22.48	22.49	22.48	0-1	1
		12	0	21.19	21.18	21.23	0-2	2
		12	6	21.22	21.20	21.25	0-2	2
		12	11	21.26	21.33	21.29	0-2	2
		25	0	21.18	21.20	21.18	0-2	2
	64QAM	1	0	21.34	21.30	21.33	0-2	2
		1	12	21.32	21.25	21.25	0-2	2
		1	24	21.35	21.44	21.31	0-2	2
		12	0	20.18	20.15	20.25	0-3	3
		12	6	20.31	20.31	20.22	0-3	3
		12	11	20.23	20.29	20.23	0-3	3
		25	0	20.23	20.19	20.21	0-3	3
	256QAM	1	0	18.28	18.20	18.19	0-5	5
		1	12	18.26	18.29	18.32	0-5	5
		1	24	18.32	18.41	18.28	0-5	5
		12	0	18.21	18.15	18.11	0-5	5
		12	6	18.21	18.19	18.22	0-5	5
		12	11	18.26	18.25	18.18	0-5	5
		25	0	18.27	18.13	18.14	0-5	5

LTE Band 2 _ 10 MHz Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				18650 Ch. 1855 MHz	18900 Ch. 1880 MHz	19150 Ch. 1905 MHz		
10 MHz	QPSK	1	0	23.13	23.05	23.10	0	0
		1	24	22.99	23.04	23.19	0	0
		1	49	23.09	23.15	23.08	0	0
		25	0	22.20	22.16	22.00	0-1	1
		25	12	22.21	22.21	22.17	0-1	1
		25	24	22.24	22.22	22.24	0-1	1
		50	0	22.20	22.16	22.09	0-1	1
	16QAM	1	0	22.34	22.50	22.40	0-1	1
		1	24	22.63	22.63	22.45	0-1	1
		1	49	22.37	22.47	22.38	0-1	1
		25	0	21.16	21.20	21.19	0-2	2
		25	12	21.18	21.23	21.15	0-2	2
		25	24	21.24	21.26	21.20	0-2	2
		50	0	21.24	21.21	21.18	0-2	2
	64QAM	1	0	21.27	21.27	21.33	0-2	2
		1	24	21.53	21.51	21.44	0-2	2
		1	49	21.32	21.47	21.31	0-2	2
		25	0	20.32	20.29	20.15	0-3	3
		25	12	20.33	20.27	20.19	0-3	3
		25	24	20.22	20.28	20.19	0-3	3
		50	0	20.18	20.27	20.13	0-3	3
	256QAM	1	0	18.29	18.20	18.13	0-5	5
		1	24	18.32	18.30	18.25	0-5	5
		1	49	18.52	18.10	18.25	0-5	5
		25	0	18.19	18.23	18.18	0-5	5
		25	12	18.25	18.19	18.21	0-5	5
		25	24	18.31	18.35	18.19	0-5	5
		50	0	18.27	18.22	18.17	0-5	5

LTE Band 2 _ 15 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				18675 Ch. 1857.5 ㎒	18900 Ch. 1880 ㎒	19125 Ch. 1902.5 ㎒		
15 ㎒	QPSK	1	0	23.09	23.06	23.03	0	0
		1	36	22.97	23.15	23.12	0	0
		1	74	23.19	23.12	23.06	0	0
		36	0	22.19	22.13	22.14	0-1	1
		36	18	22.28	22.22	22.17	0-1	1
		36	39	22.24	22.31	22.18	0-1	1
		75	0	22.23	22.18	22.06	0-1	1
	16QAM	1	0	22.28	22.46	22.41	0-1	1
		1	36	22.40	22.39	22.47	0-1	1
		1	74	22.50	22.49	22.37	0-1	1
		36	0	21.10	21.18	21.09	0-2	2
		36	18	21.28	21.18	21.22	0-2	2
		36	39	21.28	21.30	21.30	0-2	2
		75	0	21.24	21.27	21.14	0-2	2
	64QAM	1	0	21.31	21.39	21.35	0-2	2
		1	36	21.43	21.42	21.30	0-2	2
		1	74	21.51	21.46	21.39	0-2	2
		36	0	20.16	20.24	20.12	0-3	3
		36	18	20.34	20.26	20.25	0-3	3
		36	39	20.36	20.33	20.25	0-3	3
		75	0	20.22	20.21	20.20	0-3	3
	256QAM	1	0	18.28	18.23	18.12	0-5	5
		1	36	18.29	18.38	18.27	0-5	5
		1	74	18.39	18.41	18.24	0-5	5
		36	0	18.24	18.22	18.19	0-5	5
		36	18	18.30	18.28	18.25	0-5	5
		36	39	18.26	18.33	18.28	0-5	5
		75	0	18.30	18.16	18.14	0-5	5

LTE Band 2 _ 20 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				18700 Ch. 1860 ㎒	18900 Ch. 1880 ㎒	19100 Ch. 1900 ㎒		
20 ㎒	QPSK	1	0	23.13	23.14	23.02	0	0
		1	49	22.99	23.18	23.06	0	0
		1	99	23.19	23.25	23.13	0	0
		50	0	22.16	22.15	22.10	0-1	1
		50	25	22.31	22.24	22.20	0-1	1
		50	49	22.30	22.28	22.30	0-1	1
		100	0	22.26	22.29	22.13	0-1	1
	16QAM	1	0	22.42	22.39	22.54	0-1	1
		1	49	22.47	22.44	22.34	0-1	1
		1	99	22.46	22.45	22.39	0-1	1
		50	0	21.10	21.08	21.12	0-2	2
		50	25	21.27	21.25	21.25	0-2	2
		50	49	21.21	21.32	21.23	0-2	2
		100	0	21.28	21.28	21.13	0-2	2
	64QAM	1	0	21.41	21.31	21.35	0-2	2
		1	49	21.32	21.38	21.33	0-2	2
		1	99	21.36	21.43	21.35	0-2	2
		50	0	20.12	20.18	20.14	0-3	3
		50	25	20.26	20.28	20.30	0-3	3
		50	49	20.33	20.29	20.27	0-3	3
		100	0	20.28	20.21	20.18	0-3	3
	256QAM	1	0	18.31	18.28	18.18	0-5	5
		1	49	18.22	18.38	18.22	0-5	5
		1	99	18.33	18.38	18.28	0-5	5
		50	0	18.17	18.23	18.12	0-5	5
		50	25	18.30	18.20	18.34	0-5	5
		50	49	18.33	18.32	18.22	0-5	5
		100	0	18.35	18.22	18.24	0-5	5

- LTE Band 4

LTE Band 4 _ 1.4 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				19957 Ch. 1710.7 ㎒	20175 Ch. 1732.5 ㎒	20393 Ch. 1754.3 ㎒		
1.4 ㎒	QPSK	1	0	23.03	23.05	23.20	0	0
		1	3	23.05	23.11	23.23	0	0
		1	5	22.98	23.11	23.19	0	0
		3	0	22.97	23.02	23.20	0	0
		3	1	23.01	23.10	23.17	0	0
		3	3	23.00	23.03	23.15	0	0
		6	0	22.06	22.13	22.31	0-1	1
	16QAM	1	0	22.25	22.48	22.52	0-1	1
		1	3	22.41	22.55	22.67	0-1	1
		1	5	22.44	22.46	22.63	0-1	1
		3	0	22.16	22.21	22.33	0-1	1
		3	1	22.19	22.36	22.45	0-1	1
		3	3	22.22	22.28	22.35	0-1	1
		6	0	21.11	21.19	21.30	0-2	2
	64QAM	1	0	21.30	21.32	21.40	0-2	2
		1	3	21.37	21.46	21.59	0-2	2
		1	5	21.27	21.39	21.47	0-2	2
		3	0	21.14	21.21	21.39	0-2	2
		3	1	21.17	21.30	21.40	0-2	2
		3	3	21.16	21.20	21.35	0-2	2
		6	0	20.17	20.29	20.33	0-3	3
	256QAM	1	0	18.15	18.22	18.31	0-5	5
		1	3	18.21	18.34	18.43	0-5	5
		1	5	18.19	18.34	18.40	0-5	5
		3	0	18.22	18.30	18.44	0-5	5
		3	1	18.28	18.38	18.52	0-5	5
		3	3	18.20	18.36	18.43	0-5	5
		6	0	18.07	18.25	18.30	0-5	5

LTE Band 4 _ 3 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				19965 Ch. 1711.5 ㎒	20175 Ch. 1732.5 ㎒	20385 Ch. 1753.5 ㎒		
3 ㎒	QPSK	1	0	23.04	23.01	23.21	0	0
		1	7	23.09	23.07	23.22	0	0
		1	14	23.11	23.21	23.23	0	0
		8	0	22.18	22.13	22.32	0-1	1
		8	3	22.20	22.22	22.34	0-1	1
		8	7	22.16	22.27	22.34	0-1	1
		15	0	22.14	22.21	22.40	0-1	1
	16QAM	1	0	22.43	22.33	22.59	0-1	1
		1	7	22.43	22.59	22.39	0-1	1
		1	14	22.48	22.55	22.68	0-1	1
		8	0	21.30	21.30	21.39	0-2	2
		8	3	21.28	21.33	21.47	0-2	2
		8	7	21.32	21.38	21.46	0-2	2
		15	0	21.18	21.29	21.36	0-2	2
	64QAM	1	0	21.26	21.29	21.46	0-2	2
		1	7	21.31	21.36	21.41	0-2	2
		1	14	21.32	21.45	21.59	0-2	2
		8	0	20.23	20.22	20.37	0-3	3
		8	3	20.23	20.26	20.41	0-3	3
		8	7	20.26	20.31	20.45	0-3	3
		15	0	20.23	20.29	20.43	0-3	3
	256QAM	1	0	18.23	18.22	18.46	0-5	5
		1	7	18.20	18.39	18.49	0-5	5
		1	14	18.29	18.37	18.55	0-5	5
		8	0	18.19	18.21	18.37	0-5	5
		8	3	18.30	18.27	18.25	0-5	5
		8	7	18.22	18.33	18.43	0-5	5
		15	0	18.27	18.37	18.43	0-5	5

LTE Band 4 _ 5 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				19975 Ch. 1712.5 ㎒	20175 Ch. 1732.5 ㎒	20375 Ch. 1752.5 ㎒		
5 ㎒	QPSK	1	0	23.01	23.05	23.25	0	0
		1	12	23.00	23.14	23.23	0	0
		1	24	23.03	23.17	23.26	0	0
		12	0	22.12	22.19	22.34	0-1	1
		12	6	22.13	22.17	22.34	0-1	1
		12	11	22.20	22.25	22.34	0-1	1
		25	0	22.14	22.22	22.31	0-1	1
	16QAM	1	0	22.40	22.36	22.57	0-1	1
		1	12	22.19	22.60	22.46	0-1	1
		1	24	22.36	22.45	22.60	0-1	1
		12	0	21.15	21.23	21.41	0-2	2
		12	6	21.23	21.25	21.41	0-2	2
		12	11	21.22	21.25	21.45	0-2	2
		25	0	21.16	21.19	21.36	0-2	2
	64QAM	1	0	21.26	21.24	21.46	0-2	2
		1	12	21.29	21.37	21.37	0-2	2
		1	24	21.30	21.49	21.54	0-2	2
		12	0	20.22	20.20	20.35	0-3	3
		12	6	20.22	20.22	20.46	0-3	3
		12	11	20.26	20.30	20.38	0-3	3
		25	0	20.21	20.26	20.36	0-3	3
	256QAM	1	0	18.32	18.21	18.42	0-5	5
		1	12	18.25	18.38	18.32	0-5	5
		1	24	18.32	18.42	18.47	0-5	5
		12	0	18.15	18.15	18.30	0-5	5
		12	6	18.19	18.15	18.35	0-5	5
		12	11	18.12	18.26	18.38	0-5	5
		25	0	18.15	18.23	18.39	0-5	5

LTE Band 4 _ 10 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				20000 Ch. 1715 ㎒	20175 Ch. 1732.5 ㎒	20350 Ch. 1750 ㎒		
10 ㎒	QPSK	1	0	22.94	22.97	23.11	0	0
		1	24	23.04	22.85	23.20	0	0
		1	49	23.11	23.20	23.16	0	0
		25	0	22.09	22.04	22.20	0-1	1
		25	12	22.12	22.08	22.22	0-1	1
		25	24	22.16	22.22	22.37	0-1	1
		50	0	22.14	22.18	22.25	0-1	1
	16QAM	1	0	22.29	22.36	22.51	0-1	1
		1	24	22.31	22.56	22.52	0-1	1
		1	49	22.43	22.43	22.65	0-1	1
		25	0	20.98	21.16	21.15	0-2	2
		25	12	21.12	21.14	21.19	0-2	2
		25	24	21.12	21.24	21.32	0-2	2
		50	0	21.10	21.24	21.31	0-2	2
	64QAM	1	0	21.02	21.20	21.22	0-2	2
		1	24	21.31	21.42	21.52	0-2	2
		1	49	21.33	21.45	21.53	0-2	2
		25	0	20.09	20.20	20.11	0-3	3
		25	12	20.14	20.19	20.21	0-3	3
		25	24	20.09	20.28	20.34	0-3	3
		50	0	20.15	20.25	20.28	0-3	3
	256QAM	1	0	18.15	18.26	18.37	0-5	5
		1	24	18.34	18.42	18.46	0-5	5
		1	49	18.42	18.10	18.61	0-5	5
		25	0	18.07	18.11	18.24	0-5	5
		25	12	18.15	18.11	18.38	0-5	5
		25	24	18.14	18.33	18.34	0-5	5
		50	0	18.05	18.29	18.26	0-5	5

LTE Band 4 _ 15 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				20025 Ch. 1717.5 ㎒	20175 Ch. 1732.5 ㎒	20325 Ch. 1747.5 ㎒		
15 ㎒	QPSK	1	0	23.04	23.09	23.11	0	0
		1	36	22.91	23.05	23.13	0	0
		1	74	23.02	23.08	23.11	0	0
		36	0	22.08	22.17	22.28	0-1	1
		36	18	22.15	22.16	22.32	0-1	1
		36	39	22.12	22.20	22.35	0-1	1
		75	0	22.14	22.23	22.25	0-1	1
	16QAM	1	0	22.41	22.32	22.48	0-1	1
		1	36	22.14	22.43	22.48	0-1	1
		1	74	22.15	22.40	22.58	0-1	1
		36	0	21.12	21.13	21.28	0-2	2
		36	18	21.23	21.21	21.31	0-2	2
		36	39	21.10	21.26	21.38	0-2	2
		75	0	21.20	21.29	21.24	0-2	2
	64QAM	1	0	21.33	21.22	21.34	0-2	2
		1	36	21.09	21.22	21.50	0-2	2
		1	74	21.35	21.26	21.43	0-2	2
		36	0	20.11	20.23	20.35	0-3	3
		36	18	20.10	20.25	20.41	0-3	3
		36	39	20.15	20.24	20.42	0-3	3
		75	0	20.10	20.30	20.23	0-3	3
	256QAM	1	0	18.19	18.14	18.38	0-5	5
		1	36	18.22	18.22	18.36	0-5	5
		1	74	18.25	18.29	18.41	0-5	5
		36	0	18.06	18.22	18.33	0-5	5
		36	18	18.19	18.24	18.30	0-5	5
		36	39	18.16	18.19	18.34	0-5	5
		75	0	18.22	18.20	18.19	0-5	5

LTE Band 4 _ 20 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm] 20175 Ch. 1732.5 ㎒	MPR Allowed Per 3GPP [dB]	MPR [dB]
20 ㎒	QPSK	1	0	23.03	0	0
		1	49	22.76	0	0
		1	99	23.19	0	0
		50	0	22.19	0-1	1
		50	25	22.28	0-1	1
		50	49	22.26	0-1	1
		100	0	22.25	0-1	1
	16QAM	1	0	22.23	0-1	1
		1	49	22.42	0-1	1
		1	99	22.52	0-1	1
		50	0	21.15	0-2	2
		50	25	21.29	0-2	2
		50	49	21.28	0-2	2
		100	0	21.38	0-2	2
	64QAM	1	0	21.28	0-2	2
		1	49	21.36	0-2	2
		1	99	21.39	0-2	2
		50	0	20.26	0-3	3
		50	25	20.26	0-3	3
		50	49	20.32	0-3	3
		100	0	20.28	0-3	3
	256QAM	1	0	18.22	0-5	5
		1	49	18.18	0-5	5
		1	99	18.49	0-5	5
		50	0	18.12	0-5	5
		50	25	18.35	0-5	5
		50	49	18.29	0-5	5
		100	0	18.28	0-5	5

- LTE Band 5

LTE Band 5 _ 1.4 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				20407 Ch. 824.7 ㎒	20525 Ch. 836.5 ㎒	20643 Ch. 848.3 ㎒		
1.4 ㎒	QPSK	1	0	22.83	22.87	23.10	0	0
		1	3	22.91	23.06	23.15	0	0
		1	5	22.84	22.90	23.05	0	0
		3	0	22.88	22.88	23.09	0	0
		3	1	22.90	22.96	23.12	0	0
		3	3	22.84	23.01	23.05	0	0
		6	0	21.93	22.04	22.14	0-1	1
	16QAM	1	0	22.16	22.14	22.54	0-1	1
		1	3	22.29	22.43	22.42	0-1	1
		1	5	22.17	22.42	22.34	0-1	1
		3	0	22.03	22.04	22.21	0-1	1
		3	1	22.07	22.20	22.22	0-1	1
		3	3	21.93	22.17	22.21	0-1	1
		6	0	21.03	21.08	21.28	0-2	2
	64QAM	1	0	21.18	21.20	21.22	0-2	2
		1	3	21.16	21.22	21.15	0-2	2
		1	5	21.13	21.16	20.86	0-2	2
		3	0	21.14	21.11	20.87	0-2	2
		3	1	21.18	21.10	20.97	0-2	2
		3	3	21.01	21.15	20.91	0-2	2
		6	0	20.08	20.05	19.82	0-3	3
	256QAM	1	0	18.01	18.09	18.26	0-5	5
		1	3	18.11	18.30	18.36	0-5	5
		1	5	18.03	18.15	18.25	0-5	5
		3	0	18.07	18.15	18.33	0-5	5
		3	1	18.11	18.17	18.29	0-5	5
		3	3	18.01	18.11	18.31	0-5	5
		6	0	17.96	18.06	18.22	0-5	5

LTE Band 5 _ 3 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				20415 Ch. 825.5 ㎒	20525 Ch. 836.5 ㎒	20635 Ch. 847.5 ㎒		
3 ㎒	QPSK	1	0	23.01	23.04	23.20	0	0
		1	7	22.91	22.98	23.28	0	0
		1	14	22.82	22.96	23.17	0	0
		8	0	22.06	22.14	22.27	0-1	1
		8	3	22.08	22.14	22.34	0-1	1
		8	7	21.96	22.15	22.24	0-1	1
		15	0	22.02	22.15	22.24	0-1	1
	16QAM	1	0	22.23	22.30	22.57	0-1	1
		1	7	22.26	22.49	22.61	0-1	1
		1	14	22.19	22.44	22.38	0-1	1
		8	0	21.16	21.21	21.32	0-2	2
		8	3	21.21	21.25	21.36	0-2	2
		8	7	21.10	21.24	21.35	0-2	2
		15	0	21.06	21.12	21.22	0-2	2
	64QAM	1	0	21.18	21.33	21.50	0-2	2
		1	7	21.10	21.22	21.23	0-2	2
		1	14	21.10	21.24	20.95	0-2	2
		8	0	20.08	20.14	20.30	0-3	3
		8	3	20.08	20.14	20.19	0-3	3
		8	7	20.06	20.21	20.00	0-3	3
		15	0	20.12	20.10	20.15	0-3	3
	256QAM	1	0	18.09	18.24	18.35	0-5	5
		1	7	18.19	18.12	18.46	0-5	5
		1	14	17.98	18.22	18.35	0-5	5
		8	0	18.04	18.17	18.32	0-5	5
		8	3	18.08	18.20	18.33	0-5	5
		8	7	17.99	18.22	18.23	0-5	5
		15	0	18.10	18.17	18.29	0-5	5

LTE Band 5 _ 5 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				20425 Ch. 826.5 ㎒	20525 Ch. 836.5 ㎒	20625 Ch. 846.5 ㎒		
5 ㎒	QPSK	1	0	23.06	23.13	23.30	0	0
		1	12	22.91	23.10	23.28	0	0
		1	24	22.89	23.10	23.17	0	0
		12	0	22.09	22.16	22.32	0-1	1
		12	6	22.06	22.12	22.28	0-1	1
		12	11	22.00	22.17	22.22	0-1	1
		25	0	22.00	22.08	22.26	0-1	1
	16QAM	1	0	22.39	22.51	22.64	0-1	1
		1	12	22.20	22.55	22.69	0-1	1
		1	24	22.30	22.44	22.51	0-1	1
		12	0	21.16	21.26	21.37	0-2	2
		12	6	21.12	21.22	21.33	0-2	2
		12	11	21.05	21.16	21.37	0-2	2
		25	0	21.10	21.12	21.21	0-2	2
	64QAM	1	0	21.28	21.28	21.58	0-2	2
		1	12	21.11	21.25	21.39	0-2	2
		1	24	21.16	21.30	20.85	0-2	2
		12	0	20.16	20.18	20.34	0-3	3
		12	6	20.08	20.19	20.38	0-3	3
		12	11	20.09	20.23	20.23	0-3	3
		25	0	20.02	20.16	20.27	0-3	3
	256QAM	1	0	18.20	18.29	18.48	0-5	5
		1	12	18.03	18.35	18.49	0-5	5
		1	24	18.19	18.18	18.36	0-5	5
		12	0	18.04	18.20	18.30	0-5	5
		12	6	18.06	18.11	18.26	0-5	5
		12	11	17.96	18.21	18.30	0-5	5
		25	0	18.01	18.12	18.22	0-5	5

LTE Band 5 _ 10 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm] 20525 Ch. 836.5 ㎒	MPR Allowed Per 3GPP [dB]	MPR [dB]
10 ㎒	QPSK	1	0	22.91	0	0
		1	24	22.79	0	0
		1	49	23.02	0	0
		25	0	22.14	0-1	1
		25	12	22.12	0-1	1
		25	24	22.15	0-1	1
		50	0	22.12	0-1	1
	16QAM	1	0	22.28	0-1	1
		1	24	22.49	0-1	1
		1	49	22.51	0-1	1
		25	0	21.11	0-2	2
		25	12	21.17	0-2	2
		25	24	21.20	0-2	2
		50	0	21.14	0-2	2
	64QAM	1	0	21.26	0-2	2
		1	24	21.33	0-2	2
		1	49	21.40	0-2	2
		25	0	20.14	0-3	3
		25	12	20.06	0-3	3
		25	24	20.18	0-3	3
		50	0	20.22	0-3	3
	256QAM	1	0	18.12	0-5	5
		1	24	18.34	0-5	5
		1	49	18.30	0-5	5
		25	0	18.07	0-5	5
		25	12	18.08	0-5	5
		25	24	18.17	0-5	5
		50	0	18.18	0-5	5

- LTE Band 7

LTE Band 7 _ 5 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				20775 Ch. 2502.5 ㎒	21100 Ch. 2535 ㎒	21425 Ch. 2567.5 ㎒		
5 ㎒	QPSK	1	0	22.96	23.06	23.04	0	0
		1	12	22.95	23.11	23.07	0	0
		1	24	23.00	23.09	22.99	0	0
		12	0	22.16	22.26	22.19	0-1	1
		12	6	22.11	22.18	22.22	0-1	1
		12	11	22.15	22.20	22.19	0-1	1
		25	0	22.16	22.16	22.16	0-1	1
	16QAM	1	0	22.35	22.33	22.43	0-1	1
		1	12	22.31	22.47	22.30	0-1	1
		1	24	22.38	22.49	22.36	0-1	1
		12	0	21.26	21.30	21.25	0-2	2
		12	6	21.15	21.29	21.25	0-2	2
		12	11	21.16	21.33	21.25	0-2	2
		25	0	21.17	21.24	21.16	0-2	2
	64QAM	1	0	21.08	21.30	21.31	0-2	2
		1	12	21.29	21.40	21.22	0-2	2
		1	24	21.21	21.29	21.27	0-2	2
		12	0	19.95	20.23	20.23	0-3	3
		12	6	20.15	20.21	20.20	0-3	3
		12	11	20.11	20.31	20.19	0-3	3
		25	0	20.06	20.17	20.21	0-3	3
	256QAM	1	0	18.31	18.40	18.25	0-5	5
		1	12	18.16	18.29	18.33	0-5	5
		1	24	18.26	18.30	18.27	0-5	5
		12	0	18.14	18.16	18.23	0-5	5
		12	6	18.13	18.12	18.21	0-5	5
		12	11	18.14	18.19	18.21	0-5	5
		25	0	18.10	18.22	18.15	0-5	5

LTE Band 7_ 10 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				20800 Ch. 2505 ㎒	21100 Ch. 2535 ㎒	21400 Ch. 2565 ㎒		
10 ㎒	QPSK	1	0	23.04	23.13	23.01	0	0
		1	24	22.95	23.11	22.95	0	0
		1	49	22.73	23.02	22.94	0	0
		25	0	22.12	22.17	22.18	0-1	1
		25	12	22.21	22.26	22.16	0-1	1
		25	24	22.12	22.28	22.22	0-1	1
		50	0	22.17	22.17	22.13	0-1	1
	16QAM	1	0	22.43	22.37	22.41	0-1	1
		1	24	22.36	22.45	22.44	0-1	1
		1	49	22.33	22.40	22.44	0-1	1
		25	0	21.20	21.25	21.07	0-2	2
		25	12	21.10	21.15	21.15	0-2	2
		25	24	21.04	21.16	21.22	0-2	2
		50	0	21.12	21.15	21.18	0-2	2
	64QAM	1	0	21.24	21.39	21.04	0-2	2
		1	24	21.26	21.40	21.33	0-2	2
		1	49	21.21	21.35	21.26	0-2	2
		25	0	20.14	20.24	20.14	0-3	3
		25	12	20.12	20.16	20.22	0-3	3
		25	24	20.19	20.25	20.17	0-3	3
		50	0	20.16	20.27	20.14	0-3	3
	256QAM	1	0	18.32	18.31	18.14	0-5	0-5
		1	24	18.26	18.37	18.29	0-5	0-5
		1	49	18.39	18.20	18.28	0-5	0-5
		25	0	18.16	18.15	18.18	0-5	0-5
		25	12	18.19	18.26	18.13	0-5	0-5
		25	24	18.16	18.29	18.15	0-5	0-5
		50	0	18.18	18.21	18.18	0-5	0-5

LTE Band 7 _ 15 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				20825 Ch. 2507.5 ㎒	21100 Ch. 2535 ㎒	21375 Ch. 2562.5 ㎒		
15 ㎒	QPSK	1	0	23.10	23.17	23.13	0	0
		1	36	22.95	23.11	23.00	0	0
		1	74	23.14	23.01	23.00	0	0
		36	0	22.10	22.27	22.19	0-1	1
		36	18	22.19	22.22	22.29	0-1	1
		36	39	22.21	22.23	22.21	0-1	1
		75	0	22.15	22.14	22.21	0-1	1
	16QAM	1	0	22.44	22.48	22.44	0-1	1
		1	36	22.38	22.46	22.41	0-1	1
		1	74	22.45	22.33	22.35	0-1	1
		36	0	21.11	21.28	21.17	0-2	2
		36	18	21.17	21.30	21.28	0-2	2
		36	39	21.17	21.24	21.19	0-2	2
		75	0	21.28	21.20	21.18	0-2	2
	64QAM	1	0	21.32	21.38	21.40	0-2	2
		1	36	21.34	21.42	21.42	0-2	2
		1	74	20.92	21.35	21.35	0-2	2
		36	0	20.18	20.29	20.21	0-3	3
		36	18	20.20	20.24	20.26	0-3	3
		36	39	20.19	20.23	20.20	0-3	3
		75	0	20.24	20.23	20.23	0-3	3
	256QAM	1	0	18.25	18.39	18.33	0-5	5
		1	36	18.22	18.34	18.29	0-5	5
		1	74	18.34	18.33	18.19	0-5	5
		36	0	18.12	18.24	18.15	0-5	5
		36	18	18.20	18.27	18.24	0-5	5
		36	39	18.11	18.19	18.18	0-5	5
		75	0	18.16	18.27	18.22	0-5	5

LTE Band 7 _ 20 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				20850 Ch. 2510 ㎒	21100 Ch. 2535 ㎒	21350 Ch. 2560 ㎒		
20 ㎒	QPSK	1	0	23.08	23.27	23.12	0	0
		1	49	23.04	23.06	23.01	0	0
		1	99	22.67	23.01	22.97	0	0
		50	0	22.18	22.24	22.10	0-1	1
		50	25	22.21	22.25	22.13	0-1	1
		50	49	22.26	22.19	22.16	0-1	1
		100	0	22.22	22.32	22.15	0-1	1
	16QAM	1	0	22.47	22.38	22.49	0-1	1
		1	49	22.50	22.42	22.42	0-1	1
		1	99	22.11	22.47	22.42	0-1	1
		50	0	21.16	21.30	21.17	0-2	2
		50	25	21.19	21.12	21.11	0-2	2
		50	49	21.22	21.25	21.15	0-2	2
		100	0	21.21	21.15	21.15	0-2	2
	64QAM	1	0	21.34	21.41	21.39	0-2	2
		1	49	21.39	21.46	21.26	0-2	2
		1	99	21.37	21.34	21.29	0-2	2
		50	0	20.10	20.27	20.19	0-3	3
		50	25	20.22	20.29	20.22	0-3	3
		50	49	20.13	20.30	20.25	0-3	3
		100	0	20.24	20.18	20.14	0-3	3
	256QAM	1	0	18.28	18.27	18.22	0-5	5
		1	49	18.24	18.23	18.22	0-5	5
		1	99	18.24	18.20	18.26	0-5	5
		50	0	18.12	18.25	18.21	0-5	5
		50	25	18.29	18.24	18.20	0-5	5
		50	49	18.21	18.18	18.26	0-5	5
		100	0	18.22	18.22	18.18	0-5	5

- LTE Band 12

LTE Band 12 _ 1.4 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				23017 Ch. 699.7 ㎒	23095 Ch. 707.5 ㎒	23173 Ch. 715.3 ㎒		
1.4 ㎒	QPSK	1	0	22.71	22.59	22.65	0	0
		1	3	22.78	22.70	22.79	0	0
		1	5	22.69	22.65	22.76	0	0
		3	0	22.79	22.62	22.68	0	0
		3	1	22.88	22.65	22.66	0	0
		3	3	22.74	22.62	22.68	0	0
		6	0	21.90	21.70	21.83	0-1	1
	16QAM	1	0	22.08	21.98	21.94	0-1	1
		1	3	22.23	22.04	22.07	0-1	1
		1	5	22.27	22.02	21.92	0-1	1
		3	0	21.88	21.84	21.83	0-1	1
		3	1	21.95	21.78	21.94	0-1	1
		3	3	21.91	21.76	21.91	0-1	1
		6	0	20.89	20.83	20.88	0-2	2
	64QAM	1	0	21.01	20.92	20.96	0-2	2
		1	3	21.11	20.99	21.07	0-2	2
		1	5	21.01	20.94	20.90	0-2	2
		3	0	20.90	20.83	20.84	0-2	2
		3	1	21.03	20.87	20.88	0-2	2
		3	3	20.89	20.86	20.89	0-2	2
		6	0	19.92	19.75	19.87	0-3	3
	256QAM	1	0	17.92	17.80	17.85	0-5	5
		1	3	18.05	17.84	17.94	0-5	5
		1	5	17.97	17.86	17.89	0-5	5
		3	0	17.98	17.84	17.87	0-5	5
		3	1	18.04	17.84	17.90	0-5	5
		3	3	17.93	17.87	17.93	0-5	5
		6	0	17.81	17.73	17.81	0-5	5

LTE Band 12 _ 3 MHz Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				23025 Ch. 700.5 MHz	23095 Ch. 707.5 MHz	23165 Ch. 714.5 MHz		
3 MHz	QPSK	1	0	22.83	22.79	22.76	0	0
		1	7	22.81	22.83	22.82	0	0
		1	14	22.82	22.68	22.79	0	0
		8	0	21.96	21.82	21.82	0-1	1
		8	3	21.99	21.85	21.91	0-1	1
		8	7	21.94	21.79	21.88	0-1	1
		15	0	22.01	21.80	21.84	0-1	1
	16QAM	1	0	22.35	22.00	22.02	0-1	1
		1	7	22.33	22.01	22.00	0-1	1
		1	14	22.32	22.11	22.14	0-1	1
		8	0	21.14	20.98	20.97	0-2	2
		8	3	21.12	20.94	20.90	0-2	2
		8	7	21.08	20.89	21.01	0-2	2
		15	0	21.00	20.80	20.88	0-2	2
	64QAM	1	0	21.14	21.01	21.05	0-2	2
		1	7	20.92	21.02	20.97	0-2	2
		1	14	21.15	20.86	21.07	0-2	2
		8	0	20.06	19.92	19.88	0-3	3
		8	3	20.07	19.85	19.92	0-3	3
		8	7	19.96	19.89	19.93	0-3	3
		15	0	20.06	19.86	19.89	0-3	3
	256QAM	1	0	18.06	17.95	17.99	0-5	5
		1	7	18.08	17.93	17.96	0-5	5
		1	14	18.00	17.91	17.96	0-5	5
		8	0	18.01	17.90	17.91	0-5	5
		8	3	18.04	17.86	17.92	0-5	5
		8	7	17.90	17.82	17.92	0-5	5
		15	0	17.98	17.81	17.84	0-5	5

LTE Band 12 _ 5 MHz Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				23035 Ch. 701.5 MHz	23095 Ch. 707.5 MHz	23155 Ch. 713.5 MHz		
5 MHz	QPSK	1	0	22.87	22.76	22.74	0	0
		1	12	22.78	22.77	22.77	0	0
		1	24	22.78	22.78	22.75	0	0
		12	0	22.00	21.92	21.93	0-1	1
		12	6	21.94	21.84	21.91	0-1	1
		12	11	21.93	21.87	21.86	0-1	1
		25	0	21.98	21.92	21.89	0-1	1
	16QAM	1	0	22.25	22.10	22.08	0-1	1
		1	12	22.42	22.28	22.21	0-1	1
		1	24	22.16	22.06	22.22	0-1	1
		12	0	21.16	20.98	20.89	0-2	2
		12	6	21.05	20.86	21.01	0-2	2
		12	11	21.00	20.93	20.92	0-2	2
		25	0	21.00	20.90	20.94	0-2	2
	64QAM	1	0	21.16	21.04	21.02	0-2	2
		1	12	21.07	21.02	21.08	0-2	2
		1	24	20.96	20.91	21.11	0-2	2
		12	0	20.09	19.92	19.94	0-3	3
		12	6	20.06	19.93	19.99	0-3	3
		12	11	19.96	19.88	19.90	0-3	3
		25	0	19.98	19.92	19.93	0-3	3
	256QAM	1	0	18.11	18.03	18.02	0-5	5
		1	12	18.08	17.97	17.99	0-5	5
		1	24	17.95	17.87	18.00	0-5	5
		12	0	17.99	17.86	17.88	0-5	5
		12	6	17.97	17.91	17.92	0-5	5
		12	11	17.94	17.80	17.84	0-5	5
		25	0	17.94	17.86	17.91	0-5	5

LTE Band 12 _ 10 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm] 23095 Ch. 707.5 ㎒	MPR Allowed Per 3GPP [dB]	MPR [dB]
10 ㎒	QPSK	1	0	22.86	0	0
		1	24	22.87	0	0
		1	49	22.73	0	0
		25	0	21.98	0-1	1
		25	12	21.88	0-1	1
		25	24	21.91	0-1	1
		50	0	21.88	0-1	1
	16QAM	1	0	22.29	0-1	1
		1	24	22.21	0-1	1
		1	49	22.13	0-1	1
		25	0	20.88	0-2	2
		25	12	20.99	0-2	2
		25	24	20.66	0-2	2
		50	0	20.89	0-2	2
	64QAM	1	0	20.94	0-2	2
		1	24	20.86	0-2	2
		1	49	21.04	0-2	2
		25	0	20.03	0-3	3
		25	12	19.91	0-3	3
		25	24	19.88	0-3	3
		50	0	19.95	0-3	3
	256QAM	1	0	17.97	0-5	5
		1	24	17.91	0-5	5
		1	49	17.69	0-5	5
		25	0	17.94	0-5	5
		25	12	17.91	0-5	5
		25	24	17.82	0-5	5
		50	0	17.92	0-5	5

- LTE Band 13

LTE Band 13 _ 5 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				23205 Ch. 779.5 ㎒	23230 Ch. 782 ㎒	23205 Ch. 784.5 ㎒		
5 ㎒	QPSK	1	0	23.06	23.09	23.15	0	0
		1	12	23.09	23.18	23.15	0	0
		1	24	23.11	23.08	23.03	0	0
		12	0	22.25	22.24	22.27	0-1	1
		12	6	22.23	22.21	22.24	0-1	1
		12	11	22.21	22.18	22.22	0-1	1
		25	0	22.25	22.25	22.26	0-1	1
	16QAM	1	0	22.44	22.39	22.52	0-1	1
		1	12	22.48	22.56	22.44	0-1	1
		1	24	22.39	22.50	22.36	0-1	1
		12	0	21.35	21.37	21.37	0-2	2
		12	6	21.37	21.30	21.27	0-2	2
		12	11	21.28	21.31	21.24	0-2	2
		25	0	21.35	21.20	21.25	0-2	2
	64QAM	1	0	21.33	21.34	21.60	0-2	2
		1	12	21.38	21.44	21.35	0-2	2
		1	24	21.47	21.44	21.29	0-2	2
		12	0	20.29	20.26	20.37	0-3	3
		12	6	20.31	20.33	20.24	0-3	3
		12	11	20.30	20.24	20.28	0-3	3
		25	0	20.23	20.25	20.23	0-3	3
	256QAM	1	0	18.22	18.43	18.40	0-5	5
		1	12	18.28	18.44	18.30	0-5	5
		1	24	18.39	18.44	18.25	0-5	5
		12	0	18.17	18.30	18.28	0-5	5
		12	6	18.24	18.28	18.27	0-5	5
		12	11	18.23	18.32	18.22	0-5	5
		25	0	23.06	23.09	23.15	0-5	5

LTE Band 13 _ 10 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm] 23230 Ch. 782 ㎒	MPR Allowed Per 3GPP [dB]	MPR [dB]
10 ㎒	QPSK	1	0	23.06	0	0
		1	24	23.03	0	0
		1	49	23.07	0	0
		25	0	22.31	0-1	1
		25	12	22.21	0-1	1
		25	24	22.26	0-1	1
		50	0	22.27	0-1	1
	16QAM	1	0	22.61	0-1	1
		1	24	22.64	0-1	1
		1	49	22.44	0-1	1
		25	0	21.31	0-2	2
		25	12	21.20	0-2	2
		25	24	21.31	0-2	2
		50	0	21.24	0-2	2
	64QAM	1	0	21.29	0-2	2
		1	24	21.58	0-2	2
		1	49	21.35	0-2	2
		25	0	20.37	0-3	3
		25	12	20.31	0-3	3
		25	24	20.35	0-3	3
		50	0	20.26	0-3	3
	256QAM	1	0	18.27	0-5	5
		1	24	18.38	0-5	5
		1	49	18.17	0-5	5
		25	0	18.28	0-5	5
		25	12	18.31	0-5	5
		25	24	18.34	0-5	5
		50	0	18.42	0-5	5

- LTE Band 14

LTE Band 14 _ 5 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				23305 Ch. 790.5 ㎒	23330 Ch. 793 ㎒	23355 Ch. 795.5 ㎒		
5 ㎒	QPSK	1	0	23.05	23.05	23.10	0	0
		1	12	23.03	23.06	22.98	0	0
		1	24	22.98	22.92	22.89	0	0
		12	0	22.25	22.18	22.17	0-1	1
		12	6	22.23	22.19	22.14	0-1	1
		12	11	22.18	22.13	22.01	0-1	1
		25	0	22.20	22.11	22.15	0-1	1
	16QAM	1	0	22.43	22.34	22.49	0-1	1
		1	12	22.59	22.55	22.33	0-1	1
		1	24	22.47	22.35	22.30	0-1	1
		12	0	21.32	21.23	21.19	0-2	2
		12	6	21.30	21.22	21.17	0-2	2
		12	11	21.23	21.12	21.19	0-2	2
		25	0	21.18	21.19	21.15	0-2	2
	64QAM	1	0	21.42	21.32	21.35	0-2	2
		1	12	21.36	21.26	21.28	0-2	2
		1	24	21.35	21.12	21.13	0-2	2
		12	0	20.25	20.18	20.22	0-3	3
		12	6	20.28	20.25	20.17	0-3	3
		12	11	20.26	20.16	20.14	0-3	3
		25	0	20.13	20.16	20.14	0-3	3
	256QAM	1	0	18.30	18.26	18.23	0-5	5
		1	12	18.34	18.32	18.28	0-5	5
		1	24	18.28	18.12	18.06	0-5	5
		12	0	18.23	18.11	18.20	0-5	5
		12	6	18.18	18.16	18.17	0-5	5
		12	11	18.20	18.07	18.10	0-5	5
		25	0	18.15	18.12	18.11	0-5	5

LTE Band 14 _ 10 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm] 23330 Ch. 793 ㎒	MPR Allowed Per 3GPP [dB]	MPR [dB]
10 ㎒	QPSK	1	0	23.20	0	0
		1	24	23.02	0	0
		1	49	22.97	0	0
		25	0	22.19	0-1	1
		25	12	22.18	0-1	1
		25	24	22.05	0-1	1
		50	0	22.12	0-1	1
	16QAM	1	0	22.63	0-1	1
		1	24	22.40	0-1	1
		1	49	22.36	0-1	1
		25	0	21.16	0-2	2
		25	12	21.17	0-2	2
		25	24	20.96	0-2	2
		50	0	21.12	0-2	2
	64QAM	1	0	21.21	0-2	2
		1	24	21.52	0-2	2
		1	49	21.19	0-2	2
		25	0	20.17	0-3	3
		25	12	20.19	0-3	3
		25	24	20.15	0-3	3
		50	0	20.15	0-3	3
	256QAM	1	0	18.25	0-5	5
		1	24	18.29	0-5	5
		1	49	18.13	0-5	5
		25	0	18.16	0-5	5
		25	12	18.12	0-5	5
		25	24	18.14	0-5	5
		50	0	18.15	0-5	5

- LTE Band 17

LTE Band 17 _ 5 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				23755	23790	23825		
				706.5 ㎒	710 ㎒	713.5 ㎒		
5 ㎒	QPSK	1	0	22.77	22.68	22.66	0	0
		1	12	22.65	22.72	22.74	0	0
		1	24	22.73	22.75	22.76	0	0
		12	0	21.85	21.78	21.81	0-1	1
		12	6	21.88	21.89	21.85	0-1	1
		12	11	21.84	21.82	21.92	0-1	1
		25	0	21.93	21.83	21.84	0-1	1
	16QAM	1	0	22.14	22.09	22.03	0-1	1
		1	12	22.17	22.13	22.09	0-1	1
		1	24	22.25	22.12	22.12	0-1	1
		12	0	20.93	20.89	20.84	0-2	2
		12	6	20.97	20.90	20.83	0-2	2
		12	11	20.95	20.87	20.89	0-2	2
		25	0	20.89	20.92	20.82	0-2	2
	64QAM	1	0	21.02	21.01	20.96	0-2	2
		1	12	20.99	21.01	20.98	0-2	2
		1	24	20.91	20.88	21.02	0-2	2
		12	0	19.90	19.85	19.87	0-3	3
		12	6	19.94	19.90	19.87	0-3	3
		12	11	19.92	19.86	19.89	0-3	3
		25	0	19.88	19.89	19.80	0-3	3
	256QAM	1	0	17.87	17.88	17.94	0-5	5
		1	12	17.93	17.89	17.96	0-5	5
		1	24	17.96	18.07	17.87	0-5	5
		12	0	17.86	17.81	17.75	0-5	5
		12	6	17.90	17.91	17.81	0-5	5
		12	11	17.85	17.85	17.86	0-5	5
		25	0	17.86	17.85	17.77	0-5	5

LTE Band 17 _ 10 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				23780	23790	23800		
				709 MHz	710 MHz	711 MHz		
10 ㎒	QPSK	1	0	22.81	22.72	22.90	0	0
		1	24	22.66	22.64	22.60	0	0
		1	49	22.70	22.77	22.65	0	0
		25	0	21.81	21.76	21.80	0-1	1
		25	12	21.91	21.95	21.81	0-1	1
		25	24	21.91	21.82	21.87	0-1	1
		50	0	21.90	21.87	21.80	0-1	1
	16QAM	1	0	22.11	22.22	22.13	0-1	1
		1	24	22.17	22.16	22.18	0-1	1
		1	49	22.25	22.14	21.96	0-1	1
		25	0	20.89	20.84	20.79	0-2	2
		25	12	20.84	20.91	20.82	0-2	2
		25	24	20.91	20.73	20.85	0-2	2
		50	0	20.83	20.86	20.74	0-2	2
	64QAM	1	0	20.99	20.81	20.98	0-2	2
		1	24	20.96	20.89	20.92	0-2	2
		1	49	21.01	20.99	20.97	0-2	2
		25	0	19.83	19.81	19.83	0-3	3
		25	12	19.88	19.89	19.87	0-3	3
		25	24	19.93	19.82	19.78	0-3	3
		50	0	19.88	19.94	19.71	0-3	3
	256QAM	1	0	17.90	17.91	17.82	0-5	5
		1	24	17.98	17.92	17.89	0-5	5
		1	49	17.98	18.24	18.05	0-5	5
		25	0	17.86	17.85	17.86	0-5	5
		25	12	17.87	17.91	17.72	0-5	5
		25	24	17.75	17.83	17.80	0-5	5
		50	0	17.86	17.85	17.75	0-5	5

- LTE Band 25

LTE Band 25_ 1.4 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				26047 Ch. 1850.7 ㎒	26365 Ch. 1882.5 ㎒	26683 Ch. 1914.3 ㎒		
1.4 ㎒	QPSK	1	0	22.99	22.96	22.90	0	0
		1	3	23.06	23.15	23.04	0	0
		1	5	22.99	23.12	23.01	0	0
		3	0	22.97	23.03	22.93	0	0
		3	1	23.07	23.04	23.08	0	0
		3	3	23.05	23.01	23.02	0	0
		6	0	22.11	22.13	22.12	0-1	1
	16QAM	1	0	22.36	22.43	22.27	0-1	1
		1	3	22.49	22.46	22.41	0-1	1
		1	5	22.45	22.55	22.37	0-1	1
		3	0	22.23	22.20	22.12	0-1	1
		3	1	22.26	22.34	22.26	0-1	1
		3	3	22.27	22.27	22.23	0-1	1
		6	0	21.20	21.21	21.12	0-2	2
	64QAM	1	0	21.22	21.28	21.25	0-2	2
		1	3	21.40	21.40	21.14	0-2	2
		1	5	21.26	21.27	20.97	0-2	2
		3	0	21.12	21.15	21.08	0-2	2
		3	1	21.25	21.26	21.09	0-2	2
		3	3	21.23	21.21	20.94	0-2	2
		6	0	20.20	20.14	19.96	0-3	3
	256QAM	1	0	18.19	18.15	18.09	0-5	5
		1	3	18.28	18.35	18.24	0-5	5
		1	5	18.19	18.28	18.25	0-5	5
		3	0	18.19	18.21	18.19	0-5	5
		3	1	18.29	18.26	18.26	0-5	5
		3	3	18.22	18.24	18.18	0-5	5
		6	0	18.05	18.15	18.10	0-5	5

LTE Band 25_3 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				26055 Ch. 1851.5 ㎒	26365 Ch. 1882.5 ㎒	26675Ch. 1913.5 ㎒		
3 ㎒	QPSK	1	0	23.03	22.98	23.01	0	0
		1	7	23.06	23.18	23.04	0	0
		1	14	23.23	23.17	23.12	0	0
		8	0	22.18	22.12	22.15	0-1	1
		8	3	22.27	22.19	22.19	0-1	1
		8	7	22.29	22.28	22.21	0-1	1
		15	0	22.24	22.17	22.13	0-1	1
	16QAM	1	0	22.37	22.40	22.34	0-1	1
		1	7	22.38	22.49	22.38	0-1	1
		1	14	22.55	22.65	22.41	0-1	1
		8	0	21.30	21.24	21.14	0-2	2
		8	3	21.30	21.33	21.29	0-2	2
		8	7	21.29	21.32	21.34	0-2	2
		15	0	21.26	21.12	21.18	0-2	2
	64QAM	1	0	21.23	21.23	21.28	0-2	2
		1	7	21.29	21.37	21.33	0-2	2
		1	14	21.42	21.38	21.02	0-2	2
		8	0	20.25	20.14	20.19	0-3	3
		8	3	20.28	20.26	20.23	0-3	3
		8	7	20.27	20.32	20.18	0-3	3
		15	0	20.26	20.22	20.19	0-3	3
	256QAM	1	0	18.17	18.06	18.15	0-5	5
		1	7	18.37	18.24	18.30	0-5	5
		1	14	18.35	18.34	18.27	0-5	5
		8	0	18.17	18.13	18.15	0-5	5
		8	3	18.27	18.24	18.20	0-5	5
		8	7	18.27	18.26	18.24	0-5	5
		15	0	18.22	18.21	18.21	0-5	5

LTE Band 25 _ 5 MHz Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				26065 Ch. 1852.5 MHz	26365 Ch. 1882.5 MHz	26665 Ch. 1912.5 MHz		
5 MHz	QPSK	1	0	23.05	23.12	23.14	0	0
		1	12	23.12	23.12	23.01	0	0
		1	24	23.17	23.13	23.12	0	0
		12	0	22.21	22.08	22.24	0-1	1
		12	6	22.20	22.16	22.23	0-1	1
		12	11	22.23	22.30	22.29	0-1	1
		25	0	22.24	22.14	22.20	0-1	1
	16QAM	1	0	22.36	22.19	22.40	0-1	1
		1	12	22.36	22.60	22.56	0-1	1
		1	24	22.55	22.53	22.41	0-1	1
		12	0	21.22	21.17	21.24	0-2	2
		12	6	21.37	21.25	21.25	0-2	2
		12	11	21.32	21.29	21.31	0-2	2
		25	0	21.24	21.20	21.18	0-2	2
	64QAM	1	0	21.37	21.29	21.43	0-2	2
		1	12	21.25	21.44	21.42	0-2	2
		1	24	21.38	21.35	21.05	0-2	2
		12	0	20.23	20.17	20.17	0-3	3
		12	6	20.26	20.26	20.22	0-3	3
		12	11	20.29	20.30	20.32	0-3	3
		25	0	20.25	20.15	20.27	0-3	3
	256QAM	1	0	18.25	18.21	18.20	0-5	5
		1	12	18.35	18.38	18.39	0-5	5
		1	24	18.34	18.39	18.34	0-5	5
		12	0	18.17	18.09	18.16	0-5	5
		12	6	18.26	18.23	18.28	0-5	5
		12	11	18.30	18.24	18.27	0-5	5
		25	0	18.19	18.15	18.19	0-5	5

LTE Band 25 _ 10 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				26090 Ch. 1855 ㎒	26365 Ch. 1882.5 ㎒	26640 Ch. 1910 ㎒		
10 ㎒	QPSK	1	0	23.12	23.05	23.11	0	0
		1	24	23.07	23.18	23.12	0	0
		1	49	23.12	23.12	23.05	0	0
		25	0	22.21	22.17	22.11	0-1	1
		25	12	22.22	22.15	22.21	0-1	1
		25	24	22.24	22.32	22.21	0-1	1
		50	0	22.25	22.20	22.06	0-1	1
	16QAM	1	0	22.39	22.64	22.35	0-1	1
		1	24	22.42	22.56	22.50	0-1	1
		1	49	22.32	22.46	22.52	0-1	1
		25	0	21.23	21.18	21.10	0-2	2
		25	12	21.21	21.11	21.18	0-2	2
		25	24	21.22	21.29	21.34	0-2	2
		50	0	21.29	21.16	21.17	0-2	2
	64QAM	1	0	21.41	21.13	21.34	0-2	2
		1	24	21.49	21.24	21.34	0-2	2
		1	49	21.50	21.42	21.31	0-2	2
		25	0	20.25	20.20	20.12	0-3	3
		25	12	20.33	20.24	20.19	0-3	3
		25	24	20.22	20.22	20.36	0-3	3
		50	0	20.28	20.20	20.26	0-3	3
	256QAM	1	0	18.31	18.31	18.28	0-5	5
		1	24	18.45	18.00	18.29	0-5	5
		1	49	18.26	18.36	18.35	0-5	5
		25	0	18.17	18.20	18.23	0-5	5
		25	12	18.25	18.21	18.26	0-5	5
		25	24	18.27	18.27	18.26	0-5	5
		50	0	18.27	18.22	18.23	0-5	5

LTE Band 25 _ 15 MHz Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				26115 Ch. 1857.5 MHz	26365 Ch. 1882.5 MHz	26615 Ch. 1907.5 MHz		
15 MHz	QPSK	1	0	23.13	23.23	23.18	0	0
		1	36	23.08	23.18	23.03	0	0
		1	74	23.18	23.19	22.95	0	0
		36	0	22.19	22.26	22.15	0-1	1
		36	18	22.28	22.22	22.31	0-1	1
		36	39	22.26	22.24	22.25	0-1	1
		75	0	22.26	22.18	22.24	0-1	1
	16QAM	1	0	22.52	22.45	22.44	0-1	1
		1	36	22.51	22.50	22.44	0-1	1
		1	74	22.36	22.45	22.79	0-1	1
		36	0	21.21	21.20	21.14	0-2	2
		36	18	21.30	21.15	21.25	0-2	2
		36	39	21.31	21.26	21.22	0-2	2
		75	0	21.23	21.17	21.15	0-2	2
	64QAM	1	0	21.59	21.35	21.42	0-2	2
		1	36	21.41	21.43	21.41	0-2	2
		1	74	21.39	21.44	21.39	0-2	2
		36	0	20.24	20.13	20.23	0-3	3
		36	18	20.27	20.23	20.30	0-3	3
		36	39	20.25	20.34	20.28	0-3	3
		75	0	20.22	20.20	20.09	0-3	3
	256QAM	1	0	18.26	18.34	18.21	0-5	5
		1	36	18.33	18.28	18.37	0-5	5
		1	74	18.41	18.32	18.32	0-5	5
		36	0	18.22	18.23	18.19	0-5	5
		36	18	18.27	18.21	18.31	0-5	5
		36	39	18.19	18.28	18.22	0-5	5
		75	0	18.24	18.17	18.22	0-5	5

LTE Band 25 _ 20 MHz Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				26140 Ch. 1860 MHz	26365 Ch. 1882.5 MHz	26590 Ch. 1905 MHz		
20 MHz	QPSK	1	0	23.04	23.15	23.22	0	0
		1	49	23.06	22.96	22.99	0	0
		1	99	23.00	23.16	23.02	0	0
		50	0	22.14	22.13	22.18	0-1	1
		50	25	22.23	22.26	22.18	0-1	1
		50	49	22.16	22.24	22.21	0-1	1
		100	0	22.23	22.22	22.13	0-1	1
	16QAM	1	0	22.43	22.48	22.42	0-1	1
		1	49	22.43	22.51	22.36	0-1	1
		1	99	22.40	22.43	22.70	0-1	1
		50	0	21.20	21.15	21.19	0-2	2
		50	25	21.28	21.19	21.21	0-2	2
		50	49	21.30	21.29	21.27	0-2	2
		100	0	21.33	21.17	21.28	0-2	2
	64QAM	1	0	21.35	21.34	21.45	0-2	2
		1	49	21.32	21.40	21.40	0-2	2
		1	99	21.44	21.43	21.39	0-2	2
		50	0	20.16	20.21	20.24	0-3	3
		50	25	20.31	20.23	20.17	0-3	3
		50	49	20.24	20.29	20.24	0-3	3
		100	0	20.27	20.20	20.17	0-3	3
	256QAM	1	0	18.13	18.31	18.46	0-5	5
		1	49	18.35	18.37	18.19	0-5	5
		1	99	18.27	18.42	18.24	0-5	5
		50	0	18.19	18.16	18.23	0-5	5
		50	25	18.27	18.11	18.19	0-5	5
		50	49	18.31	18.29	18.22	0-5	5
		100	0	18.29	18.24	18.23	0-5	5

- LTE Band 26

LTE Band 26 _ 1.4 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				26697 Ch. 814.7 ㎒	26865 Ch. 831.5 ㎒	27033 Ch. 848.3 ㎒		
1.4 ㎒	QPSK	1	0	22.69	22.81	23.04	0	0
		1	3	22.84	22.95	23.09	0	0
		1	5	22.66	22.82	22.96	0	0
		3	0	22.69	22.82	23.03	0	0
		3	1	22.73	22.96	23.13	0	0
		3	3	22.71	22.90	22.99	0	0
		6	0	21.77	22.03	22.13	0-1	1
	16QAM	1	0	22.05	22.21	22.32	0-1	1
		1	3	22.12	22.40	22.46	0-1	1
		1	5	22.02	22.20	22.33	0-1	1
		3	0	21.91	22.01	22.29	0-1	1
		3	1	22.02	22.11	22.24	0-1	1
		3	3	21.93	22.07	22.21	0-1	1
		6	0	20.81	21.07	21.19	0-2	2
	64QAM	1	0	20.91	21.10	21.27	0-2	2
		1	3	21.02	21.23	21.28	0-2	2
		1	5	20.89	21.07	21.14	0-2	2
		3	0	20.94	21.05	21.19	0-2	2
		3	1	20.97	21.04	21.14	0-2	2
		3	3	20.90	21.07	21.10	0-2	2
		6	0	19.90	20.02	20.12	0-3	3
	256QAM	1	0	17.88	18.07	18.34	0-5	5
		1	3	17.95	18.12	18.33	0-5	5
		1	5	17.83	18.04	18.18	0-5	5
		3	0	17.94	18.10	18.23	0-5	5
		3	1	18.00	18.11	18.36	0-5	5
		3	3	17.89	18.11	18.21	0-5	5
		6	0	17.78	17.98	18.11	0-5	5

LTE Band 26 _ 3 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				26705 Ch. 815.5 ㎒	26865 Ch. 831.5 ㎒	27025 Ch. 847.5 ㎒		
3 ㎒	QPSK	1	0	22.80	22.91	23.19	0	0
		1	7	22.71	22.97	23.26	0	0
		1	14	22.77	22.96	23.09	0	0
		8	0	21.79	22.03	22.25	0-1	1
		8	3	21.88	22.04	22.31	0-1	1
		8	7	21.86	22.03	22.21	0-1	1
		15	0	21.85	22.07	22.26	0-1	1
	16QAM	1	0	22.11	22.29	22.55	0-1	1
		1	7	22.19	22.35	22.65	0-1	1
		1	14	22.15	22.33	22.43	0-1	1
		8	0	20.90	21.17	21.36	0-2	2
		8	3	20.95	21.14	21.38	0-2	2
		8	7	20.87	21.17	21.30	0-2	2
		15	0	20.87	21.11	21.29	0-2	2
	64QAM	1	0	20.99	21.27	21.51	0-2	2
		1	7	21.04	21.21	21.41	0-2	2
		1	14	20.97	21.07	21.16	0-2	2
		8	0	19.92	20.06	20.36	0-3	3
		8	3	19.92	20.06	20.39	0-3	3
		8	7	19.87	20.07	20.20	0-3	3
		15	0	19.92	20.09	20.28	0-3	3
	256QAM	1	0	17.96	18.07	18.35	0-5	5
		1	7	17.97	18.09	18.39	0-5	5
		1	14	17.91	18.10	18.22	0-5	5
		8	0	17.87	18.09	18.31	0-5	5
		8	3	17.96	18.05	18.32	0-5	5
		8	7	17.90	18.05	18.23	0-5	5
		15	0	17.90	18.05	18.26	0-5	5

LTE Band 26 _ 5 MHz Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				26715 Ch. 816.5 MHz	26865 Ch. 831.5 MHz	27015 Ch. 846.5 MHz		
5 MHz	QPSK	1	0	22.81	22.94	23.11	0	0
		1	12	22.79	22.93	23.31	0	0
		1	24	22.79	22.96	23.10	0	0
		12	0	21.89	22.07	22.29	0-1	1
		12	6	21.89	22.04	22.31	0-1	1
		12	11	21.85	22.04	22.24	0-1	1
		25	0	21.87	22.05	22.17	0-1	1
	16QAM	1	0	22.05	22.27	22.50	0-1	1
		1	12	22.33	22.52	22.46	0-1	1
		1	24	22.24	22.41	22.44	0-1	1
		12	0	20.97	21.12	21.28	0-2	2
		12	6	20.93	21.08	21.34	0-2	2
		12	11	20.89	21.12	21.30	0-2	2
		25	0	20.88	21.11	21.31	0-2	2
	64QAM	1	0	21.10	21.15	21.46	0-2	2
		1	12	21.08	21.13	21.44	0-2	2
		1	24	20.98	21.16	21.26	0-2	2
		12	0	19.88	20.07	20.33	0-3	3
		12	6	19.99	20.12	20.36	0-3	3
		12	11	19.96	20.11	20.28	0-3	3
		25	0	19.96	20.09	20.25	0-3	3
	256QAM	1	0	17.86	18.14	18.44	0-5	5
		1	12	18.09	18.19	18.46	0-5	5
		1	24	17.96	18.15	18.29	0-5	5
		12	0	17.90	18.05	18.27	0-5	5
		12	6	17.93	17.99	18.31	0-5	5
		12	11	17.88	18.02	18.26	0-5	5
		25	0	17.94	18.09	18.24	0-5	5

LTE Band 26 _ 10 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				26740 Ch. 819 ㎒	26865 Ch. 831.5 ㎒	26990 Ch. 844 ㎒		
10 ㎒	QPSK	1	0	22.81	22.80	23.19	0	0
		1	24	22.86	22.93	23.16	0	0
		1	49	22.79	22.85	23.05	0	0
		25	0	21.89	22.07	22.30	0-1	1
		25	12	21.95	21.97	22.18	0-1	1
		25	24	21.86	22.04	22.18	0-1	1
		50	0	21.94	21.99	22.28	0-1	1
	16QAM	1	0	22.26	22.44	22.64	0-1	1
		1	24	22.39	22.42	22.70	0-1	1
		1	49	22.16	22.43	22.56	0-1	1
		25	0	20.88	21.10	21.36	0-2	2
		25	12	20.98	20.97	21.21	0-2	2
		25	24	20.85	21.08	21.27	0-2	2
		50	0	20.91	20.96	21.24	0-2	2
	64QAM	1	0	20.87	21.01	21.43	0-2	2
		1	24	21.17	21.15	21.59	0-2	2
		1	49	21.20	21.23	21.31	0-2	2
		25	0	19.87	20.08	20.31	0-3	3
		25	12	20.02	20.05	20.34	0-3	3
		25	24	19.89	20.03	20.22	0-3	3
		50	0	19.89	20.06	20.25	0-3	3
	256QAM	1	0	17.93	17.96	18.14	0-5	5
		1	24	18.21	18.23	18.58	0-5	5
		1	49	18.16	18.39	18.25	0-5	5
		25	0	17.88	18.03	18.27	0-5	5
		25	12	17.97	18.05	18.27	0-5	5
		25	24	17.89	18.11	18.25	0-5	5
		50	0	18.01	17.95	18.28	0-5	5

LTE Band 26 _ 15 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
					26865			
					831.5 ㎒			
15 ㎒	QPSK	1	0		22.84		0	0
		1	36		22.91		0	0
		1	74		22.87		0	0
		36	0		22.03		0-1	1
		36	18		21.96		0-1	1
		36	39		22.07		0-1	1
		75	0		21.99		0-1	1
	16QAM	1	0		22.27		0-1	1
		1	36		22.15		0-1	1
		1	74		22.28		0-1	1
		36	0		20.96		0-2	2
		36	18		20.99		0-2	2
		36	39		21.13		0-2	2
		75	0		21.02		0-2	2
	64QAM	1	0		21.14		0-2	2
		1	36		21.24		0-2	2
		1	74		21.16		0-2	2
		36	0		20.01		0-3	3
		36	18		20.01		0-3	3
		36	39		20.09		0-3	3
		75	0		19.93		0-3	3
	256QAM	1	0		18.02		0-5	5
		1	36		18.14		0-5	5
		1	74		18.11		0-5	5
		36	0		17.92		0-5	5
		36	18		17.97		0-5	5
		36	39		18.12		0-5	5
		75	0		17.96		0-5	5

- LTE Band 38

LTE Band 38 _ 5 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				37775 Ch. 2572.5 ㎒	38000 Ch. 2595 ㎒	38225 Ch. 2617.5 ㎒		
5 ㎒	QPSK	1	0	23.07	23.11	23.08	0	0
		1	12	23.01	23.12	23.09	0	0
		1	24	23.02	23.11	23.06	0	0
		12	0	22.17	22.20	22.17	0-1	1
		12	6	22.14	22.20	22.18	0-1	1
		12	11	22.17	22.22	22.14	0-1	1
		25	0	22.19	22.20	22.19	0-1	1
	16QAM	1	0	22.16	22.19	22.19	0-1	1
		1	12	22.17	22.28	22.19	0-1	1
		1	24	22.12	22.23	22.13	0-1	1
		12	0	21.10	21.15	21.09	0-2	2
		12	6	21.13	21.11	21.09	0-2	2
		12	11	21.06	21.18	21.07	0-2	2
		25	0	21.19	21.20	21.22	0-2	2
	64QAM	1	0	20.86	20.84	20.86	0-2	2
		1	12	20.80	20.87	20.76	0-2	2
		1	24	20.79	20.89	20.80	0-2	2
		12	0	20.11	20.15	20.14	0-3	3
		12	6	20.15	20.17	20.12	0-3	3
		12	11	20.11	20.17	20.11	0-3	3
		25	0	20.15	20.17	20.18	0-3	3
	256QAM	1	0	18.04	18.02	18.07	0-5	5
		1	12	18.02	18.09	18.04	0-5	5
		1	24	17.96	18.05	18.00	0-5	5
		12	0	18.31	18.32	18.35	0-5	5
		12	6	18.28	18.30	18.33	0-5	5
		12	11	18.26	18.35	18.32	0-5	5
		25	0	18.22	18.21	18.23	0-5	5

LTE Band 38 _ 10 MHz Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				37800 Ch. 2575 MHz	38000 Ch. 2595 MHz	38200 Ch. 2615 MHz		
10 MHz	QPSK	1	0	23.19	23.15	23.16	0	0
		1	24	22.97	23.13	23.09	0	0
		1	49	23.07	23.07	23.01	0	0
		25	0	22.20	22.18	22.16	0-1	1
		25	12	22.18	22.18	22.12	0-1	1
		25	24	22.13	22.24	22.16	0-1	1
		50	0	22.18	22.14	22.13	0-1	1
	16QAM	1	0	22.35	22.38	22.32	0-1	1
		1	24	22.30	22.29	22.21	0-1	1
		1	49	22.25	22.26	22.20	0-1	1
		25	0	21.20	21.14	21.14	0-2	2
		25	12	21.16	21.17	21.13	0-2	2
		25	24	21.12	21.22	21.16	0-2	2
		50	0	21.25	21.23	21.16	0-2	2
	64QAM	1	0	20.98	20.77	20.87	0-2	2
		1	24	20.82	20.77	20.87	0-2	2
		1	49	20.82	20.76	20.82	0-2	2
		25	0	20.23	20.22	20.17	0-3	3
		25	12	20.18	20.14	20.10	0-3	3
		25	24	20.17	20.23	20.13	0-3	3
		50	0	20.24	20.24	20.19	0-3	3
	256QAM	1	0	18.11	17.99	18.19	0-5	5
		1	24	18.01	17.98	18.12	0-5	5
		1	49	18.08	18.01	18.12	0-5	5
		25	0	18.30	18.23	18.32	0-5	5
		25	12	18.28	18.28	18.25	0-5	5
		25	24	18.26	18.35	18.32	0-5	5
		50	0	18.24	18.22	18.27	0-5	5

LTE Band 38 _ 15 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				37825 Ch. 2507.5 ㎒	38000 Ch. 2595 ㎒	38175 Ch. 2612.5 ㎒		
15 ㎒	QPSK	1	0	23.11	23.15	23.20	0	0
		1	36	22.95	23.10	23.02	0	0
		1	74	22.97	23.04	22.94	0	0
		36	0	22.19	22.24	22.22	0-1	1
		36	18	22.20	22.20	22.15	0-1	1
		36	39	22.18	22.23	22.18	0-1	1
		75	0	22.23	22.20	22.14	0-1	1
	16QAM	1	0	22.14	22.18	22.14	0-1	1
		1	36	22.05	22.08	22.05	0-1	1
		1	74	22.07	22.08	21.99	0-1	1
		36	0	21.14	21.20	21.18	0-2	2
		36	18	21.16	21.14	21.08	0-2	2
		36	39	21.15	21.18	21.12	0-2	2
		75	0	21.23	21.20	21.16	0-2	2
	64QAM	1	0	20.76	20.84	20.82	0-2	2
		1	36	20.77	20.84	20.82	0-2	2
		1	74	20.74	20.77	20.72	0-2	2
		36	0	20.21	20.25	20.23	0-3	3
		36	18	20.25	20.21	20.13	0-3	3
		36	39	20.21	20.28	20.18	0-3	3
		75	0	20.24	20.24	20.19	0-3	3
	256QAM	1	0	18.07	18.09	18.09	0-5	5
		1	36	18.01	18.01	18.02	0-5	5
		1	74	18.06	18.05	17.98	0-5	5
		36	0	18.27	18.29	18.24	0-5	5
		36	18	18.21	18.23	18.18	0-5	5
		36	39	18.25	18.23	18.18	0-5	5
		75	0	18.25	18.26	18.17	0-5	5

LTE Band 38 _ 20 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				37850 Ch. 2580 ㎒	38000 Ch. 2595 ㎒	38150 Ch. 2610 ㎒		
20 ㎒	QPSK	1	0	23.11	23.19	23.15	0	0
		1	49	22.99	23.07	23.04	0	0
		1	99	22.98	23.03	22.94	0	0
		50	0	22.20	22.25	22.25	0-1	1
		50	25	22.22	22.20	22.17	0-1	1
		50	49	22.20	22.22	22.21	0-1	1
		100	0	22.23	22.24	22.19	0-1	1
	16QAM	1	0	22.18	22.24	22.23	0-1	1
		1	49	22.07	22.07	22.05	0-1	1
		1	99	22.05	22.04	21.97	0-1	1
		50	0	21.23	21.28	21.27	0-2	2
		50	25	21.28	21.23	21.23	0-2	2
		50	49	21.20	21.23	21.22	0-2	2
		100	0	21.30	21.28	21.24	0-2	2
	64QAM	1	0	20.83	20.84	20.88	0-2	2
		1	49	20.74	20.82	20.73	0-2	2
		1	99	20.73	20.74	20.66	0-2	2
		50	0	20.28	20.34	20.31	0-3	3
		50	25	20.30	20.30	20.28	0-3	3
		50	49	20.29	20.30	20.26	0-3	3
		100	0	20.28	20.25	20.22	0-3	3
	256QAM	1	0	18.11	18.20	18.17	0-5	5
		1	49	17.99	18.05	17.95	0-5	5
		1	99	18.00	18.03	17.96	0-5	5
		50	0	18.29	18.33	18.32	0-5	5
		50	25	18.32	18.31	18.28	0-5	5
		50	49	18.31	18.33	18.26	0-5	5
		100	0	18.28	18.27	18.24	0-5	5

- LTE TDD Band 41

LTE Band 41 _ 10 ㎒ Bandwidth

Band width	Modulation	RB Size	RB Offset	Max. Average Power [dBm]					MPR Allowed Per GPP [dB]	MPR [dB]
				39750 Ch. 2506.0 ㎒	40185 Ch. 2549.5 ㎒	40620 Ch. 2593.0 ㎒	41055 Ch. 2636.5 ㎒	41490 Ch. 2680.0 ㎒		
5 ㎒	QPSK	1	0	23.05	22.98	23.19	23.12	23.07	0	0
		1	12	22.99	23.02	23.22	23.13	23.06	0	0
		1	24	23.06	23.00	23.21	23.16	23.10	0	0
		12	0	22.18	22.08	22.30	22.30	22.18	0-1	1
		12	6	22.16	22.12	22.34	22.29	22.25	0-1	1
		12	11	22.14	22.12	22.32	22.27	22.24	0-1	1
		25	0	22.15	22.10	22.27	22.28	22.20	0-1	1
	16QAM	1	0	22.12	22.11	22.28	22.31	22.17	0-1	1
		1	12	22.17	22.21	22.39	22.36	22.29	0-1	1
		1	24	22.13	22.10	22.28	22.25	22.20	0-1	1
		12	0	21.11	21.04	21.22	21.24	21.13	0-2	2
		12	6	21.12	21.07	21.24	21.26	21.18	0-2	2
		12	11	21.12	21.03	21.24	21.19	21.16	0-2	2
		25	0	21.21	21.18	21.32	21.24	21.28	0-2	2
	64QAM	1	0	20.83	20.79	20.89	20.93	20.82	0-2	2
		1	12	20.82	20.78	20.98	20.97	20.89	0-2	2
		1	24	20.88	20.81	20.97	21.00	20.88	0-2	2
		12	0	20.13	20.08	20.27	20.29	20.14	0-3	3
		12	6	20.17	20.14	20.29	20.33	20.24	0-3	3
		12	11	20.15	20.12	20.27	20.28	20.19	0-3	3
		25	0	20.17	20.14	20.29	20.33	20.24	0-3	3
	256QAM	1	0	18.02	18.00	18.14	18.17	18.06	0-5	5
		1	12	18.06	18.04	18.16	18.22	18.09	0-5	5
		1	24	18.05	17.98	18.17	18.17	18.04	0-5	5
		12	0	18.29	18.19	18.42	18.46	18.28	0-5	5
		12	6	18.33	18.29	18.45	18.45	18.35	0-5	5
		12	11	18.30	18.25	18.43	18.46	18.36	0-5	5
		25	0	18.23	18.18	18.39	18.37	18.28	0-5	5

LTE Band 41 _ 10 MHz Bandwidth

Band width	Modulation	RB Size	RB Offset	Max. Average Power [dBm]					MPR Allowed Per 3GPP [dB]	MPR [dB]
				39750 Ch. 2506.0 MHz	40185 Ch. 2549.5 MHz	40620 Ch. 2593.0 MHz	41055 Ch. 2636.5 MHz	41490 Ch. 2680.0 MHz		
10 MHz	QPSK	1	0	23.18	22.96	23.30	23.33	23.15	0	0
		1	24	22.96	23.01	23.35	23.15	23.21	0	0
		1	49	22.98	22.89	23.26	23.12	23.11	0	0
		25	0	22.08	22.05	22.21	22.33	22.18	0-1	1
		25	12	22.17	22.14	22.32	22.29	22.25	0-1	1
		25	24	22.13	22.07	22.29	22.23	22.19	0-1	1
		50	0	22.15	22.12	22.32	22.33	22.24	0-1	1
	16QAM	1	0	22.35	22.29	22.40	22.47	22.38	0-1	1
		1	24	22.29	22.19	22.37	22.47	22.29	0-1	1
		1	49	22.22	22.11	22.35	22.30	22.26	0-1	1
		25	0	21.16	21.11	21.23	21.29	21.15	0-2	2
		25	12	21.18	21.15	21.31	21.30	21.25	0-2	2
		25	24	21.12	21.08	21.28	21.26	21.17	0-2	2
		50	0	21.24	21.20	21.36	21.35	21.27	0-2	2
	64QAM	1	0	20.94	20.94	20.86	20.87	20.98	0-2	2
		1	24	20.93	20.88	20.86	20.85	20.90	0-2	2
		1	49	20.94	20.84	20.89	20.82	20.90	0-2	2
		25	0	20.12	20.09	20.32	20.38	20.14	0-3	3
		25	12	20.18	20.11	20.29	20.33	20.24	0-3	3
		25	24	20.11	20.06	20.29	20.22	20.17	0-3	3
		50	0	20.24	20.21	20.40	20.39	20.31	0-3	3
	256QAM	1	0	18.01	17.96	18.23	18.23	17.97	0-5	5
		1	24	18.03	17.96	18.24	18.19	17.98	0-5	5
		1	49	18.02	17.95	18.28	18.15	17.98	0-5	5
		25	0	18.25	18.20	18.34	18.45	18.25	0-5	5
		25	12	18.28	18.25	18.43	18.40	18.33	0-5	5
		25	24	18.25	18.22	18.39	18.36	18.32	0-5	5
		50	0	18.33	18.26	18.43	18.40	18.32	0-5	5

LTE Band 41 _ 15 ㎒ Bandwidth

Band width	Modulation	RB Size	RB Offset	Max. Average Power [dBm]					MPR Allowed Per 3GPP [dB]	MPR [dB]
				39750 Ch. 2506.0 ㎒	40185 Ch. 2549.5 ㎒	40620 Ch. 2593.0 ㎒	41055 Ch. 2636.5 ㎒	41490 Ch. 2680.0 ㎒		
15 ㎒	QPSK	1	0	23.03	23.01	23.15	23.25	23.07	0	0
		1	36	22.92	22.95	23.10	23.08	23.01	0	0
		1	74	22.96	22.99	23.17	23.13	23.09	0	0
		36	0	22.14	22.09	22.27	22.36	22.20	0-1	1
		36	18	22.19	22.12	22.33	22.32	22.23	0-1	1
		36	39	22.14	22.08	22.27	22.25	22.19	0-1	1
		75	0	22.16	22.13	22.31	22.29	22.22	0-1	1
	16QAM	1	0	22.21	22.20	22.28	22.39	22.27	0-1	1
		1	36	22.04	21.98	22.15	22.19	22.06	0-1	1
		1	74	22.08	22.07	22.29	22.25	22.15	0-1	1
		36	0	21.10	21.05	21.22	21.31	21.15	0-2	2
		36	18	21.15	21.09	21.28	21.25	21.18	0-2	2
		36	39	21.10	21.04	21.23	21.20	21.15	0-2	2
		75	0	21.20	21.13	21.34	21.33	21.22	0-2	2
	64QAM	1	0	20.76	20.76	20.94	20.93	20.80	0-2	2
		1	36	20.76	20.70	20.92	20.82	20.79	0-2	2
		1	74	20.71	20.74	20.94	20.82	20.83	0-2	2
		36	0	20.17	20.15	20.30	20.42	20.23	0-3	3
		36	18	20.19	20.17	20.34	20.34	20.24	0-3	3
		36	39	20.16	20.11	20.31	20.27	20.26	0-3	3
		75	0	20.20	20.18	20.36	20.32	20.28	0-3	3
	256QAM	1	0	18.02	17.99	18.15	18.15	18.02	0-5	5
		1	36	17.96	17.94	18.09	18.03	17.96	0-5	5
		1	74	18.01	18.00	18.15	18.05	18.03	0-5	5
		36	0	18.20	18.21	18.33	18.38	18.21	0-5	5
		36	18	18.23	18.23	18.37	18.31	18.27	0-5	5
		36	39	18.22	18.14	18.33	18.26	18.24	0-5	5
		75	0	18.20	18.22	18.36	18.33	18.27	0-5	5

LTE Band 41 _ 20 MHz Bandwidth

Band width	Modulation	RB Size	RB Offset	Max. Average Power [dBm]					MPR Allowed Per 3GPP [dB]	MPR [dB]
				39750 Ch. 2506.0 MHz	40185 Ch. 2549.5 MHz	40620 Ch. 2593.0 MHz	41055 Ch. 2636.5 MHz	41490 Ch. 2680.0 MHz		
20 MHz	QPSK	1	0	23.03	23.04	23.20	23.35	23.17	0	0
		1	49	22.98	22.93	23.10	23.04	22.97	0	0
		1	99	22.92	22.89	23.12	23.00	23.04	0	0
		50	0	22.18	22.08	22.30	22.40	22.17	0-1	1
		50	25	22.18	22.14	22.31	22.32	22.21	0-1	1
		50	49	22.13	22.10	22.30	22.21	22.19	0-1	1
		100	0	22.20	22.13	22.35	22.33	22.24	0-1	1
	16QAM	1	0	22.25	22.19	22.28	22.40	22.29	0-1	1
		1	49	22.09	22.00	22.16	22.19	22.09	0-1	1
		1	99	22.08	21.95	22.20	22.14	22.07	0-1	1
		50	0	21.18	21.17	21.31	21.44	21.18	0-2	2
		50	25	21.25	21.17	21.35	21.36	21.25	0-2	2
		50	49	21.17	21.10	21.31	21.24	21.22	0-2	2
		100	0	21.23	21.18	21.36	21.33	21.27	0-2	2
	64QAM	1	0	20.89	20.86	21.03	21.02	20.90	0-2	2
		1	49	20.74	20.67	20.91	20.84	20.76	0-2	2
		1	99	20.68	20.65	20.92	20.76	20.78	0-2	2
		50	0	20.23	20.20	20.36	20.48	20.28	0-3	3
		50	25	20.28	20.22	20.43	20.38	20.30	0-3	3
		50	49	20.23	20.16	20.38	20.28	20.28	0-3	3
		100	0	20.26	20.19	20.36	20.34	20.30	0-3	3
	256QAM	1	0	18.07	18.10	18.22	18.23	18.10	0-5	5
		1	49	17.91	17.92	18.12	18.03	17.98	0-5	5
		1	99	17.96	17.93	18.11	17.96	18.00	0-5	5
		50	0	18.28	18.23	18.40	18.43	18.31	0-5	5
		50	25	18.28	18.29	18.43	18.39	18.36	0-5	5
		50	49	18.22	18.24	18.41	18.31	18.30	0-5	5
		100	0	18.24	18.21	18.42	18.32	18.30	0-5	5

Note; LTE Band 41 has 5 required test channels per FCC KDB 447498 D01v06.

- LTE Band 48

LTE Band 48 _ 5 ㎒ Bandwidth

Band width	Modulation	RB Size	RB Offset	Max. Average Power [dBm]				MPR Allowed Per GPP [dB]	MPR [dB]
				55265	55748	56232	56715		
				3552.5 ㎒	3600.8 ㎒	3649.2 ㎒	3697.5 ㎒		
5 ㎒	QPSK	1	0	11.57	11.32	11.33	11.27	0	0
		1	12	11.56	11.22	11.30	11.24	0	0
		1	24	11.62	11.24	11.22	11.30	0	0
		12	0	11.64	11.39	11.41	11.36	0-1	1
		12	6	11.83	11.35	11.43	11.40	0-1	1
		12	11	11.68	11.28	11.37	11.32	0-1	1
		25	0	11.66	11.35	11.39	11.39	0-1	1
	16QAM	1	0	11.72	11.43	11.44	11.43	0-1	1
		1	12	11.71	11.42	11.49	11.46	0-1	1
		1	24	11.67	11.37	11.37	11.41	0-1	1
		12	0	11.58	11.32	11.33	11.28	0-2	2
		12	6	11.58	11.29	11.36	11.31	0-2	2
		12	11	11.60	11.21	11.33	11.29	0-2	2
		25	0	11.69	11.39	11.48	11.41	0-2	2
	64QAM	1	0	11.30	11.02	11.04	10.98	0-2	2
		1	12	11.29	11.05	11.06	11.01	0-2	2
		1	24	11.34	10.97	11.01	10.98	0-2	2
		12	0	11.65	11.33	11.37	11.32	0-3	3
		12	6	11.63	11.35	11.33	11.34	0-3	3
		12	11	11.61	11.22	11.33	11.28	0-3	3
		25	0	11.65	11.37	11.39	11.39	0-3	3
	256QAM	1	0	11.53	11.22	11.22	11.13	0-5	5
		1	12	11.46	11.14	11.19	11.09	0-5	5
		1	24	11.52	11.14	11.17	11.12	0-5	5
		12	0	11.76	11.46	11.50	11.47	0-5	5
		12	6	11.82	11.48	11.54	11.44	0-5	5
		12	11	11.76	11.39	11.48	11.43	0-5	5
		25	0	11.74	11.38	11.45	11.42	0-5	5

LTE Band 48 _10 MHz Bandwidth

Band width	Modulation	RB Size	RB Offset	Max. Average Power [dBm]				MPR Allowed Per GPP [dB]	MPR [dB]
				55290	55757	56223	55290		
				3555 MHz	3601.7 MHz	3648.3 MHz	3555 MHz		
10 MHz	QPSK	1	0	11.52	11.22	11.27	11.23	0	0
		1	24	11.56	11.24	11.31	11.26	0	0
		1	49	11.49	11.20	11.22	11.31	0	0
		25	0	11.65	11.36	11.41	11.38	0-1	1
		25	12	11.57	11.29	11.39	11.35	0-1	1
		25	24	11.55	11.27	11.38	11.36	0-1	1
		50	0	11.57	11.30	11.39	11.41	0-1	1
	16QAM	1	0	11.70	11.42	11.46	11.42	0-1	1
		1	24	11.79	11.49	11.49	11.44	0-1	1
		1	49	11.71	11.43	11.44	11.42	0-1	1
		25	0	11.69	11.41	11.43	11.41	0-2	2
		25	12	11.58	11.27	11.42	11.41	0-2	2
		25	24	11.54	11.30	11.41	11.38	0-2	2
		50	0	11.66	11.32	11.50	11.45	0-2	2
	64QAM	1	0	11.22	10.92	10.95	10.92	0-2	2
		1	24	11.19	10.90	10.88	10.87	0-2	2
		1	49	11.10	10.82	10.81	10.91	0-2	2
		25	0	11.61	11.34	11.36	11.34	0-3	3
		25	12	11.53	11.24	11.34	11.32	0-3	3
		25	24	11.52	11.23	11.33	11.29	0-3	3
		50	0	11.68	11.37	11.46	11.43	0-3	3
	256QAM	1	0	11.38	11.06	11.13	11.08	0-5	5
		1	24	11.43	11.14	11.11	11.06	0-5	5
		1	49	11.32	11.00	11.05	11.09	0-5	5
		25	0	11.78	11.48	11.52	11.48	0-5	5
		25	12	11.70	11.37	11.50	11.49	0-5	5
		25	24	11.69	11.40	11.54	11.49	0-5	5
		50	0	11.66	11.36	11.47	11.45	0-5	5

LTE Band 48 _ 15 MHz Bandwidth

Band width	Modulation	RB Size	RB Offset	Max. Average Power [dBm]				MPR Allowed Per GPP [dB]	MPR [dB]
				55315	55765	56215	56665		
				3557.5 MHz	3602.5 MHz	3647.5 MHz	3692.5 MHz		
15 MHz	QPSK	1	0	11.55	11.22	11.26	11.21	0	0
		1	36	11.42	11.18	11.16	11.18	0	0
		1	74	11.58	11.22	11.26	11.27	0	0
		36	0	11.69	11.36	11.38	11.40	0-1	1
		36	18	11.69	11.32	11.43	11.36	0-1	1
		36	39	11.57	11.28	11.41	11.37	0-1	1
		75	0	11.58	11.37	11.38	11.39	0-1	1
	16QAM	1	0	11.66	11.31	11.34	11.26	0-1	1
		1	36	11.53	11.20	11.21	11.22	0-1	1
		1	74	11.62	11.29	11.33	11.31	0-1	1
		36	0	11.63	11.27	11.32	11.38	0-2	2
		36	18	11.62	11.28	11.32	11.35	0-2	2
		36	39	11.57	11.21	11.33	11.41	0-2	2
		75	0	11.58	11.33	11.36	11.38	0-2	2
	64QAM	1	0	11.28	11.00	11.01	10.96	0-2	2
		1	36	11.22	10.92	10.98	10.94	0-2	2
		1	74	11.21	10.96	10.96	11.01	0-2	2
		36	0	11.71	11.39	11.39	11.38	0-3	3
		36	18	11.66	11.35	11.39	11.28	0-3	3
		36	39	11.60	11.25	11.40	11.35	0-3	3
		75	0	11.59	11.40	11.42	11.40	0-3	3
	256QAM	1	0	11.45	11.17	11.18	11.13	0-5	5
		1	36	11.37	11.08	11.11	11.10	0-5	5
		1	74	11.38	11.11	11.13	11.21	0-5	5
		36	0	11.67	11.36	11.45	11.32	0-5	5
		36	18	11.67	11.36	11.41	11.36	0-5	5
		36	39	11.59	11.30	11.38	11.37	0-5	5
		75	0	11.59	11.39	11.41	11.42	0-5	5

LTE Band 48 _ 20 MHz Bandwidth

Band width	Modulation	RB Size	RB Offset	Max. Average Power [dBm]				MPR Allowed Per GPP [dB]	MPR [dB]
				55340	55773	56207	56640		
				3560 MHz	3603.3 MHz	3646.7 MHz	3690 MHz		
20 MHz	QPSK	1	0	11.47	11.25	11.24	11.23	0	0
		1	49	11.46	11.22	11.19	11.18	0	0
		1	99	11.51	11.30	11.26	11.28	0	0
		50	0	11.65	11.41	11.38	11.39	0-1	1
		50	25	11.67	11.30	11.41	11.36	0-1	1
		50	49	11.56	11.31	11.40	11.37	0-1	1
		100	0	11.63	11.36	11.42	11.35	0-1	1
	16QAM	1	0	11.58	11.28	11.27	11.27	0-1	1
		1	49	11.53	11.20	11.23	11.14	0-1	1
		1	99	11.63	11.29	11.34	11.27	0-1	1
		50	0	11.69	11.39	11.38	11.38	0-2	2
		50	25	11.67	11.30	11.44	11.39	0-2	2
		50	49	11.60	11.30	11.42	11.38	0-2	2
		100	0	11.71	11.30	11.41	11.38	0-2	2
	64QAM	1	0	11.21	11.01	11.01	11.05	0-2	2
		1	49	11.17	10.93	10.95	10.87	0-2	2
		1	99	11.21	10.95	11.00	10.91	0-2	2
		50	0	11.67	11.43	11.45	11.41	0-3	3
		50	25	11.71	11.35	11.45	11.44	0-3	3
		50	49	11.59	11.34	11.46	11.45	0-3	3
		100	0	11.66	11.35	11.42	11.41	0-3	3
	256QAM	1	0	11.46	11.21	11.17	11.08	0-5	5
		1	49	11.39	11.11	11.13	11.01	0-5	5
		1	99	11.38	11.17	11.20	11.16	0-5	5
		50	0	11.70	11.42	11.45	11.41	0-5	5
		50	25	11.72	11.35	11.46	11.44	0-5	5
		50	49	11.62	11.33	11.45	11.42	0-5	5
		100	0	11.65	11.34	11.42	11.39	0-5	5

- LTE Band 66

LTE Band 66 _ 1.4 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				131979Ch. 1710.7 ㎒	132322 Ch. 1745 ㎒	132665 Ch. 1779.3 ㎒		
1.4 ㎒	QPSK	1	0	22.98	23.06	23.10	0	0
		1	3	23.04	23.18	23.12	0	0
		1	5	22.90	23.12	23.08	0	0
		3	0	22.94	23.11	23.14	0	0
		3	1	23.01	23.18	23.20	0	0
		3	3	23.02	23.14	23.05	0	0
		6	0	22.02	22.21	22.13	0-1	1
	16QAM	1	0	22.37	22.51	22.50	0-1	1
		1	3	22.39	22.62	22.47	0-1	1
		1	5	22.18	22.51	22.46	0-1	1
		3	0	22.12	22.33	22.24	0-1	1
		3	1	22.17	22.37	22.40	0-1	1
		3	3	22.06	22.26	22.32	0-1	1
		6	0	21.17	21.25	21.25	0-2	2
	64QAM	1	0	21.20	21.34	21.41	0-2	2
		1	3	21.28	21.47	21.48	0-2	2
		1	5	21.18	21.30	21.32	0-2	2
		3	0	21.14	21.28	21.23	0-2	2
		3	1	21.24	21.34	21.35	0-2	2
		3	3	21.13	21.37	21.22	0-2	2
		6	0	20.05	20.26	20.22	0-3	3
	256QAM	1	0	18.16	18.35	18.27	0-5	5
		1	3	18.23	18.33	18.33	0-5	5
		1	5	18.17	18.25	18.32	0-5	5
		3	0	18.22	18.33	18.29	0-5	5
		3	1	18.25	18.41	18.39	0-5	5
		3	3	18.19	18.35	18.33	0-5	5
		6	0	18.08	18.26	18.22	0-5	5

LTE Band 66 _ 3 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				131987 Ch. 1711.5 ㎒	132322 Ch. 1745 ㎒	132657 Ch. 1778.5 ㎒		
3 ㎒	QPSK	1	0	23.06	23.15	23.18	0	0
		1	7	23.03	23.11	23.28	0	0
		1	14	23.09	23.14	23.19	0	0
		8	0	22.15	22.22	22.26	0-1	1
		8	3	22.20	22.25	22.31	0-1	1
		8	7	22.11	22.25	22.33	0-1	1
		15	0	22.11	22.17	22.24	0-1	1
	16QAM	1	0	22.44	22.50	22.64	0-1	1
		1	7	22.36	22.45	22.59	0-1	1
		1	14	22.50	22.45	22.47	0-1	1
		8	0	21.19	21.25	21.35	0-2	2
		8	3	21.27	21.32	21.43	0-2	2
		8	7	21.24	21.34	21.31	0-2	2
		15	0	21.21	21.21	21.22	0-2	2
	64QAM	1	0	21.33	21.39	21.43	0-2	2
		1	7	21.26	21.35	21.39	0-2	2
		1	14	21.32	21.45	21.42	0-2	2
		8	0	20.17	20.23	20.36	0-3	3
		8	3	20.19	20.21	20.31	0-3	3
		8	7	20.15	20.31	20.31	0-3	3
		15	0	20.22	20.23	20.27	0-3	3
	256QAM	1	0	18.23	18.31	18.30	0-5	5
		1	7	18.25	18.34	18.29	0-5	5
		1	14	18.28	18.38	18.35	0-5	5
		8	0	18.19	18.29	18.33	0-5	5
		8	3	18.17	18.32	18.28	0-5	5
		8	7	18.15	18.30	18.28	0-5	5
		15	0	18.21	18.22	18.31	0-5	5

LTE Band 66 _ 5 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				131997 Ch. 1712.5 ㎒	132322Ch. 1745 ㎒	132647 Ch. 1777.5 ㎒		
5 ㎒	QPSK	1	0	23.06	23.08	23.22	0	0
		1	12	23.05	23.13	23.23	0	0
		1	24	23.04	23.14	23.17	0	0
		12	0	22.20	22.20	22.23	0-1	1
		12	6	22.14	22.28	22.29	0-1	1
		12	11	22.13	22.24	22.27	0-1	1
		25	0	22.14	22.23	22.25	0-1	1
	16QAM	1	0	22.33	22.33	22.58	0-1	1
		1	12	22.36	22.65	22.51	0-1	1
		1	24	22.54	22.43	22.57	0-1	1
		12	0	21.17	21.31	21.32	0-2	2
		12	6	21.19	21.27	21.33	0-2	2
		12	11	21.18	21.29	21.36	0-2	2
		25	0	21.13	21.23	21.24	0-2	2
	64QAM	1	0	21.30	21.30	21.41	0-2	2
		1	12	21.33	21.44	21.36	0-2	2
		1	24	21.25	21.43	21.44	0-2	2
		12	0	20.19	20.26	20.28	0-3	3
		12	6	20.21	20.27	20.36	0-3	3
		12	11	20.21	20.35	20.28	0-3	3
		25	0	20.13	20.20	20.24	0-3	3
	256QAM	1	0	18.24	18.27	18.31	0-5	5
		1	12	18.25	18.36	18.52	0-5	5
		1	24	18.24	18.31	18.36	0-5	5
		12	0	18.10	18.23	18.31	0-5	5
		12	6	18.23	18.23	18.31	0-5	5
		12	11	18.13	18.33	18.31	0-5	5
		25	0	18.16	18.18	18.31	0-5	5

LTE Band 66 _ 10 MHz Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				132022 Ch. 1715 MHz	132322 Ch. 1745 MHz	132622 Ch. 1775 MHz		
10 MHz	QPSK	1	0	23.11	23.19	23.07	0	0
		1	24	22.92	23.12	23.18	0	0
		1	49	23.01	23.12	23.15	0	0
		25	0	22.10	22.20	22.25	0-1	1
		25	12	22.15	22.18	22.21	0-1	1
		25	24	22.14	22.27	22.28	0-1	1
		50	0	22.17	22.14	22.20	0-1	1
	16QAM	1	0	22.57	22.59	22.76	0-1	1
		1	24	22.38	22.60	22.67	0-1	1
		1	49	22.45	22.46	22.61	0-1	1
		25	0	21.04	21.17	21.15	0-2	2
		25	12	21.14	21.22	21.25	0-2	2
		25	24	21.12	21.27	21.23	0-2	2
		50	0	21.13	21.13	21.23	0-2	2
	64QAM	1	0	21.35	21.34	21.21	0-2	2
		1	24	21.16	21.48	21.29	0-2	2
		1	49	21.16	21.46	21.44	0-2	2
		25	0	20.21	20.17	20.19	0-3	3
		25	12	20.14	20.15	20.26	0-3	3
		25	24	20.15	20.34	20.24	0-3	3
		50	0	20.15	20.15	20.26	0-3	3
	256QAM	1	0	18.33	18.34	18.31	0-5	5
		1	24	18.25	18.42	18.26	0-5	5
		1	49	18.24	18.51	18.32	0-5	5
		25	0	18.08	18.23	18.29	0-5	5
		25	12	18.18	18.13	18.26	0-5	5
		25	24	18.18	18.28	18.22	0-5	5
		50	0	18.12	18.22	18.29	0-5	5

LTE Band 66 _ 15 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				132047 Ch. 1717.5 ㎒	132322 Ch. 1745 ㎒	132597 Ch. 1772.5 ㎒		
15 ㎒	QPSK	1	0	22.94	23.12	23.22	0	0
		1	36	22.94	23.01	23.16	0	0
		1	74	23.02	23.34	23.13	0	0
		36	0	22.06	22.18	22.23	0-1	1
		36	18	22.13	22.24	22.23	0-1	1
		36	39	22.20	22.23	22.30	0-1	1
		75	0	22.20	22.24	22.25	0-1	1
	16QAM	1	0	22.38	22.39	22.66	0-1	1
		1	36	22.32	22.51	22.56	0-1	1
		1	74	22.27	22.46	22.54	0-1	1
		36	0	20.99	21.20	21.26	0-2	2
		36	18	21.16	21.25	21.24	0-2	2
		36	39	21.22	21.31	21.40	0-2	2
		75	0	21.20	21.26	21.20	0-2	2
	64QAM	1	0	21.16	21.36	21.39	0-2	2
		1	36	21.17	21.48	21.42	0-2	2
		1	74	21.24	21.54	21.48	0-2	2
		36	0	20.12	20.22	20.34	0-3	3
		36	18	20.12	20.31	20.24	0-3	3
		36	39	20.20	20.33	20.39	0-3	3
		75	0	20.19	20.25	20.25	0-3	3
	256QAM	1	0	18.16	18.29	18.28	0-5	5
		1	36	18.29	18.41	18.49	0-5	5
		1	74	18.25	18.41	18.29	0-5	5
		36	0	18.05	18.26	18.16	0-5	5
		36	18	18.22	18.30	18.30	0-5	5
		36	39	18.11	18.38	18.40	0-5	5
		75	0	18.15	18.30	18.31	0-5	5

LTE Band 66 _ 20 MHz Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				132072 Ch. 1720 MHz	132322 Ch. 1745 MHz	132572 Ch. 1770 MHz		
20 MHz	QPSK	1	0	22.94	23.18	23.24	0	0
		1	49	23.18	22.87	23.13	0	0
		1	99	23.20	23.37	23.20	0	0
		50	0	22.07	22.18	22.21	0-1	1
		50	25	22.26	22.26	22.23	0-1	1
		50	49	22.18	22.32	22.34	0-1	1
		100	0	22.19	22.24	22.34	0-1	1
	16QAM	1	0	22.42	22.44	22.57	0-1	1
		1	49	22.31	22.49	22.54	0-1	1
		1	99	22.65	22.64	22.54	0-1	1
		50	0	21.05	21.18	21.33	0-2	2
		50	25	21.22	21.27	21.23	0-2	2
		50	49	21.21	21.33	21.32	0-2	2
		100	0	21.16	21.23	21.32	0-2	2
	64QAM	1	0	21.32	21.44	21.44	0-2	2
		1	49	21.19	21.42	21.41	0-2	2
		1	99	21.30	21.47	21.50	0-2	2
		50	0	20.06	20.22	20.24	0-3	3
		50	25	20.26	20.27	20.25	0-3	3
		50	49	20.10	20.30	20.42	0-3	3
		100	0	20.20	20.24	20.29	0-3	3
	256QAM	1	0	18.17	18.35	18.42	0-5	5
		1	49	18.23	18.40	18.35	0-5	5
		1	99	18.41	18.62	18.67	0-5	5
		50	0	18.13	18.21	18.27	0-5	5
		50	25	18.21	18.31	18.30	0-5	5
		50	49	18.26	18.40	18.29	0-5	5
		100	0	18.23	18.29	18.33	0-5	5

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LTE Band 71_5 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				133147 Ch. 665.5 ㎒	133297 Ch. 680.5 ㎒	133447 Ch. 695.5 ㎒		
5 ㎒	QPSK	1	0	23.29	23.27	23.07	0	0
		1	12	23.14	23.23	22.96	0	0
		1	24	23.04	23.17	22.91	0	0
		12	0	22.28	22.33	22.05	0-1	1
		12	6	22.26	22.30	22.03	0-1	1
		12	11	22.19	22.32	21.99	0-1	1
		25	0	22.31	22.28	22.02	0-1	1
	16QAM	1	0	22.60	22.59	22.34	0-1	1
		1	12	22.60	22.50	22.52	0-1	1
		1	24	22.35	22.56	22.29	0-1	1
		12	0	21.48	21.36	21.13	0-2	2
		12	6	21.32	21.37	21.09	0-2	2
		12	11	21.25	21.34	21.10	0-2	2
		25	0	21.32	21.26	21.00	0-2	2
	64QAM	1	0	21.34	21.57	21.36	0-2	2
		1	12	21.34	21.45	21.15	0-2	2
		1	24	21.21	21.36	21.17	0-2	2
		12	0	20.43	20.46	20.17	0-3	3
		12	6	20.40	20.31	20.12	0-3	3
		12	11	20.24	20.32	20.03	0-3	3
		25	0	20.22	20.33	20.00	0-3	3
	256QAM	1	0	18.53	18.45	18.20	0-5	5
		1	12	18.21	18.45	18.08	0-5	5
		1	24	18.20	18.33	18.00	0-5	5
		12	0	18.36	18.31	18.08	0-5	5
		12	6	18.35	18.31	18.09	0-5	5
		12	11	18.24	18.33	18.00	0-5	5
		25	0	18.31	18.30	18.05	0-5	5

LTE Band 71 _ 10 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				133172 Ch. 668 ㎒	133297 Ch. 680.5 ㎒	133422 Ch. 693 ㎒		
10 ㎒	QPSK	1	0	23.25	23.20	23.06	0	0
		1	24	23.03	23.08	22.96	0	0
		1	49	23.07	23.09	22.69	0	0
		25	0	22.33	22.31	22.08	0-1	1
		25	12	22.24	22.32	22.12	0-1	1
		25	24	22.29	22.24	22.07	0-1	1
		50	0	22.21	22.33	22.03	0-1	1
	16QAM	1	0	22.58	22.68	22.36	0-1	1
		1	24	22.40	22.71	22.29	0-1	1
		1	49	22.53	22.54	22.24	0-1	1
		25	0	21.36	21.33	21.03	0-2	2
		25	12	21.20	21.17	20.95	0-2	2
		25	24	21.18	21.31	21.07	0-2	2
		50	0	21.31	21.31	21.10	0-2	2
	64QAM	1	0	21.48	21.27	21.20	0-2	2
		1	24	21.43	21.56	21.40	0-2	2
		1	49	21.47	21.49	21.09	0-2	2
		25	0	20.34	20.33	20.10	0-3	3
		25	12	20.19	20.26	20.08	0-3	3
		25	24	20.20	20.34	19.92	0-3	3
		50	0	20.29	20.29	20.13	0-3	3
	256QAM	1	0	18.28	18.36	18.20	0-5	5
		1	24	18.11	18.39	18.16	0-5	5
		1	49	18.28	18.27	18.02	0-5	5
		25	0	18.32	18.31	18.19	0-5	5
		25	12	18.30	18.29	17.97	0-5	5
		25	24	18.13	18.28	18.01	0-5	5
		50	0	18.26	18.28	18.13	0-5	5

LTE Band 71 _ 15 MHz Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				133197 670.5 MHz	133297 680.5 MHz	133397 690.5 MHz		
15 MHz	QPSK	1	0	23.15	23.14	23.04	0	0
		1	36	23.03	23.01	22.94	0	0
		1	74	23.12	23.03	22.68	0	0
		36	0	22.25	22.27	22.05	0-1	1
		36	18	22.26	22.25	22.20	0-1	1
		36	39	22.35	22.26	22.13	0-1	1
		75	0	22.11	22.25	22.09	0-1	1
	16QAM	1	0	22.49	22.73	22.41	0-1	1
		1	36	22.30	22.63	22.28	0-1	1
		1	74	22.50	22.48	22.20	0-1	1
		36	0	21.41	21.31	21.10	0-2	2
		36	18	21.30	21.24	20.93	0-2	2
		36	39	21.14	21.38	21.11	0-2	2
		75	0	21.23	21.25	21.05	0-2	2
	64QAM	1	0	21.42	21.35	21.13	0-2	2
		1	36	21.33	21.57	21.32	0-2	2
		1	74	21.46	21.51	21.02	0-2	2
		36	0	20.30	20.41	20.01	0-3	3
		36	18	20.12	20.33	20.13	0-3	3
		36	39	20.16	20.35	19.88	0-3	3
		75	0	20.22	20.26	20.16	0-3	3
	256QAM	1	0	18.33	18.46	18.15	0-5	5
		1	36	18.16	18.42	18.17	0-5	5
		1	74	18.35	18.17	18.10	0-5	5
		36	0	18.39	18.23	18.18	0-5	5
		36	18	18.20	18.38	18.00	0-5	5
		36	39	18.16	18.34	17.96	0-5	5
		75	0	18.33	18.25	18.17	0-5	5

LTE Band 71 _ 20 MHz Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
					133297 680.5 MHz			
20 MHz	QPSK	1	0		23.23		0	0
		1	49		22.98		0	0
		1	99		23.03		0	0
		50	0		22.34		0-1	1
		50	25		22.32		0-1	1
		50	49		22.33		0-1	1
		100	0		22.37		0-1	1
	16QAM	1	0		22.67		0-1	1
		1	49		22.71		0-1	1
		1	99		22.54		0-1	1
		50	0		21.30		0-2	2
		50	25		21.23		0-2	2
		50	49		21.34		0-2	2
		100	0		21.24		0-2	2
	64QAM	1	0		21.31		0-2	2
		1	49		21.55		0-2	2
		1	99		21.40		0-2	2
		50	0		20.33		0-3	3
		50	25		20.26		0-3	3
		50	49		20.38		0-3	3
		100	0		20.37		0-3	3
	256QAM	1	0		18.38		0-5	5
		1	49		18.46		0-5	5
		1	99		18.20		0-5	5
		50	0		18.32		0-5	5
		50	25		18.36		0-5	5
		50	49		18.23		0-5	5
		100	0		18.18		0-5	5

Note;

The EUT enables maximum power reduction in accordance with 3GPP 36.101. The MPR settings are configured during the manufacture process and are not configurable by the network, carrier, or end user.

4.3 LTE Up-link Carrier Aggregation Conducted Powers

Up link CA	PCC						SCC						Tx. Power [dBm]	
	Bandwidth [MHz]	Channel	Frequency [MHz]	Mod	RB	RB Offset	Bandwidth [MHz]	Channel	Frequency [MHz]	Mod	RB	RB Offset	LTE Single Carrier Tx	LTE Tx Power with UL CA Enabled
7C	20	21350	2560	QPSK	1	0	20	23152	2660.2	QPSK	1	99	23.27	24.21
41C	20	40185	2549.5	QPSK	1	0	20	40383	2569.3	QPSK	1	99	23.35	24.20
48C	20	55340	3560	QPSK	1	99	20	55538	3579.8	QPSK	1	0	11.51	11.22

SAR test exclusion for LTE downlink Carrier Aggregation is determined by power measurements according to the number component carriers(CCs) supported by test product implementation. For those configurations required by April 2018 TCBC Workshop notes, conducted power measurements with LTE Carrier Aggregation(CA) (downlink only) active are made in accordance to KDB Publication 941225 D05Av01r02. The RRC connection is only handled by one cell, the primary component carrier (PCC) for downlink and uplink communications. After making a data connection to the PCC, the UE device adds secondary component carrier(s)(SCC) on the downlink only.

Uplink Carrier aggregation:

1 This device supports uplink carrier aggregation for LTE CA_41C with a maximum of 20 MHz component carriers. For intra-band contiguous carrier aggregation scenarios, 3GPP36.101 Table 6.2.2A-1 specifies that 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 non-contiguous RB allocation is implemented. The conducted Powers and MPR setting in this device are permanently implemented per the above 3GPP requirements.

2. Per Fall 2017 TCBC Workshop Notes, 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.

Power Measurement setup

5. SIMULTANEOUS SAR ANALYSIS

SAR Summation Scenario for Host Model

Simultaneous transmission paths

This device contains multiple transmitters that may operate simultaneously, and therefore requires a simultaneous transmission analysis according to FCC KDB 447498 D01v06.

Simultaneous Transmission Scenarios	
Applicable Combination	Body Exposure Condition
UMTS+2.4 GHz Wif 1(Main) + 2.4 GHz Wifi 2(Aux)	Yes
LTE+2.4 GHz Wif 1(Main) + 2.4 GHz Wifi 2(Aux)	Yes
UMTS+2.4 GHz WiFi #1(Main) + 2.4 GHz Bluetooth	Yes
LTE+2.4 GHz WiFi #1(Main) + 2.4 GHz Bluetooth	Yes
UMTS+5 GHz WiFi #1(Main) + 5GHz WLAN #2(Aux)	Yes
LTE+5 GHz WiFi #1(Main) + 5GHz WLAN #2(Aux)	Yes
UMTS +5 GHz WiFi #1(Main)+ 2.4 GHz Bluetooth	Yes
LTE+5 GHz WiFi #1(Main)+ 2.4 GHz Bluetooth	Yes

1. All licensed modes share the same antenna path and cannot transmit simultaneously.
2. The highest reported SAR for each exposure condition is used for SAR summation purpose.

5.1 Simultaneous Transmission Summation.

The highest reported SAR for each exposure condition is used for SAR summation purpose.

The highest reported SAR for each exposure condition is used for SAR summation purpose. The WLAN/BT SAR testing results were used to perform transmission simultaneous analysis from SAR Test Report[HCT-SR-2112-FC005-R1],Module model: WL20B with FCC: ACJ9TGWL20B

Simultaneous Transmission Summation Scenario						
Exposure condition	Distance (mm)	Band	WWAN SAR (W/kg)	2.4GHz WLAN Main (W/kg)	BT (W/kg)	∑ 1-g SAR (W/kg)
Body	0	UMTS Band 5	0.4	0.012	0.4	0.812
		UMTS Band 4	0.4	0.012	0.4	0.812
		UMTS Band 2	0.4	0.012	0.4	0.812
		LTE Band 7	0.4	0.012	0.4	0.812
		LTE Band 12	0.4	0.012	0.4	0.812
		LTE Band 13	0.4	0.012	0.4	0.812
		LTE Band 14	0.4	0.012	0.4	0.812
		LTE Band 25	0.4	0.012	0.4	0.812
		LTE Band 26	0.4	0.012	0.4	0.812
		LTE Band 41	0.4	0.012	0.4	0.812
		LTE Band 42	0.4	0.012	0.4	0.812
		LTE Band 48	0.4	0.012	0.4	0.812
		LTE Band 66	0.4	0.012	0.4	0.812
		LTE Band 71	0.4	0.012	0.4	0.812

Simultaneous Transmission Summation Scenario						
Exposure condition	Distance (mm)	Band	WWAN SAR (W/kg)	5GHz WLAN Main (W/kg)	BT (W/kg)	∑ 1-g SAR (W/kg)
Body	0	UMTS Band 5	0.4	0.186	0.4	0.986
		UMTS Band 4	0.4	0.186	0.4	0.986
		UMTS Band 2	0.4	0.186	0.4	0.986
		LTE Band 7	0.4	0.186	0.4	0.986
		LTE Band 12	0.4	0.186	0.4	0.986
		LTE Band 13	0.4	0.186	0.4	0.986
		LTE Band 14	0.4	0.186	0.4	0.986
		LTE Band 25	0.4	0.186	0.4	0.986
		LTE Band 26	0.4	0.186	0.4	0.986
		LTE Band 41	0.4	0.186	0.4	0.986
		LTE Band 42	0.4	0.186	0.4	0.986
		LTE Band 48	0.4	0.186	0.4	0.986
		LTE Band 66	0.4	0.186	0.4	0.986
		LTE Band 71	0.4	0.186	0.4	0.986

Simultaneous Transmission Summation Scenario						
Exposure condition	Distance (mm)	Band	WWAN SAR (W/kg)	2.4GHz WLAN Aux (W/kg)	2.4GHz WLAN Main (W/kg)	∑ 1-g SAR (W/kg)
Body	0	UMTS Band 5	0.4	0.4	0.012	0.812
		UMTS Band 4	0.4	0.4	0.012	0.812
		UMTS Band 2	0.4	0.4	0.012	0.812
		LTE Band 7	0.4	0.4	0.012	0.812
		LTE Band 12	0.4	0.4	0.012	0.812
		LTE Band 13	0.4	0.4	0.012	0.812
		LTE Band 14	0.4	0.4	0.012	0.812
		LTE Band 25	0.4	0.4	0.012	0.812
		LTE Band 26	0.4	0.4	0.012	0.812
		LTE Band 41	0.4	0.4	0.012	0.812
		LTE Band 42	0.4	0.4	0.012	0.812
		LTE Band 48	0.4	0.4	0.012	0.812
		LTE Band 66	0.4	0.4	0.012	0.812
		LTE Band 71	0.4	0.4	0.012	0.812

Simultaneous Transmission Summation Scenario						
Exposure condition	Distance (mm)	Band	WWAN SAR (W/kg)	5GHz WLAN Aux (W/kg)	5GHz WLAN Main (W/kg)	∑ 1-g SAR (W/kg)
Body	0	UMTS Band 5	0.4	0.4	0.186	0.986
		UMTS Band 4	0.4	0.4	0.186	0.986
		UMTS Band 2	0.4	0.4	0.186	0.986
		LTE Band 7	0.4	0.4	0.186	0.986
		LTE Band 12	0.4	0.4	0.186	0.986
		LTE Band 13	0.4	0.4	0.186	0.986
		LTE Band 14	0.4	0.4	0.186	0.986
		LTE Band 25	0.4	0.4	0.186	0.986
		LTE Band 26	0.4	0.4	0.186	0.986
		LTE Band 41	0.4	0.4	0.186	0.986
		LTE Band 42	0.4	0.4	0.186	0.986
		LTE Band 48	0.4	0.4	0.186	0.986
		LTE Band 66	0.4	0.4	0.186	0.986
		LTE Band 71	0.4	0.4	0.186	0.986

Note:

1. Since antenna separation distance of Bottom side was >50mm, an estimated 1g SARfor Bottom side of 0.4 /kg was used to the simultaneous transmission SAR anaysis per FCC KDB Publication 447498D01v06.

5.2 Simultaneous Transmission Conclusion

The above numerical summed SAR Results are sufficient to determine that simultaneous transmission cases will not exceed the SAR Limit and therefore no measured volumetric simultaneous SAR summation is required per FCC KDB Publication 447498 D01v06 and the IEEE1528-2013..

6. MEASUREMENT UNCERTAINTY

The measured SAR was <1.5 W/Kg for 1g SAR and <3.75 W/Kg For 10g SAR for all frequency Bands. Therefore, per KDB Publication 865664 D01v01r04, the extended measurement uncertainty analysis per IEEE1528-2013 was not required.

7. SAR TEST EQUIPMENT

Manufacturer	Type / Model	S/N	Calib. Date	Calib.Interval	Calib.Due
Agilent	Power Meter E4419B	MY41291386	10/06/2021	Annual	10/06/2022
Agilent	Power Meter N1911A	MY45101406	07/08/2021	Annual	07/08/2022
Agilent	Power Sensor 8481A	SG1091286	10/06/2021	Annual	10/06/2022
Agilent	Power Sensor 8481A	MY41090675	10/06/2021	Annual	10/06/2022
Agilent	Power Sensor N1921A	MY55220026	08/05/2021	Annual	08/05/2022
Agilent	Signal Generator N5182A	MY47070230	05/10/2021	Annual	05/10/2022
Agilent	11636B/Power Divider	58698	02/26/2021	Annual	02/26/2022
TESTO	175-H1/Thermometer	40331915309	01/26/2021	Annual	01/26/2022
EMPOWER	RF Power Amplifier	1084	06/25/2021	Annual	06/25/2022
EMPOWER	RF Power Amplifier	1041D/C0508	06/24/2021	Annual	06/24/2022
MICRO LAB	LP Filter / LA-30N	-	10/06/2021	Annual	10/06/2022
MICRO LAB	LP Filter / LA-60N	32011	10/06/2021	Annual	10/06/2022
HP	Attenuator (3dB) 333340A	02427	09/06/2021	Annual	09/06/2022
HP	Attenuator (20dB) 8493C	09271	09/06/2021	Annual	09/17/2022
Agilent	Directional Bridge	3140A03878	05/28/2021	Annual	05/28/2022
Agilent	MXA Signal Analyzer N9020A	MY50510407	10/20/2021	Annual	10/20/2022
HP	Dual Directional Coupler	16072	10/05/2021	Annual	10/05/2022
Agilent	WIRELESS COMMUNICATION E5515C	MY48360252	07/23/2021	Annual	07/23/2022
Anritsu	Radio Communication Tester MT8820C	6200695605	04/15/2021	Annual	04/15/2022
Anritsu	Radio Communication Tester MT8821C	6201502997	07/08/2021	Annual	07/08/2022

* The E-field probe was calibrated by SPEAG, by the waveguide technique procedure. Dipole Verification measurement is performed by HCT Lab. before each test. The brain/body simulating material is calibrated by HCT using the DAKS 3.5 to determine the conductivity and permittivity (dielectric constant) of the brain/body-equivalent material.

8. CONCLUSION

The SAR measurement indicates that the EUT complies with the RF radiation exposure limits of the ANSI/ IEEE C95.1 - 2005.

These measurements are taken to simulate the RF effects exposure under worst-case conditions. Precise laboratory measures were taken to assure repeatability of the tests

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