

FCC Test Report (PART 27) (Spot Check)

Report No.: RF180321E03Y-2

FCC ID: MCLT77W968C9

Original FCC ID: MCLT77W968

Test Model: T77W968C9

Received Date: Dec. 26, 2019

Test Date: Jan. 08 to 17, 2020

Issued Date: Feb. 03, 2020

Applicant: HON HAI PRECISION IND. CO., LTD.

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R.O.C.

Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Hsin Chu Laboratory

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Test Location: E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300,
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**FCC Registration /
Designation Number:** 723255 / TW2022



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Release Control Record

Issue No.	Description	Date Issued
RF180321E03Y-2	Original release.	Feb. 03, 2020

1 Certificate of Conformity

Product: LTE M.2 Module

Brand: FOXCONN

Test Model: T77W968C9


Sample Status: ENGINEERING SAMPLE

Applicant: HON HAI PRECISION IND. CO., LTD.

Test Date: Jan. 08 to 17, 2020

Standards: FCC Part 27, Subpart D / F / H / L / M
FCC Part 2

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

Prepared by :  _____, **Date:** _____ Feb. 03, 2020
Claire Kuan / Specialist

Approved by :  _____, **Date:** _____ Feb. 03, 2020
Clark Lin / Technical Manager

2 Summary of Test Results

Applied Standard: FCC Part 27 & Part 2			
FCC Clause	Test Item	Result	Remarks
2.1046 27.50	Radiated Power	PASS	Meet the requirement of limit.
2.1053 27.53	Radiated Spurious Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -4.07dB at 11550MHz.

Note: Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Frequency	Expanded Uncertainty (k=2) (\pm)
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	3.0 dB
	30MHz ~ 1GHz	5.1 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	5.1 dB
	6GHz ~ 18GHz	5.0 dB
	18GHz ~ 40GHz	5.2 dB

2.2 Test Site and Instruments

For radiated spurious emissions below 1GHz test:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Keysight	N9038A	MY54450088	July 03, 2019	July 02, 2020
Pre-Amplifier EMCI	EMC001340	980142	May 30, 2019	May 29, 2020
Loop Antenna Electro-Metrics	EM-6879	264	Jan. 22, 2019	Jan. 21, 2020
RF Cable	NA	LOOPCAB-001	Jan. 08, 2020	Jan. 07, 2021
RF Cable	NA	LOOPCAB-002	Jan. 08, 2020	Jan. 07, 2021
Pre-Amplifier Mini-Circuits	ZFL-1000VH2B	AMP-ZFL-05	Apr. 30, 2019	Apr. 29, 2020
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-361	Nov. 11, 2019	Nov. 10, 2020
RF Cable	8D	966-3-1	Mar. 18, 2019	Mar. 17, 2020
RF Cable	8D	966-3-2	Mar. 18, 2019	Mar. 17, 2020
RF Cable	8D	966-3-3	Mar. 18, 2019	Mar. 17, 2020
Fixed attenuator Mini-Circuits	UNAT-5+	PAD-3m-3-01	Sep. 26, 2019	Sep. 25, 2020
Software	ADT_Radiated_V8.7.08	NA	NA	NA
Antenna Tower & Turn Table Max-Full	MF-7802	MF780208406	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in 966 Chamber No. 3.
3. Loop antenna was used for all emissions below 30 MHz.
4. Tested Date: Jan. 17, 2020

For radiated spurious emissions above 1GHz test:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Keysight	N9038A	MY54450088	July 03, 2019	July 02, 2020
Horn_Antenna SCHWARZBECK	BBHA9120-D	9120D-406	Nov. 24, 2019	Nov. 23, 2020
Pre-Amplifier EMCI	EMC12630SE	980384	Jan. 28, 2019	Jan. 27, 2020
RF Cable	EMC104-SM-SM-1200	160922	Jan. 28, 2019	Jan. 27, 2020
RF Cable	EMC104-SM-SM-2000	180601	June 10, 2019	June 09, 2020
RF Cable	EMC104-SM-SM-6000	180602	June 10, 2019	June 09, 2020
Spectrum Analyzer Keysight	N9030A	MY54490679	July 17, 2019	July 16, 2020
Pre-Amplifier EMCI	EMC184045SE	980387	Jan. 28, 2019	Jan. 27, 2020
Horn_Antenna SCHWARZBECK	BBHA 9170	BBHA9170519	Nov. 24, 2019	Nov. 23, 2020
RF Cable	EMC102-KM-KM-1200	160924	Jan. 28, 2019	Jan. 27, 2020
RF Cable	EMC102-KM-KM-1200	160925	Jan. 28, 2019	Jan. 27, 2020
Software	ADT_Radiated_V8.7.08	NA	NA	NA
Antenna Tower & Turn Table Max-Full	MF-7802	MF780208406	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in 966 Chamber No. 3.
3. Loop antenna was used for all emissions below 30 MHz.
4. Tested Date: Jan. 08 to 09, 2020

For other test items

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer R&S	FSV40	100964	June 04, 2019	June 03, 2020
Spectrum Analyzer Agilent	E4446A	MY48250253	July 24, 2019	July 23, 2020
Power meter Anritsu	ML2495A	1014008	May 13, 2019	May 12, 2020
Power sensor Anritsu	MA2411B	0917122	May 13, 2019	May 12, 2020
Fixed Attenuator Mini-Circuits	MDCS18N-10	MDCS18N-10-01	Apr. 15, 2019	Apr. 14, 2020
AC Power Source Extech Electronics	6205	1440452	NA	NA
DC Power Supply Topward	6603D	795558	NA	NA
True RMS Clamp Meter FLUKE	325	31130711WS	May 21, 2019	May 20, 2020
ESG Vector signal generator Agilent	E4438C	MY45094468/005 506 602 UK6 UNJ	Nov. 14, 2019	Nov. 13, 2020
Mech Switch Absorptive Mini-Circuits	MSP4TA-18+	0140	Feb. 11, 2019	Feb. 10, 2020
FXD ATTEN Mini-Circuits	BW-S3W2+	MN71981	Feb. 11, 2019	Feb. 10, 2020
Software	ADT_RF Test Software V6.6.5.4	NA	NA	NA

- NOTE:**
1. The test was performed in Oven room 2.
 2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 3. Tested Date: Jan. 14, 2020

3 General Information

3.1 General Description of EUT

Product	LTE M.2 Module	
Brand	FOXCONN	
Test Model	T77W968C9	
Status of EUT	ENGINEERING SAMPLE	
Power Supply Rating	DC 3.3V from host equipment	
Modulation Type	WCDMA, HSDPA, HSUPA	BPSK
	LTE	QPSK, 16QAM, 64QAM
Operating Frequency	WCDMA Band 4	1712.4 ~ 1752.6 MHz
	LTE Band 4	1710.7 ~ 1754.3 MHz
	LTE Band 7	2502.5 ~ 2567.5 MHz
	LTE Band 12	699.7 ~ 715.3 MHz
	LTE Band 13	779.5 ~ 784.5 MHz
	LTE Band 17	706.5 ~ 713.5 MHz
	LTE Band 30	2307.5 ~ 2312.5MHz
	LTE Band 38	2572.5 ~ 2617.5MHz
	LTE Band 41	2498.5 ~ 2687.5MHz
	LTE Band 66	1710.7 ~ 1779.3MHz
Max. EIRP Power	WCDMA Band 4	29.69dBm
	LTE Band 4 (Channel Bandwidth 1.4MHz)	29.56dBm
	LTE Band 4 (Channel Bandwidth 3MHz)	29.57dBm
	LTE Band 4 (Channel Bandwidth 5MHz)	29.58dBm
	LTE Band 4 (Channel Bandwidth 10MHz)	29.53dBm
	LTE Band 4 (Channel Bandwidth 15MHz)	29.48dBm
	LTE Band 4 (Channel Bandwidth 20MHz)	29.60dBm
	LTE Band 7 (Channel Bandwidth 5MHz)	28.59dBm
	LTE Band 7 (Channel Bandwidth 10MHz)	28.71dBm
	LTE Band 7 (Channel Bandwidth 15MHz)	28.74dBm
	LTE Band 7 (Channel Bandwidth 20MHz)	28.67dBm

Max. EIRP Power	LTE Band 38 (Channel Bandwidth 5MHz)	28.29dBm
	LTE Band 38 (Channel Bandwidth 10MHz)	28.28dBm
	LTE Band 38 (Channel Bandwidth 15MHz)	28.12dBm
	LTE Band 38 (Channel Bandwidth 20MHz)	28.24dBm
	LTE Band 41 (Channel Bandwidth 5MHz)	28.93dBm
	LTE Band 41 (Channel Bandwidth 10MHz)	28.91dBm
	LTE Band 41 (Channel Bandwidth 15MHz)	28.89dBm
	LTE Band 41 (Channel Bandwidth 20MHz)	28.84dBm
	LTE Band 66 (Channel Bandwidth 1.4MHz)	29.57dBm
	LTE Band 66 (Channel Bandwidth 3MHz)	29.50dBm
	LTE Band 66 (Channel Bandwidth 5MHz)	29.59dBm
	LTE Band 66 (Channel Bandwidth 10MHz)	29.51dBm
	LTE Band 66 (Channel Bandwidth 15MHz)	29.53dBm
	LTE Band 66 (Channel Bandwidth 20MHz)	29.58dBm

Max. ERP Power	LTE Band 12 (Channel Bandwidth 1.4MHz)	25.82dBm
	LTE Band 12 (Channel Bandwidth 3MHz)	25.79dBm
	LTE Band 12 (Channel Bandwidth 5MHz)	25.74dBm
	LTE Band 12 (Channel Bandwidth 10MHz)	25.67dBm
	LTE Band 13 (Channel Bandwidth 5MHz)	24.55dBm
	LTE Band 13 (Channel Bandwidth 10MHz)	24.51dBm
	LTE Band 17 (Channel Bandwidth 5MHz)	25.76dBm
	LTE Band 17 (Channel Bandwidth 10MHz)	25.60dBm
Max. EIRP Power Density	LTE Band 30 (Channel Bandwidth 5MHz)	227.58mW/5MHz (23.57dBm/5MHz)
	LTE Band 30 (Channel Bandwidth 10MHz)	222.39mW/5MHz (23.47dBm/5MHz)

Emission Designator	WCDMA Band 4	4M15F9W
	LTE Band 4 (Channel Bandwidth 1.4MHz)	QPSK: 1M09G7D
		16QAM: 1M09D7W
		64QAM: 1M09D7W
	LTE Band 4 (Channel Bandwidth 3MHz)	QPSK: 2M70G7D
		16QAM: 2M70D7W
		64QAM: 2M70D7W
	LTE Band 4 (Channel Bandwidth 5MHz)	QPSK: 4M49G7D
		16QAM: 4M50D7W
		64QAM: 4M50D7W
	LTE Band 4 (Channel Bandwidth 10MHz)	QPSK: 8M98G7D
		16QAM: 8M98D7W
		64QAM: 8M98D7W
	LTE Band 4 (Channel Bandwidth 15MHz)	QPSK: 13M5G7D
		16QAM: 13M5D7W
		64QAM: 13M5D7W
	LTE Band 4 (Channel Bandwidth 20MHz)	QPSK: 18M0G7D
		16QAM: 18M0D7W
		64QAM: 18M0D7W
	LTE Band 7 (Channel Bandwidth 5MHz)	QPSK: 4M49G7D
		16QAM: 4M49D7W
		64QAM: 4M49D7W
	LTE Band 7 (Channel Bandwidth 10MHz)	QPSK: 8M97G7D
		16QAM: 8M98D7W
64QAM: 8M97D7W		
LTE Band 7 (Channel Bandwidth 15MHz)	QPSK: 13M5G7D	
	16QAM: 13M5D7W	
	64QAM: 13M5D7W	
LTE Band 7 (Channel Bandwidth 20MHz)	QPSK: 18M0G7D	
	16QAM: 18M0D7W	
	64QAM: 18M0D7W	
LTE Band 12 (Channel Bandwidth 1.4MHz)	QPSK: 1M09G7D	
	16QAM: 1M09D7W	
	64QAM: 1M09D7W	
LTE Band 12 (Channel Bandwidth 3MHz)	QPSK: 2M70G7D	
	16QAM: 2M70D7W	
	64QAM: 2M71D7W	
LTE Band 12 (Channel Bandwidth 5MHz)	QPSK: 4M49G7D	
	16QAM: 4M49D7W	
	64QAM: 4M49D7W	
LTE Band 12 (Channel Bandwidth 10MHz)	QPSK: 8M98G7D	
	16QAM: 8M98D7W	
	64QAM: 8M98D7W	

Emission Designator	LTE Band 13 (Channel Bandwidth 5MHz)	QPSK: 4M49G7D
		16QAM: 4M49D7W
		64QAM: 4M49D7W
	LTE Band 13 (Channel Bandwidth 10MHz)	QPSK: 8M96G7D
		16QAM: 8M96D7W
		64QAM: 8M95D7W
	LTE Band 17 (Channel Bandwidth 5MHz)	QPSK: 4M49G7D
		16QAM: 4M49D7W
		64QAM: 4M50D7W
	LTE Band 17 (Channel Bandwidth 10MHz)	QPSK: 8M98G7D
		16QAM: 8M99D7W
		64QAM: 8M98D7W
	LTE Band 30 (Channel Bandwidth 5MHz)	QPSK: 4M49G7D
		16QAM: 4M49D7W
		64QAM: 4M49D7W
	LTE Band 30 (Channel Bandwidth 10MHz)	QPSK: 8M97G7D
		16QAM: 8M96D7W
		64QAM: 8M97D7W
	LTE Band 38 (Channel Bandwidth 5MHz)	QPSK: 4M49G7D
		16QAM: 4M49D7W
		64QAM: 4M48D7W
	LTE Band 38 (Channel Bandwidth 10MHz)	QPSK: 8M95G7D
		16QAM: 8M97D7W
		64QAM: 8M96D7W
	LTE Band 38 (Channel Bandwidth 15MHz)	QPSK: 13M4G7D
		16QAM: 13M4D7W
		64QAM: 13M4D7W
LTE Band 38 (Channel Bandwidth 20MHz)	QPSK: 17M9G7D	
	16QAM: 17M9D7W	
	64QAM: 17M9D7W	

Emission Designator	LTE Band 41 (Channel Bandwidth 5MHz)	QPSK: 4M49G7D
		16QAM: 4M49D7W
		64QAM: 4M48D7W
	LTE Band 41 (Channel Bandwidth 10MHz)	QPSK: 8M95G7D
		16QAM: 8M96D7W
		64QAM: 8M96D7W
	LTE Band 41 (Channel Bandwidth 15MHz)	QPSK: 13M5G7D
		16QAM: 13M4D7W
		64QAM: 13M4D7W
	LTE Band 41 (Channel Bandwidth 20MHz)	QPSK: 17M9G7D
		16QAM: 17M9D7W
		64QAM: 17M9D7W
LTE Band 66 (Channel Bandwidth 1.4MHz)	QPSK: 1M09G7D	
	16QAM: 1M09D7W	
	64QAM: 1M09D7W	
LTE Band 66 (Channel Bandwidth 3MHz)	QPSK: 2M70G7D	
	16QAM: 2M69D7W	
	64QAM: 2M70D7W	
LTE Band 66 (Channel Bandwidth 5MHz)	QPSK: 4M49G7D	
	16QAM: 4M49D7W	
	64QAM: 4M50D7W	
LTE Band 66 (Channel Bandwidth 10MHz)	QPSK: 8M97G7D	
	16QAM: 8M98D7W	
	64QAM: 8M99D7W	
LTE Band 66 (Channel Bandwidth 15MHz)	QPSK: 13M5G7D	
	16QAM: 13M5D7W	
	64QAM: 13M5D7W	
LTE Band 66 (Channel Bandwidth 20MHz)	QPSK: 18M0G7D	
	16QAM: 18M0D7W	
	64QAM: 18M0D7W	
Antenna Type	Refer to Note	
Antenna Connector	Refer to Note	
Accessory Device	NA	
Data Cable Supplied	NA	

Note:

- Exhibit prepared for FCC Spot Check Verification Report, the format, test items and amount of spot-check test data are decided by applicant's engineering judgment, for more details please refer to declaration letter exhibit. (Original FCC ID: MCLT77W968)
- The antennas provided to the EUT, please refer to the following table:

Antenna No.	Antenna Net Gain(dBi)	Frequency range (MHz)	Antenna Type	Connector Type	Cable Length
1	Please refer to below table	699~803	PIFA	i-pex(MHF)	100mm
2	Please refer to below table	791~960 1447.9~1606	PIFA	i-pex(MHF)	100mm
3	Please refer to below table	1710~2170 2500~2690	PIFA	i-pex(MHF)	100mm
4	Please refer to below table	2305~2315	Dipole	i-pex(MHF)	80mm

Antenna gain list			
Antenna No.	Band	Freq. Range (MHz)	Gain (dBi)
3	WCDMA II (B2)	1850~1910	4.92
3	WCDMA IV (B4)	1710~1755	5.99
2	WCDMA V (B5)	824~849	2.68
3	LTE Band (2)	1850~1910	4.92
3	LTE Band (4)	1710~1755	5.99
2	LTE Band (5)	824~849	2.68
3	LTE Band (7)	2500~2570	5.2
1	LTE Band (12)	698~716	4.17
1	LTE Band (13)	777~787	3.05
1	LTE Band (17)	704~716	4.17
3	LTE Band (25)	1850~1915	4.92
2	LTE Band (26)	814~849	2.92
4	LTE Band (30)	2305~2315	3.02
3	LTE Band (38)	2570~2620	4.82
3	LTE Band (41)	2496~2690	5.38
3	LTE Band (66)	1710~1780	5.99

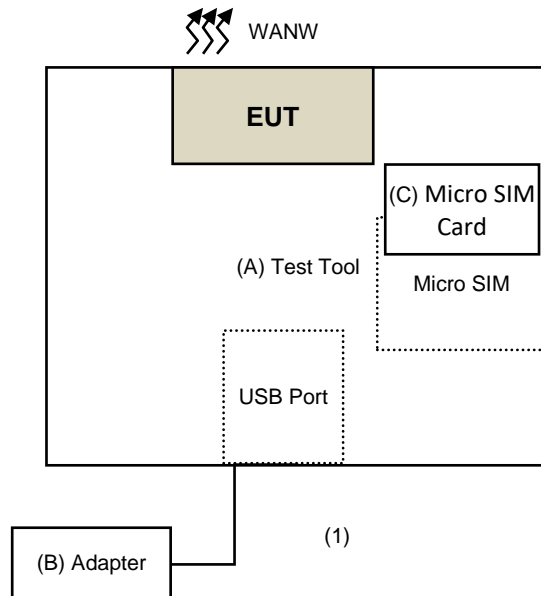
- The EUT was pre-tested under the following modes:

Test Mode	Description
Mode A	Without e-SIM
Mode B	With e-SIM

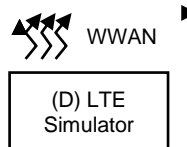
Note: From the above modes, radiated emission the worst case was found in **Mode A**. Therefore only the test data of the mode was recorded in this report.

- The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

3.2 Configuration of System under Test



Remote Site



3.2.1 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Test Tool	Foxconn	T77W968	NA	NA	Supplied by client
B.	Adapter	ASUS	EXA1205UA	NA	NA	Provided by Lab
C.	Micro SIM Card	NA	NA	NA	NA	Provided by Lab
D.	Simulator	Keysight	E7515A	MY56030229	NA	Provided by Lab

Note:

1. All power cords of the above support units are non-shielded (1.8m).

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	USB Cable	1	1	Yes	0	Provided by Lab

3.3 Test Mode Applicability and Tested Channel Detail

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and antenna ports.

In the original test report, the worst case was found when positioned on X-plane. Following channel(s) was (were) selected for the final test as listed below:

WCDMA Band 4

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	MODE
EIRP	1312 to 1513	1312, 1413, 1513	WCDMA
Radiated Emission	1312 to 1513	1413	WCDMA

LTE Band 4

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
EIRP	19957 to 20393	19957, 20175, 20393	1.4MHz	QPSK/16QAM/64QAM	1RB / 0 RB offset
	19965 to 20385	19965, 20175, 20385	3MHz	QPSK/16QAM/64QAM	1RB / 0 RB offset
	19975 to 20375	19975, 20175, 20375	5MHz	QPSK/16QAM/64QAM	1RB / 0 RB offset
	20000 to 20350	20000, 20175, 20350	10MHz	QPSK/16QAM/64QAM	1RB / 0 RB offset
	20025 to 20325	20025, 20175, 20325	15MHz	QPSK/16QAM/64QAM	1RB / 0 RB offset
	20050 to 20300	20050, 20175, 20300	20MHz	QPSK/16QAM/64QAM	1RB / 0 RB offset
Radiated Emission	20050 to 20300	20175	20MHz	QPSK	1 RB / 0 RB Offset

LTE Band 7

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
EIRP	20775 to 21425	20775, 21100, 21425	5MHz	QPSK/16QAM/64QAM	1RB / 0 RB offset
	20800 to 21400	20800, 21100, 21400	10MHz	QPSK/16QAM/64QAM	1RB / 0 RB offset
	20825 to 21375	20825, 21100, 21375	15MHz	QPSK/16QAM/64QAM	1RB / 0 RB offset
	20850 to 21350	20850, 21100, 21350	20MHz	QPSK/16QAM/64QAM	1RB / 0 RB offset
Radiated Emission	20825 to 21375	21100	15MHz	QPSK	1 RB / 0 RB Offset

LTE Band 12

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
ERP	23017 to 23173	23017, 23095, 23173	1.4MHz	QPSK/16QAM/64QAM	1RB / 0 RB offset
	23025 to 23165	23025, 23095, 23165	3MHz	QPSK/16QAM/64QAM	1RB / 0 RB offset
	23035 to 23155	23035, 23095, 23155	5MHz	QPSK/16QAM/64QAM	1RB / 0 RB offset
	23060 to 23130	23060, 23095, 23130	10MHz	QPSK/16QAM/64QAM	1RB / 0 RB offset
Radiated Emission	23017 to 23173	23095	1.4MHz	QPSK	1RB / 0 RB offset

LTE Band 13

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
ERP	23205 to 23255	23205, 23230, 23255	5MHz	QPSK/16QAM/64QAM	1RB / 0 RB offset
	23230	23230	10MHz	QPSK/16QAM/64QAM	1RB / 0 RB offset
Radiated Emission	23205 to 23255	23230	5MHz	QPSK	1RB / 0 RB offset

LTE Band 17

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
ERP	23755 to 23825	23755, 23790, 23825	5MHz	QPSK/16QAM/64QAM	1RB / 0 RB offset
	23780 to 23800	23780, 23790, 23800	10MHz	QPSK/16QAM/64QAM	1RB / 0 RB offset
Radiated Emission	23755 to 23825	23755	5MHz	QPSK	1RB / 0 RB offset

LTE Band 30

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
EIRP	27685 to 27735	27685, 27710, 27735	5MHz	QPSK/16QAM/64QAM	1RB / 0 RB offset
	27710 to 27710	27710	10MHz	QPSK/16QAM/64QAM	1RB / 0 RB offset
Radiated Emission	27685 to 27735	27710	5MHz	QPSK	1RB / 0 RB offset

LTE Band 38

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
EIRP	37775 to 38225	37775, 38000, 38225	5MHz	QPSK/16QAM/64QAM	1RB / 0 RB offset
	37800 to 38200	37800, 38000, 38200	10MHz	QPSK/16QAM/64QAM	1RB / 0 RB offset
	37825 to 38175	37825, 38000, 38175	15MHz	QPSK/16QAM/64QAM	1RB / 0 RB offset
	37850 to 38150	37850, 38000, 38150	20MHz	QPSK/16QAM/64QAM	1RB / 0 RB offset
Radiated Emission	37775 to 38225	37775	5MHz	QPSK	1 RB / 0 RB Offset

LTE Band 41

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
EIRP	39675 to 41565	39675, 40620, 41565	5MHz	QPSK/16QAM/64QAM	1RB / 0 RB offset
	39700 to 41540	39700, 40620, 41540	10MHz	QPSK/16QAM/64QAM	1RB / 0 RB offset
	39725 to 41515	39725, 40620, 41515	15MHz	QPSK/16QAM/64QAM	1RB / 0 RB offset
	39750 to 41490	39750, 40620, 41490	20MHz	QPSK/16QAM/64QAM	1RB / 0 RB offset
Radiated Emission	39675 to 41565	40620	5MHz	QPSK	1 RB / 0 RB Offset

LTE Band 66

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
EIRP	131979 to 132665	131979, 132322, 132665	1.4MHz	QPSK/16QAM/64QAM	1RB / 0 RB offset
	131987 to 132657	131987, 132322, 132657	3MHz	QPSK/16QAM/64QAM	1RB / 0 RB offset
	131997 to 132647	131997, 132322, 132647	5MHz	QPSK/16QAM/64QAM	1RB / 0 RB offset
	132022 to 132622	132022, 132322, 132622	10MHz	QPSK/16QAM/64QAM	1RB / 0 RB offset
	132047 to 132597	132047, 132322, 132597	15MHz	QPSK/16QAM/64QAM	1RB / 0 RB offset
	132072 to 132572	132072, 132322, 132572	20MHz	QPSK/16QAM/64QAM	1RB / 0 RB offset
Radiated Emission	131997 to 132647	132322	5MHz	QPSK	1 RB / 0 RB Offset

NOTE:

All supported modulation types were evaluated. The Worst case of QPSK was selected.

Test Condition:

Test Item	Environmental Conditions	Input Power (System)	Tested By
EIRP	25deg. C, 60%RH	120Vac, 60Hz	Jyunchun Lin
Radiated Emission	25deg. C, 60%RH	120Vac, 60Hz	Gary Cheng

3.4 EUT Operating Conditions

The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency

3.5 General Description of Applied Standards and References

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

Test Standard:

FCC 47 CFR Part 2

FCC 47 CFR Part 27, Subpart D / F / H / L / M

ANSI/TIA/EIA-603-E 2016

ANSI 63.26-2015

All test items have been performed and recorded as per the above standards.

References Test Guidance:

KDB 971168 D01 Power Meas License Digital Systems v03r01

All test items have been performed as a reference to the above KDB test guidance.

4 Test Types and Results

4.1 Output Power Measurement

4.1.1 Limits of Output Power Measurement

For section 27.50(d)(4): Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP.

For section 27.50(b)(10): Portable stations (hand-held devices) operating in the 698-787 MHz band are limited to 3 watts ERP. In the BRS and EBS Band, Mobile and other user stations are limited to 2.0 watts EIRP.

For section 27.50(h)(2): In the BRS and EBS: Mobile and other user stations. Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.

For section 27.50(a)(3): For mobile and portable stations transmitting in the 2305-2315 MHz band or the 2350-2360 MHz band, the average EIRP must not exceed 50 milliwatts within any 1 megahertz of authorized bandwidth, except that for mobile and portable stations compliant with 3GPP LTE standards or another advanced mobile broadband protocol that avoids concentrating energy at the edge of the operating band the average EIRP must not exceed 250 milliwatts within any 5 megahertz of authorized bandwidth but may exceed 50 milliwatts within any 1 megahertz of authorized bandwidth. For mobile and portable stations using time division duplexing (TDD) technology, the duty cycle must not exceed 38 percent in the 2305-2315 MHz and 2350-2360 MHz bands. Mobile and portable stations using FDD technology are restricted to transmitting in the 2305-2315 MHz band. Power averaging shall not include intervals in which the transmitter is off.

4.1.2 Test Procedures

Conducted Power Measurement:

The EUT was set up for the maximum power with WCDMA/LTE link data modulation and link up with simulator. Set the EUT to transmit under low, middle and high channel and difference RB size/ RB offset for difference bandwidth record the power level shown on power meter.

EIRP / ERP Measurement:

- a. $EIRP = \text{Conducted Output power level} + \text{Antenna gain}$.
- b. ERP power can be calculated from EIRP power by subtracting the gain of dipole, $ERP \text{ power} = EIRP \text{ power} - 2.15\text{dBi}$.
- c. $ERP = \text{Conducted Output power level} + \text{Antenna gain (dBi)} - \text{Isotropically Factor (2.15dB)}$

EIRP Power Density Measurement (For LTE Band 30):

- a. The power was measured with Spectrum Analyzer.
- b. Substitution method is used for EIRP measurement. In the semi-anechoic chamber, EUT placed on the 0.8m/1.5m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- c. The substitution antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to "Read Value " of step b. Record the power level of S.G
- d. $EIRP = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution antenna}.$

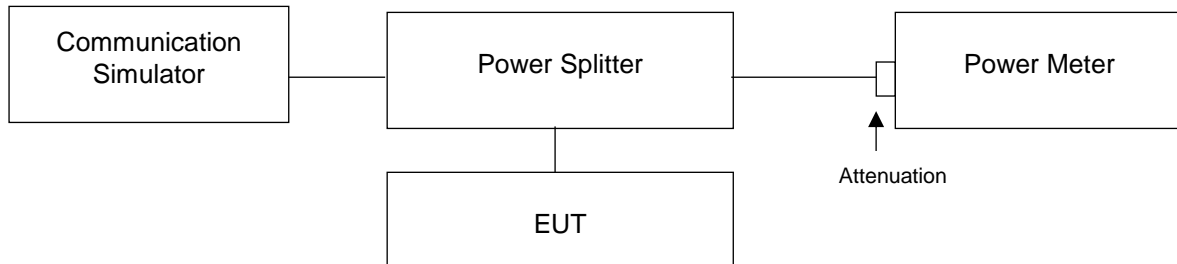
The testing follows FCC KDB 971168 v03r01 Section 5.4.

1. Set the analyzer center frequency to the OBW center frequency.
2. Set the span to 2x to 3x times the OBW bandwidth.
3. Set the RBW to 1% to 5% of the OBW.
4. Set the VBW $\geq 3 \times$ RBW.
5. Set the number of points in sweep $\geq 2 \times \text{span} / \text{RBW}$.
6. Detector = power averaging (rms).
7. Sweep time = auto couple.
8. Trace mode = Trace average at least 100 traces in power averaging (rms) mode.
9. Allow trace to fully stabilize.
10. Use the integral function to determine the maximum amplitude level within the specified reference bandwidth (PSD).

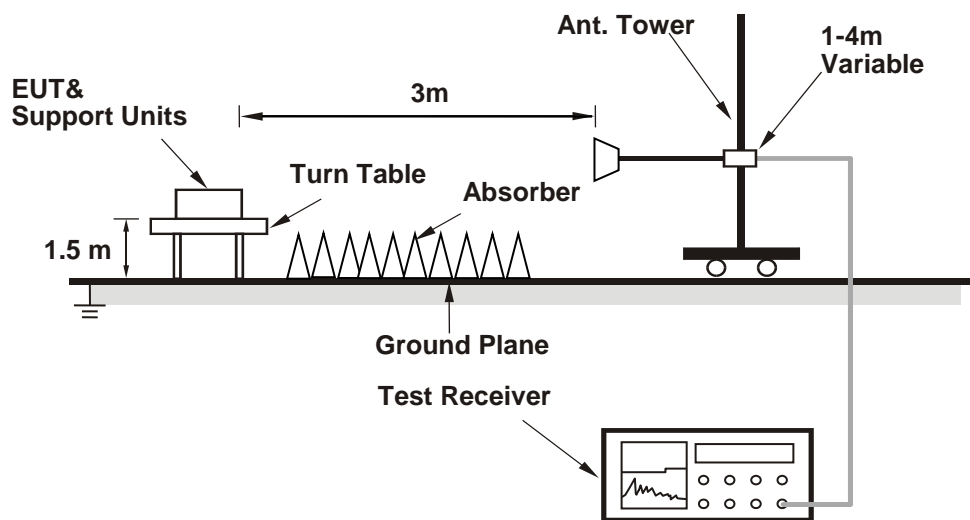
Note: The worst case vertical or horizontal polarization have been investigated and reported in this report

4.1.3 Test Setup

Conducted Power Measurement:



EIRP Power Density Measurement:



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.1.4 Test Results

CONDUCTED OUTPUT POWER (dBm)

Band	WCDMA B4		
Channel	1312	1413	1513
Frequency (MHz)	1712.4	1732.6	1752.6
RMC	23.56	23.70	23.52
HSDPA Subtest-1	23.01	23.01	22.93
HSDPA Subtest-2	23.20	23.25	23.11
HSDPA Subtest-3	22.94	23.01	22.91
HSDPA Subtest-4	23.10	23.00	22.87
HSUPA Subtest-1	22.95	23.00	22.79
HSUPA Subtest-2	23.35	23.35	23.29
HSUPA Subtest-3	23.14	23.03	23.17
HSUPA Subtest-4	22.95	22.83	22.85
HSUPA Subtest-5	23.19	23.31	23.25

LTE Band 4

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			19957	20175	20393		19957	20175	20393		19957	20175	20393	
			1710.7	1732.5	1754.3		1710.7	1732.5	1754.3		1710.7	1732.5	1754.3	
			MHz	MHz	MHz		MHz	MHz	MHz		MHz	MHz	MHz	
4 / 1.4M	1	0	23.47	23.57	23.38	0	22.14	22.38	22.05	1	21.39	21.41	21.27	2
	1	2	23.38	23.51	23.30	0	22.10	22.32	22.04	1	21.39	21.22	21.26	2
	1	5	23.31	23.36	23.35	0	21.92	22.23	22.01	1	21.29	21.16	21.17	2
	3	0	23.15	23.38	23.25	0	22.05	22.31	22.02	1	21.34	21.34	21.17	2
	3	1	23.13	23.37	23.33	0	22.10	22.30	22.05	1	21.12	21.20	21.18	2
	3	3	23.01	23.37	23.30	0	22.11	22.33	22.01	1	21.17	21.32	21.26	2
	6	0	21.97	22.47	22.39	1	21.10	21.52	21.23	2	20.38	20.28	20.35	3

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			19965	20175	20385		19965	20175	20385		19965	20175	20385	
			1711.5	1732.5	1753.5		1711.5	1732.5	1753.5		1711.5	1732.5	1753.5	
			MHz	MHz	MHz		MHz	MHz	MHz		MHz	MHz	MHz	
4 / 3M	1	0	23.42	23.58	23.33	0	22.26	22.43	22.46	1	21.32	21.28	21.51	2
	1	7	23.27	23.52	23.30	0	22.33	22.37	22.27	1	21.09	21.27	21.50	2
	1	14	23.23	23.44	23.28	0	22.23	22.40	22.40	1	21.10	21.18	21.31	2
	8	0	22.10	22.53	22.27	1	21.33	21.56	21.39	2	20.16	20.11	20.37	3
	8	3	22.22	22.46	22.43	1	21.24	21.41	21.42	2	20.19	20.29	20.23	3
	8	7	22.22	22.40	22.41	1	21.14	21.57	21.31	2	20.03	20.25	20.26	3
	15	0	22.32	22.58	22.38	1	21.28	21.59	21.36	2	20.22	20.41	20.38	3

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			19975	20175	20375		19975	20175	20375		19975	20175	20375	
			1712.5	1732.5	1752.5		1712.5	1732.5	1752.5		1712.5	1732.5	1752.5	
			MHz	MHz	MHz		MHz	MHz	MHz		MHz	MHz	MHz	
4 / 5M	1	0	23.35	23.59	23.34	0	22.25	22.58	22.26	1	21.20	21.43	21.33	2
	1	12	23.28	23.58	23.30	0	21.98	22.49	22.15	1	21.15	21.36	21.28	2
	1	24	23.20	23.52	23.30	0	22.07	22.55	22.16	1	21.16	21.36	21.23	2
	12	0	22.15	22.36	22.52	1	21.31	21.40	21.31	2	20.09	20.29	20.24	3
	12	6	22.27	22.57	22.36	1	21.10	21.50	21.46	2	20.09	20.29	20.29	3
	12	13	22.45	22.51	22.27	1	21.22	21.50	21.46	2	20.23	20.37	20.35	3
	25	0	22.20	22.53	22.29	1	21.46	21.35	21.52	2	20.31	20.25	20.32	3

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			20000	20175	20350		20000	20175	20350		20000	20175	20350	
			1715	1732.5	1750		1715	1732.5	1750		1715	1732.5	1750	
			MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz			
4 / 10M	1	0	23.21	23.54	23.41	0	22.47	22.40	22.49	1	21.54	21.56	21.32	2
	1	24	23.28	23.54	23.32	0	22.32	22.28	22.46	1	21.34	21.31	21.30	2
	1	49	23.27	23.51	23.40	0	22.38	22.32	22.46	1	21.47	21.51	21.33	2
	25	0	22.52	22.44	22.44	1	21.53	21.62	21.51	2	20.42	20.31	20.34	3
	25	12	22.44	22.71	22.34	1	21.53	21.50	21.51	2	20.33	20.24	20.36	3
	25	25	22.38	22.58	22.49	1	21.52	21.67	21.50	2	20.35	20.34	20.41	3
	50	0	22.32	22.60	22.33	1	21.39	21.64	21.45	2	20.27	20.30	20.35	3

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			20025	20175	20325		20025	20175	20325		20025	20175	20325	
			1717.5	1732.5	1747.5		1717.5	1732.5	1747.5		1717.5	1732.5	1747.5	
			MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz				
4 / 15M	1	0	23.46	23.39	23.49	0	22.40	22.42	22.59	1	21.30	21.45	21.50	2
	1	37	23.34	23.35	23.36	0	22.21	22.30	22.22	1	21.13	21.23	21.43	2
	1	74	23.41	23.29	23.29	0	22.37	22.38	22.20	1	21.12	21.39	21.48	2
	36	0	22.34	22.41	22.25	1	21.54	21.36	21.53	2	20.46	20.33	20.39	3
	36	19	22.36	22.42	22.27	1	21.56	21.51	21.39	2	20.38	20.20	20.17	3
	36	39	22.53	22.46	22.42	1	21.61	21.30	21.47	2	20.40	20.32	20.37	3
	75	0	22.62	22.49	22.46	1	21.41	21.47	21.48	2	20.45	20.32	20.44	3

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			20050	20175	20300		20050	20175	20300		20050	20175	20300	
			1720	1732.5	1745		1720	1732.5	1745		1720	1732.5	1745	
			MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz				
4 / 20M	1	0	23.29	23.24	23.21	0	22.51	22.30	22.30	1	21.32	21.50	21.38	2
	1	50	23.38	23.61	23.36	0	22.52	22.50	22.39	1	21.56	21.52	21.39	2
	1	99	23.30	23.20	23.22	0	22.44	22.40	22.17	1	21.53	21.46	21.38	2
	50	0	22.34	22.16	22.34	1	21.17	21.40	21.57	2	20.24	20.16	20.48	3
	50	25	22.49	22.14	22.13	1	21.33	21.42	21.52	2	20.31	20.47	20.32	3
	50	50	22.56	22.31	22.32	1	21.53	21.61	21.54	2	20.17	20.52	20.26	3
	100	0	22.52	22.54	22.28	1	21.48	21.59	21.61	2	20.35	20.42	20.49	3

LTE Band 7

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			20775	21100	21425		20775	21100	21425		20775	21100	21425	
			2502.5	2535	2567.5		2502.5	2535	2567.5		2502.5	2535	2567.5	
			MHz	MHz	MHz				MHz	MHz	MHz			
7 / 5M	1	0	23.15	23.39	23.13	0	22.09	22.34	22.43	1	21.19	21.38	21.17	2
	1	12	23.11	23.09	23.01	0	22.03	22.24	22.42	1	21.09	21.20	21.12	2
	1	24	23.13	23.30	23.11	0	22.08	22.18	22.34	1	21.18	21.36	21.07	2
	12	0	22.02	22.14	22.04	1	21.23	21.28	20.98	2	19.97	20.18	20.02	3
	12	6	22.16	22.10	22.22	1	21.07	21.24	21.00	2	19.94	20.10	20.16	3
	12	13	22.19	22.18	22.10	1	21.05	21.20	21.07	2	20.13	20.09	20.06	3
	25	0	22.18	22.22	22.17	1	21.10	21.37	21.05	2	20.07	20.05	20.29	3

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			20800	21100	21400		20800	21100	21400		20800	21100	21400	
			2505	2535	2565		2505	2535	2565		2505	2535	2565	
			MHz	MHz	MHz				MHz	MHz	MHz			
7 / 10M	1	0	23.37	23.51	23.31	0	22.29	22.20	22.27	1	21.12	21.34	21.22	2
	1	24	23.32	23.50	23.25	0	22.18	22.03	22.19	1	21.06	21.24	20.99	2
	1	49	23.37	23.29	23.27	0	22.20	22.07	22.21	1	21.06	21.24	21.15	2
	25	0	21.98	22.36	21.97	1	21.29	21.20	21.16	2	20.11	20.19	20.21	3
	25	12	22.20	22.13	22.05	1	21.20	21.45	21.08	2	19.92	20.16	20.12	3
	25	25	22.00	22.22	21.89	1	21.23	21.28	21.15	2	20.09	20.16	20.13	3
	50	0	22.03	22.25	22.08	1	21.28	21.48	21.08	2	20.15	20.14	20.18	3

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			20825	21100	21375		20825	21100	21375		20825	21100	21375	
			2507.5	2535	2562.5		2507.5	2535	2562.5		2507.5	2535	2562.5	
			MHz	MHz	MHz				MHz	MHz	MHz			
7 / 15M	1	0	23.44	23.54	23.31	0	22.03	22.41	22.15	1	21.15	21.42	21.32	2
	1	37	23.41	23.42	23.28	0	21.92	22.14	22.01	1	21.07	21.25	21.28	2
	1	74	23.44	23.43	23.30	0	21.84	22.05	22.13	1	21.07	21.23	21.31	2
	36	0	22.13	22.43	21.97	1	21.07	21.00	21.21	2	20.25	20.20	20.24	3
	36	19	22.11	22.09	22.13	1	21.21	21.30	21.11	2	20.01	20.28	20.26	3
	36	39	22.12	22.32	22.02	1	21.13	21.14	20.96	2	20.08	20.35	20.07	3
	75	0	22.11	21.96	22.24	1	21.25	21.18	21.02	2	20.12	20.17	20.07	3

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			20850	21100	21350		20850	21100	21350		20850	21100	21350	
			2510	2535	2560		2510	2535	2560		2510	2535	2560	
			MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz		
7 / 20M	1	0	23.47	23.47	23.45	0	22.23	22.15	22.24	1	21.22	21.14	21.19	2
	1	50	23.47	23.35	23.41	0	22.17	21.98	22.17	1	21.21	21.03	21.05	2
	1	99	23.48	23.36	23.31	0	22.17	22.06	22.01	1	21.12	21.12	21.14	2
	50	0	22.06	22.22	21.99	1	21.19	21.41	21.18	2	20.13	20.06	20.12	3
	50	25	22.17	22.15	21.89	1	21.33	21.26	21.12	2	19.99	20.26	20.12	3
	50	50	22.14	22.17	21.87	1	21.36	21.37	21.00	2	20.00	20.08	20.04	3
	100	0	22.07	22.13	21.97	1	21.13	21.37	21.20	2	19.92	20.08	20.03	3

LTE Band 12

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			23017	23095	23173		23017	23095	23173		23017	23095	23173	
			699.7	707.5	715.3		699.7	707.5	715.3		699.7	707.5	715.3	
			MHz	MHz	MHz		MHz	MHz	MHz		MHz	MHz	MHz	
12 / 1.4M	1	0	23.74	23.80	23.73	0	22.57	22.64	22.56	1	21.49	21.42	21.54	2
	1	2	23.73	23.59	23.72	0	22.41	22.54	22.48	1	21.40	21.20	21.49	2
	1	5	23.49	23.64	23.60	0	22.53	22.35	22.45	1	21.27	21.22	21.29	2
	3	0	23.59	23.62	23.65	0	22.52	22.46	22.49	1	21.53	21.40	21.36	2
	3	1	23.70	23.75	23.73	0	22.56	22.44	22.67	1	21.32	21.37	21.35	2
	3	3	23.57	23.72	23.59	0	22.79	22.62	22.64	1	21.29	21.36	21.19	2
	6	0	22.68	22.62	22.59	1	21.51	21.43	21.56	2	20.31	20.10	20.49	3

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			23025	23095	23165		23025	23095	23165		23025	23095	23165	
			700.5	707.5	714.5		700.5	707.5	714.5		700.5	707.5	714.5	
			MHz	MHz	MHz		MHz	MHz	MHz		MHz	MHz	MHz	
12 / 3M	1	0	23.67	23.77	23.77	0	22.73	22.56	22.53	1	21.62	21.70	21.65	2
	1	7	23.66	23.76	23.63	0	22.66	22.55	22.60	1	21.53	21.48	21.44	2
	1	14	23.63	23.64	23.61	0	22.49	22.60	22.51	1	21.56	21.52	21.59	2
	8	0	22.81	22.65	22.53	1	21.74	21.77	21.71	2	20.58	20.51	20.39	3
	8	3	22.69	22.70	22.71	1	21.70	21.73	21.67	2	20.50	20.51	20.62	3
	8	7	22.58	22.68	22.55	1	21.51	21.72	21.65	2	20.46	20.40	20.52	3
	15	0	22.53	22.68	22.67	1	21.57	21.59	21.62	2	20.47	20.26	20.62	3

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			23035	23095	23155		23035	23095	23155		23035	23095	23155	
			701.5	707.5	713.5		701.5	707.5	713.5		701.5	707.5	713.5	
			MHz	MHz	MHz		MHz	MHz	MHz		MHz	MHz	MHz	
12 / 5M	1	0	23.68	23.72	23.70	0	22.74	22.53	22.70	1	21.63	21.67	21.63	2
	1	12	23.61	23.35	23.64	0	22.63	22.51	22.63	1	21.45	21.63	21.42	2
	1	24	23.60	23.34	23.60	0	22.44	22.45	22.66	1	21.61	21.43	21.62	2
	12	0	22.60	22.39	22.67	1	21.54	21.71	21.62	2	20.58	20.37	20.52	3
	12	6	22.75	22.54	22.51	1	21.53	21.62	21.61	2	20.62	20.71	20.71	3
	12	13	22.52	22.56	22.71	1	21.41	21.51	21.71	2	20.52	20.61	20.63	3
	25	0	22.41	22.37	22.74	1	21.67	21.53	21.56	2	20.39	20.59	20.59	3

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			23060	23095	23130		23060	23095	23130		23060	23095	23130	
			704	707.5	711		704	707.5	711		704	707.5	711	
			MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz		
12 / 10M	1	0	23.65	23.62	23.62	0	22.64	22.56	22.57	1	21.49	21.46	21.68	2
	1	24	23.62	23.56	23.61	0	22.62	22.40	22.47	1	21.46	21.42	21.65	2
	1	49	23.59	23.62	23.52	0	22.55	22.46	22.55	1	21.48	21.45	21.58	2
	25	0	22.63	22.81	22.68	1	21.63	21.74	21.65	2	20.59	20.34	20.57	3
	25	12	22.60	22.54	22.60	1	21.68	21.52	21.49	2	20.65	20.60	20.50	3
	25	25	22.60	22.62	22.74	1	21.56	21.45	21.55	2	20.55	20.51	20.57	3
	50	0	22.58	22.77	22.53	1	21.54	21.63	21.59	2	20.51	20.46	20.67	3

LTE Band 13

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			23205	23230	23255		23205	23230	23255		23205	23230	23255	
			779.5	782	784.5		779.5	782	784.5		779.5	782	784.5	
			MHz	MHz	MHz				MHz	MHz	MHz			
13 / 5M	1	0	23.61	23.65	23.51	0	22.54	22.42	22.49	1	21.43	21.46	21.27	2
	1	12	23.56	23.53	23.32	0	22.29	22.39	22.22	1	21.41	21.44	21.23	2
	1	24	23.60	23.43	23.37	0	22.53	22.41	22.37	1	21.41	21.33	21.25	2
	12	0	22.49	22.64	22.41	1	21.55	21.42	21.52	2	21.36	20.49	20.20	3
	12	6	22.36	22.45	22.42	1	21.46	21.64	21.41	2	20.45	20.53	20.31	3
	12	13	22.51	22.57	22.57	1	21.49	21.45	21.39	2	20.55	20.29	20.43	3
	25	0	22.55	22.47	22.52	1	21.53	21.49	21.47	2	20.29	20.34	20.30	3

Band / BW	RB Size	RB Offset	QPSK		3GPP MPR (dB)	16QAM		3GPP MPR (dB)	64QAM		3GPP MPR (dB)
			Mid CH			Mid CH			Mid CH		
			23230			23230			23230		
			782			782			782		
			MHz			MHz			MHz		
13 / 10M	1	0	23.61		0	22.70		1	21.40		2
	1	24	23.60		0	22.67		1	21.45		2
	1	49	23.56		0	22.46		1	21.33		2
	25	0	22.79		1	21.65		2	20.49		3
	25	12	22.60		1	21.64		2	20.55		3
	25	25	22.59		1	21.60		2	20.47		3
	50	0	22.58		1	21.40		2	20.51		3

LTE Band 17

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			23755	23790	23825		23755	23790	23825		23755	23790	23825	
			706.5	710	713.5		706.5	710	713.5		706.5	710	713.5	
			MHz	MHz	MHz				MHz	MHz	MHz			
17 / 5M	1	0	23.74	23.73	23.72	0	22.50	22.65	22.72	1	21.64	21.63	21.68	2
	1	12	23.49	23.52	23.56	0	22.49	22.64	22.50	1	21.56	21.61	21.51	2
	1	24	23.73	23.55	23.42	0	22.39	22.62	22.62	1	21.45	21.53	21.61	2
	12	0	22.73	22.59	22.55	1	21.67	21.50	21.53	2	20.39	20.53	20.48	3
	12	6	22.49	22.66	22.76	1	21.71	21.67	21.56	2	20.55	20.64	20.52	3
	12	13	22.61	22.73	22.79	1	21.72	21.83	21.56	2	20.70	20.45	20.45	3
	25	0	22.70	22.53	22.79	1	21.61	21.62	21.65	2	20.45	20.50	20.53	3

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			23780	23790	23800		23780	23790	23800		23780	23790	23800	
			709	710	711		709	710	711		709	710	711	
			MHz	MHz	MHz				MHz	MHz	MHz			
17 / 10M	1	0	23.53	23.58	23.52	0	22.47	22.66	22.59	1	21.59	21.59	21.64	2
	1	24	23.51	23.42	23.51	0	22.34	22.61	22.52	1	21.55	21.46	21.50	2
	1	49	23.48	23.39	23.50	0	22.48	22.64	22.47	1	21.48	21.47	21.44	2
	25	0	22.45	22.59	22.43	1	21.68	21.47	21.45	2	20.43	20.61	20.50	3
	25	12	22.50	22.47	22.43	1	21.71	21.56	21.50	2	20.54	20.65	20.44	3
	25	25	22.61	22.37	22.60	1	21.73	21.44	21.47	2	20.46	20.52	20.43	3
	50	0	22.50	22.42	22.35	1	21.60	21.52	21.62	2	20.50	20.31	20.45	3

LTE Band 30

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			27685	27710	27735		27685	27710	27735		27685	27710	27735	
			2307.5	2310	2312.5		2307.5	2310	2312.5		2307.5	2310	2312.5	
			MHz	MHz	MHz				MHz	MHz	MHz			
30 / 5M	1	0	22.89	22.91	22.90	0	21.49	21.48	21.39	1	20.49	20.53	20.44	2
	1	12	22.79	22.85	22.56	0	21.33	21.33	21.21	1	20.46	20.40	20.40	2
	1	24	22.55	22.76	22.71	0	21.43	21.44	21.37	1	20.40	20.50	20.34	2
	12	0	21.42	21.24	21.33	1	20.46	20.44	20.28	2	19.53	19.52	19.28	3
	12	6	21.48	21.26	21.24	1	20.29	20.14	20.29	2	19.62	19.36	19.61	3
	12	13	21.43	21.13	21.27	1	20.35	20.47	20.35	2	19.59	19.40	19.40	3
	25	0	21.20	21.32	21.52	1	20.39	20.44	20.37	2	19.59	19.49	19.52	3

Band / BW	RB Size	RB Offset	QPSK		3GPP MPR (dB)	16QAM		3GPP MPR (dB)	64QAM		3GPP MPR (dB)
			Mid CH	27710		Mid CH	27710		Mid CH	27710	
			2310	2310		2310	2310		2310		
			MHz	MHz		MHz	MHz		MHz		
30 / 10M	1	0	22.86	27710	0	21.25	27710	1	20.44	27710	2
	1	24	22.64	2310	0	21.18	2310	1	20.43	2310	2
	1	49	22.81	MHz	0	21.32	MHz	1	20.25	MHz	2
	25	0	21.33		1	20.24		2	19.45		3
	25	12	21.41		1	20.24		2	19.29		3
	25	25	21.21		1	20.45		2	19.33		3
	50	0	21.37		1	20.38		2	19.40		3

LTE Band 38

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			37775	38000	38225		37775	38000	38225		37775	38000	38225	
			2572.5	2595	2617.5		2572.5	2595	2617.5		2572.5	2595	2617.5	
			MHz	MHz	MHz				MHz	MHz	MHz			
38 / 5M	1	0	23.47	23.38	23.46	0	22.07	22.43	22.42	1	20.12	21.33	21.41	2
	1	12	23.46	23.37	23.30	0	21.95	22.19	22.08	1	21.00	21.09	20.98	2
	1	24	23.37	23.36	23.41	0	22.06	22.41	22.21	1	21.11	21.31	21.04	2
	12	0	22.03	22.15	22.44	1	21.96	21.13	21.33	2	20.94	20.18	20.60	3
	12	6	22.09	22.26	22.31	1	21.18	21.13	21.32	2	20.05	20.04	20.34	3
	12	13	22.23	21.96	22.45	1	21.13	21.19	21.34	2	19.83	20.19	20.58	3
	25	0	22.21	22.13	22.31	1	21.26	21.15	21.46	2	20.37	20.12	20.46	3

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			37800	38000	38200		37800	38000	38200		37800	38000	38200	
			2575	2595	2615		2575	2595	2615		2575	2595	2615	
			MHz	MHz	MHz				MHz	MHz	MHz			
38 / 10M	1	0	23.34	23.44	23.46	0	22.32	21.97	22.52	1	21.22	21.02	21.55	2
	1	24	23.21	23.23	23.43	0	22.31	21.74	22.48	1	21.21	20.84	21.41	2
	1	49	23.33	23.44	23.44	0	22.23	22.14	22.49	1	21.19	21.01	21.43	2
	25	0	22.33	22.10	22.38	1	21.31	21.26	21.45	2	20.23	20.30	20.36	3
	25	12	22.17	22.17	22.35	1	21.21	21.23	21.31	2	20.32	20.40	20.28	3
	25	25	22.01	22.09	22.36	1	21.22	21.24	21.56	2	20.38	20.11	20.65	3
	50	0	22.09	22.11	22.39	1	21.30	21.13	21.50	2	20.24	20.24	20.49	3

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			37825	38000	38175		37825	38000	38175		37825	38000	38175	
			2577.5	2595	2612.5		2577.5	2595	2612.5		2577.5	2595	2612.5	
			MHz	MHz	MHz				MHz	MHz	MHz			
38 / 15M	1	0	23.18	23.29	23.30	0	21.87	23.25	22.18	1	20.78	22.11	21.01	2
	1	37	23.11	23.02	23.29	0	21.64	22.16	21.74	1	20.60	21.21	20.85	2
	1	74	23.10	23.16	23.21	0	21.66	22.98	21.94	1	20.77	21.94	21.00	2
	36	0	22.06	21.92	22.08	1	20.84	20.73	21.16	2	20.17	19.64	20.03	3
	36	19	21.96	21.65	21.69	1	20.72	20.76	21.07	2	19.92	19.83	20.18	3
	36	39	21.97	22.11	22.14	1	20.82	20.86	20.92	2	19.94	20.02	20.14	3
	75	0	22.05	21.72	22.09	1	21.15	20.88	21.10	2	19.86	19.88	20.07	3

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			37850	38000	38150		37850	38000	38150		37850	38000	38150	
			2580	2595	2610		2580	2595	2610		2580	2595	2610	
			MHz	MHz	MHz				MHz	MHz	MHz			
38 / 20M	1	0	23.36	23.39	23.42	0	22.34	22.25	22.51	1	21.49	21.27	21.49	2
	1	50	23.35	23.25	23.41	0	22.21	22.00	22.31	1	21.28	21.26	21.34	2
	1	99	23.26	23.24	23.26	0	22.31	21.82	22.43	1	21.32	21.09	21.42	2
	50	0	22.11	22.33	22.17	1	21.06	21.47	21.45	2	20.25	20.41	20.16	3
	50	25	22.11	22.06	22.28	1	21.26	21.39	21.25	2	20.30	20.22	20.32	3
	50	50	22.02	22.06	22.10	1	21.12	21.32	21.25	2	20.10	20.22	20.13	3
	100	0	22.07	22.02	22.28	1	21.21	21.40	21.28	2	20.26	20.38	20.19	3

LTE Band 41

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			39675	40620	41565		39675	40620	41565		39675	40620	41565	
			2498.5	2593	2687.5		2498.5	2593	2687.5		2498.5	2593	2687.5	
			MHz	MHz	MHz		MHz	MHz	MHz		MHz	MHz	MHz	
41/ 5M	1	0	23.30	23.55	23.40	0	22.11	22.47	22.15	1	21.19	21.19	21.23	2
	1	12	23.30	23.42	23.39	0	22.01	22.40	22.07	1	21.18	21.10	21.16	2
	1	24	23.29	23.24	23.29	0	22.08	22.42	21.93	1	21.10	21.18	21.15	2
	12	0	21.98	22.33	22.06	1	21.90	21.17	21.08	2	20.10	20.17	19.94	3
	12	6	21.88	22.07	21.83	1	21.04	21.34	21.07	2	20.02	20.13	20.10	3
	12	13	21.94	22.13	21.99	1	20.88	21.34	20.89	2	19.95	20.16	20.19	3
	25	0	21.86	22.24	21.80	1	21.12	21.30	21.01	2	20.25	20.30	20.17	3

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			39700	40620	41540		39700	40620	41540		39700	40620	41540	
			2501	2593	2685		2501	2593	2685		2501	2593	2685	
			MHz	MHz	MHz		MHz	MHz	MHz		MHz	MHz	MHz	
41/ 10M	1	0	23.35	23.53	23.47	0	22.35	22.33	22.47	1	21.36	21.18	21.27	2
	1	12	23.33	23.44	23.46	0	22.15	21.96	22.22	1	21.35	21.16	21.24	2
	1	24	23.29	23.33	23.37	0	22.14	21.92	22.15	1	21.13	21.11	21.14	2
	12	0	22.05	22.25	22.12	1	21.14	21.29	21.33	2	20.19	20.20	20.24	3
	12	6	21.93	22.16	21.95	1	21.10	21.41	21.09	2	20.04	20.11	20.27	3
	12	13	21.98	22.30	22.02	1	20.89	21.40	21.23	2	20.11	20.09	20.20	3
	25	0	21.93	22.25	22.12	1	21.02	21.28	21.22	2	20.16	20.26	20.13	3

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			39725	40620	41515		39725	40620	41515		39725	40620	41515	
			2503.5	2593	2682.5		2503.5	2593	2682.5		2503.5	2593	2682.5	
			MHz	MHz	MHz		MHz	MHz	MHz		MHz	MHz	MHz	
41/ 15M	1	0	23.31	23.51	23.36	0	22.10	23.34	22.12	1	21.15	21.26	21.17	2
	1	12	23.23	23.27	23.35	0	22.09	22.25	22.10	1	20.99	21.12	21.16	2
	1	24	23.30	23.29	23.32	0	22.00	22.01	22.11	1	20.96	21.25	21.15	2
	12	0	22.08	22.34	22.13	1	21.00	21.14	21.15	2	20.21	20.08	20.17	3
	12	6	22.01	22.05	22.09	1	21.06	22.16	21.02	2	20.31	20.20	20.07	3
	12	13	21.96	22.36	22.04	1	20.99	21.20	21.04	2	20.22	20.25	20.17	3
	25	0	21.83	22.33	22.37	1	21.03	21.17	21.13	2	20.34	20.25	20.24	3

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			39750	40620	41490		39750	40620	41490		39750	40620	41490	
			2506	2593	2680		2506	2593	2680		2506	2593	2680	
			MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz		
41/ 20M	1	0	23.46	22.12	22.20	0	22.28	22.21	22.27	1	21.33	21.27	21.19	2
	1	12	23.28	21.96	22.06	0	22.27	22.01	22.18	1	21.27	21.18	21.17	2
	1	24	23.36	21.73	21.90	0	22.26	22.02	22.16	1	21.18	21.20	21.12	2
	12	0	22.25	21.15	21.19	1	21.23	21.29	21.31	2	20.12	20.17	20.33	3
	12	6	21.98	21.28	21.02	1	21.15	21.48	21.14	2	20.07	20.33	20.26	3
	12	13	21.95	21.09	21.09	1	21.14	21.32	21.15	2	20.25	20.28	20.33	3
	25	0	22.05	21.15	21.11	1	20.93	21.25	21.25	2	20.29	20.35	20.19	3

LTE Band 66

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			131979	132322	132665		131979	132322	132665		131979	132322	132665	
			1710.7	1745	1779.3		1710.7	1745	1779.3		1710.7	1745	1779.3	
			MHz	MHz	MHz		MHz	MHz	MHz		MHz	MHz	MHz	
66 / 1.4M	1	0	23.52	23.58	23.35	0	22.04	22.23	22.30	1	21.39	21.41	21.34	2
	1	2	23.45	23.48	23.31	0	22.02	22.19	22.02	1	21.30	21.26	21.30	2
	1	5	23.39	23.33	23.26	0	21.90	22.15	22.17	1	21.08	21.28	21.23	2
	3	0	23.10	22.99	23.11	0	22.06	22.20	22.24	1	21.28	21.14	21.20	2
	3	1	23.13	23.15	23.28	0	22.20	22.26	22.27	1	21.26	21.32	21.34	2
	3	3	23.10	23.05	22.99	0	22.01	22.10	22.34	1	21.19	21.17	21.22	2
	6	0	22.26	22.06	22.28	1	21.24	21.23	21.19	2	20.21	20.40	20.28	3

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			131987	132322	132657		131987	132322	132657		131987	132322	132657	
			1711.5	1745	1778.5		1711.5	1745	1778.5		1711.5	1745	1778.5	
			MHz	MHz	MHz		MHz	MHz	MHz		MHz	MHz	MHz	
66 / 3M	1	0	23.33	23.48	23.51	0	22.23	22.29	22.27	1	21.22	21.39	21.34	2
	1	7	23.29	23.22	23.29	0	22.22	22.08	22.15	1	20.99	21.22	21.22	2
	1	14	23.24	23.46	23.50	0	22.12	22.38	22.31	1	21.20	21.35	21.27	2
	8	0	22.21	22.17	22.16	1	21.31	21.20	21.23	2	20.19	20.27	20.22	3
	8	3	22.09	22.18	22.24	1	21.14	21.14	21.32	2	20.13	20.16	20.22	3
	8	7	22.29	22.23	22.06	1	21.12	21.24	21.31	2	20.27	20.15	20.17	3
	15	0	22.34	22.32	22.25	1	21.22	21.28	21.23	2	20.15	20.16	20.38	3

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			131997	132322	132647		131997	132322	132647		131997	132322	132647	
			1712.5	1745	1777.5		1712.5	1745	1777.5		1712.5	1745	1777.5	
			MHz	MHz	MHz		MHz	MHz	MHz		MHz	MHz	MHz	
66 / 5M	1	0	23.49	23.60	23.42	0	22.33	22.43	22.24	1	21.39	21.20	21.25	2
	1	12	23.43	23.28	23.32	0	22.12	22.34	22.20	1	21.14	21.14	21.09	2
	1	24	23.47	23.41	23.37	0	22.26	22.40	22.18	1	21.34	21.14	21.16	2
	12	0	22.28	22.27	22.30	1	21.31	21.29	21.30	2	19.99	20.27	20.27	3
	12	6	22.09	22.29	22.24	1	21.21	21.21	21.16	2	20.07	20.12	20.05	3
	12	13	22.17	22.13	22.20	1	21.16	21.24	21.25	2	20.10	20.06	20.20	3
	25	0	21.99	22.23	22.12	1	21.18	21.20	21.23	2	20.21	20.26	20.26	3

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			132022	132322	132622		132022	132322	132622		132022	132322	132622	
			1715	1745	1775		1715	1745	1775		1715	1745	1775	
			MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz		
66 / 10M	1	0	23.52	23.47	23.41	0	22.32	22.32	22.29	1	21.09	21.26	21.37	2
	1	24	23.42	23.29	23.33	0	22.21	22.09	22.28	1	20.91	21.12	21.27	2
	1	49	23.51	23.32	23.22	0	22.23	22.24	21.26	1	21.01	21.16	21.19	2
	25	0	22.26	22.12	22.34	1	21.35	21.31	21.12	2	20.22	20.13	20.17	3
	25	12	22.09	22.30	22.17	1	21.18	21.13	21.19	2	20.26	20.22	20.22	3
	25	25	22.00	22.16	22.27	1	21.11	21.22	21.12	2	20.17	20.06	20.26	3
	50	0	22.16	22.25	22.38	1	21.20	21.11	21.12	2	20.22	20.21	20.10	3

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			132047	132322	132597		132047	132322	132597		132047	132322	132597	
			1717.5	1745	1772.5		1717.5	1745	1772.5		1717.5	1745	1772.5	
			MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz			
66 / 15M	1	0	23.54	23.28	23.41	0	22.38	22.22	22.27	1	21.26	21.33	21.32	2
	1	37	23.43	23.38	23.41	0	22.21	22.16	22.12	1	21.24	21.31	21.10	2
	1	74	23.46	23.37	23.34	0	22.37	22.20	22.21	1	21.16	21.27	21.30	2
	36	0	22.26	22.29	22.10	1	21.30	21.20	21.25	2	20.17	20.15	20.11	3
	36	19	22.15	22.18	22.30	1	21.17	21.05	21.17	2	20.30	20.29	20.14	3
	36	39	22.25	22.12	22.15	1	21.17	21.09	21.08	2	20.12	20.22	20.20	3
	75	0	22.13	22.30	22.24	1	21.28	21.24	21.12	2	20.16	20.16	20.21	3

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			132072	132322	132572		132072	132322	132572		132072	132322	132572	
			1720	1745	1770		1720	1745	1770		1720	1745	1770	
			MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz			
66 / 20M	1	0	23.50	23.59	23.38	0	22.17	22.23	22.32	1	21.22	21.40	21.25	2
	1	50	23.39	23.26	23.37	0	22.06	22.20	22.15	1	21.19	21.34	21.18	2
	1	99	23.29	23.39	23.22	0	22.16	22.21	22.25	1	21.20	21.21	21.17	2
	50	0	22.04	22.15	22.24	1	21.07	21.23	21.25	2	20.15	20.35	20.19	3
	50	25	22.00	22.20	22.23	1	21.21	21.31	21.13	2	20.00	20.24	20.35	3
	50	50	22.19	22.14	22.26	1	21.16	21.18	21.18	2	20.23	20.30	20.08	3
	100	0	22.14	22.26	22.15	1	21.18	21.29	21.32	2	20.12	20.10	20.26	3

EIRP / ERP POWER

Band	WCDMA B4		
Channel	1312	1413	1513
Rx Channel	1537	1638	1738
Frequency	1712.4	1732.6	1752.6
RMC 12.2K	23.56	23.70	23.52
Gain (dBi)	5.99	5.99	5.99
Max EIRP Power (dBm)	29.55	29.69	29.51

LTE Band 4

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			19957	20175	20393		19957	20175	20393		19957	20175	20393	
			1710.7	1732.5	1754.3		1710.7	1732.5	1754.3		1710.7	1732.5	1754.3	
			MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz				
4 / 1.4M	1	0	23.47	23.57	23.38	0	22.14	22.38	22.05	1	21.39	21.41	21.27	2
Gain (dBi)			5.99	5.99	5.99		5.99	5.99	5.99		5.99	5.99	5.99	
Max EIRP Power (dBm)			29.46	29.56	29.37		28.13	28.37	28.04		27.38	27.40	27.26	

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			19965	20175	20385		19965	20175	20385		19965	20175	20385	
			1711.5	1732.5	1753.5		1711.5	1732.5	1753.5		1711.5	1732.5	1753.5	
			MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz				
4 / 3M	1	0	23.42	23.58	23.33	0	22.26	22.43	22.46	1	21.32	21.28	21.51	2
Gain (dBi)			5.99	5.99	5.99		5.99	5.99	5.99		5.99	5.99		
Max EIRP Power (dBm)			29.41	29.57	29.32		28.25	28.42	28.45		27.31	27.27	27.50	

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			19975	20175	20375		19975	20175	20375		19975	20175	20375	
			1712.5	1732.5	1752.5		1712.5	1732.5	1752.5		1712.5	1732.5	1752.5	
			MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz				
4 / 5M	1	0	23.35	23.59	23.34	0	22.25	22.58	22.26	1	21.20	21.43	21.33	2
Gain (dBi)			5.99	5.99	5.99		5.99	5.99	5.99		5.99	5.99		
Max EIRP Power (dBm)			29.34	29.58	29.33		28.24	28.57	28.25		27.19	27.42	27.32	

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			20000	20175	20350		20000	20175	20350		20000	20175	20350	
			1715	1732.5	1750		1715	1732.5	1750		1715	1732.5	1750	
			MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz				
4 / 10M	1	0	23.21	23.54	23.41	0	22.47	22.40	22.49	1	21.54	21.56	21.32	2
Gain (dBi)			5.99	5.99	5.99		5.99	5.99	5.99		5.99	5.99		
Max EIRP Power (dBm)			29.20	29.53	29.40		28.46	28.39	28.48		27.53	27.55	27.31	

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			20025	20175	20325		20025	20175	20325		20025	20175	20325	
			1717.5	1732.5	1747.5		1717.5	1732.5	1747.5		1717.5	1732.5	1747.5	
			MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz			
4 / 15M	1	0	23.46	23.39	23.49	0	22.40	22.42	22.59	1	21.30	21.45	21.50	2
Gain (dBi)			5.99	5.99	5.99		5.99	5.99	5.99		5.99	5.99	5.99	
Max EIRP Power (dBm)			29.45	29.38	29.48		28.39	28.41	28.58		27.29	27.44	27.49	

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			20050	20175	20300		20050	20175	20300		20050	20175	20300	
			1720	1732.5	1745		1720	1732.5	1745		1720	1732.5	1745	
			MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz				
4 / 20M	1	0	23.38	23.61	23.36	0	22.52	22.50	22.39	1	21.56	21.52	21.39	2
Gain (dBi)			5.99	5.99	5.99		5.99	5.99	5.99		5.99	5.99		
Max EIRP Power (dBm)			29.37	29.60	29.35		28.51	28.49	28.38		27.55	27.51	27.38	

LTE Band 7

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			20775	21100	21425		20775	21100	21425		20775	21100	21425	
			MHz	MHz	MHz		MHz	MHz	MHz		MHz	MHz	MHz	
7 / 5M	1	0	23.15	23.39	23.13	0	22.09	22.34	22.43	1	21.19	21.38	21.17	2
Gain (dBi)		5.2	5.2	5.2	5.2		5.2	5.2	5.2					
Max EIRP Power (dBm)		28.35	28.59	28.33	27.29		27.54	27.63	26.39		26.58	26.37		

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			20800	21100	21400		20800	21100	21400		20800	21100	21400	
			MHz	MHz	MHz		MHz	MHz	MHz		MHz	MHz	MHz	
7 / 10M	1	0	23.37	23.51	23.31	0	22.29	22.20	22.27	1	21.12	21.34	21.22	2
Gain (dBi)		5.2	5.2	5.2	5.2		5.2	5.2	5.2					
Max EIRP Power (dBm)		28.57	28.71	28.51	27.49		27.40	27.47	26.32		26.54	26.42		

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			20825	21100	21375		20825	21100	21375		20825	21100	21375	
			MHz	MHz	MHz		MHz	MHz	MHz		MHz	MHz	MHz	
7 / 15M	1	0	23.44	23.54	23.31	0	22.03	22.41	22.15	1	21.15	21.42	21.32	2
Gain (dBi)		5.2	5.2	5.2	5.2		5.2	5.2	5.2					
Max EIRP Power (dBm)		28.64	28.74	28.51	27.23		27.61	27.35	26.35		26.62	26.52		

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			20850	21100	21350		20850	21100	21350		20850	21100	21350	
			MHz	MHz	MHz		MHz	MHz	MHz		MHz	MHz	MHz	
7 / 20M	1	0	23.47	23.47	23.45	0	22.23	22.15	22.24	1	21.22	21.14	21.19	2
Gain (dBi)		5.2	5.2	5.2	5.2		5.2	5.2	5.2					
Max EIRP Power (dBm)		28.67	28.67	28.65	27.43		27.35	27.44	26.42		26.34	26.39		

LTE Band 12

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)	
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		
			23017	23095	23173		23017	23095	23173		23017	23095	23173		
			699.7	707.5	715.3		699.7	707.5	715.3		699.7	707.5	715.3		
			MHz	MHz	MHz				MHz	MHz	MHz				
12 / 1.4M	1	0	23.74	23.80	23.73	0	22.57	22.64	22.56	1	21.49	21.42	21.54	2	
Gain (dBi)			4.17	4.17	4.17		4.17	4.17	4.17		4.17	4.17	4.17		4.17
Isotropically Factor (dBc)			2.15	2.15	2.15		2.15	2.15	2.15		2.15	2.15	2.15		2.15
Max ERP Power (dBm)			25.76	25.82	25.75		24.59	24.66	24.58		23.51	23.44	23.56		

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			23025	23095	23165		23025	23095	23165		23025	23095	23165	
			700.5	707.5	714.5		700.5	707.5	714.5		700.5	707.5	714.5	
			MHz	MHz	MHz				MHz	MHz	MHz			
12 / 3M	1	0	23.67	23.77	23.77	0	22.73	22.56	22.53	1	21.62	21.70	21.65	2
Gain (dBi)			4.17	4.17	4.17		4.17	4.17	4.17		4.17	4.17	4.17	
Isotropically Factor (dBc)			2.15	2.15	2.15		2.15	2.15	2.15		2.15	2.15	2.15	
Max ERP Power (dBm)			25.69	25.79	25.79		24.75	24.58	24.55		23.64	23.72	23.67	

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			23035	23095	23155		23035	23095	23155		23035	23095	23155	
			701.5	707.5	713.5		701.5	707.5	713.5		701.5	707.5	713.5	
			MHz	MHz	MHz				MHz	MHz	MHz			
12 / 5M	1	0	23.68	23.72	23.70	0	22.74	22.53	22.70	1	21.63	21.67	21.63	2
Gain (dBi)			4.17	4.17	4.17		4.17	4.17	4.17		4.17	4.17	4.17	
Isotropically Factor (dBc)			2.15	2.15	2.15		2.15	2.15	2.15		2.15	2.15	2.15	
Max ERP Power (dBm)			25.70	25.74	25.72		24.76	24.55	24.72		23.65	23.69	23.65	

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			23060	23095	23130		23060	23095	23130		23060	23095	23130	
			704	707.5	711		704	707.5	711		704	707.5	711	
			MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz			
12 / 10M	1	0	23.65	23.62	23.62	0	22.64	22.56	22.57	1	21.49	21.46	21.68	2
Gain (dBi)			4.17	4.17	4.17		4.17	4.17	4.17		4.17	4.17	4.17	
Isotropically Factor (dBc)			2.15	2.15	2.15		2.15	2.15	2.15		2.15	2.15	2.15	
Max ERP Power (dBm)			25.67	25.64	25.64		24.66	24.58	24.59		23.51	23.48	23.70	

LTE Band 13

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			23205	23230	23255		23205	23230	23255		23205	23230	23255	
			779.5	782	784.5		779.5	782	784.5		779.5	782	784.5	
			MHz	MHz	MHz				MHz	MHz	MHz			
13 / 5M	1	0	23.61	23.65	23.51	0	22.54	22.42	22.49	1	21.43	21.46	21.27	2
Gain (dBi)		3.05	3.05	3.05	3.05		3.05	3.05						
Isotropically Factor (dBc)		2.15	2.15	2.15	2.15		2.15	2.15						
Max ERP Power (dBm)		24.51	24.55	24.41	23.44		23.32	23.39	22.33		22.36	22.17		

Band / BW	RB Size	RB Offset	QPSK		3GPP MPR (dB)	16QAM		3GPP MPR (dB)	64QAM		3GPP MPR (dB)
			Mid CH	Mid CH		Mid CH	Mid CH				
			23230	23230		23230	23230				
			782	782		782	782				
			MHz	MHz		MHz	MHz				
13 / 10M	1	0	23.61		0	22.70		1	21.40		2
Gain (dBi)		3.05		3.05							
Isotropically Factor (dBc)		2.15		2.15							
Max ERP Power (dBm)		24.51		23.60			22.30				

LTE Band 17

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			23755	23790	23825		23755	23790	23825		23755	23790	23825	
			706.5	710	713.5		706.5	710	713.5		706.5	710	713.5	
			MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz			
17 / 5M	1	0	23.74	23.73	23.72	0	22.50	22.65	22.72	1	21.64	21.63	21.68	2
Gain (dBi)		4.17	4.17	4.17	4.17		4.17	4.17						
Isotropically Factor (dBc)		2.15	2.15	2.15	2.15		2.15	2.15						
Max ERP Power (dBm)		25.76	25.75	25.74	24.52		24.67	24.74	23.66		23.65	23.70		

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			23780	23790	23800		23780	23790	23800		23780	23790	23800	
			709	710	711		709	710	711		709	710	711	
			MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz				
17 / 10M	1	0	23.53	23.58	23.52	0	22.47	22.66	22.59	1	21.59	21.59	21.64	2
Gain (dBi)		4.17	4.17	4.17	4.17		4.17	4.17						
Isotropically Factor (dBc)		2.15	2.15	2.15	2.15		2.15	2.15						
Max ERP Power (dBm)		25.55	25.60	25.54	24.49		24.68	24.61	23.61		23.61	23.66		

LTE Band 38

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			37775	38000	38225		37775	38000	38225		37775	38000	38225	
			2572.5	2595	2617.5		2572.5	2595	2617.5		2572.5	2595	2617.5	
			MHz	MHz	MHz		MHz	MHz	MHz		MHz	MHz	MHz	
38 / 5M	1	24	23.47	23.38	23.46	0	22.07	22.43	22.42	1	20.12	21.33	21.41	2
Gain (dBi)			4.82	4.82	4.82		4.82	4.82	4.82		4.82	4.82	4.82	
Max EIRP Power (dBm)			28.29	28.20	28.28		26.89	27.25	27.24		26.89	27.25	27.24	

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			37800	38000	38200		37800	38000	38200		37800	38000	38200	
			2575	2595	2615		2575	2595	2615		2575	2595	2615	
			MHz	MHz	MHz		MHz	MHz	MHz		MHz	MHz	MHz	
38 / 10M	1	49	23.34	23.44	23.46	0	22.32	21.97	22.52	1	21.22	21.02	21.55	2
Gain (dBi)			4.82	4.82	4.82		4.82	4.82	4.82		4.82	4.82		
Max EIRP Power (dBm)			28.16	28.26	28.28		27.14	26.79	27.34		27.14	26.79	27.34	

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			37825	38000	38175		37825	38000	38175		37825	38000	38175	
			2577.5	2595	2612.5		2577.5	2595	2612.5		2577.5	2595	2612.5	
			MHz	MHz	MHz		MHz	MHz	MHz		MHz	MHz	MHz	
38 / 15M	1	0	23.18	23.29	23.30	0	21.87	23.25	22.18	1	20.78	22.11	21.01	2
Gain (dBi)			4.82	4.82	4.82		4.82	4.82	4.82		4.82	4.82		
Max EIRP Power (dBm)			28.00	28.11	28.12		26.69	28.07	27.00		26.69	28.07	27.00	

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			37850	38000	38150		37850	38000	38150		37850	38000	38150	
			2580	2595	2610		2580	2595	2610		2580	2595	2610	
			MHz	MHz	MHz		MHz	MHz	MHz		MHz	MHz	MHz	
38 / 20M	1	50	23.36	23.39	23.42	0	22.34	22.25	22.51	1	21.49	21.27	21.49	2
Gain (dBi)			4.82	4.82	4.82		4.82	4.82	4.82		4.82	4.82		
Max EIRP Power (dBm)			28.18	28.21	28.24		27.16	27.07	27.33		27.16	27.07	27.33	

LTE Band 41

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			39675	40620	41565		39675	40620	41565		39675	40620	41565	
			2498.5	2593	2687.5		2498.5	2593	2687.5		2498.5	2593	2687.5	
			MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz				
41 / 5M	1	0	23.30	23.55	23.40	0	22.11	22.47	22.15	1	21.19	21.19	21.23	2
Gain (dBi)			5.38	5.38	5.38		5.38	5.38	5.38		5.38	5.38		
Max EIRP Power (dBm)			28.68	28.93	28.78		27.49	27.85	27.53		26.57	26.57	26.61	

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			39700	40620	41540		39700	40620	41540		39700	40620	41540	
			2501	2593	2685		2501	2593	2685		2501	2593	2685	
			MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz				
41 / 10M	1	0	23.35	23.53	23.47	0	22.35	22.33	22.47	1	21.36	21.18	21.27	2
Gain (dBi)			5.38	5.38	5.38		5.38	5.38	5.38		5.38	5.38		
Max EIRP Power (dBm)			28.73	28.91	28.85		27.73	27.71	27.85		26.74	26.56	26.65	

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			39725	40620	41515		39725	40620	41515		39725	40620	41515	
			2503.5	2593	2682.5		2503.5	2593	2682.5		2503.5	2593	2682.5	
			MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz				
41 / 15M	1	0	23.31	23.51	23.36	0	22.10	23.34	22.12	1	21.15	21.26	21.17	2
Gain (dBi)			5.38	5.38	5.38		5.38	5.38	5.38		5.38	5.38		
Max EIRP Power (dBm)			28.69	28.89	28.74		27.48	28.72	27.50		26.53	26.64	26.55	

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			39750	40620	41490		39750	40620	41490		39750	40620	41490	
			2506	2593	2680		2506	2593	2680		2506	2593	2680	
			MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz				
41 / 20M	1	0	23.46	22.12	22.20	0	22.28	22.21	22.27	1	21.33	21.27	21.19	2
Gain (dBi)			5.38	5.38	5.38		5.38	5.38	5.38		5.38	5.38		
Max EIRP Power (dBm)			28.84	27.50	27.58		27.66	27.59	27.65		26.71	26.65	26.57	

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Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			131979	132322	132665		131979	132322	132665		131979	132322	132665	
			1710.7	1745	1779.3		1710.7	1745	1779.3		1710.7	1745	1779.3	
			MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz				
66 / 1.4M	1	0	23.52	23.58	23.35	0	22.04	22.23	22.30	1	21.39	21.41	21.34	2
Gain (dBi)		5.99	5.99	5.99	5.99		5.99	5.99	5.99		5.99	5.99	5.99	
Max EIRP Power (dBm)		29.51	29.57	29.34	28.03		28.22	28.29	27.38		27.40	27.33		

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			131987	132322	132657		131987	132322	132657		131987	132322	132657	
			1711.5	1745	1778.5		1711.5	1745	1778.5		1711.5	1745	1778.5	
			MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz				
66 / 3M	1	0	23.33	23.48	23.51	0	22.23	22.29	22.27	1	21.22	21.39	21.34	2
Gain (dBi)		5.99	5.99	5.99	5.99		5.99	5.99	5.99		5.99	5.99		
Max EIRP Power (dBm)		29.32	29.47	29.50	28.22		28.28	28.26	27.21		27.38	27.33		

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			131997	132322	132647		131997	132322	132647		131997	132322	132647	
			1712.5	1745	1777.5		1712.5	1745	1777.5		1712.5	1745	1777.5	
			MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz				
66 / 5M	1	0	23.49	23.60	23.42	0	22.33	22.43	22.24	1	21.39	21.20	21.25	2
Gain (dBi)		5.99	5.99	5.99	5.99		5.99	5.99	5.99		5.99	5.99		
Max EIRP Power (dBm)		29.48	29.59	29.41	28.32		28.42	28.23	27.38		27.19	27.24		

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			132022	132322	132622		132022	132322	132622		132022	132322	132622	
			1715	1745	1775		1715	1745	1775		1715	1745	1775	
			MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz				
66 / 10M	1	0	23.52	23.47	23.41	0	22.32	22.32	22.29	1	21.09	21.26	21.37	2
Gain (dBi)		5.99	5.99	5.99	5.99		5.99	5.99	5.99		5.99	5.99		
Max EIRP Power (dBm)		29.51	29.46	29.40	28.31		28.31	28.28	27.08		27.25	27.36		

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			132047	132322	132597		132047	132322	132597		132047	132322	132597	
			1717.5	1745	1772.5		1717.5	1745	1772.5		1717.5	1745	1772.5	
			MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz				
66 / 15M	1	0	23.54	23.28	23.41	0	22.38	22.22	22.27	1	21.26	21.33	21.32	2
Gain (dBi)		5.99	5.99	5.99	5.99		5.99	5.99	5.99		5.99	5.99		
Max EIRP Power (dBm)		29.53	29.27	29.40	28.37		28.21	28.26	27.25		27.32	27.31		

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)	64QAM			3GPP MPR (dB)
			Low CH	Mid CH	High CH		Low CH	Mid CH	High CH		Low CH	Mid CH	High CH	
			132072	132322	132572		132072	132322	132572		132072	132322	132572	
			1720	1745	1770		1720	1745	1770		1720	1745	1770	
			MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz			
66 / 20M	1	0	23.50	23.59	23.38	0	22.17	22.23	22.32	1	21.22	21.40	21.25	2
Gain (dBi)			5.99	5.99	5.99		5.99	5.99	5.99		5.99	5.99	5.99	
Max EIRP Power (dBm)			29.49	29.58	29.37		28.16	28.22	28.31		27.21	27.39	27.24	

EIRP Power Density

LTE Band 30

QPSK / 5M

Channel	Frequency (MHz)	Antenna Polarization	LVL (dBm/5MHz)	Correction Factor(dB)	EIRP Power Density (dBm/5MHz)	EIRP Power Density (mW /5MHz)
27685	2307.5	H	17.11	6.46	23.57	227.58
27710	2310	H	17.06	6.46	23.52	224.97
27735	2312.5	H	17.05	6.46	23.51	224.45

Note: The worst case vertical or horizontal polarization have been investigated and find the worst is horizontal.

QPSK / 10M

Channel	Frequency (MHz)	Antenna Polarization	LVL (dBm/5MHz)	Correction Factor(dB)	EIRP Power Density (dBm/5MHz)	EIRP Power Density (mW /5MHz)
27710	2310	H	17.01	6.46	23.47	222.39

Note: The worst case vertical or horizontal polarization have been investigated and find the worst is horizontal.

16QAM / 5M

Channel	Frequency (MHz)	Antenna Polarization	LVL (dBm/5MHz)	Correction Factor(dB)	EIRP Power Density (dBm/5MHz)	EIRP Power Density (mW /5MHz)
27685	2307.5	H	16.41	6.46	22.87	193.70
27710	2310	H	16.62	6.46	23.08	203.29
27735	2312.5	H	16.48	6.46	22.94	196.85

Note: The worst case vertical or horizontal polarization have been investigated and find the worst is horizontal.

16QAM / 10M

Channel	Frequency (MHz)	Antenna Polarization	LVL (dBm/5MHz)	Correction Factor(dB)	EIRP Power Density (dBm/5MHz)	EIRP Power Density (mW /5MHz)
27710	2310	H	16.56	6.46	23.02	200.50

Note: The worst case vertical or horizontal polarization have been investigated and find the worst is horizontal.

64QAM / 5M

Channel	Frequency (MHz)	Antenna Polarization	LVL (dBm/5MHz)	Correction Factor(dB)	EIRP Power Density (dBm/5MHz)	EIRP Power Density (mW /5MHz)
27685	2307.5	H	16.46	6.46	22.92	195.94
27710	2310	H	16.25	6.46	22.71	186.69
27735	2312.5	H	16.29	6.46	22.75	188.42

Note: The worst case vertical or horizontal polarization have been investigated and find the worst is horizontal.

64QAM / 10M

Channel	Frequency (MHz)	Antenna Polarization	LVL (dBm/5MHz)	Correction Factor(dB)	EIRP Power Density (dBm/5MHz)	EIRP Power Density (mW /5MHz)
27710	2310	H	16.21	6.46	22.67	184.98

Note: The worst case vertical or horizontal polarization have been investigated and find the worst is horizontal.

4.2 Radiated Emission Measurement

4.2.1 Limits of Radiated Emission Measurement

According to FCC 27.53(a)(4) For mobile and portable stations operating in the 2305-2315 MHz and 2350-2360 MHz bands: (i) By a factor of not less than: $43 + 10 \log (P)$ dB on all frequencies between 2305 and 2320 MHz and on all frequencies between 2345 and 2360 MHz that are outside the licensed band(s) of operation, not less than $55 + 10 \log (P)$ dB on all frequencies between 2320 and 2324 MHz and on all frequencies between 2341 and 2345 MHz, not less than $61 + 10 \log (P)$ dB on all frequencies between 2324 and 2328 MHz and on all frequencies between 2337 and 2341 MHz, and not less than $67 + 10 \log (P)$ dB on all frequencies between 2328 and 2337 MHz; (ii) By a factor of not less than $43 + 10 \log (P)$ dB on all frequencies between 2300 and 2305 MHz, $55 + 10 \log (P)$ dB on all frequencies between 2296 and 2300 MHz, $61 + 10 \log (P)$ dB on all frequencies between 2292 and 2296 MHz, $67 + 10 \log (P)$ dB on all frequencies between 2288 and 2292 MHz, and $70 + 10 \log (P)$ dB below 2288 MHz; (iii) By a factor of not less than $43 + 10 \log (P)$ dB on all frequencies between 2360 and 2365 MHz, and not less than $70 + 10 \log (P)$ dB above 2365 MHz.

According to FCC 27.53 (c) For operations in the 746-758 MHz band and the 776-788 MHz band, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:

- (1) On any frequency outside the 746-758 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least $43 + 10 \log (P)$ dB;
- (2) On any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least $43 + 10 \log (P)$ dB;
- (3) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than $76 + 10 \log (P)$ dB in a 6.25 kHz band segment, for base and fixed stations;
- (4) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than $65 + 10 \log (P)$ dB in a 6.25 kHz band segment, for mobile and portable stations;
- (5) Compliance with the provisions of paragraphs (c)(1) and (c)(2) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 30 kHz may be employed;
- (6) Compliance with the provisions of paragraphs (c)(3) and (c)(4) of this section is based on the use of measurement instrumentation such that the reading taken with any resolution bandwidth setting should be adjusted to indicate spectral energy in a 6.25 kHz segment.

According to FCC 27.53(f) For operations in the 746–758 MHz, 775–788 MHz, and 805–806 MHz bands, emissions in the band 1559–1610 MHz shall be limited to -70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and -80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth.

According to FCC 27.53(g) For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log (P)$ dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

According to FCC 27.53(h) AWS emission limits— General protection levels. Except as otherwise specified below, for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log (P)$ dB.

According to FCC 27.53(v)(4) For mobile digital stations, the attenuation factor shall be not less than $40 + 10 \log (P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log (P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log (P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than $43 + 10 \log (P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log (P)$ dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

4.2.2 Test Procedure

- a. The power was measured with Spectrum Analyzer. All measurements were done at 3 channels (low, middle and high channel of operational frequency range.)
- b. Substitution method is used for EIRP measurement. In the semi-anechoic chamber, EUT placed on the 0.8m/1.5m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- c. Follow ANSI 63.26 section 5.2.7 d), EIRP Value (dBm) = Read Value (dB μ V/m) - Correction Factor @ 3m
- d. Correction Factor (dB) @ 3m = $20\log(D) - 104.8$; where D is the measurement distance @ 3m = -95.26dB

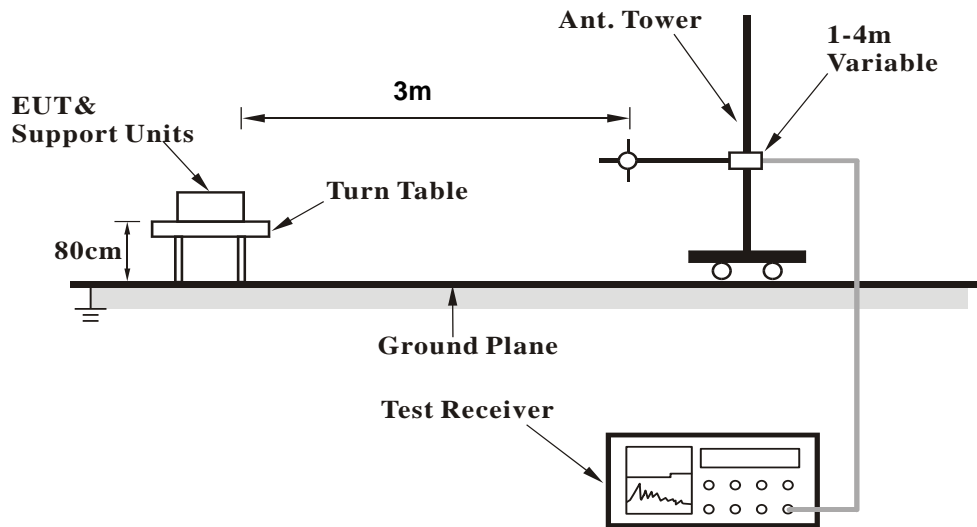
NOTE: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.

4.2.3 Deviation from Test Standard

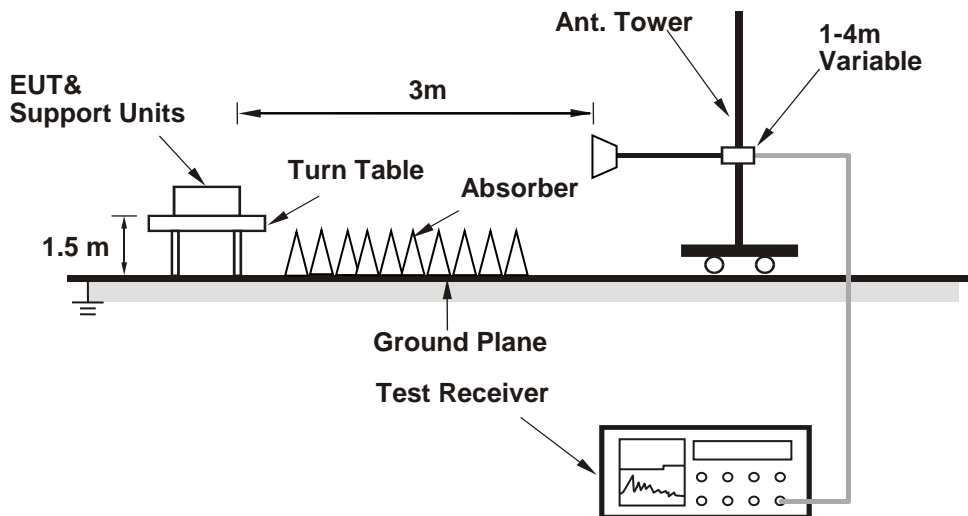
No deviation.

4.2.4 Test Setup

For Below 1GHz



For Above 1GHz:



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.2.5 Test Results

Below 1GHz

WCDMA:

Mode	TX channel 1413	Frequency Range	Below 1000 MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M						
No.	Freq. (MHz)	Reading (dB μ V/m)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	83.08	32.97	-95.26	-62.29	-13	-49.29
2	138.04	28.38	-95.26	-66.88	-13	-53.88
3	291.05	27.45	-95.26	-67.81	-13	-54.81
4	348.42	30.14	-95.26	-65.12	-13	-52.12
5	469.86	29.9	-95.26	-65.36	-13	-52.36
6	736.45	27.05	-95.26	-68.21	-13	-55.21
Antenna Polarity & Test Distance: Vertical at 3 M						
No.	Freq. (MHz)	Reading (dB μ V/m)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	66.54	27.67	-95.26	-67.59	-13	-54.59
2	92.45	29.21	-95.26	-66.05	-13	-53.05
3	129.22	26.19	-95.26	-69.07	-13	-56.07
4	238.93	26.63	-95.26	-68.63	-13	-55.63
5	509.55	28.13	-95.26	-67.13	-13	-54.13
6	609.56	29.27	-95.26	-65.99	-13	-52.99

Remarks:

1. Follow ANSI 63.26 section 5.2.7 d), EIRP Value (dBm) = E (dB μ V/m) - Correction Factor @ 3m.
2. Correction Factor (dB) = 20log(D) - 104.8; where D is the measurement distance @ 3m.

LTE Band 4: 20MHz

Mode	TX channel 20175	Frequency Range	Below 1000 MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M						
No.	Freq. (MHz)	Reading (dB μ V/m)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	83.61	33.11	-95.26	-62.15	-13	-49.15
2	137.41	29.77	-95.26	-65.49	-13	-52.49
3	292.03	28.25	-95.26	-67.01	-13	-54.01
4	348.64	30.4	-95.26	-64.86	-13	-51.86
5	470.83	31.35	-95.26	-63.91	-13	-50.91
6	736.9	27.76	-95.26	-67.50	-13	-54.50
Antenna Polarity & Test Distance: Vertical at 3 M						
No.	Freq. (MHz)	Reading (dB μ V/m)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	66.31	28.38	-95.26	-66.88	-13	-53.88
2	92.81	29.3	-95.26	-65.96	-13	-52.96
3	130.1	27.54	-95.26	-67.72	-13	-54.72
4	238.51	27.09	-95.26	-68.17	-13	-55.17
5	509.39	28.83	-95.26	-66.43	-13	-53.43
6	608.7	29.64	-95.26	-65.62	-13	-52.62

Remarks:

1. Follow ANSI 63.26 section 5.2.7 d), EIRP Value (dBm) = E (dB μ V/m) - Correction Factor @ 3m.
2. Correction Factor (dB) = 20log(D) - 104.8; where D is the measurement distance @ 3m.

LTE Band 7: 15MHz

Mode	TX channel 21100	Frequency Range	Below 1000 MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M						
No.	Freq. (MHz)	Reading (dB μ V/m)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	85.66	28.41	-95.26	-66.85	-25	-41.85
2	135.76	28.97	-95.26	-66.29	-25	-41.29
3	290.91	27.13	-95.26	-68.13	-25	-43.13
4	346.61	26.72	-95.26	-68.54	-25	-43.54
5	472.36	27.99	-95.26	-67.27	-25	-42.27
6	734.8	28.65	-95.26	-66.61	-25	-41.61
Antenna Polarity & Test Distance: Vertical at 3 M						
No.	Freq. (MHz)	Reading (dB μ V/m)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	65.47	32.77	-95.26	-62.49	-25	-37.49
2	92.28	31.07	-95.26	-64.19	-25	-39.19
3	130.39	28.12	-95.26	-67.14	-25	-42.14
4	238.46	30.39	-95.26	-64.87	-25	-39.87
5	509.39	30.98	-95.26	-64.28	-25	-39.28
6	608.47	27.39	-95.26	-67.87	-25	-42.87

Remarks:

1. Follow ANSI 63.26 section 5.2.7 d), EIRP Value (dBm) = E (dB μ V/m) - Correction Factor @ 3m.
2. Correction Factor (dB) = 20log(D) - 104.8; where D is the measurement distance @ 3m.

LTE Band 12: 1.4MHz

Mode	TX channel 23095	Frequency Range	Below 1000 MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M

No.	Freq. (MHz)	Reading (dB μ V/m)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	84.55	32.63	-95.26	-62.63	-13	-49.63
2	136.61	30.23	-95.26	-65.03	-13	-52.03
3	288.67	29.11	-95.26	-66.15	-13	-53.15
4	348.59	30.85	-95.26	-64.41	-13	-51.41
5	470.55	30.82	-95.26	-64.44	-13	-51.44
6	737.4	26.71	-95.26	-68.55	-13	-55.55

Antenna Polarity & Test Distance: Vertical at 3 M

No.	Freq. (MHz)	Reading (dB μ V/m)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	66.06	28.65	-95.26	-66.61	-13	-53.61
2	92.81	29.65	-95.26	-65.61	-13	-52.61
3	130.1	27.25	-95.26	-68.01	-13	-55.01
4	237.5	27.41	-95.26	-67.85	-13	-54.85
5	510.08	28.81	-95.26	-66.45	-13	-53.45
6	608.2	28.1	-95.26	-67.16	-13	-54.16

Remarks:

1. Follow ANSI 63.26 section 5.2.7 d), EIRP Value (dBm) = E (dB μ V/m) - Correction Factor @ 3m.
2. Correction Factor (dB) = $20\log(D) - 104.8$; where D is the measurement distance @ 3m.

LTE Band 13: 5MHz

Mode	TX channel 23230	Frequency Range	Below 1000 MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M						
No.	Freq. (MHz)	Reading (dB μ V/m)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	83.04	33.16	-95.26	-62.10	-13	-49.10
2	136.11	31.24	-95.26	-64.02	-13	-51.02
3	289.91	29.08	-95.26	-66.18	-13	-53.18
4	347.51	30.06	-95.26	-65.20	-13	-52.20
5	470.73	29.85	-95.26	-65.41	-13	-52.41
6	736.13	27.03	-95.26	-68.23	-13	-55.23
Antenna Polarity & Test Distance: Vertical at 3 M						
No.	Freq. (MHz)	Reading (dB μ V/m)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	66.26	26.75	-95.26	-68.51	-13	-55.51
2	92.54	29.2	-95.26	-66.06	-13	-53.06
3	130.73	26.47	-95.26	-68.79	-13	-55.79
4	238.75	27.16	-95.26	-68.10	-13	-55.10
5	509.51	27.73	-95.26	-67.53	-13	-54.53
6	607.15	29.05	-95.26	-66.21	-13	-53.21

Remarks:

1. Follow ANSI 63.26 section 5.2.7 d), EIRP Value (dBm) = E (dB μ V/m) - Correction Factor @ 3m.
2. Correction Factor (dB) = 20log(D) - 104.8; where D is the measurement distance @ 3m.

LTE Band 17: 5MHz

Mode	TX channel 23755	Frequency Range	Below 1000 MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M						
No.	Freq. (MHz)	Reading (dB μ V/m)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	84.66	32.64	-95.26	-62.62	-13	-49.62
2	137.6	30.4	-95.26	-64.86	-13	-51.86
3	290.34	28.54	-95.26	-66.72	-13	-53.72
4	348.9	30.64	-95.26	-64.62	-13	-51.62
5	470.8	30.92	-95.26	-64.34	-13	-51.34
6	736.36	27.05	-95.26	-68.21	-13	-55.21
Antenna Polarity & Test Distance: Vertical at 3 M						
No.	Freq. (MHz)	Reading (dB μ V/m)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	65.72	26.38	-95.26	-68.88	-13	-55.88
2	91.29	29.24	-95.26	-66.02	-13	-53.02
3	129.28	27.71	-95.26	-67.55	-13	-54.55
4	238.57	27.5	-95.26	-67.76	-13	-54.76
5	510.01	28.42	-95.26	-66.84	-13	-53.84
6	607.2	28.68	-95.26	-66.58	-13	-53.58

Remarks:

1. Follow ANSI 63.26 section 5.2.7 d), EIRP Value (dBm) = E (dB μ V/m) - Correction Factor @ 3m.
2. Correction Factor (dB) = 20log(D) - 104.8; where D is the measurement distance @ 3m.

LTE Band 30: 5MHz

Mode	TX channel 27710	Frequency Range	Below 1000 MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M						
No.	Freq. (MHz)	Reading (dB μ V/m)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	84.41	33.16	-95.26	-62.10	-40	-22.10
2	137.27	31.35	-95.26	-63.91	-40	-23.91
3	289.33	28.74	-95.26	-66.52	-40	-26.52
4	347.96	30.74	-95.26	-64.52	-40	-24.52
5	471.23	30.07	-95.26	-65.19	-40	-25.19
6	735.6	26.56	-95.26	-68.70	-40	-28.70
Antenna Polarity & Test Distance: Vertical at 3 M						
No.	Freq. (MHz)	Reading (dB μ V/m)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	65.23	26.36	-95.26	-68.90	-40	-28.90
2	92.55	30.04	-95.26	-65.22	-40	-25.22
3	130.15	27.92	-95.26	-67.34	-40	-27.34
4	237.24	26.73	-95.26	-68.53	-40	-28.53
5	510.02	28.38	-95.26	-66.88	-40	-26.88
6	607.18	28.74	-95.26	-66.52	-40	-26.52

Remarks:

1. Follow ANSI 63.26 section 5.2.7 d), EIRP Value (dBm) = E (dB μ V/m) - Correction Factor @ 3m.
2. Correction Factor (dB) = 20log(D) - 104.8; where D is the measurement distance @ 3m.

LTE Band 38: 5MHz

Mode	TX channel 37775	Frequency Range	Below 1000 MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M						
No.	Freq. (MHz)	Reading (dB μ V/m)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	83.67	32.63	-95.26	-62.63	-25	-37.63
2	137.45	30.24	-95.26	-65.02	-25	-40.02
3	289.89	29.42	-95.26	-65.84	-25	-40.84
4	348.72	30.03	-95.26	-65.23	-25	-40.23
5	470.99	30.79	-95.26	-64.47	-25	-39.47
6	736.69	27.39	-95.26	-67.87	-25	-42.87
Antenna Polarity & Test Distance: Vertical at 3 M						
No.	Freq. (MHz)	Reading (dB μ V/m)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	66.88	28.92	-95.26	-66.34	-25	-41.34
2	92.79	30.09	-95.26	-65.17	-25	-40.17
3	129	28.01	-95.26	-67.25	-25	-42.25
4	237.27	26.31	-95.26	-68.95	-25	-43.95
5	509.61	27.96	-95.26	-67.30	-25	-42.30
6	606.71	28.05	-95.26	-67.21	-25	-42.21

Remarks:

1. Follow ANSI 63.26 section 5.2.7 d), EIRP Value (dBm) = E (dB μ V/m) - Correction Factor @ 3m.
2. Correction Factor (dB) = 20log(D) - 104.8; where D is the measurement distance @ 3m.

LTE Band 41: 5MHz

Mode	TX channel 40620	Frequency Range	Below 1000 MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M

No.	Freq. (MHz)	Reading (dB μ V/m)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	83.3	32.76	-95.26	-62.50	-25	-37.50
2	136.94	30.25	-95.26	-65.01	-25	-40.01
3	289.51	29.58	-95.26	-65.68	-25	-40.68
4	348	30.1	-95.26	-65.16	-25	-40.16
5	471.12	30.77	-95.26	-64.49	-25	-39.49
6	736	26.05	-95.26	-69.21	-25	-44.21

Antenna Polarity & Test Distance: Vertical at 3 M

No.	Freq. (MHz)	Reading (dB μ V/m)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	65.95	26.43	-95.26	-68.83	-25	-43.83
2	91.83	29.53	-95.26	-65.73	-25	-40.73
3	130.39	28.18	-95.26	-67.08	-25	-42.08
4	237.94	26.36	-95.26	-68.90	-25	-43.90
5	508.69	28.59	-95.26	-66.67	-25	-41.67
6	607.97	28.62	-95.26	-66.64	-25	-41.64

Remarks:

1. Follow ANSI 63.26 section 5.2.7 d), EIRP Value (dBm) = E (dB μ V/m) - Correction Factor @ 3m.
2. Correction Factor (dB) = $20\log(D) - 104.8$; where D is the measurement distance @ 3m.

LTE Band 66: 5MHz

Mode	TX channel 132322	Frequency Range	Below 1000 MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M

No.	Freq. (MHz)	Reading (dB μ V/m)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	84.77	33.25	-95.26	-62.01	-13	-49.01
2	137.14	31.07	-95.26	-64.19	-13	-51.19
3	289.62	28.35	-95.26	-66.91	-13	-53.91
4	347.04	30.98	-95.26	-64.28	-13	-51.28
5	469.5	30.68	-95.26	-64.58	-13	-51.58
6	737.18	27.11	-95.26	-68.15	-13	-55.15

Antenna Polarity & Test Distance: Vertical at 3 M

No.	Freq. (MHz)	Reading (dB μ V/m)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	65.49	28.26	-95.26	-67.00	-13	-54.00
2	92.85	30.16	-95.26	-65.10	-13	-52.10
3	130.55	27.57	-95.26	-67.69	-13	-54.69
4	238.61	26.59	-95.26	-68.67	-13	-55.67
5	508.89	28.26	-95.26	-67.00	-13	-54.00
6	607.95	28.34	-95.26	-66.92	-13	-53.92

Remarks:

1. Follow ANSI 63.26 section 5.2.7 d), EIRP Value (dBm) = E (dB μ V/m) - Correction Factor @ 3m.
2. Correction Factor (dB) = $20\log(D) - 104.8$; where D is the measurement distance @ 3m.

Above 1GHz

WCDMA:

Mode	TX channel 1413	Frequency Range	Above 1000 MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M						
No.	Freq. (MHz)	Reading (dB μ V/m)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3465.2	38.49	-95.26	-56.77	-13	-43.77
2	5197.8	45.12	-95.26	-50.14	-13	-37.14
3	6930.4	46.22	-95.26	-49.04	-13	-36.04
4	8663	47.34	-95.26	-47.92	-13	-34.92
Antenna Polarity & Test Distance: Vertical at 3 M						
No.	Freq. (MHz)	Reading (dB μ V/m)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3465.2	37.59	-95.26	-57.67	-13	-44.67
2	5197.8	43.55	-95.26	-51.71	-13	-38.71
3	6930.4	44.59	-95.26	-50.67	-13	-37.67
4	8663	48.56	-95.26	-46.70	-13	-33.70

Remarks:

1. Follow ANSI 63.26 section 5.2.7 d), EIRP Value (dBm) = E (dB μ V/m) - Correction Factor @ 3m.
2. Correction Factor (dB) = $20\log(D) - 104.8$; where D is the measurement distance @ 3m.

LTE Band 4: 20MHz

Mode	TX channel 20175	Frequency Range	Above 1000 MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M						
No.	Freq. (MHz)	Reading (dB μ V/m)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3465	36.44	-95.26	-58.82	-13	-45.82
2	5197.5	44.04	-95.26	-51.22	-13	-38.22
3	6930	47.76	-95.26	-47.50	-13	-34.50
4	8662.5	48.34	-95.26	-46.92	-13	-33.92
Antenna Polarity & Test Distance: Vertical at 3 M						
No.	Freq. (MHz)	Reading (dB μ V/m)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3465	42.47	-95.26	-52.79	-13	-39.79
2	5197.5	40.05	-95.26	-55.21	-13	-42.21
3	6930	41.88	-95.26	-53.38	-13	-40.38
4	8662.5	43.68	-95.26	-51.58	-13	-38.58

Remarks:

1. Follow ANSI 63.26 section 5.2.7 d), EIRP Value (dBm) = E (dB μ V/m) - Correction Factor @ 3m.
2. Correction Factor (dB) = $20\log(D) - 104.8$; where D is the measurement distance @ 3m.

LTE Band 7: 15MHz

Mode	TX channel 21100	Frequency Range	Above 1000 MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M						
No.	Freq. (MHz)	Reading (dB μ V/m)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	5070	40.76	-95.26	-54.50	-25	-29.50
2	7605	45.33	-95.26	-49.93	-25	-24.93
3	10140	47.32	-95.26	-47.94	-25	-22.94
4	12675	52.57	-95.26	-42.69	-25	-17.69
Antenna Polarity & Test Distance: Vertical at 3 M						
No.	Freq. (MHz)	Reading (dB μ V/m)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	5070	32.69	-95.26	-62.57	-25	-37.57
2	7605	49.11	-95.26	-46.15	-25	-21.15
3	10140	56.46	-95.26	-38.80	-25	-13.80
4	12675	50.54	-95.26	-44.72	-25	-19.72

Remarks:

1. Follow ANSI 63.26 section 5.2.7 d), EIRP Value (dBm) = E (dB μ V/m) - Correction Factor @ 3m.
2. Correction Factor (dB) = 20log(D) - 104.8; where D is the measurement distance @ 3m.

LTE Band 12: 1.4MHz

Mode	TX channel 23095	Frequency Range	Above 1000 MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M

No.	Freq. (MHz)	Reading (dB μ V/m)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1415	40.73	-95.26	-54.53	-13	-41.53
2	2122.5	45.22	-95.26	-50.04	-13	-37.04
3	2830	45.94	-95.26	-49.32	-13	-36.32
4	3537.5	49.06	-95.26	-46.20	-13	-33.20

Antenna Polarity & Test Distance: Vertical at 3 M

No.	Freq. (MHz)	Reading (dB μ V/m)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1415	38.54	-95.26	-56.72	-13	-43.72
2	2122.5	49.67	-95.26	-45.59	-13	-32.59
3	2830	50.5	-95.26	-44.76	-13	-31.76
4	3537.5	52.28	-95.26	-42.98	-13	-29.98

Remarks:

1. Follow ANSI 63.26 section 5.2.7 d), EIRP Value (dBm) = E (dB μ V/m) - Correction Factor @ 3m.
2. Correction Factor (dB) = 20log(D) - 104.8; where D is the measurement distance @ 3m.

LTE Band 13: 5MHz

Mode	TX channel 23230	Frequency Range	Above 1000 MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M						
No.	Freq. (MHz)	Reading (dB μ V/m)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1564	40.61	-95.26	-54.65	-40	-14.65
2	2346	48.23	-95.26	-47.03	-13	-34.03
3	3128	50.11	-95.26	-45.15	-13	-32.15
4	3910	50.72	-95.26	-44.54	-13	-31.54
Antenna Polarity & Test Distance: Vertical at 3 M						
No.	Freq. (MHz)	Reading (dB μ V/m)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1564	34.6	-95.26	-60.66	-40	-20.66
2	2346	48.71	-95.26	-46.55	-13	-33.55
3	3128	55.64	-95.26	-39.62	-13	-26.62
4	3910	52.31	-95.26	-42.95	-13	-29.95

Remarks:

1. Follow ANSI 63.26 section 5.2.7 d), EIRP Value (dBm) = E (dB μ V/m) - Correction Factor @ 3m.
2. Correction Factor (dB) = 20log(D) - 104.8; where D is the measurement distance @ 3m.

LTE Band 17: 5MHz

Mode	TX channel 23755	Frequency Range	Above 1000 MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M						
No.	Freq. (MHz)	Reading (dB μ V/m)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1413	38.88	-95.26	-56.38	-13	-43.38
2	2119.5	46.05	-95.26	-49.21	-13	-36.21
3	2826	48.08	-95.26	-47.18	-13	-34.18
4	3532.5	50.08	-95.26	-45.18	-13	-32.18
Antenna Polarity & Test Distance: Vertical at 3 M						
No.	Freq. (MHz)	Reading (dB μ V/m)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1413	35.91	-95.26	-59.35	-13	-46.35
2	2119.5	49.86	-95.26	-45.40	-13	-32.40
3	2826	53.29	-95.26	-41.97	-13	-28.97
4	3532.5	53.21	-95.26	-42.05	-13	-29.05

Remarks:

1. Follow ANSI 63.26 section 5.2.7 d), EIRP Value (dBm) = E (dB μ V/m) - Correction Factor @ 3m.
2. Correction Factor (dB) = 20log(D) - 104.8; where D is the measurement distance @ 3m.

LTE Band 30: 5MHz

Mode	TX channel 27710	Frequency Range	Above 1000 MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M						
No.	Freq. (MHz)	Reading (dB μ V/m)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	4620	42.34	-95.26	-52.92	-40	-12.92
2	6930	45.38	-95.26	-49.88	-40	-9.88
3	9240	48.08	-95.26	-47.18	-40	-7.18
4	11550	50.31	-95.26	-44.95	-40	-4.95
Antenna Polarity & Test Distance: Vertical at 3 M						
No.	Freq. (MHz)	Reading (dB μ V/m)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	4620	34.71	-95.26	-60.55	-40	-20.55
2	6930	49.66	-95.26	-45.60	-40	-5.60
3	9240	46.1	-95.26	-49.16	-40	-9.16
4	11550	51.19	-95.26	-44.07	-40	-4.07

Remarks:

1. Follow ANSI 63.26 section 5.2.7 d), EIRP Value (dBm) = E (dB μ V/m) - Correction Factor @ 3m.
2. Correction Factor (dB) = 20log(D) - 104.8; where D is the measurement distance @ 3m.

LTE Band 38: 5MHz

Mode	TX channel 37775	Frequency Range	Above 1000 MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M						
No.	Freq. (MHz)	Reading (dB μ V/m)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	5145	41.24	-95.26	-54.02	-25	-29.02
2	7717.5	47.34	-95.26	-47.92	-25	-22.92
3	10290	47.1	-95.26	-48.16	-25	-23.16
4	12862.5	47.71	-95.26	-47.55	-25	-22.55
Antenna Polarity & Test Distance: Vertical at 3 M						
No.	Freq. (MHz)	Reading (dB μ V/m)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	5145	31.82	-95.26	-63.44	-25	-38.44
2	7717.5	48.77	-95.26	-46.49	-25	-21.49
3	10290	56.25	-95.26	-39.01	-25	-14.01
4	12862.5	51.78	-95.26	-43.48	-25	-18.48

Remarks:

1. Follow ANSI 63.26 section 5.2.7 d), EIRP Value (dBm) = E (dB μ V/m) - Correction Factor @ 3m.
2. Correction Factor (dB) = 20log(D) - 104.8; where D is the measurement distance @ 3m.

LTE Band 41: 5MHz

Mode	TX channel 40620	Frequency Range	Above 1000 MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M

No.	Freq. (MHz)	Reading (dB μ V/m)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	5186	42.81	-95.26	-52.45	-25	-27.45
2	7779	46.1	-95.26	-49.16	-25	-24.16
3	10372	48.35	-95.26	-46.91	-25	-21.91
4	12965	49.86	-95.26	-45.40	-25	-20.40

Antenna Polarity & Test Distance: Vertical at 3 M

No.	Freq. (MHz)	Reading (dB μ V/m)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	5186	33.98	-95.26	-61.28	-25	-36.28
2	7779	47.84	-95.26	-47.42	-25	-22.42
3	10372	53.31	-95.26	-41.95	-25	-16.95
4	12965	50.6	-95.26	-44.66	-25	-19.66

Remarks:

1. Follow ANSI 63.26 section 5.2.7 d), EIRP Value (dBm) = E (dB μ V/m) - Correction Factor @ 3m.
2. Correction Factor (dB) = 20log(D) - 104.8; where D is the measurement distance @ 3m.

LTE Band 66: 5MHz

Mode	TX channel 132322	Frequency Range	Above 1000 MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M

No.	Freq. (MHz)	Reading (dB μ V/m)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3490	39.9	-95.26	-55.36	-13	-42.36
2	5235	41.71	-95.26	-53.55	-13	-40.55
3	6980	45.08	-95.26	-50.18	-13	-37.18
4	8725	50.71	-95.26	-44.55	-13	-31.55

Antenna Polarity & Test Distance: Vertical at 3 M

No.	Freq. (MHz)	Reading (dB μ V/m)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3490	37.47	-95.26	-57.79	-13	-44.79
2	5235	40.65	-95.26	-54.61	-13	-41.61
3	6980	48.15	-95.26	-47.11	-13	-34.11
4	8725	44.17	-95.26	-51.09	-13	-38.09

Remarks:

1. Follow ANSI 63.26 section 5.2.7 d), EIRP Value (dBm) = E (dB μ V/m) - Correction Factor @ 3m.
2. Correction Factor (dB) = 20log(D) - 104.8; where D is the measurement distance @ 3m.

5 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo).

Appendix – Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

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The address and road map of all our labs can be found in our web site also.

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