FCC Test Report
(Spot Check: ENDC: n12+Band 2/66)

Report No.:	RF200109E02E-11
FCC ID:	2AQ68T99W175M
Original FCC ID:	2AQ68T99W175
Test Model:	T99W175M
Received Date:	May 29, 2020
Test Date:	Jul. 03 ~ Aug. 11, 2020
Issued Date:	Aug. 11, 2020
Applicant:	Hon Lin Technology Co., Ltd.
Address:	11F, No. 32, Jihu Rd., Neihu Dist., Taipei City 114, Taiwan R.O.C.
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Lin Kou Laboratories
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan
Test Location:	No.19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, Taiwan
FCC Registration / Designation Number:	788550 / TW0003

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Release Control Record

Issue No.	Description	Date Issued
RF200109E02E-11	Original release	Aug. 11, 2020

1 Certificate of Conformity

Product:	5G WWAN Module
Brand:	Foxconn
Test Model:	T99W175M
Sample Status:	Engineering Sample
Applicant:	Hon Lin Technology Co., Ltd.
Test Date:	Jul. 03 ~ Aug. 11, 2020
Standards:	FCC Part 24, Subpart E FCC Part 27, Subpart H, L

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 RF characteristics under the conditions specified in this report.

Prepared by : Pettie Chen , **Date:** Aug. 11, 2020

Pettie Chen / Senior Specialist

Approved by : Bruce Chen , **Date:** Aug. 11, 2020

Bruce Chen / Senior Project Engineer

2 Summary of Test Results

Applied Standard: FCC Part 24 & Part 2			
FCC Clause	Test Item	Result	Remarks
2.1046 24.232	Effective radiated power	Pass	Meet the requirement of limit.
2.1053 24.238	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -29.5dB at 93.26MHz.

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

Applied Standard: FCC Part 27 & Part 2				
FCC Clause		Test Item	Result	Remarks
n12	LTE Band 66			
2.1046 27.50 (d)(4)	2.1046 27.50 (d)(4)	Equivalent Isotropically Radiated Power / Equivalent Radiated Power	Pass	Meet the requirement of limit.
2.1053 27.53(h)	2.1053 27.53(h)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -31.6dB at 83.42MHz.

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) (±)
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	3.04 dB
	30MHz ~ 200MHz	3.63 dB
	200MHz ~1000MHz	3.64 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	2.29 dB
	18GHz ~ 40GHz	2.29 dB

2.2 Test Site and Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver KEYSIGHT	N9038A	MY55420137	Apr. 16, 2020	Apr. 15, 2021
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100039	Jun. 12, 2020	Jun. 11, 2021
BILOG Antenna SCHWARZBECK	VULB9168	9168-160	Nov. 07, 2019	Nov. 06, 2020
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-1169	Nov. 24, 2019	Nov. 23, 2020
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Nov. 24, 2019	Nov. 23, 2020
Preamplifier Agilent (Below 1GHz)	8447D	2944A10638	Jun. 08, 2020	Jun. 07, 2021
Preamplifier Agilent (Above 1GHz)	8449B	3008A02367	Feb. 18, 2020	Feb. 17, 2021
RF signal cable HUBER+SUHNER&EMCI	SUCOFLEX 104 & EMC104-SM-SM8000	CABLE-CH9-02 (248780+171006)	Jan. 18, 2020	Jan. 17, 2021
RF signal cable HUBER+SUHNER	SUCOFLEX 104	CABLE-CH9-(250795/4)	Jan. 18, 2020	Jan. 17, 2021
RF signal cable Woken	8D-FB	Cable-CH9-01	Jun. 08, 2020	Jun. 07, 2021
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	NA	NA	NA
Antenna Tower EMCO	2070/2080	512.835.4684	NA	NA
Turn Table EMCO	2087-2.03	NA	NA	NA
Antenna Tower &Turn BV ADT	AT100	AT93021705	NA	NA
Turn Table BV ADT	TT100	TT93021705	NA	NA
Turn Table Controller BV ADT	SC100	SC93021705	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
WIT Standard Temperature And Humidity Chamber	TH-4S-C	W981030	Jun. 01, 2020	May 31, 2021
JFW 20dB attenuation	50HF-020-SMA	NA	NA	NA
True RMS Clamp Meter Fluke	325	31130711WS	Jun. 06, 2020	Jun. 05, 2021
DC power supply	U8002A	MY56330015	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 HwaYa Chamber 9.

3 General Information

3.1 General Description of EUT

Product	5G WWAN Module
Brand	Foxconn
Test Model	T99W175M
Sample Status	Engineering Sample
Power Supply Rating	5 Vdc (Host equipment) 3.135Vdc~3.63Vdc (Module)

n12

Modulation Type	$\pi/2$ BPSK, QPSK, 16QAM, 64QAM, 256QAM					
Waveform Type	CP-OFDM, DFT-s-OFDM					
Operating Frequency	n12 (Channel Bandwidth 5MHz)	701.5MHz ~ 713.5MHz				
	n12 (Channel Bandwidth 10MHz)	704.0MHz ~ 711.0MHz				
	n12 (Channel Bandwidth 15MHz)	706.5MHz ~ 708.5MHz				
Max. ERP Power		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
	n12 (Channel Bandwidth 5MHz)	338.065mW (25.29dBm)	328.095mW (25.16dBm)	310.456mW (24.92dBm)	301.995mW (24.80dBm)	166.725mW (22.22dBm)
	n12 (Channel Bandwidth 10MHz)	326.588mW (25.14dBm)	321.366mW (25.07dBm)	312.608mW (24.95dBm)	297.167mW (24.73dBm)	171.791mW (22.35dBm)
	n12 (Channel Bandwidth 15MHz)	332.660mW (25.22dBm)	324.340mW (25.11dBm)	323.594mW (25.10dBm)	297.852mW (24.74dBm)	162.555mW (22.11dBm)
Emission Designator		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
	n12 (Channel Bandwidth 5MHz)	4M49G7D	4M49G7D	4M49D7W	4M49D7W	4M49D7W
	n12 (Channel Bandwidth 10MHz)	8M96G7D	8M96G7D	8M96D7W	8M95D7W	8M96D7W
	n12 (Channel Bandwidth 15MHz)	13M5G7D	13M5G7D	13M4D7W	13M4D7W	13M4D7W

LTE Band

Modulation Type	QPSK, 16QAM, 64QAM, 256QAM					
Operating Frequency	LTE Band 2	Channel Bandwidth 1.4MHz	1850.7MHz ~1909.3MHz			
		Channel Bandwidth 3MHz	1851.5MHz ~1908.5MHz			
		Channel Bandwidth 5MHz	1852.5MHz ~1907.5MHz			
		Channel Bandwidth 10MHz	1855.0MHz ~1905.0MHz			
		Channel Bandwidth 15MHz	1857.5MHz ~1902.5MHz			
		Channel Bandwidth 20MHz	1860.0MHz ~1900.0MHz			
	LTE Band 66	Channel Bandwidth 1.4MHz	1710.7MHz ~ 1779.3MHz			
		Channel Bandwidth 3MHz	1711.5MHz ~ 1778.5MHz			
		Channel Bandwidth 5MHz	1712.5MHz ~ 1777.5MHz			
		Channel Bandwidth 10MHz	1715.0MHz ~ 1775.0MHz			
		Channel Bandwidth 15MHz	1717.5MHz ~ 1772.5MHz			
		Channel Bandwidth 20MHz	1720.0MHz ~ 1770.0MHz			

Max. EIRP Power			QPSK	16QAM	64QAM	256QAM
	LTE Band 2	Channel Bandwidth 1.4MHz	561.048mW (27.49dBm)	437.522mW (26.41dBm)	350.752mW (25.45dBm)	267.917mW (24.28dBm)
		Channel Bandwidth 3MHz	540.754mW (27.33dBm)	441.570mW (26.45dBm)	345.144mW (25.38dBm)	260.615mW (24.16dBm)
		Channel Bandwidth 5MHz	548.277mW (27.39dBm)	430.527mW (26.34dBm)	347.536mW (25.41dBm)	264.241mW (24.22dBm)
		Channel Bandwidth 10MHz	535.797mW (27.29dBm)	427.563mW (26.31dBm)	347.536mW (25.41dBm)	281.838mW (24.50dBm)
		Channel Bandwidth 15MHz	540.754mW (27.33dBm)	435.512mW (26.39dBm)	353.183mW (25.48dBm)	280.543mW (24.48dBm)
		Channel Bandwidth 20MHz	555.904mW (27.45dBm)	440.555mW (26.44dBm)	345.144mW (25.38dBm)	287.078mW (24.58dBm)
	LTE Band 66	Channel Bandwidth 1.4MHz	524.807mW (27.20dBm)	408.319mW (26.11dBm)	334.965mW (25.25dBm)	255.270mW (24.07dBm)
		Channel Bandwidth 3MHz	523.600mW (27.19dBm)	411.150mW (26.14dBm)	336.512mW (25.27dBm)	261.216mW (24.17dBm)
		Channel Bandwidth 5MHz	518.800mW (27.15dBm)	413.048mW (26.16dBm)	328.852mW (25.17dBm)	254.097mW (24.05dBm)
		Channel Bandwidth 10MHz	516.416mW (27.13dBm)	409.261mW (26.12dBm)	328.852mW (25.17dBm)	263.633mW (24.21dBm)
		Channel Bandwidth 15MHz	534.564mW (27.28dBm)	425.598mW (26.29dBm)	331.131mW (25.20dBm)	263.633mW (24.21dBm)
		Channel Bandwidth 20MHz	522.396mW (27.18dBm)	421.697mW (26.25dBm)	330.370mW (25.19dBm)	261.216mW (24.17dBm)

Emission Designator			QPSK	16QAM	64QAM	256QAM
	LTE Band 2	Channel Bandwidth 1.4MHz	1M09G7D	1M09D7W	1M09D7W	1M09D7W
		Channel Bandwidth 3MHz	2M70G7D	2M70D7W	2M70D7W	2M70D7W
		Channel Bandwidth 5MHz	4M49G7D	4M49D7W	4M50D7W	4M49D7W
		Channel Bandwidth 10MHz	8M96G7D	8M97D7W	8M97D7W	8M96D7W
		Channel Bandwidth 15MHz	13M5G7D	13M5D7W	13M5D7W	13M5D7W
		Channel Bandwidth 20MHz	18M0G7D	18M0D7W	18M0D7W	18M0D7W
	LTE Band 66	Channel Bandwidth 1.4MHz	1M09G7D	1M09D7W	1M09D7W	1M09D7W
		Channel Bandwidth 3MHz	2M70G7D	2M70D7W	2M70D7W	2M70D7W
		Channel Bandwidth 5MHz	4M49G7D	4M49D7W	4M50D7W	4M49D7W
		Channel Bandwidth 10MHz	8M96G7D	8M97D7W	8M97D7W	8M97D7W
		Channel Bandwidth 15MHz	13M5G7D	13M5D7W	13M5D7W	13M5D7W
		Channel Bandwidth 20MHz	18M0G7D	18M0D7W	18M0D7W	18M0D7W

Antenna Type	Refer to Note as below
Antenna Connector	Refer to Note as below
Accessory Device	NA
Cable Supplied	NA

Output Power / Emission Designator	n12+LTE Band 2		MAX EIRP / ERP	Sum Bandwidth
		n12 (ERP)	359.749mW (25.56dBm)	22M4D7W
		LTE Band 2 (EIRP)	583.445mW (27.66dBm)	
			EIRP / ERP	MAX Sum Bandwidth
		n12 (ERP)	332.660mW (25.22dBm)	31M5D7W
		LTE Band 2 (EIRP)	462.381mW (26.65dBm)	
	n12+LTE Band 66		MAX EIRP / ERP	Sum Bandwidth
		n12 (ERP)	359.749mW (25.56dBm)	7M18D7W
		LTE Band 66 (EIRP)	558.470mW (27.47dBm)	
			EIRP / ERP	MAX Sum Bandwidth
		n12 (ERP)	332.660mW (25.22dBm)	31M4D7W
		LTE Band 66 (EIRP)	357.273mW (25.53dBm)	

Note:

1. This report is a supplementary report to the original BV CPS report no.: RF200109E02B-11. The difference compared with original report is only adding mmWave hardware, mmWave function is disabled by software. 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. Radiated emission and output power verification worst test refer to original report.
2. There are four Difference HW of T99W175M.

Brand	Model	HW
Foxconn	T99W175M	1. 3G+LTE+Sub6+mmWave+eSIM
		2. 3G+LTE+Sub6+mmWave+w/o eSIM
		3. 3G+LTE+Sub6+mmWave+eSIM+GNSS connector
		4. 3G+LTE+Sub6+mmWave+w/o eSIM+GNSS connector

*After pre-testing, “HW: 1. 3G+LTE+Sub6+mmWave+eSIM” is the worst for the final tests.

3. After pre-testing, “DFT-s-OFDM” is the worst for the final tests.

4. The following antennas were provided to the EUT.

Antenna No.	RF Chain No.	Brand	Model	Antenna Net Gain(dBi)	Frequency range (MHz)	Antenna Type	Connector Type
1		WHA YU	C107-511720-A	4.41	660~803	PCB	I-PEX
2		WHA YU	C107-511721-A	3.81 4.03	791~960 1447.9~1606	PCB	I-PEX
3		WHA YU	C107-511722-A	4.27 5.31	1710~2170 2500~2690	PCB	I-PEX
4		WHA YU	C107-511723-A	2.99 0.92	2300~2400 3500~3700	PCB	I-PEX
5		WHA YU	C107-511724-A	6.45	5150~5925	PCB	I-PEX
6		WHA YU	C107-511725-A	4.89	3400~3700	PCB	I-PEX
7		AVX	5000106-R1-X01	2.91	699~803	Monopole	I-PEX
8		AVX	5000107-R1-X01	2.59	791~960	Monopole	I-PEX
9		AVX	5000108-R1-X01	2.85	1427~1610	Monopole	I-PEX
10		AVX	5000109-R1-X01	2.23 2.94	1710~2200 5150~5925	Monopole	I-PEX
11		AVX	5000110-R1-X01	0.9	2300~2690	Monopole	I-PEX
12		AVX	5000111-R1-X01	0.87	3300~5000	Monopole	I-PEX
13	Tx1/ Rx1	Ethertronics	5003806	0.4 -1.61 0.39 2.95 1.98 0.38 0.83 2.31	698-821 824-960 1425-1515 1710-2200 2300-2690 3300-4200 4400-5000 5150-5925	PIFA	I-PEX
	Rx2	Ethertronics	5003807	-2.24 -4.52 2.87 2.99 2.93 2.91 2.23 -0.85 -3.04	716-821 824-960 1425-1515 1557-1610 1805-2200 2300-2690 3300-4200 4400-5000 5150-5925	PIFA	I-PEX
	Tx2/ Rx3	Ethertronics	5003806	2.21 2.25 -0.45 2.6	1710-2200 2300-2690 3300-4200 4400-5000	PIFA	I-PEX
	Rx4	Ethertronics	5003700	1.38 2.87 0.6 -2.09	1805-2200 2300-2690 3300-4200 4400-5000	PIFA	I-PEX

Antenna No.	RF Chain No.	Brand	Model	Antenna Net Gain(dBi)	Frequency range (MHz)	Antenna Type	Connector Type
14	Ant. 0 (TX/RX)	Master Wave	NA	2.4 2.2 2.9 2.9 2.9 NA	880~960 1020~2170 2545~2595 3565~3600 3900~4000 GPS	PCB	I-PEX
	Ant. 2 (TX/RX)	Master Wave	NA	NA 2.2 2.8 2.9 2.8 NA	880~960 1020~2170 2545~2595 3565~3600 3900~4000 GPS	PCB	I-PEX
	Ant. 1 (RX)	Master Wave	NA	NA 5.3 5.1 4.3 4.5 NA	880~960 1020~2170 2545~2595 3565~3600 3900~4000 GPS	PCB	I-PEX
	Ant. 3 (RX)	Master Wave	NA	1.3 6.8 3.7 6.4 6.2 3.7	880~960 1020~2170 2545~2595 3565~3600 3900~4000 GPS	PCB	I-PEX

*The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.

*The antenna for the final tests as following table.

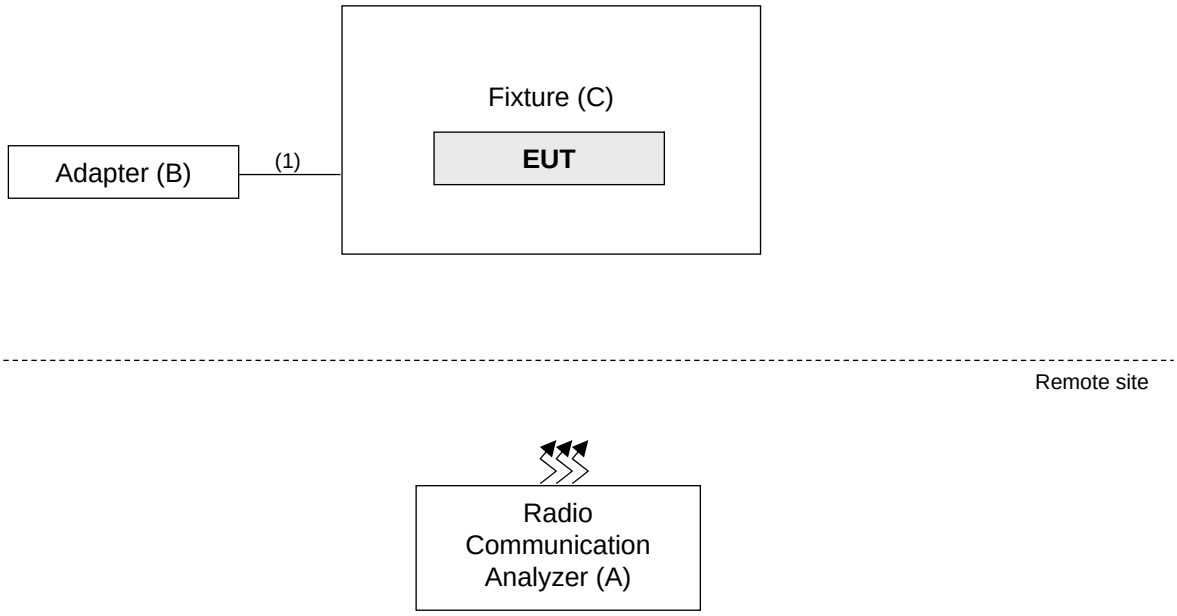
	Band	Antenna
5GNR	12 (15kHz) /5/10/15	Antenna 1

	Band	Antenna
LTE	2	Antenna 3
	66	Antenna 3

5. The EUT supports the following ENDC configuration.

	FCC 5G FR1			ENDC
	Band	SCS	Bandwidth (MHz)	
5GNR	n2	15kHz	5/10/15/20	Band 5/12/13/30/48/66
	n5	15kHz	5/10/15/20	Band 2/7/12/48/66
	n7	15kHz	5/10/15/20	Band 5/12
	n12	15kHz	5/10/15	Band 2/66
	n41	30kHz	20/40/50/60/80/90/100	Band 2/25/26/66/41
	n66	15kHz	5/10/15/20	Band 5/12/13/30/48/71
	n71	15kHz	5/10/15/20	Band 2/7/66

3.2 Configuration of System under Test



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.	Radio Communication Analyzer	Anritsu	MT8821C	6261806803	NA	-
B.	Adapter	LITEON	PA-1050-39	NA	NA	-
C.	Fixture	NA	NA	NA	NA	Provided by client.

Note:

1. All power cords of the above support units are non-shielded (1.8m).
2. Item A acted as a communication partner to transfer data.

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	USB cable	1	1.5	Y	0	-

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. The worst case was found when positioned on Z-plane. Following channel(s) was (were) selected for the final test as listed below.

n12

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	ERP	140300 to 142700	140300(701.5MHz), 141500(707.5MHz), 142700(713.5MHz)	5MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset 1 RB / 12 RB Offset 1 RB / 24 RB Offset 12 RB / 0 RB Offset 12 RB / 6 RB Offset 12 RB / 13 RB Offset 25 RB / 0 RB Offset
		140800 to 142200	140800(704.0MHz), 141500(707.5MHz), 142200(711.0MHz)	10MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset 1 RB / 24 RB Offset 1 RB / 49 RB Offset 25 RB / 0 RB Offset 25 RB / 12 RB Offset 25 RB / 25 RB Offset 50 RB / 0 RB Offset
		141300 to 141700	141300(706.5MHz), 141500(707.5MHz), 141700(708.5MHz)	15MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset 1 RB / 37 RB Offset 1 RB / 74 RB Offset 36 RB / 0 RB Offset 36 RB / 19 RB Offset 36 RB / 39 RB Offset 75 RB / 0 RB Offset
-	Radiated Emission Below 1GHz	140300 to 142700	142700(713.5MHz)	5MHz	$\pi/2$ BPSK	1 RB / 12 RB Offset
-	Radiated Emission Above 1GHz	140300 to 142700	142700(713.5MHz)	5MHz	$\pi/2$ BPSK	1 RB / 12 RB Offset

LTE Band 2

EUT Configure Mode	Test item	Available channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	EIRP	18607 to 19193	18607 (1850.70MHz), 18900 (1880.00MHz), 19193 (1909.30MHz)	1.4MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset 1 RB / 2 RB Offset 1 RB / 5 RB Offset 3 RB / 0 RB Offset 3 RB / 1 RB Offset 3 RB / 3 RB Offset 6 RB / 0 RB Offset
		18615 to 19185	18615 (1851.50MHz), 18900 (1880.00MHz), 19185 (1908.50MHz)	3MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset 1 RB / 7 RB Offset 1 RB / 14 RB Offset 8 RB / 0 RB Offset 8 RB / 3 RB Offset 8 RB / 7 RB Offset 15 RB / 0 RB Offset
		18625 to 19175	18625 (1852.50MHz), 18900 (1880.00MHz), 19175 (1907.50MHz)	5MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset 1 RB / 12 RB Offset 1 RB / 24 RB Offset 12 RB / 0 RB Offset 12 RB / 6 RB Offset 12 RB / 13 RB Offset 25 RB / 0 RB Offset
		18650 to 19150	18650 (1855.00MHz), 18900 (1880.00MHz), 19150 (1905.00MHz)	10MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset 1 RB / 24 RB Offset 1 RB / 49 RB Offset 25 RB / 0 RB Offset 25 RB / 12 RB Offset 25 RB / 25 RB Offset 50 RB / 0 RB Offset
		18675 to 19125	18675 (1857.50MHz), 18900 (1880.00MHz), 19125 (1902.50MHz)	15MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset 1 RB / 37 RB Offset 1 RB / 74 RB Offset 36 RB / 0 RB Offset 36 RB / 19 RB Offset 36 RB / 39 RB Offset 75 RB / 0 RB Offset
		18700 to 19100	18700 (1860.00MHz), 18900 (1880.00MHz), 19100 (1900.00MHz)	20MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset 1 RB / 50 RB Offset 1 RB / 99 RB Offset 50 RB / 0 RB Offset 50 RB / 25 RB Offset 50 RB / 50 RB Offset 100 RB / 0 RB Offset
-	Radiated Emission Below 1GHz	18607 to 19193	18607 (1850.70MHz)	1.4MHz	QPSK	1 RB / 2 RB Offset
-	Radiated Emission Above 1GHz	18607 to 19193	18607 (1850.70MHz)	1.4MHz	QPSK	1 RB / 2 RB Offset

LTE Band 66

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	EIRP	131979 to 132665	131979 (1710.7MHz), 132322 (1745.0MHz), 132665 (1779.3MHz)	1.4MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset 1 RB / 2 RB Offset 1 RB / 5 RB Offset 3 RB / 0 RB Offset 3 RB / 1 RB Offset 3 RB / 3 RB Offset 6 RB / 0 RB Offset
		131987 to 132657	131987 (1711.5MHz), 132322 (1745.0MHz), 132657 (1778.5MHz)	3MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset 1 RB / 7 RB Offset 1 RB / 14 RB Offset 8 RB / 0 RB Offset 8 RB / 3 RB Offset 8 RB / 7 RB Offset 15 RB / 0 RB Offset
		131997 to 132647	131997 (1712.5MHz), 132322 (1745.0MHz), 132647 (1777.5MHz)	5MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset 1 RB / 12 RB Offset 1 RB / 24 RB Offset 12 RB / 0 RB Offset 12 RB / 6 RB Offset 12 RB / 13 RB Offset 25 RB / 0 RB Offset
		132022 to 132622	132022 (1715.0MHz), 132322 (1745.0MHz), 132622 (1775.0MHz)	10MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset 1 RB / 24 RB Offset 1 RB / 49 RB Offset 25 RB / 0 RB Offset 25 RB / 12 RB Offset 25 RB / 25 RB Offset 50 RB / 0 RB Offset
		132047 to 132597	132047 (1717.5MHz), 132322 (1745.0MHz), 132597 (1772.5MHz)	15MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset 1 RB / 37 RB Offset 1 RB / 74 RB Offset 36 RB / 0 RB Offset 36 RB / 19 RB Offset 36 RB / 39 RB Offset 75 RB / 0 RB Offset
		132072 to 132572	132072 (1720.0MHz), 132322 (1745.0MHz), 132572 (1770.0MHz)	20MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset 1 RB / 50 RB Offset 1 RB / 99 RB Offset 50 RB / 0 RB Offset 50 RB / 25 RB Offset 50 RB / 50 RB Offset 100 RB / 0 RB Offset

Test Condition:

Test Item	Environmental Conditions	Input Power (system)	Tested By
ERP/EIRP	25deg. C, 70%RH	5Vdc	James Yang
Radiated Emission	22deg. C, 66%RH 22deg. C, 65%RH	120Vac, 60Hz	Greg Lin

3.4 EUT Operating Conditions

The EUT makes a call to the communication simulator. 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 and References:

Test Standard:

FCC 47 CFR Part 2

FCC 47 CFR Part 24

FCC 47 CFR Part 27

ANSI/TIA/EIA-603-D-2010

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

KDB 971168 D02 Misc Rev Approv License Devices v02r01

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 n12:
Control and mobile stations in the 698-746 MHz, 746-757 MHz, 787-788 MHz and 805-806 MHz band are limited to 30 watts ERP.
Portable stations (hand-held devices) in the 600 MHz uplink band and the 698-746 MHz band, and fixed and mobile stations in the 600 MHz uplink, 746-757 MHz,787-788 MHz and 805-806 MHzband are limited to 3 watts ERP.

For LTE Band 2:
Mobile / Portable station are limited to 2 watts e.r.p.

For LTE Band 66:
Mobile / Portable station are limited to 1 watts e.i.r.p.

4.1.2 Test Procedures

Conducted Power Measurement:

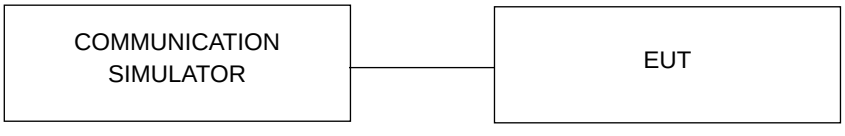
The EUT was set up for the maximum power with 5GNR link data modulation and link up with simulator. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

Maximum EIRP

The relevant equation for determining the maximum ERP or EIRP from the measured RF output power is given in Equation as follows:
ERP or EIRP = $P_{Meas} + G_T$
where
ERP or EIRP effective radiated power or equivalent isotropically radiated power, respectively (expressed in the same units as P_{Meas}, e.g., dBm or dBW)
P_{Meas} measured transmitter output power or PSD, in dBm or dBW
G_T gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP)

4.1.3 Test Setup

Conducted Power Measurement:



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

4.1.4 Test Results

Conducted Output Power (dBm)

n12						
BW	MCS Index	Channel		140300	141500	142700
		Frequency (MHz)		701.5	707.5	713.5
5M	$\pi/2$ BPSK	1	0	22.65	22.58	22.79
		1	12	22.54	22.73	**23.03**
		1	24	22.51	22.81	22.91
		12	0	22.26	22.75	22.38
		12	6	22.56	22.50	22.54
		12	13	22.33	22.44	22.65
		25	0	22.51	22.37	22.25
	QPSK	1	0	22.68	22.69	22.57
		1	12	22.63	22.64	22.63
		1	24	**22.90**	22.48	22.75
		12	0	22.53	22.56	22.33
		12	6	22.49	22.44	22.56
		12	13	22.37	22.68	22.31
		25	0	22.55	22.54	22.32
	16QAM	1	0	22.48	22.27	22.55
		1	12	22.41	22.41	22.54
		1	24	**22.66**	22.45	22.51
		12	0	22.52	22.42	22.17
		12	6	22.38	22.15	22.50
		12	13	22.16	22.42	22.51
		25	0	22.29	22.18	22.21
	64QAM	1	0	22.02	21.83	22.07
		1	12	22.18	22.02	22.28
		1	24	22.40	22.03	**22.54**
		12	0	21.67	21.84	21.93
		12	6	22.02	21.63	21.88
		12	13	22.25	22.28	21.80
		25	0	22.03	21.68	22.13
	256QAM	1	0	19.61	19.76	19.81
		1	12	19.75	19.91	19.88
		1	24	19.79	**19.96**	19.73
		12	0	19.48	19.03	19.85
		12	6	19.33	19.64	18.94
		12	13	18.93	18.84	19.19
		25	0	19.58	19.40	19.36

n12						
BW	MCS Index	Channel		140800	141500	142200
		Frequency (MHz)		704	707.5	711
10M	$\pi/2$ BPSK	1	0	22.80	22.87	22.65
		1	26	22.80	22.72	22.65
		1	51	22.78	22.67	**22.88**
		26	0	22.36	22.71	22.43
		26	13	22.68	22.32	22.79
		26	26	22.58	22.47	22.32
		52	0	22.80	22.70	22.82
	QPSK	1	0	22.67	**22.81**	22.53
		1	26	22.37	22.73	22.80
		1	51	22.75	22.61	22.38
		26	0	22.42	22.40	22.61
		26	13	22.19	22.36	22.53
		26	26	22.42	22.28	22.58
		52	0	22.54	22.41	22.37
	16QAM	1	0	22.18	22.39	22.25
		1	26	22.68	22.36	22.64
		1	51	22.28	22.58	**22.69**
		26	0	22.08	22.33	22.41
		26	13	22.26	22.23	22.17
		26	26	22.23	22.24	22.40
		52	0	22.61	22.34	22.14
	64QAM	1	0	21.99	22.25	**22.47**
		1	26	22.36	22.20	22.21
		1	51	22.33	22.45	22.19
		26	0	22.06	22.15	22.10
		26	13	22.07	21.84	21.65
		26	26	21.99	22.17	22.20
		52	0	21.84	21.92	22.17
	256QAM	1	0	19.81	19.35	19.41
		1	26	19.59	19.45	19.84
		1	51	**20.09**	19.54	19.96
		26	0	19.41	18.79	19.36
		26	13	18.85	18.89	19.40
		26	26	19.36	19.19	19.71
		52	0	18.97	19.50	19.17

n12						
BW	MCS Index	Channel		141300	141500	141700
		Frequency (MHz)		706.5	707.5	708.5
15M	$\pi/2$ BPSK	1	0	22.59	22.71	22.84
		1	39	22.83	22.87	22.44
		1	78	22.42	**22.96**	22.64
		39	0	22.74	22.50	22.29
		39	19	22.60	22.35	22.30
		39	40	22.54	22.57	22.60
		79	0	22.43	22.54	22.68
	QPSK	1	0	22.75	22.52	22.72
		1	39	22.44	**22.85**	22.47
		1	78	22.61	22.49	22.63
		39	0	22.54	22.74	22.56
		39	19	22.28	22.38	22.50
		39	40	22.39	22.33	22.57
		79	0	22.18	22.42	22.36
	16QAM	1	0	22.58	22.54	22.42
		1	39	22.49	22.65	**22.84**
		1	78	22.30	22.22	22.45
		39	0	22.14	22.61	22.50
		39	19	22.40	22.51	22.18
		39	40	22.51	22.10	22.24
		79	0	22.09	22.32	22.53
	64QAM	1	0	22.01	22.33	22.35
		1	39	21.92	**22.48**	21.88
		1	78	22.13	22.17	22.18
		39	0	21.82	21.70	21.82
		39	19	21.88	22.21	22.09
		39	40	21.94	22.06	21.98
		79	0	22.15	21.80	22.25
	256QAM	1	0	19.38	19.80	**19.85**
		1	39	19.48	19.36	19.35
		1	78	19.26	19.37	19.37
		39	0	19.31	19.48	19.39
		39	19	18.96	19.37	18.92
		39	40	18.78	19.48	19.73
		79	0	18.94	19.62	19.13

LTE Band 2						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		18607	18900	19193
		Frequency (MHz)		1850.7	1880	1909.3
1.4M	QPSK	1	0	23.02	22.65	22.75
		1	2	**23.22**	22.83	**22.85**
		1	5	22.89	23.10	22.98
		3	0	22.09	21.81	22.50
		3	1	22.02	22.15	22.19
		3	3	22.45	21.98	22.71
		6	0	22.42	22.73	22.55
	16QAM	1	0	21.95	21.75	22.03
		1	2	22.04	**22.14**	21.93
		1	5	22.00	22.07	21.81
		3	0	21.23	21.72	21.23
		3	1	20.89	21.33	20.99
		3	3	20.93	21.58	21.51
		6	0	21.28	21.34	21.41
	64QAM	1	0	21.07	20.94	20.73
		1	2	20.96	20.88	**21.18**
		1	5	21.00	21.08	20.92
		3	0	20.32	20.59	20.45
		3	1	20.01	20.39	20.07
		3	3	20.18	20.42	20.67
		6	0	20.05	20.36	20.49
	256QAM	1	0	19.87	**20.01**	19.46
		1	2	19.84	19.59	19.64
		1	5	19.81	19.84	19.35
		3	0	19.55	19.33	19.62
		3	1	19.75	19.89	19.73
		3	3	19.74	19.69	19.50
		6	0	19.73	19.85	19.51

LTE Band 2						
BW	MCS Index	Channel		18615	18900	19185
		Frequency (MHz)		1851.5	1880	1908.5
3M	QPSK	1	0	22.93	22.94	**23.06**
		1	7	22.90	22.78	23.00
		1	14	22.75	22.91	22.94
		8	0	22.43	22.32	22.52
		8	3	22.26	22.22	22.07
		8	7	22.03	21.96	22.35
		15	0	22.17	22.08	22.19
	16QAM	1	0	21.93	21.78	21.82
		1	7	**22.18**	21.87	21.94
		1	14	21.71	21.90	21.76
		8	0	21.41	21.73	21.38
		8	3	21.74	21.66	21.32
		8	7	20.93	21.31	21.58
		15	0	21.31	21.62	20.92
	64QAM	1	0	**21.11**	20.82	20.93
		1	7	20.91	21.05	21.02
		1	14	20.80	21.02	20.96
		8	0	20.59	20.16	20.27
		8	3	20.01	20.58	20.02
		8	7	19.99	20.16	20.30
		15	0	20.30	20.72	20.48
	256QAM	1	0	19.51	**19.89**	19.52
		1	7	19.40	19.65	19.60
		1	14	19.86	19.67	19.55
		8	0	19.71	19.87	19.58
		8	3	19.68	19.55	19.60
		8	7	19.38	19.51	19.84
		15	0	19.76	19.47	19.79

LTE Band 2						
BW	MCS Index	Channel		18625	18900	19175
		Frequency (MHz)		1852.5	1880	1907.5
5M	QPSK	1	0	22.66	22.93	22.90
		1	12	22.86	23.05	22.88
		1	24	22.90	22.91	**23.12**
		12	0	22.78	22.09	22.64
		12	6	21.89	22.37	22.32
		12	13	22.55	22.49	22.39
		25	0	22.42	22.77	22.04
	16QAM	1	0	**22.07**	21.62	21.92
		1	12	21.91	21.80	21.96
		1	24	21.80	21.86	21.76
		12	0	21.33	21.57	21.26
		12	6	21.17	21.33	21.14
		12	13	21.21	21.41	21.19
		25	0	21.00	21.25	21.08
	64QAM	1	0	21.07	20.99	20.73
		1	12	20.84	20.78	20.98
		1	24	20.97	20.90	**21.14**
		12	0	20.08	19.96	19.85
		12	6	20.67	20.40	20.44
		12	13	20.41	20.28	20.37
		25	0	20.57	20.44	20.28
	256QAM	1	0	19.19	19.31	19.70
		1	12	19.88	**19.95**	19.59
		1	24	19.82	19.61	19.69
		12	0	19.82	19.83	19.70
		12	6	19.50	19.84	19.84
		12	13	19.58	19.65	19.43
		25	0	19.72	19.60	19.74

LTE Band 2						
BW	MCS Index	Channel		18650	18900	19150
		Frequency (MHz)		1855	1880	1905
10M	QPSK	1	0	22.99	22.97	22.87
		1	24	22.96	22.90	**22.85**
		1	49	22.86	22.93	**23.02**
		25	0	22.74	22.70	22.26
		25	12	21.98	22.16	22.48
		25	25	22.15	22.15	22.49
		50	0	22.39	21.87	22.54
	16QAM	1	0	21.87	21.92	**22.04**
		1	24	21.74	21.61	22.02
		1	49	22.00	21.71	21.84
		25	0	20.89	20.86	20.96
		25	12	21.10	20.91	21.55
		25	25	20.91	21.36	21.30
		50	0	21.67	20.77	21.19
	64QAM	1	0	20.92	**21.14**	20.81
		1	24	20.93	21.12	20.92
		1	49	20.71	20.93	20.93
		25	0	20.03	20.75	20.18
		25	12	20.37	20.33	19.94
		25	25	20.16	20.24	20.64
		50	0	20.59	20.11	19.99
	256QAM	1	0	**20.23**	20.04	19.41
		1	24	20.17	19.89	19.44
		1	49	19.62	19.90	19.57
		25	0	19.98	19.56	19.80
		25	12	19.87	19.74	19.48
		25	25	19.49	20.06	19.54
		50	0	19.92	19.60	19.81

LTE Band 2						
BW	MCS Index	Channel		18675	18900	19125
		Frequency (MHz)		1857.5	1880	1902.5
15M	QPSK	1	0	22.99	**23.06**	22.96
		1	37	22.94	22.93	22.89
		1	74	22.79	23.01	22.94
		36	0	22.25	21.94	22.75
		36	19	22.10	22.05	22.13
		36	39	22.45	22.23	22.14
		75	0	22.41	22.62	22.12
	16QAM	1	0	22.06	**22.12**	21.74
		1	37	21.91	22.08	21.89
		1	74	22.05	21.86	22.09
		36	0	20.89	21.03	20.83
		36	19	20.92	21.63	21.44
		36	39	21.02	21.65	21.24
		75	0	20.96	21.43	21.02
	64QAM	1	0	21.05	21.07	**21.21**
		1	37	20.95	20.88	20.61
		1	74	21.07	20.83	21.07
		36	0	20.17	20.42	20.55
		36	19	20.66	19.93	20.17
		36	39	20.27	20.31	20.49
		75	0	20.34	20.42	20.09
	256QAM	1	0	**20.21**	19.59	19.44
		1	37	19.44	19.97	19.93
		1	74	20.01	19.63	19.88
		36	0	20.05	19.91	19.56
		36	19	20.03	20.21	19.96
		36	39	20.09	20.19	19.37
		75	0	19.41	20.04	19.36

LTE Band 2						
BW	MCS Index	Channel		18700	18900	19100
		Frequency (MHz)		1860	1880	1900
20M	QPSK	1	0	23.15	**23.18**	22.87
		1	50	22.84	22.88	22.96
		1	99	22.85	22.77	23.12
		50	0	22.15	21.96	22.01
		50	25	22.07	22.29	22.61
		50	50	22.16	21.82	21.97
		100	0	22.26	22.79	22.12
	16QAM	1	0	22.04	21.99	21.88
		1	50	21.92	21.92	**22.17**
		1	99	21.79	22.01	21.82
		50	0	21.53	21.31	21.42
		50	25	21.49	21.52	21.20
		50	50	21.52	21.38	21.38
		100	0	21.66	21.43	21.35
	64QAM	1	0	**21.11**	21.02	20.83
		1	50	20.99	20.89	21.02
		1	99	21.10	20.89	21.06
		50	0	20.47	20.54	20.34
		50	25	20.26	20.15	20.64
		50	50	20.54	20.48	20.30
		100	0	20.66	20.53	19.79
	256QAM	1	0	**20.31**	20.09	20.02
		1	50	19.33	19.43	19.72
		1	99	19.79	20.04	20.10
		50	0	19.59	19.77	19.60
		50	25	19.34	19.56	19.64
		50	50	19.78	19.58	19.72
		100	0	19.99	19.61	20.05

LTE Band 66						
BW	MCS Index	Channel		131979	132322	132665
		Frequency (MHz)		1710.7	1745	1779.3
1.4M	QPSK	1	0	**22.93**	22.37	22.57
		1	2	22.42	22.71	22.44
		1	5	22.83	22.63	22.69
		3	0	22.20	22.15	22.33
		3	1	22.24	22.07	22.22
		3	3	22.25	22.72	21.71
		6	0	22.14	22.21	21.70
	16QAM	1	0	21.66	**21.84**	21.76
		1	2	21.69	21.39	21.28
		1	5	21.70	21.44	21.64
		3	0	21.27	21.16	20.96
		3	1	21.09	21.22	20.93
		3	3	20.92	21.64	20.89
		6	0	20.90	21.57	21.21
	64QAM	1	0	20.36	20.72	20.82
		1	2	20.65	20.72	**20.98**
		1	5	20.69	20.60	20.36
		3	0	20.24	20.61	20.59
		3	1	20.02	20.12	20.35
		3	3	20.44	20.06	20.49
		6	0	20.29	20.57	20.03
	256QAM	1	0	19.24	19.75	**19.80**
		1	2	19.70	19.28	19.75
		1	5	19.15	19.75	19.56
		3	0	19.69	19.61	19.71
		3	1	19.39	19.40	19.74
		3	3	19.39	19.64	19.77
		6	0	19.39	19.62	19.16

LTE Band 66						
BW	MCS Index	Channel		131987	132322	132657
		Frequency (MHz)		1711.5	1745	1778.5
3M	QPSK	1	0	22.57	**22.79**	**22.92**
		1	7	22.54	22.53	22.78
		1	14	22.50	22.85	22.85
		8	0	22.48	22.07	22.14
		8	3	22.26	22.54	21.92
		8	7	21.79	21.97	22.18
		15	0	21.89	21.69	22.01
	16QAM	1	0	**21.87**	21.65	21.66
		1	7	21.68	21.76	21.74
		1	14	21.85	21.55	21.63
		8	0	21.25	21.24	21.01
		8	3	20.87	21.64	21.37
		8	7	21.17	20.87	21.70
		15	0	20.95	21.06	21.35
	64QAM	1	0	20.73	20.89	**21.00**
		1	7	20.72	20.75	20.54
		1	14	20.81	20.88	20.37
		8	0	20.32	20.20	19.88
		8	3	19.72	20.22	20.07
		8	7	20.20	19.86	20.04
		15	0	20.02	19.82	19.84
	256QAM	1	0	19.79	19.86	19.53
		1	7	19.71	19.29	19.62
		1	14	**19.90**	19.76	19.57
		8	0	19.64	19.69	19.70
		8	3	19.74	19.45	19.62
		8	7	19.42	19.55	19.38
		15	0	19.22	19.06	19.49

LTE Band 66						
BW	MCS Index	Channel		131997	132322	132647
		Frequency (MHz)		1712.5	1745	1777.5
5M	QPSK	1	0	22.36	22.71	22.68
		1	12	22.58	**22.88**	22.58
		1	24	22.39	22.32	**22.79**
		12	0	21.98	22.47	21.72
		12	6	22.48	22.27	22.51
		12	13	22.38	22.40	22.53
		25	0	22.36	22.09	22.31
	16QAM	1	0	**21.89**	21.62	21.34
		1	12	21.88	21.57	21.56
		1	24	21.62	21.59	21.74
		12	0	20.95	21.32	21.22
		12	6	21.29	21.01	21.00
		12	13	21.45	20.75	20.99
		25	0	21.04	20.78	20.87
	64QAM	1	0	20.64	20.42	20.62
		1	12	20.54	20.59	20.64
		1	24	**20.90**	20.61	20.70
		12	0	20.01	20.52	20.22
		12	6	19.85	20.22	20.19
		12	13	20.15	20.20	20.10
		25	0	19.87	20.04	20.06
	256QAM	1	0	19.38	**19.78**	19.58
		1	12	19.74	19.72	19.37
		1	24	19.16	19.25	19.55
		12	0	19.73	19.67	19.55
		12	6	19.59	19.16	19.41
		12	13	19.37	19.19	19.38
		25	0	19.27	19.13	19.57

LTE Band 66						
BW	MCS Index	Channel		132022	132322	132622
		Frequency (MHz)		1715	1745	1775
10M	QPSK	1	0	22.82	22.59	22.28
		1	24	22.55	22.59	22.66
		1	49	**22.86**	22.31	22.32
		25	0	21.84	22.32	22.21
		25	12	21.72	22.15	22.49
		25	25	22.15	22.19	22.26
		50	0	22.54	22.48	22.27
	16QAM	1	0	21.59	21.80	21.43
		1	24	21.60	**21.85**	21.32
		1	49	21.74	21.72	21.72
		25	0	21.43	21.10	21.26
		25	12	21.13	20.94	21.55
		25	25	20.91	21.52	20.94
		50	0	20.98	21.36	21.55
	64QAM	1	0	20.58	20.59	20.52
		1	24	**20.90**	20.62	20.65
		1	49	20.44	20.48	20.73
		25	0	20.43	20.18	20.69
		25	12	20.13	20.09	20.45
		25	25	19.90	20.19	20.06
		50	0	20.18	20.10	20.33
	256QAM	1	0	19.04	19.45	19.40
		1	24	19.22	19.27	19.48
		1	49	19.48	19.09	19.73
		25	0	19.14	19.16	19.63
		25	12	**19.94**	19.61	19.32
		25	25	19.66	19.19	19.68
		50	0	19.24	19.65	19.66

LTE Band 66						
BW	MCS Index	Channel		132047	132322	132597
		Frequency (MHz)		1717.5	1745	1772.5
15M	QPSK	1	0	22.58	22.70	22.52
		1	37	22.80	22.89	22.56
		1	74	22.89	**23.01**	22.42
		36	0	21.84	22.25	22.33
		36	19	22.05	22.12	22.02
		36	39	22.08	22.48	22.46
		75	0	22.45	21.99	21.96
	16QAM	1	0	21.53	21.51	21.49
		1	37	21.87	21.66	21.61
		1	74	21.40	21.52	**22.02**
		36	0	21.50	21.06	21.38
		36	19	21.21	20.87	21.35
		36	39	21.12	21.12	20.77
		75	0	21.38	21.30	21.29
	64QAM	1	0	**20.93**	20.69	20.79
		1	37	20.60	20.69	20.81
		1	74	20.72	20.72	20.83
		36	0	20.01	20.23	20.05
		36	19	20.41	19.85	19.91
		36	39	20.08	19.97	20.52
		75	0	20.17	19.93	20.36
	256QAM	1	0	19.84	19.20	19.59
		1	37	19.35	19.58	19.64
		1	74	19.58	19.18	19.73
		36	0	19.69	19.23	19.62
		36	19	**19.94**	19.28	19.66
		36	39	19.53	19.37	19.26
		75	0	19.78	19.39	19.76

LTE Band 66						
BW	MCS Index	Channel		132072	132322	132575
		Frequency (MHz)		1720	1745	1770
20M	QPSK	1	0	22.34	**22.91**	22.69
		1	50	22.78	22.71	22.61
		1	99	22.72	22.54	22.77
		50	0	22.22	22.31	22.04
		50	25	22.25	22.39	22.16
		50	50	21.93	22.05	22.26
		100	0	21.99	22.37	22.30
	16QAM	1	0	21.70	21.43	21.40
		1	50	21.63	**21.98**	21.89
		1	99	21.76	21.72	21.83
		50	0	21.39	21.48	21.21
		50	25	21.23	20.88	20.99
		50	50	20.89	21.03	20.80
		100	0	21.06	21.04	20.95
	64QAM	1	0	20.64	**20.92**	20.67
		1	50	20.92	20.58	20.88
		1	99	20.49	20.88	20.60
		50	0	19.75	20.34	20.45
		50	25	20.27	20.28	19.84
		50	50	20.35	20.10	20.57
		100	0	19.93	20.25	19.99
	256QAM	1	0	19.48	**19.90**	19.62
		1	50	19.24	19.33	19.46
		1	99	19.38	19.66	19.63
		50	0	19.01	18.98	19.48
		50	25	19.83	19.52	19.35
		50	50	19.70	19.56	19.73
		100	0	19.48	19.63	19.39

ERP Power (dBm)

n12						
BW	MCS Index	Channel		140300	141500	142700
		Frequency (MHz)		701.5	707.5	713.5
5M	$\pi/2$ BPSK	1	0	24.91	24.84	25.05
		1	12	24.80	24.99	**25.29**
		1	24	24.77	25.07	25.17
		12	0	24.52	25.01	24.64
		12	6	24.82	24.76	24.80
		12	13	24.59	24.70	24.91
		25	0	24.77	24.63	24.51
	QPSK	1	0	24.94	24.95	24.83
		1	12	24.89	24.90	24.89
		1	24	**25.16**	24.74	25.01
		12	0	24.79	24.82	24.59
		12	6	24.75	24.70	24.82
		12	13	24.63	24.94	24.57
		25	0	24.81	24.80	24.58
	16QAM	1	0	24.74	24.53	24.81
		1	12	24.67	24.67	24.80
		1	24	**24.92**	24.71	24.77
		12	0	24.78	24.68	24.43
		12	6	24.64	24.41	24.76
		12	13	24.42	24.68	24.77
		25	0	24.55	24.44	24.47
	64QAM	1	0	24.28	24.09	24.33
		1	12	24.44	24.28	24.54
		1	24	24.66	24.29	**24.80**
		12	0	23.93	24.10	24.19
		12	6	24.28	23.89	24.14
		12	13	24.51	24.54	24.06
		25	0	24.29	23.94	24.39
	256QAM	1	0	21.87	22.02	22.07
		1	12	22.01	22.17	22.14
		1	24	22.05	**22.22**	21.99
		12	0	21.74	21.29	22.11
		12	6	21.59	21.90	21.20
		12	13	21.19	21.10	21.45
		25	0	21.84	21.66	21.62

*ERP = Conducted + antenna gain (4.41dBi)-2.15

n12						
BW	MCS Index	Channel		140800	141500	142200
		Frequency (MHz)		704	707.5	711
10M	$\pi/2$ BPSK	1	0	25.06	25.13	24.91
		1	26	25.06	24.98	24.91
		1	51	25.04	24.93	**25.14**
		26	0	24.62	24.97	24.69
		26	13	24.94	24.58	25.05
		26	26	24.84	24.73	24.58
		52	0	25.06	24.96	25.08
	QPSK	1	0	24.93	**25.07**	24.79
		1	26	24.63	24.99	25.06
		1	51	25.01	24.87	24.64
		26	0	24.68	24.66	24.87
		26	13	24.45	24.62	24.79
		26	26	24.68	24.54	24.84
		52	0	24.80	24.67	24.63
	16QAM	1	0	24.44	24.65	24.51
		1	26	24.94	24.62	24.90
		1	51	24.54	24.84	**24.95**
		26	0	24.34	24.59	24.67
		26	13	24.52	24.49	24.43
		26	26	24.49	24.50	24.66
		52	0	24.87	24.60	24.40
	64QAM	1	0	24.25	24.51	**24.73**
		1	26	24.62	24.46	24.47
		1	51	24.59	24.71	24.45
		26	0	24.32	24.41	24.36
		26	13	24.33	24.10	23.91
		26	26	24.25	24.43	24.46
		52	0	24.10	24.18	24.43
	256QAM	1	0	22.07	21.61	21.67
		1	26	21.85	21.71	22.10
		1	51	**22.35**	21.80	22.22
		26	0	21.67	21.05	21.62
		26	13	21.11	21.15	21.66
		26	26	21.62	21.45	21.97
		52	0	21.23	21.76	21.43

*ERP = Conducted + antenna gain (4.41dBi)-2.15

n12						
BW	MCS Index	Channel		141300	141500	141700
		Frequency (MHz)		706.5	707.5	708.5
15M	$\pi/2$ BPSK	1	0	24.85	24.97	25.10
		1	39	25.09	25.13	24.70
		1	78	24.68	**25.22**	24.90
		39	0	25.00	24.76	24.55
		39	19	24.86	24.61	24.56
		39	40	24.80	24.83	24.86
		79	0	24.69	24.80	24.94
	QPSK	1	0	25.01	24.78	24.98
		1	39	24.70	**25.11**	24.73
		1	78	24.87	24.75	24.89
		39	0	24.80	25.00	24.82
		39	19	24.54	24.64	24.76
		39	40	24.65	24.59	24.83
		79	0	24.44	24.68	24.62
	16QAM	1	0	24.84	24.80	24.68
		1	39	24.75	24.91	**25.10**
		1	78	24.56	24.48	24.71
		39	0	24.40	24.87	24.76
		39	19	24.66	24.77	24.44
		39	40	24.77	24.36	24.50
		79	0	24.35	24.58	24.79
	64QAM	1	0	24.27	24.59	24.61
		1	39	24.18	**24.74**	24.14
		1	78	24.39	24.43	24.44
		39	0	24.08	23.96	24.08
		39	19	24.14	24.47	24.35
		39	40	24.20	24.32	24.24
		79	0	24.41	24.06	24.51
	256QAM	1	0	21.64	22.06	**22.11**
		1	39	21.74	21.62	21.61
		1	78	21.52	21.63	21.63
		39	0	21.57	21.74	21.65
		39	19	21.22	21.63	21.18
		39	40	21.04	21.74	21.99
		79	0	21.20	21.88	21.39

*ERP = Conducted + antenna gain (4.41dBi)-2.15

EIRP

LTE Band 2						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		18607	18900	19193
		Frequency (MHz)		1850.7	1880	1909.3
1.4M	QPSK	1	0	27.29	26.92	27.02
		1	2	**27.49**	27.10	27.12
		1	5	27.16	27.37	27.25
		3	0	26.36	26.08	26.77
		3	1	26.29	26.42	26.46
		3	3	26.72	26.25	26.98
		6	0	26.69	27.00	26.82
	16QAM	1	0	26.22	26.02	26.30
		1	2	26.31	**26.41**	26.20
		1	5	26.27	26.34	26.08
		3	0	25.50	25.99	25.50
		3	1	25.16	25.60	25.26
		3	3	25.20	25.85	25.78
		6	0	25.55	25.61	25.68
	64QAM	1	0	25.34	25.21	25.00
		1	2	25.23	25.15	**25.45**
		1	5	25.27	25.35	25.19
		3	0	24.59	24.86	24.72
		3	1	24.28	24.66	24.34
		3	3	24.45	24.69	24.94
		6	0	24.32	24.63	24.76
	256QAM	1	0	24.14	**24.28**	23.73
		1	2	24.11	23.86	23.91
		1	5	24.08	24.11	23.62
		3	0	23.82	23.60	23.89
		3	1	24.02	24.16	24.00
		3	3	24.01	23.96	23.77
		6	0	24.00	24.12	23.78

*EIRP = Conducted + antenna gain (4.27dBi)

LTE Band 2						
BW	MCS Index	Channel		18615	18900	19185
		Frequency (MHz)		1851.5	1880	1908.5
3M	QPSK	1	0	27.20	27.21	**27.33**
		1	7	27.17	27.05	27.27
		1	14	27.02	27.18	27.21
		8	0	26.70	26.59	26.79
		8	3	26.53	26.49	26.34
		8	7	26.30	26.23	26.62
		15	0	26.44	26.35	26.46
	16QAM	1	0	26.20	26.05	26.09
		1	7	**26.45**	26.14	26.21
		1	14	25.98	26.17	26.03
		8	0	25.68	26.00	25.65
		8	3	26.01	25.93	25.59
		8	7	25.20	25.58	25.85
		15	0	25.58	25.89	25.19
	64QAM	1	0	**25.38**	25.09	25.20
		1	7	25.18	25.32	25.29
		1	14	25.07	25.29	25.23
		8	0	24.86	24.43	24.54
		8	3	24.28	24.85	24.29
		8	7	24.26	24.43	24.57
		15	0	24.57	24.99	24.75
	256QAM	1	0	23.78	**24.16**	23.79
		1	7	23.67	23.92	23.87
		1	14	24.13	23.94	23.82
		8	0	23.98	24.14	23.85
		8	3	23.95	23.82	23.87
		8	7	23.65	23.78	24.11
		15	0	24.03	23.74	24.06

*EIRP = Conducted + antenna gain (4.27dBi)

LTE Band 2						
BW	MCS Index	Channel		18625	18900	19175
		Frequency (MHz)		1852.5	1880	1907.5
5M	QPSK	1	0	26.93	27.20	27.17
		1	12	27.13	27.32	27.15
		1	24	27.17	27.18	**27.39**
		12	0	27.05	26.36	26.91
		12	6	26.16	26.64	26.59
		12	13	26.82	26.76	26.66
		25	0	26.69	27.04	26.31
	16QAM	1	0	**26.34**	25.89	26.19
		1	12	26.18	26.07	26.23
		1	24	26.07	26.13	26.03
		12	0	25.60	25.84	25.53
		12	6	25.44	25.60	25.41
		12	13	25.48	25.68	25.46
		25	0	25.27	25.52	25.35
	64QAM	1	0	25.34	25.26	25.00
		1	12	25.11	25.05	25.25
		1	24	25.24	25.17	**25.41**
		12	0	24.35	24.23	24.12
		12	6	24.94	24.67	24.71
		12	13	24.68	24.55	24.64
		25	0	24.84	24.71	24.55
	256QAM	1	0	23.46	23.58	23.97
		1	12	24.15	**24.22**	23.86
		1	24	24.09	23.88	23.96
		12	0	24.09	24.10	23.97
		12	6	23.77	24.11	24.11
		12	13	23.85	23.92	23.70
		25	0	23.99	23.87	24.01

*EIRP = Conducted + antenna gain (4.27dBi)

LTE Band 2						
BW	MCS Index	Channel		18650	18900	19150
		Frequency (MHz)		1855	1880	1905
10M	QPSK	1	0	27.26	27.24	27.14
		1	24	27.23	27.17	27.12
		1	49	27.13	27.20	**27.29**
		25	0	27.01	26.97	26.53
		25	12	26.25	26.43	26.75
		25	25	26.42	26.42	26.76
		50	0	26.66	26.14	26.81
	16QAM	1	0	26.14	26.19	**26.31**
		1	24	26.01	25.88	26.29
		1	49	26.27	25.98	26.11
		25	0	25.16	25.13	25.23
		25	12	25.37	25.18	25.82
		25	25	25.18	25.63	25.57
		50	0	25.94	25.04	25.46
	64QAM	1	0	25.19	**25.41**	25.08
		1	24	25.20	25.39	25.19
		1	49	24.98	25.20	25.20
		25	0	24.30	25.02	24.45
		25	12	24.64	24.60	24.21
		25	25	24.43	24.51	24.91
		50	0	24.86	24.38	24.26
	256QAM	1	0	**24.50**	24.31	23.68
		1	24	24.44	24.16	23.71
		1	49	23.89	24.17	23.84
		25	0	24.25	23.83	24.07
		25	12	24.14	24.01	23.75
		25	25	23.76	24.33	23.81
		50	0	24.19	23.87	24.08

*EIRP = Conducted + antenna gain (4.27dBi)

LTE Band 2						
BW	MCS Index	Channel		18675	18900	19125
		Frequency (MHz)		1857.5	1880	1902.5
15M	QPSK	1	0	27.26	**27.33**	27.23
		1	37	27.21	27.20	27.16
		1	74	27.06	27.28	27.21
		36	0	26.52	26.21	27.02
		36	19	26.37	26.32	26.40
		36	39	26.72	26.50	26.41
		75	0	26.68	26.89	26.39
	16QAM	1	0	26.33	**26.39**	26.01
		1	37	26.18	26.35	26.16
		1	74	26.32	26.13	26.36
		36	0	25.16	25.30	25.10
		36	19	25.19	25.90	25.71
		36	39	25.29	25.92	25.51
		75	0	25.23	25.70	25.29
	64QAM	1	0	25.32	25.34	**25.48**
		1	37	25.22	25.15	24.88
		1	74	25.34	25.10	25.34
		36	0	24.44	24.69	24.82
		36	19	24.93	24.20	24.44
		36	39	24.54	24.58	24.76
		75	0	24.61	24.69	24.36
	256QAM	1	0	**24.48**	23.86	23.71
		1	37	23.71	24.24	24.20
		1	74	24.28	23.90	24.15
		36	0	24.32	24.18	23.83
		36	19	24.30	24.48	24.23
		36	39	24.36	24.46	23.64
		75	0	23.68	24.31	23.63

*EIRP = Conducted + antenna gain (4.27dBi)

LTE Band 2						
BW	MCS Index	Channel		18700	18900	19100
		Frequency (MHz)		1860	1880	1900
20M	QPSK	1	0	27.42	**27.45**	27.14
		1	50	27.11	27.15	27.23
		1	99	27.12	27.04	27.39
		50	0	26.42	26.23	26.28
		50	25	26.34	26.56	26.88
		50	50	26.43	26.09	26.24
		100	0	26.53	27.06	26.39
	16QAM	1	0	26.31	26.26	26.15
		1	50	26.19	26.19	**26.44**
		1	99	26.06	26.28	26.09
		50	0	25.80	25.58	25.69
		50	25	25.76	25.79	25.47
		50	50	25.79	25.65	25.65
		100	0	25.93	25.70	25.62
	64QAM	1	0	**25.38**	25.29	25.10
		1	50	25.26	25.16	25.29
		1	99	25.37	25.16	25.33
		50	0	24.74	24.81	24.61
		50	25	24.53	24.42	24.91
		50	50	24.81	24.75	24.57
		100	0	24.93	24.80	24.06
	256QAM	1	0	**24.58**	24.36	24.29
		1	50	23.60	23.70	23.99
		1	99	24.06	24.31	24.37
		50	0	23.86	24.04	23.87
		50	25	23.61	23.83	23.91
		50	50	24.05	23.85	23.99
		100	0	24.26	23.88	24.32

*EIRP = Conducted + antenna gain (4.27dBi)

LTE Band 66						
BW	MCS Index	Channel		131979	132322	132665
		Frequency (MHz)		1710.7	1745	1779.3
1.4M	QPSK	1	0	**27.20**	26.64	26.84
		1	2	26.69	26.98	26.71
		1	5	27.10	26.90	26.96
		3	0	26.47	26.42	26.60
		3	1	26.51	26.34	26.49
		3	3	26.52	26.99	25.98
		6	0	26.41	26.48	25.97
	16QAM	1	0	25.93	**26.11**	26.03
		1	2	25.96	25.66	25.55
		1	5	25.97	25.71	25.91
		3	0	25.54	25.43	25.23
		3	1	25.36	25.49	25.20
		3	3	25.19	25.91	25.16
		6	0	25.17	25.84	25.48
	64QAM	1	0	24.63	24.99	25.09
		1	2	24.92	24.99	**25.25**
		1	5	24.96	24.87	24.63
		3	0	24.51	24.88	24.86
		3	1	24.29	24.39	24.62
		3	3	24.71	24.33	24.76
		6	0	24.56	24.84	24.30
	256QAM	1	0	23.51	24.02	**24.07**
		1	2	23.97	23.55	24.02
		1	5	23.42	24.02	23.83
		3	0	23.96	23.88	23.98
		3	1	23.66	23.67	24.01
		3	3	23.66	23.91	24.04
		6	0	23.66	23.89	23.43

*EIRP = Conducted + antenna gain (4.27dBi)

LTE Band 66						
BW	MCS Index	Channel		131987	132322	132657
		Frequency (MHz)		1711.5	1745	1778.5
3M	QPSK	1	0	26.84	27.06	**27.19**
		1	7	26.81	26.80	27.05
		1	14	26.77	27.12	27.12
		8	0	26.75	26.34	26.41
		8	3	26.53	26.81	26.19
		8	7	26.06	26.24	26.45
		15	0	26.16	25.96	26.28
	16QAM	1	0	**26.14**	25.92	25.93
		1	7	25.95	26.03	26.01
		1	14	26.12	25.82	25.90
		8	0	25.52	25.51	25.28
		8	3	25.14	25.91	25.64
		8	7	25.44	25.14	25.97
		15	0	25.22	25.33	25.62
	64QAM	1	0	25.00	25.16	**25.27**
		1	7	24.99	25.02	24.81
		1	14	25.08	25.15	24.64
		8	0	24.59	24.47	24.15
		8	3	23.99	24.49	24.34
		8	7	24.47	24.13	24.31
		15	0	24.29	24.09	24.11
	256QAM	1	0	24.06	24.13	23.80
		1	7	23.98	23.56	23.89
		1	14	**24.17**	24.03	23.84
		8	0	23.91	23.96	23.97
		8	3	24.01	23.72	23.89
		8	7	23.69	23.82	23.65
		15	0	23.49	23.33	23.76

*EIRP = Conducted + antenna gain (4.27dBi)

LTE Band 66						
BW	MCS Index	Channel		131997	132322	132647
		Frequency (MHz)		1712.5	1745	1777.5
5M	QPSK	1	0	26.63	26.98	26.95
		1	12	26.85	**27.15**	26.85
		1	24	26.66	26.59	27.06
		12	0	26.25	26.74	25.99
		12	6	26.75	26.54	26.78
		12	13	26.65	26.67	26.80
		25	0	26.63	26.36	26.58
	16QAM	1	0	**26.16**	25.89	25.61
		1	12	26.15	25.84	25.83
		1	24	25.89	25.86	26.01
		12	0	25.22	25.59	25.49
		12	6	25.56	25.28	25.27
		12	13	25.72	25.02	25.26
		25	0	25.31	25.05	25.14
	64QAM	1	0	24.91	24.69	24.89
		1	12	24.81	24.86	24.91
		1	24	**25.17**	24.88	24.97
		12	0	24.28	24.79	24.49
		12	6	24.12	24.49	24.46
		12	13	24.42	24.47	24.37
		25	0	24.14	24.31	24.33
	256QAM	1	0	23.65	**24.05**	23.85
		1	12	24.01	23.99	23.64
		1	24	23.43	23.52	23.82
		12	0	24.00	23.94	23.82
		12	6	23.86	23.43	23.68
		12	13	23.64	23.46	23.65
		25	0	23.54	23.40	23.84

*EIRP = Conducted + antenna gain (4.27dBi)

LTE Band 66						
BW	MCS Index	Channel		132022	132322	132622
		Frequency (MHz)		1715	1745	1775
10M	QPSK	1	0	27.09	26.86	26.55
		1	24	26.82	26.86	26.93
		1	49	**27.13**	26.58	26.59
		25	0	26.11	26.59	26.48
		25	12	25.99	26.42	26.76
		25	25	26.42	26.46	26.53
		50	0	26.81	26.75	26.54
	16QAM	1	0	25.86	26.07	25.70
		1	24	25.87	**26.12**	25.59
		1	49	26.01	25.99	25.99
		25	0	25.70	25.37	25.53
		25	12	25.40	25.21	25.82
		25	25	25.18	25.79	25.21
		50	0	25.25	25.63	25.82
	64QAM	1	0	24.85	24.86	24.79
		1	24	**25.17**	24.89	24.92
		1	49	24.71	24.75	25.00
		25	0	24.70	24.45	24.96
		25	12	24.40	24.36	24.72
		25	25	24.17	24.46	24.33
		50	0	24.45	24.37	24.60
	256QAM	1	0	23.31	23.72	23.67
		1	24	23.49	23.54	23.75
		1	49	23.75	23.36	24.00
		25	0	23.41	23.43	23.90
		25	12	**24.21**	23.88	23.59
		25	25	23.93	23.46	23.95
		50	0	23.51	23.92	23.93

*EIRP = Conducted + antenna gain (4.27dBi)

LTE Band 66						
BW	MCS Index	Channel		132047	132322	132597
		Frequency (MHz)		1717.5	1745	1772.5
15M	QPSK	1	0	26.85	26.97	26.79
		1	37	27.07	27.16	26.83
		1	74	27.16	**27.28**	26.69
		36	0	26.11	26.52	26.60
		36	19	26.32	26.39	26.29
		36	39	26.35	26.75	26.73
		75	0	26.72	26.26	26.23
	16QAM	1	0	25.80	25.78	25.76
		1	37	26.14	25.93	25.88
		1	74	25.67	25.79	**26.29**
		36	0	25.77	25.33	25.65
		36	19	25.48	25.14	25.62
		36	39	25.39	25.39	25.04
		75	0	25.65	25.57	25.56
	64QAM	1	0	**25.20**	24.96	25.06
		1	37	24.87	24.96	25.08
		1	74	24.99	24.99	25.10
		36	0	24.28	24.50	24.32
		36	19	24.68	24.12	24.18
		36	39	24.35	24.24	24.79
		75	0	24.44	24.20	24.63
	256QAM	1	0	24.11	23.47	23.86
		1	37	23.62	23.85	23.91
		1	74	23.85	23.45	24.00
		36	0	23.96	23.50	23.89
		36	19	**24.21**	23.55	23.93
		36	39	23.80	23.64	23.53
		75	0	24.05	23.66	24.03

*EIRP = Conducted + antenna gain (4.27dBi)

LTE Band 66						
BW	MCS Index	Channel		132072	132322	132575
		Frequency (MHz)		1720	1745	1770
20M	QPSK	1	0	26.61	**27.18**	26.96
		1	50	27.05	26.98	26.88
		1	99	26.99	26.81	27.04
		50	0	26.49	26.58	26.31
		50	25	26.52	26.66	26.43
		50	50	26.20	26.32	26.53
		100	0	26.26	26.64	26.57
	16QAM	1	0	25.97	25.70	25.67
		1	50	25.90	**26.25**	26.16
		1	99	26.03	25.99	26.10
		50	0	25.66	25.75	25.48
		50	25	25.50	25.15	25.26
		50	50	25.16	25.30	25.07
		100	0	25.33	25.31	25.22
	64QAM	1	0	24.91	**25.19**	24.94
		1	50	25.19	24.85	25.15
		1	99	24.76	25.15	24.87
		50	0	24.02	24.61	24.72
		50	25	24.54	24.55	24.11
		50	50	24.62	24.37	24.84
		100	0	24.20	24.52	24.26
	256QAM	1	0	23.75	**24.17**	23.89
		1	50	23.51	23.60	23.73
		1	99	23.65	23.93	23.90
		50	0	23.28	23.25	23.75
		50	25	24.10	23.79	23.62
		50	50	23.97	23.83	24.00
		100	0	23.75	23.90	23.66

*EIRP = Conducted + antenna gain (4.27dBi)

4.2 Radiated Emission Measurement

4.2.1 Limits of Radiated Emission Measurement

For LTE Band 2:
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB. The emission limit equal to –13dBm.

For LTE Band 66:
According to FCC 27.53(h) 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.

4.2.2 Test Procedure

a. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m (below or equal 1 GHz) and/or 1.5 m (above 1 GHz) 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.
b. The substitution horn 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 a. Record the power level of S.G
c. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution horn.
d. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, E.R.P power = E.I.R.P power - 2.15dBi.

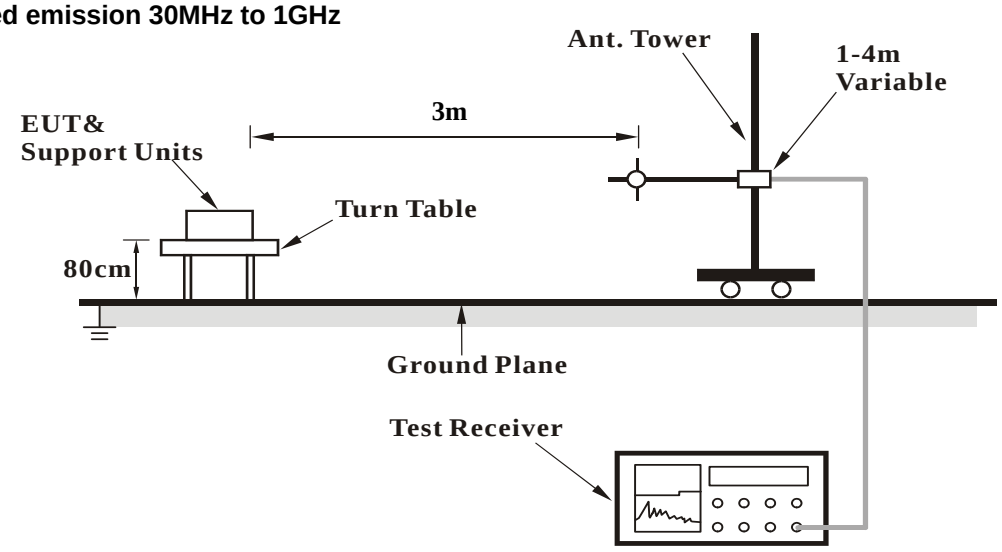
NOTE: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.

4.2.3 Deviation from Test Standard

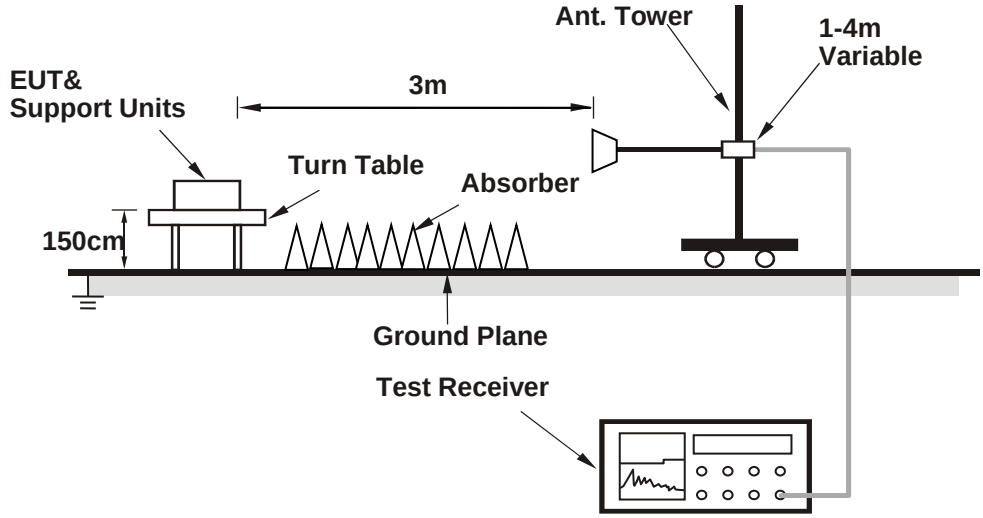
No deviation.

4.2.4 Test Setup

For radiated emission 30MHz to 1GHz



For radiated emission above 1GHz



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

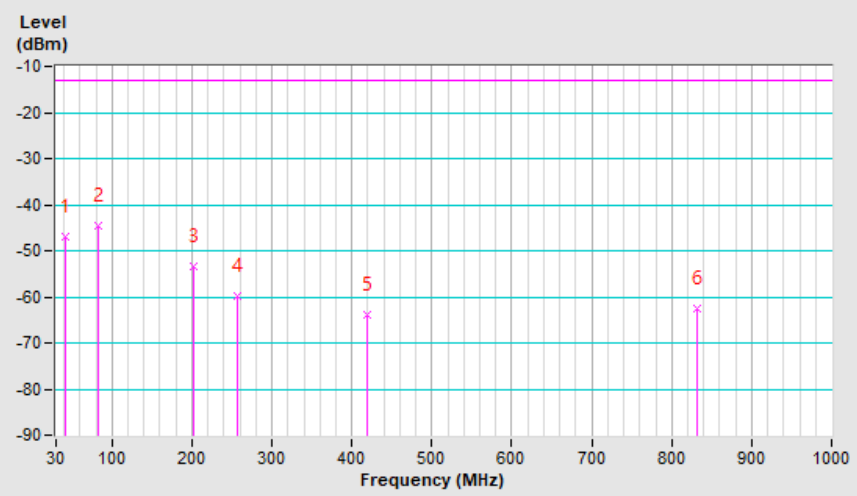
4.2.5 Test Results

Below 1GHz
n12, Channel Bandwidth: 5MHz

Mode	TX channel 142700 (713.5MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	22deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	42.65	-46.8	-35.2	-11.8	-47.0	-13.0	-34.0
2	**83.42**	**-36.8**	**-45.1**	**0.5**	**-44.6**	**-13.0**	**-31.6**
3	201.51	-42.9	-51.1	-2.2	-53.3	-13.0	-40.3
4	256.33	-52.5	-58.4	-1.5	-59.9	-13.0	-46.9
5	419.41	-61.6	-67.5	3.5	-64.0	-13.0	-51.0
6	831.30	-67.3	-66.5	3.9	-62.6	-13.0	-49.6

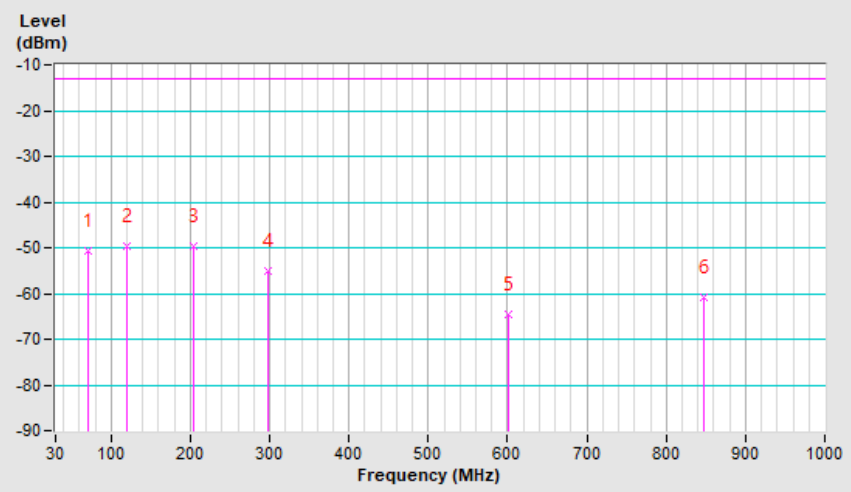
Remarks:
1. ERP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) - Cable Loss (dB) + 2.15dB.



Mode	TX channel 142700 (713.5MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	22deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	70.77	-42.2	-50.2	-0.4	-50.6	-13.0	-37.6
2	119.97	-41.0	-46.5	-3.2	-49.7	-13.0	-36.7
3	204.32	-45.8	-47.8	-2.0	-49.8	-13.0	-36.8
4	298.51	-52.9	-54.8	-0.4	-55.2	-13.0	-42.2
5	600.75	-66.2	-68.5	3.8	-64.7	-13.0	-51.7
6	848.17	-65.5	-64.1	3.4	-60.7	-13.0	-47.7

Remarks:
1. ERP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) - Cable Loss (dB) + 2.15dB.

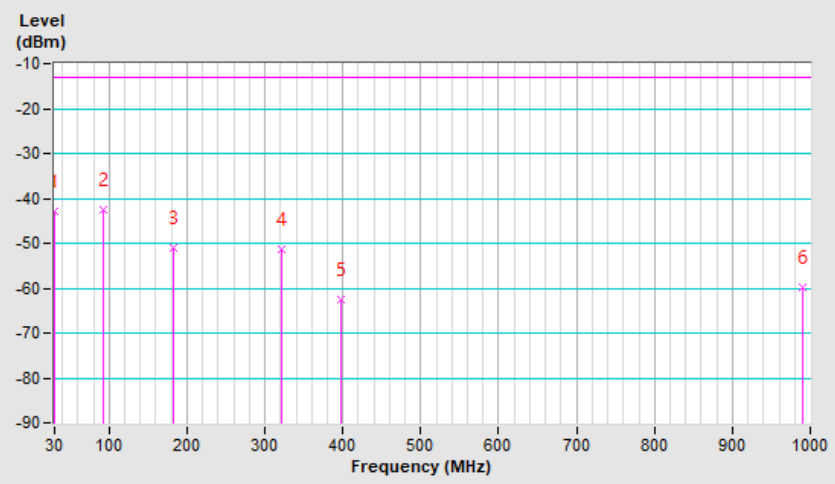


LTE Band 2, Channel Bandwidth: 1.4MHz

Mode	TX channel 18607 (1850.70MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	22deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	30.00	-46.0	-30.8	-12.2	-43.0	-13.0	-30.0
2	**93.26**	**-33.6**	**-43.6**	**1.1**	**-42.5**	**-13.0**	**-29.5**
3	183.23	-42.4	-54.2	3.3	-50.9	-13.0	-37.9
4	321.00	-47.7	-56.7	5.2	-51.5	-13.0	-38.5
5	396.91	-62.3	-67.8	5.2	-62.6	-13.0	-49.6
6	990.16	-69.4	-63.6	3.9	-59.7	-13.0	-46.7

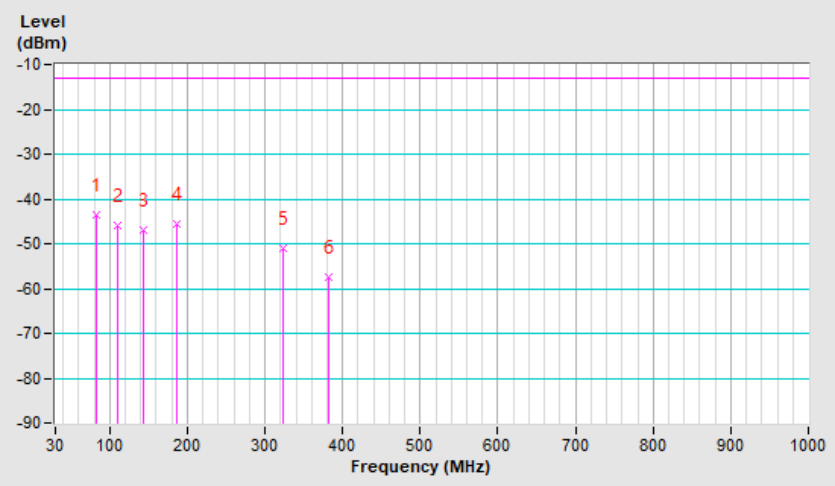
Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



Mode	TX channel 18607 (1850.70MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	22deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	83.42	-38.4	-42.9	-0.7	-43.6	-13.0	-30.6
2	110.13	-38.0	-46.4	0.4	-46.0	-13.0	-33.0
3	142.46	-44.2	-46.7	-0.3	-47.0	-13.0	-34.0
4	186.04	-42.7	-49.4	3.7	-45.7	-13.0	-32.7
5	323.81	-51.2	-56.3	5.2	-51.1	-13.0	-38.1
6	381.45	-57.5	-62.7	5.3	-57.4	-13.0	-44.4

Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



Above 1GHz
n12, Channel Bandwidth: 5MHz

Mode	TX channel 142700 (713.5MHz)	Frequency Range	1GHz ~ 18GHz
Environmental Conditions	22deg. C, 65%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1427.00	-63.1	-56.5	1.0	-55.5	-13.0	-42.5
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1427.00	-60.0	-54.5	1.0	-53.5	-13.0	-40.5

Remarks:
1. ERP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) - Cable Loss (dB) + 2.15dB.

LTE Band 2, Channel Bandwidth: 1.4MHz

Mode	TX channel 18607 (1850.70MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	22deg. C, 65%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3701.40	-61.5	-53.0	1.4	-51.6	-13.0	-38.6
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3701.40	-58.8	-50.6	1.4	-49.2	-13.0	-36.2

Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

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 FCC recognized accredited test firms and accredited and approved according to ISO/IEC 17025.

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Web Site: www.bureauveritas-adt.com

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

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