

## FCC Test Report (Part 27)

**Report No.:** RF200109E02-2

**FCC ID:** 2AQ68T99W175

**Test Model:** T99W175

**Received Date:** Jan. 10, 2020

**Test Date:** Jan. 31 ~ May 04, 2020

**Issued Date:** May 05, 2020

**Applicant:** Hon Lin Technology Co., Ltd.

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**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 /** 788550 / TW0003

**Designation Number:**



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### Release Control Record

Issue No.	Description	Date Issued
RF200109E02-2	Original release	May 05, 2020

## 1 Certificate of Conformity

**Product:** 5G WWAN Module

**Brand:** Foxconn

**Test Model:** T99W175

**Sample Status:** Engineering Sample

**Applicant:** Hon Lin Technology Co., Ltd.

**Test Date:** Jan. 31 ~ May 04, 2020

**Standards:** FCC Part 27, Subpart C, D, F, L, M, N

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:** May 05, 2020  
Pettie Chen / Senior Specialist

**Approved by :** Bruce Chen, **Date:** May 05, 2020  
Bruce Chen / Senior Project Engineer

## 2 Summary of Test Results

Applied Standard: FCC Part 27 & Part 2									
FCC Clause							Test Item	Result	Remarks
WCDMA B4 / LTE B4	LTE B12/ LTE B71	LTE B13	LTE B17	LTE B7 / LTE B38 / LTE B41	LTE B30	LTE B66			
2.1046 27.50 (d)(4)	2.1046 27.50 (c)	2.1046 27.50 (b)	2.1046 27.50 (c)	2.1046 27.50 (h)(2)	2.1046 27.50 (a)(3)	2.1046 27.50 (d)(4)	Equivalent Isotropically Radiated Power / Equivalent Radiated Power	Pass	Meet the requirement of limit.
2.1047	2.1047	2.1047	2.1047	2.1047	2.1047	2.1047	Modulation Characteristics	Pass	Meet the requirement of limit.
27.50 (d)(5)	----	----	----	----	----	27.50 (d)(5)	Peak To Average Ratio	Pass	Meet the requirement of limit.
2.1055 27.54	2.1055 27.54	2.1055 27.54	2.1055 27.54	2.1055 27.54	2.1055 27.54	2.1055 27.54	Frequency Stability Stay with the authorized bands of operation	Pass	Meet the requirement of limit.
2.1049	2.1049	2.1049	2.1049	2.1049	2.1049	2.1049	Occupied Bandwidth	Pass	Meet the requirement of limit.
2.1051 27.53(h)	2.1051 27.53(g)	2.1051 27.53(c)	2.1051 27.53(g)	2.1051 27.53 (m)(4)(6)	2.1051 27.53 (a)(4)	2.1051 27.53(h)	Band Edge Measurements	Pass	Meet the requirement of limit.
2.1051 27.53(h)	2.1051 27.53(g)	2.1051 27.53(c)(f)	2.1051 27.53(g)	2.1051 27.53 (m)(4)(6)	2.1051 27.53 (a)(4)	2.1051 27.53(h)	Conducted Spurious Emissions	Pass	Meet the requirement of limit.
2.1053 27.53(h)	2.1053 27.53(g)	2.1053 27.53(c)(f)	2.1053 27.53(g)	2.1053 27.53 (m)(4)(6)	2.1053 27.53 (a)(4)	2.1053 27.53(h)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -2.4dB at 51.34MHz.

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 ROHDE & SCHWARZ	ESCI	100424	Dec. 31, 2019	Dec. 30, 2020
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100040	Sep. 23, 2019	Sep. 22, 2020
Spectrum Analyzer KEYSIGHT	N9030B	MY57140953	Jul. 03, 2019	Jul. 02, 2020
Radio Communication Analyzer Anritsu	MT8821C	6261806803	Jan. 18, 2020	Jan. 17, 2021
MXG Vector signal generator Agilent	N5182B	MY53050162	Jan. 14, 2020	Jan. 13, 2021
HORN Antenna ETS	3117	00034128	Nov. 24, 2019	Nov. 23, 2020
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Nov. 11, 2019	Nov. 10, 2020
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-1170	Nov. 24, 2019	Nov. 23, 2020
HORN Antenna ETS	3117	00034128	Nov. 24, 2019	Nov. 23, 2020
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Nov. 24, 2019	Nov. 23, 2020
Loop Antenna TESEQ	HLA 6121	45745	Jul. 01, 2019	Jun. 30, 2020
Preamplifier Agilent (Below 1GHz)	8447D	2944A10631	Jul. 11, 2019	Jul. 10, 2020
Preamplifier KEYSIGHT (Above 1GHz)	83017A	MY53270295	Jun. 11, 2019	Jun. 10, 2020
RF Coaxial Cable WOKEN With 5dB PAD	8D-FB	Cable-CH4-01	Aug. 20, 2019	Aug. 19, 2020
RF Coaxial Cable EMCI	EMC102-KM-KM-3000	150929	Aug. 20, 2019	Aug. 19, 2020
RF Coaxial Cable EMCI	EMC102-KM-KM-600	150928	Aug. 20, 2019	Aug. 19, 2020
RF signal cable HUBER+SUHNER	SUCOFLEX 104	MY 13380+295012/04	Jul. 11, 2019	Jul. 10, 2020
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH4-03 (250724)	Jul. 11, 2019	Jul. 10, 2020
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	010303	NA	NA
Antenna Tower Controller BV ADT	AT100	AT93021703	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
Standard Temperature And Humidity Chamber	MHU-225AU	920842	May 31, 2019	May 30, 2020
JFW 20dB attenuation	50HF-020-SMA	NA	NA	NA
True RMS Clamp Meter Fluke	325	31130711WS	May 21, 2019	May 20, 2020
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 4.

### 3 General Information

#### 3.1 General Description of EUT

Product	5G WWAN Module		
Brand	Foxconn		
Test Model	T99W175		
Status of EUT	Engineering Sample		
Power Supply Rating	5 Vdc (Host equipment) 3.135Vdc~3.63Vdc (Module)		
Modulation Type	WCDMA: BPSK, QPSK HSDPA: BPSK HSUPA: QPSK LTE: QPSK, 16QAM, 64QAM		
Operating Frequency	WCDMA Band 4	1712.4MHz ~ 1752.6MHz	
	LTE Band 4	Channel Bandwidth 1.4MHz	1710.7MHz ~ 1754.3MHz
		Channel Bandwidth 3MHz	1711.5MHz ~ 1753.5MHz
		Channel Bandwidth 5MHz	1712.5MHz ~ 1752.5MHz
		Channel Bandwidth 10MHz	1715.0MHz ~ 1750.0MHz
		Channel Bandwidth 15MHz	1717.5MHz ~ 1747.5MHz
		Channel Bandwidth 20MHz	1720.0MHz ~ 1745.0MHz
	LTE Band 7	Channel Bandwidth 5MHz	2502.5MHz ~ 2567.5MHz
		Channel Bandwidth 10MHz	2505.0MHz ~ 2565.0MHz
		Channel Bandwidth 15MHz	2507.5MHz ~ 2562.5MHz
		Channel Bandwidth 20MHz	2510.0MHz ~ 2560.0MHz
	LTE Band 12	Channel Bandwidth 1.4MHz	699.7MHz ~ 715.3MHz
		Channel Bandwidth 3MHz	700.5MHz ~ 714.5MHz
		Channel Bandwidth 5MHz	701.5MHz ~ 713.5MHz
		Channel Bandwidth 10MHz	704.0MHz ~ 711.0MHz
	LTE Band 13	Channel Bandwidth 5MHz	779.5MHz ~ 784.5MHz
		Channel Bandwidth 10MHz	782.0MHz
	LTE Band 17	Channel Bandwidth 5MHz	706.5MHz ~ 713.5MHz
		Channel Bandwidth 10MHz	709.0MHz ~ 711.0MHz
	LTE Band 30	Channel Bandwidth 5MHz	2307.5MHz ~ 2312.5MHz
		Channel Bandwidth 10MHz	2310.0MHz
	LTE Band 38	Channel Bandwidth 5MHz	2572.5MHz ~ 2617.5MHz
		Channel Bandwidth 10MHz	2575.0MHz ~ 2615.0MHz
		Channel Bandwidth 15MHz	2577.5MHz ~ 2612.5MHz
		Channel Bandwidth 20MHz	2580.0MHz ~ 2610.0MHz
	LTE Band 41	Channel Bandwidth 5MHz	2498.5MHz ~ 2687.5 MHz
		Channel Bandwidth 10MHz	2501.0MHz ~ 2685.0 MHz
Channel Bandwidth 15MHz		2503.5MHz ~ 2682.5 MHz	
Channel Bandwidth 20MHz		2506.0MHz ~ 2680.0 MHz	



Operating Frequency	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		
	LTE Band 71	Channel Bandwidth 5MHz	665.5MHz ~ 695.5MHz		
		Channel Bandwidth 10MHz	668.0MHz ~ 693.0MHz		
		Channel Bandwidth 15MHz	670.5MHz ~ 690.5MHz		
		Channel Bandwidth 20MHz	673.0MHz ~ 688.0MHz		
Max. EIRP Power	WCDMA Band 4		594.292mW (27.74dBm)		
			QPSK	16QAM	64QAM
	LTE Band 4	Channel Bandwidth 1.4MHz	636.796mW (28.04dBm)	542.001mW (27.34dBm)	404.576mW (26.07dBm)
		Channel Bandwidth 3MHz	645.654mW (28.10dBm)	576.766mW (27.61dBm)	410.204mW (26.13dBm)
		Channel Bandwidth 5MHz	668.344mW (28.25dBm)	549.541mW (27.40dBm)	413.048mW (26.16dBm)
		Channel Bandwidth 10MHz	639.735mW (28.06dBm)	583.445mW (27.66dBm)	426.580mW (26.30dBm)
		Channel Bandwidth 15MHz	623.735mW (27.95dBm)	552.077mW (27.42dBm)	428.549mW (26.32dBm)
		Channel Bandwidth 20MHz	628.058mW (27.98dBm)	557.186mW (27.46dBm)	428.549mW (26.32dBm)
	LTE Band 7	Channel Bandwidth 5MHz	724.436mW (28.60dBm)	601.174mW (27.79dBm)	533.335mW (27.27dBm)
		Channel Bandwidth 10MHz	734.514mW (28.66dBm)	602.560mW (27.80dBm)	544.503mW (27.36dBm)
		Channel Bandwidth 15MHz	731.139mW (28.64dBm)	651.628mW (28.14dBm)	534.564mW (27.28dBm)
		Channel Bandwidth 20MHz	734.514mW (28.66dBm)	622.300mW (27.94dBm)	537.032mW (27.30dBm)
	LTE Band 30	Channel Bandwidth 5MHz	223.872 mW/ 5MHz (23.5dBm/ 5MHz)	177.828 mW/ 5MHz (22.5dBm/ 5MHz)	154.882 mW/ 5MHz (21.9dBm/ 5MHz)
		Channel Bandwidth 10MHz	204.174 mW/5MHz (23.1dBm/ 5MHz)	158.489 mW/5MHz (22.0dBm/ 5MHz)	141.254 mW/5MHz (21.5dBm/ 5MHz)
	LTE Band 38	Channel Bandwidth 5MHz	751.623mW (28.76dBm)	654.636mW (28.16dBm)	527.230mW (27.22dBm)
		Channel Bandwidth 10MHz	755.092mW (28.78dBm)	662.217mW (28.21dBm)	550.808mW (27.41dBm)
		Channel Bandwidth 15MHz	767.361mW (28.85dBm)	665.273mW (28.23dBm)	545.758mW (27.37dBm)
		Channel Bandwidth 20MHz	767.361mW (28.85dBm)	687.068mW (28.37dBm)	558.470mW (27.47dBm)
	LTE Band 41	Channel Bandwidth 5MHz	1570.363mW (31.96dBm)	1367.729mW (31.36dBm)	1169.499mW (30.68dBm)
		Channel Bandwidth 10MHz	1555.966mW (31.92dBm)	1361.445mW (31.34dBm)	1261.828mW (31.01dBm)
		Channel Bandwidth 15MHz	1581.248mW (31.99dBm)	1339.677mW (31.27dBm)	1276.439mW (31.06dBm)
		Channel Bandwidth 20MHz	1595.879mW (32.03dBm)	1358.313mW (31.33dBm)	1445.440mW (31.60dBm)

Max. EIRP Power	LTE Band 66		QPSK	16QAM	64QAM
		Channel Bandwidth 1.4MHz	587.489mW (27.69dBm)	521.195mW (27.17dBm)	414.000mW (26.17dBm)
Channel Bandwidth 3MHz	601.174mW (27.79dBm)	528.445mW (27.23dBm)	421.697mW (26.25dBm)		
Channel Bandwidth 5MHz	612.350mW (27.87dBm)	514.044mW (27.11dBm)	415.911mW (26.19dBm)		
Channel Bandwidth 10MHz	592.925mW (27.73dBm)	548.277mW (27.39dBm)	433.511mW (26.37dBm)		
Channel Bandwidth 15MHz	618.016mW (27.91dBm)	547.016mW (27.38dBm)	438.531mW (26.42dBm)		
Channel Bandwidth 20MHz	623.735mW (27.95dBm)	554.626mW (27.44dBm)	404.576mW (26.07dBm)		
Max. ERP Power			QPSK	16QAM	64QAM
	LTE Band 12	Channel Bandwidth 1.4MHz	410.204mW (26.13dBm)	362.243mW (25.59dBm)	261.216mW (24.17dBm)
		Channel Bandwidth 3MHz	417.830mW (26.21dBm)	339.625mW (25.31dBm)	263.027mW (24.20dBm)
		Channel Bandwidth 5MHz	414.000mW (26.17dBm)	370.681mW (25.69dBm)	266.686mW (24.26dBm)
		Channel Bandwidth 10MHz	431.519mW (26.35dBm)	349.945mW (25.44dBm)	277.971mW (24.44dBm)
	LTE Band 13	Channel Bandwidth 5MHz	435.512mW (26.39dBm)	385.478mW (25.86dBm)	263.633mW (24.21dBm)
		Channel Bandwidth 10MHz	437.522mW (26.41dBm)	395.367mW (25.97dBm)	268.534mW (24.29dBm)
	LTE Band 17	Channel Bandwidth 5MHz	418.794mW (26.22dBm)	395.367mW (25.87dBm)	262.422mW (24.19dBm)
		Channel Bandwidth 10MHz	423.643mW (26.27dBm)	355.631mW (25.51dBm)	258.821mW (24.13dBm)
	LTE Band 71	Channel Bandwidth 5MHz	372.392mW (25.71dBm)	332.660mW (25.22dBm)	260.615mW (24.16dBm)
		Channel Bandwidth 10MHz	369.828mW (25.68dBm)	350.752mW (25.45dBm)	260.615mW (24.16dBm)
		Channel Bandwidth 15MHz	395.367mW (25.97dBm)	249.945mW (25.44dBm)	271.644mW (24.34dBm)
		Channel Bandwidth 20MHz	395.367mW (25.97dBm)	328.851mW (25.17dBm)	260.016mW (24.15dBm)

Emission Designator	WCDMA Band 4		4M16F9W		
			QPSK	16QAM	64QAM
	LTE Band 4	Channel Bandwidth 1.4MHz	1M09G7D	1M09D7W	1M09D7W
		Channel Bandwidth 3MHz	2M70G7D	2M70D7W	2M70D7W
		Channel Bandwidth 5MHz	4M49G7D	4M49D7W	4M49D7W
		Channel Bandwidth 10MHz	8M96G7D	8M97D7W	8M96D7W
		Channel Bandwidth 15MHz	13M5G7D	13M5D7W	13M4D7W
		Channel Bandwidth 20MHz	17M9G7D	18M0D7W	18M0D7W
	LTE Band 7	Channel Bandwidth 5MHz	4M49G7D	4M49D7W	4M49D7W
		Channel Bandwidth 10MHz	8M96G7D	8M96D7W	8M95D7W
		Channel Bandwidth 15MHz	13M5G7D	13M4D7W	13M4D7W
		Channel Bandwidth 20MHz	17M9G7D	17M9D7W	17M9D7W
	LTE Band 12	Channel Bandwidth 1.4MHz	1M09G7D	1M09D7W	1M09D7W
		Channel Bandwidth 3MHz	2M70G7D	2M69D7W	2M70D7W
		Channel Bandwidth 5MHz	4M49G7D	4M49D7W	4M49D7W
		Channel Bandwidth 10MHz	8M96G7D	8M96D7W	8M95D7W
	LTE Band 13	Channel Bandwidth 5MHz	4M49G7D	4M50D7W	4M50D7W
		Channel Bandwidth 10MHz	8M97G7D	8M94D7W	8M94D7W
	LTE Band 17	Channel Bandwidth 5MHz	4M49G7D	4M49D7W	4M49D7W
		Channel Bandwidth 10MHz	8M95G7D	8M95D7W	8M94D7W
	LTE Band 30	Channel Bandwidth 5MHz	4M49G7D	4M49D7W	4M49D7W
		Channel Bandwidth 10MHz	8M96G7D	8M96D7W	8M95D7W
	LTE Band 38	Channel Bandwidth 5MHz	4M49G7D	4M49D7W	4M49D7W
		Channel Bandwidth 10MHz	8M96G7D	8M96D7W	8M97D7W
		Channel Bandwidth 15MHz	13M5G7D	13M4D7W	13M4D7W
		Channel Bandwidth 20MHz	17M9G7D	17M9D7W	17M9D7W
	LTE Band 41	Channel Bandwidth 5MHz	4M49G7D	4M49D7W	4M49D7W
		Channel Bandwidth 10MHz	8M96G7D	8M97D7W	8M96D7W
		Channel Bandwidth 15MHz	13M5G7D	13M4D7W	13M4D7W
		Channel Bandwidth 20MHz	17M9G7D	17M9D7W	17M9D7W
LTE Band 66	Channel Bandwidth 1.4MHz	1M09G7D	1M09D7W	1M09D7W	
	Channel Bandwidth 3MHz	2M70G7D	2M70D7W	2M70D7W	
	Channel Bandwidth 5MHz	4M49G7D	4M49D7W	4M49D7W	
	Channel Bandwidth 10MHz	8M96G7D	8M96D7W	8M95D7W	
	Channel Bandwidth 15MHz	13M5G7D	13M5D7W	13M5D7W	
	Channel Bandwidth 20MHz	18M0G7D	18M0D7W	18M0D7W	
LTE Band 71	Channel Bandwidth 5MHz	4M49G7D	4M49D7W	4M50D7W	
	Channel Bandwidth 10MHz	8M97G7D	8M97D7W	8M97D7W	
	Channel Bandwidth 15MHz	13M5G7D	13M5D7W	13M4D7W	
	Channel Bandwidth 20MHz	17M9G7D	17M9D7W	17M9D7W	
Antenna Type	Refer to Note as below				
Antenna Connector	Refer to Note as below				
Accessory Device	NA				
Cable Supplied	NA				

Note:

1. There are four Difference HW of T99W175.

Brand	Model	HW
Foxconn	T99W175	1. 3G+LTE+Sub6+eSIM
		2. 3G+LTE+Sub6 only w/o eSIM
		3. 3G+LTE+Sub6+eSIM+GNSS connector
		4. 3G+LTE+Sub6 only+w/o eSIM+GNSS connector

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

2. 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

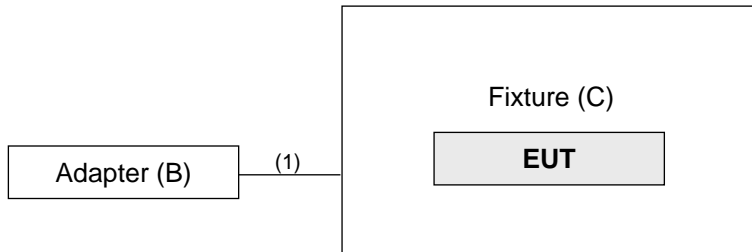
Antenna No.	RF Chain No.	Brand	Model	Antenna Net Gain(dBi)	Frequency range (MHz)	Antenna Type	Connector Type
13	Tx1/ Rx1	Ethertronics	5003806	0.4 -1.61 0.39 2.95 1.98 0.38 0.83 2.31	698-821 824-960 1425-1515 1710-2200 2300-2690 3300-4200 4400-5000 5150-5925	PIFA	I-PEX
	Rx2	Ethertronics	5003807	-2.24 -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
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 antenna for the final tests as following table.

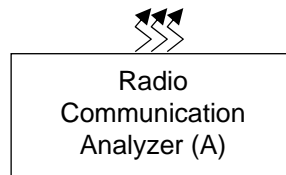
	Band	Antenna
WCDMA	2	Antenna 3
	4	Antenna 3
	5	Antenna 2
LTE	2	Antenna 3
	4	Antenna 3
	5	Antenna 2
	7	Antenna 3
	12	Antenna 1
	13	Antenna 1
	14	Antenna 1
	17	Antenna 1
	25	Antenna 3
	26	Antenna 2
	30	Antenna 4
	66	Antenna 3
	71	Antenna 1
	38	Antenna 3
	41	Antenna 3
48	Antenna 4	

\*The max. gain of each band is chosen for the final tests. Only the antenna no. 4 is for band 30 requested by client.

### 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.	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.

#### WCDMA Band 4

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Mode
-	EIRP	1312 to 1513	1312(1712.4MHz), 1413(1732.6MHz), 1513(1752.6MHz)	WCDMA
-	Modulation Characteristics	1312 to 1513	1413(1732.6MHz)	WCDMA, HSDPA, HSUPA
-	Frequency Stability	1312 to 1513	1312(1712.4MHz), 1513(1752.6MHz)	WCDMA
-	Occupied Bandwidth	1312 to 1513	1312(1712.4MHz), 1413(1732.6MHz), 1513(1752.6MHz)	WCDMA, HSDPA, HSUPA
-	Band Edge	1312 to 1513	1312(1712.4MHz), 1513(1752.6MHz)	WCDMA, HSDPA, HSUPA
-	Peak To Average Ratio	1312 to 1513	1312(1712.4MHz), 1413(1732.6MHz), 1513(1752.6MHz)	WCDMA, HSDPA, HSUPA
-	Conducted Emission	1312 to 1513	1312(1712.4MHz), 1413(1732.6MHz), 1513(1752.6MHz)	WCDMA, HSDPA, HSUPA
-	Radiated Emission Below 1GHz	1312 to 1513	1513(1752.6MHz)	WCDMA
-	Radiated Emission Above 1GHz	1312 to 1513	1312(1712.4MHz), 1413(1732.6MHz), 1513(1752.6MHz)	WCDMA

Note: For radiated emission below 1GHz, select the worst radiated emission (above 1GHz) channel for final testing.



LTE Band 4

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	EIRP	19957 to 20393	19957(1710.7MHz), 20175(1732.5MHz), 20393(1754.3MHz)	1.4MHz	QPSK / 16QAM / 64QAM	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
		19965 to 20385	19965(1711.5MHz), 20175(1732.5MHz), 20385(1753.5MHz)	3MHz	QPSK / 16QAM / 64QAM	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
		19975 to 20375	19975(1712.5MHz), 20175(1732.5MHz), 20375(1752.5MHz)	5MHz	QPSK / 16QAM / 64QAM	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
		20000 to 20350	20000(1715.0MHz), 20175(1732.5MHz), 20350(1750.0MHz)	10MHz	QPSK / 16QAM / 64QAM	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
		20025 to 20325	20025(1717.5MHz), 20175(1732.5MHz), 20325(1747.5MHz)	15MHz	QPSK / 16QAM / 64QAM	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
		20050 to 20300	20050(1720.0MHz), 20175(1732.5MHz), 20300(1745.0MHz)	20MHz	QPSK / 16QAM / 64QAM	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
-	Modulation Characteristics	20050 to 20300	20175(1732.5MHz)	20MHz	QPSK / 16QAM / 64QAM	100 RB / 0 RB Offset
-	Frequency Stability	19957 to 20393	19957(1710.7MHz), 20393(1754.3MHz)	1.4MHz	QPSK	6 RB / 0 RB Offset
		19965 to 20385	19965(1711.5MHz), 20385(1753.5MHz)	3MHz	QPSK	15 RB / 0 RB Offset
		19975 to 20375	19975(1712.5MHz), 20375(1752.5MHz)	5MHz	QPSK	25 RB / 0 RB Offset
		20000 to 20350	20000(1715.0MHz), 20350(1750.0MHz)	10MHz	QPSK	50 RB / 0 RB Offset
		20025 to 20325	20025(1717.5MHz), 20325(1747.5MHz)	15MHz	QPSK	75 RB / 0 RB Offset
		20050 to 20300	20050(1720.0MHz), 20300(1745.0MHz)	20MHz	QPSK	100 RB / 0 RB Offset

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	Emission Bandwidth	19957 to 20393	19957(1710.7MHz), 20175(1732.5MHz), 20393(1754.3MHz)	1.4MHz	QPSK / 16QAM / 64QAM	6 RB / 0RB Offset
		19965 to 20385	19965(1711.5MHz), 20175(1732.5MHz), 20385(1753.5MHz)	3MHz	QPSK / 16QAM / 64QAM	15 RB / 0RB Offset
		19975 to 20375	19975(1712.5MHz), 20175(1732.5MHz), 20375(1752.5MHz)	5MHz	QPSK / 16QAM / 64QAM	25RB / 0RB Offset
		20000 to 20350	20000(1715.0MHz), 20175(1732.5MHz), 20350(1750.0MHz)	10MHz	QPSK / 16QAM / 64QAM	50RB / 0RB Offset
		20025 to 20325	20025(1717.5MHz), 20175(1732.5MHz), 20325(1747.5MHz)	15MHz	QPSK / 16QAM / 64QAM	75 RB / 0 RB Offset
		20050 to 20300	20050(1720.0MHz), 20175(1732.5MHz), 20300(1745.0MHz)	20MHz	QPSK / 16QAM / 64QAM	100 RB / 0 RB Offset
-	Band Edge	19957 to 20393	19957(1710.7MHz), 20393(1754.3MHz)	1.4MHz	QPSK	1 RB / 0 RB Offset 1 RB / 5 RB Offset 6 RB / 0 RB Offset
		19965 to 20385	19965(1711.5MHz), 20385(1753.5MHz)	3MHz	QPSK	1 RB / 0 RB Offset 1 RB / 14 RB Offset 15 RB / 0 RB Offset
		19975 to 20375	19975(1712.5MHz), 20375(1752.5MHz)	5MHz	QPSK	1 RB / 0 RB Offset 1 RB / 24 RB Offset 25 RB / 0 RB Offset
		20000 to 20350	20000(1715.0MHz), 20350(1750.0MHz)	10MHz	QPSK	1 RB / 0 RB Offset 1 RB / 49 RB Offset 50 RB / 0 RB Offset
		20025 to 20325	20025(1717.5MHz), 20325(1747.5MHz)	15MHz	QPSK	1 RB / 0 RB Offset 1 RB / 74 RB Offset 75 RB / 0 RB Offset
		20050 to 20300	20050(1720.0MHz), 20300(1745.0MHz)	20MHz	QPSK	1 RB / 0 RB Offset 1 RB / 99 RB Offset 100 RB / 0 RB Offset
-	Peak To Average Ratio	19957 to 20393	19957(1710.7MHz), 20175(1732.5MHz), 20393(1754.3MHz)	1.4MHz	QPSK / 16QAM / 64QAM	1 RB / 2 RB Offset
		19965 to 20385	19965(1711.5MHz), 20175(1732.5MHz), 20385(1753.5MHz)	3MHz	QPSK / 16QAM / 64QAM	1 RB / 7 RB Offset
		19975 to 20375	19975(1712.5MHz), 20175(1732.5MHz), 20375(1752.5MHz)	5MHz	QPSK / 16QAM / 64QAM	1 RB / 12 RB Offset
		20000 to 20350	20000(1715.0MHz), 20175(1732.5MHz), 20350(1750.0MHz)	10MHz	QPSK / 16QAM / 64QAM	1 RB / 49 RB Offset
		20025 to 20325	20025(1717.5MHz), 20175(1732.5MHz), 20325(1747.5MHz)	15MHz	QPSK / 16QAM / 64QAM	1 RB / 0 RB Offset
		20050 to 20300	20050(1720.0MHz), 20175(1732.5MHz), 20300(1745.0MHz)	20MHz	QPSK / 16QAM / 64QAM	1 RB / 50 RB Offset

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	Conducted Emission	19957 to 20393	19957(1710.7MHz), 20175(1732.5MHz), 20393(1754.3MHz)	1.4MHz	QPSK	1 RB / 2 RB Offset
		19965 to 20385	19965(1711.5MHz), 20175(1732.5MHz), 20385(1753.5MHz)	3MHz	QPSK	1 RB / 7 RB Offset
		19975 to 20375	19975(1712.5MHz), 20175(1732.5MHz), 20375(1752.5MHz)	5MHz	QPSK	1 RB / 12 RB Offset
		20000 to 20350	20000(1715.0MHz), 20175(1732.5MHz), 20350(1750.0MHz)	10MHz	QPSK	1 RB / 49 RB Offset
		20025 to 20325	20025(1717.5MHz), 20175(1732.5MHz), 20325(1747.5MHz)	15MHz	QPSK	1 RB / 0 RB Offset
		20050 to 20300	20050(1720.0MHz), 20175(1732.5MHz), 20300(1745.0MHz)	20MHz	QPSK	1 RB / 50 RB Offset
-	Radiated Emission Below 1GHz	19975 to 20375	20175(1732.5MHz)	5MHz	QPSK	1 RB / 12 RB Offset
-	Radiated Emission Above 1GHz	19957 to 20393	19957(1710.7MHz), 20175(1732.5MHz), 20393(1754.3MHz)	1.4MHz	QPSK	1 RB / 2 RB Offset
		19975 to 20375	19975(1712.5MHz), 20175(1732.5MHz), 20375(1752.5MHz)	5MHz	QPSK	1 RB / 12 RB Offset
		20050 to 20300	20050(1720.0MHz), 20175(1732.5MHz), 20300(1745.0MHz)	20MHz	QPSK	1 RB / 50 RB Offset

Note:

1. For radiated emission below 1GHz, select the worst radiated emission (above 1GHz) channel for final testing.
2. For radiated emission above 1GHz, according to 3GPP 36.521 Section 6.6.3.1.4, choose the lowest, 5MHz & highest channel bandwidth for final test.
3. The conducted output power for QPSK, 16QAM and 64QAM measured value of QPSK is higher than 16QAM and 64QAM mode. Therefore, only EIRP, Modulation characteristics, occupied bandwidth and Peak to average ratio items had been tested under QPSK, 16QAM and 64QAM modes, the other test items were performed under QPSK mode only.

LTE Band 7

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	EIRP	20775 to 21425	20775 (2502.5MHz), 21100 (2535.0MHz), 21425 (2567.5MHz)	5 MHz	QPSK / 16QAM / 64QAM	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
		20800 to 21400	20800 (2505.0MHz), 21100 (2535.0MHz), 21400 (2565.0MHz)	10 MHz	QPSK / 16QAM / 64QAM	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
		20825 to 21375	20825 (2507.5MHz), 21100 (2535.0MHz), 21375 (2562.5MHz)	15 MHz	QPSK / 16QAM / 64QAM	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
		20850 to 21350	20850 (2510.0MHz), 21100 (2535.0MHz), 21350 (2560.0MHz)	20 MHz	QPSK / 16QAM / 64QAM	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
-	Modulation Characteristics	20850 to 21350	21100 (2535.0MHz)	20MHz	QPSK / 16QAM / 64QAM	100 RB / 0 RB Offset
-	Frequency Stability	20775 to 21425	20775 (2502.5MHz), 21425 (2567.5MHz)	5 MHz	QPSK	25 RB / 0 RB Offset
		20800 to 21400	20800 (2505.0MHz), 21400 (2565.0MHz)	10 MHz	QPSK	50 RB / 0 RB Offset
		20825 to 21375	20825 (2507.5MHz), 21375 (2562.5MHz)	15 MHz	QPSK	75 RB / 0 RB Offset
		20850 to 21350	20850 (2510.0MHz), 21350 (2560.0MHz)	20 MHz	QPSK	100 RB / 0 RB Offset
-	Emission Bandwidth	20775 to 21425	20775 (2502.5MHz), 21100 (2535.0MHz), 21425 (2567.5MHz)	5 MHz	QPSK / 16QAM / 64QAM	25 RB / 0 RB Offset
		20800 to 21400	20800 (2505.0MHz), 21100 (2535.0MHz), 21400 (2565.0MHz)	10 MHz	QPSK / 16QAM / 64QAM	50 RB / 0 RB Offset
		20825 to 21375	20825 (2507.5MHz), 21100 (2535.0MHz), 21375 (2562.5MHz)	15 MHz	QPSK / 16QAM / 64QAM	75 RB / 0 RB Offset
		20850 to 21350	20850 (2510.0MHz), 21100 (2535.0MHz), 21350 (2560.0MHz)	20 MHz	QPSK / 16QAM / 64QAM	100 RB / 0 RB Offset
-	Emission Mask	20775 to 21425	20775 (2502.5MHz), 21100 (2535.0MHz), 21425 (2567.5MHz)	5 MHz	QPSK	1 RB / 0 RB Offset 1 RB / 24 RB Offset 25 RB / 0 RB Offset
		20800 to 21400	20800 (2505.0MHz), 21100 (2535.0MHz), 21400 (2565.0MHz)	10 MHz	QPSK	1 RB / 0 RB Offset 1 RB / 49 RB Offset 50 RB / 0 RB Offset
		20825 to 21375	20825 (2507.5MHz), 21100 (2535.0MHz), 21375 (2562.5MHz)	15 MHz	QPSK	1 RB / 0 RB Offset 1 RB / 74 RB Offset 75 RB / 0 RB Offset
		20850 to 21350	20850 (2510.0MHz), 21100 (2535.0MHz), 21350 (2560.0MHz)	20 MHz	QPSK	1 RB / 0 RB Offset 1 RB / 99 RB Offset 100 RB / 0 RB Offset

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	Peak to Average Ratio	20775 to 21425	20775 (2502.5MHz), 21100 (2535.0MHz), 21425 (2567.5MHz)	5 MHz	QPSK / 16QAM / 64QAM	1 RB / 0 RB Offset
		20800 to 21400	20800 (2505.0MHz), 21100 (2535.0MHz), 21400 (2565.0MHz)	10 MHz	QPSK / 16QAM / 64QAM	1 RB / 24 RB Offset
		20825 to 21375	20825 (2507.5MHz), 21100 (2535.0MHz), 21375 (2562.5MHz)	15 MHz	QPSK / 16QAM / 64QAM	1 RB / 37 RB Offset
		20850 to 21350	20850 (2510.0MHz), 21100 (2535.0MHz), 21350 (2560.0MHz)	20 MHz	QPSK / 16QAM / 64QAM	1 RB / 50 RB Offset
-	Conducted Emission	20775 to 21425	20775 (2502.5MHz), 21100 (2535.0MHz), 21425 (2567.5MHz)	5 MHz	QPSK	1 RB / 0 RB Offset
		20800 to 21400	20800 (2505.0MHz), 21100 (2535.0MHz), 21400 (2565.0MHz)	10 MHz	QPSK	1 RB / 24 RB Offset
		20825 to 21375	20825 (2507.5MHz), 21100 (2535.0MHz), 21375 (2562.5MHz)	15 MHz	QPSK	1 RB / 37 RB Offset
		20850 to 21350	20850 (2510.0MHz), 21100 (2535.0MHz), 21350 (2560.0MHz)	20 MHz	QPSK	1 RB / 50 RB Offset
-	Radiated Emission Below 1GHz	20775 to 21425	21425 (2567.5MHz)	5MHz	QPSK	1 RB / 0 RB Offset
-	Radiated Emission Above 1GHz	20775 to 21425	20775 (2502.5MHz), 21100 (2535.0MHz), 21425 (2567.5MHz)	5MHz	QPSK	1 RB / 0 RB Offset
		20850 to 21350	20850 (2510.0MHz), 21100 (2535.0MHz), 21350 (2560.0MHz)	20MHz	QPSK	1 RB / 50 RB Offset

LTE Band 12

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	ERP	23017 to 23173	23017(699.7MHz), 23095(707.5MHz), 23173(715.3MHz)	1.4MHz	QPSK / 16QAM / 64QAM	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
		23025 to 23165	23025(700.5MHz), 23095(707.5MHz), 23165(714.5MHz)	3MHz	QPSK / 16QAM / 64QAM	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
		23035 to 23155	23035(701.5MHz), 23095(707.5MHz), 23155(713.5MHz)	5MHz	QPSK / 16QAM / 64QAM	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
		23060 to 23130	23060(704.0MHz), 23095(707.5 MHz), 23130(711.0 MHz)	10MHz	QPSK / 16QAM / 64QAM	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
-	Modulation Characteristics	23060 to 23130	23095(707.5MHz)	10MHz	QPSK / 16QAM / 64QAM	50 RB / 0 RB Offset
-	Frequency Stability	23017 to 23173	23017(699.7MHz), 23173(715.3MHz)	1.4MHz	QPSK	6 RB / 0 RB Offset
		23025 to 23165	23025(700.5MHz), 23165(714.5MHz)	3MHz	QPSK	15 RB / 0 RB Offset
		23035 to 23155	23035(701.5MHz), 23155(713.5MHz)	5MHz	QPSK	25 RB / 0 RB Offset
		23060 to 23130	23060(704.0MHz), 23130(711.0MHz)	10MHz	QPSK	50 RB / 0 RB Offset
-	Emission Bandwidth	23017 to 23173	23017(699.7MHz), 23095(707.5MHz), 23173(715.3MHz)	1.4MHz	QPSK / 16QAM / 64QAM	6 RB / 0 RB Offset
		23025 to 23165	23025(700.5MHz), 23095(707.5MHz), 23165(714.5MHz)	3MHz	QPSK / 16QAM / 64QAM	15 RB / 0 RB Offset
		23035 to 23155	23035(701.5MHz), 23095(707.5MHz), 23155(713.5MHz)	5MHz	QPSK / 16QAM / 64QAM	25 RB / 0 RB Offset
		23060 to 23130	23060(704.0MHz), 23095(707.5MHz), 23130(711.0MHz)	10MHz	QPSK / 16QAM / 64QAM	50 RB / 0 RB Offset
-	Band Edge	23017 to 23173	23017(699.7MHz), 23173(715.3MHz)	1.4MHz	QPSK	1 RB / 0 RB Offset 1 RB / 5 RB Offset 6 RB / 0 RB Offset
		23025 to 23165	23025(700.5MHz), 23165(714.5MHz)	3MHz	QPSK	1 RB / 0 RB Offset 1 RB / 14 RB Offset 15 RB / 0 RB Offset
		23035 to 23155	23035(701.5MHz), 23155(713.5MHz)	5MHz	QPSK	1 RB / 0 RB Offset 1 RB / 24 RB Offset 25 RB / 0 RB Offset
		23060 to 23130	23060(704.0MHz), 23130(711.0MHz)	10MHz	QPSK	1 RB / 0 RB Offset 1 RB / 49 RB Offset 50 RB / 0 RB Offset

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	Peak to Average Ratio	23017 to 23173	23017(699.7MHz), 23095(707.5MHz), 23173(715.3MHz)	1.4MHz	QPSK / 16QAM / 64QAM	1 RB / 2 RB Offset
		23025 to 23165	23025(700.5MHz), 23095(707.5MHz), 23165(714.5MHz)	3MHz	QPSK / 16QAM / 64QAM	1 RB / 0 RB Offset
		23035 to 23155	23035(701.5MHz), 23095(707.5MHz), 23155(713.5MHz)	5MHz	QPSK / 16QAM / 64QAM	1 RB / 12 RB Offset
		23060 to 23130	23060(704.0MHz), 23095(707.5MHz), 23130(711.0MHz)	10MHz	QPSK / 16QAM / 64QAM	1 RB / 49 RB Offset
-	Conducted Emission	23017 to 23173	23017(699.7MHz), 23095(707.5MHz), 23173(715.3MHz)	1.4MHz	QPSK	1 RB / 2 RB Offset
		23025 to 23165	23025(700.5MHz), 23095(707.5MHz), 23165(714.5MHz)	3MHz	QPSK	1 RB / 0 RB Offset
		23035 to 23155	23035(701.5MHz), 23095(707.5MHz), 23155(713.5MHz)	5MHz	QPSK	1 RB / 12 RB Offset
		23060 to 23130	23060(704.0MHz), 23095(707.5MHz), 23130(711.0MHz)	10MHz	QPSK	1 RB / 49 RB Offset
-	Radiated Emission Below 1GHz	23017 to 23173	23095(707.5MHz)	1.4MHz	QPSK	1 RB / 2 RB Offset
-	Radiated Emission Above 1GHz	23017 to 23173	23017(699.7MHz), 23095(707.5MHz), 23173(715.3MHz)	1.4MHz	QPSK	1 RB / 2 RB Offset
		23035 to 23155	23035(701.5MHz), 23095(707.5MHz), 23155(713.5MHz)	5MHz	QPSK	1 RB / 12 RB Offset
		23060 to 23130	23060(704.0MHz), 23095(707.5MHz), 23130(711.0MHz)	10MHz	QPSK	1 RB / 49 RB Offset

Note:

1. For radiated emission below 1GHz, select the worst radiated emission (above 1GHz) channel for final testing.
2. For radiated emission above 1GHz, according to 3GPP 36.521 Section 6.6.3.1.4, choose the 1.4MHz & highest channel bandwidth for final test.
3. The conducted output power for QPSK, 16QAM and 64QAM measured value of QPSK is higher than 16QAM and 64QAM mode. Therefore, only ERP, Modulation characteristics, occupied bandwidth and Peak to average ratio items had been tested under QPSK, 16QAM and 64QAM modes, the other test items were performed under QPSK mode only.

### LTE Band 13

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	ERP	23205 to 23255	23205(779.5MHz), 23230(782.0MHz), 23255(784.5MHz)	5MHz	QPSK / 16QAM / 64QAM	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
		23230	23230(782.0MHz)	10MHz	QPSK / 16QAM / 64QAM	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
-	Modulation Characteristics	23230	23230(782.0MHz),	10MHz	QPSK / 16QAM / 64QAM	50 RB / 0 RB Offset
-	Frequency Stability	23205 to 23255	23205(779.5MHz), 23255(784.5MHz)	5MHz	QPSK	25 RB / 0 RB Offset
		23230	23230(782.0MHz),	10MHz	QPSK	50 RB / 0 RB Offset
-	Emission Bandwidth	23205 to 23255	23205(779.5MHz), 23230(782.0MHz), 23255(784.5MHz)	5MHz	QPSK / 16QAM / 64QAM	25 RB / 0 RB Offset
		23230	23230(782.0MHz)	10MHz	QPSK / 16QAM / 64QAM	50 RB / 0 RB Offset
-	Band Edge	23205 to 23255	23205(779.5MHz), 23255(784.5MHz)	5MHz	QPSK	1 RB / 0 RB Offset 1 RB / 24 RB Offset 25 RB / 0 RB Offset
		23230	23230(782.0MHz)	10MHz	QPSK	1 RB / 0 RB Offset 1 RB / 49 RB Offset 50 RB / 0 RB Offset
-	Peak to Average Ratio	23205 to 23255	23205(779.5MHz), 23230(782.0MHz), 23255(784.5MHz)	5MHz	QPSK / 16QAM / 64QAM	1 RB / 24 RB Offset
		23230	23230(782.0MHz)	10MHz	QPSK / 16QAM / 64QAM	1 RB / 24 RB Offset
-	Conducted Emission	23205 to 23255	23205(779.5MHz), 23230(782.0MHz), 23255(784.5MHz)	5MHz	QPSK	1 RB / 24 RB Offset
		23230	23230(782.0MHz)	10MHz	QPSK	1 RB / 24 RB Offset
-	Radiated Emission Below 1GHz	23205 to 23255	23255(784.5MHz)	5MHz	QPSK	1 RB / 24 RB Offset
-	Radiated Emission Above 1GHz	23205 to 23255	23205(779.5MHz), 23230(782.0MHz), 23255(784.5MHz)	5MHz	QPSK	1 RB / 24 RB Offset
		23230	23230(782.0MHz)	10MHz	QPSK	1 RB / 24 RB Offset

**Note:**

1. For radiated emission below 1GHz, select the worst radiated emission (above 1GHz) channel for final testing.
2. For radiated emission above 1GHz, according to 3GPP 36.521 Section 6.6.3.1.4, choose the 5MHz & highest channel bandwidth for final test.
3. The conducted output power for QPSK, 16QAM and 64QAM measured value of QPSK is higher than 16QAM and 64QAM mode. Therefore, only ERP, Modulation characteristics, occupied bandwidth and Peak to average ratio items had been tested under QPSK, 16QAM and 64QAM modes, the other test items were performed under QPSK mode only.



LTE Band 17

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	ERP	23755 to 23825	23755(706.5MHz), 23790(710.0MHz), 23825(713.5MHz)	5MHz	QPSK / 16QAM / 64QAM	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
		23780 to 23800	23780(709.0MHz), 23790(710.0MHz), 23800(711.0MHz)	10MHz	QPSK / 16QAM / 64QAM	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
-	Modulation Characteristics	23780 to 23800	23790(710.0MHz)	10MHz	QPSK / 16QAM / 64QAM	50 RB / 0 RB Offset
-	Frequency Stability	23755 to 23825	23755(706.5MHz), 23825(713.5MHz)	5MHz	QPSK	25 RB / 0 RB Offset
		23780 to 23800	23780(709.0MHz), 23800(711.0MHz)	10MHz	QPSK	50 RB / 0 RB Offset
-	Emission Bandwidth	23755 to 23825	23755(706.5MHz), 23790(710.0MHz), 23825(713.5MHz)	5MHz	QPSK / 16QAM / 64QAM	25 RB / 0 RB Offset
		23780 to 23800	23780(709.0MHz), 23790(710.0MHz), 23800(711.0MHz)	10MHz	QPSK / 16QAM / 64QAM	50 RB / 0 RB Offset
-	Band Edge	23755 to 23825	23755(706.5MHz), 23825(713.5MHz)	5MHz	QPSK	1 RB / 0 RB Offset 1 RB / 24 RB Offset 25 RB / 0 RB Offset
		23780 to 23800	23780(709.0MHz), 23800(711.0MHz)	10MHz	QPSK	1 RB / 0 RB Offset 1 RB / 49 RB Offset 50 RB / 0 RB Offset
-	Peak to Average Ratio	23755 to 23825	23755(706.5MHz), 23790(710.0MHz), 23825(713.5MHz)	5MHz	QPSK / 16QAM / 64QAM	1 RB / 24 RB Offset
		23780 to 23800	23780(709.0MHz), 23790(710.0MHz), 23800(711.0MHz)	10MHz	QPSK / 16QAM / 64QAM	1 RB / 49 RB Offset
-	Conducted Emission	23755 to 23825	23755(706.5MHz), 23790(710.0MHz), 23825(713.5MHz)	5MHz	QPSK	1 RB / 24 RB Offset
		23780 to 23800	23780(709.0MHz), 23790(710.0MHz), 23800(711.0MHz)	10MHz	QPSK	1 RB / 49 RB Offset
-	Radiated Emission Below 1GHz	23780 to 23800	23790(710.0MHz)	10MHz	QPSK	1 RB / 49 RB Offset
-	Radiated Emission Above 1GHz	23755 to 23825	23755(706.5MHz), 23790(710.0MHz), 23825(713.5MHz)	5MHz	QPSK	1 RB / 24 RB Offset
		23780 to 23800	23780(709.0MHz), 23790(710.0MHz), 23800(711.0MHz)	10MHz	QPSK	1 RB / 49 RB Offset

Note:

1. For radiated emission below 1GHz, select the worst radiated emission (above 1GHz) channel for final testing.
2. For radiated emission above 1GHz, according to 3GPP 36.521 Section 6.6.3.1.4, choose the 5MHz & highest channel bandwidth for final test.
3. The conducted output power for QPSK, 16QAM and 64QAM measured value of QPSK is higher than 16QAM and 64QAM mode. Therefore, only ERP, Modulation characteristics, occupied bandwidth and Peak to average ratio items had been tested under QPSK, 16QAM and 64QAM modes, the other test items were performed under QPSK mode only.

LTE Band 30

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	EIRP	27685 to 27735	27685 (2307.5MHz), 27710 (2310.0MHz), 27735 (2312.5MHz)	5MHz	QPSK / 16QAM / 64QAM	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
		27710	27710 (2310.0MHz)	10MHz	QPSK / 16QAM / 64QAM	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
-	Modulation Characteristics	27710	27710 (2310.0MHz)	10MHz	QPSK / 16QAM / 64QAM	50 RB / 0 RB Offset
-	Frequency Stability	27685 to 27735	27685 (2307.5MHz), 27735 (2312.5MHz)	5MHz	QPSK	25 RB / 0 RB Offset
		27710	27710 (2310.0MHz)	10MHz	QPSK	50 RB / 0 RB Offset
-	Emission Bandwidth	27685 to 27735	27685 (2307.5MHz), 27710 (2310.0MHz), 27735 (2312.5MHz)	5MHz	QPSK / 16QAM / 64QAM	25 RB / 0 RB Offset
		27710	27710 (2310.0MHz)	10MHz	QPSK / 16QAM / 64QAM	50 RB / 0 RB Offset
-	Emission Mask	27685 to 27735	27685 (2307.5MHz), 27735 (2312.5MHz)	5MHz	QPSK	1 RB / 0 RB Offset 25 RB / 0 RB Offset
		27710	27710 (2310.0MHz)	10MHz	QPSK	1 RB / 0 RB Offset 1 RB / 49 RB Offset 50 RB / 0 RB Offset
-	Conducted Emission	27685 to 27735	27685 (2307.5MHz), 27710 (2310.0MHz), 27735 (2312.5MHz)	5MHz	QPSK	1 RB / 0 RB Offset
		27710	27710 (2310.0MHz)	10MHz	QPSK	1 RB / 0 RB Offset
-	Radiated Emission Below 1GHz	27685 to 27735	27710 (2310.0MHz)	5MHz	QPSK	1 RB / 0 RB Offset
-	Radiated Emission Above 1GHz	27685 to 27735	27685 (2307.5MHz), 27710 (2310.0MHz), 27735 (2312.5MHz)	5MHz	QPSK	1 RB / 0 RB Offset
		27710	27710 (2310.0MHz)	10MHz	QPSK	1 RB / 0 RB Offset

LTE Band 38

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	EIRP	37775 to 38225	37775(2572.5MHz), 38000(2595.0MHz), 38225(2617.5MHz)	5MHz	QPSK / 16QAM / 64QAM	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
		37800 to 38200	37800(2575.0MHz), 38000(2595.0MHz), 38200(2615.0MHz)	10MHz	QPSK / 16QAM / 64QAM	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
		37825 to 38175	37825(2577.5MHz), 38000(2595.0MHz), 38175(2612.5MHz)	15MHz	QPSK / 16QAM / 64QAM	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
		37850 to 38150	37850(2580.0MHz), 38000(2595.0MHz), 38150(2610.0MHz)	20MHz	QPSK / 16QAM / 64QAM	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
-	Modulation Characteristics	37850 to 38150	38000(2595.0MHz)	20MHz	QPSK / 16QAM / 64QAM	100 RB / 0 RB Offset
-	Frequency Stability	37775 to 38225	37775(2572.5MHz), 38225(2617.5MHz)	5MHz	QPSK	25 RB / 0 RB Offset
		37800 to 38200	37800(2575.0MHz), 38200(2615.0MHz)	10MHz	QPSK	50 RB / 0 RB Offset
		37825 to 38175	37825(2577.5MHz), 38175(2612.5MHz)	15MHz	QPSK	75 RB / 0 RB Offset
		37850 to 38150	37850(2580.0MHz), 38150(2610.0MHz)	20MHz	QPSK	100 RB / 0 RB Offset
-	Emission Bandwidth	37775 to 38225	37775(2572.5MHz), 38000(2595.0MHz), 38225(2617.5MHz)	5MHz	QPSK / 16QAM / 64QAM	25RB / 0RB Offset
		37800 to 38200	37800(2575.0MHz), 38000(2595.0MHz), 38200(2615.0MHz)	10MHz	QPSK / 16QAM / 64QAM	50RB / 0RB Offset
		37825 to 38175	37825(2577.5MHz), 38000(2595.0MHz), 38175(2612.5MHz)	15MHz	QPSK / 16QAM / 64QAM	75 RB / 0 RB Offset
		37850 to 38150	37850(2580.0MHz), 38000(2595.0MHz), 38150(2610.0MHz)	20MHz	QPSK / 16QAM / 64QAM	100 RB / 0 RB Offset
-	Band Edge	37775 to 38225	37775(2572.5MHz), 38000(2595.0MHz), 38225(2617.5MHz)	5MHz	QPSK	1 RB / 0 RB Offset 1 RB / 24 RB Offset 25 RB / 0 RB Offset
		37800 to 38200	37800(2575.0MHz), 38000(2595.0MHz), 38200(2615.0MHz)	10MHz	QPSK	1 RB / 0 RB Offset 1 RB / 49 RB Offset 50 RB / 0 RB Offset
		37825 to 38175	37825(2577.5MHz), 38000(2595.0MHz), 38175(2612.5MHz)	15MHz	QPSK	1 RB / 0 RB Offset 1 RB / 74 RB Offset 75 RB / 0 RB Offset
		37850 to 38150	37850(2580.0MHz), 38000(2595.0MHz), 38150(2610.0MHz)	20MHz	QPSK	1 RB / 0 RB Offset 1 RB / 99 RB Offset 100 RB / 0 RB Offset

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	Peak to Average Ratio	37775 to 38225	37775(2572.5MHz), 38000(2595.0MHz), 38225(2617.5MHz)	5MHz	QPSK / 16QAM / 64QAM	1 RB / 24 RB Offset
		37800 to 38200	37800(2575.0MHz), 38000(2595.0MHz), 38200(2615.0MHz)	10MHz	QPSK / 16QAM / 64QAM	1 RB / 49 RB Offset
		37825 to 38175	37825(2577.5MHz), 38000(2595.0MHz), 38175(2612.5MHz)	15MHz	QPSK / 16QAM / 64QAM	1 RB / 37 RB Offset
		37850 to 38150	37850(2580.0MHz), 38000(2595.0MHz), 38150(2610.0MHz)	20MHz	QPSK / 16QAM / 64QAM	1 RB / 99 RB Offset
-	Conducted Emission	37775 to 38225	37775(2572.5MHz), 38000(2595.0MHz), 38225(2617.5MHz)	5MHz	QPSK	1 RB / 24 RB Offset
		37800 to 38200	37800(2575.0MHz), 38000(2595.0MHz), 38200(2615.0MHz)	10MHz	QPSK	1 RB / 49 RB Offset
		37825 to 38175	37825(2577.5MHz), 38000(2595.0MHz), 38175(2612.5MHz)	15MHz	QPSK	1 RB / 37 RB Offset
		37850 to 38150	37850(2580.0MHz), 38000(2595.0MHz), 38150(2610.0MHz)	20MHz	QPSK	1 RB / 99 RB Offset
-	Radiated Emission Below 1GHz	37850 to 38150	38000(2595.0MHz)	20MHz	QPSK	1 RB / 99 RB Offse
-	Radiated Emission Above 1GHz	37775 to 38225	37775(2572.5MHz), 38000(2595.0MHz), 38225(2617.5MHz)	5MHz	QPSK	1 RB / 24 RB Offset
		37850 to 38150	37850(2580.0MHz), 38000(2595.0MHz), 38150(2610.0MHz)	20MHz	QPSK	1 RB / 99 RB Offset

Note:

1. For radiated emission below 1GHz, select the worst radiated emission (above 1GHz) channel for final testing.
2. For radiated emission above 1GHz, according to 3GPP 36.521 Section 6.6.3.1.4, choose the 5MHz & highest channel bandwidth for final test.
3. The conducted output power for QPSK, 16QAM and 64QAM measured value of QPSK is higher than 16QAM and 64QAM mode. Therefore, only EIRP, Modulation characteristics, occupied bandwidth and Peak to average ratio items had been tested under QPSK, 16QAM and 64QAM modes, the other test items were performed under QPSK mode only.

LTE Band 41

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	EIRP	39675 to 41565	39675 (2498.5MHz), 40620 (2593.0MHz), 41565 (2687.5MHz)	5MHz	QPSK / 16QAM / 64QAM	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
		39700 to 41540	39700 (2501.0MHz), 40620 (2593.0MHz), 41540 (2685.0MHz)	10MHz	QPSK / 16QAM / 64QAM	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
		39725 to 41515	39725 (2503.5MHz), 40620 (2593.0MHz), 41515 (2682.5MHz)	15MHz	QPSK / 16QAM / 64QAM	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
		39750 to 41490	39750 (2506.0MHz), 40620 (2593.0MHz), 41490 (2680.0MHz)	20MHz	QPSK / 16QAM / 64QAM	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
-	Modulation Characteristics	39750 to 41490	40620 (2593.0MHz)	20MHz	QPSK / 16QAM / 64QAM	100 RB / 0 RB Offset
-	Frequency Stability	39675 to 41565	39675 (2498.5MHz), 41565 (2687.5MHz)	5MHz	QPSK	25 RB / 0 RB Offset
		39700 to 41540	39700 (2501.0MHz), 41540 (2685.0MHz)	10MHz	QPSK	50 RB / 0 RB Offset
		39725 to 41515	39725 (2503.5MHz), 41515 (2682.5MHz)	15MHz	QPSK	75 RB / 0 RB Offset
		39750 to 41490	39750 (2506.0MHz), 41490 (2680.0MHz)	20MHz	QPSK	100 RB / 0 RB Offset
-	Emission Bandwidth	39675 to 41565	39675 (2498.5MHz), 40620 (2593.0MHz), 41565 (2687.5MHz)	5MHz	QPSK / 16QAM / 64QAM	25RB / 0RB Offset
		39700 to 41540	39700 (2501.0MHz), 40620 (2593.0MHz), 41540 (2685.0MHz)	10MHz	QPSK / 16QAM / 64QAM	50RB / 0RB Offset
		39725 to 41515	39725 (2503.5MHz), 40620 (2593.0MHz), 41515 (2682.5MHz)	15MHz	QPSK / 16QAM / 64QAM	75 RB / 0 RB Offset
		39750 to 41490	39750 (2506.0MHz), 40620 (2593.0MHz), 41490 (2680.0MHz)	20MHz	QPSK / 16QAM / 64QAM	100 RB / 0 RB Offset
-	Band Edge	39675 to 41565	39675 (2498.5MHz), 40620 (2593.0MHz), 41565 (2687.5MHz)	5MHz	QPSK	1 RB / 0 RB Offset 1 RB / 24 RB Offset 25 RB / 0 RB Offset
		39700 to 41540	39700 (2501.0MHz), 40620 (2593.0MHz), 41540 (2685.0MHz)	10MHz	QPSK	1 RB / 0 RB Offset 1 RB / 49 RB Offset 50 RB / 0 RB Offset
		39725 to 41515	39725 (2503.5MHz), 40620 (2593.0MHz), 41515 (2682.5MHz)	15MHz	QPSK	1 RB / 0 RB Offset 1 RB / 74 RB Offset 75 RB / 0 RB Offset
		39750 to 41490	39750 (2506.0MHz), 40620 (2593.0MHz), 41490 (2680.0MHz)	20MHz	QPSK	1 RB / 0 RB Offset 1 RB / 99 RB Offset 100 RB / 0 RB Offset

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	Peak to Average Ratio	39675 to 41565	39675 (2498.5MHz), 40620 (2593.0MHz), 41565 (2687.5MHz)	5MHz	QPSK / 16QAM / 64QAM	1 RB / 0 RB Offset
		39700 to 41540	39700 (2501.0MHz), 40620 (2593.0MHz), 41540 (2685.0MHz)	10MHz	QPSK / 16QAM / 64QAM	1 RB / 0 RB Offset
		39725 to 41515	39725 (2503.5MHz), 40620 (2593.0MHz), 41515 (2682.5MHz)	15MHz	QPSK / 16QAM / 64QAM	1 RB / 74 RB Offset
		39750 to 41490	39750 (2506.0MHz), 40620 (2593.0MHz), 41490 (2680.0MHz)	20MHz	QPSK / 16QAM / 64QAM	1 RB / 0 RB Offset
-	Conducted Emission	39675 to 41565	39675 (2498.5MHz), 40620 (2593.0MHz), 41565 (2687.5MHz)	5MHz	QPSK	1 RB / 0 RB Offset
		39700 to 41540	39700 (2501.0MHz), 40620 (2593.0MHz), 41540 (2685.0MHz)	10MHz	QPSK	1 RB / 0 RB Offset
		39725 to 41515	39725 (2503.5MHz), 40620 (2593.0MHz), 41515 (2682.5MHz)	15MHz	QPSK	1 RB / 74 RB Offset
		39750 to 41490	39750 (2506.0MHz), 40620 (2593.0MHz), 41490 (2680.0MHz)	20MHz	QPSK	1 RB / 0 RB Offset
-	Radiated Emission Below 1GHz	39675 to 41565	40620 (2593.0MHz)	5MHz	QPSK	1 RB / 0 RB Offset
-	Radiated Emission Above 1GHz	39675 to 41565	39675 (2498.5MHz), 40620 (2593.0MHz), 41565 (2687.5MHz)	5MHz	QPSK	1 RB / 0 RB Offset
		39750 to 41490	39750 (2506.0MHz), 40620 (2593.0MHz), 41490 (2680.0MHz)	20MHz	QPSK	1 RB / 0 RB Offset

Note:

1. For radiated emission below 1GHz, select the worst radiated emission (above 1GHz) channel for final testing.
2. For radiated emission above 1GHz, according to 3GPP 36.521 Section 6.6.3.1.4, choose the 5MHz & highest channel bandwidth for final test.
3. The conducted output power for QPSK, 16QAM and 64QAM measured value of QPSK is higher than 16QAM and 64QAM mode. Therefore, only EIRP, Modulation characteristics, occupied bandwidth and Peak to average ratio items had been tested under QPSK, 16QAM and 64QAM modes, the other test items were performed under QPSK mode only.

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	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	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	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	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	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	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
-	Modulation Characteristics	132072 to 132572	132322 (1745.0MHz)	20MHz	QPSK / 16QAM / 64QAM	100 RB / 0 RB Offset
-	Frequency Stability	131979 to 132665	131979 (1710.7MHz), 132665 (1779.3MHz)	1.4MHz	QPSK	6 RB / 0 RB Offset
		131987 to 132657	131987 (1711.5MHz), 132657 (1778.5MHz)	3MHz	QPSK	15 RB / 0 RB Offset
		131997 to 132647	131997 (1712.5MHz), 132647 (1777.5MHz)	5MHz	QPSK	25 RB / 0 RB Offset
		132022 to 132622	132022 (1715.0MHz), 132622 (1775.0MHz)	10MHz	QPSK	50 RB / 0 RB Offset
		132047 to 132597	132047 (1717.5MHz), 132597 (1772.5MHz)	15MHz	QPSK	75 RB / 0 RB Offset
		132072 to 132572	132072 (1720.0MHz), 132572 (1770.0MHz)	20MHz	QPSK	100 RB / 0 RB Offset

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



EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	Conducted Emission	131979 to 132665	131979 (1710.7MHz), 132322 (1745.0MHz), 132665 (1779.3MHz)	1.4MHz	QPSK	1 RB / 2 RB Offset
		131987 to 132657	131987 (1711.5MHz), 132322 (1745.0MHz), 132657 (1778.5MHz)	3MHz	QPSK	1 RB / 7 RB Offset
		131997 to 132647	131997 (1712.5MHz), 132322 (1745.0MHz), 132647 (1777.5MHz)	5MHz	QPSK	1 RB / 24 RB Offset
		132022 to 132622	132022 (1715.0MHz), 132322 (1745.0MHz), 132622 (1775.0MHz)	10MHz	QPSK	7 RB / 49 RB Offset
		132047 to 132597	132047 (1717.5MHz), 132322 (1745.0MHz), 132597 (1772.5MHz)	15MHz	QPSK	1 RB / 0 RB Offset
		132072 to 132572	132072 (1720.0MHz), 132322 (1745.0MHz), 132572 (1770.0MHz)	20MHz	QPSK	1 RB / 50 RB Offset
-	Radiated Emission Below 1GHz	131979 to 132665	131979 (1710.7MHz)	1.4MHz	QPSK	1 RB / 2 RB Offset
-	Radiated Emission Above 1GHz	131979 to 132665	131979 (1710.7MHz), 132322 (1745.0MHz), 132665 (1779.3MHz)	1.4MHz	QPSK	1 RB / 2 RB Offset
		131997 to 132647	131997 (1712.5MHz), 132322 (1745.0MHz), 132647 (1777.5MHz)	5MHz	QPSK	1 RB / 24 RB Offset
		132072 to 132572	132072 (1720.0MHz), 132322 (1745.0MHz), 132572 (1770.0MHz)	20MHz	QPSK	1 RB / 50 RB Offset

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EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	ERP	133147 to 133447	133147 (665.5MHz), 133297 (680.5MHz), 133447 (695.5MHz)	5 MHz	QPSK / 16QAM / 64QAM	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
		133172 to 133422	133172 (668.0MHz), 133297 (680.5MHz), 133422 (693.0MHz)	10 MHz	QPSK / 16QAM / 64QAM	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
		133197 to 133397	133197 (670.5MHz), 133297 (680.5MHz), 133397 (690.5MHz)	15 MHz	QPSK / 16QAM / 64QAM	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
		133222 to 133372	133222 (673.0MHz), 133297 (680.5MHz), 133372 (688.0MHz)	20 MHz	QPSK / 16QAM / 64QAM	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
-	Modulation Characteristics	133222 to 133372	133297 (680.5MHz)	20 MHz	QPSK / 16QAM / 64QAM	100 RB / 0 RB Offset
-	Frequency Stability	133147 to 133447	133147 (665.5MHz), 133447 (695.5MHz)	5 MHz	QPSK	25 RB / 0 RB Offset
		133172 to 133422	133172 (668.0MHz), 133422 (693.0MHz)	10 MHz	QPSK	50 RB / 0 RB Offset
		133197 to 133397	133197 (670.5MHz), 133397 (690.5MHz)	15 MHz	QPSK	75 RB / 0 RB Offset
		133222 to 133372	133222 (673.0MHz), 133372 (688.0MHz)	20 MHz	QPSK	100 RB / 0 RB Offset
-	Emission Bandwidth	133147 to 133447	133147 (665.5MHz), 133297 (680.5MHz), 133447 (695.5MHz)	5 MHz	QPSK / 16QAM / 64QAM	6 RB / 0 RB Offset
		133172 to 133422	133172 (668.0MHz), 133297 (680.5MHz), 133422 (693.0MHz)	10 MHz	QPSK / 16QAM / 64QAM	15 RB / 0 RB Offset
		133197 to 133397	133197 (670.5MHz), 133297 (680.5MHz), 133397 (690.5MHz)	15 MHz	QPSK / 16QAM / 64QAM	25 RB / 0 RB Offset
		133222 to 133372	133222 (673.0MHz), 133297 (680.5MHz), 133372 (688.0MHz)	20 MHz	QPSK / 16QAM / 64QAM	50 RB / 0 RB Offset
-	Band Edge	133147 to 133447	133147 (665.5MHz), 133447 (695.5MHz)	5 MHz	QPSK	1 RB / 0 RB Offset 1 RB / 24 RB Offset 25 RB / 0 RB Offset
		133172 to 133422	133172 (668.0MHz), 133422 (693.0MHz)	10 MHz	QPSK	1 RB / 0 RB Offset 1 RB / 49 RB Offset 50 RB / 0 RB Offset
		133197 to 133397	133197 (670.5MHz), 133397 (690.5MHz)	15 MHz	QPSK	1 RB / 0 RB Offset 1 RB / 74 RB Offset 75 RB / 0 RB Offset
		133222 to 133372	133222 (673.0MHz), 133372 (688.0MHz)	20 MHz	QPSK	1 RB / 0 RB Offset 1 RB / 99 RB Offset 100 RB / 0 RB Offset

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	Peak to Average Ratio	133147 to 133447	133147 (665.5MHz), 133297 (680.5MHz), 133447 (695.5MHz)	5 MHz	QPSK / 16QAM / 64QAM	1 RB / 24 RB Offset
		133172 to 133422	133172 (668.0MHz), 133297 (680.5MHz), 133422 (693.0MHz)	10 MHz	QPSK / 16QAM / 64QAM	1 RB / 0 RB Offset
		133197 to 133397	133197 (670.5MHz), 133297 (680.5MHz), 133397 (690.5MHz)	15 MHz	QPSK / 16QAM / 64QAM	1 RB / 74 RB Offset
		133222 to 133372	133222 (673.0MHz), 133297 (680.5MHz), 133372 (688.0MHz)	20 MHz	QPSK / 16QAM / 64QAM	1 RB / 0 RB Offset
-	Conducted Emission	133147 to 133447	133147 (665.5MHz), 133297 (680.5MHz), 133447 (695.5MHz)	5 MHz	QPSK	1 RB / 24 RB Offset
		133172 to 133422	133172 (668.0MHz), 133297 (680.5MHz), 133422 (693.0MHz)	10 MHz	QPSK	1 RB / 0 RB Offset
		133197 to 133397	133197 (670.5MHz), 133297 (680.5MHz), 133397 (690.5MHz)	15 MHz	QPSK	1 RB / 74 RB Offset
		133222 to 133372	133222 (673.0MHz), 133297 (680.5MHz), 133372 (688.0MHz)	20 MHz	QPSK	1 RB / 0 RB Offset
-	Radiated Emission Below 1GHz	133147 to 133447	133447 (695.5MHz)	5 MHz	QPSK	1 RB / 24 RB Offset
-	Radiated Emission Above 1GHz	133147 to 133447	133147 (665.5MHz), 133297 (680.5MHz), 133447 (695.5MHz)	5 MHz	QPSK	1 RB / 24 RB Offset
		133222 to 133372	133222 (673.0MHz), 133297 (680.5MHz), 133372 (688.0MHz)	20 MHz	QPSK	1 RB / 0 RB Offset

Note:

1. For radiated emission below 1GHz, select the worst radiated emission (above 1GHz) channel for final testing.
2. For radiated emission above 1GHz, according to 3GPP 36.521 Section 6.6.3.1.4, choose the 5MHz & highest channel bandwidth for final test.
3. The conducted output power for QPSK, 16QAM and 64QAM measured value of QPSK is higher than 16QAM and 64QAM mode. Therefore, only ERP, Modulation characteristics, occupied bandwidth and Peak to average ratio items had been tested under QPSK, 16QAM and 64QAM modes, the other test items were performed under QPSK mode only.

Test Condition:

Test Item	Environmental Conditions	Input Power	Tested By
EIRP / ERP	25deg. C, 70%RH	5Vdc	James Yang
Modulation characteristics	24deg. C, 64%RH	5Vdc	James Yang
Frequency Stability	24deg. C, 64%RH	5Vdc	James Yang
Occupied Bandwidth	24deg. C, 64%RH	5Vdc	James Yang
Band Edge	24deg. C, 64%RH	5Vdc	James Yang
Peak To Average Ratio	24deg. C, 64%RH	5Vdc	James Yang
Conducted Emission	24deg. C, 64%RH	5Vdc	James Yang
Radiated Emission	22deg. C, 68%RH 25deg. C, 70%RH	120Vac, 60Hz	Greg Lin Luis Lee

### **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 27**

**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

WCDMA, LTE Band 4, LTE Band 66:  
Mobile / Portable station are limited to 1 watts e.i.r.p.

LTE Band 12, LTE Band 13, LTE Band 17, LTE Band 71:  
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 MHz band are limited to 3 watts ERP.

LTE Band 30:  
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.

LTE Band 7, LTE Band 38, LTE Band 41:  
Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.

#### 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 record the power level shown on simulator.

##### Maximum EIRP

##### For all bands except LTE Band 30:

The relevant equation for determining the maximum ERP or EIRP from the measured RF output power is given in Equation as follows:

$$\text{ERP or EIRP} = P_{\text{Meas}} + G_{\text{T}}$$

where

ERP or EIRP effective radiated power or equivalent isotropically radiated power, respectively  
(expressed in the same units as  $P_{\text{Meas}}$ , e.g., dBm or dBW)

$P_{\text{Meas}}$  measured transmitter output power or PSD, in dBm or dBW

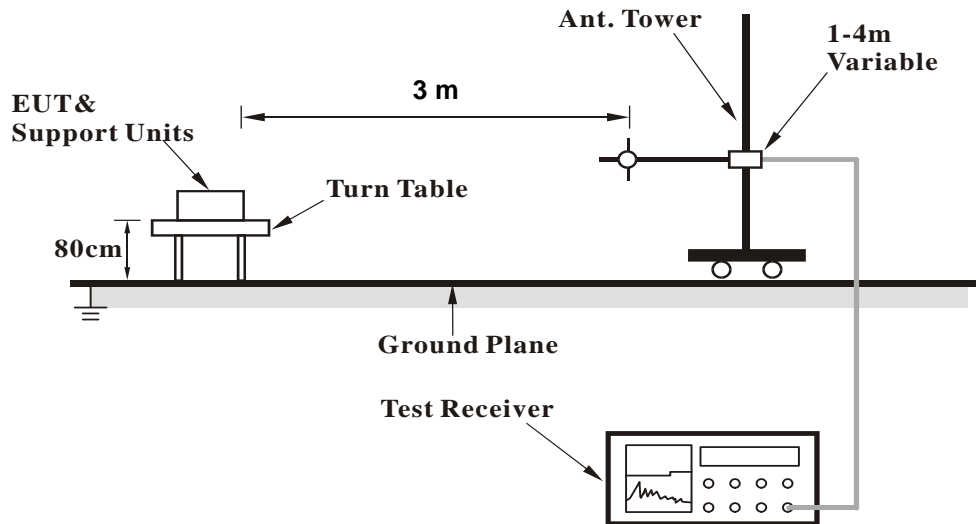
$G_{\text{T}}$  gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP)

### **EIRP Measurement for LTE Band 30:**

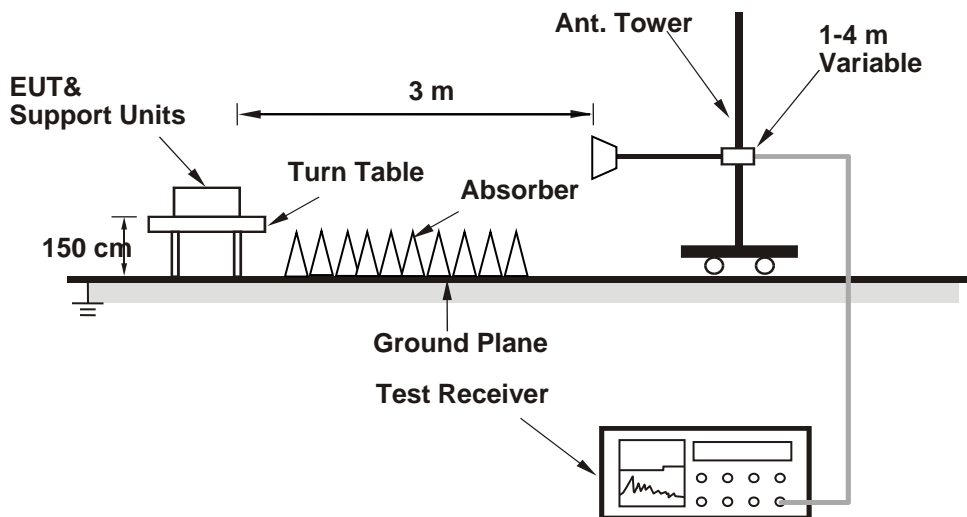
- a. All measurements were done at low, middle and high operational frequency range. RBW and VBW= 5MHz for LTE mode.
- b. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8 m (below or equal 1 GHz) and/or 1.5 m (above 1 GHz) height of Turn Table, 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 1 m to 4 m to find the maximum polar radiated power. The “Read Value” is the spectrum reading the maximum power value.
- c. 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 b. Record the power level of S.G.
- d.  $EIRP = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn}$ . E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole,  $E.R.P \text{ power} = E.I.R.P \text{ power} - 2.15 \text{ dB}$ .

### 4.1.3 Test Setup

**EIRP Measurement for LTE Band 30:  
<Radiated Emission below or equal 1 GHz>**



**<Radiated Emission above 1 GHz>**



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

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)

Band	WCDMA IV		
Channel	1312	1413	1513
Frequency	1712.4	1732.6	1752.6
RMC 12.2K	23.39	23.42	<b>23.47</b>
HSDPA Subtest-1	22.14	22.19	22.21
HSDPA Subtest-2	22.11	22.16	22.23
HSDPA Subtest-3	22.06	22.19	22.18
HSDPA Subtest-4	22.07	22.05	22.12
HSUPA Subtest-1	21.32	21.29	21.29
HSUPA Subtest-2	21.22	21.28	21.34
HSUPA Subtest-3	21.25	21.22	21.29
HSUPA Subtest-4	21.26	21.27	21.33



LTE Band 4						
BW	MCS Index	Channel		19957	20175	20393
		Frequency (MHz)		1710.7	1732.5	1754.3
1.4M	QPSK	1	0	23.71	23.69	23.40
		1	2	23.77	23.70	23.43
		1	5	23.69	23.63	23.48
		3	0	23.72	23.71	23.43
		3	1	23.75	23.75	23.56
		3	3	23.76	23.60	23.43
		6	0	22.83	22.69	22.52
	16QAM	1	0	22.91	23.00	22.98
		1	2	23.04	23.05	22.50
		1	5	22.94	23.07	22.44
		3	0	22.85	22.68	22.63
		3	1	22.82	22.69	22.64
		3	3	22.81	22.63	22.59
		6	0	21.79	21.86	21.44
	64QAM	1	0	21.44	21.41	21.66
		1	2	21.60	21.51	21.78
		1	5	21.49	21.43	21.80
		3	0	21.41	21.42	21.18
		3	1	21.43	21.45	21.16
		3	3	21.40	21.46	21.19
		6	0	20.30	20.49	20.26

LTE Band 4						
BW	MCS Index	Channel		19965	20175	20385
		Frequency (MHz)		1711.5	1732.5	1753.5
3M	QPSK	1	0	23.82	23.69	23.64
		1	7	23.67	23.83	23.74
		1	14	23.82	23.78	23.58
		8	0	22.93	22.76	22.71
		8	3	22.89	22.85	22.63
		8	7	22.87	22.80	22.68
		15	0	22.84	22.83	22.67
	16QAM	1	0	23.03	23.34	22.58
		1	7	23.06	23.26	22.53
		1	14	23.11	23.32	22.56
		8	0	21.95	21.92	21.75
		8	3	21.98	21.93	21.79
		8	7	21.97	21.91	21.74
		15	0	21.82	21.94	21.70
	64QAM	1	0	21.51	21.50	21.84
		1	7	21.54	21.47	21.84
		1	14	21.60	21.59	21.86
		8	0	20.58	20.41	20.42
		8	3	20.59	20.51	20.40
		8	7	20.52	20.51	20.38
		15	0	20.42	20.45	20.31

LTE Band 4						
BW	MCS Index	Channel		19975	20175	20375
		Frequency (MHz)		1712.5	1732.5	1752.5
5M	QPSK	1	0	23.84	23.67	23.37
		1	12	23.98	23.77	23.55
		1	24	23.91	23.74	23.49
		12	0	22.81	22.70	22.53
		12	6	22.83	22.73	22.62
		12	13	22.81	22.79	22.53
		25	0	22.81	22.67	22.56
	16QAM	1	0	22.90	22.71	23.00
		1	12	22.89	22.72	22.99
		1	24	22.92	22.76	23.13
		12	0	21.86	21.65	21.56
		12	6	21.83	21.79	21.53
		12	13	21.87	21.83	21.60
		25	0	21.91	21.65	21.68
	64QAM	1	0	21.36	21.51	21.79
		1	12	21.41	21.56	21.86
		1	24	21.50	21.58	21.89
		12	0	20.40	20.45	20.34
		12	6	20.41	20.50	20.40
		12	13	20.40	20.53	20.39
		25	0	20.50	20.43	20.42

LTE Band 4						
BW	MCS Index	Channel		20000	20175	20350
		Frequency (MHz)		1715	1732.5	1750
10M	QPSK	1	0	23.67	23.68	23.62
		1	24	23.72	23.55	23.57
		1	49	23.79	23.49	23.45
		25	0	22.81	22.65	22.63
		25	12	22.86	22.81	22.60
		25	25	22.85	22.68	22.63
		50	0	22.86	22.64	22.62
	16QAM	1	0	23.34	22.94	23.04
		1	24	23.38	22.95	23.08
		1	49	23.39	22.89	23.14
		25	0	21.86	21.77	21.58
		25	12	21.87	21.76	21.58
		25	25	21.90	21.61	21.74
		50	0	21.96	21.73	21.56
	64QAM	1	0	21.59	21.80	21.91
		1	24	22.03	21.66	21.67
		1	49	21.59	21.64	21.62
		25	0	20.59	20.43	20.28
		25	12	20.53	20.51	20.40
		25	25	20.38	20.55	20.32
		50	0	20.42	20.50	20.39

LTE Band 4						
BW	MCS Index	Channel		20025	20175	20325
		Frequency (MHz)		1717.5	1732.5	1747.5
15M	QPSK	1	0	23.63	23.68	23.10
		1	37	23.57	23.65	23.42
		1	74	23.62	23.64	23.55
		36	0	22.72	22.74	22.55
		36	19	22.78	22.75	22.53
		36	39	22.74	22.68	22.66
		75	0	22.69	22.68	22.56
	16QAM	1	0	22.87	23.15	22.18
		1	37	22.84	22.98	22.43
		1	74	22.74	23.04	22.37
		36	0	21.62	21.65	21.48
		36	19	21.72	21.74	21.62
		36	39	21.71	21.72	21.72
		75	0	21.65	21.68	21.61
	64QAM	1	0	21.78	21.77	22.01
		1	37	21.48	21.81	21.63
		1	74	22.05	21.88	22.04
		36	0	20.63	20.60	20.40
		36	19	20.63	20.59	20.54
		36	39	20.59	20.61	20.60
		75	0	20.64	20.63	20.67

LTE Band 4						
BW	MCS Index	Channel		20050	20175	20300
		Frequency (MHz)		1720	1732.5	1745
20M	QPSK	1	0	23.63	23.55	23.62
		1	50	23.30	23.71	23.52
		1	99	23.55	23.51	23.60
		50	0	22.64	22.70	22.50
		50	25	22.68	22.69	22.60
		50	50	22.72	22.72	22.72
		100	0	22.77	22.73	22.53
	16QAM	1	0	23.13	22.87	22.70
		1	50	23.16	22.81	22.63
		1	99	23.19	22.86	22.60
		50	0	21.73	21.69	21.56
		50	25	21.69	21.67	21.50
		50	50	21.74	21.70	21.68
		100	0	21.70	21.60	21.58
	64QAM	1	0	21.86	21.49	22.02
		1	50	21.55	21.73	21.90
		1	99	21.63	21.57	22.05
		50	0	20.51	20.61	20.24
		50	25	20.65	20.63	20.44
		50	50	20.62	20.69	20.62
		100	0	20.57	20.54	20.49

LTE Band 7						
BW	MCS Index	Channel		20775	21100	21425
		Frequency (MHz)		2502.5	2535	2567.5
5M	QPSK	1	0	22.57	22.76	23.29
		1	12	22.64	22.82	23.07
		1	24	22.68	22.94	22.78
		12	0	21.73	22.00	22.32
		12	6	21.80	21.98	22.23
		12	13	21.74	22.01	22.04
		25	0	21.72	22.11	22.01
	16QAM	1	0	21.84	22.22	22.41
		1	12	21.86	22.36	22.32
		1	24	21.94	22.48	21.96
		12	0	20.84	21.04	21.38
		12	6	20.79	21.05	21.26
		12	13	20.82	21.12	21.14
		25	0	20.78	21.10	21.24
	64QAM	1	0	21.65	21.54	21.55
		1	12	21.88	21.96	21.68
		1	24	21.62	21.66	21.88
		12	0	20.53	20.41	20.16
		12	6	20.35	20.48	20.25
		12	13	20.44	20.41	20.33
		25	0	20.41	20.44	20.37

LTE Band 7						
BW	MCS Index	Channel		20800	21100	21400
		Frequency (MHz)		2505	2535	2565
10M	QPSK	1	0	22.44	22.80	23.32
		1	24	22.57	22.81	23.35
		1	49	22.45	22.94	23.20
		25	0	21.71	22.07	22.38
		25	12	21.78	22.10	22.36
		25	25	21.83	22.01	22.43
		50	0	21.73	22.08	22.37
	16QAM	1	0	22.03	21.90	22.49
		1	24	22.08	22.33	22.33
		1	49	22.21	22.07	22.39
		25	0	20.61	20.95	21.37
		25	12	20.79	21.16	21.36
		25	25	20.79	21.08	21.27
		50	0	20.67	21.13	21.31
	64QAM	1	0	21.76	21.58	21.57
		1	24	21.94	22.05	21.60
		1	49	21.70	21.70	21.86
		25	0	20.54	20.40	20.21
		25	12	20.26	20.44	20.26
		25	25	20.42	20.43	20.34
		50	0	20.46	20.43	20.34



LTE Band 7						
BW	MCS Index	Channel		20825	21100	21375
		Frequency (MHz)		2507.5	2535	2562.5
15M	QPSK	1	0	22.33	23.08	23.26
		1	37	22.78	23.12	23.33
		1	74	22.85	23.25	23.13
		36	0	21.83	22.16	22.14
		36	19	21.94	22.30	22.29
		36	39	21.74	22.31	22.19
		75	0	21.54	22.22	22.20
	16QAM	1	0	21.80	22.03	22.56
		1	37	22.36	22.12	22.59
		1	74	22.36	22.38	22.83
		36	0	20.82	21.13	21.22
		36	19	20.91	21.33	21.34
		36	39	20.95	21.33	21.31
		75	0	20.76	21.31	21.25
	64QAM	1	0	21.62	21.62	21.55
		1	37	21.55	21.48	21.54
		1	74	21.58	21.72	21.97
		36	0	20.61	20.66	20.43
		36	19	20.55	20.68	20.55
		36	39	20.67	20.62	20.61
		75	0	20.59	20.57	20.22

LTE Band 7						
BW	MCS Index	Channel		20850	21100	21350
		Frequency (MHz)		2510	2535	2560
20M	QPSK	1	0	22.75	22.78	23.25
		1	50	22.77	23.03	23.35
		1	99	22.93	23.16	23.26
		50	0	22.63	22.06	22.06
		50	25	22.67	22.19	22.36
		50	50	22.77	22.29	21.91
		100	0	21.93	22.13	22.11
	16QAM	1	0	22.42	22.11	22.57
		1	50	22.41	22.39	22.48
		1	99	22.39	22.63	21.99
		50	0	20.86	21.12	21.35
		50	25	21.01	21.25	21.29
		50	50	21.01	21.37	20.62
		100	0	20.85	21.16	20.88
	64QAM	1	0	21.70	21.66	21.53
		1	50	21.58	21.44	21.50
		1	99	21.56	21.72	21.99
		50	0	20.65	20.64	20.43
		50	25	20.58	20.61	20.50
		50	50	20.62	20.73	20.60
		100	0	20.58	20.53	20.12

LTE Band 12						
BW	MCS Index	Channel		23017	23095	23173
		Frequency (MHz)		699.7	707.5	715.3
1.4M	QPSK	1	0	23.19	23.69	23.57
		1	2	23.02	23.87	23.50
		1	5	23.27	23.67	23.32
		3	0	23.27	23.64	23.56
		3	1	23.23	23.67	23.32
		3	3	23.40	23.74	23.35
		6	0	22.12	22.81	22.53
	16QAM	1	0	22.51	23.21	22.42
		1	2	22.58	23.32	22.59
		1	5	22.64	23.33	22.44
		3	0	22.36	22.76	22.57
		3	1	22.42	22.76	22.52
		3	3	22.31	22.82	22.39
		6	0	21.55	21.87	21.49
	64QAM	1	0	21.78	21.63	21.55
		1	2	21.44	21.68	21.61
		1	5	21.91	21.72	21.33
		3	0	20.38	20.43	20.38
		3	1	20.51	20.55	20.25
		3	3	20.44	20.41	20.26
		6	0	20.41	20.38	20.38

LTE Band 12						
BW	MCS Index	Channel		23025	23095	23165
		Frequency (MHz)		700.5	707.5	714.5
3M	QPSK	1	0	23.51	23.76	<b>23.95</b>
		1	7	23.51	23.89	23.53
		1	14	23.41	23.86	23.48
		8	0	22.56	22.88	22.50
		8	3	22.60	22.86	22.67
		8	7	22.57	22.87	22.63
		15	0	22.68	22.97	22.60
	16QAM	1	0	22.79	22.82	22.81
		1	7	23.02	22.80	<b>23.05</b>
		1	14	22.56	22.92	22.73
		8	0	21.81	21.84	21.64
		8	3	21.82	21.84	21.69
		8	7	21.68	21.95	21.59
		15	0	21.60	21.91	21.75
	64QAM	1	0	21.89	21.63	21.49
		1	7	21.37	21.65	21.65
		1	14	<b>21.94</b>	21.76	21.30
		8	0	20.40	20.40	20.32
		8	3	20.56	20.53	20.27
		8	7	20.49	20.43	20.29
		15	0	20.33	20.40	20.41

LTE Band 12						
BW	MCS Index	Channel		23035	23095	23155
		Frequency (MHz)		701.5	707.5	713.5
5M	QPSK	1	0	23.35	23.79	23.66
		1	12	23.20	23.91	23.86
		1	24	22.83	23.86	23.19
		12	0	22.14	22.82	22.55
		12	6	22.34	22.85	22.73
		12	13	22.49	22.89	22.32
		25	0	22.40	22.90	22.50
	16QAM	1	0	22.48	23.01	23.30
		1	12	22.58	22.97	23.43
		1	24	22.74	23.10	22.92
		12	0	21.51	21.95	21.70
		12	6	21.37	21.91	21.65
		12	13	21.47	21.97	21.66
		25	0	21.68	21.89	21.60
	64QAM	1	0	21.61	21.84	21.44
		1	12	21.62	21.88	21.29
		1	24	21.61	22.00	21.49
		12	0	20.34	20.38	20.40
		12	6	20.34	20.39	20.34
		12	13	20.37	20.52	20.36
		25	0	20.38	20.39	20.32

LTE Band 12						
BW	MCS Index	Channel		23060	23095	23130
		Frequency (MHz)		704	707.5	711
10M	QPSK	1	0	23.71	23.74	23.68
		1	24	23.45	23.76	23.87
		1	49	<b>24.09</b>	23.97	23.77
		25	0	22.68	22.80	22.85
		25	12	22.84	22.91	22.91
		25	25	22.85	22.85	22.93
		50	0	22.90	22.87	22.85
	16QAM	1	0	23.06	22.96	22.91
		1	24	22.93	22.95	22.95
		1	49	<b>23.18</b>	23.11	23.02
		25	0	21.68	21.86	21.87
		25	12	21.88	21.97	22.03
		25	25	21.81	22.04	22.00
		50	0	21.76	21.92	21.83
	64QAM	1	0	21.87	21.76	21.89
		1	24	22.12	21.50	21.64
		1	49	<b>22.18</b>	21.77	21.67
		25	0	20.58	20.61	20.43
		25	12	20.69	20.74	20.58
		25	25	20.71	20.71	20.60
		50	0	20.53	20.55	20.55

LTE Band 13						
BW	MCS Index	Channel		23205	23230	23255
		Frequency (MHz)		779.5	782	784.5
5M	QPSK	1	0	24.02	24.09	24.12
		1	12	24.10	24.10	24.12
		1	24	24.13	24.11	24.08
		12	0	23.24	23.22	23.25
		12	6	23.24	23.24	23.20
		12	13	23.27	23.33	23.32
		25	0	23.22	23.18	23.15
	16QAM	1	0	23.37	23.45	23.16
		1	12	23.36	23.60	22.96
		1	24	23.52	23.39	23.25
		12	0	22.18	22.33	22.29
		12	6	22.22	22.30	22.20
		12	13	22.21	22.32	22.24
		25	0	22.24	22.32	22.29
	64QAM	1	0	21.65	21.83	21.22
		1	12	21.60	21.95	21.28
		1	24	21.61	21.91	21.25
		12	0	20.31	20.42	20.36
		12	6	20.32	20.44	20.42
		12	13	20.34	20.48	20.33
		25	0	20.42	20.35	20.41

LTE Band 13				
BW	MCS Index	Channel		23230
		Frequency (MHz)		782
10M	QPSK	1	0	23.98
		1	24	<b>24.15</b>
		1	49	23.94
		25	0	23.20
		25	12	23.24
		25	25	23.15
		50	0	23.28
	16QAM	1	0	23.29
		1	24	<b>23.71</b>
		1	49	23.49
		25	0	22.23
		25	12	22.23
		25	25	22.27
		50	0	22.16
	64QAM	1	0	21.51
		1	24	<b>22.03</b>
		1	49	21.70
		25	0	20.22
		25	12	20.39
		25	25	20.31
		50	0	20.41



LTE Band 17						
BW	MCS Index	Channel		23755	23790	23825
		Frequency (MHz)		706.5	710	713.5
5M	QPSK	1	0	23.80	23.75	23.58
		1	12	23.82	23.86	23.63
		1	24	23.88	<b>23.96</b>	23.51
		12	0	22.87	22.89	22.77
		12	6	22.97	22.88	22.70
		12	13	22.97	22.94	22.49
		25	0	22.95	22.99	22.42
	16QAM	1	0	23.00	23.32	23.17
		1	12	22.97	23.37	23.19
		1	24	23.16	<b>23.61</b>	22.72
		12	0	21.87	21.92	21.80
		12	6	22.04	21.97	21.84
		12	13	22.05	21.93	21.47
		25	0	21.95	21.90	21.60
	64QAM	1	0	21.30	21.52	21.43
		1	12	21.42	21.57	21.82
		1	24	21.47	<b>21.93</b>	21.57
		12	0	20.46	20.44	20.40
		12	6	20.46	20.43	20.33
		12	13	20.45	20.51	20.35
		25	0	20.38	20.41	20.30

LTE Band 17						
BW	MCS Index	Channel		23780	23790	23800
		Frequency (MHz)		709	710	711
10M	QPSK	1	0	23.79	23.67	23.60
		1	24	23.44	23.61	23.85
		1	49	23.73	<b>24.01</b>	23.95
		25	0	22.74	22.74	22.75
		25	12	22.96	22.90	22.91
		25	25	22.92	22.99	22.95
		50	0	22.89	22.93	22.91
	16QAM	1	0	23.17	22.93	22.91
		1	24	<b>23.25</b>	23.07	23.03
		1	49	23.21	23.14	23.05
		25	0	21.69	21.93	21.71
		25	12	21.88	22.00	21.98
		25	25	21.86	22.07	21.86
		50	0	21.92	21.81	21.86
	64QAM	1	0	21.73	21.71	21.68
		1	24	<b>21.87</b>	21.53	21.27
		1	49	21.59	21.60	21.84
		25	0	20.40	20.35	20.31
		25	12	20.49	20.42	20.44
		25	25	20.36	20.41	20.40
		50	0	20.45	20.45	20.23

LTE Band 30						
BW	MCS Index	Channel		27685	27710	27735
		Frequency (MHz)		2307.5	2310	2312.5
5M	QPSK	1	0	21.61	21.79	21.78
		1	12	21.62	21.74	21.73
		1	24	21.73	21.67	21.75
		12	0	20.80	20.81	20.84
		12	6	20.84	20.79	20.75
		12	13	20.81	20.88	20.93
		25	0	20.90	20.83	20.85
	16QAM	1	0	21.21	21.11	21.25
		1	12	21.15	21.03	21.19
		1	24	21.05	20.98	21.17
		12	0	19.84	19.86	19.83
		12	6	19.78	19.82	19.85
		12	13	19.91	19.89	19.82
		25	0	19.87	19.89	19.92
	64QAM	1	0	20.00	20.10	20.29
		1	12	19.93	20.01	20.24
		1	24	19.86	20.02	20.27
		12	0	19.11	18.87	19.04
		12	6	19.01	18.82	18.99
		12	13	18.97	18.94	18.92
		25	0	18.91	18.93	18.94

Note: LTE Band 30 measurement results are in dBm/5MHz.

LTE Band 30				
BW	MCS Index	Channel		27710
		Frequency (MHz)		2310
10M	QPSK	1	0	21.68
		1	24	21.66
		1	49	21.62
		25	0	20.79
		25	12	20.74
		25	25	20.84
		50	0	20.73
	16QAM	1	0	21.28
		1	24	21.14
		1	49	21.21
		25	0	19.78
		25	12	19.76
		25	25	19.91
		50	0	19.76
	64QAM	1	0	20.23
		1	24	20.25
		1	49	20.12
		25	0	19.01
		25	12	18.96
		25	25	18.91
		50	0	18.85

Note: LTE Band 30 measurement results are in dBm/5MHz.

LTE Band 38						
BW	MCS Index	Channel		37775	38000	38225
		Frequency (MHz)		2572.5	2595	2617.5
5M	QPSK	1	0	23.21	23.41	23.33
		1	12	23.24	23.34	23.27
		1	24	23.29	23.45	23.31
		12	0	22.45	22.60	22.59
		12	6	22.35	22.56	22.55
		12	13	22.44	22.71	22.61
		25	0	22.37	22.52	22.45
	16QAM	1	0	22.57	22.78	22.81
		1	12	22.53	22.76	22.66
		1	24	22.57	22.85	22.80
		12	0	21.40	21.61	21.64
		12	6	21.41	21.69	21.71
		12	13	21.39	21.72	21.59
		25	0	21.41	21.64	21.59
	64QAM	1	0	21.91	21.26	21.46
		1	12	21.84	21.44	21.44
		1	24	21.53	21.44	21.49
		12	0	20.49	20.28	20.36
		12	6	20.49	20.37	20.35
		12	13	20.45	20.41	20.36
		25	0	20.43	20.37	20.34

LTE Band 38						
BW	MCS Index	Channel		37800	38000	38200
		Frequency (MHz)		2575	2595	2615
10M	QPSK	1	0	23.19	23.33	23.36
		1	24	23.21	23.44	23.39
		1	49	23.26	23.47	23.39
		25	0	22.40	22.57	22.59
		25	12	22.42	22.60	22.56
		25	25	22.40	22.66	22.62
		50	0	22.44	22.55	22.50
	16QAM	1	0	22.53	22.79	22.78
		1	24	22.54	22.81	22.83
		1	49	22.58	22.85	22.90
		25	0	21.47	21.66	21.46
		25	12	21.33	21.51	21.64
		25	25	21.47	21.69	21.52
		50	0	21.41	21.58	21.64
	64QAM	1	0	21.89	22.10	21.44
		1	24	21.43	21.64	21.80
		1	49	21.93	21.91	21.39
		25	0	20.47	20.40	20.32
		25	12	20.45	20.42	20.35
		25	25	20.51	20.61	20.31
		50	0	20.34	20.49	20.37

LTE Band 38						
BW	MCS Index	Channel		37825	38000	38175
		Frequency (MHz)		2577.5	2595	2612.5
15M	QPSK	1	0	23.50	23.47	23.31
		1	37	23.42	23.54	23.35
		1	74	23.45	23.49	23.29
		36	0	22.47	22.71	22.78
		36	19	22.61	22.81	22.55
		36	39	22.65	22.74	22.60
		75	0	22.62	22.72	22.82
	16QAM	1	0	22.70	22.85	22.68
		1	37	22.63	22.90	22.79
		1	74	22.81	22.92	22.71
		36	0	21.55	21.74	21.82
		36	19	21.57	21.83	21.70
		36	39	21.69	21.86	21.78
		75	0	21.66	21.81	21.77
	64QAM	1	0	21.96	22.06	21.79
		1	37	21.92	21.57	21.61
		1	74	21.86	21.65	21.42
		36	0	20.54	20.63	20.54
		36	19	20.60	20.68	20.49
		36	39	20.64	20.67	20.67
		75	0	20.53	20.62	20.50

LTE Band 38						
BW	MCS Index	Channel		37850	38000	38150
		Frequency (MHz)		2580	2595	2610
20M	QPSK	1	0	23.46	23.51	23.48
		1	50	23.38	23.48	23.46
		1	99	23.48	23.54	23.47
		50	0	22.60	22.77	22.77
		50	25	22.71	22.77	22.69
		50	50	22.76	22.79	22.62
		100	0	22.68	22.80	22.80
	16QAM	1	0	22.85	22.94	23.06
		1	50	22.69	22.95	22.90
		1	99	22.82	22.83	22.86
		50	0	21.64	21.84	21.83
		50	25	21.77	21.91	21.72
		50	50	21.71	21.81	21.87
		100	0	21.74	21.86	21.83
	64QAM	1	0	22.16	21.60	21.92
		1	50	22.10	22.09	21.34
		1	99	22.13	21.52	21.84
		50	0	20.62	20.63	20.24
		50	25	20.74	20.58	20.46
		50	50	20.58	20.70	20.57
		100	0	20.58	20.57	20.42



LTE Band 41						
BW	MCS Index	Channel		39675	40620	41565
		Frequency (MHz)		2498.5	2593	2687.5
5M	QPSK	1	0	26.65	26.59	26.33
		1	12	26.59	26.50	26.18
		1	24	26.62	26.51	26.17
		12	0	25.80	25.73	25.44
		12	6	25.82	25.78	25.52
		12	13	25.74	25.73	25.49
		25	0	25.79	25.78	25.40
	16QAM	1	0	26.05	25.81	25.68
		1	12	25.87	25.84	25.57
		1	24	26.01	25.94	25.63
		12	0	24.80	24.68	24.50
		12	6	24.85	24.83	24.46
		12	13	24.86	24.83	24.45
		25	0	24.83	24.76	24.53
	64QAM	1	0	25.28	24.66	25.22
		1	12	25.31	24.71	25.14
		1	24	25.37	24.79	25.24
		12	0	24.43	23.69	23.72
		12	6	24.47	23.77	23.68
		12	13	24.39	23.80	23.69
		25	0	24.42	23.65	23.75

LTE Band 41						
BW	MCS Index	Channel		39700	40620	41540
		Frequency (MHz)		2501	2593	2685
10M	QPSK	1	0	26.32	<b>26.61</b>	26.28
		1	24	26.28	26.55	26.34
		1	49	26.30	26.58	26.31
		25	0	25.44	25.79	25.62
		25	12	25.44	25.82	25.57
		25	25	25.43	25.85	25.41
		50	0	25.52	25.79	25.56
	16QAM	1	0	25.55	25.91	25.68
		1	24	25.65	25.83	26.00
		1	49	25.57	<b>26.03</b>	25.54
		25	0	24.48	24.69	24.51
		25	12	24.52	24.84	24.52
		25	25	24.40	24.88	24.39
		50	0	24.48	24.87	24.54
	64QAM	1	0	<b>25.70</b>	25.30	24.98
		1	24	25.09	24.87	25.16
		1	49	25.56	24.91	24.87
		25	0	23.96	23.70	23.77
		25	12	23.97	23.78	23.77
		25	25	24.09	23.75	23.83
		50	0	24.08	23.76	23.76

LTE Band 41						
BW	MCS Index	Channel		39725	40620	41515
		Frequency (MHz)		2503.5	2593	2682.5
15M	QPSK	1	0	26.59	26.64	26.48
		1	37	26.59	26.57	26.35
		1	74	26.51	<b>26.68</b>	26.32
		36	0	25.73	25.71	25.54
		36	19	25.81	25.76	25.55
		36	39	25.77	25.83	25.52
		75	0	25.79	25.78	25.49
	16QAM	1	0	25.86	25.85	25.81
		1	37	25.80	25.76	25.59
		1	74	25.92	<b>25.96</b>	25.64
		36	0	24.72	24.72	24.65
		36	19	24.79	24.72	24.58
		36	39	24.81	24.73	24.48
		75	0	24.83	24.83	24.55
	64QAM	1	0	25.53	25.02	24.51
		1	37	<b>25.75</b>	25.20	24.53
		1	74	25.39	25.00	25.13
		36	0	24.34	23.76	23.35
		36	19	24.38	23.73	23.78
		36	39	24.43	23.87	23.97
		75	0	24.39	23.68	23.61

LTE Band 41						
BW	MCS Index	Channel		39750	40620	41490
		Frequency (MHz)		2506	2593	2680
20M	QPSK	1	0	26.42	<b>26.72</b>	26.38
		1	50	26.38	26.57	26.04
		1	99	26.45	26.55	26.08
		50	0	25.64	25.77	25.44
		50	25	25.72	25.85	25.32
		50	50	25.70	25.86	25.20
		100	0	25.72	25.91	25.34
	16QAM	1	0	25.95	25.98	25.63
		1	50	25.76	26.01	25.43
		1	99	25.91	<b>26.02</b>	25.43
		50	0	24.66	24.85	24.42
		50	25	24.80	24.97	24.36
		50	50	24.80	24.92	24.18
		100	0	24.78	24.89	24.28
	64QAM	1	0	26.23	24.84	24.98
		1	50	<b>26.29</b>	24.93	24.55
		1	99	25.40	24.69	24.75
		50	0	24.35	23.82	23.16
		50	25	24.44	23.86	23.59
		50	50	24.35	23.96	23.37
		100	0	24.38	23.78	23.47

LTE Band 66						
BW	MCS Index	Channel		131979	132322	132665
		Frequency (MHz)		1710.7	1745	1779.3
1.4M	QPSK	1	0	23.31	23.21	23.24
		1	2	23.42	23.27	23.30
		1	5	23.24	23.23	23.17
		3	0	23.32	23.24	23.18
		3	1	23.34	23.27	23.18
		3	3	23.37	23.26	23.20
		6	0	22.38	22.35	22.30
	16QAM	1	0	22.82	22.48	22.56
		1	2	22.90	22.62	22.63
		1	5	22.87	22.57	22.58
		3	0	22.48	22.46	22.25
		3	1	22.51	22.41	22.29
		3	3	22.39	22.40	22.28
		6	0	21.60	21.44	21.33
	64QAM	1	0	21.81	21.46	21.60
		1	2	21.85	21.59	21.81
		1	5	21.90	21.64	21.84
		3	0	20.40	20.37	20.25
		3	1	20.51	20.44	20.30
		3	3	20.44	20.50	20.30
		6	0	20.42	20.46	20.29

LTE Band 66						
BW	MCS Index	Channel		131987	132322	132657
		Frequency (MHz)		1711.5	1745	1778.5
3M	QPSK	1	0	23.37	23.28	23.26
		1	7	23.52	23.35	23.32
		1	14	23.28	23.43	23.27
		8	0	22.46	22.39	22.37
		8	3	22.49	22.43	22.43
		8	7	22.46	22.43	22.37
		15	0	22.46	22.36	22.39
	16QAM	1	0	22.58	22.86	22.54
		1	7	22.53	22.89	22.59
		1	14	22.87	22.96	22.63
		8	0	21.53	21.40	21.37
		8	3	21.56	21.42	21.34
		8	7	21.49	21.53	21.32
		15	0	21.47	21.36	21.30
	64QAM	1	0	21.86	21.55	21.62
		1	7	21.92	21.57	21.65
		1	14	21.98	21.63	21.63
		8	0	20.50	20.44	20.41
		8	3	20.44	20.50	20.50
		8	7	20.43	20.47	20.49
		15	0	20.54	20.47	20.33

LTE Band 66						
BW	MCS Index	Channel		131997	132322	132647
		Frequency (MHz)		1712.5	1745	1777.5
5M	QPSK	1	0	23.32	23.42	23.26
		1	12	23.22	23.45	23.39
		1	24	23.32	<b>23.60</b>	23.38
		12	0	22.50	22.42	22.40
		12	6	22.52	22.48	22.39
		12	13	22.51	22.50	22.42
		25	0	22.46	22.46	22.36
	16QAM	1	0	22.65	22.54	22.27
		1	12	22.80	22.59	22.28
		1	24	<b>22.84</b>	22.70	22.54
		12	0	21.41	21.56	21.36
		12	6	21.42	21.58	21.36
		12	13	21.47	21.61	21.38
		25	0	21.44	21.55	21.43
	64QAM	1	0	21.82	21.16	21.24
		1	12	21.85	21.26	21.46
		1	24	<b>21.92</b>	21.35	21.41
		12	0	20.33	20.44	20.37
		12	6	20.42	20.43	20.40
		12	13	20.48	20.45	20.34
		25	0	20.49	20.34	20.34

LTE Band 66						
BW	MCS Index	Channel		132022	132322	132622
		Frequency (MHz)		1715	1745	1775
10M	QPSK	1	0	23.30	23.34	23.20
		1	24	23.20	23.32	23.18
		1	49	23.30	<b>23.46</b>	23.25
		25	0	22.44	22.34	22.34
		25	12	22.51	22.41	22.31
		25	25	22.52	22.45	22.37
		50	0	22.51	22.34	22.29
	16QAM	1	0	<b>23.12</b>	22.76	22.81
		1	24	22.93	22.66	22.76
		1	49	23.00	22.78	22.73
		25	0	21.58	21.56	21.14
		25	12	21.58	21.51	21.42
		25	25	21.47	21.47	21.47
		50	0	21.46	21.47	21.38
	64QAM	1	0	22.08	<b>22.10</b>	21.23
		1	24	21.57	21.61	21.97
		1	49	21.92	21.99	21.42
		25	0	20.40	20.41	20.29
		25	12	20.31	20.50	20.35
		25	25	20.41	20.42	20.47
		50	0	20.45	20.42	20.37



LTE Band 66						
BW	MCS Index	Channel		132047	132322	132597
		Frequency (MHz)		1717.5	1745	1772.5
15M	QPSK	1	0	23.57	<b>23.64</b>	23.31
		1	37	23.52	23.59	23.47
		1	74	23.52	23.61	23.55
		36	0	22.69	22.63	22.53
		36	19	22.73	22.63	22.60
		36	39	22.69	22.79	22.65
		75	0	22.77	22.71	22.60
	16QAM	1	0	22.86	23.00	22.71
		1	37	22.80	22.97	22.62
		1	74	22.87	<b>23.11</b>	22.66
		36	0	21.60	21.69	21.51
		36	19	21.68	21.71	21.56
		36	39	21.75	21.63	21.70
		75	0	21.75	21.62	21.58
	64QAM	1	0	21.76	21.48	21.10
		1	37	21.45	<b>22.15</b>	21.73
		1	74	21.57	22.04	21.92
		36	0	20.50	20.57	20.06
		36	19	20.59	20.63	20.45
		36	39	20.53	20.68	20.55
		75	0	20.63	20.61	20.30

LTE Band 66						
BW	MCS Index	Channel		132072	132322	132575
		Frequency (MHz)		1720	1745	1770
20M	QPSK	1	0	23.58	23.64	23.54
		1	50	23.68	23.48	23.01
		1	99	23.63	23.65	23.42
		50	0	22.73	22.68	22.02
		50	25	22.76	22.66	22.07
		50	50	22.63	22.78	22.44
		100	0	22.72	22.54	22.40
	16QAM	1	0	22.89	23.04	22.47
		1	50	22.82	23.17	22.25
		1	99	22.92	22.75	22.47
		50	0	21.62	21.65	20.87
		50	25	21.68	21.69	21.22
		50	50	21.70	21.85	21.44
		100	0	21.82	21.53	21.45
	64QAM	1	0	21.47	21.57	21.64
		1	50	21.39	21.80	21.32
		1	99	21.75	21.74	21.60
		50	0	20.65	20.63	20.49
		50	25	20.58	20.65	20.31
		50	50	20.59	20.60	20.65
		100	0	20.67	20.50	20.30

LTE Band 71						
BW	MCS Index	Channel		133147	133297	133447
		Frequency (MHz)		665.5	680.5	695.5
5M	QPSK	1	0	23.28	23.15	23.24
		1	12	23.41	23.32	23.38
		1	24	23.45	23.33	23.28
		12	0	22.44	22.36	22.37
		12	6	22.46	22.45	22.37
		12	13	22.44	22.49	22.38
		25	0	22.40	22.38	22.40
	16QAM	1	0	22.93	22.54	22.51
		1	12	22.96	22.50	22.45
		1	24	22.57	22.49	22.53
		12	0	21.48	21.33	21.37
		12	6	21.48	21.44	21.42
		12	13	21.47	21.49	21.40
		25	0	21.46	21.42	21.36
	64QAM	1	0	21.86	21.33	21.76
		1	12	21.90	21.47	21.82
		1	24	21.84	21.49	21.78
		12	0	20.42	20.30	20.38
		12	6	20.46	20.38	20.40
		12	13	20.46	20.50	20.35
		25	0	20.48	20.40	20.32

LTE Band 71						
BW	MCS Index	Channel		133172	133297	133422
		Frequency (MHz)		668	680.5	693
10M	QPSK	1	0	23.37	23.42	23.40
		1	24	23.40	23.30	23.32
		1	49	23.26	23.24	23.38
		25	0	22.48	22.35	22.26
		25	12	22.48	22.41	22.32
		25	25	22.50	22.46	22.39
		50	0	22.43	22.35	22.40
	16QAM	1	0	22.50	23.19	22.64
		1	24	22.55	23.08	22.60
		1	49	22.63	23.09	22.60
		25	0	21.47	21.28	21.29
		25	12	21.40	21.44	21.49
		25	25	21.42	21.44	21.38
		50	0	21.47	21.44	21.34
	64QAM	1	0	21.86	21.86	21.83
		1	24	21.38	21.66	21.61
		1	49	21.90	21.60	21.31
		25	0	20.49	20.46	20.33
		25	12	20.39	20.47	20.37
		25	25	20.40	20.53	20.47
		50	0	20.48	20.40	20.40

LTE Band 71						
BW	MCS Index	Channel		133197	133297	133397
		Frequency (MHz)		670.5	680.5	690.5
15M	QPSK	1	0	23.57	23.65	23.34
		1	37	23.53	23.61	23.46
		1	74	23.51	<b>23.71</b>	23.57
		36	0	22.60	22.59	22.44
		36	19	22.74	22.72	22.60
		36	39	22.72	22.75	22.67
		75	0	22.81	22.59	22.56
	16QAM	1	0	<b>23.18</b>	23.00	22.75
		1	37	23.13	22.80	22.98
		1	74	23.03	22.95	23.04
		36	0	21.68	21.64	21.10
		36	19	21.73	21.69	21.55
		36	39	21.74	21.78	21.73
		75	0	21.65	21.78	21.53
	64QAM	1	0	<b>22.08</b>	21.73	21.69
		1	37	21.91	22.04	21.59
		1	74	21.65	21.69	21.97
		36	0	20.54	20.54	20.35
		36	19	20.61	20.57	20.41
		36	39	20.53	20.70	20.62
		75	0	20.63	20.58	20.52

LTE Band 71						
BW	MCS Index	Channel		133222	133297	133372
		Frequency (MHz)		673	680.5	688
20M	QPSK	1	0	23.71	23.55	23.54
		1	50	23.48	23.55	23.19
		1	99	23.54	23.56	23.48
		50	0	22.76	22.72	22.49
		50	25	22.68	22.77	22.61
		50	50	22.66	22.72	22.72
		100	0	22.78	22.65	22.57
	16QAM	1	0	22.69	22.79	22.84
		1	50	22.73	22.91	22.69
		1	99	22.72	22.82	22.88
		50	0	21.62	21.73	21.54
		50	25	21.70	21.75	21.59
		50	50	21.73	21.85	21.67
		100	0	21.66	21.70	21.60
	64QAM	1	0	21.52	21.67	21.89
		1	50	21.43	21.51	21.35
		1	99	21.74	21.78	21.85
		50	0	20.62	20.44	20.31
		50	25	20.61	20.50	20.57
		50	50	20.65	20.68	20.64
		100	0	20.70	20.49	20.45

**EIRP Power(dBm)**

Band	WCDMA IV		
	1312	1413	1513
Channel	1712.4	1732.6	1752.6
Frequency	1712.4	1732.6	1752.6
RMC 12.2K	27.66	27.69	<b>27.74</b>
HSDPA Subtest-1	26.41	26.46	26.48
HSDPA Subtest-2	26.38	26.43	26.50
HSDPA Subtest-3	26.33	26.46	26.45
HSDPA Subtest-4	26.34	26.32	26.39
HSUPA Subtest-1	25.59	25.56	25.56
HSUPA Subtest-2	25.49	25.55	25.61
HSUPA Subtest-3	25.52	25.49	25.56
HSUPA Subtest-4	25.53	25.54	25.60

\*EIRP = Conducted + antenna gain (4.27dBi)

LTE Band 4						
BW	MCS Index	Channel		19957	20175	20393
		Frequency (MHz)		1710.7	1732.5	1754.3
1.4M	QPSK	1	0	27.98	27.96	27.67
		1	2	28.04	27.97	27.70
		1	5	27.96	27.90	27.75
		3	0	27.99	27.98	27.70
		3	1	28.02	28.02	27.83
		3	3	28.03	27.87	27.70
		6	0	27.10	26.96	26.79
	16QAM	1	0	27.18	27.27	27.25
		1	2	27.31	27.32	26.77
		1	5	27.21	27.34	26.71
		3	0	27.12	26.95	26.90
		3	1	27.09	26.96	26.91
		3	3	27.08	26.90	26.86
		6	0	26.06	26.13	25.71
	64QAM	1	0	25.71	25.68	25.93
		1	2	25.87	25.78	26.05
		1	5	25.76	25.70	26.07
		3	0	25.68	25.69	25.45
		3	1	25.70	25.72	25.43
		3	3	25.67	25.73	25.46
		6	0	24.57	24.76	24.53

\*EIRP = Conducted + antenna gain (4.27dBi)



LTE Band 4						
BW	MCS Index	Channel		19965	20175	20385
		Frequency (MHz)		1711.5	1732.5	1753.5
3M	QPSK	1	0	28.09	27.96	27.91
		1	7	27.94	<b>28.10</b>	28.01
		1	14	28.09	28.05	27.85
		8	0	27.20	27.03	26.98
		8	3	27.16	27.12	26.90
		8	7	27.14	27.07	26.95
		15	0	27.11	27.10	26.94
	16QAM	1	0	27.30	<b>27.61</b>	26.85
		1	7	27.33	27.53	26.80
		1	14	27.38	27.59	26.83
		8	0	26.22	26.19	26.02
		8	3	26.25	26.20	26.06
		8	7	26.24	26.18	26.01
		15	0	26.09	26.21	25.97
	64QAM	1	0	25.78	25.77	26.11
		1	7	25.81	25.74	26.11
		1	14	25.87	25.86	<b>26.13</b>
		8	0	24.85	24.68	24.69
		8	3	24.86	24.78	24.67
		8	7	24.79	24.78	24.65
		15	0	24.69	24.72	24.58

\*EIRP = Conducted + antenna gain (4.27dBi)

LTE Band 4						
BW	MCS Index	Channel		19975	20175	20375
		Frequency (MHz)		1712.5	1732.5	1752.5
5M	QPSK	1	0	28.11	27.94	27.64
		1	12	28.25	28.04	27.82
		1	24	28.18	28.01	27.76
		12	0	27.08	26.97	26.80
		12	6	27.10	27.00	26.89
		12	13	27.08	27.06	26.80
		25	0	27.08	26.94	26.83
	16QAM	1	0	27.17	26.98	27.27
		1	12	27.16	26.99	27.26
		1	24	27.19	27.03	27.40
		12	0	26.13	25.92	25.83
		12	6	26.10	26.06	25.80
		12	13	26.14	26.10	25.87
		25	0	26.18	25.92	25.95
	64QAM	1	0	25.63	25.78	26.06
		1	12	25.68	25.83	26.13
		1	24	25.77	25.85	26.16
		12	0	24.67	24.72	24.61
		12	6	24.68	24.77	24.67
		12	13	24.67	24.80	24.66
		25	0	24.77	24.70	24.69

\*EIRP = Conducted + antenna gain (4.27dBi)

LTE Band 4						
BW	MCS Index	Channel		20000	20175	20350
		Frequency (MHz)		1715	1732.5	1750
10M	QPSK	1	0	27.94	27.95	27.89
		1	24	27.99	27.82	27.84
		1	49	<b>28.06</b>	27.76	27.72
		25	0	27.08	26.92	26.90
		25	12	27.13	27.08	26.87
		25	25	27.12	26.95	26.90
		50	0	27.13	26.91	26.89
	16QAM	1	0	27.61	27.21	27.31
		1	24	27.65	27.22	27.35
		1	49	<b>27.66</b>	27.16	27.41
		25	0	26.13	26.04	25.85
		25	12	26.14	26.03	25.85
		25	25	26.17	25.88	26.01
		50	0	26.23	26.00	25.83
	64QAM	1	0	25.86	26.07	26.18
		1	24	<b>26.30</b>	25.93	25.94
		1	49	25.86	25.91	25.89
		25	0	24.86	24.70	24.55
		25	12	24.80	24.78	24.67
		25	25	24.65	24.82	24.59
		50	0	24.69	24.77	24.66

\*EIRP = Conducted + antenna gain (4.27dBi)

LTE Band 4						
BW	MCS Index	Channel		20025	20175	20325
		Frequency (MHz)		1717.5	1732.5	1747.5
15M	QPSK	1	0	27.90	<b>27.95</b>	27.37
		1	37	27.84	27.92	27.69
		1	74	27.89	27.91	27.82
		36	0	26.99	27.01	26.82
		36	19	27.05	27.02	26.80
		36	39	27.01	26.95	26.93
		75	0	26.96	26.95	26.83
	16QAM	1	0	27.14	<b>27.42</b>	26.45
		1	37	27.11	27.25	26.70
		1	74	27.01	27.31	26.64
		36	0	25.89	25.92	25.75
		36	19	25.99	26.01	25.89
		36	39	25.98	25.99	25.99
		75	0	25.92	25.95	25.88
	64QAM	1	0	26.05	26.04	26.28
		1	37	25.75	26.08	25.90
		1	74	<b>26.32</b>	26.15	26.31
		36	0	24.90	24.87	24.67
		36	19	24.90	24.86	24.81
		36	39	24.86	24.88	24.87
		75	0	24.91	24.90	24.94

\*EIRP = Conducted + antenna gain (4.27dBi)

LTE Band 4						
BW	MCS Index	Channel		20050	20175	20300
		Frequency (MHz)		1720	1732.5	1745
20M	QPSK	1	0	27.90	27.82	27.89
		1	50	27.57	27.98	27.79
		1	99	27.82	27.78	27.87
		50	0	26.91	26.97	26.77
		50	25	26.95	26.96	26.87
		50	50	26.99	26.99	26.99
		100	0	27.04	27.00	26.80
	16QAM	1	0	27.40	27.14	26.97
		1	50	27.43	27.08	26.90
		1	99	27.46	27.13	26.87
		50	0	26.00	25.96	25.83
		50	25	25.96	25.94	25.77
		50	50	26.01	25.97	25.95
		100	0	25.97	25.87	25.85
	64QAM	1	0	26.13	25.76	26.29
		1	50	25.82	26.00	26.17
		1	99	25.90	25.84	26.32
		50	0	24.78	24.88	24.51
		50	25	24.92	24.90	24.71
		50	50	24.89	24.96	24.89
		100	0	24.84	24.81	24.76

\*EIRP = Conducted + antenna gain (4.27dBi)

LTE Band 7						
BW	MCS Index	Channel		20775	21100	21425
		Frequency (MHz)		2502.5	2535	2567.5
5M	QPSK	1	0	27.88	28.07	<b>28.60</b>
		1	12	27.95	28.13	28.38
		1	24	27.99	28.25	28.09
		12	0	27.04	27.31	27.63
		12	6	27.11	27.29	27.54
		12	13	27.05	27.32	27.35
		25	0	27.03	27.42	27.32
	16QAM	1	0	27.15	27.53	27.72
		1	12	27.17	27.67	27.63
		1	24	27.25	<b>27.79</b>	27.27
		12	0	26.15	26.35	26.69
		12	6	26.10	26.36	26.57
		12	13	26.13	26.43	26.45
		25	0	26.09	26.41	26.55
	64QAM	1	0	26.96	26.85	26.86
		1	12	27.19	<b>27.27</b>	26.99
		1	24	26.93	26.97	27.19
		12	0	25.84	25.72	25.47
		12	6	25.66	25.79	25.56
		12	13	25.75	25.72	25.64
		25	0	25.72	25.75	25.68

\*EIRP = Conducted + antenna gain (5.31dBi)

LTE Band 7						
BW	MCS Index	Channel		20800	21100	21400
		Frequency (MHz)		2505	2535	2565
10M	QPSK	1	0	27.75	28.11	28.63
		1	24	27.88	28.12	<b>28.66</b>
		1	49	27.76	28.25	28.51
		25	0	27.02	27.38	27.69
		25	12	27.09	27.41	27.67
		25	25	27.14	27.32	27.74
		50	0	27.04	27.39	27.68
	16QAM	1	0	27.34	27.21	<b>27.80</b>
		1	24	27.39	27.64	27.64
		1	49	27.52	27.38	27.70
		25	0	25.92	26.26	26.68
		25	12	26.10	26.47	26.67
		25	25	26.10	26.39	26.58
		50	0	25.98	26.44	26.62
	64QAM	1	0	27.07	26.89	26.88
		1	24	27.25	<b>27.36</b>	26.91
		1	49	27.01	27.01	27.17
		25	0	25.85	25.71	25.52
		25	12	25.57	25.75	25.57
		25	25	25.73	25.74	25.65
		50	0	25.77	25.74	25.65

\*EIRP = Conducted + antenna gain (5.31dBi)

LTE Band 7						
BW	MCS Index	Channel		20825	21100	21375
		Frequency (MHz)		2507.5	2535	2562.5
15M	QPSK	1	0	27.64	28.39	28.57
		1	37	28.09	28.43	28.64
		1	74	28.16	28.56	28.44
		36	0	27.14	27.47	27.45
		36	19	27.25	27.61	27.60
		36	39	27.05	27.62	27.50
		75	0	26.85	27.53	27.51
	16QAM	1	0	27.11	27.34	27.87
		1	37	27.67	27.43	27.90
		1	74	27.67	27.69	28.14
		36	0	26.13	26.44	26.53
		36	19	26.22	26.64	26.65
		36	39	26.26	26.64	26.62
		75	0	26.07	26.62	26.56
	64QAM	1	0	26.93	26.93	26.86
		1	37	26.86	26.79	26.85
		1	74	26.89	27.03	27.28
		36	0	25.92	25.97	25.74
		36	19	25.86	25.99	25.86
		36	39	25.98	25.93	25.92
		75	0	25.90	25.88	25.53

\*EIRP = Conducted + antenna gain (5.31dBi)



LTE Band 7						
BW	MCS Index	Channel		20850	21100	21350
		Frequency (MHz)		2510	2535	2560
20M	QPSK	1	0	28.06	28.09	28.56
		1	50	28.08	28.34	<b>28.66</b>
		1	99	28.24	28.47	28.57
		50	0	27.94	27.37	27.37
		50	25	27.98	27.50	27.67
		50	50	28.08	27.60	27.22
		100	0	27.24	27.44	27.42
	16QAM	1	0	27.73	27.42	27.88
		1	50	27.72	27.70	27.79
		1	99	27.70	<b>27.94</b>	27.30
		50	0	26.17	26.43	26.66
		50	25	26.32	26.56	26.60
		50	50	26.32	26.68	25.93
		100	0	26.16	26.47	26.19
	64QAM	1	0	27.01	26.97	26.84
		1	50	26.89	26.75	26.81
		1	99	26.87	27.03	<b>27.30</b>
		50	0	25.96	25.95	25.74
		50	25	25.89	25.92	25.81
		50	50	25.93	26.04	25.91
		100	0	25.89	25.84	25.43

\*EIRP = Conducted + antenna gain (5.31dBi)

LTE Band 38						
BW	MCS Index	Channel		37775	38000	38225
		Frequency (MHz)		2572.5	2595	2617.5
5M	QPSK	1	0	28.52	28.72	28.64
		1	12	28.55	28.65	28.58
		1	24	28.60	<b>28.76</b>	28.62
		12	0	27.76	27.91	27.90
		12	6	27.66	27.87	27.86
		12	13	27.75	28.02	27.92
		25	0	27.68	27.83	27.76
	16QAM	1	0	27.88	28.09	28.12
		1	12	27.84	28.07	27.97
		1	24	27.88	<b>28.16</b>	28.11
		12	0	26.71	26.92	26.95
		12	6	26.72	27.00	27.02
		12	13	26.70	27.03	26.90
		25	0	26.72	26.95	26.90
	64QAM	1	0	<b>27.22</b>	26.57	26.77
		1	12	27.15	26.75	26.75
		1	24	26.84	26.75	26.80
		12	0	25.80	25.59	25.67
		12	6	25.80	25.68	25.66
		12	13	25.76	25.72	25.67
		25	0	25.74	25.68	25.65

\*EIRP = Conducted + antenna gain (5.31dBi)

LTE Band 38						
BW	MCS Index	Channel		37800	38000	38200
		Frequency (MHz)		2575	2595	2615
10M	QPSK	1	0	28.50	28.64	28.67
		1	24	28.52	28.75	28.70
		1	49	28.57	<b>28.78</b>	28.70
		25	0	27.71	27.88	27.90
		25	12	27.73	27.91	27.87
		25	25	27.71	27.97	27.93
		50	0	27.75	27.86	27.81
	16QAM	1	0	27.84	28.10	28.09
		1	24	27.85	28.12	28.14
		1	49	27.89	28.16	<b>28.21</b>
		25	0	26.78	26.97	26.77
		25	12	26.64	26.82	26.95
		25	25	26.78	27.00	26.83
		50	0	26.72	26.89	26.95
	64QAM	1	0	27.20	<b>27.41</b>	26.75
		1	24	26.74	26.95	27.11
		1	49	27.24	27.22	26.70
		25	0	25.78	25.71	25.63
		25	12	25.76	25.73	25.66
		25	25	25.82	25.92	25.62
		50	0	25.65	25.80	25.68

\*EIRP = Conducted + antenna gain (5.31dBi)

LTE Band 38						
BW	MCS Index	Channel		37825	38000	38175
		Frequency (MHz)		2577.5	2595	2612.5
15M	QPSK	1	0	28.81	28.78	28.62
		1	37	28.73	<b>28.85</b>	28.66
		1	74	28.76	28.80	28.60
		36	0	27.78	28.02	28.09
		36	19	27.92	28.12	27.86
		36	39	27.96	28.05	27.91
		75	0	27.93	28.03	28.13
	16QAM	1	0	28.01	28.16	27.99
		1	37	27.94	28.21	28.10
		1	74	28.12	<b>28.23</b>	28.02
		36	0	26.86	27.05	27.13
		36	19	26.88	27.14	27.01
		36	39	27.00	27.17	27.09
		75	0	26.97	27.12	27.08
	64QAM	1	0	27.27	<b>27.37</b>	27.10
		1	37	27.23	26.88	26.92
		1	74	27.17	26.96	26.73
		36	0	25.85	25.94	25.85
		36	19	25.91	25.99	25.80
		36	39	25.95	25.98	25.98
		75	0	25.84	25.93	25.81

\*EIRP = Conducted + antenna gain (5.31dBi)

LTE Band 38						
BW	MCS Index	Channel		37850	38000	38150
		Frequency (MHz)		2580	2595	2610
20M	QPSK	1	0	28.77	28.82	28.79
		1	50	28.69	28.79	28.77
		1	99	28.79	<b>28.85</b>	28.78
		50	0	27.91	28.08	28.08
		50	25	28.02	28.08	28.00
		50	50	28.07	28.10	27.93
		100	0	27.99	28.11	28.11
	16QAM	1	0	28.16	28.25	<b>28.37</b>
		1	50	28.00	28.26	28.21
		1	99	28.13	28.14	28.17
		50	0	26.95	27.15	27.14
		50	25	27.08	27.22	27.03
		50	50	27.02	27.12	27.18
		100	0	27.05	27.17	27.14
	64QAM	1	0	<b>27.47</b>	26.91	27.23
		1	50	27.41	27.40	26.65
		1	99	27.44	26.83	27.15
		50	0	25.93	25.94	25.55
		50	25	26.05	25.89	25.77
		50	50	25.89	26.01	25.88
		100	0	25.89	25.88	25.73

\*EIRP = Conducted + antenna gain (5.31dBi)

LTE Band 41						
BW	MCS Index	Channel		39675	40620	41565
		Frequency (MHz)		2498.5	2593	2687.5
5M	QPSK	1	0	31.96	31.90	31.64
		1	12	31.90	31.81	31.49
		1	24	31.93	31.82	31.48
		12	0	31.11	31.04	30.75
		12	6	31.13	31.09	30.83
		12	13	31.05	31.04	30.80
		25	0	31.10	31.09	30.71
	16QAM	1	0	31.36	31.12	30.99
		1	12	31.18	31.15	30.88
		1	24	31.32	31.25	30.94
		12	0	30.11	29.99	29.81
		12	6	30.16	30.14	29.77
		12	13	30.17	30.14	29.76
		25	0	30.14	30.07	29.84
	64QAM	1	0	30.59	29.97	30.53
		1	12	30.62	30.02	30.45
		1	24	30.68	30.10	30.55
		12	0	29.74	29.00	29.03
		12	6	29.78	29.08	28.99
		12	13	29.70	29.11	29.00
		25	0	29.73	28.96	29.06

\*EIRP = Conducted + antenna gain (5.31dBi)

LTE Band 41						
BW	MCS Index	Channel		39700	40620	41540
		Frequency (MHz)		2501	2593	2685
10M	QPSK	1	0	31.63	<b>31.92</b>	31.59
		1	24	31.59	31.86	31.65
		1	49	31.61	31.89	31.62
		25	0	30.75	31.10	30.93
		25	12	30.75	31.13	30.88
		25	25	30.74	31.16	30.72
		50	0	30.83	31.10	30.87
	16QAM	1	0	30.86	31.22	30.99
		1	24	30.96	31.14	31.31
		1	49	30.88	<b>31.34</b>	30.85
		25	0	29.79	30.00	29.82
		25	12	29.83	30.15	29.83
		25	25	29.71	30.19	29.70
		50	0	29.79	30.18	29.85
	64QAM	1	0	<b>31.01</b>	30.61	30.29
		1	24	30.40	30.18	30.47
		1	49	30.87	30.22	30.18
		25	0	29.27	29.01	29.08
		25	12	29.28	29.09	29.08
		25	25	29.40	29.06	29.14
		50	0	29.39	29.07	29.07

\*EIRP = Conducted + antenna gain (5.31dBi)

LTE Band 41						
BW	MCS Index	Channel		39725	40620	41515
		Frequency (MHz)		2503.5	2593	2682.5
15M	QPSK	1	0	31.90	31.95	31.79
		1	37	31.90	31.88	31.66
		1	74	31.82	31.99	31.63
		36	0	31.04	31.02	30.85
		36	19	31.12	31.07	30.86
		36	39	31.08	31.14	30.83
		75	0	31.10	31.09	30.80
	16QAM	1	0	31.17	31.16	31.12
		1	37	31.11	31.07	30.90
		1	74	31.23	31.27	30.95
		36	0	30.03	30.03	29.96
		36	19	30.10	30.03	29.89
		36	39	30.12	30.04	29.79
		75	0	30.14	30.14	29.86
	64QAM	1	0	30.84	30.33	29.82
		1	37	31.06	30.51	29.84
		1	74	30.70	30.31	30.44
		36	0	29.65	29.07	28.66
		36	19	29.69	29.04	29.09
		36	39	29.74	29.18	29.28
		75	0	29.70	28.99	28.92

\*EIRP = Conducted + antenna gain (5.31dBi)



LTE Band 41						
BW	MCS Index	Channel		39750	40620	41490
		Frequency (MHz)		2506	2593	2680
20M	QPSK	1	0	31.73	<b>32.03</b>	31.69
		1	50	31.69	31.88	31.35
		1	99	31.76	31.86	31.39
		50	0	30.95	31.08	30.75
		50	25	31.03	31.16	30.63
		50	50	31.01	31.17	30.51
		100	0	31.03	31.22	30.65
	16QAM	1	0	31.26	31.29	30.94
		1	50	31.07	31.32	30.74
		1	99	31.22	<b>31.33</b>	30.74
		50	0	29.97	30.16	29.73
		50	25	30.11	30.28	29.67
		50	50	30.11	30.23	29.49
		100	0	30.09	30.20	29.59
	64QAM	1	0	31.54	30.15	30.29
		1	50	<b>31.60</b>	30.24	29.86
		1	99	30.71	30.00	30.06
		50	0	29.66	29.13	28.47
		50	25	29.75	29.17	28.90
		50	50	29.66	29.27	28.68
		100	0	29.69	29.09	28.78

\*EIRP = Conducted + antenna gain (5.31dBi)

LTE Band 66						
BW	MCS Index	Channel		131979	132322	132665
		Frequency (MHz)		1710.7	1745	1779.3
1.4M	QPSK	1	0	27.58	27.48	27.51
		1	2	27.69	27.54	27.57
		1	5	27.51	27.50	27.44
		3	0	27.59	27.51	27.45
		3	1	27.61	27.54	27.45
		3	3	27.64	27.53	27.47
		6	0	26.65	26.62	26.57
	16QAM	1	0	27.09	26.75	26.83
		1	2	27.17	26.89	26.90
		1	5	27.14	26.84	26.85
		3	0	26.75	26.73	26.52
		3	1	26.78	26.68	26.56
		3	3	26.66	26.67	26.55
		6	0	25.87	25.71	25.60
	64QAM	1	0	26.08	25.73	25.87
		1	2	26.12	25.86	26.08
		1	5	26.17	25.91	26.11
		3	0	24.67	24.64	24.52
		3	1	24.78	24.71	24.57
		3	3	24.71	24.77	24.57
		6	0	24.69	24.73	24.56

\*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	27.64	27.55	27.53
		1	7	27.79	27.62	27.59
		1	14	27.55	27.70	27.54
		8	0	26.73	26.66	26.64
		8	3	26.76	26.70	26.70
		8	7	26.73	26.70	26.64
		15	0	26.73	26.63	26.66
	16QAM	1	0	26.85	27.13	26.81
		1	7	26.80	27.16	26.86
		1	14	27.14	27.23	26.90
		8	0	25.80	25.67	25.64
		8	3	25.83	25.69	25.61
		8	7	25.76	25.80	25.59
		15	0	25.74	25.63	25.57
	64QAM	1	0	26.13	25.82	25.89
		1	7	26.19	25.84	25.92
		1	14	26.25	25.90	25.90
		8	0	24.77	24.71	24.68
		8	3	24.71	24.77	24.77
		8	7	24.70	24.74	24.76
		15	0	24.81	24.74	24.60

\*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	27.59	27.69	27.53
		1	12	27.49	27.72	27.66
		1	24	27.59	<b>27.87</b>	27.65
		12	0	26.77	26.69	26.67
		12	6	26.79	26.75	26.66
		12	13	26.78	26.77	26.69
		25	0	26.73	26.73	26.63
	16QAM	1	0	26.92	26.81	26.54
		1	12	27.07	26.86	26.55
		1	24	<b>27.11</b>	26.97	26.81
		12	0	25.68	25.83	25.63
		12	6	25.69	25.85	25.63
		12	13	25.74	25.88	25.65
		25	0	25.71	25.82	25.70
	64QAM	1	0	26.09	25.43	25.51
		1	12	26.12	25.53	25.73
		1	24	<b>26.19</b>	25.62	25.68
		12	0	24.60	24.71	24.64
		12	6	24.69	24.70	24.67
		12	13	24.75	24.72	24.61
		25	0	24.76	24.61	24.61

\*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	27.57	27.61	27.47
		1	24	27.47	27.59	27.45
		1	49	27.57	<b>27.73</b>	27.52
		25	0	26.71	26.61	26.61
		25	12	26.78	26.68	26.58
		25	25	26.79	26.72	26.64
		50	0	26.78	26.61	26.56
	16QAM	1	0	<b>27.39</b>	27.03	27.08
		1	24	27.20	26.93	27.03
		1	49	27.27	27.05	27.00
		25	0	25.85	25.83	25.41
		25	12	25.85	25.78	25.69
		25	25	25.74	25.74	25.74
		50	0	25.73	25.74	25.65
	64QAM	1	0	26.35	<b>26.37</b>	25.50
		1	24	25.84	25.88	26.24
		1	49	26.19	26.26	25.69
		25	0	24.67	24.68	24.56
		25	12	24.58	24.77	24.62
		25	25	24.68	24.69	24.74
		50	0	24.72	24.69	24.64

\*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	27.84	<b>27.91</b>	27.58
		1	37	27.79	27.86	27.74
		1	74	27.79	27.88	27.82
		36	0	26.96	26.90	26.80
		36	19	27.00	26.90	26.87
		36	39	26.96	27.06	26.92
		75	0	27.04	26.98	26.87
	16QAM	1	0	27.13	27.27	26.98
		1	37	27.07	27.24	26.89
		1	74	27.14	<b>27.38</b>	26.93
		36	0	25.87	25.96	25.78
		36	19	25.95	25.98	25.83
		36	39	26.02	25.90	25.97
		75	0	26.02	25.89	25.85
	64QAM	1	0	26.03	25.75	25.37
		1	37	25.72	<b>26.42</b>	26.00
		1	74	25.84	26.31	26.19
		36	0	24.77	24.84	24.33
		36	19	24.86	24.90	24.72
		36	39	24.80	24.95	24.82
		75	0	24.90	24.88	24.57

\*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	27.85	27.91	27.81
		1	50	27.95	27.75	27.28
		1	99	27.90	27.92	27.69
		50	0	27.00	26.95	26.29
		50	25	27.03	26.93	26.34
		50	50	26.90	27.05	26.71
		100	0	26.99	26.81	26.67
	16QAM	1	0	27.16	27.31	26.74
		1	50	27.09	27.44	26.52
		1	99	27.19	27.02	26.74
		50	0	25.89	25.92	25.14
		50	25	25.95	25.96	25.49
		50	50	25.97	26.12	25.71
		100	0	26.09	25.80	25.72
	64QAM	1	0	25.74	25.84	25.91
		1	50	25.66	26.07	25.59
		1	99	26.02	26.01	25.87
		50	0	24.92	24.90	24.76
		50	25	24.85	24.92	24.58
		50	50	24.86	24.87	24.92
		100	0	24.94	24.77	24.57

\*EIRP = Conducted + antenna gain (4.27dBi)

**ERP Power (dBm)**

LTE Band 12						
BW	MCS Index	Channel		23017	23095	23173
		Frequency (MHz)		699.7	707.5	715.3
1.4M	QPSK	1	0	25.45	25.95	25.83
		1	2	25.28	<b>26.13</b>	25.76
		1	5	25.53	25.93	25.58
		3	0	25.53	25.90	25.82
		3	1	25.49	25.93	25.58
		3	3	25.66	26.00	25.61
		6	0	24.38	25.07	24.79
	16QAM	1	0	24.77	25.47	24.68
		1	2	24.84	25.58	24.85
		1	5	24.90	<b>25.59</b>	24.70
		3	0	24.62	25.02	24.83
		3	1	24.68	25.02	24.78
		3	3	24.57	25.08	24.65
		6	0	23.81	24.13	23.75
	64QAM	1	0	24.04	23.89	23.81
		1	2	23.70	23.94	23.87
		1	5	<b>24.17</b>	23.98	23.59
		3	0	22.64	22.69	22.64
		3	1	22.77	22.81	22.51
		3	3	22.70	22.67	22.52
		6	0	22.67	22.64	22.64

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



LTE Band 12						
BW	MCS Index	Channel		23025	23095	23165
		Frequency (MHz)		700.5	707.5	714.5
3M	QPSK	1	0	25.77	26.02	<b>26.21</b>
		1	7	25.77	26.15	25.79
		1	14	25.67	26.12	25.74
		8	0	24.82	25.14	24.76
		8	3	24.86	25.12	24.93
		8	7	24.83	25.13	24.89
		15	0	24.94	25.23	24.86
	16QAM	1	0	25.05	25.08	25.07
		1	7	25.28	25.06	<b>25.31</b>
		1	14	24.82	25.18	24.99
		8	0	24.07	24.10	23.90
		8	3	24.08	24.10	23.95
		8	7	23.94	24.21	23.85
		15	0	23.86	24.17	24.01
	64QAM	1	0	24.15	23.89	23.75
		1	7	23.63	23.91	23.91
		1	14	<b>24.20</b>	24.02	23.56
		8	0	22.66	22.66	22.58
		8	3	22.82	22.79	22.53
		8	7	22.75	22.69	22.55
		15	0	22.59	22.66	22.67

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

LTE Band 12						
BW	MCS Index	Channel		23035	23095	23155
		Frequency (MHz)		701.5	707.5	713.5
5M	QPSK	1	0	25.61	26.05	25.92
		1	12	25.46	26.17	26.12
		1	24	25.09	26.12	25.45
		12	0	24.40	25.08	24.81
		12	6	24.60	25.11	24.99
		12	13	24.75	25.15	24.58
		25	0	24.66	25.16	24.76
	16QAM	1	0	24.74	25.27	25.56
		1	12	24.84	25.23	25.69
		1	24	25.00	25.36	25.18
		12	0	23.77	24.21	23.96
		12	6	23.63	24.17	23.91
		12	13	23.73	24.23	23.92
		25	0	23.94	24.15	23.86
	64QAM	1	0	23.87	24.10	23.70
		1	12	23.88	24.14	23.55
		1	24	23.87	24.26	23.75
		12	0	22.60	22.64	22.66
		12	6	22.60	22.65	22.60
		12	13	22.63	22.78	22.62
		25	0	22.64	22.65	22.58

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

LTE Band 12						
BW	MCS Index	Channel		23060	23095	23130
		Frequency (MHz)		704	707.5	711
10M	QPSK	1	0	25.97	26.00	25.94
		1	24	25.71	26.02	26.13
		1	49	<b>26.35</b>	26.23	26.03
		25	0	24.94	25.06	25.11
		25	12	25.10	25.17	25.17
		25	25	25.11	25.11	25.19
		50	0	25.16	25.13	25.11
	16QAM	1	0	25.32	25.22	25.17
		1	24	25.19	25.21	25.21
		1	49	<b>25.44</b>	25.37	25.28
		25	0	23.94	24.12	24.13
		25	12	24.14	24.23	24.29
		25	25	24.07	24.30	24.26
		50	0	24.02	24.18	24.09
	64QAM	1	0	24.13	24.02	24.15
		1	24	24.38	23.76	23.90
		1	49	<b>24.44</b>	24.03	23.93
		25	0	22.84	22.87	22.69
		25	12	22.95	23.00	22.84
		25	25	22.97	22.97	22.86
		50	0	22.79	22.81	22.81

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

LTE Band 13						
BW	MCS Index	Channel		23205	23230	23255
		Frequency (MHz)		779.5	782	784.5
5M	QPSK	1	0	26.28	26.35	26.38
		1	12	26.36	26.36	26.38
		1	24	26.39	26.37	26.34
		12	0	25.50	25.48	25.51
		12	6	25.50	25.50	25.46
		12	13	25.53	25.59	25.58
		25	0	25.48	25.44	25.41
	16QAM	1	0	25.63	25.71	25.42
		1	12	25.62	25.86	25.22
		1	24	25.78	25.65	25.51
		12	0	24.44	24.59	24.55
		12	6	24.48	24.56	24.46
		12	13	24.47	24.58	24.50
		25	0	24.50	24.58	24.55
	64QAM	1	0	23.91	24.09	23.48
		1	12	23.86	24.21	23.54
		1	24	23.87	24.17	23.51
		12	0	22.57	22.68	22.62
		12	6	22.58	22.70	22.68
		12	13	22.60	22.74	22.59
		25	0	22.68	22.61	22.67

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

LTE Band 13				
BW	MCS Index	Channel		23230
		Frequency (MHz)		782
10M	QPSK	1	0	26.24
		1	24	<b>26.41</b>
		1	49	26.20
		25	0	25.46
		25	12	25.50
		25	25	25.41
		50	0	25.54
	16QAM	1	0	25.55
		1	24	<b>25.97</b>
		1	49	25.75
		25	0	24.49
		25	12	24.49
		25	25	24.53
		50	0	24.42
	64QAM	1	0	23.77
		1	24	<b>24.29</b>
		1	49	23.96
		25	0	22.48
		25	12	22.65
		25	25	22.57
		50	0	22.67

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

LTE Band 17						
BW	MCS Index	Channel		23755	23790	23825
		Frequency (MHz)		706.5	710	713.5
5M	QPSK	1	0	26.06	26.01	25.84
		1	12	26.08	26.12	25.89
		1	24	26.14	<b>26.22</b>	25.77
		12	0	25.13	25.15	25.03
		12	6	25.23	25.14	24.96
		12	13	25.23	25.20	24.75
		25	0	25.21	25.25	24.68
	16QAM	1	0	25.26	25.58	25.43
		1	12	25.23	25.63	25.45
		1	24	25.42	<b>25.87</b>	24.98
		12	0	24.13	24.18	24.06
		12	6	24.30	24.23	24.10
		12	13	24.31	24.19	23.73
		25	0	24.21	24.16	23.86
	64QAM	1	0	23.56	23.78	23.69
		1	12	23.68	23.83	24.08
		1	24	23.73	<b>24.19</b>	23.83
		12	0	22.72	22.70	22.66
		12	6	22.72	22.69	22.59
		12	13	22.71	22.77	22.61
		25	0	22.64	22.67	22.56

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

LTE Band 17						
BW	MCS Index	Channel		23780	23790	23800
		Frequency (MHz)		709	710	711
10M	QPSK	1	0	26.05	25.93	25.86
		1	24	25.70	25.87	26.11
		1	49	25.99	<b>26.27</b>	26.21
		25	0	25.00	25.00	25.01
		25	12	25.22	25.16	25.17
		25	25	25.18	25.25	25.21
		50	0	25.15	25.19	25.17
	16QAM	1	0	25.43	25.19	25.17
		1	24	<b>25.51</b>	25.33	25.29
		1	49	25.47	25.40	25.31
		25	0	23.95	24.19	23.97
		25	12	24.14	24.26	24.24
		25	25	24.12	24.33	24.12
		50	0	24.18	24.07	24.12
	64QAM	1	0	23.99	23.97	23.94
		1	24	<b>24.13</b>	23.79	23.53
		1	49	23.85	23.86	24.10
		25	0	22.66	22.61	22.57
		25	12	22.75	22.68	22.70
		25	25	22.62	22.67	22.66
		50	0	22.71	22.71	22.49

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

LTE Band 71						
BW	MCS Index	Channel		133147	133297	133447
		Frequency (MHz)		665.5	680.5	695.5
5M	QPSK	1	0	25.54	25.41	25.50
		1	12	25.67	25.58	25.64
		1	24	25.71	25.59	25.54
		12	0	24.70	24.62	24.63
		12	6	24.72	24.71	24.63
		12	13	24.70	24.75	24.64
		25	0	24.66	24.64	24.66
	16QAM	1	0	25.19	24.80	24.77
		1	12	25.22	24.76	24.71
		1	24	24.83	24.75	24.79
		12	0	23.74	23.59	23.63
		12	6	23.74	23.70	23.68
		12	13	23.73	23.75	23.66
		25	0	23.72	23.68	23.62
	64QAM	1	0	24.12	23.59	24.02
		1	12	24.16	23.73	24.08
		1	24	24.10	23.75	24.04
		12	0	22.68	22.56	22.64
		12	6	22.72	22.64	22.66
		12	13	22.72	22.76	22.61
		25	0	22.74	22.66	22.58

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



LTE Band 71						
BW	MCS Index	Channel		133172	133297	133422
		Frequency (MHz)		668	680.5	693
10M	QPSK	1	0	25.63	<b>25.68</b>	25.66
		1	24	25.66	25.56	25.58
		1	49	25.52	25.50	25.64
		25	0	24.74	24.61	24.52
		25	12	24.74	24.67	24.58
		25	25	24.76	24.72	24.65
		50	0	24.69	24.61	24.66
	16QAM	1	0	24.76	<b>25.45</b>	24.90
		1	24	24.81	25.34	24.86
		1	49	24.89	25.35	24.86
		25	0	23.73	23.54	23.55
		25	12	23.66	23.70	23.75
		25	25	23.68	23.70	23.64
		50	0	23.73	23.70	23.60
	64QAM	1	0	24.12	24.12	24.09
		1	24	23.64	23.92	23.87
		1	49	<b>24.16</b>	23.86	23.57
		25	0	22.75	22.72	22.59
		25	12	22.65	22.73	22.63
		25	25	22.66	22.79	22.73
		50	0	22.74	22.66	22.66

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

LTE Band 71						
BW	MCS Index	Channel		133197	133297	133397
		Frequency (MHz)		670.5	680.5	690.5
15M	QPSK	1	0	25.83	25.91	25.60
		1	37	25.79	25.87	25.72
		1	74	25.77	<b>25.97</b>	25.83
		36	0	24.86	24.85	24.70
		36	19	25.00	24.98	24.86
		36	39	24.98	25.01	24.93
		75	0	25.07	24.85	24.82
	16QAM	1	0	<b>25.44</b>	25.26	25.01
		1	37	25.39	25.06	25.24
		1	74	25.29	25.21	25.30
		36	0	23.94	23.90	23.36
		36	19	23.99	23.95	23.81
		36	39	24.00	24.04	23.99
		75	0	23.91	24.04	23.79
	64QAM	1	0	<b>24.34</b>	23.99	23.95
		1	37	24.17	24.30	23.85
		1	74	23.91	23.95	24.23
		36	0	22.80	22.80	22.61
		36	19	22.87	22.83	22.67
		36	39	22.79	22.96	22.88
		75	0	22.89	22.84	22.78

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

LTE Band 71						
BW	MCS Index	Channel		133222	133297	133372
		Frequency (MHz)		673	680.5	688
20M	QPSK	1	0	25.97	25.81	25.80
		1	50	25.74	25.81	25.45
		1	99	25.80	25.82	25.74
		50	0	25.02	24.98	24.75
		50	25	24.94	25.03	24.87
		50	50	24.92	24.98	24.98
		100	0	25.04	24.91	24.83
	16QAM	1	0	24.95	25.05	25.10
		1	50	24.99	25.17	24.95
		1	99	24.98	25.08	25.14
		50	0	23.88	23.99	23.80
		50	25	23.96	24.01	23.85
		50	50	23.99	24.11	23.93
		100	0	23.92	23.96	23.86
	64QAM	1	0	23.78	23.93	24.15
		1	50	23.69	23.77	23.61
		1	99	24.00	24.04	24.11
		50	0	22.88	22.70	22.57
		50	25	22.87	22.76	22.83
		50	50	22.91	22.94	22.90
		100	0	22.96	22.75	22.71

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

**Modulation Type: QPSK**

LTE Band 30, Channel Bandwidth: 5MHz

Mode		TX channel 27685					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm/5MHz)	Limit (dBm/5MHz)	Margin (dB)
1	2307.50	-18.7	22.7	-0.1	22.6	23.97	-1.37
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm/5MHz)	Limit (dBm/5MHz)	Margin (dB)
1	2307.50	-19.6	23.5	-0.1	23.4	23.97	-0.57

Mode		TX channel 27710					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm/5MHz)	Limit (dBm/5MHz)	Margin (dB)
1	2310.00	-18.6	22.8	-0.1	22.7	23.97	-1.27
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm/5MHz)	Limit (dBm/5MHz)	Margin (dB)
1	2310.00	-19.7	23.4	-0.1	23.3	23.97	-0.67

Mode		TX channel 27735					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm/5MHz)	Limit (dBm/5MHz)	Margin (dB)
1	2312.50	-18.8	22.6	-0.1	22.5	23.97	-1.47
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm/5MHz)	Limit (dBm/5MHz)	Margin (dB)
1	2312.50	-19.5	23.6	-0.1	23.5	23.97	-0.47

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

LTE Band 30, Channel Bandwidth: 10MHz

Mode		TX channel 27710					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm/5MHz)	Limit (dBm/5MHz)	Margin (dB)
1	2310.00	-18.9	22.5	-0.1	22.4	23.97	-1.57
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm/5MHz)	Limit (dBm/5MHz)	Margin (dB)
1	2310.00	-19.9	23.2	-0.1	23.1	23.97	-0.87

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

**Modulation Type: 16QAM**

LTE Band 30, Channel Bandwidth: 5MHz

Mode		TX channel 27685					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm/5MHz)	Limit (dBm/5MHz)	Margin (dB)
1	2307.50	-19.9	21.5	-0.1	21.4	23.97	-2.57
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm/5MHz)	Limit (dBm/5MHz)	Margin (dB)
1	2307.50	-20.7	22.4	-0.1	22.3	23.97	-1.67

Mode		TX channel 27710					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm/5MHz)	Limit (dBm/5MHz)	Margin (dB)
1	2310.00	-19.7	21.7	-0.1	21.6	23.97	-2.37
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm/5MHz)	Limit (dBm/5MHz)	Margin (dB)
1	2310.00	-20.8	22.3	-0.1	22.2	23.97	-1.77

Mode		TX channel 27735					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm/5MHz)	Limit (dBm/5MHz)	Margin (dB)
1	2312.50	-19.8	21.6	-0.1	21.5	23.97	-2.47
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm/5MHz)	Limit (dBm/5MHz)	Margin (dB)
1	2312.50	-20.5	22.6	-0.1	22.5	23.97	-1.47

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

LTE Band 30, Channel Bandwidth: 10MHz

Mode		TX channel 27710					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm/5MHz)	Limit (dBm/5MHz)	Margin (dB)
1	2310.00	-19.9	21.5	-0.1	21.4	23.97	-2.57
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm/5MHz)	Limit (dBm/5MHz)	Margin (dB)
1	2310.00	-21.0	22.1	-0.1	22.0	23.97	-1.97

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

**Modulation Type: 64QAM**

LTE Band 30, Channel Bandwidth: 5MHz

Mode		TX channel 27685					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm/5MHz)	Limit (dBm/5MHz)	Margin (dB)
1	2307.50	-20.5	20.9	-0.1	20.8	23.97	-3.17
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm/5MHz)	Limit (dBm/5MHz)	Margin (dB)
1	2307.50	-21.5	21.6	-0.1	21.5	23.97	-2.47

Mode		TX channel 27710					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm/5MHz)	Limit (dBm/5MHz)	Margin (dB)
1	2310.00	-20.3	21.1	-0.1	21.0	23.97	-2.97
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm/5MHz)	Limit (dBm/5MHz)	Margin (dB)
1	2310.00	-21.2	21.9	-0.1	21.8	23.97	-2.17

Mode		TX channel 27735					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm/5MHz)	Limit (dBm/5MHz)	Margin (dB)
1	2312.50	-20.4	21.0	-0.1	20.9	23.97	-3.07
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm/5MHz)	Limit (dBm/5MHz)	Margin (dB)
1	2312.50	-21.1	22.0	-0.1	21.9	23.97	-2.07

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

LTE Band 30, Channel Bandwidth: 10MHz

Mode		TX channel 27710					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm/5MHz)	Limit (dBm/5MHz)	Margin (dB)
1	2310.00	-20.5	20.9	-0.1	20.8	23.97	-3.17
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm/5MHz)	Limit (dBm/5MHz)	Margin (dB)
1	2310.00	-21.5	21.6	-0.1	21.5	23.97	-2.47

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

## 4.2 Modulation Characteristics Measurement

### 4.2.1 Limits of Modulation Characteristics

N/A

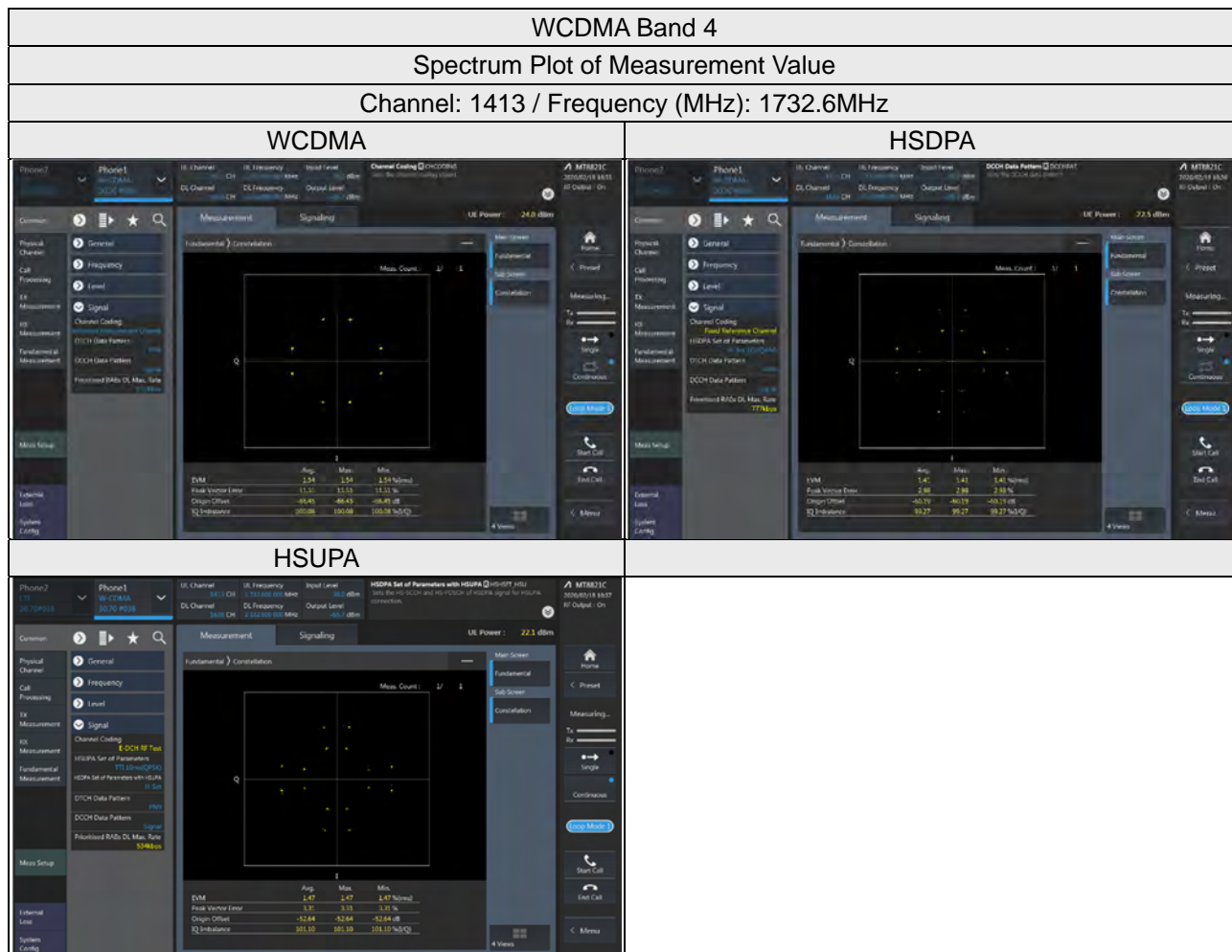
### 4.2.2 Test Procedure

Connect the EUT to Communication Simulator via the antenna connector, The frequency band is set as EUT supported Modulation and Channels, the EUT output is matched with 50 ohm load, the waveform quality and constellation of the EUT was tested.

### 4.2.3 Test Setup



### 4.2.4 Test Results



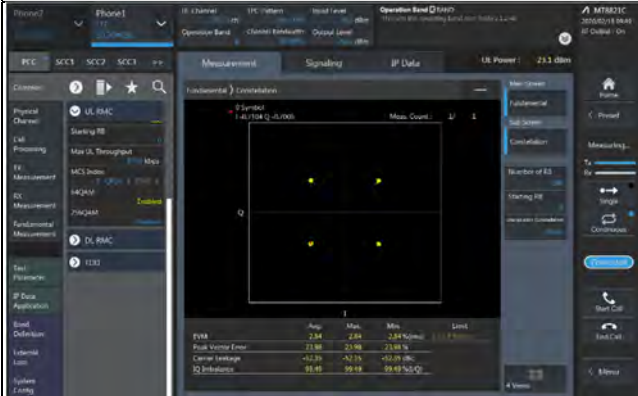


### LTE Band 4

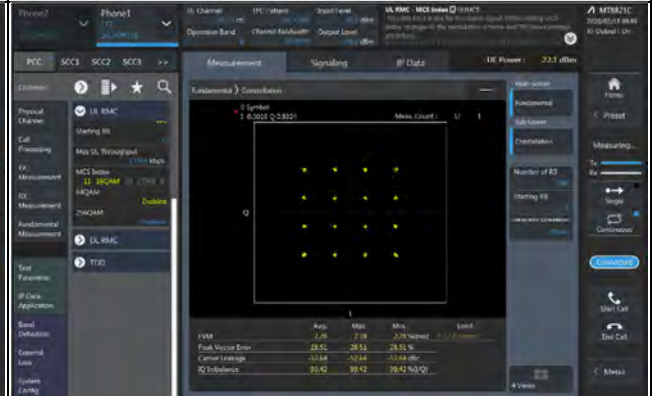
### Spectrum Plot of Measurement Value

Channel: 20175 / Frequency (MHz): 1732.5MHz

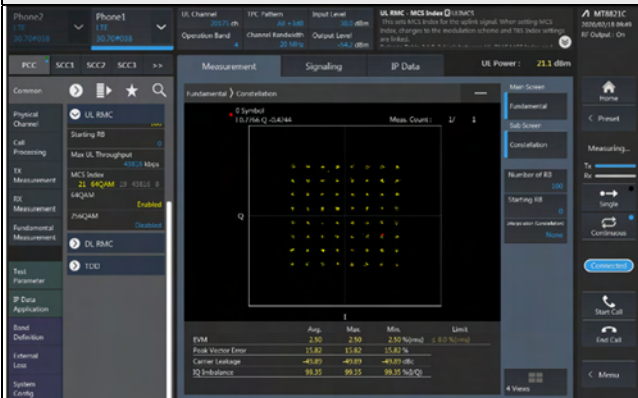
#### QPSK



#### 16QAM



#### 64QAM

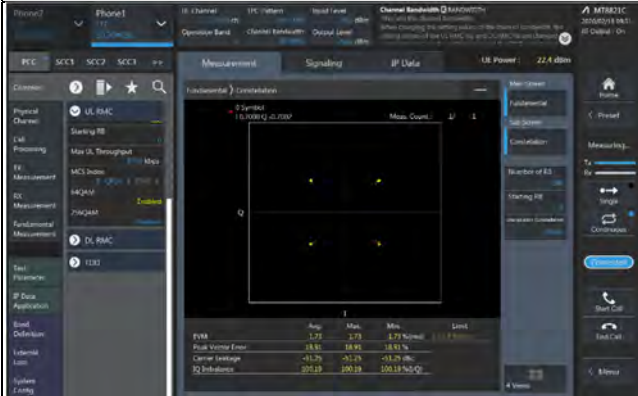


### LTE Band 7

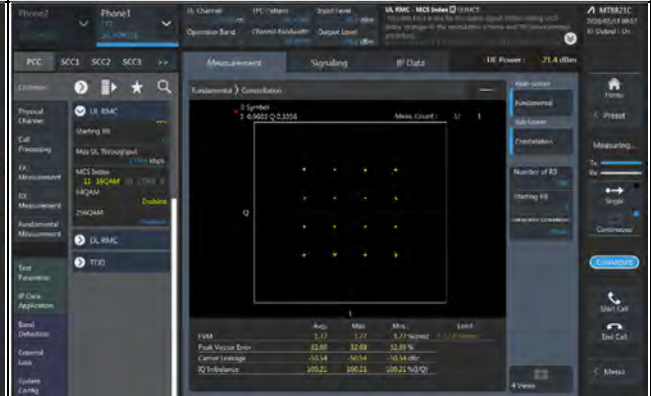
### Spectrum Plot of Measurement Value

Channel: 21100 / Frequency (MHz): 2535.0MHz

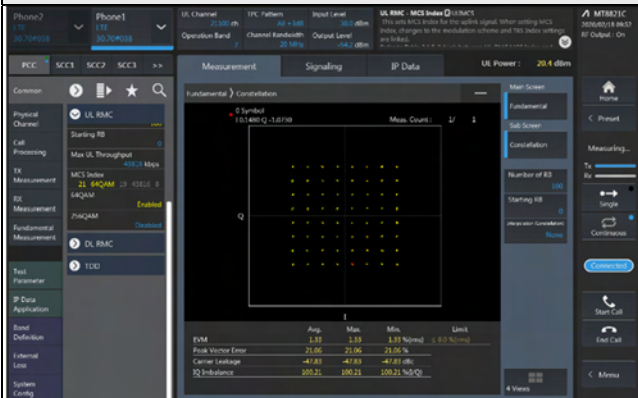
#### QPSK



#### 16QAM



#### 64QAM

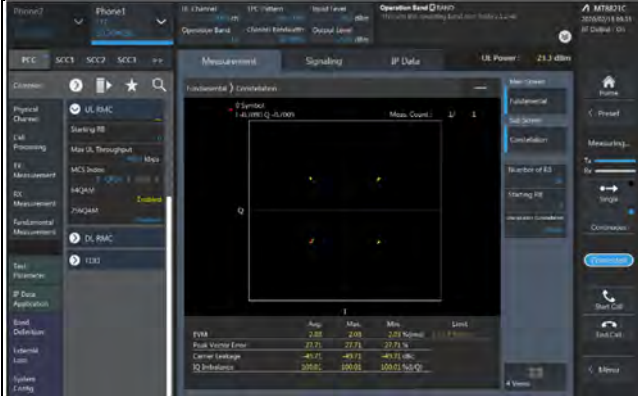


LTE Band 12

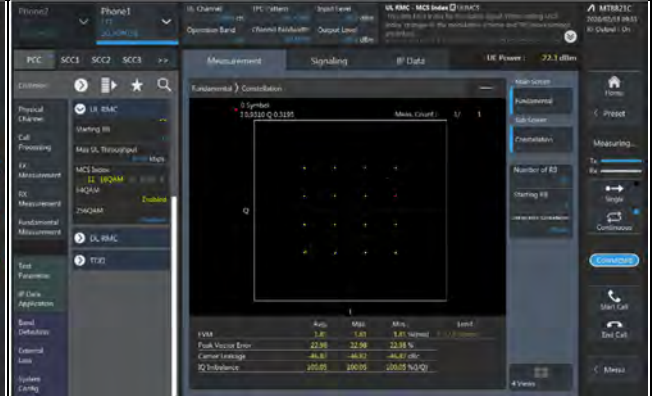
Spectrum Plot of Measurement Value

Channel: 23095 / Frequency (MHz): 707.5 MHz

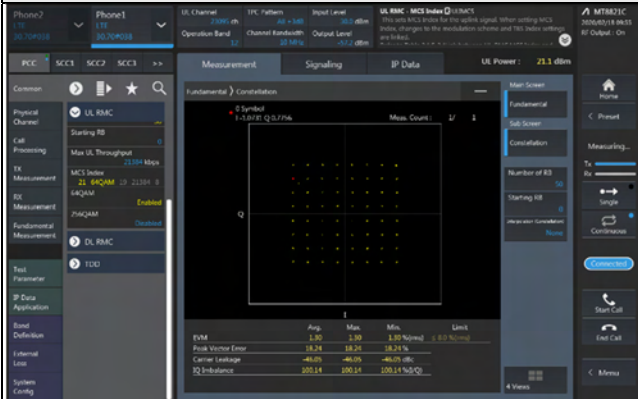
QPSK



16QAM



64QAM

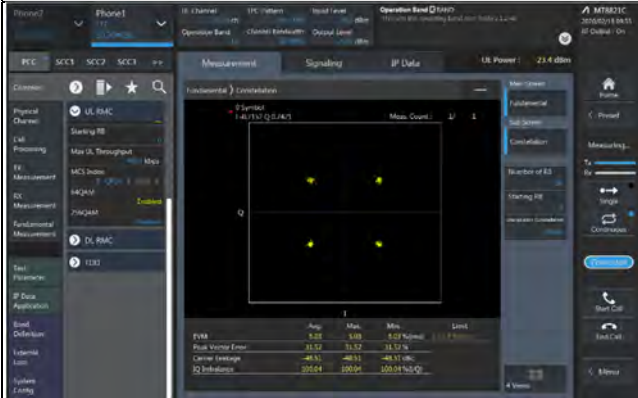


### LTE Band 13

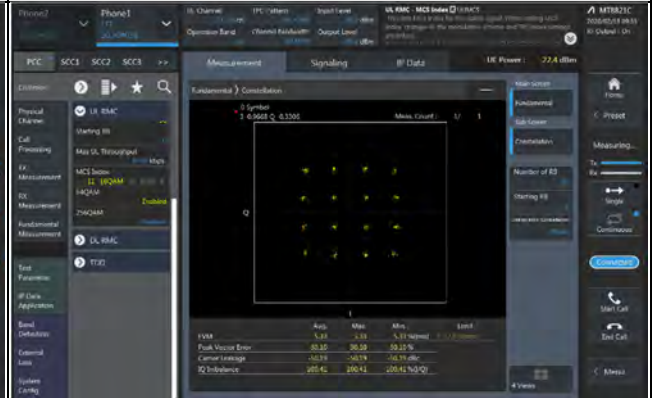
### Spectrum Plot of Measurement Value

Channel: 23230 / Frequency (MHz): 782.0MHz

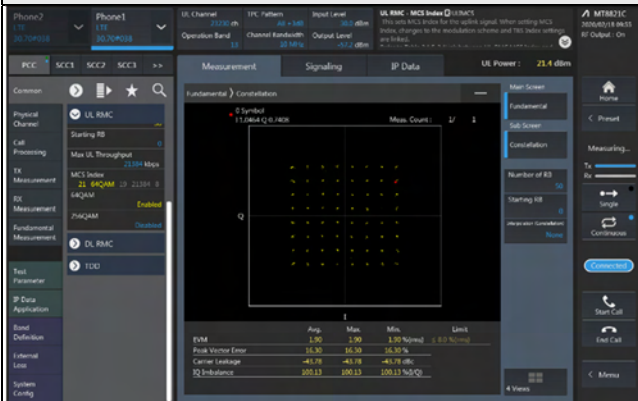
#### QPSK



#### 16QAM



#### 64QAM

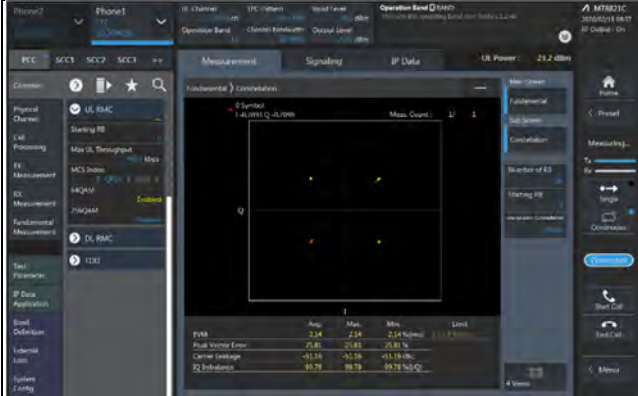


LTE Band 17

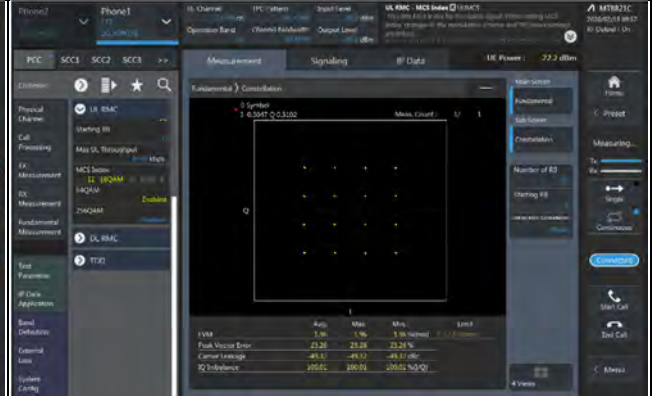
Spectrum Plot of Measurement Value

Channel: 23790 / Frequency (MHz): 710.0MHz

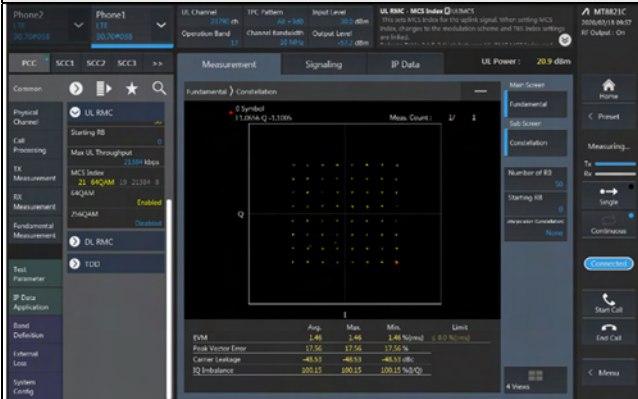
QPSK



16QAM



64QAM

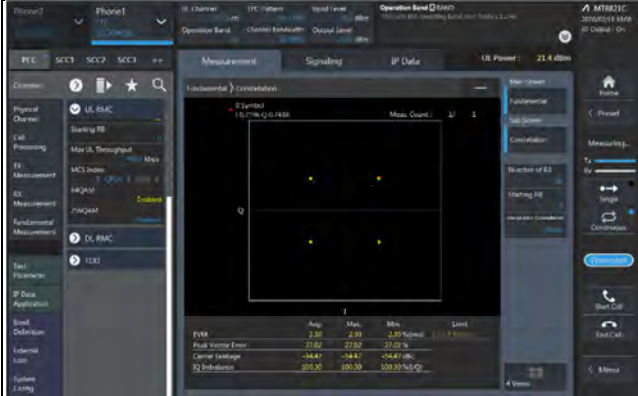


LTE Band 30

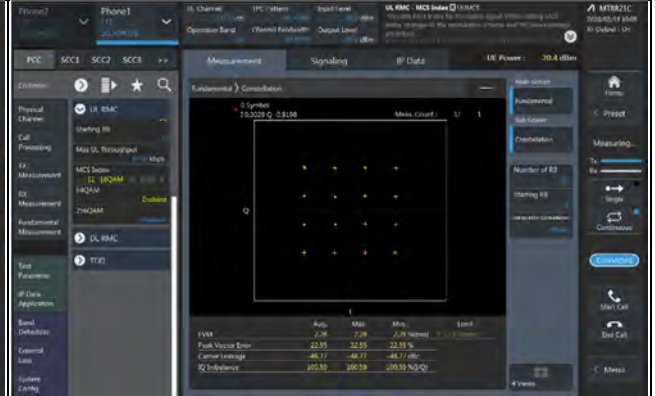
Spectrum Plot of Measurement Value

Channel: 27710 / Frequency (MHz): 2310.0 MHz

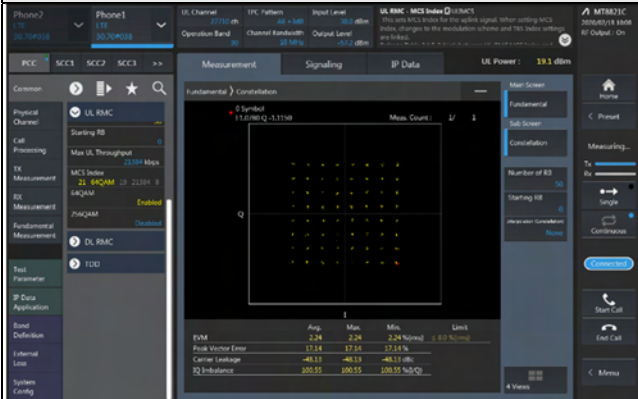
QPSK



16QAM



64QAM

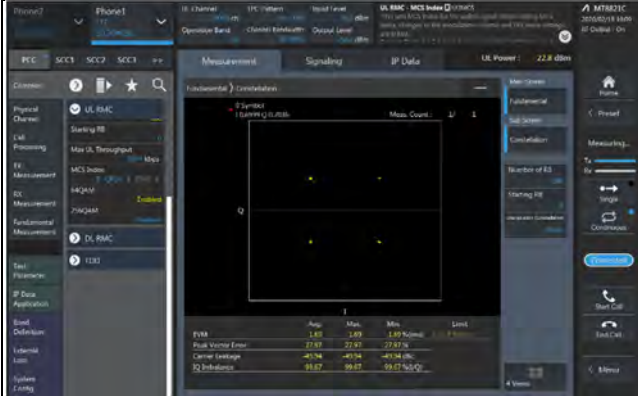


### LTE Band 38

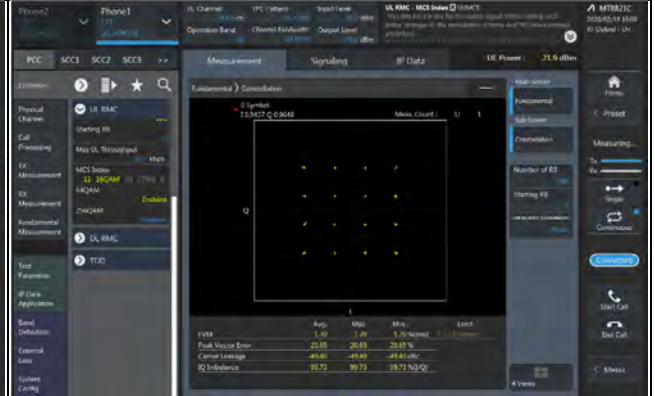
### Spectrum Plot of Measurement Value

Channel: 38000 / Frequency (MHz): 2595.0 MHz

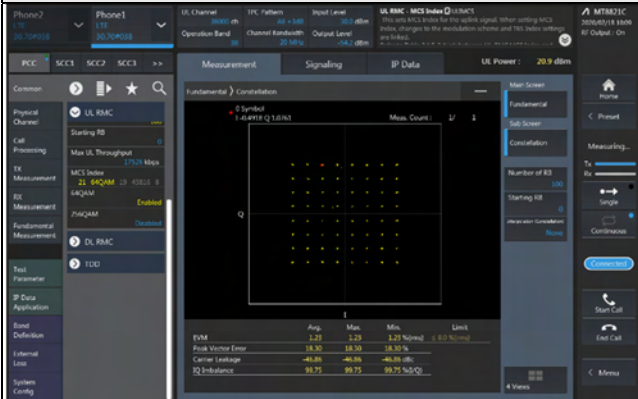
#### QPSK



#### 16QAM



#### 64QAM

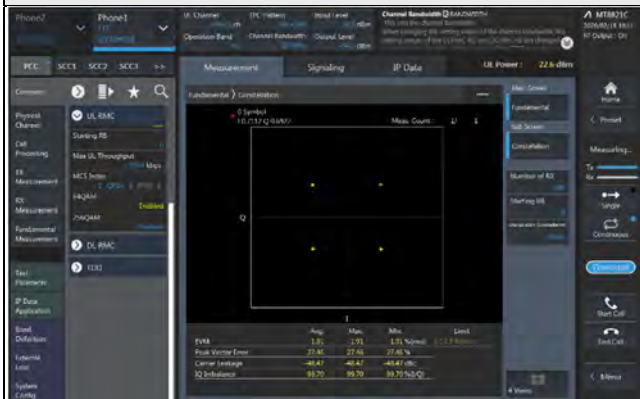


## LTE Band 41

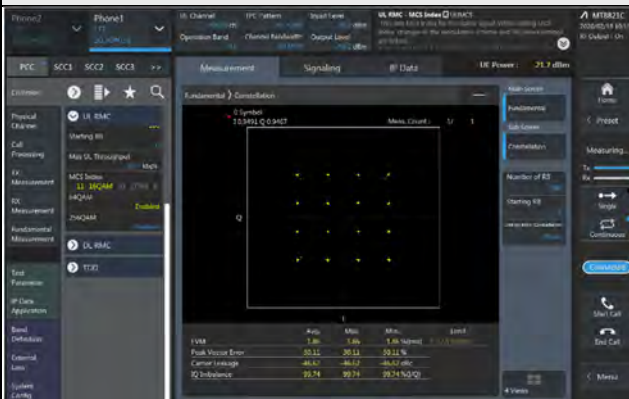
### Spectrum Plot of Measurement Value

Channel: 40620 / Frequency (MHz): 2593.0 MHz

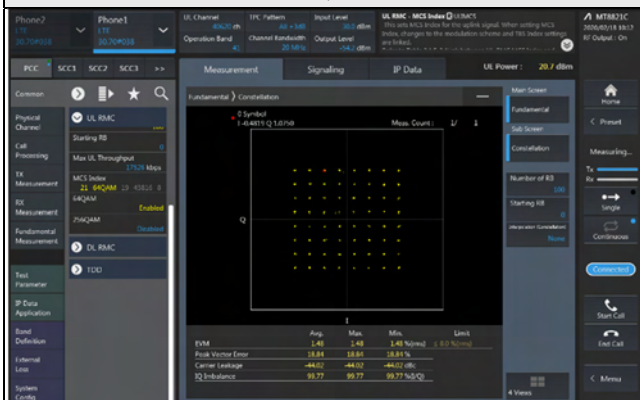
#### QPSK



#### 16QAM



#### 64QAM



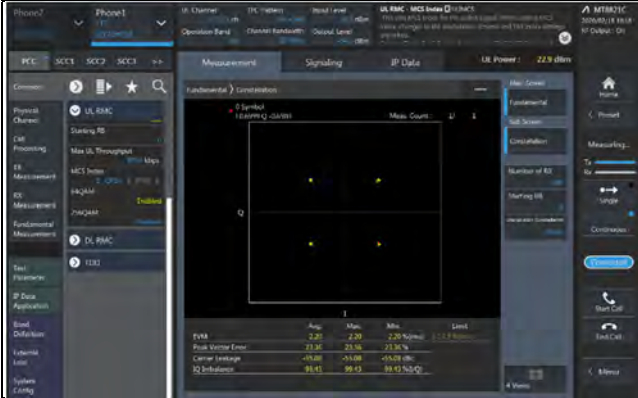


LTE Band 66

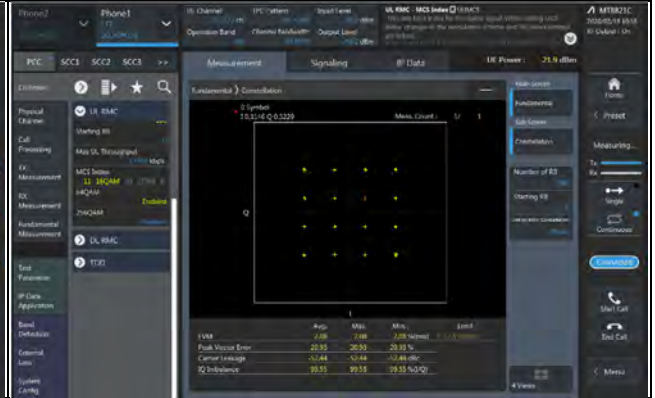
Spectrum Plot of Measurement Value

Channel: 132322 / Frequency (MHz): 1745.0 MHz

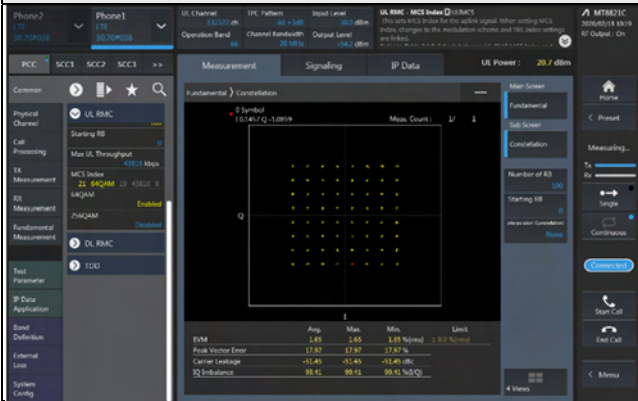
QPSK



16QAM



64QAM

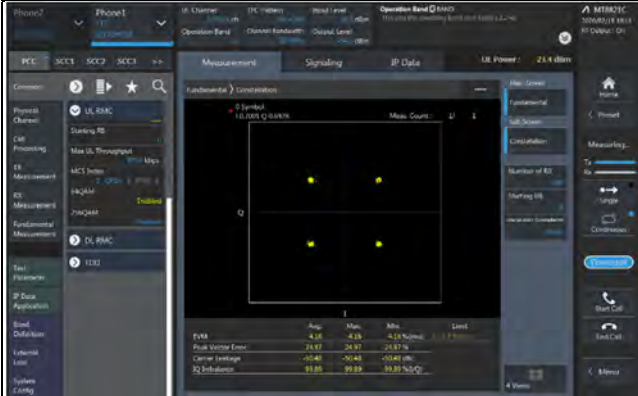


### LTE Band 71

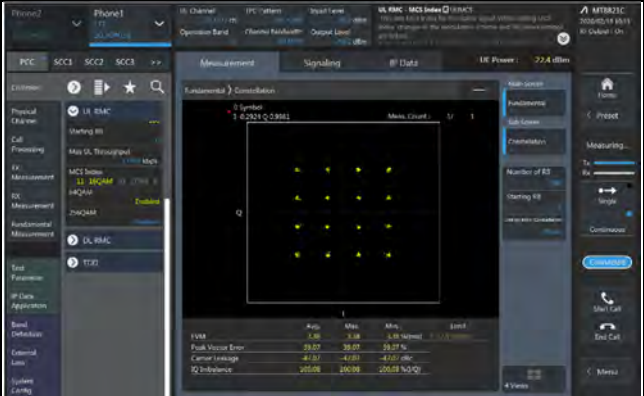
### Spectrum Plot of Measurement Value

Channel: 133297 / Frequency (MHz): 680.5 MHz

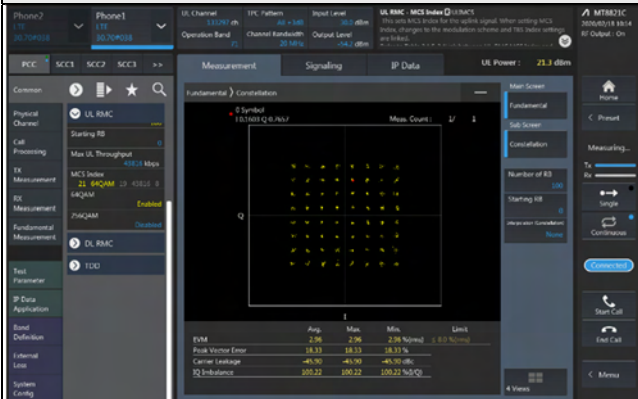
#### QPSK



#### 16QAM



#### 64QAM



### 4.3 Frequency Stability Measurement

#### 4.3.1 Limits of Frequency Stability Measurement

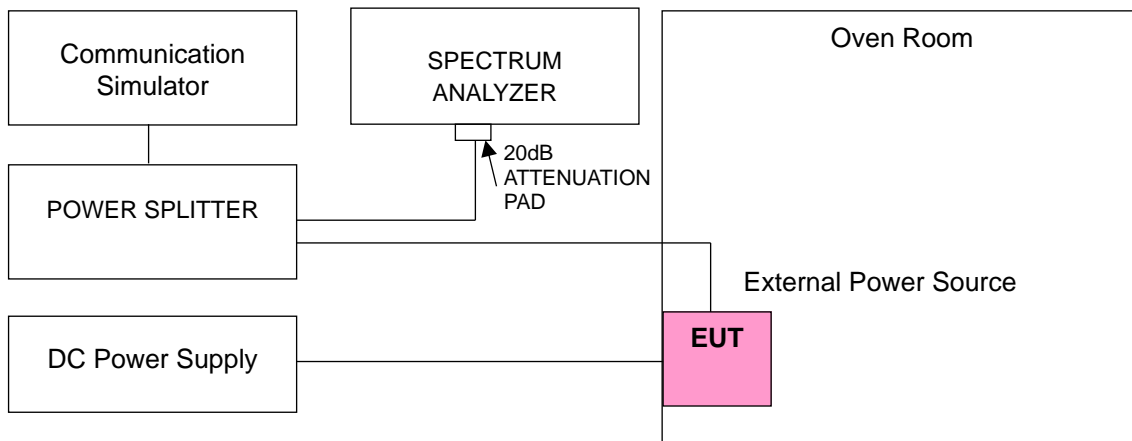
According to the FCC part 2.1055 shall be tested the frequency stability. The rule is defined that "The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block." The test extreme voltage is according to the 2.1055(d)(1) Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment and the extreme temperature rule is comply with specification of EUT  $-30^{\circ}\text{C} \sim 50^{\circ}\text{C}$ .

#### 4.3.2 Test Procedure

- Device is placed at the oven room. The oven room could control the temperatures and humidity. Power warm up is at least 15 min and power applied should perform before recording frequency error.
- EUT is connected the external power supply to control the DC input power. The test voltage range is from minimum to maximum working voltage. Each step shall be record the frequency error rate.
- The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the  $\pm 0.5^{\circ}\text{C}$  during the measurement testing. The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.

Note: The frequency error was recorded frequency error from the communication simulator.

#### 4.3.3 Test Setup



#### 4.3.4 Test Results

##### Frequency Error vs. Voltage

Voltage (Volts)	WCDMA Band 4			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
4.25	1712.400003	0.002	1752.600004	0.002
5	1712.400003	0.002	1752.600002	0.001
5.75	1712.400004	0.002	1752.600003	0.002

Note: The applicant defined the normal working voltage is from 4.25Vdc to 5.75Vdc.

##### Frequency Error vs. Temperature

Temp. (°C)	WCDMA Band 4			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1712.400004	0.002	1752.600003	0.002
-20	1712.400002	0.001	1752.600002	0.001
-10	1712.400002	0.001	1752.600001	0.001
0	1712.400004	0.002	1752.600004	0.002
10	1712.400001	0.001	1752.600003	0.002
20	1712.399999	-0.001	1752.599997	-0.002
30	1712.399999	-0.001	1752.599997	-0.002
40	1712.399998	-0.001	1752.599996	-0.002
50	1712.399998	-0.001	1752.599998	-0.001

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 4			
	Channel Bandwidth: 1.4 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
4.25	1710.700003	0.002	1754.300004	0.002
5	1710.700004	0.002	1754.300002	0.001
5.75	1710.700001	0.001	1754.300003	0.002

Note: The applicant defined the normal working voltage is from 4.25Vdc to 5.75Vdc.

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 4			
	Channel Bandwidth: 1.4 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1710.700003	0.002	1754.300004	0.002
-20	1710.700003	0.002	1754.300001	0.001
-10	1710.700001	0.001	1754.300002	0.001
0	1710.700004	0.002	1754.300004	0.002
10	1710.700002	0.001	1754.300002	0.001
20	1710.699998	-0.001	1754.299998	-0.001
30	1710.699996	-0.002	1754.299998	-0.001
40	1710.699997	-0.002	1754.299996	-0.002
50	1710.699999	-0.001	1754.299998	-0.001

### Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 4			
	Channel Bandwidth: 3 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
4.25	1711.500003	0.002	1753.500004	0.002
5	1711.500003	0.002	1753.500002	0.001
5.75	1711.500004	0.002	1753.500004	0.002

Note: The applicant defined the normal working voltage is from 4.25Vdc to 5.75Vdc.

### Frequency Error vs. Temperature

Temp. (°C)	LTE Band 4			
	Channel Bandwidth: 3 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1711.500001	0.001	1753.500004	0.002
-20	1711.500001	0.001	1753.500002	0.001
-10	1711.500003	0.002	1753.500003	0.002
0	1711.500002	0.001	1753.500002	0.001
10	1711.500001	0.001	1753.500003	0.002
20	1711.499996	-0.002	1753.499998	-0.001
30	1711.499998	-0.001	1753.499999	-0.001
40	1711.499996	-0.002	1753.499998	-0.001
50	1711.499998	-0.001	1753.499997	-0.002

### Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 4			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
4.25	1712.500004	0.002	1752.500004	0.002
5	1712.500003	0.002	1752.500003	0.001
5.75	1712.500001	0.001	1752.500002	0.001

Note: The applicant defined the normal working voltage is from 4.25Vdc to 5.75Vdc.

### Frequency Error vs. Temperature

Temp. (°C)	LTE Band 4			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1712.500002	0.001	1752.500003	0.002
-20	1712.500004	0.002	1752.500001	0.001
-10	1712.500001	0.001	1752.500002	0.001
0	1712.500001	0.001	1752.500002	0.001
10	1712.500001	0.001	1752.500003	0.002
20	1712.499997	-0.002	1752.499999	-0.001
30	1712.499997	-0.002	1752.499998	-0.001
40	1712.499997	-0.002	1752.499997	-0.002
50	1712.499998	-0.001	1752.499998	-0.001

### Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 4			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
4.25	1715.000002	0.001	1750.000002	0.001
5	1715.000002	0.001	1750.000002	0.001
5.75	1715.000004	0.002	1750.000001	0.001

Note: The applicant defined the normal working voltage is from 4.25Vdc to 5.75Vdc.

### Frequency Error vs. Temperature

Temp. (°C)	LTE Band 4			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1715.000003	0.002	1750.000003	0.002
-20	1715.000003	0.002	1750.000001	0.001
-10	1715.000001	0.001	1750.000002	0.001
0	1715.000002	0.001	1750.000002	0.001
10	1715.000002	0.001	1750.000003	0.002
20	1714.999997	-0.002	1749.999996	-0.002
30	1714.999997	-0.002	1749.999998	-0.001
40	1714.999997	-0.002	1749.999997	-0.002
50	1714.999998	-0.001	1749.999999	-0.001



### Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 4			
	Channel Bandwidth: 15 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
4.25	1717.500003	0.001	1747.500004	0.002
5	1717.500003	0.002	1747.500002	0.001
5.75	1717.500002	0.001	1747.500004	0.002

Note: The applicant defined the normal working voltage is from 4.25Vdc to 5.75Vdc.

### Frequency Error vs. Temperature

Temp. (°C)	LTE Band 4			
	Channel Bandwidth: 15 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1717.500001	0.001	1747.500003	0.002
-20	1717.500002	0.001	1747.500002	0.001
-10	1717.500002	0.001	1747.500004	0.002
0	1717.500003	0.002	1747.500002	0.001
10	1717.500002	0.001	1747.500003	0.002
20	1717.499998	-0.001	1747.499999	-0.001
30	1717.499998	-0.001	1747.499998	-0.001
40	1717.499999	-0.001	1747.499998	-0.001
50	1717.499997	-0.002	1747.499997	-0.002

### Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 4			
	Channel Bandwidth: 20 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
4.25	1720.000004	0.002	1745.000003	0.002
5	1720.000002	0.001	1745.000003	0.002
5.75	1720.000004	0.002	1745.000002	0.001

Note: The applicant defined the normal working voltage is from 4.25Vdc to 5.75Vdc.

### Frequency Error vs. Temperature

Temp. (°C)	LTE Band 4			
	Channel Bandwidth: 20 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1720.000001	0.001	1745.000001	0.001
-20	1720.000004	0.002	1745.000003	0.002
-10	1720.000003	0.002	1745.000004	0.002
0	1720.000003	0.002	1745.000003	0.002
10	1720.000004	0.002	1745.000003	0.002
20	1719.999996	-0.002	1744.999999	-0.001
30	1719.999997	-0.002	1744.999998	-0.001
40	1719.999997	-0.002	1744.999999	-0.001
50	1719.999999	-0.001	1744.999998	-0.001

### Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 7			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
4.25	2502.500002	0.001	2567.500004	0.002
5	2502.500003	0.001	2567.500003	0.001
5.75	2502.500001	0.001	2567.500003	0.001

Note: The applicant defined the normal working voltage is from 4.25Vdc to 5.75Vdc.

### Frequency Error vs. Temperature

Temp. (°C)	LTE Band 7			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	2502.500004	0.001	2567.500002	0.001
-20	2502.500001	0.001	2567.500003	0.001
-10	2502.500002	0.001	2567.500002	0.001
0	2502.500003	0.001	2567.500004	0.002
10	2502.500003	0.001	2567.500002	0.001
20	2502.499999	-0.001	2567.499999	0.000
30	2502.499999	-0.001	2567.499998	-0.001
40	2502.499999	0.000	2567.499999	0.000
50	2502.499997	-0.001	2567.499997	-0.001

### Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 7			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
4.25	2505.000004	0.001	2565.000002	0.001
5	2505.000004	0.001	2565.000004	0.001
5.75	2505.000001	0.001	2565.000003	0.001

Note: The applicant defined the normal working voltage is from 4.25Vdc to 5.75Vdc.

### Frequency Error vs. Temperature

Temp. (°C)	LTE Band 7			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	2505.000003	0.001	2565.000001	0.000
-20	2505.000001	0.001	2565.000003	0.001
-10	2505.000001	0.000	2565.000002	0.001
0	2505.000003	0.001	2565.000004	0.001
10	2505.000002	0.001	2565.000004	0.002
20	2504.999999	0.000	2564.999997	-0.001
30	2504.999999	-0.001	2564.999997	-0.001
40	2504.999998	-0.001	2564.999997	-0.001
50	2504.999999	-0.001	2564.999997	-0.001

### Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 7			
	Channel Bandwidth: 15 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
4.25	2507.500002	0.001	2562.500002	0.001
5	2507.500001	0.000	2562.500003	0.001
5.75	2507.500001	0.000	2562.500002	0.001

Note: The applicant defined the normal working voltage is from 4.25Vdc to 5.75Vdc.

### Frequency Error vs. Temperature

Temp. (°C)	LTE Band 7			
	Channel Bandwidth: 15 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	2507.500004	0.001	2562.500002	0.001
-20	2507.500003	0.001	2562.500004	0.001
-10	2507.500002	0.001	2562.500004	0.001
0	2507.500004	0.001	2562.500001	0.000
10	2507.500002	0.001	2562.500002	0.001
20	2507.499997	-0.001	2562.499999	-0.001
30	2507.499999	-0.001	2562.499999	0.000
40	2507.499998	-0.001	2562.499999	-0.001
50	2507.499997	-0.001	2562.499997	-0.001

### Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 7			
	Channel Bandwidth: 20 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
4.25	2510.000004	0.001	2560.000003	0.001
5	2510.000003	0.001	2560.000001	0.000
5.75	2510.000003	0.001	2560.000003	0.001

Note: The applicant defined the normal working voltage is from 4.25Vdc to 5.75Vdc.

### Frequency Error vs. Temperature

Temp. (°C)	LTE Band 7			
	Channel Bandwidth: 20 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	2510.000002	0.001	2560.000003	0.001
-20	2510.000004	0.001	2560.000003	0.001
-10	2510.000004	0.001	2560.000002	0.001
0	2510.000003	0.001	2560.000002	0.001
10	2510.000002	0.001	2560.000002	0.001
20	2509.999997	-0.001	2559.999996	-0.001
30	2509.999998	-0.001	2559.999997	-0.001
40	2509.999998	-0.001	2559.999996	-0.001
50	2509.999997	-0.001	2559.999999	-0.001

### Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 12			
	Channel Bandwidth: 1.4 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
4.25	699.700004	0.005	715.300002	0.003
5	699.700001	0.002	715.300003	0.004
5.75	699.700003	0.004	715.300002	0.003

Note: The applicant defined the normal working voltage is from 4.25Vdc to 5.75Vdc.

### Frequency Error vs. Temperature

Temp. (°C)	LTE Band 12			
	Channel Bandwidth: 1.4 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	699.700001	0.002	715.300004	0.006
-20	699.700003	0.005	715.300001	0.001
-10	699.700003	0.004	715.300003	0.004
0	699.700003	0.004	715.300002	0.002
10	699.700004	0.005	715.300004	0.005
20	699.699997	-0.005	715.299997	-0.005
30	699.699996	-0.006	715.299996	-0.005
40	699.699998	-0.003	715.299997	-0.004
50	699.699997	-0.004	715.299997	-0.004

### Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 12			
	Channel Bandwidth: 3 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
4.25	700.500003	0.005	714.500003	0.004
5	700.500003	0.004	714.500003	0.004
5.75	700.500002	0.002	714.500002	0.002

Note: The applicant defined the normal working voltage is from 4.25Vdc to 5.75Vdc.

### Frequency Error vs. Temperature

Temp. (°C)	LTE Band 12			
	Channel Bandwidth: 3 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	700.500003	0.005	714.500003	0.004
-20	700.500002	0.003	714.500002	0.003
-10	700.500004	0.006	714.500003	0.005
0	700.500001	0.001	714.500003	0.004
10	700.500001	0.002	714.500002	0.002
20	700.499997	-0.005	714.499996	-0.006
30	700.499998	-0.003	714.499997	-0.005
40	700.499998	-0.003	714.499997	-0.004
50	700.499997	-0.005	714.499998	-0.003



### Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 12			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
4.25	701.500001	0.001	713.500002	0.002
5	701.500002	0.002	713.500001	0.002
5.75	701.500001	0.002	713.500003	0.004

Note: The applicant defined the normal working voltage is from 4.25Vdc to 5.75Vdc.

### Frequency Error vs. Temperature

Temp. (°C)	LTE Band 12			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	701.500003	0.004	713.500002	0.002
-20	701.500003	0.004	713.500003	0.005
-10	701.500004	0.006	713.500001	0.002
0	701.500002	0.003	713.500003	0.004
10	701.500004	0.005	713.500003	0.004
20	701.499998	-0.003	713.499997	-0.004
30	701.499999	-0.002	713.499999	-0.002
40	701.499998	-0.003	713.499997	-0.005
50	701.499996	-0.005	713.499996	-0.005

### Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 12			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
4.25	704.000002	0.003	711.000002	0.003
5	704.000002	0.003	711.000003	0.004
5.75	704.000001	0.001	711.000003	0.005

Note: The applicant defined the normal working voltage is from 4.25Vdc to 5.75Vdc.

### Frequency Error vs. Temperature

Temp. (°C)	LTE Band 12			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	704.000002	0.002	711.000002	0.003
-20	704.000002	0.003	711.000001	0.002
-10	704.000003	0.004	711.000001	0.002
0	704.000003	0.005	711.000002	0.003
10	704.000004	0.005	711.000003	0.004
20	703.999996	-0.006	710.999999	-0.002
30	703.999998	-0.004	710.999996	-0.005
40	703.999997	-0.004	710.999996	-0.005
50	703.999998	-0.003	710.999996	-0.005

### Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 13			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
4.25	779.500003	0.003	784.500004	0.005
5	779.500001	0.001	784.500001	0.002
5.75	779.500002	0.002	784.500003	0.004

Note: The applicant defined the normal working voltage is from 4.25Vdc to 5.75Vdc.

### Frequency Error vs. Temperature

Temp. (°C)	LTE Band 13			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	779.500002	0.002	784.500002	0.002
-20	779.500002	0.003	784.500004	0.005
-10	779.500004	0.005	784.500001	0.002
0	779.500004	0.005	784.500004	0.005
10	779.500003	0.003	784.500002	0.002
20	779.499997	-0.004	784.499999	-0.002
30	779.499996	-0.005	784.499998	-0.002
40	779.499998	-0.002	784.499997	-0.004
50	779.499996	-0.005	784.499997	-0.004

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 13	
	Channel Bandwidth: 10 MHz	
	Frequency (MHz)	Frequency Error (ppm)
4.25	782.000004	0.005
5	782.000003	0.004
5.75	782.000001	0.001

Note: The applicant defined the normal working voltage is from 4.25Vdc to 5.75Vdc.

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 13	
	Channel Bandwidth: 10 MHz	
	Frequency (MHz)	Frequency Error (ppm)
-30	782.000004	0.005
-20	782.000003	0.003
-10	782.000003	0.004
0	782.000004	0.004
10	782.000002	0.002
20	781.999999	-0.001
30	781.999998	-0.003
40	781.999999	-0.001
50	781.999999	-0.002

### Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 17			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
4.25	706.500002	0.003	713.500001	0.002
5	706.500002	0.002	713.500002	0.002
5.75	706.500003	0.004	713.500001	0.002

Note: The applicant defined the normal working voltage is from 4.25Vdc to 5.75Vdc.

### Frequency Error vs. Temperature

Temp. (°C)	LTE Band 17			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	706.500001	0.002	713.500004	0.005
-20	706.500003	0.004	713.500003	0.004
-10	706.500002	0.003	713.500003	0.005
0	706.500003	0.004	713.500002	0.002
10	706.500003	0.005	713.500003	0.004
20	706.499997	-0.004	713.499997	-0.004
30	706.499998	-0.003	713.499997	-0.005
40	706.499996	-0.006	713.499997	-0.005
50	706.499998	-0.002	713.499996	-0.005

### Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 17			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
4.25	709.000002	0.003	711.000002	0.002
5	709.000002	0.002	711.000002	0.003
5.75	709.000001	0.002	711.000001	0.002

Note: The applicant defined the normal working voltage is from 4.25Vdc to 5.75Vdc.

### Frequency Error vs. Temperature

Temp. (°C)	LTE Band 17			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	709.000003	0.004	711.000001	0.002
-20	709.000004	0.005	711.000004	0.006
-10	709.000001	0.002	711.000001	0.001
0	709.000003	0.004	711.000001	0.002
10	709.000004	0.005	711.000003	0.004
20	708.999999	-0.002	710.999997	-0.005
30	708.999998	-0.002	710.999997	-0.004
40	708.999996	-0.005	710.999998	-0.003
50	708.999997	-0.005	710.999997	-0.005

### Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 30			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
4.25	2307.500001	0.000	2312.500001	0.001
5	2307.500003	0.001	2312.500002	0.001
5.75	2307.500004	0.002	2312.500001	0.001

Note: The applicant defined the normal working voltage is from 4.25Vdc to 5.75Vdc.

### Frequency Error vs. Temperature

Temp. (°C)	LTE Band 30			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	2307.500002	0.001	2312.500002	0.001
-20	2307.500003	0.001	2312.500002	0.001
-10	2307.500002	0.001	2312.500001	0.000
0	2307.500003	0.001	2312.500001	0.000
10	2307.500004	0.002	2312.500002	0.001
20	2307.499998	-0.001	2312.499998	-0.001
30	2307.499998	-0.001	2312.499998	-0.001
40	2307.499997	-0.001	2312.499998	-0.001
50	2307.499998	-0.001	2312.499998	-0.001

### Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 30	
	Channel Bandwidth: 10 MHz	
	Frequency (MHz)	Frequency Error (ppm)
4.25	2310.000003	0.001
5	2310.000004	0.002
5.75	2310.000001	0.001

Note: The applicant defined the normal working voltage is from 4.25Vdc to 5.75Vdc.

### Frequency Error vs. Temperature

Temp. (°C)	LTE Band 30	
	Channel Bandwidth: 10 MHz	
	Frequency (MHz)	Frequency Error (ppm)
-30	2310.000003	0.001
-20	2310.000003	0.001
-10	2310.000003	0.001
0	2310.000003	0.001
10	2310.000003	0.001
20	2309.999997	-0.001
30	2309.999999	-0.001
40	2309.999999	-0.001
50	2309.999998	-0.001



### Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 38			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
4.25	2572.500003	0.001	2617.500001	0.000
5	2572.500002	0.001	2617.500003	0.001
5.75	2572.500003	0.001	2617.500002	0.001

Note: The applicant defined the normal working voltage is from 4.25Vdc to 5.75Vdc.

### Frequency Error vs. Temperature

Temp. (°C)	LTE Band 38			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	2572.500002	0.001	2617.500002	0.001
-20	2572.500002	0.001	2617.500002	0.001
-10	2572.500004	0.001	2617.500002	0.001
0	2572.500002	0.001	2617.500004	0.001
10	2572.500003	0.001	2617.500002	0.001
20	2572.499997	-0.001	2617.499998	-0.001
30	2572.499997	-0.001	2617.499999	0.000
40	2572.499998	-0.001	2617.499997	-0.001
50	2572.499997	-0.001	2617.499997	-0.001

### Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 38			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
4.25	2575.000003	0.001	2615.000001	0.000
5	2575.000003	0.001	2615.000001	0.000
5.75	2575.000003	0.001	2615.000004	0.002

Note: The applicant defined the normal working voltage is from 4.25Vdc to 5.75Vdc.

### Frequency Error vs. Temperature

Temp. (°C)	LTE Band 38			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	2575.000001	0.000	2615.000003	0.001
-20	2575.000004	0.001	2615.000003	0.001
-10	2575.000003	0.001	2615.000002	0.001
0	2575.000002	0.001	2615.000001	0.000
10	2575.000004	0.001	2615.000003	0.001
20	2574.999998	-0.001	2614.999998	-0.001
30	2574.999998	-0.001	2614.999998	-0.001
40	2574.999999	0.000	2614.999997	-0.001
50	2574.999999	0.000	2614.999997	-0.001

### Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 38			
	Channel Bandwidth: 15 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
4.25	2577.500002	0.001	2612.500003	0.001
5	2577.500003	0.001	2612.500002	0.001
5.75	2577.500001	0.000	2612.500002	0.001

Note: The applicant defined the normal working voltage is from 4.25Vdc to 5.75Vdc.

### Frequency Error vs. Temperature

Temp. (°C)	LTE Band 38			
	Channel Bandwidth: 15 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	2577.500003	0.001	2612.500002	0.001
-20	2577.500004	0.002	2612.500002	0.001
-10	2577.500002	0.001	2612.500002	0.001
0	2577.500001	0.001	2612.500003	0.001
10	2577.500001	0.000	2612.500004	0.001
20	2577.499996	-0.001	2612.499996	-0.001
30	2577.499998	-0.001	2612.499998	-0.001
40	2577.499998	-0.001	2612.499998	-0.001
50	2577.499997	-0.001	2612.499997	-0.001

### Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 38			
	Channel Bandwidth: 20 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
4.25	2580.000003	0.001	2610.000002	0.001
5	2580.000003	0.001	2610.000004	0.001
5.75	2580.000002	0.001	2610.000000	0.001

Note: The applicant defined the normal working voltage is from 4.25Vdc to 5.75Vdc.

### Frequency Error vs. Temperature

Temp. (°C)	LTE Band 38			
	Channel Bandwidth: 20 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	2580.000002	0.001	2610.000001	0.000
-20	2580.000002	0.001	2610.000002	0.001
-10	2580.000003	0.001	2610.000002	0.001
0	2580.000002	0.001	2610.000003	0.001
10	2580.000002	0.001	2610.000002	0.001
20	2579.999997	-0.001	2609.999998	-0.001
30	2579.999997	-0.001	2609.999997	-0.001
40	2579.999996	-0.001	2609.999998	-0.001
50	2579.999998	-0.001	2609.999998	-0.001

### Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 41			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
4.25	2498.500001	0.001	2687.500001	0.000
5	2498.500003	0.001	2687.500002	0.001
5.75	2498.500002	0.001	2687.500003	0.001

Note: The applicant defined the normal working voltage is from 4.25Vdc to 5.75Vdc.

### Frequency Error vs. Temperature

Temp. (°C)	LTE Band 41			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	2498.500003	0.001	2687.500004	0.001
-20	2498.500003	0.001	2687.500003	0.001
-10	2498.500004	0.002	2687.500003	0.001
0	2498.500002	0.001	2687.500001	0.000
10	2498.500004	0.001	2687.500002	0.001
20	2498.499998	-0.001	2687.499999	0.000
30	2498.499999	-0.001	2687.499997	-0.001
40	2498.499997	-0.001	2687.499998	-0.001
50	2498.499998	-0.001	2687.499999	0.000

### Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 41			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
4.25	2501.000004	0.002	2685.000003	0.001
5	2501.000003	0.001	2685.000002	0.001
5.75	2501.000003	0.001	2685.000002	0.001

Note: The applicant defined the normal working voltage is from 4.25Vdc to 5.75Vdc.

### Frequency Error vs. Temperature

Temp. (°C)	LTE Band 41			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	2501.000004	0.002	2685.000003	0.001
-20	2501.000002	0.001	2685.000003	0.001
-10	2501.000001	0.001	2685.000002	0.001
0	2501.000002	0.001	2685.000002	0.001
10	2501.000002	0.001	2685.000001	0.000
20	2500.999999	0.000	2684.999997	-0.001
30	2500.999997	-0.001	2684.999998	-0.001
40	2500.999999	0.000	2684.999997	-0.001
50	2500.999997	-0.001	2684.999996	-0.001

### Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 41			
	Channel Bandwidth: 15 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
4.25	2503.500003	0.001	2682.500001	0.000
5	2503.500002	0.001	2682.500004	0.001
5.75	2503.500001	0.000	2682.500003	0.001

Note: The applicant defined the normal working voltage is from 4.25Vdc to 5.75Vdc.

### Frequency Error vs. Temperature

Temp. (°C)	LTE Band 41			
	Channel Bandwidth: 15 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	2503.500003	0.001	2682.500004	0.001
-20	2503.500004	0.002	2682.500004	0.001
-10	2503.500003	0.001	2682.500003	0.001
0	2503.500003	0.001	2682.500002	0.001
10	2503.500001	0.000	2682.500003	0.001
20	2503.499999	-0.001	2682.499997	-0.001
30	2503.499997	-0.001	2682.499999	0.000
40	2503.499998	-0.001	2682.499998	-0.001
50	2503.499998	-0.001	2682.499998	-0.001

### Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 41			
	Channel Bandwidth: 20 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
4.25	2506.000004	0.001	2680.000004	0.001
5	2506.000001	0.000	2680.000003	0.001
5.75	2506.000002	0.001	2680.000002	0.001

Note: The applicant defined the normal working voltage is from 4.25Vdc to 5.75Vdc.

### Frequency Error vs. Temperature

Temp. (°C)	LTE Band 41			
	Channel Bandwidth: 20 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	2506.000004	0.001	2680.000001	0.000
-20	2506.000002	0.001	2680.000002	0.001
-10	2506.000001	0.001	2680.000004	0.001
0	2506.000003	0.001	2680.000001	0.000
10	2506.000003	0.001	2680.000004	0.001
20	2505.999998	-0.001	2679.999998	-0.001
30	2505.999998	-0.001	2679.999998	-0.001
40	2505.999997	-0.001	2679.999996	-0.001
50	2505.999998	-0.001	2679.999996	-0.001



### Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 66			
	Channel Bandwidth: 1.4 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
4.25	1710.700002	0.001	1779.300004	0.002
5	1710.700002	0.001	1779.300003	0.002
5.75	1710.700001	0.001	1779.300003	0.002

Note: The applicant defined the normal working voltage is from 4.25Vdc to 5.75Vdc.

### Frequency Error vs. Temperature

Temp. (°C)	LTE Band 66			
	Channel Bandwidth: 1.4 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1710.700002	0.001	1779.300003	0.002
-20	1710.700003	0.002	1779.300003	0.002
-10	1710.700002	0.001	1779.300001	0.001
0	1710.700004	0.002	1779.300002	0.001
10	1710.700003	0.002	1779.300003	0.001
20	1710.699999	-0.001	1779.299998	-0.001
30	1710.699998	-0.001	1779.299997	-0.002
40	1710.699997	-0.002	1779.299998	-0.001
50	1710.699996	-0.002	1779.299997	-0.002

### Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 66			
	Channel Bandwidth: 3 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
4.25	1711.500004	0.002	1778.500003	0.002
5	1711.500003	0.002	1778.500003	0.001
5.75	1711.500004	0.002	1778.500003	0.002

Note: The applicant defined the normal working voltage is from 4.25Vdc to 5.75Vdc.

### Frequency Error vs. Temperature

Temp. (°C)	LTE Band 66			
	Channel Bandwidth: 3 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1711.500001	0.001	1778.500003	0.002
-20	1711.500001	0.001	1778.500003	0.001
-10	1711.500002	0.001	1778.500003	0.001
0	1711.500003	0.001	1778.500003	0.002
10	1711.500004	0.002	1778.500002	0.001
20	1711.499997	-0.002	1778.499998	-0.001
30	1711.499998	-0.001	1778.499996	-0.002
40	1711.499997	-0.002	1778.499998	-0.001
50	1711.499998	-0.001	1778.499997	-0.002

### Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 66			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
4.25	1712.500002	0.001	1777.500004	0.002
5	1712.500002	0.001	1777.500003	0.002
5.75	1712.500002	0.001	1777.500004	0.002

Note: The applicant defined the normal working voltage is from 4.25Vdc to 5.75Vdc.

### Frequency Error vs. Temperature

Temp. (°C)	LTE Band 66			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1712.500001	0.001	1777.500004	0.002
-20	1712.500002	0.001	1777.500003	0.002
-10	1712.500002	0.001	1777.500003	0.002
0	1712.500003	0.002	1777.500001	0.001
10	1712.500001	0.001	1777.500001	0.001
20	1712.499998	-0.001	1777.499996	-0.002
30	1712.499998	-0.001	1777.499998	-0.001
40	1712.499996	-0.002	1777.499999	-0.001
50	1712.499998	-0.001	1777.499997	-0.002

### Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 66			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
4.25	1715.000003	0.002	1775.000004	0.002
5	1715.000002	0.001	1775.000002	0.001
5.75	1715.000002	0.001	1775.000003	0.002

Note: The applicant defined the normal working voltage is from 4.25Vdc to 5.75Vdc.

### Frequency Error vs. Temperature

Temp. (°C)	LTE Band 66			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1715.000001	0.001	1775.000003	0.002
-20	1715.000002	0.001	1775.000003	0.002
-10	1715.000002	0.001	1775.000003	0.001
0	1715.000002	0.001	1775.000002	0.001
10	1715.000004	0.002	1775.000002	0.001
20	1714.999996	-0.002	1774.999998	-0.001
30	1714.999999	-0.001	1774.999999	-0.001
40	1714.999998	-0.001	1774.999998	-0.001
50	1714.999997	-0.002	1774.999997	-0.002

### Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 66			
	Channel Bandwidth: 15 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
4.25	1717.500001	0.001	1772.500002	0.001
5	1717.500002	0.001	1772.500003	0.001
5.75	1717.500003	0.002	1772.500002	0.001

Note: The applicant defined the normal working voltage is from 4.25Vdc to 5.75Vdc.

### Frequency Error vs. Temperature

Temp. (°C)	LTE Band 66			
	Channel Bandwidth: 15 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1717.500003	0.001	1772.500003	0.002
-20	1717.500004	0.002	1772.500002	0.001
-10	1717.500004	0.002	1772.500003	0.002
0	1717.500003	0.002	1772.500001	0.001
10	1717.500003	0.002	1772.500003	0.002
20	1717.499998	-0.001	1772.499999	-0.001
30	1717.499996	-0.002	1772.499996	-0.002
40	1717.499997	-0.002	1772.499999	-0.001
50	1717.499998	-0.001	1772.499999	-0.001

### Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 66			
	Channel Bandwidth: 20 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
4.25	1720.000002	0.001	1770.000003	0.002
5	1720.000002	0.001	1770.000001	0.001
5.75	1720.000004	0.002	1770.000003	0.002

Note: The applicant defined the normal working voltage is from 4.25Vdc to 5.75Vdc.

### Frequency Error vs. Temperature

Temp. (°C)	LTE Band 66			
	Channel Bandwidth: 20 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1720.000003	0.002	1770.000004	0.002
-20	1720.000004	0.002	1770.000002	0.001
-10	1720.000003	0.002	1770.000002	0.001
0	1720.000001	0.001	1770.000004	0.002
10	1720.000004	0.002	1770.000002	0.001
20	1719.999999	-0.001	1769.999999	-0.001
30	1719.999997	-0.002	1769.999996	-0.002
40	1719.999997	-0.002	1769.999997	-0.002
50	1719.999999	-0.001	1769.999998	-0.001

### Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 71			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
4.25	665.500004	0.006	695.500001	0.002
5	665.500001	0.002	695.500001	0.002
5.75	665.500003	0.005	695.500001	0.002

Note: The applicant defined the normal working voltage is from 4.25Vdc to 5.75Vdc.

### Frequency Error vs. Temperature

Temp. (°C)	LTE Band 71			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	665.500001	0.002	695.500004	0.005
-20	665.500002	0.003	695.500004	0.005
-10	665.500003	0.004	695.500001	0.002
0	665.500003	0.005	695.500003	0.005
10	665.500004	0.006	695.500002	0.002
20	665.499999	-0.002	695.499998	-0.002
30	665.499998	-0.004	695.499997	-0.004
40	665.499998	-0.003	695.499996	-0.005
50	665.499998	-0.002	695.499999	-0.001

### Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 71			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
4.25	668.000001	0.002	693.000002	0.003
5	668.000003	0.005	693.000002	0.003
5.75	668.000002	0.003	693.000003	0.004

Note: The applicant defined the normal working voltage is from 4.25Vdc to 5.75Vdc.

### Frequency Error vs. Temperature

Temp. (°C)	LTE Band 71			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	668.000003	0.004	693.000004	0.006
-20	668.000001	0.002	693.000004	0.005
-10	668.000002	0.002	693.000002	0.003
0	668.000001	0.002	693.000002	0.003
10	668.000003	0.004	693.000004	0.005
20	667.999998	-0.003	692.999999	-0.002
30	667.999996	-0.006	692.999997	-0.005
40	667.999996	-0.006	692.999999	-0.002
50	667.999997	-0.004	692.999999	-0.002



### Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 71			
	Channel Bandwidth: 15 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
4.25	670.500004	0.006	690.500003	0.005
5	670.500001	0.002	690.500001	0.002
5.75	670.500003	0.004	690.500002	0.003

Note: The applicant defined the normal working voltage is from 4.25Vdc to 5.75Vdc.

### Frequency Error vs. Temperature

Temp. (°C)	LTE Band 71			
	Channel Bandwidth: 15 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	670.500002	0.003	690.500003	0.004
-20	670.500002	0.002	690.500004	0.006
-10	670.500003	0.004	690.500003	0.004
0	670.500003	0.004	690.500003	0.004
10	670.500004	0.005	690.500003	0.004
20	670.499998	-0.003	690.499996	-0.005
30	670.499996	-0.005	690.499996	-0.006
40	670.499999	-0.002	690.499998	-0.003
50	670.499998	-0.002	690.499998	-0.003

### Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 71			
	Channel Bandwidth: 20 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
4.25	673.000001	0.001	688.000003	0.004
5	673.000003	0.005	688.000003	0.005
5.75	673.000003	0.005	688.000001	0.002

Note: The applicant defined the normal working voltage is from 4.25Vdc to 5.75Vdc.

### Frequency Error vs. Temperature

Temp. (°C)	LTE Band 71			
	Channel Bandwidth: 20 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	673.000002	0.002	688.000003	0.005
-20	673.000004	0.006	688.000002	0.002
-10	673.000003	0.004	688.000002	0.003
0	673.000004	0.006	688.000003	0.004
10	673.000002	0.002	688.000002	0.003
20	672.999999	-0.002	687.999998	-0.004
30	672.999996	-0.006	687.999999	-0.002
40	672.999997	-0.005	687.999997	-0.005
50	672.999997	-0.005	687.999999	-0.002

## 4.4 Occupied Bandwidth Measurement

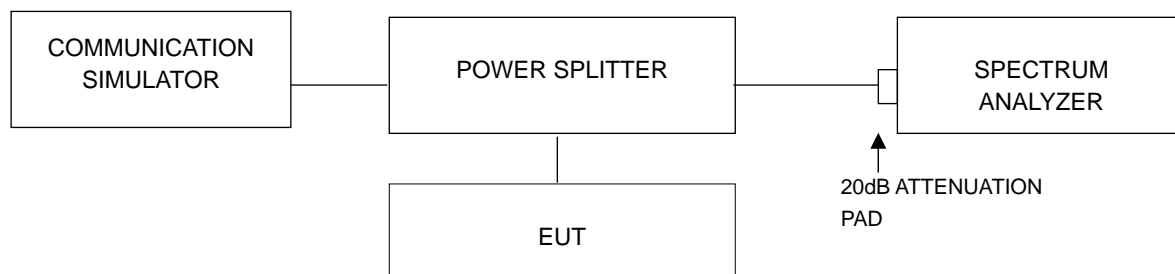
### 4.4.1 Limits of Occupied Bandwidth Measurement

The occupied bandwidth (OBW), that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 % of the total mean power radiated by a given emission.

### 4.4.2 Test Procedure

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with RBW = 51kHz and VBW = 150kHz for WCDMA; with RBW = 30kHz and VBW = 100kHz (Channel Bandwidth: 1.4MHz), RBW = 62kHz and VBW = 200kHz (Channel Bandwidth: 3MHz), RBW = 100kHz and VBW = 300kHz (Channel Bandwidth: 5MHz), RBW = 200kHz and VBW = 1MHz (Channel Bandwidth: 10MHz), RBW = 300kHz and VBW = 1MHz (Channel Bandwidth: 15MHz) and RBW = 430kHz and VBW = 1.3MHz (Channel Bandwidth: 20MHz). The 26dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 26dB.

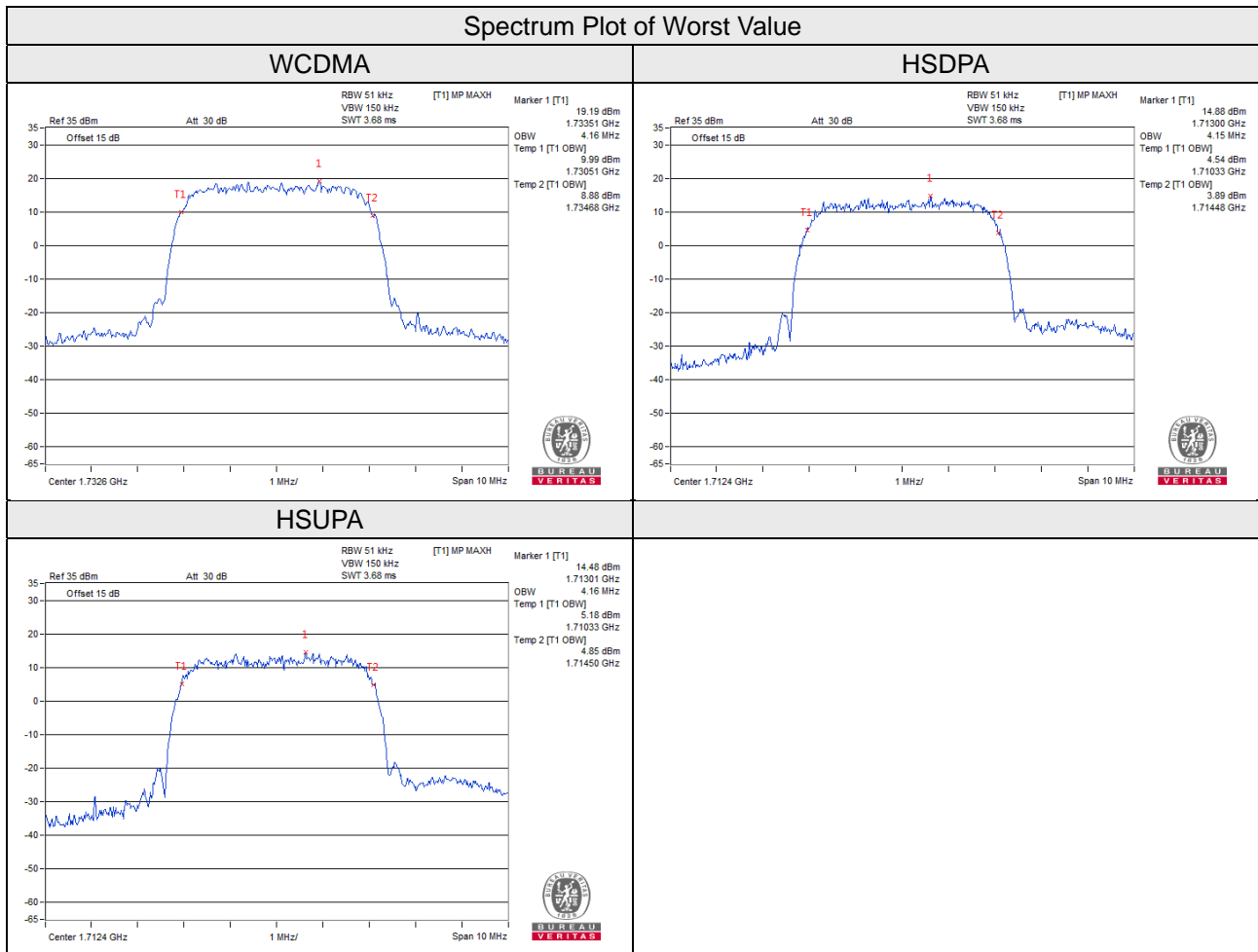
### 4.4.3 Test Setup



#### 4.4.4 Test Result

##### Occupied Bandwidth WCDMA Band 4

Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		
		WCDMA	HSDPA	HSUPA
1312	1712.4	4.15	4.15	4.16
1413	1732.6	4.16	4.15	4.16
1513	1752.6	4.15	4.15	4.13



LTE Band 4

LTE Band 4, Channel Bandwidth 1.4MHz				
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM
19957	1710.7	1.09	1.09	1.09
20175	1732.5	1.09	1.09	1.09
20393	1754.3	1.09	1.09	1.09
LTE Band 4, Channel Bandwidth 3MHz				
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM
19965	1711.5	2.70	2.70	2.70
20175	1732.5	2.70	2.69	2.70
20385	1753.5	2.70	2.70	2.70
LTE Band 4, Channel Bandwidth 5MHz				
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM
19975	1712.5	4.49	4.49	4.49
20175	1732.5	4.49	4.49	4.49
20375	1752.5	4.49	4.49	4.49
LTE Band 4, Channel Bandwidth 10MHz				
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM
20000	1715.0	8.96	8.97	8.96
20175	1732.5	8.96	8.96	8.95
20350	1750.0	8.95	8.96	8.95
LTE Band 4, Channel Bandwidth 15MHz				
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM
20025	1717.5	13.46	13.44	13.44
20175	1732.5	13.46	13.45	13.44
20325	1747.5	13.46	13.45	13.44

LTE Band 4, Channel Bandwidth 20MHz

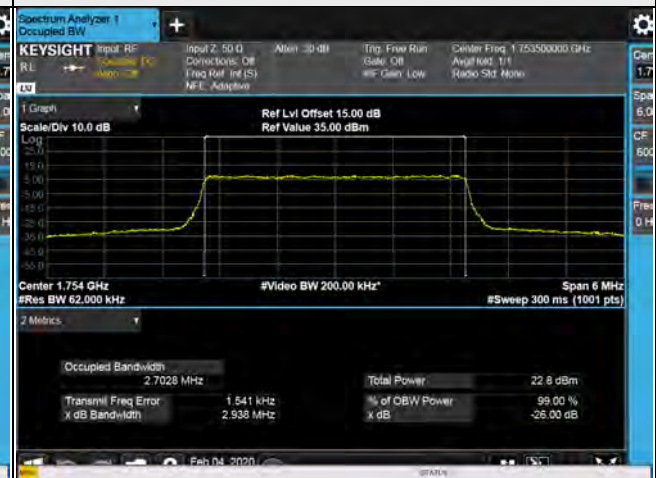
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM
20050	1720.0	17.91	17.92	17.91
20175	1732.5	17.93	17.95	17.95
20300	1745.0	17.93	17.97	17.96

### Spectrum Plot of Worst Value

1.4MHz / 16QAM



3MHz / 64QAM



5MHz / 64QAM



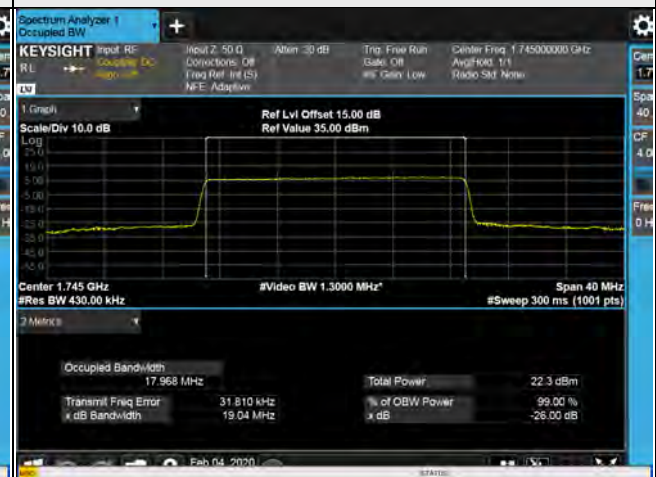
10MHz / 16QAM



15MHz / QPSK



20MHz / 16QAM



LTE Band 7

LTE Band 7, Channel Bandwidth 5MHz				
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM
20775	2502.5	4.49	4.49	4.49
21100	2535.0	4.49	4.49	4.49
21425	2567.5	4.49	4.49	4.49
LTE Band 7, Channel Bandwidth 10MHz				
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM
20800	2505.0	8.95	8.96	8.95
21100	2535.0	8.96	8.96	8.95
21400	2565.0	8.96	8.95	8.95
LTE Band 7, Channel Bandwidth 15MHz				
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM
20825	2507.5	13.45	13.44	13.43
21100	2535.0	13.45	13.44	13.44
21375	2562.5	13.45	13.44	13.43
LTE Band 7, Channel Bandwidth 20MHz				
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM
20850	2510.0	17.90	17.91	17.91
21100	2535.0	17.92	17.93	17.94
21350	2560.0	17.91	17.92	17.93

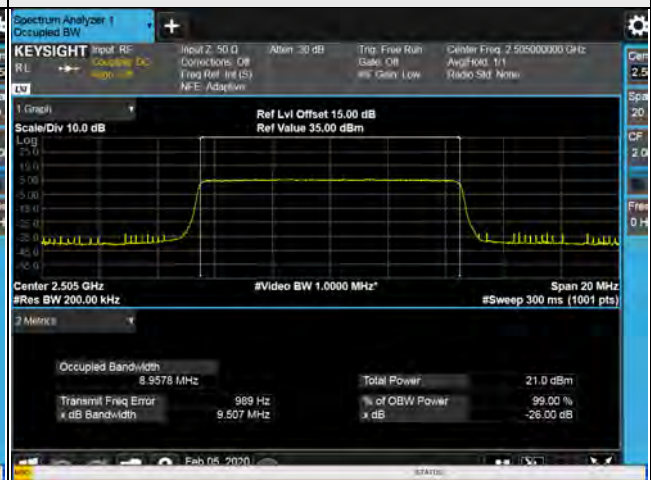


### Spectrum Plot of Worst Value

**5MHz / 64QAM**



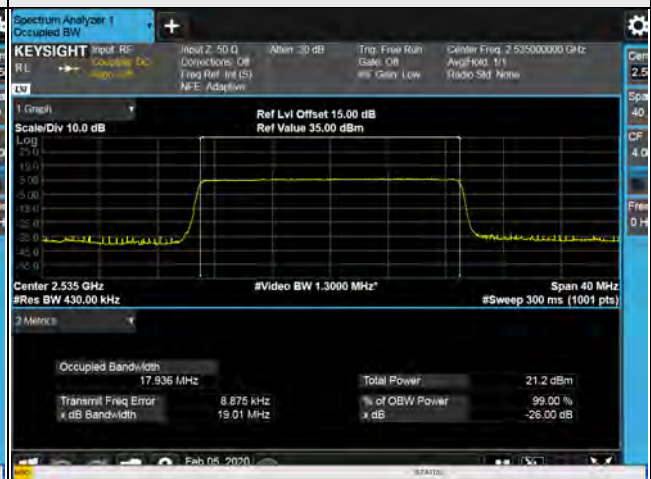
**10MHz / 16QAM**



**15MHz / QPSK**



**20MHz / 64QAM**



LTE Band 12

LTE Band 12, Channel Bandwidth 1.4MHz				
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM
23017	699.7	1.09	1.09	1.09
23095	707.5	1.09	1.09	1.09
23173	715.3	1.08	1.09	1.09
LTE Band 12, Channel Bandwidth 3MHz				
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM
23025	700.5	2.70	2.69	2.70
23095	707.5	2.70	2.69	2.70
23165	714.5	2.70	2.69	2.70
LTE Band 12, Channel Bandwidth 5MHz				
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM
23035	701.5	4.49	4.49	4.49
23095	707.5	4.48	4.48	4.48
23155	713.5	4.49	4.49	4.49
LTE Band 12, Channel Bandwidth 10MHz				
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM
23060	704.0	8.96	8.96	8.95
23095	707.5	8.95	8.95	8.94
23130	711.0	8.94	8.95	8.94

### Spectrum Plot of Worst Value

1.4MHz / 16QAM



3MHz / 64QAM



5MHz / QPSK

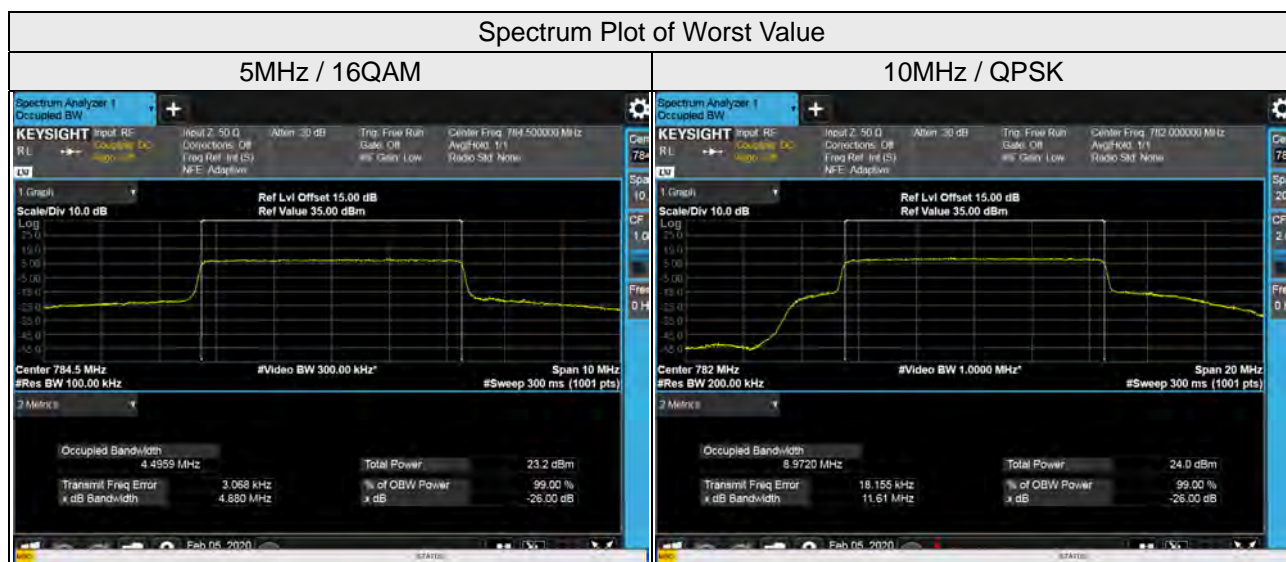


10MHz / 16QAM



### LTE Band 13

LTE Band 13, Channel Bandwidth 5MHz				
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM
23205	779.5	4.48	4.48	4.48
23230	782.0	4.49	4.49	4.49
23255	784.5	4.49	4.50	4.50
LTE Band 13, Channel Bandwidth 10MHz				
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM
23230	782.0	8.97	8.94	8.94



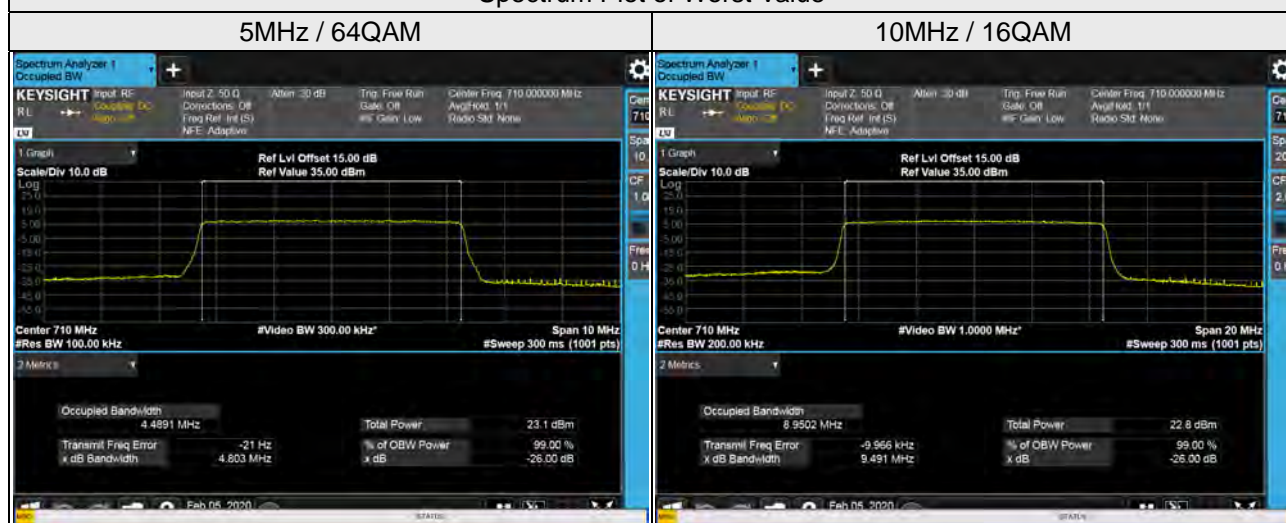
### LTE Band 17

LTE Band 17, Channel Bandwidth 5MHz				
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM
23755	706.5	4.48	4.48	4.49
23790	710.0	4.49	4.49	4.49
23825	713.5	4.48	4.48	4.49

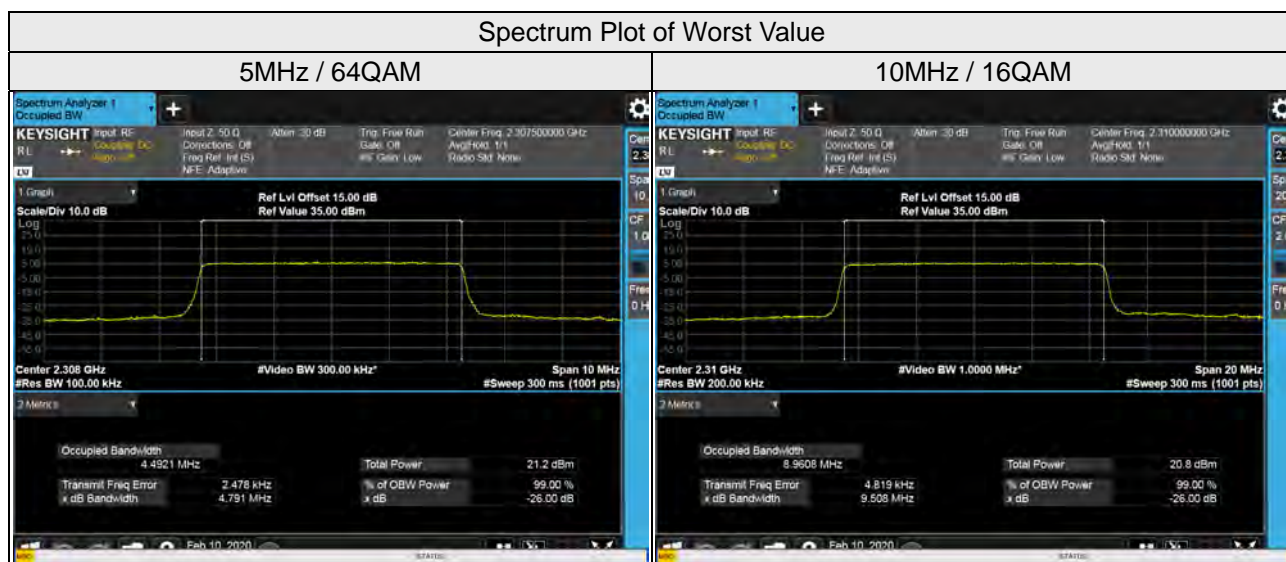
LTE Band 17, Channel Bandwidth 10MHz				
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM
23780	709.0	8.94	8.94	8.94
23790	710.0	8.95	8.95	8.94
23800	711.0	8.94	8.94	8.94

### Spectrum Plot of Worst Value



LTE Band 30

LTE Band 30, Channel Bandwidth 5MHz				
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM
27685	2307.5	4.49	4.49	4.49
27710	2310	4.49	4.49	4.49
27735	2312.5	4.49	4.49	4.49
LTE Band 30, Channel Bandwidth 10MHz				
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM
27710	2310	8.96	8.96	8.95

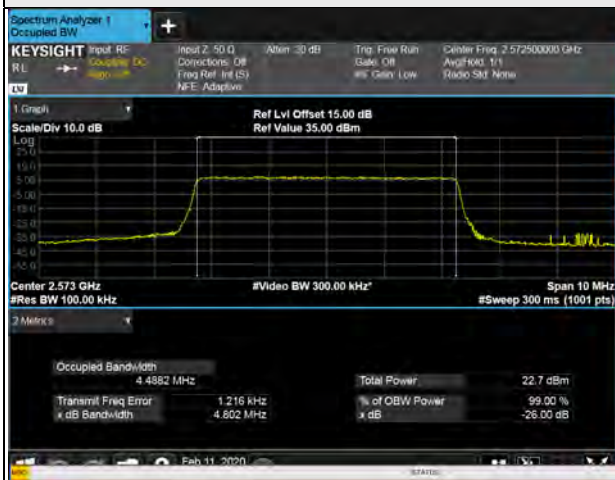


LTE Band 38

LTE Band 38, Channel Bandwidth 5MHz				
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM
37775	2572.5	4.49	4.49	4.49
38000	2595.0	4.49	4.49	4.48
38225	2617.5	4.48	4.48	4.48
LTE Band 38, Channel Bandwidth 10MHz				
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM
37800	2575.0	8.96	8.96	8.97
38000	2595.0	8.95	8.96	8.96
38200	2615.0	8.95	8.96	8.96
LTE Band 38, Channel Bandwidth 15MHz				
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM
37825	2577.5	13.45	13.44	13.44
38000	2595.0	13.45	13.44	13.44
38175	2612.5	13.46	13.44	13.43
LTE Band 38, Channel Bandwidth 20MHz				
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM
37850	2580.0	17.90	17.90	17.90
38000	2595.0	17.90	17.89	17.90
38150	2610.0	17.90	17.88	17.90

### Spectrum Plot of Worst Value

5MHz / QPSK



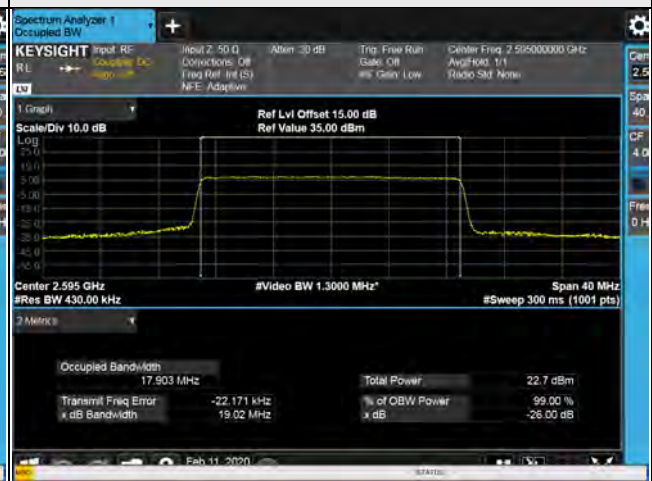
10MHz / 64QAM



15MHz / QPSK



20MHz / QPSK





LTE Band 41

LTE Band 41, Channel Bandwidth 5MHz				
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM
39675	2498.5	4.49	4.49	4.48
40620	2593	4.49	4.49	4.49
41565	2687.5	4.49	4.49	4.49
LTE Band 41, Channel Bandwidth 10MHz				
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM
39700	2501	8.95	8.96	8.96
40620	2593	8.96	8.97	8.96
41540	2685	8.96	8.97	8.96
LTE Band 41, Channel Bandwidth 15MHz				
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM
39725	2503.5	13.45	13.44	13.43
40620	2593	13.45	13.44	13.44
41515	2682.5	13.45	13.43	13.43
LTE Band 41, Channel Bandwidth 20MHz				
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM
39750	2506	17.90	17.89	17.90
40620	2593	17.90	17.90	17.91
41490	2680	17.89	17.88	17.90

### Spectrum Plot of Worst Value

**5MHz / QPSK**



**10MHz / 16QAM**



**15MHz / QPSK**



**20MHz / 64QAM**



LTE Band 66

LTE Band 66, Channel Bandwidth 1.4MHz				
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM
131979	1710.7	1.09	1.09	1.09
132322	1745.0	1.09	1.09	1.09
132665	1779.3	1.09	1.09	1.09
LTE Band 66, Channel Bandwidth 3MHz				
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM
131987	1711.5	2.70	2.70	2.70
132322	1745.0	2.70	2.69	2.70
132657	1778.5	2.70	2.69	2.70
LTE Band 66, Channel Bandwidth 5MHz				
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM
131997	1712.5	4.49	4.49	4.49
132322	1745.0	4.49	4.49	4.49
132647	1777.5	4.48	4.49	4.49
LTE Band 66, Channel Bandwidth 10MHz				
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM
132022	1715.0	8.96	8.96	8.95
132322	1745.0	8.96	8.96	8.95
132622	1775.0	8.95	8.96	8.95
LTE Band 66, Channel Bandwidth 15MHz				
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM
132047	1717.5	13.46	13.44	13.43
132322	1745.0	13.47	13.45	13.44
132597	1772.5	13.47	13.46	13.46

LTE Band 66, Channel Bandwidth 20MHz

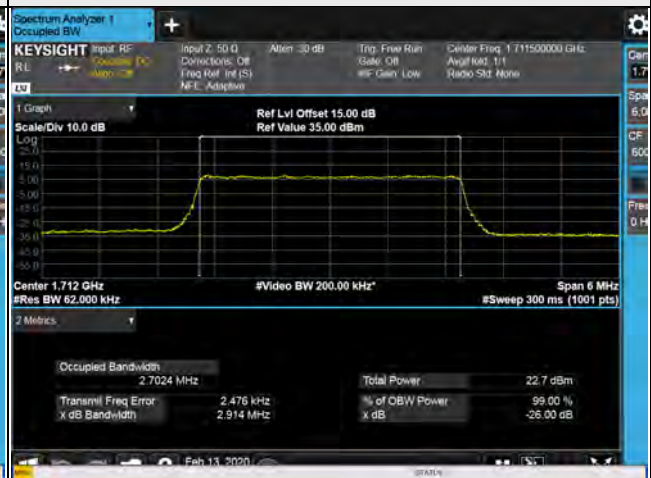
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM
132072	1720.0	17.90	17.91	17.91
132322	1745.0	17.94	17.96	17.95
132572	1770.0	17.97	17.99	17.99

### Spectrum Plot of Worst Value

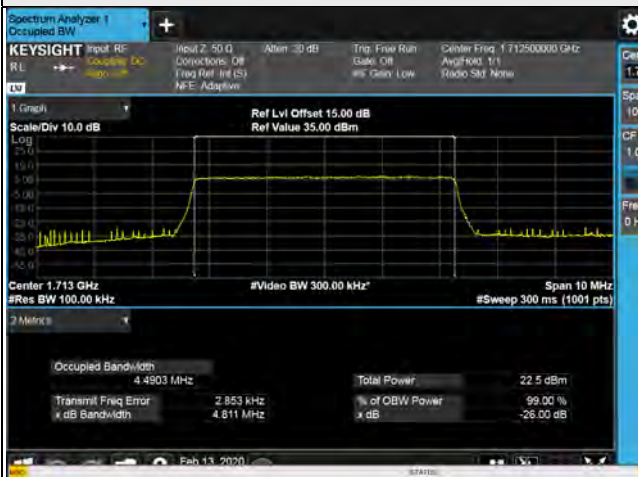
1.4MHz / QPSK



3MHz / 64QAM



5MHz / 64QAM



10MHz / 16QAM



15MHz / QPSK



20MHz / 64QAM



LTE Band 71

LTE Band 71, Channel Bandwidth 5MHz				
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM
133147	665.5	4.49	4.49	4.50
133297	680.5	4.49	4.49	4.49
133447	695.5	4.49	4.49	4.50
LTE Band 71, Channel Bandwidth 10MHz				
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM
133172	668	8.97	8.97	8.97
133297	680.5	8.96	8.96	8.97
133422	693	8.95	8.95	8.96
LTE Band 71, Channel Bandwidth 15MHz				
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM
133197	670.5	13.46	13.45	13.44
133297	680.5	13.46	13.45	13.44
133397	690.5	13.44	13.43	13.43
LTE Band 71, Channel Bandwidth 20MHz				
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM
133222	673	17.91	17.92	17.91
133297	680.5	17.94	17.93	17.93
133372	688	17.91	17.92	17.92

### Spectrum Plot of Worst Value

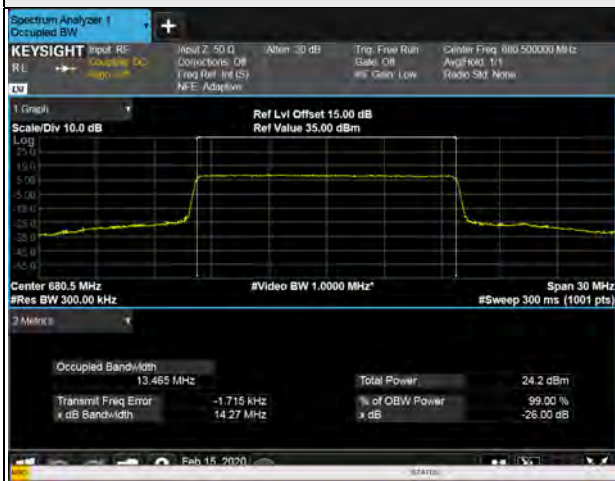
**5MHz / 64QAM**



**10MHz / QPSK**



**15MHz / QPSK**



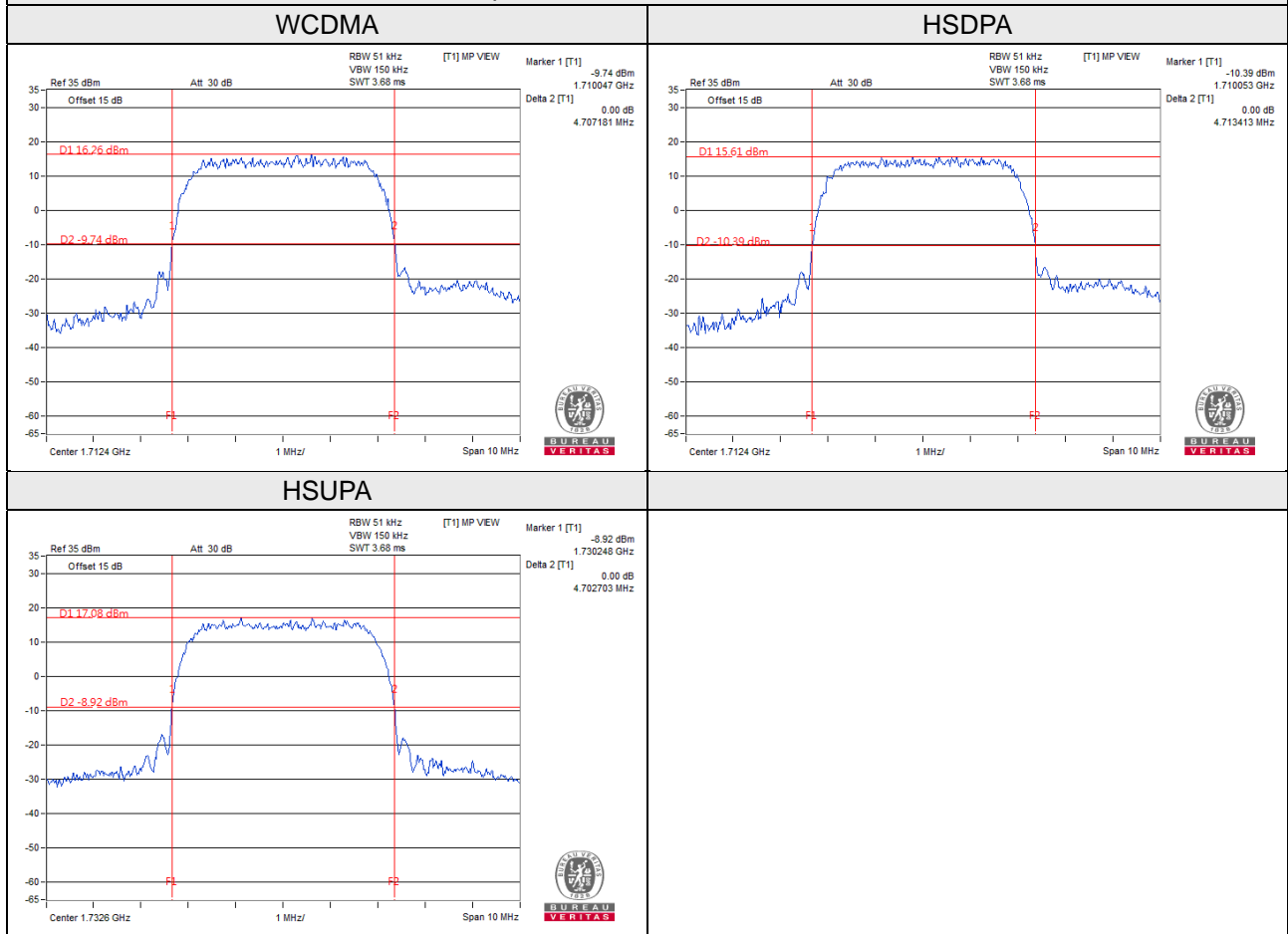
**20MHz / QPSK**



26dB Bandwidth  
WCDMA Band 4

Channel	Frequency (MHz)	26dB Bandwidth (MHz)		
		WCDMA	HSDPA	HSUPA
1312	1712.4	4.70	4.71	4.69
1413	1732.6	4.69	4.70	4.70
1513	1752.6	4.69	4.71	4.70

Spectrum Plot of Worst Value





LTE Band 4

LTE Band 4, Channel Bandwidth 1.4MHz				
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM
19957	1710.7	1.22	1.22	1.22
20175	1732.5	1.21	1.21	1.21
20393	1754.3	1.22	1.22	1.22
LTE Band 4, Channel Bandwidth 3MHz				
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM
19965	1711.5	2.91	2.93	2.92
20175	1732.5	2.92	2.92	2.91
20385	1753.5	2.91	2.93	2.94
LTE Band 4, Channel Bandwidth 5MHz				
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM
19975	1712.5	4.82	4.80	4.81
20175	1732.5	4.79	4.80	4.81
20375	1752.5	4.81	4.81	4.81
LTE Band 4, Channel Bandwidth 10MHz				
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM
20000	1715.0	9.50	9.51	9.49
20175	1732.5	9.51	9.51	9.52
20350	1750.0	9.48	9.52	9.49
LTE Band 4, Channel Bandwidth 15MHz				
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM
20025	1717.5	14.24	14.24	14.25
20175	1732.5	14.24	14.23	14.23
20325	1747.5	14.26	14.24	14.23

LTE Band 4, Channel Bandwidth 20MHz

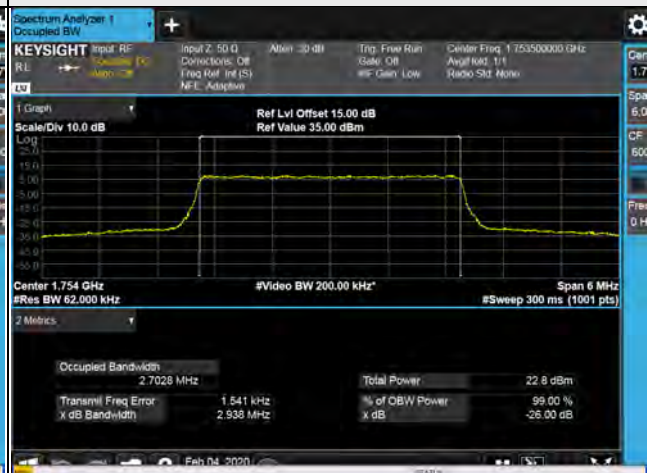
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM
20050	1720.0	19.05	19.03	19.03
20175	1732.5	19.05	19.04	19.03
20300	1745.0	19.03	19.04	19.04

### Spectrum Plot of Worst Value

1.4MHz / 64QAM



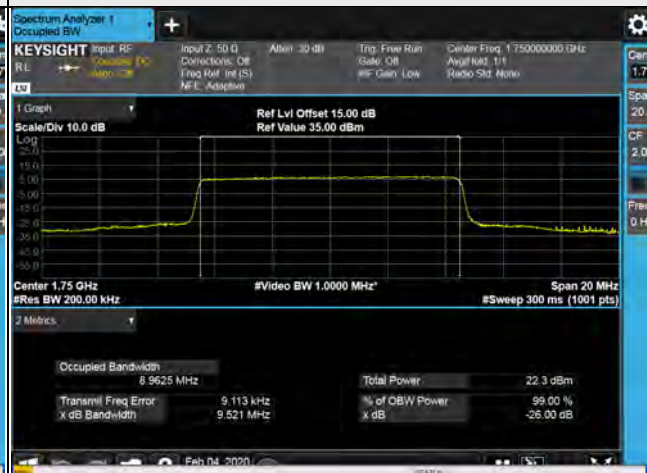
3MHz / 64QAM



5MHz / QPSK



10MHz / 16QAM



15MHz / QPSK



20MHz / QPSK



LTE Band 7

LTE Band 7, Channel Bandwidth 5MHz				
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM
20775	2502.5	4.79	4.80	4.80
21100	2535.0	4.80	4.80	4.80
21425	2567.5	4.79	4.80	4.81
LTE Band 7, Channel Bandwidth 10MHz				
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM
20800	2505.0	9.50	9.51	9.51
21100	2535.0	9.49	9.50	9.50
21400	2565.0	9.51	9.52	9.51
LTE Band 7, Channel Bandwidth 15MHz				
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM
20825	2507.5	14.25	14.23	14.23
21100	2535.0	14.25	14.24	14.23
21375	2562.5	14.26	14.25	14.26
LTE Band 7, Channel Bandwidth 20MHz				
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM
20850	2510.0	19.01	19.01	19.04
21100	2535.0	19.01	19.02	19.01
21350	2560.0	19.02	19.04	19.05

### Spectrum Plot of Worst Value

5MHz / 64QAM



10MHz / 16QAM



15MHz / QPSK



20MHz / 64QAM



LTE Band 12

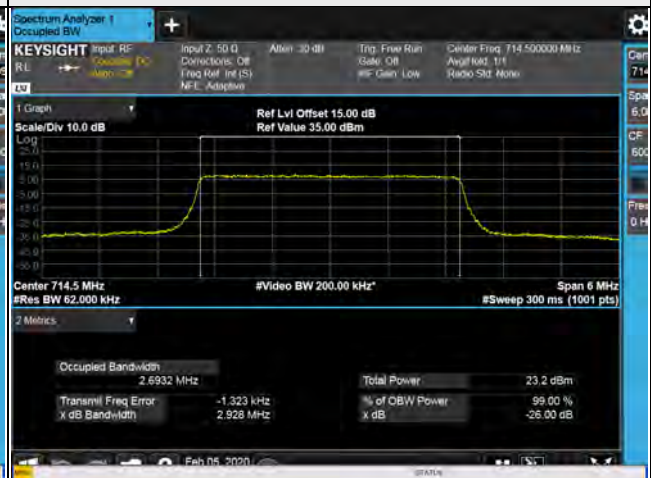
LTE Band 12, Channel Bandwidth 1.4MHz				
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM
23017	699.7	1.22	1.22	1.21
23095	707.5	1.21	1.22	1.22
23173	715.3	1.21	1.22	1.21
LTE Band 12, Channel Bandwidth 3MHz				
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM
23025	700.5	2.91	2.92	2.92
23095	707.5	2.91	2.92	2.91
23165	714.5	2.91	2.93	2.91
LTE Band 12, Channel Bandwidth 5MHz				
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM
23035	701.5	4.80	4.80	4.80
23095	707.5	4.78	4.80	4.78
23155	713.5	4.81	4.81	4.80
LTE Band 12, Channel Bandwidth 10MHz				
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM
23060	704.0	9.51	9.52	9.50
23095	707.5	9.49	9.49	9.48
23130	711.0	9.50	9.51	9.49

### Spectrum Plot of Worst Value

1.4MHz / 16QAM



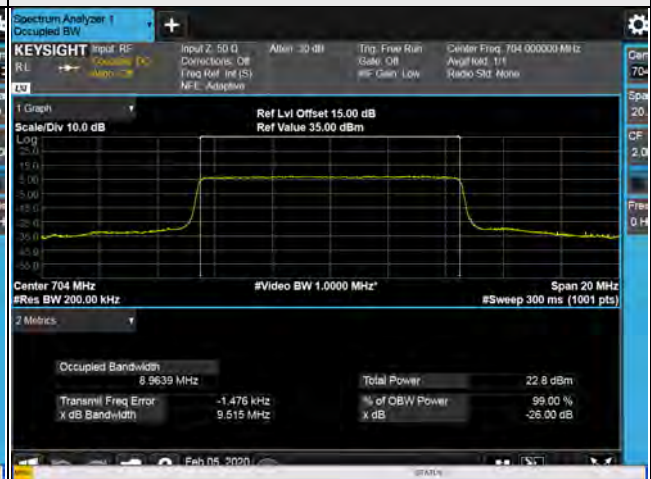
3MHz / 16QAM



5MHz / 16QAM

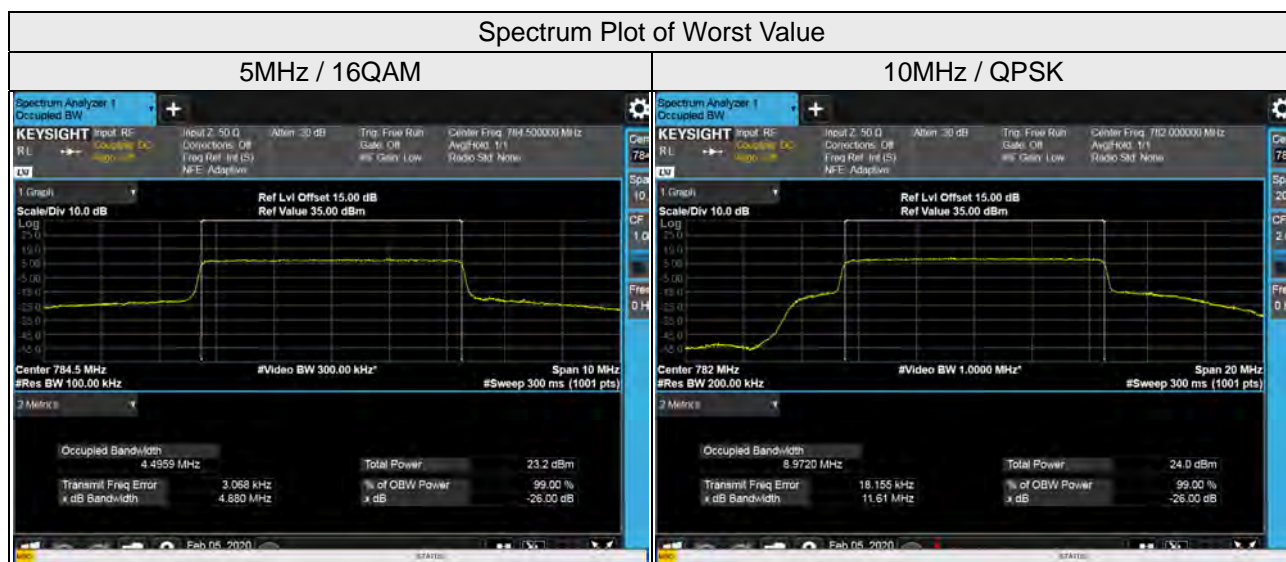


10MHz / 16QAM



### LTE Band 13

LTE Band 13, Channel Bandwidth 5MHz				
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM
23205	779.5	4.78	4.78	4.80
23230	782.0	4.78	4.81	4.81
23255	784.5	4.86	4.88	4.87
LTE Band 13, Channel Bandwidth 10MHz				
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM
23230	782.0	11.61	9.51	9.50





### LTE Band 17

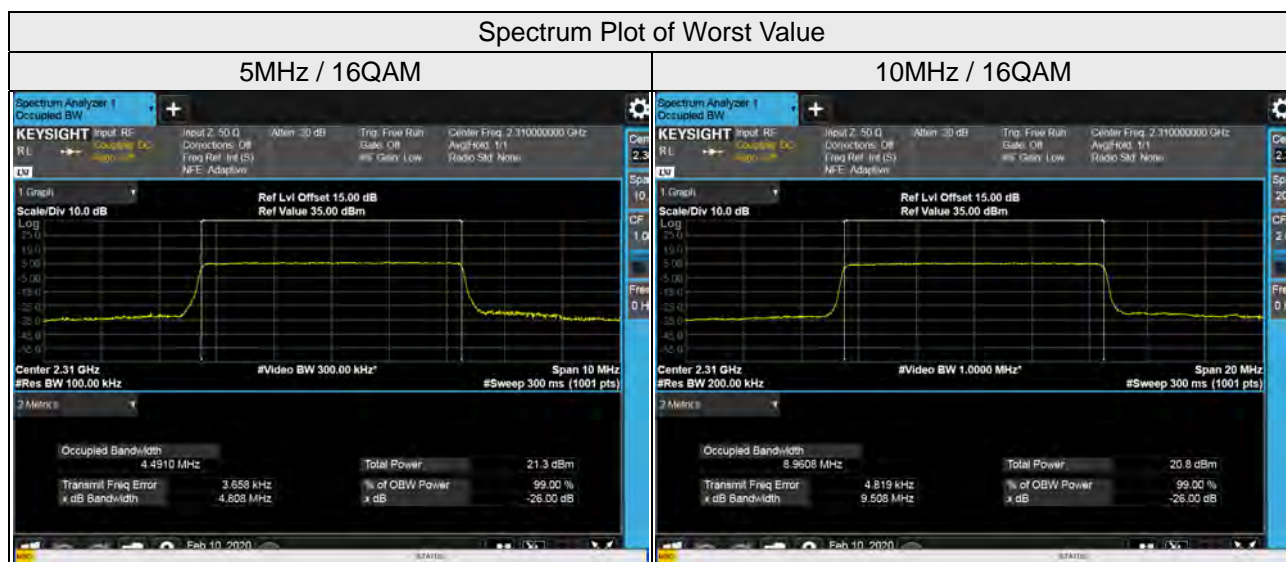
LTE Band 17, Channel Bandwidth 5MHz				
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM
23755	706.5	4.78	4.79	4.79
23790	710.0	4.79	4.80	4.80
23825	713.5	4.80	4.79	4.81
LTE Band 17, Channel Bandwidth 10MHz				
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM
23780	709.0	9.48	9.49	9.50
23790	710.0	9.50	9.49	9.51
23800	711.0	9.49	9.49	9.50

### Spectrum Plot of Worst Value



LTE Band 30

LTE Band 30, Channel Bandwidth 5MHz				
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM
27685	2307.5	4.80	4.80	4.79
27710	2310	4.80	4.81	4.80
27735	2312.5	4.79	4.80	4.80
LTE Band 30, Channel Bandwidth 10MHz				
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM
27710	2310	9.49	9.51	9.49



LTE Band 38

LTE Band 38, Channel Bandwidth 5MHz				
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM
37775	2572.5	4.80	4.78	4.79
38000	2595.0	4.79	4.79	4.78
38225	2617.5	4.80	4.79	4.79
LTE Band 38, Channel Bandwidth 10MHz				
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM
37800	2575.0	9.48	9.49	9.49
38000	2595.0	9.49	9.50	9.50
38200	2615.0	9.48	9.50	9.51
LTE Band 38, Channel Bandwidth 15MHz				
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM
37825	2577.5	14.27	14.22	14.22
38000	2595.0	14.25	14.24	14.23
38175	2612.5	14.26	14.24	14.24
LTE Band 38, Channel Bandwidth 20MHz				
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM
37850	2580.0	19.01	18.99	18.99
38000	2595.0	19.02	18.99	19.00
38150	2610.0	19.01	19.00	19.01

### Spectrum Plot of Worst Value

5MHz / QPSK



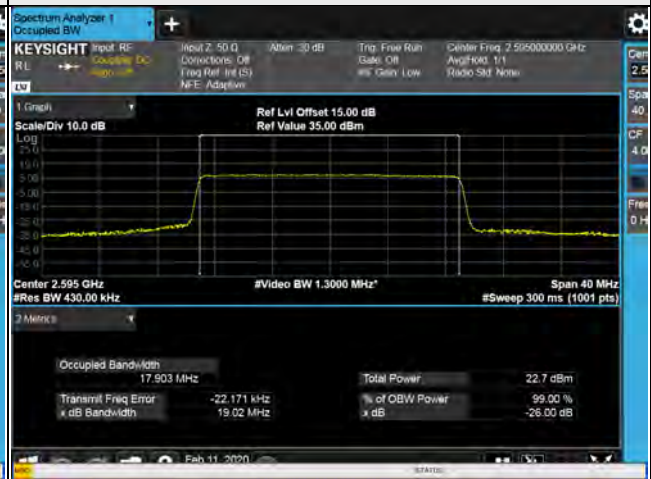
10MHz / 64QAM



15MHz / QPSK



20MHz / QPSK

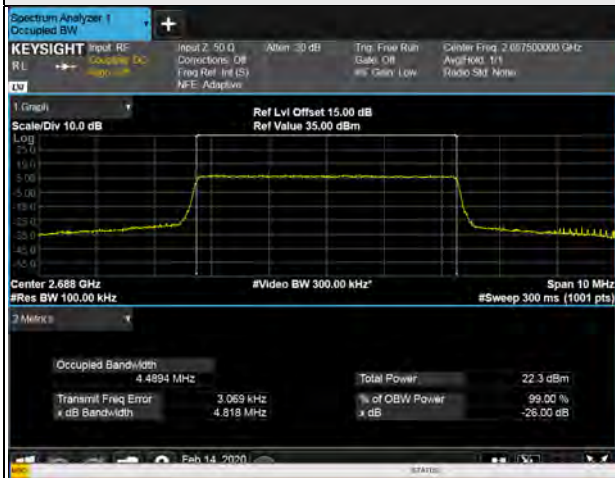


LTE Band 41

LTE Band 41, Channel Bandwidth 5MHz				
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM
39675	2498.5	4.80	4.78	4.79
40620	2593	4.78	4.79	4.79
41565	2687.5	4.82	4.79	4.79
LTE Band 41, Channel Bandwidth 10MHz				
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM
39700	2501	9.48	9.49	9.52
40620	2593	9.48	9.50	9.51
41540	2685	9.48	9.49	9.51
LTE Band 41, Channel Bandwidth 15MHz				
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM
39725	2503.5	14.24	14.24	14.25
40620	2593	14.26	14.25	14.22
41515	2682.5	14.23	14.24	14.23
LTE Band 41, Channel Bandwidth 20MHz				
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM
39750	2506	19.01	19.01	18.99
40620	2593	19.01	19.00	19.00
41490	2680	19.00	18.99	19.01

### Spectrum Plot of Worst Value

5MHz / QPSK



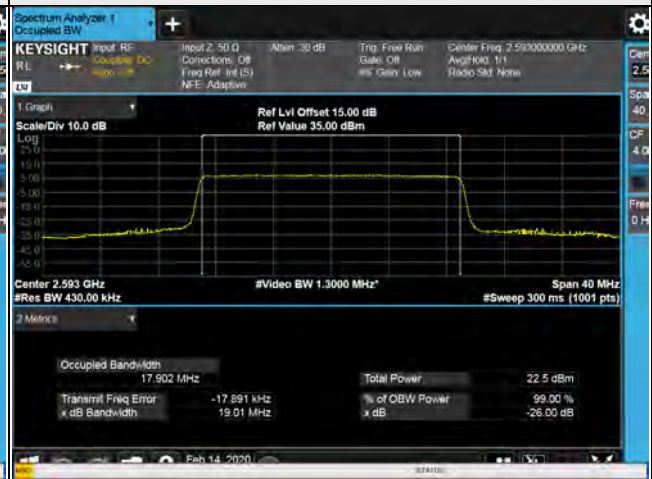
10MHz / 64QAM



15MHz / QPSK



20MHz / QPSK



LTE Band 66

LTE Band 66, Channel Bandwidth 1.4MHz				
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM
131979	1710.7	1.21	1.22	1.22
132322	1745.0	1.21	1.22	1.22
132665	1779.3	1.21	1.22	1.22
LTE Band 66, Channel Bandwidth 3MHz				
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM
131987	1711.5	2.91	2.93	2.91
132322	1745.0	2.93	2.93	2.92
132657	1778.5	2.92	2.93	2.93
LTE Band 66, Channel Bandwidth 5MHz				
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM
131997	1712.5	4.81	4.81	4.81
132322	1745.0	4.80	4.79	4.80
132647	1777.5	4.82	4.79	4.82
LTE Band 66, Channel Bandwidth 10MHz				
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM
132022	1715.0	9.51	9.50	9.51
132322	1745.0	9.49	9.50	9.50
132622	1775.0	9.49	9.51	9.50
LTE Band 66, Channel Bandwidth 15MHz				
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM
132047	1717.5	14.26	14.23	14.21
132322	1745.0	14.27	14.24	14.22
132597	1772.5	14.24	14.27	14.25

LTE Band 66, Channel Bandwidth 20MHz

Channel	Frequency (MHz)	26dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM
132072	1720.0	19.04	19.03	19.04
132322	1745.0	19.03	19.01	19.03
132572	1770.0	19.09	19.09	19.11



### Spectrum Plot of Worst Value

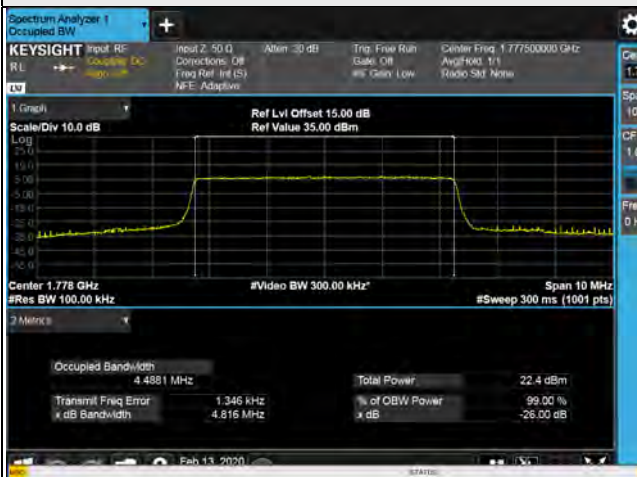
#### 1.4MHz / 64QAM



#### 3MHz / 64QAM



#### 5MHz / 64QAM



#### 10MHz / QPSK



#### 15MHz / QPSK



#### 20MHz / 64QAM



LTE Band 71

LTE Band 71, Channel Bandwidth 5MHz				
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM
133147	665.5	4.79	4.80	4.83
133297	680.5	4.81	4.80	4.82
133447	695.5	4.81	4.79	4.84
LTE Band 71, Channel Bandwidth 10MHz				
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM
133172	668	9.51	9.51	9.51
133297	680.5	9.51	9.51	9.52
133422	693	9.51	9.50	9.52
LTE Band 71, Channel Bandwidth 15MHz				
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM
133197	670.5	14.27	14.24	14.23
133297	680.5	14.27	14.24	14.25
133397	690.5	14.24	14.24	14.24
LTE Band 71, Channel Bandwidth 20MHz				
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM
133222	673	19.02	19.01	19.00
133297	680.5	19.09	19.03	19.04
133372	688	19.01	19.02	19.01

### Spectrum Plot of Worst Value

5MHz / 64QAM



10MHz / 64QAM



15MHz / QPSK



20MHz / QPSK



## 4.5 Channel Edge Measurement

### 4.5.1 Limits of Band Edge Measurement

For WCDMA Band 4, LTE Band 4, 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.

For LTE Band 7, 38, 41

According to FCC 27.53(m)(4) specified that power of any emission outside of the channel edge must be attenuated below the transmitting power (P) by a 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. In addition, the attenuation factor shall not be less that  $43 + 10 \log (P)$  dB on all frequencies between 2490.5 MHz and 2496 MHz and  $55 + 10 \log (P)$  dB at or below 2490.5 MHz. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least two percent may be employed, except when the 1 megahertz band is 2495-2496 MHz, in which case a resolution bandwidth of at least one percent may be employed.

For LTE Band 12, 71

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.

For LTE Band 13

According to FCC 27.53(c)(2) for 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.

According to 27.53(c)(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

For LTE Band 17

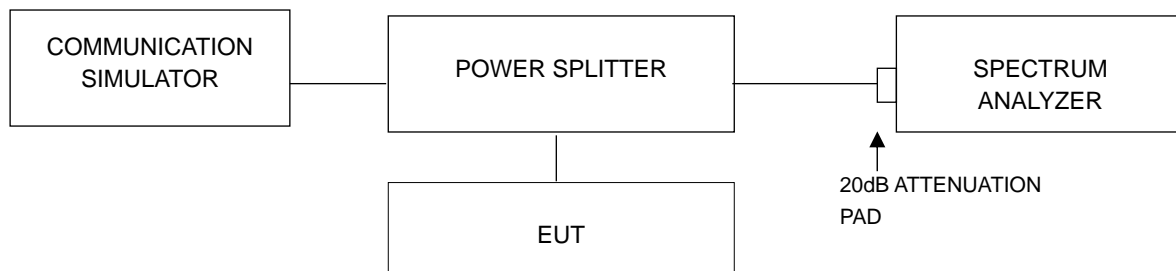
According to FCC 27.53(g) for operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least  $43 + 10 \log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

For LTE Band 30

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.

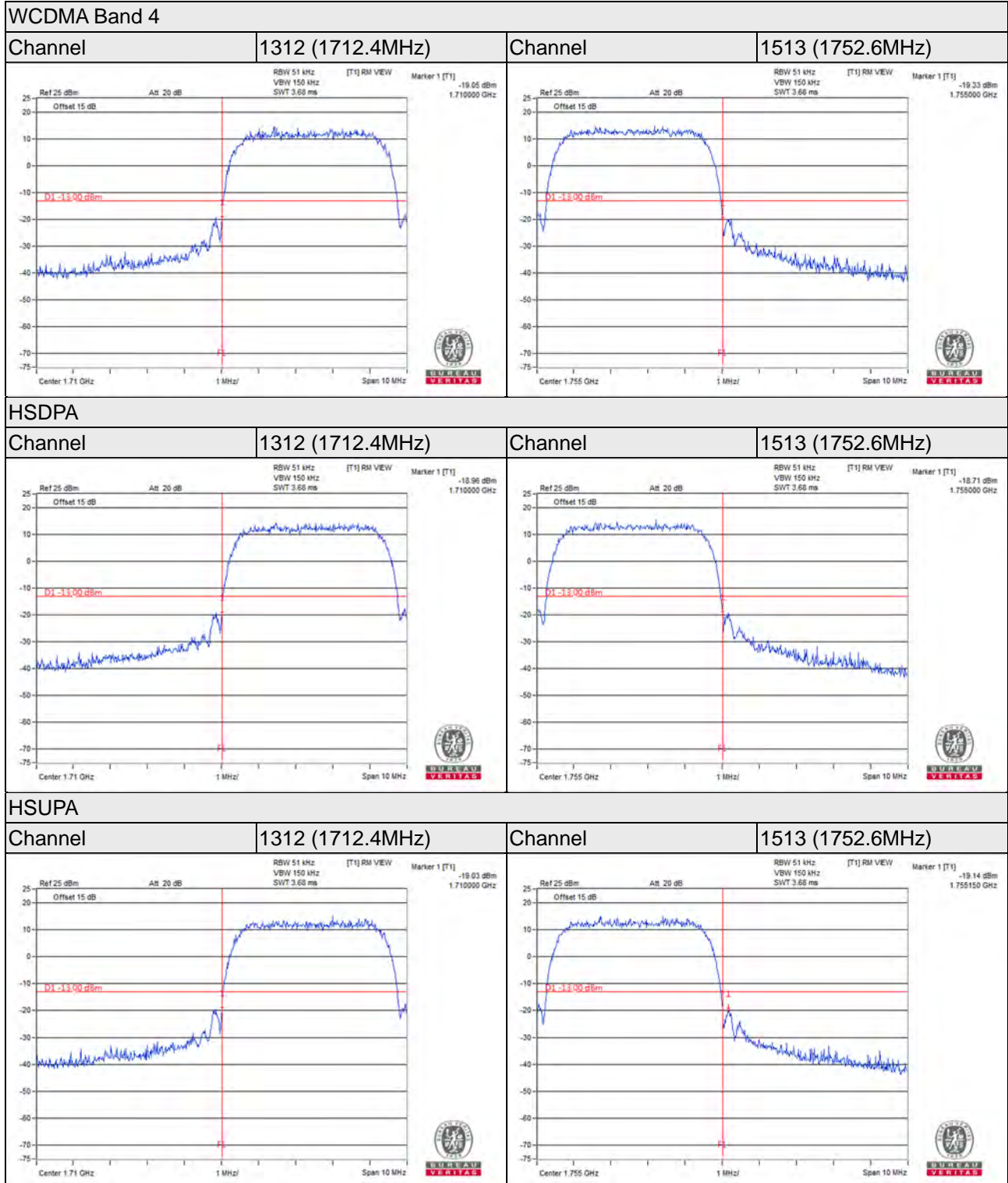
#### 4.5.2 Test Setup



#### 4.5.3 Test Procedures

- a. The EUT was set up for the rated peak power. The power was measured with Spectrum Analyzer. Band edge measurements were done at 2 channels: low, middle and high operational frequency range. Emission mask measurements were done at 3 channels: low and high operational frequency range.
- b. The center frequency of spectrum is the band edge frequency and span is 10MHz. RB of the spectrum is 51kHz and VB of the spectrum is 150kHz (WCDMA / HSDPA / HSUPA).
- c. The center frequency of spectrum is the band edge frequency and span is 1MHz. RB of the spectrum is 15kHz and VB of the spectrum is 51kHz (LTE Channel Bandwidth 1.4MHz).
- d. The center frequency of spectrum is the band edge frequency and span is 1MHz. RB of the spectrum is 30kHz and VB of the spectrum is 100kHz (LTE Channel Bandwidth 3MHz).
- e. The center frequency of spectrum is the band edge frequency and span is 1MHz. RB of the spectrum is 51kHz and VB of the spectrum is 160kHz (LTE Channel Bandwidth 5MHz).
- f. The center frequency of spectrum is the band edge frequency and span is 1MHz. RB of the spectrum is 100kHz and VB of the spectrum is 300kHz (LTE Channel Bandwidth 10MHz).
- g. The center frequency of spectrum is the band edge frequency and span is 1MHz. RB of the spectrum is 150kHz and VB of the spectrum is 470kHz (LTE Channel Bandwidth 15MHz).
- h. The center frequency of spectrum is the band edge frequency and span is 1MHz. RB of the spectrum is 200kHz and VB of the spectrum is 1MHz (LTE Channel Bandwidth 20MHz).
- i. Except LTE Band 12 and LTE Band 17 measurement procedure refer 27.53(g)(m)(6).
- j. LTE Band 7, Band 38 and Band 41 operations in the 5 MHz and 10 MHz channel BW mode, extend the 1% range from 1M to 2M above and below the channel edge and then reduce the limit further by  $10 \log(1000/100) = 10\text{dB}$  (i.e. total  $-10 + -10 = -20\text{dB}$ ) to compensate for the integration from 100k to 1M.
- k. Record the max trace plot into the test report.

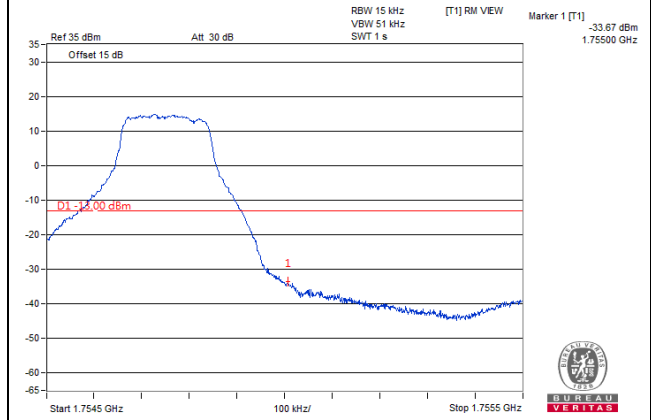
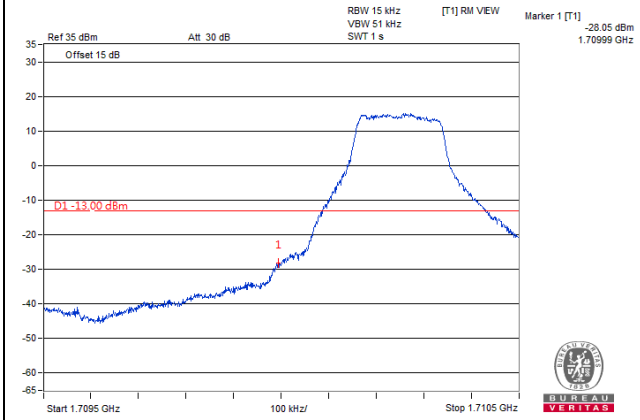
### 4.5.4 Test Results



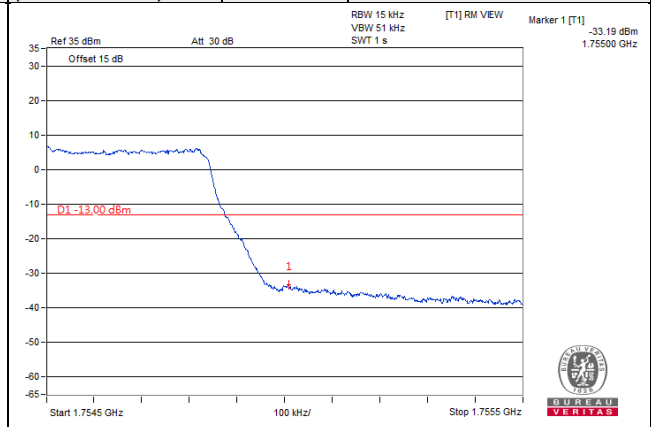
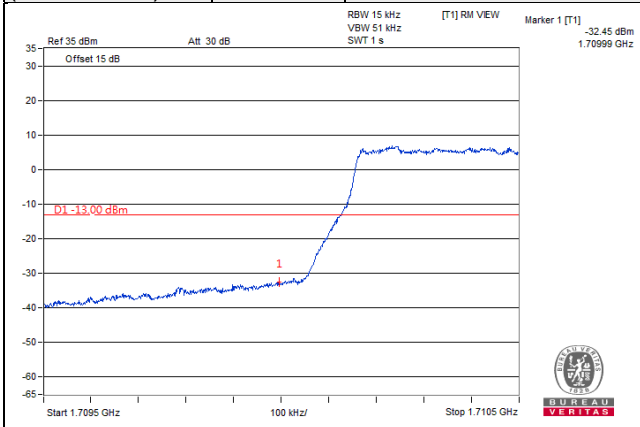
LTE Band 4

Channel Bandwidth: 1.4MHz

Channel 19957 (1710.7MHz)	QPSK	1 RB / 0 RB Offset	Channel 20393 (1754.3MHz)	QPSK	1 RB / 5 RB Offset
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Channel 19957 (1710.7MHz)	QPSK	6 RB / 0 RB Offset	Channel 20393 (1754.3MHz)	QPSK	6 RB / 0 RB Offset
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**Channel Bandwidth: 3MHz**

**Channel 19965  
(1711.5MHz)**

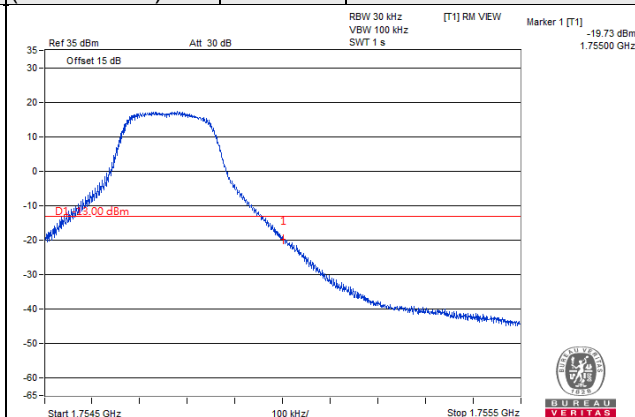
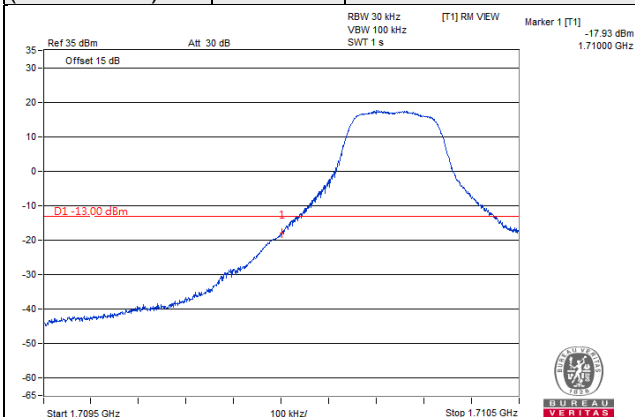
**QPSK**

**1 RB / 0 RB Offset**

**Channel 20385  
(1753.5MHz)**

**QPSK**

**1 RB / 14 RB Offset**



**Channel 19965  
(1711.5MHz)**

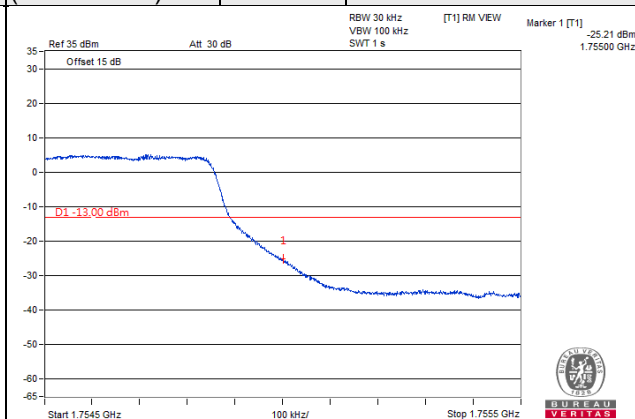
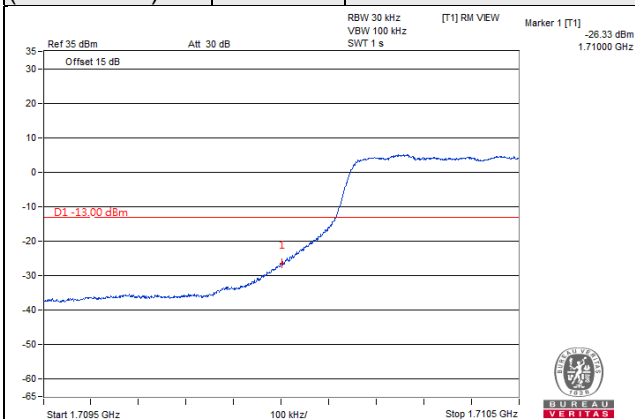
**QPSK**

**15 RB / 0 RB Offset**

**Channel 20385  
(1753.5MHz)**

**QPSK**

**15 RB / 0 RB Offset**



**Channel Bandwidth: 5MHz**

**Channel 19975  
(1712.5MHz)**

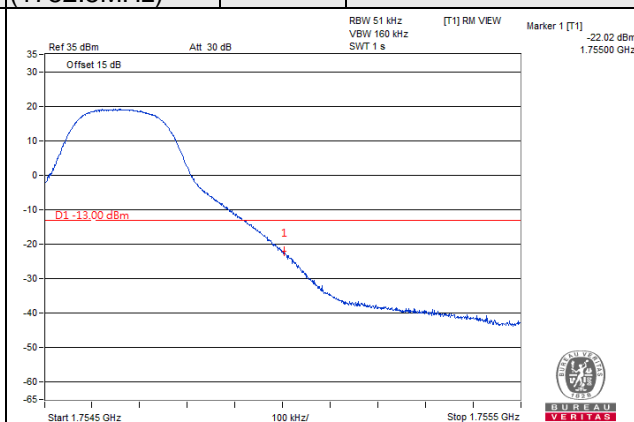
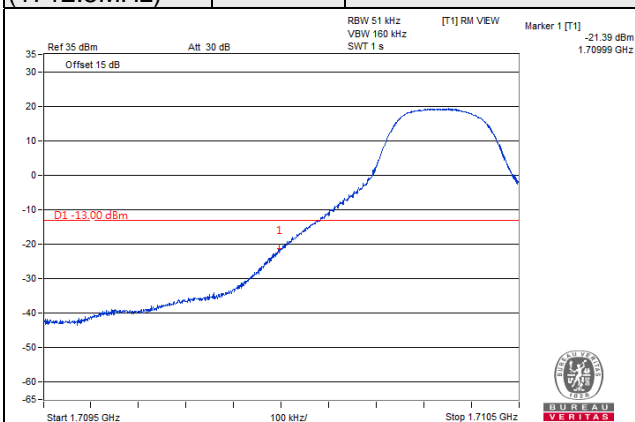
**QPSK**

**1 RB / 0 RB Offset**

**Channel 20375  
(1752.5MHz)**

**QPSK**

**1 RB / 24 RB Offset**



**Channel 19975  
(1712.5MHz)**

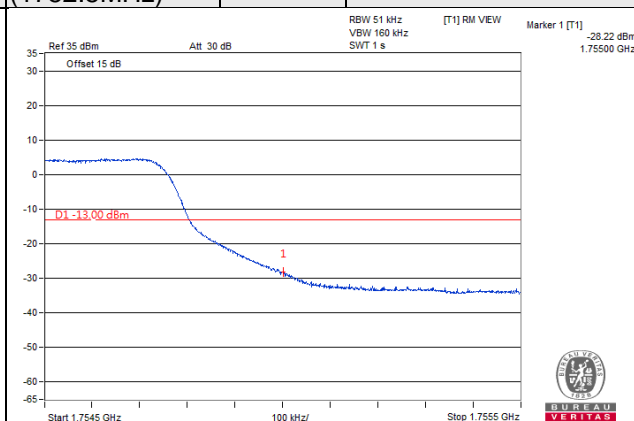
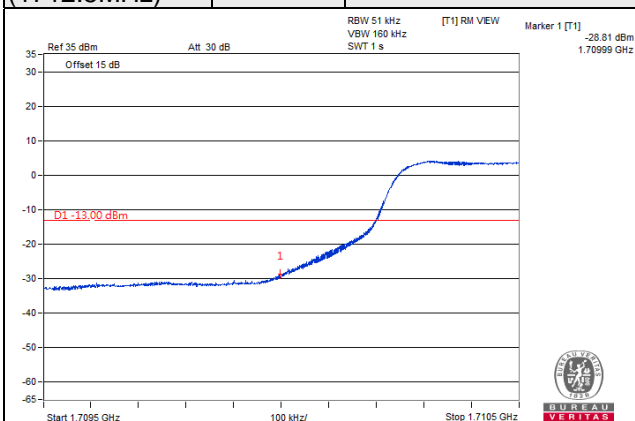
**QPSK**

**25 RB / 0 RB Offset**

**Channel 20375  
(1752.5MHz)**

**QPSK**

**25 RB / 0 RB Offset**



Channel Bandwidth: 10MHz

Channel 20000  
(1715.0MHz)

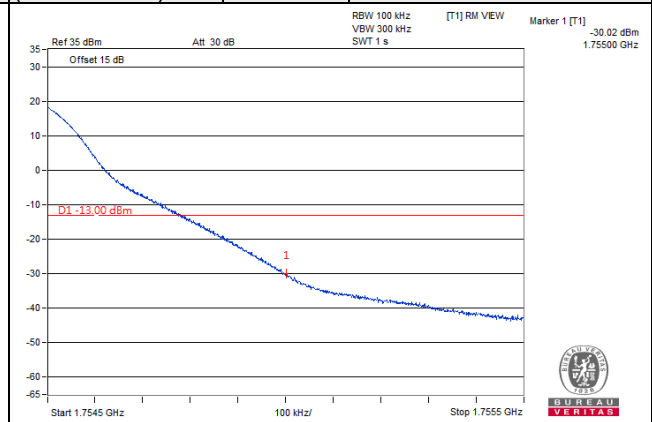
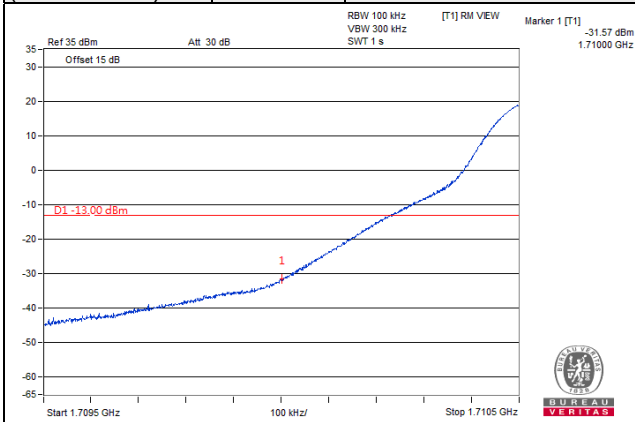
QPSK

1 RB / 0 RB Offset

Channel 20350  
(1750.0MHz)

QPSK

1 RB / 49 RB Offset



Channel 20000  
(1715.0MHz)

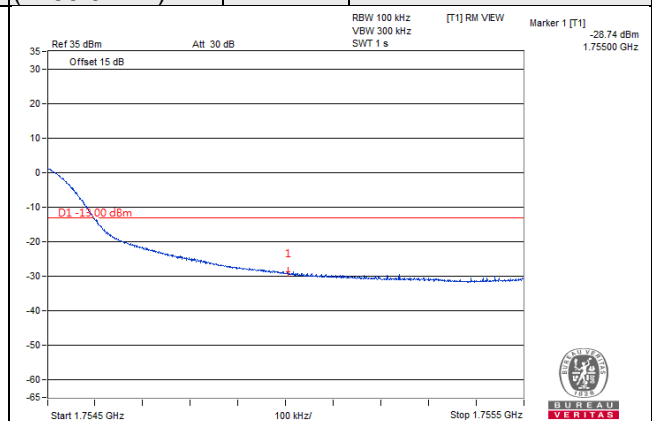
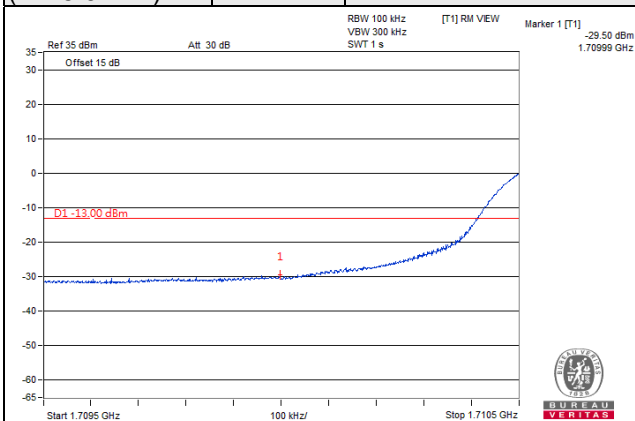
QPSK

50 RB / 0 RB Offset

Channel 20350  
(1750.0MHz)

QPSK

50 RB / 0 RB Offset



Channel Bandwidth: 15MHz

Channel 20025  
(1717.5MHz)

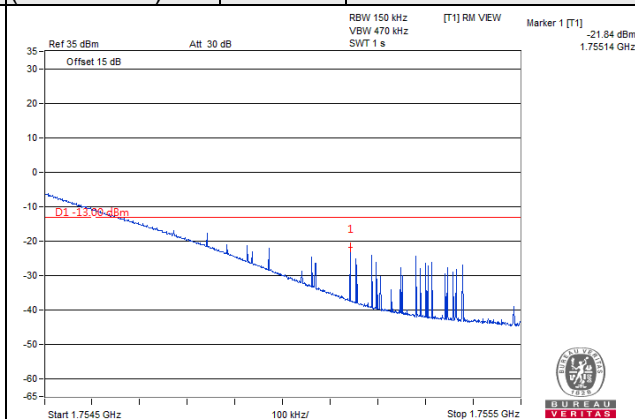
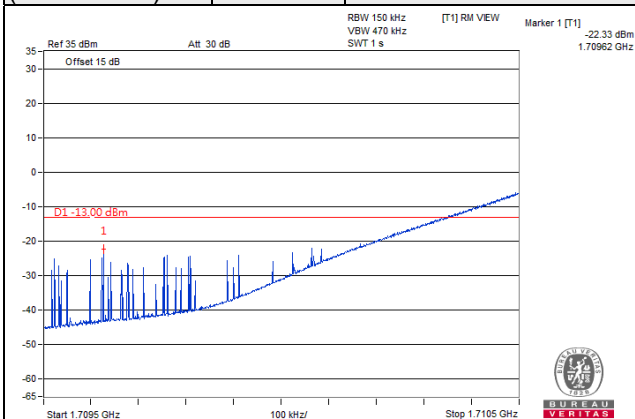
QPSK

1 RB / 0 RB Offset

Channel 20325  
(1747.5MHz)

QPSK

1 RB / 74 RB Offset



Channel 20025  
(1717.5MHz)

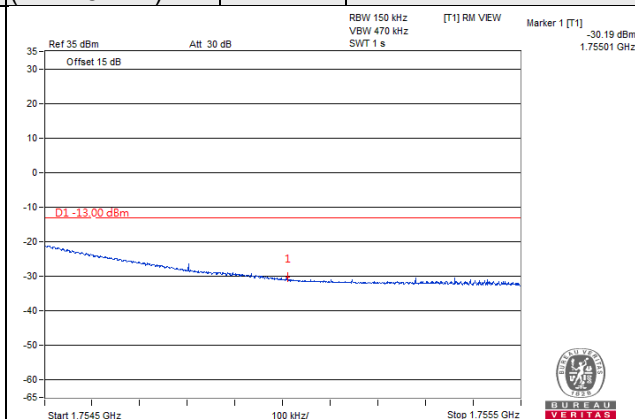
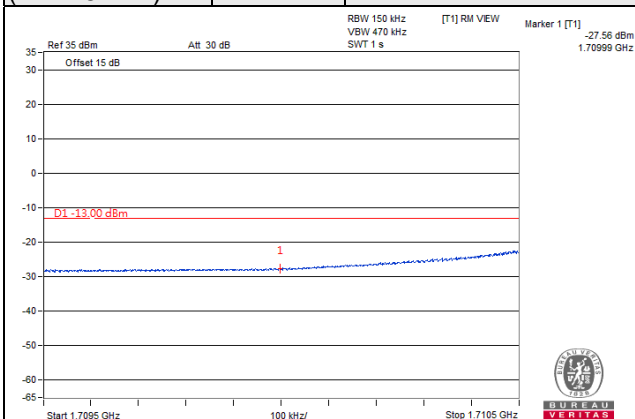
QPSK

75 RB / 0 RB Offset

Channel 20325  
(1747.5MHz)

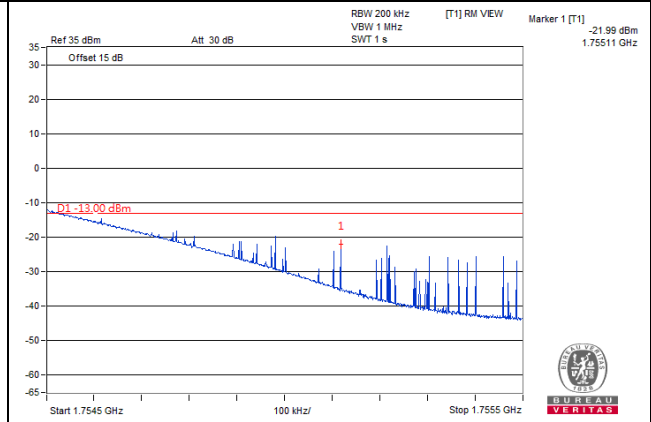
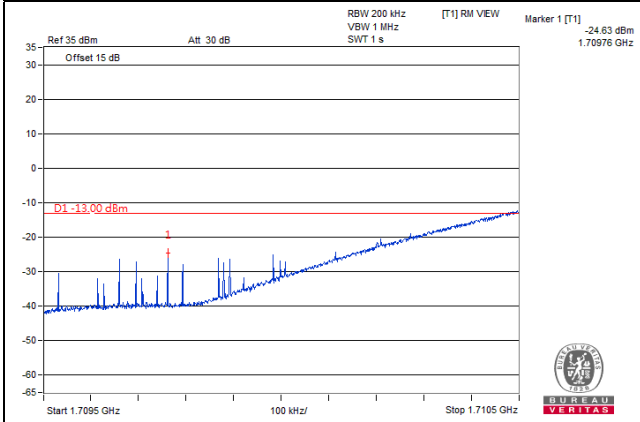
QPSK

75 RB / 0 RB Offset

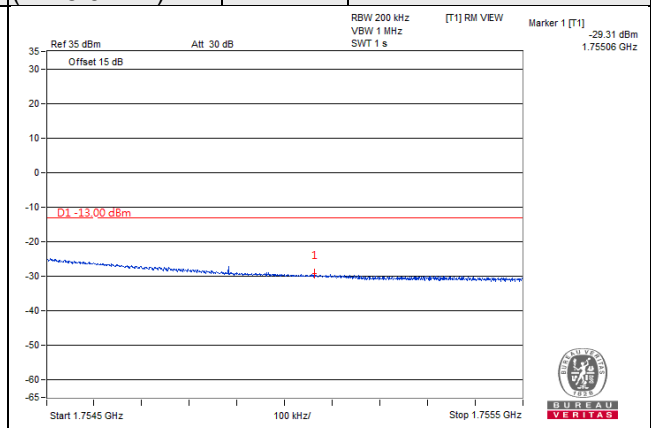
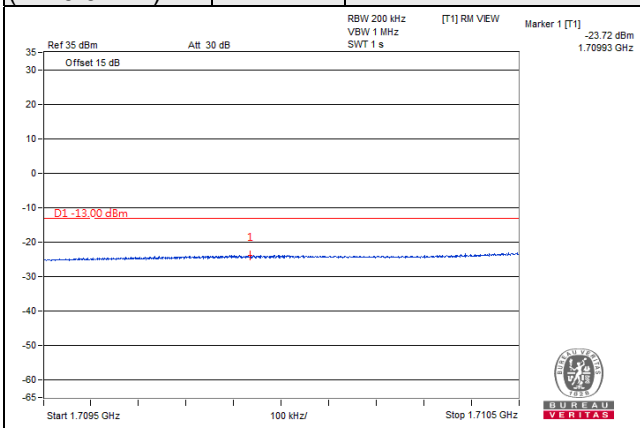


**Channel Bandwidth: 20MHz**

<b>Channel 20050 (1720.0MHz)</b>	<b>QPSK</b>	<b>1 RB / 0 RB Offset</b>	<b>Channel 20300 (1745.0MHz)</b>	<b>QPSK</b>	<b>1 RB / 99 RB Offset</b>
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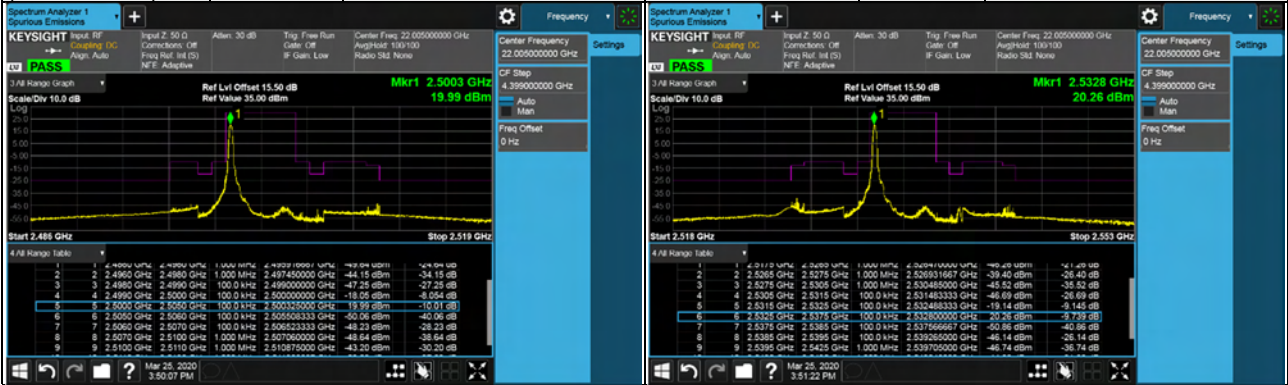
<b>Channel 20050 (1720.0MHz)</b>	<b>QPSK</b>	<b>100 RB / 0 RB Offset</b>	<b>Channel 20300 (1745.0MHz)</b>	<b>QPSK</b>	<b>100 RB / 0 RB Offset</b>
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LTE Band 7  
Emission Mask:

Channel Bandwidth: 5MHz

Channel 20775 (2502.5MHz) QPSK 1 RB / 0 RB Offset Channel 21100 (2535.0MHz) QPSK 1 RB / 0 RB Offset



Channel 20775 (2502.5MHz) QPSK 1 RB / 24 RB Offset Channel 21100 (2535.0MHz) QPSK 1 RB / 24 RB Offset



Channel 20775 (2502.5MHz) QPSK 25 RB / 0 RB Offset Channel 21100 (2535.0MHz) QPSK 25 RB / 0 RB Offset

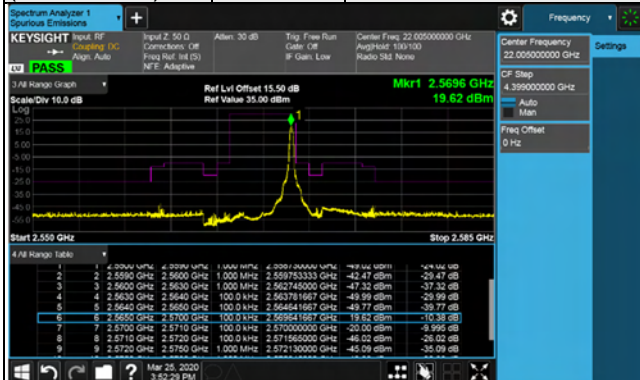


Channel Bandwidth: 5MHz

Channel 21425 (2567.5MHz)	QPSK	1 RB / 0 RB Offset			
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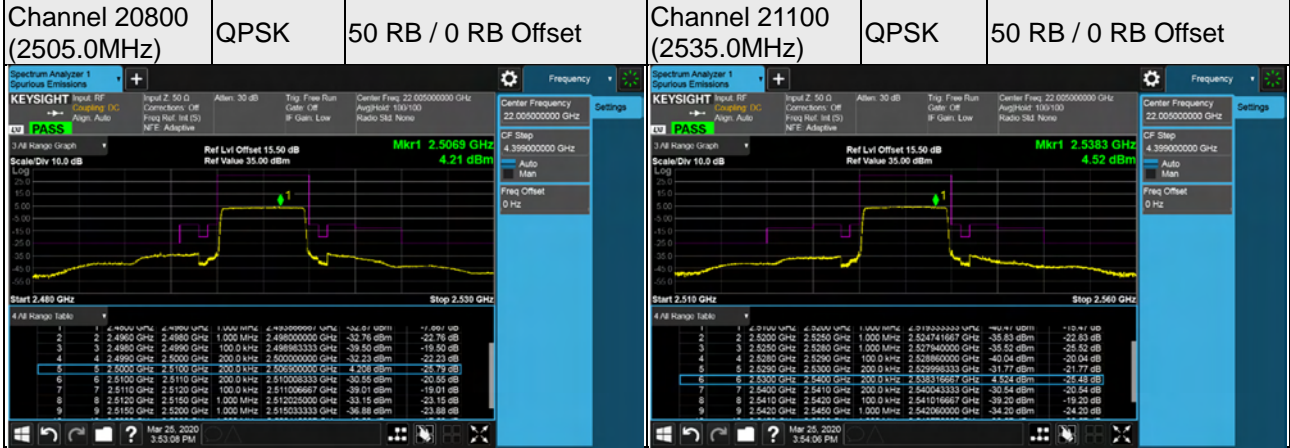
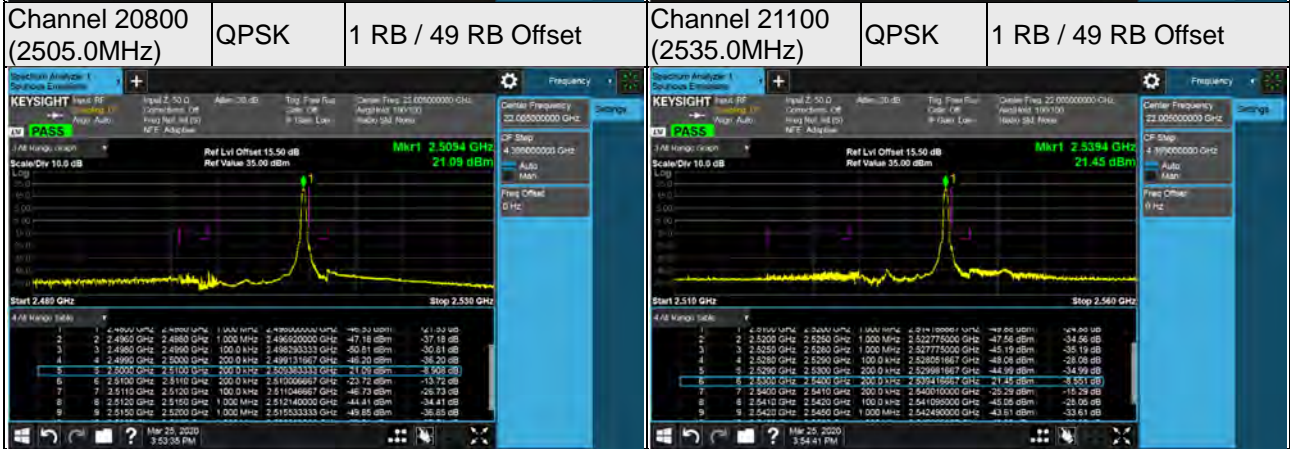
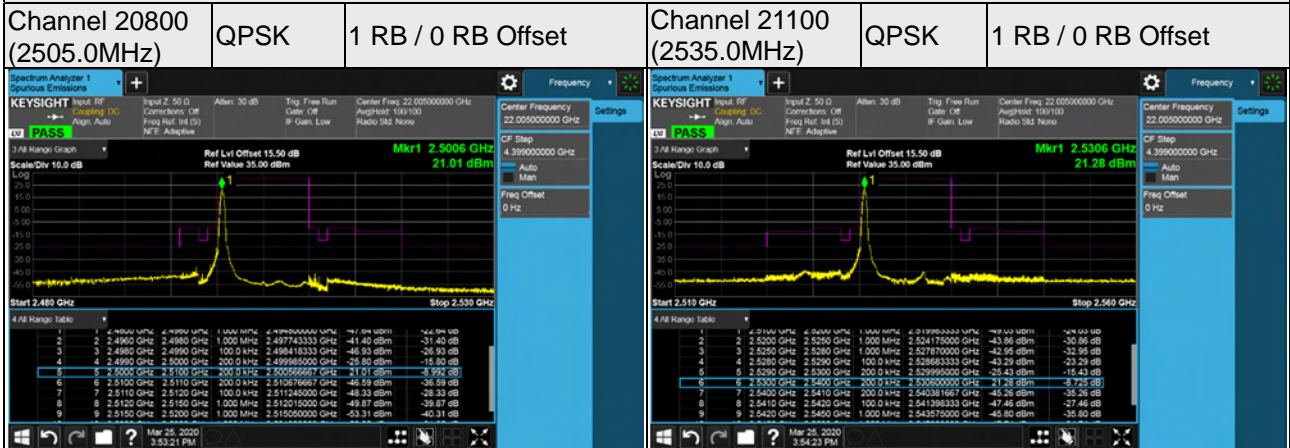
Channel 21425 (2567.5MHz)	QPSK	1 RB / 24 RB Offset			
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Channel 21425 (2567.5MHz)	QPSK	25 RB / 0 RB Offset			
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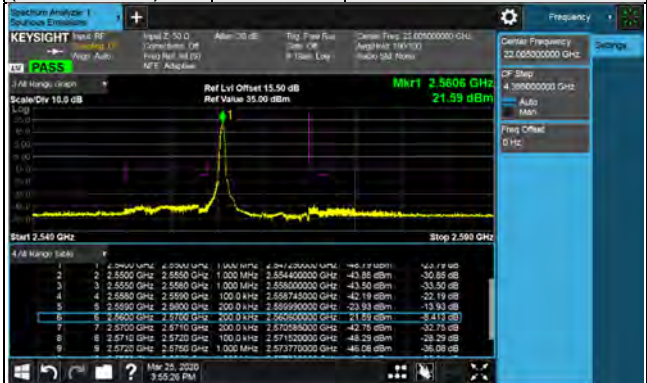
Channel Bandwidth: 10MHz



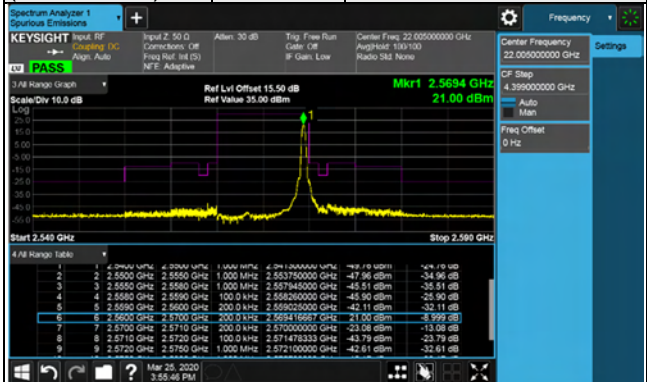


Channel Bandwidth: 10MHz

Channel 21400 (2565.0MHz)	QPSK	1 RB / 0 RB Offset			
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Channel 21400 (2565.0MHz)	QPSK	1 RB / 49 RB Offset			
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Channel 21400 (2565.0MHz)	QPSK	50 RB / 0 RB Offset			
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Channel Bandwidth: 15MHz

Channel 20825  
(2507.5MHz)

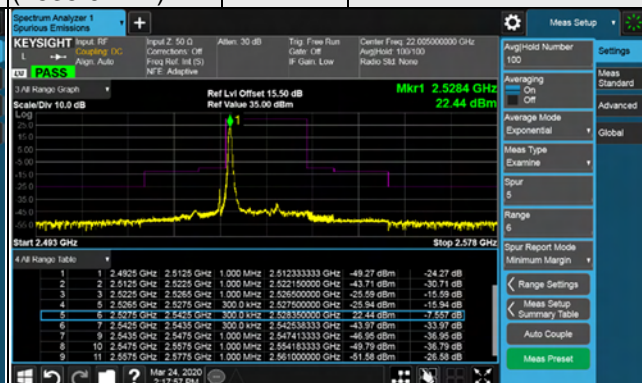
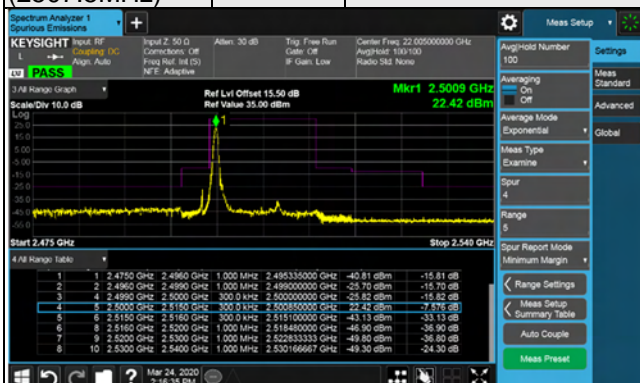
QPSK

1 RB / 0 RB Offset

Channel 21100  
(2535.0MHz)

QPSK

1 RB / 0 RB Offset



Channel 20825  
(2507.5MHz)

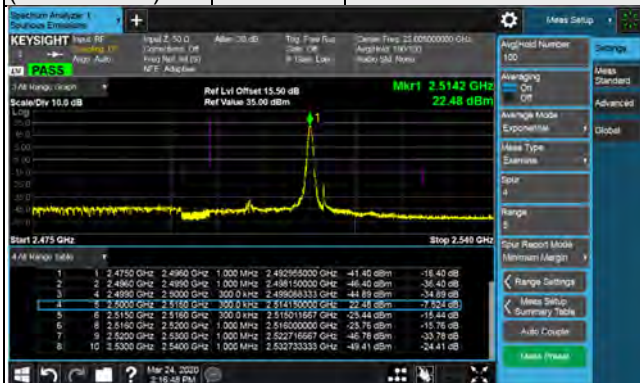
QPSK

1 RB / 74 RB Offset

Channel 21100  
(2535.0MHz)

QPSK

1 RB / 74 RB Offset



Channel 20825  
(2507.5MHz)

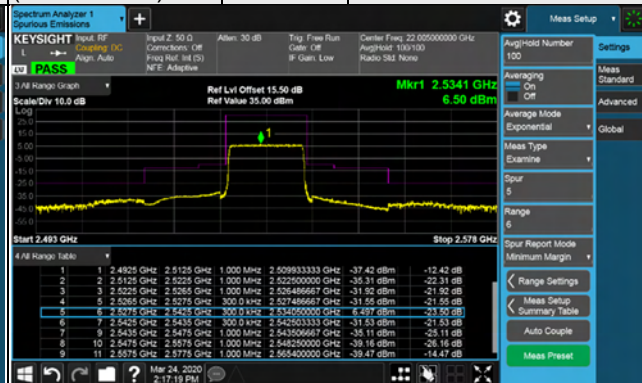
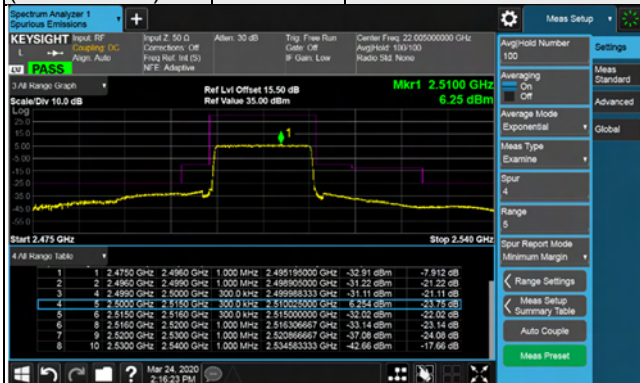
QPSK

75 RB / 0 RB Offset

Channel 21100  
(2535.0MHz)

QPSK

75 RB / 0 RB Offset

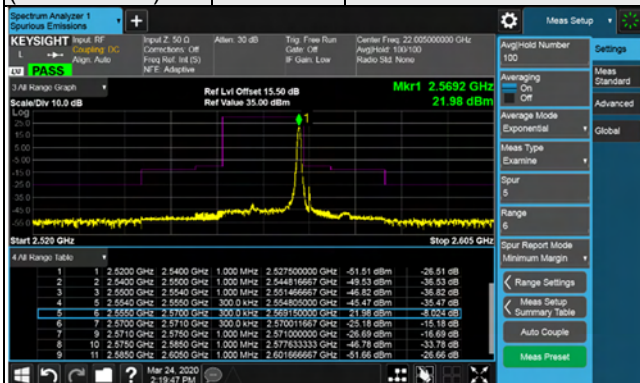


Channel Bandwidth: 15MHz

Channel 21375 (2562.5MHz) QPSK 1 RB / 0 RB Offset



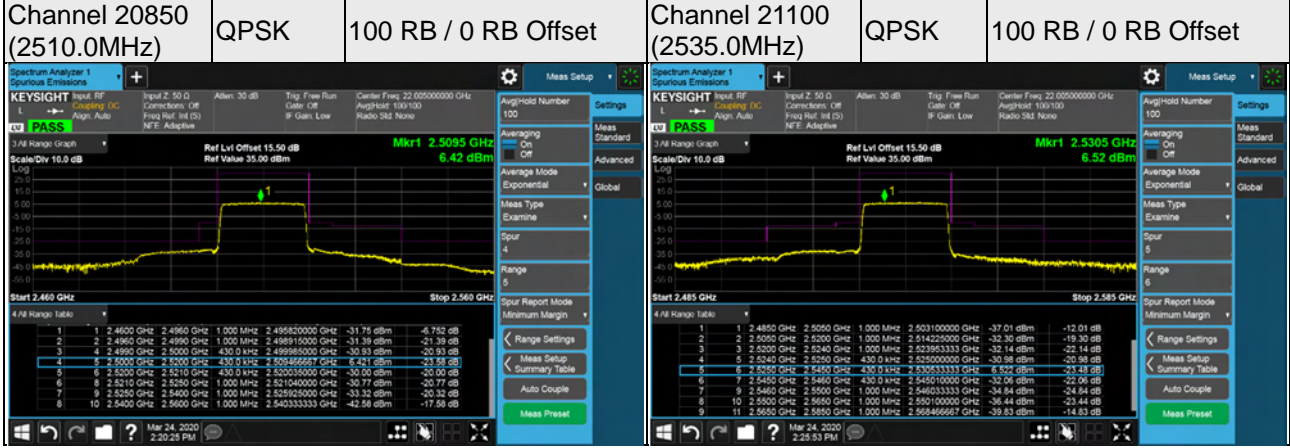
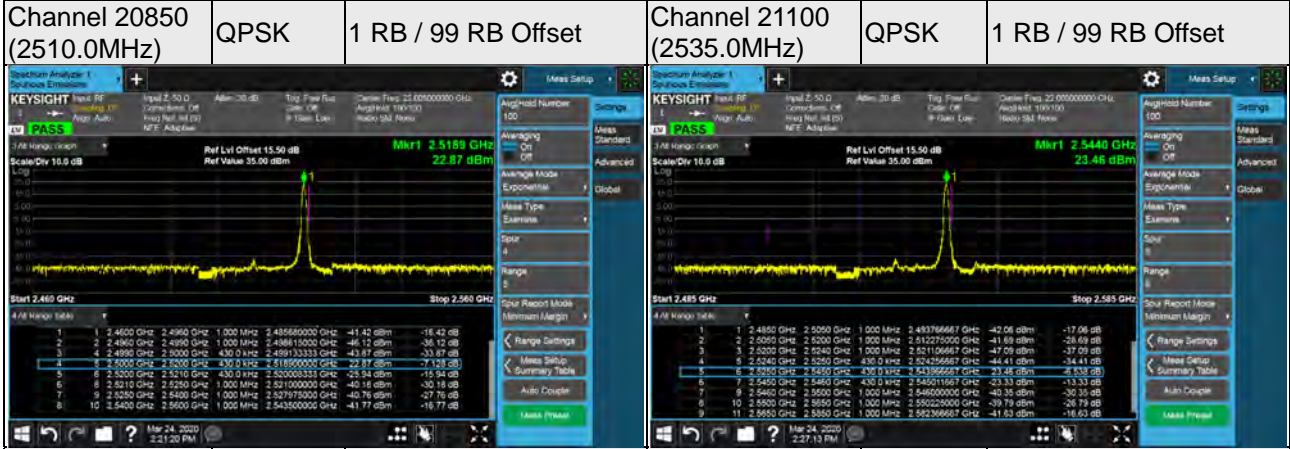
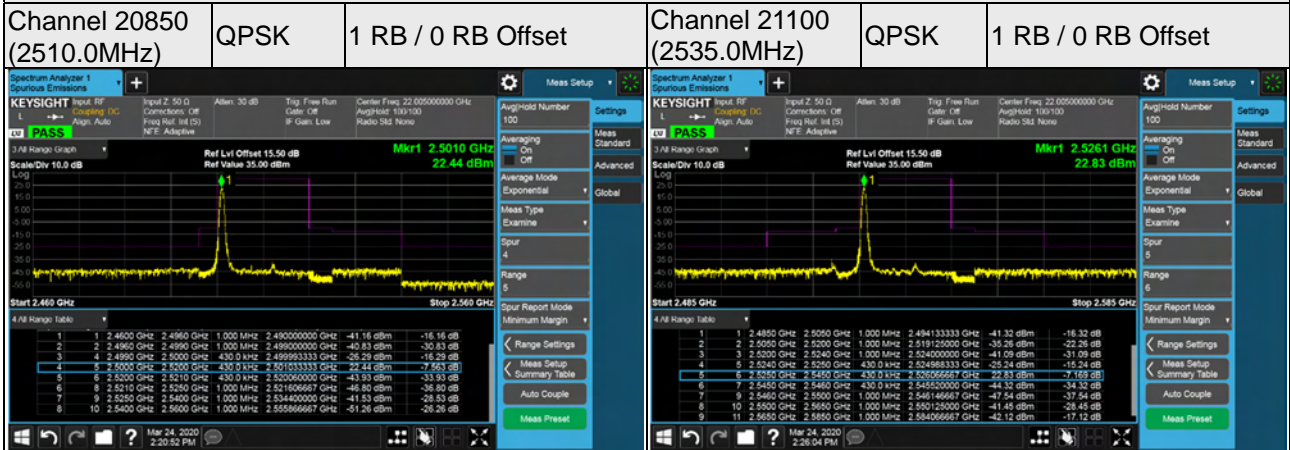
Channel 21375 (2562.5MHz) QPSK 1 RB / 74 RB Offset



Channel 21375 (2562.5MHz) QPSK 75 RB / 0 RB Offset

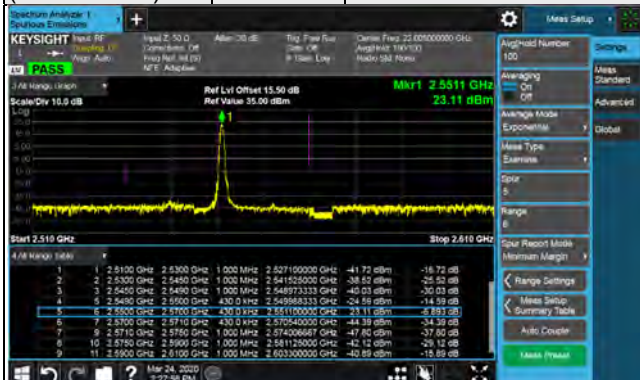


Channel Bandwidth: 20MHz

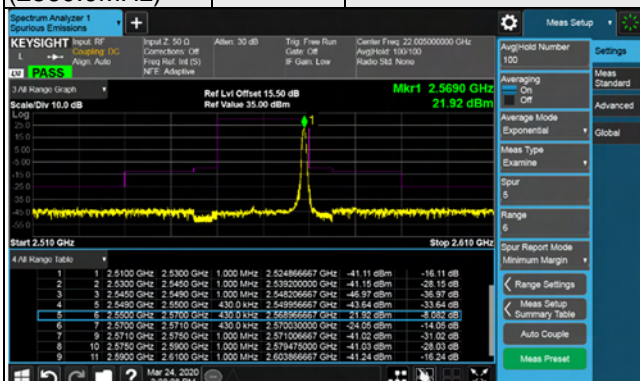


Channel Bandwidth: 20MHz

Channel 21350 (2560.0MHz) QPSK 1 RB / 0 RB Offset



Channel 21350 (2560.0MHz) QPSK 1 RB / 99 RB Offset



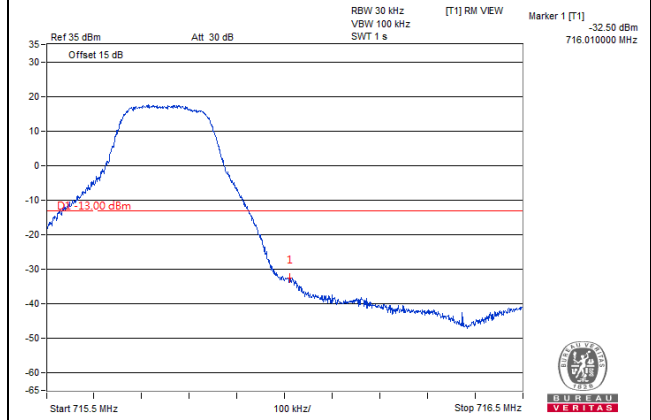
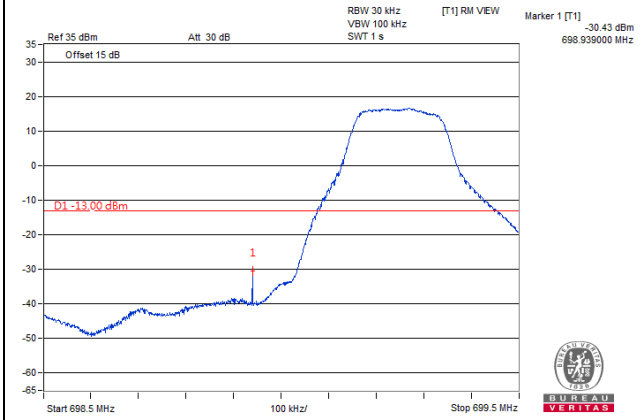
Channel 21350 (2560.0MHz) QPSK 100 RB / 0 RB Offset



LTE Band 12

Channel Bandwidth: 1.4MHz

Channel 23017 (699.7MHz)	QPSK	1 RB / 0 RB Offset	Channel 23173 (715.3MHz)	QPSK	1 RB / 5 RB Offset
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Channel 23017 (699.7MHz)	QPSK	6 RB / 0 RB Offset	Channel 23173 (715.3MHz)	QPSK	6 RB / 0 RB Offset
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