FCC Test Report
(Part 27)

Report No.:	RF200109E02B-2
FCC ID:	2AQ68T99W175
Test Model:	T99W175
Received Date:	Jan. 10, 2020
Test Date:	May 05 ~ May 18, 2020
Issued Date:	May 21, 2020
Applicant:	Hon Lin Technology Co., Ltd.
Address:	11F, No. 32, Jihu Rd., Neihu Dist., Taipei City 114, Taiwan R.O.C.
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Lin Kou Laboratories
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan
Test Location:	No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, Taiwan
FCC Registration / Designation Number:	788550 / TW0003

Testing Laboratory
2021

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Release Control Record

Issue No.	Description	Date Issued
RF200109E02B-2	Original release	May 21, 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:	May 05 ~ May 18, 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 21, 2020

Pettie Chen / Senior Specialist

Approved by : Bruce Chen , **Date:** May 21, 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 -4.9dB at 49.37MHz.

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, 256QAM		
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	256QAM
	LTE Band 4	Channel Bandwidth 1.4MHz	636.796mW (28.04dBm)	542.001mW (27.34dBm)	404.576mW (26.07dBm)	358.922mW (25.55dBm)
		Channel Bandwidth 3MHz	645.654mW (28.10dBm)	576.766mW (27.61dBm)	410.204mW (26.13dBm)	358.096mW (25.54dBm)
		Channel Bandwidth 5MHz	668.344mW (28.25dBm)	549.541mW (27.40dBm)	413.048mW (26.16dBm)	359.749mW (25.56dBm)
		Channel Bandwidth 10MHz	639.735mW (28.06dBm)	583.445mW (27.66dBm)	426.580mW (26.30dBm)	352.371mW (25.47dBm)
		Channel Bandwidth 15MHz	623.735mW (27.95dBm)	552.077mW (27.42dBm)	428.549mW (26.32dBm)	358.922mW (25.55dBm)
		Channel Bandwidth 20MHz	628.058mW (27.98dBm)	557.186mW (27.46dBm)	428.549mW (26.32dBm)	356.451mW (25.52dBm)
	LTE Band 7	Channel Bandwidth 5MHz	724.436mW (28.60dBm)	601.174mW (27.79dBm)	533.335mW (27.27dBm)	463.447mW (26.66dBm)
		Channel Bandwidth 10MHz	734.514mW (28.66dBm)	602.560mW (27.80dBm)	544.503mW (27.36dBm)	473.151mW (26.75dBm)
		Channel Bandwidth 15MHz	731.139mW (28.64dBm)	651.628mW (28.14dBm)	534.564mW (27.28dBm)	462.381mW (26.65dBm)
		Channel Bandwidth 20MHz	734.514mW (28.66dBm)	622.300mW (27.94dBm)	537.032mW (27.30dBm)	458.142mW (26.61dBm)
	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)	134.896 mW/ 5MHz (21.3dBm/ 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)	138.038 mW/5MHz (21.4dBm/ 5MHz)
	LTE Band 38	Channel Bandwidth 5MHz	751.623mW (28.76dBm)	654.636mW (28.16dBm)	527.230mW (27.22dBm)	426.580mW (26.30dBm)
		Channel Bandwidth 10MHz	755.092mW (28.78dBm)	662.217mW (28.21dBm)	550.808mW (27.41dBm)	444.631mW (26.48dBm)
		Channel Bandwidth 15MHz	767.361mW (28.85dBm)	665.273mW (28.23dBm)	545.758mW (27.37dBm)	429.536mW (26.33dBm)
		Channel Bandwidth 20MHz	767.361mW (28.85dBm)	687.068mW (28.37dBm)	558.470mW (27.47dBm)	428.549mW (26.32dBm)
	LTE Band 41	Channel Bandwidth 5MHz	1570.363mW (31.96dBm)	1367.729mW (31.36dBm)	1169.499mW (30.68dBm)	974.990mW (29.89dBm)
		Channel Bandwidth 10MHz	1555.966mW (31.92dBm)	1361.445mW (31.34dBm)	1261.828mW (31.01dBm)	1044.720mW (30.19dBm)
		Channel Bandwidth 15MHz	1581.248mW (31.99dBm)	1339.677mW (31.27dBm)	1276.439mW (31.06dBm)	1051.962mW (30.22dBm)
		Channel Bandwidth 20MHz	1595.879mW (32.03dBm)	1358.313mW (31.33dBm)	1445.440mW (31.60dBm)	1116.863mW (30.48dBm)

			QPSK	16QAM	64QAM	256QAM
Max. EIRP Power	LTE Band 66	Channel Bandwidth 1.4MHz	587.489mW (27.69dBm)	521.195mW (27.17dBm)	414.000mW (26.17dBm)	344.350mW (25.37dBm)
		Channel Bandwidth 3MHz	601.174mW (27.79dBm)	528.445mW (27.23dBm)	421.697mW (26.25dBm)	352.371mW (25.47dBm)
		Channel Bandwidth 5MHz	612.350mW (27.87dBm)	514.044mW (27.11dBm)	415.911mW (26.19dBm)	353.183mW (25.48dBm)
		Channel Bandwidth 10MHz	592.925mW (27.73dBm)	548.277mW (27.39dBm)	433.511mW (26.37dBm)	346.737mW (25.40dBm)
		Channel Bandwidth 15MHz	618.016mW (27.91dBm)	547.016mW (27.38dBm)	438.531mW (26.42dBm)	341.193mW (25.33dBm)
		Channel Bandwidth 20MHz	623.735mW (27.95dBm)	554.626mW (27.44dBm)	404.576mW (26.07dBm)	330.370mW (25.19dBm)
Max. ERP Power			QPSK	16QAM	64QAM	256QAM
	LTE Band 12	Channel Bandwidth 1.4MHz	410.204mW (26.13dBm)	362.243mW (25.59dBm)	261.216mW (24.17dBm)	229.087mW (23.60dBm)
		Channel Bandwidth 3MHz	417.830mW (26.21dBm)	339.625mW (25.31dBm)	263.027mW (24.20dBm)	231.739mW (23.65dBm)
		Channel Bandwidth 5MHz	414.000mW (26.17dBm)	370.681mW (25.69dBm)	266.686mW (24.26dBm)	219.280mW (23.41dBm)
		Channel Bandwidth 10MHz	431.519mW (26.35dBm)	349.945mW (25.44dBm)	277.971mW (24.44dBm)	229.615mW (23.61dBm)
	LTE Band 13	Channel Bandwidth 5MHz	435.512mW (26.39dBm)	385.478mW (25.86dBm)	263.633mW (24.21dBm)	226.986mW (23.56dBm)
		Channel Bandwidth 10MHz	437.522mW (26.41dBm)	395.367mW (25.97dBm)	268.534mW (24.29dBm)	235.505mW (23.72dBm)
	LTE Band 17	Channel Bandwidth 5MHz	418.794mW (26.22dBm)	395.367mW (25.87dBm)	262.422mW (24.19dBm)	221.820mW (23.46dBm)
		Channel Bandwidth 10MHz	423.643mW (26.27dBm)	355.631mW (25.51dBm)	258.821mW (24.13dBm)	223.357mW (23.49dBm)
	LTE Band 71	Channel Bandwidth 5MHz	372.392mW (25.71dBm)	332.660mW (25.22dBm)	260.615mW (24.16dBm)	222.844mW (23.48dBm)
		Channel Bandwidth 10MHz	369.828mW (25.68dBm)	350.752mW (25.45dBm)	260.615mW (24.16dBm)	217.771mW (23.38dBm)
		Channel Bandwidth 15MHz	395.367mW (25.97dBm)	249.945mW (25.44dBm)	271.644mW (24.34dBm)	207.970mW (23.18dBm)
		Channel Bandwidth 20MHz	395.367mW (25.97dBm)	328.851mW (25.17dBm)	260.016mW (24.15dBm)	208.930mW (23.20dBm)

Emission Designator	WCDMA Band 4		4M16F9W			
			QPSK	16QAM	64QAM	256QAM
	LTE Band 4	Channel Bandwidth 1.4MHz	1M09G7D	1M09D7W	1M09D7W	1M09D7W
		Channel Bandwidth 3MHz	2M70G7D	2M70D7W	2M70D7W	2M70D7W
		Channel Bandwidth 5MHz	4M49G7D	4M49D7W	4M49D7W	4M49D7W
		Channel Bandwidth 10MHz	8M96G7D	8M97D7W	8M96D7W	8M98D7W
		Channel Bandwidth 15MHz	13M5G7D	13M5D7W	13M4D7W	13M5D7W
		Channel Bandwidth 20MHz	17M9G7D	18M0D7W	18M0D7W	18M0D7W
	LTE Band 7	Channel Bandwidth 5MHz	4M49G7D	4M49D7W	4M49D7W	4M49D7W
		Channel Bandwidth 10MHz	8M96G7D	8M96D7W	8M95D7W	8M97D7W
		Channel Bandwidth 15MHz	13M5G7D	13M4D7W	13M4D7W	13M5D7W
		Channel Bandwidth 20MHz	17M9G7D	17M9D7W	17M9D7W	17M9D7W
	LTE Band 12	Channel Bandwidth 1.4MHz	1M09G7D	1M09D7W	1M09D7W	1M09D7W
		Channel Bandwidth 3MHz	2M70G7D	2M69D7W	2M70D7W	2M70D7W
		Channel Bandwidth 5MHz	4M49G7D	4M49D7W	4M49D7W	4M49D7W
		Channel Bandwidth 10MHz	8M96G7D	8M96D7W	8M95D7W	8M98D7W
	LTE Band 13	Channel Bandwidth 5MHz	4M49G7D	4M50D7W	4M50D7W	4M51D7W
		Channel Bandwidth 10MHz	8M97G7D	8M94D7W	8M94D7W	8M98D7W
	LTE Band 17	Channel Bandwidth 5MHz	4M49G7D	4M49D7W	4M49D7W	4M48D7W
		Channel Bandwidth 10MHz	8M95G7D	8M95D7W	8M94D7W	8M95D7W
	LTE Band 30	Channel Bandwidth 5MHz	4M49G7D	4M49D7W	4M49D7W	4M49D7W
		Channel Bandwidth 10MHz	8M96G7D	8M96D7W	8M95D7W	8M97D7W
	LTE Band 38	Channel Bandwidth 5MHz	4M49G7D	4M49D7W	4M49D7W	4M49D7W
		Channel Bandwidth 10MHz	8M96G7D	8M96D7W	8M97D7W	8M96D7W
		Channel Bandwidth 15MHz	13M5G7D	13M4D7W	13M4D7W	13M4D7W
		Channel Bandwidth 20MHz	17M9G7D	17M9D7W	17M9D7W	17M9D7W
	LTE Band 41	Channel Bandwidth 5MHz	4M49G7D	4M49D7W	4M49D7W	4M49D7W
		Channel Bandwidth 10MHz	8M96G7D	8M97D7W	8M96D7W	8M96D7W
		Channel Bandwidth 15MHz	13M5G7D	13M4D7W	13M4D7W	13M4D7W
		Channel Bandwidth 20MHz	17M9G7D	17M9D7W	17M9D7W	17M9D7W
	LTE Band 66	Channel Bandwidth 1.4MHz	1M09G7D	1M09D7W	1M09D7W	1M09D7W
		Channel Bandwidth 3MHz	2M70G7D	2M70D7W	2M70D7W	2M70D7W
		Channel Bandwidth 5MHz	4M49G7D	4M49D7W	4M49D7W	4M49D7W
		Channel Bandwidth 10MHz	8M96G7D	8M96D7W	8M95D7W	8M98D7W
		Channel Bandwidth 15MHz	13M5G7D	13M5D7W	13M5D7W	13M5D7W
		Channel Bandwidth 20MHz	18M0G7D	18M0D7W	18M0D7W	18M0D7W
	LTE Band 71	Channel Bandwidth 5MHz	4M49G7D	4M49D7W	4M50D7W	4M49D7W
		Channel Bandwidth 10MHz	8M97G7D	8M97D7W	8M97D7W	8M98D7W
		Channel Bandwidth 15MHz	13M5G7D	13M5D7W	13M4D7W	13M5D7W
		Channel Bandwidth 20MHz	17M9G7D	17M9D7W	17M9D7W	17M9D7W
Antenna Type	Refer to Note as below					
Antenna Connector	Refer to Note as below					
Accessory Device	NA					
Cable Supplied	NA					

Note:

1. This report is prepared for FCC class II permissive change. This report is issued as a supplementary report of BV CPS report no.: RF200109E02-2. Difference compared with the original report is adding Modulation Type 256QAM by software. Therefore, the EUT was tested all tests for 256QAM and presented in the test report.
2. 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.

3. 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

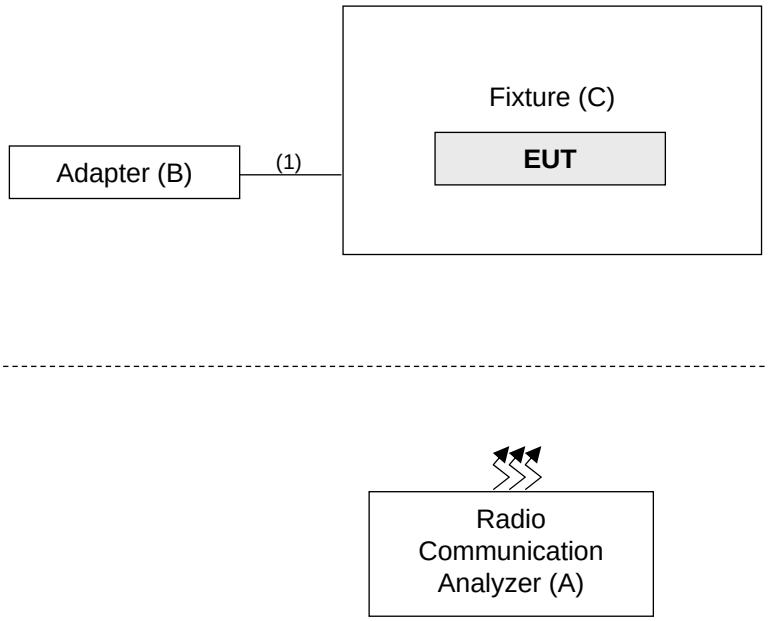
Antenna No.	RF Chain No.	Brand	Model	Antenna Net Gain(dBi)	Frequency range (MHz)	Antenna Type	Connector Type
13	Tx1/ Rx1	Ethertronics	5003806	0.4 -1.61 0.39 2.95 1.98 0.38 0.83 2.31	698-821 824-960 1425-1515 1710-2200 2300-2690 3300-4200 4400-5000 5150-5925	PIFA	I-PEX
	Rx2	Ethertronics	5003807	-2.24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



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.

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	256QAM	1 RB / 0 RB Offset 1 RB / 2 RB Offset 1 RB / 5 RB Offset 3 RB / 0 RB Offset 3 RB / 1 RB Offset 3 RB / 3 RB Offset 6 RB / 0 RB Offset
		19965 to 20385	19965(1711.5MHz), 20175(1732.5MHz), 20385(1753.5MHz)	3MHz	256QAM	1 RB / 0 RB Offset 1 RB / 7 RB Offset 1 RB / 14 RB Offset 8 RB / 0 RB Offset 8 RB / 3 RB Offset 8 RB / 7 RB Offset 15 RB / 0 RB Offset
		19975 to 20375	19975(1712.5MHz), 20175(1732.5MHz), 20375(1752.5MHz)	5MHz	256QAM	1 RB / 0 RB Offset 1 RB / 12 RB Offset 1 RB / 24 RB Offset 12 RB / 0 RB Offset 12 RB / 6 RB Offset 12 RB / 13 RB Offset 25 RB / 0 RB Offset
		20000 to 20350	20000(1715.0MHz), 20175(1732.5MHz), 20350(1750.0MHz)	10MHz	256QAM	1 RB / 0 RB Offset 1 RB / 24 RB Offset 1 RB / 49 RB Offset 25 RB / 0 RB Offset 25 RB / 12 RB Offset 25 RB / 25 RB Offset 50 RB / 0 RB Offset
		20025 to 20325	20025(1717.5MHz), 20175(1732.5MHz), 20325(1747.5MHz)	15MHz	256QAM	1 RB / 0 RB Offset 1 RB / 37 RB Offset 1 RB / 74 RB Offset 36 RB / 0 RB Offset 36 RB / 19 RB Offset 36 RB / 39 RB Offset 75 RB / 0 RB Offset
		20050 to 20300	20050(1720.0MHz), 20175(1732.5MHz), 20300(1745.0MHz)	20MHz	256QAM	1 RB / 0 RB Offset 1 RB / 50 RB Offset 1 RB / 99 RB Offset 50 RB / 0 RB Offset 50 RB / 25 RB Offset 50 RB / 50 RB Offset 100 RB / 0 RB Offset
-	Modulation Characteristics	20050 to 20300	20175(1732.5MHz)	20MHz	256QAM	100 RB / 0 RB Offset
-	Frequency Stability	19957 to 20393	19957(1710.7MHz), 20393(1754.3MHz)	1.4MHz	256QAM	6 RB / 0 RB Offset
		19965 to 20385	19965(1711.5MHz), 20385(1753.5MHz)	3MHz	256QAM	15 RB / 0 RB Offset
		19975 to 20375	19975(1712.5MHz), 20375(1752.5MHz)	5MHz	256QAM	25 RB / 0 RB Offset
		20000 to 20350	20000(1715.0MHz), 20350(1750.0MHz)	10MHz	256QAM	50 RB / 0 RB Offset
		20025 to 20325	20025(1717.5MHz), 20325(1747.5MHz)	15MHz	256QAM	75 RB / 0 RB Offset
		20050 to 20300	20050(1720.0MHz), 20300(1745.0MHz)	20MHz	256QAM	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	256QAM	6 RB / 0RB Offset
		19965 to 20385	19965(1711.5MHz), 20175(1732.5MHz), 20385(1753.5MHz)	3MHz	256QAM	15 RB / 0RB Offset
		19975 to 20375	19975(1712.5MHz), 20175(1732.5MHz), 20375(1752.5MHz)	5MHz	256QAM	25RB / 0RB Offset
		20000 to 20350	20000(1715.0MHz), 20175(1732.5MHz), 20350(1750.0MHz)	10MHz	256QAM	50RB / 0RB Offset
		20025 to 20325	20025(1717.5MHz), 20175(1732.5MHz), 20325(1747.5MHz)	15MHz	256QAM	75 RB / 0 RB Offset
		20050 to 20300	20050(1720.0MHz), 20175(1732.5MHz), 20300(1745.0MHz)	20MHz	256QAM	100 RB / 0 RB Offset
-	Band Edge	19957 to 20393	19957(1710.7MHz), 20393(1754.3MHz)	1.4MHz	256QAM	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	256QAM	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	256QAM	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	256QAM	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	256QAM	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	256QAM	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	256QAM	1 RB / 0 RB Offset
		19965 to 20385	19965(1711.5MHz), 20175(1732.5MHz), 20385(1753.5MHz)	3MHz	256QAM	1 RB / 0 RB Offset
		19975 to 20375	19975(1712.5MHz), 20175(1732.5MHz), 20375(1752.5MHz)	5MHz	256QAM	1 RB / 0 RB Offset
		20000 to 20350	20000(1715.0MHz), 20175(1732.5MHz), 20350(1750.0MHz)	10MHz	256QAM	1 RB / 0 RB Offset
		20025 to 20325	20025(1717.5MHz), 20175(1732.5MHz), 20325(1747.5MHz)	15MHz	256QAM	1 RB / 0 RB Offset
		20050 to 20300	20050(1720.0MHz), 20175(1732.5MHz), 20300(1745.0MHz)	20MHz	256QAM	1 RB / 0 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	256QAM	1 RB / 0 RB Offset
		19965 to 20385	19965(1711.5MHz), 20175(1732.5MHz), 20385(1753.5MHz)	3MHz	256QAM	1 RB / 0 RB Offset
		19975 to 20375	19975(1712.5MHz), 20175(1732.5MHz), 20375(1752.5MHz)	5MHz	256QAM	1 RB / 0 RB Offset
		20000 to 20350	20000(1715.0MHz), 20175(1732.5MHz), 20350(1750.0MHz)	10MHz	256QAM	1 RB / 0 RB Offset
		20025 to 20325	20025(1717.5MHz), 20175(1732.5MHz), 20325(1747.5MHz)	15MHz	256QAM	1 RB / 0 RB Offset
		20050 to 20300	20050(1720.0MHz), 20175(1732.5MHz), 20300(1745.0MHz)	20MHz	256QAM	1 RB / 0 RB Offset
-	Radiated Emission Below 1GHz	19957 to 20393	20175(1732.5MHz)	1.4MHz	256QAM	1 RB / 0 RB Offset
-	Radiated Emission Above 1GHz	19957 to 20393	19957(1710.7MHz), 20175(1732.5MHz), 20393(1754.3MHz)	1.4MHz	256QAM	1 RB / 0 RB Offset
		19975 to 20375	19975(1712.5MHz), 20175(1732.5MHz), 20375(1752.5MHz)	5MHz	256QAM	1 RB / 0 RB Offset
		20050 to 20300	20050(1720.0MHz), 20175(1732.5MHz), 20300(1745.0MHz)	20MHz	256QAM	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 lowest, 5MHz & highest channel bandwidth for final test.

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	256QAM	1 RB / 0 RB Offset 1 RB / 12 RB Offset 1 RB / 24 RB Offset 12 RB / 0 RB Offset 12 RB / 6 RB Offset 12 RB / 13 RB Offset 25 RB / 0 RB Offset
		20800 to 21400	20800 (2505.0MHz), 21100 (2535.0MHz), 21400 (2565.0MHz)	10 MHz	256QAM	1 RB / 0 RB Offset 1 RB / 24 RB Offset 1 RB / 49 RB Offset 25 RB / 0 RB Offset 25 RB / 12 RB Offset 25 RB / 25 RB Offset 50 RB / 0 RB Offset
		20825 to 21375	20825 (2507.5MHz), 21100 (2535.0MHz), 21375 (2562.5MHz)	15 MHz	256QAM	1 RB / 0 RB Offset 1 RB / 37 RB Offset 1 RB / 74 RB Offset 36 RB / 0 RB Offset 36 RB / 19 RB Offset 36 RB / 39 RB Offset 75 RB / 0 RB Offset
		20850 to 21350	20850 (2510.0MHz), 21100 (2535.0MHz), 21350 (2560.0MHz)	20 MHz	256QAM	1 RB / 0 RB Offset 1 RB / 50 RB Offset 1 RB / 99 RB Offset 50 RB / 0 RB Offset 50 RB / 25 RB Offset 50 RB / 50 RB Offset 100 RB / 0 RB Offset
-	Modulation Characteristics	20850 to 21350	21100 (2535.0MHz)	20MHz	256QAM	100 RB / 0 RB Offset
-	Frequency Stability	20775 to 21425	20775 (2502.5MHz), 21425 (2567.5MHz)	5 MHz	256QAM	25 RB / 0 RB Offset
		20800 to 21400	20800 (2505.0MHz), 21400 (2565.0MHz)	10 MHz	256QAM	50 RB / 0 RB Offset
		20825 to 21375	20825 (2507.5MHz), 21375 (2562.5MHz)	15 MHz	256QAM	75 RB / 0 RB Offset
		20850 to 21350	20850 (2510.0MHz), 21350 (2560.0MHz)	20 MHz	256QAM	100 RB / 0 RB Offset
-	Emission Bandwidth	20775 to 21425	20775 (2502.5MHz), 21100 (2535.0MHz), 21425 (2567.5MHz)	5 MHz	256QAM	25 RB / 0 RB Offset
		20800 to 21400	20800 (2505.0MHz), 21100 (2535.0MHz), 21400 (2565.0MHz)	10 MHz	256QAM	50 RB / 0 RB Offset
		20825 to 21375	20825 (2507.5MHz), 21100 (2535.0MHz), 21375 (2562.5MHz)	15 MHz	256QAM	75 RB / 0 RB Offset
		20850 to 21350	20850 (2510.0MHz), 21100 (2535.0MHz), 21350 (2560.0MHz)	20 MHz	256QAM	100 RB / 0 RB Offset
-	Emission Mask	20775 to 21425	20775 (2502.5MHz), 21100 (2535.0MHz), 21425 (2567.5MHz)	5 MHz	256QAM	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	256QAM	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	256QAM	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	256QAM	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	256QAM	1 RB / 0 RB Offset
		20800 to 21400	20800 (2505.0MHz), 21100 (2535.0MHz), 21400 (2565.0MHz)	10 MHz	256QAM	1 RB / 0 RB Offset
		20825 to 21375	20825 (2507.5MHz), 21100 (2535.0MHz), 21375 (2562.5MHz)	15 MHz	256QAM	1 RB / 0 RB Offset
		20850 to 21350	20850 (2510.0MHz), 21100 (2535.0MHz), 21350 (2560.0MHz)	20 MHz	256QAM	1 RB / 0 RB Offset
-	Conducted Emission	20775 to 21425	20775 (2502.5MHz), 21100 (2535.0MHz), 21425 (2567.5MHz)	5 MHz	256QAM	1 RB / 0 RB Offset
		20800 to 21400	20800 (2505.0MHz), 21100 (2535.0MHz), 21400 (2565.0MHz)	10 MHz	256QAM	1 RB / 0 RB Offset
		20825 to 21375	20825 (2507.5MHz), 21100 (2535.0MHz), 21375 (2562.5MHz)	15 MHz	256QAM	1 RB / 0 RB Offset
		20850 to 21350	20850 (2510.0MHz), 21100 (2535.0MHz), 21350 (2560.0MHz)	20 MHz	256QAM	1 RB / 0 RB Offset
-	Radiated Emission Below 1GHz	20850 to 21350	21350 (2560.0MHz)	20MHz	256QAM	1 RB / 0 RB Offset
-	Radiated Emission Above 1GHz	20775 to 21425	20775 (2502.5MHz), 21100 (2535.0MHz), 21425 (2567.5MHz)	5MHz	256QAM	1 RB / 0 RB Offset
		20850 to 21350	20850 (2510.0MHz), 21100 (2535.0MHz), 21350 (2560.0MHz)	20MHz	256QAM	1 RB / 0 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	256QAM	1 RB / 0 RB Offset 1 RB / 2 RB Offset 1 RB / 5 RB Offset 3 RB / 0 RB Offset 3 RB / 1 RB Offset 3 RB / 3 RB Offset 6 RB / 0 RB Offset
		23025 to 23165	23025(700.5MHz), 23095(707.5MHz), 23165(714.5MHz)	3MHz	256QAM	1 RB / 0 RB Offset 1 RB / 7 RB Offset 1 RB / 14 RB Offset 8 RB / 0 RB Offset 8 RB / 3 RB Offset 8 RB / 7 RB Offset 15 RB / 0 RB Offset
		23035 to 23155	23035(701.5MHz), 23095(707.5MHz), 23155(713.5MHz)	5MHz	256QAM	1 RB / 0 RB Offset 1 RB / 12 RB Offset 1 RB / 24 RB Offset 12 RB / 0 RB Offset 12 RB / 6 RB Offset 12 RB / 13 RB Offset 25 RB / 0 RB Offset
		23060 to 23130	23060(704.0MHz), 23095(707.5 MHz), 23130(711.0 MHz)	10MHz	256QAM	1 RB / 0 RB Offset 1 RB / 24 RB Offset 1 RB / 49 RB Offset 25 RB / 0 RB Offset 25 RB / 12 RB Offset 25 RB / 25 RB Offset 50 RB / 0 RB Offset
-	Modulation Characteristics	23060 to 23130	23095(707.5MHz)	10MHz	256QAM	50 RB / 0 RB Offset
-	Frequency Stability	23017 to 23173	23017(699.7MHz), 23173(715.3MHz)	1.4MHz	256QAM	6 RB / 0 RB Offset
		23025 to 23165	23025(700.5MHz), 23165(714.5MHz)	3MHz	256QAM	15 RB / 0 RB Offset
		23035 to 23155	23035(701.5MHz), 23155(713.5MHz)	5MHz	256QAM	25 RB / 0 RB Offset
		23060 to 23130	23060(704.0MHz), 23130(711.0MHz)	10MHz	256QAM	50 RB / 0 RB Offset
-	Emission Bandwidth	23017 to 23173	23017(699.7MHz), 23095(707.5MHz), 23173(715.3MHz)	1.4MHz	256QAM	6 RB / 0 RB Offset
		23025 to 23165	23025(700.5MHz), 23095(707.5MHz), 23165(714.5MHz)	3MHz	256QAM	15 RB / 0 RB Offset
		23035 to 23155	23035(701.5MHz), 23095(707.5MHz), 23155(713.5MHz)	5MHz	256QAM	25 RB / 0 RB Offset
		23060 to 23130	23060(704.0MHz), 23095(707.5MHz), 23130(711.0MHz)	10MHz	256QAM	50 RB / 0 RB Offset
-	Band Edge	23017 to 23173	23017(699.7MHz), 23173(715.3MHz)	1.4MHz	256QAM	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	256QAM	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	256QAM	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	256QAM	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	256QAM	1 RB / 0 RB Offset
		23025 to 23165	23025(700.5MHz), 23095(707.5MHz), 23165(714.5MHz)	3MHz	256QAM	1 RB / 0 RB Offset
		23035 to 23155	23035(701.5MHz), 23095(707.5MHz), 23155(713.5MHz)	5MHz	256QAM	1 RB / 0 RB Offset
		23060 to 23130	23060(704.0MHz), 23095(707.5MHz), 23130(711.0MHz)	10MHz	256QAM	1 RB / 0 RB Offset
-	Conducted Emission	23017 to 23173	23017(699.7MHz), 23095(707.5MHz), 23173(715.3MHz)	1.4MHz	256QAM	1 RB / 0 RB Offset
		23025 to 23165	23025(700.5MHz), 23095(707.5MHz), 23165(714.5MHz)	3MHz	256QAM	1 RB / 0 RB Offset
		23035 to 23155	23035(701.5MHz), 23095(707.5MHz), 23155(713.5MHz)	5MHz	256QAM	1 RB / 0 RB Offset
		23060 to 23130	23060(704.0MHz), 23095(707.5MHz), 23130(711.0MHz)	10MHz	256QAM	1 RB / 0 RB Offset
-	Radiated Emission Below 1GHz	23017 to 23173	23095(707.5MHz)	1.4MHz	256QAM	1 RB / 0 RB Offset
-	Radiated Emission Above 1GHz	23017 to 23173	23017(699.7MHz), 23095(707.5MHz), 23173(715.3MHz)	1.4MHz	256QAM	1 RB / 0 RB Offset
		23035 to 23155	23035(701.5MHz), 23095(707.5MHz), 23155(713.5MHz)	5MHz	256QAM	1 RB / 0 RB Offset
		23060 to 23130	23060(704.0MHz), 23095(707.5MHz), 23130(711.0MHz)	10MHz	256QAM	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 1.4MHz & highest channel bandwidth for final test.

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	256QAM	1 RB / 0 RB Offset 1 RB / 12 RB Offset 1 RB / 24 RB Offset 12 RB / 0 RB Offset 12 RB / 6 RB Offset 12 RB / 13 RB Offset 25 RB / 0 RB Offset
		23230	23230(782.0MHz)	10MHz	256QAM	1 RB / 0 RB Offset 1 RB / 24 RB Offset 1 RB / 49 RB Offset 25 RB / 0 RB Offset 25 RB / 12 RB Offset 25 RB / 25 RB Offset 50 RB / 0 RB Offset
-	Modulation Characteristics	23230	23230(782.0MHz),	10MHz	256QAM	50 RB / 0 RB Offset
-	Frequency Stability	23205 to 23255	23205(779.5MHz), 23255(784.5MHz)	5MHz	256QAM	25 RB / 0 RB Offset
		23230	23230(782.0MHz),	10MHz	256QAM	50 RB / 0 RB Offset
-	Emission Bandwidth	23205 to 23255	23205(779.5MHz), 23230(782.0MHz), 23255(784.5MHz)	5MHz	256QAM	25 RB / 0 RB Offset
		23230	23230(782.0MHz)	10MHz	256QAM	50 RB / 0 RB Offset
-	Band Edge	23205 to 23255	23205(779.5MHz), 23255(784.5MHz)	5MHz	256QAM	1 RB / 0 RB Offset 1 RB / 24 RB Offset 25 RB / 0 RB Offset
		23230	23230(782.0MHz)	10MHz	256QAM	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	256QAM	1 RB / 0 RB Offset
		23230	23230(782.0MHz)	10MHz	256QAM	1 RB / 0 RB Offset
-	Conducted Emission	23205 to 23255	23205(779.5MHz), 23230(782.0MHz), 23255(784.5MHz)	5MHz	256QAM	1 RB / 0 RB Offset
		23230	23230(782.0MHz)	10MHz	256QAM	1 RB / 0 RB Offset
-	Radiated Emission Below 1GHz	23205 to 23255	23255(784.5MHz)	5MHz	256QAM	1 RB / 0 RB Offset
-	Radiated Emission Above 1GHz	23205 to 23255	23205(779.5MHz), 23230(782.0MHz), 23255(784.5MHz)	5MHz	256QAM	1 RB / 0 RB Offset
		23230	23230(782.0MHz)	10MHz	256QAM	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.

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	256QAM	1 RB / 0 RB Offset 1 RB / 12 RB Offset 1 RB / 24 RB Offset 12 RB / 0 RB Offset 12 RB / 6 RB Offset 12 RB / 13 RB Offset 25 RB / 0 RB Offset
		23780 to 23800	23780(709.0MHz), 23790(710.0MHz), 23800(711.0MHz)	10MHz	256QAM	1 RB / 0 RB Offset 1 RB / 24 RB Offset 1 RB / 49 RB Offset 25 RB / 0 RB Offset 25 RB / 12 RB Offset 25 RB / 25 RB Offset 50 RB / 0 RB Offset
-	Modulation Characteristics	23780 to 23800	23790(710.0MHz)	10MHz	256QAM	50 RB / 0 RB Offset
-	Frequency Stability	23755 to 23825	23755(706.5MHz), 23825(713.5MHz)	5MHz	256QAM	25 RB / 0 RB Offset
		23780 to 23800	23780(709.0MHz), 23800(711.0MHz)	10MHz	256QAM	50 RB / 0 RB Offset
-	Emission Bandwidth	23755 to 23825	23755(706.5MHz), 23790(710.0MHz), 23825(713.5MHz)	5MHz	256QAM	25 RB / 0 RB Offset
		23780 to 23800	23780(709.0MHz), 23790(710.0MHz), 23800(711.0MHz)	10MHz	256QAM	50 RB / 0 RB Offset
-	Band Edge	23755 to 23825	23755(706.5MHz), 23825(713.5MHz)	5MHz	256QAM	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	256QAM	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	256QAM	1 RB / 0 RB Offset
		23780 to 23800	23780(709.0MHz), 23790(710.0MHz), 23800(711.0MHz)	10MHz	256QAM	1 RB / 0 RB Offset
-	Conducted Emission	23755 to 23825	23755(706.5MHz), 23790(710.0MHz), 23825(713.5MHz)	5MHz	256QAM	1 RB / 0 RB Offset
		23780 to 23800	23780(709.0MHz), 23790(710.0MHz), 23800(711.0MHz)	10MHz	256QAM	1 RB / 0 RB Offset
-	Radiated Emission Below 1GHz	23780 to 23800	23790(710.0MHz)	10MHz	256QAM	1 RB / 0 RB Offset
-	Radiated Emission Above 1GHz	23755 to 23825	23755(706.5MHz), 23790(710.0MHz), 23825(713.5MHz)	5MHz	256QAM	1 RB / 0 RB Offset
		23780 to 23800	23780(709.0MHz), 23790(710.0MHz), 23800(711.0MHz)	10MHz	256QAM	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.

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	256QAM	1 RB / 0 RB Offset 1 RB / 12 RB Offset 1 RB / 24 RB Offset 12 RB / 0 RB Offset 12 RB / 6 RB Offset 12 RB / 13 RB Offset 25 RB / 0 RB Offset
		27710	27710 (2310.0MHz)	10MHz	256QAM	1 RB / 0 RB Offset 1 RB / 24 RB Offset 1 RB / 49 RB Offset 25 RB / 0 RB Offset 25 RB / 12 RB Offset 25 RB / 25 RB Offset 50 RB / 0 RB Offset
-	Modulation Characteristics	27710	27710 (2310.0MHz)	10MHz	256QAM	50 RB / 0 RB Offset
-	Frequency Stability	27685 to 27735	27685 (2307.5MHz), 27735 (2312.5MHz)	5MHz	256QAM	25 RB / 0 RB Offset
		27710	27710 (2310.0MHz)	10MHz	256QAM	50 RB / 0 RB Offset
-	Emission Bandwidth	27685 to 27735	27685 (2307.5MHz), 27710 (2310.0MHz), 27735 (2312.5MHz)	5MHz	256QAM	25 RB / 0 RB Offset
		27710	27710 (2310.0MHz)	10MHz	256QAM	50 RB / 0 RB Offset
-	Emission Mask	27685 to 27735	27685 (2307.5MHz), 27735 (2312.5MHz)	5MHz	256QAM	1 RB / 0 RB Offset 25 RB / 0 RB Offset
		27710	27710 (2310.0MHz)	10MHz	256QAM	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	256QAM	1 RB / 0 RB Offset
		27710	27710 (2310.0MHz)	10MHz	256QAM	1 RB / 0 RB Offset
-	Radiated Emission Below 1GHz	27685 to 27735	27710 (2310.0MHz)	5MHz	256QAM	1 RB / 0 RB Offset
-	Radiated Emission Above 1GHz	27685 to 27735	27685 (2307.5MHz), 27710 (2310.0MHz), 27735 (2312.5MHz)	5MHz	256QAM	1 RB / 0 RB Offset
		27710	27710 (2310.0MHz)	10MHz	256QAM	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	256QAM	1 RB / 0 RB Offset 1 RB / 12 RB Offset 1 RB / 24 RB Offset 12 RB / 0 RB Offset 12 RB / 6 RB Offset 12 RB / 13 RB Offset 25 RB / 0 RB Offset
		37800 to 38200	37800(2575.0MHz), 38000(2595.0MHz), 38200(2615.0MHz)	10MHz	256QAM	1 RB / 0 RB Offset 1 RB / 24 RB Offset 1 RB / 49 RB Offset 25 RB / 0 RB Offset 25 RB / 12 RB Offset 25 RB / 25 RB Offset 50 RB / 0 RB Offset
		37825 to 38175	37825(2577.5MHz), 38000(2595.0MHz), 38175(2612.5MHz)	15MHz	256QAM	1 RB / 0 RB Offset 1 RB / 37 RB Offset 1 RB / 74 RB Offset 36 RB / 0 RB Offset 36 RB / 19 RB Offset 36 RB / 39 RB Offset 75 RB / 0 RB Offset
		37850 to 38150	37850(2580.0MHz), 38000(2595.0MHz), 38150(2610.0MHz)	20MHz	256QAM	1 RB / 0 RB Offset 1 RB / 50 RB Offset 1 RB / 99 RB Offset 50 RB / 0 RB Offset 50 RB / 25 RB Offset 50 RB / 50 RB Offset 100 RB / 0 RB Offset
-	Modulation Characteristics	37850 to 38150	38000(2595.0MHz)	20MHz	256QAM	100 RB / 0 RB Offset
-	Frequency Stability	37775 to 38225	37775(2572.5MHz), 38225(2617.5MHz)	5MHz	256QAM	25 RB / 0 RB Offset
		37800 to 38200	37800(2575.0MHz), 38200(2615.0MHz)	10MHz	256QAM	50 RB / 0 RB Offset
		37825 to 38175	37825(2577.5MHz), 38175(2612.5MHz)	15MHz	256QAM	75 RB / 0 RB Offset
		37850 to 38150	37850(2580.0MHz), 38150(2610.0MHz)	20MHz	256QAM	100 RB / 0 RB Offset
-	Emission Bandwidth	37775 to 38225	37775(2572.5MHz), 38000(2595.0MHz), 38225(2617.5MHz)	5MHz	256QAM	25RB / 0RB Offset
		37800 to 38200	37800(2575.0MHz), 38000(2595.0MHz), 38200(2615.0MHz)	10MHz	256QAM	50RB / 0RB Offset
		37825 to 38175	37825(2577.5MHz), 38000(2595.0MHz), 38175(2612.5MHz)	15MHz	256QAM	75 RB / 0 RB Offset
		37850 to 38150	37850(2580.0MHz), 38000(2595.0MHz), 38150(2610.0MHz)	20MHz	256QAM	100 RB / 0 RB Offset
-	Band Edge	37775 to 38225	37775(2572.5MHz), 38000(2595.0MHz), 38225(2617.5MHz)	5MHz	256QAM	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	256QAM	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	256QAM	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	256QAM	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	256QAM	1 RB / 0 RB Offset
		37800 to 38200	37800(2575.0MHz), 38000(2595.0MHz), 38200(2615.0MHz)	10MHz	256QAM	1 RB / 0 RB Offset
		37825 to 38175	37825(2577.5MHz), 38000(2595.0MHz), 38175(2612.5MHz)	15MHz	256QAM	1 RB / 0 RB Offset
		37850 to 38150	37850(2580.0MHz), 38000(2595.0MHz), 38150(2610.0MHz)	20MHz	256QAM	1 RB / 0 RB Offset
-	Conducted Emission	37775 to 38225	37775(2572.5MHz), 38000(2595.0MHz), 38225(2617.5MHz)	5MHz	256QAM	1 RB / 0 RB Offset
		37800 to 38200	37800(2575.0MHz), 38000(2595.0MHz), 38200(2615.0MHz)	10MHz	256QAM	1 RB / 0 RB Offset
		37825 to 38175	37825(2577.5MHz), 38000(2595.0MHz), 38175(2612.5MHz)	15MHz	256QAM	1 RB / 0 RB Offset
		37850 to 38150	37850(2580.0MHz), 38000(2595.0MHz), 38150(2610.0MHz)	20MHz	256QAM	1 RB / 0 RB Offset
-	Radiated Emission Below 1GHz	37850 to 38150	38000(2595.0MHz)	20MHz	256QAM	1 RB / 0 RB Offset
-	Radiated Emission Above 1GHz	37775 to 38225	37775(2572.5MHz), 38000(2595.0MHz), 38225(2617.5MHz)	5MHz	256QAM	1 RB / 0 RB Offset
		37850 to 38150	37850(2580.0MHz), 38000(2595.0MHz), 38150(2610.0MHz)	20MHz	256QAM	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.

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	256QAM	1 RB / 0 RB Offset 1 RB / 12 RB Offset 1 RB / 24 RB Offset 12 RB / 0 RB Offset 12 RB / 6 RB Offset 12 RB / 13 RB Offset 25 RB / 0 RB Offset
		39700 to 41540	39700 (2501.0MHz), 40620 (2593.0MHz), 41540 (2685.0MHz)	10MHz	256QAM	1 RB / 0 RB Offset 1 RB / 24 RB Offset 1 RB / 49 RB Offset 25 RB / 0 RB Offset 25 RB / 12 RB Offset 25 RB / 25 RB Offset 50 RB / 0 RB Offset
		39725 to 41515	39725 (2503.5MHz), 40620 (2593.0MHz), 41515 (2682.5MHz)	15MHz	256QAM	1 RB / 0 RB Offset 1 RB / 37 RB Offset 1 RB / 74 RB Offset 36 RB / 0 RB Offset 36 RB / 19 RB Offset 36 RB / 39 RB Offset 75 RB / 0 RB Offset
		39750 to 41490	39750 (2506.0MHz), 40620 (2593.0MHz), 41490 (2680.0MHz)	20MHz	256QAM	1 RB / 0 RB Offset 1 RB / 50 RB Offset 1 RB / 99 RB Offset 50 RB / 0 RB Offset 50 RB / 25 RB Offset 50 RB / 50 RB Offset 100 RB / 0 RB Offset
-	Modulation Characteristics	39750 to 41490	40620 (2593.0MHz)	20MHz	256QAM	100 RB / 0 RB Offset
-	Frequency Stability	39675 to 41565	39675 (2498.5MHz), 41565 (2687.5MHz)	5MHz	256QAM	25 RB / 0 RB Offset
		39700 to 41540	39700 (2501.0MHz), 41540 (2685.0MHz)	10MHz	256QAM	50 RB / 0 RB Offset
		39725 to 41515	39725 (2503.5MHz), 41515 (2682.5MHz)	15MHz	256QAM	75 RB / 0 RB Offset
		39750 to 41490	39750 (2506.0MHz), 41490 (2680.0MHz)	20MHz	256QAM	100 RB / 0 RB Offset
-	Emission Bandwidth	39675 to 41565	39675 (2498.5MHz), 40620 (2593.0MHz), 41565 (2687.5MHz)	5MHz	256QAM	25RB / 0RB Offset
		39700 to 41540	39700 (2501.0MHz), 40620 (2593.0MHz), 41540 (2685.0MHz)	10MHz	256QAM	50RB / 0RB Offset
		39725 to 41515	39725 (2503.5MHz), 40620 (2593.0MHz), 41515 (2682.5MHz)	15MHz	256QAM	75 RB / 0 RB Offset
		39750 to 41490	39750 (2506.0MHz), 40620 (2593.0MHz), 41490 (2680.0MHz)	20MHz	256QAM	100 RB / 0 RB Offset
-	Band Edge	39675 to 41565	39675 (2498.5MHz), 40620 (2593.0MHz), 41565 (2687.5MHz)	5MHz	256QAM	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	256QAM	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	256QAM	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	256QAM	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	256QAM	1 RB / 0 RB Offset
		39700 to 41540	39700 (2501.0MHz), 40620 (2593.0MHz), 41540 (2685.0MHz)	10MHz	256QAM	1 RB / 0 RB Offset
		39725 to 41515	39725 (2503.5MHz), 40620 (2593.0MHz), 41515 (2682.5MHz)	15MHz	256QAM	1 RB / 0 RB Offset
		39750 to 41490	39750 (2506.0MHz), 40620 (2593.0MHz), 41490 (2680.0MHz)	20MHz	256QAM	1 RB / 0 RB Offset
-	Conducted Emission	39675 to 41565	39675 (2498.5MHz), 40620 (2593.0MHz), 41565 (2687.5MHz)	5MHz	256QAM	1 RB / 0 RB Offset
		39700 to 41540	39700 (2501.0MHz), 40620 (2593.0MHz), 41540 (2685.0MHz)	10MHz	256QAM	1 RB / 0 RB Offset
		39725 to 41515	39725 (2503.5MHz), 40620 (2593.0MHz), 41515 (2682.5MHz)	15MHz	256QAM	1 RB / 0 RB Offset
		39750 to 41490	39750 (2506.0MHz), 40620 (2593.0MHz), 41490 (2680.0MHz)	20MHz	256QAM	1 RB / 0 RB Offset
-	Radiated Emission Below 1GHz	39675 to 41565	40620 (2593.0MHz)	5MHz	256QAM	1 RB / 0 RB Offset
-	Radiated Emission Above 1GHz	39675 to 41565	39675 (2498.5MHz), 40620 (2593.0MHz), 41565 (2687.5MHz)	5MHz	256QAM	1 RB / 0 RB Offset
		39750 to 41490	39750 (2506.0MHz), 40620 (2593.0MHz), 41490 (2680.0MHz)	20MHz	256QAM	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.

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	256QAM	1 RB / 0 RB Offset 1 RB / 2 RB Offset 1 RB / 5 RB Offset 3 RB / 0 RB Offset 3 RB / 1 RB Offset 3 RB / 3 RB Offset 6 RB / 0 RB Offset
		131987 to 132657	131987 (1711.5MHz), 132322 (1745.0MHz), 132657 (1778.5MHz)	3MHz	256QAM	1 RB / 0 RB Offset 1 RB / 7 RB Offset 1 RB / 14 RB Offset 8 RB / 0 RB Offset 8 RB / 3 RB Offset 8 RB / 7 RB Offset 15 RB / 0 RB Offset
		131997 to 132647	131997 (1712.5MHz), 132322 (1745.0MHz), 132647 (1777.5MHz)	5MHz	256QAM	1 RB / 0 RB Offset 1 RB / 12 RB Offset 1 RB / 24 RB Offset 12 RB / 0 RB Offset 12 RB / 6 RB Offset 12 RB / 13 RB Offset 25 RB / 0 RB Offset
		132022 to 132622	132022 (1715.0MHz), 132322 (1745.0MHz), 132622 (1775.0MHz)	10MHz	256QAM	1 RB / 0 RB Offset 1 RB / 24 RB Offset 1 RB / 49 RB Offset 25 RB / 0 RB Offset 25 RB / 12 RB Offset 25 RB / 25 RB Offset 50 RB / 0 RB Offset
		132047 to 132597	132047 (1717.5MHz), 132322 (1745.0MHz), 132597 (1772.5MHz)	15MHz	256QAM	1 RB / 0 RB Offset 1 RB / 37 RB Offset 1 RB / 74 RB Offset 36 RB / 0 RB Offset 36 RB / 19 RB Offset 36 RB / 39 RB Offset 75 RB / 0 RB Offset
		132072 to 132572	132072 (1720.0MHz), 132322 (1745.0MHz), 132572 (1770.0MHz)	20MHz	256QAM	1 RB / 0 RB Offset 1 RB / 50 RB Offset 1 RB / 99 RB Offset 50 RB / 0 RB Offset 50 RB / 25 RB Offset 50 RB / 50 RB Offset 100 RB / 0 RB Offset
-	Modulation Characteristics	132072 to 132572	132322 (1745.0MHz)	20MHz	256QAM	100 RB / 0 RB Offset
-	Frequency Stability	131979 to 132665	131979 (1710.7MHz), 132665 (1779.3MHz)	1.4MHz	256QAM	6 RB / 0 RB Offset
		131987 to 132657	131987 (1711.5MHz), 132657 (1778.5MHz)	3MHz	256QAM	15 RB / 0 RB Offset
		131997 to 132647	131997 (1712.5MHz), 132647 (1777.5MHz)	5MHz	256QAM	25 RB / 0 RB Offset
		132022 to 132622	132022 (1715.0MHz), 132622 (1775.0MHz)	10MHz	256QAM	50 RB / 0 RB Offset
		132047 to 132597	132047 (1717.5MHz), 132597 (1772.5MHz)	15MHz	256QAM	75 RB / 0 RB Offset
		132072 to 132572	132072 (1720.0MHz), 132572 (1770.0MHz)	20MHz	256QAM	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	256QAM	6 RB / 0 RB Offset
		131987 to 132657	131987 (1711.5MHz), 132322 (1745.0MHz), 132657 (1778.5MHz)	3MHz	256QAM	15 RB / 0 RB Offset
		131997 to 132647	131997 (1712.5MHz), 132322 (1745.0MHz), 132647 (1777.5MHz)	5MHz	256QAM	25 RB / 0 RB Offset
		132022 to 132622	132022 (1715.0MHz), 132322 (1745.0MHz), 132622 (1775.0MHz)	10MHz	256QAM	50 RB / 0 RB Offset
		132047 to 132597	132047 (1717.5MHz), 132322 (1745.0MHz), 132597 (1772.5MHz)	15MHz	256QAM	75 RB / 0 RB Offset
		132072 to 132572	132072 (1720.0MHz), 132322 (1745.0MHz), 132572 (1770.0MHz)	20MHz	256QAM	100 RB / 0 RB Offset
-	Band Edge	131979 to 132665	131979 (1710.7MHz), 132665 (1779.3MHz)	1.4MHz	256QAM	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	256QAM	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	256QAM	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	256QAM	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	256QAM	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	256QAM	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	256QAM	1 RB / 0 RB Offset
		131987 to 132657	131987 (1711.5MHz), 132322 (1745.0MHz), 132657 (1778.5MHz)	3MHz	256QAM	1 RB / 0 RB Offset
		131997 to 132647	131997 (1712.5MHz), 132322 (1745.0MHz), 132647 (1777.5MHz)	5MHz	256QAM	1 RB / 0 RB Offset
		132022 to 132622	132022 (1715.0MHz), 132322 (1745.0MHz), 132622 (1775.0MHz)	10MHz	256QAM	1 RB / 0 RB Offset
		132047 to 132597	132047 (1717.5MHz), 132322 (1745.0MHz), 132597 (1772.5MHz)	15MHz	256QAM	1 RB / 0 RB Offset
		132072 to 132572	132072 (1720.0MHz), 132322 (1745.0MHz), 132572 (1770.0MHz)	20MHz	256QAM	1 RB / 0 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	256QAM	1 RB / 0 RB Offset
		131987 to 132657	131987 (1711.5MHz), 132322 (1745.0MHz), 132657 (1778.5MHz)	3MHz	256QAM	1 RB / 0 RB Offset
		131997 to 132647	131997 (1712.5MHz), 132322 (1745.0MHz), 132647 (1777.5MHz)	5MHz	256QAM	1 RB / 0 RB Offset
		132022 to 132622	132022 (1715.0MHz), 132322 (1745.0MHz), 132622 (1775.0MHz)	10MHz	256QAM	1 RB / 0 RB Offset
		132047 to 132597	132047 (1717.5MHz), 132322 (1745.0MHz), 132597 (1772.5MHz)	15MHz	256QAM	1 RB / 0 RB Offset
		132072 to 132572	132072 (1720.0MHz), 132322 (1745.0MHz), 132572 (1770.0MHz)	20MHz	256QAM	1 RB / 0 RB Offset
-	Radiated Emission Below 1GHz	131979 to 132665	131979 (1710.7MHz)	1.4MHz	256QAM	1 RB / 0 RB Offset
-	Radiated Emission Above 1GHz	131979 to 132665	131979 (1710.7MHz), 132322 (1745.0MHz), 132665 (1779.3MHz)	1.4MHz	256QAM	1 RB / 0 RB Offset
		131997 to 132647	131997 (1712.5MHz), 132322 (1745.0MHz), 132647 (1777.5MHz)	5MHz	256QAM	1 RB / 0 RB Offset
		132072 to 132572	132072 (1720.0MHz), 132322 (1745.0MHz), 132572 (1770.0MHz)	20MHz	256QAM	1 RB / 0 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	256QAM	1 RB / 0 RB Offset 1 RB / 12 RB Offset 1 RB / 24 RB Offset 12 RB / 0 RB Offset 12 RB / 6 RB Offset 12 RB / 13 RB Offset 25 RB / 0 RB Offset
		133172 to 133422	133172 (668.0MHz), 133297 (680.5MHz), 133422 (693.0MHz)	10 MHz	256QAM	1 RB / 0 RB Offset 1 RB / 24 RB Offset 1 RB / 49 RB Offset 25 RB / 0 RB Offset 25 RB / 12 RB Offset 25 RB / 25 RB Offset 50 RB / 0 RB Offset
		133197 to 133397	133197 (670.5MHz), 133297 (680.5MHz), 133397 (690.5MHz)	15 MHz	256QAM	1 RB / 0 RB Offset 1 RB / 37 RB Offset 1 RB / 74 RB Offset 36 RB / 0 RB Offset 36 RB / 19 RB Offset 36 RB / 39 RB Offset 75 RB / 0 RB Offset
		133222 to 133372	133222 (673.0MHz), 133297 (680.5MHz), 133372 (688.0MHz)	20 MHz	256QAM	1 RB / 0 RB Offset 1 RB / 50 RB Offset 1 RB / 99 RB Offset 50 RB / 0 RB Offset 50 RB / 25 RB Offset 50 RB / 50 RB Offset 100 RB / 0 RB Offset
-	Modulation Characteristics	133222 to 133372	133297 (680.5MHz)	20 MHz	256QAM	100 RB / 0 RB Offset
-	Frequency Stability	133147 to 133447	133147 (665.5MHz), 133447 (695.5MHz)	5 MHz	256QAM	25 RB / 0 RB Offset
		133172 to 133422	133172 (668.0MHz), 133422 (693.0MHz)	10 MHz	256QAM	50 RB / 0 RB Offset
		133197 to 133397	133197 (670.5MHz), 133397 (690.5MHz)	15 MHz	256QAM	75 RB / 0 RB Offset
		133222 to 133372	133222 (673.0MHz), 133372 (688.0MHz)	20 MHz	256QAM	100 RB / 0 RB Offset
-	Emission Bandwidth	133147 to 133447	133147 (665.5MHz), 133297 (680.5MHz), 133447 (695.5MHz)	5 MHz	256QAM	6 RB / 0 RB Offset
		133172 to 133422	133172 (668.0MHz), 133297 (680.5MHz), 133422 (693.0MHz)	10 MHz	256QAM	15 RB / 0 RB Offset
		133197 to 133397	133197 (670.5MHz), 133297 (680.5MHz), 133397 (690.5MHz)	15 MHz	256QAM	25 RB / 0 RB Offset
		133222 to 133372	133222 (673.0MHz), 133297 (680.5MHz), 133372 (688.0MHz)	20 MHz	256QAM	50 RB / 0 RB Offset
-	Band Edge	133147 to 133447	133147 (665.5MHz), 133447 (695.5MHz)	5 MHz	256QAM	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	256QAM	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	256QAM	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	256QAM	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	256QAM	1 RB / 0 RB Offset
		133172 to 133422	133172 (668.0MHz), 133297 (680.5MHz), 133422 (693.0MHz)	10 MHz	256QAM	1 RB / 0 RB Offset
		133197 to 133397	133197 (670.5MHz), 133297 (680.5MHz), 133397 (690.5MHz)	15 MHz	256QAM	1 RB / 0 RB Offset
		133222 to 133372	133222 (673.0MHz), 133297 (680.5MHz), 133372 (688.0MHz)	20 MHz	256QAM	1 RB / 0 RB Offset
-	Conducted Emission	133147 to 133447	133147 (665.5MHz), 133297 (680.5MHz), 133447 (695.5MHz)	5 MHz	256QAM	1 RB / 0 RB Offset
		133172 to 133422	133172 (668.0MHz), 133297 (680.5MHz), 133422 (693.0MHz)	10 MHz	256QAM	1 RB / 0 RB Offset
		133197 to 133397	133197 (670.5MHz), 133297 (680.5MHz), 133397 (690.5MHz)	15 MHz	256QAM	1 RB / 0 RB Offset
		133222 to 133372	133222 (673.0MHz), 133297 (680.5MHz), 133372 (688.0MHz)	20 MHz	256QAM	1 RB / 0 RB Offset
-	Radiated Emission Below 1GHz	133147 to 133447	133447 (695.5MHz)	5 MHz	256QAM	1 RB / 0 RB Offset
-	Radiated Emission Above 1GHz	133147 to 133447	133147 (665.5MHz), 133297 (680.5MHz), 133447 (695.5MHz)	5 MHz	256QAM	1 RB / 0 RB Offset
		133222 to 133372	133222 (673.0MHz), 133297 (680.5MHz), 133372 (688.0MHz)	20 MHz	256QAM	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.

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	120Vac, 60Hz	Greg Lin

3.4 EUT Operating Conditions

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

3.5 General Description of Applied Standards and References

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

Test Standard:

FCC 47 CFR Part 2

FCC 47 CFR Part 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

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:

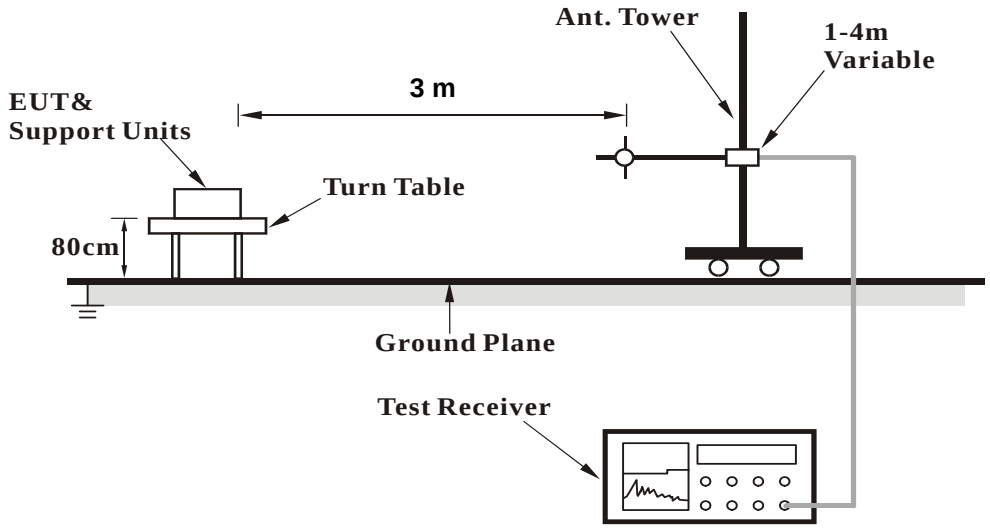
The relevant equation for determining the maximum ERP or EIRP from the measured RF output power is given in Equation as follows:
ERP or EIRP = $P_{Meas} + G_T$
where
ERP or EIRP effective radiated power or equivalent isotropically radiated power, respectively
(expressed in the same units as P_{Meas},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

EIRP Measurement for LTE Band 30:

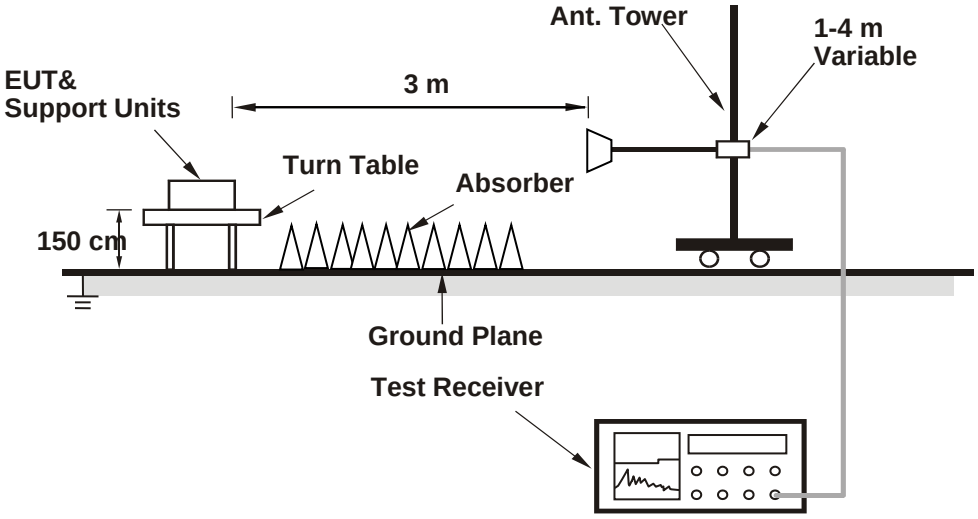
a. All measurements were done at low, middle and high operational frequency range. RBW and VBW= 5MHz for LTE mode.
b. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8 m (below or equal 1 GHz) and/or 1.5 m (above 1 GHz) height of Turn Table, rotated 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 = Output power level of S.G – TX cable loss + 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 power = E.I.R.P power - 2.15 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)

LTE Band 4						
BW	MCS Index	Channel		19957	20175	20393
		Frequency (MHz)		1710.7	1732.5	1754.3
1.4M	256QAM	1	0	21.09	21.09	21.09
		1	2	21.15	21.04	21.14
		1	5	21.04	**21.28**	20.86
		3	0	20.89	20.94	20.85
		3	1	20.83	20.78	21.00
		3	3	21.15	21.24	20.74
		6	0	20.93	20.87	20.85
LTE Band 4						
BW	MCS Index	Channel		19965	20175	20385
		Frequency (MHz)		1711.5	1732.5	1753.5
3M	256QAM	1	0	20.96	20.77	20.81
		1	7	20.85	20.80	20.81
		1	14	21.19	21.02	21.00
		8	0	21.14	**21.27**	20.96
		8	3	20.86	21.05	20.98
		8	7	21.18	20.81	20.87
		15	0	20.87	20.68	20.78
LTE Band 4						
BW	MCS Index	Channel		19975	20175	20375
		Frequency (MHz)		1712.5	1732.5	1752.5
5M	256QAM	1	0	21.03	21.05	20.96
		1	12	20.77	21.09	21.15
		1	24	20.90	21.28	20.96
		12	0	20.90	**21.29**	20.74
		12	6	20.97	21.25	20.80
		12	13	21.22	21.24	20.94
		25	0	21.02	20.91	20.87

LTE Band 4						
BW	MCS Index	Channel		20000	20175	20350
		Frequency (MHz)		1715	1732.5	1750
10M	256QAM	1	0	20.94	21.13	20.98
		1	24	20.94	20.98	20.96
		1	49	20.88	20.64	20.75
		25	0	21.20	20.90	20.97
		25	12	20.99	20.67	20.87
		25	25	**21.20**	20.99	20.79
		50	0	21.01	20.93	21.10
LTE Band 4						
BW	MCS Index	Channel		20025	20175	20325
		Frequency (MHz)		1717.5	1732.5	1747.5
15M	256QAM	1	0	21.15	**21.28**	21.14
		1	37	20.91	20.77	21.04
		1	74	20.89	21.21	20.90
		36	0	20.96	21.16	21.10
		36	19	20.95	21.19	20.97
		36	39	21.09	20.74	21.10
		75	0	21.04	20.80	21.15
LTE Band 4						
BW	MCS Index	Channel		20050	20175	20300
		Frequency (MHz)		1720	1732.5	1745
20M	256QAM	1	0	20.99	20.80	20.79
		1	50	21.12	21.09	20.94
		1	99	20.81	21.06	21.01
		50	0	20.80	21.21	20.83
		50	25	20.96	20.99	20.98
		50	50	**21.25**	21.03	20.81
		100	0	21.04	20.69	20.82

LTE Band 7						
BW	MCS Index	Channel		20775	21100	21425
		Frequency (MHz)		2502.5	2535	2567.5
5M	256QAM	1	0	**21.35**	20.57	20.52
		1	12	20.85	21.00	20.84
		1	24	20.73	20.86	21.23
		12	0	20.90	20.59	20.74
		12	6	20.89	21.26	21.15
		12	13	21.29	21.02	20.79
		25	0	21.11	20.80	20.75
LTE Band 7						
BW	MCS Index	Channel		20800	21100	21400
		Frequency (MHz)		2505	2535	2565
10M	256QAM	1	0	21.30	20.69	20.56
		1	24	20.91	20.88	20.91
		1	49	20.77	20.90	21.17
		25	0	**21.44**	20.69	21.08
		25	12	20.90	20.76	21.20
		25	25	21.07	20.72	21.30
		50	0	21.15	20.81	20.93
LTE Band 7						
BW	MCS Index	Channel		20825	21100	21375
		Frequency (MHz)		2507.5	2535	2562.5
15M	256QAM	1	0	20.86	20.74	21.05
		1	37	20.85	20.82	21.09
		1	74	20.84	21.22	20.82
		36	0	21.24	21.14	21.00
		36	19	**21.34**	21.04	20.84
		36	39	20.85	20.73	20.80
		75	0	21.24	20.83	21.32
LTE Band 7						
BW	MCS Index	Channel		20850	21100	21350
		Frequency (MHz)		2510	2535	2560
20M	256QAM	1	0	20.93	20.92	20.59
		1	50	21.29	20.67	20.59
		1	99	21.19	20.92	21.12
		50	0	21.10	20.63	21.23
		50	25	21.04	**21.30**	20.57
		50	50	20.79	20.75	20.98
		100	0	20.88	21.21	21.15

LTE Band 12						
BW	MCS Index	Channel		23017	23095	23173
		Frequency (MHz)		699.7	707.5	715.3
1.4M	256QAM	1	0	20.90	21.25	20.75
		1	2	20.81	21.00	20.76
		1	5	21.12	20.87	20.91
		3	0	21.12	20.83	20.87
		3	1	20.87	21.29	20.69
		3	3	21.11	20.87	21.03
		6	0	20.77	**21.34**	20.67
LTE Band 12						
BW	MCS Index	Channel		23025	23095	23165
		Frequency (MHz)		700.5	707.5	714.5
3M	256QAM	1	0	21.17	20.73	**21.39**
		1	7	21.12	21.38	20.78
		1	14	21.22	21.09	20.71
		8	0	21.10	21.08	21.21
		8	3	20.83	21.23	21.07
		8	7	21.05	21.10	20.72
		15	0	21.03	20.71	20.88
LTE Band 12						
BW	MCS Index	Channel		23035	23095	23155
		Frequency (MHz)		701.5	707.5	713.5
5M	256QAM	1	0	20.83	**21.15**	20.76
		1	12	20.81	21.00	20.66
		1	24	20.95	20.85	20.89
		12	0	21.15	20.86	20.66
		12	6	20.89	21.00	20.67
		12	13	20.91	21.14	20.69
		25	0	20.77	20.71	21.02
LTE Band 12						
BW	MCS Index	Channel		23060	23095	23130
		Frequency (MHz)		704	707.5	711
10M	256QAM	1	0	21.25	20.73	20.96
		1	24	20.86	21.20	20.93
		1	49	21.09	21.03	20.98
		25	0	21.06	21.35	20.71
		25	12	20.77	21.14	20.65
		25	25	21.17	21.08	21.24
		50	0	**21.35**	20.83	21.08

LTE Band 13						
BW	MCS Index	Channel		23205	23230	23255
		Frequency (MHz)		779.5	782	784.5
5M	256QAM	1	0	21.20	20.89	20.71
		1	12	21.10	**21.30**	20.91
		1	24	20.74	21.25	20.97
		12	0	20.94	21.29	20.75
		12	6	21.22	21.09	21.00
		12	13	20.79	20.77	20.81
		25	0	20.79	20.83	20.96

LTE Band 13				
BW	MCS Index	Channel		23230
		Frequency (MHz)		782
10M	256QAM	1	0	20.81
		1	24	20.85
		1	49	**21.46**
		25	0	21.06
		25	12	21.25
		25	25	21.22
		50	0	21.41

LTE Band 17						
BW	MCS Index	Channel		23755	23790	23825
		Frequency (MHz)		706.5	710	713.5
5M	256QAM	1	0	20.98	20.33	20.50
		1	12	20.66	20.27	20.44
		1	24	**21.20**	20.28	20.62
		12	0	20.81	20.34	20.61
		12	6	20.90	20.26	20.58
		12	13	20.97	20.38	20.43
		25	0	20.97	20.36	20.60
LTE Band 17						
BW	MCS Index	Channel		23780	23790	23800
		Frequency (MHz)		709	710	711
10M	256QAM	1	0	21.13	20.35	20.58
		1	24	20.58	20.28	20.44
		1	49	21.16	20.30	20.54
		25	0	20.82	20.38	20.58
		25	12	**21.23**	20.28	20.44
		25	25	20.79	20.31	20.41
		50	0	20.61	20.35	20.36

LTE Band 30						
BW	MCS Index	Channel		27685	27710	27735
		Frequency (MHz)		2307.5	2310	2312.5
5M	256QAM	1	0	19.09	19.56	19.32
		1	12	19.62	19.40	19.28
		1	24	19.26	**19.62**	19.42
		12	0	19.23	19.44	19.38
		12	6	19.04	19.21	19.56
		12	13	19.28	19.12	19.23
		25	0	19.55	19.29	19.49

LTE Band 30				
BW	MCS Index	Channel		27710
		Frequency (MHz)		2310
10M	256QAM	1	0	**19.68**
		1	24	19.61
		1	49	19.54
		25	0	18.66
		25	12	19.33
		25	25	18.89
		50	0	18.71

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	256QAM	1	0	20.17	**20.99**	20.58
		1	12	20.42	20.70	20.61
		1	24	20.15	20.66	20.32
		12	0	20.78	20.48	20.37
		12	6	20.30	20.45	20.68
		12	13	20.21	20.43	20.43
		25	0	20.23	20.46	20.79
LTE Band 38						
BW	MCS Index	Channel		37800	38000	38200
		Frequency (MHz)		2575	2595	2615
10M	256QAM	1	0	20.48	21.04	21.03
		1	24	**21.17**	20.31	20.63
		1	49	21.02	20.98	20.89
		25	0	21.01	20.64	20.46
		25	12	20.57	20.82	20.81
		25	25	20.29	20.65	21.02
		50	0	21.04	20.77	20.75
LTE Band 38						
BW	MCS Index	Channel		37825	38000	38175
		Frequency (MHz)		2577.5	2595	2612.5
15M	256QAM	1	0	20.32	20.70	20.77
		1	37	20.28	20.60	20.51
		1	74	20.73	20.50	20.74
		36	0	20.71	**21.02**	20.45
		36	19	20.34	20.41	20.85
		36	39	20.31	20.48	20.68
		75	0	20.71	20.60	20.79
LTE Band 38						
BW	MCS Index	Channel		37850	38000	38150
		Frequency (MHz)		2580	2595	2610
20M	256QAM	1	0	20.77	**21.01**	20.56
		1	50	20.71	20.57	20.78
		1	99	20.64	20.48	20.50
		50	0	20.47	20.60	20.97
		50	25	20.78	20.41	20.66
		50	50	20.32	20.35	20.47
		100	0	20.92	20.70	20.75

LTE Band 41						
BW	MCS Index	Channel		39675	40620	41565
		Frequency (MHz)		2498.5	2593	2687.5
5M	256QAM	1	0	24.51	24.09	24.49
		1	12	**24.58**	24.46	24.22
		1	24	24.22	24.19	24.40
		12	0	24.33	24.05	24.16
		12	6	24.56	24.43	24.18
		12	13	24.28	24.32	24.24
		25	0	24.35	24.32	24.46
LTE Band 41						
BW	MCS Index	Channel		39700	40620	41540
		Frequency (MHz)		2501	2593	2685
10M	256QAM	1	0	24.75	24.68	24.33
		1	24	24.83	24.42	24.63
		1	49	24.60	24.49	24.43
		25	0	24.76	24.80	24.70
		25	12	24.79	24.71	24.67
		25	25	24.76	24.53	24.87
		50	0	24.87	**24.88**	24.41
LTE Band 41						
BW	MCS Index	Channel		39725	40620	41515
		Frequency (MHz)		2503.5	2593	2682.5
15M	256QAM	1	0	24.79	**24.91**	24.60
		1	37	24.59	24.90	24.52
		1	74	24.82	24.54	24.61
		36	0	24.59	24.52	24.41
		36	19	24.61	24.69	24.47
		36	39	24.85	24.41	24.85
		75	0	24.77	24.73	24.75
LTE Band 41						
BW	MCS Index	Channel		39750	40620	41490
		Frequency (MHz)		2506	2593	2680
20M	256QAM	1	0	24.68	24.96	25.03
		1	50	24.90	24.69	24.95
		1	99	24.80	24.92	24.36
		50	0	24.89	24.55	24.80
		50	25	24.90	24.55	24.92
		50	50	24.83	24.53	24.39
		100	0	**25.17**	25.03	24.98

LTE Band 66						
BW	MCS Index	Channel		131979	132322	132665
		Frequency (MHz)		1710.7	1745	1779.3
1.4M	256QAM	1	0	20.32	20.91	20.46
		1	2	20.95	20.94	20.30
		1	5	20.34	20.38	20.68
		3	0	20.31	20.16	20.75
		3	1	20.94	20.40	**21.10**
		3	3	20.42	20.96	20.85
		6	0	20.28	20.50	20.70
LTE Band 66						
BW	MCS Index	Channel		131987	132322	132657
		Frequency (MHz)		1711.5	1745	1778.5
3M	256QAM	1	0	20.26	20.75	20.28
		1	7	20.59	20.20	20.49
		1	14	20.32	**21.20**	21.07
		8	0	20.99	21.19	20.52
		8	3	21.13	20.29	20.43
		8	7	21.17	20.81	20.67
		15	0	20.39	21.09	20.76
LTE Band 66						
BW	MCS Index	Channel		131997	132322	132647
		Frequency (MHz)		1712.5	1745	1777.5
5M	256QAM	1	0	20.87	20.62	21.02
		1	12	20.89	**21.21**	20.31
		1	24	20.57	21.14	21.11
		12	0	20.28	20.70	20.37
		12	6	20.41	20.70	20.23
		12	13	20.30	21.04	20.83
		25	0	20.30	21.01	20.50

LTE Band 66						
BW	MCS Index	Channel		132022	132322	132622
		Frequency (MHz)		1715	1745	1775
10M	256QAM	1	0	20.74	21.03	20.34
		1	24	21.10	20.96	20.76
		1	49	20.91	20.74	21.05
		25	0	20.41	20.53	20.82
		25	12	21.08	20.50	20.87
		25	25	21.02	20.47	20.59
		50	0	**21.13**	20.56	20.87
LTE Band 66						
BW	MCS Index	Channel		132047	132322	132597
		Frequency (MHz)		1717.5	1745	1772.5
15M	256QAM	1	0	20.32	**21.06**	20.19
		1	37	20.55	20.26	20.54
		1	74	20.34	20.15	20.11
		36	0	20.30	20.62	20.72
		36	19	20.84	20.29	20.24
		36	39	20.73	20.30	20.45
		75	0	20.22	20.63	20.68
LTE Band 66						
BW	MCS Index	Channel		132072	132322	132575
		Frequency (MHz)		1720	1745	1770
20M	256QAM	1	0	20.75	20.64	20.44
		1	50	20.30	20.43	20.61
		1	99	20.34	20.76	20.84
		50	0	20.22	20.36	20.38
		50	25	20.69	20.11	20.63
		50	50	**20.92**	20.55	20.54
		100	0	20.34	20.65	20.17

LTE Band 71						
BW	MCS Index	Channel		133147	133297	133447
		Frequency (MHz)		665.5	680.5	695.5
5M	256QAM	1	0	21.11	**21.22**	20.98
		1	12	20.30	20.93	20.74
		1	24	20.67	20.61	20.97
		12	0	20.34	20.58	20.63
		12	6	21.11	20.41	20.21
		12	13	20.55	20.35	20.16
		25	0	20.73	21.17	20.85
LTE Band 71						
BW	MCS Index	Channel		133172	133297	133422
		Frequency (MHz)		668	680.5	693
10M	256QAM	1	0	20.95	20.13	20.62
		1	24	20.67	20.37	20.86
		1	49	20.60	21.11	21.11
		25	0	20.38	21.05	20.15
		25	12	20.85	20.23	20.57
		25	25	20.71	20.95	20.34
		50	0	**21.12**	20.74	20.48
LTE Band 71						
BW	MCS Index	Channel		133197	133297	133397
		Frequency (MHz)		670.5	680.5	690.5
15M	QPSK	1	0	**20.92**	20.09	20.41
		1	37	20.43	20.61	20.16
		1	74	20.55	20.54	20.15
		36	0	20.74	20.20	20.19
		36	19	20.67	20.90	20.41
		36	39	20.67	20.68	20.36
		75	0	20.42	20.38	20.55
LTE Band 71						
BW	MCS Index	Channel		133222	133297	133372
		Frequency (MHz)		673	680.5	688
20M	256QAM	1	0	20.92	20.78	20.73
		1	50	20.67	20.34	20.70
		1	99	20.80	20.75	20.63
		50	0	20.70	20.32	20.63
		50	25	**20.94**	20.50	20.87
		50	50	20.75	20.13	20.59
		100	0	20.89	20.60	20.87

EIRP Power(dBm)

LTE Band 4						
BW	MCS Index	Channel		19957	20175	20393
		Frequency (MHz)		1710.7	1732.5	1754.3
1.4M	256QAM	1	0	25.36	25.36	25.36
		1	2	25.42	25.31	25.41
		1	5	25.31	**25.55**	25.13
		3	0	25.16	25.21	25.12
		3	1	25.10	25.05	25.27
		3	3	25.42	25.51	25.01
		6	0	25.20	25.14	25.12
LTE Band 4						
BW	MCS Index	Channel		19965	20175	20385
		Frequency (MHz)		1711.5	1732.5	1753.5
3M	256QAM	1	0	25.23	25.04	25.08
		1	7	25.12	25.07	25.08
		1	14	25.46	25.29	25.27
		8	0	25.41	**25.54**	25.23
		8	3	25.13	25.32	25.25
		8	7	25.45	25.08	25.14
		15	0	25.14	24.95	25.05
LTE Band 4						
BW	MCS Index	Channel		19975	20175	20375
		Frequency (MHz)		1712.5	1732.5	1752.5
5M	256QAM	1	0	25.30	25.32	25.23
		1	12	25.04	25.36	25.42
		1	24	25.17	25.55	25.23
		12	0	25.17	**25.56**	25.01
		12	6	25.24	25.52	25.07
		12	13	25.49	25.51	25.21
		25	0	25.29	25.18	25.14

*EIRP = Conducted + antenna gain (4.27dBi)

LTE Band 4						
BW	MCS Index	Channel		20000	20175	20350
		Frequency (MHz)		1715	1732.5	1750
10M	256QAM	1	0	25.21	25.40	25.25
		1	24	25.21	25.25	25.23
		1	49	25.15	24.91	25.02
		25	0	25.47	25.17	25.24
		25	12	25.26	24.94	25.14
		25	25	**25.47**	25.26	25.06
		50	0	25.28	25.20	25.37
LTE Band 4						
BW	MCS Index	Channel		20025	20175	20325
		Frequency (MHz)		1717.5	1732.5	1747.5
15M	256QAM	1	0	25.42	**25.55**	25.41
		1	37	25.18	25.04	25.31
		1	74	25.16	25.48	25.17
		36	0	25.23	25.43	25.37
		36	19	25.22	25.46	25.24
		36	39	25.36	25.01	25.37
		75	0	25.31	25.07	25.42
LTE Band 4						
BW	MCS Index	Channel		20050	20175	20300
		Frequency (MHz)		1720	1732.5	1745
20M	256QAM	1	0	25.26	25.07	25.06
		1	50	25.39	25.36	25.21
		1	99	25.08	25.33	25.28
		50	0	25.07	25.48	25.10
		50	25	25.23	25.26	25.25
		50	50	**25.52**	25.30	25.08
		100	0	25.31	24.96	25.09

*EIRP = Conducted + antenna gain (4.27dBi)

LTE Band 7						
BW	MCS Index	Channel		20775	21100	21425
		Frequency (MHz)		2502.5	2535	2567.5
5M	256QAM	1	0	**26.66**	25.88	25.83
		1	12	26.16	26.31	26.15
		1	24	26.04	26.17	26.54
		12	0	26.21	25.90	26.05
		12	6	26.20	26.57	26.46
		12	13	26.60	26.33	26.10
		25	0	26.42	26.11	26.06
LTE Band 7						
BW	MCS Index	Channel		20800	21100	21400
		Frequency (MHz)		2505	2535	2565
10M	256QAM	1	0	26.61	26.00	25.87
		1	24	26.22	26.19	26.22
		1	49	26.08	26.21	26.48
		25	0	**26.75**	26.00	26.39
		25	12	26.21	26.07	26.51
		25	25	26.38	26.03	26.61
		50	0	26.46	26.12	26.24
LTE Band 7						
BW	MCS Index	Channel		20825	21100	21375
		Frequency (MHz)		2507.5	2535	2562.5
15M	256QAM	1	0	26.17	26.05	26.36
		1	37	26.16	26.13	26.40
		1	74	26.15	26.53	26.13
		36	0	26.55	26.45	26.31
		36	19	**26.65**	26.35	26.15
		36	39	26.16	26.04	26.11
		75	0	26.55	26.14	26.63
LTE Band 7						
BW	MCS Index	Channel		20850	21100	21350
		Frequency (MHz)		2510	2535	2560
20M	256QAM	1	0	26.24	26.23	25.90
		1	50	26.60	25.98	25.90
		1	99	26.50	26.23	26.43
		50	0	26.41	25.94	26.54
		50	25	26.35	**26.61**	25.88
		50	50	26.10	26.06	26.29
		100	0	26.19	26.52	26.46

*EIRP = Conducted + antenna gain (5.31dBi)

LTE Band 38						
BW	MCS Index	Channel		37775	38000	38225
		Frequency (MHz)		2572.5	2595	2617.5
5M	256QAM	1	0	25.48	**26.30**	25.89
		1	12	25.73	26.01	25.92
		1	24	25.46	25.97	25.63
		12	0	26.09	25.79	25.68
		12	6	25.61	25.76	25.99
		12	13	25.52	25.74	25.74
		25	0	25.54	25.77	26.10
LTE Band 38						
BW	MCS Index	Channel		37800	38000	38200
		Frequency (MHz)		2575	2595	2615
10M	256QAM	1	0	25.79	26.35	26.34
		1	24	**26.48**	25.62	25.94
		1	49	26.33	26.29	26.20
		25	0	26.32	25.95	25.77
		25	12	25.88	26.13	26.12
		25	25	25.60	25.96	26.33
		50	0	26.35	26.08	26.06
LTE Band 38						
BW	MCS Index	Channel		37825	38000	38175
		Frequency (MHz)		2577.5	2595	2612.5
15M	256QAM	1	0	25.63	26.01	26.08
		1	37	25.59	25.91	25.82
		1	74	26.04	25.81	26.05
		36	0	26.02	**26.33**	25.76
		36	19	25.65	25.72	26.16
		36	39	25.62	25.79	25.99
		75	0	26.02	25.91	26.10
LTE Band 38						
BW	MCS Index	Channel		37850	38000	38150
		Frequency (MHz)		2580	2595	2610
20M	256QAM	1	0	26.08	**26.32**	25.87
		1	50	26.02	25.88	26.09
		1	99	25.95	25.79	25.81
		50	0	25.78	25.91	26.28
		50	25	26.09	25.72	25.97
		50	50	25.63	25.66	25.78
		100	0	26.23	26.01	26.06

*EIRP = Conducted + antenna gain (5.31dBi)

LTE Band 41						
BW	MCS Index	Channel		39675	40620	41565
		Frequency (MHz)		2498.5	2593	2687.5
5M	256QAM	1	0	29.82	29.40	29.80
		1	12	**29.89**	29.77	29.53
		1	24	29.53	29.50	29.71
		12	0	29.64	29.36	29.47
		12	6	29.87	29.74	29.49
		12	13	29.59	29.63	29.55
		25	0	29.66	29.63	29.77
LTE Band 41						
BW	MCS Index	Channel		39700	40620	41540
		Frequency (MHz)		2501	2593	2685
10M	256QAM	1	0	30.06	29.99	29.64
		1	24	30.14	29.73	29.94
		1	49	29.91	29.80	29.74
		25	0	30.07	30.11	30.01
		25	12	30.10	30.02	29.98
		25	25	30.07	29.84	30.18
		50	0	30.18	**30.19**	29.72
LTE Band 41						
BW	MCS Index	Channel		39725	40620	41515
		Frequency (MHz)		2503.5	2593	2682.5
15M	256QAM	1	0	30.10	**30.22**	29.91
		1	37	29.90	30.21	29.83
		1	74	30.13	29.85	29.92
		36	0	29.90	29.83	29.72
		36	19	29.92	30.00	29.78
		36	39	30.16	29.72	30.16
		75	0	30.08	30.04	30.06
LTE Band 41						
BW	MCS Index	Channel		39750	40620	41490
		Frequency (MHz)		2506	2593	2680
20M	256QAM	1	0	29.99	30.27	30.34
		1	50	30.21	30.00	30.26
		1	99	30.11	30.23	29.67
		50	0	30.20	29.86	30.11
		50	25	30.21	29.86	30.23
		50	50	30.14	29.84	29.70
		100	0	**30.48**	30.34	30.29

*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	256QAM	1	0	24.59	25.18	24.73
		1	2	25.22	25.21	24.57
		1	5	24.61	24.65	24.95
		3	0	24.58	24.43	25.02
		3	1	25.21	24.67	**25.37**
		3	3	24.69	25.23	25.12
		6	0	24.55	24.77	24.97
LTE Band 66						
BW	MCS Index	Channel		131987	132322	132657
		Frequency (MHz)		1711.5	1745	1778.5
3M	256QAM	1	0	24.53	25.02	24.55
		1	7	24.86	24.47	24.76
		1	14	24.59	**25.47**	25.34
		8	0	25.26	25.46	24.79
		8	3	25.40	24.56	24.70
		8	7	25.44	25.08	24.94
		15	0	24.66	25.36	25.03
LTE Band 66						
BW	MCS Index	Channel		131997	132322	132647
		Frequency (MHz)		1712.5	1745	1777.5
5M	256QAM	1	0	25.14	24.89	25.29
		1	12	25.16	**25.48**	24.58
		1	24	24.84	25.41	25.38
		12	0	24.55	24.97	24.64
		12	6	24.68	24.97	24.50
		12	13	24.57	25.31	25.10
		25	0	24.57	25.28	24.77

*EIRP = Conducted + antenna gain (4.27dBi)

LTE Band 66						
BW	MCS Index	Channel		132022	132322	132622
		Frequency (MHz)		1715	1745	1775
10M	256QAM	1	0	25.01	25.30	24.61
		1	24	25.37	25.23	25.03
		1	49	25.18	25.01	25.32
		25	0	24.68	24.80	25.09
		25	12	25.35	24.77	25.14
		25	25	25.29	24.74	24.86
		50	0	**25.40**	24.83	25.14
LTE Band 66						
BW	MCS Index	Channel		132047	132322	132597
		Frequency (MHz)		1717.5	1745	1772.5
15M	256QAM	1	0	24.59	**25.33**	24.46
		1	37	24.82	24.53	24.81
		1	74	24.61	24.42	24.38
		36	0	24.57	24.89	24.99
		36	19	25.11	24.56	24.51
		36	39	25.00	24.57	24.72
		75	0	24.49	24.90	24.95
LTE Band 66						
BW	MCS Index	Channel		132072	132322	132575
		Frequency (MHz)		1720	1745	1770
20M	256QAM	1	0	25.02	24.91	24.71
		1	50	24.57	24.70	24.88
		1	99	24.61	25.03	25.11
		50	0	24.49	24.63	24.65
		50	25	24.96	24.38	24.90
		50	50	**25.19**	24.82	24.81
		100	0	24.61	24.92	24.44

*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	256QAM	1	0	23.16	23.51	23.01
		1	2	23.07	23.26	23.02
		1	5	23.38	23.13	23.17
		3	0	23.38	23.09	23.13
		3	1	23.13	23.55	22.95
		3	3	23.37	23.13	23.29
		6	0	23.03	**23.60**	22.93
LTE Band 12						
BW	MCS Index	Channel		23025	23095	23165
		Frequency (MHz)		700.5	707.5	714.5
3M	256QAM	1	0	23.43	22.99	**23.65**
		1	7	23.38	23.64	23.04
		1	14	23.48	23.35	22.97
		8	0	23.36	23.34	23.47
		8	3	23.09	23.49	23.33
		8	7	23.31	23.36	22.98
		15	0	23.29	22.97	23.14
LTE Band 12						
BW	MCS Index	Channel		23035	23095	23155
		Frequency (MHz)		701.5	707.5	713.5
5M	256QAM	1	0	23.09	**23.41**	23.02
		1	12	23.07	23.26	22.92
		1	24	23.21	23.11	23.15
		12	0	23.41	23.12	22.92
		12	6	23.15	23.26	22.93
		12	13	23.17	23.40	22.95
		25	0	23.03	22.97	23.28
LTE Band 12						
BW	MCS Index	Channel		23060	23095	23130
		Frequency (MHz)		704	707.5	711
10M	256QAM	1	0	23.51	22.99	23.22
		1	24	23.12	23.46	23.19
		1	49	23.35	23.29	23.24
		25	0	23.32	23.61	22.97
		25	12	23.03	23.40	22.91
		25	25	23.43	23.34	23.50
		50	0	**23.61**	23.09	23.34

*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	256QAM	1	0	23.46	23.15	22.97
		1	12	23.36	**23.56**	23.17
		1	24	23.00	23.51	23.23
		12	0	23.20	23.55	23.01
		12	6	23.48	23.35	23.26
		12	13	23.05	23.03	23.07
		25	0	23.05	23.09	23.22

LTE Band 13				
BW	MCS Index	Channel		23230
		Frequency (MHz)		782
10M	256QAM	1	0	23.07
		1	24	23.11
		1	49	**23.72**
		25	0	23.32
		25	12	23.51
		25	25	23.48
		50	0	23.67

*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	256QAM	1	0	23.24	22.59	22.76
		1	12	22.92	22.53	22.70
		1	24	**23.46**	22.54	22.88
		12	0	23.07	22.60	22.87
		12	6	23.16	22.52	22.84
		12	13	23.23	22.64	22.69
		25	0	23.23	22.62	22.86

LTE Band 17						
BW	MCS Index	Channel		23780	23790	23800
		Frequency (MHz)		709	710	711
10M	256QAM	1	0	23.39	22.61	22.84
		1	24	22.84	22.54	22.70
		1	49	23.42	22.56	22.80
		25	0	23.08	22.64	22.84
		25	12	**23.49**	22.54	22.70
		25	25	23.05	22.57	22.67
		50	0	22.87	22.61	22.62

*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	256QAM	1	0	23.37	**23.48**	23.24
		1	12	22.56	23.19	23.00
		1	24	22.93	22.87	23.23
		12	0	22.60	22.84	22.89
		12	6	23.37	22.67	22.47
		12	13	22.81	22.61	22.42
		25	0	22.99	23.43	23.11
LTE Band 71						
BW	MCS Index	Channel		133172	133297	133422
		Frequency (MHz)		668	680.5	693
10M	256QAM	1	0	23.21	22.39	22.88
		1	24	22.93	22.63	23.12
		1	49	22.86	23.37	23.37
		25	0	22.64	23.31	22.41
		25	12	23.11	22.49	22.83
		25	25	22.97	23.21	22.60
		50	0	**23.38**	23.00	22.74
LTE Band 71						
BW	MCS Index	Channel		133197	133297	133397
		Frequency (MHz)		670.5	680.5	690.5
15M	QPSK	1	0	**23.18**	22.35	22.67
		1	37	22.69	22.87	22.42
		1	74	22.81	22.80	22.41
		36	0	23.00	22.46	22.45
		36	19	22.93	23.16	22.67
		36	39	22.93	22.94	22.62
		75	0	22.68	22.64	22.81
LTE Band 71						
BW	MCS Index	Channel		133222	133297	133372
		Frequency (MHz)		673	680.5	688
20M	256QAM	1	0	23.18	23.04	22.99
		1	50	22.93	22.60	22.96
		1	99	23.06	23.01	22.89
		50	0	22.96	22.58	22.89
		50	25	**23.20**	22.76	23.13
		50	50	23.01	22.39	22.85
		100	0	23.15	22.86	23.13

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

Modulation Type: 256QAM

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	-21.0	20.4	-0.1	20.3	23.97	-3.67
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	-22.0	21.1	-0.1	21.0	23.97	-2.97

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	-21.2	20.2	-0.1	20.1	23.97	-3.87
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	-21.7	21.4	-0.1	21.3	23.97	-2.67

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	-21.1	20.3	-0.1	20.2	23.97	-3.77
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	-21.7	21.4	-0.1	21.3	23.97	-2.67

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	-20.8	20.6	-0.1	20.5	23.97	-3.47
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	2310.00	-21.6	21.5	-0.1	21.4	23.97	-2.57

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

4.2 Modulation Characteristics Measurement

4.2.1 Limits of Modulation Characteristics

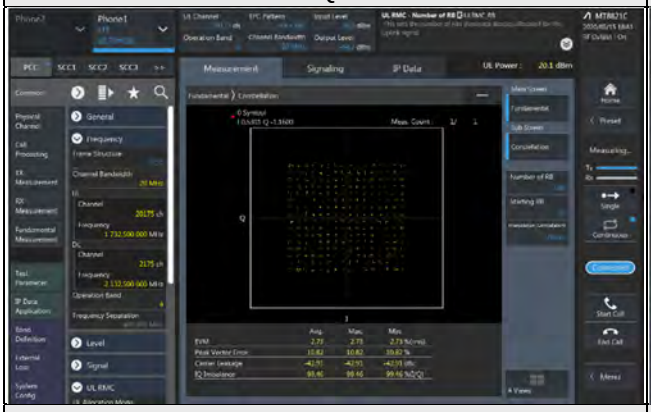
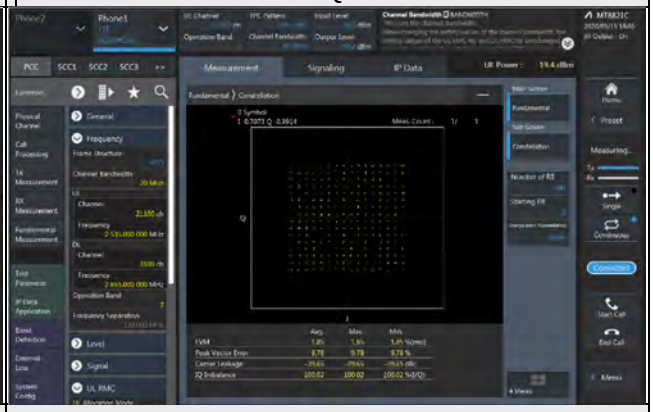
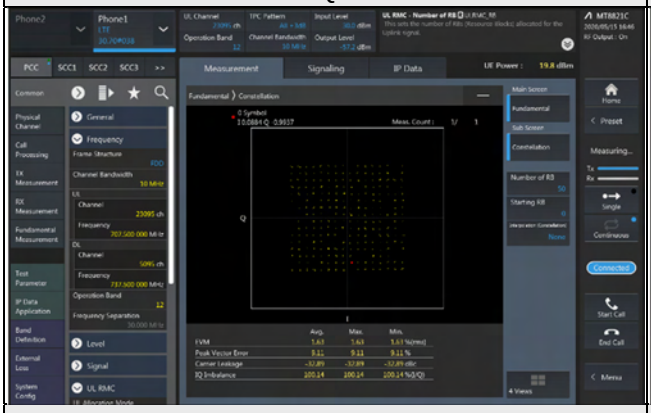
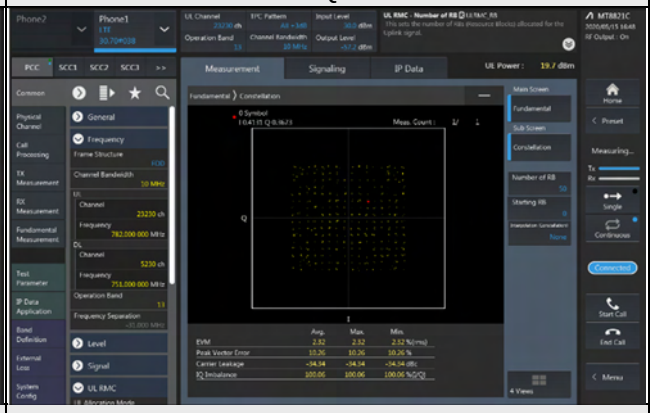
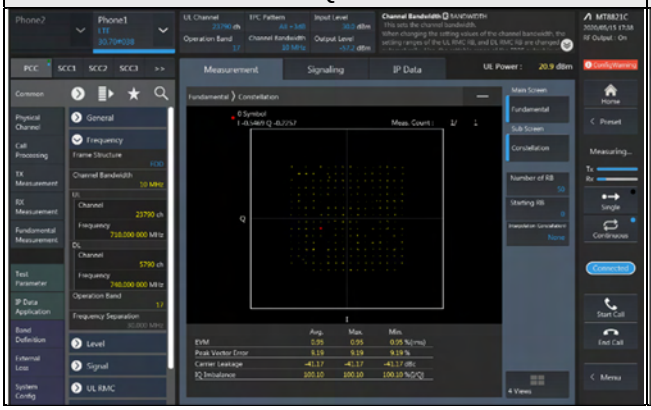
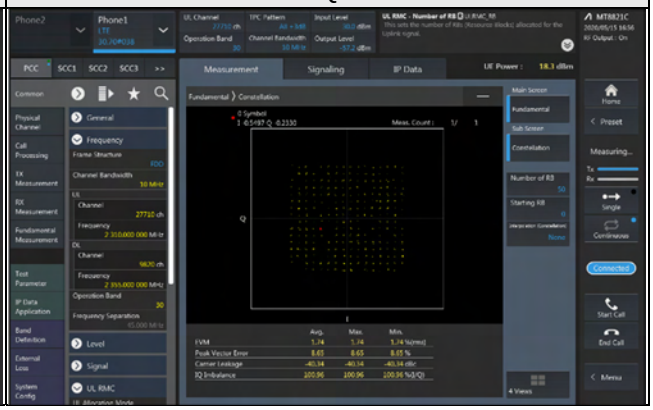
N/A

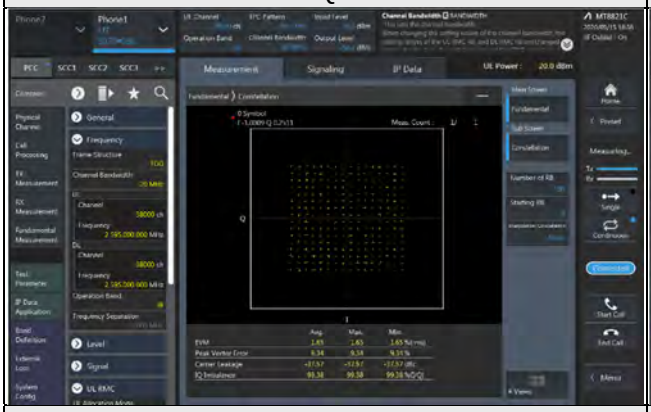
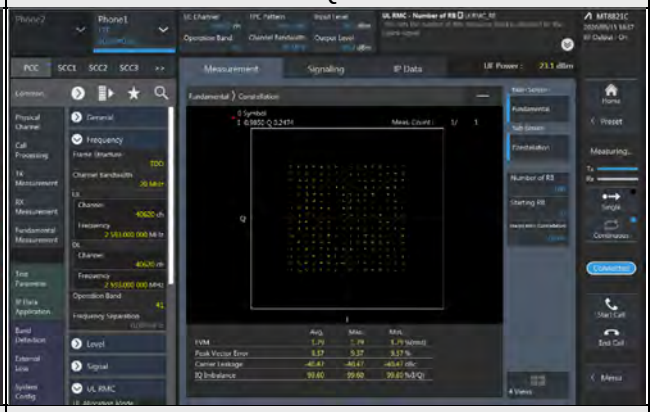
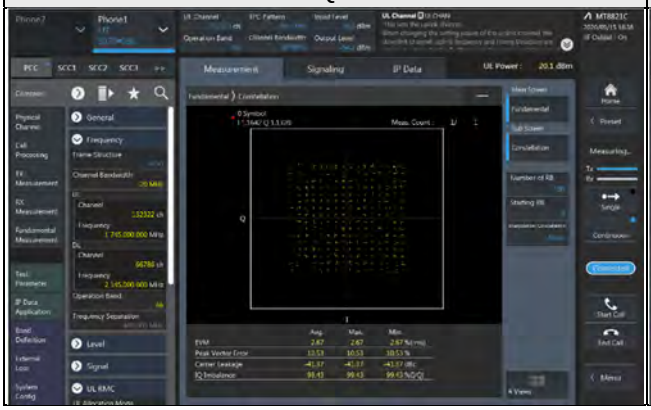
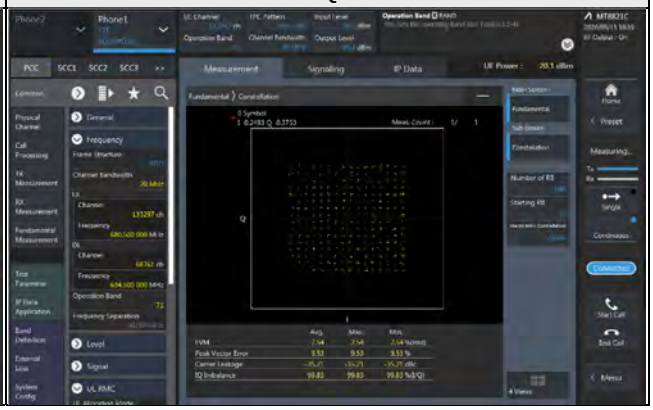
4.2.2 Test Procedure

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	LTE Band 7
Spectrum Plot of Measurement Value	Spectrum Plot of Measurement Value
Channel: 20175 / Frequency (MHz): 1732.5MHz	Channel: 21100 / Frequency (MHz): 2535.0MHz
256QAM	256QAM
	
LTE Band 12	**LTE Band 13**
Spectrum Plot of Measurement Value	Spectrum Plot of Measurement Value
Channel: 23095 / Frequency (MHz): 707.5 MHz	Channel: 23230 / Frequency (MHz): 782.0MHz
256QAM	256QAM
	
LTE Band 17	**LTE Band 30**
Spectrum Plot of Measurement Value	Spectrum Plot of Measurement Value
Channel: 23790 / Frequency (MHz): 710.0MHz	Channel: 27710 / Frequency (MHz): 2310.0 MHz
256QAM	256QAM
	

LTE Band 38	LTE Band 41
Spectrum Plot of Measurement Value	Spectrum Plot of Measurement Value
Channel: 38000 / Frequency (MHz): 2595.0 MHz	Channel: 40620 / Frequency (MHz): 2593.0 MHz
256QAM	256QAM
	
LTE Band 66	LTE Band 71
Spectrum Plot of Measurement Value	Spectrum Plot of Measurement Value
Channel: 132322 / Frequency (MHz): 1745.0 MHz	Channel: 133297 / Frequency (MHz): 680.5 MHz
256QAM	256QAM
	

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℃ ~ 50℃.

4.3.2 Test Procedure

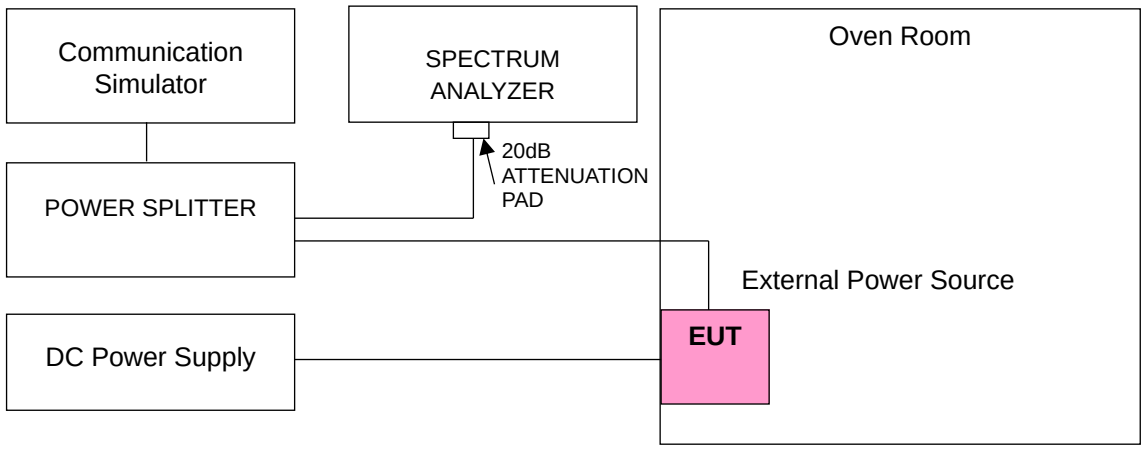
a. Device is placed at the oven room. The oven room could control the temperatures and humidity. Power warm up is at least 15 min and power applied should perform before recording frequency error.

b. 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.

c. The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the ±0.5 ℃ 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)	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	1754.300003	0.002
5	1710.700002	0.001	1754.300001	0.001
5.75	1710.700001	0.001	1754.300002	0.001

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

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 4			
	Channel Bandwidth: 1.4 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1710.700004	0.002	1754.300004	0.002
-20	1710.700002	0.001	1754.300001	0.001
-10	1710.700002	0.001	1754.300004	0.002
0	1710.700002	0.001	1754.300001	0.001
10	1710.700004	0.002	1754.300001	0.001
20	1710.699998	-0.001	1754.299998	-0.001
30	1710.699996	-0.002	1754.299997	-0.002
40	1710.699997	-0.002	1754.299997	-0.002
50	1710.699996	-0.002	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	1711.500002	0.001	1753.500002	0.001
5	1711.500004	0.002	1753.500003	0.001
5.75	1711.500002	0.001	1753.500003	0.002

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

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 4			
	Channel Bandwidth: 3 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1711.500002	0.001	1753.500004	0.002
-20	1711.500003	0.002	1753.500001	0.001
-10	1711.500002	0.001	1753.500002	0.001
0	1711.500002	0.001	1753.500001	0.001
10	1711.500001	0.001	1753.500002	0.001
20	1711.499998	-0.001	1753.499998	-0.001
30	1711.499997	-0.002	1753.499998	-0.001
40	1711.499998	-0.001	1753.499997	-0.002
50	1711.499997	-0.002	1753.499999	-0.001

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	1712.500003	0.002	1752.500002	0.001
5	1712.500003	0.002	1752.500001	0.001
5.75	1712.500003	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. (℃)	LTE Band 4			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1712.500003	0.001	1752.500004	0.002
-20	1712.500002	0.001	1752.500002	0.001
-10	1712.500002	0.001	1752.500002	0.001
0	1712.500002	0.001	1752.500001	0.001
10	1712.500002	0.001	1752.500003	0.002
20	1712.499998	-0.001	1752.499997	-0.002
30	1712.499997	-0.002	1752.499999	-0.001
40	1712.499998	-0.001	1752.499997	-0.002
50	1712.499997	-0.002	1752.499999	-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	1750.000004	0.002
5	1715.000004	0.002	1750.000002	0.001
5.75	1715.000001	0.001	1750.000002	0.001

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

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 4			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1715.000001	0.001	1750.000003	0.002
-20	1715.000003	0.002	1750.000001	0.001
-10	1715.000002	0.001	1750.000002	0.001
0	1715.000004	0.002	1750.000002	0.001
10	1715.000001	0.001	1750.000002	0.001
20	1714.999996	-0.002	1749.999997	-0.002
30	1714.999997	-0.002	1749.999999	-0.001
40	1714.999999	-0.001	1749.999998	-0.001
50	1714.999997	-0.002	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	0.002	1747.500003	0.002
5	1717.500003	0.002	1747.500004	0.002
5.75	1717.500003	0.002	1747.500003	0.002

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

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 4			
	Channel Bandwidth: 15 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1717.500002	0.001	1747.500002	0.001
-20	1717.500003	0.002	1747.500004	0.002
-10	1717.500003	0.002	1747.500003	0.002
0	1717.500004	0.002	1747.500003	0.002
10	1717.500003	0.002	1747.500004	0.002
20	1717.499998	-0.001	1747.499999	-0.001
30	1717.499999	-0.001	1747.499998	-0.001
40	1717.499997	-0.002	1747.499998	-0.001
50	1717.499999	-0.001	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	1720.000002	0.001	1745.000003	0.002
5	1720.000002	0.001	1745.000002	0.001
5.75	1720.000001	0.001	1745.000004	0.002

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

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 4			
	Channel Bandwidth: 20 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1720.000004	0.002	1745.000002	0.001
-20	1720.000004	0.002	1745.000001	0.001
-10	1720.000001	0.001	1745.000001	0.001
0	1720.000004	0.002	1745.000003	0.002
10	1720.000002	0.001	1745.000004	0.002
20	1719.999999	-0.001	1744.999998	-0.001
30	1719.999996	-0.002	1744.999999	-0.001
40	1719.999996	-0.002	1744.999998	-0.001
50	1719.999997	-0.002	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	2502.500004	0.002	2567.500002	0.001
5	2502.500002	0.001	2567.500004	0.002
5.75	2502.500001	0.001	2567.500004	0.002

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

Frequency Error vs. Temperature

Temp. (℃)	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	2567.500004	0.002
-20	2502.500004	0.001	2567.500003	0.001
-10	2502.500002	0.001	2567.500004	0.001
0	2502.500002	0.001	2567.500003	0.001
10	2502.500004	0.001	2567.500002	0.001
20	2502.499999	0.000	2567.499997	-0.001
30	2502.499998	-0.001	2567.499997	-0.001
40	2502.499998	-0.001	2567.499998	-0.001
50	2502.499999	0.000	2567.499999	-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	0.002	2565.000003	0.001
5	2505.000002	0.001	2565.000003	0.001
5.75	2505.000002	0.001	2565.000002	0.001

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

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 7			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	2505.000004	0.001	2565.000001	0.000
-20	2505.000004	0.002	2565.000002	0.001
-10	2505.000003	0.001	2565.000004	0.002
0	2505.000001	0.000	2565.000002	0.001
10	2505.000003	0.001	2565.000002	0.001
20	2504.999998	-0.001	2564.999999	-0.001
30	2504.999998	-0.001	2564.999999	0.000
40	2504.999997	-0.001	2564.999997	-0.001
50	2504.999998	-0.001	2564.999996	-0.002

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	2507.500003	0.001	2562.500002	0.001
5.75	2507.500002	0.001	2562.500002	0.001

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

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 7			
	Channel Bandwidth: 15 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	2507.500002	0.001	2562.500001	0.001
-20	2507.500002	0.001	2562.500002	0.001
-10	2507.500003	0.001	2562.500002	0.001
0	2507.500001	0.001	2562.500004	0.002
10	2507.500002	0.001	2562.500003	0.001
20	2507.499998	-0.001	2562.499999	-0.001
30	2507.499998	-0.001	2562.499997	-0.001
40	2507.499997	-0.001	2562.499999	-0.001
50	2507.499998	-0.001	2562.499998	-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	2560.000002	0.001
5	2510.000003	0.001	2560.000004	0.001
5.75	2510.000001	0.000	2560.000002	0.001

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

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 7			
	Channel Bandwidth: 20 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	2510.000004	0.001	2560.000001	0.001
-20	2510.000004	0.001	2560.000004	0.001
-10	2510.000003	0.001	2560.000003	0.001
0	2510.000002	0.001	2560.000004	0.002
10	2510.000003	0.001	2560.000001	0.000
20	2509.999999	0.000	2559.999998	-0.001
30	2509.999999	-0.001	2559.999999	0.000
40	2509.999998	-0.001	2559.999997	-0.001
50	2509.999999	0.000	2559.999998	-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	699.700003	0.004	715.300003	0.004
5	699.700001	0.002	715.300001	0.002
5.75	699.700001	0.002	715.300002	0.003

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

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 12			
	Channel Bandwidth: 1.4 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	699.700002	0.003	715.300002	0.003
-20	699.700002	0.003	715.300004	0.005
-10	699.700002	0.002	715.300003	0.004
0	699.700002	0.003	715.300002	0.003
10	699.700002	0.003	715.300003	0.004
20	699.699998	-0.003	715.299996	-0.005
30	699.699998	-0.003	715.299999	-0.002
40	699.699999	-0.002	715.299999	-0.002
50	699.699998	-0.003	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	700.500002	0.002	714.500002	0.002
5	700.500002	0.002	714.500003	0.004
5.75	700.500001	0.002	714.500001	0.002

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

Frequency Error vs. Temperature

Temp. (℃)	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	714.500001	0.002
-20	700.500002	0.002	714.500003	0.004
-10	700.500004	0.005	714.500002	0.003
0	700.500001	0.002	714.500002	0.003
10	700.500004	0.005	714.500002	0.003
20	700.499998	-0.003	714.499998	-0.003
30	700.499999	-0.001	714.499998	-0.003
40	700.499998	-0.003	714.499996	-0.005
50	700.499997	-0.005	714.499997	-0.004

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	701.500003	0.004	713.500002	0.003
5	701.500002	0.003	713.500002	0.003
5.75	701.500003	0.005	713.500002	0.003

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

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 12			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	701.500004	0.006	713.500004	0.005
-20	701.500002	0.003	713.500002	0.003
-10	701.500002	0.003	713.500002	0.003
0	701.500002	0.002	713.500001	0.001
10	701.500004	0.006	713.500003	0.005
20	701.499998	-0.003	713.499997	-0.004
30	701.499997	-0.005	713.499996	-0.006
40	701.499998	-0.003	713.499997	-0.004
50	701.499997	-0.004	713.499997	-0.004

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	711.000004	0.005
5	704.000003	0.004	711.000001	0.001
5.75	704.000001	0.002	711.000003	0.005

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

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 12			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	704.000004	0.005	711.000003	0.005
-20	704.000003	0.004	711.000004	0.005
-10	704.000002	0.002	711.000003	0.004
0	704.000003	0.004	711.000004	0.005
10	704.000003	0.005	711.000003	0.005
20	703.999997	-0.005	710.999998	-0.003
30	703.999999	-0.002	710.999998	-0.003
40	703.999998	-0.003	710.999997	-0.004
50	703.999996	-0.005	710.999999	-0.002

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	779.500002	0.003	784.500002	0.003
5	779.500002	0.003	784.500002	0.002
5.75	779.500001	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. (℃)	LTE Band 13			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	779.500002	0.003	784.500003	0.004
-20	779.500004	0.005	784.500003	0.004
-10	779.500003	0.004	784.500003	0.004
0	779.500002	0.002	784.500004	0.005
10	779.500004	0.005	784.500001	0.001
20	779.499998	-0.003	784.499997	-0.004
30	779.499997	-0.003	784.499999	-0.001
40	779.499998	-0.003	784.499998	-0.003
50	779.499999	-0.002	784.499997	-0.004

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 13	
	Channel Bandwidth: 10 MHz	
	Frequency (MHz)	Frequency Error (ppm)
4.25	782.000003	0.004
5	782.000004	0.004
5.75	782.000002	0.003

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

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 13	
	Channel Bandwidth: 10 MHz	
	Frequency (MHz)	Frequency Error (ppm)
-30	782.000001	0.002
-20	782.000004	0.005
-10	782.000001	0.001
0	782.000001	0.001
10	782.000002	0.002
20	781.999999	-0.002
30	781.999996	-0.005
40	781.999997	-0.004
50	781.999998	-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	0.002	713.500004	0.005
5	706.500003	0.004	713.500004	0.005
5.75	706.500004	0.005	713.500004	0.005

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

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 17			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	706.500003	0.005	713.500003	0.004
-20	706.500002	0.002	713.500004	0.005
-10	706.500001	0.002	713.500003	0.004
0	706.500003	0.004	713.500001	0.002
10	706.500002	0.003	713.500003	0.004
20	706.499999	-0.002	713.499997	-0.005
30	706.499999	-0.002	713.499997	-0.004
40	706.499997	-0.004	713.499996	-0.006
50	706.499997	-0.004	713.499997	-0.004

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	709.000003	0.005	711.000002	0.003
5	709.000003	0.004	711.000001	0.001
5.75	709.000004	0.006	711.000003	0.004

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

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 17			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	709.000002	0.003	711.000001	0.002
-20	709.000002	0.003	711.000003	0.004
-10	709.000002	0.003	711.000002	0.002
0	709.000001	0.002	711.000002	0.003
10	709.000001	0.002	711.000003	0.004
20	708.999997	-0.005	710.999998	-0.003
30	708.999998	-0.002	710.999997	-0.004
40	708.999999	-0.002	710.999999	-0.002
50	708.999997	-0.005	710.999998	-0.003

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	2312.500002	0.001
5	2307.500001	0.001	2312.500004	0.002
5.75	2307.500003	0.001	2312.500003	0.001

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

Frequency Error vs. Temperature

Temp. (℃)	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	2307.500004	0.002	2312.500003	0.001
-10	2307.500003	0.001	2312.500004	0.002
0	2307.500004	0.002	2312.500003	0.001
10	2307.500001	0.001	2312.500002	0.001
20	2307.499997	-0.001	2312.499999	-0.001
30	2307.499997	-0.001	2312.499998	-0.001
40	2307.499997	-0.001	2312.499996	-0.002
50	2307.499996	-0.002	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	2310.000003	0.001
5.75	2310.000003	0.001

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

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 30	
	Channel Bandwidth: 10 MHz	
	Frequency (MHz)	Frequency Error (ppm)
-30	2310.000002	0.001
-20	2310.000003	0.001
-10	2310.000002	0.001
0	2310.000002	0.001
10	2310.000004	0.002
20	2309.999998	-0.001
30	2309.999998	-0.001
40	2309.999996	-0.002
50	2309.999997	-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	2572.500004	0.001	2617.500003	0.001
5	2572.500004	0.001	2617.500002	0.001
5.75	2572.500002	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. (℃)	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	2572.500003	0.001	2617.500002	0.001
-10	2572.500004	0.001	2617.500004	0.001
0	2572.500003	0.001	2617.500002	0.001
10	2572.500003	0.001	2617.500004	0.001
20	2572.499998	-0.001	2617.499999	0.000
30	2572.499997	-0.001	2617.499996	-0.001
40	2572.499997	-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	2575.000002	0.001	2615.000002	0.001
5	2575.000001	0.001	2615.000001	0.000
5.75	2575.000003	0.001	2615.000004	0.001

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

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 38			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	2575.000002	0.001	2615.000004	0.002
-20	2575.000004	0.002	2615.000001	0.000
-10	2575.000002	0.001	2615.000002	0.001
0	2575.000002	0.001	2615.000001	0.000
10	2575.000002	0.001	2615.000002	0.001
20	2574.999999	0.000	2614.999998	-0.001
30	2574.999999	0.000	2614.999998	-0.001
40	2574.999997	-0.001	2614.999999	0.000
50	2574.999999	0.000	2614.999998	-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	2577.500003	0.001	2612.500003	0.001
5	2577.500002	0.001	2612.500004	0.001
5.75	2577.500004	0.002	2612.500003	0.001

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

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 38			
	Channel Bandwidth: 15 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	2577.500004	0.001	2612.500002	0.001
-20	2577.500002	0.001	2612.500003	0.001
-10	2577.500002	0.001	2612.500004	0.002
0	2577.500002	0.001	2612.500002	0.001
10	2577.500003	0.001	2612.500003	0.001
20	2577.499998	-0.001	2612.499997	-0.001
30	2577.499997	-0.001	2612.499999	0.000
40	2577.499998	-0.001	2612.499997	-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	2580.000002	0.001	2610.000004	0.001
5	2580.000002	0.001	2610.000001	0.001
5.75	2580.000002	0.001	2610.000000	0.000

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

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 38			
	Channel Bandwidth: 20 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	2580.000003	0.001	2610.000002	0.001
-20	2580.000002	0.001	2610.000002	0.001
-10	2580.000002	0.001	2610.000001	0.001
0	2580.000002	0.001	2610.000003	0.001
10	2580.000002	0.001	2610.000003	0.001
20	2579.999999	0.000	2609.999997	-0.001
30	2579.999997	-0.001	2609.999997	-0.001
40	2579.999997	-0.001	2609.999996	-0.001
50	2579.999998	-0.001	2609.999996	-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	2498.500002	0.001	2687.500003	0.001
5	2498.500002	0.001	2687.500004	0.001
5.75	2498.500003	0.001	2687.500004	0.001

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

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 41			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	2498.500004	0.002	2687.500003	0.001
-20	2498.500001	0.000	2687.500004	0.001
-10	2498.500002	0.001	2687.500004	0.001
0	2498.500004	0.001	2687.500001	0.000
10	2498.500003	0.001	2687.500002	0.001
20	2498.499997	-0.001	2687.499999	-0.001
30	2498.499999	-0.001	2687.499999	0.000
40	2498.499999	0.000	2687.499998	-0.001
50	2498.499997	-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	2501.000003	0.001	2685.000003	0.001
5	2501.000004	0.001	2685.000002	0.001
5.75	2501.000003	0.001	2685.000003	0.001

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

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 41			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	2501.000002	0.001	2685.000002	0.001
-20	2501.000002	0.001	2685.000002	0.001
-10	2501.000003	0.001	2685.000004	0.001
0	2501.000001	0.001	2685.000003	0.001
10	2501.000002	0.001	2685.000003	0.001
20	2500.999996	-0.002	2684.999996	-0.001
30	2500.999996	-0.002	2684.999997	-0.001
40	2500.999998	-0.001	2684.999997	-0.001
50	2500.999998	-0.001	2684.999999	0.000

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	2682.500003	0.001
5	2503.500004	0.001	2682.500003	0.001
5.75	2503.500001	0.000	2682.500002	0.001

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

Frequency Error vs. Temperature

Temp. (℃)	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	2682.500002	0.001
-10	2503.500001	0.001	2682.500003	0.001
0	2503.500004	0.002	2682.500004	0.001
10	2503.500003	0.001	2682.500001	0.000
20	2503.499997	-0.001	2682.499997	-0.001
30	2503.499999	0.000	2682.499996	-0.001
40	2503.499998	-0.001	2682.499997	-0.001
50	2503.499997	-0.001	2682.499999	0.000

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	2506.000003	0.001	2680.000001	0.000
5	2506.000003	0.001	2680.000003	0.001
5.75	2506.000003	0.001	2680.000003	0.001

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

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 41			
	Channel Bandwidth: 20 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	2506.000002	0.001	2680.000003	0.001
-20	2506.000002	0.001	2680.000002	0.001
-10	2506.000004	0.002	2680.000003	0.001
0	2506.000004	0.001	2680.000004	0.001
10	2506.000001	0.000	2680.000002	0.001
20	2505.999997	-0.001	2679.999997	-0.001
30	2505.999998	-0.001	2679.999998	-0.001
40	2505.999999	-0.001	2679.999996	-0.001
50	2505.999996	-0.002	2679.999999	0.000

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	1710.700004	0.002	1779.300002	0.001
5	1710.700002	0.001	1779.300001	0.001
5.75	1710.700004	0.002	1779.300003	0.002

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

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 66			
	Channel Bandwidth: 1.4 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1710.700001	0.001	1779.300002	0.001
-20	1710.700002	0.001	1779.300004	0.002
-10	1710.700001	0.001	1779.300002	0.001
0	1710.700003	0.002	1779.300003	0.002
10	1710.700002	0.001	1779.300003	0.002
20	1710.699996	-0.002	1779.299999	-0.001
30	1710.699998	-0.001	1779.299998	-0.001
40	1710.699996	-0.002	1779.299996	-0.002
50	1710.699997	-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	1711.500003	0.002	1778.500003	0.002
5	1711.500002	0.001	1778.500002	0.001
5.75	1711.500003	0.002	1778.500001	0.001

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

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 66			
	Channel Bandwidth: 3 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1711.500002	0.001	1778.500003	0.002
-20	1711.500002	0.001	1778.500004	0.002
-10	1711.500002	0.001	1778.500003	0.001
0	1711.500002	0.001	1778.500003	0.001
10	1711.500003	0.002	1778.500002	0.001
20	1711.499996	-0.002	1778.499996	-0.002
30	1711.499996	-0.002	1778.499998	-0.001
40	1711.499997	-0.002	1778.499996	-0.002
50	1711.499997	-0.002	1778.499999	-0.001

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	1712.500004	0.002	1777.500004	0.002
5	1712.500001	0.001	1777.500002	0.001
5.75	1712.500002	0.001	1777.500002	0.001

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

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 66			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1712.500003	0.002	1777.500002	0.001
-20	1712.500002	0.001	1777.500004	0.002
-10	1712.500003	0.002	1777.500003	0.002
0	1712.500002	0.001	1777.500004	0.002
10	1712.500004	0.002	1777.500001	0.001
20	1712.499999	-0.001	1777.499998	-0.001
30	1712.499997	-0.002	1777.499999	-0.001
40	1712.499997	-0.002	1777.499997	-0.002
50	1712.499997	-0.002	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	1775.000001	0.001
5	1715.000001	0.001	1775.000002	0.001
5.75	1715.000003	0.002	1775.000001	0.001

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

Frequency Error vs. Temperature

Temp. (℃)	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	1775.000002	0.001
-20	1715.000004	0.002	1775.000001	0.001
-10	1715.000004	0.002	1775.000001	0.001
0	1715.000003	0.002	1775.000004	0.002
10	1715.000002	0.001	1775.000003	0.002
20	1714.999996	-0.002	1774.999997	-0.002
30	1714.999997	-0.002	1774.999997	-0.002
40	1714.999997	-0.002	1774.999999	-0.001
50	1714.999999	-0.001	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	1717.500002	0.001	1772.500003	0.001
5	1717.500002	0.001	1772.500003	0.002
5.75	1717.500004	0.002	1772.500003	0.002

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

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 66			
	Channel Bandwidth: 15 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1717.500001	0.001	1772.500001	0.001
-20	1717.500003	0.002	1772.500002	0.001
-10	1717.500001	0.001	1772.500002	0.001
0	1717.500004	0.002	1772.500001	0.001
10	1717.500003	0.002	1772.500003	0.002
20	1717.499998	-0.001	1772.499997	-0.001
30	1717.499997	-0.002	1772.499997	-0.002
40	1717.499996	-0.002	1772.499998	-0.001
50	1717.499997	-0.002	1772.499998	-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	1720.000004	0.002	1770.000002	0.001
5	1720.000003	0.002	1770.000002	0.001
5.75	1720.000003	0.002	1770.000001	0.001

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

Frequency Error vs. Temperature

Temp. (℃)	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	1770.000003	0.002
-20	1720.000003	0.002	1770.000002	0.001
-10	1720.000004	0.002	1770.000001	0.001
0	1720.000004	0.002	1770.000003	0.002
10	1720.000001	0.001	1770.000003	0.001
20	1719.999999	-0.001	1769.999998	-0.001
30	1719.999997	-0.002	1769.999999	-0.001
40	1719.999999	-0.001	1769.999998	-0.001
50	1719.999997	-0.002	1769.999997	-0.002

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	665.500003	0.005	695.500003	0.004
5	665.500002	0.003	695.500001	0.002
5.75	665.500001	0.002	695.500002	0.003

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

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 71			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	665.500002	0.004	695.500003	0.005
-20	665.500002	0.004	695.500003	0.004
-10	665.500002	0.002	695.500004	0.006
0	665.500003	0.005	695.500003	0.004
10	665.500002	0.003	695.500003	0.005
20	665.499998	-0.002	695.499997	-0.005
30	665.499997	-0.004	695.499999	-0.002
40	665.499998	-0.003	695.499999	-0.001
50	665.499998	-0.003	695.499997	-0.004

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	668.000002	0.003	693.000002	0.003
5	668.000004	0.006	693.000003	0.004
5.75	668.000004	0.005	693.000002	0.002

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

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 71			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	668.000003	0.005	693.000002	0.003
-20	668.000004	0.006	693.000004	0.005
-10	668.000003	0.004	693.000001	0.002
0	668.000003	0.004	693.000003	0.004
10	668.000003	0.005	693.000003	0.004
20	667.999998	-0.003	692.999996	-0.005
30	667.999998	-0.003	692.999997	-0.005
40	667.999998	-0.003	692.999997	-0.005
50	667.999998	-0.003	692.999998	-0.003

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	670.500003	0.005	690.500004	0.006
5	670.500004	0.005	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. (℃)	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	690.500002	0.002
-20	670.500001	0.002	690.500004	0.006
-10	670.500002	0.003	690.500001	0.002
0	670.500002	0.003	690.500004	0.006
10	670.500001	0.002	690.500003	0.005
20	670.499997	-0.004	690.499998	-0.004
30	670.499999	-0.002	690.499997	-0.004
40	670.499997	-0.005	690.499997	-0.004
50	670.499999	-0.002	690.499998	-0.002

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	673.000004	0.005	688.000004	0.006
5	673.000002	0.003	688.000002	0.003
5.75	673.000002	0.003	688.000001	0.002

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

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 71			
	Channel Bandwidth: 20 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	673.000002	0.003	688.000002	0.003
-20	673.000003	0.004	688.000003	0.005
-10	673.000004	0.005	688.000002	0.003
0	673.000003	0.004	688.000003	0.005
10	673.000004	0.006	688.000003	0.004
20	672.999998	-0.003	687.999998	-0.003
30	672.999997	-0.005	687.999996	-0.006
40	672.999998	-0.003	687.999998	-0.003
50	672.999999	-0.002	687.999997	-0.005

4.4 Occupied Bandwidth Measurement

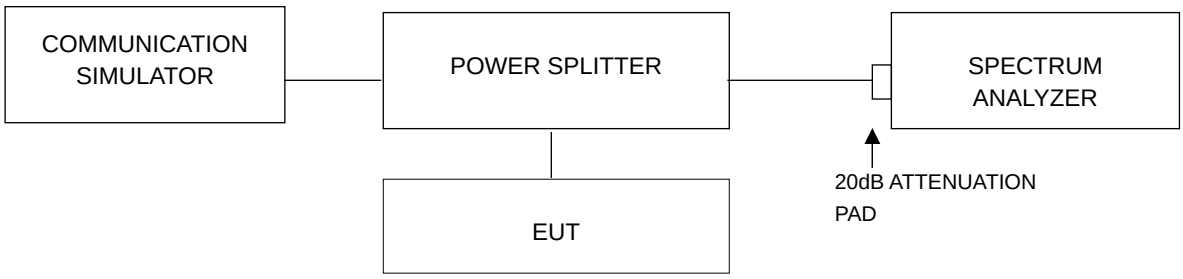
4.4.1 Limits of Occupied Bandwidth Measurement

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

LTE Band 4

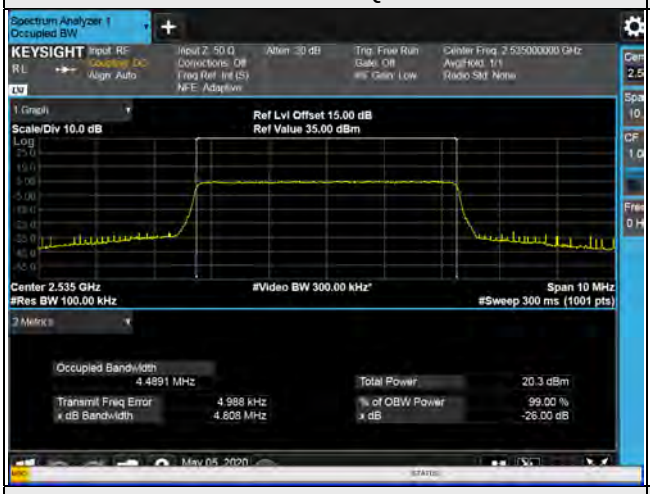
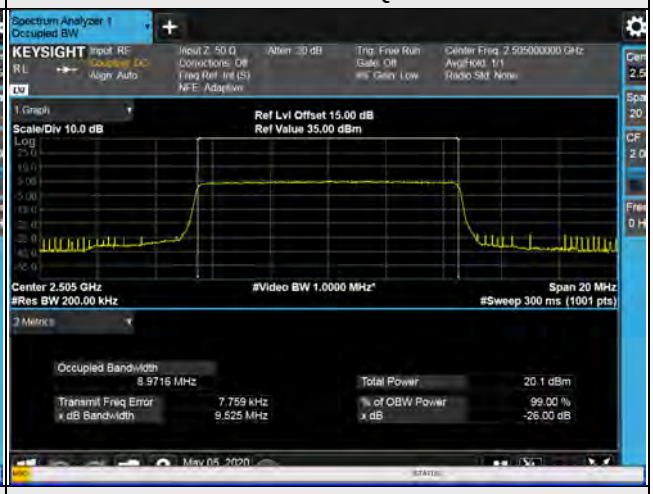
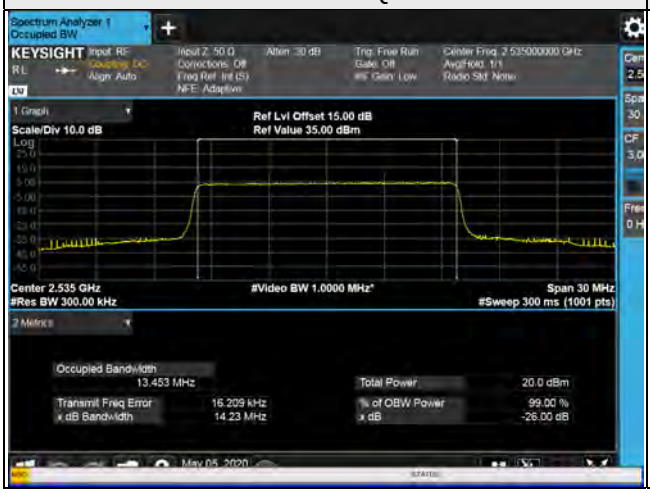
LTE Band 4, Channel Bandwidth 1.4MHz		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
		256QAM
19957	1710.7	1.09
20175	1732.5	1.09
20393	1754.3	1.09
LTE Band 4, Channel Bandwidth 3MHz		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
		256QAM
19965	1711.5	2.70
20175	1732.5	2.70
20385	1753.5	2.70
LTE Band 4, Channel Bandwidth 5MHz		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
		256QAM
19975	1712.5	4.49
20175	1732.5	4.49
20375	1752.5	4.49
LTE Band 4, Channel Bandwidth 10MHz		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
		256QAM
20000	1715.0	8.98
20175	1732.5	8.98
20350	1750.0	8.98
LTE Band 4, Channel Bandwidth 15MHz		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
		256QAM
20025	1717.5	13.45
20175	1732.5	13.46
20325	1747.5	13.46

LTE Band 4, Channel Bandwidth 20MHz		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
		256QAM
20050	1720.0	17.91
20175	1732.5	17.93
20300	1745.0	17.97

Spectrum Plot of Worst Value	
1.4MHz / 256QAM	3MHz / 256QAM
	
5MHz / 256QAM	10MHz / 256QAM
	
15MHz / 256QAM	20MHz / 256QAM
	

LTE Band 7

LTE Band 7, Channel Bandwidth 5MHz		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
		256QAM
20775	2502.5	4.49
21100	2535.0	4.49
21425	2567.5	4.49
LTE Band 7, Channel Bandwidth 10MHz		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
		256QAM
20800	2505.0	8.97
21100	2535.0	8.97
21400	2565.0	8.97
LTE Band 7, Channel Bandwidth 15MHz		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
		256QAM
20825	2507.5	13.44
21100	2535.0	13.45
21375	2562.5	13.45
LTE Band 7, Channel Bandwidth 20MHz		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
		256QAM
20850	2510.0	17.90
21100	2535.0	17.93
21350	2560.0	17.92

Spectrum Plot of Worst Value	
5MHz / 256QAM	10MHz / 256QAM
	
15MHz / 256QAM	20MHz / 256QAM
	

LTE Band 12

LTE Band 12, Channel Bandwidth 1.4MHz		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
		256QAM
23017	699.7	1.09
23095	707.5	1.09
23173	715.3	1.09
LTE Band 12, Channel Bandwidth 3MHz		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
		256QAM
23025	700.5	2.70
23095	707.5	2.70
23165	714.5	2.70
LTE Band 12, Channel Bandwidth 5MHz		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
		256QAM
23035	701.5	4.49
23095	707.5	4.49
23155	713.5	4.49
LTE Band 12, Channel Bandwidth 10MHz		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
		256QAM
23060	704.0	8.98
23095	707.5	8.97
23130	711.0	8.97

Spectrum Plot of Worst Value	
1.4MHz / 256QAM	3MHz / 256QAM
	
5MHz / 256QAM	10MHz / 256QAM
	

LTE Band 13

LTE Band 13, Channel Bandwidth 5MHz		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
		256QAM
23205	779.5	4.48
23230	782.0	4.51
23255	784.5	4.49

LTE Band 13, Channel Bandwidth 10MHz		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
		256QAM
23230	782.0	8.98

Spectrum Plot of Worst Value	
5MHz / 256QAM	10MHz / 256QAM
	

LTE Band 17

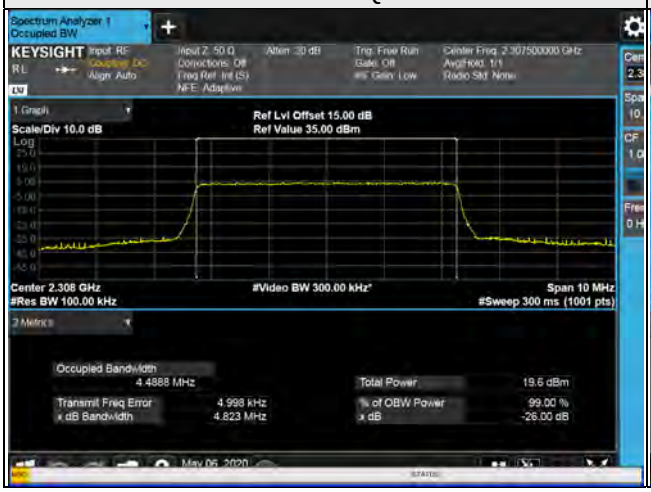
LTE Band 17, Channel Bandwidth 5MHz		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
		256QAM
23755	706.5	4.48
23790	710.0	4.48
23825	713.5	4.48
LTE Band 17, Channel Bandwidth 10MHz		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
		256QAM
23780	709.0	8.95
23790	710.0	8.95
23800	711.0	8.95

Spectrum Plot of Worst Value	
5MHz / 256QAM	10MHz / 256QAM
	

LTE Band 30

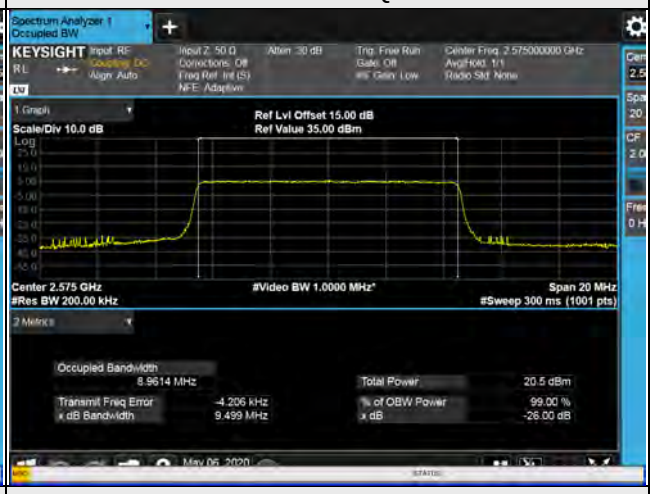
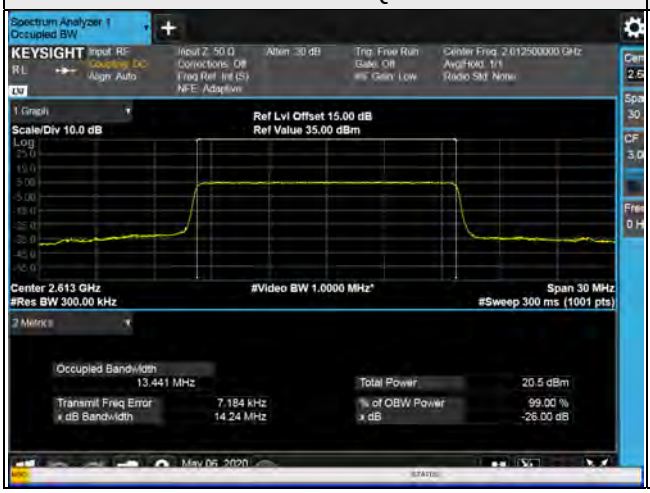
LTE Band 30, Channel Bandwidth 5MHz		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
		256QAM
27685	2307.5	4.49
27710	2310	4.49
27735	2312.5	4.49

LTE Band 30, Channel Bandwidth 10MHz		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
		256QAM
27710	2310	8.97

Spectrum Plot of Worst Value	
5MHz / 256QAM	10MHz / 256QAM
	

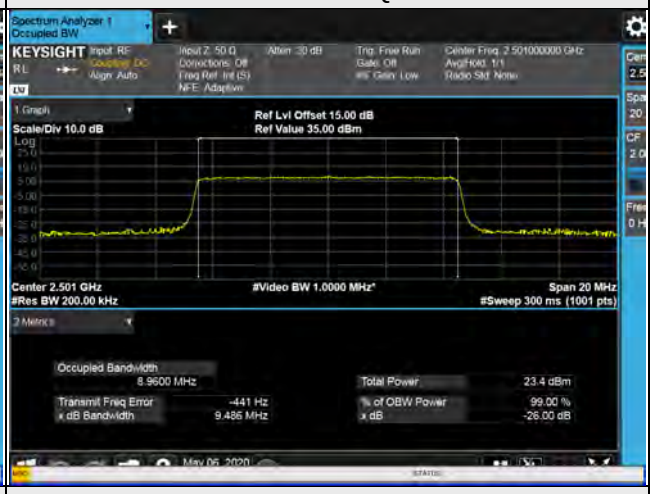
LTE Band 38

LTE Band 38, Channel Bandwidth 5MHz		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
		256QAM
37775	2572.5	4.49
38000	2595.0	4.48
38225	2617.5	4.49
LTE Band 38, Channel Bandwidth 10MHz		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
		256QAM
37800	2575.0	8.96
38000	2595.0	8.96
38200	2615.0	8.96
LTE Band 38, Channel Bandwidth 15MHz		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
		256QAM
37825	2577.5	13.44
38000	2595.0	13.44
38175	2612.5	13.44
LTE Band 38, Channel Bandwidth 20MHz		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
		256QAM
37850	2580.0	17.90
38000	2595.0	17.90
38150	2610.0	17.90

Spectrum Plot of Worst Value	
5MHz / 256QAM	10MHz / 256QAM
	
15MHz / 256QAM	20MHz / 256QAM
	

LTE Band 41

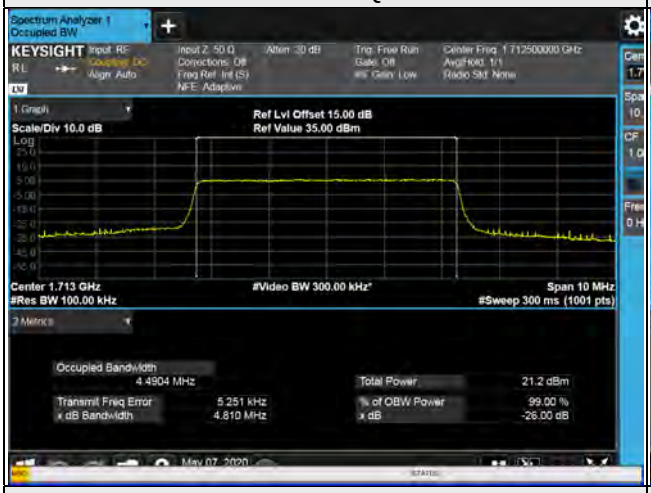
LTE Band 41, Channel Bandwidth 5MHz		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
		256QAM
39675	2498.5	4.49
40620	2593	4.49
41565	2687.5	4.48
LTE Band 41, Channel Bandwidth 10MHz		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
		256QAM
39700	2501	8.96
40620	2593	8.96
41540	2685	8.96
LTE Band 41, Channel Bandwidth 15MHz		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
		256QAM
39725	2503.5	13.43
40620	2593	13.44
41515	2682.5	13.44
LTE Band 41, Channel Bandwidth 20MHz		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
		256QAM
39750	2506	17.91
40620	2593	17.91
41490	2680	17.89

Spectrum Plot of Worst Value	
5MHz / 256QAM	10MHz / 256QAM
	
15MHz / 256QAM	20MHz / 256QAM
	

LTE Band 66

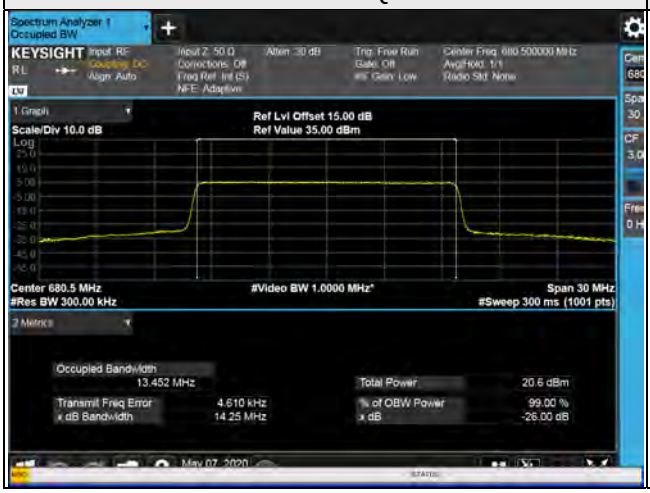
LTE Band 66, Channel Bandwidth 1.4MHz		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
		256QAM
131979	1710.7	1.09
132322	1745.0	1.09
132665	1779.3	1.09
LTE Band 66, Channel Bandwidth 3MHz		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
		256QAM
131987	1711.5	2.70
132322	1745.0	2.70
132657	1778.5	2.70
LTE Band 66, Channel Bandwidth 5MHz		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
		256QAM
131997	1712.5	4.49
132322	1745.0	4.49
132647	1777.5	4.49
LTE Band 66, Channel Bandwidth 10MHz		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
		256QAM
132022	1715.0	8.98
132322	1745.0	8.97
132622	1775.0	8.97
LTE Band 66, Channel Bandwidth 15MHz		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
		256QAM
132047	1717.5	13.44
132322	1745.0	13.47
132597	1772.5	13.48

LTE Band 66, Channel Bandwidth 20MHz		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
		256QAM
132072	1720.0	17.90
132322	1745.0	17.96
132572	1770.0	18.02

Spectrum Plot of Worst Value	
1.4MHz / 256QAM	3MHz / 256QAM
	
5MHz / 256QAM	10MHz / 256QAM
	
15MHz / 256QAM	20MHz / 256QAM
	

LTE Band 71

LTE Band 71, Channel Bandwidth 5MHz		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
		256QAM
133147	665.5	4.49
133297	680.5	4.49
133447	695.5	4.49
LTE Band 71, Channel Bandwidth 10MHz		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
		256QAM
133172	668	8.98
133297	680.5	8.98
133422	693	8.97
LTE Band 71, Channel Bandwidth 15MHz		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
		256QAM
133197	670.5	13.45
133297	680.5	13.45
133397	690.5	13.43
LTE Band 71, Channel Bandwidth 20MHz		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
		256QAM
133222	673	17.90
133297	680.5	17.93
133372	688	17.90

Spectrum Plot of Worst Value	
5MHz / 256QAM	10MHz / 256QAM
	
15MHz / 256QAM	20MHz / 256QAM
	

26dB Bandwidth

LTE Band 4

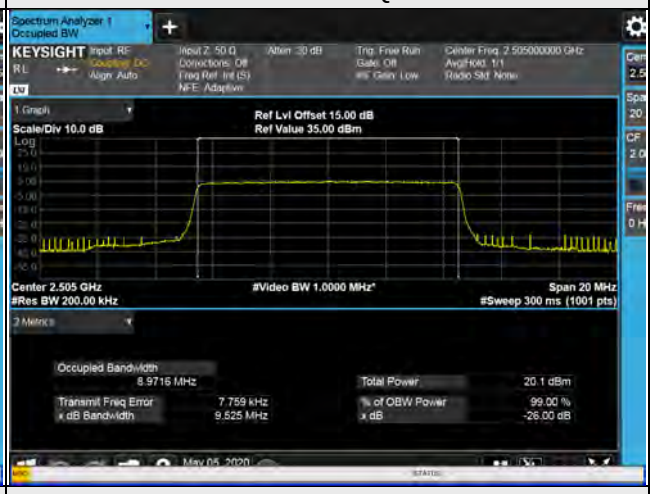
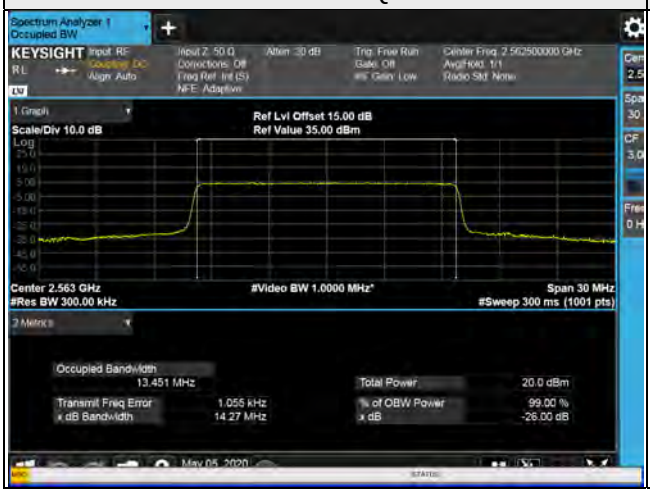
LTE Band 4, Channel Bandwidth 1.4MHz		
Channel	Frequency (MHz)	26dB Bandwidth (MHz)
		256QAM
19957	1710.7	1.22
20175	1732.5	1.22
20393	1754.3	1.21
LTE Band 4, Channel Bandwidth 3MHz		
Channel	Frequency (MHz)	26dB Bandwidth (MHz)
		256QAM
19965	1711.5	2.94
20175	1732.5	2.92
20385	1753.5	2.94
LTE Band 4, Channel Bandwidth 5MHz		
Channel	Frequency (MHz)	26dB Bandwidth (MHz)
		256QAM
19975	1712.5	4.84
20175	1732.5	4.82
20375	1752.5	4.84
LTE Band 4, Channel Bandwidth 10MHz		
Channel	Frequency (MHz)	26dB Bandwidth (MHz)
		256QAM
20000	1715.0	9.51
20175	1732.5	9.54
20350	1750.0	9.53
LTE Band 4, Channel Bandwidth 15MHz		
Channel	Frequency (MHz)	26dB Bandwidth (MHz)
		256QAM
20025	1717.5	14.24
20175	1732.5	14.24
20325	1747.5	14.24

LTE Band 4, Channel Bandwidth 20MHz		
Channel	Frequency (MHz)	26dB Bandwidth (MHz)
		256QAM
20050	1720.0	19.04
20175	1732.5	19.05
20300	1745.0	19.06

Spectrum Plot of Worst Value	
1.4MHz / 256QAM	3MHz / 256QAM
	
5MHz / 256QAM	10MHz / 256QAM
	
15MHz / 256QAM	20MHz / 256QAM
	

LTE Band 7

LTE Band 7, Channel Bandwidth 5MHz		
Channel	Frequency (MHz)	26dB Bandwidth (MHz)
		256QAM
20775	2502.5	4.82
21100	2535.0	4.81
21425	2567.5	4.82
LTE Band 7, Channel Bandwidth 10MHz		
Channel	Frequency (MHz)	26dB Bandwidth (MHz)
		256QAM
20800	2505.0	9.53
21100	2535.0	9.52
21400	2565.0	9.52
LTE Band 7, Channel Bandwidth 15MHz		
Channel	Frequency (MHz)	26dB Bandwidth (MHz)
		256QAM
20825	2507.5	14.23
21100	2535.0	14.23
21375	2562.5	14.27
LTE Band 7, Channel Bandwidth 20MHz		
Channel	Frequency (MHz)	26dB Bandwidth (MHz)
		256QAM
20850	2510.0	19.01
21100	2535.0	19.04
21350	2560.0	19.02

Spectrum Plot of Worst Value	
5MHz / 256QAM	10MHz / 256QAM
	
15MHz / 256QAM	20MHz / 256QAM
	

LTE Band 12

LTE Band 12, Channel Bandwidth 1.4MHz		
Channel	Frequency (MHz)	26dB Bandwidth (MHz)
		256QAM
23017	699.7	1.21
23095	707.5	1.21
23173	715.3	1.21
LTE Band 12, Channel Bandwidth 3MHz		
Channel	Frequency (MHz)	26dB Bandwidth (MHz)
		256QAM
23025	700.5	2.93
23095	707.5	2.91
23165	714.5	2.94
LTE Band 12, Channel Bandwidth 5MHz		
Channel	Frequency (MHz)	26dB Bandwidth (MHz)
		256QAM
23035	701.5	4.81
23095	707.5	4.83
23155	713.5	4.83
LTE Band 12, Channel Bandwidth 10MHz		
Channel	Frequency (MHz)	26dB Bandwidth (MHz)
		256QAM
23060	704.0	9.53
23095	707.5	9.51
23130	711.0	9.52

Spectrum Plot of Worst Value	
1.4MHz / 256QAM	3MHz / 256QAM
	
5MHz / 256QAM	10MHz / 256QAM
	

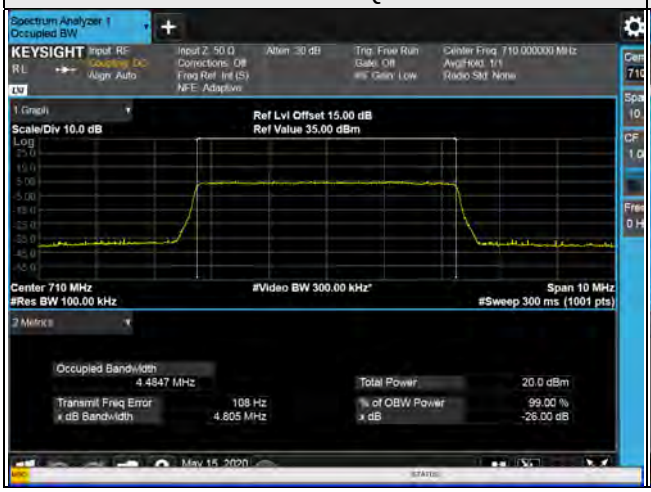
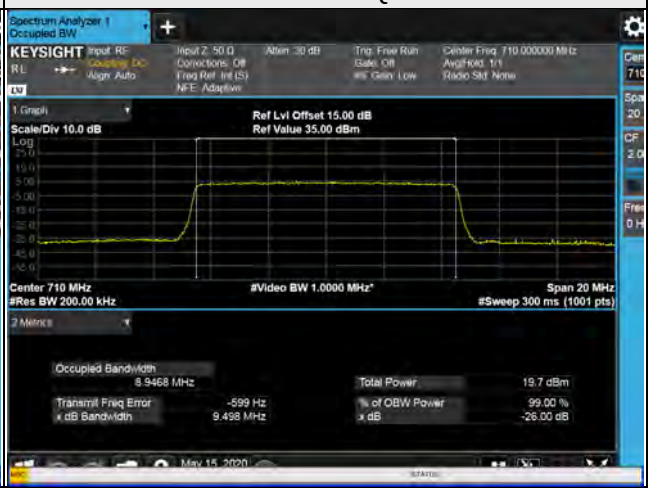
LTE Band 13

LTE Band 13, Channel Bandwidth 5MHz		
Channel	Frequency (MHz)	26dB Bandwidth (MHz)
		256QAM
23205	779.5	4.82
23230	782.0	5.88
23255	784.5	4.91
LTE Band 13, Channel Bandwidth 10MHz		
Channel	Frequency (MHz)	26dB Bandwidth (MHz)
		256QAM
23230	782.0	11.55

Spectrum Plot of Worst Value	
5MHz / 256QAM	10MHz / 256QAM
	

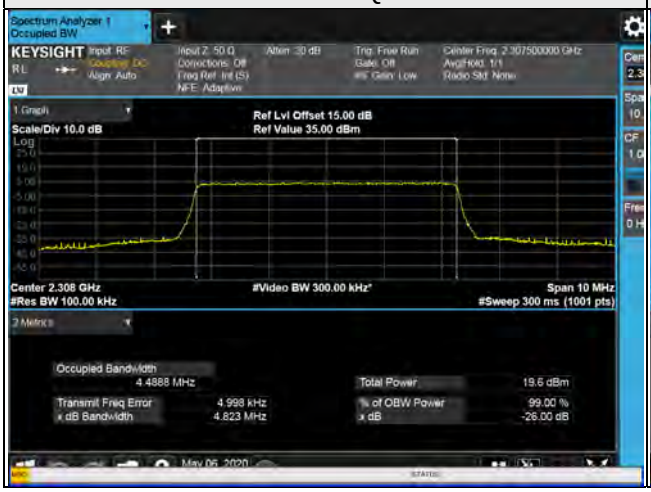
LTE Band 17

LTE Band 17, Channel Bandwidth 5MHz		
Channel	Frequency (MHz)	26dB Bandwidth (MHz)
		256QAM
23755	706.5	4.80
23790	710.0	4.81
23825	713.5	4.80
LTE Band 17, Channel Bandwidth 10MHz		
Channel	Frequency (MHz)	26dB Bandwidth (MHz)
		256QAM
23780	709.0	9.49
23790	710.0	9.50
23800	711.0	9.49

Spectrum Plot of Worst Value	
5MHz / 256QAM	10MHz / 256QAM
	

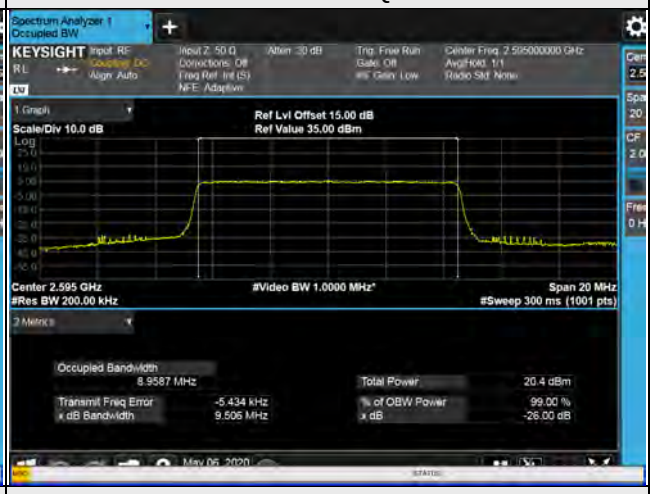
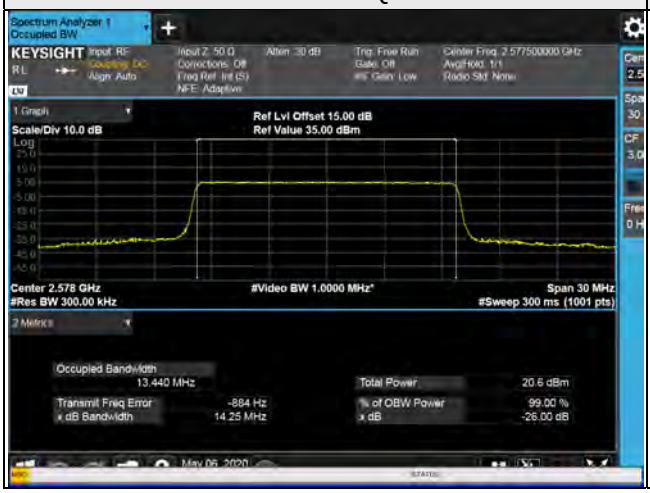
LTE Band 30

LTE Band 30, Channel Bandwidth 5MHz		
Channel	Frequency (MHz)	26dB Bandwidth (MHz)
		256QAM
27685	2307.5	4.82
27710	2310	4.81
27735	2312.5	4.81
LTE Band 30, Channel Bandwidth 10MHz		
Channel	Frequency (MHz)	26dB Bandwidth (MHz)
		256QAM
27710	2310	9.53

Spectrum Plot of Worst Value	
5MHz / 256QAM	10MHz / 256QAM
	

LTE Band 38

LTE Band 38, Channel Bandwidth 5MHz		
Channel	Frequency (MHz)	26dB Bandwidth (MHz)
		256QAM
37775	2572.5	4.79
38000	2595.0	4.81
38225	2617.5	4.81
LTE Band 38, Channel Bandwidth 10MHz		
Channel	Frequency (MHz)	26dB Bandwidth (MHz)
		256QAM
37800	2575.0	9.50
38000	2595.0	9.51
38200	2615.0	9.49
LTE Band 38, Channel Bandwidth 15MHz		
Channel	Frequency (MHz)	26dB Bandwidth (MHz)
		256QAM
37825	2577.5	14.25
38000	2595.0	14.23
38175	2612.5	14.24
LTE Band 38, Channel Bandwidth 20MHz		
Channel	Frequency (MHz)	26dB Bandwidth (MHz)
		256QAM
37850	2580.0	19.01
38000	2595.0	19.00
38150	2610.0	18.99

Spectrum Plot of Worst Value	
5MHz / 256QAM	10MHz / 256QAM
	
15MHz / 256QAM	20MHz / 256QAM
	

LTE Band 41

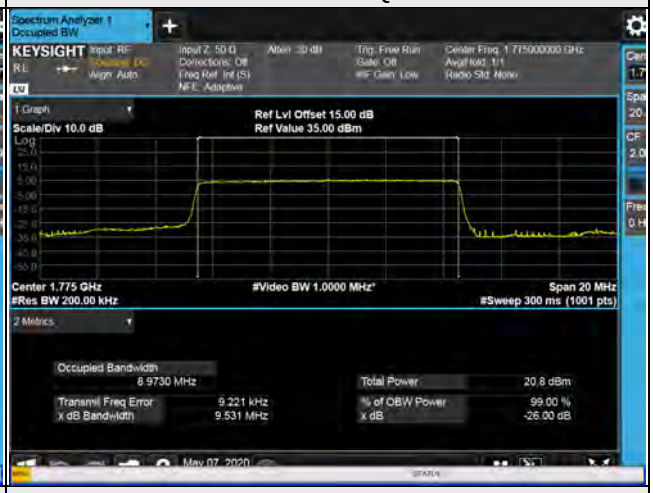
LTE Band 41, Channel Bandwidth 5MHz		
Channel	Frequency (MHz)	26dB Bandwidth (MHz)
		256QAM
39675	2498.5	4.82
40620	2593	4.80
41565	2687.5	4.80
LTE Band 41, Channel Bandwidth 10MHz		
Channel	Frequency (MHz)	26dB Bandwidth (MHz)
		256QAM
39700	2501	9.49
40620	2593	9.52
41540	2685	9.49
LTE Band 41, Channel Bandwidth 15MHz		
Channel	Frequency (MHz)	26dB Bandwidth (MHz)
		256QAM
39725	2503.5	14.25
40620	2593	14.22
41515	2682.5	14.24
LTE Band 41, Channel Bandwidth 20MHz		
Channel	Frequency (MHz)	26dB Bandwidth (MHz)
		256QAM
39750	2506	19.02
40620	2593	19.01
41490	2680	19.02

Spectrum Plot of Worst Value	
5MHz / 256QAM	10MHz / 256QAM
	
15MHz / 256QAM	20MHz / 256QAM
	

LTE Band 66

LTE Band 66, Channel Bandwidth 1.4MHz		
Channel	Frequency (MHz)	26dB Bandwidth (MHz)
		256QAM
131979	1710.7	1.22
132322	1745.0	1.21
132665	1779.3	1.22
LTE Band 66, Channel Bandwidth 3MHz		
Channel	Frequency (MHz)	26dB Bandwidth (MHz)
		256QAM
131987	1711.5	2.93
132322	1745.0	2.93
132657	1778.5	2.94
LTE Band 66, Channel Bandwidth 5MHz		
Channel	Frequency (MHz)	26dB Bandwidth (MHz)
		256QAM
131997	1712.5	4.81
132322	1745.0	4.81
132647	1777.5	4.81
LTE Band 66, Channel Bandwidth 10MHz		
Channel	Frequency (MHz)	26dB Bandwidth (MHz)
		256QAM
132022	1715.0	9.53
132322	1745.0	9.50
132622	1775.0	9.53
LTE Band 66, Channel Bandwidth 15MHz		
Channel	Frequency (MHz)	26dB Bandwidth (MHz)
		256QAM
132047	1717.5	14.24
132322	1745.0	14.25
132597	1772.5	14.28

LTE Band 66, Channel Bandwidth 20MHz		
Channel	Frequency (MHz)	26dB Bandwidth (MHz)
		256QAM
132072	1720.0	19.02
132322	1745.0	19.05
132572	1770.0	20.43

Spectrum Plot of Worst Value	
1.4MHz / 256QAM	3MHz / 256QAM
	
5MHz / 256QAM	10MHz / 256QAM
	
15MHz / 256QAM	20MHz / 256QAM
	

LTE Band 71

LTE Band 71, Channel Bandwidth 5MHz		
Channel	Frequency (MHz)	26dB Bandwidth (MHz)
		256QAM
133147	665.5	4.82
133297	680.5	4.81
133447	695.5	4.80
LTE Band 71, Channel Bandwidth 10MHz		
Channel	Frequency (MHz)	26dB Bandwidth (MHz)
		256QAM
133172	668	9.54
133297	680.5	9.53
133422	693	9.53
LTE Band 71, Channel Bandwidth 15MHz		
Channel	Frequency (MHz)	26dB Bandwidth (MHz)
		256QAM
133197	670.5	14.23
133297	680.5	14.25
133397	690.5	14.23
LTE Band 71, Channel Bandwidth 20MHz		
Channel	Frequency (MHz)	26dB Bandwidth (MHz)
		256QAM
133222	673	19.01
133297	680.5	19.04
133372	688	19.01

Spectrum Plot of Worst Value	
5MHz / 256QAM	10MHz / 256QAM
	
15MHz / 256QAM	20MHz / 256QAM
	

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.

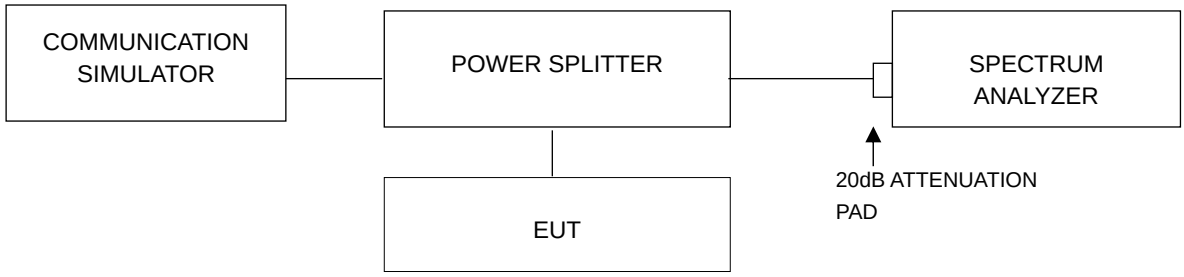
For LTE Band 30
According to FCC 27.53(a) (4) For mobile and portable stations operating in the 2305-2315 MHz and 2350-2360 MHz bands:

(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 1MHz. RB of the spectrum is 15kHz and VB of the spectrum is 51kHz (LTE Channel Bandwidth 1.4MHz).

c. 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).

d. 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).

e. 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).

f. 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).

g. 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).

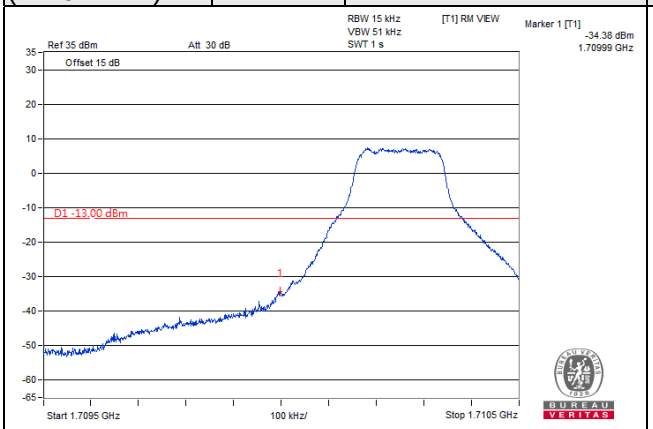
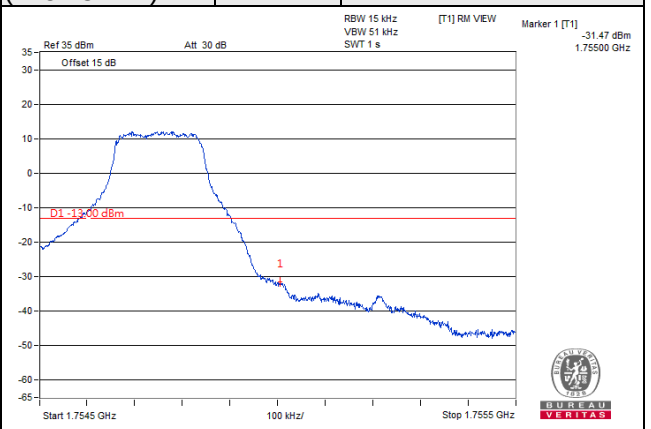
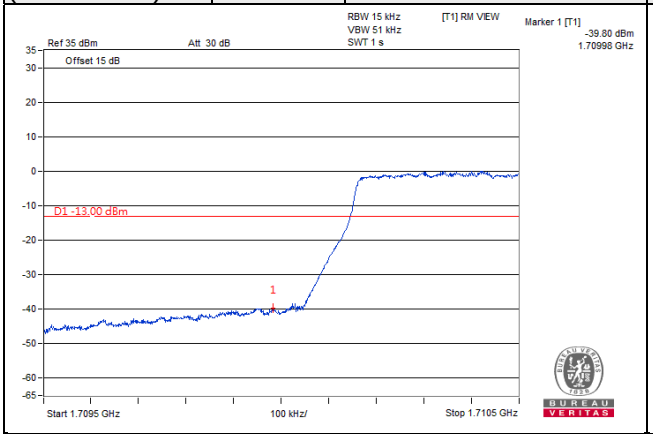
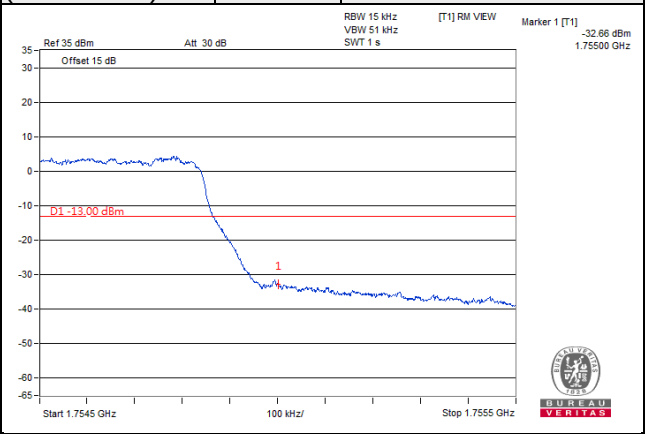
h. Except LTE Band 12and LTE Band 17 measurement procedure refer 27.53(g)(m)(6).

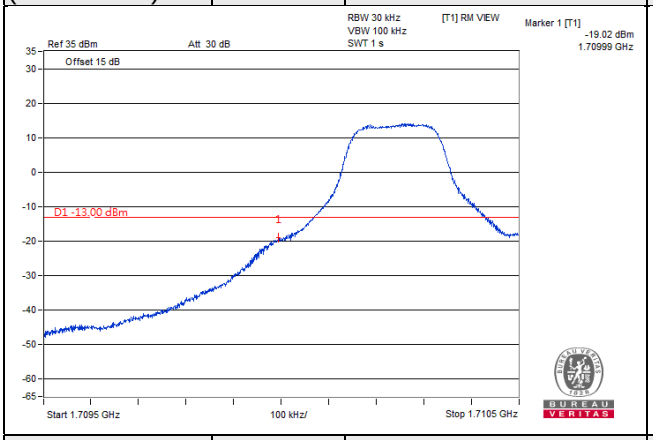
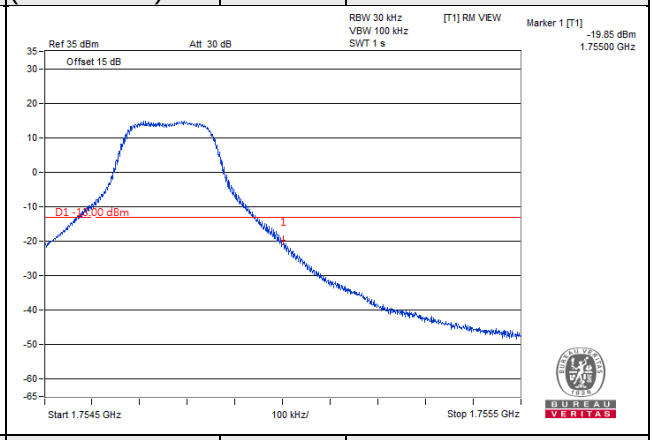
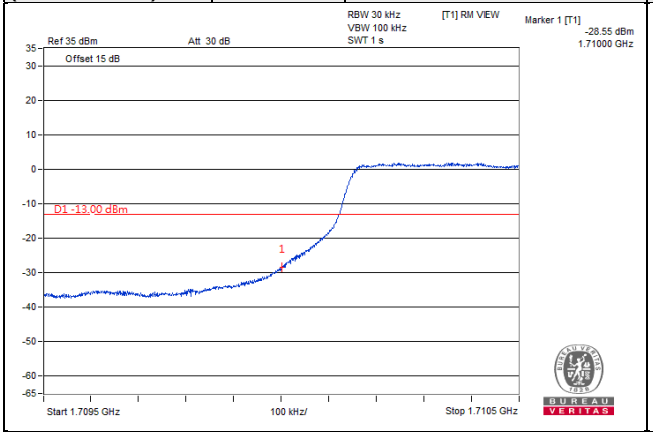
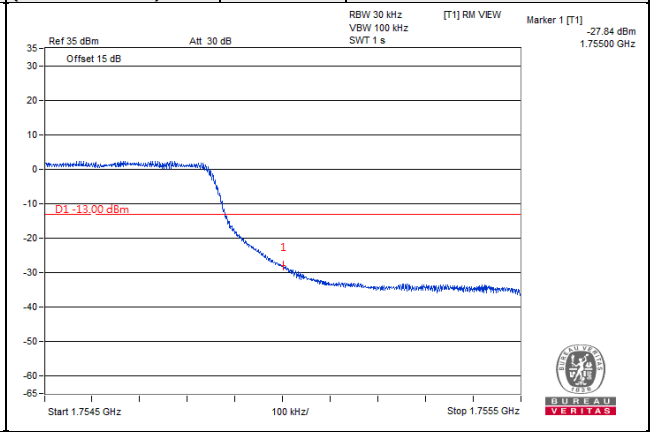
i. LTE Band 7, Band 38 and Band 41 operations in the 5 MHz and 10 MHz channel BW mode, extend the 1% range from 1M to 2M above and below the channel edge and then reduce the limit further by 10 log (1000/100)=10dB (i.e. total -10 + -10=-20dB) to compensate for the integration from 100k to 1M.

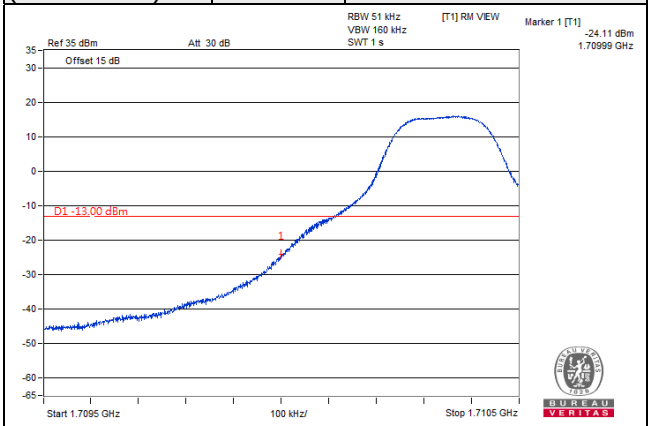
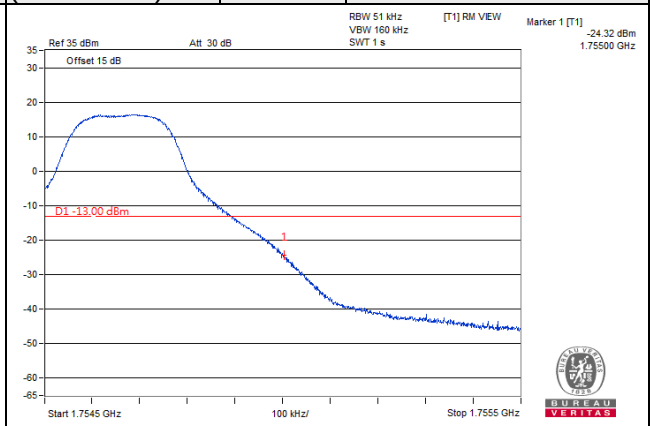
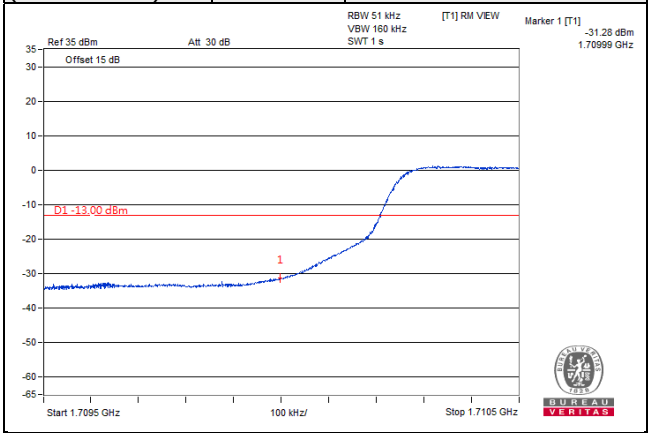
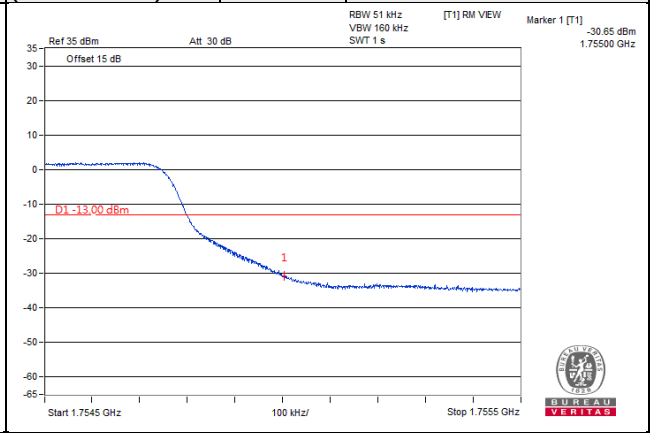
j. Record the max trace plot into the test report.

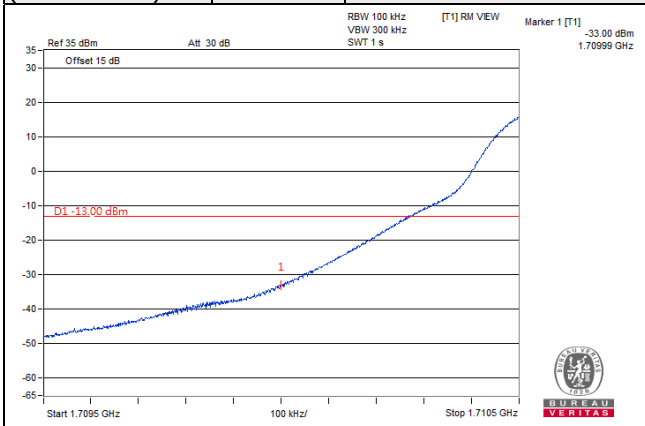
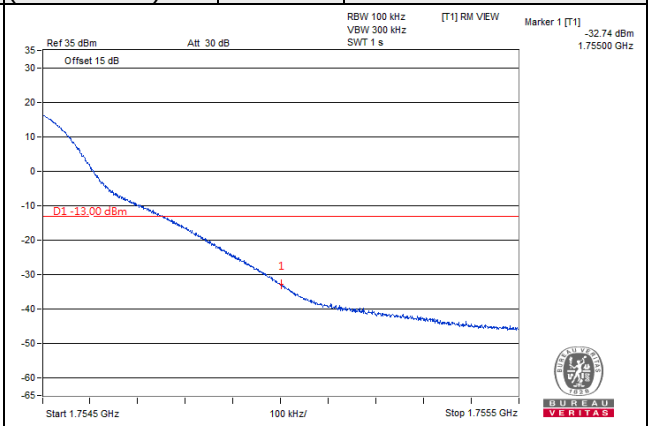
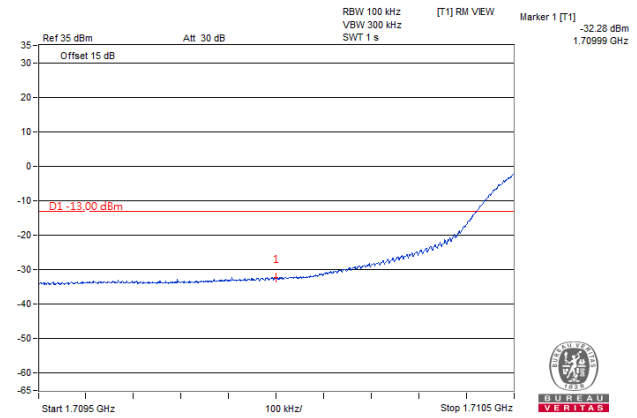
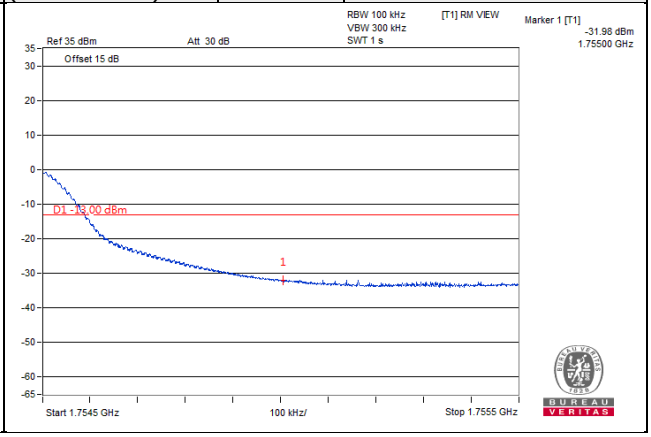
4.5.4 Test Results

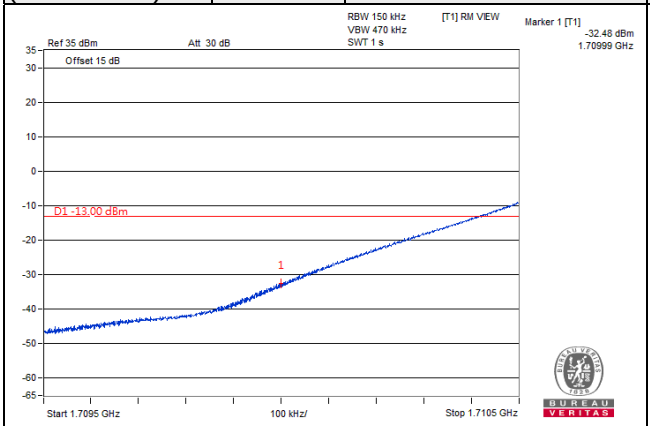
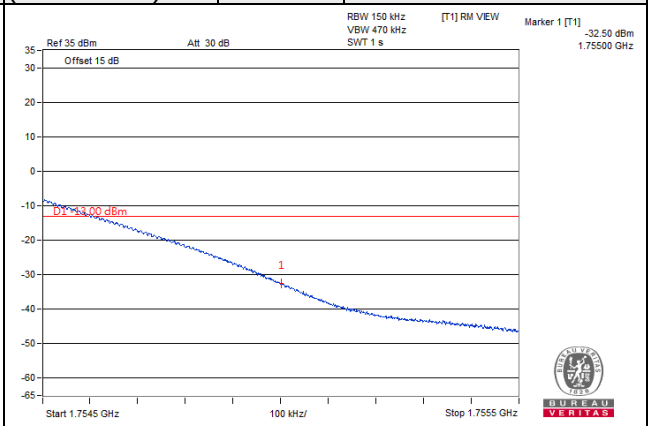
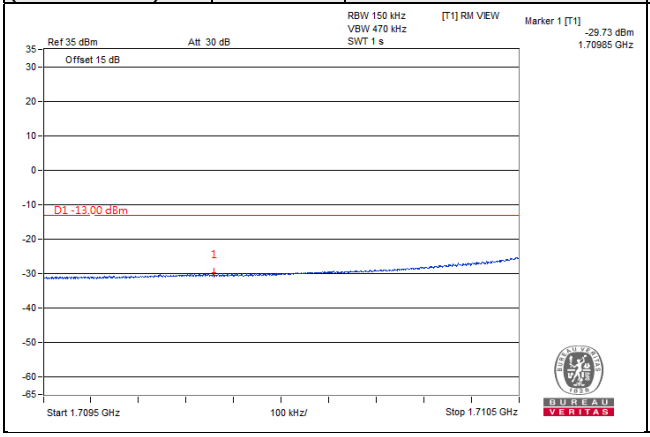
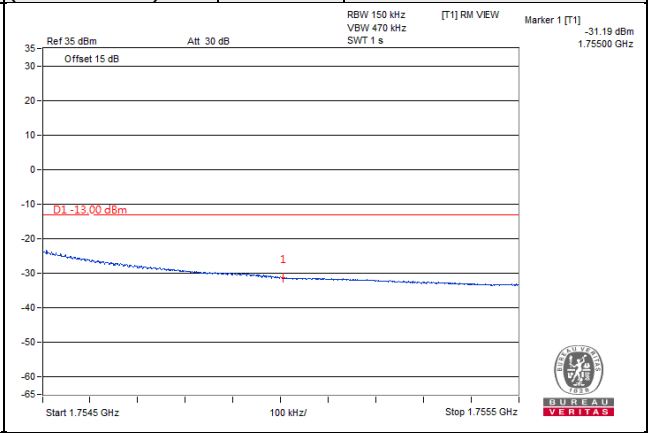
LTE Band 4

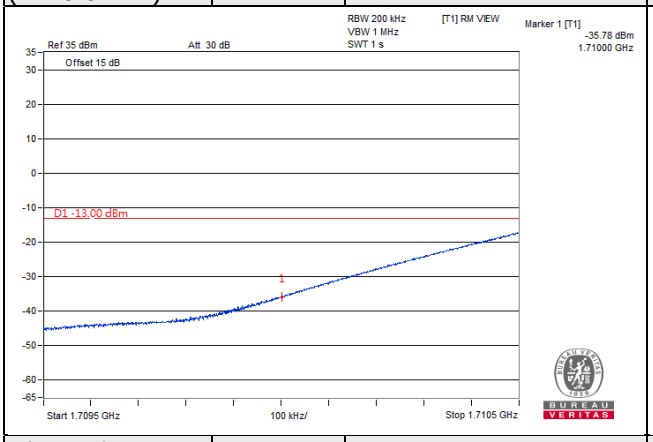
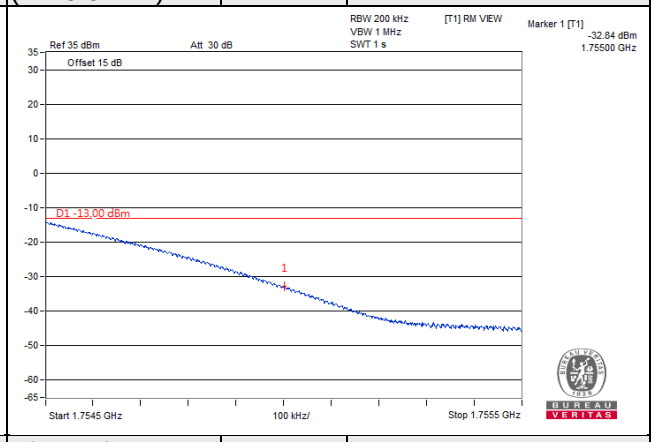
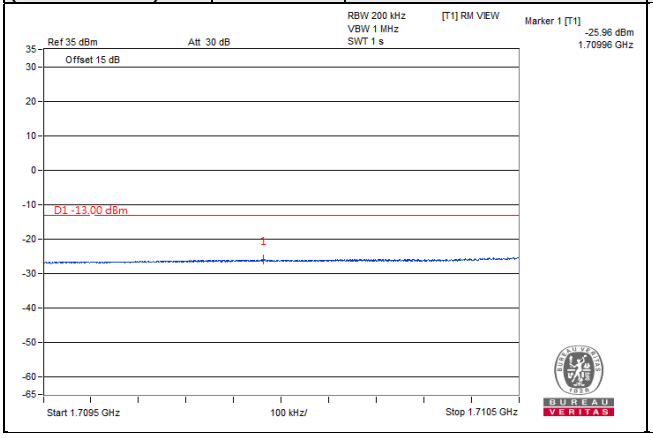
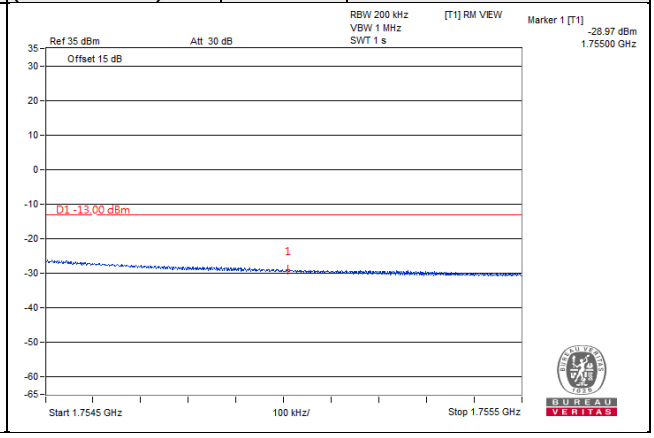
Channel Bandwidth: 1.4MHz					
Channel 19957 (1710.7MHz)	256QAM	1 RB / 0 RB Offset	Channel 20393 (1754.3MHz)	256QAM	1 RB / 5 RB Offset
					
Channel 19957 (1710.7MHz)	256QAM	6 RB / 0 RB Offset	Channel 20393 (1754.3MHz)	256QAM	6 RB / 0 RB Offset
					

Channel Bandwidth: 3MHz					
Channel 19965 (1711.5MHz)	256QAM	1 RB / 0 RB Offset	Channel 20385 (1753.5MHz)	256QAM	1 RB / 14 RB Offset
					
Channel 19965 (1711.5MHz)	256QAM	15 RB / 0 RB Offset	Channel 20385 (1753.5MHz)	256QAM	15 RB / 0 RB Offset
					

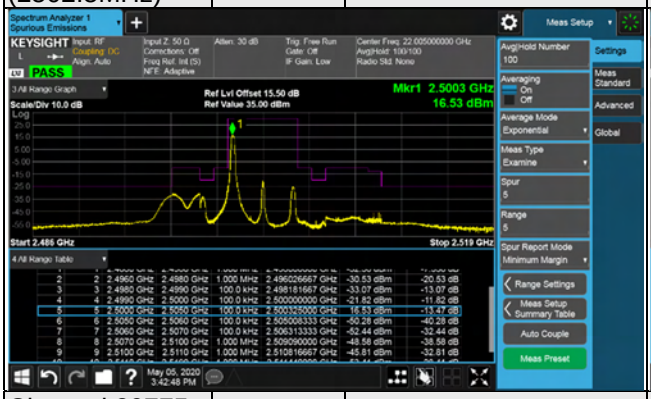
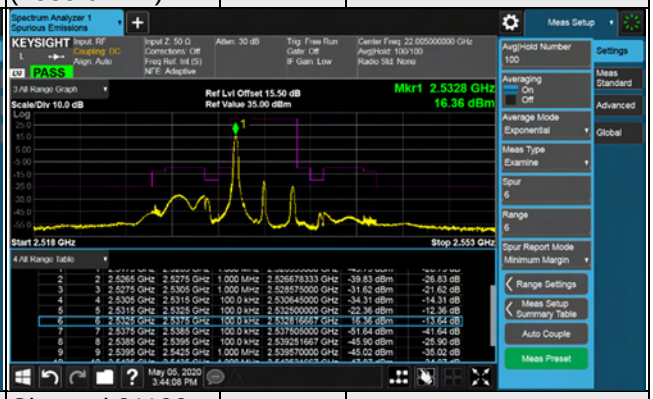
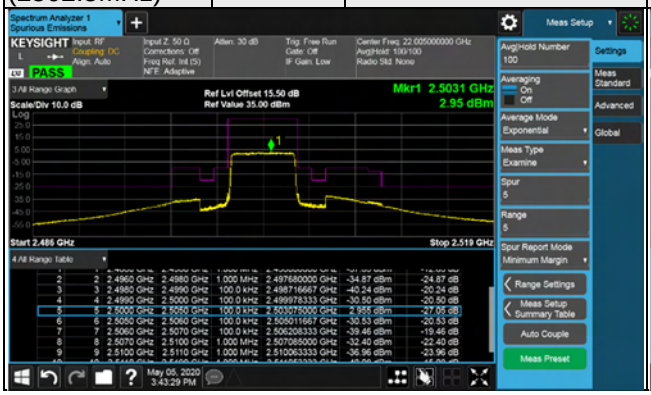
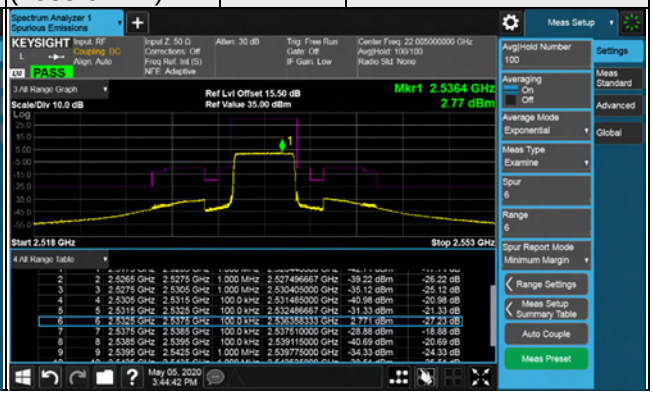
Channel Bandwidth: 5MHz					
Channel 19975 (1712.5MHz)	256QAM	1 RB / 0 RB Offset	Channel 20375 (1752.5MHz)	256QAM	1 RB / 24 RB Offset
					
Channel 19975 (1712.5MHz)	256QAM	25 RB / 0 RB Offset	Channel 20375 (1752.5MHz)	256QAM	25 RB / 0 RB Offset
					

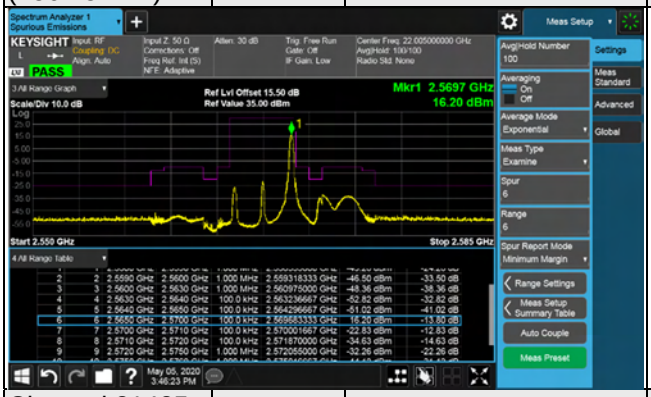
Channel Bandwidth: 10MHz					
Channel 20000 (1715.0MHz)	256QAM	1 RB / 0 RB Offset	Channel 20350 (1750.0MHz)	256QAM	1 RB / 49 RB Offset
					
Channel 20000 (1715.0MHz)	256QAM	50 RB / 0 RB Offset	Channel 20350 (1750.0MHz)	256QAM	50 RB / 0 RB Offset
					

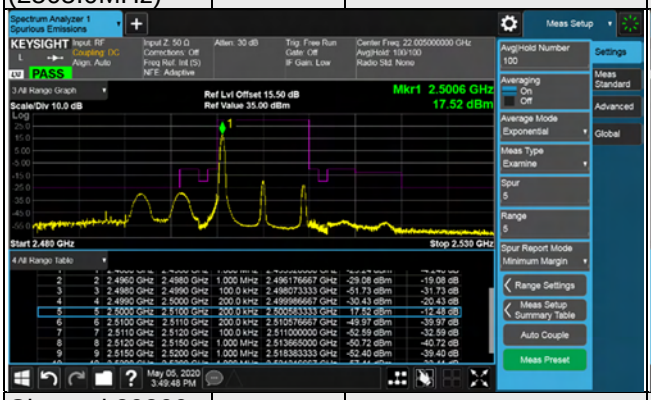
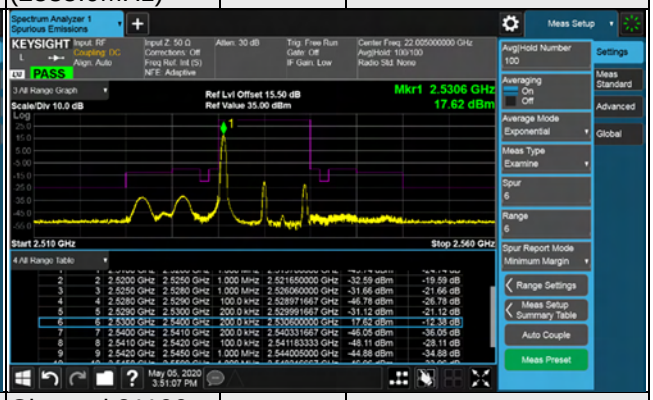
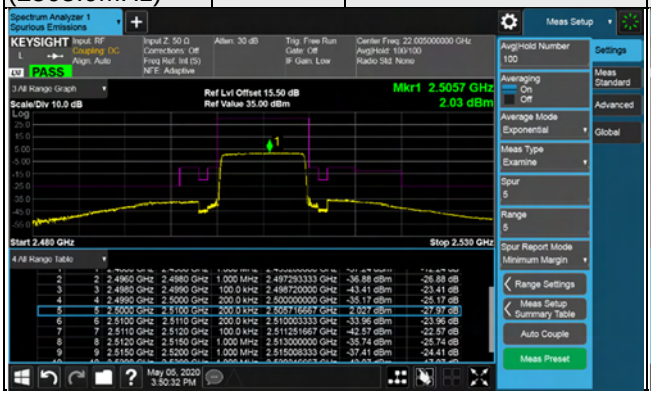
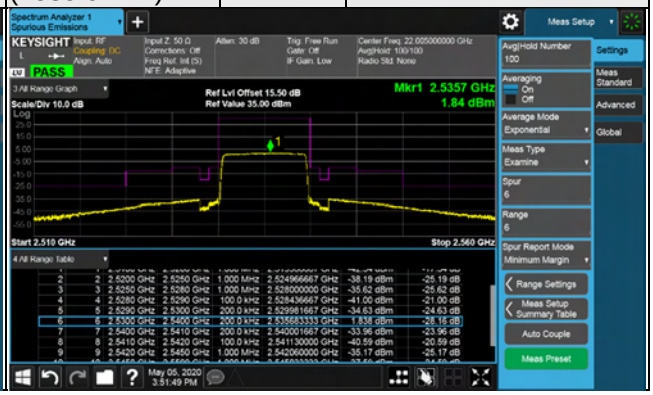
Channel Bandwidth: 15MHz					
Channel 20025 (1717.5MHz)	256QAM	1 RB / 0 RB Offset	Channel 20325 (1747.5MHz)	256QAM	1 RB / 74 RB Offset
					
Channel 20025 (1717.5MHz)	256QAM	75 RB / 0 RB Offset	Channel 20325 (1747.5MHz)	256QAM	75 RB / 0 RB Offset
					

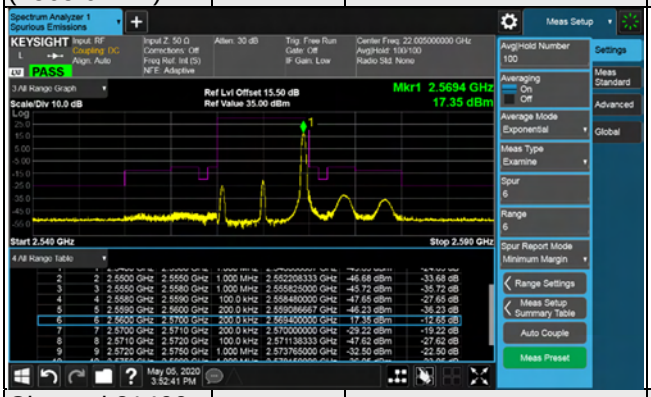
Channel Bandwidth: 20MHz					
Channel 20050 (1720.0MHz)	256QAM	1 RB / 0 RB Offset	Channel 20300 (1745.0MHz)	256QAM	1 RB / 99 RB Offset
					
Channel 20050 (1720.0MHz)	256QAM	100 RB / 0 RB Offset	Channel 20300 (1745.0MHz)	256QAM	100 RB / 0 RB Offset
					

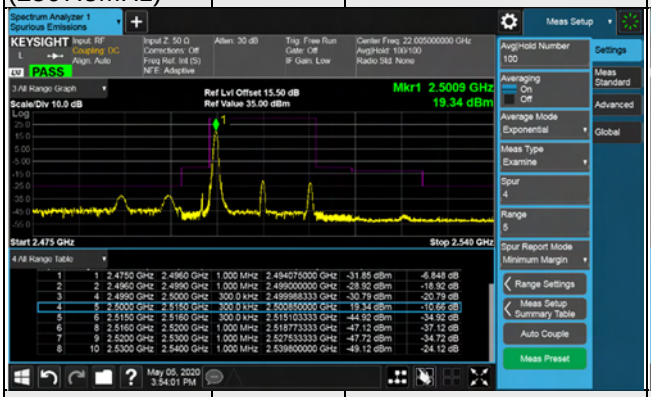
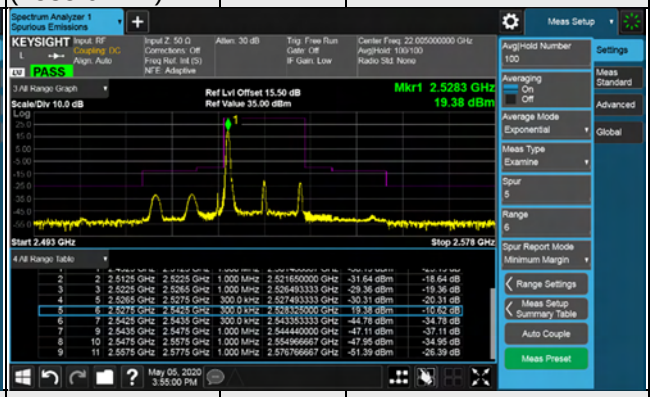
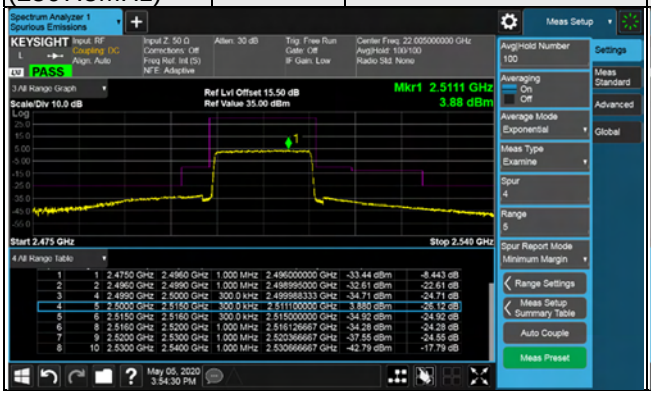
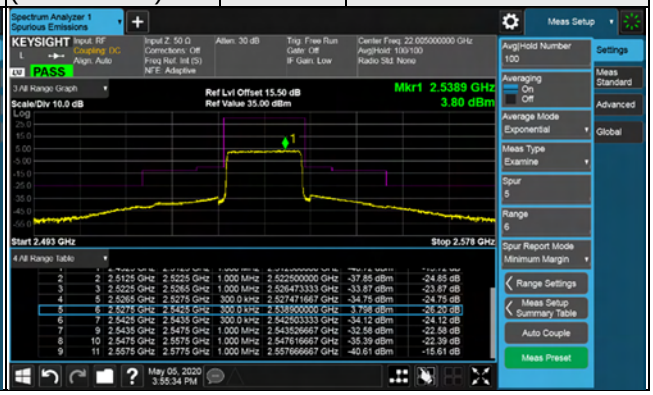
LTE Band 7
Emission Mask:

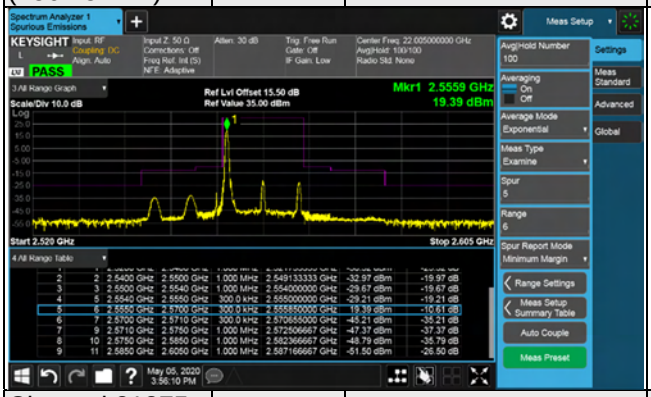
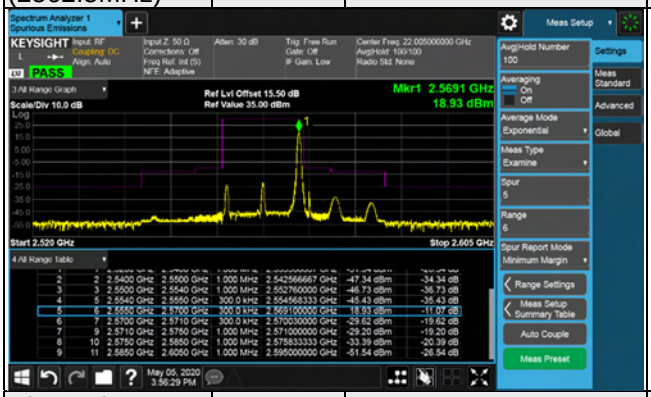
Channel Bandwidth: 5MHz					
Channel 20775 (2502.5MHz)	256QAM	1 RB / 0 RB Offset	Channel 21100 (2535.0MHz)	256QAM	1 RB / 0 RB Offset
					
Channel 20775 (2502.5MHz)	256QAM	1 RB / 24 RB Offset	Channel 21100 (2535.0MHz)	256QAM	1 RB / 24 RB Offset
					
Channel 20775 (2502.5MHz)	256QAM	25 RB / 0 RB Offset	Channel 21100 (2535.0MHz)	256QAM	25 RB / 0 RB Offset
					

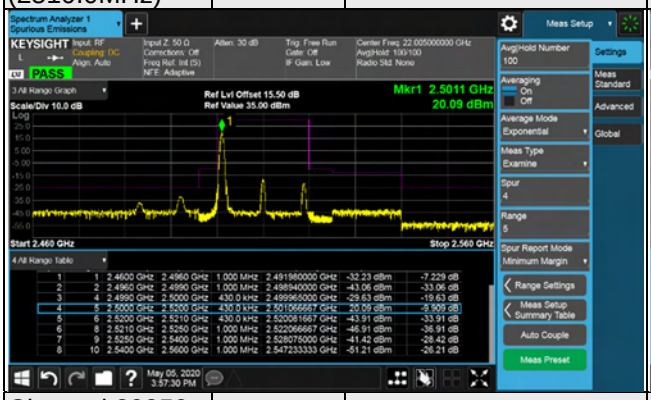
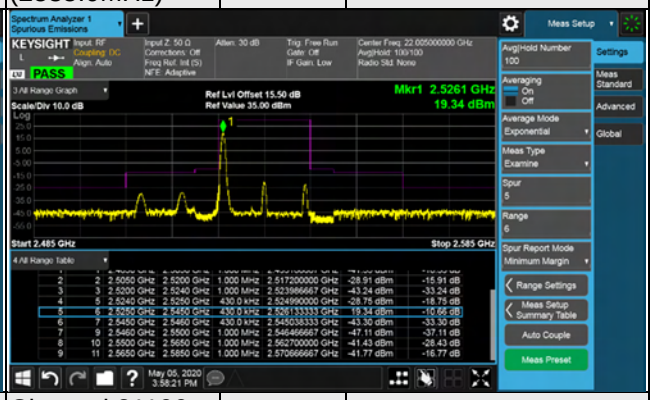
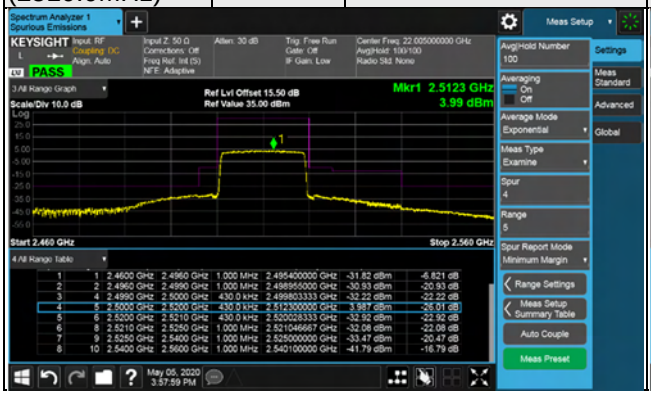
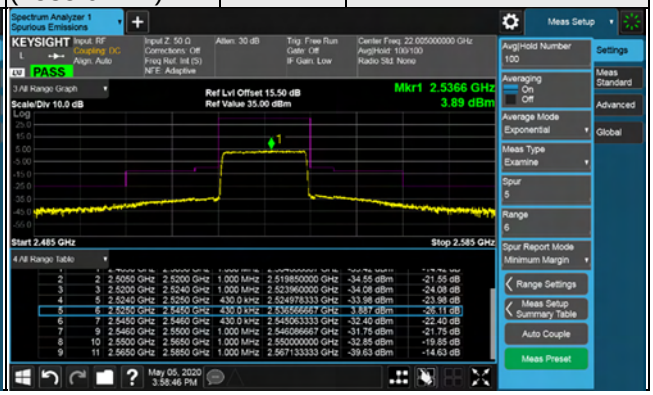
Channel Bandwidth: 5MHz					
Channel 21425 (2567.5MHz)	256QAM	1 RB / 0 RB Offset			
					
Channel 21425 (2567.5MHz)	256QAM	1 RB / 24 RB Offset			
					
Channel 21425 (2567.5MHz)	256QAM	25 RB / 0 RB Offset			
					

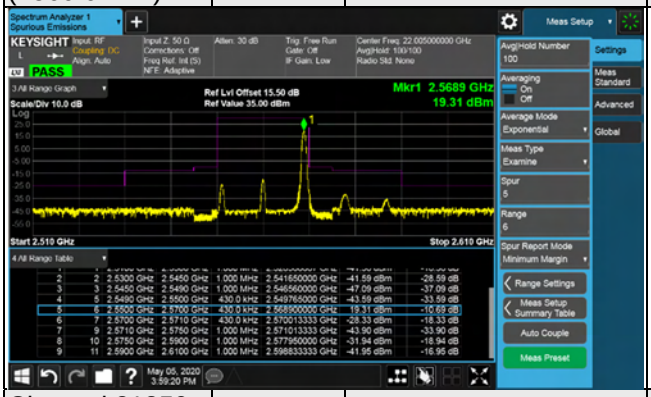
Channel Bandwidth: 10MHz					
Channel 20800 (2505.0MHz)	256QAM	1 RB / 0 RB Offset	Channel 21100 (2535.0MHz)	256QAM	1 RB / 0 RB Offset
					
Channel 20800 (2505.0MHz)	256QAM	1 RB / 49 RB Offset	Channel 21100 (2535.0MHz)	256QAM	1 RB / 49 RB Offset
					
Channel 20800 (2505.0MHz)	256QAM	50 RB / 0 RB Offset	Channel 21100 (2535.0MHz)	256QAM	50 RB / 0 RB Offset
					

Channel Bandwidth: 10MHz					
Channel 21400 (2565.0MHz)	256QAM	1 RB / 0 RB Offset			
					
Channel 21400 (2565.0MHz)	256QAM	1 RB / 49 RB Offset			
					
Channel 21400 (2565.0MHz)	256QAM	50 RB / 0 RB Offset			
					

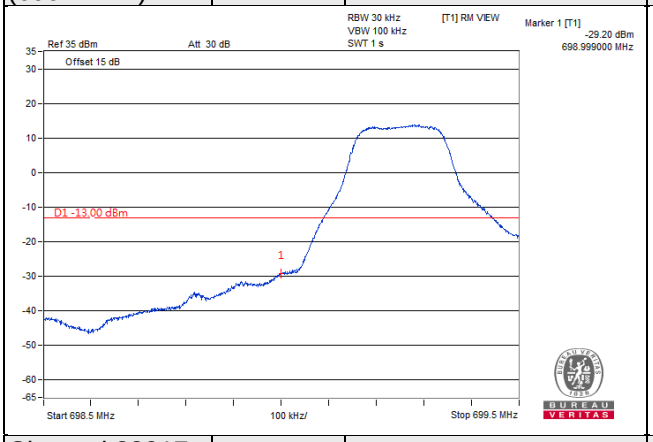
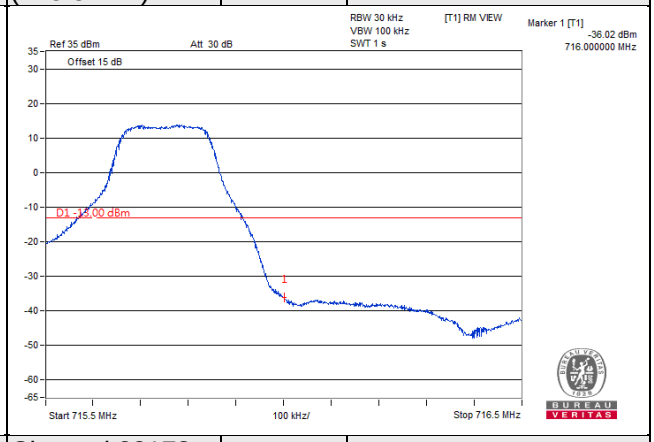
Channel Bandwidth: 15MHz					
Channel 20825 (2507.5MHz)	256QAM	1 RB / 0 RB Offset	Channel 21100 (2535.0MHz)	256QAM	1 RB / 0 RB Offset
					
Channel 20825 (2507.5MHz)	256QAM	1 RB / 74 RB Offset	Channel 21100 (2535.0MHz)	256QAM	1 RB / 74 RB Offset
					
Channel 20825 (2507.5MHz)	256QAM	75 RB / 0 RB Offset	Channel 21100 (2535.0MHz)	256QAM	1 RB / 0 RB Offset
					

Channel Bandwidth: 15MHz					
Channel 21375 (2562.5MHz)	256QAM	1 RB / 0 RB Offset			
					
Channel 21375 (2562.5MHz)	256QAM	1 RB / 74 RB Offset			
					
Channel 21375 (2562.5MHz)	256QAM	75 RB / 0 RB Offset			
					

Channel Bandwidth: 20MHz					
Channel 20850 (2510.0MHz)	256QAM	1 RB / 0 RB Offset	Channel 21100 (2535.0MHz)	256QAM	1 RB / 0 RB Offset
					
Channel 20850 (2510.0MHz)	256QAM	1 RB / 99 RB Offset	Channel 21100 (2535.0MHz)	256QAM	1 RB / 99 RB Offset
					
Channel 20850 (2510.0MHz)	256QAM	100 RB / 0 RB Offset	Channel 21100 (2535.0MHz)	256QAM	100 RB / 0 RB Offset
					

Channel Bandwidth: 20MHz					
Channel 21350 (2560.0MHz)	256QAM	1 RB / 0 RB Offset			
					
Channel 21350 (2560.0MHz)	256QAM	1 RB / 99 RB Offset			
					
Channel 21350 (2560.0MHz)	256QAM	100 RB / 0 RB Offset			
					

LTE Band 12

Channel Bandwidth: 1.4MHz					
Channel 23017 (699.7MHz)	256QAM	1 RB / 0 RB Offset	Channel 23173 (715.3MHz)	256QAM	1 RB / 5 RB Offset
					
Channel 23017 (699.7MHz)	256QAM	6 RB / 0 RB Offset	Channel 23173 (715.3MHz)	256QAM	6 RB / 0 RB Offset