

FCC Test Report (ENDC: n2 + LTE B5/B12/B13/B14/B30/B66)

Report No.: RFBFLF-WTW-P21010278-21

FCC ID: MSQI007D

Test Model: ASUS_I007D

Received Date: Jan. 04, 2021

Test Date: Feb. 26 ~ Apr. 19, 2021

Issued Date: Apr. 19, 2021

Applicant: ASUSTeK COMPUTER INC.

Address: 1F., No. 15, Lide Rd., Beitou Dist., Taipei City 112, Taiwan

Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Lin Kou Laboratories

Lab Address: No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan

Test Location: No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City
33383, TAIWAN

**FCC Registration /
Designation Number:** 788550 / TW0003



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Release Control Record

Issue No.	Description	Date Issued
RFBFLF-WTW-P21010278-21	Original release	Apr. 19, 2021

1 Certificate of Conformity

Product: EXP21 Smartphone

Brand: ASUS

Test Model: ASUS_I007D

Sample Status: Engineering sample

Applicant: ASUSTeK COMPUTER INC.

Test Date: Feb. 26 ~ Apr. 19, 2021

Standards: FCC Part 22, Subpart H
FCC Part 24, Subpart E
FCC Part 27, Subpart C, D, F, H, L
FCC Part 90, Subpart R

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 : Celine Chou , **Date:** Apr. 19, 2021
Celine Chou / Senior Specialist

Approved by : Bruce Chen , **Date:** Apr. 19, 2021
Bruce Chen / Senior Project Engineer

2 Summary of Test Results

For n2

Applied Standard: FCC Part 24 & Part 2			
FCC Clause	Test Item	Result	Remarks
2.1046 24.232	Effective Isotropically Radiated Power	Pass	Meet the requirement of limit.
2.1046 24.232 (d)	Peak To Average Ratio	Pass	Meet the requirement of limit.
2.1047	Modulation Characteristics	Pass	Meet the requirement
2.1055 24.235	Frequency Stability	Pass	Meet the requirement of limit.
2.1049	Occupied Bandwidth	Pass	Meet the requirement of limit.
24.238	Band Edge Measurements	Pass	Meet the requirement of limit.
2.1051 24.238	Conducted Spurious Emissions	Pass	Meet the requirement of limit.
2.1053 24.238	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -34.00dB at 240.49MHz.

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

For LTE Band 5

Applied Standard: FCC Part 22 & Part 2			
FCC Clause	Test Item	Result	Remarks
2.1046 22.913 (a)	Effective radiated power	Pass	Meet the requirement of limit.
2.1047	Modulation Characteristics	Pass	Refer to Note 1
22.913 (d)	Peak To Average Ratio	Pass	Refer to Note 1
2.1055 22.355	Frequency Stability	Pass	Refer to Note 1
2.1049	Occupied Bandwidth	Pass	Refer to Note 1
22.917	Band Edge Measurements	Pass	Refer to Note 1
2.1051 22.917	Conducted Spurious Emissions	Pass	Refer to Note 1
2.1053 22.917	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -36.64dB at 183.26MHz.

Note:

1. This report is a partial report. Therefore, only test item of Transmitter Output Power and Effective Radiated Power and Radiated Spurious Emissions tests were performed for this report. Other testing data please refer to BV CPS report no.: RFBFLF-WTW-P21010278-9.
2. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

For LTE Band 12, LTE Band 13, LTE Band 30, LTE Band 66

Applied Standard: FCC Part 27 & Part 2						
FCC Clause				Test Item	Result	Remarks
LTE B12	LTE B13	LTE B30	LTE B66			
2.1046 27.50 (c)	2.1046 27.50 (b)	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	Modulation Characteristics	Pass	Refer to Note 1
----	----	----	27.50 (d)(5)	Peak To Average Ratio	Pass	Refer to Note 1
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	Refer to Note 1
2.1049	2.1049	2.1049	2.1049	Occupied Bandwidth	Pass	Refer to Note 1
2.1051 27.53 (g)	2.1051 27.53 (c)	2.1051 27.53 (a)(4)	2.1051 27.53 (h)	Band Edge / Out of Band Emissions Measurements	Pass	Refer to Note 1
2.1051 27.53 (g)	2.1051 27.53 (c)(f)	2.1051 27.53 (a)(4)	2.1051 27.53 (h)	Conducted Spurious Emissions	Pass	Refer to Note 1
2.1053 27.53 (g)	2.1053 27.53 (c)(f)	2.1053 27.53 (a)(4)	2.1053 27.53 (h)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -8.00dB at 4620.00MHz.

Note:

1. This report is a partial report. Therefore, only test item of Transmitter Output Power and Equivalent Isotropically Radiated Power / Equivalent Radiated Power and Radiated Spurious Emissions tests were performed for this report. Other testing data please refer to BV CPS report no.: RFBFLF-WTW-P21010278-11.
2. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

For LTE Band 14

Applied Standard: FCC Part 90 & Part 2			
FCC Clause	Test Item	Result	Remarks
2.1046 90.542 (a)(7)	Effective Radiated Power	Pass	Meet the requirement of limit.
2.1047	Modulation Characteristics	Pass	Refer to Note 1
2.1055 90.539 (e)	Frequency Stability	Pass	Refer to Note 1
2.1049	Occupied Bandwidth	Pass	Refer to Note 1
-	Emission Masks	Pass	Refer to Note 1
2.1053 90.543 (e)(2)(3)	Band Edge Measurements	Pass	Refer to Note 1
2.1051 90.543 (e)(3)	Conducted Spurious Emissions	Pass	Refer to Note 1
2.1053 90.543 (e)(f)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -11.95dB at 1581.00MHz.

Note:

1. This report is a partial report. Therefore, only test item of Transmitter Output Power and Equivalent Radiated Power and Radiated Spurious Emissions tests were performed for this report. Other testing data please refer to BV CPS report no.: RFBFLF-WTW-P21010278-12.
2. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.1 Measurement Uncertainty

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

Measurement	Frequency	Expanded Uncertainty (k=2) (\pm)
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	3.04 dB
	30MHz ~ 200MHz	3.59 dB
	200MHz ~ 1000MHz	3.60 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	2.29 dB
	18GHz ~ 40GHz	2.29 dB

2.2 Test Site and Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver KEYSIGHT	N9038A	MY55420137	Apr. 16, 2020	Apr. 15, 2021
			Apr. 09, 2021	Apr. 08, 2022
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100039	Jun. 12, 2020	Jun. 11, 2021
Spectrum Analyzer ROHDE & SCHWARZ	FSW43	101866	Dec. 14, 2020	Dec. 13, 2021
MXG Vector signal generator Agilent	N5182B	MY53050430	Nov. 25, 2020	Nov. 24, 2021
5G Wireless Test Platforms Keysight	E7515B	MY60102114	May 28, 2020	May 27, 2021
BILOG Antenna SCHWARZBECK	VULB9168	9168-472	Nov. 06, 2020	Nov. 05, 2021
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-969	Nov. 22, 2020	Nov. 21, 2021
BILOG Antenna SCHWARZBECK	VULB9168	9168-160	Nov. 06, 2020	Nov. 05, 2021
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-1169	Nov. 22, 2020	Nov. 21, 2021
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Nov. 22, 2020	Nov. 21, 2021
Preamplifier Agilent (Below 1GHz)	8447D	2944A10638	Jun. 08, 2020	Jun. 07, 2021
Preamplifier Agilent (Above 1GHz)	8449B	3008A02367	Feb. 17, 2021	Feb. 16, 2022
RF signal cable HUBER+SUHNER&EMCI	SUCOFLEX 104 & EMC104-SM-SM80 00	CABLE-CH9-02 (248780+171006)	Jan. 16, 2021	Jan. 15, 2022
RF signal cable HUBER+SUHNER	SUCOFLEX 104	CABLE-CH9-(250795/4)	Jan. 16, 2021	Jan. 15, 2022
RF signal cable Woken	8D-FB	Cable-CH9-01	Jun. 08, 2020	Jun. 07, 2021
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	NA	NA	NA
Antenna Tower EMCO	2070/2080	512.835.4684	NA	NA
Turn Table EMCO	2087-2.03	NA	NA	NA
Antenna Tower & Turn BV ADT	AT100	AT93021705	NA	NA
Turn Table BV ADT	TT100	TT93021705	NA	NA
Turn Table Controller BV ADT	SC100	SC93021705	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
Standard Temperature And Humidity Chamber GIANT FORCE	GTH-120-40-CP-A R	MAA1306-019	Sep. 10, 2020	Sep. 09, 2021

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
JFW 20dB attenuation	50HF-020-SMA	NA	NA	NA
True RMS Clamp Meter Fluke	325	31130711WS	Jun. 06, 2020	Jun. 05, 2021
DC power supply Keysight	U8002A	MY56330015	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. The test was performed in HwaYa Chamber 9.

3 General Information

3.1 General Description of EUT

Product	EXP21 Smartphone
Brand	ASUS
Test Model	ASUS_I007D
Sample Status	Engineering sample
Power Supply Rating	7.74 Vdc (Battery) 5 Vdc / 9 Vdc / 12 Vdc / 15Vdc / 20Vdc (Adapter)

n2

Modulation Type	$\pi/2$ BPSK, QPSK, 16QAM, 64QAM, 256QAM					
Waveform Type	CP-OFDM, DFT-s-OFDM					
Operating Frequency	n2 (Channel Bandwidth 5MHz)	1852.5MHz ~ 1907.5MHz				
	n2 (Channel Bandwidth 10MHz)	1855.0MHz ~ 1905.0MHz				
	n2 (Channel Bandwidth 15MHz)	1857.5MHz ~ 1902.5MHz				
	n2 (Channel Bandwidth 20MHz)	1860.0MHz ~ 1900.0MHz				
Max. EIRP Power		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
	n2 (Channel Bandwidth 5MHz)	180.302mW (22.56dBm)	179.061mW (22.53dBm)	140.605mW (21.48dBm)	99.083mW (19.96dBm)	62.230mW (17.94dBm)
	n2 (Channel Bandwidth 10MHz)	177.011mW (22.48dBm)	178.649mW (22.52dBm)	140.605mW (21.48dBm)	99.770mW (19.99dBm)	62.951mW (17.99dBm)
	n2 (Channel Bandwidth 15MHz)	178.649mW (22.52dBm)	178.649mW (22.52dBm)	140.281mW (21.47dBm)	100.000mW (20.00dBm)	62.951mW (17.99dBm)
	n2 (Channel Bandwidth 20MHz)	180.302mW (22.56dBm)	180.717mW (22.57dBm)	140.929mW (21.49dBm)	101.391mW (20.06dBm)	63.241mW (18.01dBm)
Emission Designator		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
	n2 (Channel Bandwidth 5MHz)	4M47G7D	4M47G7D	4M47D7W	4M47D7W	4M47D7W
	n2 (Channel Bandwidth 10MHz)	9M21G7D	9M29G7D	9M29D7W	9M29D7W	9M28D7W
	n2 (Channel Bandwidth 15MHz)	14M0G7D	14M1G7D	14M1D7W	14M1D7W	14M1D7W
	n2 (Channel Bandwidth 20MHz)	18M8G7D	18M9G7D	18M9D7W	18M9D7W	18M9D7W

LTE Band

Modulation Type	QPSK, 16QAM, 64QAM, 256QAM				
Operating Frequency	LTE Band 5 (Channel Bandwidth 1.4MHz)	824.7MHz ~ 848.3MHz			
	LTE Band 5 (Channel Bandwidth 3MHz)	825.5MHz ~ 847.5MHz			
	LTE Band 5 (Channel Bandwidth 5MHz)	826.5MHz ~ 846.5MHz			
	LTE Band 5 (Channel Bandwidth 10MHz)	829.0MHz ~ 844.0MHz			
	LTE Band 12 (Channel Bandwidth 1.4MHz)	699.7MHz ~ 715.3MHz			
	LTE Band 12 (Channel Bandwidth 3MHz)	700.5MHz ~ 714.5MHz			
	LTE Band 12 (Channel Bandwidth 5MHz)	701.5MHz ~ 713.5MHz			
	LTE Band 12 (Channel Bandwidth 10MHz)	704.0MHz ~ 711.0MHz			
	LTE Band 13 (Channel Bandwidth 5MHz)	779.5MHz ~ 784.5MHz			
	LTE Band 13 (Channel Bandwidth 10MHz)	782.0MHz			
	LTE Band 14 (Channel Bandwidth 5MHz)	790.5MHz ~ 795.5MHz			
	LTE Band 14 (Channel Bandwidth 10MHz)	793.0MHz			
	LTE Band 30 (Channel Bandwidth 5MHz)	2307.5MHz ~ 2312.5MHz			
	LTE Band 30 (Channel Bandwidth 10MHz)	2310.0MHz			
	LTE Band 66 (Channel Bandwidth 1.4MHz)	1710.7MHz ~ 1779.3MHz			
	LTE Band 66 (Channel Bandwidth 3MHz)	1711.5MHz ~ 1778.5MHz			
	LTE Band 66 (Channel Bandwidth 5MHz)	1712.5MHz ~ 1777.5MHz			
	LTE Band 66 (Channel Bandwidth 10MHz)	1715.0MHz ~ 1775.0MHz			
LTE Band 66 (Channel Bandwidth 15MHz)	1717.5MHz ~ 1772.5MHz				
LTE Band 66 (Channel Bandwidth 20MHz)	1720.0MHz ~ 1770.0MHz				
Max. ERP Power		QPSK	16QAM	64QAM	256QAM
	LTE Band 5 (Channel Bandwidth 1.4MHz)	115.611mW (20.63dBm)	93.111mW (19.69dBm)	69.183mW (18.40dBm)	35.237mW (15.47dBm)
	LTE Band 5 (Channel Bandwidth 3MHz)	109.648mW (20.40dBm)	93.541mW (19.71dBm)	68.077mW (18.33dBm)	33.113mW (15.20dBm)
	LTE Band 5 (Channel Bandwidth 5MHz)	115.080mW (20.61dBm)	92.897mW (19.68dBm)	70.469mW (18.48dBm)	34.754mW (15.41dBm)
	LTE Band 5 (Channel Bandwidth 10MHz)	118.032mW (20.72dBm)	93.111mW (19.69dBm)	68.077mW (18.33dBm)	35.075mW (15.45dBm)
	LTE Band 12 (Channel Bandwidth 1.4MHz)	108.893mW (20.37dBm)	90.782mW (19.58dBm)	66.681mW (18.24dBm)	32.063mW (15.06dBm)
	LTE Band 12 (Channel Bandwidth 3MHz)	104.472mW (20.19dBm)	83.560mW (19.22dBm)	69.183mW (18.40dBm)	33.343mW (15.23dBm)
	LTE Band 12 (Channel Bandwidth 5MHz)	105.439mW (20.23dBm)	83.946mW (19.24dBm)	71.450mW (18.54dBm)	33.037mW (15.19dBm)
	LTE Band 12 (Channel Bandwidth 10MHz)	109.144mW (20.38dBm)	84.140mW (19.25dBm)	71.779mW (18.56dBm)	34.198mW (15.34dBm)
	LTE Band 13 (Channel Bandwidth 5MHz)	66.988mW (18.26dBm)	54.200mW (17.34dBm)	41.976mW (16.23dBm)	19.231mW (12.84dBm)
	LTE Band 13 (Channel Bandwidth 10MHz)	67.453mW (18.29dBm)	52.240mW (17.18dBm)	42.756mW (16.31dBm)	19.231mW (12.84dBm)

Max. ERP Power		QPSK	16QAM	64QAM	256QAM
	LTE Band 14 (Channel Bandwidth 5MHz)	64.565mW (18.10dBm)	52.966mW (17.24dBm)	37.584mW (15.75dBm)	19.099mW (12.81dBm)
	LTE Band 14 (Channel Bandwidth 10MHz)	65.766mW (18.18dBm)	52.602mW (17.21dBm)	36.644mW (15.64dBm)	19.861mW (12.98dBm)
Max. EIRP Power		QPSK	16QAM	64QAM	256QAM
	LTE Band 30 (Channel Bandwidth 5MHz)	152.757mW (21.84dBm/5MHz)	125.026mW (20.97dBm/5MHz)	93.756mW (19.72dBm/5MHz)	43.853mW (16.42dBm/5MHz)
	LTE Band 30 (Channel Bandwidth 10MHz)	153.815mW (21.87dBm/5MHz)	125.314mW (20.98dBm/5MHz)	99.770mW (19.99dBm/5MHz)	44.055mW (16.44dBm/5MHz)
	LTE Band 66 (Channel Bandwidth 1.4MHz)	158.489mW (22.00dBm)	125.314mW (20.98dBm)	103.753mW (20.16dBm)	41.210mW (16.15dBm)
	LTE Band 66 (Channel Bandwidth 3MHz)	154.882mW (21.90dBm)	126.474mW (21.02dBm)	99.770mW (19.99dBm)	47.973mW (16.81dBm)
	LTE Band 66 (Channel Bandwidth 5MHz)	153.815mW (21.87dBm)	120.504mW (20.81dBm)	96.383mW (19.84dBm)	45.290mW (16.56dBm)
	LTE Band 66 (Channel Bandwidth 10MHz)	159.221mW (22.02dBm)	123.310mW (20.91dBm)	101.625mW (20.07dBm)	46.559mW (16.68dBm)
	LTE Band 66 (Channel Bandwidth 15MHz)	157.761mW (21.98dBm)	127.057mW (21.04dBm)	104.472mW (20.19dBm)	47.424mW (16.76dBm)
	LTE Band 66 (Channel Bandwidth 20MHz)	160.325mW (22.05dBm)	126.765mW (21.03dBm)	105.682mW (20.24dBm)	48.865mW (16.89dBm)
	Antenna Type	Refer to Note as below			
Antenna Connector	Refer to Note as below				
Accessory Device	Refer to Note as below				
Cable Supplied	Refer to Note as below				

Note:

1. The EUT contains following accessory devices.

Product	Brand	Model	Description
Battery	SCUD	C21P2002	Rating: 7.74Vdc, 15.2Wh
Adapter	AOHAI	A320Q-200325C-US	I/P: 100-240Vac, 50/60Hz, 1.5A O/P: 5Vdc, 3A; 9Vdc, 3A; 12Vdc, 3A; 15Vdc, 3A; 20Vdc, 3.25A
Type A to Type C USB Cable	Luxshare	LA9U2026-CS-R	0.5m
Type C to Type C Cable	Luxshare	LA9UC006-CS-R	1.2m
Bluetooth Earphone	Bang & Olufsen	EQ Earbud R	FCC ID: TTUBEOPLAYEQR IC: 3775B-BEOPLAYEQR
		EQ Earbud L	FCC ID: TTUBEOPLAYEQL IC: 3775B-BEOPLAYEQL
Bluetooth Earphone Charging Case	Bang & Olufsen	EQ Charging case	I/P: 5Vdc/500mA O/P: 5Vdc/ R170mA; L170mA

2. The following antennas were provided to the EUT.

Ant. No.	Brand	Model	Ant. Type	Connecter	Frequency Range
Ant 0	ASUS	ZS675KW	PIFA	LCP+lpex	610-960MHz, 1710-2690MHz
Ant 1	ASUS	ZS675KW	PIFA	LCP+lpex	1427-1510MHz, 1710-2690MHz
Ant 2	ASUS	ZS675KW	PIFA	LCP+lpex	610-960MHz, 1427-1510MHz, 1710-2690MHz
Ant 3	INPAQ	ZS675KW	PIFA	lpex	1575-1610MHz, 2400-2500MHz, 5150-5850MHz, 5925-7125MHz
Ant 4	INPAQ	ZS675KW	PIFA	lpex	1176±10MHz, 2400-2500MHz, 5150-5850MHz, 5925-7125MHz
Ant 5	INPAQ	ZS675KW	PIFA	LCP+lpex	3300-4000MHz, 4400-5000MHz
Ant 6	INPAQ	ZS675KW	PIFA	lpex	1427-1510MHz, 2400-2500MHz, 5150-5850MHz, 5925-7125MHz
Ant 7	INPAQ	ZS675KW	PIFA	LCP+lpex	3300-4000MHz, 4400-5000MHz
Ant 8	ASUS	ZS675KW	PIFA	LCP+lpex	1427-1510MHz, 1710-2690MHz
Ant 9	ASUS	ZS675KW	PIFA	LCP+lpex	1710-2690MHz
Ant 10	INPAQ	ZS675KW	PIFA	lpex	3300-4000MHz, 4400-5000MHz
Ant 11	INPAQ	ZS675KW	PIFA	lpex	3300-4000MHz, 4400-5000MHz

2G / 3G Band													
Band	Freq. Range (MHz)	Gain (dBi)											
		Ant. 0	Ant. 1	Ant. 2	Ant. 3	Ant. 4	Ant. 5	Ant. 6	Ant. 7	Ant. 8	Ant. 9	Ant. 10	Ant. 11
GSM-850	824 ~ 849	-1.891		-4.526									
GSM-1900	1850 ~ 1910		-1.887	-1.394						-2.89579			
WCDMA B2	1850 ~ 1910		-1.887	-1.394						-2.89579			
WCDMA B4	1710 ~ 1755		-2.884	-3.228						-3.13552			
WCDMA B5	824 ~ 849	-1.891		-4.526									
CDMA BC0	815 ~ 849	-1.891		-4.526									
CDMA BC1	1850 ~ 1910		-1.887	-1.394						-2.89579			
CDMA BC10	806 ~ 901	-1.891		-4.526									

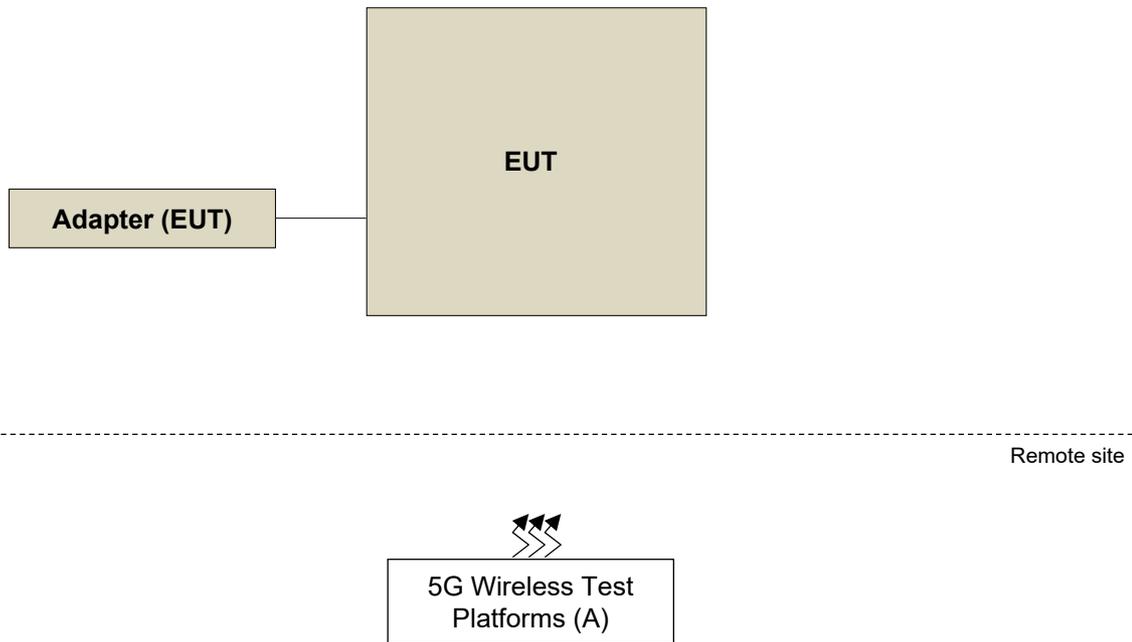
LTE Band													
Band	Freq. Range (MHz)	Gain (dBi)											
		Ant. 0	Ant. 1	Ant. 2	Ant. 3	Ant. 4	Ant. 5	Ant. 6	Ant. 7	Ant. 8	Ant. 9	Ant. 10	Ant. 11
LTE B2	1850 ~ 1910		-1.887	-1.394						-2.89579	-1.804		
LTE B4	1710 ~ 1755		-2.884	-3.228						-3.13552	-1.706		
LTE B5	824 ~ 849	-1.891		-4.526									
LTE B7	2500 ~ 2570		0.185	-0.657						-0.50837	-1.117		
LTE B12	698 ~ 716	-2.135		-4.343									
LTE B13	777 ~ 787	-4.37		-8.13									
LTE B14	788 ~ 798	-4.37		-7.931									
LTE B17	704 ~ 716	-2.135		-4.343									
LTE B25	1850 ~ 1915		-1.887	-1.394						-2.89579			
LTE B26	814 ~ 849	-1.891		-4.526									
LTE B30	2305 ~ 2315		-1.326	-2.669						-1.28433			
LTE B66	1710 ~ 1780		-2.884	-2.478						-3.0668	-1.685		
LTE B71	663 ~ 698	-5.741		-7.388									
T-LTE B38	2570 ~ 2620		0.724	-0.912						-0.59557			
T-LTE B40	2300 ~ 2400		-1.326	-2.669						-1.28433			
T-LTE B41	2496 ~ 2690		1.143	-0.657						-0.59557			
T-LTE B42	3400 ~ 3600						0.313		0.5277			-2.493	-0.35195
T-LTE B43	3600 ~ 3800						-0.434		0.5277			-0.477	-0.161
T-LTE B48	3550 ~ 3700						-0.434		0.5277			-0.477	-0.161
5G FR1 Band													
Band	Freq. Range (MHz)	Gain (dBi)											
		Ant. 0	Ant. 1	Ant. 2	Ant. 3	Ant. 4	Ant. 5	Ant. 6	Ant. 7	Ant. 8	Ant. 9	Ant. 10	Ant. 11
n2	1850 ~ 1910		-1.887	-1.394						-2.89579	-1.804		
n5	824 ~ 849	-1.891		-4.526									
n7	2500 ~ 2570		0.185	-0.657						-0.50837	-1.117		
n12	699 ~ 716	-2.135		-4.343									
n13	777 ~ 787	-4.37		-8.13									
n14	788 ~ 798	-4.37		-7.931									
n25	1850 ~ 1915		-1.887	-1.394						-2.89579	-1.627		
n26	814 ~ 849	-1.891		-4.526									
n30	2305 ~ 2315		-1.326	-2.669						-1.28433			
n38	2570 ~ 2620		0.724	-0.912						-0.59557	-1.3		
n41	2496 ~ 2690		1.143	-0.657						-0.59557	-0.076		
n66	1710 ~ 1780		-2.884	-2.478						-3.0668	-1.685		
n71	663 ~ 698	-5.741		-7.388									
n77	3300 ~ 4200						0.313		0.5277			2.017	0.19902
n78	3300 ~ 3800						0.313		0.5277			2.017	-0.161

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

3. The EUT supports the following ENDC configuration.

5G NR	FCC 5G FR1			ENDC
	Band	SCS	Bandwidth (MHz)	
	n2	15kHz	5/10/15/20	Band 5/12/13/14/30/66
	n5	15kHz	5/10/15/20	Band 2/7/12/30/48/66
	n7	15kHz	5/10/15/20/25/30/40	Band 2/5/12/13/66
	n12	15kHz	5/10/15	Band 2/66
	n14	15kHz	5/10	Band 2
	n25	15kHz	5/10/15/20/25/30/40	Band 12/66
	n30	15kHz	5/10	Band 2/5/66
	n38	30kHz	20/30/40	Band 2/4/5/12/66/71
	n41	30kHz	20/30/40/50/60/80/90/100	Band 2/4/12/25/26/66
	n66	15kHz	5/10/15/20/30/40	Band 2/5/7/12/13/14/30/48/71
	n71	15kHz	5/10/15/20	Band 2/7/66
	n77	30kHz	20/30/40/50/60/70/80/90/100	Band 7/41
	n78	30kHz	20/30/40/50/60/70/80/90/100	Band 2/4/5/7/12/13/38/66/71

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.	5G Wireless Test Platforms	Keysight	E7515B	MY58300759	NA	-

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.

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 as the table below. Following channel(s) was (were) selected for the final test as listed below:

Band	Radiated Emission
n2	Y-plane
LTE Band 5	Y-plane
LTE Band 12	Y-plane
LTE Band 13	Y-plane
LTE Band 14	Y-plane
LTE Band 30	Y-plane
LTE Band 66	Y-plane

n2

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	EIRP	370500 to 381500	370500 (1852.5MHz), 376000 (1880.0MHz), 381500 (1907.5MHz)	5MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 RB / 1 RB Offset 1 RB / 13 RB Offset 1 RB / 23 RB Offset 12 RB / 0 RB Offset 12 RB / 7 RB Offset 12 RB / 13 RB Offset 25 RB / 0 RB Offset
		371000 to 381000	371000 (1855.0MHz), 376000 (1880.0MHz), 381000 (1905.0MHz)	10MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 RB / 1 RB Offset 1 RB / 26 RB Offset 1 RB / 50 RB Offset 25 RB / 0 RB Offset 25 RB / 14 RB Offset 25 RB / 27 RB Offset 50 RB / 0 RB Offset
		371500 to 380500	371500 (1857.5MHz), 376000 (1880.0MHz), 380500 (1902.5MHz)	15MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 RB / 1 RB Offset 1 RB / 40 RB Offset 1 RB / 77 RB Offset 36 RB / 0 RB Offset 36 RB / 22 RB Offset 36 RB / 43 RB Offset 75 RB / 0 RB Offset
		372000 to 380000	372000 (1860.0MHz), 376000 (1880.0MHz), 380000 (1900.0MHz)	20MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 RB / 1 RB Offset 1 RB / 53 RB Offset 1 RB / 104 RB Offset 50RB / 0 RB Offset 50 RB / 28 RB Offset 50 RB / 56 RB Offset 100 RB / 0 RB Offset
-	Modulation characteristics	372000 to 380000	376000 (1880.0MHz)	20MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	106 RB / 0 RB Offset
-	Frequency Stability	370500 to 381500	370500 (1852.5MHz), 381500 (1907.5MHz)	5MHz	$\pi/2$ BPSK	25 RB / 0 RB Offset
		371000 to 381000	371000 (1855.0MHz), 381000 (1905.0MHz)	10MHz	QPSK	52 RB / 0 RB Offset
		371500 to 380500	371500 (1857.5MHz), 380500 (1902.5MHz)	15MHz	QPSK	79 RB / 0 RB Offset
		372000 to 380000	372000 (1860.0MHz), 380000 (1900.0MHz)	20MHz	QPSK	106 RB / 0 RB Offset

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	Occupied Bandwidth	370500 to 381500	370500 (1852.5MHz), 376000 (1880.0MHz), 381500 (1907.5MHz)	5MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	25 RB / 0 RB Offset
		371000 to 381000	371000 (1855.0MHz), 376000 (1880.0MHz), 381000 (1905.0MHz)	10MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	52 RB / 0 RB Offset
		371500 to 380500	371500 (1857.5MHz), 376000 (1880.0MHz), 380500 (1902.5MHz)	15MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	79 RB / 0 RB Offset
		372000 to 380000	372000 (1860.0MHz), 376000 (1880.0MHz), 380000 (1900.0MHz)	20MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	106 RB / 0 RB Offset
-	Band Edge	370500 to 381500	370500 (1852.5MHz), 381500 (1907.5MHz)	5MHz	$\pi/2$ BPSK	1 RB / 0 RB Offset 1 RB / 24 RB Offset 25 RB / 0 RB Offset
		371000 to 381000	371000 (1855.0MHz), 381000 (1905.0MHz)	10MHz	QPSK	1 RB / 0 RB Offset 1 RB / 51 RB Offset 52 RB / 0 RB Offset
		371500 to 380500	371500 (1857.5MHz), 380500 (1902.5MHz)	15MHz	QPSK	1 RB / 0 RB Offset 1 RB / 78 RB Offset 79 RB / 0 RB Offset
		372000 to 380000	372000 (1860.0MHz), 380000 (1900.0MHz)	20MHz	QPSK	1 RB / 0 RB Offset 1 RB / 105 RB Offset 106 RB / 0 RB Offset
-	Peak to Average Ratio	370500 to 381500	370500 (1852.5MHz), 376000 (1880.0MHz), 381500 (1907.5MHz)	5MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 RB / 1 RB Offset
		371000 to 381000	371000 (1855.0MHz), 376000 (1880.0MHz), 381000 (1905.0MHz)	10MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 RB / 1 RB Offset
		371500 to 380500	371500 (1857.5MHz), 376000 (1880.0MHz), 380500 (1902.5MHz)	15MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 RB / 1 RB Offset
		372000 to 380000	372000 (1860.0MHz), 376000 (1880.0MHz), 380000 (1900.0MHz)	20MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 RB / 1 RB Offset

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	Conducted Emission	370500 to 381500	370500 (1852.5MHz), 376000 (1880.0MHz), 381500 (1907.5MHz)	5MHz	$\pi/2$ BPSK	1 RB / 1 RB Offset
		371000 to 381000	371000 (1855.0MHz), 376000 (1880.0MHz), 381000 (1905.0MHz)	10MHz	QPSK	1 RB / 1 RB Offset
		371500 to 380500	371500 (1857.5MHz), 376000 (1880.0MHz), 380500 (1902.5MHz)	15MHz	QPSK	1 RB / 1 RB Offset
		372000 to 380000	372000 (1860.0MHz), 376000 (1880.0MHz), 380000 (1900.0MHz)	20MHz	QPSK	1 RB / 1 RB Offset
-	Radiated Emission Below 1GHz	370500 to 381500	381500 (1907.5MHz)	5MHz	$\pi/2$ BPSK	1 RB / 1 RB Offset
-	Radiated Emission Above 1GHz	370500 to 381500	370500 (1852.5MHz), 376000 (1880.0MHz), 381500 (1907.5MHz)	5MHz	$\pi/2$ BPSK	1 RB / 1 RB Offset
		372000 to 380000	372000 (1860.0MHz), 376000 (1880.0MHz), 380000 (1900.0MHz)	20MHz	QPSK	1 RB / 1 RB Offset

Note:

1. For radiated emission below 1GHz, select the worst radiated emission channel (above 1GHz) for final testing.
2. For radiated emission above 1GHz, according to 3GPP 38.521-1 Section 6.5.3.1.4, choose the lowest and highest channel bandwidth for final test.
3. Only output power, modulation characteristics, occupied bandwidth and Peak to average ratio items had been tested under $\pi/2$ BPSK, QPSK, 16QAM, 64QAM and 256QAM modes, the other test items were performed under worse mode according to the maximum output power.

LTE Band 5

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	ERP	20407 to 20643	20407 (824.7MHz), 20525 (836.5MHz), 20643 (848.3MHz)	1.4MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset 1 RB / 2 RB Offset 1 RB / 5 RB Offset 3 RB / 0 RB Offset 3 RB / 1 RB Offset 3 RB / 3 RB Offset 6 RB / 0 RB Offset
		20415 to 20635	20415 (825.5MHz), 20525 (836.5MHz), 20635 (847.5MHz)	3MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset 1 RB / 7 RB Offset 1 RB / 14 RB Offset 8 RB / 0 RB Offset 8 RB / 3 RB Offset 8 RB / 7 RB Offset 15 RB / 0 RB Offset
		20425 to 20625	20425 (826.5MHz), 20525 (836.5MHz), 20625 (846.5MHz)	5MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset 1 RB / 12 RB Offset 1 RB / 24 RB Offset 12 RB / 0 RB Offset 12 RB / 6 RB Offset 12 RB / 13 RB Offset 25 RB / 0 RB Offset
		20450 to 20600	20450 (829.0MHz), 20525 (836.5MHz), 20600 (844.0MHz)	10MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset 1 RB / 24 RB Offset 1 RB / 49 RB Offset 25 RB / 0 RB Offset 25 RB / 12 RB Offset 25 RB / 25 RB Offset 50 RB / 0 RB Offset
-	Radiated Emission Below 1GHz	20450 to 20600	20450 (829.0MHz)	10MHz	QPSK	1 RB / 0 RB Offset
-	Radiated Emission Above 1GHz	20407 to 20643	20407 (824.7MHz), 20525 (836.5MHz), 20643 (848.3MHz)	1.4MHz	QPSK	1 RB / 0 RB Offset
		20425 to 20625	20425 (826.5MHz), 20525 (836.5MHz), 20625 (846.5MHz)	5MHz	QPSK	1 RB / 0 RB Offset
		20450 to 20600	20450 (829.0MHz), 20525 (836.5MHz), 20600 (844.0MHz)	10MHz	QPSK	1 RB / 0 RB Offset

Note:

1. For radiated emission below 1GHz, select the worst radiated emission channel (above 1GHz) for final testing.
2. For radiated emission above 1GHz, according to 3GPP 36.521 Section 6.6.3.1.4, choose the lowest, 5MHz & highest channel bandwidth for final test.
3. The output power for QPSK, 16QAM, 64QAM and 256QAM, measured value of QPSK is higher than 16QAM, 64QAM and 256QAM mode. Therefore the radiated emission test items was performed under QPSK mode only.

LTE Band 12

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	ERP	23017 to 23173	23017 (699.7MHz), 23095 (707.5MHz), 23173 (715.3MHz)	1.4MHz	QPSK / 16QAM / 64QAM / 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	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset 1 RB / 7 RB Offset 1 RB / 14 RB Offset 8 RB / 0 RB Offset 8 RB / 3 RB Offset 8 RB / 7 RB Offset 15 RB / 0 RB Offset
		23035 to 23155	23035 (701.5MHz), 23095 (707.5MHz), 23155 (713.5MHz)	5MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset 1 RB / 12 RB Offset 1 RB / 24 RB Offset 12 RB / 0 RB Offset 12 RB / 6 RB Offset 12 RB / 13 RB Offset 25 RB / 0 RB Offset
		23060 to 23130	23060 (704.0MHz), 23095 (707.5MHz), 23130 (711.0 MHz)	10MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset 1 RB / 24 RB Offset 1 RB / 49 RB Offset 25 RB / 0 RB Offset 25 RB / 12 RB Offset 25 RB / 25 RB Offset 50 RB / 0 RB Offset
-	Radiated Emission Below 1GHz	23060 to 23130	23095 (707.5MHz)	10MHz	QPSK	1 RB / 0 RB Offset
-	Radiated Emission Above 1GHz	23017 to 23173	23017 (699.7MHz), 23095 (707.5MHz), 23173 (715.3MHz)	1.4MHz	QPSK	1 RB / 0 RB Offset
		23035 to 23155	23035 (701.5MHz), 23095 (707.5MHz), 23155 (713.5MHz)	5MHz	QPSK	1 RB / 0 RB Offset
		23060 to 23130	23060 (704.0MHz), 23095 (707.5MHz), 23130 (711.0MHz)	10MHz	QPSK	1 RB / 0 RB Offset

Note:

1. For radiated emission below 1GHz, select the worst radiated emission channel (above 1GHz) for final testing.
2. For radiated emission above 1GHz, according to 3GPP 36.521 Section 6.6.3.1.4, choose the lowest, 5MHz & highest channel bandwidth for final test.
3. The output power for QPSK, 16QAM, 64QAM and 256QAM, measured value of QPSK is higher than 16QAM, 64QAM and 256QAM mode. Therefore the radiated emission test items was performed under QPSK mode only.

LTE Band 13

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	ERP	23205 to 23255	23205 (779.5MHz), 23230 (782.0MHz), 23255 (784.5MHz)	5MHz	QPSK / 16QAM / 64QAM / 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	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset 1 RB / 24 RB Offset 1 RB / 49 RB Offset 25 RB / 0 RB Offset 25 RB / 12 RB Offset 25 RB / 25 RB Offset 50 RB / 0 RB Offset
-	Radiated Emission Below 1GHz	23205 to 23255	23255 (784.5MHz)	5MHz	QPSK	1 RB / 0 RB Offset
-	Radiated Emission Above 1GHz	23205 to 23255	23205 (779.5MHz), 23230 (782.0MHz), 23255 (784.5MHz)	5MHz	QPSK	1 RB / 0 RB Offset
		23230	23230 (782.0MHz)	10MHz	QPSK	1 RB / 0 RB Offset

Note:

1. For radiated emission below 1GHz, select the worst radiated emission channel (above 1GHz) for final testing.
2. For radiated emission above 1GHz, according to 3GPP 36.521 Section 6.6.3.1.4, choose the lowest & highest channel bandwidth for final test.
3. The output power for QPSK, 16QAM, 64QAM and 256QAM, measured value of QPSK is higher than 16QAM, 64QAM and 256QAM mode. Therefore the radiated emission test items was performed under QPSK mode only.

LTE Band 14

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	ERP	23305 to 23355	23305 (790.5MHz), 23330 (793.0MHz), 23355 (795.5MHz)	5MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset 1 RB / 12 RB Offset 1 RB / 24 RB Offset 12 RB / 0 RB Offset 12 RB / 6 RB Offset 12 RB / 13 RB Offset 25 RB / 0 RB Offset
		23330	23330 (793.0MHz)	10MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset 1 RB / 24 RB Offset 1 RB / 49 RB Offset 25 RB / 0 RB Offset 25 RB / 12 RB Offset 25 RB / 25 RB Offset 50 RB / 0 RB Offset
-	Radiated Emission below 1GHz	23305 to 23355	23305 (790.5MHz)	5MHz	QPSK	1 RB / 0 RB Offset
-	Radiated Emission above 1GHz	23305 to 23355	23305 (790.5MHz), 23330 (793.0MHz), 23355 (795.5MHz)	5MHz	QPSK	1 RB / 0 RB Offset
		23330	23330 (793.0MHz)	10MHz	QPSK	1 RB / 0 RB Offset

Note:

1. For radiated emission below 1GHz, select the worst radiated emission channel (above 1GHz) for final testing.
2. For radiated emission above 1GHz, according to 3GPP 36.521 Section 6.6.3.1.4, choose the lowest & highest channel bandwidth for final test.
3. The output power for QPSK, 16QAM, 64QAM and 256QAM, measured value of QPSK is higher than 16QAM, 64QAM and 256QAM mode. Therefore the radiated emission test items was performed under QPSK mode only.

LTE Band 30

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	EIRP	27685 to 27735	27685 (2307.5MHz), 27710 (2310.0MHz), 27735 (2312.5MHz)	5MHz	QPSK / 16QAM / 64QAM / 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	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset 1 RB / 24 RB Offset 1 RB / 49 RB Offset 25 RB / 0 RB Offset 25 RB / 12 RB Offset 25 RB / 25 RB Offset 50 RB / 0 RB Offset
-	Radiated Emission Below 1GHz	27685 to 27735	27710 (2310.0MHz)	5MHz	QPSK	1 RB / 0 RB Offset
-	Radiated Emission Above 1GHz	27685 to 27735	27685 (2307.5MHz), 27710 (2310.0MHz), 27735 (2312.5MHz)	5MHz	QPSK	1 RB / 0 RB Offset
		27710	27710 (2310.0MHz)	10MHz	QPSK	1 RB / 0 RB Offset

Note:

1. For radiated emission below 1GHz, select the worst radiated emission channel (above 1GHz) for final testing.
2. For radiated emission above 1GHz, according to 3GPP 36.521 Section 6.6.3.1.4, choose the lowest & highest channel bandwidth for final test.
3. The output power for QPSK, 16QAM, 64QAM and 256QAM, measured value of QPSK is higher than 16QAM, 64QAM and 256QAM mode. Therefore the radiated emission test items was performed under QPSK mode only.

LTE Band 66

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

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	Radiated Emission Below 1GHz	131979 to 132665	132665 (1779.3MHz)	1.4MHz	QPSK	1 RB / 0 RB Offset
-	Radiated Emission Above 1GHz	131979 to 132665	131979 (1710.7MHz), 132322 (1745.0MHz), 132665 (1779.3MHz)	1.4MHz	QPSK	1 RB / 0 RB Offset
		131997 to 132647	131997 (1712.5MHz), 132322 (1745.0MHz), 132647 (1777.5MHz)	5MHz	QPSK	1 RB / 0 RB Offset
		132072 to 132572	132072 (1720.0MHz), 132322 (1745.0MHz), 132572 (1770.0MHz)	20MHz	QPSK	1 RB / 0 RB Offset

Note:

1. For radiated emission below 1GHz, select the worst radiated emission channel (above 1GHz) for final testing.
2. For radiated emission above 1GHz, according to 3GPP 36.521 Section 6.6.3.1.4, choose the lowest, 5MHz & highest channel bandwidth for final test.
3. The output power for QPSK, 16QAM, 64QAM and 256QAM, measured value of QPSK is higher than 16QAM, 64QAM and 256QAM mode. Therefore the radiated emission test items was performed under QPSK mode only.

Test Condition:

Test Item	Environmental Conditions	Input Power	Tested By
EIRP / ERP	25deg. C, 60%RH	120Vac, 60Hz	James Yang
Modulation Characteristics	25deg. C, 60%RH	120Vac, 60Hz	James Yang
Frequency Stability	25deg. C, 60%RH	7.74Vdc	James Yang
Occupied Bandwidth	25deg. C, 60%RH	120Vac, 60Hz	James Yang
Band Edge	25deg. C, 60%RH	120Vac, 60Hz	James Yang
Peak To Average Ratio	25deg. C, 60%RH	120Vac, 60Hz	James Yang
Conducted Emission	25deg. C, 60%RH	120Vac, 60Hz	James Yang
Radiated Emission	23deg. C, 67%RH 25deg. C, 65%RH	120Vac, 60Hz	Adair Peng Tank Wu

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:

Test Standard:

FCC 47 CFR Part 2

FCC 47 CFR Part 22

FCC 47 CFR Part 24

FCC 47 CFR Part 27

FCC 47 CFR Part 90

ANSI/TIA/EIA-603-D-2010

ANSI/TIA/EIA-603-E 2016

ANSI 63.26-2015

References Test Guidance:

KDB 971168 D01 Power Meas License Digital Systems v03r01

KDB 971168 D02 Misc Rev Approv License Devices v02r01

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

4 Test Types and Results

4.1 Output Power Measurement

4.1.1 Limits of Output Power Measurement

For n2:

Mobile / Portable station are limited to 2 watts e.i.r.p.

For LTE Band 5:

Mobile / Portable station are limited to 7 watts e.r.p.

For LTE Band 12, LTE Band 13:

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.

For LTE Band 14:

Control stations and mobile stations transmitting in the 758-768 MHz band and the 788-798 MHz band are limited to 30 watts ERP. Portable stations (hand-held devices) transmitting in the 758-768 MHz band and the 788-798 MHz band are limited to 3 watts ERP.

For 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.

For LTE Band 66:

Mobile / Portable station are limited to 1 watts e.i.r.p.

4.1.2 Test Procedures

Conducted Power Measurement:

For all test band except LTE Band 30:

The EUT was set up for the maximum power with 5GNR and 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.

For LTE Band 30:

Measurement method refers to ANSI C63.26 section 5.2.7 & 5.2.4.

Maximum EIRP / ERP

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

$$\text{EIRP} = P_{\text{Meas}} + G_T$$

$$\text{ERP} = P_{\text{Meas}} + G_T - 2.15$$

where

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

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

G_T gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP)

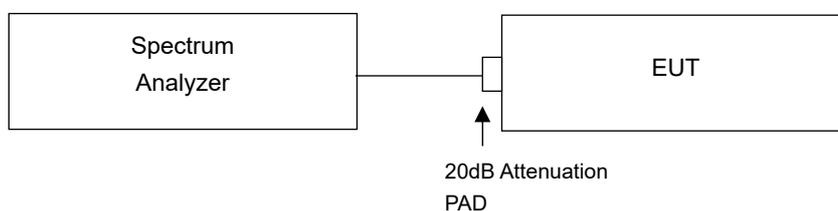
4.1.3 Test Setup

Conducted Power Measurement:

For all test band except LTE Band 30:



For LTE Band 30:



4.1.4 Test Results

Conducted Output Power (dBm) (For all test band except LTE Band 30)

NR Band 2						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		372000	376000	380000
		Frequency (MHz)		1860	1880	1900
20M	$\pi/2$ BPSK	1	1	23.83	23.81	23.87
		1	53	23.83	23.82	23.86
		1	104	23.74	23.81	23.92
		50	0	23.35	23.39	23.40
		50	28	23.78	23.86	23.95
		50	56	23.29	23.35	23.35
		100	0	23.37	23.40	23.42
20M	QPSK	1	1	23.89	23.91	23.96
		1	53	23.89	23.91	23.90
		1	104	23.81	23.84	23.94
		50	0	22.94	22.96	22.98
		50	28	23.87	23.90	23.91
		50	56	22.87	22.89	22.90
		100	0	22.91	22.94	22.98
20M	16QAM	1	1	22.88	22.84	22.86
20M	64QAM	1	1	21.35	21.31	21.45
20M	256QAM	1	1	19.31	19.33	19.40
BW	MCS Index	Channel		371500	376000	380500
		Frequency (MHz)		1857.5	1880	1902.5
15M	$\pi/2$ BPSK	1	1	23.77	23.75	23.86
		1	40	23.75	23.76	23.82
		1	77	23.66	23.76	23.89
		36	0	23.30	23.32	23.40
		36	22	23.76	23.80	23.91
		36	43	23.20	23.28	23.35
		75	0	23.33	23.38	23.42
15M	QPSK	1	1	23.80	23.83	23.86
		1	40	23.87	23.90	23.88
		1	77	23.80	23.75	23.89
		36	0	22.86	22.88	22.95
		36	22	23.85	23.88	23.91
		36	43	22.84	22.86	22.84
		75	0	22.86	22.84	22.89
15M	16QAM	1	1	22.86	22.77	22.82
15M	64QAM	1	1	21.26	21.24	21.39
15M	256QAM	1	1	19.31	19.32	19.38

NR Band 2						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		371000	376000	381000
		Frequency (MHz)		1855	1880	1905
10M	$\pi/2$ BPSK	1	1	23.79	23.76	23.84
		1	26	23.79	23.79	23.77
		1	50	23.69	23.77	23.86
		25	0	23.29	23.29	23.30
		25	14	23.74	23.77	23.87
		25	27	23.22	23.25	23.25
		50	0	23.36	23.31	23.42
10M	QPSK	1	1	23.84	23.90	23.90
		1	26	23.83	23.87	23.85
		1	50	23.71	23.74	23.89
		25	0	22.84	22.89	22.92
		25	14	23.78	23.83	23.91
		25	27	22.85	22.83	22.89
		50	0	22.81	22.94	22.95
10M	16QAM	1	1	22.87	22.83	22.77
10M	64QAM	1	1	21.32	21.28	21.38
10M	256QAM	1	1	19.28	19.23	19.38
BW	MCS Index	Channel		370500	376000	381500
		Frequency (MHz)		1852.5	1880	1907.5
5M	$\pi/2$ BPSK	1	1	23.79	23.71	23.85
		1	13	23.76	23.82	23.86
		1	23	23.72	23.79	23.87
		12	0	23.25	23.35	23.30
		12	7	23.71	23.81	23.95
		12	13	23.28	23.29	23.35
		25	0	23.31	23.35	23.37
5M	QPSK	1	1	23.84	23.85	23.92
		1	13	23.85	23.86	23.87
		1	23	23.74	23.74	23.87
		12	0	22.89	22.94	22.97
		12	7	23.83	23.87	23.88
		12	13	22.77	22.85	22.84
		25	0	22.90	22.89	22.92
5M	16QAM	1	1	22.87	22.80	22.83
5M	64QAM	1	1	21.27	21.25	21.35
5M	256QAM	1	1	19.21	19.28	19.33

LTE Band 5						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20450	20525	20600
		Frequency (MHz)		829	836.5	844
10M	QPSK	1	0	24.52	24.76	24.24
		1	24	24.49	24.73	24.19
		1	49	24.33	24.57	23.98
		25	0	23.34	23.89	23.51
		25	12	23.47	23.86	23.60
		25	25	23.30	23.75	23.19
		50	0	23.39	23.88	23.32
10M	16QAM	1	0	23.39	23.73	23.54
		1	24	23.32	23.67	23.36
		1	49	23.14	23.48	23.28
		25	0	22.54	22.64	22.71
		25	12	22.47	22.61	22.59
		25	25	22.54	22.59	22.43
		50	0	22.58	22.66	22.72
10M	64QAM	1	0	22.37	22.35	22.20
		1	24	22.26	22.31	22.11
		1	49	21.64	21.93	21.33
		25	0	21.20	21.41	21.02
		25	12	21.16	21.40	21.17
		25	25	20.78	20.86	20.64
		50	0	20.72	21.16	20.61
10M	256QAM	1	0	18.88	19.49	18.87
		1	24	18.98	19.10	18.85
		1	49	18.80	19.26	18.82
		25	0	18.16	18.30	18.28
		25	12	18.05	18.38	18.38
		25	25	18.26	18.18	18.23
		50	0	18.16	18.11	17.76

LTE Band 5						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20425	20525	20625
		Frequency (MHz)		826.5	836.5	846.5
5M	QPSK	1	0	24.40	24.55	24.38
		1	12	24.36	24.65	24.25
		1	24	24.20	24.42	23.99
		12	0	23.40	23.53	23.58
		12	6	23.36	23.62	23.57
		12	13	23.24	23.67	23.19
		25	0	23.45	23.74	23.29
5M	16QAM	1	0	23.25	23.60	23.44
		1	12	23.29	23.72	23.46
		1	24	23.05	23.53	23.23
		12	0	22.67	22.66	22.60
		12	6	22.47	22.47	22.38
		12	13	22.36	22.51	22.21
		25	0	22.33	22.51	22.33
5M	64QAM	1	0	22.32	22.49	22.08
		1	12	22.31	22.52	22.17
		1	24	21.57	21.69	21.30
		12	0	21.23	21.30	21.04
		12	6	21.08	21.32	21.09
		12	13	20.58	20.89	20.65
		25	0	20.65	21.09	20.45
5M	256QAM	1	0	18.96	19.34	19.10
		1	12	18.86	19.45	18.96
		1	24	18.86	19.26	18.94
		12	0	17.97	18.17	18.09
		12	6	18.08	18.45	17.91
		12	13	18.12	18.38	17.97
		25	0	18.33	18.10	17.98

LTE Band 5						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20415	20525	20635
		Frequency (MHz)		825.5	836.5	847.5
3M	QPSK	1	0	24.26	24.44	24.16
		1	7	24.41	24.43	24.16
		1	14	24.10	24.18	23.82
		8	0	23.18	23.58	23.33
		8	3	23.13	23.75	23.57
		8	7	23.14	23.30	23.18
		15	0	23.31	23.64	23.05
3M	16QAM	1	0	23.43	23.75	23.39
		1	7	23.25	23.64	23.49
		1	14	23.00	23.25	22.87
		8	0	22.64	22.70	22.57
		8	3	22.45	22.67	22.05
		8	7	22.30	22.39	22.04
		15	0	22.54	22.61	22.49
3M	64QAM	1	0	22.26	22.19	21.86
		1	7	22.14	22.37	21.69
		1	14	21.41	21.68	21.17
		8	0	21.02	21.26	20.99
		8	3	21.03	21.25	20.93
		8	7	20.45	20.85	20.34
		15	0	20.57	20.99	20.69
3M	256QAM	1	0	18.88	19.24	18.61
		1	7	19.03	19.14	18.70
		1	14	18.55	18.81	18.33
		8	0	18.01	18.20	18.14
		8	3	17.85	18.11	18.18
		8	7	17.72	18.06	17.96
		15	0	17.85	18.21	17.65

LTE Band 5						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20407	20525	20643
		Frequency (MHz)		824.7	836.5	848.3
1.4M	QPSK	1	0	24.44	24.41	24.16
		1	2	24.49	24.58	24.40
		1	5	24.22	24.29	23.99
		3	0	24.56	24.67	24.61
		3	1	24.56	24.45	24.44
		3	3	24.11	24.61	24.19
		6	0	23.57	23.58	23.22
1.4M	16QAM	1	0	23.33	23.63	23.39
		1	2	23.53	23.54	23.25
		1	5	23.18	23.41	23.05
		3	0	23.45	23.73	23.60
		3	1	23.32	23.54	23.42
		3	3	23.06	23.39	22.92
		6	0	22.38	22.69	22.54
1.4M	64QAM	1	0	22.02	22.44	22.15
		1	2	22.01	22.07	22.08
		1	5	21.50	21.82	21.20
		3	0	21.94	22.19	21.99
		3	1	21.85	22.17	22.01
		3	3	21.61	21.89	21.46
		6	0	20.49	20.73	20.29
1.4M	256QAM	1	0	18.93	19.00	19.07
		1	2	18.98	19.51	18.79
		1	5	18.60	18.76	18.43
		3	0	18.71	19.12	19.02
		3	1	18.75	19.25	19.04
		3	3	18.98	19.10	18.58
		6	0	18.33	18.32	17.92

LTE Band 12						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		23060	23095	23130
		Frequency (MHz)		704	707.5	711
10M	QPSK	1	0	24.66	24.52	24.29
		1	24	24.59	24.28	24.37
		1	49	24.62	24.49	24.15
		25	0	23.77	23.31	23.34
		25	12	23.58	23.37	23.34
		25	25	23.70	23.40	23.41
		50	0	23.74	23.33	23.19
10M	16QAM	1	0	23.45	23.53	23.40
		1	24	23.39	23.31	23.08
		1	49	23.40	23.14	23.16
		25	0	22.60	22.50	22.55
		25	12	22.59	22.33	22.52
		25	25	22.65	22.44	22.30
		50	0	22.61	22.42	22.46
10M	64QAM	1	0	22.57	22.29	22.40
		1	24	22.84	22.24	22.33
		1	49	22.40	22.06	22.00
		25	0	21.56	21.43	21.24
		25	12	21.46	21.33	21.23
		25	25	21.29	21.08	21.13
		50	0	21.32	21.08	21.16
10M	256QAM	1	0	19.36	19.02	18.92
		1	24	19.62	18.73	19.13
		1	49	18.91	18.96	18.96
		25	0	18.04	17.94	17.70
		25	12	18.47	18.24	17.91
		25	25	18.37	18.09	18.22
		50	0	18.34	18.18	18.08

LTE Band 12						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		23035	23095	23155
		Frequency (MHz)		701.5	707.5	713.5
5M	QPSK	1	0	24.38	24.30	24.48
		1	12	24.36	24.27	24.52
		1	24	24.35	24.21	24.19
		12	0	23.39	23.43	23.18
		12	6	23.40	23.14	23.25
		12	13	23.48	23.43	23.21
		25	0	23.66	23.41	23.40
5M	16QAM	1	0	23.49	23.36	23.19
		1	12	23.52	23.13	23.26
		1	24	23.52	23.10	23.05
		12	0	22.79	22.56	22.38
		12	6	22.82	22.33	22.35
		12	13	22.56	22.59	22.20
		25	0	22.74	22.15	22.44
5M	64QAM	1	0	22.51	22.25	22.15
		1	12	22.82	22.32	22.35
		1	24	22.22	21.82	22.11
		12	0	21.47	21.15	21.36
		12	6	21.28	21.19	21.14
		12	13	21.15	21.09	20.89
		25	0	21.36	21.10	20.96
5M	256QAM	1	0	19.48	19.14	19.31
		1	12	19.02	19.35	18.69
		1	24	18.86	18.60	18.91
		12	0	18.16	17.73	17.90
		12	6	17.85	18.08	18.03
		12	13	18.07	17.79	17.98
		25	0	18.36	18.08	17.93

LTE Band 12						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		23025	23095	23165
		Frequency (MHz)		700.5	707.5	714.5
3M	QPSK	1	0	24.42	24.17	24.48
		1	7	24.41	24.34	24.28
		1	14	24.42	24.44	24.25
		8	0	23.35	23.21	23.41
		8	3	23.70	23.29	23.36
		8	7	23.65	23.28	23.22
		15	0	23.41	23.14	23.11
3M	16QAM	1	0	23.51	23.45	23.31
		1	7	23.36	23.27	23.22
		1	14	23.34	23.04	23.17
		8	0	22.54	22.18	22.11
		8	3	22.63	22.30	22.25
		8	7	22.72	22.31	22.22
		15	0	22.70	22.32	22.39
3M	64QAM	1	0	22.48	22.03	22.18
		1	7	22.68	22.33	22.08
		1	14	22.22	21.99	21.68
		8	0	21.26	21.01	21.23
		8	3	21.17	21.20	20.83
		8	7	21.15	20.99	20.86
		15	0	21.23	21.14	21.17
3M	256QAM	1	0	19.51	18.92	18.96
		1	7	19.30	18.92	18.83
		1	14	18.79	19.09	18.84
		8	0	18.30	17.78	17.71
		8	3	18.22	17.92	17.79
		8	7	18.14	17.98	17.73
		15	0	18.21	17.85	17.70

LTE Band 12						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		23017	23095	23173
		Frequency (MHz)		699.7	707.5	715.3
1.4M	QPSK	1	0	24.44	24.11	24.36
		1	2	24.43	24.14	24.17
		1	5	24.49	24.36	23.95
		3	0	24.60	24.25	24.14
		3	1	24.45	24.23	24.23
		3	3	24.65	24.29	24.10
		6	0	23.35	23.34	23.27
1.4M	16QAM	1	0	23.69	23.27	23.16
		1	2	23.53	23.21	23.04
		1	5	23.16	23.09	23.10
		3	0	23.59	23.38	23.19
		3	1	23.41	23.24	23.33
		3	3	23.86	23.25	23.23
		6	0	22.46	22.11	22.21
1.4M	64QAM	1	0	22.52	22.05	22.13
		1	2	22.44	22.09	22.16
		1	5	22.37	22.18	21.80
		3	0	22.45	22.23	22.18
		3	1	22.42	22.03	22.10
		3	3	22.39	22.21	21.85
		6	0	21.21	20.91	21.18
1.4M	256QAM	1	0	19.25	18.92	18.79
		1	2	19.06	18.85	18.98
		1	5	18.87	19.08	18.80
		3	0	19.19	18.79	18.74
		3	1	19.35	19.19	18.83
		3	3	18.96	18.99	18.52
		6	0	18.03	18.10	17.85

LTE Band 13				
BW	MCS Index	RB Size	RB Offset	Low
		Channel		23230
		Frequency (MHz)		782
10M	QPSK	1	0	24.81
		1	24	24.79
		1	49	24.79
		25	0	23.76
		25	12	23.56
		25	25	23.37
		50	0	23.80
10M	16QAM	1	0	23.70
		1	24	23.56
		1	49	23.59
		25	0	22.58
		25	12	22.52
		25	25	22.59
		50	0	22.88
10M	64QAM	1	0	22.83
		1	24	22.43
		1	49	22.65
		25	0	21.75
		25	12	21.32
		25	25	21.82
		50	0	21.45
10M	256QAM	1	0	19.35
		1	24	19.36
		1	49	19.19
		25	0	18.22
		25	12	17.97
		25	25	18.27
		50	0	18.14

LTE Band 13						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		23205	23230	23255
		Frequency (MHz)		779.5	782	784.5
5M	QPSK	1	0	24.43	24.78	24.28
		1	12	24.52	24.59	24.27
		1	24	24.23	24.62	24.30
		12	0	23.50	23.64	23.53
		12	6	23.53	23.65	23.38
		12	13	23.39	23.33	23.54
		25	0	23.54	23.59	23.65
5M	16QAM	1	0	23.41	23.65	23.64
		1	12	23.47	23.86	23.52
		1	24	23.44	23.75	23.18
		12	0	22.58	22.59	22.42
		12	6	22.75	22.61	22.54
		12	13	22.77	22.41	22.37
		25	0	22.59	22.82	22.70
5M	64QAM	1	0	22.58	22.75	22.48
		1	12	22.55	22.50	22.69
		1	24	22.05	22.32	22.21
		12	0	21.34	21.66	21.33
		12	6	21.44	21.41	21.27
		12	13	21.16	21.46	21.12
		25	0	21.15	21.31	21.25
5M	256QAM	1	0	19.32	18.96	19.05
		1	12	19.25	19.28	19.19
		1	24	18.76	19.18	19.36
		12	0	18.15	18.24	17.90
		12	6	18.02	18.10	17.85
		12	13	18.11	18.15	18.38
		25	0	18.21	18.17	18.15

LTE Band 14				
BW	MCS Index	RB Size	RB Offset	Mid
		Channel		23330
		Frequency (MHz)		793
10M	QPSK	1	0	24.70
		1	24	24.21
		1	49	23.92
		25	0	23.72
		25	12	23.12
		25	25	22.43
		50	0	23.27
10M	16QAM	1	0	23.73
		1	24	23.29
		1	49	23.02
		25	0	22.42
		25	12	22.17
		25	25	21.73
		50	0	22.43
10M	64QAM	1	0	22.16
		1	24	21.42
		1	49	21.36
		25	0	20.83
		25	12	20.34
		25	25	20.02
		50	0	20.59
10M	256QAM	1	0	19.50
		1	24	18.88
		1	49	18.44
		25	0	17.90
		25	12	18.03
		25	25	17.85
		50	0	17.86

LTE Band 14						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		23305	23330	23355
		Frequency (MHz)		790.5	793	795.5
5M	QPSK	1	0	24.62	24.56	24.43
		1	12	24.09	24.21	24.18
		1	24	23.96	24.08	24.13
		12	0	23.37	23.70	23.42
		12	6	22.85	22.76	23.00
		12	13	22.36	22.24	22.49
		25	0	23.32	23.06	23.26
5M	16QAM	1	0	23.49	23.53	23.76
		1	12	23.30	23.30	23.01
		1	24	22.85	22.98	23.19
		12	0	22.69	22.53	22.47
		12	6	21.86	22.22	22.17
		12	13	21.52	21.68	21.70
		25	0	22.07	22.08	22.05
5M	64QAM	1	0	22.27	22.17	22.25
		1	12	21.52	21.54	21.44
		1	24	21.45	21.29	21.53
		12	0	21.02	20.93	20.95
		12	6	20.17	20.37	20.06
		12	13	20.00	20.28	20.07
		25	0	20.45	20.56	20.11
5M	256QAM	1	0	19.28	19.33	19.22
		1	12	18.65	18.51	18.66
		1	24	18.57	18.87	18.47
		12	0	18.28	18.32	18.19
		12	6	17.88	17.83	17.77
		12	13	17.87	18.13	18.05
		25	0	18.15	18.04	17.87

LTE Band 66						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		132072	132322	132572
		Frequency (MHz)		1720	1745	1770
20M	QPSK	1	0	23.15	23.55	23.73
		1	50	23.27	23.52	23.60
		1	99	22.87	23.15	23.27
		50	0	22.30	22.54	22.61
		50	25	22.32	22.40	22.76
		50	50	22.41	22.50	22.71
		100	0	22.51	22.40	22.60
20M	16QAM	1	0	22.59	22.69	22.59
		1	50	22.71	22.65	22.49
		1	99	22.66	22.42	22.56
		50	0	21.57	21.59	21.63
		50	25	21.31	21.44	21.71
		50	50	21.51	21.63	21.36
		100	0	21.32	21.73	21.56
20M	64QAM	1	0	21.48	21.80	21.92
		1	50	21.37	21.85	21.67
		1	99	21.18	21.49	21.74
		50	0	20.47	20.86	20.50
		50	25	20.37	20.65	20.57
		50	50	20.37	20.67	20.62
		100	0	20.29	20.86	20.75
20M	256QAM	1	0	17.69	18.21	18.58
		1	50	17.85	18.33	18.25
		1	99	17.46	17.69	18.09
		50	0	16.86	17.00	17.77
		50	25	16.90	17.32	17.63
		50	50	16.81	17.32	17.19
		100	0	17.11	17.17	17.02

LTE Band 66						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		132047	132322	132597
		Frequency (MHz)		1717.5	1745	1772.5
15M	QPSK	1	0	23.04	23.66	23.62
		1	37	23.03	23.49	23.56
		1	74	22.56	23.28	23.38
		36	0	22.40	22.65	22.74
		36	19	22.15	22.48	22.81
		36	39	22.07	22.31	22.70
		75	0	22.09	22.62	22.59
15M	16QAM	1	0	22.47	22.73	22.59
		1	37	22.36	22.22	22.55
		1	74	22.51	22.47	22.66
		36	0	21.47	21.54	21.38
		36	19	21.34	21.62	21.49
		36	39	21.41	21.45	21.54
		75	0	21.20	21.41	21.41
15M	64QAM	1	0	21.15	21.88	21.82
		1	37	21.19	21.50	21.58
		1	74	20.85	21.44	21.58
		36	0	20.55	20.79	20.49
		36	19	20.40	20.63	20.42
		36	39	20.40	20.78	20.70
		75	0	20.25	20.61	20.53
15M	256QAM	1	0	17.61	18.15	18.44
		1	37	17.50	18.12	18.41
		1	74	17.59	17.87	18.02
		36	0	16.98	16.87	17.26
		36	19	17.11	16.97	17.54
		36	39	16.96	17.04	17.11
		75	0	16.92	17.40	17.48

LTE Band 66						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		132022	132322	132622
		Frequency (MHz)		1715	1745	1775
10M	QPSK	1	0	23.05	23.44	23.70
		1	24	22.86	23.33	23.56
		1	49	22.46	23.15	23.25
		25	0	22.19	22.33	22.81
		25	12	22.49	22.28	22.63
		25	25	22.37	22.38	22.65
		50	0	22.25	22.38	22.71
10M	16QAM	1	0	22.60	22.44	22.56
		1	24	22.31	22.36	22.41
		1	49	22.33	22.29	22.28
		25	0	21.17	21.46	21.59
		25	12	21.16	21.51	21.38
		25	25	21.32	21.25	21.21
		50	0	21.33	21.58	21.44
10M	64QAM	1	0	21.21	21.53	21.43
		1	24	21.00	21.39	21.51
		1	49	20.91	21.13	21.76
		25	0	20.30	20.83	20.50
		25	12	20.42	20.53	20.42
		25	25	20.44	20.78	20.58
		50	0	20.33	20.50	20.48
10M	256QAM	1	0	17.58	18.18	18.37
		1	24	17.65	17.95	18.16
		1	49	17.10	17.84	17.80
		25	0	16.89	16.87	17.03
		25	12	17.36	17.09	17.13
		25	25	16.87	16.93	17.53
		50	0	17.16	16.84	17.59

LTE Band 66						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		131997	132322	132647
		Frequency (MHz)		1712.5	1745	1777.5
5M	QPSK	1	0	23.20	23.55	23.51
		1	12	23.02	23.54	23.47
		1	24	22.50	22.96	22.97
		12	0	22.30	22.36	22.43
		12	6	22.18	22.33	22.53
		12	13	22.26	22.21	22.30
		25	0	22.13	22.48	22.49
5M	16QAM	1	0	22.30	22.44	22.33
		1	12	22.30	22.41	22.50
		1	24	22.24	22.44	22.48
		12	0	21.19	21.59	21.59
		12	6	21.21	21.51	21.28
		12	13	21.16	21.36	21.33
		25	0	21.10	21.43	21.21
5M	64QAM	1	0	21.24	21.51	21.48
		1	12	21.09	21.51	21.41
		1	24	21.04	21.52	21.34
		12	0	20.38	20.50	20.57
		12	6	20.24	20.69	20.70
		12	13	20.14	20.46	20.41
		25	0	20.37	20.68	20.48
5M	256QAM	1	0	17.59	18.19	18.24
		1	12	18.03	18.11	18.05
		1	24	17.26	17.38	17.85
		12	0	16.89	17.18	17.07
		12	6	16.78	17.15	17.41
		12	13	16.68	17.08	16.91
		25	0	16.97	17.10	17.37

LTE Band 66						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		131987	132322	132657
		Frequency (MHz)		1711.5	1745	1778.5
3M	QPSK	1	0	23.03	23.41	23.46
		1	7	22.90	23.58	23.53
		1	14	22.53	23.09	23.10
		8	0	22.03	22.44	22.49
		8	3	22.38	22.25	22.58
		8	7	22.40	22.40	22.64
		15	0	22.14	22.49	22.63
3M	16QAM	1	0	22.54	22.50	22.35
		1	7	22.58	22.34	22.40
		1	14	22.41	22.34	22.70
		8	0	21.28	21.58	21.63
		8	3	21.20	21.30	21.43
		8	7	21.28	21.30	21.54
		15	0	21.46	21.45	21.36
3M	64QAM	1	0	21.19	21.68	21.54
		1	7	21.27	21.52	21.51
		1	14	20.83	21.47	21.50
		8	0	20.49	20.76	20.71
		8	3	20.49	20.66	20.54
		8	7	20.22	20.43	20.75
		15	0	20.34	20.75	20.38
3M	256QAM	1	0	17.73	17.84	18.14
		1	7	17.63	18.04	18.50
		1	14	17.44	17.35	17.64
		8	0	16.83	16.90	17.25
		8	3	16.76	17.23	17.20
		8	7	17.05	17.05	17.11
		15	0	17.01	17.01	17.24

LTE Band 66						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		131979	132322	132665
		Frequency (MHz)		1710.7	1745	1779.3
1.4M	QPSK	1	0	23.09	23.46	23.50
		1	2	23.10	23.28	23.60
		1	5	22.76	22.98	23.24
		3	0	23.19	23.53	23.58
		3	1	23.31	23.29	23.68
		3	3	23.17	23.39	23.53
		6	0	22.20	22.26	22.63
1.4M	16QAM	1	0	22.25	22.55	22.66
		1	2	22.32	22.27	22.37
		1	5	22.50	22.57	22.41
		3	0	22.37	22.40	22.27
		3	1	22.14	22.45	22.34
		3	3	22.05	22.41	22.39
		6	0	21.29	21.52	21.29
1.4M	64QAM	1	0	21.15	21.72	21.67
		1	2	21.17	21.77	21.50
		1	5	20.86	21.16	21.58
		3	0	21.37	21.84	21.46
		3	1	21.37	21.38	21.56
		3	3	21.19	21.57	21.46
		6	0	20.17	20.67	20.62
1.4M	256QAM	1	0	17.25	17.17	17.11
		1	2	17.23	17.25	17.10
		1	5	16.76	17.52	17.50
		3	0	17.34	17.48	17.83
		3	1	17.38	17.57	17.29
		3	3	17.60	17.75	17.52
		6	0	17.11	16.64	16.40

Conducted Output Power (dBm/5MHz) (For LTE Band 30)

LTE Band 30				
BW	MCS Index	RB Size	RB Offset	Mid
		Channel		27710
		Frequency (MHz)		2310
10M	QPSK	1	0	23.16
		1	24	23.08
		1	49	22.97
		25	0	22.21
		25	12	21.96
		25	25	22.08
		50	0	21.88
10M	16QAM	1	0	22.26
		1	24	22.02
		1	49	22.06
		25	0	21.07
		25	12	20.92
		25	25	20.91
		50	0	20.90
10M	64QAM	1	0	21.27
		1	24	20.89
		1	49	21.10
		25	0	19.98
		25	12	19.99
		25	25	20.08
		50	0	19.96
10M	256QAM	1	0	17.72
		1	24	17.67
		1	49	17.50
		25	0	17.08
		25	12	16.86
		25	25	17.10
		50	0	17.03

LTE Band 30						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		27685	27710	27735
		Frequency (MHz)		2307.5	2310	2312.5
5M	QPSK	1	0	23.12	23.03	23.07
		1	12	22.69	22.85	22.85
		1	24	22.69	22.79	22.86
		12	0	21.78	22.04	21.81
		12	6	21.96	21.93	21.97
		12	13	22.01	22.11	21.85
		25	0	21.74	21.79	21.81
5M	16QAM	1	0	21.86	22.25	22.16
		1	12	21.85	21.83	21.92
		1	24	21.73	21.91	21.61
		12	0	21.08	20.91	21.04
		12	6	20.90	21.02	20.81
		12	13	20.79	20.83	20.78
		25	0	21.07	21.00	20.82
5M	64QAM	1	0	20.92	20.98	20.78
		1	12	20.96	20.90	20.94
		1	24	21.00	21.01	20.76
		12	0	19.67	20.10	19.77
		12	6	19.97	19.89	19.74
		12	13	19.83	19.86	19.85
		25	0	20.10	19.97	20.02
5M	256QAM	1	0	17.59	17.71	17.68
		1	12	17.69	17.28	17.40
		1	24	17.37	17.45	17.35
		12	0	16.96	17.10	17.12
		12	6	17.02	16.94	16.93
		12	13	17.20	17.15	16.82
		25	0	16.91	17.12	17.25

EIRP / ERP Power (dBm) (For all test band except LTE Band 30)

NR Band 2						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		372000	376000	380000
		Frequency (MHz)		1860	1880	1900
20M	$\pi/2$ BPSK	1	1	22.44	22.42	22.48
		1	53	22.44	22.43	22.47
		1	104	22.35	22.42	22.53
		50	0	21.96	22.00	22.01
		50	28	22.39	22.47	22.56
		50	56	21.90	21.96	21.96
		100	0	21.98	22.01	22.03
20M	QPSK	1	1	22.50	22.52	22.57
		1	53	22.50	22.52	22.51
		1	104	22.42	22.45	22.55
		50	0	21.55	21.57	21.59
		50	28	22.48	22.51	22.52
		50	56	21.48	21.50	21.51
		100	0	21.52	21.55	21.59
20M	16QAM	1	1	21.49	21.45	21.47
20M	64QAM	1	1	19.96	19.92	20.06
20M	256QAM	1	1	17.92	17.94	18.01
BW	MCS Index	Channel		371500	376000	380500
		Frequency (MHz)		1857.5	1880	1902.5
15M	$\pi/2$ BPSK	1	1	22.38	22.36	22.47
		1	40	22.36	22.37	22.43
		1	77	22.27	22.37	22.50
		36	0	21.91	21.93	22.01
		36	22	22.37	22.41	22.52
		36	43	21.81	21.89	21.96
		75	0	21.94	21.99	22.03
15M	QPSK	1	1	22.41	22.44	22.47
		1	40	22.48	22.51	22.49
		1	77	22.41	22.36	22.50
		36	0	21.47	21.49	21.56
		36	22	22.46	22.49	22.52
		36	43	21.45	21.47	21.45
		75	0	21.47	21.45	21.50
15M	16QAM	1	1	21.47	21.38	21.43
15M	64QAM	1	1	19.87	19.85	20.00
15M	256QAM	1	1	17.92	17.93	17.99

NR Band 2						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		371000	376000	381000
		Frequency (MHz)		1855	1880	1905
10M	$\pi/2$ BPSK	1	1	22.40	22.37	22.45
		1	26	22.40	22.40	22.38
		1	50	22.30	22.38	22.47
		25	0	21.90	21.90	21.91
		25	14	22.35	22.38	22.48
		25	27	21.83	21.86	21.86
		50	0	21.97	21.92	22.03
10M	QPSK	1	1	22.45	22.51	22.51
		1	26	22.44	22.48	22.46
		1	50	22.32	22.35	22.50
		25	0	21.45	21.50	21.53
		25	14	22.39	22.44	22.52
		25	27	21.46	21.44	21.50
		50	0	21.42	21.55	21.56
10M	16QAM	1	1	21.48	21.44	21.38
10M	64QAM	1	1	19.93	19.89	19.99
10M	256QAM	1	1	17.89	17.84	17.99
BW	MCS Index	Channel		370500	376000	381500
		Frequency (MHz)		1852.5	1880	1907.5
5M	$\pi/2$ BPSK	1	1	22.40	22.32	22.46
		1	13	22.37	22.43	22.47
		1	23	22.33	22.40	22.48
		12	0	21.86	21.96	21.91
		12	7	22.32	22.42	22.56
		12	13	21.89	21.90	21.96
		25	0	21.92	21.96	21.98
5M	QPSK	1	1	22.45	22.46	22.53
		1	13	22.46	22.47	22.48
		1	23	22.35	22.35	22.48
		12	0	21.50	21.55	21.58
		12	7	22.44	22.48	22.49
		12	13	21.38	21.46	21.45
		25	0	21.51	21.50	21.53
5M	16QAM	1	1	21.48	21.41	21.44
5M	64QAM	1	1	19.88	19.86	19.96
5M	256QAM	1	1	17.82	17.89	17.94

LTE Band 5						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20450	20525	20600
		Frequency (MHz)		829	836.5	844
10M	QPSK	1	0	20.48	20.72	20.20
		1	24	20.45	20.69	20.15
		1	49	20.29	20.53	19.94
		25	0	19.30	19.85	19.47
		25	12	19.43	19.82	19.56
		25	25	19.26	19.71	19.15
		50	0	19.35	19.84	19.28
10M	16QAM	1	0	19.35	19.69	19.50
		1	24	19.28	19.63	19.32
		1	49	19.10	19.44	19.24
		25	0	18.50	18.60	18.67
		25	12	18.43	18.57	18.55
		25	25	18.50	18.55	18.39
		50	0	18.54	18.62	18.68
10M	64QAM	1	0	18.33	18.31	18.16
		1	24	18.22	18.27	18.07
		1	49	17.60	17.89	17.29
		25	0	17.16	17.37	16.98
		25	12	17.12	17.36	17.13
		25	25	16.74	16.82	16.60
		50	0	16.68	17.12	16.57
10M	256QAM	1	0	14.84	15.45	14.83
		1	24	14.94	15.06	14.81
		1	49	14.76	15.22	14.78
		25	0	14.12	14.26	14.24
		25	12	14.01	14.34	14.34
		25	25	14.22	14.14	14.19
		50	0	14.12	14.07	13.72

LTE Band 5						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20425	20525	20625
		Frequency (MHz)		826.5	836.5	846.5
5M	QPSK	1	0	20.36	20.51	20.34
		1	12	20.32	20.61	20.21
		1	24	20.16	20.38	19.95
		12	0	19.36	19.49	19.54
		12	6	19.32	19.58	19.53
		12	13	19.20	19.63	19.15
		25	0	19.41	19.70	19.25
5M	16QAM	1	0	19.21	19.56	19.40
		1	12	19.25	19.68	19.42
		1	24	19.01	19.49	19.19
		12	0	18.63	18.62	18.56
		12	6	18.43	18.43	18.34
		12	13	18.32	18.47	18.17
		25	0	18.29	18.47	18.29
5M	64QAM	1	0	18.28	18.45	18.04
		1	12	18.27	18.48	18.13
		1	24	17.53	17.65	17.26
		12	0	17.19	17.26	17.00
		12	6	17.04	17.28	17.05
		12	13	16.54	16.85	16.61
		25	0	16.61	17.05	16.41
5M	256QAM	1	0	14.92	15.30	15.06
		1	12	14.82	15.41	14.92
		1	24	14.82	15.22	14.90
		12	0	13.93	14.13	14.05
		12	6	14.04	14.41	13.87
		12	13	14.08	14.34	13.93
		25	0	14.29	14.06	13.94

LTE Band 5						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20415	20525	20635
		Frequency (MHz)		825.5	836.5	847.5
3M	QPSK	1	0	20.22	20.40	20.12
		1	7	20.37	20.39	20.12
		1	14	20.06	20.14	19.78
		8	0	19.14	19.54	19.29
		8	3	19.09	19.71	19.53
		8	7	19.10	19.26	19.14
		15	0	19.27	19.60	19.01
3M	16QAM	1	0	19.39	19.71	19.35
		1	7	19.21	19.60	19.45
		1	14	18.96	19.21	18.83
		8	0	18.60	18.66	18.53
		8	3	18.41	18.63	18.01
		8	7	18.26	18.35	18.00
		15	0	18.50	18.57	18.45
3M	64QAM	1	0	18.22	18.15	17.82
		1	7	18.10	18.33	17.65
		1	14	17.37	17.64	17.13
		8	0	16.98	17.22	16.95
		8	3	16.99	17.21	16.89
		8	7	16.41	16.81	16.30
		15	0	16.53	16.95	16.65
3M	256QAM	1	0	14.84	15.20	14.57
		1	7	14.99	15.10	14.66
		1	14	14.51	14.77	14.29
		8	0	13.97	14.16	14.10
		8	3	13.81	14.07	14.14
		8	7	13.68	14.02	13.92
		15	0	13.81	14.17	13.61

LTE Band 5						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20407	20525	20643
		Frequency (MHz)		824.7	836.5	848.3
1.4M	QPSK	1	0	20.40	20.37	20.12
		1	2	20.45	20.54	20.36
		1	5	20.18	20.25	19.95
		3	0	20.52	20.63	20.57
		3	1	20.52	20.41	20.40
		3	3	20.07	20.57	20.15
		6	0	19.53	19.54	19.18
1.4M	16QAM	1	0	19.29	19.59	19.35
		1	2	19.49	19.50	19.21
		1	5	19.14	19.37	19.01
		3	0	19.41	19.69	19.56
		3	1	19.28	19.50	19.38
		3	3	19.02	19.35	18.88
		6	0	18.34	18.65	18.50
1.4M	64QAM	1	0	17.98	18.40	18.11
		1	2	17.97	18.03	18.04
		1	5	17.46	17.78	17.16
		3	0	17.90	18.15	17.95
		3	1	17.81	18.13	17.97
		3	3	17.57	17.85	17.42
		6	0	16.45	16.69	16.25
1.4M	256QAM	1	0	14.89	14.96	15.03
		1	2	14.94	15.47	14.75
		1	5	14.56	14.72	14.39
		3	0	14.67	15.08	14.98
		3	1	14.71	15.21	15.00
		3	3	14.94	15.06	14.54
		6	0	14.29	14.28	13.88

LTE Band 12						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		23060	23095	23130
		Frequency (MHz)		704	707.5	711
10M	QPSK	1	0	20.38	20.23	20.00
		1	24	20.30	20.00	20.09
		1	49	20.34	20.21	19.87
		25	0	19.48	19.02	19.06
		25	12	19.30	19.08	19.06
		25	25	19.42	19.11	19.12
		50	0	19.45	19.04	18.91
10M	16QAM	1	0	19.17	19.25	19.11
		1	24	19.10	19.03	18.80
		1	49	19.12	18.85	18.87
		25	0	18.31	18.21	18.27
		25	12	18.30	18.05	18.24
		25	25	18.37	18.16	18.02
		50	0	18.33	18.14	18.18
10M	64QAM	1	0	18.29	18.01	18.11
		1	24	18.56	17.96	18.04
		1	49	18.12	17.78	17.72
		25	0	17.27	17.15	16.96
		25	12	17.18	17.05	16.95
		25	25	17.01	16.80	16.85
		50	0	17.04	16.80	16.88
10M	256QAM	1	0	15.08	14.74	14.64
		1	24	15.34	14.44	14.84
		1	49	14.62	14.67	14.67
		25	0	13.76	13.66	13.42
		25	12	14.19	13.96	13.62
		25	25	14.09	13.81	13.93
		50	0	14.06	13.90	13.79

LTE Band 12						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		23035	23095	23155
		Frequency (MHz)		701.5	707.5	713.5
5M	QPSK	1	0	20.10	20.02	20.19
		1	12	20.08	19.99	20.23
		1	24	20.07	19.92	19.91
		12	0	19.11	19.15	18.90
		12	6	19.12	18.86	18.97
		12	13	19.20	19.15	18.93
		25	0	19.38	19.13	19.11
5M	16QAM	1	0	19.20	19.08	18.91
		1	12	19.23	18.84	18.97
		1	24	19.24	18.82	18.76
		12	0	18.51	18.27	18.10
		12	6	18.53	18.04	18.06
		12	13	18.28	18.31	17.91
		25	0	18.45	17.86	18.16
5M	64QAM	1	0	18.23	17.97	17.87
		1	12	18.54	18.04	18.07
		1	24	17.93	17.53	17.83
		12	0	17.18	16.87	17.07
		12	6	16.99	16.91	16.85
		12	13	16.86	16.81	16.61
		25	0	17.07	16.81	16.68
5M	256QAM	1	0	15.19	14.85	15.03
		1	12	14.73	15.07	14.41
		1	24	14.57	14.31	14.63
		12	0	13.88	13.44	13.62
		12	6	13.57	13.79	13.75
		12	13	13.79	13.50	13.69
		25	0	14.08	13.79	13.64

LTE Band 12						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		23025	23095	23165
		Frequency (MHz)		700.5	707.5	714.5
3M	QPSK	1	0	20.13	19.89	20.19
		1	7	20.13	20.05	19.99
		1	14	20.14	20.16	19.96
		8	0	19.06	18.93	19.12
		8	3	19.41	19.01	19.08
		8	7	19.37	19.00	18.94
		15	0	19.13	18.86	18.83
3M	16QAM	1	0	19.22	19.17	19.02
		1	7	19.07	18.98	18.93
		1	14	19.05	18.76	18.89
		8	0	18.26	17.90	17.82
		8	3	18.34	18.01	17.97
		8	7	18.44	18.02	17.94
		15	0	18.41	18.03	18.11
3M	64QAM	1	0	18.20	17.75	17.90
		1	7	18.40	18.05	17.80
		1	14	17.94	17.71	17.40
		8	0	16.97	16.72	16.94
		8	3	16.88	16.91	16.55
		8	7	16.86	16.71	16.58
		15	0	16.94	16.86	16.88
3M	256QAM	1	0	15.23	14.64	14.68
		1	7	15.02	14.64	14.55
		1	14	14.50	14.81	14.56
		8	0	14.02	13.49	13.43
		8	3	13.94	13.63	13.51
		8	7	13.85	13.70	13.45
		15	0	13.92	13.57	13.42

LTE Band 12						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		23017	23095	23173
		Frequency (MHz)		699.7	707.5	715.3
1.4M	QPSK	1	0	20.16	19.82	20.08
		1	2	20.15	19.86	19.88
		1	5	20.20	20.07	19.66
		3	0	20.32	19.96	19.86
		3	1	20.17	19.95	19.94
		3	3	20.37	20.01	19.81
		6	0	19.06	19.06	18.99
1.4M	16QAM	1	0	19.40	18.99	18.88
		1	2	19.25	18.93	18.76
		1	5	18.88	18.80	18.81
		3	0	19.30	19.09	18.90
		3	1	19.13	18.96	19.05
		3	3	19.58	18.97	18.95
		6	0	18.17	17.82	17.92
1.4M	64QAM	1	0	18.24	17.77	17.85
		1	2	18.16	17.80	17.87
		1	5	18.08	17.89	17.52
		3	0	18.16	17.94	17.90
		3	1	18.14	17.75	17.82
		3	3	18.11	17.93	17.56
		6	0	16.92	16.63	16.90
1.4M	256QAM	1	0	14.96	14.64	14.50
		1	2	14.77	14.57	14.69
		1	5	14.59	14.80	14.51
		3	0	14.90	14.50	14.45
		3	1	15.06	14.90	14.55
		3	3	14.67	14.70	14.24
		6	0	13.74	13.82	13.57

LTE Band 13				
BW	MCS Index	RB Size	RB Offset	Low
		Channel		23230
		Frequency (MHz)		782
10M	QPSK	1	0	18.29
		1	24	18.27
		1	49	18.27
		25	0	17.24
		25	12	17.04
		25	25	16.85
		50	0	17.28
10M	16QAM	1	0	17.18
		1	24	17.04
		1	49	17.07
		25	0	16.06
		25	12	16.00
		25	25	16.07
		50	0	16.36
10M	64QAM	1	0	16.31
		1	24	15.91
		1	49	16.13
		25	0	15.23
		25	12	14.80
		25	25	15.30
		50	0	14.93
10M	256QAM	1	0	12.83
		1	24	12.84
		1	49	12.67
		25	0	11.70
		25	12	11.45
		25	25	11.75
		50	0	11.62

LTE Band 13						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		23205	23230	23255
		Frequency (MHz)		779.5	782	784.5
5M	QPSK	1	0	17.91	18.26	17.76
		1	12	18.00	18.07	17.75
		1	24	17.71	18.10	17.78
		12	0	16.98	17.12	17.01
		12	6	17.01	17.13	16.86
		12	13	16.87	16.81	17.02
		25	0	17.02	17.07	17.13
5M	16QAM	1	0	16.89	17.13	17.12
		1	12	16.95	17.34	17.00
		1	24	16.92	17.23	16.66
		12	0	16.06	16.07	15.90
		12	6	16.23	16.09	16.02
		12	13	16.25	15.89	15.85
		25	0	16.07	16.30	16.18
5M	64QAM	1	0	16.06	16.23	15.96
		1	12	16.03	15.98	16.17
		1	24	15.53	15.80	15.69
		12	0	14.82	15.14	14.81
		12	6	14.92	14.89	14.75
		12	13	14.64	14.94	14.60
		25	0	14.63	14.79	14.73
5M	256QAM	1	0	12.80	12.44	12.53
		1	12	12.73	12.76	12.67
		1	24	12.24	12.66	12.84
		12	0	11.63	11.72	11.38
		12	6	11.50	11.58	11.33
		12	13	11.59	11.63	11.86
		25	0	11.69	11.65	11.63

LTE Band 14				
BW	MCS Index	RB Size	RB Offset	Mid
		Channel		23330
		Frequency (MHz)		793
10M	QPSK	1	0	18.18
		1	24	17.69
		1	49	17.40
		25	0	17.20
		25	12	16.60
		25	25	15.91
		50	0	16.75
10M	16QAM	1	0	17.21
		1	24	16.77
		1	49	16.50
		25	0	15.90
		25	12	15.65
		25	25	15.21
		50	0	15.91
10M	64QAM	1	0	15.64
		1	24	14.90
		1	49	14.84
		25	0	14.31
		25	12	13.82
		25	25	13.50
		50	0	14.07
10M	256QAM	1	0	12.98
		1	24	12.36
		1	49	11.92
		25	0	11.38
		25	12	11.51
		25	25	11.33
		50	0	11.34

LTE Band 14						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		23305	23330	23355
		Frequency (MHz)		790.5	793	795.5
5M	QPSK	1	0	18.10	18.04	17.91
		1	12	17.57	17.69	17.66
		1	24	17.44	17.56	17.61
		12	0	16.85	17.18	16.90
		12	6	16.33	16.24	16.48
		12	13	15.84	15.72	15.97
		25	0	16.80	16.54	16.74
5M	16QAM	1	0	16.97	17.01	17.24
		1	12	16.78	16.78	16.49
		1	24	16.33	16.46	16.67
		12	0	16.17	16.01	15.95
		12	6	15.34	15.70	15.65
		12	13	15.00	15.16	15.18
		25	0	15.55	15.56	15.53
5M	64QAM	1	0	15.75	15.65	15.73
		1	12	15.00	15.02	14.92
		1	24	14.93	14.77	15.01
		12	0	14.50	14.41	14.43
		12	6	13.65	13.85	13.54
		12	13	13.48	13.76	13.55
		25	0	13.93	14.04	13.59
5M	256QAM	1	0	12.76	12.81	12.70
		1	12	12.13	11.99	12.14
		1	24	12.05	12.35	11.95
		12	0	11.76	11.80	11.67
		12	6	11.36	11.31	11.25
		12	13	11.35	11.61	11.53
		25	0	11.63	11.52	11.35

LTE Band 66						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		132072	132322	132572
		Frequency (MHz)		1720	1745	1770
20M	QPSK	1	0	21.46	21.86	22.05
		1	50	21.59	21.84	21.92
		1	99	21.19	21.47	21.58
		50	0	20.61	20.86	20.92
		50	25	20.64	20.72	21.08
		50	50	20.73	20.81	21.03
		100	0	20.83	20.71	20.91
20M	16QAM	1	0	20.90	21.01	20.91
		1	50	21.03	20.96	20.81
		1	99	20.98	20.73	20.88
		50	0	19.89	19.91	19.95
		50	25	19.63	19.76	20.02
		50	50	19.83	19.94	19.67
		100	0	19.64	20.04	19.88
20M	64QAM	1	0	19.80	20.11	20.24
		1	50	19.69	20.17	19.99
		1	99	19.50	19.80	20.06
		50	0	18.78	19.18	18.81
		50	25	18.68	18.97	18.89
		50	50	18.68	18.99	18.94
		100	0	18.60	19.17	19.06
20M	256QAM	1	0	16.01	16.52	16.89
		1	50	16.17	16.65	16.57
		1	99	15.78	16.01	16.40
		50	0	15.18	15.31	16.09
		50	25	15.21	15.64	15.94
		50	50	15.13	15.63	15.51
		100	0	15.42	15.48	15.33

LTE Band 66						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		132047	132322	132597
		Frequency (MHz)		1717.5	1745	1772.5
15M	QPSK	1	0	21.36	21.98	21.93
		1	37	21.35	21.80	21.88
		1	74	20.87	21.60	21.69
		36	0	20.72	20.97	21.06
		36	19	20.46	20.80	21.12
		36	39	20.38	20.63	21.01
		75	0	20.41	20.93	20.91
15M	16QAM	1	0	20.79	21.04	20.90
		1	37	20.67	20.54	20.87
		1	74	20.83	20.79	20.98
		36	0	19.79	19.86	19.70
		36	19	19.65	19.93	19.81
		36	39	19.72	19.77	19.85
		75	0	19.51	19.73	19.73
15M	64QAM	1	0	19.46	20.19	20.13
		1	37	19.50	19.82	19.89
		1	74	19.17	19.75	19.89
		36	0	18.87	19.11	18.80
		36	19	18.72	18.95	18.74
		36	39	18.72	19.10	19.02
		75	0	18.57	18.93	18.85
15M	256QAM	1	0	15.92	16.46	16.76
		1	37	15.82	16.43	16.73
		1	74	15.90	16.18	16.34
		36	0	15.30	15.18	15.58
		36	19	15.42	15.29	15.86
		36	39	15.27	15.36	15.43
		75	0	15.24	15.71	15.80

LTE Band 66						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		132022	132322	132622
		Frequency (MHz)		1715	1745	1775
10M	QPSK	1	0	21.37	21.76	22.02
		1	24	21.17	21.64	21.88
		1	49	20.78	21.46	21.57
		25	0	20.51	20.64	21.12
		25	12	20.81	20.60	20.95
		25	25	20.69	20.69	20.96
		50	0	20.57	20.69	21.03
10M	16QAM	1	0	20.91	20.75	20.87
		1	24	20.63	20.67	20.72
		1	49	20.65	20.60	20.59
		25	0	19.49	19.77	19.91
		25	12	19.47	19.82	19.70
		25	25	19.64	19.57	19.53
		50	0	19.64	19.90	19.75
10M	64QAM	1	0	19.52	19.85	19.75
		1	24	19.31	19.71	19.82
		1	49	19.22	19.45	20.07
		25	0	18.62	19.15	18.82
		25	12	18.74	18.85	18.74
		25	25	18.75	19.09	18.89
		50	0	18.64	18.82	18.79
10M	256QAM	1	0	15.89	16.49	16.68
		1	24	15.97	16.26	16.47
		1	49	15.42	16.16	16.12
		25	0	15.21	15.19	15.35
		25	12	15.67	15.40	15.45
		25	25	15.19	15.25	15.85
		50	0	15.47	15.15	15.90

LTE Band 66						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		131997	132322	132647
		Frequency (MHz)		1712.5	1745	1777.5
5M	QPSK	1	0	21.52	21.87	21.83
		1	12	21.34	21.86	21.79
		1	24	20.81	21.27	21.29
		12	0	20.62	20.67	20.74
		12	6	20.50	20.64	20.85
		12	13	20.58	20.52	20.62
		25	0	20.44	20.80	20.80
5M	16QAM	1	0	20.61	20.76	20.64
		1	12	20.61	20.72	20.81
		1	24	20.56	20.76	20.79
		12	0	19.50	19.91	19.91
		12	6	19.53	19.82	19.60
		12	13	19.48	19.67	19.65
		25	0	19.42	19.75	19.53
5M	64QAM	1	0	19.56	19.83	19.80
		1	12	19.41	19.82	19.73
		1	24	19.35	19.84	19.66
		12	0	18.69	18.81	18.88
		12	6	18.56	19.01	19.01
		12	13	18.46	18.77	18.72
		25	0	18.69	19.00	18.80
5M	256QAM	1	0	15.91	16.50	16.56
		1	12	16.34	16.43	16.36
		1	24	15.58	15.69	16.17
		12	0	15.21	15.50	15.38
		12	6	15.09	15.46	15.72
		12	13	14.99	15.40	15.22
		25	0	15.28	15.42	15.69

LTE Band 66						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		131987	132322	132657
		Frequency (MHz)		1711.5	1745	1778.5
3M	QPSK	1	0	21.35	21.72	21.78
		1	7	21.22	21.90	21.85
		1	14	20.85	21.40	21.41
		8	0	20.35	20.75	20.81
		8	3	20.69	20.56	20.89
		8	7	20.71	20.72	20.96
		15	0	20.45	20.81	20.94
3M	16QAM	1	0	20.86	20.82	20.66
		1	7	20.90	20.65	20.72
		1	14	20.73	20.66	21.02
		8	0	19.60	19.90	19.95
		8	3	19.51	19.62	19.74
		8	7	19.60	19.61	19.86
		15	0	19.77	19.76	19.67
3M	64QAM	1	0	19.50	19.99	19.85
		1	7	19.59	19.83	19.83
		1	14	19.14	19.79	19.82
		8	0	18.80	19.07	19.03
		8	3	18.81	18.97	18.86
		8	7	18.54	18.75	19.07
		15	0	18.66	19.07	18.69
3M	256QAM	1	0	16.05	16.16	16.46
		1	7	15.95	16.35	16.81
		1	14	15.75	15.66	15.95
		8	0	15.15	15.22	15.56
		8	3	15.07	15.54	15.51
		8	7	15.36	15.36	15.42
		15	0	15.33	15.32	15.55

LTE Band 66						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		131979	132322	132665
		Frequency (MHz)		1710.7	1745	1779.3
1.4M	QPSK	1	0	21.40	21.77	21.81
		1	2	21.42	21.60	21.92
		1	5	21.07	21.29	21.55
		3	0	21.50	21.85	21.90
		3	1	21.62	21.61	22.00
		3	3	21.49	21.70	21.84
		6	0	20.52	20.58	20.94
1.4M	16QAM	1	0	20.57	20.87	20.98
		1	2	20.64	20.59	20.68
		1	5	20.82	20.89	20.72
		3	0	20.68	20.72	20.59
		3	1	20.45	20.77	20.65
		3	3	20.36	20.73	20.70
		6	0	19.61	19.84	19.61
1.4M	64QAM	1	0	19.46	20.04	19.98
		1	2	19.48	20.09	19.82
		1	5	19.18	19.47	19.90
		3	0	19.69	20.16	19.78
		3	1	19.68	19.70	19.88
		3	3	19.51	19.89	19.78
		6	0	18.49	18.98	18.94
1.4M	256QAM	1	0	15.57	15.49	15.43
		1	2	15.55	15.57	15.42
		1	5	15.08	15.84	15.82
		3	0	15.66	15.80	16.15
		3	1	15.70	15.89	15.61
		3	3	15.92	16.07	15.84
		6	0	15.43	14.96	14.72

EIRP Power (dBm/5MHz) (For LTE Band 30)

LTE Band 30				
BW	MCS Index	RB Size	RB Offset	Mid
		Channel		27710
		Frequency (MHz)		2310
10M	QPSK	1	0	21.87
		1	24	21.80
		1	49	21.69
		25	0	20.93
		25	12	20.68
		25	25	20.80
		50	0	20.60
10M	16QAM	1	0	20.98
		1	24	20.74
		1	49	20.77
		25	0	19.78
		25	12	19.63
		25	25	19.62
		50	0	19.61
10M	64QAM	1	0	19.99
		1	24	19.61
		1	49	19.81
		25	0	18.69
		25	12	18.71
		25	25	18.80
		50	0	18.68
10M	256QAM	1	0	16.44
		1	24	16.38
		1	49	16.22
		25	0	15.80
		25	12	15.57
		25	25	15.82
		50	0	15.74

LTE Band 30						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		27685	27710	27735
		Frequency (MHz)		2307.5	2310	2312.5
5M	QPSK	1	0	21.84	21.74	21.79
		1	12	21.40	21.56	21.56
		1	24	21.40	21.51	21.57
		12	0	20.49	20.76	20.53
		12	6	20.67	20.64	20.69
		12	13	20.73	20.82	20.57
		25	0	20.45	20.50	20.52
5M	16QAM	1	0	20.58	20.97	20.88
		1	12	20.56	20.55	20.63
		1	24	20.44	20.63	20.33
		12	0	19.80	19.62	19.75
		12	6	19.61	19.74	19.53
		12	13	19.51	19.55	19.50
		25	0	19.78	19.72	19.54
5M	64QAM	1	0	19.63	19.70	19.49
		1	12	19.68	19.62	19.66
		1	24	19.71	19.72	19.48
		12	0	18.39	18.82	18.49
		12	6	18.69	18.61	18.46
		12	13	18.54	18.58	18.56
		25	0	18.82	18.69	18.73
5M	256QAM	1	0	16.30	16.42	16.40
		1	12	16.40	15.99	16.11
		1	24	16.09	16.17	16.06
		12	0	15.68	15.81	15.84
		12	6	15.74	15.66	15.65
		12	13	15.91	15.87	15.54
		25	0	15.62	15.83	15.96

4.2 Modulation Characteristics Measurement

4.2.1 Limits of Modulation Characteristics

N/A

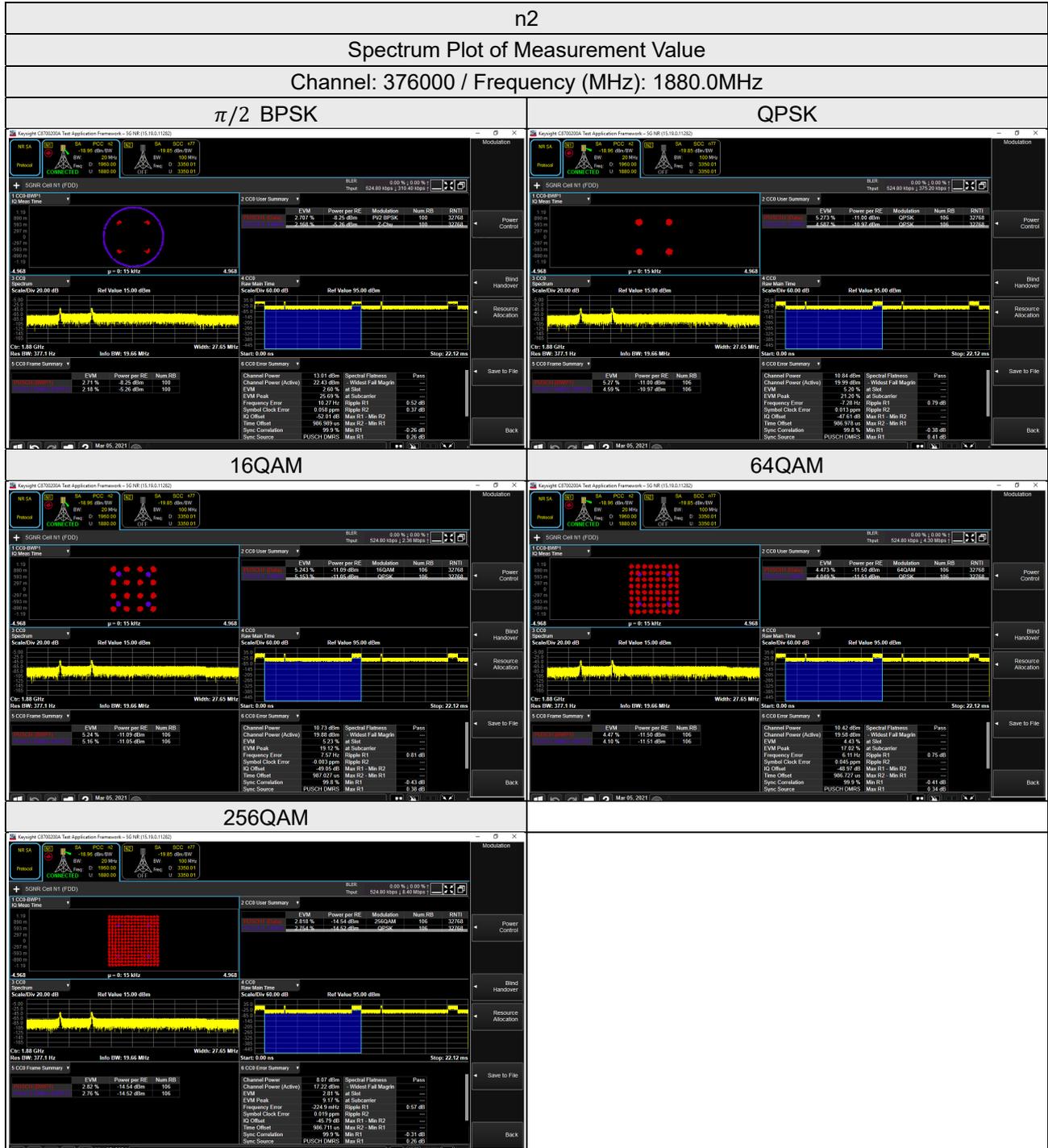
4.2.2 Test Procedure

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



4.3 Frequency Stability Measurement

4.3.1 Limits of Frequency Stability Measurement

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

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 °C during the measurement testing. The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.

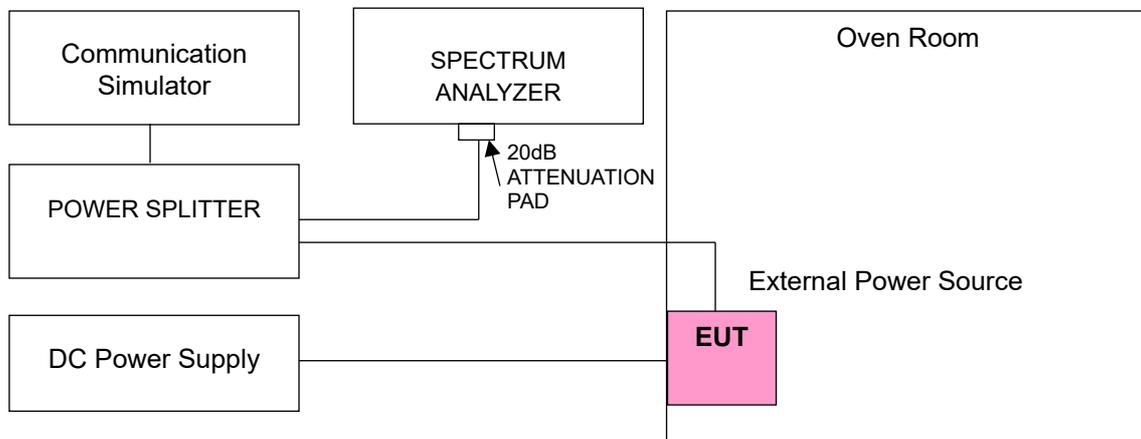
Note: The frequency error was recorded frequency error from the communication simulator.

4.3.3 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
5G Wireless Test Platforms Keysight	E7515B	MY60102114	May 28, 2020	May 27, 2021
Temperature & Humidity Chamber TERCHY	HRM-120RF	931022	Dec. 24, 2020	Dec. 23, 2021
Digital Multimeter Fluke	87-III	70360742	Jun. 23, 2020	Jun. 22, 2021
DC Power Supply Topward	6306A	727263	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.

4.3.4 Conducted Setup



4.3.5 Test Results

Frequency Error vs. Voltage

Voltage (Vdc)	n2			
	Channel Bandwidth 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
8.90	1852.500004	0.002	1907.500001	0.001
7.74	1852.500001	0.001	1907.500002	0.001
6.58	1852.500003	0.002	1907.500002	0.001

Note: The applicant defined the normal working voltage is from 6.58Vdc to 8.90Vdc.

Frequency Error vs. Temperature

Temp. (°C)	n2			
	Channel Bandwidth 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1852.500004	0.002	1907.500004	0.002
-20	1852.500003	0.002	1907.500002	0.001
-10	1852.500001	0.001	1907.500004	0.002
0	1852.500004	0.002	1907.500004	0.002
10	1852.499999	-0.001	1907.499997	-0.001
20	1852.499998	-0.001	1907.499998	-0.001
30	1852.499997	-0.002	1907.499998	-0.001
40	1852.499997	-0.001	1907.499999	-0.001
50	1852.499996	-0.002	1907.499998	-0.001

Frequency Error vs. Voltage

Voltage (Vdc)	n2			
	Channel Bandwidth 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
8.90	1855.000001	0.001	1905.000002	0.001
7.74	1855.000001	0.001	1905.000004	0.002
6.58	1855.000002	0.001	1905.000004	0.002

Note: The applicant defined the normal working voltage is from 6.58Vdc to 8.90Vdc.

Frequency Error vs. Temperature

Temp. (°C)	n2			
	Channel Bandwidth 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1855.000003	0.002	1905.000002	0.001
-20	1855.000002	0.001	1905.000003	0.002
-10	1855.000003	0.002	1905.000001	0.001
0	1855.000002	0.001	1905.000003	0.002
10	1854.999997	-0.002	1904.999996	-0.002
20	1854.999998	-0.001	1904.999997	-0.001
30	1854.999997	-0.001	1904.999997	-0.002
40	1854.999997	-0.002	1904.999998	-0.001
50	1854.999997	-0.002	1904.999996	-0.002

Frequency Error vs. Voltage

Voltage (Vdc)	n2			
	Channel Bandwidth 15 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
8.90	1857.500001	0.001	1902.500003	0.002
7.74	1857.500004	0.002	1902.500004	0.002
6.58	1857.500004	0.002	1902.500002	0.001

Note: The applicant defined the normal working voltage is from 6.58Vdc to 8.90Vdc.

Frequency Error vs. Temperature

Temp. (°C)	n2			
	Channel Bandwidth 15 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1857.500003	0.002	1902.500004	0.002
-20	1857.500004	0.002	1902.500001	0.001
-10	1857.500003	0.002	1902.500004	0.002
0	1857.500002	0.001	1902.500003	0.002
10	1857.499997	-0.002	1902.499996	-0.002
20	1857.499998	-0.001	1902.499996	-0.002
30	1857.499999	-0.001	1902.499998	-0.001
40	1857.499996	-0.002	1902.499998	-0.001
50	1857.499999	-0.001	1902.499997	-0.002

Frequency Error vs. Voltage

Voltage (Vdc)	n2			
	Channel Bandwidth 20 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
8.90	1860.000003	0.002	1900.000004	0.002
7.74	1860.000003	0.002	1900.000003	0.002
6.58	1860.000002	0.001	1900.000002	0.001

Note: The applicant defined the normal working voltage is from 6.58Vdc to 8.90Vdc.

Frequency Error vs. Temperature

Temp. (°C)	n2			
	Channel Bandwidth 20 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1860.000004	0.002	1900.000004	0.002
-20	1860.000001	0.001	1900.000002	0.001
-10	1860.000003	0.002	1900.000004	0.002
0	1860.000004	0.002	1900.000001	0.001
10	1859.999998	-0.001	1899.999997	-0.002
20	1859.999998	-0.001	1899.999996	-0.002
30	1859.999998	-0.001	1899.999998	-0.001
40	1859.999998	-0.001	1899.999997	-0.002
50	1859.999998	-0.001	1899.999997	-0.002

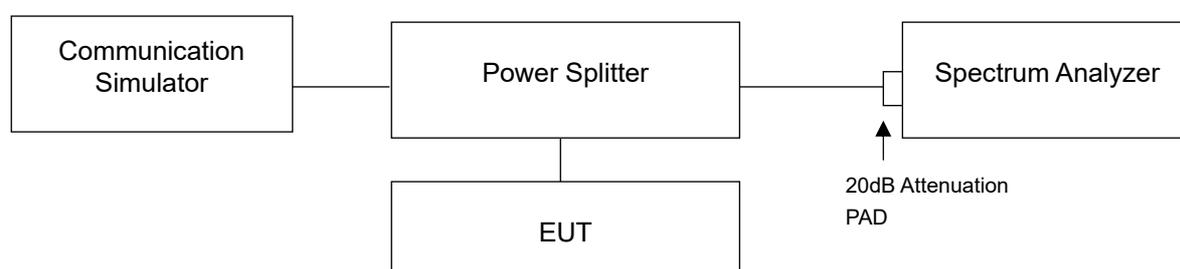
4.4 Occupied Bandwidth Measurement

4.4.1 Test Procedure

The EUT makes a call to the communication simulator. All measurements were done at low, middle and high operational frequency range. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency. Measurement method, please refer to section 5.4.4 of ANSI C63.26. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth.

For the 26dBc bandwidth measurement method, please refer to section 5.4.3 of ANSI C63.26.

4.4.2 Test Setup



4.4.3 Test Result

Occupied Bandwidth

n2, Channel Bandwidth: 5MHz						
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
370500	1852.5	4.47	4.47	4.47	4.46	4.47
376000	1880.0	4.47	4.47	4.47	4.47	4.47
381500	1907.5	4.47	4.47	4.47	4.46	4.46
n2, Channel Bandwidth: 10MHz						
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
371000	1855.0	9.20	9.29	9.28	9.29	9.28
376000	1880.0	9.21	9.29	9.28	9.28	9.28
381000	1905.0	9.20	9.29	9.29	9.29	9.28
n2, Channel Bandwidth: 15MHz						
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
371500	1857.5	13.99	14.12	14.11	14.11	14.11
376000	1880.0	14.00	14.11	14.12	14.11	14.11
380500	1902.5	14.00	14.11	14.12	14.11	14.11
n2, Channel Bandwidth: 20MHz						
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
372000	1860.0	18.67	18.91	18.91	18.90	18.91
376000	1880.0	18.75	18.91	18.92	18.91	18.91
380000	1900.0	18.76	18.90	18.91	18.91	18.90

Spectrum Plot of Worst Value

5MHz / $\pi/2$ BPSK



10MHz / 16QAM



15MHz / 16QAM



20MHz / 256QAM



26dB Bandwidth

n2, Channel Bandwidth: 5MHz						
Channel	Frequency (MHz)	26dBc Bandwidth (MHz)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
370500	1852.5	4.74	4.73	4.75	4.68	4.76
376000	1880.0	4.73	4.71	4.75	4.78	4.73
381500	1907.5	4.73	4.76	4.72	4.69	4.73
n2, Channel Bandwidth: 10MHz						
Channel	Frequency (MHz)	26dBc Bandwidth (MHz)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
371000	1855.0	9.28	9.65	9.65	9.67	9.66
376000	1880.0	9.27	9.71	9.66	9.65	9.67
381000	1905.0	9.32	9.65	9.67	9.63	9.63
n2, Channel Bandwidth: 15MHz						
Channel	Frequency (MHz)	26dBc Bandwidth (MHz)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
371500	1857.5	13.90	14.61	14.63	14.61	14.60
376000	1880.0	13.90	14.64	14.62	14.60	14.61
380500	1902.5	13.88	14.60	14.61	14.60	14.59
n2, Channel Bandwidth: 20MHz						
Channel	Frequency (MHz)	26dBc Bandwidth (MHz)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
372000	1860.0	18.50	19.58	19.57	19.58	19.57
376000	1880.0	18.50	19.60	19.59	19.58	19.57
380000	1900.0	18.50	19.57	19.57	19.59	19.55

Spectrum Plot of Worst Value

5MHz / 64QAM



10MHz / QPSK



15MHz / QPSK



20MHz / QPSK

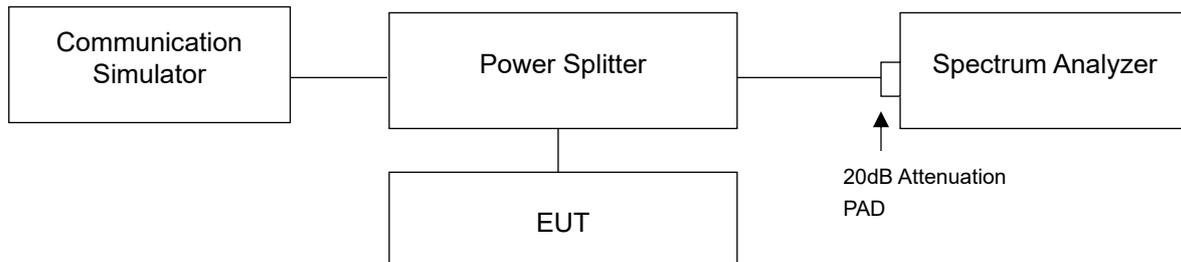


4.5 Band Edge Measurement

4.5.1 Limits of Band Edge Measurement

Power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

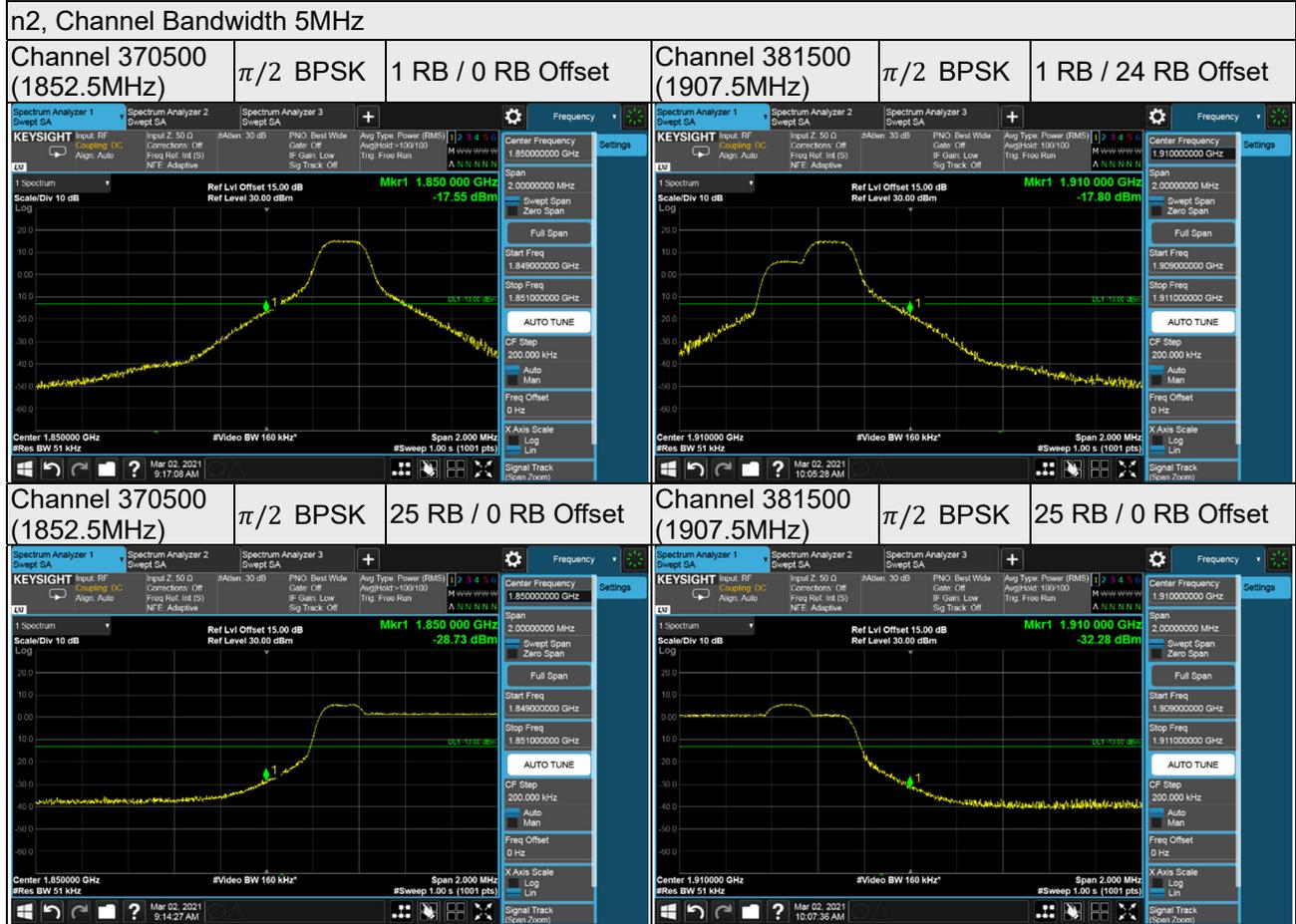
4.5.2 Test Setup



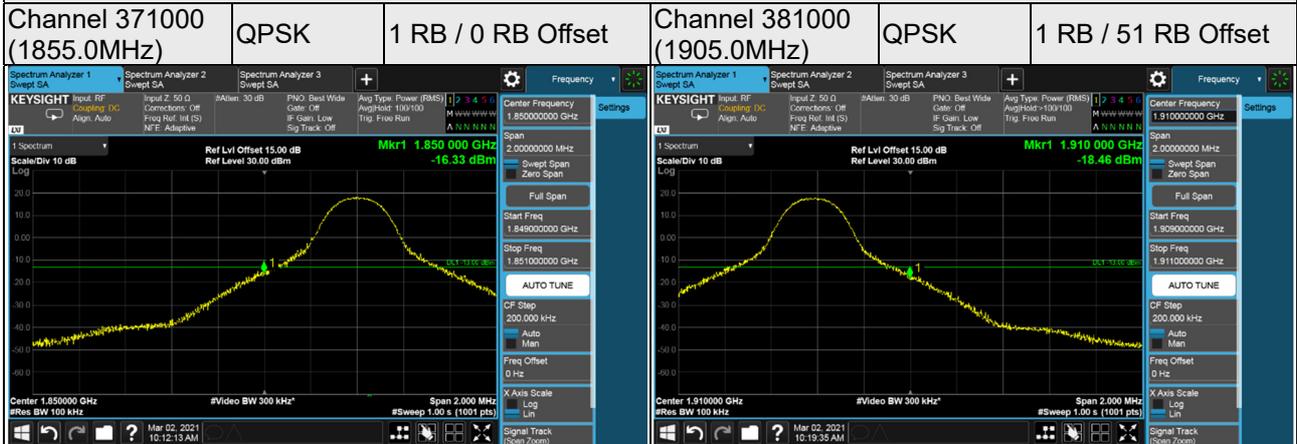
4.5.3 Test Procedures

- All measurements were done at low and high operational frequency range.
- The center frequency of spectrum is the band edge frequency and span is 2MHz. RB of the spectrum is 51kHz and VB of the spectrum is 160kHz (Channel Bandwidth 5MHz).
- The center frequency of spectrum is the band edge frequency and span is 2MHz. RB of the spectrum is 100kHz and VB of the spectrum is 300kHz (Channel Bandwidth 10MHz).
- The center frequency of spectrum is the band edge frequency and span is 2MHz. RB of the spectrum is 150kHz and VB of the spectrum is 470kHz (Channel Bandwidth 15MHz).
- The center frequency of spectrum is the band edge frequency and span is 2MHz. RB of the spectrum is 200kHz and VB of the spectrum is 620kHz (Channel Bandwidth 20MHz).
- Record the max trace plot into the test report.

4.5.4 Test Results



n2, Channel Bandwidth 10MHz



n2, Channel Bandwidth 15MHz

