

FCC Test Report (ENDC: n71+Band 2/7/66)

Report No.: RFBFLF-WTW-P21010278-30

FCC ID: MSQI007D

Test Model: ASUS_I007D

Received Date: Jan. 04, 2021

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

Issued Date: Apr. 19, 2021

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
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FCC Registration / 788550 / TW0003

Designation Number:



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Table of Contents

Release Control Record	4
1 Certificate of Conformity	5
2 Summary of Test Results	6
2.1 Measurement Uncertainty.....	8
2.2 Test Site and Instruments.....	9
3 General Information	11
3.1 General Description of EUT.....	11
3.2 Configuration of System under Test.....	16
3.2.1 Description of Support Units.....	16
3.3 Test Mode Applicability and Tested Channel Detail.....	17
3.4 EUT Operating Conditions.....	22
3.5 General Description of Applied Standards and References.....	22
4 Test Types and Results	23
4.1 Output Power Measurement.....	23
4.1.1 Limits of Output Power Measurement.....	23
4.1.2 Test Procedures.....	23
4.1.3 Test Setup.....	23
4.1.4 Test Results.....	24
4.2 Modulation Characteristics Measurement.....	60
4.2.1 Limits of Modulation Characteristics.....	60
4.2.2 Test Procedure.....	60
4.2.3 Test Setup.....	60
4.2.4 Test Results.....	61
4.3 Frequency Stability Measurement.....	62
4.3.1 Limits of Frequency Stability Measurement.....	62
4.3.2 Test Procedure.....	62
4.3.3 Test Instruments.....	62
4.3.4 Test Setup.....	62
4.3.5 Test Results.....	63
4.4 Occupied Bandwidth Measurement.....	67
4.4.1 Test Procedure.....	67
4.4.2 Test Setup.....	67
4.4.3 Test Result.....	68
4.5 Band Edge Measurement.....	72
4.5.1 Limits of Band Edge Measurement.....	72
4.5.2 Test Setup.....	72
4.5.3 Test Procedures.....	72
4.5.4 Test Results.....	73
4.6 Peak to Average Ratio.....	77
4.6.1 Limits of Peak to Average Ratio Measurement.....	77
4.6.2 Test Setup.....	77
4.6.3 Test Procedures.....	77
4.6.4 Test Results.....	78
4.7 Conducted Spurious Emissions.....	80
4.7.1 Limits of Conducted Spurious Emissions Measurement.....	80
4.7.2 Test Setup.....	80
4.7.3 Test Procedure.....	80
4.7.4 Test Results.....	81
4.8 Radiated Emission Measurement.....	85
4.8.1 Limits of Radiated Emission Measurement.....	85
4.8.2 Test Procedure.....	86
4.8.3 Deviation from Test Standard.....	86
4.8.4 Test Setup.....	87

4.8.5 Test Results	88
5 Pictures of Test Arrangements.....	116
Appendix – Information of the Testing Laboratories	117

Release Control Record

Issue No.	Description	Date Issued
RFBFLF-WTW-P21010278-30	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 24, Subpart E
FCC Part 27, Subpart C, 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:** Apr. 19, 2021
Pettie Chen / Senior Specialist

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

2 Summary of Test Results

For 5GNR n71:

Applied Standard: FCC Part 27 & Part 2			
FCC Clause	Test Item	Result	Remarks
2.1046 27.50 (c)	Equivalent Radiated Power	Pass	Meet the requirement of limit.
2.1047	Modulation Characteristics	Pass	Meet the requirement of limit.
----	Peak To Average Ratio	Pass	Meet the requirement of limit.
2.1055 27.54	Frequency Stability Stay with the authorized bands of operation	Pass	Meet the requirement of limit.
2.1049	Occupied Bandwidth	Pass	Meet the requirement of limit.
2.1051 27.53 (g)	Band Edge / Out of Band Emissions Measurements	Pass	Meet the requirement of limit.
2.1051 27.53 (g)	Conducted Spurious Emissions	Pass	Meet the requirement of limit.
2.1053 27.53 (g)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -39.40dB at 1376.00MHz.

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

For LTE Band 2:

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	Refer to Note 1
2.1047	Modulation Characteristics	Pass	Refer to Note 1
2.1055 24.235	Frequency Stability	Pass	Refer to Note 1
2.1049 24.238(b)	Occupied Bandwidth	Pass	Refer to Note 1
24.238(b)	Band Edge Measurements	Pass	Refer to Note 1
2.1051 24.238	Conducted Spurious Emissions	Pass	Refer to Note 1
2.1053 24.238	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -35.40dB at 3800.00MHz.

Note:

1. This report is a partial report. Therefore, only test item of Effective Isotropically Radiated Power and Radiated Spurious Emissions tests were performed for this report. Other testing data please refer to BV CPS report no.: RFBFLF-WTW-P21010278-10.
2. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

For LTE Band 7:

Applied Standard: FCC Part 27 & Part 2			
FCC Clause	Test Item	Result	Remarks
2.1046 27.50 (h)(2)	Equivalent Isotropically Radiated Power	Pass	Meet the requirement.
2.1047	Modulation Characteristics	Pass	Refer to Note 1
----	Peak To Average Ratio	Pass	Refer to Note 1
2.1055 27.54	Frequency Stability Stay with the authorized bands of operation	Pass	Refer to Note 1
2.1049	Occupied Bandwidth	Pass	Refer to Note 1
2.1051 27.53 (m)(4)(6)	Band Edge / Out of Band Emissions Measurements	Pass	Refer to Note 1
2.1051 27.53 (m)(4)(6)	Conducted Spurious Emissions	Pass	Refer to Note 1
2.1053 27.53 (m)(4)(6)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -25.13dB at 5070.00MHz.

Note:

1. This report is a partial report. Therefore, only test item of Equivalent Isotropically 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 66:

Applied Standard: FCC Part 27 & Part 2			
FCC Clause	Test Item	Result	Remarks
2.1046 27.50 (d)(4)	Equivalent Isotropically Radiated Power	Pass	Meet the requirement of limit.
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	Frequency Stability Stay with the authorized bands of operation	Pass	Refer to Note 1
2.1049	Occupied Bandwidth	Pass	Refer to Note 1
2.1051 27.53 (h)	Band Edge Measurements	Pass	Refer to Note 1
2.1051 27.53 (h)	Conducted Spurious Emissions	Pass	Refer to Note 1
2.1053 27.53 (h)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -35.20dB at 3555.00MHz.

Note:

1. This report is a partial report. Therefore, only test item of Equivalent Isotropically 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.

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	3.59 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. 18, 2020	Feb. 17, 2021
			Feb. 17, 2021	Feb. 16, 2022
RF signal cable HUBER+SUHNER&EMCI	SUCOFLEX 104 & EMC104-SM-SM80 00	CABLE-CH9-02 (248780+171006)	Jan. 18, 2020	Jan. 17, 2021
			Jan. 16, 2021	Jan. 15, 2022
RF signal cable HUBER+SUHNER	SUCOFLEX 104	CABLE-CH9-(250795/4)	Jan. 18, 2020	Jan. 17, 2021
			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)

n71

Modulation Type	$\pi/2$ BPSK, QPSK, 16QAM, 64QAM, 256QAM					
Waveform Type	CP-OFDM, DFT-s-OFDM					
Operating Frequency	n71 (Channel Bandwidth 5MHz)	665.5MHz ~ 695.5MHz				
	n71 (Channel Bandwidth 10MHz)	668.0MHz ~ 693.0MHz				
	n71 (Channel Bandwidth 15MHz)	670.5MHz ~ 690.5MHz				
	n71 (Channel Bandwidth 20MHz)	673.0MHz ~ 688.0MHz				
Max. ERP Power		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
	n71 (Channel Bandwidth 5MHz)	46.238mW (16.65dBm)	46.238mW (16.65dBm)	36.392mW (15.61dBm)	25.645mW (14.09dBm)	16.106mW (12.07dBm)
	n71 (Channel Bandwidth 10MHz)	46.132mW (16.64dBm)	46.026mW (16.63dBm)	36.559mW (15.63dBm)	25.882mW (14.13dBm)	16.406mW (12.15dBm)
	n71 (Channel Bandwidth 15MHz)	46.452mW (16.67dBm)	46.452mW (16.67dBm)	36.392mW (15.61dBm)	25.763mW (14.11dBm)	16.218mW (12.10dBm)
	n71 (Channel Bandwidth 20MHz)	46.666mW (16.69dBm)	46.989mW (16.72dBm)	35.645mW (15.52dBm)	25.645mW (14.09dBm)	15.996mW (12.04dBm)
Emission Designator		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
	n71 (Channel Bandwidth 5MHz)	4M48G7D	4M47G7D	4M47D7W	4M47D7W	4M47D7W
	n71 (Channel Bandwidth 10MHz)	9M22G7D	9M29G7D	9M29D7W	9M29D7W	9M29D7W
	n71 (Channel Bandwidth 15MHz)	14M0G7D	14M1G7D	14M1D7W	14M1D7W	14M1D7W
	n71 (Channel Bandwidth 20MHz)	18M7G7D	18M9G7D	18M9D7W	18M9D7W	18M9D7W

LTE Band

Modulation Type	QPSK, 16QAM, 64QAM, 256QAM						
Operating Frequency	LTE Band 2	Channel Bandwidth 1.4MHz	1850.7MHz ~1909.3MHz				
		Channel Bandwidth 3MHz	1851.5MHz ~1908.5MHz				
		Channel Bandwidth 5MHz	1852.5MHz ~1907.5MHz				
		Channel Bandwidth 10MHz	1855.0MHz ~1905.0MHz				
		Channel Bandwidth 15MHz	1857.5MHz ~1902.5MHz				
		Channel Bandwidth 20MHz	1860.0MHz ~1900.0MHz				
	LTE Band 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 66	Channel Bandwidth 1.4MHz	1710.7MHz ~ 1779.3MHz				
		Channel Bandwidth 3MHz	1711.5MHz ~ 1778.5MHz				
		Channel Bandwidth 5MHz	1712.5MHz ~ 1777.5MHz				
		Channel Bandwidth 10MHz	1715.0MHz ~ 1775.0MHz				
		Channel Bandwidth 15MHz	1717.5MHz ~ 1772.5MHz				
		Channel Bandwidth 20MHz	1720.0MHz ~ 1770.0MHz				
	Max. EIRP Power	LTE Band 2		QPSK	16QAM	64QAM	256QAM
			Channel Bandwidth 1.4MHz	162.555mW (22.11dBm)	131.220mW (21.18dBm)	104.713mW (20.20dBm)	50.234mW (17.01dBm)
Channel Bandwidth 3MHz			157.398mW (21.97dBm)	135.207mW (21.31dBm)	108.393mW (20.35dBm)	49.888mW (16.98dBm)	
Channel Bandwidth 5MHz			158.125mW (21.99dBm)	139.637mW (21.45dBm)	103.992mW (20.17dBm)	47.643mW (16.78dBm)	
Channel Bandwidth 10MHz			162.555mW (22.11dBm)	134.276mW (21.28dBm)	106.660mW (20.28dBm)	51.761mW (17.14dBm)	
Channel Bandwidth 15MHz			161.436mW (22.08dBm)	138.676mW (21.42dBm)	108.393mW (20.35dBm)	50.003mW (16.99dBm)	
Channel Bandwidth 20MHz			162.930mW (22.12dBm)	141.579mW (21.51dBm)	108.143mW (20.34dBm)	49.888mW (16.98dBm)	
LTE Band 7		Channel Bandwidth 5MHz	208.930mW (23.20dBm)	190.108mW (22.79dBm)	151.356mW (21.80dBm)	65.464mW (18.16dBm)	
		Channel Bandwidth 10MHz	212.324mW (23.27dBm)	191.867mW (22.83dBm)	144.544mW (21.60dBm)	66.374mW (18.22dBm)	
		Channel Bandwidth 15MHz	214.289mW (23.31dBm)	178.649mW (22.52dBm)	153.109mW (21.85dBm)	63.973mW (18.06dBm)	
		Channel Bandwidth 20MHz	215.278mW (23.33dBm)	201.837mW (23.05dBm)	145.881mW (21.64dBm)	66.374mW (18.22dBm)	
LTE Band 66		Channel Bandwidth 1.4MHz	145.881mW (21.64dBm)	117.220mW (20.69dBm)	100.000mW (20.00dBm)	42.855mW (16.32dBm)	
		Channel Bandwidth 3MHz	144.212mW (21.59dBm)	125.893mW (21.00dBm)	94.842mW (19.77dBm)	48.084mW (16.82dBm)	
		Channel Bandwidth 5MHz	145.881mW (21.64dBm)	122.744mW (20.89dBm)	97.051mW (19.87dBm)	46.345mW (16.66dBm)	
		Channel Bandwidth 10MHz	144.544mW (21.60dBm)	124.451mW (20.95dBm)	101.625mW (20.07dBm)	45.394mW (16.57dBm)	
		Channel Bandwidth 15MHz	146.218mW (21.65dBm)	125.026mW (20.97dBm)	103.514mW (20.15dBm)	48.753mW (16.88dBm)	
		Channel Bandwidth 20MHz	146.893mW (21.67dBm)	127.057mW (21.04dBm)	102.565mW (20.11dBm)	47.315mW (16.75dBm)	
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: 7.74 Vdc, 15.2 Wh
Adapter	AOHAI	A320Q-200325C-US	I/P: 100-240Vac, 50/60Hz, 1.5A O/P: 5 Vdc, 3 A; 9 Vdc, 3 A; 12 Vdc, 3A; 15 Vdc, 3 A; 20 Vdc, 3.25 A
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	Connector	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

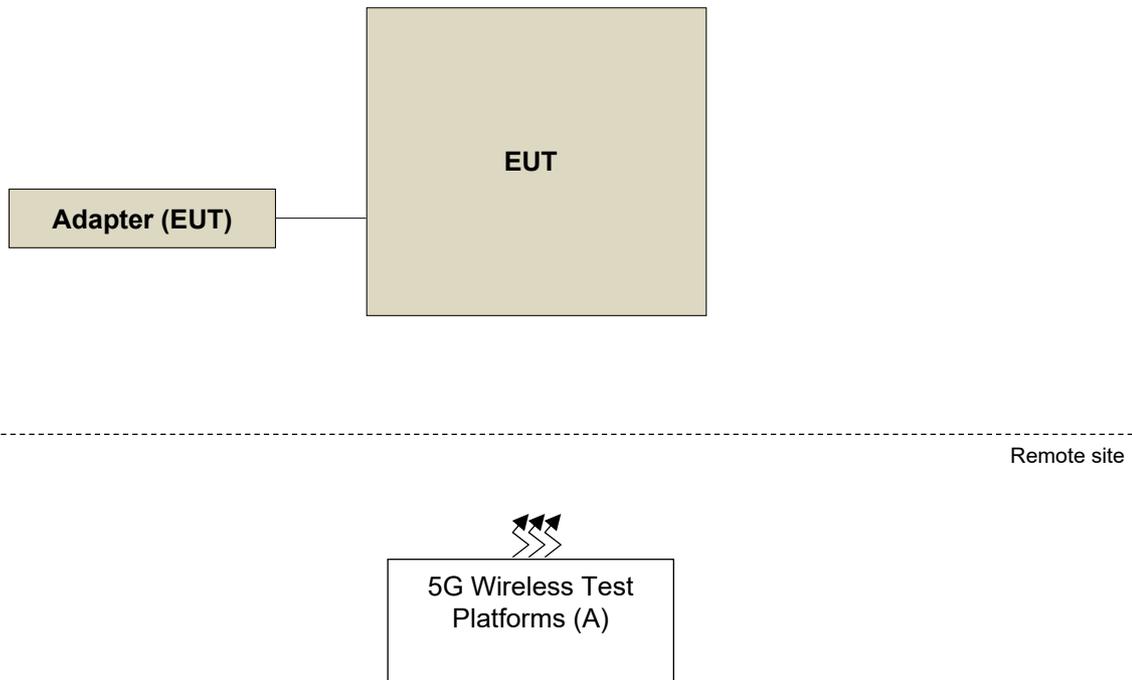
5G FR1 Band													
Band	Freq. Range (MHz)	Gain (dBi)											
		Ant. 0	Ant. 1	Ant. 2	Ant. 3	Ant. 4	Ant. 5	Ant. 6	Ant. 7	Ant. 8	Ant. 9	Ant. 10	Ant. 11
n2	1850 ~ 1910		-1.887	-1.394						-2.89579	-1.804		
n5	824 ~ 849	-1.891		-4.526									
n7	2500 ~ 2570		0.185	-0.657						-0.50837	-1.117		
n12	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	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 on Y-plane. Following channel(s) was (were) selected for the final test as listed below.

n71

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	ERP	133100 to 139100	133100 (665.5MHz), 136100 (680.5MHz), 139100 (695.5MHz)	5 MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 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
		133600 to 138600	133600 (668.0MHz), 136100 (680.5MHz), 138600 (693.0MHz)	10 MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 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
		134100 to 138100	134100 (670.5MHz), 136100 (680.5MHz), 138100 (690.5MHz)	15 MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 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
		134600 to 137600	134600 (673.0MHz), 136100 (680.5MHz), 137600 (688.0MHz)	20 MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset 1 RB / 53 RB Offset 1 RB / 104 RB Offset 50 RB / 0 RB Offset 50 RB / 28 RB Offset 50 RB / 56 RB Offset 100 RB / 0 RB Offset
-	Modulation Characteristics	134600 to 137600	136100 (680.5MHz)	20 MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	100 RB / 0 RB Offset
-	Frequency Stability	133100 to 139100	133100 (665.5MHz), 139100 (695.5MHz)	5 MHz	$\pi/2$ BPSK	25 RB / 0 RB Offset
		133600 to 138600	133600 (668.0MHz), 138600 (693.0MHz)	10 MHz	$\pi/2$ BPSK	50 RB / 0 RB Offset
		134100 to 138100	134100 (670.5MHz), 138100 (690.5MHz)	15 MHz	$\pi/2$ BPSK	75 RB / 0 RB Offset
		134600 to 137600	134600 (673.0MHz), 137600 (688.0MHz)	20 MHz	$\pi/2$ BPSK	100 RB / 0 RB Offset
-	Emission Bandwidth	133100 to 139100	133100 (665.5MHz), 136100 (680.5MHz), 139100 (695.5MHz)	5 MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	25 RB / 0 RB Offset
		133600 to 138600	133600 (668.0MHz), 136100 (680.5MHz), 138600 (693.0MHz)	10 MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	50 RB / 0 RB Offset
		134100 to 138100	134100 (670.5MHz), 136100 (680.5MHz), 138100 (690.5MHz)	15 MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	75 RB / 0 RB Offset
		134600 to 137600	134600 (673.0MHz), 136100 (680.5MHz), 137600 (688.0MHz)	20 MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	100 RB / 0 RB Offset

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	Band Edge	133100 to 139100	133100 (665.5MHz), 139100 (695.5MHz)	5 MHz	$\pi/2$ BPSK	1 RB / 0 RB Offset 1 RB / 23 RB Offset 25 RB / 0 RB Offset
		133600 to 138600	133600 (668.0MHz), 138600 (693.0MHz)	10 MHz	$\pi/2$ BPSK	1 RB / 0 RB Offset 1 RB / 50 RB Offset 50 RB / 0 RB Offset
		134100 to 138100	134100 (670.5MHz), 138100 (690.5MHz)	15 MHz	$\pi/2$ BPSK	1 RB / 0 RB Offset 1 RB / 77 RB Offset 75 RB / 0 RB Offset
		134600 to 137600	134600 (673.0MHz), 137600 (688.0MHz)	20 MHz	$\pi/2$ BPSK	1 RB / 0 RB Offset 1 RB / 104 RB Offset 100 RB / 0 RB Offset
-	Peak to Average Ratio	133100 to 139100	133100 (665.5MHz), 136100 (680.5MHz), 139100 (695.5MHz)	5 MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset
		133600 to 138600	133600 (668.0MHz), 136100 (680.5MHz), 138600 (693.0MHz)	10 MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset
		134100 to 138100	134100 (670.5MHz), 136100 (680.5MHz), 138100 (690.5MHz)	15 MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset
		134600 to 137600	134600 (673.0MHz), 136100 (680.5MHz), 137600 (688.0MHz)	20 MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset
-	Conducted Emission	133100 to 139100	133100 (665.5MHz), 136100 (680.5MHz), 139100 (695.5MHz)	5 MHz	$\pi/2$ BPSK	1 RB / 0 RB Offset
		133600 to 138600	133600 (668.0MHz), 136100 (680.5MHz), 138600 (693.0MHz)	10 MHz	$\pi/2$ BPSK	1 RB / 0 RB Offset
		134100 to 138100	134100 (670.5MHz), 136100 (680.5MHz), 138100 (690.5MHz)	15 MHz	$\pi/2$ BPSK	1 RB / 0 RB Offset
		134600 to 137600	134600 (673.0MHz), 136100 (680.5MHz), 137600 (688.0MHz)	20 MHz	$\pi/2$ BPSK	1 RB / 0 RB Offset
-	Radiated Emission Below 1GHz	134600 to 137600	137600 (688.0MHz)	20 MHz	$\pi/2$ BPSK	1 RB / 0 RB Offset
-	Radiated Emission Above 1GHz	133100 to 139100	133100 (665.5MHz), 136100 (680.5MHz), 139100 (695.5MHz)	5 MHz	$\pi/2$ BPSK	1 RB / 0 RB Offset
		134600 to 137600	134600 (673.0MHz), 136100 (680.5MHz), 137600 (688.0MHz)	20 MHz	$\pi/2$ BPSK	1 RB / 0 RB Offset

Note: 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 worst mode according to the maximum output power.

LTE Band 2

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

Note:

1. The conducted output power for QPSK, 16QAM, 64QAM and 256QAM, measured value of QPSK is higher than 16QAM, 64QAM and 256QAM mode. Therefore, only EIRP, occupied bandwidth and Peak to average ratio items had been tested under QPSK, 16QAM, 64QAM and 256QAM modes, the other test items were performed under QPSK mode only.
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	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
		20800 to 21400	20800 (2505.0MHz), 21100 (2535.0MHz), 21400 (2565.0MHz)	10 MHz	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
		20825 to 21375	20825 (2507.5MHz), 21100 (2535.0MHz), 21375 (2562.5MHz)	15 MHz	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
		20850 to 21350	20850 (2510.0MHz), 21100 (2535.0MHz), 21350 (2560.0MHz)	20 MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset 1 RB / 50 RB Offset 1 RB / 99 RB Offset 50 RB / 0 RB Offset 50 RB / 25 RB Offset 50 RB / 50 RB Offset 100 RB / 0 RB Offset
-	Radiated Emission Below 1GHz	20850 to 21350	21100 (2535.0MHz)	20MHz	QPSK	1 RB / 50 RB Offset
-	Radiated Emission Above 1GHz	20775 to 21425	20775 (2502.5MHz), 21100 (2535.0MHz), 21425 (2567.5MHz)	5MHz	QPSK	1 RB / 0 RB Offset
		20850 to 21350	20850 (2510.0MHz), 21100 (2535.0MHz), 21350 (2560.0MHz)	20MHz	QPSK	1 RB / 50 RB Offset

Note:

1. The conducted output power for QPSK, 16QAM, 64QAM and 256QAM, measured value of QPSK is higher than 16QAM, 64QAM and 256QAM mode. Therefore, only EIRP, occupied bandwidth and Peak to average ratio items had been tested under QPSK, 16QAM, 64QAM and 256QAM modes, the other test items were performed under QPSK mode only.
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	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
-	Radiated Emission Below 1GHz	131997 to 132647	132647 (1777.5MHz)	5MHz	QPSK	1 RB / 2 RB Offset
-	Radiated Emission Above 1GHz	131979 to 132665	131979 (1710.7MHz), 132322 (1745.0MHz), 132665 (1779.3MHz)	1.4MHz	QPSK	1 RB / 2 RB Offset
		131997 to 132647	131997 (1712.5MHz), 132322 (1745.0MHz), 132647 (1777.5MHz)	5MHz	QPSK	1 RB / 24 RB Offset
		132072 to 132572	132072 (1720.0MHz), 132322 (1745.0MHz), 132572 (1770.0MHz)	20MHz	QPSK	1 RB / 50 RB Offset

Note:

1. The conducted output power for QPSK, 16QAM, 64QAM and 256QAM, measured value of QPSK is higher than 16QAM, 64QAM and 256QAM mode. Therefore, only EIRP, occupied bandwidth and Peak to average ratio items had been tested under QPSK, 16QAM, 64QAM and 256QAM modes, the other test items were performed under QPSK mode only.
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.

Test Condition:

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

3.4 EUT Operating Conditions

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

3.5 General Description of Applied Standards and References

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

Test Standard:

FCC 47 CFR Part 2

FCC 47 CFR Part 24

FCC 47 CFR Part 27

ANSI/TIA/EIA-603-D-2010

ANSI/TIA/EIA-603-E 2016

ANSI 63.26-2015

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

References Test Guidance:

KDB 971168 D01 Power Meas License Digital Systems v03r01

KDB 971168 D02 Misc Rev Approv License Devices v02r01

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

4 Test Types and Results

4.1 Output Power Measurement

4.1.1 Limits of Output Power Measurement

For n71:

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 2:

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

For LTE Band 7:

Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.

For LTE Band 66:

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

4.1.2 Test Procedures

Conducted Power Measurement:

The EUT was set up for the maximum power with 5GNR link data modulation and link up with simulator.

Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

Maximum EIRP

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

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

where

ERP or EIRP effective radiated power or equivalent isotropically radiated power, respectively
(expressed in the same units as P_{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:



4.1.4 Test Results

Conducted Output Power (dBm)

NR Band 71						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		134600	136100	137600
		Frequency (MHz)		673	680.5	688
20M	$\pi/2$ BPSK	1	1	24.55	24.58	24.53
		1	53	24.50	24.53	24.48
		1	104	24.52	24.55	24.50
		50	0	23.92	23.95	23.90
		50	28	24.31	24.34	24.32
		50	56	23.88	23.91	23.86
		100	0	23.90	23.93	23.88
20M	PSK	1	1	24.58	24.61	24.58
		1	53	24.47	24.50	24.45
		1	104	24.46	24.49	24.44
		50	0	23.53	23.55	23.53
		50	28	24.40	24.43	24.38
		50	56	23.40	23.43	23.38
		100	0	23.55	23.56	23.52
20M	16QAM	1	1	23.38	23.41	23.36
20M	64QAM	1	1	21.95	21.98	21.93
20M	256QAM	1	1	19.90	19.93	19.88
BW	MCS Index	Channel		134100	136100	138100
		Frequency (MHz)		670.5	680.5	690.5
15M	$\pi/2$ BPSK	1	1	24.48	24.48	24.51
		1	40	24.45	24.53	24.48
		1	77	24.44	24.47	24.47
		36	0	23.81	23.91	23.89
		36	22	24.41	24.53	24.44
		36	43	23.76	23.87	23.79
		75	0	23.87	23.86	23.87
15M	PSK	1	1	24.52	24.48	24.47
		1	40	24.45	24.44	24.47
		1	77	24.41	24.49	24.42
		36	0	23.35	23.38	23.30
		36	22	24.37	24.32	24.38
		36	43	23.26	23.38	23.27
		75	0	23.32	23.41	23.33
15M	16QAM	1	1	23.48	23.52	23.52
15M	64QAM	1	1	21.91	22.02	21.95
15M	256QAM	1	1	19.90	20.04	19.95

NR Band 71						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		133600	136100	138600
		Frequency (MHz)		668	680.5	693
10M	$\pi/2$ BPSK	1	1	24.37	24.56	24.36
		1	26	24.43	24.39	24.34
		1	50	24.31	24.48	24.40
		25	0	23.78	23.91	23.86
		25	14	24.35	24.36	24.39
		25	27	23.71	23.87	23.68
		50	0	23.74	23.78	23.70
10M	PSK	1	1	24.36	24.56	24.39
		1	26	24.37	24.40	24.42
		1	50	24.37	24.47	24.36
		25	0	23.29	23.39	23.32
		25	14	24.35	24.34	24.31
		25	27	23.17	23.41	23.17
		50	0	23.20	23.24	23.28
10M	16QAM	1	1	23.40	23.50	23.40
10M	64QAM	1	1	21.98	22.00	21.94
10M	256QAM	1	1	19.97	19.90	19.99
BW	MCS Index	Channel		133100	136100	139100
		Frequency (MHz)		665.5	680.5	695.5
5M	$\pi/2$ BPSK	1	1	24.43	24.54	24.51
		1	13	24.42	24.35	24.44
		1	23	24.44	24.41	24.44
		12	0	23.86	23.87	23.87
		12	7	24.41	24.33	24.36
		12	13	23.76	23.80	23.76
		25	0	23.82	23.80	23.84
5M	PSK	1	1	24.49	24.54	24.50
		1	13	24.39	24.34	24.44
		1	23	24.47	24.46	24.44
		12	0	23.38	23.37	23.38
		12	7	24.35	24.39	24.29
		12	13	23.22	23.23	23.20
		25	0	23.31	23.32	23.27
5M	16QAM	1	1	23.50	23.42	23.50
5M	64QAM	1	1	21.89	21.98	21.97
5M	256QAM	1	1	19.96	19.96	19.95

LTE Band 2						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		18700	18900	19100
		Frequency (MHz)		1860	1880	1900
20M	QPSK	1	0	23.51	23.50	23.48
		1	50	23.43	23.50	23.28
		1	99	23.42	23.44	23.44
		50	0	22.35	22.60	22.24
		50	25	22.24	22.42	22.38
		50	50	22.41	22.10	22.72
		100	0	22.53	22.62	22.78
20M	16QAM	1	0	22.43	22.53	22.91
		1	50	22.26	22.70	22.25
		1	99	22.37	22.44	22.40
		50	0	21.34	21.52	21.65
		50	25	21.47	21.48	21.06
		50	50	21.44	21.17	21.26
		100	0	21.40	21.40	21.14
20M	64QAM	1	0	21.27	21.38	21.58
		1	50	21.65	21.58	21.73
		1	99	21.29	21.61	21.20
		50	0	20.66	20.42	20.30
		50	25	20.09	20.08	20.21
		50	50	20.11	20.38	20.49
		100	0	20.22	20.44	20.58
20M	256QAM	1	0	18.14	17.91	18.33
		1	50	18.21	17.95	18.20
		1	99	18.28	18.09	17.79
		50	0	18.03	18.34	17.78
		50	25	18.33	17.84	18.30
		50	50	18.31	18.38	17.92
		100	0	17.94	18.07	17.97

LTE Band 2						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		18675	18900	19125
		Frequency (MHz)		1857.5	1880	1902.5
15M	QPSK	1	0	23.40	23.45	23.47
		1	37	23.44	23.18	23.46
		1	74	23.44	23.06	23.22
		36	0	22.65	22.60	22.59
		36	19	22.61	22.19	22.25
		36	39	22.43	22.48	22.73
		75	0	22.53	22.69	22.29
15M	16QAM	1	0	22.81	22.51	22.22
		1	37	22.22	22.17	22.42
		1	74	22.46	22.27	22.49
		36	0	21.38	21.28	21.04
		36	19	21.49	20.99	21.37
		36	39	21.54	21.38	21.24
		75	0	21.29	21.25	21.12
15M	64QAM	1	0	21.64	21.74	21.23
		1	37	21.16	21.37	21.47
		1	74	21.28	21.10	21.64
		36	0	20.65	20.21	20.70
		36	19	20.16	20.54	20.22
		36	39	20.28	20.30	20.44
		75	0	20.60	20.53	20.61
15M	256QAM	1	0	18.28	17.94	18.06
		1	37	18.05	18.19	17.81
		1	74	18.18	17.96	18.39
		36	0	17.41	16.82	17.33
		36	19	16.78	16.86	17.36
		36	39	17.26	17.03	17.06
		75	0	17.01	16.80	17.21

LTE Band 2						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		18650	18900	19150
		Frequency (MHz)		1855	1880	1905
10M	QPSK	1	0	23.30	23.49	23.50
		1	24	23.32	23.45	23.49
		1	49	23.24	23.41	23.27
		25	0	22.31	22.16	22.46
		25	12	22.33	22.10	22.34
		25	25	22.18	22.31	22.25
		50	0	22.53	22.02	22.65
10M	16QAM	1	0	22.68	22.46	22.26
		1	24	22.08	22.09	22.10
		1	49	22.42	22.10	22.36
		25	0	21.00	21.36	21.23
		25	12	21.04	21.20	21.11
		25	25	21.40	21.08	21.17
		50	0	21.29	21.03	21.30
10M	64QAM	1	0	21.67	21.46	21.61
		1	24	21.42	21.06	21.56
		1	49	21.33	21.38	21.45
		25	0	20.56	20.27	20.61
		25	12	20.04	20.02	20.06
		25	25	20.65	20.23	20.33
		50	0	20.25	20.17	20.52
10M	256QAM	1	0	18.38	18.18	18.53
		1	24	17.66	17.83	17.65
		1	49	17.82	17.81	17.83
		25	0	16.82	16.91	16.86
		25	12	17.12	17.20	16.76
		25	25	16.78	16.90	16.83
		50	0	16.76	16.99	17.05

LTE Band 2						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		18625	18900	19175
		Frequency (MHz)		1852.5	1880	1907.5
5M	QPSK	1	0	23.38	23.28	23.30
		1	12	23.26	23.23	23.32
		1	24	23.06	23.18	23.31
		12	0	22.33	22.22	22.42
		12	6	22.18	22.43	22.31
		12	13	22.30	22.28	22.18
		25	0	22.36	22.05	22.08
5M	16QAM	1	0	22.35	22.84	22.24
		1	12	22.73	22.55	22.14
		1	24	22.40	22.57	22.40
		12	0	20.98	21.44	21.40
		12	6	21.34	21.26	21.04
		12	13	21.28	21.24	20.92
		25	0	21.22	21.52	21.06
5M	64QAM	1	0	21.56	21.43	20.96
		1	12	21.46	21.44	21.10
		1	24	21.41	21.06	21.10
		12	0	20.49	20.27	20.47
		12	6	20.23	20.45	20.50
		12	13	20.13	20.45	20.30
		25	0	20.12	20.17	20.17
5M	256QAM	1	0	18.02	18.16	17.98
		1	12	17.83	18.17	17.42
		1	24	18.06	17.79	17.78
		12	0	16.96	17.02	17.27
		12	6	17.31	16.74	17.05
		12	13	17.09	16.93	16.78
		25	0	17.13	17.00	16.77

LTE Band 2						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		18615	18900	19185
		Frequency (MHz)		1851.5	1880	1908.5
3M	QPSK	1	0	23.22	23.35	23.34
		1	7	23.00	23.36	23.27
		1	14	23.21	23.22	23.34
		8	0	22.81	22.59	22.24
		8	3	22.46	22.50	22.26
		8	7	22.32	22.20	22.45
		15	0	22.67	22.14	22.28
3M	16QAM	1	0	22.70	22.48	22.65
		1	7	22.48	22.19	22.54
		1	14	22.40	22.25	22.29
		8	0	21.62	21.46	21.19
		8	3	20.92	21.28	21.04
		8	7	20.88	21.17	21.14
		15	0	21.36	20.90	21.08
3M	64QAM	1	0	21.33	21.36	21.57
		1	7	21.71	21.74	21.44
		1	14	21.02	21.20	21.24
		8	0	20.50	20.42	19.98
		8	3	20.21	20.34	20.36
		8	7	20.13	20.41	20.27
		15	0	20.58	20.37	20.38
3M	256QAM	1	0	18.13	17.82	18.17
		1	7	17.90	17.76	17.62
		1	14	18.37	17.70	18.26
		8	0	16.74	16.89	16.84
		8	3	17.02	17.08	17.47
		8	7	17.02	16.75	17.03
		15	0	17.07	16.51	17.24

LTE Band 2						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		18607	18900	19193
		Frequency (MHz)		1850.7	1880	1909.3
1.4M	QPSK	1	0	23.22	23.23	23.50
		1	2	23.16	23.22	23.23
		1	5	23.20	23.16	23.22
		3	0	23.26	23.45	23.44
		3	1	23.13	23.20	23.13
		3	3	23.20	23.10	23.31
		6	0	22.52	22.35	22.24
1.4M	16QAM	1	0	22.49	22.43	22.42
		1	2	22.55	22.11	22.13
		1	5	22.18	22.57	22.45
		3	0	22.18	22.38	22.52
		3	1	21.90	22.26	22.28
		3	3	22.12	22.18	22.26
		6	0	21.17	21.02	20.98
1.4M	64QAM	1	0	21.18	21.28	21.56
		1	2	21.11	21.05	21.09
		1	5	21.25	20.97	21.41
		3	0	21.49	21.31	21.07
		3	1	21.60	21.54	20.95
		3	3	21.56	21.07	21.13
		6	0	20.48	20.62	20.39
1.4M	256QAM	1	0	17.95	17.79	18.40
		1	2	17.86	18.00	18.32
		1	5	17.83	17.60	17.72
		3	0	18.13	17.88	17.88
		3	1	18.39	17.80	17.92
		3	3	17.94	17.71	17.66
		6	0	17.01	17.35	17.08

LTE Band 7						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20850	21100	21350
		Frequency (MHz)		2510	2535	2560
20M	QPSK	1	0	23.14	23.12	23.11
		1	50	23.01	23.12	23.05
		1	99	22.74	22.67	23.09
		50	0	22.58	22.26	22.19
		50	25	22.42	22.24	22.58
		50	50	21.99	22.11	22.14
		100	0	22.20	22.46	22.24
20M	16QAM	1	0	22.38	21.97	22.86
		1	50	22.26	21.69	21.97
		1	99	21.72	21.65	22.07
		50	0	21.28	21.35	21.40
		50	25	21.34	21.29	21.39
		50	50	21.27	21.02	21.21
		100	0	21.19	21.02	21.20
20M	64QAM	1	0	21.38	21.01	21.28
		1	50	21.45	21.41	21.32
		1	99	21.25	20.71	21.45
		50	0	19.99	20.27	20.46
		50	25	20.44	20.22	20.43
		50	50	19.95	19.96	19.97
		100	0	20.34	19.97	20.20
20M	256QAM	1	0	18.03	18.01	17.73
		1	50	17.88	17.79	17.41
		1	99	17.75	17.59	17.66
		50	0	16.74	16.86	17.50
		50	25	16.66	16.82	17.46
		50	50	17.02	17.05	17.01
		100	0	16.98	16.71	16.84

LTE Band 7						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20825	21100	21375
		Frequency (MHz)		2507.5	2535	2562.5
15M	QPSK	1	0	23.11	22.86	23.11
		1	37	22.78	22.85	23.04
		1	74	22.93	22.91	23.12
		36	0	22.00	22.47	22.45
		36	19	22.25	22.10	22.08
		36	39	22.27	21.90	22.58
		75	0	22.01	22.50	22.61
15M	16QAM	1	0	22.05	22.01	22.33
		1	37	21.95	21.90	22.27
		1	74	22.02	21.81	22.33
		36	0	21.49	21.30	21.22
		36	19	21.28	21.20	21.42
		36	39	21.45	21.29	21.11
		75	0	21.50	21.31	21.26
15M	64QAM	1	0	21.13	21.25	21.66
		1	37	21.37	21.21	21.46
		1	74	20.98	20.87	20.87
		36	0	20.31	20.39	20.64
		36	19	20.35	20.22	20.14
		36	39	20.24	20.05	20.23
		75	0	20.36	20.11	20.50
15M	256QAM	1	0	17.39	17.70	17.85
		1	37	17.63	17.76	17.86
		1	74	17.22	17.87	17.70
		36	0	17.00	16.92	17.26
		36	19	17.19	16.81	16.95
		36	39	16.98	16.68	17.15
		75	0	16.90	16.65	16.76

LTE Band 7						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20800	21100	21400
		Frequency (MHz)		2505	2535	2565
10M	QPSK	1	0	23.04	23.00	23.09
		1	24	22.98	22.68	23.07
		1	49	23.06	22.78	23.04
		25	0	22.44	22.15	22.44
		25	12	22.10	21.80	22.42
		25	25	21.91	22.07	22.42
		50	0	22.21	21.83	22.11
10M	16QAM	1	0	22.42	22.43	22.65
		1	24	21.69	21.85	22.11
		1	49	21.96	21.57	21.80
		25	0	21.14	21.37	21.27
		25	12	20.97	21.04	21.06
		25	25	21.37	21.00	21.10
		50	0	21.18	20.84	21.40
10M	64QAM	1	0	20.81	20.98	21.42
		1	24	21.23	20.84	21.17
		1	49	21.10	21.14	20.83
		25	0	20.07	20.23	20.47
		25	12	20.14	20.11	20.17
		25	25	20.02	20.18	20.15
		50	0	19.92	20.20	20.34
10M	256QAM	1	0	17.67	17.32	17.49
		1	24	18.03	17.48	17.73
		1	49	17.78	17.64	17.43
		25	0	16.88	16.59	16.94
		25	12	16.97	16.43	16.81
		25	25	16.92	16.80	17.08
		50	0	16.51	16.76	17.07

LTE Band 7						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20775	21100	21425
		Frequency (MHz)		2502.5	2535	2567.5
5M	QPSK	1	0	22.94	22.93	23.00
		1	12	22.89	22.93	23.00
		1	24	22.94	23.01	22.97
		12	0	22.23	22.26	22.16
		12	6	22.36	22.01	22.18
		12	13	22.31	21.80	22.06
		25	0	21.99	22.39	22.26
5M	16QAM	1	0	22.60	22.35	22.42
		1	12	21.89	22.09	22.05
		1	24	21.69	22.05	21.89
		12	0	21.03	21.40	21.20
		12	6	21.22	21.06	21.57
		12	13	20.89	21.20	21.36
		25	0	21.06	21.17	21.19
5M	64QAM	1	0	21.18	21.33	21.61
		1	12	21.45	21.39	21.50
		1	24	21.05	21.05	20.94
		12	0	20.42	20.20	20.17
		12	6	20.14	20.12	20.46
		12	13	20.26	19.86	19.87
		25	0	19.96	20.26	20.49
5M	256QAM	1	0	17.98	17.25	17.78
		1	12	17.56	17.51	17.48
		1	24	17.52	17.19	17.70
		12	0	17.10	16.68	16.91
		12	6	16.56	16.99	16.88
		12	13	16.61	16.59	16.82
		25	0	16.73	16.90	16.76

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	23.00	23.35	23.33
		1	50	23.02	23.11	23.30
		1	99	22.45	22.75	23.16
		50	0	21.98	22.37	22.92
		50	25	21.93	22.23	22.57
		50	50	22.06	22.62	22.40
		100	0	22.42	22.48	22.43
20M	16QAM	1	0	22.47	22.59	22.34
		1	50	22.59	22.58	22.73
		1	99	22.47	22.29	22.55
		50	0	21.52	21.26	21.55
		50	25	21.01	21.41	21.25
		50	50	21.39	21.44	21.55
		100	0	21.29	21.43	21.21
20M	64QAM	1	0	20.99	21.26	21.79
		1	50	21.31	21.31	21.72
		1	99	20.73	21.47	21.32
		50	0	20.52	20.33	20.46
		50	25	20.38	20.45	20.36
		50	50	19.91	20.54	20.53
		100	0	20.48	20.37	20.65
20M	256QAM	1	0	17.70	17.77	18.40
		1	50	17.55	17.99	18.44
		1	99	17.47	17.37	17.73
		50	0	16.97	17.08	17.54
		50	25	16.59	16.86	17.55
		50	50	16.52	17.28	17.15
		100	0	16.77	17.07	17.09

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	23.18	23.30	23.33
		1	37	22.78	23.29	23.32
		1	74	22.86	23.05	23.31
		36	0	21.99	22.41	22.31
		36	19	22.18	22.39	22.50
		36	39	22.20	22.49	22.71
		75	0	21.94	22.58	22.38
15M	16QAM	1	0	22.15	22.65	22.60
		1	37	22.36	22.05	22.41
		1	74	22.24	22.55	22.53
		36	0	20.96	21.37	21.47
		36	19	21.32	21.46	21.55
		36	39	21.07	21.25	21.37
		75	0	21.36	21.12	21.54
15M	64QAM	1	0	20.90	21.48	21.84
		1	37	20.84	21.57	21.18
		1	74	20.93	21.30	21.42
		36	0	20.38	20.39	20.38
		36	19	20.05	20.44	20.35
		36	39	19.91	20.59	20.70
		75	0	20.41	20.54	20.60
15M	256QAM	1	0	17.56	17.73	18.41
		1	37	17.25	17.86	18.56
		1	74	17.25	17.96	17.64
		36	0	16.84	16.92	17.33
		36	19	16.96	16.80	17.37
		36	39	16.61	16.63	17.06
		75	0	16.68	17.01	17.06

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	22.89	23.24	23.17
		1	24	22.91	23.28	23.18
		1	49	22.66	23.02	23.17
		25	0	21.94	22.33	22.59
		25	12	21.91	22.31	22.55
		25	25	21.90	22.44	22.56
		50	0	22.08	22.07	22.24
10M	16QAM	1	0	22.36	22.63	22.60
		1	24	22.43	22.39	22.41
		1	49	22.05	22.30	22.35
		25	0	20.88	21.29	21.55
		25	12	21.20	21.45	21.11
		25	25	20.85	21.04	21.42
		50	0	21.42	21.33	21.44
10M	64QAM	1	0	21.15	21.65	21.33
		1	24	20.97	21.31	21.54
		1	49	20.44	21.05	21.75
		25	0	20.49	20.61	20.13
		25	12	20.38	20.24	20.66
		25	25	20.36	20.67	20.29
		50	0	20.33	20.18	20.35
10M	256QAM	1	0	17.30	17.80	18.26
		1	24	17.84	18.13	17.64
		1	49	17.18	17.97	17.60
		25	0	16.99	16.57	17.02
		25	12	16.89	16.79	16.95
		25	25	16.82	17.05	17.45
		50	0	16.94	16.72	17.34

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	23.32	23.26	23.14
		1	12	22.95	23.16	23.15
		1	24	22.30	22.71	22.66
		12	0	21.84	22.42	22.22
		12	6	22.35	22.52	22.61
		12	13	22.32	22.16	22.30
		25	0	22.00	22.13	22.27
5M	16QAM	1	0	22.34	22.36	22.11
		1	12	22.46	22.03	22.57
		1	24	22.45	21.97	22.28
		12	0	21.27	21.36	21.01
		12	6	21.01	21.26	21.13
		12	13	21.24	21.15	21.50
		25	0	20.94	21.14	21.46
5M	64QAM	1	0	20.72	21.12	21.56
		1	12	20.79	21.39	21.27
		1	24	20.74	20.91	21.20
		12	0	20.25	20.42	20.26
		12	6	20.28	20.65	20.21
		12	13	20.05	20.15	20.47
		25	0	19.99	20.19	20.76
5M	256QAM	1	0	17.85	17.88	18.34
		1	12	17.67	17.74	17.97
		1	24	17.10	17.55	17.70
		12	0	16.79	16.72	16.70
		12	6	16.70	16.96	17.44
		12	13	16.58	16.67	16.71
		25	0	16.80	16.88	17.01

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	22.86	23.27	23.21
		1	7	22.76	23.04	23.18
		1	14	22.16	23.16	23.07
		8	0	22.20	22.22	22.58
		8	3	22.13	22.12	22.65
		8	7	22.00	21.91	22.66
		15	0	22.00	22.54	22.25
3M	16QAM	1	0	22.60	22.23	22.22
		1	7	22.46	22.45	22.68
		1	14	22.08	22.14	22.33
		8	0	20.88	21.28	21.34
		8	3	21.30	21.38	21.36
		8	7	20.90	21.15	21.01
		15	0	21.28	21.44	21.30
3M	64QAM	1	0	20.87	21.45	21.27
		1	7	21.19	21.30	21.10
		1	14	20.54	21.33	21.33
		8	0	20.44	20.21	20.25
		8	3	20.17	20.67	20.19
		8	7	19.92	20.24	20.54
		15	0	20.40	20.42	20.68
3M	256QAM	1	0	17.66	17.85	17.90
		1	7	17.34	18.08	18.50
		1	14	17.02	17.31	17.37
		8	0	16.88	16.76	17.35
		8	3	16.75	17.09	16.73
		8	7	16.57	16.78	16.66
		15	0	16.68	17.15	16.69

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	23.01	23.17	23.26
		1	2	22.78	22.98	23.23
		1	5	22.26	22.76	22.92
		3	0	22.92	23.00	23.07
		3	1	23.27	23.05	22.97
		3	3	23.23	23.32	23.20
		6	0	21.99	22.48	22.20
1.4M	16QAM	1	0	22.25	22.06	22.07
		1	2	22.34	22.19	21.96
		1	5	21.89	22.12	22.03
		3	0	22.09	22.20	22.04
		3	1	22.22	22.12	22.28
		3	3	21.79	22.21	22.38
		6	0	21.02	21.07	21.04
1.4M	64QAM	1	0	21.08	21.68	21.31
		1	2	20.95	21.18	21.27
		1	5	20.62	21.32	21.53
		3	0	21.25	21.63	21.43
		3	1	20.92	21.30	21.51
		3	3	21.07	21.40	21.68
		6	0	20.33	20.21	20.63
1.4M	256QAM	1	0	17.44	17.46	17.96
		1	2	17.63	17.68	18.00
		1	5	17.24	17.50	17.85
		3	0	17.81	17.67	17.68
		3	1	17.01	17.50	17.70
		3	3	17.82	17.05	17.61
		6	0	17.13	16.93	17.02

ERP Power (dBm)

NR Band 71						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		134600	136100	137600
		Frequency (MHz)		673	680.5	688
20M	$\pi/2$ BPSK	1	1	16.66	16.69	16.64
		1	53	16.61	16.64	16.59
		1	104	16.63	16.66	16.61
		50	0	16.03	16.06	16.01
		50	28	16.42	16.45	16.43
		50	56	15.99	16.02	15.97
		100	0	16.01	16.04	15.99
20M	PSK	1	1	16.69	16.72	16.69
		1	53	16.58	16.61	16.56
		1	104	16.57	16.60	16.55
		50	0	15.64	15.66	15.64
		50	28	16.51	16.54	16.49
		50	56	15.51	15.54	15.49
		100	0	15.66	15.67	15.63
20M	16QAM	1	1	15.49	15.52	15.47
20M	64QAM	1	1	14.06	14.09	14.04
20M	256QAM	1	1	12.01	12.04	11.99
BW	MCS Index	Channel		134100	136100	138100
		Frequency (MHz)		670.5	680.5	690.5
		15M	$\pi/2$ BPSK	1	1	16.59
1	40			16.56	16.64	16.59
1	77			16.55	16.58	16.58
36	0			15.92	16.02	16.00
36	22			16.52	16.64	16.55
36	43			15.87	15.98	15.90
75	0			15.98	15.97	15.98
15M	PSK	1	1	16.63	16.59	16.58
		1	40	16.56	16.55	16.58
		1	77	16.52	16.60	16.53
		36	0	15.46	15.49	15.41
		36	22	16.48	16.43	16.49
		36	43	15.37	15.49	15.38
		75	0	15.43	15.52	15.44
15M	16QAM	1	1	15.59	15.63	15.63
15M	64QAM	1	1	14.02	14.13	14.06
15M	256QAM	1	1	12.01	12.15	12.06

*ERP = Conducted + antenna gain (-5.741dBi)-2.15

NR Band 71						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		133600	136100	138600
		Frequency (MHz)		668	680.5	693
10M	$\pi/2$ BPSK	1	1	16.48	16.67	16.47
		1	26	16.54	16.50	16.45
		1	50	16.42	16.59	16.51
		25	0	15.89	16.02	15.97
		25	14	16.46	16.47	16.50
		25	27	15.82	15.98	15.79
		50	0	15.85	15.89	15.81
10M	PSK	1	1	16.47	16.67	16.50
		1	26	16.48	16.51	16.53
		1	50	16.48	16.58	16.47
		25	0	15.40	15.50	15.43
		25	14	16.46	16.45	16.42
		25	27	15.28	15.52	15.28
		50	0	15.31	15.35	15.39
10M	16QAM	1	1	15.51	15.61	15.51
10M	64QAM	1	1	14.09	14.11	14.05
10M	256QAM	1	1	12.08	12.01	12.10
BW	MCS Index	Channel		133100	136100	139100
		Frequency (MHz)		665.5	680.5	695.5
5M	$\pi/2$ BPSK	1	1	16.54	16.65	16.62
		1	13	16.53	16.46	16.55
		1	23	16.55	16.52	16.55
		12	0	15.97	15.98	15.98
		12	7	16.52	16.44	16.47
		12	13	15.87	15.91	15.87
		25	0	15.93	15.91	15.95
5M	PSK	1	1	16.60	16.65	16.61
		1	13	16.50	16.45	16.55
		1	23	16.58	16.57	16.55
		12	0	15.49	15.48	15.49
		12	7	16.46	16.50	16.40
		12	13	15.33	15.34	15.31
		25	0	15.42	15.43	15.38
5M	16QAM	1	1	15.61	15.53	15.61
5M	64QAM	1	1	14.00	14.09	14.08
5M	256QAM	1	1	12.07	12.07	12.06

*ERP = Conducted + antenna gain (-5.741dBi)-2.15

EIRP (dBm)

LTE Band 2						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		18700	18900	19100
		Frequency (MHz)		1860	1880	1900
20M	QPSK	1	0	22.12	22.11	22.09
		1	50	22.03	22.11	21.89
		1	99	22.03	22.05	22.05
		50	0	20.96	21.20	20.85
		50	25	20.85	21.03	20.99
		50	50	21.01	20.71	21.33
		100	0	21.14	21.22	21.39
20M	16QAM	1	0	21.04	21.13	21.51
		1	50	20.87	21.31	20.85
		1	99	20.97	21.04	21.01
		50	0	19.95	20.13	20.26
		50	25	20.08	20.09	19.67
		50	50	20.05	19.78	19.87
		100	0	20.01	20.01	19.74
20M	64QAM	1	0	19.87	19.99	20.19
		1	50	20.26	20.18	20.34
		1	99	19.90	20.22	19.81
		50	0	19.27	19.03	18.90
		50	25	18.70	18.69	18.82
		50	50	18.72	18.99	19.10
		100	0	18.82	19.05	19.19
20M	256QAM	1	0	16.75	16.51	16.94
		1	50	16.82	16.56	16.81
		1	99	16.88	16.70	16.40
		50	0	16.63	16.95	16.39
		50	25	16.94	16.45	16.90
		50	50	16.91	16.98	16.52
		100	0	16.54	16.68	16.58

*EIRP = Conducted + antenna gain (-1.394dBi)

LTE Band 2						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		18675	18900	19125
		Frequency (MHz)		1857.5	1880	1902.5
15M	QPSK	1	0	22.01	22.06	22.08
		1	37	22.05	21.79	22.07
		1	74	22.05	21.66	21.83
		36	0	21.26	21.21	21.20
		36	19	21.22	20.79	20.86
		36	39	21.04	21.09	21.34
		75	0	21.13	21.30	20.90
15M	16QAM	1	0	21.42	21.12	20.83
		1	37	20.83	20.78	21.03
		1	74	21.07	20.88	21.10
		36	0	19.98	19.89	19.65
		36	19	20.10	19.60	19.97
		36	39	20.15	19.99	19.84
		75	0	19.89	19.85	19.73
15M	64QAM	1	0	20.25	20.35	19.83
		1	37	19.77	19.98	20.08
		1	74	19.89	19.71	20.24
		36	0	19.26	18.82	19.31
		36	19	18.76	19.14	18.82
		36	39	18.89	18.90	19.05
		75	0	19.20	19.14	19.22
15M	256QAM	1	0	16.89	16.54	16.67
		1	37	16.65	16.79	16.42
		1	74	16.79	16.56	16.99
		36	0	16.01	15.42	15.94
		36	19	15.38	15.46	15.96
		36	39	15.87	15.64	15.67
		75	0	15.62	15.41	15.81

*EIRP = Conducted + antenna gain (-1.394dBi)

LTE Band 2						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		18650	18900	19150
		Frequency (MHz)		1855	1880	1905
10M	QPSK	1	0	21.91	22.10	22.11
		1	24	21.93	22.06	22.10
		1	49	21.85	22.01	21.88
		25	0	20.92	20.77	21.07
		25	12	20.94	20.71	20.94
		25	25	20.79	20.92	20.86
		50	0	21.13	20.63	21.26
10M	16QAM	1	0	21.28	21.06	20.87
		1	24	20.68	20.70	20.71
		1	49	21.03	20.70	20.96
		25	0	19.61	19.97	19.84
		25	12	19.64	19.81	19.72
		25	25	20.01	19.69	19.78
		50	0	19.90	19.64	19.90
10M	64QAM	1	0	20.28	20.07	20.22
		1	24	20.02	19.66	20.17
		1	49	19.94	19.99	20.06
		25	0	19.17	18.88	19.22
		25	12	18.65	18.63	18.66
		25	25	19.25	18.83	18.94
		50	0	18.85	18.78	19.12
10M	256QAM	1	0	16.99	16.78	17.14
		1	24	16.27	16.44	16.26
		1	49	16.43	16.42	16.43
		25	0	15.43	15.52	15.46
		25	12	15.73	15.81	15.37
		25	25	15.38	15.51	15.43
		50	0	15.37	15.59	15.66

*EIRP = Conducted + antenna gain (-1.394dBi)

LTE Band 2						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		18625	18900	19175
		Frequency (MHz)		1852.5	1880	1907.5
5M	QPSK	1	0	21.99	21.89	21.91
		1	12	21.87	21.84	21.93
		1	24	21.66	21.79	21.92
		12	0	20.94	20.82	21.03
		12	6	20.79	21.03	20.91
		12	13	20.91	20.89	20.78
		25	0	20.97	20.66	20.68
5M	16QAM	1	0	20.95	21.45	20.85
		1	12	21.34	21.16	20.74
		1	24	21.00	21.18	21.01
		12	0	19.59	20.04	20.01
		12	6	19.95	19.86	19.65
		12	13	19.89	19.85	19.53
		25	0	19.83	20.13	19.67
5M	64QAM	1	0	20.17	20.04	19.57
		1	12	20.06	20.05	19.71
		1	24	20.02	19.67	19.71
		12	0	19.10	18.88	19.08
		12	6	18.83	19.06	19.10
		12	13	18.74	19.05	18.91
		25	0	18.73	18.78	18.78
5M	256QAM	1	0	16.63	16.76	16.59
		1	12	16.44	16.78	16.03
		1	24	16.66	16.39	16.39
		12	0	15.57	15.63	15.88
		12	6	15.92	15.35	15.66
		12	13	15.70	15.54	15.38
		25	0	15.73	15.60	15.37

*EIRP = Conducted + antenna gain (-1.394dBi)

LTE Band 2						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		18615	18900	19185
		Frequency (MHz)		1851.5	1880	1908.5
3M	QPSK	1	0	21.83	21.96	21.95
		1	7	21.61	21.97	21.88
		1	14	21.82	21.83	21.95
		8	0	21.42	21.20	20.85
		8	3	21.06	21.11	20.87
		8	7	20.93	20.80	21.06
		15	0	21.28	20.75	20.88
3M	16QAM	1	0	21.31	21.08	21.26
		1	7	21.09	20.79	21.15
		1	14	21.00	20.86	20.90
		8	0	20.23	20.07	19.80
		8	3	19.53	19.88	19.65
		8	7	19.49	19.78	19.75
		15	0	19.97	19.51	19.69
3M	64QAM	1	0	19.93	19.97	20.18
		1	7	20.32	20.35	20.05
		1	14	19.62	19.81	19.85
		8	0	19.11	19.03	18.59
		8	3	18.81	18.95	18.97
		8	7	18.74	19.02	18.87
		15	0	19.18	18.97	18.98
3M	256QAM	1	0	16.73	16.43	16.78
		1	7	16.51	16.37	16.23
		1	14	16.98	16.30	16.86
		8	0	15.35	15.49	15.45
		8	3	15.63	15.69	16.07
		8	7	15.63	15.36	15.63
		15	0	15.68	15.12	15.85

*EIRP = Conducted + antenna gain (-1.394dBi)

LTE Band 2						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		18607	18900	19193
		Frequency (MHz)		1850.7	1880	1909.3
1.4M	QPSK	1	0	21.82	21.84	22.11
		1	2	21.77	21.83	21.84
		1	5	21.80	21.77	21.83
		3	0	21.87	22.06	22.05
		3	1	21.74	21.81	21.74
		3	3	21.81	21.71	21.91
		6	0	21.13	20.96	20.85
1.4M	16QAM	1	0	21.09	21.04	21.03
		1	2	21.15	20.71	20.74
		1	5	20.79	21.18	21.06
		3	0	20.79	20.98	21.13
		3	1	20.51	20.86	20.88
		3	3	20.73	20.79	20.87
		6	0	19.78	19.63	19.59
1.4M	64QAM	1	0	19.79	19.89	20.17
		1	2	19.71	19.66	19.70
		1	5	19.86	19.58	20.02
		3	0	20.10	19.92	19.67
		3	1	20.20	20.14	19.55
		3	3	20.16	19.67	19.74
		6	0	19.08	19.23	19.00
1.4M	256QAM	1	0	16.55	16.40	17.01
		1	2	16.47	16.61	16.93
		1	5	16.44	16.21	16.33
		3	0	16.74	16.48	16.49
		3	1	17.00	16.41	16.53
		3	3	16.55	16.31	16.26
		6	0	15.61	15.95	15.69

*EIRP = Conducted + antenna gain (-1.394dBi)

LTE Band 7						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20850	21100	21350
		Frequency (MHz)		2510	2535	2560
20M	QPSK	1	0	23.33	23.31	23.30
		1	50	23.19	23.31	23.24
		1	99	22.92	22.86	23.28
		50	0	22.77	22.44	22.38
		50	25	22.60	22.43	22.77
		50	50	22.17	22.29	22.32
		100	0	22.38	22.65	22.43
20M	16QAM	1	0	22.57	22.16	23.05
		1	50	22.44	21.88	22.16
		1	99	21.91	21.84	22.26
		50	0	21.46	21.54	21.59
		50	25	21.52	21.48	21.58
		50	50	21.46	21.20	21.39
		100	0	21.37	21.21	21.39
20M	64QAM	1	0	21.56	21.20	21.47
		1	50	21.64	21.59	21.51
		1	99	21.44	20.90	21.64
		50	0	20.18	20.46	20.64
		50	25	20.63	20.41	20.62
		50	50	20.14	20.14	20.16
		100	0	20.53	20.15	20.38
20M	256QAM	1	0	18.22	18.20	17.92
		1	50	18.07	17.98	17.59
		1	99	17.94	17.78	17.84
		50	0	16.93	17.05	17.68
		50	25	16.85	17.01	17.65
		50	50	17.20	17.24	17.20
		100	0	17.17	16.89	17.02

*EIRP = Conducted + antenna gain (0.185dBi)

LTE Band 7						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20825	21100	21375
		Frequency (MHz)		2507.5	2535	2562.5
15M	QPSK	1	0	23.29	23.04	23.30
		1	37	22.97	23.04	23.23
		1	74	23.12	23.09	23.31
		36	0	22.19	22.66	22.64
		36	19	22.44	22.28	22.26
		36	39	22.45	22.09	22.77
		75	0	22.20	22.69	22.80
15M	16QAM	1	0	22.24	22.19	22.52
		1	37	22.14	22.08	22.46
		1	74	22.21	22.00	22.51
		36	0	21.67	21.49	21.40
		36	19	21.46	21.39	21.60
		36	39	21.63	21.48	21.29
		75	0	21.69	21.50	21.45
15M	64QAM	1	0	21.32	21.44	21.85
		1	37	21.56	21.39	21.64
		1	74	21.17	21.06	21.06
		36	0	20.50	20.58	20.83
		36	19	20.54	20.40	20.32
		36	39	20.42	20.23	20.42
		75	0	20.55	20.29	20.68
15M	256QAM	1	0	17.58	17.88	18.04
		1	37	17.82	17.95	18.04
		1	74	17.40	18.06	17.89
		36	0	17.19	17.11	17.45
		36	19	17.37	17.00	17.13
		36	39	17.17	16.87	17.33
		75	0	17.09	16.83	16.94

*EIRP = Conducted + antenna gain (0.185dBi)

LTE Band 7						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20800	21100	21400
		Frequency (MHz)		2505	2535	2565
10M	QPSK	1	0	23.23	23.19	23.27
		1	24	23.16	22.87	23.25
		1	49	23.25	22.97	23.23
		25	0	22.63	22.34	22.63
		25	12	22.29	21.99	22.61
		25	25	22.09	22.25	22.60
		50	0	22.40	22.02	22.29
10M	16QAM	1	0	22.61	22.62	22.83
		1	24	21.88	22.04	22.30
		1	49	22.14	21.76	21.98
		25	0	21.32	21.56	21.46
		25	12	21.16	21.23	21.24
		25	25	21.56	21.19	21.29
		50	0	21.36	21.03	21.59
10M	64QAM	1	0	21.00	21.16	21.60
		1	24	21.42	21.03	21.36
		1	49	21.29	21.33	21.02
		25	0	20.26	20.41	20.66
		25	12	20.33	20.30	20.35
		25	25	20.21	20.37	20.34
		50	0	20.11	20.39	20.52
10M	256QAM	1	0	17.86	17.51	17.68
		1	24	18.22	17.67	17.92
		1	49	17.97	17.83	17.61
		25	0	17.07	16.78	17.13
		25	12	17.16	16.62	16.99
		25	25	17.10	16.99	17.27
		50	0	16.70	16.95	17.25

*EIRP = Conducted + antenna gain (0.185dBi)

LTE Band 7						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20775	21100	21425
		Frequency (MHz)		2502.5	2535	2567.5
5M	QPSK	1	0	23.12	23.12	23.19
		1	12	23.08	23.12	23.19
		1	24	23.13	23.20	23.16
		12	0	22.42	22.45	22.35
		12	6	22.54	22.20	22.36
		12	13	22.50	21.99	22.25
		25	0	22.18	22.57	22.45
5M	16QAM	1	0	22.79	22.54	22.61
		1	12	22.08	22.28	22.23
		1	24	21.88	22.23	22.08
		12	0	21.22	21.58	21.39
		12	6	21.41	21.25	21.75
		12	13	21.07	21.38	21.54
		25	0	21.25	21.36	21.38
5M	64QAM	1	0	21.37	21.51	21.80
		1	12	21.64	21.58	21.68
		1	24	21.23	21.24	21.13
		12	0	20.60	20.39	20.35
		12	6	20.32	20.31	20.65
		12	13	20.45	20.04	20.06
		25	0	20.14	20.45	20.68
5M	256QAM	1	0	18.16	17.44	17.97
		1	12	17.75	17.69	17.67
		1	24	17.71	17.38	17.88
		12	0	17.29	16.87	17.10
		12	6	16.74	17.18	17.07
		12	13	16.80	16.77	17.01
		25	0	16.91	17.09	16.94

*EIRP = Conducted + antenna gain (0.185dBi)

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	21.32	21.67	21.65
		1	50	21.33	21.43	21.62
		1	99	20.77	21.06	21.48
		50	0	20.29	20.68	21.24
		50	25	20.24	20.55	20.89
		50	50	20.37	20.94	20.72
		100	0	20.74	20.80	20.75
20M	16QAM	1	0	20.79	20.91	20.66
		1	50	20.90	20.89	21.04
		1	99	20.79	20.60	20.86
		50	0	19.84	19.58	19.87
		50	25	19.33	19.72	19.57
		50	50	19.71	19.76	19.87
		100	0	19.61	19.75	19.53
20M	64QAM	1	0	19.30	19.58	20.11
		1	50	19.63	19.63	20.04
		1	99	19.05	19.79	19.64
		50	0	18.84	18.65	18.78
		50	25	18.70	18.77	18.68
		50	50	18.22	18.85	18.85
		100	0	18.80	18.68	18.97
20M	256QAM	1	0	16.02	16.08	16.72
		1	50	15.87	16.31	16.75
		1	99	15.78	15.69	16.04
		50	0	15.28	15.40	15.86
		50	25	14.91	15.17	15.87
		50	50	14.84	15.60	15.47
		100	0	15.08	15.38	15.40

*EIRP = Conducted + antenna gain (-1.685dBi)

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	21.50	21.62	21.65
		1	37	21.09	21.61	21.64
		1	74	21.17	21.37	21.63
		36	0	20.31	20.72	20.63
		36	19	20.50	20.70	20.82
		36	39	20.51	20.80	21.03
		75	0	20.25	20.90	20.70
15M	16QAM	1	0	20.46	20.97	20.91
		1	37	20.68	20.37	20.73
		1	74	20.56	20.86	20.85
		36	0	19.28	19.68	19.79
		36	19	19.64	19.78	19.86
		36	39	19.39	19.57	19.69
		75	0	19.67	19.44	19.86
15M	64QAM	1	0	19.22	19.80	20.15
		1	37	19.16	19.89	19.50
		1	74	19.25	19.62	19.74
		36	0	18.70	18.71	18.69
		36	19	18.37	18.76	18.66
		36	39	18.23	18.90	19.02
		75	0	18.73	18.85	18.91
15M	256QAM	1	0	15.88	16.05	16.72
		1	37	15.57	16.18	16.88
		1	74	15.57	16.28	15.96
		36	0	15.16	15.24	15.65
		36	19	15.28	15.12	15.69
		36	39	14.93	14.95	15.38
		75	0	15.00	15.33	15.38

*EIRP = Conducted + antenna gain (-1.685dBi)

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	21.20	21.55	21.49
		1	24	21.23	21.60	21.50
		1	49	20.98	21.34	21.49
		25	0	20.25	20.65	20.90
		25	12	20.23	20.62	20.87
		25	25	20.22	20.75	20.88
		50	0	20.40	20.39	20.55
10M	16QAM	1	0	20.68	20.95	20.91
		1	24	20.75	20.71	20.73
		1	49	20.37	20.62	20.67
		25	0	19.19	19.61	19.87
		25	12	19.51	19.77	19.43
		25	25	19.16	19.36	19.73
		50	0	19.73	19.65	19.76
10M	64QAM	1	0	19.47	19.97	19.65
		1	24	19.29	19.63	19.86
		1	49	18.76	19.37	20.07
		25	0	18.81	18.92	18.45
		25	12	18.70	18.56	18.98
		25	25	18.68	18.99	18.60
		50	0	18.65	18.50	18.66
10M	256QAM	1	0	15.61	16.12	16.57
		1	24	16.15	16.45	15.95
		1	49	15.50	16.29	15.92
		25	0	15.30	14.88	15.33
		25	12	15.21	15.11	15.27
		25	25	15.13	15.37	15.77
		50	0	15.26	15.03	15.65

*EIRP = Conducted + antenna gain (-1.685dBi)

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	21.64	21.58	21.45
		1	12	21.27	21.47	21.47
		1	24	20.62	21.03	20.98
		12	0	20.16	20.74	20.54
		12	6	20.66	20.84	20.93
		12	13	20.64	20.47	20.61
		25	0	20.32	20.45	20.59
5M	16QAM	1	0	20.66	20.68	20.43
		1	12	20.78	20.35	20.89
		1	24	20.76	20.28	20.60
		12	0	19.59	19.68	19.33
		12	6	19.32	19.58	19.45
		12	13	19.56	19.47	19.81
		25	0	19.26	19.45	19.77
5M	64QAM	1	0	19.04	19.44	19.87
		1	12	19.10	19.71	19.58
		1	24	19.06	19.23	19.52
		12	0	18.57	18.73	18.57
		12	6	18.60	18.97	18.52
		12	13	18.37	18.47	18.78
		25	0	18.30	18.51	19.08
5M	256QAM	1	0	16.17	16.20	16.66
		1	12	15.99	16.05	16.29
		1	24	15.41	15.86	16.01
		12	0	15.11	15.04	15.01
		12	6	15.02	15.28	15.76
		12	13	14.90	14.99	15.03
		25	0	15.12	15.19	15.32

*EIRP = Conducted + antenna gain (-1.685dBi)

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	21.18	21.59	21.52
		1	7	21.07	21.36	21.50
		1	14	20.48	21.48	21.39
		8	0	20.51	20.53	20.89
		8	3	20.45	20.43	20.96
		8	7	20.32	20.23	20.98
		15	0	20.32	20.86	20.57
3M	16QAM	1	0	20.92	20.55	20.54
		1	7	20.78	20.77	21.00
		1	14	20.39	20.46	20.64
		8	0	19.20	19.59	19.65
		8	3	19.62	19.69	19.67
		8	7	19.22	19.46	19.33
		15	0	19.59	19.75	19.62
3M	64QAM	1	0	19.19	19.77	19.59
		1	7	19.50	19.61	19.41
		1	14	18.86	19.65	19.65
		8	0	18.76	18.53	18.57
		8	3	18.49	18.98	18.51
		8	7	18.23	18.56	18.85
		15	0	18.72	18.73	19.00
3M	256QAM	1	0	15.98	16.17	16.22
		1	7	15.65	16.40	16.82
		1	14	15.34	15.63	15.69
		8	0	15.19	15.07	15.67
		8	3	15.07	15.41	15.05
		8	7	14.89	15.09	14.97
		15	0	15.00	15.47	15.01

*EIRP = Conducted + antenna gain (-1.685dBi)

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	21.33	21.49	21.58
		1	2	21.10	21.29	21.55
		1	5	20.57	21.08	21.24
		3	0	21.24	21.32	21.39
		3	1	21.58	21.36	21.29
		3	3	21.54	21.64	21.52
		6	0	20.30	20.80	20.51
1.4M	16QAM	1	0	20.57	20.37	20.38
		1	2	20.65	20.51	20.27
		1	5	20.21	20.44	20.35
		3	0	20.41	20.52	20.35
		3	1	20.54	20.43	20.60
		3	3	20.11	20.53	20.69
		6	0	19.34	19.38	19.35
1.4M	64QAM	1	0	19.39	20.00	19.63
		1	2	19.27	19.50	19.59
		1	5	18.94	19.63	19.84
		3	0	19.57	19.95	19.74
		3	1	19.24	19.62	19.83
		3	3	19.39	19.71	19.99
		6	0	18.65	18.53	18.94
1.4M	256QAM	1	0	15.76	15.78	16.28
		1	2	15.94	16.00	16.32
		1	5	15.56	15.82	16.17
		3	0	16.13	15.99	16.00
		3	1	15.33	15.82	16.02
		3	3	16.14	15.37	15.93
		6	0	15.45	15.24	15.34

*EIRP = Conducted + antenna gain (-1.685dBi)

4.2 Modulation Characteristics Measurement

4.2.1 Limits of Modulation Characteristics

N/A

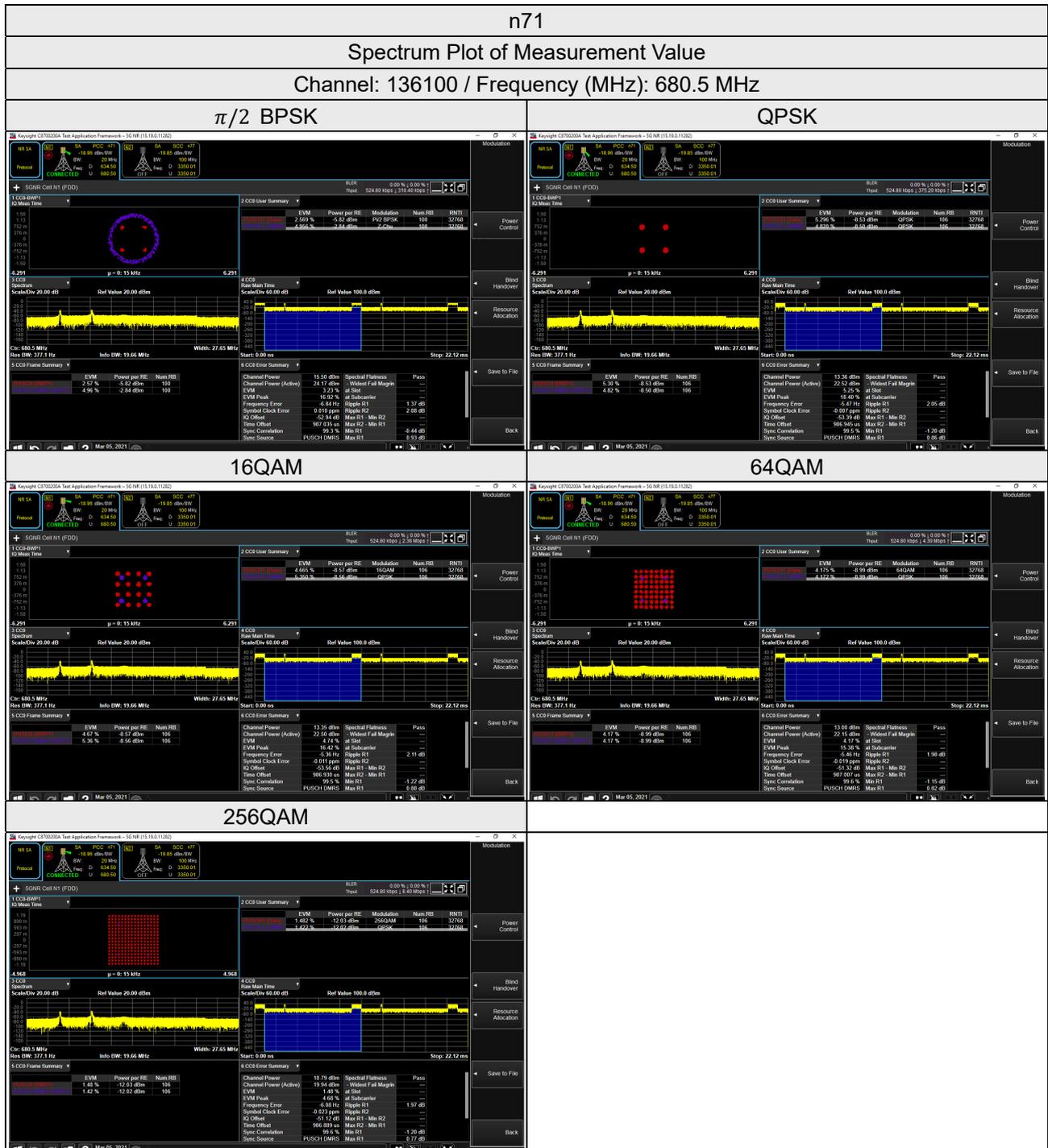
4.2.2 Test Procedure

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

1.5 ppm is for base and fixed station. 2.5 ppm is for mobile station.

4.3.2 Test Procedure

- Device is placed at the oven room. The oven room could control the temperatures and humidity. Power warm up is at least 15 min and power applied should perform before recording frequency error.
- EUT is connected the external power supply to control the DC input power. The test voltage range is from minimum to maximum working voltage. Each step shall be record the frequency error rate.
- The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the ± 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.

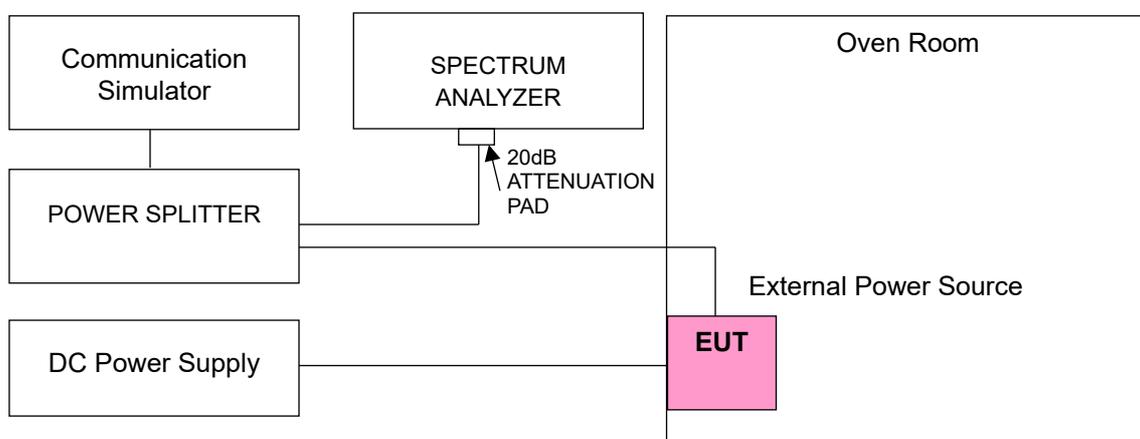
Note: The frequency error was recorded frequency error from the communication simulator.

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 Test Setup



4.3.5 Test Results

Frequency Error vs. Voltage

Voltage (Vdc)	n71			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
8.90	665.500001	0.002	695.500000	0.002
7.74	665.500001	0.002	695.500000	0.003
6.58	665.500002	0.003	695.500000	0.002

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

Frequency Error vs. Temperature

Temp. (°C)	n71			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	665.500003	0.004	695.500000	0.005
-20	665.500002	0.003	695.500000	0.003
-10	665.500003	0.004	695.500000	0.004
0	665.500003	0.004	695.500000	0.004
10	665.499996	-0.006	695.500000	-0.003
20	665.499996	-0.006	695.500000	-0.003
30	665.499998	-0.003	695.500000	-0.003
40	665.499999	-0.002	695.500000	-0.003
50	665.499998	-0.003	695.500000	-0.004

Frequency Error vs. Voltage

Voltage (Vdc)	n71			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
8.90	668.000001	0.002	693.000003	0.004
7.74	668.000003	0.004	693.000001	0.002
6.58	668.000002	0.003	693.000001	0.002

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

Frequency Error vs. Temperature

Temp. (°C)	n71			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	668.000002	0.004	693.000003	0.004
-20	668.000003	0.005	693.000002	0.003
-10	668.000004	0.006	693.000002	0.003
0	668.000003	0.005	693.000003	0.004
10	667.999998	-0.003	692.999997	-0.005
20	667.999997	-0.005	692.999997	-0.005
30	667.999997	-0.004	692.999997	-0.004
40	667.999998	-0.004	692.999997	-0.005
50	667.999996	-0.006	692.999997	-0.004

Frequency Error vs. Voltage

Voltage (Vdc)	n71			
	Channel Bandwidth: 15 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
8.90	670.500004	0.006	690.500001	0.002
7.74	670.500002	0.002	690.500002	0.002
6.58	670.500001	0.002	690.500002	0.003

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

Frequency Error vs. Temperature

Temp. (°C)	n71			
	Channel Bandwidth: 15 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	670.500003	0.005	690.500002	0.003
-20	670.500001	0.002	690.500003	0.004
-10	670.500001	0.002	690.500003	0.005
0	670.500002	0.002	690.500003	0.004
10	670.499998	-0.003	690.499999	-0.002
20	670.499997	-0.004	690.499997	-0.005
30	670.499998	-0.002	690.499999	-0.001
40	670.499998	-0.002	690.499997	-0.004
50	670.499997	-0.005	690.499997	-0.004

Frequency Error vs. Voltage

Voltage (Vdc)	n71			
	Channel Bandwidth: 20 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
8.90	673.000002	0.003	688.000003	0.004
7.74	673.000002	0.003	688.000003	0.004
6.58	673.000001	0.002	688.000002	0.002

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

Frequency Error vs. Temperature

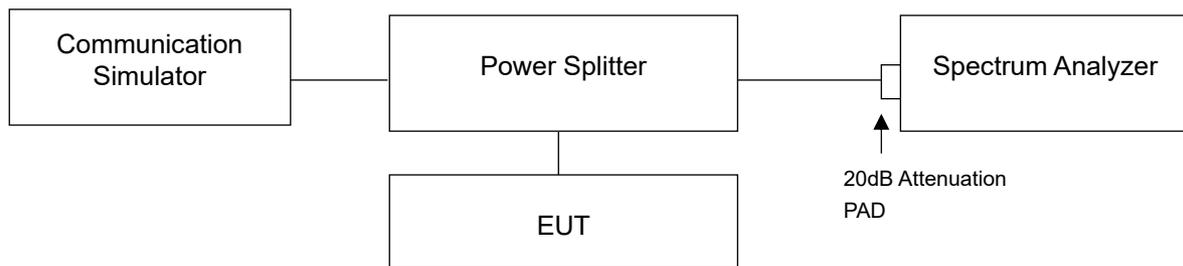
Temp. (°C)	n71			
	Channel Bandwidth: 20 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	673.000003	0.004	688.000002	0.002
-20	673.000001	0.002	688.000001	0.002
-10	673.000001	0.002	688.000001	0.001
0	673.000002	0.003	688.000002	0.003
10	672.999997	-0.005	687.999998	-0.003
20	672.999999	-0.002	687.999999	-0.002
30	672.999998	-0.003	687.999997	-0.004
40	672.999997	-0.005	687.999996	-0.006
50	672.999997	-0.004	687.999997	-0.004

4.4 Occupied Bandwidth Measurement

4.4.1 Test Procedure

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 Setup



4.4.3 Test Result

Occupied Bandwidth

n71

n71, Channel Bandwidth 5MHz						
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
133100	665.5	4.46	4.47	4.47	4.47	4.47
136100	680.5	4.47	4.47	4.46	4.47	4.47
139100	695.5	4.48	4.47	4.47	4.47	4.47
n71, Channel Bandwidth 10MHz						
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
133600	668	9.20	9.29	9.29	9.29	9.29
136100	680.5	9.18	9.21	9.21	9.21	9.21
138600	693	9.22	9.29	9.29	9.28	9.29
n71, Channel Bandwidth 15MHz						
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
134100	670.5	13.99	14.11	14.11	14.11	14.11
136100	680.5	13.98	14.11	14.11	14.12	14.11
138100	690.5	13.95	14.11	14.11	14.11	14.10
n71, Channel Bandwidth 20MHz						
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
134600	673	18.73	18.90	18.90	18.89	18.90
136100	680.5	18.67	18.90	18.90	18.91	18.90
137600	688	18.74	18.90	18.90	18.90	18.90

Spectrum Plot of Worst Value

5MHz / BPSK



10MHz / 16QAM



15MHz / 64QAM



20MHz / 64QAM



26dB Bandwidth

n71

n71, Channel Bandwidth 5MHz						
Channel	Frequency (MHz)	26dB Bandwidth (MHz)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
133100	665.5	4.76	4.75	4.76	4.74	4.72
136100	680.5	4.72	4.77	4.73	4.73	4.70
139100	695.5	4.75	4.75	4.74	4.73	4.68
n71, Channel Bandwidth 10MHz						
Channel	Frequency (MHz)	26dB Bandwidth (MHz)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
133600	668	9.32	9.66	9.69	9.68	9.69
136100	680.5	9.27	9.29	9.28	9.30	9.30
138600	693	9.26	9.64	9.68	9.63	9.63
n71, Channel Bandwidth 15MHz						
Channel	Frequency (MHz)	26dB Bandwidth (MHz)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
134100	670.5	13.89	14.65	14.61	14.60	14.60
136100	680.5	13.90	14.62	14.63	14.63	14.60
138100	690.5	13.89	14.61	14.62	14.60	14.60
n71, Channel Bandwidth 20MHz						
Channel	Frequency (MHz)	26dB Bandwidth (MHz)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
134600	673	18.47	19.58	19.58	19.55	19.54
136100	680.5	18.49	19.58	19.57	19.57	19.56
137600	688	18.48	19.58	19.56	19.56	19.56

Spectrum Plot of Worst Value

5MHz / QPSK



10MHz / 16QAM



15MHz / QPSK



20MHz / 16QAM

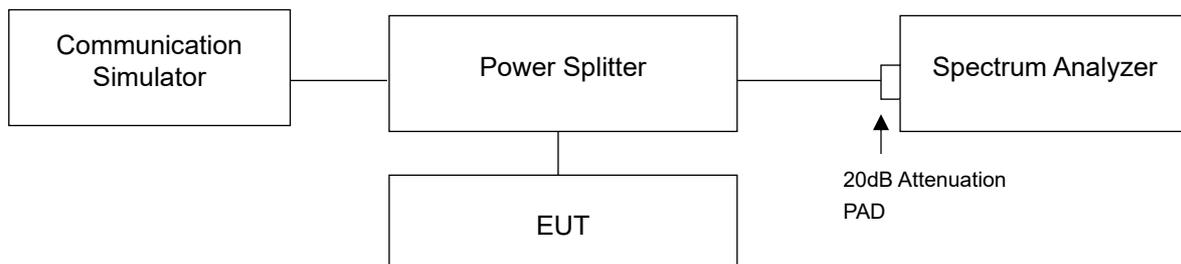


4.5 Band Edge Measurement

4.5.1 Limits of Band Edge Measurement

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.

4.5.2 Test Setup



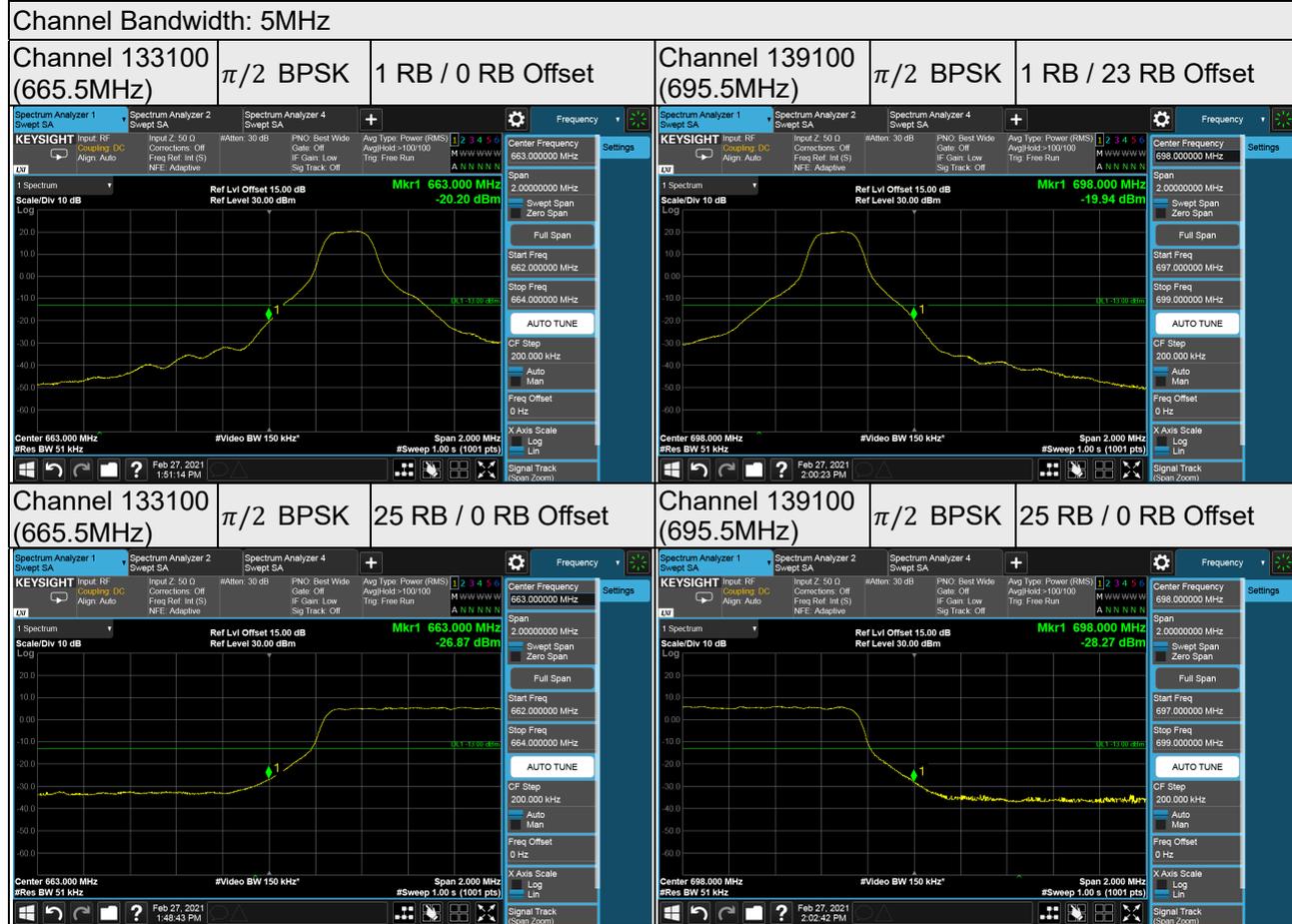
4.5.3 Test Procedures

- 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 1MHz (Channel Bandwidth 20MHz).
- Record the max trace plot into the test report.

4.5.4 Test Results

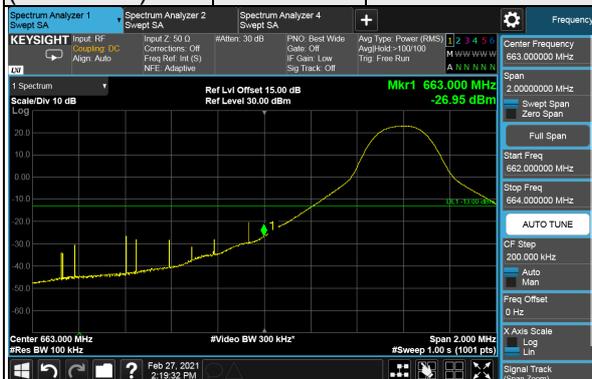
n71

Band edge:



Channel Bandwidth: 10MHz

Channel 133600 (668.0MHz) $\pi/2$ BPSK 1 RB / 0 RB Offset



Channel 138600 (693.0MHz) $\pi/2$ BPSK 1 RB / 50 RB Offset



Channel 133600 (668.0MHz) $\pi/2$ BPSK 50 RB / 0 RB Offset



Channel 138600 (693.0MHz) $\pi/2$ BPSK 50 RB / 0 RB Offset



Channel Bandwidth: 15MHz

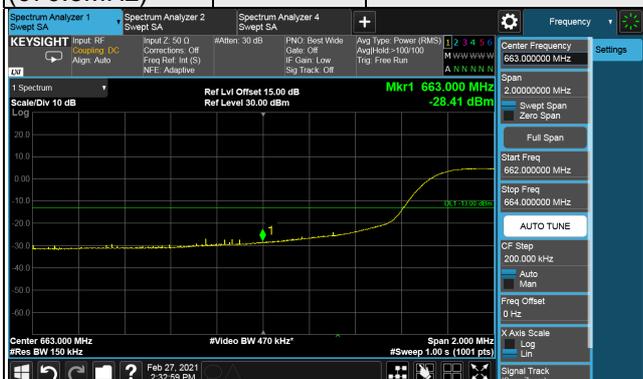
Channel 134100 (670.5MHz) $\pi/2$ BPSK 1 RB / 0 RB Offset



Channel 138100 (690.5MHz) $\pi/2$ BPSK 1 RB / 77 RB Offset



Channel 134100 (670.5MHz) $\pi/2$ BPSK 75 RB / 0 RB Offset



Channel 138100 (690.5MHz) $\pi/2$ BPSK 75 RB / 0 RB Offset



Channel Bandwidth: 20MHz

Channel 134600
(673.0MHz)

$\pi/2$ BPSK

1 RB / 0 RB Offset

Channel 137600
(688.0MHz)

$\pi/2$ BPSK

1 RB / 104 RB Offset



Channel 134600
(673.0MHz)

$\pi/2$ BPSK

100 RB / 0 RB Offset

Channel 137600
(688.0MHz)

$\pi/2$ BPSK

100 RB / 0 RB Offset

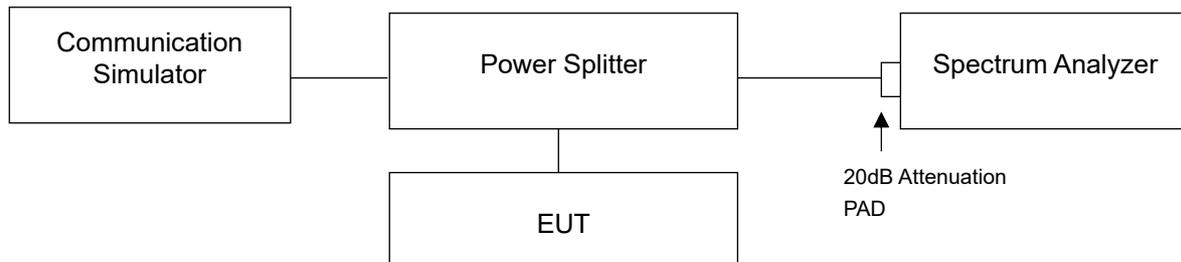


4.6 Peak to Average Ratio

4.6.1 Limits of Peak to Average Ratio Measurement

In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB

4.6.2 Test Setup



4.6.3 Test Procedures

- Set resolution/measurement bandwidth \geq signal's occupied bandwidth;
- Set the number of counts to a value that stabilizes the measured CCDF curve;
- Record the maximum PAPR level associated with a probability of 0.1%.

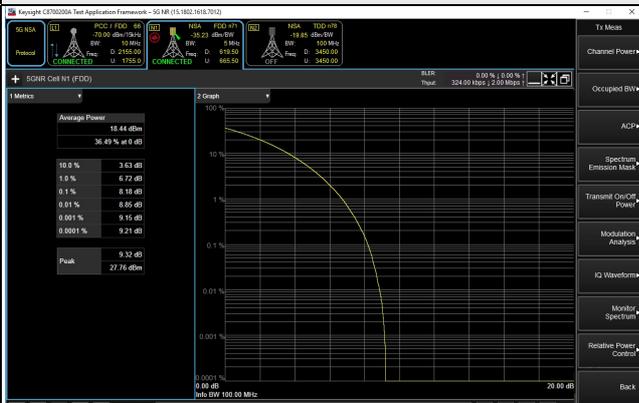
4.6.4 Test Results

n71

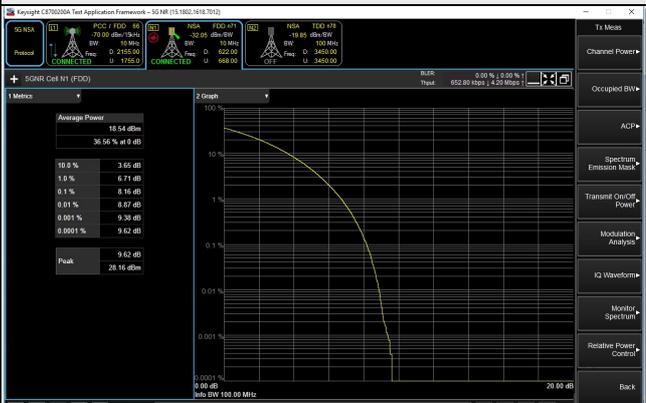
n71, Channel Bandwidth 5MHz						
Channel	Frequency (MHz)	Peak To Average Ratio (dB)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
133100	665.5	3.82	6.35	6.38	6.55	8.18
136100	680.5	3.83	6.47	6.50	6.87	8.05
139100	695.5	3.82	6.34	6.53	6.93	7.98
n71, Channel Bandwidth 10MHz						
Channel	Frequency (MHz)	Peak To Average Ratio (dB)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
133600	668	3.90	6.56	6.55	6.86	8.16
136100	680.5	3.92	6.43	6.45	6.80	8.12
138600	693	3.94	6.51	6.52	6.90	8.16
n71, Channel Bandwidth 15MHz						
Channel	Frequency (MHz)	Peak To Average Ratio (dB)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
134100	670.5	4.19	6.57	6.57	7.05	8.22
136100	680.5	4.29	6.47	6.50	6.98	8.26
138100	690.5	3.87	6.45	6.47	7.05	8.19
n71, Channel Bandwidth 20MHz						
Channel	Frequency (MHz)	Peak To Average Ratio (dB)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
134600	673	3.98	6.58	6.61	6.96	8.21
136100	680.5	3.75	6.45	6.42	6.89	8.30
137600	688	3.73	6.44	6.49	6.82	8.18

Spectrum Plot of Worst Value

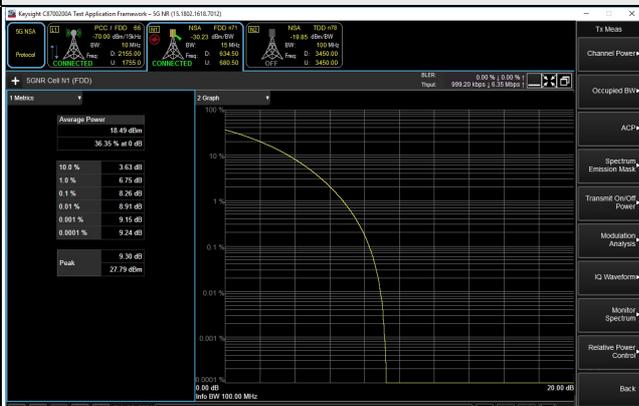
5MHz / 256QAM



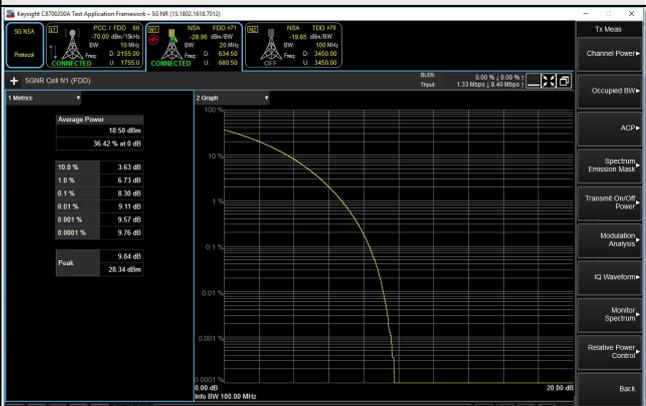
10MHz / 256QAM



15MHz / 256QAM



20MHz / 256QAM



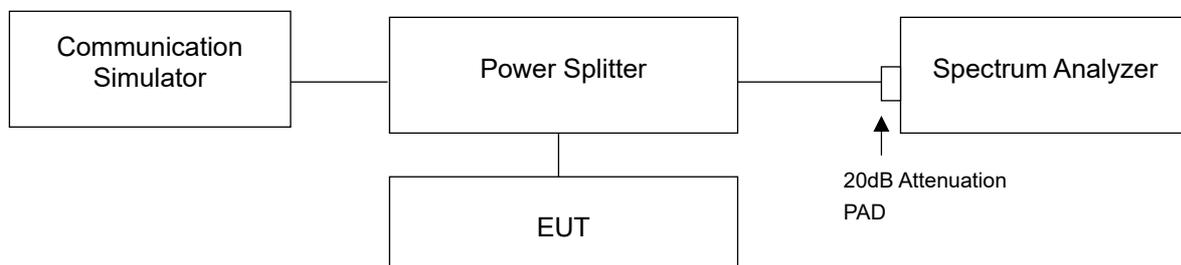
4.7 Conducted Spurious Emissions

4.7.1 Limits of Conducted Spurious Emissions Measurement

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.

4.7.2 Test Setup



4.7.3 Test Procedure

- The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.
- Measuring frequency range is from 9kHz to 10GHz. 20dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz is used for conducted emission measurement.

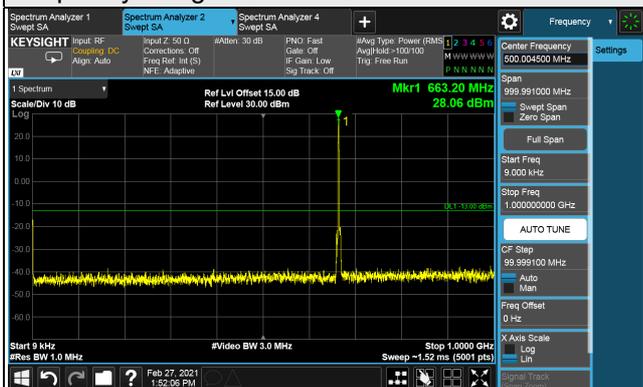
4.7.4 Test Results

n71

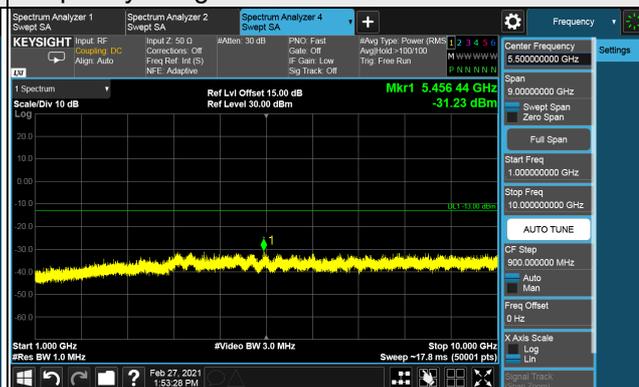
Channel Bandwidth: 5MHz

Channel 133100 (665.5MHz)

Frequency Range : 9kHz~1GHz

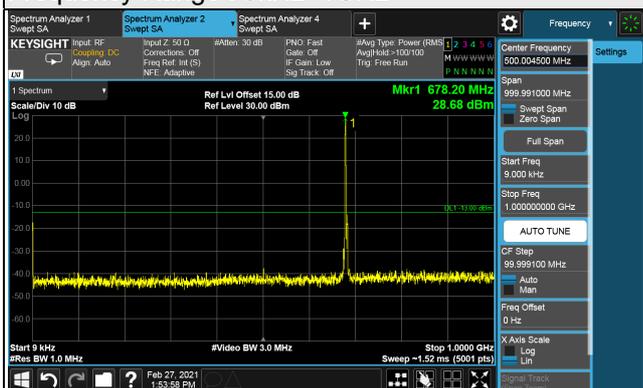


Frequency Range : 1GHz~10GHz

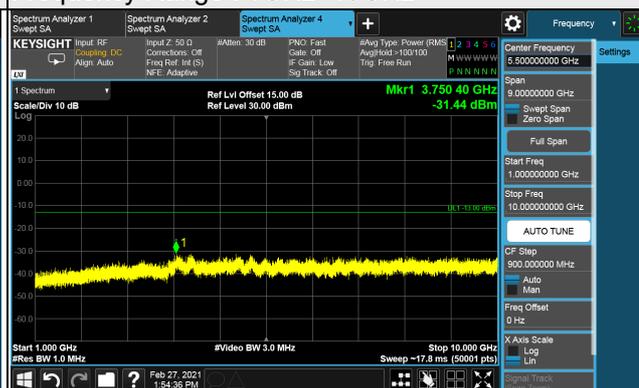


Channel 136100 (680.5MHz)

Frequency Range : 9kHz~1GHz



Frequency Range : 1GHz~10GHz



Channel 139100 (695.5MHz)

Frequency Range : 9kHz~1GHz



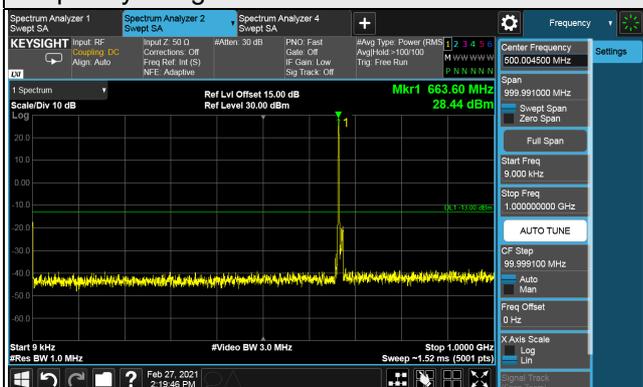
Frequency Range : 1GHz~10GHz



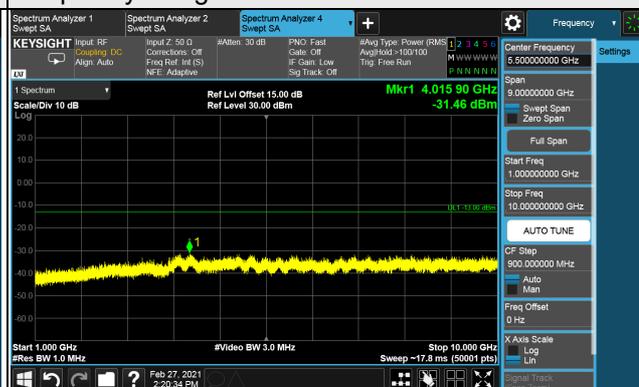
Channel Bandwidth: 10MHz

Channel 133600 (668.0MHz)

Frequency Range : 9kHz~1GHz

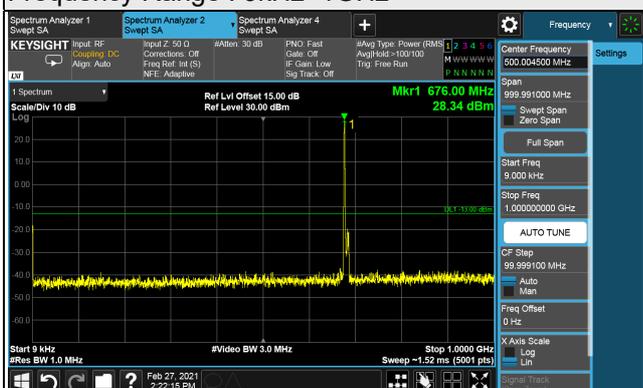


Frequency Range : 1GHz~10GHz

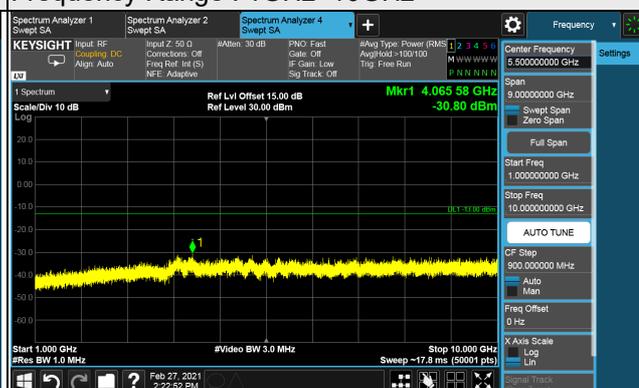


Channel 136100 (680.5MHz)

Frequency Range : 9kHz~1GHz



Frequency Range : 1GHz~10GHz



Channel 138600 (693.0MHz)

Frequency Range : 9kHz~1GHz



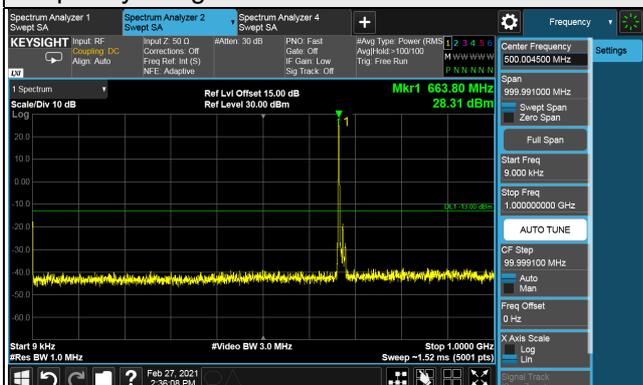
Frequency Range : 1GHz~10GHz



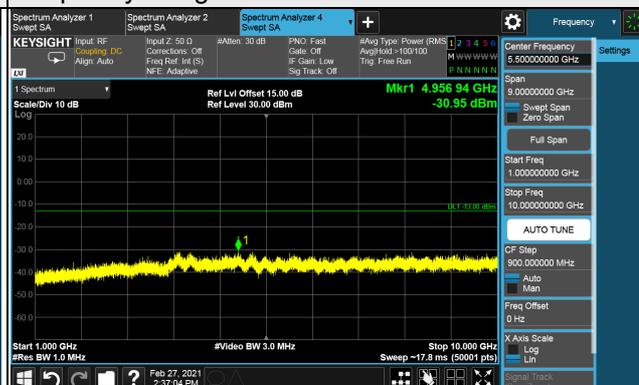
Channel Bandwidth: 15MHz

Channel 134100 (670.5MHz)

Frequency Range : 9kHz~1GHz

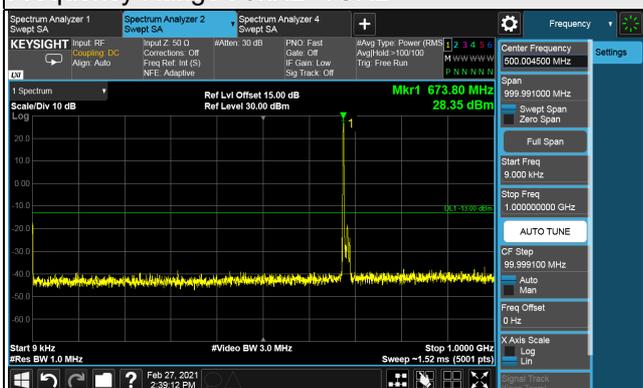


Frequency Range : 1GHz~10GHz



Channel 136100 (680.5MHz)

Frequency Range : 9kHz~1GHz

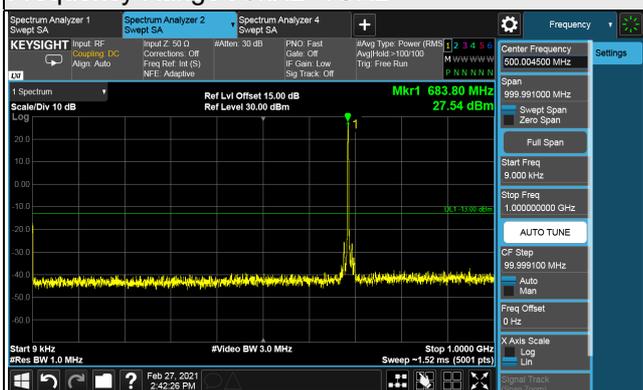


Frequency Range : 1GHz~10GHz



Channel 138100 (690.5MHz)

Frequency Range : 9kHz~1GHz



Frequency Range : 1GHz~10GHz

