

FCC Test Report

(Part 22, 24, 27 – NSA Mode: n77, n78 + LTE B2/5/7/38/41/66)

Report No.: RFBGDY-WTW-P22120176-2

FCC ID: T8GSAN9000

Test Model: SA-N9000 OEM D1

Received Date: Dec. 06, 2022

Test Date: Jan. 04 ~ Feb. 14, 2023

Issued Date: Mar. 28, 2023

Applicant: Harman Connected Car Division

Address: Parking 3, 85748 Garching Germany

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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Release Control Record

Issue No.	Description	Date Issued
RFBGDY-WTW-P22120176-2	Original release.	Mar. 28, 2023

1 Certificate of Conformity

Product: Module

Brand: Harman

Test Model: SA-N9000 OEM D1

Sample Status: Standard Sample

Applicant: Harman Connected Car Division

Test Date: Jan. 04 ~ Feb. 14, 2023

Standards: FCC Part 22, Subpart H
FCC Part 24, Subpart E
FCC Part 27, Subpart C, L, M, O

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:** Mar. 28, 2023
Celine Chou / Senior Specialist

Approved by : Jeremy Lin , **Date:** Mar. 28, 2023
Jeremy Lin / Project Engineer

2 Summary of Test Results

For 5GNR n77 (Part 270):

Applied Standard: FCC Part 27 & Part 2			
FCC Clause	Test Item	Result	Remarks
2.1046 27.50(j)	Equivalent Radiated Power	Pass	Meet the requirement of limit.
2.1047	Modulation Characteristics	Pass	Meet the requirement
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(l)	Band Edge / Out of Band Emissions Measurements	Pass	Meet the requirement of limit.
----	Peak To Average Ratio	Pass	Meet the requirement of limit.
2.1051 27.53(l)	Conducted Spurious Emissions	Pass	Meet the requirement of limit.
2.1053 27.53(l)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -19.12dB at 42.61MHz.

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	Equivalent Isotropically Radiated Power	Pass	Meet the requirement of limit.
24.232(d)	Peak To Average Ratio	N/A	Refer to Note
2.1047	Modulation Characteristics	N/A	Refer to Note
2.1055 24.235	Frequency Stability	N/A	Refer to Note
2.1049	Occupied Bandwidth	N/A	Refer to Note
24.238	Band Edge Measurements	N/A	Refer to Note
2.1051 24.238	Conducted Spurious Emissions	N/A	Refer to Note
2.1053 24.238	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -34.36dB at 262.80MHz.

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 7layers GmbH report no.: MDE_HARMAN_1914_FCC01-REV02.
2. 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	N/A	Refer to Note
22.913(d)	Peak To Average Ratio	N/A	Refer to Note
2.1055 22.355	Frequency Stability	N/A	Refer to Note
2.1049	Occupied Bandwidth	N/A	Refer to Note
22.917	Band Edge Measurements	N/A	Refer to Note
2.1051 22.917	Conducted Spurious Emissions	N/A	Refer to Note
2.1053 22.917	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -26.60dB at 1673.00MHz.

Note:

1. This report is a partial report. Therefore, only test item of Effective radiated power and Radiated Spurious Emissions tests were performed for this report. Other testing data please refer to 7layers GmbH report no.: MDE_HARMAN_1914_FCC01-REV02.
2. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

For LTE Band 7, LTE Band 38 and LTE Band 41:

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 of limit.
2.1047	Modulation characteristics	N/A	Refer to Note
2.1055 27.54	Frequency Stability	N/A	Refer to Note
2.1049	Emission Bandwidth	N/A	Refer to Note
2.1051 27.53(m)(4)(6)	Out of Band Emission Measurements	N/A	Refer to Note
--	Peak To Average Ratio	N/A	Refer to Note
2.1051 27.53(m)(4)(6)	Conducted Spurious Emissions	N/A	Refer to Note
2.1053 27.53(m)(4)(6)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -16.84dB at 5120.00MHz.

Note:

1. This report is a partial report. Therefore, only test item of Effective radiated power and Radiated Spurious Emissions tests were performed for this report. Other testing data please refer to 7layers GmbH report no.: MDE_HARMAN_1914_FCC01-REV02.
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)	Equivalent Isotropically radiated power	Pass	Meet the requirement of limit.
2.1047	Modulation characteristics	N/A	Refer to Note
2.1055 27.54	Frequency Stability	N/A	Refer to Note
2.1049	Emission Bandwidth	N/A	Refer to Note
2.1051 27.53(h)	Channel Edge Measurements	N/A	Refer to Note
27.50(d)(5)	Peak To Average Ratio	N/A	Refer to Note
2.1051 27.53(h)	Conducted Spurious Emissions	N/A	Refer to Note
2.1053 27.53(h)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -34.66dB at 260.86MHz.

Note:

1. This report is a partial report. Therefore, only test item of Effective radiated power and Radiated Spurious Emissions tests were performed for this report. Other testing data please refer to 7layers GmbH report no.: MDE_HARMAN_1914_FCC01-REV02.
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	2.44 dB
	30MHz ~ 200MHz	2.93 dB
	200MHz ~ 1000MHz	2.95 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	2.26 dB
	18GHz ~ 40GHz	1.94 dB

2.2 Test Site and Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver KEYSIGHT	N9038A	MY55420137	Apr. 27, 2022	Apr. 26, 2023
Signal Analyzer Agilent	N9010A	MY52220207	Jan. 03, 2023	Jan. 02, 2024
Loop Antenna TESEQ	HLA 6121	45745	Jul. 27, 2022	Jul. 26, 2023
Pre-amplifier EMCI	EMC001340	980201	Sep. 23, 2022	Sep. 22, 2023
RF Coaxial Cable EMCI	5D-NM-BM	140903+140902	Jan. 15, 2022	Jan. 14, 2023
			Jan. 07, 2023	Jan. 06, 2024
Preamplifier EMCI	EMC 330H	980112	Oct. 01, 2022	Sep. 30, 2023
BILOG Antenna SCHWARZBECK	VULB 9168	9168-472	Oct. 21, 2022	Oct. 20, 2023
RF Coaxial Cable WOKEN	8D-FB	Cable-Ch10-01	Oct. 01, 2022	Sep. 30, 2023
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-969	Nov. 13, 2022	Nov. 12, 2023
Preamplifier EMCI	EMC 012645	980115	Oct. 01, 2022	Sep. 30, 2023
RF Coaxial Cable EMCI	EMC104-SM-SM-8000	171005	Oct. 01, 2022	Sep. 30, 2023
RF Coaxial Cable HUBER+SUHNNER	SUCOFLEX 104	EMC104-SM-SM-1000(140807)	Oct. 01, 2022	Sep. 30, 2023
RF FLITER MICRO-TRONICS	BRM50716	058	Jun. 14, 2022	Jun. 13, 2023
RF FLITER MICRO-TRONICS	BRM17690	005	Jun. 14, 2022	Jun. 13, 2023
Pre-Amplifier EMCI	EMC 184045	980116	Oct. 01, 2022	Sep. 30, 2023
Broadband Horn Antenna SCHWARZBECK	BBHA 9170	148	Nov. 13, 2022	Nov. 12, 2023
RF Coaxial Cable EMCI	EMC102-KM-KM-600	150928	Jul. 09, 2022	Jul. 08, 2023
RF Coaxial Cable EMCI	EMC102-KM-KM-3000	150929	Jul. 09, 2022	Jul. 08, 2023
Software BV ADT	ADT_Radiated_V7.6.15.9.5	NA	NA	NA
Antenna Tower Max-Full	MFA-440H	AT93021705	NA	NA
Turn Table Max-Full	MFT-201SS	NA	NA	NA
Antenna Tower & Turn Table Controller Max-Full	MF-7802	NA	NA	NA
Boresight antenna tower fixture BV	BAF-02	7	NA	NA
UXM 5G Wireless Test Platform Keysight	E7515B	MY60102114	May 20, 2022	May 19, 2023

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 HY - 966 chamber 5.

3 General Information

3.1 General Description of EUT

Product	Module
Brand	Harman
Test Model	SA-N9000 OEM D1
Sample Status	Standard Sample
Power Supply Rating	4.2Vdc
Modulation Type	$\pi/2$ BPSK, QPSK, 16QAM, 64QAM, 256QAM
Waveform Type	CP-OFDM, DFT-s-OFDM

n77, n78

Operating Frequency	n77 (Channel Bandwidth 10MHz)	3705.00MHz ~ 3975.00MHz
	n77 (Channel Bandwidth 15MHz)	3707.52MHz ~ 3972.48MHz
	n77 (Channel Bandwidth 20MHz)	3710.01MHz ~ 3969.99MHz
	n77 (Channel Bandwidth 40MHz)	3720.00MHz ~ 3960.00MHz
	n77 (Channel Bandwidth 50MHz)	3725.01MHz ~ 3954.99MHz
	n77 (Channel Bandwidth 60MHz)	3730.02MHz ~ 3949.98MHz
	n77 (Channel Bandwidth 80MHz)	3740.01MHz ~ 3939.99MHz
	n77 (Channel Bandwidth 90MHz)	3745.02MHz ~ 3934.98MHz
	n77 (Channel Bandwidth 100MHz)	3750.00MHz ~ 3930.00MHz
	n78 (Channel Bandwidth 10MHz)	3705.00MHz ~ 3795.00MHz
	n78 (Channel Bandwidth 15MHz)	3707.52MHz ~ 3792.48MHz
	n78 (Channel Bandwidth 20MHz)	3710.01MHz ~ 3789.99MHz
	n78 (Channel Bandwidth 40MHz)	3720.00MHz ~ 3780.00MHz
	n78 (Channel Bandwidth 50MHz)	3725.01MHz ~ 3774.99MHz
	n78 (Channel Bandwidth 60MHz)	3730.02MHz ~ 3769.98MHz
	n78 (Channel Bandwidth 80MHz)	3740.01MHz ~ 3759.99MHz
	n78 (Channel Bandwidth 90MHz)	3745.02MHz ~ 3754.98MHz
	n78 (Channel Bandwidth 100MHz)	3750.00MHz

Max. EIRP Power		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
	n77 (Channel Bandwidth 10MHz)	375.837mW (25.75dBm)	370.681mW (25.69dBm)	297.852mW (24.74dBm)	214.783mW (23.32dBm)	84.140mW (19.25dBm)
	n77 (Channel Bandwidth 15MHz)	374.111mW (25.73dBm)	371.535mW (25.70dBm)	295.121mW (24.70dBm)	215.774mW (23.34dBm)	84.723mW (19.28dBm)
	n77 (Channel Bandwidth 20MHz)	373.250mW (25.72dBm)	373.250mW (25.72dBm)	299.916mW (24.77dBm)	216.770mW (23.36dBm)	85.310mW (19.31dBm)
	n77 (Channel Bandwidth 40MHz)	375.837mW (25.75dBm)	371.535mW (25.70dBm)	298.538mW (24.75dBm)	217.270mW (23.37dBm)	84.723mW (19.28dBm)
	n77 (Channel Bandwidth 50MHz)	375.837mW (25.75dBm)	374.111mW (25.73dBm)	299.226mW (24.76dBm)	218.273mW (23.39dBm)	85.507mW (19.32dBm)
	n77 (Channel Bandwidth 60MHz)	376.704mW (25.76dBm)	374.111mW (25.73dBm)	299.226mW (24.76dBm)	217.270mW (23.37dBm)	85.704mW (19.33dBm)
	n77 (Channel Bandwidth 80MHz)	371.535mW (25.70dBm)	370.681mW (25.69dBm)	296.483mW (24.72dBm)	215.278mW (23.33dBm)	84.333mW (19.26dBm)
	n77 (Channel Bandwidth 90MHz)	371.535mW (25.70dBm)	374.973mW (25.74dBm)	297.167mW (24.73dBm)	216.770mW (23.36dBm)	84.140mW (19.25dBm)
	n77 (Channel Bandwidth 100MHz)	381.066mW (25.81dBm)	377.572mW (25.77dBm)	302.691mW (24.81dBm)	220.293mW (23.43dBm)	86.298mW (19.36dBm)
Emission Designator		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
	n77 (Channel Bandwidth 10MHz)	8M62G7D	8M62G7D	8M61D7W	8M61D7W	8M58D7W
	n77 (Channel Bandwidth 15MHz)	13M6G7D	13M6G7D	13M6D7W	13M6D7W	13M6D7W
	n77 (Channel Bandwidth 20MHz)	18M2G7D	18M3G7D	18M3D7W	18M3D7W	18M3D7W
	n77 (Channel Bandwidth 40MHz)	37M8G7D	37M9G7D	37M9D7W	37M9D7W	37M9D7W
	n77 (Channel Bandwidth 50MHz)	47M5G7D	47M5G7D	47M5D7W	47M5D7W	47M5D7W
	n77 (Channel Bandwidth 60MHz)	58M0G7D	58M0G7D	57M9D7W	57M9D7W	57M9D7W
	n77 (Channel Bandwidth 80MHz)	77M5G7D	77M3G7D	77M3D7W	77M5D7W	77M3D7W
	n77 (Channel Bandwidth 90MHz)	87M2G7D	87M2G7D	87M2D7W	87M2D7W	87M2D7W
n77 (Channel Bandwidth 100MHz)	97M2G7D	97M2G7D	97M0D7W	97M2D7W	97M2D7W	

LTE Band

Modulation Type	QPSK, 16QAM, 64QAM, 256QAM	
Operating Frequency	LTE Band 2 (Channel Bandwidth 1.4MHz)	1850.7MHz ~ 1909.3MHz
	LTE Band 2 (Channel Bandwidth 3MHz)	1851.5MHz ~ 1908.5MHz
	LTE Band 2 (Channel Bandwidth 5MHz)	1852.5MHz ~ 1907.5MHz
	LTE Band 2 (Channel Bandwidth 10MHz)	1855.0MHz ~ 1905.0MHz
	LTE Band 2 (Channel Bandwidth 15MHz)	1857.5MHz ~ 1902.5MHz
	LTE Band 2 (Channel Bandwidth 20MHz)	1860.0MHz ~ 1900.0MHz
	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 7 (Channel Bandwidth 5MHz)	2502.5MHz ~ 2567.5MHz
	LTE Band 7 (Channel Bandwidth 10MHz)	2505.0MHz ~ 2565.0MHz
	LTE Band 7 (Channel Bandwidth 15MHz)	2507.5MHz ~ 2562.5MHz
	LTE Band 7 (Channel Bandwidth 20MHz)	2510.0MHz ~ 2560.0MHz
	LTE Band 38 (Channel Bandwidth 5MHz)	2572.5MHz ~ 2617.5MHz
	LTE Band 38 (Channel Bandwidth 10MHz)	2575.0MHz ~ 2615.0MHz
	LTE Band 38 (Channel Bandwidth 15MHz)	2577.5MHz ~ 2612.5MHz
	LTE Band 38 (Channel Bandwidth 20MHz)	2580.0MHz ~ 2610.0MHz
	LTE Band 41 (Channel Bandwidth 5MHz)	2498.5MHz ~ 2687.5MHz
	LTE Band 41 (Channel Bandwidth 10MHz)	2501.0MHz ~ 2685.0 MHz
	LTE Band 41 (Channel Bandwidth 15MHz)	2503.5MHz ~ 2682.5MHz
	LTE Band 41 (Channel Bandwidth 20MHz)	2506.0MHz ~ 2680.0MHz
	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. EIRP Power		QPSK	16QAM	64QAM	256QAM
	LTE Band 2 (Channel Bandwidth 1.4MHz)	352.371mW (25.47dBm)	289.068mW (24.61dBm)	227.510mW (23.57dBm)	144.544mW (21.60dBm)
LTE Band 2 (Channel Bandwidth 3MHz)	351.560mW (25.46dBm)	291.072mW (24.64dBm)	228.560mW (23.59dBm)	146.893mW (21.67dBm)	
LTE Band 2 (Channel Bandwidth 5MHz)	361.410mW (25.58dBm)	283.139mW (24.52dBm)	228.034mW (23.58dBm)	143.549mW (21.57dBm)	
LTE Band 2 (Channel Bandwidth 10MHz)	358.922mW (25.55dBm)	281.190mW (24.49dBm)	218.776mW (23.40dBm)	147.571mW (21.69dBm)	
LTE Band 2 (Channel Bandwidth 15MHz)	355.631mW (25.51dBm)	284.446mW (24.54dBm)	236.048mW (23.73dBm)	138.995mW (21.43dBm)	
LTE Band 2 (Channel Bandwidth 20MHz)	363.078mW (25.60dBm)	276.694mW (24.42dBm)	236.592mW (23.74dBm)	147.571mW (21.69dBm)	
LTE Band 7 (Channel Bandwidth 5MHz)	293.765mW (24.68dBm)	237.684mW (23.76dBm)	188.799mW (22.76dBm)	120.504mW (20.81dBm)	
LTE Band 7 (Channel Bandwidth 10MHz)	299.916mW (24.77dBm)	246.604mW (23.92dBm)	186.209mW (22.70dBm)	118.304mW (20.73dBm)	
LTE Band 7 (Channel Bandwidth 15MHz)	301.995mW (24.80dBm)	247.742mW (23.94dBm)	186.209mW (22.70dBm)	120.504mW (20.81dBm)	
LTE Band 7 (Channel Bandwidth 20MHz)	308.319mW (24.89dBm)	234.423mW (23.70dBm)	187.499mW (22.73dBm)	116.145mW (20.65dBm)	
LTE Band 38 (Channel Bandwidth 5MHz)	289.068mW (24.61dBm)	248.313mW (23.95dBm)	198.153mW (22.97dBm)	130.918mW (21.17dBm)	
LTE Band 38 (Channel Bandwidth 10MHz)	287.740mW (24.59dBm)	248.313mW (23.95dBm)	196.789mW (22.94dBm)	131.522mW (21.19dBm)	
LTE Band 38 (Channel Bandwidth 15MHz)	288.403mW (24.60dBm)	251.768mW (24.01dBm)	196.336mW (22.93dBm)	131.220mW (21.18dBm)	
LTE Band 38 (Channel Bandwidth 20MHz)	291.072mW (24.64dBm)	252.930mW (24.03dBm)	199.526mW (23.00dBm)	132.434mW (21.22dBm)	
LTE Band 41 (Channel Bandwidth 5MHz)	301.301mW (24.79dBm)	233.346mW (23.68dBm)	188.799mW (22.76dBm)	121.060mW (20.83dBm)	
LTE Band 41 (Channel Bandwidth 10MHz)	307.610mW (24.88dBm)	236.048mW (23.73dBm)	189.671mW (22.78dBm)	117.490mW (20.70dBm)	
LTE Band 41 (Channel Bandwidth 15MHz)	304.789mW (24.84dBm)	234.963mW (23.71dBm)	185.353mW (22.68dBm)	121.619mW (20.85dBm)	
LTE Band 41 (Channel Bandwidth 20MHz)	307.610mW (24.88dBm)	230.675mW (23.63dBm)	190.985mW (22.81dBm)	121.619mW (20.85dBm)	

Max. EIRP Power		QPSK	16QAM	64QAM	256QAM
	LTE Band 66 (Channel Bandwidth 1.4MHz)	408.319mW (26.11dBm)	309.030mW (24.90dBm)	245.471mW (23.90dBm)	154.170mW (21.88dBm)
	LTE Band 66 (Channel Bandwidth 3MHz)	378.443mW (25.78dBm)	318.420mW (25.03dBm)	254.097mW (24.05dBm)	155.955mW (21.93dBm)
	LTE Band 66 (Channel Bandwidth 5MHz)	403.645mW (26.06dBm)	320.627mW (25.06dBm)	250.035mW (23.98dBm)	157.398mW (21.97dBm)
	LTE Band 66 (Channel Bandwidth 10MHz)	404.576mW (26.07dBm)	309.742mW (24.91dBm)	252.930mW (24.03dBm)	156.675mW (21.95dBm)
	LTE Band 66 (Channel Bandwidth 15MHz)	389.045mW (25.90dBm)	313.329mW (24.96dBm)	254.683mW (24.06dBm)	155.955mW (21.93dBm)
	LTE Band 66 (Channel Bandwidth 20MHz)	411.150mW (26.14dBm)	303.389mW (24.82dBm)	247.742mW (23.94dBm)	153.109mW (21.85dBm)
	Max. ERP Power		QPSK	16QAM	64QAM
LTE Band 5 (Channel Bandwidth 1.4MHz)		157.036mW (21.96dBm)	125.603mW (20.99dBm)	94.189mW (19.74dBm)	60.814mW (17.84dBm)
LTE Band 5 (Channel Bandwidth 3MHz)		154.882mW (21.90dBm)	122.462mW (20.88dBm)	95.060mW (19.78dBm)	62.806mW (17.98dBm)
LTE Band 5 (Channel Bandwidth 5MHz)		157.036mW (21.96dBm)	122.180mW (20.87dBm)	95.719mW (19.81dBm)	63.533mW (18.03dBm)
LTE Band 5 (Channel Bandwidth 10MHz)		153.109mW (21.85dBm)	121.060mW (20.83dBm)	96.605mW (19.85dBm)	60.674mW (17.83dBm)
Antenna Type	Refer to note				
Antenna Connector	Refer to note				
Accessory Device	NA				
Cable Supplied	NA				

Note:

1. This report is prepared for FCC class II permissive change. The difference compared with the original design are adding NSA mode for n77 and n78 bands.

2. The antenna information is listed as below.

Operating frequency band	Antenna	Gain (dBi)	Connector Type
Band 2	5G/4G Terminal Mount Monopole Antenna	2.92	SMA
Band 5		1.01	
Band 7		2.20	
Band 12		-1.17	
Band 25		2.97	
Band 38		2.18	
Band 41		2.20	
Band 66		3.44	
Band 71		1.72	
Band 77, 78		2.61	

* The EUT only support 1TX function.

* PRX antenna is primary RX & TX 2G, 3G 4G function and diversity RX 5G function.

DRX antenna is primary RX & TX 5G function and diversity RX 2G, 3G 4G function.

The rest of the antennas are non-functional.

* 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.

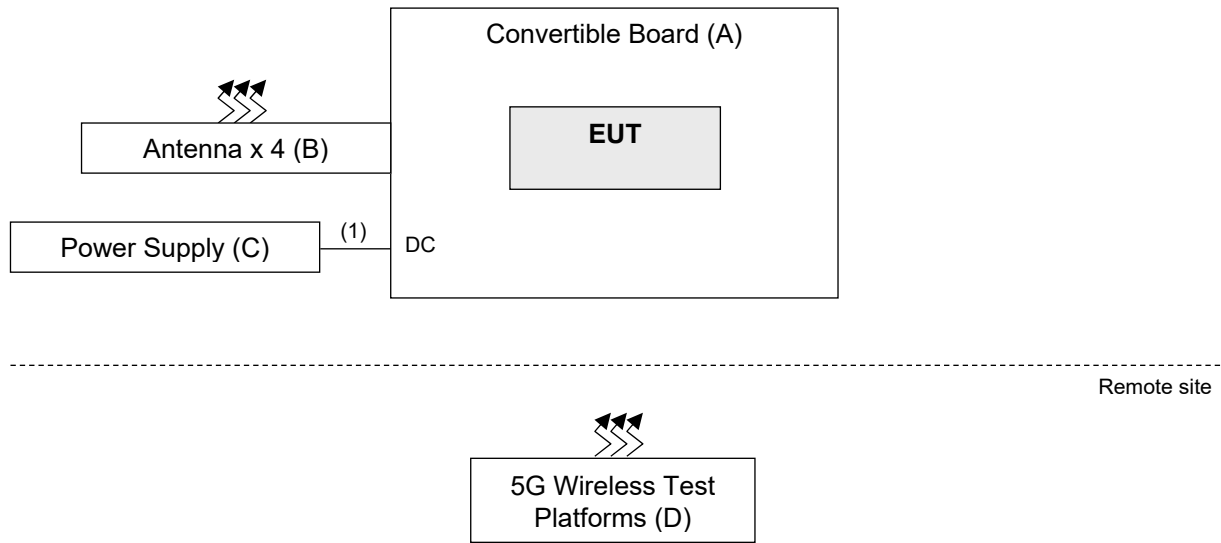
3. The EUT supports the following ENDC configuration.

	FCC 5G FR1			ENDC
	Band	SCS	Bandwidth (MHz)	
5G NR	n5	15kHz	5/10/15/20	Band 2/66
	n41	30kHz	10/15/20/40/50/60/80/90/100	Band 26
	n66	15kHz	5/10/15/20/40	Band 5/12
	n71	15kHz	5/10/15/20	Band 2/66
	n77, n78	30kHz	10/15/20/40/50/60/80/90/100	Band 2/5/7/38/41/66

4. 5G NR n78 has the same RF characteristic and power setting as 5G NR n77.

5. 5G NR n78 overlaps the entire frequency range of 5G NR n77. Therefore, test data provided in this report covers 5G NR n78 as well as 5G NR n77.

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.	Convertible Board	NA	NA	NA	NA	Provided by client
B.	Antenna x 4	TAOGLAS	TG.55.8113	NA	NA	Provided by client
C.	DC Power supply	TECPEL	GPS-3030DD	GEO855739	NA	-
D.	5G Wireless Test Platforms	Keysight	E7515B	MY60102114	NA	-

Note: All power cords of the above support units are non-shielded (1.8m).

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	DC cable	1	1	N	0	-

3.3 Test Mode Applicability and Tested Channel Detail

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and antenna ports. The worst case was found when positioned on Z-plane for antenna. Following channel(s) was (were) selected for the final test as listed below.

5G NR n77

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	EIRP	647000 to 665000	647000 (3705.00MHz), 656000 (3840.00MHz), 665000 (3975.00MHz)	10MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 Half Full
		647168 to 664832	647168 (3707.52MHz), 656000 (3840.00MHz), 664832 (3972.48MHz)	15MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 Half Full
		647334 to 664666	647334 (3710.01MHz), 656000 (3840.00MHz), 664666 (3969.99MHz)	20MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 Half Full
		648000 to 664000	648000 (3720.00MHz), 656000 (3840.00MHz), 664000 (3960.00MHz)	40MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 Half Full
		648334 to 663666	648334 (3725.01MHz), 656000 (3840.00MHz), 663666 (3954.99MHz)	50MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 Half Full
		648668 to 663332	648668 (3730.02MHz), 656000 (3840.00MHz), 663332 (3949.98MHz)	60MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 Half Full
		649334 to 662666	649334 (3740.01MHz), 656000 (3840.00MHz), 662666 (3939.99MHz)	80MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 Half Full
		649668 to 662332	649668 (3745.02MHz), 656000 (3840.00MHz), 662332 (3934.98MHz)	90MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 Half Full
		650000 to 662000	650000 (3750.00MHz), 656000 (3840.00MHz), 662000 (3930.00MHz)	100MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 Half Full
-	Modulation Characteristics	650000 to 662000	656000 (3840.00MHz)	100MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	Full

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	Frequency Stability	647000 to 665000	647000 (3705.00MHz), 665000 (3975.00MHz)	10MHz	$\pi/2$ BPSK	Full
		647168 to 664832	647168 (3707.52MHz), 664832 (3972.48MHz)	15MHz	$\pi/2$ BPSK	Full
		647334 to 664666	647334 (3710.01MHz), 664666 (3969.99MHz)	20MHz	$\pi/2$ BPSK	Full
		648000 to 664000	648000 (3720.00MHz), 664000 (3960.00MHz)	40MHz	$\pi/2$ BPSK	Full
		648334 to 663666	648334 (3725.01MHz), 663666 (3954.99MHz)	50MHz	$\pi/2$ BPSK	Full
		648668 to 663332	648668 (3730.02MHz), 663332 (3949.98MHz)	60MHz	$\pi/2$ BPSK	Full
		649334 to 662666	649334 (3740.01MHz), 662666 (3939.99MHz)	80MHz	$\pi/2$ BPSK	Full
		649668 to 662332	649668 (3745.02MHz), 662332 (3934.98MHz)	90MHz	$\pi/2$ BPSK	Full
		650000 to 662000	650000 (3750.00MHz), 662000 (3930.00MHz)	100MHz	$\pi/2$ BPSK	Full
-	Emission Bandwidth	647000 to 665000	647000 (3705.00MHz), 656000 (3840.00MHz), 665000 (3975.00MHz)	10MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	Full
		647168 to 664832	647168 (3707.52MHz), 656000 (3840.00MHz), 664832 (3972.48MHz)	15MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	Full
		647334 to 664666	647334 (3710.01MHz), 656000 (3840.00MHz), 664666 (3969.99MHz)	20MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	Full
		648000 to 664000	648000 (3720.00MHz), 656000 (3840.00MHz), 664000 (3960.00MHz)	40MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	Full
		648334 to 663666	648334 (3725.01MHz), 656000 (3840.00MHz), 663666 (3954.99MHz)	50MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	Full
		648668 to 663332	648668 (3730.02MHz), 656000 (3840.00MHz), 663332 (3949.98MHz)	60MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	Full
		649334 to 662666	649334 (3740.01MHz), 656000 (3840.00MHz), 662666 (3939.99MHz)	80MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	Full
		649668 to 662332	649668 (3745.02MHz), 656000 (3840.00MHz), 662332 (3934.98MHz)	90MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	Full
		650000 to 662000	650000 (3750.00MHz), 656000 (3840.00MHz), 662000 (3930.00MHz)	100MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	Full

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	Band Edge	647000 to 665000	647000 (3705.00MHz), 665000 (3975.00MHz)	10MHz	$\pi/2$ BPSK	1 Half Full
		647168 to 664832	647168 (3707.52MHz), 664832 (3972.48MHz)	15MHz	$\pi/2$ BPSK	1 Half Full
		647334 to 664666	647334 (3710.01MHz), 664666 (3969.99MHz)	20MHz	$\pi/2$ BPSK	1 Half Full
		648000 to 664000	648000 (3720.00MHz), 664000 (3960.00MHz)	40MHz	$\pi/2$ BPSK	1 Half Full
		648334 to 663666	648334 (3725.01MHz), 663666 (3954.99MHz)	50MHz	$\pi/2$ BPSK	1 Half Full
		648668 to 663332	648668 (3730.02MHz), 663332 (3949.98MHz)	60MHz	$\pi/2$ BPSK	1 Half Full
		649334 to 662666	649334 (3740.01MHz), 662666 (3939.99MHz)	80MHz	$\pi/2$ BPSK	1 Half Full
		649668 to 662332	649668 (3745.02MHz), 662332 (3934.98MHz)	90MHz	$\pi/2$ BPSK	1 Half Full
		650000 to 662000	650000 (3750.00MHz), 662000 (3930.00MHz)	100MHz	$\pi/2$ BPSK	1 Half Full

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	Peak to Average Ratio	647000 to 665000	647000 (3705.00MHz), 656000 (3840.00MHz), 665000 (3975.00MHz)	10MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1
		647168 to 664832	647168 (3707.52MHz), 656000 (3840.00MHz), 664832 (3972.48MHz)	15MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1
		647334 to 664666	647334 (3710.01MHz), 656000 (3840.00MHz), 664666 (3969.99MHz)	20MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1
		648000 to 664000	648000 (3720.00MHz), 656000 (3840.00MHz), 664000 (3960.00MHz)	40MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1
		648334 to 663666	648334 (3725.01MHz), 656000 (3840.00MHz), 663666 (3954.99MHz)	50MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1
		648668 to 663332	648668 (3730.02MHz), 656000 (3840.00MHz), 663332 (3949.98MHz)	60MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1
		649334 to 662666	649334 (3740.01MHz), 656000 (3840.00MHz), 662666 (3939.99MHz)	80MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1
		649668 to 662332	649668 (3745.02MHz), 656000 (3840.00MHz), 662332 (3934.98MHz)	90MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1
		650000 to 662000	650000 (3750.00MHz), 656000 (3840.00MHz), 662000 (3930.00MHz)	100MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	Conducted Emission	647000 to 665000	647000 (3705.00MHz), 656000 (3840.00MHz), 665000 (3975.00MHz)	10MHz	$\pi/2$ BPSK	1
		647168 to 664832	647168 (3707.52MHz), 656000 (3840.00MHz), 664832 (3972.48MHz)	15MHz	$\pi/2$ BPSK	1
		647334 to 664666	647334 (3710.01MHz), 656000 (3840.00MHz), 664666 (3969.99MHz)	20MHz	$\pi/2$ BPSK	1
		648000 to 664000	648000 (3720.00MHz), 656000 (3840.00MHz), 664000 (3960.00MHz)	40MHz	$\pi/2$ BPSK	1
		648334 to 663666	648334 (3725.01MHz), 656000 (3840.00MHz), 663666 (3954.99MHz)	50MHz	$\pi/2$ BPSK	1
		648668 to 663332	648668 (3730.02MHz), 656000 (3840.00MHz), 663332 (3949.98MHz)	60MHz	$\pi/2$ BPSK	1
		649334 to 662666	649334 (3740.01MHz), 656000 (3840.00MHz), 662666 (3939.99MHz)	80MHz	$\pi/2$ BPSK	1
		649668 to 662332	649668 (3745.02MHz), 656000 (3840.00MHz), 662332 (3934.98MHz)	90MHz	$\pi/2$ BPSK	1
		650000 to 662000	650000 (3750.00MHz), 656000 (3840.00MHz), 662000 (3930.00MHz)	100MHz	$\pi/2$ BPSK	1
-	Radiated Emission Below 1GHz	647000 to 665000	665000 (3975.00MHz)	10MHz	$\pi/2$ BPSK	1
-	Radiated Emission Above 1GHz	647000 to 665000	647000 (3705.00MHz), 656000 (3840.00MHz), 665000 (3975.00MHz)	10MHz	$\pi/2$ BPSK	1
		648334 to 663666	648334 (3725.01MHz), 656000 (3840.00MHz), 663666 (3954.99MHz)	50MHz	$\pi/2$ BPSK	1
		650000 to 662000	650000 (3750.00MHz), 656000 (3840.00MHz), 662000 (3930.00MHz)	100MHz	$\pi/2$ BPSK	1

Note:

1. 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.
2. For radiated emission above 1GHz, according to 3GPP 38.521-1 Section 6.5.3.1.4, choose the lowest, mid and highest channel bandwidth for final test.
3. For radiated emission below 1GHz, select the worst radiated emission channel (above 1GHz) for final testing.

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 Half Full
		18615 to 19185	18615 (1851.50MHz), 18900 (1880.00MHz), 19185 (1908.50MHz)	3MHz	QPSK / 16QAM / 64QAM / 256QAM	1 Half Full
		18625 to 19175	18625 (1852.50MHz), 18900 (1880.00MHz), 19175 (1907.50MHz)	5MHz	QPSK / 16QAM / 64QAM / 256QAM	1 Half Full
		18650 to 19150	18650 (1855.00MHz), 18900 (1880.00MHz), 19150 (1905.00MHz)	10MHz	QPSK / 16QAM / 64QAM / 256QAM	1 Half Full
		18675 to 19125	18675 (1857.50MHz), 18900 (1880.00MHz), 19125 (1902.50MHz)	15MHz	QPSK / 16QAM / 64QAM / 256QAM	1 Half Full
		18700 to 19100	18700 (1860.00MHz), 18900 (1880.00MHz), 19100 (1900.00MHz)	20MHz	QPSK / 16QAM / 64QAM / 256QAM	1 Half Full
-	Radiated Emission Below 1GHz	18607 to 19193	19193 (1909.30MHz)	1.4MHz	QPSK	1
-	Radiated Emission Above 1GHz	18607 to 19193	18607 (1850.70MHz), 18900 (1880.00MHz), 19193 (1909.30MHz)	1.4MHz	QPSK	1
		18625 to 19175	18625 (1852.50MHz), 18900 (1880.00MHz), 19175 (1907.50MHz)	5MHz	QPSK	1
		18700 to 19100	18700 (1860.00MHz), 18900 (1880.00MHz), 19100 (1900.00MHz)	20MHz	QPSK	1

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, the Radiated Emission was performed under QPSK mode only.
2. For radiated emission above 1GHz, according to 3GPP 38.521-1 Section 6.5.3.1.4, choose the lowest, mid and highest channel bandwidth for final test.
3. For radiated emissions below 1 GHz, select the worst radiated emission channel (above 1GHz) for final testing.

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 Half Full
		20415 to 20635	20415 (825.5MHz), 20525 (836.5MHz), 20635 (847.5MHz)	3MHz	QPSK / 16QAM / 64QAM / 256QAM	1 Half Full
		20425 to 20625	20425 (826.5MHz), 20525 (836.5MHz), 20625 (846.5MHz)	5MHz	QPSK / 16QAM / 64QAM / 256QAM	1 Half Full
		20450 to 20600	20450 (829.0MHz), 20525 (836.5MHz), 20600 (844.0MHz)	10MHz	QPSK / 16QAM / 64QAM / 256QAM	1 Half Full
-	Radiated Emission Below 1GHz	20450 to 20600	20525 (836.5MHz)	10MHz	QPSK	1
-	Radiated Emission Above 1GHz	20407 to 20643	20407 (824.7MHz), 20525 (836.5MHz), 20643 (848.3MHz)	1.4MHz	QPSK	1
		20425 to 20625	20425 (826.5MHz), 20525 (836.5MHz), 20625 (846.5MHz)	5MHz	QPSK	1
		20450 to 20600	20450 (829.0MHz), 20525 (836.5MHz), 20600 (844.0MHz)	10MHz	QPSK	1

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, the Radiated Emission was performed under QPSK mode only.
2. For radiated emission above 1GHz, according to 3GPP 38.521-1 Section 6.5.3.1.4, choose the lowest, mid and highest channel bandwidth for final test.
3. For radiated emissions below 1 GHz, select the worst radiated emission channel (above 1GHz) for final testing.

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 Half Full
		20800 to 21400	20800 (2505.0MHz), 21100 (2535.0MHz), 21400 (2565.0MHz)	10 MHz	QPSK / 16QAM / 64QAM / 256QAM	1 Half Full
		20825 to 21375	20825 (2507.5MHz), 21100 (2535.0MHz), 21375 (2562.5MHz)	15 MHz	QPSK / 16QAM / 64QAM / 256QAM	1 Half Full
		20850 to 21350	20850 (2510.0MHz), 21100 (2535.0MHz), 21350 (2560.0MHz)	20 MHz	QPSK / 16QAM / 64QAM / 256QAM	1 Half Full
-	Radiated Emission Below 1GHz	20850 to 21350	21350 (2560.0MHz)	20MHz	QPSK	1
-	Radiated Emission Above 1GHz	20775 to 21425	20775 (2502.5MHz), 21100 (2535.0MHz), 21425 (2567.5MHz)	5MHz	QPSK	1
		20850 to 21350	20850 (2510.0MHz), 21100 (2535.0MHz), 21350 (2560.0MHz)	20MHz	QPSK	1

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, the Radiated Emission was performed under QPSK mode only.
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. For radiated emissions below 1 GHz, select the worst radiated emission channel (above 1GHz) for final testing.

LTE Band 38

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	EIRP	37775 to 38225	37775 (2572.5MHz), 38000 (2595.0MHz), 38225 (2617.5MHz)	5MHz	QPSK / 16QAM / 64QAM / 256QAM	1 Half Full
		37800 to 38200	37800 (2575.0MHz), 38000 (2595.0MHz), 38200 (2615.0MHz)	10MHz	QPSK / 16QAM / 64QAM / 256QAM	1 Half Full
		37825 to 38175	37825 (2577.5MHz), 38000 (2595.0MHz), 38175 (2612.5MHz)	15MHz	QPSK / 16QAM / 64QAM / 256QAM	1 Half Full
		37850 to 38150	37850 (2580.0MHz), 38000 (2595.0MHz), 38150 (2610.0MHz)	20MHz	QPSK / 16QAM / 64QAM / 256QAM	1 Half Full
-	Radiated Emission Below 1GHz	37850 to 38150	37850 (2580.0MHz)	20MHz	QPSK	1
-	Radiated Emission Above 1GHz	37775 to 38225	37775 (2572.5MHz), 38000 (2595.0MHz), 38225 (2617.5MHz)	5MHz	QPSK	1
		37850 to 38150	37850 (2580.0MHz), 38000 (2595.0MHz), 38150 (2610.0MHz)	20MHz	QPSK	1

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, the Radiated Emission was performed under QPSK mode only.
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. For radiated emissions below 1 GHz, select the worst radiated emission channel (above 1GHz) for final testing.

LTE Band 41

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	EIRP	39675 to 41565	39675 (2498.5MHz), 40620 (2593.0MHz), 41565 (2687.5MHz)	5MHz	QPSK / 16QAM / 64QAM / 256QAM	1 Half Full
		39700 to 41540	39700 (2501.0MHz), 40620 (2593.0MHz), 41540 (2685.0MHz)	10MHz	QPSK / 16QAM / 64QAM / 256QAM	1 Half Full
		39725 to 41515	39725 (2503.5MHz), 40620 (2593.0MHz), 41515 (2682.5MHz)	15MHz	QPSK / 16QAM / 64QAM / 256QAM	1 Half Full
		39750 to 41490	39750 (2506.0MHz), 40620 (2593.0MHz), 41490 (2680.0MHz)	20MHz	QPSK / 16QAM / 64QAM / 256QAM	1 Half Full
-	Radiated Emission Below 1GHz	39750 to 41490	40620 (2593.0MHz)	20MHz	QPSK	1
-	Radiated Emission Above 1GHz	39675 to 41565	39675 (2498.5MHz), 40620 (2593.0MHz), 41565 (2687.5MHz)	5MHz	QPSK	1
		39750 to 41490	39750 (2506.0MHz), 40620 (2593.0MHz), 41490 (2680.0MHz)	20MHz	QPSK	1

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, the Radiated Emission was performed under QPSK mode only.
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. For radiated emissions below 1 GHz, select the worst radiated emission channel (above 1GHz) for final testing.

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 Half Full
		131987 to 132657	131987 (1711.5MHz), 132322 (1745.0MHz), 132657 (1778.5MHz)	3MHz	QPSK / 16QAM / 64QAM / 256QAM	1 Half Full
		131997 to 132647	131997 (1712.5MHz), 132322 (1745.0MHz), 132647 (1777.5MHz)	5MHz	QPSK / 16QAM / 64QAM / 256QAM	1 Half Full
		132022 to 132622	132022 (1715.0MHz), 132322 (1745.0MHz), 132622 (1775.0MHz)	10MHz	QPSK / 16QAM / 64QAM / 256QAM	1 Half Full
		132047 to 132597	132047 (1717.5MHz), 132322 (1745.0MHz), 132597 (1772.5MHz)	15MHz	QPSK / 16QAM / 64QAM / 256QAM	1 Half Full
		132072 to 132572	132072 (1720.0MHz), 132322 (1745.0MHz), 132572 (1770.0MHz)	20MHz	QPSK / 16QAM / 64QAM / 256QAM	1 Half Full
-	Radiated Emission Below 1GHz	131997 to 132647	132647 (1777.5MHz)	5MHz	QPSK	1
-	Radiated Emission Above 1GHz	131979 to 132665	131979 (1710.7MHz), 132322 (1745.0MHz), 132665 (1779.3MHz)	1.4MHz	QPSK	1
		131997 to 132647	131997 (1712.5MHz), 132322 (1745.0MHz), 132647 (1777.5MHz)	5MHz	QPSK	1
		132072 to 132572	132072 (1720.0MHz), 132322 (1745.0MHz), 132572 (1770.0MHz)	20MHz	QPSK	1

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, the Radiated Emission was performed under QPSK mode only.
2. For radiated emission above 1GHz, according to 3GPP 38.521-1 Section 6.5.3.1.4, choose the lowest, mid and highest channel bandwidth for final test.
3. For radiated emissions below 1 GHz, select the worst radiated emission channel (above 1GHz) for final testing.

Test Condition:

Test Item	Environmental Conditions	Input Power	Tested By
EIRP / ERP	25deg. C, 60%RH	4.2Vdc	James Yang
Modulation Characteristics	25deg. C, 60%RH	4.2Vdc	James Yang
Frequency Stability	25deg. C, 60%RH	4.2Vdc	James Yang
Occupied Bandwidth	25deg. C, 60%RH	4.2Vdc	James Yang
Band Edge	25deg. C, 60%RH	4.2Vdc	James Yang
Peak To Average Ratio	25deg. C, 60%RH	4.2Vdc	James Yang
Conducted Emission	25deg. C, 60%RH	4.2Vdc	James Yang
Radiated Emission	22deg. C, 70%RH 24deg. C, 78%RH 21deg. C, 67%RH	120Vac, 60Hz (System)	Thomas Cheng Vincent Chen

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 22

FCC 47 CFR Part 24

FCC 47 CFR Part 27

ANSI/TIA/EIA-603-E 2016

ANSI 63.26-2015

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

References Test Guidance:

KDB 971168 D01 Power Meas License Digital Systems v03r01

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

4 Test Types and Results

4.1 Output Power Measurement

4.1.1 Limits of Output Power Measurement

For 5GNR n77 (Part 270):

Mobile and portable stations transmitting in the 3700-3980 MHz band are limited to 1 Watt EIRP. Mobile and portable stations operating in these bands must employ a means for limiting power to the minimum necessary for successful communications.

For LTE Band 2:

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

For LTE Band 5:

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

For LTE Band 7, 38, 41:

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 and LTE link data modulation and link up with simulator (Built-in power meter). Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

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:

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

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

where

ERP or EIRP effective radiated power or equivalent isotropically radiated power, respectively

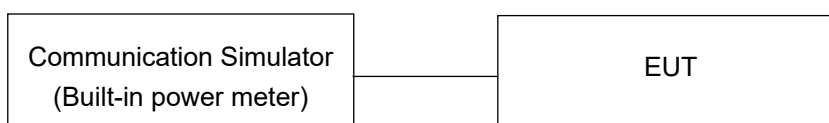
(expressed in the same units as P_{Meas} , e.g., dBm or dBW)

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:



4.1.4 Test Results

Conducted Output Power (dBm)

NR Band 77 (SCS 30kHz)						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		650000	656000	662000
		Frequency (MHz)		3750	3840	3930
100M	pi/2 BPSK	1	1	22.68	22.87	22.69
		1	137	22.65	23.20	22.88
		1	271	22.78	22.80	22.90
		135	0	21.88	22.40	21.87
		135	69	22.76	22.90	22.80
		135	138	22.21	22.65	22.32
		270	0	21.98	22.48	22.27
	QPSK	1	1	22.73	22.85	22.86
		1	137	22.72	23.16	23.07
		1	271	22.90	22.75	23.04
		135	0	21.52	21.91	21.40
		135	69	22.72	23.15	23.00
		135	138	21.75	22.16	21.93
		270	0	21.53	22.04	21.84
	16QAM	1	1	21.72	21.79	21.81
		1	137	21.67	22.03	21.88
		1	271	21.82	21.72	22.03
		135	0	20.49	20.90	20.36
		135	69	21.76	22.20	22.08
		135	138	20.71	21.12	20.90
		270	0	20.47	21.02	20.81
	64QAM	1	1	20.26	20.36	20.38
		1	137	20.23	20.82	20.59
		1	271	20.36	20.32	20.74
		135	0	20.00	20.40	19.88
		135	69	20.26	20.70	20.52
		135	138	20.22	20.73	20.41
		270	0	19.98	20.44	20.32
256QAM	1	1	16.21	16.24	16.28	
	1	137	16.24	16.62	16.48	
	1	271	16.29	16.24	16.52	
	135	0	15.92	16.40	15.88	
	135	69	16.27	16.72	16.51	
	135	138	16.25	16.75	16.44	
	270	0	16.09	16.47	16.45	

NR Band 77 (SCS 30kHz)						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		649668	656000	662332
		Frequency (MHz)		3745.02	3840	3934.98
90M	pi/2 BPSK	1	1	22.64	22.80	22.65
		1	123	22.60	23.09	22.82
		1	243	22.70	22.75	22.85
		120	0	21.83	22.34	21.76
		120	63	22.70	22.82	22.77
		120	125	22.17	22.59	22.28
		243	0	21.88	22.37	22.20
	QPSK	1	1	22.62	22.82	22.75
		1	123	22.69	23.13	23.04
		1	243	22.80	22.65	22.96
		120	0	21.43	21.80	21.35
		120	63	22.62	23.04	22.95
		120	125	21.69	22.07	21.82
		243	0	21.43	22.01	21.80
	16QAM	1	1	21.68	21.75	21.76
		1	123	21.60	21.96	21.77
		1	243	21.75	21.68	21.92
		120	0	20.39	20.83	20.33
		120	63	21.72	22.12	22.02
		120	125	20.67	21.01	20.80
		243	0	20.36	20.93	20.73
	64QAM	1	1	20.18	20.28	20.35
		1	123	20.17	20.75	20.48
		1	243	20.33	20.28	20.69
		120	0	19.89	20.37	19.78
		120	63	20.15	20.63	20.43
		120	125	20.14	20.68	20.33
		243	0	19.92	20.41	20.26
	256QAM	1	1	16.10	16.15	16.20
		1	123	16.15	16.54	16.40
1		243	16.26	16.21	16.43	
120		0	15.81	16.30	15.80	
120		63	16.21	16.61	16.43	
120		125	16.22	16.64	16.41	
243		0	16.01	16.37	16.39	

NR Band 77 (SCS 30kHz)						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		649334	656000	662666
		Frequency (MHz)		3740.01	3840	3939.99
80M	pi/2 BPSK	1	1	22.61	22.84	22.59
		1	109	22.59	23.09	22.82
		1	215	22.71	22.71	22.79
		108	0	21.81	22.29	21.84
		108	55	22.65	22.84	22.77
		108	109	22.13	22.59	22.25
		216	0	21.89	22.44	22.17
	QPSK	1	1	22.63	22.82	22.78
		1	109	22.66	23.05	23.03
		1	215	22.81	22.72	23.00
		108	0	21.49	21.86	21.33
		108	55	22.65	23.08	22.93
		108	109	21.72	22.09	21.90
		216	0	21.49	21.99	21.78
	16QAM	1	1	21.63	21.72	21.72
		1	109	21.64	21.97	21.84
		1	215	21.77	21.66	21.95
		108	0	20.44	20.80	20.29
		108	55	21.66	22.11	22.02
		108	109	20.61	21.06	20.83
		216	0	20.41	20.98	20.75
	64QAM	1	1	20.22	20.29	20.33
		1	109	20.17	20.72	20.52
		1	215	20.29	20.26	20.71
		108	0	19.97	20.33	19.81
		108	55	20.17	20.64	20.42
		108	109	20.13	20.62	20.30
		216	0	19.87	20.34	20.28
	256QAM	1	1	16.16	16.21	16.24
		1	109	16.16	16.58	16.39
		1	215	16.26	16.19	16.44
		108	0	15.88	16.31	15.80
		108	55	16.17	16.62	16.43
		108	109	16.15	16.65	16.38
		216	0	16.01	16.37	16.36

NR Band 77 (SCS 30kHz)						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		648668	656000	663332
		Frequency (MHz)		3730.02	3840	3949.98
60M	pi/2 BPSK	1	1	22.63	22.81	22.58
		1	81	22.55	23.15	22.79
		1	160	22.73	22.73	22.81
		81	0	21.84	22.34	21.77
		81	41	22.65	22.83	22.73
		81	81	22.15	22.60	22.23
		162	0	21.88	22.42	22.16
	QPSK	1	1	22.66	22.76	22.75
		1	81	22.62	23.05	23.00
		1	160	22.84	22.64	22.97
		81	0	21.41	21.85	21.30
		81	41	22.61	23.12	22.90
		81	81	21.66	22.12	21.85
		162	0	21.49	21.93	21.80
	16QAM	1	1	21.61	21.76	21.74
		1	81	21.56	22.00	21.83
		1	160	21.79	21.62	21.98
		81	0	20.46	20.81	20.29
		81	41	21.65	22.15	22.01
		81	81	20.61	21.05	20.80
		162	0	20.44	20.93	20.70
	64QAM	1	1	20.21	20.27	20.32
		1	81	20.18	20.76	20.52
		1	160	20.30	20.28	20.64
		81	0	19.96	20.36	19.84
		81	41	20.15	20.61	20.41
		81	81	20.17	20.69	20.36
		162	0	19.92	20.40	20.21
	256QAM	1	1	16.13	16.14	16.25
		1	81	16.17	16.54	16.44
1		160	16.19	16.15	16.45	
81		0	15.83	16.29	15.82	
81		41	16.19	16.66	16.48	
81		81	16.21	16.72	16.37	
162		0	15.99	16.38	16.41	

NR Band 77 (SCS 30kHz)						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		648334	656000	663666
		Frequency (MHz)		3725.01	3840	3954.99
50M	pi/2 BPSK	1	1	22.60	22.83	22.66
		1	67	22.60	23.14	22.81
		1	131	22.71	22.73	22.85
		64	0	21.82	22.35	21.82
		64	35	22.70	22.81	22.77
		64	69	22.16	22.60	22.29
		128	0	21.95	22.39	22.22
	QPSK	1	1	22.63	22.75	22.79
		1	67	22.64	23.12	22.96
		1	131	22.83	22.66	23.01
		64	0	21.43	21.81	21.30
		64	35	22.65	23.06	22.96
		64	69	21.68	22.09	21.86
		128	0	21.42	21.96	21.81
	16QAM	1	1	21.63	21.73	21.78
		1	67	21.60	21.99	21.82
		1	131	21.77	21.64	22.00
		64	0	20.40	20.87	20.33
		64	35	21.65	22.15	21.98
		64	69	20.67	21.08	20.79
		128	0	20.43	20.93	20.71
	64QAM	1	1	20.19	20.28	20.34
		1	67	20.15	20.78	20.48
		1	131	20.26	20.27	20.63
		64	0	19.96	20.33	19.81
		64	35	20.19	20.67	20.44
		64	69	20.11	20.67	20.36
		128	0	19.90	20.36	20.29
	256QAM	1	1	16.13	16.17	16.18
		1	67	16.21	16.51	16.42
1		131	16.25	16.13	16.41	
64		0	15.89	16.34	15.82	
64		35	16.17	16.66	16.44	
64		69	16.18	16.71	16.41	
128		0	16.06	16.36	16.34	

NR Band 77 (SCS 30kHz)						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		648000	656000	664000
		Frequency (MHz)		3720	3840	3960
40M	pi/2 BPSK	1	1	22.64	22.80	22.66
		1	53	22.61	23.14	22.78
		1	104	22.70	22.75	22.84
		50	0	21.85	22.32	21.84
		50	28	22.67	22.86	22.73
		50	56	22.14	22.61	22.26
		100	0	21.92	22.43	22.16
	QPSK	1	1	22.64	22.80	22.75
		1	53	22.67	23.05	22.99
		1	104	22.79	22.65	22.93
		50	0	21.45	21.88	21.29
		50	28	22.62	23.09	22.93
		50	56	21.72	22.09	21.88
		100	0	21.42	21.95	21.77
	16QAM	1	1	21.65	21.68	21.73
		1	53	21.62	22.00	21.79
		1	104	21.75	21.61	21.96
		50	0	20.42	20.85	20.33
		50	28	21.68	22.14	22.05
		50	56	20.66	21.01	20.86
		100	0	20.36	20.92	20.70
	64QAM	1	1	20.16	20.31	20.34
		1	53	20.17	20.76	20.53
		1	104	20.26	20.28	20.71
		50	0	19.90	20.34	19.78
		50	28	20.17	20.65	20.49
		50	56	20.18	20.63	20.30
		100	0	19.91	20.33	20.23
	256QAM	1	1	16.17	16.18	16.24
		1	53	16.18	16.51	16.45
1		104	16.24	16.19	16.48	
50		0	15.85	16.34	15.79	
50		28	16.17	16.67	16.46	
50		56	16.14	16.66	16.38	
100		0	16.05	16.42	16.35	

NR Band 77 (SCS 30kHz)						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		647334	656000	664666
		Frequency (MHz)		3710.01	3840	3969.99
20M	pi/2 BPSK	1	1	22.57	22.79	22.66
		1	26	22.54	23.11	22.78
		1	49	22.74	22.72	22.80
		25	0	21.84	22.34	21.76
		25	13	22.68	22.84	22.70
		25	26	22.14	22.60	22.29
		50	0	21.94	22.39	22.23
	QPSK	1	1	22.66	22.78	22.83
		1	26	22.67	23.06	23.01
		1	49	22.82	22.69	22.97
		25	0	21.42	21.81	21.35
		25	13	22.67	23.11	22.93
		25	26	21.64	22.09	21.87
		50	0	21.44	21.97	21.77
	16QAM	1	1	21.64	21.69	21.73
		1	26	21.62	21.95	21.81
		1	49	21.77	21.69	21.93
		25	0	20.46	20.86	20.28
		25	13	21.69	22.16	21.99
		25	26	20.61	21.08	20.85
		50	0	20.43	20.94	20.73
	64QAM	1	1	20.17	20.30	20.28
		1	26	20.15	20.75	20.53
		1	49	20.33	20.27	20.64
		25	0	19.89	20.35	19.85
		25	13	20.21	20.63	20.41
		25	26	20.16	20.62	20.35
		50	0	19.93	20.35	20.29
	256QAM	1	1	16.14	16.13	16.23
		1	26	16.18	16.51	16.38
1		49	16.24	16.21	16.46	
25		0	15.86	16.35	15.79	
25		13	16.18	16.69	16.45	
25		26	16.21	16.70	16.35	
50		0	15.99	16.36	16.42	

NR Band 77 (SCS 30kHz)						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		647168	656000	664832
		Frequency (MHz)		3707.52	3840	3972.48
15M	pi/2 BPSK	1	1	22.60	22.83	22.58
		1	19	22.58	23.12	22.82
		1	36	22.74	22.72	22.82
		18	0	21.80	22.34	21.83
		18	10	22.71	22.80	22.77
		18	20	22.17	22.58	22.25
		36	0	21.89	22.40	22.19
	QPSK	1	1	22.67	22.79	22.83
		1	19	22.68	23.09	23.03
		1	36	22.84	22.71	22.95
		18	0	21.44	21.86	21.34
		18	10	22.68	23.06	22.91
		18	20	21.71	22.05	21.85
		36	0	21.44	22.00	21.76
	16QAM	1	1	21.62	21.75	21.78
		1	19	21.62	21.99	21.83
		1	36	21.79	21.65	21.93
		18	0	20.42	20.85	20.30
		18	10	21.65	22.09	22.01
		18	20	20.63	21.08	20.82
		36	0	20.37	20.93	20.71
	64QAM	1	1	20.22	20.33	20.33
		1	19	20.15	20.73	20.51
		1	36	20.25	20.27	20.71
		18	0	19.89	20.30	19.80
		18	10	20.16	20.66	20.43
		18	20	20.13	20.65	20.34
		36	0	19.91	20.41	20.29
	256QAM	1	1	16.13	16.17	16.23
		1	19	16.17	16.55	16.40
1		36	16.19	16.16	16.43	
18		0	15.85	16.36	15.85	
18		10	16.22	16.66	16.44	
18		20	16.21	16.67	16.33	
36		0	16.01	16.37	16.39	

NR Band 77 (SCS 30kHz)						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		647000	656000	665000
		Frequency (MHz)		3705	3840	3975
10M	pi/2 BPSK	1	1	22.58	22.81	22.62
		1	11	22.59	23.14	22.85
		1	22	22.74	22.72	22.82
		12	0	21.79	22.32	21.81
		12	6	22.67	22.87	22.72
		12	12	22.13	22.57	22.22
		24	0	21.92	22.41	22.18
	QPSK	1	1	22.69	22.74	22.83
		1	11	22.69	23.08	22.98
		1	22	22.87	22.66	22.93
		12	0	21.49	21.84	21.31
		12	6	22.66	23.08	22.96
		12	12	21.68	22.07	21.88
		24	0	21.44	21.94	21.75
	16QAM	1	1	21.67	21.70	21.71
		1	11	21.61	21.96	21.79
		1	22	21.72	21.66	21.93
		12	0	20.40	20.82	20.31
		12	6	21.68	22.13	21.97
		12	12	20.65	21.07	20.81
		24	0	20.43	20.99	20.76
	64QAM	1	1	20.23	20.25	20.35
		1	11	20.13	20.71	20.56
		1	22	20.29	20.29	20.67
		12	0	19.90	20.36	19.78
		12	6	20.16	20.62	20.45
		12	12	20.16	20.63	20.38
		24	0	19.92	20.34	20.21
	256QAM	1	1	16.11	16.17	16.25
		1	11	16.20	16.51	16.43
1		22	16.25	16.14	16.48	
12		0	15.84	16.33	15.85	
12		6	16.20	16.61	16.40	
12		12	16.14	16.64	16.39	
24		0	16.00	16.39	16.37	

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	22.68	22.35	21.92
		1	50	22.34	22.24	22.41
		1	99	22.51	22.09	21.98
		50	0	21.53	21.43	21.04
		50	25	21.76	21.23	21.13
		50	50	21.51	21.54	21.38
		100	0	21.73	21.10	20.75
	16QAM	1	0	21.44	21.24	20.90
		1	50	21.33	21.50	21.35
		1	99	21.13	21.48	21.09
		50	0	20.57	20.16	19.91
		50	25	20.47	20.59	19.92
		50	50	20.37	20.52	20.03
		100	0	20.34	20.50	20.07
	64QAM	1	0	20.43	20.25	20.19
		1	50	20.61	20.05	20.05
		1	99	20.82	20.00	20.27
		50	0	19.13	19.42	19.48
		50	25	19.55	19.44	19.10
		50	50	19.37	19.42	19.37
		100	0	19.48	19.06	19.30
	256QAM	1	0	18.56	18.07	18.15
		1	50	18.32	18.31	18.19
		1	99	18.77	18.36	18.13
		50	0	17.22	17.18	17.29
		50	25	17.25	17.26	17.28
		50	50	17.43	17.55	17.04
		100	0	17.63	17.39	17.31

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	22.59	22.19	22.09
		1	37	22.51	21.97	22.14
		1	74	22.34	22.18	21.94
		36	0	21.41	21.34	20.94
		36	19	21.80	21.50	21.34
		36	39	21.39	21.72	20.98
		75	0	21.36	21.24	20.96
	16QAM	1	0	21.49	21.38	21.05
		1	37	21.62	21.19	21.31
		1	74	21.62	21.40	21.05
		36	0	20.26	20.10	19.88
		36	19	20.36	20.21	20.32
		36	39	20.57	20.47	19.88
		75	0	20.10	20.32	20.02
	64QAM	1	0	20.50	19.94	20.28
		1	37	20.60	19.99	20.04
		1	74	20.81	20.32	20.44
		36	0	19.51	19.31	19.44
		36	19	19.51	19.66	18.95
		36	39	19.27	19.21	19.19
		75	0	19.52	19.24	19.11
	256QAM	1	0	18.51	18.03	18.40
		1	37	18.25	18.43	18.36
		1	74	18.43	18.21	17.96
		36	0	17.28	17.26	16.87
		36	19	17.34	17.59	17.18
		36	39	17.29	17.31	17.50
		75	0	17.64	17.14	17.43

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	22.63	22.49	22.12
		1	24	22.41	22.31	22.46
		1	49	22.31	22.19	22.03
		25	0	21.33	21.40	21.44
		25	12	21.18	21.52	21.48
		25	25	21.78	21.61	20.76
		50	0	21.40	21.20	20.95
	16QAM	1	0	21.51	21.45	20.91
		1	24	21.57	21.30	21.53
		1	49	21.22	21.48	21.32
		25	0	20.24	20.21	19.90
		25	12	20.27	20.59	20.26
		25	25	20.44	20.68	19.98
		50	0	20.43	20.32	20.43
	64QAM	1	0	20.31	20.26	19.97
		1	24	20.41	19.95	20.18
		1	49	20.48	20.41	20.30
		25	0	19.71	19.62	19.44
		25	12	19.77	19.80	18.84
		25	25	19.62	19.19	19.11
		50	0	19.36	19.22	18.97
	256QAM	1	0	18.49	18.26	17.82
		1	24	18.68	18.02	18.49
		1	49	18.77	18.35	18.24
		25	0	17.27	17.34	17.38
		25	12	17.63	17.65	17.27
		25	25	17.58	17.30	17.33
		50	0	17.51	17.21	17.44

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	22.66	22.45	22.03
		1	12	22.41	22.14	22.48
		1	24	22.45	22.03	22.06
		12	0	21.28	21.45	21.01
		12	6	21.52	21.23	21.35
		12	13	21.66	21.69	21.17
		25	0	21.10	21.05	20.99
	16QAM	1	0	21.60	21.50	21.47
		1	12	21.33	21.08	21.11
		1	24	21.32	20.90	21.22
		12	0	20.46	20.09	20.06
		12	6	20.38	20.53	20.39
		12	13	20.73	20.70	20.08
		25	0	20.15	20.42	20.38
	64QAM	1	0	20.27	19.93	20.12
		1	12	20.24	20.15	20.00
		1	24	20.66	20.31	19.98
		12	0	19.20	19.26	19.33
		12	6	19.62	19.65	19.13
		12	13	19.61	19.28	19.11
		25	0	19.47	19.20	19.06
	256QAM	1	0	18.26	17.94	18.02
		1	12	18.65	18.36	18.42
		1	24	18.23	18.48	17.91
		12	0	17.65	17.26	17.21
		12	6	17.43	17.28	17.33
		12	13	17.19	17.38	17.29
		25	0	17.07	17.14	17.42

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	22.54	22.45	21.92
		1	7	22.13	22.51	22.22
		1	14	22.42	21.97	22.13
		8	0	21.63	21.45	21.02
		8	3	21.67	21.59	21.06
		8	7	21.28	21.73	21.04
		15	0	21.24	21.51	21.18
	16QAM	1	0	21.41	21.39	21.11
		1	7	21.72	21.43	21.56
		1	14	21.65	21.12	21.20
		8	0	20.62	20.32	20.30
		8	3	20.53	20.59	20.47
		8	7	20.75	20.61	20.22
		15	0	20.42	20.65	20.44
	64QAM	1	0	20.58	19.96	19.81
		1	7	20.67	20.26	20.02
		1	14	20.25	20.06	20.30
		8	0	19.42	19.86	19.38
		8	3	19.56	19.75	19.01
		8	7	19.39	19.36	18.82
		15	0	19.36	19.01	19.10
	256QAM	1	0	18.57	18.07	17.82
		1	7	18.68	18.10	18.09
		1	14	18.75	18.18	18.53
		8	0	17.50	17.18	17.05
		8	3	17.57	17.67	16.83
		8	7	17.52	17.63	17.02
		15	0	17.47	17.18	17.23

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	22.55	21.96	22.44
		1	2	22.51	22.39	21.90
		1	5	22.50	22.34	22.20
		3	0	21.38	21.24	20.95
		3	1	21.58	21.33	21.24
		3	3	21.30	21.53	21.18
		6	0	21.13	21.32	20.97
	16QAM	1	0	21.69	21.23	20.94
		1	2	21.57	21.36	21.56
		1	5	21.26	21.34	21.52
		3	0	20.72	20.29	20.23
		3	1	20.72	20.09	19.93
		3	3	20.75	20.35	20.25
		6	0	20.64	20.13	20.13
	64QAM	1	0	20.65	20.35	19.97
		1	2	20.40	20.24	20.30
		1	5	20.64	19.96	20.36
		3	0	19.27	19.47	19.35
		3	1	19.25	19.61	19.07
		3	3	19.67	19.77	18.74
		6	0	19.27	19.56	19.04
	256QAM	1	0	18.68	18.34	18.39
		1	2	18.38	18.17	18.06
		1	5	18.65	18.33	17.95
		3	0	17.27	17.64	17.41
		3	1	17.73	17.21	17.36
		3	3	17.16	17.10	16.96
		6	0	17.43	17.27	17.08

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	22.24	22.78	22.72
		1	24	22.50	22.54	22.99
		1	49	22.23	22.49	22.74
		25	0	21.18	21.62	21.94
		25	12	21.40	21.64	21.75
		25	25	21.21	21.57	21.99
		50	0	21.54	21.88	21.67
	16QAM	1	0	21.06	21.59	21.93
		1	24	21.49	21.47	21.97
		1	49	21.28	21.71	21.91
		25	0	20.22	20.95	20.86
		25	12	20.41	20.66	21.04
		25	25	20.31	20.65	20.99
		50	0	20.43	20.66	20.76
	64QAM	1	0	20.26	20.62	20.99
		1	24	20.61	20.88	20.94
		1	49	20.72	20.58	20.78
		25	0	19.69	19.88	19.85
		25	12	19.22	19.73	19.94
		25	25	19.40	19.61	19.61
		50	0	19.21	19.80	20.09
	256QAM	1	0	18.45	18.53	18.87
		1	24	18.46	18.51	18.97
		1	49	18.40	18.73	18.85
		25	0	17.19	17.45	17.68
		25	12	17.74	17.66	18.03
		25	25	17.49	17.60	18.10
		50	0	17.34	17.63	17.68

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	22.46	22.74	22.67
		1	12	22.37	22.57	23.10
		1	24	22.23	22.55	22.78
		12	0	21.53	21.82	21.97
		12	6	21.50	21.81	21.91
		12	13	21.18	21.85	21.94
		25	0	21.26	21.69	21.92
	16QAM	1	0	21.31	21.86	21.98
		1	12	21.30	21.73	22.01
		1	24	21.41	21.80	21.88
		12	0	20.16	21.00	20.79
		12	6	20.40	20.97	20.68
		12	13	20.49	20.76	20.82
		25	0	20.56	20.57	20.83
	64QAM	1	0	20.55	20.48	20.95
		1	12	20.45	20.58	20.71
		1	24	20.44	20.66	20.74
		12	0	19.36	19.75	19.66
		12	6	19.55	19.69	20.00
		12	13	19.41	19.70	19.67
		25	0	19.18	20.03	19.71
	256QAM	1	0	18.23	18.73	18.93
		1	12	18.38	18.51	19.17
		1	24	18.41	18.92	18.69
		12	0	17.50	17.73	17.99
		12	6	17.42	17.82	17.91
		12	13	17.45	17.99	17.91
		25	0	17.40	17.76	17.65

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	22.18	22.50	22.83
		1	7	22.35	22.55	22.84
		1	14	22.31	22.74	23.04
		8	0	21.37	22.04	22.06
		8	3	21.75	21.92	21.85
		8	7	21.20	21.88	21.83
		15	0	21.21	21.83	21.77
	16QAM	1	0	21.11	21.82	22.02
		1	7	21.35	21.62	21.72
		1	14	21.57	21.80	21.96
		8	0	20.42	20.91	20.61
		8	3	20.31	20.79	20.92
		8	7	20.25	20.99	20.69
		15	0	20.46	20.89	21.00
	64QAM	1	0	20.46	20.52	20.67
		1	7	20.37	20.90	20.64
		1	14	20.39	20.92	20.65
		8	0	19.38	19.92	19.73
		8	3	19.54	19.94	19.67
		8	7	19.43	19.74	19.76
		15	0	19.41	19.87	20.11
	256QAM	1	0	18.34	18.73	19.12
		1	7	18.24	18.63	18.84
		1	14	18.54	18.64	18.74
		8	0	17.42	17.71	18.05
		8	3	17.70	17.88	18.08
		8	7	17.14	17.76	18.13
		15	0	17.53	17.59	17.67

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	22.24	22.82	22.95
		1	2	22.41	22.81	23.10
		1	5	22.50	22.38	22.60
		3	0	21.54	22.01	21.75
		3	1	21.37	21.73	21.60
		3	3	21.48	21.60	21.80
		6	0	21.21	21.71	21.75
	16QAM	1	0	21.39	21.66	21.67
		1	2	21.57	21.75	22.13
		1	5	21.21	21.66	21.76
		3	0	20.25	20.96	20.79
		3	1	20.35	20.58	21.04
		3	3	20.68	20.96	21.01
		6	0	20.31	20.73	21.05
	64QAM	1	0	20.56	20.60	20.83
		1	2	20.36	20.72	20.73
		1	5	20.66	20.78	20.88
		3	0	19.37	19.78	19.64
		3	1	19.38	19.82	19.64
		3	3	19.41	19.48	19.92
		6	0	19.13	19.93	19.97
	256QAM	1	0	18.23	18.84	18.73
		1	2	18.41	18.81	18.98
		1	5	18.56	18.67	18.92
		3	0	17.60	17.61	18.07
		3	1	17.63	17.94	18.02
		3	3	17.28	18.00	18.10
		6	0	17.20	17.81	17.66

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	22.69	22.22	22.08
		1	50	22.59	22.37	22.26
		1	99	22.57	22.10	22.29
		50	0	21.35	21.54	21.24
		50	25	21.23	21.44	21.28
		50	50	21.50	21.53	21.20
		100	0	21.63	21.28	21.16
	16QAM	1	0	21.36	21.50	21.27
		1	50	21.48	21.32	21.23
		1	99	21.30	21.33	21.41
		50	0	20.34	20.39	20.28
		50	25	20.41	20.63	20.35
		50	50	20.52	20.49	20.05
		100	0	20.44	20.28	20.37
	64QAM	1	0	20.53	20.24	19.97
		1	50	20.40	20.10	20.02
		1	99	20.51	20.23	19.94
		50	0	19.36	19.42	19.18
		50	25	19.58	19.53	19.11
		50	50	19.55	19.35	18.93
		100	0	19.66	19.62	19.36
	256QAM	1	0	18.31	18.28	18.36
		1	50	18.35	18.32	18.35
		1	99	18.45	18.34	18.26
		50	0	17.39	17.64	17.13
		50	25	17.49	17.55	16.96
		50	50	17.31	17.43	17.01
		100	0	17.46	17.46	17.37

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	22.60	22.33	22.26
		1	37	22.46	22.43	22.27
		1	74	22.33	22.30	22.34
		36	0	21.62	21.34	21.12
		36	19	21.40	21.55	20.98
		36	39	21.59	21.38	21.16
		75	0	21.65	21.26	21.28
	16QAM	1	0	21.56	21.24	21.20
		1	37	21.74	21.36	21.09
		1	74	21.47	21.47	21.07
		36	0	20.28	20.37	20.13
		36	19	20.50	20.67	20.16
		36	39	20.35	20.64	20.34
		75	0	20.60	20.52	20.39
	64QAM	1	0	20.50	20.43	20.05
		1	37	20.43	20.26	20.01
		1	74	20.36	20.19	20.04
		36	0	19.45	19.54	19.00
		36	19	19.32	19.72	19.34
		36	39	19.41	19.57	19.02
		75	0	19.36	19.49	19.11
	256QAM	1	0	18.53	18.24	18.25
		1	37	18.46	18.30	18.10
		1	74	18.61	18.06	18.22
		36	0	17.71	17.40	17.04
		36	19	17.26	17.67	17.07
		36	39	17.29	17.39	17.28
		75	0	17.49	17.47	17.40

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	22.57	22.06	22.11
		1	24	22.36	22.07	22.24
		1	49	22.50	22.41	22.23
		25	0	21.64	21.48	21.46
		25	12	21.44	21.49	21.17
		25	25	21.39	21.33	21.04
		50	0	21.57	21.47	21.21
	16QAM	1	0	21.34	21.43	21.36
		1	24	21.72	21.50	21.13
		1	49	21.56	21.32	21.30
		25	0	20.44	20.51	19.99
		25	12	20.53	20.45	20.39
		25	25	20.41	20.56	20.26
		50	0	20.45	20.27	20.05
	64QAM	1	0	20.31	20.50	20.20
		1	24	20.38	20.21	20.15
		1	49	20.44	20.04	19.92
		25	0	19.29	19.59	19.02
		25	12	19.59	19.55	19.31
		25	25	19.58	19.35	19.21
		50	0	19.51	19.55	19.39
	256QAM	1	0	18.27	18.30	18.06
		1	24	18.44	18.44	18.31
		1	49	18.53	18.23	18.23
		25	0	17.45	17.47	17.26
		25	12	17.38	17.51	17.09
		25	25	17.22	17.24	17.17
		50	0	17.34	17.33	17.29

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	22.48	22.40	22.25
		1	12	22.34	22.39	22.07
		1	24	22.22	22.16	22.36
		12	0	21.55	21.34	21.16
		12	6	21.38	21.33	21.03
		12	13	21.75	21.50	21.15
		25	0	21.34	21.54	21.05
	16QAM	1	0	21.41	21.23	21.08
		1	12	21.51	21.17	21.14
		1	24	21.56	21.27	21.06
		12	0	20.31	20.67	20.31
		12	6	20.47	20.72	20.27
		12	13	20.27	20.61	20.11
		25	0	20.54	20.38	20.35
	64QAM	1	0	20.38	20.27	20.03
		1	12	20.56	20.45	20.18
		1	24	20.46	20.12	20.25
		12	0	19.37	19.59	19.20
		12	6	19.64	19.69	19.12
		12	13	19.35	19.43	18.90
		25	0	19.70	19.45	19.06
	256QAM	1	0	18.61	18.47	18.31
		1	12	18.45	18.37	18.28
		1	24	18.57	18.09	18.25
		12	0	17.66	17.56	17.31
		12	6	17.41	17.45	17.13
		12	13	17.37	17.51	17.06
		25	0	17.53	17.59	17.29

LTE Band 38						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		37850	38000	38150
		Frequency (MHz)		2580	2595	2610
20M	QPSK	1	0	22.43	22.46	22.42
		1	50	22.39	22.37	22.38
		1	99	22.32	22.31	22.34
		50	0	21.75	21.87	21.81
		50	25	21.82	21.89	21.79
		50	50	21.74	21.75	21.84
		100	0	21.65	21.64	21.70
	16QAM	1	0	21.81	21.85	21.80
		1	50	21.73	21.74	21.76
		1	99	21.69	21.66	21.72
		50	0	20.98	20.91	20.89
		50	25	20.81	20.89	20.86
		50	50	20.80	20.80	20.79
		100	0	20.82	20.81	20.72
	64QAM	1	0	20.72	20.82	20.66
		1	50	20.67	20.65	20.60
		1	99	20.46	20.54	20.56
		50	0	19.93	19.92	19.98
		50	25	19.89	19.85	19.80
		50	50	19.71	19.80	19.78
		100	0	19.82	19.84	19.79
	256QAM	1	0	18.87	19.04	18.92
		1	50	18.92	18.93	18.97
		1	99	18.91	18.92	18.88
		50	0	18.36	18.30	18.27
		50	25	18.21	18.20	18.28
		50	50	18.30	18.24	18.19
		100	0	18.08	18.06	18.06

LTE Band 38						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		37825	38000	38175
		Frequency (MHz)		2577.5	2595	2612.5
15M	QPSK	1	0	22.37	22.42	22.35
		1	37	22.36	22.33	22.34
		1	74	22.26	22.26	22.27
		36	0	21.69	21.80	21.79
		36	19	21.79	21.81	21.77
		36	39	21.66	21.73	21.80
		75	0	21.59	21.56	21.63
	16QAM	1	0	21.76	21.83	21.73
		1	37	21.70	21.69	21.72
		1	74	21.63	21.60	21.69
		36	0	20.93	20.86	20.85
		36	19	20.73	20.82	20.78
		36	39	20.76	20.78	20.71
		75	0	20.74	20.78	20.70
	64QAM	1	0	20.69	20.75	20.59
		1	37	20.65	20.60	20.57
		1	74	20.42	20.51	20.52
		36	0	19.87	19.85	19.90
		36	19	19.87	19.80	19.78
		36	39	19.65	19.77	19.72
		75	0	19.75	19.79	19.72
	256QAM	1	0	18.80	19.00	18.87
		1	37	18.84	18.87	18.92
		1	74	18.84	18.84	18.83
		36	0	18.28	18.27	18.23
		36	19	18.13	18.15	18.24
		36	39	18.26	18.20	18.16
		75	0	18.04	17.99	18.04

LTE Band 38						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		37800	38000	38200
		Frequency (MHz)		2575	2595	2615
10M	QPSK	1	0	22.40	22.41	22.38
		1	24	22.36	22.34	22.35
		1	49	22.29	22.25	22.27
		25	0	21.67	21.84	21.74
		25	12	21.77	21.85	21.74
		25	25	21.66	21.72	21.79
		50	0	21.58	21.59	21.67
	16QAM	1	0	21.74	21.77	21.76
		1	24	21.69	21.70	21.68
		1	49	21.64	21.63	21.68
		25	0	20.91	20.88	20.84
		25	12	20.73	20.87	20.84
		25	25	20.76	20.74	20.72
		50	0	20.80	20.75	20.64
	64QAM	1	0	20.68	20.76	20.59
		1	24	20.64	20.59	20.55
		1	49	20.42	20.48	20.52
		25	0	19.86	19.86	19.95
		25	12	19.83	19.77	19.74
		25	25	19.67	19.76	19.75
		50	0	19.76	19.76	19.73
	256QAM	1	0	18.82	19.01	18.85
		1	24	18.88	18.87	18.95
		1	49	18.84	18.90	18.85
		25	0	18.33	18.27	18.23
		25	12	18.13	18.16	18.20
		25	25	18.25	18.22	18.12
		50	0	18.01	18.01	18.02

LTE Band 38						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		37775	38000	38225
		Frequency (MHz)		2572.5	2595	2617.5
5M	QPSK	1	0	22.40	22.43	22.36
		1	12	22.37	22.30	22.31
		1	24	22.28	22.24	22.29
		12	0	21.73	21.81	21.77
		12	6	21.78	21.81	21.75
		12	13	21.70	21.68	21.77
		25	0	21.62	21.61	21.68
	16QAM	1	0	21.77	21.77	21.77
		1	12	21.70	21.69	21.74
		1	24	21.66	21.61	21.64
		12	0	20.92	20.89	20.86
		12	6	20.73	20.84	20.80
		12	13	20.77	20.76	20.73
		25	0	20.77	20.78	20.68
	64QAM	1	0	20.64	20.79	20.58
		1	12	20.62	20.63	20.58
		1	24	20.38	20.50	20.50
		12	0	19.90	19.89	19.90
		12	6	19.81	19.77	19.75
		12	13	19.66	19.75	19.75
		25	0	19.76	19.80	19.72
	256QAM	1	0	18.80	18.99	18.89
		1	12	18.86	18.86	18.95
		1	24	18.87	18.86	18.83
		12	0	18.33	18.26	18.21
		12	6	18.15	18.18	18.22
		12	13	18.28	18.21	18.11
		25	0	18.01	18.00	18.03

LTE Band 41						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		39750	40620	41490
		Frequency (MHz)		2506	2593	2680
20M	QPSK	1	0	22.68	22.15	22.15
		1	50	22.52	22.21	22.33
		1	99	22.50	22.39	22.29
		50	0	21.68	21.58	21.02
		50	25	21.43	21.73	21.18
		50	50	21.31	21.45	21.35
		100	0	21.62	21.32	21.30
	16QAM	1	0	21.35	20.95	21.10
		1	50	21.31	21.27	21.43
		1	99	21.41	21.23	21.32
		50	0	20.44	20.46	20.13
		50	25	20.41	20.61	20.15
		50	50	20.44	20.54	20.21
		100	0	20.49	20.27	20.13
	64QAM	1	0	20.61	20.07	20.21
		1	50	20.36	20.28	20.49
		1	99	20.47	20.12	20.24
		50	0	19.61	19.31	19.20
		50	25	19.29	19.70	19.18
		50	50	19.36	19.67	19.21
		100	0	19.54	19.28	19.25
	256QAM	1	0	18.63	18.06	18.13
		1	50	18.65	18.36	18.49
		1	99	18.46	18.22	18.41
		50	0	17.36	17.60	17.26
		50	25	17.43	17.39	17.07
		50	50	17.47	17.60	16.92
		100	0	17.26	17.08	16.98

LTE Band 41						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		39725	40620	41515
		Frequency (MHz)		2503.5	2593	2682.5
15M	QPSK	1	0	22.56	22.16	22.10
		1	37	22.49	22.51	22.30
		1	74	22.64	22.23	22.44
		36	0	21.42	21.39	20.98
		36	19	21.46	21.67	20.94
		36	39	21.45	21.64	21.13
		75	0	21.40	21.24	21.02
	16QAM	1	0	21.47	21.16	21.01
		1	37	21.34	21.34	21.50
		1	74	21.51	21.40	21.17
		36	0	20.37	20.28	20.17
		36	19	20.56	20.43	20.17
		36	39	20.60	20.73	19.99
		75	0	20.27	20.29	20.34
	64QAM	1	0	20.33	20.20	20.12
		1	37	20.35	20.48	20.34
		1	74	20.38	20.32	20.47
		36	0	19.36	19.26	19.26
		36	19	19.34	19.69	19.27
		36	39	19.36	19.47	19.12
		75	0	19.46	19.34	19.32
	256QAM	1	0	18.51	17.98	18.23
		1	37	18.65	18.48	18.17
		1	74	18.37	18.32	18.38
		36	0	17.56	17.66	17.16
		36	19	17.54	17.30	17.09
		36	39	17.66	17.38	17.12
		75	0	17.34	17.37	16.98

LTE Band 41						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		39700	40620	41540
		Frequency (MHz)		2501	2593	2685
10M	QPSK	1	0	22.63	22.31	22.05
		1	24	22.51	22.38	22.33
		1	49	22.68	22.33	22.34
		25	0	21.48	21.48	21.29
		25	12	21.61	21.64	21.04
		25	25	21.40	21.56	21.16
		50	0	21.32	21.08	21.26
	16QAM	1	0	21.38	21.24	21.15
		1	24	21.53	21.30	21.46
		1	49	21.24	21.14	21.29
		25	0	20.38	20.36	20.13
		25	12	20.61	20.59	20.28
		25	25	20.32	20.69	19.94
		50	0	20.56	20.40	20.32
	64QAM	1	0	20.50	19.99	20.17
		1	24	20.33	20.24	20.50
		1	49	20.58	20.07	20.45
		25	0	19.27	19.47	19.22
		25	12	19.34	19.54	19.24
		25	25	19.60	19.49	19.25
		50	0	19.31	19.33	19.11
	256QAM	1	0	18.51	18.20	18.27
		1	24	18.38	18.43	18.41
		1	49	18.32	18.22	18.37
		25	0	17.66	17.56	17.12
		25	12	17.69	17.49	16.94
		25	25	17.75	17.62	17.26
		50	0	17.14	17.11	17.02

LTE Band 41						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		39675	40620	41565
		Frequency (MHz)		2498.5	2593	2687.5
5M	QPSK	1	0	22.52	22.17	22.18
		1	12	22.42	22.37	22.53
		1	24	22.59	22.35	22.34
		12	0	21.40	21.61	21.33
		12	6	21.48	21.64	21.27
		12	13	21.44	21.47	21.22
		25	0	21.56	21.21	21.33
	16QAM	1	0	21.48	21.25	20.97
		1	12	21.48	21.23	21.30
		1	24	21.41	21.25	21.31
		12	0	20.48	20.43	20.13
		12	6	20.52	20.37	19.97
		12	13	20.30	20.41	20.05
		25	0	20.28	20.24	20.25
	64QAM	1	0	20.44	20.12	20.14
		1	12	20.34	20.49	20.56
		1	24	20.53	20.08	20.27
		12	0	19.37	19.34	19.25
		12	6	19.35	19.70	19.09
		12	13	19.63	19.60	19.03
		25	0	19.44	19.14	19.38
	256QAM	1	0	18.63	18.21	18.18
		1	12	18.42	18.48	18.17
		1	24	18.38	18.42	18.32
		12	0	17.53	17.55	17.10
		12	6	17.67	17.31	17.04
		12	13	17.40	17.42	16.96
		25	0	17.39	17.12	17.23

LTE Band 66						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		132072	132322	132575
		Frequency (MHz)		1720	1745	1770
20M	QPSK	1	0	22.45	21.93	21.97
		1	50	22.09	22.07	22.26
		1	99	22.70	21.97	22.31
		50	0	21.19	21.21	21.03
		50	25	21.30	21.43	21.14
		50	50	21.32	21.39	20.83
		100	0	21.33	20.99	20.92
	16QAM	1	0	21.38	21.08	21.02
		1	50	21.27	20.94	21.03
		1	99	21.13	21.33	20.97
		50	0	20.53	20.16	19.99
		50	25	20.62	20.13	20.26
		50	50	20.46	20.61	20.13
		100	0	20.27	20.19	20.20
	64QAM	1	0	20.49	19.86	20.01
		1	50	20.47	20.28	20.31
		1	99	20.50	19.96	19.89
		50	0	19.13	19.45	19.32
		50	25	19.34	19.25	19.08
		50	50	19.13	19.55	18.94
		100	0	18.99	19.08	19.33
	256QAM	1	0	18.30	18.27	18.00
		1	50	18.26	18.24	18.12
		1	99	18.41	18.03	18.07
		50	0	17.23	17.55	16.81
		50	25	17.13	17.64	17.03
		50	50	17.32	17.49	17.06
		100	0	17.25	17.11	16.95

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	22.42	22.03	22.08
		1	37	22.24	22.07	21.97
		1	74	22.46	21.92	22.21
		36	0	21.46	21.07	20.95
		36	19	21.60	21.38	21.04
		36	39	21.36	21.18	20.82
		75	0	21.14	21.35	20.81
	16QAM	1	0	21.15	21.22	21.11
		1	37	21.51	21.27	21.22
		1	74	21.52	21.23	21.33
		36	0	20.22	20.31	19.99
		36	19	20.61	20.39	20.02
		36	39	20.69	20.31	20.17
		75	0	20.04	20.36	19.97
	64QAM	1	0	20.17	19.98	19.86
		1	37	20.57	20.32	20.27
		1	74	20.62	19.91	20.13
		36	0	19.20	19.64	18.92
		36	19	19.59	19.54	18.89
		36	39	19.16	19.26	18.87
		75	0	19.14	19.42	19.00
	256QAM	1	0	18.24	18.36	18.30
		1	37	18.32	18.47	18.38
		1	74	18.49	18.02	18.28
		36	0	17.39	17.24	16.81
		36	19	17.10	17.37	17.25
		36	39	17.57	17.06	17.26
		75	0	17.43	17.06	17.15

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	22.34	22.33	22.20
		1	24	22.17	22.24	22.07
		1	49	22.63	22.29	22.32
		25	0	21.16	21.08	21.08
		25	12	21.61	21.13	21.32
		25	25	21.32	21.31	21.13
		50	0	21.13	21.40	20.76
	16QAM	1	0	21.15	21.38	21.17
		1	24	21.25	21.36	21.47
		1	49	21.29	20.99	21.36
		25	0	20.20	20.22	20.16
		25	12	20.64	20.39	20.19
		25	25	20.49	20.22	20.02
		50	0	20.07	20.52	20.24
	64QAM	1	0	20.59	20.13	20.08
		1	24	20.44	20.29	20.16
		1	49	20.33	20.23	20.32
		25	0	19.16	19.62	19.00
		25	12	19.26	19.38	18.76
		25	25	19.19	19.54	18.79
		50	0	19.00	19.10	19.33
	256QAM	1	0	18.51	18.03	17.86
		1	24	18.19	18.32	18.14
		1	49	18.15	18.07	18.13
		25	0	17.17	17.51	16.80
		25	12	17.17	17.33	17.02
		25	25	17.21	17.34	17.06
		50	0	17.20	17.29	16.90

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	22.32	22.20	22.03
		1	12	22.20	22.27	21.89
		1	24	22.62	22.18	22.31
		12	0	21.54	21.41	21.24
		12	6	21.43	21.29	21.27
		12	13	21.52	21.22	21.23
		25	0	21.22	21.04	20.82
	16QAM	1	0	21.35	21.29	21.16
		1	12	21.62	21.17	21.07
		1	24	21.19	21.34	21.17
		12	0	20.39	20.34	19.80
		12	6	20.49	20.53	20.32
		12	13	20.45	20.62	20.24
		25	0	20.21	20.37	19.92
	64QAM	1	0	20.45	20.06	20.04
		1	12	20.25	20.34	20.14
		1	24	20.54	20.04	20.24
		12	0	19.23	19.50	19.04
		12	6	19.21	19.40	19.12
		12	13	19.43	19.24	19.03
		25	0	19.34	18.98	18.98
	256QAM	1	0	18.11	18.31	18.13
		1	12	18.51	18.34	18.04
		1	24	18.53	18.33	18.11
		12	0	17.30	17.36	16.93
		12	6	17.41	17.46	16.87
		12	13	17.22	17.53	17.18
		25	0	17.53	17.20	16.91

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	22.30	21.93	21.99
		1	7	22.31	22.34	22.01
		1	14	22.33	22.08	22.21
		8	0	21.13	21.24	20.98
		8	3	21.20	21.06	21.32
		8	7	21.32	21.24	21.02
		15	0	21.12	21.13	21.11
	16QAM	1	0	21.59	21.36	21.10
		1	7	21.37	21.27	21.41
		1	14	21.49	21.18	20.91
		8	0	20.61	20.33	20.24
		8	3	20.50	20.07	20.12
		8	7	20.61	20.47	20.21
		15	0	20.14	20.33	20.35
	64QAM	1	0	20.61	20.25	20.09
		1	7	20.28	20.08	20.18
		1	14	20.33	20.23	20.07
		8	0	19.35	19.26	18.89
		8	3	19.22	19.29	19.21
		8	7	19.40	19.41	19.12
		15	0	19.33	19.32	18.95
	256QAM	1	0	18.37	18.04	17.98
		1	7	18.20	18.14	18.06
		1	14	18.49	18.44	18.25
		8	0	17.53	17.24	16.81
		8	3	17.47	17.31	17.18
		8	7	17.33	17.21	17.10
		15	0	17.18	17.40	17.08

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	22.24	22.19	22.21
		1	2	22.34	22.41	21.98
		1	5	22.67	22.16	22.18
		3	0	21.14	21.31	20.98
		3	1	21.41	21.37	21.13
		3	3	21.26	21.41	21.00
		6	0	21.41	21.08	20.86
	16QAM	1	0	21.34	21.16	20.97
		1	2	21.44	21.17	21.20
		1	5	21.46	21.01	20.99
		3	0	20.23	20.18	20.07
		3	1	20.36	20.24	19.95
		3	3	20.40	20.34	20.03
		6	0	20.14	20.41	20.23
	64QAM	1	0	20.43	20.10	19.76
		1	2	20.46	19.97	20.10
		1	5	20.36	20.20	20.28
		3	0	19.16	19.33	19.07
		3	1	19.52	19.38	18.97
		3	3	19.08	19.38	18.90
		6	0	19.16	19.16	19.04
	256QAM	1	0	18.15	18.13	17.93
		1	2	18.24	18.08	18.16
		1	5	18.44	18.22	18.37
		3	0	17.34	17.27	17.00
		3	1	17.12	17.48	17.09
		3	3	17.17	17.32	17.33
		6	0	17.30	17.13	17.28

EIRP / ERP Power (dBm)

NR Band 77 (SCS 30kHz)						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		650000	656000	662000
		Frequency (MHz)		3750	3840	3930
100M	pi/2 BPSK	1	1	25.29	25.48	25.30
		1	137	25.26	25.81	25.49
		1	271	25.39	25.41	25.51
		135	0	24.49	25.01	24.48
		135	69	25.37	25.51	25.41
		135	138	24.82	25.26	24.93
		270	0	24.59	25.09	24.88
	QPSK	1	1	25.34	25.46	25.47
		1	137	25.33	25.77	25.68
		1	271	25.51	25.36	25.65
		135	0	24.13	24.52	24.01
		135	69	25.33	25.76	25.61
		135	138	24.36	24.77	24.54
		270	0	24.14	24.65	24.45
	16QAM	1	1	24.33	24.40	24.42
		1	137	24.28	24.64	24.49
		1	271	24.43	24.33	24.64
		135	0	23.10	23.51	22.97
		135	69	24.37	24.81	24.69
		135	138	23.32	23.73	23.51
		270	0	23.08	23.63	23.42
	64QAM	1	1	22.87	22.97	22.99
		1	137	22.84	23.43	23.20
		1	271	22.97	22.93	23.35
		135	0	22.61	23.01	22.49
		135	69	22.87	23.31	23.13
		135	138	22.83	23.34	23.02
		270	0	22.59	23.05	22.93
256QAM	1	1	18.82	18.85	18.89	
	1	137	18.85	19.23	19.09	
	1	271	18.90	18.85	19.13	
	135	0	18.53	19.01	18.49	
	135	69	18.88	19.33	19.12	
	135	138	18.86	19.36	19.05	
	270	0	18.70	19.08	19.06	

*EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

NR Band 77 (SCS 30kHz)						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		649668	656000	662332
		Frequency (MHz)		3745.02	3840	3934.98
90M	pi/2 BPSK	1	1	25.25	25.41	25.26
		1	123	25.21	25.70	25.43
		1	243	25.31	25.36	25.46
		120	0	24.44	24.95	24.37
		120	63	25.31	25.43	25.38
		120	125	24.78	25.20	24.89
		243	0	24.49	24.98	24.81
	QPSK	1	1	25.23	25.43	25.36
		1	123	25.30	25.74	25.65
		1	243	25.41	25.26	25.57
		120	0	24.04	24.41	23.96
		120	63	25.23	25.65	25.56
		120	125	24.30	24.68	24.43
		243	0	24.04	24.62	24.41
	16QAM	1	1	24.29	24.36	24.37
		1	123	24.21	24.57	24.38
		1	243	24.36	24.29	24.53
		120	0	23.00	23.44	22.94
		120	63	24.33	24.73	24.63
		120	125	23.28	23.62	23.41
		243	0	22.97	23.54	23.34
	64QAM	1	1	22.79	22.89	22.96
		1	123	22.78	23.36	23.09
		1	243	22.94	22.89	23.30
		120	0	22.50	22.98	22.39
		120	63	22.76	23.24	23.04
		120	125	22.75	23.29	22.94
		243	0	22.53	23.02	22.87
	256QAM	1	1	18.71	18.76	18.81
		1	123	18.76	19.15	19.01
1		243	18.87	18.82	19.04	
120		0	18.42	18.91	18.41	
120		63	18.82	19.22	19.04	
120		125	18.83	19.25	19.02	
243		0	18.62	18.98	19.00	

*EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

NR Band 77 (SCS 30kHz)						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		649334	656000	662666
		Frequency (MHz)		3740.01	3840	3939.99
80M	pi/2 BPSK	1	1	25.22	25.45	25.20
		1	109	25.20	25.70	25.43
		1	215	25.32	25.32	25.40
		108	0	24.42	24.90	24.45
		108	55	25.26	25.45	25.38
		108	109	24.74	25.20	24.86
		216	0	24.50	25.05	24.78
	QPSK	1	1	25.24	25.43	25.39
		1	109	25.27	25.66	25.64
		1	215	25.42	25.33	25.61
		108	0	24.10	24.47	23.94
		108	55	25.26	25.69	25.54
		108	109	24.33	24.70	24.51
		216	0	24.10	24.60	24.39
	16QAM	1	1	24.24	24.33	24.33
		1	109	24.25	24.58	24.45
		1	215	24.38	24.27	24.56
		108	0	23.05	23.41	22.90
		108	55	24.27	24.72	24.63
		108	109	23.22	23.67	23.44
		216	0	23.02	23.59	23.36
	64QAM	1	1	22.83	22.90	22.94
		1	109	22.78	23.33	23.13
		1	215	22.90	22.87	23.32
		108	0	22.58	22.94	22.42
		108	55	22.78	23.25	23.03
		108	109	22.74	23.23	22.91
		216	0	22.48	22.95	22.89
	256QAM	1	1	18.77	18.82	18.85
		1	109	18.77	19.19	19.00
1		215	18.87	18.80	19.05	
108		0	18.49	18.92	18.41	
108		55	18.78	19.23	19.04	
108		109	18.76	19.26	18.99	
216		0	18.62	18.98	18.97	

*EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

NR Band 77 (SCS 30kHz)						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		648668	656000	663332
		Frequency (MHz)		3730.02	3840	3949.98
60M	pi/2 BPSK	1	1	25.24	25.42	25.19
		1	81	25.16	25.76	25.40
		1	160	25.34	25.34	25.42
		81	0	24.45	24.95	24.38
		81	41	25.26	25.44	25.34
		81	81	24.76	25.21	24.84
		162	0	24.49	25.03	24.77
	QPSK	1	1	25.27	25.37	25.36
		1	81	25.23	25.66	25.61
		1	160	25.45	25.25	25.58
		81	0	24.02	24.46	23.91
		81	41	25.22	25.73	25.51
		81	81	24.27	24.73	24.46
		162	0	24.10	24.54	24.41
	16QAM	1	1	24.22	24.37	24.35
		1	81	24.17	24.61	24.44
		1	160	24.40	24.23	24.59
		81	0	23.07	23.42	22.90
		81	41	24.26	24.76	24.62
		81	81	23.22	23.66	23.41
		162	0	23.05	23.54	23.31
	64QAM	1	1	22.82	22.88	22.93
		1	81	22.79	23.37	23.13
		1	160	22.91	22.89	23.25
		81	0	22.57	22.97	22.45
		81	41	22.76	23.22	23.02
		81	81	22.78	23.30	22.97
		162	0	22.53	23.01	22.82
	256QAM	1	1	18.74	18.75	18.86
		1	81	18.78	19.15	19.05
		1	160	18.80	18.76	19.06
		81	0	18.44	18.90	18.43
		81	41	18.80	19.27	19.09
		81	81	18.82	19.33	18.98
		162	0	18.60	18.99	19.02

*EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

NR Band 77 (SCS 30kHz)						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		648334	656000	663666
		Frequency (MHz)		3725.01	3840	3954.99
50M	pi/2 BPSK	1	1	25.21	25.44	25.27
		1	67	25.21	25.75	25.42
		1	131	25.32	25.34	25.46
		64	0	24.43	24.96	24.43
		64	35	25.31	25.42	25.38
		64	69	24.77	25.21	24.90
		128	0	24.56	25.00	24.83
	QPSK	1	1	25.24	25.36	25.40
		1	67	25.25	25.73	25.57
		1	131	25.44	25.27	25.62
		64	0	24.04	24.42	23.91
		64	35	25.26	25.67	25.57
		64	69	24.29	24.70	24.47
		128	0	24.03	24.57	24.42
	16QAM	1	1	24.24	24.34	24.39
		1	67	24.21	24.60	24.43
		1	131	24.38	24.25	24.61
		64	0	23.01	23.48	22.94
		64	35	24.26	24.76	24.59
		64	69	23.28	23.69	23.40
		128	0	23.04	23.54	23.32
	64QAM	1	1	22.80	22.89	22.95
		1	67	22.76	23.39	23.09
		1	131	22.87	22.88	23.24
		64	0	22.57	22.94	22.42
		64	35	22.80	23.28	23.05
		64	69	22.72	23.28	22.97
		128	0	22.51	22.97	22.90
	256QAM	1	1	18.74	18.78	18.79
		1	67	18.82	19.12	19.03
1		131	18.86	18.74	19.02	
64		0	18.50	18.95	18.43	
64		35	18.78	19.27	19.05	
64		69	18.79	19.32	19.02	
128		0	18.67	18.97	18.95	

*EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

NR Band 77 (SCS 30kHz)						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		648000	656000	664000
		Frequency (MHz)		3720	3840	3960
40M	pi/2 BPSK	1	1	25.25	25.41	25.27
		1	53	25.22	25.75	25.39
		1	104	25.31	25.36	25.45
		50	0	24.46	24.93	24.45
		50	28	25.28	25.47	25.34
		50	56	24.75	25.22	24.87
		100	0	24.53	25.04	24.77
	QPSK	1	1	25.25	25.41	25.36
		1	53	25.28	25.66	25.60
		1	104	25.40	25.26	25.54
		50	0	24.06	24.49	23.90
		50	28	25.23	25.70	25.54
		50	56	24.33	24.70	24.49
		100	0	24.03	24.56	24.38
	16QAM	1	1	24.26	24.29	24.34
		1	53	24.23	24.61	24.40
		1	104	24.36	24.22	24.57
		50	0	23.03	23.46	22.94
		50	28	24.29	24.75	24.66
		50	56	23.27	23.62	23.47
		100	0	22.97	23.53	23.31
	64QAM	1	1	22.77	22.92	22.95
		1	53	22.78	23.37	23.14
		1	104	22.87	22.89	23.32
		50	0	22.51	22.95	22.39
		50	28	22.78	23.26	23.10
		50	56	22.79	23.24	22.91
		100	0	22.52	22.94	22.84
	256QAM	1	1	18.78	18.79	18.85
		1	53	18.79	19.12	19.06
1		104	18.85	18.80	19.09	
50		0	18.46	18.95	18.40	
50		28	18.78	19.28	19.07	
50		56	18.75	19.27	18.99	
100		0	18.66	19.03	18.96	

*EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

NR Band 77 (SCS 30kHz)						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		647334	656000	664666
		Frequency (MHz)		3710.01	3840	3969.99
20M	pi/2 BPSK	1	1	25.18	25.40	25.27
		1	26	25.15	25.72	25.39
		1	49	25.35	25.33	25.41
		25	0	24.45	24.95	24.37
		25	13	25.29	25.45	25.31
		25	26	24.75	25.21	24.90
		50	0	24.55	25.00	24.84
	QPSK	1	1	25.27	25.39	25.44
		1	26	25.28	25.67	25.62
		1	49	25.43	25.30	25.58
		25	0	24.03	24.42	23.96
		25	13	25.28	25.72	25.54
		25	26	24.25	24.70	24.48
		50	0	24.05	24.58	24.38
	16QAM	1	1	24.25	24.30	24.34
		1	26	24.23	24.56	24.42
		1	49	24.38	24.30	24.54
		25	0	23.07	23.47	22.89
		25	13	24.30	24.77	24.60
		25	26	23.22	23.69	23.46
		50	0	23.04	23.55	23.34
	64QAM	1	1	22.78	22.91	22.89
		1	26	22.76	23.36	23.14
		1	49	22.94	22.88	23.25
		25	0	22.50	22.96	22.46
		25	13	22.82	23.24	23.02
		25	26	22.77	23.23	22.96
		50	0	22.54	22.96	22.90
256QAM	1	1	18.75	18.74	18.84	
	1	26	18.79	19.12	18.99	
	1	49	18.85	18.82	19.07	
	25	0	18.47	18.96	18.40	
	25	13	18.79	19.30	19.06	
	25	26	18.82	19.31	18.96	
	50	0	18.60	18.97	19.03	

*EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

NR Band 77 (SCS 30kHz)						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		647168	656000	664832
		Frequency (MHz)		3707.52	3840	3972.48
15M	pi/2 BPSK	1	1	25.21	25.44	25.19
		1	19	25.19	25.73	25.43
		1	36	25.35	25.33	25.43
		18	0	24.41	24.95	24.44
		18	10	25.32	25.41	25.38
		18	20	24.78	25.19	24.86
		36	0	24.50	25.01	24.80
	QPSK	1	1	25.28	25.40	25.44
		1	19	25.29	25.70	25.64
		1	36	25.45	25.32	25.56
		18	0	24.05	24.47	23.95
		18	10	25.29	25.67	25.52
		18	20	24.32	24.66	24.46
		36	0	24.05	24.61	24.37
	16QAM	1	1	24.23	24.36	24.39
		1	19	24.23	24.60	24.44
		1	36	24.40	24.26	24.54
		18	0	23.03	23.46	22.91
		18	10	24.26	24.70	24.62
		18	20	23.24	23.69	23.43
		36	0	22.98	23.54	23.32
	64QAM	1	1	22.83	22.94	22.94
		1	19	22.76	23.34	23.12
		1	36	22.86	22.88	23.32
		18	0	22.50	22.91	22.41
		18	10	22.77	23.27	23.04
		18	20	22.74	23.26	22.95
		36	0	22.52	23.02	22.90
	256QAM	1	1	18.74	18.78	18.84
		1	19	18.78	19.16	19.01
1		36	18.80	18.77	19.04	
18		0	18.46	18.97	18.46	
18		10	18.83	19.27	19.05	
18		20	18.82	19.28	18.94	
36		0	18.62	18.98	19.00	

*EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

NR Band 77 (SCS 30kHz)						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		647000	656000	665000
		Frequency (MHz)		3705	3840	3975
10M	pi/2 BPSK	1	1	25.19	25.42	25.23
		1	11	25.20	25.75	25.46
		1	22	25.35	25.33	25.43
		12	0	24.40	24.93	24.42
		12	6	25.28	25.48	25.33
		12	12	24.74	25.18	24.83
		24	0	24.53	25.02	24.79
	QPSK	1	1	25.30	25.35	25.44
		1	11	25.30	25.69	25.59
		1	22	25.48	25.27	25.54
		12	0	24.10	24.45	23.92
		12	6	25.27	25.69	25.57
		12	12	24.29	24.68	24.49
		24	0	24.05	24.55	24.36
	16QAM	1	1	24.28	24.31	24.32
		1	11	24.22	24.57	24.40
		1	22	24.33	24.27	24.54
		12	0	23.01	23.43	22.92
		12	6	24.29	24.74	24.58
		12	12	23.26	23.68	23.42
		24	0	23.04	23.60	23.37
	64QAM	1	1	22.84	22.86	22.96
		1	11	22.74	23.32	23.17
		1	22	22.90	22.90	23.28
		12	0	22.51	22.97	22.39
		12	6	22.77	23.23	23.06
		12	12	22.77	23.24	22.99
		24	0	22.53	22.95	22.82
	256QAM	1	1	18.72	18.78	18.86
		1	11	18.81	19.12	19.04
		1	22	18.86	18.75	19.09
		12	0	18.45	18.94	18.46
		12	6	18.81	19.22	19.01
		12	12	18.75	19.25	19.00
		24	0	18.61	19.00	18.98

*EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

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	25.60	25.27	24.84
		1	50	25.26	25.16	25.33
		1	99	25.43	25.01	24.90
		50	0	24.45	24.35	23.96
		50	25	24.68	24.15	24.05
		50	50	24.43	24.46	24.30
		100	0	24.65	24.02	23.67
	16QAM	1	0	24.36	24.16	23.82
		1	50	24.25	24.42	24.27
		1	99	24.05	24.40	24.01
		50	0	23.49	23.08	22.83
		50	25	23.39	23.51	22.84
		50	50	23.29	23.44	22.95
		100	0	23.26	23.42	22.99
	64QAM	1	0	23.35	23.17	23.11
		1	50	23.53	22.97	22.97
		1	99	23.74	22.92	23.19
		50	0	22.05	22.34	22.40
		50	25	22.47	22.36	22.02
		50	50	22.29	22.34	22.29
		100	0	22.40	21.98	22.22
	256QAM	1	0	21.48	20.99	21.07
		1	50	21.24	21.23	21.11
		1	99	21.69	21.28	21.05
50		0	20.14	20.10	20.21	
50		25	20.17	20.18	20.20	
50		50	20.35	20.47	19.96	
100		0	20.55	20.31	20.23	

*EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

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	25.51	25.11	25.01
		1	37	25.43	24.89	25.06
		1	74	25.26	25.10	24.86
		36	0	24.33	24.26	23.86
		36	19	24.72	24.42	24.26
		36	39	24.31	24.64	23.90
		75	0	24.28	24.16	23.88
	16QAM	1	0	24.41	24.30	23.97
		1	37	24.54	24.11	24.23
		1	74	24.54	24.32	23.97
		36	0	23.18	23.02	22.80
		36	19	23.28	23.13	23.24
		36	39	23.49	23.39	22.80
		75	0	23.02	23.24	22.94
	64QAM	1	0	23.42	22.86	23.20
		1	37	23.52	22.91	22.96
		1	74	23.73	23.24	23.36
		36	0	22.43	22.23	22.36
		36	19	22.43	22.58	21.87
		36	39	22.19	22.13	22.11
		75	0	22.44	22.16	22.03
	256QAM	1	0	21.43	20.95	21.32
		1	37	21.17	21.35	21.28
		1	74	21.35	21.13	20.88
		36	0	20.20	20.18	19.79
		36	19	20.26	20.51	20.10
		36	39	20.21	20.23	20.42
		75	0	20.56	20.06	20.35

*EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

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	25.55	25.41	25.04
		1	24	25.33	25.23	25.38
		1	49	25.23	25.11	24.95
		25	0	24.25	24.32	24.36
		25	12	24.10	24.44	24.40
		25	25	24.70	24.53	23.68
		50	0	24.32	24.12	23.87
	16QAM	1	0	24.43	24.37	23.83
		1	24	24.49	24.22	24.45
		1	49	24.14	24.40	24.24
		25	0	23.16	23.13	22.82
		25	12	23.19	23.51	23.18
		25	25	23.36	23.60	22.90
		50	0	23.35	23.24	23.35
	64QAM	1	0	23.23	23.18	22.89
		1	24	23.33	22.87	23.10
		1	49	23.40	23.33	23.22
		25	0	22.63	22.54	22.36
		25	12	22.69	22.72	21.76
		25	25	22.54	22.11	22.03
		50	0	22.28	22.14	21.89
	256QAM	1	0	21.41	21.18	20.74
		1	24	21.60	20.94	21.41
		1	49	21.69	21.27	21.16
		25	0	20.19	20.26	20.30
		25	12	20.55	20.57	20.19
		25	25	20.50	20.22	20.25
		50	0	20.43	20.13	20.36

*EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

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	25.58	25.37	24.95
		1	12	25.33	25.06	25.40
		1	24	25.37	24.95	24.98
		12	0	24.20	24.37	23.93
		12	6	24.44	24.15	24.27
		12	13	24.58	24.61	24.09
		25	0	24.02	23.97	23.91
	16QAM	1	0	24.52	24.42	24.39
		1	12	24.25	24.00	24.03
		1	24	24.24	23.82	24.14
		12	0	23.38	23.01	22.98
		12	6	23.30	23.45	23.31
		12	13	23.65	23.62	23.00
		25	0	23.07	23.34	23.30
	64QAM	1	0	23.19	22.85	23.04
		1	12	23.16	23.07	22.92
		1	24	23.58	23.23	22.90
		12	0	22.12	22.18	22.25
		12	6	22.54	22.57	22.05
		12	13	22.53	22.20	22.03
		25	0	22.39	22.12	21.98
	256QAM	1	0	21.18	20.86	20.94
		1	12	21.57	21.28	21.34
		1	24	21.15	21.40	20.83
		12	0	20.57	20.18	20.13
		12	6	20.35	20.20	20.25
		12	13	20.11	20.30	20.21
		25	0	19.99	20.06	20.34

*EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

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	25.46	25.37	24.84
		1	7	25.05	25.43	25.14
		1	14	25.34	24.89	25.05
		8	0	24.55	24.37	23.94
		8	3	24.59	24.51	23.98
		8	7	24.20	24.65	23.96
		15	0	24.16	24.43	24.10
	16QAM	1	0	24.33	24.31	24.03
		1	7	24.64	24.35	24.48
		1	14	24.57	24.04	24.12
		8	0	23.54	23.24	23.22
		8	3	23.45	23.51	23.39
		8	7	23.67	23.53	23.14
		15	0	23.34	23.57	23.36
	64QAM	1	0	23.50	22.88	22.73
		1	7	23.59	23.18	22.94
		1	14	23.17	22.98	23.22
		8	0	22.34	22.78	22.30
		8	3	22.48	22.67	21.93
		8	7	22.31	22.28	21.74
		15	0	22.28	21.93	22.02
	256QAM	1	0	21.49	20.99	20.74
		1	7	21.60	21.02	21.01
		1	14	21.67	21.10	21.45
		8	0	20.42	20.10	19.97
		8	3	20.49	20.59	19.75
		8	7	20.44	20.55	19.94
		15	0	20.39	20.10	20.15

*EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

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	25.47	24.88	25.36
		1	2	25.43	25.31	24.82
		1	5	25.42	25.26	25.12
		3	0	24.30	24.16	23.87
		3	1	24.50	24.25	24.16
		3	3	24.22	24.45	24.10
		6	0	24.05	24.24	23.89
	16QAM	1	0	24.61	24.15	23.86
		1	2	24.49	24.28	24.48
		1	5	24.18	24.26	24.44
		3	0	23.64	23.21	23.15
		3	1	23.64	23.01	22.85
		3	3	23.67	23.27	23.17
		6	0	23.56	23.05	23.05
	64QAM	1	0	23.57	23.27	22.89
		1	2	23.32	23.16	23.22
		1	5	23.56	22.88	23.28
		3	0	22.19	22.39	22.27
		3	1	22.17	22.53	21.99
		3	3	22.59	22.69	21.66
		6	0	22.19	22.48	21.96
	256QAM	1	0	21.60	21.26	21.31
		1	2	21.30	21.09	20.98
		1	5	21.57	21.25	20.87
		3	0	20.19	20.56	20.33
		3	1	20.65	20.13	20.28
		3	3	20.08	20.02	19.88
		6	0	20.35	20.19	20.00

*EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

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	21.10	21.64	21.58
		1	24	21.36	21.40	21.85
		1	49	21.09	21.35	21.60
		25	0	20.04	20.48	20.80
		25	12	20.26	20.50	20.61
		25	25	20.07	20.43	20.85
		50	0	20.40	20.74	20.53
	16QAM	1	0	19.92	20.45	20.79
		1	24	20.35	20.33	20.83
		1	49	20.14	20.57	20.77
		25	0	19.08	19.81	19.72
		25	12	19.27	19.52	19.90
		25	25	19.17	19.51	19.85
		50	0	19.29	19.52	19.62
	64QAM	1	0	19.12	19.48	19.85
		1	24	19.47	19.74	19.80
		1	49	19.58	19.44	19.64
		25	0	18.55	18.74	18.71
		25	12	18.08	18.59	18.80
		25	25	18.26	18.47	18.47
		50	0	18.07	18.66	18.95
	256QAM	1	0	17.31	17.39	17.73
		1	24	17.32	17.37	17.83
		1	49	17.26	17.59	17.71
		25	0	16.05	16.31	16.54
		25	12	16.60	16.52	16.89
		25	25	16.35	16.46	16.96
		50	0	16.20	16.49	16.54

*ERP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi) – 2.15

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	21.32	21.60	21.53
		1	12	21.23	21.43	21.96
		1	24	21.09	21.41	21.64
		12	0	20.39	20.68	20.83
		12	6	20.36	20.67	20.77
		12	13	20.04	20.71	20.80
		25	0	20.12	20.55	20.78
	16QAM	1	0	20.17	20.72	20.84
		1	12	20.16	20.59	20.87
		1	24	20.27	20.66	20.74
		12	0	19.02	19.86	19.65
		12	6	19.26	19.83	19.54
		12	13	19.35	19.62	19.68
		25	0	19.42	19.43	19.69
	64QAM	1	0	19.41	19.34	19.81
		1	12	19.31	19.44	19.57
		1	24	19.30	19.52	19.60
		12	0	18.22	18.61	18.52
		12	6	18.41	18.55	18.86
		12	13	18.27	18.56	18.53
		25	0	18.04	18.89	18.57
	256QAM	1	0	17.09	17.59	17.79
		1	12	17.24	17.37	18.03
		1	24	17.27	17.78	17.55
		12	0	16.36	16.59	16.85
		12	6	16.28	16.68	16.77
		12	13	16.31	16.85	16.77
		25	0	16.26	16.62	16.51

*ERP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi) – 2.15

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	21.04	21.36	21.69
		1	7	21.21	21.41	21.70
		1	14	21.17	21.60	21.90
		8	0	20.23	20.90	20.92
		8	3	20.61	20.78	20.71
		8	7	20.06	20.74	20.69
		15	0	20.07	20.69	20.63
	16QAM	1	0	19.97	20.68	20.88
		1	7	20.21	20.48	20.58
		1	14	20.43	20.66	20.82
		8	0	19.28	19.77	19.47
		8	3	19.17	19.65	19.78
		8	7	19.11	19.85	19.55
		15	0	19.32	19.75	19.86
	64QAM	1	0	19.32	19.38	19.53
		1	7	19.23	19.76	19.50
		1	14	19.25	19.78	19.51
		8	0	18.24	18.78	18.59
		8	3	18.40	18.80	18.53
		8	7	18.29	18.60	18.62
		15	0	18.27	18.73	18.97
	256QAM	1	0	17.20	17.59	17.98
		1	7	17.10	17.49	17.70
		1	14	17.40	17.50	17.60
		8	0	16.28	16.57	16.91
		8	3	16.56	16.74	16.94
		8	7	16.00	16.62	16.99
		15	0	16.39	16.45	16.53

*ERP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi) – 2.15

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	21.10	21.68	21.81
		1	2	21.27	21.67	21.96
		1	5	21.36	21.24	21.46
		3	0	20.40	20.87	20.61
		3	1	20.23	20.59	20.46
		3	3	20.34	20.46	20.66
		6	0	20.07	20.57	20.61
	16QAM	1	0	20.25	20.52	20.53
		1	2	20.43	20.61	20.99
		1	5	20.07	20.52	20.62
		3	0	19.11	19.82	19.65
		3	1	19.21	19.44	19.90
		3	3	19.54	19.82	19.87
		6	0	19.17	19.59	19.91
	64QAM	1	0	19.42	19.46	19.69
		1	2	19.22	19.58	19.59
		1	5	19.52	19.64	19.74
		3	0	18.23	18.64	18.50
		3	1	18.24	18.68	18.50
		3	3	18.27	18.34	18.78
		6	0	17.99	18.79	18.83
	256QAM	1	0	17.09	17.70	17.59
		1	2	17.27	17.67	17.84
		1	5	17.42	17.53	17.78
		3	0	16.46	16.47	16.93
		3	1	16.49	16.80	16.88
		3	3	16.14	16.86	16.96
		6	0	16.06	16.67	16.52

*ERP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi) – 2.15

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	24.89	24.42	24.28
		1	50	24.79	24.57	24.46
		1	99	24.77	24.30	24.49
		50	0	23.55	23.74	23.44
		50	25	23.43	23.64	23.48
		50	50	23.70	23.73	23.40
		100	0	23.83	23.48	23.36
	16QAM	1	0	23.56	23.70	23.47
		1	50	23.68	23.52	23.43
		1	99	23.50	23.53	23.61
		50	0	22.54	22.59	22.48
		50	25	22.61	22.83	22.55
		50	50	22.72	22.69	22.25
		100	0	22.64	22.48	22.57
	64QAM	1	0	22.73	22.44	22.17
		1	50	22.60	22.30	22.22
		1	99	22.71	22.43	22.14
		50	0	21.56	21.62	21.38
		50	25	21.78	21.73	21.31
		50	50	21.75	21.55	21.13
		100	0	21.86	21.82	21.56
	256QAM	1	0	20.51	20.48	20.56
		1	50	20.55	20.52	20.55
		1	99	20.65	20.54	20.46
		50	0	19.59	19.84	19.33
		50	25	19.69	19.75	19.16
		50	50	19.51	19.63	19.21
		100	0	19.66	19.66	19.57

*EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

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	24.80	24.53	24.46
		1	37	24.66	24.63	24.47
		1	74	24.53	24.50	24.54
		36	0	23.82	23.54	23.32
		36	19	23.60	23.75	23.18
		36	39	23.79	23.58	23.36
		75	0	23.85	23.46	23.48
	16QAM	1	0	23.76	23.44	23.40
		1	37	23.94	23.56	23.29
		1	74	23.67	23.67	23.27
		36	0	22.48	22.57	22.33
		36	19	22.70	22.87	22.36
		36	39	22.55	22.84	22.54
		75	0	22.80	22.72	22.59
	64QAM	1	0	22.70	22.63	22.25
		1	37	22.63	22.46	22.21
		1	74	22.56	22.39	22.24
		36	0	21.65	21.74	21.20
		36	19	21.52	21.92	21.54
		36	39	21.61	21.77	21.22
		75	0	21.56	21.69	21.31
	256QAM	1	0	20.73	20.44	20.45
		1	37	20.66	20.50	20.30
		1	74	20.81	20.26	20.42
		36	0	19.91	19.60	19.24
		36	19	19.46	19.87	19.27
		36	39	19.49	19.59	19.48
		75	0	19.69	19.67	19.60

*EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

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	24.77	24.26	24.31
		1	24	24.56	24.27	24.44
		1	49	24.70	24.61	24.43
		25	0	23.84	23.68	23.66
		25	12	23.64	23.69	23.37
		25	25	23.59	23.53	23.24
		50	0	23.77	23.67	23.41
	16QAM	1	0	23.54	23.63	23.56
		1	24	23.92	23.70	23.33
		1	49	23.76	23.52	23.50
		25	0	22.64	22.71	22.19
		25	12	22.73	22.65	22.59
		25	25	22.61	22.76	22.46
		50	0	22.65	22.47	22.25
	64QAM	1	0	22.51	22.70	22.40
		1	24	22.58	22.41	22.35
		1	49	22.64	22.24	22.12
		25	0	21.49	21.79	21.22
		25	12	21.79	21.75	21.51
		25	25	21.78	21.55	21.41
		50	0	21.71	21.75	21.59
	256QAM	1	0	20.47	20.50	20.26
		1	24	20.64	20.64	20.51
		1	49	20.73	20.43	20.43
		25	0	19.65	19.67	19.46
		25	12	19.58	19.71	19.29
		25	25	19.42	19.44	19.37
		50	0	19.54	19.53	19.49

*EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

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	24.68	24.60	24.45
		1	12	24.54	24.59	24.27
		1	24	24.42	24.36	24.56
		12	0	23.75	23.54	23.36
		12	6	23.58	23.53	23.23
		12	13	23.95	23.70	23.35
		25	0	23.54	23.74	23.25
	16QAM	1	0	23.61	23.43	23.28
		1	12	23.71	23.37	23.34
		1	24	23.76	23.47	23.26
		12	0	22.51	22.87	22.51
		12	6	22.67	22.92	22.47
		12	13	22.47	22.81	22.31
		25	0	22.74	22.58	22.55
	64QAM	1	0	22.58	22.47	22.23
		1	12	22.76	22.65	22.38
		1	24	22.66	22.32	22.45
		12	0	21.57	21.79	21.40
		12	6	21.84	21.89	21.32
		12	13	21.55	21.63	21.10
		25	0	21.90	21.65	21.26
	256QAM	1	0	20.81	20.67	20.51
		1	12	20.65	20.57	20.48
		1	24	20.77	20.29	20.45
		12	0	19.86	19.76	19.51
		12	6	19.61	19.65	19.33
		12	13	19.57	19.71	19.26
		25	0	19.73	19.79	19.49

*EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

LTE Band 38						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		37850	38000	38150
		Frequency (MHz)		2580	2595	2610
20M	QPSK	1	0	24.61	24.64	24.60
		1	50	24.57	24.55	24.56
		1	99	24.50	24.49	24.52
		50	0	23.93	24.05	23.99
		50	25	24.00	24.07	23.97
		50	50	23.92	23.93	24.02
		100	0	23.83	23.82	23.88
	16QAM	1	0	23.99	24.03	23.98
		1	50	23.91	23.92	23.94
		1	99	23.87	23.84	23.90
		50	0	23.16	23.09	23.07
		50	25	22.99	23.07	23.04
		50	50	22.98	22.98	22.97
		100	0	23.00	22.99	22.90
	64QAM	1	0	22.90	23.00	22.84
		1	50	22.85	22.83	22.78
		1	99	22.64	22.72	22.74
		50	0	22.11	22.10	22.16
		50	25	22.07	22.03	21.98
		50	50	21.89	21.98	21.96
		100	0	22.00	22.02	21.97
	256QAM	1	0	21.05	21.22	21.10
		1	50	21.10	21.11	21.15
		1	99	21.09	21.10	21.06
50		0	20.54	20.48	20.45	
50		25	20.39	20.38	20.46	
50		50	20.48	20.42	20.37	
100		0	20.26	20.24	20.24	

*EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

LTE Band 38						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		37825	38000	38175
		Frequency (MHz)		2577.5	2595	2612.5
15M	QPSK	1	0	24.55	24.60	24.53
		1	37	24.54	24.51	24.52
		1	74	24.44	24.44	24.45
		36	0	23.87	23.98	23.97
		36	19	23.97	23.99	23.95
		36	39	23.84	23.91	23.98
		75	0	23.77	23.74	23.81
	16QAM	1	0	23.94	24.01	23.91
		1	37	23.88	23.87	23.90
		1	74	23.81	23.78	23.87
		36	0	23.11	23.04	23.03
		36	19	22.91	23.00	22.96
		36	39	22.94	22.96	22.89
		75	0	22.92	22.96	22.88
	64QAM	1	0	22.87	22.93	22.77
		1	37	22.83	22.78	22.75
		1	74	22.60	22.69	22.70
		36	0	22.05	22.03	22.08
		36	19	22.05	21.98	21.96
		36	39	21.83	21.95	21.90
		75	0	21.93	21.97	21.90
	256QAM	1	0	20.98	21.18	21.05
		1	37	21.02	21.05	21.10
		1	74	21.02	21.02	21.01
		36	0	20.46	20.45	20.41
		36	19	20.31	20.33	20.42
		36	39	20.44	20.38	20.34
		75	0	20.22	20.17	20.22

*EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

LTE Band 38						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		37800	38000	38200
		Frequency (MHz)		2575	2595	2615
10M	QPSK	1	0	24.58	24.59	24.56
		1	24	24.54	24.52	24.53
		1	49	24.47	24.43	24.45
		25	0	23.85	24.02	23.92
		25	12	23.95	24.03	23.92
		25	25	23.84	23.90	23.97
		50	0	23.76	23.77	23.85
	16QAM	1	0	23.92	23.95	23.94
		1	24	23.87	23.88	23.86
		1	49	23.82	23.81	23.86
		25	0	23.09	23.06	23.02
		25	12	22.91	23.05	23.02
		25	25	22.94	22.92	22.90
		50	0	22.98	22.93	22.82
	64QAM	1	0	22.86	22.94	22.77
		1	24	22.82	22.77	22.73
		1	49	22.60	22.66	22.70
		25	0	22.04	22.04	22.13
		25	12	22.01	21.95	21.92
		25	25	21.85	21.94	21.93
		50	0	21.94	21.94	21.91
	256QAM	1	0	21.00	21.19	21.03
		1	24	21.06	21.05	21.13
		1	49	21.02	21.08	21.03
		25	0	20.51	20.45	20.41
		25	12	20.31	20.34	20.38
		25	25	20.43	20.40	20.30
		50	0	20.19	20.19	20.20

*EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

LTE Band 38						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		37775	38000	38225
		Frequency (MHz)		2572.5	2595	2617.5
5M	QPSK	1	0	24.58	24.61	24.54
		1	12	24.55	24.48	24.49
		1	24	24.46	24.42	24.47
		12	0	23.91	23.99	23.95
		12	6	23.96	23.99	23.93
		12	13	23.88	23.86	23.95
		25	0	23.80	23.79	23.86
	16QAM	1	0	23.95	23.95	23.95
		1	12	23.88	23.87	23.92
		1	24	23.84	23.79	23.82
		12	0	23.10	23.07	23.04
		12	6	22.91	23.02	22.98
		12	13	22.95	22.94	22.91
		25	0	22.95	22.96	22.86
	64QAM	1	0	22.82	22.97	22.76
		1	12	22.80	22.81	22.76
		1	24	22.56	22.68	22.68
		12	0	22.08	22.07	22.08
		12	6	21.99	21.95	21.93
		12	13	21.84	21.93	21.93
		25	0	21.94	21.98	21.90
	256QAM	1	0	20.98	21.17	21.07
		1	12	21.04	21.04	21.13
		1	24	21.05	21.04	21.01
		12	0	20.51	20.44	20.39
		12	6	20.33	20.36	20.40
		12	13	20.46	20.39	20.29
		25	0	20.19	20.18	20.21

*EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

LTE Band 41						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		39750	40620	41490
		Frequency (MHz)		2506	2593	2680
20M	QPSK	1	0	24.88	24.35	24.35
		1	50	24.72	24.41	24.53
		1	99	24.70	24.59	24.49
		50	0	23.88	23.78	23.22
		50	25	23.63	23.93	23.38
		50	50	23.51	23.65	23.55
		100	0	23.82	23.52	23.50
	16QAM	1	0	23.55	23.15	23.30
		1	50	23.51	23.47	23.63
		1	99	23.61	23.43	23.52
		50	0	22.64	22.66	22.33
		50	25	22.61	22.81	22.35
		50	50	22.64	22.74	22.41
		100	0	22.69	22.47	22.33
	64QAM	1	0	22.81	22.27	22.41
		1	50	22.56	22.48	22.69
		1	99	22.67	22.32	22.44
		50	0	21.81	21.51	21.40
		50	25	21.49	21.90	21.38
		50	50	21.56	21.87	21.41
		100	0	21.74	21.48	21.45
	256QAM	1	0	20.83	20.26	20.33
		1	50	20.85	20.56	20.69
		1	99	20.66	20.42	20.61
50		0	19.56	19.80	19.46	
50		25	19.63	19.59	19.27	
50		50	19.67	19.80	19.12	
100		0	19.46	19.28	19.18	

*EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

LTE Band 41						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		39725	40620	41515
		Frequency (MHz)		2503.5	2593	2682.5
15M	QPSK	1	0	24.76	24.36	24.30
		1	37	24.69	24.71	24.50
		1	74	24.84	24.43	24.64
		36	0	23.62	23.59	23.18
		36	19	23.66	23.87	23.14
		36	39	23.65	23.84	23.33
		75	0	23.60	23.44	23.22
	16QAM	1	0	23.67	23.36	23.21
		1	37	23.54	23.54	23.70
		1	74	23.71	23.60	23.37
		36	0	22.57	22.48	22.37
		36	19	22.76	22.63	22.37
		36	39	22.80	22.93	22.19
		75	0	22.47	22.49	22.54
	64QAM	1	0	22.53	22.40	22.32
		1	37	22.55	22.68	22.54
		1	74	22.58	22.52	22.67
		36	0	21.56	21.46	21.46
		36	19	21.54	21.89	21.47
		36	39	21.56	21.67	21.32
		75	0	21.66	21.54	21.52
	256QAM	1	0	20.71	20.18	20.43
		1	37	20.85	20.68	20.37
		1	74	20.57	20.52	20.58
		36	0	19.76	19.86	19.36
		36	19	19.74	19.50	19.29
		36	39	19.86	19.58	19.32
		75	0	19.54	19.57	19.18

*EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

LTE Band 41						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		39700	40620	41540
		Frequency (MHz)		2501	2593	2685
10M	QPSK	1	0	24.83	24.51	24.25
		1	24	24.71	24.58	24.53
		1	49	24.88	24.53	24.54
		25	0	23.68	23.68	23.49
		25	12	23.81	23.84	23.24
		25	25	23.60	23.76	23.36
		50	0	23.52	23.28	23.46
	16QAM	1	0	23.58	23.44	23.35
		1	24	23.73	23.50	23.66
		1	49	23.44	23.34	23.49
		25	0	22.58	22.56	22.33
		25	12	22.81	22.79	22.48
		25	25	22.52	22.89	22.14
		50	0	22.76	22.60	22.52
	64QAM	1	0	22.70	22.19	22.37
		1	24	22.53	22.44	22.70
		1	49	22.78	22.27	22.65
		25	0	21.47	21.67	21.42
		25	12	21.54	21.74	21.44
		25	25	21.80	21.69	21.45
		50	0	21.51	21.53	21.31
	256QAM	1	0	20.71	20.40	20.47
		1	24	20.58	20.63	20.61
		1	49	20.52	20.42	20.57
		25	0	19.86	19.76	19.32
		25	12	19.89	19.69	19.14
		25	25	19.95	19.82	19.46
		50	0	19.34	19.31	19.22

*EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

LTE Band 41						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		39675	40620	41565
		Frequency (MHz)		2498.5	2593	2687.5
5M	QPSK	1	0	24.72	24.37	24.38
		1	12	24.62	24.57	24.73
		1	24	24.79	24.55	24.54
		12	0	23.60	23.81	23.53
		12	6	23.68	23.84	23.47
		12	13	23.64	23.67	23.42
		25	0	23.76	23.41	23.53
	16QAM	1	0	23.68	23.45	23.17
		1	12	23.68	23.43	23.50
		1	24	23.61	23.45	23.51
		12	0	22.68	22.63	22.33
		12	6	22.72	22.57	22.17
		12	13	22.50	22.61	22.25
		25	0	22.48	22.44	22.45
	64QAM	1	0	22.64	22.32	22.34
		1	12	22.54	22.69	22.76
		1	24	22.73	22.28	22.47
		12	0	21.57	21.54	21.45
		12	6	21.55	21.90	21.29
		12	13	21.83	21.80	21.23
		25	0	21.64	21.34	21.58
	256QAM	1	0	20.83	20.41	20.38
		1	12	20.62	20.68	20.37
		1	24	20.58	20.62	20.52
		12	0	19.73	19.75	19.30
		12	6	19.87	19.51	19.24
		12	13	19.60	19.62	19.16
		25	0	19.59	19.32	19.43

*EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

LTE Band 66						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		132072	132322	132575
		Frequency (MHz)		1720	1745	1770
20M	QPSK	1	0	25.89	25.37	25.41
		1	50	25.53	25.51	25.70
		1	99	26.14	25.41	25.75
		50	0	24.63	24.65	24.47
		50	25	24.74	24.87	24.58
		50	50	24.76	24.83	24.27
		100	0	24.77	24.43	24.36
	16QAM	1	0	24.82	24.52	24.46
		1	50	24.71	24.38	24.47
		1	99	24.57	24.77	24.41
		50	0	23.97	23.60	23.43
		50	25	24.06	23.57	23.70
		50	50	23.90	24.05	23.57
		100	0	23.71	23.63	23.64
	64QAM	1	0	23.93	23.30	23.45
		1	50	23.91	23.72	23.75
		1	99	23.94	23.40	23.33
		50	0	22.57	22.89	22.76
		50	25	22.78	22.69	22.52
		50	50	22.57	22.99	22.38
		100	0	22.43	22.52	22.77
	256QAM	1	0	21.74	21.71	21.44
		1	50	21.70	21.68	21.56
		1	99	21.85	21.47	21.51
		50	0	20.67	20.99	20.25
		50	25	20.57	21.08	20.47
		50	50	20.76	20.93	20.50
		100	0	20.69	20.55	20.39

*EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

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	25.86	25.47	25.52
		1	37	25.68	25.51	25.41
		1	74	25.90	25.36	25.65
		36	0	24.90	24.51	24.39
		36	19	25.04	24.82	24.48
		36	39	24.80	24.62	24.26
		75	0	24.58	24.79	24.25
	16QAM	1	0	24.59	24.66	24.55
		1	37	24.95	24.71	24.66
		1	74	24.96	24.67	24.77
		36	0	23.66	23.75	23.43
		36	19	24.05	23.83	23.46
		36	39	24.13	23.75	23.61
		75	0	23.48	23.80	23.41
	64QAM	1	0	23.61	23.42	23.30
		1	37	24.01	23.76	23.71
		1	74	24.06	23.35	23.57
		36	0	22.64	23.08	22.36
		36	19	23.03	22.98	22.33
		36	39	22.60	22.70	22.31
		75	0	22.58	22.86	22.44
	256QAM	1	0	21.68	21.80	21.74
		1	37	21.76	21.91	21.82
		1	74	21.93	21.46	21.72
		36	0	20.83	20.68	20.25
		36	19	20.54	20.81	20.69
		36	39	21.01	20.50	20.70
		75	0	20.87	20.50	20.59

*EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

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	25.78	25.77	25.64
		1	24	25.61	25.68	25.51
		1	49	26.07	25.73	25.76
		25	0	24.60	24.52	24.52
		25	12	25.05	24.57	24.76
		25	25	24.76	24.75	24.57
		50	0	24.57	24.84	24.20
	16QAM	1	0	24.59	24.82	24.61
		1	24	24.69	24.80	24.91
		1	49	24.73	24.43	24.80
		25	0	23.64	23.66	23.60
		25	12	24.08	23.83	23.63
		25	25	23.93	23.66	23.46
		50	0	23.51	23.96	23.68
	64QAM	1	0	24.03	23.57	23.52
		1	24	23.88	23.73	23.60
		1	49	23.77	23.67	23.76
		25	0	22.60	23.06	22.44
		25	12	22.70	22.82	22.20
		25	25	22.63	22.98	22.23
		50	0	22.44	22.54	22.77
	256QAM	1	0	21.95	21.47	21.30
		1	24	21.63	21.76	21.58
		1	49	21.59	21.51	21.57
		25	0	20.61	20.95	20.24
		25	12	20.61	20.77	20.46
		25	25	20.65	20.78	20.50
		50	0	20.64	20.73	20.34

*EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

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	25.76	25.64	25.47
		1	12	25.64	25.71	25.33
		1	24	26.06	25.62	25.75
		12	0	24.98	24.85	24.68
		12	6	24.87	24.73	24.71
		12	13	24.96	24.66	24.67
		25	0	24.66	24.48	24.26
	16QAM	1	0	24.79	24.73	24.60
		1	12	25.06	24.61	24.51
		1	24	24.63	24.78	24.61
		12	0	23.83	23.78	23.24
		12	6	23.93	23.97	23.76
		12	13	23.89	24.06	23.68
		25	0	23.65	23.81	23.36
	64QAM	1	0	23.89	23.50	23.48
		1	12	23.69	23.78	23.58
		1	24	23.98	23.48	23.68
		12	0	22.67	22.94	22.48
		12	6	22.65	22.84	22.56
		12	13	22.87	22.68	22.47
		25	0	22.78	22.42	22.42
	256QAM	1	0	21.55	21.75	21.57
		1	12	21.95	21.78	21.48
		1	24	21.97	21.77	21.55
		12	0	20.74	20.80	20.37
		12	6	20.85	20.90	20.31
		12	13	20.66	20.97	20.62
		25	0	20.97	20.64	20.35

*EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

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	25.74	25.37	25.43
		1	7	25.75	25.78	25.45
		1	14	25.77	25.52	25.65
		8	0	24.57	24.68	24.42
		8	3	24.64	24.50	24.76
		8	7	24.76	24.68	24.46
		15	0	24.56	24.57	24.55
	16QAM	1	0	25.03	24.80	24.54
		1	7	24.81	24.71	24.85
		1	14	24.93	24.62	24.35
		8	0	24.05	23.77	23.68
		8	3	23.94	23.51	23.56
		8	7	24.05	23.91	23.65
		15	0	23.58	23.77	23.79
	64QAM	1	0	24.05	23.69	23.53
		1	7	23.72	23.52	23.62
		1	14	23.77	23.67	23.51
		8	0	22.79	22.70	22.33
		8	3	22.66	22.73	22.65
		8	7	22.84	22.85	22.56
		15	0	22.77	22.76	22.39
	256QAM	1	0	21.81	21.48	21.42
		1	7	21.64	21.58	21.50
		1	14	21.93	21.88	21.69
		8	0	20.97	20.68	20.25
		8	3	20.91	20.75	20.62
		8	7	20.77	20.65	20.54
		15	0	20.62	20.84	20.52

*EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

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	25.68	25.63	25.65
		1	2	25.78	25.85	25.42
		1	5	26.11	25.60	25.62
		3	0	24.58	24.75	24.42
		3	1	24.85	24.81	24.57
		3	3	24.70	24.85	24.44
		6	0	24.85	24.52	24.30
	16QAM	1	0	24.78	24.60	24.41
		1	2	24.88	24.61	24.64
		1	5	24.90	24.45	24.43
		3	0	23.67	23.62	23.51
		3	1	23.80	23.68	23.39
		3	3	23.84	23.78	23.47
		6	0	23.58	23.85	23.67
	64QAM	1	0	23.87	23.54	23.20
		1	2	23.90	23.41	23.54
		1	5	23.80	23.64	23.72
		3	0	22.60	22.77	22.51
		3	1	22.96	22.82	22.41
		3	3	22.52	22.82	22.34
		6	0	22.60	22.60	22.48
	256QAM	1	0	21.59	21.57	21.37
		1	2	21.68	21.52	21.60
		1	5	21.88	21.66	21.81
		3	0	20.78	20.71	20.44
		3	1	20.56	20.92	20.53
		3	3	20.61	20.76	20.77
		6	0	20.74	20.57	20.72

*EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

4.2 Modulation Characteristics Measurement

4.2.1 Limits of Modulation Characteristics

N/A

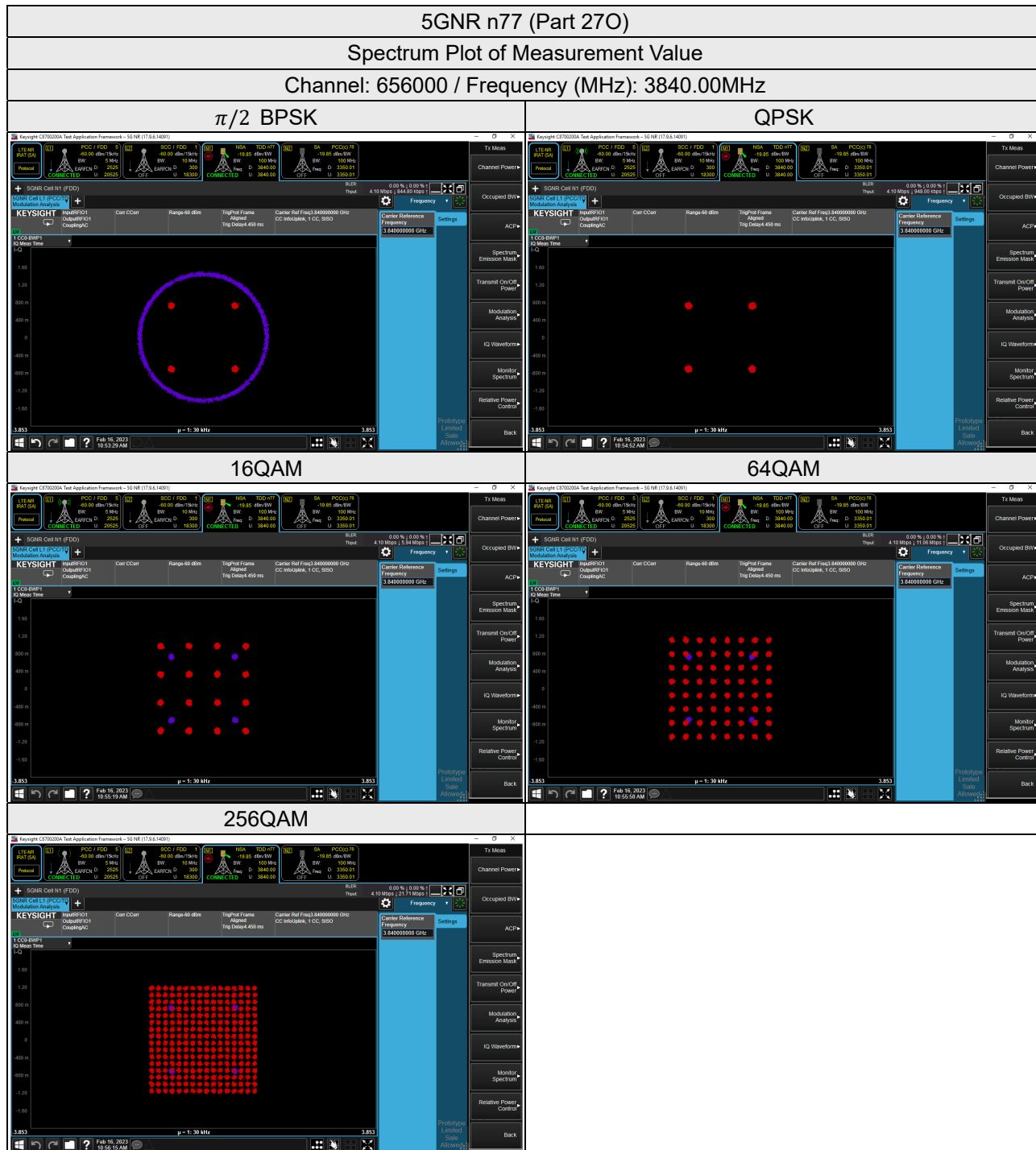
4.2.2 Test Procedure

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

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

4.3.2 Test Procedure

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

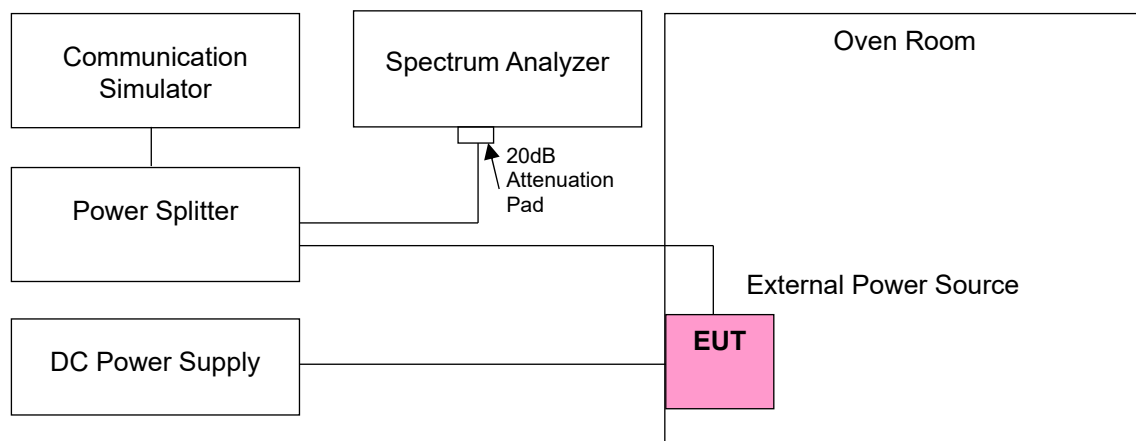
Note: The frequency error was recorded frequency error from the communication simulator.

4.3.3 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
UXM 5G Wireless Test Platform Keysight	E7515B	MY60102114	May 20, 2022	May 19, 2023
Temperature & Humidity Chamber TERCHY	HRM-120RF	931022	Dec. 27, 2022	Dec. 26, 2023
Digital Multimeter Fluke	87-III	70360742	Jun. 23, 2022	Jun. 22, 2023
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)	5GNR n77 (Part 270)			
	Channel Bandwidth 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
4.0	3705.000003	0.0008	3974.999996	-0.0010
4.2	3705.000001	0.0003	3974.999996	-0.0010
4.4	3704.999999	-0.0003	3974.999998	-0.0005

Note: The applicant defined the normal working voltage is from 4.00Vdc to 4.40Vdc.

Frequency Error vs. Temperature

Temp. (°C)	5GNR n77 (Part 270)			
	Channel Bandwidth 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	3704.999997	-0.0008	3975.000003	0.0008
-20	3704.999996	-0.0011	3975.000002	0.0005
-10	3705.000002	0.0005	3975.000003	0.0008
0	3705.000004	0.0011	3974.999998	-0.0005
10	3705.000002	0.0005	3974.999996	-0.0010
20	3705.000004	0.0011	3974.999997	-0.0008
30	3705.000003	0.0008	3975.000004	0.0010
40	3704.999997	-0.0008	3974.999999	-0.0003
50	3705.000001	0.0003	3975.000002	0.0005

Frequency Error vs. Voltage

Voltage (Vdc)	5GNR n77 (Part 270)			
	Channel Bandwidth 15 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
4.0	3707.520003	0.0008	3972.479997	-0.0008
4.2	3707.520001	0.0003	3972.479996	-0.0010
4.4	3707.519997	-0.0008	3972.480001	0.0003

Note: The applicant defined the normal working voltage is from 4.00Vdc to 4.40Vdc.

Frequency Error vs. Temperature

Temp. (°C)	5GNR n77 (Part 270)			
	Channel Bandwidth 15 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	3707.519997	-0.0008	3972.479996	-0.0010
-20	3707.519997	-0.0008	3972.479999	-0.0003
-10	3707.520004	0.0011	3972.479999	-0.0003
0	3707.520001	0.0003	3972.480002	0.0005
10	3707.519997	-0.0008	3972.479998	-0.0005
20	3707.519999	-0.0003	3972.479998	-0.0005
30	3707.519998	-0.0005	3972.479996	-0.0010
40	3707.519998	-0.0005	3972.479996	-0.0010
50	3707.519997	-0.0008	3972.479998	-0.0005

Frequency Error vs. Voltage

Voltage (Vdc)	5GNR n77 (Part 270)			
	Channel Bandwidth 20 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
4.0	3710.009999	-0.0003	3969.990003	0.0008
4.2	3710.010001	0.0003	3969.990002	0.0005
4.4	3710.009996	-0.0011	3969.989998	-0.0005

Note: The applicant defined the normal working voltage is from 4.00Vdc to 4.40Vdc.

Frequency Error vs. Temperature

Temp. (°C)	5GNR n77 (Part 270)			
	Channel Bandwidth 20 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	3710.010003	0.0008	3969.989996	-0.0010
-20	3710.010003	0.0008	3969.990001	0.0003
-10	3710.010001	0.0003	3969.989996	-0.0010
0	3710.010003	0.0008	3969.990002	0.0005
10	3710.009998	-0.0005	3969.989999	-0.0003
20	3710.009999	-0.0003	3969.989997	-0.0008
30	3710.009998	-0.0005	3969.990004	0.0010
40	3710.009997	-0.0008	3969.990004	0.0010
50	3710.009996	-0.0011	3969.990003	0.0008

Frequency Error vs. Voltage

Voltage (Vdc)	5GNR n77 (Part 270)			
	Channel Bandwidth 40 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
4.0	3720.000003	0.0008	3959.999996	-0.0010
4.2	3719.999998	-0.0005	3960.000002	0.0005
4.4	3720.000003	0.0008	3959.999998	-0.0005

Note: The applicant defined the normal working voltage is from 4.00Vdc to 4.40Vdc.

Frequency Error vs. Temperature

Temp. (°C)	5GNR n77 (Part 270)			
	Channel Bandwidth 40 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	3719.999999	-0.0003	3959.999997	-0.0008
-20	3720.000002	0.0005	3959.999998	-0.0005
-10	3719.999998	-0.0005	3959.999996	-0.0010
0	3720.000001	0.0003	3959.999996	-0.0010
10	3719.999999	-0.0003	3960.000004	0.0010
20	3720.000002	0.0005	3960.000001	0.0003
30	3720.000003	0.0008	3959.999996	-0.0010
40	3719.999996	-0.0011	3959.999997	-0.0008
50	3719.999996	-0.0011	3960.000001	0.0003

Frequency Error vs. Voltage

Voltage (Vdc)	5GNR n77 (Part 270)			
	Channel Bandwidth 50 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
4.0	3725.009999	-0.0003	3954.989997	-0.0008
4.2	3725.009998	-0.0005	3954.989996	-0.0010
4.4	3725.010003	0.0008	3954.989998	-0.0005

Note: The applicant defined the normal working voltage is from 4.00Vdc to 4.40Vdc.

Frequency Error vs. Temperature

Temp. (°C)	5GNR n77 (Part 270)			
	Channel Bandwidth 50 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	3725.010002	0.0005	3954.990003	0.0008
-20	3725.009997	-0.0008	3954.990001	0.0003
-10	3725.009997	-0.0008	3954.990001	0.0003
0	3725.010001	0.0003	3954.989999	-0.0003
10	3725.010001	0.0003	3954.989998	-0.0005
20	3725.009998	-0.0005	3954.989997	-0.0008
30	3725.010001	0.0003	3954.989998	-0.0005
40	3725.009997	-0.0008	3954.990003	0.0008
50	3725.009996	-0.0011	3954.990003	0.0008

Frequency Error vs. Voltage

Voltage (Vdc)	5GNR n77 (Part 270)			
	Channel Bandwidth 60 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
4.0	3730.019999	-0.0003	3949.979998	-0.0005
4.2	3730.020003	0.0008	3949.980002	0.0005
4.4	3730.020004	0.0011	3949.979996	-0.0010

Note: The applicant defined the normal working voltage is from 4.00Vdc to 4.40Vdc.

Frequency Error vs. Temperature

Temp. (°C)	5GNR n77 (Part 270)			
	Channel Bandwidth 60 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	3730.019997	-0.0008	3949.979999	-0.0003
-20	3730.020004	0.0011	3949.980003	0.0008
-10	3730.019999	-0.0003	3949.980001	0.0003
0	3730.019997	-0.0008	3949.980001	0.0003
10	3730.019996	-0.0011	3949.979997	-0.0008
20	3730.019999	-0.0003	3949.980003	0.0008
30	3730.019999	-0.0003	3949.979996	-0.0010
40	3730.019999	-0.0003	3949.979996	-0.0010
50	3730.020002	0.0005	3949.980001	0.0003

Frequency Error vs. Voltage

Voltage (Vdc)	5GNR n77 (Part 270)			
	Channel Bandwidth 80 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
4.0	3740.009997	-0.0008	3939.990004	0.0010
4.2	3740.010001	0.0003	3939.989996	-0.0010
4.4	3740.009996	-0.0011	3939.989997	-0.0008

Note: The applicant defined the normal working voltage is from 4.00Vdc to 4.40Vdc.

Frequency Error vs. Temperature

Temp. (°C)	5GNR n77 (Part 270)			
	Channel Bandwidth 80 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	3740.010003	0.0008	3939.990004	0.0010
-20	3740.009999	-0.0003	3939.989996	-0.0010
-10	3740.010004	0.0011	3939.990004	0.0010
0	3740.009999	-0.0003	3939.989997	-0.0008
10	3740.010003	0.0008	3939.989998	-0.0005
20	3740.009999	-0.0003	3939.989997	-0.0008
30	3740.010001	0.0003	3939.989999	-0.0003
40	3740.010003	0.0008	3939.989998	-0.0005
50	3740.009997	-0.0008	3939.989998	-0.0005

Frequency Error vs. Voltage

Voltage (Vdc)	5GNR n77 (Part 270)			
	Channel Bandwidth 90 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
4.0	3745.020001	0.0003	3934.980002	0.0005
4.2	3745.019996	-0.0011	3934.979997	-0.0008
4.4	3745.020001	0.0003	3934.979998	-0.0005

Note: The applicant defined the normal working voltage is from 4.00Vdc to 4.40Vdc.

Frequency Error vs. Temperature

Temp. (°C)	5GNR n77 (Part 270)			
	Channel Bandwidth 90 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	3745.020001	0.0003	3934.979999	-0.0003
-20	3745.020003	0.0008	3934.980004	0.0010
-10	3745.020004	0.0011	3934.980004	0.0010
0	3745.019997	-0.0008	3934.980004	0.0010
10	3745.019999	-0.0003	3934.979998	-0.0005
20	3745.020001	0.0003	3934.980004	0.0010
30	3745.019998	-0.0005	3934.979998	-0.0005
40	3745.019996	-0.0011	3934.980001	0.0003
50	3745.019996	-0.0011	3934.980004	0.0010

Frequency Error vs. Voltage

Voltage (Vdc)	5GNR n77 (Part 270)			
	Channel Bandwidth 100 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
4.0	3749.999996	-0.0011	3929.999999	-0.0003
4.2	3750.000004	0.0011	3930.000004	0.0011
4.4	3749.999996	-0.0011	3930.000001	0.0003

Note: The applicant defined the normal working voltage is from 4.00Vdc to 4.40Vdc.

Frequency Error vs. Temperature

Temp. (°C)	5GNR n77 (Part 270)			
	Channel Bandwidth 100 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	3750.000003	0.0008	3929.999998	-0.0005
-20	3749.999997	-0.0008	3929.999997	-0.0008
-10	3749.999999	-0.0003	3929.999996	-0.0011
0	3749.999996	-0.0011	3930.000003	0.0008
10	3749.999996	-0.0011	3930.000001	0.0003
20	3749.999997	-0.0008	3929.999999	-0.0003
30	3749.999999	-0.0003	3930.000002	0.0005
40	3750.000004	0.0011	3929.999998	-0.0005
50	3750.000003	0.0008	3930.000002	0.0005

4.4 Emission Bandwidth Measurement

4.4.1 Limits of Emission Bandwidth Measurement

According to FCC 2.1049, the occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 % of the total mean power radiated by a given emission.

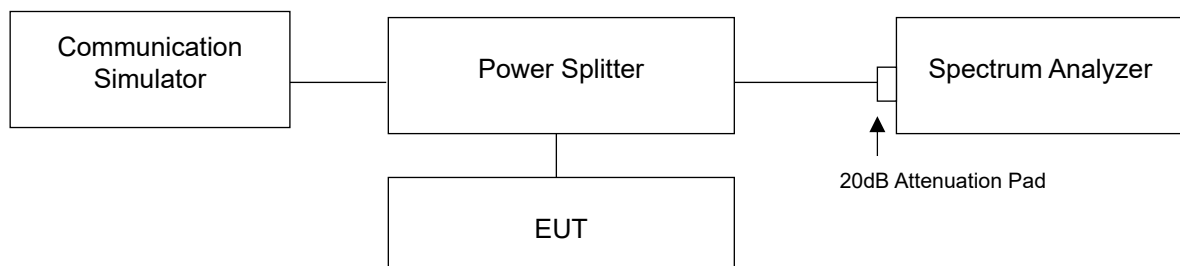
4.4.2 Test Procedure

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

- The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the spectrum analyzer shall be wide enough to see sufficient roll off of the signal to make the measurement.
- The nominal RBW shall be in the range of 1% to 5% of the anticipated OBW, and the VBW shall be set $\geq 3 \times$ RBW.
- Set the reference level of the instrument as required to prevent the signal amplitude from exceeding the maximum spectrum analyzer input mixer level for linear operation. See guidance provided in 4.2.3.
- The dynamic range of the spectrum analyzer at the selected RBW shall be more than 10 dB below the target “-X dB” requirement, i.e., if the requirement calls for measuring the -26 dB OBW, the spectrum analyzer noise floor at the selected RBW shall be at least 36 dB below the reference level.
- Set spectrum analyzer detection mode to peak, and the trace mode to max hold.
- Determine the following reference values: Set the EUT to transmit a modulated signal. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace (this is the reference value).
- Determine the “-X dB amplitude” as equal to (Reference Value - X). Alternatively, this calculation can be performed on the spectrum analyzer using the delta-marker measurement function.
- Place two markers, one at the lowest and the other at the highest frequency of the envelope of the spectral display such that each marker is at or slightly below the “-X dB amplitude” determined in step f). If a marker is below this “-X dB amplitude” value it should be as close as possible to this value. The OBW is the positive frequency difference between the two markers.
- The OBW shall be reported by providing plot(s) of the measuring instrument display, to include markers depicting the relevant frequency and amplitude information (e.g., marker table). The frequency and amplitude axis and scale shall be clearly labeled. Tabular data may be reported in addition to the plot(s).

For the occupied bandwidth measurement method, please refer to section 5.4.4 of ANSI C63.26.

4.4.3 Test Setup



4.4.4 Test Result

Occupied Bandwidth

5GNR n77 (Part 270), Channel Bandwidth 10MHz						
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
647000	3705.00	8.61	8.62	8.61	8.61	8.58
656000	3840.00	8.62	8.61	8.61	8.61	8.58
665000	3975.00	8.61	8.62	8.61	8.61	8.58
5GNR n77 (Part 270), Channel Bandwidth 15MHz						
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
647168	3707.52	13.52	13.59	13.62	13.59	13.58
656000	3840.00	13.53	13.58	13.59	13.59	13.58
664832	3972.48	13.56	13.58	13.59	13.59	13.58
5GNR n77 (Part 270), Channel Bandwidth 20MHz						
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
647334	3710.01	18.18	18.25	18.26	18.26	18.26
656000	3840.00	18.18	18.25	18.25	18.25	18.25
665666	3969.99	18.10	18.25	18.25	18.25	18.25
5GNR n77 (Part 270), Channel Bandwidth 40MHz						
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
648000	3720.00	37.83	37.94	37.92	37.93	37.94
656000	3840.00	37.79	37.94	37.84	37.93	37.94
664000	3960.00	37.48	37.94	37.93	37.94	37.94
5GNR n77 (Part 270) Channel Bandwidth 50MHz						
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
648334	3725.01	47.28	47.46	47.47	47.47	47.47
656000	3840.00	47.20	47.46	47.47	47.47	47.47
663666	3954.99	47.45	47.46	47.48	47.47	47.47

5GNR n77 (Part 270) Channel Bandwidth 60MHz

Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
648668	3730.02	57.86	57.85	57.72	57.84	57.71
656000	3840.00	57.70	57.68	57.66	57.67	57.65
663332	3949.98	57.95	57.95	57.92	57.93	57.92

5GNR n77 (Part 270), Channel Bandwidth 80MHz

Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
649334	3740.01	77.47	77.28	77.25	77.45	77.27
656000	3840.00	77.21	77.16	77.14	77.19	77.16
662666	3939.99	77.26	77.21	77.19	77.24	77.22

5GNR n77 (Part 270), Channel Bandwidth 90MHz

Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
649558	3745.02	87.24	87.22	87.18	87.22	87.21
656000	3840.00	87.14	87.13	86.92	87.13	87.12
662332	3934.98	86.87	86.84	86.81	86.84	86.84

5GNR n77 (Part 270), Channel Bandwidth 100MHz

Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
650000	3750.00	97.22	97.21	96.95	97.22	97.24
656000	3840.00	96.95	96.91	96.88	96.94	96.97
662000	3930.00	96.53	96.49	96.48	96.52	96.55

Spectrum Plot of Worst Value

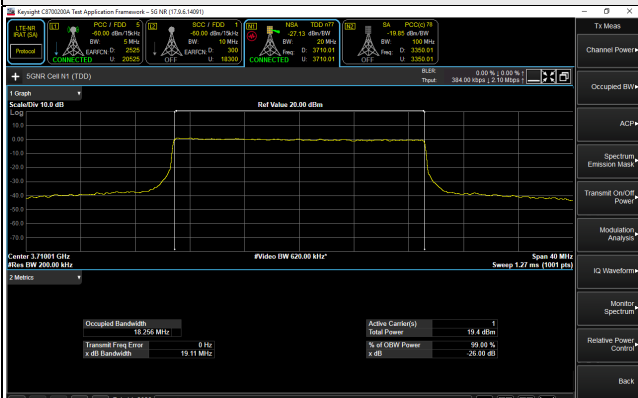
10MHz / QPSK



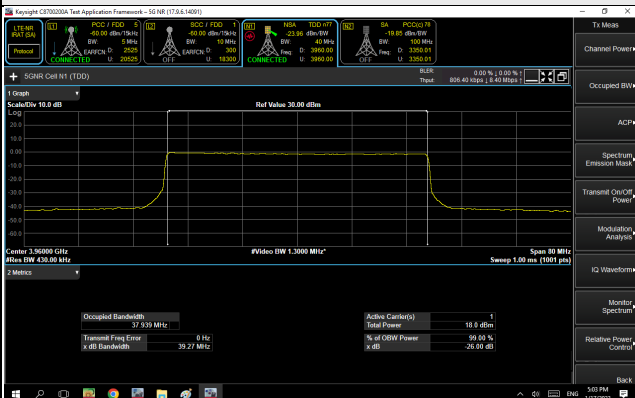
15MHz / 16QAM



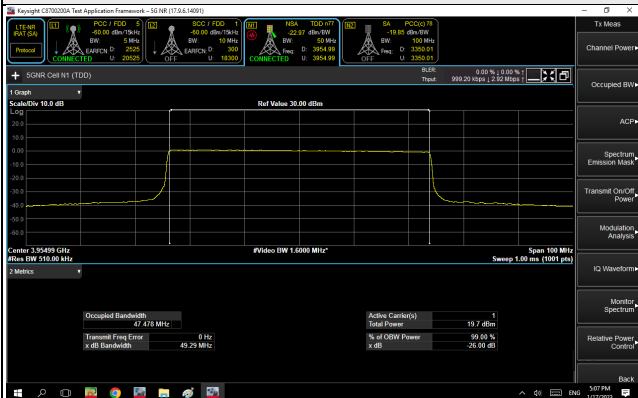
20MHz / 64QAM



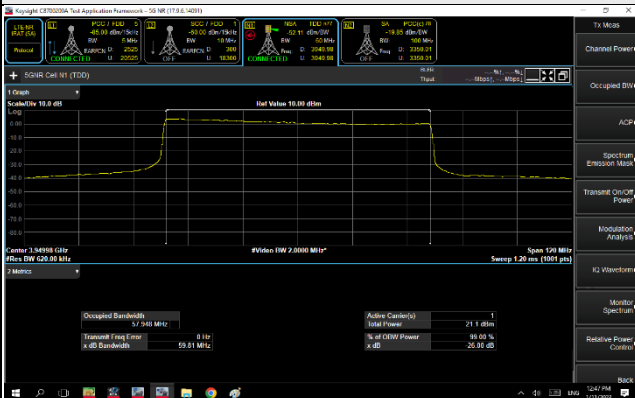
40MHz / 256QAM



50MHz / 16QAM



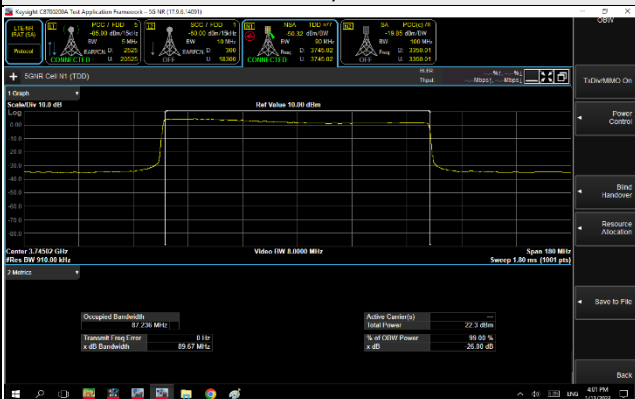
60MHz / QPSK



80MHz / $\pi/2$ BPSK



90MHz / $\pi/2$ BPSK



Spectrum Plot of Worst Value

100MHz / 256QAM



26dB Bandwidth

5GNR n77 (Part 270), Channel Bandwidth 10MHz						
Channel	Frequency (MHz)	26dB Bandwidth (MHz)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
647000	3705.00	9.40	9.44	9.38	9.42	9.33
656000	3840.00	9.47	9.40	9.28	9.35	9.38
665000	3975.00	9.38	9.41	9.33	9.42	9.33
5GNR n77 (Part 270), Channel Bandwidth 15MHz						
Channel	Frequency (MHz)	26dB Bandwidth (MHz)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
647168	3707.52	13.76	14.45	14.39	14.52	14.44
656000	3840.00	13.65	14.29	14.39	14.36	14.28
664832	3972.48	13.87	14.40	14.34	14.48	14.45
5GNR n77 (Part 270), Channel Bandwidth 20MHz						
Channel	Frequency (MHz)	26dB Bandwidth (MHz)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
647334	3710.01	18.66	19.08	19.05	19.11	19.08
656000	3840.00	18.70	19.12	19.14	18.97	19.08
665666	3969.99	18.65	19.06	19.08	19.14	19.15
5GNR n77 (Part 270), Channel Bandwidth 40MHz						
Channel	Frequency (MHz)	26dB Bandwidth (MHz)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
648000	3720.00	37.01	39.43	39.24	39.28	39.23
656000	3840.00	37.09	39.33	39.22	39.28	39.26
664000	3960.00	37.11	39.31	39.26	39.27	39.27
5GNR n77 (Part 270) Channel Bandwidth 50MHz						
Channel	Frequency (MHz)	26dB Bandwidth (MHz)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
648334	3725.01	47.30	49.13	49.28	49.19	49.13
656000	3840.00	47.36	49.16	49.19	49.17	49.19
663666	3954.99	47.34	49.16	49.29	49.21	49.15

5GNR n77 (Part 270) Channel Bandwidth 60MHz

Channel	Frequency (MHz)	26dB Bandwidth (MHz)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
648668	3730.02	59.81	59.78	59.77	59.75	59.72
656000	3840.00	59.85	59.80	59.79	59.79	59.78
663332	3949.98	59.85	59.81	59.79	59.81	59.80

5GNR n77 (Part 270), Channel Bandwidth 80MHz

Channel	Frequency (MHz)	26dB Bandwidth (MHz)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
649334	3740.01	79.73	79.68	79.71	79.72	79.72
656000	3840.00	79.75	79.64	79.68	79.65	79.67
662666	3939.99	79.68	79.65	79.63	79.68	79.68

5GNR n77 (Part 270), Channel Bandwidth 90MHz

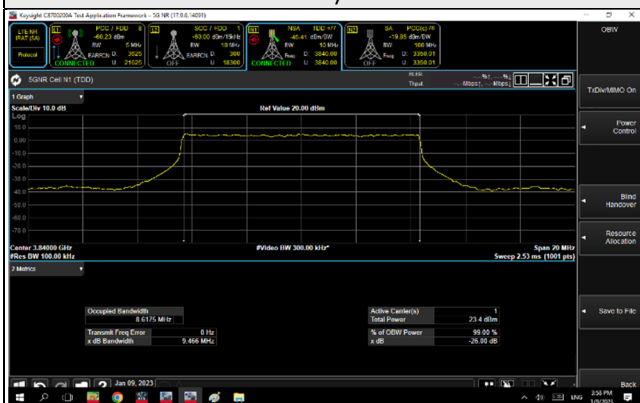
Channel	Frequency (MHz)	26dB Bandwidth (MHz)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
649558	3745.02	89.67	89.69	89.61	89.68	89.65
656000	3840.00	89.67	89.65	89.63	89.63	89.66
662332	3934.98	89.55	89.56	89.56	89.56	89.57

5GNR n77 (Part 270), Channel Bandwidth 100MHz

Channel	Frequency (MHz)	26dB Bandwidth (MHz)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
650000	3750.00	99.57	99.53	99.53	99.54	99.56
656000	3840.00	99.57	99.52	99.50	99.54	99.54
662000	3930.00	99.47	99.47	99.44	99.47	99.49

Spectrum Plot of Worst Value

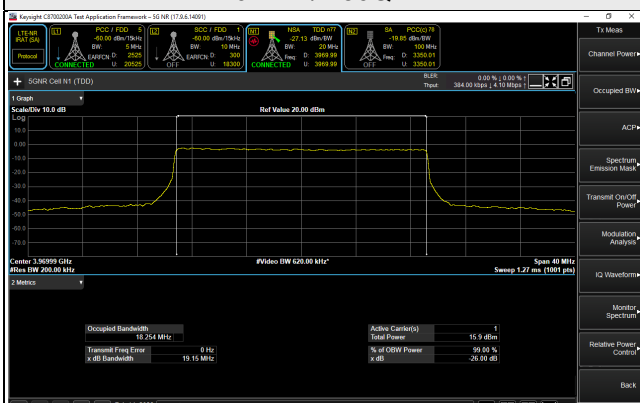
10MHz / $\pi/2$ BPSK



15MHz / 64QAM



20MHz / 256QAM



40MHz / QPSK



50MHz / 16QAM



60MHz / $\pi/2$ BPSK



80MHz / $\pi/2$ BPSK



90MHz / QPSK



Spectrum Plot of Worst Value

100MHz / $\pi/2$ BPSK

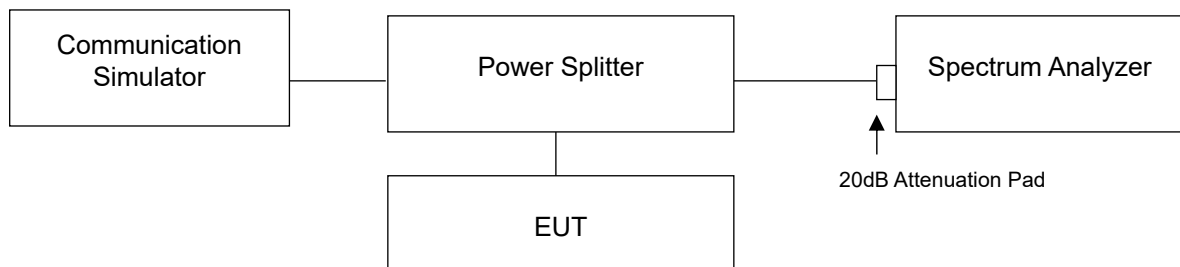


4.5 Channel Edge / Out-of-Band Emissions Measurement

4.5.1 Limits of Band Edge / Out-of-Band Emissions Measurement

According to FCC 27.53(l), for mobile operations in the 3700-3980 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed -13 dBm/MHz. Compliance with this paragraph (l)(2) is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be either one percent of the emission bandwidth of the fundamental emission of the transmitter or 350 kHz. In the bands between 1 and 5 MHz removed from the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be 500 kHz. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

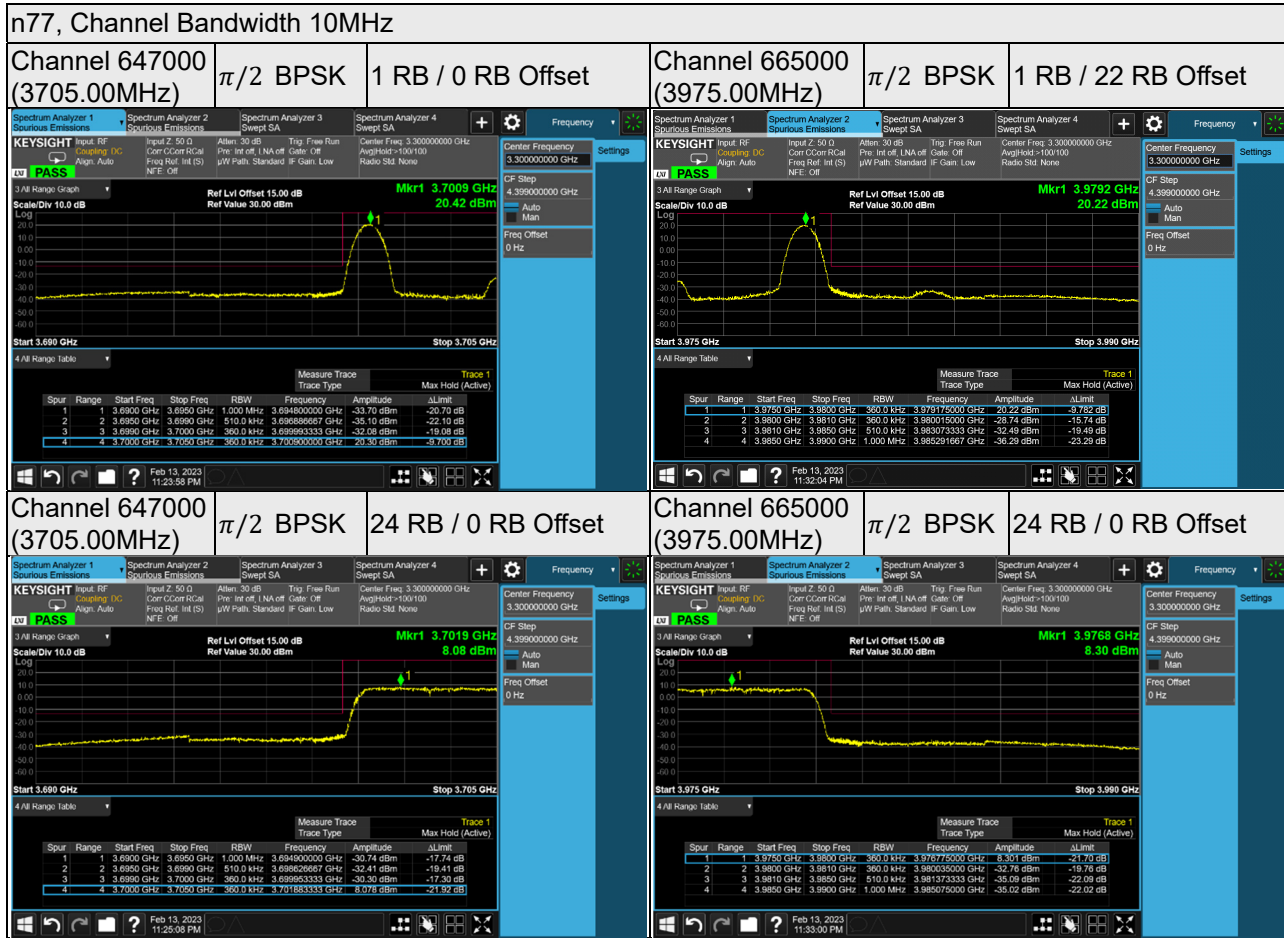
4.5.2 Test Setup



4.5.3 Test Procedures

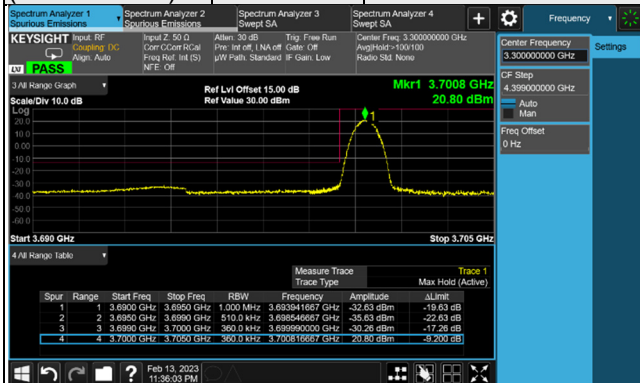
- The EUT was set up for the rated peak power. The power was measured with Spectrum Analyzer. Band edge measurements were done at 2 channels: low and high operational frequency range.
- Measurement refer to ANSI C63.26 section 5.7.2 and FCC Part 27 section 27.53.
- Record the max trace plot into the test report.

4.5.4 Test Results

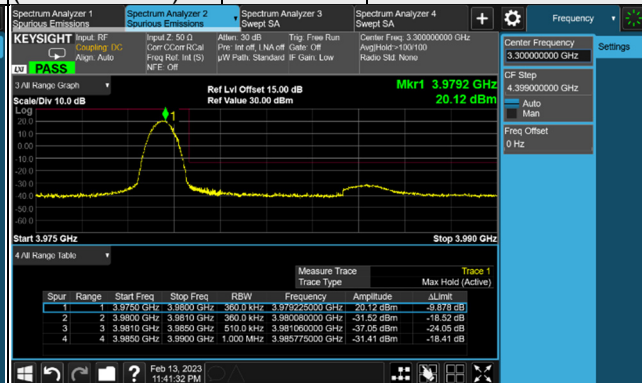


n77, Channel Bandwidth 15MHz

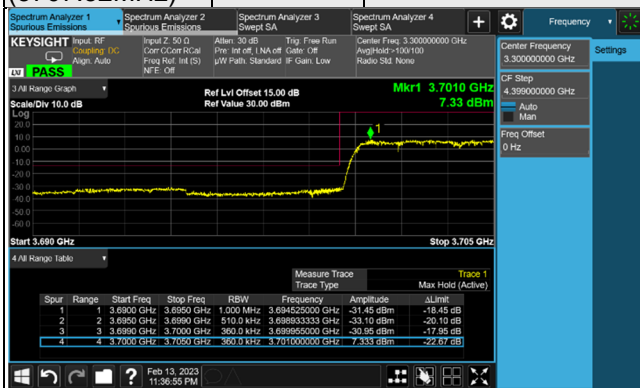
Channel 647168 (3707.52MHz) $\pi/2$ BPSK 1 RB / 0 RB Offset



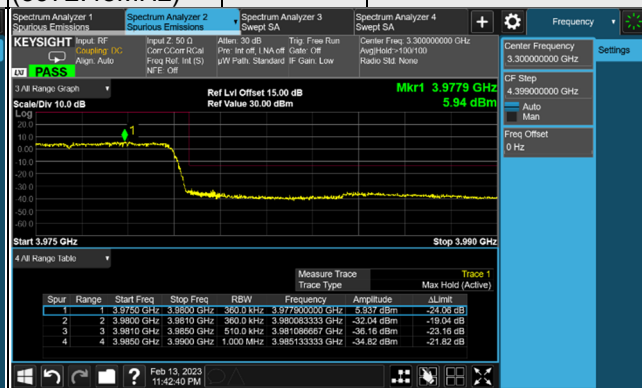
Channel 664832 (3972.48MHz) $\pi/2$ BPSK 1 RB / 36 RB Offset



Channel 647168 (3707.52MHz) $\pi/2$ BPSK 36 RB / 0 RB Offset

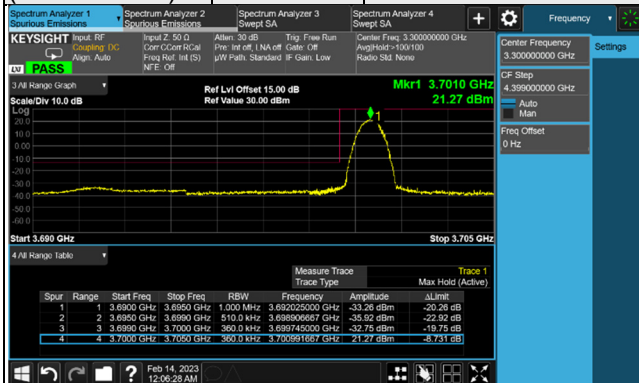


Channel 664832 (3972.48MHz) $\pi/2$ BPSK 36 RB / 0 RB Offset

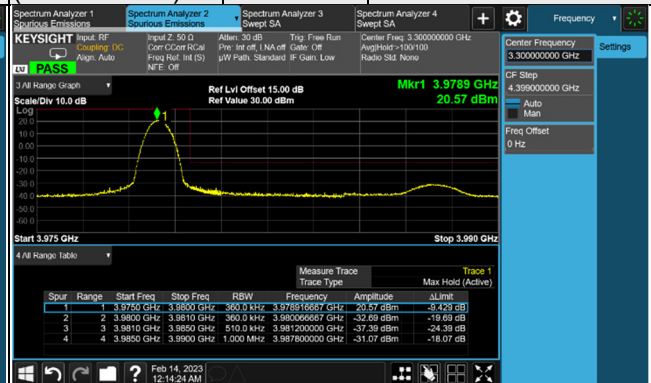


n77, Channel Bandwidth 20MHz

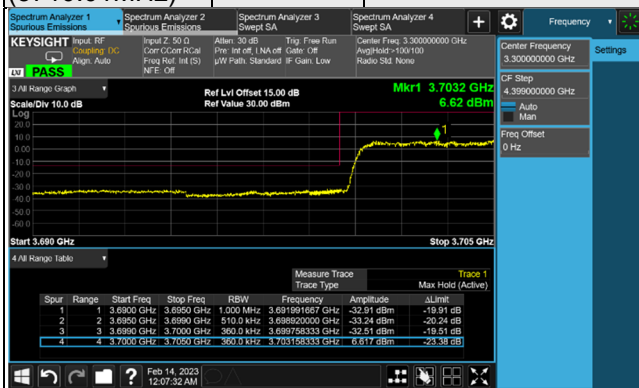
Channel 647334 (3710.01MHz) $\pi/2$ BPSK 1 RB / 0 RB Offset



Channel 664666 (3969.99MHz) $\pi/2$ BPSK 1 RB / 49 RB Offset



Channel 647334 (3710.01MHz) $\pi/2$ BPSK 50 RB / 0 RB Offset



Channel 664666 (3969.99MHz) $\pi/2$ BPSK 50 RB / 0 RB Offset

