

FCC Test Report (ENDC: n77+B2/B5/B13/B66)

Report No.: RFBFJZ-WTW-P21050403-17

FCC ID: V65C6930

Test Model: C6930

Received Date: May 18, 2021

Test Date: Jun. 26, 2021 ~ Jan. 11, 2022

Issued Date: Jan. 14, 2022

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



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Release Control Record

Issue No.	Description	Date Issued
RFBFJZ-WTW-P21050403-17	Original release	Jan. 14, 2022

1 Certificate of Conformity

Product: SmartPhone

Brand: Kyocera

Test Model: C6930

Sample Status: Engineering sample

Applicant: Kyocera Corporation c/o Kyocera International, Inc.

Test Date: Jun. 26, 2021 ~ Jan. 11, 2022

Standards: FCC Part 22, Subpart H
FCC Part 24, Subpart E
FCC Part 27, Subpart C, F, L, 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 : Pettie Chen, **Date:** Jan. 14, 2022
Pettie Chen / Senior Specialist

Approved by : Jeremy Lin, **Date:** Jan. 14, 2022
Jeremy Lin / Project Engineer

2 Summary of Test Results

For 5GNR n77:

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 of limit.
----	Peak To Average Ratio	Pass	Meet the requirement of limit.
2.1055 27.54	Frequency Stability Stay with the authorized bands of operation	Pass	Meet the requirement of limit.
2.1049	Occupied Bandwidth	Pass	Meet the requirement of limit.
2.1051 27.53(l)	Band Edge / Out of Band Emissions Measurements	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 -19.49dB at 115.36MHz.

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

For LTE Band 2:

Applied Standard: FCC Part 24 & Part 2			
FCC Clause	Test Item	Result	Remarks
2.1046 24.232	Effective Isotropically Radiated Power	Pass	Meet the requirement of limit.
2.1046 24.232 (d)	Peak To Average Ratio	Pass	Refer to Note 1
2.1047	Modulation Characteristics	Pass	Refer to Note 1
2.1055 24.235	Frequency Stability	Pass	Refer to Note 1
2.1049	Occupied Bandwidth	Pass	Refer to Note 1
24.238	Band Edge Measurements	Pass	Refer to Note 1
2.1051 24.238	Conducted Spurious Emissions	Pass	Refer to Note 1
2.1053 24.238	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -32.03dB at 62.01MHz.

Note:

1. This report is a partial report. Therefore, only test item of Equivalent Isotropically Radiated Power and Radiated Spurious Emissions tests were performed for this report. Other testing data please refer to BV CPS report no.: RFBFJZ-WTW-P21050403-9
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	Pass	Refer to Note 1
22.913 (d)	Peak To Average Ratio	Pass	Refer to Note 1
2.1055 22.355	Frequency Stability	Pass	Refer to Note 1
2.1049	Occupied Bandwidth	Pass	Refer to Note 1
22.917	Band Edge Measurements	Pass	Refer to Note 1
2.1051 22.917	Conducted Spurious Emissions	Pass	Refer to Note 1
2.1053 22.917	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -29.53dB at 30.00MHz.

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 BV CPS report no.: RFBFJZ-WTW-P21050403-8.
2. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

For LTE Band 13, LTE Band 66

Applied Standard: FCC Part 27 & Part 2				
FCC Clause		Test Item	Result	Remarks
LTE B13	LTE B66			
2.1046 27.50(b)	2.1046 27.50 (d)(4)	Equivalent Isotropically Radiated Power / Equivalent Radiated Power	Pass	Meet the requirement of limit.
2.1047	2.1047	Modulation Characteristics	Pass	Refer to Note 1
----	27.50 (d)(5)	Peak To Average Ratio	Pass	Refer to Note 1
2.1055 27.54	2.1055 27.54	Frequency Stability Stay with the authorized bands of operation	Pass	Refer to Note 1
2.1049	2.1049	Occupied Bandwidth	Pass	Refer to Note 1
2.1051 27.53(c)	2.1051 27.53 (h)	Band Edge / Out of Band Emissions Measurements	Pass	Refer to Note 1
2.1051 27.53 (c)(f)	2.1051 27.53 (h)	Conducted Spurious Emissions	Pass	Refer to Note 1
2.1053 27.53(c)(f)	2.1053 27.53 (h)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -16.30dB at 1564.00MHz.

Note:

1. This report is a partial report. Therefore, only test item of Transmitter Output Power and Equivalent Isotropically Radiated Power / Equivalent Radiated Power and Radiated Spurious Emissions tests were performed for this report. Other testing data please refer to BV CPS report no.: RFBFJZ-WTW-P21050403-10.
2. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.1 Measurement Uncertainty

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

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

2.2 Test Site and Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver KEYSIGHT	N9038A	MY55420137	Apr. 09, 2021	Apr. 08, 2022
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100039	Jun. 10, 2021	Jun. 09, 2022
MXG Vector signal generator Agilent	N5182B	MY53050430	Nov. 25, 2020	Nov. 24, 2021
			Nov. 25, 2021	Nov. 24, 2022
Radio Communication Analyzer Anritsu	MT8821C	6261806803	Jan. 22, 2021	Jan. 21, 2022
Universal Radio Communication Tester R&S	CMU200	101095	Nov. 18, 2020	Nov. 17, 2021
			Nov. 18, 2021	Nov. 17, 2022
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-969	Nov. 22, 2020	Nov. 21, 2021
			Nov. 14, 2021	Nov. 13, 2022
BILOG Antenna SCHWARZBECK	VULB9168	9168-160	Nov. 06, 2020	Nov. 05, 2021
			Oct. 28, 2021	Oct. 27, 2022
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-1169	Nov. 22, 2020	Nov. 21, 2021
			Nov. 14, 2021	Nov. 13, 2022
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Nov. 22, 2020	Nov. 21, 2021
			Oct. 26, 2021	Oct. 25, 2022
Preamplifier Agilent (Below 1GHz)	8447D	2944A10638	Jun. 05, 2021	Jun. 04, 2022
Preamplifier Agilent (Above 1GHz)	8449B	3008A02367	Feb. 17, 2021	Feb. 16, 2022
RF signal cable HUBER+SUHNER&EMCI	SUCOFLEX 104 & EMC104-SM-SM80 00	CABLE-CH9-02 (248780+171006)	Jan. 16, 2021	Jan. 15, 2022
RF signal cable HUBER+SUHNER	SUCOFLEX 104	CABLE-CH9-(250795/4)	Jan. 16, 2021	Jan. 15, 2022
RF signal cable Woken	8D-FB	Cable-CH9-01	Jun. 05, 2021	Jun. 04, 2022
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	NA	NA	NA
Antenna Tower EMCO	2070/2080	512.835.4684	NA	NA
Turn Table EMCO	2087-2.03	NA	NA	NA
Antenna Tower & Turn BV ADT	AT100	AT93021705	NA	NA
Turn Table BV ADT	TT100	TT93021705	NA	NA
Turn Table Controller BV ADT	SC100	SC93021705	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
Standard Temperature And Humidity Chamber GIANT FORCE	GTH-120-40-CP-A R	MAA1306-019	Sep. 10, 2020	Sep. 09, 2021
			Sep. 10, 2021	Sep. 09, 2022

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
JFW 20dB attenuation	50HF-020-SMA	NA	NA	NA
True RMS Clamp Meter Fluke	325	31130711WS	Jun. 02, 2021	Jun. 01, 2022
DC power supply Keysight	U8002A	MY56330015	NA	NA

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

3 General Information

3.1 General Description of EUT

Product	SmartPhone
Brand	Kyocera
Test Model	C6930
Sample Status	Engineering sample
Power Supply	3.87Vdc from battery
Rating	5Vdc / 9Vdc / 12Vdc from adapter

n77

Modulation Type	$\pi/2$ BPSK, QPSK, 16QAM, 64QAM, 256QAM					
Waveform Type	CP-OFDM, DFT-s-OFDM					
Operating Frequency	n77 (Channel Bandwidth 20MHz)	3710.01MHz ~ 3969.99MHz				
	n77 (Channel Bandwidth 30MHz)	3715.02MHz ~ 3964.98MHz				
	n77 (Channel Bandwidth 40MHz)	3720.00MHz ~ 3960.00MHz				
	n77 (Channel Bandwidth 60MHz)	3730.02MHz ~ 3949.98MHz				
	n77 (Channel Bandwidth 80MHz)	3740.01MHz ~ 3939.99MHz				
	n77 (Channel Bandwidth 100MHz)	3750.00MHz ~ 3930.00MHz				
Max. EIRP Power		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
	n77 (Channel Bandwidth 20MHz)	199.986mW (23.01dBm)	200.447mW (23.02dBm)	141.579mW (21.51dBm)	112.202mW (20.50dBm)	73.114mW (18.64dBm)
	n77 (Channel Bandwidth 30MHz)	201.372mW (23.04dBm)	203.236mW (23.08dBm)	142.233mW (21.53dBm)	111.686mW (20.48dBm)	72.946mW (18.63dBm)
	n77 (Channel Bandwidth 40MHz)	199.067mW (22.99dBm)	203.236mW (23.08dBm)	140.929mW (21.49dBm)	111.944mW (20.49dBm)	72.277mW (18.59dBm)
	n77 (Channel Bandwidth 60MHz)	199.067mW (22.99dBm)	200.909mW (23.03dBm)	140.929mW (21.49dBm)	112.460mW (20.51dBm)	72.444mW (18.60dBm)
	n77 (Channel Bandwidth 80MHz)	198.153mW (22.97dBm)	202.302mW (23.06dBm)	140.929mW (21.49dBm)	112.720mW (20.52dBm)	73.621mW (18.67dBm)
	n77 (Channel Bandwidth 100MHz)	202.302mW (23.06dBm)	203.704mW (23.09dBm)	143.219mW (21.56dBm)	113.501mW (20.55dBm)	73.790mW (18.68dBm)
Emission Designator		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
	n77 (Channel Bandwidth 20MHz)	18M1G7D	18M2G7D	18M2D7W	18M1D7W	18M1D7W
	n77 (Channel Bandwidth 30MHz)	27M7G7D	27M9G7D	27M9D7W	27M9D7W	27M9D7W
	n77 (Channel Bandwidth 40MHz)	37M6G7D	39M6G7D	37M9D7W	37M9D7W	37M9D7W
	n77 (Channel Bandwidth 60MHz)	57M9G7D	57M9G7D	57M9D7W	57M9D7W	57M9D7W
	n77 (Channel Bandwidth 80MHz)	77M2G7D	77M6G7D	77M6D7W	77M6D7W	77M6D7W
	n77 (Channel Bandwidth 100MHz)	96M9G7D	97M7G7D	97M7D7W	97M7D7W	97M7D7W

LTE Band

Modulation Type	QPSK, 16QAM, 64QAM, 256QAM				
Operating Frequency	LTE Band 2	Channel Bandwidth 1.4MHz	1850.7MHz ~ 1909.3MHz		
		Channel Bandwidth 3MHz	1851.5MHz ~ 1908.5MHz		
		Channel Bandwidth 5MHz	1852.5MHz ~ 1907.5MHz		
		Channel Bandwidth 10MHz	1855.0MHz ~ 1905.0MHz		
		Channel Bandwidth 15MHz	1857.5MHz ~ 1902.5MHz		
		Channel Bandwidth 20MHz	1860.0MHz ~ 1900.0MHz		
	LTE Band 5	Channel Bandwidth 1.4MHz	824.7MHz ~ 848.3MHz		
		Channel Bandwidth 3MHz	825.5MHz ~ 847.5MHz		
		Channel Bandwidth 5MHz	826.5MHz ~ 846.5MHz		
		Channel Bandwidth 10MHz	829.0MHz ~ 844.0MHz		
	LTE Band 13	Channel Bandwidth 5MHz	779.5MHz ~ 784.5MHz		
		Channel Bandwidth 10MHz	782.0MHz		
	LTE Band 66	Channel Bandwidth 1.4MHz	1710.7MHz ~ 1779.3MHz		
		Channel Bandwidth 3MHz	1711.5MHz ~ 1778.5MHz		
		Channel Bandwidth 5MHz	1712.5MHz ~ 1777.5MHz		
		Channel Bandwidth 10MHz	1715.0MHz ~ 1775.0MHz		
		Channel Bandwidth 15MHz	1717.5MHz ~ 1772.5MHz		
		Channel Bandwidth 20MHz	1720.0MHz ~ 1770.0MHz		
Max. EIRP Power			QPSK	16QAM	64QAM
	LTE Band 2	Channel Bandwidth 1.4MHz	165.959mW (22.20dBm)	141.906mW (21.52dBm)	114.025mW (20.57dBm)
		Channel Bandwidth 3MHz	172.982mW (22.38dBm)	137.721mW (21.39dBm)	111.944mW (20.49dBm)
		Channel Bandwidth 5MHz	165.577mW (22.19dBm)	144.544mW (21.60dBm)	110.408mW (20.43dBm)
		Channel Bandwidth 10MHz	169.434mW (22.29dBm)	140.605mW (21.48dBm)	112.460mW (20.51dBm)
		Channel Bandwidth 15MHz	172.187mW (22.36dBm)	143.549mW (21.57dBm)	110.917mW (20.45dBm)
		Channel Bandwidth 20MHz	175.388mW (22.44dBm)	143.880mW (21.58dBm)	119.950mW (20.79dBm)
	LTE Band 66	Channel Bandwidth 1.4MHz	380.189mW (25.80dBm)	307.610mW (24.88dBm)	217.771mW (23.38dBm)
		Channel Bandwidth 3MHz	368.978mW (25.67dBm)	295.121mW (24.70dBm)	214.289mW (23.31dBm)
		Channel Bandwidth 5MHz	367.282mW (25.65dBm)	296.483mW (24.72dBm)	212.814mW (23.28dBm)
		Channel Bandwidth 10MHz	374.973mW (25.74dBm)	306.902mW (24.87dBm)	220.293mW (23.43dBm)
		Channel Bandwidth 15MHz	376.704mW (25.76dBm)	300.608mW (24.78dBm)	210.863mW (23.24dBm)
		Channel Bandwidth 20MHz	388.150mW (25.89dBm)	319.890mW (25.05dBm)	214.289mW (23.31dBm)
	LTE Band 5	Channel Bandwidth 1.4MHz	59.429mW (17.74dBm)	46.452mW (16.67dBm)	37.411mW (15.73dBm)
		Channel Bandwidth 3MHz	59.156mW (17.72dBm)	51.050mW (17.08dBm)	37.931mW (15.79dBm)
		Channel Bandwidth 5MHz	56.885mW (17.55dBm)	47.206mW (16.74dBm)	36.728mW (15.65dBm)
		Channel Bandwidth 10MHz	59.704mW (17.76dBm)	48.417mW (16.85dBm)	38.107mW (15.81dBm)
	LTE Band 13	Channel Bandwidth 5MHz	61.376mW (17.88dBm)	50.350mW (17.02dBm)	50.119mW (17.00dBm)
		Channel Bandwidth 10MHz	61.518mW (17.89dBm)	48.529mW (16.86dBm)	50.699mW (17.05dBm)
Max. ERP Power	LTE Band 5	Channel Bandwidth 1.4MHz	59.429mW (17.74dBm)	46.452mW (16.67dBm)	37.411mW (15.73dBm)
		Channel Bandwidth 3MHz	59.156mW (17.72dBm)	51.050mW (17.08dBm)	37.931mW (15.79dBm)
		Channel Bandwidth 5MHz	56.885mW (17.55dBm)	47.206mW (16.74dBm)	36.728mW (15.65dBm)
		Channel Bandwidth 10MHz	59.704mW (17.76dBm)	48.417mW (16.85dBm)	38.107mW (15.81dBm)
		Channel Bandwidth 5MHz	61.376mW (17.88dBm)	50.350mW (17.02dBm)	50.119mW (17.00dBm)
		Channel Bandwidth 10MHz	61.518mW (17.89dBm)	48.529mW (16.86dBm)	50.699mW (17.05dBm)

Antenna Type	Refer to Note as below
Antenna Connector	Refer to Note as below
Accessory Device	Refer to Note as below
Cable Supplied	Refer to Note as below

Note:

1. The EUT contains following accessory devices.

Battery	
Brand	KYOCERA
Model	SCP-75LBPS
Rating	3.87 V typ / 4500 mAh/17.5 Wh typ

Adapter	
Brand	KYOCERA Corporation
Model	SCP-49ADT
Input Power	AC 100-240V, 50/60Hz 0.4A
Output Power	DC 5.0V, 1.8A / 9.0V, 1.8A / 12.0V, 1.2A

USB Cable	
Brand	KYOCERA Corporation
Model	SCP-24SDC
Signal Line	1m shielded Type A to Type C USB cable

2. The following antennas were provided to the EUT.

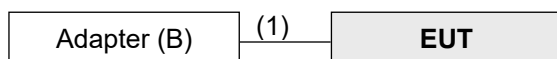
Band	Freq. Range (MHz)	Gain (dBi)
n77	3710.01 ~ 3969.99	-0.4
LTE Band 2	1850.7 ~ 1909.3	-0.8 (Tx1), -1.3 (Tx2) (diversity)
LTE Band 5	824.7 ~ 848.3	-3.5 (Tx1)
LTE Band 13	779.5 ~ 784.5	-3.4 (Tx1)
LTE Band 66	1710.7 ~ 1779.3	2.3 (Tx1), -0.5 (Tx2) (diversity)

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

3. The EUT supports the following ENDC configuration.

5G NR	FCC 5G FR1			ENDC
	Band	SCS	Bandwidth (MHz)	
	n2	15kHz	5/10/15/20	Band 5/13
	n5	15kHz	5/10/15/20	Band 2/48/66
	n66	15kHz	5/10/15/20	Band 5/13
	n71	15kHz	5/10/15/20	Band 2/66
	n77	30kHz	20/30/40/60/80/100	Band 2/5/13/66

3.2 Configuration of System under Test



Remote site



3.2.1 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	5G Wireless Test Platforms	Keysight	E7515B	MY58300759	NA	-
B.	Adapter	KYOCERA	SCP-49ADT	NA	NA	Accessory

Note:

1. All power cords of the above support units are non-shielded (1.8m).
2. Item A acted as a communication partner to transfer data.

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	Type A to Type C USB cable	1	1	Y	0	Accessory

3.3 Test Mode Applicability and Tested Channel Detail

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

Band	Radiated Emission
n77	X-plane
LTE Band 2	X-plane
LTE Band 5	X-plane
LTE Band 13	X-plane
LTE Band 66	X-plane

n77

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	EIRP/ERP	647334 to 664666	647334 (3710.01MHz), 656000 (3840.00MHz), 664666 (3969.99MHz)	20MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 RB / 1 RB Offset
		647668 to 664332	647668 (3715.02MHz), 656000 (3840.00MHz), 664332 (3964.98MHz)	30MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 RB / 1 RB Offset
		648000 to 664000	648000 (3720.00MHz), 656000 (3840.00MHz), 664000 (3960.00MHz)	40MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 RB / 1 RB Offset
		648668 to 663332	648668 (3730.02MHz), 656000 (3840.00MHz), 663332 (3949.98MHz)	60MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 RB / 1 RB Offset
		649334 to 662666	649334 (3740.01MHz), 656000 (3840.00MHz), 662666 (3939.99MHz)	80MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 RB / 1 RB Offset
		650000 to 662000	650000 (3750.00MHz), 656000 (3840.00MHz), 662000 (3930.00MHz)	100MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 RB / 1 RB Offset

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	Modulation Characteristics	650000 to 662000	656000 (3840.00MHz)	100MHz	QPSK / 16QAM / 64QAM / 256QAM	270 RB / 0 RB Offset
-	Frequency Stability	647334 to 664666	647334 (3710.01MHz), 664666 (3969.99MHz)	20MHz	QPSK	50 RB / 0 RB Offset
		647668 to 664332	647668 (3715.02MHz), 664332 (3964.98MHz)	30MHz	QPSK	75 RB / 0 RB Offset
		648000 to 664000	648000 (3720.00MHz), 664000 (3960.00MHz)	40MHz	QPSK	100 RB / 0 RB Offset
		648668 to 663332	648668 (3730.02MHz), 663332 (3949.98MHz)	60MHz	QPSK	162 RB / 0 RB Offset
		649334 to 662666	649334 (3740.01MHz), 662666 (3939.99MHz)	80MHz	QPSK	216 RB / 0 RB Offset
		650000 to 662000	650000 (3750.00MHz), 662000 (3930.00MHz)	100MHz	QPSK	270 RB / 0 RB Offset
-	Emission Bandwidth	647334 to 664666	647334 (3710.01MHz), 656000 (3840.00MHz), 664666 (3969.99MHz)	20MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	50 RB / 0 RB Offset
		647668 to 664332	647668 (3715.02MHz), 656000 (3840.00MHz), 664332 (3964.98MHz)	30MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	75 RB / 0 RB Offset
		648000 to 664000	648000 (3720.00MHz), 656000 (3840.00MHz), 664000 (3960.00MHz)	40MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	100 RB / 0 RB Offset
		648668 to 663332	648668 (3730.02MHz), 656000 (3840.00MHz), 663332 (3949.98MHz)	60MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	162 RB / 0 RB Offset
		649334 to 662666	649334 (3740.01MHz), 656000 (3840.00MHz), 662666 (3939.99MHz)	80MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	216 RB / 0 RB Offset
		650000 to 662000	650000 (3750.00MHz), 656000 (3840.00MHz), 662000 (3930.00MHz)	100MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	270 RB / 0 RB Offset
-	Band Edge	647334 to 664666	647334 (3710.01MHz), 664666 (3969.99MHz)	20MHz	QPSK	1 RB / 0 RB Offset 1 RB / 49 RB Offset 50 RB / 0 RB Offset
		647668 to 664332	647668 (3715.02MHz), 664332 (3964.98MHz)	30MHz	QPSK	1 RB / 0 RB Offset 1 RB / 76 RB Offset 75 RB / 0 RB Offset
		648000 to 664000	648000 (3720.00MHz), 664000 (3960.00MHz)	40MHz	QPSK	1 RB / 0 RB Offset 1 RB / 105 RB Offset 106 RB / 0 RB Offset
		648668 to 663332	648668 (3730.02MHz), 663332 (3949.98MHz)	60MHz	QPSK	1 RB / 0 RB Offset 1 RB / 161 RB Offset 162 RB / 0 RB Offset
		649334 to 662666	649334 (3740.01MHz), 662666 (3939.99MHz)	80MHz	QPSK	1 RB / 0 RB Offset 1 RB / 216 RB Offset 217 RB / 0 RB Offset
		650000 to 662000	650000 (3750.00MHz), 662000 (3930.00MHz)	100MHz	QPSK	1 RB / 0 RB Offset 1 RB / 272 RB Offset 273 RB / 0 RB Offset

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	Peak to Average Ratio	647334 to 664666	647334 (3710.01MHz), 656000 (3840.00MHz), 664666 (3969.99MHz)	20MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 RB / 1 RB Offset
		647668 to 664332	647668 (3715.02MHz), 656000 (3840.00MHz), 664332 (3964.98MHz)	30MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 RB / 1 RB Offset
		648000 to 664000	648000 (3720.00MHz), 656000 (3840.00MHz), 664000 (3960.00MHz)	40MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 RB / 1 RB Offset
		648668 to 663332	648668 (3730.02MHz), 656000 (3840.00MHz), 663332 (3949.98MHz)	60MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 RB / 1 RB Offset
		649334 to 662666	649334 (3740.01MHz), 656000 (3840.00MHz), 662666 (3939.99MHz)	80MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 RB / 1 RB Offset
		650000 to 662000	650000 (3750.00MHz), 656000 (3840.00MHz), 662000 (3930.00MHz)	100MHz	$\pi/2$ BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 RB / 1 RB Offset
-	Conducted Emission	647334 to 664666	647334 (3710.01MHz), 656000 (3840.00MHz), 664666 (3969.99MHz)	20MHz	QPSK	1 RB / 1 RB Offset
		647668 to 664332	647668 (3715.02MHz), 656000 (3840.00MHz), 664332 (3964.98MHz)	30MHz	QPSK	1 RB / 1 RB Offset
		648000 to 664000	648000 (3720.00MHz), 656000 (3840.00MHz), 664000 (3960.00MHz)	40MHz	QPSK	1 RB / 1 RB Offset
		648668 to 663332	648668 (3730.02MHz), 656000 (3840.00MHz), 663332 (3949.98MHz)	60MHz	QPSK	1 RB / 1 RB Offset
		649334 to 662666	649334 (3740.01MHz), 656000 (3840.00MHz), 662666 (3939.99MHz)	80MHz	QPSK	1 RB / 1 RB Offset
		650000 to 662000	650000 (3750.00MHz), 656000 (3840.00MHz), 662000 (3930.00MHz)	100MHz	QPSK	1 RB / 1 RB Offset

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	Radiated Emission Below 1GHz	650000 to 662000	656000 (3840.00MHz)	100MHz	QPSK	1 RB / 1 RB Offset
-	Radiated Emission Above 1GHz	647334 to 664666	647334 (3710.01MHz), 656000 (3840.00MHz), 664666 (3969.99MHz)	20MHz	QPSK	1 RB / 1 RB Offset
		647668 to 664332	647668 (3715.02MHz), 656000 (3840.00MHz), 664332 (3964.98MHz)	30MHz	QPSK	1 RB / 1 RB Offset
		648668 to 663332	648668 (3730.02MHz), 656000 (3840.00MHz), 663332 (3949.98MHz)	60MHz	QPSK	1 RB / 1 RB Offset
		650000 to 662000	650000 (3750.00MHz), 656000 (3840.00MHz), 662000 (3930.00MHz)	100MHz	QPSK	1 RB / 1 RB Offset

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 (1850.7MHz), 18900 (1880.0MHz), 19193 (1909.3MHz)	1.4MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset 1 RB / 2 RB Offset 1 RB / 5 RB Offset 3 RB / 0 RB Offset 3 RB / 1 RB Offset 3 RB / 3 RB Offset 6 RB / 0 RB Offset
		18615 to 19185	18615 (1851.5MHz), 18900 (1880.0MHz), 19185 (1908.5MHz)	3MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset 1 RB / 7 RB Offset 1 RB / 14 RB Offset 8 RB / 0 RB Offset 8 RB / 3 RB Offset 8 RB / 7 RB Offset 15 RB / 0 RB Offset
		18625 to 19175	18625 (1852.5MHz), 18900 (1880.0MHz), 19175 (1907.5MHz)	5MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset 1 RB / 12 RB Offset 1 RB / 24 RB Offset 12 RB / 0 RB Offset 12 RB / 6 RB Offset 12 RB / 13 RB Offset 25 RB / 0 RB Offset
		18650 to 19150	18650 (1855.0MHz), 18900 (1880.0MHz), 19150 (1905.0MHz)	10MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset 1 RB / 24 RB Offset 1 RB / 49 RB Offset 25 RB / 0 RB Offset 25 RB / 12 RB Offset 25 RB / 25 RB Offset 50 RB / 0 RB Offset
		18675 to 19125	18675 (1857.5MHz), 18900 (1880.0MHz), 19125 (1902.5MHz)	15MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset 1 RB / 37 RB Offset 1 RB / 74 RB Offset 36 RB / 0 RB Offset 36 RB / 19 RB Offset 36 RB / 39 RB Offset 75 RB / 0 RB Offset
		18700 to 19100	18700 (1860.0MHz), 18900 (1880.0MHz), 19100 (1900.0MHz)	20MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset 1 RB / 50 RB Offset 1 RB / 99 RB Offset 50 RB / 0 RB Offset 50 RB / 25 RB Offset 50 RB / 50 RB Offset 100 RB / 0 RB Offset

EUT Configure Mode	Test item	Available channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	Radiated Emission Below 1GHz	18700 to 19100	19100 (1900.0MHz)	20MHz	QPSK	1 RB / 0 RB Offset
-	Radiated Emission Above 1GHz	18607 to 19193	18607 (1850.7MHz), 18900 (1880.0MHz), 19193 (1909.3MHz)	1.4MHz	QPSK	1 RB / 0 RB Offset
		18625 to 19175	18625 (1852.5MHz), 18900 (1880.0MHz), 19175 (1907.5MHz)	5MHz	QPSK	1 RB / 0 RB Offset
		18700 to 19100	18700 (1860.0MHz), 18900 (1880.0MHz), 19100 (1900.0MHz)	20MHz	QPSK	1 RB / 0 RB Offset

Note:

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

LTE Band 5

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

Note:

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

LTE Band 13

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	ERP	23205 to 23255	23205 (779.5MHz), 23230 (782.0MHz), 23255 (784.5MHz)	5MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset 1 RB / 12 RB Offset 1 RB / 24 RB Offset 12 RB / 0 RB Offset 12 RB / 6 RB Offset 12 RB / 13 RB Offset 25 RB / 0 RB Offset
		23230	23230 (782.0MHz)	10MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset 1 RB / 24 RB Offset 1 RB / 49 RB Offset 25 RB / 0 RB Offset 25 RB / 12 RB Offset 25 RB / 25 RB Offset 50 RB / 0 RB Offset
-	Radiated Emission Below 1GHz	23230	23230 (782.0MHz)	10MHz	QPSK	1 RB / 0 RB Offset
-	Radiated Emission Above 1GHz	23205 to 23255	23205 (779.5MHz), 23230 (782.0MHz), 23255 (784.5MHz)	5MHz	QPSK	1 RB / 0 RB Offset
		23230	23230 (782.0MHz)	10MHz	QPSK	1 RB / 0 RB Offset

Note:

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

LTE Band 66

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

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

Note:

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

Test Condition:

Test Item	Environmental Conditions	Input Power (system)	Tested By
EIRP/ERP	25deg. C, 60%RH	120Vac, 60Hz	James Yang
Modulation characteristics	25deg. C, 60%RH	120Vac, 60Hz	James Yang
Frequency Stability	25deg. C, 60%RH	3.87Vdc	James Yang
Occupied Bandwidth	25deg. C, 60%RH	120Vac, 60Hz	James Yang
Band Edge	25deg. C, 60%RH	120Vac, 60Hz	James Yang
Peak To Average Ratio	25deg. C, 60%RH	120Vac, 60Hz	James Yang
Conducted Emission	25deg. C, 60%RH	120Vac, 60Hz	James Yang
Radiated Emission	22deg. C, 66%RH, 21deg. C, 67%RH	120Vac, 60Hz	Greg Lin, Rex Wang

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

KDB 971168 D02 Misc Rev Approv License Devices v02r01

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

4 Test Types and Results

4.1 Output Power Measurement

4.1.1 Limits of Output Power Measurement

For n77:

Mobile and portable stations 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.i.r.p.

For LTE Band 5:

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

For LTE Band 13:

Control and mobile stations in the 698-746 MHz, 746-757 MHz, 787-788 MHz and 805-806 MHz band are limited to 30 watts ERP.

Portable stations (hand-held devices) in the 600 MHz uplink band and the 698-746 MHz band, and fixed and mobile stations in the 600 MHz uplink, 746-757 MHz, 787-788 MHz and 805-806 MHz band are limited to 3 watts ERP.

For LTE Band 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. 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:

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

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

where

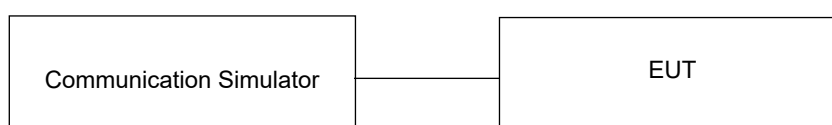
ERP or EIRP effective radiated power or equivalent isotropically radiated power, respectively
(expressed in the same units as P_{Meas} , e.g., dBm or dBW)

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

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

4.1.3 Test Setup

Conducted Power Measurement:



4.1.4 Test Results

Conducted Output Power (dBm)

NR Band 77:

NR Band 77						
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	23.46	23.12	23.05
100M	QPSK	1	1	23.49	23.19	23.07
		1	137	22.85	23.01	22.98
		1	271	22.91	22.61	22.94
		135	0	22.09	21.79	21.86
		135	69	22.82	22.72	22.93
		135	138	21.78	21.48	21.97
		270	0	21.83	21.73	21.88
100M	16QAM	1	1	21.92	21.62	21.96
100M	64QAM	1	1	20.95	20.65	20.89
100M	256QAM	1	1	19.08	18.78	18.66
NR Band 77						
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	23.37	23.06	22.95
80M	QPSK	1	1	23.46	23.12	23.05
		1	109	22.75	22.93	22.93
		1	215	22.88	22.58	22.91
		108	0	22.04	21.79	21.81
		108	55	22.81	22.50	22.85
		108	109	21.69	21.45	21.93
		216	0	21.80	21.51	21.78
80M	16QAM	1	1	21.85	21.55	21.89
80M	64QAM	1	1	20.92	20.56	20.87
80M	256QAM	1	1	19.07	18.77	18.64

NR Band 77						
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	23.39	23.08	22.97
60M	QPSK	1	1	23.43	23.18	23.07
		1	81	22.75	22.98	22.91
		1	160	22.87	22.58	22.88
		81	0	22.09	21.75	21.85
		81	41	22.81	22.47	22.90
		81	81	21.77	21.38	21.96
		162	0	21.73	21.51	21.82
60M	16QAM	1	1	21.88	21.52	21.89
60M	64QAM	1	1	20.91	20.60	20.86
60M	256QAM	1	1	19.00	18.75	18.64
NR Band 77						
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	23.39	23.12	22.98
40M	QPSK	1	1	23.48	23.09	22.97
		1	53	22.81	23.01	22.93
		1	104	22.89	22.57	22.86
		50	0	22.00	21.78	21.78
		50	28	22.82	22.43	22.83
		50	56	21.74	21.48	21.94
		100	0	21.77	21.50	21.86
40M	16QAM	1	1	21.89	21.54	21.87
40M	64QAM	1	1	20.89	20.60	20.88
40M	256QAM	1	1	18.99	18.72	18.63
NR Band 77						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		647668	656000	664332
		Frequency (MHz)		3715.02	3840	3964.98
30M	$\pi/2$ BPSK	1	1	23.44	23.10	23.01
30M	QPSK	1	1	23.48	23.09	23.07
		1	39	22.83	22.97	22.91
		1	76	22.87	22.51	22.89
		36	0	22.03	21.77	21.82
		36	21	22.81	22.46	22.86
		36	42	21.72	21.47	21.97
		75	0	21.78	21.45	21.79
30M	16QAM	1	1	21.89	21.54	21.93
30M	64QAM	1	1	20.85	20.61	20.88
30M	256QAM	1	1	19.03	18.73	18.60

NR Band 77						
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	23.41	23.04	23.04
20M	QPSK	1	1	23.42	23.15	23.02
		1	26	22.77	22.94	22.93
		1	49	22.87	22.54	22.89
		25	0	22.08	21.72	21.85
		25	13	22.73	22.48	22.89
		25	26	21.74	21.40	21.91
		50	0	21.74	21.47	21.85
20M	16QAM	1	1	21.82	21.57	21.91
20M	64QAM	1	1	20.90	20.64	20.84
20M	256QAM	1	1	19.04	18.73	18.63

LTE Band 2						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		18700	18900	19100
		Frequency (MHz)		1860	1880	1900
20M	QPSK	1	0	23.24	23.17	22.87
		1	50	23.17	22.88	22.98
		1	99	22.75	22.78	22.76
		50	0	21.99	22.19	22.09
		50	25	21.86	22.27	22.38
		50	50	22.22	21.94	22.21
		100	0	22.13	22.28	22.05
20M	16QAM	1	0	22.25	22.25	22.17
		1	50	22.26	22.13	21.94
		1	99	21.88	22.18	22.38
		50	0	21.23	21.59	20.95
		50	25	21.27	20.98	20.82
		50	50	21.40	20.88	21.03
		100	0	21.15	21.10	20.79
20M	64QAM	1	0	21.58	21.59	20.93
		1	50	21.27	21.33	21.29
		1	99	21.14	21.10	21.24
		50	0	20.29	20.14	20.10
		50	25	20.35	20.22	20.16
		50	50	19.99	19.90	20.04
		100	0	20.19	20.22	19.89
20M	256QAM	1	0	18.30	18.39	18.35
		1	50	18.12	18.31	18.33
		1	99	18.17	18.15	18.30
		50	0	18.34	18.37	17.98
		50	25	17.98	18.17	18.30
		50	50	17.94	17.87	17.84
		100	0	18.34	18.23	18.21

LTE Band 2						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		18675	18900	19125
		Frequency (MHz)		1857.5	1880	1902.5
15M	QPSK	1	0	23.16	22.97	23.01
		1	37	23.12	22.75	22.97
		1	74	22.78	22.78	22.84
		36	0	22.21	22.18	22.16
		36	19	22.27	22.36	22.12
		36	39	21.91	21.98	22.22
		75	0	22.16	22.37	21.75
15M	16QAM	1	0	22.36	22.37	22.14
		1	37	22.10	22.35	22.14
		1	74	22.33	22.21	22.14
		36	0	21.19	21.17	21.37
		36	19	21.10	21.01	20.82
		36	39	20.95	21.35	20.97
		75	0	20.95	20.99	21.08
15M	64QAM	1	0	21.25	21.15	21.00
		1	37	20.94	21.22	20.97
		1	74	20.99	21.24	20.82
		36	0	20.25	20.22	20.17
		36	19	20.32	20.16	20.29
		36	39	19.85	19.91	19.79
		75	0	20.17	19.85	19.79
15M	256QAM	1	0	18.18	18.14	18.19
		1	37	18.12	18.02	18.04
		1	74	18.13	18.05	17.98
		36	0	18.19	18.15	18.14
		36	19	17.83	18.00	18.12
		36	39	18.16	17.93	18.06
		75	0	18.20	18.15	18.09

LTE Band 2						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		18650	18900	19150
		Frequency (MHz)		1855	1880	1905
10M	QPSK	1	0	23.09	23.08	22.84
		1	24	22.91	22.85	22.94
		1	49	22.85	22.83	22.91
		25	0	22.07	21.95	22.27
		25	12	22.33	22.23	22.00
		25	25	21.85	21.98	21.75
		50	0	21.73	22.38	21.90
10M	16QAM	1	0	22.27	22.22	22.28
		1	24	22.20	22.22	22.24
		1	49	22.17	21.99	21.81
		25	0	21.31	20.96	21.41
		25	12	21.21	21.11	21.11
		25	25	20.83	20.83	20.99
		50	0	21.04	20.71	20.75
10M	64QAM	1	0	21.01	20.92	21.14
		1	24	20.92	21.31	21.18
		1	49	21.07	21.19	20.86
		25	0	19.91	19.85	19.87
		25	12	20.14	20.19	20.08
		25	25	20.09	19.91	19.81
		50	0	20.19	19.85	20.11
10M	256QAM	1	0	18.39	18.36	18.26
		1	24	18.34	18.37	18.24
		1	49	18.11	17.92	17.79
		25	0	17.98	18.00	18.07
		25	12	18.04	18.29	18.23
		25	25	17.84	18.12	17.76
		50	0	17.87	17.76	17.98

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	22.99	22.99	22.88
		1	12	22.85	22.91	22.82
		1	24	22.83	22.96	22.86
		12	0	22.30	22.13	22.15
		12	6	22.00	22.09	21.88
		12	13	21.97	22.28	21.85
		25	0	21.85	22.20	21.77
5M	16QAM	1	0	22.06	21.89	22.32
		1	12	22.38	22.40	22.07
		1	24	22.12	21.84	22.11
		12	0	20.76	20.92	21.34
		12	6	21.20	21.00	20.76
		12	13	21.18	20.99	21.22
		25	0	20.99	21.14	20.86
5M	64QAM	1	0	20.94	21.09	21.06
		1	12	21.03	21.23	21.21
		1	24	21.12	20.94	20.75
		12	0	20.15	19.88	19.75
		12	6	19.96	20.18	19.94
		12	13	20.20	19.84	19.88
		25	0	20.12	19.93	20.16
5M	256QAM	1	0	18.19	18.10	18.13
		1	12	18.17	18.08	17.90
		1	24	18.22	18.22	18.01
		12	0	18.27	17.90	18.02
		12	6	17.98	17.87	17.92
		12	13	17.90	18.28	18.12
		25	0	18.03	17.95	17.79

LTE Band 2						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		18615	18900	19185
		Frequency (MHz)		1851.5	1880	1908.5
3M	QPSK	1	0	23.07	23.18	22.89
		1	7	22.85	22.90	22.85
		1	14	22.92	22.94	22.87
		8	0	22.18	21.97	21.79
		8	3	21.92	21.84	21.83
		8	7	22.16	21.74	21.83
		15	0	21.84	21.87	22.13
3M	16QAM	1	0	22.11	22.14	22.02
		1	7	21.89	22.01	21.90
		1	14	21.86	22.17	22.19
		8	0	21.35	20.99	21.20
		8	3	20.82	21.02	21.00
		8	7	20.75	20.79	20.81
		15	0	21.10	21.25	20.92
3M	64QAM	1	0	21.13	21.29	20.86
		1	7	21.10	20.98	21.18
		1	14	21.23	21.13	21.11
		8	0	20.10	20.27	20.02
		8	3	20.14	20.16	19.95
		8	7	20.03	19.91	20.11
		15	0	20.17	19.90	19.85
3M	256QAM	1	0	18.24	18.21	18.20
		1	7	18.24	17.88	18.21
		1	14	18.22	18.09	18.15
		8	0	17.91	18.19	17.92
		8	3	17.83	18.09	18.13
		8	7	17.89	17.99	17.85
		15	0	18.30	18.07	17.93

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	22.89	23.00	22.92
		1	2	22.88	22.99	22.78
		1	5	22.85	22.98	22.82
		3	0	22.72	22.97	22.92
		3	1	22.78	22.90	22.96
		3	3	22.72	22.94	22.85
		6	0	21.91	22.24	21.79
1.4M	16QAM	1	0	22.22	22.30	22.32
		1	2	21.89	22.10	22.13
		1	5	22.27	22.22	21.78
		3	0	22.27	22.22	22.19
		3	1	22.25	22.14	22.10
		3	3	22.09	22.07	21.98
		6	0	20.75	20.89	21.06
1.4M	64QAM	1	0	21.25	21.09	20.89
		1	2	21.37	20.99	21.14
		1	5	21.22	21.25	20.99
		3	0	20.89	21.26	21.15
		3	1	20.85	20.84	20.75
		3	3	20.96	20.98	21.04
		6	0	19.90	19.96	19.98
1.4M	256QAM	1	0	18.03	17.98	18.13
		1	2	18.10	18.16	18.15
		1	5	17.75	18.20	18.24
		3	0	18.29	18.19	18.27
		3	1	17.84	17.88	17.88
		3	3	18.23	18.09	18.01
		6	0	18.19	17.92	17.83

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	23.41	23.36	23.38
		1	24	23.37	23.38	23.34
		1	49	23.36	23.31	23.34
		25	0	22.45	22.39	22.39
		25	12	22.41	22.41	22.45
		25	25	22.26	22.41	22.49
		50	0	22.37	22.31	22.59
10M	16QAM	1	0	22.41	22.50	22.44
		1	24	22.42	22.47	22.42
		1	49	22.44	22.44	22.38
		25	0	22.40	22.44	21.41
		25	12	21.52	21.48	21.34
		25	25	21.37	21.34	21.38
		50	0	21.37	21.35	21.23
10M	64QAM	1	0	21.46	21.45	21.37
		1	24	21.44	21.45	21.37
		1	49	21.19	21.22	21.29
		25	0	20.26	20.29	20.39
		25	12	20.21	20.29	20.21
		25	25	20.33	20.26	20.29
		50	0	20.34	20.38	20.35
10M	256QAM	1	0	18.44	18.36	18.35
		1	24	18.43	18.45	18.26
		1	49	18.35	18.43	18.32
		25	0	18.32	18.21	18.31
		25	12	18.25	18.43	18.38
		25	25	18.28	18.35	18.34
		50	0	18.22	18.38	18.23

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	23.00	22.99	23.03
		1	12	23.05	22.88	22.84
		1	24	22.86	23.20	22.84
		12	0	22.17	22.14	22.15
		12	6	22.38	21.96	21.77
		12	13	21.92	21.76	21.76
		25	0	22.14	22.20	22.02
5M	16QAM	1	0	22.39	22.28	21.90
		1	12	21.92	22.18	22.03
		1	24	22.27	22.28	21.93
		12	0	20.73	21.23	21.31
		12	6	21.01	21.36	21.30
		12	13	20.73	21.09	21.05
		25	0	20.87	21.02	20.99
5M	64QAM	1	0	20.88	20.83	20.85
		1	12	20.84	20.82	20.86
		1	24	20.73	21.30	20.74
		12	0	20.05	19.90	20.28
		12	6	19.82	20.24	19.74
		12	13	20.09	19.79	20.37
		25	0	20.12	20.01	19.80
5M	256QAM	1	0	17.96	18.23	18.20
		1	12	17.87	18.15	17.95
		1	24	17.71	18.17	18.23
		12	0	17.77	18.24	18.22
		12	6	18.19	18.06	18.06
		12	13	18.06	18.06	17.80
		25	0	18.12	18.22	17.98

LTE Band 5						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20415	20525	20635
		Frequency (MHz)		825.5	836.5	847.5
3M	QPSK	1	0	23.37	23.31	23.32
		1	7	23.02	23.24	23.31
		1	14	23.08	23.30	23.37
		8	0	22.26	22.43	22.25
		8	3	22.13	22.41	22.07
		8	7	22.49	22.13	21.98
		15	0	22.53	22.67	22.54
3M	16QAM	1	0	22.46	22.53	22.28
		1	7	22.73	22.20	22.36
		1	14	22.03	22.20	22.39
		8	0	21.55	21.50	21.08
		8	3	21.56	21.62	21.44
		8	7	21.52	21.14	21.55
		15	0	21.19	21.32	21.33
3M	64QAM	1	0	21.38	21.44	21.30
		1	7	20.85	21.31	21.11
		1	14	21.30	20.93	20.98
		8	0	20.22	20.24	20.23
		8	3	20.12	20.27	20.19
		8	7	20.21	20.29	20.30
		15	0	19.95	20.12	20.24
3M	256QAM	1	0	18.22	18.29	18.29
		1	7	18.29	18.27	18.03
		1	14	18.21	18.26	18.17
		8	0	18.25	18.15	18.13
		8	3	18.05	18.13	18.11
		8	7	18.38	18.19	18.24
		15	0	18.36	18.26	18.29

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	23.29	23.38	23.33
		1	2	23.25	23.38	23.10
		1	5	23.39	23.25	22.94
		3	0	23.36	23.31	23.36
		3	1	23.35	23.26	23.24
		3	3	23.25	23.19	23.27
		6	0	22.35	22.31	22.25
1.4M	16QAM	1	0	22.14	22.15	22.20
		1	2	22.28	22.25	22.27
		1	5	22.22	22.26	22.12
		3	0	22.29	22.23	22.18
		3	1	22.16	22.21	22.25
		3	3	22.30	22.26	22.24
		6	0	21.24	21.26	22.32
1.4M	64QAM	1	0	21.06	21.20	21.04
		1	2	20.86	20.97	21.11
		1	5	20.98	21.11	21.08
		3	0	21.33	21.24	21.29
		3	1	21.29	21.38	21.35
		3	3	21.29	21.24	21.21
		6	0	20.24	20.17	20.28
1.4M	256QAM	1	0	18.35	18.37	18.38
		1	2	18.35	18.35	18.36
		1	5	18.13	18.32	18.26
		3	0	18.36	18.33	18.35
		3	1	18.40	18.37	18.12
		3	3	18.34	18.36	18.33
		6	0	18.35	18.27	18.30

LTE Band 13				
BW	MCS Index	RB Size	RB Offset	Mid
		Channel		23230
		Frequency (MHz)		782
10M	QPSK	1	0	22.82
		1	24	23.44
		1	49	22.87
		25	0	21.74
		25	12	22.13
		25	25	21.76
		50	0	22.03
10M	16QAM	1	0	22.23
		1	24	22.41
		1	49	21.76
		25	0	20.76
		25	12	21.35
		25	25	20.88
		50	0	20.75
10M	64QAM	1	0	22.38
		1	24	22.60
		1	49	21.70
		25	0	20.84
		25	12	21.10
		25	25	20.79
		50	0	20.31
10M	256QAM	1	0	18.35
		1	24	18.57
		1	49	18.50
		25	0	18.05
		25	12	18.52
		25	25	18.41
		50	0	18.37

LTE Band 13						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		23205	23230	23255
		Frequency (MHz)		779.5	782	784.5
5M	QPSK	1	0	22.82	22.86	22.92
		1	12	22.84	23.30	23.43
		1	24	22.79	22.84	22.81
		12	0	21.75	21.89	21.82
		12	6	21.77	21.99	21.99
		12	13	21.79	21.82	21.85
		25	0	21.76	21.96	21.83
5M	16QAM	1	0	22.28	22.40	22.57
		1	12	22.47	22.24	22.16
		1	24	21.86	21.89	21.84
		12	0	20.76	21.02	20.79
		12	6	20.93	21.00	21.13
		12	13	20.82	20.85	20.86
		25	0	20.72	20.87	20.83
5M	64QAM	1	0	22.25	22.21	22.35
		1	12	21.99	22.55	21.99
		1	24	21.03	21.37	21.18
		12	0	20.72	20.76	20.86
		12	6	21.08	20.89	20.78
		12	13	20.41	20.73	20.54
		25	0	20.06	20.61	20.20
5M	256QAM	1	0	18.04	17.87	17.84
		1	12	18.25	18.49	18.48
		1	24	17.87	18.49	18.45
		12	0	18.00	18.34	18.17
		12	6	18.45	18.23	18.11
		12	13	18.32	18.42	18.27
		25	0	18.21	18.48	18.13

LTE Band 66						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		132072	132322	132572
		Frequency (MHz)		1720	1745	1770
20M	QPSK	1	0	23.51	23.59	23.56
		1	50	23.50	23.55	23.52
		1	99	22.94	23.27	23.28
		50	0	22.23	22.24	22.40
		50	25	22.23	22.24	22.44
		50	50	21.96	22.37	22.20
		100	0	22.17	22.55	22.14
20M	16QAM	1	0	22.33	22.53	22.70
		1	50	22.12	22.75	22.41
		1	99	22.51	22.75	22.42
		50	0	21.13	21.15	21.68
		50	25	21.16	21.54	21.34
		50	50	21.22	21.13	21.55
		100	0	20.98	21.61	21.19
20M	64QAM	1	0	20.88	20.88	20.91
		1	50	20.73	20.83	20.95
		1	99	20.78	20.78	21.01
		50	0	19.87	19.89	20.25
		50	25	19.77	19.92	20.15
		50	50	19.71	19.88	19.85
		100	0	19.75	19.75	19.73
20M	256QAM	1	0	18.41	18.68	18.76
		1	50	18.18	18.35	18.38
		1	99	18.41	18.71	18.41
		50	0	18.32	18.15	18.30
		50	25	18.25	18.31	18.26
		50	50	18.41	18.09	18.17
		100	0	18.45	18.43	18.13

LTE Band 66						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		132047	132322	132597
		Frequency (MHz)		1717.5	1745	1772.5
15M	QPSK	1	0	23.43	23.46	23.43
		1	37	23.38	23.24	23.22
		1	74	22.98	23.15	23.02
		36	0	22.46	22.44	22.45
		36	19	21.82	22.14	22.28
		36	39	22.32	22.16	22.04
		75	0	21.89	22.26	22.29
15M	16QAM	1	0	22.26	22.48	22.33
		1	37	22.21	22.47	22.37
		1	74	22.09	22.43	22.24
		36	0	21.21	21.06	21.38
		36	19	20.92	21.45	21.58
		36	39	20.83	21.10	20.97
		75	0	21.40	21.59	21.69
15M	64QAM	1	0	20.87	20.94	20.71
		1	37	20.88	20.81	20.70
		1	74	20.85	20.81	20.85
		36	0	19.85	19.87	19.82
		36	19	19.80	19.78	20.04
		36	39	19.89	19.92	19.72
		75	0	19.87	19.90	19.88
15M	256QAM	1	0	18.36	18.40	18.25
		1	37	18.33	18.39	18.24
		1	74	18.21	18.17	18.28
		36	0	18.25	18.38	18.44
		36	19	18.31	18.37	18.15
		36	39	18.22	18.56	18.28
		75	0	18.16	18.25	18.48

LTE Band 66						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		132022	132322	132622
		Frequency (MHz)		1715	1745	1775
10M	QPSK	1	0	23.34	23.44	23.18
		1	24	23.35	23.15	23.01
		1	49	22.89	23.17	23.07
		25	0	22.02	22.29	22.22
		25	12	22.20	22.24	22.37
		25	25	22.24	22.45	22.28
		50	0	22.03	22.44	22.57
10M	16QAM	1	0	22.49	22.55	22.46
		1	24	22.31	22.57	22.31
		1	49	21.91	22.53	22.03
		25	0	20.83	21.22	21.28
		25	12	20.98	21.26	20.93
		25	25	21.10	21.25	21.34
		50	0	21.18	21.49	21.61
10M	64QAM	1	0	20.84	20.97	21.13
		1	24	20.86	20.93	20.90
		1	49	20.82	20.88	20.78
		25	0	19.79	19.98	20.23
		25	12	19.76	19.99	19.93
		25	25	19.74	19.84	19.70
		50	0	19.73	19.75	19.74
10M	256QAM	1	0	18.15	18.58	18.49
		1	24	17.90	18.12	18.23
		1	49	17.92	18.50	18.12
		25	0	18.16	18.11	18.26
		25	12	18.05	18.54	18.27
		25	25	18.14	18.18	18.11
		50	0	18.31	18.10	18.04

LTE Band 66						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		131997	132322	132647
		Frequency (MHz)		1712.5	1745	1777.5
5M	QPSK	1	0	23.35	23.29	23.30
		1	12	23.19	23.03	23.33
		1	24	22.89	22.99	22.76
		12	0	22.09	22.51	22.41
		12	6	21.77	22.38	21.95
		12	13	21.84	22.41	22.25
		25	0	22.05	22.37	21.98
5M	16QAM	1	0	21.95	22.40	22.33
		1	12	21.93	22.42	22.31
		1	24	21.90	22.34	22.37
		12	0	20.92	21.45	21.65
		12	6	20.77	21.18	21.22
		12	13	20.74	21.25	21.19
		25	0	20.72	21.12	21.21
5M	64QAM	1	0	20.94	20.89	20.88
		1	12	20.82	20.89	20.98
		1	24	20.83	20.85	20.91
		12	0	19.75	20.11	20.08
		12	6	19.81	19.83	19.82
		12	13	19.77	19.87	19.78
		25	0	19.80	19.70	19.73
5M	256QAM	1	0	18.28	18.57	18.58
		1	12	17.94	18.29	18.30
		1	24	18.29	18.27	18.36
		12	0	18.03	18.39	18.15
		12	6	18.29	18.05	18.50
		12	13	18.33	18.31	18.33
		25	0	18.13	18.30	18.52

LTE Band 66						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		131987	132322	132657
		Frequency (MHz)		1711.5	1745	1778.5
3M	QPSK	1	0	23.29	23.26	23.17
		1	7	23.37	23.04	23.09
		1	14	22.83	23.12	23.15
		8	0	21.95	22.24	22.20
		8	3	21.84	22.25	21.97
		8	7	21.75	22.26	22.05
		15	0	22.28	22.22	22.17
3M	16QAM	1	0	22.22	22.27	22.29
		1	7	21.94	22.30	22.40
		1	14	22.32	22.37	22.34
		8	0	21.33	21.35	21.51
		8	3	21.14	21.14	21.41
		8	7	20.80	20.97	21.07
		15	0	20.88	21.62	21.20
3M	64QAM	1	0	20.85	20.75	21.01
		1	7	20.73	20.88	20.81
		1	14	20.80	20.83	20.75
		8	0	19.81	19.97	19.82
		8	3	19.72	19.76	19.81
		8	7	19.71	19.76	19.71
		15	0	19.73	19.81	19.84
3M	256QAM	1	0	18.26	18.25	18.53
		1	7	18.37	18.54	18.52
		1	14	17.93	18.51	18.38
		8	0	17.80	18.48	18.47
		8	3	18.01	18.33	17.96
		8	7	18.04	18.40	18.09
		15	0	18.35	18.18	18.58

LTE Band 66						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		131979	132322	132665
		Frequency (MHz)		1710.7	1745	1779.3
1.4M	QPSK	1	0	23.03	23.47	23.46
		1	2	23.06	23.36	22.97
		1	5	22.92	23.22	23.12
		3	0	22.74	23.18	23.07
		3	1	23.05	23.31	23.10
		3	3	23.20	23.25	23.50
		6	0	21.89	22.17	22.23
1.4M	16QAM	1	0	22.50	22.58	22.35
		1	2	21.76	22.38	22.50
		1	5	22.02	22.33	22.31
		3	0	22.14	22.25	22.08
		3	1	21.75	22.22	22.05
		3	3	21.72	22.25	22.33
		6	0	20.81	21.61	21.25
1.4M	64QAM	1	0	20.81	20.77	21.05
		1	2	20.84	21.00	20.88
		1	5	20.77	20.75	20.89
		3	0	20.76	21.08	21.04
		3	1	20.86	20.77	20.74
		3	3	20.90	20.86	20.82
		6	0	19.80	19.72	19.73
1.4M	256QAM	1	0	18.10	18.34	18.11
		1	2	18.27	18.13	18.08
		1	5	18.20	18.15	18.14
		3	0	18.10	18.13	17.99
		3	1	17.79	17.89	18.17
		3	3	17.99	17.91	18.20
		6	0	17.94	18.21	18.14

EIRP / ERP Power (dBm)

NR Band 77:

NR Band 77						
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	23.06	22.72	22.65
100M	QPSK	1	1	23.09	22.79	22.67
		1	137	22.45	22.61	22.58
		1	271	22.51	22.21	22.54
		135	0	21.69	21.39	21.46
		135	69	22.42	22.32	22.53
		135	138	21.38	21.08	21.57
		270	0	21.43	21.33	21.48
100M	16QAM	1	1	21.52	21.22	21.56
100M	64QAM	1	1	20.55	20.25	20.49
100M	256QAM	1	1	18.68	18.38	18.26
NR Band 77						
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	22.97	22.66	22.55
80M	QPSK	1	1	23.06	22.72	22.65
		1	109	22.35	22.53	22.53
		1	215	22.48	22.18	22.51
		108	0	21.64	21.39	21.41
		108	55	22.41	22.10	22.45
		108	109	21.29	21.05	21.53
		216	0	21.40	21.11	21.38
80M	16QAM	1	1	21.45	21.15	21.49
80M	64QAM	1	1	20.52	20.16	20.47
80M	256QAM	1	1	18.67	18.37	18.24

*EIRP = Conducted + antenna gain (-0.4dBi)

NR Band 77						
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	22.99	22.68	22.57
60M	QPSK	1	1	23.03	22.78	22.67
		1	81	22.35	22.58	22.51
		1	160	22.47	22.18	22.48
		81	0	21.69	21.35	21.45
		81	41	22.41	22.07	22.50
		81	81	21.37	20.98	21.56
		162	0	21.33	21.11	21.42
60M	16QAM	1	1	21.48	21.12	21.49
60M	64QAM	1	1	20.51	20.20	20.46
60M	256QAM	1	1	18.60	18.35	18.24
NR Band 77						
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	22.99	22.72	22.58
40M	QPSK	1	1	23.08	22.69	22.57
		1	53	22.41	22.61	22.53
		1	104	22.49	22.17	22.46
		50	0	21.60	21.38	21.38
		50	28	22.42	22.03	22.43
		50	56	21.34	21.08	21.54
		100	0	21.37	21.10	21.46
40M	16QAM	1	1	21.49	21.14	21.47
40M	64QAM	1	1	20.49	20.20	20.48
40M	256QAM	1	1	18.59	18.32	18.23

*EIRP = Conducted + antenna gain (-0.4dBi)

NR Band 77						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		647668	656000	664332
		Frequency (MHz)		3715.02	3840	3964.98
30M	$\pi/2$ BPSK	1	1	23.04	22.70	22.61
30M	QPSK	1	1	23.08	22.69	22.67
		1	39	22.43	22.57	22.51
		1	76	22.47	22.11	22.49
		36	0	21.63	21.37	21.42
		36	21	22.41	22.06	22.46
		36	42	21.32	21.07	21.57
		75	0	21.38	21.05	21.39
30M	16QAM	1	1	21.49	21.14	21.53
30M	64QAM	1	1	20.45	20.21	20.48
30M	256QAM	1	1	18.63	18.33	18.20
NR Band 77						
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	23.01	22.64	22.64
20M	QPSK	1	1	23.02	22.75	22.62
		1	26	22.37	22.54	22.53
		1	49	22.47	22.14	22.49
		25	0	21.68	21.32	21.45
		25	13	22.33	22.08	22.49
		25	26	21.34	21.00	21.51
		50	0	21.34	21.07	21.45
20M	16QAM	1	1	21.42	21.17	21.51
20M	64QAM	1	1	20.50	20.24	20.44
20M	256QAM	1	1	18.64	18.33	18.23

*EIRP = Conducted + antenna gain (-0.4dBi)

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	22.44	22.37	22.07
		1	50	22.37	22.08	22.18
		1	99	21.95	21.98	21.96
		50	0	21.19	21.39	21.29
		50	25	21.06	21.47	21.58
		50	50	21.42	21.14	21.41
		100	0	21.33	21.48	21.25
20M	16QAM	1	0	21.45	21.45	21.37
		1	50	21.46	21.33	21.14
		1	99	21.08	21.38	21.58
		50	0	20.43	20.79	20.15
		50	25	20.47	20.18	20.02
		50	50	20.60	20.08	20.23
		100	0	20.35	20.30	19.99
20M	64QAM	1	0	20.78	20.79	20.13
		1	50	20.47	20.53	20.49
		1	99	20.34	20.30	20.44
		50	0	19.49	19.34	19.30
		50	25	19.55	19.42	19.36
		50	50	19.19	19.10	19.24
		100	0	19.39	19.42	19.09
20M	256QAM	1	0	17.50	17.59	17.55
		1	50	17.32	17.51	17.53
		1	99	17.37	17.35	17.50
		50	0	17.54	17.57	17.18
		50	25	17.18	17.37	17.50
		50	50	17.14	17.07	17.04
		100	0	17.54	17.43	17.41

*EIRP = Conducted + antenna gain (-0.8dBi)

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	22.36	22.17	22.21
		1	37	22.32	21.95	22.17
		1	74	21.98	21.98	22.04
		36	0	21.41	21.38	21.36
		36	19	21.47	21.56	21.32
		36	39	21.11	21.18	21.42
		75	0	21.36	21.57	20.95
15M	16QAM	1	0	21.56	21.57	21.34
		1	37	21.30	21.55	21.34
		1	74	21.53	21.41	21.34
		36	0	20.39	20.37	20.57
		36	19	20.30	20.21	20.02
		36	39	20.15	20.55	20.17
		75	0	20.15	20.19	20.28
15M	64QAM	1	0	20.45	20.35	20.20
		1	37	20.14	20.42	20.17
		1	74	20.19	20.44	20.02
		36	0	19.45	19.42	19.37
		36	19	19.52	19.36	19.49
		36	39	19.05	19.11	18.99
		75	0	19.37	19.05	18.99
15M	256QAM	1	0	17.38	17.34	17.39
		1	37	17.32	17.22	17.24
		1	74	17.33	17.25	17.18
		36	0	17.39	17.35	17.34
		36	19	17.03	17.20	17.32
		36	39	17.36	17.13	17.26
		75	0	17.40	17.35	17.29

*EIRP = Conducted + antenna gain (-0.8dBi)

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	22.29	22.28	22.04
		1	24	22.11	22.05	22.14
		1	49	22.05	22.03	22.11
		25	0	21.27	21.15	21.47
		25	12	21.53	21.43	21.20
		25	25	21.05	21.18	20.95
		50	0	20.93	21.58	21.10
10M	16QAM	1	0	21.47	21.42	21.48
		1	24	21.40	21.42	21.44
		1	49	21.37	21.19	21.01
		25	0	20.51	20.16	20.61
		25	12	20.41	20.31	20.31
		25	25	20.03	20.03	20.19
		50	0	20.24	19.91	19.95
10M	64QAM	1	0	20.21	20.12	20.34
		1	24	20.12	20.51	20.38
		1	49	20.27	20.39	20.06
		25	0	19.11	19.05	19.07
		25	12	19.34	19.39	19.28
		25	25	19.29	19.11	19.01
		50	0	19.39	19.05	19.31
10M	256QAM	1	0	17.59	17.56	17.46
		1	24	17.54	17.57	17.44
		1	49	17.31	17.12	16.99
		25	0	17.18	17.20	17.27
		25	12	17.24	17.49	17.43
		25	25	17.04	17.32	16.96
		50	0	17.07	16.96	17.18

*EIRP = Conducted + antenna gain (-0.8dBi)

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	22.19	22.19	22.08
		1	12	22.05	22.11	22.02
		1	24	22.03	22.16	22.06
		12	0	21.50	21.33	21.35
		12	6	21.20	21.29	21.08
		12	13	21.17	21.48	21.05
		25	0	21.05	21.40	20.97
5M	16QAM	1	0	21.26	21.09	21.52
		1	12	21.58	21.60	21.27
		1	24	21.32	21.04	21.31
		12	0	19.96	20.12	20.54
		12	6	20.40	20.20	19.96
		12	13	20.38	20.19	20.42
		25	0	20.19	20.34	20.06
5M	64QAM	1	0	20.14	20.29	20.26
		1	12	20.23	20.43	20.41
		1	24	20.32	20.14	19.95
		12	0	19.35	19.08	18.95
		12	6	19.16	19.38	19.14
		12	13	19.40	19.04	19.08
		25	0	19.32	19.13	19.36
5M	256QAM	1	0	17.39	17.30	17.33
		1	12	17.37	17.28	17.10
		1	24	17.42	17.42	17.21
		12	0	17.47	17.10	17.22
		12	6	17.18	17.07	17.12
		12	13	17.10	17.48	17.32
		25	0	17.23	17.15	16.99

*EIRP = Conducted + antenna gain (-0.8dBi)

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	22.27	22.38	22.09
		1	7	22.05	22.10	22.05
		1	14	22.12	22.14	22.07
		8	0	21.38	21.17	20.99
		8	3	21.12	21.04	21.03
		8	7	21.36	20.94	21.03
		15	0	21.04	21.07	21.33
3M	16QAM	1	0	21.31	21.34	21.22
		1	7	21.09	21.21	21.10
		1	14	21.06	21.37	21.39
		8	0	20.55	20.19	20.40
		8	3	20.02	20.22	20.20
		8	7	19.95	19.99	20.01
		15	0	20.30	20.45	20.12
3M	64QAM	1	0	20.33	20.49	20.06
		1	7	20.30	20.18	20.38
		1	14	20.43	20.33	20.31
		8	0	19.30	19.47	19.22
		8	3	19.34	19.36	19.15
		8	7	19.23	19.11	19.31
		15	0	19.37	19.10	19.05
3M	256QAM	1	0	17.44	17.41	17.40
		1	7	17.44	17.08	17.41
		1	14	17.42	17.29	17.35
		8	0	17.11	17.39	17.12
		8	3	17.03	17.29	17.33
		8	7	17.09	17.19	17.05
		15	0	17.50	17.27	17.13

*EIRP = Conducted + antenna gain (-0.8dBi)

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	22.09	22.20	22.12
		1	2	22.08	22.19	21.98
		1	5	22.05	22.18	22.02
		3	0	21.92	22.17	22.12
		3	1	21.98	22.10	22.16
		3	3	21.92	22.14	22.05
		6	0	21.11	21.44	20.99
1.4M	16QAM	1	0	21.42	21.50	21.52
		1	2	21.09	21.30	21.33
		1	5	21.47	21.42	20.98
		3	0	21.47	21.42	21.39
		3	1	21.45	21.34	21.30
		3	3	21.29	21.27	21.18
		6	0	19.95	20.09	20.26
1.4M	64QAM	1	0	20.45	20.29	20.09
		1	2	20.57	20.19	20.34
		1	5	20.42	20.45	20.19
		3	0	20.09	20.46	20.35
		3	1	20.05	20.04	19.95
		3	3	20.16	20.18	20.24
		6	0	19.10	19.16	19.18
1.4M	256QAM	1	0	17.23	17.18	17.33
		1	2	17.30	17.36	17.35
		1	5	16.95	17.40	17.44
		3	0	17.49	17.39	17.47
		3	1	17.04	17.08	17.08
		3	3	17.43	17.29	17.21
		6	0	17.39	17.12	17.03

*EIRP = Conducted + antenna gain (-0.8dBi)

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	17.76	17.71	17.73
		1	24	17.72	17.73	17.69
		1	49	17.71	17.66	17.69
		25	0	16.80	16.74	16.74
		25	12	16.76	16.76	16.80
		25	25	16.61	16.76	16.84
		50	0	16.72	16.66	16.94
10M	16QAM	1	0	16.76	16.85	16.79
		1	24	16.77	16.82	16.77
		1	49	16.79	16.79	16.73
		25	0	16.75	16.79	15.76
		25	12	15.87	15.83	15.69
		25	25	15.72	15.69	15.73
		50	0	15.72	15.70	15.58
10M	64QAM	1	0	15.81	15.80	15.72
		1	24	15.79	15.80	15.72
		1	49	15.54	15.57	15.64
		25	0	14.61	14.64	14.74
		25	12	14.56	14.64	14.56
		25	25	14.68	14.61	14.64
		50	0	14.69	14.73	14.70
10M	256QAM	1	0	12.79	12.71	12.70
		1	24	12.78	12.80	12.61
		1	49	12.70	12.78	12.67
		25	0	12.67	12.56	12.66
		25	12	12.60	12.78	12.73
		25	25	12.63	12.70	12.69
		50	0	12.57	12.73	12.58

*ERP = Conducted + antenna gain (-3.5dBi)-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	17.35	17.34	17.38
		1	12	17.40	17.23	17.19
		1	24	17.21	17.55	17.19
		12	0	16.52	16.49	16.50
		12	6	16.73	16.31	16.12
		12	13	16.27	16.11	16.11
		25	0	16.49	16.55	16.37
5M	16QAM	1	0	16.74	16.63	16.25
		1	12	16.27	16.53	16.38
		1	24	16.62	16.63	16.28
		12	0	15.08	15.58	15.66
		12	6	15.36	15.71	15.65
		12	13	15.08	15.44	15.40
		25	0	15.22	15.37	15.34
5M	64QAM	1	0	15.23	15.18	15.20
		1	12	15.19	15.17	15.21
		1	24	15.08	15.65	15.09
		12	0	14.40	14.25	14.63
		12	6	14.17	14.59	14.09
		12	13	14.44	14.14	14.72
		25	0	14.47	14.36	14.15
5M	256QAM	1	0	12.31	12.58	12.55
		1	12	12.22	12.50	12.30
		1	24	12.06	12.52	12.58
		12	0	12.12	12.59	12.57
		12	6	12.54	12.41	12.41
		12	13	12.41	12.41	12.15
		25	0	12.47	12.57	12.33

*ERP = Conducted + antenna gain (-3.5dBi)-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	17.72	17.66	17.67
		1	7	17.37	17.59	17.66
		1	14	17.43	17.65	17.72
		8	0	16.61	16.78	16.60
		8	3	16.48	16.76	16.42
		8	7	16.84	16.48	16.33
		15	0	16.88	17.02	16.89
3M	16QAM	1	0	16.81	16.88	16.63
		1	7	17.08	16.55	16.71
		1	14	16.38	16.55	16.74
		8	0	15.90	15.85	15.43
		8	3	15.91	15.97	15.79
		8	7	15.87	15.49	15.90
		15	0	15.54	15.67	15.68
3M	64QAM	1	0	15.73	15.79	15.65
		1	7	15.20	15.66	15.46
		1	14	15.65	15.28	15.33
		8	0	14.57	14.59	14.58
		8	3	14.47	14.62	14.54
		8	7	14.56	14.64	14.65
		15	0	14.30	14.47	14.59
3M	256QAM	1	0	12.57	12.64	12.64
		1	7	12.64	12.62	12.38
		1	14	12.56	12.61	12.52
		8	0	12.60	12.50	12.48
		8	3	12.40	12.48	12.46
		8	7	12.73	12.54	12.59
		15	0	12.71	12.61	12.64

*ERP = Conducted + antenna gain (-3.5dBi)-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	17.64	17.73	17.68
		1	2	17.60	17.73	17.45
		1	5	17.74	17.60	17.29
		3	0	17.71	17.66	17.71
		3	1	17.70	17.61	17.59
		3	3	17.60	17.54	17.62
		6	0	16.70	16.66	16.60
1.4M	16QAM	1	0	16.49	16.50	16.55
		1	2	16.63	16.60	16.62
		1	5	16.57	16.61	16.47
		3	0	16.64	16.58	16.53
		3	1	16.51	16.56	16.60
		3	3	16.65	16.61	16.59
		6	0	15.59	15.61	16.67
1.4M	64QAM	1	0	15.41	15.55	15.39
		1	2	15.21	15.32	15.46
		1	5	15.33	15.46	15.43
		3	0	15.68	15.59	15.64
		3	1	15.64	15.73	15.70
		3	3	15.64	15.59	15.56
		6	0	14.59	14.52	14.63
1.4M	256QAM	1	0	12.70	12.72	12.73
		1	2	12.70	12.70	12.71
		1	5	12.48	12.67	12.61
		3	0	12.71	12.68	12.70
		3	1	12.75	12.72	12.47
		3	3	12.69	12.71	12.68
		6	0	12.70	12.62	12.65

*ERP = Conducted + antenna gain (-3.5dBi)-2.15

LTE Band 13				
BW	MCS Index	RB Size	RB Offset	Mid
		Channel		23230
		Frequency (MHz)		782
10M	QPSK	1	0	17.27
		1	24	17.89
		1	49	17.32
		25	0	16.19
		25	12	16.58
		25	25	16.21
		50	0	16.48
10M	16QAM	1	0	16.68
		1	24	16.86
		1	49	16.21
		25	0	15.21
		25	12	15.80
		25	25	15.33
		50	0	15.20
10M	64QAM	1	0	16.83
		1	24	17.05
		1	49	16.15
		25	0	15.29
		25	12	15.55
		25	25	15.24
		50	0	14.76
10M	256QAM	1	0	12.80
		1	24	13.02
		1	49	12.95
		25	0	12.50
		25	12	12.97
		25	25	12.86
		50	0	12.82

*ERP = Conducted + antenna gain (-3.4dBi)-2.15

LTE Band 13						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		23205	23230	23255
		Frequency (MHz)		779.5	782	784.5
5M	QPSK	1	0	17.27	17.31	17.37
		1	12	17.29	17.75	17.88
		1	24	17.24	17.29	17.26
		12	0	16.20	16.34	16.27
		12	6	16.22	16.44	16.44
		12	13	16.24	16.27	16.30
		25	0	16.21	16.41	16.28
5M	16QAM	1	0	16.73	16.85	17.02
		1	12	16.92	16.69	16.61
		1	24	16.31	16.34	16.29
		12	0	15.21	15.47	15.24
		12	6	15.38	15.45	15.58
		12	13	15.27	15.30	15.31
		25	0	15.17	15.32	15.28
5M	64QAM	1	0	16.70	16.66	16.80
		1	12	16.44	17.00	16.44
		1	24	15.48	15.82	15.63
		12	0	15.17	15.21	15.31
		12	6	15.53	15.34	15.23
		12	13	14.86	15.18	14.99
		25	0	14.51	15.06	14.65
5M	256QAM	1	0	12.49	12.32	12.29
		1	12	12.70	12.94	12.93
		1	24	12.32	12.94	12.90
		12	0	12.45	12.79	12.62
		12	6	12.90	12.68	12.56
		12	13	12.77	12.87	12.72
		25	0	12.66	12.93	12.58

*ERP = Conducted + antenna gain (-3.4dBi)-2.15

LTE Band 66						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		132072	132322	132572
		Frequency (MHz)		1720	1745	1770
20M	QPSK	1	0	25.81	25.89	25.86
		1	50	25.80	25.85	25.82
		1	99	25.24	25.57	25.58
		50	0	24.53	24.54	24.70
		50	25	24.53	24.54	24.74
		50	50	24.26	24.67	24.50
		100	0	24.47	24.85	24.44
20M	16QAM	1	0	24.63	24.83	25.00
		1	50	24.42	25.05	24.71
		1	99	24.81	25.05	24.72
		50	0	23.43	23.45	23.98
		50	25	23.46	23.84	23.64
		50	50	23.52	23.43	23.85
		100	0	23.28	23.91	23.49
20M	64QAM	1	0	23.18	23.18	23.21
		1	50	23.03	23.13	23.25
		1	99	23.08	23.08	23.31
		50	0	22.17	22.19	22.55
		50	25	22.07	22.22	22.45
		50	50	22.01	22.18	22.15
		100	0	22.05	22.05	22.03
20M	256QAM	1	0	20.71	20.98	21.06
		1	50	20.48	20.65	20.68
		1	99	20.71	21.01	20.71
		50	0	20.62	20.45	20.60
		50	25	20.55	20.61	20.56
		50	50	20.71	20.39	20.47
		100	0	20.75	20.73	20.43

*EIRP = Conducted + antenna gain (2.3dBi)

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	25.73	25.76	25.73
		1	37	25.68	25.54	25.52
		1	74	25.28	25.45	25.32
		36	0	24.76	24.74	24.75
		36	19	24.12	24.44	24.58
		36	39	24.62	24.46	24.34
		75	0	24.19	24.56	24.59
15M	16QAM	1	0	24.56	24.78	24.63
		1	37	24.51	24.77	24.67
		1	74	24.39	24.73	24.54
		36	0	23.51	23.36	23.68
		36	19	23.22	23.75	23.88
		36	39	23.13	23.40	23.27
		75	0	23.70	23.89	23.99
15M	64QAM	1	0	23.17	23.24	23.01
		1	37	23.18	23.11	23.00
		1	74	23.15	23.11	23.15
		36	0	22.15	22.17	22.12
		36	19	22.10	22.08	22.34
		36	39	22.19	22.22	22.02
		75	0	22.17	22.20	22.18
15M	256QAM	1	0	20.66	20.70	20.55
		1	37	20.63	20.69	20.54
		1	74	20.51	20.47	20.58
		36	0	20.55	20.68	20.74
		36	19	20.61	20.67	20.45
		36	39	20.52	20.86	20.58
		75	0	20.46	20.55	20.78

*EIRP = Conducted + antenna gain (2.3dBi)

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	25.64	25.74	25.48
		1	24	25.65	25.45	25.31
		1	49	25.19	25.47	25.37
		25	0	24.32	24.59	24.52
		25	12	24.50	24.54	24.67
		25	25	24.54	24.75	24.58
		50	0	24.33	24.74	24.87
10M	16QAM	1	0	24.79	24.85	24.76
		1	24	24.61	24.87	24.61
		1	49	24.21	24.83	24.33
		25	0	23.13	23.52	23.58
		25	12	23.28	23.56	23.23
		25	25	23.40	23.55	23.64
		50	0	23.48	23.79	23.91
10M	64QAM	1	0	23.14	23.27	23.43
		1	24	23.16	23.23	23.20
		1	49	23.12	23.18	23.08
		25	0	22.09	22.28	22.53
		25	12	22.06	22.29	22.23
		25	25	22.04	22.14	22.00
		50	0	22.03	22.05	22.04
10M	256QAM	1	0	20.45	20.88	20.79
		1	24	20.20	20.42	20.53
		1	49	20.22	20.80	20.42
		25	0	20.46	20.41	20.56
		25	12	20.35	20.84	20.57
		25	25	20.44	20.48	20.41
		50	0	20.61	20.40	20.34

*EIRP = Conducted + antenna gain (2.3dBi)

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	25.65	25.59	25.60
		1	12	25.49	25.33	25.63
		1	24	25.19	25.29	25.06
		12	0	24.39	24.81	24.71
		12	6	24.07	24.68	24.25
		12	13	24.14	24.71	24.55
		25	0	24.35	24.67	24.28
5M	16QAM	1	0	24.25	24.70	24.63
		1	12	24.23	24.72	24.61
		1	24	24.20	24.64	24.67
		12	0	23.22	23.75	23.95
		12	6	23.07	23.48	23.52
		12	13	23.04	23.55	23.49
		25	0	23.02	23.42	23.51
5M	64QAM	1	0	23.24	23.19	23.18
		1	12	23.12	23.19	23.28
		1	24	23.13	23.15	23.21
		12	0	22.05	22.41	22.38
		12	6	22.11	22.13	22.12
		12	13	22.07	22.17	22.08
		25	0	22.10	22.00	22.03
5M	256QAM	1	0	20.58	20.87	20.88
		1	12	20.24	20.59	20.60
		1	24	20.59	20.57	20.66
		12	0	20.33	20.69	20.45
		12	6	20.59	20.35	20.80
		12	13	20.63	20.61	20.63
		25	0	20.43	20.60	20.82

*EIRP = Conducted + antenna gain (2.3dBi)

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	25.59	25.56	25.47
		1	7	25.67	25.34	25.39
		1	14	25.13	25.42	25.45
		8	0	24.25	24.54	24.50
		8	3	24.14	24.55	24.27
		8	7	24.05	24.56	24.35
		15	0	24.58	24.52	24.47
3M	16QAM	1	0	24.52	24.57	24.59
		1	7	24.24	24.60	24.70
		1	14	24.62	24.67	24.64
		8	0	23.63	23.65	23.81
		8	3	23.44	23.44	23.71
		8	7	23.10	23.27	23.37
		15	0	23.18	23.92	23.50
3M	64QAM	1	0	23.15	23.05	23.31
		1	7	23.03	23.18	23.11
		1	14	23.10	23.13	23.05
		8	0	22.11	22.27	22.12
		8	3	22.02	22.06	22.11
		8	7	22.01	22.06	22.01
		15	0	22.03	22.11	22.14
3M	256QAM	1	0	20.56	20.55	20.83
		1	7	20.67	20.84	20.82
		1	14	20.23	20.81	20.68
		8	0	20.10	20.78	20.77
		8	3	20.31	20.63	20.26
		8	7	20.34	20.70	20.39
		15	0	20.65	20.48	20.88

*EIRP = Conducted + antenna gain (2.3dBi)

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	25.33	25.77	25.76
		1	2	25.36	25.66	25.27
		1	5	25.22	25.52	25.42
		3	0	25.04	25.48	25.37
		3	1	25.35	25.61	25.40
		3	3	25.50	25.55	25.80
		6	0	24.19	24.47	24.53
1.4M	16QAM	1	0	24.80	24.88	24.65
		1	2	24.06	24.68	24.80
		1	5	24.32	24.63	24.61
		3	0	24.44	24.55	24.38
		3	1	24.05	24.52	24.35
		3	3	24.02	24.55	24.63
		6	0	23.11	23.91	23.55
1.4M	64QAM	1	0	23.11	23.07	23.35
		1	2	23.14	23.30	23.18
		1	5	23.07	23.05	23.19
		3	0	23.06	23.38	23.34
		3	1	23.16	23.07	23.04
		3	3	23.20	23.16	23.12
		6	0	22.10	22.02	22.03
1.4M	256QAM	1	0	20.40	20.64	20.41
		1	2	20.57	20.43	20.38
		1	5	20.50	20.45	20.44
		3	0	20.40	20.43	20.29
		3	1	20.09	20.19	20.47
		3	3	20.29	20.21	20.50
		6	0	20.24	20.51	20.44

*EIRP = Conducted + antenna gain (2.3dBi)

4.2 Modulation Characteristics Measurement

4.2.1 Limits of Modulation Characteristics

N/A

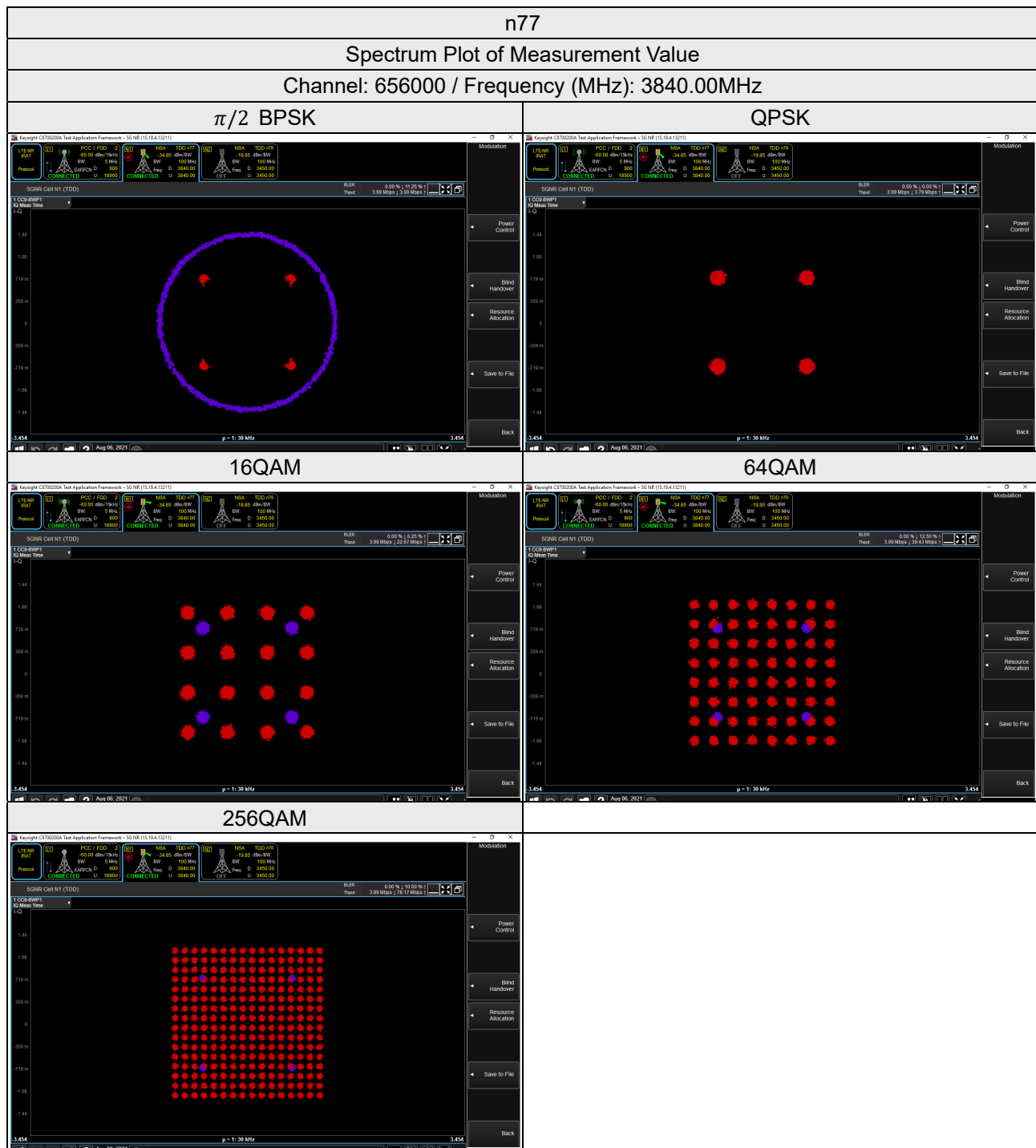
4.2.2 Test Procedure

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

4.2.3 Test Setup



4.2.4 Test Results



4.3 Frequency Stability Measurement

4.3.1 Limits of Frequency Stability Measurement

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

4.3.2 Test Procedure

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

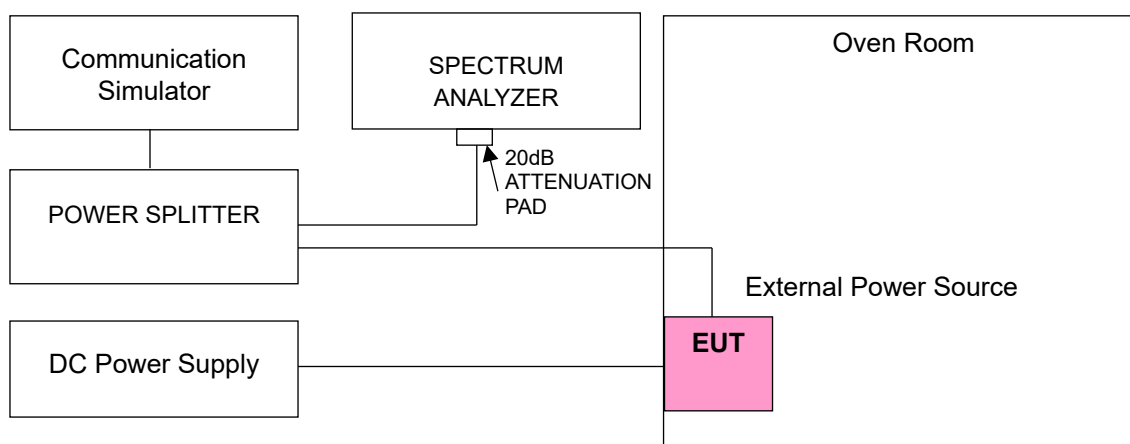
Note: The frequency error was recorded frequency error from the communication simulator.

4.3.3 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
5G Wireless Test Platforms Keysight	E7515B	MY60102114	May 21, 2021	May 20, 2022
Temperature & Humidity Chamber TERCHY	HRM-120RF	931022	Dec. 24, 2020	Dec. 23, 2021
Digital Multimeter Fluke	87-III	70360742	Jun. 24, 2021	Jun. 23, 2022
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)	n77			
	Channel Bandwidth 20 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.87	3710.010016	0.004	3969.990000	0.006
3.28	3710.010032	0.009	3969.990000	0.007
4.45	3710.010027	0.007	3969.990000	0.004

Note: The applicant defined the normal working voltage is from 3.28Vdc to 4.45Vdc.

Frequency Error vs. Temperature

Temp. (°C)	n77			
	Channel Bandwidth 20 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	3710.010029	0.008	3969.990000	0.004
-20	3710.010025	0.007	3969.990000	0.006
-10	3710.010013	0.004	3969.990000	0.007
0	3710.010033	0.009	3969.990000	0.008
10	3710.010021	0.006	3969.990000	0.005
20	3710.009983	-0.005	3969.990000	-0.005
30	3710.009977	-0.006	3969.990000	-0.004
40	3710.009964	-0.010	3969.990000	-0.006
50	3710.009976	-0.006	3969.990000	-0.008
60	3710.009969	-0.008	3969.990000	-0.007

Voltage (Vdc)	n77			
	Channel Bandwidth 30 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.87	3715.020038	0.010	3964.980015	0.004
3.28	3715.020027	0.007	3964.980031	0.008
4.45	3715.020031	0.008	3964.980020	0.005

Note: The applicant defined the normal working voltage is from 3.28Vdc to 4.45Vdc.

Frequency Error vs. Temperature

Temp. (°C)	n77			
	Channel Bandwidth 30 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	3715.020022	0.006	3964.980034	0.009
-20	3715.020019	0.005	3964.980039	0.010
-10	3715.020030	0.008	3964.980038	0.010
0	3715.020035	0.009	3964.980027	0.007
10	3715.020017	0.005	3964.980037	0.009
20	3715.019987	-0.004	3964.979970	-0.008
30	3715.019960	-0.011	3964.979990	-0.003
40	3715.019972	-0.008	3964.979960	-0.010
50	3715.019964	-0.010	3964.979963	-0.009
60	3715.019975	-0.007	3964.979987	-0.003

Frequency Error vs. Voltage

Voltage (Vdc)	n77			
	Channel Bandwidth 40 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.87	3720.000020	0.005	3960.000010	0.003
3.28	3720.000037	0.010	3960.000034	0.009
4.45	3720.000018	0.005	3960.000026	0.007

Note: The applicant defined the normal working voltage is from 3.28Vdc to 4.45Vdc.

Frequency Error vs. Temperature

Temp. (°C)	n77			
	Channel Bandwidth 40 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	3720.000027	0.007	3960.000020	0.005
-20	3720.000024	0.006	3960.000014	0.004
-10	3720.000010	0.003	3960.000037	0.009
0	3720.000018	0.005	3960.000019	0.005
10	3720.000031	0.008	3960.000020	0.005
20	3719.999985	-0.004	3959.999990	-0.003
30	3719.999970	-0.008	3959.999965	-0.009
40	3719.999990	-0.003	3959.999972	-0.007
50	3719.999967	-0.009	3959.999963	-0.009
60	3719.999976	-0.006	3959.999964	-0.009

Frequency Error vs. Voltage

Voltage (Vdc)	n77			
	Channel Bandwidth 60 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.87	3730.020020	0.005	3949.980038	0.010
3.28	3730.020020	0.005	3949.980010	0.003
4.45	3730.020040	0.011	3949.980023	0.006

Note: The applicant defined the normal working voltage is from 3.28Vdc to 4.45Vdc.

Frequency Error vs. Temperature

Temp. (°C)	n77			
	Channel Bandwidth 60 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	3730.020027	0.007	3949.980019	0.005
-20	3730.020023	0.006	3949.980013	0.003
-10	3730.020017	0.005	3949.980014	0.004
0	3730.020040	0.011	3949.980036	0.009
10	3730.020016	0.004	3949.980036	0.009
20	3730.019971	-0.008	3949.979976	-0.006
30	3730.019983	-0.005	3949.979970	-0.008
40	3730.019969	-0.008	3949.979982	-0.005
50	3730.019977	-0.006	3949.979985	-0.004
60	3730.019976	-0.006	3949.979968	-0.008

Frequency Error vs. Voltage

Voltage (Vdc)	n77			
	Channel Bandwidth 80 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.87	3740.010018	0.005	3939.990024	0.006
3.28	3740.010025	0.007	3939.990015	0.004
4.45	3740.010037	0.010	3939.990014	0.004

Note: The applicant defined the normal working voltage is from 3.28Vdc to 4.45Vdc.

Frequency Error vs. Temperature

Temp. (°C)	n77			
	Channel Bandwidth 80 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	3740.010028	0.008	3939.990032	0.008
-20	3740.010024	0.006	3939.990037	0.009
-10	3740.010026	0.007	3939.990037	0.009
0	3740.010031	0.008	3939.990035	0.009
10	3740.010014	0.004	3939.990040	0.010
20	3740.009973	-0.007	3939.989964	-0.009
30	3740.009990	-0.003	3939.989984	-0.004
40	3740.009975	-0.007	3939.989971	-0.007
50	3740.009960	-0.011	3939.989989	-0.003
60	3740.009975	-0.007	3939.989976	-0.006

Frequency Error vs. Voltage

Voltage (Vdc)	n77			
	Channel Bandwidth 100 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.87	3750.000037	0.010	3930.000024	0.006
3.28	3750.000030	0.008	3930.000035	0.009
4.45	3750.000031	0.008	3930.000040	0.010

Note: The applicant defined the normal working voltage is from 3.28Vdc to 4.45Vdc.

Frequency Error vs. Temperature

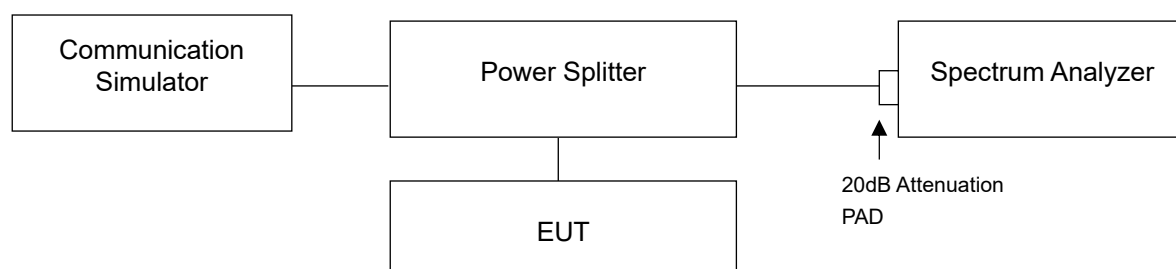
Temp. (°C)	n77			
	Channel Bandwidth 100 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	3750.000026	0.008	3930.000015	0.005
-20	3750.000026	0.007	3930.000015	0.004
-10	3750.000040	0.011	3930.000030	0.008
0	3750.000013	0.004	3930.000040	0.010
10	3750.000014	0.004	3930.000011	0.003
20	3749.999969	-0.008	3929.999986	-0.004
30	3749.999981	-0.005	3929.999987	-0.003
40	3749.999982	-0.005	3929.999982	-0.005
50	3749.999980	-0.005	3929.999960	-0.010
60	3749.999977	-0.006	3929.999967	-0.008

4.4 Occupied Bandwidth Measurement

4.4.1 Test Procedure

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

4.4.2 Test Setup



4.4.3 Test Result

Occupied Bandwidth

n77, Channel Bandwidth 20MHz						
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
647334	3710.01	18.10	18.08	18.04	18.04	18.08
656000	3840.00	18.09	18.18	18.09	18.10	18.09
664666	3969.99	18.10	18.10	18.16	18.10	18.09
n77, Channel Bandwidth 30MHz						
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
647668	3715.02	27.65	27.87	27.88	27.87	27.87
656000	3840.00	27.66	27.88	27.89	27.88	27.87
664332	3964.98	27.65	27.88	27.88	27.88	27.88
n77, Channel Bandwidth 40MHz						
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
648000	3720.00	37.63	37.92	37.84	37.93	37.93
656000	3840.00	37.63	37.93	37.93	37.93	37.93
664000	3960.00	37.62	37.62	37.61	37.52	37.62
n77, Channel Bandwidth 60MHz						
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
648668	3730.02	57.89	57.89	57.89	57.88	57.90
656000	3840.00	57.89	57.89	57.90	57.88	57.90
663332	3949.98	57.90	57.90	57.91	57.89	57.91
n77, Channel Bandwidth 80MHz						
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
649334	3740.01	77.22	77.55	77.55	77.53	77.53
656000	3840.00	77.22	77.54	77.54	77.52	77.52
662666	3939.99	77.22	77.56	77.57	77.55	77.55

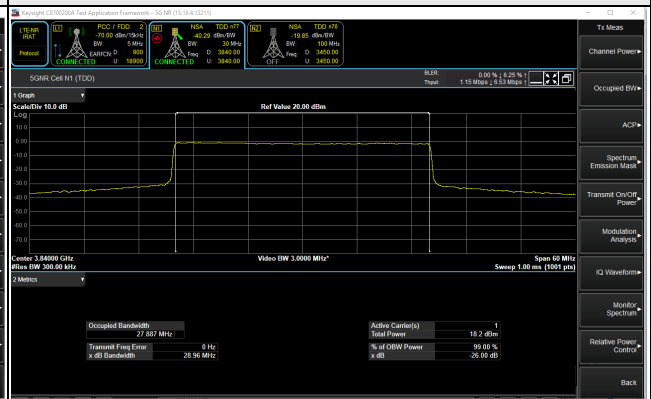
n77, Channel Bandwidth 100MHz						
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
650000	3750.00	96.91	97.62	97.63	97.40	97.62
656000	3840.00	96.89	97.39	97.39	97.37	97.39
662000	3930.00	96.90	97.67	97.67	97.65	97.67

Spectrum Plot of Worst Value

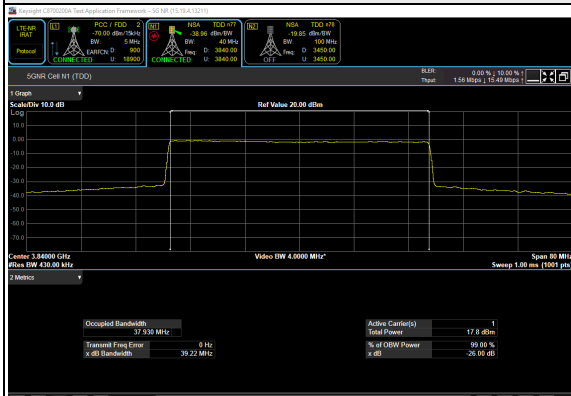
20MHz / 16QAM



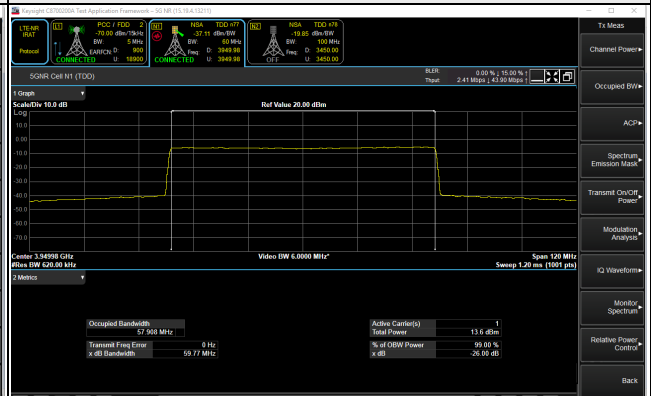
30MHz / 16QAM



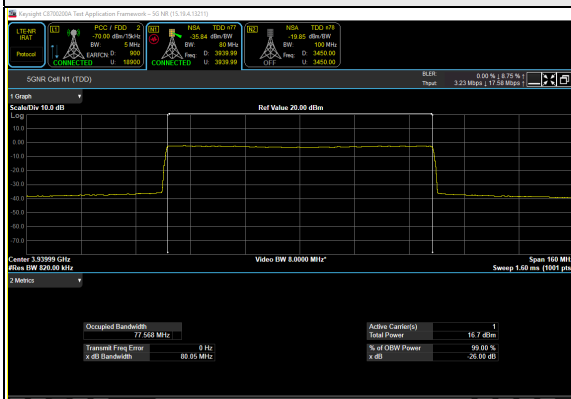
40MHz / 64QAM



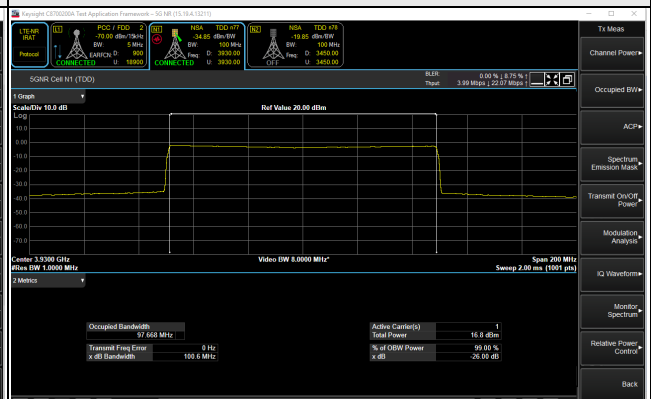
60MHz / 256QAM



80MHz / 16QAM



100MHz / 16QAM



26dB Bandwidth

n77, Channel Bandwidth 20MHz						
Channel	Frequency (MHz)	26dB Bandwidth (MHz)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
647334	3710.01	18.58	18.67	18.60	18.58	18.68
656000	3840.00	18.50	18.73	18.77	18.73	18.59
664666	3969.99	18.59	18.68	18.56	18.73	18.70
n77, Channel Bandwidth 30MHz						
Channel	Frequency (MHz)	26dB Bandwidth (MHz)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
647668	3715.02	27.80	28.93	28.93	28.91	28.85
656000	3840.00	27.82	28.97	28.96	28.89	28.85
664332	3964.98	27.82	28.94	28.93	28.89	28.88
n77, Channel Bandwidth 40MHz						
Channel	Frequency (MHz)	26dB Bandwidth (MHz)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
648000	3720.00	37.05	39.22	39.22	39.22	39.20
656000	3840.00	37.07	39.24	39.25	39.22	39.18
664000	3960.00	37.04	37.09	37.07	37.08	37.05
n77, Channel Bandwidth 60MHz						
Channel	Frequency (MHz)	26dB Bandwidth (MHz)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
648668	3730.02	59.76	59.78	59.76	59.78	59.76
656000	3840.00	59.77	59.80	59.79	59.79	59.76
663332	3949.98	59.76	59.79	59.79	59.78	59.77
n77, Channel Bandwidth 80MHz						
Channel	Frequency (MHz)	26dB Bandwidth (MHz)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
649334	3740.01	79.65	80.02	80.02	80.02	79.99
656000	3840.00	79.65	80.03	80.04	80.01	79.98
662666	3939.99	79.69	80.06	80.05	80.03	80.00

n77, Channel Bandwidth 100MHz						
Channel	Frequency (MHz)	26dB Bandwidth (MHz)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
650000	3750.00	99.48	100.50	100.50	100.50	100.50
656000	3840.00	99.49	100.60	100.50	100.50	100.50
662000	3930.00	99.53	100.60	100.60	100.60	100.60

Spectrum Plot of Worst Value

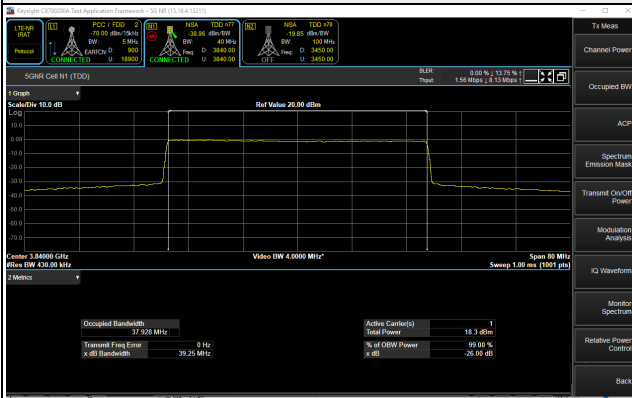
20MHz / 16QAM



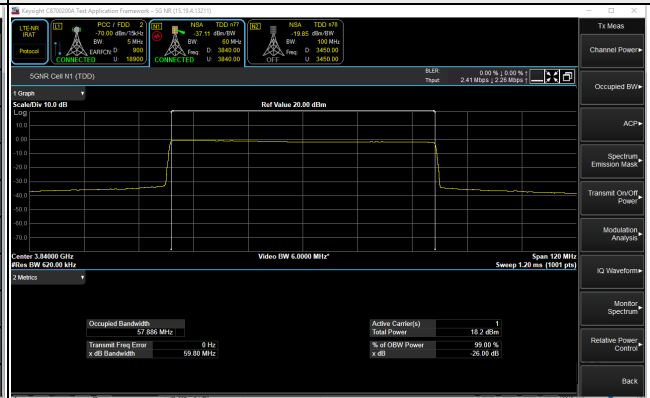
30MHz / QPSK



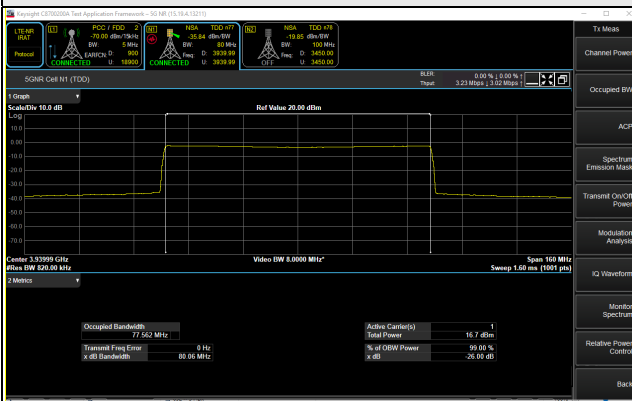
40MHz / 16QAM



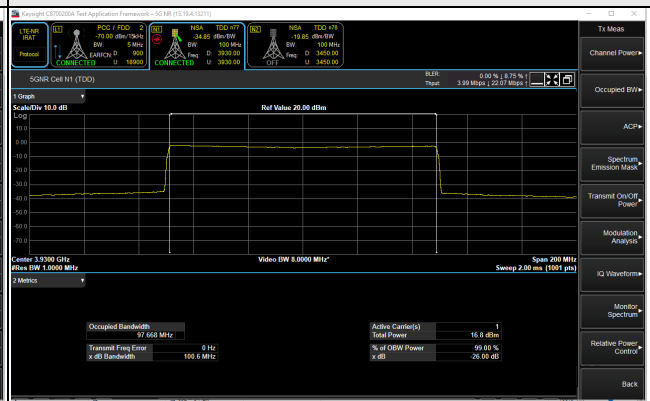
60MHz / QPSK



80MHz / QPSK



100MHz / 16QAM

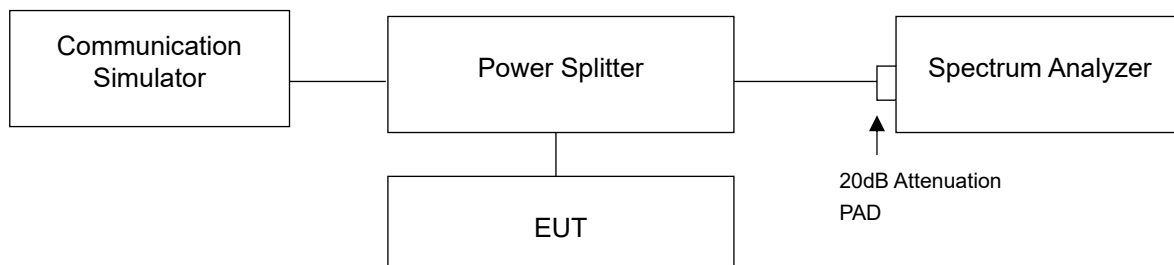


4.5 Band Edge Measurement

4.5.1 Limits of Band Edge 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



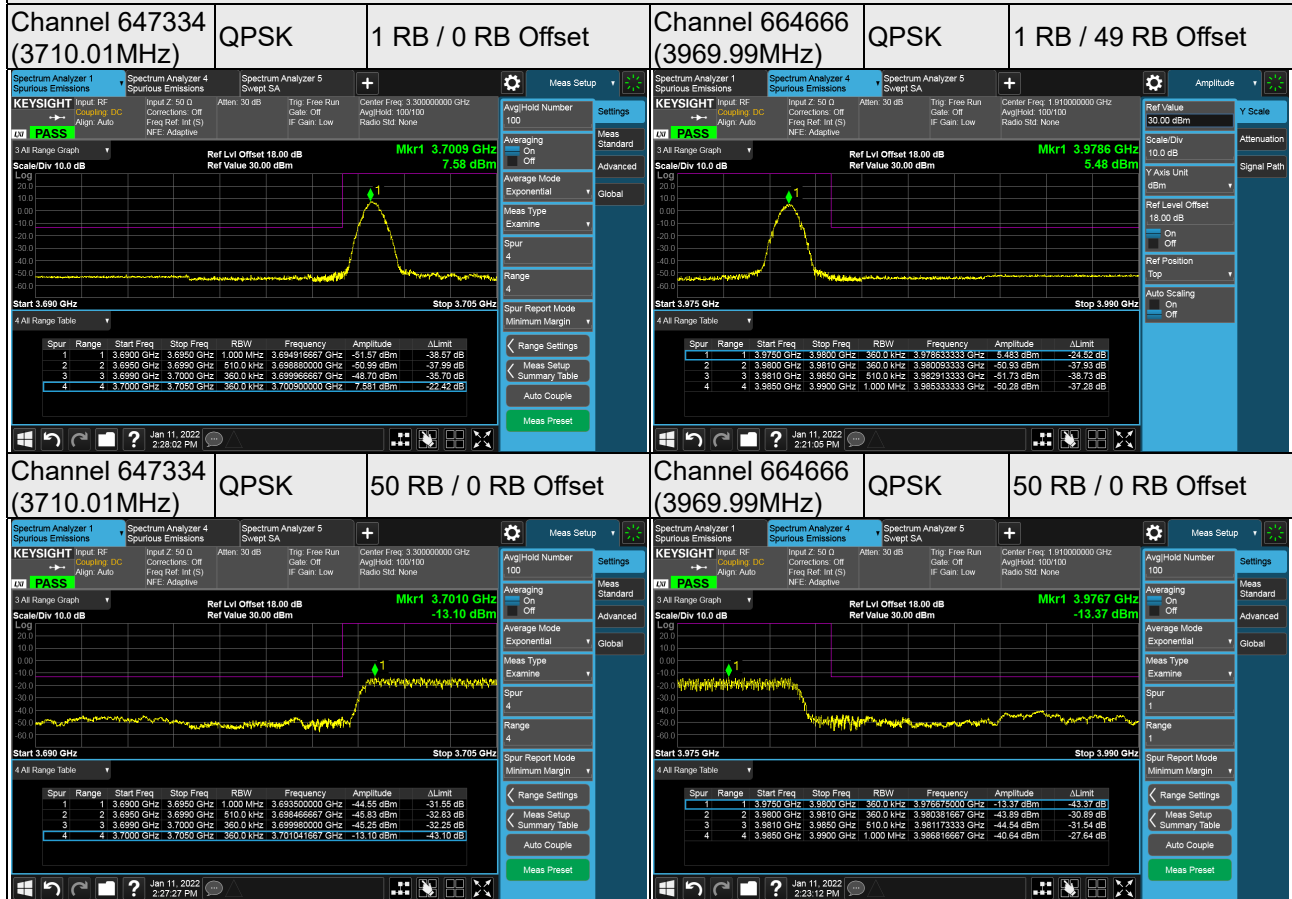
4.5.3 Test Procedures

- The testing follows ANSI C63.26 section 5.7
- The EUT was connected to spectrum analyzer and system simulator via a power divider.
- The band edges of low and high channels for the highest RF powers were measured.
- Set RBW $\geq 1\%$ EBW in the 1MHz band immediately outside and adjacent to the band edge.
- Beyond the 1 MHz band from the band edge, RBW=1MHz was used.
- Set spectrum analyzer with RMS detector.
- Checked that all the results comply with the emission limit line.

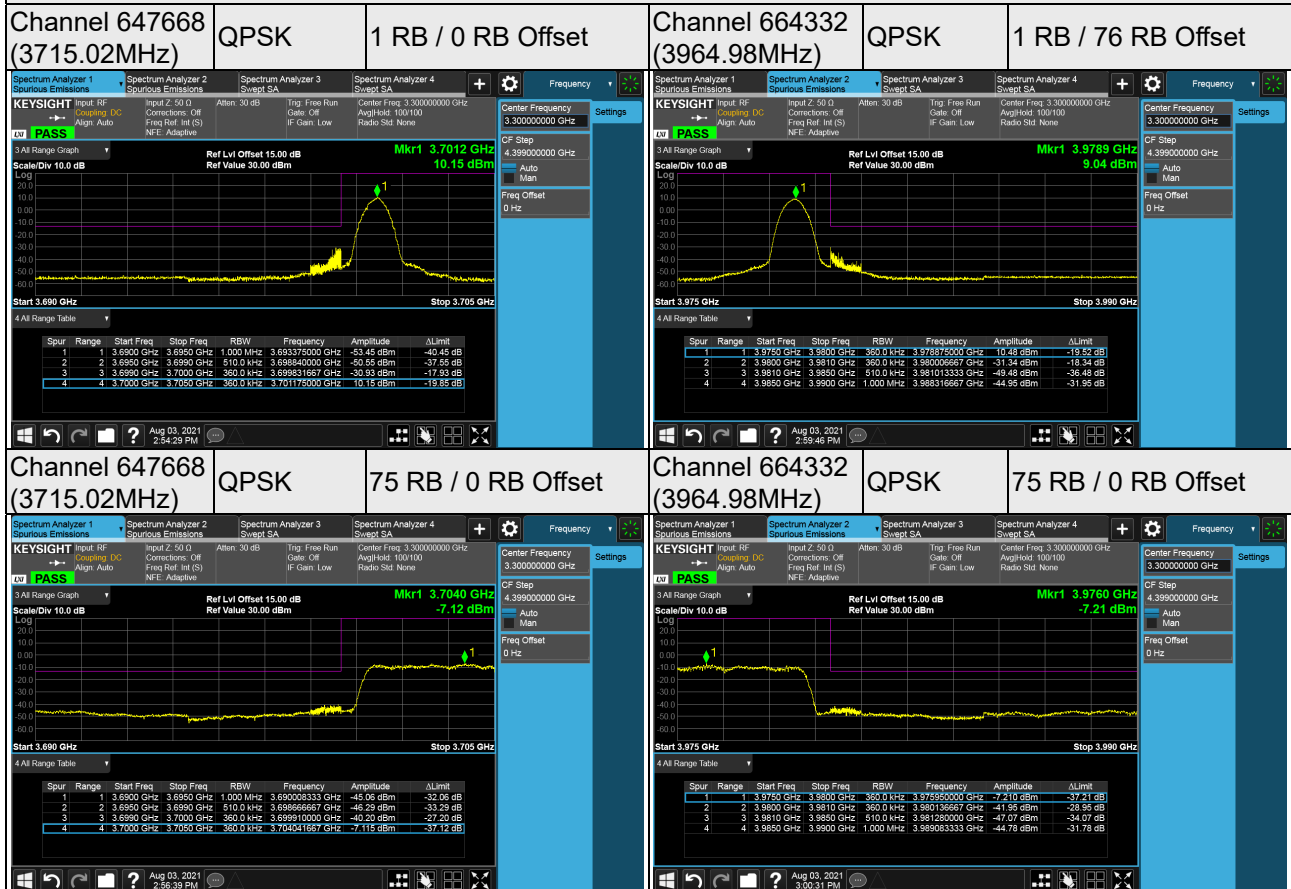
4.5.4 Test Results

Out-of-Band Emission

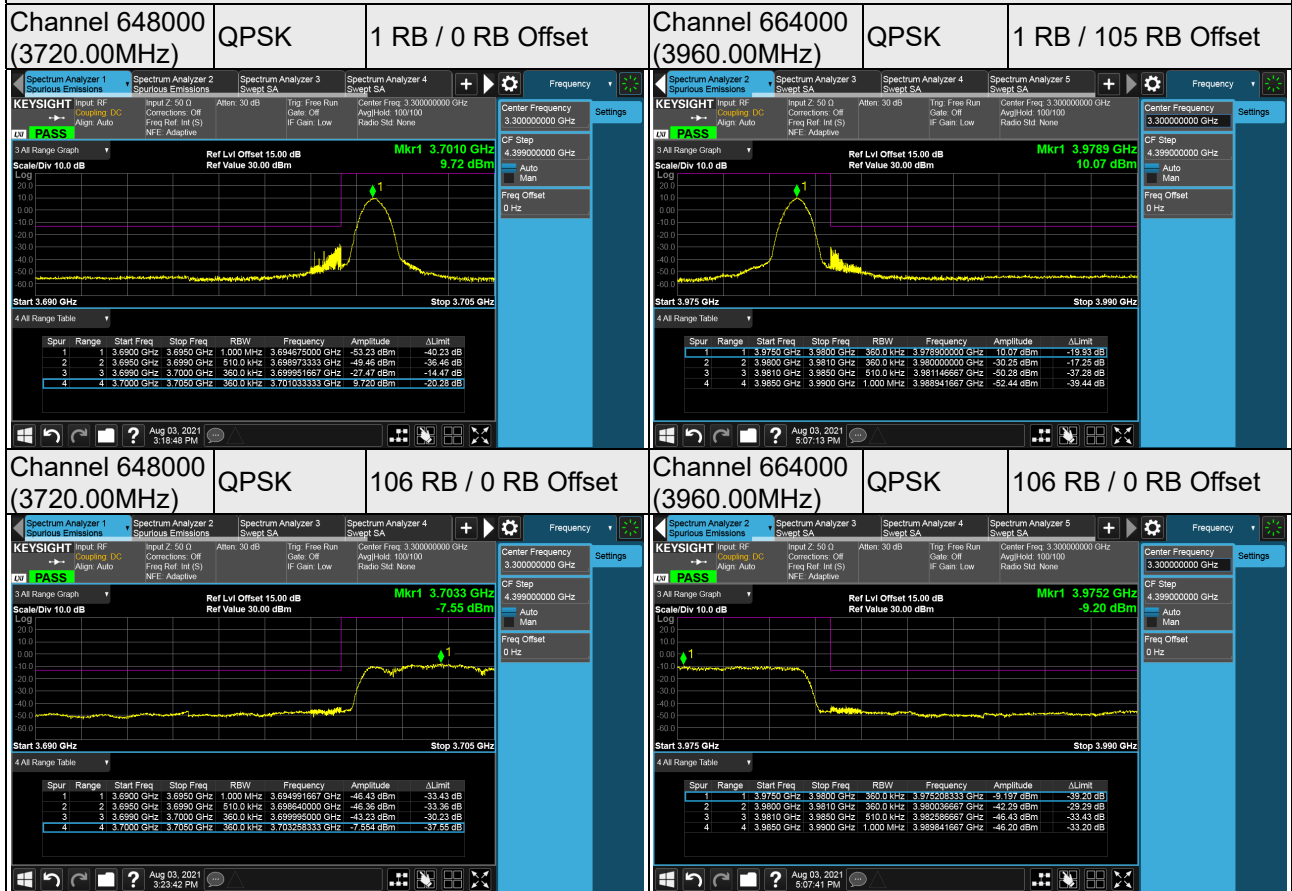
n77, Channel Bandwidth 20MHz



n77, Channel Bandwidth 30MHz



n77, Channel Bandwidth 40MHz

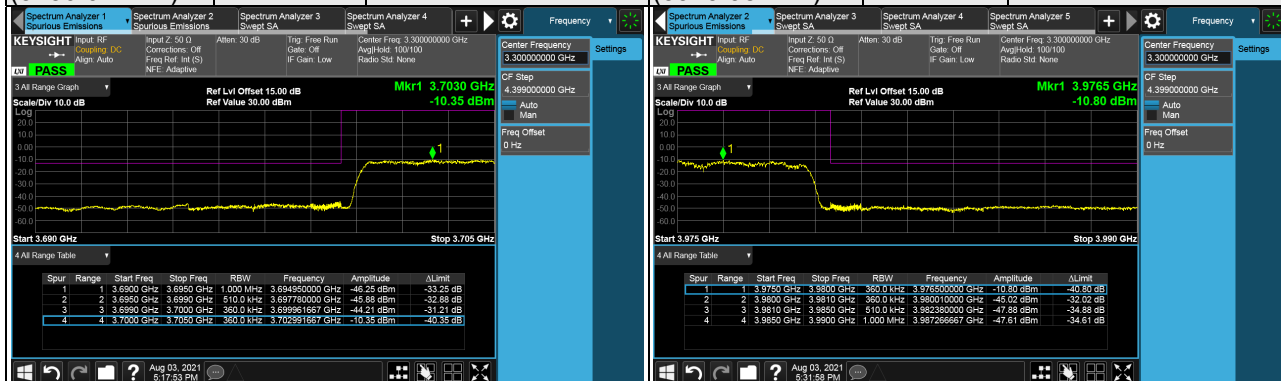


n77, Channel Bandwidth 60MHz

Channel 648668 (3730.02MHz)	QPSK	1 RB / 0 RB Offset	Channel 663332 (3949.98MHz)	QPSK	1 RB / 161 RB Offset
--------------------------------	------	--------------------	--------------------------------	------	----------------------



Channel 648668 (3730.02MHz)	QPSK	162 RB / 0 RB Offset	Channel 663332 (3949.98MHz)	QPSK	162 RB / 0 RB Offset
--------------------------------	------	----------------------	--------------------------------	------	----------------------



n77, Channel Bandwidth 80MHz

Channel 649334 (3740.01MHz)	QPSK	1 RB / 0 RB Offset	Channel 662666 (3939.99MHz)	QPSK	1 RB / 216 RB Offset
--------------------------------	------	--------------------	--------------------------------	------	----------------------



Channel 649334 (3740.01MHz)	QPSK	217 RB / 0 RB Offset	Channel 662666 (3939.99MHz)	QPSK	217 RB / 0 RB Offset
--------------------------------	------	----------------------	--------------------------------	------	----------------------



n77, Channel Bandwidth 100MHz

Channel 650000
(3750.00MHz)

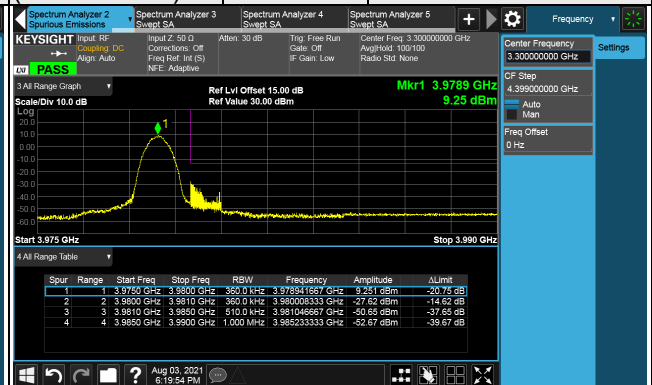
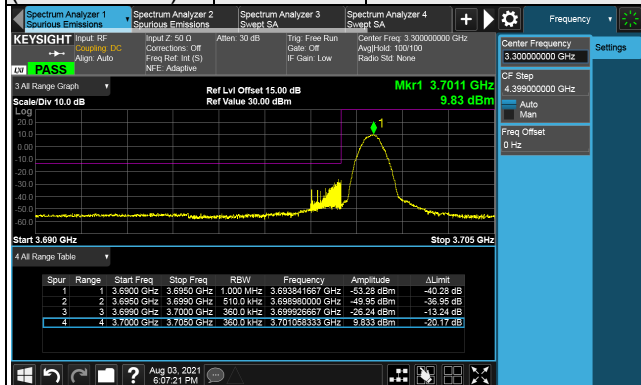
QPSK

1 RB / 0 RB Offset

Channel 662000
(3930.00MHz)

QPSK

1 RB / 272 RB Offset



Channel 650000
(3750.00MHz)

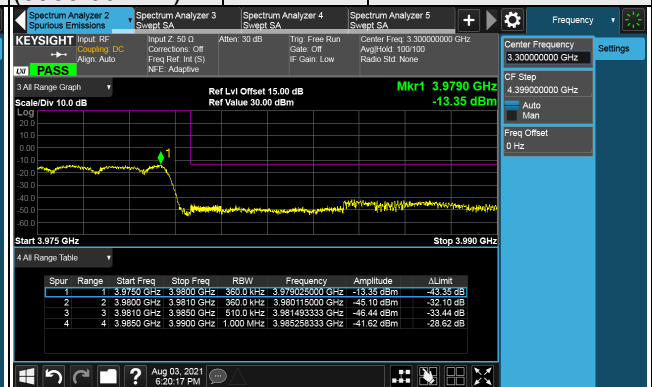
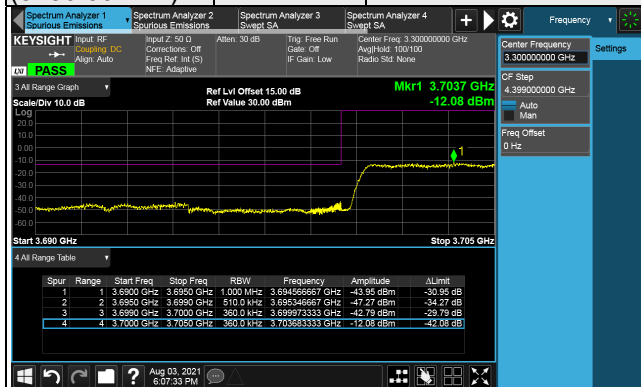
QPSK

273 RB / 0 RB Offset

Channel 662000
(3930.00MHz)

QPSK

273 RB / 0 RB Offset

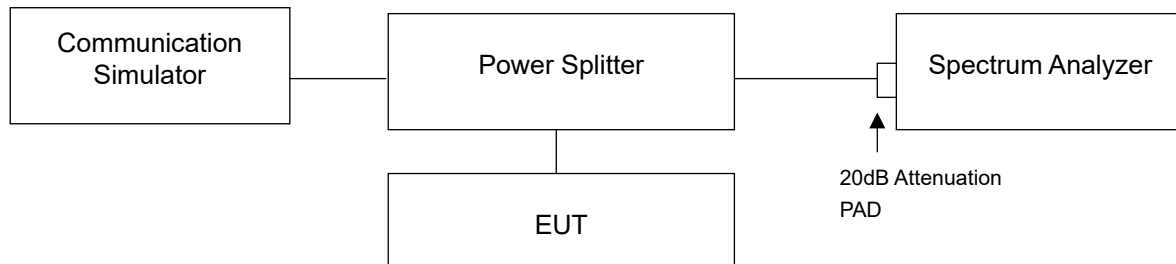


4.6 Peak to Average Ratio

4.6.1 Limits of Peak to Average Ratio Measurement

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

4.6.2 Test Setup



4.6.3 Test Procedures

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

4.6.4 Test Results

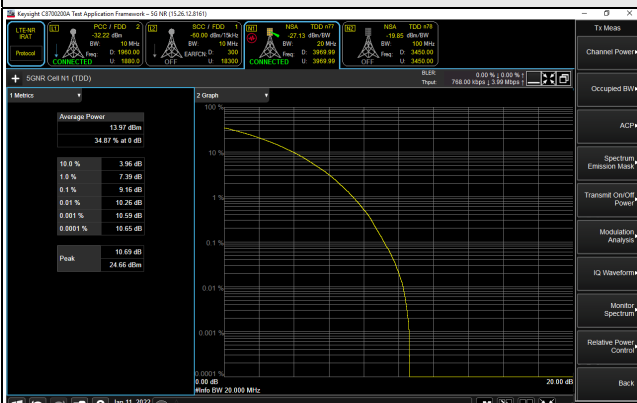
n77

n77, Channel Bandwidth 20MHz						
Channel	Frequency (MHz)	Peak To Average Ratio (dB)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
647334	3710.01	4.73	5.18	7.00	7.45	8.93
656000	3840.00	4.61	5.54	6.65	6.68	8.33
664666	3969.99	4.98	5.59	7.48	6.42	9.16
n77, Channel Bandwidth 30MHz						
Channel	Frequency (MHz)	Peak To Average Ratio (dB)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
647668	3715.02	3.69	6.92	6.69	7.09	9.00
656000	3840.00	2.95	5.34	5.26	6.68	8.50
664332	3964.98	3.37	6.26	6.17	7.02	8.93
n77, Channel Bandwidth 40MHz						
Channel	Frequency (MHz)	Peak To Average Ratio (dB)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
648000	3720.00	3.68	6.92	6.97	7.60	9.06
656000	3840.00	2.88	6.06	5.93	6.63	8.44
664000	3960.00	3.31	6.23	6.48	6.71	8.90
n77, Channel Bandwidth 60MHz						
Channel	Frequency (MHz)	Peak To Average Ratio (dB)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
648668	3730.02	3.71	6.97	6.98	7.66	9.43
656000	3840.00	2.97	5.91	5.89	6.68	8.21
663332	3949.98	3.35	6.18	6.00	6.82	8.91
n77, Channel Bandwidth 80MHz						
Channel	Frequency (MHz)	Peak To Average Ratio (dB)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
649334	3740.01	3.71	6.87	6.80	7.67	9.97
656000	3840.00	3.05	6.08	6.05	6.78	8.54
662666	3939.99	3.25	6.31	6.24	7.04	8.83

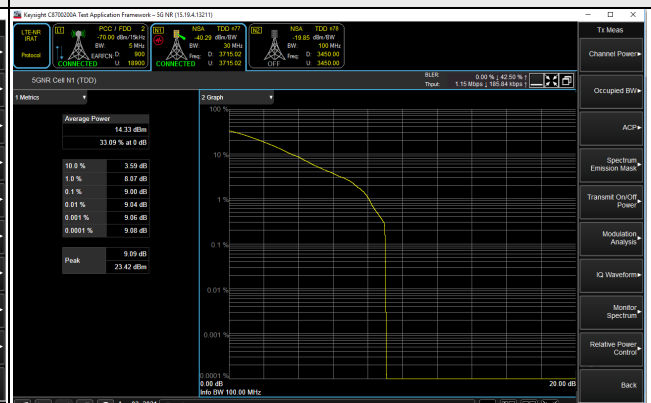
n77, Channel Bandwidth 100MHz						
Channel	Frequency (MHz)	Peak To Average Ratio (dB)				
		$\pi/2$ BPSK	QPSK	16QAM	64QAM	256QAM
650000	3750.00	3.71	6.85	6.88	7.55	9.42
656000	3840.00	3.05	6.08	6.05	6.80	8.47
662000	3930.00	3.25	6.30	6.22	7.02	8.87

Spectrum Plot of Worst Value

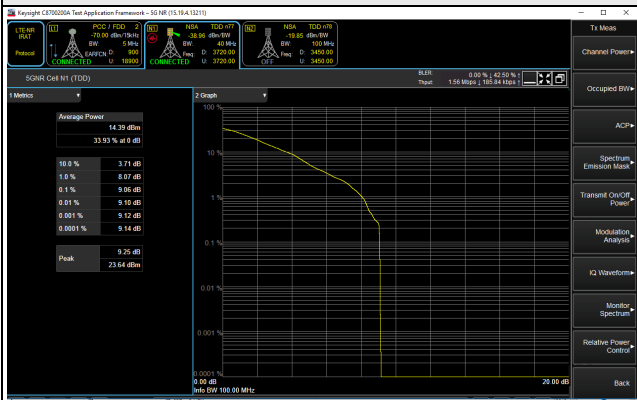
20MHz / 256QAM



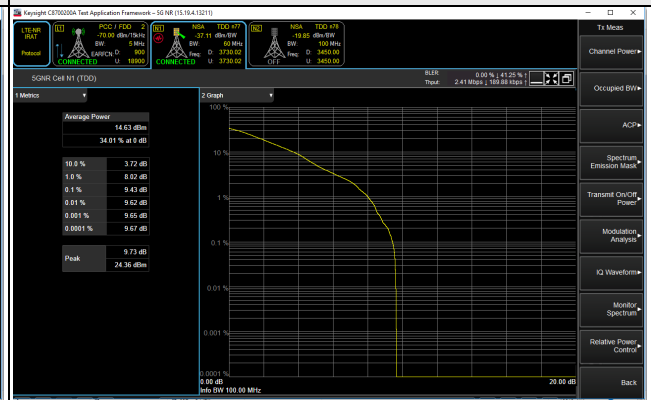
30MHz / 256QAM



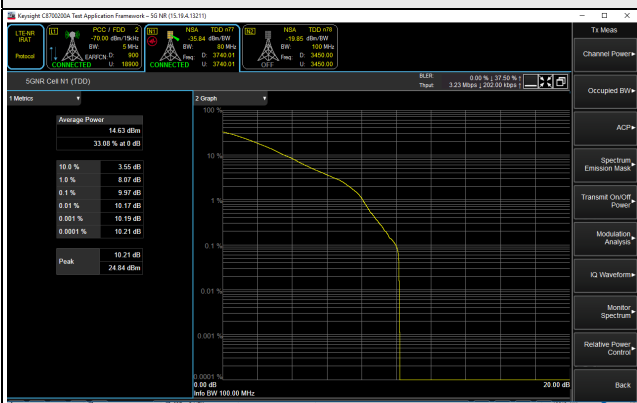
40MHz / 256QAM



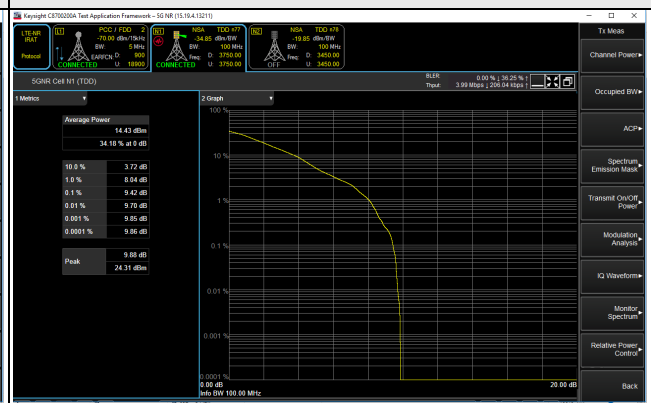
60MHz / 256QAM



80MHz / 256QAM



100MHz / 256QAM

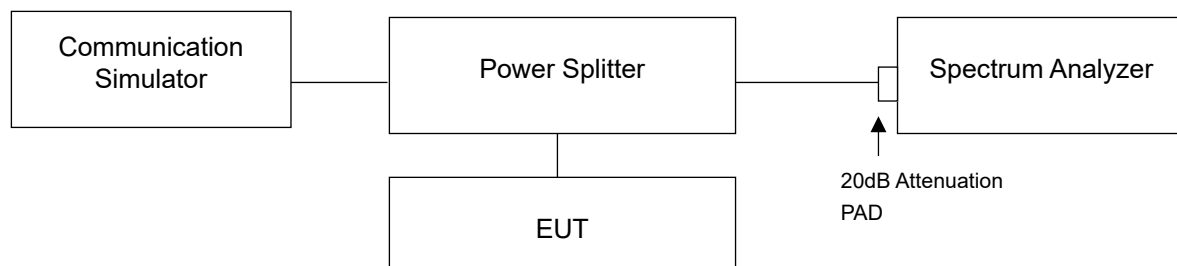


4.7 Conducted Spurious Emissions

4.7.1 Limits of Conducted Spurious 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.

4.7.2 Test Setup



4.7.3 Test Procedure

- The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.
- Measuring frequency range is from 9kHz to 40GHz. 20dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz is used for conducted emission measurement.

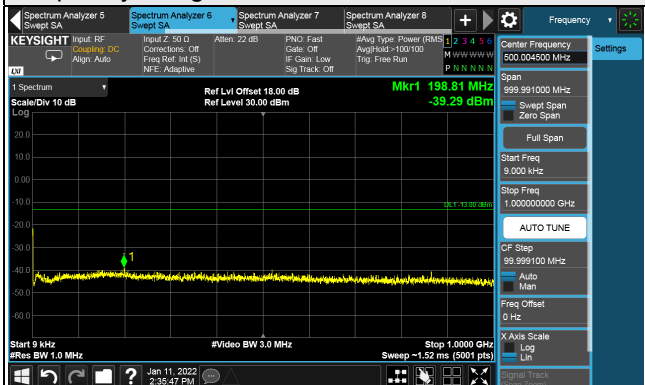
4.7.4 Test Results

n77

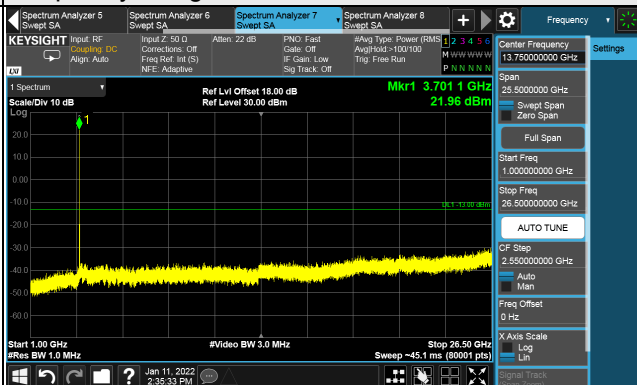
n77, Channel Bandwidth 20MHz

Channel 647334 (3710.01MHz)

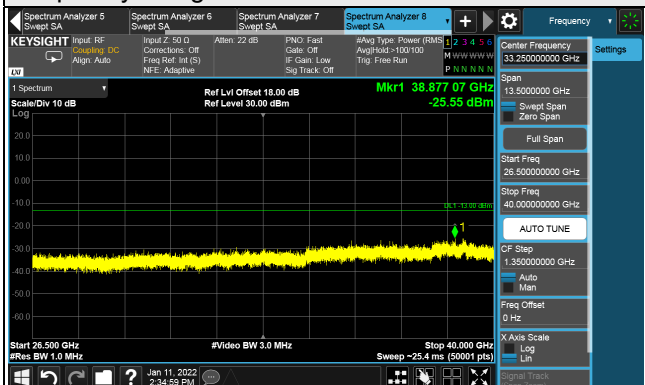
Frequency Range : 9kHz ~ 1GHz



Frequency Range : 1GHz ~ 26.5GHz



Frequency Range : 26.5GHz ~ 40GHz

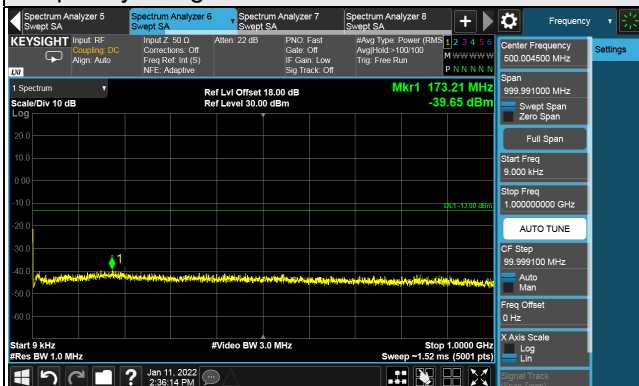


*The 9kHz signal over the limit is from Spectrum.

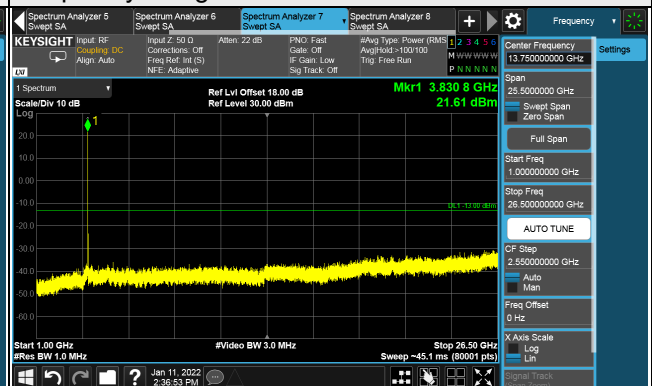
n77, Channel Bandwidth 20MHz

Channel 656000 (3840.00MHz)

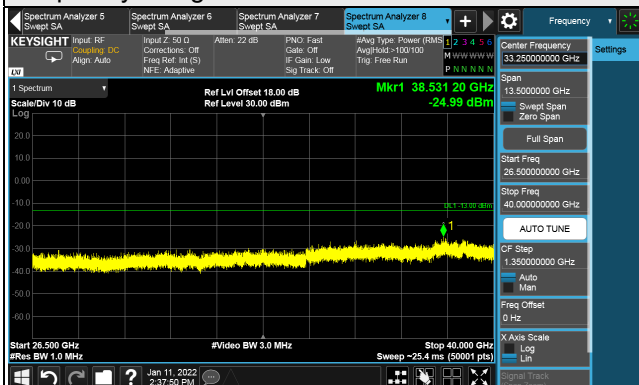
Frequency Range : 9kHz ~ 1GHz



Frequency Range : 1GHz ~ 26.5GHz



Frequency Range : 26.5GHz ~ 40GHz

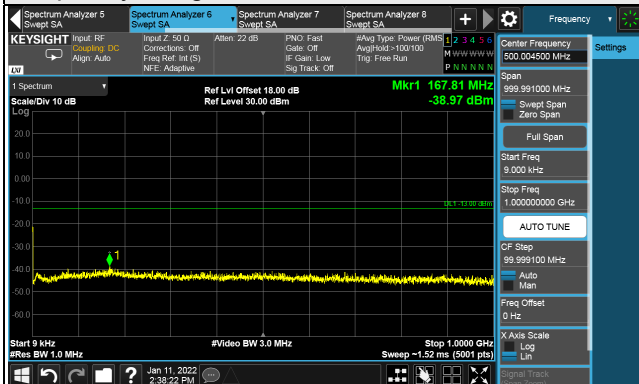


*The 9kHz signal over the limit is from Spectrum.

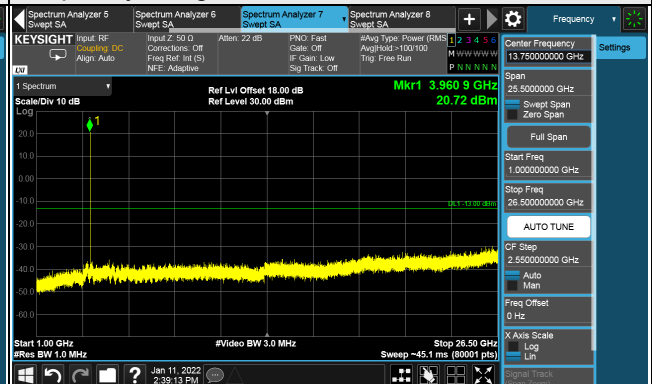
n77, Channel Bandwidth 20MHz

Channel 664666 (3969.99MHz)

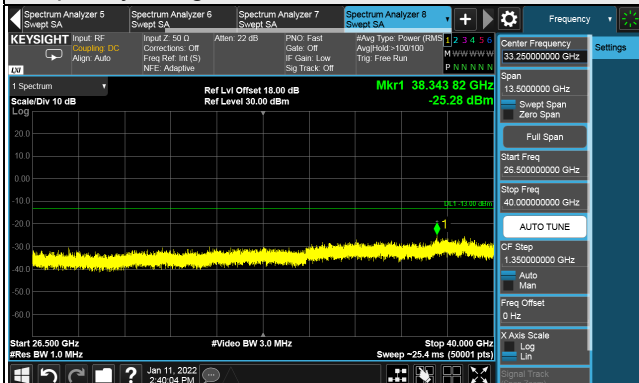
Frequency Range : 9kHz ~ 1GHz



Frequency Range : 1GHz ~ 26.5GHz



Frequency Range : 26.5GHz ~ 40GHz

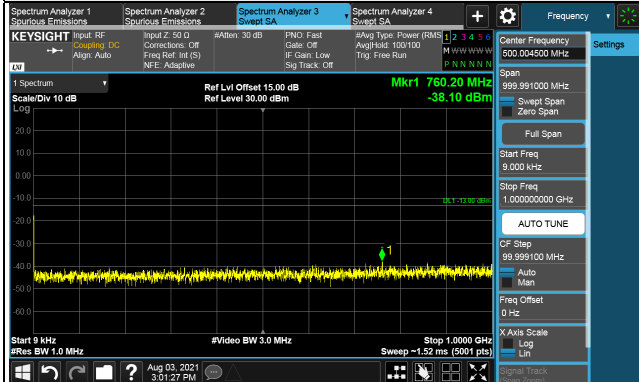


*The 9kHz signal over the limit is from Spectrum.

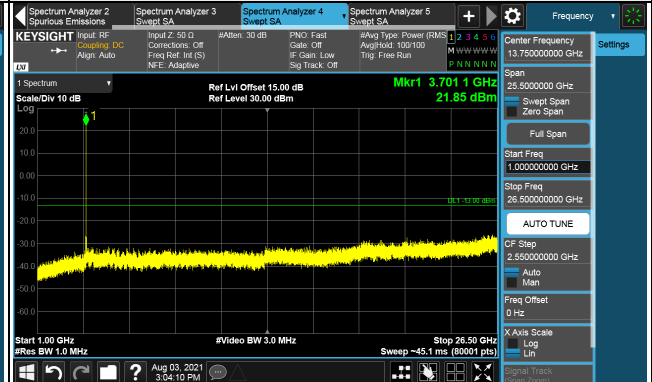
n77, Channel Bandwidth 30MHz

Channel 647668 (3715.02MHz)

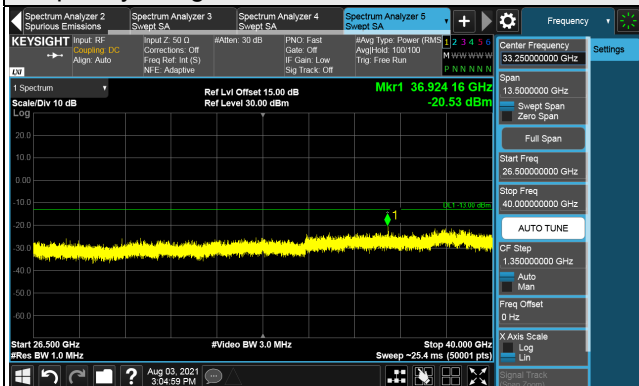
Frequency Range : 9kHz ~ 1GHz



Frequency Range : 1GHz ~ 26.5GHz



Frequency Range : 26.5GHz ~ 40GHz

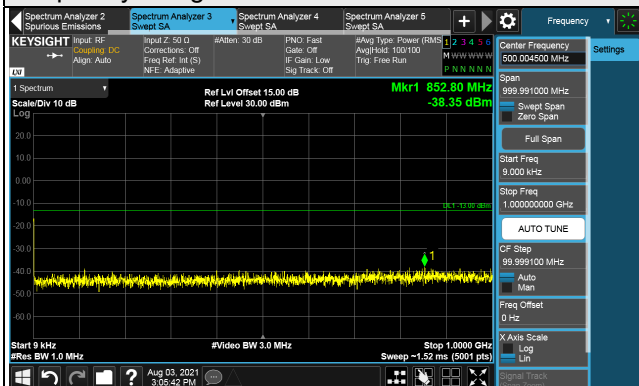


*The 9 kHz tone is from the spectrum analyzer.

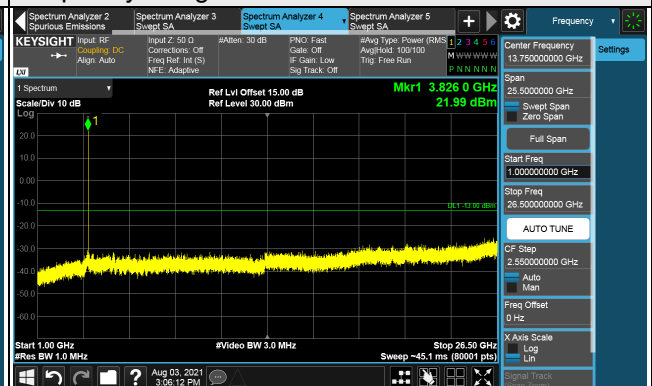
n77, Channel Bandwidth 30MHz

Channel 656000 (3840.00MHz)

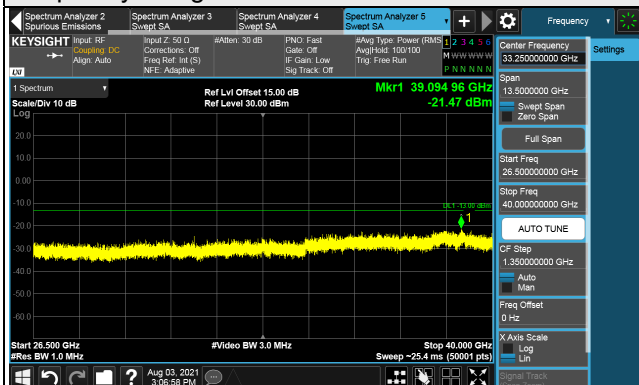
Frequency Range : 9kHz ~ 1GHz



Frequency Range : 1GHz ~ 26.5GHz



Frequency Range : 26.5GHz ~ 40GHz

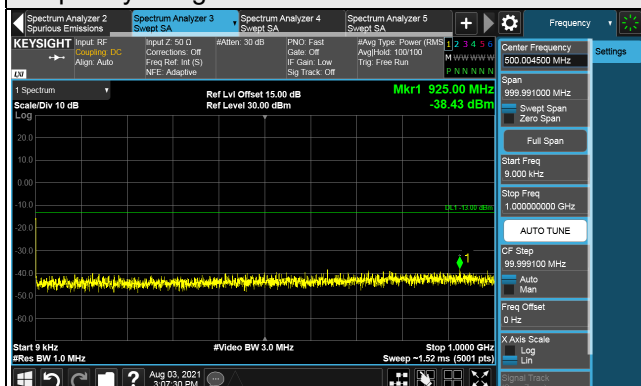


*The 9 kHz tone is from the spectrum analyzer.

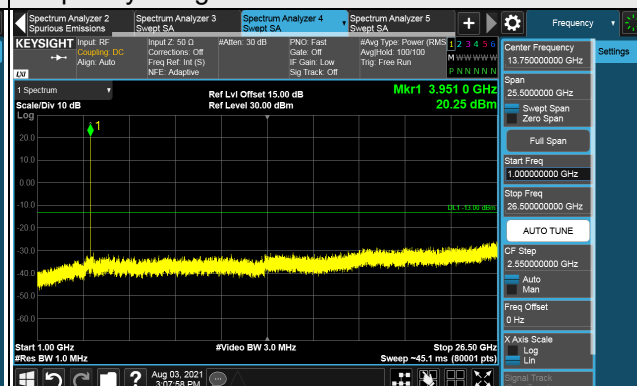
n77, Channel Bandwidth 30MHz

Channel 664332 (3964.98MHz)

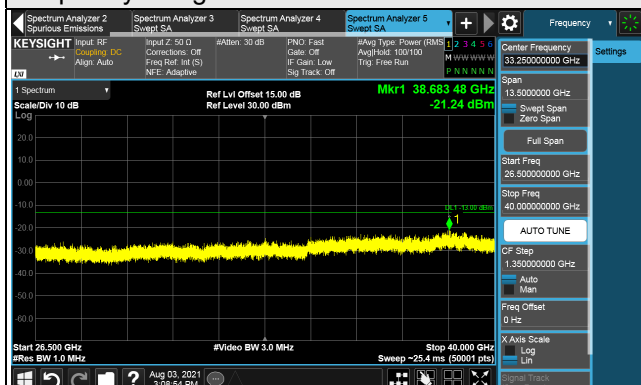
Frequency Range : 9kHz ~ 1GHz



Frequency Range : 1GHz ~ 26.5GHz



Frequency Range : 26.5GHz ~ 40GHz

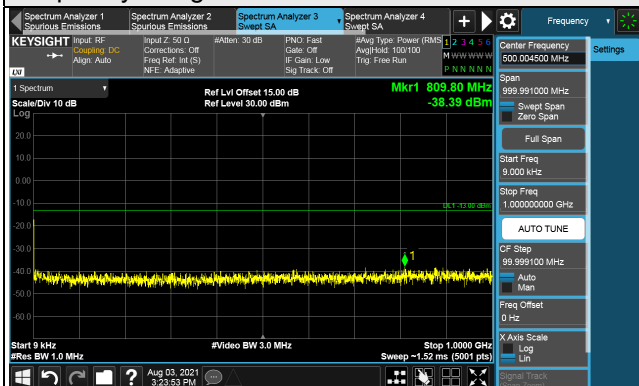


*The 9 kHz tone is from the spectrum analyzer.

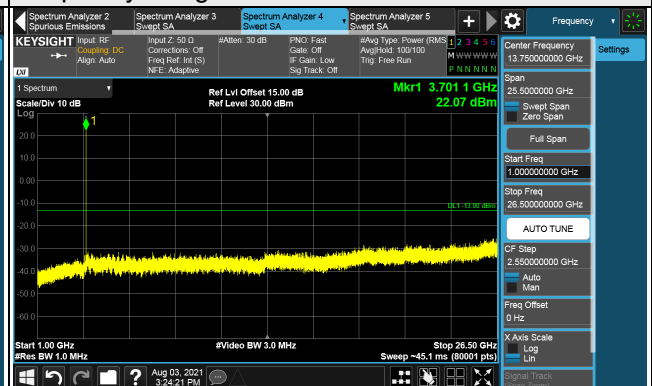
n77, Channel Bandwidth 40MHz

Channel 648000 (3720.00MHz)

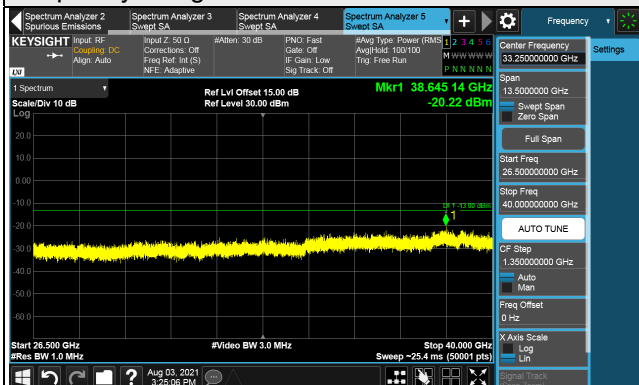
Frequency Range : 9kHz ~ 1GHz



Frequency Range : 1GHz ~ 26.5GHz



Frequency Range : 26.5GHz ~ 40GHz

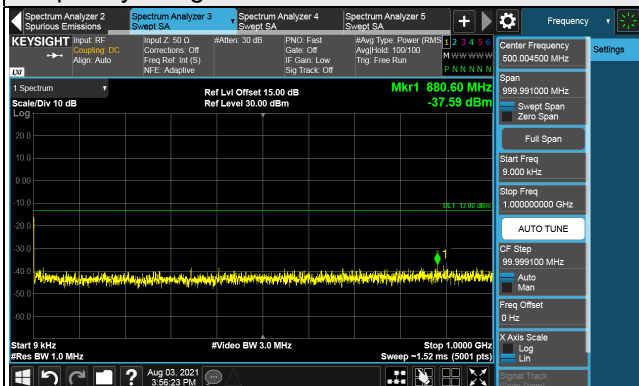


*The 9 kHz tone is from the spectrum analyzer.

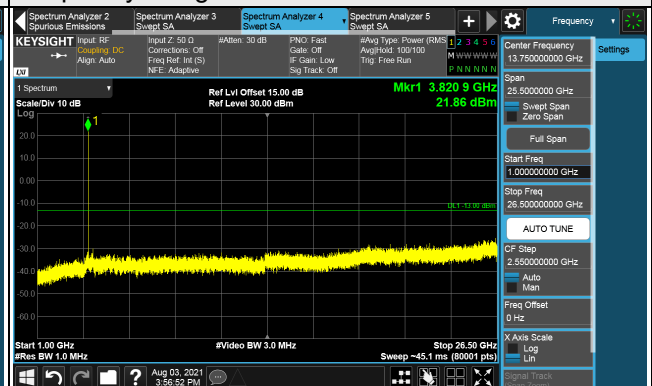
n77, Channel Bandwidth 40MHz

Channel 656000 (3840.00MHz)

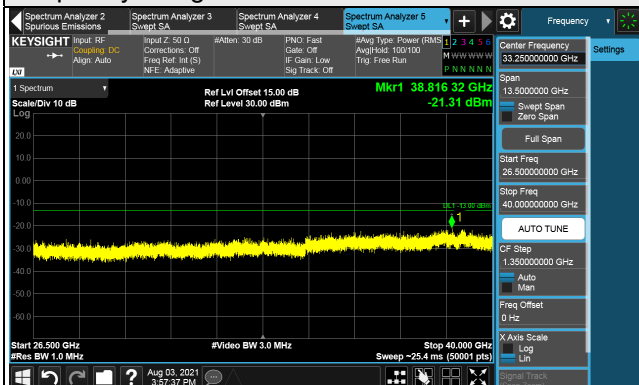
Frequency Range : 9kHz ~ 1GHz



Frequency Range : 1GHz ~ 26.5GHz



Frequency Range : 26.5GHz ~ 40GHz

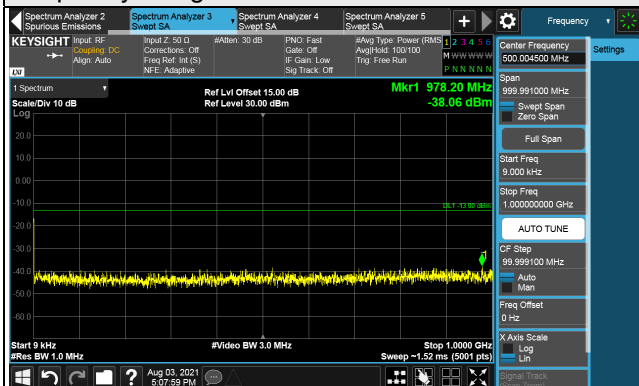


*The 9 kHz tone is from the spectrum analyzer.

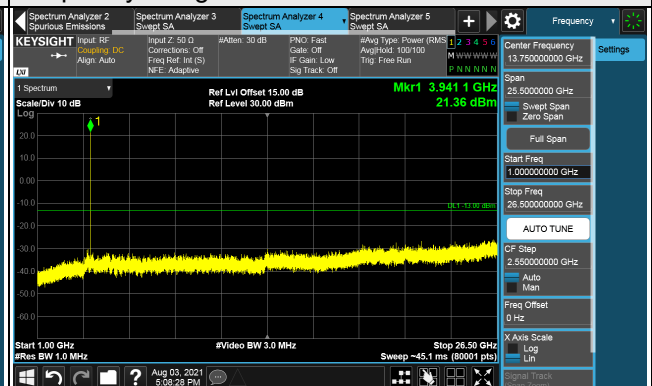
n77, Channel Bandwidth 40MHz

Channel 664000 (3960.00MHz)

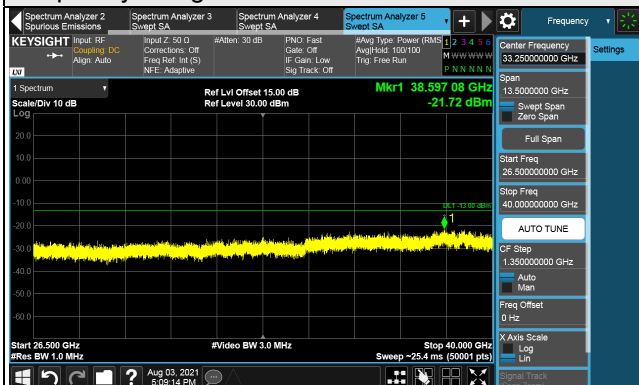
Frequency Range : 9kHz ~ 1GHz



Frequency Range : 1GHz ~ 26.5GHz



Frequency Range : 26.5GHz ~ 40GHz

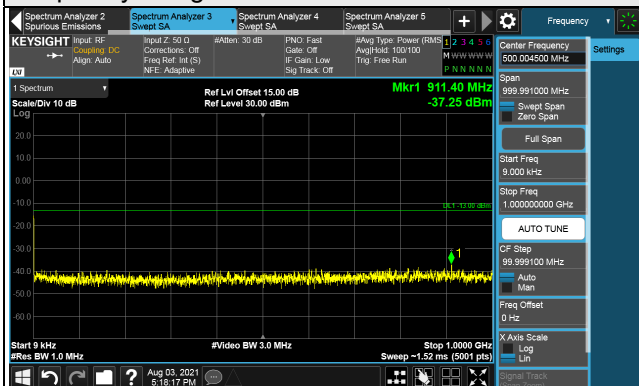


*The 9 kHz tone is from the spectrum analyzer.

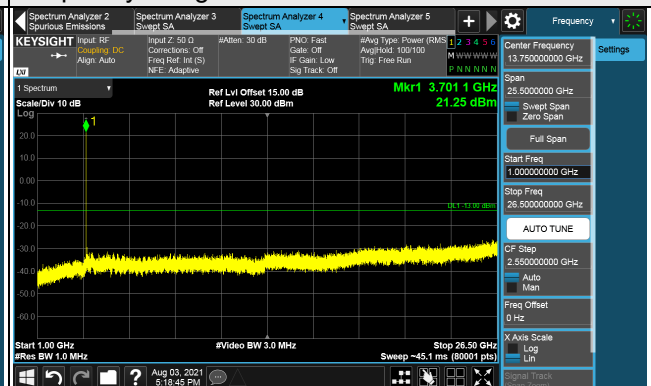
n77, Channel Bandwidth 60MHz

Channel 648668 (3730.02MHz)

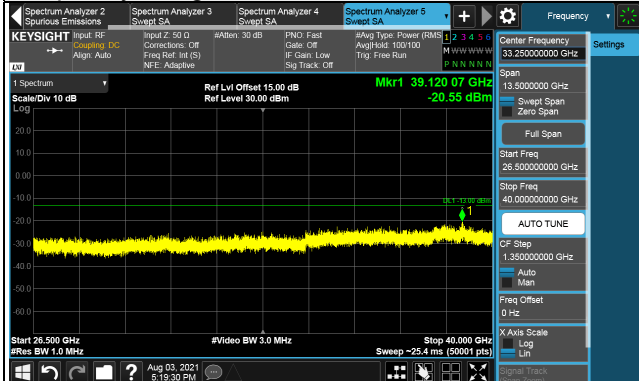
Frequency Range : 9kHz ~ 1GHz



Frequency Range : 1GHz ~ 26.5GHz



Frequency Range : 26.5GHz ~ 40GHz

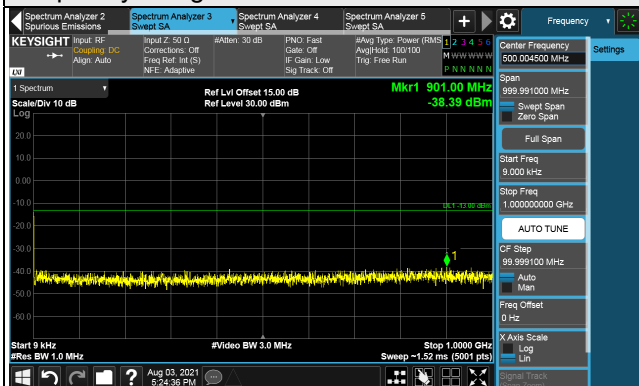


*The 9 kHz tone is from the spectrum analyzer.

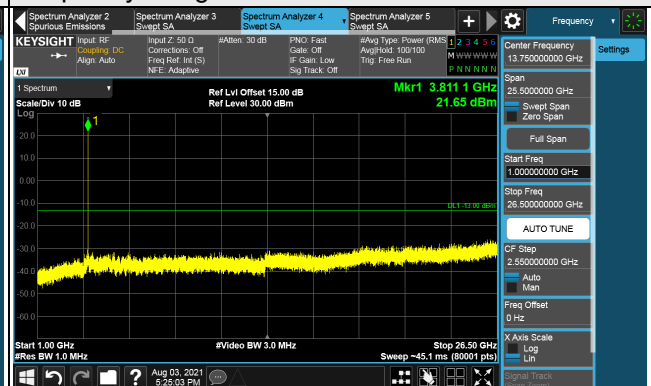
n77, Channel Bandwidth 60MHz

Channel 656000 (3840.00MHz)

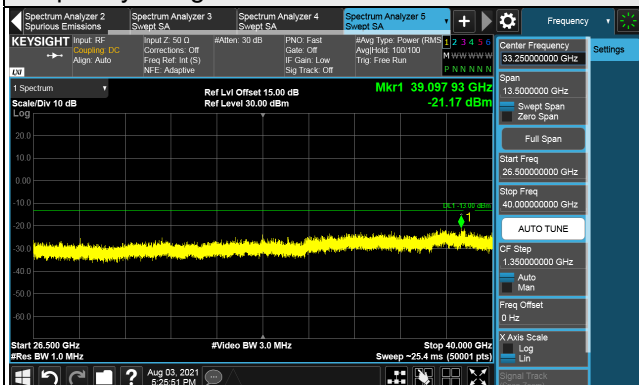
Frequency Range : 9kHz ~ 1GHz



Frequency Range : 1GHz ~ 26.5GHz



Frequency Range : 26.5GHz ~ 40GHz



*The 9 kHz tone is from the spectrum analyzer.