Supplemental “CA Mode” Test Report

Report No.:	RFBEOO-WTW-P21020573A-1
FCC ID:	MAD-G2021-49-01B
Test Model:	G2021-49-01B
Received Date:	Mar. 31, 2021
Test Date:	Jun. 08 ~ Aug. 24, 2021
Issued Date:	Aug. 30, 2021
Applicant:	Microelectronics Technology Inc.
Address:	No. 1, Innovation Road II, Hsinchu Science Park, Hsinchu 300, Taiwan, R.O.C.
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan
Test Location (1):	No.19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, Taiwan
FCC Registration / Designation Number (1):	788550 / TW0003
Test Location (2):	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan
FCC Registration / Designation Number (2):	723255 / TW2022

Testing Laboratory
2021

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Release Control Record

Issue No.	Description	Date Issued
RFBEOO-WTW-P21020573A-1	Original release.	Aug. 30, 2021

1 Certificate of Conformity

Product:	Dual Mid Band RU
Brand:	MTI
Test Model:	G2021-49-01B
Sample Status:	Engineering sample
Applicant:	Microelectronics Technology Inc.
Test Date:	Jun. 08 ~ Aug. 24, 2021
Standards:	FCC Part 27, Subpart L FCC Part 2

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:** Aug. 30, 2021

Pettie Chen / Senior Specialist

Approved by : Bruce Chen , **Date:** Aug. 30, 2021

Bruce Chen / Senior Engineer

2 Summary of Test Results

Applied Standard: FCC Part 27			
FCC Clause	Test Item	Result	Remarks
2.1046 27.50(d)(2)	Equivalent Isotropically radiated power	PASS	Meet the requirement of limit.
2.1049 27.53	Occupied Bandwidth	PASS	Meet the requirement of limit.
2.1053 27.53(h)	Radiated Spurious Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -47.52 dB at 10612.5MHz.

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

2.1 Measurement Uncertainty

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

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	3.1 dB
	30MHz ~ 1GHz	5.4 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	5.0 dB
	18GHz ~ 40GHz	5.3 dB

2.2 Test Site and Instruments

For Radiated Spurious Emissions Test:

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver Keysight	N9038A	MY55420137	Apr. 09, 2021	Apr. 08, 2022
Pre-Amplifier EMCI	EMC001340	980142	May 24, 2021	May 23, 2022
Loop Antenna Electro-Metrics	EM-6879	264	Mar. 05, 2021	Mar. 04, 2022
RF Cable	5D-FB	LOOPCAB-001	Jan. 07, 2021	Jan. 06, 2022
RF Cable	5D-FB	LOOPCAB-002	Jan. 07, 2021	Jan. 06, 2022
Pre-Amplifier Mini-Circuits	ZFL-1000VH2	QA0838008	Oct. 20, 2020	Oct. 19, 2021
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-361	Nov. 05, 2020	Nov. 04, 2021
RF Cable	8D	966-3-1	Mar. 16, 2021	Mar. 15, 2022
RF Cable	8D	966-3-2	Mar. 16, 2021	Mar. 15, 2022
RF Cable	8D	966-3-3	Mar. 16, 2021	Mar. 15, 2022
Fixed attenuator Mini-Circuits	UNAT-5+	PAD-3m-3-01	Sep. 24, 2020	Sep. 23, 2021
Horn_Antenna SCHWARZBECK	BBHA9120-D	9120D-406	Nov. 22, 2020	Nov. 21, 2021
Pre-Amplifier EMCI	EMC12630SE	980384	Jan. 11, 2021	Jan. 10, 2022
RF Cable	EMC104-SM-SM-1500	180504	Apr. 26, 2021	Apr. 25, 2022
RF Cable	EMC104-SM-SM-2000	180601	Jun. 08, 2021	Jun. 07, 2022
RF Cable	EMC104-SM-SM-6000	210201	May 13, 2021	May 12, 2022
Pre-Amplifier EMCI	EMC184045SE	980387	Jan. 11, 2021	Jan. 10, 2022
Horn_Antenna SCHWARZBECK	BBHA 9170	BBHA9170519	Nov. 22, 2020	Nov. 21, 2021
RF Cable	EMC102-KM-KM-1200	160924	Jan. 11, 2021	Jan. 10, 2022
RF Cable	EMC-KM-KM-4000	200214	Mar. 10, 2021	Mar. 09, 2022
Software	ADT_Radiated_V8.7.08	NA	NA	NA
Antenna Tower & Turn Table Max-Full	MF-7802	MF780208406	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	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 Hsinchu 966 Chamber No. 3.

For other test:

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Spectrum Analyzer Keysight	N9030B	MY60070562	Jan. 06, 2021	Jan. 05, 2022
Fixed Attenuator Woken	00800N1G03H-30	01	NA	NA
Temperature & Humidity Chamber TERCHY	MHU-225AU	911033	Nov. 24, 2020	Nov. 23, 2021
True RMS Clamp Meter FLUKE	325	31130711WS	Jun. 02, 2021	Jun. 01, 2022
DC power supply Chroma	62024P-80-60	62024PA00674	NA	NA
Software	ADT_RF Test Software V6.6.5.4	NA	NA	NA

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

3 General Information

3.1 General Description of EUT

Product	Dual Mid Band RU			
Brand	MTI			
Test Model	G2021-49-01B			
Status of EUT	Engineering sample			
Power Supply Rating	-40.5Vdc to -58.5Vdc			
Modulation Type	QPSK, 16QAM, 64QAM, 256QAM			
Modulation Technology	5G NR FDD			
Operating Frequency	Band n66	Channel Bandwidth: 5MHz	ANT0	2112.5MHz ~ 2197.5MHz
			ANT1	
			ANT2	
			ANT3	
		Channel Bandwidth: 10MHz	ANT0	2115.0MHz ~ 2195.0MHz
			ANT1	
			ANT2	
			ANT3	
		Channel Bandwidth: 15MHz	ANT0	2117.5MHz ~ 2192.5MHz
			ANT1	
			ANT2	
			ANT3	
		Channel Bandwidth: 20MHz	ANT0	2120.0MHz ~ 2190.0MHz
			ANT1	
			ANT2	
			ANT3	
	Band n70	Channel Bandwidth: 5MHz	ANT0	1997.5MHz ~ 2017.5MHz
			ANT1	
			ANT2	
			ANT3	
		Channel Bandwidth: 10MHz	ANT0	2000.0MHz ~ 2015.0MHz
			ANT1	
			ANT2	
			ANT3	
		Channel Bandwidth: 15MHz	ANT0	2002.5MHz ~ 2012.5MHz
			ANT1	
			ANT2	
			ANT3	
		Channel Bandwidth: 20MHz	ANT0	2005.0MHz ~ 2010.0MHz
			ANT1	
			ANT2	
			ANT3	
		Channel Bandwidth: 25MHz	ANT0	2007.5MHz
			ANT1	
			ANT2	
			ANT3	

			QPSK	16QAM	64QAM	256QAM
Emission Designator	One Carrier: Band n66 20MHz(60W)_Ch 438000 (2190.0MHz) + Band n70 25MHz(20W)_Ch 401500 (2007.5MHz)	ANT0	42M7G7D	42M7D7W	42M6D7W	42M6D7W
		ANT1	42M7G7D	42M7D7W	42M6D7W	42M6D7W
		ANT2	42M7G7D	42M7D7W	42M6D7W	42M6D7W
		ANT3	42M7G7D	42M7D7W	42M6D7W	42M6D7W
	Two Carriers_Contiguous: Band n66 20MHz(30W)+20MHz(30W)_Ch 434000 (2170.0MHz) + Ch 438000 (2190.0MHz) + Band n70 25MHz(20W)_Ch 401500 (2007.5MHz)	ANT0	62M6G7D	62M6D7W	62M4D7W	62M4D7W
		ANT1	62M6G7D	62M6D7W	62M4D7W	62M4D7W
		ANT2	62M6G7D	62M6D7W	62M4D7W	62M4D7W
		ANT3	62M6G7D	62M6D7W	62M4D7W	62M4D7W
	Two Carriers_Contiguous: Band n66 20MHz(20W)+20MHz(20W)_Ch 434000 (2170.0MHz) + Ch 438000 (2190.0MHz) + Band n70 25MHz(40W)_Ch 401500 (2007.5MHz)	ANT0	62M6G7D	62M6D7W	62M4D7W	62M4D7W
		ANT1	62M6G7D	62M6D7W	62M4D7W	62M4D7W
		ANT2	62M6G7D	62M6D7W	62M4D7W	62M4D7W
		ANT3	62M6G7D	62M6D7W	62M4D7W	62M4D7W

Antenna Type	Directional Cross-Polarized Sector antenna with Band n66 Gain = 15 dBi Band n70 Gain = 17 dBi
Antenna Connector	4x4.3-10 Female
Accessory Device	NA
Data Cable Supplied	NA

Note:

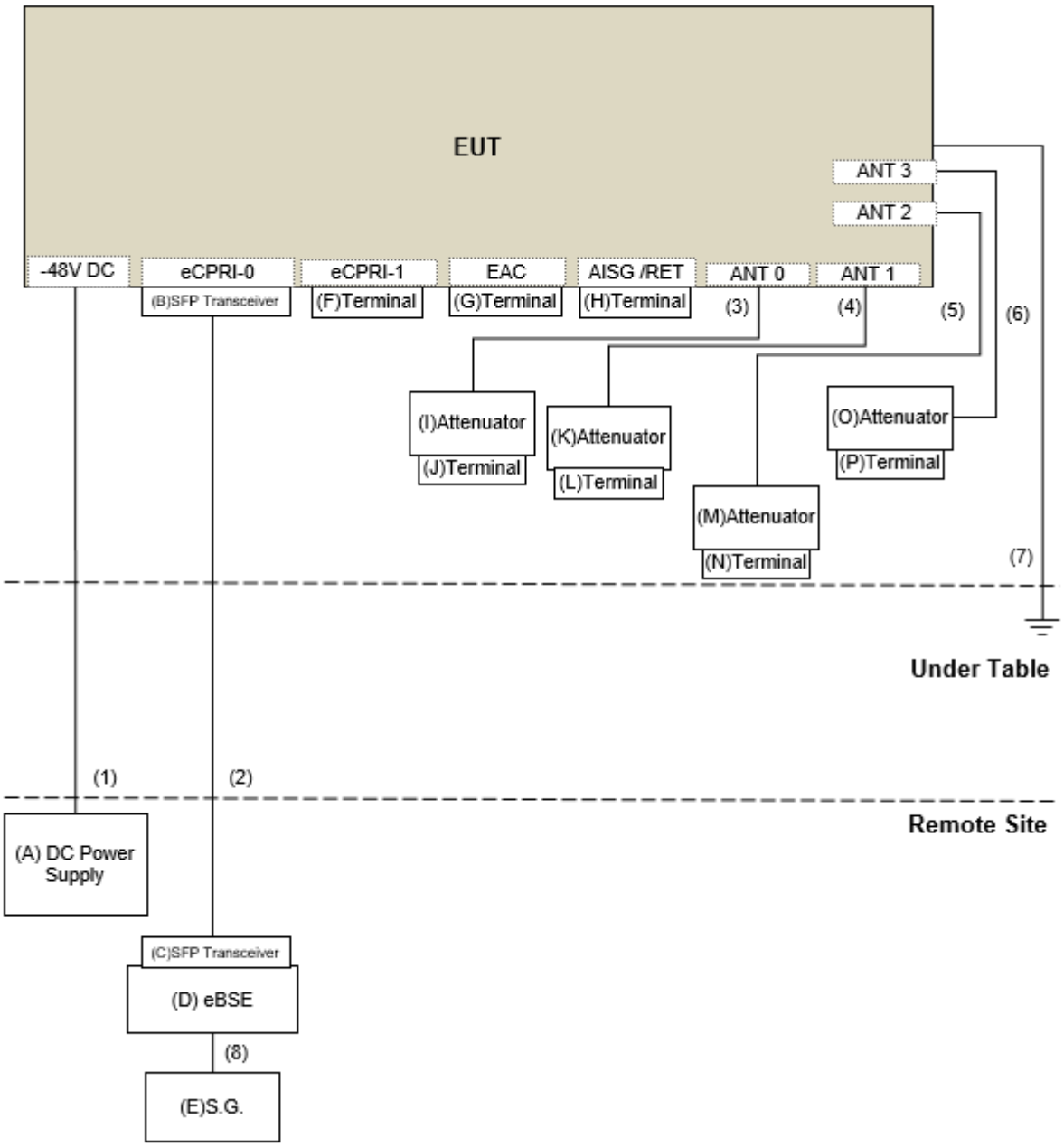
1. This report is prepared for FCC class II permissive change. This report is issued as a supplementary report of BV CPS report no.: RFBEOO-WTW-P21020573-1. Difference compared with the original report is adding single carrier: n70 (Channel Bandwidth: 25MHz) and multi-carriers mode. Therefore, all tests for these modes are tested.

2. The EUT incorporates a MIMO function.

Band n66			
Channel Bandwidth	Modulation	TX & RX configuration	
5MHz	QPSK, 16QAM, 64QAM, 256QAM	4TX	4RX
10MHz	QPSK, 16QAM, 64QAM, 256QAM	4TX	4RX
15MHz	QPSK, 16QAM, 64QAM, 256QAM	4TX	4RX
20MHz	QPSK, 16QAM, 64QAM, 256QAM	4TX	4RX
Band n70			
Channel Bandwidth	Modulation	TX & RX configuration	
5MHz	QPSK, 16QAM, 64QAM, 256QAM	4TX	4RX
10MHz	QPSK, 16QAM, 64QAM, 256QAM	4TX	4RX
15MHz	QPSK, 16QAM, 64QAM, 256QAM	4TX	4RX
20MHz	QPSK, 16QAM, 64QAM, 256QAM	4TX	4RX
25MHz	QPSK, 16QAM, 64QAM, 256QAM	4TX	4RX

3. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.
4. 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.
5. Based on the maximum RF power (conducted & EIRP) listed in this report, considerations pertaining to the maximum allowed EIRP (conducted power level), signal type and antenna gain should be considered for each installation.

3.2 Configuration of System under Test



3.2.1 Description of Support Units

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

No.	Product	Brand	Model No.	Serial No.	FCC ID	Remark
A	DC Power Supply	NA	NA	NA	NA	Supplied by client
B	SFP Transceiver	NA	NA	NA	NA	Supplied by client
C	SFP Transceiver	NA	NA	NA	NA	Supplied by client
D	eBSE (Note 2)	NA	NA	NA	NA	Supplied by client
E	S.G	Agilent	E4438C	NA	NA	Provided by Lab
F	Terminal	NA	NA	NA	NA	Supplied by client
G	Terminal	NA	NA	NA	NA	Supplied by client
H	Terminal	NA	NA	NA	NA	Supplied by client
I	Attenuator	NA	NA	NA	NA	Supplied by client
J	Terminal	NA	NA	NA	NA	Supplied by client
K	Attenuator	NA	NA	NA	NA	Supplied by client
L	Terminal	NA	NA	NA	NA	Supplied by client
M	Attenuator	NA	NA	NA	NA	Supplied by client
N	Terminal	NA	NA	NA	NA	Supplied by client
O	Attenuator	NA	NA	NA	NA	Supplied by client
P	Terminal	NA	NA	NA	NA	Supplied by client

NOTE:

1. All power cords of the above support units are non-shielded (1.8 m).
2. eBSE: Based Station Emulator which is to transmit/receive the waveform

No.	Cable	Qty.	Length (m)	Shielded (Yes/ No)	Cores (Number)	Remark
1	DC Power Cable	1	10	Yes	0	Supplied by client
2	Coaxial Cable	1	10	Yes	0	Supplied by client
3	RF Cable	1	1.5	Yes	0	Supplied by client
4	RF Cable	1	1.5	Yes	0	Supplied by client
5	RF Cable	1	1.5	Yes	0	Supplied by client
6	RF Cable	1	1.5	Yes	0	Supplied by client
7	GND Cable	1	3	No	0	Provided by Lab
8	RF Cable	1	3	No	0	Supplied by client

3.3 Test Mode Applicability and Tested Channel Detail

Test modes are presented in the report as below, detailed test mode.

Test Mode	Description
1	One Carrier: Band n66 20MHz(60W)_Ch 438000 (2190.0MHz) + Band n70 25MHz(20W)_Ch 401500 (2007.5MHz)
2	Two Carriers_Contiguous: Band n66 5MHz(20W)+5MHz (20W)_Ch 438500 (2192.5MHz) + Ch 439500 (2197.5MHz) + Band n70 5MHz(20W)+5MHz (20W)_Ch 399500 (1997.5MHz) + Ch 400500 (2002.5MHz)
3	Two Carriers_Non Contiguous: Band n66 5MHz(20W)+5MHz (20W)_Ch 428500 (2142.5MHz) + Ch 439500 (2197.5MHz) + Band n70 5MHz(20W)+5MHz (20W)_Ch 399500 (1997.5MHz) + Ch 403500 (2017.5MHz)
4	Two Carriers_Contiguous: Band n66 5MHz(30W)+5MHz(30W)_Ch 438500 (2192.5MHz) + Ch 439500 (2197.5MHz) + Band n70 5MHz(10W)+5MHz(10W)_Ch 399500 (1997.5MHz) + Ch 400500 (2002.5MHz)
5	Two Carriers_Non Contiguous: Band n66 5MHz(30W)+5MHz(30W)_Ch 428500 (2142.5MHz) + Ch 439500 (2197.5MHz) + Band n70 5MHz(10W)+5MHz(10W)_Ch 399500 (1997.5MHz) + Ch 403500 (2017.5MHz)
6	Two Carriers_Contiguous: Band n66 20MHz(30W)+20MHz(30W)_Ch 434000 (2170.0MHz) + Ch 438000 (2190.0MHz) + Band n70 25MHz(20W)_Ch 401500 (2007.5MHz)
7	Two Carriers_Contiguous: Band n66 20MHz(20W)+20MHz(20W)_Ch 434000 (2170.0MHz) + Ch 438000 (2190.0MHz) + Band n70 25MHz(40W)_Ch 401500 (2007.5MHz)

Following test modes were selected for the final test:

Test Item	Test Mode
EIRP	1, 2, 3, 4, 5, 6, 7
Occupied Bandwidth	1, 6, 7
Radiated Emission	1, 2, 3, 4, 5, 6, 7

Test Condition:

Test Item	Environmental Conditions	Input Power (System)	Tested By
EIRP	25deg. C, 63%RH	120Vac, 60Hz	James Yang
OBW	25deg. C, 63%RH	120Vac, 60Hz	Charlie Yang
Radiated Emission	25deg. C, 70%RH	120Vac, 60Hz	Ryan Du

3.4 General Description of Applied Standards

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

Test Standard:

FCC 47 CFR Part 2

FCC 47 CFR Part 27, Subpart L

ANSI/TIA/EIA-603-E 2016

ANSI 63.26-2015

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

References Test Guidance:

KDB 971168 D01 Power Meas License Digital Systems v03r01

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

4 Test Types and Results

4.1 Output Power Measurement

4.1.1 Limits of Output Power Measurement

According to FCC 27.50(d)(2)that the power of each fixed or base station transmitting in the 1995-2000 MHz, the 2110-2155 MHz 2155-2180 MHz band, or 2180-2200 MHz band and situated in any geographic location other than that described in paragraph (d)(1) of this section is limited to:

(i) An equivalent isotropically radiated power (EIRP) of 1640 watts when transmitting with an emission bandwidth of 1 MHz or less;

(ii) An EIRP of 1640 watts/MHz when transmitting with an emission bandwidth greater than 1 MHz.

4.1.2 Test Procedures

EIRP Measurement:

Conducted Power Measurement:

a. A spectrum analyzer was used on the output port of the EUT and recorded output power from the spectrum analyzer.
b. The relevant equation for determining the maximum ERP or EIRP from the measured RF output power is given in Equation as follows:

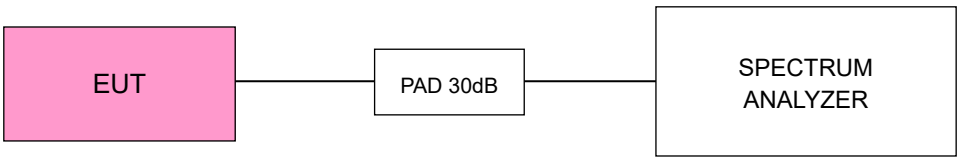
   EIRP = PMeas + GT
   ERP = PMeas + GT- 2.15

   Where ERP or EIRP effective radiated power or equivalent isotropically radiated power, respectively (expressed in the same units as PMeas, e.g., dBm or dBW)

   PMeas : measured transmitter output power or PSD, in dBm or dBW
   GT : gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP)

4.1.3 Test Setup

Conducted Power Measurement:



4.1.4 Test Results (Mode 1)

Band n66 20MHz (60W)_Ch 438000 (2190.0MHz) + Band n70 25MHz(20W)_Ch 401500 (2007.5MHz)

Channel Number	Freq. (MHz)	QPSK									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Gain	EIRP (dBm /MHz)	EIRP (W/MHz)	Limit (W/MHz)	
		Ant. TX 0	Ant. TX 1	Ant. TX 2	Ant. TX 3	Total					
n66 438000	2190	34.08	34.11	34.01	33.98	40.07	15	55.07	321.06	1640.00	PASS
n70 401500	2007.5	29.73	29.73	29.66	29.68	35.72	17	52.72	187.10	1640.00	PASS

Channel Number	Freq. (MHz)	16QAM									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Gain	EIRP (dBm /MHz)	EIRP (W/MHz)	Limit (W/MHz)	
		Ant. TX 0	Ant. TX 1	Ant. TX 2	Ant. TX 3	Total					
n66 438000	2190	33.97	34.02	33.91	33.96	39.99	15	54.99	315.19	1640.00	PASS
n70 401500	2007.5	29.67	29.70	29.61	29.60	35.67	17	52.67	184.75	1640.00	PASS

Channel Number	Freq. (MHz)	64QAM									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Gain	EIRP (dBm /MHz)	EIRP (W/MHz)	Limit (W/MHz)	
		Ant. TX 0	Ant. TX 1	Ant. TX 2	Ant. TX 3	Total					
n66 438000	2190	33.89	33.95	33.89	33.89	39.93	15	54.93	310.86	1640.00	PASS
n70 401500	2007.5	29.60	29.71	29.59	29.55	35.63	17	52.63	183.38	1640.00	PASS

Channel Number	Freq. (MHz)	256QAM									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Gain	EIRP (dBm /MHz)	EIRP (W/MHz)	Limit (W/MHz)	
		Ant. TX 0	Ant. TX 1	Ant. TX 2	Ant. TX 3	Total					
n66 438000	2190	33.87	33.90	33.85	33.84	39.89	15	54.89	308.01	1640.00	PASS
n70 401500	2007.5	29.60	29.67	29.58	29.53	35.62	17	52.62	182.64	1640.00	PASS

4.1.5 Test Results (Mode 2)

Band n66 5MHz (20W)+5MHz (20W)_Ch 438500 (2192.5MHz) + Ch 439500 (2197.5MHz) +
Band n70 5MHz (20W)+5MHz (20W)_Ch 399500 (1997.5MHz) + Ch 400500 (2002.5MHz)

Channel Number	Freq. (MHz)	QPSK									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Gain	EIRP (dBm /MHz)	EIRP (W/MHz)	Limit (W/MHz)	
		Ant. TX 0	Ant. TX 1	Ant. TX 2	Ant. TX 3	Total					
n66 438500+ n66 439500	2192.5 + 2197.5	35.41	35.51	35.91	36.06	41.75	15	56.75	473.30	1640.00	PASS
n70 399500+ n70 400500	1997.5 + 2002.5	35.34	35.16	35.30	35.12	41.25	17	58.25	668.82	1640.00	PASS

Channel Number	Freq. (MHz)	16QAM									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Gain	EIRP (dBm /MHz)	EIRP (W/MHz)	Limit (W/MHz)	
		Ant. TX 0	Ant. TX 1	Ant. TX 2	Ant. TX 3	Total					
n66 438500+ n66 439500	2192.5 + 2197.5	35.65	35.75	35.43	35.89	41.70	15	56.70	467.92	1640.00	PASS
n70 399500+ n70 400500	1997.5 + 2002.5	35.57	35.39	35.57	35.19	41.45	17	58.45	699.83	1640.00	PASS

Channel Number	Freq. (MHz)	64QAM									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Gain	EIRP (dBm /MHz)	EIRP (W/MHz)	Limit (W/MHz)	
		Ant. TX 0	Ant. TX 1	Ant. TX 2	Ant. TX 3	Total					
n66 438500+ n66 439500	2192.5 + 2197.5	35.47	35.44	35.22	35.96	41.55	15	56.55	452.01	1640.00	PASS
n70 399500+ n70 400500	1997.5 + 2002.5	35.32	35.20	35.30	35.09	41.25	17	58.25	668.12	1640.00	PASS

Channel Number	Freq. (MHz)	256QAM									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Gain	EIRP (dBm /MHz)	EIRP (W/MHz)	Limit (W/MHz)	
		Ant. TX 0	Ant. TX 1	Ant. TX 2	Ant. TX 3	Total					
n66 438500+ n66 439500	2192.5 + 2197.5	35.39	35.29	35.13	35.02	41.23	15	56.23	419.63	1640.00	PASS
n70 399500+ n70 400500	1997.5 + 2002.5	35.14	35.14	35.17	34.90	41.11	17	58.11	646.95	1640.00	PASS

4.1.6 Test Results (Mode 3)

Band n66 5MHz (20W)+5MHz (20W)_Ch 428500 (2142.5MHz) + Ch 439500 (2197.5MHz) +
Band n70 5MHz (20W)+5MHz (20W)_Ch 399500 (1997.5MHz) + Ch 403500 (2017.5MHz)

Channel Number	Freq. (MHz)	QPSK									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Gain	EIRP (dBm /MHz)	EIRP (W/MHz)	Limit (W/MHz)	
		Ant. TX 0	Ant. TX 1	Ant. TX 2	Ant. TX 3	Total					
n66 428500+ n66 439500	2142.5 + 2197.5	35.57	35.39	35.42	35.55	41.50	15	56.50	447.02	1640.00	PASS
n70 399500+ n70 403500	1997.5 + 2017.5	35.11	35.26	34.97	35.26	41.17	17	58.17	656.38	1640.00	PASS

Channel Number	Freq. (MHz)	16QAM									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Gain	EIRP (dBm /MHz)	EIRP (W/MHz)	Limit (W/MHz)	
		Ant. TX 0	Ant. TX 1	Ant. TX 2	Ant. TX 3	Total					
n66 428500+ n66 439500	2142.5 + 2197.5	35.44	35.49	35.55	35.84	41.60	15	56.60	457.13	1640.00	PASS
n70 399500+ n70 403500	1997.5 + 2017.5	35.28	35.32	35.20	35.19	41.27	17	58.27	671.50	1640.00	PASS

Channel Number	Freq. (MHz)	64QAM									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Gain	EIRP (dBm /MHz)	EIRP (W/MHz)	Limit (W/MHz)	
		Ant. TX 0	Ant. TX 1	Ant. TX 2	Ant. TX 3	Total					
n66 428500+ n66 439500	2142.5 + 2197.5	35.46	35.55	35.34	35.51	41.49	15	56.49	445.18	1640.00	PASS
n70 399500+ n70 403500	1997.5 + 2017.5	35.00	35.20	34.97	35.03	41.07	17	58.07	641.54	1640.00	PASS

Channel Number	Freq. (MHz)	256QAM									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Gain	EIRP (dBm /MHz)	EIRP (W/MHz)	Limit (W/MHz)	
		Ant. TX 0	Ant. TX 1	Ant. TX 2	Ant. TX 3	Total					
n66 428500+ n66 439500	2142.5 + 2197.5	35.42	35.37	35.23	35.46	41.39	15	56.39	435.53	1640.00	PASS
n70 399500+ n70 403500	1997.5 + 2017.5	34.82	35.02	34.81	34.90	40.91	17	57.91	618.00	1640.00	PASS

4.1.7 Test Results (Mode 4)

Band n66 5MHz (30W)+5MHz(30W)_Ch 438500 (2192.5MHz) + Ch 439500 (2197.5MHz) +
Band n70 5MHz (10W)+5MHz(10W)_Ch 399500 (1997.5MHz) + Ch 400500 (2002.5MHz)

Channel Number	Freq. (MHz)	QPSK									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Gain	EIRP (dBm /MHz)	EIRP (W/MHz)	Limit (W/MHz)	
		Ant. TX 0	Ant. TX 1	Ant. TX 2	Ant. TX 3	Total					
n66 438500+ n66 439500	2192.5 + 2197.5	36.88	36.93	36.89	37.14	42.98	15	57.98	627.80	1640.00	PASS
n70 399500+ n70 400500	1997.5 + 2002.5	32.45	32.42	32.77	32.49	38.55	17	55.55	359.33	1640.00	PASS

Channel Number	Freq. (MHz)	16QAM									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Gain	EIRP (dBm /MHz)	EIRP (W/MHz)	Limit (W/MHz)	
		Ant. TX 0	Ant. TX 1	Ant. TX 2	Ant. TX 3	Total					
n66 438500+ n66 439500	2192.5 + 2197.5	37.07	37.15	37.05	37.27	43.16	15	58.16	654.64	1640.00	PASS
n70 399500+ n70 400500	1997.5 + 2002.5	32.76	32.56	32.71	32.64	38.69	17	55.69	370.57	1640.00	PASS

Channel Number	Freq. (MHz)	64QAM									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Gain	EIRP (dBm /MHz)	EIRP (W/MHz)	Limit (W/MHz)	
		Ant. TX 0	Ant. TX 1	Ant. TX 2	Ant. TX 3	Total					
n66 438500+ n66 439500	2192.5 + 2197.5	37.04	36.94	36.82	37.07	42.99	15	57.99	629.49	1640.00	PASS
n70 399500+ n70 400500	1997.5 + 2002.5	32.50	32.46	32.49	32.49	38.50	17	55.50	355.15	1640.00	PASS

Channel Number	Freq. (MHz)	256QAM									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Gain	EIRP (dBm /MHz)	EIRP (W/MHz)	Limit (W/MHz)	
		Ant. TX 0	Ant. TX 1	Ant. TX 2	Ant. TX 3	Total					
n66 438500+ n66 439500	2192.5 + 2197.5	36.82	36.86	36.72	36.88	42.84	15	57.84	608.04	1640.00	PASS
n70 399500+ n70 400500	1997.5 + 2002.5	32.30	32.38	32.41	32.25	38.36	17	55.36	343.19	1640.00	PASS

4.1.8 Test Results (Mode 5)

Band n66 5MHz (30W)+5MHz(30W)_Ch 428500 (2142.5MHz) + Ch 439500 (2197.5MHz) +
Band n70 5MHz (10W)+5MHz(10W)_Ch 399500 (1997.5MHz) + Ch 403500 (2017.5MHz)

Channel Number	Freq. (MHz)	QPSK									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Gain	EIRP (dBm /MHz)	EIRP (W/MHz)	Limit (W/MHz)	
		Ant. TX 0	Ant. TX 1	Ant. TX 2	Ant. TX 3	Total					
n66 428500+ n66 439500	2142.5 + 2197.5	36.97	37.01	37.04	36.95	43.01	15	58.01	632.63	1640.00	PASS
n70 399500+ n70 403500	1997.5 + 2017.5	32.59	32.68	32.48	32.18	38.51	17	55.51	355.48	1640.00	PASS

Channel Number	Freq. (MHz)	16QAM									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Gain	EIRP (dBm /MHz)	EIRP (W/MHz)	Limit (W/MHz)	
		Ant. TX 0	Ant. TX 1	Ant. TX 2	Ant. TX 3	Total					
n66 428500+ n66 439500	2142.5 + 2197.5	37.30	37.15	37.10	37.27	43.23	15	58.23	664.61	1640.00	PASS
n70 399500+ n70 403500	1997.5 + 2017.5	32.74	32.77	32.74	32.70	38.76	17	55.76	376.65	1640.00	PASS

Channel Number	Freq. (MHz)	64QAM									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Gain	EIRP (dBm /MHz)	EIRP (W/MHz)	Limit (W/MHz)	
		Ant. TX 0	Ant. TX 1	Ant. TX 2	Ant. TX 3	Total					
n66 428500+ n66 439500	2142.5 + 2197.5	37.21	37.20	37.01	37.13	43.16	15	58.16	654.42	1640.00	PASS
n70 399500+ n70 403500	1997.5 + 2017.5	32.41	32.61	32.36	32.39	38.47	17	55.47	352.00	1640.00	PASS

Channel Number	Freq. (MHz)	256QAM									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Gain	EIRP (dBm /MHz)	EIRP (W/MHz)	Limit (W/MHz)	
		Ant. TX 0	Ant. TX 1	Ant. TX 2	Ant. TX 3	Total					
n66 428500+ n66 439500	2142.5 + 2197.5	37.01	37.03	36.79	36.94	42.97	15	57.97	626.13	1640.00	PASS
n70 399500+ n70 403500	1997.5 + 2017.5	32.26	32.45	32.28	32.20	38.32	17	55.32	340.30	1640.00	PASS

4.1.9 Test Results (Mode 6)

Band n66 20MHz(30W)+20MHz(30W)_Ch 434000 (2170.0MHz) + Ch 438000 (2190.0MHz) +
Band n70 25MHz(20W)_Ch 401500 (2007.5MHz)

Channel Number	Freq. (MHz)	QPSK									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Gain	EIRP (dBm /MHz)	EIRP (W/MHz)	Limit (W/MHz)	
		Ant. TX 0	Ant. TX 1	Ant. TX 2	Ant. TX 3	Total					
n66 434000+ n66 438000	2170.0 + 2190.0	31.76	31.85	31.77	31.73	37.80	15	52.80	190.47	1640.00	PASS
n70 401500	2007.5	29.51	29.57	29.44	29.51	35.53	17	52.53	178.99	1640.00	PASS

Channel Number	Freq. (MHz)	16QAM									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Gain	EIRP (dBm /MHz)	EIRP (W/MHz)	Limit (W/MHz)	
		Ant. TX 0	Ant. TX 1	Ant. TX 2	Ant. TX 3	Total					
n66 434000+ n66 438000	2170.0 + 2190.0	31.69	31.80	31.66	31.66	37.72	15	52.72	187.22	1640.00	PASS
n70 401500	2007.5	29.46	29.55	29.36	29.49	35.49	17	52.49	177.26	1640.00	PASS

Channel Number	Freq. (MHz)	64QAM									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Gain	EIRP (dBm /MHz)	EIRP (W/MHz)	Limit (W/MHz)	
		Ant. TX 0	Ant. TX 1	Ant. TX 2	Ant. TX 3	Total					
n66 434000+ n66 438000	2170.0 + 2190.0	31.68	31.74	31.59	31.61	37.68	15	52.68	185.18	1640.00	PASS
n70 401500	2007.5	29.36	29.46	29.30	29.47	35.42	17	52.42	174.53	1640.00	PASS

Channel Number	Freq. (MHz)	256QAM									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Gain	EIRP (dBm /MHz)	EIRP (W/MHz)	Limit (W/MHz)	
		Ant. TX 0	Ant. TX 1	Ant. TX 2	Ant. TX 3	Total					
n66 434000+ n66 438000	2170.0 + 2190.0	31.62	31.69	31.53	31.55	37.62	15	52.62	182.75	1640.00	PASS
n70 401500	2007.5	29.29	29.42	29.32	29.38	35.37	17	52.37	172.72	1640.00	PASS

4.1.10 Test Results (Mode 7)

Band n66 20MHz(20W)+20MHz(20W)_Ch 434000 (2170.0MHz) + Ch 438000 (2190.0MHz) +
Band n70 25MHz(40W)_Ch 401500 (2007.5MHz)

Channel Number	Freq. (MHz)	QPSK					Gain	EIRP (dBm /MHz)	EIRP (W/MHz)	Limit (W/MHz)	PASS /FAIL
		Conducted Average Power (dBm/MHz)									
		Ant. TX 0	Ant. TX 1	Ant. TX 2	Ant. TX 3	Total					
n66 434000+ n66 438000	2170.0 + 2190.0	30.19	30.27	30.26	30.25	36.26	15	51.26	133.76	1640.00	PASS
n70 401500	2007.5	31.89	32.14	32.06	32.05	38.06	17	55.06	320.37	1640.00	PASS

Channel Number	Freq. (MHz)	16QAM					Gain	EIRP (dBm /MHz)	EIRP (W/MHz)	Limit (W/MHz)	PASS /FAIL
		Conducted Average Power (dBm/MHz)									
		Ant. TX 0	Ant. TX 1	Ant. TX 2	Ant. TX 3	Total					
n66 434000+ n66 438000	2170.0 + 2190.0	30.05	30.06	30.11	30.17	36.12	15	51.12	129.37	1640.00	PASS
n70 401500	2007.5	31.87	32.02	31.93	31.91	37.95	17	54.95	312.86	1640.00	PASS

Channel Number	Freq. (MHz)	64QAM					Gain	EIRP (dBm /MHz)	EIRP (W/MHz)	Limit (W/MHz)	PASS /FAIL
		Conducted Average Power (dBm/MHz)									
		Ant. TX 0	Ant. TX 1	Ant. TX 2	Ant. TX 3	Total					
n66 434000+ n66 438000	2170.0 + 2190.0	29.72	29.71	29.69	29.71	35.73	15	50.73	118.23	1640.00	PASS
n70 401500	2007.5	31.88	31.98	31.91	31.87	37.93	17	54.93	311.23	1640.00	PASS

Channel Number	Freq. (MHz)	256QAM					Gain	EIRP (dBm /MHz)	EIRP (W/MHz)	Limit (W/MHz)	PASS /FAIL
		Conducted Average Power (dBm/MHz)									
		Ant. TX 0	Ant. TX 1	Ant. TX 2	Ant. TX 3	Total					
n66 434000+ n66 438000	2170.0 + 2190.0	29.64	29.62	29.68	29.67	35.67	15	50.67	116.77	1640.00	PASS
n70 401500	2007.5	31.83	31.91	31.86	31.79	37.87	17	54.87	306.78	1640.00	PASS

4.2 Emission Bandwidth Measurement

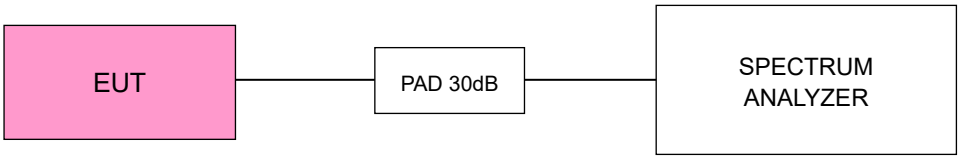
4.2.1 Limits of Emission Bandwidth Measurement

The frequency shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

4.2.2 Test Procedure

All measurements were done at low, middle and high operational frequency range. EUT to export maximum output power under transmission mode and specific channel frequency. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth.

4.2.3 Test Setup

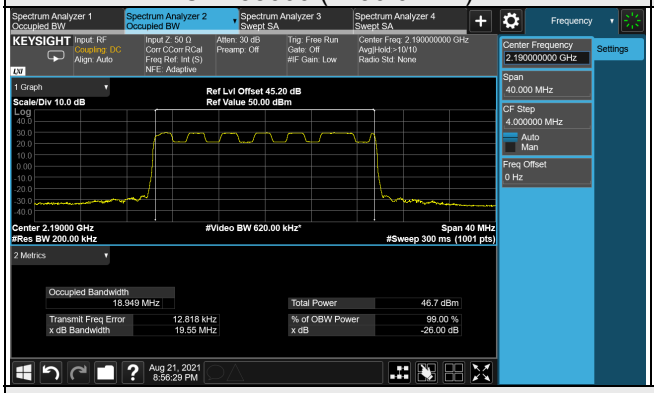
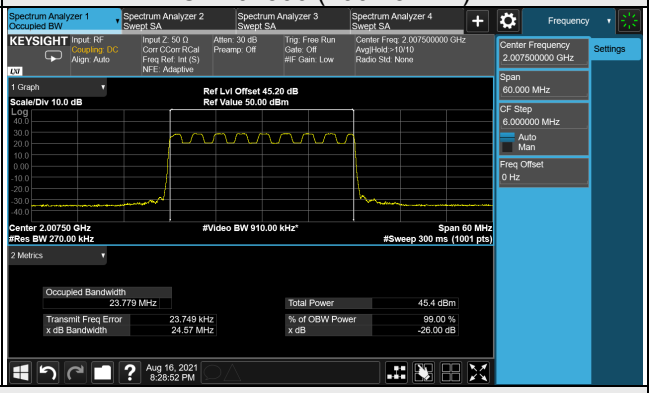
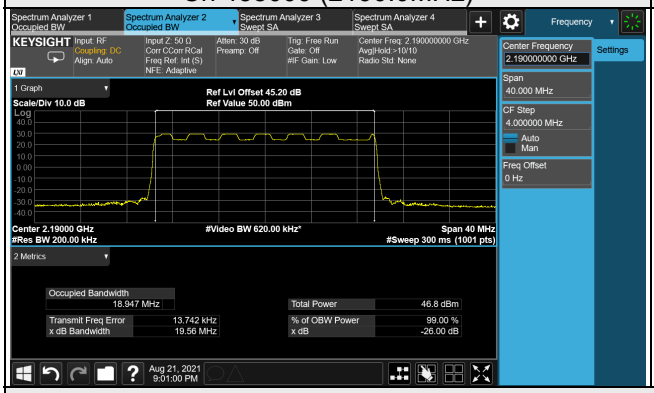
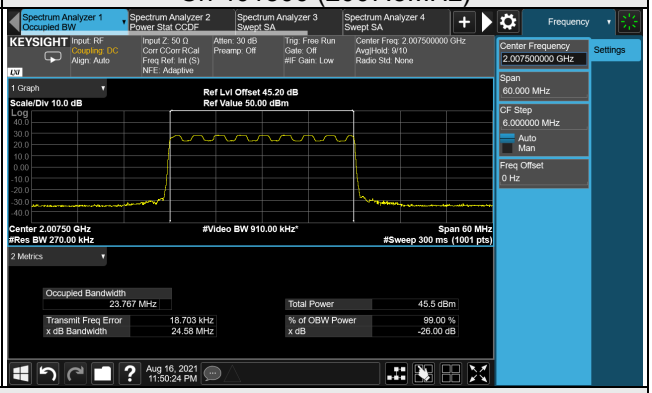
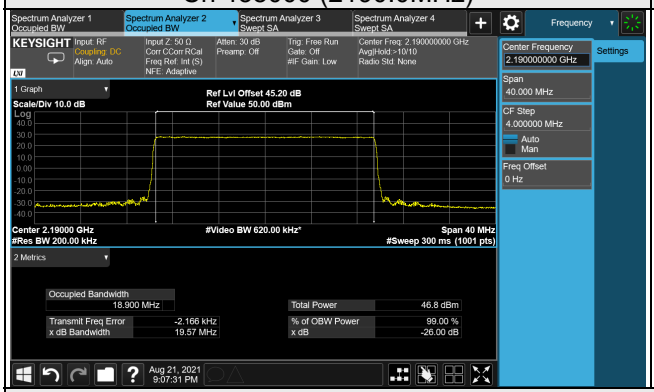
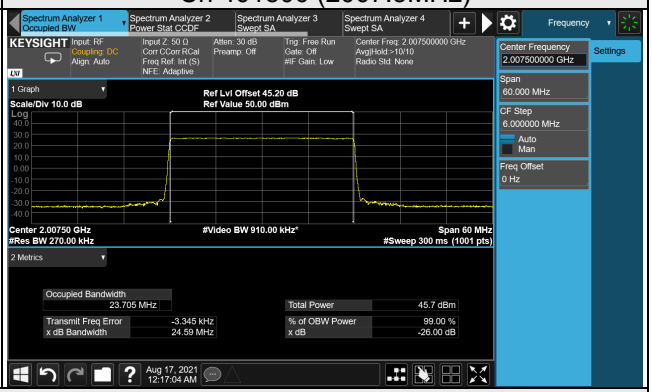
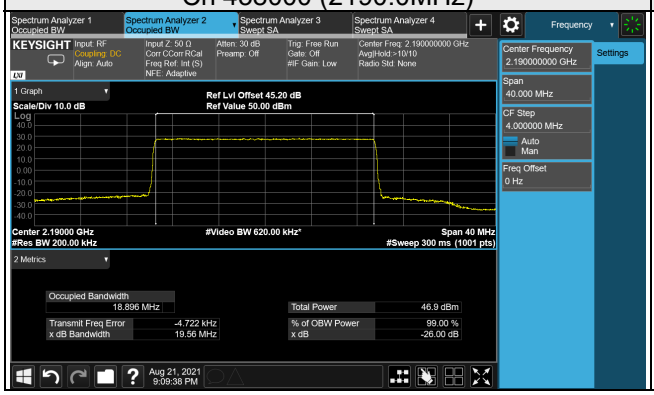
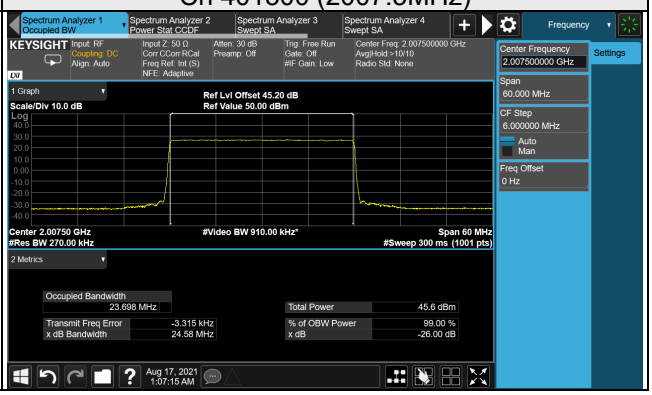


4.2.4 Test Results (Mode 1)

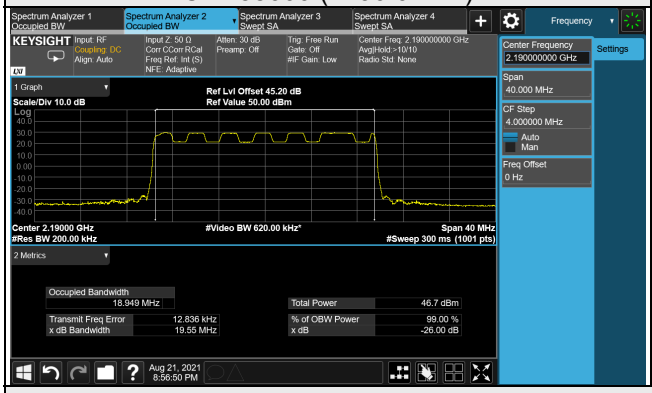
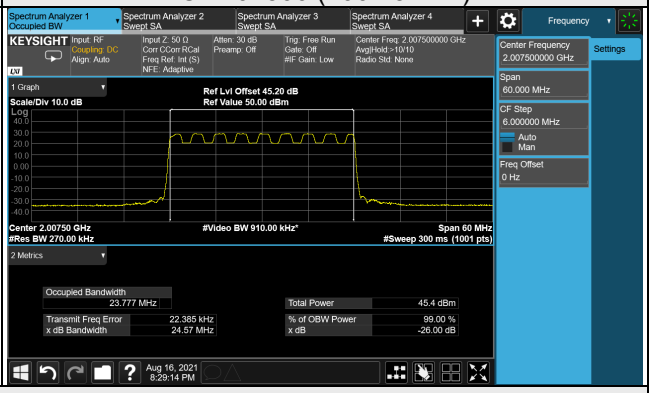
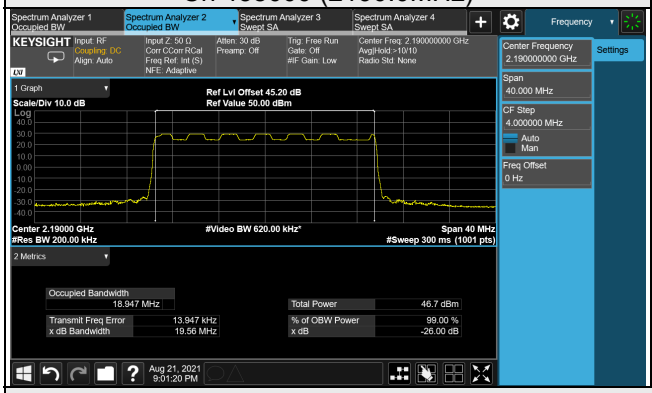
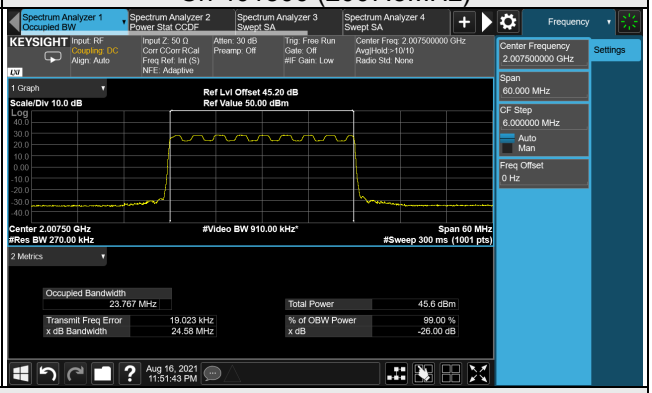
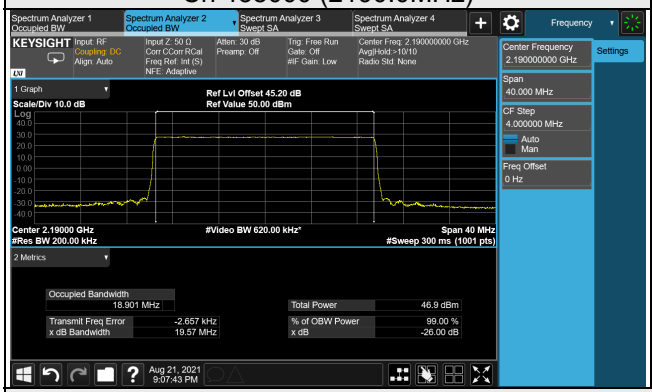
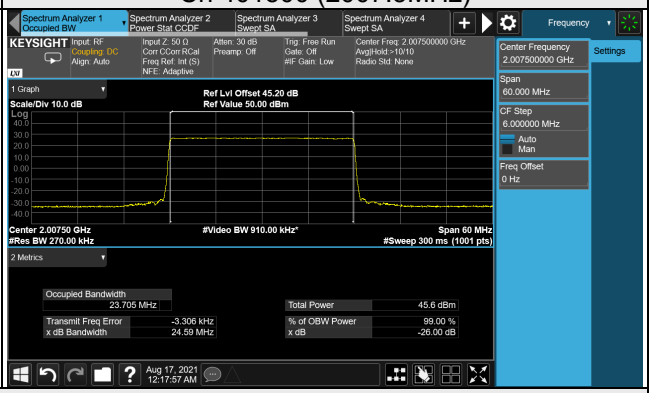
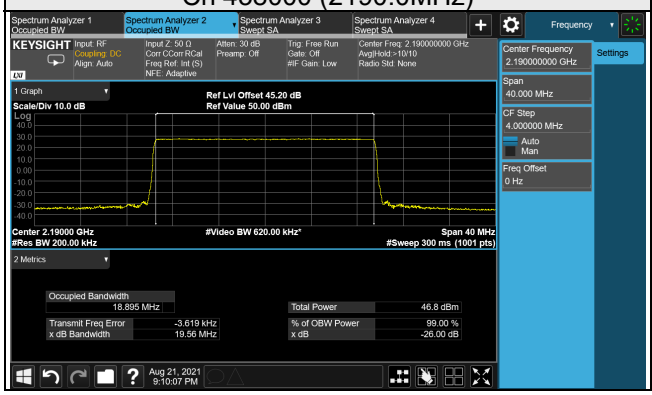
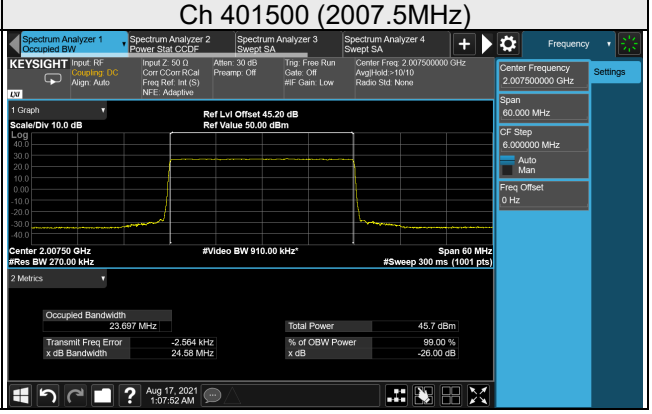
Band n66 20MHz (60W)_Ch 438000 (2190.0MHz) + Band n70 25MHz(20W)_Ch 401500 (2007.5MHz)

Channel Number	Freq. (MHz)	OCP 99 Bandwidth (MHz)															
		Ant. TX0				Ant. TX1				Ant. TX2				Ant. TX3			
		QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
n66 438000	2190.0	18.95	18.95	18.90	18.90	18.95	18.95	18.90	18.90	18.95	18.95	18.90	18.89	18.95	18.95	18.90	18.90
n70 401500	2007.5	23.78	23.77	23.71	23.70	23.78	23.77	23.71	23.70	23.78	23.77	23.71	23.70	23.78	23.77	23.71	23.70
Total		42.73	42.72	42.61	42.60	42.73	42.72	42.61	42.60	42.73	42.72	42.61	42.59	42.73	42.72	42.61	42.60

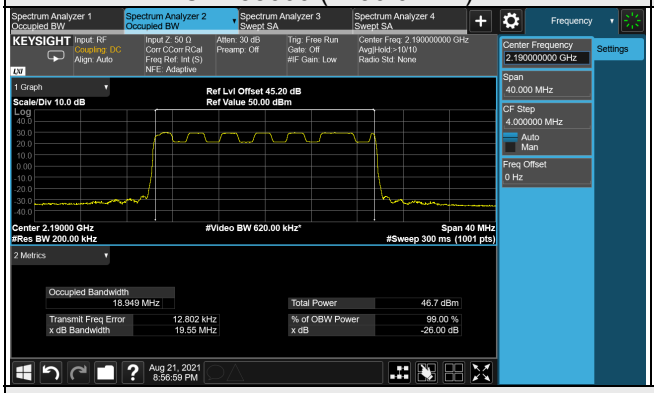
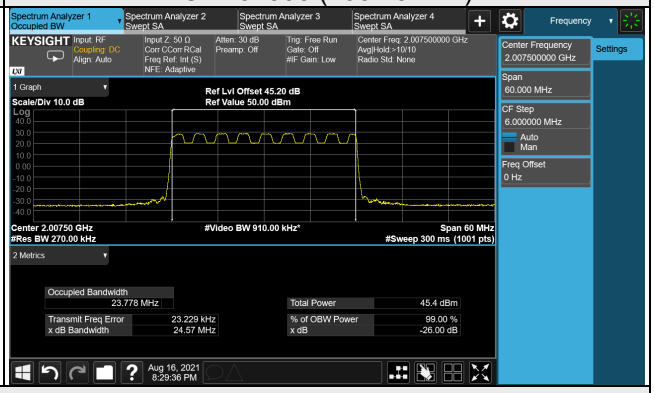
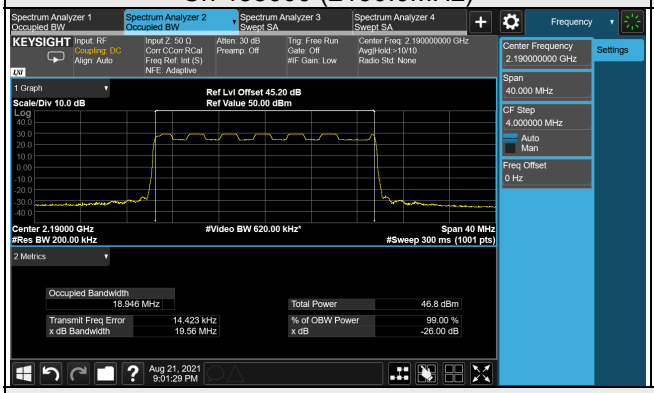
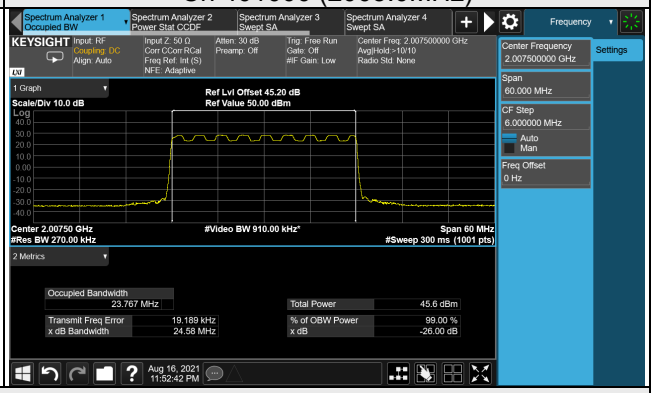
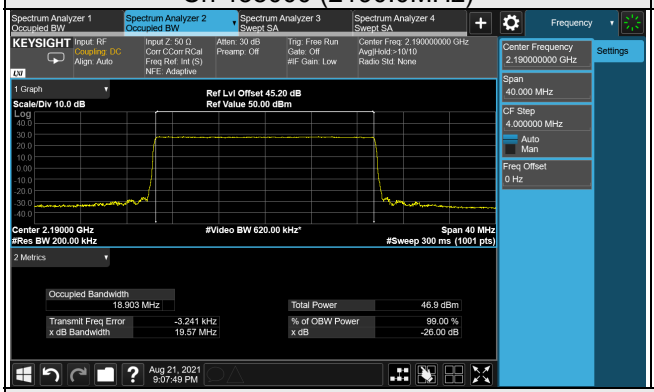
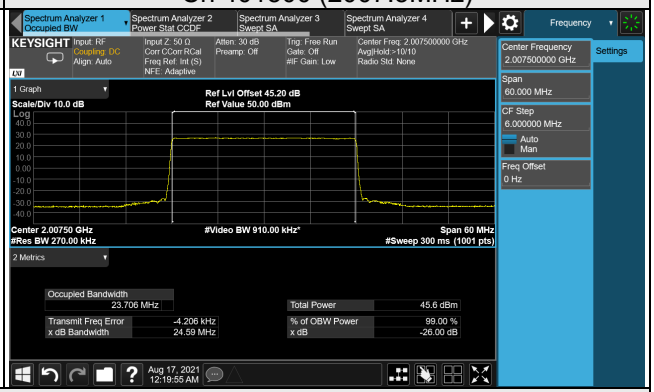
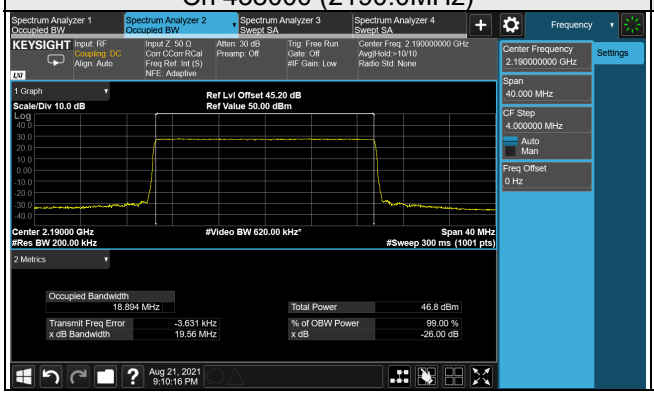
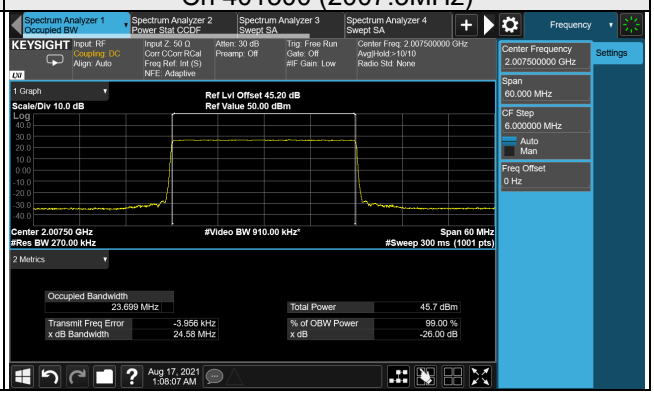
Ant. TX 0

Spectrum Plot of Worst Value	
QPSK	
Ch 438000 (2190.0MHz)	Ch 401500 (2007.5MHz)
	
16QAM	
Ch 438000 (2190.0MHz)	Ch 401500 (2007.5MHz)
	
64QAM	
Ch 438000 (2190.0MHz)	Ch 401500 (2007.5MHz)
	
256QAM	
Ch 438000 (2190.0MHz)	Ch 401500 (2007.5MHz)
	

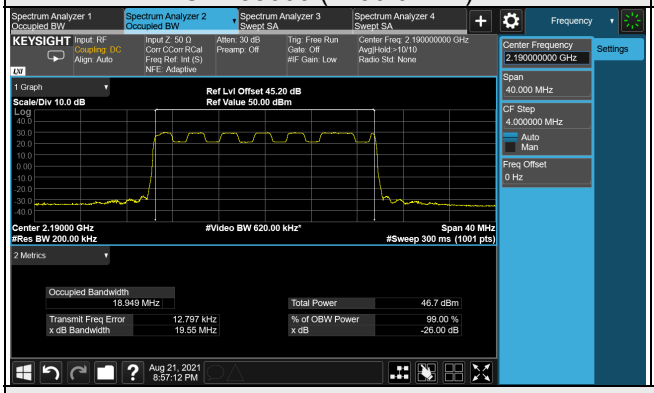
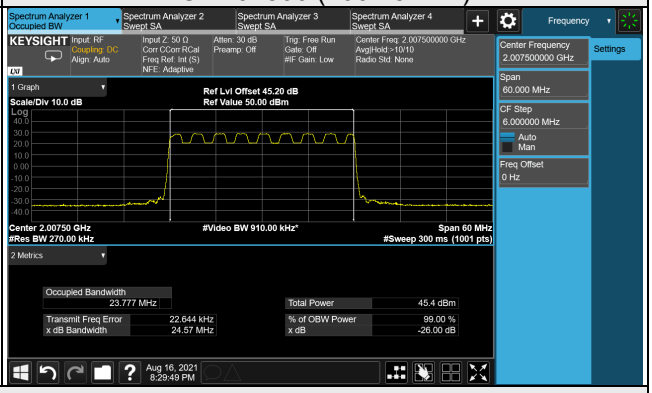
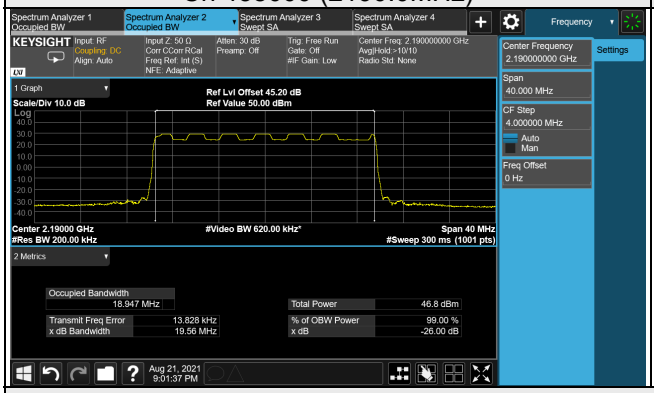
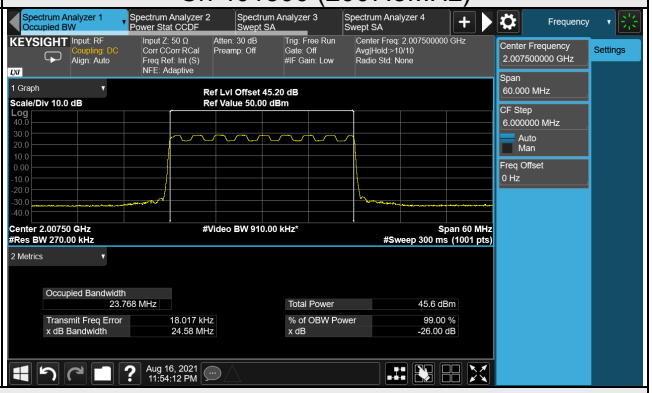
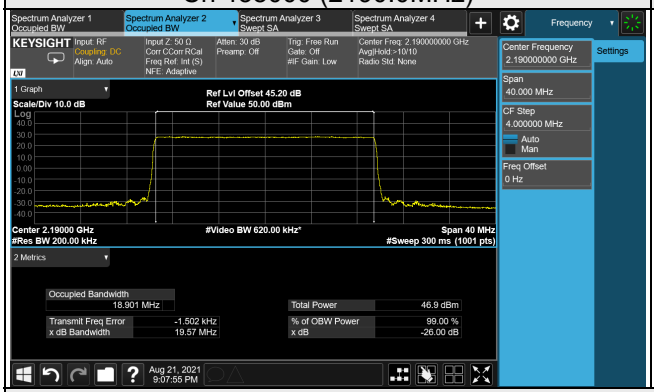
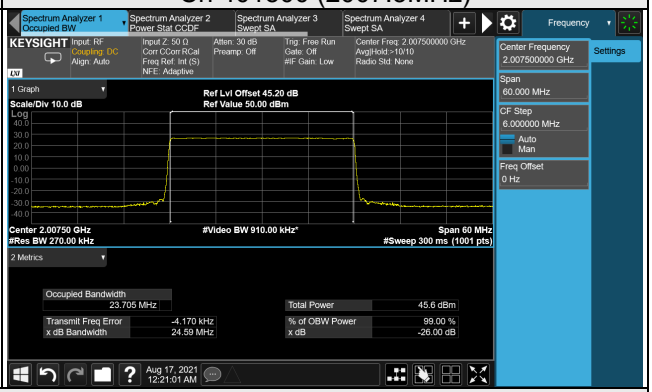
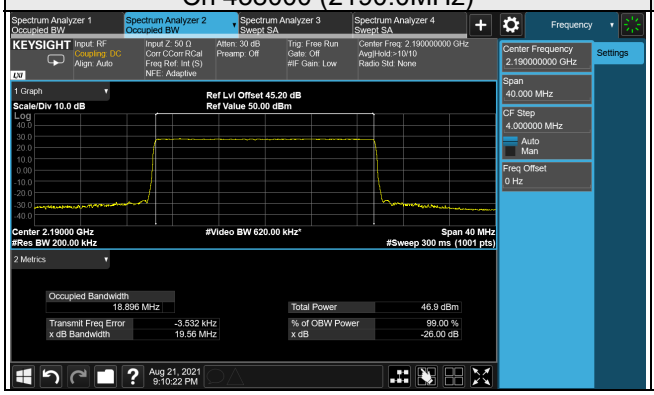
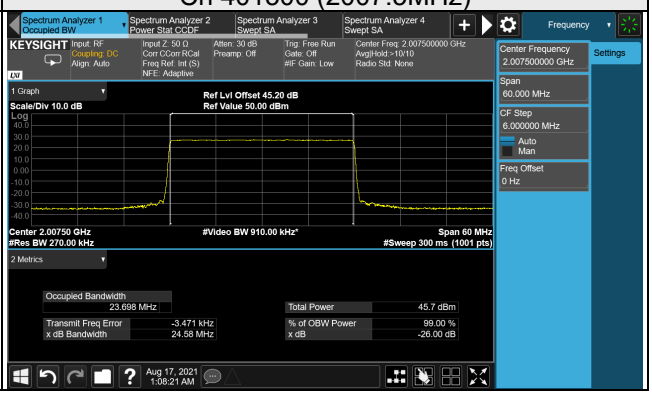
Ant. TX 1

Spectrum Plot of Worst Value	
QPSK	
Ch 438000 (2190.0MHz)	Ch 401500 (2007.5MHz)
	
16QAM	
Ch 438000 (2190.0MHz)	Ch 401500 (2007.5MHz)
	
64QAM	
Ch 438000 (2190.0MHz)	Ch 401500 (2007.5MHz)
	
256QAM	
Ch 438000 (2190.0MHz)	Ch 401500 (2007.5MHz)
	

Ant. TX 2

Spectrum Plot of Worst Value	
QPSK	
Ch 438000 (2190.0MHz)	Ch 401500 (2007.5MHz)
	
16QAM	
Ch 438000 (2190.0MHz)	Ch 401000 (2005.0MHz)
	
64QAM	
Ch 438000 (2190.0MHz)	Ch 401500 (2007.5MHz)
	
256QAM	
Ch 438000 (2190.0MHz)	Ch 401500 (2007.5MHz)
	

Ant. TX 3

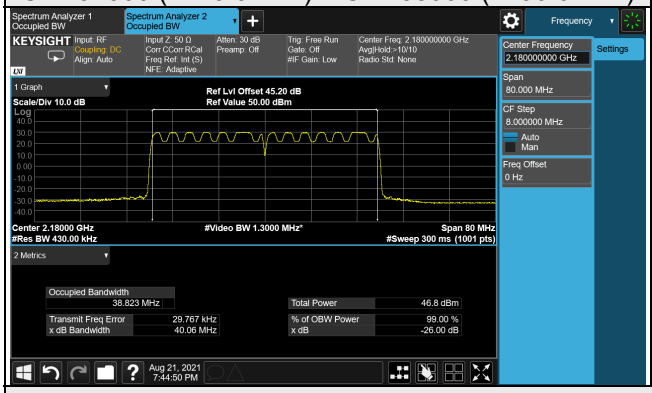
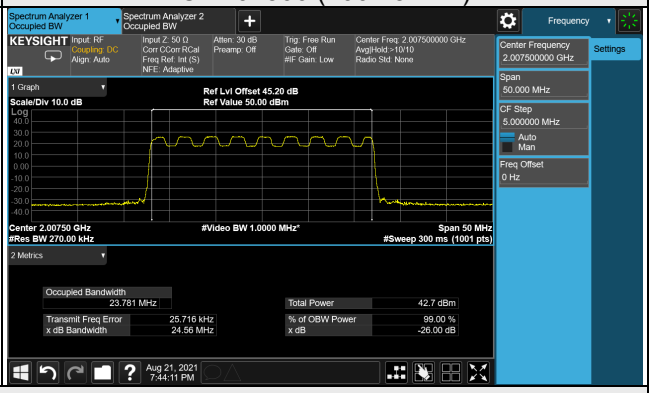
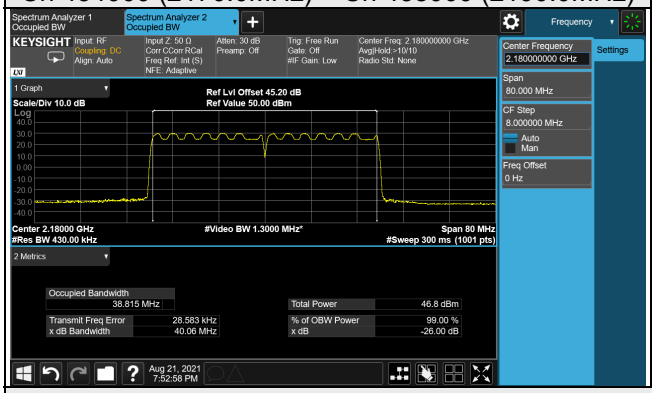
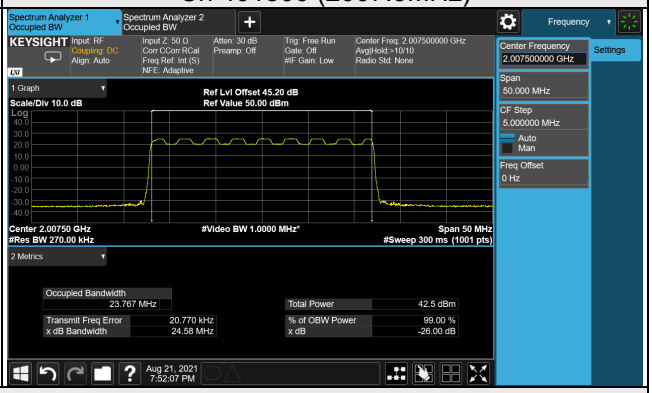
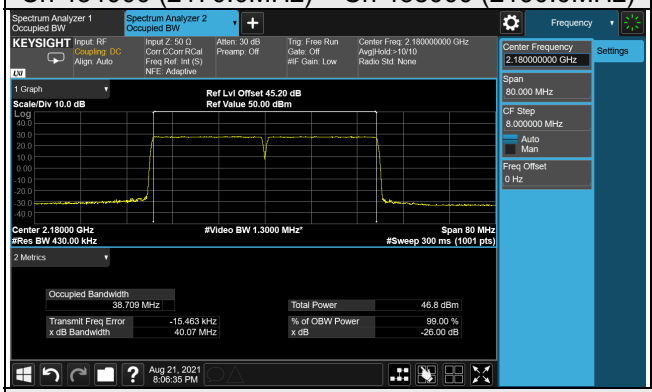
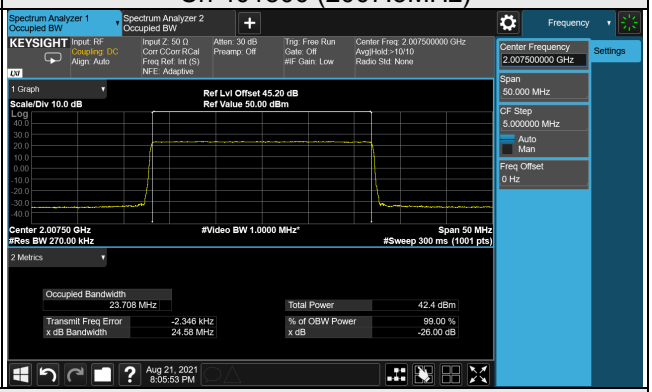
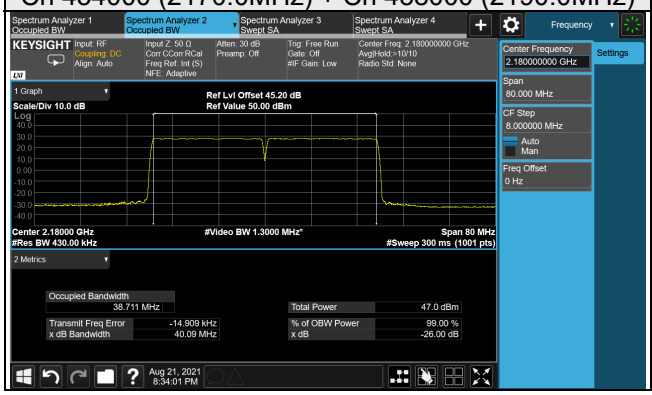
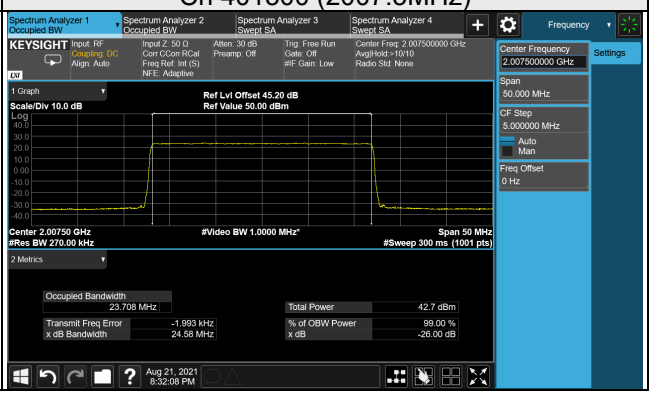
Spectrum Plot of Worst Value	
QPSK	
Ch 438000 (2190.0MHz)	Ch 401500 (2007.5MHz)
	
16QAM	
Ch 438000 (2190.0MHz)	Ch 401500 (2007.5MHz)
	
64QAM	
Ch 438000 (2190.0MHz)	Ch 401500 (2007.5MHz)
	
256QAM	
Ch 438000 (2190.0MHz)	Ch 401500 (2007.5MHz)
	

4.2.5 Test Results (Mode 6)

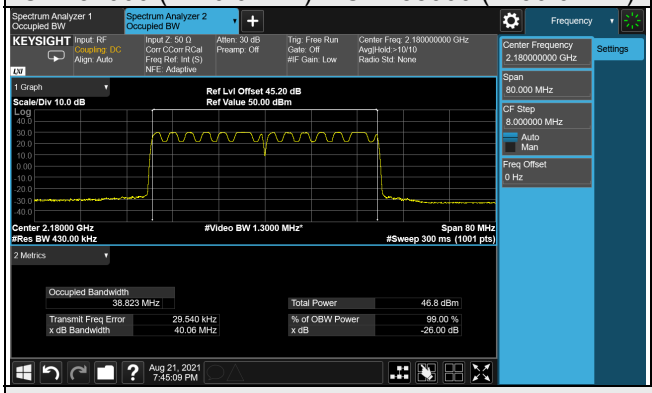
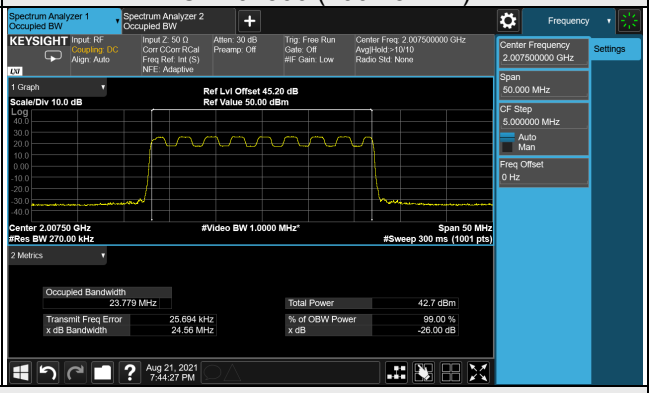
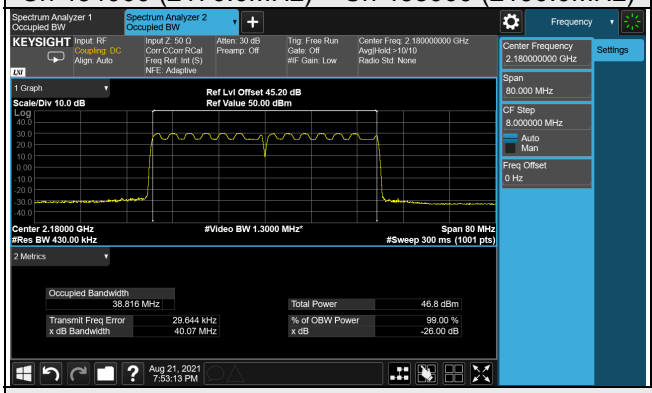
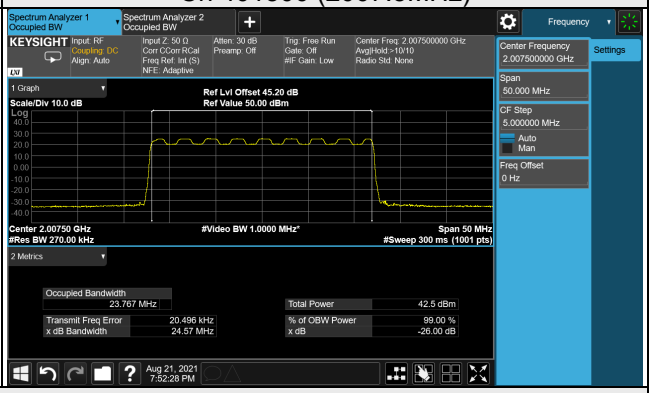
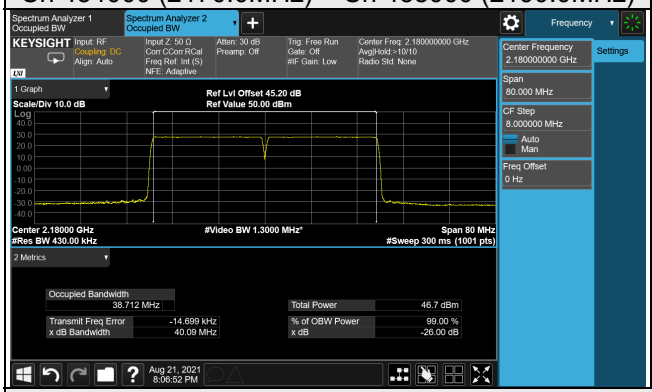
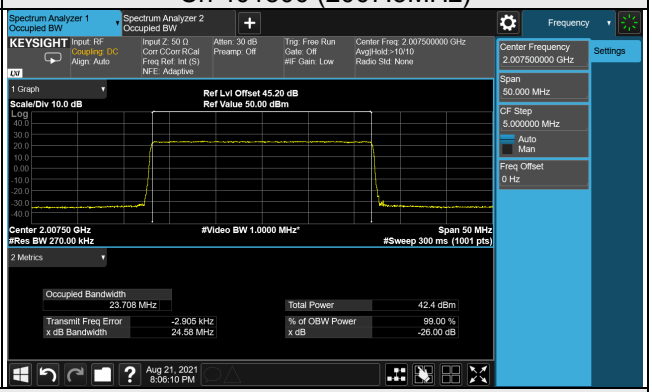
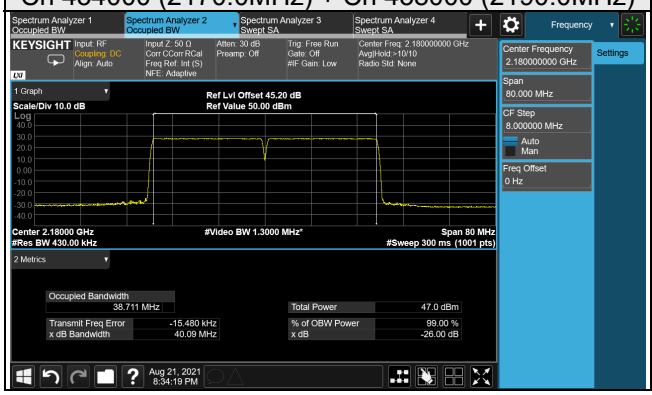
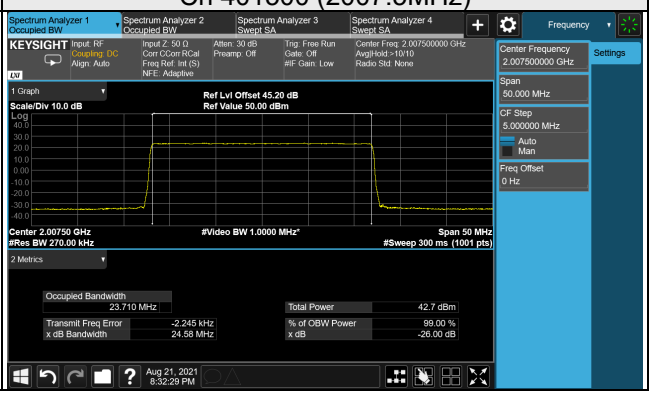
Band n66 20MHz(30W)+20MHz(30W)_Ch 434000 (2170.0MHz) + Ch 438000 (2190.0MHz) +
Band n70 25MHz(20W)_Ch 401500 (2007.5MHz)

Channel Number	Freq. (MHz)	OCP 99 Bandwidth (MHz)															
		Ant. TX0				Ant. TX1				Ant. TX2				Ant. TX3			
		QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
n66 434000+ 438000	2170+ 2190	38.82	38.82	38.71	38.71	38.83	38.82	38.71	38.71	38.83	38.82	38.71	38.71	38.82	38.82	38.71	38.71
n70 401500	2007.5	23.78	23.77	23.71	23.71	23.78	23.77	23.71	23.71	23.78	23.77	23.71	23.71	23.78	23.77	23.71	23.71
Total		62.60	62.59	62.42	62.42	62.61	62.59	62.42	62.42	62.61	62.59	62.42	62.42	62.60	62.59	62.42	62.42

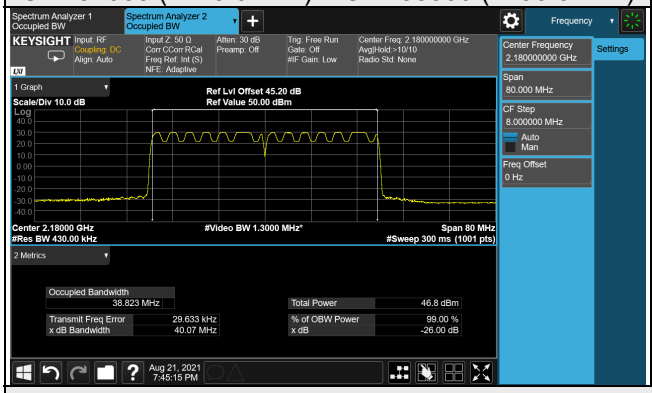
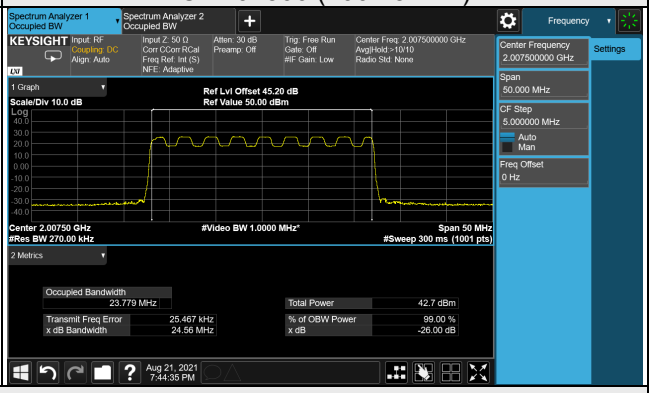
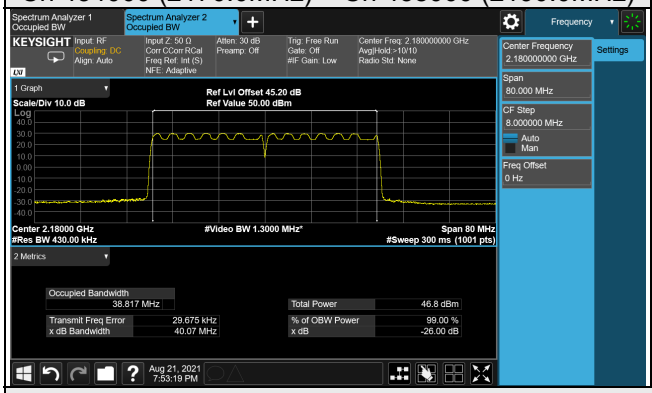
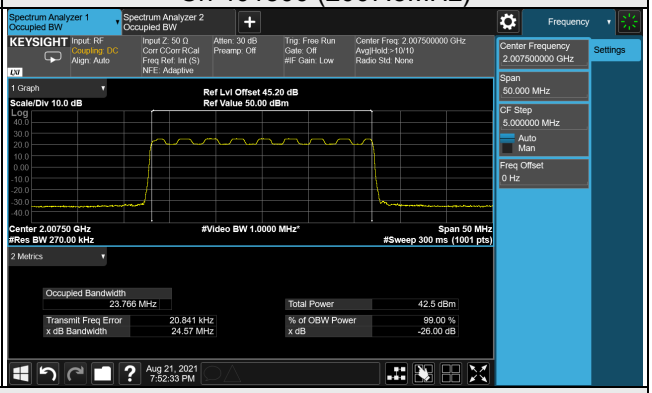
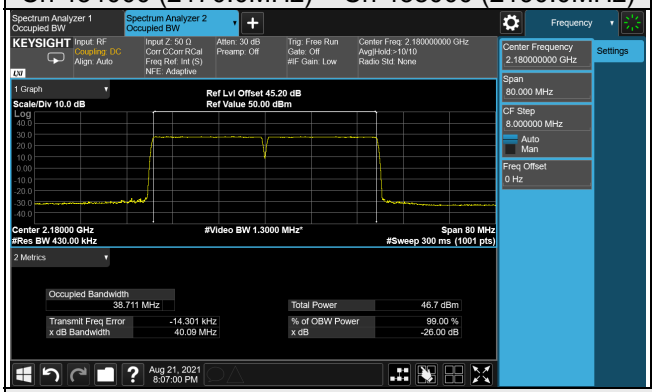
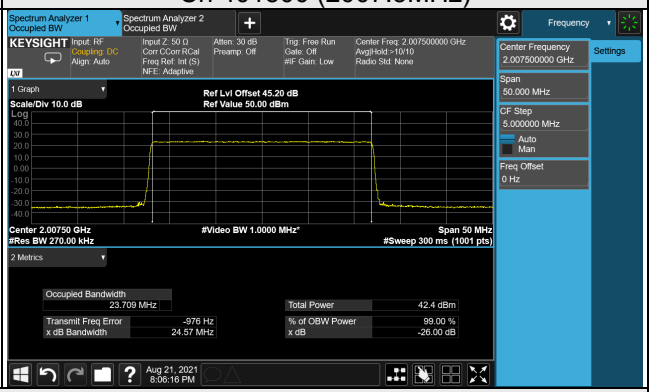
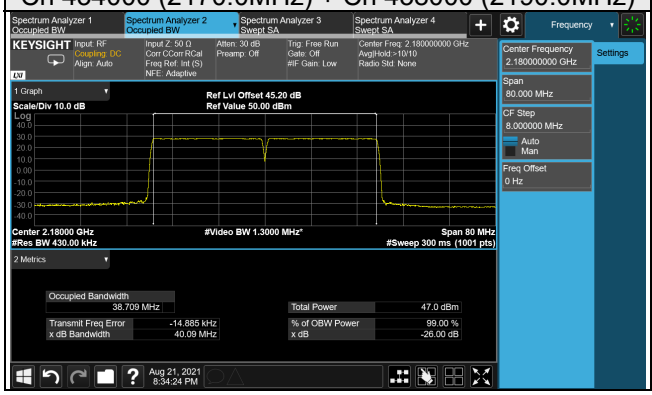
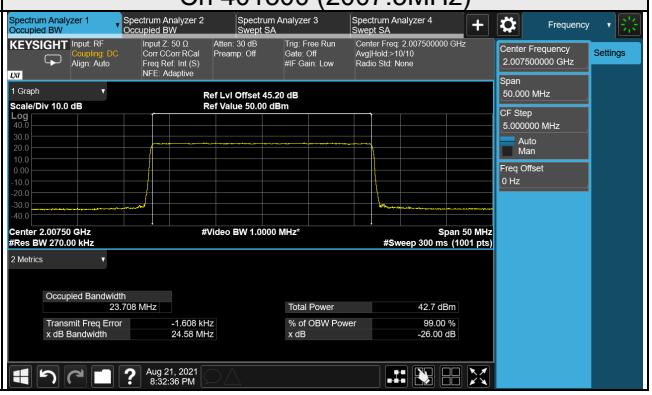
Ant. TX 0

Spectrum Plot of Worst Value	
QPSK	
Ch 434000 (2170.0MHz) + Ch 438000 (2190.0MHz)	Ch 401500 (2007.5MHz)
	
16QAM	
Ch 434000 (2170.0MHz) + Ch 438000 (2190.0MHz)	Ch 401500 (2007.5MHz)
	
64QAM	
Ch 434000 (2170.0MHz) + Ch 438000 (2190.0MHz)	Ch 401500 (2007.5MHz)
	
256QAM	
Ch 434000 (2170.0MHz) + Ch 438000 (2190.0MHz)	Ch 401500 (2007.5MHz)
	

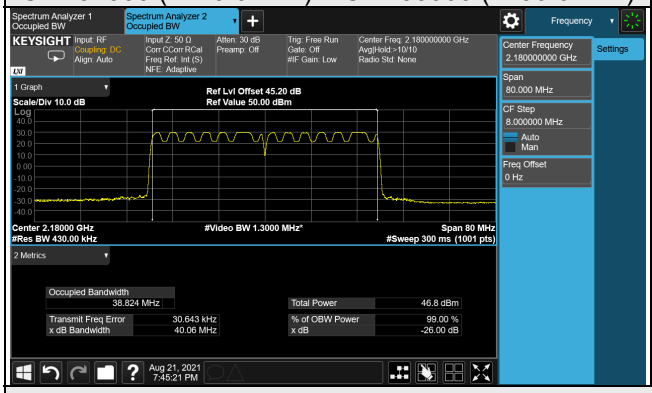
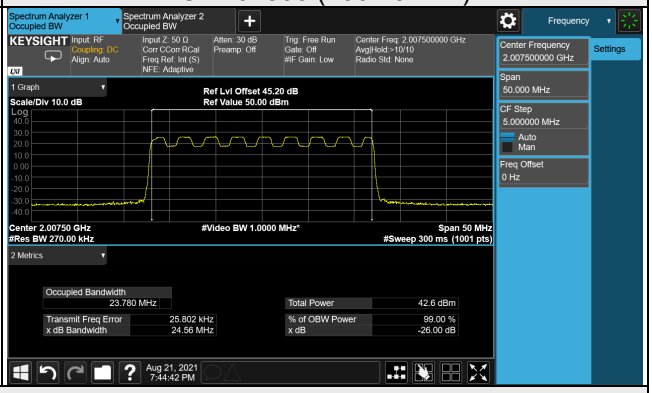
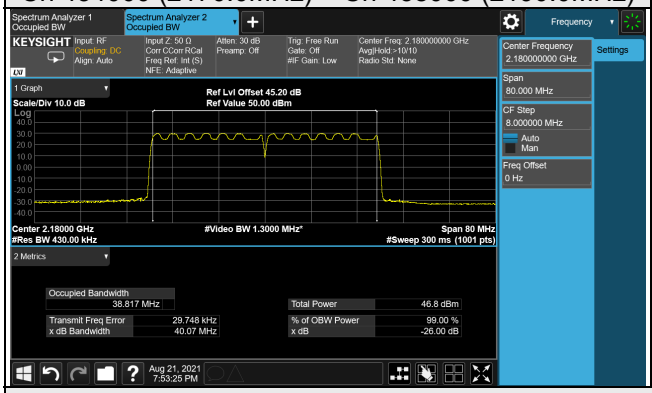
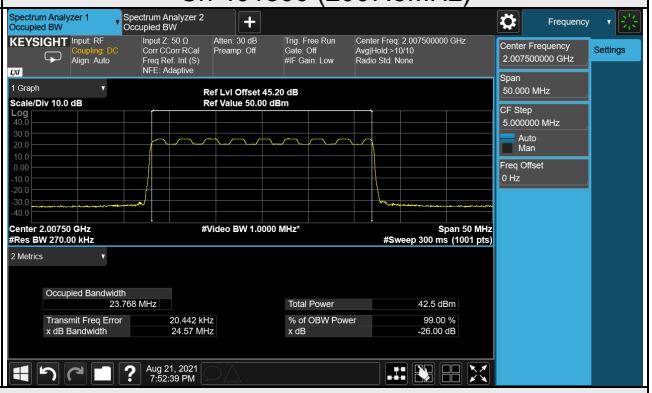
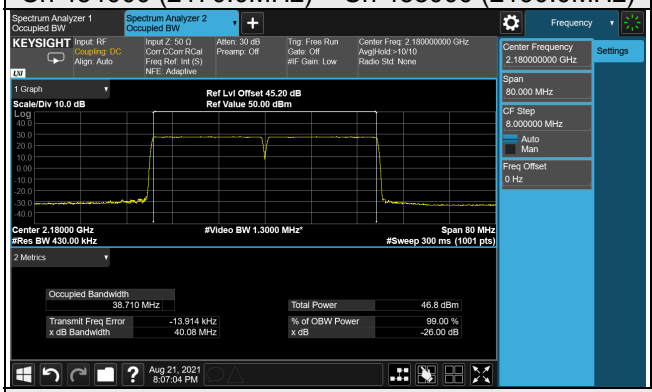
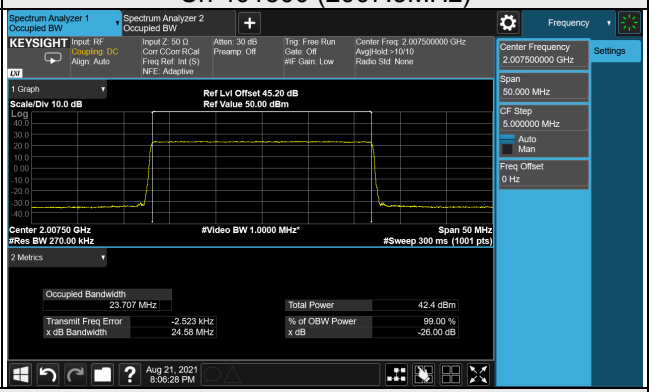
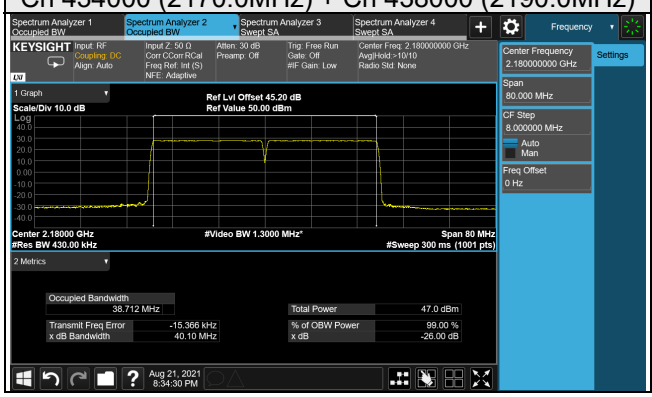
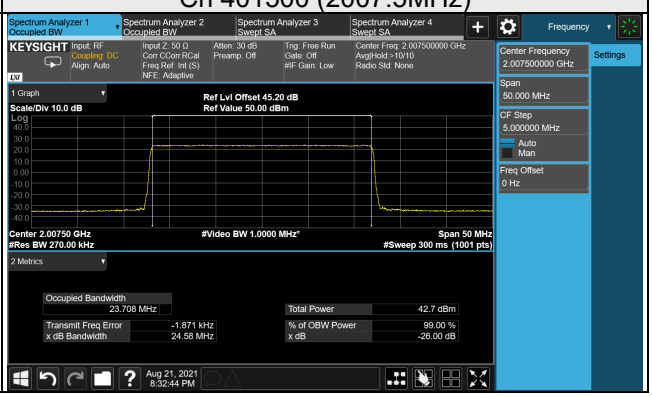
Ant. TX 1

Spectrum Plot of Worst Value	
QPSK	
Ch 434000 (2170.0MHz) + Ch 438000 (2190.0MHz)	Ch 401500 (2007.5MHz)
	
16QAM	
Ch 434000 (2170.0MHz) + Ch 438000 (2190.0MHz)	Ch 401500 (2007.5MHz)
	
64QAM	
Ch 434000 (2170.0MHz) + Ch 438000 (2190.0MHz)	Ch 401500 (2007.5MHz)
	
256QAM	
Ch 434000 (2170.0MHz) + Ch 438000 (2190.0MHz)	Ch 401500 (2007.5MHz)
	

Ant. TX 2

Spectrum Plot of Worst Value	
QPSK	
Ch 434000 (2170.0MHz) + Ch 438000 (2190.0MHz)	Ch 401500 (2007.5MHz)
	
16QAM	
Ch 434000 (2170.0MHz) + Ch 438000 (2190.0MHz)	Ch 401500 (2007.5MHz)
	
64QAM	
Ch 434000 (2170.0MHz) + Ch 438000 (2190.0MHz)	Ch 401500 (2007.5MHz)
	
256QAM	
Ch 434000 (2170.0MHz) + Ch 438000 (2190.0MHz)	Ch 401500 (2007.5MHz)
	

Ant. TX 3

Spectrum Plot of Worst Value	
QPSK	
Ch 434000 (2170.0MHz) + Ch 438000 (2190.0MHz)	Ch 401500 (2007.5MHz)
	
16QAM	
Ch 434000 (2170.0MHz) + Ch 438000 (2190.0MHz)	Ch 401500 (2007.5MHz)
	
64QAM	
Ch 434000 (2170.0MHz) + Ch 438000 (2190.0MHz)	Ch 401500 (2007.5MHz)
	
256QAM	
Ch 434000 (2170.0MHz) + Ch 438000 (2190.0MHz)	Ch 401500 (2007.5MHz)
	

4.2.6 Test Results (Mode 7)

Band n66 20MHz(20W)+20MHz(20W)_Ch 434000 (2170.0MHz) + Ch 438000 (2190.0MHz) +
Band n70 25MHz(40W)_Ch 401500 (2007.5MHz)

Channel Number	Freq. (MHz)	OCP 99 Bandwidth (MHz)															
		Ant. TX0				Ant. TX1				Ant. TX2				Ant. TX3			
		QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
n66 434000+ 438000	2170+ 2190	38.82	38.82	38.71	38.71	38.82	38.82	38.71	38.71	38.82	38.82	38.71	38.71	38.82	38.82	38.71	38.71
n70 401500	2007.5	23.78	23.77	23.71	23.71	23.78	23.77	23.71	23.71	23.78	23.77	23.71	23.71	23.78	23.77	23.71	23.71
Total		62.60	62.59	62.42	62.42	62.60	62.59	62.42	62.42	62.60	62.59	62.42	62.42	62.60	62.59	62.42	62.42