

FCC Test Report (PART 27)

Report No.: RFBEOO-WTW-P21020573

FCC ID: MAD-G2021-49-01B

Test Model: G2021-49-01B

Received Date: Mar. 31, 2021

Test Date: May 11 ~ Jun. 24, 2021

Issued Date: Jul. 05, 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
Lin Kou Laboratories

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



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Release Control Record

Issue No.	Description	Date Issued
RFBEOO-WTW-P21020573	Original release.	Jul. 05, 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: May 11 ~ Jun. 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:** Jul. 05, 2021
Pettie Chen / Senior Specialist

Approved by : Bruce Chen, **Date:** Jul. 05, 2021
Bruce Chen / Senior Project Engineer

2 Summary of Test Results

Applied Standard: FCC Part 27, Subpart L & Part 2			
FCC Clause	Test Item	Result	Remarks
2.1046 27.50(d)(2)	Equivalent Isotropically radiated power	PASS	Meet the requirement of limit.
2.1047	Modulation characteristics	PASS	Meet the requirement
2.1055 27.54	Frequency Stability Stay with the authorized bands of operation	PASS	Meet the requirement of limit.
2.1049 27.53	Occupied Bandwidth	PASS	Meet the requirement of limit.
27.53(h)	Band Edge Measurements	PASS	Meet the requirement of limit.
27.50(d)(5)	Peak To Average Ratio	PASS	Meet the requirement of limit.
2.1051 27.53(h)	Conducted Spurious Emissions	PASS	Meet the requirement of limit.
2.1053 27.53(h)	Radiated Spurious Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -49.33dB at 5018.75MHz.

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	MY54450088	July 06, 2020	July 05, 2021
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. 09, 2020	Jun. 08, 2021
			Jun. 08, 2021	Jun. 07, 2022
RF Cable	EMC104-SM-SM-6000	210201	May 13, 2021	May 12, 2022
Spectrum Analyzer Keysight	N9030A	MY54490679	Jul. 13, 2020	Jul. 12, 2021
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.
3. Tested Date: Jun. 16 ~ Jun. 22, 2021

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. 06, 2020	Jun. 05, 2021
			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.
- . The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
- . Tested Date: May 11 to Jun. 24, 2021

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	

Max. EIRP Power	Band n66	ANT0	Channel Bandwidth: 5MHz	955.82 W/MHz (16QAM)			
		ANT1					
		ANT2					
		ANT3					
		ANT0	Channel Bandwidth: 10MHz	769.77 W/MHz (16QAM)			
		ANT1					
		ANT2					
		ANT3					
		ANT0	Channel Bandwidth: 15MHz	588.16 W/MHz (16QAM)			
		ANT1					
		ANT2					
		ANT3					
		ANT0	Channel Bandwidth: 20MHz	465.69 W/MHz (16QAM)			
		ANT1					
		ANT2					
		ANT3					
	Band n70	ANT0	Channel Bandwidth: 5MHz	1502.68 W/MHz (16QAM)			
		ANT1					
		ANT2					
		ANT3					
		ANT0	Channel Bandwidth: 10MHz	781.20 W/MHz (16QAM)			
		ANT1					
		ANT2					
		ANT3					
		ANT0	Channel Bandwidth: 15MHz	620.41 W/MHz (16QAM)			
		ANT1					
		ANT2					
		ANT3					
		ANT0	Channel Bandwidth: 20MHz	476.24 W/MHz (16QAM)			
		ANT1					
		ANT2					
		ANT3					
Emission Designator				QPSK	16QAM	64QAM	256QAM
	Band n66	Channel Bandwidth: 5MHz	ANT0	4M48G7D	4M47D7W	4M46D7W	4M46D7W
			ANT1	4M47G7D	4M47D7W	4M46D7W	4M46D7W
			ANT2	4M48G7D	4M47D7W	4M46D7W	4M46D7W
			ANT3	4M48G7D	4M48D7W	4M46D7W	4M46D7W
		Channel Bandwidth: 10MHz	ANT0	9M16G7D	9M24D7W	9M29D7W	9M28D7W
			ANT1	9M16G7D	9M24D7W	9M29D7W	9M28D7W
			ANT2	9M16G7D	9M24D7W	9M29D7W	9M28D7W
			ANT3	9M16G7D	9M24D7W	9M29D7W	9M28D7W
		Channel Bandwidth: 15MHz	ANT0	14M1G7D	14M1D7W	14M1D7W	14M1D7W
			ANT1	14M1G7D	14M1D7W	14M1D7W	14M1D7W
			ANT2	14M1G7D	14M1D7W	14M1D7W	14M1D7W
			ANT3	14M1G7D	14M1D7W	14M1D7W	14M1D7W
		Channel Bandwidth: 20MHz	ANT0	18M9G7D	18M9D7W	18M9D7W	18M9D7W
			ANT1	18M9G7D	18M9D7W	18M9D7W	18M9D7W
			ANT2	18M9G7D	18M9D7W	18M9D7W	18M9D7W
			ANT3	18M9G7D	18M9D7W	18M9D7W	18M9D7W

Emission Designator				QPSK	16QAM	64QAM	256QAM
	Band n70	Channel Bandwidth: 5MHz	ANT0	4M48G7D	4M48D7W	4M46D7W	4M46D7W
			ANT1	4M48G7D	4M48D7W	4M46D7W	4M46D7W
			ANT2	4M48G7D	4M48D7W	4M46D7W	4M46D7W
			ANT3	4M48G7D	4M48D7W	4M48D7W	4M46D7W
		Channel Bandwidth: 10MHz	ANT0	9M16G7D	9M24D7W	9M29D7W	9M28D7W
			ANT1	9M16G7D	9M24D7W	9M29D7W	9M28D7W
			ANT2	9M16G7D	9M24D7W	9M29D7W	9M28D7W
			ANT3	9M16G7D	9M24D7W	9M29D7W	9M28D7W
		Channel Bandwidth: 15MHz	ANT0	14M1G7D	14M1D7W	14M1D7W	14M1D7W
			ANT1	14M1G7D	14M1D7W	14M1D7W	14M1D7W
			ANT2	14M1G7D	14M1D7W	14M1D7W	14M1D7W
			ANT3	14M1G7D	14M1D7W	14M1D7W	14M1D7W
		Channel Bandwidth: 20MHz	ANT0	18M9G7D	18M9D7W	18M9D7W	18M9D7W
			ANT1	18M9G7D	18M9D7W	18M9D7W	18M9D7W
			ANT2	18M9G7D	18M9D7W	18M9D7W	18M9D7W
			ANT3	18M9G7D	18M9D7W	18M9D7W	18M9D7W
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						

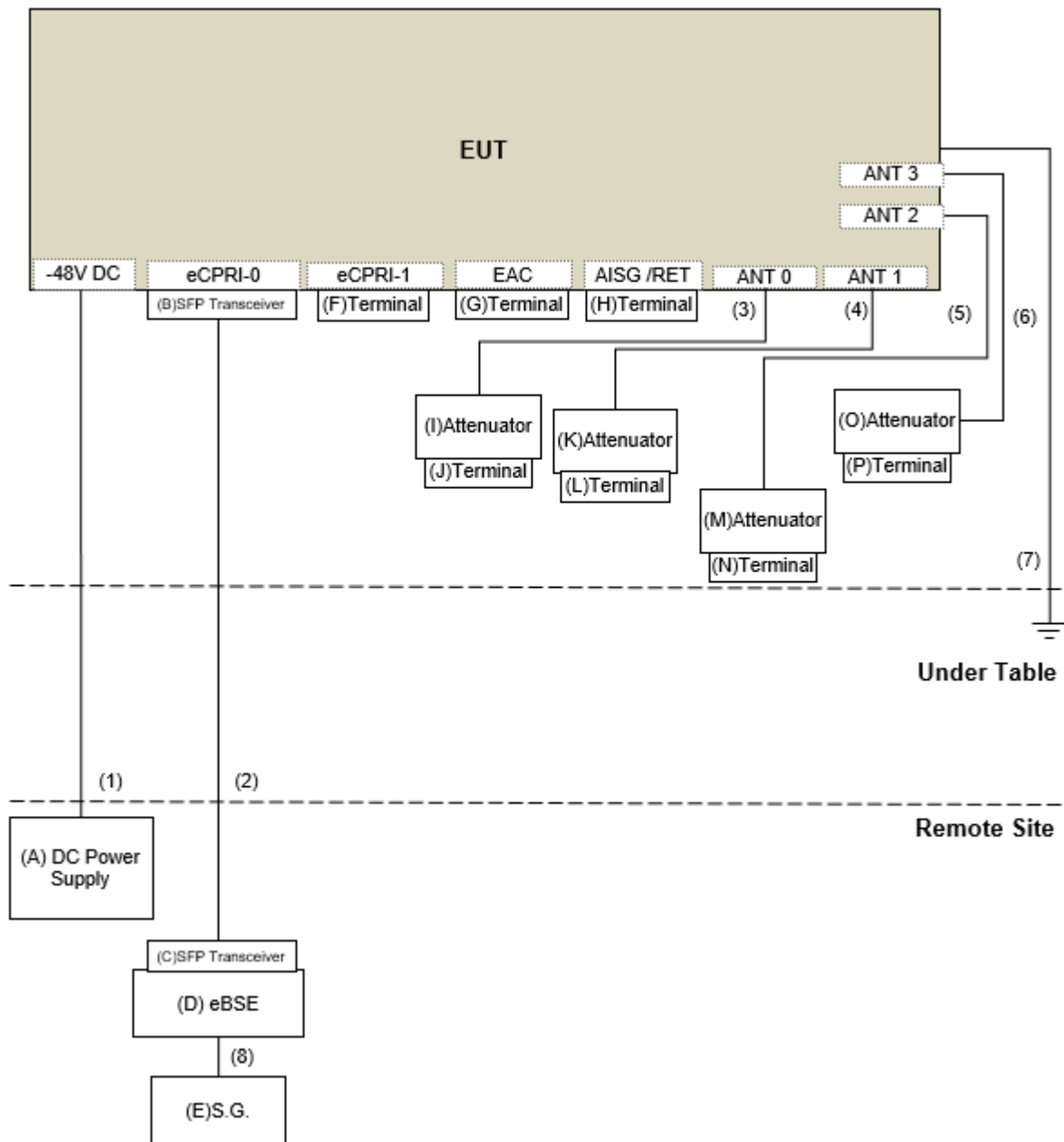
Note:

1. 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

2. 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.
3. 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.
4. 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

Band n66:

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

Test Item	Available Frequency (MHz)	Tested Channel	Channel Bandwidth	Modulation
Output Power	2112.5 to 2197.5	Ch 422500 (2112.5MHz), Ch 431000 (2155.0MHz), Ch 439500 (2197.5MHz)	5MHz Single Carrier	QPSK, 16QAM, 64QAM, 256QAM
		Ch 423000 (2115.0MHz), Ch 431000 (2155.0MHz), Ch 439000 (2195.0MHz)	10MHz Single Carrier	QPSK, 16QAM, 64QAM, 256QAM
		Ch 423500 (2117.5MHz), Ch 431000 (2155.0MHz), Ch 438500 (2192.5MHz)	15MHz Single Carrier	QPSK, 16QAM, 64QAM, 256QAM
		Ch 424000 (2120.0MHz), Ch 431000 (2155.0MHz), Ch 438000 (2190.0MHz)	20MHz Single Carrier	QPSK, 16QAM, 64QAM, 256QAM
Modulation Characteristics	2112.5 to 2197.5	Ch 431000 (2155.0MHz)	5MHz Single Carrier	QPSK, 16QAM, 64QAM, 256QAM
		Ch 431000 (2155.0MHz)	10MHz Single Carrier	QPSK, 16QAM, 64QAM, 256QAM
		Ch 431000 (2155.0MHz)	15MHz Single Carrier	QPSK, 16QAM, 64QAM, 256QAM
		Ch 431000 (2155.0MHz)	20MHz Single Carrier	QPSK, 16QAM, 64QAM, 256QAM
Frequency Stability	2112.5 to 2197.5	Ch 422500 (2112.5MHz), Ch 439500 (2197.5MHz)	5MHz Single Carrier	QPSK
		Ch 423000 (2115.0MHz), Ch 439000 (2195.0MHz)	10MHz Single Carrier	QPSK
		Ch 423500 (2117.5MHz), Ch 438500 (2192.5MHz)	15MHz Single Carrier	QPSK
		Ch 424000 (2120.0MHz), Ch 438000 (2190.0MHz)	20MHz Single Carrier	QPSK
Emission Bandwidth	2112.5 to 2197.5	Ch 422500 (2112.5MHz), Ch 431000 (2155.0MHz), Ch 439500 (2197.5MHz)	5MHz Single Carrier	QPSK, 16QAM, 64QAM, 256QAM
		Ch 423000 (2115.0MHz), Ch 431000 (2155.0MHz), Ch 439000 (2195.0MHz)	10MHz Single Carrier	QPSK, 16QAM, 64QAM, 256QAM
		Ch 423500 (2117.5MHz), Ch 431000 (2155.0MHz), Ch 438500 (2192.5MHz)	15MHz Single Carrier	QPSK, 16QAM, 64QAM, 256QAM
		Ch 424000 (2120.0MHz), Ch 431000 (2155.0MHz), Ch 438000 (2190.0MHz)	20MHz Single Carrier	QPSK, 16QAM, 64QAM, 256QAM
Channel Edge	2112.5 to 2197.5	Ch 422500 (2112.5MHz), Ch 439500 (2197.5MHz)	5MHz Single Carrier	QPSK
		Ch 423000 (2115.0MHz), Ch 439000 (2195.0MHz)	10MHz Single Carrier	QPSK
		Ch 423500 (2117.5MHz), Ch 438500 (2192.5MHz)	15MHz Single Carrier	QPSK
		Ch 424000 (2120.0MHz), Ch 438000 (2190.0MHz)	20MHz Single Carrier	QPSK

Test Item	Available Frequency (MHz)	Tested Channel	Channel Bandwidth	Modulation
Peak To Average Ratio	2112.5 to 2197.5	Ch 422500 (2112.5MHz), Ch 431000 (2155.0MHz), Ch 439500 (2197.5MHz)	5MHz Single Carrier	QPSK, 16QAM, 64QAM, 256QAM
		Ch 423000 (2115.0MHz), Ch 431000 (2155.0MHz), Ch 439000 (2195.0MHz)	10MHz Single Carrier	QPSK, 16QAM, 64QAM, 256QAM
		Ch 423500 (2117.5MHz), Ch 431000 (2155.0MHz), Ch 438500 (2192.5MHz)	15MHz Single Carrier	QPSK, 16QAM, 64QAM, 256QAM
		Ch 424000 (2120.0MHz), Ch 431000 (2155.0MHz), Ch 438000 (2190.0MHz)	20MHz Single Carrier	QPSK, 16QAM, 64QAM, 256QAM
Conducted Emission	2112.5 to 2197.5	Ch 422500 (2112.5MHz), Ch 431000 (2155.0MHz), Ch 439500 (2197.5MHz)	5MHz Single Carrier	QPSK
		Ch 423000 (2115.0MHz), Ch 431000 (2155.0MHz), Ch 439000 (2195.0MHz)	10MHz Single Carrier	QPSK
		Ch 423500 (2117.5MHz), Ch 431000 (2155.0MHz), Ch 438500 (2192.5MHz)	15MHz Single Carrier	QPSK
		Ch 424000 (2120.0MHz), Ch 431000 (2155.0MHz), Ch 438000 (2190.0MHz)	20MHz Single Carrier	QPSK
Radiated Emission Below 1GHz	2112.5 to 2197.5	Ch 431000 (2155.0MHz)	20MHz Single Carrier	QPSK
Radiated Emission Above 1GHz	2112.5 to 2197.5	Ch 422500 (2112.5MHz), Ch 431000 (2155.0MHz), Ch 439500 (2197.5MHz)	5MHz Single Carrier	QPSK
		Ch 424000 (2120.0MHz), Ch 431000 (2155.0MHz), Ch 438000 (2190.0MHz)	20MHz Single Carrier	QPSK

NOTE:

1. All supported modulation types were evaluated. The Worst case of QPSK was selected. Therefore, the Frequency Stability, Conducted Emission and Radiated Emission were performed under QPSK mode only.

Band n70:

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

Test Item	Available Frequency (MHz)	Tested Channel	Channel Bandwidth	Modulation
Output Power	1997.5 to 2017.5	Ch 399500 (1997.5MHz), Ch 401500 (2007.5MHz), Ch 403500 (2017.5MHz)	5MHz Single Carrier	QPSK, 16QAM, 64QAM, 256QAM
		Ch 400000 (2000.0MHz), Ch 401500 (2007.5MHz), Ch 403000 (2015.0MHz)	10MHz Single Carrier	QPSK, 16QAM, 64QAM, 256QAM
		Ch 400500 (2002.5MHz), Ch 401500 (2007.5MHz), Ch 402500 (2012.5MHz)	15MHz Single Carrier	QPSK, 16QAM, 64QAM, 256QAM
		Ch 401000 (2005.0MHz), Ch 401500 (2007.5MHz), Ch 402000 (2010.0MHz)	20MHz Single Carrier	QPSK, 16QAM, 64QAM, 256QAM
Modulation Characteristics	1997.5 to 2017.5	Ch 401500 (2007.5MHz)	5MHz Single Carrier	QPSK, 16QAM, 64QAM, 256QAM
		Ch 401500 (2007.5MHz)	10MHz Single Carrier	QPSK, 16QAM, 64QAM, 256QAM
		Ch 401500 (2007.5MHz)	15MHz Single Carrier	QPSK, 16QAM, 64QAM, 256QAM
		Ch 401500 (2007.5MHz)	20MHz Single Carrier	QPSK, 16QAM, 64QAM, 256QAM
Frequency Stability	1997.5 to 2017.5	Ch 399500 (1997.5MHz), Ch 403500 (2017.5MHz)	5MHz Single Carrier	QPSK
		Ch 400000 (2000.0MHz), Ch 403000 (2015.0MHz)	10MHz Single Carrier	QPSK
		Ch 400500 (2002.5MHz), Ch 402500 (2012.5MHz)	15MHz Single Carrier	QPSK
		Ch 401000 (2005.0MHz), Ch 402000 (2010.0MHz)	20MHz Single Carrier	QPSK
Emission Bandwidth	1997.5 to 2017.5	Ch 399500 (1997.5MHz), Ch 401500 (2007.5MHz), Ch 403500 (2017.5MHz)	5MHz Single Carrier	QPSK, 16QAM, 64QAM, 256QAM
		Ch 400000 (2000.0MHz), Ch 401500 (2007.5MHz), Ch 403000 (2015.0MHz)	10MHz Single Carrier	QPSK, 16QAM, 64QAM, 256QAM
		Ch 400500 (2002.5MHz), Ch 401500 (2007.5MHz), Ch 402500 (2012.5MHz)	15MHz Single Carrier	QPSK, 16QAM, 64QAM, 256QAM
		Ch 401000 (2005.0MHz), Ch 401500 (2007.5MHz), Ch 402000 (2010.0MHz)	20MHz Single Carrier	QPSK, 16QAM, 64QAM, 256QAM
Channel Edge	1997.5 to 2017.5	Ch 399500 (1997.5MHz), Ch 401500 (2007.5MHz), Ch 403500 (2017.5MHz)	5MHz Single Carrier	QPSK
		Ch 400000 (2000.0MHz), Ch 401500 (2007.5MHz), Ch 403000 (2015.0MHz)	10MHz Single Carrier	QPSK
		Ch 400500 (2002.5MHz), Ch 401500 (2007.5MHz), Ch 402500 (2012.5MHz)	15MHz Single Carrier	QPSK
		Ch 401000 (2005.0MHz), Ch 401500 (2007.5MHz), Ch 402000 (2010.0MHz)	20MHz Single Carrier	QPSK

Test Item	Available Frequency (MHz)	Tested Frequency (MHz)	Channel Bandwidth	Modulation
Peak To Average Ratio	1997.5 to 2017.5	Ch 399500 (1997.5MHz), Ch 401500 (2007.5MHz), Ch 403500 (2017.5MHz)	5MHz Single Carrier	QPSK, 16QAM, 64QAM, 256QAM
		Ch 400000 (2000.0MHz), Ch 401500 (2007.5MHz), Ch 403000 (2015.0MHz)	10MHz Single Carrier	QPSK, 16QAM, 64QAM, 256QAM
		Ch 400500 (2002.5MHz), Ch 401500 (2007.5MHz), Ch 402500 (2012.5MHz)	15MHz Single Carrier	QPSK, 16QAM, 64QAM, 256QAM
		Ch 401000 (2005.0MHz), Ch 401500 (2007.5MHz), Ch 402000 (2010.0MHz)	20MHz Single Carrier	QPSK, 16QAM, 64QAM, 256QAM
Conducted Emission	1997.5 to 2017.5	Ch 399500 (1997.5MHz), Ch 401500 (2007.5MHz), Ch 403500 (2017.5MHz)	5MHz Single Carrier	QPSK
		Ch 400000 (2000.0MHz), Ch 401500 (2007.5MHz), Ch 403000 (2015.0MHz)	10MHz Single Carrier	QPSK
		Ch 400500 (2002.5MHz), Ch 401500 (2007.5MHz), Ch 402500 (2012.5MHz)	15MHz Single Carrier	QPSK
		Ch 401000 (2005.0MHz), Ch 401500 (2007.5MHz), Ch 402000 (2010.0MHz)	20MHz Single Carrier	QPSK
Radiated Emission Below 1GHz	1997.5 to 2017.5	Ch 401000 (2005.0MHz)	20MHz Single Carrier	QPSK
Radiated Emission Above 1GHz	1997.5 to 2017.5	Ch 399500 (1997.5MHz), Ch 401500 (2007.5MHz), Ch 403500 (2017.5MHz)	5MHz Single Carrier	QPSK
		Ch 401000 (2005.0MHz), Ch 401500 (2007.5MHz), Ch 402000 (2010.0MHz)	20MHz Single Carrier	QPSK

NOTE:

1. All supported modulation types were evaluated. The Worst case of QPSK was selected. Therefore, the Frequency Stability, Conducted Emission and Radiated Emission were performed under QPSK mode only.

Test Condition:

Test Item	Environmental Conditions	Input Power (System)	Tested By
Output Power	25deg. C, 63%RH	120Vac, 60Hz	Charlie Yang
Modulation characteristics	25deg. C, 63%RH	120Vac, 60Hz	Charlie Yang
Frequency Stability	25deg. C, 63%RH	120Vac, 60Hz	Charlie Yang
Emission Bandwidth	25deg. C, 63%RH	120Vac, 60Hz	Charlie Yang
Band Edge	25deg. C, 63%RH	120Vac, 60Hz	Charlie Yang
Peak To Average Ratio	25deg. C, 63%RH	120Vac, 60Hz	Charlie Yang
Conducted Emission	25deg. C, 63%RH	120Vac, 60Hz	Charlie Yang
Radiated Emission	25deg. C, 75%RH	120Vac, 60Hz	Tom Yang Ryan Du

Note: Above input power with the AC/DC PSU used during testing.

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 and references:

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 / ERP 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:

$$\begin{aligned} \text{EIRP} &= \text{PMeas} + \text{GT} \\ \text{ERP} &= \text{PMeas} + \text{GT} - 2.15 \end{aligned}$$

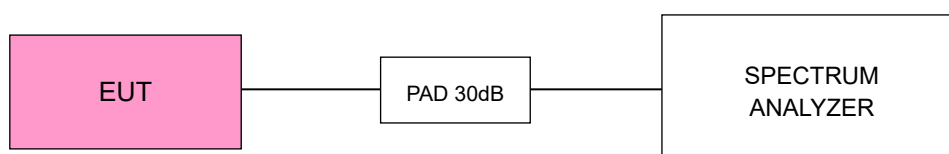
Where ERP or EIRP effective radiated power or equivalent isotropically radiated power, respectively (expressed in the same units as PMeas, e.g., dBm or dBW)

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

Band n66 Single Carrier

5MHz

Channel Number	Freq. (MHz)	QPSK									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Gain	EIRP (dBm/MHz)	EIRP (W/MHz)	Limit (W/MHz)	
		Ant.0	Ant.1	Ant.2	Ant.3	Total					
422500	2112.5	38.96	38.78	38.48	38.32	44.66	15	59.66	925.29	1640.00	PASS
431000	2155	38.85	38.70	38.54	38.57	44.69	15	59.69	930.54	1640.00	PASS
439500	2197.5	38.70	38.85	38.57	38.54	44.69	15	59.69	930.54	1640.00	PASS

10MHz

Channel Number	Freq. (MHz)	QPSK									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Gain	EIRP (dBm/MHz)	EIRP (W/MHz)	Limit (W/MHz)	
		Ant.0	Ant.1	Ant.2	Ant.3	Total					
423000	2115	37.31	37.58	37.39	37.26	43.41	15	58.41	693.00	1640.00	PASS
431000	2155	37.08	37.34	37.14	37.08	43.18	15	58.18	657.95	1640.00	PASS
439000	2195	37.42	37.47	37.16	37.17	43.33	15	58.33	680.44	1640.00	PASS

15MHz

Channel Number	Freq. (MHz)	QPSK									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Gain	EIRP (dBm/MHz)	EIRP (W/MHz)	Limit (W/MHz)	
		Ant.0	Ant.1	Ant.2	Ant.3	Total					
423500	2117.5	35.47	35.54	35.30	35.35	41.44	15	56.44	440.21	1640.00	PASS
431000	2155	35.35	35.39	35.31	35.22	41.34	15	56.34	430.38	1640.00	PASS
438500	2192.5	35.34	35.57	35.17	35.24	41.35	15	56.35	431.84	1640.00	PASS

20MHz

Channel Number	Freq. (MHz)	QPSK									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Gain	EIRP (dBm/MHz)	EIRP (W/MHz)	Limit (W/MHz)	
		Ant.0	Ant.1	Ant.2	Ant.3	Total					
424000	2120	34.30	34.40	34.12	34.19	40.27	15	55.27	336.85	1640.00	PASS
431000	2155	34.25	34.28	34.29	34.11	40.25	15	55.25	335.25	1640.00	PASS
438000	2190	34.29	34.39	34.02	34.06	40.21	15	55.21	332.15	1640.00	PASS

5MHz

Channel Number	Freq. (MHz)	16QAM									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Gain	EIRP (dBm/MHz)	EIRP (W/MHz)	Limit (W/MHz)	
		Ant.0	Ant.1	Ant.2	Ant.3	Total					
422500	2112.5	38.84	38.78	38.74	38.75	44.80	15	59.80	954.99	1640.00	PASS
431000	2155	38.87	38.80	38.66	38.80	44.80	15	59.80	954.99	1640.00	PASS
439500	2197.5	38.90	38.82	38.61	38.70	44.78	15	59.78	950.50	1640.00	PASS

10MHz

Channel Number	Freq. (MHz)	16QAM									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Gain	EIRP (dBm/MHz)	EIRP (W/MHz)	Limit (W/MHz)	
		Ant.0	Ant.1	Ant.2	Ant.3	Total					
423000	2115	37.86	37.78	37.72	37.69	43.78	15	58.78	755.72	1640.00	PASS
431000	2155	37.74	37.92	37.88	37.83	43.86	15	58.86	769.77	1640.00	PASS
439000	2195	37.78	37.70	37.68	37.82	43.77	15	58.77	752.66	1640.00	PASS

15MHz

Channel Number	Freq. (MHz)	16QAM									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Gain	EIRP (dBm/MHz)	EIRP (W/MHz)	Limit (W/MHz)	
		Ant.0	Ant.1	Ant.2	Ant.3	Total					
423500	2117.5	36.85	36.88	36.48	36.47	42.69	15	57.69	588.16	1640.00	PASS
431000	2155	36.69	36.79	36.55	36.51	42.66	15	57.66	583.05	1640.00	PASS
438500	2192.5	36.51	36.83	36.26	36.51	42.55	15	57.55	569.22	1640.00	PASS

20MHz

Channel Number	Freq. (MHz)	16QAM									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Gain	EIRP (dBm/MHz)	EIRP (W/MHz)	Limit (W/MHz)	
		Ant.0	Ant.1	Ant.2	Ant.3	Total					
424000	2120	35.76	35.63	35.62	35.63	41.68	15	56.68	465.69	1640.00	PASS
431000	2155	35.53	35.70	35.67	35.55	41.63	15	56.63	460.65	1640.00	PASS
438000	2190	35.62	35.67	35.57	35.70	41.66	15	56.66	463.54	1640.00	PASS

5MHz

Channel Number	Freq. (MHz)	64QAM									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Gain	EIRP (dBm/MHz)	EIRP (W/MHz)	Limit (W/MHz)	
		Ant.0	Ant.1	Ant.2	Ant.3	Total					
422500	2112.5	38.68	38.67	38.70	38.56	44.67	15	59.67	927.56	1640.00	PASS
431000	2155	38.61	38.76	38.48	38.62	44.64	15	59.64	920.29	1640.00	PASS
439500	2197.5	38.55	38.62	38.59	38.41	44.56	15	59.56	904.45	1640.00	PASS

10MHz

Channel Number	Freq. (MHz)	64QAM									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Gain	EIRP (dBm/MHz)	EIRP (W/MHz)	Limit (W/MHz)	
		Ant.0	Ant.1	Ant.2	Ant.3	Total					
423000	2115	37.52	37.53	37.47	37.28	43.47	15	58.47	703.36	1640.00	PASS
431000	2155	37.19	37.41	37.40	37.57	43.42	15	58.42	694.26	1640.00	PASS
439000	2195	37.36	37.33	37.43	37.27	43.37	15	58.37	686.83	1640.00	PASS

15MHz

Channel Number	Freq. (MHz)	64QAM									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Gain	EIRP (dBm/MHz)	EIRP (W/MHz)	Limit (W/MHz)	
		Ant.0	Ant.1	Ant.2	Ant.3	Total					
423500	2117.5	35.58	35.53	35.40	35.39	41.50	15	56.50	446.31	1640.00	PASS
431000	2155	35.35	35.28	35.61	35.42	41.44	15	56.44	440.29	1640.00	PASS
438500	2192.5	35.41	35.40	35.58	35.55	41.51	15	56.51	447.34	1640.00	PASS

20MHz

Channel Number	Freq. (MHz)	64QAM									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Gain	EIRP (dBm/MHz)	EIRP (W/MHz)	Limit (W/MHz)	
		Ant.0	Ant.1	Ant.2	Ant.3	Total					
424000	2120	34.47	34.30	34.50	34.35	40.43	15	55.43	348.85	1640.00	PASS
431000	2155	34.34	34.46	34.48	34.38	40.44	15	55.44	349.62	1640.00	PASS
438000	2190	34.53	34.27	34.51	34.27	40.42	15	55.42	348.13	1640.00	PASS

5MHz

Channel Number	Freq. (MHz)	256QAM									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Gain	EIRP (dBm/MHz)	EIRP (W/MHz)	Limit (W/MHz)	
		Ant.0	Ant.1	Ant.2	Ant.3	Total					
422500	2112.5	38.68	38.72	38.69	38.67	44.71	15	59.71	935.54	1640.00	PASS
431000	2155	38.65	38.68	38.44	38.55	44.60	15	59.60	912.35	1640.00	PASS
439500	2197.5	38.64	38.44	38.38	38.54	44.52	15	59.52	895.72	1640.00	PASS

10MHz

Channel Number	Freq. (MHz)	256QAM									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Gain	EIRP (dBm/MHz)	EIRP (W/MHz)	Limit (W/MHz)	
		Ant.0	Ant.1	Ant.2	Ant.3	Total					
423000	2115	37.42	37.39	37.22	37.44	43.39	15	58.39	690.08	1640.00	PASS
431000	2155	37.36	37.45	37.39	37.21	43.37	15	58.37	687.70	1640.00	PASS
439000	2195	37.50	37.54	37.50	37.22	43.46	15	58.46	701.85	1640.00	PASS

15MHz

Channel Number	Freq. (MHz)	256QAM									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Gain	EIRP (dBm/MHz)	EIRP (W/MHz)	Limit (W/MHz)	
		Ant.0	Ant.1	Ant.2	Ant.3	Total					
423500	2117.5	35.55	35.57	35.52	35.45	41.54	15	56.54	451.16	1640.00	PASS
431000	2155	35.27	35.37	35.43	35.43	41.40	15	56.40	436.12	1640.00	PASS
438500	2192.5	35.41	35.55	35.45	35.28	41.44	15	56.44	440.98	1640.00	PASS

20MHz

Channel Number	Freq. (MHz)	256QAM									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Gain	EIRP (dBm/MHz)	EIRP (W/MHz)	Limit (W/MHz)	
		Ant.0	Ant.1	Ant.2	Ant.3	Total					
424000	2120	34.53	34.49	34.44	34.49	40.51	15	55.51	355.49	1640.00	PASS
431000	2155	34.20	34.42	34.49	34.53	40.43	15	55.43	349.34	1640.00	PASS
438000	2190	34.23	34.33	34.50	34.51	40.41	15	55.41	347.91	1640.00	PASS

Band n70 Single Carrier

5MHz

Channel Number	Freq. (MHz)	QPSK									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Gain	EIRP (dBm /MHz)	EIRP (W/MHz)	Limit (W/MHz)	
		Ant.0	Ant.1	Ant.2	Ant.3	Total					
399500	1997.5	38.58	38.55	38.47	38.30	44.50	17	61.50	1411.55	1640.00	PASS
401500	2007.5	38.63	38.74	38.52	38.37	44.59	17	61.59	1441.37	1640.00	PASS
403500	2017.5	38.62	38.62	38.26	38.34	44.48	17	61.48	1407.22	1640.00	PASS

10MHz

Channel Number	Freq. (MHz)	QPSK									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Gain	EIRP (dBm /MHz)	EIRP (W/MHz)	Limit (W/MHz)	
		Ant.0	Ant.1	Ant.2	Ant.3	Total					
400000	2000	35.56	35.54	35.38	35.32	41.47	17	58.47	703.37	1640.00	PASS
401500	2007.5	35.49	35.61	35.36	35.21	41.44	17	58.44	698.34	1640.00	PASS
403000	2015	35.55	35.55	35.31	35.15	41.41	17	58.41	694.05	1640.00	PASS

15MHz

Channel Number	Freq. (MHz)	QPSK									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Gain	EIRP (dBm /MHz)	EIRP (W/MHz)	Limit (W/MHz)	
		Ant.0	Ant.1	Ant.2	Ant.3	Total					
400500	2002.5	33.76	33.54	33.47	33.33	39.55	17	56.55	451.69	1640.00	PASS
401500	2007.5	33.58	33.74	33.42	33.42	39.56	17	56.56	453.17	1640.00	PASS
402500	2012.5	33.63	33.73	33.40	33.29	39.54	17	56.54	450.47	1640.00	PASS

20MHz

Channel Number	Freq. (MHz)	QPSK									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Gain	EIRP (dBm /MHz)	EIRP (W/MHz)	Limit (W/MHz)	
		Ant.0	Ant.1	Ant.2	Ant.3	Total					
401000	2005	32.32	32.41	32.35	32.05	38.31	17	55.31	339.26	1640.00	PASS
401500	2007.5	32.56	32.59	32.24	32.26	38.44	17	55.44	349.64	1640.00	PASS
402000	2010	32.53	32.46	32.32	32.18	38.40	17	55.40	346.35	1640.00	PASS

5MHz

Channel Number	Freq. (MHz)	16QAM									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Gain	EIRP (dBm /MHz)	EIRP (W/MHz)	Limit (W/MHz)	
		Ant.0	Ant.1	Ant.2	Ant.3	Total					
399500	1997.5	38.67	38.76	38.68	38.64	44.71	17	61.71	1481.95	1640.00	PASS
401500	2007.5	38.80	38.83	38.66	38.70	44.77	17	61.77	1502.68	1640.00	PASS
403500	2017.5	38.74	38.81	38.71	38.61	44.74	17	61.74	1492.35	1640.00	PASS

10MHz

Channel Number	Freq. (MHz)	16QAM									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Gain	EIRP (dBm /MHz)	EIRP (W/MHz)	Limit (W/MHz)	
		Ant.0	Ant.1	Ant.2	Ant.3	Total					
400000	2000	36.05	36.01	35.84	35.72	41.93	17	58.93	781.20	1640.00	PASS
401500	2007.5	35.88	35.85	35.69	35.65	41.79	17	58.79	756.70	1640.00	PASS
403000	2015	35.89	35.89	35.75	35.83	41.86	17	58.86	769.30	1640.00	PASS

15MHz

Channel Number	Freq. (MHz)	16QAM									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Gain	EIRP (dBm /MHz)	EIRP (W/MHz)	Limit (W/MHz)	
		Ant.0	Ant.1	Ant.2	Ant.3	Total					
400500	2002.5	34.62	35.11	34.92	34.88	40.91	17	57.91	617.53	1640.00	PASS
401500	2007.5	34.63	34.96	34.93	34.97	40.90	17	57.90	615.94	1640.00	PASS
402500	2012.5	34.74	34.91	34.95	35.02	40.93	17	57.93	620.41	1640.00	PASS

20MHz

Channel Number	Freq. (MHz)	16QAM									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Gain	EIRP (dBm /MHz)	EIRP (W/MHz)	Limit (W/MHz)	
		Ant.0	Ant.1	Ant.2	Ant.3	Total					
401000	2005	33.86	33.48	33.64	33.68	39.69	17	56.69	466.41	1640.00	PASS
401500	2007.5	33.82	33.83	33.69	33.58	39.75	17	56.75	473.35	1640.00	PASS
402000	2010	33.81	33.72	33.76	33.74	39.78	17	56.78	476.24	1640.00	PASS

5MHz

Channel Number	Freq. (MHz)	64QAM									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Gain	EIRP (dBm /MHz)	EIRP (W/MHz)	Limit (W/MHz)	
		Ant.0	Ant.1	Ant.2	Ant.3	Total					
399500	1997.5	38.47	38.53	38.39	38.53	44.50	17	61.50	1412.86	1640.00	PASS
401500	2007.5	38.46	38.59	38.49	38.51	44.53	17	61.53	1423.43	1640.00	PASS
403500	2017.5	38.30	38.42	38.48	38.41	44.42	17	61.42	1387.90	1640.00	PASS

10MHz

Channel Number	Freq. (MHz)	64QAM									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Gain	EIRP (dBm /MHz)	EIRP (W/MHz)	Limit (W/MHz)	
		Ant.0	Ant.1	Ant.2	Ant.3	Total					
400000	2000	35.50	35.27	35.30	35.26	41.35	17	58.35	684.58	1640.00	PASS
401500	2007.5	35.38	35.43	35.35	35.31	41.39	17	58.39	689.97	1640.00	PASS
403000	2015	35.41	35.46	35.39	35.22	41.39	17	58.39	690.48	1640.00	PASS

15MHz

Channel Number	Freq. (MHz)	64QAM									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Gain	EIRP (dBm /MHz)	EIRP (W/MHz)	Limit (W/MHz)	
		Ant.0	Ant.1	Ant.2	Ant.3	Total					
400500	2002.5	33.42	33.38	33.55	33.34	39.44	17	56.44	440.94	1640.00	PASS
401500	2007.5	33.51	33.64	33.57	33.55	39.59	17	56.59	455.86	1640.00	PASS
402500	2012.5	33.42	33.35	33.45	33.53	39.46	17	56.46	442.44	1640.00	PASS

20MHz

Channel Number	Freq. (MHz)	64QAM									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Gain	EIRP (dBm /MHz)	EIRP (W/MHz)	Limit (W/MHz)	
		Ant.0	Ant.1	Ant.2	Ant.3	Total					
401000	2005	32.50	32.40	32.53	32.46	38.49	17	55.49	354.27	1640.00	PASS
401500	2007.5	32.59	32.35	32.47	32.54	38.51	17	55.51	355.55	1640.00	PASS
402000	2010	32.31	32.49	32.54	32.36	38.45	17	55.45	350.48	1640.00	PASS

5MHz

Channel Number	Freq. (MHz)	256QAM									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Gain	EIRP (dBm /MHz)	EIRP (W/MHz)	Limit (W/MHz)	
		Ant.0	Ant.1	Ant.2	Ant.3	Total					
399500	1997.5	38.32	38.43	38.43	38.33	44.40	17	61.40	1379.88	1640.00	PASS
401500	2007.5	38.38	38.48	38.41	38.27	44.41	17	61.41	1382.37	1640.00	PASS
403500	2017.5	38.20	38.28	38.32	38.42	44.33	17	61.33	1357.16	1640.00	PASS

10MHz

Channel Number	Freq. (MHz)	256QAM									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Gain	EIRP (dBm /MHz)	EIRP (W/MHz)	Limit (W/MHz)	
		Ant.0	Ant.1	Ant.2	Ant.3	Total					
400000	2000	35.40	35.32	35.32	35.14	41.32	17	58.32	678.68	1640.00	PASS
401500	2007.5	35.27	35.30	35.29	35.31	41.31	17	58.31	678.13	1640.00	PASS
403000	2015	35.09	35.25	35.31	35.20	41.23	17	58.23	665.86	1640.00	PASS

15MHz

Channel Number	Freq. (MHz)	256QAM									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Gain	EIRP (dBm /MHz)	EIRP (W/MHz)	Limit (W/MHz)	
		Ant.0	Ant.1	Ant.2	Ant.3	Total					
400500	2002.5	33.42	33.46	33.31	33.29	39.39	17	56.39	435.63	1640.00	PASS
401500	2007.5	33.44	33.48	33.42	33.40	39.46	17	56.46	442.15	1640.00	PASS
402500	2012.5	33.48	33.45	33.31	33.30	39.41	17	56.41	437.15	1640.00	PASS

20MHz

Channel Number	Freq. (MHz)	256QAM									PASS /FAIL
		Conducted Average Power (dBm/MHz)					Gain	EIRP (dBm /MHz)	EIRP (W/MHz)	Limit (W/MHz)	
		Ant.0	Ant.1	Ant.2	Ant.3	Total					
401000	2005	32.27	32.55	32.31	32.26	38.37	17	55.37	344.33	1640.00	PASS
401500	2007.5	32.35	32.50	32.34	32.25	38.38	17	55.38	345.27	1640.00	PASS
402000	2010	32.13	32.38	32.34	32.38	38.33	17	55.33	341.14	1640.00	PASS

4.2 Modulation characteristics Measurement

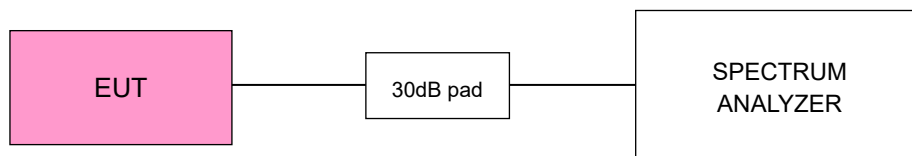
4.2.1 Limits of Modulation characteristics

N/A

4.2.2 Test Procedure

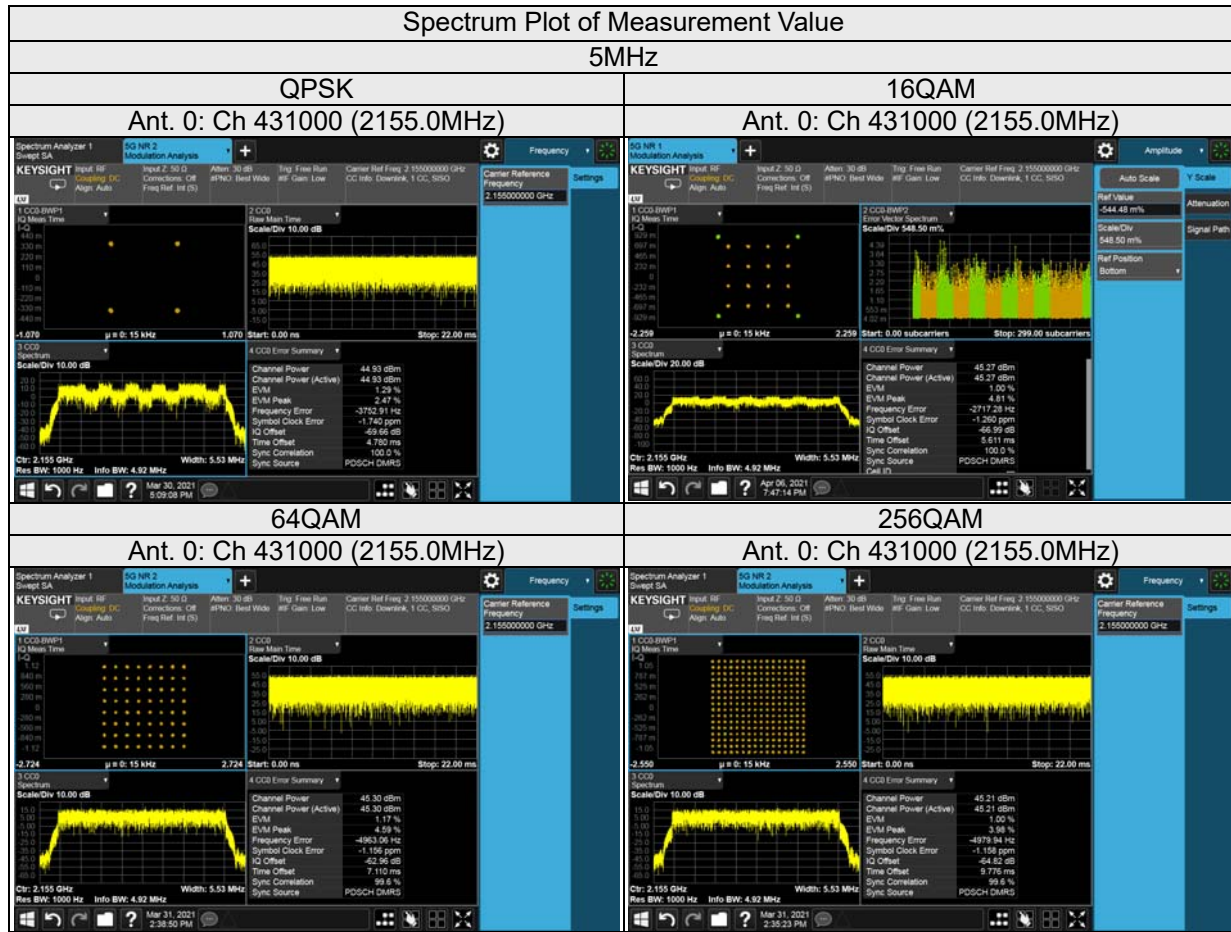
Connect the EUT to spectrum analyzer. The frequency band is set as EUT supported modulation and channels, the EUT output is matched with 50 ohm load, the waveform quality and constellation of the EUT was tested.

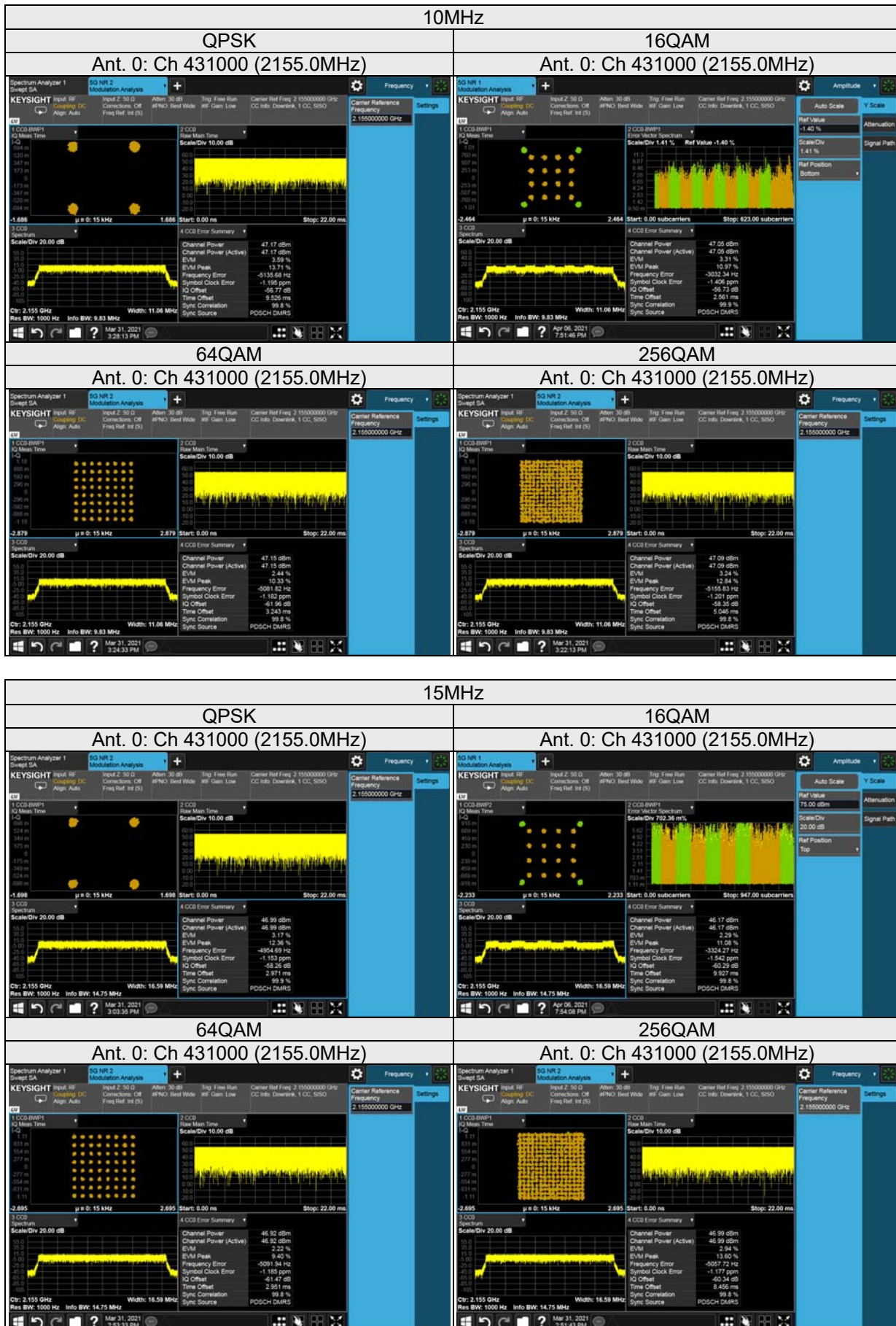
4.2.3 Test Setup

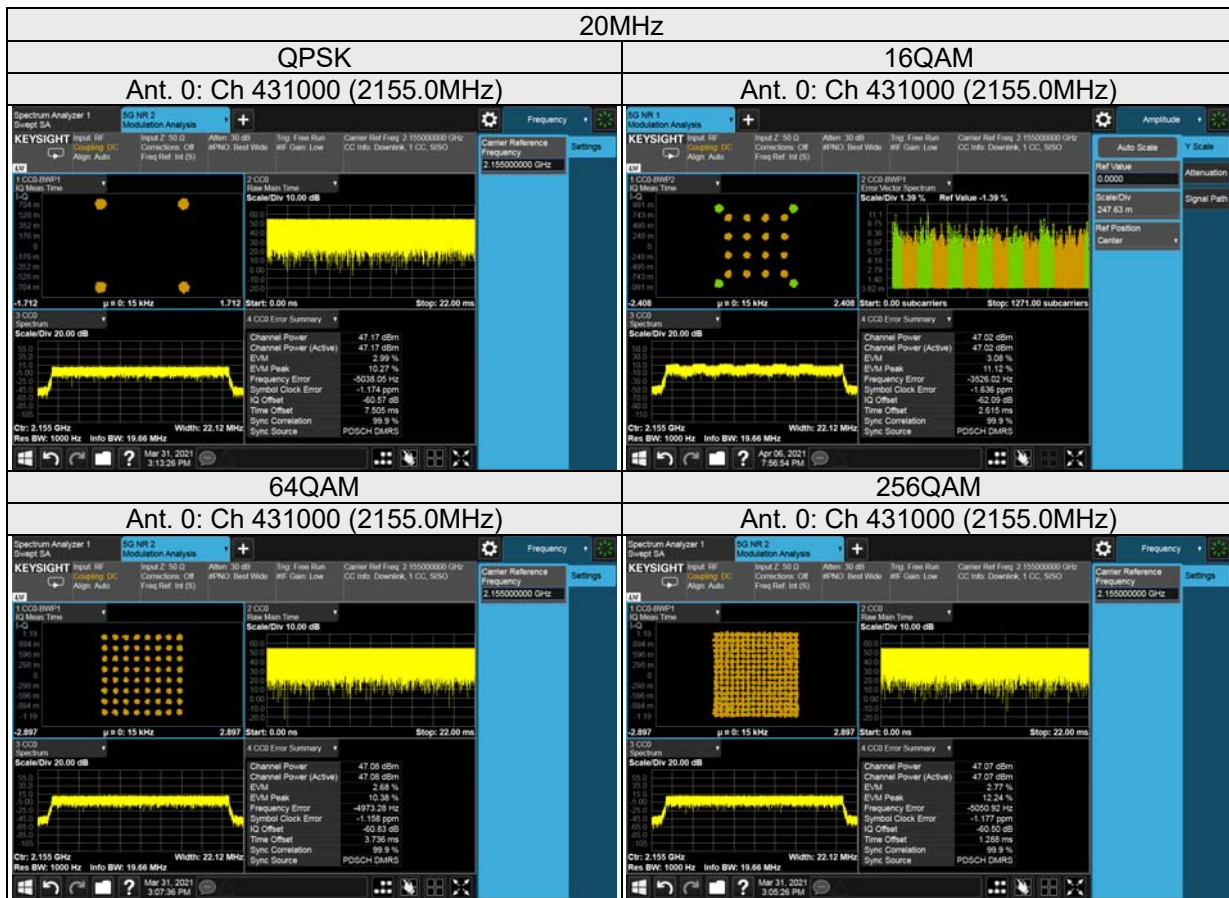


4.2.4 Test Results

Band n66







Band n70

Spectrum Plot of Measurement Value

5MHz

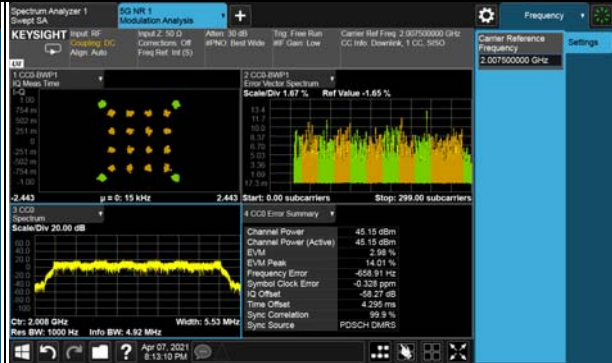
QPSK

Ant. 0: Ch 401500 (2007.5MHz)



16QAM

Ant. 0: Ch 401500 (2007.5MHz)



64QAM

Ant. 0: Ch 401500 (2007.5MHz)



256QAM

Ant. 0: Ch 401500 (2007.5MHz)



10MHz

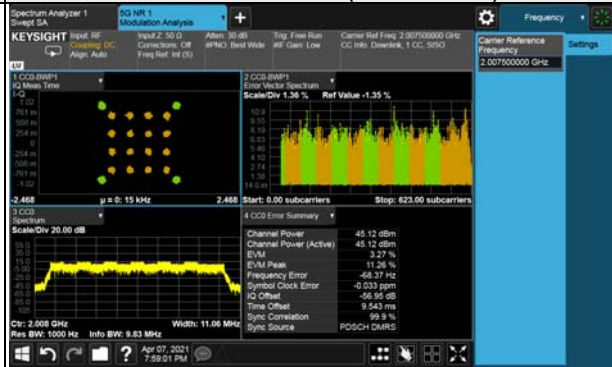
QPSK

Ant. 0: Ch 401500 (2007.5MHz)



16QAM

Ant. 0: Ch 401500 (2007.5MHz)



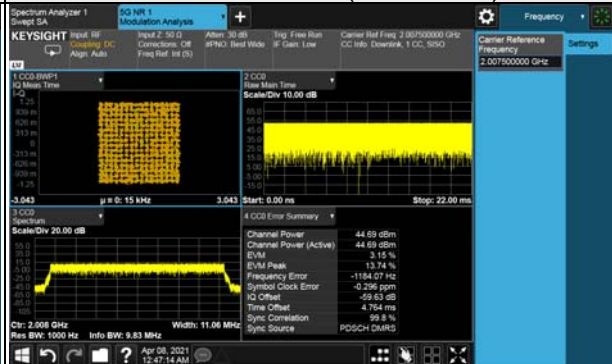
64QAM

Ant. 0: Ch 401500 (2007.5MHz)



256QAM

Ant. 0: Ch 401500 (2007.5MHz)



15MHz

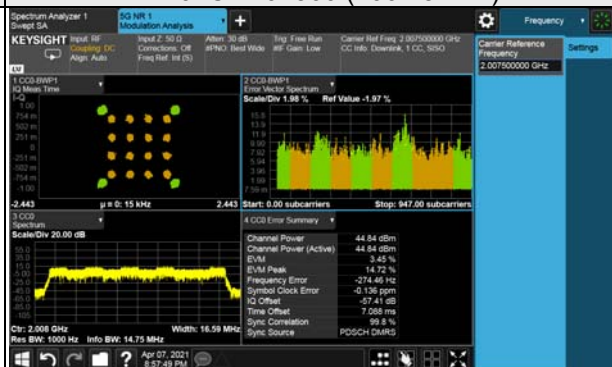
QPSK

Ant. 0: Ch 401500 (2007.5MHz)



16QAM

Ant. 0: Ch 401500 (2007.5MHz)



64QAM

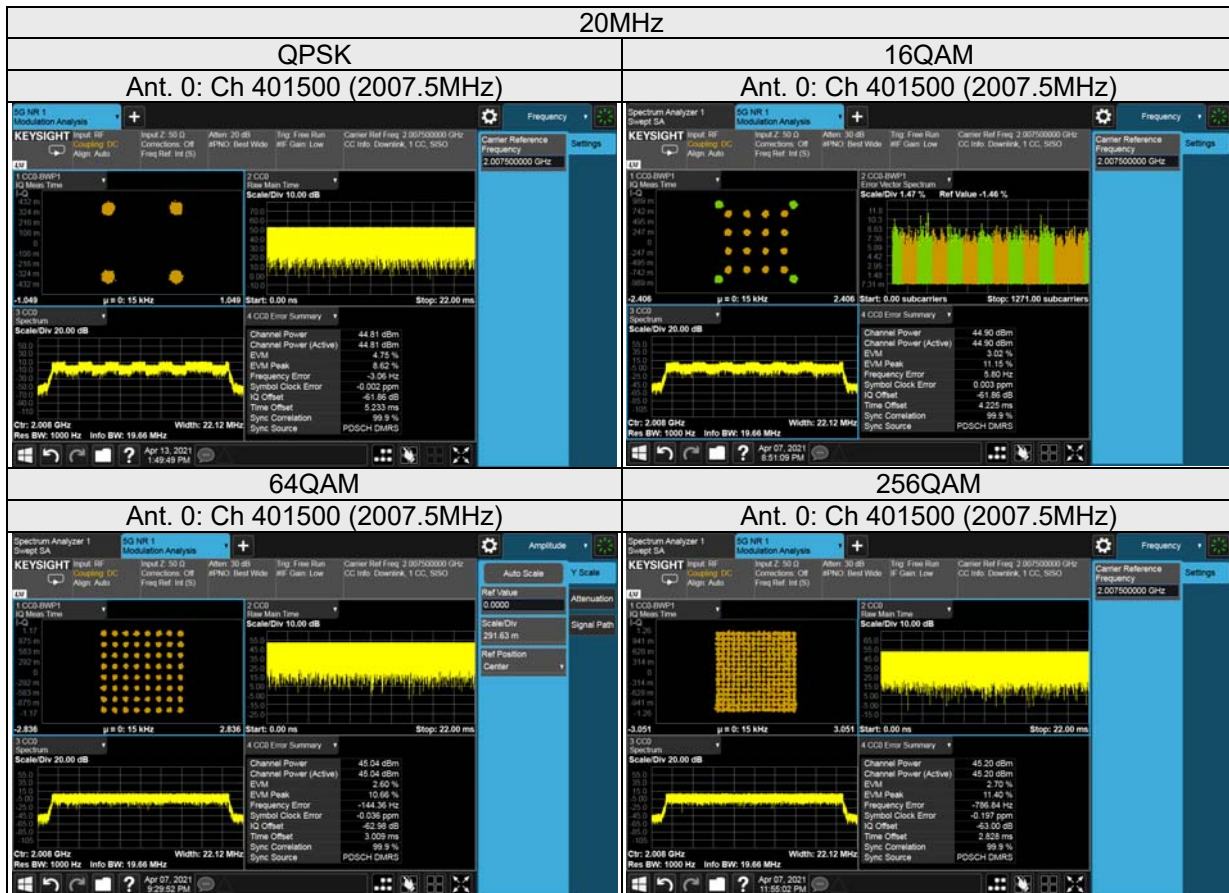
Ant. 0: Ch 401500 (2007.5MHz)



256QAM

Ant. 0: Ch 401500 (2007.5MHz)





4.3 Frequency Stability Measurement

4.3.1 Limits of Frequency Stability Measurement

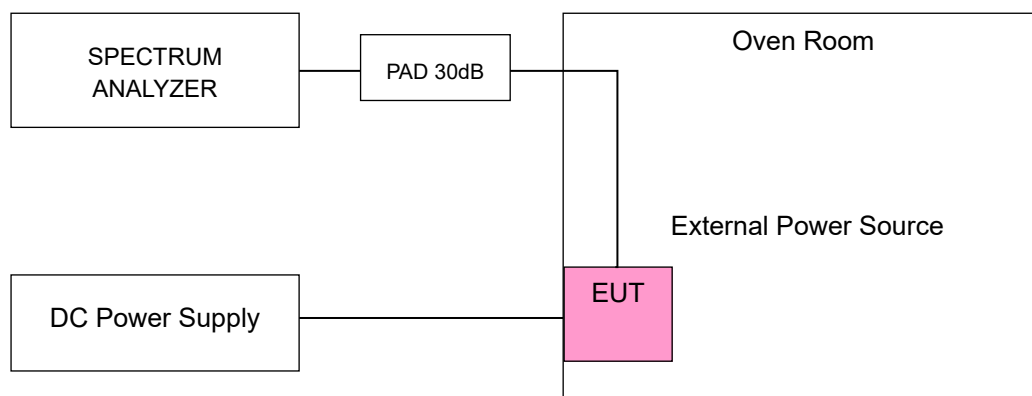
According to the FCC part 2.1055 shall be tested the frequency stability. The rule is defined that "The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block." The test extreme voltage is according to the 2.1055(d)(1) Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment and the extreme temperature rule is comply with specification of EUT $-40^{\circ}\text{C} \sim 55^{\circ}\text{C}$.

4.3.2 Test Procedure

- Device is placed at the oven room. The oven room could control the temperatures and humidity. Power warm up is at least 15 min and power applied should perform before recording frequency error.
- 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 from the spectrum analyzer.

4.3.3 Test Setup



4.3.4 Test Results

Band n66
SC Mode- Ant. TX 0

FREQUENCY ERROR vs. VOLTAGE									PASS/ FAIL
Voltage (Volts)	Test result (MHz)								
	5MHz				10MHz				
	2112.5MHz		2197.5MHz		2115.0MHz		2195.0MHz		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-48	2112.500062	0.029	2197.500083	0.038	2115.000039	0.018	2195.000034	0.015	PASS
-40.5	2112.500019	0.009	2197.500070	0.032	2115.000034	0.016	2195.000042	0.019	PASS
-58.5	2112.500030	0.014	2197.500071	0.032	2115.000026	0.012	2195.000035	0.016	PASS

FREQUENCY ERROR vs. Temperature									PASS/ FAIL
Temp. (°C)	Test result (MHz)								
	5MHz				10MHz				
	2112.5MHz		2197.5MHz		2115.0MHz		2195.0MHz		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-40	2112.500075	0.036	2197.500027	0.012	2115.000031	0.015	2195.000049	0.022	PASS
-30	2112.500025	0.012	2197.500010	0.005	2115.000039	0.018	2195.000053	0.024	PASS
-20	2112.500018	0.009	2197.500045	0.020	2115.000032	0.015	2195.000040	0.018	PASS
-10	2112.500022	0.010	2197.500071	0.032	2115.000051	0.024	2195.000013	0.006	PASS
0	2112.500073	0.035	2197.500040	0.018	2115.000016	0.008	2195.000083	0.038	PASS
10	2112.500096	0.045	2197.500028	0.013	2115.000096	0.045	2195.000082	0.037	PASS
20	2112.499900	-0.047	2197.499936	-0.029	2114.999928	-0.034	2194.999971	-0.013	PASS
30	2112.499986	-0.007	2197.499943	-0.026	2114.999980	-0.009	2194.999953	-0.021	PASS
40	2112.499986	-0.007	2197.499912	-0.040	2114.999968	-0.015	2194.999931	-0.031	PASS
50	2112.499954	-0.022	2197.499943	-0.026	2114.999905	-0.045	2194.999969	-0.014	PASS
55	2112.499965	-0.017	2197.499957	-0.020	2114.999955	-0.021	2194.999904	-0.044	PASS

FREQUENCY ERROR vs. VOLTAGE									PASS/ FAIL
Voltage (Volts)	Test result (MHz)								
	15MHz				20MHz				
	2117.5MHz		2192.5MHz		2120.0MHz		2190.0MHz		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-48	2117.500081	0.038	2192.500026	0.012	2120.000070	0.033	2190.000076	0.035	PASS
-40.5	2117.500048	0.023	2192.500031	0.014	2120.000093	0.044	2190.000040	0.018	PASS
-58.5	2117.500090	0.043	2192.500081	0.037	2120.000010	0.005	2190.000026	0.012	PASS

FREQUENCY ERROR vs. Temperature									PASS/ FAIL
Temp. (°C)	Test result (MHz)								
	15MHz				20MHz				
	2117.5MHz		2192.5MHz		2120.0MHz		2190.0MHz		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-40	2117.500022	0.010	2192.500063	0.029	2120.000011	0.005	2190.000075	0.034	PASS
-30	2117.500028	0.013	2192.500060	0.027	2120.000012	0.006	2190.000015	0.007	PASS
-20	2117.500015	0.007	2192.500012	0.005	2120.000032	0.015	2190.000098	0.045	PASS
-10	2117.500030	0.014	2192.500058	0.026	2120.000099	0.047	2190.000088	0.040	PASS
0	2117.500042	0.020	2192.500097	0.044	2120.000088	0.042	2190.000042	0.019	PASS
10	2117.500044	0.021	2192.500093	0.042	2120.000068	0.032	2190.000070	0.032	PASS
20	2117.499921	-0.037	2192.499920	-0.036	2119.999904	-0.045	2189.999930	-0.032	PASS
30	2117.499923	-0.036	2192.499905	-0.043	2119.999947	-0.025	2189.999931	-0.032	PASS
40	2117.499951	-0.023	2192.499924	-0.035	2119.999910	-0.042	2189.999971	-0.013	PASS
50	2117.499923	-0.036	2192.499961	-0.018	2119.999961	-0.018	2189.999928	-0.033	PASS
55	2117.499949	-0.024	2192.499940	-0.027	2119.999911	-0.042	2189.999936	-0.029	PASS

SC Mode- Ant. TX 1

FREQUENCY ERROR vs. VOLTAGE									PASS/ FAIL
Voltage (Volts)	Test result (MHz)								
	5MHz				10MHz				
	2112.5MHz		2197.5MHz		2115.0MHz		2195.0MHz		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-48	2112.500027	0.013	2197.500040	0.018	2115.000064	0.030	2195.000030	0.014	PASS
-40.5	2112.500092	0.044	2197.500021	0.010	2115.000010	0.005	2195.000041	0.019	PASS
-58.5	2112.500084	0.040	2197.500015	0.007	2115.000037	0.017	2195.000043	0.020	PASS

FREQUENCY ERROR vs. Temperature									PASS/ FAIL
Temp. (°C)	Test result (MHz)								
	5MHz				10MHz				
	2112.5MHz		2197.5MHz		2115.0MHz		2195.0MHz		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-40	2112.500033	0.016	2197.500028	0.013	2115.000084	0.040	2195.000026	0.012	PASS
-30	2112.500042	0.020	2197.500011	0.005	2115.000096	0.045	2195.000075	0.034	PASS
-20	2112.500039	0.018	2197.500079	0.036	2115.000070	0.033	2195.000042	0.019	PASS
-10	2112.500049	0.023	2197.500073	0.033	2115.000062	0.029	2195.000059	0.027	PASS
0	2112.500037	0.018	2197.500057	0.026	2115.000046	0.022	2195.000092	0.042	PASS
10	2112.500085	0.040	2197.500062	0.028	2115.000046	0.022	2195.000057	0.026	PASS
20	2112.499930	-0.033	2197.499927	-0.033	2114.999948	-0.025	2194.999933	-0.031	PASS
30	2112.499983	-0.008	2197.499928	-0.033	2114.999941	-0.028	2194.999960	-0.018	PASS
40	2112.499956	-0.021	2197.499957	-0.020	2114.999979	-0.010	2194.999990	-0.005	PASS
50	2112.499926	-0.035	2197.499951	-0.022	2114.999908	-0.043	2194.999968	-0.015	PASS
55	2112.499902	-0.046	2197.499953	-0.021	2114.999913	-0.041	2194.999920	-0.036	PASS

FREQUENCY ERROR vs. VOLTAGE									PASS/ FAIL
Voltage (Volts)	Test result (MHz)								
	15MHz				20MHz				
	2117.5MHz		2192.5MHz		2120.0MHz		2190.0MHz		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-48	2117.500018	0.009	2192.500086	0.039	2120.000031	0.015	2190.000051	0.023	PASS
-40.5	2117.500020	0.009	2192.500040	0.018	2120.000057	0.027	2190.000052	0.024	PASS
-58.5	2117.500046	0.022	2192.500075	0.034	2120.000077	0.036	2190.000095	0.043	PASS

FREQUENCY ERROR vs. Temperature									PASS/ FAIL
Temp. (°C)	Test result (MHz)								
	15MHz				20MHz				
	2117.5MHz		2192.5MHz		2120.0MHz		2190.0MHz		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-40	2117.500022	0.010	2192.500064	0.029	2120.000022	0.010	2190.000018	0.008	PASS
-30	2117.500059	0.028	2192.500041	0.019	2120.000087	0.041	2190.000074	0.034	PASS
-20	2117.500095	0.045	2192.500021	0.010	2120.000082	0.039	2190.000034	0.016	PASS
-10	2117.500042	0.020	2192.500050	0.023	2120.000066	0.031	2190.000067	0.031	PASS
0	2117.500053	0.025	2192.500079	0.036	2120.000039	0.018	2190.000084	0.038	PASS
10	2117.500033	0.016	2192.500079	0.036	2120.000080	0.038	2190.000015	0.007	PASS
20	2117.499913	-0.041	2192.499963	-0.017	2119.999925	-0.035	2189.999927	-0.033	PASS
30	2117.499988	-0.006	2192.499910	-0.041	2119.999975	-0.012	2189.999962	-0.017	PASS
40	2117.499968	-0.015	2192.499965	-0.016	2119.999944	-0.026	2189.999982	-0.008	PASS
50	2117.499943	-0.027	2192.499946	-0.025	2119.999950	-0.024	2189.999958	-0.019	PASS
55	2117.499911	-0.042	2192.499975	-0.011	2119.999918	-0.039	2189.999942	-0.026	PASS

SC Mode- Ant. TX 2

FREQUENCY ERROR vs. VOLTAGE									PASS/ FAIL
Voltage (Volts)	Test result (MHz)								
	5MHz				10MHz				
	2112.5MHz		2197.5MHz		2115.0MHz		2195.0MHz		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-48	2112.500062	0.029	2197.500100	0.046	2115.000095	0.045	2195.000014	0.006	PASS
-40.5	2112.500057	0.027	2197.500062	0.028	2115.000048	0.023	2195.000020	0.009	PASS
-58.5	2112.500083	0.039	2197.500046	0.021	2115.000095	0.045	2195.000042	0.019	PASS

FREQUENCY ERROR vs. Temperature									PASS/ FAIL
Temp. (°C)	Test result (MHz)								
	5MHz				10MHz				
	2112.5MHz		2197.5MHz		2115.0MHz		2195.0MHz		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-40	2112.500077	0.036	2197.500038	0.017	2115.000054	0.026	2195.000016	0.007	PASS
-30	2112.500072	0.034	2197.500027	0.012	2115.000058	0.027	2195.000069	0.031	PASS
-20	2112.500093	0.044	2197.500071	0.032	2115.000083	0.039	2195.000059	0.027	PASS
-10	2112.500058	0.027	2197.500093	0.042	2115.000057	0.027	2195.000021	0.010	PASS
0	2112.500020	0.009	2197.500014	0.006	2115.000076	0.036	2195.000095	0.043	PASS
10	2112.500080	0.038	2197.500076	0.035	2115.000089	0.042	2195.000022	0.010	PASS
20	2112.499925	-0.036	2197.499931	-0.031	2114.999951	-0.023	2194.999901	-0.045	PASS
30	2112.499967	-0.016	2197.499941	-0.027	2114.999971	-0.014	2194.999958	-0.019	PASS
40	2112.499940	-0.028	2197.499987	-0.006	2114.999984	-0.008	2194.999973	-0.012	PASS
50	2112.499990	-0.005	2197.499937	-0.029	2114.999929	-0.034	2194.999985	-0.007	PASS
55	2112.499990	-0.005	2197.499933	-0.030	2114.999952	-0.023	2194.999945	-0.025	PASS

FREQUENCY ERROR vs. VOLTAGE									PASS/ FAIL
Voltage (Volts)	Test result (MHz)								
	15MHz				20MHz				
	2117.5MHz		2192.5MHz		2120.0MHz		2190.0MHz		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-48	2117.500037	0.017	2192.500100	0.046	2120.000027	0.013	2190.000034	0.016	PASS
-40.5	2117.500054	0.026	2192.500079	0.036	2120.000075	0.035	2190.000043	0.020	PASS
-58.5	2117.500072	0.034	2192.500094	0.043	2120.000099	0.047	2190.000094	0.043	PASS

FREQUENCY ERROR vs. Temperature									PASS/ FAIL
Temp. (°C)	Test result (MHz)								
	15MHz				20MHz				
	2117.5MHz		2192.5MHz		2120.0MHz		2190.0MHz		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-40	2117.500028	0.013	2192.500096	0.044	2120.000017	0.008	2190.000022	0.010	PASS
-30	2117.500070	0.033	2192.500044	0.020	2120.000096	0.045	2190.000035	0.016	PASS
-20	2117.500068	0.032	2192.500032	0.015	2120.000090	0.042	2190.000038	0.017	PASS
-10	2117.500032	0.015	2192.500016	0.007	2120.000053	0.025	2190.000066	0.030	PASS
0	2117.500093	0.044	2192.500059	0.027	2120.000076	0.036	2190.000025	0.011	PASS
10	2117.500076	0.036	2192.500079	0.036	2120.000014	0.007	2190.000037	0.017	PASS
20	2117.499939	-0.029	2192.499919	-0.037	2119.999990	-0.005	2189.999985	-0.007	PASS
30	2117.499905	-0.045	2192.499963	-0.017	2119.999972	-0.013	2189.999961	-0.018	PASS
40	2117.499980	-0.009	2192.499960	-0.018	2119.999954	-0.022	2189.999943	-0.026	PASS
50	2117.499914	-0.041	2192.499931	-0.031	2119.999988	-0.006	2189.999955	-0.021	PASS
55	2117.499964	-0.017	2192.499922	-0.036	2119.999924	-0.036	2189.999904	-0.044	PASS

SC Mode- Ant. TX 3

FREQUENCY ERROR vs. VOLTAGE									PASS/ FAIL
Voltage (Volts)	Test result (MHz)								
	5MHz				10MHz				
	2112.5MHz		2197.5MHz		2115.0MHz		2195.0MHz		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-48	2112.500046	0.022	2197.500035	0.016	2115.000073	0.035	2195.000052	0.024	PASS
-40.5	2112.500011	0.005	2197.500078	0.035	2115.000075	0.035	2195.000039	0.018	PASS
-58.5	2112.500072	0.034	2197.500098	0.045	2115.000069	0.033	2195.000070	0.032	PASS

FREQUENCY ERROR vs. Temperature									PASS/ FAIL
Temp. (°C)	Test result (MHz)								
	5MHz				10MHz				
	2112.5MHz		2197.5MHz		2115.0MHz		2195.0MHz		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-40	2112.500027	0.013	2197.500035	0.016	2115.000044	0.021	2195.000061	0.028	PASS
-30	2112.500068	0.032	2197.500019	0.009	2115.000019	0.009	2195.000073	0.033	PASS
-20	2112.500100	0.047	2197.500023	0.010	2115.000031	0.015	2195.000065	0.030	PASS
-10	2112.500068	0.032	2197.500026	0.012	2115.000083	0.039	2195.000015	0.007	PASS
0	2112.500099	0.047	2197.500041	0.019	2115.000046	0.022	2195.000035	0.016	PASS
10	2112.500093	0.044	2197.500084	0.038	2115.000017	0.008	2195.000046	0.021	PASS
20	2112.499910	-0.043	2197.499901	-0.045	2114.999924	-0.036	2194.999923	-0.035	PASS
30	2112.499941	-0.028	2197.499956	-0.020	2114.999980	-0.009	2194.999966	-0.015	PASS
40	2112.499989	-0.005	2197.499930	-0.032	2114.999947	-0.025	2194.999968	-0.015	PASS
50	2112.499966	-0.016	2197.499936	-0.029	2114.999928	-0.034	2194.999922	-0.036	PASS
55	2112.499953	-0.022	2197.499927	-0.033	2114.999933	-0.032	2194.999913	-0.040	PASS

FREQUENCY ERROR vs. VOLTAGE									PASS/ FAIL
Voltage (Volts)	Test result (MHz)								
	15MHz				20MHz				
	2117.5MHz		2192.5MHz		2120.0MHz		2190.0MHz		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-48	2117.500088	0.042	2192.500053	0.024	2120.000023	0.011	2190.000080	0.037	PASS
-40.5	2117.500043	0.020	2192.500032	0.015	2120.000057	0.027	2190.000091	0.042	PASS
-58.5	2117.500094	0.044	2192.500014	0.006	2120.000093	0.044	2190.000046	0.021	PASS

FREQUENCY ERROR vs. Temperature									PASS/ FAIL
Temp. (°C)	Test result (MHz)								
	15MHz				20MHz				
	2117.5MHz		2192.5MHz		2120.0MHz		2190.0MHz		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-40	2117.500086	0.041	2192.500027	0.012	2120.000094	0.044	2190.000027	0.012	PASS
-30	2117.500074	0.035	2192.500081	0.037	2120.000084	0.040	2190.000090	0.041	PASS
-20	2117.500024	0.011	2192.500018	0.008	2120.000061	0.029	2190.000070	0.032	PASS
-10	2117.500052	0.025	2192.500059	0.027	2120.000066	0.031	2190.000094	0.043	PASS
0	2117.500011	0.005	2192.500098	0.045	2120.000062	0.029	2190.000061	0.028	PASS
10	2117.500049	0.023	2192.500036	0.016	2120.000079	0.037	2190.000095	0.043	PASS
20	2117.499941	-0.028	2192.499941	-0.027	2119.999908	-0.043	2189.999945	-0.025	PASS
30	2117.499923	-0.036	2192.499922	-0.036	2119.999959	-0.019	2189.999913	-0.040	PASS
40	2117.499955	-0.021	2192.499970	-0.014	2119.999929	-0.033	2189.999928	-0.033	PASS
50	2117.499950	-0.024	2192.499917	-0.038	2119.999906	-0.044	2189.999910	-0.041	PASS
55	2117.499990	-0.005	2192.499984	-0.007	2119.999977	-0.011	2189.999919	-0.037	PASS

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SC Mode- Ant. TX 0

FREQUENCY ERROR vs. VOLTAGE									PASS/ FAIL
Voltage (Volts)	Test result (MHz)								
	5MHz				10MHz				
	1997.5MHz		2017.5MHz		2000.0MHz		2015.0MHz		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-48	1997.500059	0.030	2017.500018	0.009	2000.000091	0.046	2015.000070	0.035	PASS
-40.5	1997.500055	0.028	2017.500059	0.029	2000.000049	0.025	2015.000065	0.032	PASS
-58.5	1997.500047	0.024	2017.500042	0.021	2000.000062	0.031	2015.000045	0.022	PASS

FREQUENCY ERROR vs. Temperature									PASS/ FAIL
Temp. (°C)	Test result (MHz)								
	5MHz				10MHz				
	1997.5MHz		2017.5MHz		2000.0MHz		2015.0MHz		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-40	1997.500046	0.023	2017.500023	0.011	2000.000033	0.017	2015.000017	0.008	PASS
-30	1997.500022	0.011	2017.500017	0.008	2000.000062	0.031	2015.000065	0.032	PASS
-20	1997.500028	0.014	2017.500069	0.034	2000.000032	0.016	2015.000089	0.044	PASS
-10	1997.500081	0.041	2017.500060	0.030	2000.000096	0.048	2015.000046	0.023	PASS
0	1997.500013	0.007	2017.500093	0.046	2000.000014	0.007	2015.000046	0.023	PASS
10	1997.500096	0.048	2017.500036	0.018	2000.000067	0.034	2015.000042	0.021	PASS
20	1997.499973	-0.014	2017.499933	-0.033	1999.999920	-0.040	2014.999986	-0.007	PASS
30	1997.499929	-0.036	2017.499930	-0.035	1999.999947	-0.027	2014.999968	-0.016	PASS
40	1997.499904	-0.048	2017.499938	-0.031	1999.999923	-0.039	2014.999928	-0.036	PASS
50	1997.499906	-0.047	2017.499914	-0.043	1999.999940	-0.030	2014.999955	-0.022	PASS
55	1997.499968	-0.016	2017.499955	-0.022	1999.999951	-0.025	2014.999963	-0.018	PASS

FREQUENCY ERROR vs. VOLTAGE									PASS/ FAIL
Voltage (Volts)	Test result (MHz)								
	15MHz				20MHz				
	2002.5MHz		2012.5MHz		2005.0MHz		2010.0MHz		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-48	2002.500047	0.023	2012.500063	0.031	2005.000017	0.008	2010.000025	0.012	PASS
-40.5	2002.500031	0.015	2012.500042	0.021	2005.000093	0.046	2010.000092	0.046	PASS
-58.5	2002.500079	0.039	2012.500021	0.010	2005.000058	0.029	2010.000039	0.019	PASS

FREQUENCY ERROR vs. Temperature									PASS/ FAIL
Temp. (°C)	Test result (MHz)								
	15MHz				20MHz				
	2002.5MHz		2012.5MHz		2005.0MHz		2010.0MHz		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-40	2002.500048	0.024	2012.500025	0.012	2005.000022	0.011	2010.000066	0.033	PASS
-30	2002.500095	0.047	2012.500089	0.044	2005.000012	0.006	2010.000069	0.034	PASS
-20	2002.500012	0.006	2012.500036	0.018	2005.000088	0.044	2010.000028	0.014	PASS
-10	2002.500067	0.033	2012.500030	0.015	2005.000085	0.042	2010.000042	0.021	PASS
0	2002.500011	0.005	2012.500076	0.038	2005.000031	0.015	2010.000050	0.025	PASS
10	2002.500070	0.035	2012.500088	0.044	2005.000070	0.035	2010.000021	0.010	PASS
20	2002.499904	-0.048	2012.499903	-0.048	2004.999957	-0.021	2009.999976	-0.012	PASS
30	2002.499914	-0.043	2012.499921	-0.039	2004.999983	-0.008	2009.999910	-0.045	PASS
40	2002.499908	-0.046	2012.499914	-0.043	2004.999944	-0.028	2009.999916	-0.042	PASS
50	2002.499959	-0.020	2012.499914	-0.043	2004.999905	-0.047	2009.999908	-0.046	PASS
55	2002.499936	-0.032	2012.499935	-0.032	2004.999928	-0.036	2009.999944	-0.028	PASS

SC Mode- Ant. TX 1

FREQUENCY ERROR vs. VOLTAGE									PASS/ FAIL
Voltage (Volts)	Test result (MHz)								
	5MHz				10MHz				
	1997.5MHz		2017.5MHz		2000.0MHz		2015.0MHz		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-48	1997.500042	0.021	2017.500084	0.042	2000.000068	0.034	2015.000016	0.008	PASS
-40.5	1997.500100	0.050	2017.500019	0.009	2000.000067	0.034	2015.000055	0.027	PASS
-58.5	1997.500082	0.041	2017.500071	0.035	2000.000027	0.014	2015.000038	0.019	PASS

FREQUENCY ERROR vs. Temperature									PASS/ FAIL
Temp. (°C)	Test result (MHz)								
	5MHz				10MHz				
	1997.5MHz		2017.5MHz		2000.0MHz		2015.0MHz		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-40	1997.500036	0.018	2017.500062	0.031	2000.000025	0.013	2015.000044	0.022	PASS
-30	1997.500021	0.011	2017.500073	0.036	2000.000018	0.009	2015.000047	0.023	PASS
-20	1997.500042	0.021	2017.500042	0.021	2000.000076	0.038	2015.000076	0.038	PASS
-10	1997.500029	0.015	2017.500091	0.045	2000.000045	0.023	2015.000063	0.031	PASS
0	1997.500086	0.043	2017.500081	0.040	2000.000055	0.028	2015.000041	0.020	PASS
10	1997.500022	0.011	2017.500037	0.018	2000.000051	0.026	2015.000067	0.033	PASS
20	1997.499937	-0.032	2017.499914	-0.043	1999.999949	-0.026	2014.999959	-0.020	PASS
30	1997.499988	-0.006	2017.499943	-0.028	1999.999969	-0.016	2014.999907	-0.046	PASS
40	1997.499961	-0.020	2017.499900	-0.050	1999.999950	-0.025	2014.999975	-0.012	PASS
50	1997.499941	-0.030	2017.499909	-0.045	1999.999932	-0.034	2014.999934	-0.033	PASS
55	1997.499922	-0.039	2017.499902	-0.049	1999.999987	-0.007	2014.999969	-0.015	PASS

FREQUENCY ERROR vs. VOLTAGE									PASS/ FAIL
Voltage (Volts)	Test result (MHz)								
	15MHz				20MHz				
	2002.5MHz		2012.5MHz		2005.0MHz		2010.0MHz		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-48	2002.500074	0.037	2012.500086	0.043	2005.000036	0.018	2010.000098	0.049	PASS
-40.5	2002.500010	0.005	2012.500030	0.015	2005.000089	0.044	2010.000079	0.039	PASS
-58.5	2002.500067	0.033	2012.500090	0.045	2005.000058	0.029	2010.000094	0.047	PASS

FREQUENCY ERROR vs. Temperature									PASS/ FAIL
Temp. (°C)	Test result (MHz)								
	15MHz				20MHz				
	2002.5MHz		2012.5MHz		2005.0MHz		2010.0MHz		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-40	2002.500028	0.014	2012.500011	0.005	2005.000043	0.021	2010.000085	0.042	PASS
-30	2002.500016	0.008	2012.500064	0.032	2005.000074	0.037	2010.000095	0.047	PASS
-20	2002.500048	0.024	2012.500077	0.038	2005.000088	0.044	2010.000092	0.046	PASS
-10	2002.500032	0.016	2012.500085	0.042	2005.000012	0.006	2010.000065	0.032	PASS
0	2002.500062	0.031	2012.500036	0.018	2005.000049	0.024	2010.000099	0.049	PASS
10	2002.500092	0.046	2012.500096	0.048	2005.000049	0.024	2010.000090	0.045	PASS
20	2002.499971	-0.014	2012.499965	-0.017	2004.999955	-0.022	2009.999971	-0.014	PASS
30	2002.499969	-0.015	2012.499971	-0.014	2004.999931	-0.034	2009.999952	-0.024	PASS
40	2002.499946	-0.027	2012.499942	-0.029	2004.999953	-0.023	2009.999980	-0.010	PASS
50	2002.499962	-0.019	2012.499941	-0.029	2004.999902	-0.049	2009.999939	-0.030	PASS
55	2002.499957	-0.021	2012.499922	-0.039	2004.999954	-0.023	2009.999916	-0.042	PASS

SC Mode- Ant. TX 2

FREQUENCY ERROR vs. VOLTAGE									PASS/ FAIL
Voltage (Volts)	Test result (MHz)								
	5MHz				10MHz				
	1997.5MHz		2017.5MHz		2000.0MHz		2015.0MHz		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-48	1997.500084	0.042	2017.500078	0.039	2000.000078	0.039	2015.000070	0.035	PASS
-40.5	1997.500099	0.050	2017.500048	0.024	2000.000030	0.015	2015.000036	0.018	PASS
-58.5	1997.500023	0.012	2017.500010	0.005	2000.000016	0.008	2015.000056	0.028	PASS

FREQUENCY ERROR vs. Temperature									PASS/ FAIL
Temp. (°C)	Test result (MHz)								
	5MHz				10MHz				
	1997.5MHz		2017.5MHz		2000.0MHz		2015.0MHz		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-40	1997.500074	0.037	2017.500037	0.018	2000.000046	0.023	2015.000023	0.011	PASS
-30	1997.500034	0.017	2017.500052	0.026	2000.000059	0.030	2015.000018	0.009	PASS
-20	1997.500026	0.013	2017.500055	0.027	2000.000043	0.022	2015.000100	0.050	PASS
-10	1997.500023	0.012	2017.500025	0.012	2000.000032	0.016	2015.000046	0.023	PASS
0	1997.500096	0.048	2017.500077	0.038	2000.000012	0.006	2015.000018	0.009	PASS
10	1997.500081	0.041	2017.500052	0.026	2000.000019	0.010	2015.000051	0.025	PASS
20	1997.499915	-0.043	2017.499920	-0.040	1999.999921	-0.040	2014.999927	-0.036	PASS
30	1997.499915	-0.043	2017.499935	-0.032	1999.999945	-0.028	2014.999926	-0.037	PASS
40	1997.499903	-0.049	2017.499919	-0.040	1999.999905	-0.048	2014.999903	-0.048	PASS
50	1997.499944	-0.028	2017.499929	-0.035	1999.999986	-0.007	2014.999905	-0.047	PASS
55	1997.499904	-0.048	2017.499943	-0.028	1999.999916	-0.042	2014.999943	-0.028	PASS

FREQUENCY ERROR vs. VOLTAGE									PASS/ FAIL
Voltage (Volts)	Test result (MHz)								
	15MHz				20MHz				
	2002.5MHz		2012.5MHz		2005.0MHz		2010.0MHz		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-48	2002.500061	0.030	2012.500019	0.009	2005.000020	0.010	2010.000027	0.013	PASS
-40.5	2002.500051	0.025	2012.500026	0.013	2005.000054	0.027	2010.000048	0.024	PASS
-58.5	2002.500034	0.017	2012.500065	0.032	2005.000038	0.019	2010.000032	0.016	PASS

FREQUENCY ERROR vs. Temperature									PASS/ FAIL
Temp. (°C)	Test result (MHz)								
	15MHz				20MHz				
	2002.5MHz		2012.5MHz		2005.0MHz		2010.0MHz		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-40	2002.500077	0.038	2012.500028	0.014	2005.000036	0.018	2010.000024	0.012	PASS
-30	2002.500095	0.047	2012.500023	0.011	2005.000045	0.022	2010.000039	0.019	PASS
-20	2002.500084	0.042	2012.500035	0.017	2005.000036	0.018	2010.000075	0.037	PASS
-10	2002.500053	0.026	2012.500094	0.047	2005.000041	0.020	2010.000098	0.049	PASS
0	2002.500064	0.032	2012.500020	0.010	2005.000092	0.046	2010.000082	0.041	PASS
10	2002.500023	0.011	2012.500062	0.031	2005.000052	0.026	2010.000092	0.046	PASS
20	2002.499981	-0.009	2012.499937	-0.031	2004.999934	-0.033	2009.999955	-0.022	PASS
30	2002.499913	-0.043	2012.499977	-0.011	2004.999966	-0.017	2009.999922	-0.039	PASS
40	2002.499989	-0.005	2012.499978	-0.011	2004.999927	-0.036	2009.999971	-0.014	PASS
50	2002.499942	-0.029	2012.499912	-0.044	2004.999907	-0.046	2009.999907	-0.046	PASS
55	2002.499904	-0.048	2012.499913	-0.043	2004.999914	-0.043	2009.999944	-0.028	PASS

SC Mode- Ant. TX 3

FREQUENCY ERROR vs. VOLTAGE									PASS/ FAIL
Voltage (Volts)	Test result (MHz)								
	5MHz				10MHz				
	1997.5MHz		2017.5MHz		2000.0MHz		2015.0MHz		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-48	1997.500058	0.029	2017.500060	0.030	2000.000045	0.023	2015.000035	0.017	PASS
-40.5	1997.500051	0.026	2017.500037	0.018	2000.000041	0.021	2015.000063	0.031	PASS
-58.5	1997.500081	0.041	2017.500053	0.026	2000.000098	0.049	2015.000089	0.044	PASS

FREQUENCY ERROR vs. Temperature									PASS/ FAIL
Temp. (°C)	Test result (MHz)								
	5MHz				10MHz				
	1997.5MHz		2017.5MHz		2000.0MHz		2015.0MHz		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-40	1997.500027	0.014	2017.500033	0.016	2000.000045	0.023	2015.000069	0.034	PASS
-30	1997.500079	0.040	2017.500027	0.013	2000.000048	0.024	2015.000043	0.021	PASS
-20	1997.500023	0.012	2017.500046	0.023	2000.000084	0.042	2015.000058	0.029	PASS
-10	1997.500051	0.026	2017.500021	0.010	2000.000043	0.022	2015.000058	0.029	PASS
0	1997.500084	0.042	2017.500024	0.012	2000.000013	0.007	2015.000021	0.010	PASS
10	1997.500011	0.006	2017.500089	0.044	2000.000017	0.009	2015.000086	0.043	PASS
20	1997.499952	-0.024	2017.499952	-0.024	1999.999977	-0.012	2014.999973	-0.013	PASS
30	1997.499941	-0.030	2017.499907	-0.046	1999.999982	-0.009	2014.999954	-0.023	PASS
40	1997.499964	-0.018	2017.499948	-0.026	1999.999915	-0.043	2014.999985	-0.007	PASS
50	1997.499959	-0.021	2017.499980	-0.010	1999.999914	-0.043	2014.999963	-0.018	PASS
55	1997.499956	-0.022	2017.499963	-0.018	1999.999961	-0.020	2014.999902	-0.049	PASS

FREQUENCY ERROR vs. VOLTAGE									PASS/ FAIL
Voltage (Volts)	Test result (MHz)								
	15MHz				20MHz				
	2002.5MHz		2012.5MHz		2005.0MHz		2010.0MHz		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-48	2002.500046	0.023	2012.500072	0.036	2005.000038	0.019	2010.000013	0.006	PASS
-40.5	2002.500068	0.034	2012.500041	0.020	2005.000088	0.044	2010.000023	0.011	PASS
-58.5	2002.500067	0.033	2012.500015	0.007	2005.000055	0.027	2010.000060	0.030	PASS

FREQUENCY ERROR vs. Temperature									PASS/ FAIL
Temp. (°C)	Test result (MHz)								
	15MHz				20MHz				
	2002.5MHz		2012.5MHz		2005.0MHz		2010.0MHz		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-40	2002.500071	0.035	2012.500022	0.011	2005.000086	0.043	2010.000036	0.018	PASS
-30	2002.500098	0.049	2012.500077	0.038	2005.000080	0.040	2010.000067	0.033	PASS
-20	2002.500087	0.043	2012.500057	0.028	2005.000074	0.037	2010.000062	0.031	PASS
-10	2002.500075	0.037	2012.500021	0.010	2005.000053	0.026	2010.000089	0.044	PASS
0	2002.500034	0.017	2012.500047	0.023	2005.000024	0.012	2010.000043	0.021	PASS
10	2002.500057	0.028	2012.500093	0.046	2005.000035	0.017	2010.000046	0.023	PASS
20	2002.499920	-0.040	2012.499944	-0.028	2004.999902	-0.049	2009.999977	-0.011	PASS
30	2002.499980	-0.010	2012.499972	-0.014	2004.999912	-0.044	2009.999900	-0.050	PASS
40	2002.499978	-0.011	2012.499913	-0.043	2004.999916	-0.042	2009.999938	-0.031	PASS
50	2002.499951	-0.024	2012.499912	-0.044	2004.999954	-0.023	2009.999963	-0.018	PASS
55	2002.499903	-0.048	2012.499958	-0.021	2004.999932	-0.034	2009.999906	-0.047	PASS

4.4 Emission Bandwidth Measurement

4.4.1 Limits of Emission Bandwidth Measurement

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

4.4.2 Test Procedure

-26dBc Bandwidth

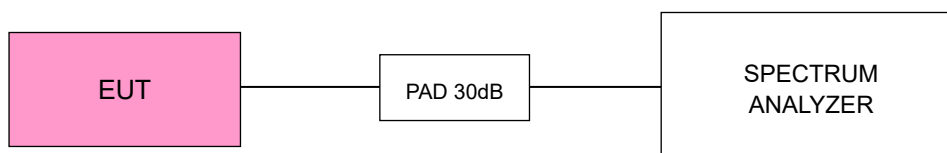
That emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26dB below the transmitter power.

Occupied Bandwidth

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.

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with RBW = 51kHz and VBW = 160kHz (Channel Bandwidth: 5MHz), RBW = 100kHz and VBW = 300kHz (Channel Bandwidth: 10MHz), RBW = 150kHz and VBW = 470kHz (Channel Bandwidth: 15MHz), RBW = 200kHz and VBW = 620kHz (Channel Bandwidth: 20MHz). The 26dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 26dB.

4.4.3 Test Setup



4.4.4 Test Results (-26dBc Bandwidth)

Band n66
Single Carrier

5MHz

Channel Number	Freq. (MHz)	-26dB 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
422500	2112.5	4.78	4.79	4.82	4.81	4.78	4.79	4.82	4.81	4.78	4.79	4.81	4.81	4.78	4.78	4.83	4.81
431000	2155	4.79	4.78	4.81	4.79	4.80	4.79	4.79	4.79	4.79	4.79	4.80	4.79	4.79	4.79	4.80	4.79
439500	2197.5	4.79	4.78	4.84	4.80	4.79	4.78	4.83	4.80	4.78	4.78	4.83	4.80	4.80	4.77	4.83	4.80

Ant. TX 0

Spectrum Plot of Worst Value

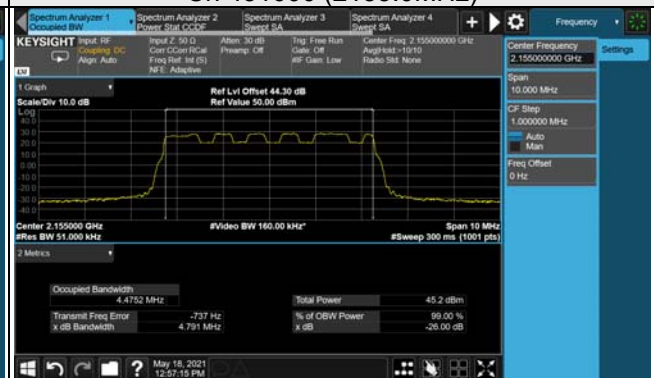
-26dBc Bandwidth

QPSK

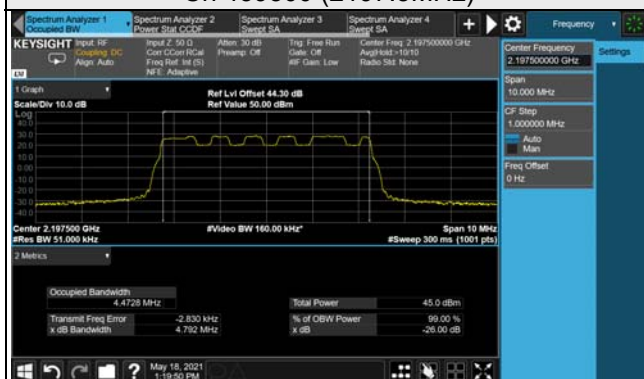
Ch 422500 (2112.5MHz)



Ch 431000 (2155.0MHz)

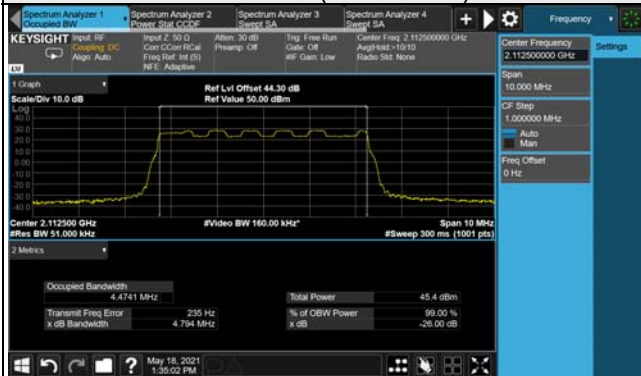


Ch 439500 (2197.5MHz)



16QAM

Ch 422500 (2112.5MHz)



Ch 431000 (2155.0MHz)



Ch 439500 (2197.5MHz)



64QAM

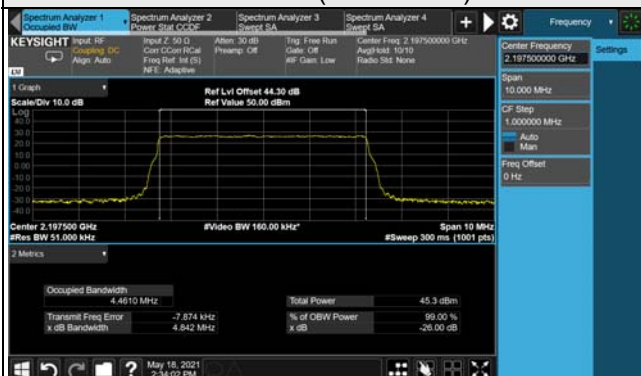
Ch 422500 (2112.5MHz)



Ch 431000 (2155.0MHz)



Ch 439500 (2197.5MHz)



256QAM

Ch 422500 (2112.5MHz)



Ch 431000 (2155.0MHz)



Ch 439500 (2197.5MHz)



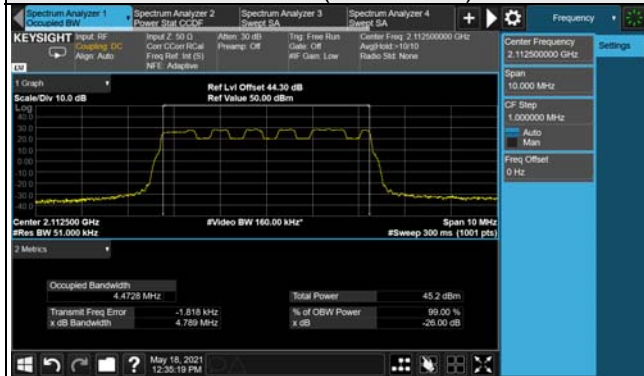
Ant. TX 1

Spectrum Plot of Worst Value

-26dBc Bandwidth

QPSK

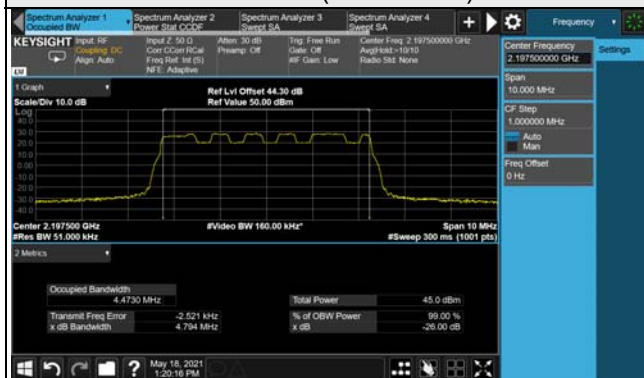
Ch 422500 (2112.5MHz)



Ch 431000 (2155.0MHz)

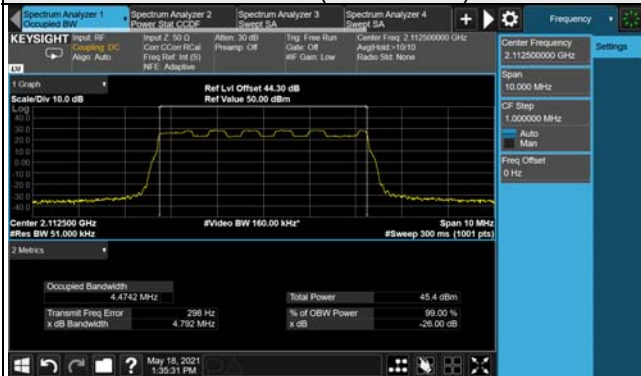


Ch 439500 (2197.5MHz)



16QAM

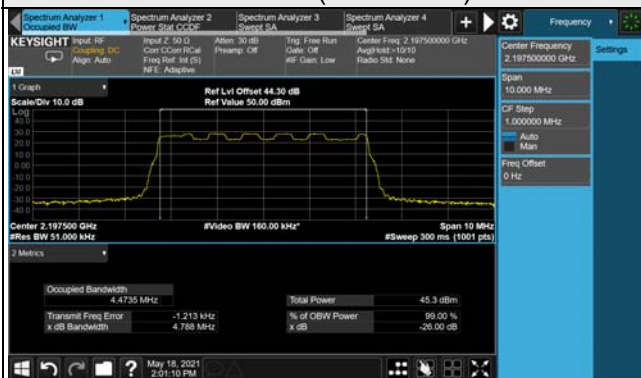
Ch 422500 (2112.5MHz)



Ch 431000 (2155.0MHz)

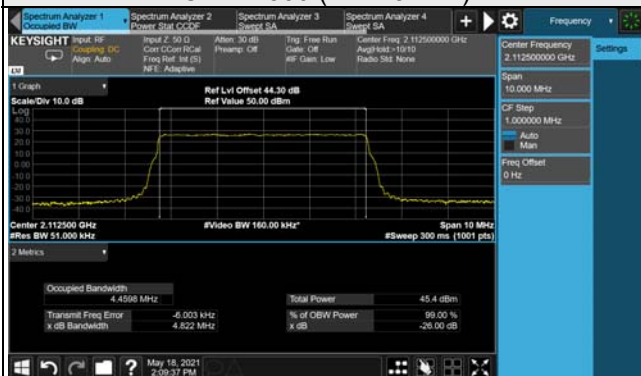


Ch 439500 (2197.5MHz)



64QAM

Ch 422500 (2112.5MHz)



Ch 431000 (2155.0MHz)

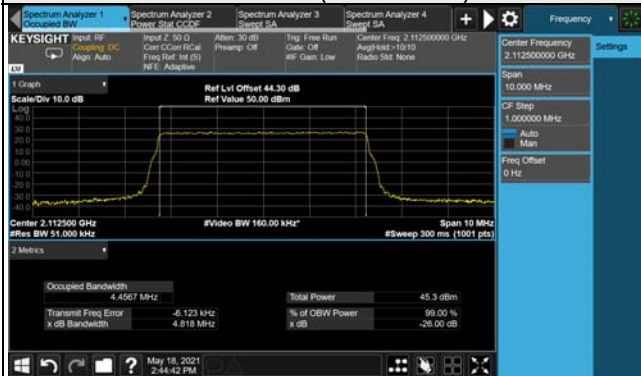


Ch 439500 (2197.5MHz)

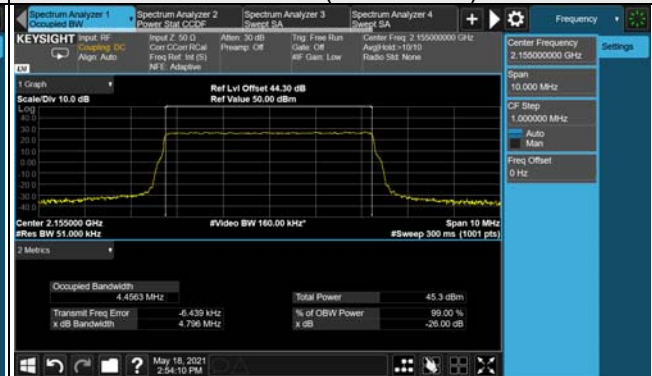


256QAM

Ch 422500 (2112.5MHz)



Ch 431000 (2155.0MHz)



Ch 439500 (2197.5MHz)



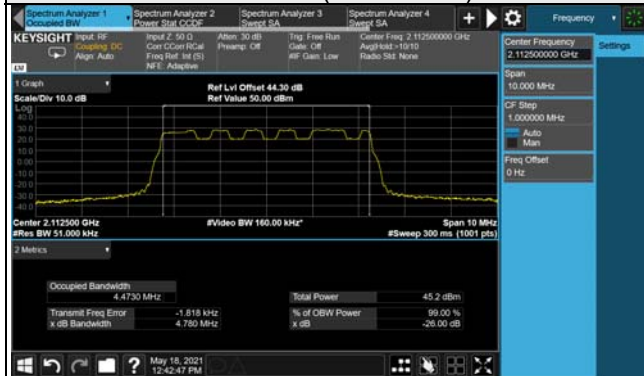
Ant. TX 2

Spectrum Plot of Worst Value

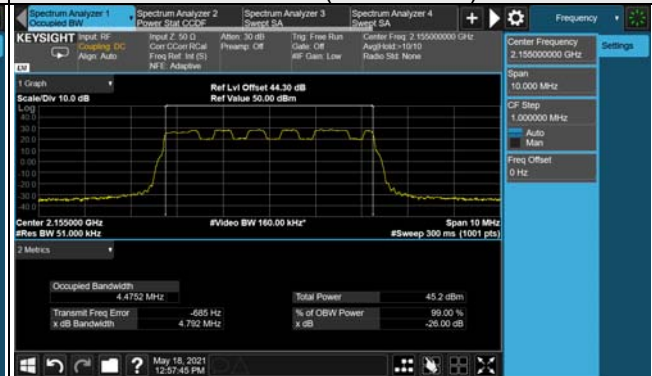
-26dBc Bandwidth

QPSK

Ch 422500 (2112.5MHz)



Ch 431000 (2155.0MHz)

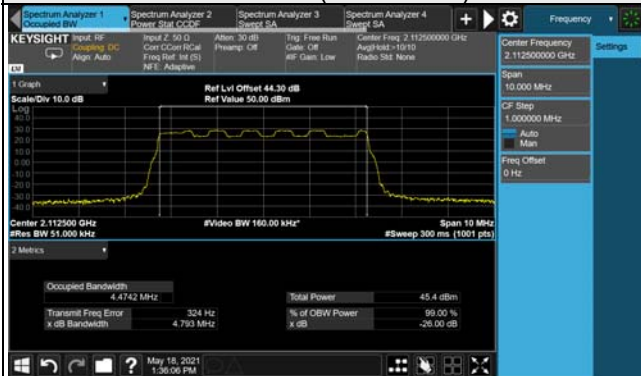


Ch 439500 (2197.5MHz)



16QAM

Ch 422500 (2112.5MHz)



Ch 431000 (2155.0MHz)



Ch 439500 (2197.5MHz)



64QAM

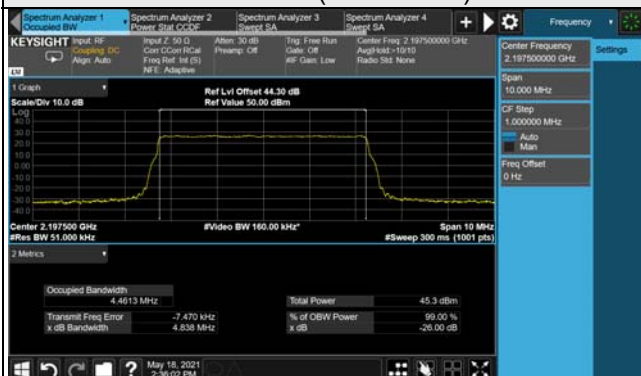
Ch 422500 (2112.5MHz)



Ch 431000 (2155.0MHz)

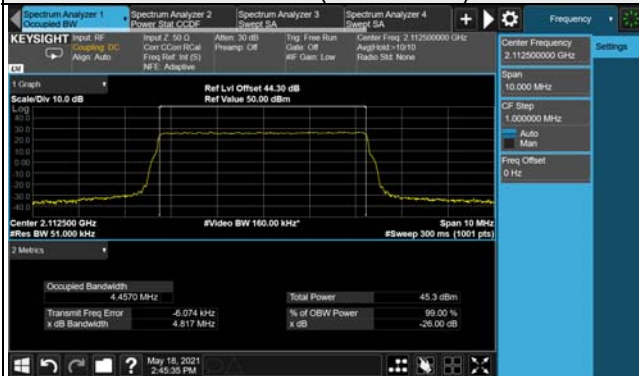


Ch 439500 (2197.5MHz)



256QAM

Ch 422500 (2112.5MHz)



Ch 431000 (2155.0MHz)



Ch 439500 (2197.5MHz)



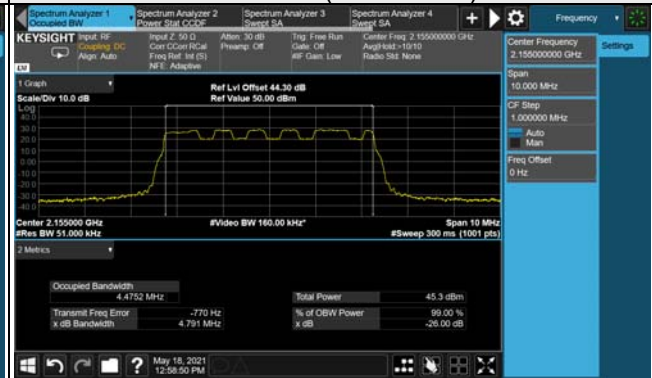
Ant. TX 3

Spectrum Plot of Worst Value -26dBc Bandwidth QPSK

Ch 422500 (2112.5MHz)



Ch 431000 (2155.0MHz)

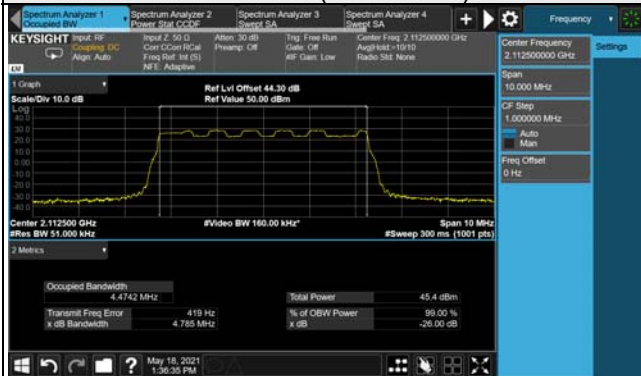


Ch 439500 (2197.5MHz)



16QAM

Ch 422500 (2112.5MHz)



Ch 431000 (2155.0MHz)



Ch 439500 (2197.5MHz)



64QAM

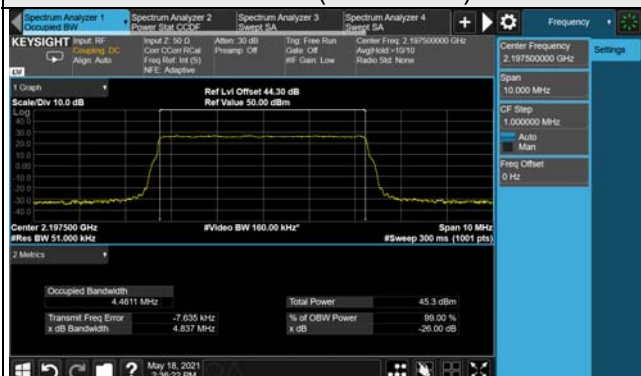
Ch 422500 (2112.5MHz)



Ch 431000 (2155.0MHz)



Ch 439500 (2197.5MHz)

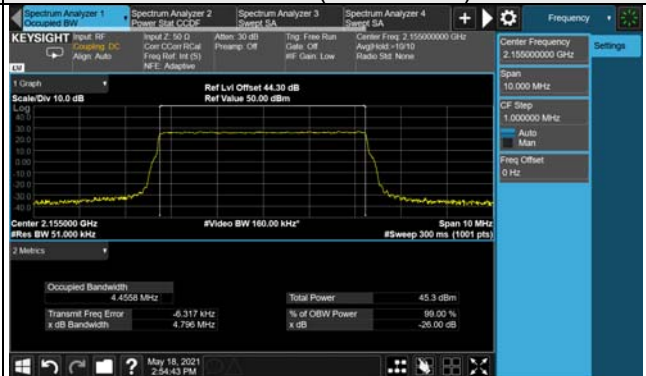


256QAM

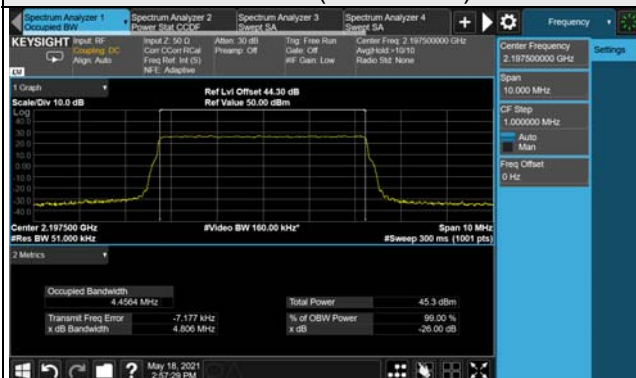
Ch 422500 (2112.5MHz)



Ch 431000 (2155.0MHz)



Ch 439500 (2197.5MHz)



10MHz

Channel Number	Freq. (MHz)	-26dB 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
423000	2115	9.60	9.61	9.65	9.68	9.60	9.61	9.66	9.67	9.59	9.62	9.65	9.67	9.59	9.62	9.65	9.67
431000	2155	9.59	9.61	9.66	9.67	9.60	9.61	9.65	9.68	9.60	9.61	9.65	9.67	9.59	9.61	9.66	9.67
439000	2195	9.59	9.60	9.66	9.66	9.59	9.60	9.66	9.65	9.59	9.60	9.65	9.65	9.59	9.61	9.66	9.65

Ant. TX 0

Spectrum Plot of Worst Value

-26dBc Bandwidth

QPSK

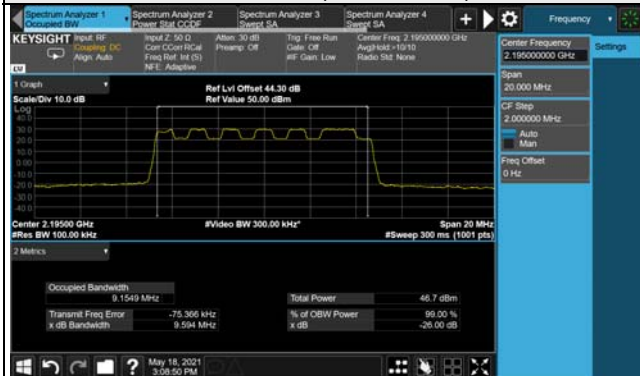
Ch 423000 (2115.0MHz)



Ch 431000 (2155.0MHz)



Ch 439000 (2195.0MHz)



16QAM

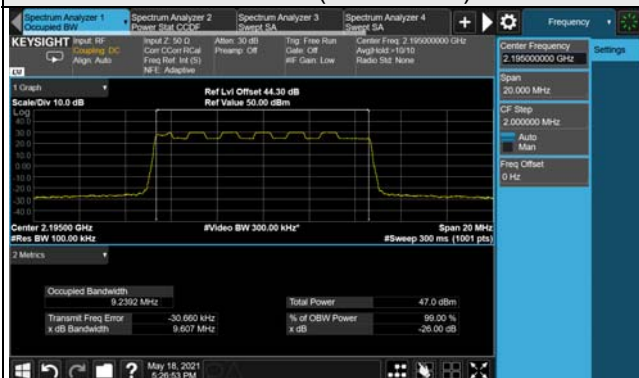
Ch 423000 (2115.0MHz)



Ch 431000 (2155.0MHz)



Ch 439000 (2195.0MHz)



64QAM

Ch 423000 (2115.0MHz)



Ch 431000 (2155.0MHz)



Ch 439000 (2195.0MHz)



256QAM

Ch 423000 (2115.0MHz)



Ch 431000 (2155.0MHz)



Ch 439000 (2195.0MHz)



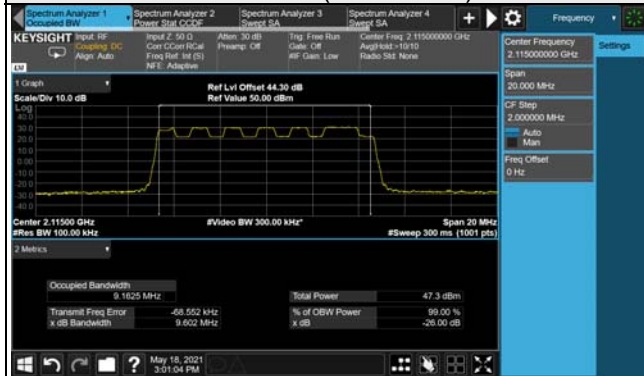
Ant. TX 1

Spectrum Plot of Worst Value

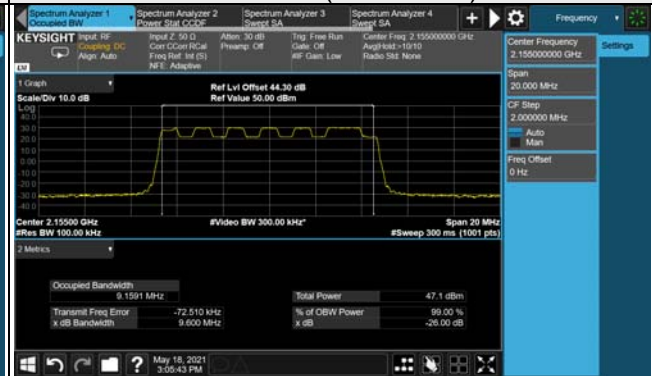
-26dBc Bandwidth

QPSK

Ch 423000 (2115.0MHz)



Ch 431000 (2155.0MHz)

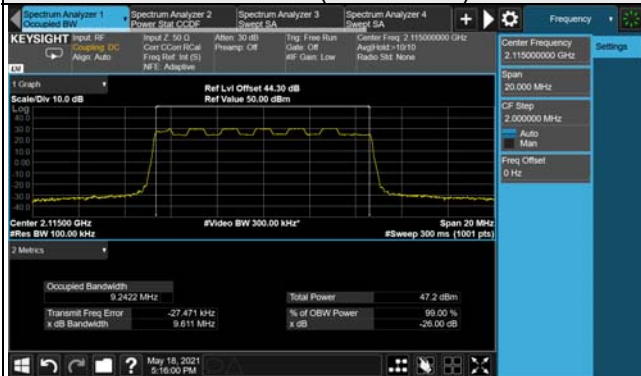


Ch 439000 (2195.0MHz)



16QAM

Ch 423000 (2115.0MHz)



Ch 431000 (2155.0MHz)

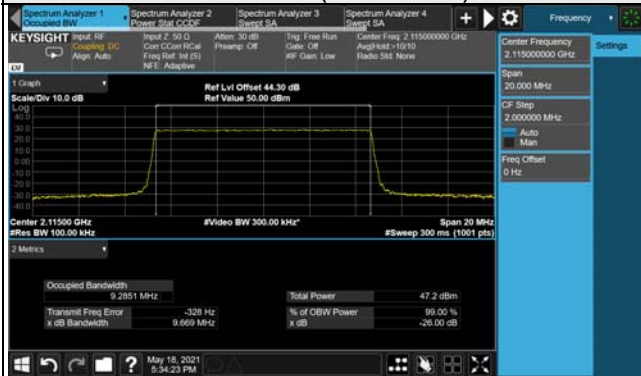


Ch 439000 (2195.0MHz)

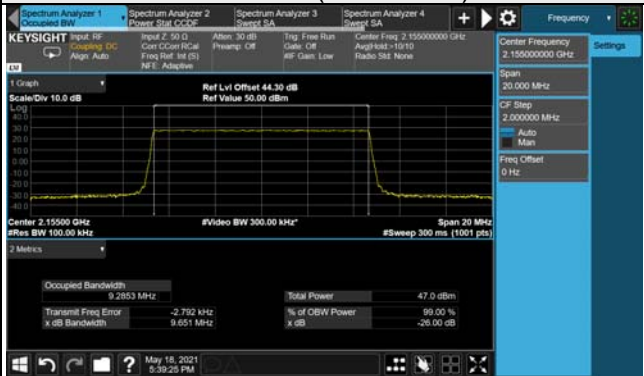


64QAM

Ch 423000 (2115.0MHz)



Ch 431000 (2155.0MHz)

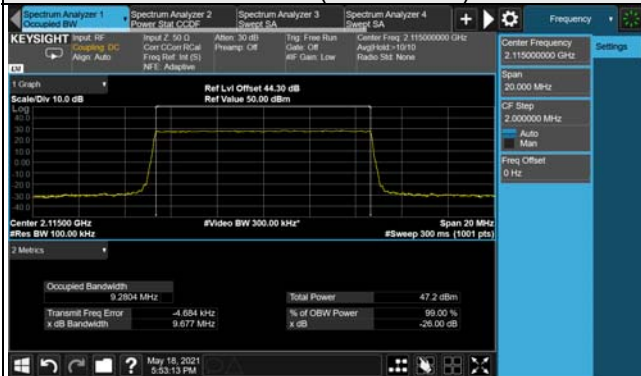


Ch 439000 (2195.0MHz)



256QAM

Ch 423000 (2115.0MHz)



Ch 431000 (2155.0MHz)



Ch 439000 (2195.0MHz)



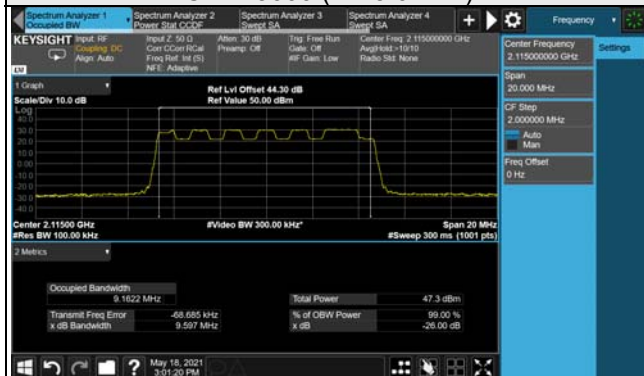
Ant. TX 2

Spectrum Plot of Worst Value

-26dBc Bandwidth

QPSK

Ch 423000 (2115.0MHz)



Ch 431000 (2155.0MHz)

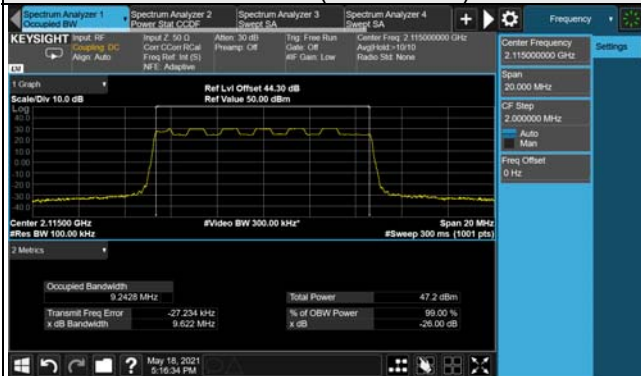


Ch 439000 (2195.0MHz)



16QAM

Ch 423000 (2115.0MHz)



Ch 431000 (2155.0MHz)

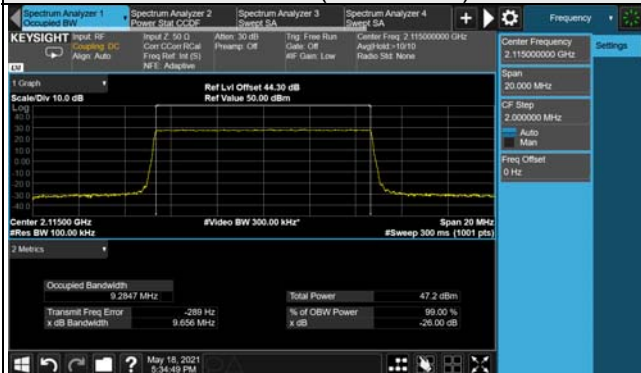


Ch 439000 (2195.0MHz)

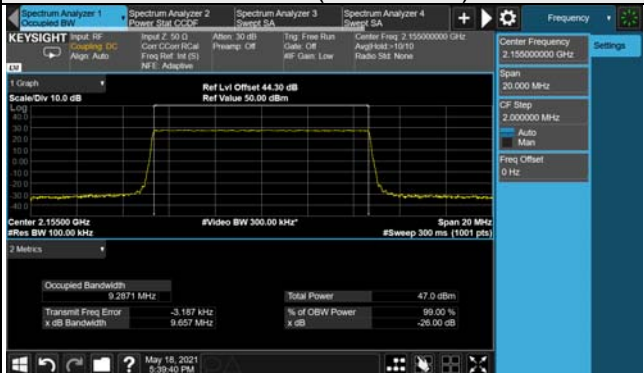


64QAM

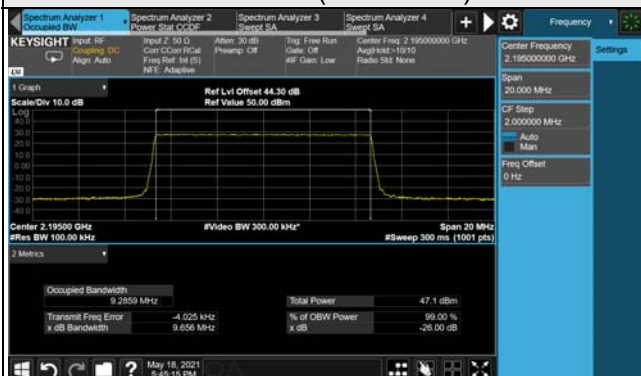
Ch 423000 (2115.0MHz)



Ch 431000 (2155.0MHz)

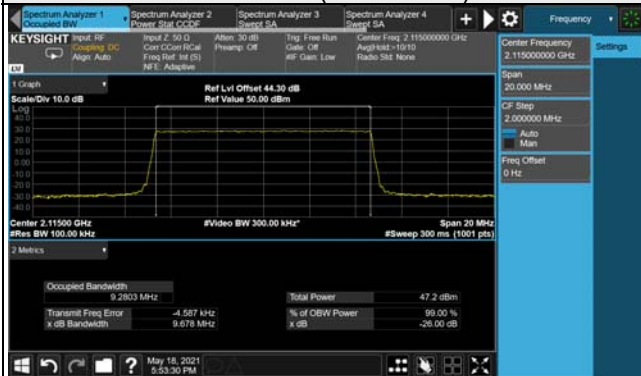


Ch 439000 (2195.0MHz)

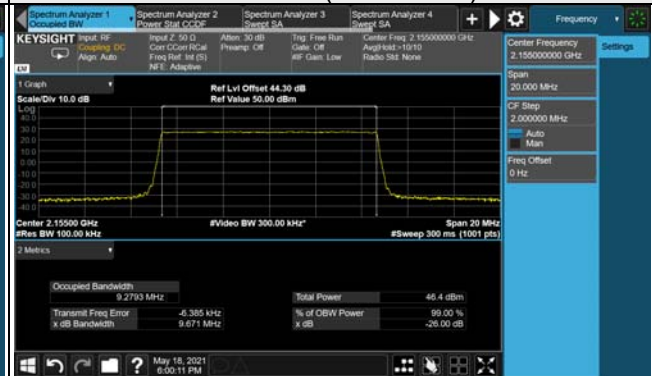


256QAM

Ch 423000 (2115.0MHz)



Ch 431000 (2155.0MHz)



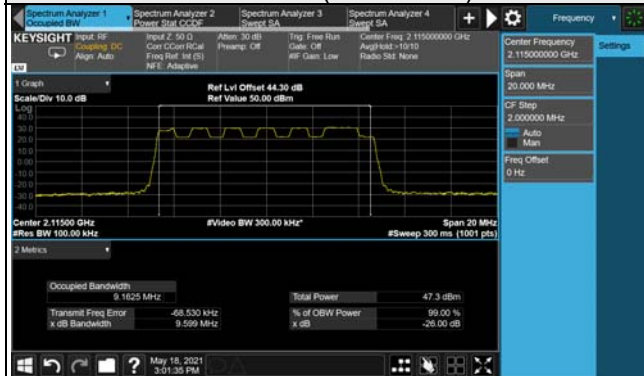
Ch 439000 (2195.0MHz)



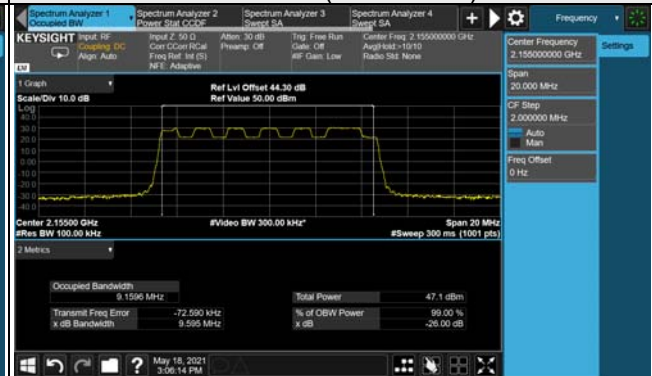
Ant. TX 3

Spectrum Plot of Worst Value -26dBc Bandwidth QPSK

Ch 423000 (2115.0MHz)



Ch 431000 (2155.0MHz)

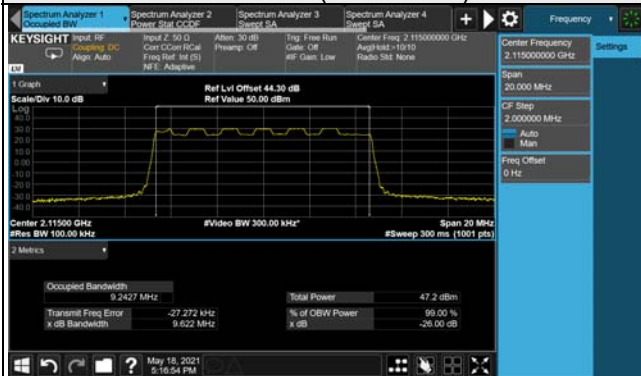


Ch 439000 (2195.0MHz)



16QAM

Ch 423000 (2115.0MHz)



Ch 431000 (2155.0MHz)



Ch 439000 (2195.0MHz)

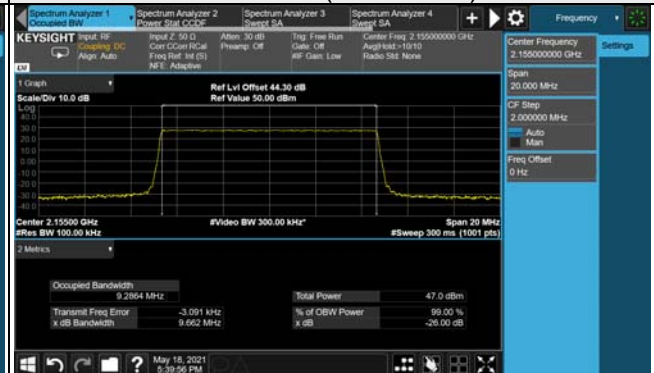


64QAM

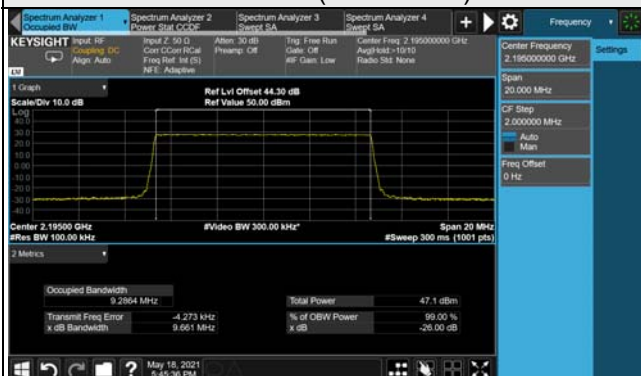
Ch 423000 (2115.0MHz)



Ch 431000 (2155.0MHz)

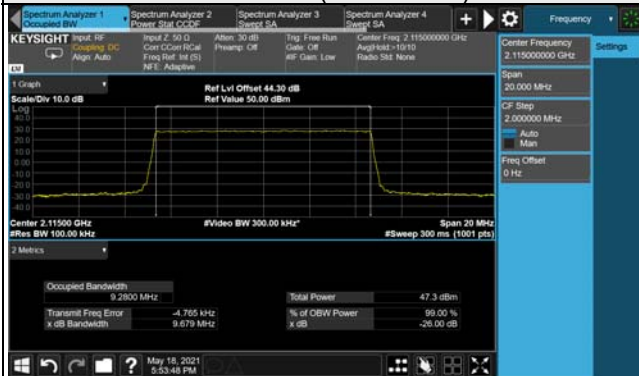


Ch 439000 (2195.0MHz)



256QAM

Ch 423000 (2115.0MHz)



Ch 431000 (2155.0MHz)



Ch 439000 (2195.0MHz)



15MHz

Channel Number	Freq. (MHz)	-26dB 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
423500	2117.5	14.58	14.58	14.58	14.57	14.59	14.58	14.59	14.57	14.59	14.57	14.58	14.57	14.59	14.58	14.58	14.57
431000	2155	14.58	14.57	14.57	14.57	14.58	14.58	14.58	14.57	14.58	14.58	14.57	14.58	14.58	14.58	14.57	14.57
438500	2192.5	14.57	14.57	14.58	14.58	14.57	14.57	14.57	14.58	14.57	14.58	14.58	14.58	14.57	14.57	14.58	14.58

Ant. TX 0

Spectrum Plot of Worst Value

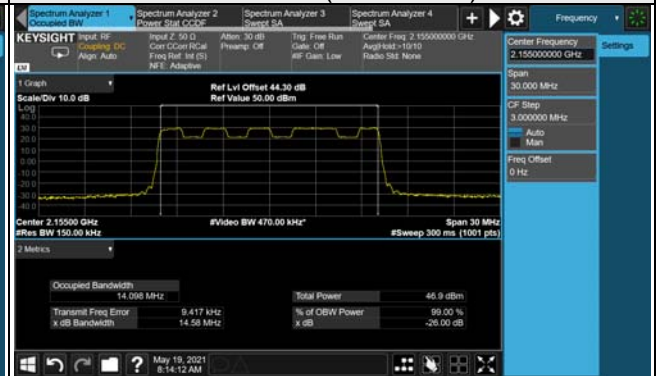
-26dBc Bandwidth

QPSK

Ch 423500 (2117.5MHz)



Ch 431000 (2155.0MHz)



Ch 438500 (2192.5MHz)

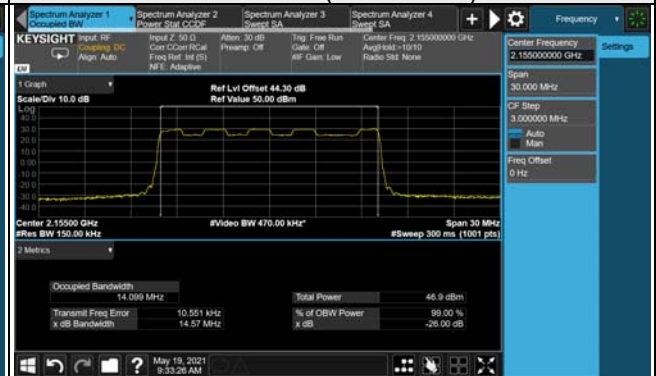


16QAM

Ch 423500 (2117.5MHz)



Ch 431000 (2155.0MHz)



Ch 438500 (2192.5MHz)



64QAM

Ch 423500 (2117.5MHz)



Ch 431000 (2155.0MHz)



Ch 438500 (2192.5MHz)



256QAM

Ch 423500 (2117.5MHz)



Ch 431000 (2155.0MHz)



Ch 438500 (2192.5MHz)



Ant. TX 1

Spectrum Plot of Worst Value

-26dBc Bandwidth

QPSK

Ch 423500 (2117.5MHz)



Ch 431000 (2155.0MHz)



Ch 438500 (2192.5MHz)

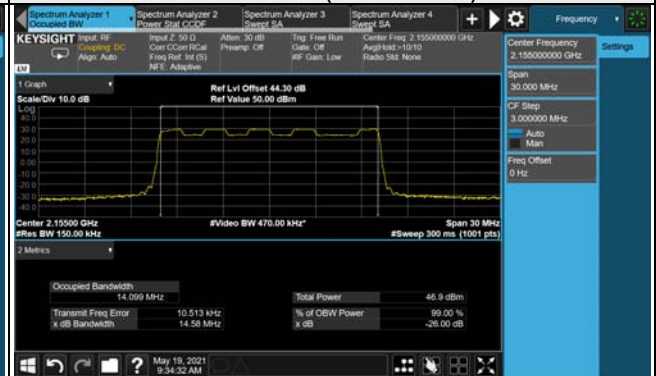


16QAM

Ch 423500 (2117.5MHz)



Ch 431000 (2155.0MHz)



Ch 438500 (2192.5MHz)



64QAM

Ch 423500 (2117.5MHz)



Ch 431000 (2155.0MHz)



Ch 438500 (2192.5MHz)



256QAM

Ch 423500 (2117.5MHz)



Ch 431000 (2155.0MHz)



Ch 438500 (2192.5MHz)



Ant. TX 2

Spectrum Plot of Worst Value -26dBc Bandwidth QPSK

Ch 423500 (2117.5MHz)



Ch 431000 (2155.0MHz)



Ch 438500 (2192.5MHz)

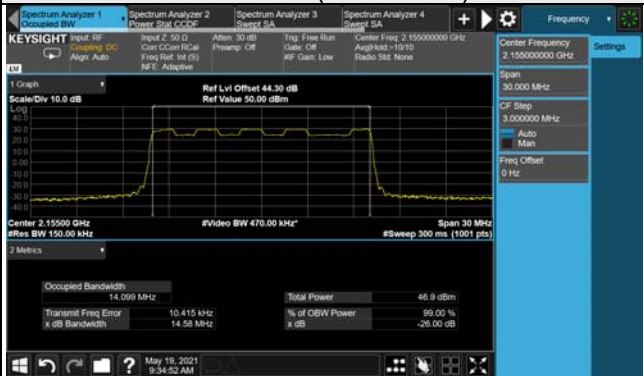


16QAM

Ch 423500 (2117.5MHz)



Ch 431000 (2155.0MHz)



Ch 438500 (2192.5MHz)



64QAM

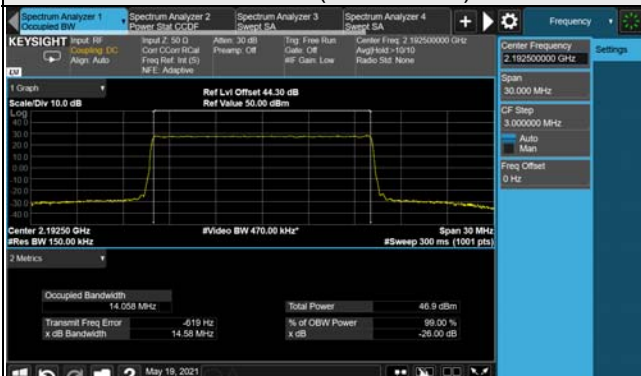
Ch 423500 (2117.5MHz)



Ch 431000 (2155.0MHz)



Ch 438500 (2192.5MHz)



256QAM

Ch 423500 (2117.5MHz)



Ch 431000 (2155.0MHz)



Ch 438500 (2192.5MHz)



Ant. TX 3

Spectrum Plot of Worst Value -26dBc Bandwidth QPSK

Ch 423500 (2117.5MHz)



Ch 431000 (2155.0MHz)



Ch 438500 (2192.5MHz)

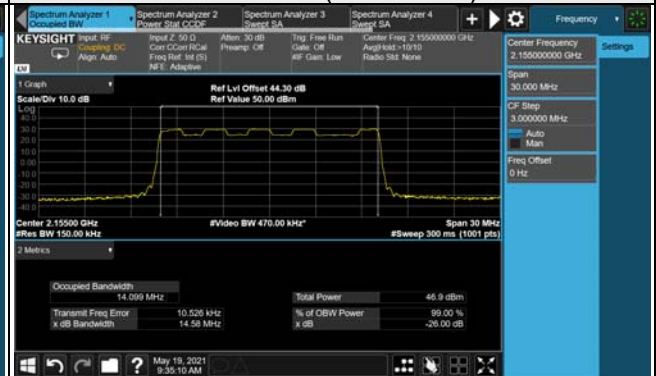


16QAM

Ch 423500 (2117.5MHz)



Ch 431000 (2155.0MHz)



Ch 438500 (2192.5MHz)



64QAM

Ch 423500 (2117.5MHz)



Ch 431000 (2155.0MHz)



Ch 438500 (2192.5MHz)



256QAM

Ch 423500 (2117.5MHz)



Ch 431000 (2155.0MHz)



Ch 438500 (2192.5MHz)



20MHz

Channel Number	Freq. (MHz)	-26dB 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
424000	2120	19.54	19.55	19.57	19.56	19.54	19.56	19.57	19.56	19.55	19.56	19.57	19.56	19.55	19.55	19.57	19.57
431000	2155	19.55	19.55	19.58	19.58	19.55	19.55	19.58	19.58	19.55	19.56	19.58	19.58	19.55	19.55	19.58	19.57
438000	2190	19.55	19.56	19.57	19.57	19.55	19.56	19.58	19.57	19.55	19.56	19.57	19.57	19.55	19.56	19.58	19.57

Ant. TX 0

Spectrum Plot of Worst Value

-26dBc Bandwidth

QPSK

Ch 424000 (2120.0MHz)



Ch 431000 (2155.0MHz)

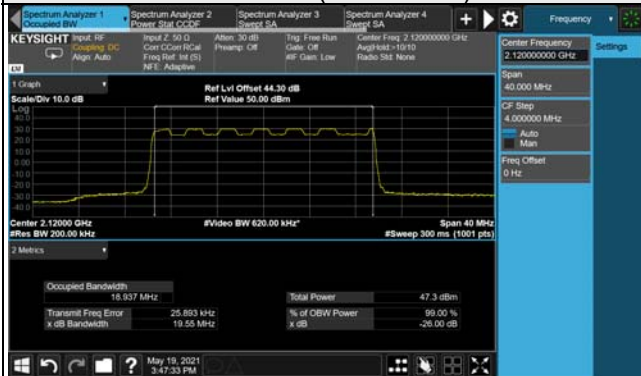


Ch 438000 (2190.0MHz)

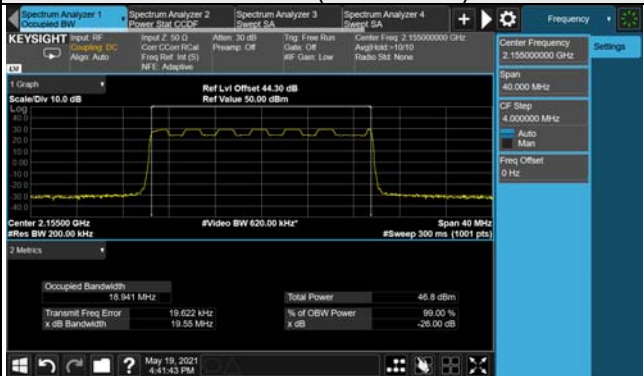


16QAM

Ch 424000 (2120.0MHz)



Ch 431000 (2155.0MHz)



Ch 438000 (2190.0MHz)

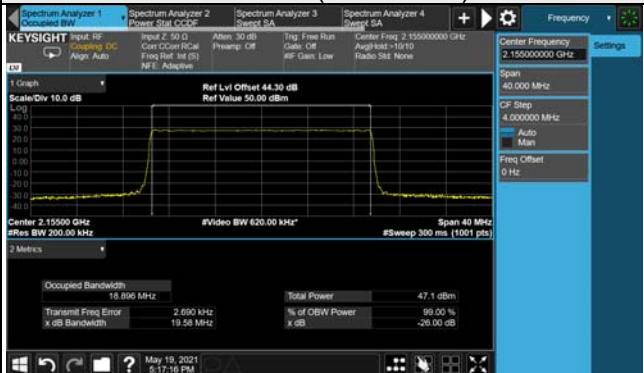


64QAM

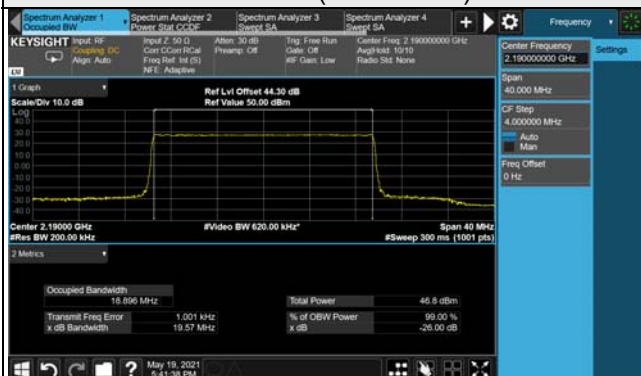
Ch 424000 (2120.0MHz)



Ch 431000 (2155.0MHz)

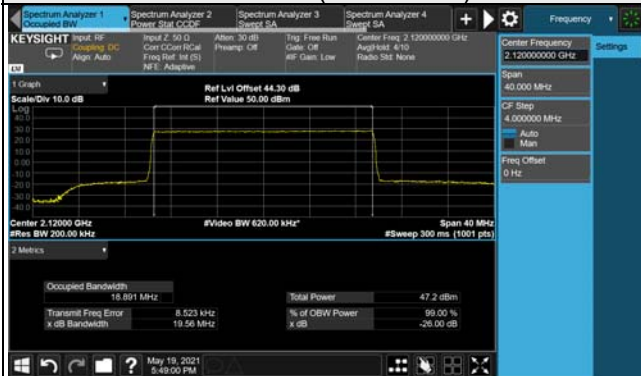


Ch 438000 (2190.0MHz)



256QAM

Ch 424000 (2120.0MHz)



Ch 431000 (2155.0MHz)



Ch 438000 (2190.0MHz)



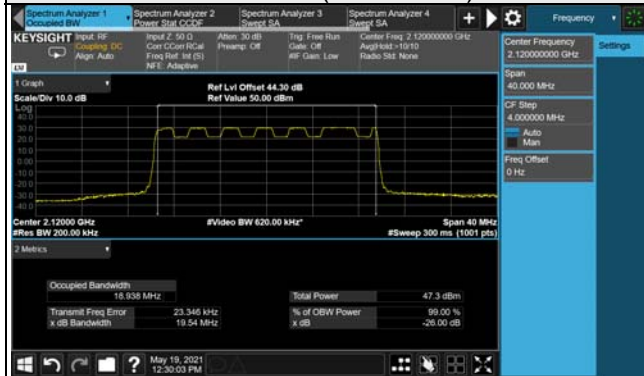
Ant. TX 1

Spectrum Plot of Worst Value

-26dBc Bandwidth

QPSK

Ch 424000 (2120.0MHz)



Ch 431000 (2155.0MHz)

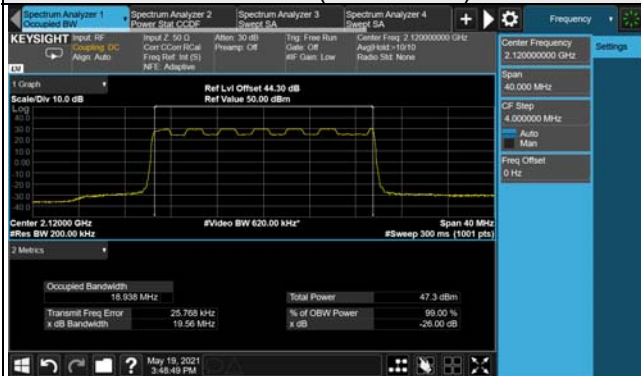


Ch 438000 (2190.0MHz)

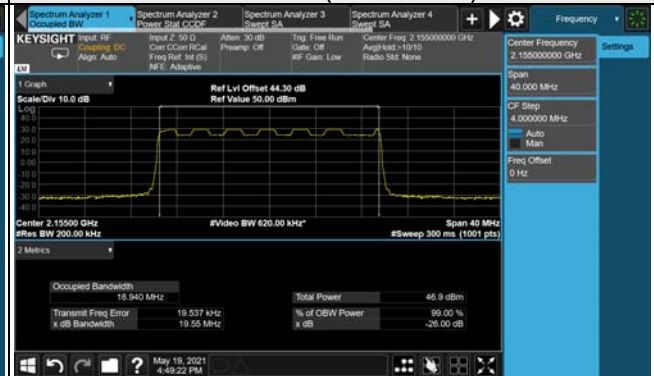


16QAM

Ch 424000 (2120.0MHz)



Ch 431000 (2155.0MHz)



Ch 438000 (2190.0MHz)



64QAM

Ch 424000 (2120.0MHz)



Ch 431000 (2155.0MHz)



Ch 438000 (2190.0MHz)

