

FCC Test Report (Part 27)

(Spot Check)

Report No.: RFBEOO-WTW-P21020573B-1

FCC ID: MADG2021-49-01B

Test Model: G2021-49-01B

Received Date: Sep. 13, 2021

Test Date: Sep. 14 ~ Sep. 28, 2021

Issued Date: Oct. 26, 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



This report is for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence, provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents. Unless specific mention, the uncertainty of measurement has been explicitly taken into account to declare the compliance or non-compliance to the specification.

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Release Control Record

Issue No.	Description	Date Issued
RFBEOO-WTW-P21020573B-1	Original release.	Oct. 26, 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: Sep. 14 ~ Sep. 28, 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:** Oct. 26, 2021
Pettie Chen / Senior Specialist

Approved by : Bruce Chen , **Date:** Oct. 26, 2021
Bruce Chen / Senior 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.
2.1051 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 -49.05dB at 5387.50MHz.

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) (\pm)
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	Sep. 23, 2021 Sep. 22, 2022
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:

- The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
- 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	
	Band n66	Channel Bandwidth: 10MHz	ANT0	2115.0MHz ~ 2195.0MHz
			ANT1	
			ANT2	
			ANT3	
	Band n66	Channel Bandwidth: 15MHz	ANT0	2117.5MHz ~ 2192.5MHz
			ANT1	
			ANT2	
			ANT3	
	Band n66	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			

Max. EIRP Power	Band n66	ANT0	Channel Bandwidth: 5MHz	933.49 W/MHz (16QAM)
		ANT1		
		ANT2		
		ANT3		
	Band n66	ANT0	Channel Bandwidth: 20MHz	446.27 W/MHz (16QAM)
		ANT1		
		ANT2		
		ANT3		
	Band n66	ANT0	Non-Contiguous_5MHz+5MHz	741.17 W/MHz (16QAM)
		ANT1		
		ANT2		
		ANT3		
	Band n66	ANT0	Contiguous_20MHz+20MHz	210.31 W/MHz (16QAM)
		ANT1		
		ANT2		
		ANT3		
Band n70	ANT0	Channel Bandwidth: 5MHz	1493.37 W/MHz (16QAM)	
	ANT1			
	ANT2			
	ANT3			
	Band n70	ANT0	Channel Bandwidth: 25MHz	330.86 W/MHz (QPSK)
		ANT1		
		ANT2		
		ANT3		
Band n70	ANT0	Contiguous_5MHz+5MHz	687.14 W/MHz (16QAM)	
	ANT1			
	ANT2			
	ANT3			
Band n70	ANT0	Contiguous_20MHz+5MHz	306.99 W/MHz (16QAM)	
	ANT1			
	ANT2			
	ANT3			
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 a supplementary report to the original BV CPS report no.: RFBEOO-WTW-P21020573 & RFBEOO-WTW-P21020573A & RFBEOO-WTW-P21020573A-1. Exhibit prepared for FCC Spot Check Verification report, the format, test items and amount of spot-check test data are decided by applicant's engineering judgment, for more details please refer to declaration letter exhibit. Radiated emission and output power verification worst test refer to original report.

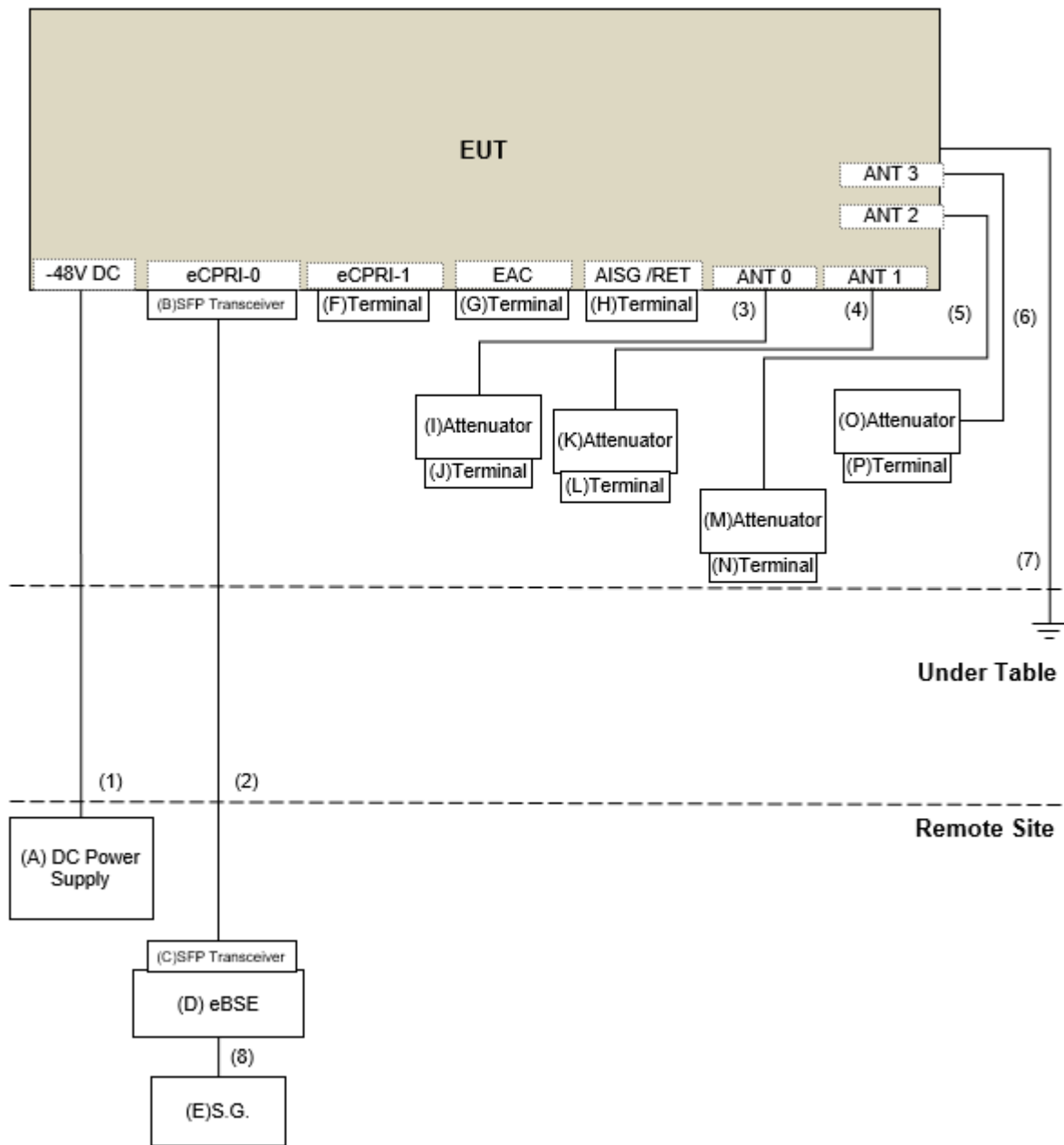
2. The EUT incorporates a MIMO function.

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.

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(40W) Single Carrier	QPSK, 16QAM, 64QAM, 256QAM
		Ch 424000 (2120.0MHz), Ch 431000 (2155.0MHz), Ch 438000 (2190.0MHz)	20MHz(60W) Single Carrier	QPSK, 16QAM, 64QAM, 256QAM
		Ch 422500 (2112.5MHz)+ Ch 433500 (2167.5MHz) Ch 425500 (2127.5MHz)+ Ch 436500 (2182.5MHz) Ch 428500 (2142.5MHz)+ Ch 439500 (2197.5MHz)	Non-Contiguous 5MHz(30W)+5MHz(30W) Dual Carrier	QPSK, 16QAM, 64QAM, 256QAM
		Ch 424000 (2120.0MHz)+ Ch 428000 (2140.0MHz) Ch 429000 (2145.0MHz)+ Ch 433000 (2165.0MHz) Ch 434000 (2170.0MHz)+ Ch 438000 (2190.0MHz)	Contiguous 20MHz(30W)+20MHz(30W) Dual Carrier	QPSK, 16QAM, 64QAM, 256QAM
Channel Edge	2112.5 to 2197.5	Ch 422500 (2112.5MHz), Ch 439500 (2197.5MHz)	5MHz(40W) Single Carrier	16QAM
		Ch 424000 (2120.0MHz), Ch 438000 (2190.0MHz)	20MHz(60W) Single Carrier	16QAM
		Ch 422500 (2112.5MHz)+ Ch 433500 (2167.5MHz) Ch 428500 (2142.5MHz)+ Ch 439500 (2197.5MHz)	Non-Contiguous 5MHz(30W)+5MHz(30W) Dual Carrier	16QAM
		Ch 424000 (2120.0MHz)+ Ch 428000 (2140.0MHz) Ch 434000 (2170.0MHz)+ Ch 438000 (2190.0MHz)	Contiguous 20MHz(30W)+20MHz(30W) Dual Carrier	16QAM
Conducted Emission	2112.5 to 2197.5	Ch 422500 (2112.5MHz), Ch 431000 (2155.0MHz), Ch 439500 (2197.5MHz)	5MHz(40W) Single Carrier	16QAM
		Ch 424000 (2120.0MHz), Ch 431000 (2155.0MHz), Ch 438000 (2190.0MHz)	20MHz(60W) Single Carrier	16QAM
		Ch 422500 (2112.5MHz)+ Ch 433500 (2167.5MHz) Ch 425500 (2127.5MHz)+ Ch 436500 (2182.5MHz) Ch 428500 (2142.5MHz)+ Ch 439500 (2197.5MHz)	Non-Contiguous 5MHz(30W)+5MHz(30W) Dual Carrier	16QAM
		Ch 424000 (2120.0MHz)+ Ch 428000 (2140.0MHz) Ch 429000 (2145.0MHz)+ Ch 433000 (2165.0MHz) Ch 434000 (2170.0MHz)+ Ch 438000 (2190.0MHz)	Contiguous 20MHz(30W)+20MHz(30W) Dual Carrier	16QAM

Test Item	Available Frequency (MHz)	Tested Channel	Channel Bandwidth	Modulation
Radiated Emission Below 1GHz	2112.5 to 2197.5	Ch 422500 (2112.5MHz), Ch 431000 (2155.0MHz), Ch 439500 (2197.5MHz)	5MHz(40W) Single Carrier	16QAM
		Ch 424000 (2120.0MHz), Ch 431000 (2155.0MHz), Ch 438000 (2190.0MHz)	20MHz(60W) Single Carrier	16QAM
		Ch 422500 (2112.5MHz)+ Ch 433500 (2167.5MHz) Ch 425500 (2127.5MHz)+ Ch 436500 (2182.5MHz) Ch 428500 (2142.5MHz)+ Ch 439500 (2197.5MHz)	Non-Contiguous 5MHz(30W)+5MHz(30W) Dual Carrier	16QAM
		Ch 424000 (2120.0MHz)+ Ch 428000 (2140.0MHz) Ch 429000 (2145.0MHz)+ Ch 433000 (2165.0MHz) Ch 434000 (2170.0MHz)+ Ch 438000 (2190.0MHz)	Contiguous 20MHz(30W)+20MHz(30W) Dual Carrier	16QAM
Radiated Emission Above 1GHz	2112.5 to 2197.5	Ch 422500 (2112.5MHz), Ch 431000 (2155.0MHz), Ch 439500 (2197.5MHz)	5MHz(40W) Single Carrier	16QAM
		Ch 424000 (2120.0MHz), Ch 431000 (2155.0MHz), Ch 438000 (2190.0MHz)	20MHz(60W) Single Carrier	16QAM
		Ch 422500 (2112.5MHz)+ Ch 433500 (2167.5MHz) Ch 425500 (2127.5MHz)+ Ch 436500 (2182.5MHz) Ch 428500 (2142.5MHz)+ Ch 439500 (2197.5MHz)	Non-Contiguous 5MHz(30W)+5MHz(30W) Dual Carrier	16QAM
		Ch 424000 (2120.0MHz)+ Ch 428000 (2140.0MHz) Ch 429000 (2145.0MHz)+ Ch 433000 (2165.0MHz) Ch 434000 (2170.0MHz)+ Ch 438000 (2190.0MHz)	Contiguous 20MHz(30W)+20MHz(30W) Dual Carrier	16QAM

NOTE:

1. All supported modulation types were evaluated. The Worst case of 16QAM was selected. Therefore, the Channel Edge, Conducted Emission and Radiated Emission were performed under 16QAM mode only.
2. In the Single Carrier Mode the Bandwidth 5MHz is the worst case in the original report within the lowest bandwidth and highest power.
3. In the CA Mode the Bandwidth 5MHz is the worst case in the original report within the lowest combined bandwidth and highest combined power.

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(40W) Single Carrier	QPSK, 16QAM, 64QAM, 256QAM
		Ch 401500 (2007.5MHz)	25MHz(40W) Single Carrier	QPSK, 16QAM, 64QAM, 256QAM
		Ch 399500 (1997.5MHz)+ Ch 400500 (2002.5MHz) Ch 401000 (2005.0MHz)+ Ch 402000 (2010.0MHz) Ch 402500 (2012.5MHz)+ Ch 403500 (2017.5MHz)	Contiguous 5MHz(20W)+5MHz(20W) Dual Carrier	QPSK, 16QAM, 64QAM, 256QAM
		Ch 401000 (2005.0MHz)+ Ch 403500 (2017.5MHz)	Contiguous 20MHz(32W)+5MHz(8W) Dual Carrier	QPSK, 16QAM, 64QAM, 256QAM
Channel Edge	1997.5 to 2017.5	Ch 399500 (1997.5MHz), Ch 403500 (2017.5MHz)	5MHz(40W) Single Carrier	16QAM
		Ch 401500 (2007.5MHz)	25MHz(40W) Single Carrier	QPSK
		Ch 399500 (1997.5MHz)+ Ch 400500 (2002.5MHz) Ch 402500 (2012.5MHz)+ Ch 403500 (2017.5MHz)	Contiguous 5MHz(20W)+5MHz(20W) Dual Carrier	16QAM
		Ch 401000 (2005.0MHz)+ Ch 403500 (2017.5MHz)	Contiguous 20MHz(32W)+5MHz(8W) Dual Carrier	16QAM
Conducted Emission	1997.5 to 2017.5	Ch 399500 (1997.5MHz), Ch 401500 (2007.5MHz), Ch 403500 (2017.5MHz)	5MHz(40W) Single Carrier	16QAM
		Ch 401500 (2007.5MHz)	25MHz(40W) Single Carrier	QPSK
		Ch 399500 (1997.5MHz)+ Ch 400500 (2002.5MHz) Ch 401000 (2005.0MHz)+ Ch 402000 (2010.0MHz) Ch 402500 (2012.5MHz)+ Ch 403500 (2017.5MHz)	Contiguous 5MHz(20W)+5MHz(20W) Dual Carrier	16QAM
		Ch 401000 (2005.0MHz)+ Ch 403500 (2017.5MHz)	Contiguous 20MHz(32W)+5MHz(8W) Dual Carrier	16QAM
Radiated Emission Below 1GHz	1997.5 to 2017.5	Ch 399500 (1997.5MHz) Ch 401500 (2007.5MHz) Ch 403500 (2017.5MHz)	5MHz(40W) Single Carrier	16QAM
		Ch 401500 (2007.5MHz)	25MHz(40W) Single Carrier	QPSK
		Ch 399500 (1997.5MHz)+ Ch 400500 (2002.5MHz) Ch 401000 (2005.0MHz)+ Ch 402000 (2010.0MHz) Ch 402500 (2012.5MHz)+ Ch 403500 (2017.5MHz)	Contiguous 5MHz(20W)+5MHz(20W) Dual Carrier	16QAM
		Ch 401000 (2005.0MHz)+ Ch 403500 (2017.5MHz)	Contiguous 20MHz(32W)+5MHz(8W) Dual Carrier	16QAM

Test Item	Available Frequency (MHz)	Tested Channel	Channel Bandwidth	Modulation
Radiated Emission Above 1GHz	1997.5 to 2017.5	Ch 399500 (1997.5MHz) Ch 401500 (2007.5MHz) Ch 403500 (2017.5MHz)	5MHz(40W) Single Carrier	16QAM
		Ch 401500 (2007.5MHz)	25MHz(40W) Single Carrier	QPSK
		Ch 399500 (1997.5MHz)+ Ch 400500 (2002.5MHz) Ch 401000 (2005.0MHz)+ Ch 402000 (2010.0MHz) Ch 402500 (2012.5MHz)+ Ch 403500 (2017.5MHz)	Contiguous 5MHz(20W)+5MHz(20W) Dual Carrier	16QAM
		Ch 401000 (2005.0MHz)+ Ch 403500 (2017.5MHz)	Contiguous 20MHz(32W)+5MHz(8W) Dual Carrier	16QAM

NOTE:

1. All supported modulation types were evaluated. The worst case of QPSK (for 25MHz) & 16QAM (for other BW) was selected. Therefore, the Channel Edge, Conducted Emission and Radiated Emission were performed under QPSK (for 25MHz) & 16QAM (for other BW) mode only.
2. In the Single Carrier Mode the Bandwidth 5MHz is the worst case in the original report within the lowest bandwidth and highest power.
3. In the CA Mode the Bandwidth 5MHz is the worst case in the original report within the lowest combined bandwidth and highest combined power.

Band n66+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	n66: 2112.5 to 2197.5 n70: 1997.5 to 2017.5	Band n66 5MHz _Ch 439500 (2197.5MHz)+ Band n70 5MHz _Ch 399500 (1997.5MHz)	Lowest combine BW mode n66 5MHz(40W) + n70 5MHz(40W)	QPSK, 16QAM, 64QAM, 256QAM
		Band n66 20MHz _Ch 438000 (2190.0MHz)+ Band n70 25MHz _Ch 401500 (2007.5MHz)	Highest combine power mode n66 20MHz(60W) + n70 25MHz(20W)	QPSK, 16QAM, 64QAM, 256QAM
		Band n66 20MHz _Ch 438000 (2190.0MHz)+ Band n70 25MHz _Ch 401500 (2007.5MHz)	Highest combine BW mode n66 20MHz(60W) + n70 25MHz(20W)	QPSK, 16QAM, 64QAM, 256QAM
		Band n66 5MHz+5MHz _Ch 438500 (2192.5MHz)+ _Ch 439500 (2197.5MHz)+ Band n70 5MHz+5MHz _Ch 399500 (1997.5MHz)+ _Ch 400500 (2002.5MHz)	Lowest combine BW mode n66 Contiguous 5MHz(20W)+5MHz(20W) + n70 Contiguous 5MHz(20W)+5MHz(20W)	QPSK, 16QAM, 64QAM, 256QAM
		Band n66 5MHz+5MHz _Ch 438500 (2192.5MHz)+ _Ch 439500 (2197.5MHz)+ Band n70 5MHz+5MHz _Ch 399500 (1997.5MHz)+ _Ch 400500 (2002.5MHz)	Highest combine power mode n66 Contiguous 5MHz(20W)+5MHz(20W) + n70 Contiguous 5MHz(20W)+5MHz(20W)	QPSK, 16QAM, 64QAM, 256QAM
		Band n66 20MHz+20MHz _Ch 434000 (2170.0MHz)+ _Ch 438000 (2190.0MHz)+ Band n70 25MHz _Ch 401500 (2007.5MHz)	Highest combine BW mode n66 Contiguous 20MHz(20W)+20MHz(20W) + n70 25MHz(40W)	QPSK, 16QAM, 64QAM, 256QAM
Radiated Emission Below 1GHz	n66: 2112.5 to 2197.5 n70: 1997.5 to 2017.5	Band n66 5MHz _Ch 439500 (2197.5MHz)+ Band n70 5MHz _Ch 399500 (1997.5MHz)	Lowest combine BW mode n66 5MHz(40W) + n70 5MHz(40W)	QPSK
		Band n66 20MHz _Ch 438000 (2190.0MHz)+ Band n70 25MHz _Ch 401500 (2007.5MHz)	Highest combine power mode n66 20MHz(60W) + n70 25MHz(20W)	QPSK
		Band n66 20MHz _Ch 438000 (2190.0MHz)+ Band n70 25MHz _Ch 401500 (2007.5MHz)	Highest combine BW mode n66 20MHz(60W) + n70 25MHz(20W)	QPSK
		Band n66 5MHz+5MHz _Ch 438500 (2192.5MHz)+ _Ch 439500 (2197.5MHz)+ Band n70 5MHz+5MHz _Ch 399500 (1997.5MHz)+ _Ch 400500 (2002.5MHz)	Lowest combine BW mode n66 Contiguous 5MHz(20W)+5MHz(20W) + n70 Contiguous 5MHz(20W)+5MHz(20W)	QPSK
		Band n66 5MHz+5MHz _Ch 438500 (2192.5MHz)+ _Ch 439500 (2197.5MHz)+ Band n70 5MHz+5MHz _Ch 399500 (1997.5MHz)+ _Ch 400500 (2002.5MHz)	Highest combine power mode n66 Contiguous 5MHz(20W)+5MHz(20W) + n70 Contiguous 5MHz(20W)+5MHz(20W)	QPSK
		Band n66 20MHz+20MHz _Ch 434000 (2170.0MHz)+ _Ch 438000 (2190.0MHz)+ Band n70 25MHz _Ch 401500 (2007.5MHz)	Highest combine BW mode n66 Contiguous 20MHz(20W)+20MHz(20W) + n70 25MHz(40W)	QPSK

Test Item	Available Frequency (MHz)	Tested Channel	Channel Bandwidth	Modulation
Radiated Emission Above 1GHz	1997.5 to 2017.5	Band n66 5MHz _Ch 439500 (2197.5MHz)+ Band n70 5MHz _Ch 399500 (1997.5MHz)	Lowest combine BW mode n66 5MHz(40W) + n70 5MHz(40W)	QPSK
		Band n66 20MHz _Ch 438000 (2190.0MHz)+ Band n70 25MHz _Ch 401500 (2007.5MHz)	Highest combine power mode n66 20MHz(60W) + n70 25MHz(20W)	QPSK
		Band n66 20MHz _Ch 438000 (2190.0MHz)+ Band n70 25MHz _Ch 401500 (2007.5MHz)	Highest combine BW mode n66 20MHz(60W) + n70 25MHz(20W)	QPSK
		Band n66 5MHz+5MHz _Ch 438500 (2192.5MHz)+ _Ch 439500 (2197.5MHz)+ Band n70 5MHz+5MHz _Ch 399500 (1997.5MHz)+ _Ch 400500 (2002.5MHz)	Lowest combine BW mode n66 Contiguous 5MHz(20W)+5MHz(20W) + n70 Contiguous 5MHz(20W)+5MHz(20W)	QPSK
		Band n66 5MHz+5MHz _Ch 438500 (2192.5MHz)+ _Ch 439500 (2197.5MHz)+ Band n70 5MHz+5MHz _Ch 399500 (1997.5MHz)+ _Ch 400500 (2002.5MHz)	Highest combine power mode n66 Contiguous 5MHz(20W)+5MHz(20W) + n70 Contiguous 5MHz(20W)+5MHz(20W)	QPSK
		Band n66 20MHz+20MHz _Ch 434000 (2170.0MHz)+ _Ch 438000 (2190.0MHz)+ Band n70 25MHz _Ch 401500 (2007.5MHz)	Highest combine BW mode n66 Contiguous 20MHz(20W)+20MHz(20W) + n70 25MHz(40W)	QPSK

NOTE:

- All supported modulation types were evaluated. The worst case of QPSK was selected. Therefore, the 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	James Yang
Modulation characteristics	25deg. C, 63%RH	120Vac, 60Hz	James Yang
Frequency Stability	25deg. C, 63%RH	120Vac, 60Hz	James Yang
Emission Bandwidth	25deg. C, 63%RH	120Vac, 60Hz	James Yang
Band Edge	25deg. C, 63%RH	120Vac, 60Hz	James Yang
Peak To Average Ratio	25deg. C, 63%RH	120Vac, 60Hz	James Yang
Conducted Emission	25deg. C, 63%RH	120Vac, 60Hz	James Yang
Radiated Emission	25deg. C, 75%RH	120Vac, 60Hz	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:

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

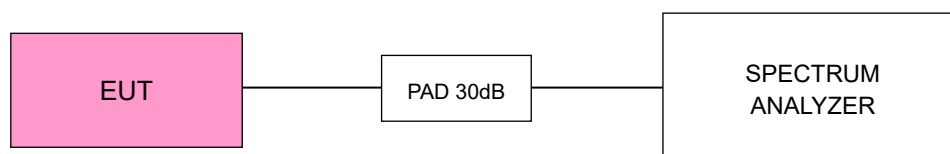
Where ERP or EIRP effective radiated power or equivalent isotropically radiated power, respectively (expressed in the same units as PMeas, e.g., dBm or dBW)

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	38.85	38.54	38.24	38.27	44.50	15	59.50	891.79	1640.00	PASS
431000	2155	38.71	38.52	38.45	38.52	44.57	15	59.57	906.08	1640.00	PASS
439500	2197.5	38.60	38.76	38.44	38.44	44.58	15	59.58	908.37	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	38.79	38.62	38.65	38.66	44.70	15	59.70	933.49	1640.00	PASS
431000	2155	38.70	38.55	38.44	38.70	44.62	15	59.62	916.11	1640.00	PASS
439500	2197.5	38.72	38.57	38.46	38.54	44.59	15	59.59	910.78	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	38.53	38.47	38.50	38.35	44.48	15	59.48	887.90	1640.00	PASS
431000	2155	38.38	38.57	38.26	38.51	44.45	15	59.45	881.51	1640.00	PASS
439500	2197.5	38.33	38.49	38.44	38.34	44.42	15	59.42	875.21	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	38.47	38.48	38.46	38.56	44.51	15	59.51	893.98	1640.00	PASS
431000	2155	38.41	38.59	38.24	38.37	44.42	15	59.42	875.97	1640.00	PASS
439500	2197.5	38.54	38.22	38.16	38.36	44.34	15	59.34	859.62	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	34.73	33.88	33.64	33.68	40.03	15	55.03	318.14	1640.00	PASS
431000	2155	35.48	33.58	33.64	33.45	40.14	15	55.14	326.90	1640.00	PASS
438000	2190	35.60	33.67	33.17	33.23	40.06	15	55.06	320.58	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	35.51	35.41	35.43	35.55	41.50	15	56.50	446.27	1640.00	PASS
431000	2155	35.39	35.51	35.60	35.37	41.49	15	56.49	445.56	1640.00	PASS
438000	2190	35.57	35.43	35.34	35.48	41.48	15	56.48	444.26	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	34.28	34.19	34.41	34.24	40.30	15	55.30	338.95	1640.00	PASS
431000	2155	34.28	34.39	34.23	34.17	40.29	15	55.29	337.98	1640.00	PASS
438000	2190	34.36	34.19	34.36	34.13	40.28	15	55.28	337.43	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	34.35	34.35	34.24	34.30	40.33	15	55.33	341.26	1640.00	PASS
431000	2155	33.97	34.17	34.34	34.45	40.26	15	55.26	335.50	1640.00	PASS
438000	2190	34.17	34.10	34.33	34.26	40.24	15	55.24	333.92	1640.00	PASS

Dual Carrier

Non-Contiguous_5MHz+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+433500	2112.5+2167.5	36.76	36.81	36.32	36.73	42.68	15	57.68	586.26	1640.00	PASS
425500+436500	2127.5+2182.5	36.88	36.97	37.40	37.52	43.22	15	58.22	664.12	1640.00	PASS
428500+439500	2142.5+2197.5	37.65	37.55	36.99	37.11	43.36	15	58.36	684.77	1640.00	PASS

Non-Contiguous_5MHz+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+433500	2112.5+2167.5	37.90	37.87	37.41	37.51	43.70	15	58.70	741.17	1640.00	PASS
425500+436500	2127.5+2182.5	37.49	37.58	37.35	37.27	43.45	15	58.45	699.13	1640.00	PASS
428500+439500	2142.5+2197.5	37.52	37.51	37.08	37.27	43.37	15	58.37	687.10	1640.00	PASS

Non-Contiguous_5MHz+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+433500	2112.5+2167.5	37.43	37.47	36.82	37.11	43.24	15	58.24	666.32	1640.00	PASS
425500+436500	2127.5+2182.5	37.27	37.44	36.96	37.00	43.19	15	58.19	659.70	1640.00	PASS
428500+439500	2142.5+2197.5	37.13	37.28	37.00	36.89	43.10	15	58.10	645.49	1640.00	PASS

Non-Contiguous_5MHz+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+433500	2112.5+2167.5	37.66	37.77	37.27	37.34	43.54	15	58.54	713.91	1640.00	PASS
425500+436500	2127.5+2182.5	37.51	37.54	37.14	37.22	43.38	15	58.38	688.24	1640.00	PASS
428500+439500	2142.5+2197.5	37.54	37.45	37.12	37.17	43.35	15	58.35	683.14	1640.00	PASS

Contiguous_20MHz+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+428000	2120+2140	31.88	32.05	31.95	31.89	37.97	15	52.97	197.99	1640.00	PASS
429000+433000	2145+2165	31.83	32.40	31.65	31.74	37.94	15	52.94	196.72	1640.00	PASS
434000+438000	2170+2190	31.74	31.83	31.53	31.61	37.70	15	52.70	186.32	1640.00	PASS

Contiguous_20MHz+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+428000	2120+2140	32.30	32.30	31.93	32.28	38.23	15	53.23	210.31	1640.00	PASS
429000+433000	2145+2165	32.08	32.16	31.56	32.00	37.98	15	52.98	198.59	1640.00	PASS
434000+438000	2170+2190	31.90	31.86	31.92	32.01	37.95	15	52.95	197.07	1640.00	PASS

Contiguous_20MHz+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+428000	2120+2140	32.02	31.87	31.76	31.98	37.93	15	52.93	196.43	1640.00	PASS
429000+433000	2145+2165	31.77	31.94	31.59	31.68	37.77	15	52.77	189.25	1640.00	PASS
434000+438000	2170+2190	31.93	32.03	32.03	31.98	38.02	15	53.02	200.26	1640.00	PASS

Contiguous_20MHz+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+428000	2120+2140	31.70	31.60	31.52	31.49	37.60	15	52.60	182.05	1640.00	PASS
429000+433000	2145+2165	31.58	31.58	31.30	31.42	37.50	15	52.50	177.64	1640.00	PASS
434000+438000	2170+2190	31.76	31.45	31.50	31.49	37.58	15	52.58	180.94	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	38.56	38.52	38.55	38.40	44.53	17	61.53	1421.86	1640.00	PASS
401500	2007.5	38.60	38.64	38.60	38.61	44.63	17	61.63	1456.51	1640.00	PASS
403500	2017.5	38.50	38.61	38.58	38.53	44.58	17	61.58	1437.41	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	38.78	38.73	38.78	38.41	44.70	17	61.70	1478.53	1640.00	PASS
401500	2007.5	38.85	38.90	38.67	38.45	44.74	17	61.74	1493.37	1640.00	PASS
403500	2017.5	38.84	38.86	38.49	38.49	44.69	17	61.69	1477.18	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	38.32	38.30	38.24	38.38	44.33	17	61.33	1358.59	1640.00	PASS
401500	2007.5	38.26	38.49	38.24	38.44	44.38	17	61.38	1373.88	1640.00	PASS
403500	2017.5	38.19	38.35	38.34	38.28	44.31	17	61.31	1352.40	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	38.11	38.33	38.32	38.14	44.25	17	61.25	1332.53	1640.00	PASS
401500	2007.5	38.23	38.24	38.18	38.03	44.19	17	61.19	1315.65	1640.00	PASS
403500	2017.5	38.14	38.10	38.11	38.18	44.15	17	61.15	1304.13	1640.00	PASS

25MHz

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					
401500	2007.5	32.13	32.30	32.16	32.11	38.20	17	55.20	330.86	1640.00	PASS

25MHz

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					
401500	2007.5	31.99	32.19	32.05	32.02	38.08	17	55.08	322.39	1640.00	PASS

25MHz

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					
401500	2007.5	31.85	31.83	31.80	31.90	37.87	17	54.87	306.62	1640.00	PASS

25MHz

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					
401500	2007.5	31.93	31.96	31.92	31.79	37.92	17	54.92	310.52	1640.00	PASS

Dual Carrier

Contiguous_5MHz+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+400500	1997.5+2002.5	35.31	35.01	35.04	34.89	41.09	17	58.09	643.75	1640.00	PASS
401000+402000	2005+2010	35.08	35.05	34.88	34.88	41.00	17	58.00	630.30	1640.00	PASS
402500+403500	2012.5+2017.5	34.97	34.87	34.87	34.77	40.89	17	57.89	615.54	1640.00	PASS

Contiguous_5MHz+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+400500	1997.5+2002.5	35.48	35.40	35.27	35.24	41.37	17	58.37	687.14	1640.00	PASS
401000+402000	2005+2010	35.29	35.34	35.23	35.16	41.28	17	58.28	672.58	1640.00	PASS
402500+403500	2012.5+2017.5	35.34	35.25	35.12	35.04	41.21	17	58.21	662.36	1640.00	PASS

Contiguous_5MHz+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+400500	1997.5+2002.5	35.27	35.25	35.10	35.13	41.21	17	58.21	662.22	1640.00	PASS
401000+402000	2005+2010	35.13	35.23	35.12	35.05	41.15	17	58.15	653.87	1640.00	PASS
402500+403500	2012.5+2017.5	35.20	35.17	35.05	35.10	41.15	17	58.15	653.48	1640.00	PASS

Contiguous_5MHz+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+400500	1997.5+2002.5	35.01	35.14	34.94	35.01	41.05	17	58.05	637.91	1640.00	PASS
401000+402000	2005+2010	34.72	34.94	35.00	34.84	40.90	17	57.90	616.35	1640.00	PASS
402500+403500	2012.5+2017.5	34.68	34.87	34.96	34.93	40.88	17	57.88	614.24	1640.00	PASS

Contiguous_20MHz+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					
401000+403500	2005.0+2017.5	31.34	31.17	31.38	31.40	37.35	17	54.35	272.10	1640.00	PASS

Contiguous_20MHz+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					
401000+403500	2005.0+2017.5	31.80	31.85	31.82	31.92	37.87	17	54.87	306.99	1640.00	PASS

Contiguous_20MHz+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					
401000+403500	2005.0+2017.5	31.19	31.23	31.24	31.20	37.24	17	54.24	265.40	1640.00	PASS

Contiguous_20MHz+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					
401000+403500	2005.0+2017.5	31.36	31.23	31.40	31.17	37.31	17	54.31	270.07	1640.00	PASS

Band n66+n70:
Lowest combine BW mode n66 (40W) 5MHz + n70 (40W) 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					
n66 439500	2197.5	37.96	38.08	37.91	38.04	44.02	15	59.02	797.37	1640.00	PASS
n70 399500	1997.5	38.06	38.03	38.10	37.75	44.01	17	61.01	1261.24	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.0	Ant.1	Ant.2	Ant.3	Total					
n66 439500	2197.5	38.39	38.64	38.31	38.49	44.48	15	59.48	887.07	1640.00	PASS
n70 399500	1997.5	38.25	38.35	38.35	38.20	44.31	17	61.31	1351.23	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.0	Ant.1	Ant.2	Ant.3	Total					
n66 439500	2197.5	38.19	38.36	37.93	38.28	44.21	15	59.21	834.59	1640.00	PASS
n70 399500	1997.5	38.30	38.20	38.16	38.22	44.24	17	61.24	1330.26	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.0	Ant.1	Ant.2	Ant.3	Total					
n66 439500	2197.5	38.11	38.21	37.92	38.06	44.10	15	59.10	812.24	1640.00	PASS
n70 399500	1997.5	37.85	37.94	38.08	38.00	43.99	17	60.99	1254.77	1640.00	PASS

Highest combine power mode n66 (60W) 20MHz + n70 (20W) 25MHz
Highest combine BW mode n66 (60W) 20MHz + n70 (20W) 25MHz

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					
n66 438000	2190	33.86	33.96	33.98	33.86	39.94	15	54.94	311.60	1640.00	PASS
n70 401500	2007.5	29.34	29.46	29.36	29.34	35.40	17	52.40	173.62	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.0	Ant.1	Ant.2	Ant.3	Total					
n66 438000	2190	33.85	33.93	33.69	33.89	39.86	15	54.86	306.31	1640.00	PASS
n70 401500	2007.5	29.46	29.52	29.33	29.40	35.45	17	52.45	175.74	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.0	Ant.1	Ant.2	Ant.3	Total					
n66 438000	2190	33.82	33.81	33.74	33.86	39.83	15	54.83	303.97	1640.00	PASS
n70 401500	2007.5	28.99	29.09	29.10	29.12	35.10	17	52.10	162.03	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.0	Ant.1	Ant.2	Ant.3	Total					
n66 438000	2190	33.63	33.73	33.58	33.76	39.70	15	54.70	294.86	1640.00	PASS
n70 401500	2007.5	29.03	29.14	29.11	29.13	35.12	17	52.12	163.05	1640.00	PASS

Lowest combine BW mode
n66 Contiguous (20W) 5MHz + (20W) 5MHz + n70 Contiguous (20W) 5MHz+ (20W) 5MHz
Highest combine power mode
n66 Contiguous (20W) 5MHz + (20W) 5MHz + n70 Contiguous (20W) 5MHz + (20W) 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					
n66 438500	2192.5	35.31	35.46	35.82	35.92	41.66	15	56.66	463.12	1640.00	PASS
n66 439500	2197.5										
n70 399500	1997.5	35.16	35.01	35.13	34.96	41.09	17	58.09	644.05	1640.00	PASS
n70 400500	2002.5										

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					
n66 438500	2192.5	35.59	35.70	35.27	35.71	41.59	15	56.59	456.23	1640.00	PASS
n66 439500	2197.5										
n70 399500	1997.5	35.37	35.26	35.52	35.09	41.33	17	58.33	680.97	1640.00	PASS
n70 400500	2002.5										

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					
n66 438500	2192.5	35.38	35.33	35.17	35.86	41.46	15	56.46	442.95	1640.00	PASS
n66 439500	2197.5										
n70 399500	1997.5	35.13	35.14	35.15	34.94	41.11	17	58.11	647.48	1640.00	PASS
n70 400500	2002.5										

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					
n66 438500	2192.5	35.31	35.23	34.96	34.87	41.12	15	56.12	408.93	1640.00	PASS
n66 439500	2197.5										
n70 399500	1997.5	35.00	35.01	35.04	34.79	40.98	17	57.98	628.47	1640.00	PASS
n70 400500	2002.5										

Highest combine BW mode n66 Contiguous (20W) 20MHz + (20W) 20MHz + n70 (40W) 25MHz

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					
n66 434000	2170.0	29.93	30.11	30.11	30.07	36.08	15	51.08	128.25	1640.00	PASS
n66 438000	2190.0										
n70 401500	2007.5	31.82	31.94	31.76	31.76	37.84	17	54.84	304.89	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.0	Ant.1	Ant.2	Ant.3	Total					
n66 434000	2170.0	29.84	29.97	29.92	29.93	35.94	15	50.94	124.17	1640.00	PASS
n66 438000	2190.0										
n70 401500	2007.5	31.50	31.69	31.56	31.52	37.59	17	54.59	287.66	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.0	Ant.1	Ant.2	Ant.3	Total					
n66 434000	2170.0	29.35	29.31	29.33	29.39	35.37	15	50.37	108.89	1640.00	PASS
n66 438000	2190.0										
n70 401500	2007.5	31.67	31.77	31.71	31.84	37.77	17	54.77	299.83	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.0	Ant.1	Ant.2	Ant.3	Total					
n66 434000	2170.0	29.33	29.43	29.39	29.44	35.42	15	50.42	110.24	1640.00	PASS
n66 438000	2190.0										
n70 401500	2007.5	31.83	31.82	31.81	31.62	37.79	17	54.79	301.38	1640.00	PASS

4.2 Channel Edge Measurement

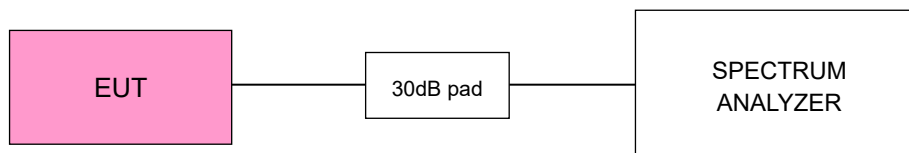
4.2.1 Limits of Band Edge Measurement

According to FCC 27.53(h) for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10}(P)$ dB.

Note: This device can be implement MIMO function, so the limit of spurious emissions needs to be reduced by $10 \log(\text{Numbers}_{\text{Ant}})$ according to FCC KDB 662911 D01 guidance.

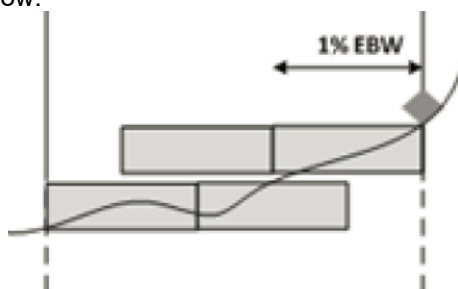
(4TX: The limit is adjusted to $-13\text{dBm} - 10 * \log(4) = -19.02\text{dBm}$.)

4.2.2 Test Setup



4.2.3 Test Procedures

- All measurements were done at low and high operational frequency range.
- Use a measurement bandwidth less than required measurement bandwidth and integrate across the required bandwidth.
- Measurement multiple integrate bandwidth and across the 1 MHz adjacent to the block edge. For example below.



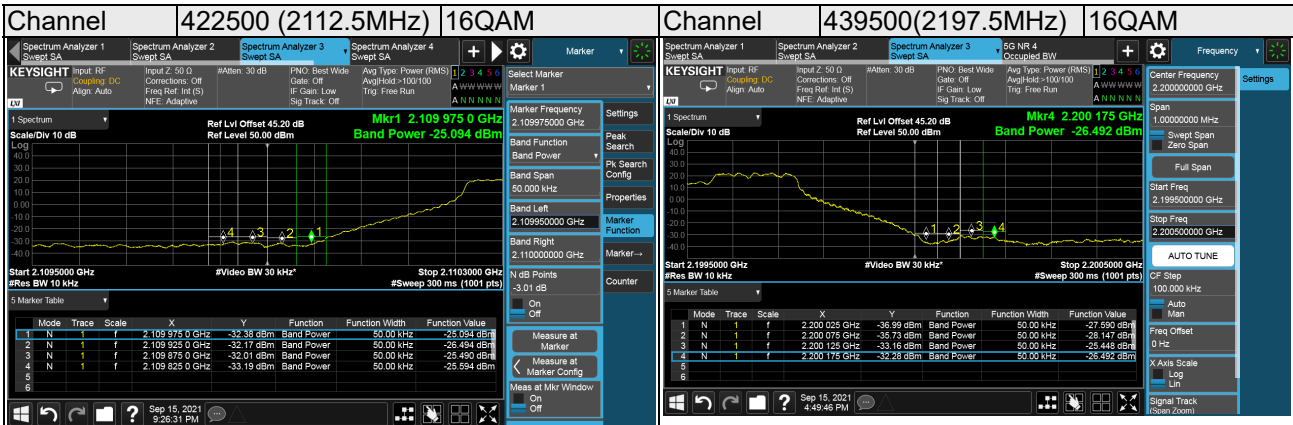
- Set spectrum analyzer RBW=10kHz/VBW=30kHz, integration 1% EBW of band-edge.
- Detector = RMS (Power average).
- Record the max trace plot into the test report.

Note: The band edge point/plot shown has already been evaluated to be the worst-case.

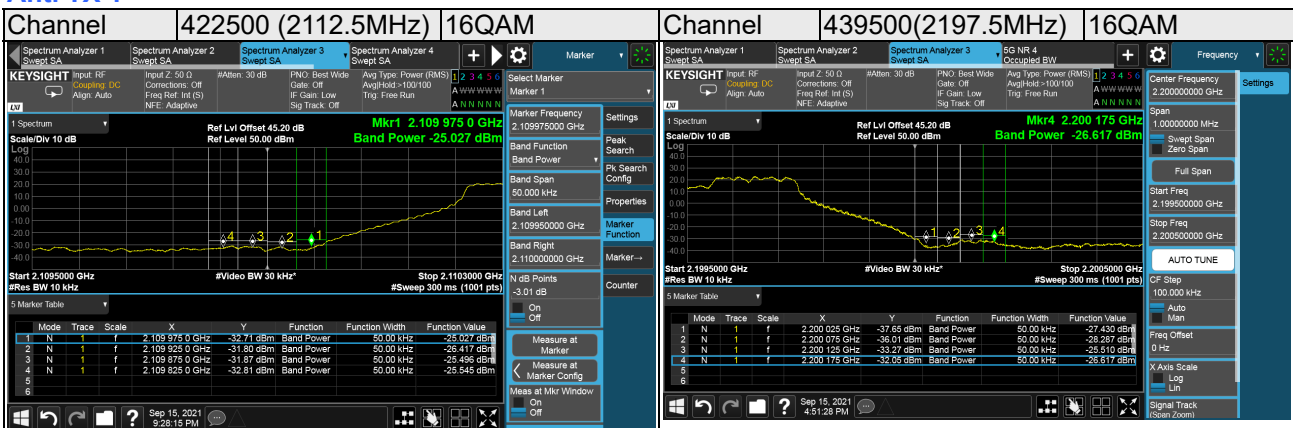
4.2.4 Test Results

Band n66 Single Carrier

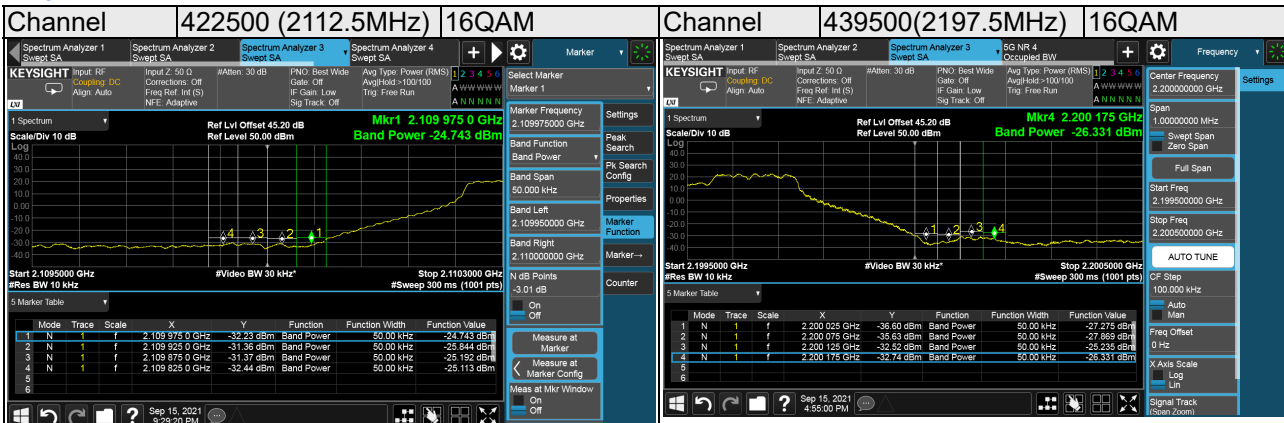
5MHz
Ant. TX 0



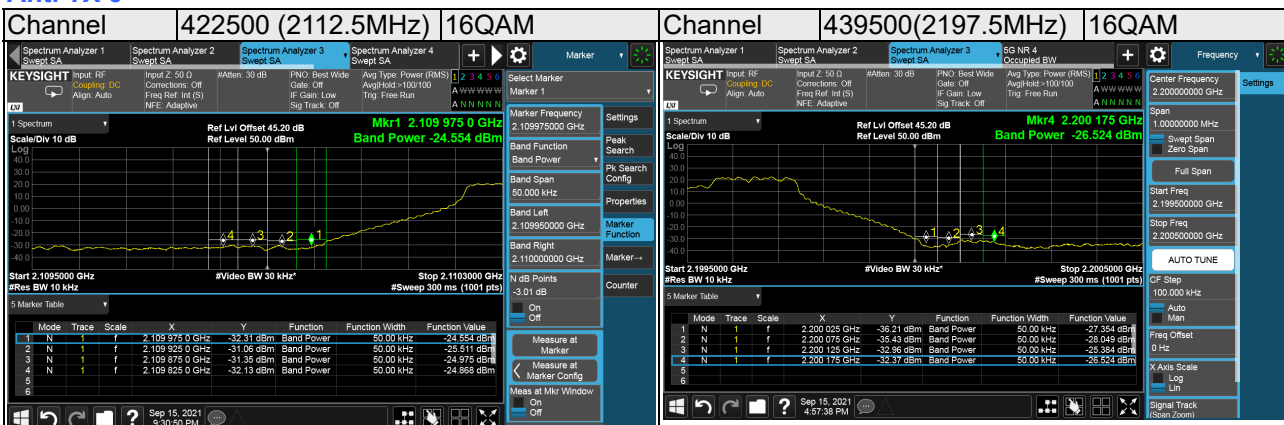
Ant. TX 1



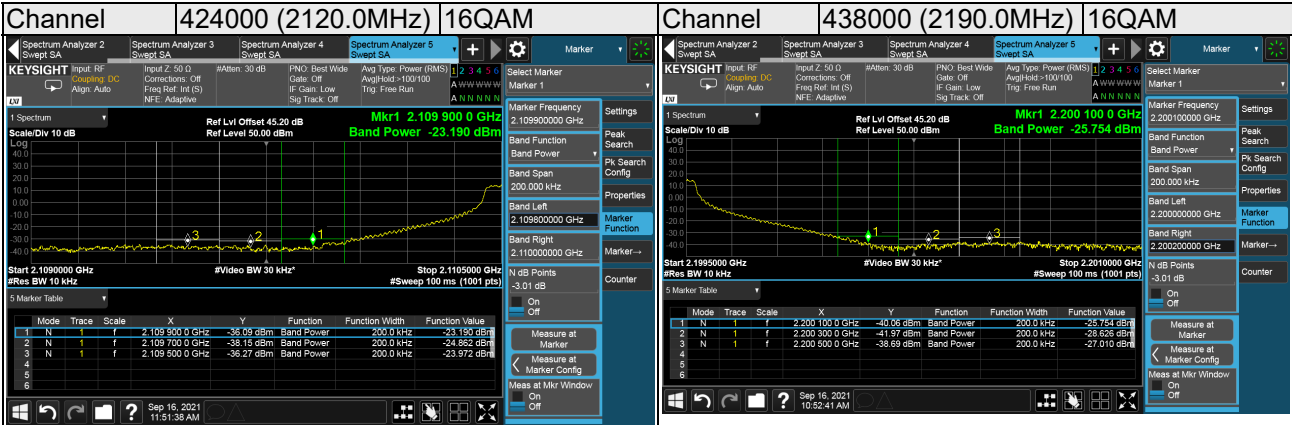
Ant. TX 2



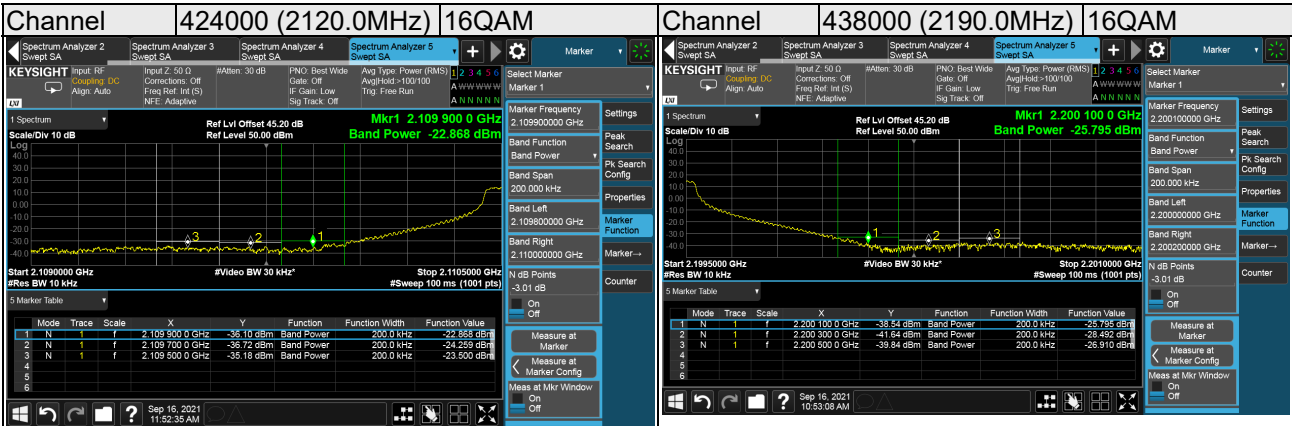
Ant. TX 3



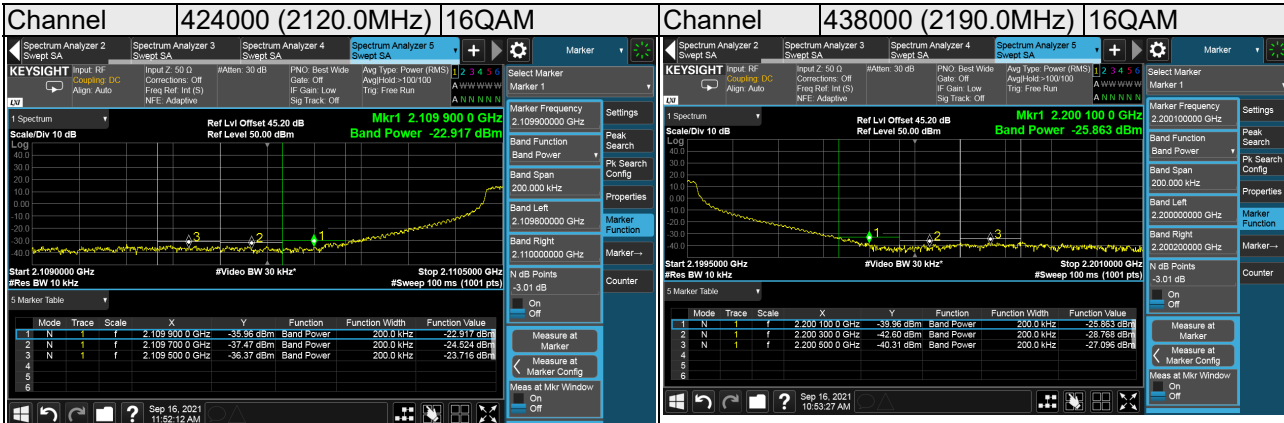
20MHz
Ant. TX 0



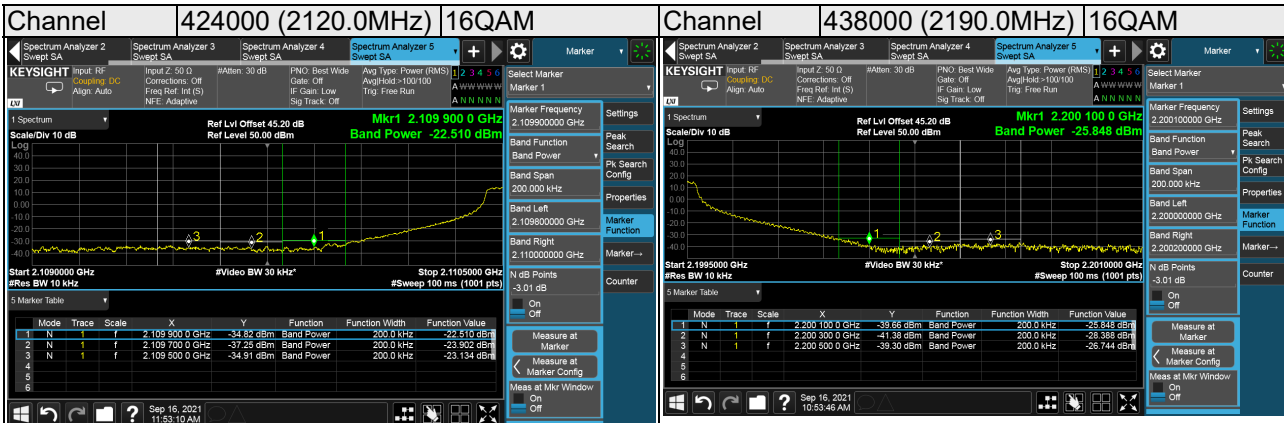
Ant. TX 1



Ant. TX 2

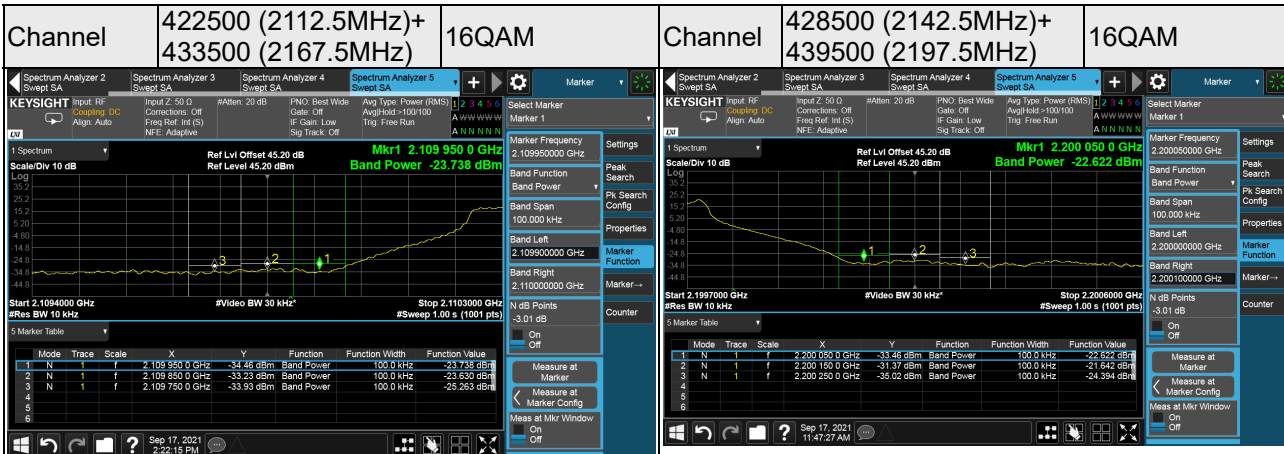


Ant. TX 3

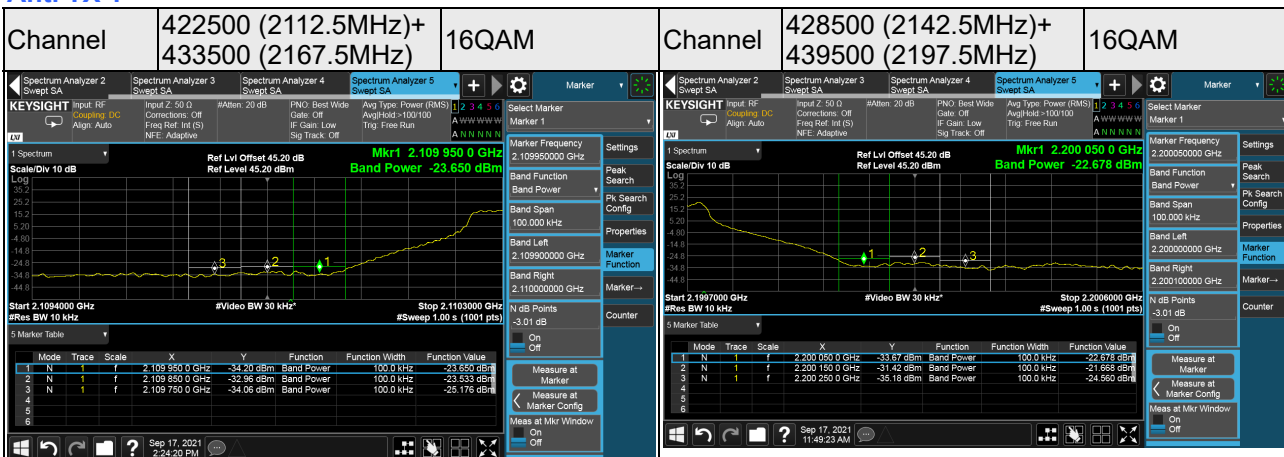


Dual Carrier

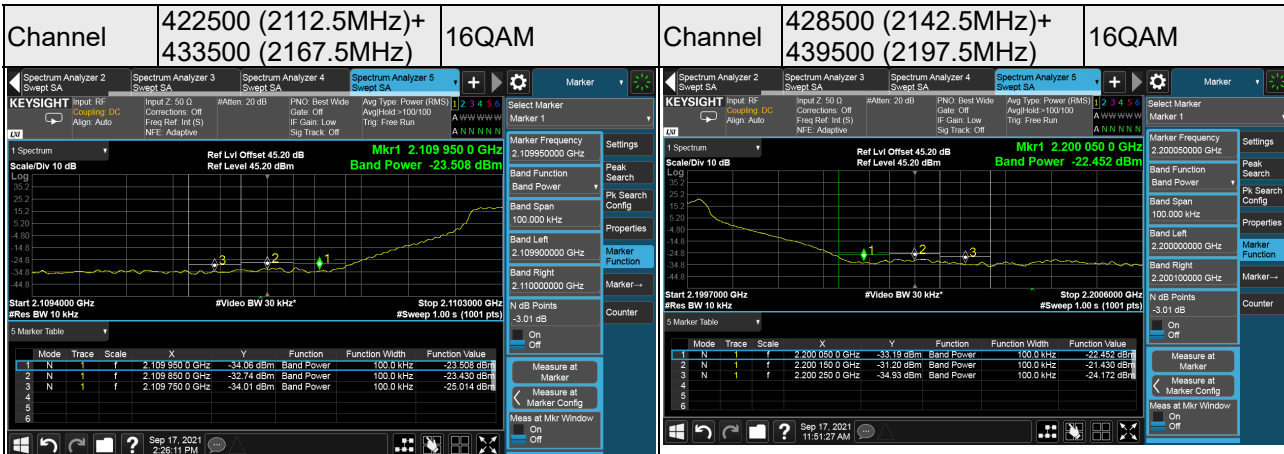
Non-Contiguous_5MHz+5MHz Ant. TX 0



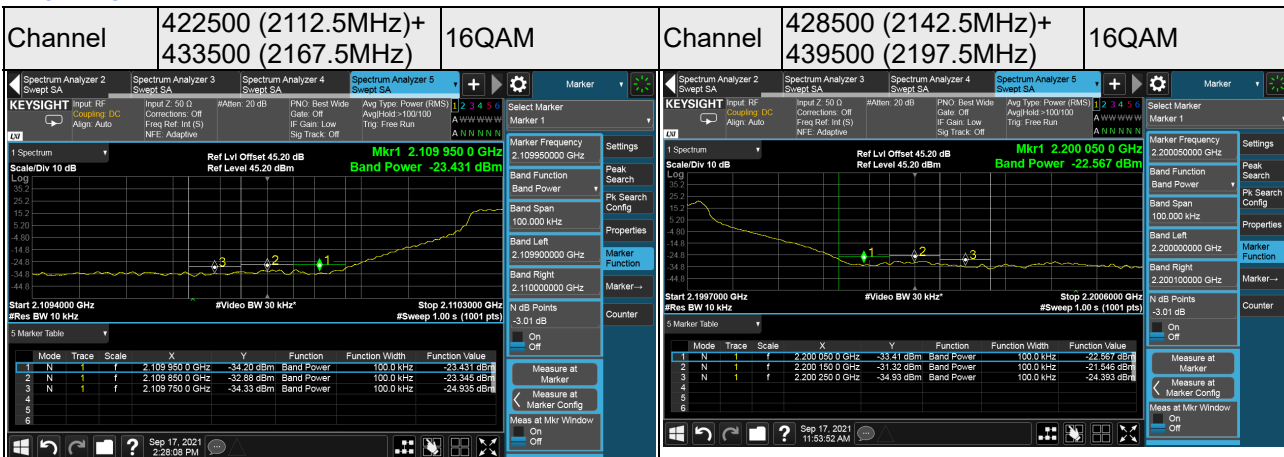
Ant. TX 1



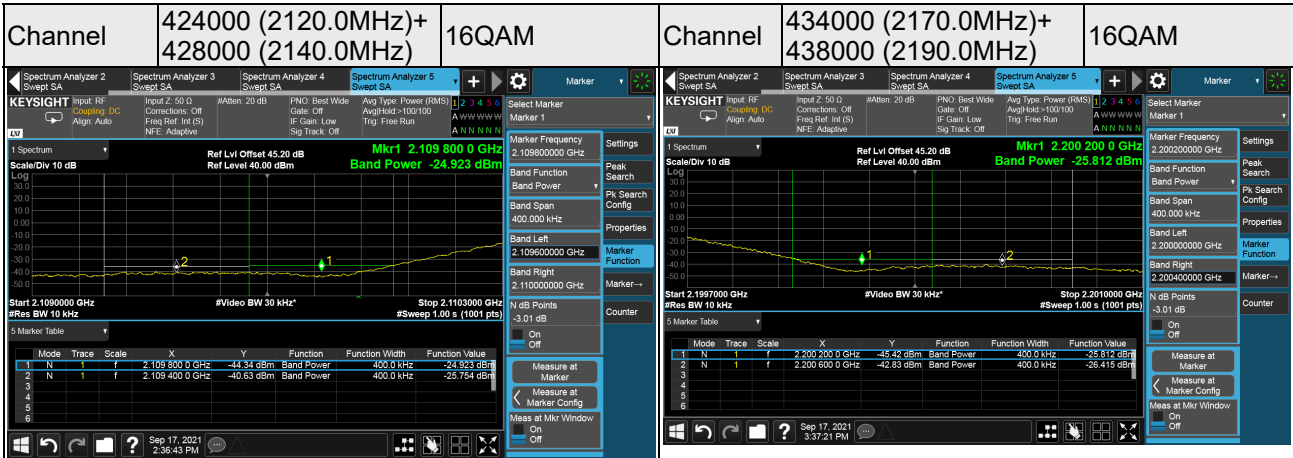
Ant. TX 2



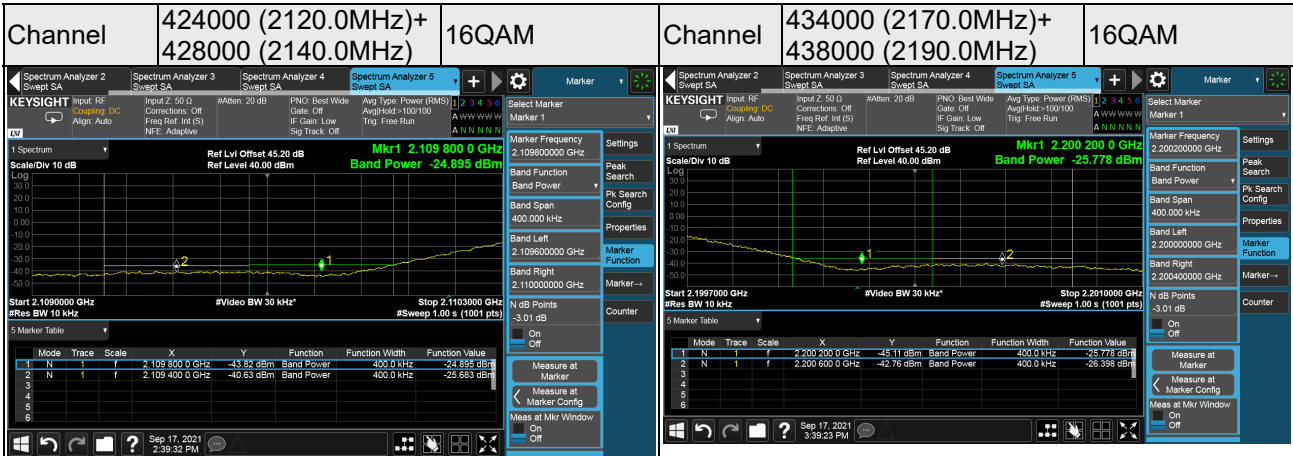
Ant. TX 3



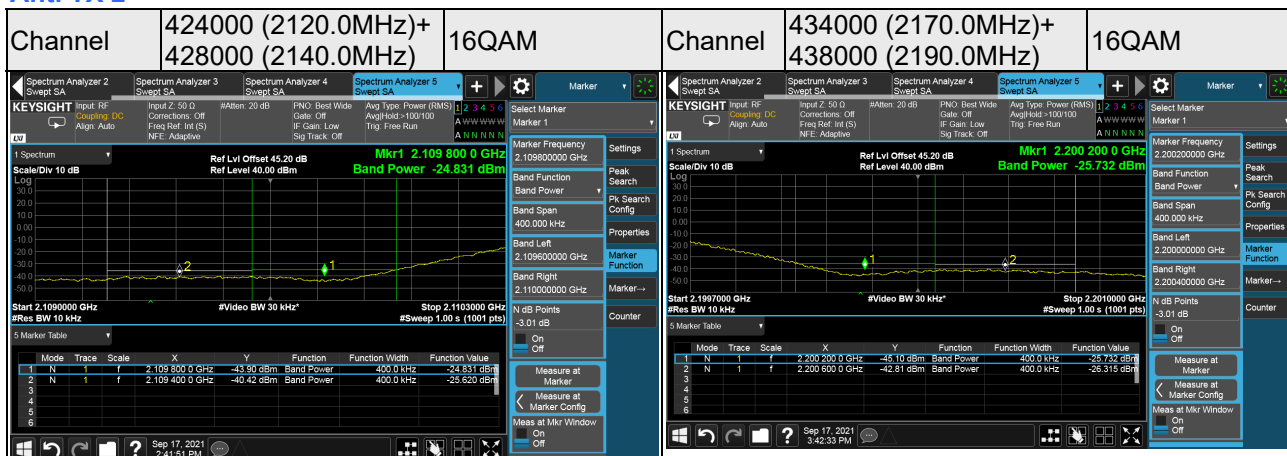
Contiguous_20MHz+20MHz Ant. TX 0



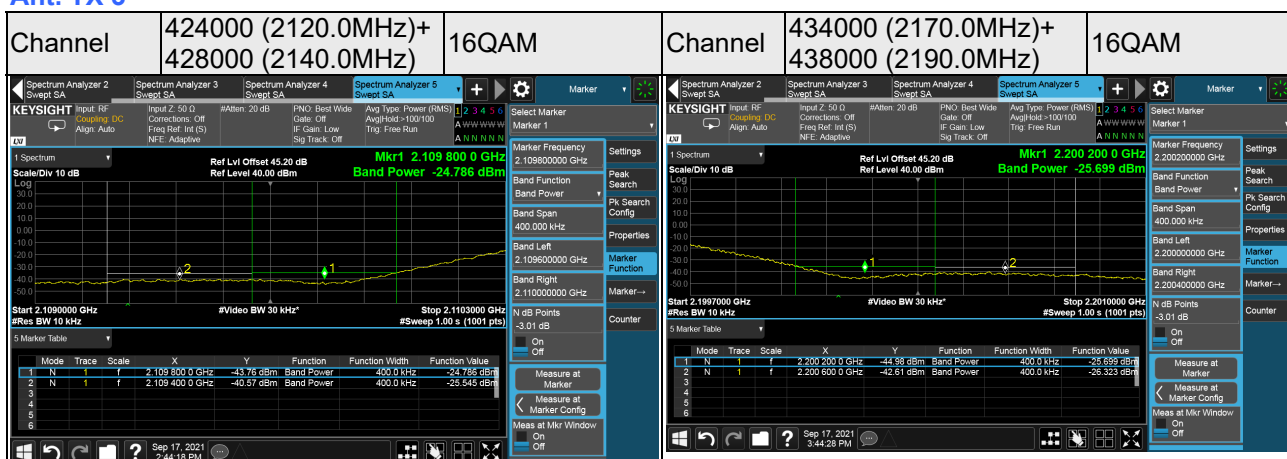
Ant. TX 1



Ant. TX 2

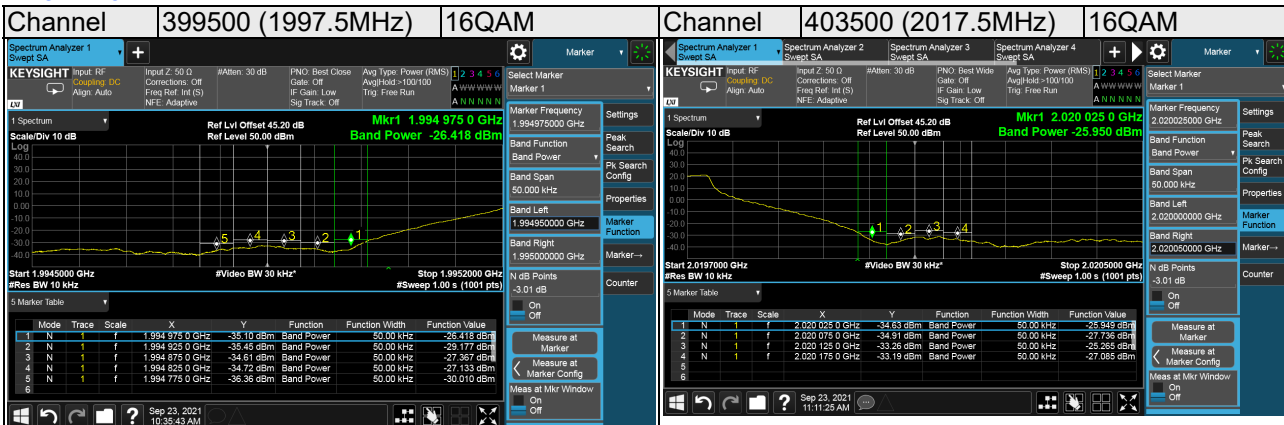


Ant. TX 3

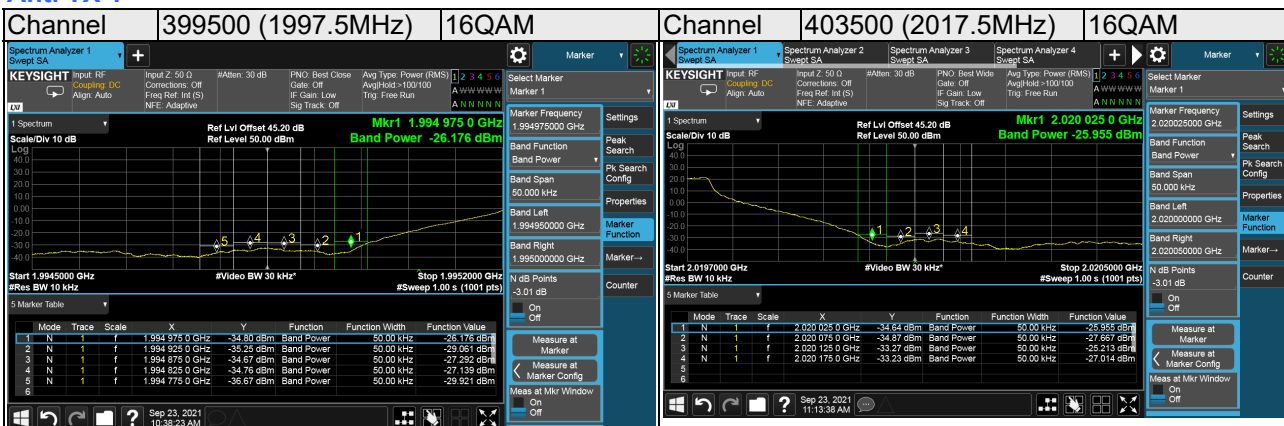


**Band n70
Single Carrier**

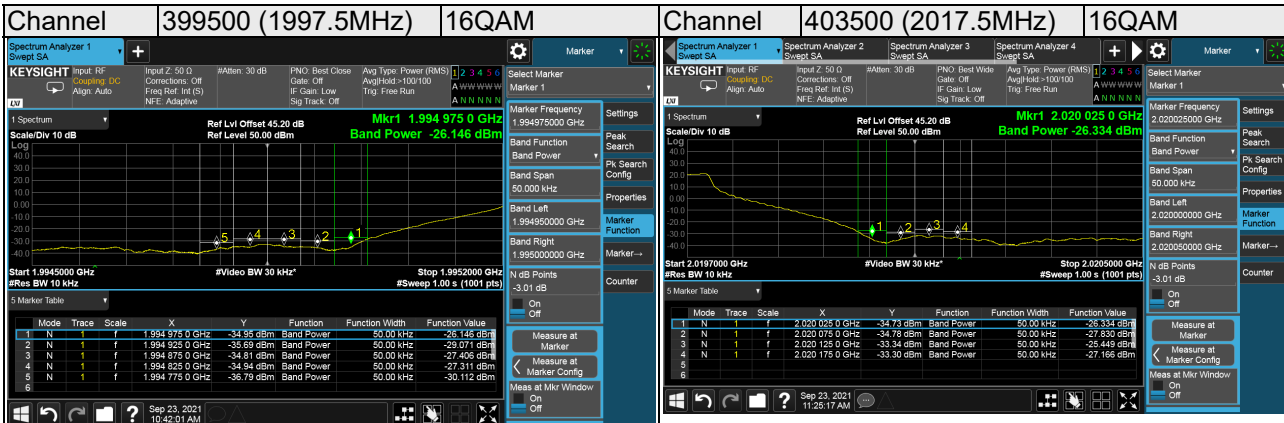
**5MHz
Ant. TX 0**



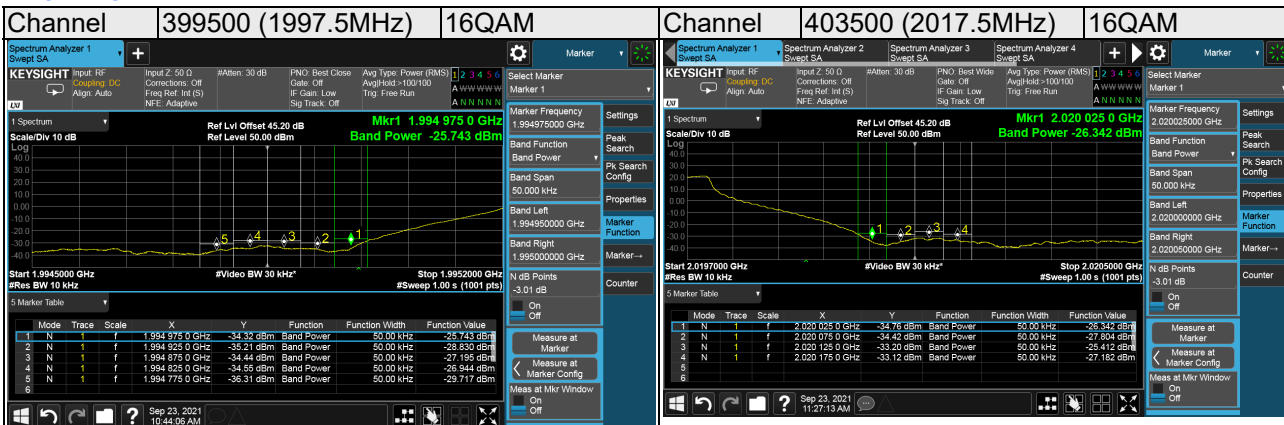
Ant. TX 1



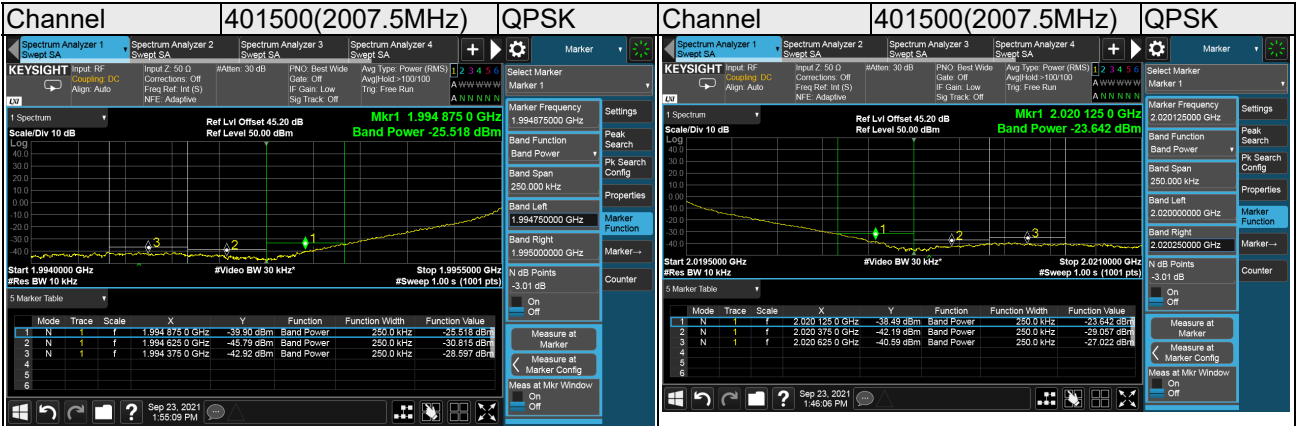
Ant. TX 2



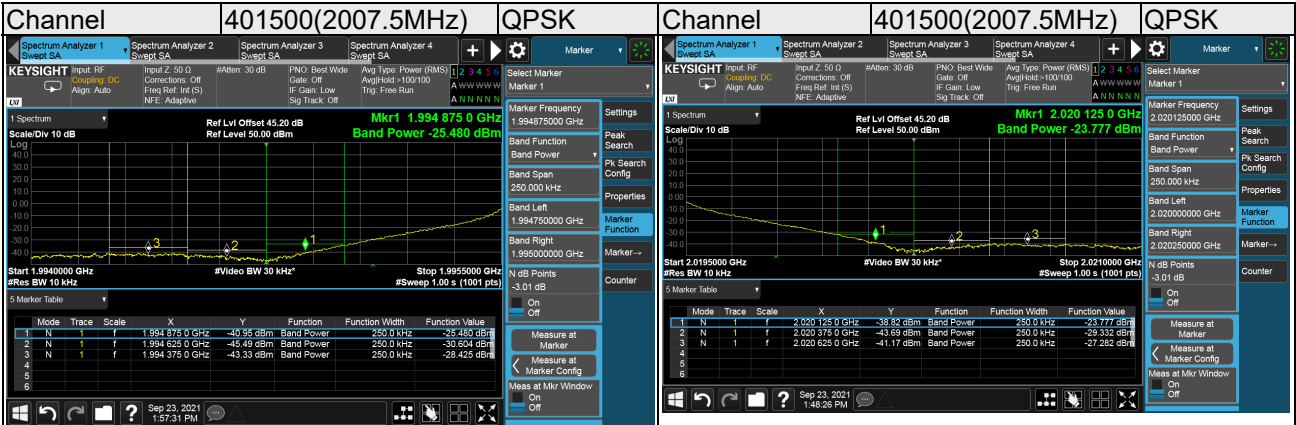
Ant. TX 3



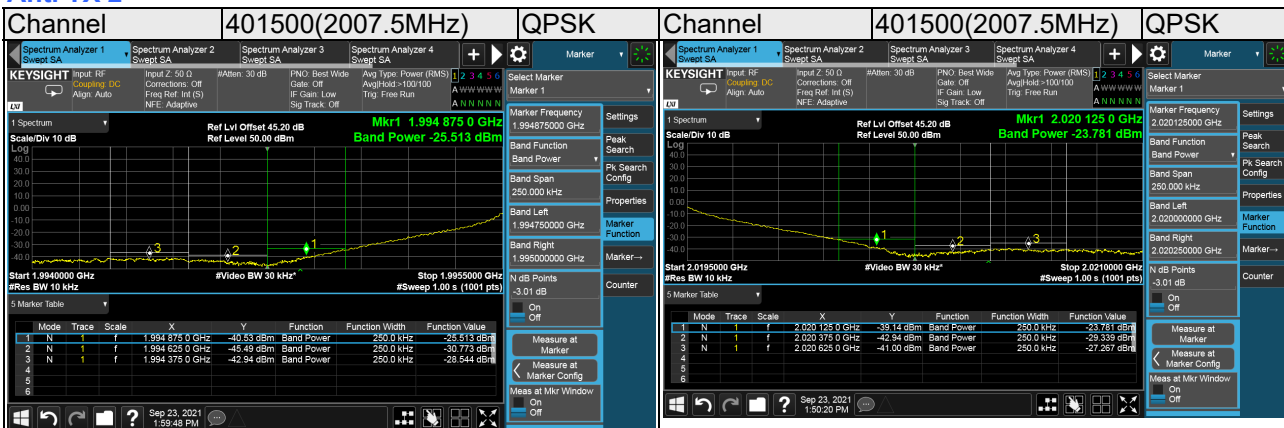
25MHz
Ant. TX 0



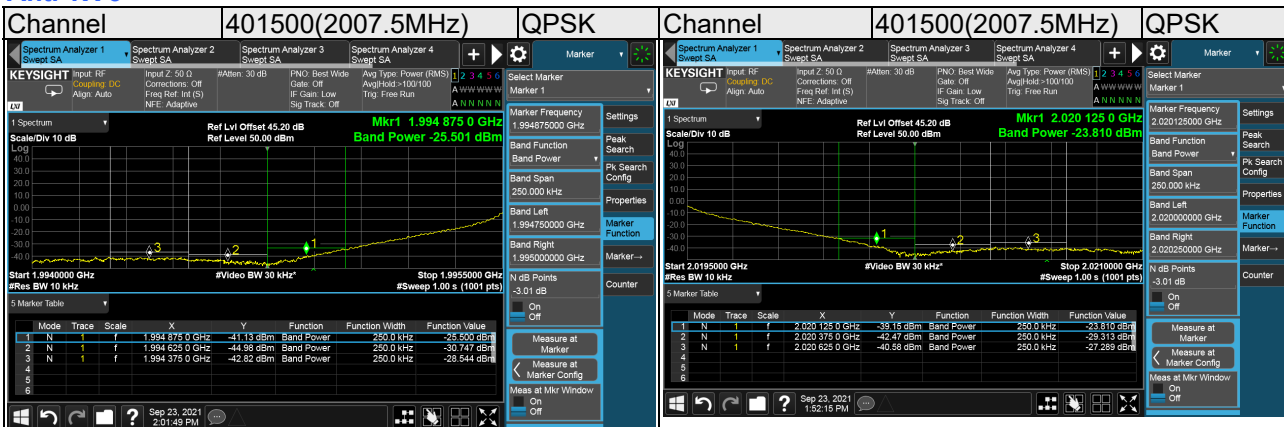
Ant. TX 1



Ant. TX 2

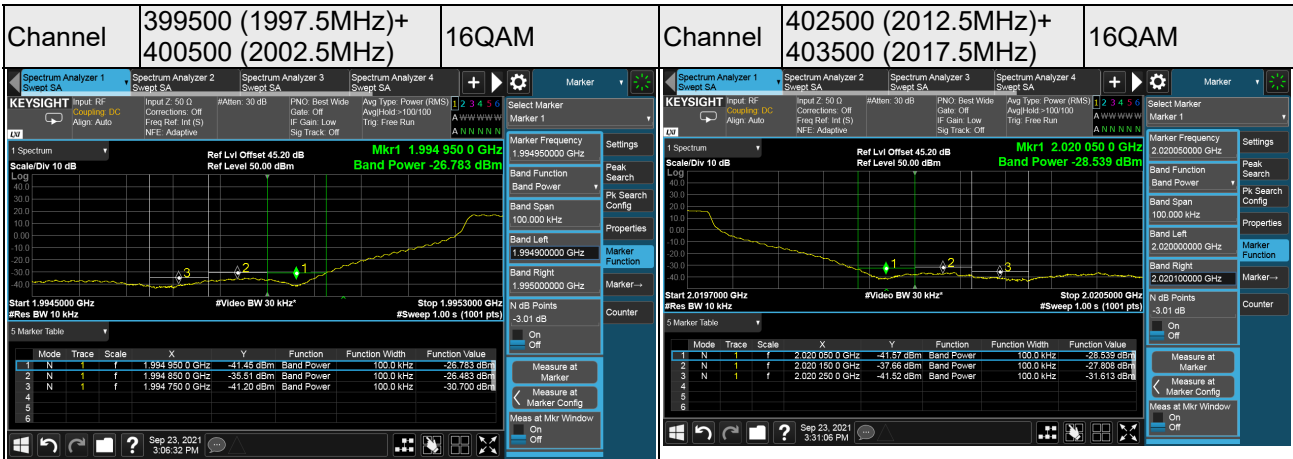


Ant. TX 3

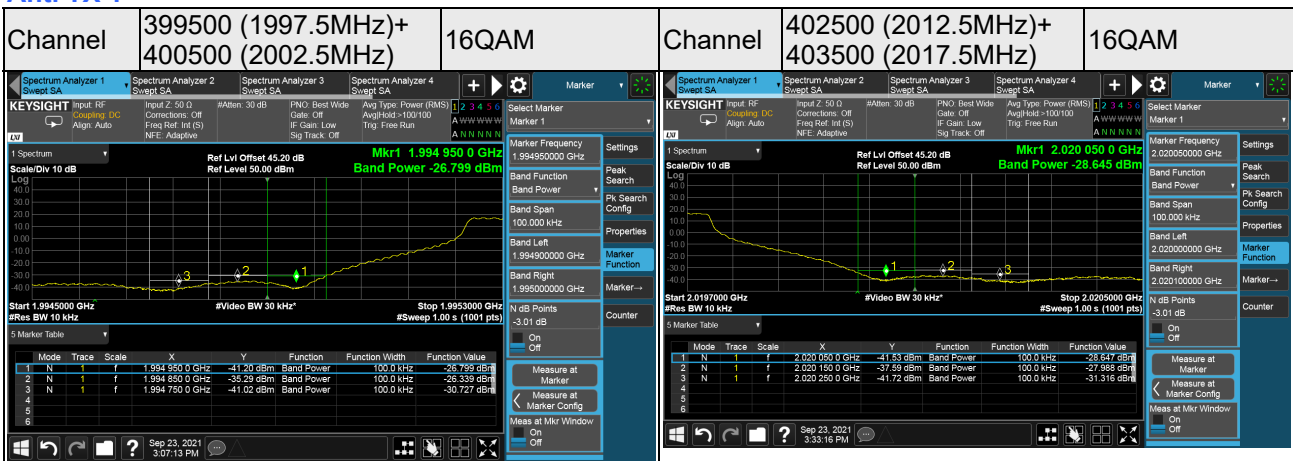


Dual Carrier

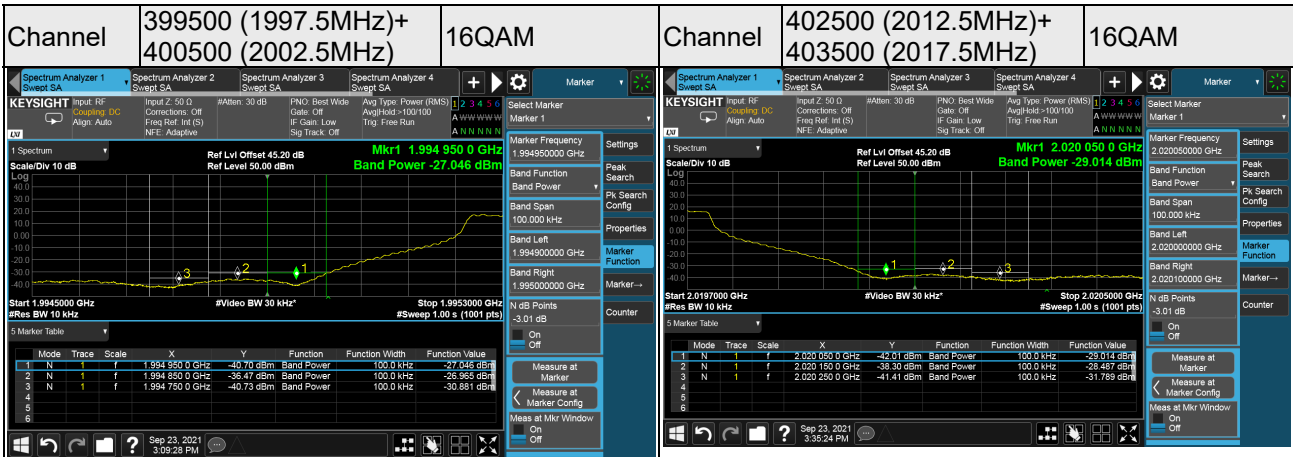
Contiguous_5MHz+5MHz Ant. TX 0



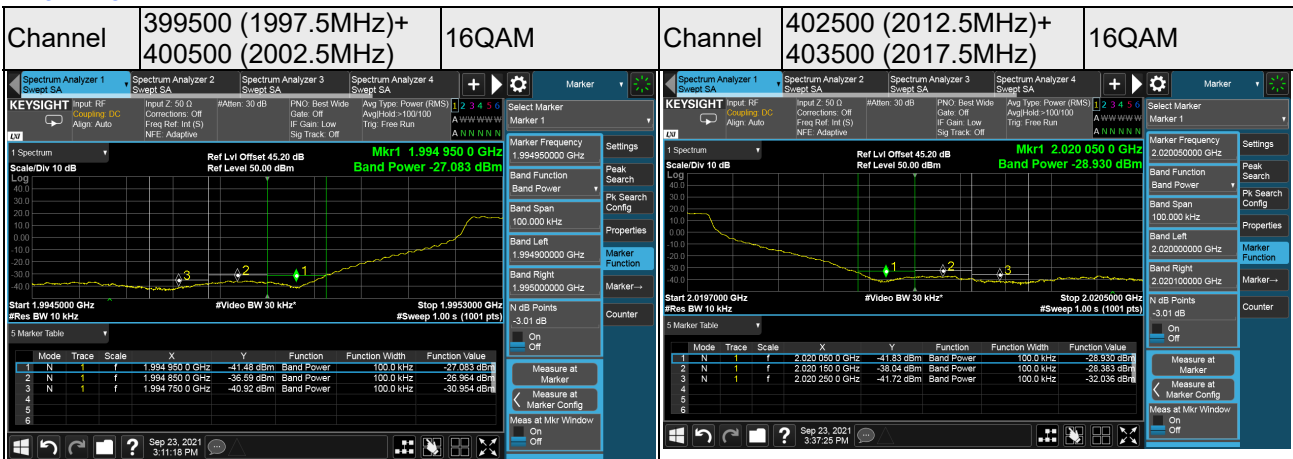
Ant. TX 1



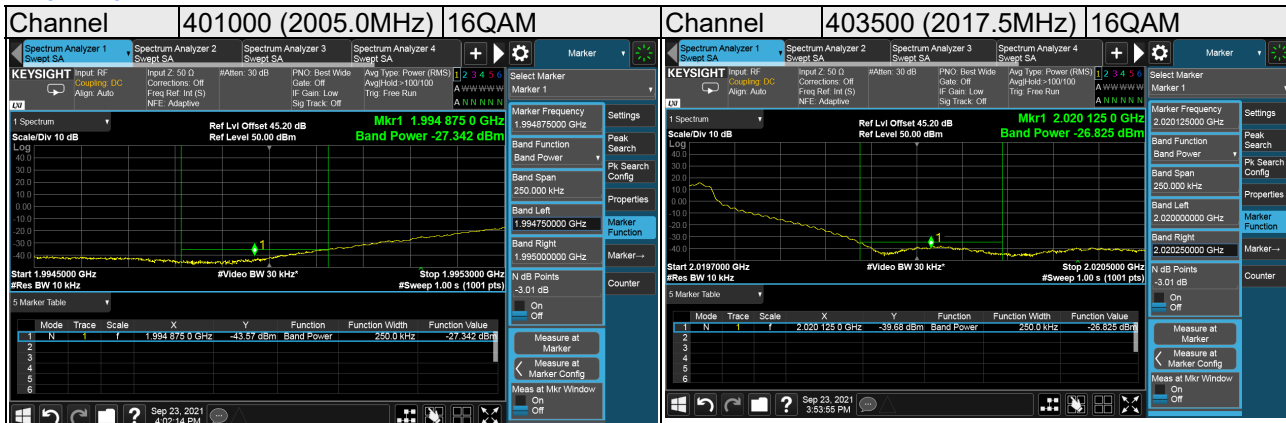
Ant. TX 2



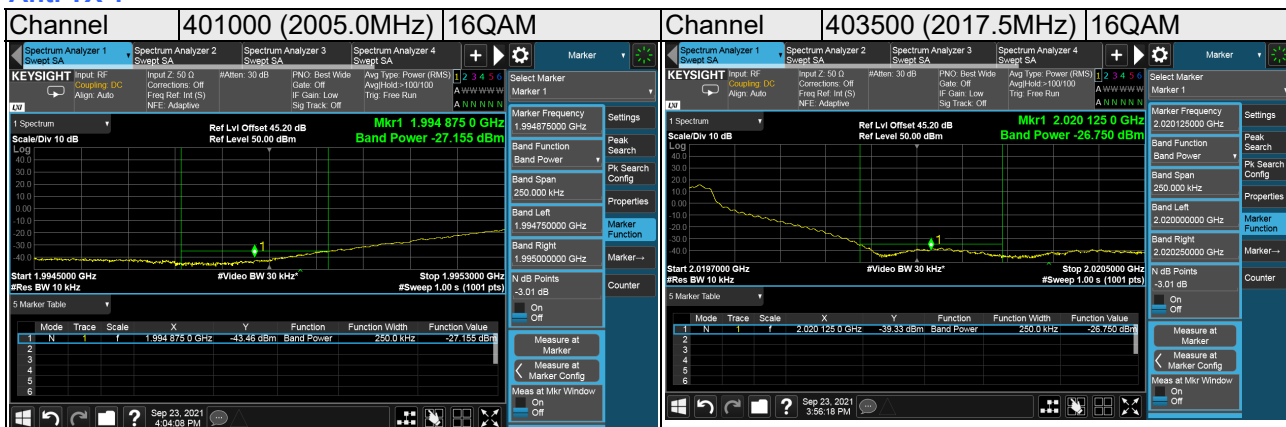
Ant. TX 3



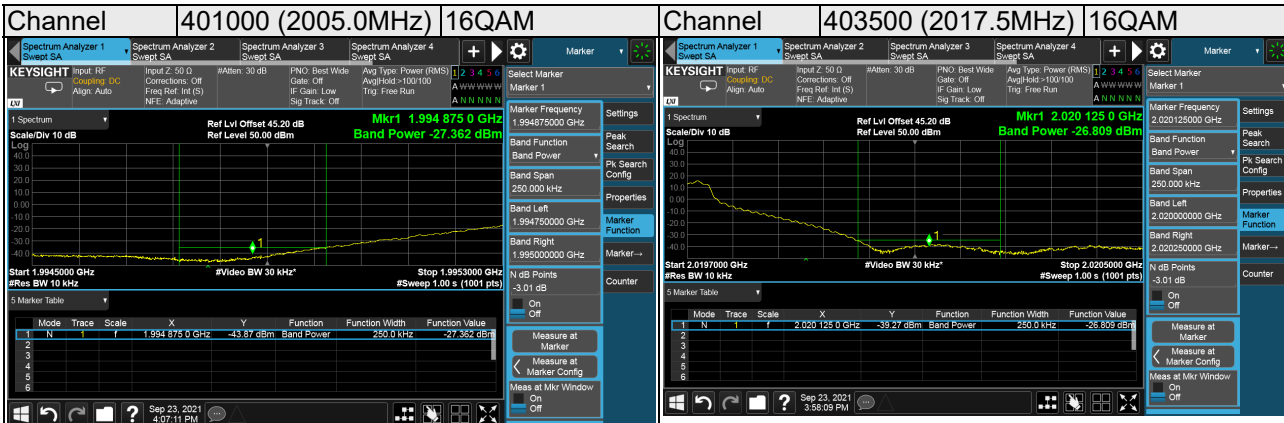
Contiguous_20MHz+5MHz
Ant. TX 0



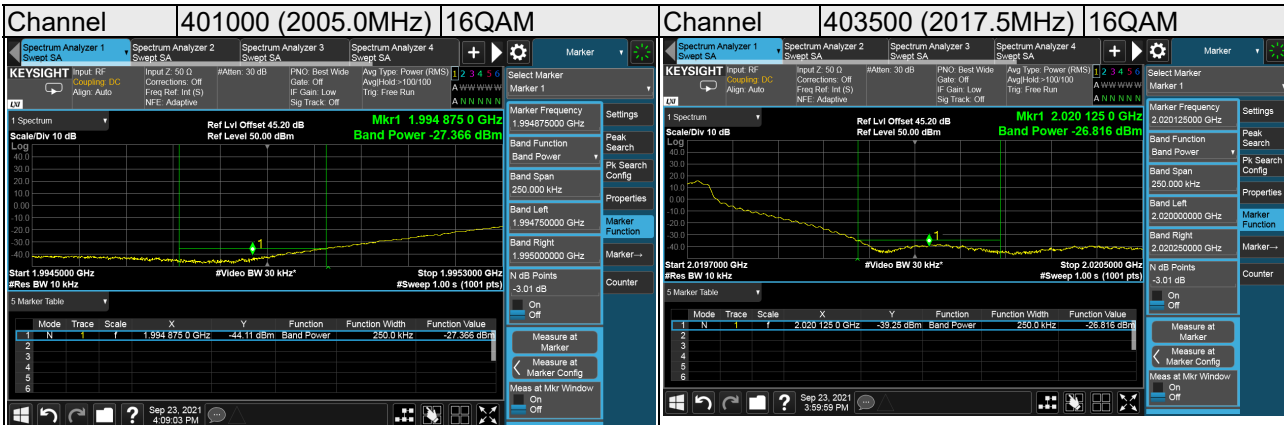
Ant. TX 1



Ant. TX 2



Ant. TX 3



4.3 Conducted Spurious Emissions

4.3.1 Limits of Conducted Spurious Emissions Measurement

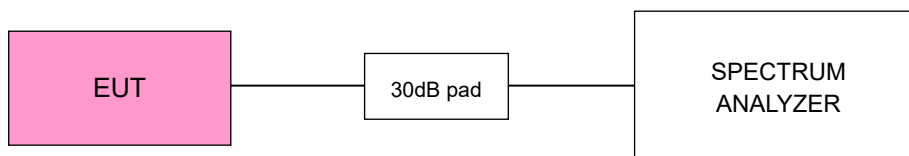
In the FCC 27.53(h)(1), On any frequency outside a licensee's frequency block, The power of any emission shall be attenuated below the transmitter power (P) by at least $43 + 10 \log (P)$ dB.

Note:

This device can be implement MIMO function, so the limit of spurious emissions needs to be reduced by $10 \log(\text{Numbers}_{\text{Ant}})$ according to FCC KDB 662911 D01 guidance.

{4TX: The limit is adjusted to $-13 \text{dBm} - 10 * \log(4) = -19.01 \text{dBm}$.}

4.3.2 Test Setup



4.3.3 Test Procedure

- All measurements were done at 3 channels: low, middle and high operational frequency range.
- When the spectrum scanned from 9kHz to 26GHz or 30GHz, it shall be connected to the 30dB pad attenuated the carried frequency.
- S.A. setting: RBW=1MHz, VBW=3MHz, Detector=RMS (Power average)