



Microtest
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Test Report

Report No.: MTi210312007-01E1

Date of issue: May 21, 2021

Applicant: Lathem Time Corporation

Product name: Lathem Time Corporation

Model(s): PCPROX, UP3PCPROX

FCC ID: UP3-PCPROX

Shenzhen Microtest Co., Ltd.
<http://www.mtitest.com>



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TEST RESULT CERTIFICATION

Applicant's name	Lathem Time Corporation
Address	210 The Bluffs, Suite 107 SW Austell, GA 30168 United States
Manufacturer's Name	SHENZHEN HEROFUN BIO-TECH CO., LTD
Address	West 401, Building A2, TianRui Industrial Park, No. 35 FuYuan 1st Road, XinHe Community, FuHai Street, BaoAn District, Shenzhen, China

Product description

Product name	Lathem Time Corporation
Trademark	Lathem
Model Name	PCPROX
Serial Model	UP3PCPROX
Standards	FCC Part 15.407
Test procedure	ANSI C63.10-2013 KDB 789033 D02 v02r01

Date of Test

Date (s) of performance of tests	Apr. 12, 2021 ~ May 13, 2021
Test Result	Pass

This device described above has been tested by Shenzhen Microtest Co., Ltd. and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

Testing Engineer

:

Danny Xu

(Danny Xu)

Technical Manager

:

Leo Su

(Leo Su)

Authorized Signatory

:

Tom Xue

(Tom Xue)



1 General information

1.1 Description of EUT

Equipment:	Lathem Time Corporation
Model name:	PCPROX
Serial model:	UP3PCPROX
Model difference:	All the models are of the same circuit and RF module, except the model No..
Frequency range:	U-NII-1: 5180 MHz to 5240 MHz, U-NII-3: 5745 MHz to 5825 MHz
Modulation type:	OFDM with BPSK/QPSK/16QAM/64QAM/256QAM for 802.11a/n/ac;
Transfer rate:	802.11a: 6,9,12,18,24,36,48,54Mbps; 802.11n(HT20/HT40): MCS0-MCS15; 802.11ac(VHT20): NSS1, MCS0-MCS8 802.11ac(VHT40):NSS1, MCS0-MCS9 802.11ac(VHT80) :NSS1,MCS0-MCS9
Channel bandwidth:	802.11a: 20 MHz 802.11n: 20 MHz, 40 MHz 802.11ac: 20 MHz, 40 MHz, 80MHz
Antenna type:	FPC antenna
Antenna gain:	1.13dBi
Max. output power:	U-NII-1: 13.64dBm U-NII-3: 14.50dBm
Hardware version:	V1.4
Software version:	V1.9
Power supply:	DC 12V from adapter AC 120V/60Hz or DC 8.4V from battery
Battery:	DC 8.4V 800mAh
Adapter information:	Model: ADS-25E-12 12015EPCU Input: 100V-240V~ 50/60Hz Max. 0.7A Output: DC 12V 1.25A
Serial number:	MTi210312007-01-S0001



1.2 Operation channel list

For U-NII-1:

20 MHz		40 MHz		80 MHz	
Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)
36	5180	38	5190	42	5120
40	5200	46	5230	--	--
44	5220	--	--	--	--
48	5240	--	--	--	--

For U-NII-3:

20 MHz		40 MHz		80 MHz	
Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)
149	5745	151	5755	155	5775
153	5765	159	5795	--	--
157	5785	--	--	--	--
161	5805	--	--	--	--
165	5825	--	--	--	--

1.3 Test channel list

U-NII-1 (5150 - 5250 MHz)			U-NII-3(5725 - 5850 MHz)		
Channel Number	Channel	Frequency (MHz)	Channel Number	Channel	Frequency (MHz)
36	Low	5180	149	Low	5745
44	Mid	5220	157	Mid	5785
48	High	5240	165	High	5825

80 MHz	
Channel Number	Frequency (MHz)
42	5210

For 802.11n/ac (HT40)

U-NII-1 (5150 - 5250 MHz)			U-NII-3(5725 - 5850 MHz)		
Channel Number	Channel	Frequency (MHz)	Channel Number	Channel	Frequency (MHz)
38	Low	5190	151	Low	5755
46	High	5230	159	High	5795

80 MHz	
Channel Number	Frequency (MHz)
155	5775



1.4 Ancillary equipment list

Equipment	Model	S/N	Manufacturer	Certificate type
/	/	/	/	/

1.5 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.

Item	Equipment	Brand	Model/Type No.	Series No.	Note
/	/	/	/	/	/

Note:

(1)The support equipment was authorized by Declaration of Confirmation.

(2)For detachable type I/O cable should be specified the length in cm in 『Length』 column.



2 Summary of the Test Results

Test procedures according to the technical standards:

No.	Standard Section	Test Item	Result	Remark
1	15.203/15.407	Antenna Requirement	Pass	
2	15.407(a)	RF Output Power	Pass	
3	15.207	Power Line Conducted Emission	Pass	
4	15.407(a)	26dB Emission Bandwidth and Occupied bandwidth	Pass	
5	15.407(e)	6 dB bandwidth	Pass	
6	15.407(a)	Power Spectral Density	Pass	
7	15.407(b) 15.209	Radiation Spurious Emission	Pass	



3 Test Facilities and Accreditations

3.1 Test laboratory

Test Laboratory	Shenzhen Microtest Co., Ltd
Location	101, No. 7, Zone 2, Xinxing Industrial Park, Fuhai Avenue, Xinhe Community, Fuhai Street, Bao' an District, Shenzhen, Guangdong, China.
FCC Registration No.:	448573

3.2 Environmental conditions

Temperature:	15°C~35°C
Humidity	20%~75%
Atmospheric pressure	98kPa~101kPa



3.3 Measurement uncertainty

The reported uncertainty of measurement $y \pm U$ where expanded uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$ providing a level of confidence of approximately 95 %

No.	Item	Uncertainty
1	Conducted Emission Test	$\pm 1.38\text{dB}$
2	RF power, conducted	$\pm 0.16\text{dB}$
3	Spurious emissions, conducted	$\pm 0.21\text{dB}$
4	All emissions, radiated(<1G)	$\pm 4.68\text{dB}$
5	All emissions, radiated(>1G)	$\pm 4.89\text{dB}$
6	Temperature	$\pm 0.5^{\circ}\text{C}$
7	Humidity	$\pm 2\%$

3.4 Test software

Software Name	Manufacturer	Model	Version
Bluetooth and WiFi Test System	Shenzhen JS tonskend co., ltd	JS1120-3	2.5.77.0418



4 Equipment list

Equipment No.	Equipment Name	Manufacturer	Model	Serial No.	Calibration date	Due date
MTI-E043	EMI Test Receiver	Rohde&schwarz	ESCI7	101166	2020/06/04	2021/06/03
MTI-E044	TRILOG Broadband Antenna	schwarbeck	VULB 9163	9163-1338	2020/06/05	2021/06/04
MTI-E047	Amplifier	Hewlett-Packard	8447F	3113A06150	2020/06/04	2021/06/03
MTI-E089	ESG Vector Signal Generator	Agilent	N5182A	MY49060455	2020/06/03	2021/06/02
MTI-E058	ESG Series Analog Signal Generator	Agilent	E4421B	GB40051240	2020/07/03	2021/07/04
MTI-E062	PXA Signal Analyzer	Agilent	N9030A	MY51350296	2020/06/04	2021/06/03
MTI-E066	MXA Signal Analyzer	Agilent	N9020A	MY50143483	2020/06/04	2021/06/03
MTI-E078	Synthesized Sweeper	Agilent	83752A	3610A01957	2020/06/04	2021/06/03
MTI-E079	DC Power Supply	Agilent	E3632A	MY40027695	2020/06/04	2021/06/03
MTI-E045	Double Ridged Broadband Horn Antenna	schwarbeck	BBHA 9120D	9120D-2278	2020/06/05	2021/06/04
MTI-E021	EMI Test Receiver	Rohde&schwarz	ESCS30	100210	2020/06/04	2021/06/03
MTI-E022	Pulse Limiter	Schwarzbeck	VSTD 9561-F	00679	2020/06/03	2021/06/02
MTI-E023	Artificial mains network	Schwarzbeck	NSLK 8127	NSLK 8127 #841	2020/06/04	2021/06/03
MTI-E046	Active Loop Antenna	Schwarzbeck	FMZB 1519B	00044	2020/06/05	2021/06/04
MTI-E048	Amplifier	Agilent	8449B	3008A02400	2020/07/03	2021/07/04
MTI-E072	Thermometer Clock Humidity Monitor	-	HTC-1	/	2020/06/07	2021/06/06

Note: the calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).



5 Test Results

5.1 Antenna requirement

5.1.1 Standard requirement

15.203 requirement: For intentional device, according to 15.203: an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

5.1.2 EUT Antenna

The antenna is FPC antenna, which was permanently affixed to the device and un-replaced, complies with 15.203. In addition, the maximum antenna gain is 1.13dBi.



5.2 RF output power

5.2.1 Limit

For the 5.15-5.25 GHz band

For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the 5.25-5.35 GHz and 5.47-5.725 GHz band

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

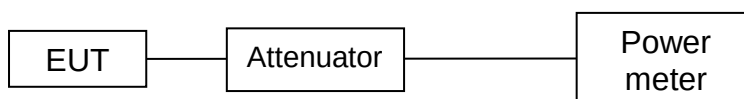
For the band 5.725-5.85 GHz

The maximum conducted output power over the frequency band of operation shall not exceed 1 W. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

5.2.2 Test procedure

The maximum peak conducted output power may be measured using a broadband Average RF power meter. The power meter shall have a video bandwidth that is greater than or equal to the emission bandwidth and utilize a fast-responding diode detector.

5.2.3 Test setup





5.2.4 Test results

For U-NII-1

Modulation mode	Test Channel	Frequency(MHz)	Average Conducted Power		Limit(mW)
			(dBm)	(mW)	
11a	CH36	5180	12.66	18.45	250
11a	CH40	5200	12.73	18.75	250
11a	CH48	5240	13.39	21.83	250
11n (HT20)	CH36	5180	12.21	16.63	250
11n (HT20)	CH40	5200	12.41	17.42	250
11n (HT20)	CH48	5240	13.01	20.00	250
11n (HT40)	CH38	5190	11.93	15.60	250
11n (HT40)	CH46	5230	13.64	23.12	250

Modulation mode	Test Channel	Frequency(MHz)	Average Conducted Power		Limit(mW)
			(dBm)	(mW)	
11ac (HT20)	CH36	5180	12.25	16.79	250
11ac (HT20)	CH40	5200	12.38	17.30	250
11ac (HT20)	CH48	5240	13.01	20.00	250
11ac (HT40)	CH38	5190	12.06	16.07	250
11ac (HT40)	CH46	5230	12.82	19.14	250
11ac (HT80)	CH42	5210	12.72	18.71	250



For U-NII-3

Modulation mode	Test Channel	Frequency(MHz)	Average Conducted Power		Limit(mW)
			(dBm)	(mW)	
11a	CH149	5745	14.01	25.18	1000
11a	CH157	5785	14.34	27.16	1000
11a	CH165	5825	14.50	28.18	1000
11n (HT20)	CH149	5745	13.89	24.49	1000
11n (HT20)	CH157	5785	13.89	24.49	1000
11n (HT20)	CH165	5825	14.18	26.18	1000
11n (HT40)	CH151	5755	12.61	18.24	1000
11n (HT40)	CH159	5795	11.92	15.56	1000

Modulation mode	Test Channel	Frequency(MHz)	Average Conducted Power		Limit(mW)
			(dBm)	(mW)	
11ac (HT20)	CH149	5745	12.79	19.01	1000
11ac (HT20)	CH157	5785	12.28	16.90	1000
11ac (HT20)	CH165	5825	11.98	15.78	1000
11ac (HT40)	CH151	5755	12.47	17.66	1000
11ac (HT40)	CH159	5795	11.83	15.24	1000
11ac (HT80)	CH155	5775	12.82	19.14	1000



5.3 Power line conducted emission

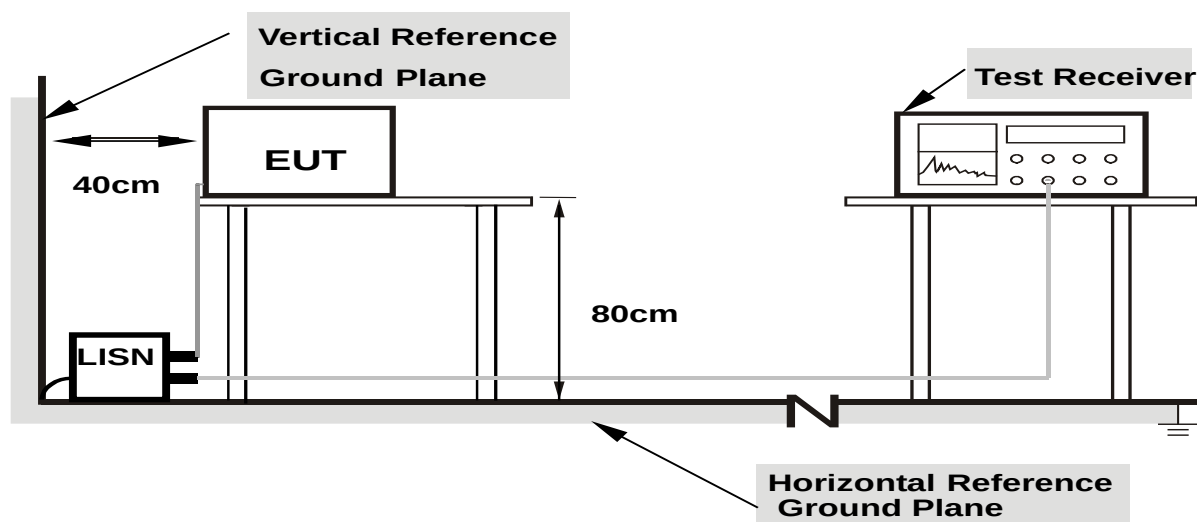
5.3.1 Limits

FREQUENCY (MHz)	Class B (dBuV)	
	Quasi-peak	Average
0.15 -0.5	66 - 56 *	56 - 46 *
0.50 -5.0	56.00	46.00
5.0 -30.0	60.00	50.00

Note

1. The tighter limit applies at the band edges.
2. The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

5.3.2 Test setup



Note: 1.Support units were connected to second LISN.

2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes



5.3.3 Test procedure

a. EUT Operating Conditions

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

b. The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

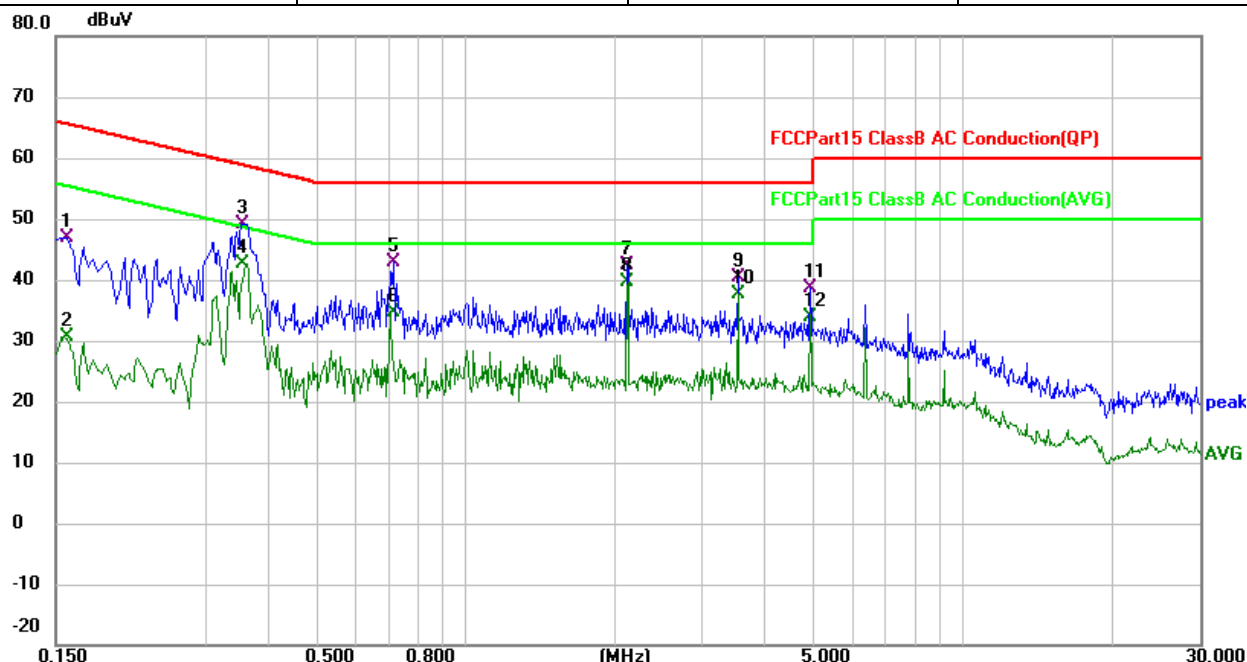
- c. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- d. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- e. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- f. LISN at least 80 cm from nearest part of EUT chassis.

For the actual test configuration, please refer to the related Item –EUT Test Photos.



5.3.4 Test results

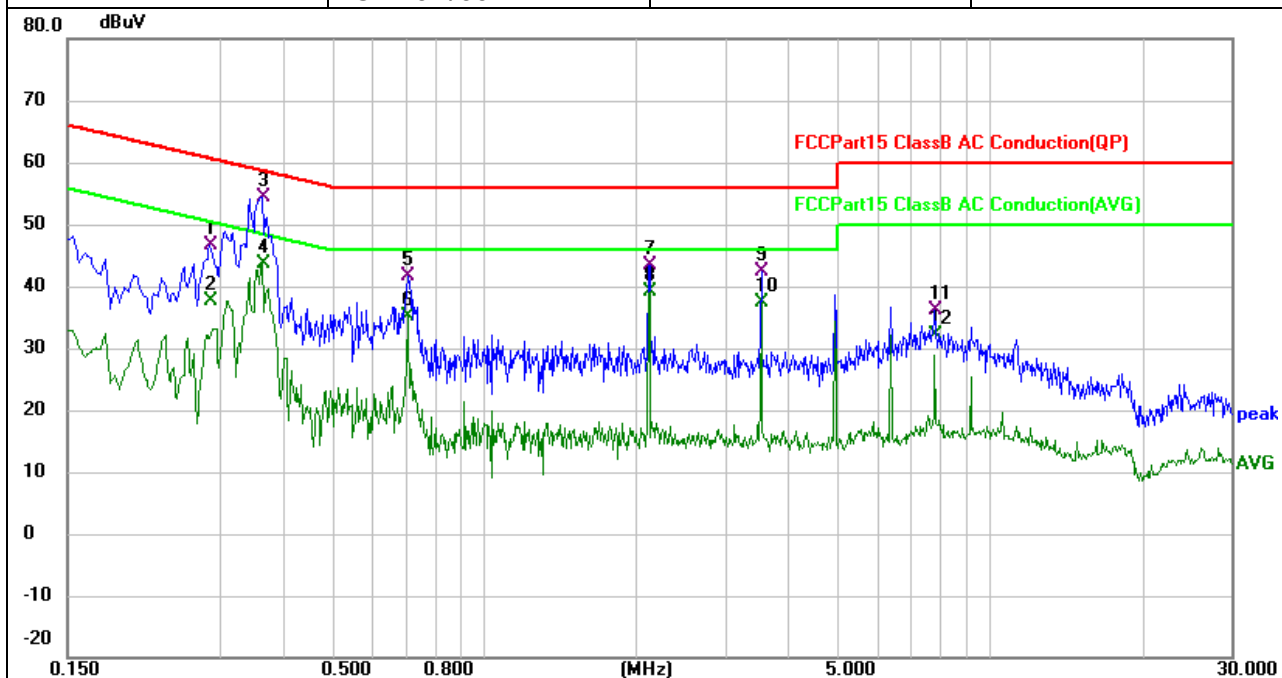
EUT:	Lathem Time Corporation	Model Name:	PCPROX
Pressure:	1010hPa	Phase:	L
Test Voltage:	DC 12V from adapter AC 120V/60Hz	Test Mode:	Charging+TX



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.1580	35.89	10.99	46.88	65.57	-18.69	QP
2		0.1580	19.65	10.99	30.64	55.57	-24.93	AVG
3		0.3540	38.25	10.99	49.24	58.87	-9.63	QP
4	*	0.3540	31.61	10.99	42.60	48.87	-6.27	AVG
5		0.7180	31.70	11.13	42.83	56.00	-13.17	QP
6		0.7180	23.48	11.13	34.61	46.00	-11.39	AVG
7		2.1180	26.85	15.64	42.49	56.00	-13.51	QP
8		2.1180	23.95	15.64	39.59	46.00	-6.41	AVG
9		3.5340	28.93	11.41	40.34	56.00	-15.66	QP
10		3.5340	26.12	11.41	37.53	46.00	-8.47	AVG
11		4.9500	27.05	11.48	38.53	56.00	-17.47	QP
12		4.9500	22.51	11.48	33.99	46.00	-12.01	AVG



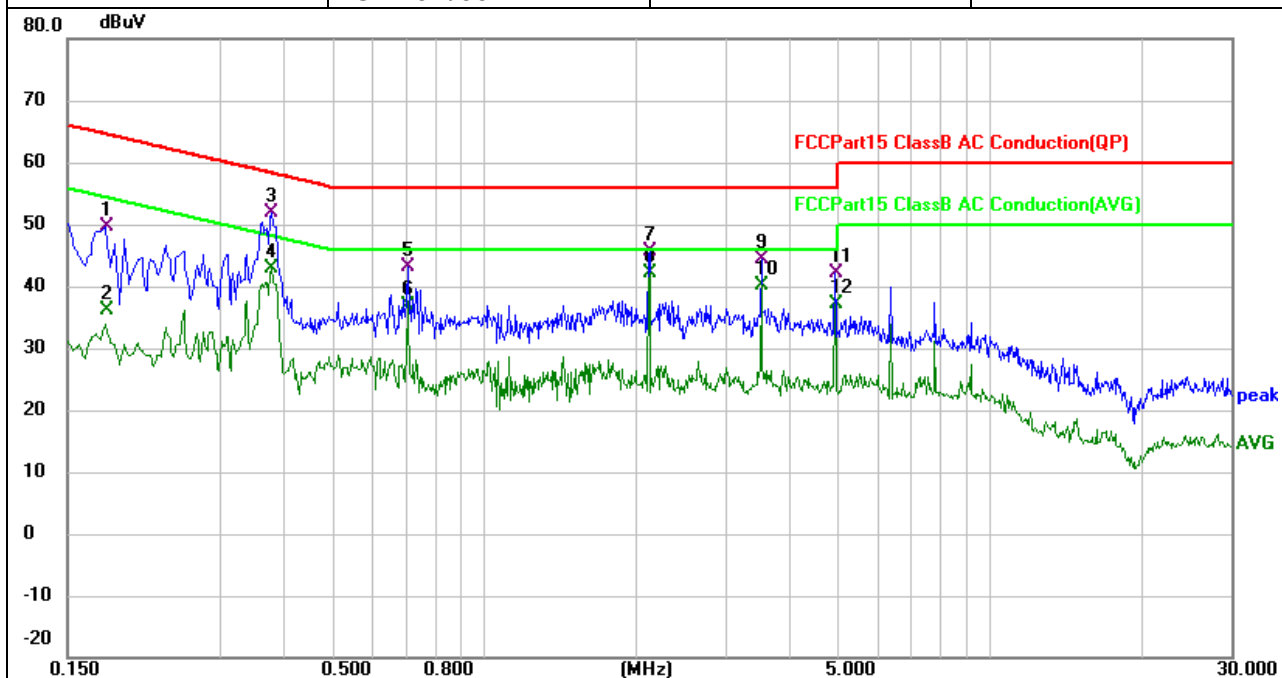
EUT:	Lathem Time Corporation	Model Name:	PCPROX
Pressure:	1010hPa	Phase:	N
Test Voltage:	DC 12V from adapter AC 120V/60Hz	Test Mode:	Charging+TX



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.2860	35.70	10.93	46.63	60.64	-14.01	QP
2		0.2860	26.62	10.93	37.55	50.64	-13.09	AVG
3	*	0.3620	43.37	10.91	54.28	58.68	-4.40	QP
4		0.3620	32.62	10.91	43.53	48.68	-5.15	AVG
5		0.7100	30.55	11.09	41.64	56.00	-14.36	QP
6		0.7100	23.92	11.09	35.01	46.00	-10.99	AVG
7		2.1180	27.85	15.63	43.48	56.00	-12.52	QP
8		2.1180	23.61	15.63	39.24	46.00	-6.76	AVG
9		3.5340	30.94	11.39	42.33	56.00	-13.67	QP
10		3.5340	26.07	11.39	37.46	46.00	-8.54	AVG
11		7.7740	24.70	11.44	36.14	60.00	-23.86	QP
12		7.7740	20.76	11.44	32.20	50.00	-17.80	AVG



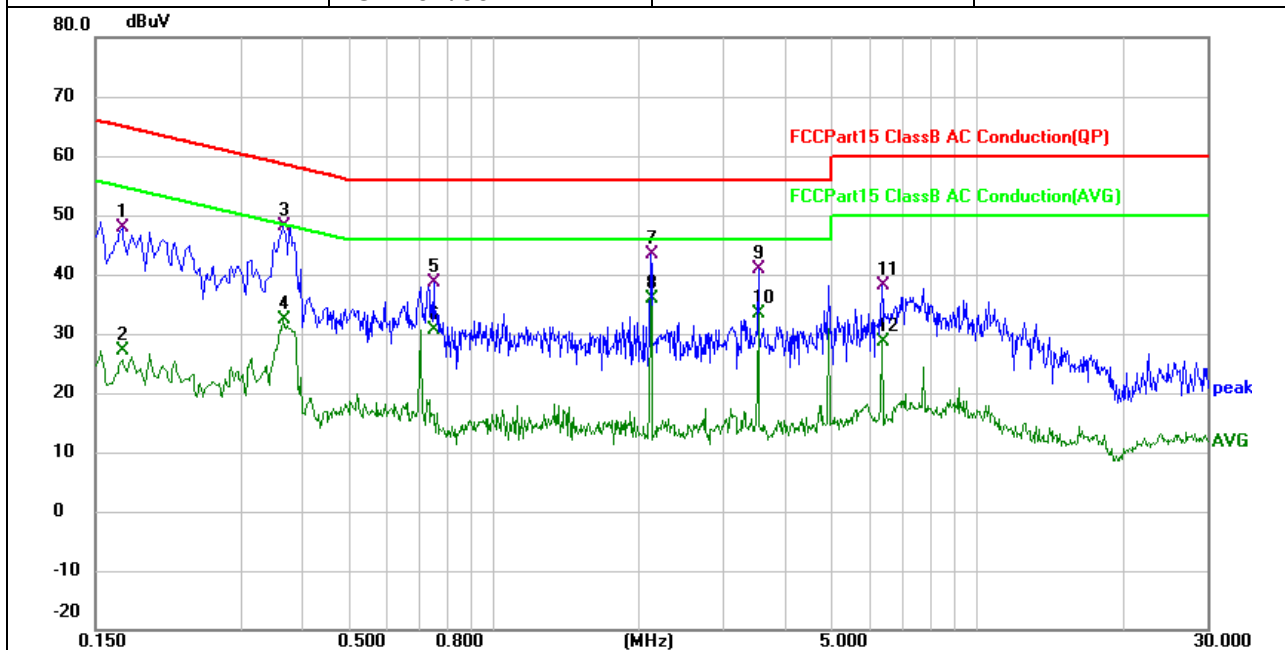
EUT:	Lathem Time Corporation	Model Name:	PCPROX
Pressure:	1010hPa	Phase:	L
Test Voltage:	DC 12V from adapter AC 240V/60Hz	Test Mode:	Charging+TX



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector
1		0.1780	38.65	10.92	49.57	64.58	-15.01	QP
2		0.1780	25.10	10.92	36.02	54.58	-18.56	AVG
3		0.3780	41.00	10.89	51.89	58.32	-6.43	QP
4		0.3780	32.06	10.89	42.95	48.32	-5.37	AVG
5		0.7060	31.96	11.08	43.04	56.00	-12.96	QP
6		0.7060	25.69	11.08	36.77	46.00	-9.23	AVG
7		2.1220	30.02	15.63	45.65	56.00	-10.35	QP
8	*	2.1220	26.49	15.63	42.12	46.00	-3.88	AVG
9		3.5340	33.00	11.39	44.39	56.00	-11.61	QP
10		3.5340	28.68	11.39	40.07	46.00	-5.93	AVG
11		4.9460	30.84	11.39	42.23	56.00	-13.77	QP
12		4.9460	25.62	11.39	37.01	46.00	-8.99	AVG



EUT:	Lathem Time Corporation	Model Name:	PCPROX
Pressure:	1010hPa	Phase:	N
Test Voltage:	DC 12V from adapter AC 240V/60Hz	Test Mode:	Charging+TX



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.1700	36.95	10.93	47.88	64.96	-17.08	QP
2		0.1700	16.29	10.93	27.22	54.96	-27.74	AVG
3		0.3660	37.17	10.90	48.07	58.59	-10.52	QP
4		0.3660	21.45	10.90	32.35	48.59	-16.24	AVG
5		0.7539	27.54	11.11	38.65	56.00	-17.35	QP
6		0.7539	19.60	11.11	30.71	46.00	-15.29	AVG
7		2.1180	27.70	15.63	43.33	56.00	-12.67	QP
8	*	2.1180	20.33	15.63	35.96	46.00	-10.04	AVG
9		3.5340	29.54	11.39	40.93	56.00	-15.07	QP
10		3.5340	22.03	11.39	33.42	46.00	-12.58	AVG
11		6.3580	26.75	11.40	38.15	60.00	-21.85	QP
12		6.3580	17.29	11.40	28.69	50.00	-21.31	AVG

Note:

1. All the mode has been tested for this test, just incarnate report the worst mode 11a CH36 data.
2. Emission Level = Reading Level + Factor, Margin = Emission Level - Limit, Factor = LISN modulus + Cable Loss.



5.4 26dB Emission Bandwidth and Occupied bandwidth

5.4.1 Limit

For purposes of this subpart the emission bandwidth shall be determined by measuring the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, that are 26 dB down relative to the maximum level of the modulated carrier

5.4.2 Test procedure

26d Emission bandwidth

Set RBW = approximately 1% of the emission bandwidth.

Set VBW $\geq 3 \times \text{RBW}$

Detector = Peak.

Trace mode = Max hold.

Measure the maximum width of the emission that is 26 dB down from the peak of the emission.

Occupied Bandwidth

Set Span = 1.5 times to 5.0 times the OBW

Set RBW = 1% to 5% of the OBW.

Set VBW $\geq 3 \times \text{RBW}$, Detector = Peak.

Trace mode = Max hold.

Use the 99% power bandwidth function of the instrument.

5.4.3 Test setup





5.4.4 Test results

For U-NII-1

Channel	Test Channel	Frequency (MHz)	26dB bandwidth (MHz)	99% bandwidth	Limit (kHz)	Result
11a	CH36	5180	24.25	16.843	/	Pass
11a	CH40	5200	22.45	16.607	/	Pass
11a	CH48	5240	25.11	17.027	/	Pass
11n (HT20)	CH36	5180	28.90	18.050	/	Pass
11n (HT20)	CH40	5200	26.12	18.000	/	Pass
11n (HT20)	CH48	5240	26.50	18.035	/	Pass
11n (HT40)	CH38	5190	57.03	36.726	/	Pass
11n (HT40)	CH46	5230	56.89	36.388	/	Pass

Channel	Test Channel	Frequency (MHz)	26dB bandwidth (MHz)	99% bandwidth	Limit (kHz)	Result
11ac (HT20)	CH36	5180	27.35	18.117	/	Pass
11ac (HT20)	CH40	5200	25.98	18.167	/	Pass
11ac (HT20)	CH48	5240	26.28	18.108	/	Pass
11ac (HT40)	CH38	5190	57.04	37.039	/	Pass
11ac (HT40)	CH46	5230	57.05	37.097	/	Pass
11ac (HT80)	CH42	5210	78.82	75.385	/	Pass



For U-NII-3

Channel	Test Channel	Frequency (MHz)	99% bandwidth	Limit (kHz)	Result
11a	CH149	5745	17.599	/	Pass
11a	CH157	5785	17.484	/	Pass
11a	CH165	5825	17.437	/	Pass
11n (HT20)	CH149	5745	18.576	/	Pass
11n (HT20)	CH157	5785	18.418	/	Pass
11n (HT20)	CH165	5825	18.359	/	Pass
11n (HT40)	CH151	5755	36.886	/	Pass
11n (HT40)	CH159	5795	36.812	/	Pass

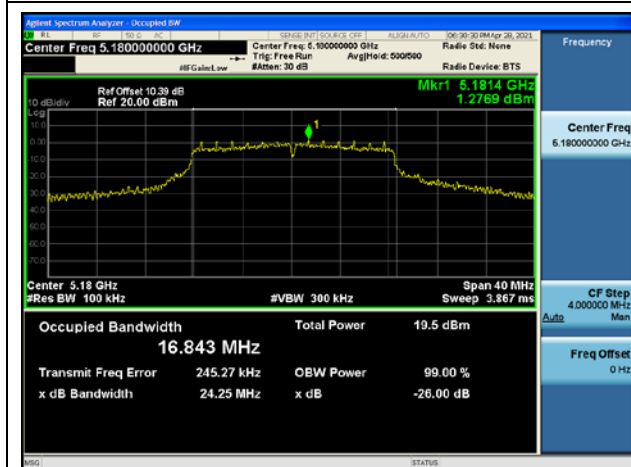
Channel	Test Channel	Frequency (MHz)	99% bandwidth	Limit (kHz)	Result
11ac (HT20)	CH149	5745	18.460	/	Pass
11ac (HT20)	CH157	5785	18.510	/	Pass
11ac (HT20)	CH165	5825	18.477	/	Pass
11ac (HT40)	CH151	5755	36.873	/	Pass
11ac (HT40)	CH159	5795	36.793	/	Pass
11ac (HT80)	CH155	5775	75.961	/	Pass



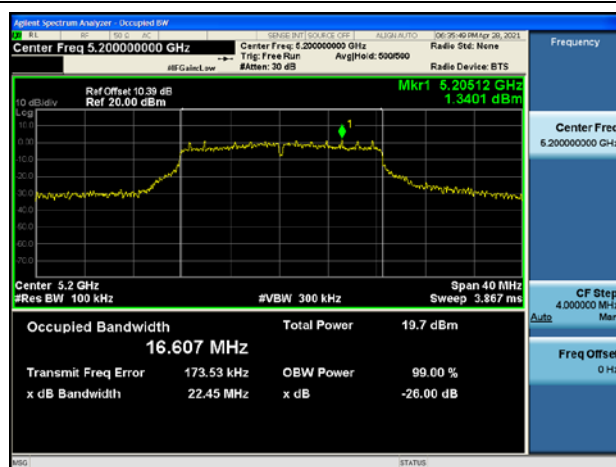
Test plots:

For U-NII-1

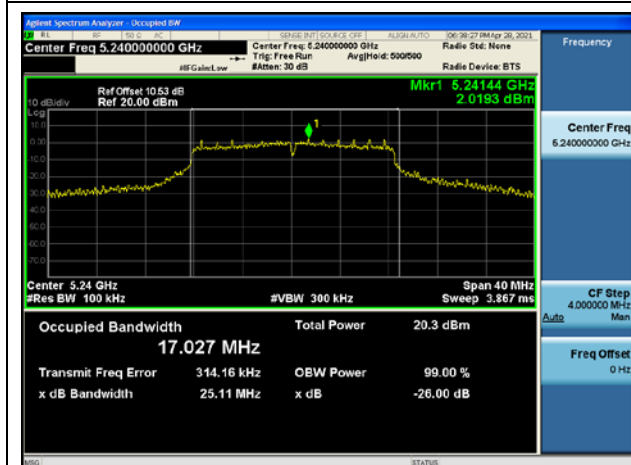
11a CH36



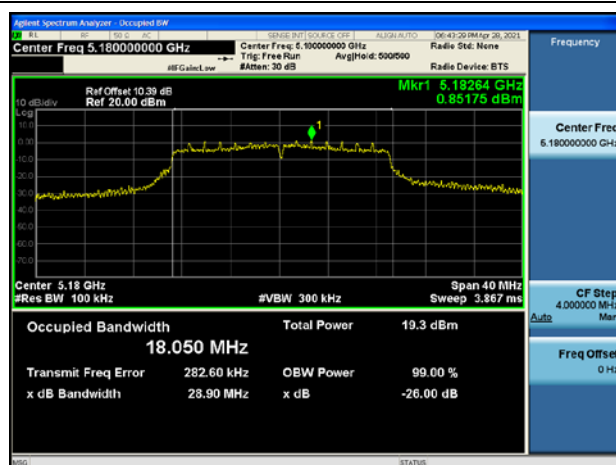
11a CH40



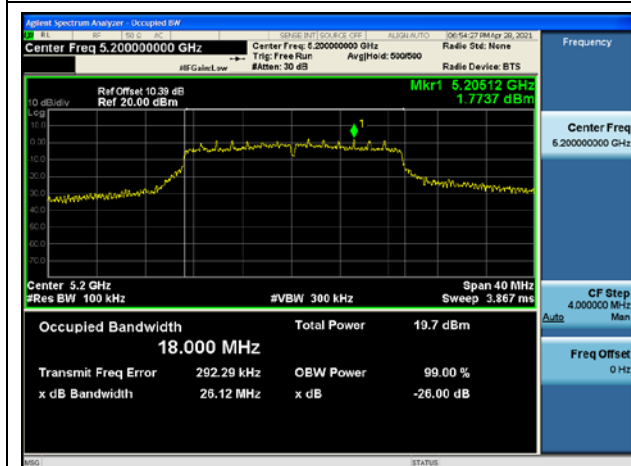
11a CH48



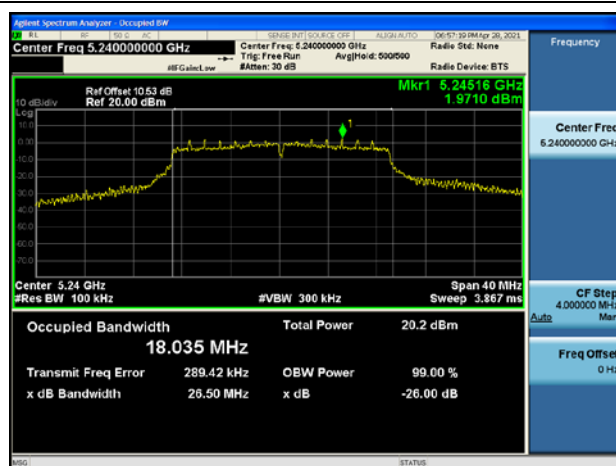
11n (HT20) CH36



11n (HT20) CH40

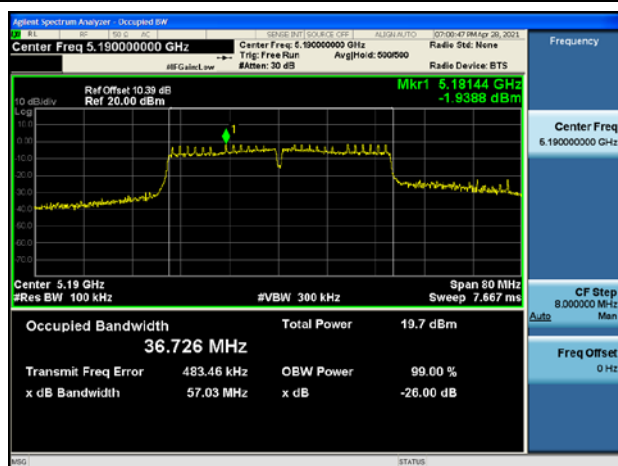


11n (HT20) CH48

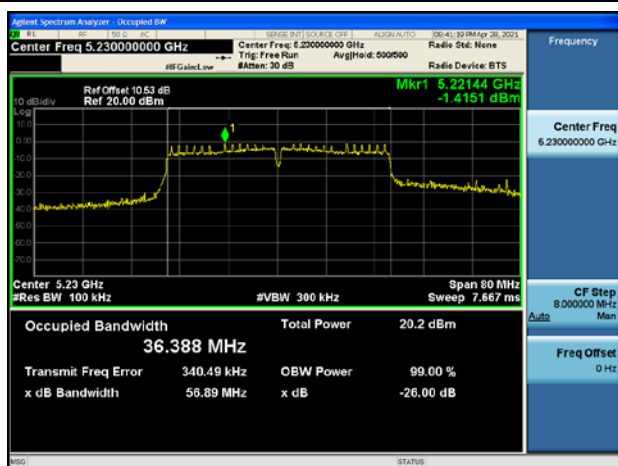




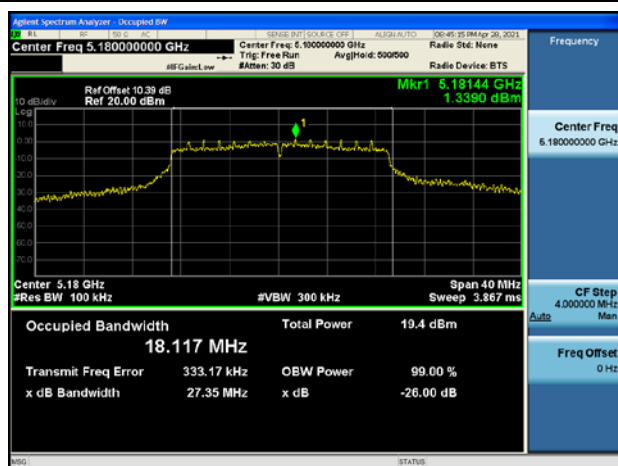
11n (HT40) CH38



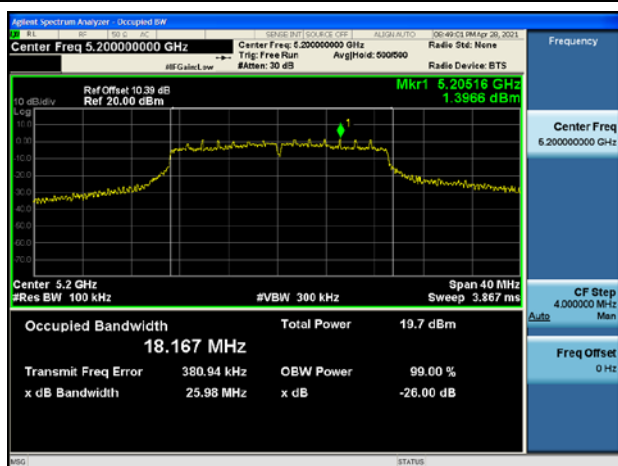
11n (HT40) CH46



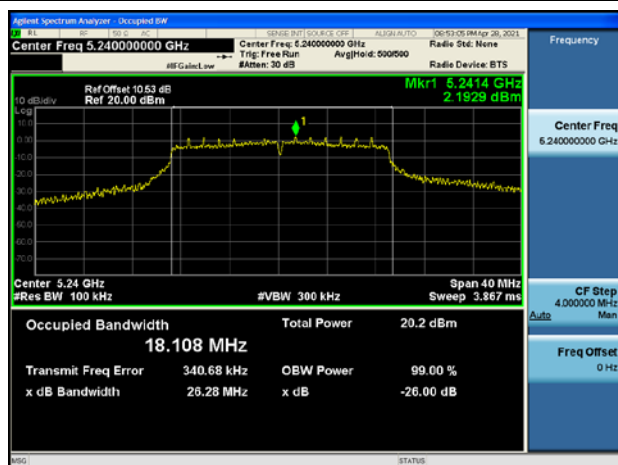
11ac (HT20) CH36



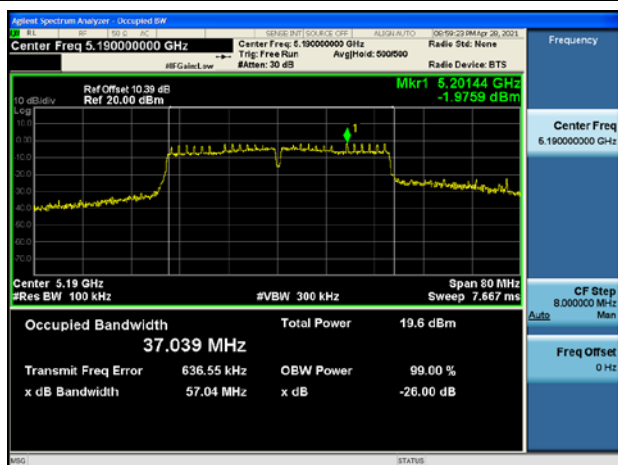
11ac (HT20) CH40



11ac (HT20) CH48

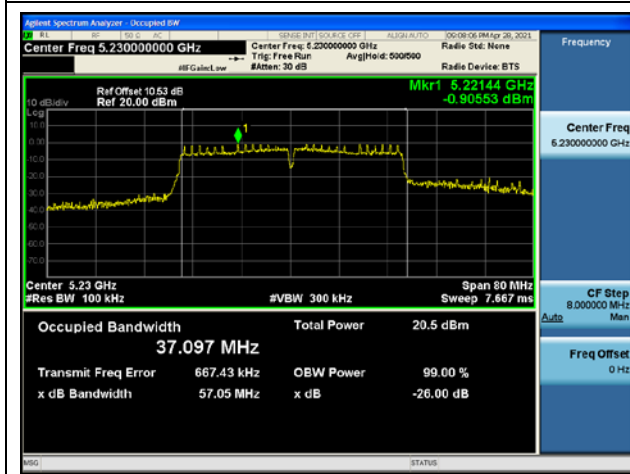


11ac (HT40) CH38

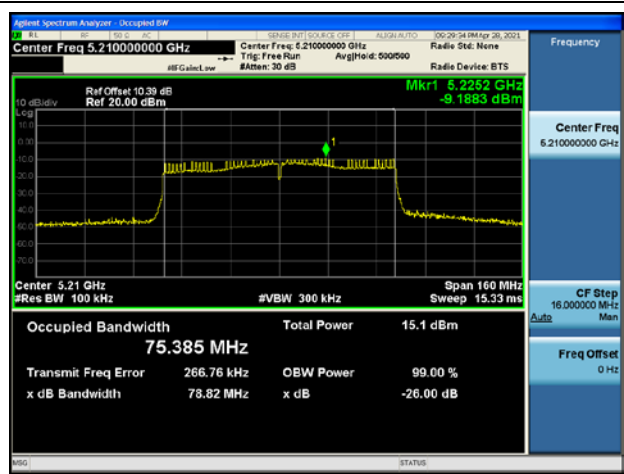




11ac (HT40) CH46

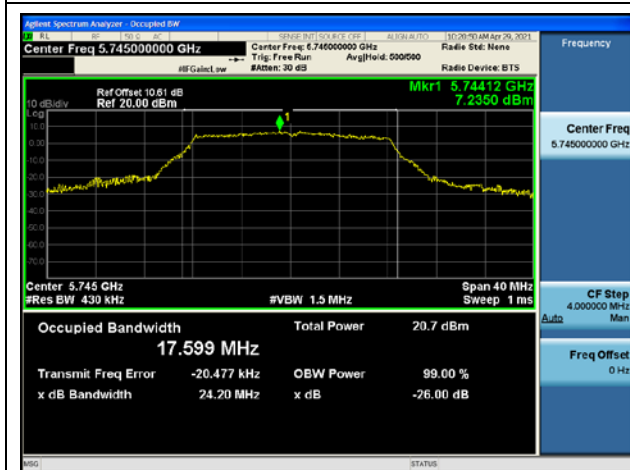


11ac (HT80) CH42

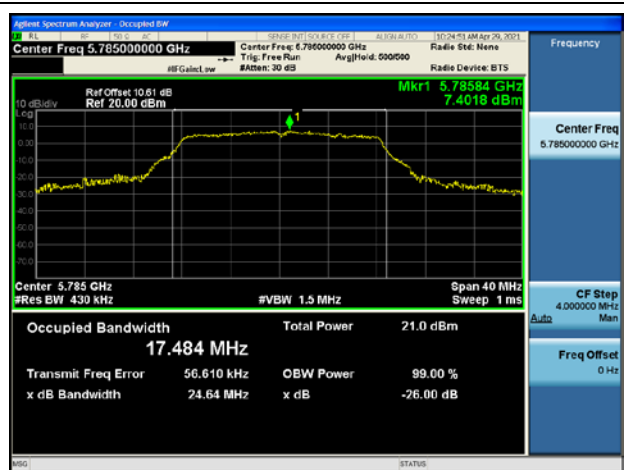


For U-NII-3

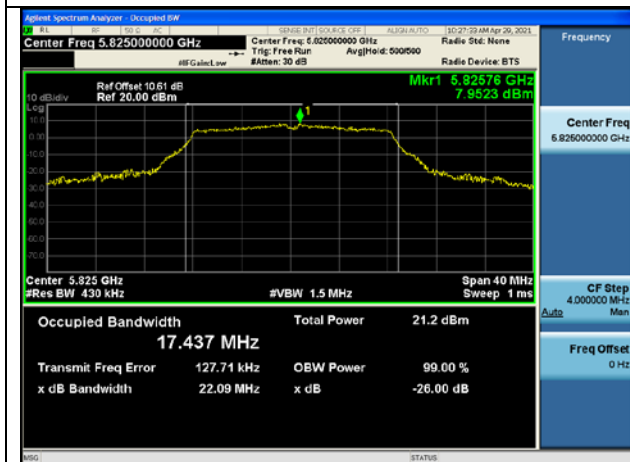
11a CH149



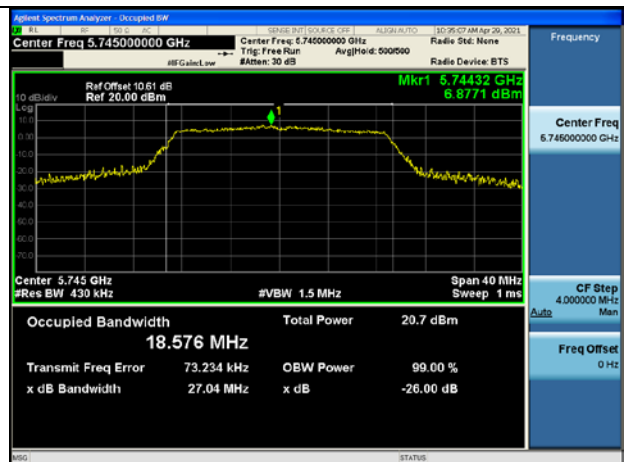
11a CH157



11a CH165

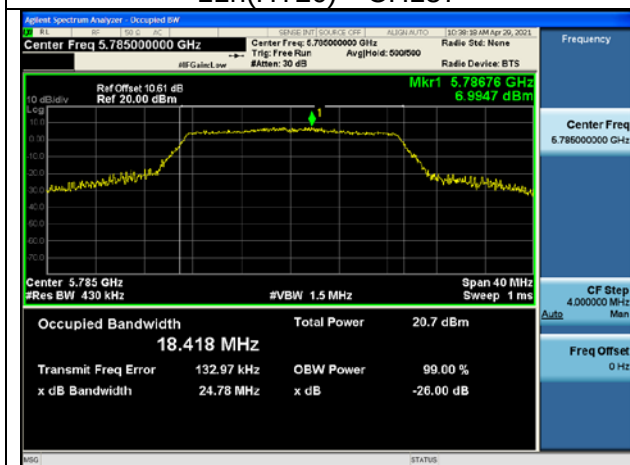


11n(HT20) CH149

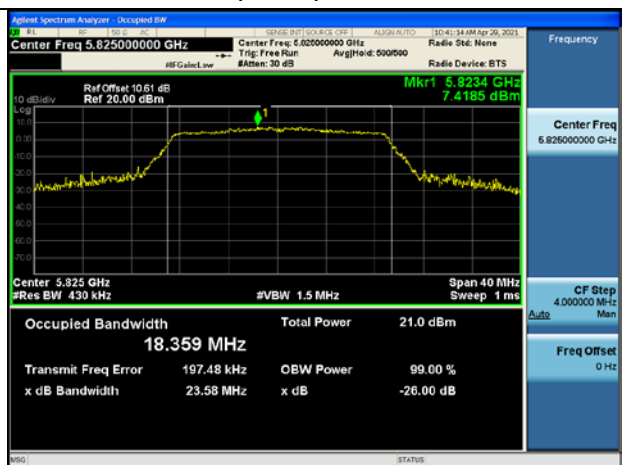




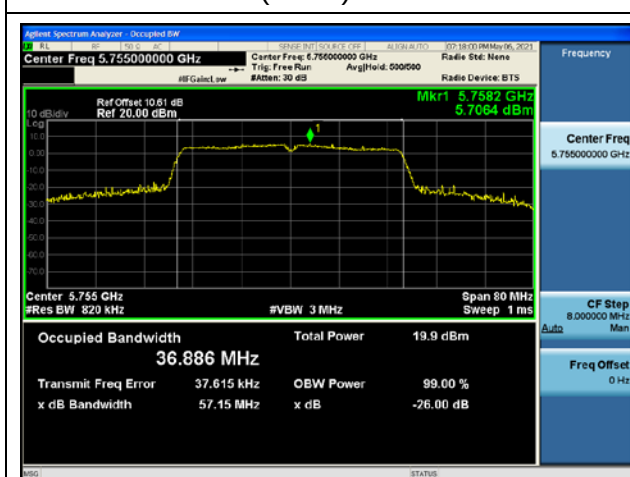
11n(HT20) CH157



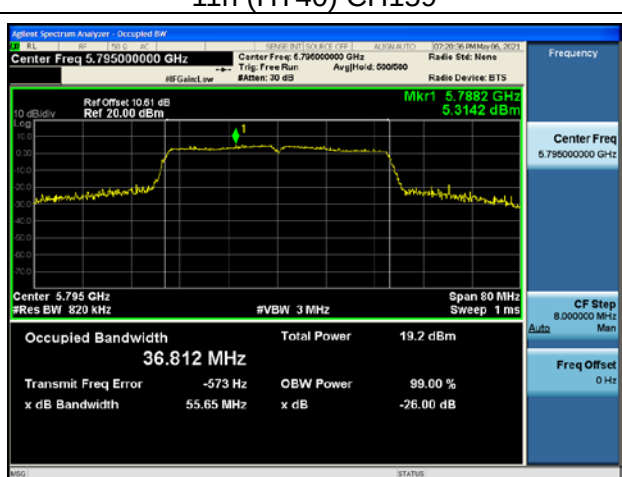
11n(HT20) CH165



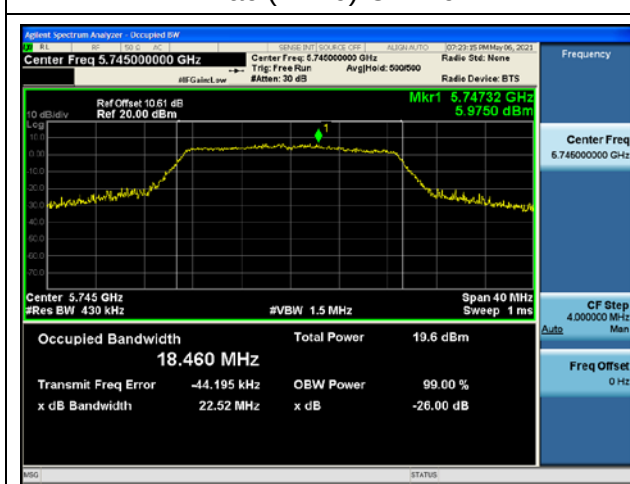
11n (HT40) CH151



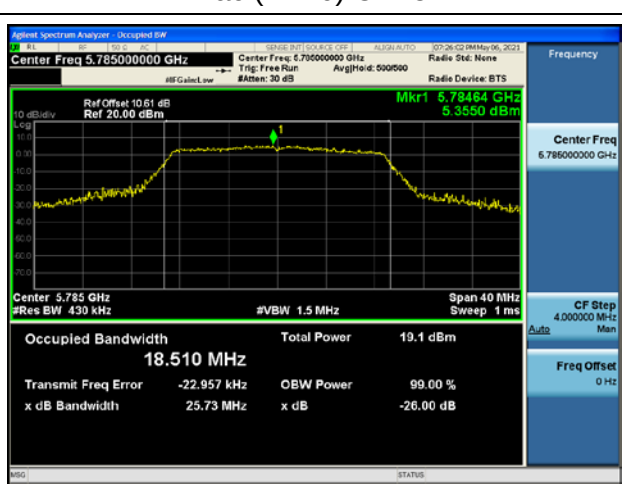
11n (HT40) CH159



11ac (HT20) CH149

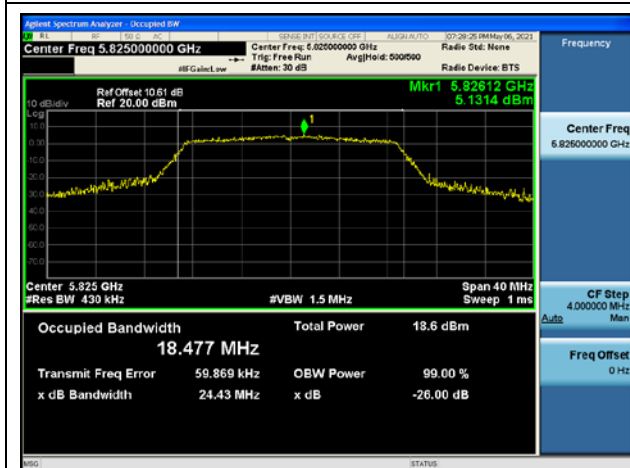


11ac (HT20) CH157

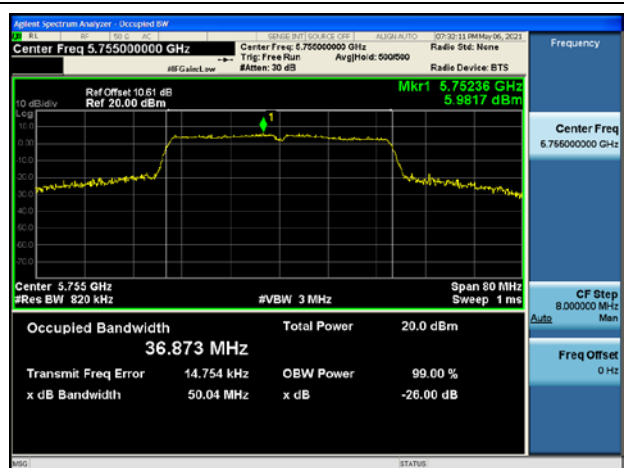




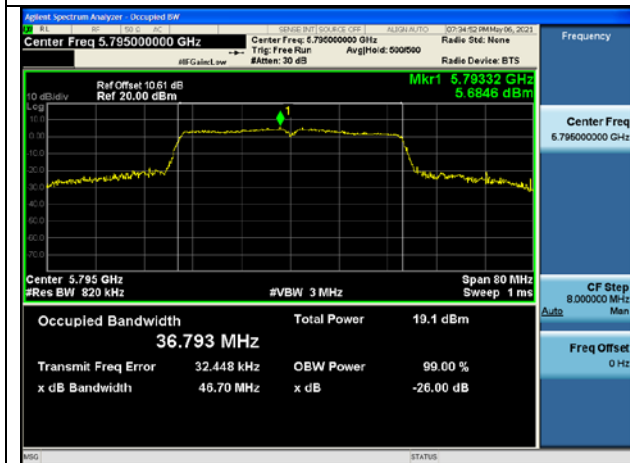
11ac(HT20) CH165



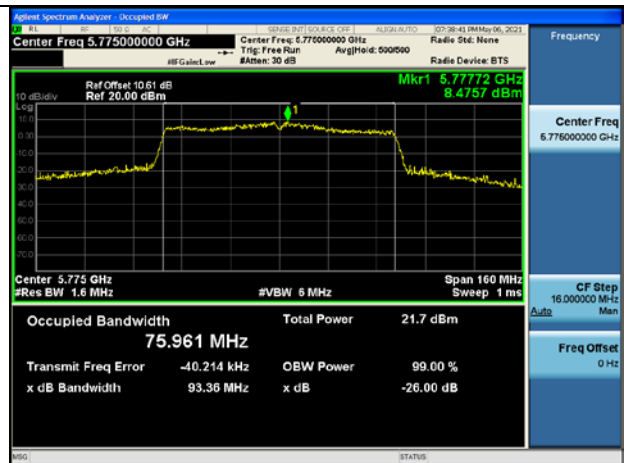
11ac(HT40) CH151



11ac(HT40) CH159



11ac (HT80) CH155





5.5 6dB Bandwidth

5.5.1 Limit

For purposes of this subpart the emission bandwidth shall be determined by measuring the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, that are 26 dB down relative to the maximum level of the modulated carrier

5.5.2 Test procedure

1. Set RBW= 100 kHz.
2. Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 26 dB relative to the maximum level measured in the fundamental emission.

5.5.3 Test setup



5.5.4 Test results



For U-NII-3

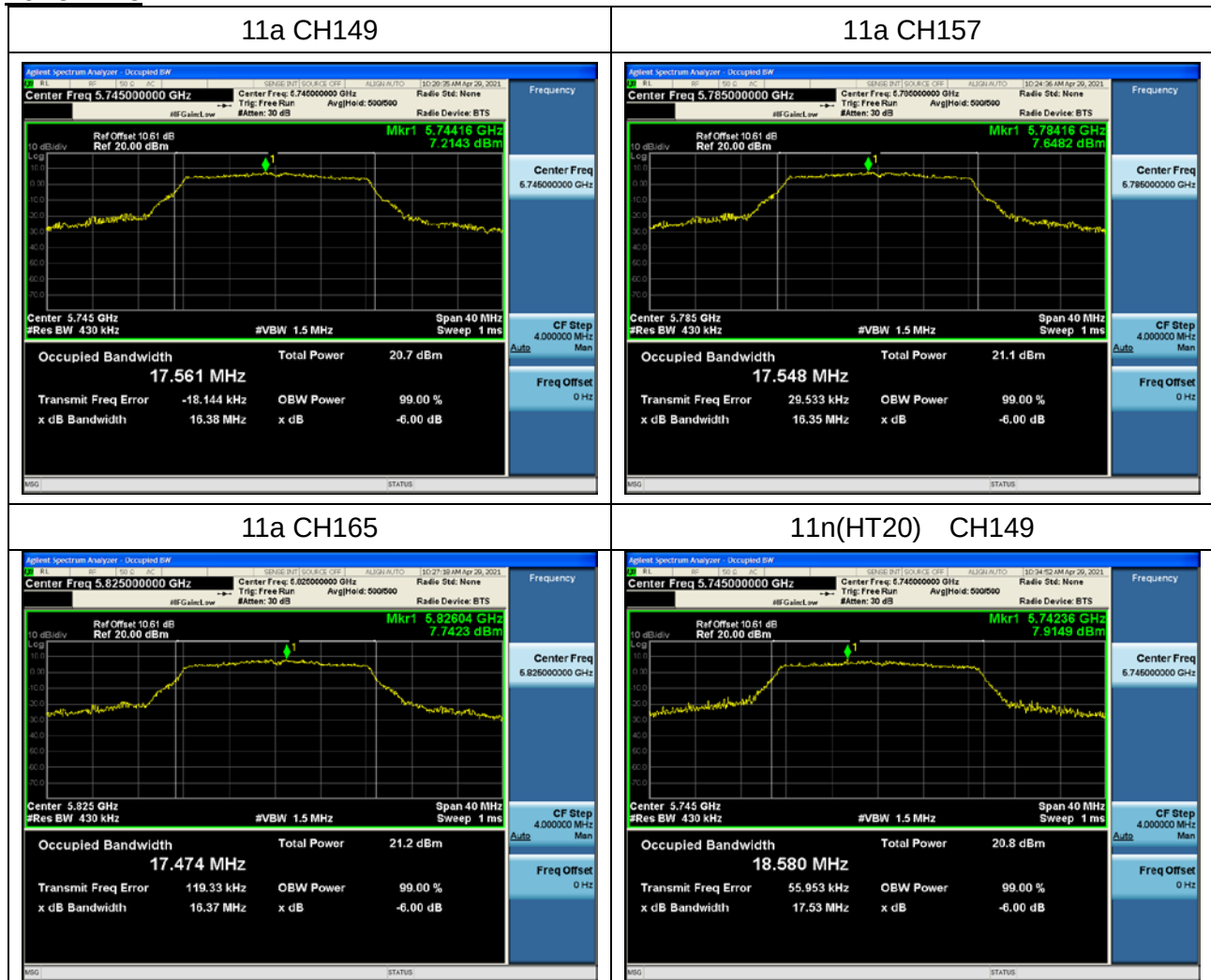
Channel	Test Channel	Frequency (MHz)	6dB bandwidth (MHz)	Limit (kHz)	Result
11a	CH149	5745	16.38	500	Pass
11a	CH157	5785	16.35	500	Pass
11a	CH165	5825	16.37	500	Pass
11n (HT20)	CH149	5745	17.53	500	Pass
11n (HT20)	CH157	5785	17.60	500	Pass
11n (HT20)	CH165	5825	17.52	500	Pass
11n (HT40)	CH151	5755	36.35	500	Pass
11n (HT40)	CH159	5795	36.23	500	Pass

Channel	Test Channel	Frequency (MHz)	6dB bandwidth (MHz)	Limit (kHz)	Result
11ac (HT20)	CH149	5745	17.41	500	Pass
11ac (HT20)	CH157	5785	17.59	500	Pass
11ac (HT20)	CH165	5825	17.47	500	Pass
11ac (HT40)	CH151	5755	36.04	500	Pass
11ac (HT40)	CH159	5795	36.25	500	Pass
11ac (HT80)	CH155	5775	74.95	500	Pass

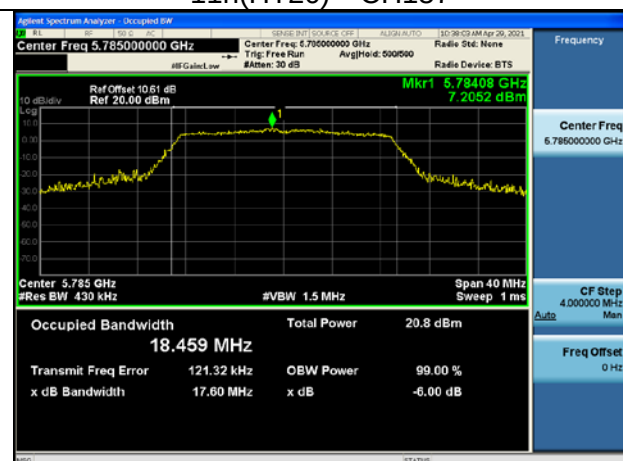


Test plots:

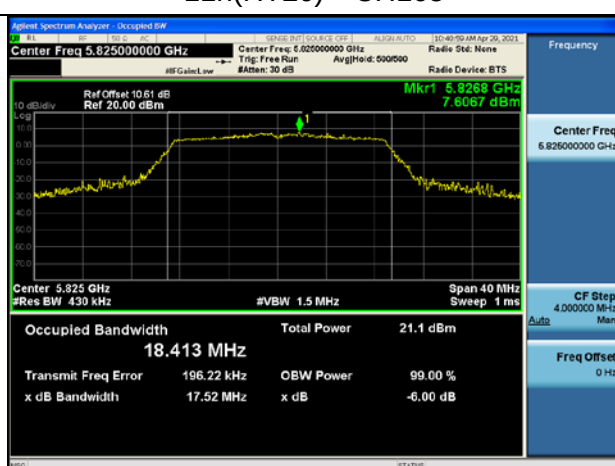
For U-NII-3



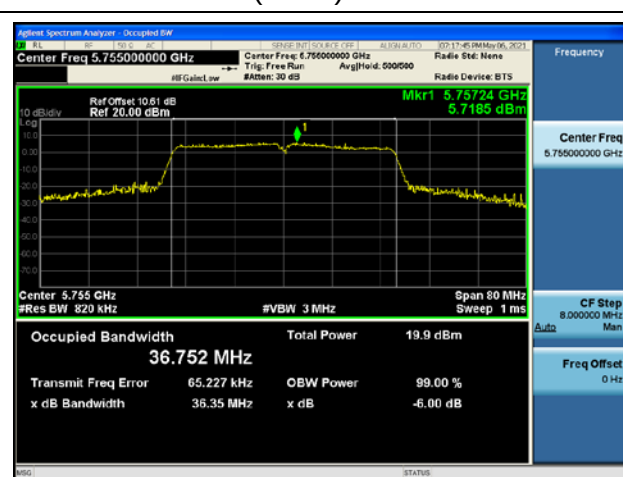
11n(HT20) CH157



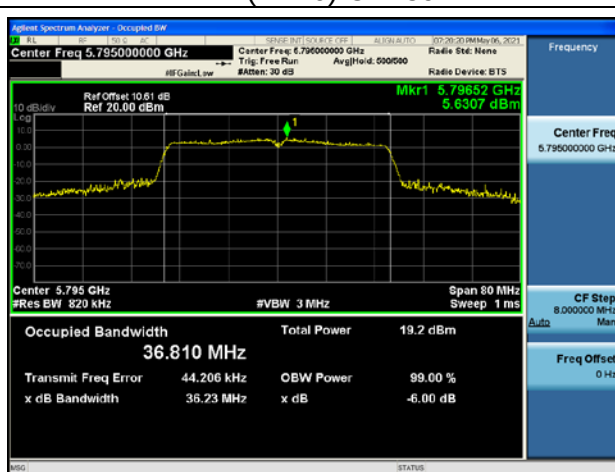
11n(HT20) CH165



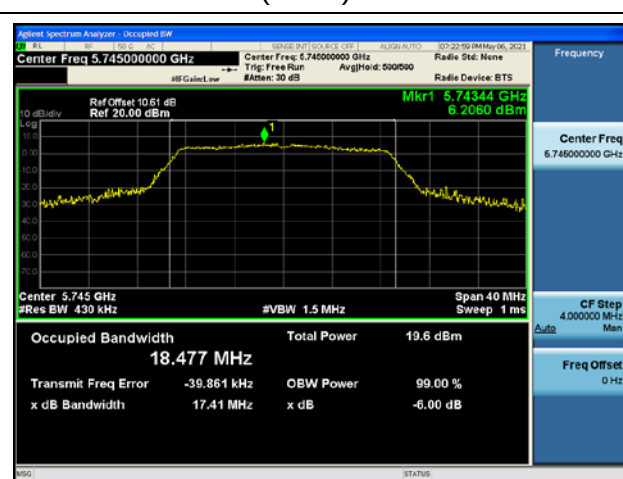
11n (HT40) CH151



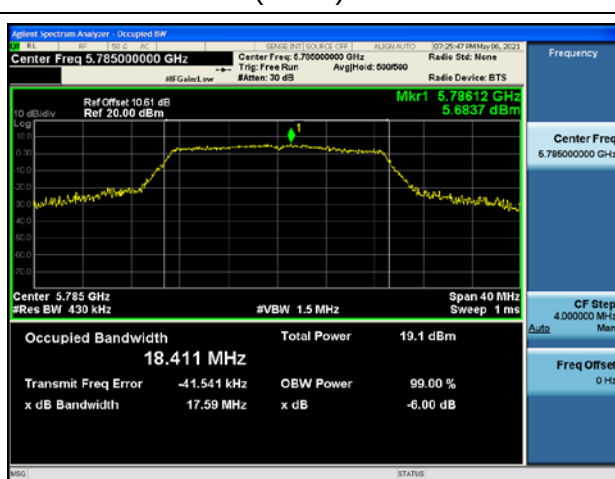
11n (HT40) CH159



11ac (HT20) CH149

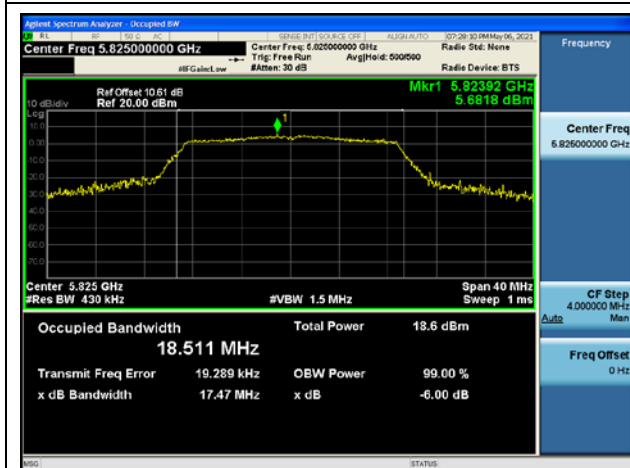


11ac (HT20) CH157

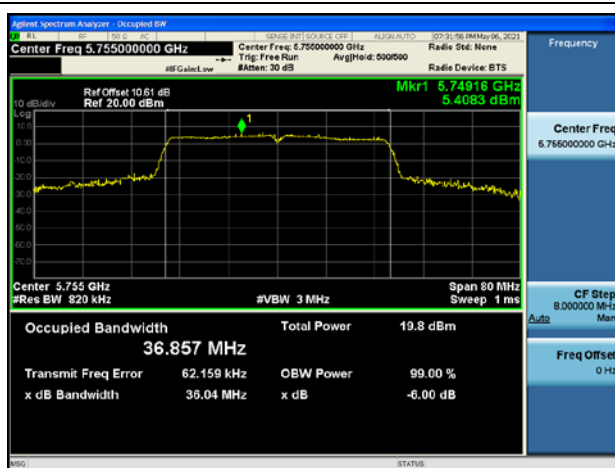




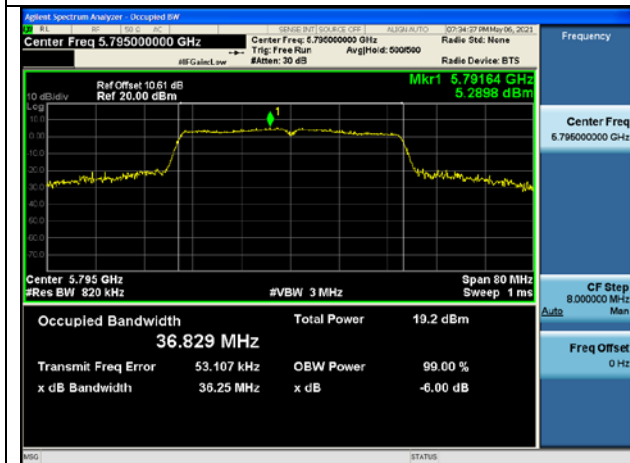
11ac(HT20) CH165



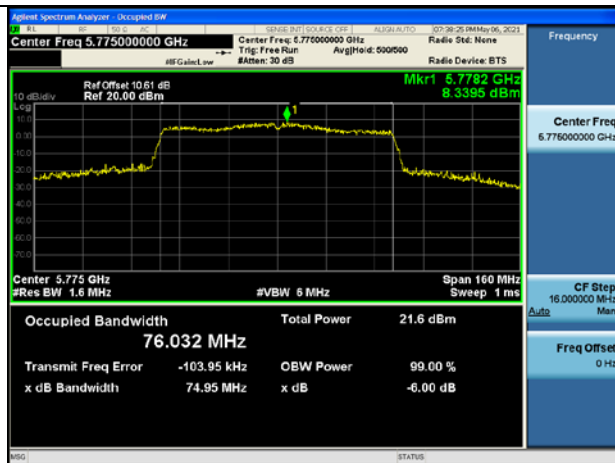
11ac(HT40) CH151



11ac(HT40) CH159



11ac(HT80) CH155





5.6 Radiated spurious emission

5.6.1 Radiated Emission Limits

1. For transmitters operating in the 5.15-5.25 GHz band:
All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
2. For transmitters operating in the 5.25-5.35 GHz band:
All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
3. For transmitters operating in the 5.47-5.725 GHz band:
All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
4. For transmitters operating in the 5.725-5.85 GHz band:

(i) All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

(ii) Devices certified before March 2, 2017 with antenna gain greater than 10 dBi may demonstrate compliance with the emission limits in §15.247(d), but manufacturing, marketing and importing of devices certified under this alternative must cease by March 2, 2018. Devices certified before March 2, 2018 with antenna gain of 10 dBi or less may demonstrate compliance with the emission limits in §15.247(d), but manufacturing, marketing and importing of devices certified under this alternative must cease before March 2, 2020.



Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

Frequency Range	RBW	VBW	Measurement
30MHz-1GHz	1MHz	3MHz	Peak
Above 1GHz	1MHz	10Hz ^{Note1}	Average
	1MHz	>1/T ^{Note2}	Average
Note1	When duty cycle is no less than 98%		
Note2	When duty cycle is less than 98%		

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP



5.6.2 Test procedure

The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.

The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.

The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

For emission measurements above 1 GHz, the EUT shall be placed at a height of 1.5 m above the floor on a support that is RF transparent for the frequencies of interest. Final measurements for the EUT require a measurement antenna height scan of 1 m to 4 m.

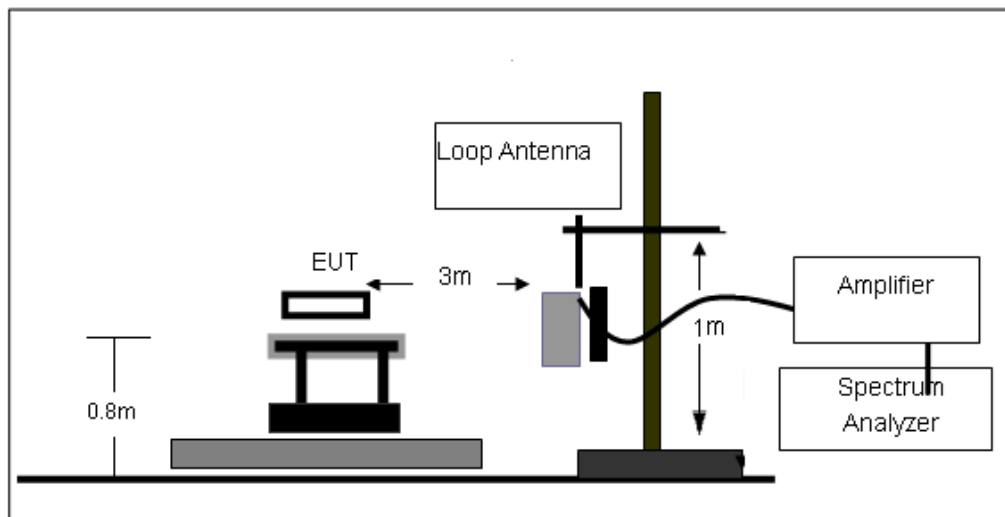
The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.

If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed. For the actual test configuration, please refer to the related Item –EUT Test Photos.

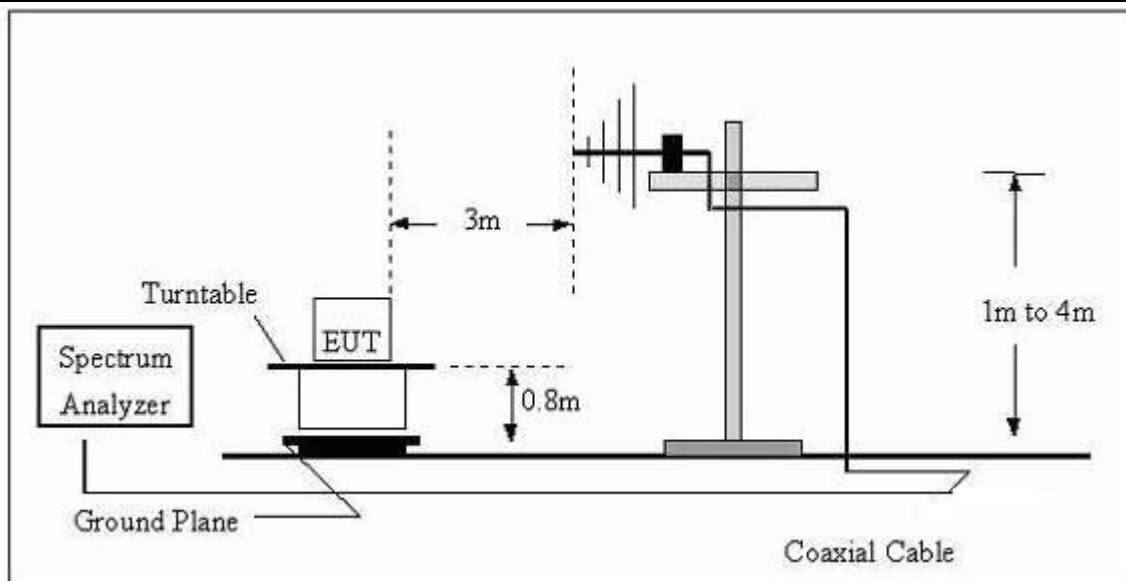
Note: Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported

5.6.3 Test setup

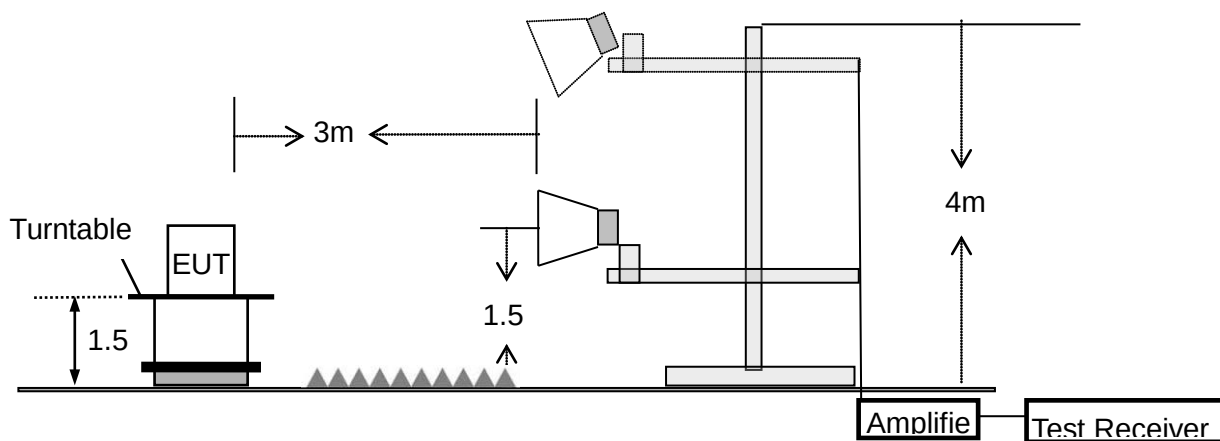
(A) Radiated Emission test-up Frequency Below 30MHz



(B) Radiated Emission Test-Up Frequency 30MHz~1GHz



(C) Radiated Emission Test-Up Frequency Above 1GHz





5.6.4 Test results

EUT:	Lathem Time Corporation	Model Name:	PCPROX
Pressure:	1010 hPa	Test Voltage:	DC 12V from adapter AC 120V/60Hz
Test Mode:	Charging+ TX	Polarization:	--

Below 30MHz

Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	Pass
--	--	--	--	Pass

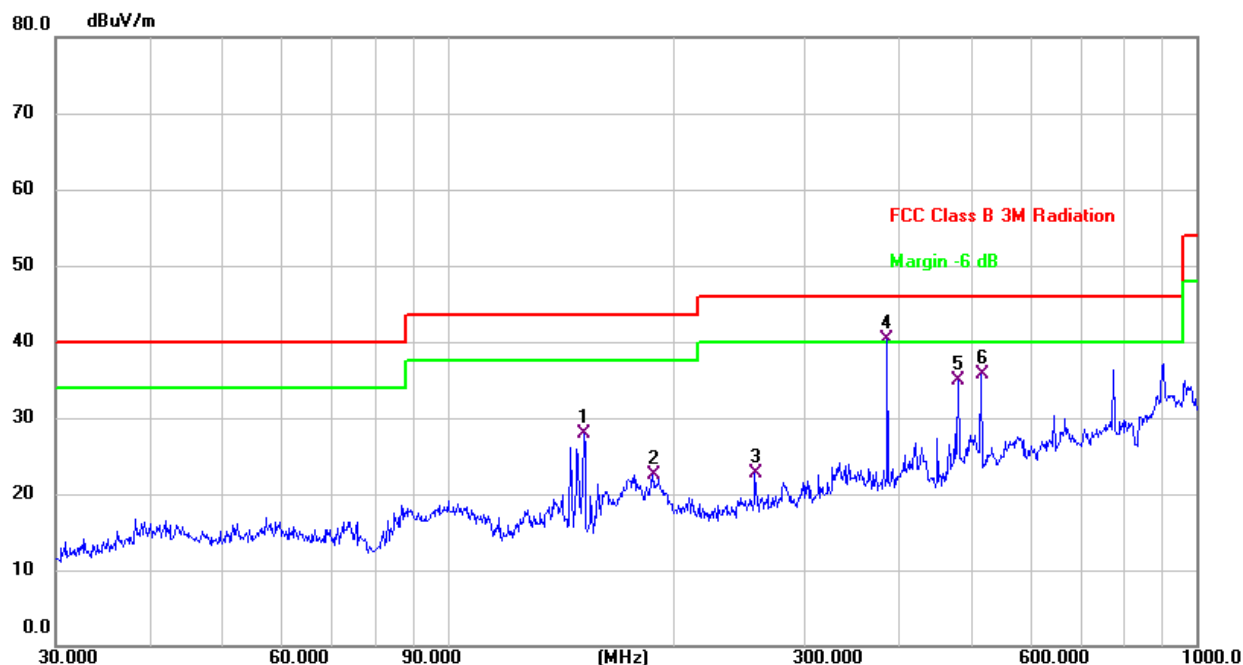
Note:

1. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
2. Distance extrapolation factor = $40 \log (\text{specific distance}/\text{test distance})(\text{dB})$; Limit line = specific limits (dBuV) + distance extrapolation factor.



Between 30MHz – 1GHz

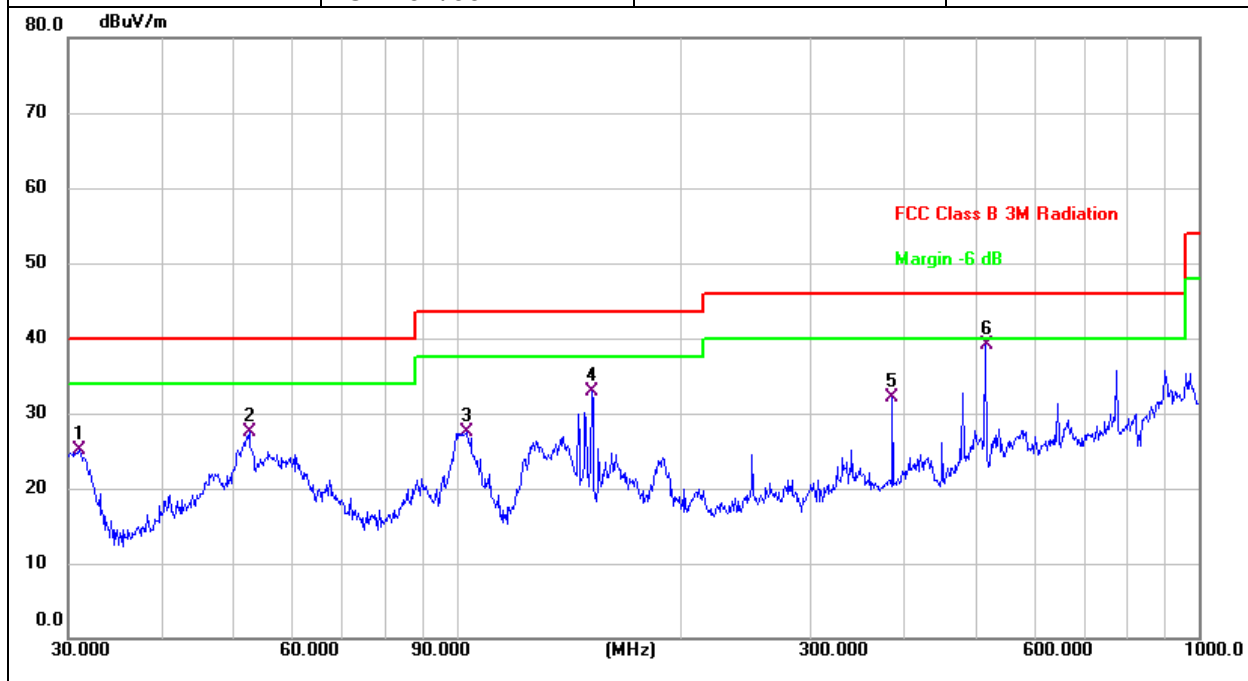
EUT:	Lathem Time Corporation	Model Name:	PCPROX
Pressure:	1010 hPa	Phase:	H
Test Voltage:	DC 12V from adapter AC 120V/60Hz	Mode:	Charging+ TX



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		152.1297	45.87	-17.95	27.92	43.50	-15.58	QP
2		187.7530	35.91	-13.33	22.58	43.50	-20.92	QP
3		257.4222	33.37	-10.59	22.78	46.00	-23.22	QP
4	*	386.6338	49.09	-8.81	40.28	46.00	-5.72	QP
5		480.5276	41.22	-6.25	34.97	46.00	-11.03	QP
6		515.4374	41.65	-5.86	35.79	46.00	-10.21	QP



EUT:	Lathem Time Corporation	Model Name:	PCPROX
Pressure:	1010 hPa	Phase:	V
Test Voltage:	DC 12V from adapter AC 120V/60Hz	Mode:	Charging+ TX



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1		31.0706	-22.47	47.48	25.01	40.00	-14.99	QP
2		52.5753	37.48	-10.01	27.47	40.00	-12.53	QP
3		103.0800	39.51	-12.09	27.42	43.50	-16.08	QP
4		152.1297	50.96	-17.99	32.97	43.50	-10.53	QP
5		386.6338	41.69	-9.54	32.15	46.00	-13.85	QP
6	*	515.4374	45.15	-6.00	39.15	46.00	-6.85	QP

Note:

1. All the mode has been tested for this test, the mode 11a CH48 is the worst mode. Just report the worst data.
2. Emission Level = Meter Reading + Factor, Margin= Emission Level- Limit, Factor = Antenna Factor + Cable Loss – Pre-amplifier.
3. The peak value is less than the AV value, AV value is not required Factor added by measurement software automatically.



1GHz-40GHz:

For U-NII-1

Polar	Frequency	Meter Reading	Cable loss	Antenna Factor	Preamplifier Factor	Emission Level	Limits	Margin	Detector Type
(H/V)	(MHz)	(dBuV)	(dB)	dB/m	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Low Channel (5180 MHz)-Above 1G									
Vertical	4434.236	56.05	5.94	35.40	44.00	53.39	74.00	-20.61	Pk
Vertical	4435.714	43.78	5.94	35.40	44.00	41.12	54.00	-12.88	AV
Vertical	10371.358	62.58	8.46	39.75	44.50	66.29	74.00	-7.71	Pk
Vertical	10370.643	43.99	8.46	39.75	44.50	47.70	54.00	-6.30	AV
Vertical	15540.158	56.23	10.12	38.80	44.10	61.05	74.00	-12.95	Pk
Vertical	15541.714	43.41	10.12	38.80	42.70	49.63	54.00	-4.37	AV
Horizontal	4435.385	58.87	5.94	35.18	44.00	55.99	74.00	-18.01	Pk
Horizontal	4436.035	43.98	5.94	35.18	44.00	41.10	54.00	-12.90	AV
Horizontal	10370.467	61.10	8.46	38.71	44.50	63.77	74.00	-10.23	Pk
Horizontal	10730.804	46.26	8.46	38.71	44.50	48.93	54.00	-5.07	AV
Horizontal	15540.726	57.26	10.12	38.38	44.10	61.66	74.00	-12.34	Pk
Horizontal	15540.671	42.53	10.12	38.38	44.10	46.93	54.00	-7.07	AV
middle Channel (5200 MHz)-Above 1G									
Vertical	4593.063	57.41	6.48	36.35	44.05	56.19	74.00	-17.81	Pk
Vertical	4593.089	42.91	6.48	36.35	44.05	41.69	54.00	-12.31	AV
Vertical	10401.610	60.44	8.47	37.88	44.51	62.28	74.00	-11.72	Pk
Vertical	10402.103	46.19	8.47	37.88	44.51	48.03	54.00	-5.97	AV
Vertical	15601.857	56.21	10.12	38.8	44.10	61.03	74.00	-12.97	Pk
Vertical	15602.083	40.83	10.12	38.8	42.70	47.05	54.00	-6.95	AV
Horizontal	4593.346	59.52	6.48	36.37	44.05	58.32	74.00	-15.68	Pk
Horizontal	4593.252	42.68	6.48	36.37	44.05	41.48	54.00	-12.52	AV
Horizontal	10401.245	61.27	8.47	38.64	44.50	63.88	74.00	-10.12	Pk
Horizontal	10402.300	47.85	8.47	38.64	44.50	50.46	54.00	-3.54	AV
Horizontal	15602.052	57.41	10.12	38.38	44.10	61.81	74.00	-12.19	Pk
Horizontal	15600.431	43.39	10.12	38.38	44.10	47.79	54.00	-6.21	AV
High Channel (5240 MHz)-Above 1G									
Vertical	4739.721	58.95	7.10	37.24	43.50	59.79	74.00	-14.21	Pk
Vertical	4740.426	45.15	7.10	37.24	43.50	45.99	54.00	-8.01	AV
Vertical	10481.171	60.91	8.46	37.68	44.50	62.55	74.00	-11.45	Pk
Vertical	10480.280	45.55	8.46	37.68	44.50	47.19	54.00	-6.81	AV
Vertical	15720.732	58.62	10.12	38.8	44.10	63.44	74.00	-10.56	Pk



Vertical	15720.305	44.14	10.12	38.8	42.70	50.36	54.00	-3.64	AV
Horizontal	4741.027	60.14	7.10	37.24	43.50	60.98	74.00	-13.02	Pk
Horizontal	4741.193	44.10	7.10	37.24	43.50	44.94	54.00	-9.06	AV
Horizontal	10481.510	59.36	8.46	38.57	44.50	61.89	74.00	-12.11	Pk
Horizontal	10483.462	42.34	8.46	38.57	44.50	44.87	54.00	-9.13	AV
Horizontal	15721.296	57.20	10.12	38.38	44.10	61.60	74.00	-12.40	Pk
Horizontal	15722.224	43.04	10.12	38.38	44.10	47.44	54.00	-6.56	AV

Note: All the mode has been tested for this test, the mode 11a CH48 is the worst mode. Just report the worst data.



For U-NII-3

Polar	Frequency	Meter Reading	Cable loss	Antenna Factor	Preamplifier Factor	Emission Level	Limits	Margin	Detector Type
(H/V)	(MHz)	(dBuV)	(dB)	dB/m	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Low Channel (5745 MHz)-Above 1G									
Vertical	4680.207	57.98	5.94	35.40	44.00	55.32	74.00	-18.68	Pk
Vertical	4680.533	46.77	5.94	35.40	44.00	44.11	54.00	-9.89	AV
Vertical	11490.492	60.71	8.46	39.75	44.50	64.42	74.00	-9.58	Pk
Vertical	11490.946	45.36	8.46	39.75	44.50	49.07	54.00	-4.93	AV
Vertical	17237.141	57.03	10.12	38.80	44.10	61.85	74.00	-12.15	Pk
Vertical	17237.342	41.52	10.12	38.80	42.70	47.74	54.00	-6.26	AV
Horizontal	4679.914	58.52	5.94	35.18	44.00	55.64	74.00	-18.36	Pk
Horizontal	4680.016	45.99	5.94	35.18	44.00	43.11	54.00	-10.89	AV
Horizontal	11491.994	61.08	8.46	38.71	44.50	63.75	74.00	-10.25	Pk
Horizontal	11492.221	45.17	8.46	38.71	44.50	47.84	54.00	-6.16	AV
Horizontal	17235.481	59.42	10.12	38.38	44.10	63.82	74.00	-10.18	Pk
Horizontal	17235.299	43.11	10.12	38.38	44.10	47.51	54.00	-6.49	AV
middle Channel (5785 MHz)-Above 1G									
Vertical	4593.668	60.21	6.48	36.35	44.05	58.99	74.00	-15.01	Pk
Vertical	4593.374	43.69	6.48	36.35	44.05	42.47	54.00	-11.53	AV
Vertical	11571.220	61.21	8.47	37.88	44.51	63.05	74.00	-10.95	Pk
Vertical	11571.262	43.62	8.47	37.88	44.51	45.46	54.00	-8.54	AV
Vertical	17356.780	58.05	10.12	38.8	44.10	62.87	74.00	-11.13	Pk
Vertical	17356.165	41.00	10.12	38.8	42.70	47.22	54.00	-6.78	AV
Horizontal	4592.929	60.30	6.48	36.37	44.05	59.10	74.00	-14.90	Pk
Horizontal	4593.359	45.41	6.48	36.37	44.05	44.21	54.00	-9.79	AV
Horizontal	11571.335	62.23	8.47	38.64	44.50	64.84	74.00	-9.16	Pk
Horizontal	11571.547	48.07	8.47	38.64	44.50	50.68	54.00	-3.32	AV
Horizontal	17355.784	61.51	10.12	38.38	44.10	65.91	74.00	-8.09	Pk
Horizontal	17356.702	44.64	10.12	38.38	44.10	49.04	54.00	-4.96	AV
High Channel (5825 MHz)-Above 1G									
Vertical	5040.063	61.66	7.10	37.24	43.50	62.50	74.00	-11.50	Pk
Vertical	5039.677	46.78	7.10	37.24	43.50	47.62	54.00	-6.38	AV
Vertical	11650.755	55.83	8.46	37.68	44.50	57.47	74.00	-16.53	Pk
Vertical	11651.691	42.33	8.46	37.68	44.50	43.97	54.00	-10.03	AV
Vertical	17475.655	61.36	10.12	38.8	44.10	66.18	74.00	-7.82	Pk
Vertical	17475.576	39.74	10.12	38.8	42.70	45.96	54.00	-8.04	AV
Horizontal	5040.942	66.78	7.10	37.24	43.50	67.62	74.00	-6.38	Pk



Horizontal	5041.182	43.40	7.10	37.24	43.50	44.24	54.00	-9.76	AV
Horizontal	11650.373	57.16	8.46	38.57	44.50	59.69	74.00	-14.31	Pk
Horizontal	11650.300	44.11	8.46	38.57	44.50	46.64	54.00	-7.36	AV
Horizontal	17476.068	60.88	10.12	38.38	44.10	65.28	74.00	-8.72	Pk
Horizontal	17477.001	45.70	10.12	38.38	44.10	50.10	54.00	-3.90	AV

Note: All the mode has been tested for this test, the mode 11a CH165 is the worst mode. Just report the worst data.



Band edge - radiated

For U-NII-1

For 802.11a mode: (CH36 5180MHz)

Polarization	Frequency	Read Level	Cable loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Over Limit	Detector Type
/	(MHz)	(dBuV)	(dB)	dB/m	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Horizontal	5150	66.18	8.69	29.4	42.59	61.68	74	-12.32	Pk
Horizontal	5350	63.88	9.37	30.41	43.25	60.41	74	-13.59	Pk
Vertical	5150	68.04	9.21	29.4	42.59	64.06	74	-9.94	Pk
Vertical	5350	60.49	9.12	30.41	43.25	56.77	74	-17.23	Pk
Horizontal	5150	46.86	8.69	29.4	42.59	42.36	54	-11.64	AV
Horizontal	5350	50.26	8.46	30.41	43.25	45.88	54	-8.12	AV
Vertical	5150	49.74	9.21	29.4	42.59	45.76	54	-8.24	AV
Vertical	5350	50.91	9.12	30.41	43.25	47.19	54	-6.81	AV



For 802.11n-(HT20) mode: (CH36 5180MHz)

Polarization	Frequency	Read Level	Cable loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Over Limit	Detector Type
/	(MHz)	(dBuV)	(dB)	dB/m	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Horizontal	5150	65.87	8.69	29.4	42.59	61.37	74	-12.63	Pk
Horizontal	5350	67.90	9.37	30.41	43.25	64.43	74	-9.57	Pk
Vertical	5150	65.65	9.21	29.4	42.59	61.67	74	-12.33	Pk
Vertical	5350	68.41	9.12	30.41	43.25	64.69	74	-9.31	Pk
Horizontal	5150	47.35	8.69	29.4	42.59	42.85	54	-11.15	AV
Horizontal	5350	46.78	8.46	30.41	43.25	42.40	54	-11.60	AV
Vertical	5150	49.68	9.21	29.4	42.59	45.70	54	-8.30	AV
Vertical	5350	49.54	9.12	30.41	43.25	45.82	54	-8.18	AV



For 802.11n-(HT40) mode: (CH38 5190MHz)

Polarization	Frequency	Read Level	Cable loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Over Limit	Detector Type
/	(MHz)	(dBuV)	(dB)	dB/m	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Horizontal	5150	66.85	8.69	29.4	42.59	62.35	74	-11.65	Pk
Horizontal	5350	62.13	9.37	30.41	43.25	58.66	74	-15.34	Pk
Vertical	5150	65.16	9.21	29.4	42.59	61.18	74	-12.82	Pk
Vertical	5350	61.73	9.12	30.41	43.25	58.01	74	-15.99	Pk
Horizontal	5150	47.58	8.69	29.4	42.59	43.08	54	-10.92	AV
Horizontal	5350	45.61	8.46	30.41	43.25	41.23	54	-12.77	AV
Vertical	5150	50.47	9.21	29.4	42.59	46.49	54	-7.51	AV
Vertical	5350	50.25	9.12	30.41	43.25	46.53	54	-7.47	AV



For 802.11n-(ac80) mode: (CH42 5210MHz)

Polarization	Frequency	Read Level	Cable loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Over Limit	Detector Type
/	(MHz)	(dBuV)	(dB)	dB/m	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Horizontal	5150	65.84	8.69	29.4	42.59	61.34	74	-12.66	Pk
Horizontal	5350	67.24	9.37	30.41	43.25	63.77	74	-10.23	Pk
Vertical	5150	65.30	9.21	29.4	42.59	61.32	74	-12.68	Pk
Vertical	5350	67.96	9.12	30.41	43.25	64.24	74	-9.76	Pk
Horizontal	5150	47.89	8.69	29.4	42.59	43.39	54	-10.61	AV
Horizontal	5350	45.78	8.46	30.41	43.25	41.40	54	-12.60	AV
Vertical	5150	50.44	9.21	29.4	42.59	46.46	54	-7.54	AV
Vertical	5350	50.08	9.12	30.41	43.25	46.36	54	-7.64	AV



For U-NII-3

For 802.11a mode: (CH149 5745MHz)

Polarization	Frequency	Read Level	Cable loss	Antenna Factor	Preamplifier Factor	Emission Level	Limits	Over Limit	Detector Type
/	(MHz)	(dBuV)	(dB)	dB/m	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Horizontal	5725	66.93	8.69	29.4	42.59	62.43	74	-11.57	Pk
Horizontal	5850	63.33	9.37	30.41	43.25	59.86	74	-14.14	Pk
Vertical	5725	68.12	9.21	29.4	42.59	64.14	74	-9.86	Pk
Vertical	5850	59.71	9.12	30.41	43.25	55.99	74	-18.01	Pk
Horizontal	5725	47.34	8.69	29.4	42.59	42.84	54	-11.16	AV
Horizontal	5850	51.81	8.46	30.41	43.25	47.43	54	-6.57	AV
Vertical	5725	48.58	9.21	29.4	42.59	44.60	54	-9.40	AV
Vertical	5850	49.99	9.12	30.41	43.25	46.27	54	-7.73	AV

For 802.11n-(HT20) mode: (CH149 5745MHz)

Polarization	Frequency	Read Level	Cable loss	Antenna Factor	Preamplifier Factor	Emission Level	Limits	Over Limit	Detector Type
/	(MHz)	(dBuV)	(dB)	dB/m	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Horizontal	5725	66.57	8.69	29.4	42.59	62.07	74	-11.93	Pk
Horizontal	5850	64.68	9.37	30.41	43.25	61.21	74	-12.79	Pk
Vertical	5725	69.59	9.21	29.4	42.59	65.61	74	-8.39	Pk
Vertical	5850	59.67	9.12	30.41	43.25	55.95	74	-18.05	Pk
Horizontal	5725	46.28	8.69	29.4	42.59	41.78	54	-12.22	AV
Horizontal	5850	51.48	8.46	30.41	43.25	47.10	54	-6.90	AV
Vertical	5725	49.95	9.21	29.4	42.59	45.97	54	-8.03	AV
Vertical	5850	50.24	9.12	30.41	43.25	46.52	54	-7.48	AV



For 802.11n-(HT40) mode: (CH151 5755MHz)

Polarization	Frequency	Read Level	Cable loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Over Limit	Detector Type
/	(MHz)	(dBuV)	(dB)	dB/m	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Horizontal	5725	66.80	8.69	29.4	42.59	62.30	74	-11.70	Pk
Horizontal	5850	63.01	9.37	30.41	43.25	59.54	74	-14.46	Pk
Vertical	5725	70.07	9.21	29.4	42.59	66.09	74	-7.91	Pk
Vertical	5850	59.42	9.12	30.41	43.25	55.70	74	-18.30	Pk
Horizontal	5725	46.02	8.69	29.4	42.59	41.52	54	-12.48	AV
Horizontal	5850	51.10	8.46	30.41	43.25	46.72	54	-7.28	AV
Vertical	5725	49.25	9.21	29.4	42.59	45.27	54	-8.73	AV
Vertical	5850	51.11	9.12	30.41	43.25	47.39	54	-6.61	AV

For 802.11n-(ac80) mode: (CH155 5775MHz)

Polarization	Frequency	Read Level	Cable loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Over Limit	Detector Type
/	(MHz)	(dBuV)	(dB)	dB/m	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Horizontal	5725	65.93	8.69	29.4	42.59	61.43	74	-12.57	Pk
Horizontal	5850	64.32	9.37	30.41	43.25	60.85	74	-13.15	Pk
Vertical	5725	70.30	9.21	29.4	42.59	66.32	74	-7.68	Pk
Vertical	5850	61.24	9.12	30.41	43.25	57.52	74	-16.48	Pk
Horizontal	5725	47.04	8.69	29.4	42.59	42.54	54	-11.46	AV
Horizontal	5850	46.72	8.46	30.41	43.25	42.34	54	-11.66	AV
Vertical	5725	45.86	9.21	29.4	42.59	41.88	54	-12.12	AV
Vertical	5850	47.16	9.12	30.41	43.25	43.44	54	-10.56	AV



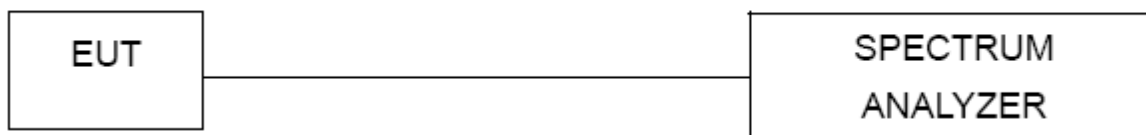
5.7 Conduction spurious emission

5.7.1 Limits

Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

Frequency Band (MHz)	Limit
5150 - 5250	Outside of the 5.15-5.35 GHz band: e.i.r.p. -27 dBm
5250 - 5350	Outside of the 5.15-5.35 GHz band: e.i.r.p. -27 dBm
5470 - 5725	Outside of the 5.47-5.725 GHz band: e.i.r.p. -27 dBm
5725 - 5850	All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

5.7.2 Test setup



5.7.3 Test procedure

Use the following spectrum analyzer settings:

Span = wide enough to capture the peak level of the in-band emission and all spurious emissions (e.g., harmonics) from the lowest frequency generated in the EUT up through the 10th harmonic. Typically, several plots are required to cover this entire span.

RBW = 1 MHz for $f \geq 1$ GHz, 100 kHz for $f < 1$ GHz

VBW $\geq$ RBW

Sweep = auto

Detector function = peak

Trace = max hold

Allow the trace to stabilize

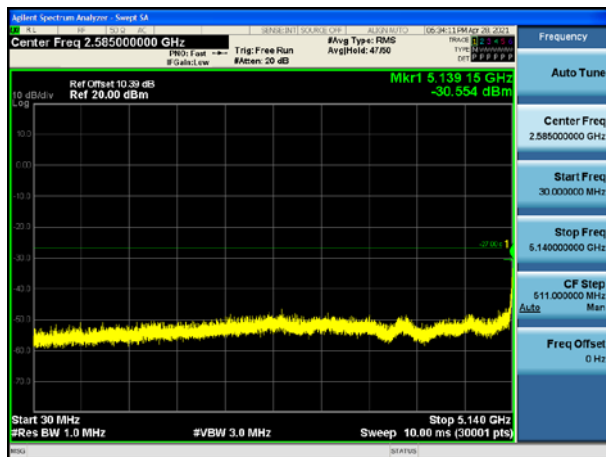


5.7.4 Test results

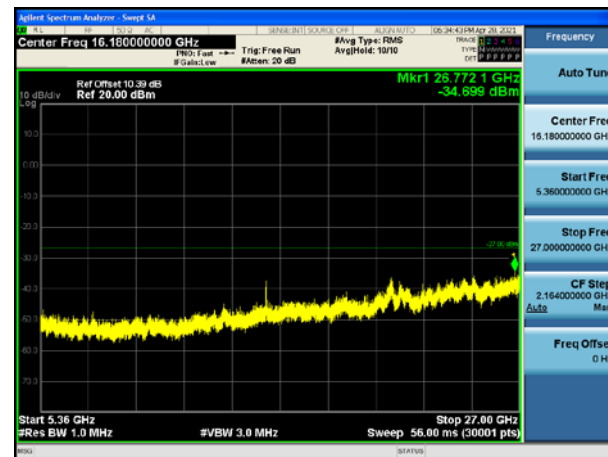
For U-NII-1

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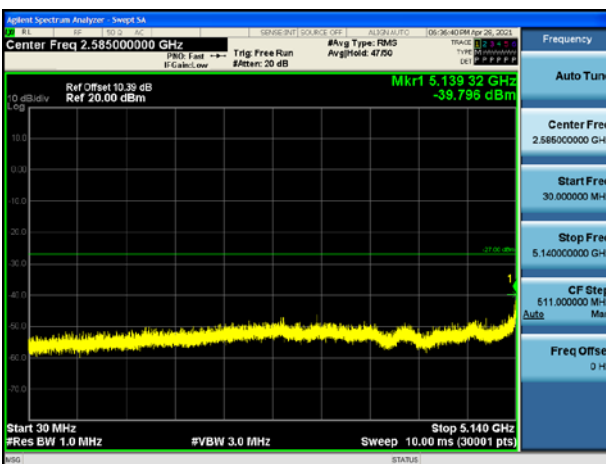
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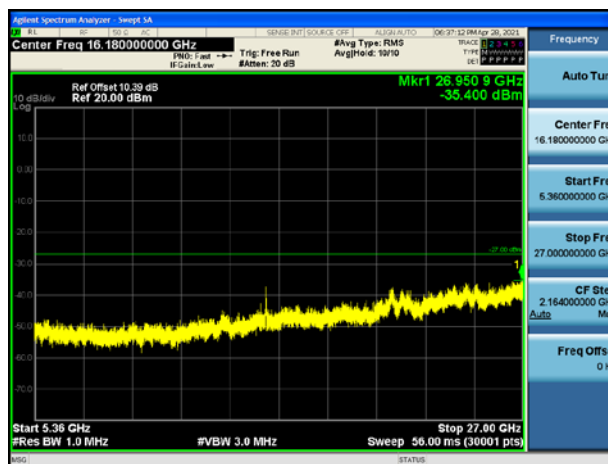
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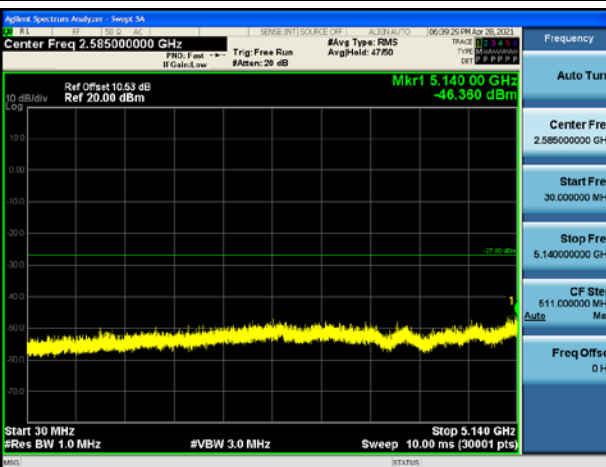
Middle channel



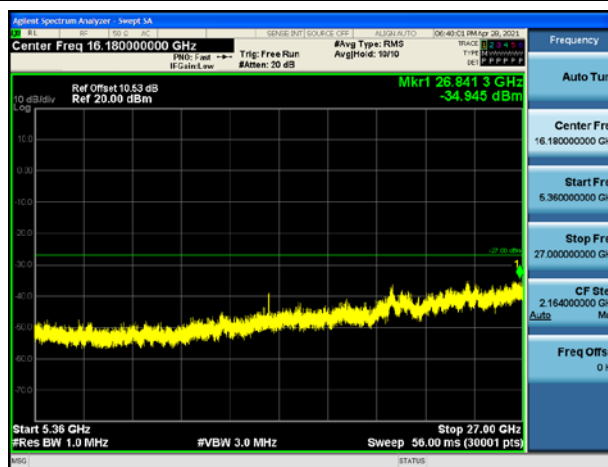
Middle channel



High channel



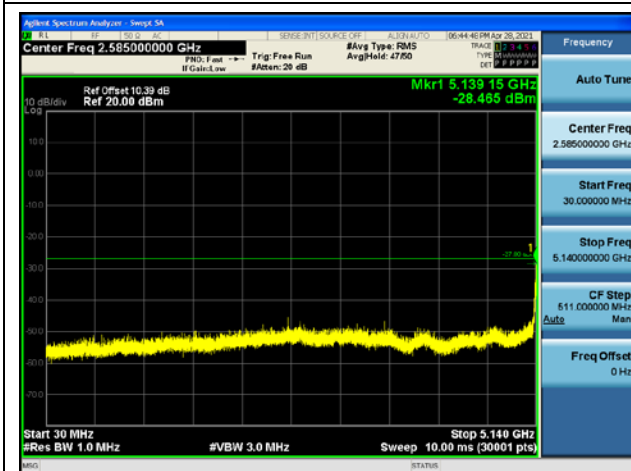
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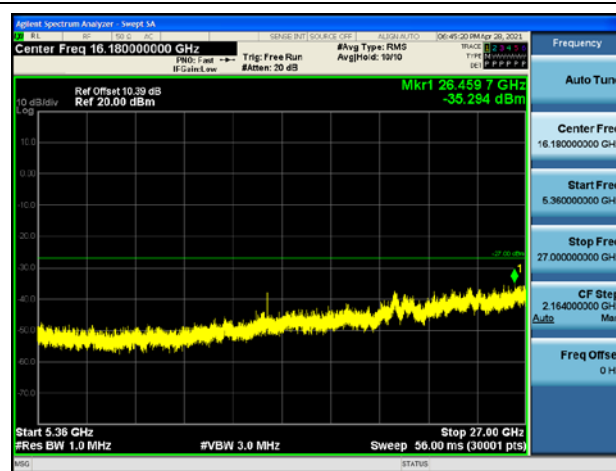


11n20

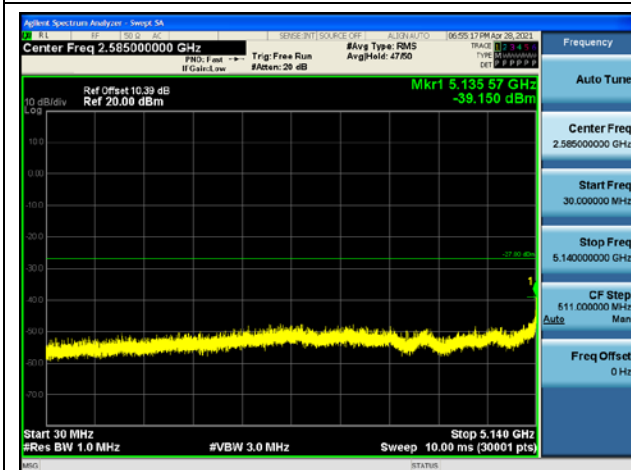
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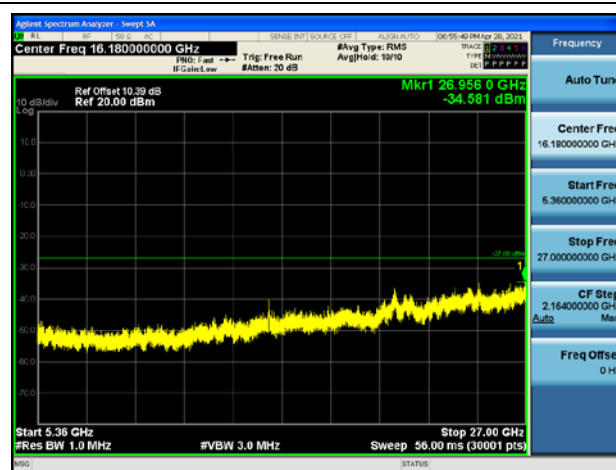
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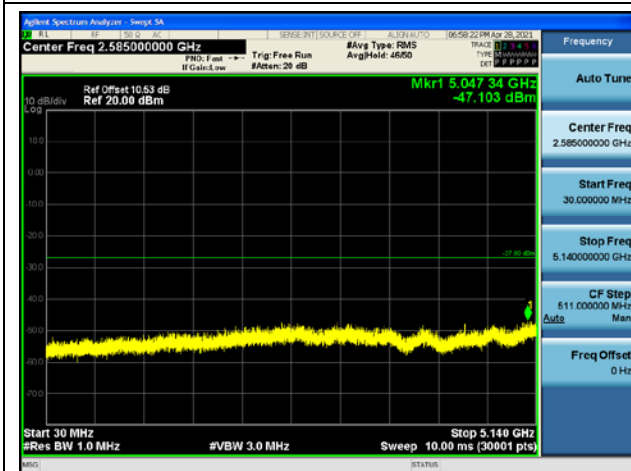
Middle channel



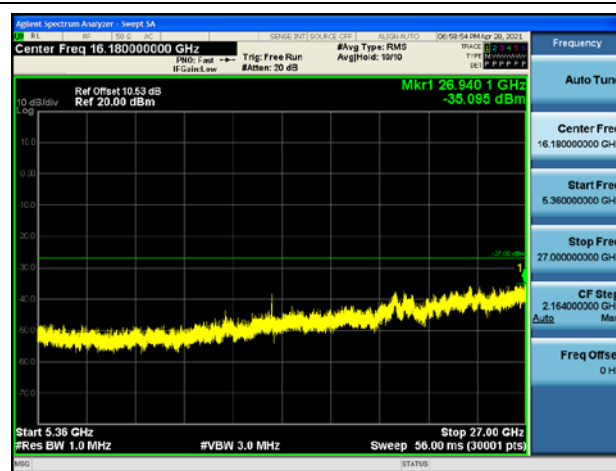
Middle channel



High channel



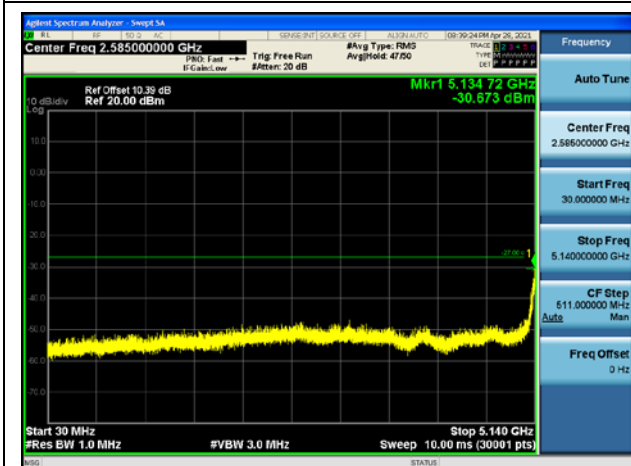
High channel



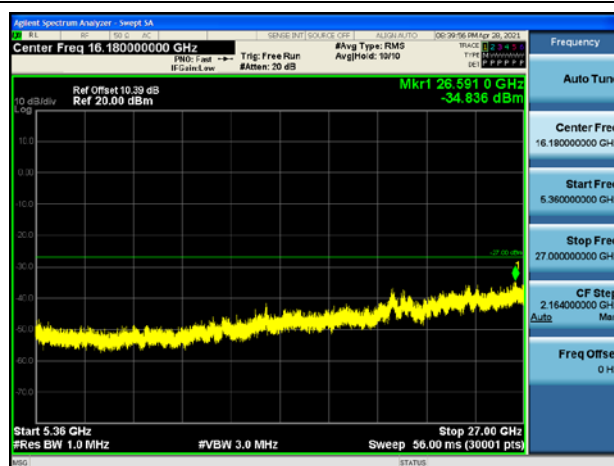


11n40

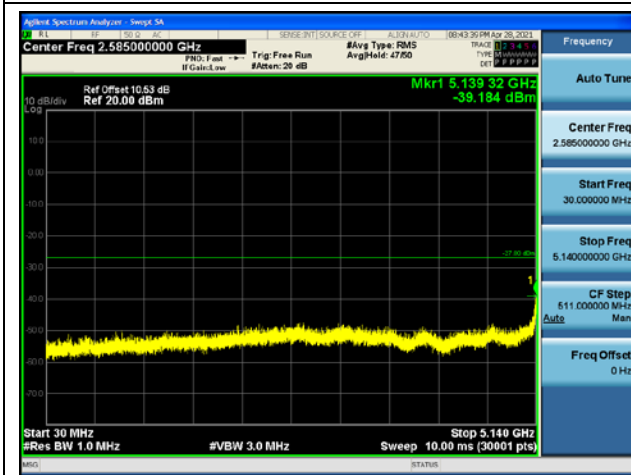
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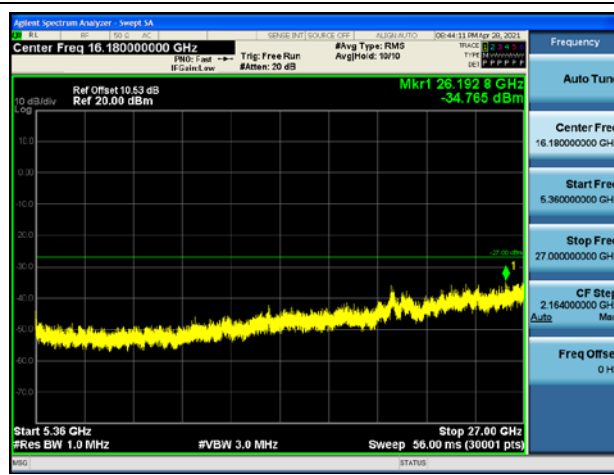
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High channel



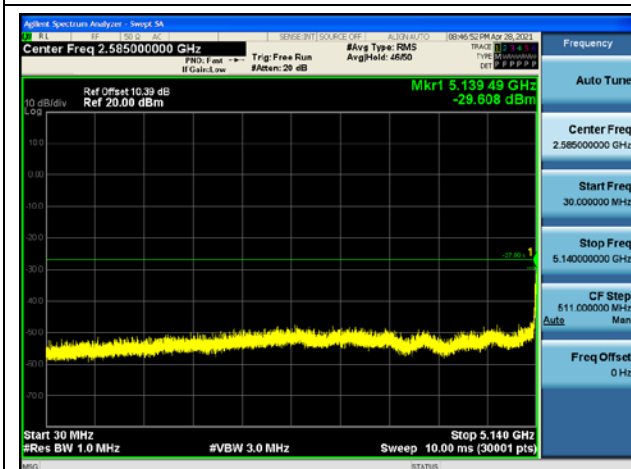
High channel



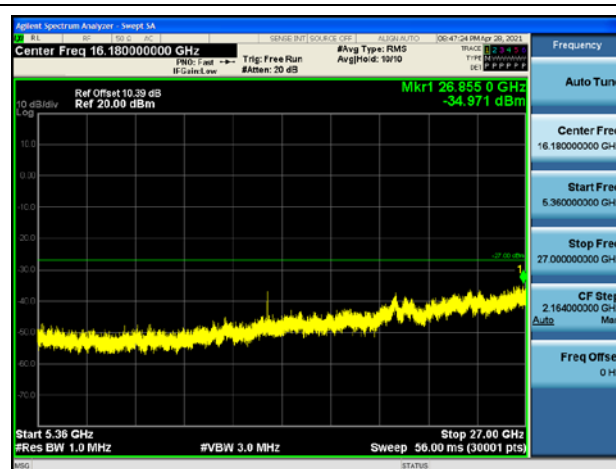


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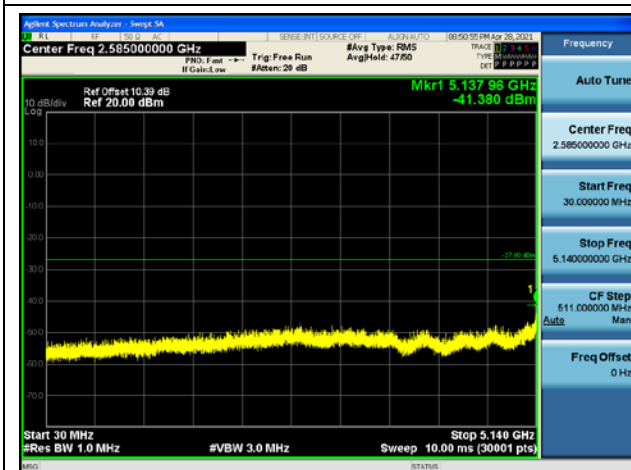
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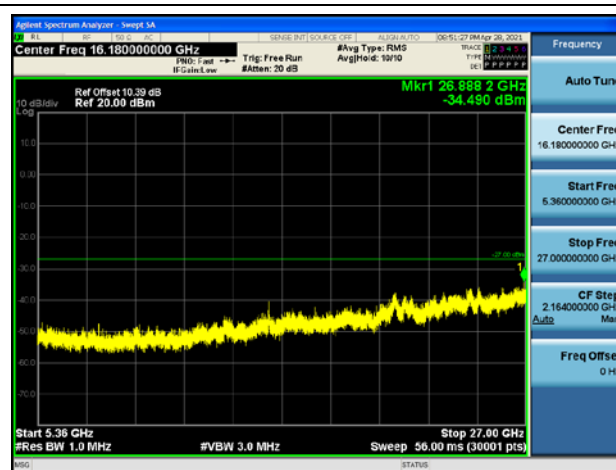
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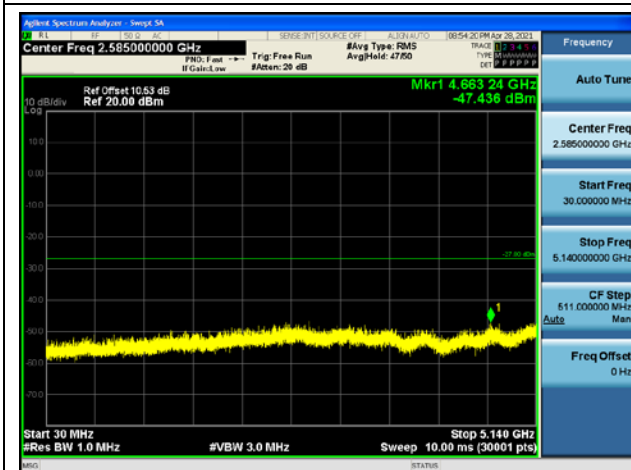
Middle channel



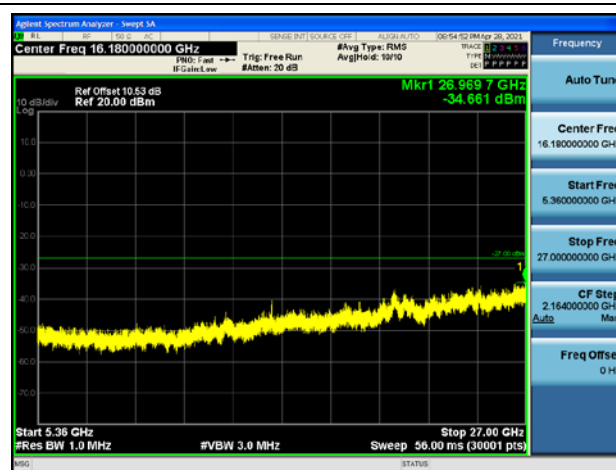
Middle channel



High channel



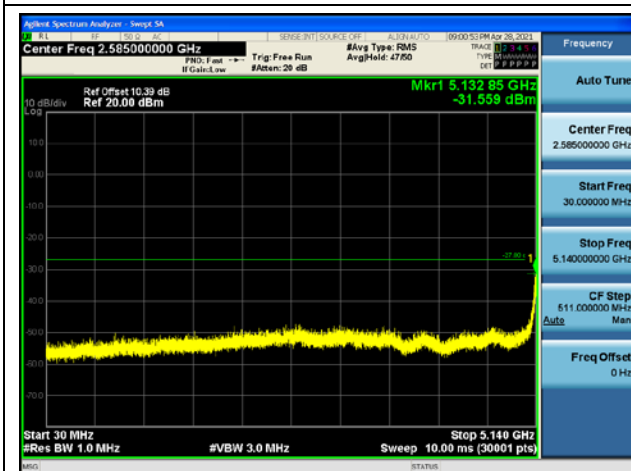
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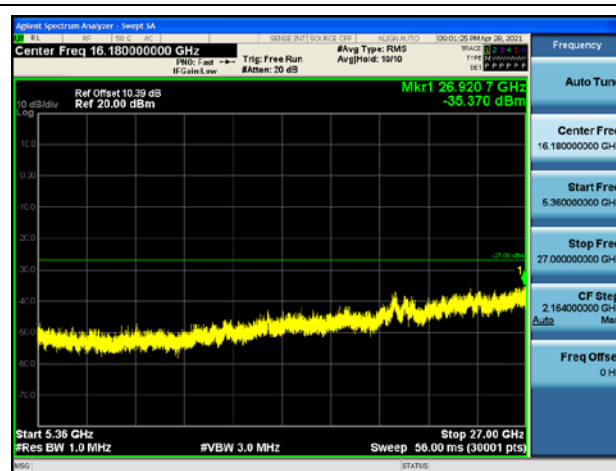


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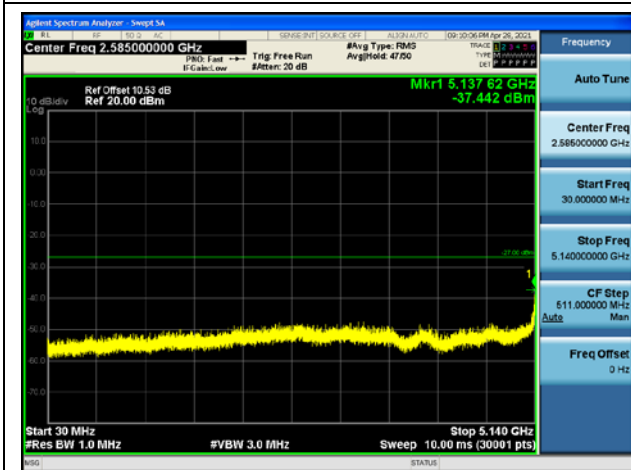
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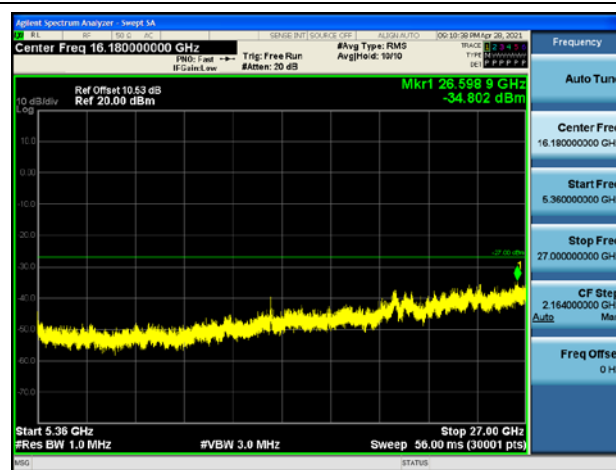
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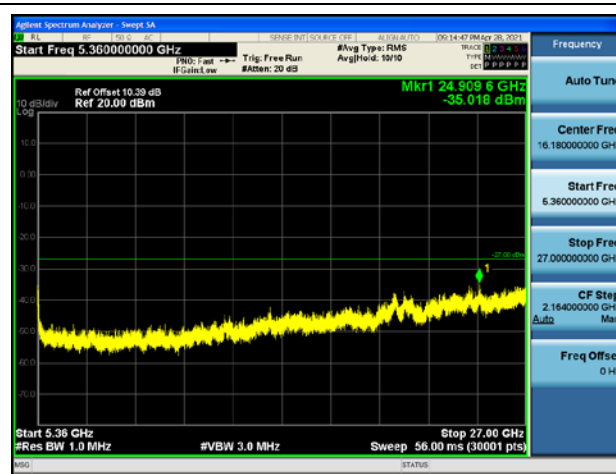
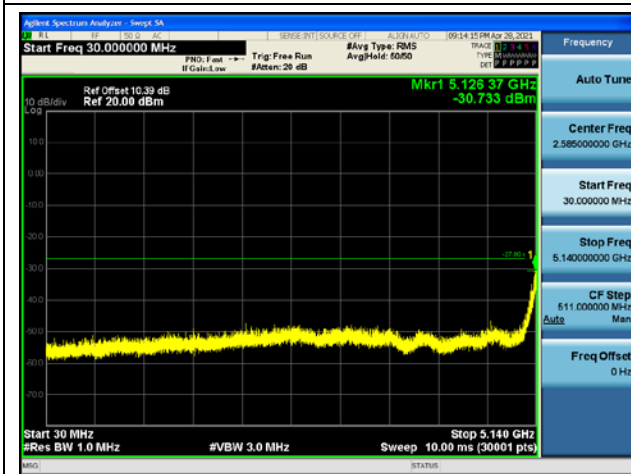
High channel



High channel



11ac80

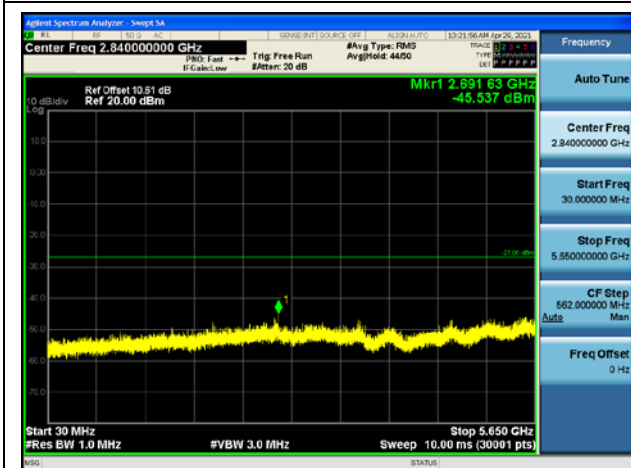




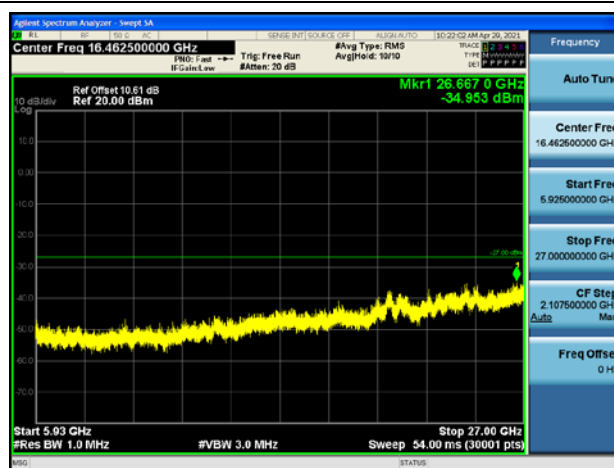
For U-NII-3

11a

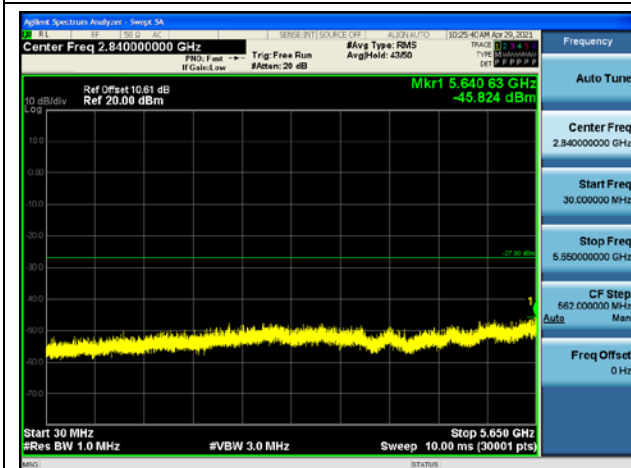
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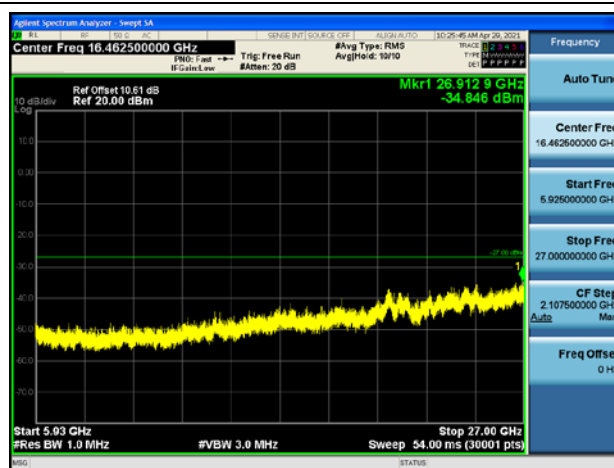
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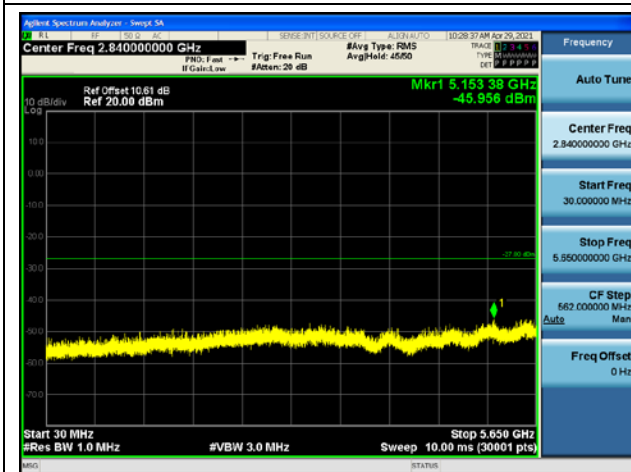
Middle channel



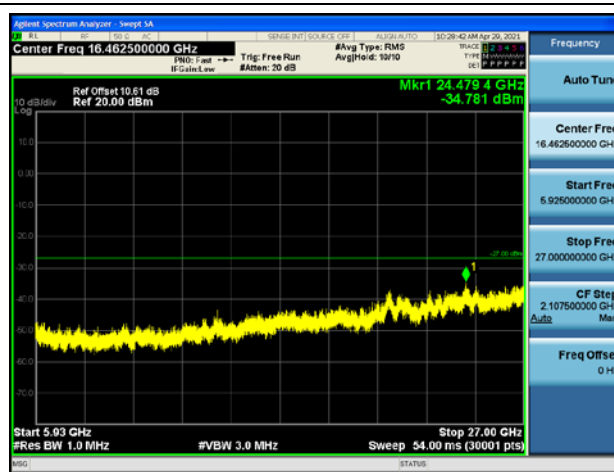
Middle channel



High channel



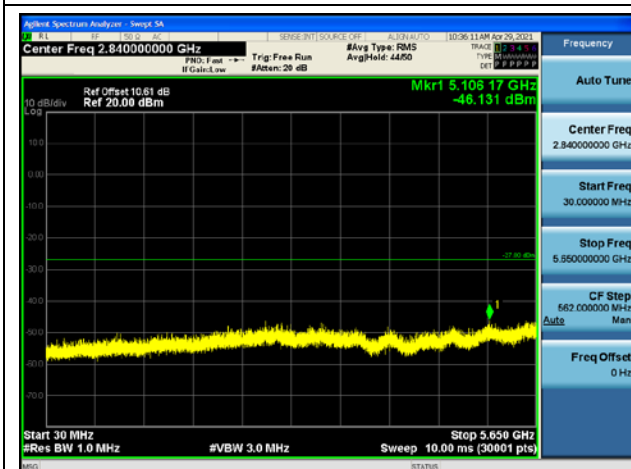
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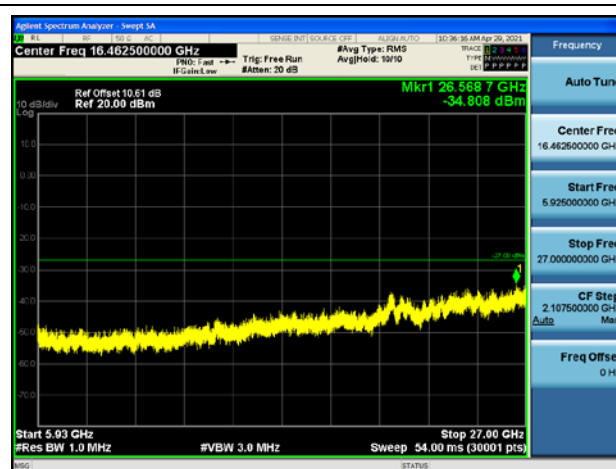


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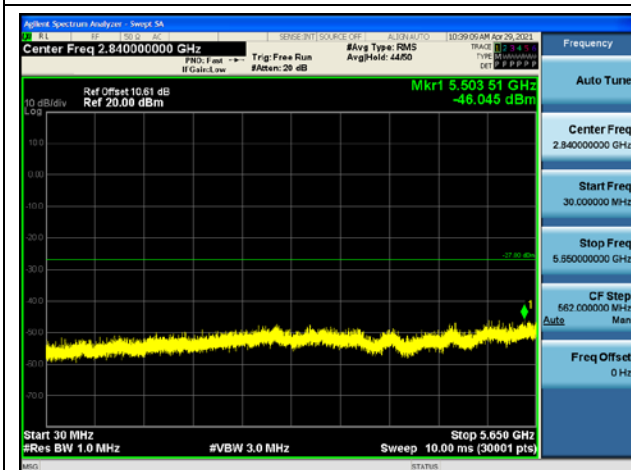
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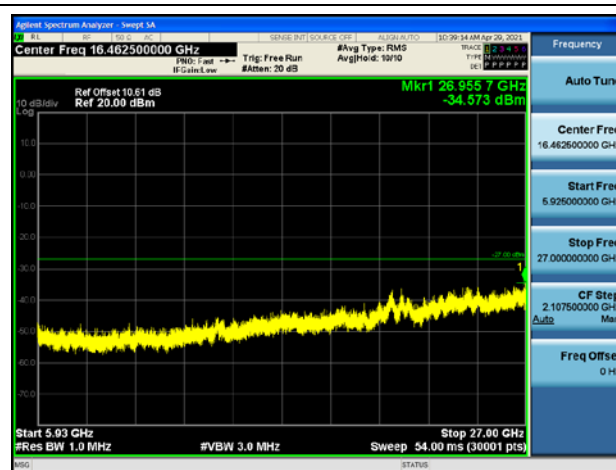
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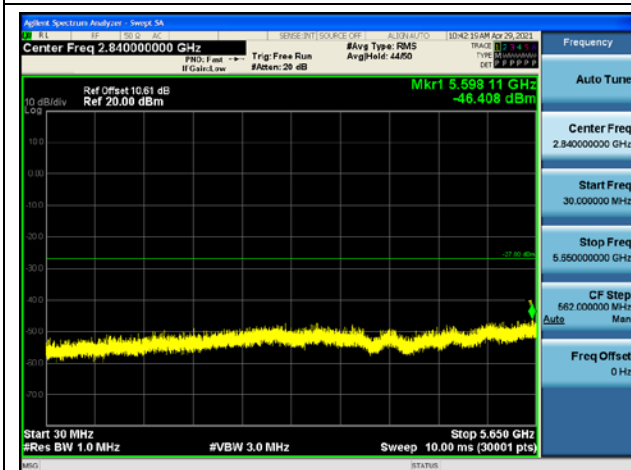
Middle channel



Middle channel



High channel



High channel

