FCC TEST REPORT
FCC ID:2AWIZHL4GMV2

Report Number.....:	ZKT-221215L9440-02
Date of Test.....:	Dec. 12, 2022 -- Dec. 19, 2022
Date of issue.....:	Dec. 19, 2022
Total number of pages..... :	172
Test Result..... :	PASS
Testing Laboratory..... :	**Shenzhen ZKT Technology Co., Ltd.**
Address ..... :	1/F, No. 101, Building B, No. 6, Tangwei Community Industrial Avenue, Fuhai Street, Bao'an District, Shenzhen, China
Applicant's name .....:	FIBRAIN sp. z o.o.
Address ..... :	Poland, Zaczernie 190F, 36-062
Manufacturer's name .....:	FIBRAIN sp. z o.o.
Address ..... :	Poland, Zaczernie 190F, 36-062
Test specification:	
Standard.....:	FCC CFR Title 47 Part 15 Subpart E Section 15.407
Test procedure..... :	ANSI C63.10:2013 789033 D02 General U-NII Test Procedures New Rules v02r01
Non-standard test method .....:	N/A
Test Report Form No..... :	TRF-EL-110_V0
Test Report Form(s) Originator..... :	ZKT Testing
Master TRF .....:	Dated: 2020-01-06

This device described above has been tested by ZKT, 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.
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Product name..... :	GPON ONT
Trademark .....:	/
Model/Type reference..... :	HL-4GMV2/HL-4GMV3
Ratings..... :	DC 12V Adapter

Testing procedure and testing location:

Testing Laboratory.....:	**Shenzhen ZKT Technology Co., Ltd.**
Address.....:	1/F, No. 101, Building B, No. 6, Tangwei Community Industrial Avenue, Fuhai Street, Bao'an District, Shenzhen, China
Tested by (name + signature).....:	Alen He
Reviewer (name + signature).....:	Joe Liu
Approved (name + signature).....:	Lake Xie

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1. VERSION

Report No.	Version	Description	Approved
ZKT-221215L9440-02	Rev.01	Initial issue of report	Dec. 19, 2022

2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part15 (15.247) , Subpart C			
Standard Section	Test Item	Result	Remark
15.203/15.247 (c)	Antenna requirement	PASS	
15.207	AC Power Line Conducted Emission	PASS	
15.407 (a) (b)	Spurious Radiated Emissions and Band Edge	PASS	
15.407 (e) /15.403(i)	6 dB bandwidth, 26dB Emission Bandwidth& 99% Occupied Bandwidth	PASS	
15.407 (a)	Power Spectral Density	PASS	
15.407 (a)(1)(2)(3)	Maximum conducted output power	PASS	
15.407 (g)	Frequency Stability	PASS	

NOTE:

(1)" N/A" denotes test is not applicable in this Test Report

2.1 TEST FACILITY

Shenzhen ZKT Technology Co., Ltd.
Add. : 1/F, No. 101, Building B, No. 6, Tangwei Community Industrial Avenue, Fuhai Street, Bao'an District, Shenzhen, China

FCC Test Firm Registration Number: 692225
Designation Number: CN1299
IC Registered No.: 27033

2.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement y ± U, where expended 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.	tem	ncertainty
1	3m camber Radiated spurious emission(30MHz-1GHz)	U=4.3dB
2	3m chamber Radiated spurious emission(1GHz-18GHz)	U=4.5dB
3	3m chamber Radiated spurious emission(18GHz-40GHz)	U=3.34dB
4	Conducted Adjacent channel power	U=1.38dB
5	Conducted output power uncertainty Above 1G	U=1.576dB
6	Conducted output power uncertainty below 1G	U=1.28dB
7	humidity uncertainty	U=5.3%
8	Temperature uncertainty	U=0.59℃
9	Radiated disturbance(30MHz-1000MHz)	U=4.8dB
10	Radiated disturbance(1GHz-6GHz)	U=4.9dB
11	Radiated disturbance(1GHz-18GHz)	U=5.0dB

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Product Name:	GPON ONT		
Model No.:	HL-4GMV2		
Serial No.:	HL-4GMV3		
Model difference:	Their electrical circuit design, layout, components used and internal wiring are identical, Only the Model will be different ,so the name will be different. Test sample model: HL-4GMV2		
Hardware Version:	V1.0		
Software Version:	V1.0		
Sample(s) Status:	Engineer sample		
	IEEE802.11 WLAN mode supported	802.11a/n/ac(20MHz channel bandwidth) 802.11n/ac(40MHz channel bandwidth) 802.11 ac (80MHz channel bandwidth)	
	Date rate	802.11ac:MCS0-MCS9 802.11n: MCS0-MCS7 802.11a: 6.5-54Mbps	
	Modulation	OFDM/OFDMA	
	U-NII-1	Frequency Range	802.11a/n/ac(20MHz) : 5180-5240MHz 802.11n/ac(40MHz) : 5190-5230MHz 802.11 ac (80MHz) : 5210MHz
		Channels	802.11 a/n/ac (20MHz): 4 802.11 ac /n (40MHz): 2 802.11 ac (80MHz): 1
	U-NII-3	Frequency Range	802.11 a/n/ac(20MHz) : 5745-5825 MHz 802.11 n/ac (40MHz): 5755-5795 MHz 802.11 ac (80MHz): 5775 MHz
		Channels	802.11 a/n/ac(20MHz) : 5 802.11 n/ac (40MHz): 2 802.11 ac (80MHz): 1
Antenna Type:	FPC Antenna		
Antenna gain:	WIFI ANT1:2dBi; WIFI ANT2:2dBi ; MIMO:5.01dBi		
Power supply:	MODEL: GS-P120150E664 INPUT: 100-240V~ 50/60Hz 0.6A OUTPUT: 12V ⎓ 1.5A		

U-NII-1		U-NII-3	
CH.	Frequency (MHz)	CH.	Frequency (MHz)
36	5180	149	5745
40	5200	…	…
44	5220	157	5785
48	5240	…	…
		165	5825

802.11a/n/ac(20MHz) Frequency / Channel Operations

U-NII-1		U-NII-3	
CH.	Frequency (MHz)	CH.	Frequency (MHz)
38	5190	151	5755
46	5230	159	5795

802.11n /ac(40MHz BW) Frequency / Channel Operations

U-NII-1		U-NII-3	
CH.	Frequency (MHz)	CH.	Frequency (MHz)
42	5210	155	5775

802.11ac (80MHz BW) Frequency / Channel Operations

3.2 DESCRIPTION OF TEST MODES

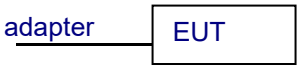
Transmitting mode	Keep the EUT in continuously transmitting mode
Remark: During the test, the duty cycle >98%, the test voltage was tuned from 85% to 115% of the nominal rated supply voltage, and found that the worst case was under the nominal rated supply condition. So the report just shows that condition's data.	

Worst Case Configuration: transmitting both 2.4GHz mode and 5GHz mode

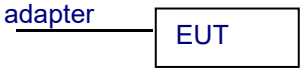
Description	5 GHz Emission
Antenna	MIMO
Channel	149
Operating Frequency (MHz)	802.11ac
Data Rate (Mbps)	OFDM/MCS11
Mode	U-NII-3 -5745MHz

3.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

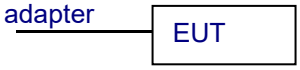
Conducted Emission



Radiated Emission



Conducted Spurious



3.4 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE)

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	Mfr/Brand	Model/Type No.	Series No.	Note
1	PC	HP	HP40		Provide by lab
2	adapter	SHENZHEN GROSUN TECHNOLOGY CO.,LTD	GS-P120150E664	/	SDOC

Item	Shielded Type	Ferrite Core	Length	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.

3.5EQUIPMENTS LIST FOR ALL TEST ITEMS

Radiation Test equipment

Item	Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	Spectrum Analyzer (9kHz-26.5GHz)	KEYSIGHT	9020A	MY55370835	Oct. 18, 2022	Oct. 17, 2023
2	Spectrum Analyzer (1GHz-40GHz)	R&S	FSQ	100363	Oct. 17, 2022	Oct. 16, 2023
3	EMI Test Receiver (9kHz-7GHz)	R&S	ESCI7	101169	Oct. 18, 2022	Oct. 17, 2023
4	Bilog Antenna (30MHz-1500MHz)	Schwarzbeck	VULB9168	N/A	Oct. 17, 2022	Oct. 16, 2023
5	Horn Antenna (1GHz-18GHz)	Agilent	AH-118	071145	Oct. 17, 2022	Oct. 16, 2023
6	Loop Antenna	TESEQ	HLA6121	58357	Oct. 17, 2022	Oct. 16, 2023
7	Amplifier (30-1000MHz)	EM Electronics	EM330 Amplifier	060747	Oct. 17, 2022	Oct. 16, 2023
8	Amplifier (1GHz-26.5GHz)	Agilent	8449B	3008A00315	Oct. 18, 2022	Oct. 17, 2023
9	RF cables1 (9kHz-30MHz)	N/A	9kHz-30MHz	N/A	Oct. 18, 2022	Oct. 17, 2023
10	RF cables2 (30MHz-1GHz)	N/A	30MHz-1GHz	N/A	Oct. 18, 2022	Oct. 17, 2023
11	RF cables3 (1GHz-40GHz)	N/A	1GHz-40GHz	N/A	Oct. 18, 2022	Oct. 17, 2023
12	ESG Signal Generator	Agilent	E4421B	N/A	Oct. 18, 2022	Oct. 17, 2023
13	Signal Generator	Agilent	N5182A	N/A	Oct. 22, 2022	Oct. 21, 2023
14	Magnetic Field Probe Tester	Narda	ELT-400	0-0344	Oct. 17, 2022	Oct. 16, 2023
15	MWRF Power Meter Test system	MW	MW100-RPCB	N/A	Oct. 22, 2022	Oct. 21, 2023
16	Power sensor	KEYSIGHT	U200H	MY51190005	Oct. 22, 2022	Oct. 21, 2023
17	D.C. Power Supply	LongWei	TPR-6405D	N/A	Oct. 22, 2022	Oct. 21, 2023
18	EMC Software	Frad	EZ-EMC	Ver.EMC-CON 3A1.1	\	\
19	RF Software	MW	MTS8310	V2.0.0.0	\	\
20	Turntable	MF	MF-7802BS	N/A	\	\
21	Antenna tower	MF	MF-7802BS	N/A	\	\

Conduction Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	LISN	R&S	ENV216	101471	Oct. 22, 2022	Oct. 21, 2023
2	LISN	CYBERTEK	EM5040A	E1850400149	Oct. 22, 2022	Oct. 21, 2023
3	Test Cable	N/A	C01	N/A	Oct. 18, 2022	Oct. 17, 2023
4	Test Cable	N/A	C02	N/A	Oct. 18, 2022	Oct. 17, 2023
5	EMI Test Receiver	R&S	ESCI3	101393	Oct. 17, 2022	Oct. 16, 2023
6	EMC Software	Frad	EZ-EMC	Ver.EMC-CON 3A1.1	\	\

4. EMC EMISSION TEST

4.1 CONDUCTED EMISSION MEASUREMENT

Test Requirement:	FCC Part15 C Section 15.207
Test Method:	ANSI C63.10:2013
Test Frequency Range:	150KHz to 30MHz
Receiver setup:	RBW=9KHz, VBW=30KHz, Sweep time=auto

4.1.1 POWER LINE CONDUCTED EMISSION LIMITS

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

Note:
(1) *Decreases with the logarithm of the frequency.

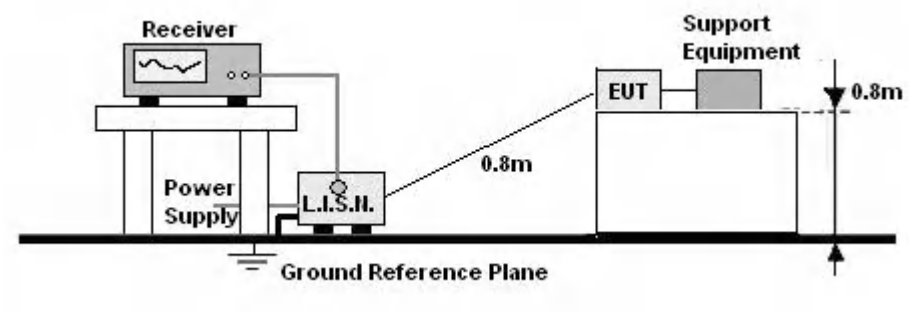
4.1.2 TEST PROCEDURE

1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system; a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10:2013.
2. Support equipment, if needed, was placed as per ANSI C63.10:2013
3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10:2013.
4. The adapter received AC120V/60Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
5. All support equipments received AC power from a second LISN, if any.
6. The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
7. Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.e.
8 For the actual test configuration, please refer to the related Item –EUT Test Photos.

4.1.3 DEVIATION FROM TEST STANDARD

No deviation

4.1.4 TEST SETUP



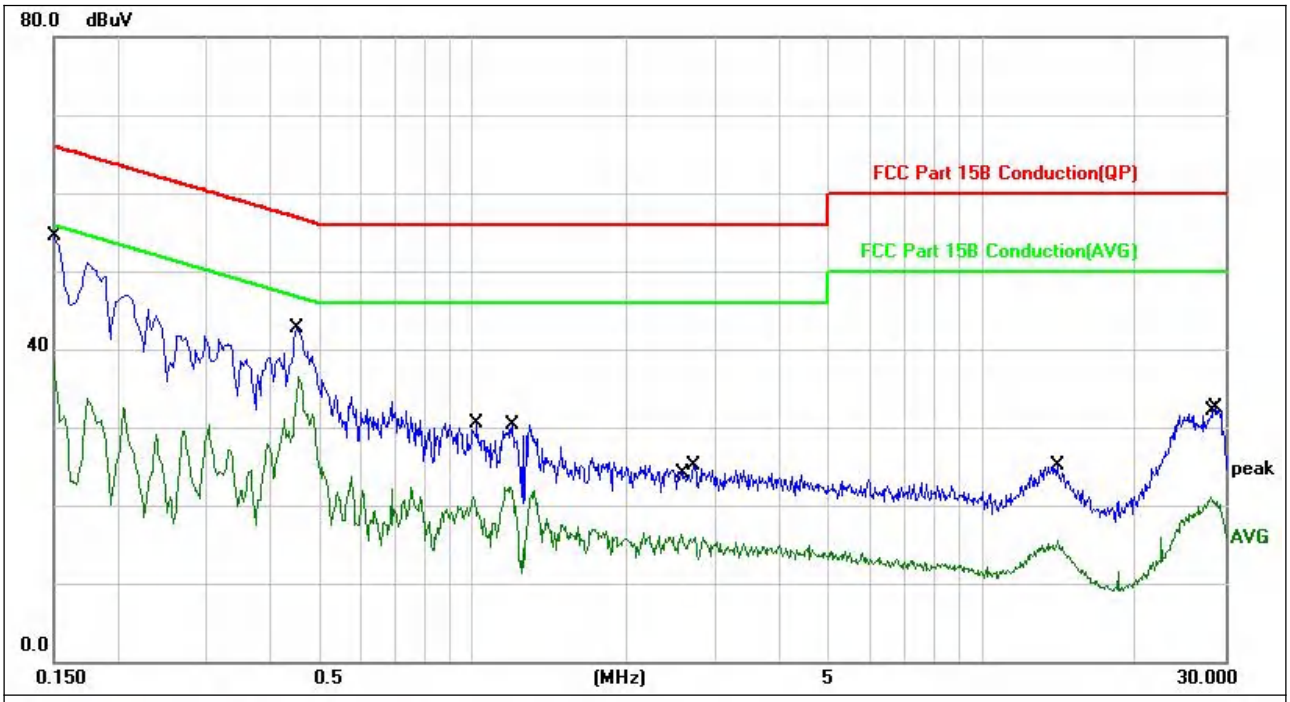
4.1.5 EUT OPERATING CONDITIONS

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.

We pretest AC 120V , the worst voltage was AC 120V and the data recording in the report.

4.1.6 TEST RESULT

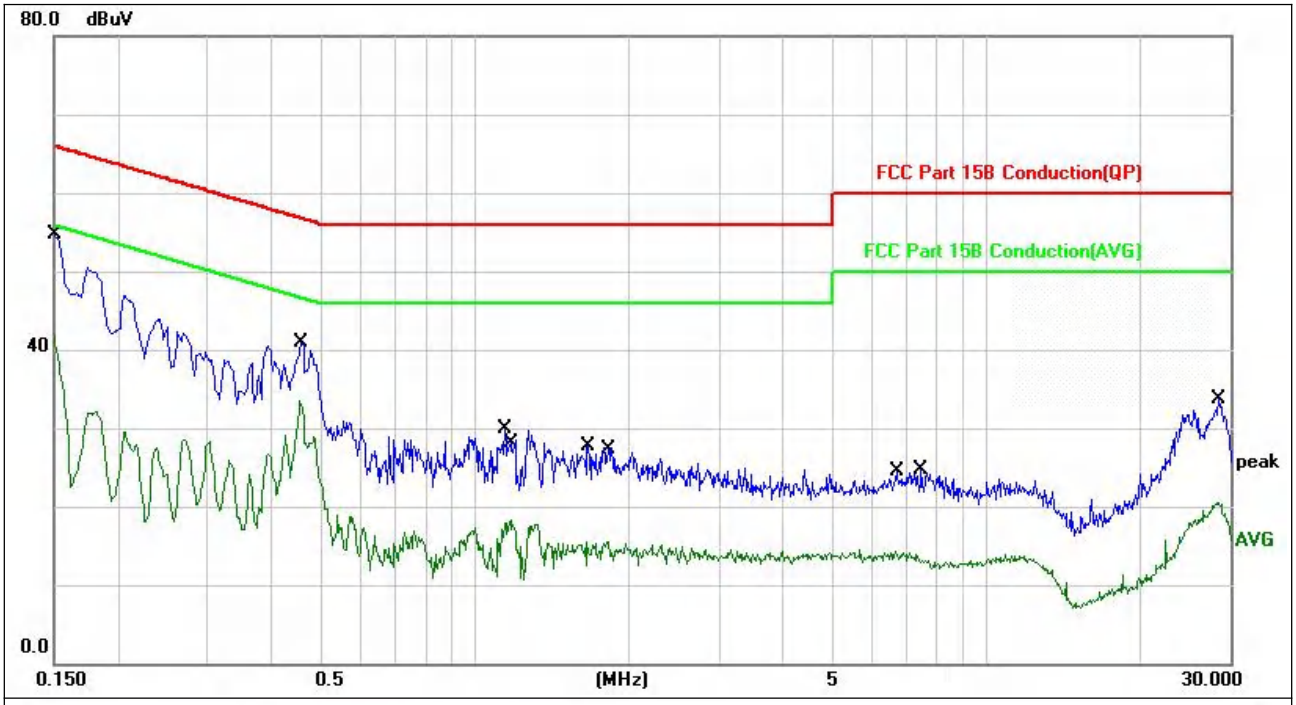
Temperature :	26℃	Relative Humidity:	54%
Pressure :	101kPa	Phase :	L
Test Voltage :	AC 120V/60Hz	Test Mode	802.11a-Middle channel



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1500	44.41	10.05	54.46	65.99	-11.53	QP	
2		0.1500	28.43	10.05	38.48	55.99	-17.51	AVG	
3		0.4500	32.40	10.20	42.60	56.87	-14.27	QP	
4	*	0.4540	26.34	10.20	36.54	46.80	-10.26	AVG	
5		1.0180	20.25	10.17	30.42	56.00	-25.58	QP	
6		1.1820	12.23	10.15	22.38	46.00	-23.62	AVG	
7		2.5620	6.13	10.07	16.20	46.00	-29.80	AVG	
8		2.7139	15.15	10.00	25.15	56.00	-30.85	QP	
9		14.0620	15.24	9.94	25.18	60.00	-34.82	QP	
10		14.1260	5.47	9.93	15.40	50.00	-34.60	AVG	
11		28.1220	11.29	9.79	21.08	50.00	-28.92	AVG	
12		28.7460	22.70	9.79	32.49	60.00	-27.51	QP	

Notes:
1.An initial pre-scan was performed on the line and neutral lines with peak detector.
2.Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3.Mesurement Level = Reading level + Correct Factor
4.The test data shows only the worst case

Temperature :	26℃	Relative Humidity:	54%
Pressure :	101kPa	Phase :	N
Test Voltage :	AC 120V/60Hz	Test Mode	802.11a-Middle channel



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1500	44.69	10.05	54.74	65.99	-11.25	QP	
2		0.1500	31.83	10.05	41.88	55.99	-14.11	AVG	
3		0.4540	23.35	10.20	33.55	46.80	-13.25	AVG	
4		0.4580	30.76	10.20	40.96	56.73	-15.77	QP	
5		1.1420	19.69	10.16	29.85	56.00	-26.15	QP	
6		1.1740	8.09	10.15	18.24	46.00	-27.76	AVG	
7		1.6540	17.56	10.08	27.64	56.00	-28.36	QP	
8		1.8260	5.41	10.06	15.47	46.00	-30.53	AVG	
9		6.6580	4.34	9.89	14.23	50.00	-35.77	AVG	
10		7.4500	14.74	9.86	24.60	60.00	-35.40	QP	
11		28.2620	10.74	9.79	20.53	50.00	-29.47	AVG	
12		28.4660	23.81	9.79	33.60	60.00	-26.40	QP	

Notes:
1.An initial pre-scan was performed on the line and neutral lines with peak detector.
2.Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3.Mesurement Level = Reading level + Correct Factor
4.The test data shows only the worst case

4.2 RADIATED EMISSION MEASUREMENT

4.2.1 RADIATED EMISSION LIMITS

1. Radiated emissions from9 kHz to25 GHz were measured according to the methods defines in ANSI C63.10-2013.The EUT was placed above the ground plane, 0.8 meter for frequency below 1GHzand1.5meterforfrequencyabove1GHz. The interface cable sand equipment positions were varied within limits of reasonable applications to determine the positions producing maximum radiated emissions.

2. For transmitters operating in the 5150-5250 MHz band: all emissions outside of the 5150-5350 MHz band shall not exceed an EIRP of –27dBm/MHz.

3. For transmitters operating in the 5250-5350 MHz band: all emissions outside of the 5150-5350 MHz band shall not exceed an EIRP of -27 dBm/MHz. Devices operating in the 5250-5350 MHz band that generate emissions in the 5150-5250 MHz band must meet all applicable technical requirements for operation in the 5150-5250 MHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of -27 dBm/MHz in the 5150-5250 MHz band.

4. For transmitters operating in the 5470-5600 MHz and 5650-5725MHz band: all emissions outside of the 5470-5600 MHz and 5650-5725MHz band shall not exceed an EIRPof -27 dBm/MHz.

5. KDB789033v02r01G)2)c)Asspecifiedin15.407(b),emissionsabove1000MHzthatareout sideofthe restricted bands are subject to a peak emission limit of -27 dBm/MHz (or -17 dBm/MHz as specified in 15.407(b)(4)). However, an out-of-band emission that complies with both the average and peak limits of 15.209 is not required to satisfy the -27 dBm/MHz or -17 dBm/MHz peak emission limit.

According to§15.209(a),exceptasprovidedelsewhereinthisSubpart,theemissionsfroman intentionalradiatorshallnotexceedthefieldstrengthlevelsspecifiedinthefollowingtable:

Frequencies (MHz)	Field Strength (micorvolts/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

LIMITS OF RADIATED EMISSION MEASUREMENT

FREQUENCY (MHz)	Limit (dBuV/m) (at 3M)	
	PEAK	AVERAGE
Above 1000	74	54

Notes:

(1) The limit for radiated test was performed according to FCC PART 15C.

(2) The tighter limit applies at the band edges.

(3) Emission level (dBuV/m)=20log Emission level (uV/m).

4.2.2 TEST PROCEDURE

Below 1GHz test procedure as below:

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoiccamber. The table was rotated 360 degrees to determine the position of the highest radiation.
b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of avariable-height antenna tower.
c. The antenna height is varied from one meter to four meters above the ground to determine the maximum valueof the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned toheights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could bestopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dBmargin would be re-tested one by one using peak, quasi-peak or average method as specified and then reportedin a data sheet.

Above 1GHz test procedure as below:

g. Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber andchange form table 0.8 metre to 1.5 metre(Above 18GHz the distance is 1 meter and table is 1.5 metre).
h. Test the EUT in the lowest channel ,the middle channel ,the Highest channel

Note:

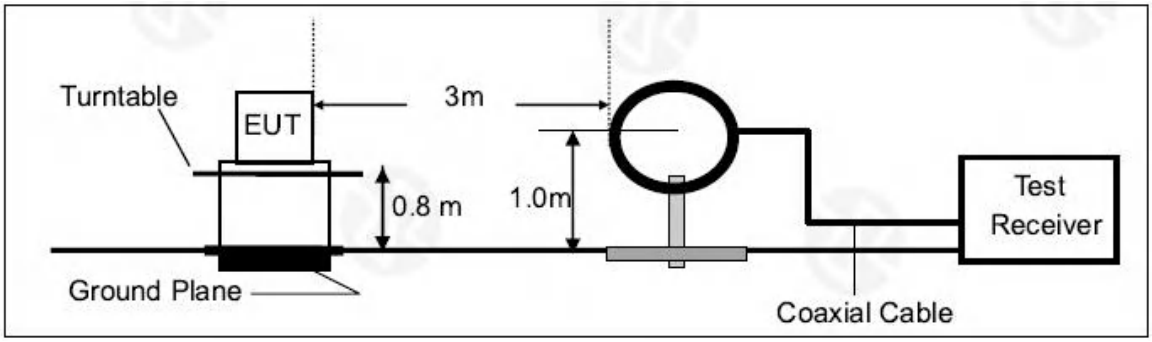
Both horizontal and vertical antenna polarities were tested
and performed pretest to three orthogonal axis. The worst case emissions were reported

4.2.3 DEVIATION FROM TEST STANDARD

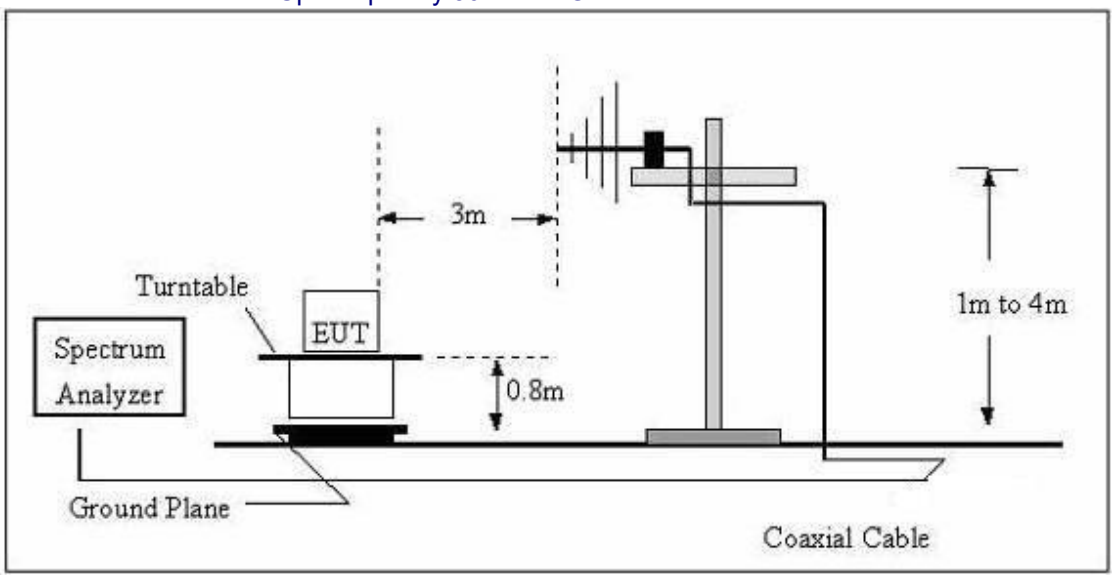
No deviation

4.2.4 TEST SETUP

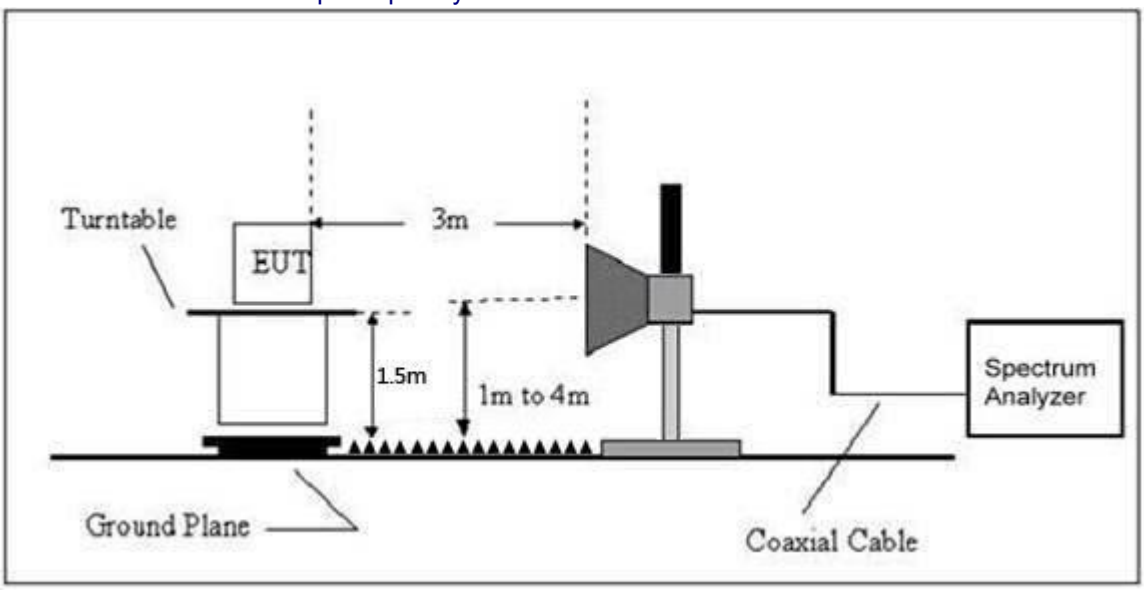
（A）Radiated Emission Test-Up Frequency Below 30MHz



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



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



4.2.5 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

4.2.6 TEST RESULTS

Between 9KHz – 30MHz

The emission from 9 kHz to 30MHz was pre-tested and found the result was 20dB lower than the limit, and according to 15.31(o) & RSS-Gen 6.13, the test result no need to reported.

Between 30MHz – 1GHz

Temperature:	26℃	Relative Humidity:	54%
Pressure:	101kPa	Polarization:	Horizontal
Test Voltage:	AC 120V/60Hz	Test mode	802.11a-Middle channel

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		125.0066	42.30	-10.45	31.85	43.50	-11.65	QP	100	241	
2	*	178.7584	49.42	-10.79	38.63	43.50	-4.87	QP	100	256	
3		223.7334	50.22	-10.34	39.88	46.00	-6.12	QP	100	149	
4	!	277.0935	50.10	-9.28	40.82	46.00	-5.18	QP	100	258	
5		375.9385	45.65	-6.29	39.36	46.00	-6.64	QP	100	197	
6		919.2866	31.52	4.00	35.52	46.00	-10.48	QP	100	8	

Temperature:	26℃	Relative Humidity:	54%
Pressure:	101kPa	Polarization:	Vertical
Test Voltage:	AC 120V/60Hz	Test mode	802.11a-Middle channel

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		31.7313	30.97	-5.56	25.41	40.00	-14.59	QP	100	254	
2		59.6493	45.81	-15.61	30.20	40.00	-9.80	QP	100	142	
3		99.8777	44.06	-13.88	30.18	43.50	-13.32	QP	100	230	
4	*	226.0994	52.40	-10.38	42.02	46.00	-3.98	QP	100	59	
5	!	530.1014	43.25	-2.88	40.37	46.00	-5.63	QP	100	314	
6		869.1302	36.91	2.95	39.86	46.00	-6.14	QP	100	9	

Remarks:
1.Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
2.The emission levels of other frequencies are very lower than the limit and not show in test report.
3.The test data shows only the worst case

1GHz~25GHz

ANT1-802.11a

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Low Channel:5180MHz									
V	10360	47.09	30.55	5.77	24.66	46.97	74.00	-27.03	PK
V	10360	35.30	30.55	5.77	24.66	35.18	54.00	-18.82	AV
V	15540	48.93	30.33	6.32	24.55	49.47	74.00	-24.53	PK
V	15540	39.96	30.33	6.32	24.55	40.50	54.00	-13.50	AV
V	20720	50.57	30.85	7.45	24.69	51.86	74.00	-22.14	PK
V	20720	40.53	30.85	7.45	24.69	41.82	54.00	-12.18	AV
H	10360	48.49	30.55	5.77	24.66	48.37	74.00	-25.63	PK
H	10360	38.34	30.55	5.77	24.66	38.22	54.00	-15.78	AV
H	15540	47.86	30.33	6.32	24.55	48.40	74.00	-25.60	PK
H	15540	40.70	30.33	6.32	24.55	41.24	54.00	-12.76	AV
H	20720	48.77	30.85	7.45	24.69	50.06	74.00	-23.94	PK
H	20720	40.03	30.85	7.45	24.69	41.32	54.00	-12.68	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Middle Channel:5200MHz									
V	10400	49.37	30.55	5.77	24.66	49.25	74.00	-24.75	PK
V	10400	35.85	30.55	5.77	24.66	35.73	54.00	-18.27	AV
V	15600	48.87	30.33	6.32	24.55	49.41	74.00	-24.59	PK
V	15600	40.20	30.33	6.32	24.55	40.74	54.00	-13.26	AV
V	20800	50.61	30.85	7.45	24.69	51.90	74.00	-22.10	PK
V	20800	40.89	30.85	7.45	24.69	42.18	54.00	-11.82	AV
H	10400	48.23	30.55	5.77	24.66	48.11	74.00	-25.89	PK
H	10400	39.99	30.55	5.77	24.66	39.87	54.00	-14.13	AV
H	15600	48.49	30.33	6.32	24.55	49.03	74.00	-24.97	PK
H	15600	41.58	30.33	6.32	24.55	42.12	54.00	-11.88	AV
H	20800	49.77	30.85	7.45	24.69	51.06	74.00	-22.94	PK
H	20800	40.71	30.85	7.45	24.69	42.00	54.00	-12.00	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
High Channel:5240MHz									
V	10480	49.12	30.55	5.77	24.66	49.00	74.00	-25.00	PK
V	10480	35.44	30.55	5.77	24.66	35.32	54.00	-18.68	AV
V	15720	47.76	30.33	6.32	24.55	48.30	74.00	-25.70	PK
V	15720	41.20	30.33	6.32	24.55	41.74	54.00	-12.26	AV
V	20960	49.58	30.85	7.45	24.69	50.87	74.00	-23.13	PK
V	20960	41.73	30.85	7.45	24.69	43.02	54.00	-10.98	AV
H	10480	48.03	30.55	5.77	24.66	47.91	74.00	-26.09	PK
H	10480	39.96	30.55	5.77	24.66	39.84	54.00	-14.16	AV
H	15720	48.41	30.33	6.32	24.55	48.95	74.00	-25.05	PK
H	15720	41.47	30.33	6.32	24.55	42.01	54.00	-11.99	AV
H	20960	51.74	30.85	7.45	24.69	53.03	74.00	-20.97	PK
H	20960	38.94	30.85	7.45	24.69	40.23	54.00	-13.77	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
High Channel:5745MHz									
V	11490	47.00	30.55	5.77	24.66	46.88	74.00	-27.12	PK
V	11490	34.73	30.55	5.77	24.66	34.61	54.00	-19.39	AV
V	17235	49.44	30.33	6.32	24.55	49.98	74.00	-24.02	PK
V	17235	39.75	30.33	6.32	24.55	40.29	54.00	-13.71	AV
V	22980	51.24	30.85	7.45	24.69	52.53	74.00	-21.47	PK
V	22980	39.33	30.85	7.45	24.69	40.62	54.00	-13.38	AV
H	11490	46.08	30.55	5.77	24.66	45.96	74.00	-28.04	PK
H	11490	38.54	30.55	5.77	24.66	38.42	54.00	-15.58	AV
H	17235	47.76	30.33	6.32	24.55	48.30	74.00	-25.70	PK
H	17235	39.64	30.33	6.32	24.55	40.18	54.00	-13.82	AV
H	22980	49.16	30.85	7.45	24.69	50.45	74.00	-23.55	PK
H	22980	40.91	30.85	7.45	24.69	42.20	54.00	-11.80	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
High Channel:5785MHz									
V	11570	47.77	30.55	5.77	24.66	47.65	74.00	-26.35	PK
V	11570	35.34	30.55	5.77	24.66	35.22	54.00	-18.78	AV
V	17355	49.52	30.33	6.32	24.55	50.06	74.00	-23.94	PK
V	17355	40.25	30.33	6.32	24.55	40.79	54.00	-13.21	AV
V	23140	49.82	30.85	7.45	24.69	51.11	74.00	-22.89	PK
V	23140	39.81	30.85	7.45	24.69	41.10	54.00	-12.90	AV
H	11570	48.32	30.55	5.77	24.66	48.20	74.00	-25.80	PK
H	11570	40.43	30.55	5.77	24.66	40.31	54.00	-13.69	AV
H	17355	48.04	30.33	6.32	24.55	48.58	74.00	-25.42	PK
H	17355	39.47	30.33	6.32	24.55	40.01	54.00	-13.99	AV
H	23140	50.62	30.85	7.45	24.69	51.91	74.00	-22.09	PK
H	23140	39.59	30.85	7.45	24.69	40.88	54.00	-13.12	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
High Channel:5825MHz									
V	11650	47.92	30.55	5.77	24.66	47.80	74.00	-26.20	PK
V	11650	35.09	30.55	5.77	24.66	34.97	54.00	-19.03	AV
V	17475	48.37	30.33	6.32	24.55	48.91	74.00	-25.09	PK
V	17475	41.04	30.33	6.32	24.55	41.58	54.00	-12.42	AV
V	23300	50.67	30.85	7.45	24.69	51.96	74.00	-22.04	PK
V	23300	40.63	30.85	7.45	24.69	41.92	54.00	-12.08	AV
H	11650	48.67	30.55	5.77	24.66	48.55	74.00	-25.45	PK
H	11650	37.81	30.55	5.77	24.66	37.69	54.00	-16.31	AV
H	17475	47.71	30.33	6.32	24.55	48.25	74.00	-25.75	PK
H	17475	40.81	30.33	6.32	24.55	41.35	54.00	-12.65	AV
H	23300	51.43	30.85	7.45	24.69	52.72	74.00	-21.28	PK
H	23300	38.89	30.85	7.45	24.69	40.18	54.00	-13.82	AV

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Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Low Channel:5180MHz									
V	10360	48.82	30.55	5.77	24.66	48.70	74.00	-25.30	PK
V	10360	33.96	30.55	5.77	24.66	33.84	54.00	-20.16	AV
V	15540	48.75	30.33	6.32	24.55	49.29	74.00	-24.71	PK
V	15540	39.52	30.33	6.32	24.55	40.06	54.00	-13.94	AV
V	20720	50.42	30.85	7.45	24.69	51.71	74.00	-22.29	PK
V	20720	39.14	30.85	7.45	24.69	40.43	54.00	-13.57	AV
H	10360	48.27	30.55	5.77	24.66	48.15	74.00	-25.85	PK
H	10360	39.45	30.55	5.77	24.66	39.33	54.00	-14.67	AV
H	15540	47.85	30.33	6.32	24.55	48.39	74.00	-25.61	PK
H	15540	39.94	30.33	6.32	24.55	40.48	54.00	-13.52	AV
H	20720	51.35	30.85	7.45	24.69	52.64	74.00	-21.36	PK
H	20720	40.15	30.85	7.45	24.69	41.44	54.00	-12.56	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Middle Channel:5200MHz									
V	10400	47.00	30.55	5.77	24.66	46.88	74.00	-27.12	PK
V	10400	36.01	30.55	5.77	24.66	35.89	54.00	-18.11	AV
V	15600	48.63	30.33	6.32	24.55	49.17	74.00	-24.83	PK
V	15600	41.44	30.33	6.32	24.55	41.98	54.00	-12.02	AV
V	20800	51.55	30.85	7.45	24.69	52.84	74.00	-21.16	PK
V	20800	40.97	30.85	7.45	24.69	42.26	54.00	-11.74	AV
H	10400	48.33	30.55	5.77	24.66	48.21	74.00	-25.79	PK
H	10400	39.56	30.55	5.77	24.66	39.44	54.00	-14.56	AV
H	15600	47.03	30.33	6.32	24.55	47.57	74.00	-26.43	PK
H	15600	41.15	30.33	6.32	24.55	41.69	54.00	-12.31	AV
H	20800	51.06	30.85	7.45	24.69	52.35	74.00	-21.65	PK
H	20800	40.91	30.85	7.45	24.69	42.20	54.00	-11.80	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
High Channel:5240MHz									
V	10480	48.84	30.55	5.77	24.66	48.72	74.00	-25.28	PK
V	10480	36.43	30.55	5.77	24.66	36.31	54.00	-17.69	AV
V	15720	48.77	30.33	6.32	24.55	49.31	74.00	-24.69	PK
V	15720	39.35	30.33	6.32	24.55	39.89	54.00	-14.11	AV
V	20960	49.22	30.85	7.45	24.69	50.51	74.00	-23.49	PK
V	20960	41.73	30.85	7.45	24.69	43.02	54.00	-10.98	AV
H	10480	48.03	30.55	5.77	24.66	47.91	74.00	-26.09	PK
H	10480	40.62	30.55	5.77	24.66	40.50	54.00	-13.50	AV
H	15720	47.44	30.33	6.32	24.55	47.98	74.00	-26.02	PK
H	15720	41.60	30.33	6.32	24.55	42.14	54.00	-11.86	AV
H	20960	50.24	30.85	7.45	24.69	51.53	74.00	-22.47	PK
H	20960	40.94	30.85	7.45	24.69	42.23	54.00	-11.77	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
High Channel:5745MHz									
V	11490	47.56	30.55	5.77	24.66	47.44	74.00	-26.56	PK
V	11490	36.39	30.55	5.77	24.66	36.27	54.00	-17.73	AV
V	17235	48.85	30.33	6.32	24.55	49.39	74.00	-24.61	PK
V	17235	39.27	30.33	6.32	24.55	39.81	54.00	-14.19	AV
V	22980	49.68	30.85	7.45	24.69	50.97	74.00	-23.03	PK
V	22980	40.57	30.85	7.45	24.69	41.86	54.00	-12.14	AV
H	11490	47.13	30.55	5.77	24.66	47.01	74.00	-26.99	PK
H	11490	37.78	30.55	5.77	24.66	37.66	54.00	-16.34	AV
H	17235	47.99	30.33	6.32	24.55	48.53	74.00	-25.47	PK
H	17235	41.20	30.33	6.32	24.55	41.74	54.00	-12.26	AV
H	22980	51.02	30.85	7.45	24.69	52.31	74.00	-21.69	PK
H	22980	39.34	30.85	7.45	24.69	40.63	54.00	-13.37	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
High Channel:5785MHz									
V	11570	48.52	30.55	5.77	24.66	48.40	74.00	-25.60	PK
V	11570	36.43	30.55	5.77	24.66	36.31	54.00	-17.69	AV
V	17355	48.60	30.33	6.32	24.55	49.14	74.00	-24.86	PK
V	17355	39.57	30.33	6.32	24.55	40.11	54.00	-13.89	AV
V	23140	49.97	30.85	7.45	24.69	51.26	74.00	-22.74	PK
V	23140	41.44	30.85	7.45	24.69	42.73	54.00	-11.27	AV
H	11570	47.76	30.55	5.77	24.66	47.64	74.00	-26.36	PK
H	11570	38.81	30.55	5.77	24.66	38.69	54.00	-15.31	AV
H	17355	47.54	30.33	6.32	24.55	48.08	74.00	-25.92	PK
H	17355	39.52	30.33	6.32	24.55	40.06	54.00	-13.94	AV
H	23140	50.58	30.85	7.45	24.69	51.87	74.00	-22.13	PK
H	23140	39.25	30.85	7.45	24.69	40.54	54.00	-13.46	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
High Channel:5825MHz									
V	11650	47.13	30.55	5.77	24.66	47.01	74.00	-26.99	PK
V	11650	35.61	30.55	5.77	24.66	35.49	54.00	-18.51	AV
V	17475	48.73	30.33	6.32	24.55	49.27	74.00	-24.73	PK
V	17475	40.15	30.33	6.32	24.55	40.69	54.00	-13.31	AV
V	23300	49.71	30.85	7.45	24.69	51.00	74.00	-23.00	PK
V	23300	39.03	30.85	7.45	24.69	40.32	54.00	-13.68	AV
H	11650	47.11	30.55	5.77	24.66	46.99	74.00	-27.01	PK
H	11650	40.58	30.55	5.77	24.66	40.46	54.00	-13.54	AV
H	17475	47.20	30.33	6.32	24.55	47.74	74.00	-26.26	PK
H	17475	39.27	30.33	6.32	24.55	39.81	54.00	-14.19	AV
H	23300	51.71	30.85	7.45	24.69	53.00	74.00	-21.00	PK
H	23300	41.75	30.85	7.45	24.69	43.04	54.00	-10.96	AV

Remark:
1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
4. During the test, pre-scan the 802.11a/n/ac mode, and found the 802.11a mode which it is worse case.
5. The test data shows only the worst case

5.POWER SPECTRAL DENSITY TEST

Test Requirement:	FCC 47 CFR Part 15 Subpart E Section 15.407 (a)
Test Method:	KDB 789033 D02 v02r01

5.1 APPLIED PROCEDURES / LIMIT

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 band 5.725-5.850 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz 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.

LIMIT:	U-NII-1	11DBM/MHZ
	U-NII-3	30DBM/500KHZ

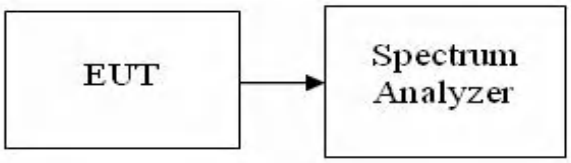
5.2 TEST PROCEDURE

1. Set analyzer center frequency to DTS channel center frequency.
2. Set the span to 1.5 times the DTS bandwidth.
3. Set the RBW to: 3 kHz ≤ RBW ≤ 100 kHz.
4. Set the VBW ≥ 3 x RBW.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level within the RBW.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

5.3 DEVIATION FROM STANDARD

No deviation.

5.4 TEST SETUP



5.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.1 Unless otherwise a special operating condition is specified in the follows during the testing.

5.6 TEST RESULT

PASS: PLEASE REFER TO APPENDIX: APPENDIX FOR DETAILS

6. -26 DB & 6DBM EMISSION BANDWIDTH

Test Requirement:	Part 15 Subpart C Section 15.407 (e)
Test Method:	KDB 789033 D02 v02r01

6.1 APPLIED PROCEDURES / LIMIT

FCC Part15.407 (e)		
Bandwidth		
Limit	U-NII-1	N/A
	U-NII-3	⩾ 500 kHz

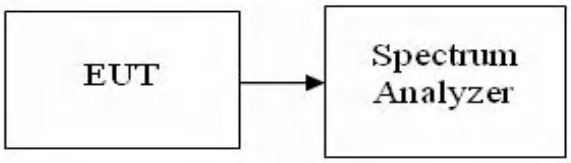
6.2 TEST PROCEDURE

Place the EUT on the table and set it in the transmitting mode.
Remove the antenna from the EUT and then connect a low-loss RF cable from the antenna port to the spectrum analyzer.
Set the spectrum analyzers RBW = approximately 1% of the emission bandwidth, VBW >RBW, Detector = Peak, Span>26dB bandwidth, and Sweep = auto ,Trace mode = max hold.
Measure the maximum width of the emission that is 26dB down from the maximum of the emission.
Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.
Repeat until all the rest channels were investigated.

6.3 DEVIATION FROM STANDARD

No deviation.

6.4 TEST SETUP



6.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

6.6 TEST RESULT

PASS: PLEASE REFER TO APPENDIX: APPENDIX FOR DETAILS

7. OUTPUT POWER TEST

Test Requirement:	15.407 (a)(1)(2)(3)
Test Method:	KDB 789033 D02 v02r01

7.1 APPLIED PROCEDURES/LIMIT

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.

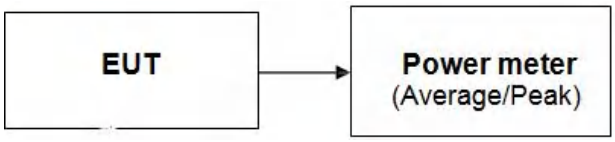
For the band 5.725-5.850 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum 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.

Test Item	Band	Limit	Result
Max conducted output power	U-NII-1	0.25W / 23.98dbm	Pass
Max conducted output power	U-NII-3	1 W / 30dbm	Pass

7.2 DEVIATION FROM STANDARD

No deviation.

7.3 TEST SETUP



7.4 TEST RESULTS

PASS: PLEASE REFER TO APPENDIX: APPENDIX FOR DETAILS

8. OUT OF BAND EDGE EMISSION

Test Requirement:	15.407 (b)
Test Method:	KDB 789033 D02 v02r01

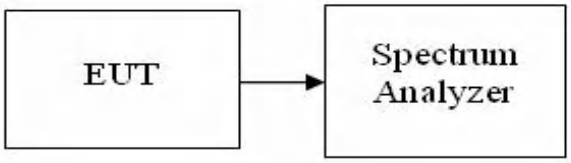
8.1 TEST PROCEDURE

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set RBW of spectrum analyzer to 1 MHz with a convenient frequency span.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

8.2 DEVIATION FROM STANDARD

No deviation.

8.3 TEST SETUP



8.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

8.5 TEST RESULTS

PASS: PLEASE REFER TO APPENDIX: APPENDIX FOR DETAILS

9. FREQUENCY STABILITY MEASUREMENT

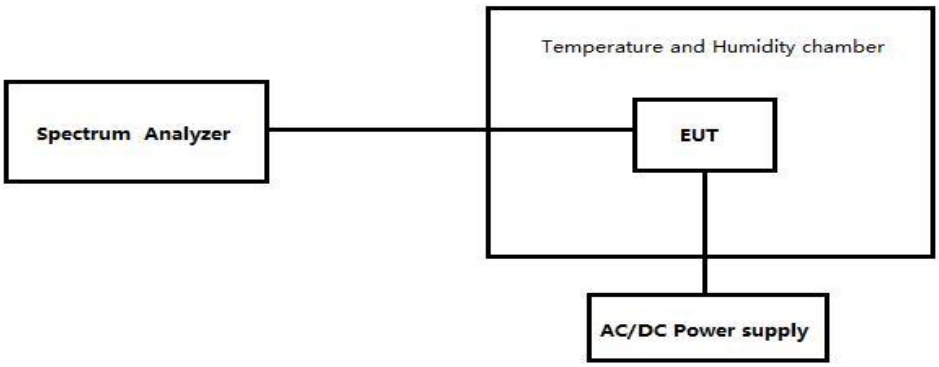
9.1 LIMIT

According to§15.407(g),Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

9.2 TESTPROCEDURE

1. To ensure emission at the band edge is main tainted within the authorized band, those values shall be measured by radiation emissions at upper and lower frequency points, and finally compensated by frequency deviation as procedures below.
2. The EUT was operated at the maximum output power, and connected to the spectrum analyzer, whichissettomaximumholdfunctionandpeakdetector.Thepeakvalueofthepowerenvelopewas measured and noted. The upper and lower frequency points were respectively measured relatively 10dB lower than the measured peak value.
3. The frequency deviation was calculated by adding the upper frequency point and the lower frequency point divided by two. Those detailed values of frequency deviation are provided in table below.

9.3 TESTCONFIGURATION



9.4 TEST RESULT

Note: Only the test results of the worst channel are displayed

ANT1-802.11a- CH36

Temperature (°C)	Voltage (AC:V)	Frequency Measure with time Elapsed	
		Freq.Dev(Hz)	(ppm)
50	120	97	0.0168
40	120	86	0.0149
30	120	77	0.0133
20	120	76	0.0132
10	120	82	0.0141
0	120	90	0.0156
-10	120	93	0.0162
-20	120	99	0.0171
-30	120	94	0.0162

ANT1-802.11a-CH48

Temperature (°C)	Voltage (AC:V)	Frequency Measure with time Elapsed	
		Freq.Dev(Hz)	(ppm)
50	120	79	0.0136
40	120	90	0.0157
30	120	77	0.0133
20	120	93	0.0161
10	120	99	0.0172
0	120	77	0.0133
-10	120	83	0.0144
-20	120	77	0.0134
-30	120	87	0.0151

ANT1-802.11a-CH149

Temperature (°C)	Voltage (AC:V)	Frequency Measure with time Elapsed	
		Freq.Dev(Hz)	(ppm)
50	120	94	0.0163
40	120	72	0.0124
30	120	95	0.0165
20	120	81	0.0141
10	120	70	0.0122
0	120	78	0.0135
-10	120	74	0.0127
-20	120	98	0.0170
-30	120	98	0.0170

ANT1-802.11a-CH165

Temperature (°C)	Voltage (AC:V)	Frequency Measure with time Elapsed	
		Freq.Dev(Hz)	(ppm)
50	120	79	0.0136
40	120	77	0.0134
30	120	96	0.0166
20	120	87	0.0150
10	120	95	0.0165
0	120	87	0.0151
-10	120	71	0.0122
-20	120	96	0.0166
-30	120	89	0.0154

ANT1-802.11n20-CH36

Temperature (°C)	Voltage (AC:V)	Frequency Measure with time Elapsed	
		Freq.Dev(Hz)	(ppm)
50	120	99	0.0171
40	120	93	0.0162
30	120	98	0.0169
20	120	80	0.0139
10	120	98	0.0170
0	120	74	0.0129
-10	120	93	0.0161
-20	120	85	0.0147
-30	120	100	0.0172

ANT1-802.11n20-CH48

Temperature (°C)	Voltage (AC:V)	Frequency Measure with time Elapsed	
		Freq.Dev(Hz)	(ppm)
50	120	85	0.0147
40	120	80	0.0139
30	120	86	0.0149
20	120	97	0.0168
10	120	79	0.0137
0	120	71	0.0123
-10	120	95	0.0165
-20	120	88	0.0153

-30	120	93	0.0161

ANT1-802.11n20-CH149

Temperature (°C)	Voltage (AC:V)	Frequency Measure with time Elapsed	
		Freq.Dev(Hz)	(ppm)
50	120	71	0.0123
40	120	74	0.0128
30	120	79	0.0137
20	120	72	0.0125
10	120	73	0.0127
0	120	75	0.0130
-10	120	79	0.0137
-20	120	89	0.0154
-30	120	85	0.0146

ANT1-802.11n20-CH165

Temperature (°C)	Voltage (AC:V)	Frequency Measure with time Elapsed	
		Freq.Dev(Hz)	(ppm)
50	120	79	0.0137
40	120	71	0.0124
30	120	97	0.0167
20	120	94	0.0162
10	120	87	0.0151
0	120	73	0.0127
-10	120	96	0.0166
-20	120	79	0.0136
-30	120	71	0.0123

ANT1-802.11n40-CH38

Temperature (°C)	Voltage (AC:V)	Frequency Measure with time Elapsed	
		Freq.Dev(Hz)	(ppm)
50	120	77	0.0133
40	120	85	0.0148
30	120	92	0.0160
20	120	72	0.0125
10	120	97	0.0168
0	120	82	0.0143
-10	120	96	0.0167

-20	120	90	0.0157
-30	120	80	0.0138

ANT1-802.11n40-CH46

Temperature (°C)	Voltage (AC:V)	Frequency Measure with time Elapsed	
		Freq.Dev(Hz)	(ppm)
50	120	72	0.0124
40	120	93	0.0161
30	120	75	0.0129
20	120	73	0.0126
10	120	84	0.0145
0	120	87	0.0150
-10	120	75	0.0129
-20	120	81	0.0140
-30	120	90	0.0155

ANT1-802.11n40-CH151

Temperature (°C)	Voltage (AC:V)	Frequency Measure with time Elapsed	
		Freq.Dev(Hz)	(ppm)
50	120	75	0.0130
40	120	85	0.0147
30	120	82	0.0142
20	120	81	0.0140
10	120	78	0.0135
0	120	99	0.0171
-10	120	96	0.0167
-20	120	82	0.0141
-30	120	71	0.0123

ANT1-802.11n40-CH159

Temperature (°C)	Voltage (AC:V)	Frequency Measure with time Elapsed	
		Freq.Dev(Hz)	(ppm)
50	120	89	0.0154
40	120	85	0.0146
30	120	73	0.0126
20	120	77	0.0133
10	120	82	0.0142
0	120	88	0.0153

-10	120	86	0.0149
-20	120	70	0.0122
-30	120	82	0.0142

ANT1-802.11ac20-CH36

Temperature (°C)	Voltage (AC:V)	Frequency Measure with time Elapsed	
		Freq.Dev(Hz)	(ppm)
50	120	90	0.0156
40	120	75	0.0130
30	120	84	0.0145
20	120	86	0.0149
10	120	80	0.0138
0	120	73	0.0126
-10	120	86	0.0150
-20	120	78	0.0134
-30	120	89	0.0153

ANT1-802.11ac20-CH48

Temperature (°C)	Voltage (AC:V)	Frequency Measure with time Elapsed	
		Freq.Dev(Hz)	(ppm)
50	120	70	0.0121
40	120	77	0.0134
30	120	95	0.0165
20	120	78	0.0136
10	120	77	0.0133
0	120	91	0.0158
-10	120	89	0.0153
-20	120	82	0.0142
-30	120	77	0.0134

ANT1-802.11ac20-CH149

Temperature (°C)	Voltage (AC:V)	Frequency Measure with time Elapsed	
		Freq.Dev(Hz)	(ppm)
50	120	82	0.0142
40	120	80	0.0138
30	120	99	0.0172
20	120	93	0.0160
10	120	82	0.0141

0	120	87	0.0151
-10	120	71	0.0123
-20	120	87	0.0150
-30	120	87	0.0151

ANT1-802.11ac20-CH165

Temperature (°C)	Voltage (AC:V)	Frequency Measure with time Elapsed	
		Freq.Dev(Hz)	(ppm)
50	120	91	0.0157
40	120	94	0.0163
30	120	98	0.0169
20	120	86	0.0149
10	120	75	0.0130
0	120	91	0.0157
-10	120	73	0.0126
-20	120	96	0.0166
-30	120	86	0.0149

ANT1-802.11ac40-CH38

Temperature (°C)	Voltage (AC:V)	Frequency Measure with time Elapsed	
		Freq.Dev(Hz)	(ppm)
50	120	81	0.0140
40	120	76	0.0132
30	120	94	0.0163
20	120	98	0.0169
10	120	79	0.0138
0	120	94	0.0163
-10	120	90	0.0157
-20	120	81	0.0141
-30	120	77	0.0133

ANT1-802.11ac40-CH46

Temperature (°C)	Voltage (AC:V)	Frequency Measure with time Elapsed	
		Freq.Dev(Hz)	(ppm)
50	120	98	0.0170
40	120	80	0.0138
30	120	92	0.0160
20	120	80	0.0138
10	120	87	0.0151

0	120	91	0.0157
-10	120	86	0.0149
-20	120	85	0.0147
-30	120	97	0.0168

ANT1-802.11ac40-CH151

Temperature (°C)	Voltage (AC:V)	Frequency Measure with time Elapsed	
		Freq.Dev(Hz)	(ppm)
50	120	82	0.0143
40	120	74	0.0128
30	120	80	0.0139
20	120	86	0.0149
10	120	73	0.0126
0	120	100	0.0172
-10	120	89	0.0154
-20	120	71	0.0124
-30	120	73	0.0127

ANT1-802.11ac40-CH159

Temperature (°C)	Voltage (AC:V)	Frequency Measure with time Elapsed	
		Freq.Dev(Hz)	(ppm)
50	120	75	0.0130
40	120	90	0.0156
30	120	93	0.0161
20	120	87	0.0151
10	120	80	0.0139
0	120	85	0.0147
-10	120	91	0.0158
-20	120	74	0.0128
-30	120	91	0.0158

ANT1-802.11ac80-CH42

Temperature (°C)	Voltage (AC:V)	Frequency Measure with time Elapsed	
		Freq.Dev(Hz)	(ppm)
50	120	78	0.0136
40	120	73	0.0126
30	120	95	0.0165
20	120	86	0.0149
10	120	83	0.0144

0	120	100	0.0173
-10	120	84	0.0145
-20	120	74	0.0127
-30	120	80	0.0139

ANT1-802.11ac80-CH155

Temperature (°C)	Voltage (AC:V)	Frequency Measure with time Elapsed	
		Freq.Dev(Hz)	(ppm)
50	120	98	0.0169
40	120	90	0.0155
30	120	99	0.0172
20	120	77	0.0133
10	120	99	0.0171
0	120	86	0.0150
-10	120	80	0.0139
-20	120	95	0.0165
-30	120	84	0.0146

10.ANTENNA REQUIREMENT

Standard requirement:	FCC Part15 C Section 15.203 /247(c)

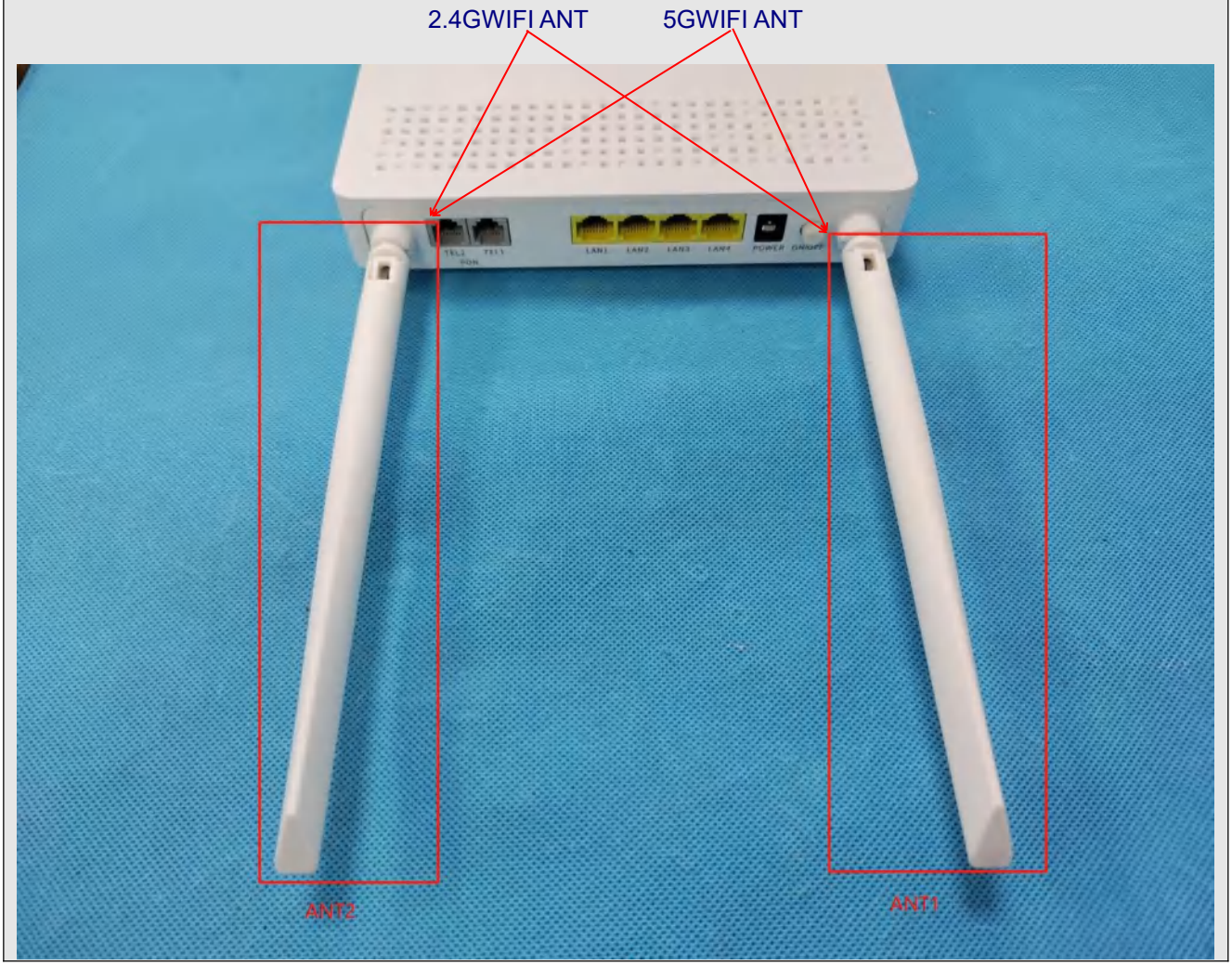
For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247, if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

Refer to statement below for compliance.

The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited. Further, this requirement does not apply to intentional radiators that must be professionally installed.

EUT Antenna:

The antenna used in this product are FPC antenna, and the best case gain of the antenna is antenna port 1: 2dBi and Antenna port 2:2dBi.



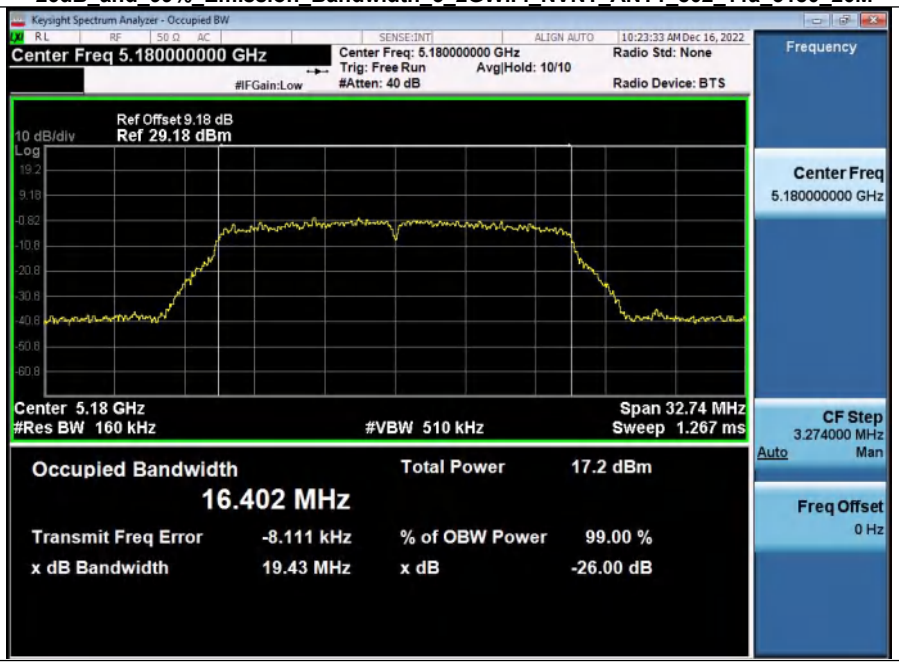
11.APPENDIX1---5.1GWIFI

11.1. -26dB and 99% Emission Bandwidth

Condition	Antenna	Modulation	Frequency(MHz)	-26dB_Emission_Bandwidth(MHz)	Occupied Bandwidth(MHz)
NVNT	ANT1	802.11a	5180.00	19.43	16.40
NVNT	ANT1	802.11a	5200.00	19.14	16.39
NVNT	ANT1	802.11a	5240.00	19.08	16.36
NVNT	ANT1	802.11n(HT20)	5180.00	19.16	16.37
NVNT	ANT1	802.11n(HT20)	5200.00	19.14	16.36
NVNT	ANT1	802.11n(HT20)	5240.00	19.30	16.38
NVNT	ANT1	802.11ac(VHT20)	5180.00	18.99	16.36
NVNT	ANT1	802.11ac(VHT20)	5200.00	19.27	16.38
NVNT	ANT1	802.11ac(VHT20)	5240.00	19.34	16.35
NVNT	ANT1	802.11n(HT40)	5190.00	40.26	35.98
NVNT	ANT1	802.11n(HT40)	5230.00	39.93	36.02
NVNT	ANT1	802.11ac(VHT40)	5190.00	40.78	36.13
NVNT	ANT1	802.11ac(VHT40)	5230.00	40.55	36.17
NVNT	ANT1	802.11ac(VHT80)	5210.00	81.79	75.97

Condition	Antenna	Modulation	Frequency(MHz)	-26dB_Emission_Bandwidth(MHz)	Occupied Bandwidth(MHz)
NVNT	ANT2	802.11a	5180.00	19.14	16.36
NVNT	ANT2	802.11a	5200.00	19.12	16.35
NVNT	ANT2	802.11a	5240.00	19.17	16.36
NVNT	ANT2	802.11n(HT20)	5180.00	19.72	17.51
NVNT	ANT2	802.11n(HT20)	5200.00	19.55	17.53
NVNT	ANT2	802.11n(HT20)	5240.00	19.66	17.49
NVNT	ANT2	802.11ac(VHT20)	5180.00	20.06	17.63
NVNT	ANT2	802.11ac(VHT20)	5200.00	20.00	17.60
NVNT	ANT2	802.11ac(VHT20)	5240.00	20.06	17.62
NVNT	ANT2	802.11n(HT40)	5190.00	39.95	36.04
NVNT	ANT2	802.11n(HT40)	5230.00	40.38	36.04
NVNT	ANT2	802.11ac(VHT40)	5190.00	40.57	36.10
NVNT	ANT2	802.11ac(VHT40)	5230.00	40.61	36.17
NVNT	ANT2	802.11ac(VHT80)	5210.00	82.04	76.08

-26dB_and_99%_Emission_Bandwidth_5_2GWiFi_NVNT_ANT1_802_11a_5180_20M



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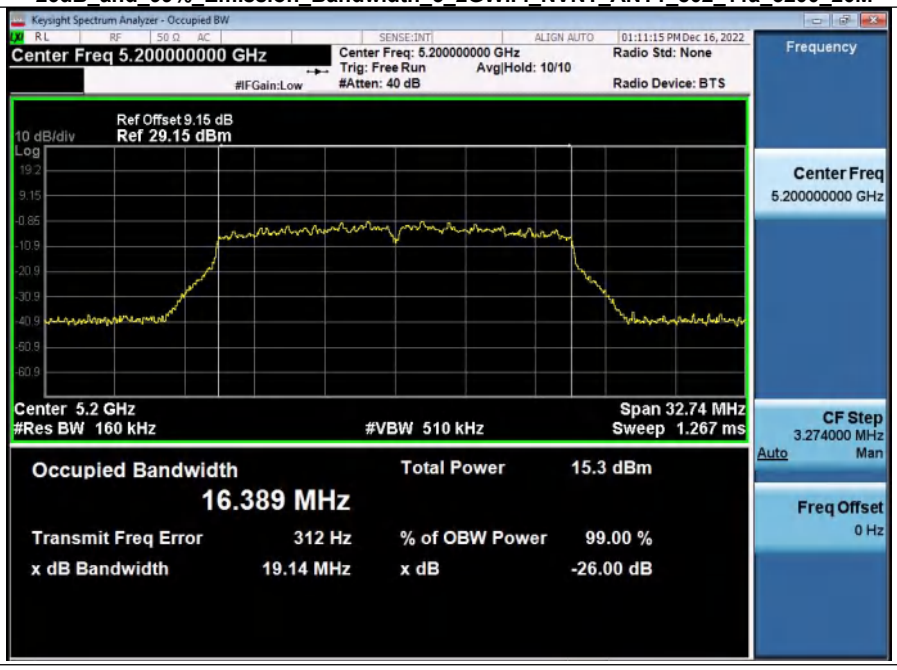

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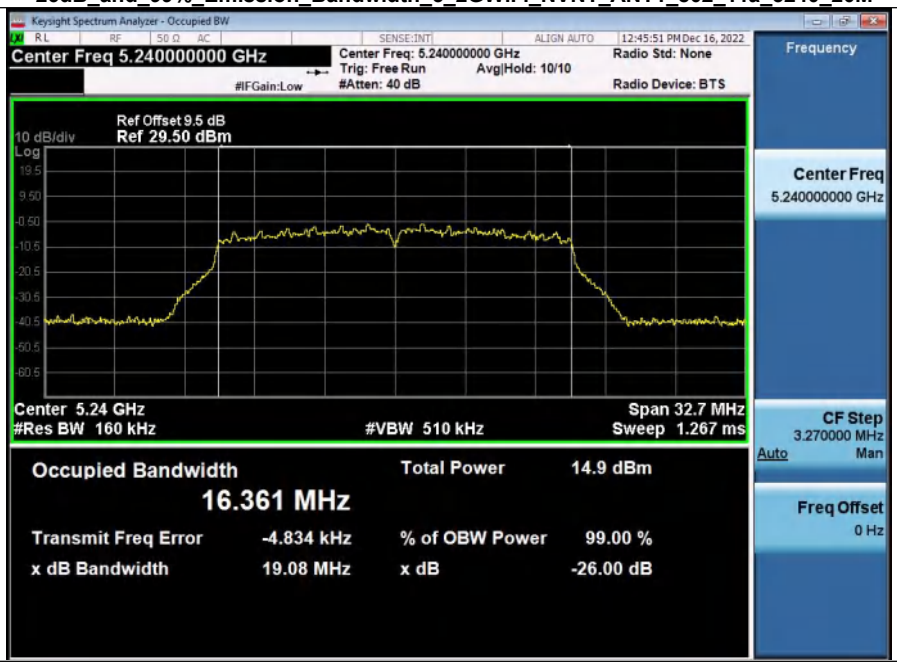
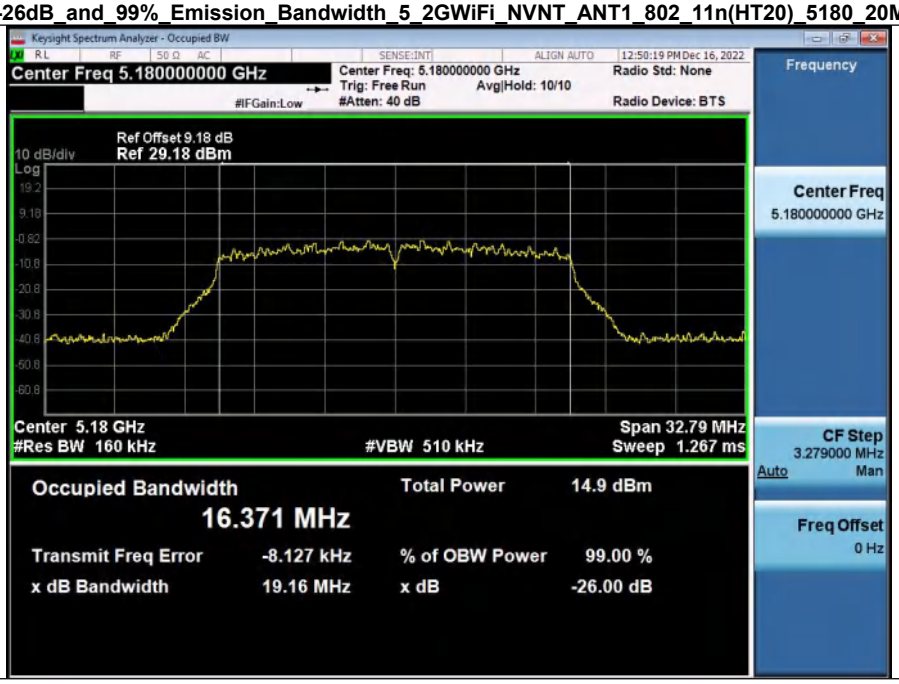
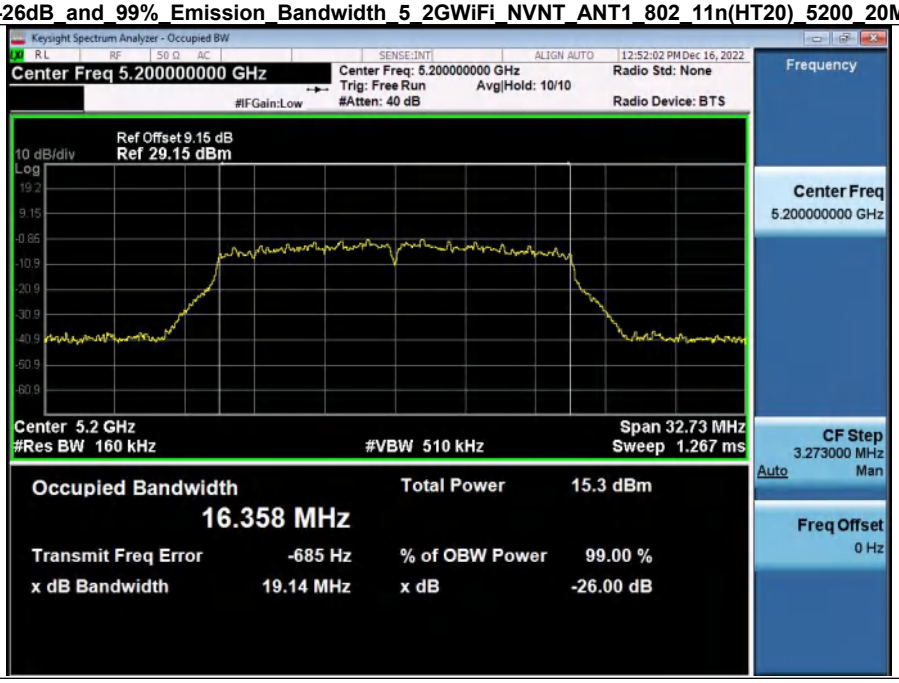


-26dB_and_99%_Emission_Bandwidth_5_2GWiFi_NVNT_ANT1_802_11n(HT20)_5180_20M



-26dB_and_99%_Emission_Bandwidth_5_2GWiFi_NVNT_ANT1_802_11n(HT20)_5200_20M



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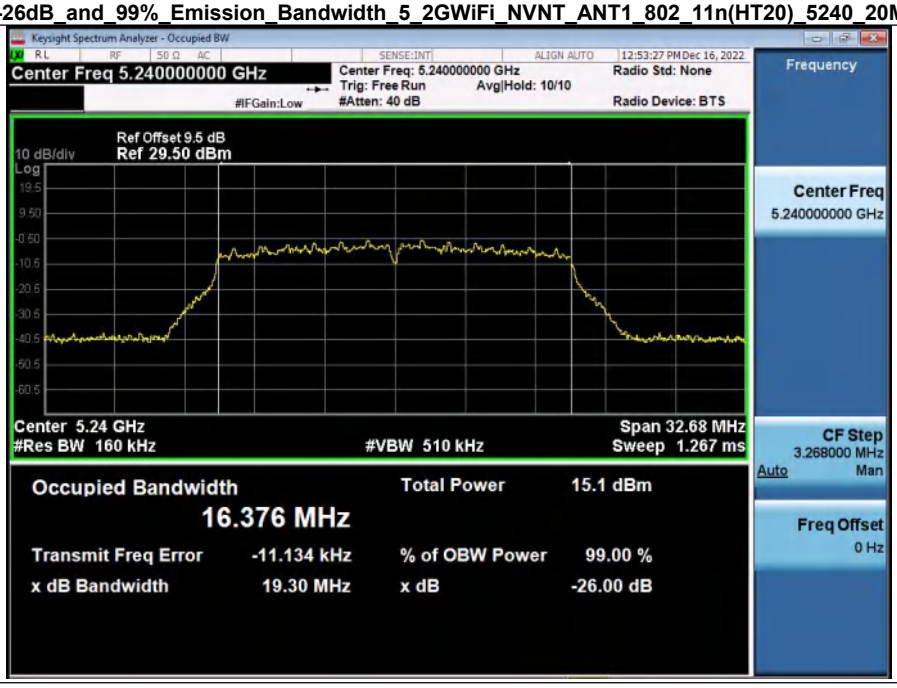
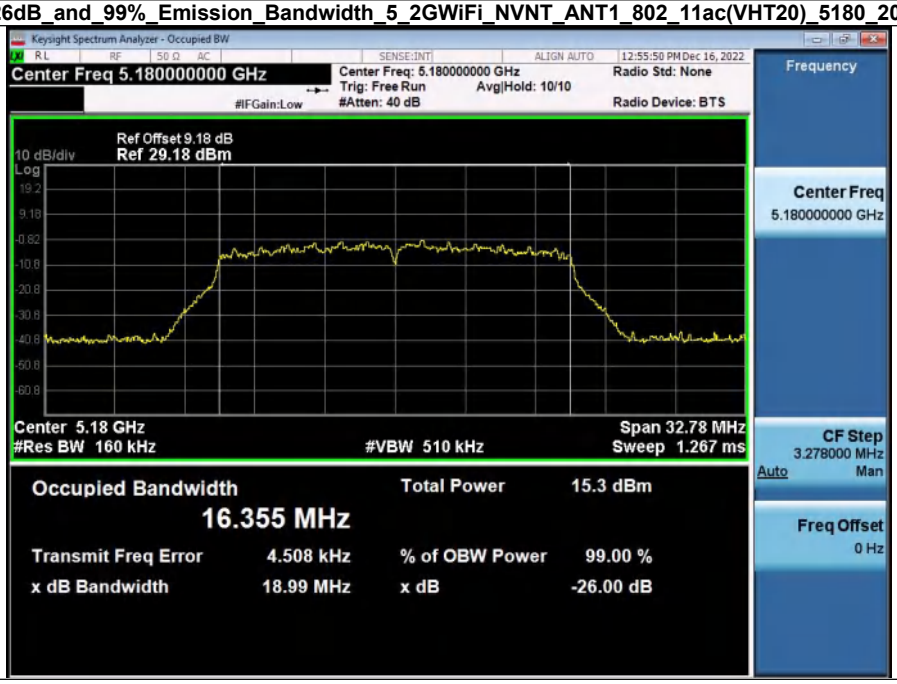


-26dB_and_99%_Emission_Bandwidth_5_2GWiFi_NVNT_ANT1_802_11ac(VHT20)_5180_20M



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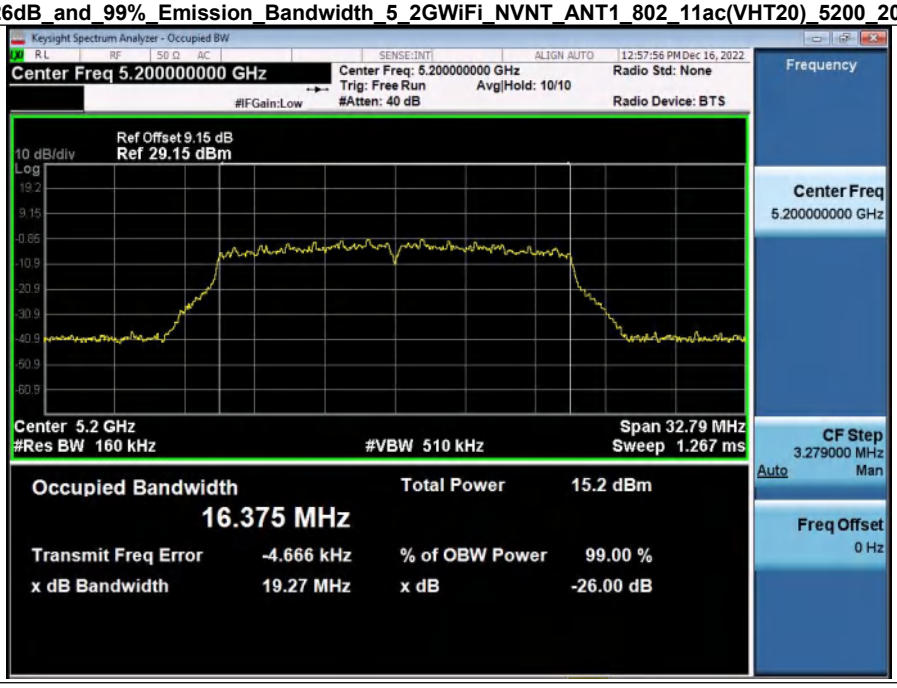
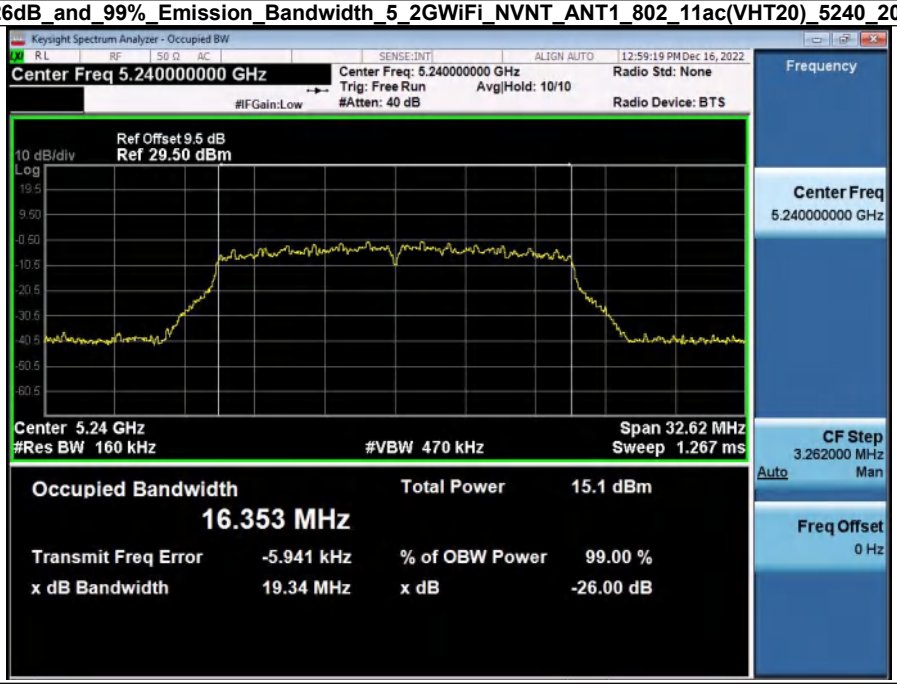
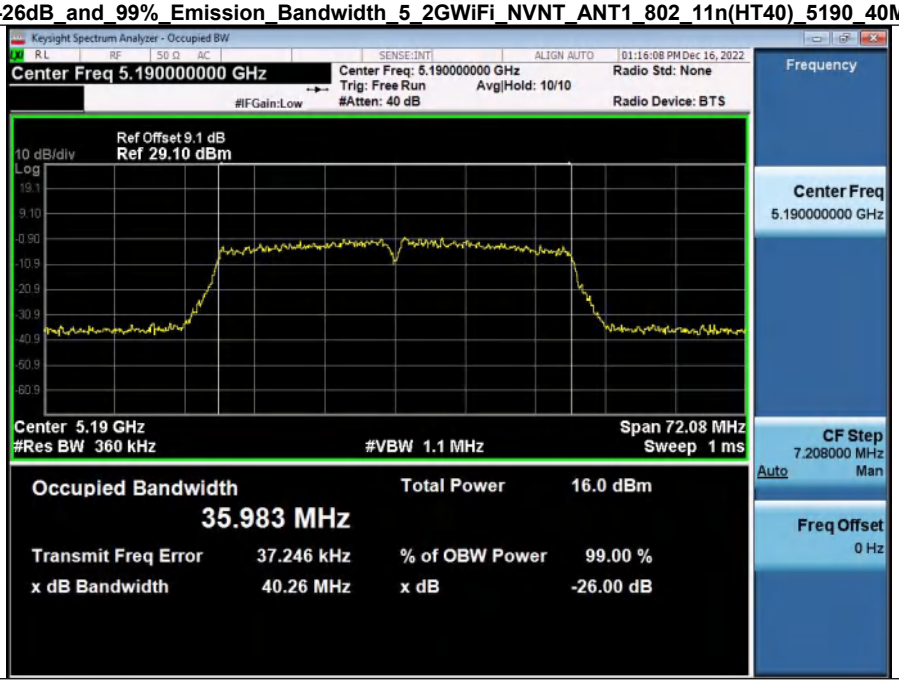


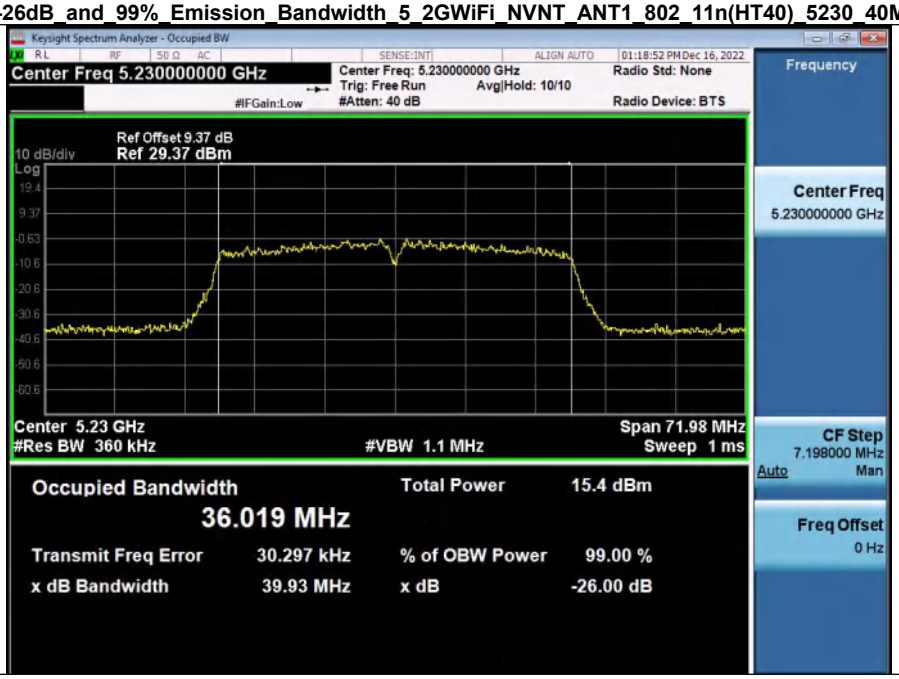
-26dB_and_99%_Emission_Bandwidth_5_2GWiFi_NVNT_ANT1_802_11ac(VHT20)_5240_20M



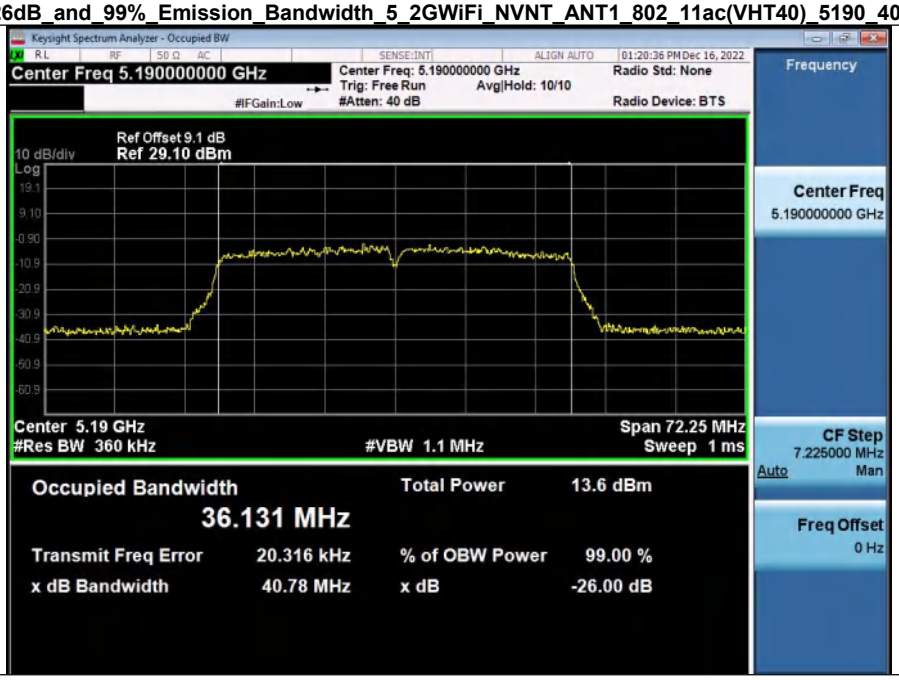
-26dB_and_99%_Emission_Bandwidth_5_2GWiFi_NVNT_ANT1_802_11n(HT40)_5190_40M



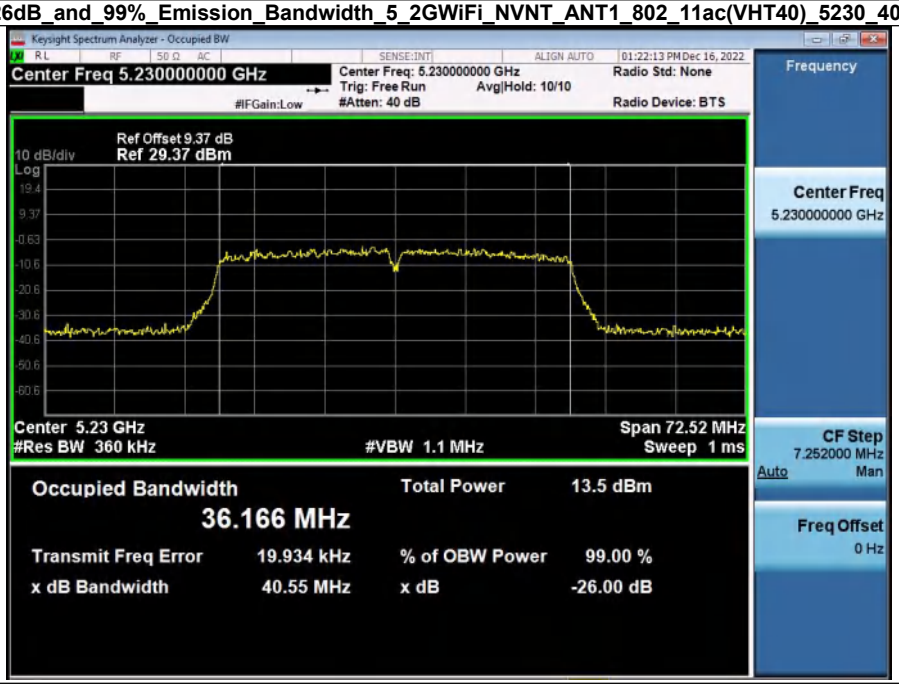
-26dB_and_99%_Emission_Bandwidth_5_2GWiFi_NVNT_ANT1_802_11n(HT40)_5230_40M



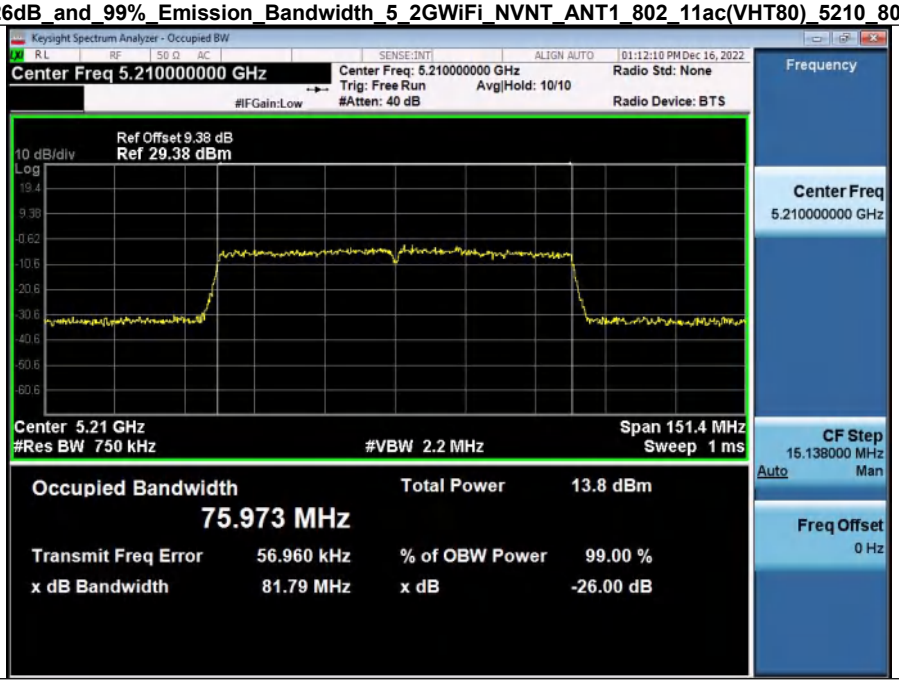
-26dB_and_99%_Emission_Bandwidth_5_2GWiFi_NVNT_ANT1_802_11ac(VHT40)_5190_40M



-26dB_and_99%_Emission_Bandwidth_5_2GWiFi_NVNT_ANT1_802_11ac(VHT40)_5230_40M

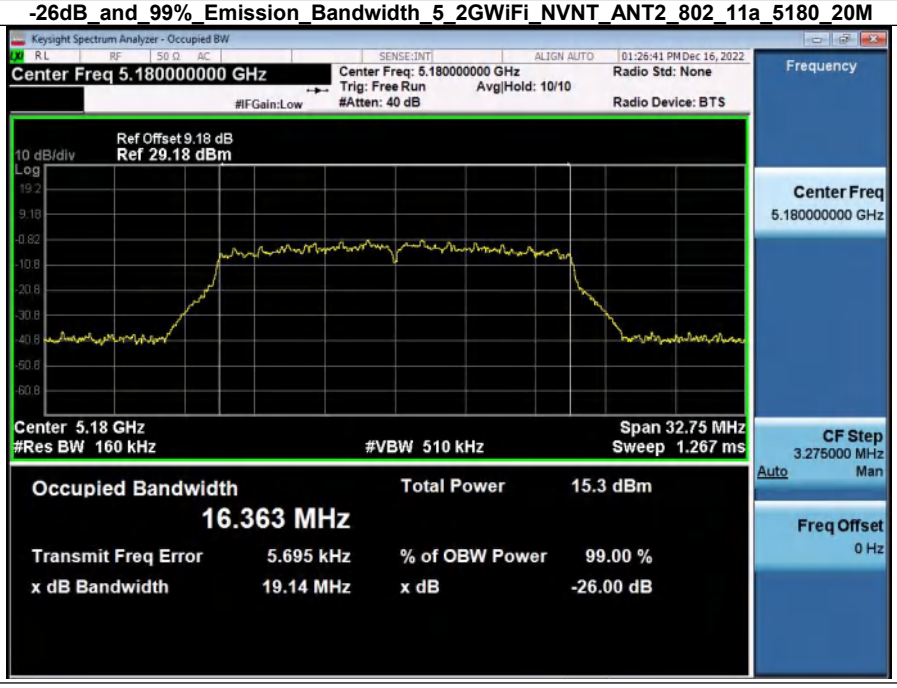


-26dB_and_99%_Emission_Bandwidth_5_2GWiFi_NVNT_ANT1_802_11ac(VHT80)_5210_80M

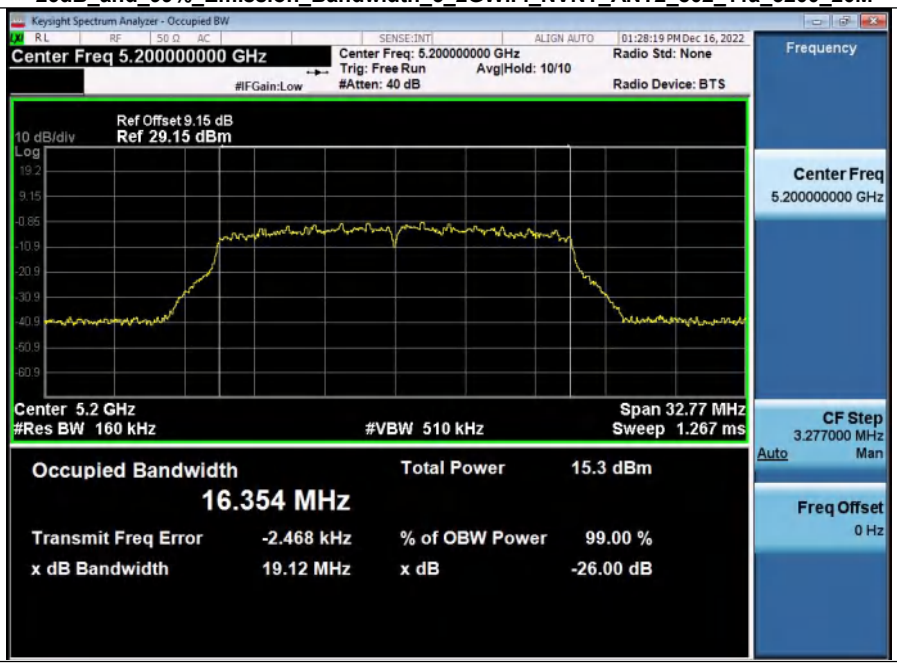


ANT2

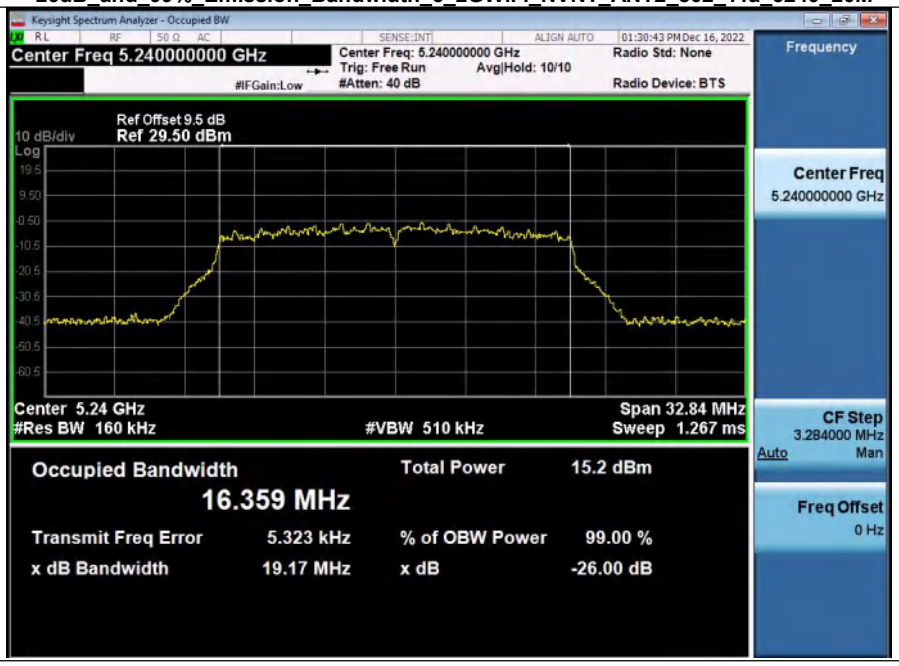
-26dB_and_99%_Emission_Bandwidth_5_2GWiFi_NVNT_ANT2_802_11a_5180_20M



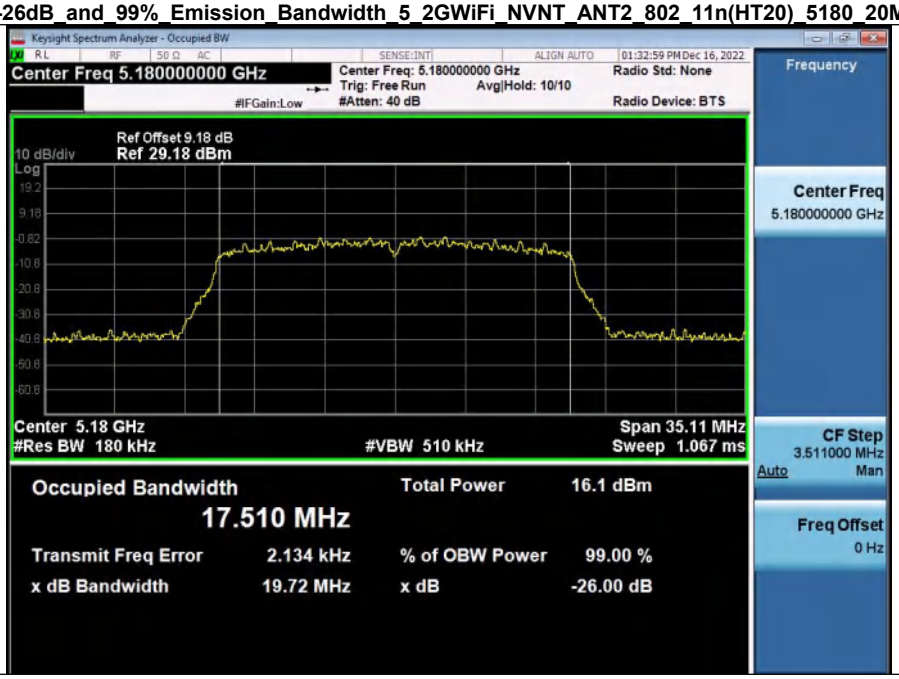
-26dB_and_99%_Emission_Bandwidth_5_2GWiFi_NVNT_ANT2_802_11a_5200_20M



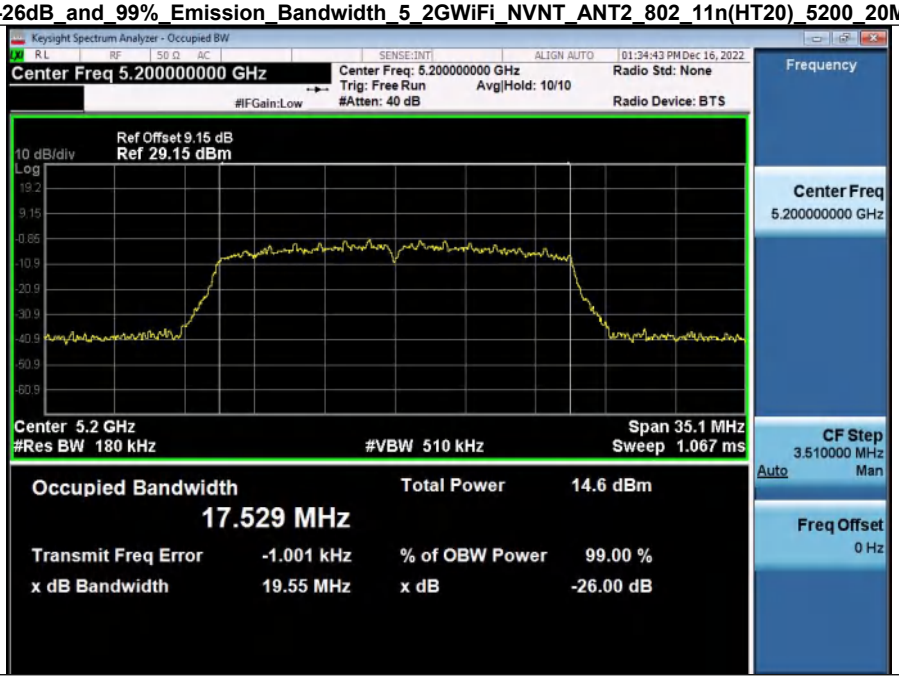
-26dB_and_99%_Emission_Bandwidth_5_2GWiFi_NVNT_ANT2_802_11a_5240_20M



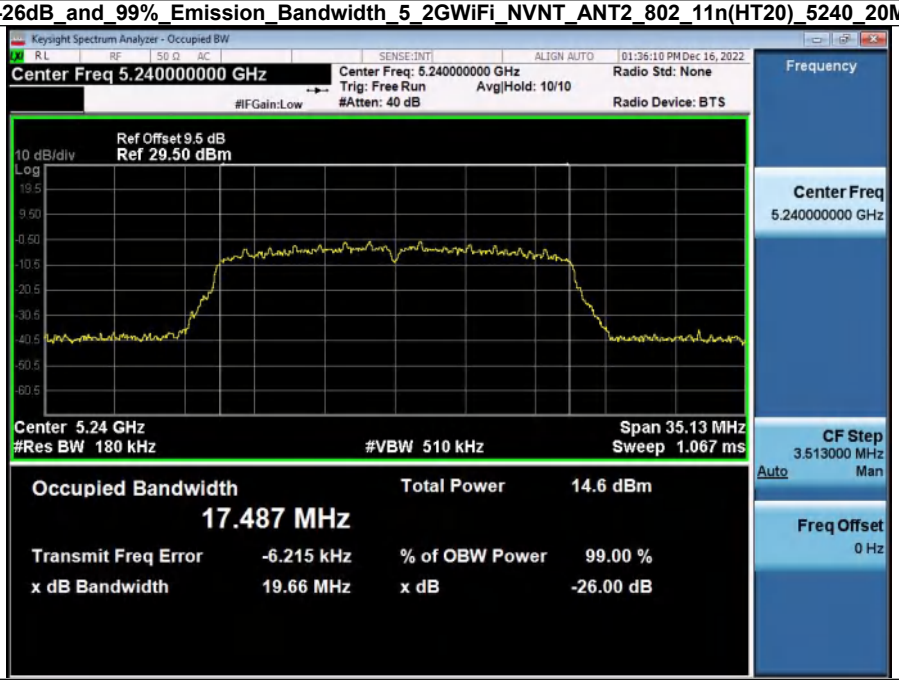
-26dB_and_99%_Emission_Bandwidth_5_2GWiFi_NVNT_ANT2_802_11n(HT20)_5180_20M



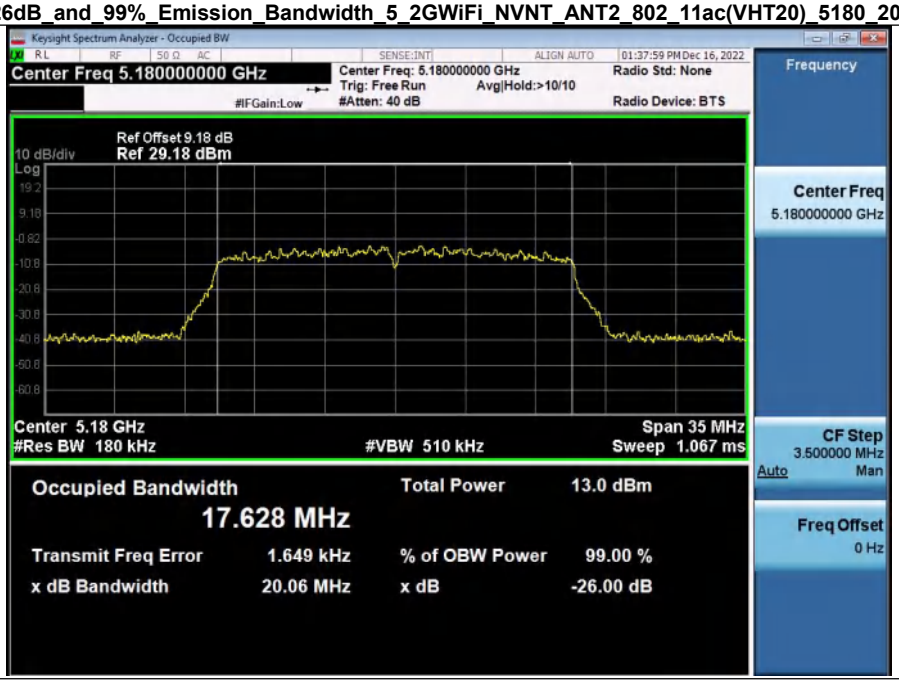
-26dB_and_99%_Emission_Bandwidth_5_2GWiFi_NVNT_ANT2_802_11n(HT20)_5200_20M



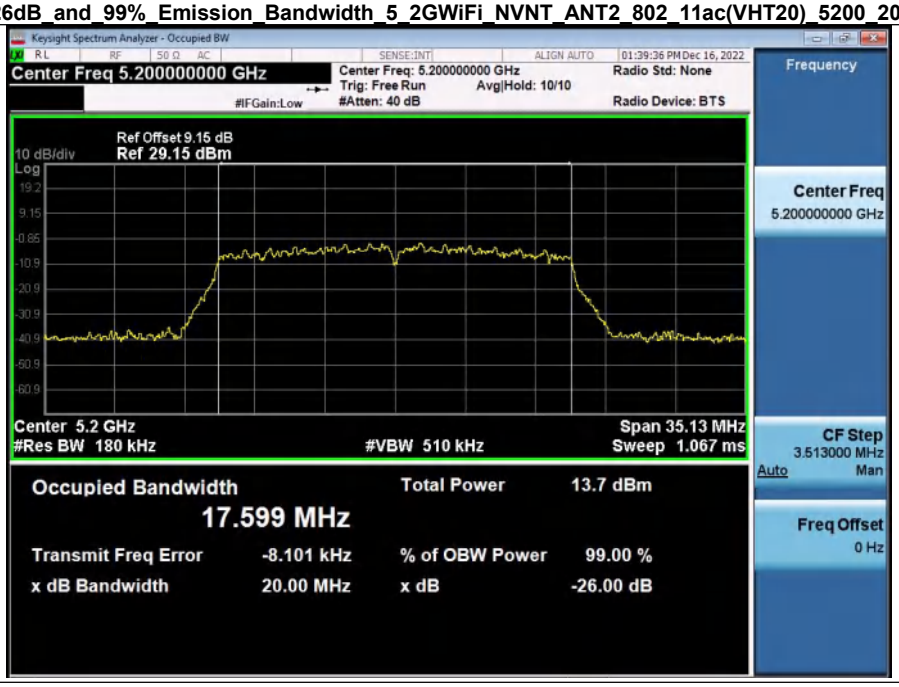
-26dB_and_99%_Emission_Bandwidth_5_2GWiFi_NVNT_ANT2_802_11n(HT20)_5240_20M



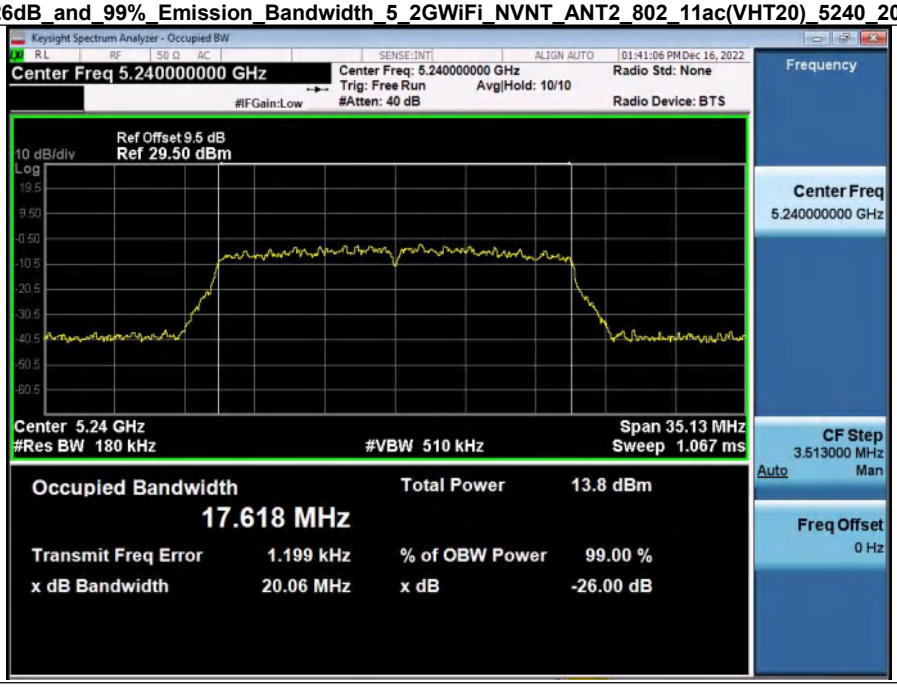
-26dB_and_99%_Emission_Bandwidth_5_2GWiFi_NVNT_ANT2_802_11ac(VHT20)_5180_20M



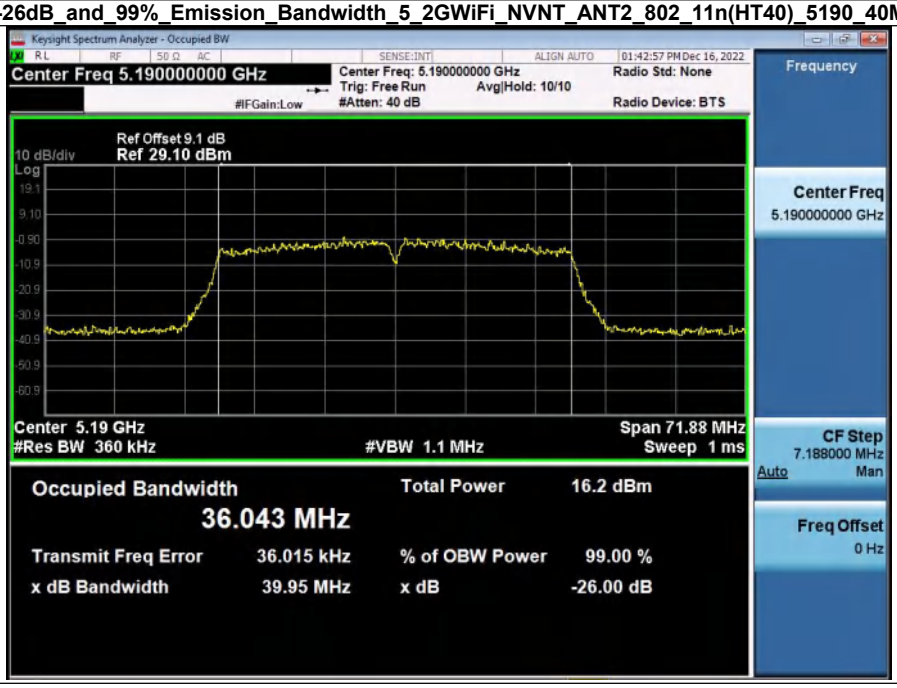
-26dB_and_99%_Emission_Bandwidth_5_2GWiFi_NVNT_ANT2_802_11ac(VHT20)_5200_20M



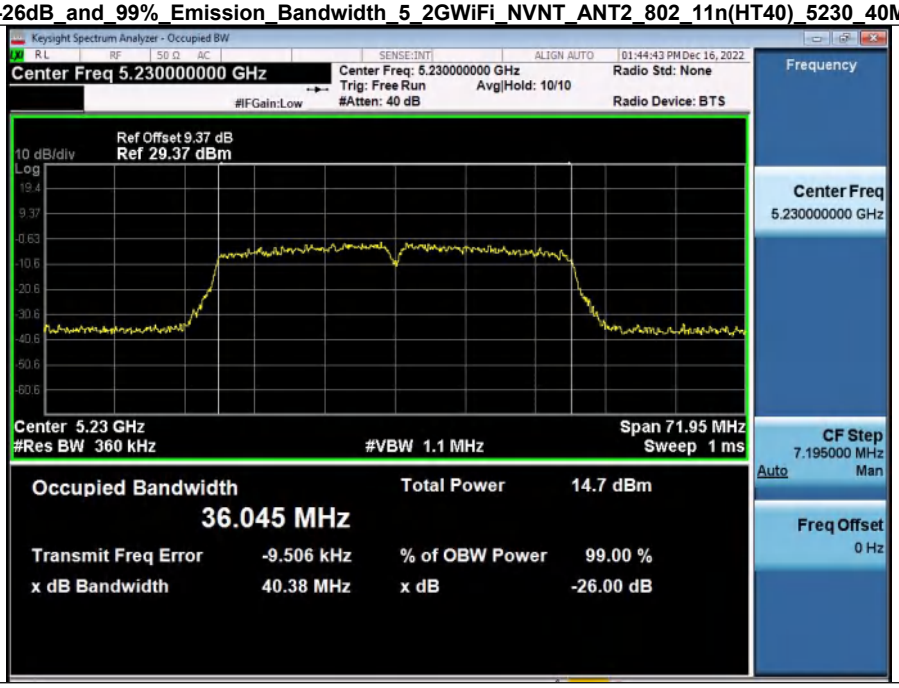
-26dB_and_99%_Emission_Bandwidth_5_2GWiFi_NVNT_ANT2_802_11ac(VHT20)_5240_20M



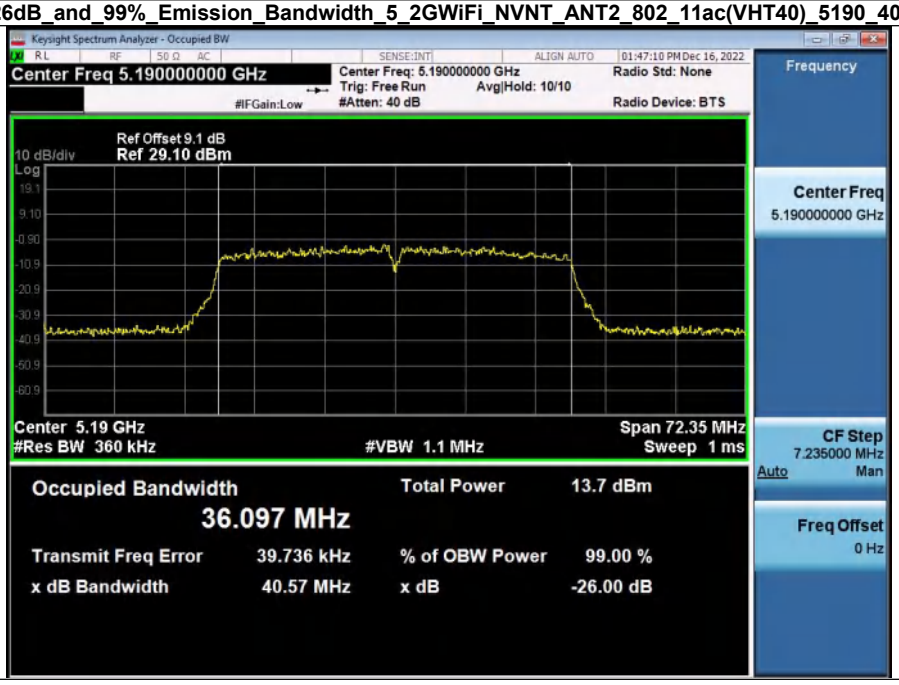
-26dB_and_99%_Emission_Bandwidth_5_2GWiFi_NVNT_ANT2_802_11n(HT40)_5190_40M



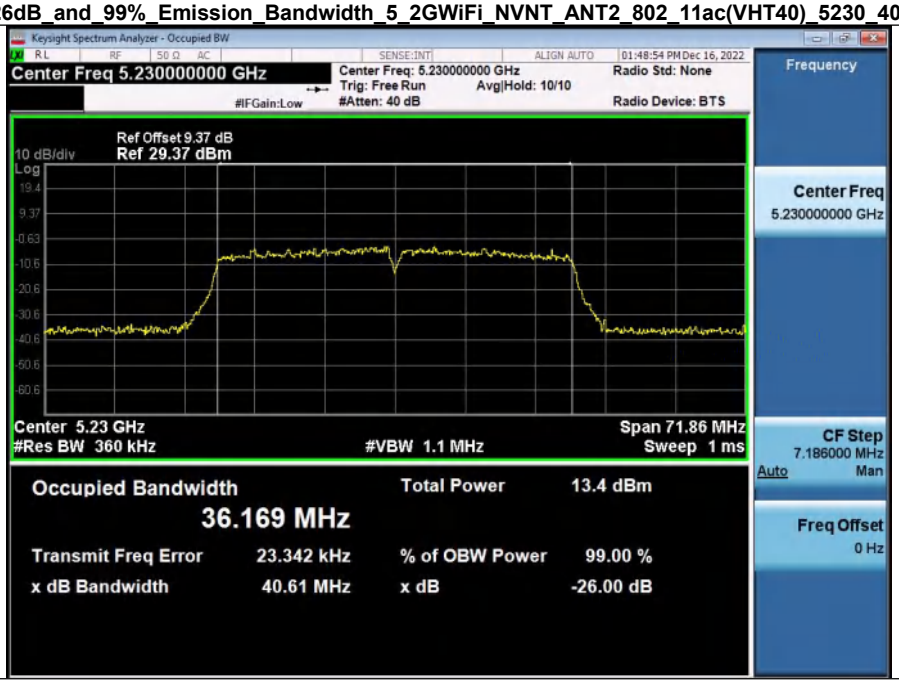
-26dB_and_99%_Emission_Bandwidth_5_2GWiFi_NVNT_ANT2_802_11n(HT40)_5230_40M



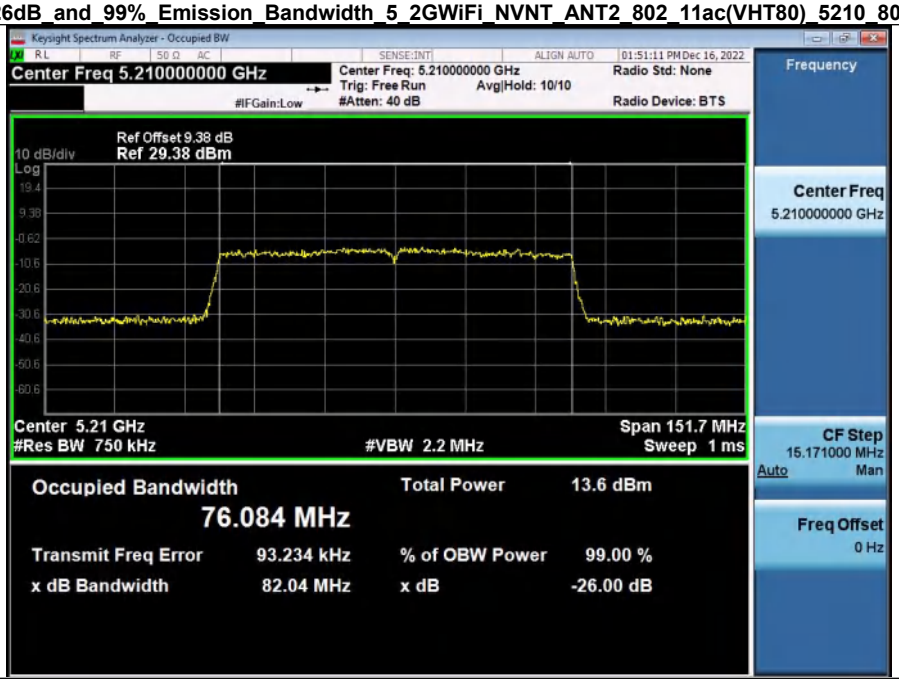
-26dB_and_99%_Emission_Bandwidth_5_2GWiFi_NVNT_ANT2_802_11ac(VHT40)_5190_40M



-26dB_and_99%_Emission_Bandwidth_5_2GWiFi_NVNT_ANT2_802_11ac(VHT40)_5230_40M



-26dB_and_99%_Emission_Bandwidth_5_2GWiFi_NVNT_ANT2_802_11ac(VHT80)_5210_80M



11.2. Maximum Conducted Output Power

Condition	Modulation	Frequency (MHz)	Conducted Power(dBm)		Conducted Power(dBm) MIMO	limit(dBm)	Result
			ANT1	ANT2			
NVNT	802.11a	5180.00	15.10	13.90	/	24	Pass
NVNT	802.11a	5200.00	13.51	13.97	/	24	Pass
NVNT	802.11a	5240.00	13.73	13.76	/	24	Pass
NVNT	802.11n(HT20)	5180.00	14.54	14.14	16.35	24	Pass
NVNT	802.11n(HT20)	5200.00	13.81	13.11	16.48	24	Pass
NVNT	802.11n(HT20)	5240.00	13.75	13.02	16.41	24	Pass
NVNT	802.11ac(VHT20)	5180.00	13.95	11.26	15.82	24	Pass
NVNT	802.11ac(VHT20)	5200.00	13.95	12.21	16.18	24	Pass
NVNT	802.11ac(VHT20)	5240.00	13.83	12.13	16.07	24	Pass
NVNT	802.11n(HT40)	5190.00	13.57	13.75	17.19	24	Pass
NVNT	802.11n(HT40)	5230.00	12.80	12.86	15.84	24	Pass
NVNT	802.11ac(VHT40)	5190.00	12.29	12.29	15.30	24	Pass
NVNT	802.11ac(VHT40)	5230.00	12.04	12.19	15.13	24	Pass
NVNT	802.11ac(VHT80)	5210.00	12.10	12.11	15.12	24	Pass

11.3. Power Spectral Density

Condition	Modulation	Frequency (MHz)	PSD(dBm)		PSD(dBm) MIMO	limit(dBm)	Result
			ANT1	ANT2			
NVNT	802.11a	5180.00	5.508	4.506	/	11	Pass
NVNT	802.11a	5200.00	4.630	4.102	/	11	Pass
NVNT	802.11a	5240.00	4.464	4.684	/	11	Pass
NVNT	802.11n(HT20)	5180.00	4.525	3.129	6.89	11	Pass
NVNT	802.11n(HT20)	5200.00	4.695	3.397	7.10	11	Pass
NVNT	802.11n(HT20)	5240.00	4.112	4.347	7.24	11	Pass
NVNT	802.11ac(VHT20)	5180.00	4.585	1.790	6.42	11	Pass
NVNT	802.11ac(VHT20)	5200.00	4.484	2.972	6.80	11	Pass
NVNT	802.11ac(VHT20)	5240.00	4.778	2.511	6.80	11	Pass
NVNT	802.11n(HT40)	5190.00	1.645	-0.072	3.88	11	Pass
NVNT	802.11n(HT40)	5230.00	0.412	0.645	3.54	11	Pass
NVNT	802.11ac(VHT40)	5190.00	-0.752	-0.462	2.41	11	Pass
NVNT	802.11ac(VHT40)	5230.00	-0.990	-0.974	2.03	11	Pass
NVNT	802.11ac(VHT80)	5210.00	-4.675	-4.240	-1.44	11	Pass

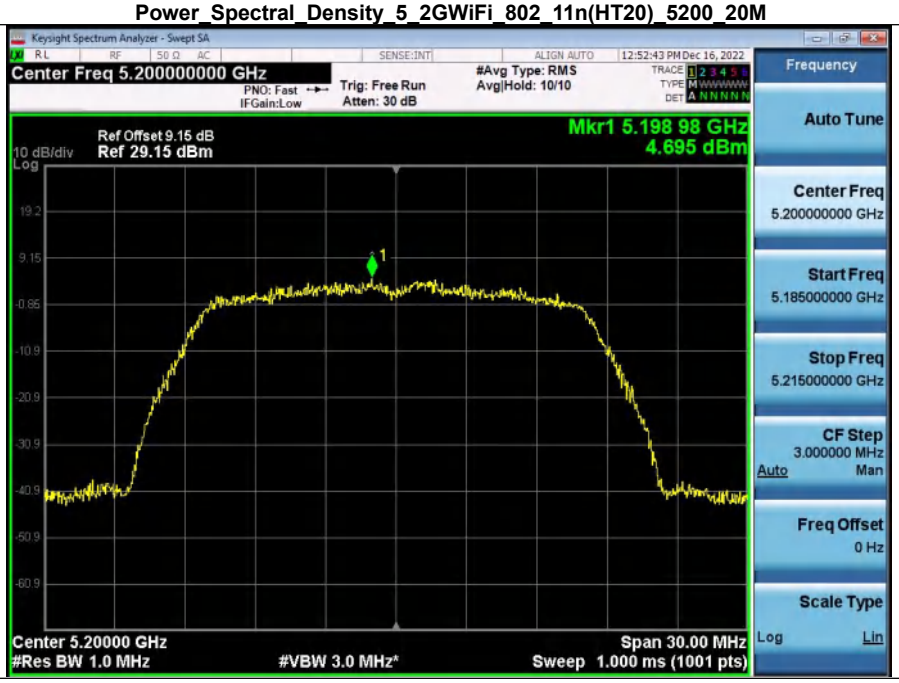
Power_Spectral_Density_5_2GWiFi_802_11a_5180_20M

Power_Spectral_Density_5_2GWiFi_802_11a_5200_20M

Power_Spectral_Density_5_2GWiFi_802_11a_5240_20M

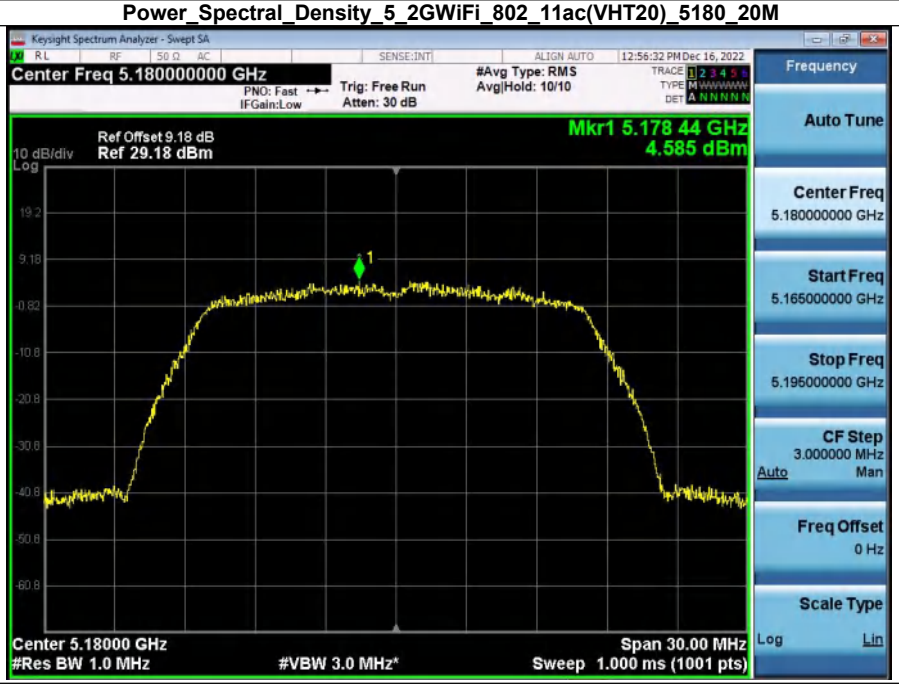
Power_Spectral_Density_5_2GWiFi_802_11n(HT20)_5180_20M

Power_Spectral_Density_5_2GWiFi_802_11n(HT20)_5200_20M

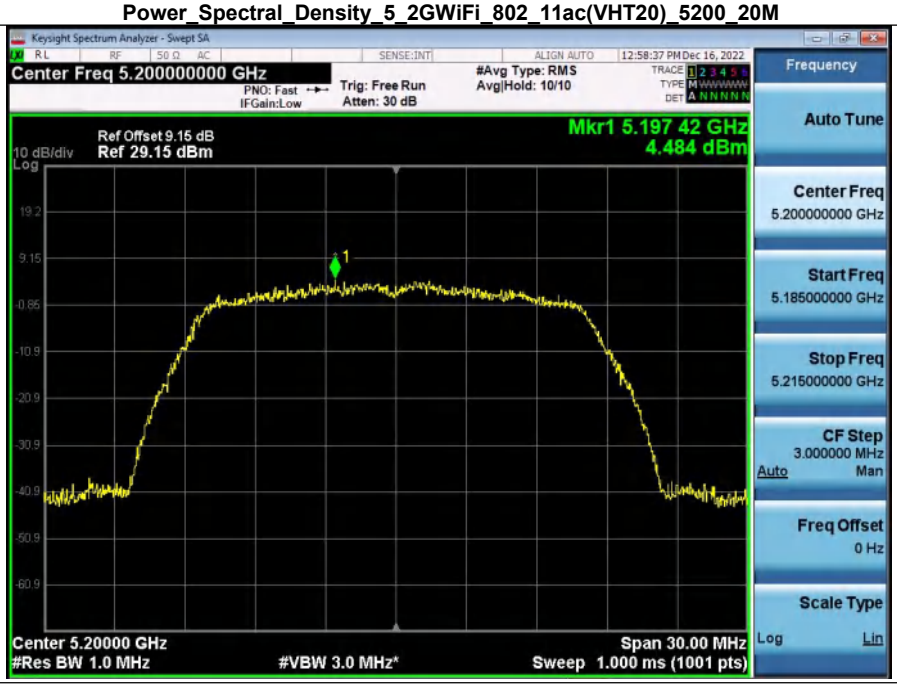


Power_Spectral_Density_5_2GWiFi_802_11n(HT20)_5240_20M

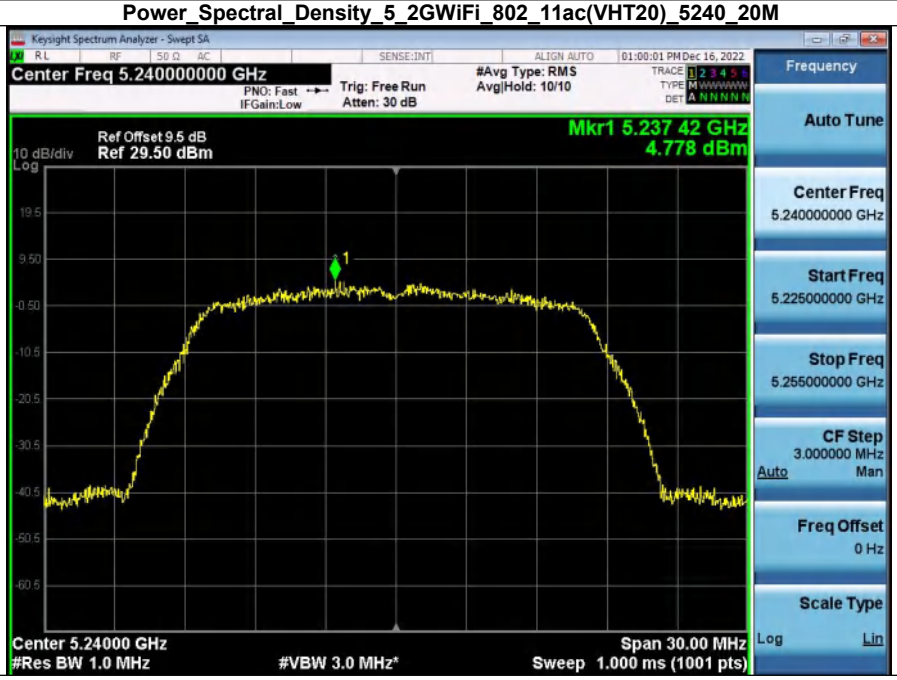
Power_Spectral_Density_5_2GWiFi_802_11ac(VHT20)_5180_20M



Power_Spectral_Density_5_2GWiFi_802_11ac(VHT20)_5200_20M



Power_Spectral_Density_5_2GWiFi_802_11ac(VHT20)_5240_20M



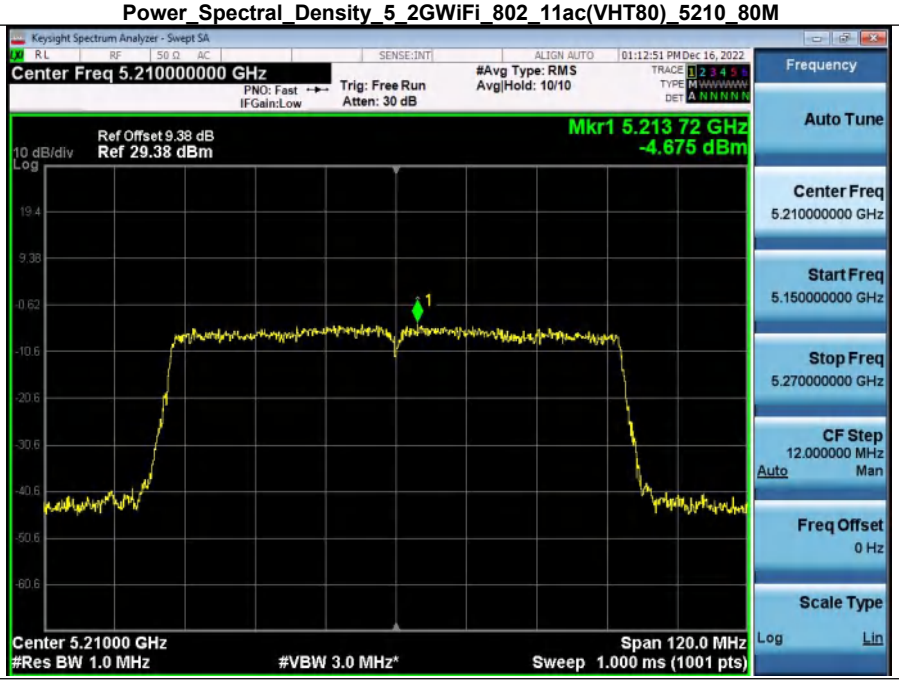
Power_Spectral_Density_5_2GWiFi_802_11n(HT40)_5190_40M

Power_Spectral_Density_5_2GWiFi_802_11n(HT40)_5230_40M

Power_Spectral_Density_5_2GWiFi_802_11ac(VHT40)_5190_40M

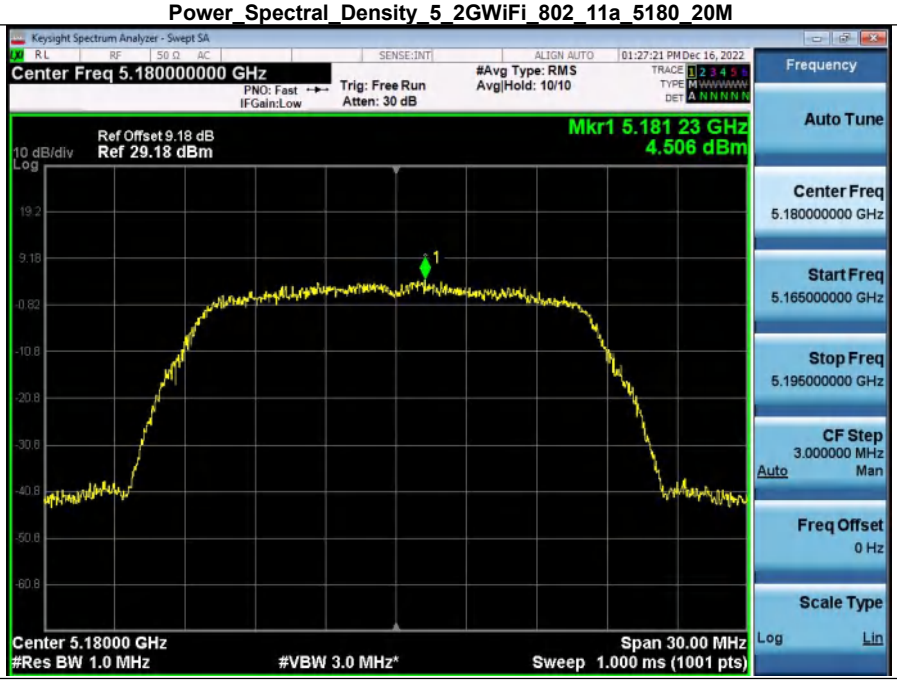
Power_Spectral_Density_5_2GWiFi_802_11ac(VHT40)_5230_40M

Power_Spectral_Density_5_2GWiFi_802_11ac(VHT80)_5210_80M



ANT2

Power_Spectral_Density_5_2GWiFi_802_11a_5180_20M



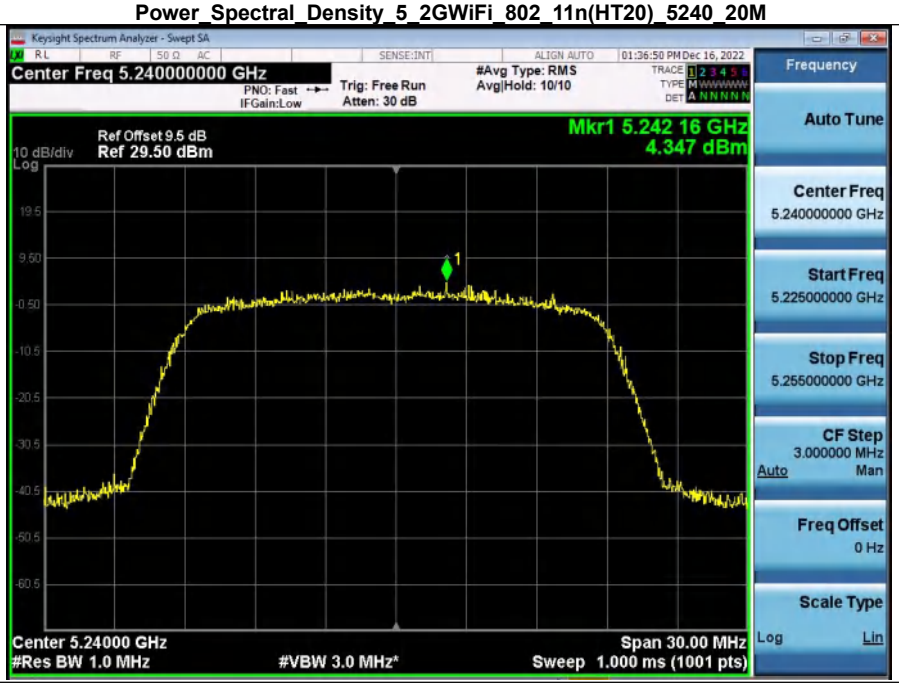
Power_Spectral_Density_5_2GWiFi_802_11a_5200_20M

Power_Spectral_Density_5_2GWiFi_802_11a_5240_20M

Power_Spectral_Density_5_2GWiFi_802_11n(HT20)_5180_20M

Power_Spectral_Density_5_2GWiFi_802_11n(HT20)_5200_20M

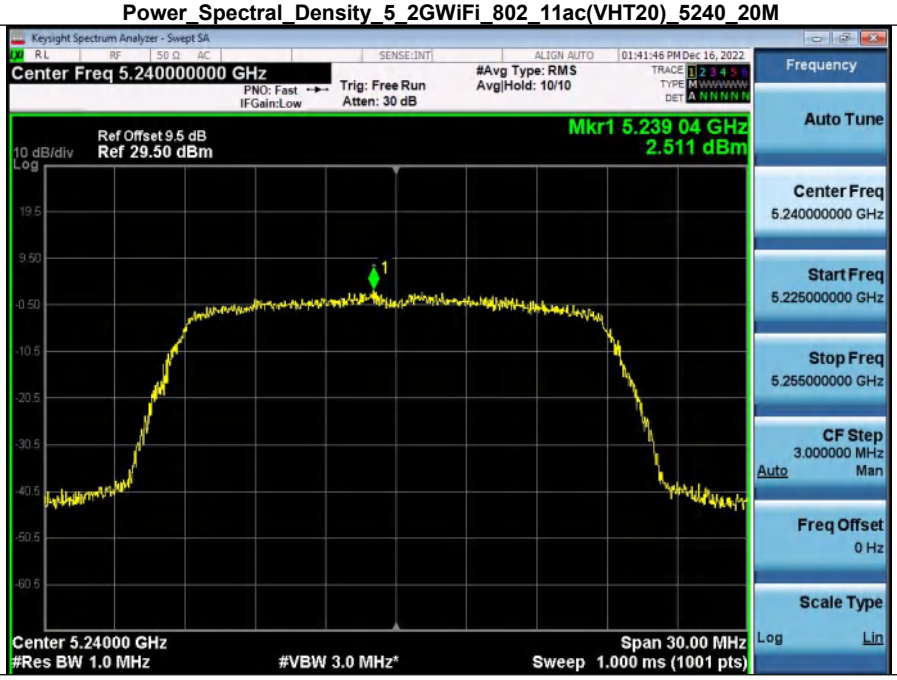
Power_Spectral_Density_5_2GWiFi_802_11n(HT20)_5240_20M



Power_Spectral_Density_5_2GWiFi_802_11ac(VHT20)_5180_20M

Power_Spectral_Density_5_2GWiFi_802_11ac(VHT20)_5200_20M

Power_Spectral_Density_5_2GWiFi_802_11ac(VHT20)_5240_20M



Power_Spectral_Density_5_2GWiFi_802_11n(HT40)_5190_40M

Power_Spectral_Density_5_2GWiFi_802_11n(HT40)_5230_40M

Power_Spectral_Density_5_2GWiFi_802_11ac(VHT40)_5190_40M

Power_Spectral_Density_5_2GWiFi_802_11ac(VHT40)_5230_40M

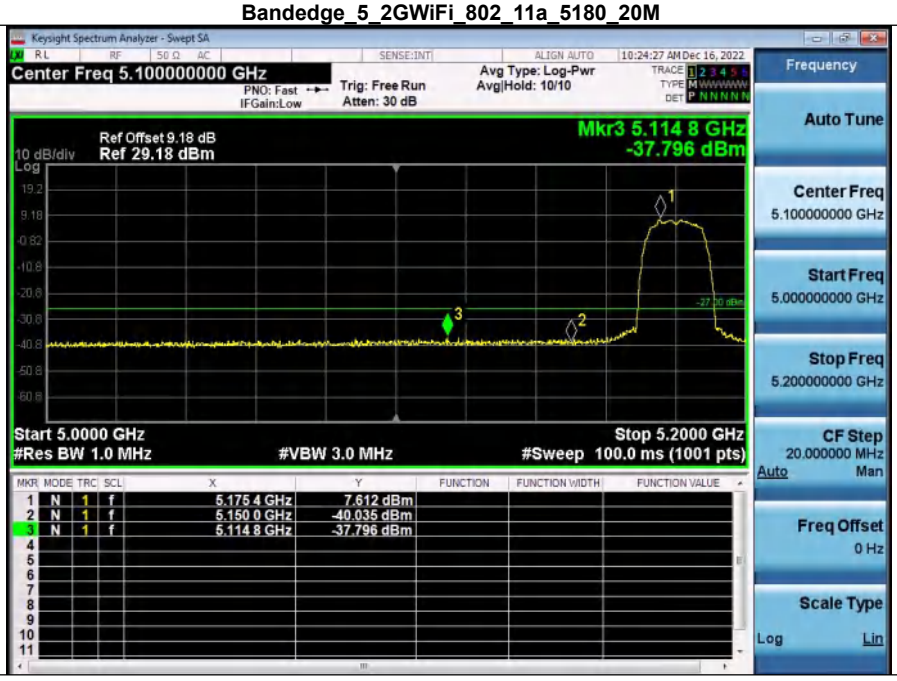
Power_Spectral_Density_5_2GWiFi_802_11ac(VHT80)_5210_80M

11.4. Bandedge

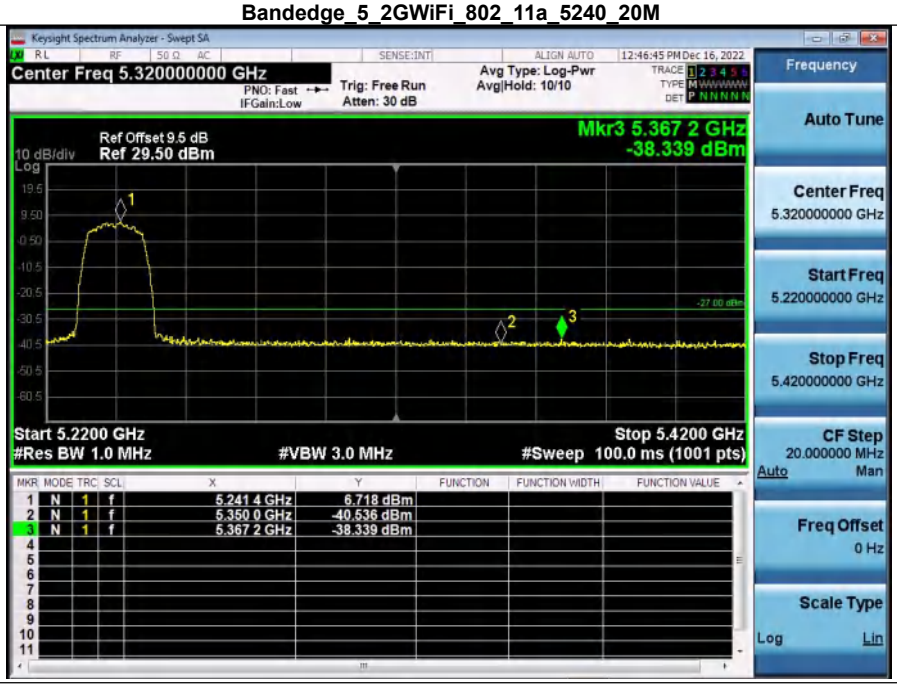
Condition	Antenna	Modulation	TX_Frequency (MHz)	Max. Mark Frequency(MHz)	Spurious level(dBm)	limit(dBm)	Result
NVNT	ANT1	802.11a	5180.00	5114.80	-37.80	-27	Pass
NVNT	ANT1	802.11a	5240.00	5367.20	-38.34	-27	Pass
NVNT	ANT1	802.11n(HT20)	5180.00	5105.40	-38.68	-27	Pass
NVNT	ANT1	802.11n(HT20)	5240.00	5365.20	-38.80	-27	Pass
NVNT	ANT1	802.11ac(VHT20)	5180.00	5098.40	-38.20	-27	Pass
NVNT	ANT1	802.11ac(VHT20)	5240.00	5353.20	-38.36	-27	Pass
NVNT	ANT1	802.11n(HT40)	5190.00	5108.02	-37.42	-27	Pass
NVNT	ANT1	802.11n(HT40)	5230.00	5357.40	-38.91	-27	Pass
NVNT	ANT1	802.11ac(VHT40)	5190.00	5135.74	-37.62	-27	Pass
NVNT	ANT1	802.11ac(VHT40)	5230.00	5355.80	-38.24	-27	Pass
NVNT	ANT1	802.11ac(VHT80)	5210.00	5141.54	-37.98	-27	Pass
NVNT	ANT1	802.11ac(VHT80)	5210.00	5385.98	-38.69	-27	Pass

Condition	Antenna	Modulation	TX_Frequency (MHz)	Max. Mark Frequency(MHz)	Spurious level(dBm)	limit(dBm)	Result
NVNT	ANT2	802.11a	5180.00	5149.20	-38.02	-27	Pass
NVNT	ANT2	802.11a	5240.00	5359.60	-38.37	-27	Pass
NVNT	ANT2	802.11n(HT20)	5180.00	5145.80	-37.89	-27	Pass
NVNT	ANT2	802.11n(HT20)	5240.00	5355.60	-38.59	-27	Pass
NVNT	ANT2	802.11ac(VHT20)	5180.00	5115.00	-38.53	-27	Pass
NVNT	ANT2	802.11ac(VHT20)	5240.00	5352.20	-38.55	-27	Pass
NVNT	ANT2	802.11n(HT40)	5190.00	5096.58	-37.53	-27	Pass
NVNT	ANT2	802.11n(HT40)	5230.00	5394.00	-38.66	-27	Pass
NVNT	ANT2	802.11ac(VHT40)	5190.00	5132.66	-37.82	-27	Pass
NVNT	ANT2	802.11ac(VHT40)	5230.00	5355.40	-38.96	-27	Pass
NVNT	ANT2	802.11ac(VHT80)	5210.00	5107.10	-38.49	-27	Pass
NVNT	ANT2	802.11ac(VHT80)	5210.00	5357.84	-39.09	-27	Pass

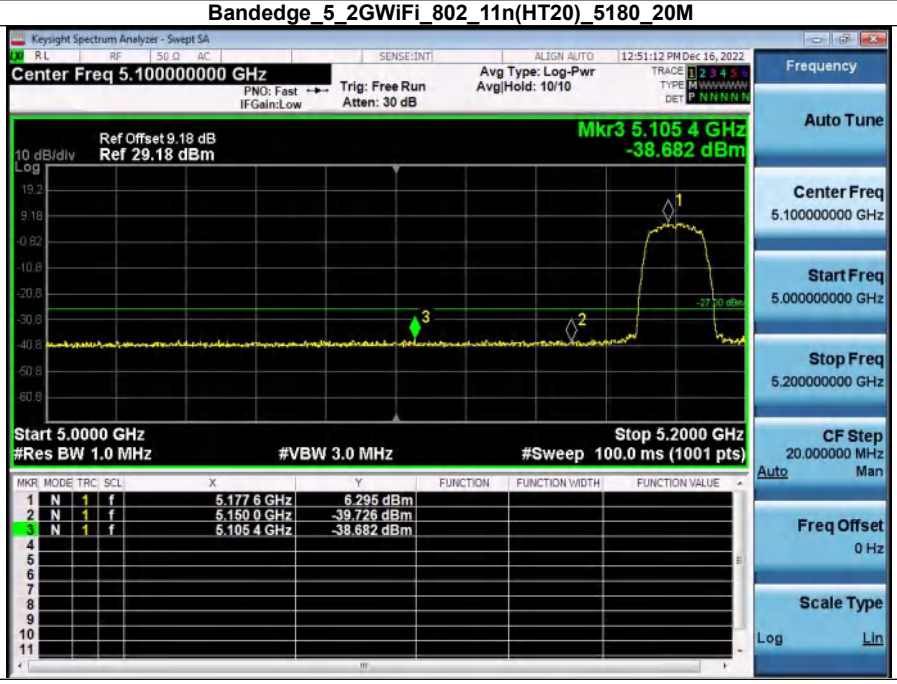
Bandedge_5_2GWiFi_802_11a_5180_20M



Bandedge_5_2GWiFi_802_11a_5240_20M



Bandedge_5_2GWiFi_802_11n(HT20)_5180_20M



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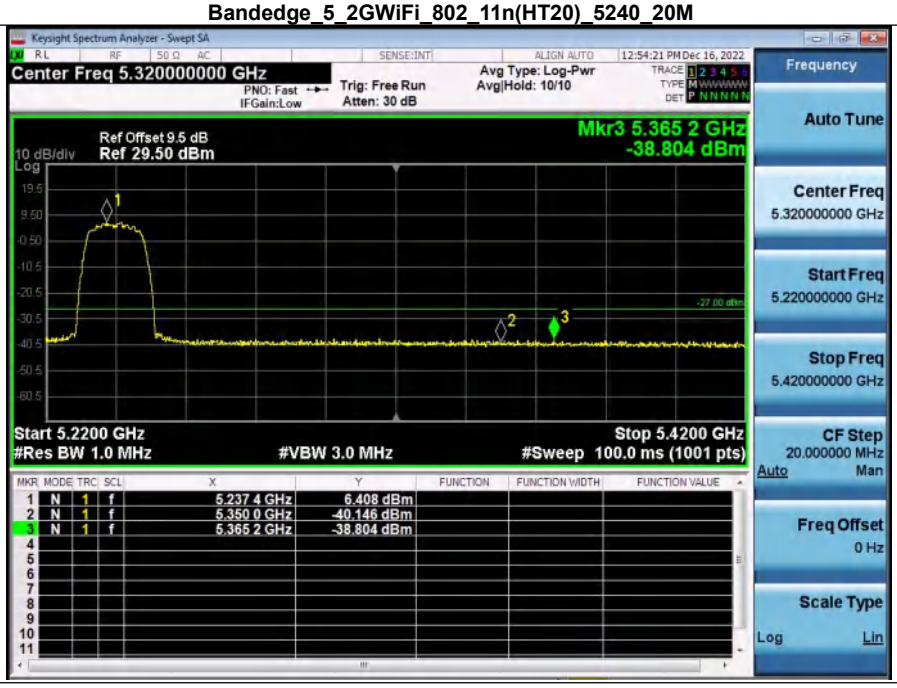
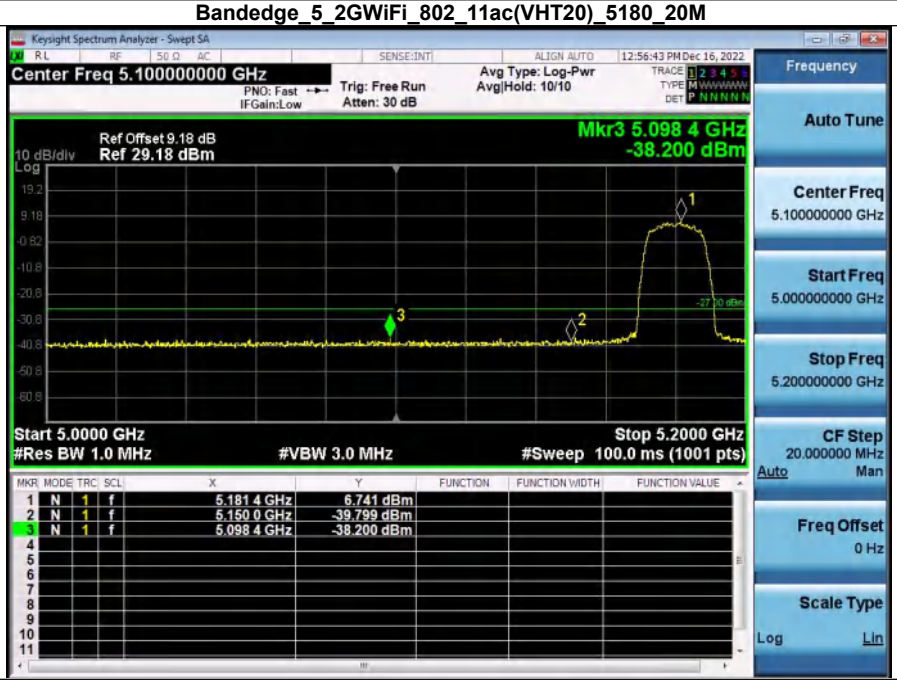
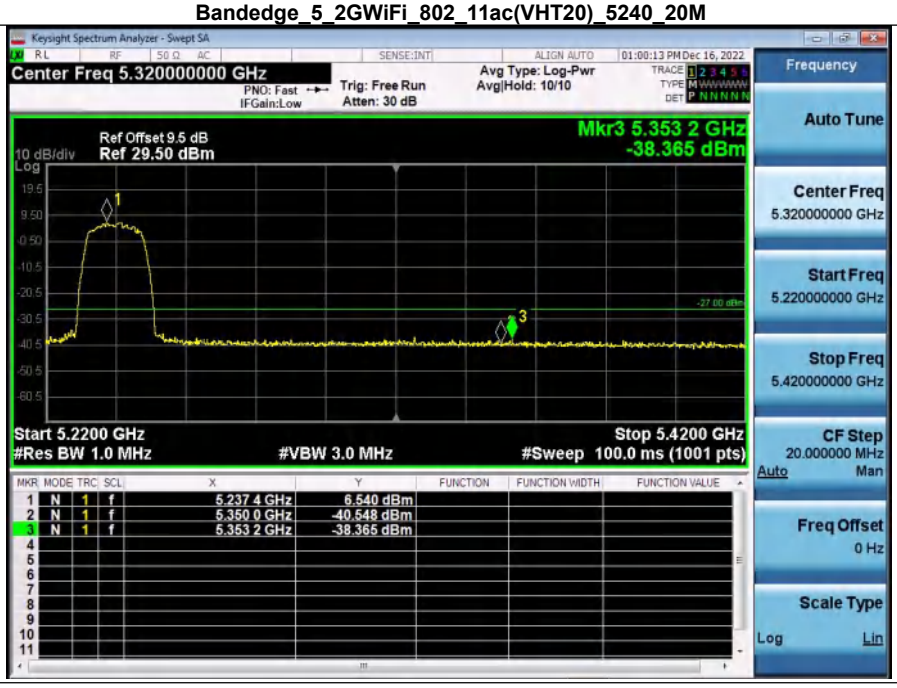


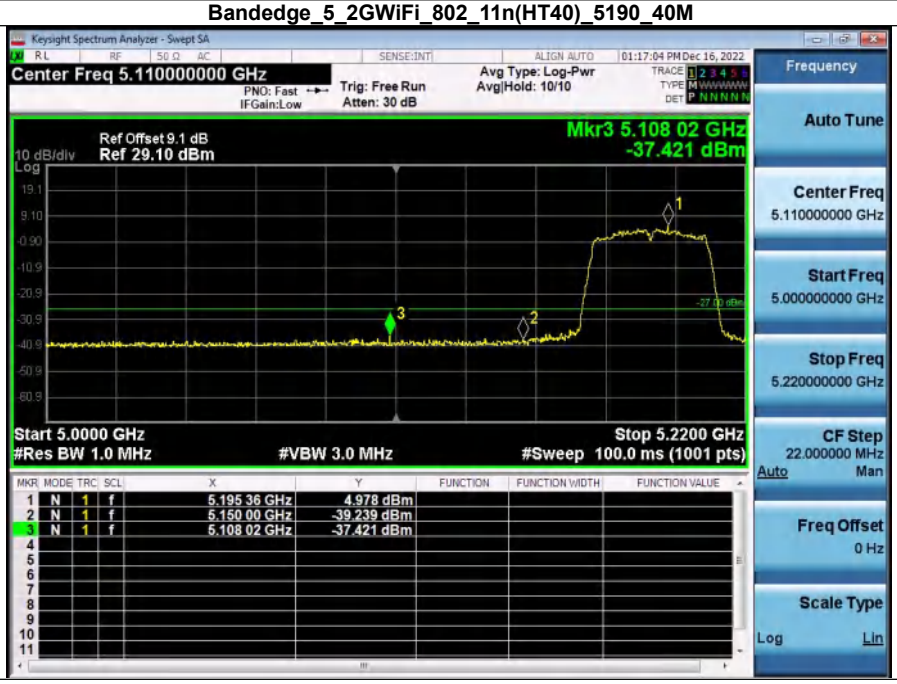
Bandedge_5_2GWiFi_802_11ac(VHT20)_5180_20M



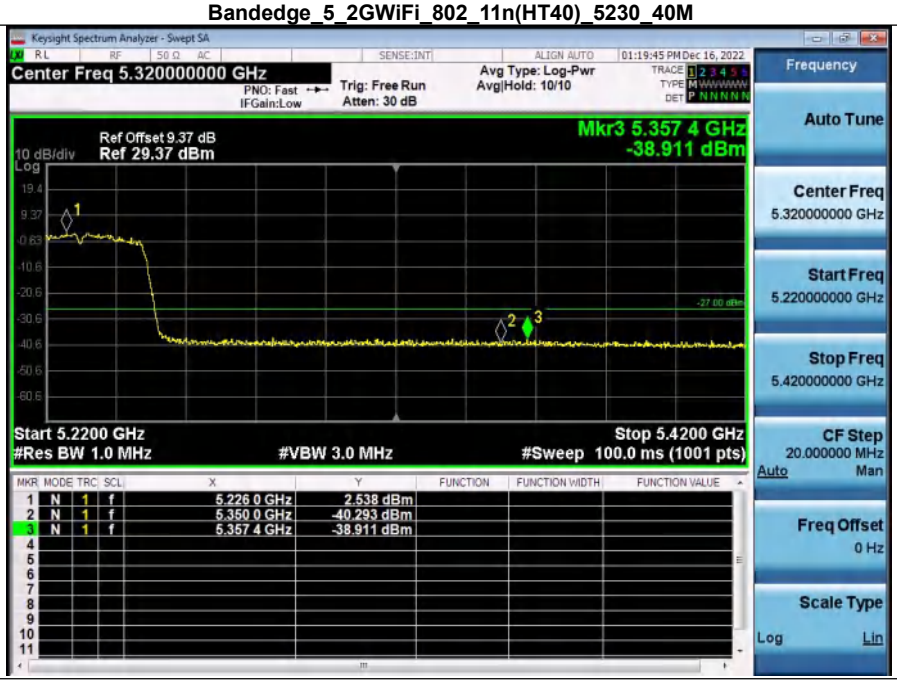
Bandedge_5_2GWiFi_802_11ac(VHT20)_5240_20M



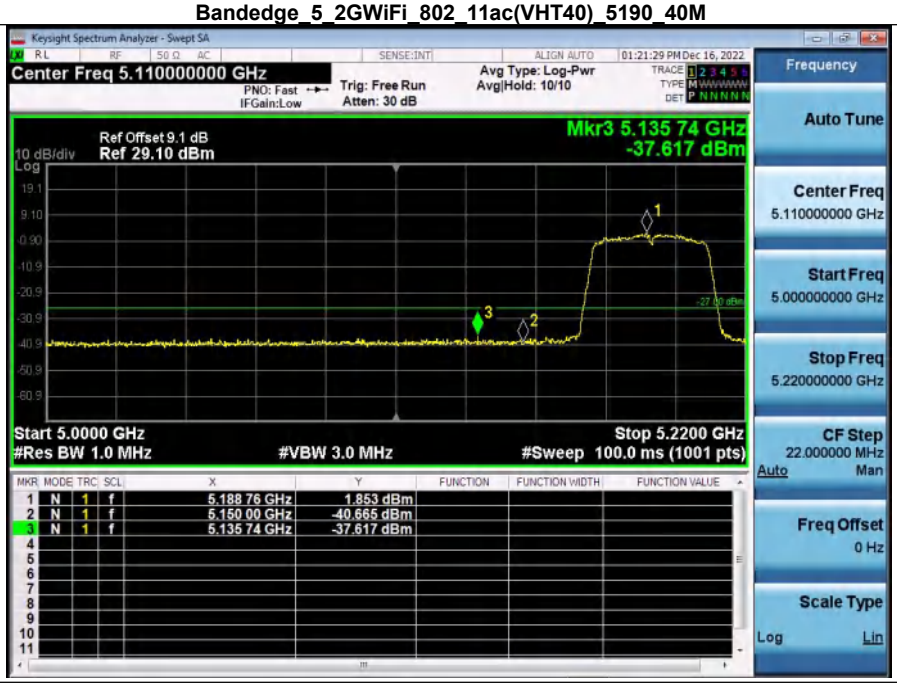
Bandedge_5_2GWiFi_802_11n(HT40)_5190_40M



Bandedge_5_2GWiFi_802_11n(HT40)_5230_40M

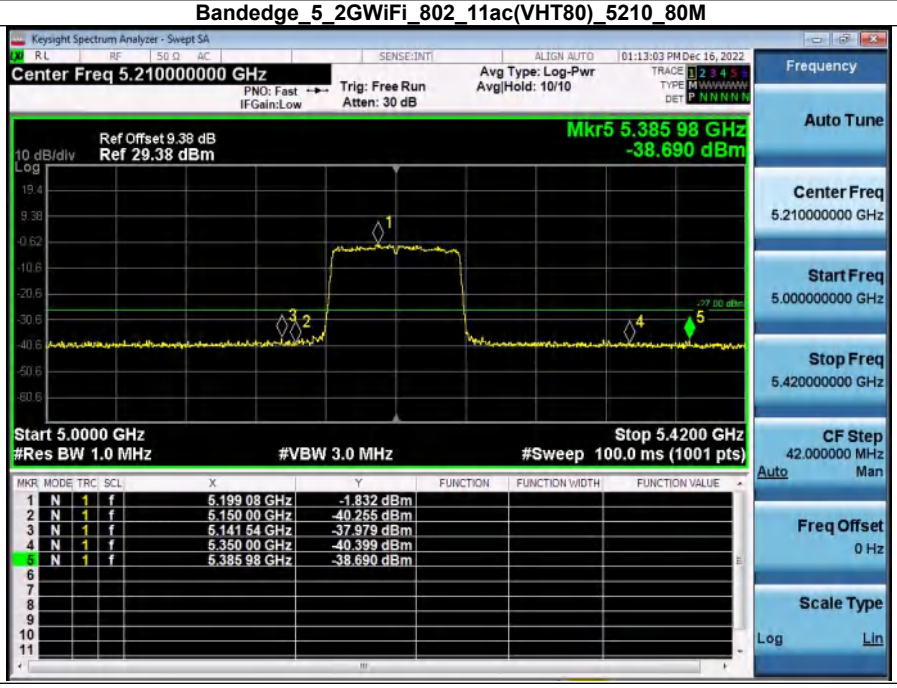


Bandedge_5_2GWiFi_802_11ac(VHT40)_5190_40M



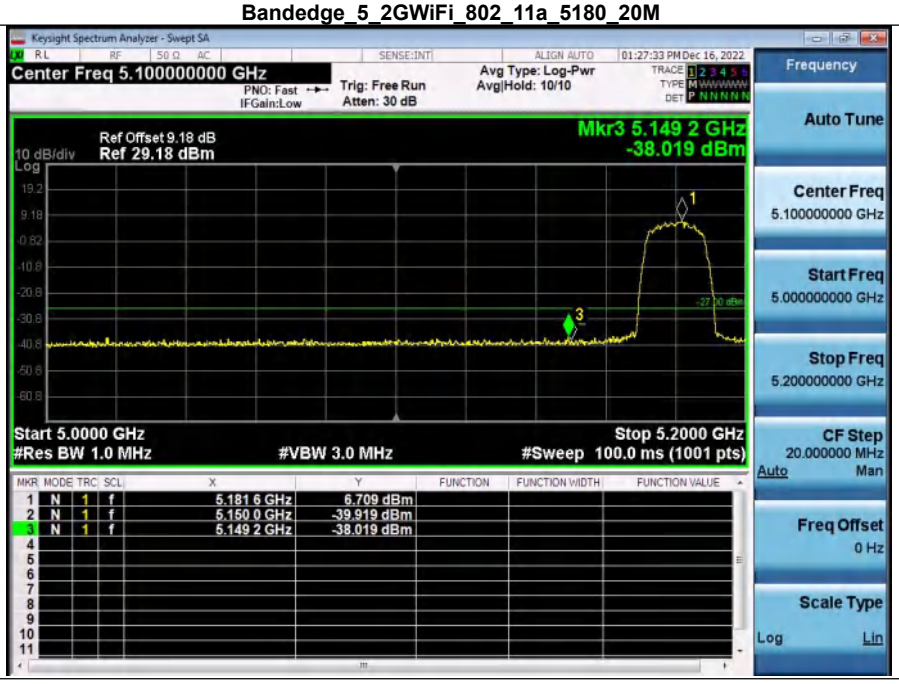
Bandedge_5_2GWiFi_802_11ac(VHT40)_5230_40M

Bandedge_5_2GWiFi_802_11ac(VHT80)_5210_80M

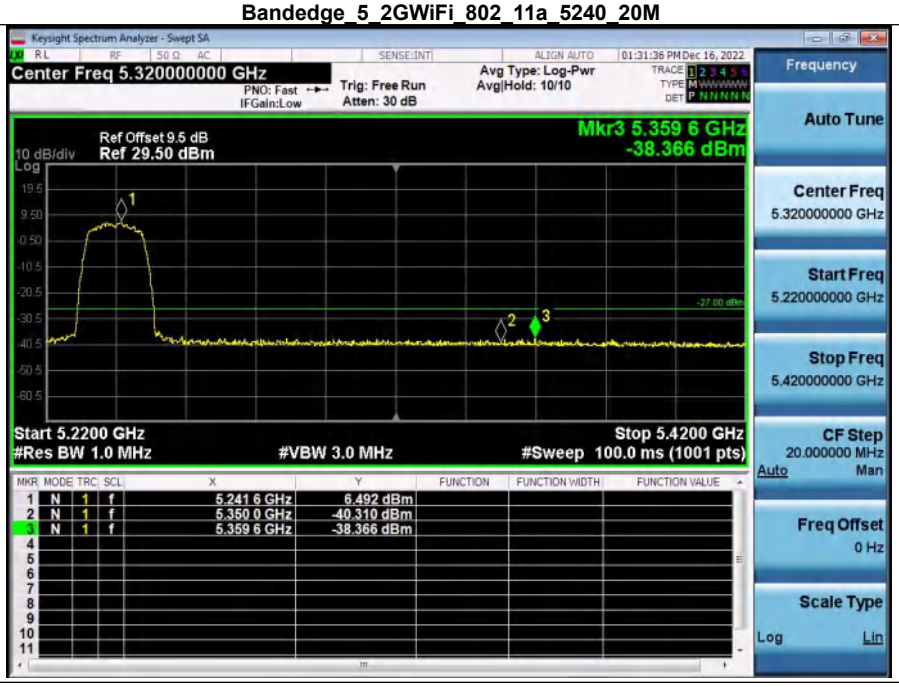


ANT2

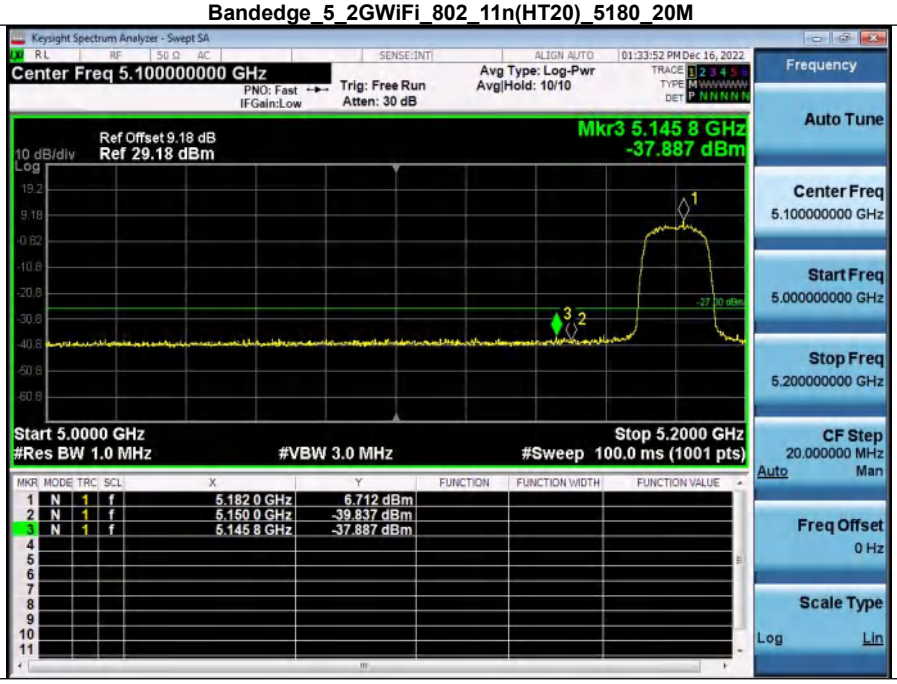
Bandedge_5_2GWiFi_802_11a_5180_20M



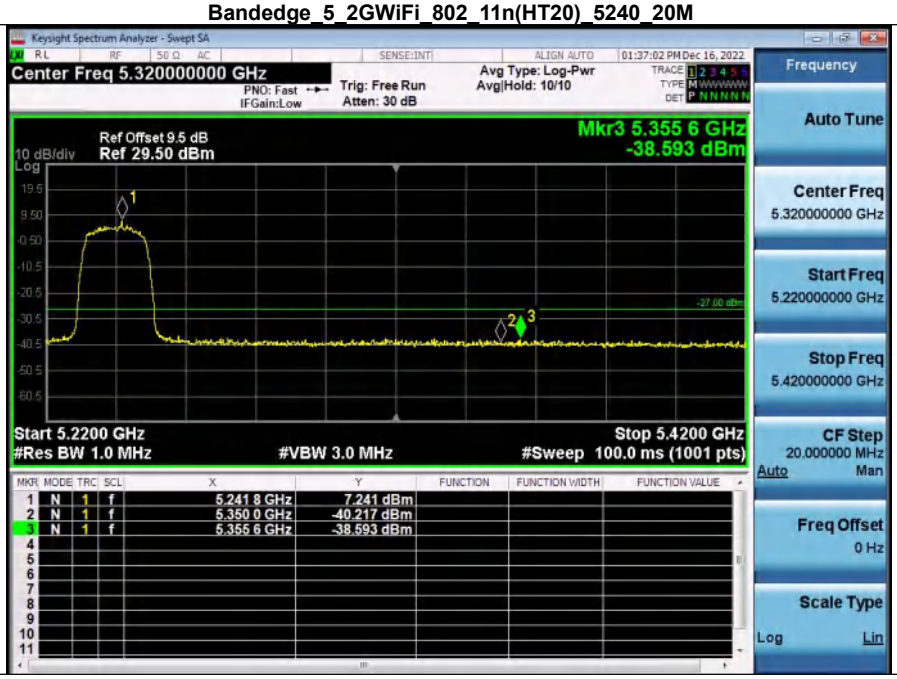
Bandedge_5_2GWiFi_802_11a_5240_20M



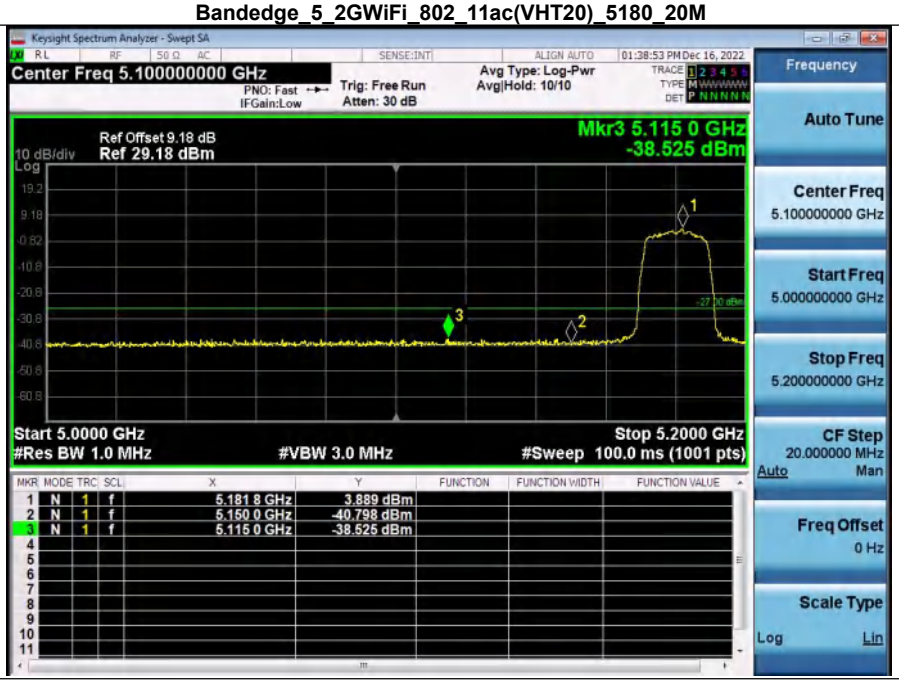
Bandedge_5_2GWiFi_802_11n(HT20)_5180_20M



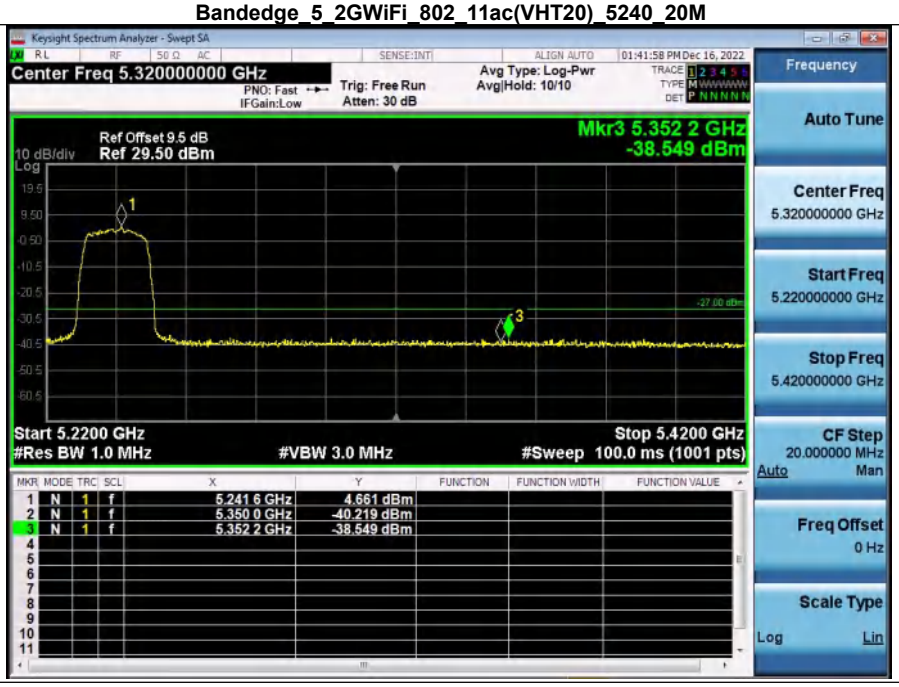
Bandedge_5_2GWiFi_802_11n(HT20)_5240_20M



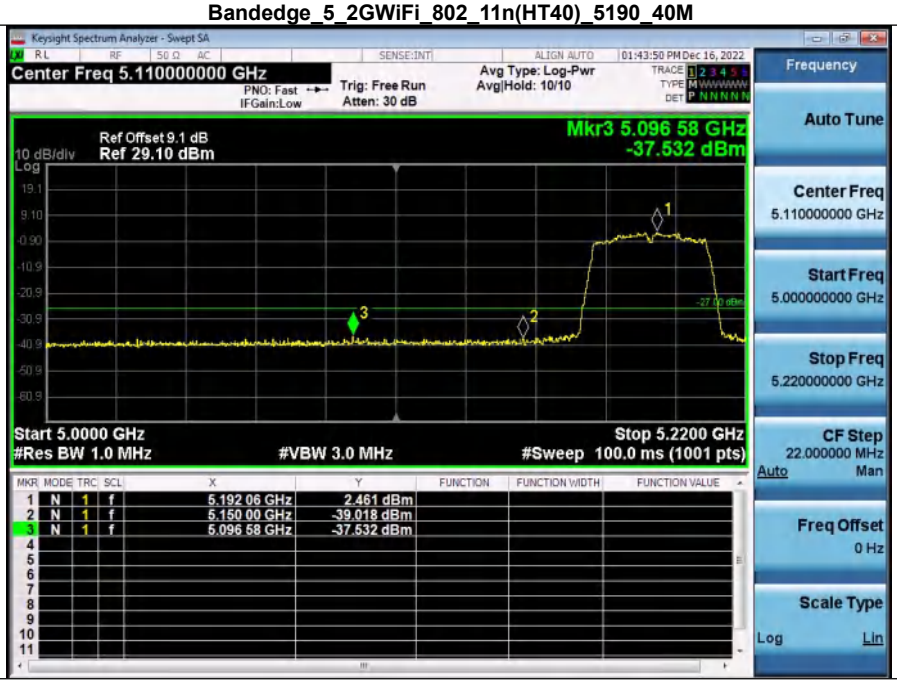
Bandedge_5_2GWiFi_802_11ac(VHT20)_5180_20M



Bandedge_5_2GWiFi_802_11ac(VHT20)_5240_20M



Bandedge_5_2GWiFi_802_11n(HT40)_5190_40M



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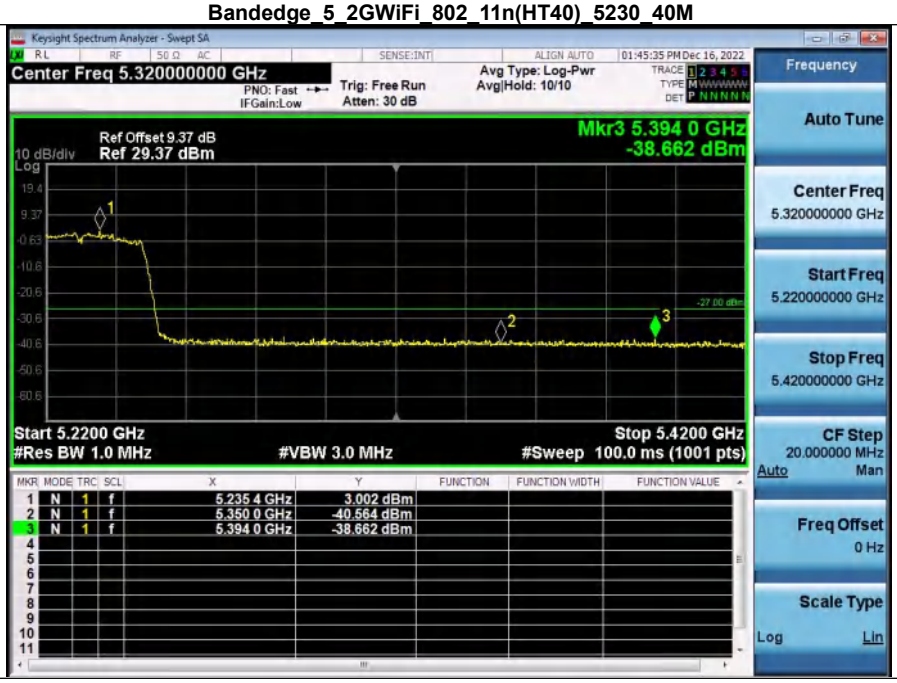
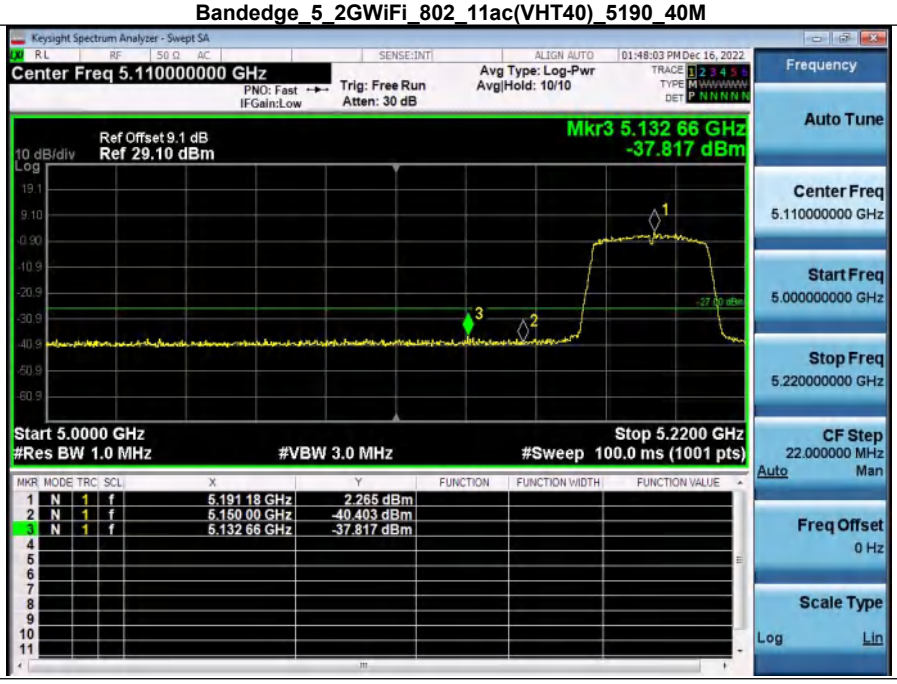
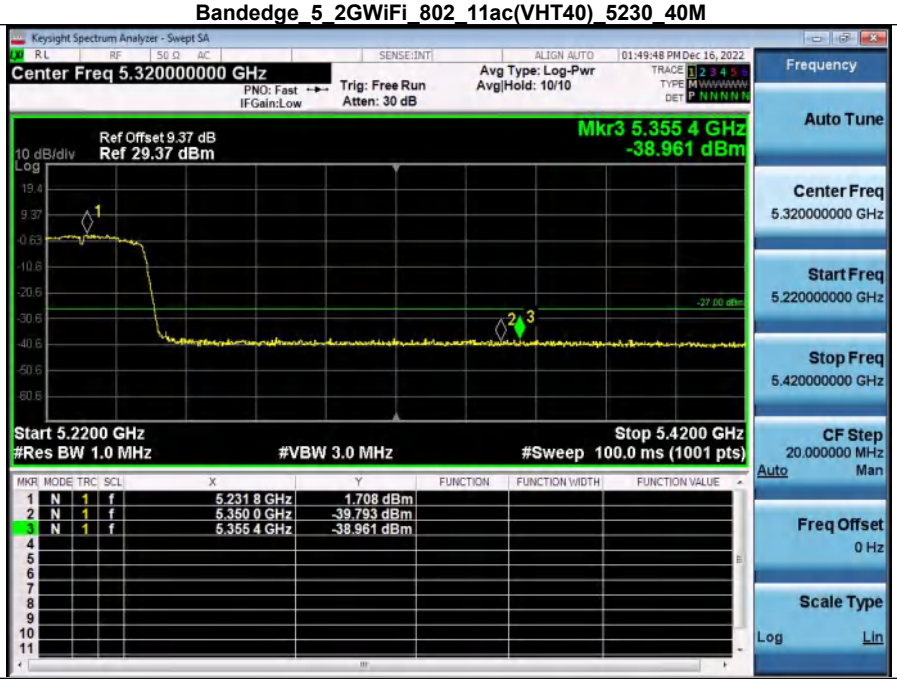


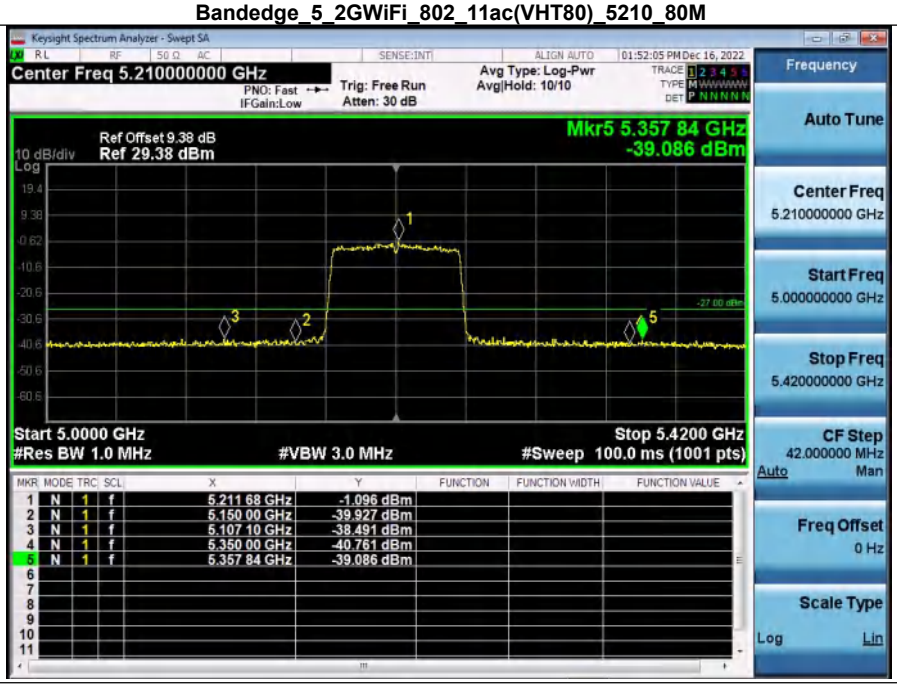
Bandedge_5_2GWiFi_802_11ac(VHT40)_5190_40M



Bandedge_5_2GWiFi_802_11ac(VHT40)_5230_40M



Bandedge_5_2GWiFi_802_11ac(VHT80)_5210_80M

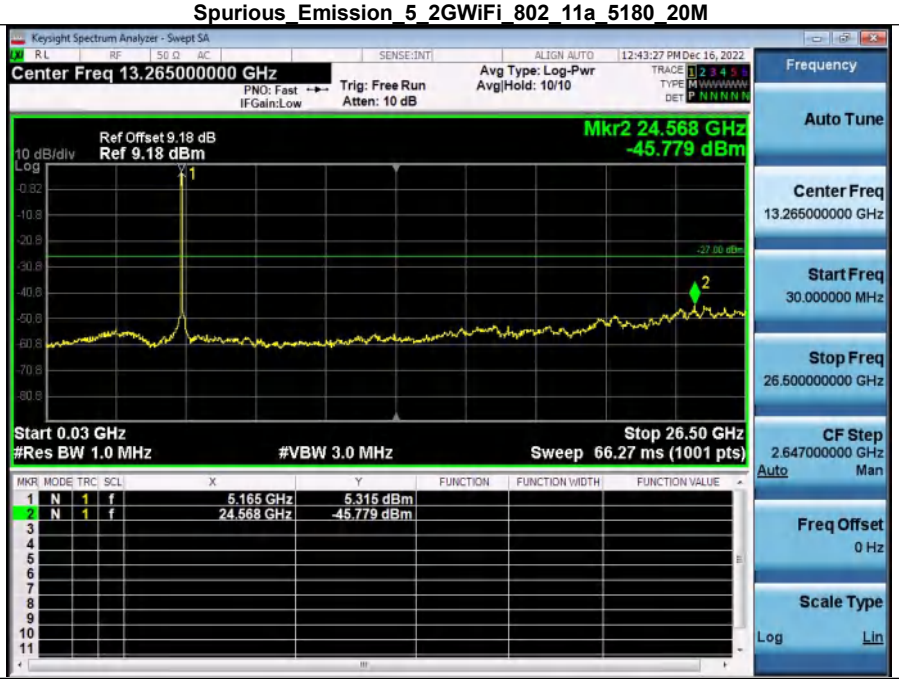


11.5. Spurious Emission

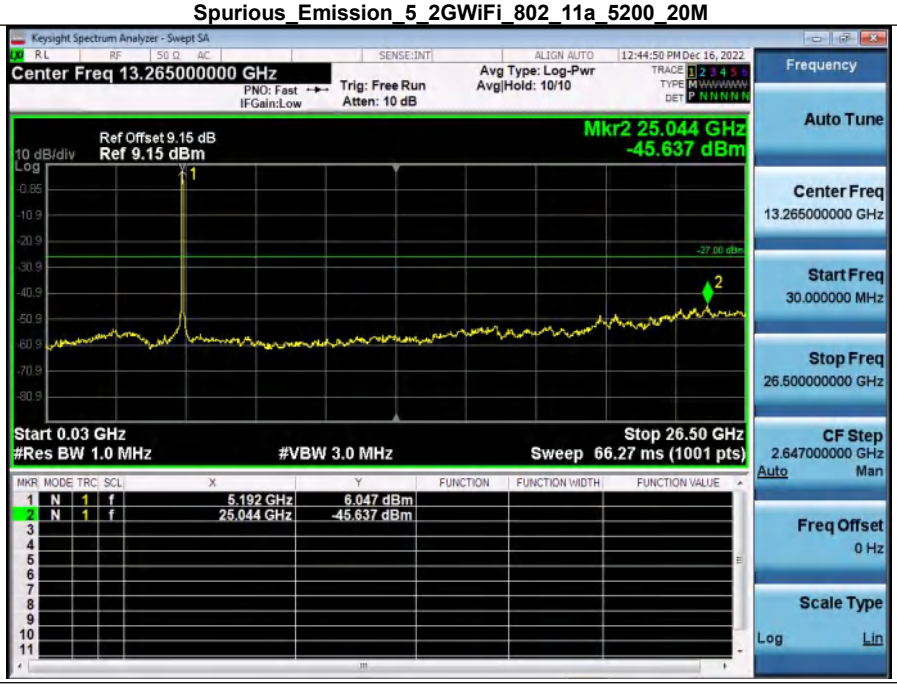
Condition	Antenna	Modulation	TX_Frequency (MHz)	Max. Mark Frequency(MHz)	Spurious level(dBm)	limit(dBm)	Result
NVNT	ANT1	802.11a	5180.00	24567.69	-45.78	-27	Pass
NVNT	ANT1	802.11a	5200.00	25044.15	-45.64	-27	Pass
NVNT	ANT1	802.11a	5240.00	24991.21	-46.05	-27	Pass
NVNT	ANT1	802.11n(HT20)	5180.00	24991.21	-45.65	-27	Pass
NVNT	ANT1	802.11n(HT20)	5200.00	26208.83	-45.61	-27	Pass
NVNT	ANT1	802.11n(HT20)	5240.00	25070.62	-45.45	-27	Pass
NVNT	ANT1	802.11ac(VHT20)	5180.00	25044.15	-45.95	-27	Pass
NVNT	ANT1	802.11ac(VHT20)	5200.00	25017.68	-46.24	-27	Pass
NVNT	ANT1	802.11ac(VHT20)	5240.00	25017.68	-46.22	-27	Pass
NVNT	ANT1	802.11n(HT40)	5190.00	25070.62	-44.55	-27	Pass
NVNT	ANT1	802.11n(HT40)	5230.00	24938.27	-45.18	-27	Pass
NVNT	ANT1	802.11ac(VHT40)	5190.00	25044.15	-45.83	-27	Pass
NVNT	ANT1	802.11ac(VHT40)	5230.00	25150.03	-45.56	-27	Pass
NVNT	ANT1	802.11ac(VHT80)	5210.00	24991.21	-45.59	-27	Pass

Condition	Antenna	Modulation	TX_Frequency (MHz)	Max. Mark Frequency(MHz)	Spurious level(dBm)	limit(dBm)	Result
NVNT	ANT2	802.11a	5180.00	24514.75	-46.82	-27	Pass
NVNT	ANT2	802.11a	5200.00	25070.62	-46.14	-27	Pass
NVNT	ANT2	802.11a	5240.00	24964.74	-46.04	-27	Pass
NVNT	ANT2	802.11n(HT20)	5180.00	24858.86	-46.34	-27	Pass
NVNT	ANT2	802.11n(HT20)	5200.00	24911.80	-46.50	-27	Pass
NVNT	ANT2	802.11n(HT20)	5240.00	25070.62	-45.53	-27	Pass
NVNT	ANT2	802.11ac(VHT20)	5180.00	26208.83	-46.68	-27	Pass
NVNT	ANT2	802.11ac(VHT20)	5200.00	24938.27	-45.94	-27	Pass
NVNT	ANT2	802.11ac(VHT20)	5240.00	26182.36	-46.19	-27	Pass
NVNT	ANT2	802.11n(HT40)	5190.00	24991.21	-46.06	-27	Pass
NVNT	ANT2	802.11n(HT40)	5230.00	25017.68	-45.59	-27	Pass
NVNT	ANT2	802.11ac(VHT40)	5190.00	25070.62	-45.98	-27	Pass
NVNT	ANT2	802.11ac(VHT40)	5230.00	25044.15	-46.06	-27	Pass
NVNT	ANT2	802.11ac(VHT80)	5210.00	25017.68	-46.00	-27	Pass

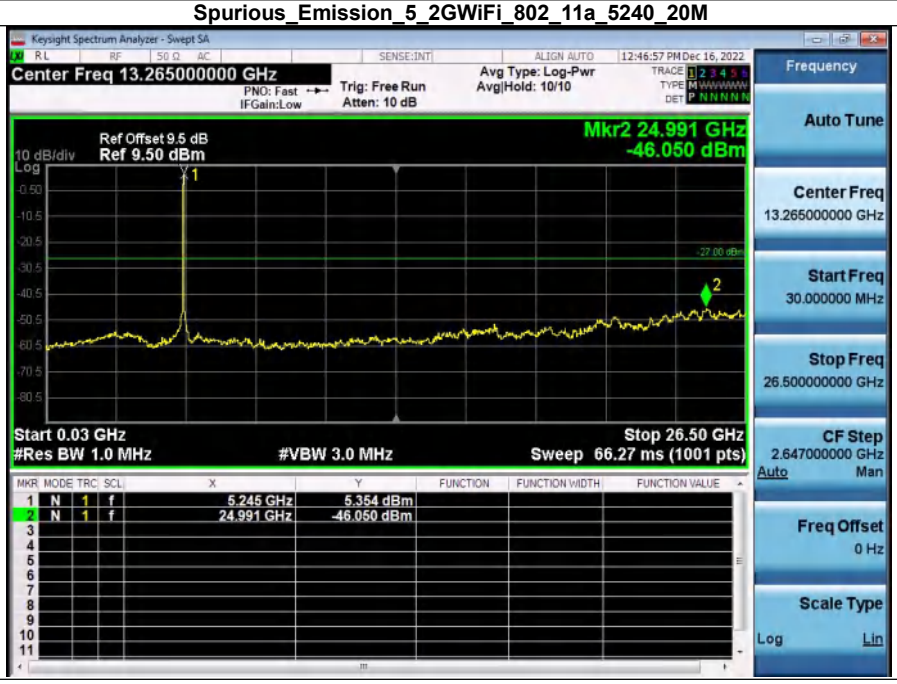
Spurious_Emission_5_2GWiFi_802_11a_5180_20M



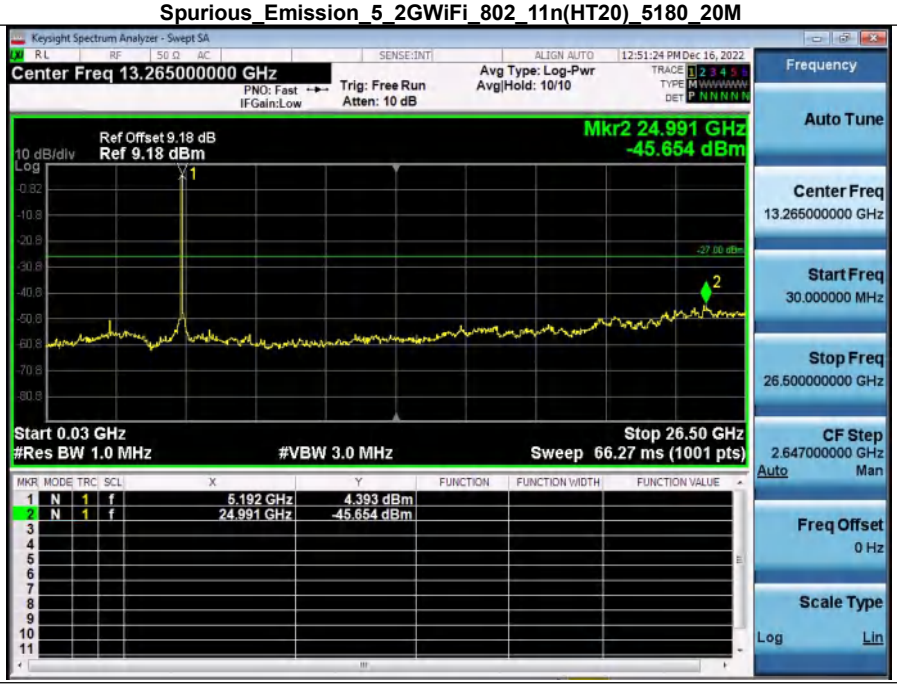
Spurious_Emission_5_2GWiFi_802_11a_5200_20M



Spurious_Emission_5_2GWiFi_802_11a_5240_20M

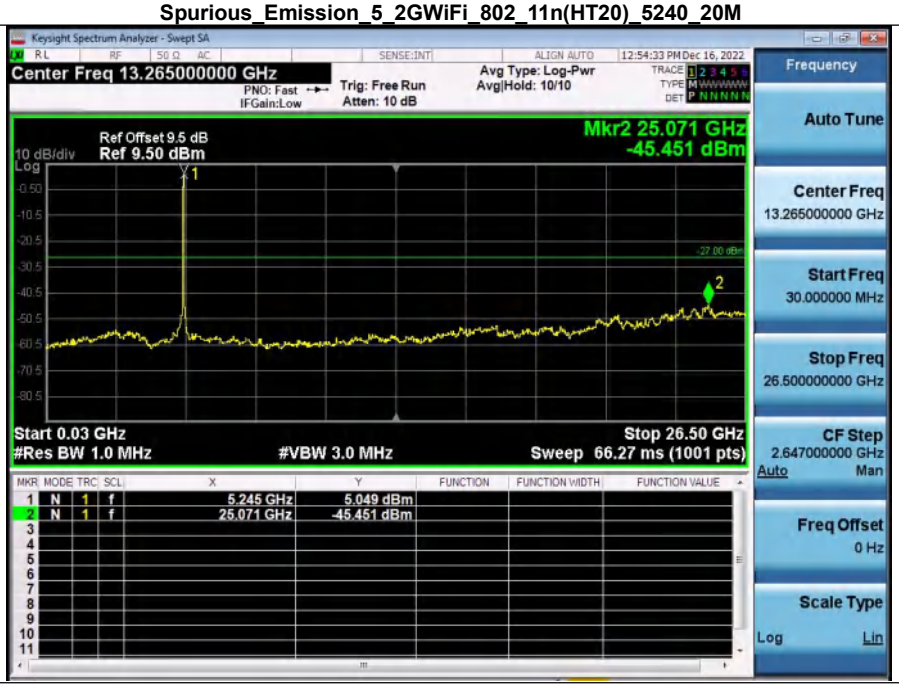


Spurious_Emission_5_2GWiFi_802_11n(HT20)_5180_20M

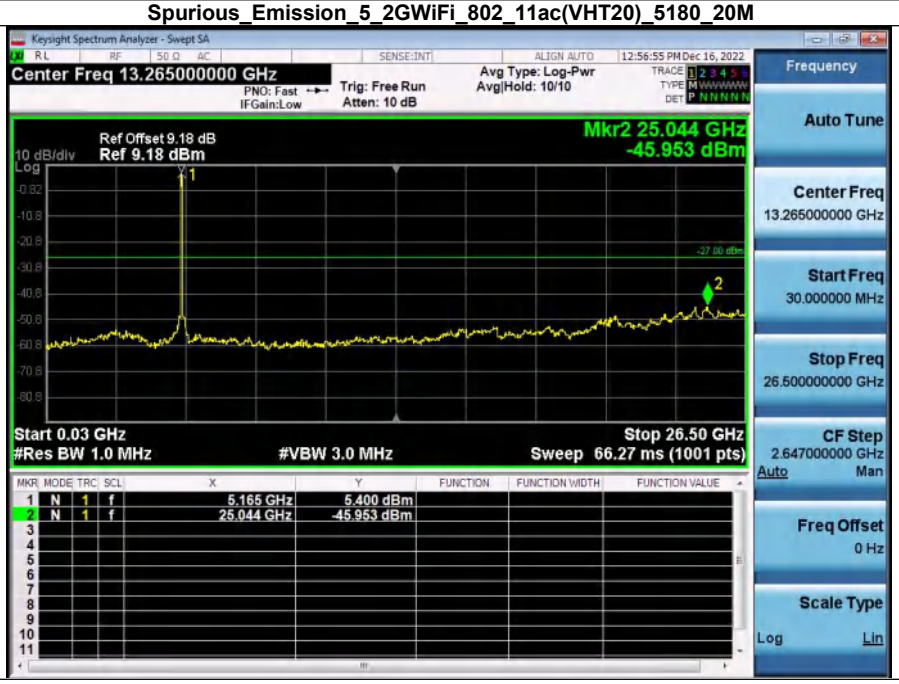


Spurious_Emission_5_2GWiFi_802_11n(HT20)_5200_20M

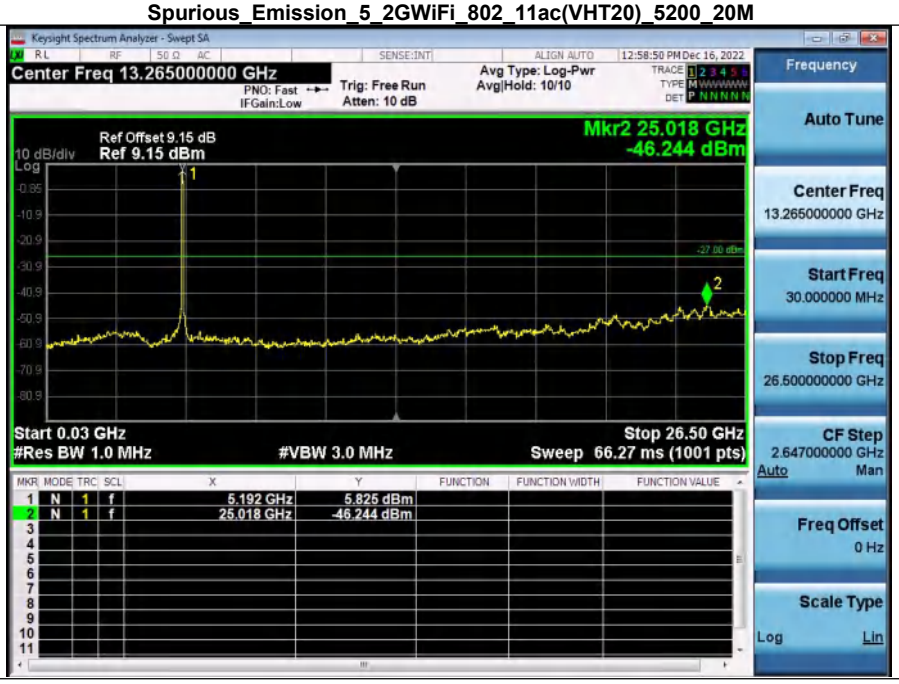
Spurious_Emission_5_2GWiFi_802_11n(HT20)_5240_20M



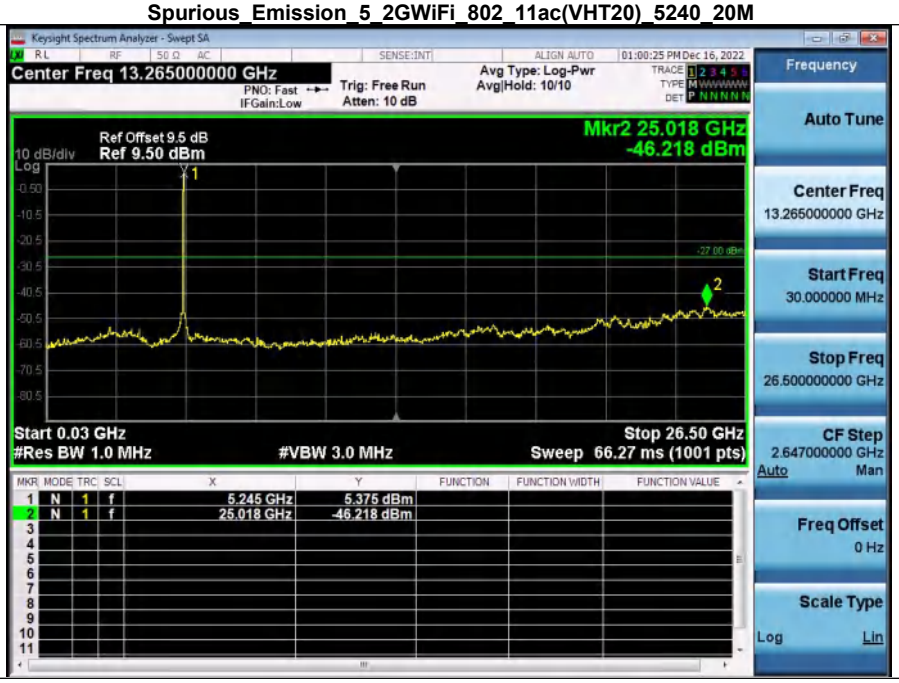
Spurious_Emission_5_2GWiFi_802_11ac(VHT20)_5180_20M



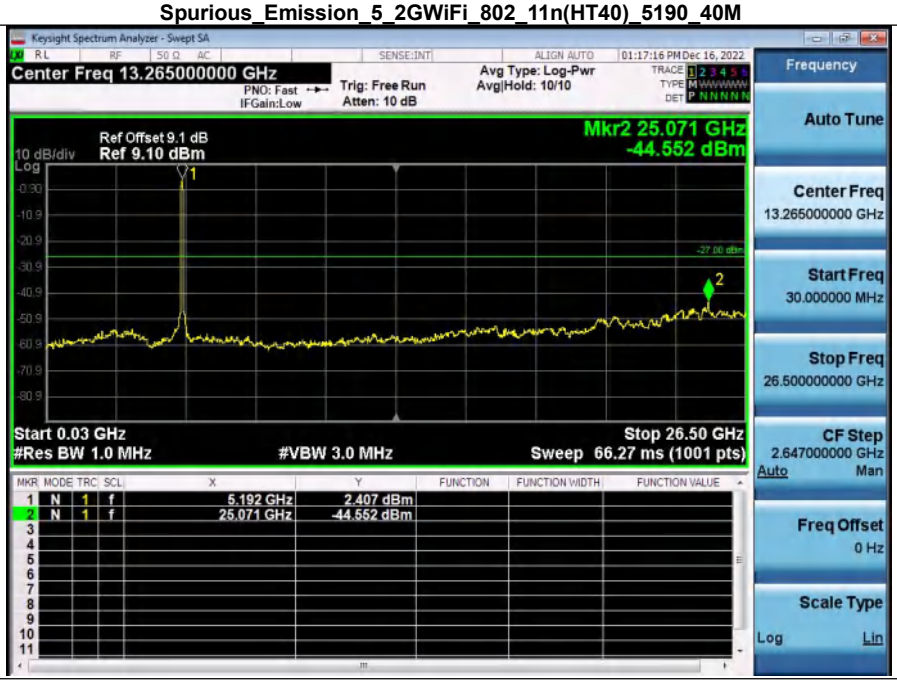
Spurious_Emission_5_2GWiFi_802_11ac(VHT20)_5200_20M



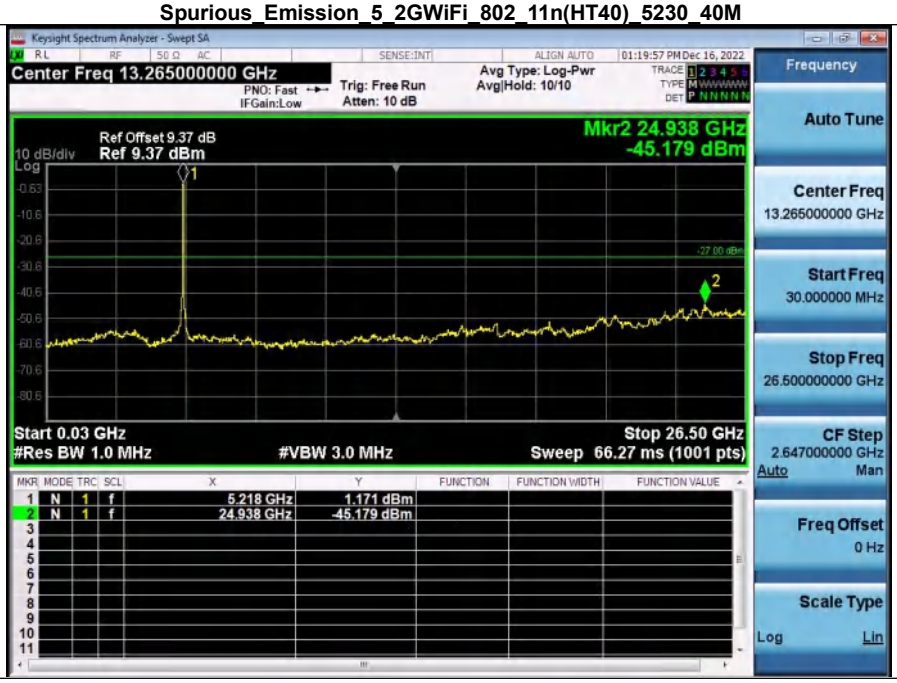
Spurious_Emission_5_2GWiFi_802_11ac(VHT20)_5240_20M



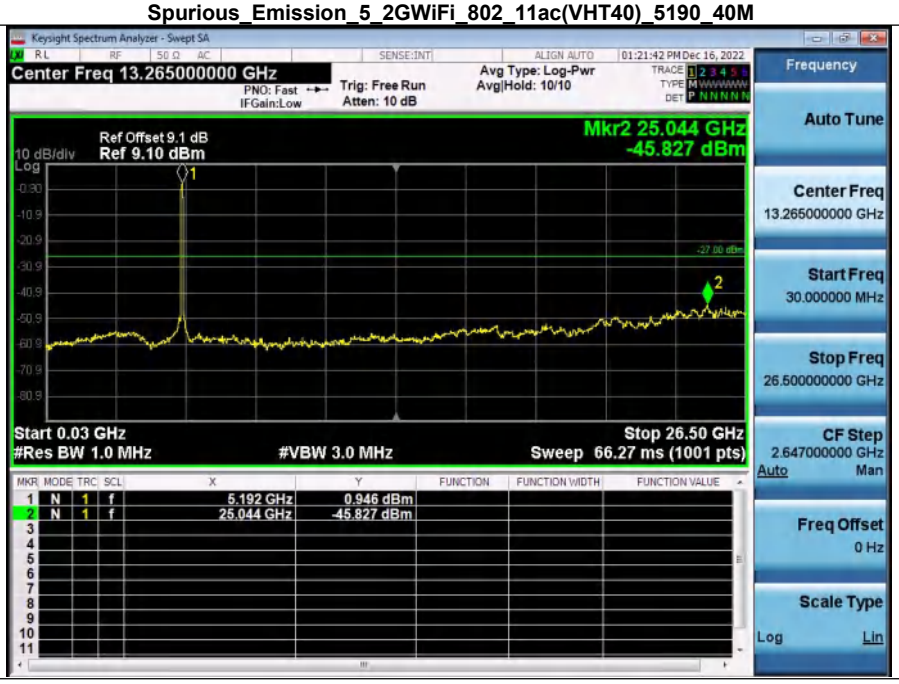
Spurious_Emission_5_2GWiFi_802_11n(HT40)_5190_40M



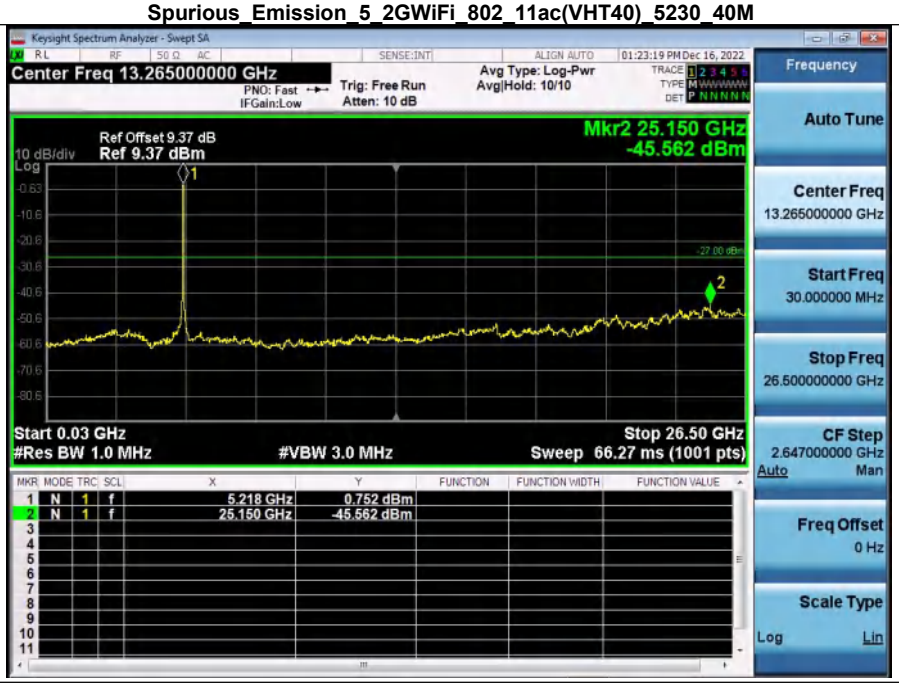
Spurious_Emission_5_2GWiFi_802_11n(HT40)_5230_40M



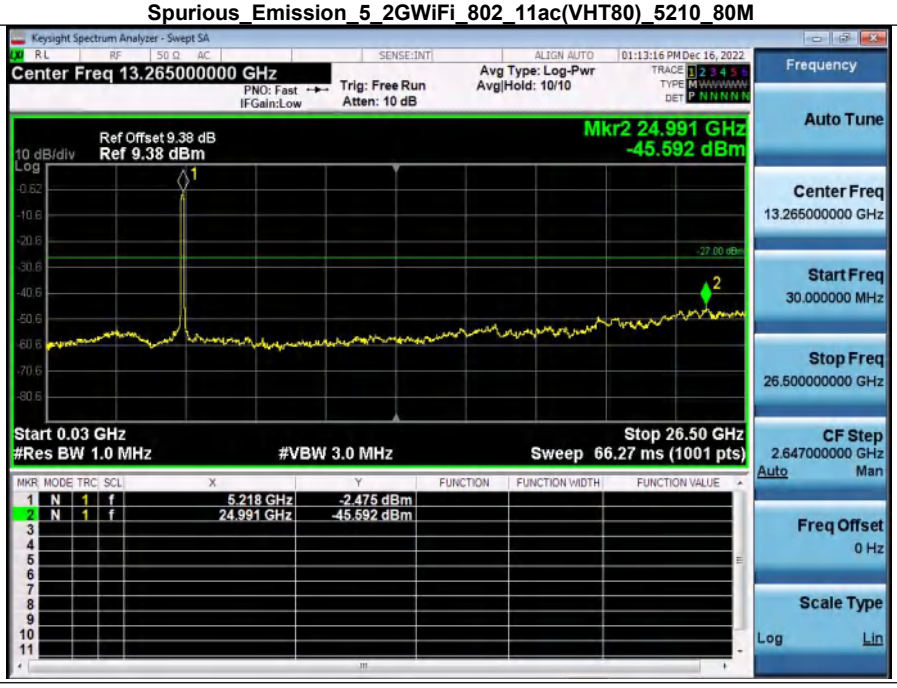
Spurious_Emission_5_2GWiFi_802_11ac(VHT40)_5190_40M



Spurious_Emission_5_2GWiFi_802_11ac(VHT40)_5230_40M

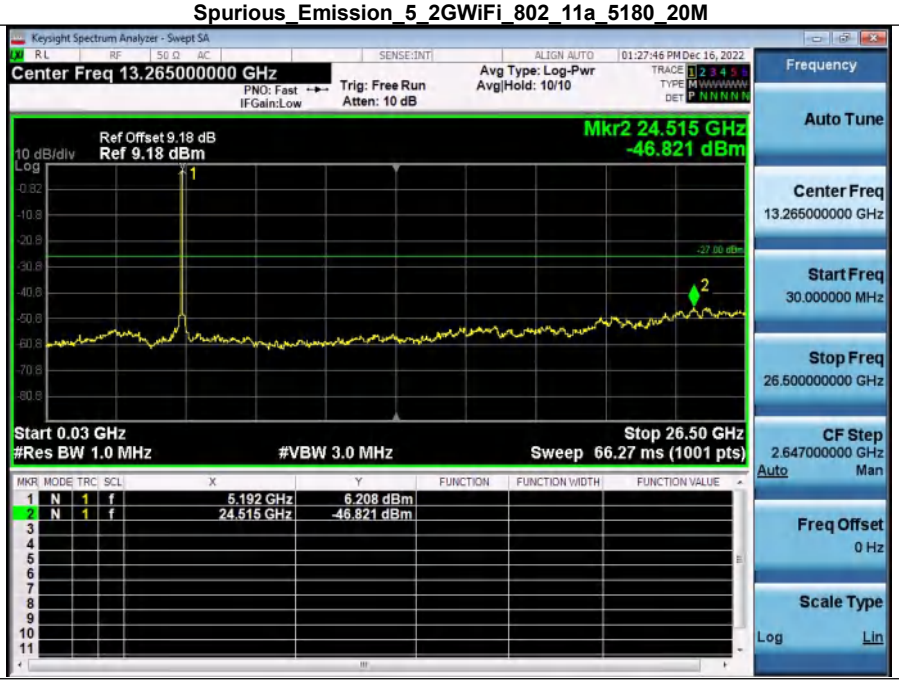


Spurious_Emission_5_2GWiFi_802_11ac(VHT80)_5210_80M

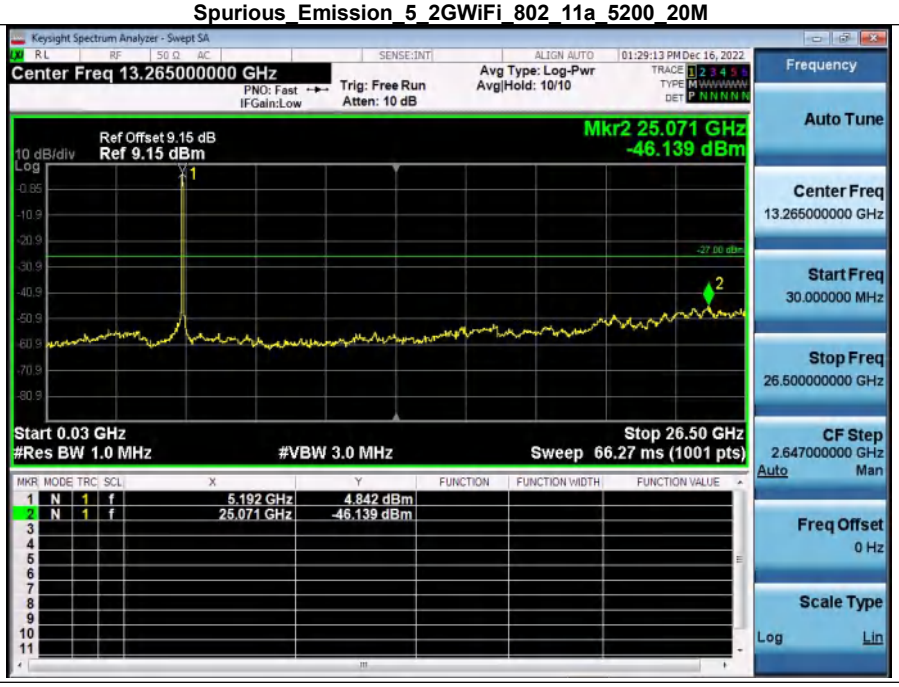


ANT2

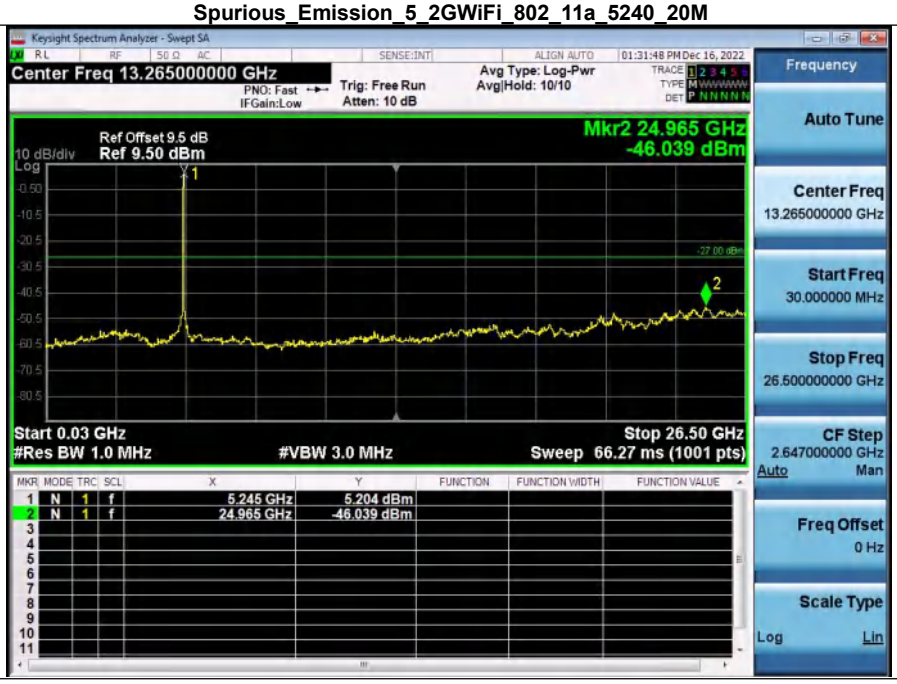
Spurious_Emission_5_2GWiFi_802_11a_5180_20M



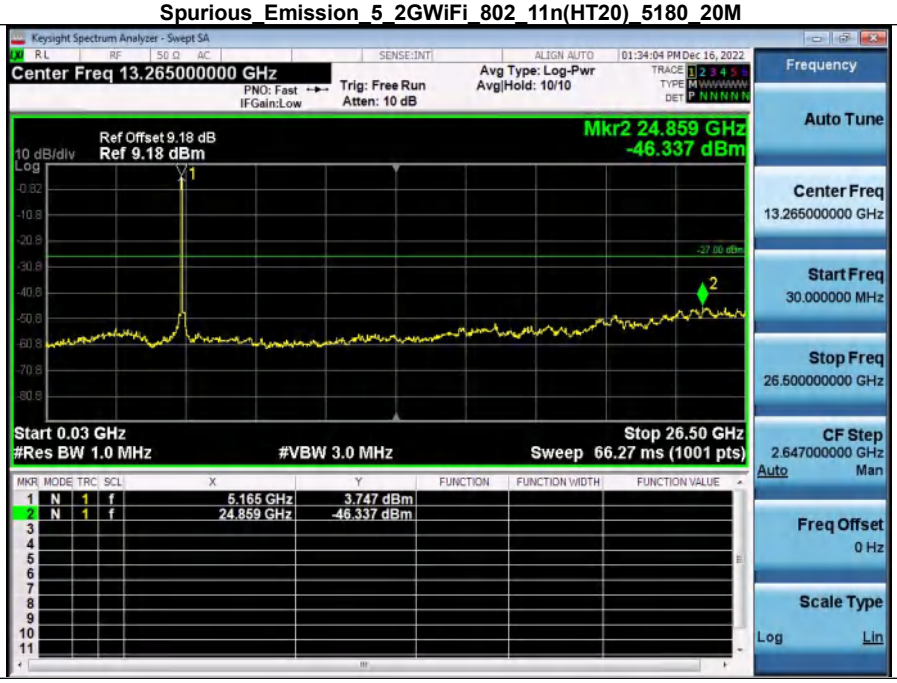
Spurious_Emission_5_2GWiFi_802_11a_5200_20M



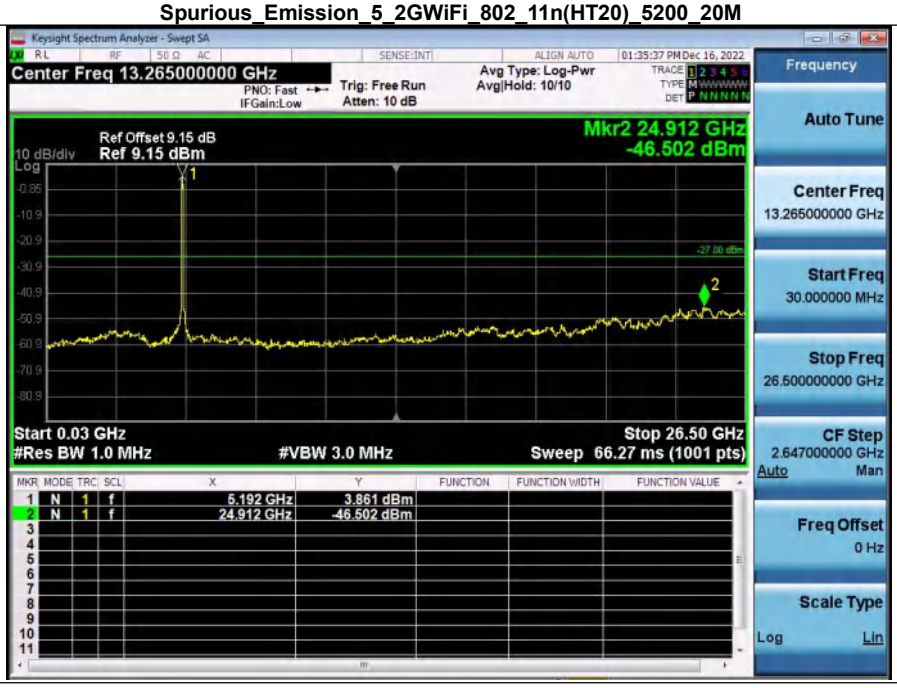
Spurious_Emission_5_2GWiFi_802_11a_5240_20M



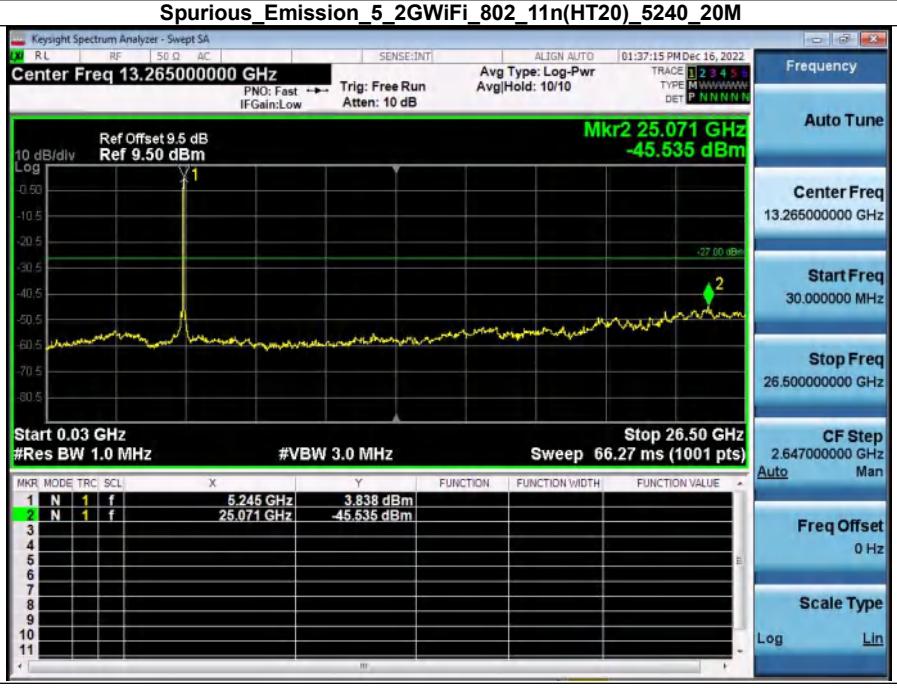
Spurious_Emission_5_2GWiFi_802_11n(HT20)_5180_20M



Spurious_Emission_5_2GWiFi_802_11n(HT20)_5200_20M



Spurious_Emission_5_2GWiFi_802_11n(HT20)_5240_20M



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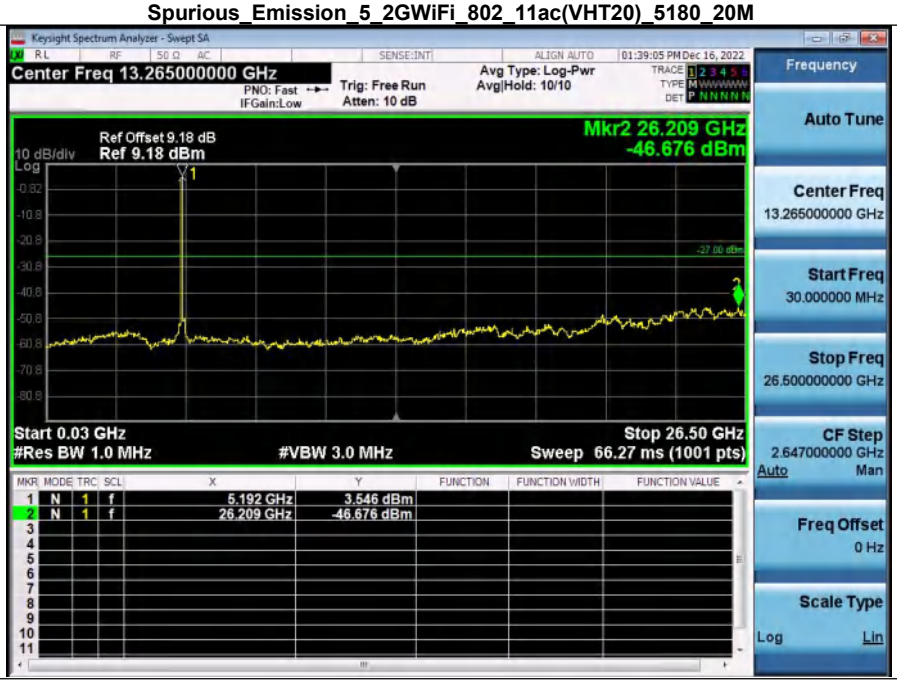

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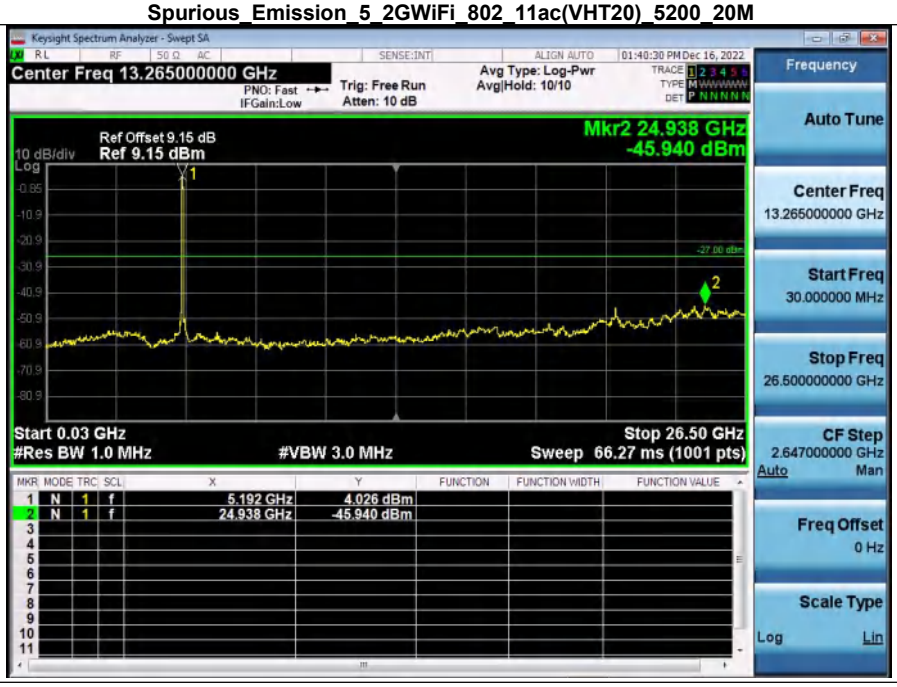

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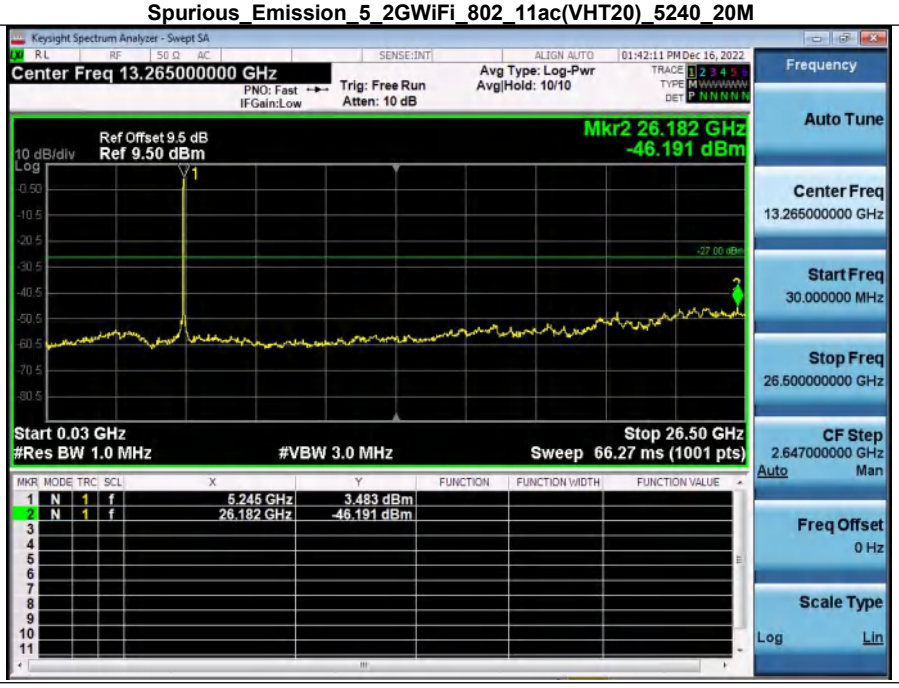

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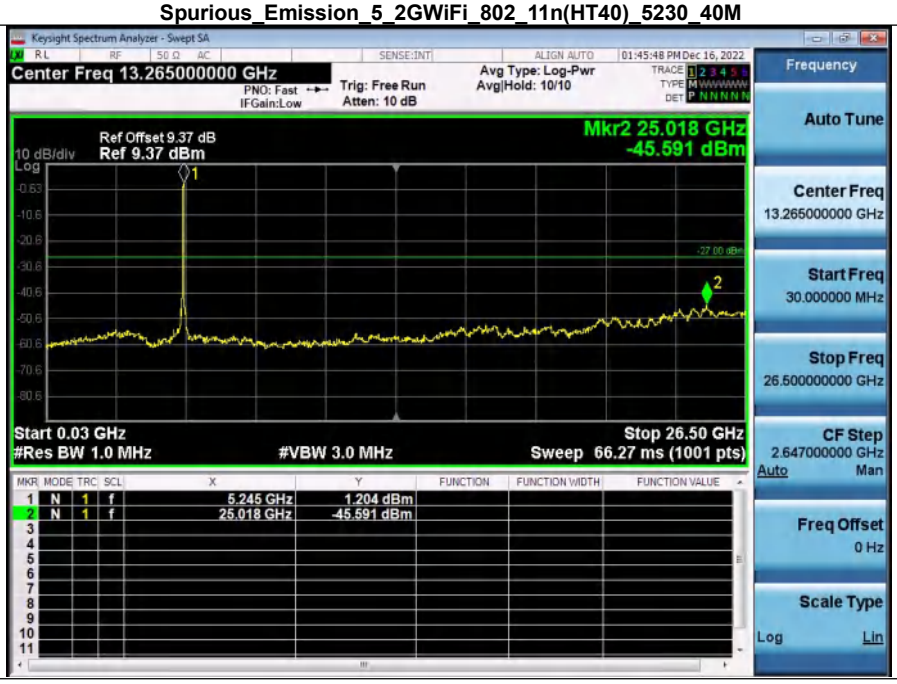
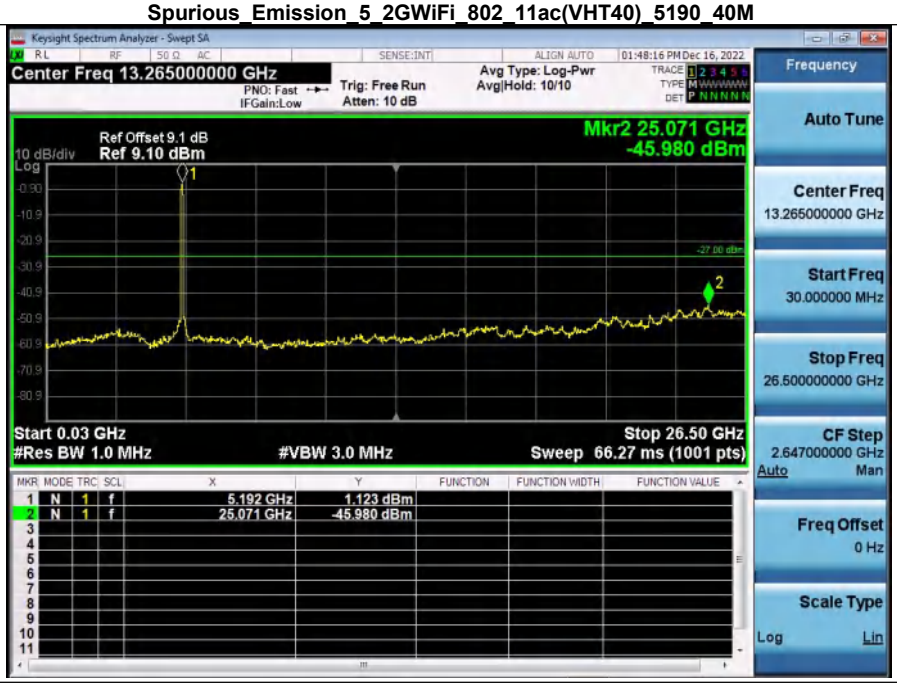
Spurious_Emission_5_2GWiFi_802_11n(HT40)_5230_40M



Spurious_Emission_5_2GWiFi_802_11ac(VHT40)_5190_40M



Spurious_Emission_5_2GWiFi_802_11ac(VHT40)_5230_40M

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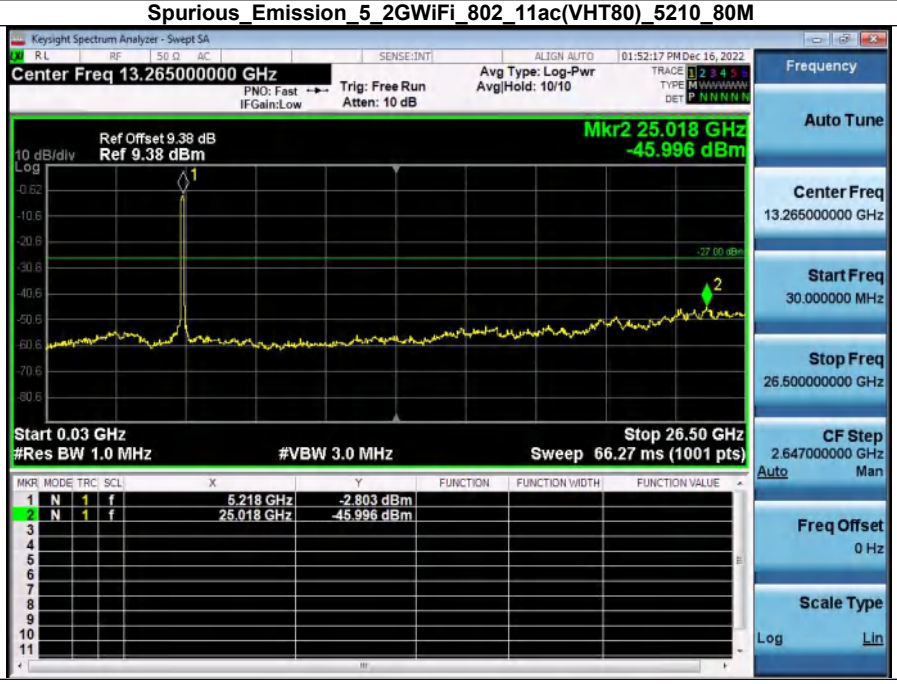


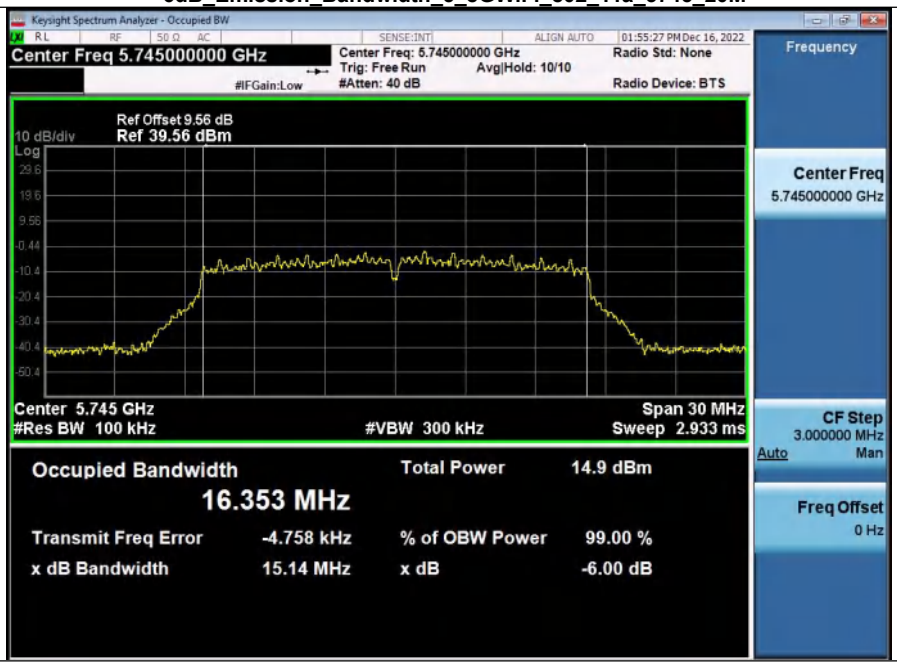
12.APPENDIX1---5.8GWIFI

12.1. -6dB Emission Bandwidth

Condition	Antenna	Mode	Frequency(MHz)	-6dB_Emission_Bandwidth(MHz)	Limit(MHz)	Result
NVNT	ANT1	LCH	5745.00	15.143	0.500	Pass
NVNT	ANT1	MCH	5785.00	15.717	0.500	Pass
NVNT	ANT1	HCH	5825.00	15.190	0.500	Pass
NVNT	ANT1	LCH	5745.00	15.127	0.500	Pass
NVNT	ANT1	MCH	5785.00	15.144	0.500	Pass
NVNT	ANT1	HCH	5825.00	15.136	0.500	Pass
NVNT	ANT1	LCH	5745.00	15.996	0.500	Pass
NVNT	ANT1	MCH	5785.00	15.377	0.500	Pass
NVNT	ANT1	HCH	5825.00	16.291	0.500	Pass
NVNT	ANT1	LCH	5755.00	35.186	0.500	Pass
NVNT	ANT1	HCH	5795.00	35.160	0.500	Pass
NVNT	ANT1	LCH	5755.00	35.133	0.500	Pass
NVNT	ANT1	HCH	5795.00	35.169	0.500	Pass
NVNT	ANT1	MCH	5775.00	75.631	0.500	Pass

Condition	Antenna	Mode	Frequency(MHz)	-6dB_Emission_Bandwidth(MHz)	Limit(MHz)	Result
NVNT	ANT2	LCH	5745.00	15.723	0.500	Pass
NVNT	ANT2	MCH	5785.00	15.156	0.500	Pass
NVNT	ANT2	HCH	5825.00	15.156	0.500	Pass
NVNT	ANT2	LCH	5745.00	15.146	0.500	Pass
NVNT	ANT2	MCH	5785.00	15.154	0.500	Pass
NVNT	ANT2	HCH	5825.00	15.144	0.500	Pass
NVNT	ANT2	LCH	5745.00	17.172	0.500	Pass
NVNT	ANT2	MCH	5785.00	16.945	0.500	Pass
NVNT	ANT2	HCH	5825.00	16.581	0.500	Pass
NVNT	ANT2	LCH	5755.00	35.179	0.500	Pass
NVNT	ANT2	HCH	5795.00	35.163	0.500	Pass
NVNT	ANT2	LCH	5755.00	35.214	0.500	Pass
NVNT	ANT2	HCH	5795.00	35.214	0.500	Pass
NVNT	ANT2	MCH	5775.00	75.834	0.500	Pass

-6dB_Emission_Bandwidth_5_8GWiFi_802_11a_5745_20M



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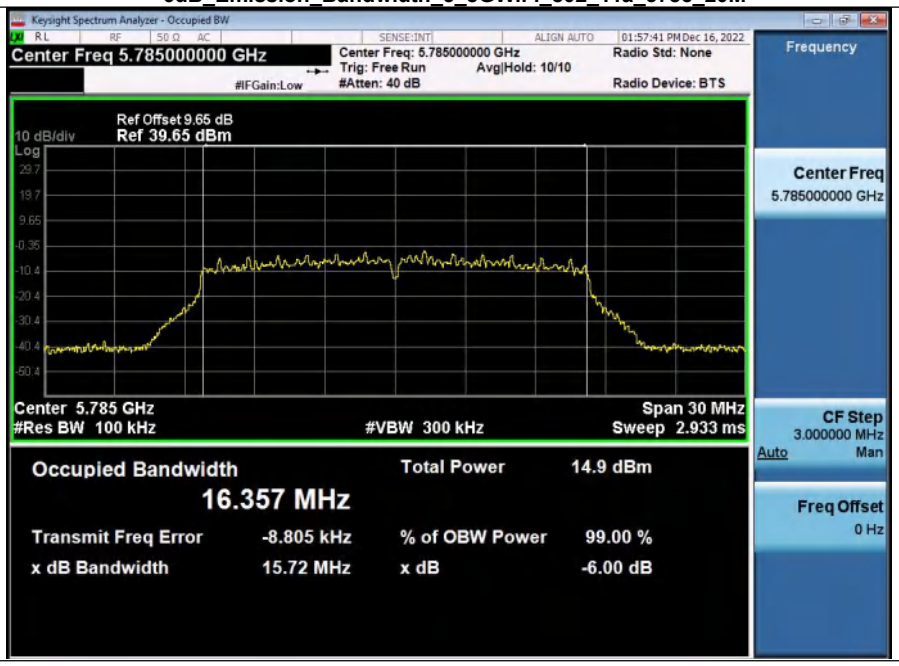
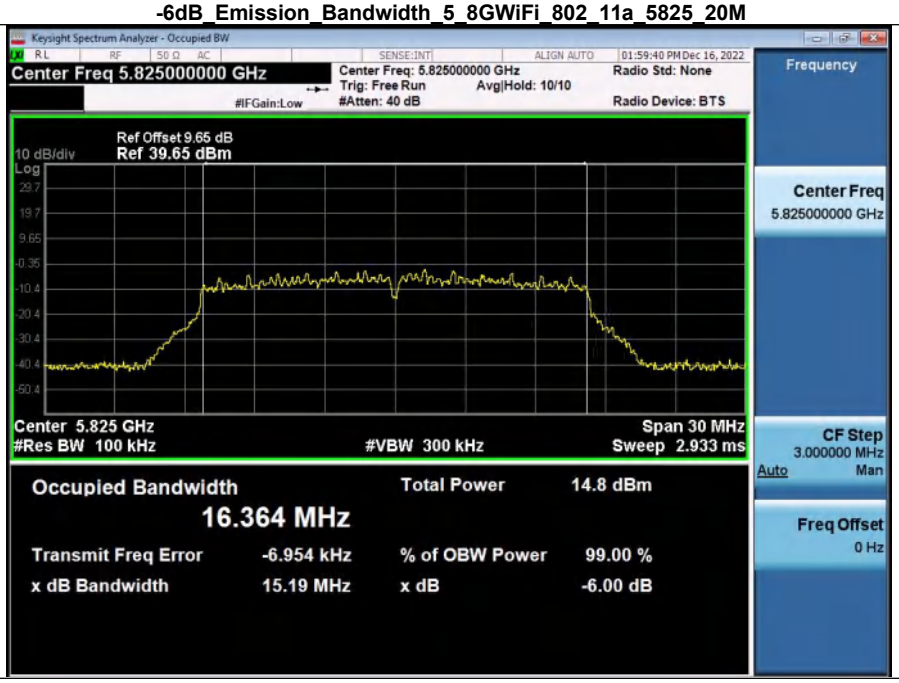
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