TEST REPORT
IC:2A8Y6-AG1A0001

Report Number	ZKT-221009L7381E-3
Date of Test	October 20, 2022 to November 7, 2022
Date of issue	November 15, 2022
Total number of pages	95
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	**Guangdong Virtual Reality Technology Co., Ltd**
Address	201, 2F, Building 3, HongtaiZhihui Valley, No. 15, Sicheng Road, Tianhe District, Guangzhou, China
Manufacturer's name	**Guangdong Virtual Reality Technology Co., Ltd**
Address	201, 2F, Building 3, HongtaiZhihui Valley, No. 15, Sicheng Road, Tianhe District, Guangzhou, China
Test specification:	
Standard	FCC CFR Title 47 Part 15 Subpart C Section 15.407 ANSI C63.10:2013 KDB 789033 D02 v01r02 RSS-247 Issue 2 RSS-Gen Issue 5
Test procedure	/
Non-standard test method	N/A
Test Report Form No.	TRF-EL-113_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	**Rhino X Pro**
Trademark	Ximmerse
Model/Type reference	AG1A0001
Ratings	DC 3.8V bybattery, DC 5V USB charging

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) ..... :	Jim Liu
Reviewer (name + signature)..... :	Jackson Fang
Approved (name + signature) ..... :	Lake Xie

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1. VERSION

ReportNo.	Version	Description	Approved
ZKT-221009L7381E-3	Rev.01	Initial issue of report	November 15, 2022

2.SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part15 (15.407) , Subpart E RSS-247 Issue 2			
Standard Section	Test Item	Judgment	Remark
FCC part 15.209(a), FCC part 15.407 (b)(1) FCC part 15.407 (b)(4) FCC part 15.407 (b)(8)	Spurious Radiated Emissions	PASS	
FCC part 15.207 RSS-Gen Section 8.8	Conducted Emission	PASS	
FCC part 15.407 (a)(12) 15.1049 RSS-247 Section 5.2(a) RSS-Gen Section 6.7	26 dB and 99% Emission Bandwidth	PASS	
FCC part 15.407(e)	6 dB bandwidth	PASS	
FCC part 15.407 (a)(1) FCC part 15.407 (a)(3) RSS-247 Section 5.4(d)	Maximum Conducted Output Power	PASS	
2.1051, FCC part 15.407(b)(1) FCC part 15.407(b)(4) RSS-247 Section 5.5	Band Edge	PASS	
FCC part 15.407 (a)(1) FCC part 15.407 (a)(3) RSS-247 Section 5.2(b)	Power Spectral Density	PASS	
2.1051, FCC part 15.407(b)	Spurious Emissions at Antenna Terminals	PASS	
FCC part 15.203 RSS-Gen Section 6.8	Antenna Requirement	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
Designation Number: CN0110

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.	Item	Uncertainty
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	Occupied Bandwidth	U=0.5dB
8	humidity uncertainty	U=5.3%
9	Temperature uncertainty	U=0.59℃
10	Radiated disturbance(30MHz-1000MHz)	U=4.8dB
11	Radiated disturbance(1GHz-6GHz)	U=4.9dB
12	Radiated disturbance(1GHz-18GHz)	U=5.0dB

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Product Name:	Rhino X Pro	
Model No.:	AG1A0001	
Model Different.:	N/A	
Sample ID	ZKT-221009L7381E	
PMN	Rhino X Pro	
HVIN	V1.0	
FVIN	V1.0	
HMN	Ximmerse	
Sample(s) Status:	Engineer sample	
Product Description	IEEE 802.11 WLAN Mode Supported	☒802.11a/ac/n (20MHz channel bandwidth) ☒802.11ac/n (40MHz channel bandwidth) ☒802.11ac(80MHz channel bandwidth)
	Data Rate	802.11a: 6,9,12,18,24,36,48,54Mbps; 802.11n/ac(HT20/HT40):MCS0-MCS15; 802.11ac(VHT80):NSS1, MCS0-MCS9
	Modulation	OFDM with BPSK/QPSK/16QAM/64QAM/256QAM for 802.11a/n/ac;
	Operating Frequency Range	☒5180-5240MHz for 802.11a/n(HT20)/ac20; 5190-5230MHz for 802.11n(HT40)/ac40; 5210MHz for 802.11 ac80; ☒5745-5825MHz for 802.11a/n(HT20)/ac20; 5755-5795MHz for 802.11n(HT40)/ac40; 5775MHz for 802.11 ac80;
	Number of Channels	☒4 channels for 802.11a/n20/ac20 in the 5180-5240MHz band and 5745-5825MHz; 2 channels for 802.11 n40/ac40 in the 5190-5230 MHz band and 5755-5795MHz; 1 channels for 802.11 ac80 in the 5210MHzband; ☒5 channels for 802.11a/n20/ac20 in the 5745-5825MHz band; 2 channels for 802.11 n40/ac40 in the 5755-5795 MHz band; 1channels for 802.11 ac80 in the 5775MHz band;
Channel List	Please refer to the Note 2.	
Antenna Type:	FPCBAntenna	
Antenna gain:	Ant. 0: 2.63dBi, Ant. 1: 3.38dBi	
Power supply:	DC 3.8V by battery, DC 5V USB charging	
SWITCHING POWER ADAPTER:	N/A	

Note:
For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

802.11a/ac/n(20MHz) Frequency Channel							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	44	5220	149	5745	161	5805
40	5200	48	5240	153	5765	165	5825
				157	5785	-	-

802.11n/ac(40MHz) Frequency Channel

802.11n/ac(40MHz)Frequency Channel							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
38	5190	-	-	151	5755	-	-
46	5230	-	-	159	5795	-	-

802.11ac(80MHz) Frequency Channel	
Channel	Frequency (MHz)
42	5210
155	5775

3.2 DESCRIPTION OF TEST MODES

Transmitting mode	Keep the EUT in continuously transmitting mode
Remark: During the test,thedutycycle>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.	

Pretest Mode	Description
Mode 1	802.11a / n 20/ac20 CH36/CH40/CH48/CH149/CH157/CH165
Mode 2	802.11n 40 / ac40 CH38/CH46/CH151/CH159
Mode 3	802.11 ac80 CH42/CH155
Mode 4	Link Mode

Conducted Emission	
Final Test Mode	Description
Mode 4	Link Mode

For Radiated Emission	
Final Test Mode	Description
Mode 1	802.11a / n 20 CH36/CH40/CH48/CH149/CH157/CH165
Mode 2	802.11n 40 CH38/CH46/CH151/CH159
Mode 3	802.11 ac80 CH42/CH155

Note:

(1) The measurements are performed at all Bit Rate of Transmitter, the worst data was reported.
(2) 802.11n20/ac20 and 802.11n40/ac40 are tested, but only the worst data of 11n20 and 11n40 was reported.

Test Software	QRCT 3
Powerlevelsetup	<15dBm

3.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Conducted Emission

AC Line — EUT

Radiated Emission

EUT

Conducted Spurious

EUT

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
E-1	Rhino X Pro	Ximmerse	AG1A0001	N/A	EUT

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.

3.5 EQUIPMENTS LIST FOR ALL TEST ITEMS

Radiation Test equipment

Item	Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	SpectrumAnalyzer (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. 18, 2022	Oct. 17, 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	ESGSignal Generator	Agilent	E4421B	N/A	Oct. 22, 2022	Oct. 21, 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	RF Power Meter Test system	N/A	MW100-RPCB	N/A	Oct. 22, 2022	Oct. 21, 2023
16	D.C. Power Supply	LongWei	TPR-6405D	N/A	\	\
17	EMC Software	Frad	EZ-EMC	Ver.EMC-CON 3A1.1	\	\
18	RF Software	MW	MTS8310	V2.0.0.0	\	\
19	Turntable	MF	MF-7802BS	N/A	\	\
20	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

a. 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.

b. 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.

c. 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.

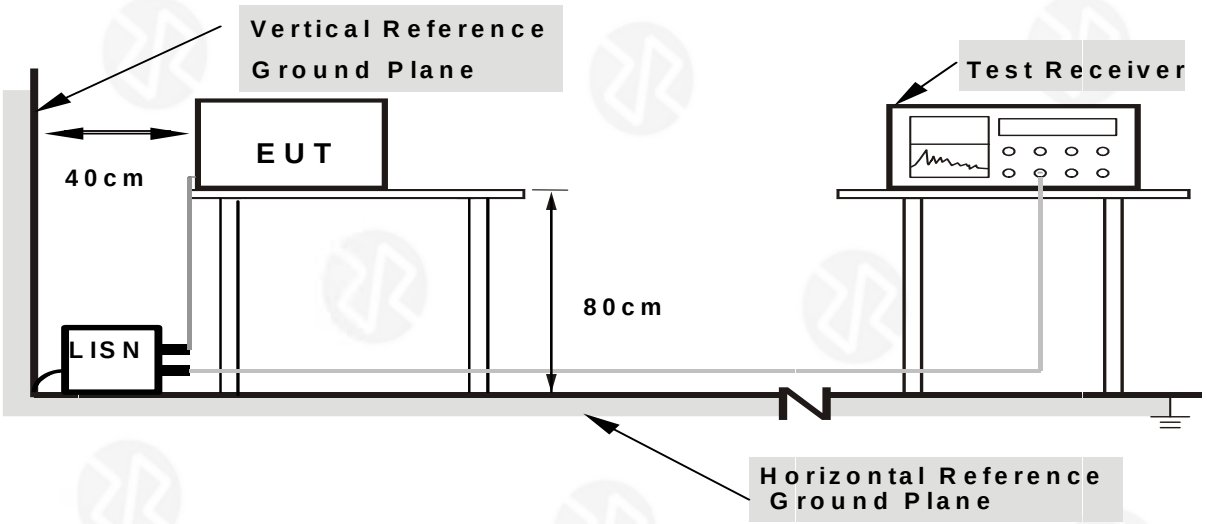
d. LISN at least 80 cm from nearest part of EUT chassis.

e. 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



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

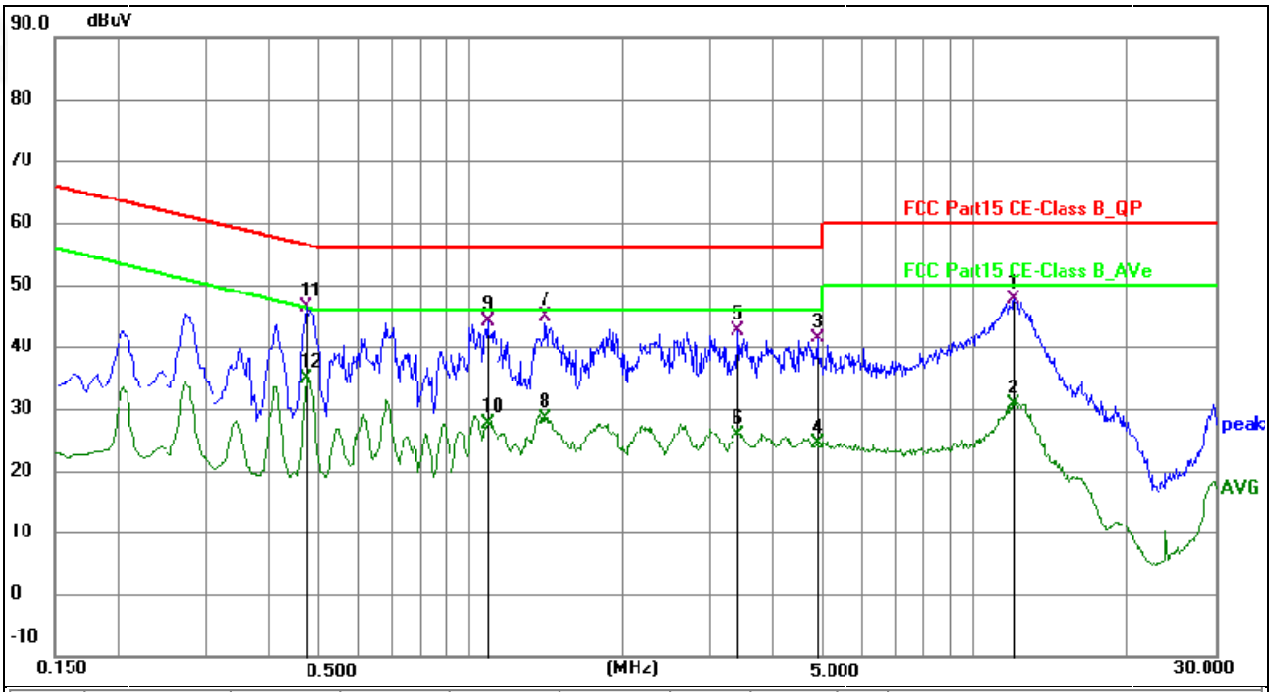
4.1.5 EUT OPERATING CONDITIONS

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.

The test mode is the Wi-Fi operating mode in the charging state, and the worstdataof 802.11a_5180MHzwasreported.

4.1.6 TEST RESULT:

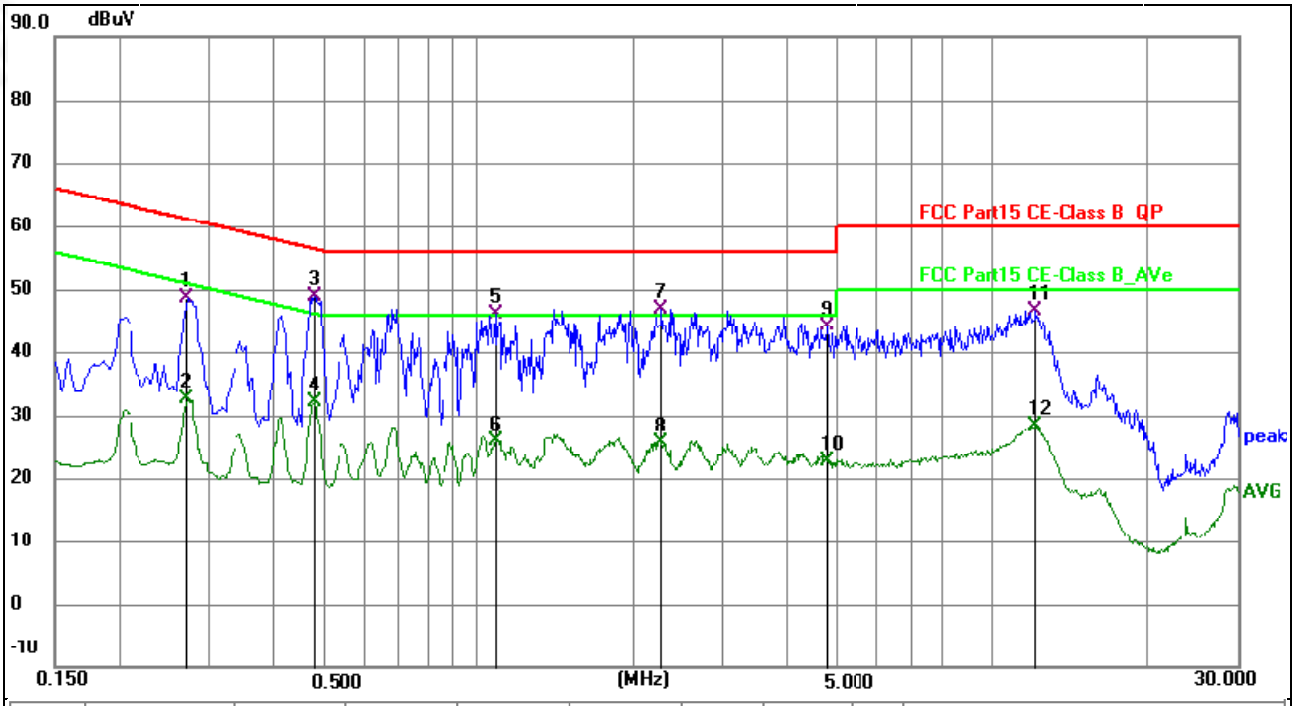
Temperature：	26℃	Relative Humidity：	54%
Pressure：	101kPa	Phase：	L
Test Voltage：	AC 120V/60Hz		



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	11.9895	37.42	10.17	47.59	60.00	-12.41	QP	P	
2	11.9895	20.37	10.17	30.54	50.00	-19.46	AVG	P	
3	4.8570	31.15	10.13	41.28	56.00	-14.72	QP	P	
4	4.8570	14.32	10.13	24.45	46.00	-21.55	AVG	P	
5	3.4170	32.62	10.09	42.71	56.00	-13.29	QP	P	
6	3.4170	15.91	10.09	26.00	46.00	-20.00	AVG	P	
7	1.4100	34.82	10.07	44.89	56.00	-11.11	QP	P	
8	1.4100	18.41	10.07	28.48	46.00	-17.52	AVG	P	
9	1.0815	34.17	10.05	44.22	56.00	-11.78	QP	P	
10	1.0815	17.59	10.05	27.64	46.00	-18.36	AVG	P	
11 *	0.4740	36.47	10.03	46.50	56.44	-9.94	QP	P	
12	0.4740	24.82	10.03	34.85	46.44	-11.59	AVG	P	

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

Temperature：	26℃	Relative Humidity：	54%
Pressure：	101kPa	Phase：	N
Test Voltage：	AC 120V/60Hz		



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.2714	38.77	9.80	48.57	61.07	-12.50	QP	P	
2	0.2714	22.90	9.80	32.70	51.07	-18.37	AVG	P	
3 *	0.4785	38.73	10.04	48.77	56.37	-7.60	QP	P	
4	0.4785	22.10	10.04	32.14	46.37	-14.23	AVG	P	
5	1.0815	36.28	9.87	46.15	56.00	-9.85	QP	P	
6	1.0815	15.97	9.87	25.84	46.00	-20.16	AVG	P	
7	2.2785	36.87	10.07	46.94	56.00	-9.06	QP	P	
8	2.2785	15.45	10.07	25.52	46.00	-20.48	AVG	P	
9	4.7805	34.05	10.12	44.17	56.00	-11.83	QP	P	
10	4.7805	12.61	10.12	22.73	46.00	-23.27	AVG	P	
11	12.1469	36.51	10.19	46.70	60.00	-13.30	QP	P	
12	12.1469	18.18	10.19	28.37	50.00	-21.63	AVG	P	

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

4.2 RADIATED EMISSION MEASUREMENT

4.2.1 APPLICABLE STANDARD

According to FCC Part 15.407(d) and 15.209

4.2.2 CONFORMANCE LIMIT

According to FCC Part 15.407(b)(7): radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).
According to FCC Part15.205, Restricted bands

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
10.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	(2)
13.36-13.41			

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Restricted Frequency(MHz)	Field Strength (μV/m)	Field Strength (dBμV/m)	Measurement Distance
0.009~0.490	2400/F(KHz)	20 log (uV/m)	300
0.490~1.705	2400/F(KHz)	20 log (uV/m)	30
1.705~30.0	30	29.5	30
30-88	100	40	3
88-216	150	43.5	3
216-960	200	46	3
Above 960	500	54	3

Limits of Radiated Emission Measurement(Above 1000MHz)

Frequency(MHz)	Class B (dBuV/m) (at 3M)	
	PEAK	AVERAGE
Above 1000	74	54

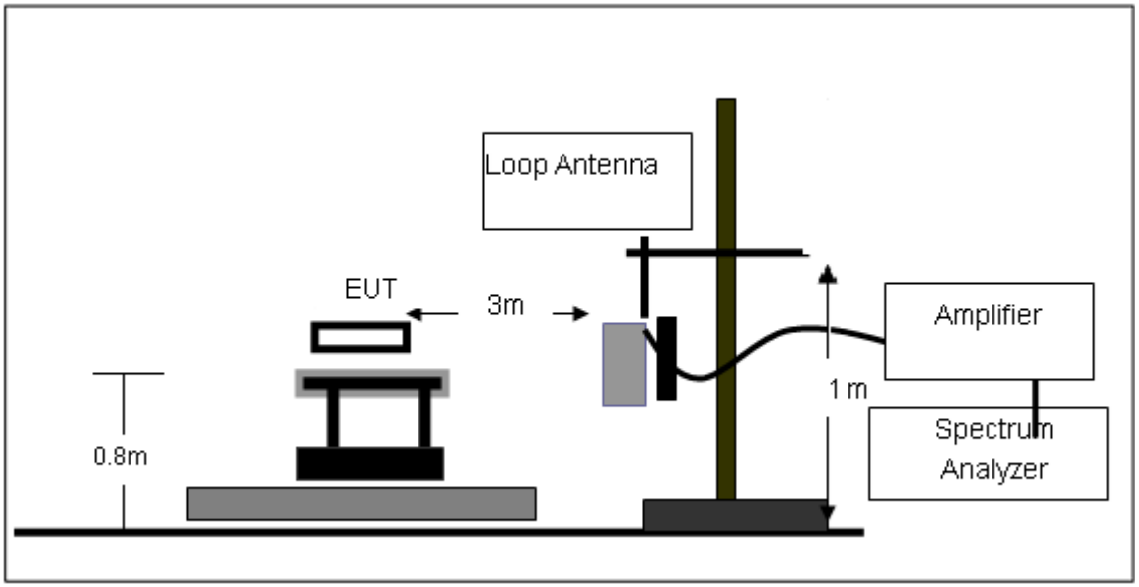
Remark :1. Emission level in dBuV/m=20 log (uV/m)
2. Measurement was performed at an antenna to the closed point of EUT distance of meters.
3. Distance extrapolation factor =40log(Specific distance/ test distance)(dB);
Limit line=Specific limits(dBuV) + distance extrapolation factor.

4.2.3 MEASURING INSTRUMENTS

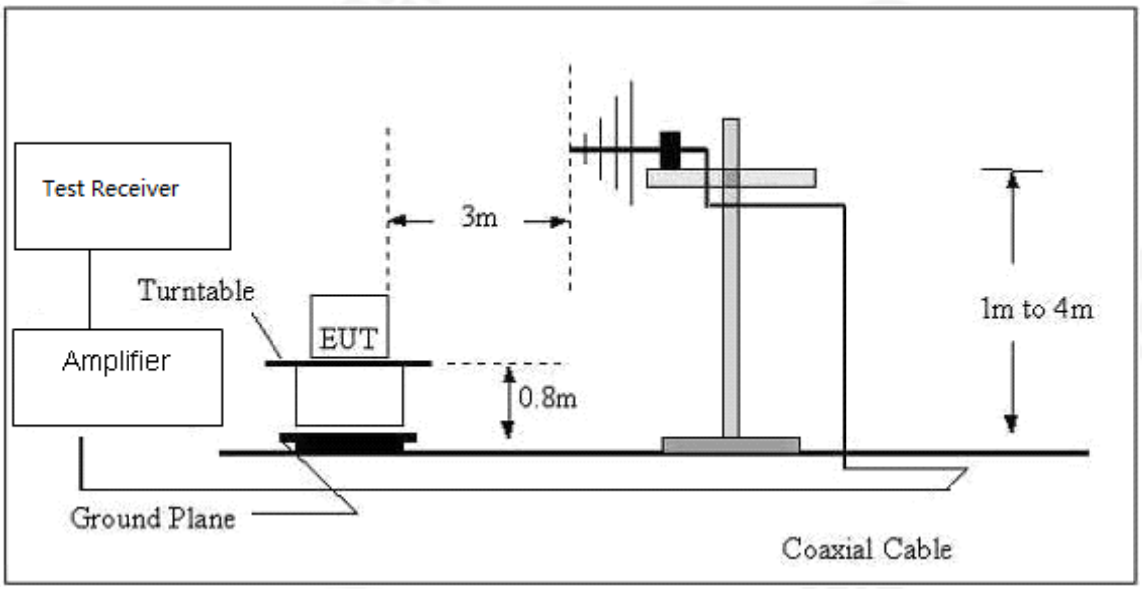
The Measuring equipment is listed in the section 6.3 of this test report.

4.2.4 TEST CONFIGURATION

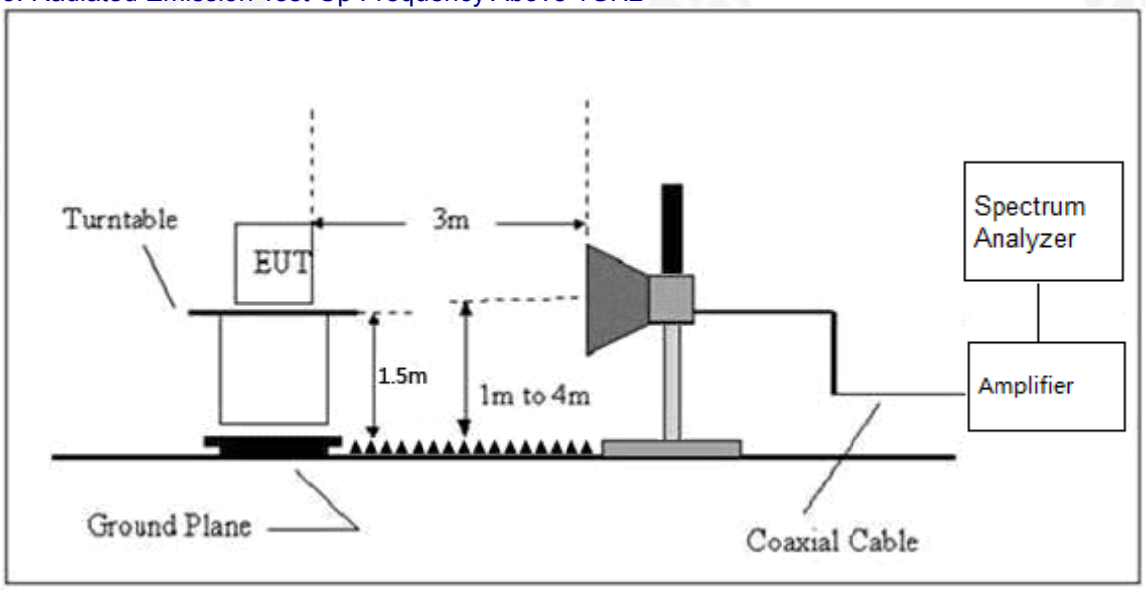
1.For radiated emissions below 30MHz



2.For radiated emissions from 30MHz to 1000MHz



3. Radiated Emission Test-Up Frequency Above 1GHz



4.2.5 TEST PROCEDURE

The test site semi-anechoic chamber has met the requirement of NSA tolerance 4 dB according to the standards: ANSI C63.10-2013. The test distance is 3m.The setup is according to the requirements in Section 13.1.4.1 of ANSI C63.10-2013 and CAN/CSA-CEI/IEC CISPR 22.
This test is required for any spurious emission that falls in a Restricted Band, as defined in Section 15.205. It must be performed with the highest gain of each type of antenna proposed for use with the EUT.
Use the following spectrum analyzer settings:

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (emission in restricted band)	1 MHz / 1 MHz for Peak, 1 MHz / 10Hz for Average

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

a. 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.
b. The EUT was placed on the top of a rotating table 0.8 m for below 1GHz and 1.5m for above 1GHz the ground at a 3 meter. The table was rotated 360 degrees to determine the position of the highest radiation.
c. The height of the equipment or of the substitution antenna shall be 0.8 m for below 1GHz and 1.5m for above 1GHz; 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.
d. 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.
e. 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.

f. 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

During the radiated emission test, the Spectrum Analyzer was set with the following configurations:

Frequency Band (MHz)	Function	Resolution bandwidth	Video Bandwidth
30 to 1000	QP	120 kHz	300 kHz
Above 1000	Peak	1 MHz	1 MHz
	Average	1 MHz	10 Hz

Note: for the frequency ranges below 30 MHz, a narrower RBW is used for these ranges but the measured value should add a RBW correction factor (RBWCF) where RBWCF [dB] =10*lg(100 [kHz]/narrower RBW [kHz]). , the narrower RBW is 1 kHz and RBWCF is 20 dB for the frequency 9 kHz to 150 kHz, and the narrower RBW is 10 kHz and RBWCF is 10 dB for the frequency 150 kHz to 30 MHz.

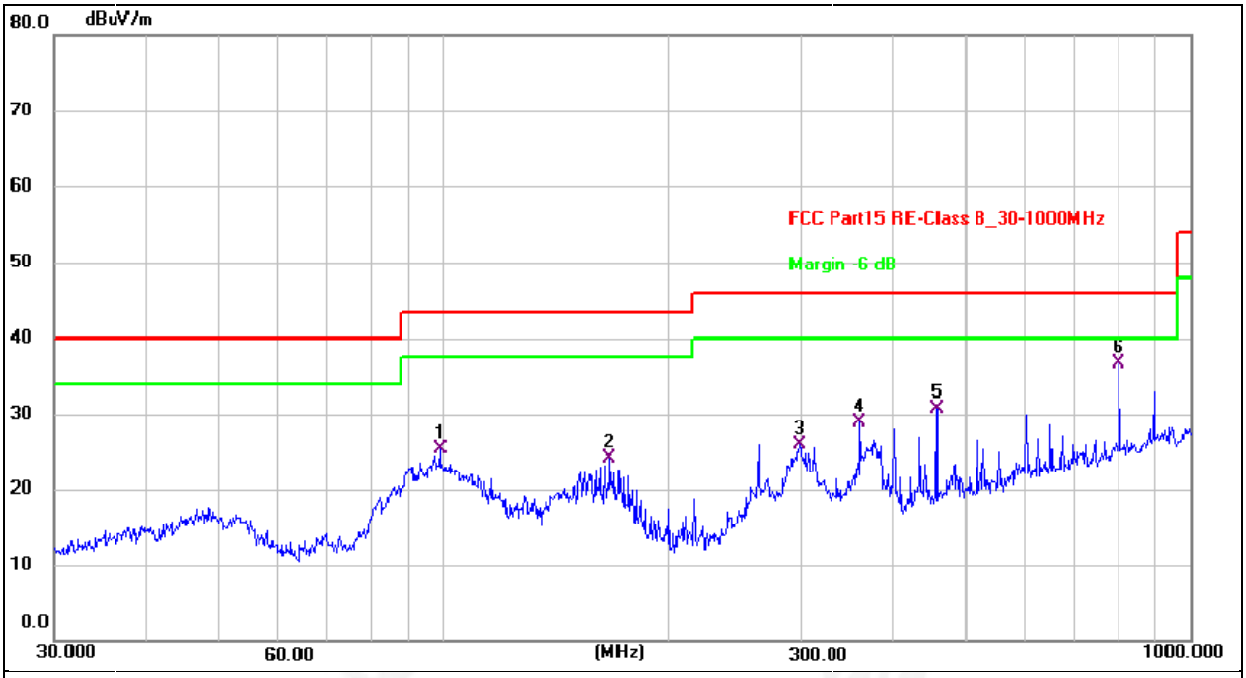
4.2.6 TEST RESULT

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.

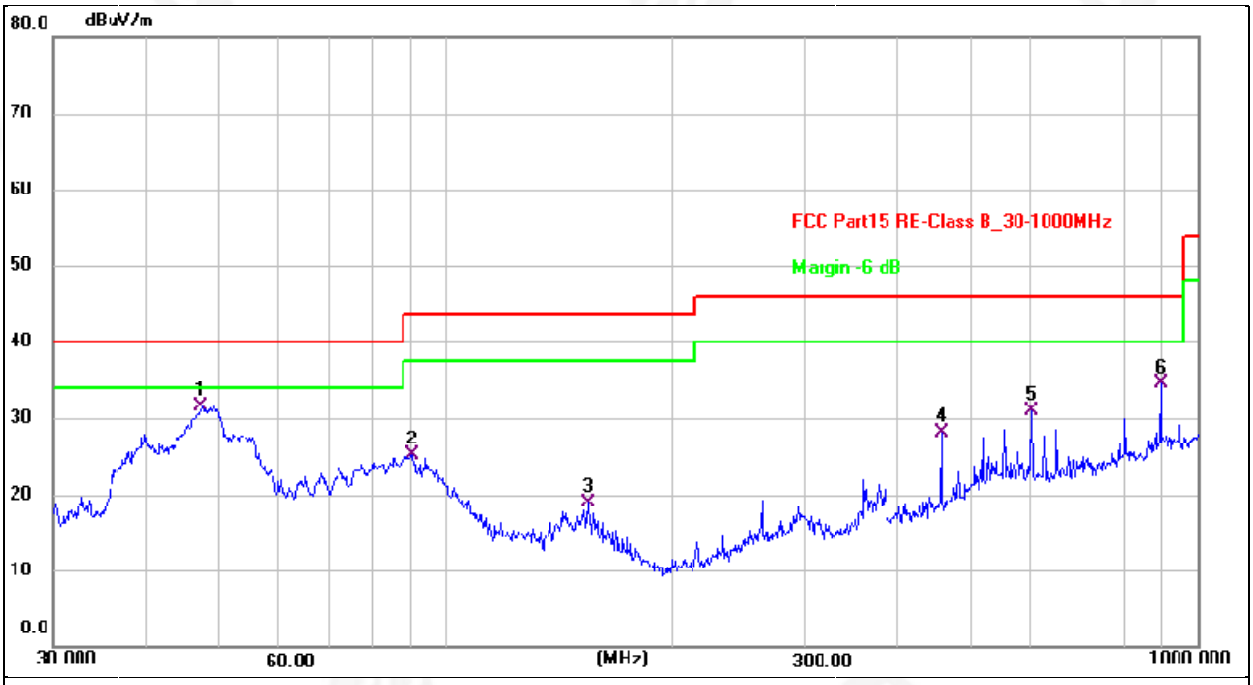
Between 30MHz – 1GHz

Temperature:	26℃	Relative Humidity:	54%
Pressure:	101 kPa	Polarization:	Horizontal
Test Voltage:	DC 3.8V		



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	98.8324	38.23	-12.89	25.34	43.50	-18.16	QP	100	26	P	
2	166.6512	33.68	-9.58	24.10	43.50	-19.40	QP	100	163	P	
3	298.2681	34.44	-8.50	25.94	46.00	-20.06	QP	100	144	P	
4	360.4476	36.29	-7.43	28.86	46.00	-17.14	QP	100	246	P	
5	455.9057	35.63	-4.96	30.67	46.00	-15.33	QP	100	227	P	
6 *	801.7862	34.45	2.30	36.75	46.00	-9.25	QP	100	11	P	

Temperature:	26℃	Relative Humidity:	54%
Pressure:	101kPa	Polarization:	Vertical
Test Voltage:	DC 3.8V		



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1 *	47.3253	40.75	-9.22	31.53	40.00	-8.47	QP	100	153	P	
2	90.2203	38.74	-13.55	25.19	43.50	-18.31	QP	100	316	P	
3	154.2785	27.86	-9.03	18.83	43.50	-24.67	QP	100	253	P	
4	455.9057	33.16	-4.96	28.20	46.00	-17.80	QP	100	38	P	
5	601.4265	31.96	-1.12	30.84	46.00	-15.16	QP	100	112	P	
6	893.8565	30.88	3.67	34.55	46.00	-11.45	QP	100	3	P	

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 case802.11a_5180MHzANT. 0andANT. 1Simultaneous emission mode

Between1GHz – 40GHz

Temperature：	26℃	Relative Humidity：	54%
Pressure：	1010 hPa	Test Voltage：	DC 3.8V
Test Mode ：	5.2G TX- 802.11a		

Sub-band: 5180MHz~5240MHz 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	10360.00	41.49	30.45	8.77	38.66	58.47	74.00	-15.53	PK
V	10360.00	26.3	30.45	8.77	38.66	43.28	54.00	-10.72	AV
V	15540.00	41.32	30.44	9.31	38.55	58.74	74.00	-15.26	PK
V	15540.00	32.31	30.44	9.31	38.55	49.73	54.00	-4.27	AV
V	20720.00	42.86	30.72	9.45	38.69	60.28	74.00	-13.72	PK
V	20720.00	37.19	30.72	9.45	38.69	54.61	54.00	0.61	AV
V	25900.00	44.8	30.65	9.99	38.57	62.71	74.00	-11.29	PK
V	25900.00	37.81	30.65	9.99	38.57	55.72	54.00	1.72	AV
H	10360.00	43.66	30.45	8.77	38.66	60.64	74.00	-13.36	PK
H	10360.00	36.84	30.45	8.77	38.66	53.82	54.00	-0.18	AV
H	15540.00	42.32	30.44	9.31	38.55	59.74	74.00	-14.26	PK
H	15540.00	33.85	30.44	9.31	38.55	51.27	54.00	-2.73	AV
H	20720.00	44.4	30.72	9.45	38.69	61.82	74.00	-12.18	PK
H	20720.00	32.91	30.72	9.45	38.69	50.33	54.00	-3.67	AV
H	25900.00	41.38	30.65	9.99	38.57	59.29	74.00	-14.71	PK
H	25900.00	33.73	30.65	9.99	38.57	51.64	54.00	-2.36	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	10400.00	42.9	30.45	8.77	38.66	59.88	74.00	-14.12	PK
V	10400.00	32.21	30.45	8.77	38.66	49.19	54.00	-4.81	AV
V	15600.00	41.97	30.44	9.31	38.55	59.39	74.00	-14.61	PK
V	15600.00	33.4	30.44	9.31	38.55	50.82	54.00	-3.18	AV
V	20800.00	43.07	30.72	9.45	38.69	60.49	74.00	-13.51	PK
V	20800.00	33.35	30.72	9.45	38.69	50.77	54.00	-3.23	AV
V	26000.00	41.31	30.65	9.99	38.57	59.22	74.00	-14.78	PK
V	26000.00	32.91	30.65	9.99	38.57	50.82	54.00	-3.18	AV
H	10400.00	41.76	30.45	8.77	38.66	58.74	74.00	-15.26	PK
H	10400.00	31.97	30.45	8.77	38.66	48.95	54.00	-5.05	AV
H	15600.00	41.8	30.44	9.31	38.55	59.22	74.00	-14.78	PK
H	15600.00	33.86	30.44	9.31	38.55	51.28	54.00	-2.72	AV
H	20800.00	42.86	30.72	9.45	38.69	60.28	74.00	-13.72	PK
H	20800.00	33.3	30.72	9.45	38.69	50.72	54.00	-3.28	AV
H	26000.00	43.32	30.65	9.99	38.57	61.23	74.00	-12.77	PK
H	26000.00	33.33	30.65	9.99	38.57	51.24	54.00	-2.76	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	10480.00	42.39	30.45	8.77	38.66	59.37	74.00	-14.63	PK
V	10480.00	32.35	30.45	8.77	38.66	49.33	54.00	-4.67	AV
V	15720.00	42.85	30.44	9.31	38.55	60.27	74.00	-13.73	PK
V	15720.00	33.85	30.44	9.31	38.55	51.27	54.00	-2.73	AV
V	20960.00	41.96	30.72	9.45	38.69	59.38	74.00	-14.62	PK
V	20960.00	32.81	30.72	9.45	38.69	50.23	54.00	-3.77	AV
V	26200.00	42.36	30.65	9.99	38.57	60.27	74.00	-13.73	PK
V	26200.00	31.45	30.65	9.99	38.57	49.36	54.00	-4.64	AV
H	10480.00	43.13	30.45	8.77	38.66	60.11	74.00	-13.89	PK
H	10480.00	33.84	30.45	8.77	38.66	50.82	54.00	-3.18	AV
H	15720.00	42.79	30.44	9.31	38.55	60.21	74.00	-13.79	PK
H	15720.00	32.79	30.44	9.31	38.55	50.21	54.00	-3.79	AV
H	20960.00	42.59	30.72	9.45	38.69	60.01	74.00	-13.99	PK
H	20960.00	33.81	30.72	9.45	38.69	51.23	54.00	-2.77	AV
H	26200.00	43.27	30.65	9.99	38.57	61.18	74.00	-12.82	PK
H	26200.00	31.32	30.65	9.99	38.57	49.23	54.00	-4.77	AV

Sub-band: 5745MHz~5825MHz 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:5745MHz									
V	11490.00	37.29	30.45	8.77	38.66	54.27	74.00	-19.73	PK
V	11490.00	28.31	30.45	8.77	38.66	45.29	54.00	-8.71	AV
V	17235.00	36.42	30.44	9.31	38.55	53.84	74.00	-20.16	PK
V	17235.00	25.47	30.44	9.31	38.55	42.89	54.00	-11.11	AV
V	22980.00	36.87	30.72	9.45	38.69	54.29	74.00	-19.71	PK
V	22980.00	25.49	30.72	9.45	38.69	42.91	54.00	-11.09	AV
V	28725.00	36.42	30.65	9.99	38.57	54.33	74.00	-19.67	PK
V	28725.00	23.93	30.65	9.99	38.57	41.84	54.00	-12.16	AV
H	11490.00	36.89	30.45	8.77	38.66	53.87	74.00	-20.13	PK
H	11490.00	25.76	30.45	8.77	38.66	42.74	54.00	-11.26	AV
H	17235.00	37.3	30.44	9.31	38.55	54.72	74.00	-19.28	PK
H	17235.00	25.31	30.44	9.31	38.55	42.73	54.00	-11.27	AV
H	22980.00	36.32	30.72	9.45	38.69	53.74	74.00	-20.26	PK
H	22980.00	25.14	30.72	9.45	38.69	42.56	54.00	-11.44	AV
H	28725.00	36.76	30.65	9.99	38.57	54.67	74.00	-19.33	PK
H	28725.00	24.73	30.65	9.99	38.57	42.64	54.00	-11.36	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:5785MHz									
V	11570.00	35.67	30.45	8.77	38.66	52.65	74.00	-21.35	PK
V	11570.00	26.74	30.45	8.77	38.66	43.72	54.00	-10.28	AV
V	17335.00	37.39	30.44	9.31	38.55	54.81	74.00	-19.19	PK
V	17335.00	24.57	30.44	9.31	38.55	41.99	54.00	-12.01	AV
V	23140.00	36.8	30.72	9.45	38.69	54.22	74.00	-19.78	PK
V	23140.00	25.74	30.72	9.45	38.69	43.16	54.00	-10.84	AV
V	28925.00	36.83	30.65	9.99	38.57	54.74	74.00	-19.26	PK
V	28925.00	23.93	30.65	9.99	38.57	41.84	54.00	-12.16	AV
H	11570.00	37.11	30.45	8.77	38.66	54.09	74.00	-19.91	PK
H	11570.00	26.2	30.45	8.77	38.66	43.18	54.00	-10.82	AV
H	17335.00	36.4	30.44	9.31	38.55	53.82	74.00	-20.18	PK
H	17335.00	24.32	30.44	9.31	38.55	41.74	54.00	-12.26	AV
H	23140.00	36.36	30.72	9.45	38.69	53.78	74.00	-20.22	PK
H	23140.00	25.47	30.72	9.45	38.69	42.89	54.00	-11.11	AV
H	28925.00	35.81	30.65	9.99	38.57	53.72	74.00	-20.28	PK
H	28925.00	24.86	30.65	9.99	38.57	42.77	54.00	-11.23	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	11650.00	37.94	30.45	8.77	38.66	54.92	74.00	-19.08	PK
V	11650.00	24.76	30.45	8.77	38.66	41.74	54.00	-12.26	AV
V	17475.00	38.31	30.44	9.31	38.55	55.73	74.00	-18.27	PK
V	17475.00	25.25	30.44	9.31	38.55	42.67	54.00	-11.33	AV
V	23300.00	37.36	30.72	9.45	38.69	54.78	74.00	-19.22	PK
V	23300.00	26.36	30.72	9.45	38.69	43.78	54.00	-10.22	AV
V	29125.00	34.73	30.65	9.99	38.57	52.64	74.00	-21.36	PK
V	29125.00	26.1	30.65	9.99	38.57	44.01	54.00	-9.99	AV
H	11650.00	37.75	30.45	8.77	38.66	54.73	74.00	-19.27	PK
H	11650.00	26.8	30.45	8.77	38.66	43.78	54.00	-10.22	AV
H	17475.00	36.3	30.44	9.31	38.55	53.72	74.00	-20.28	PK
H	17475.00	27.14	30.44	9.31	38.55	44.56	54.00	-9.44	AV
H	23300.00	37.3	30.72	9.45	38.69	54.72	74.00	-19.28	PK
H	23300.00	26.22	30.72	9.45	38.69	43.64	54.00	-10.36	AV
H	29125.00	36.85	30.65	9.99	38.57	54.76	74.00	-19.24	PK
H	29125.00	24.8	30.65	9.99	38.57	42.71	54.00	-11.29	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. The worst mode is 802.11a, only the worst data is recorded.
5. The test data shows ANT. 0andANT. 1Simultaneous emission mode

5.POWER SPECTRAL DENSITY TEST

5.1 APPLIED PROCEDURES / LIMIT

According to FCC §15.407(3)

Power limits:

(1) For the band 5.15-5.25 GHz.

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 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. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 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.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For client devices in the 5.15-5.25 GHz band, 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.

(2) 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 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.

(3) For the band 5.725-5.85 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. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

5.2 TEST PROCEDURE

For devices operating in the bands 5.15-5.25 GHz, 5.25-5.35 GHz, and 5.47-5.725 GHz, the above procedures make use of 1 MHz RBW to satisfy directly the 1 MHz reference bandwidth specified in § 15.407(a)(5). For devices operating in the band 5.725-5.85 GHz, the rules specify a measurement bandwidth of 500 kHz. Many spectrum analyzers do not have 500 kHz RBW, thus a narrower RBW may need to be used. The rules permit the use of a RBWs less than 1 MHz, or 500 kHz, “provided that the measured power is integrated over the full reference bandwidth” to show the total power over the specified measurement bandwidth (i.e., 1 MHz, or 500 kHz). If measurements are performed using a reduced resolution bandwidth (< 1 MHz, or < 500 kHz) and integrated over 1 MHz, or 500 KHz bandwidth, the following adjustments to the procedures apply:

a) Set RBW ≥ 1/T, where T is defined in section II.B.I.a).

b) Set VBW ≥ 3 RBW.

c) If measurement bandwidth of Maximum PSD is specified in 500 kHz, add 10log(500kHz/RBW) to the measured result, whereas RBW (< 500 KHz) is the reduced resolution bandwidth of the spectrum analyzer set during measurement.

d) If measurement bandwidth of Maximum PSD is specified in 1 MHz, add 10log(1MHz/RBW) to the measured result, whereas RBW (< 1 MHz) is the reduced resolution bandwidth of spectrum analyzer set during measurement.

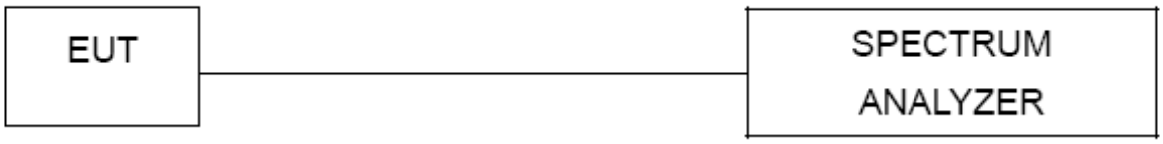
e) Care must be taken to ensure that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.

Note: As a practical matter, it is recommended to use reduced RBW of 100 KHz for the sections 5.c) and 5.d) above, since RBW=100 KHZ is available on nearly all spectrum analyzers.

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 RESULTS

Temperature :	26 ℃	Relative Humidity :	54%
Pressure :	1015 hPa	Test Voltage :	DC 3.8V
Test Mode :	TX		

Sub-band(5.2GHz): 5150-5250MHz

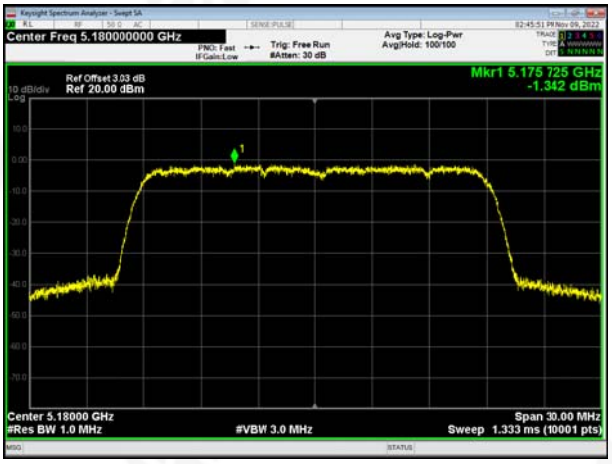
Mode	Frequency	Ant. 0 PSD (dBm/MHz)	Ant. 1 PSD (dBm/MHz)	Total PSD (dBm/MHz)	Limit (dBm/MHz)
802.11 a	5180 MHz	-1.34	-1.12	1.78	11
	5200 MHz	-1.56	-1.54	1.46	11
	5240 MHz	-0.73	-1.25	2.03	11
802.11 ac20	5180 MHz	-1.46	-1.39	1.59	11
	5200 MHz	-1.97	-2.13	0.96	11
	5240 MHz	-0.99	-1.43	1.81	11
802.11 n20	5180 MHz	-1.54	-1.57	1.46	11
	5200 MHz	-1.59	-2.12	1.16	11
	5240 MHz	-1	-1.67	1.69	11
802.11 n40	5190 MHz	-4.3	-4.26	-1.27	11
	5230 MHz	-3.57	-4.31	-0.91	11
802.11 ac40	5190 MHz	-4.22	-4.16	-1.18	11
	5230 MHz	-3.59	-4.35	-0.94	11
802.11 ac80	5210 MHz	-7.38	-7.03	-4.19	11

Sub-band(5.8GHz): 5725-5850MHz

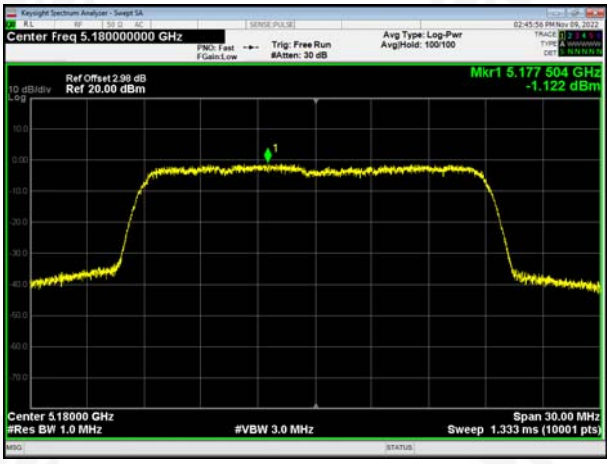
Mode	Frequency	Ant. 0 PSD (dBm/500kHz)	Ant. 1 PSD (dBm/500kHz)	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)
802.11 a	5745 MHz	-3.65	-3.15	-0.38	30
	5785 MHz	-4.55	-3.36	-0.9	30
	5825 MHz	-4.84	-3.97	-1.37	30
802.11 ac20	5745 MHz	-4.24	-3	-0.57	30
	5785 MHz	-4.83	-3.52	-1.12	30
	5825 MHz	-4.67	-4.44	-1.54	30
802.11 n20	5745 MHz	-4.01	-3.3	-0.63	30
	5785 MHz	-4.52	-3.56	-1	30
	5825 MHz	-4.15	-4.44	-1.28	30
802.11 n40	5755 MHz	-6.58	-6.09	-3.32	30
	5795 MHz	-7.08	-6.32	-3.67	30
802.11 ac40	5755 MHz	-7.12	-6.14	-3.59	30
	5795 MHz	-7.12	-6.26	-3.66	30
802.11 ac80	5775 MHz	-10.67	-9.81	-7.21	30

5.2GHz Power Spectrum Density

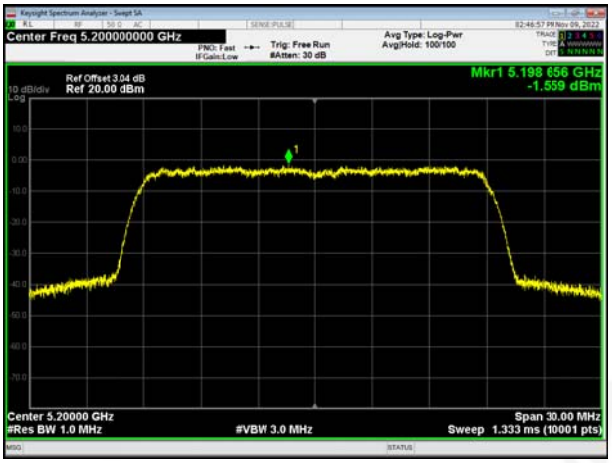
802.11a on channel 36 Ant. 0



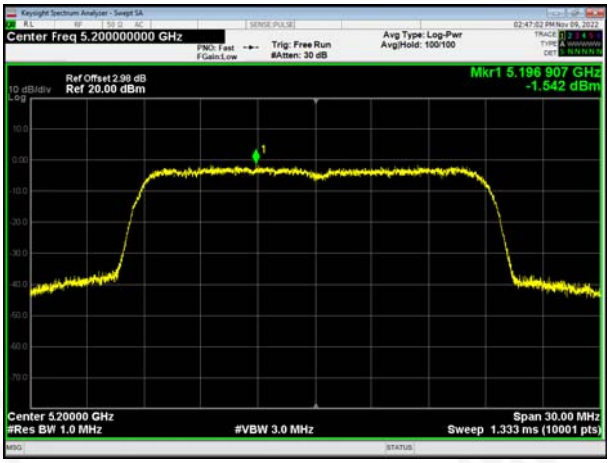
802.11a on channel 36 Ant. 1



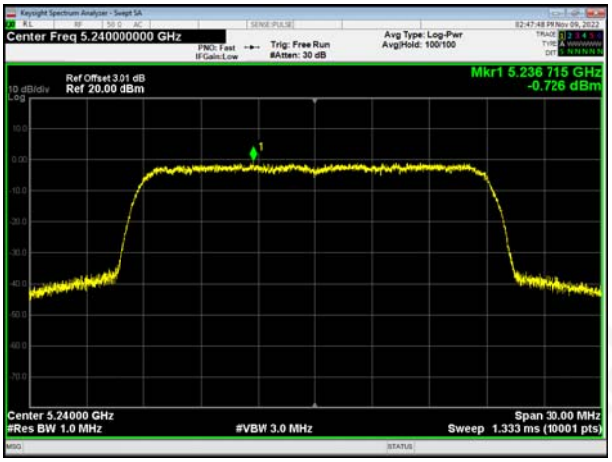
802.11a on channel 40 Ant. 0



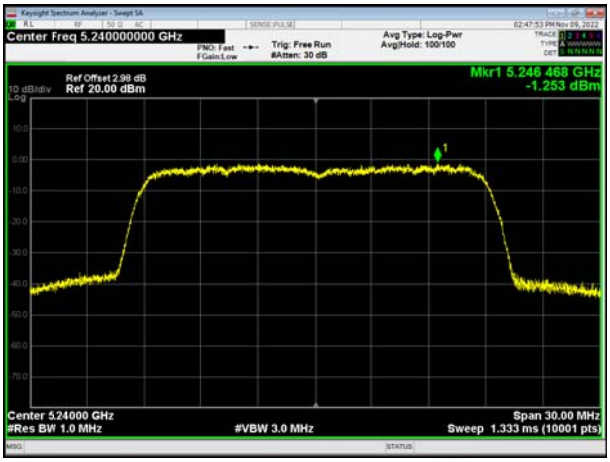
802.11a on channel 40 Ant. 1



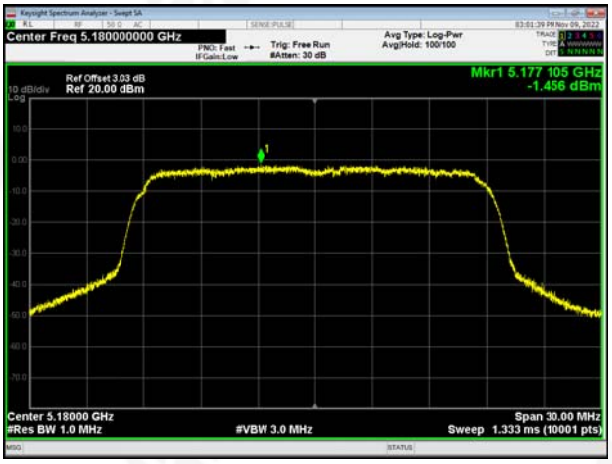
802.11a on channel 48 Ant. 0



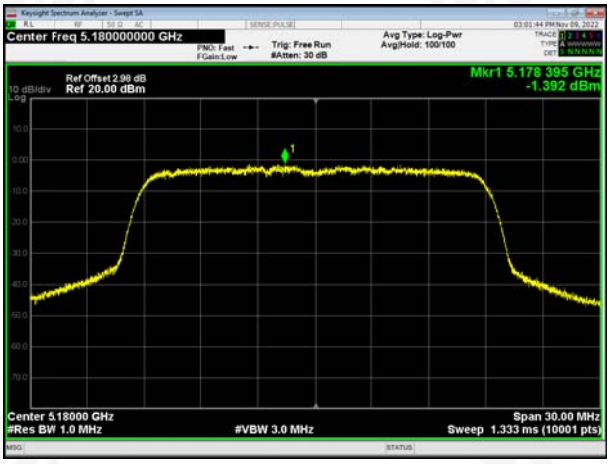
802.11a on channel 48 Ant. 1



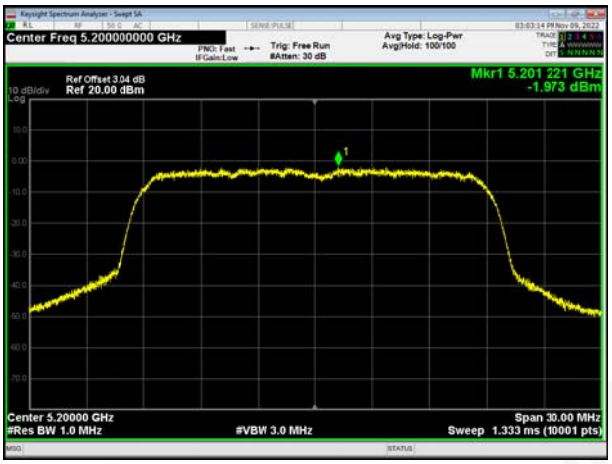
802.11ac20 on channel 36 Ant. 0



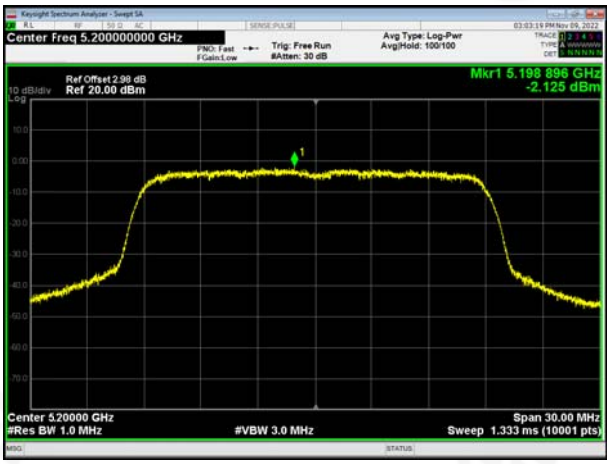
802.11ac20 on channel 36 Ant. 1



802.11ac20 on channel 40 Ant. 0



802.11ac20 on channel 40 Ant. 1



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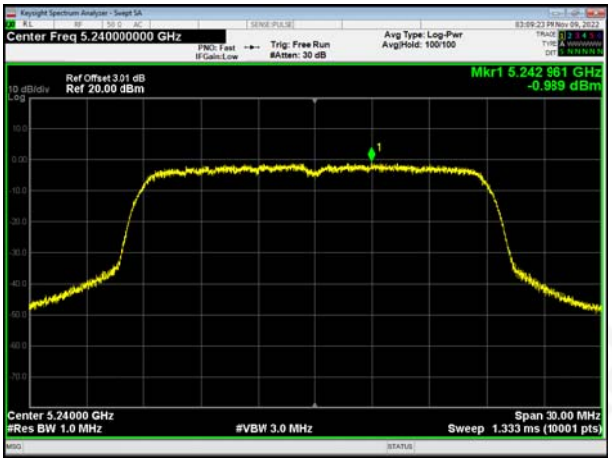
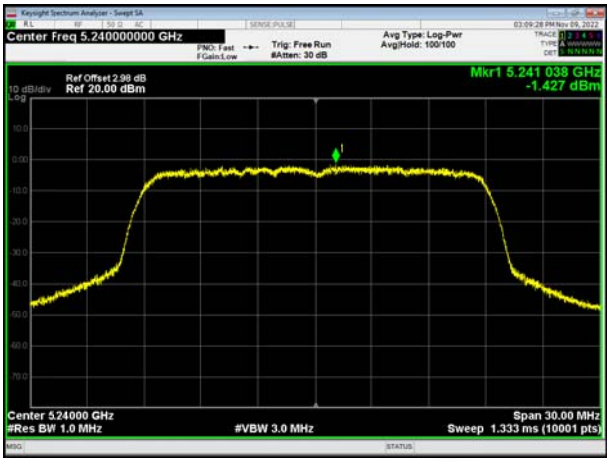
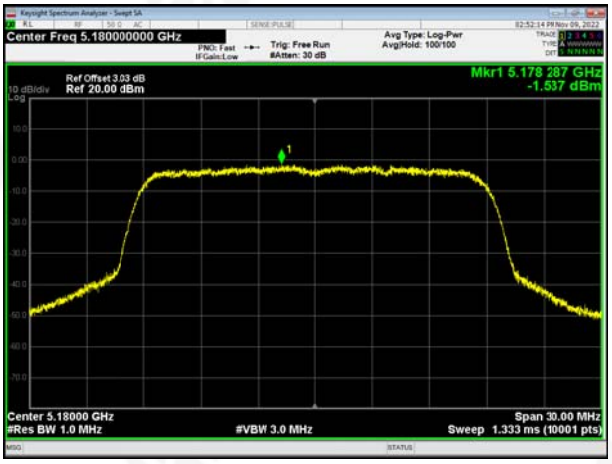


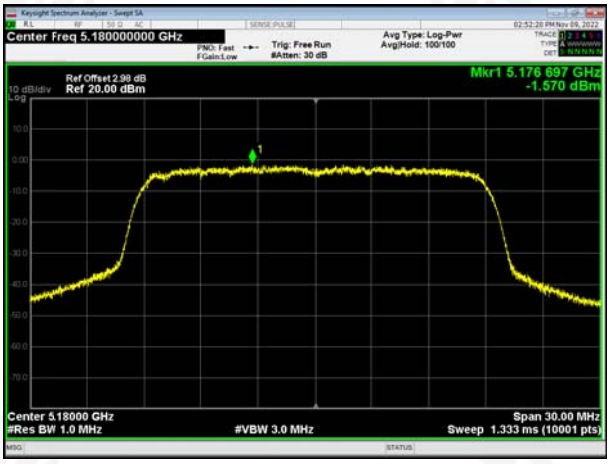
802.11ac20 on channel 48 Ant. 1



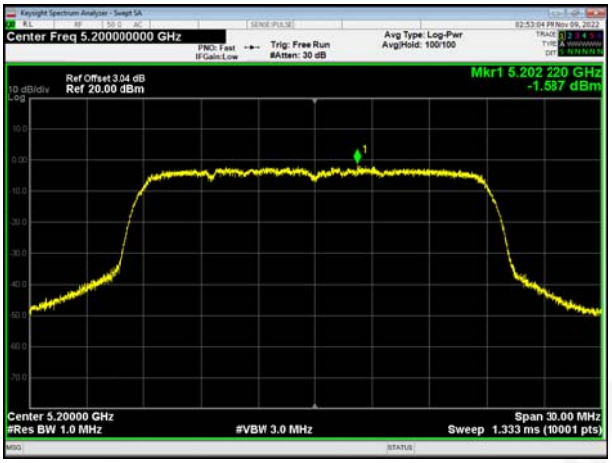
802.11n20 on channel 36 Ant. 0



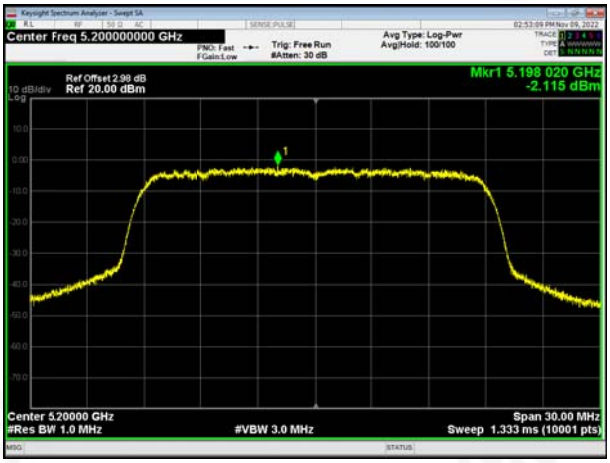
802.11n20 on channel 36 Ant. 1



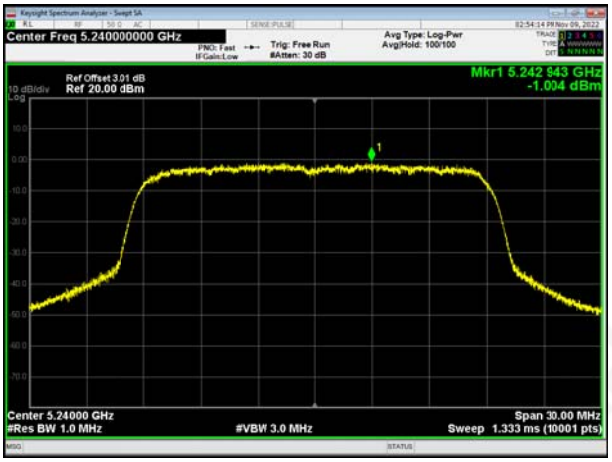
802.11n20 on channel 40 Ant. 0



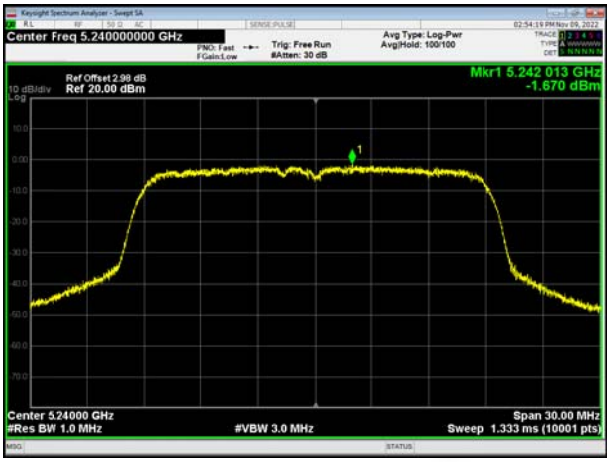
802.11n20 on channel 40 Ant. 1



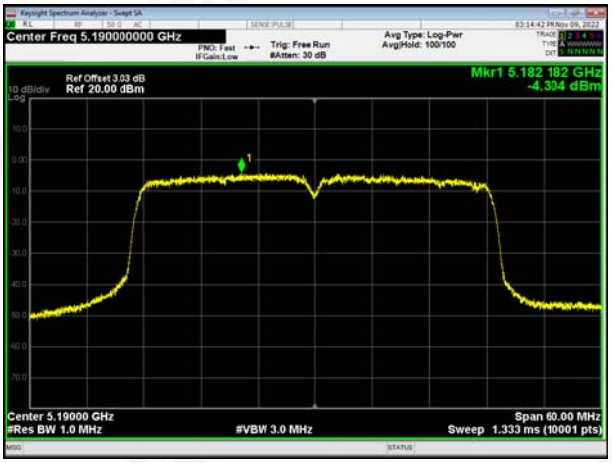
802.11n20 on channel 48 Ant. 0



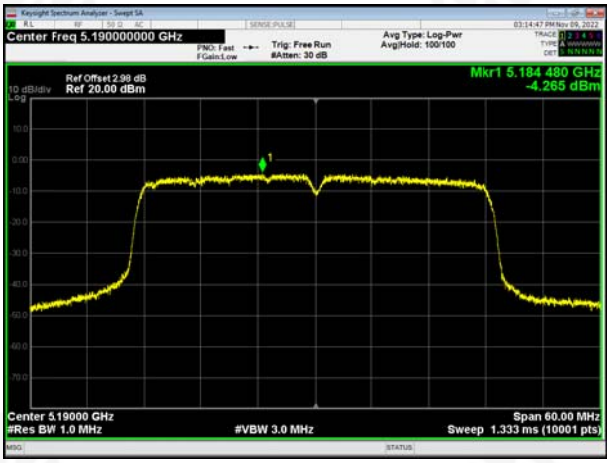
802.11n20 on channel 48 Ant. 1



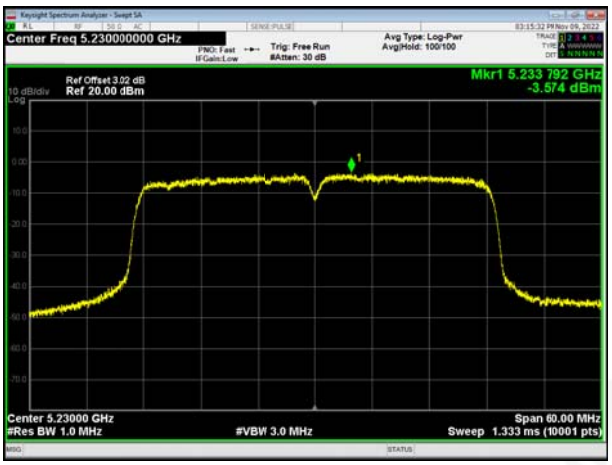
802.11n40 on channel 38Ant. 0



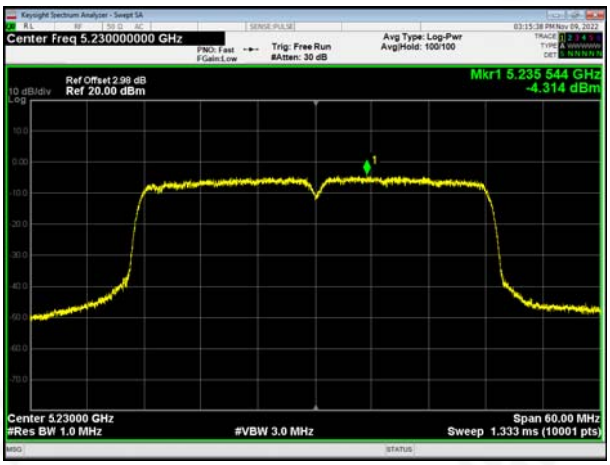
802.11n40 on channel 38Ant. 1



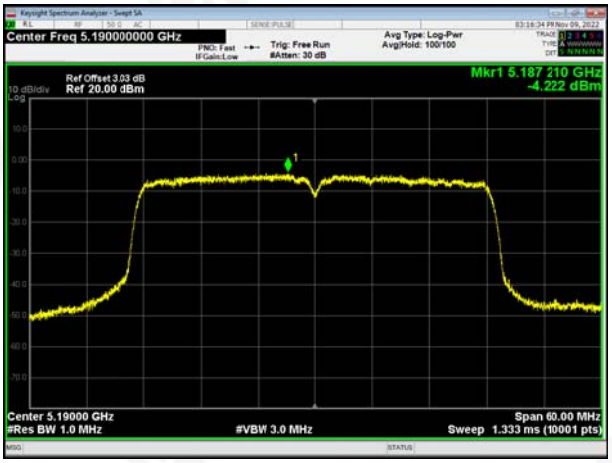
802.11n40 on channel 46Ant. 0



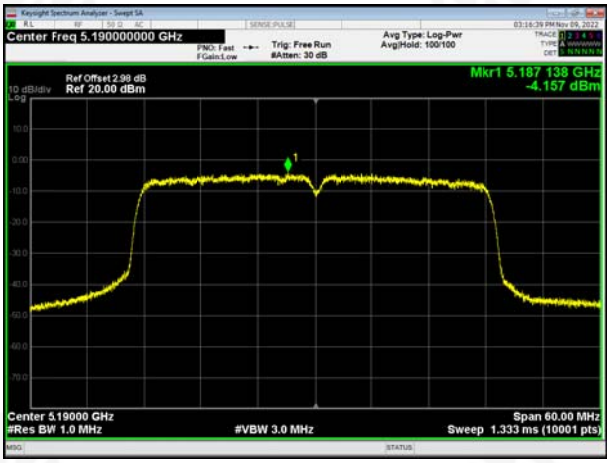
802.11n40 on channel 46Ant. 1



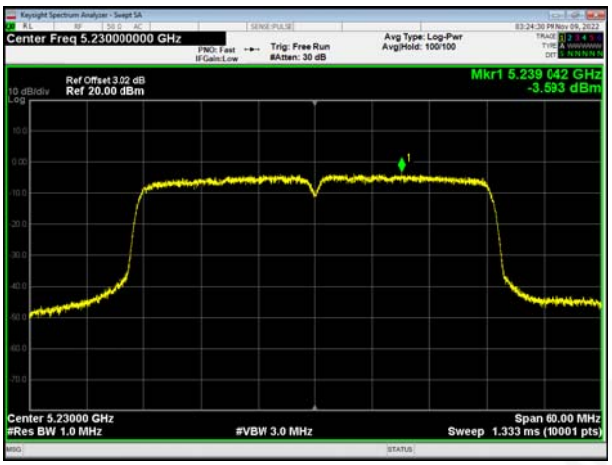
802.11ac40 on channel 38 Ant. 0



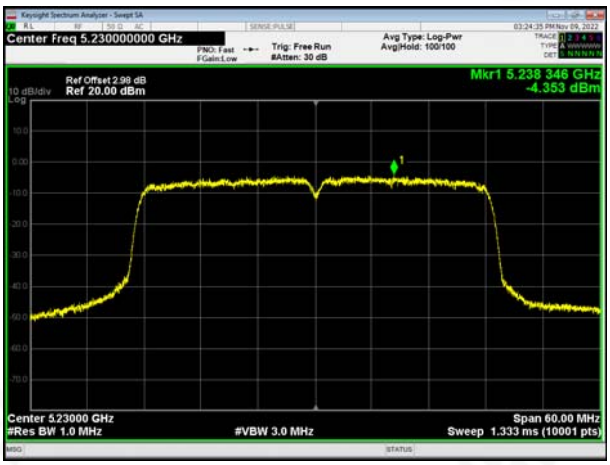
802.11ac40 on channel 38 Ant. 1



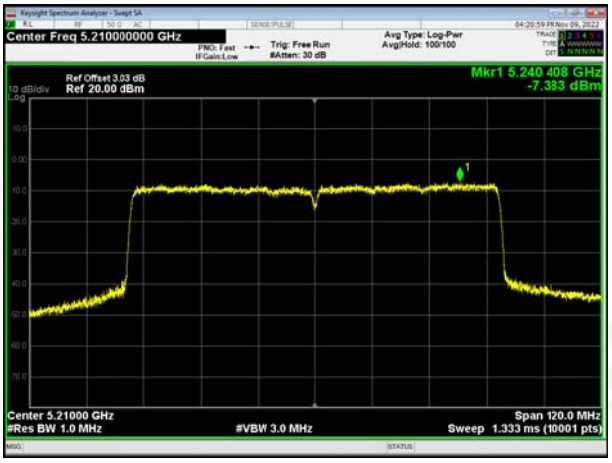
802.11ac40 on channel 46 Ant. 0



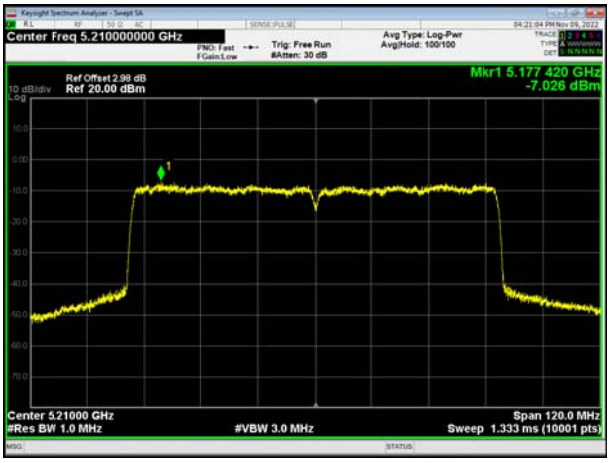
802.11ac40 on channel 46 Ant. 1



802.11ac80 on channel 42 Ant. 0

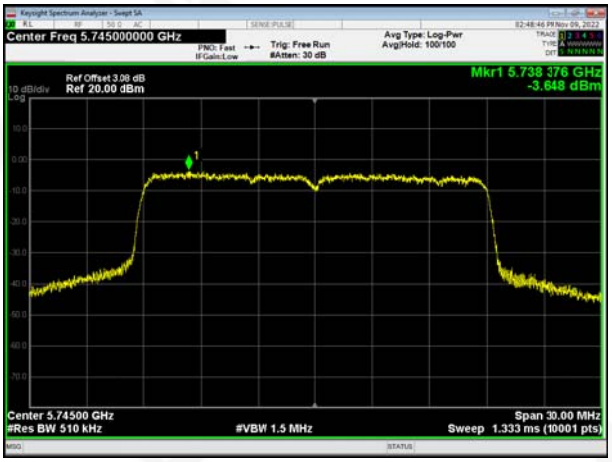


802.11ac80 on channel 42 Ant. 1

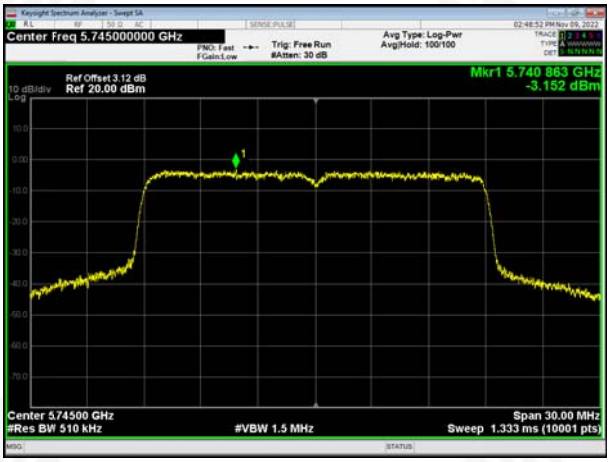


5.8GHz Power Spectrum Density

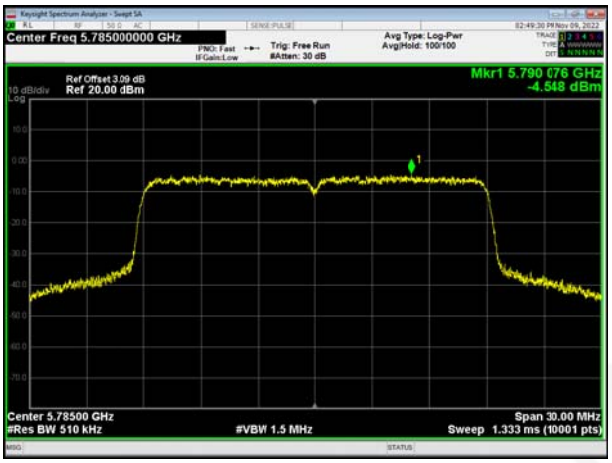
802.11a on channel 149 Ant. 0



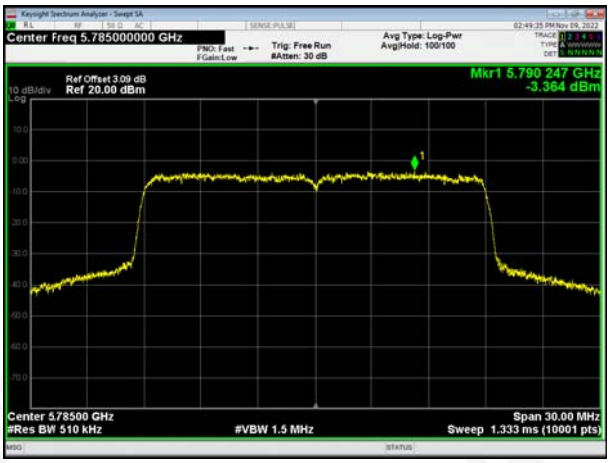
802.11a on channel 149 Ant. 1



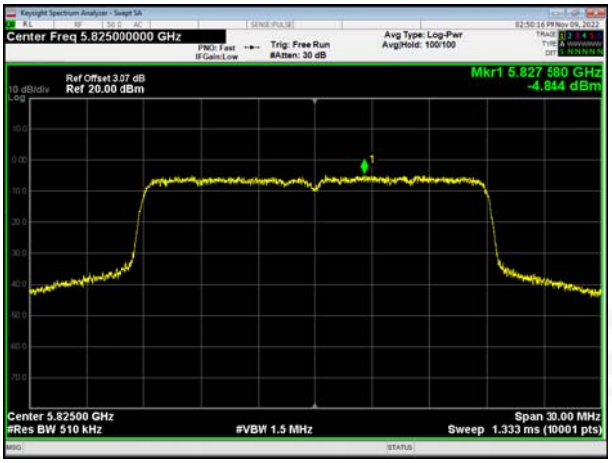
802.11a on channel 157 Ant. 0



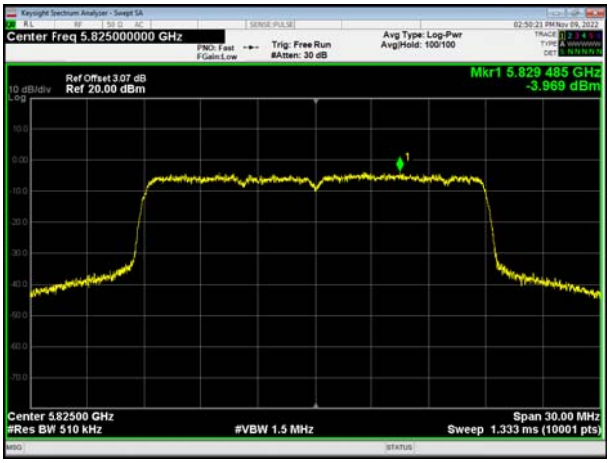
802.11a on channel 157 Ant. 1



802.11a on channel 165 Ant. 0

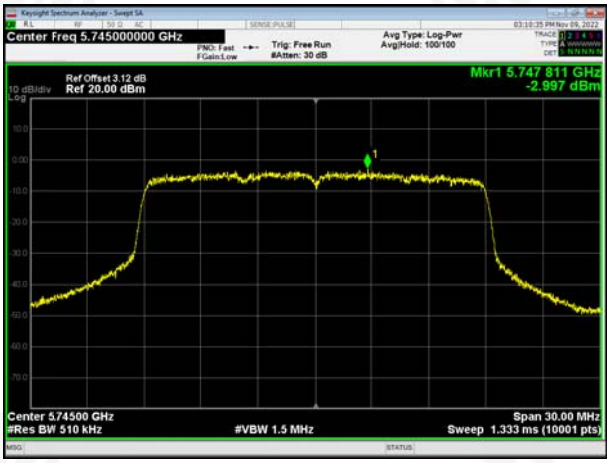


802.11a on channel 165 Ant. 1

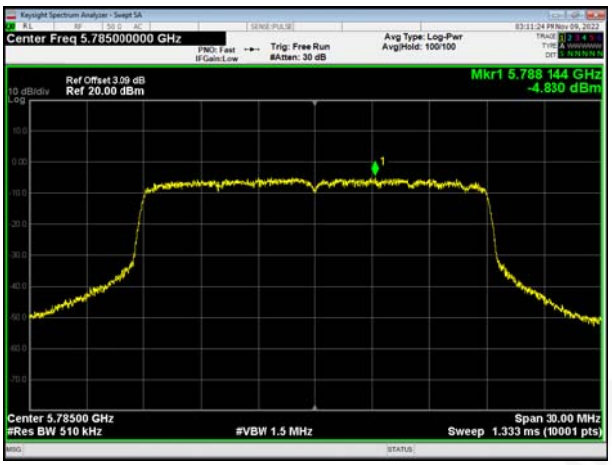


802.11ac20 on channel 149 Ant. 0

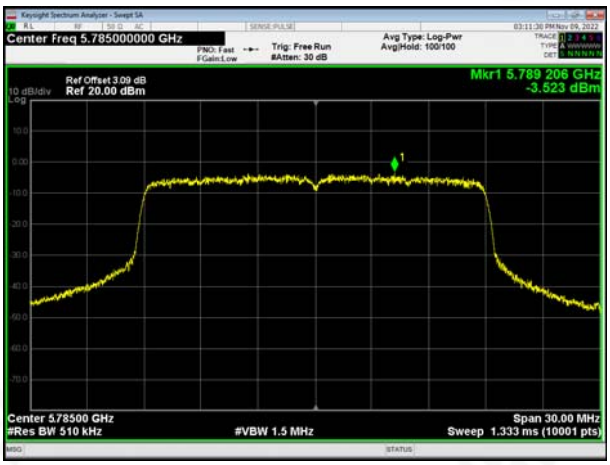
802.11ac20 on channel 149 Ant. 1



802.11ac20 on channel 157 Ant. 0



802.11ac20 on channel 157 Ant. 1



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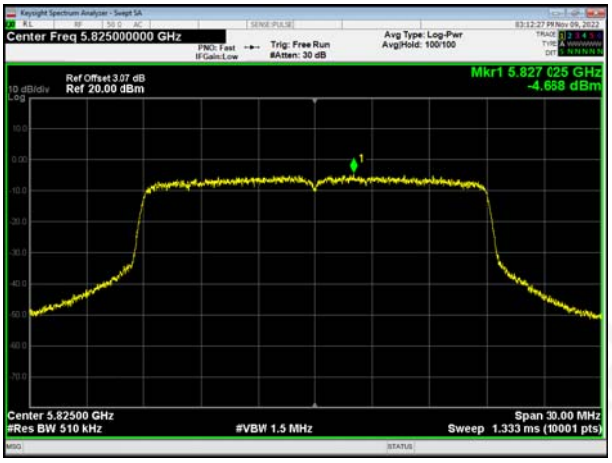
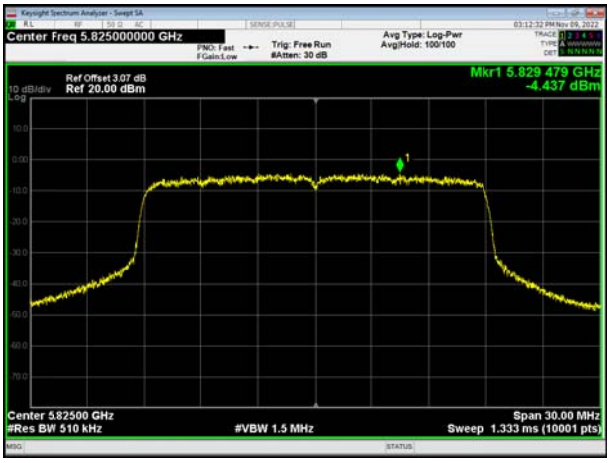
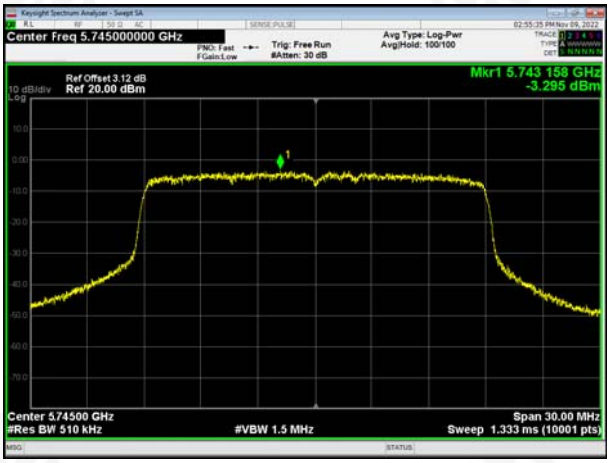


802.11ac20 on channel 165 Ant. 1

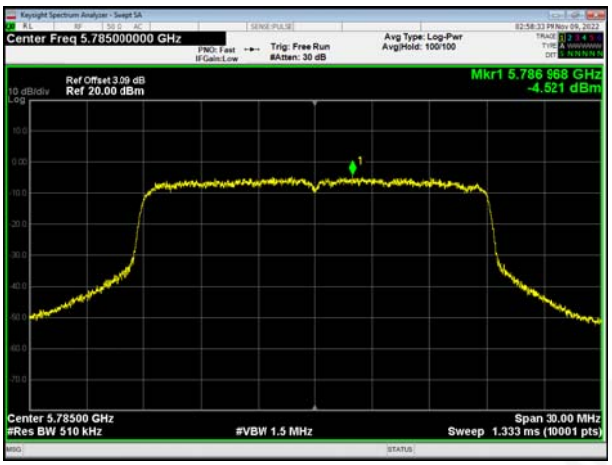


802.11n20 on channel 149 Ant. 0

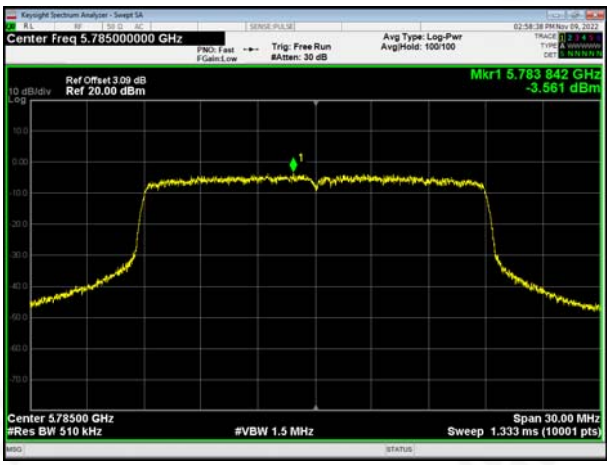
802.11n20 on channel 149 Ant. 1



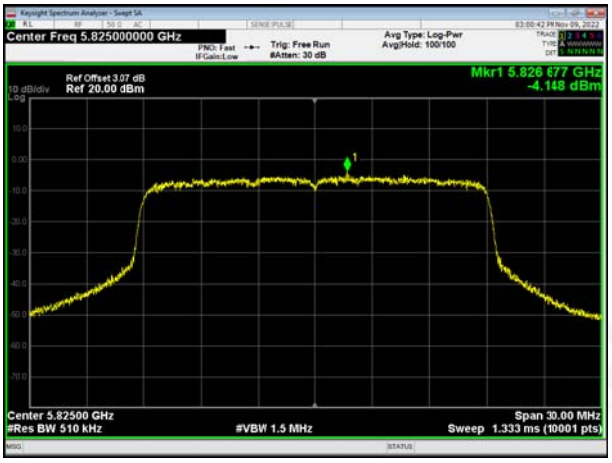
802.11n20 on channel 157 Ant. 0



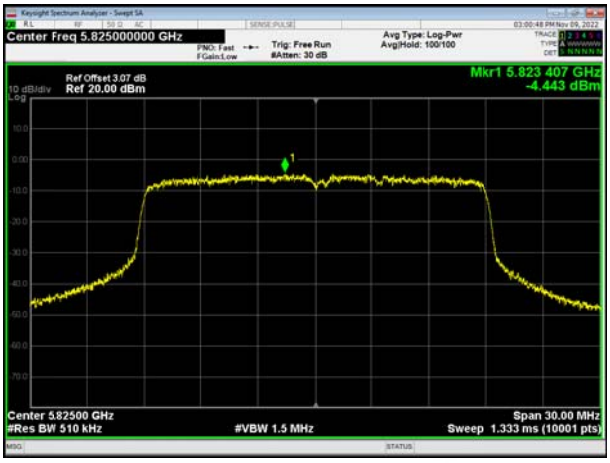
802.11n20 on channel 157 Ant. 1



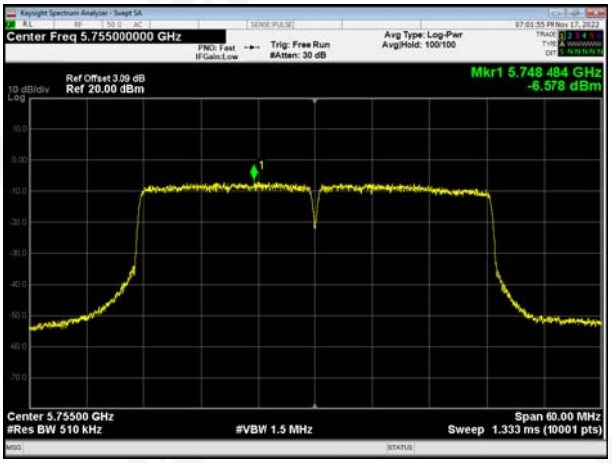
802.11n20 on channel 165 Ant. 0



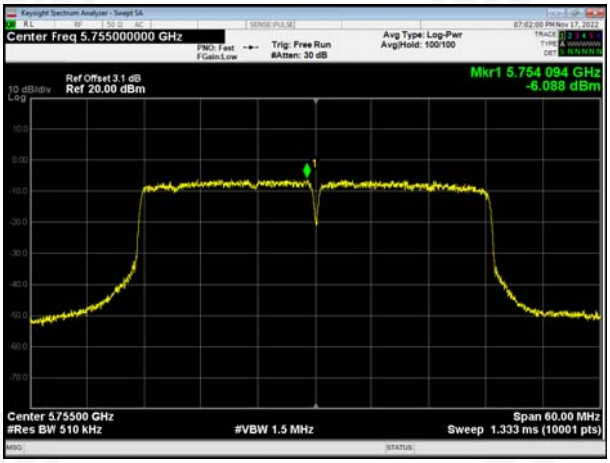
802.11n20 on channel 165 Ant. 1



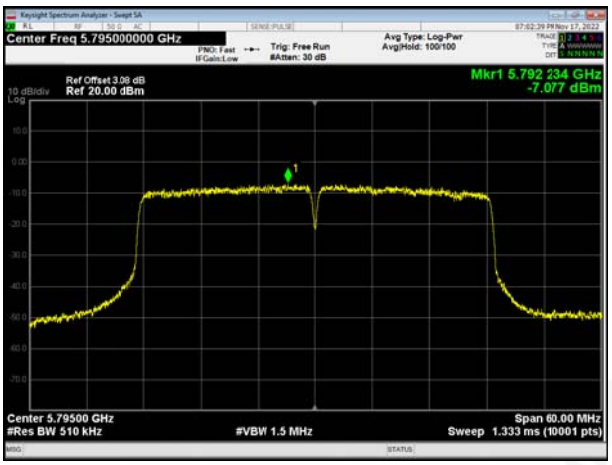
802.11n40 on channel 151 Ant. 0



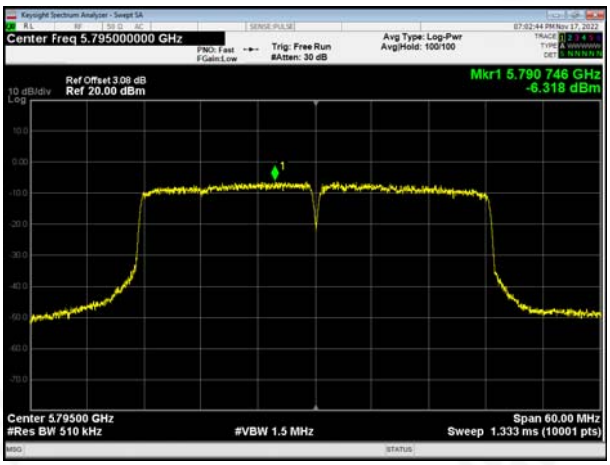
802.11n40 on channel 151 Ant. 1



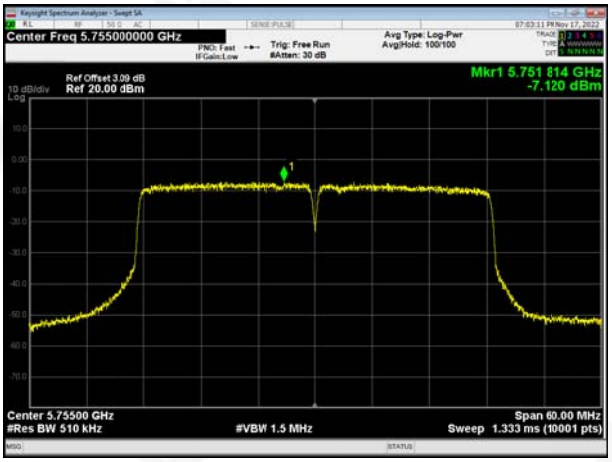
802.11n40 on channel 159 Ant. 0



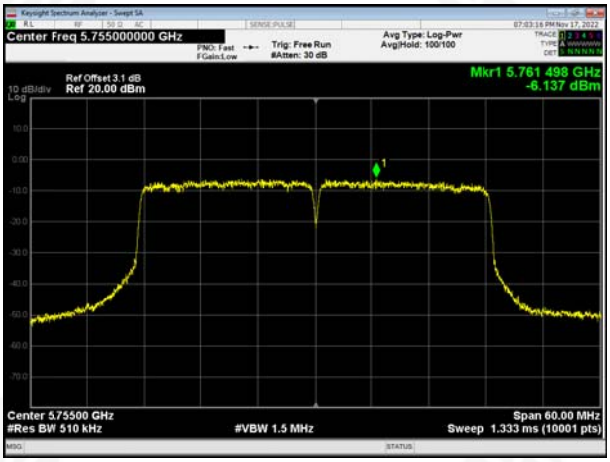
802.11n40 on channel 159 Ant. 1



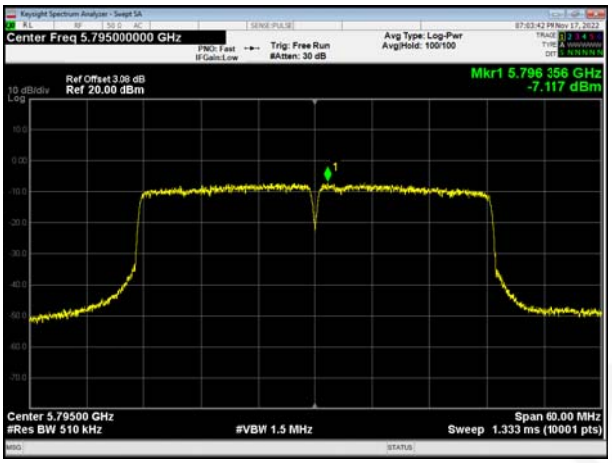
802.11ac40 on channel 151 Ant. 0



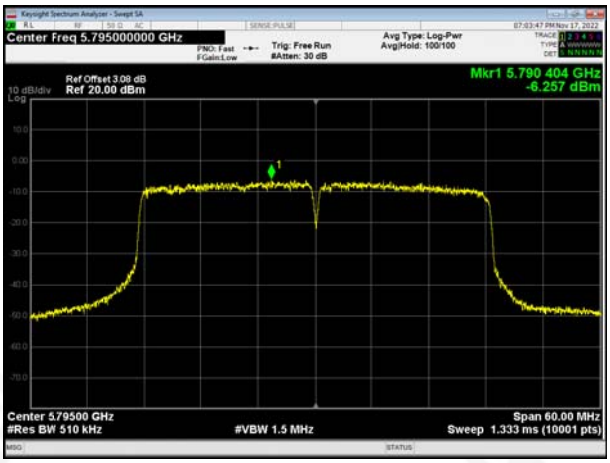
802.11ac40 on channel 151 Ant. 1



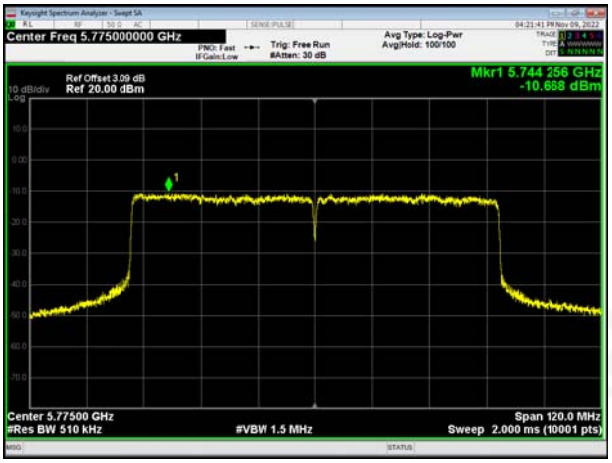
802.11ac40 on channel 159 Ant. 0



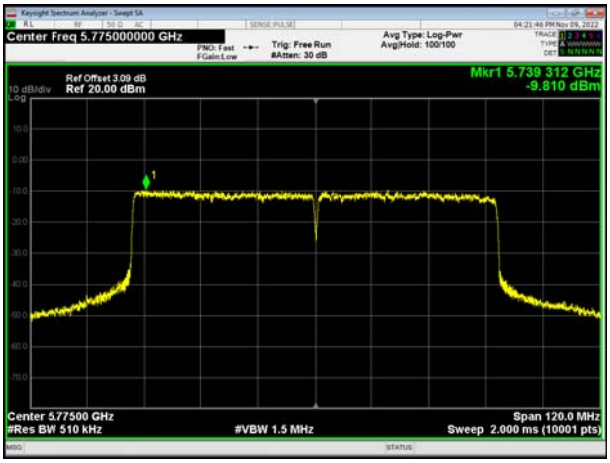
802.11ac40 on channel 159 Ant. 1



802.11ac80 on channel 155 Ant. 0



802.11ac80 on channel 155 Ant. 1



6. 26DB & 6DB &99% EMISSION BANDWIDTH

6.1 APPLIED PROCEDURES / LIMIT

The maximum power spectral density is measured as a conducted emission by direct connection of a calibrated test instrument to the equipment under test. If the device cannot be connected directly, alternative techniques acceptable to the Commission may be used. Measurements in the 5.725-5.85 GHz band, the minimum bandwidth 6 dB bandwidth of U-NII devices shall be at least 500KHz. Measurements in the 5.15-5.25 GHz, 5.25-5.35 GHz, and the 5.47-5.725 GHz bands are made over a bandwidth of 1 MHz or the 26 dB emission bandwidth of the device, whichever is less. A narrower resolution bandwidth can be used, provided that the measured power is integrated over the full reference bandwidth.

6.2 TEST PROCEDURE

a) Set RBW = 100KHz.

b) Set the VBW > RBW.

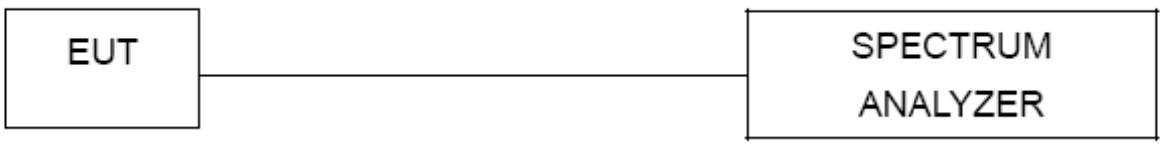
c) Detector = Peak.

d) Trace mode = max hold.

e) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

The following procedure shall be used for measuring (99 %) power bandwidth:

1. Set center frequency to the nominal EUT channel center frequency.
2. Set span = 1.5 times to 5.0 times the OBW.
3. Set RBW = 1 % to 5 % of the OBW
4. Set VBW ≥ 3 · RBW
5. Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
6. Use the 99 % power bandwidth function of the instrument (if available).
7. If the instrument does not have a 99 % power bandwidth function, the trace data points are recovered and directly summed in power units. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 % of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5 % of the total is reached; that frequency is recorded as the upper frequency. The 99% occupied bandwidth is the difference between these two frequencies.



6.3 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.

6.4 TEST RESULTS

Temperature :	26 ℃	Relative Humidity :	54%
Pressure :	101kPa	Test Voltage :	DC 3.8V
Test Mode :	TX		

Sub-band(5.2GHz): 5150-5250MHz

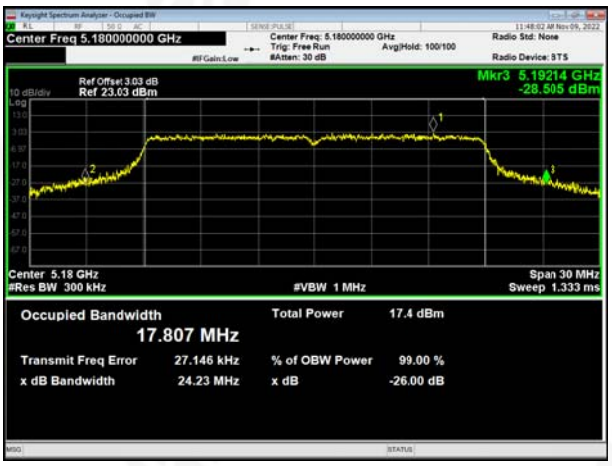
Mode	Frequency	-26dB Bandwidth		99% Bandwidth		Limit (kHz)
		Ant. 0 (MHz)	Ant. 1 (MHz)	Ant. 0 (MHz)	Ant. 1 (MHz)	
802.11 a	5180 MHz	24.23	23.16	17.807	17.836	--
	5200 MHz	24.09	22.57	17.811	17.818	--
	5240 MHz	24.30	22.37	17.839	17.798	--
802.11 ac20	5180 MHz	19.45	19.75	17.596	17.617	--
	5200 MHz	19.65	20.46	17.642	17.603	--
	5240 MHz	19.72	19.83	17.601	17.624	--
802.11 n20	5180 MHz	19.50	19.52	17.611	17.594	--
	5200 MHz	19.99	19.73	17.620	17.630	--
	5240 MHz	19.76	19.77	17.596	17.633	--
802.11 n40	5190 MHz	38.59	38.71	36.031	36.020	--
	5230 MHz	38.83	38.47	36.028	36.052	--
802.11 ac40	5190 MHz	38.84	38.67	36.012	36.046	--
	5230 MHz	38.60	38.70	36.022	36.038	--
802.11 ac80	5210 MHz	83.93	83.19	75.840	75.825	--

Sub-band(5.8GH): 5725-5850MHz

Mode	Frequency	-6dB Bandwidth		99% Bandwidth		-6dB Bandwidth Limit (kHz)
		Ant. 0 (MHz)	Ant. 1 (MHz)	Ant. 0 (MHz)	Ant. 1 (MHz)	
802.11 a	5745 MHz	17.63	17.66	17.699	17.704	500
	5785 MHz	17.68	17.74	17.71	17.739	500
	5825 MHz	17.74	17.66	17.71	17.72	500
802.11 ac20	5745 MHz	17.58	17.57	17.546	17.591	500
	5785 MHz	17.61	17.56	17.598	17.576	500
	5825 MHz	17.60	17.62	17.57	17.583	500
802.11 n20	5745 MHz	17.25	17.55	17.572	17.591	500
	5785 MHz	17.66	17.59	17.596	17.59	500
	5825 MHz	17.49	16.94	17.576	17.589	500
802.11 n40	5755 MHz	36.40	36.36	36.069	36.082	500
	5795 MHz	36.39	36.37	36.039	36.054	500
802.11 ac40	5755 MHz	36.35	36.35	36.099	36.087	500
	5795 MHz	36.32	35.37	36.005	36.018	500
802.11 ac80	5775 MHz	76.47	76.45	76	75.975	500

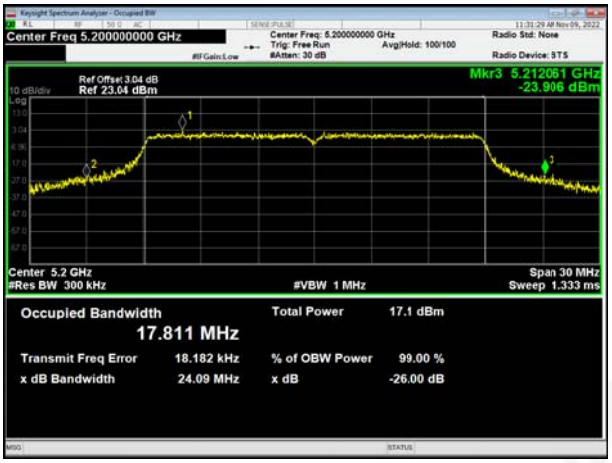
5.2GHz Bandwidth

802.11a on channel 36 Ant. 0

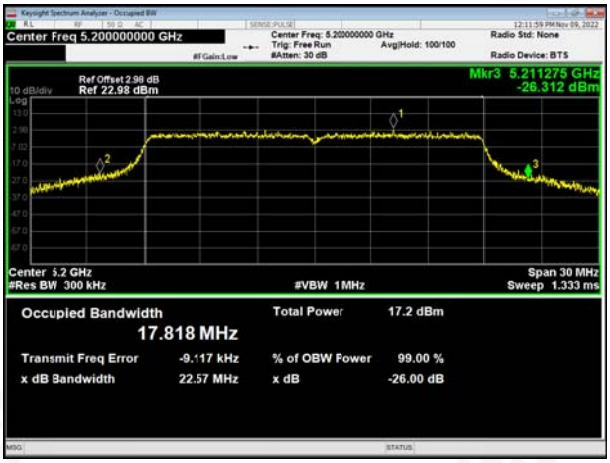


802.11a on channel 36 Ant. 1

802.11a on channel 40 Ant. 0

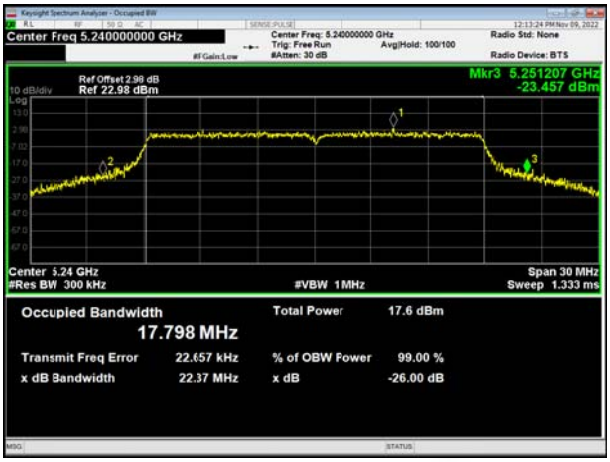


802.11a on channel 40 Ant. 1



802.11a on channel 48 Ant. 0

802.11a on channel 48 Ant. 1



802.11ac20 on channel 36 Ant. 0

802.11ac20 on channel 36 Ant. 1

802.11ac20 on channel 40 Ant. 0

802.11ac20 on channel 40 Ant. 1

802.11ac20 on channel 48 Ant. 0

802.11ac20 on channel 48 Ant. 1

802.11n20 on channel 36 Ant. 0

802.11n20 on channel 36 Ant. 1

802.11n20 on channel 40 Ant. 0

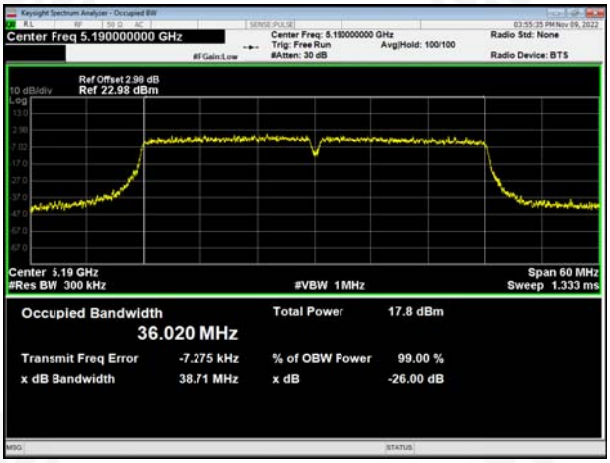
802.11n20 on channel 40 Ant. 1

802.11n20 on channel 48 Ant. 0

802.11n20 on channel 48 Ant. 1

802.11n40 on channel 38Ant. 0

802.11n40 on channel 38Ant. 1



802.11n40 on channel 46Ant. 0

802.11n40 on channel 46Ant. 1

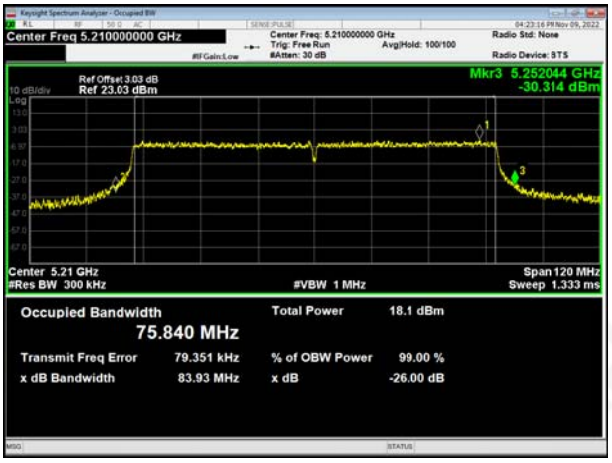
802.11ac40 on channel 38 Ant. 0

802.11ac40 on channel 38 Ant. 1

802.11ac40 on channel 46 Ant. 0

802.11ac40 on channel 46 Ant. 1

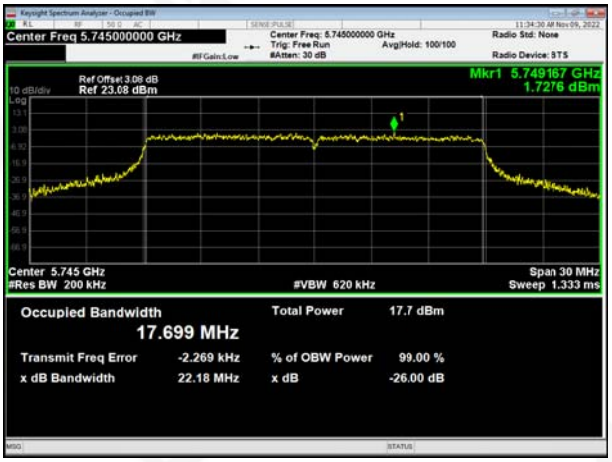
802.11ac80 on channel 42 Ant. 0



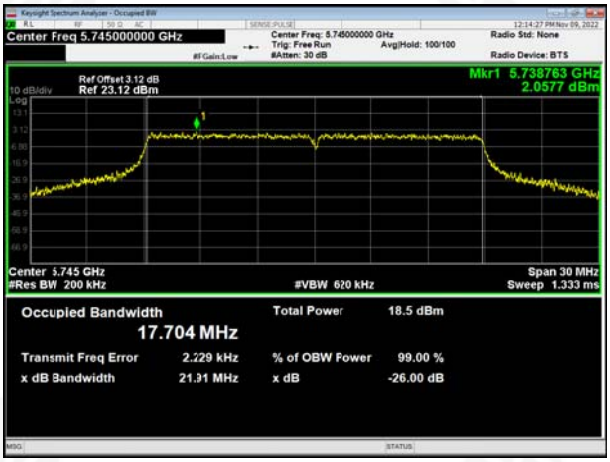
802.11ac80 on channel 42 Ant. 1

5.8GHz 99% Bandwidth

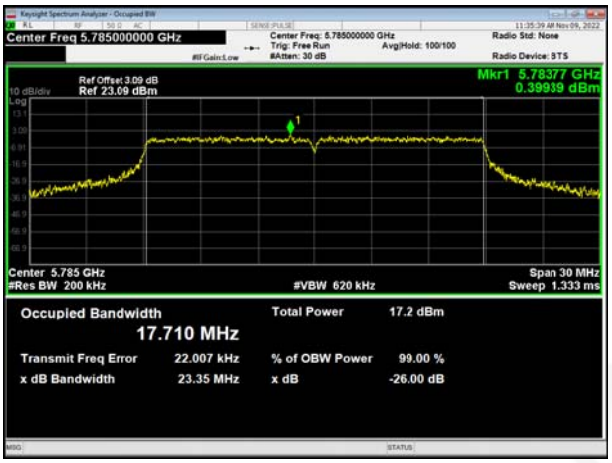
802.11a on channel 149 Ant. 0



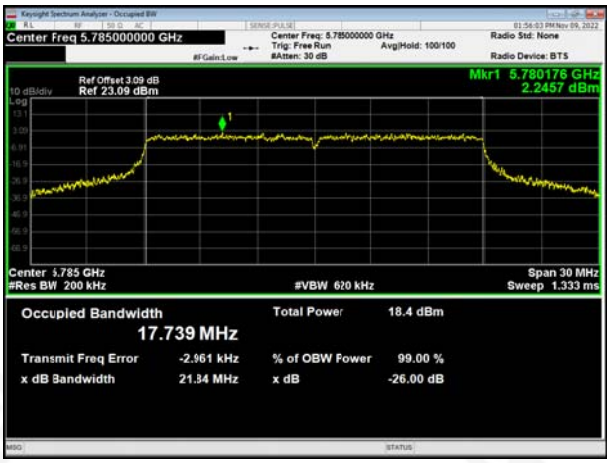
802.11a on channel 149 Ant. 1



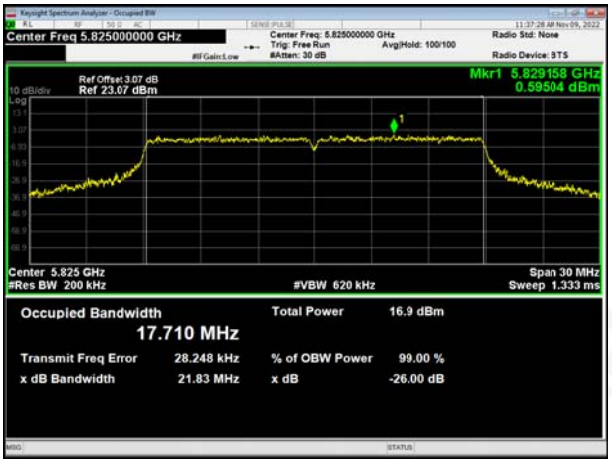
802.11a on channel 157 Ant. 0



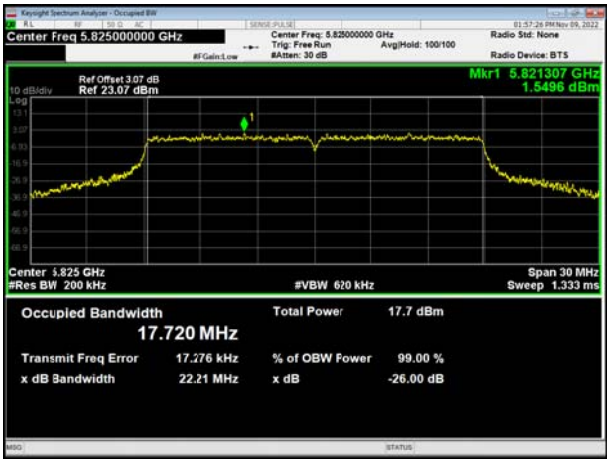
802.11a on channel 157 Ant. 1



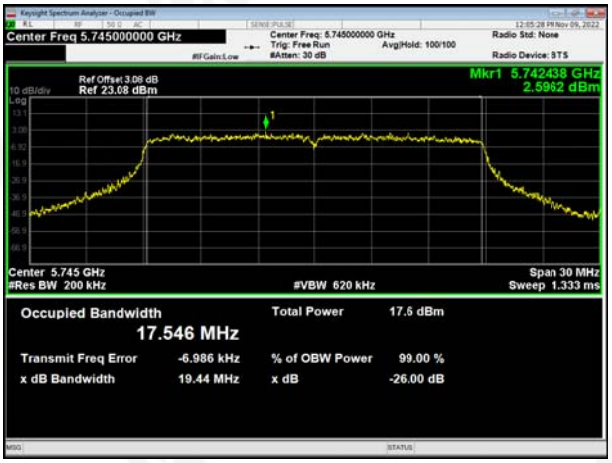
802.11a on channel 165 Ant. 0



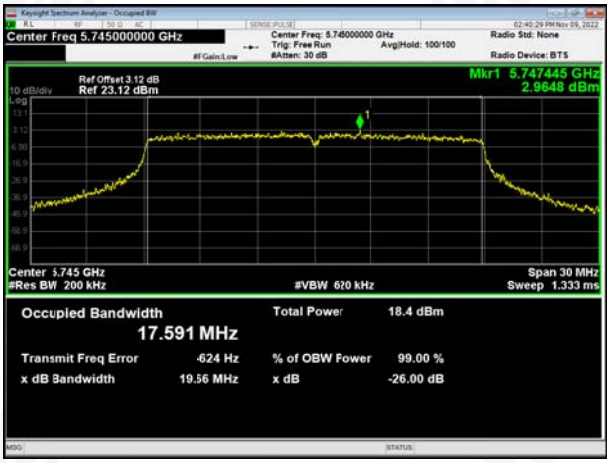
802.11a on channel 165 Ant. 1



802.11ac20 on channel 149 Ant. 0



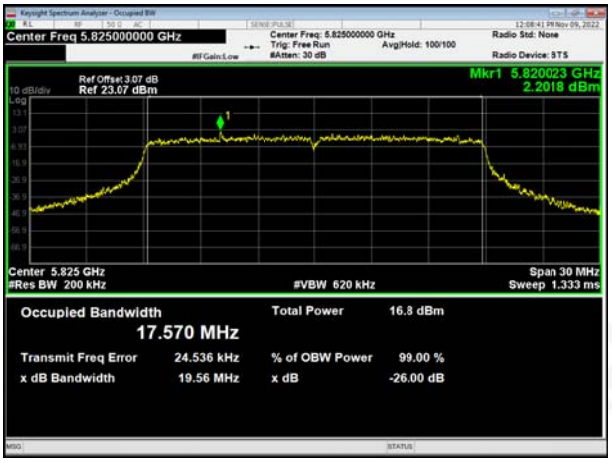
802.11ac20 on channel 149 Ant. 1



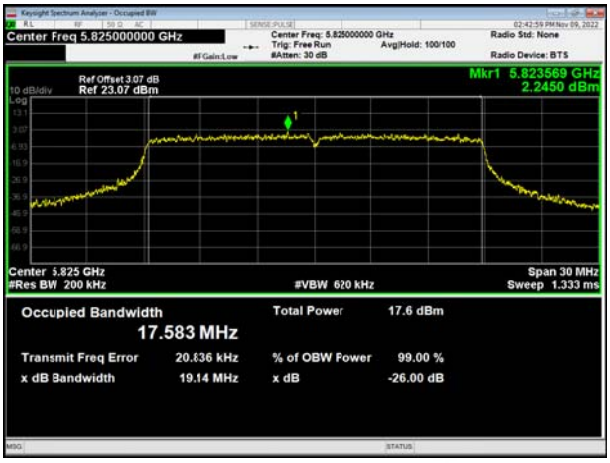
802.11ac20 on channel 157 Ant. 0

802.11ac20 on channel 157 Ant. 1

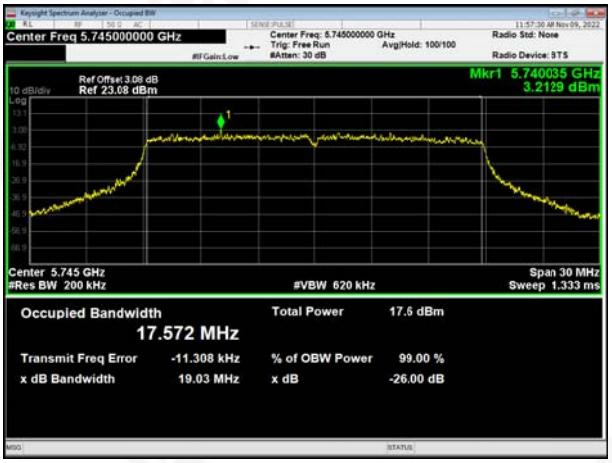
802.11ac20 on channel 165 Ant. 0



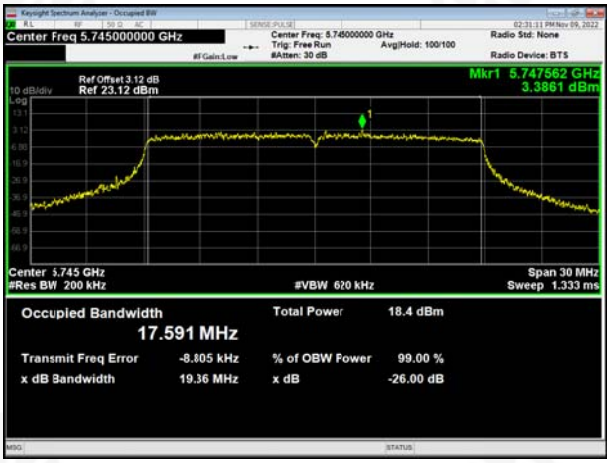
802.11ac20 on channel 165 Ant. 1



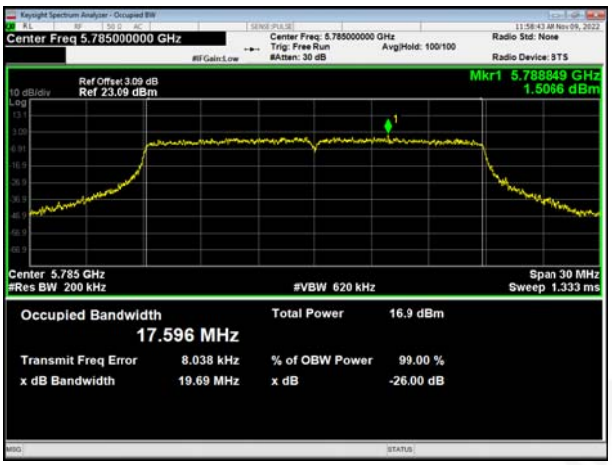
802.11n20 on channel 149 Ant. 0



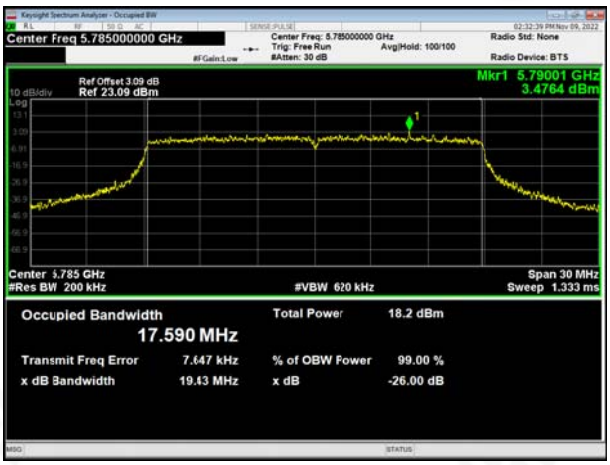
802.11n20 on channel 149 Ant. 1



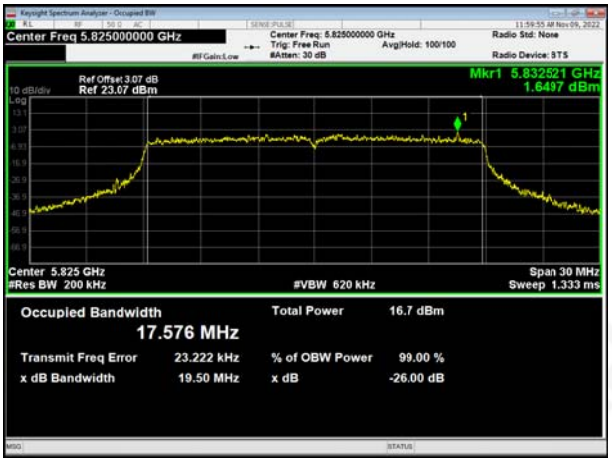
802.11n20 on channel 157 Ant. 0



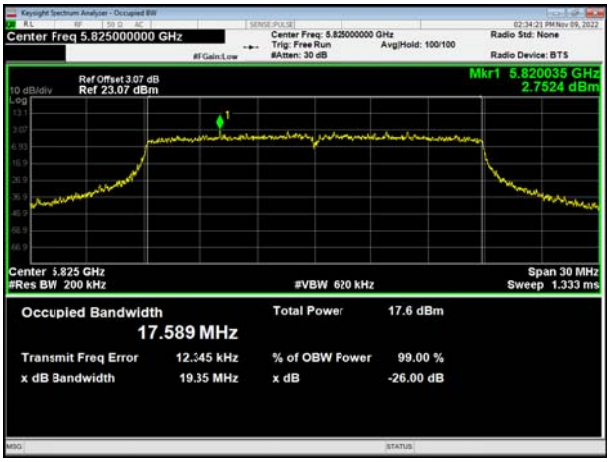
802.11n20 on channel 157 Ant. 1



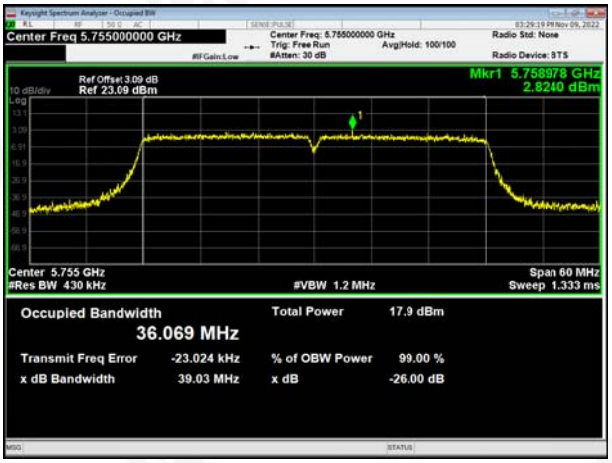
802.11n20 on channel 165 Ant. 0



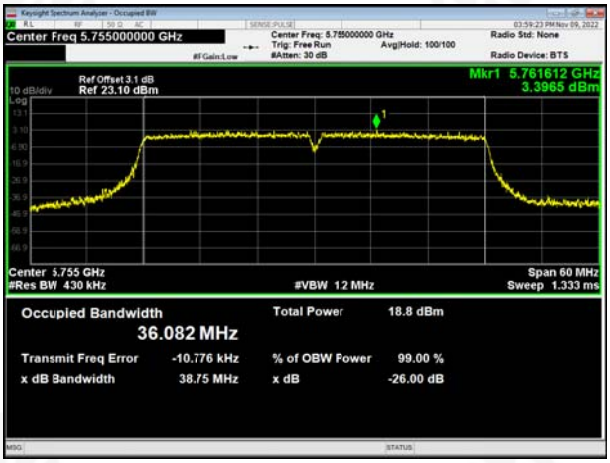
802.11n20 on channel 165 Ant. 1



802.11n40 on channel 151 Ant. 0



802.11n40 on channel 151 Ant. 1

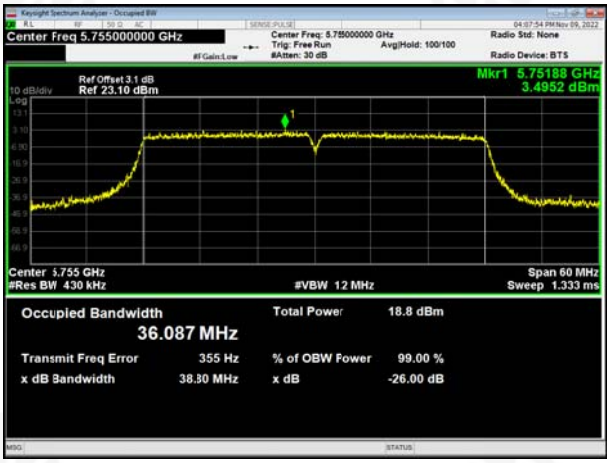


802.11n40 on channel 159 Ant. 0

802.11n40 on channel 159 Ant. 1

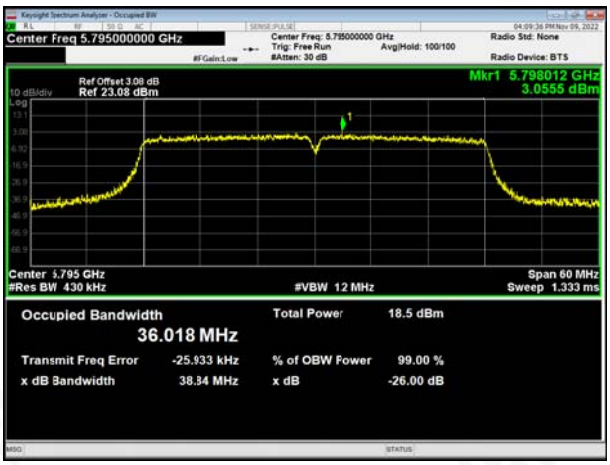
802.11ac40 on channel 151 Ant. 0

802.11ac40 on channel 151 Ant. 1

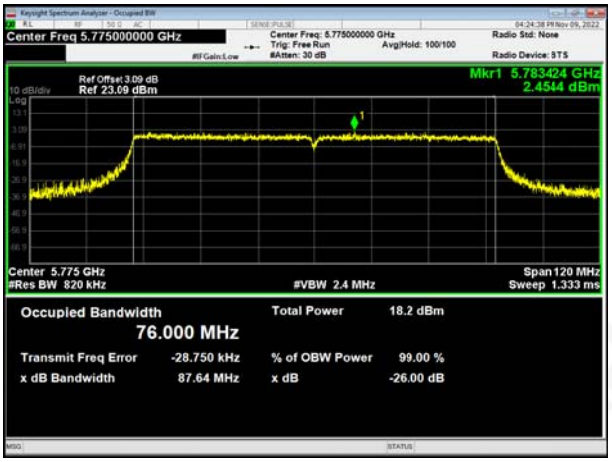


802.11ac40 on channel 159 Ant. 0

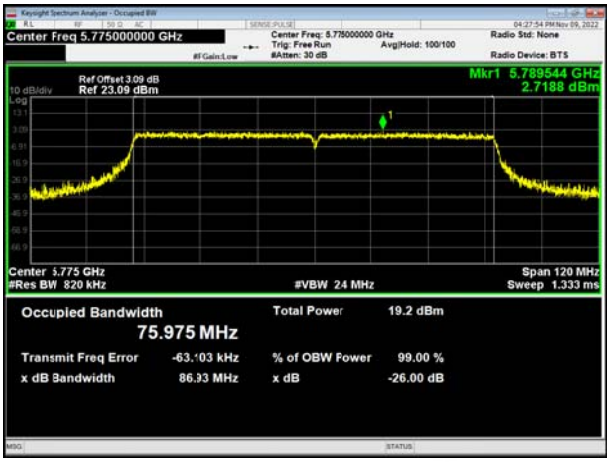
802.11ac40 on channel 159 Ant. 1



802.11ac80 on channel 155 Ant. 0



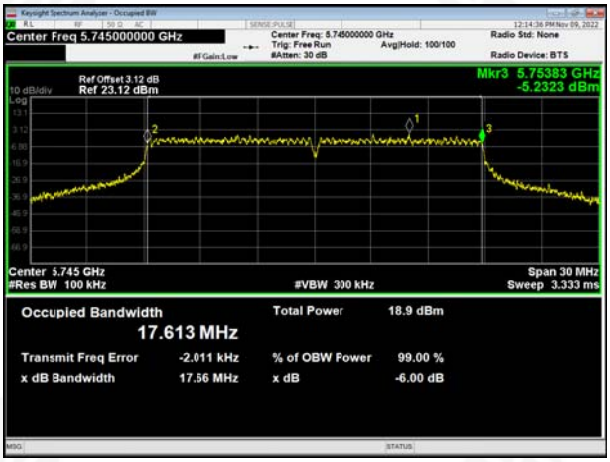
802.11ac80 on channel 155 Ant. 1



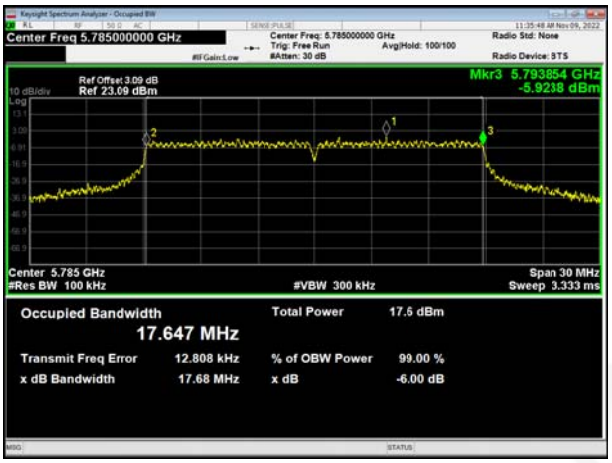
5.8GHz -6 dB Bandwidth

802.11a on channel 149 Ant. 0

802.11a on channel 149 Ant. 1

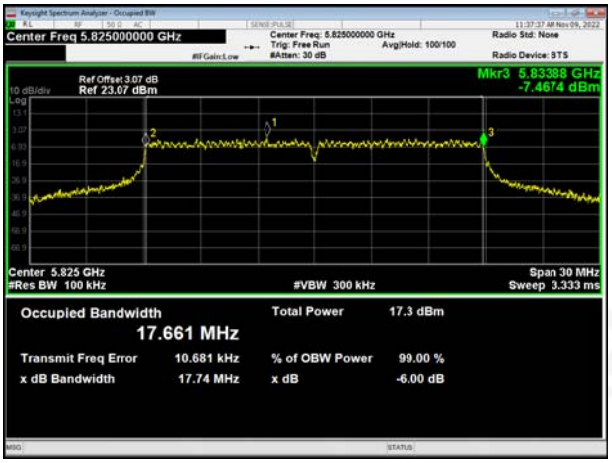


802.11a on channel 157 Ant. 0

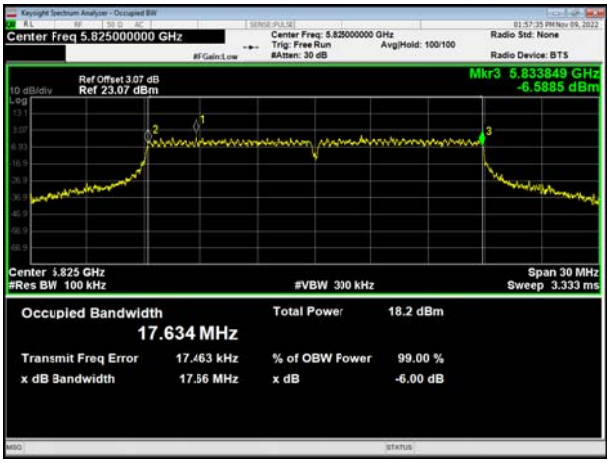


802.11a on channel 157 Ant. 1

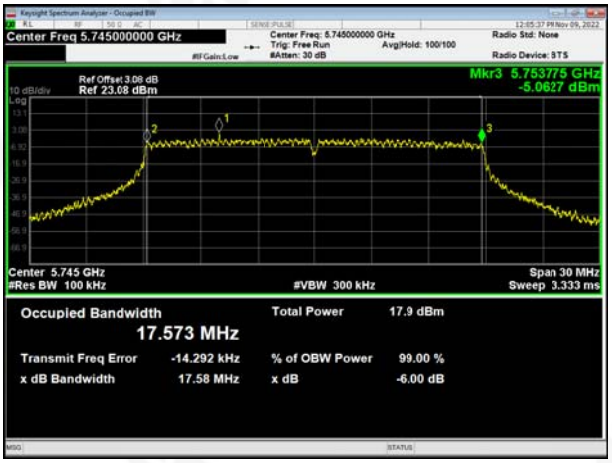
802.11a on channel 165 Ant. 0



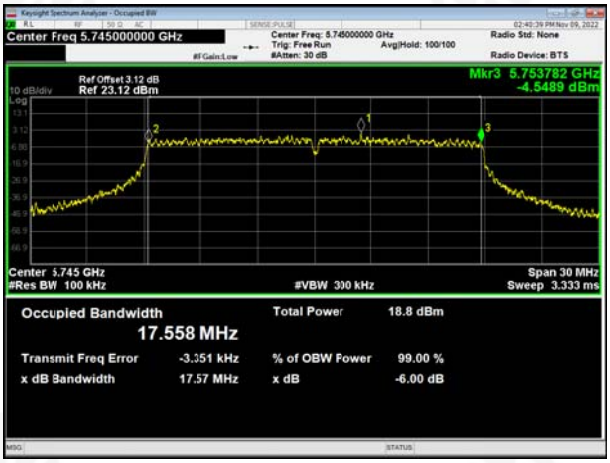
802.11a on channel 165 Ant. 1



802.11ac20 on channel 149 Ant. 0



802.11ac20 on channel 149 Ant. 1



802.11ac20 on channel 157 Ant. 0

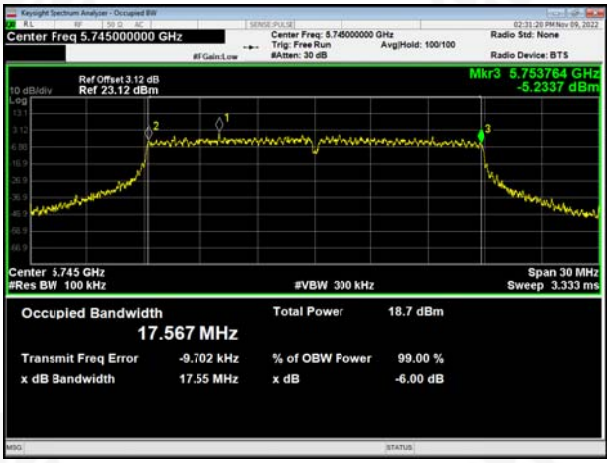
802.11ac20 on channel 157 Ant. 1

802.11ac20 on channel 165 Ant. 0

802.11ac20 on channel 165 Ant. 1

802.11n20 on channel 149 Ant. 0

802.11n20 on channel 149 Ant. 1

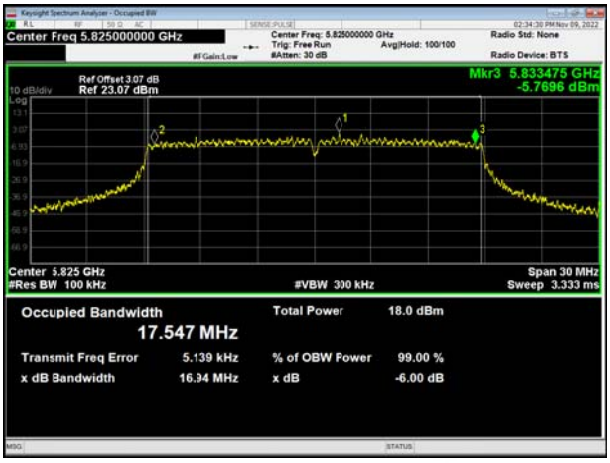


802.11n20 on channel 157 Ant. 0

802.11n20 on channel 157 Ant. 1

802.11n20 on channel 165 Ant. 0

802.11n20 on channel 165 Ant. 1



802.11n40 on channel 151 Ant. 0

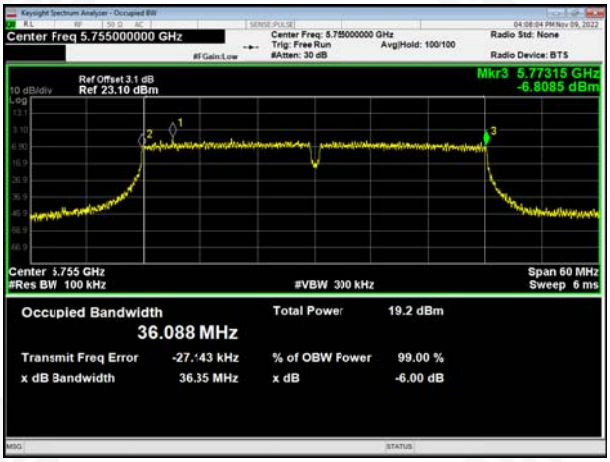
802.11n40 on channel 151 Ant. 1

802.11n40 on channel 159 Ant. 0

802.11n40 on channel 159 Ant. 1

802.11ac40 on channel 151 Ant. 0

802.11ac40 on channel 151 Ant. 1



802.11ac40 on channel 159 Ant. 0

802.11ac40 on channel 159 Ant. 1

802.11ac80 on channel 155 Ant. 0

802.11ac80 on channel 155 Ant. 1