FCC Part 15E&RSS-247 TEST REPORT

FCC ID:2AY2I-2130XI

IC: 27035-2130XI

Product	:	**Amplifier**
Model Name	:	**Connect 2130Xi**
Brand	:	**elipson**
Report No.	:	**NCT25010088-4**

Prepared for

AV Industry

309 Avenue du Général De Gaulle, 94500 Champigny Sur Marne, France

Prepared by

Shenzhen NCT Testing Technology Co., Ltd.

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1 TEST RESULT CERTIFICATION

Applicant’s name	:	AV Industry
Address	:	309 Avenue du Général De Gaulle, 94500 Champigny Sur Marne, France
Manufacture's name	:	AV Industry
Address	:	309 Avenue du Général De Gaulle, 94500 Champigny Sur Marne, France
Product name	:	Amplifier
Model name	:	Connect 2130Xi
Standards	:	FCC CFR Title 47 Part 15 Subpart E Section 15.407 ANSI C63.10:2013 KDB 789033 D02 v02r01 RSS-247 Issue 3, August 2023 RSS-Gen Issue 5, Amendment 2, February, 2021
Test procedure	:	ANSI C63.10:2013
Test Date	:	Oct. 08, 2024 to Mar. 06, 2025
Date of Issue	:	Mar. 11, 2025
Test Result	:	Pass

This device described above has been tested by NCT, 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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Test Engineer:

Keven Wu / Engineer

Technical Manager:

Henry Wang / Manager

Contents

Page

2 Test Summary

Standard Section	Test Item	Judgment	Remark
15.407(b), 15.209 RSS-247 6.2 RSS-Gen §8.9&8.10	Radiated Spurious Emission	PASS	
15.207 RSS-Gen 8.8 RSS-247 3.1	Conducted Emission	PASS	
15.407 (a) 15.407 (e) RSS-247 6.2 RSS-Gen 6.7	99% , 6dB and 26dB Bandwidth	PASS	
15.407 (a) RSS-247 6.2	Maximum Conducted Output Power	PASS	
15.407(b) RSS-247 6.2	Band Edge	PASS	
15.407 (a) RSS-247 6.2	Power Spectral Density	PASS	
15.407(g) RSS-Gen 8.11	Frequency Stability	PASS	
15.203 RSS-Gen 6.8	Antenna Requirement	PASS	

Remark:

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

3 TEST FACILITY

Site Description

EMC Lab. : Accredited by CNAS, 2022-09-27

The certificate is valid until 2028.01.07

The Laboratory has been assessed and proved to be in compliance with CNAS-CL01:2006 (identical to ISO/IEC 17025:2017)

The Certificate Registration Number is L8251

Designation Number: CN1347

Test Firm Registration Number: 894804

Accredited by A2LA, June 14, 2023

The Certificate Registration Number is 6837.01

Accredited by Industry Canada, November 09, 2018

The Conformity Assessment Body Identifier is CN0150

Company Number: 30806

Name of Firm : Shenzhen NCT Testing Technology Co., Ltd.

Site Location : A101&2F B2, Fuqiao 6th Area, Xintian Community, Fuhai Street, Baoan District, Shenzhen, People's Republic of China

4 General Information

4.1 General Description of E.U.T.

Product Name:	Amplifier
Model No.:	Connect 2130Xi
Sample ID:	241119082
HVIN:	Connect 2130Xi
Sample(s) Status:	Engineer sample
series model.:	N/A
Model Different.:	N/A
Operation Frequency:	U-NII-1: 5150MHz~5250MHz U-NII-2A: 5250MHz~5350MHz U-NII-21: 5470MHz~5725MHz U-NII-3: 5725MHz~5850MHz
Modulation type:	OFDM with BPSK/QPSK/16QAM/64QAM/256QAM/1024QAM for 802.11a/n/ac
Antenna Type:	External Antenna
Antenna gain:	4.77dBi
Power supply	AC100-240V 50/60Hz
Hardware Version:	CONNECT2130XI_V1_L6A
Software Version:	CONNECT2130XI_1.0

802.11a/n/ac(20MHz) Frequency Channel							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	40	5200	44	5220	48	5240
52	5260	56	5280	60	5300	64	5320
100	5500	104	5520	108	5540	112	5560
116	5580	120	5600	124	5620	128	5640
132	5660	136	5680	140	5700	-	-
149	5745	153	5765	157	5785	161	5805
165	5825	-	-	-	-	-	-

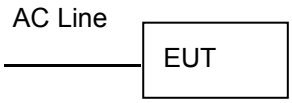
802.11/n/ac(40MHz) Frequency Channel							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
38	5190	46	5230	-	-	-	-
54	5270	62	5310	-	-	-	-
102	5510	110	5550	118	5590	134	5670
151	5755	159	5795				

802.11ac(80MHz) Frequency Channel					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
42	5210	-	-	-	-
58	5290	-	-	-	-
106	5530	122	5610	-	-
155	5775	-	-	-	-

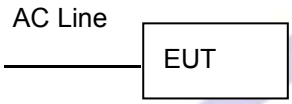
Note:This report equipment will not transmit in the 5600-5650 MHz frequency band when used in Canada. 5600MHz, 5620MHz, 5640MHz, 5590MHz and 5610MHz will be disabled. This restriction is to protect weather radars opreating in this frequency band.

4.2 Test Setup Configuration

Conducted Emission



Radiated Emission



Conducted Spurious

4.3 Test Mode

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

Test Software	CMD.exe
Power level setup	10

5 Equipment During Test

5.1 Equipments List

Conducted emission Test Equipment

Name	Model No.	Serial No.	Manufacturer	Date of Cal.	Due Date
944 Shielded Room	944 Room	/	EMToni	2022/5/31	2025/5/30
EMI Test Receiver	ESPI	101604	Rohde & Schwarz	2024/6/17	2025/6/16
LISN	ENV 216	102796	Rohde & Schwarz	2024/6/17	2025/6/16
LISN	VN1-13S	004023	CRANAGE	2024/6/17	2025/6/16
Cable	RG223-1500MM	NA	RG	2024/6/17	2025/6/16

Radiated emission & Radio Frequency Test Equipment

Name	Model No.	Serial No.	Manufacturer	Date of Cal.	Due Date
966 Shielded Room	966 Room	/	EMToni	2022/5/31	2025/5/30
EMI Test Receiver	ESCI	101178	Rohde & Schwarz	2024/6/17	2025/6/16
Amplifi（30MHz-1GHz）	BBV 9743 B	00374	SCHNWARZBECK	2024/6/17	2025/6/16
Bilog Antenna（30MHz-1GHz）	VULB9162	00473	SCHNWARZBECK	2023/3/19	2025/3/18
Horn antenna（1GHz-18GHz）	BBHA 9120 D	02622	SCHNWARZBECK	2023/3/19	2025/3/18
Pream plifier（1GHz-18GHz）	BBV 9718D	0024	SCHNWARZBECK	2024/6/17	2025/6/16
Spectrum Analyze（10Hz-40GHz）	FSV 40	100952	Rohde & Schwarz	2024/6/17	2025/6/16
Pream plifier（18GHz-40GHz）	BBV 9721	0056	SCHNWARZBECK	2024/6/17	2025/6/16
Double Ridge Guide Horn Antenna（18GHz-40GHz）	SAS-574	588	A.H.System	2023/3/19	2025/3/18
Loop Antenna (9KHz-30MHz)	FMZB 1513-60	00115	SCHNWARZBECK	2024/6/17	2025/6/16
Amplifier (9KHz-30MHz)	BBV 9745	00109	CHNWARZBECK	2024/6/17	2025/6/16
MXG Signal Analyzer	N9020A	MY50510202	Agilent	2024/6/17	2025/6/16

MXG Vector Signal Generator	N5182A	MY50140020	Agilent	2024/6/17	2025/6/16
MXG Analog Signal Generator	N5181A	MY47420919	Agilent	2024/6/17	2025/6/16
Power Sensor	TR1029-2	512364	Techoy	2024/6/17	2025/6/16
RF Swith	TR1029-1	512364	Techoy	2024/6/17	2025/6/16
Cable	DA800-4000MM	NA	DA	2024/6/17	2025/6/16
Cable	DA800-11000MM	NA	DA	2024/6/17	2025/6/16

Other

Item	Name	Manufacturer	Model	Software version
1	EMC Conduction Test System	AUDIX	e3	6.120718
2	EMC radiation test system	AUDIX	e3	6.120718
3	RF test system	TACHOY	RFTest	V1.0.0
4	RF communication test system	TACHOY	RFTest	V1.0.0

5.2 Measurement Uncertainty

Parameter	Uncertainty
RF output power, conducted	±1.0dB
Power Spectral Density, conducted	±2.2dB
Radio Frequency	± 1 x 10^{-6}
Bandwidth	± 1.5 x 10^{-6}
Time	±2%
Duty Cycle	±2%
Temperature	±1°C
Humidity	±5%
DC and low frequency voltages	±3%
Conducted Emissions (150kHz~30MHz)	±3.64dB
Radiated Emission(9KHz~30MHz)	±4.51dB
Radiated Emission(30MHz~1GHz)	±5.03dB
Radiated Emission(1GHz~25GHz)	±4.74dB
Radiated Emission(25GHz~40GHz)	±3.38dB
Remark: The coverage Factor (k=2), and measurement Uncertainty for a level of Confidence of 95%	

5.3 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note
E-1	Amplifier	elipson	Connect 2130Xi	N/A	EUT
E-2	Notebook	lenovo	B40-80	MP07F6JD	Auxiliary

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.

6 Conducted Emission

Test Requirement:	:	FCC CFR 47 Part 15 Section 15.207, RSS-Gen 8.8&RSS-247 3.1
Test Method:	:	ANSI C63.10:2013
Test Result:	:	PASS
Frequency Range:	:	150kHz to 30MHz
Class/Severity:	:	Class B
Detector:	:	Peak for pre-scan (9kHz Resolution Bandwidth)

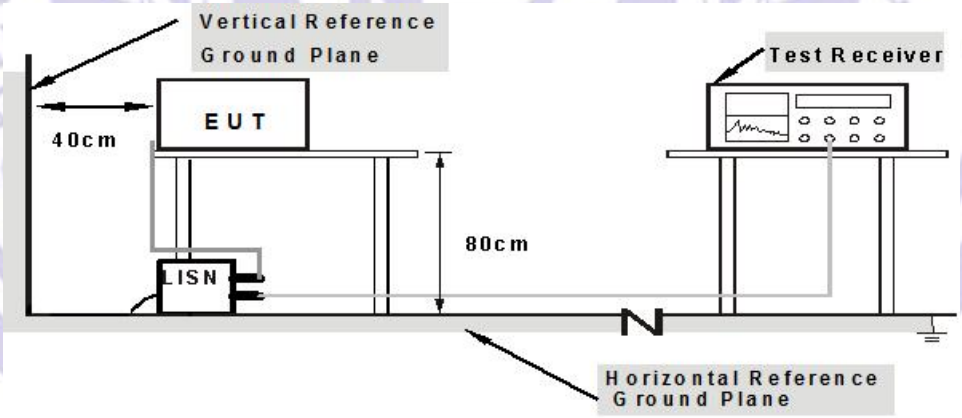
6.1 E.U.T. Operation

Operating Environment **:**

Temperature:	:	23.2°C
Humidity:	:	51 % RH
Atmospheric Pressure:	:	101.12 kPa
Test Voltage	:	AC 120V/60Hz

6.2 EUT Setup

The conducted emission tests were performed using the setup accordance with the ANSI C63.10: 2013



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

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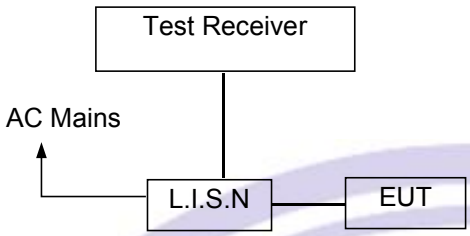
6.3 Test SET-UP (Block Diagram of Configuration)



6.4 Measurement Procedure:

1. The EUT was placed on a table, which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured was complete.

6.5 Conducted Emission Limit

Conducted Emission

Frequency(MHz)	Quasi-peak	Average
0.15-0.5	66-56	56-46
0.5-5.0	56	46
5.0-30.0	60	50

Note:

1. The lower limit shall apply at the transition frequencies
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

6.6 Measurement Description

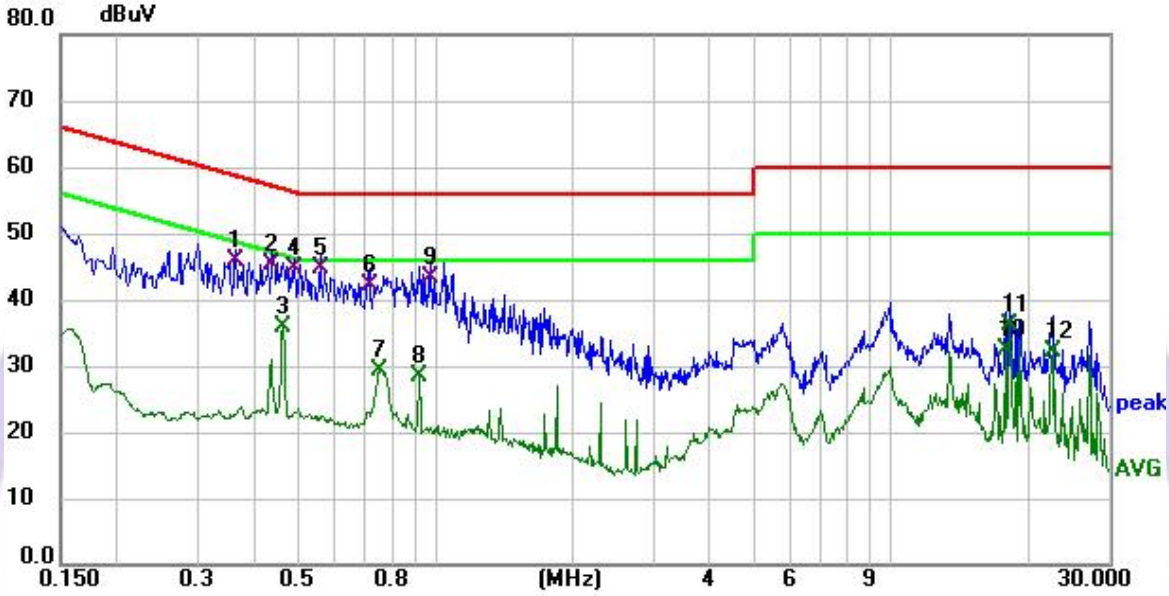
The maximised peak emissions from the EUT was scanned and measured for both the Live and Neutral Lines. Quasi-peak & average measurements were performed if peak emissions were within 6dB of the average limit line.

6.7 Conducted Emission Test Result

Pass

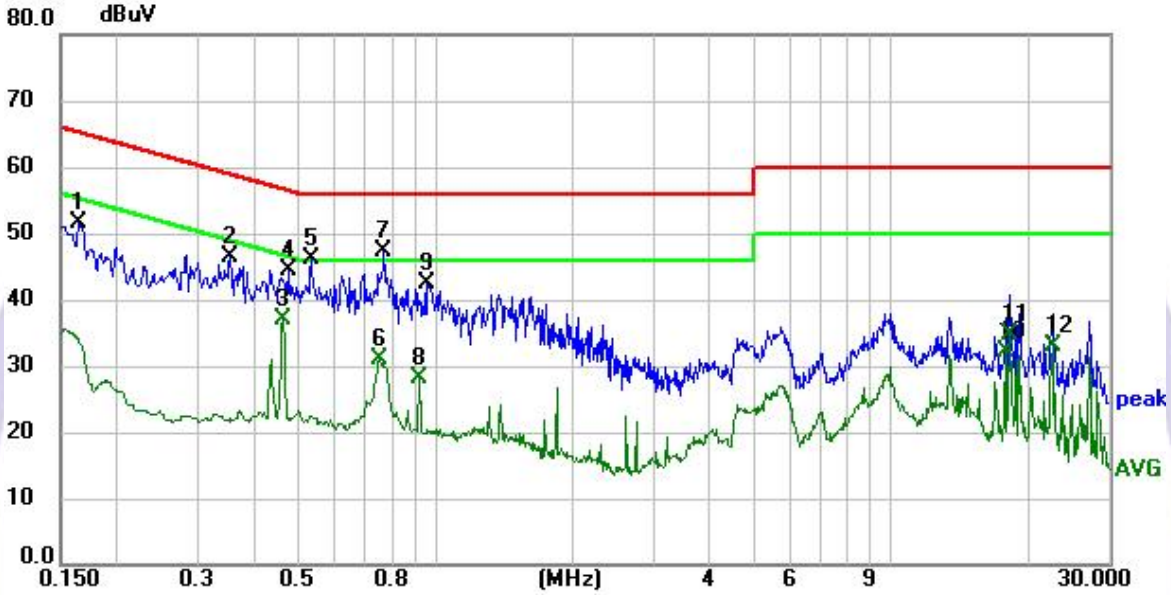
Conducted emission at both 120V & 240V is assessed, and emission at 120V represents the worst case. All the modulation modes were tested the data of the worst mode (802.11a,Lowest channel) are recorded in the following pages and the others modulation methods do not exceed the limits.

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
1	0.363	35.07	10.82	45.89	58.66	-12.77	QP	P
2	0.438	34.47	10.69	45.16	57.10	-11.94	QP	P
3 *	0.462	25.29	10.68	35.97	46.66	-10.69	AVG	P
4	0.489	34.14	10.64	44.78	56.18	-11.40	QP	P
5	0.558	33.91	10.67	44.58	56.00	-11.42	QP	P
6	0.716	31.35	10.81	42.16	56.00	-13.84	QP	P
7	0.752	18.49	10.83	29.32	46.00	-16.68	AVG	P
8	0.923	17.33	10.99	28.32	46.00	-17.68	AVG	P
9	0.973	32.17	11.08	43.25	56.00	-12.75	QP	P
10	17.940	21.00	11.40	32.40	50.00	-17.60	AVG	P
11	18.240	24.73	11.39	36.12	50.00	-13.88	AVG	P
12	22.580	20.76	11.45	32.21	50.00	-17.79	AVG	P

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
1	0.165	40.76	10.87	51.63	65.21	-13.58	peak	P
2	0.351	35.46	10.83	46.29	58.94	-12.65	peak	P
3	0.462	26.28	10.70	36.98	46.66	-9.68	AVG	P
4	0.474	33.69	10.68	44.37	56.44	-12.07	peak	P
5	0.531	35.46	10.66	46.12	56.00	-9.88	peak	P
6	0.752	20.20	10.84	31.04	46.00	-14.96	AVG	P
7 *	0.770	36.41	10.86	47.27	56.00	-8.73	peak	P
8	0.923	17.07	11.00	28.07	46.00	-17.93	AVG	P
9	0.959	31.39	11.05	42.44	56.00	-13.56	peak	P
10	17.940	20.70	11.41	32.11	50.00	-17.89	AVG	P
11	18.240	23.40	11.41	34.81	50.00	-15.19	AVG	P
12	22.580	21.59	11.46	33.05	50.00	-16.95	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

7 Radiated Spurious Emissions

Test Requirement	:	FCC CFR47 Part 15 Section 15.209 & 15.407 RSS-Gen §8.9, RSS-Gen §8.10
Test Method	:	ANSI C63.10:2013
Test Result	:	PASS
Measurement Distance	:	3m
Limit	:	See the follow table

Frequency (MHz)	Field Strength		Field Strength Limit at 3m Measurement Dist	
	uV/m	Distance (m)	uV/m	dBuV/m
0.009 ~ 0.490	2400/F(kHz)	300	10000 * 2400/F(kHz)	$20\log^{(2400/F(kHz))}$ + 80
0.490 ~ 1.705	24000/F(kHz)	30	100 * 24000/F(kHz)	$20\log^{(24000/F(kHz))}$ + 40
1.705 ~ 30	30	30	100 * 30	$20\log^{(30)}$ + 40
30 ~ 88	100	3	100	$20\log^{(100)}$
88 ~ 216	150	3	150	$20\log^{(150)}$
216 ~ 960	200	3	200	$20\log^{(200)}$
Above 960	500	3	500	$20\log^{(500)}$
Frequency (MHz)	Magnetic field strength (H-Field) (μA/m)			Measurement distance (m)
0.009 ~ 0.490	6.37/F (F in kHz)			300
0.490 ~ 1.705	63.7/F (F in kHz)			30
1.705 ~ 30	0.08			30

The maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:
(1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.
(2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.
(3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.
(4) For transmitters operating solely in the 5.725-5.850 GHz band:
(i) All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

7.1 EUT Operation

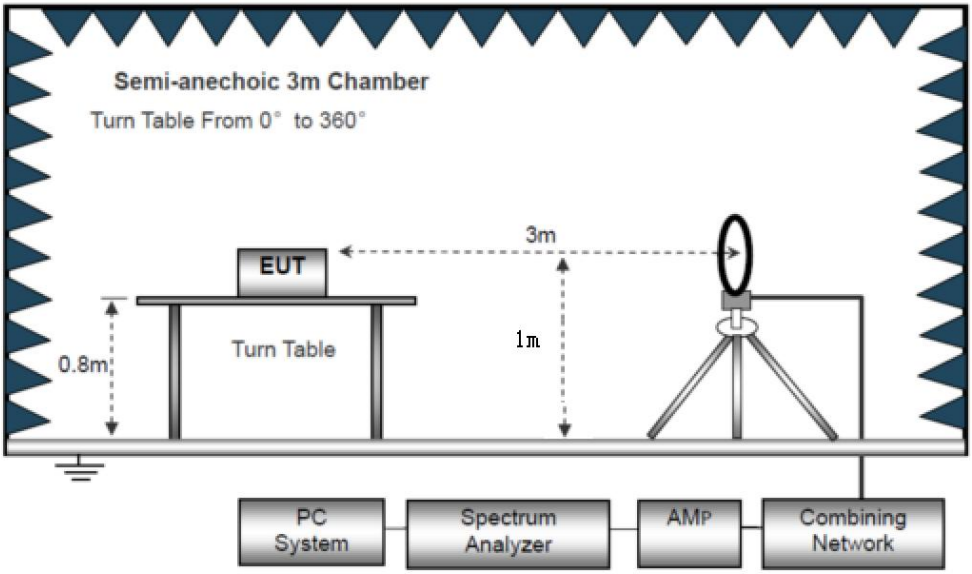
Operating Environment :

Temperature	:	24.5 °C
Humidity	:	55.5% RH
Atmospheric Pressure	:	101.3kPa
Test Voltage	:	AC 120V60Hz

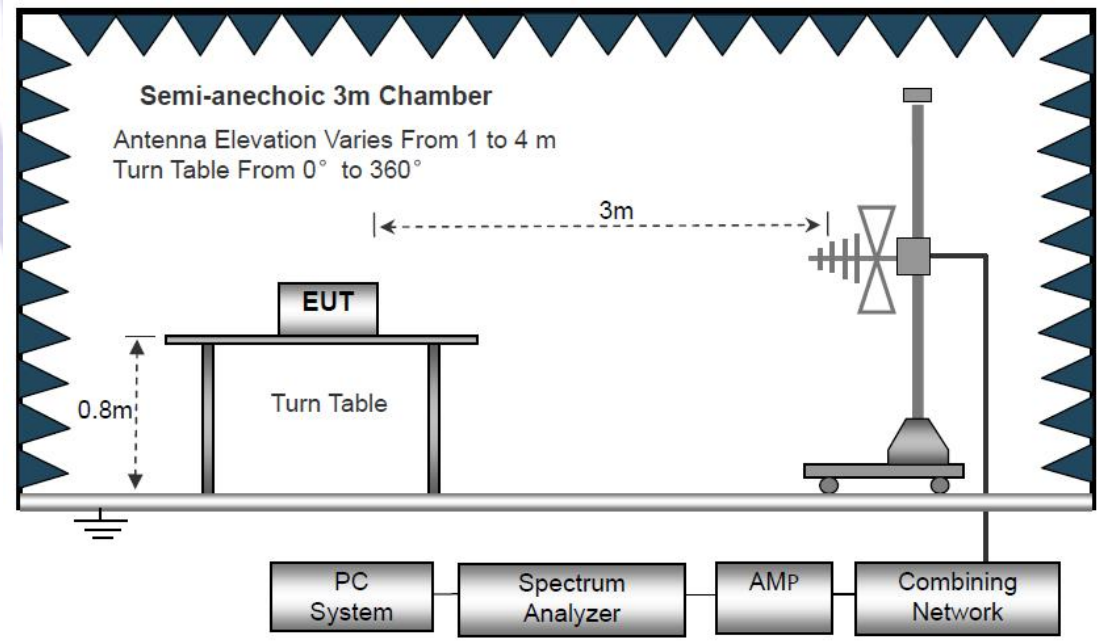
7.2 Test Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site

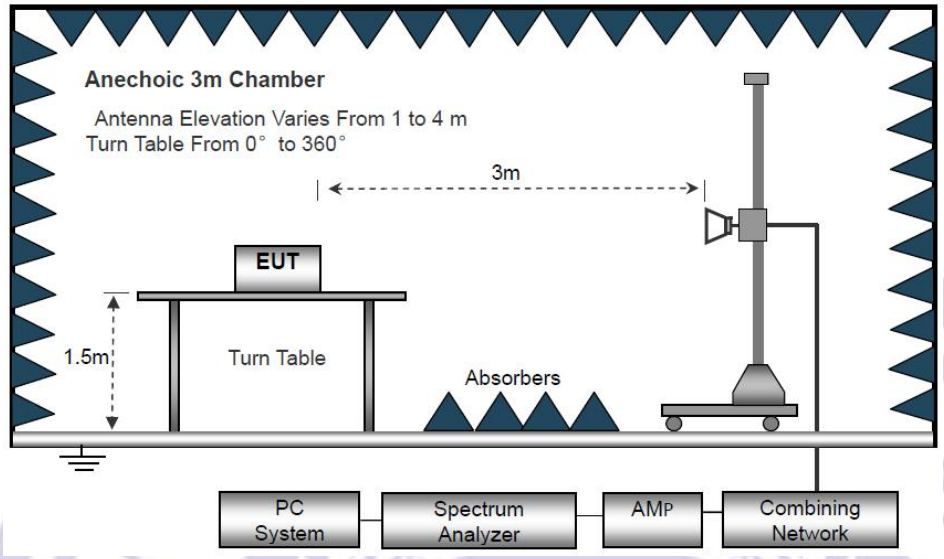
The test setup for emission measurement below 30MHz.



The test setup for emission measurement from 30 MHz to 1 GHz.



The test setup for emission measurement above 1 GHz.



7.3 Spectrum Analyzer Setup

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

7.4 Test Procedure

1. The testing follows the guidelines in Spurious Radiated Emissions of ANSI C63.10-2013.

2. Below 1000MHz, The EUT was placed on a turn table which is 0.8m above ground plane. And above 1000MHz, The EUT was placed on a styrofoam table which is 1.5m above ground plane.

3. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.

4. For each suspected emission, the EUT was arranged to its worst case and then tune the Antenna tower (From 1m to 4m) and turntable (from 0 degree to 360 degree) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines.

5. Set to the maximum power setting and enable the EUT transmit continuously.

6. Final measurement (Above 1GHz): The frequency range will be divided into different sub ranges depending of the frequency range of the used horn antenna. The EMI Receiver set to peak and average mode and a resolution bandwidth of 1MHz. The measurement will be performed in horizontal and vertical polarization of the measuring antenna and while rotating the EUT in its vertical axis in the range of 0 degree to 360 degree in order to have the antenna inside the cone of radiation.

7. Test Procedure of measurement (For Above 1GHz):

1) Monitor the frequency range at horizontal polarization and move the antenna over all sides of the EUT(if necessary move the EUT to another orthogonal axis).

2) Change the antenna polarization and repeat 1) with vertical polarization.

3) Make a hardcopy of the spectrum.

4) Measure the frequency of the detected emissions with a lower span and resolution bandwidth to increase the accuracy and note the frequency value.

5) Change the analyser mode to Clear/ Write and found the cone of emission.

6) Rotate and move the EUT, so that the measuring distance can be enlarged to 3m and the antenna will be still inside the cone of emission.

7) Measure the level of the detected frequency with the correct resolution bandwidth, with the antenna polarization and azimuth and the peak and average detector, which causes the maximum emission.

8) Repeat steps 1) to 7) for the next antenna spot if the EUT is larger than the antenna beamwidth.

7. The radiation measurements are tested under 3-axes(X,Y,Z) position(X denotes lying on the table, Y denotes side stand and Z denotes vertical stand), After pre-test, It was found that the worse radiation emission was get at the X position. So the data shown was the X position only.

8. The unwanted emission limits in both the restricted and nonrestricted bands are in radiated measurement; however, as an alternative. Antenna-port conducted measurements in conjunction with cabinet emissions tests are permitted to determine compliance provided that the following steps are performed:

a) cabinet emissions measurements---A radiated test shall be performed to confirm that cabinet emissions are below the emission limits. For the cabinet-emission measurements the antenna may be replaced by a termination matching the nominal impedance of the antenna.

b) Impedance matching---Conducted tests shall be performed using equipment that matches the nominal impedance of the antenna assembly used with the EUT.

c) EIRP calculation---A value representative of an upper bound on out-of-band antenna gain (in dBi) shall be added to the measured antenna-port conducted emission power to compute EIRP within the specified measurement bandwidth. (For emissions in the restricted bands. Additional calculations are required to convert EIRP to field strength at the specified distance.) The upper bound on antenna gain for a device with a single RF output shall be selected as the maximum in-band gain of the antenna across all operating bands, or 2 dBi, whichever is greater.[98] However, for devices that operate in multiple bands nearest to the out-of-band frequency being measured may be used, in lieu of the overall highest gain, when measuring emissions at frequencies within 20% of the absolute frequency at the nearest edge of that band, but in no case shall a value less than 2 dBi be selected.

d) EIRP adjustments for multiple outputs---For devices with multiple outputs occupying the same or overlapping frequency ranges in the same band (e.g., MIMO or beamfoming devices), compute the total EIRP as follows:

1) Compute EIRP for each output, as described in step c).

2) Follow the procedures specified in Clause 14 for summing emissions across the outputs, or adjusting emission levels measured on individual outputs by[10 log(N_{ANT})], where N_{ANT} is the number of outputs.

3) Add the array gain term specified in 14.4.4 for out-of band and spurious signals.[99]

7.5 Summary of Test Results

Test Frequency: 9KHz-30MHz

Freq. (MHz)	Ant.Pol. H/V	Emission Level (dBuV/m)	Limit 3m (dBuV/m)	Over (dB)
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Note:

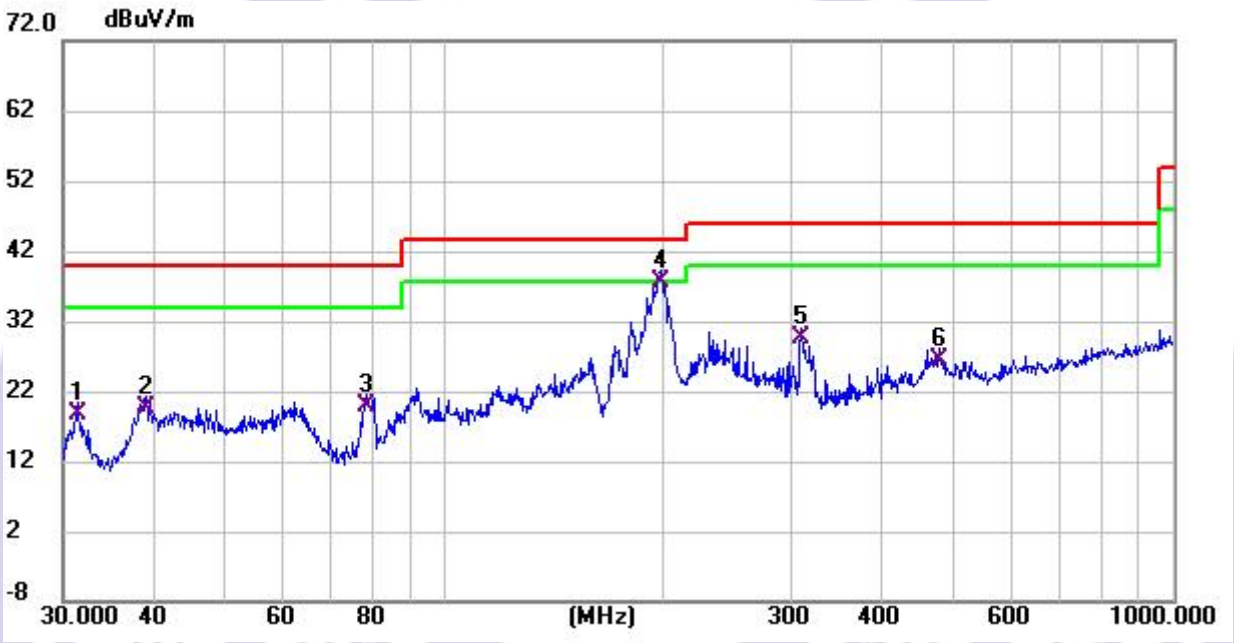
The amplitude of spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported.

Distance extrapolation factor =40log(Specific distance/ test distance)(dB);
Limit line=Specific limits(dBuV) + distance extrapolation factor.

Test Frequency: 30MHz ~ 1GHz

Please refer to the following test plots,Low Channel Worst case 802.11a for record:

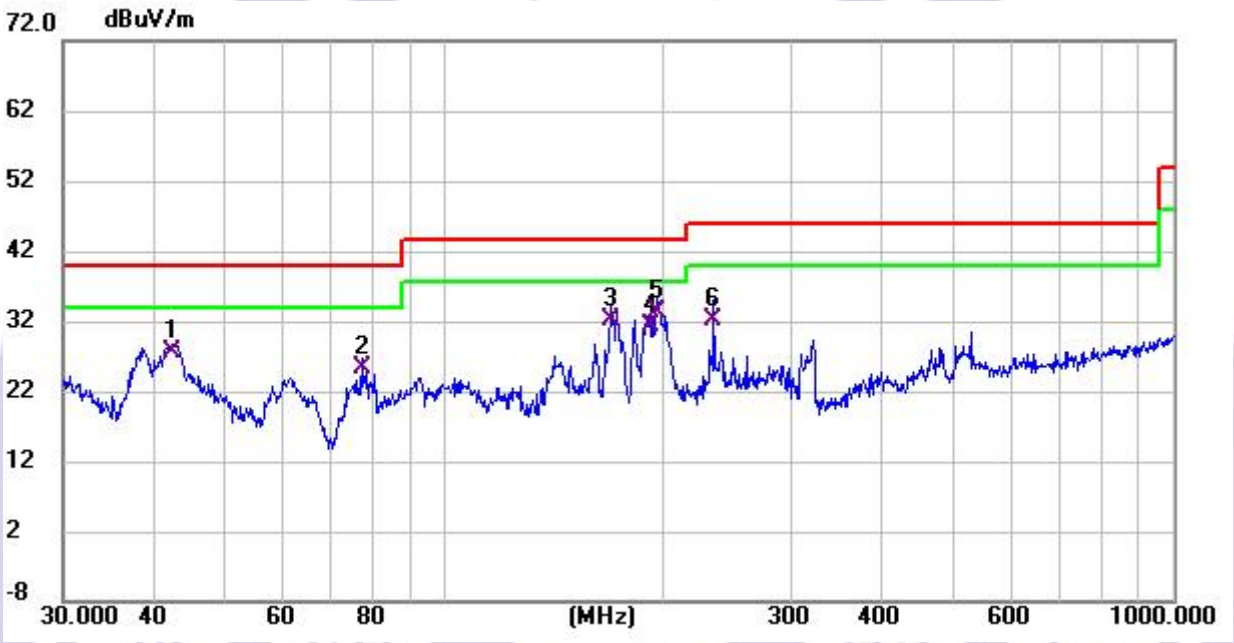
Temperature:	26℃	Relative Humidity:	54%
Pressure:	101kPa	Polarization:	Horizontal
Test Voltage:	AC 120V/60Hz		



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	31.399	10.93	7.70	18.63	40.00	-21.37	QP
2	39.024	7.10	12.55	19.65	40.00	-20.35	QP
3	78.139	11.90	7.84	19.74	40.00	-20.26	QP
4 *	197.893	25.47	12.07	37.54	43.50	-5.96	QP
5	308.913	15.25	14.40	29.65	46.00	-16.35	QP
6	477.169	8.33	18.12	26.45	46.00	-19.55	QP

Remark:Emission Level=Reading+Cable Loss+ANT Factor-AMP Factor

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



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	42.451	13.80	13.73	27.53	40.00	-12.47	QP
2	77.051	13.92	11.42	25.34	40.00	-14.66	QP
3	169.599	16.15	16.01	32.16	43.50	-11.34	QP
4	191.745	19.23	12.03	31.26	43.50	-12.24	QP
5 *	196.510	22.62	10.67	33.29	43.50	-10.21	QP
6	234.168	20.20	11.96	32.16	46.00	-13.84	QP

Remark:Emission Level=Reading+Cable Loss+ANT Factor-AMP Factor

Test Frequency 1GHz-40GHz

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	44.69	32.7	7.72	38.59	58.30	68.2	-9.90	PK
V	10360	24.33	32.7	7.72	38.59	37.94	54	-16.06	AV
V	15540	44.04	31.74	9.44	39.29	61.03	74	-12.97	PK
V	15540	17.76	31.74	9.44	39.29	34.75	54	-19.25	AV
V	20720	41.14	26.93	6.64	37.94	58.79	74	-15.21	PK
V	20720	19.02	26.93	6.64	37.94	36.67	54	-17.33	AV
V	25900	35.53	27.1	7.9	39.32	55.65	68.2	-12.55	PK
V	25900	22.12	27.1	7.9	39.32	42.24	54	-11.76	AV
H	10360	38.50	32.7	7.72	38.59	52.11	68.2	-16.09	PK
H	10360	22.62	32.7	7.72	38.59	36.23	54	-17.77	AV
H	15540	38.43	31.74	9.44	39.29	55.42	74	-18.58	PK
H	15540	23.43	31.74	9.44	39.29	40.42	54	-13.58	AV
H	20720	40.88	26.93	6.64	37.94	58.53	74	-15.47	PK
H	20720	17.78	26.93	6.64	37.94	35.43	54	-18.57	AV
H	25900	39.44	27.1	7.9	39.32	59.56	68.2	-8.64	PK
H	25900	19.48	27.1	7.9	39.32	39.60	54	-14.40	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	43.92	32.69	7.73	38.62	57.58	68.2	-10.62	PK
V	10400	25.41	32.69	7.73	38.62	39.07	54	-14.93	AV
V	15600	40.69	31.72	9.45	39.28	57.70	74	-16.30	PK
V	15600	20.90	31.72	9.45	39.28	37.91	54	-16.09	AV
V	20800	38.15	26.93	6.73	37.96	55.91	74	-18.09	PK
V	20800	20.19	26.93	6.73	37.96	37.95	54	-16.05	AV
V	26000	37.37	27.1	7.94	39.3	57.51	68.2	-10.69	PK
V	26000	17.41	27.1	7.94	39.3	37.55	54	-16.45	AV
H	10400	42.77	32.69	7.73	38.62	56.43	68.2	-11.77	PK
H	10400	20.87	32.69	7.73	38.62	34.53	54	-19.47	AV
H	15600	38.98	31.72	9.45	39.28	55.99	74	-18.01	PK
H	15600	19.80	31.72	9.45	39.28	36.81	54	-17.19	AV
H	20800	39.14	26.93	6.73	37.96	56.90	74	-17.10	PK
H	20800	18.19	26.93	6.73	37.96	35.95	54	-18.05	AV
H	26000	38.43	27.1	7.94	39.3	58.57	68.2	-9.63	PK
H	26000	16.53	27.1	7.94	39.3	36.67	54	-17.33	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	41.18	32.66	7.74	38.68	54.94	68.2	-13.26	PK
V	10480	25.36	32.66	7.74	38.68	39.12	54	-14.88	AV
V	15720	38.16	31.68	9.48	39.26	55.22	74	-18.78	PK
V	15720	17.16	31.68	9.48	39.26	34.22	54	-19.78	AV
V	20960	37.67	26.94	6.91	37.99	55.63	74	-18.37	PK
V	20960	19.84	26.94	6.91	37.99	37.80	54	-16.20	AV
V	26200	37.83	27.1	7.98	39.5	58.21	68.2	-9.99	PK
V	26200	16.56	27.1	7.98	39.5	36.94	54	-17.06	AV
H	10480	45.39	32.66	7.74	38.68	59.15	68.2	-9.05	PK
H	10480	22.89	32.66	7.74	38.68	36.65	54	-17.35	AV
H	15720	39.79	31.68	9.48	39.26	56.85	74	-17.15	PK
H	15720	21.44	31.68	9.48	39.26	38.50	54	-15.50	AV
H	20960	39.51	26.94	6.91	37.99	57.47	74	-16.53	PK
H	20960	20.79	26.94	6.91	37.99	38.75	54	-15.25	AV
H	26200	36.35	27.1	7.98	39.5	56.73	68.2	-11.47	PK
H	26200	17.81	27.1	7.98	39.5	38.19	54	-15.81	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.

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:5260MHz									
V	10520	44.71	32.72	7.75	38.63	58.37	68.2	-9.83	PK
V	10520	24.64	32.72	7.75	38.63	38.30	54	-15.70	AV
V	15780	43.09	31.73	9.49	39.31	60.16	74	-13.84	PK
V	15780	16.89	31.73	9.49	39.31	33.96	54	-20.04	AV
V	21040	42.52	26.94	6.93	37.93	60.44	74	-13.56	PK
V	21040	19.70	26.94	6.93	37.93	37.62	54	-16.38	AV
V	26300	35.88	27.12	7.99	39.32	56.07	68.2	-12.13	PK
V	26300	22.88	27.12	7.99	39.32	43.07	54	-10.93	AV
H	10520	37.99	32.72	7.75	38.63	51.65	68.2	-16.55	PK
H	10520	21.54	32.72	7.75	38.63	35.20	54	-18.80	AV
H	15780	38.10	31.73	9.49	39.31	55.17	74	-18.83	PK
H	15780	22.26	31.73	9.49	39.31	39.33	54	-14.67	AV
H	21040	41.83	26.94	6.93	37.93	59.75	74	-14.25	PK
H	21040	17.84	26.94	6.93	37.93	35.76	54	-18.24	AV
H	26300	38.93	27.12	7.99	39.32	59.12	68.2	-9.08	PK
H	26300	20.04	27.12	7.99	39.32	40.23	54	-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
Middle Channel:5280MHz									
V	10560	43.86	32.71	7.75	38.62	57.52	68.2	-10.68	PK
V	10560	25.25	32.71	7.75	38.62	38.91	54	-15.09	AV
V	15900	41.12	31.75	9.47	39.28	58.12	74	-15.88	PK
V	15900	20.70	31.75	9.44	39.28	37.67	54	-16.33	AV
V	21200	37.73	26.94	6.75	37.96	55.50	74	-18.50	PK
V	21200	20.10	26.94	6.75	37.96	37.87	54	-16.13	AV
V	26500	38.32	27.12	7.97	39.3	58.47	68.2	-9.73	PK
V	26500	15.77	27.12	7.97	39.3	35.92	54	-18.08	AV
H	10560	42.03	32.71	7.75	38.62	55.69	68.2	-12.51	PK
H	10560	21.62	32.71	7.75	38.62	35.28	54	-18.72	AV
H	15900	40.15	31.75	9.47	39.28	57.15	74	-16.85	PK
H	15900	20.16	31.75	9.44	39.28	37.13	54	-16.87	AV
H	21200	38.67	26.94	6.75	37.96	56.44	74	-17.56	PK
H	21200	18.48	26.94	6.75	37.96	36.25	54	-17.75	AV
H	26500	38.63	27.12	7.97	39.3	58.78	68.2	-9.42	PK
H	26500	17.28	27.12	7.97	39.3	37.43	54	-16.57	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:5320MHz									
V	10640	39.86	32.65	7.77	38.69	53.67	68.2	-14.53	PK
V	10640	23.83	32.65	7.77	38.69	37.64	54	-16.36	AV
V	15900	37.04	31.69	9.49	39.27	54.11	74	-19.89	PK
V	15900	17.18	31.69	9.49	39.27	34.25	54	-19.75	AV
V	21280	38.39	26.93	6.92	37.98	56.36	74	-17.64	PK
V	21280	21.02	26.93	6.92	37.98	38.99	54	-15.01	AV
V	26600	39.35	27.14	7.88	39.53	59.62	68.2	-8.58	PK
V	26600	16.20	27.14	7.88	39.53	36.47	54	-17.53	AV
H	10640	45.76	32.65	7.77	38.69	59.57	68.2	-8.63	PK
H	10640	24.35	32.65	7.77	38.69	38.16	54	-15.84	AV
H	15900	39.51	31.69	9.49	39.27	56.58	74	-17.42	PK
H	15900	19.78	31.69	9.49	39.27	36.85	54	-17.15	AV
H	21280	39.62	26.93	6.92	37.98	57.59	74	-16.41	PK
H	21280	21.29	26.93	6.92	37.98	39.26	54	-14.74	AV
H	26600	35.90	27.14	7.88	39.53	56.17	68.2	-12.03	PK
H	26600	19.15	27.14	7.88	39.53	39.42	54	-14.58	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.

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:5500MHz									
V	11000	44.85	32.74	7.76	38.62	58.49	68.2	-9.71	PK
V	11000	23.85	32.74	7.76	38.62	37.49	54	-16.51	AV
V	16500	43.19	31.7	9.51	39.33	60.33	74	-13.67	PK
V	16500	17.24	31.7	9.51	39.33	34.38	54	-19.62	AV
V	22000	41.36	26.96	6.92	37.92	59.24	74	-14.76	PK
V	22000	19.72	26.96	6.92	37.92	37.60	54	-16.40	AV
V	27500	35.12	27.13	7.98	39.31	55.28	68.2	-12.92	PK
V	27500	22.43	27.13	7.98	39.31	42.59	54	-11.41	AV
H	11000	37.92	32.74	7.76	38.62	51.56	68.2	-16.64	PK
H	11000	22.84	32.74	7.76	38.62	36.48	54	-17.52	AV
H	16500	37.46	31.7	9.51	39.33	54.60	74	-19.40	PK
H	16500	23.26	31.7	9.51	39.33	40.40	54	-13.60	AV
H	22000	41.75	26.96	6.92	37.92	59.63	74	-14.37	PK
H	22000	17.33	26.96	6.92	37.92	35.21	54	-18.79	AV
H	27500	39.55	27.13	7.98	39.31	59.71	68.2	-8.49	PK
H	27500	20.82	27.13	7.98	39.31	40.98	54	-13.02	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:5580MHz									
V	11600	44.53	32.72	7.73	38.63	58.17	68.2	-10.03	PK
V	11600	25.68	32.71	7.73	38.63	39.33	54	-14.67	AV
V	16740	41.32	31.76	9.44	39.27	58.27	74	-15.73	PK
V	16740	20.08	31.76	9.44	39.27	37.03	54	-16.97	AV
V	22320	36.85	26.95	6.76	37.99	54.65	74	-19.35	PK
V	22320	21.47	26.95	6.76	37.99	39.27	54	-14.73	AV
V	27900	38.30	27.14	7.99	39.35	58.50	68.2	-9.70	PK
V	27900	15.83	27.14	7.99	39.35	36.03	54	-17.97	AV
H	11600	43.12	32.72	7.73	38.63	56.76	68.2	-11.44	PK
H	11600	20.18	32.71	7.73	38.63	33.83	54	-20.17	AV
H	16740	39.20	31.76	9.44	39.27	56.15	74	-17.85	PK
H	16740	20.03	31.76	9.44	39.27	36.98	54	-17.02	AV
H	22320	39.16	26.95	6.76	37.99	56.96	74	-17.04	PK
H	22320	19.74	26.95	6.76	37.99	37.54	54	-16.46	AV
H	27900	38.43	27.14	7.99	39.35	58.63	68.2	-9.57	PK
H	27900	16.44	27.14	7.99	39.35	36.64	54	-17.36	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
High Channel:5700MHz									
V	11400	41.53	32.66	7.78	38.68	55.33	68.2	-12.87	PK
V	11400	24.50	32.66	7.78	38.68	38.30	54	-15.70	AV
V	17100	37.09	31.68	9.51	39.29	54.21	74	-19.79	PK
V	17100	18.31	31.68	9.51	39.29	35.43	54	-18.57	AV
V	22800	37.74	26.92	6.94	37.97	55.73	74	-18.27	PK
V	22800	21.11	26.92	6.94	37.97	39.10	54	-14.90	AV
V	28500	37.89	27.17	7.89	39.51	58.12	68.2	-10.08	PK
V	28500	15.19	27.17	7.89	39.51	35.42	54	-18.58	AV
H	11400	45.09	32.66	7.78	38.68	58.89	68.2	-9.31	PK
H	11400	24.05	32.66	7.78	38.68	37.85	54	-16.15	AV
H	17100	39.43	31.68	9.51	39.29	56.55	74	-17.45	PK
H	17100	20.38	31.68	9.51	39.29	37.50	54	-16.50	AV
H	22800	39.16	26.92	6.94	37.97	57.15	74	-16.85	PK
H	22800	21.05	26.92	6.94	37.97	39.04	54	-14.96	AV
H	28500	34.86	27.17	7.89	39.51	55.09	68.2	-13.11	PK
H	28500	19.50	27.17	7.89	39.51	39.73	54	-14.27	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.

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	41.81	32.29	8.39	38.9	56.81	74	-17.19	PK
V	11490	20.88	32.29	8.39	38.9	35.88	54	-18.12	AV
V	17235	38.04	31.19	9.62	40.37	56.84	68.2	-11.36	PK
V	17235	20.62	31.19	9.62	40.37	39.42	54	-14.58	AV
V	22980	38.91	27.02	7.2	38.98	58.07	74	-15.93	PK
V	22980	17.57	27.02	7.2	38.98	36.73	54	-17.27	AV
V	28725	36.07	27.1	7.56	40.18	56.71	68.2	-11.49	PK
V	28725	16.82	27.1	7.56	40.18	37.46	54	-16.54	AV
H	11490	42.96	32.29	8.39	38.9	57.96	74	-16.04	PK
H	11490	20.41	32.29	8.39	38.9	35.41	54	-18.59	AV
H	17235	37.97	31.19	9.62	40.37	56.77	68.2	-11.43	PK
H	17235	17.38	31.19	9.62	40.37	36.18	54	-17.82	AV
H	22980	35.70	27.02	7.2	38.98	54.86	74	-19.14	PK
H	22980	20.07	27.02	7.2	38.98	39.23	54	-14.77	AV
H	28725	37.25	27.1	7.56	40.18	57.89	68.2	-10.31	PK
H	28725	15.02	27.1	7.56	40.18	35.66	54	-18.34	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	41.19	32.26	8.48	38.9	56.31	74	-17.69	PK
V	11570	17.44	32.26	8.48	38.9	32.56	54	-21.44	AV
V	17355	36.59	31.08	9.67	40.61	55.79	68.2	-12.41	PK
V	17355	15.64	31.08	9.67	40.61	34.84	54	-19.16	AV
V	23140	35.46	27.03	7.24	39.03	54.70	68.2	-13.50	PK
V	23140	16.77	27.03	7.24	39.03	36.01	54	-17.99	AV
V	28925	34.77	27.1	7.58	40.34	55.59	68.2	-12.61	PK
V	28925	15.60	27.1	7.58	40.34	36.42	54	-17.58	AV
H	11570	37.92	32.26	8.48	38.9	53.04	74	-20.96	PK
H	11570	18.06	32.26	8.48	38.9	33.18	54	-20.82	AV
H	17355	34.44	31.08	9.67	40.61	53.64	68.2	-14.56	PK
H	17355	14.88	31.08	9.67	40.61	34.08	54	-19.92	AV
H	23140	34.74	27.03	7.24	39.03	53.98	68.2	-14.22	PK
H	23140	15.16	27.03	7.24	39.03	34.40	54	-19.60	AV
H	28925	36.15	27.1	7.58	40.34	56.97	68.2	-11.23	PK
H	28925	12.42	27.1	7.58	40.34	33.24	54	-20.76	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:5825MHz									
V	11650	43.79	32.23	8.56	38.9	59.02	74	-14.98	PK
V	11650	31.92	32.23	8.56	38.9	47.15	54	-6.85	AV
V	17475	43.05	30.97	9.73	40.85	62.66	68.2	-5.54	PK
V	17475	27.84	30.97	9.73	40.85	47.45	54	-6.55	AV
V	23300	41.75	27.03	7.26	39.06	61.04	68.2	-7.16	PK
V	23300	24.29	27.03	7.26	39.06	43.58	54	-10.42	AV
V	29125	41.45	27.1	7.61	40.4	62.36	68.2	-5.84	PK
V	29125	22.13	27.1	7.61	40.4	43.04	54	-10.96	AV
H	11650	43.29	32.23	8.56	38.9	58.52	74	-15.48	PK
H	11650	29.22	32.23	8.56	38.9	44.45	54	-9.55	AV
H	17475	43.81	30.97	9.73	40.85	63.42	68.2	-4.78	PK
H	17475	27.21	30.97	9.73	40.85	46.82	54	-7.18	AV
H	23300	43.96	27.03	7.26	39.06	63.25	68.2	-4.95	PK
H	23300	22.73	27.03	7.26	39.06	42.02	54	-11.98	AV
H	29125	38.24	27.1	7.61	40.4	59.15	68.2	-9.05	PK
H	29125	24.32	27.1	7.61	40.4	45.23	54	-8.77	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.

Restrict Band EMISSION MEASUREMENT

Frequency	Meter Reading	antenna Factor	cable loss	preamp factor	Emission Level	Limit	Margin	Polar	Detector Type	Result
(MHz)	(dBuV/m)	(dB)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	(H/V)		
802.11a:5180MHz										
5150	52.23	33.14	5.29	33.88	58.26	74	-15.74	V	PK	Pass
5150	34.99	33.14	5.29	33.88	41.02	54	-12.98	V	AV	Pass
5145	53.67	33.14	5.29	33.88	59.7	68.2	-8.5	V	PK	Pass
5145	34.74	33.14	5.29	33.88	40.77	54	-13.23	V	AV	Pass
5150	54.22	33.14	5.29	33.88	60.25	74	-13.75	H	PK	Pass
5150	34.14	33.14	5.29	33.88	40.17	54	-13.83	H	AV	Pass
5145	51.58	33.14	5.29	33.88	57.61	68.2	-10.59	H	PK	Pass
5145	34.07	33.14	5.29	33.88	40.1	54	-13.9	H	AV	Pass
802.11a:5240MHz										
5350	57.1	33.06	5.44	33.72	63.2	74	-10.8	V	PK	Pass
5350	37.13	33.06	5.44	33.72	43.23	54	-10.77	V	AV	Pass
5370	51.27	33.05	5.45	33.7	57.37	68.2	-10.83	V	PK	Pass
5370	36.12	33.05	5.45	33.7	42.22	54	-11.78	V	AV	Pass
5350	56.35	33.06	5.44	33.72	62.45	74	-11.55	H	PK	Pass
5350	38.31	33.06	5.44	33.72	44.41	54	-9.59	H	AV	Pass
5370	53.71	33.05	5.45	33.7	59.81	68.2	-8.39	H	PK	Pass
5370	34.81	33.05	5.45	33.7	40.91	54	-13.09	H	AV	Pass
802.11a:5260MHz										
5150	52.92	33.14	5.29	33.88	57.47	74	-16.53	V	PK	Pass
5150	36.71	33.14	5.29	33.88	41.26	54	-12.74	V	AV	Pass
5145	53.16	33.14	5.29	33.88	57.71	68.2	-10.49	V	PK	Pass
5145	34.51	33.14	5.29	33.88	39.06	54	-14.94	V	AV	Pass
5150	53.42	33.14	5.29	33.88	57.97	74	-16.03	H	PK	Pass
5150	36.64	33.14	5.29	33.88	41.19	54	-12.81	H	AV	Pass
5145	51.33	33.14	5.29	33.88	55.88	68.2	-12.32	H	PK	Pass
5145	35.25	33.14	5.29	33.88	39.8	54	-14.2	H	AV	Pass
802.11a:5320MHz										
5350	53.78	33.14	5.29	33.88	59.81	74	-14.19	V	PK	Pass
5350	36.41	33.14	5.29	33.88	42.44	54	-11.56	V	AV	Pass

5370	53.78	33.14	5.29	33.88	59.81	68.2	-8.39	V	PK	Pass
5370	35.13	33.14	5.29	33.88	41.16	54	-12.84	V	AV	Pass
5350	54.18	33.14	5.29	33.88	60.21	74	-13.79	H	PK	Pass
5350	36.18	33.14	5.29	33.88	42.21	54	-11.79	H	AV	Pass
5370	51.98	33.14	5.29	33.88	58.01	68.2	-10.19	H	PK	Pass
5370	36.04	33.14	5.29	33.88	42.07	54	-11.93	H	AV	Pass
802.11a:5500MHz										
5470	56.98	33.21	5.42	33.7	62.89	74	-11.11	V	PK	Pass
5470	36.86	33.21	5.42	33.7	42.77	54	-11.23	V	AV	Pass
5465	52.53	33.2	5.43	33.71	58.47	68.2	-9.73	V	PK	Pass
5465	36.54	33.2	5.43	33.71	42.48	54	-11.52	V	AV	Pass
5470	55.46	33.21	5.42	33.7	61.37	74	-12.63	H	PK	Pass
5470	38.01	33.21	5.42	33.7	43.92	54	-10.08	H	AV	Pass
5465	53.9	33.2	5.43	33.71	59.84	68.2	-8.36	H	PK	Pass
5465	35.25	33.2	5.43	33.71	41.19	54	-12.81	H	AV	Pass
802.11a:5700MHz										
5725	55.58	33.14	5.41	33.69	61.54	74	-12.46	V	PK	Pass
5725	38.87	33.14	5.41	33.69	44.83	54	-9.17	V	AV	Pass
5745	52.53	33.13	5.42	33.68	58.5	68.2	-9.7	V	PK	Pass
5745	39.93	33.13	5.42	33.68	45.9	54	-8.1	V	AV	Pass
5725	55.82	33.14	5.41	33.69	61.78	74	-12.22	H	PK	Pass
5725	42.73	33.14	5.41	33.69	48.69	54	-5.31	H	AV	Pass
5745	53.75	33.13	5.42	33.68	59.72	68.2	-8.48	H	PK	Pass
5745	38.19	33.13	5.42	33.68	44.16	54	-9.84	H	AV	Pass
802.11a:5745MHz										
5650	53.55	33.24	5.26	33.85	58.2	68.23	-10.03	V	PK	Pass
5650	40.23	33.24	5.26	33.85	44.88	54	-9.12	V	AV	Pass
5700	53.44	33.24	5.26	33.85	58.09	105.23	-47.14	V	PK	Pass
5700	39.52	33.24	5.26	33.85	44.17	54	-9.83	V	AV	Pass
5720	53.64	33.23	5.25	33.84	58.28	110.23	-51.95	V	PK	Pass
5720	39.62	33.23	5.25	33.84	44.26	54	-9.74	V	AV	Pass
5725	52.84	33.23	5.25	33.84	57.48	122.23	-64.75	V	PK	Pass
5725	39.74	33.23	5.25	33.84	44.38	54	-9.62	V	AV	Pass
5650	53.53	33.24	5.26	33.85	58.18	68.23	-10.05	H	PK	Pass
5650	38.04	33.24	5.26	33.85	42.69	54	-11.31	H	AV	Pass
5700	51.72	33.24	5.26	33.85	56.37	105.23	-48.86	H	PK	Pass
5700	37.42	33.24	5.26	33.85	42.07	54	-11.93	H	AV	Pass
5720	52.63	33.23	5.25	33.84	57.27	110.23	-52.96	H	PK	Pass

5720	39.65	33.23	5.25	33.84	44.29	54	-9.71	H	AV	Pass
5725	52.41	33.23	5.25	33.84	57.05	122.23	-65.18	H	PK	Pass
5725	38.74	33.23	5.25	33.84	43.38	54	-10.62	H	AV	Pass
802.11a:5825MHz										
5845	56.68	33.16	5.42	33.7	61.56	122.23	-60.67	V	PK	Pass
5845	39.75	33.16	5.42	33.7	44.63	54	-9.37	V	AV	Pass
5850	52.09	33.16	5.42	33.7	56.97	110.23	-53.26	V	PK	Pass
5850	38.11	33.16	5.42	33.7	42.99	54	-11.01	V	AV	Pass
5870	52.63	33.15	5.41	33.71	57.48	105.23	-47.75	V	PK	Pass
5870	39.65	33.15	5.41	33.71	44.5	54	-9.5	V	AV	Pass
5900	52.14	33.15	5.41	33.71	56.99	68.23	-11.24	V	PK	Pass
5900	38.79	33.15	5.41	33.71	43.64	54	-10.36	V	AV	Pass
5845	55.43	33.16	5.42	33.7	60.31	122.23	-61.92	H	PK	Pass
5845	39.65	33.16	5.42	33.7	44.53	54	-9.47	H	AV	Pass
5850	54.88	33.16	5.42	33.7	59.76	110.23	-50.47	H	PK	Pass
5850	38.47	33.16	5.42	33.7	43.35	54	-10.65	H	AV	Pass
5870	53.74	33.15	5.41	33.71	58.59	105.23	-46.64	H	PK	Pass
5870	39.86	33.15	5.41	33.71	44.71	54	-9.29	H	AV	Pass
5900	53.67	33.15	5.41	33.71	58.52	68.23	-9.71	H	PK	Pass
5900	39.74	33.15	5.41	33.71	44.59	54	-9.41	H	AV	Pass

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.

8 POWER SPECTRAL DENSITY TEST

8.1 Test Standard and Limit

According to FCC §15.407(3)

(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.

According to RSS-247 6.2

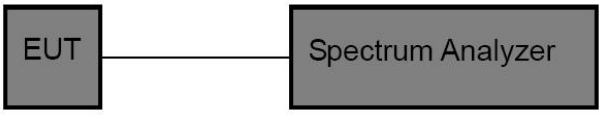
The maximum power spectral density should not exceed:

Frequency Band (MHz)	Limit
5150-5250	N/A
5250-5350	11 dBm/MHz
5470-5725	11 dBm/MHz
5725-5850	30 dBm/500kHz

The e.i.r.p. spectral density should not exceed:

Frequency Band (MHz)	Limit
5150-5250	10 dBm/MHz
5250-5350	N/A
5470-5725	N/A
5725-5850	N/A

8.2 Test Setup



8.3 Test Procedure

1. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above,

2. Spectrum Setting:

U-NII-1: 5150MHz~5250MHz, U-NII-2A: 5250MHz~5350MHz, U-NII-21: 5470MHz~5725MHz:
RBW =1MHz
Span = approximately 1.5 times the 20 dB bandwidth, centered on a hopping channel
VBW ≥ RBW
Sweep = auto
Detector function = RMS
Trace = AVG

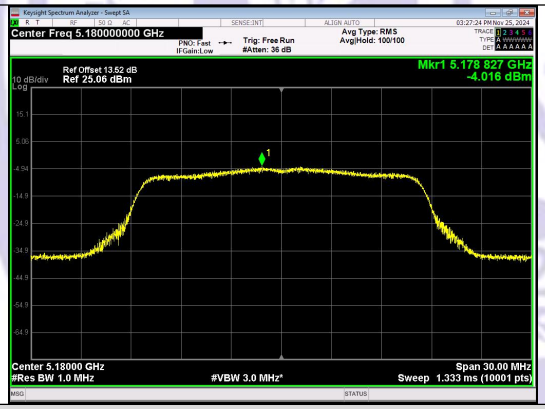
U-NII-3: 5725MHz~5850MHz
RBW =500kHz
Span = approximately 1.5 times the 20 dB bandwidth, centered on a hopping channel
VBW ≥ RBW
Sweep = auto
Detector function = RMS
Trace = AVG

8.4 Test Data

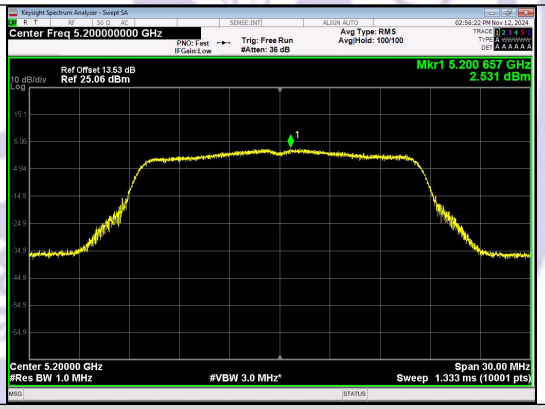
Mode	Channel	Ant. 0 Meas PSD (dBm/MHz)	Duty Cycle Factor (dB)	Report Power Density (dBm/MHz)	Limit (dBm/MHz)	Result
IEEE 802.11a	36	-4.075	0.0586	-4.0164	11	PASS
	40	2.472	0.0586	2.5306		PASS
	48	4.502	0.0586	4.5606		PASS
	52	4.917	0.0586	4.9756	11	PASS
	56	5.033	0.0604	5.0934		PASS
	64	4.945	0.0586	5.0036		PASS
	100	4.117	0.0586	4.1756		PASS
	116	2.488	0.0604	2.5484		PASS
	140	4.376	0.0604	4.4364		PASS
IEEE 802.11n_20	36	-0.130	0.0648	-0.0652	11	PASS
	40	2.064	0.0648	2.1288		PASS
	48	3.620	0.0648	3.6848		PASS
	52	4.974	0.0648	5.0388	11	PASS
	56	5.006	0.0626	5.0686		PASS
	64	4.979	0.0626	5.0416		PASS
	100	3.362	0.0626	3.4246		PASS
	116	1.950	0.0626	2.0126		PASS
	140	4.087	0.0626	4.1496		PASS
IEEE 802.11n_40	38	-6.881	0.0931	-6.7879	11	PASS
	46	-1.235	0.0908	-1.1442		PASS
	54	1.128	0.0864	1.2144	11	PASS
	62	2.265	0.0846	2.3496		PASS
	102	-0.656	0.0908	-0.5652		PASS
	134	-0.910	0.0908	-0.8192		PASS
IEEE 802.11ac_20	36	-0.030	0.0626	0.0326	11	PASS
	40	2.472	0.0626	2.5346		PASS
	48	3.873	0.0626	3.9356		PASS
	52	5.062	0.0626	5.1246	11	PASS
	56	5.031	0.0621	5.0931		PASS
	64	4.954	0.0626	5.0166		PASS
	100	3.070	0.0621	3.1321		PASS
	116	1.107	0.0626	1.1696		PASS
	140	3.312	0.0626	3.3746		PASS
IEEE 802.11ac_40	38	-6.545	0.0683	-6.4767	11	PASS
	46	-1.197	0.0621	-1.1349		PASS
	54	1.609	0.0009	1.6099	11	PASS
	62	1.856	0.0608	1.9168		PASS
	102	-0.405	0.0656	-0.3394		PASS
	134	-0.485	0.0656	-0.4194		PASS
IEEE 802.11ac_80	42	-12.371	0.1247	-12.2463	11	PASS
	58	-6.256	0.1162	-6.1398	11	PASS
	106	-4.427	0.0366	-4.3904		PASS

Mode	Channel	Ant. 0 Meas PSD (dBm/MHz)	Duty Cycle Factor (dB)	Report Power Density (dBm/MHz)	E.I.R.P Report Power Density (dBm/MHz)	E.I.R.P Limit (dBm/MHz)	Result
IEEE 802.11a	36	-4.075	0.0586	-4.0164	0.7536	10	PASS
	40	2.472	0.0586	2.5306	7.3006		PASS
	48	4.502	0.0586	4.5606	9.3306		PASS
IEEE 802.11n_20	36	-0.130	0.0648	-0.0652	4.7048		PASS
	40	2.064	0.0648	2.1288	6.8988		PASS
	48	3.620	0.0648	3.6848	8.4548		PASS
IEEE 802.11n_40	38	-6.881	0.0931	-6.7879	-2.0179		PASS
	46	-1.235	0.0908	-1.1442	3.6258		PASS
IEEE 802.11ac_20	36	-0.030	0.0626	0.0326	4.8026		PASS
	40	2.472	0.0626	2.5346	7.3046		PASS
	48	3.873	0.0626	3.9356	8.7056		PASS
IEEE 802.11ac_40	38	-6.545	0.0683	-6.4767	-1.7067		PASS
	46	-1.197	0.0621	-1.1349	3.6351		PASS
IEEE 802.11ac_80	42	-12.371	0.1247	-12.2463	-7.4763		PASS

Test Graphs



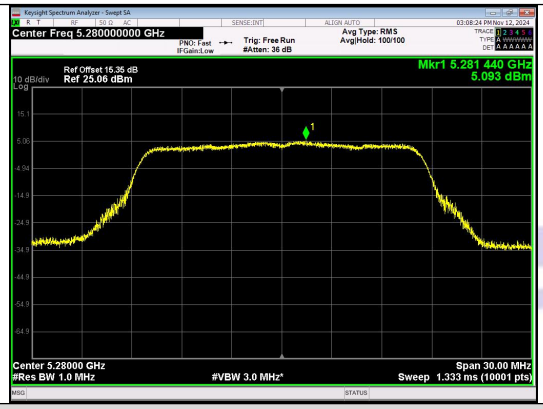
IEEE 802.11a_Channel 36_20MHz_Antenna 0



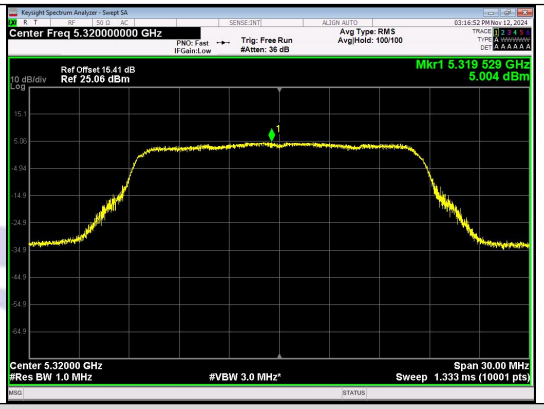
IEEE 802.11a_Channel 40_20MHz_Antenna 0

IEEE 802.11a_Channel 48_20MHz_Antenna 0

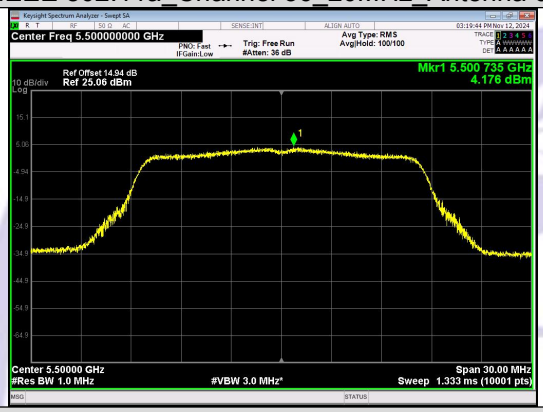
IEEE 802.11a_Channel 52_20MHz_Antenna 0



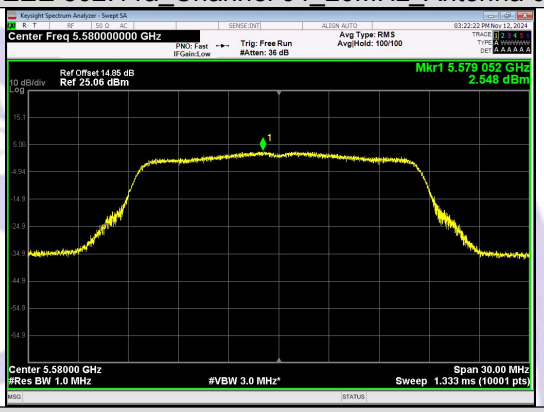
IEEE 802.11a_Channel 56_20MHz_Antenna 0



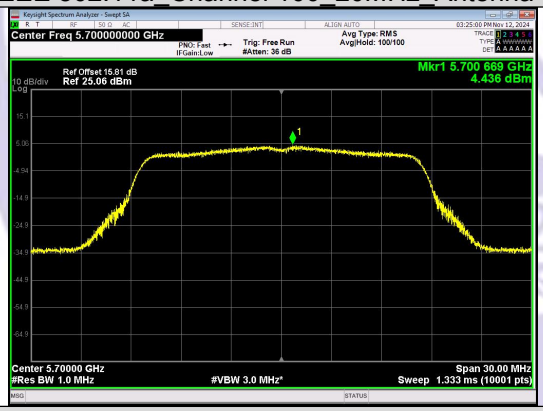
IEEE 802.11a_Channel 64_20MHz_Antenna 0



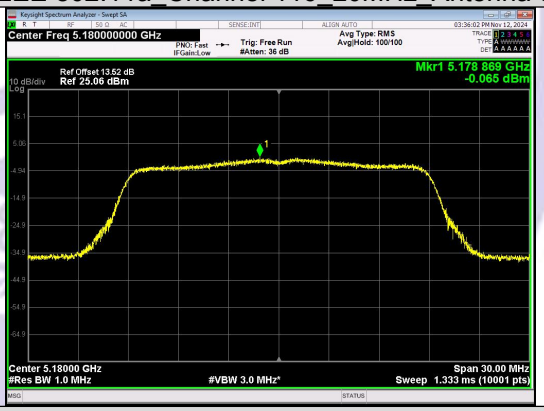
IEEE 802.11a_Channel 100_20MHz_Antenna 0



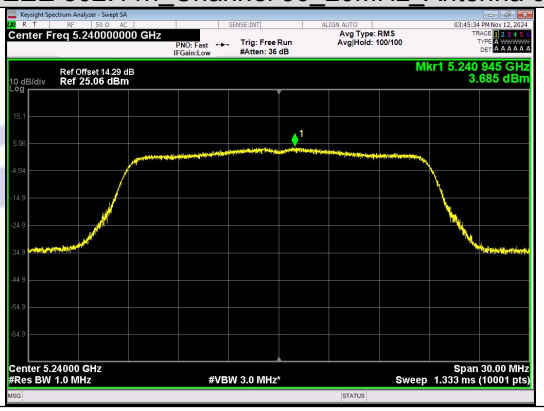
IEEE 802.11a_Channel 116_20MHz_Antenna 0

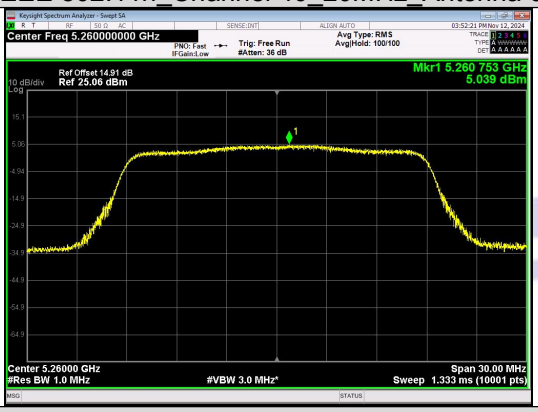
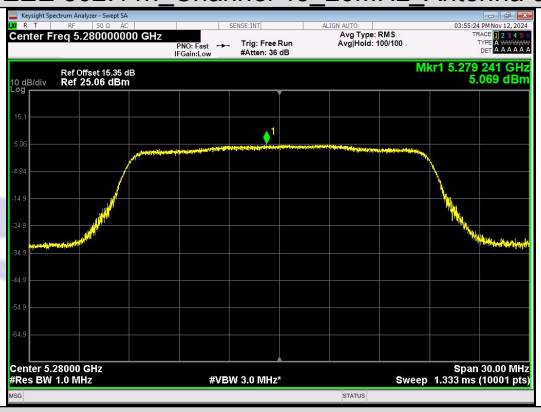
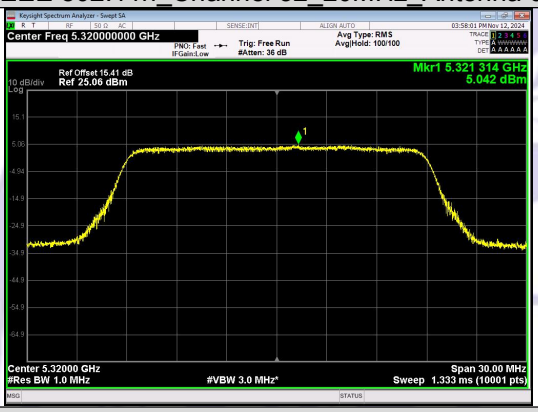
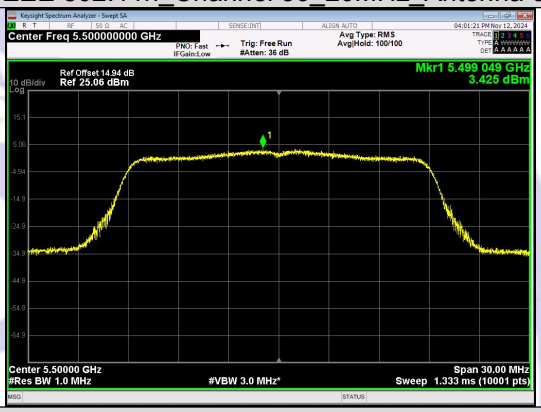
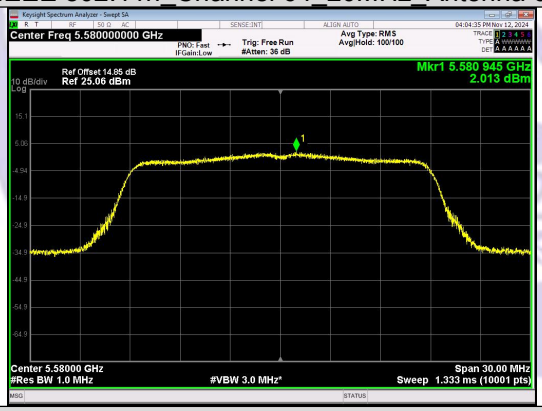
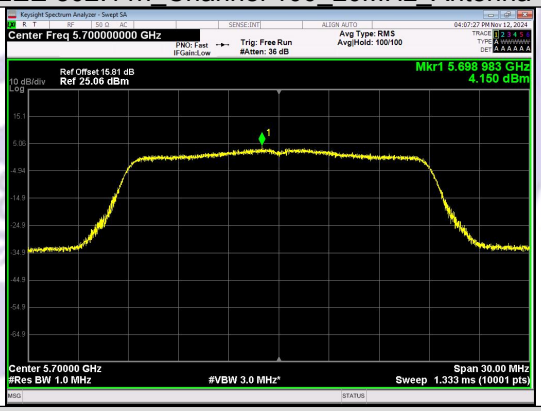


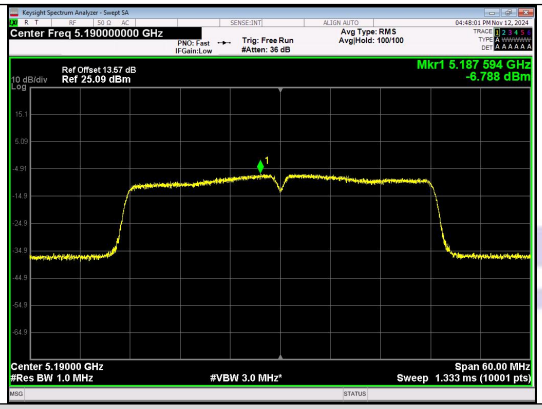
IEEE 802.11a_Channel 140_20MHz_Antenna 0



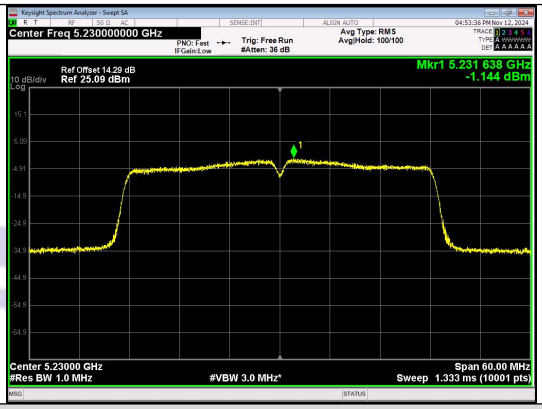
IEEE 802.11n_Channel 36_20MHz_Antenna 0



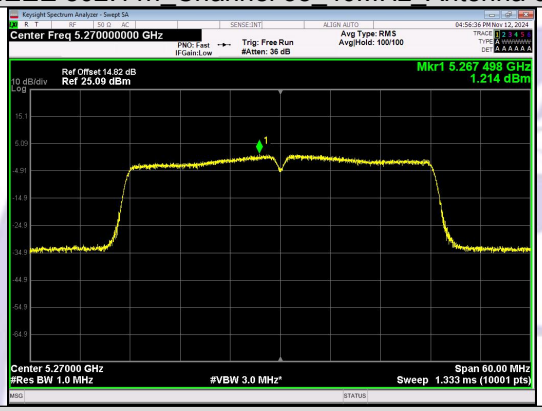
IEEE 802.11n_Channel 40_20MHz_Antenna 0	IEEE 802.11n_Channel 48_20MHz_Antenna 0
	
IEEE 802.11n_Channel 52_20MHz_Antenna 0	IEEE 802.11n_Channel 56_20MHz_Antenna 0
	
IEEE 802.11n_Channel 64_20MHz_Antenna 0	IEEE 802.11n_Channel 100_20MHz_Antenna 0
	
IEEE 802.11n_Channel 116_20MHz_Antenna 0	IEEE 802.11n_Channel 140_20MHz_Antenna 0



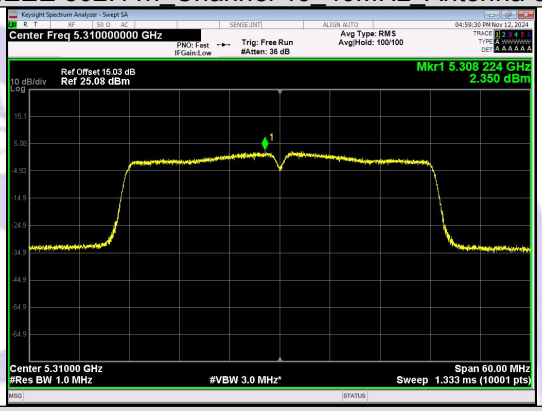
IEEE 802.11n_Channel 38_40MHz_Antenna 0



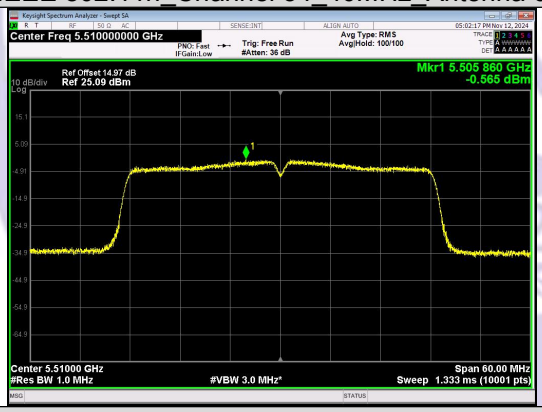
IEEE 802.11n_Channel 46_40MHz_Antenna 0



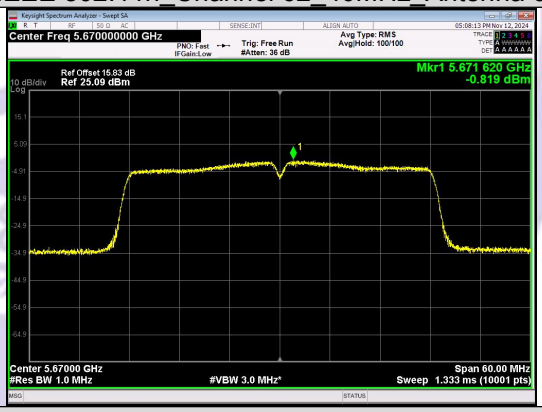
IEEE 802.11n_Channel 54_40MHz_Antenna 0



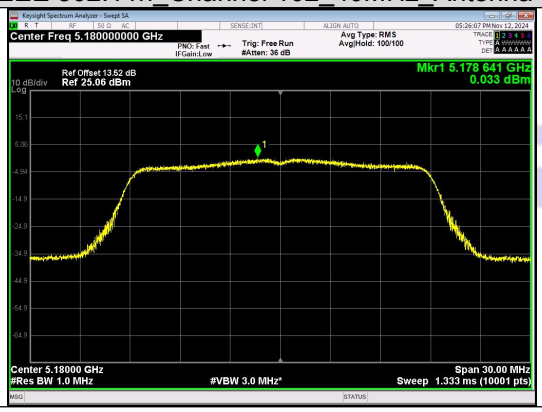
IEEE 802.11n_Channel 62_40MHz_Antenna 0

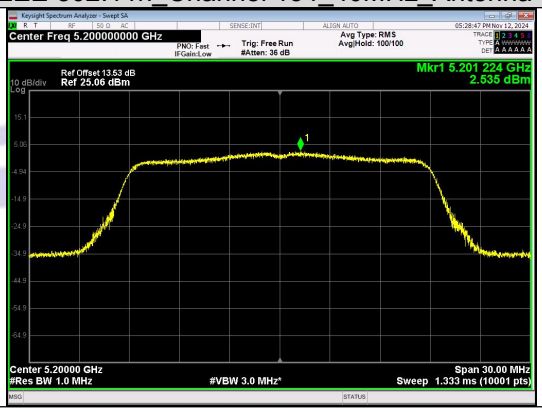


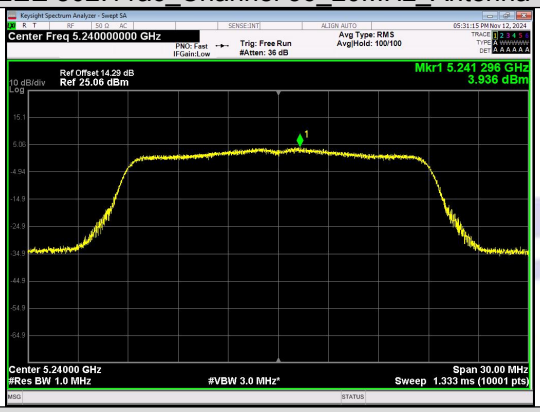
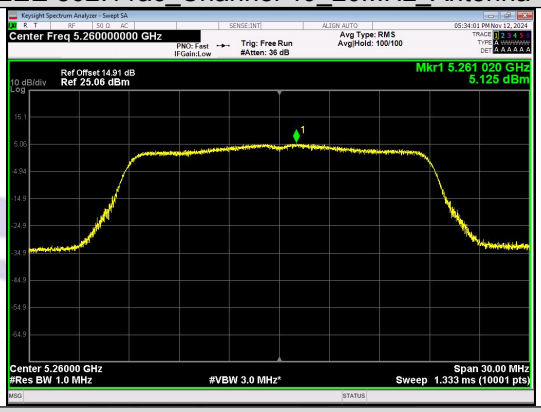
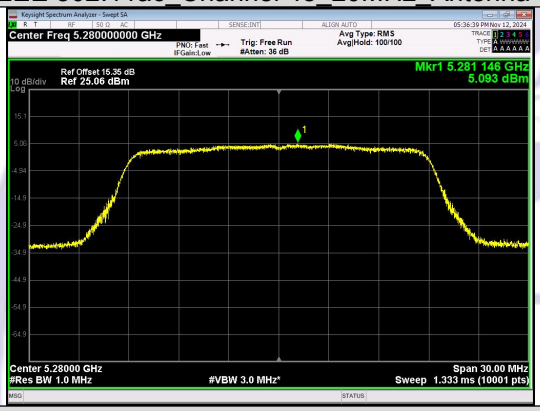
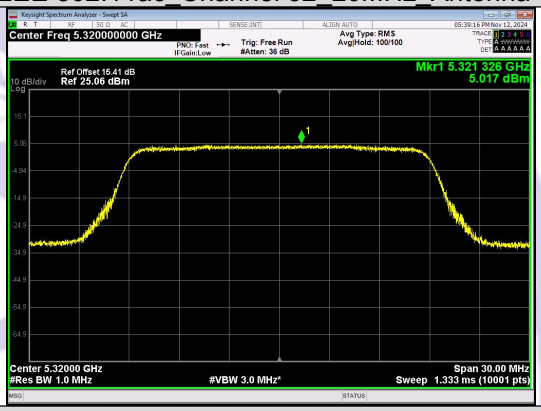
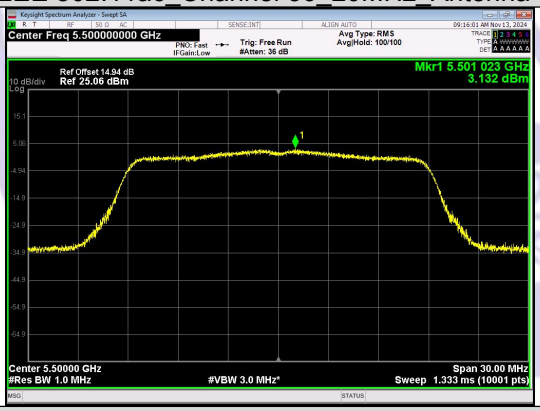
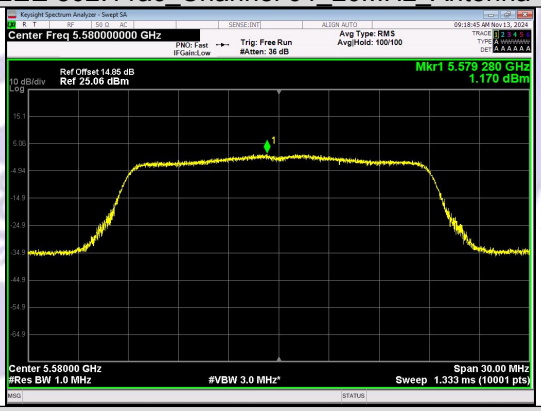
IEEE 802.11n_Channel 102_40MHz_Antenna 0

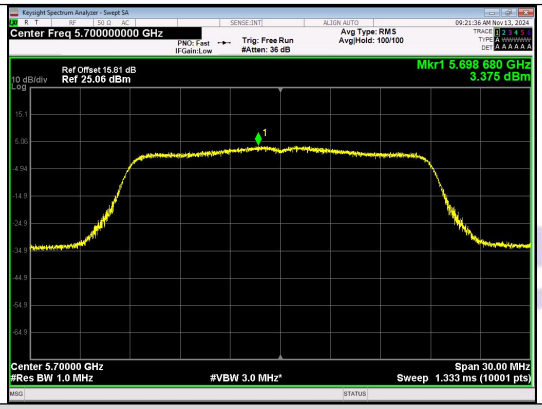


IEEE 802.11n_Channel 134_40MHz_Antenna 0

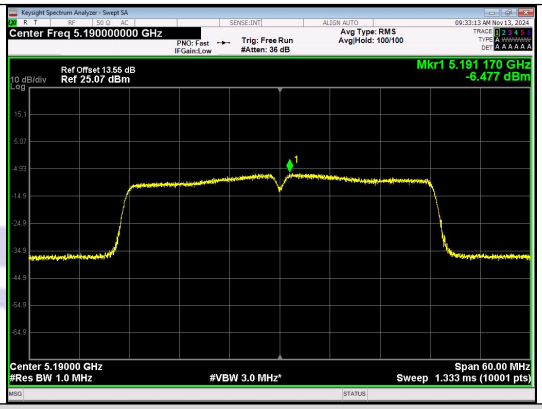




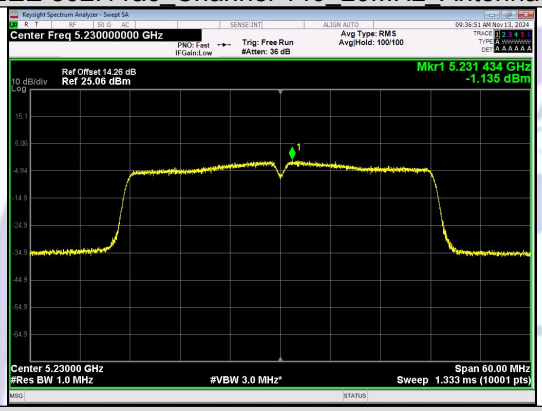
IEEE 802.11ac_Channel 36_20MHz_Antenna 0	IEEE 802.11ac_Channel 40_20MHz_Antenna 0
	
IEEE 802.11ac_Channel 48_20MHz_Antenna 0	IEEE 802.11ac_Channel 52_20MHz_Antenna 0
	
IEEE 802.11ac_Channel 56_20MHz_Antenna 0	IEEE 802.11ac_Channel 64_20MHz_Antenna 0
	
IEEE 802.11ac_Channel 100_20MHz_Antenna 0	IEEE 802.11ac_Channel 116_20MHz_Antenna 0



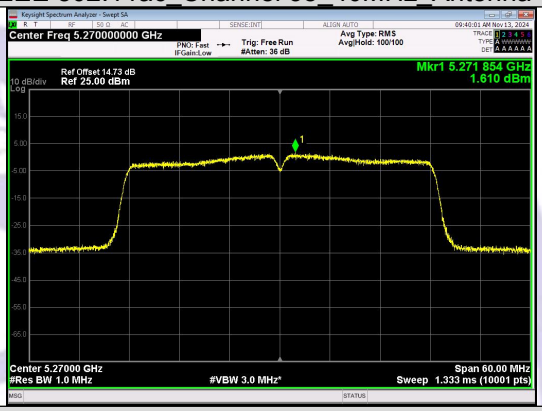
IEEE 802.11ac_Channel 140_20MHz_Antenna 0



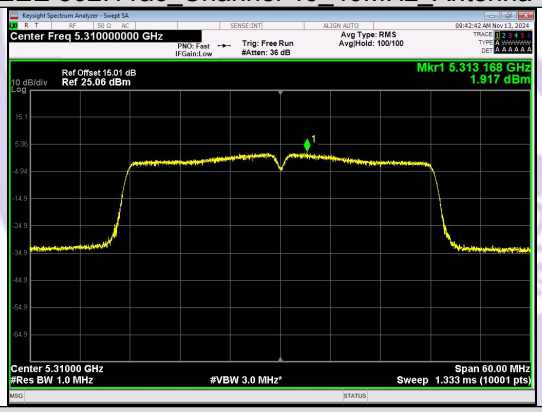
IEEE 802.11ac_Channel 38_40MHz_Antenna 0



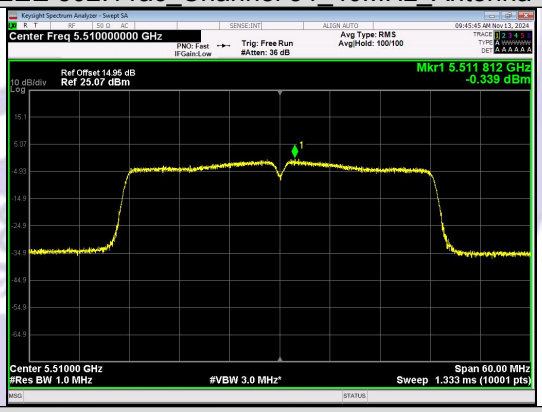
IEEE 802.11ac_Channel 46_40MHz_Antenna 0



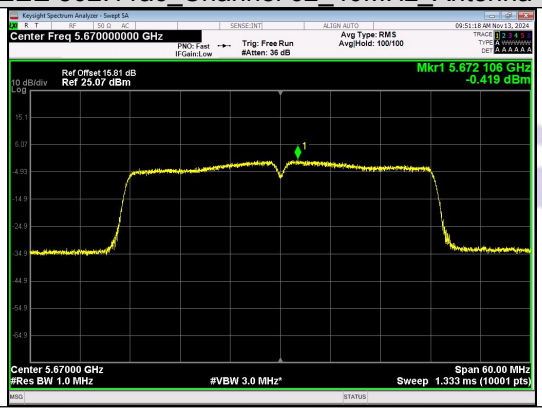
IEEE 802.11ac_Channel 54_40MHz_Antenna 0

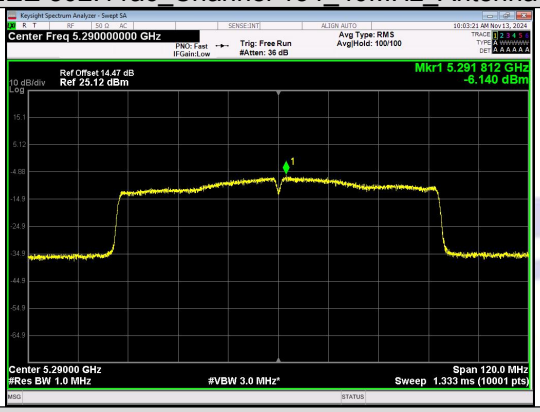


IEEE 802.11ac_Channel 62_40MHz_Antenna 0



IEEE 802.11ac_Channel 102_40MHz_Antenna 0

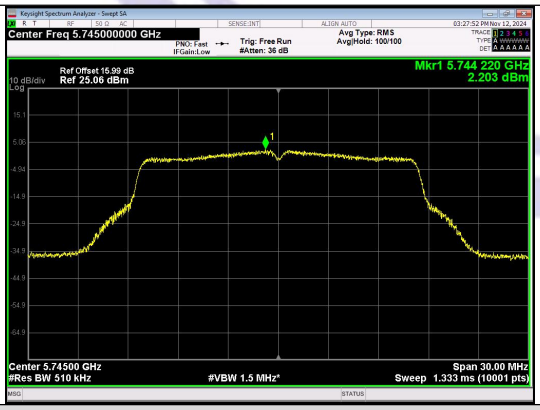


IEEE 802.11ac_Channel 134_40MHz_Antenna 0	IEEE 802.11ac_Channel 42_80MHz_Antenna 0
	
IEEE 802.11ac_Channel 58_80MHz_Antenna 0	IEEE 802.11ac_Channel 106_80MHz_Antenna 0

Mode	Channel	Ant. 0 Meas PSD (dBm/0.51MHz)	Ant. 0 Meas PSD (dBm/0.5MHz)	Duty Cycle Factor (dB)	Report Power Density (dBm/0.5MHz)	Limit (dBm/0.5MHz)	Result
IEEE 802.11a	149	2.144	2.058	0.0586	2.1166	30	PASS
	157	2.276	2.190	0.0604	2.2504		PASS
	165	1.375	1.289	0.0604	1.3494		PASS
IEEE 802.11n_20	149	1.353	1.267	0.0626	1.3296		PASS
	157	1.390	1.304	0.0648	1.3688		PASS
	165	0.907	0.821	0.0648	0.8858		PASS
IEEE 802.11n_40	151	-1.817	-1.903	0.0	-1.903		PASS
	159	-2.746	-2.832	0.0846	-2.7474		PASS
IEEE 802.11ac_20	149	1.575	1.489	0.0626	1.5516		PASS
	157	1.784	1.698	0.0626	1.7606		PASS
	165	0.780	0.694	0.0648	0.7588		PASS
IEEE 802.11ac_40	151	-1.562	-1.648	0.0643	-1.5837		PASS
	159	-2.640	-2.726	0.0009	-2.7251		PASS
IEEE 802.11ac_80	155	-4.760	-4.846	0.0056	-4.8404		PASS

Note: $PSD_{dBm/0.5MHz}=PSD_{dBm/0.51MHz}+10\log_{10}(B_{dBm/0.51MHz}/B_{dBm/0.5MHz})$

Test Graphs

IEEE 802.11a_Channel 149_20MHz_Antenna 0	IEEE 802.11a_Channel 157_20MHz_Antenna 0
	

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