



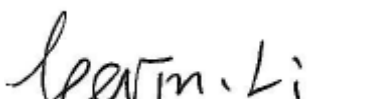
FCC RADIO TEST REPORT

Applicant : SHENZHEN Hitevision Technology Co., Ltd.
Address : Honghe Mansion No. 1 Building A, 1 Danzi North Road,
Shatian, Kengzi Street, Pingshan District, Shenzhen
Equipment : Wireless Module
Model No. : AZ932-HN
Trade Name : N/A
FCC ID. : 2ACYT- AZ932
Standard : FCC part 15 Subpart E §15.407

I HEREBY CERTIFY THAT :

The sample was received on Oct. 28, 2022 and the testing was completed on Nov. 19, 2022 at CerpPASS Technology Corp. The test result refers exclusively to the test presented test model / sample. Without written approval of CerpPASS Technology Corp., the test report shall not be reproduced except in full.

Approved by:


Leevin Li / Supervisor

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History of this test report

☒ Original.

☐ Additional attachment as following record:

Report No.	Issue Date	Description
DEDG2210072-79710	Nov. 25, 2022	Initial Issue



1. Summary of Test Procedure and Test Results

1.1. Applicable Standards

ANSI C63.10:2013

FCC Rules and Regulations Part 15 Subpart E §15.407

KDB 789033

FCC Rule	Description of Test	Result
15.203	Antenna Requirement	PASS
15.207(a)	AC Power Line Conducted Emission	PASS
15.407(b) 15.209	Radiated Spurious Emission	PASS
15.407(a)	26 dB & Occupied Bandwidth	PASS
15.407 (a) & (a)(3)	Average Power	PASS
15.407(a)	Power Spectral Density	PASS
15.407(g)	Frequency Stability	PASS
15.407(c)	Automatically Discontinue Transmission	PASS
Note: Deviations Yes ☐ No ☒ *The lab has reduced the uncertainty risk factor from test equipment, environment and staff technicians which according to the standard on contract. Therefore, the test result will only be determined by standard requirement.		



2. Test Configuration of Equipment under Test

2.1. Feature of Equipment and Model Description

Equipment	Wireless Module
Model Name	AZ932-HN
Model Discrepancy	N/A
Chipset	RTL8852BU& RTL8811CU
Frequency Range	RTL8852BU BT/BLE/ WIFI 2.4G: 2400MHz-2483.5MHz WIFI 5G: 5150MHz-5250MHz, 5725MHz -5850MHz
	RTL8811CU WIFI 2.4G: 2400MHz-2483.5MHz WIFI 5G: 5150MHz-5250MHz, 5725MHz -5850MHz
Modulation Type	RTL8852BU BT: GFSK, $\pi/4$ -DQPSK, 8DPSK BLE: GFSK 2.4GHz 802.11b: CCK, DQPSK, DBPSK 802.11g/n: BPSK, QPSK, 16QAM, 64QAM 802.11ax: BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM 5GHz 802.11a/n: BPSK, QPSK, 16QAM, 64QAM 802.11ac: BPSK, QPSK, 16QAM, 64QAM, 256QAM 802.11ax: BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM
	RTL8811CU 2.4GHz 802.11b: CCK, DQPSK, DBPSK 802.11g/n: BPSK, QPSK, 16QAM, 64QAM 5GHz 802.11a/n: BPSK, QPSK, 16QAM, 64QAM 802.11ac: BPSK, QPSK, 16QAM, 64QAM, 256QAM
Data Rate	RTL8852BU BT: GFSK:1Mbps, $\pi/4$ -DQPSK: 2Mbps, 8DPSK:3Mbps BLE: GFSK: 1Mbps, 2Mbps, 125kbps, 500kbps WIFI 2.4GHz: 802.11b: 1, 2, 5.5, 11Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54Mbps 802.11n: MCS0-MCS15, HT20/HT40 802.11ax: MCS0-MCS11, HE20/HE40 WIFI 5GHz: 802.11a: 6, 9, 12, 18, 24, 36, 48, 54Mbps 802.11n: MCS0-MCS15, HT20/HT40 802.11ac: MCS0-MCS9, VHT20/40/80 802.11ax: MCS0-MCS11, HE20/HE40/HE80
	RTL8811CU WIFI 2.4GHz: 802.11b: 1, 2, 5.5, 11Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54Mbps 802.11n: HT20 reach up to 72.2Mbps, HT40 reach up to 150Mbps WIFI 5GHz: 802.11a: 6, 9, 12, 18, 24, 36, 48, 54Mbps 802.11n: HT20 reach up to 72.2Mbps, HT40 reach up to 150Mbps 802.11ac: VHT20 reach up to 86.7Mbps, VHT40 reach up to 200Mbps, VHT80 reach up to 433.3Mbps



Antenna Type	Dipole Antenna
Working Temperature	0°C to +45°C
Storage Temperature	-40°C to +70°C
Operating Voltage	DC 12V from adapter

Note: 1) This report is for RTL8811CU. For other features of this EUT, test report will be issued separately.

2) RTL8852BU supports CDD mode and 11AX supports FULL RU only.

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



2.2. Carrier Frequency of Channels

Band : 5150MHz-5250MHz

802.11a, 802.11n HT 20, 802.11ac VHT20

Channel	Frequency(MHz)	Channel	Frequency(MHz)
*36	5180	*44	5220
40	5200	*48	5240

802.11n HT 40, 802.11ac VHT40

Channel	Frequency(MHz)	Channel	Frequency(MHz)
*38	5190	*46	5230

802.11ac VHT80

Channel	Frequency(MHz)
*42	5210

Band : 5725MHz -5850MHz

802.11a, 802.11n HT 20, 802.11ac VHT20

Channel	Frequency(MHz)	Channel	Frequency(MHz)
*149	5745	161	5805
153	5765	*165	5825
*157	5785		

802.11n HT 40, 802.11ac VHT40

Channel	Frequency(MHz)	Channel	Frequency(MHz)
*151	5755	*159	5795

802.11ac VHT80

Channel	Frequency(MHz)
*155	5775

Note: Channels remarked * are selected to perform test.



2.3. Test Mode and Test Software

- During testing, the interface cables and equipment positions were varied according to ANSI C63.10.
- The complete test system included Notebook, adapter and EUT for RF test.
- An executive program, "REALTEK 11ac 8822BU USB WLAN NIC Massproduction Kit(Ver.:1.2.0.9)" under Windows 7 system was executed to transmit and receive data via WLAN.
- The following test modes were performed for the test:

Conducted Emissions from the AC mains power ports	
Test Mode	Operating Description
1	802.11a (6Mbps) for 120V
2	802.11n HT20 (6.5Mbps) for 120V
3	802.11n HT40 (13.5Mbps) for 120V
4	802.11ac VHT20 (6.5Mbps) for 120V
5	802.11ac VHT40 (13.5Mbps) for 120V
6	802.11ac VHT80 (29.3Mbps) for 120V
7	802.11a (6Mbps) for 240V
caused "Test Mode 4 and CH149:5745" generated the worst case, it was reported as the final data.	
Radiated emission (below 1GHz)	
Test Mode	Operating Description
1	802.11a (6Mbps)
2	802.11n HT20 (6.5Mbps)
3	802.11n HT40 (13.5Mbps)
4	802.11ac VHT20 (6.5Mbps)
5	802.11ac VHT40 (13.5Mbps)
6	802.11ac VHT80 (29.3Mbps)
caused "Test Mode 4 and CH149:5745" generated the worst case, it was reported as the final data.	
Radiation Emissions (1GHz ~ 40GHz)	
Test Mode	Operating Description
1	802.11a (6Mbps)
2	802.11n HT20 (6.5Mbps)
3	802.11n HT40 (13.5Mbps)
4	802.11ac VHT20 (6.5Mbps)
5	802.11ac VHT40 (13.5Mbps)
6	802.11ac VHT80 (29.3Mbps)
caused "Test Mode 1,4~6" generated the worst case, it was reported as the final data.	

Modulation Type	TX CONFIGURATION
802.11a	1TX
802.11n HT20	1TX
802.11n HT40	1TX
802.11ac VHT20	1TX
802.11ac VHT40	1TX
802.11ac VHT80	1TX
* VHT20/VHT40 covers HT20/HT40, due to same modulation. 802.11ac mode is the worst case for final tests except RF output power test after pretesting all modulation type.	

**2.4. Power Parameter Value of the test software**

Band: 5150MHz-5250MHz					
Mode	Frequency (MHz)	Setting level			
		Ant 1	Ant 2	Ant 1+2	
				Ant 1	Ant 2
802.11a	5180	Default	N/A	N/A	N/A
	5220	Default	N/A	N/A	N/A
	5240	Default	N/A	N/A	N/A
802.11n HT20	5180	Default	N/A	N/A	N/A
	5220	Default	N/A	N/A	N/A
	5240	Default	N/A	N/A	N/A
802.11n HT40	5190	Default	N/A	N/A	N/A
	5230	Default	N/A	N/A	N/A
802.11ac VHT20	5180	Default	N/A	N/A	N/A
	5220	Default	N/A	N/A	N/A
	5240	Default	N/A	N/A	N/A
802.11ac VHT40	5190	Default	N/A	N/A	N/A
	5230	Default	N/A	N/A	N/A
802.11ac VHT80	5210	Default	N/A	N/A	N/A

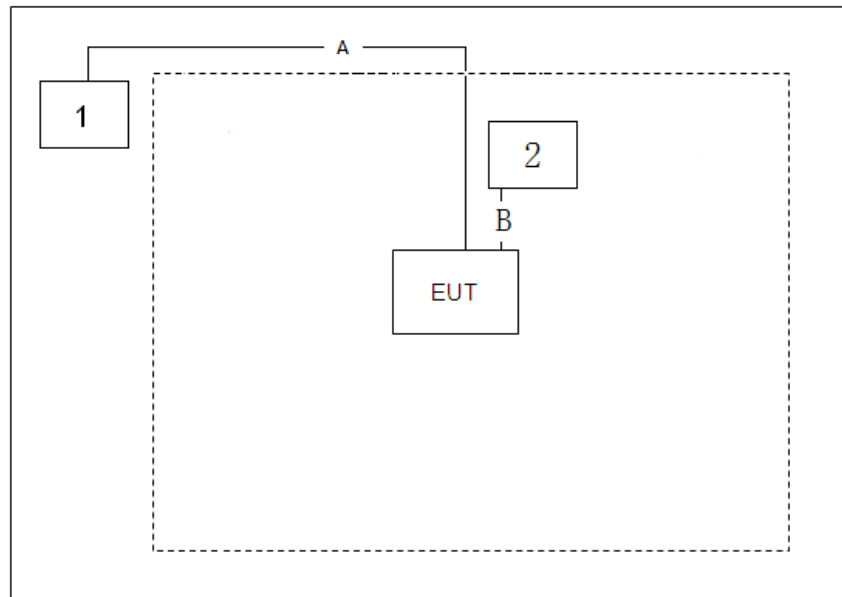
Band: 5725MHz -5850MHz					
Mode	Frequency (MHz)	Setting level			
		Ant 1	Ant 2	Ant 1+2	
				Ant 1	Ant 2
802.11a	5745	Default	N/A	N/A	N/A
	5785	Default	N/A	N/A	N/A
	5825	Default	N/A	N/A	N/A
802.11n HT20	5745	Default	N/A	N/A	N/A
	5785	Default	N/A	N/A	N/A
	5825	Default	N/A	N/A	N/A
802.11n HT40	5755	Default	N/A	N/A	N/A
	5795	Default	N/A	N/A	N/A
802.11ac VHT20	5745	Default	N/A	N/A	N/A
	5785	Default	N/A	N/A	N/A
	5825	Default	N/A	N/A	N/A
802.11ac VHT40	5755	Default	N/A	N/A	N/A
	5795	Default	N/A	N/A	N/A
802.11ac VHT80	5775	Default	N/A	N/A	N/A



2.5. Description of Test System

Product	Manufacturer	Model No.	Power Cord
1 Notebook	SONY	PCG-71811P	Non-Shielded, 1.8m
2 Adapter	Asian	WA-36WFU	N/A

Connection Diagram



Signal Cable Type	Quantity	Signal cable Description
A USB Cable	1	5.0m Shielding
B DC Cable	1	1.5m Non-Shielding



2.6. General Information of Test

Test Site	CerpPASS Technology Corporation(CerpPASS Laboratory) Address: Room 102, No. 5, Xing'an Road, Chang'an Town, Dongguan City, Guangdong Province Tel: +86-769-8547-1212 Fax: +86-769-8547-1912
FCC Designation No.:	CN1288
Frequency Range Investigated:	Conducted: from 150kHz to 30 MHz Radiation: from 30 MHz to 40,000MHz
Test Distance:	The test distance of radiated emission from antenna to EUT is 3 M.

Test Item	Test Site	Test period	Environmental Conditions	Tested By
RF Conducted	RFCON01-DG	2022/11/10	24°C / 54%	Amos Zhang
Radiated Emissions	3M01-DG	2022/11/15~2022/11/19	23~26°C / 51~65%	Amos Zhang
AC Power Line Conducted Emission	CON01-DG	2022/11/16	24°C / 54%	Amos Zhang

2.7. Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2)).

Measurement Item	Uncertainty
AC Power Line Conduction(150K~30MHz)	±3.17dB
Radiated Spurious Emission(9KHz~30MHz)	±4.99dB
Radiated Spurious Emission(30MHz~1GHz)	±4.39dB
Radiated Spurious Emission(1GHz~18GHz)	±5.36dB
Radiated Spurious Emission(18GHz~40GHz)	±5.43dB
6dB Bandwidth&26dB Bandwidth	±4.4%
Occupied Bandwidth	±4.4%
Peak Output Power(Conducted Power Meter)	±0.57 dB
Power Spectral Density	±1.01 dB
Frequency Stability	±99.743Hz



3. Test Equipment and Ancillaries Used for Tests

AC Power Line Conducted Emission					
Test Site	CON01-DG				
Instrument/Ancillary	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date.
Test Receiver	R&S	ESCI	100564	2022.01.08	2023.01.07
LISN	SCHWARZBECK	NSLK 8127	8127748	2022.01.08	2023.01.07
LISN	R&S	ENV216	100024	2022.01.08	2023.01.07
ISN	TESEQ	ISN T800	42809	2022.05.07	2023.05.06
Pulse Limiter with 10dB Attenuation	SCHWARZBECK	VTSD 9561-F	9561-F106	2022.01.08	2023.01.07
Temperature/ Humidity Meter	GEMLEAD	STH200A	N/A	2022.08.05	2023.08.04

Radiated Emissions					
Test Site	3M01-DG				
Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date
EMI Test Receiver	R&S	ESCI	100565	2022.05.07	2023.05.06
Amplifier	EMCI	EMC330	980082	2022.05.07	2023.05.06
Loop Antenna	R&S	HFH2-Z2	100150	2022.05.11	2024.05.10
Bilog Antenna	Sunol Science	JB1	A072414-2	2022.05.25	2024.05.24
Preamplifier	Agilent	8449B	3008A02342	2022.01.08	2023.01.07
Preamplifier	COM-POWER	PA-840	711885	2022.05.07	2023.05.06
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120 D	9120D-619	2022.05.22	2024.05.21
Standard Gain Horn Antenna	TRC	HA-2640	18050	2022.05.09	2024.05.08
Standard Gain Horn Antenna	TRC	HA-1726	18051	2022.05.09	2024.05.08
FSQ Signal Analyzer	R&S	FSQ40	200012	2022.05.07	2023.05.06
Temperature/ Humidity Meter	GEMLEAD	STH200A	N/A	2022.08.05	2023.08.04

RF Conducted					
Test Site	RFCON01-DG				
Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date
MXA Signal Analyzer	KEYSIGHT	N9020A	US46220290	2022.05.07	2023.05.06
EXA Signal Analyzer	KEYSIGHT	N9010A	MY53400169	2022.05.07	2023.05.06
ESG VECTOR SIGNAL GENERATOR	Agilent	E4438C	MY45092582	2022.05.07	2023.05.06
MXG VECTOR SIGNAL GENERATOR	Agilent	N5182B	MY53050127	2022.05.07	2023.05.06
USB Wideband Power Sensor	Boonton	55006	9778	2022.01.08	2023.01.07
Temperature/ Humidity Meter	mingle	ETH529	N/A	2022.01.08	2023.01.07



4. Antenna Requirements

4.1. Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And according to FCC 47 CFR Section 15.407 (a), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

4.2. Antenna Construction and Directional Gain

WIFI 5G:

Antenna Type	Dipole Antenna
Antenna Gain	5150MHz - 5250MHz: 3.73dBi; 5725MHz - 5850MHz: 3.73dBi

(Non-Beamforming)

5. Test of AC Power Line Conducted Emission

5.1. Test Limit

Conducted Emissions were measured from 150 kHz to 30 MHz with a bandwidth of 9 KHz, according to the methods defined in ANSI C63.4-2014. The EUT was placed on a nonmetallic stand in a shielded room 0.8 meters above the ground plane. The interface cables and equipment positioning were varied within limits of reasonable applications to determine the position produced maximum conducted emissions.

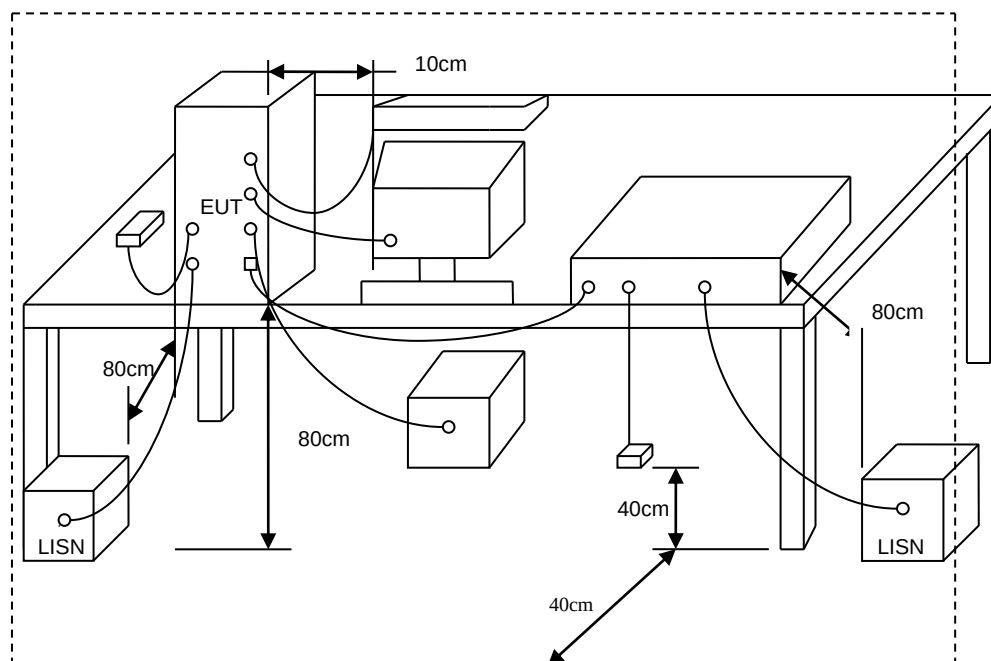
Frequency (MHz)	Quasi Peak (dBμV)	Average (dBμV)
0.15 – 0.5	66-56*	56-46*
0.5 – 5.0	56	46
5.0 – 30.0	60	50

*Decreases with the logarithm of the frequency.

5.2. Test Procedures

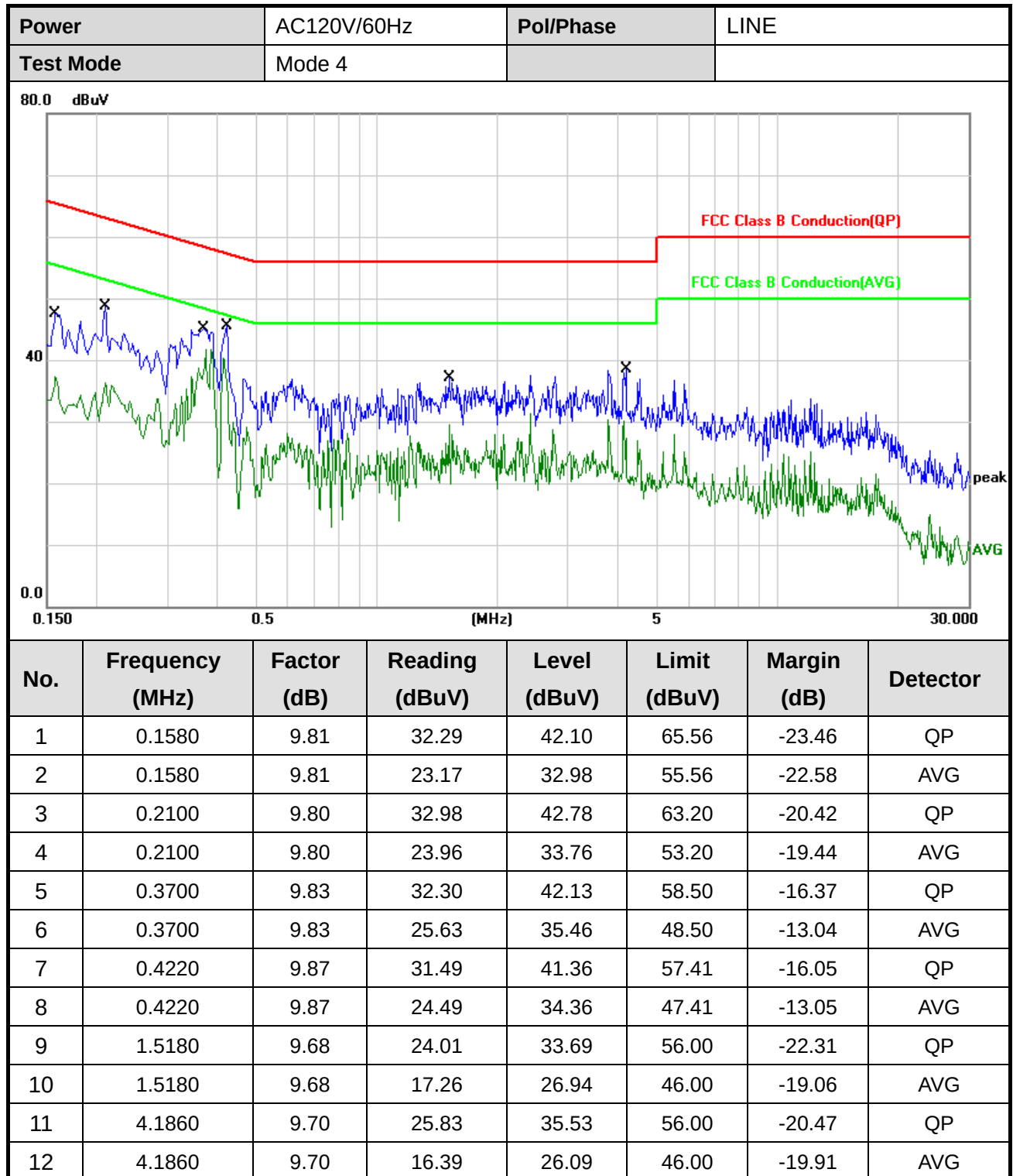
- a. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
- b. Connect EUT to the power mains through a line impedance stabilization network (LISN).
- c. All the support units are connecting to the other LISN.
- d. The LISN provides 50 ohm coupling impedance for the measuring instrument.
- e. The FCC states that a 50 ohm, 50 micro-Henry LISN should be used.
- f. Both sides of AC line were checked for maximum conducted interference.
- g. The frequency range from 150 kHz to 30 MHz was searched.
- h. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

5.3. Typical Test Setup

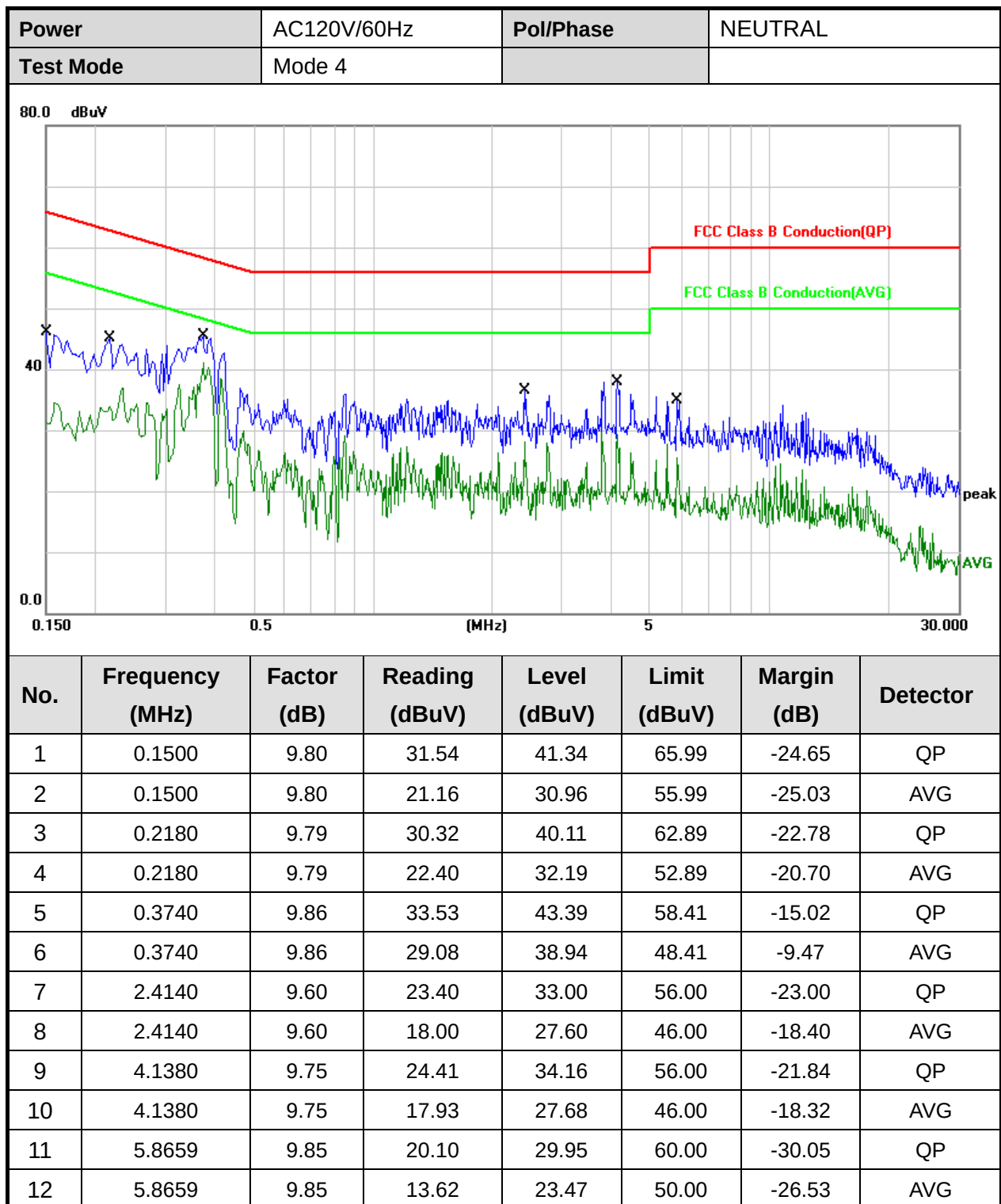




5.4. Test Result and Data



Note: Measurement Level = Reading Level + Correct Factor



Note: Measurement Level = Reading Level + Correct Factor



6. Test of Spurious Emission (Radiated)

6.1. Test Limit

Undesirable emission limits. Except as shown in paragraph 15.407(b)(9)(10) of this section, 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 in the 5.725-5.85 GHz band:
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 25MHz 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 27dBm/MHz at the band edge.
- (5) The emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 MHz.
- (6) Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209. Further, any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in §15.207.
- (7) The provisions of §15.205 apply to intentional radiators operating under this section.
- (8) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the upper and lower frequency band edges as the design of the equipment permits.

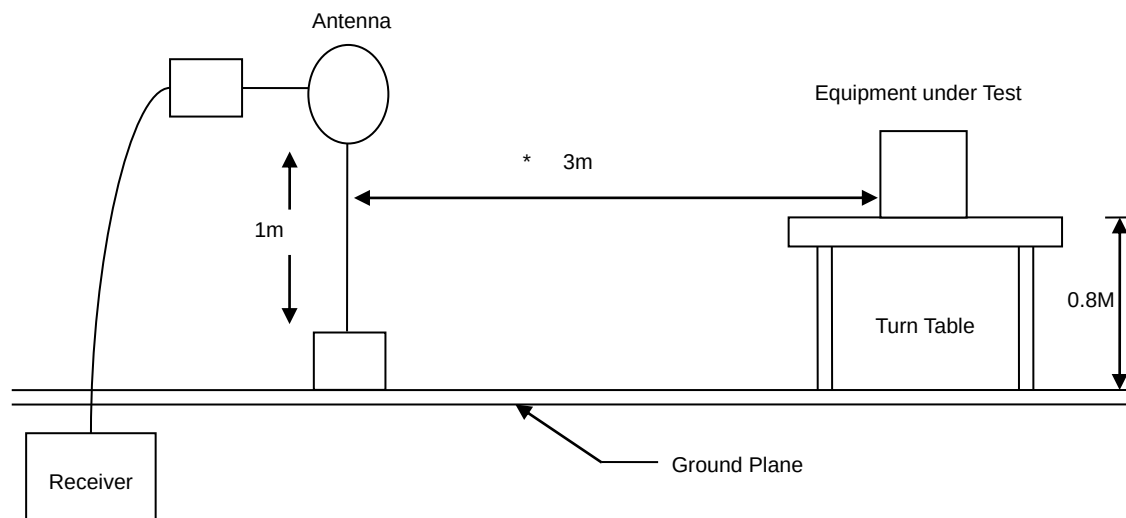
6.2. Test Procedures

- a. The EUT was placed on a rotatable table top 0.8 meter above ground.
- b. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
- c. The table was rotated 360 degrees to determine the position of the highest radiation.
- d. The antenna is a broadband antenna and its height is varied between one meter and four meters above ground to find the maximum value of the field strength both horizontal polarization and vertical polarization of the antenna are set to make the measurement.
- e. For each suspected emission the EUT was arranged to its worst case and then tune the antenna tower (from 1 M to 4 M) and turn table (from 0 degree to 360 degrees) to find the maximum reading.
- f. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function and specified bandwidth with Maximum Hold Mode.
- g. If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method and reported.
- h. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
- i. "Cone of radiation" has been considered to be 3dB bandwidth of the measurement antenna.
Note: The supporting fixture shall permit orientation of the EUT in each of three orthogonal axis positions sch that emissions from the EUT are maximized. **(X-AXIS is the worst.)**

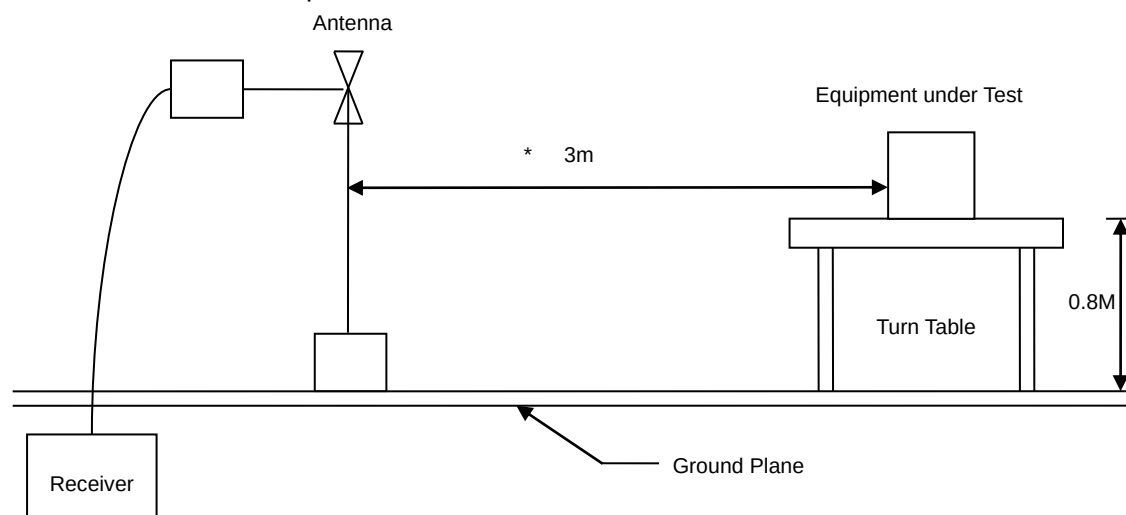


6.3. Typical Test Setup

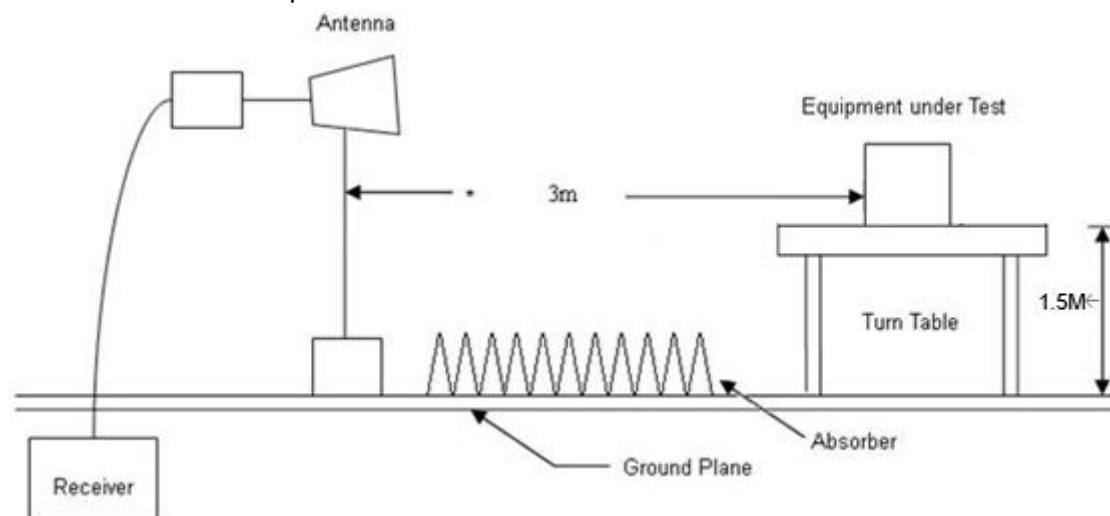
Below 30MHz test setup



30MHz- 1GHz Test Setup



Above 1GHz Test Setup

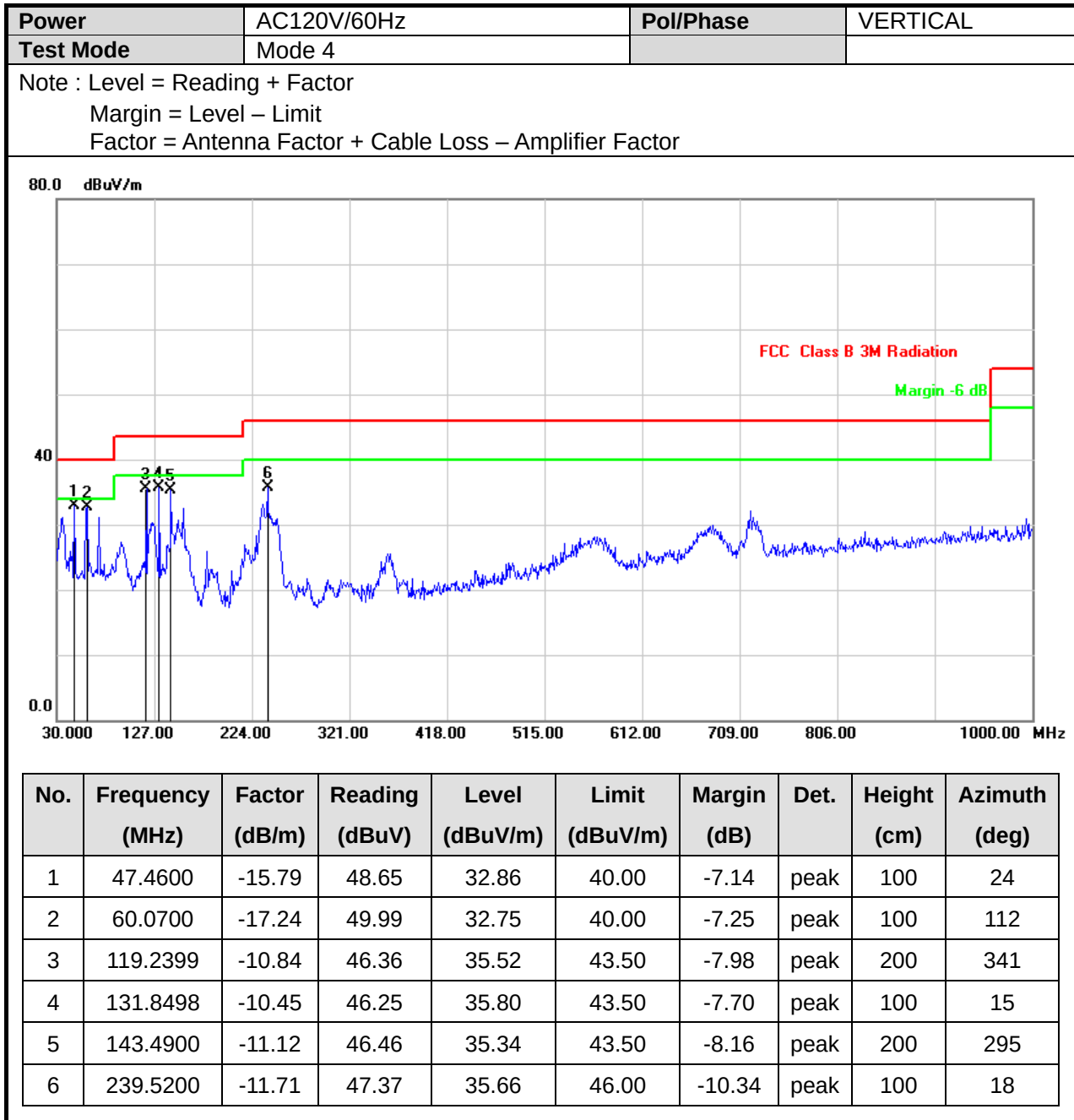


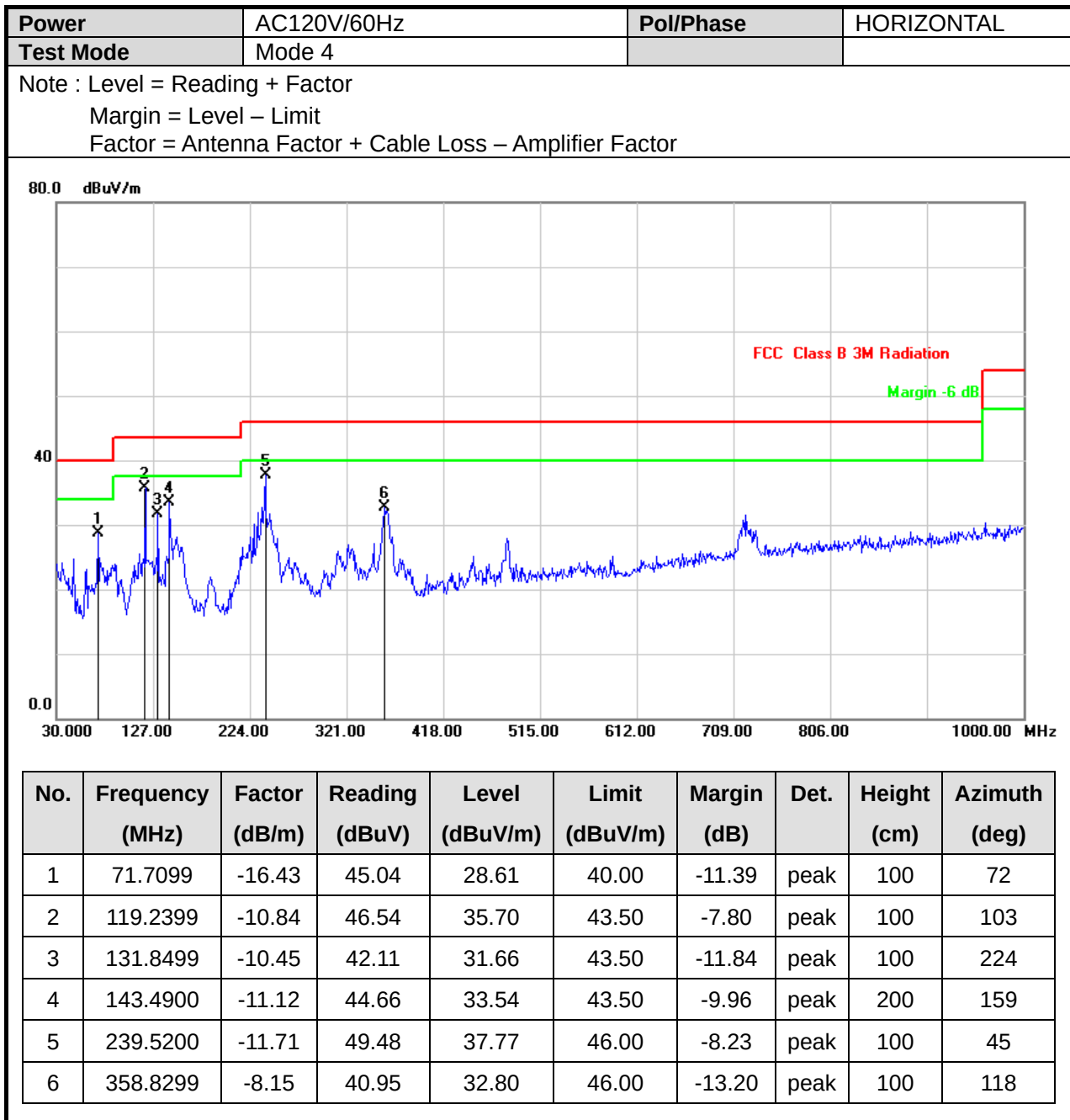


6.4. Test Result and Data (9kHz ~ 30MHz)

The 9kHz - 30MHz spurious emission is under limit 20dB more.

6.5. Test Result and Data (30MHz ~ 1GHz)





**6.6. Test Result and Data (1GHz ~ 40GHz)**

Power	AC120V/60Hz
Test Mode	Mode 1, 802.11a CH36 UNII-1
Note : Level = Reading + Factor Margin = Level – Limit Factor = Antenna Factor + Cable Loss – Amplifier Factor	

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector mode (PK/AVG)	AntPol. H/V
1	5150.000	4.31	46.63	50.94	74.00	-23.06	peak	H
2	5150.000	4.31	34.86	39.17	54.00	-14.83	AVG	H
3	10360.000	13.24	38.02	51.26	68.20	-16.94	peak	H
4	15540.000	16.01	35.81	51.82	74.00	-22.18	peak	H
5	15540.000	16.01	24.66	40.67	54.00	-13.33	AVG	H
1	5150.000	4.31	47.32	51.63	74.00	-22.37	peak	V
2	5150.000	4.31	35.00	39.31	54.00	-14.69	AVG	V
3	10360.000	13.24	38.91	52.15	68.20	-16.05	peak	V
4	15540.000	16.01	36.64	52.65	74.00	-21.35	peak	V
5	15540.000	16.01	25.01	41.02	54.00	-12.98	AVG	V



Power	AC120V/60Hz
Test Mode	Mode 1, 802.11a CH44 UNII-1
Note : Level = Reading + Factor Margin = Level – Limit Factor = Antenna Factor + Cable Loss – Amplifier Factor	

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector mode (PK/AVG)	AntPol. H/V
1	5150.000	4.31	46.21	50.52	74.00	-23.48	peak	H
2	5150.000	4.31	35.50	39.81	54.00	-14.19	AVG	H
3	5350.000	4.86	45.48	50.34	74.00	-23.66	peak	H
4	5350.000	4.86	34.64	39.50	54.00	-14.50	AVG	H
5	10440.000	13.45	38.38	51.83	68.20	-16.37	peak	H
6	15660.000	15.71	36.36	52.07	74.00	-21.93	peak	H
7	15660.000	15.71	25.64	41.35	54.00	-12.65	AVG	H
1	5150.000	4.31	46.95	51.26	74.00	-22.74	peak	V
2	5150.000	4.31	36.34	40.65	54.00	-13.35	AVG	V
3	5350.000	4.86	46.68	51.54	74.00	-22.46	peak	V
4	5350.000	4.86	35.86	40.72	54.00	-13.28	AVG	V
5	10440.000	13.45	39.20	52.65	68.20	-15.55	peak	V
6	15660.000	15.71	37.06	52.77	74.00	-21.23	peak	V
7	15660.000	15.71	25.50	41.21	54.00	-12.79	AVG	V



Power	AC120V/60Hz
Test Mode	Mode 1, 802.11a CH48 UNII-1
Note : Level = Reading + Factor Margin = Level – Limit Factor = Antenna Factor + Cable Loss – Amplifier Factor	

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector mode (PK/AVG)	AntPol. H/V
1	5350.000	4.86	45.72	50.58	74.00	-23.42	peak	H
2	5350.000	4.86	35.20	40.06	54.00	-13.94	AVG	H
3	10480.000	13.54	38.00	51.54	68.20	-16.66	peak	H
4	15720.000	15.56	36.29	51.85	74.00	-22.15	peak	H
5	15720.000	15.56	24.65	40.21	54.00	-13.79	AVG	H
1	5350.000	4.86	46.85	51.71	74.00	-22.29	peak	V
2	5350.000	4.86	36.42	41.28	54.00	-12.72	AVG	V
3	10480.000	13.54	39.07	52.61	68.20	-15.59	peak	V
4	15720.000	15.56	37.42	52.98	74.00	-21.02	peak	V
5	15720.000	15.56	26.49	42.05	54.00	-11.95	AVG	V



Power	AC120V/60Hz
Test Mode	Mode 4, 802.11ac VHT20 CH36 UNII-1
Note : Level = Reading + Factor Margin = Level – Limit Factor = Antenna Factor + Cable Loss – Amplifier Factor	

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector mode (PK/AVG)	AntPol. H/V
1	5150.000	4.31	47.84	52.15	74.00	-21.85	peak	H
2	5150.000	4.31	35.32	39.63	54.00	-14.37	AVG	H
3	10360.000	13.24	38.45	51.69	68.20	-16.51	peak	H
4	15540.000	16.01	35.46	51.47	74.00	-22.53	peak	H
5	15540.000	16.01	24.24	40.25	54.00	-13.75	AVG	H
1	5150.000	4.31	48.62	52.93	74.00	-21.07	peak	V
2	5150.000	4.31	36.34	40.65	54.00	-13.35	AVG	V
3	10360.000	13.24	39.18	52.42	68.20	-15.78	peak	V
4	15540.000	16.01	36.34	52.35	74.00	-21.65	peak	V
5	15540.000	16.01	24.51	40.52	54.00	-13.48	AVG	V



Power	AC120V/60Hz
Test Mode	Mode 4, 802.11ac VHT20 CH44 UNII-1
Note : Level = Reading + Factor Margin = Level – Limit Factor = Antenna Factor + Cable Loss – Amplifier Factor	

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector mode (PK/AVG)	AntPol. H/V
1	5150.000	4.31	46.74	51.05	74.00	-22.95	peak	H
2	5150.000	4.31	35.97	40.28	54.00	-13.72	AVG	H
3	5350.000	4.86	46.49	51.35	74.00	-22.65	peak	H
4	5350.000	4.86	35.40	40.26	54.00	-13.74	AVG	H
5	10440.000	13.45	37.87	51.32	68.20	-16.88	peak	H
6	15660.000	15.71	36.33	52.04	74.00	-21.96	peak	H
7	15660.000	15.71	24.90	40.61	54.00	-13.39	AVG	H
1	5150.000	4.31	47.23	51.54	74.00	-22.46	peak	V
2	5150.000	4.31	35.06	39.37	54.00	-14.63	AVG	V
3	5350.000	4.86	46.62	51.48	74.00	-22.52	peak	V
4	5350.000	4.86	34.68	39.54	54.00	-14.46	AVG	V
5	10440.000	13.45	38.69	52.14	68.20	-16.06	peak	V
6	15660.000	15.71	36.94	52.65	74.00	-21.35	peak	V
7	15660.000	15.71	24.71	40.42	54.00	-13.58	AVG	V



Power	AC120V/60Hz
Test Mode	Mode 4, 802.11ac VHT20 CH48 UNII-1
Note : Level = Reading + Factor Margin = Level – Limit Factor = Antenna Factor + Cable Loss – Amplifier Factor	

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector mode (PK/AVG)	AntPol. H/V
1	5350.000	4.86	46.49	51.35	74.00	-22.65	peak	H
2	5350.000	4.86	35.02	39.88	54.00	-14.12	AVG	H
3	10480.000	13.54	38.08	51.62	68.20	-16.58	peak	H
4	15720.000	15.56	36.22	51.78	74.00	-22.22	peak	H
5	15720.000	15.56	25.00	40.56	54.00	-13.44	AVG	H
1	5350.000	4.86	47.29	52.15	74.00	-21.85	peak	V
2	5350.000	4.86	36.86	41.72	54.00	-12.28	AVG	V
3	10480.000	13.54	38.71	52.25	68.20	-15.95	peak	V
4	15720.000	15.56	36.88	52.44	74.00	-21.56	peak	V
5	15720.000	15.56	25.76	41.32	54.00	-12.68	AVG	V



Power	AC120V/60Hz
Test Mode	Mode 5, 802.11ac VHT40 CH38 UNII-1
Note : Level = Reading + Factor Margin = Level – Limit Factor = Antenna Factor + Cable Loss – Amplifier Factor	

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector mode (PK/AVG)	AntPol. H/V
1	5150.000	4.31	47.41	51.72	74.00	-22.28	peak	H
2	5150.000	4.31	35.42	39.73	54.00	-14.27	AVG	H
3	10380.000	13.30	37.95	51.25	68.20	-16.95	peak	H
4	15570.000	15.93	35.70	51.63	74.00	-22.37	peak	H
5	15570.000	15.93	24.49	40.42	54.00	-13.58	AVG	H
1	5150.000	4.31	45.86	50.17	74.00	-23.83	peak	V
2	5150.000	4.31	35.97	40.28	54.00	-13.72	AVG	V
3	10380.000	13.30	39.26	52.56	68.20	-15.64	peak	V
4	15570.000	15.93	37.12	53.05	74.00	-20.95	peak	V
5	15570.000	15.93	25.59	41.52	54.00	-12.48	AVG	V



Power	AC120V/60Hz
Test Mode	Mode 5, 802.11ac VHT40 CH46 UNII-1
Note : Level = Reading + Factor Margin = Level – Limit Factor = Antenna Factor + Cable Loss – Amplifier Factor	

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector mode (PK/AVG)	AntPol. H/V
1	5150.000	4.31	46.51	50.82	74.00	-23.18	peak	H
2	5150.000	4.31	34.93	39.24	54.00	-14.76	AVG	H
3	5350.000	4.86	45.72	50.58	74.00	-23.42	peak	H
4	5350.000	4.86	34.31	39.17	54.00	-14.83	AVG	H
5	10460.000	13.49	38.53	52.02	68.20	-16.18	peak	H
6	15690.000	15.63	36.70	52.33	74.00	-21.67	peak	H
7	15690.000	15.63	25.44	41.07	54.00	-12.93	AVG	H
1	5150.000	4.31	47.33	51.64	74.00	-22.36	peak	V
2	5150.000	4.31	35.25	39.56	54.00	-14.44	AVG	V
3	5350.000	4.86	46.75	51.61	74.00	-22.39	peak	V
4	5350.000	4.86	34.59	39.45	54.00	-14.55	AVG	V
5	10460.000	13.49	39.07	52.56	68.20	-15.64	peak	V
6	15690.000	15.63	36.84	52.47	74.00	-21.53	peak	V
7	15690.000	15.63	25.49	41.12	54.00	-12.88	AVG	V



Power	AC120V/60Hz
Test Mode	Mode 6, 802.11ac VHT80 CH42 UNII-1
Note : Level = Reading + Factor Margin = Level – Limit Factor = Antenna Factor + Cable Loss – Amplifier Factor	

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector mode (PK/AVG)	AntPol. H/V
1	5150.000	4.31	45.99	50.30	74.00	-23.70	peak	H
2	5150.000	4.31	34.81	39.12	54.00	-14.88	AVG	H
3	5350.000	4.86	46.98	51.84	74.00	-22.16	peak	H
4	5350.000	4.86	32.56	37.42	54.00	-16.58	AVG	H
5	10420.000	13.40	39.18	52.58	68.20	-15.62	peak	H
6	15630.000	15.78	37.27	53.05	74.00	-20.95	peak	H
7	15630.000	15.78	25.91	41.69	54.00	-12.31	AVG	H
1	5150.000	4.31	49.31	53.62	74.00	-20.38	peak	V
2	5150.000	4.31	37.89	42.20	54.00	-11.80	AVG	V
3	5350.000	4.86	47.45	52.31	74.00	-21.69	peak	V
4	5350.000	4.86	37.27	42.13	54.00	-11.87	AVG	V
5	10420.000	13.40	39.35	52.75	68.20	-15.45	peak	V
6	15630.000	15.78	36.80	52.58	74.00	-21.42	peak	V
7	15630.000	15.78	25.49	41.27	54.00	-12.73	AVG	V



Power	AC120V/60Hz
Test Mode	Mode 1, 802.11a CH149 UNII-3
Note : Level = Reading + Factor Margin = Level – Limit Factor = Antenna Factor + Cable Loss – Amplifier Factor	

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector mode (PK/AVG)	AntPol. H/V
1	5650.000	5.85	46.73	52.58	68.20	-15.62	peak	H
2	5700.000	6.04	47.36	53.40	105.20	-51.80	peak	H
3	5720.000	6.12	47.12	53.24	110.80	-57.56	peak	H
4	5725.000	6.14	54.26	60.40	122.20	-61.80	peak	H
5	11490.000	14.45	37.69	52.14	74.00	-21.86	peak	H
6	11490.000	14.45	26.15	40.60	54.00	-13.40	AVG	H
7	17235.000	20.08	37.78	57.86	68.20	-10.34	peak	H
1	5650.000	5.85	48.06	53.91	68.20	-14.29	peak	V
2	5700.000	6.04	47.65	53.69	105.20	-51.51	peak	V
3	5720.000	6.12	47.91	54.03	110.80	-56.77	peak	V
4	5725.000	6.14	57.10	63.24	122.20	-58.96	peak	V
5	11490.000	14.45	37.86	52.31	74.00	-21.69	peak	V
6	11490.000	14.45	26.10	40.55	54.00	-13.45	AVG	V
7	17235.000	20.08	38.15	58.23	68.20	-9.97	peak	V



Power	AC120V/60Hz
Test Mode	Mode 1, 802.11a CH157 UNII-3
Note : Level = Reading + Factor Margin = Level – Limit Factor = Antenna Factor + Cable Loss – Amplifier Factor	

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector mode (PK/AVG)	AntPol. H/V
1	5650.000	5.85	47.64	53.49	68.20	-14.71	peak	H
2	5700.000	6.04	47.75	53.79	105.20	-51.41	peak	H
3	5720.000	6.12	47.87	53.99	110.80	-56.81	peak	H
4	5725.000	6.14	47.65	53.79	122.20	-68.41	peak	H
5	5850.000	6.64	47.87	54.51	122.20	-67.69	peak	H
6	5855.000	6.65	47.86	54.51	110.80	-56.29	peak	H
7	5875.000	6.72	48.05	54.77	105.20	-50.43	peak	H
8	5925.000	6.92	46.78	53.70	68.20	-14.50	peak	H
9	11570.000	14.40	38.05	52.45	74.00	-21.55	peak	H
10	11570.000	14.40	26.80	41.20	54.00	-12.80	AVG	H
11	17355.000	20.59	37.37	57.96	68.20	-10.24	peak	H
1	5650.000	5.85	47.17	53.02	68.20	-15.18	peak	V
2	5700.000	6.04	46.37	52.41	105.20	-52.79	peak	V
3	5720.000	6.12	46.21	52.33	110.80	-58.47	peak	V
4	5725.000	6.14	46.81	52.95	122.20	-69.25	peak	V
5	5850.000	6.64	47.87	54.51	122.20	-67.69	peak	V
6	5855.000	6.65	47.24	53.89	110.80	-56.91	peak	V
7	5875.000	6.72	46.40	53.12	105.20	-52.08	peak	V
8	5925.000	6.92	46.80	53.72	68.20	-14.48	peak	V
9	11570.000	14.40	38.41	52.81	74.00	-21.19	peak	V
10	11570.000	14.40	26.98	41.38	54.00	-12.62	AVG	V
11	17355.000	20.59	38.12	58.71	68.20	-9.49	peak	V



Power	AC120V/60Hz
Test Mode	Mode 1, 802.11a CH165 UNII-3
Note : Level = Reading + Factor Margin = Level – Limit Factor = Antenna Factor + Cable Loss – Amplifier Factor	

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector mode (PK/AVG)	AntPol. H/V
1	5850.000	6.64	46.58	53.22	122.20	-68.98	peak	H
2	5855.000	6.65	46.11	52.76	110.80	-58.04	peak	H
3	5875.000	6.72	46.26	52.98	105.20	-52.22	peak	H
4	5925.000	6.92	46.90	53.82	68.20	-14.38	peak	H
5	11650.000	14.34	38.27	52.61	74.00	-21.39	peak	H
6	11650.000	14.34	26.71	41.05	54.00	-12.95	AVG	H
7	17475.000	21.10	38.00	59.10	68.20	-9.10	peak	H
1	5850.000	6.64	47.13	53.77	122.20	-68.43	peak	V
2	5855.000	6.65	48.13	54.78	110.80	-56.02	peak	V
3	5875.000	6.72	47.34	54.06	105.20	-51.14	peak	V
4	5925.000	6.92	46.82	53.74	68.20	-14.46	peak	V
5	11650.000	14.34	37.98	52.32	74.00	-21.68	peak	V
6	11650.000	14.34	26.74	41.08	54.00	-12.92	AVG	V
7	17475.000	21.10	38.35	59.45	68.20	-8.75	peak	V



Power	AC120V/60Hz
Test Mode	Mode 4, 802.11ac VHT20 CH149 UNII-3
Note : Level = Reading + Factor Margin = Level – Limit Factor = Antenna Factor + Cable Loss – Amplifier Factor	

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector mode (PK/AVG)	AntPol. H/V
1	5650.000	5.85	47.11	52.96	68.20	-15.24	peak	H
2	5700.000	6.04	47.76	53.80	105.20	-51.40	peak	H
3	5720.000	6.12	50.46	56.58	110.80	-54.22	peak	H
4	5725.000	6.14	65.47	71.61	122.20	-50.59	peak	H
5	11490.000	14.45	37.65	52.10	74.00	-21.90	peak	H
6	11490.000	14.45	26.21	40.66	54.00	-13.34	AVG	H
7	17235.000	20.08	37.51	57.59	68.20	-10.61	peak	H
1	5650.000	5.85	46.99	52.84	68.20	-15.36	peak	V
2	5700.000	6.04	47.19	53.23	105.20	-51.97	peak	V
3	5720.000	6.12	55.18	61.30	110.80	-49.50	peak	V
4	5725.000	6.14	67.67	73.81	122.20	-48.39	peak	V
5	11490.000	14.45	38.09	52.54	74.00	-21.46	peak	V
6	11490.000	14.45	25.83	40.28	54.00	-13.72	AVG	V
7	17235.000	20.08	38.37	58.45	68.20	-9.75	peak	V



Power	AC120V/60Hz
Test Mode	Mode 4, 802.11ac VHT20 CH149 UNII-3
Note : Level = Reading + Factor Margin = Level – Limit Factor = Antenna Factor + Cable Loss – Amplifier Factor	

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector mode (PK/AVG)	AntPol. H/V
1	5650.000	5.85	47.52	53.37	68.20	-14.83	peak	H
2	5700.000	6.04	46.95	52.99	105.20	-52.21	peak	H
3	5720.000	6.12	46.91	53.03	110.80	-57.77	peak	H
4	5725.000	6.14	47.35	53.49	122.20	-68.71	peak	H
5	5850.000	6.64	46.70	53.34	122.20	-68.86	peak	H
6	5855.000	6.65	46.98	53.63	110.80	-57.17	peak	H
7	5875.000	6.72	46.20	52.92	105.20	-52.28	peak	H
8	5925.000	6.92	47.21	54.13	68.20	-14.07	peak	H
9	11570.000	14.40	40.45	54.85	74.00	-19.15	peak	H
10	11570.000	14.40	26.18	40.58	54.00	-13.42	AVG	H
11	17355.000	20.59	37.43	58.02	68.20	-10.18	peak	H
1	5650.000	5.85	48.04	53.89	68.20	-14.31	peak	V
2	5700.000	6.04	47.92	53.96	105.20	-51.24	peak	V
3	5720.000	6.12	47.39	53.51	110.80	-57.29	peak	V
4	5725.000	6.14	46.49	52.63	122.20	-69.57	peak	V
5	5850.000	6.64	47.64	54.28	122.20	-67.92	peak	V
6	5855.000	6.65	47.49	54.14	110.80	-56.66	peak	V
7	5875.000	6.72	48.01	54.73	105.20	-50.47	peak	V
8	5925.000	6.92	47.47	54.39	68.20	-13.81	peak	V
9	11570.000	14.40	38.28	52.68	74.00	-21.32	peak	V
10	11570.000	14.40	26.32	40.72	54.00	-13.28	AVG	V
11	17355.000	20.59	38.20	58.79	68.20	-9.41	peak	V



Power	AC120V/60Hz
Test Mode	Mode 4, 802.11ac VHT20 CH165 UNII-3
Note : Level = Reading + Factor Margin = Level – Limit Factor = Antenna Factor + Cable Loss – Amplifier Factor	

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector mode (PK/AVG)	AntPol. H/V
1	5850.000	6.64	48.76	55.40	122.20	-66.80	peak	H
2	5855.000	6.65	47.58	54.23	110.80	-56.57	peak	H
3	5875.000	6.72	46.81	53.53	105.20	-51.67	peak	H
4	5925.000	6.92	47.35	54.27	68.20	-13.93	peak	H
5	11650.000	14.34	38.30	52.64	74.00	-21.36	peak	H
6	11650.000	14.34	26.38	40.72	54.00	-13.28	AVG	H
7	17475.000	21.10	37.79	58.89	68.20	-9.31	peak	H
1	5850.000	6.64	50.48	57.12	122.20	-65.08	peak	V
2	5855.000	6.65	46.97	53.62	110.80	-57.18	peak	V
3	5875.000	6.72	47.69	54.41	105.20	-50.79	peak	V
4	5925.000	6.92	46.09	53.01	68.20	-15.19	peak	V
5	11650.000	14.34	38.23	52.57	74.00	-21.43	peak	V
6	11650.000	14.34	26.87	41.21	54.00	-12.79	AVG	V
7	17475.000	21.10	38.47	59.57	68.20	-8.63	peak	V



Power	AC120V/60Hz
Test Mode	Mode 5, 802.11ac VHT40 CH151 UNII-3
Note : Level = Reading + Factor Margin = Level – Limit Factor = Antenna Factor + Cable Loss – Amplifier Factor	

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector mode (PK/AVG)	AntPol. H/V
1	5650.000	5.85	46.87	52.72	68.20	-15.48	peak	H
2	5700.000	6.04	46.68	52.72	105.20	-52.48	peak	H
3	5720.000	6.12	50.59	56.71	110.80	-54.09	peak	H
4	5725.000	6.14	51.94	58.08	122.20	-64.12	peak	H
5	11510.000	14.45	37.09	51.54	74.00	-22.46	peak	H
6	11510.000	14.45	25.78	40.23	54.00	-13.77	AVG	H
7	17265.000	20.20	37.26	57.46	68.20	-10.74	peak	H
1	5650.000	5.85	47.90	53.75	68.20	-14.45	peak	V
2	5700.000	6.04	47.79	53.83	105.20	-51.37	peak	V
3	5720.000	6.12	51.55	57.67	110.80	-53.13	peak	V
4	5725.000	6.14	54.29	60.43	122.20	-61.77	peak	V
5	11510.000	14.45	38.21	52.66	74.00	-21.34	peak	V
6	11510.000	14.45	26.07	40.52	54.00	-13.48	AVG	V
7	17265.000	20.20	38.55	58.75	68.20	-9.45	peak	V



Power	AC120V/60Hz
Test Mode	Mode 5, 802.11ac VHT40 CH159 UNII-3
Note : Level = Reading + Factor Margin = Level – Limit Factor = Antenna Factor + Cable Loss – Amplifier Factor	

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector mode (PK/AVG)	AntPol. H/V
1	5850.000	6.64	46.62	53.26	122.20	-68.94	peak	H
2	5855.000	6.65	46.75	53.40	110.80	-57.40	peak	H
3	5875.000	6.72	48.00	54.72	105.20	-50.48	peak	H
4	5925.000	6.92	45.82	52.74	68.20	-15.46	peak	H
5	11590.000	14.38	37.17	51.55	74.00	-22.45	peak	H
6	11590.000	14.38	26.04	40.42	54.00	-13.58	AVG	H
7	17385.000	20.72	37.45	58.17	68.20	-10.03	peak	H
1	5850.000	6.64	46.87	53.51	122.20	-68.69	peak	V
2	5855.000	6.65	47.06	53.71	110.80	-57.09	peak	V
3	5875.000	6.72	47.31	54.03	105.20	-51.17	peak	V
4	5925.000	6.92	46.80	53.72	68.20	-14.48	peak	V
5	11590.000	14.38	36.89	51.27	74.00	-22.73	peak	V
6	11590.000	14.38	25.74	40.12	54.00	-13.88	AVG	V
7	17385.000	20.72	38.17	58.89	68.20	-9.31	peak	V



Power	AC120V/60Hz
Test Mode	Mode 6, 802.11ac VHT80 CH155 UNII-3
Note : Level = Reading + Factor Margin = Level – Limit Factor = Antenna Factor + Cable Loss – Amplifier Factor	

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector mode (PK/AVG)	AntPol. H/V
1	5650.000	5.85	47.76	53.61	68.20	-14.59	peak	H
2	5700.000	6.04	48.03	54.07	105.20	-51.13	peak	H
3	5720.000	6.12	49.68	55.80	110.80	-55.00	peak	H
4	5725.000	6.14	50.88	57.02	122.20	-65.18	peak	H
5	5850.000	6.64	50.30	56.94	122.20	-65.26	peak	H
6	5855.000	6.65	48.79	55.44	110.80	-55.36	peak	H
7	5875.000	6.72	46.85	53.57	105.20	-51.63	peak	H
8	5925.000	6.92	46.50	53.42	68.20	-14.78	peak	H
9	11550.000	14.41	37.22	51.63	74.00	-22.37	peak	H
10	11550.000	14.41	26.14	40.55	54.00	-13.45	AVG	H
11	17325.000	20.46	38.56	59.02	68.20	-9.18	peak	H
1	5650.000	5.85	47.14	52.99	68.20	-15.21	peak	V
2	5700.000	6.04	48.63	54.67	105.20	-50.53	peak	V
3	5720.000	6.12	53.46	59.58	110.80	-51.22	peak	V
4	5725.000	6.14	53.13	59.27	122.20	-62.93	peak	V
5	5850.000	6.64	49.45	56.09	122.20	-66.11	peak	V
6	5855.000	6.65	49.40	56.05	110.80	-54.75	peak	V
7	5875.000	6.72	46.90	53.62	105.20	-51.58	peak	V
8	5925.000	6.92	46.70	53.62	68.20	-14.58	peak	V
9	11550.000	14.41	38.17	52.58	74.00	-21.42	peak	V
10	11550.000	14.41	27.16	41.57	54.00	-12.43	AVG	V
11	17325.000	20.46	39.27	59.73	68.20	-8.47	peak	V

**6.7. Restricted Bands of Operation**

Only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.09000 – 0.11000	16.42000 – 16.42300	399.9 – 410.0	4.500 – 5.150
0.49500 – 0.505**	16.69475 – 16.69525	608.0 – 614.0	5.350 – 5.460
2.17350 – 2.19050	16.80425 – 16.80475	960.0 – 1240.0	7.250 – 7.750
4.12500 – 4.12800	25.50000 – 25.67000	1300.0 – 1427.0	8.025 – 8.500
4.17725 – 4.17775	37.50000 – 38.25000	1435.0 – 1626.5	9.000 – 9.200
4.20725 – 4.20775	73.00000 – 74.60000	1645.5 – 1646.5	9.300 – 9.500
6.21500 – 6.21800	74.80000 – 75.20000	1660.0 – 1710.0	10.600 – 12.700
6.26775 – 6.26825	108.00000 – 121.94000	1718.8 – 1722.2	13.250 – 13.400
6.31175 – 6.31225	123.00000 – 138.00000	2200.0 – 2300.0	14.470 – 14.500
8.29100 – 8.29400	149.90000 – 150.05000	2310.0 – 2390.0	15.350 – 16.200
8.36200 – 8.36600	156.52475 – 156.52525	2483.5 – 2500.0	17.700 – 21.400
8.37625 – 8.38675	156.70000 – 156.90000	2655.0 – 2900.0	22.010 – 23.120
8.41425 – 8.41475	162.01250 – 167.17000	3260.0 – 3267.0	23.600 – 24.000
12.29000 – 12.29300	167.72000 – 173.20000	3332.0 – 3339.0	31.200 – 31.800
12.51975 – 12.52025	240.00000 – 285.00000	3345.8 – 3358.0	36.430 – 36.500
12.57675 – 12.57725	322.00000 – 335.40000	3600.0 – 4400.0	Above 38.6
13.36000 – 13.41000			

** : Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz



7. On Time, Duty Cycle and Measurement methods

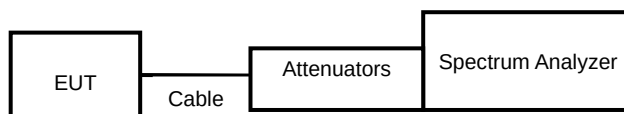
7.1. Test Limit

None; for reporting purposes only.

7.2. Test Procedure

KDB 789033 Zero-Span Spectrum Analyzer Method.

7.3. Test Setup Layout



7.4. Test Result and Data

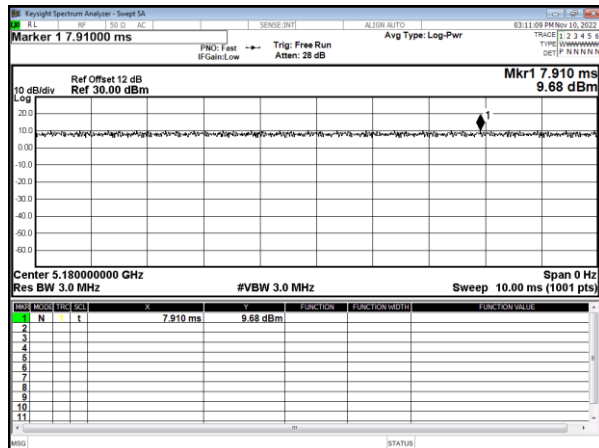
Modulation Mode	On Time (msec)	Period Time (msec)	Duty Cycle (%)
802.11a	100.00	100.00	100.00%
802.11ac VHT20	100.00	100.00	100.00%
802.11ac VHT40	100.00	100.00	100.00%
802.11ac VHT80	100.00	100.00	100.00%

7.5. Measurement Methods

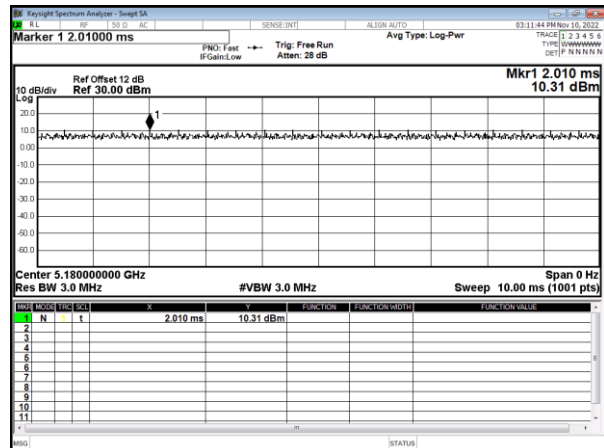
26 dB and 6dB Emission BW	KDB 789033 v02r01, Section C
99% Occupied BW	KDB 789033 v02r01, Section D
Conducted Output Power	KDB 789033 v02r01, Section E.2.d and E.3.b (Method PM-G)
Power Spectral Density	KDB 789033 v02r01, Section F
Unwanted emissions in restricted bands	KDB 789033 v02r01, Sections G and H
Unwanted emissions in non-restricted bands	KDB 789033 v02r01, Sections G and H



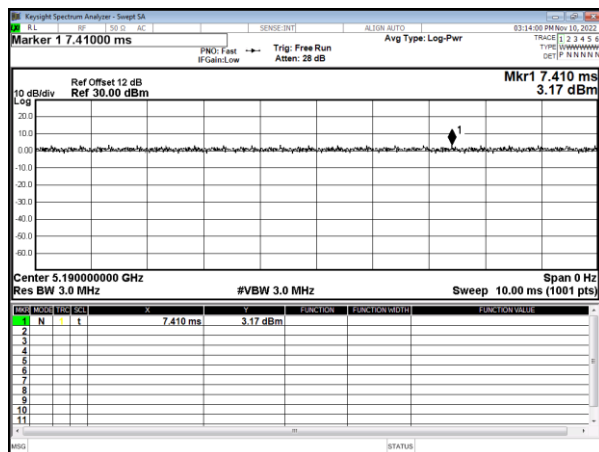
Modulation Type: 802.11a (6Mbps)



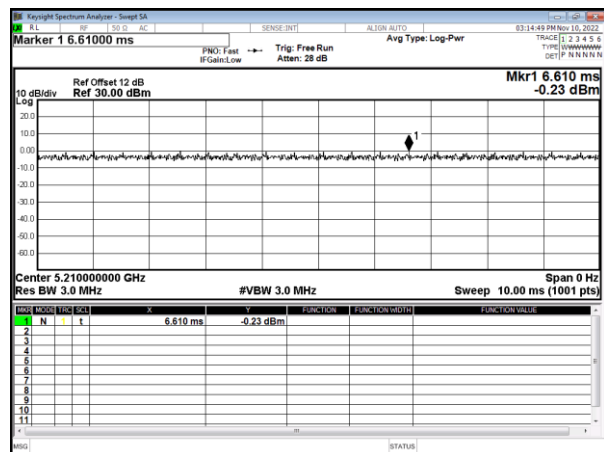
Modulation Type: 802.11ac VHT20 (6.5Mbps)



Modulation Type: 802.11ac VHT40 (13.5Mbps)



Modulation Type: 802.11ac VHT80 (29.3Mbps)





8. 6dB Bandwidth & 99% Occupied Bandwidth

8.1. Test Limit

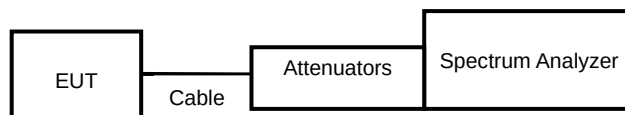
FCC §15.407

The minimum 6 dB bandwidth shall be at least 500 kHz.

8.2. Test Procedure

Reference to 789033 v02r01 General UNII Test Procedures New Rules v01: The transmitter output is connected to a spectrum analyzer with the RBW set to 100KHz, the VBW $\geq 3 \times$ RBW, peak detector and max hold.

8.3. Test Setup Layout



8.4. Test Result and Data (6dB Bandwidth)

In the 5.8GHz Band

Mode	Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)
			ANT A	
802.11a	149	5745	16.56	0.50
	157	5785	16.56	0.50
	165	5825	16.56	0.50
802.11ac VHT20	149	5745	17.71	0.50
	157	5785	17.83	0.50
	165	5825	17.77	0.50
802.11ac VHT40	155	5755	36.46	0.50
	159	5795	36.53	0.50
802.11ac VHT80	155	5775	76.39	0.50

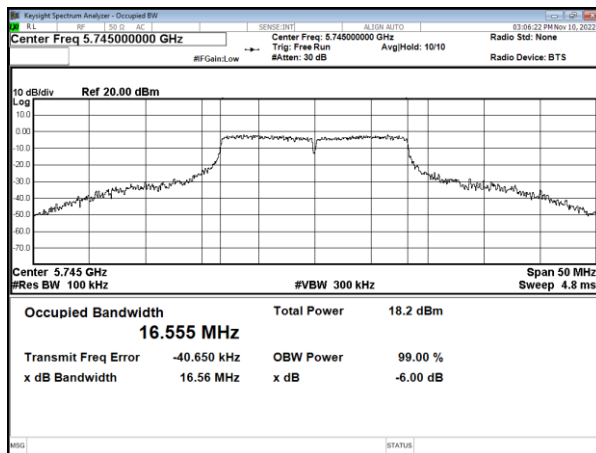
**8.5. Test Result and Data (99% Occupied Bandwidth)**

In the 5.8GHz Band

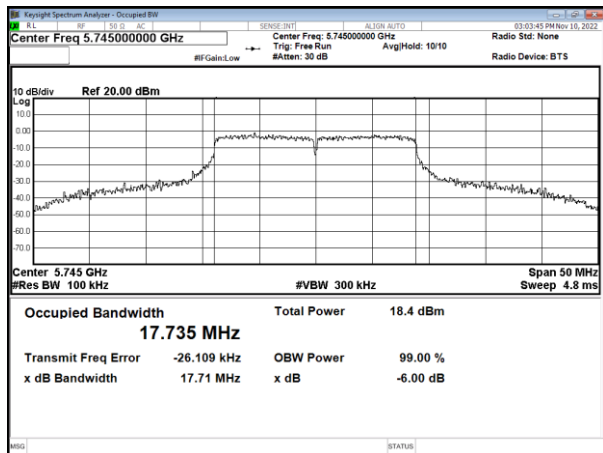
Mode	Channel	Frequency (MHz)	99% Bandwidth (MHz)
			ANT A
802.11a	149	5745	16.75
	157	5785	16.74
	165	5825	16.74
802.11ac VHT20	149	5745	17.97
	157	5785	17.92
	165	5825	17.94
802.11ac VHT40	155	5755	36.62
	159	5795	36.52
802.11ac VHT80	155	5775	75.84



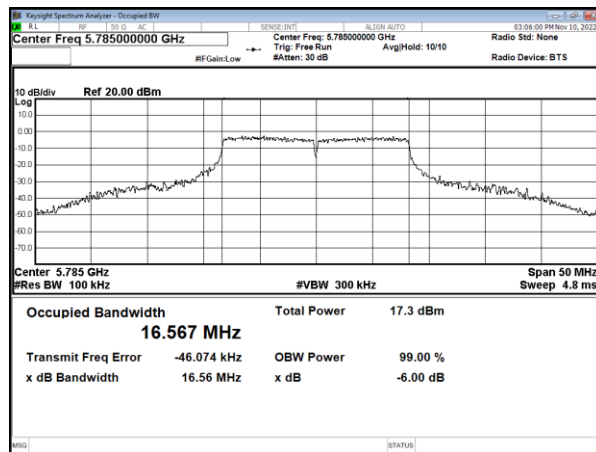
6dB Bandwidth
Modulation Type: 802.11a (6Mbps)
CH149



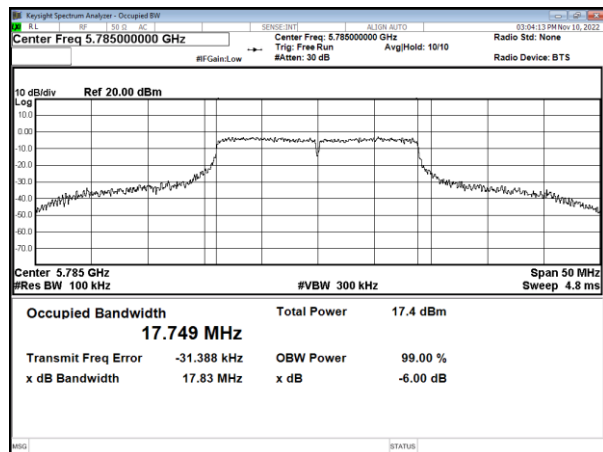
Modulation Type: 802.11ac, VHT20 (6.5Mbps)
CH149



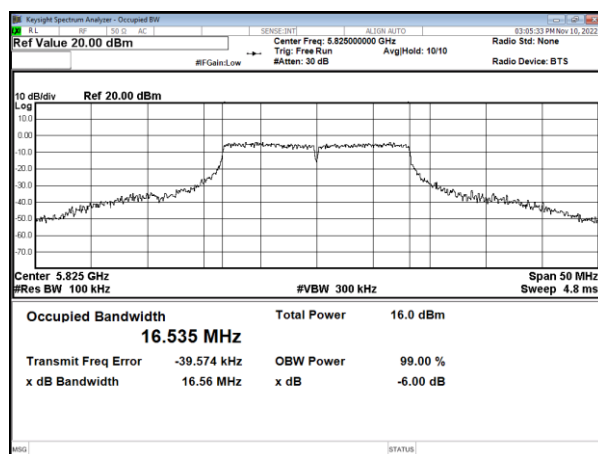
CH157



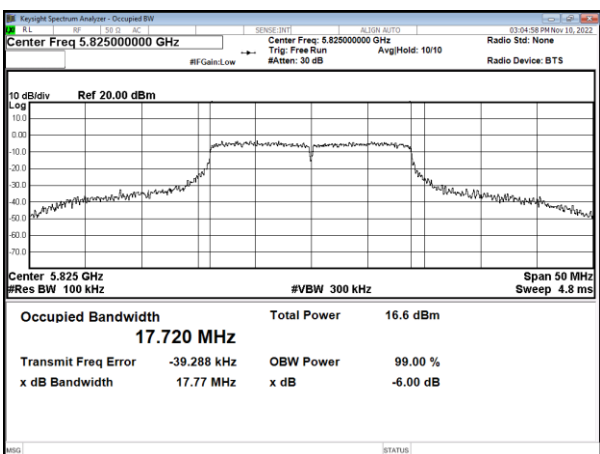
CH157

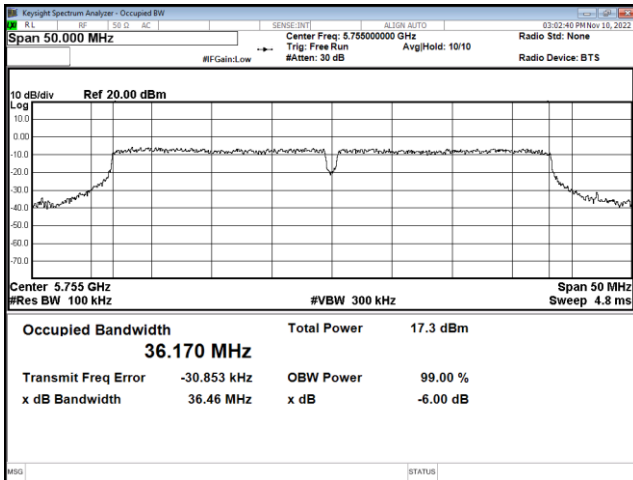
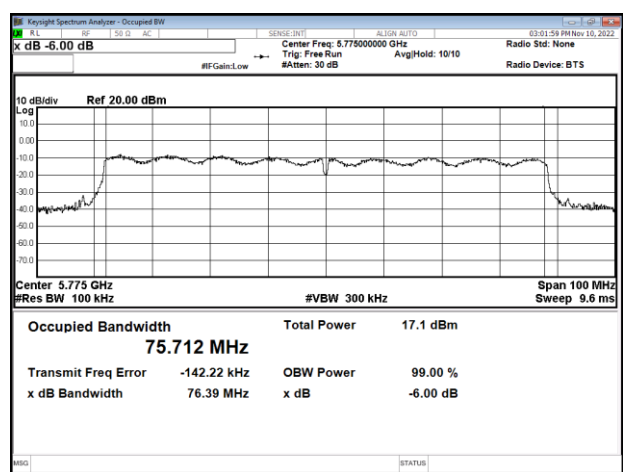


CH165

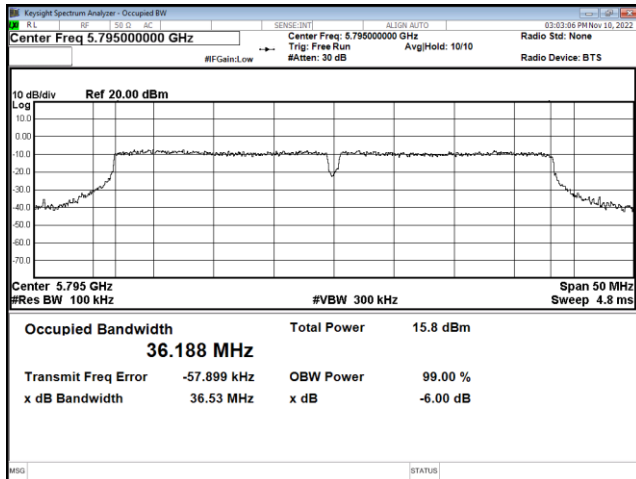


CH165



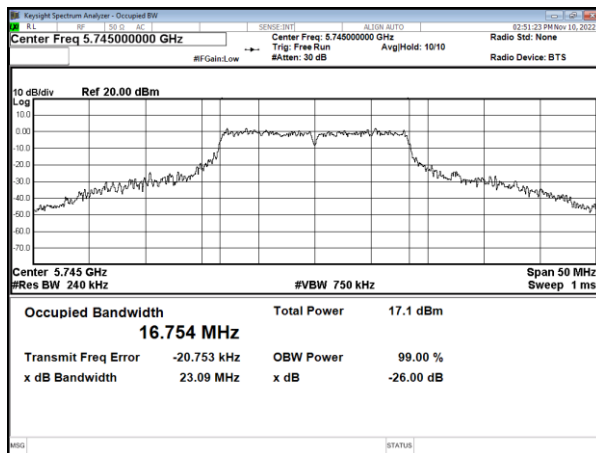
Modulation Type: 802.11ac, VHT40 (13.5Mbps)
CH151Modulation Type: 802.11ac, VHT80 (29.3Mbps)
CH155

CH159

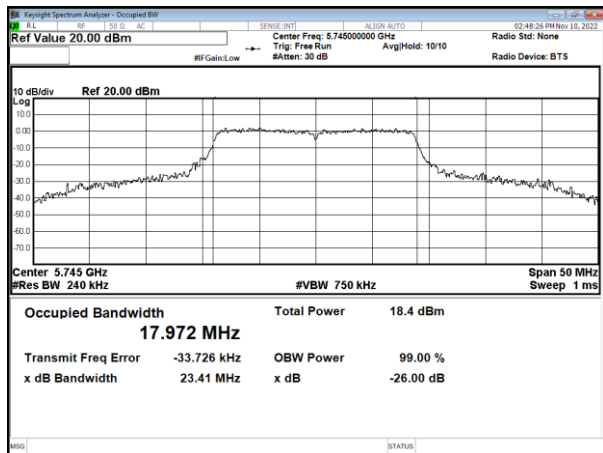




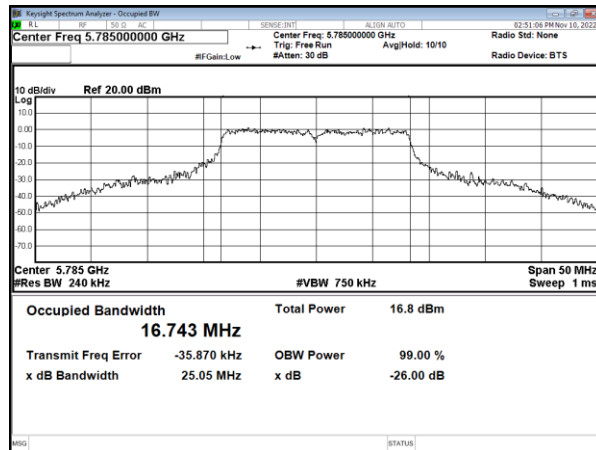
99% Occupied Bandwidth
Modulation Type: 802.11a (6Mbps)
CH149



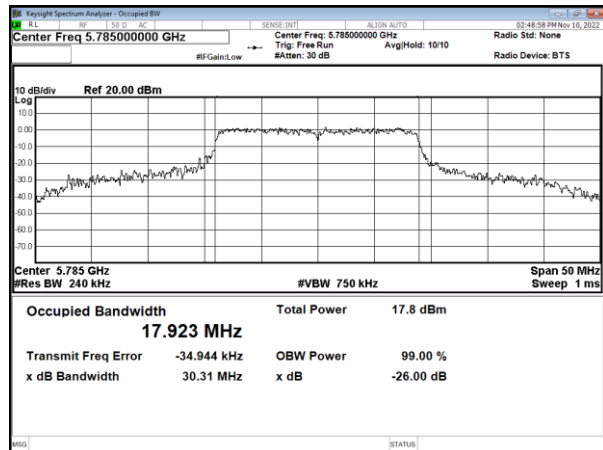
Modulation Type: 802.11ac, VHT20 (6.5Mbps)
CH149



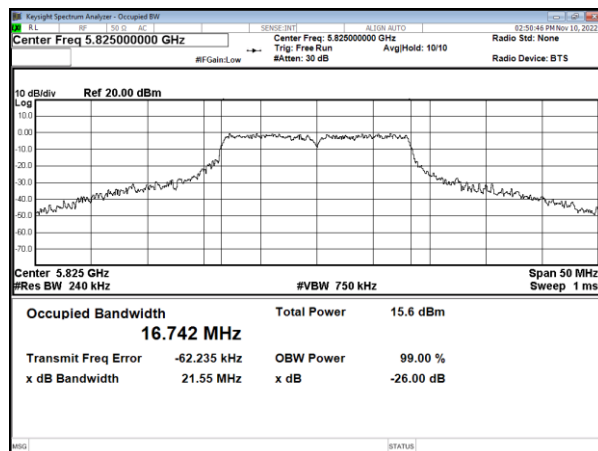
CH157



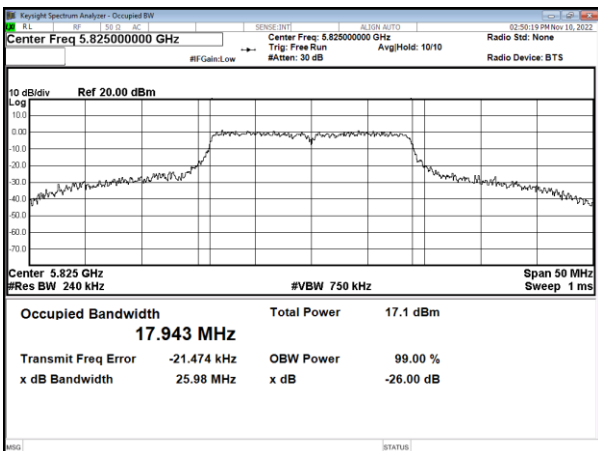
CH157



CH165

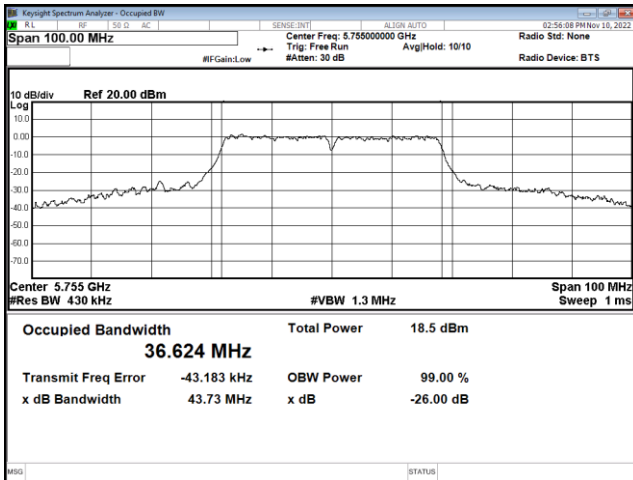


CH165

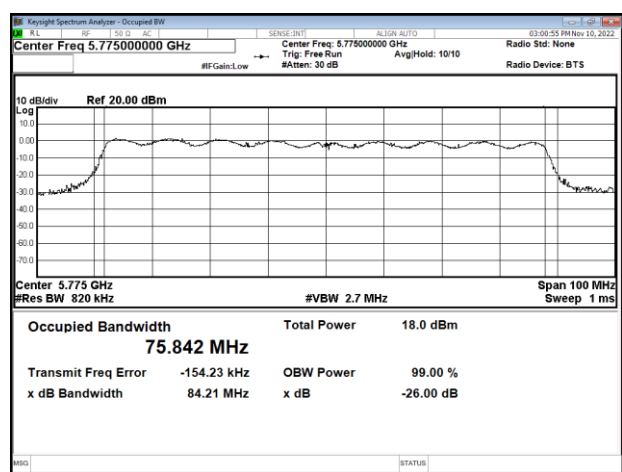




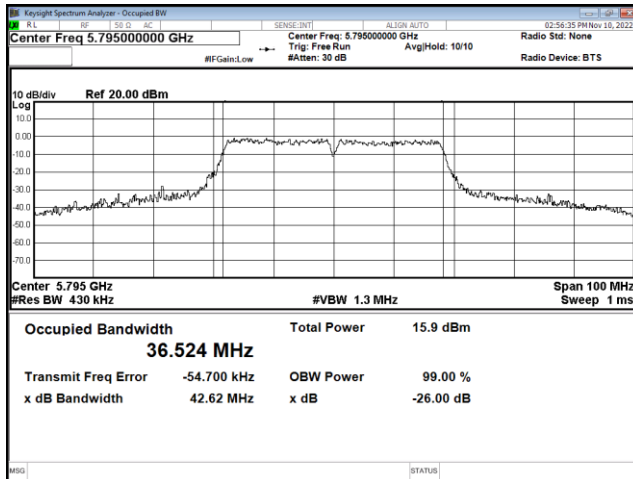
Modulation Type: 802.11ac, VHT40 (13.5Mbps)
CH151



Modulation Type: 802.11ac, VHT80 (29.3Mbps)
CH155



CH159





9. 26dB Bandwidth & 99% Occupied Bandwidth

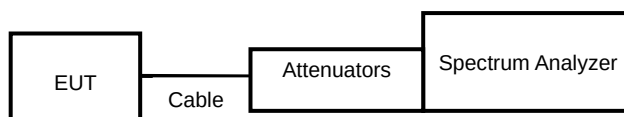
9.1. Test Limit

None; for reporting purposes only.

9.2. Test Procedure

Reference to 789033 v02r01 General UNII Test Procedures New Rules v01: The transmitter output is connected to a spectrum analyzer with the RBW = approximately 1% of the emission bandwidth, the VBW $\geq 3 \times$ RBW, peak detector and max hold.

9.3. Test Setup Layout





9.4. Test Result and Data (26dB Bandwidth)

In the 5.2G Band

Mode	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
			ANT A
802.11a	36	5180	21.08
	44	5220	21.32
	48	5240	21.00
802.11ac VHT20	36	5180	21.87
	44	5220	21.93
	48	5240	21.89
802.11ac VHT40	38	5190	42.58
	46	5230	42.91
802.11ac VHT80	42	5210	83.01

9.5. Test Result and Data (99% Occupied Bandwidth)

In the 5.2G Band

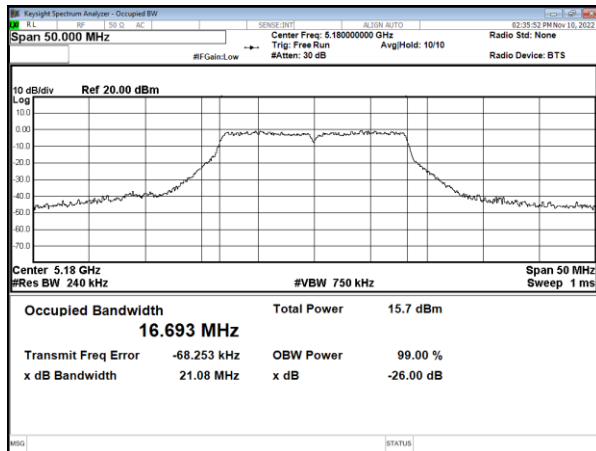
Mode	Channel	Frequency (MHz)	99% Bandwidth (MHz)
			ANT A
802.11a	36	5180	16.69
	44	5220	16.71
	48	5240	16.70
802.11ac VHT20	36	5180	17.85
	44	5220	17.86
	48	5240	17.82
802.11ac VHT40	38	5190	36.42
	46	5230	36.41
802.11ac VHT80	42	5210	75.86



26dB Bandwidth & 99% Occupied Bandwidth, UNII-1

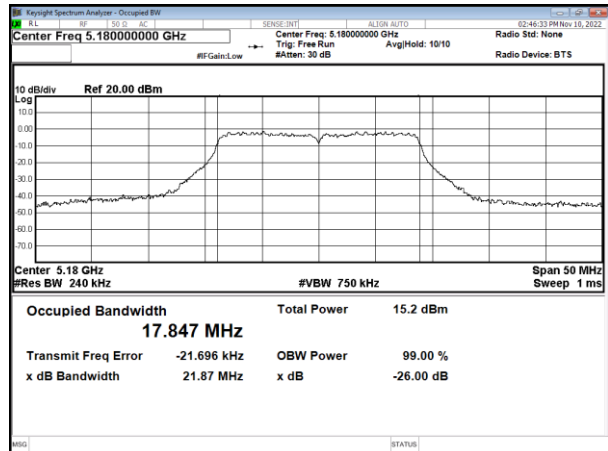
Modulation Standard: 802.11a (6Mbps)

CH36

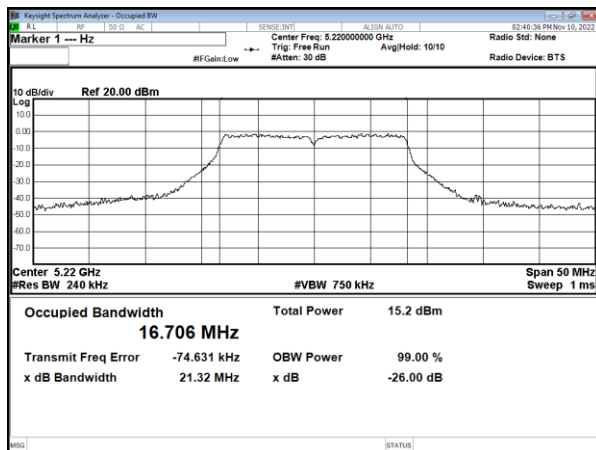


Modulation Standard: 802.11ac VHT20 (6.5Mbps)

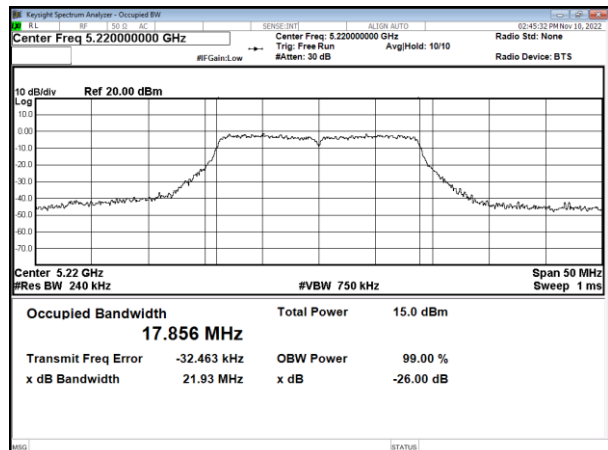
CH36



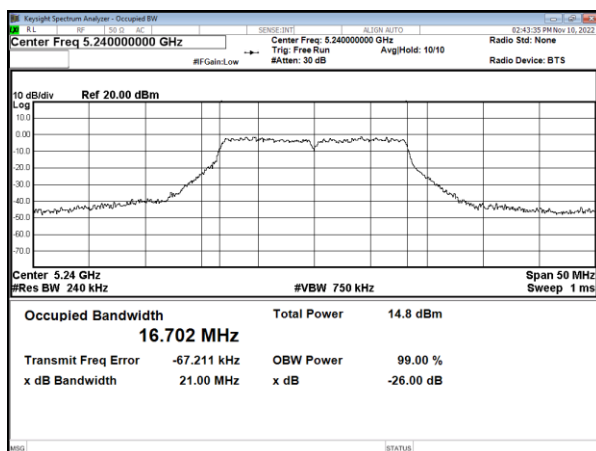
CH44



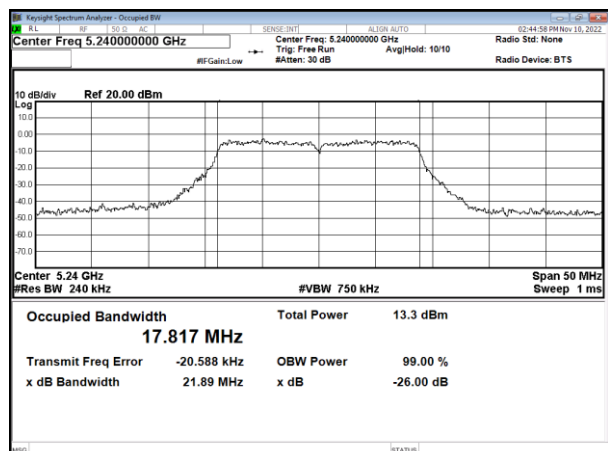
CH44



CH48



CH48

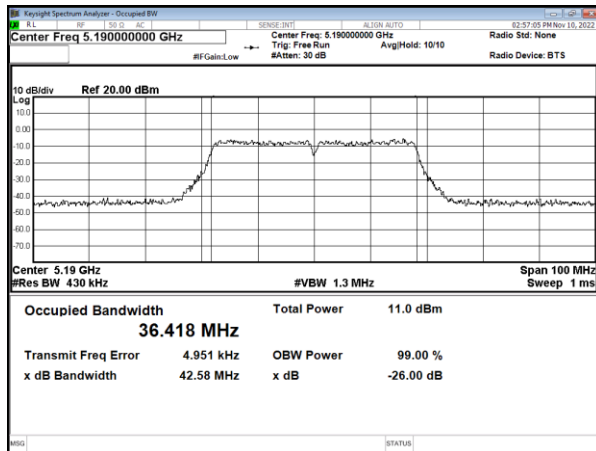




26dB Bandwidth & 99% Occupied Bandwidth, UNII-1

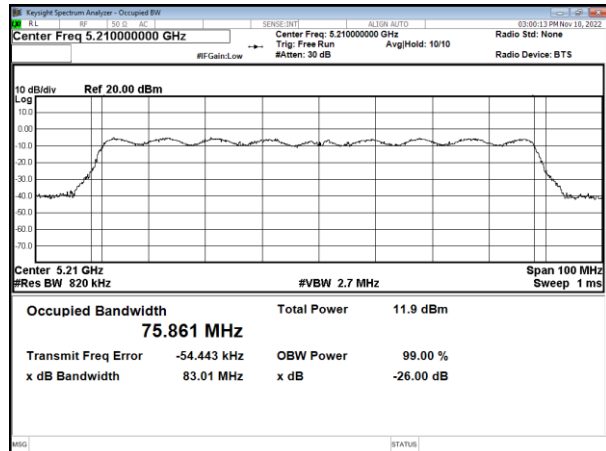
Modulation Standard: 802.11ac VHT40 (13.5Mbps)

CH38

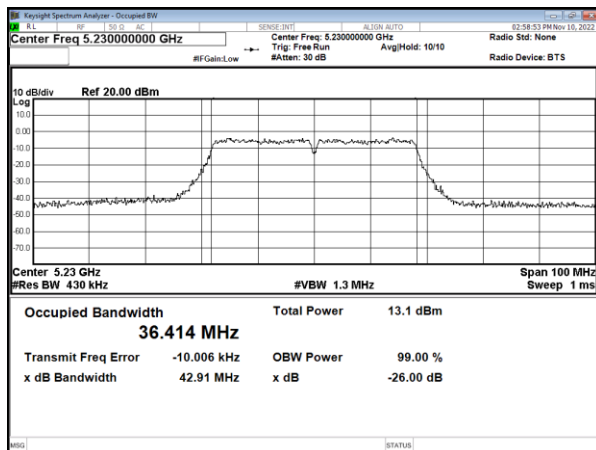


Modulation Standard: 802.11ac VHT80 (29.3Mbps)

CH42



CH46





10. Average Power

10.1. Test Limit

Output Power:

Frequency Band		Limit
☒	5.15~5.25GHz	
	Operating Mode	
☐	Outdoor access point	The maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm) provided the maximum antenna gain does not exceed 6 dBi. 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 30degrees as measured from the horizon must not exceed 125 mW (21 dBm).
☐	Indoor access point	The maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm) provided the maximum antenna gain does not exceed 6 dBi. 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.
☐	Fixed point-to-point access points	The maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm). 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.
☒	client devices	The maximum conducted output power over the frequency band of operation shall not exceed 250 mW (24dBm) provided the maximum antenna gain does not exceed 6 dBi. 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.



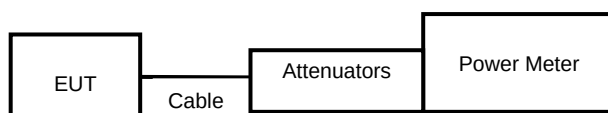
Frequency Band		Limit
☐	5.25-5.35 GHz	The maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW (24dBm) or 11 dBm 10 log B, where B is the 26 dB emission bandwidth in megahertz. If transmitting antennas of directional gain greater than 6 dBi are used, 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.
☐	5.470-5.725 GHz	
☒	5.725~5.85 GHz	The maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm). 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.

10.2.Test Procedure

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 12 dB (including 10 dB pad and 2 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

10.3.Test Setup Layout





10.4. Test Result and Data

In the 5.2G Band

Modulation Type	Data Rate	Setting	Channel	Frequency (MHz)	Avg Power Output (dBm)	Power (mW)	Power Limit (dBm)
					ANT A	ANT A	
11a	6 Mbps	Default	36	5180	9.70	9.333	24.00
11a	6 Mbps	Default	44	5220	9.38	8.670	24.00
11a	6 Mbps	Default	48	5240	9.11	8.147	24.00
11n HT20	MCS 0	Default	36	5180	9.11	8.147	24.00
11n HT20	MCS 0	Default	44	5220	8.02	6.339	24.00
11n HT20	MCS 0	Default	48	5240	7.68	5.861	24.00
11n HT40	MCS 0	Default	38	5190	6.71	4.688	24.00
11n HT40	MCS 0	Default	46	5230	9.02	7.980	24.00
11ac VHT20	NSS1-MCS0	Default	36	5180	9.24	8.395	24.00
11ac VHT20	NSS1-MCS0	Default	44	5220	8.15	6.531	24.00
11ac VHT20	NSS1-MCS0	Default	48	5240	7.80	6.026	24.00
11ac VHT40	NSS1-MCS0	Default	38	5190	6.79	4.775	24.00
11ac VHT40	NSS1-MCS0	Default	46	5230	9.16	8.241	24.00
11ac VHT80	NSS1-MCS0	Default	42	5210	5.42	3.483	24.00

In the 5.8G Band

Modulation Type	Data Rate	Setting	Channel	Frequency (MHz)	Avg Power Output (dBm)	Power (mW)	Power Limit (dBm)
					ANT A	ANT A	
11a	6 Mbps	Default	149	5745	12.26	16.827	30.00
11a	6 Mbps	Default	157	5785	11.14	13.002	30.00
11a	6 Mbps	Default	165	5825	10.04	10.093	30.00
11n HT20	MCS 0	Default	149	5745	12.82	19.143	30.00
11n HT20	MCS 0	Default	157	5785	11.75	14.962	30.00
11n HT20	MCS 0	Default	165	5825	10.54	11.324	30.00
11n HT40	MCS 0	Default	151	5755	11.42	13.868	30.00
11n HT40	MCS 0	Default	159	5795	9.71	9.354	30.00
11ac VHT20	NSS1-MCS0	Default	149	5745	12.98	19.861	30.00
11ac VHT20	NSS1-MCS0	Default	157	5785	11.79	15.101	30.00
11ac VHT20	NSS1-MCS0	Default	165	5825	10.60	11.482	30.00
11ac VHT40	NSS1-MCS0	Default	151	5755	11.48	14.060	30.00
11ac VHT40	NSS1-MCS0	Default	159	5795	10.01	10.023	30.00
11ac VHT80	NSS1-MCS0	Default	155	5775	11.60	14.454	30.00



11. Maximum Power Spectral Density

11.1. Test Limit

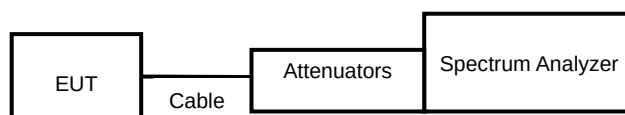
PSD:

Frequency Band		Limit
☒	5.15~5.25GHz	
	Operating Mode	
☐	Outdoor access point	17 dBm/MHz
☐	Indoor access point	17 dBm/MHz
☐	Fixed point-to-point access points	17 dBm/MHz
☒	client devices	11 dBm/MHz
☐	5.250~5.350 GHz	11 dBm/MHz
☐	5.470~5.725 GHz	11 dBm/MHz
☒	5.725~5.85 GHz	30 dBm/500kHz

11.2. Test Procedure

Reference to KDB789033 v02r01 General UNII Test Procedures New Rules.

11.3. Test Setup Layout



**11.4. Test Result and Data****In the 5.2G Band**

Modulation Type	CH	Freq. (MHz)	Meas PPSD (dBm/MHz)	Sum chain (dBm)	Duty Cycle CF(dB)	Total Corr'd PPSD (dBm/MHz)	PPSD Limit (dBm/MHz)
			ANT A				
11a	36	5180	-1.36	-1.36	0.00	-1.36	11.00
11a	44	5220	-2.24	-2.24	0.00	-2.24	11.00
11a	48	5240	-2.70	-2.70	0.00	-2.70	11.00
11ac VHT20	36	5180	-2.86	-2.86	0.00	-2.86	11.00
11ac VHT20	44	5220	-2.52	-2.52	0.00	-2.52	11.00
11ac VHT20	48	5240	-3.97	-3.97	0.00	-3.97	11.00
11ac VHT40	38	5190	-8.23	-8.23	0.00	-8.23	11.00
11ac VHT40	46	5230	-6.51	-6.51	0.00	-6.51	11.00
11ac VHT80	42	5210	-12.33	-12.33	0.00	-12.33	11.00

In the 5.8G Band

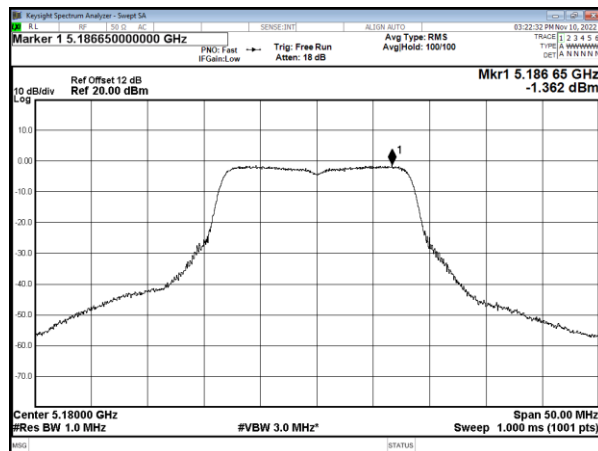
Modulation Type	CH	Freq. (MHz)	Meas PPSD (dBm/MHz)	Sum chain (dBm)	Duty Cycle CF(dB)	10log(500K Hz/RBW) CF (dB)	Total Corr'd PPSD (dBm/500kHz)	PPSD Limit (dBm/500kHz)
			ANT A					
11a	149	5745	1.14	1.14	0.00	-3.01	-1.87	30.00
11a	157	5785	0.07	0.07	0.00	-3.01	-2.94	30.00
11a	165	5825	-1.10	-1.10	0.00	-3.01	-4.11	30.00
11ac VHT20	149	5745	0.55	0.55	0.00	-3.01	-2.46	30.00
11ac VHT20	157	5785	-0.54	-0.54	0.00	-3.01	-3.55	30.00
11ac VHT20	165	5825	-1.54	-1.54	0.00	-3.01	-4.55	30.00
11ac VHT40	151	5755	-2.86	-2.86	0.00	-3.01	-5.87	30.00
11ac VHT40	159	5795	-4.22	-4.22	0.00	-3.01	-7.23	30.00
11ac VHT80	155	5775	-4.96	-4.96	0.00	-3.01	-7.97	30.00



5.2G, UNII-1

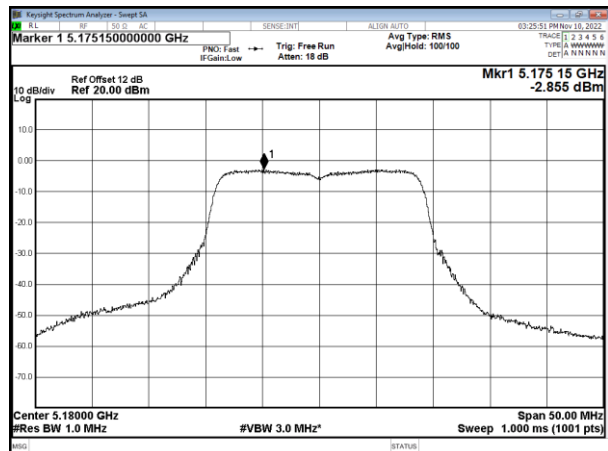
Modulation Standard: 802.11a (6Mbps)

CH36

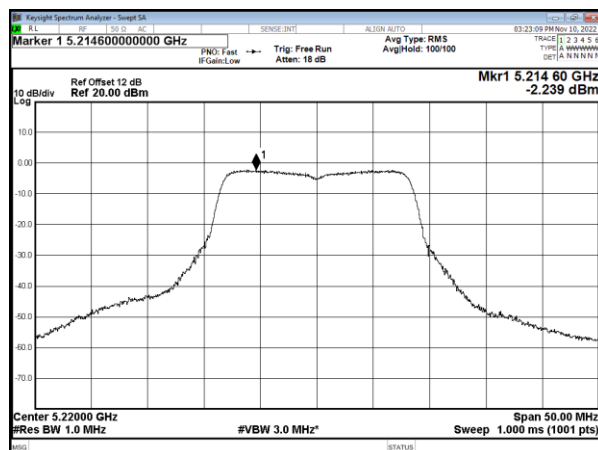


Modulation Standard: 802.11ac VHT20 (6.5Mbps)

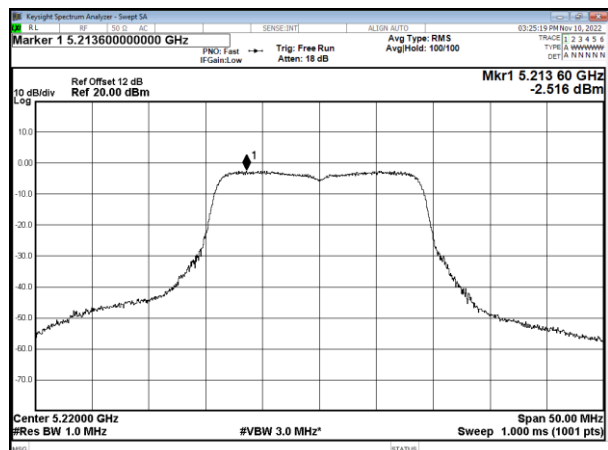
CH36



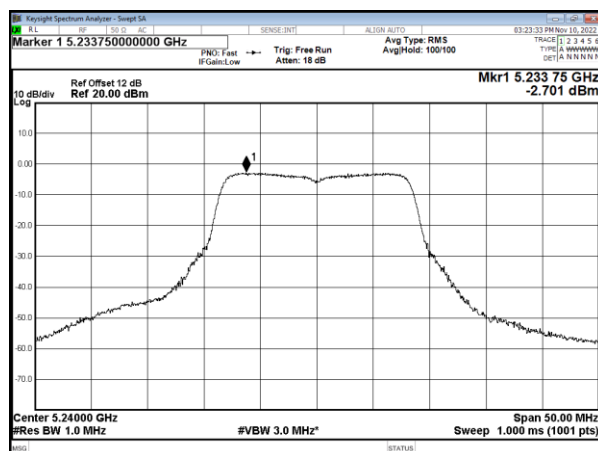
CH44



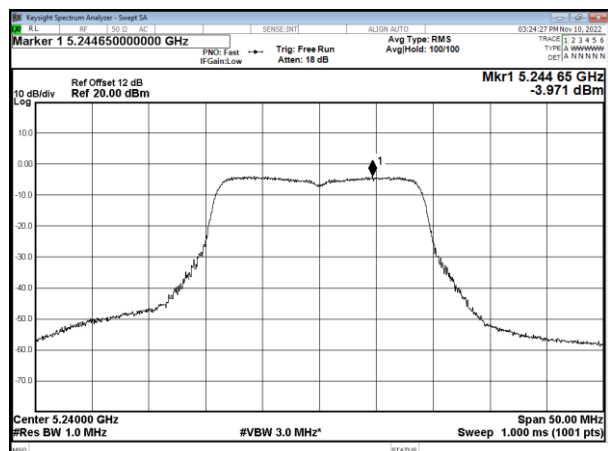
CH44



CH48



CH48

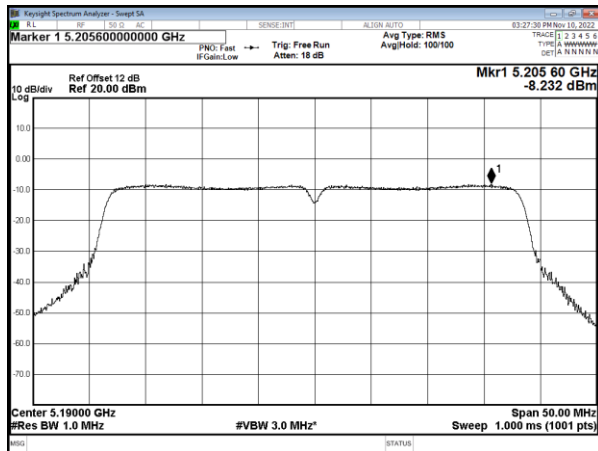




5.2G, UNII-1

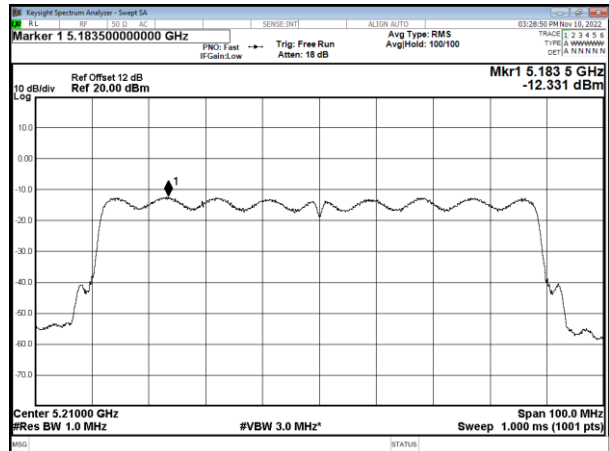
Modulation Standard: 802.11ac VHT40 (13.5Mbps)

CH38

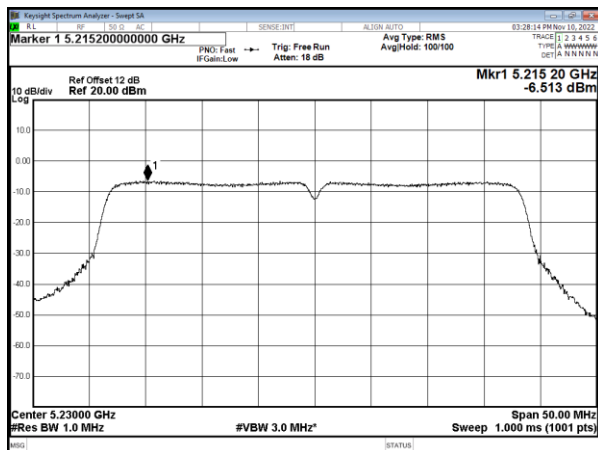


Modulation Standard: 802.11ac VHT80 (29.3Mbps)

CH42



CH46

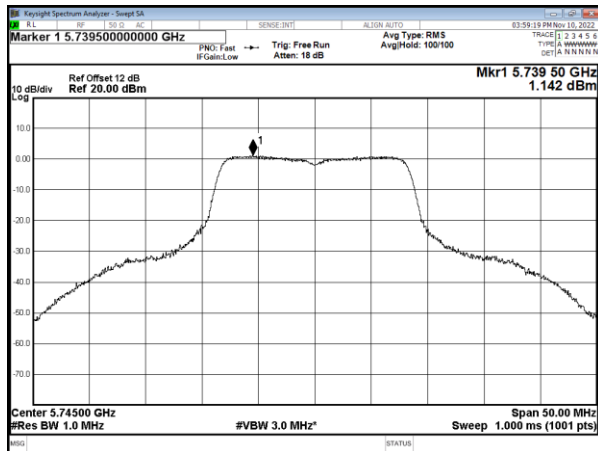




5.8G, UNII-3

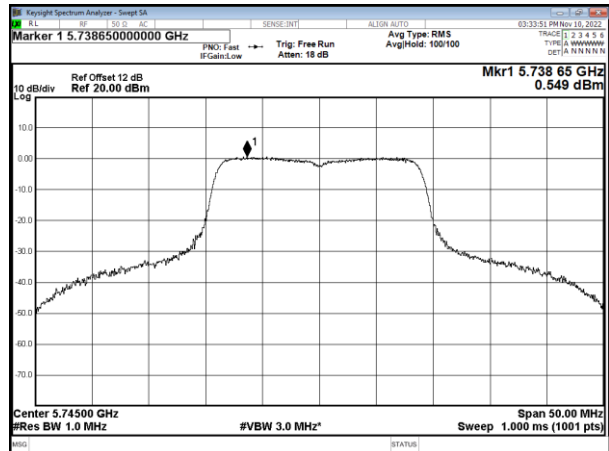
Modulation Standard: 802.11a (6Mbps)

CH149

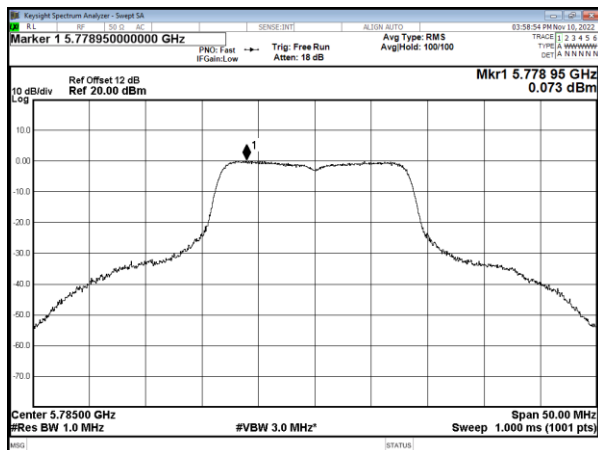


Modulation Standard: 802.11ac VHT20 (6.5Mbps)

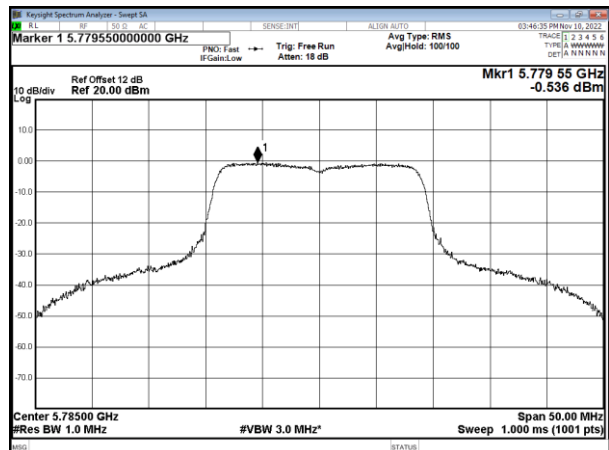
CH149



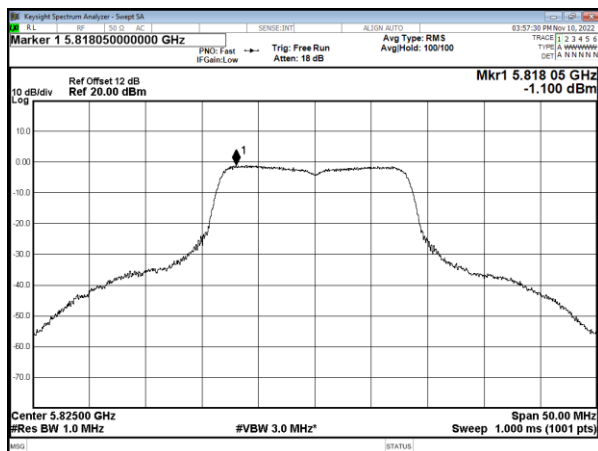
CH157



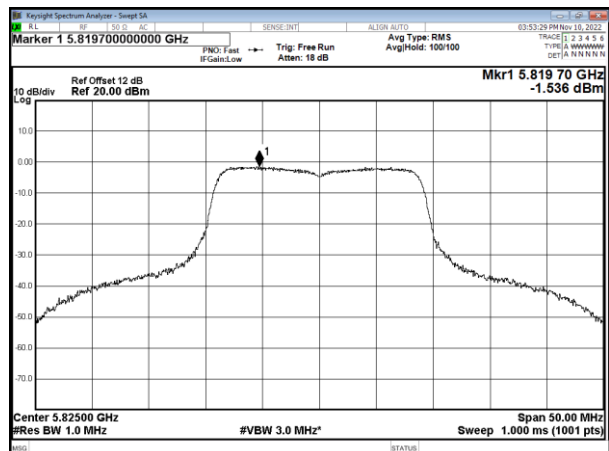
CH157



CH165



CH165

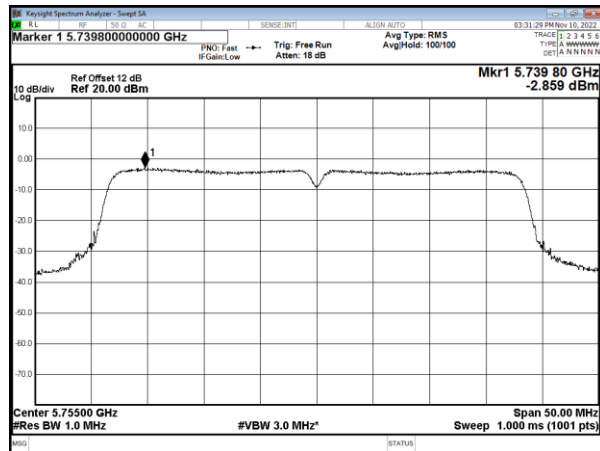




5.8G, UNII-3

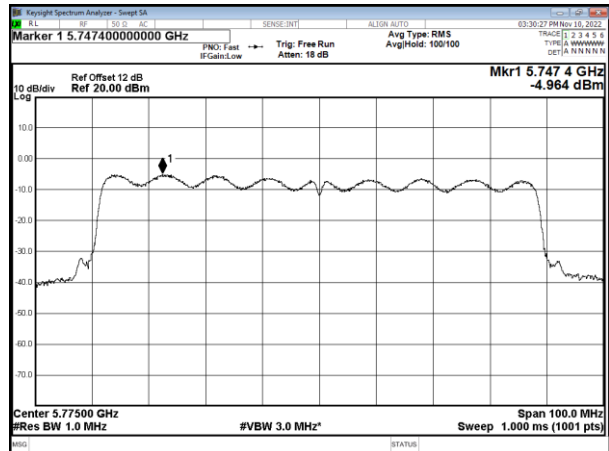
Modulation Standard: 802.11ac VHT40 (13.5Mbps)

CH151

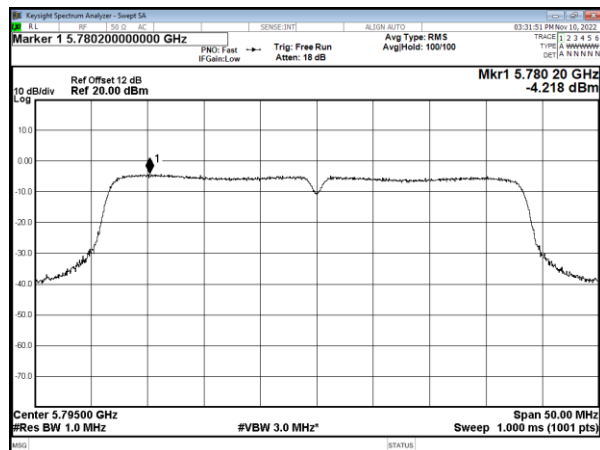


Modulation Standard: 802.11ac VHT80 (29.3Mbps)

CH155



CH159



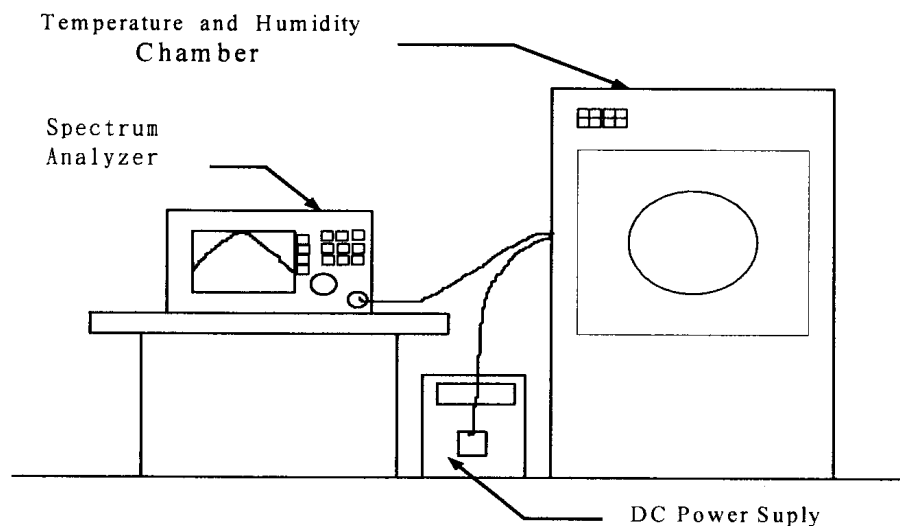


12. Frequency Stability

12.1. Test Procedure

1. The EUT was placed inside the Temperature and Humidity chamber.
2. The transmitter output was connected to spectrum analyzer.
3. Turn the EUT on and couple its output to a spectrum analyzer.
4. Turn the EUT off and set the chamber to the highest temperature specified.
5. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.
6. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
7. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

12.2. Test Setup Layout



**12.3. Test Result and Data**

Operating frequency: 5180 MHz							
Temp	Power supply	2 minute		5 minute		10 minute	
(°C)	(V)	(MHz)	(%)	(MHz)	(%)	(MHz)	(%)
45	13.2	5179.9938	-0.000120	5179.9935	-0.000125	5179.9954	-0.000089
	12	5179.9976	-0.000046	5179.9974	-0.000050	5179.9951	-0.000095
	10.8	5179.9937	-0.000122	5179.9955	-0.000087	5179.9963	-0.000071
30	13.2	5179.9928	-0.000139	5179.9936	-0.000124	5179.9941	-0.000114
	12	5179.9947	-0.000102	5179.9941	-0.000114	5179.9937	-0.000122
	10.8	5179.9963	-0.000071	5179.9987	-0.000025	5179.9918	-0.000158
20	13.2	5179.9942	-0.000112	5179.9936	-0.000124	5179.9938	-0.000120
	12	5179.9957	-0.000083	5179.9951	-0.000095	5179.9946	-0.000104
	10.8	5179.9961	-0.000075	5179.9941	-0.000114	5179.9972	-0.000054
10	13.2	5179.9954	-0.000089	5179.9939	-0.000118	5179.9946	-0.000104
	12	5179.9933	-0.000129	5179.9952	-0.000093	5179.9938	-0.000120
	10.8	5179.9964	-0.000069	5179.9939	-0.000118	5179.9954	-0.000089
0	13.2	5179.9949	-0.000098	5179.9945	-0.000106	5179.9945	-0.000106
	12	5179.9927	-0.000141	5179.9931	-0.000133	5179.9936	-0.000124
	10.8	5179.9932	-0.000131	5179.9925	-0.000145	5179.9957	-0.000083

Limit:

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

-----End of the report -----