RF MEASUREMENT REPORT

FCC ID:	Q9DAPIN0514515
Applicant:	Hewlett Packard Enterprise Company
Product:	ACCESS POINT
Model No.:	APIN0514
Trade Mark:	Hewlett Packard Enterprise
FCC Classification:	Unlicensed National Information Infrastructure (NII)
FCC Rule Part(s):	Part 15 Subpart E (Section 15.407)
Result:	Complies
Received Date:	2024-07-19
Test Date:	2024-09-20 ~ 2024-11-11

Reviewed By: Jame Yuan

Approved By: Robin Wu

ACCREDITED
TESTING LABORATORY
CERTIFICATE #3628.01

The test results relate only to the samples tested.

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in KDB789033. Test results reported herein relate only to the item(s) tested.

The test report shall not be reproduced except in full without the written approval of MRT Technology (Suzhou) Co., Ltd.

Revision History

Report No.	Version	Description	Issue Date	Note
2407RSU042-U5	V01	Initial Report	2025-02-25	Valid

Note: This report is based on MRT original report (Report No.: 1807TW0111-U3 & 1807TW0111-U8). The product has changed the 5GHz FEM and adjusted the 5GHz shielding cover, no others change, We make “Output Power” & “Power Spectral Density” full test, the other test items spot check.

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1. General Information

1.1. Applicant

Hewlett Packard Enterprise Company

6280 America Center Drive, San Jose, CA 95002

1.2. Manufacturer

Hewlett Packard Enterprise Company

6280 America Center Drive, San Jose, CA 95002

1.3. Testing Facility

☒	**Test Site – MRT Suzhou Laboratory**
	Laboratory Location (Suzhou - Wuzhong) D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China **Laboratory Location (Suzhou - SIP)** 4b Building, Liando U Valley, No.200 Xingpu Rd., Shengpu Town, Suzhou Industrial Park, China **Laboratory Location (Suzhou - Wujiang)** Building 1, No.1 Xingdong Road, Wujiang, Suzhou, Jiangsu, People's Republic of China
	Laboratory Accreditations
	A2LA: 3628.01 CNAS: L10551 FCC: CN1166 ISED: CN0001 VCCI: ☐R-20025 ☐G-20034 ☐C-20020 ☐T-20020 ☐R-20141 ☐G-20134 ☐C-20103 ☐T-20104
☐	**Test Site – MRT Shenzhen Laboratory**
	Laboratory Location (Shenzhen) 1G, Building A, Junxiangda Building, Zhongshanyuan Road West, Nanshan District, Shenzhen, China
	Laboratory Accreditations
	A2LA: 3628.02 CNAS: L10551 FCC: CN1284 ISED: CN0105
☐	**Test Site – MRT Taiwan Laboratory**
	Laboratory Location (Taiwan) No. 38, Fuxing 2nd Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)
	Laboratory Accreditations
	TAF: 3261 FCC: 291082, TW3261 ISED: TW3261

1.4. Product Information

Product Name	ACCESS POINT
Model No.	APIN0514
Serial No.	CNRYKD003S
Wi-Fi Specification	802.11a/b/g/n/ac/ax
Bluetooth Specification	v4.2 single mode
Zigbee Specification	802.15.4
Antenna Specification	Refer to clause 1.7
Operating Temperature	0 ~ 50°C
Power Type	AC Adapter or POE input
Operating Environment	Indoor Use

1.5. Radio Specification under Test

Frequency Range	802.11a/n-HT20/ac-VHT20/ax-HE20: 5180~5240MHz, 5260~5320MHz, 5500~5720MHz, 5745~5825MHz 802.11n-HT40/ac-VHT40/ax-HE40: 5190~5230MHz, 5270~5310MHz, 5510~5710MHz, 5755~5795MHz 802.11ac-VHT80/ax-HE80: 5210MHz, 5290MHz, 5530MHz, 5610MHz, 5690MHz, 5775MHz 802.11ac-VHT160/ax-HE160: 5250MHz, 5570MHz	
Type of Modulation	802.11a/n/ac: OFDM 802.11ax: OFDMA	
Data Rate	802.11a: 6/9/12/18/24/36/48/54Mbps 802.11n: up to 600Mbps 802.11ac: up to 3466.7Mbps 802.11ax: up to 4804Mbps	
Channel Puncturing Function	☐ Supported	☒ Unsupported
Support RU	☒ Full RU	☐ Partial RU

1.6. Working Frequencies

802.11a/n-HT20/ac-VHT20/ax-HE20

Channel	Frequency	Channel	Frequency	Channel	Frequency
36	5180 MHz	40	5200 MHz	44	5220 MHz
48	5240 MHz	52	5260 MHz	56	5280 MHz
60	5300 MHz	64	5320 MHz	100	5500 MHz
104	5520 MHz	108	5540 MHz	112	5560 MHz
116	5580 MHz	120	5600 MHz	124	5620 MHz
128	5640 MHz	132	5660 MHz	136	5680 MHz
140	5700 MHz	144	5720 MHz	149	5745 MHz
153	5765 MHz	157	5785 MHz	161	5805 MHz
165	5825 MHz	--	--	--	--

802.11n-HT40/ac-VHT40/ax-HE40

Channel	Frequency	Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz	54	5270 MHz
62	5310 MHz	102	5510 MHz	110	5550MHz
118	5590 MHz	126	5630 MHz	134	5670 MHz
142	5710 MHz	151	5755 MHz	159	5795 MHz

802.11ac-VHT80/ax-HE80

Channel	Frequency	Channel	Frequency	Channel	Frequency
42	5210 MHz	58	5290 MHz	106	5530 MHz
122	5610 MHz	138	5690 MHz	155	5775 MHz

802.11ac-VHT160/ax-HE160

Channel	Frequency	Channel	Frequency	Channel	Frequency
50	5250 MHz	114	5570 MHz	--	--

1.7. Description of Available Antennas

Antenna No.	Polarization	Frequency Band (GHz)	Model No.	Max Peak Gain (dBi)	BF Gain (dBi)	CDD Directional Gain (dBi)	
						For Power	For PSD
Wi-Fi External Antenna List (2.4GHz 2*2 MIMO, 5GHz 4*4 MIMO)							
1	Omni	2.4	AP-ANT-40	**4.0**	3.01	4.0	7.01
		5		5.0	6.02	5.0	11.02
2	Omni	2.4	AP-ANT-19	3.0	3.01	3.0	6.01
		5		**6.0**	6.02	6.0	12.02
3	Omni	2.4	AP-ANT-1W	3.8	3.01	3.8	6.81
		5		5.8	6.02	5.8	11.82
4	Omni	2.4	AP-ANT-13B	2.3	3.01	2.3	5.31
		5		4.0	6.02	4.0	10.02
5	Omni	2.4	AP-ANT-20W	**2.0**	3.01	2.0	5.01
		5		**2.0**	6.02	2.0	8.02
6 (Note 3)	Directional	2.4	AP-ANT-45	4.5	0.00	4.5	4.50
		5		5.5	3.01	5.5	8.51
7 (Note 3)	Directional	2.4	AP-ANT-48	**8.5**	0.00	8.5	8.5
		5		**8.5**	3.01	8.5	11.51
Bluetooth & ZigBee Internal Antenna							
PCB		2.4		4.9			

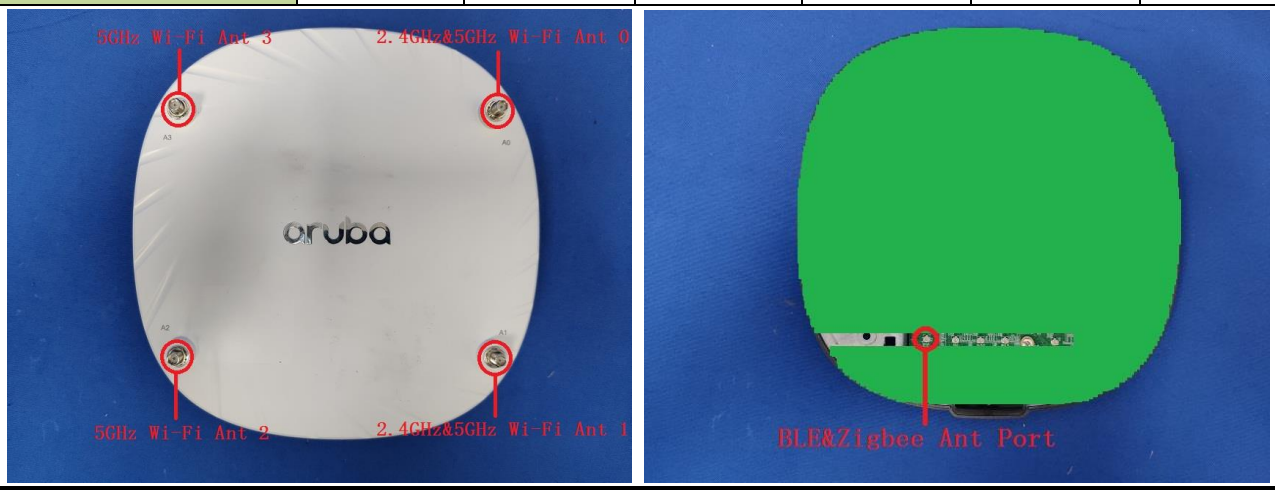
Notes:

1. The EUT supports Cyclic Delay Diversity (CDD) mode, and CDD signals are correlated.
   For CDD transmissions, directional gain is calculated as follows, N_{ANT} = 2, N_{SS} = 1.
   If all antennas have the same gain, G_{ANT}, Directional gain = G_{ANT} + Array Gain, where Array Gain is as follows.
   - For power spectral density (PSD) measurements on all devices,
     Array Gain = 10 log (N_{ANT}/ N_{SS}) dB = 3.01;
   - For power measurements on IEEE 802.11 devices,
     Array Gain = 0 dB for N_{ANT} ≤ 4;
2. The EUT also supports Beam Forming mode, and the Beam Forming support 802.11n/ac/ax, not include 802.11a/b/g. Directional gain = G_{ANT} + BF Gain, BF Gain was declared by the applicant.
3. Two antennas have Cross-Polarized design, the detail see the antenna specification.
4. The final test antenna list was shown as below table.

Antenna	Conducted Testing	Radiated Testing
Omni Antenna 1# (Max 2.4GHz Omni ANT)	N/A	Yes
Omni Antenna 2# (Max 5GHz Omni ANT)	N/A	Yes
Omni Antenna 5# (Min 2.4&5GHz Omni ANT)	Yes (High Power Setting)	Yes
Directional Antenna 7# (Max 2.4&5GHz Directional ANT)	N/A	Yes

1.8. Description of Antenna RF Port

Antenna RF Port						
--	2.4GHz RF Port		5GHz RF Port			
Software Control Port	Ant 0	Ant 1	Ant 0	Ant 1	Ant 2	Ant 3



2. Test Configuration

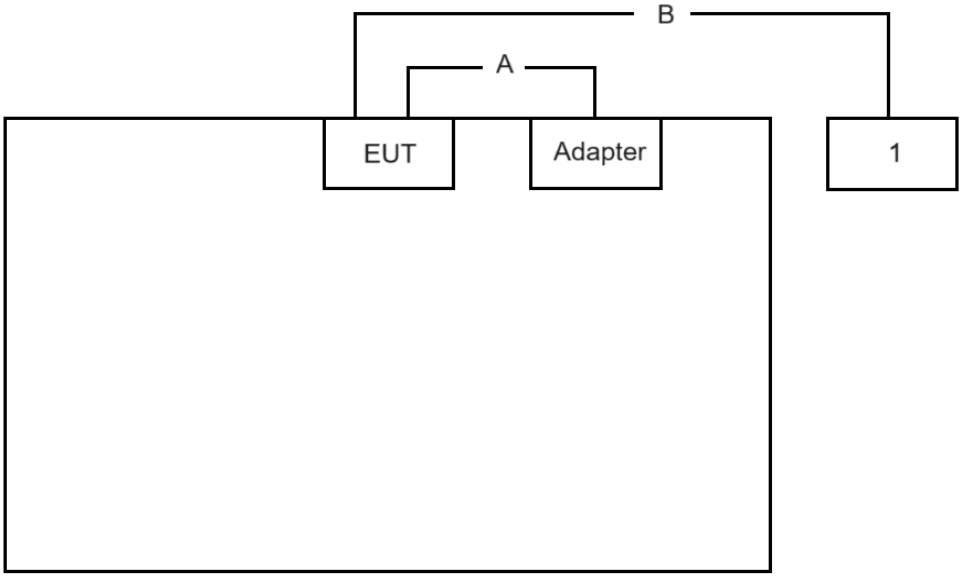
2.1. Test Mode

CDD Mode
Mode 1: Transmit by 802.11a (6Mbps)
Mode 2: Transmit by 802.11ac-VHT20 (MCS0)
Mode 3: Transmit by 802.11ac-VHT40 (MCS0)
Mode 4: Transmit by 802.11ac-VHT80 (MCS0)
Mode 5: Transmit by 802.11ac-VHT160 (MCS0)
Mode 6: Transmit by 802.11ax-HE20 (MCS0)
Mode 7: Transmit by 802.11ax-HE40 (MCS0)
Mode 8: Transmit by 802.11ax-HE80 (MCS0)
Mode 9: Transmit by 802.11ax-HE160 (MCS0)
Notes: 1. 802.11n and 802.11ac have same modulation type and same power value, so we only show 802.11ac test data in report. 2. All modes of operation and data rates were investigated, so all RF test requirements shall be executed at the worst data rate. 3. For CDD mode, this device supports 4 N_{SS} and power level is the same of spatial multiplexing. The worst case is N_{SS}=1. 4. For Beamforming operation, the software backs power down based on CDD power.

2.2. Test System Connection Diagram

The device was tested per the guidance ANSI C63.10: 2013 was used to reference the appropriate EUT setup for radiated emissions testing and AC line conducted testing.

Connection Diagram



Cable Type		Cable Description	Length
A	Power Cable	Non-Shielded	1.2m
B	LAN Cable	Non shielded, Cat.5e	> 10m
Product		Manufacturer	Model No.
1	Notebook	Lenovo	E430C

2.3. Test Software

The test utility software used during testing was “accessMTool”, and the version was 3.3.0.6.

2.4. Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 15.407
- KDB 789033 D02v02r01
- KDB 662911 D01v02r01
- ANSI C63.10-2013

2.5. Test Environment Condition

Ambient Temperature	15 ~ 35°C
Relative Humidity	20 ~ 75%RH

3. Antenna Requirements

Excerpt from §15.203 of the FCC Rules/Regulations:

"An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section."

The antenna of the ACCESS POINT uses a reversed SMA connector.

Conclusion:

The unit complies with the requirement of §15.203.

4. Measuring Instrument

Instrument	Manufacturer	Model No.	Asset No.	Cali. Interval	Cali. Due Date	Test Site
Signal Analyzer	Keysight	N9020B	MRTSUE07037	1 year	2025-09-03	WJ-SR3
USB Power Sensor	Keysight	U2021XA	MRTSUE07143	1 year	2025-03-22	WJ-SR3
Thermohygrometer	testo	608-H1	MRTSUE11331	1 year	2025-06-24	WJ-SR3
Shielding Room	TDK	WJ-SR3	MRTSUE07125	N/A	N/A	WJ-SR3
EMI Test Receiver	R&S	ESR3	MRTSUE07112	1 year	2025-04-21	WJ-SR5
Two-Line V-Network	R&S	ENV216	MRTSUE07201	1 year	2025-05-26	WJ-SR5
Thermohygrometer	testo	608-H1	MRTSUE11317	1 year	2025-06-24	WJ-SR5
Shielding Room	TDK	WJ-SR5	MRTSUE07127	N/A	N/A	WJ-SR5
Signal Analyzer	Keysight	N9020B	MRTSUE07037	1 year	2025-09-03	WJ-TR1
High and low temperature-humidity test chamber	GWS	EL-01JA	MRTSUE07114	1 year	2025-05-20	WJ-TR1
Thermohygrometer	testo	608-H1	MRTSUE11337	1 year	2025-06-24	WJ-TR1
EMI Test Receiver	R&S	ESR3	MRTSUE07111	1 year	2025-04-18	WJ-AC2
EXA Signal Analyzer	Keysight	N9010B	MRTSUE07147	1 year	2025-04-28	WJ-AC2
Active Loop Antenna	Schwarzbeck	FMZB 1519-60 D	MRTSUE07076	1 year	2024-12-04	WJ-AC2
TRILOG Broad Band Antenna	Schwarzbeck	VULB 9163	MRTSUE07097	1 year	2025-04-24	WJ-AC2
Horn Antenna	EMCI	DRH18-E	MRTSUE07105	1 year	2025-05-12	WJ-AC2
Preamplifier	EMCI	EMC118A45SE	MRTSUE07102	1 year	2025-04-11	WJ-AC2
Preamplifier	EMCI	EMC184045SE	MRTSUE07103	1 year	2025-04-14	WJ-AC2
Thermohygrometer	testo	608-H1	MRTSUE11315	1 year	2025-06-24	WJ-AC2
Anechoic Chamber	TDK	WJ-AC2	MRTSUE07117	1 year	2025-05-14	WJ-AC2

Software	Version	Function
e3	230711	EMI Test Software
CONTROLLER CO3000	v 1.03.02	RE Antenna & Turntable
Agilent Power Panel	V 3.9	Power

5. Decision Rules and Measurement Uncertainty

5.1. Decision Rules

The Decision Rule is based on Simple Acceptance in accordance with ISO Guide 98-4: 2012 Clause 8.2.

(Measurement uncertainty is not taken into account when stating conformity with a specified requirement.)

5.2. Measurement Uncertainty

Where relevant, the following test uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k = 2.

AC Conducted Emission Measurement
The maximum measurement uncertainty is evaluated as: 9kHz~150kHz: 3.58dB 150kHz~30MHz: 3.20dB
Radiated Emission Measurement
The maximum measurement uncertainty is evaluated as: Coaxial: 9kHz~30MHz: 2.61dB Coplanar: 9kHz~30MHz: 2.62dB Horizontal: 30MHz~200MHz: 3.79dB 200MHz~1GHz: 3.91dB 1GHz~40GHz: 4.99dB Vertical: 30MHz~200MHz: 4.06dB 200MHz~1GHz: 5.21dB 1GHz~40GHz: 4.90dB
Spurious Emissions, Conducted
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 2.2dB
Output Power
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 1.4dB
Power Spectrum Density
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 2.2dB
Occupied Bandwidth
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 2.7%

6. Test Result

6.1. Summary

FCC Section(s)	Test Description	Test Condition	Verdict
15.407(a)	26dB Bandwidth	Conducted	Pass
15.407(e)	6dB Bandwidth		Pass
15.407(a)(1)(ii), (2), (3)(i)	Maximum Conducted Output Power		Pass
15.407(h)(1)	Transmit Power Control		Pass
15.407(g)	Frequency Stability		Pass
15.407(a)(1)(ii), (2), (3)(i), (13)	Peak Power Spectral Density		Pass
15.407(h)(2)	Dynamic Frequency Selection (DFS)		Pass Note 3
15.407(b)(1), (2), (3), (4)(i)	Undesirable Emissions	Radiated	Pass
15.205, 15.209 15.407(b)(8), (9), (10)	General Field Strength Limits (Restricted Bands and Radiated Emission Limits)		Pass
15.207	AC Conducted Emissions 150kHz - 30MHz	Line Conducted	Pass

Notes:

1. The analyzer plots shown in this section were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables and attenuators used as part of the system to connect the EUT to the analyzer at all frequencies of interest.
2. For radiated emission test, every axis (X, Y, Z) was also verified. The test results shown in the following sections represent the worst-case emissions.
3. DFS report refer to 2407RSU042-U7.

6.2. 26dB & 99% Bandwidth Measurement

6.2.1. Test Limit

N/A

6.2.2. Test Procedure

KDB 789033 D02v02r01- Section II)C)1) (26dB Bandwidth)

KDB 789033 D02v02r01- Section II)D) (99% Bandwidth)

6.2.3. Test Setting

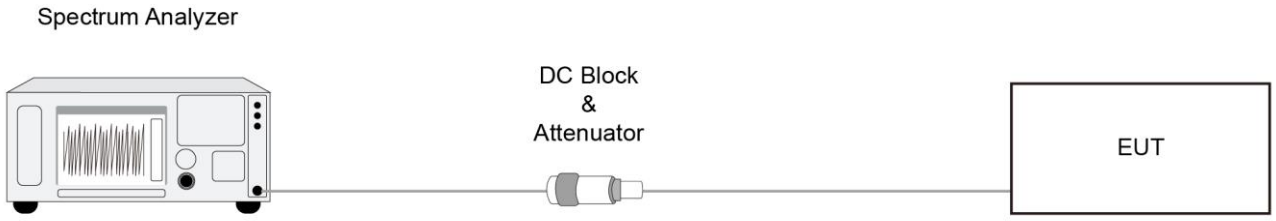
26dB Bandwidth

1. The analyzers' automatic bandwidth measurement capability was used to perform the 26dB bandwidth
2. RBW = approximately 1% of the emission bandwidth.
3. VBW > RBW
4. Detector = Peak.
5. Trace mode = max hold.
6. Measure the maximum width of the emission that is 26 dB down from the maximum of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

99% Bandwidth

1. Set center frequency to the nominal EUT channel center frequency.
2. RBW = 1% to 5% of the OBW
3. VBW ≥ 3 × RBW
4. Span = 1.5 times to 5 times the OBW
5. Detector = peak
6. Trace mode = max hold
7. Allow the trace to stabilize
8. Use the 99% power bandwidth function of the instrument.

6.2.4. Test Setup



6.2.5. Test Result

Refer to Appendix A.2.

6.3. 6dB Bandwidth Measurement

6.3.1. Test Limit

The minimum 6dBbandwidth shall be at least 500 kHz.

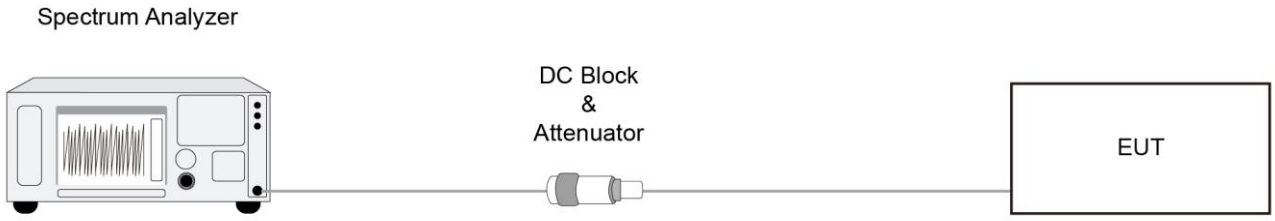
6.3.2. Test Procedure

KDB 789033 D02v02r01- Section II)C)2)

6.3.3. Test Setting

1. Set center frequency to the nominal EUT channel center frequency.
2. RBW = 100 kHz.
3. VBW ≥ 3 × RBW.
4. Detector = Peak.
5. Trace mode = max hold.
6. Sweep = auto couple.
7. Allow the trace to stabilize.
8. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

6.3.4. Test Setup



6.3.5. Test Result

Refer to Appendix A.3.

6.4. Output Power Measurement

6.4.1. Test Limit

For the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi.

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.

For the band 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 6dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

6.4.2. Test Procedure

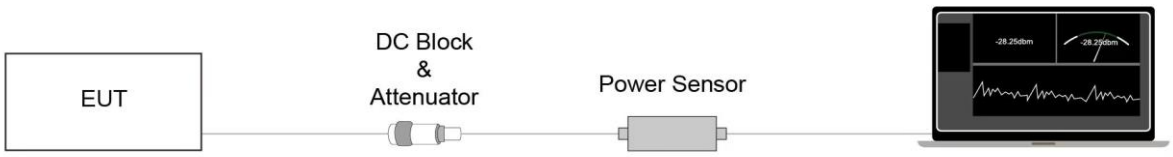
KDB 789033D02v02r01- Section II)E)3)b) Method PM-G

6.4.3. Test Setting

<u>Average Power Measurement</u>

Average power measurements were performed only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The power meter implemented triggering and gating capabilities which were set up such that power measurements were recorded only during the ON time of the transmitter.

6.4.4. Test Setup



6.4.5. Test Result

Refer to Appendix A.4.

6.5. Transmit Power Control Measurement

6.5.1. Test Limit

The U-NII device is required to have the capability to operate at least 6 dB below the mean EIRP value of 30 dBm.

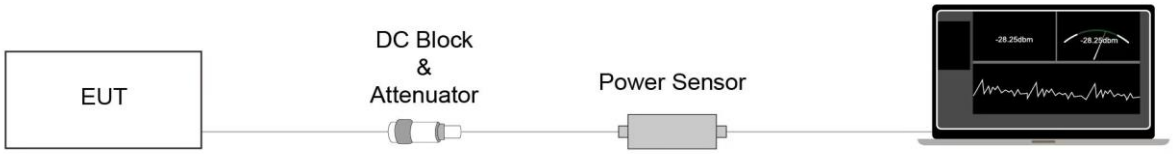
6.5.2. Test Procedure

KDB 789033 D02v02r01- Section II)E)3)b) Method PM-G

6.5.3. Test Setting

Average power measurements were performed only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The power meter implemented triggering and gating capabilities which were set up such that power measurements were recorded only during the ON time of the transmitter. The trace was averaged over 100 traces to obtain the final measured average power.

6.5.4. Test Setup



6.5.5. Test Result

Device supports TPC mechanism, details refer to the operational description.

6.6. Power Spectral Density Measurement

6.6.1. Test Limit

For the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band.

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band.

For the band 5.725-5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band.

If transmitting antennas of directional gain greater than 6dBi are used, the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

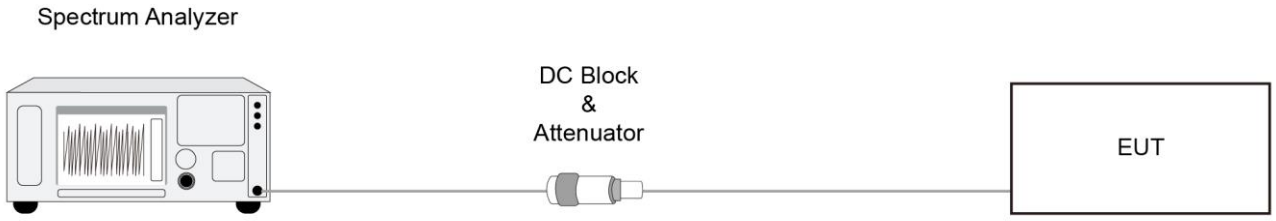
6.6.2. Test Procedure

KDB 789033 D02v02r01-Section II)F)

6.6.3. Test Setting

1. Analyzer was set to the center frequency of the UNII channel under investigation
2. Span was set to encompass the entire 26dB EBW of the signal.
3. RBW = 1MHz (510kHz, if measurement bandwidth of Maximum PSD is specified in 500 kHz)
4. VBW = 3 × RBW
5. Number of sweep points ≥ 2 × (span / RBW)
6. Detector = power averaging (Average)
7. Sweep time = auto
8. Trigger = free run
9. Trace average at least 100 traces in power averaging (rms) mode; however, the number of traces to be averaged shall be increased above 100 as needed to ensure that the average accurately represents the true average over the on and off periods of the transmitter.
10. Use the peak search function on the instrument to find the peak of the spectrum and record its value.
11. Add 10*log(1/x), where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times (because the measurement represents an average over both the on and off times of the transmission). For example, add 10*log(1/0.25) = 6 dB if the duty cycle is 25 percent.

6.6.4. Test Setup



6.6.5. Test Result

Refer to Appendix A.5.

6.7. Frequency Stability Measurement

6.7.1. Test Limit

Manufactures 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.

6.7.2. Test Procedure

Frequency Stability Under Temperature Variations:

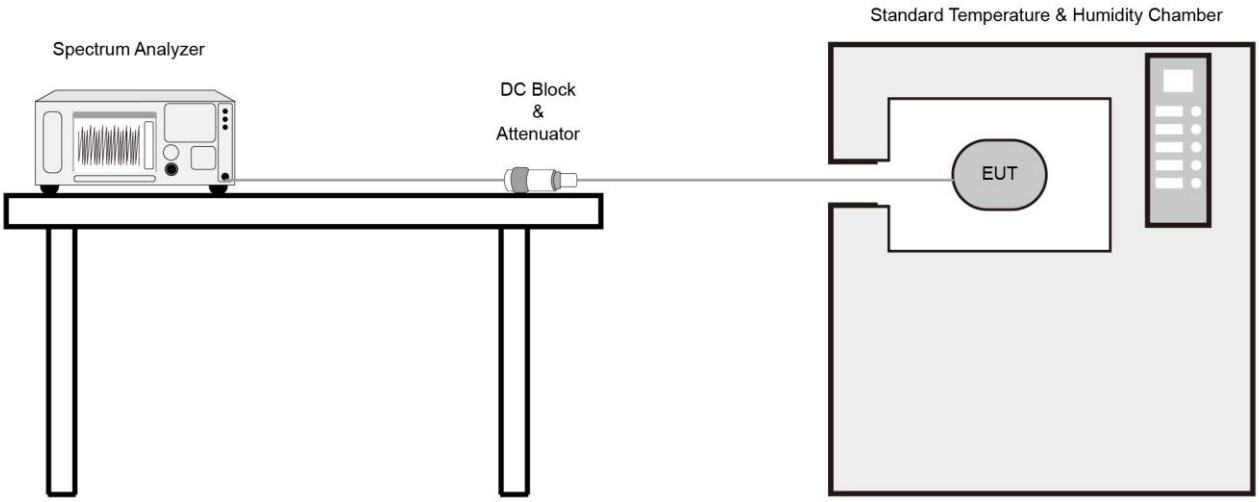
The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 20°C operating frequency as reference frequency. Turn EUT off and set the chamber temperature to highest. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10°C decreased per stage until the lowest temperature reached.

Frequency Stability Under Voltage Variations:

Set chamber temperature to 20°C. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.

Reduce the input voltage to specify extreme voltage variation (±15%) and endpoint, recordthe maximum frequency change.

6.7.3. Test Setup



6.7.4. Test Result

Refer to Appendix A.6.

6.8. Radiated Spurious Emission Measurement

6.8.1. Test Limit

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR must not exceed the limits shown in Table per Section 15.209.

FCC Part 15 Subpart C Paragraph 15.209		
Frequency [MHz]	Field Strength [μV/m]	Measured Distance [Meters]
0.009 - 0.490	2400/F (kHz)	300
0.490 - 1.705	24000/F (kHz)	30
1.705 - 30	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

6.8.2. Test Procedure

KDB 789033 D02v02r01- Section II)G)

6.8.3. Test Setting

Table 1 - RBW as a function of frequency

Frequency	RBW
9 ~ 150 kHz	200 ~ 300 Hz
0.15 ~ 30 MHz	9 ~ 10 kHz
30 ~ 1000 MHz	100 ~ 120 kHz
> 1000MHz	1MHz

Quasi-Peak Measurements below 1GHz

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. Span was set greater than 1MHz
3. RBW = as specified in Table 1
4. Detector = CISPR quasi-peak
5. Sweep time = auto couple
6. Trace was allowed to stabilize

Peak Measurements above 1GHz

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = Peak
5. Sweep time = Auto couple
6. Trace mode = Max hold
7. Trace was allowed to stabilize

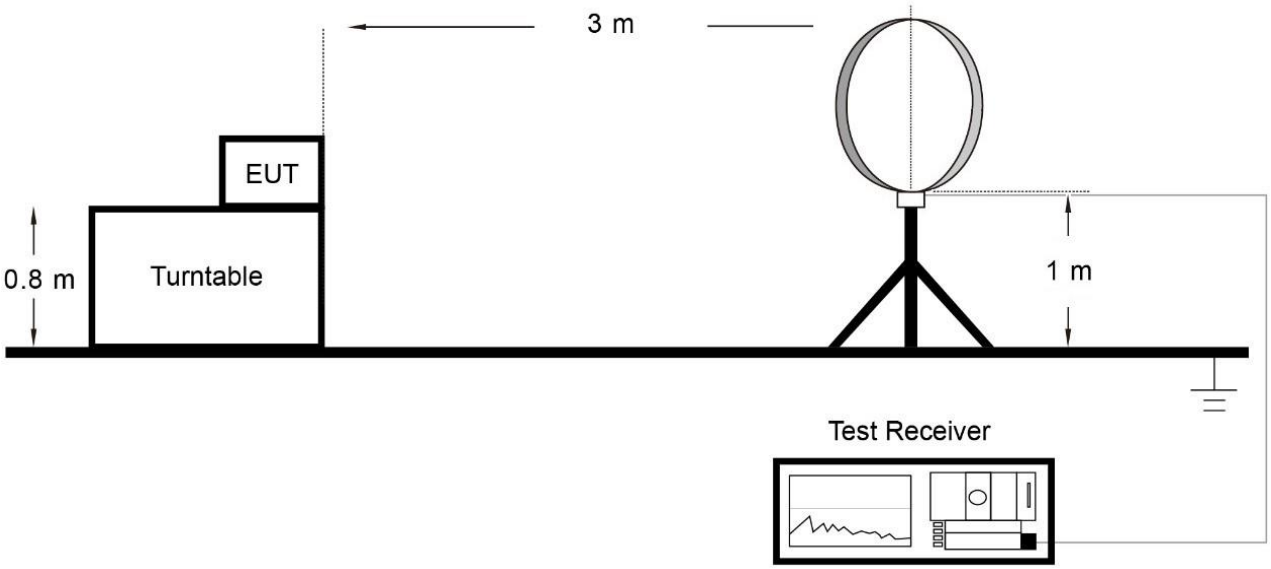
Average Measurements above 1GHz (Method VB)

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW; if the EUT is configured to transmit with duty cycle ≥ 98%, set VBW = 10Hz

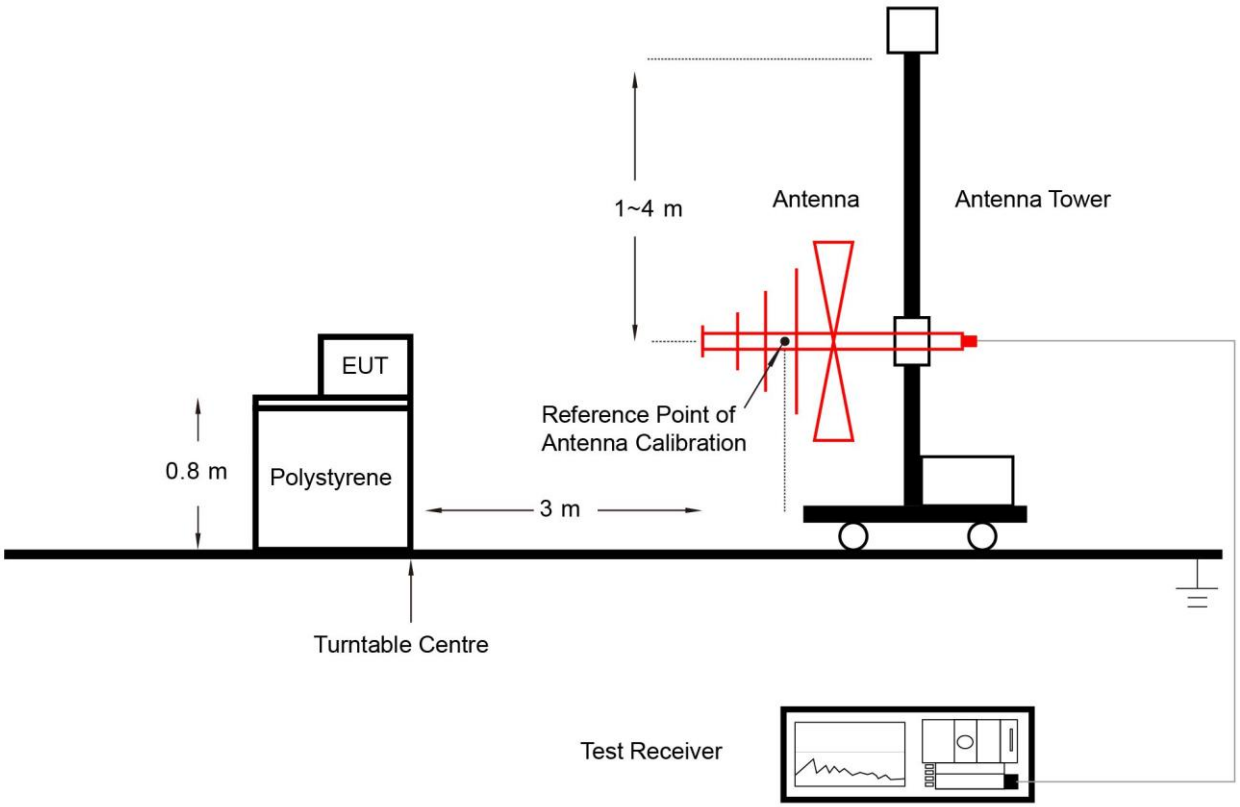
   If the EUT duty cycle is < 98%, set VBW ≥ 1/T. T is the minimum transmission duration.
4. As an alternative, the instrument may be set to linear detector mode. Ensure that video filtering is applied in linear voltage domain (rather than in a log or dB domain). Some instruments require linear display mode in order to accomplish this. Others have a setting for Average-VBW Type, which can be set to "Voltage" regardless of the display mode
5. Detector = Peak
6. Sweep time = Auto
7. Trace mode = Max hold
8. Trace was allowed to stabilize

6.8.4. Test Setup

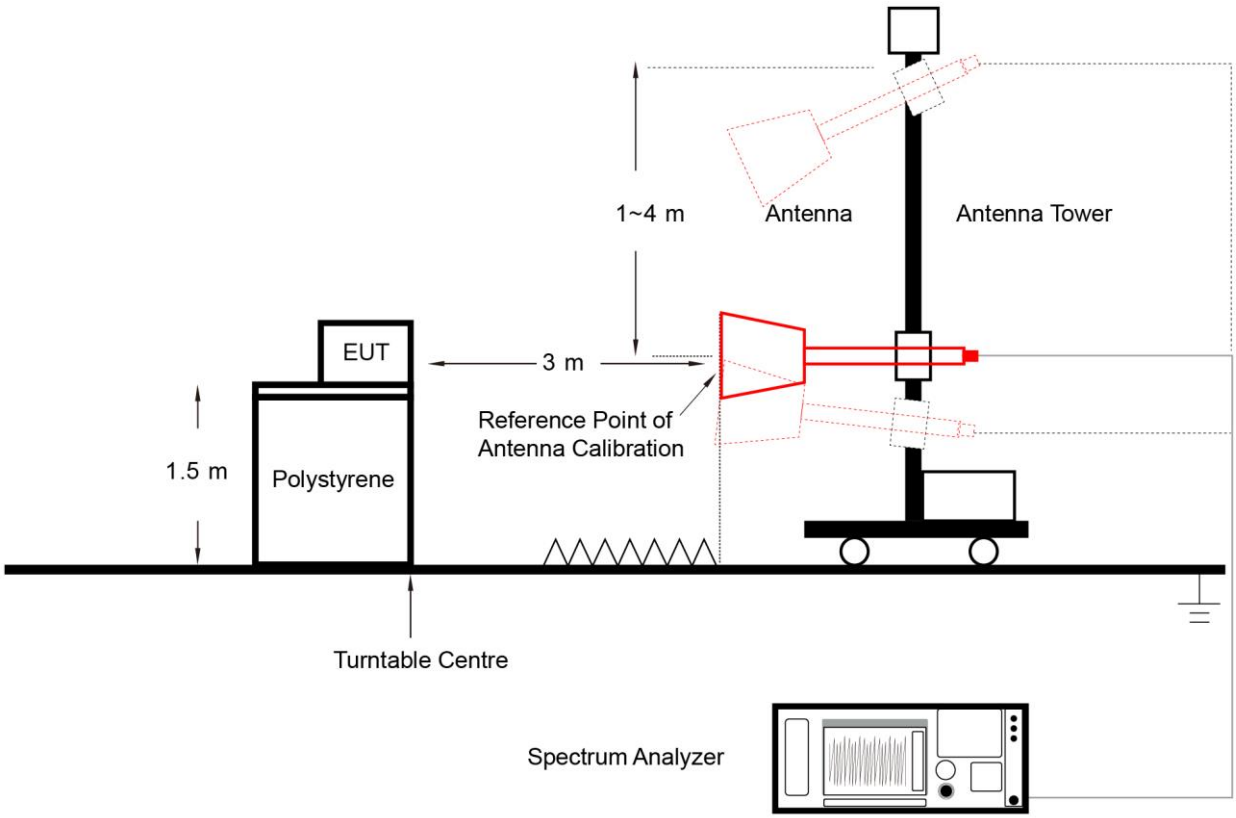
Below 30MHz Test Setup:



Below 1GHz Test Setup:



Above 1GHz Test Setup:



6.8.5. Test Result

Refer to Appendix A.7.

6.9. Radiated Restricted Band Edge Measurement

6.9.1. Test Limit

For 15.205 requirement:

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a) of FCC part 15, must also comply with the radiated emission limits specified in Section 15.209(a).

Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (GHz)
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1] 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	([2])
13.36 - 13.41	--	--	--

For 15.407(b) requirement:

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.

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.

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.

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 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.

Refer to KDB 789033 D02v02r01 G)2)c), as specified in § 15.407(b), emissions above 1000 MHz that are outside of the restricted bands are subject to a maximum emission limit of -27 dBm/MHz (or -17 dBm/MHz as specified in § 15.407(b)(4)). However, an out-of-band emission that complies with both the peak and average limits of § 15.209 is not required to satisfy the -27 dBm/MHz or -17 dBm/MHz maximum emission limit.

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47CFR must not exceed the limits shown in Table per Section 15.209.

FCC Part 15 Subpart C Paragraph 15.209		
Frequency [MHz]	Field Strength [μV/m]	Measured Distance [Meters]
0.009 - 0.490	2400/F (kHz)	300
0.490 - 1.705	24000/F (kHz)	30
1.705 - 30	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

6.9.2. Test Procedure

KDB 789033 D02v02r01- Section II)G)

6.9.3. Test Setting

Peak Field Strength Measurements

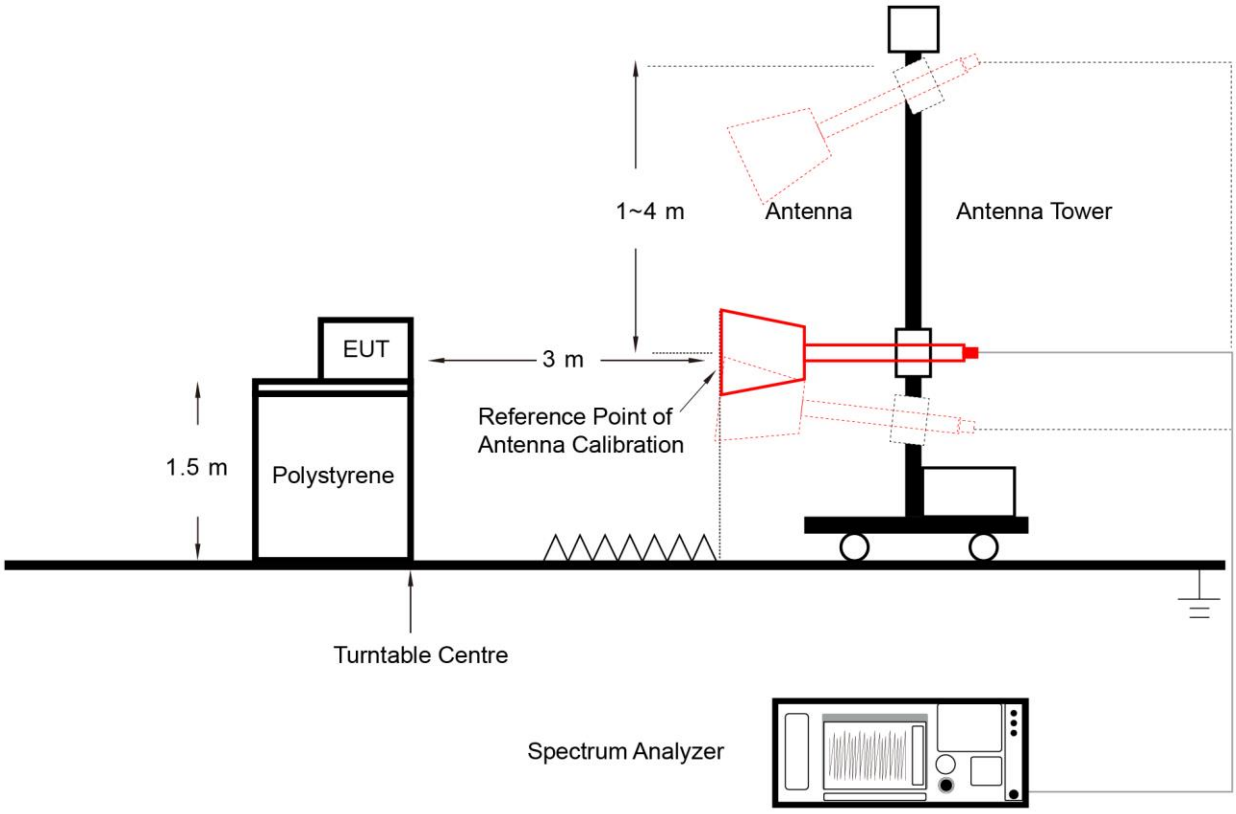
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

Average Field Strength Measurements

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW; If the EUT is configured to transmit with duty cycle ≥ 98%, set VBW = 10 Hz.

   If the EUT duty cycle is < 98%, set VBW ≥ 1/T. T is the minimum transmission duration.
4. As an alternative, the instrument may be set to linear detector mode. Ensure that video filtering is applied in linear voltage domain (rather than in a log or dB domain). Some instruments require linear display mode in order to accomplish this. Others have a setting for Average-VBW Type, which can be set to “Voltage” regardless of the display mode
5. Detector = Peak
6. Sweep time = auto
7. Trace mode = max hold
8. Allow max hold to run for at least 50 times (1/duty cycle) traces

6.9.4. Test Setup



6.9.5. Test Result

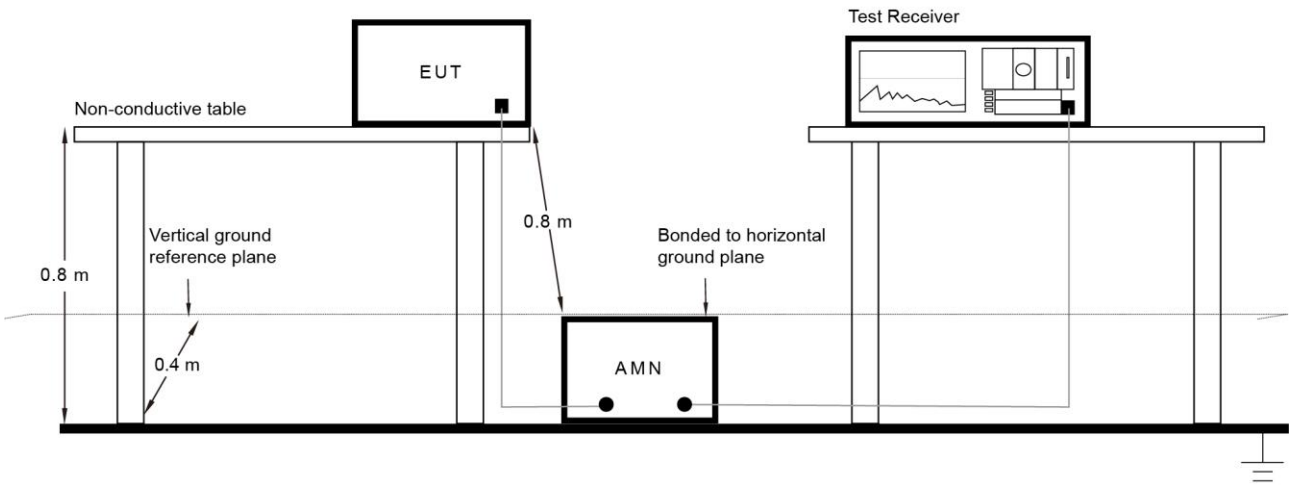
Refer to Appendix A.8.

6.10. AC Conducted Emissions Measurement

6.10.1. Test Limit

FCC Part 15.207 Limits		
Frequency (MHz)	QP (dBμV)	AV (dBμV)
0.15 - 0.50	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30	60	50
Note 1: The lower limit shall apply at the transition frequencies. Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz.		

6.10.2. Test Setup



6.10.3. Test Result

Refer to Appendix A.9.

Appendix A – Test Result

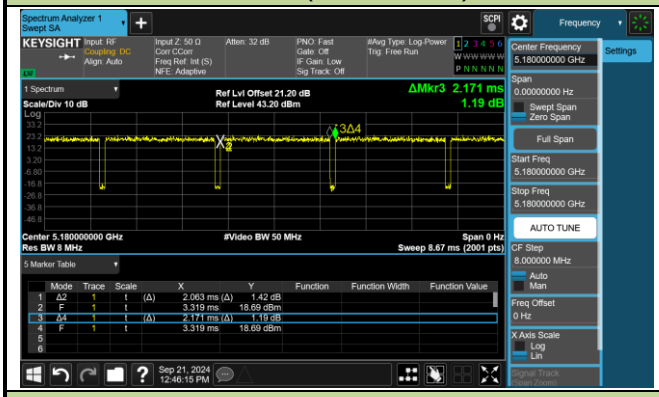
A.1 Duty Cycle Test Result

Test Site	WJ-SR3	Test Engineer	Simon Lu
Test Date	2024-09-21 ~ 2024-11-04		

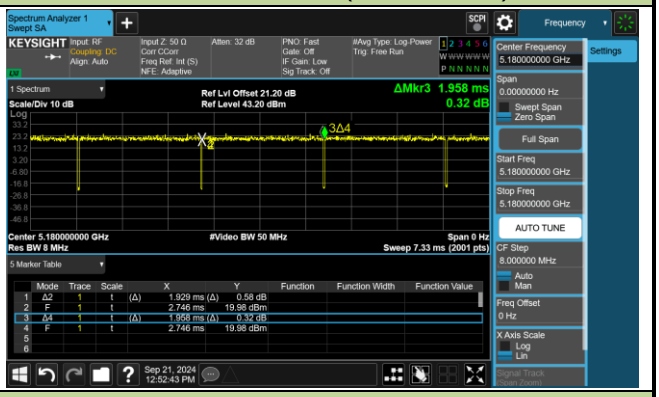
Test Mode	Duty Cycle
802.11a	95.03%
802.11ac-VHT20	98.52%
802.11ac-VHT40	96.95%
802.11ac-VHT80	93.89%
802.11ac-VHT160	88.87%
802.11ax-HE20	97.77%
802.11ax-HE40	96.09%
802.11ax-HE80	92.50%
802.11ax-HE160	88.48%

Duty Cycle (T = Transmission Duration)

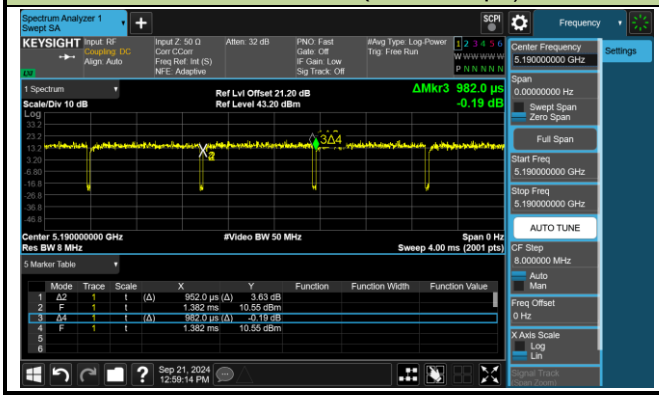
802.11a (T = 2.063ms)



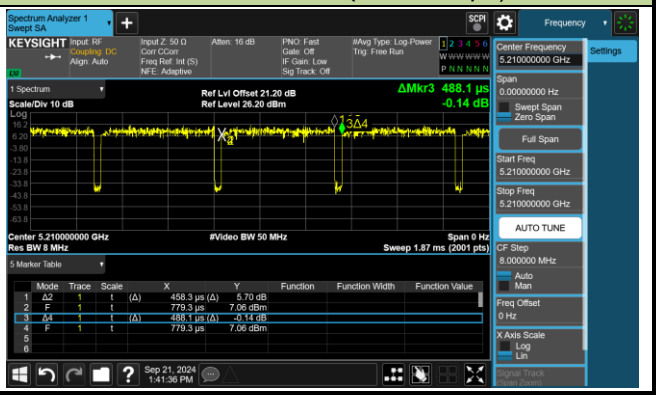
802.11ac-VHT20 (T = 1.929ms)



802.11ac-VHT40 (T = 952.0μs)

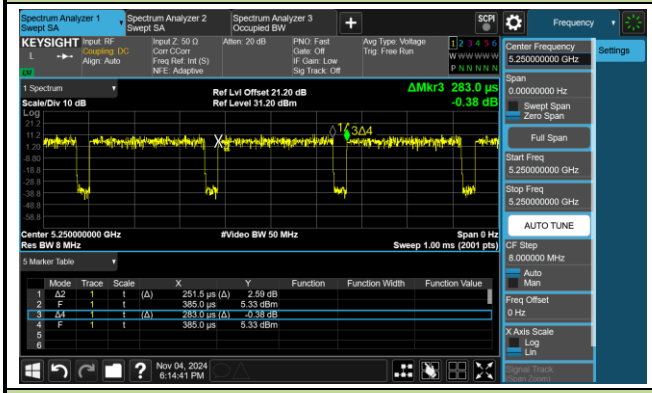


802.11ac-VHT80 (T = 458.3μs)

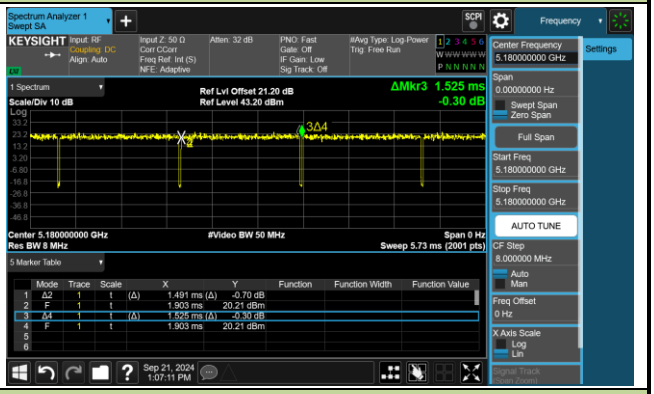


Duty Cycle (T = Transmission Duration)

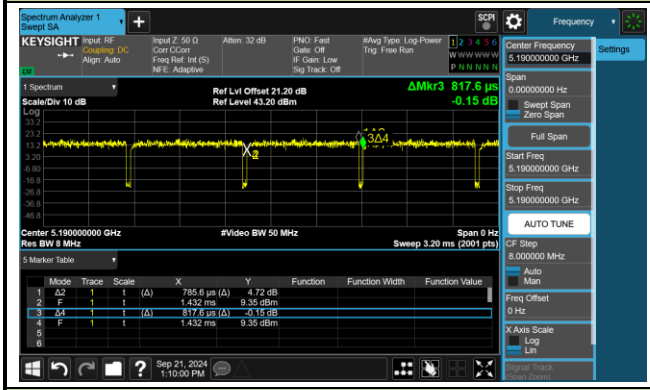
802.11ac-VHT160 (T = 251.5μs)



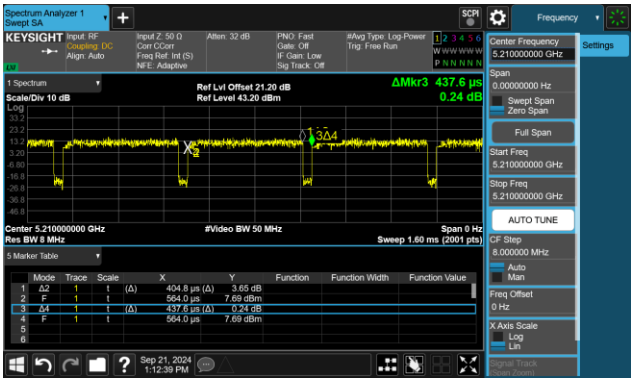
802.11ax-HE20 (T = 1.491ms)



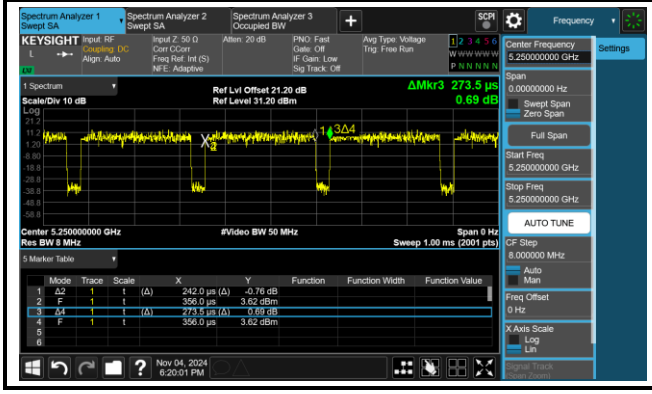
802.11ax-HE40 (T = 785.6μs)



802.11ax-HE80 (T = 404.8μs)



802.11ax-HE160 (T = 242.0μs)



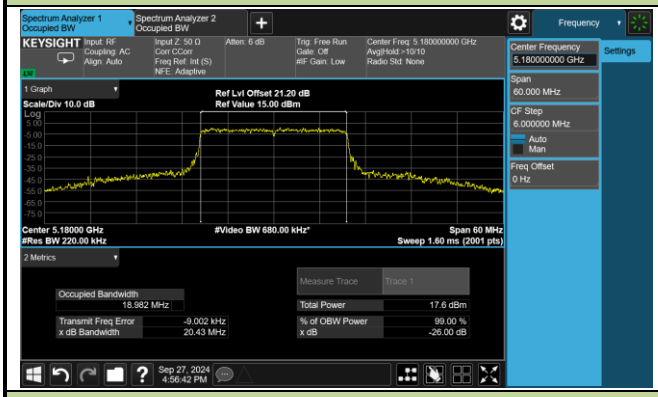
A.2 26dB Bandwidth Test Result

Product	ACCESS POINT	Test Engineer	Simon Lu
Test Site	WJ-SR3	Test Date	2024-09-27 ~ 2024-11-06

Test Mode	Data Rate/ MCS	Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
802.11ax-HE20	MCS0	36	5180	20.43	18.982
802.11ax-HE40	MCS0	54	5270	39.61	37.532
802.11ax-HE80	MCS0	138	5690	80.58	76.929
802.11ax-HE160	MCS0	114	5570	164.2	155.16

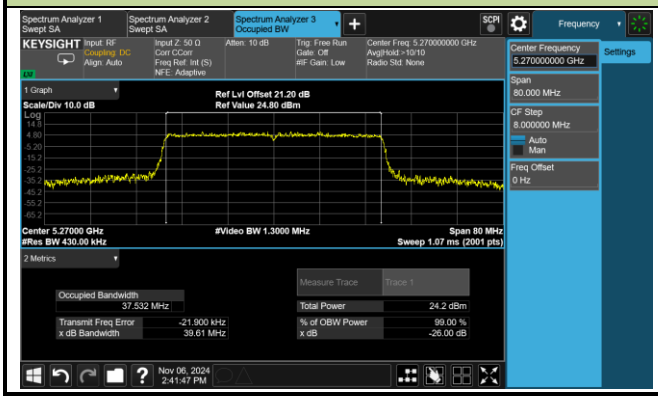
802.11ax-HE20 26dB Bandwidth & 99% Bandwidth

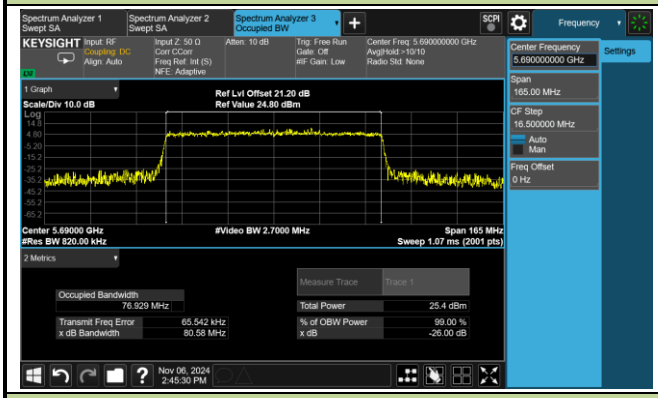
Channel 36 (5180MHz)

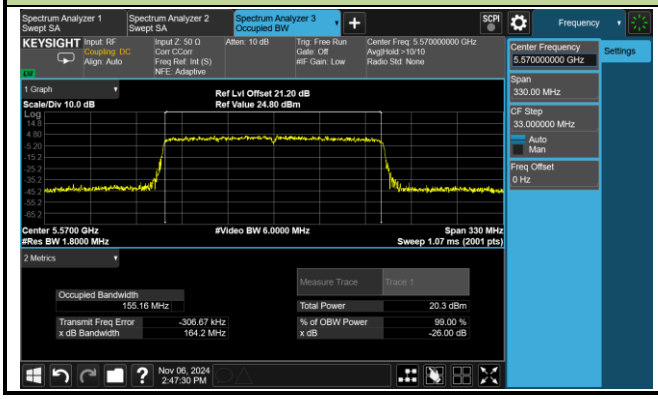


802.11ax-HE40 26dB Bandwidth & 99% Bandwidth

Channel 54 (5270MHz)



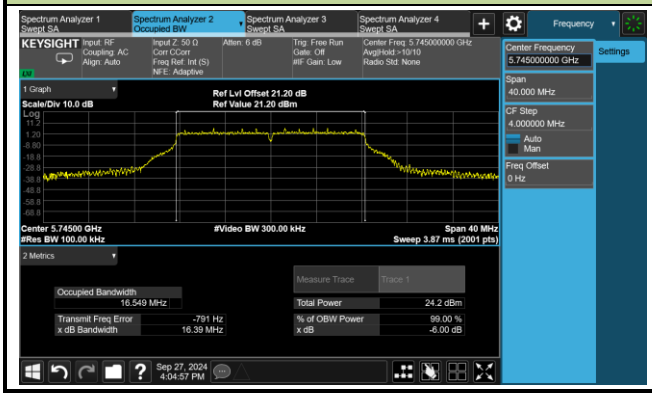
802.11ax-HE80 26dB Bandwidth & 99% Bandwidth	
Channel 138 (5690MHz)	
	

802.11ax-HE160 26dB Bandwidth & 99% Bandwidth	
Channel 114 (5570MHz)	
	

A.3 6dB Bandwidth Test Result

Product	ACCESS POINT	Test Engineer	Simon Lu
Test Site	WJ-SR3	Test Date	2024-09-27

Test Mode	Data Rate/ MCS	Channel No.	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (MHz)	Result
802.11a	6Mbps	149	5745	16.39	≥ 0.5	Pass

802.11a 6dB Bandwidth	
Channel 149 (5745MHz)	
	

A.4 Output Power Test Result

Test Site	WJ-SR3	Test Engineer	Simon Lu
Test Date	2024-09-20 ~ 2024-11-04	Test Mode	CDD Mode

Test Mode	Data Rate MCS	Channel No.	Freq. (MHz)	Average Power (dBm)				Total Average Power (dBm)	Power Limit (dBm)
				Ant 0	Ant 1	Ant 2	Ant 3		
11a	6Mbps	36	5180	16.51	16.89	16.14	16.18	22.46	≤ 30.00
11a	6Mbps	44	5220	17.57	18.14	17.24	17.77	23.71	≤ 30.00
11a	6Mbps	48	5240	17.42	18.17	17.22	17.74	23.67	≤ 30.00
11a	6Mbps	52	5260	12.84	13.27	13.31	12.94	19.12	≤ 23.98
11a	6Mbps	60	5300	12.81	13.49	13.61	12.83	19.22	≤ 23.98
11a	6Mbps	64	5320	12.84	13.61	13.52	13.02	19.28	≤ 23.98
11a	6Mbps	100	5500	13.11	13.49	13.32	12.56	19.15	≤ 23.98
11a	6Mbps	116	5580	12.67	13.26	13.17	12.42	18.91	≤ 23.98
11a	6Mbps	120	5600	12.63	13.56	13.05	12.19	18.91	≤ 23.98
11a	6Mbps	140	5700	13.42	13.89	13.98	13.24	19.66	≤ 23.98
11a	6Mbps	144	5720	13.27	13.82	14.03	13.15	19.60	≤ 22.95
11a	6Mbps	149	5745	17.70	18.09	17.61	17.32	23.71	≤ 30.00
11a	6Mbps	157	5785	17.72	18.07	17.68	17.40	23.74	≤ 30.00
11a	6Mbps	165	5825	17.68	18.02	17.74	17.35	23.72	≤ 30.00
11ac-VHT20	MCS0	36	5180	17.85	18.03	17.39	17.72	23.77	≤ 30.00
11ac-VHT20	MCS0	44	5220	17.74	18.39	17.28	17.86	23.86	≤ 30.00
11ac-VHT20	MCS0	48	5240	17.80	18.34	17.37	17.78	23.86	≤ 30.00
11ac-VHT20	MCS0	52	5260	13.59	14.03	14.01	13.63	19.84	≤ 23.98
11ac-VHT20	MCS0	60	5300	13.18	13.91	13.82	13.38	19.60	≤ 23.98
11ac-VHT20	MCS0	64	5320	13.23	13.95	13.85	13.07	19.56	≤ 23.98
11ac-VHT20	MCS0	100	5500	13.46	13.86	13.62	12.94	19.50	≤ 23.98
11ac-VHT20	MCS0	116	5580	13.17	13.66	13.41	12.85	19.30	≤ 23.98
11ac-VHT20	MCS0	120	5600	13.09	13.97	13.58	12.62	19.37	≤ 23.98
11ac-VHT20	MCS0	140	5700	13.53	14.04	14.16	13.29	19.79	≤ 23.98
11ac-VHT20	MCS0	144	5720	13.69	14.17	14.35	13.59	19.98	≤ 22.95
11ac-VHT20	MCS0	149	5745	17.58	18.05	17.63	17.22	23.65	≤ 30.00
11ac-VHT20	MCS0	157	5785	17.57	17.95	17.66	17.24	23.63	≤ 30.00
11ac-VHT20	MCS0	165	5825	17.65	17.82	17.47	17.28	23.58	≤ 30.00

Test Mode	Data Rate MCS	Channel No.	Freq. (MHz)	Average Power (dBm)				Total Average Power (dBm)	Power Limit (dBm)
				Ant 0	Ant 1	Ant 2	Ant 3		
11ac-VHT40	MCS0	38	5190	15.62	16.12	15.64	15.24	21.69	≤ 30.00
11ac-VHT40	MCS0	46	5230	17.44	18.19	17.62	17.75	23.78	≤ 30.00
11ac-VHT40	MCS0	54	5270	15.84	16.25	16.89	15.64	22.20	≤ 23.98
11ac-VHT40	MCS0	62	5310	16.04	16.53	17.13	15.86	22.44	≤ 23.98
11ac-VHT40	MCS0	102	5510	15.94	16.41	16.05	15.53	22.01	≤ 23.98
11ac-VHT40	MCS0	110	5550	16.23	16.52	16.18	15.40	22.12	≤ 23.98
11ac-VHT40	MCS0	118	5590	16.32	16.51	16.46	15.69	22.28	≤ 23.98
11ac-VHT40	MCS0	134	5670	16.20	16.86	16.83	16.04	22.52	≤ 23.98
11ac-VHT40	MCS0	142	5710	16.07	16.65	16.61	16.08	22.38	≤ 23.98
11ac-VHT40	MCS0	151	5755	17.56	17.76	17.82	17.57	23.70	≤ 30.00
11ac-VHT40	MCS0	159	5795	17.43	17.69	17.86	17.54	23.65	≤ 30.00
11ac-VHT80	MCS0	42	5210	15.12	15.42	15.05	14.82	21.13	≤ 30.00
11ac-VHT80	MCS0	58	5290	15.35	15.38	15.42	14.78	21.26	≤ 23.98
11ac-VHT80	MCS0	106	5530	12.51	12.96	12.93	12.31	18.71	≤ 23.98
11ac-VHT80	MCS0	122	5610	15.97	16.47	16.84	15.82	22.31	≤ 23.98
11ac-VHT80	MCS0	138	5690	15.84	16.37	16.59	15.94	22.22	≤ 23.98
11ac-VHT80	MCS0	155	5775	17.79	17.55	17.37	17.23	23.51	≤ 30.00
11ac-VHT160	MCS0	50	5250	11.39	11.55	11.74	11.11	17.47	≤ 23.98
11ac-VHT160	MCS0	114	5570	11.28	11.83	11.93	11.39	17.64	≤ 23.98
11ax-HE20	MCS0	36	5180	17.72	18.26	17.47	17.81	23.85	≤ 30.00
11ax-HE20	MCS0	44	5220	17.78	18.37	17.28	17.71	23.82	≤ 30.00
11ax-HE20	MCS0	48	5240	17.89	18.47	17.56	17.90	23.99	≤ 30.00
11ax-HE20	MCS0	52	5260	13.43	13.98	14.05	13.68	19.81	≤ 23.98
11ax-HE20	MCS0	60	5300	13.58	14.22	14.07	13.79	19.94	≤ 23.98
11ax-HE20	MCS0	64	5320	13.44	14.15	14.16	13.82	19.92	≤ 23.98
11ax-HE20	MCS0	100	5500	13.68	14.02	13.89	13.56	19.81	≤ 23.98
11ax-HE20	MCS0	116	5580	13.39	13.93	13.76	13.18	19.60	≤ 23.98
11ax-HE20	MCS0	120	5600	13.32	14.09	13.96	12.87	19.61	≤ 23.98
11ax-HE20	MCS0	140	5700	13.97	14.55	14.62	13.94	20.30	≤ 23.98
11ax-HE20	MCS0	144	5720	13.81	14.04	14.55	13.77	20.07	≤ 22.94
11ax-HE20	MCS0	149	5745	17.64	17.96	17.36	17.19	23.57	≤ 30.00
11ax-HE20	MCS0	157	5785	17.67	17.82	17.55	17.26	23.60	≤ 30.00
11ax-HE20	MCS0	165	5825	17.54	17.73	17.45	17.01	23.46	≤ 30.00

Test Mode	Data Rate MCS	Channel No.	Freq. (MHz)	Average Power (dBm)				Total Average Power (dBm)	Power Limit (dBm)
				Ant 0	Ant 1	Ant 2	Ant 3		
11ax-HE40	MCS0	38	5190	15.02	15.51	15.20	14.76	21.15	≤ 30.00
11ax-HE40	MCS0	46	5230	17.85	18.18	18.01	17.84	23.99	≤ 30.00
11ax-HE40	MCS0	54	5270	16.11	16.42	16.93	15.97	22.39	≤ 23.98
11ax-HE40	MCS0	62	5310	14.55	15.03	15.57	14.33	20.92	≤ 23.98
11ax-HE40	MCS0	102	5510	14.14	14.56	14.23	13.67	20.18	≤ 23.98
11ax-HE40	MCS0	110	5550	15.67	15.95	15.91	15.18	21.71	≤ 23.98
11ax-HE40	MCS0	118	5590	15.92	16.15	16.19	15.39	21.94	≤ 23.98
11ax-HE40	MCS0	134	5670	16.38	16.91	16.98	16.12	22.63	≤ 23.98
11ax-HE40	MCS0	142	5710	16.31	16.83	16.89	16.03	22.55	≤ 23.98
11ax-HE40	MCS0	151	5755	17.72	17.78	17.81	17.45	23.71	≤ 30.00
11ax-HE40	MCS0	159	5795	17.64	17.59	17.64	17.18	23.54	≤ 30.00
11ax-HE80	MCS0	42	5210	16.13	16.54	16.28	16.35	22.35	≤ 30.00
11ax-HE80	MCS0	58	5290	15.47	15.41	15.52	14.54	21.27	≤ 23.98
11ax-HE80	MCS0	106	5530	14.25	14.65	14.67	14.03	20.43	≤ 23.98
11ax-HE80	MCS0	122	5610	16.11	16.49	16.53	15.59	22.22	≤ 23.98
11ax-HE80	MCS0	138	5690	16.93	17.45	17.82	16.92	23.32	≤ 23.98
11ax-HE80	MCS0	155	5775	17.21	17.23	16.92	16.57	23.01	≤ 30.00
11ax-HE160	MCS0	50	5250	11.99	11.96	12.21	11.55	17.95	≤ 23.98
11ax-HE160	MCS0	114	5570	11.69	12.07	12.16	11.48	17.88	≤ 23.98

Note 1: Total Average Power (dBm) = $10*\log\{10^{(\text{Ant 0 Average Power }/10)} + 10^{(\text{Ant 1 Average Power }/10)} + 10^{(\text{Ant 2 Average Power }/10)} + 10^{(\text{Ant 3 Average Power }/10)}\}$.

Note 2: For Band-Crossing channel, Average Power Limit = 23.98dBm or $11+10*\log_{10}EBW_{2C}$ which is less.

A.5 Power Spectral Density Test Result

Test Site	WJ-SR3	Test Engineer	Simon Lu
Test Date	2024-09-21 ~ 2024-11-06		
Test Item	Power Spectral Density (UNII-Band 1 & UNII-2a & UNII-2c)		

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	AVPSD (dBm/ MHz)				Duty Cycle (%)	Total PSD (dBm/ MHz)	PSD Limit (dBm/ MHz)
				Ant 0	Ant 1	Ant 2	Ant 3			
11a	6Mbps	36	5180	4.580	4.850	4.109	4.530	95.03	10.767	≤ 14.98
11a	6Mbps	44	5220	5.260	5.930	5.020	5.460	95.03	11.673	≤ 14.98
11a	6Mbps	48	5240	5.400	6.120	5.070	5.600	95.03	11.806	≤ 14.98
11a	6Mbps	52	5260	0.835	1.343	1.173	0.654	95.03	7.252	≤ 8.98
11a	6Mbps	60	5300	0.758	1.483	1.424	1.072	95.03	7.436	≤ 8.98
11a	6Mbps	64	5320	0.602	1.340	1.478	0.925	95.03	7.342	≤ 8.98
11a	6Mbps	100	5500	1.155	1.422	1.420	1.036	95.03	7.503	≤ 8.98
11a	6Mbps	116	5580	1.014	1.387	1.286	0.632	95.03	7.331	≤ 8.98
11a	6Mbps	120	5600	0.782	1.676	1.381	0.438	95.03	7.338	≤ 8.98
11a	6Mbps	140	5700	1.452	2.101	2.042	1.385	95.03	7.999	≤ 8.98
11a	6Mbps	144	5720	1.307	1.785	1.999	1.491	95.03	7.896	≤ 8.98
11ac-VHT20	MCS0	36	5180	5.560	5.924	5.330	5.390	98.52	11.643	≤ 14.98
11ac-VHT20	MCS0	44	5220	5.550	6.190	5.120	5.570	98.52	11.710	≤ 14.98
11ac-VHT20	MCS0	48	5240	5.790	6.340	5.300	5.600	98.52	11.860	≤ 14.98
11ac-VHT20	MCS0	52	5260	1.426	1.850	1.848	1.595	98.52	7.769	≤ 8.98
11ac-VHT20	MCS0	60	5300	0.959	1.628	1.740	1.295	98.52	7.501	≤ 8.98
11ac-VHT20	MCS0	64	5320	0.995	1.649	1.646	0.996	98.52	7.419	≤ 8.98
11ac-VHT20	MCS0	100	5500	1.368	1.802	1.491	1.217	98.52	7.560	≤ 8.98
11ac-VHT20	MCS0	116	5580	1.283	1.691	1.434	1.135	98.52	7.476	≤ 8.98
11ac-VHT20	MCS0	120	5600	1.163	1.844	1.609	0.701	98.52	7.436	≤ 8.98
11ac-VHT20	MCS0	140	5700	1.495	2.032	2.161	1.301	98.52	7.847	≤ 8.98
11ac-VHT20	MCS0	144	5720	1.622	2.176	2.313	1.520	98.52	8.007	≤ 8.98

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	AVPSD (dBm/ MHz)				Duty Cycle (%)	Total PSD (dBm/ MHz)	PSD Limit (dBm/ MHz)
				Ant 0	Ant 1	Ant 2	Ant 3			
11ac-VHT40	MCS0	38	5190	0.657	1.295	0.793	0.345	96.95	6.941	≤ 14.98
11ac-VHT40	MCS0	46	5230	2.400	3.000	2.616	2.462	96.95	8.781	≤ 14.98
11ac-VHT40	MCS0	54	5270	1.030	1.303	2.046	0.572	96.95	7.426	≤ 8.98
11ac-VHT40	MCS0	62	5310	1.043	1.492	2.115	0.659	96.95	7.517	≤ 8.98
11ac-VHT40	MCS0	102	5510	0.690	1.172	1.027	0.550	96.95	7.022	≤ 8.98
11ac-VHT40	MCS0	110	5550	1.110	1.413	1.169	0.745	96.95	7.271	≤ 8.98
11ac-VHT40	MCS0	118	5590	1.574	1.812	1.592	0.873	96.95	7.632	≤ 8.98
11ac-VHT40	MCS0	134	5670	1.796	2.431	2.335	1.693	96.95	8.231	≤ 8.98
11ac-VHT40	MCS0	142	5710	1.969	2.497	2.387	1.893	96.95	8.349	≤ 8.98
11ac-VHT80	MCS0	42	5210	-2.745	-2.160	-2.460	-2.965	93.89	3.722	≤ 14.98
11ac-VHT80	MCS0	58	5290	-2.304	-2.530	-2.153	-3.019	93.89	3.805	≤ 8.98
11ac-VHT80	MCS0	106	5530	-5.518	-5.045	-5.108	-5.431	93.89	1.024	≤ 8.98
11ac-VHT80	MCS0	122	5610	-1.682	-0.930	-0.856	-1.788	93.89	5.001	≤ 8.98
11ac-VHT80	MCS0	138	5690	-1.169	-0.886	-0.389	-1.207	93.89	5.394	≤ 8.98
11ac-VHT160	MCS0	50	5250	-9.510	-9.040	-8.629	-9.607	88.87	-2.646	≤ 8.98
11ac-VHT160	MCS0	114	5570	-9.375	-8.621	-8.714	-9.193	88.87	-2.431	≤ 8.98
11ax-HE20	MCS0	36	5180	5.320	5.940	5.010	5.220	97.77	11.505	≤ 14.98
11ax-HE20	MCS0	44	5220	5.140	5.960	4.940	5.390	97.77	11.493	≤ 14.98
11ax-HE20	MCS0	48	5240	5.240	6.040	4.980	5.250	97.77	11.515	≤ 14.98
11ax-HE20	MCS0	52	5260	1.056	1.533	1.741	1.345	97.77	7.545	≤ 8.98
11ax-HE20	MCS0	60	5300	0.922	1.620	1.612	1.195	97.77	7.466	≤ 8.98
11ax-HE20	MCS0	64	5320	0.947	1.486	1.671	1.271	97.77	7.471	≤ 8.98
11ax-HE20	MCS0	100	5500	1.381	1.674	1.522	1.397	97.77	7.614	≤ 8.98
11ax-HE20	MCS0	116	5580	1.303	1.712	1.500	1.159	97.77	7.542	≤ 8.98
11ax-HE20	MCS0	120	5600	1.244	2.015	1.577	0.587	97.77	7.505	≤ 8.98
11ax-HE20	MCS0	140	5700	1.798	2.180	2.523	1.790	97.77	8.202	≤ 8.98
11ax-HE20	MCS0	144	5720	1.510	2.082	2.144	1.378	97.77	7.910	≤ 8.98

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	AVPSD (dBm/ MHz)				Duty Cycle (%)	Total PSD (dBm/ MHz)	PSD Limit (dBm/ MHz)
				Ant 0	Ant 1	Ant 2	Ant 3			
11ax-HE40	MCS0	38	5190	-0.204	0.327	-0.029	-0.500	96.09	6.103	≤ 14.98
11ax-HE40	MCS0	46	5230	2.278	3.235	2.684	2.518	96.09	8.887	≤ 14.98
11ax-HE40	MCS0	54	5270	1.149	1.660	2.115	1.123	96.09	7.725	≤ 8.98
11ax-HE40	MCS0	62	5310	-0.495	-0.016	0.673	-0.741	96.09	6.083	≤ 8.98
11ax-HE40	MCS0	102	5510	-0.961	-0.821	-0.919	-1.200	96.09	5.221	≤ 8.98
11ax-HE40	MCS0	110	5550	0.600	1.183	1.062	0.123	96.09	6.956	≤ 8.98
11ax-HE40	MCS0	118	5590	1.032	1.180	1.176	0.434	96.09	7.160	≤ 8.98
11ax-HE40	MCS0	134	5670	1.910	2.386	2.331	1.635	96.09	8.270	≤ 8.98
11ax-HE40	MCS0	142	5710	2.100	2.564	2.569	2.158	96.09	8.547	≤ 8.98
11ax-HE80	MCS0	42	5210	-1.550	-0.910	-1.330	-1.580	92.50	5.025	≤ 14.98
11ax-HE80	MCS0	58	5290	-2.441	-2.495	-2.112	-3.238	92.50	3.807	≤ 8.98
11ax-HE80	MCS0	106	5530	-3.754	-3.268	-3.185	-3.520	92.50	2.933	≤ 8.98
11ax-HE80	MCS0	122	5610	-1.633	-1.268	-1.057	-2.003	92.50	4.884	≤ 8.98
11ax-HE80	MCS0	138	5690	-0.156	0.232	0.881	-0.199	92.50	6.571	≤ 8.98
11ax-HE160	MCS0	50	5250	-8.738	-8.416	-7.957	-9.067	88.48	-1.973	≤ 8.98
11ax-HE160	MCS0	114	5570	-8.856	-8.317	-8.208	-8.705	88.48	-1.961	≤ 8.98

Note 1:

When EUT Duty Cycle < 98%, Total PSD (dBm/MHz) =10*log {$10^{(\text{Ant 0 AVPSD}/10)}$ + $10^{(\text{Ant 1 AVPSD}/10)}$ +$10^{(\text{Ant 2 AVPSD}/10)}$ + $10^{(\text{Ant 3 AVPSD}/10)}$} +10*log (1/Duty Cycle).

When EUT Duty Cycle ≥ 98%, Total PSD (dBm/MHz) =10*log {$10^{(\text{Ant 0 AVPSD}/10)}$ + $10^{(\text{Ant 1 AVPSD}/10)}$ +$10^{(\text{Ant 2 AVPSD}/10)}$ + $10^{(\text{Ant 3 AVGPSD}/10)}$}.

Note 2:

For 5125 - 5250MHz Band: PSD Limit (dBm/MHz) = 17 - (8.02 - 6) = 14.98dBm/MHz

For 5250 - 5350MHz Band: PSD Limit (dBm/MHz) = 11 - (8.02 - 6) = 8.98dBm/MHz.

For 5470 - 5725MHz Band: PSD Limit (dBm/MHz) = 11 - (8.02 - 6) = 8.98dBm/MHz.

Test Site	WJ-SR3	Test Engineer	Simon Lu
Test Date	2024-11-05 ~ 2024-11-06		
Test Item	Power Spectral Density (UNII-Band 3)		

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	AVPSD (dBm/510kHz)				Duty Cycle (%)	Total PSD (dBm/ 510kHz)	PSD Limit (dBm/ 500kHz)
				Ant 0	Ant 1	Ant 2	Ant 3			
11a	6Mbps	149	5745	3.170	3.400	3.000	2.530	95.03	9.279	≤ 27.98
11a	6Mbps	157	5785	3.150	3.460	3.460	3.090	95.03	9.535	≤ 27.98
11a	6Mbps	165	5825	2.950	3.200	2.820	2.610	95.03	9.142	≤ 27.98
11ac-VHT20	MCS0	149	5745	2.790	3.380	2.720	2.360	98.52	8.913	≤ 27.98
11ac-VHT20	MCS0	157	5785	2.930	3.360	2.840	2.510	98.52	9.006	≤ 27.98
11ac-VHT20	MCS0	165	5825	2.740	2.910	2.570	2.230	98.52	8.705	≤ 27.98
11ac-VHT40	MCS0	151	5755	-0.310	0.072	-0.026	-0.082	96.95	6.071	≤ 27.98
11ac-VHT40	MCS0	159	5795	-0.070	0.120	-0.145	-0.369	96.95	6.043	≤ 27.98
11ac-VHT80	MCS0	155	5775	-2.930	-3.200	-3.500	-3.590	93.89	2.997	≤ 27.98
11ax-HE20	MCS0	149	5745	2.680	3.320	2.740	2.440	97.77	8.926	≤ 27.98
11ax-HE20	MCS0	157	5785	2.890	3.270	2.830	2.530	97.77	9.007	≤ 27.98
11ax-HE20	MCS0	165	5825	2.510	3.000	2.420	2.220	97.77	8.666	≤ 27.98
11ax-HE40	MCS0	151	5755	-0.360	-0.027	-0.070	-0.310	96.09	6.004	≤ 27.98
11ax-HE40	MCS0	159	5795	-0.305	-0.200	-0.084	-0.482	96.09	5.929	≤ 27.98
11ax-HE80	MCS0	155	5775	-3.360	-3.350	-3.839	-3.785	92.50	2.782	≤ 27.98

Note 1:

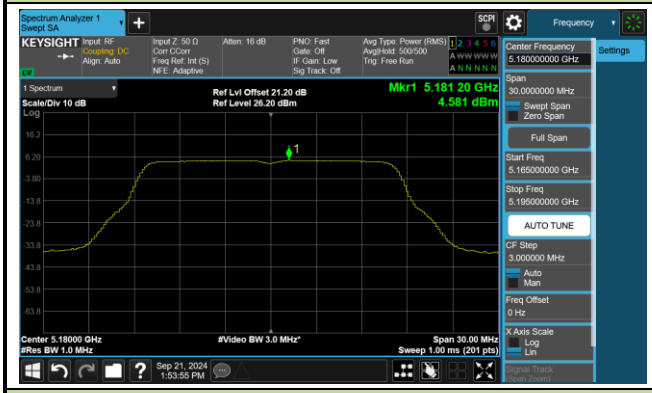
When EUT Duty Cycle < 98%, Total PSD (dBm/510kHz) =10*log {$10^{(\text{Ant 0 AVPSD}/10)}$ + $10^{(\text{Ant 1 AVPSD}/10)}$ + $10^{(\text{Ant 2 AVPSD}/10)}$ + $10^{(\text{Ant 3 AVPSD}/10)}$} +10*log (1/Duty cycle).

When EUT Duty Cycle ≥ 98%, Total PSD (dBm/510kHz) =10*log {$10^{(\text{Ant 0 AVPSD}/10)}$ + $10^{(\text{Ant 1 AVPSD}/10)}$ + $10^{(\text{Ant 2 AVPSD}/10)}$ + $10^{(\text{Ant 3 AVPSD}/10)}$}.

Note 2: PSD Limit (dBm/500kHz) = 30 - (8.02 - 6) = 27.98dBm/500kHz.

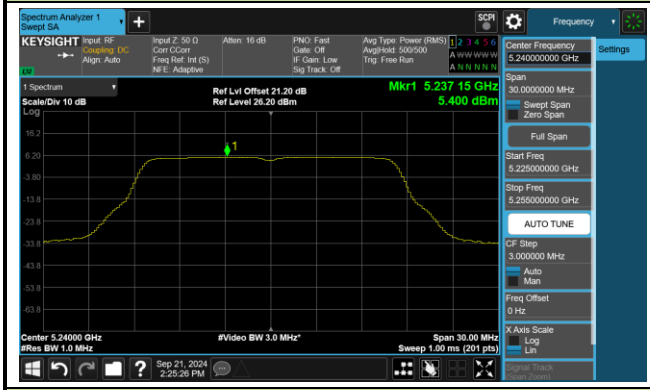
802.11a Power Spectral Density - Ant 0

Channel 36 (5180MHz)

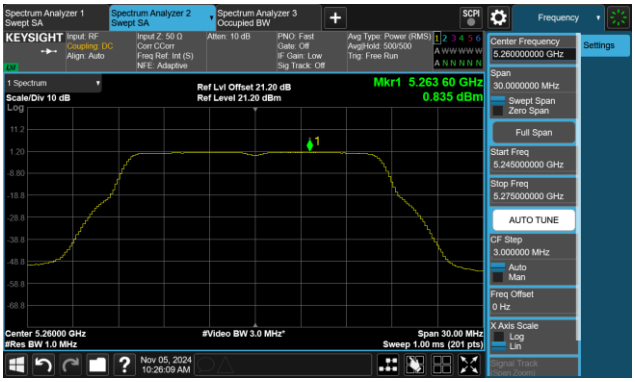


Channel 44 (5220MHz)

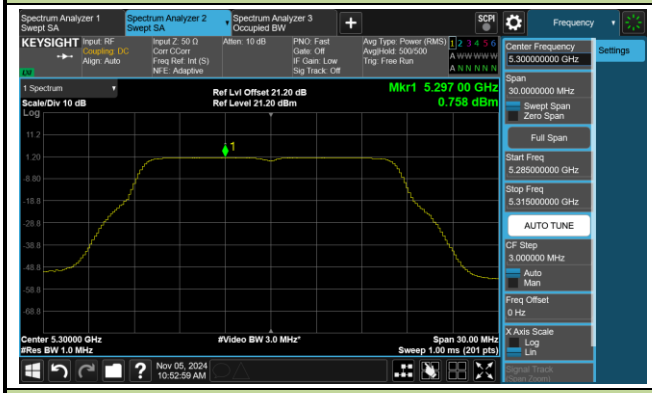
Channel 48 (5240MHz)



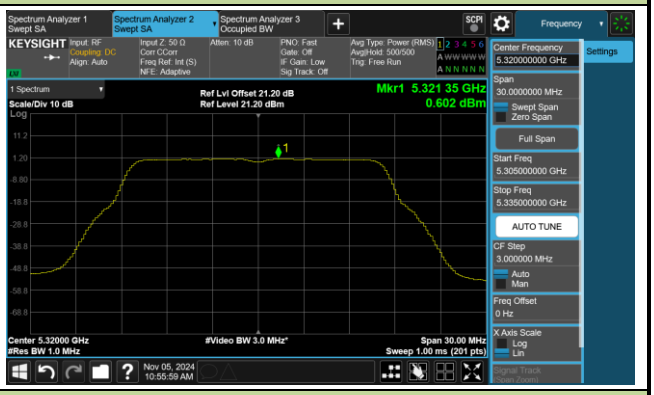
Channel 52 (5260MHz)



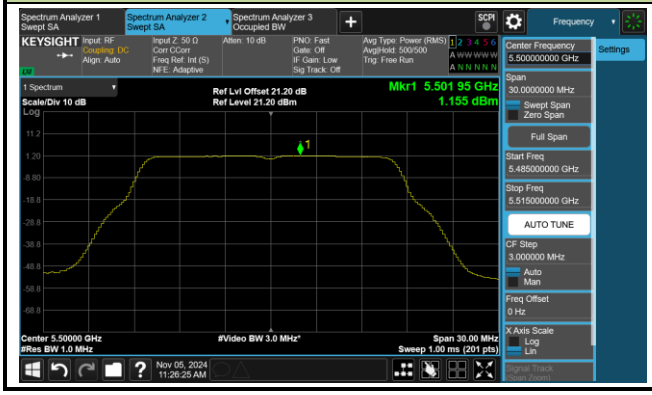
Channel 60 (5300MHz)



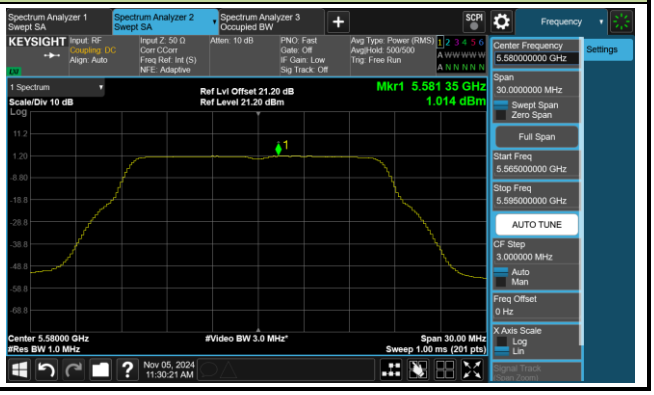
Channel 64 (5320MHz)



Channel 100 (5500MHz)

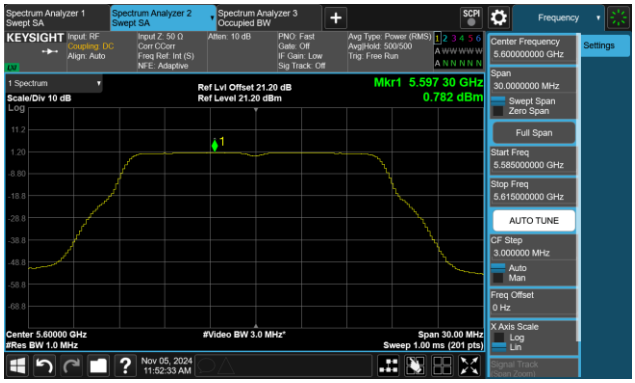


Channel 116 (5580MHz)

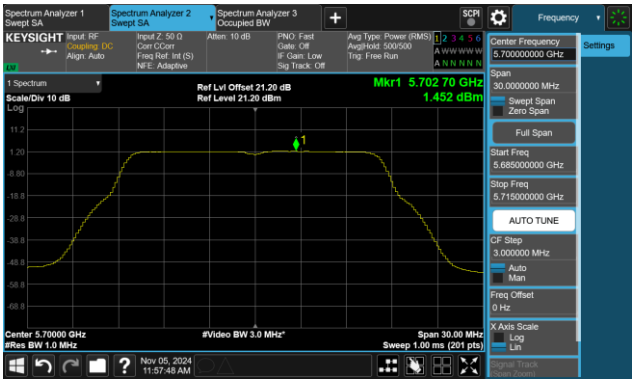


802.11a Power Spectral Density - Ant 0

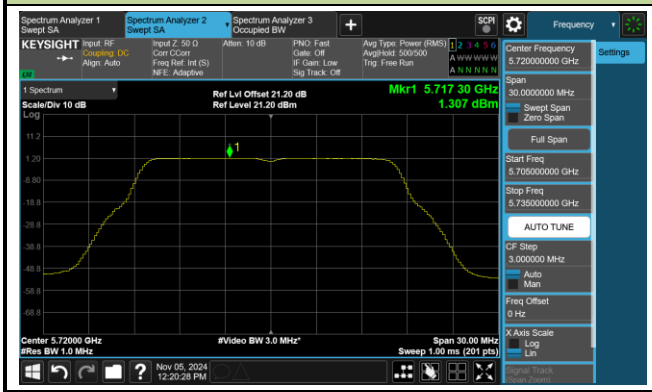
Channel 120 (5600MHz)



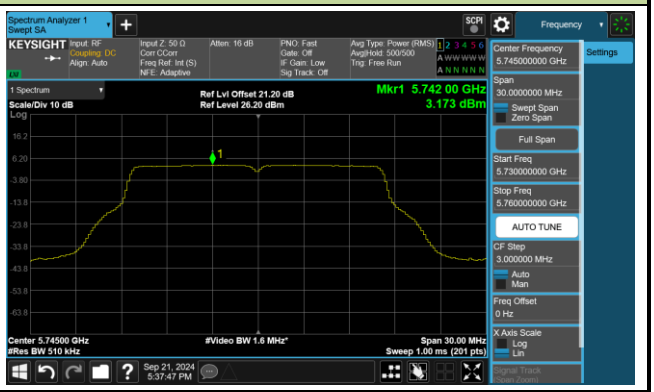
Channel 140 (5700MHz)



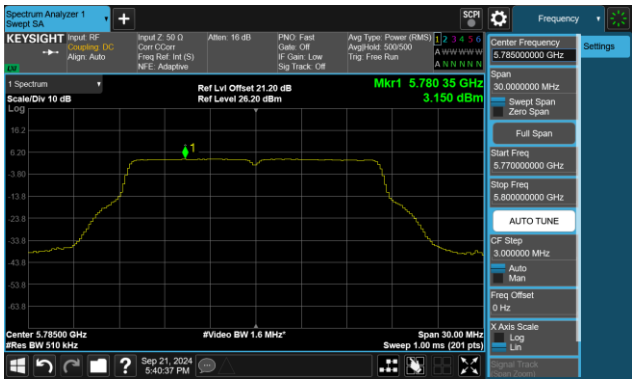
Channel 144 (5720MHz)



Channel 149 (5745MHz)



Channel 157 (5785MHz)



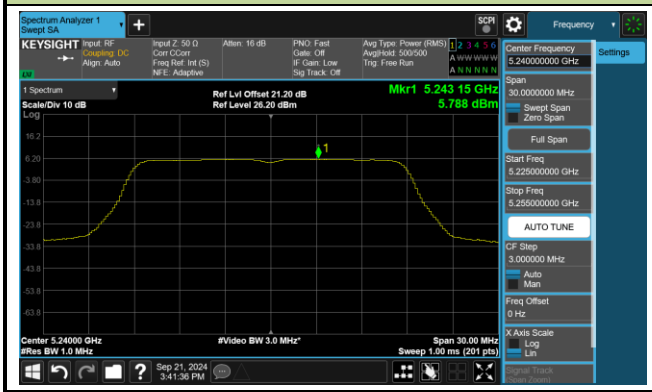
Channel 165 (5825MHz)

802.11ac-VHT20 Power Spectral Density - Ant 0

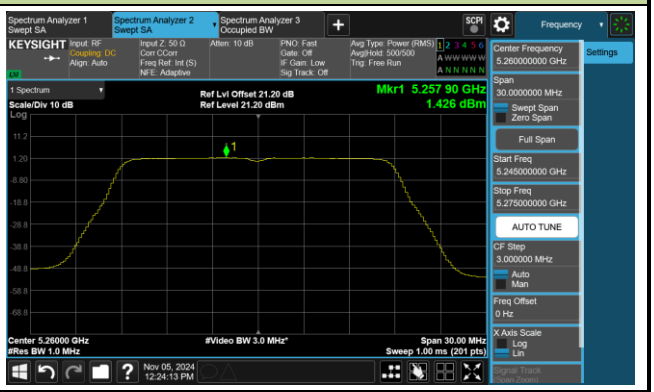
Channel 36 (5180MHz)

Channel 44 (5220MHz)

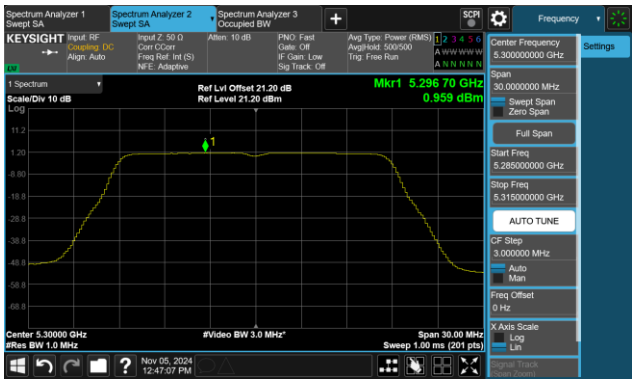
Channel 48 (5240MHz)



Channel 52 (5260MHz)

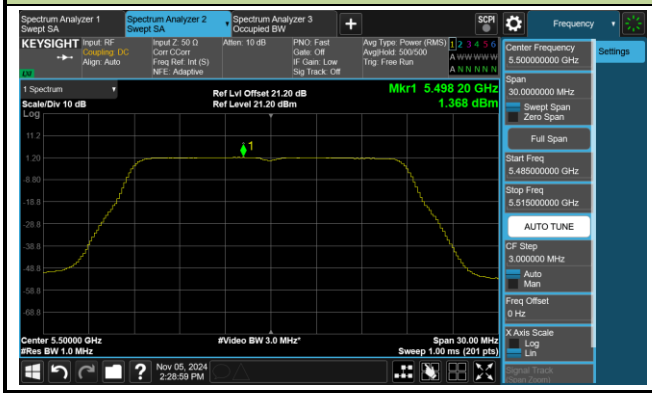


Channel 60 (5300MHz)

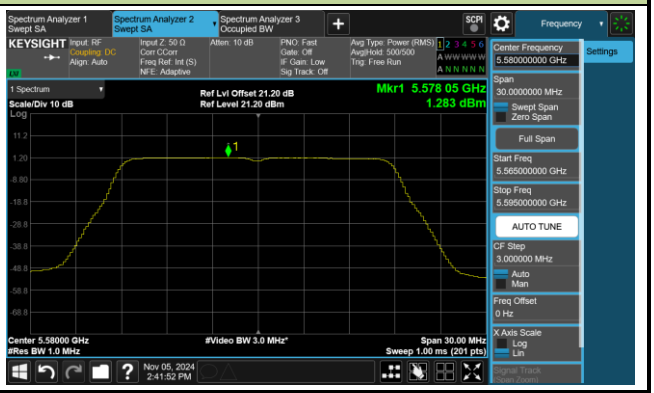


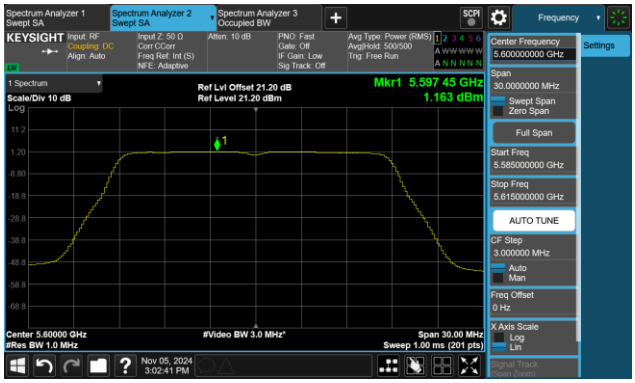
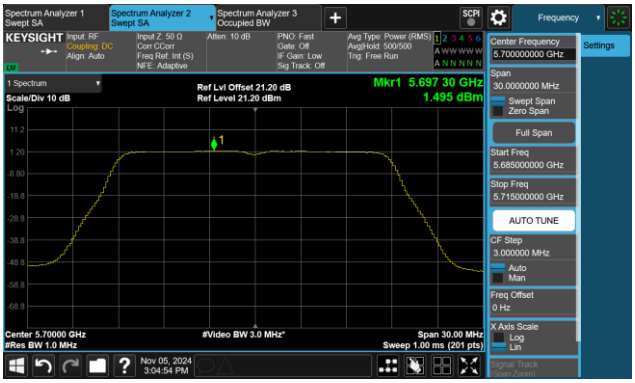
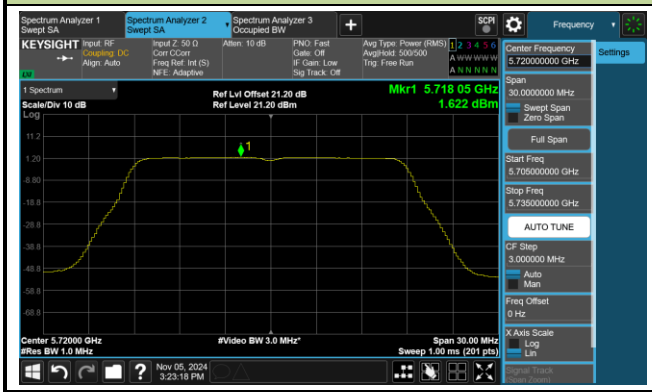
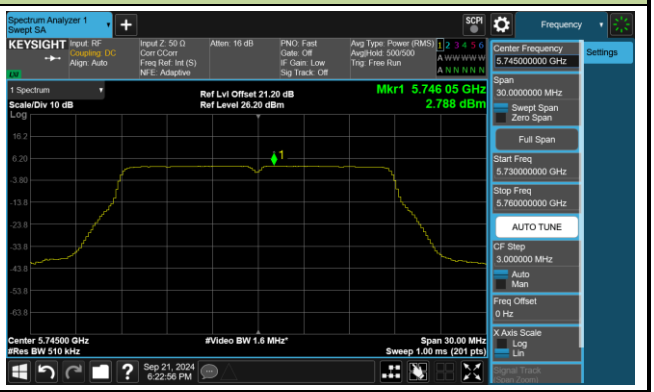
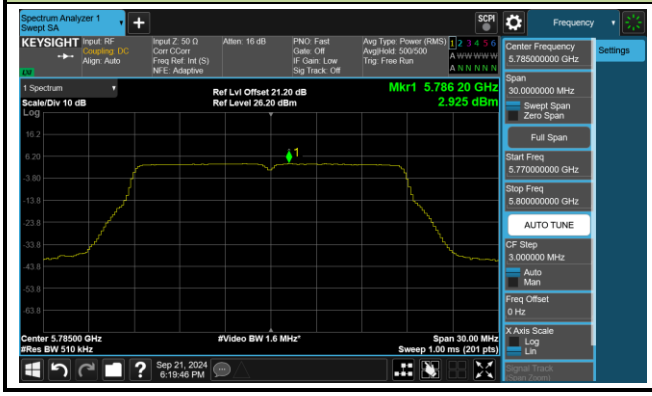
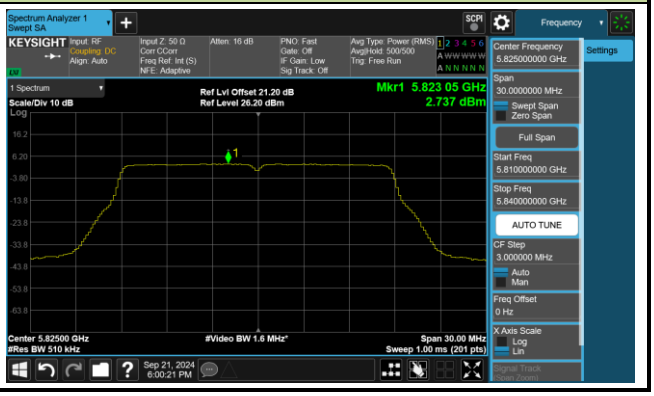
Channel 64 (5320MHz)

Channel 100 (5500MHz)



Channel 116 (5580MHz)



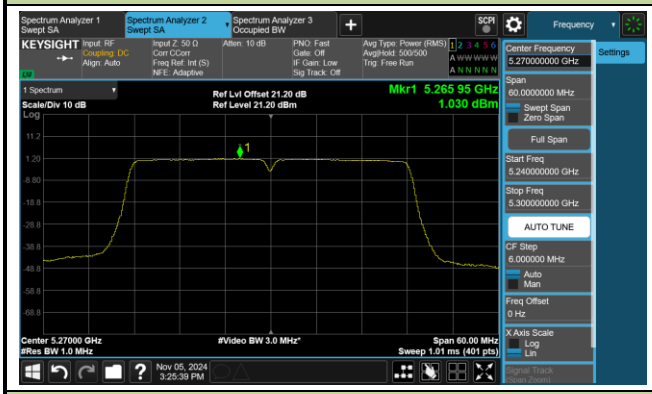
802.11ac-VHT20 Power Spectral Density - Ant 0	
Channel 120 (5600MHz)	Channel 140 (5700MHz)
	
Channel 144 (5720MHz)	Channel 149 (5745MHz)
	
Channel 157 (5785MHz)	Channel 165 (5825MHz)
	

802.11ac-VHT40 Power Spectral Density - Ant 0

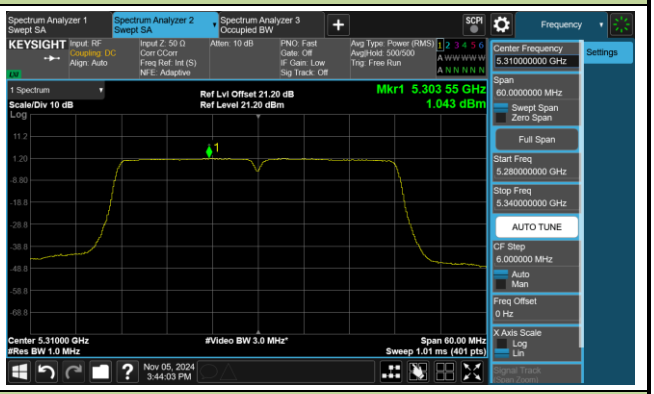
Channel 38 (5190MHz)

Channel 46 (5230MHz)

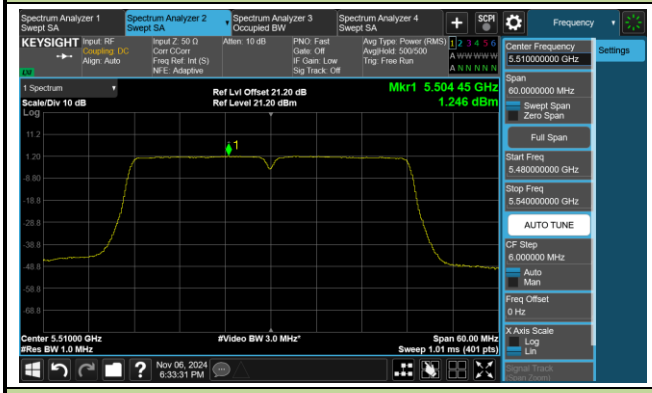
Channel 54 (5270MHz)



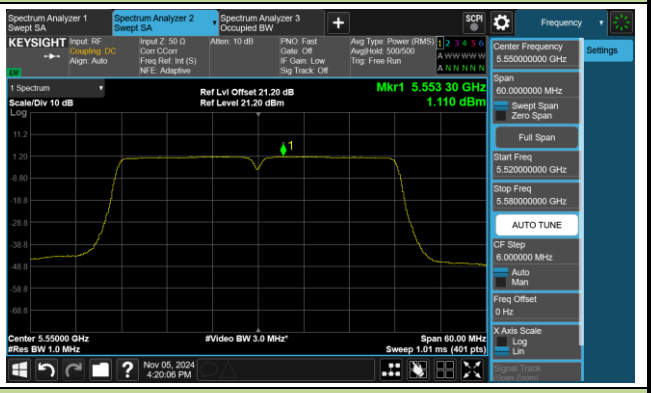
Channel 62 (5310MHz)



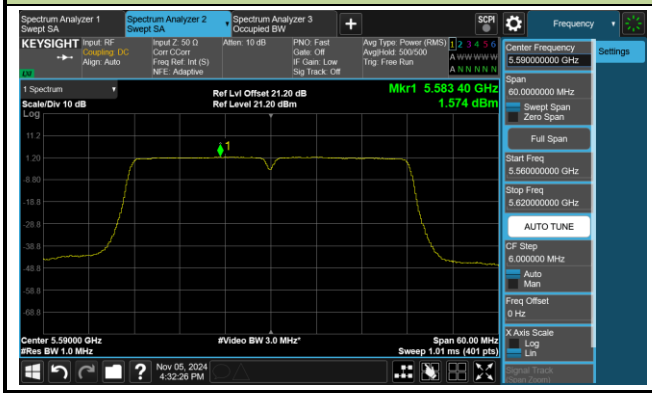
Channel 102 (5510MHz)



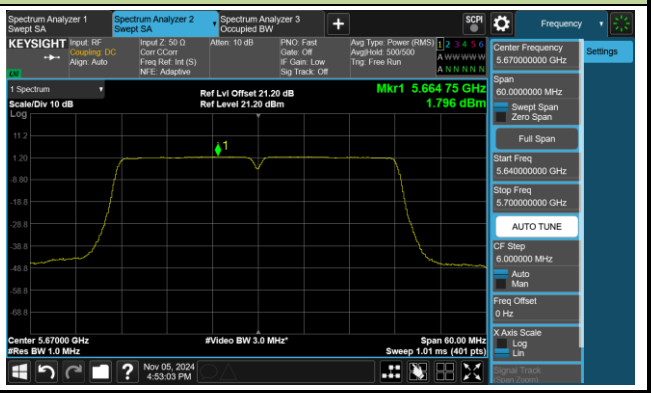
Channel 110 (5550MHz)

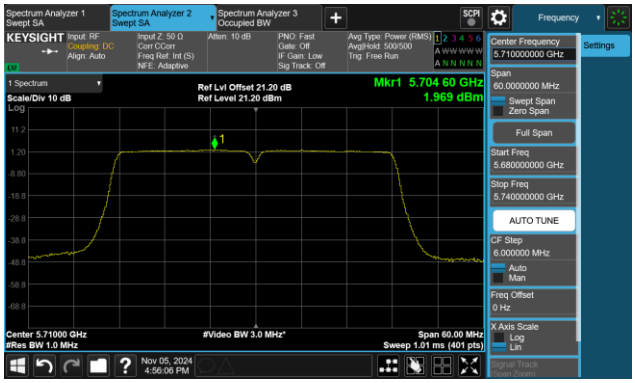
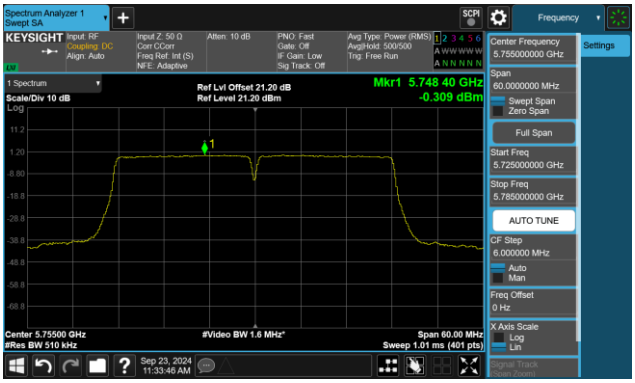
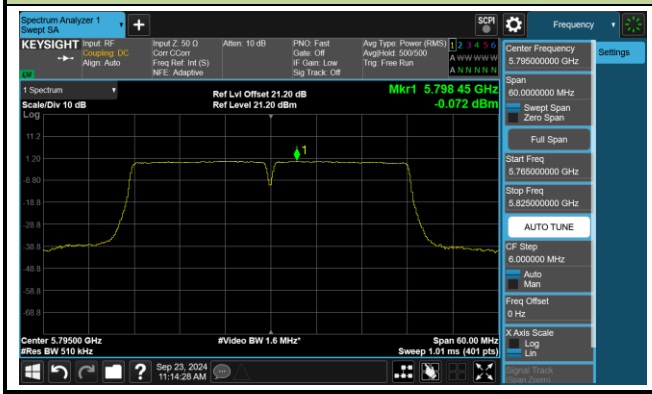


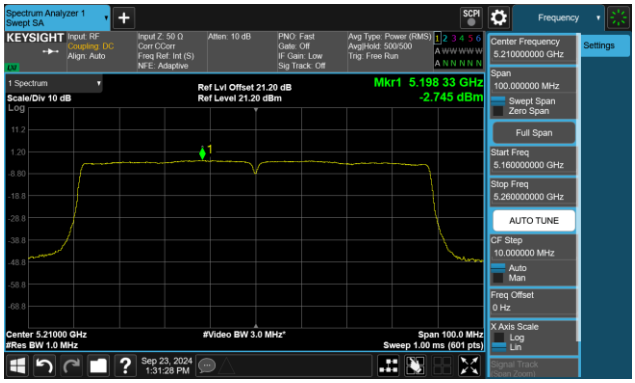
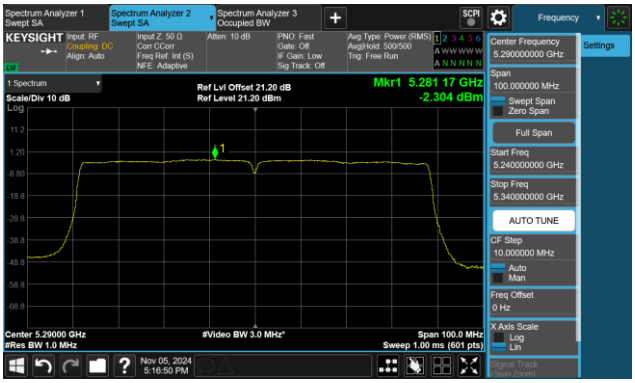
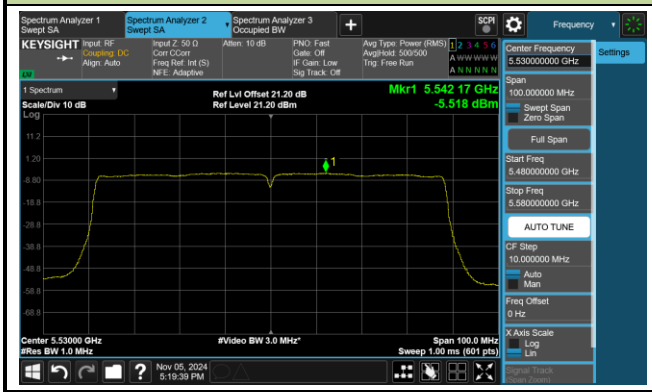
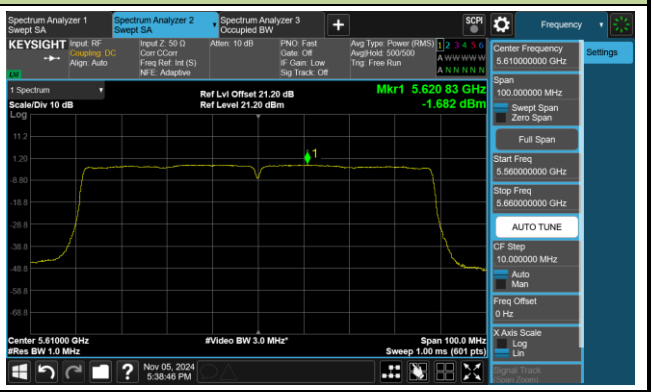
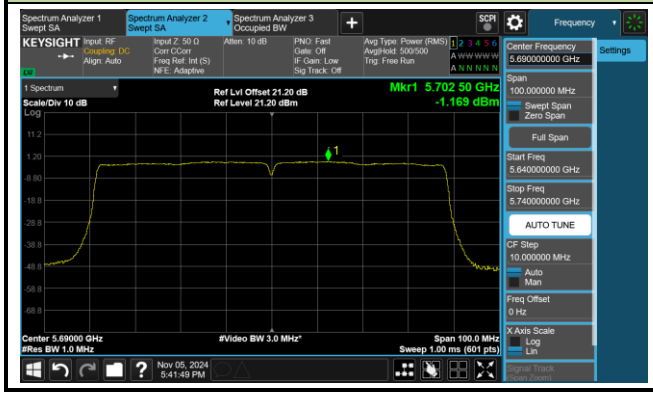
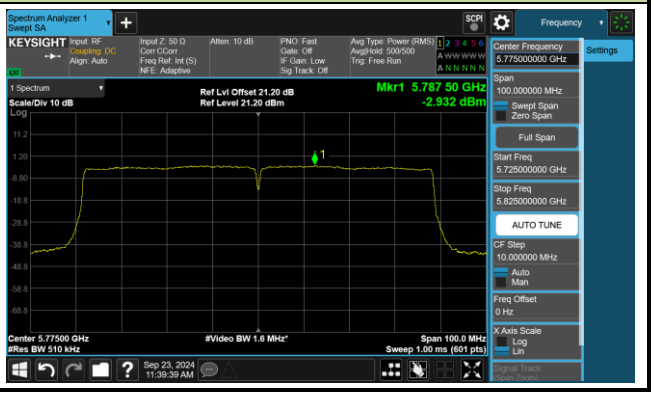
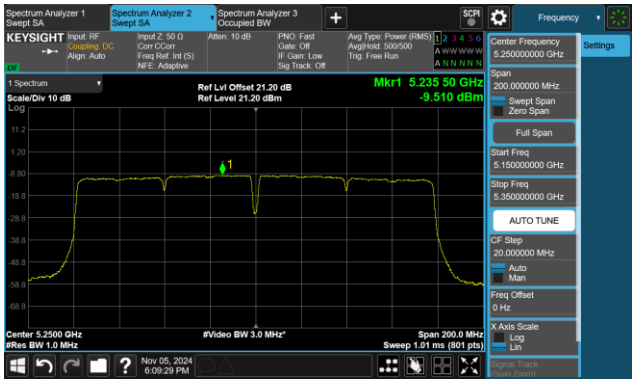
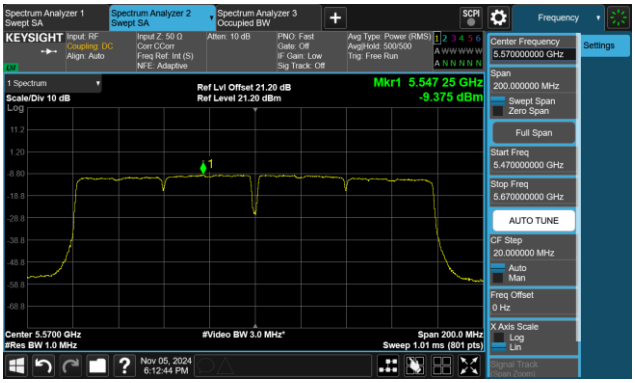
Channel 118 (5590MHz)



Channel 134 (5670MHz)



802.11ac-VHT40 Power Spectral Density - Ant 0	
Channel 142 (5710MHz)	Channel 151 (5755MHz)
	
Channel 159 (5795MHz)	
	

802.11ac-VHT80 Power Spectral Density - Ant 0	
Channel 42 (5210MHz)	Channel 58 (5290MHz)
	
Channel 106 (5530MHz)	Channel 122 (5610MHz)
	
Channel 138 (5690MHz)	Channel 155 (5775MHz)
	

802.11ac-VHT160 Power Spectral Density - Ant 0	
Channel 50 (5250MHz)	Channel 114 (5570MHz)