RF MEASUREMENT REPORT

FCC ID:	2ALJ3AP541E
Applicant:	HAN Networks Co., Ltd.
Product:	HAN Access Point
Model No.:	AP541e
Brand Name:	HAN NETWORKS, HANNETWORKS
FCC Classification:	Digital Transmission System (DTS)
FCC Rule Part(s):	Part 15 Subpart C (Section 15.247)
Result:	Complies
Received Date:	2025-12-01
Test Date:	2025-12-22 ~ 2026-03-17

Reviewed By: Vincent Yu

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. Testing was performed in accordance with the applicable measurement procedures. The test results reported herein apply only to the specific 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
R26S1033075-U201	V01	Initial Report	2026-09-30	Valid

Note: This report is based on the original MRT report (No.: R25S1061112-U201). Only the applicant, manufacturer, and product information (including product name, model number, and brand name) have been updated. All other contents remain unchanged, and all test results are directly copied from the original report.

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1. General Information

1.1. Applicant

HAN Networks Co., Ltd.

101, 3rd Floor, Building 3, No.9 Compound, Yongfeng Road, Haidian District, Beijing, P.R. China

1.2. Manufacturer

HAN Networks Co., Ltd.

101, 3rd Floor, Building 3, No.9 Compound, Yongfeng Road, Haidian District, Beijing, P.R. China

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
☐	**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 FCC: CN1284 ISED: CN0105

1.4. Product Information

Product Name	HAN Access Point
Model No.	AP541e
EUT Identification No.	20251201Sample#04 (Conducted) Y-260126-R061-01 (Radiated)
Bluetooth Specification	Bluetooth_LE
ZigBee Specification	802.15.4
Wi-Fi Specification	802.11a/b/g/n/ac/ax/be
Operating Temperature	0 ~ 50 °C
Antenna Information	Refer to section 1.7
Operating Environment	Indoor Use
Power Type	AC/DC Adapter or PoE Injector
Accessories	
Adapter	Model No.: AA65U-540A Input Power: 100 – 240 V ~ 50/60 Hz, 1.6 A Output Power: 54 V ⎓ 1.2 A, 64.8 W
PoE Injector	Model: POE60U-1BT-X Input: 100-240 V ~ 1.5 A, 50-60 Hz,98-104 VA Output: 56 V⎓0.535 A, 30 W PIN 3, 6+ PIN 1, 2 Return Output: 56 V⎓0.535 A, 30 W PIN 4, 5+ PIN 7, 8 Return

Notes:

1. The information of the EUT (Equipment Under Test) was provided by the manufacturer. The accuracy, completeness, and validity of the information are solely the responsibility of the manufacturer.
2. AC/DC Adapter and PoE Injector are not marketed in conjunction with the device.

1.5. Radio Specification under Test

Frequency Range	2400 ~ 2483.5 MHz	
Channel Number	802.11b/g/n-HT20/ax-HE20/be-EHT20: 11 802.11n-HT40/ax-HE40/be-EHT40: 7	
Modulation Technology	802.11b: DSSS 802.11g/n: OFDM 802.11ax/be: OFDMA	
Data Rate	802.11b: 1/2/5.5/11 Mbps 802.11g: 6/9/12/18/24/36/48/54 Mbps 802.11n: up to 600 Mbps 802.11ax: up to 1147.2 Mbps 802.11be: up to 1376 Mbps	
Channel Puncturing Function	☐ Supported	☒ Unsupported
Support RU	☒ Full RU	☐ Partial RU

1.6. Working Frequencies

802.11b/g/n-HT20/ax-HE20/be-EHT20

Channel	Frequency	Channel	Frequency	Channel	Frequency
01	2412 MHz	02	2417 MHz	03	2422 MHz
04	2427 MHz	05	2432 MHz	06	2437 MHz
07	2442 MHz	08	2447 MHz	09	2452 MHz
10	2457 MHz	11	2462 MHz	--	--

802.11n-HT40/ax-HE40/be-EHT40

Channel	Frequency	Channel	Frequency	Channel	Frequency
03	2422 MHz	04	2427 MHz	05	2432 MHz
06	2437 MHz	07	2442 MHz	08	2447 MHz
09	2452 MHz	--	--	--	--

1.7. Antenna Details

Antenna Type	Frequency Band (MHz)	Antenna Gain (dBi)				Directional Gain (dBi)	
		Ant 0	Ant 1	Ant 2	Ant 3	For Power	For PSD
Wi-Fi Antenna (2.4 GHz / 5 GHz / 6 GHz)							
Omni-directional	2400 ~ 2483.5	3.30	3.30	3.30	3.30	3.30	9.32
	5150 ~ 5850	3.30	3.30	3.30	3.30	3.30	9.32
	5925 ~ 6425	4.40	4.40	4.40	4.40	4.40	10.42
	6525 ~ 6875	4.40	4.40	4.40	4.40	4.40	10.42

Notes:

1. The EUT supports Cyclic Delay Diversity (CDD) mode for 802.11a/b/g/n/ac/ax/be.
2. The EUT also supports Beamforming mode for 802.11n/ac/ax/be, not include 802.11a/b/g.
3. All antenna information is provided by the manufacturer.

1.8. WLAN Configuration

Model No.	WLAN Antenna Port	WLAN Config 1 - Supporting Band	WLAN Config 2 - Supporting Band
AP541e	5GHz 4TX Port	5GHz Full Band: U-NII-1 (5150-5250 MHz) U-NII-2A (5250-5350 MHz) U-NII-2C (5470-5725 MHz) U-NII-3 (5725-5850 MHz)	5GHz Low Band: U-NII-1 (5150-5250 MHz) U-NII-2A (5250-5350 MHz)
	2GHz 4TX Port	2412 to 2462 MHz	2412 to 2462 MHz
	6GHz 4TX Port	U-NII-5 (5925-6425 MHz) U-NII-7 (6525-6875MHz)	5GHz High Band: U-NII-2C (5470-5725 MHz) U-NII-3 (5725-5850 MHz)

Note 1: WLAN Config 1 and WLAN Config 2 only differ in the software settings and there are no changes in the hardware.

Note 2: For WLAN Config 2, only the 5GHz High Band was tested; the data for the 5GHz Low Band is referenced from WLAN Config 1.

2. Test Configuration

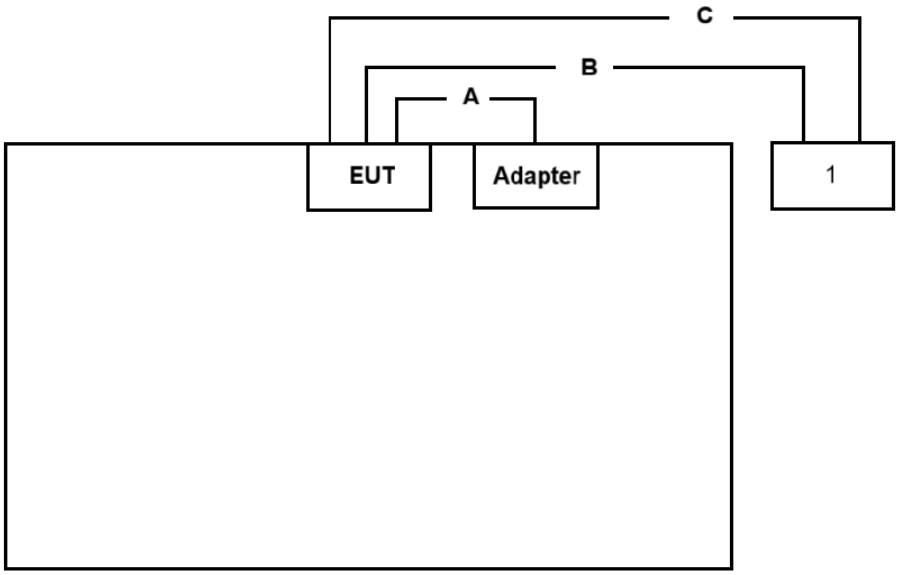
2.1. Test Mode

CDD Mode
Mode 1: Transmit by 802.11b (1 Mbps)
Mode 2: Transmit by 802.11g (6 Mbps)
Mode 3: Transmit by 802.11n-HT20 (MCS0)
Mode 4: Transmit by 802.11n-HT40 (MCS0)
Mode 5: Transmit by 802.11ax-HE20 (MCS0)
Mode 6: Transmit by 802.11ax-HE40 (MCS0)
Mode 7: Transmit by 802.11be-EHT20 (MCS0)
Mode 8: Transmit by 802.11be-EHT40 (MCS0)
Note 1: All applicable modes of operation and data rates were investigated. The RF test requirements were performed on the selected representative worst-case configurations with the highest measured output power. Note 2: 802.11ax (HE) and 802.11be (EHT) are both OFDMA-based modes. Considering the similarity of the modulation technology and the output power verification results, 802.11be were selected as representative worst-case modes for RF testing. Therefore, only the 802.11be test data are presented in this report. Note 3: For Beamforming operation, the manufacturer automatically reduces power based on a factor calculated as the difference between the Beamforming directional gain and the CDD directional power gain. Thus, only the CDD mode was evaluated in this report.

2.2. Test System Connection Diagram

The device was tested per the guidance ANSI C63.10-2020 was used to reference the appropriate EUT setup for radiated emissions testing and AC conducted emissions testing.

Connection Diagram - Radiated Emission testing & AC Conducted Emissions



Cable Type		Cable Description	Length
A	Power Cable	Non shielded	1.5 m
B	USB Cable	Shielded	> 10 m
C	LAN Cable	Non shielded, Cat.5e	> 10 m
Product		Manufacturer	Model No.
1	Notebook	ThinkPad	Gen 5 E14

2.3. Test Software

The test utility software used during testing was “QSPR” and the version was “5.0-00202”.

2.4. Applied Standards

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

- FCC Part 15.247
- KDB 558074 D01 v05r02
- KDB 662911 D01 v02r01
- ANSI C63.10-2020
- ANSI C63.10-2020/Cor1-2023
- ANSI C63.10a-2024

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."

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
EMI Test Receiver	R&S	ESR3	MRTSUE06185	1 year	2026-12-03	SIP-AC3
Signal Analyzer	Keysight	N9010B	MRTSUE06559	1 year	2026-04-26	SIP-AC3
Preamplifier	EMCI	EMC184045SE	MRTSUE06602	1 year	2026-09-29	SIP-AC3
Horn Antenna	R&S	HF907	MRTSUE06611	1 year	2026-06-20	SIP-AC3
Thermohygrometer	testo	608-H1	MRTSUE06619	1 year	2026-10-16	SIP-AC3
Preamplifier	EMCI	EMC012645SE	MRTSUE06642	1 year	2026-01-04 2027-01-03	SIP-AC3
TRILOG Antenna	Schwarzbeck	VULB 9168	MRTSUE06646	1 year	2026-07-03	SIP-AC3
Anechoic Chamber	RIKEN	SIP-AC3	MRTSUE06782	1 year	2026-12-15	SIP-AC3
Signal Analyzer	Keysight	N9010B	MRTSUE07028	1 year	2026-09-28	SIP-AC3
Active Loop Antenna	Schwarzbeck	FMZB 1519-60 D	MRTSUE07075	1 year	2026-11-18	SIP-AC3
USB Power Sensor	Keysight	U2021XA	MRTSUE06596	1 year	2026-07-14	SIP-TR2
Signal Analyzer	Keysight	N9010B	MRTSUE07036	1 year	2026-01-18 2027-01-17	SIP-TR2
Thermohygrometer	testo	608-H1	MRTSUE11563	1 year	2026-03-03 2027-03-02	SIP-TR2
Attenuator	MVE	MVE2213	MRTSUE11100	1 year	2026-06-04	SIP-TR2
Attenuator	MVE	MVE2213	MRTSUE11057	1 year	2026-06-04	SIP-TR2
EMI Test Receiver	R&S	ESR3	MRTSUE06612	1 year	2026-04-29	SIP-SR2
Four-Line V-Network	R&S	ENV432	MRTSUE06614	1 year	2026-09-28	SIP-SR2
Thermohygrometer	testo	608-H1	MRTSUE06621	1 year	2026-10-08	SIP-SR2
Shielding Room	MIX-BEP	SIP-SR2	MRTSUE06949	5 years	2029-10-13	SIP-SR2

Note: The loss of the Attenuator & Cable will be measured before testing.

Software	Version	Function
e3	230711	RE & CE
Controller_MF 7802BS	1.02	RE Antenna & Turntable
Agilent Power Analyzer/Agilent Power Panel	V R03.09.00	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: 9 kHz ~ 150 kHz: 3.59 dB 150 kHz ~ 30 MHz: 3.20 dB
Radiated Emission Measurement
The maximum measurement uncertainty is evaluated as: Coaxial: 9 kHz ~ 30 MHz: 2.56 dB Coplanar: 9 kHz ~ 30 MHz: 2.55 dB Horizontal: 30 MHz ~ 200 MHz: 3.48 dB 200 MHz ~ 1 GHz: 4.17 dB 1 GHz ~ 40 GHz: 5.01 dB Vertical: 30 MHz ~ 200 MHz: 4.09 dB 200 MHz ~ 1 GHz: 5.30 dB 1 GHz ~ 40 GHz: 4.85 dB
Spurious Emissions, Conducted
Measuring Uncertainty for a Level of Confidence of 95% (U=2 Uc(y)): 2.9 dB
Output Power
Measuring Uncertainty for a Level of Confidence of 95% (U=2 Uc(y)): 1.4 dB
Power Spectrum Density
Measuring Uncertainty for a Level of Confidence of 95% (U=2 Uc(y)): 2.9 dB
Occupied Bandwidth
Measuring Uncertainty for a Level of Confidence of 95% (U=2 Uc(y)): 2.6%

6. Test Result

6.1. Summary

FCC Section(s)	Test Description	Test Condition	Verdict
15.247(a)(2)	6 dB Bandwidth	Conducted	Pass
15.247(b)(3)	Output Power		Pass
15.247(e)	Power Spectral Density		Pass
15.247(d)	Band Edge / Out-of-Band Emissions		Pass
15.205 15.209	General Field Strength (Restricted Bands and Radiated Emissions)	Radiated	Pass
15.207	AC Conducted Emissions 150 kHz - 30 MHz	Line Conducted	Pass

Notes:

1. The analyzer plots shown in this section were captured using a correction table to account for cable and attenuator losses in the system connecting the EUT to the analyzer across relevant frequencies.
2. For radiated emission tests, every axis (X, Y, Z) was also verified. The test results shown in the following sections represent the worst-case emissions.

6.2. 6 dB Bandwidth Measurement

6.2.1. Test Limit

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

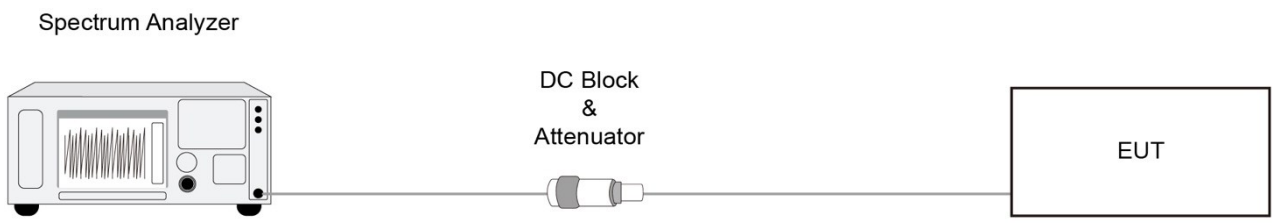
6.2.2. Test Procedure

ANSI C63.10-2020 - Section 11.8

6.2.3. Test Setting

1. The Spectrum's automatic bandwidth measurement capability was used to perform the 6 dB bandwidth measurement. The "X" dB bandwidth parameter was set to X = 6. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
2. RBW = 1% to 5% of the OBW, but not less than 100 kHz
3. VBW ≥ 3 × RBW
4. Detector = Peak
5. Trace mode = Max hold
6. Sweep = Auto couple
7. Allow the trace to stabilize

6.2.4. Test Setup



6.2.5. Test Result

Refer to Appendix A.2.

6.3. Output Power Measurement

6.3.1. Test Limit

The maximum output power shall be less 1 Watt (30 dBm).

The conducted output power limit specified in paragraph FCC Part 15.247(b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs FCC Part 15.247(b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

6.3.2. Test Procedure

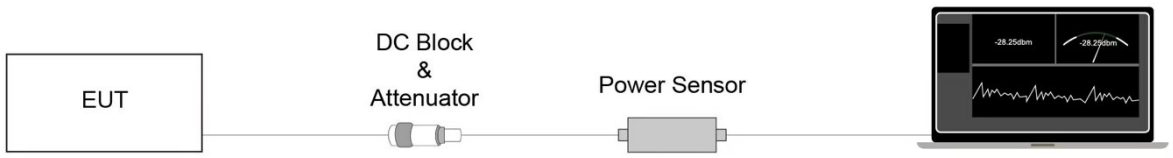
ANSI C63.10-2020 - Section 11.9.2.3.2

6.3.3. Test Setting

Average Power Measurement

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.

6.3.4. Test Setup



6.3.5. Test Result

Refer to Appendix A.3.

6.4. Power Spectral Density Measurement

6.4.1. Test Limit

The maximum permissible power spectral density is 8 dBm in any 3 kHz band.

The same method of determining the conducted output power shall be used to determine the power spectral density.

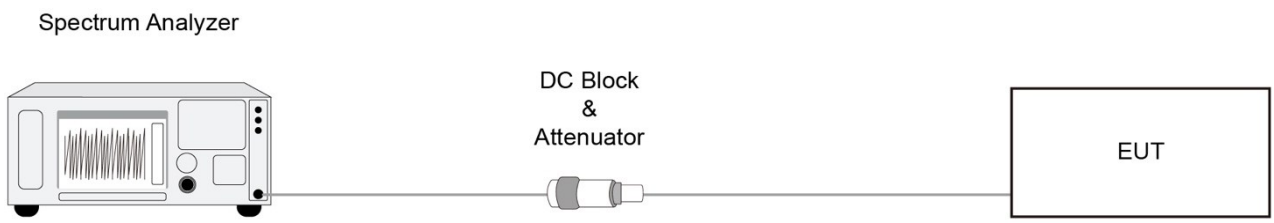
6.4.2. Test Procedure

ANSI C63.10-2020 - Section 11.10.5

6.4.3. Test Setting

1. Measure the duty cycle (x) of the transmitter output signal
2. Set instrument center frequency to DTS channel center frequency
3. Span > 1.5 times the OBW
4. RBW = 10 kHz
5. VBW ≥ 3 × RBW
6. Detector = RMS
7. Ensure that the number of measurement points in the sweep ≥ 2 x Span/RBW
8. Sweep time = Auto couple
9. Don't use sweep triggering; Allow sweep to "free run".
10. Employ trace averaging (RMS) mode over a minimum of 100 traces
11. Use the peak marker function to determine the maximum amplitude level
12. If duty cycle < 98%, add 10log(1/x), where x is the duty cycle measured in step 1, to the measured PSD to compute the average PSD during the actual transmission time. If duty cycle ≥ 98%, no need to add 10log(1/x).
13. If measured value exceeds requirement specified by regulatory agency, then reduce RBW (but no less than 3 kHz) and repeat (note that this may require zooming in on the emission of interest and reducing the span to meet the minimum measurement point requirement as the RBW is reduced).

6.4.4. Test Setup



6.4.5. Test Result

Refer to Appendix A.4.

6.5. Conducted Band Edge and Out-of-Band Emissions Measurement

6.5.1. Test Limit

The limit for out-of-band spurious emissions at the band edge is 30 dB below the fundamental emission level, as determined from the in-band power measurement of the DTS channel performed in a 100 kHz bandwidth per the PSD procedure.

6.5.2. Test Procedure

ANSI C63.10-2020 - Section 11.11

6.5.3. Test Setting

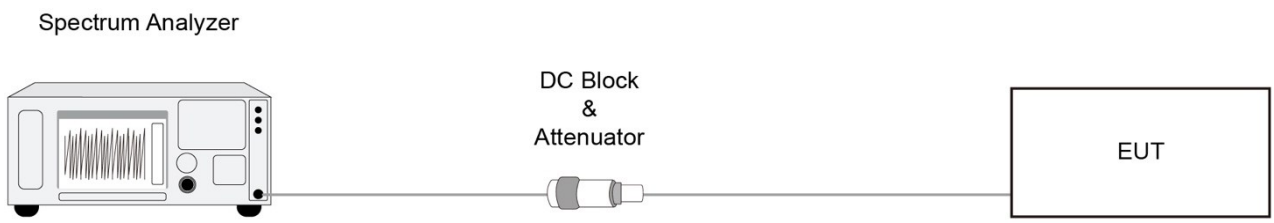
Reference level measurement

1. Set instrument center frequency to DTS channel center frequency
2. Span ≥ 1.5 times the DTS bandwidth
3. RBW = 100 kHz
4. VBW ≥ 3 × RBW
5. Detector = Peak
6. Sweep time = Auto couple
7. Trace mode = Max hold
8. Allow trace to fully stabilize

Emission level measurement

1. Set the center frequency and span to encompass frequency range to be measured
2. RBW = 100 kHz
3. VBW ≥ 3 × RBW
4. Detector = Peak
5. Trace mode = Max hold
6. Sweep time = Auto couple
7. The trace was allowed to stabilize

6.5.4. Test Setup



6.5.5. Test Result

Refer to Appendix A.5.

6.6. Radiated Spurious Emissions Measurement

6.6.1. 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

6.6.2. Test Procedure

ANSI C63.10-2020 - Section 11.11 & 11.12

ANSI C63.10-2020 - Section 6.3 (General Requirements)

ANSI C63.10-2020 - Section 6.4 (Standard test method below 30 MHz)

ANSI C63.10-2020 - Section 6.5 (Standard test method above 30 MHz to 1 GHz)

ANSI C63.10-2020 - Section 6.6 (Standard test method above 1 GHz)

6.6.3. 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
> 1000 MHz	1 MHz

Quasi-Peak Measurements below 1 GHz

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

Peak Measurements above 1 GHz

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

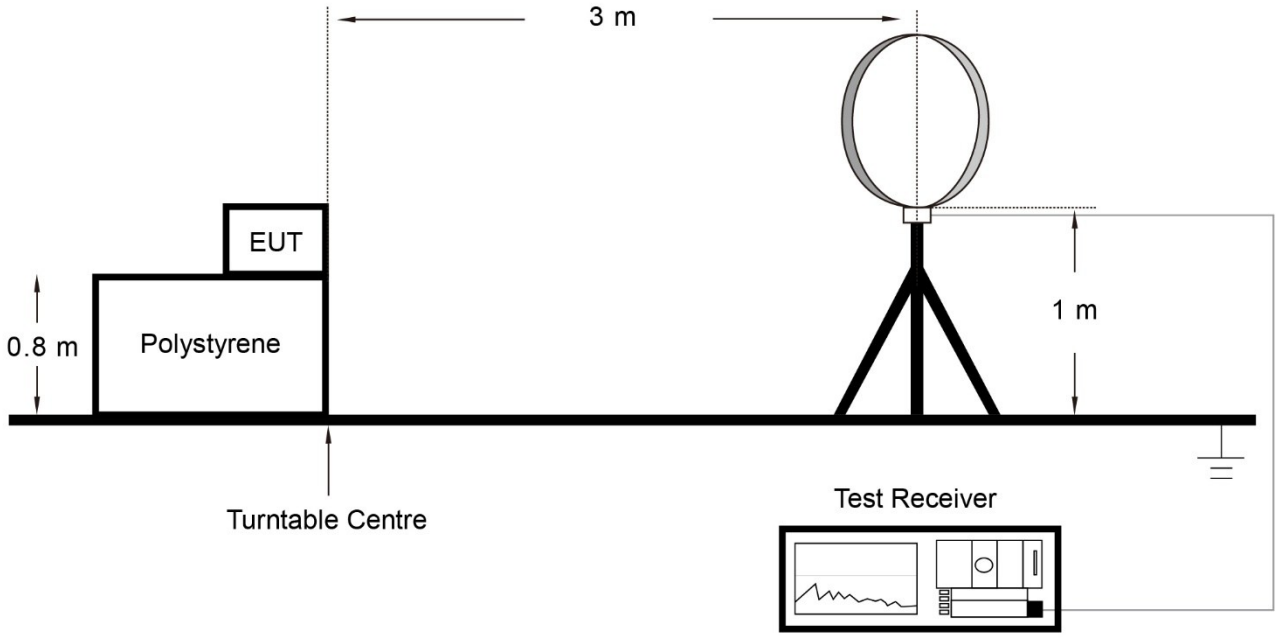
Average Measurements above 1 GHz (Method VB)

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

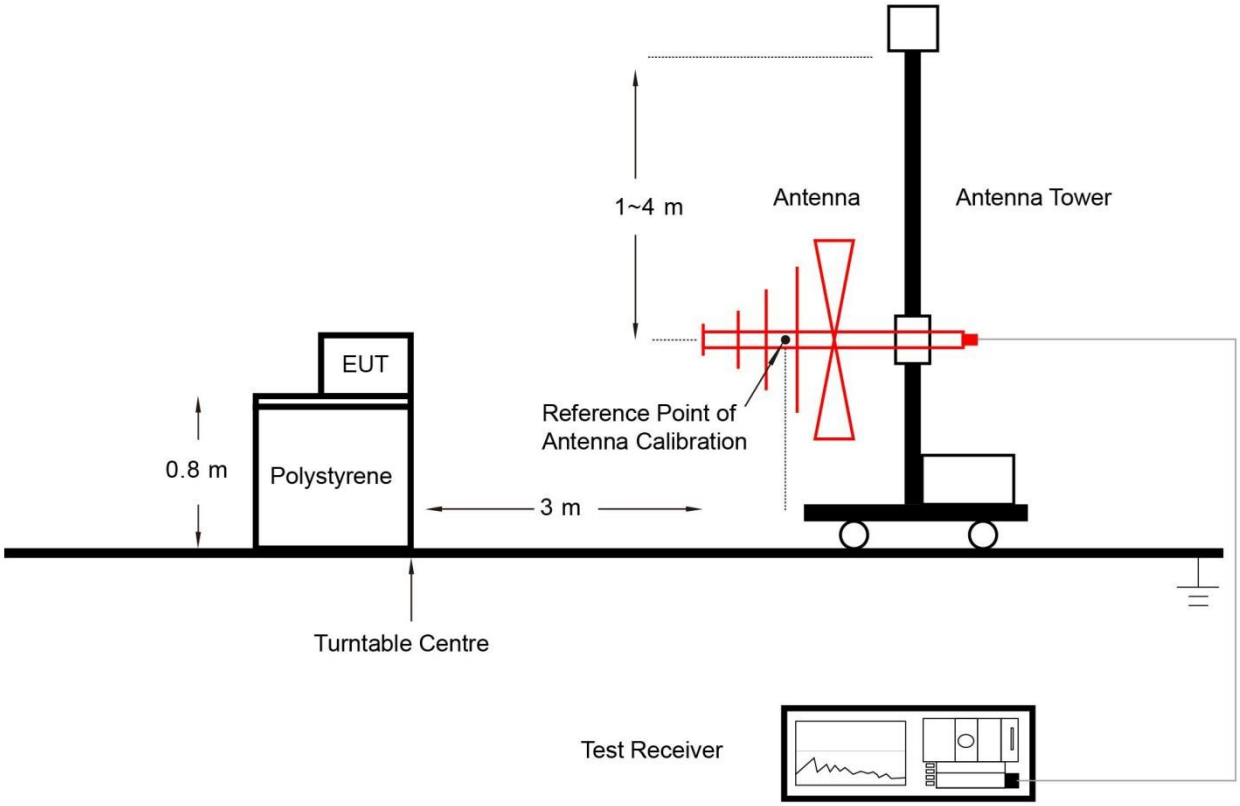
   If the EUT duty cycle is < 98%, set VBW ≥ 1/T. T is the minimum transmission duration.
4. As an alternative, the instrument may be set to linear detector mode. Ensure that video filtering is applied in linear voltage domain (rather than in a log or dB domain). Some instruments require linear display 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. Trace was allowed to stabilize

6.6.4. Test Setup

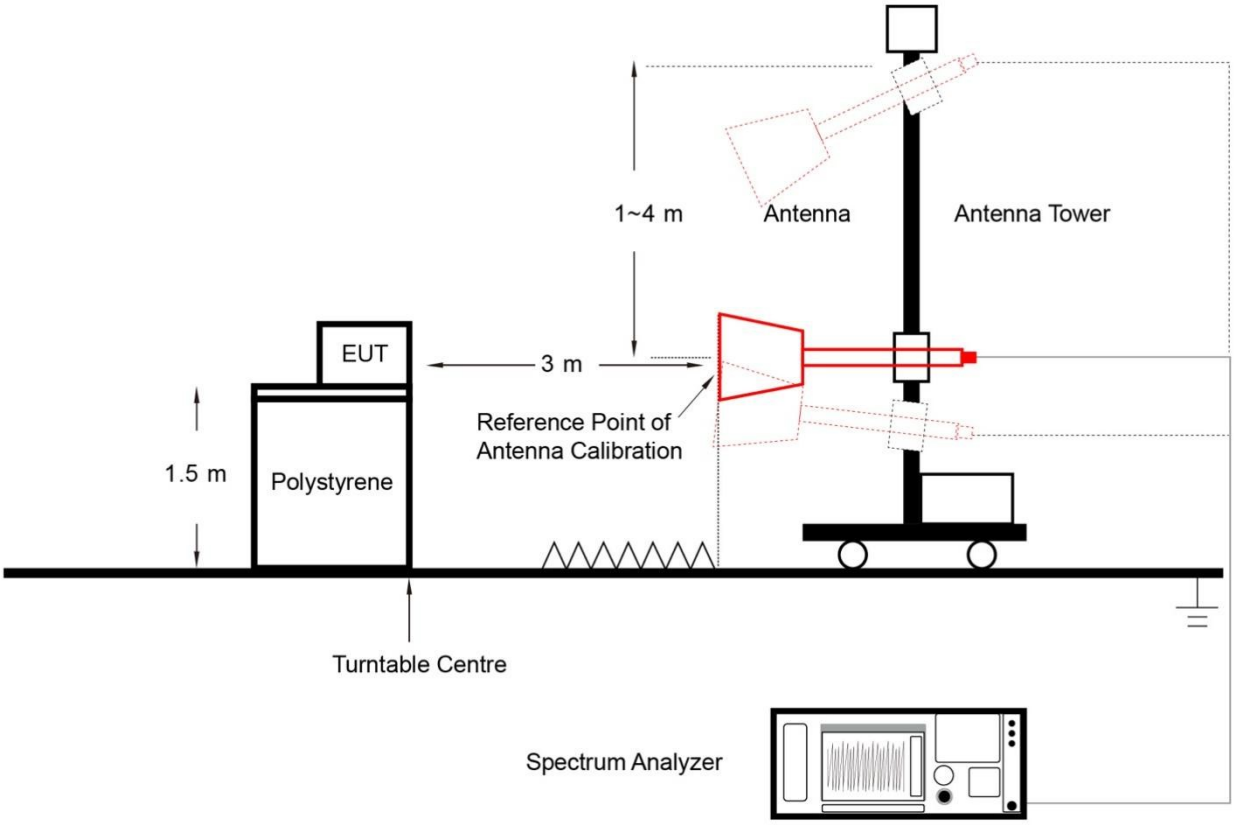
Below 30 MHz Test Setup:



Below 1 GHz Test Setup:



Above 1 GHz Test Setup:



6.6.5. Test Result

Refer to Appendix A.6.

6.7. Radiated Restricted Band Edge Measurement

6.7.1. 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	--	--	--

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

6.7.2. Test Procedure

ANSI C63.10-2020 - Section 6.3 & 6.6 & 11.12

6.7.3. Test Setting

Peak Field Strength Measurements

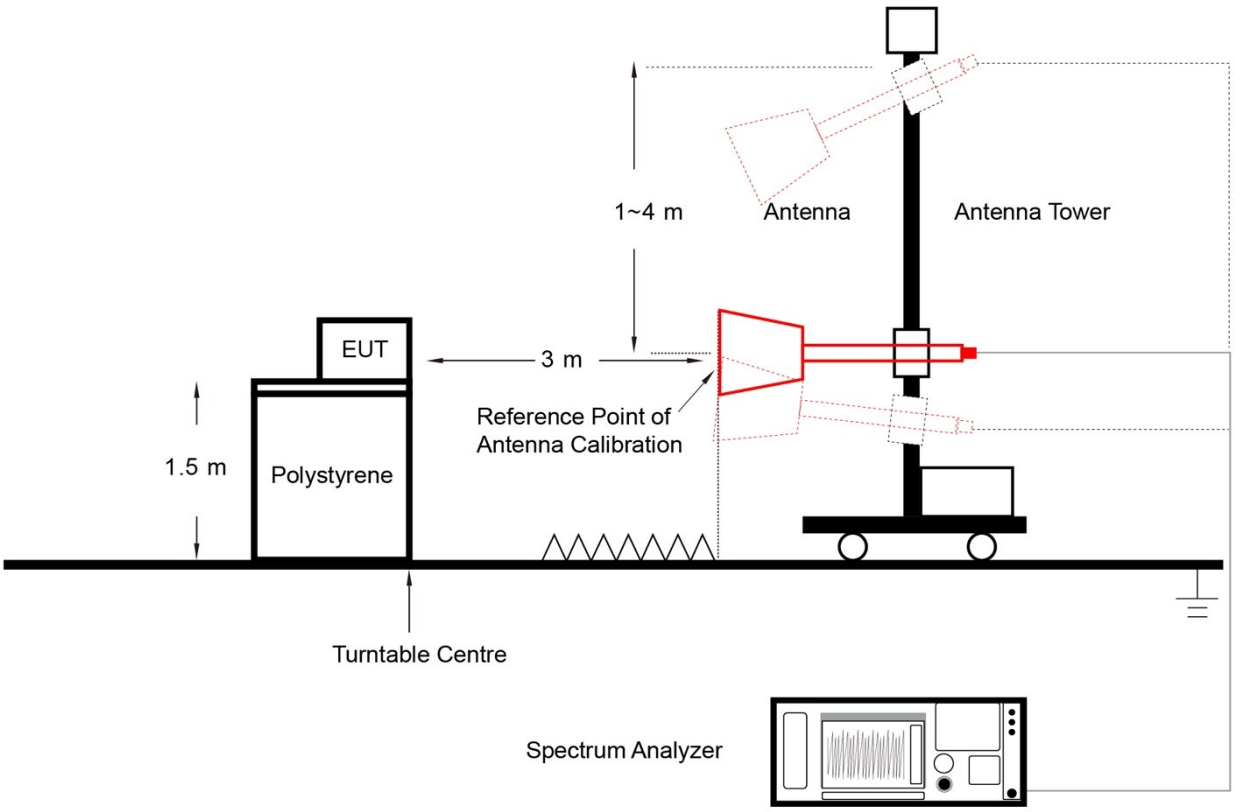
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1 MHz
3. VBW ≥ 3 x RBW
4. Detector = Peak
5. Sweep time = Auto couple
6. Trace mode = Max hold
7. Trace was allowed to stabilize

Average Field Strength Measurements

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1 MHz
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

6.7.4. Test Setup



6.7.5. Test Result

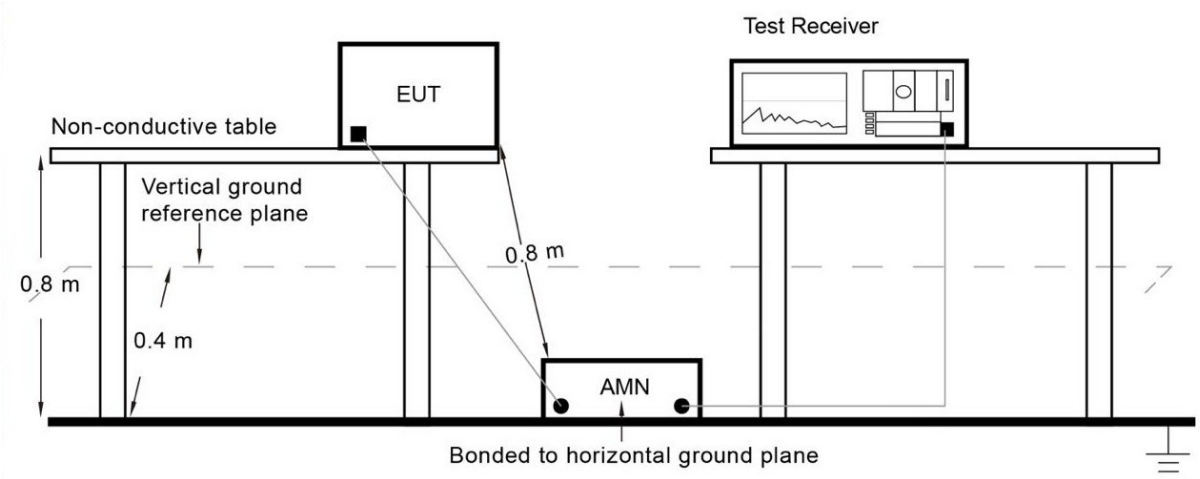
Refer to Appendix A.7.

6.8. AC Conducted Emissions Measurement

6.8.1. Test Limit

FCC Part 15 Subpart C Paragraph 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 0.15 MHz to 0.5 MHz.		

6.8.2. Test Setup



6.8.3. Test Result

Refer to Appendix A.8.

Appendix A - Test Result

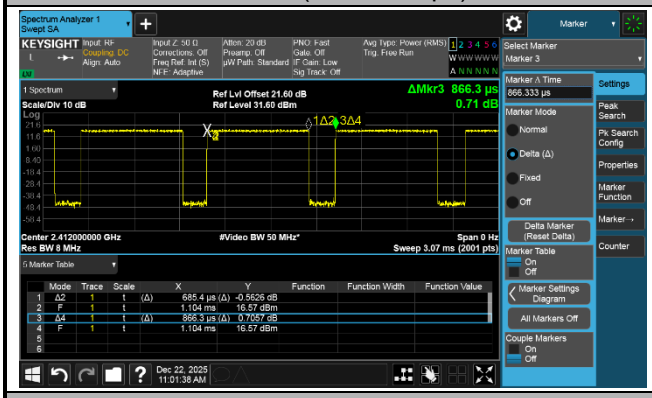
A.1 Duty Cycle Test Result

Test Site	SIP-TR2	Test Engineer	Ryan Wang
Test Date	2025-12-22	Model No.	AP541e

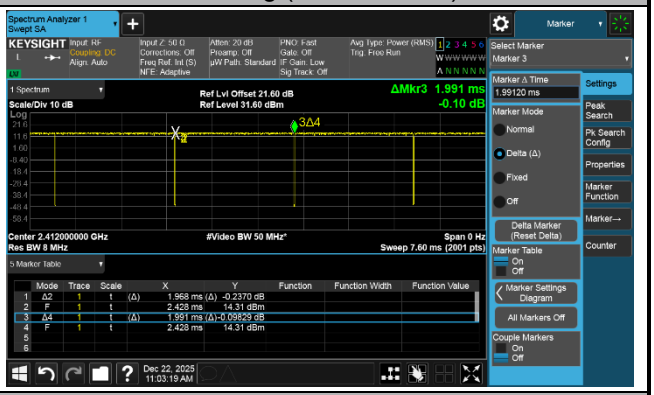
Test Mode	Duty Cycle
802.11b	79.12%
802.11g	98.84%
802.11n-HT20	97.66%
802.11n-HT40	96.95%
802.11be-EHT20	96.63%
802.11be-EHT40	96.28%

Duty Cycle (T = Transmission Duration)

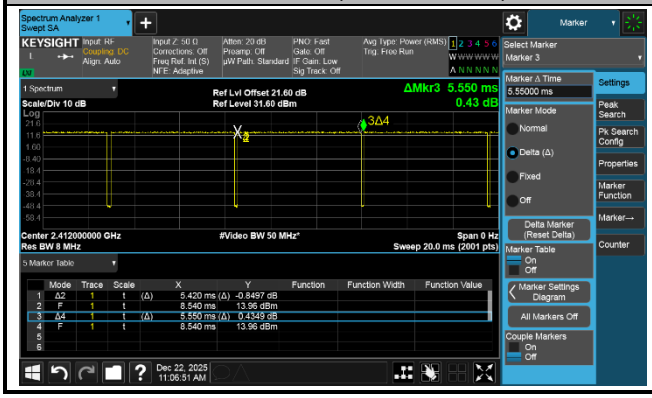
802.11b (T = 685.4 μs)



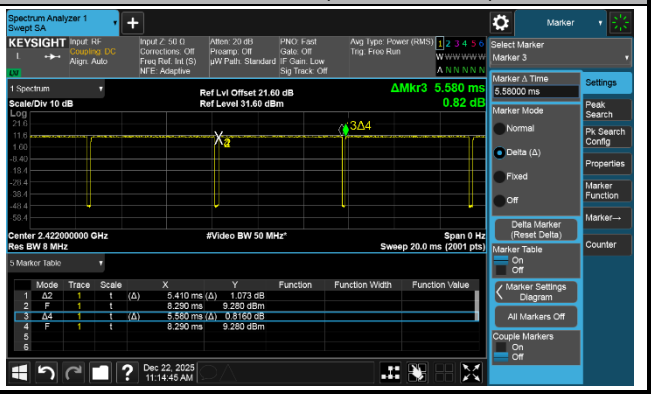
802.11g (T = 1.968 ms)

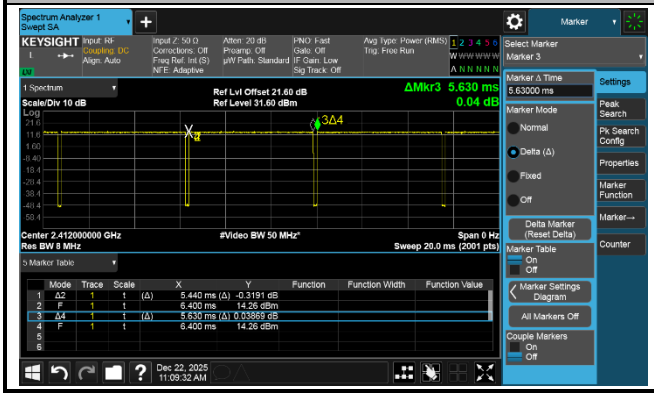
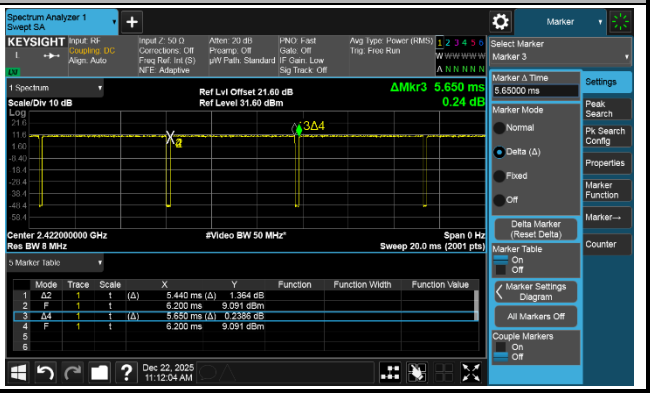


802.11n-HT20 (T = 5.420 ms)



802.11n-HT40 (T = 5.410 ms)



Duty Cycle (T = Transmission Duration)	
802.11be-EHT20 (T = 5.440 ms)	802.11be-EHT40 (T = 5.440 ms)
	

A.2 6 dB Bandwidth Test Result

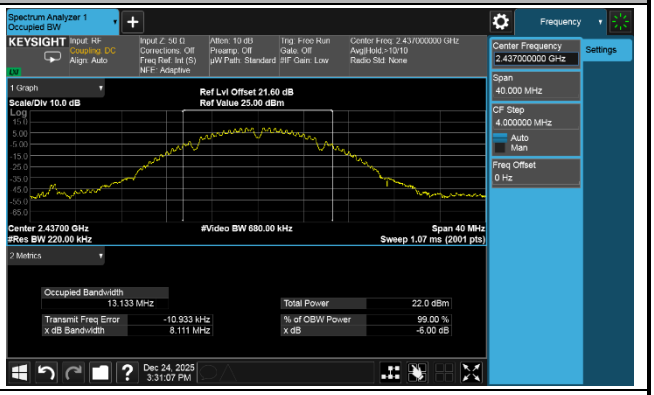
Test Site	SIP-TR2	Test Engineer	Ryan Wang
Test Date	2025-12-24	Model No.	AP541e

Test Mode	Data Rate / MCS	Channel No.	Frequency (MHz)	6 dB Bandwidth (MHz)	Limit (MHz)
11b	1 Mbps	01	2412	8.117	≥ 0.5
11b	1 Mbps	06	2437	8.111	≥ 0.5
11b	1 Mbps	11	2462	8.108	≥ 0.5
11g	6 Mbps	01	2412	16.47	≥ 0.5
11g	6 Mbps	06	2437	16.48	≥ 0.5
11g	6 Mbps	11	2462	16.47	≥ 0.5
11n-HT20	MCS0	01	2412	17.76	≥ 0.5
11n-HT20	MCS0	06	2437	17.72	≥ 0.5
11n-HT20	MCS0	11	2462	17.72	≥ 0.5
11n-HT40	MCS0	03	2422	36.52	≥ 0.5
11n-HT40	MCS0	06	2437	36.56	≥ 0.5
11n-HT40	MCS0	09	2452	36.54	≥ 0.5
11be-EHT20	MCS0	01	2412	19.15	≥ 0.5
11be-EHT20	MCS0	06	2437	19.17	≥ 0.5
11be-EHT20	MCS0	11	2462	19.17	≥ 0.5
11be-EHT40	MCS0	03	2422	38.17	≥ 0.5
11be-EHT40	MCS0	06	2437	38.20	≥ 0.5
11be-EHT40	MCS0	09	2452	38.24	≥ 0.5

802.11b 6 dB Bandwidth

Channel 01 (2412 MHz)

Channel 06 (2437 MHz)

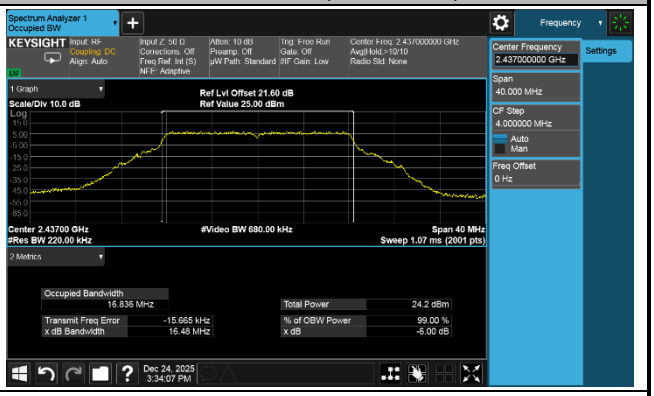


Channel 11 (2462 MHz)

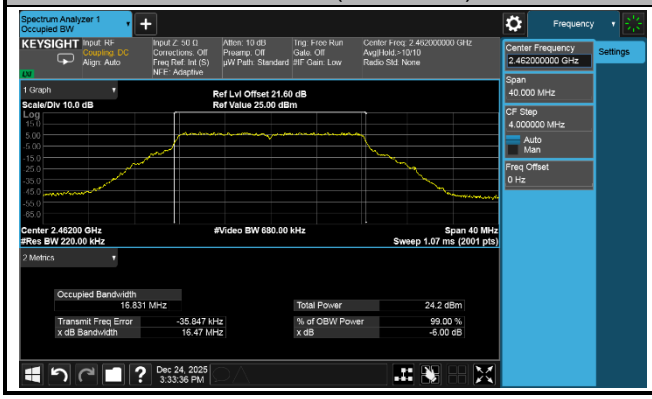
802.11g 6 dB Bandwidth

Channel 01 (2412 MHz)

Channel 06 (2437 MHz)

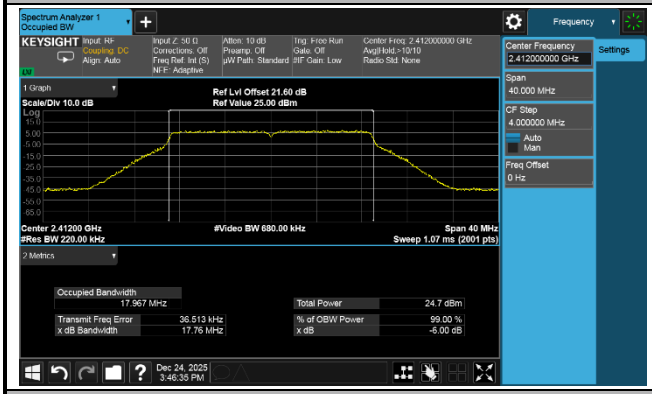


Channel 11 (2462 MHz)

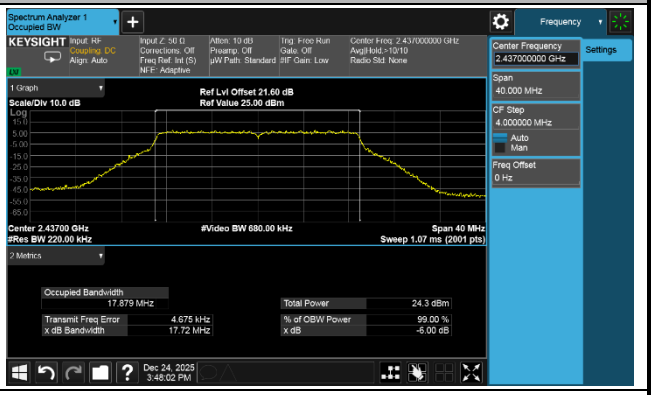


802.11n-HT20 6 dB Bandwidth

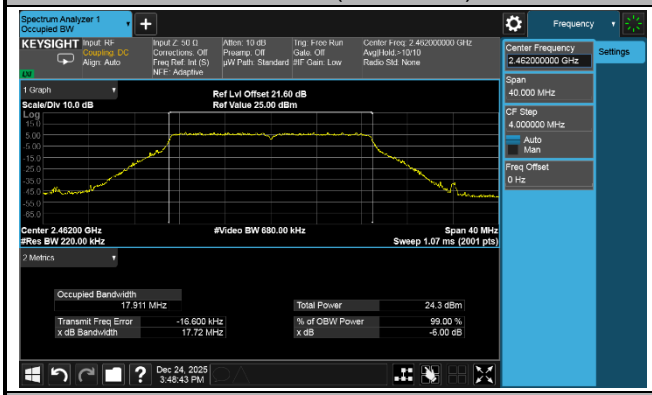
Channel 01 (2412 MHz)



Channel 06 (2437 MHz)



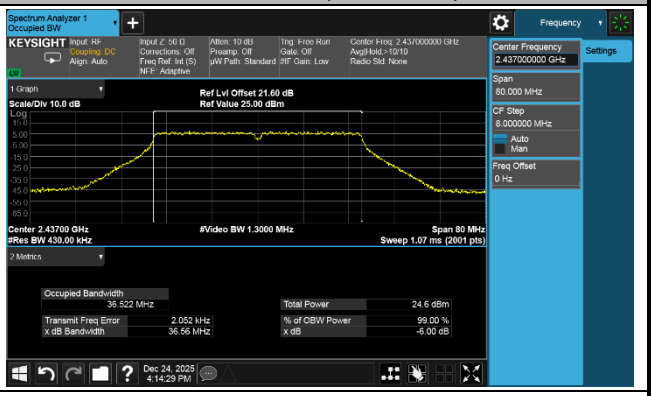
Channel 11 (2462 MHz)



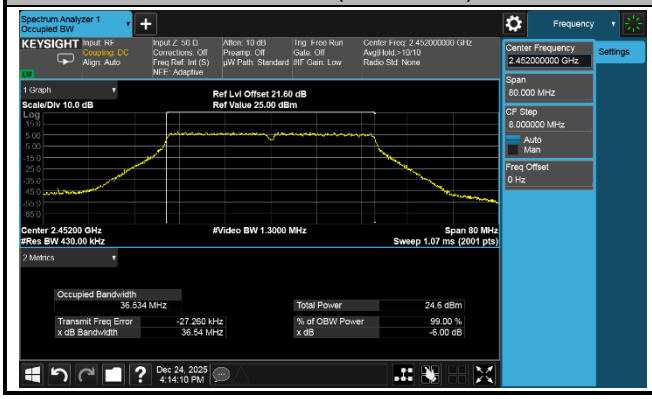
802.11n-HT40 6 dB Bandwidth

Channel 03 (2422 MHz)

Channel 06 (2437 MHz)

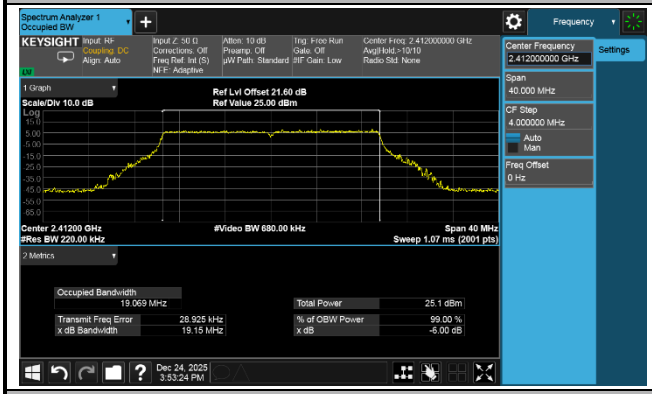


Channel 09 (2452 MHz)

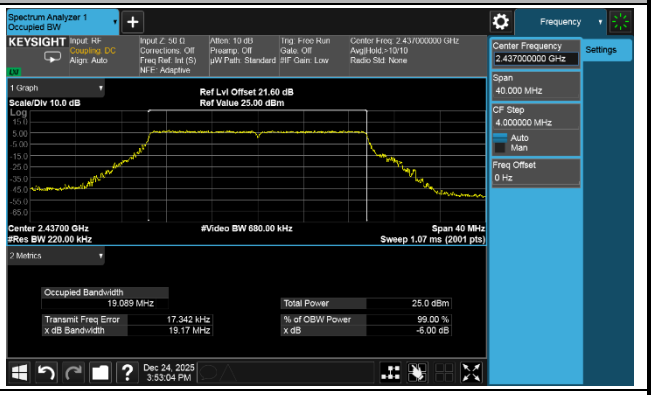


802.1be-EHT20 6 dB Bandwidth

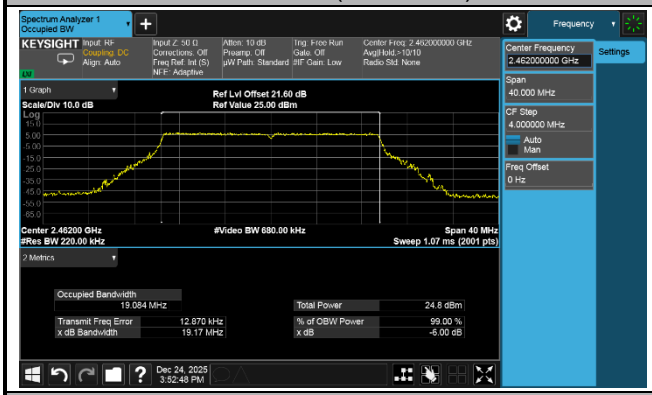
Channel 01 (2412 MHz)



Channel 06 (2437 MHz)

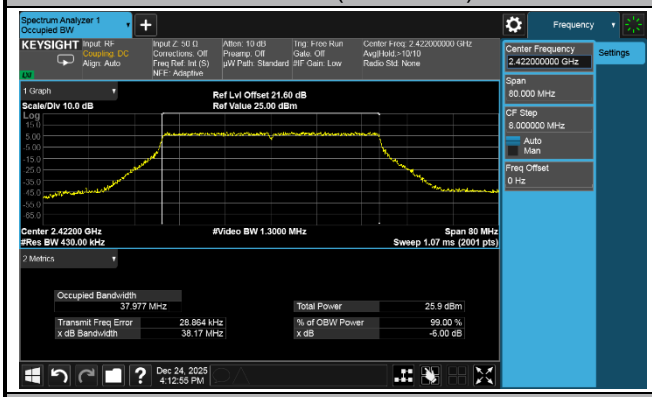


Channel 11 (2462 MHz)

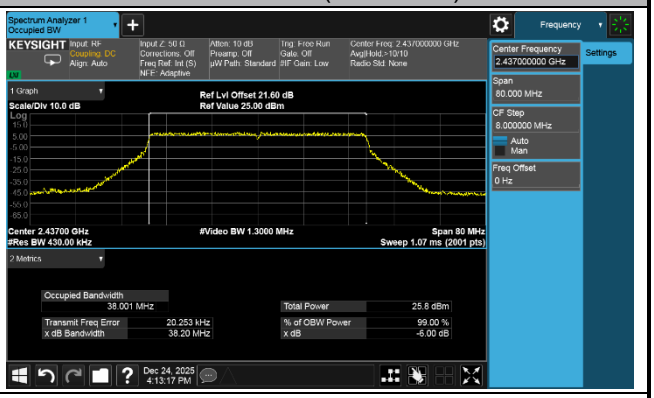


802.11be-EHT40 6 dB Bandwidth

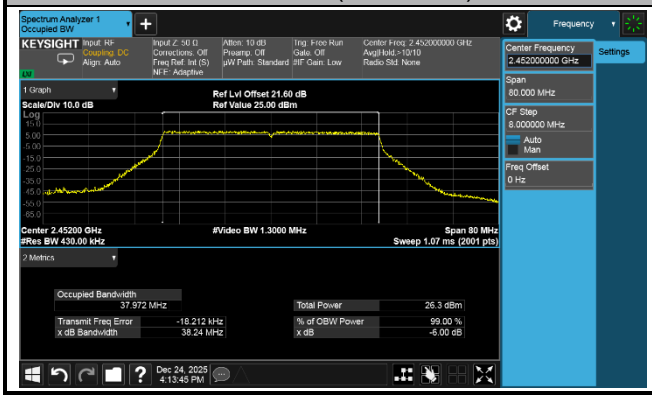
Channel 03 (2422 MHz)



Channel 06 (2437 MHz)



Channel 09 (2452 MHz)



A.3 Output Power Test Result

Test Site	SIP-TR2	Test Engineer	Ryan Wang
Test Date	2025-12-24	Test Mode	CDD Mode
Model No.	AP541e		

Test Mode	Data Rate / MCS	Channel No.	Freq. (MHz)	Average Power (dBm)				Total Average Power (dBm)	Limit (dBm)
				Ant 0	Ant 1	Ant 2	Ant 3		
11b	1 Mbps	01	2412	13.70	13.66	14.36	13.74	19.90	≤ 30.00
11b	1 Mbps	06	2437	16.66	16.75	17.12	16.62	22.81	≤ 30.00
11b	1 Mbps	11	2462	17.69	17.50	17.52	17.27	23.52	≤ 30.00
11g	6 Mbps	01	2412	16.66	16.94	17.31	16.89	22.98	≤ 30.00
11g	6 Mbps	06	2437	17.68	17.70	17.74	17.75	23.74	≤ 30.00
11g	6 Mbps	11	2462	17.78	17.80	17.52	17.66	23.71	≤ 30.00
11n-HT20	MCS0	01	2412	15.61	15.89	16.26	15.84	21.93	≤ 30.00
11n-HT20	MCS0	06	2437	17.76	17.63	17.80	17.74	23.75	≤ 30.00
11n-HT20	MCS0	11	2462	16.79	17.12	17.56	16.76	23.09	≤ 30.00
11n-HT40	MCS0	03	2422	15.71	15.48	15.57	15.65	21.62	≤ 30.00
11n-HT40	MCS0	06	2437	17.47	17.51	17.49	17.79	23.59	≤ 30.00
11n-HT40	MCS0	09	2452	15.86	16.15	16.44	15.97	22.13	≤ 30.00
11ax-HE20	MCS0	01	2412	14.69	14.87	15.12	14.92	20.92	≤ 30.00
11ax-HE20	MCS0	06	2437	17.55	17.66	17.80	17.82	23.73	≤ 30.00
11ax-HE20	MCS0	11	2462	16.29	16.37	16.81	16.58	22.54	≤ 30.00
11ax-HE40	MCS0	03	2422	15.64	15.74	16.31	15.51	21.83	≤ 30.00
11ax-HE40	MCS0	06	2437	17.52	17.37	17.47	17.79	23.56	≤ 30.00
11ax-HE40	MCS0	09	2452	16.33	16.41	16.88	16.25	22.50	≤ 30.00
11be-EHT20	MCS0	01	2412	14.87	15.01	15.49	15.03	21.13	≤ 30.00
11be-EHT20	MCS0	06	2437	17.59	17.72	17.84	17.88	23.78	≤ 30.00
11be-EHT20	MCS0	11	2462	16.51	16.65	17.12	16.69	22.77	≤ 30.00
11be-EHT40	MCS0	03	2422	15.81	15.89	16.37	15.71	21.97	≤ 30.00
11be-EHT40	MCS0	06	2437	17.56	17.43	17.64	17.88	23.65	≤ 30.00
11be-EHT40	MCS0	09	2452	16.61	16.72	16.93	16.42	22.69	≤ 30.00

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

A.4 Power Spectral Density Test Result

Test Site	SIP-TR2	Test Engineer	Ryan Wang
Test Date	2025-12-23 ~ 2026-03-04	Model No.	AP541e

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	PSD (dBm/10 kHz)				Duty Cycle (%)	10×log (1/x)	Total PSD (dBm/10 kHz)	Limit (dBm/3 kHz)
				Ant 0	Ant 1	Ant 2	Ant 3				
11b	1 Mbps	01	2412	-10.896	-10.768	-10.544	-10.600	79.12	1.02	-3.662	≤ 8.00
11b	1 Mbps	06	2437	-8.222	-8.181	-7.615	-7.771	79.12	1.02	-0.902	≤ 8.00
11b	1 Mbps	11	2462	-7.127	-7.824	-7.625	-7.255	79.12	1.02	-0.411	≤ 8.00
11g	6 Mbps	01	2412	-12.409	-11.323	-11.775	-11.727	98.84	0.05	-5.771	≤ 8.00
11g	6 Mbps	06	2437	-11.396	-11.334	-11.530	-11.190	98.84	0.05	-5.340	≤ 8.00
11g	6 Mbps	11	2462	-11.032	-10.804	-11.666	-10.889	98.84	0.05	-5.064	≤ 8.00
11n-HT20	MCS0	01	2412	-13.548	-12.905	-12.469	-12.457	97.66	0.10	-6.699	≤ 8.00
11n-HT20	MCS0	06	2437	-11.205	-11.236	-11.310	-11.344	97.66	0.10	-5.150	≤ 8.00
11n-HT20	MCS0	11	2462	-11.984	-11.961	-11.326	-11.275	97.66	0.10	-5.500	≤ 8.00
11n-HT40	MCS0	03	2422	-16.510	-16.228	-15.231	-16.300	96.95	0.13	-9.883	≤ 8.00
11n-HT40	MCS0	06	2437	-14.212	-14.967	-15.036	-14.218	96.95	0.13	-8.435	≤ 8.00
11n-HT40	MCS0	09	2452	-15.796	-15.483	-15.599	-15.806	96.95	0.13	-9.514	≤ 8.00
11be-EHT20	MCS0	01	2412	-14.877	-14.456	-13.964	-14.649	96.63	0.15	-8.304	≤ 8.00
11be-EHT20	MCS0	06	2437	-11.844	-12.241	-12.223	-11.965	96.63	0.15	-5.895	≤ 8.00
11be-EHT20	MCS0	11	2462	-13.199	-12.963	-12.568	-12.589	96.63	0.15	-6.652	≤ 8.00
11be-EHT40	MCS0	03	2422	-17.020	-17.775	-16.760	-17.301	96.28	0.16	-11.013	≤ 8.00
11be-EHT40	MCS0	06	2437	-15.165	-15.262	-15.662	-15.266	96.28	0.16	-9.149	≤ 8.00
11be-EHT40	MCS0	09	2452	-16.092	-16.133	-16.166	-16.414	96.28	0.16	-10.014	≤ 8.00

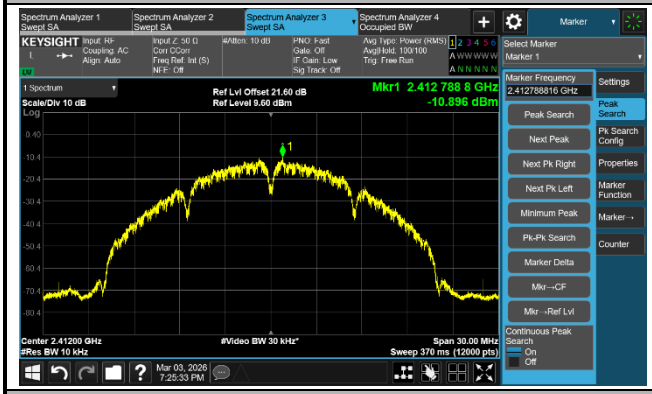
Note:

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

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

802.11b - AVGPSD - Ant 0

Channel 01 (2412 MHz)

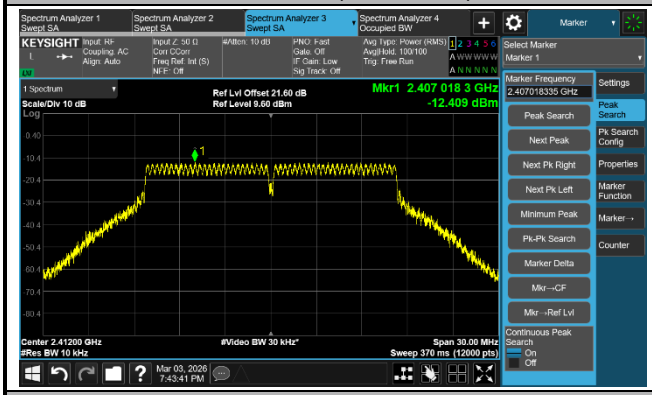


Channel 06 (2437 MHz)

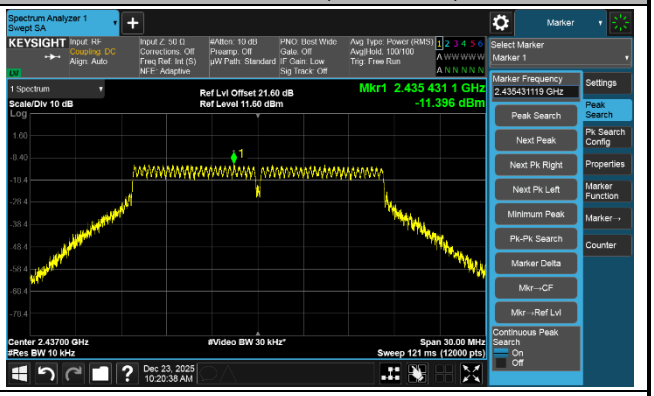
Channel 11 (2462 MHz)

802.11g - AVGPSD - Ant 0

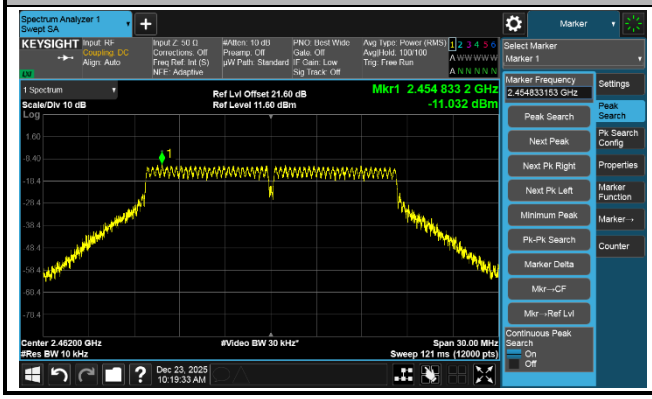
Channel 01 (2412 MHz)



Channel 06 (2437 MHz)

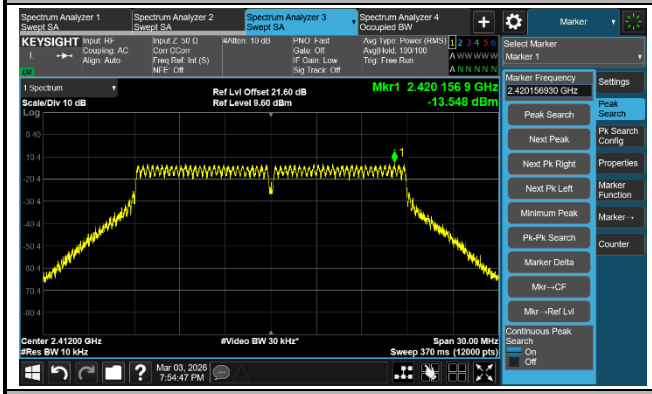


Channel 11 (2462 MHz)

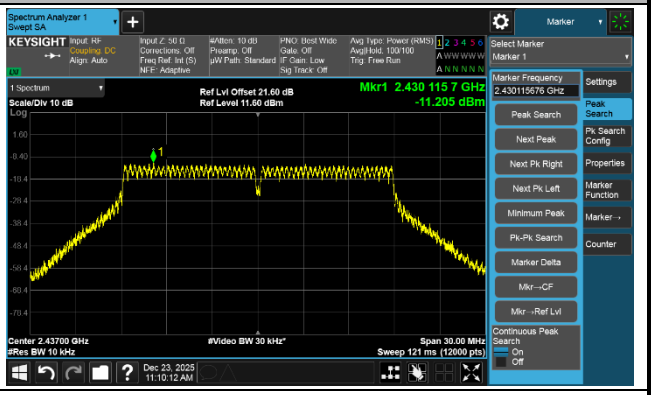


802.11n-HT20 - AVGPSD - Ant 0

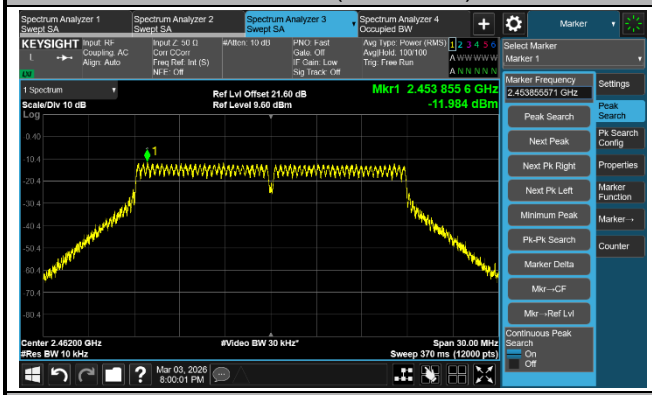
Channel 01 (2412 MHz)



Channel 06 (2437 MHz)



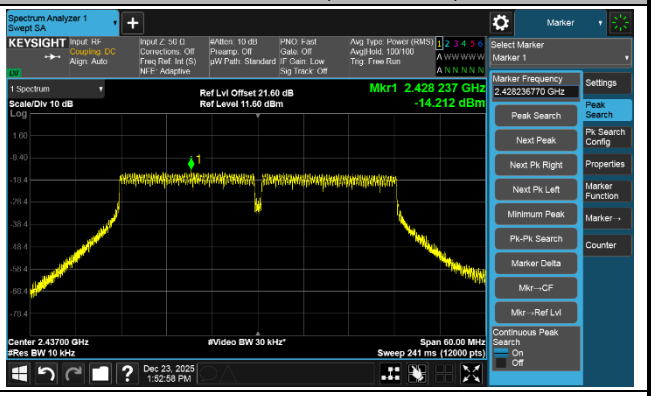
Channel 11 (2462 MHz)



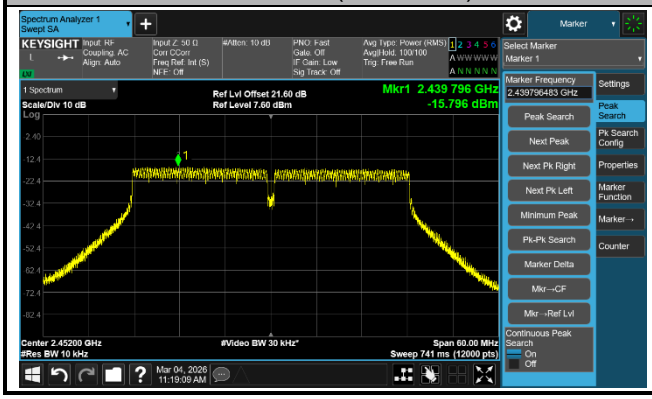
802.11n-HT40 - AVGPSD - Ant 0

Channel 03 (2422 MHz)

Channel 06 (2437 MHz)

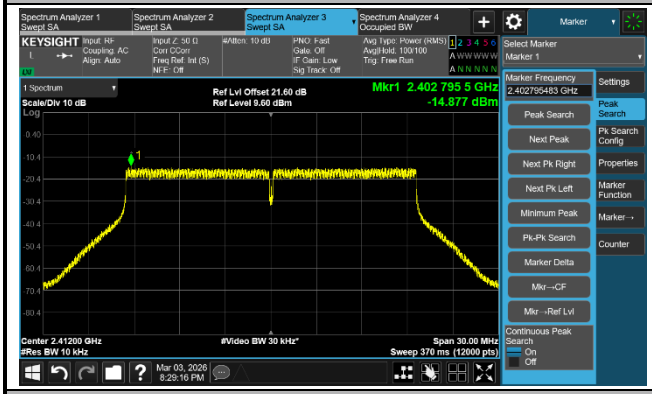


Channel 09 (2452 MHz)

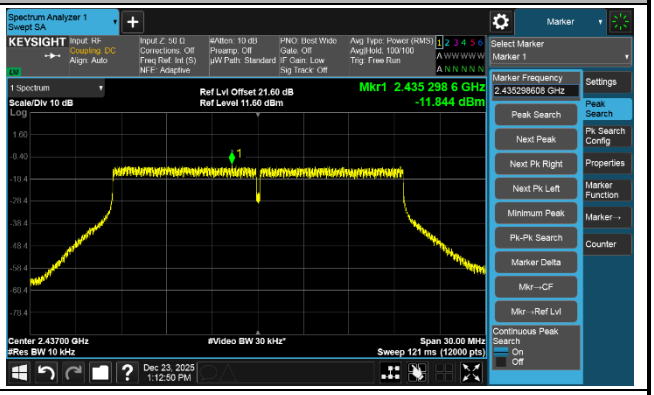


802.11be-EHT20 - AVGPSD - Ant 0

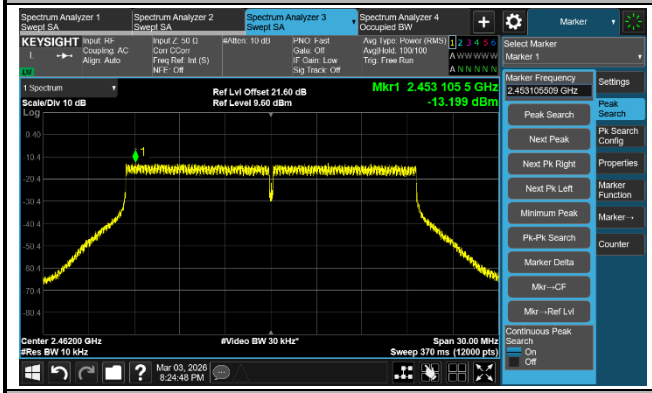
Channel 01 (2412 MHz)



Channel 06 (2437 MHz)

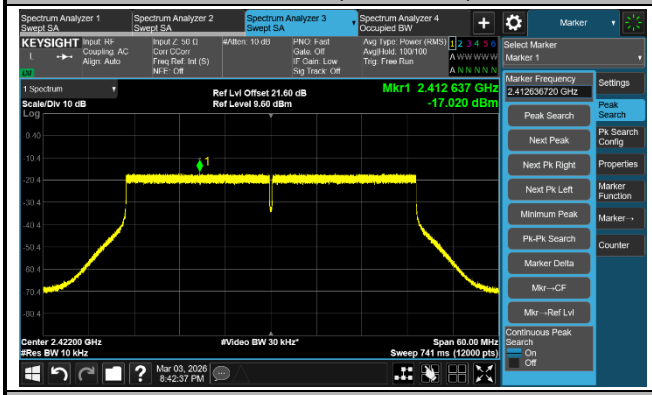


Channel 11 (2462 MHz)

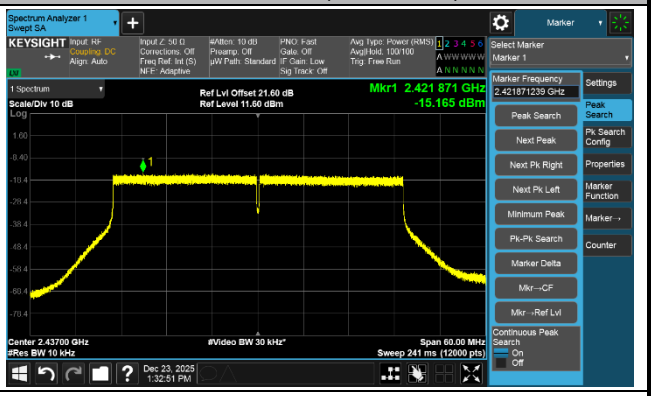


802.11be-EHT40 - AVGPSD - Ant 0

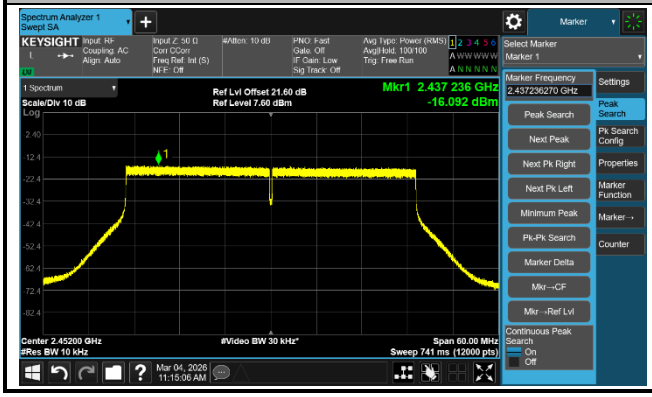
Channel 03 (2422 MHz)



Channel 06 (2437 MHz)



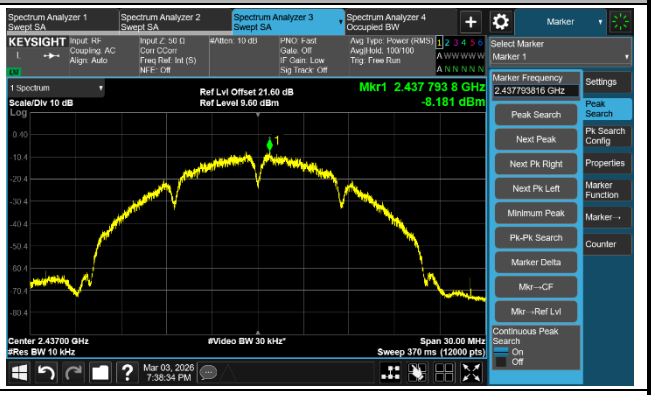
Channel 09 (2452 MHz)



802.11b - AVGPSD - Ant 1

Channel 01 (2412 MHz)

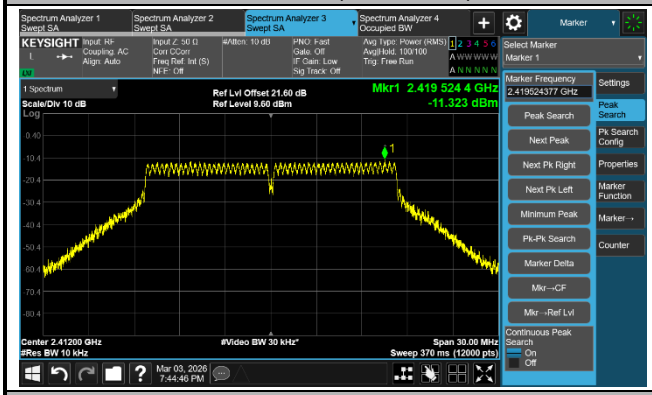
Channel 06 (2437 MHz)



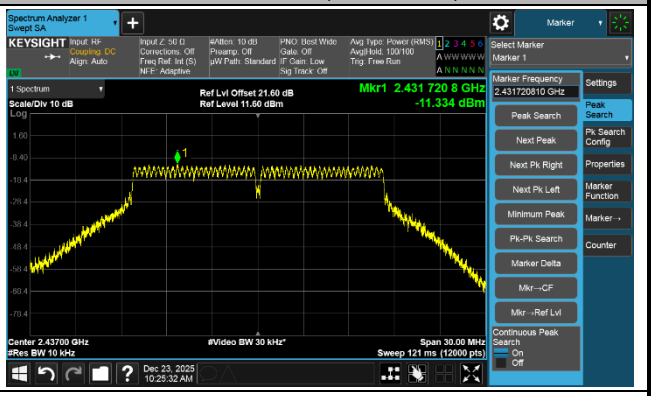
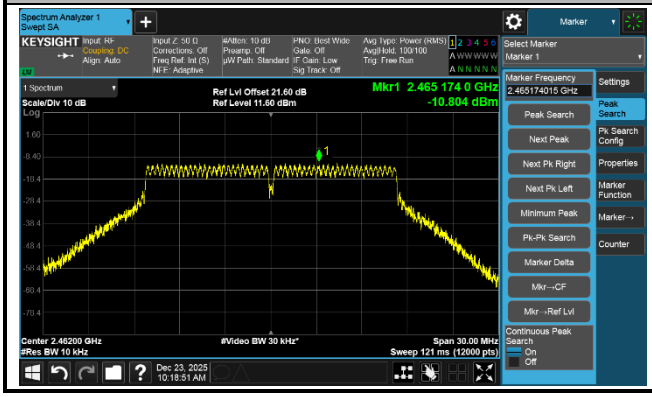
Channel 11 (2462 MHz)

802.11g - AVGPSD - Ant 1

Channel 01 (2412 MHz)



Channel 06 (2437 MHz)



Channel 11 (2462 MHz)