RF MEASUREMENT REPORT

FCC ID:	2BBNT-HE202
Applicant:	Heilongjiang Huida Technology Co., Ltd.
Product:	Intelligent Battery Charger
Model No.:	HE202
FCC Classification:	Unlicensed National Information Infrastructure (NII)
FCC Rule Part(s):	Part 15 Subpart E (Section 15.407)
Result:	Complies
Received Date:	2024-04-17
Test Date:	2024-04-19 ~ 2024-05-07

Reviewed By: Vincent Yu

Approved By: Robin Wu

Revision History

Report No.	Version	Description	Issue Date	Note
2404RSU029-U2	V01	Initial Report	2025-03-20	Valid

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1. General Information

1.1. Applicant

Heilongjiang Huida Technology Co., Ltd.

Building 1, Science Innovation Headquarters, Shenzhen (Harbin) industrial park, 288 Zhigu Street, Songbei district, Harbin

1.2. Manufacturer

Heilongjiang Huida Technology Co., Ltd.

Building 1, Science Innovation Headquarters, Shenzhen (Harbin) industrial park, 288 Zhigu Street, Songbei district, Harbin

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 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	Intelligent Battery Charger
Model No.	HE202
EUT Identification No.	20240417Sample#08 (For Conducted testing) 20240417Sample#06 (For Radiated testing)
Wi-Fi Specification	802.11a/b/g/n/ac
Antenna Specification	Refer to Section 1.7
Operating Temp.	-10 ~ 40°C
Power Type	Input: 110 - 230V ~ 10A Output: 73.3V/30A & 78.6V/110A
Note: The information of EUT was provided by the manufacturer, and the accuracy of the information shall be the responsibility of the manufacturer.	

1.5. Radio Specification under Test

Frequency Range	For 802.11a/n-HT20/ac-VHT20: 5180~5240MHz, 5745~5825MHz For 802.11n-HT40/ac-VHT40: 5190~5230MHz, 5755~5795MHz For 802.11ac-VHT80: 5210MHz, 5775MHz
Type of Modulation	802.11a/n/ac: OFDM
Data Rate	802.11a: 6/9/12/18/24/36/48/54Mbps 802.11n: up to 150Mbps 802.11ac: up to 433.3Mbps

1.6. Working Frequencies

802.11a/n-HT20/ac-VHT20

Channel	Frequency	Channel	Frequency	Channel	Frequency
36	5180 MHz	40	5200 MHz	44	5220 MHz
48	5240 MHz	149	5745 MHz	153	5765 MHz
157	5785 MHz	161	5805 MHz	165	5825 MHz

802.11n-HT40/ac-VHT40

Channel	Frequency	Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz	151	5755 MHz
159	5795 MHz	--	--	--	--

802.11ac-VHT80

Channel	Frequency	Channel	Frequency	Channel	Frequency
42	5210 MHz	155	5775 MHz	--	--

1.7. Antenna Details

Antenna Type	Frequency Range (MHz)	Antenna Tx Paths	Max Peak Gain (dBi)
Wi-Fi Antenna			
Dipole	2400 ~ 2483.5	1	-0.65
	5150 ~ 5250	1	-0.90
	5725 ~ 5850	1	0.85

2. Test Configuration

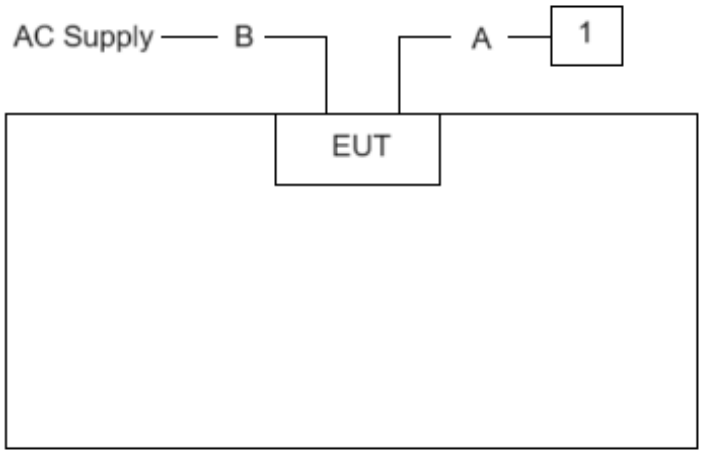
2.1. Test Mode

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)
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 which power is the greatest.

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 – Radiated Emission testing & AC Conducted Emissions



Cable Type		Cable Description	Length
A	USB Cable	Shielded	1.0m
B	Power Cable	Non shielded	2.0m
Product		Manufacturer	Model No.
1	Notebook	HP	445R G6

2.3. Test Software

The test utility software used during testing was “adb.exe”, and the commands were provided by the manufacturer

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
- 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 device is **permanently attached.**
- There are no provisions for connection to an external antenna.

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	2024-12-17	SIP-AC1
Anechoic Chamber	RIKEN	SIP-AC1	MRTSUE06554	1 year	2024-12-21	SIP-AC1
Thermohygrometer	testo	608-H1	MRTSUE06616	1 year	2024-10-28	SIP-AC1
Loop Antenna	Schwarzbeck	FMZB 1519 B	MRTSUE06937	1 year	2025-01-27	SIP-AC1
Cable	HUBER+SUHNER	SF106	MRTSUE06594	1 year	2024-12-20	SIP-AC1
Cable	HUBER+SUHNER	SF106	MRTSUE06874	1 year	2024-12-20	SIP-AC1
Cable	HUBER+SUHNER	SF106	MRTSUE06522	1 year	2024-05-08	SIP-AC2
Cable	HUBER+SUHNER	SF106	MRTSUE06875	1 year	2024-12-20	SIP-AC2
Horn Antenna	Schwarzbeck	BBHA 9170	MRTSUE06598	1 year	2024-11-04	SIP-AC2
Preamplifier	EMCI	EMC051845SE	MRTSUE06601	1 year	2024-11-02	SIP-AC2
Preamplifier	EMCI	EMC184045SE	MRTSUE06602	1 year	2024-10-09	SIP-AC2
Signal Analyzer	Keysight	N9010B	MRTSUE06603	1 year	2024-09-27	SIP-AC2
EMI Test Receiver	R&S	ESR3	MRTSUE06613	1 year	2024-10-23	SIP-AC2
Thermohygrometer	testo	608-H1	MRTSUE06622	1 year	2024-11-03	SIP-AC2
TRILOG Antenna	Schwarzbeck	VULB 9168	MRTSUE06647	1 year	2024-06-17	SIP-AC2
Horn Antenna	Schwarzbeck	BBHA 9120D	MRTSUE06648	1 year	2024-10-21	SIP-AC2
Anechoic Chamber	RIKEN	SIP-AC2	MRTSUE06781	1 year	2024-12-21	SIP-AC2
Two-Line V-Network	R&S	ENV216	MRTSUE06003	1 year	2024-05-23	SIP-SR2
EMI Test Receiver	R&S	ESR3	MRTSUE06612	1 year	2024-05-23	SIP-SR2
Thermohygrometer	testo	608-H1	MRTSUE06621	1 year	2024-11-03	SIP-SR2
Shielding Room	MIX-BEP	SIP-SR2	MRTSUE06949	5 years	2024-10-23	SIP-SR2
Cable	HUBER+SUHNER	RG 233/U	MRTSUE06872	1 year	2024-12-24	SIP-SR2
Thermohygrometer	testo	608-H1	MRTSUE11022	1 year	2024-10-28	SIP-TR1
USB Power Sensor	Keysight	U2021XA	MRTSUE06596	1 year	2024-07-31	SIP-TR1
Signal Analyzer	Keysight	N9010B	MRTSUE07036	1 year	2025-02-03	SIP-TR1

Software	Version	Function
EMI Software	V3.0.0	EMI Test Software
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: 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)(iv), (3)(i)	Maximum Conducted Output Power		Pass
15.407(h)(1)	Transmit Power Control		N/A
15.407(g)	Frequency Stability		Pass
15.407(a)(1)(iv), (3)(i), (13)	Peak Power Spectral Density		Pass
15.407(h)(2)	Dynamic Frequency Selection (DFS)		Note 2
15.407(b)(1), (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. Dynamic frequency selection for devices operating in the bands 5250-5350 MHz and 5470-5725 MHz. The device only operates in the bands 5150-5250MHz and 5725-5850MHz, so the item is not applicable.
3. “N/A” means that this item is not applicable, and the detail information refer to relevant section.

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

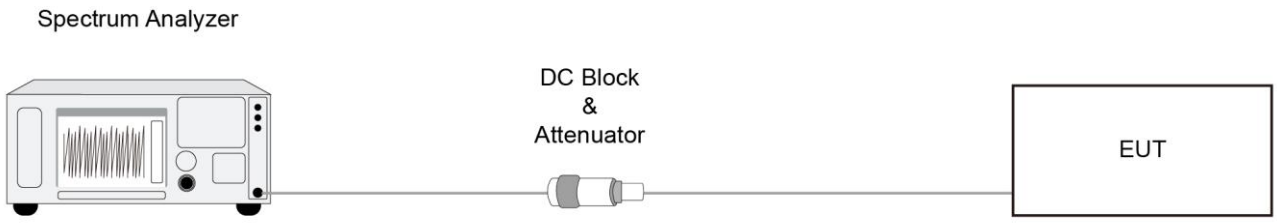
26dB Bandwidth

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 6dB Bandwidth shall be at least 500 kHz.

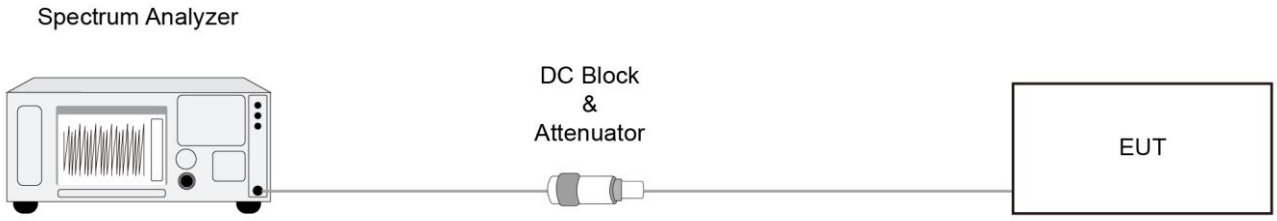
6.3.2. Test Procedure

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 client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi.

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

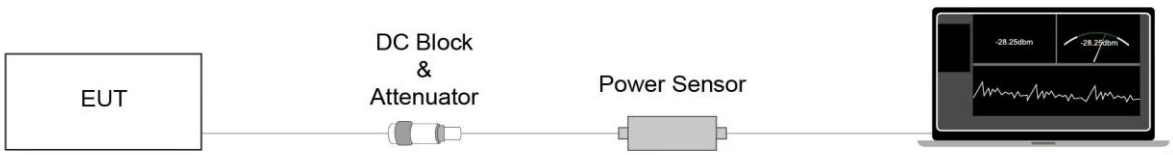
KDB 789033D02v02r01- Section II)E)3)b) Method PM-G

6.4.3. Test Setting

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.

6.4.4. 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.

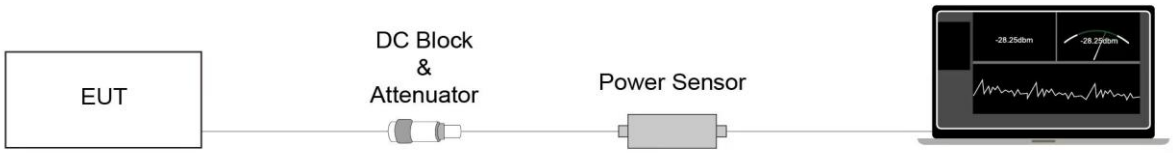
6.5.2. Test Procedure

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

The device only operates in the bands 5150-5250MHz and 5725-5850MHz, so the item is not applicable.

6.6. Power Spectral Density Measurement

6.6.1. Test Limit

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

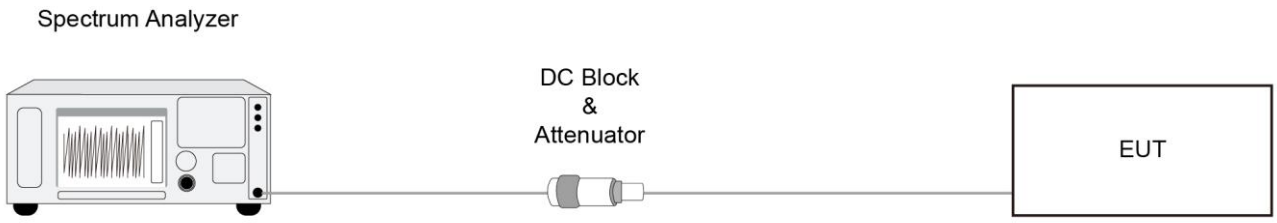
6.6.2. Test Procedure

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:

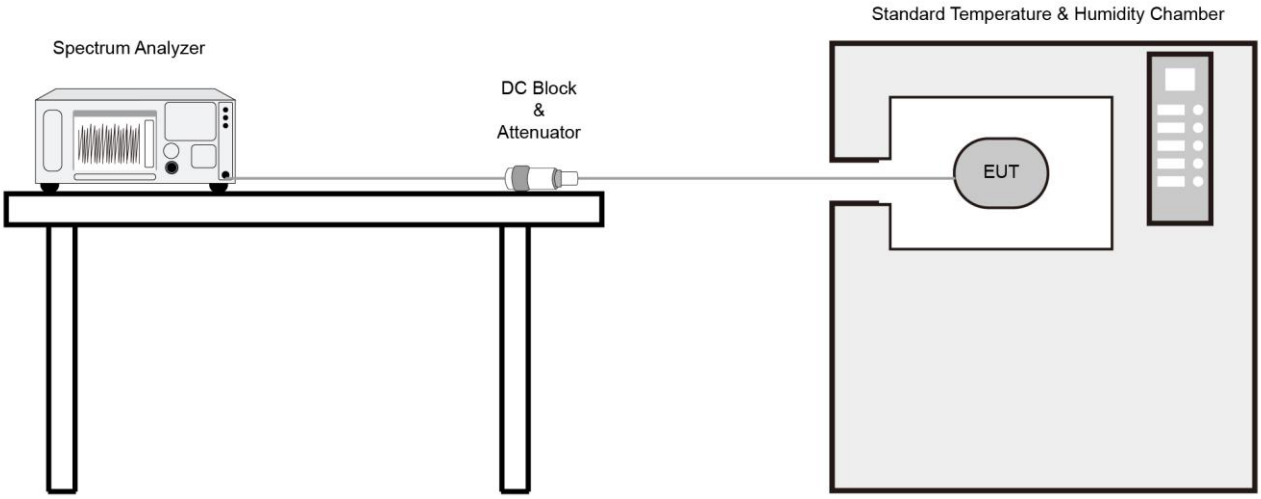
The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain 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 [uV/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

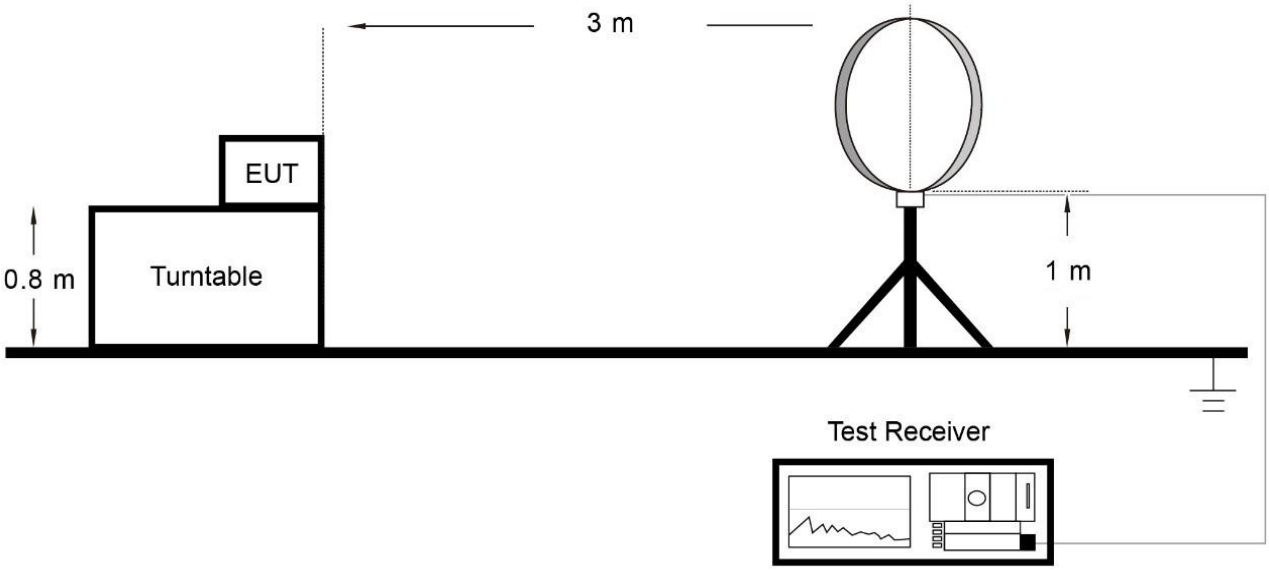
Average Measurements above 1GHz (Method VB)

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

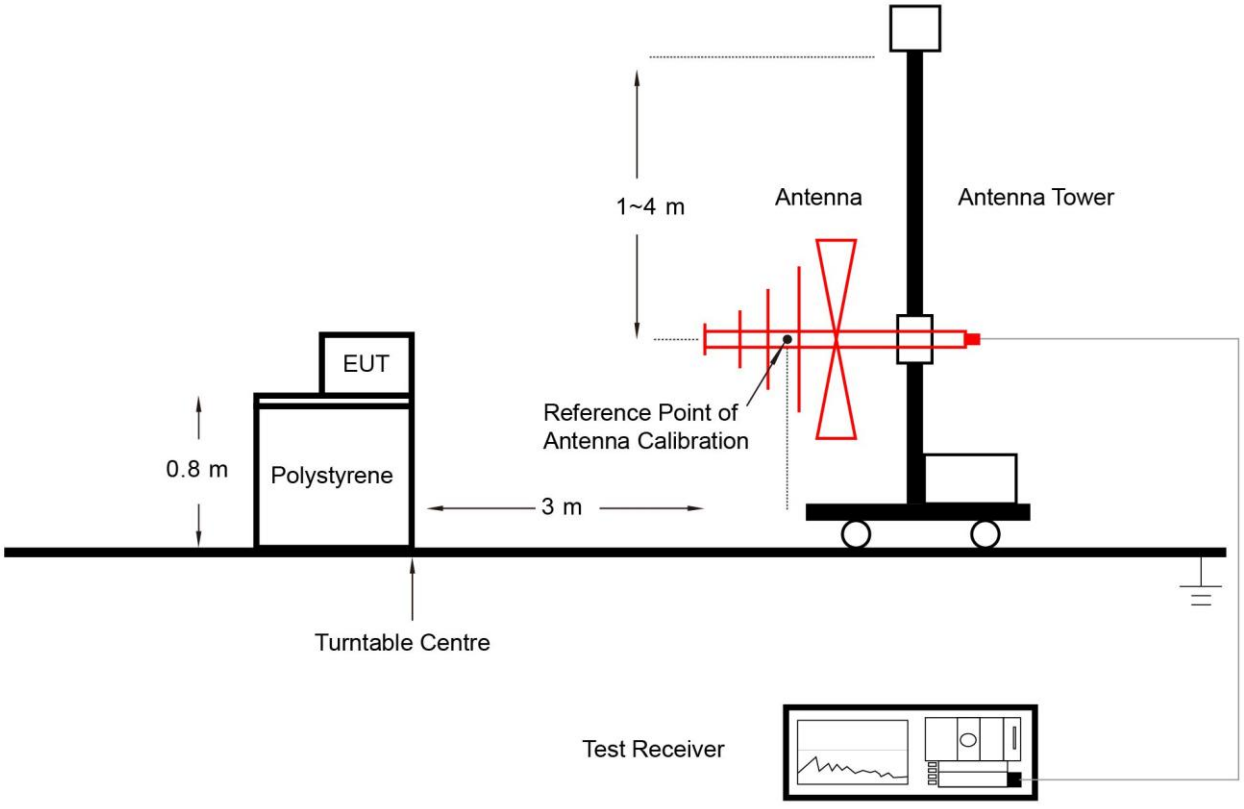
   If the EUT duty cycle is < 98%, set VBW ≥ 1/T. T is the minimum transmission duration.
4. As an alternative, the instrument may be set to linear detector mode. Ensure that video filtering is applied in linear voltage domain (rather than in a log or dB domain). Some instruments require linear display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

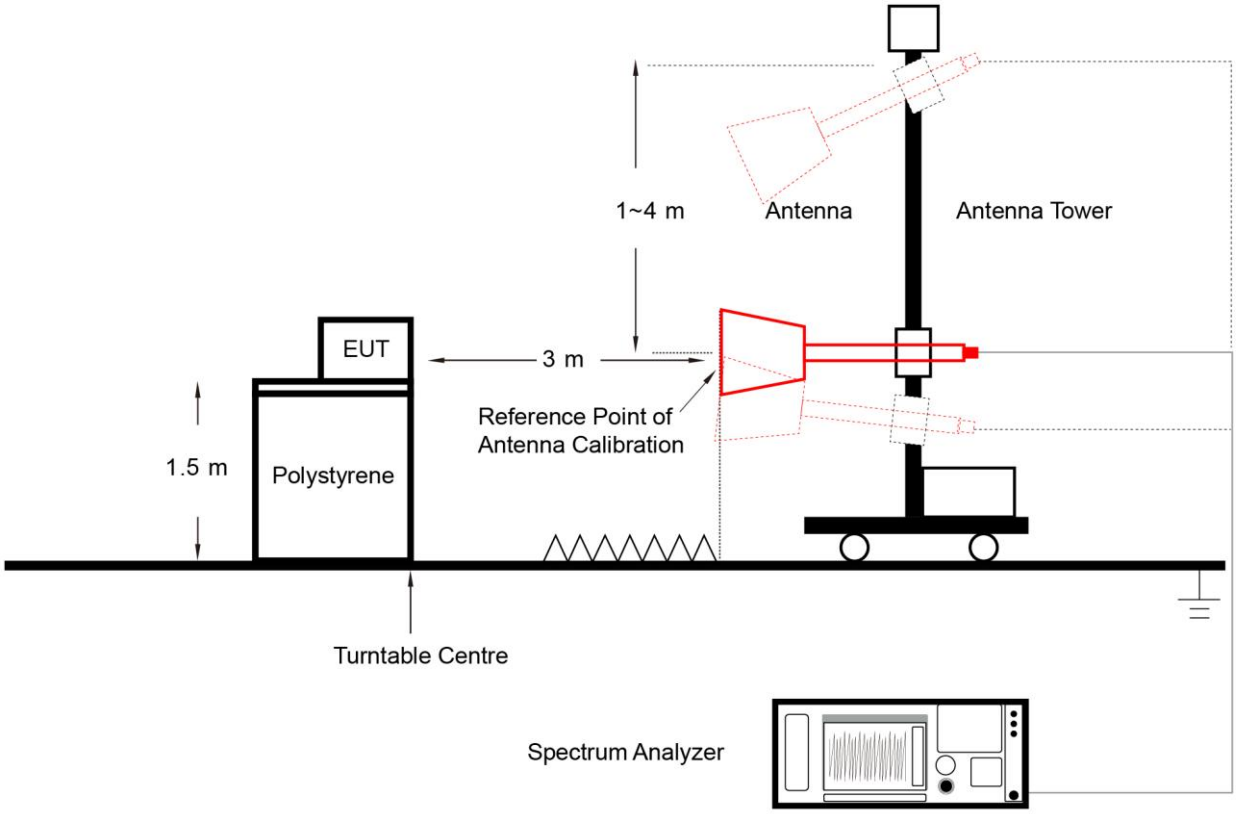
Below 30MHz Test Setup:



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	--	--	--

[1]Until February 1, 1999, this restricted band shall be 0.490-0.510MHz.

[2]Above 38.6

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 5.725-5.85 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 [uV/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

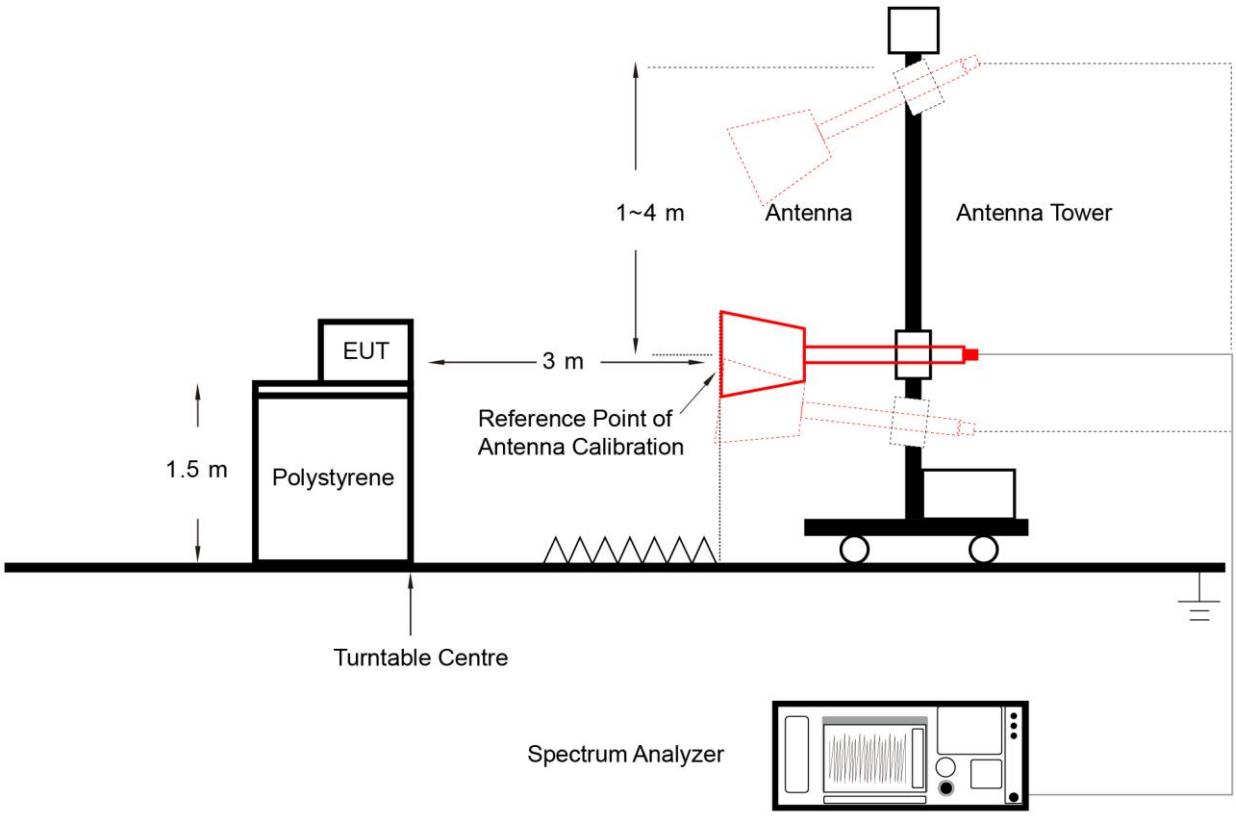
Peak Field Strength Measurements

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

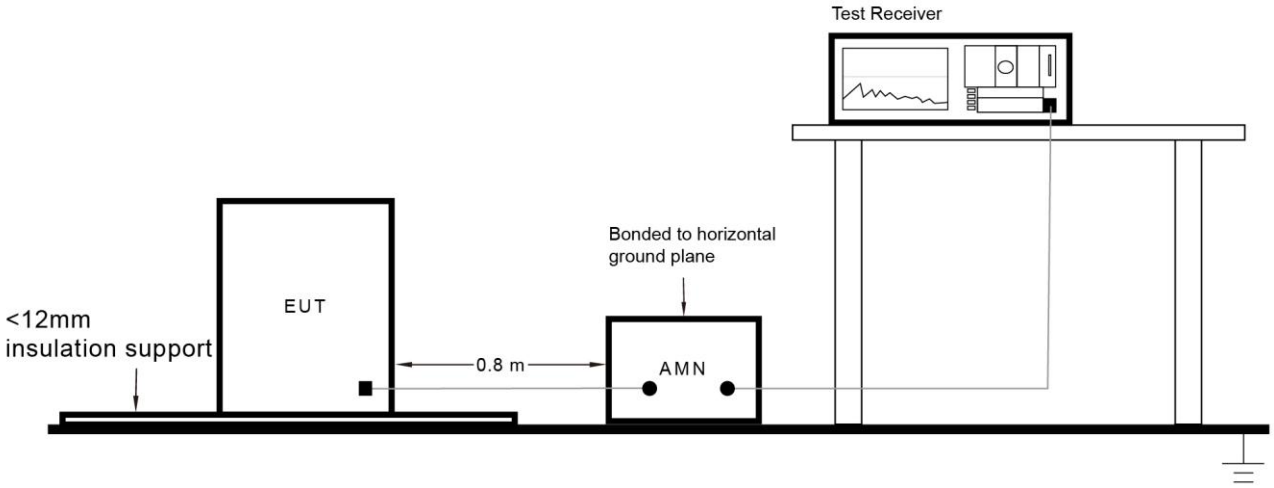
Refer to Appendix A.8.

6.10. AC Conducted Emissions Measurement

6.10.1. Test Limit

FCC Part 15.207 Limits		
Frequency (MHz)	QP (dBuV)	AV (dBuV)
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

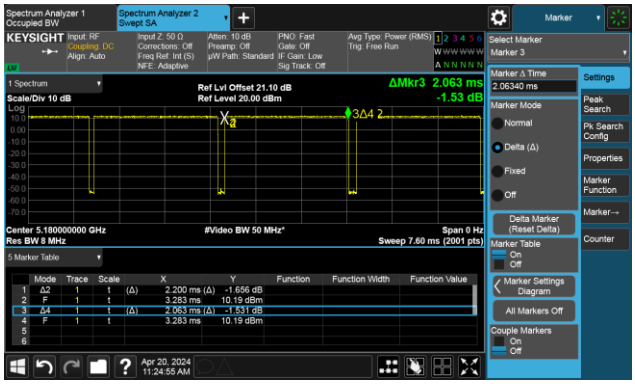
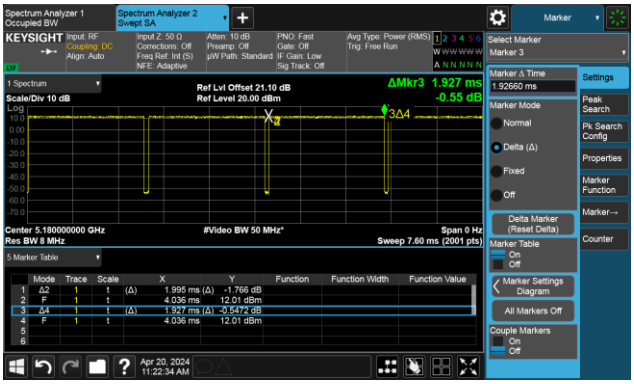
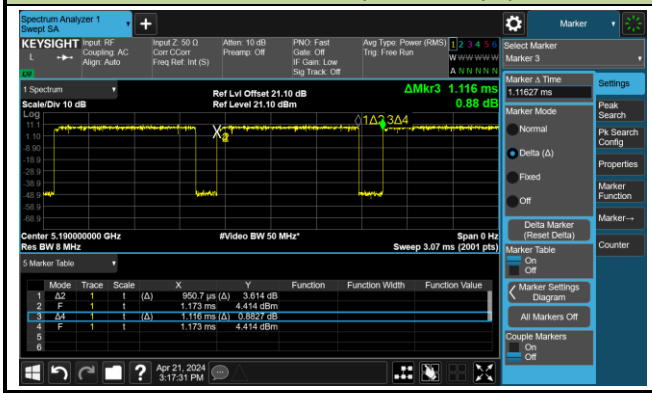
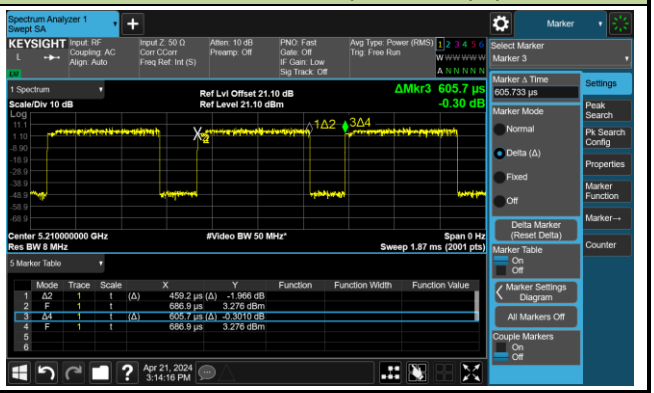
Refer to Appendix A.9.

Appendix A – Test Result

A.1 Duty Cycle Test Result

Test Site	SIP-TR1	Test Engineer	Alisa Deng
Test Date	2024-04-20 ~ 2024-04-21		

Test Mode	Duty Cycle
802.11a	93.77%
802.11ac-VHT20	96.59%
802.11ac-VHT40	85.19%
802.11ac-VHT80	75.81%

Duty Cycle (T = Transmission Duration)	
802.11a (T = 2.063ms)	802.11ac-VHT20 (T = 1.927ms)
	
802.11ac-VHT40 (T = 950.7μs)	802.11ac-VHT80 (T = 459.2μs)
	

A.2 26dB Bandwidth Test Result

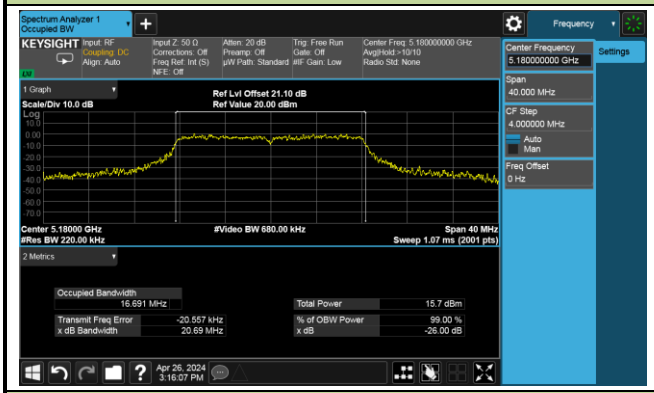
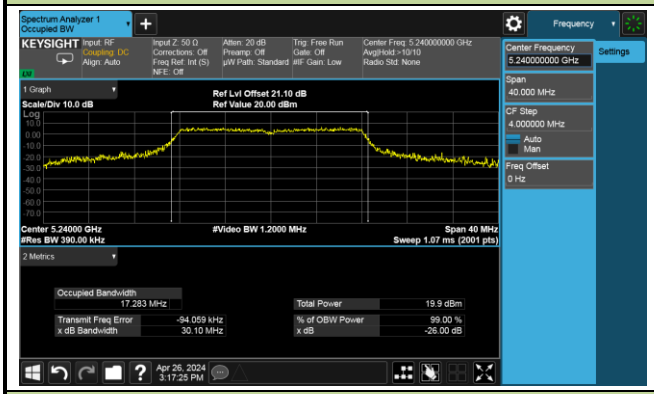
Test Site	SIP-TR1	Test Engineer	Alisa Deng
Test Date	2024-04-19 ~ 2024-04-26		

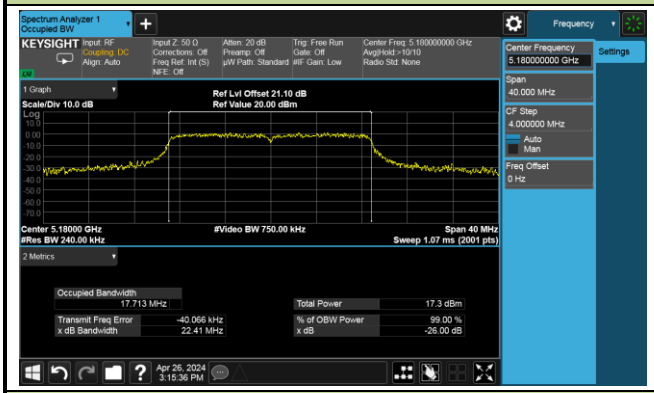
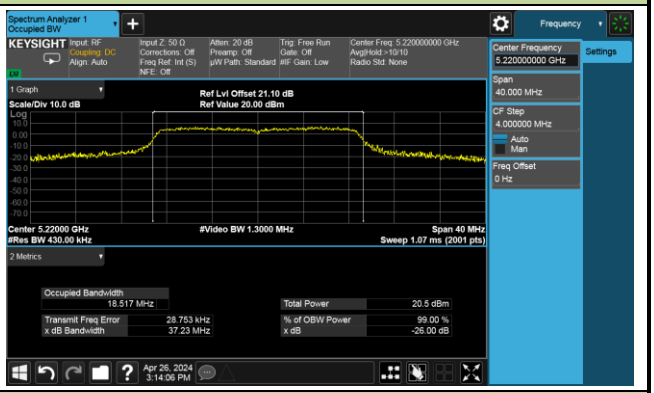
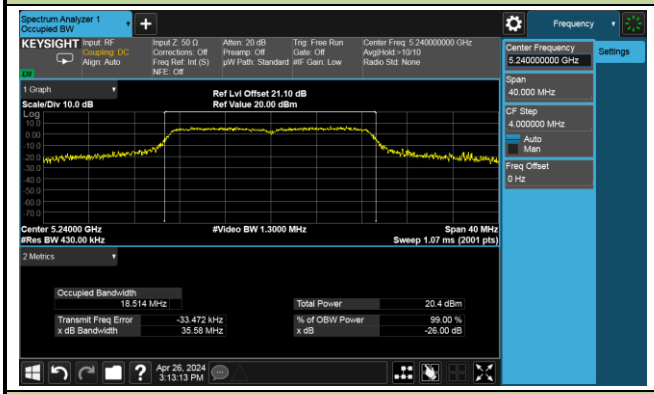
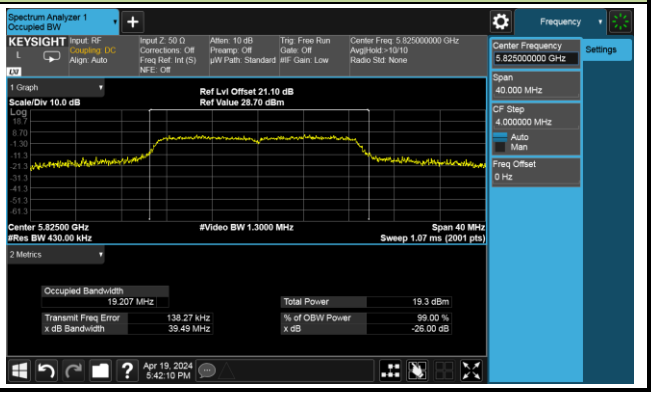
Test Mode	Data Rate/ MCS	Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
11a	6Mbps	36	5180	20.69	16.691
11a	6Mbps	44	5220	35.70	17.397
11a	6Mbps	48	5240	30.10	17.283
11a	6Mbps	149	5745	37.70	18.710
11a	6Mbps	157	5785	38.31	19.596
11a	6Mbps	165	5825	39.21	19.307
11ac-VHT20	MCS0	36	5180	22.41	17.713
11ac-VHT20	MCS0	44	5220	37.23	18.517
11ac-VHT20	MCS0	48	5240	35.58	18.514
11ac-VHT20	MCS0	149	5745	38.85	19.671
11ac-VHT20	MCS0	157	5785	37.18	19.816
11ac-VHT20	MCS0	165	5825	39.49	19.207
11ac-VHT40	MCS0	38	5190	42.09	36.165
11ac-VHT40	MCS0	46	5230	71.52	36.829
11ac-VHT40	MCS0	151	5755	76.63	37.800
11ac-VHT40	MCS0	159	5795	75.39	38.147
11ac-VHT80	MCS0	42	5210	90.17	75.536
11ac-VHT80	MCS0	155	5775	156.9	77.440

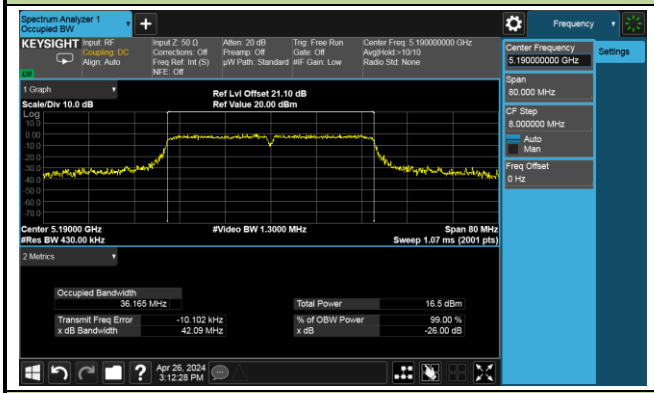
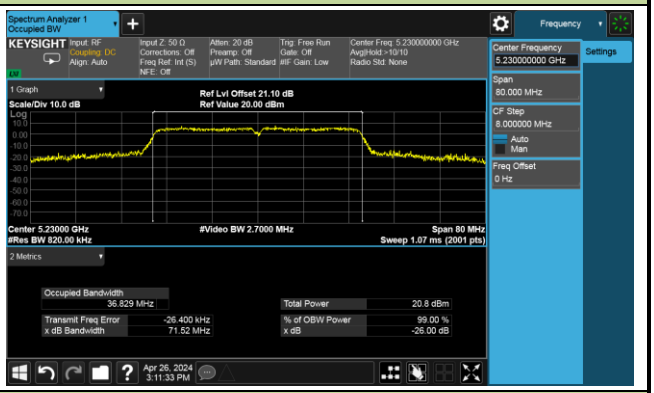
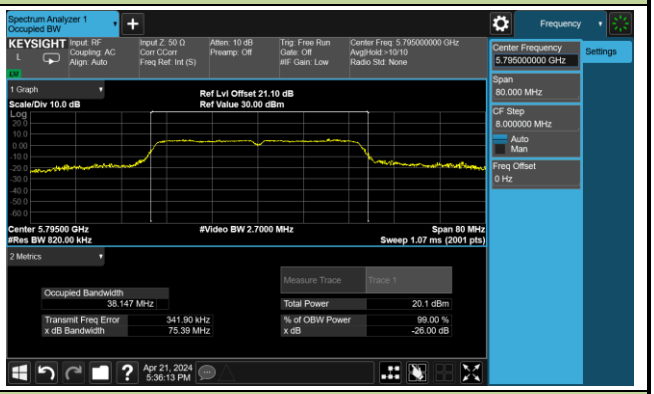
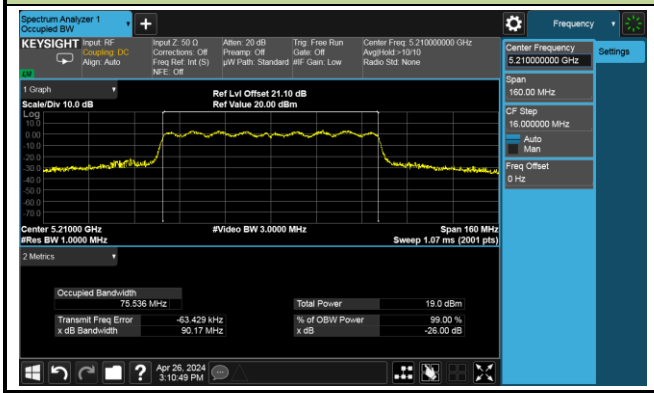
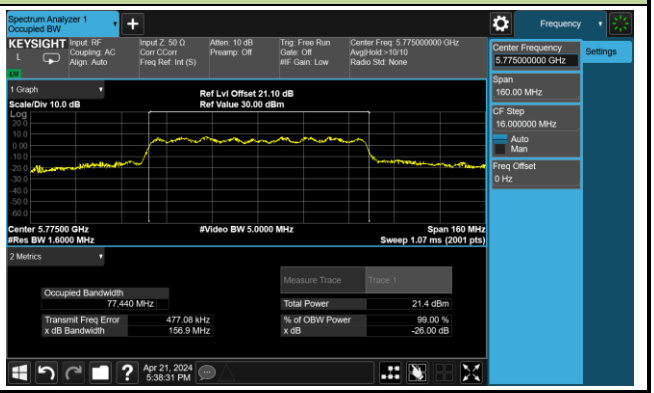
Test Mode	Data Rate/ MCS	Channel No.	Frequency (MHz)	F_H (MHz)	Limit (MHz)
802.11a	6Mbps	48	5240	5248.64	< 5250
802.11ac-VHT20	MCS0	48	5240	5249.26	< 5250
802.11ac-VHT40	MCS0	46	5230	5248.41	< 5250
802.11ac-VHT80	MCS0	42	5210	5247.77	< 5250

Note: F_H = Centre frequency + 99% OBW / 2.

For example, 802.11a 5240MHz, F_H = 5240 MHz + 17.283 MHz / 2 = 5248.64 MHz.

802.11a 26dB Bandwidth & 99% Bandwidth	
Channel 36 (5180MHz)	Channel 44 (5220MHz)
	
Channel 48 (5240MHz)	Channel 149 (5745MHz)
	
Channel 157 (5785MHz)	Channel 165 (5825MHz)
	

802.11ac-VHT20 26dB Bandwidth & 99% Bandwidth	
Channel 36 (5180MHz)	Channel 44 (5220MHz)
	
Channel 48 (5240MHz)	Channel 149 (5745MHz)
	
Channel 157 (5785MHz)	Channel 165 (5825MHz)
	

802.11ac-VHT40 26dB Bandwidth & 99% Bandwidth	
Channel 38 (5190MHz)	Channel 46 (5230MHz)
	
Channel 151 (5755MHz)	Channel 159 (5795MHz)
	
802.11ac-VHT80 26dB Bandwidth & 99% Bandwidth	
Channel 42 (5210MHz)	Channel 155 (5775MHz)
	

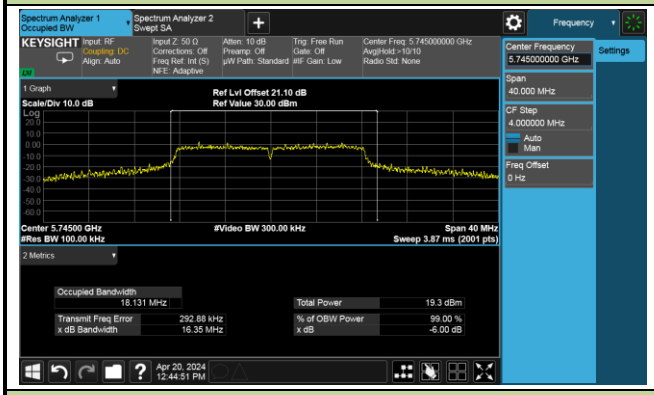
A.3 6dB Bandwidth Test Result

Test Site	SIP-TR1	Test Engineer	Alisa Deng
Test Date	2024-04-20 ~ 2024-04-21		

Test Mode	Data Rate/ MCS	Channel No.	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (MHz)
11a	6Mbps	149	5745	16.35	≥0.5
11a	6Mbps	157	5785	16.33	≥0.5
11a	6Mbps	165	5825	16.33	≥0.5
11ac-VHT20	MCS0	149	5745	17.17	≥0.5
11ac-VHT20	MCS0	157	5785	17.54	≥0.5
11ac-VHT20	MCS0	165	5825	17.28	≥0.5
11ac-VHT40	MCS0	151	5755	35.58	≥0.5
11ac-VHT40	MCS0	159	5795	35.80	≥0.5
11ac-VHT80	MCS0	155	5775	75.21	≥0.5

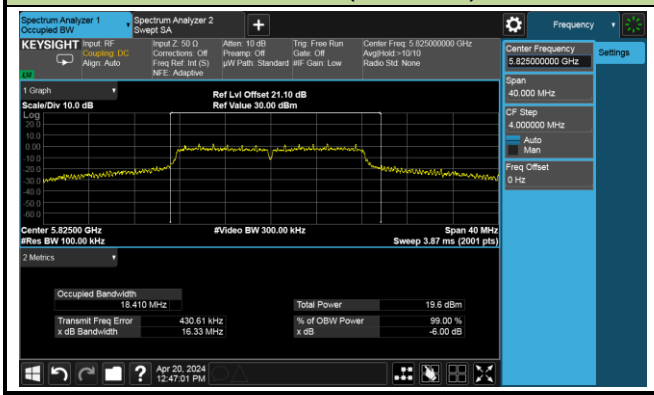
802.11a 6dB Bandwidth

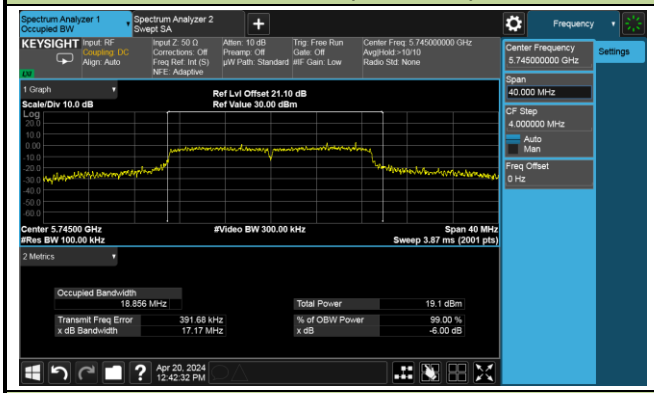
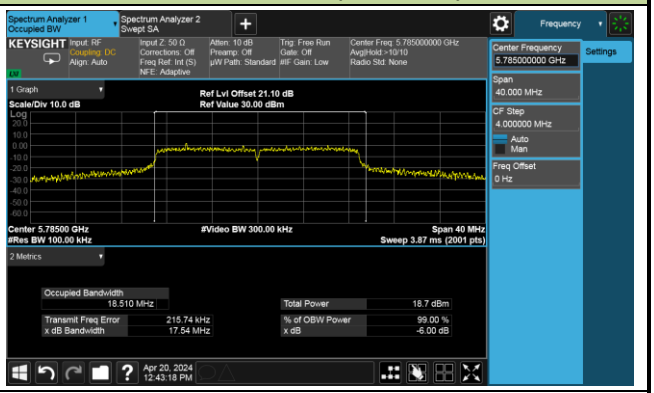
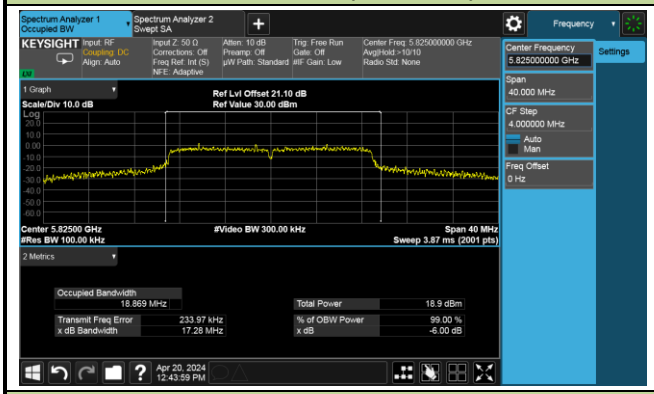
Channel 149 (5745MHz)

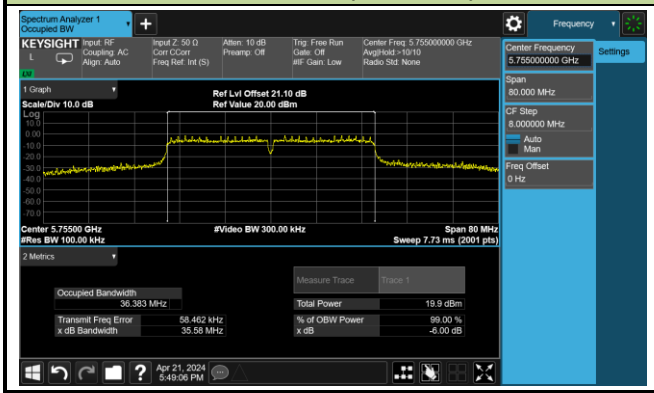
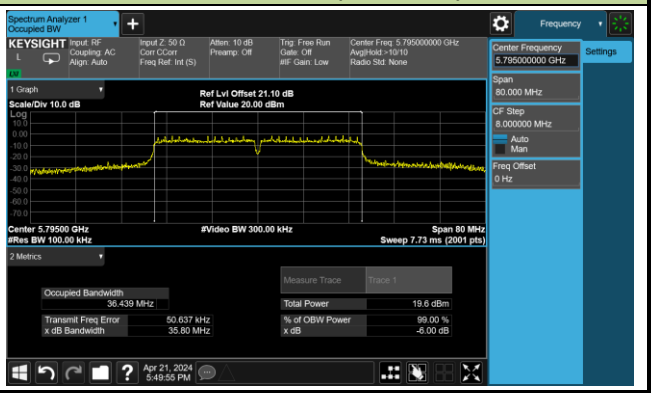


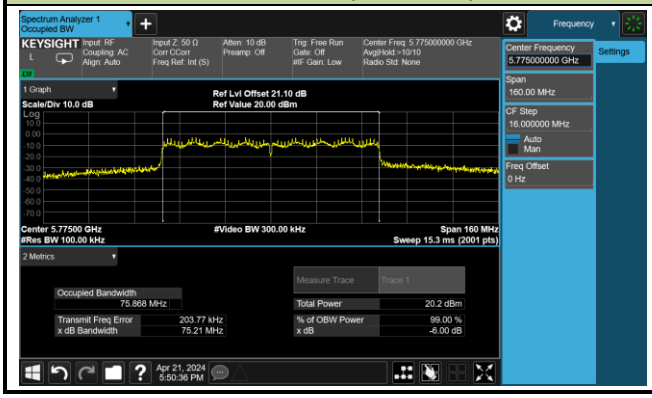
Channel 157 (5785MHz)

Channel 165 (5825MHz)



802.11ac-VHT20 6dB Bandwidth	
Channel 149 (5745MHz)	Channel 157 (5785MHz)
	
Channel 165 (5825MHz)	
	

802.11ac-VHT40 6dB Bandwidth	
Channel 151 (5755MHz)	Channel 159 (5795MHz)
	

802.11ac-VHT80 6dB Bandwidth	
Channel 155 (5775MHz)	
	

A.4 Output Power Test Result

Test Site	SIP-TR1	Test Engineer	Alisa Deng
Test Date	2024-04-21		

Test Mode	Data Rate MCS	Channel No.	Freq. (MHz)	Average Power (dBm)	Power Limit (dBm)
11a	6Mbps	36	5180	10.93	≤ 23.98
11a	6Mbps	44	5220	14.49	≤ 23.98
11a	6Mbps	48	5240	14.18	≤ 23.98
11a	6Mbps	149	5745	14.33	≤ 30.00
11a	6Mbps	157	5785	14.41	≤ 30.00
11a	6Mbps	165	5825	14.20	≤ 30.00
11ac-VHT20	MCS0	36	5180	12.40	≤ 23.98
11ac-VHT20	MCS0	44	5220	14.73	≤ 23.98
11ac-VHT20	MCS0	48	5240	14.55	≤ 23.98
11ac-VHT20	MCS0	149	5745	14.45	≤ 30.00
11ac-VHT20	MCS0	157	5785	14.01	≤ 30.00
11ac-VHT20	MCS0	165	5825	14.08	≤ 30.00
11ac-VHT40	MCS0	38	5190	11.42	≤ 23.98
11ac-VHT40	MCS0	46	5230	14.34	≤ 23.98
11ac-VHT40	MCS0	151	5755	13.10	≤ 30.00
11ac-VHT40	MCS0	159	5795	12.96	≤ 30.00
11ac-VHT80	MCS0	42	5210	11.58	≤ 23.98
11ac-VHT80	MCS0	155	5775	13.21	≤ 30.00

A.5 Power Spectral Density Test Result

Test Site	SIP-TR1	Test Engineer	Alisa Deng
Test Date	2024-04-26		
Test Item	Power Spectral Density (UNII-Band 1)		

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	PSD (dBm/ MHz)	Duty Cycle (%)	Total PSD (dBm/ MHz)	PSD Limit (dBm/MHz)
11a	6Mbps	36	5180	-1.100	93.77	-0.821	≤ 11.00
11a	6Mbps	44	5220	2.357	93.77	2.636	≤ 11.00
11a	6Mbps	48	5240	2.007	93.77	2.286	≤ 11.00
11ac-VHT20	MCS0	36	5180	-0.206	96.59	-0.055	≤ 11.00
11ac-VHT20	MCS0	44	5220	1.982	96.59	2.133	≤ 11.00
11ac-VHT20	MCS0	48	5240	1.959	96.59	2.110	≤ 11.00
11ac-VHT40	MCS0	38	5190	-4.250	85.19	-3.554	≤ 11.00
11ac-VHT40	MCS0	46	5230	-0.940	85.19	-0.244	≤ 11.00
11ac-VHT80	MCS0	42	5210	-5.712	75.81	-4.509	≤ 11.00

Note: When EUT duty cycle < 98%, the total PSD (dBm/MHz) = PSD (dBm/ MHz) +10*log (1/Duty cycle).

When EUT duty cycle ≥ 98%, the total PSD (dBm/MHz) = PSD (dBm/ MHz).

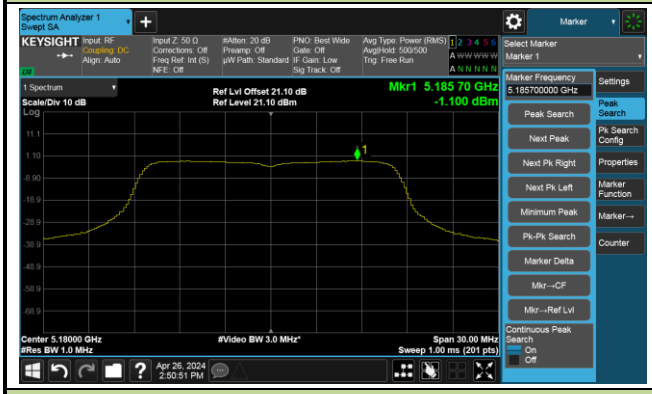
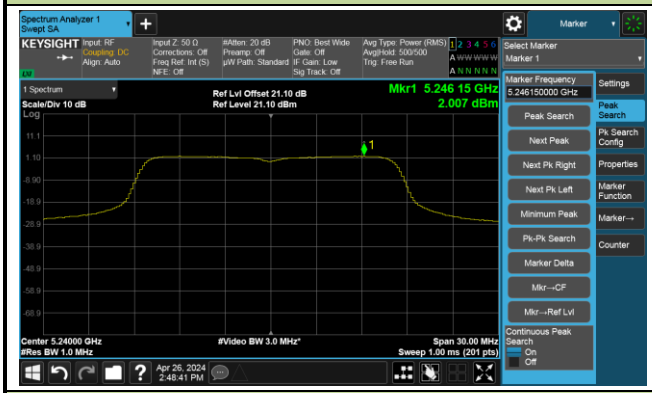
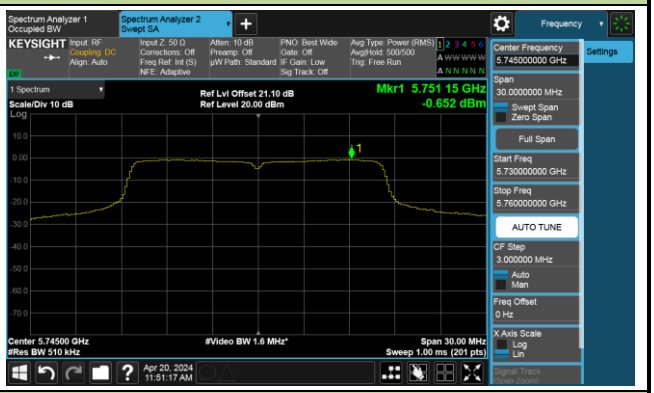
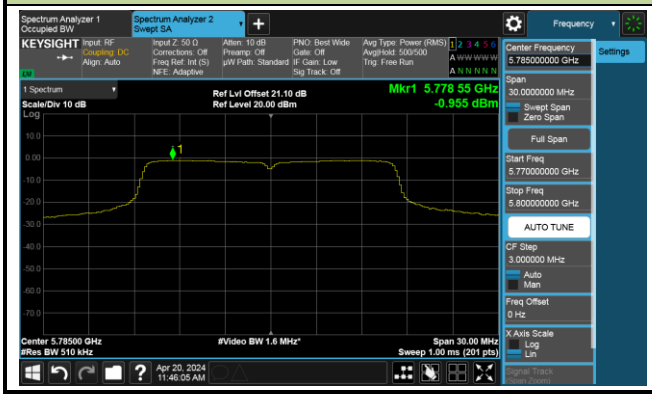
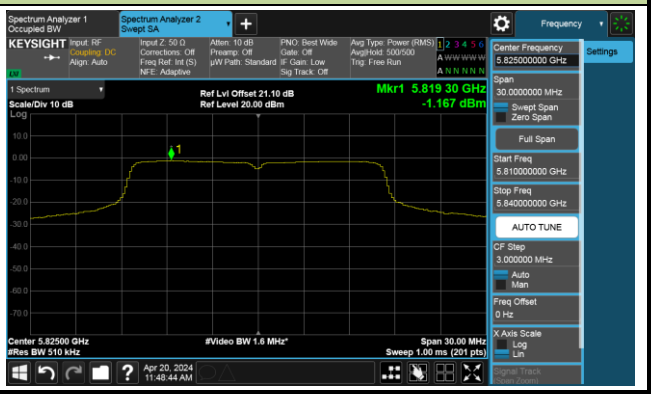
Test Site	SIP-TR1	Test Engineer	Alisa Deng
Test Date	2024-04-20~2024-04-21		
Test Item	Power Spectral Density (UNII-Band 3)		

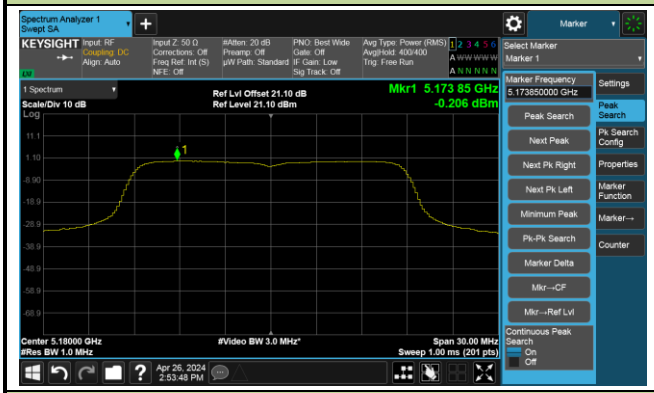
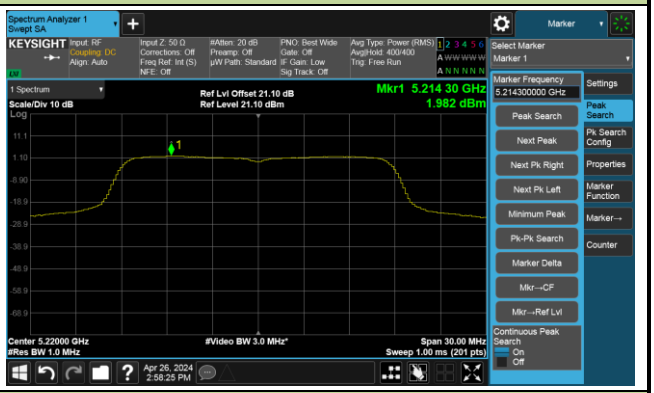
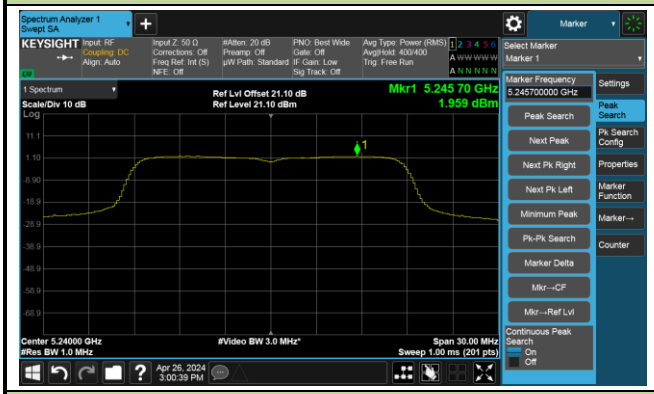
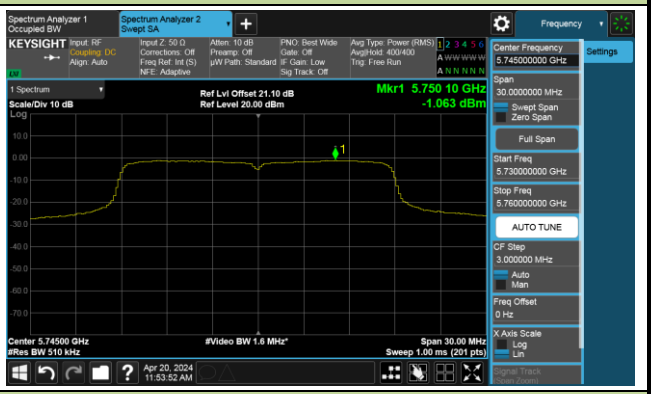
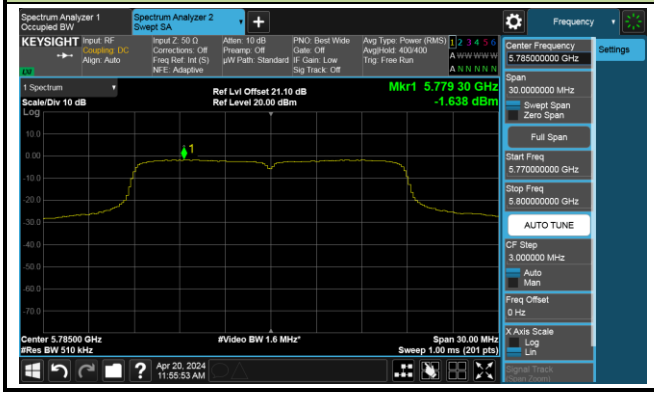
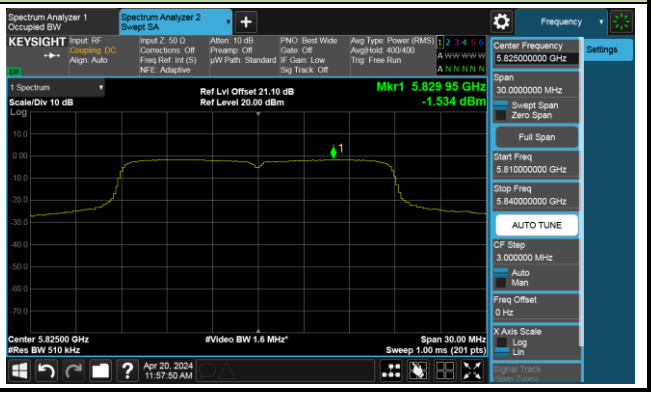
Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	PSD (dBm/ 510kHz)	Duty Cycle (%)	Total PSD (dBm/ 510kHz)	PSD Limit (dBm/ 500kHz)
11a	6Mbps	149	5745	-0.652	93.77	-0.373	≤ 30.00
11a	6Mbps	157	5785	-0.955	93.77	-0.676	≤ 30.00
11a	6Mbps	165	5825	-1.167	93.77	-0.888	≤ 30.00
11ac-VHT20	MCS0	149	5745	-1.063	96.59	-0.912	≤ 30.00
11ac-VHT20	MCS0	157	5785	-1.638	96.59	-1.487	≤ 30.00
11ac-VHT20	MCS0	165	5825	-1.534	96.59	-1.383	≤ 30.00
11ac-VHT40	MCS0	151	5755	-5.315	85.19	-4.619	≤ 30.00
11ac-VHT40	MCS0	159	5795	-5.332	85.19	-4.636	≤ 30.00
11ac-VHT80	MCS0	155	5775	-7.297	75.81	-6.094	≤ 30.00

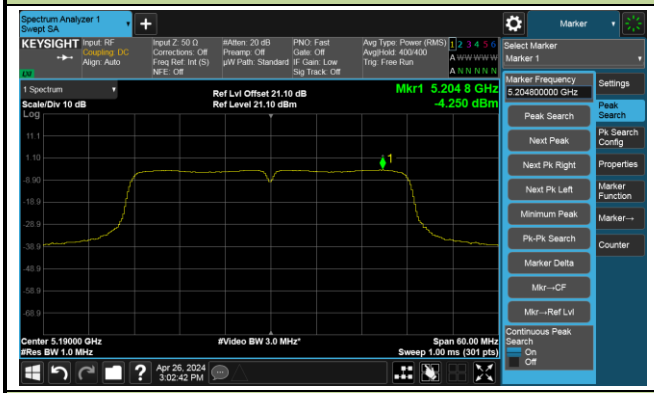
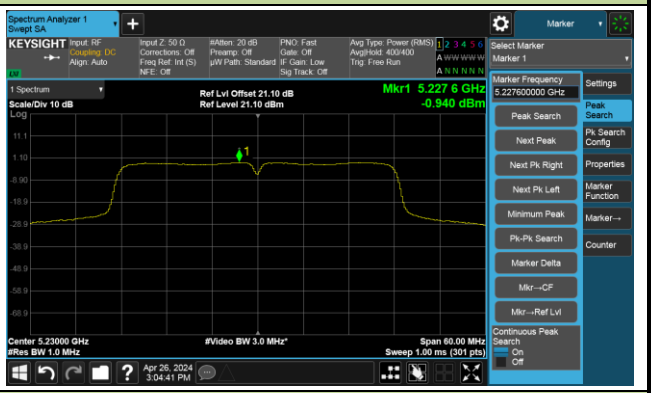
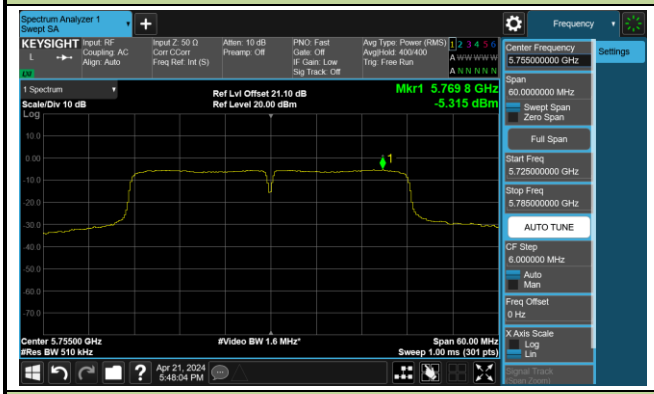
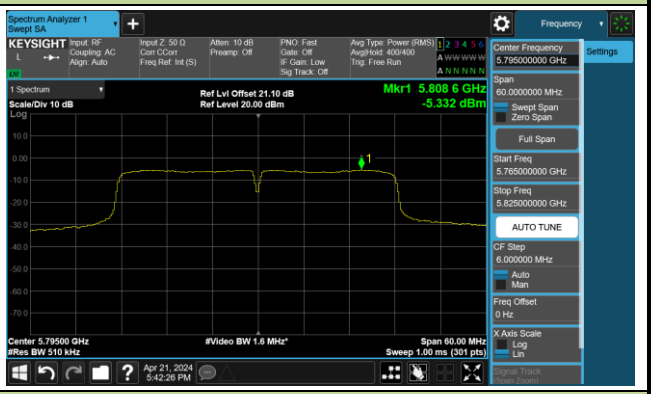
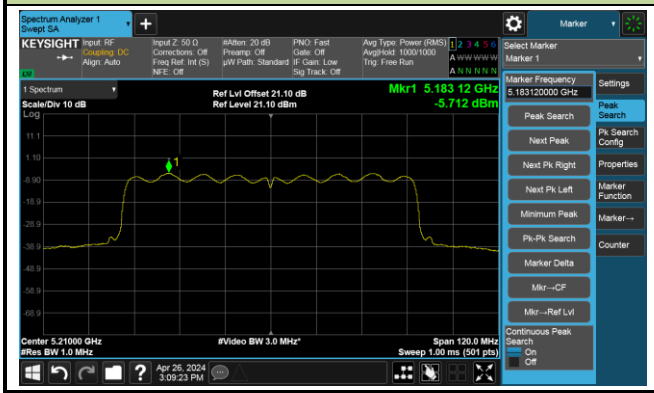
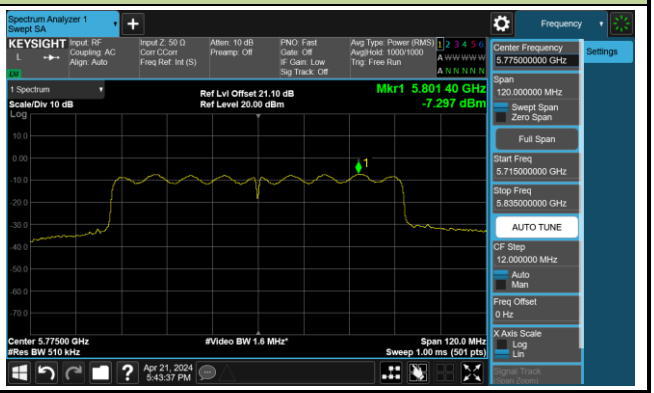
Note:

When EUT duty cycle < 98%, the total PSD (dBm/510kHz) = PSD (dBm/ 510kHz) +10*log (1/Duty cycle).

When EUT duty cycle ≥ 98%, the total PSD (dBm/510kHz) = PSD (dBm/ 510kHz).

802.11a Power Spectral Density	
Channel 36 (5180MHz)	Channel 44 (5220MHz)
	
Channel 48 (5240MHz)	Channel 149 (5745MHz)
	
Channel 157 (5785MHz)	Channel 165 (5825MHz)
	

802.11ac-VHT20 Power Spectral Density	
Channel 36 (5180MHz)	Channel 44 (5220MHz)
	
Channel 48 (5240MHz)	Channel 149 (5745MHz)
	
Channel 157 (5785MHz)	Channel 165 (5825MHz)
	

802.11ac-VHT40 Power Spectral Density	
Channel 38 (5190MHz)	Channel 46 (5230MHz)
	
Channel 151 (5755MHz)	Channel 159 (5795MHz)
	
802.11ac-VHT80 Power Spectral Density	
Channel 42 (5210MHz)	Channel 155 (5775MHz)
	

A.6 Frequency Stability Test Result

Test Site	SIP-TR1	Test Engineer	Alisa Deng
Test Date	2024-04-23 ~ 2024-05-07	Test Mode	5180MHz (Carrier Mode)

Voltage (%)	Power (VAC)	Temp (°C)	Frequency Tolerance (ppm)			
			0 minutes	2 minutes	5 minutes	10 minutes
100%	120	- 30	1.18	1.17	1.20	1.23
		- 20	1.02	-0.05	-0.21	-0.13
		- 10	-0.38	-1.68	-1.70	-1.70
		0	-1.41	-2.94	-3.26	-3.46
		+ 10	-6.01	-6.03	-5.91	-5.76
		+ 20	-5.23	-6.18	-6.22	-6.23
		+ 30	-6.26	-5.52	-5.34	-5.36
		+ 40	-5.91	-3.66	-3.08	-2.69
		+ 50	-4.60	-2.41	-0.49	0.77
115%	138	+ 20	-5.84	-5.40	-5.28	-5.06
85%	102	+ 20	-6.23	-6.15	-5.87	-5.48

Note: Frequency Tolerance (ppm) = {[Measured Frequency (Hz) - Declared Frequency (Hz)] / Declared Frequency (Hz)} *10^6.

A.7 Radiated Spurious Emission Test Result

Test Site	SIP-AC2	Test Engineer	Mero Zhou
Test Date	2024-04-24	Test Mode	802.11a – Channel 36
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not shown in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	8276.0	41.4	0.7	42.1	74.0	-31.9	Peak	Horizontal
*	10358.5	54.2	3.5	57.7	68.2	-10.5	Peak	Horizontal
	11098.0	40.8	5.6	46.4	74.0	-27.6	Peak	Horizontal
*	14897.5	39.3	8.7	48.0	68.2	-20.2	Peak	Horizontal
	8114.5	42.2	0.7	42.9	74.0	-31.1	Peak	Vertical
*	10360.0	64.0	3.5	67.5	68.2	-0.7	Peak	Vertical
	11795.0	41.5	5.3	46.8	74.0	-27.2	Peak	Vertical
*	14430.0	38.9	9.5	48.4	68.2	-19.8	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Site	SIP-AC2	Test Engineer	Mero Zhou
Test Date	2024-04-24	Test Mode	802.11a – Channel 44
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not shown in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB/m)	Detector	Polarization
	8463.0	42.7	0.7	43.4	74.0	-30.6	Peak	Horizontal
*	10435.0	53.4	3.7	57.1	68.2	-11.1	Peak	Horizontal
	12619.5	41.7	4.8	46.5	74.0	-27.5	Peak	Horizontal
*	14778.5	40.1	8.8	48.9	68.2	-19.3	Peak	Horizontal
	8131.5	42.7	0.7	43.4	74.0	-30.6	Peak	Vertical
*	10440.0	64.0	3.7	67.7	68.2	-0.5	Peak	Vertical
	11098.0	40.6	5.6	46.2	74.0	-27.8	Peak	Vertical
*	14710.5	39.2	8.8	48.0	68.2	-20.2	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Site	SIP-AC2	Test Engineer	Mero Zhou
Test Date	2024-04-24	Test Mode	802.11a – Channel 48
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not shown in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB/m)	Detector	Polarization
	8225.0	42.7	0.6	43.3	74.0	-30.7	Peak	Horizontal
*	10477.5	52.9	3.9	56.8	68.2	-11.4	Peak	Horizontal
	11795.0	41.7	5.3	47.0	74.0	-27.0	Peak	Horizontal
*	14821.0	39.7	9.0	48.7	68.2	-19.5	Peak	Horizontal
	8259.0	42.7	0.3	43.0	74.0	-31.0	Peak	Vertical
*	10480.0	63.0	3.9	66.9	68.2	-1.3	Peak	Vertical
	11735.5	41.7	5.3	47.0	74.0	-27.0	Peak	Vertical
*	14923.0	39.9	8.4	48.3	68.2	-19.9	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Site	SIP-AC2	Test Engineer	Mero Zhou
Test Date	2024-04-24	Test Mode	802.11a – Channel 149
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not shown in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB/m)	Detector	Polarization
	8182.5	42.2	0.8	43.0	74.0	-31.0	Peak	Horizontal
*	9950.5	42.7	3.5	46.2	68.2	-22.0	Peak	Horizontal
	10970.5	41.9	5.1	47.0	74.0	-27.0	Peak	Horizontal
*	14455.5	39.8	8.8	48.6	68.2	-19.6	Peak	Horizontal
	8089.0	42.7	0.3	43.0	74.0	-31.0	Peak	Vertical
*	10001.5	42.2	3.5	45.7	68.2	-22.5	Peak	Vertical
	11089.5	41.6	5.3	46.9	74.0	-27.1	Peak	Vertical
*	14914.5	39.5	8.5	48.0	68.2	-20.2	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Site	SIP-AC2	Test Engineer	Mero Zhou
Test Date	2024-04-24	Test Mode	802.11a – Channel 157
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not shown in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB/m)	Detector	Polarization
	8233.5	42.4	0.5	42.9	74.0	-31.1	Peak	Horizontal
*	10001.5	42.2	3.5	45.7	68.2	-22.5	Peak	Horizontal
	11013.0	42.0	4.8	46.8	74.0	-27.2	Peak	Horizontal
*	14846.5	40.2	9.0	49.2	68.2	-19.0	Peak	Horizontal
	8123.0	42.4	1.0	43.4	74.0	-30.6	Peak	Vertical
*	10010.0	41.8	3.9	45.7	68.2	-22.5	Peak	Vertical
	11795.0	41.2	5.3	46.5	74.0	-27.5	Peak	Vertical
*	14362.0	39.8	8.9	48.7	68.2	-19.5	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Site	SIP-AC2	Test Engineer	Mero Zhou
Test Date	2024-04-24	Test Mode	802.11a – Channel 165
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not shown in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB/m)	Detector	Polarization
	8276.0	43.0	0.7	43.7	74.0	-30.3	Peak	Horizontal
*	9899.5	42.2	3.1	45.3	68.2	-22.9	Peak	Horizontal
	11438.0	40.2	6.0	46.2	74.0	-27.8	Peak	Horizontal
*	14889.0	39.6	8.8	48.4	68.2	-19.8	Peak	Horizontal
	8225.0	41.8	0.6	42.4	74.0	-31.6	Peak	Vertical
*	9959.0	41.6	3.5	45.1	68.2	-23.1	Peak	Vertical
	11038.5	41.9	5.1	47.0	74.0	-27.0	Peak	Vertical
*	14668.0	39.7	9.2	48.9	68.2	-19.3	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Site	SIP-AC2	Test Engineer	Mero Zhou
Test Date	2024-04-24	Test Mode	802.11ac-VHT20 – Channel 36
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not shown in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB/m)	Detector	Polarization
	8267.5	42.0	0.5	42.5	74.0	-31.5	Peak	Horizontal
*	10358.5	53.3	3.5	56.8	68.2	-11.4	Peak	Horizontal
	11735.5	41.4	5.3	46.7	74.0	-27.3	Peak	Horizontal
*	14668.0	39.3	9.2	48.5	68.2	-19.7	Peak	Horizontal
	8123.0	41.7	1.0	42.7	74.0	-31.3	Peak	Vertical
*	10360.0	63.8	3.5	67.3	68.2	-0.9	Peak	Vertical
	11718.5	41.3	5.1	46.4	74.0	-27.6	Peak	Vertical
*	14761.5	39.4	9.0	48.4	68.2	-19.8	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Site	SIP-AC2	Test Engineer	Mero Zhou
Test Date	2024-04-24	Test Mode	802.11ac-VHT20 – Channel 44
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not shown in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB/m)	Detector	Polarization
	8403.5	43.5	0.1	43.6	74.0	-30.4	Peak	Horizontal
*	10443.5	53.0	3.7	56.7	68.2	-11.5	Peak	Horizontal
	11021.5	41.6	5.0	46.6	74.0	-27.4	Peak	Horizontal
*	14353.5	40.2	8.8	49.0	68.2	-19.2	Peak	Horizontal
	8403.5	43.5	0.1	43.6	74.0	-30.4	Peak	Vertical
*	10440.0	63.6	3.7	67.3	68.2	-0.9	Peak	Vertical
	11336.0	40.9	5.5	46.4	74.0	-27.6	Peak	Vertical
*	14345.0	40.1	8.8	48.9	68.2	-19.3	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Site	SIP-AC2	Test Engineer	Mero Zhou
Test Date	2024-04-24	Test Mode	802.11ac-VHT20 – Channel 48
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not shown in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB/m)	Detector	Polarization
	8352.5	42.5	0.1	42.6	74.0	-31.4	Peak	Horizontal
*	10486.0	55.3	3.7	59.0	68.2	-9.2	Peak	Horizontal
	11123.5	42.1	5.0	47.1	74.0	-26.9	Peak	Horizontal
*	14209.0	39.2	8.4	47.6	68.2	-20.6	Peak	Horizontal
	8284.5	42.1	0.5	42.6	74.0	-31.4	Peak	Vertical
*	10480.0	63.4	3.9	67.3	68.2	-0.9	Peak	Vertical
	11795.0	41.7	5.3	47.0	74.0	-27.0	Peak	Vertical
*	14574.5	39.3	8.9	48.2	68.2	-20.0	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Site	SIP-AC2	Test Engineer	Mero Zhou
Test Date	2024-04-24	Test Mode	802.11ac-VHT20 – Channel 149
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not shown in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB/m)	Detector	Polarization
	8284.5	42.8	0.5	43.3	74.0	-30.7	Peak	Horizontal
*	9959.0	42.5	3.5	46.0	68.2	-22.2	Peak	Horizontal
	11310.5	41.5	5.1	46.6	74.0	-27.4	Peak	Horizontal
*	14812.5	39.7	9.0	48.7	68.2	-19.5	Peak	Horizontal
	8140.0	42.6	0.5	43.1	74.0	-30.9	Peak	Vertical
*	9959.0	41.4	3.5	44.9	68.2	-23.3	Peak	Vertical
	11234.0	41.0	5.1	46.1	74.0	-27.9	Peak	Vertical
*	14396.0	39.6	8.6	48.2	68.2	-20.0	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Site	SIP-AC2	Test Engineer	Mero Zhou
Test Date	2024-04-24	Test Mode	802.11ac-VHT20 – Channel 157
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not shown in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB/m)	Detector	Polarization
	8233.5	42.8	0.5	43.3	74.0	-30.7	Peak	Horizontal
*	9772.0	42.5	3.0	45.5	68.2	-22.7	Peak	Horizontal
	11727.0	41.9	5.5	47.4	74.0	-26.6	Peak	Horizontal
*	14251.5	40.0	8.3	48.3	68.2	-19.9	Peak	Horizontal
	8242.0	42.0	0.5	42.5	74.0	-31.5	Peak	Vertical
*	10010.0	41.6	3.9	45.5	68.2	-22.7	Peak	Vertical
	11217.0	41.2	5.7	46.9	74.0	-27.1	Peak	Vertical
*	14634.0	39.5	8.7	48.2	68.2	-20.0	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Site	SIP-AC2	Test Engineer	Mero Zhou
Test Date	2024-04-24	Test Mode	802.11ac-VHT20 – Channel 165
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not shown in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB/m)	Detector	Polarization
	8080.5	43.2	0.5	43.7	74.0	-30.3	Peak	Horizontal
*	10010.0	41.6	3.9	45.5	68.2	-22.7	Peak	Horizontal
	10970.5	41.9	5.1	47.0	74.0	-27.0	Peak	Horizontal
*	14328.0	40.0	9.0	49.0	68.2	-19.2	Peak	Horizontal
	8327.0	42.3	-0.1	42.2	74.0	-31.8	Peak	Vertical
*	10205.5	42.3	3.0	45.3	68.2	-22.9	Peak	Vertical
	11650.5	41.7	5.1	46.8	74.0	-27.2	Peak	Vertical
*	14600.0	39.5	8.5	48.0	68.2	-20.2	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Site	SIP-AC2	Test Engineer	Mero Zhou
Test Date	2024-04-24	Test Mode	802.11ac-VHT40 – Channel 38
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not shown in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB/m)	Detector	Polarization
	8174.0	41.8	0.9	42.7	74.0	-31.3	Peak	Horizontal
*	10375.5	52.7	3.5	56.2	68.2	-12.0	Peak	Horizontal
	11489.0	41.3	5.7	47.0	74.0	-27.0	Peak	Horizontal
*	14668.0	39.1	9.2	48.3	68.2	-19.9	Peak	Horizontal
	8403.5	42.6	0.1	42.7	74.0	-31.3	Peak	Vertical
*	10384.0	58.0	3.3	61.3	68.2	-6.9	Peak	Vertical
	11489.0	41.3	5.7	47.0	74.0	-27.0	Peak	Vertical
*	14464.0	40.0	8.8	48.8	68.2	-19.4	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Site	SIP-AC2	Test Engineer	Mero Zhou
Test Date	2024-04-24	Test Mode	802.11ac-VHT40 – Channel 46
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not shown in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB/m)	Detector	Polarization
	7664.0	43.0	-0.5	42.5	74.0	-31.5	Peak	Horizontal
*	10460.5	50.9	4.0	54.9	68.2	-13.3	Peak	Horizontal
	11506.0	41.1	5.9	47.0	74.0	-27.0	Peak	Horizontal
*	14821.0	39.4	9.0	48.4	68.2	-19.8	Peak	Horizontal
	8233.5	42.8	0.5	43.3	74.0	-30.7	Peak	Vertical
*	10460.0	63.5	3.9	67.4	68.2	-0.8	Peak	Vertical
	11480.5	40.9	5.6	46.5	74.0	-27.5	Peak	Vertical
*	14897.5	39.9	8.7	48.6	68.2	-19.6	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Site	SIP-AC2	Test Engineer	Mero Zhou
Test Date	2024-04-24	Test Mode	802.11ac-VHT40 – Channel 151
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not shown in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB/m)	Detector	Polarization
	8046.5	42.4	0.6	43.0	74.0	-31.0	Peak	Horizontal
*	9670.0	41.9	3.3	45.2	68.2	-23.0	Peak	Horizontal
	11497.5	40.7	5.8	46.5	74.0	-27.5	Peak	Horizontal
*	14557.5	39.9	9.0	48.9	68.2	-19.3	Peak	Horizontal
	8038.0	42.6	0.8	43.4	74.0	-30.6	Peak	Vertical
*	9959.0	41.7	3.5	45.2	68.2	-23.0	Peak	Vertical
	11506.0	41.1	5.9	47.0	74.0	-27.0	Peak	Vertical
*	14370.5	41.1	8.8	49.9	68.2	-18.3	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Site	SIP-AC2	Test Engineer	Mero Zhou
Test Date	2024-04-24	Test Mode	802.11ac-VHT40 – Channel 159
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not shown in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB/m)	Detector	Polarization
	8089.0	43.1	0.3	43.4	74.0	-30.6	Peak	Horizontal
*	9721.0	42.3	3.1	45.4	68.2	-22.8	Peak	Horizontal
	11591.0	42.2	5.4	47.6	74.0	-26.4	Peak	Horizontal
*	14413.0	39.9	8.8	48.7	68.2	-19.5	Peak	Horizontal
	8480.0	43.1	0.6	43.7	74.0	-30.3	Peak	Vertical
*	9780.5	41.8	3.1	44.9	68.2	-23.3	Peak	Vertical
	11514.5	40.5	5.6	46.1	74.0	-27.9	Peak	Vertical
*	14668.0	38.7	9.2	47.9	68.2	-20.3	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Site	SIP-AC2	Test Engineer	Mero Zhou
Test Date	2024-04-24	Test Mode	802.11ac-VHT80 – Channel 42
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not shown in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB/m)	Detector	Polarization
	8174.0	42.8	0.9	43.7	74.0	-30.3	Peak	Horizontal
*	10384.0	45.5	3.3	48.8	68.2	-19.4	Peak	Horizontal
	11438.0	41.5	6.0	47.5	74.0	-26.5	Peak	Horizontal
*	14328.0	39.4	9.0	48.4	68.2	-19.8	Peak	Horizontal
	7715.0	44.2	-0.4	43.8	74.0	-30.2	Peak	Vertical
*	10375.5	51.2	3.5	54.7	68.2	-13.5	Peak	Vertical
	11506.0	40.4	5.9	46.3	74.0	-27.7	Peak	Vertical
*	14583.0	39.5	8.8	48.3	68.2	-19.9	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Site	SIP-AC2	Test Engineer	Mero Zhou
Test Date	2024-04-24	Test Mode	802.11ac-VHT80 – Channel 155
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not shown in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB/m)	Detector	Polarization
	8233.5	42.1	0.5	42.6	74.0	-31.4	Peak	Horizontal
*	9950.5	41.8	3.5	45.3	68.2	-22.9	Peak	Horizontal
	11489.0	41.5	5.7	47.2	74.0	-26.8	Peak	Horizontal
*	14430.0	38.8	9.5	48.3	68.2	-19.9	Peak	Horizontal
	7698.0	43.7	-0.8	42.9	74.0	-31.1	Peak	Vertical
*	9772.0	42.1	3.0	45.1	68.2	-23.1	Peak	Vertical
	11438.0	40.7	6.0	46.7	74.0	-27.3	Peak	Vertical
*	14651.0	39.1	9.1	48.2	68.2	-20.0	Peak	Vertical

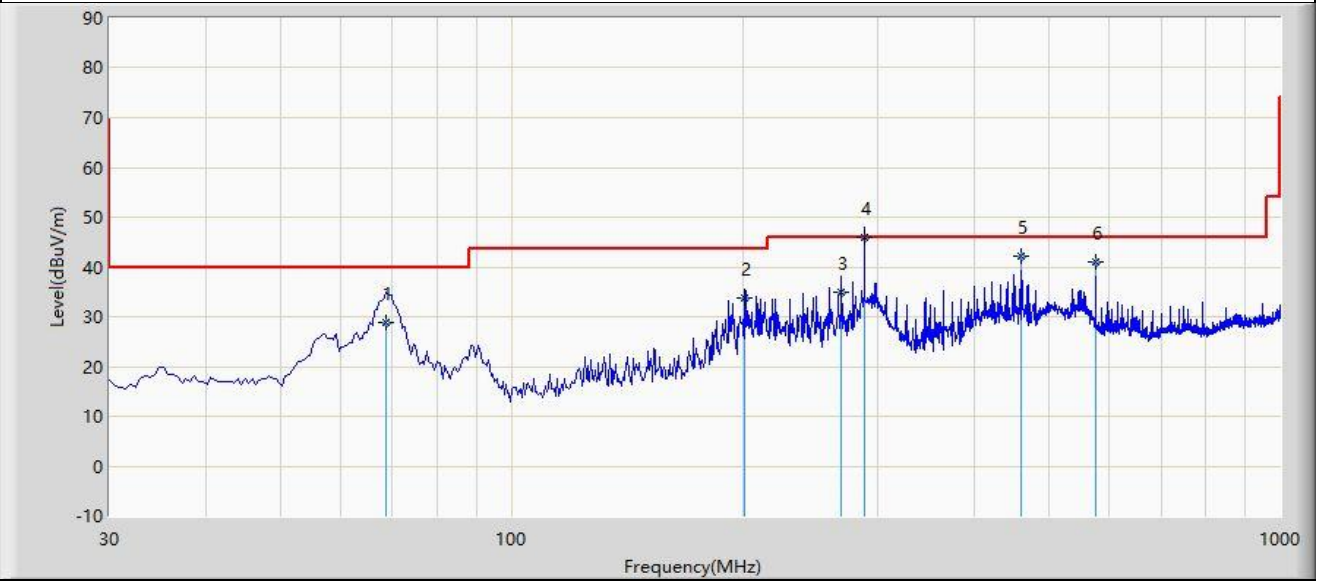
Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

The Result of Radiated Emission below 1GHz:

Site: SIP-AC2	Test Date: 2024-04-26
Limit: FCC_Part15.209_RSE(3m)	Engineer: Mero Zhou
Probe: VULB 9168_00999_25-2000MHz	Polarity: Horizontal
EUT: Intelligent Battery Charger	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11a at 5220MHz	



No	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1		68.800	28.956	12.600	-11.044	40.000	16.355	QP
2		201.205	33.677	18.500	-9.823	43.500	15.177	QP
3		268.620	35.000	17.300	-11.000	46.000	17.700	QP
4	*	288.020	45.839	27.300	-0.161	46.000	18.539	QP
5		460.680	42.224	19.300	-3.776	46.000	22.924	QP
6		576.110	41.002	16.200	-4.998	46.000	24.802	QP

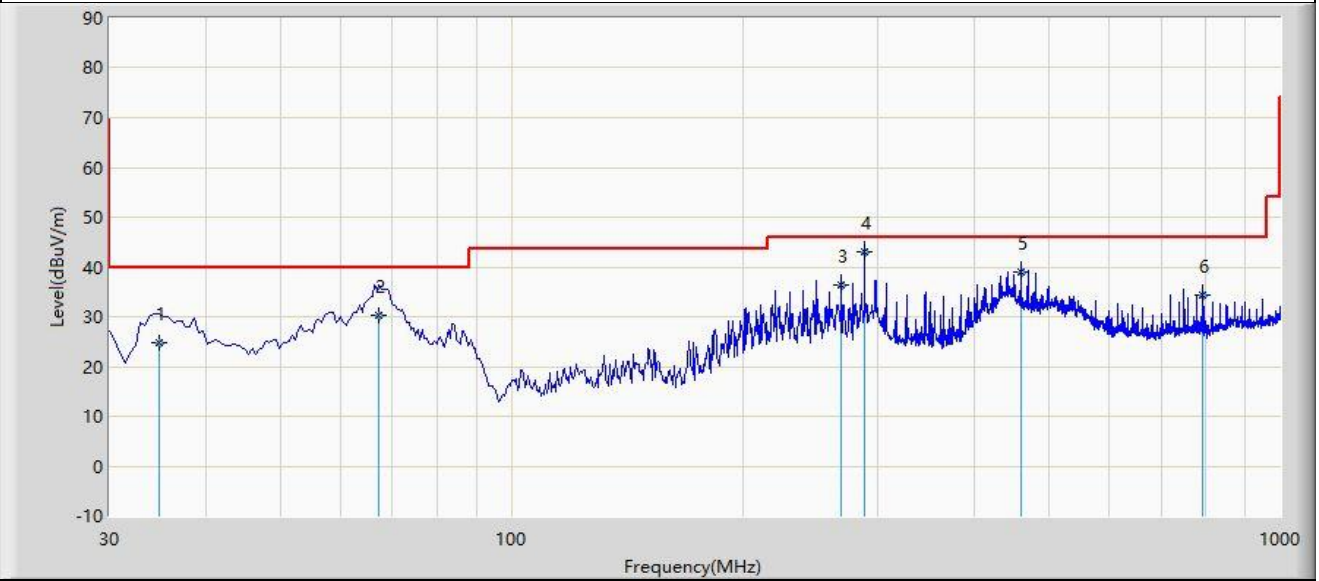
Note 1: " * ", means this data is the worst emission level.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m).

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Note 4: The amplitude of radiated emissions (frequency range from 9kHz to 30MHz and 18GHz to 40GHz) is that proximity to ambient noise, which also are attenuated more than 20 dB below the permissible value. Therefore, the data is not presented in the report.

Site: SIP-AC2	Test Date: 2024-04-26
Limit: FCC_Part15.209_RSE(3m)	Engineer: Mero Zhou
Probe: VULB 9168_00999_25-2000MHz	Polarity: Vertical
EUT: Intelligent Battery Charger	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11a at 5220MHz	



No	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1		34.850	24.679	7.600	-15.321	40.000	17.079	QP
2		67.345	30.384	13.800	-9.616	40.000	16.583	QP
3		268.620	36.500	18.800	-9.500	46.000	17.700	QP
4	*	288.020	42.939	24.400	-3.061	46.000	18.539	QP
5		460.680	39.024	16.100	-6.976	46.000	22.924	QP
6		791.935	34.264	5.800	-11.736	46.000	28.464	QP

Note 1: " * ", means this data is the worst emission level.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m).

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Note 4: The amplitude of radiated emissions (frequency range from 9kHz to 30MHz and 18GHz to 40GHz) is that proximity to ambient noise, which also are attenuated more than 20 dB below the permissible value. Therefore, the data is not presented in the report.

A.8 Radiated Restricted Band Edge Test Result

Site: SIP-AC2	Test Date: 2024-04-22
Limit: FCC_5G_RE(3m)	Engineer: Mero Zhou
Probe: BBHA 9120D_02042_1-18GHz	Polarity: Horizontal
EUT: Intelligent Battery Charger	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11a at 5180MHz	

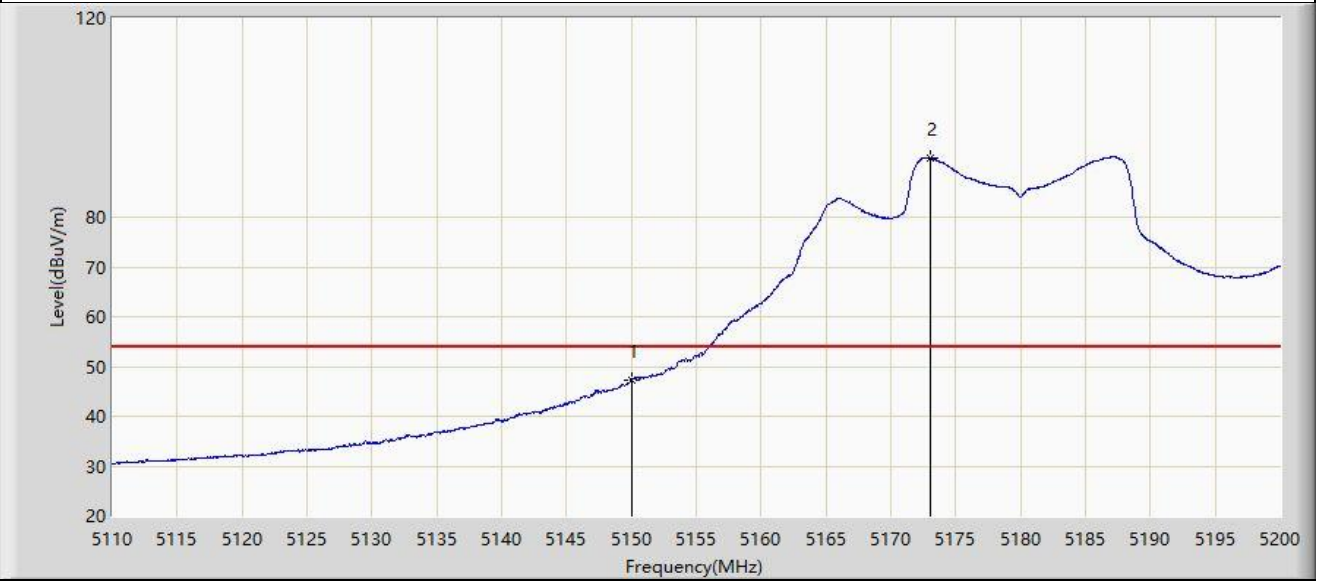
No	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1	*	5149.510	65.680	67.491	-8.320	74.000	-1.811	PK
2		5150.000	63.695	65.419	-10.305	74.000	-1.724	PK
3		5173.000	100.990	53.616	N/A	N/A	47.373	PK

Note 1: " * ", means this data is the worst emission level.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m).

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB).

Site: SIP-AC2	Test Date: 2024-04-22
Limit: FCC_5G_RE(3m)	Engineer: Mero Zhou
Probe: BBHA 9120D_02042_1-18GHz	Polarity: Horizontal
EUT: Intelligent Battery Charger	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11a at 5180MHz	



No	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1	*	5150.000	47.341	49.065	-6.659	54.000	-1.724	AV
2		5173.000	91.972	44.598	N/A	N/A	47.373	AV

Note 1: " * ", means this data is the worst emission level.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m).

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB).

Site: SIP-AC2	Test Date: 2024-04-22
Limit: FCC_5G_RE(3m)	Engineer: Mero Zhou
Probe: BBHA 9120D_02042_1-18GHz	Polarity: Vertical
EUT: Intelligent Battery Charger	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11a at 5180MHz	

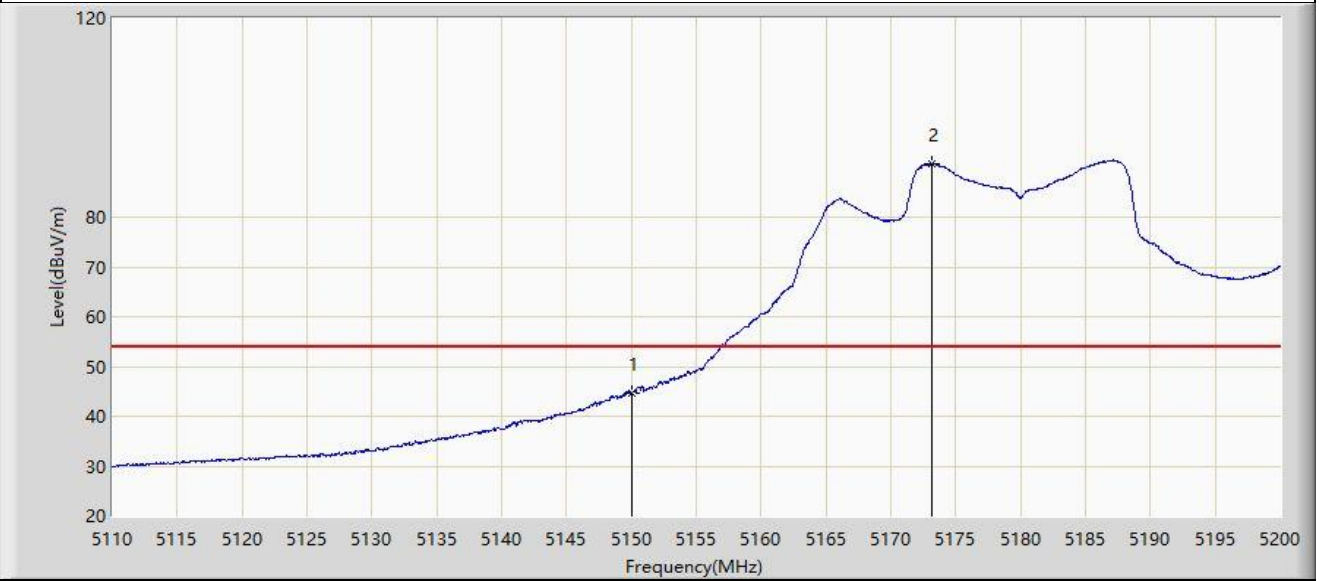
No	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1	*	5149.420	63.257	65.086	-10.743	74.000	-1.829	PK
2		5150.000	61.685	63.409	-12.315	74.000	-1.724	PK
3		5186.680	100.386	63.448	N/A	N/A	36.937	PK

Note 1: " * ", means this data is the worst emission level.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m).

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB).

Site: SIP-AC2	Test Date: 2024-04-22
Limit: FCC_5G_RE(3m)	Engineer: Mero Zhou
Probe: BBHA 9120D_02042_1-18GHz	Polarity: Vertical
EUT: Intelligent Battery Charger	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11a at 5180MHz	



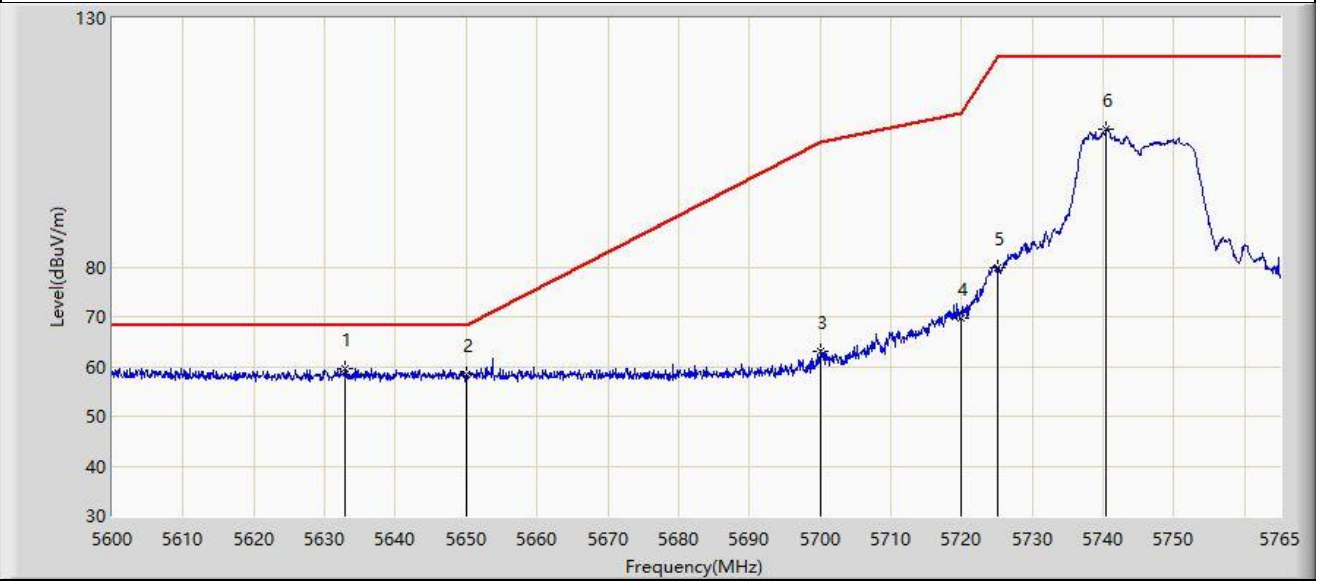
No	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1	*	5150.000	44.608	46.332	-9.392	54.000	-1.724	AV
2		5173.180	90.782	43.216	N/A	N/A	47.567	AV

Note 1: " * ", means this data is the worst emission level.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m).

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB).

Site: SIP-AC2	Test Date: 2024-04-23
Limit: FCC_5.8G_RE(3m)	Engineer: Mero Zhou
Probe: BBHA 9120D_02042_1-18GHz	Polarity: Horizontal
EUT: Intelligent Battery Charger	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11a at 5745MHz	



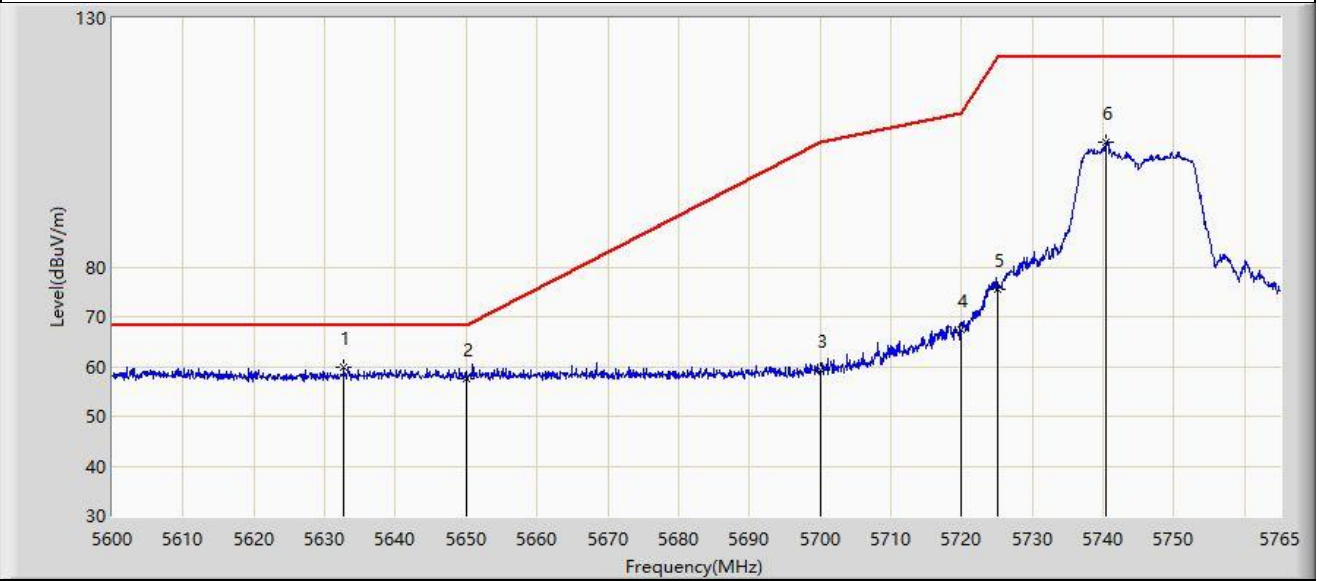
No	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1	*	5632.917	59.538	65.607	-8.662	68.200	-6.069	PK
2		5650.000	58.487	64.474	-9.713	68.200	-5.988	PK
3		5700.000	63.097	68.702	-42.103	105.200	-5.605	PK
4		5720.000	69.852	75.400	-40.948	110.800	-5.549	PK
5		5725.000	79.964	85.436	-42.236	122.200	-5.473	PK
6		5740.498	107.544	113.035	N/A	N/A	-5.491	PK

Note 1: " * ", means this data is the worst emission level.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m).

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB).

Site: SIP-AC2	Test Date: 2024-04-23
Limit: FCC_5.8G_RE(3m)	Engineer: Mero Zhou
Probe: BBHA 9120D_02042_1-18GHz	Polarity: Vertical
EUT: Intelligent Battery Charger	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11a at 5745MHz	



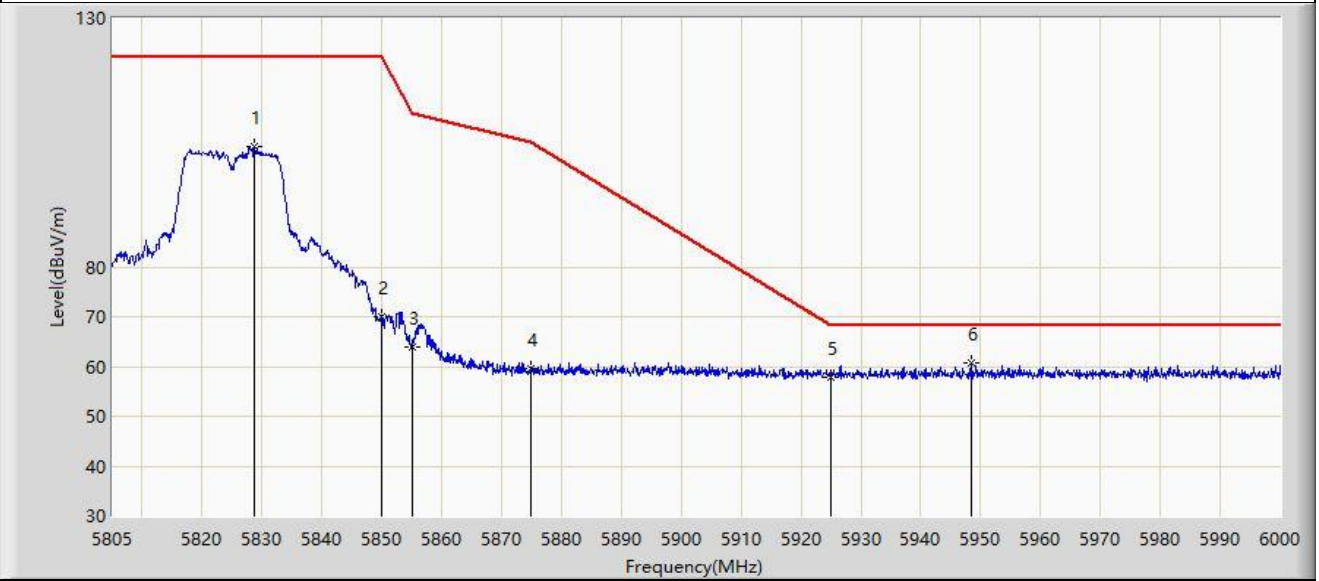
No	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1	*	5632.752	59.897	65.968	-8.303	68.200	-6.071	PK
2		5650.000	57.611	63.598	-10.589	68.200	-5.988	PK
3		5700.000	59.186	64.791	-46.014	105.200	-5.605	PK
4		5720.000	67.313	72.861	-43.487	110.800	-5.549	PK
5		5725.000	75.631	81.103	-46.569	122.200	-5.473	PK
6		5740.498	105.075	110.566	N/A	N/A	-5.491	PK

Note 1: " * ", means this data is the worst emission level.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m).

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB).

Site: SIP-AC2	Test Date: 2024-04-23
Limit: FCC_5.8G_RE(3m)	Engineer: Mero Zhou
Probe: BBHA 9120D_02042_1-18GHz	Polarity: Horizontal
EUT: Intelligent Battery Charger	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11a at 5825MHz	



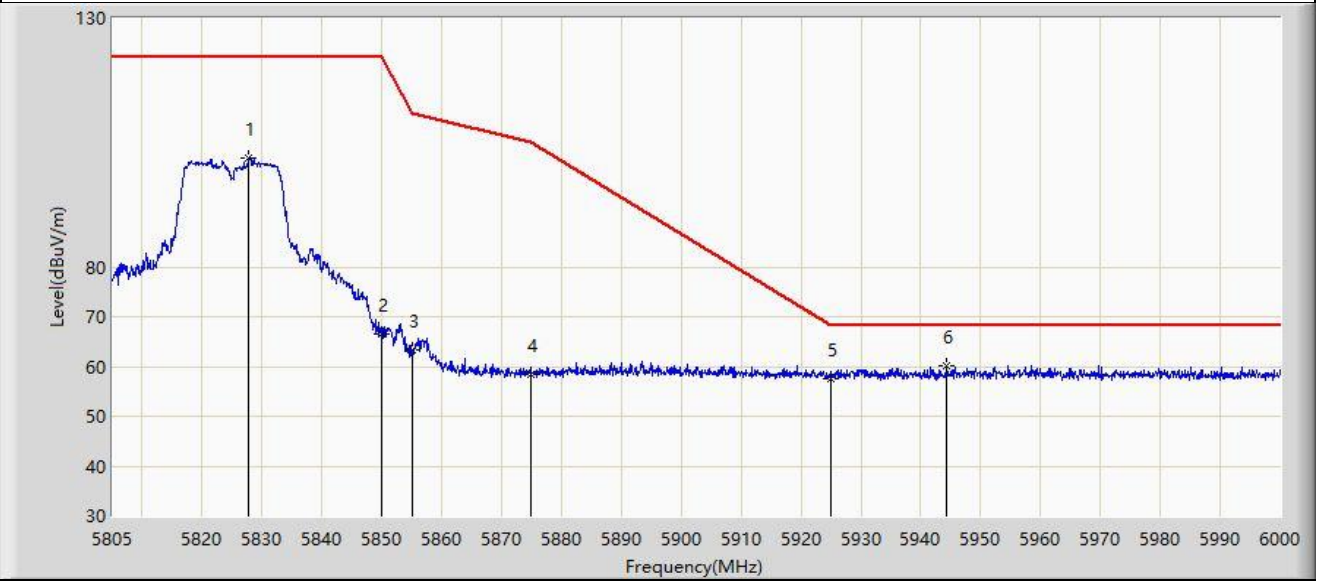
No	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1		5828.595	104.074	109.502	N/A	N/A	-5.429	PK
2		5850.000	69.939	75.291	-52.261	122.200	-5.352	PK
3		5855.000	64.032	69.414	-46.768	110.800	-5.382	PK
4		5875.000	59.454	64.480	-45.746	105.200	-5.026	PK
5		5925.000	57.844	63.387	-10.356	68.200	-5.543	PK
6	*	5948.520	60.682	66.099	-7.518	68.200	-5.417	PK

Note 1: " * ", means this data is the worst emission level.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m).

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB).

Site: SIP-AC2	Test Date: 2024-04-23
Limit: FCC_5.8G_RE(3m)	Engineer: Mero Zhou
Probe: BBHA 9120D_02042_1-18GHz	Polarity: Vertical
EUT: Intelligent Battery Charger	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11a at 5825MHz	



No	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1		5827.815	101.921	107.357	N/A	N/A	-5.435	PK
2		5850.000	66.483	71.835	-55.717	122.200	-5.352	PK
3		5855.000	63.261	68.643	-47.539	110.800	-5.382	PK
4		5875.000	58.490	63.516	-46.710	105.200	-5.026	PK
5		5925.000	57.670	63.213	-10.530	68.200	-5.543	PK
6	*	5944.328	60.147	65.597	-8.053	68.200	-5.450	PK

Note 1: " * ", means this data is the worst emission level.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m).

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB).

Site: SIP-AC2	Test Date: 2024-04-22
Limit: FCC_5G_RE(3m)	Engineer: Mero Zhou
Probe: BBHA 9120D_02042_1-18GHz	Polarity: Horizontal
EUT: Intelligent Battery Charger	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11ac-VHT20 at 5180MHz	

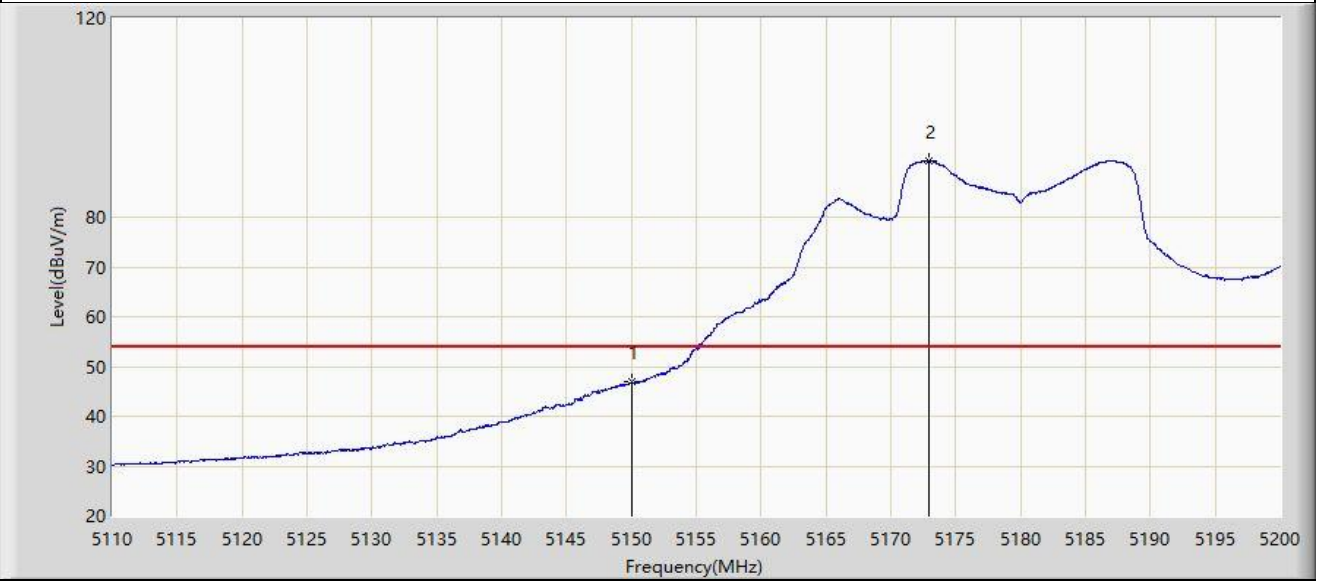
No	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1	*	5148.340	63.834	65.855	-10.166	74.000	-2.021	PK
2		5150.000	62.365	64.089	-11.635	74.000	-1.724	PK
3		5173.135	100.367	52.849	N/A	N/A	47.518	PK

Note 1: " * ", means this data is the worst emission level.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m).

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB).

Site: SIP-AC2	Test Date: 2024-04-22
Limit: FCC_5G_RE(3m)	Engineer: Mero Zhou
Probe: BBHA 9120D_02042_1-18GHz	Polarity: Horizontal
EUT: Intelligent Battery Charger	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11ac-VHT20 at 5180MHz	



No	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1	*	5150.000	46.829	48.553	-7.171	54.000	-1.724	AV
2		5172.910	91.373	44.096	N/A	N/A	47.278	AV

Note 1: " * ", means this data is the worst emission level.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m).

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB).

Site: SIP-AC2	Test Date: 2024-04-22
Limit: FCC_5G_RE(3m)	Engineer: Mero Zhou
Probe: BBHA 9120D_02042_1-18GHz	Polarity: Vertical
EUT: Intelligent Battery Charger	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11ac-VHT20 at 5180MHz	

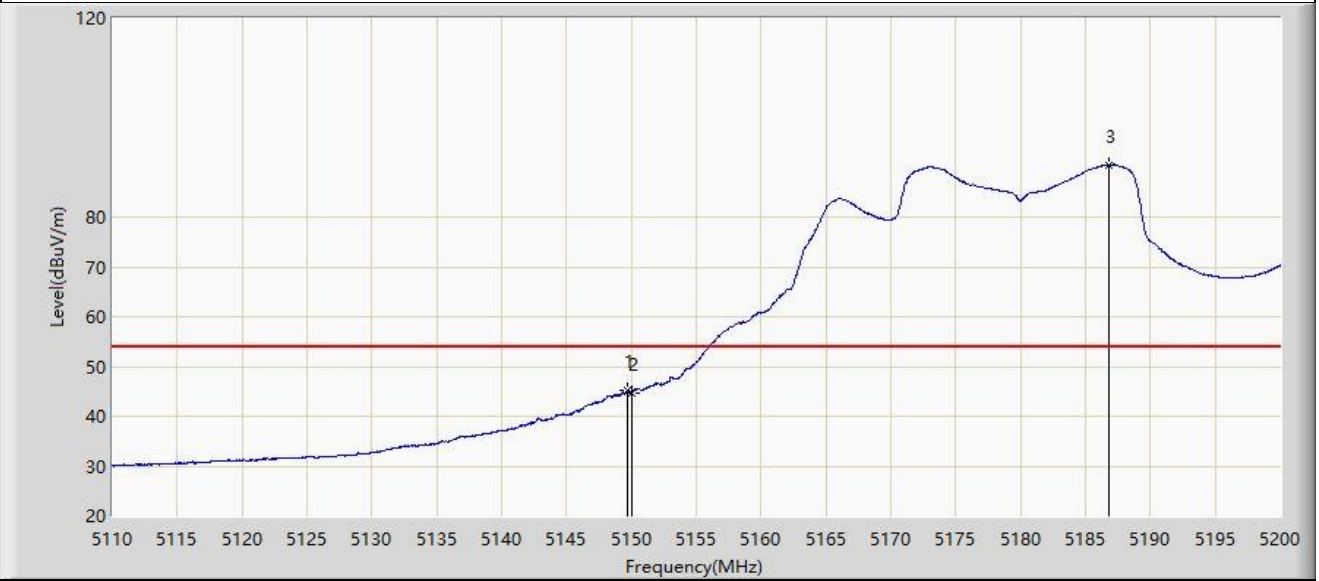
No	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1	*	5149.915	61.962	63.699	-12.038	74.000	-1.737	PK
2		5150.000	61.586	63.310	-12.414	74.000	-1.724	PK
3		5173.180	99.475	51.909	N/A	N/A	47.567	PK

Note 1: " * ", means this data is the worst emission level.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m).

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB).

Site: SIP-AC2	Test Date: 2024-04-23
Limit: FCC_5G_RE(3m)	Engineer: Mero Zhou
Probe: BBHA 9120D_02042_1-18GHz	Polarity: Vertical
EUT: Intelligent Battery Charger	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11ac-VHT20 at 5180MHz	



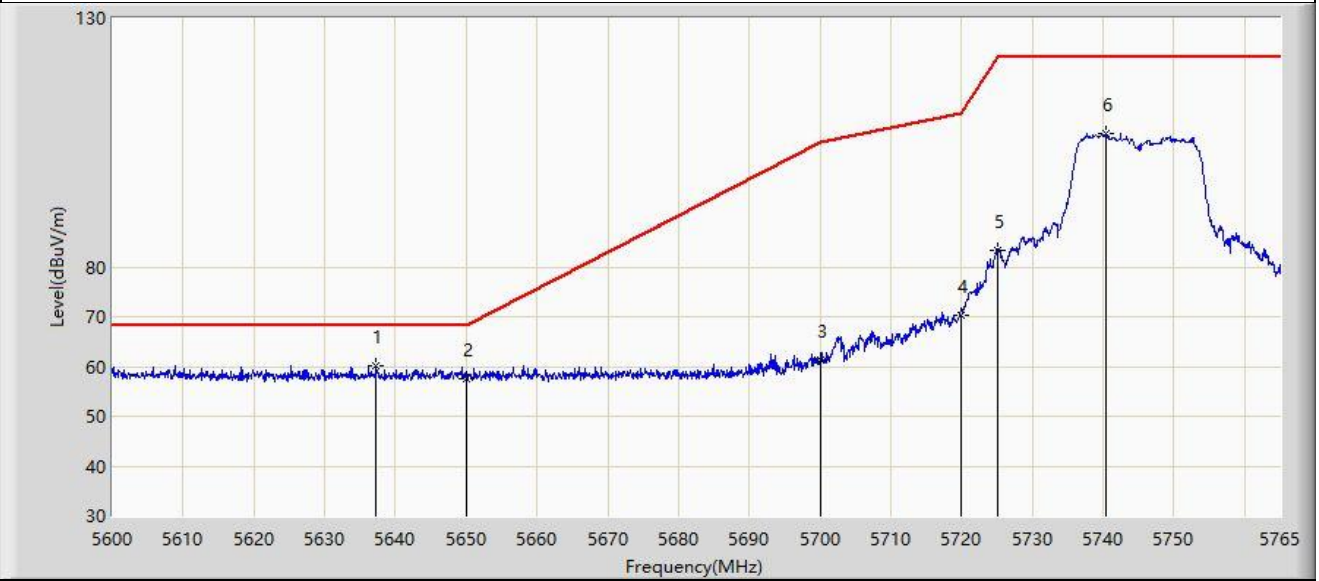
No	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1	*	5149.645	45.171	46.955	-8.829	54.000	-1.785	AV
2		5150.000	44.744	46.468	-9.256	54.000	-1.724	AV
3		5186.815	90.568	53.499	N/A	N/A	37.069	AV

Note 1: " * ", means this data is the worst emission level.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m).

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB).

Site: SIP-AC2	Test Date: 2024-04-23
Limit: FCC_5.8G_RE(3m)	Engineer: Mero Zhou
Probe: BBHA 9120D_02042_1-18GHz	Polarity: Horizontal
EUT: Intelligent Battery Charger	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11ac-VHT20 at 5745MHz	



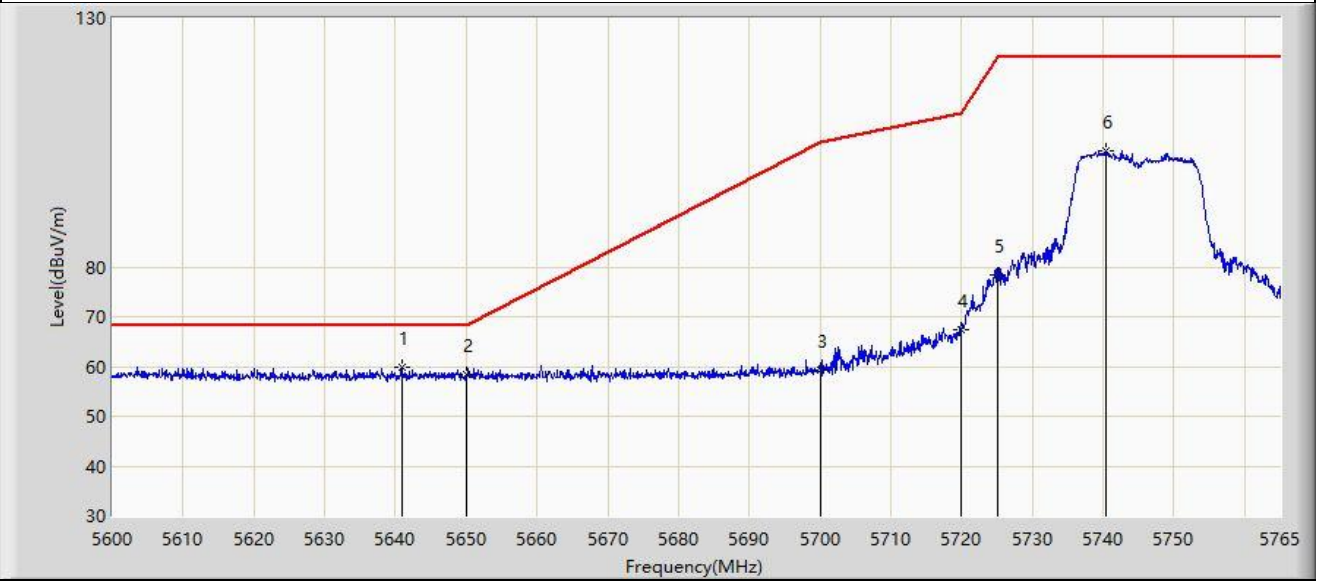
No	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1	*	5637.290	60.046	66.068	-8.154	68.200	-6.022	PK
2		5650.000	57.571	63.558	-10.629	68.200	-5.988	PK
3		5700.000	61.345	66.950	-43.855	105.200	-5.605	PK
4		5720.000	70.289	75.837	-40.511	110.800	-5.549	PK
5		5725.000	83.317	88.789	-38.883	122.200	-5.473	PK
6		5740.415	106.680	112.171	N/A	N/A	-5.491	PK

Note 1: " * ", means this data is the worst emission level.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m).

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB).

Site: SIP-AC2	Test Date: 2024-04-23
Limit: FCC_5.8G_RE(3m)	Engineer: Mero Zhou
Probe: BBHA 9120D_02042_1-18GHz	Polarity: Vertical
EUT: Intelligent Battery Charger	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11ac-VHT20 at 5745MHz	



No	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1	*	5640.837	59.788	65.772	-8.412	68.200	-5.984	PK
2		5650.000	58.403	64.390	-9.797	68.200	-5.988	PK
3		5700.000	59.252	64.857	-45.948	105.200	-5.605	PK
4		5720.000	67.451	72.999	-43.349	110.800	-5.549	PK
5		5725.000	78.480	83.952	-43.720	122.200	-5.473	PK
6		5740.333	103.240	108.731	N/A	N/A	-5.491	PK

Note 1: " * ", means this data is the worst emission level.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m).

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB).