

TEST REPORT

Applicant: Dagobah Systems Inc
Address: 651 N. Broad Street Suite 206 Middletown, DE
19709 United States
Equipment Type: ATA (Analog Telephone Adaptor) Gateway
Model Name: PC228
Brand Name: TELCLOUD/POTSCAST
FCC ID: 2BON3-PC228
Test Standard: 47 CFR Part 15 Subpart E
(refer to section 3.1)
Sample Arrival Date: Mar. 14, 2025
Test Date: Mar. 17, 2025 - Apr. 14, 2025
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ISSUED BY:

Shanghai Tejet Communications Technology Co., Ltd. Testing Center

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Revision History

Version	Issue Date	Revisions
<u>Rev. 01</u>	<u>Apr. 22, 2025</u>	<u>Initial Issue</u>

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1 GENERAL INFORMATION

1.1 Test Laboratory

Name	Shanghai Tejet Communications Technology Co., Ltd. Testing Center
Address	1st to 2nd floors, Building 1, No. 222 Xuanlan Road, Xuanqiao Town, Pudong New District, Shanghai, China

1.2 Test Location

Name	Shanghai Tejet Communications Technology Co., Ltd. Testing Center
Location	1st to 2nd floors, Building 1, No. 222 Xuanlan Road, Xuanqiao Town, Pudong New District, Shanghai, China
Accreditation Certificate	The laboratory is a testing organization accredited by FCC as a accredited testing laboratory. The designation number is CN1352.

2 PRODUCT INFORMATION

2.1 Applicant Information

Applicant	Dagobah Systems Inc
Address	651 N. Broad Street Suite 206 Middletown, DE 19709 United States

2.2 Manufacturer Information

Manufacturer	Dagobah Systems Inc
Address	651 N. Broad Street Suite 206 Middletown, DE 19709 United States

2.3 General Description for Equipment under Test (EUT)

EUT Name	ATA (Analog Telephone Adaptor) Gateway
Model Name Under Test	PC228
Series Model Name	N/A
Description of Model name differentiation	N/A
Sample Number	SC-SH2530042-S01(conducted) SC-SH2530042-S14(radiated)
Hardware Version	P3
Software Version	PC-228_v1.2
Dimensions (Approx.)	N/A
Weight (Approx.)	N/A

2.4 Technical Information

Network and Wireless connectivity	3G Network WCDMAHSDPAHSUPA Band 2/4/5 4G Network LTE FDD Band 2/4/5/12/13/14/66/71 2.4G WIFI 802.11b, 802.11g, 802.11n(HT20/40) 5G WIFI 802.11a, 802.11n(HT20/40), 802.11ac(VHT20/40/80)
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The requirement for the following technical information of the EUT was tested in this report:

Frequency Range	U-NII-1: 5150 MHz to 5250 MHz, U-NII-3: 5725 MHz to 5850 MHz	
Modulation technology	OFDM	
Modulation Type	256QAM, 64QAM, 16QAM, BPSK, QPSK	
Transfer Rate (Mbps) (Single RF path)	802.11a: 54/ 48/ 36/ 24/ 18/ 12/ 9/ 6 Mbps 802.11n: up to 150 Mbps 802.11ac: up to VHT-MCS9	
Channel Bandwidth	802.11a: 20 MHz 802.11n: 20 MHz, 40 MHz 802.11ac: 20 MHz, 40 MHz, 80 MHz	
Maximum Output Power	U-NII-1: 21.90 dBm U-NII-3: 23.82 dBm	
Antenna System (eg., MIMO, Smart Antenna)	Cyclic Delay Diversity (CDD) for 802.11a Multi Input Multi Output (MIMO) for 802.11n/ac	
Categorization as Correlated or Completely Uncorrelated	Categorization as Correlated for 802.11a Categorization as Uncorrelated for 802.11n/ac	
Antenna Type	Main Antenna Aux. Antenna	PCB Antenna
Antenna Gain	Main Antenna	U-NII-1: 5150 MHz to 5250 MHz: 1.20 dBi U-NII-3: 5725 MHz to 5850 MHz: 2.60 dBi
	Aux. Antenna	U-NII-1: 5150 MHz to 5250 MHz: 1.40 dBi U-NII-3: 5725 MHz to 5850 MHz: 2.10 dBi
Total directional gain	For power spectral density(PSD) measurements	Correlated: U-NII-1: 5150 MHz to 5250 MHz: 4.31 dBi U-NII-3: 5725 MHz to 5850 MHz: 5.36 dBi Formulas: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / NANT]$ dBi Uncorrelated: U-NII-1: 5150 MHz to 5250 MHz: 1.30 dBi U-NII-3: 5725 MHz to 5850 MHz: 2.36 dBi Formulas: Directional gain = $10 \log[(10^{G1/10} + 10^{G2/10} + \dots + 10^{GN/10}) / NANT]$ dBi
	For power measurements	Correlated: U-NII-1: 5150 MHz to 5250 MHz: 4.31 dBi U-NII-3: 5725 MHz to 5850 MHz: 5.36 dBi Formulas: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots +$

		$10^{GN/20})^2 / NANT]$ dBi Uncorrelated: U-NII-1: 5150 MHz to 5250 MHz: 1.30 dBi U-NII-3: 5725 MHz to 5850 MHz: 2.36 dBi Formulas: Directional gain = $10 \log[(10^{G1/10} + 10^{G2/10} + \dots + 10^{GN/10})/NANT]$ dBi
About the Product		The equipment is ATA (Analog Telephone Adaptor) Gateway, intended for used with information technology equipment.

Mode	Antenna		
	Main Antenna	Aux. Antenna	MIMO
802.11a	√	√	√
802.11n20	√	√	√
802.11n40	√	√	√
802.11ac20	√	√	√
802.11ac40	√	√	√
802.11ac80	√	√	√
Note: All the configurations were tested, but only the worst data was shown in this report.			

2.5 Channel List

20 MHz		40 MHz		80 MHz	
Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)
36	5180	38	5190	42	5210
40	5200	46	5230	155	5775
44	5220	151	5755		
48	5240	159	5795		
149	5745				
153	5765				
157	5785				
161	5805				
165	5825				

The Lowest frequency, the middle frequency and the highest frequency of channel were selected to perform the test, and the selected channel see below:

For 802.11a/n(HT20)/ac(VHT20)

U-NII-1 (5150 - 5250 MHz)			U-NII-3 (5725 - 5850 MHz)		
Channel Number	Channel	Frequency (MHz)	Channel Number	Channel	Frequency (MHz)
36	Low	5180	149	Low	5745
44	Mid	5220	157	Mid	5785
48	High	5240	165	High	5825

For 802.11n(HT40)/ac(VHT40)

U-NII-1 (5150 - 5250 MHz)			U-NII-3 (5725 - 5850 MHz)		
Channel Number	Channel	Frequency (MHz)	Channel Number	Channel	Frequency (MHz)
38	Low	5190	151	Low	5755
46	High	5230	159	High	5795

For 802.11ac(VHT80)

U-NII-1 (5150 - 5250 MHz)			U-NII-3 (5725 - 5850 MHz)		
Channel Number	Channel Number	Channel Number	Channel Number	Channel	Frequency (MHz)
42	155	155	155	Mid	5290

Note: Preliminary tests were performed in different data rate in above table to find the worst radiated emission. The data rate shown in the table below is the worst-case rate with respect to the specific test item. Investigation has been done on all the possible configurations for searching the worst cases. The following table is a list of the test modes shown in this test report.

Test Items	Mode	Data Rate	Modulation Type	U-NII-1	U-NII-3
				Channel	Channel
RF Output Power	11a	6	BPSK	48/44/36	165/157/149
	11n(20 MHz)	6.5		48/44/36	165/157/149
	11n(40 MHz)	13.5		46/38	159/151
	11ac(20 MHz)	6.5		48/44/36	165/157/149
	11ac(40 MHz)	13.5		46/38	159/151
	11ac(80 MHz)	29.3		42	155
Emission Bandwidth & 99% Occupied Bandwidth	11a	6	BPSK	48/44/36	165/157/149
	11n(20 MHz)	6.5		48/44/36	165/157/149
	11n(40 MHz)	13.5		46/38	159/151
	11ac(20 MHz)	6.5		48/44/36	165/157/149
	11ac(40 MHz)	13.5		46/38	159/151
	11ac(80 MHz)	29.3		42	155
6 dB bandwidth	11a	6	BPSK	N/A	165/157/149
	11n(20 MHz)	6.5		N/A	165/157/149
	11n(40 MHz)	13.5		N/A	159/151
	11ac(20 MHz)	6.5		N/A	165/157/149
	11ac(40 MHz)	13.5		N/A	159/151
	11ac(80 MHz)	29.3		N/A	155
Power Spectral Density	11a	6	BPSK	48/44/36	165/157/149
	11n(20 MHz)	6.5		48/44/36	165/157/149
	11n(40 MHz)	13.5		46/38	159/151
	11ac(20 MHz)	6.5		48/44/36	165/157/149
	11ac(40 MHz)	13.5		46/38	159/151
	11ac(80 MHz)	29.3		42	155
Radiated Spurious Emissions	11a	6	BPSK	48/44/36	165/157/149
	11n(20 MHz)	6.5		48/44/36	165/157/149
	11n(40 MHz)	13.5		46/38	159/151
	11ac(20 MHz)	6.5		48/44/36	165/157/149
	11ac(40 MHz)	13.5		46/38	159/151
	11ac(80 MHz)	29.3		42	155
Band Edge (Restricted-band)	11a	6	BPSK	48/36	165/149
	11n(20 MHz)	6.5		48/36	165/149
	11n(40 MHz)	13.5		46/38	159/151
	11ac(20 MHz)	6.5		48/36	165/149
	11ac(40 MHz)	13.5		46/38	159/151
	11ac(80 MHz)	29.3		42	155

3 SUMMARY OF TEST RESULTS

3.1 Test Standards

No.	Identity	Document Title
1	47 CFR Part 15 Subpart E	Unlicensed National Information Infrastructure Devices
2	KDB Publication 789033 D02v02r01	Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices Part 15, Subpart E
3	KDB Publication 662911 D01v02r01	Emissions Testing of Transmitters with Multiple Outputs in the Same Band (e.g., MIMO, Smart Antenna, etc)
4	ANSI C63.10-2013	American National Standard for Testing Unlicensed Wireless Devices

3.2 Test Verdict

No.	Description	FCC Part No.	RSS Part No.	Test Result	Verdict
1	Antenna Requirement	15.203	N/A	--	Pass ^{Note1}
2	RF Output Power	15.407(a)	N/A	ANNEX A.1	Pass
3	Emission Bandwidth & 99% Occupied Bandwidth	15.407(a)	N/A	ANNEX A.2	Pass
4	6 dB bandwidth	15.407(e)	N/A	ANNEX A.3	Pass
5	Power Spectral Density	15.407(a)	N/A	ANNEX A.4	Pass
6	Conducted Emission	15.207	N/A	ANNEX A.5	Pass
7	Radiated Spurious Emissions and Band Edge (Restricted-band)	15.407(b)	N/A	ANNEX A.6	Pass

Note 1: The EUT has a permanently and irreplaceable attached antenna, which complies with the requirement FCC 15.203.

Note 2: Under all normal operating conditions specified in the user manual, frequency stability can keep radiation within the operating frequency band.

4 GENERAL TEST CONFIGURATIONS

4.1 Test Environments

During the measurement, the normal environmental conditions were within the listed ranges:

Relative Humidity	51% to 59%	
Atmospheric Pressure	101 kPa	
Temperature	NT (Normal Temperature)	+22.5°C to +23.9°C
Working Voltage of the EUT	NV (Normal Voltage)	22 V

4.2 Test Equipment List

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Spectrum Analyzer	KEYSIGHT	N9020A	MY54420147	2025.02.12	2026.02.11
Spectrum Analyzer	KEYSIGHT	N9010B	MY60240977	2025.02.12	2026.02.11
Signal Generator	Anritsu	MG3710E	6262063515	2025.02.12	2026.02.11
Wideband Radio Communication Tester	R&S	CMW500	168792	2025.02.11	2026.02.10
EMI Receiver	KEYSIGHT	N9038A	MY55330122	2024.07.09	2025.07.08
Test Antenna-Loop(9 kHz-30 MHz)	SCHWARZBECK	FMZB 1519	1519-177	2024.03.11	2027.03.10
Test Antenna-Bi-Log(30 MHz-3 GHz)	SCHWARZBECK	VULB 9163	9163-1203	2024.03.11	2027.03.10
Test Antenna-Horn(1-18 GHz)	SCHWARZBECK	BBHA 9120D	9120D-2134	2024.03.11	2027.03.10
Test Antenna-Horn (18-40 GHz)	A-INFO	LB-180400-KF	J211060307	2024.03.11	2027.03.10
Anechoic Chamber	YiHeng	9m*6m*6m	EMC001	2024.04.18	2027.04.17
EMI Receiver	KEYSIGHT	N9038A	MY55330115	2025.02.12	2026.02.11
LISN	SCHWARZBECK	NSLK 8127	8127-940	2025.02.11	2026.02.10
10dB Limiter	SCHWARZBECK	VTSD 9561-F	9561-F N00409	2025.02.11	2026.02.10
Shielded Room	YiHeng	5m*4m*3.2 m	EMC006	2024.02.22	2027.02.21

4.3 Test Software List

Description	Manufacturer	Software Version	Serial No.	Applicable Test Setup
BL410R	BALUN	V2.1.1.496	N/A	The section 4.6.1
BL410E	BALUN	V21.919	N/A	The section 4.6.2&4.6.3&4.6.4&4.6.5

4.4 Decision Rule

☐ No Need

☒ Use General conformity decision rule (Consider uncertainty or not ☒No ☐Yes)

☐ Use Special Conformity Decision Rule (Consider uncertainty or not ☐No ☐Yes)

4.5 Measurement Uncertainty

The following measurement 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.

Parameters	Uncertainty
Occupied Channel Bandwidth	2.4 %
RF output power, conducted	0.41 dB
Power Spectral Density, conducted	1.73 dB
Unwanted Emissions, conducted	1.73 dB
All emissions, radiated	4.57 dB
Temperature	0.82 °C
Humidity	4.1 %

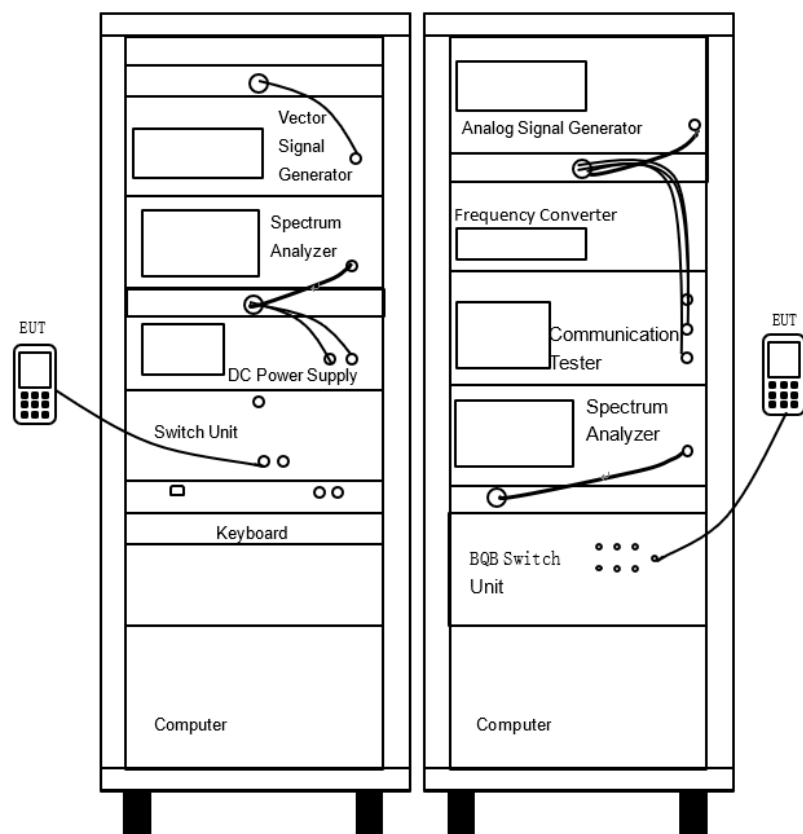
4.6 Description of Test Setup

4.6.1 For Antenna Port Test

Conducted value (dBm) = Measurement value (dBm) + cable loss (dB)

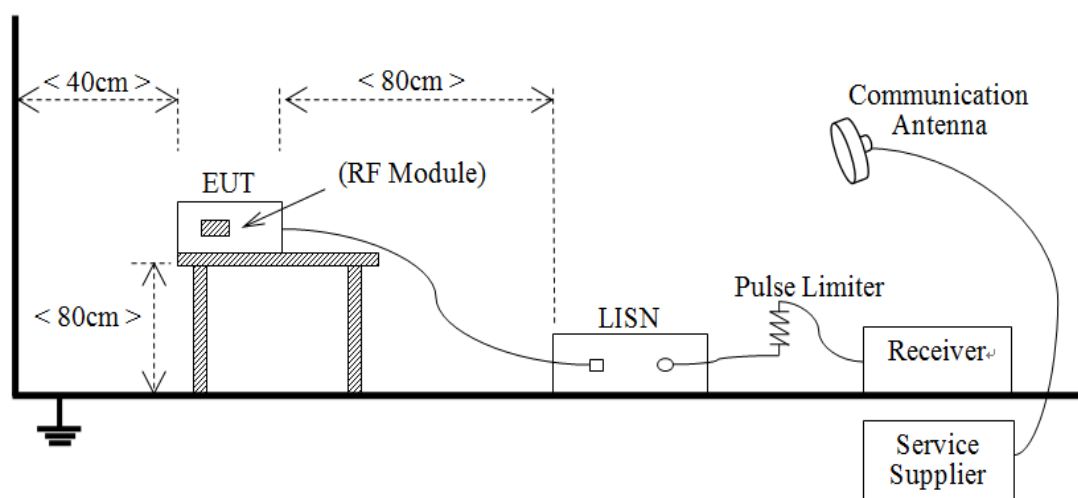
For example: the measurement value is 10 dBm and the cable 0.5 dB used, then the final result of EUT:

Conducted value (dBm) = 10 dBm + 0.5 dB = 10.5 dBm



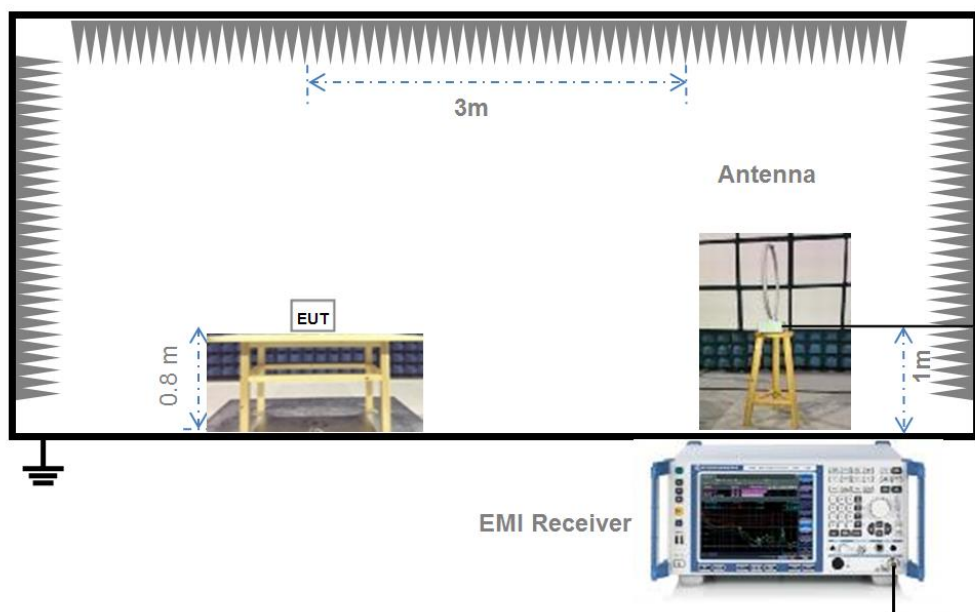
(Diagram 1)

4.6.2 For AC Power Supply Port Test



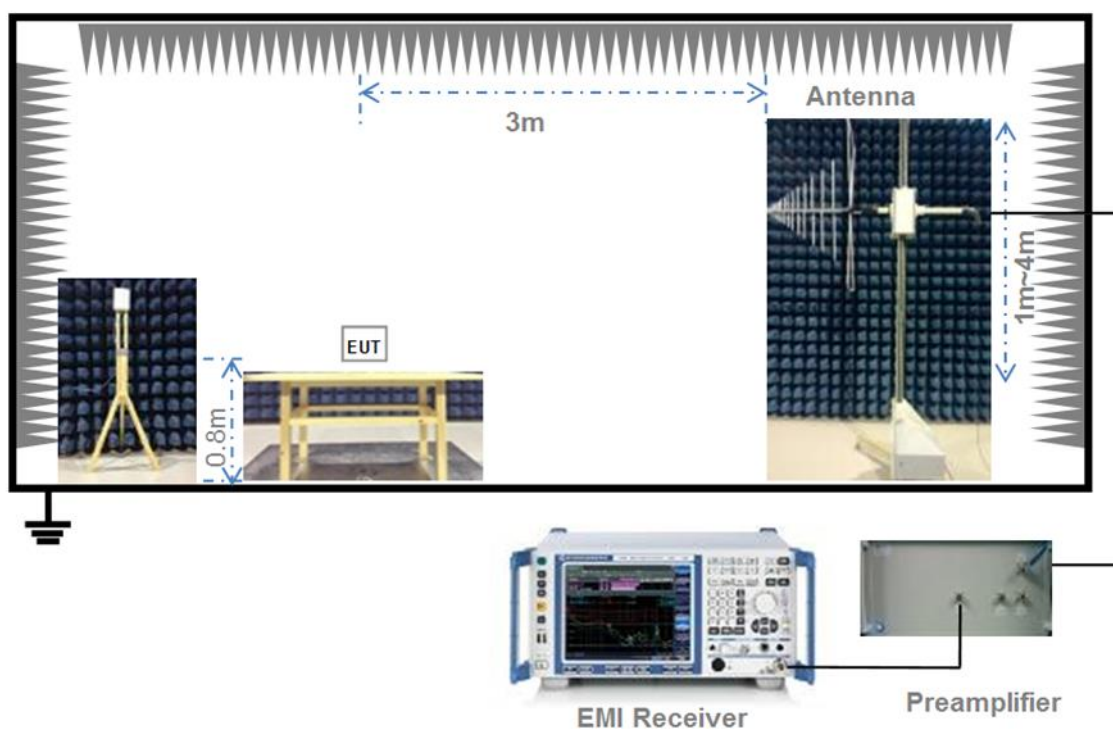
(Diagram 2)

4.6.3 For Radiated Test (Below 30 MHz)



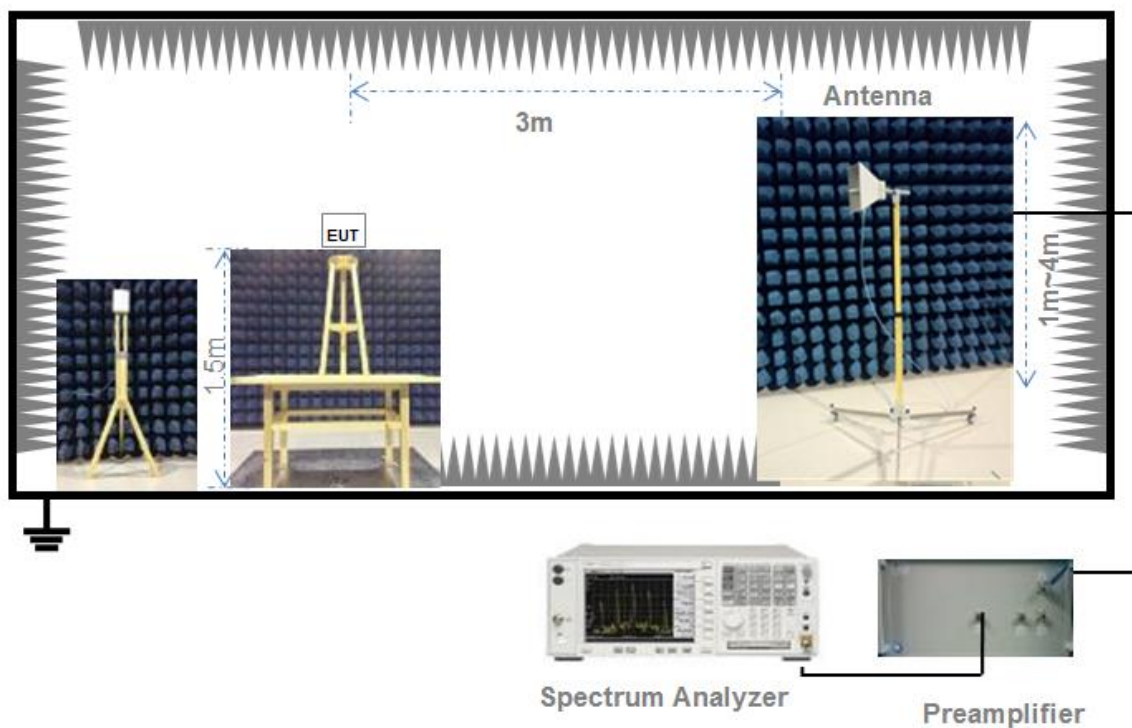
(Diagram 3)

4.6.4 For Radiated Test (30 MHz-1 GHz)



(Diagram 4)

4.6.5 For Radiated Test (Above 1 GHz)



(Diagram 5)

5 TEST ITEMS

5.1 RF Output Power

5.1.1 Test Limit

FCC §15.407(a)

The maximum conducted output power should not exceed:

Frequency Band (MHz)	Limit
5150-5250	250 mW
5250-5350	250 mW or 11 dBm + 10log B, whichever is less.
5470-5725	250 mW or 11 dBm + 10log B, whichever is less.
5725-5850	1 W
Note: Where "B" is the 26 dB emissions bandwidth in MHz.	

5.1.2 Test Setup

The section 4.6.1 (Diagram 1) test setup description was used for this test. The photo of test setup please refer to ANNEX B.

5.1.3 Test Procedure

Maximum conducted (average) output power

a) Measurements may be performed using a wideband RF power meter with a thermocouple detector or equivalent if all of the conditions listed below are satisfied.

- 1) The EUT is configured to transmit continuously or to transmit with a constant duty cycle.
- 2) At all times when the EUT is transmitting, it shall be transmitting at its maximum power control level.
- 3) The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a factor of five.
- b) If the transmitter does not transmit continuously, measure the duty cycle (x) of the transmitter output signal.
- c) Measure the average power of the transmitter. This measurement is an average over both the on and off periods of the transmitter.
- d) Adjust the measurement in dBm by adding 10 log (1/x) where x is the duty cycle.

Measurements of duty cycle

The zero-span mode on a spectrum analyzer or EMI receiver if the response time and spacing between bins on the sweep are sufficient to permit accurate measurements of the on and off times of the transmitted signal.

Set the center frequency of the instrument to the center frequency of the transmission.

Set RBW $\geq$ OBW if possible; otherwise, set RBW to the largest available value.

Set VBW $\geq$ RBW. Set detector = peak or average.

The zero-span measurement method shall not be used unless both RBW and VBW are $> 50/T$ and the number of sweep points across duration T exceeds 100. (For example, if VBW and/or RBW are limited to 3 MHz, then the zero-span method of measuring duty cycle shall not be used if $T \leq 16.7$ microseconds.)

The E.I.R.P used radiated test method. At a test site that has been validated using the procedures of ANSI C63.4 or the latest CISPR 16-1-4 for measurements above 1 GHz, so as to simulate a near free-space

environment.

5.1.4 Test Result

Please refer to ANNEX A.1.

5.2 Emission Bandwidth and 6 dB Bandwidth

5.2.1 Limit

FCC §15.407(a)

Within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

5.2.2 Test Setup

The test setup photo please refer to 4.6.1 (Diagram 1) test setup description was used for this test. The photo of test setup please refer to ANNEX B.

5.2.3 Test Procedure

Emission bandwidth

1. Set RBW = approximately 1% of the emission bandwidth.
2. Set VBW $\geq 3 \times$ RBW,
3. Detector = Peak.
4. Trace mode = Max hold.
5. Measure the maximum width of the emission that is 26 dB down from the peak of the emission.

Occupied Bandwidth

1. Set Span = 1.5 times to 5.0 times the OBW
2. Set RBW = 1% to 5% of the OBW.
3. Set VBW $\geq 3 \times$ RBW,
4. Detector = Peak.
5. Trace mode = Max hold.
6. Use the 99% power bandwidth function of the instrument.

6 dB bandwidth

1. Set RBW = 100 kHz, VBW = 300 kHz.
2. Detector = Peak.
3. Trace mode = Max hold.
4. Allow the trace to stabilize.
5. 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.

5.2.4 Test Result

Please refer to ANNEX A.2 and ANNEX A.3.

5.3 Power Spectral density (PSD)

5.3.1 Limit

FCC §15.407(a)

The maximum power spectral density should not exceed:

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

5.3.2 Test Setup

The section 4.6.1 (Diagram 1) test setup description was used for this test. The photo of test setup please refer to ANNEX B.

5.3.3 Test Procedure

Set the spectrum analyzer or EMI receiver span to view the entire emission bandwidth.

1. Set RBW = 510 kHz/1 MHz, VBW $\geq 3 \times$ RBW, Sweep time = Auto, Detector = RMS.
2. Allow the sweeps to continue until the trace stabilizes.
3. Use the peak marker function to determine the maximum amplitude level.
4. The E.I.R.P spectral density used radiated test method. At a test site that has been validated using the procedures of ANSI C63.4 or the latest CISPR 16-1-4 for measurements above 1 GHz, so as to simulate a near free-space environment.

5.3.4 Test Result

Please refer to ANNEX A.4.

5.4 Conducted Emission

5.4.1 Limit

FCC §15.207

For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency within the U-NII-150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μ H/50 Ω line impedance stabilization network (LISN).

Frequency range (MHz)	Conducted Limit (dB μ V)	
	Quai-peak	Average
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5	56	46
0.50 - 30	60	50

5.4.2 Test Setup

The section 4.6.2 (Diagram 2) test setup description was used for this test. The photo of test setup please refer to ANNEX B.

5.4.3 Test Procedure

The maximum conducted interference is searched using Peak (PK), if the emission levels more than the AV and QP limits, and that have narrow margins from the AV and QP limits will be re-measured with AV and QP detectors. Tests for both L phase and N phase lines of the power mains connected to the EUT are performed. Refer to recorded points and plots below.

5.4.4 Test Result

Please refer to ANNEX A.5.

5.5 Radiated Spurious Emissions and Band Edge (Restricted-band)

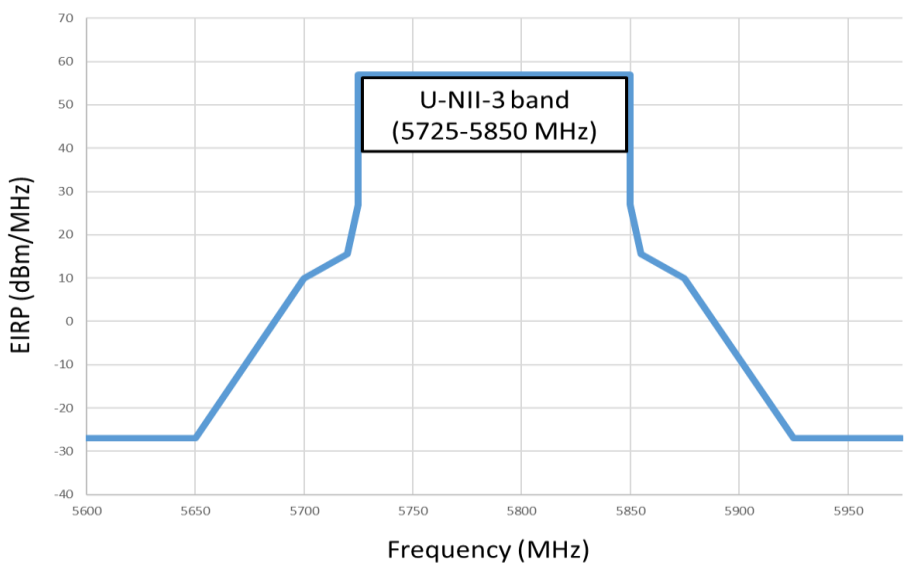
5.5.1 Limit

FCC §15.209 & 15.407(b)

Frequency (MHz)	Field Strength ($\mu\text{V/m}$)	Measurement Distance (m)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 - 30.0	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

Note ¹: The Limit for radiated test was performed according to FCC Part 15C

Note ²: The tighter limit applies at the band edge.

Un-restricted band emissions	
Out Operating Band (MHz)	Limit
5150 - 5250	e.i.r.p. -27 dBm (68.2 dBuV/m@3m)
5250 - 5350	e.i.r.p. -27 dBm (68.2 dBuV/m@3m)
5470 - 5725	e.i.r.p. -27 dBm (68.2 dBuV/m@3m)
5725 - 5850	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. 

Note: The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength.

5.5.2 Test Setup

The section 4.6.3-4.6.5 (Diagram 3 - Diagram 5) test setup description was used for this test. The photo of test setup please refer to ANNEX B.

5.5.3 Test Procedure

Since the emission limits are specified in terms of radiated field strength levels, measurements performed to demonstrate compliance have traditionally relied on a radiated test configuration. Radiated measurements remain the principal method for demonstrating compliance to the specified limits; however antenna-port conducted measurements are also now acceptable to demonstrate compliance (see below for details). When radiated measurements are utilized, test site requirements and procedures for maximizing and measuring radiated emissions that are described in ANSI C63.10 shall be followed.

Antenna-port conducted measurements may also be used as an alternative to radiated measurements for demonstrating compliance in the restricted frequency bands. If conducted measurements are performed, then proper impedance matching must be ensured and an additional radiated test for cabinet/case spurious emissions is required.

General Procedure for conducted measurements in restricted bands

- a) Measure the conducted output power (in dBm) using the detector specified (see guidance regarding measurement procedures for determining quasi-peak, peak, and average conducted output power, respectively).
- b) Add the maximum transmit antenna gain (in dBi) to the measured output power level to determine the EIRP level (see guidance on determining the applicable antenna gain)
- c) Add the appropriate maximum ground reflection factor to the EIRP level (6 dB for frequencies ≤ 30 MHz, 4.7 dB for frequencies between 30 MHz and 1000 MHz, inclusive and 0 dB for frequencies > 1000 MHz).
- d) For devices with multiple antenna-ports, measure the power of each individual chain and sum the EIRP of all chains in linear terms (e.g., Watts, mW).
- e) Convert the resultant EIRP level to an equivalent electric field strength using the following relationship:
$$E = \text{EIRP} - 20 \log D + 104.8$$
where:
E = electric field strength in dB μ V/m,
EIRP = equivalent isotropic radiated power in dBm
D = specified measurement distance in meters.
- f) Compare the resultant electric field strength level to the applicable limit.
- g) Perform radiated spurious emission test.

Quasi-Peak measurement procedure

The specifications for measurements using the CISPR quasi-peak detector can be found in Publication 16 of the International Special Committee on Radio Frequency Interference (CISPR) of the International Electrotechnical Commission.

As an alternative to CISPR quasi-peak measurement, compliance can be demonstrated to the applicable emission limits using a peak detector.

Peak power measurement procedure

Peak emission levels are measured by setting the instrument as follows:

- a) RBW = as specified in Table 1.
- b) VBW $\geq 3 \times$ RBW.
- c) Detector = Peak.
- d) Sweep time = auto.
- e) Trace mode = max hold.
- f) Allow sweeps to continue until the trace stabilizes. (Note that the required measurement time may be longer for low duty cycle applications).

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

If the peak-detected amplitude can be shown to comply with the average limit, then it is not necessary to perform a separate average measurement.

Trace averaging across on and off times of the EUT transmissions followed by duty cycle correction

If continuous transmission of the EUT (i.e., duty cycle ≥ 98 percent) cannot be achieved and the duty cycle is constant (i.e., duty cycle variations are less than ± 2 percent), then the following procedure shall be used:

- a) The EUT shall be configured to operate at the maximum achievable duty cycle.
- b) Measure the duty cycle, x , of the transmitter output signal as described in section 6.0.
- c) RBW = 1 MHz (unless otherwise specified).
- d) VBW $\geq 3 \times$ RBW.
- e) Detector = RMS, if $\text{span}/(\# \text{ of points in sweep}) \leq (\text{RBW}/2)$. Satisfying this condition may require increasing the number of points in the sweep or reducing the span. If this condition cannot be satisfied, then the detector mode shall be set to peak.
- f) Averaging type = power (i.e., RMS).
 - 1) As an alternative, the detector and averaging type may be set for linear voltage averaging.
 - 2) Some instruments require linear display mode in order to use linear voltage averaging. Log or dB averaging shall not be used.
- g) Sweep time = auto.
- h) Perform a trace average of at least 100 traces.
- i) A correction factor shall be added to the measurement results prior to comparing to the emission limit in order to compute the emission level that would have been measured had the test been performed at 100 percent duty cycle. The correction factor is computed as follows:
 - 1) If power averaging (RMS) mode was used in step f), then the applicable correction factor is $10 \log(1/x)$, where x is the duty cycle.
 - 2) If linear voltage averaging mode was used in step f), then the applicable correction factor is $20 \log(1/x)$, where x is the duty cycle.
 - 3) If a specific emission is demonstrated to be continuous (≥ 98 percent duty cycle) rather than turning on

and off with the transmit cycle, then no duty cycle correction is required for that emission.

NOTE: Reduction of the measured emission amplitude levels to account for operational duty factor is not permitted. Compliance is based on emission levels occurring during transmission - not on an average across on and off times of the transmitter.

Determining the applicable transmit antenna gain

A conducted power measurement will determine the maximum output power associated with a restricted band emission; however, in order to determine the associated EIRP level, the gain of the transmitting antenna (in dBi) must be added to the measured output power (in dBm).

Since the out-of-band characteristics of the EUT transmit antenna will often be unknown, the use of a conservative antenna gain value is necessary. Thus, when determining the EIRP based on the measured conducted power, the upper bound on antenna gain for a device with a single RF output shall be selected as the maximum in-band gain of the antenna across all operating bands, or 2 dBi, whichever is greater. However, for devices that operate in multiple frequency bands while using the same transmit antenna, the highest gain of the antenna within the operating band nearest in frequency to the restricted band emission being measured may be used in lieu of the overall highest gain when the emission is at a frequency that is within 20 percent of the nearest band edge frequency, but in no case shall a value less than 2 dBi be used.

See KDB 662911 for guidance on calculating the additional array gain term when determining the effective antenna gain for a EUT with multiple outputs occupying the same or overlapping frequency ranges in the same band.

Radiated spurious emission test

An additional consideration when performing conducted measurements of restricted band emissions is that unwanted emissions radiating from the EUT cabinet, control circuits, power leads, or intermediate circuit elements will likely go undetected in a conducted measurement configuration. To address this concern, a radiated test shall be performed to ensure that emissions emanating from the EUT cabinet (rather than the antenna port) also comply with the applicable limits.

For these cabinet radiated spurious emission measurements the EUT transmit antenna may be replaced with a termination matching the nominal impedance of the antenna. Procedures for performing radiated measurements are specified in ANSI C63.10. All detected emissions shall comply with the applicable limits.

The measurement frequency range is from 30 MHz to the 10th harmonic of the fundamental frequency. The Turn Table is actuated to turn from 0° to 360°, and both horizontal and vertical polarizations of the Test Antenna are used to find the maximum radiated power. Mid channels on all channel bandwidth verified. Only the worst RB size/offset presented.

The power of the EUT transmitting frequency should be ignored.

All Spurious Emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.

Use the following spectrum analyzer settings:

Span = wide enough to fully capture the emission being measured

RBW = 1 MHz for $f \geq 1$ GHz, 100 kHz for $f < 1$ GHz

VBW $\geq$ RBW

Sweep = auto

Detector function = peak

Trace = max hold

5.5.4 Test Result

Please refer to ANNEX A.6.

ANNEX A TEST RESULT

A.1 RF Output Power

Note 1: For FCC standard, if transmitting antennas of directional gain greater than 6 dBi are used, all band maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Note 2: All the configurations were tested, but only the worst data was shown in this report.

Duty Cycle

Test Mode	On Time (ms)	On+Off time (ms)	Duty Cycle
11a	1.398	1.603	87.21%
11n (HT20)/11ac (VHT20)	1.304	1.514	86.13%
11n (HT40)/11ac (VHT40)	0.648	0.851	76.18%
11ac (VHT80)	0.187	0.392	47.77%

Test Data

Conducted Power

Main Antenna:

U-NII-1 (5150 - 5250 MHz)					
Mode	Channel	Conducted Power (dBm)	Conducted Power (mW)	FCC Limit (mW)	Verdict
11a	CH36	17.66	58.40	250	Pass
11a	CH44	18.25	66.90	250	Pass
11a	CH48	18.21	66.29	250	Pass
11n (HT20)	CH36	17.50	56.21	250	Pass
11n (HT20)	CH44	18.56	71.75	250	Pass
11n (HT20)	CH48	18.39	69.00	250	Pass
11n (HT40)	CH38	14.00	25.13	250	Pass
11n (HT40)	CH46	18.60	72.47	250	Pass
11ac (VHT20)	CH36	18.17	65.59	250	Pass
11ac (VHT20)	CH44	18.43	69.64	250	Pass
11ac (VHT20)	CH48	18.38	68.84	250	Pass
11ac (VHT40)	CH38	18.75	75.02	250	Pass
11ac (VHT40)	CH46	18.42	69.53	250	Pass
11ac (VHT80)	CH42	17.55	56.87	250	Pass

U-NII-3 (5725 - 5850 MHz)					
Mode	Channel	Conducted Power (dBm)	Conducted Power (mW)	FCC Limit (mW)	Verdict
11a	CH149	21.43	139.13	1000	Pass
11a	CH157	19.64	92.14	1000	Pass
11a	CH165	19.49	89.01	1000	Pass
11n (HT20)	CH149	19.26	84.30	1000	Pass
11n (HT20)	CH157	19.01	79.59	1000	Pass
11n (HT20)	CH165	18.54	71.42	1000	Pass
11n (HT40)	CH151	18.28	67.32	1000	Pass
11n (HT40)	CH159	18.04	63.70	1000	Pass
11ac (VHT20)	CH149	17.97	62.64	1000	Pass
11ac (VHT20)	CH157	17.70	58.86	1000	Pass
11ac (VHT20)	CH165	17.20	52.46	1000	Pass
11ac (VHT40)	CH151	18.18	65.79	1000	Pass
11ac (VHT40)	CH159	17.89	61.54	1000	Pass
11ac (VHT80)	CH155	18.08	64.25	1000	Pass

Aux. Antenna:

U-NII-1 (5150 - 5250 MHz)					
Mode	Channel	Conducted Power (dBm)	Conducted Power (mW)	FCC Limit (mW)	Verdict
11a	CH36	15.64	36.68	250	Pass
11a	CH44	16.47	44.40	250	Pass
11a	CH48	16.36	43.29	250	Pass
11n (HT20)	CH36	16.42	43.84	250	Pass
11n (HT20)	CH44	16.44	44.04	250	Pass
11n (HT20)	CH48	16.33	42.94	250	Pass
11n (HT40)	CH38	13.30	21.39	250	Pass
11n (HT40)	CH46	19.15	82.25	250	Pass
11ac (VHT20)	CH36	18.41	69.32	250	Pass
11ac (VHT20)	CH44	17.90	61.64	250	Pass
11ac (VHT20)	CH48	17.81	60.37	250	Pass
11ac (VHT40)	CH38	17.83	60.70	250	Pass
11ac (VHT40)	CH46	17.50	56.25	250	Pass
11ac (VHT80)	CH42	17.69	58.73	250	Pass

U-NII-3 (5725 - 5850 MHz)					
Mode	Channel	Conducted Power (dBm)	Conducted Power (mW)	FCC Limit (mW)	Verdict
11a	CH149	20.08	101.96	1000	Pass
11a	CH157	18.38	68.93	1000	Pass
11a	CH165	17.76	59.76	1000	Pass
11n (HT20)	CH149	18.78	75.48	1000	Pass
11n (HT20)	CH157	18.24	66.66	1000	Pass
11n (HT20)	CH165	17.67	58.46	1000	Pass
11n (HT40)	CH151	17.94	62.25	1000	Pass
11n (HT40)	CH159	17.90	61.68	1000	Pass
11ac (VHT20)	CH149	17.38	54.68	1000	Pass
11ac (VHT20)	CH157	17.68	58.59	1000	Pass
11ac (VHT20)	CH165	17.06	50.80	1000	Pass
11ac (VHT40)	CH151	17.46	55.74	1000	Pass
11ac (VHT40)	CH159	18.13	65.04	1000	Pass
11ac (VHT80)	CH155	18.41	69.33	1000	Pass

MIMO:

U-NII-1 (5150 - 5250 MHz)					
Mode	Channel	Conducted Power (dBm)	Conducted Power (mW)	FCC Limit (mW)	Verdict
11a	CH36	19.78	95.08	250	Pass
11a	CH44	20.47	111.30	250	Pass
11a	CH48	20.40	109.58	250	Pass
11n (HT20)	CH36	20.00	100.05	250	Pass
11n (HT20)	CH44	20.64	115.79	250	Pass
11n (HT20)	CH48	20.49	111.94	250	Pass
11n (HT40)	CH38	16.68	46.51	250	Pass
11n (HT40)	CH46	21.90	154.72	250	Pass
11ac (VHT20)	CH36	21.30	134.91	250	Pass
11ac (VHT20)	CH44	21.18	131.28	250	Pass
11ac (VHT20)	CH48	21.11	129.21	250	Pass
11ac (VHT40)	CH38	21.33	135.71	250	Pass
11ac (VHT40)	CH46	21.00	125.78	250	Pass
11ac (VHT80)	CH42	20.63	115.60	250	Pass

U-NII-3 (5725 - 5850 MHz)					
Mode	Channel	Conducted Power (dBm)	Conducted Power (mW)	FCC Limit (mW)	Verdict
11a	CH149	23.82	241.09	1000	Pass
11a	CH157	22.07	161.07	1000	Pass
11a	CH165	21.73	148.77	1000	Pass
11n (HT20)	CH149	22.04	159.79	1000	Pass
11n (HT20)	CH157	21.65	146.25	1000	Pass
11n (HT20)	CH165	21.14	129.88	1000	Pass
11n (HT40)	CH151	21.13	129.57	1000	Pass
11n (HT40)	CH159	20.98	125.38	1000	Pass
11ac (VHT20)	CH149	20.69	117.32	1000	Pass
11ac (VHT20)	CH157	20.70	117.46	1000	Pass
11ac (VHT20)	CH165	20.14	103.26	1000	Pass
11ac (VHT40)	CH151	20.85	121.53	1000	Pass
11ac (VHT40)	CH159	21.02	126.58	1000	Pass
11ac (VHT80)	CH155	21.26	133.58	1000	Pass

A.2 Emission Bandwidth & 99% Bandwidth

Note 1: Test plots please refer to the document “Annex No.: BL-SH2530225-602 Data Part 1.pdf”.

Note 2: All the configurations were tested, but only the worst data was shown in this report.

Test Data

U-NII-1 (5150 - 5250 MHz)			
Mode	Channel	26 dB Bandwidth (MHz)	99% Bandwidth (MHz)
11a	CH36	19.58	16.37
11a	CH44	20.06	16.54
11a	CH48	20.43	16.43
11n (HT20)	CH36	20.06	17.60
11n (HT20)	CH44	20.07	17.55
11n (HT20)	CH48	19.99	17.61
11n (HT40)	CH38	40.32	35.92
11n (HT40)	CH46	40.14	35.88
11ac (VHT20)	CH36	20.06	17.57
11ac (VHT20)	CH44	20.45	17.59
11ac (VHT20)	CH48	20.20	17.58
11ac (VHT40)	CH38	40.21	35.97
11ac (VHT40)	CH46	39.88	35.97
11ac (VHT80)	CH42	80.55	75.23

U-NII-3 (5725 - 5850 MHz)			
Mode	Channel	26 dB Bandwidth (MHz)	99% Bandwidth (MHz)
11a	CH149	22.41	16.50
11a	CH157	21.75	16.60
11a	CH165	21.48	16.54
11n (HT20)	CH149	19.96	17.52
11n (HT20)	CH157	20.54	17.60
11n (HT20)	CH165	20.25	17.60
11n (HT40)	CH151	40.64	36.03
11n (HT40)	CH159	40.26	35.99
11ac (VHT20)	CH149	20.77	17.57
11ac (VHT20)	CH157	20.32	17.58
11ac (VHT20)	CH165	20.15	17.56
11ac (VHT40)	CH151	40.53	36.00
11ac (VHT40)	CH159	40.57	36.00
11ac (VHT80)	CH155	80.74	75.40

A.3 6 dB Bandwidth

Note 1: Test plots please refer to the document “Annex No.: BL-SH2530225-602 Data Part 2.pdf”.

Note 2: All the configurations were tested, but only the worst data was shown in this report.

Test Data

U-NII-3 (5725 - 5850 MHz)				
Mode	Channel	6 dB Bandwidth (MHz)	Limit (kHz)	Verdict
11a	CH149	15.20	500.00	Pass
11a	CH157	15.40	500.00	Pass
11a	CH165	14.00	500.00	Pass
11n (HT20)	CH149	15.80	500.00	Pass
11n (HT20)	CH157	15.30	500.00	Pass
11n (HT20)	CH165	15.30	500.00	Pass
11n (HT40)	CH151	35.30	500.00	Pass
11n (HT40)	CH159	35.20	500.00	Pass
11ac (VHT20)	CH149	15.40	500.00	Pass
11ac (VHT20)	CH157	15.40	500.00	Pass
11ac (VHT20)	CH165	15.40	500.00	Pass
11ac (VHT40)	CH151	35.20	500.00	Pass
11ac (VHT40)	CH159	35.30	500.00	Pass
11ac (VHT80)	CH155	75.30	500.00	Pass

A.4 Power Spectral Density

Note 1: Test plots please refer to the document "Annex No.: BL-SH2530225-602 Data Part 3.pdf".

Test Data

Main Antenna:

U-NII-1 (5150 - 5250 MHz)				
Mode	Channel	PSD (dBm/MHz)	Limit (dBm/MHz)	Verdict
11a	CH36	7.01	11.00	Pass
11a	CH44	7.88	11.00	Pass
11a	CH48	8.26	11.00	Pass
11n (HT20)	CH36	6.78	11.00	Pass
11n (HT20)	CH44	7.91	11.00	Pass
11n (HT20)	CH48	7.86	11.00	Pass
11n (HT40)	CH38	2.74	11.00	Pass
11n (HT40)	CH46	4.93	11.00	Pass
11ac (VHT20)	CH36	7.67	11.00	Pass
11ac (VHT20)	CH44	7.66	11.00	Pass
11ac (VHT20)	CH48	7.62	11.00	Pass
11ac (VHT40)	CH38	4.79	11.00	Pass
11ac (VHT40)	CH46	5.13	11.00	Pass
11ac (VHT80)	CH42	1.58	11.00	Pass

U-NII-3 (5725 - 5850 MHz)				
Mode	Channel	PSD (dBm/500kHz)	Limit (dBm/500kHz)	Verdict
11a	CH149	8.83	30.00	Pass
11a	CH157	7.61	30.00	Pass
11a	CH165	7.44	30.00	Pass
11n (HT20)	CH149	6.21	30.00	Pass
11n (HT20)	CH157	5.82	30.00	Pass
11n (HT20)	CH165	5.18	30.00	Pass
11n (HT40)	CH151	2.09	30.00	Pass
11n (HT40)	CH159	1.53	30.00	Pass
11ac (VHT20)	CH149	4.87	30.00	Pass
11ac (VHT20)	CH157	4.44	30.00	Pass
11ac (VHT20)	CH165	3.53	30.00	Pass
11ac (VHT40)	CH151	2.31	30.00	Pass
11ac (VHT40)	CH159	1.49	30.00	Pass
11ac (VHT80)	CH155	0.74	30.00	Pass

Aux. Antenna:

U-NII-1 (5150 - 5250 MHz)				
Mode	Channel	PSD (dBm/MHz)	Limit (dBm/MHz)	Verdict
11a	CH36	5.66	11.00	Pass
11a	CH44	6.28	11.00	Pass
11a	CH48	6.21	11.00	Pass
11n (HT20)	CH36	5.96	11.00	Pass
11n (HT20)	CH44	6.22	11.00	Pass
11n (HT20)	CH48	6.04	11.00	Pass
11n (HT40)	CH38	2.92	11.00	Pass
11n (HT40)	CH46	6.19	11.00	Pass
11ac (VHT20)	CH36	7.30	11.00	Pass
11ac (VHT20)	CH44	7.30	11.00	Pass
11ac (VHT20)	CH48	7.36	11.00	Pass
11ac (VHT40)	CH38	4.68	11.00	Pass
11ac (VHT40)	CH46	5.51	11.00	Pass
11ac (VHT80)	CH42	0.62	11.00	Pass

U-NII-3 (5725 - 5850 MHz)				
Mode	Channel	PSD (dBm/500kHz)	Limit (dBm/500kHz)	Verdict
11a	CH149	6.69	30.00	Pass
11a	CH157	5.66	30.00	Pass
11a	CH165	5.40	30.00	Pass
11n (HT20)	CH149	6.79	30.00	Pass
11n (HT20)	CH157	5.59	30.00	Pass
11n (HT20)	CH165	4.87	30.00	Pass
11n (HT40)	CH151	2.67	30.00	Pass
11n (HT40)	CH159	2.21	30.00	Pass
11ac (VHT20)	CH149	4.32	30.00	Pass
11ac (VHT20)	CH157	4.21	30.00	Pass
11ac (VHT20)	CH165	3.33	30.00	Pass
11ac (VHT40)	CH151	1.69	30.00	Pass
11ac (VHT40)	CH159	2.01	30.00	Pass
11ac (VHT80)	CH155	-0.77	30.00	Pass

MIMO:

U-NII-1 (5150 - 5250 MHz)				
Mode	Channel	PSD (dBm/MHz)	Limit (dBm/MHz)	Verdict
11a	CH36	9.40	11.00	Pass
11a	CH44	10.16	11.00	Pass
11a	CH48	10.36	11.00	Pass
11n (HT20)	CH36	9.40	11.00	Pass
11n (HT20)	CH44	10.16	11.00	Pass
11n (HT20)	CH48	10.06	11.00	Pass
11n (HT40)	CH38	5.84	11.00	Pass
11n (HT40)	CH46	8.62	11.00	Pass
11ac (VHT20)	CH36	10.50	11.00	Pass
11ac (VHT20)	CH44	10.49	11.00	Pass
11ac (VHT20)	CH48	10.50	11.00	Pass
11ac (VHT40)	CH38	7.74	11.00	Pass
11ac (VHT40)	CH46	8.34	11.00	Pass
11ac (VHT80)	CH42	4.14	11.00	Pass

U-NII-3 (5725 - 5850 MHz)				
Mode	Channel	PSD (dBm/500kHz)	Limit (dBm/500kHz)	Verdict
11a	CH149	10.90	30.00	Pass
11a	CH157	9.76	30.00	Pass
11a	CH165	9.55	30.00	Pass
11n (HT20)	CH149	9.52	30.00	Pass
11n (HT20)	CH157	8.71	30.00	Pass
11n (HT20)	CH165	8.03	30.00	Pass
11n (HT40)	CH151	5.40	30.00	Pass
11n (HT40)	CH159	4.89	30.00	Pass
11ac (VHT20)	CH149	7.62	30.00	Pass
11ac (VHT20)	CH157	7.34	30.00	Pass
11ac (VHT20)	CH165	6.44	30.00	Pass
11ac (VHT40)	CH151	5.02	30.00	Pass
11ac (VHT40)	CH159	4.77	30.00	Pass
11ac (VHT80)	CH155	3.06	30.00	Pass

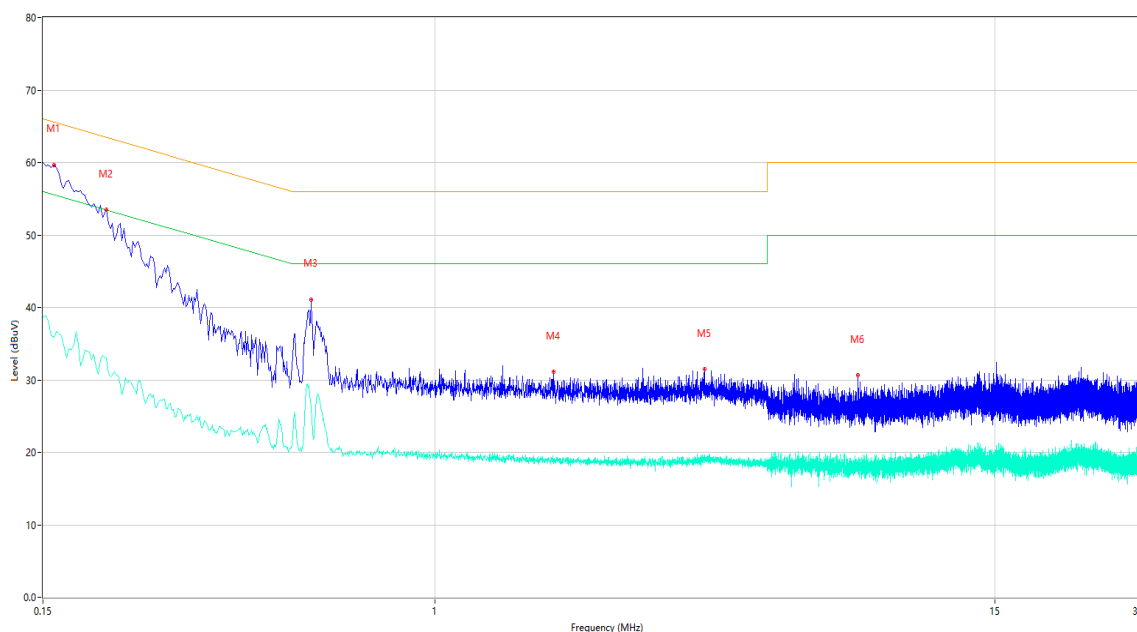
A.5 Conducted Emission

Note 1: The EUT is working in the Normal link mode. All modes have been tested and normal link mode is worst.

Note 2: Devices subject to Part 15 must be tested for all available U.S. voltages and frequencies (such as a nominal 120 VAC, 60 Hz and 240 VAC, 50 Hz) for which the device is capable of operation. So, The configuration 120 VAC, 60 Hz and 240 VAC, 50 Hz were tested respectively, but only the worst configuration (120 VAC, 60 Hz) shown here.

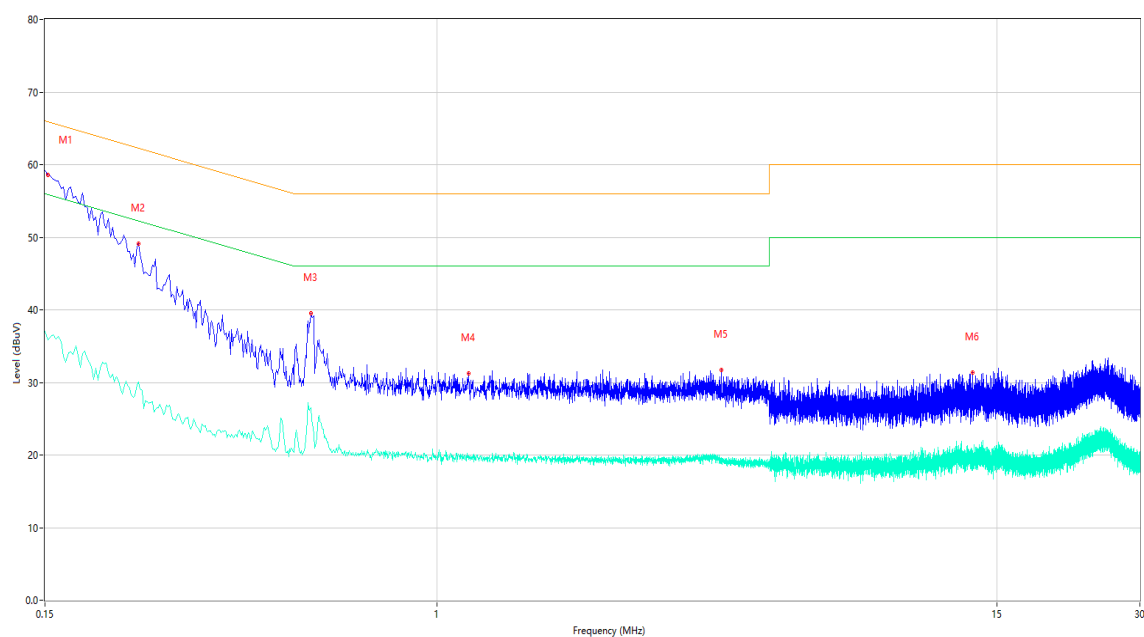
Test Data and Plots

PHASE L



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.158	59.68	9.82	65.57	5.89	Peak	L	Pass
1**	0.158	35.83	9.82	55.57	19.74	AV	L	Pass
2	0.204	53.48	9.78	63.45	9.97	Peak	L	Pass
2**	0.204	33.02	9.78	53.45	20.43	AV	L	Pass
3	0.550	41.10	9.76	56.00	14.90	Peak	L	Pass
3**	0.550	26.43	9.76	46.00	19.57	AV	L	Pass
4	1.778	31.07	9.68	56.00	24.93	Peak	L	Pass
4**	1.778	18.70	9.68	46.00	27.30	AV	L	Pass
5	3.682	31.44	9.62	56.00	24.56	Peak	L	Pass
5**	3.682	19.61	9.62	46.00	26.39	AV	L	Pass
6	7.738	30.62	9.31	60.00	29.38	Peak	L	Pass
6**	7.738	18.66	9.31	50.00	31.34	AV	L	Pass

PHASE N



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.152	58.53	9.73	65.89	7.36	Peak	N	Pass
1**	0.152	35.83	9.73	55.89	20.06	AV	N	Pass
2	0.236	49.14	9.74	62.24	13.10	Peak	N	Pass
2**	0.236	30.06	9.74	52.24	22.18	AV	N	Pass
3	0.544	39.52	9.74	56.00	16.48	Peak	N	Pass
3**	0.544	26.54	9.74	46.00	19.46	AV	N	Pass
4	1.166	31.24	9.73	56.00	24.76	Peak	N	Pass
4**	1.166	19.45	9.73	46.00	26.55	AV	N	Pass
5	3.962	31.70	9.66	56.00	24.30	Peak	N	Pass
5**	3.962	19.31	9.66	46.00	26.69	AV	N	Pass
6	13.366	31.31	9.04	60.00	28.69	Peak	N	Pass
6**	13.366	20.07	9.04	50.00	29.93	AV	N	Pass

A.6 Radiated Spurious Emissions and Band Edge (Restricted-band)

A.6.1 Radiated Spurious Emissions

Test Data

Note 1: The symbol of "--" in the table which means not application.

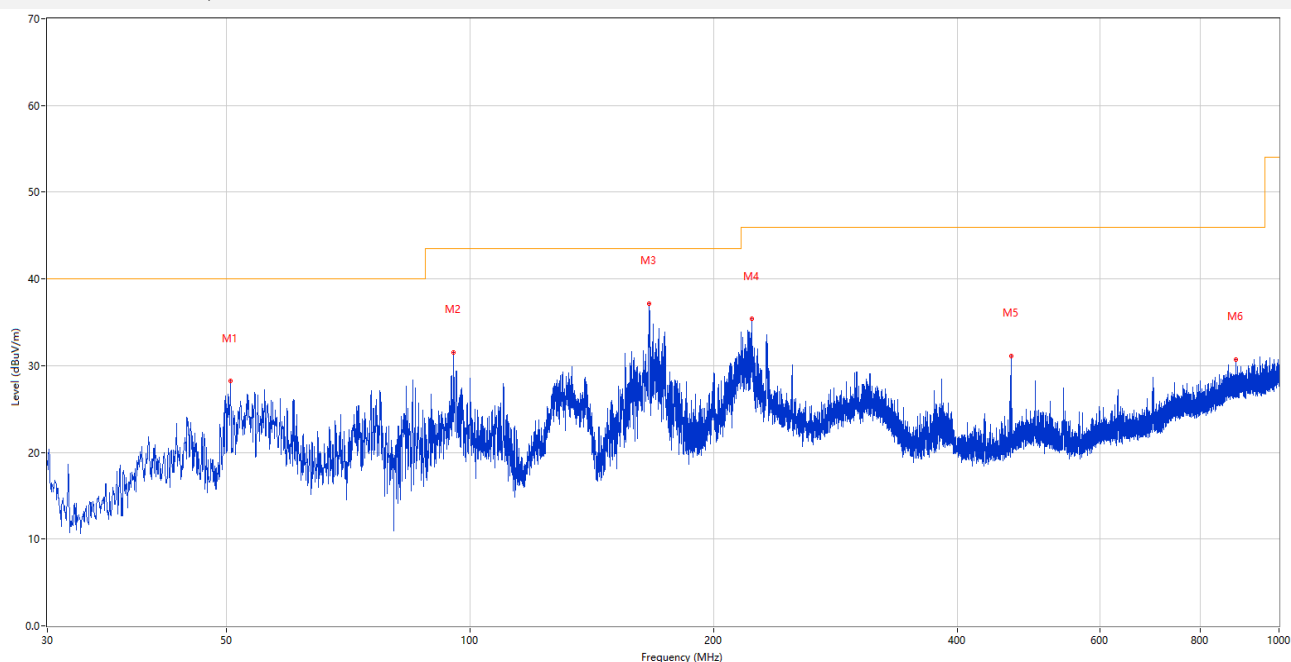
Note 2: For the test data above 1 GHz, According the ANSI C63.4, where limits are specified for both average and peak (or quasi-peak) detector functions, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement.

Note 3: The low frequency, which started from 9 kHz to 30 MHz, was pre-scanned and the result which was 20 dB lower than the limit line per 15.31(o) was not reported.

Note 4: The EUT is working in the Normal link mode below 1 GHz. All modes have been tested and normal link mode is worst.

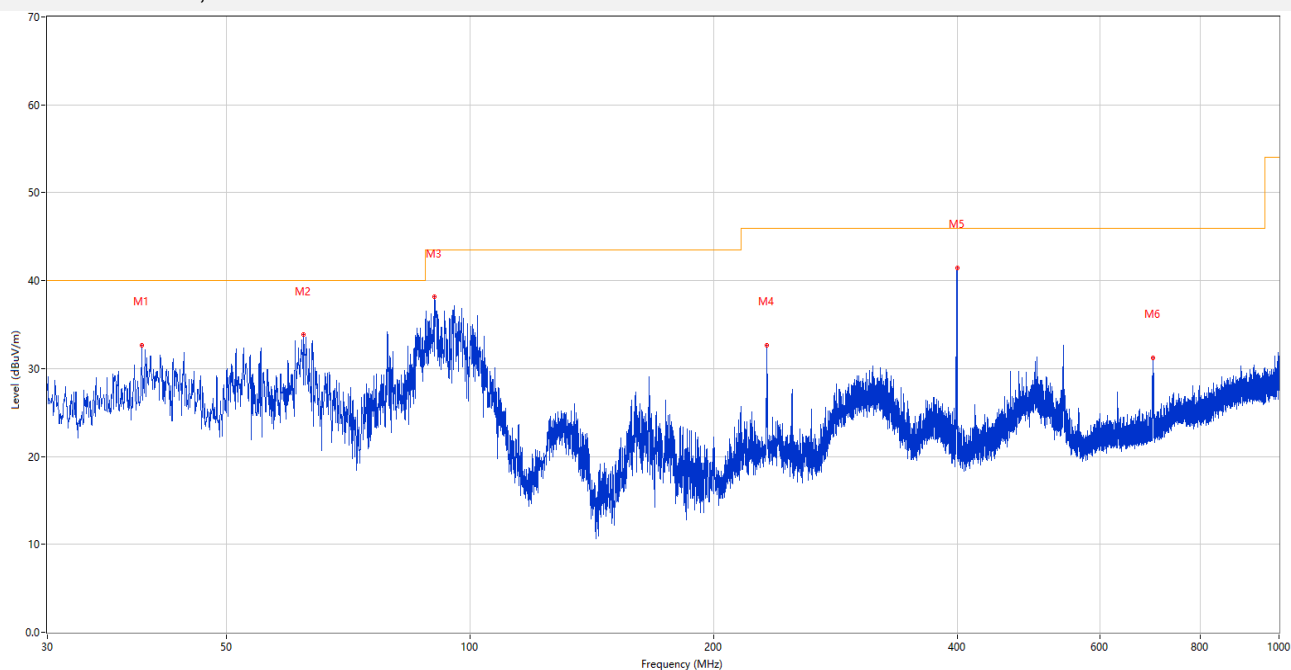
Note 5: For Multiple transmitter output, the quantity $10 \log(NANT)$ dB is added to each spectrum value before comparing to the emission limit. When testing out-of-band and spurious emissions against relative emission limits, tests may be performed on each output individually without summing or adding $10 \log(NANT)$ if the measurements are made relative to the in-band emissions on the individual outputs.

30 MHz to 1 GHz, ANT H



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	50.564	28.20	-24.55	40.0	11.80	Peak	222.00	200	Horizontal	Pass
2	95.281	31.51	-26.64	43.5	11.99	Peak	246.00	200	Horizontal	Pass
3	166.576	37.16	-28.45	43.5	6.34	Peak	245.00	100	Horizontal	Pass
4	223.127	35.36	-25.54	46.0	10.64	Peak	360.00	100	Horizontal	Pass
5	466.306	31.13	-19.20	46.0	14.87	Peak	258.00	200	Horizontal	Pass
6	883.940	30.69	-9.78	46.0	15.31	Peak	251.00	100	Horizontal	Pass

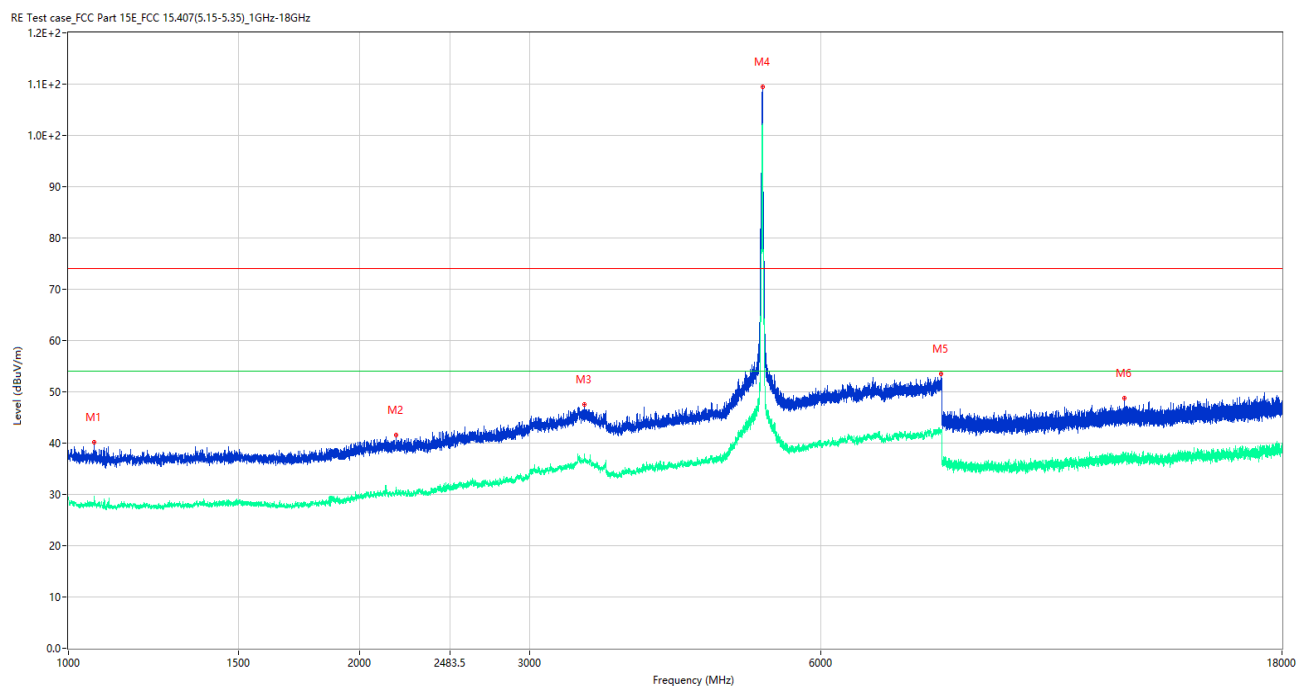
30 MHz to 1 GHz, ANT V



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	39.215	32.68	-26.18	40.0	7.32	Peak	224.00	100	Vertical	Pass
2	62.252	33.82	-26.57	40.0	6.18	Peak	224.00	100	Vertical	Pass
3	90.382	38.12	-27.94	43.5	5.38	Peak	224.00	200	Vertical	Pass
4	232.876	32.66	-24.81	46.0	13.34	Peak	329.00	100	Vertical	Pass
5	399.861	41.42	-20.43	46.0	4.58	Peak	254.00	100	Vertical	Pass
6	698.718	31.24	-13.79	46.0	14.76	Peak	292.00	100	Vertical	Pass

Note: The spurious above 18G is noise only, do not show on the report.

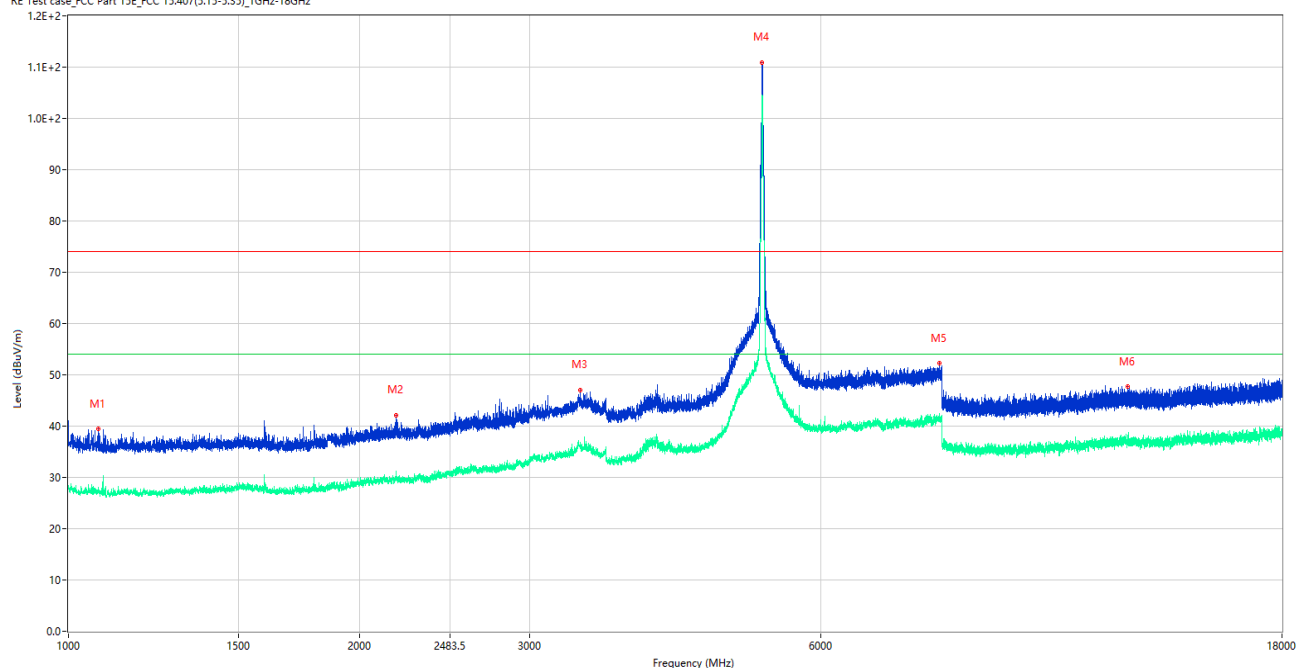
11a, U-NII-1, 1 GHz to 18 GHz, Middle Channel, ANT H



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1062.250	40.24	-15.25	74.0	33.76	Peak	296.00	150	Horizontal	Pass
1**	1062.250	27.75	-15.25	54.0	26.25	AV	296.00	150	Horizontal	Pass
2	2182.500	41.50	-13.02	74.0	32.50	Peak	141.00	150	Horizontal	Pass
2**	2182.500	30.91	-13.02	54.0	23.09	AV	141.00	150	Horizontal	Pass
3	3415.000	47.54	-5.19	74.0	26.46	Peak	321.00	150	Horizontal	Pass
3**	3415.000	37.02	-5.19	54.0	16.98	AV	321.00	150	Horizontal	Pass
4	5222.000	109.47	-2.36	74.0	-35.47	Peak	141.00	150	Horizontal	N/A
4**	5222.000	101.81	-2.36	54.0	-47.81	AV	141.00	150	Horizontal	N/A
5	7994.500	53.43	1.80	74.0	20.57	Peak	5.00	150	Horizontal	Pass
5**	7994.500	42.13	1.80	54.0	11.87	AV	5.00	150	Horizontal	Pass
6	12376.175	48.75	-2.25	74.0	25.25	Peak	7.00	150	Horizontal	Pass
6**	12376.175	37.58	-2.25	54.0	16.42	AV	7.00	150	Horizontal	Pass

11a, U-NII-1, 1 GHz to 18 GHz, Middle Channel, ANT V

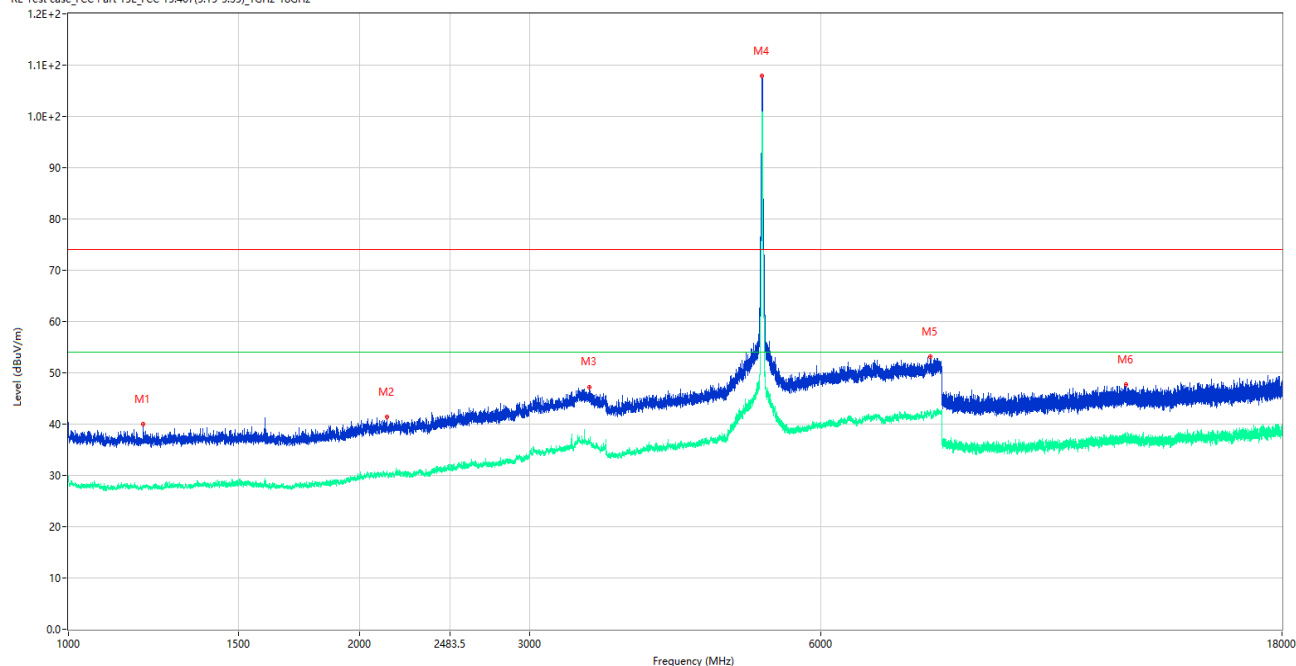
RE Test case_FCC Part 15E_FCC 15.407(5.15-5.35)_1GHz-18GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1074.250	39.40	-15.35	74.0	34.60	Peak	242.00	150	Vertical	Pass
1**	1074.250	27.15	-15.35	54.0	26.85	AV	242.00	150	Vertical	Pass
2	2184.250	42.15	-13.09	74.0	31.85	Peak	206.00	150	Vertical	Pass
2**	2184.250	29.95	-13.09	54.0	24.05	AV	206.00	150	Vertical	Pass
3	3384.500	46.95	-5.39	74.0	27.05	Peak	231.00	150	Vertical	Pass
3**	3384.500	35.62	-5.39	54.0	18.38	AV	231.00	150	Vertical	Pass
4	5214.500	110.88	-2.34	74.0	-36.88	Peak	360.00	150	Vertical	N/A
4**	5214.500	103.76	-2.34	54.0	-49.76	AV	360.00	150	Vertical	N/A
5	7965.500	52.21	2.26	74.0	21.79	Peak	94.00	150	Vertical	Pass
5**	7965.500	41.06	2.26	54.0	12.94	AV	94.00	150	Vertical	Pass
6	12464.763	47.70	-2.23	74.0	26.30	Peak	118.00	150	Vertical	Pass
6**	12464.763	36.96	-2.23	54.0	17.04	AV	118.00	150	Vertical	Pass

11n20, U-NII-1, 1 GHz to 18 GHz, Middle Channel, ANT H

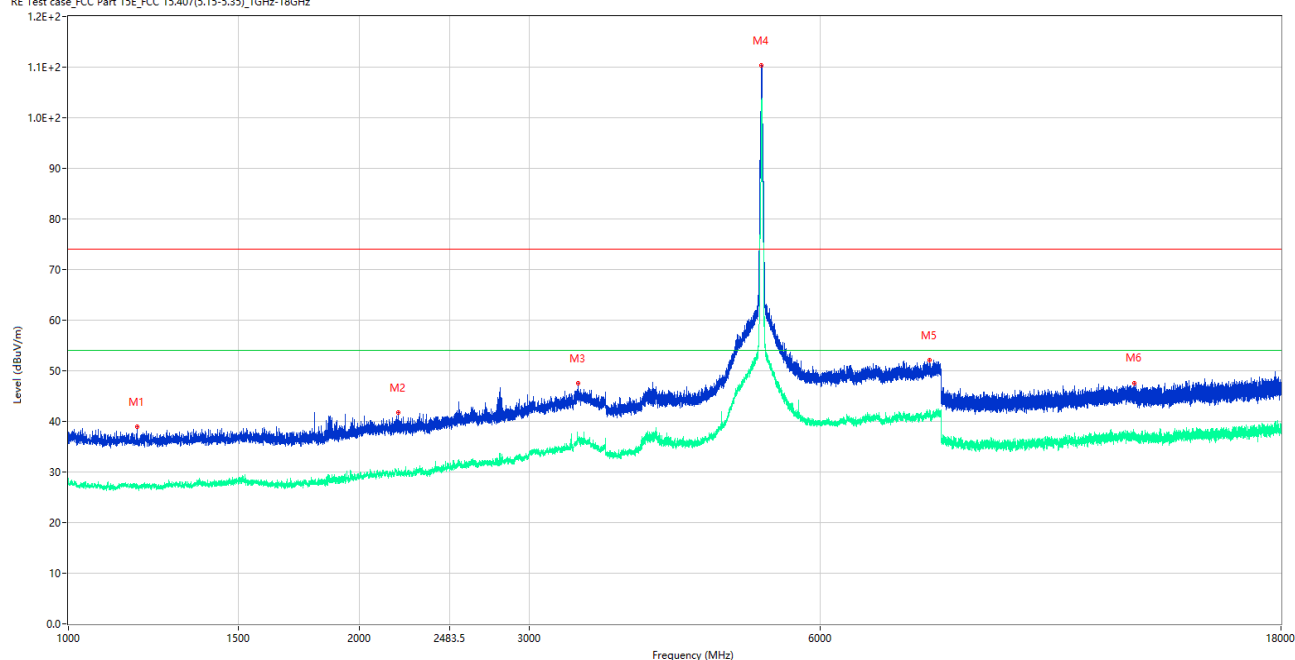
RE Test case_FCC Part 15E_FCC 15.407(5.15-5.35)_1GHz-18GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1195.250	39.96	-15.75	74.0	34.04	Peak	191.00	150	Horizontal	Pass
1**	1195.250	27.98	-15.75	54.0	26.02	AV	191.00	150	Horizontal	Pass
2	2133.500	41.37	-13.39	74.0	32.63	Peak	196.00	150	Horizontal	Pass
2**	2133.500	30.63	-13.39	54.0	23.37	AV	196.00	150	Horizontal	Pass
3	3461.000	47.22	-4.96	74.0	26.78	Peak	253.00	150	Horizontal	Pass
3**	3461.000	36.89	-4.96	54.0	17.11	AV	253.00	150	Horizontal	Pass
4	5216.000	107.83	-2.32	74.0	-33.83	Peak	142.00	150	Horizontal	N/A
4**	5216.000	99.39	-2.32	54.0	-45.39	AV	142.00	150	Horizontal	N/A
5	7783.000	53.11	1.45	74.0	20.89	Peak	2.00	150	Horizontal	Pass
5**	7783.000	42.43	1.45	54.0	11.57	AV	2.00	150	Horizontal	Pass
6	12418.688	47.67	-2.03	74.0	26.33	Peak	359.00	150	Horizontal	Pass
6**	12418.688	37.54	-2.03	54.0	16.46	AV	359.00	150	Horizontal	Pass

11n20, U-NII-1, 1 GHz to 18 GHz, Middle Channel, ANT V

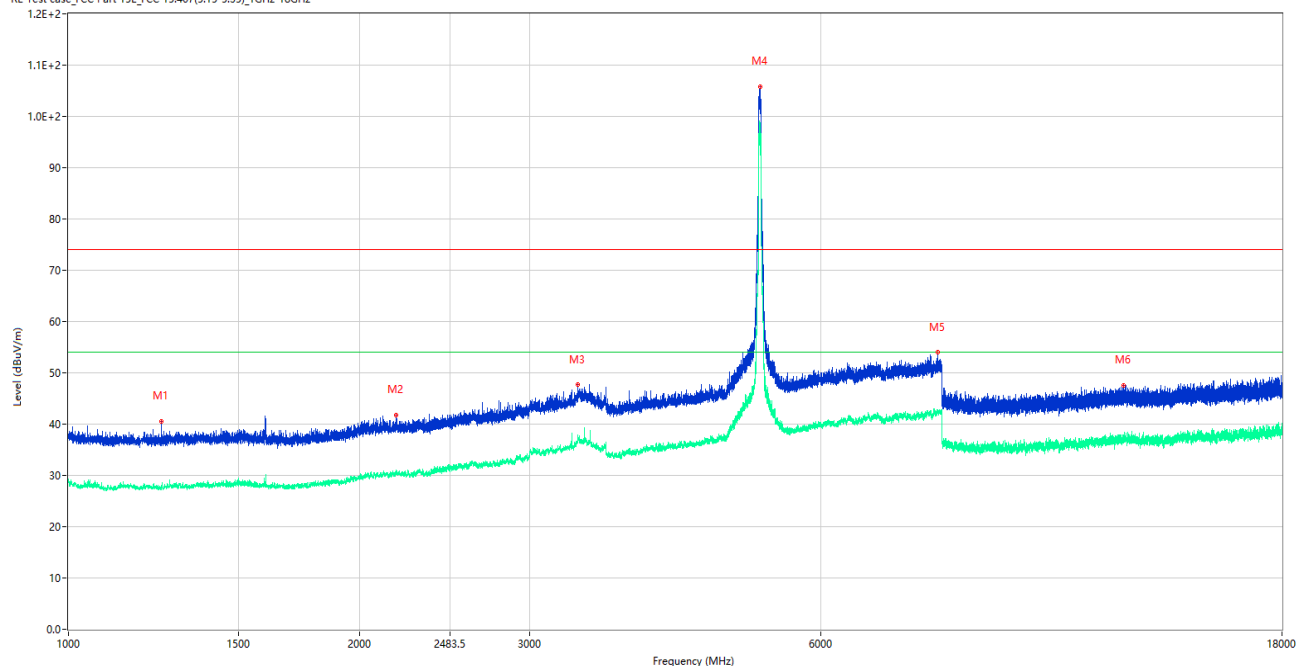
RE Test case_FCC Part 15E_FCC 15.407(5.15-5.35)_1GHz-18GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1177.250	38.91	-15.69	74.0	35.09	Peak	319.00	150	Vertical	Pass
1**	1177.250	27.08	-15.69	54.0	26.92	AV	319.00	150	Vertical	Pass
2	2195.250	41.83	-13.32	74.0	32.17	Peak	211.00	150	Vertical	Pass
2**	2195.250	29.68	-13.32	54.0	24.32	AV	211.00	150	Vertical	Pass
3	3371.500	47.51	-4.84	74.0	26.49	Peak	174.00	150	Vertical	Pass
3**	3371.500	36.28	-4.84	54.0	17.72	AV	174.00	150	Vertical	Pass
4	5217.500	110.30	-2.36	74.0	-36.30	Peak	224.00	150	Vertical	N/A
4**	5217.500	103.38	-2.36	54.0	-49.38	AV	224.00	150	Vertical	N/A
5	7784.000	52.08	1.52	74.0	21.92	Peak	291.00	150	Vertical	Pass
5**	7784.000	41.60	1.52	54.0	12.40	AV	291.00	150	Vertical	Pass
6	12676.850	47.47	-2.89	74.0	26.53	Peak	350.00	150	Vertical	Pass
6**	12676.850	36.73	-2.89	54.0	17.27	AV	350.00	150	Vertical	Pass

11n40, U-NII-1, 1 GHz to 18 GHz, Low Channel, ANT H

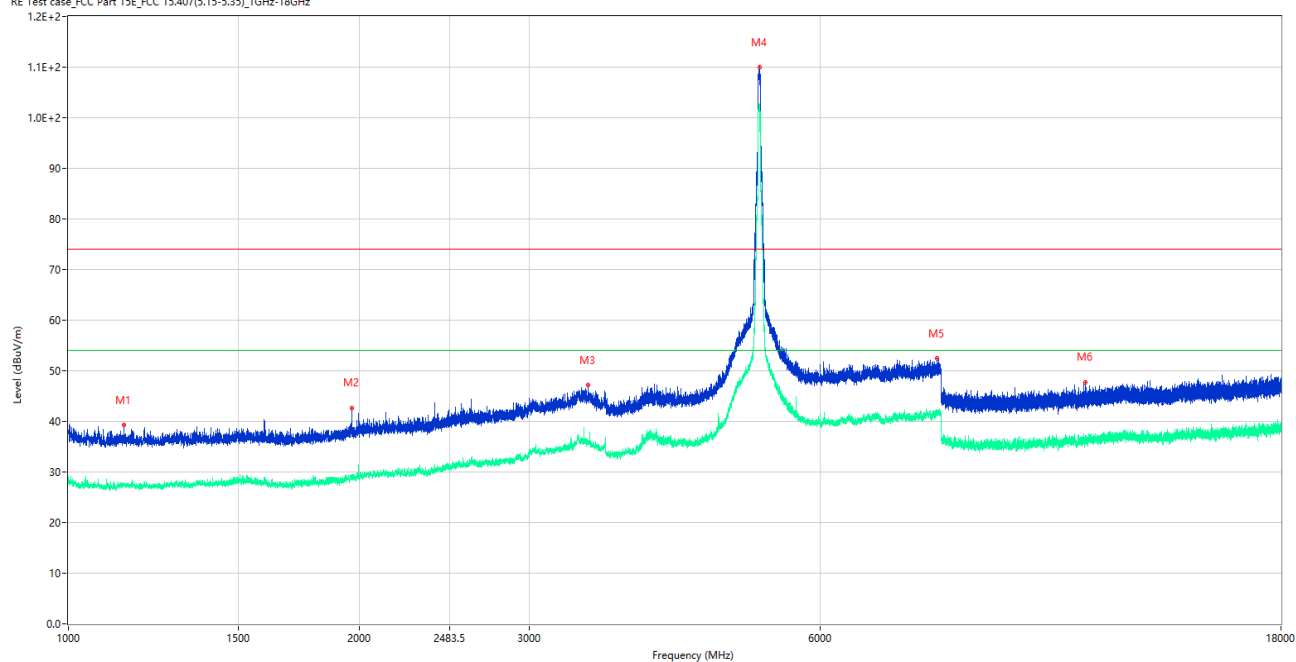
RE Test case_FCC Part 15E_FCC 15.407(5.15-5.35)_1GHz-18GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1247.750	40.60	-16.15	74.0	33.40	Peak	42.00	150	Horizontal	Pass
1**	1247.750	27.56	-16.15	54.0	26.44	AV	42.00	150	Horizontal	Pass
2	2181.750	41.69	-12.98	74.0	32.31	Peak	145.00	150	Horizontal	Pass
2**	2181.750	30.38	-12.98	54.0	23.62	AV	145.00	150	Horizontal	Pass
3	3366.000	47.71	-5.08	74.0	26.29	Peak	0.00	150	Horizontal	Pass
3**	3366.000	37.63	-5.08	54.0	16.37	AV	0.00	150	Horizontal	Pass
4	5195.000	105.81	-2.33	74.0	-31.81	Peak	148.00	150	Horizontal	N/A
4**	5195.000	98.06	-2.33	54.0	-44.06	AV	148.00	150	Horizontal	N/A
5	7924.000	54.02	1.97	74.0	19.98	Peak	357.00	150	Horizontal	Pass
5**	7924.000	42.28	1.97	54.0	11.72	AV	357.00	150	Horizontal	Pass
6	12341.026	47.58	-2.28	74.0	26.42	Peak	360.00	150	Horizontal	Pass
6**	12341.026	36.54	-2.28	54.0	17.46	AV	360.00	150	Horizontal	Pass

11n40, U-NII-1, 1 GHz to 18 GHz, Low Channel, ANT V

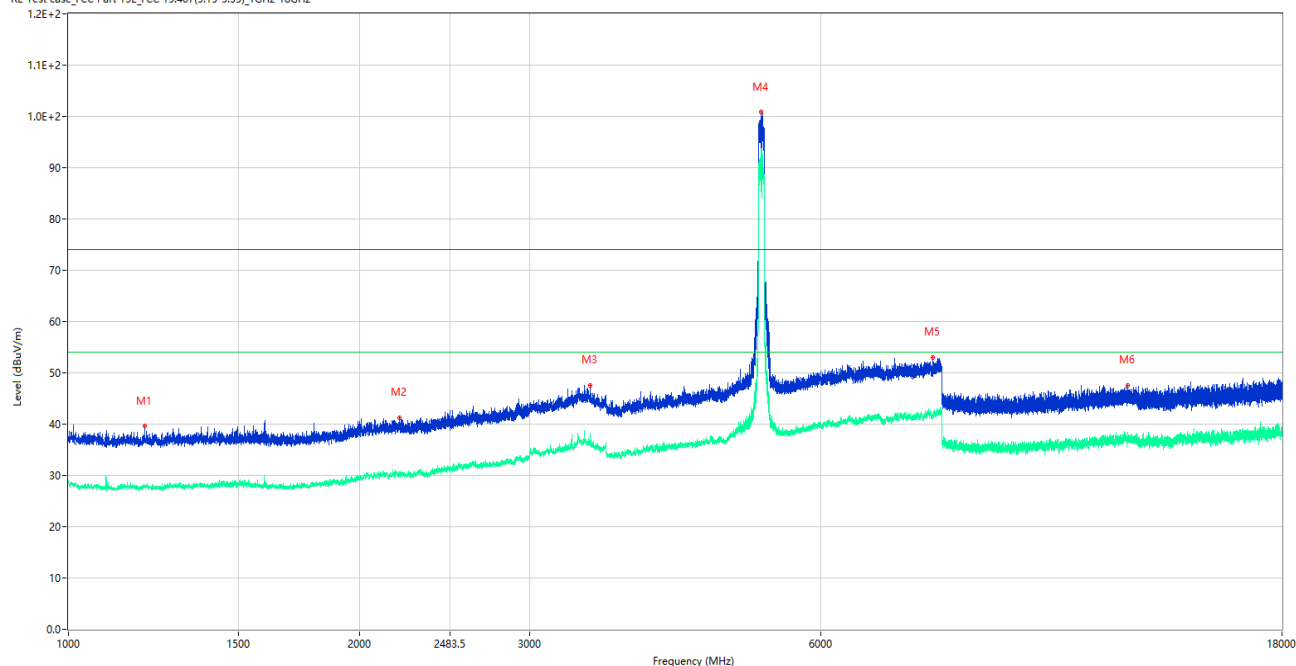
RE Test case_FCC Part 15E_FCC 15.407(5.15-5.35)_1GHz-18GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1142.250	39.23	-15.58	74.0	34.77	Peak	235.00	150	Vertical	Pass
1**	1142.250	27.28	-15.58	54.0	26.72	AV	235.00	150	Vertical	Pass
2	1964.250	42.72	-14.99	74.0	31.28	Peak	216.00	150	Vertical	Pass
2**	1964.250	28.49	-14.99	54.0	25.51	AV	216.00	150	Vertical	Pass
3	3453.000	47.17	-4.94	74.0	26.83	Peak	357.00	150	Vertical	Pass
3**	3453.000	35.72	-4.94	54.0	18.28	AV	357.00	150	Vertical	Pass
4	5192.000	109.96	-2.30	74.0	-35.96	Peak	354.00	150	Vertical	N/A
4**	5192.000	102.49	-2.30	54.0	-48.49	AV	354.00	150	Vertical	N/A
5	7933.500	52.43	2.08	74.0	21.57	Peak	88.00	150	Vertical	Pass
5**	7933.500	41.65	2.08	54.0	12.35	AV	88.00	150	Vertical	Pass
6	11296.975	47.73	-4.14	74.0	26.27	Peak	191.00	150	Vertical	Pass
6**	11296.975	36.47	-4.14	54.0	17.53	AV	191.00	150	Vertical	Pass

11ac80, U-NII-1, 1 GHz to 18 GHz, Middle Channel, ANT H

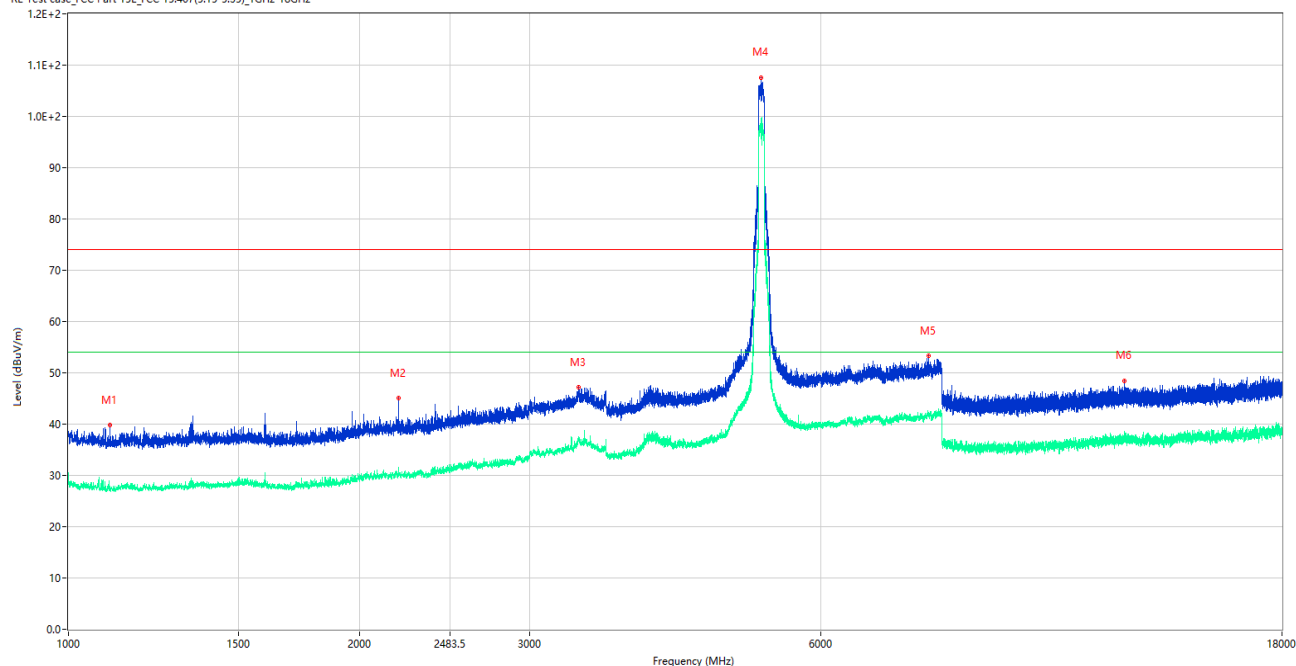
RE Test case_FCC Part 15E_FCC 15.407(5.15-5.35)_1GHz-18GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1199.250	39.61	-15.75	74.0	34.39	Peak	41.00	150	Horizontal	Pass
1**	1199.250	27.81	-15.75	54.0	26.19	AV	41.00	150	Horizontal	Pass
2	2199.500	41.28	-13.30	74.0	32.72	Peak	176.00	150	Horizontal	Pass
2**	2199.500	30.27	-13.30	54.0	23.73	AV	176.00	150	Horizontal	Pass
3	3464.500	47.63	-5.08	74.0	26.37	Peak	346.00	150	Horizontal	Pass
3**	3464.500	36.49	-5.08	54.0	17.51	AV	346.00	150	Horizontal	Pass
4	5202.500	100.84	-2.36	74.0	-26.84	Peak	142.00	150	Horizontal	N/A
4**	5202.500	88.27	-2.36	54.0	-34.27	AV	142.00	150	Horizontal	N/A
5	7838.500	53.00	1.38	74.0	21.00	Peak	51.00	150	Horizontal	Pass
5**	7838.500	41.47	1.38	54.0	12.53	AV	51.00	150	Horizontal	Pass
6	12464.763	47.55	-2.23	74.0	26.45	Peak	333.00	150	Horizontal	Pass
6**	12464.763	37.57	-2.23	54.0	16.43	AV	333.00	150	Horizontal	Pass

11ac80, U-NII-1, 1 GHz to 18 GHz, Middle Channel, ANT V

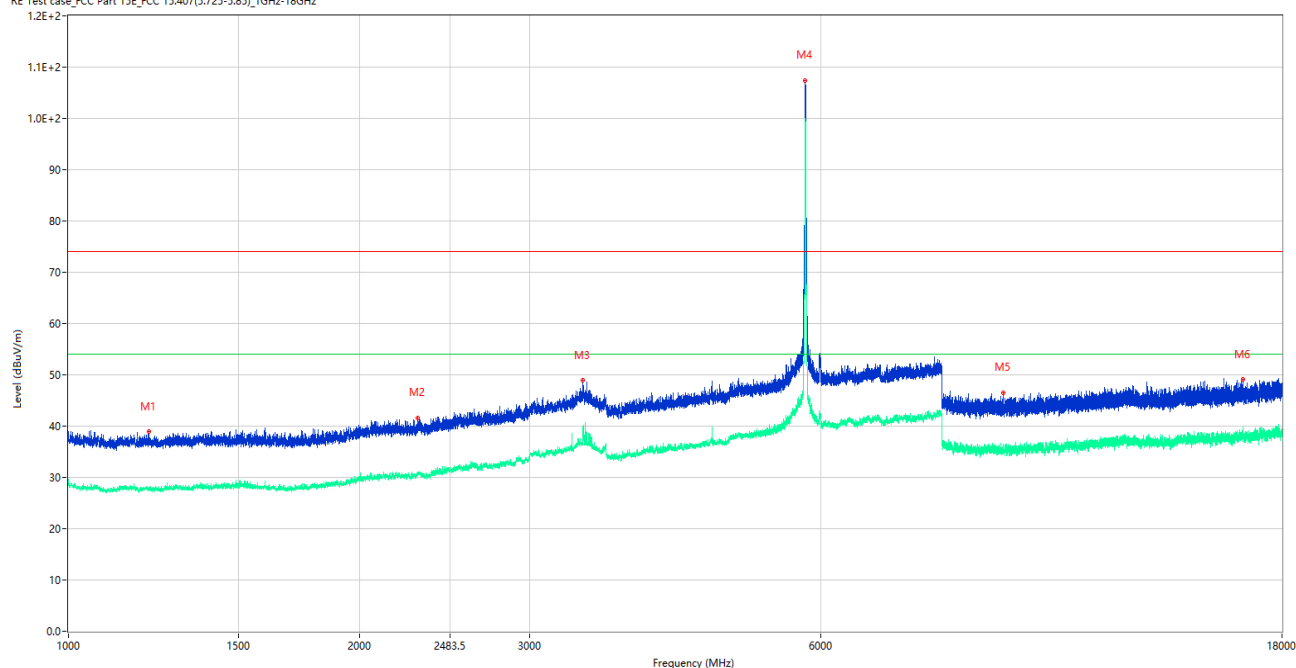
RE Test case_FCC Part 15E_FCC 15.407(5.15-5.35)_1GHz-18GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1103.500	39.80	-15.75	74.0	34.20	Peak	245.00	150	Vertical	Pass
1**	1103.500	27.23	-15.75	54.0	26.77	AV	245.00	150	Vertical	Pass
2	2195.500	45.05	-13.32	74.0	28.95	Peak	205.00	150	Vertical	Pass
2**	2195.500	30.03	-13.32	54.0	23.97	AV	205.00	150	Vertical	Pass
3	3373.000	47.23	-4.79	74.0	26.77	Peak	0.00	150	Vertical	Pass
3**	3373.000	37.12	-4.79	54.0	16.88	AV	0.00	150	Vertical	Pass
4	5206.500	107.60	-2.33	74.0	-33.60	Peak	11.00	150	Vertical	N/A
4**	5206.500	98.89	-2.33	54.0	-44.89	AV	11.00	150	Vertical	N/A
5	7765.500	53.27	1.32	74.0	20.73	Peak	28.00	150	Vertical	Pass
5**	7765.500	41.91	1.32	54.0	12.09	AV	28.00	150	Vertical	Pass
6	12377.125	48.51	-2.36	74.0	25.49	Peak	143.00	150	Vertical	Pass
6**	12377.125	37.29	-2.36	54.0	16.71	AV	143.00	150	Vertical	Pass

11a, U-NII-3, 1 GHz to 18 GHz, Middle Channel, ANT H

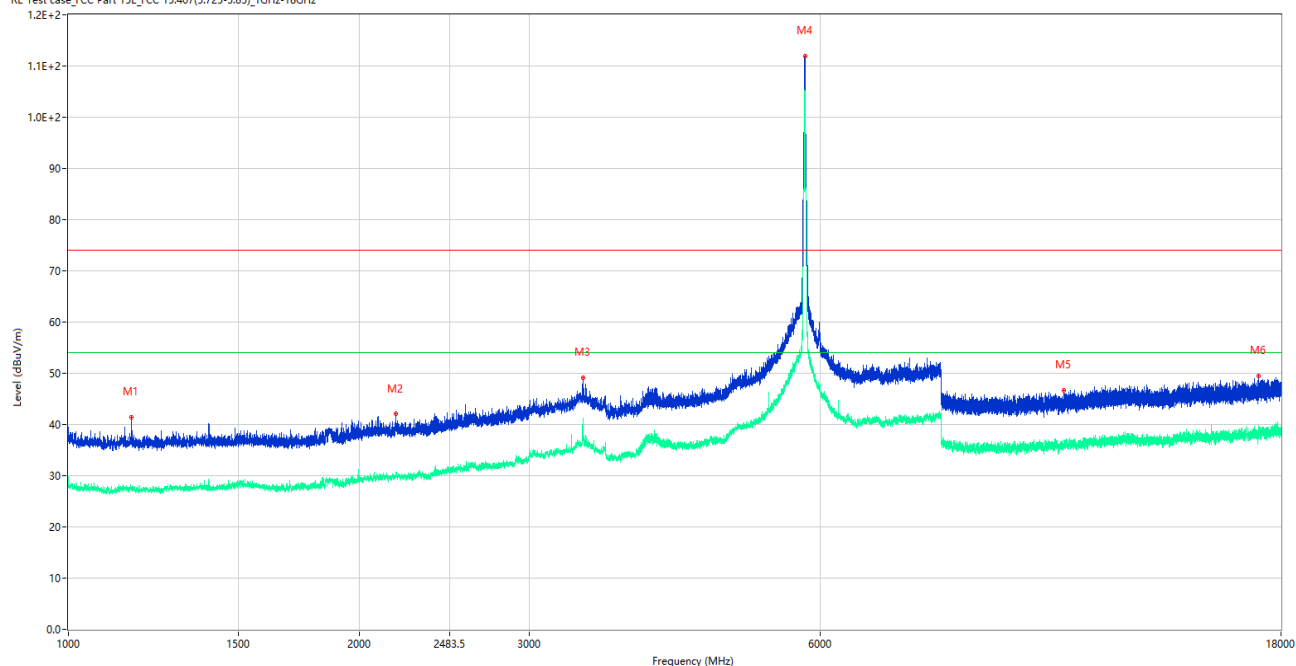
RE Test case_FCC Part 15E_FCC 15.407(5.725-5.85)_1GHz-18GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1211.500	38.91	-15.87	74.0	35.09	Peak	103.00	150	Horizontal	Pass
1**	1211.500	27.56	-15.87	54.0	26.44	AV	103.00	150	Horizontal	Pass
2	2296.250	41.63	-13.20	74.0	32.37	Peak	0.00	150	Horizontal	Pass
2**	2296.250	30.77	-13.20	54.0	23.23	AV	0.00	150	Horizontal	Pass
3	3407.000	48.89	-5.36	74.0	25.11	Peak	155.00	150	Horizontal	Pass
3**	3407.000	37.60	-5.36	54.0	16.40	AV	155.00	150	Horizontal	Pass
4	5783.500	107.40	-1.54	74.0	-33.40	Peak	145.00	150	Horizontal	N/A
4**	5783.500	99.32	-1.54	54.0	-45.32	AV	145.00	150	Horizontal	N/A
5	9272.050	46.55	-5.08	74.0	27.45	Peak	240.00	150	Horizontal	Pass
5**	9272.050	35.52	-5.08	54.0	18.48	AV	240.00	150	Horizontal	Pass
6	16389.301	49.05	-1.38	74.0	24.95	Peak	360.00	150	Horizontal	Pass
6**	16389.301	38.52	-1.38	54.0	15.48	AV	360.00	150	Horizontal	Pass

11a, U-NII-3, 1 GHz to 18 GHz, Middle Channel, ANT V

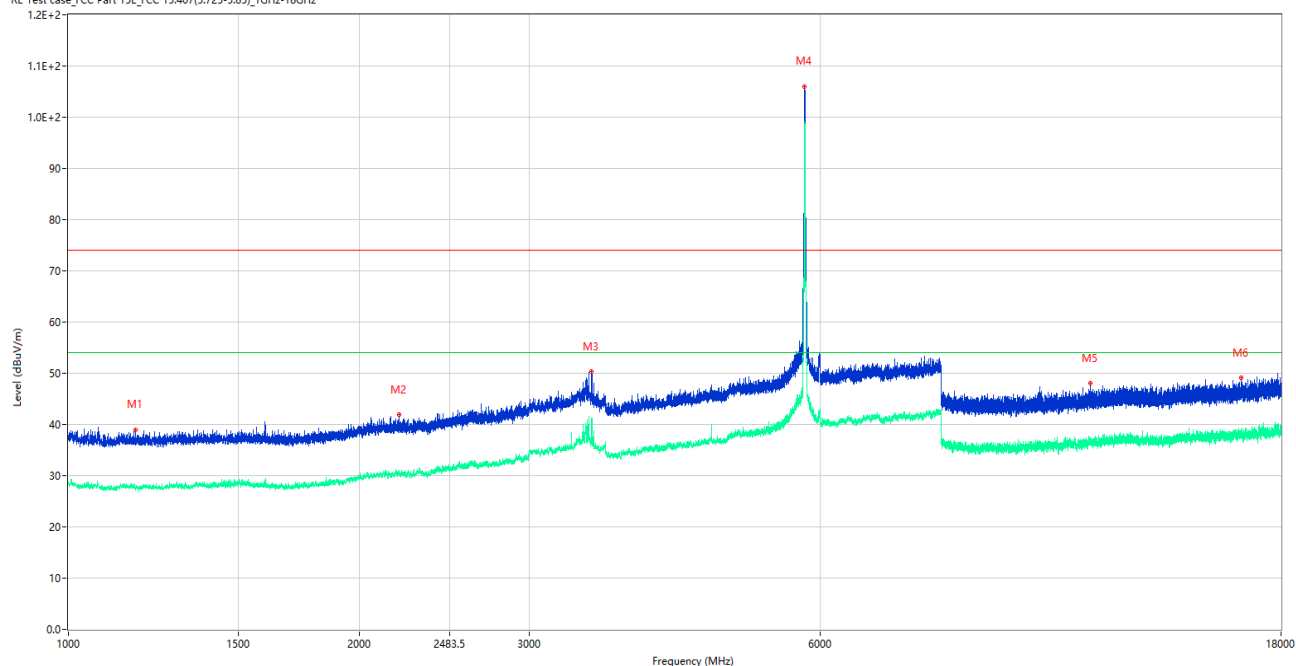
RE Test case_FCC Part 15E_FCC 15.407(5.725-5.85)_1GHz-18GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1163.000	41.39	-15.47	74.0	32.61	Peak	243.00	150	Vertical	Pass
1**	1163.000	27.14	-15.47	54.0	26.86	AV	243.00	150	Vertical	Pass
2	2182.250	42.02	-13.01	74.0	31.98	Peak	285.00	150	Vertical	Pass
2**	2182.250	29.81	-13.01	54.0	24.19	AV	285.00	150	Vertical	Pass
3	3411.000	49.15	-5.30	74.0	24.85	Peak	360.00	150	Vertical	Pass
3**	3411.000	40.15	-5.30	54.0	13.85	AV	360.00	150	Vertical	Pass
4	5786.000	112.02	-1.53	74.0	-38.02	Peak	356.00	150	Vertical	N/A
4**	5786.000	104.69	-1.53	54.0	-50.69	AV	356.00	150	Vertical	N/A
5	10721.275	46.73	-3.82	74.0	27.27	Peak	334.00	150	Vertical	Pass
5**	10721.275	35.95	-3.82	54.0	18.05	AV	334.00	150	Vertical	Pass
6	17076.000	49.50	-0.84	74.0	24.50	Peak	346.00	150	Vertical	Pass
6**	17076.000	38.73	-0.84	54.0	15.27	AV	346.00	150	Vertical	Pass

11n20, U-NII-3, 1 GHz to 18 GHz, Middle Channel, ANT H

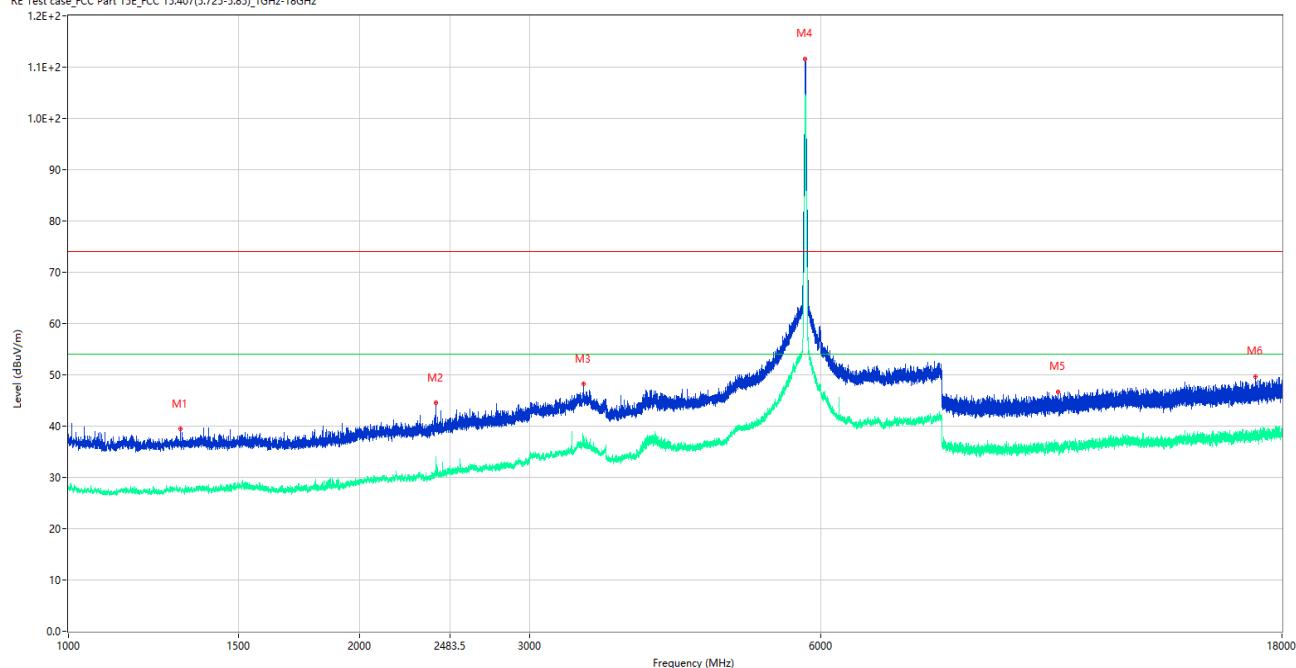
RE Test case_FCC Part 15E_FCC 15.407(5.725-5.85)_1GHz-18GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1173.500	38.98	-15.60	74.0	35.02	Peak	345.00	150	Horizontal	Pass
1**	1173.500	27.53	-15.60	54.0	26.47	AV	345.00	150	Horizontal	Pass
2	2197.500	41.86	-13.30	74.0	32.14	Peak	0.00	150	Horizontal	Pass
2**	2197.500	31.00	-13.30	54.0	23.00	AV	0.00	150	Horizontal	Pass
3	3481.500	50.31	-6.25	74.0	23.69	Peak	233.00	150	Horizontal	Pass
3**	3481.500	38.63	-6.25	54.0	15.37	AV	233.00	150	Horizontal	Pass
4	5783.500	106.00	-1.54	74.0	-32.00	Peak	151.00	150	Horizontal	N/A
4**	5783.500	98.31	-1.54	54.0	-44.31	AV	151.00	150	Horizontal	N/A
5	11417.388	48.07	-3.48	74.0	25.93	Peak	360.00	150	Horizontal	Pass
5**	11417.388	36.38	-3.48	54.0	17.62	AV	360.00	150	Horizontal	Pass
6	16380.900	49.14	-1.35	74.0	24.86	Peak	11.00	150	Horizontal	Pass
6**	16380.900	38.40	-1.35	54.0	15.60	AV	11.00	150	Horizontal	Pass

11n20, U-NII-3, 1 GHz to 18 GHz, Middle Channel, ANT V

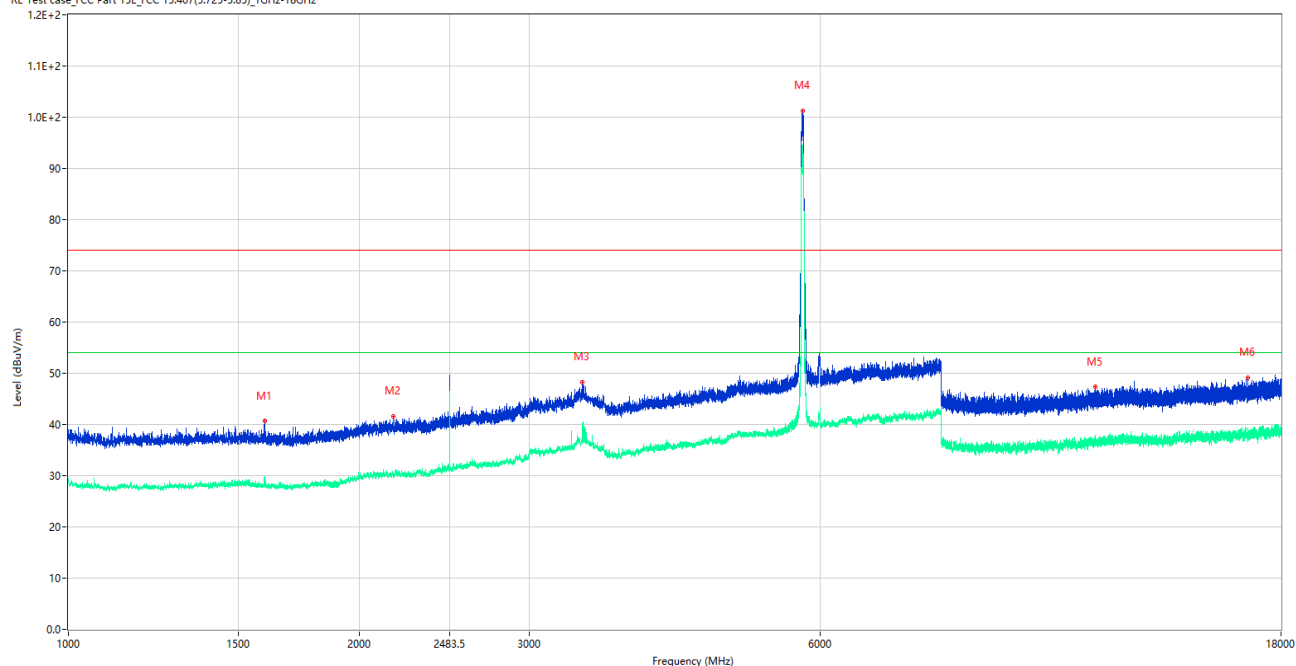
RE Test case_FCC Part 15E_FCC 15.407(5.725-5.85)_1GHz-18GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1305.750	39.39	-15.61	74.0	34.61	Peak	353.00	150	Vertical	Pass
1**	1305.750	27.57	-15.61	54.0	26.43	AV	353.00	150	Vertical	Pass
2	2398.000	44.48	-12.84	74.0	29.52	Peak	227.00	150	Vertical	Pass
2**	2398.000	30.76	-12.84	54.0	23.24	AV	227.00	150	Vertical	Pass
3	3412.500	48.23	-5.28	74.0	25.77	Peak	1.00	150	Vertical	Pass
3**	3412.500	37.90	-5.28	54.0	16.10	AV	1.00	150	Vertical	Pass
4	5784.000	111.60	-1.54	74.0	-37.60	Peak	360.00	150	Vertical	N/A
4**	5784.000	104.17	-1.54	54.0	-50.17	AV	360.00	150	Vertical	N/A
5	10563.575	46.75	-3.24	74.0	27.25	Peak	309.00	150	Vertical	Pass
5**	10563.575	36.27	-3.24	54.0	17.73	AV	309.00	150	Vertical	Pass
6	16889.625	49.68	-0.56	74.0	24.32	Peak	243.00	150	Vertical	Pass
6**	16889.625	38.09	-0.56	54.0	15.91	AV	243.00	150	Vertical	Pass

11n40, U-NII-3, 1 GHz to 18 GHz, Low Channel, ANT H

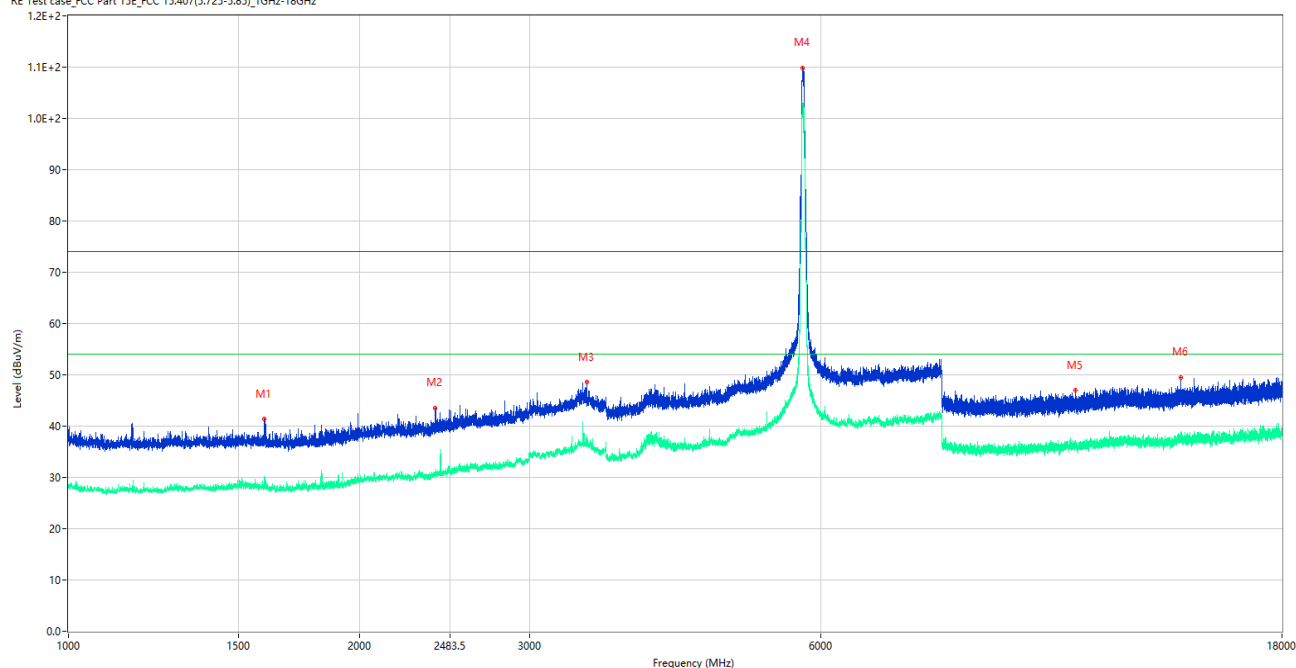
RE Test case_FCC Part 15E_FCC 15.407(5.725-5.85)_1GHz-18GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1596.500	40.69	-16.23	74.0	33.31	Peak	249.00	150	Horizontal	Pass
1**	1596.500	28.27	-16.23	54.0	25.73	AV	249.00	150	Horizontal	Pass
2	2170.000	41.62	-13.03	74.0	32.38	Peak	357.00	150	Horizontal	Pass
2**	2170.000	29.84	-13.03	54.0	24.16	AV	357.00	150	Horizontal	Pass
3	3406.500	48.28	-5.39	74.0	25.72	Peak	360.00	150	Horizontal	Pass
3**	3406.500	39.73	-5.39	54.0	14.27	AV	360.00	150	Horizontal	Pass
4	5754.000	101.26	-2.08	74.0	-27.26	Peak	142.00	150	Horizontal	N/A
4**	5754.000	93.62	-2.08	54.0	-39.62	AV	142.00	150	Horizontal	N/A
5	11571.049	47.31	-2.39	74.0	26.69	Peak	95.00	150	Horizontal	Pass
5**	11571.049	36.30	-2.39	54.0	17.70	AV	95.00	150	Horizontal	Pass
6	16644.187	49.13	-1.12	74.0	24.87	Peak	345.00	150	Horizontal	Pass
6**	16644.187	38.51	-1.12	54.0	15.49	AV	345.00	150	Horizontal	Pass

11n40, U-NII-3, 1 GHz to 18 GHz, Low Channel, ANT V

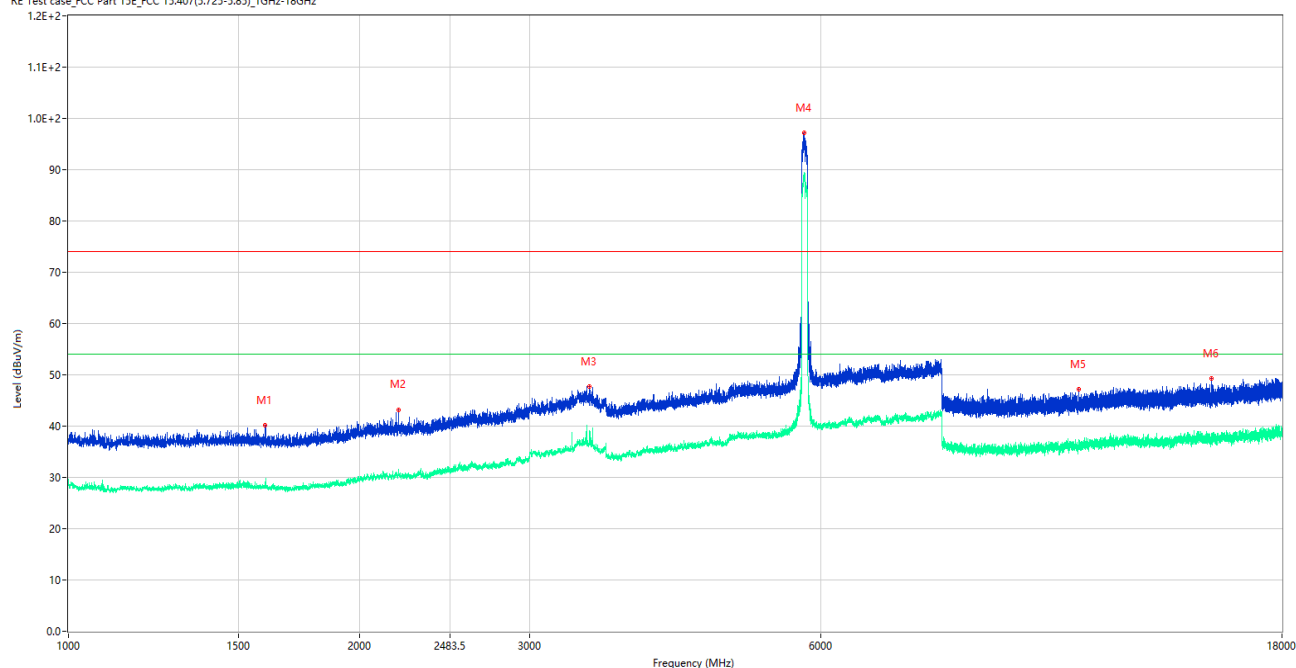
RE Test case_FCC Part 15E_FCC 15.407(5.725-5.85)_1GHz-18GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1595.000	41.45	-16.24	74.0	32.55	Peak	63.00	150	Vertical	Pass
1**	1595.000	28.01	-16.24	54.0	25.99	AV	63.00	150	Vertical	Pass
2	2394.250	43.46	-12.88	74.0	30.54	Peak	200.00	150	Vertical	Pass
2**	2394.250	30.84	-12.88	54.0	23.16	AV	200.00	150	Vertical	Pass
3	3437.000	48.67	-5.26	74.0	25.33	Peak	43.00	150	Vertical	Pass
3**	3437.000	37.45	-5.26	54.0	16.55	AV	43.00	150	Vertical	Pass
4	5750.500	109.91	-2.11	74.0	-35.91	Peak	16.00	150	Vertical	N/A
4**	5750.500	102.27	-2.11	54.0	-48.27	AV	16.00	150	Vertical	N/A
5	11001.050	46.99	-2.75	74.0	27.01	Peak	320.00	150	Vertical	Pass
5**	11001.050	36.23	-2.75	54.0	17.77	AV	320.00	150	Vertical	Pass
6	14155.425	49.53	-1.48	74.0	24.47	Peak	347.00	150	Vertical	Pass
6**	14155.425	38.02	-1.48	54.0	15.98	AV	347.00	150	Vertical	Pass

11ac80, U-NII-3, 1 GHz to 18 GHz, Middle Channel, ANT H

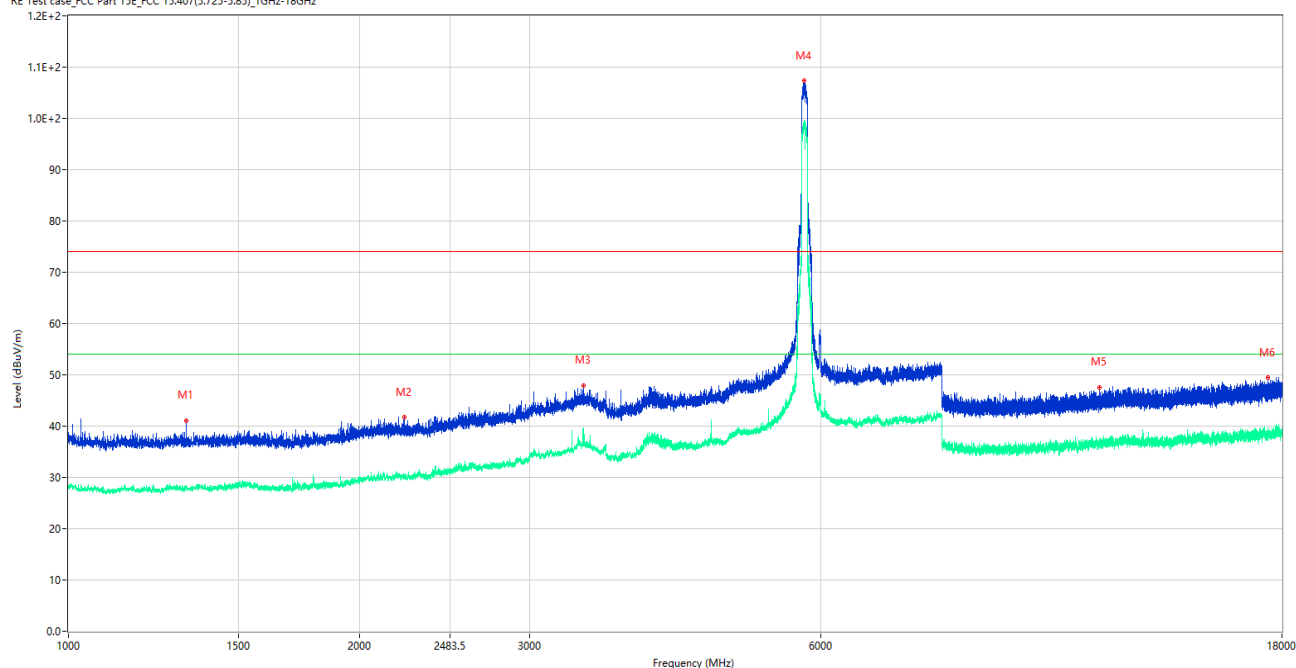
RE Test case_FCC Part 15E_FCC 15.407(5.725-5.85)_1GHz-18GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1596.500	40.15	-16.23	74.0	33.85	Peak	290.00	150	Horizontal	Pass
1**	1596.500	28.22	-16.23	54.0	25.78	AV	290.00	150	Horizontal	Pass
2	2194.750	43.17	-13.32	74.0	30.83	Peak	172.00	150	Horizontal	Pass
2**	2194.750	30.53	-13.32	54.0	23.47	AV	172.00	150	Horizontal	Pass
3	3457.000	47.71	-4.91	74.0	26.29	Peak	360.00	150	Horizontal	Pass
3**	3457.000	37.80	-4.91	54.0	16.20	AV	360.00	150	Horizontal	Pass
4	5764.000	97.12	-1.85	74.0	-23.12	Peak	131.00	150	Horizontal	N/A
4**	5764.000	88.12	-1.85	54.0	-34.12	AV	131.00	150	Horizontal	N/A
5	11095.576	47.17	-3.77	74.0	26.83	Peak	0.00	150	Horizontal	Pass
5**	11095.576	36.28	-3.77	54.0	17.72	AV	0.00	150	Horizontal	Pass
6	15219.599	49.27	-1.82	74.0	24.73	Peak	243.00	150	Horizontal	Pass
6**	15219.599	37.87	-1.82	54.0	16.13	AV	243.00	150	Horizontal	Pass

11ac80, U-NII-3, 1 GHz to 18 GHz, Middle Channel, ANT V

RE Test case_FCC Part 15E_FCC 15.407(5.725-5.85)_1GHz-18GHz



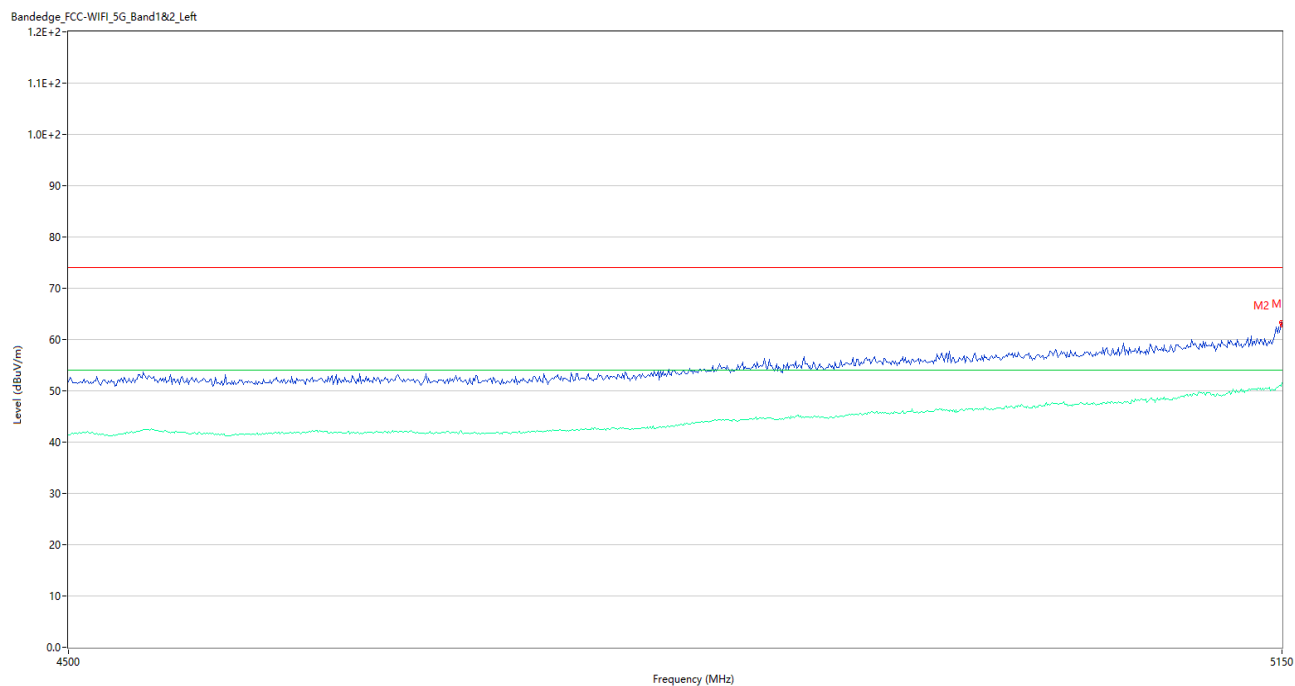
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1324.000	41.12	-15.88	74.0	32.88	Peak	186.00	150	Vertical	Pass
1**	1324.000	28.24	-15.88	54.0	25.76	AV	186.00	150	Vertical	Pass
2	2226.750	41.72	-13.07	74.0	32.28	Peak	181.00	150	Vertical	Pass
2**	2226.750	30.22	-13.07	54.0	23.78	AV	181.00	150	Vertical	Pass
3	3411.500	47.83	-5.30	74.0	26.17	Peak	149.00	150	Vertical	Pass
3**	3411.500	37.16	-5.30	54.0	16.84	AV	149.00	150	Vertical	Pass
4	5771.000	107.31	-1.66	74.0	-33.31	Peak	39.00	150	Vertical	N/A
4**	5771.000	99.39	-1.66	54.0	-45.39	AV	39.00	150	Vertical	N/A
5	11651.325	47.47	-2.59	74.0	26.53	Peak	5.00	150	Vertical	Pass
5**	11651.325	36.62	-2.59	54.0	17.38	AV	5.00	150	Vertical	Pass
6	17418.562	49.52	-0.09	74.0	24.48	Peak	179.00	150	Vertical	Pass
6**	17418.562	39.02	-0.09	54.0	14.98	AV	179.00	150	Vertical	Pass

A.6.2 Band Edge (Restricted-band)

Test Band	Mode	Channel	Verdict
U-NII-1	802.11a	Low	Pass
		High	Pass
	802.11n(HT20)	Low	Pass
		High	Pass
	802.11n(HT40)	Low	Pass
		High	Pass
	802.11ac(VHT20)	Low	Pass
		High	Pass
	802.11ac(VHT40)	Low	Pass
		High	Pass
	802.11ac(VHT80)	Middle	Pass
U-NII-3	802.11a	Low	Pass
		High	Pass
	802.11n(HT20)	Low	Pass
		High	Pass
	802.11n(HT40)	Low	Pass
		High	Pass
	802.11ac(VHT20)	Low	Pass
		High	Pass
	802.11ac(VHT40)	Low	Pass
		High	Pass
	802.11ac(VHT80)	Middle	Pass

Test Data and Plots

U-NII-1 11a CH36



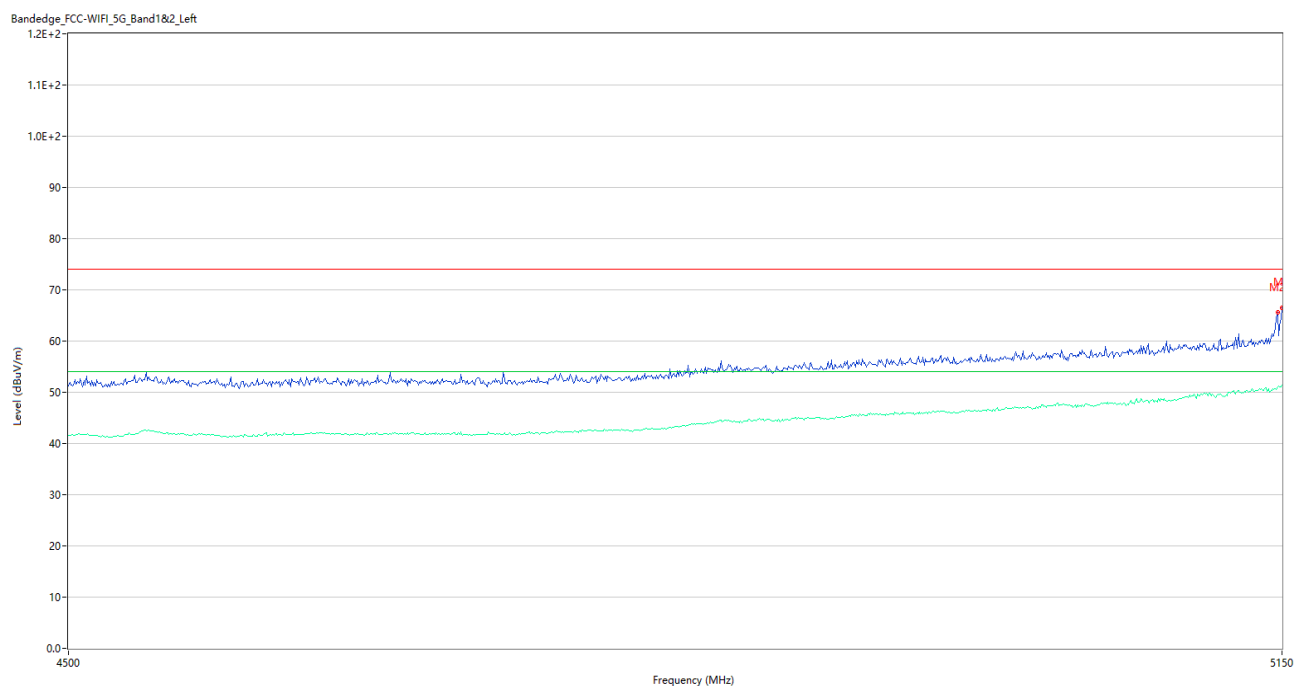
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	5150.000	62.80	3.82	74.0	11.20	Peak	29.03	150	Vertical	Pass
1**	5150.000	51.63	3.82	54.0	2.37	AV	29.03	150	Vertical	Pass
2	5149.350	63.37	3.84	74.0	10.63	Peak	180.00	150	Vertical	Pass
2**	5149.350	50.87	3.84	54.0	3.13	AV	180.00	150	Vertical	Pass

U-NII-1 11a CH48



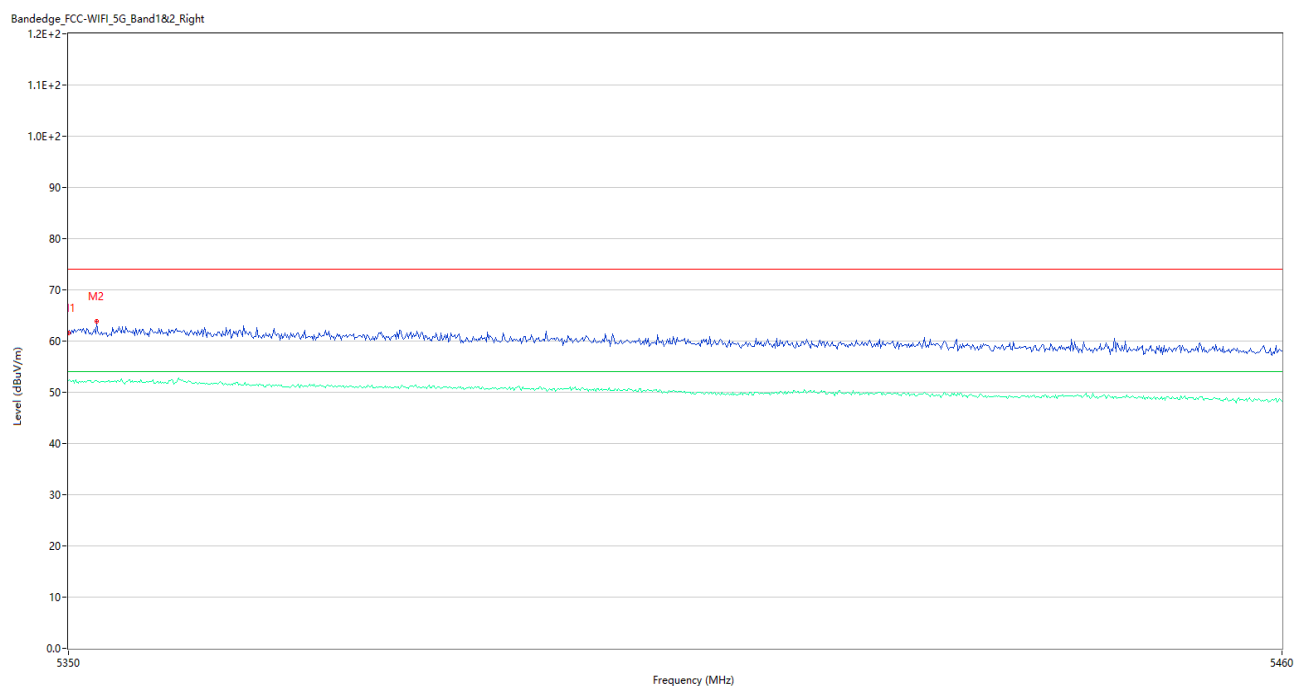
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	5350.000	61.43	4.04	74.0	12.57	Peak	0.00	150	Vertical	Pass
1**	5350.000	52.21	4.04	54.0	1.79	AV	0.00	150	Vertical	Pass
2	5357.590	63.27	4.20	74.0	10.73	Peak	141.00	150	Vertical	Pass
2**	5357.590	52.22	4.20	54.0	1.78	AV	141.00	150	Vertical	Pass

U-NII-1 11n20 CH36



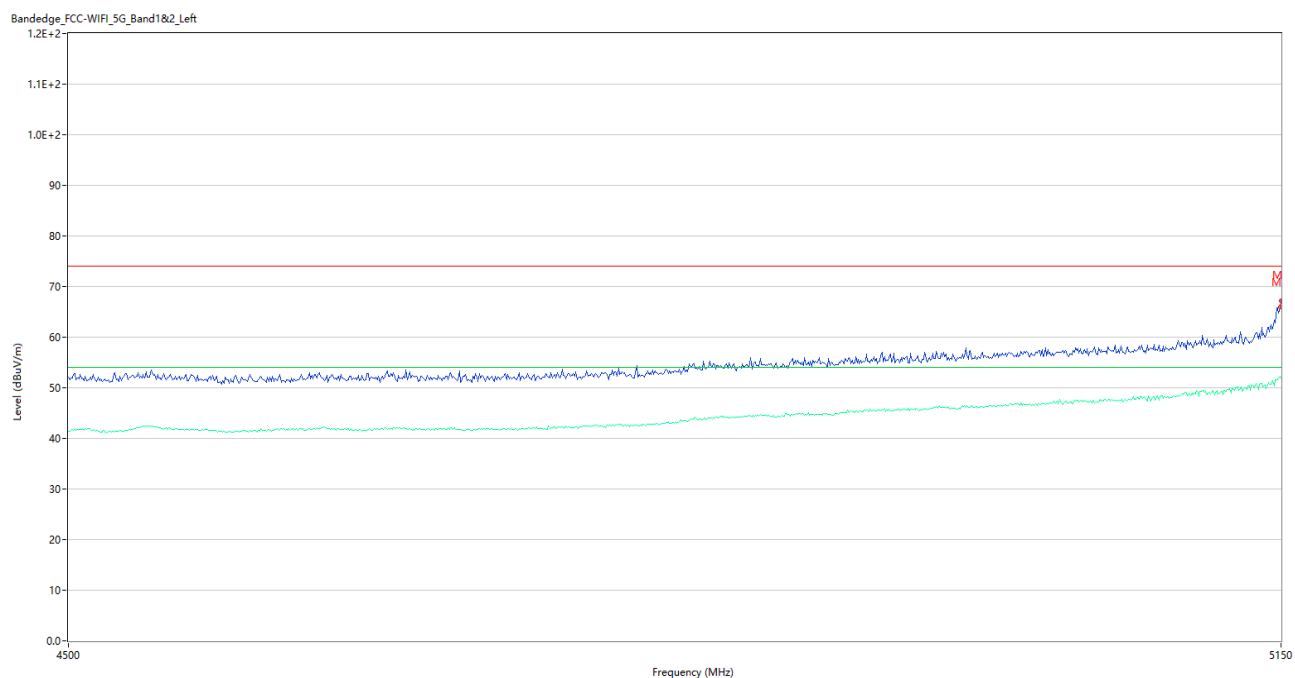
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	5150.000	66.56	3.82	74.0	7.44	Peak	144.99	150	Vertical	Pass
1**	5150.000	51.42	3.82	54.0	2.58	AV	144.99	150	Vertical	Pass
2	5147.400	65.59	3.89	74.0	8.41	Peak	345.00	150	Vertical	Pass
2**	5147.400	51.14	3.89	54.0	2.86	AV	345.00	150	Vertical	Pass

U-NII-1 11n20 CH48



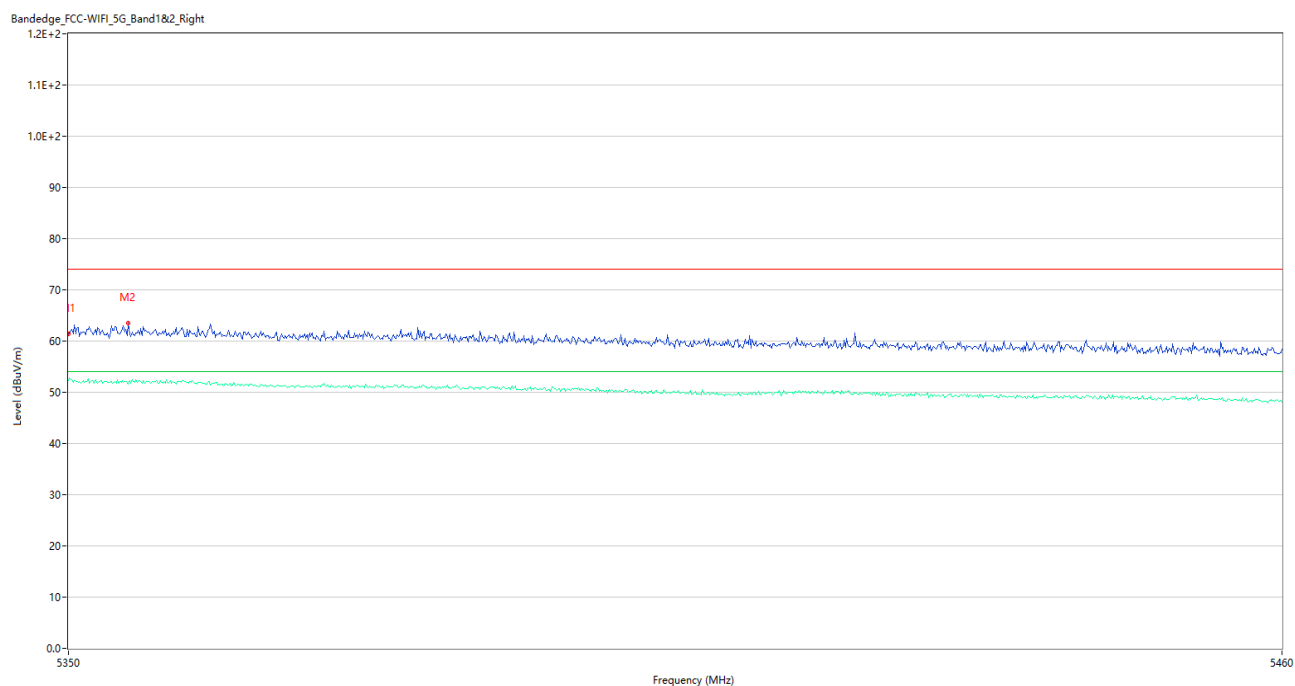
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	5350.000	61.55	4.04	74.0	12.45	Peak	360.00	150	Vertical	Pass
1**	5350.000	52.30	4.04	54.0	1.70	AV	360.00	150	Vertical	Pass
2	5352.530	63.77	4.09	74.0	10.23	Peak	360.00	150	Vertical	Pass
2**	5352.530	52.29	4.09	54.0	1.71	AV	360.00	150	Vertical	Pass

U-NII-1 11n40 CH38



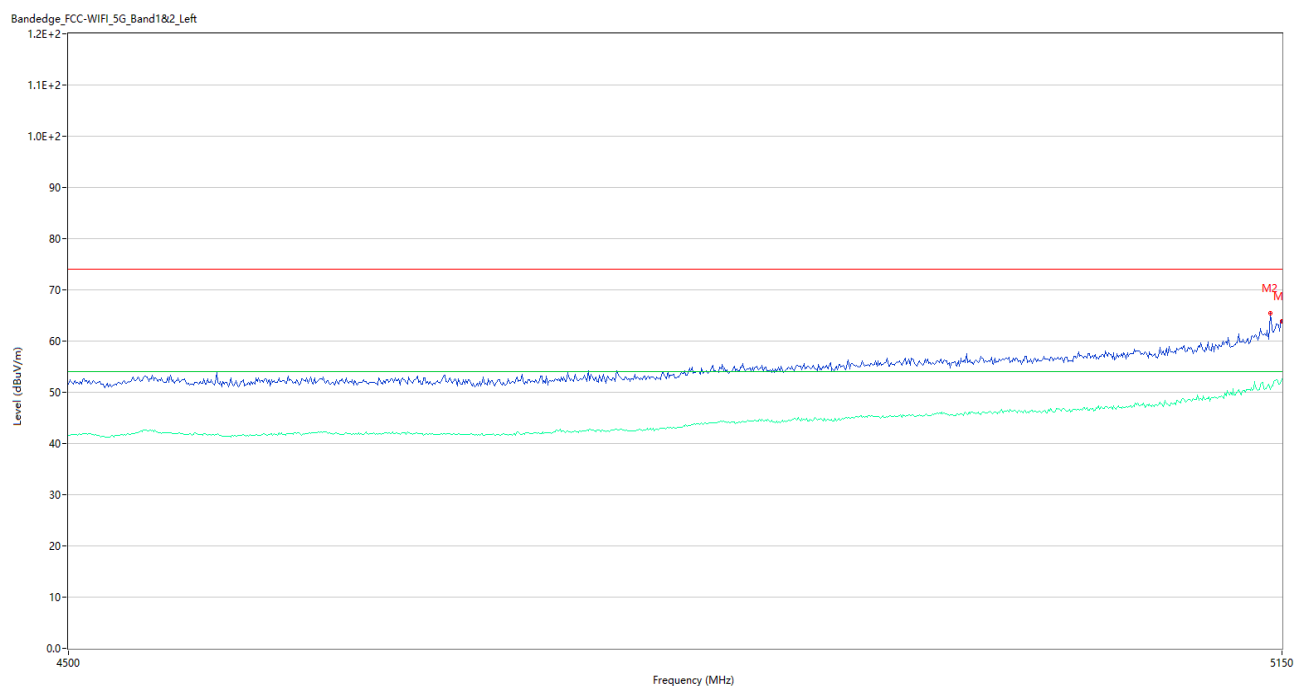
No.	Frequency (MHz)	Results (dBUV/m)	Factor (dB)	Limit (dBUV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	5150.000	67.22	3.82	74.0	6.78	Peak	144.00	150	Vertical	Pass
1**	5150.000	51.98	3.82	54.0	2.02	AV	144.00	150	Vertical	Pass
2	5149.350	65.89	3.84	74.0	8.11	Peak	129.00	150	Vertical	Pass
2**	5149.350	52.36	3.84	54.0	1.64	AV	129.00	150	Vertical	Pass

U-NII-1 11n40 CH46



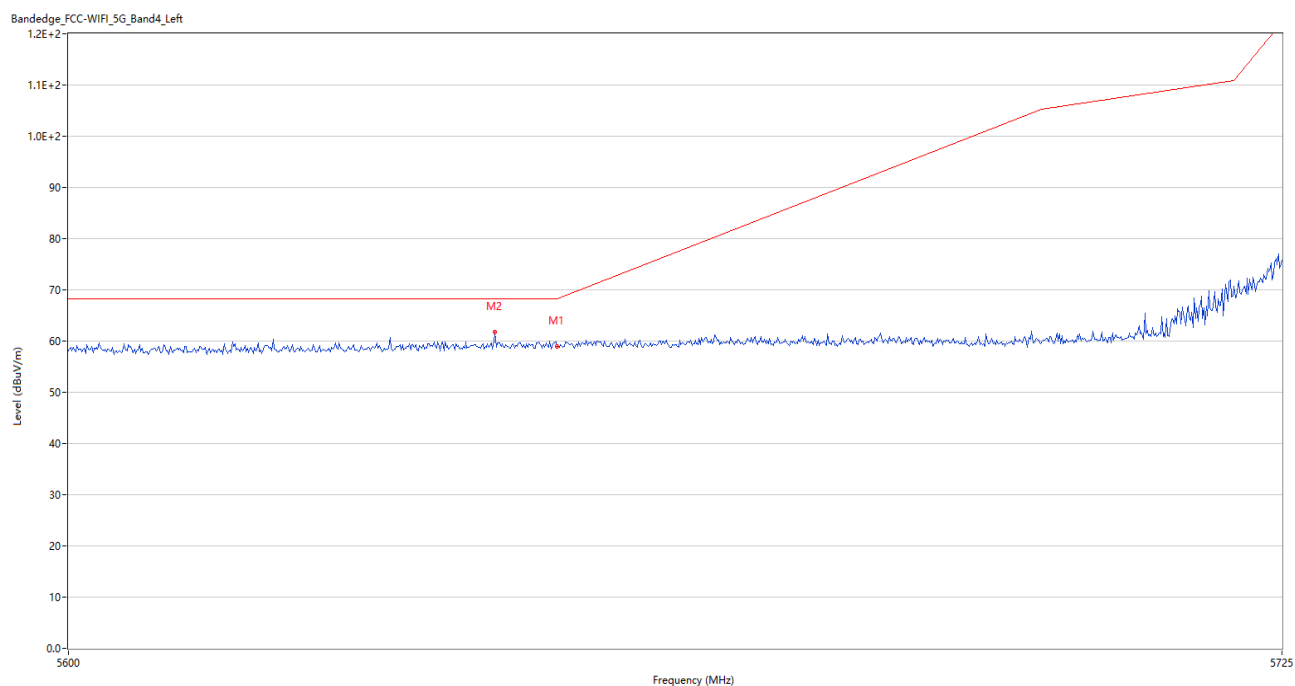
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	5350.000	61.33	4.04	74.0	12.67	Peak	100.00	150	Vertical	Pass
1**	5350.000	52.29	4.04	54.0	1.71	AV	100.00	150	Vertical	Pass
2	5355.390	63.55	4.15	74.0	10.45	Peak	121.00	150	Vertical	Pass
2**	5355.390	51.57	4.15	54.0	2.43	AV	121.00	150	Vertical	Pass

U-NII-1 11ac80 CH42



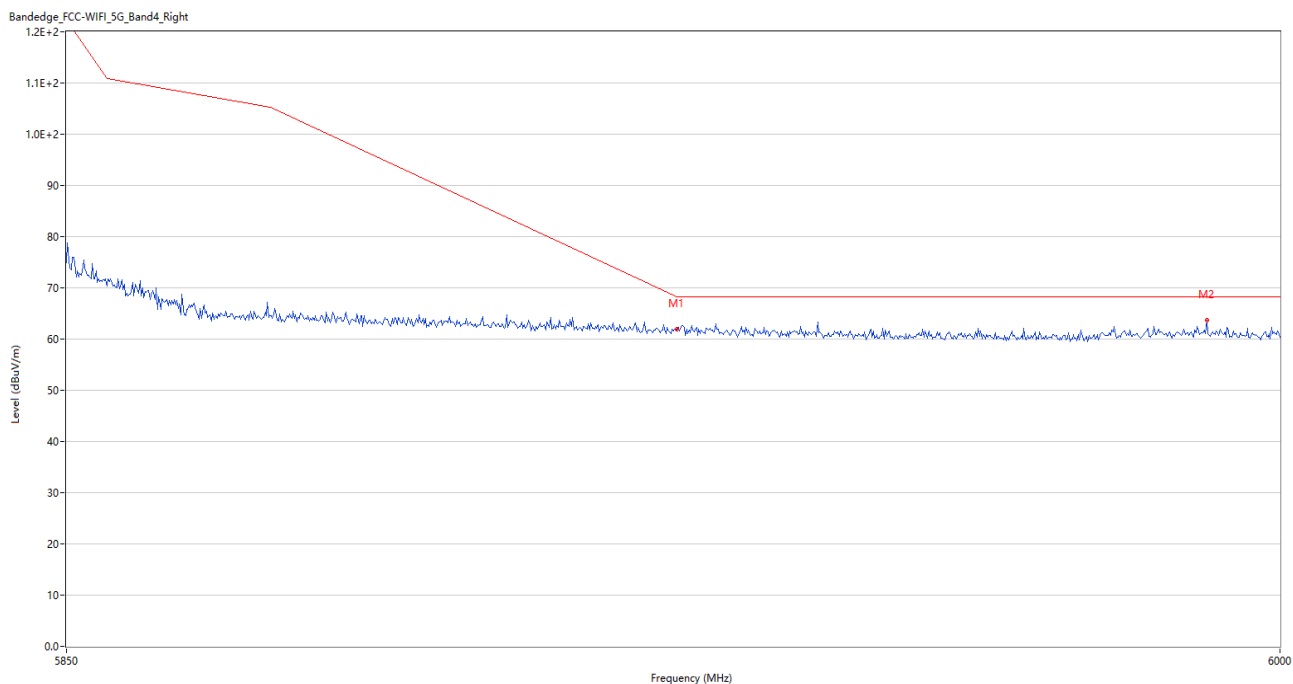
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	5150.000	63.80	3.82	74.0	10.20	Peak	135.00	150	Vertical	Pass
1**	5150.000	52.70	3.82	54.0	1.30	AV	135.00	150	Vertical	Pass
2	5143.500	65.38	4.01	74.0	8.62	Peak	138.00	150	Vertical	Pass
2**	5143.500	50.51	4.01	54.0	3.49	AV	138.00	150	Vertical	Pass

U-NII-3 11a CH149



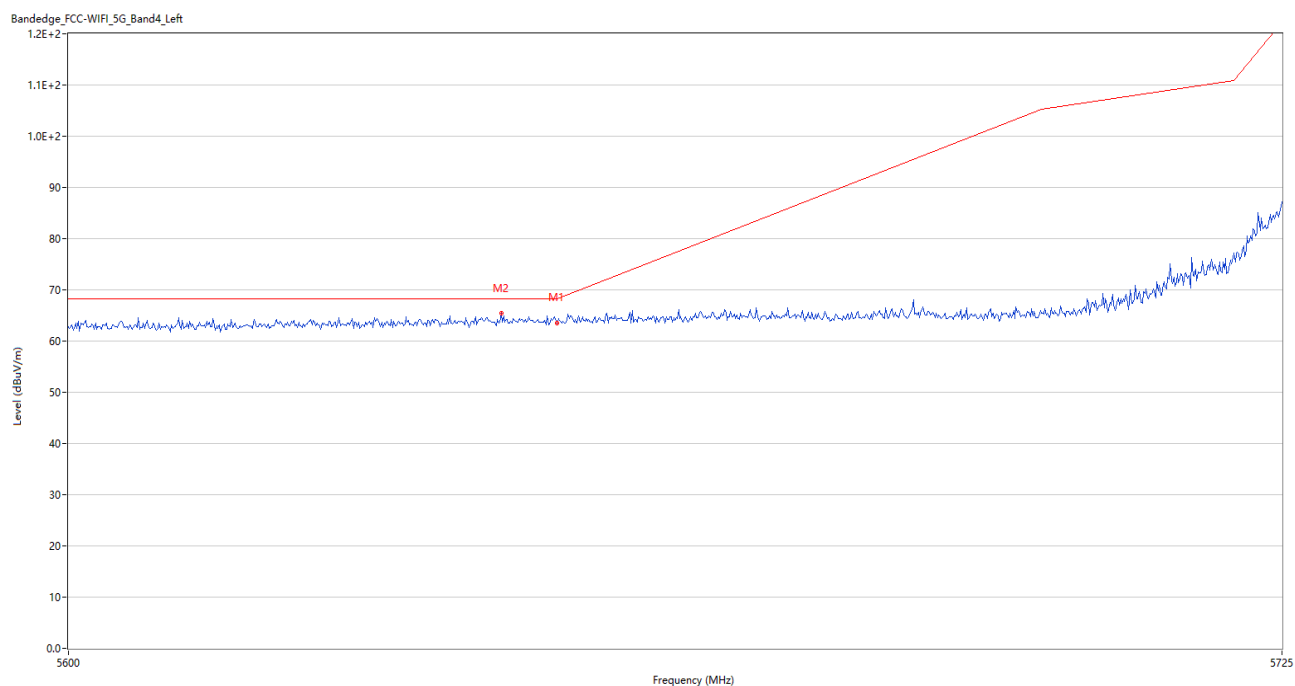
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	5650.000	58.95	3.81	68.2	9.25	Peak	300.74	150	Vertical	Pass
2	5643.625	61.80	3.76	68.2	6.40	Peak	93.00	150	Vertical	Pass

U-NII-3 11a CH165



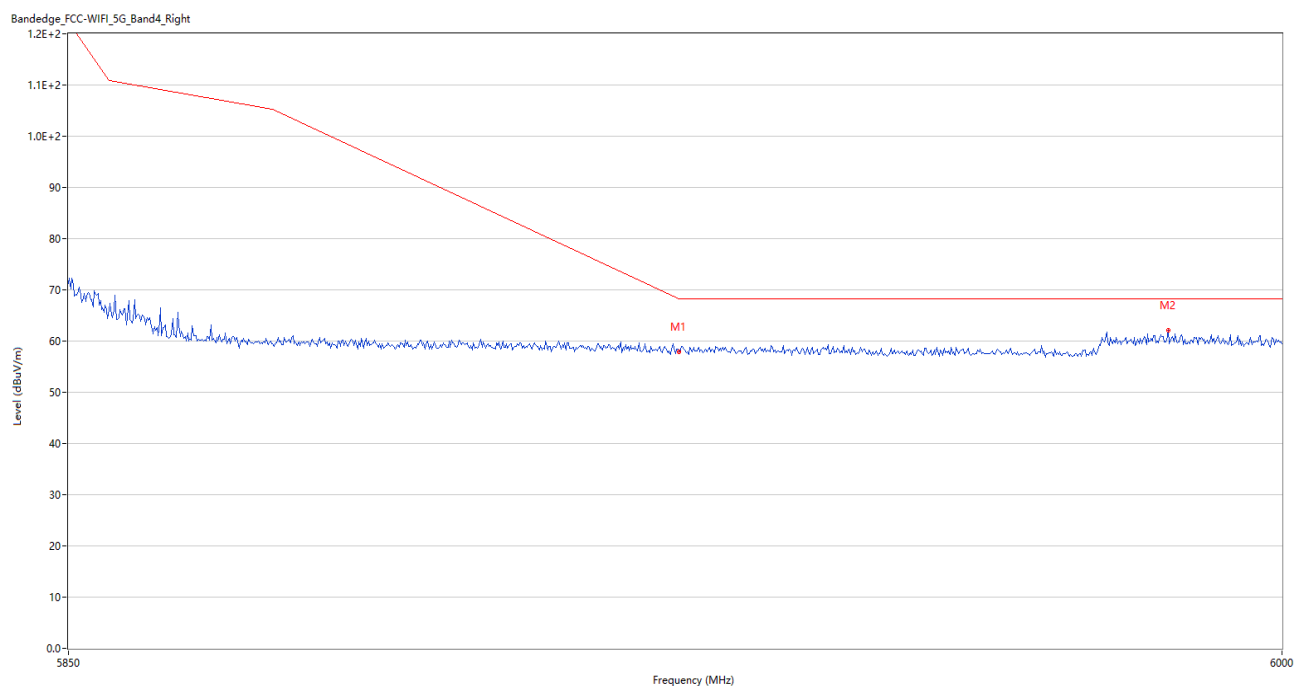
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	5925.000	62.00	6.44	68.2	6.20	Peak	261.78	150	Vertical	Pass
2	5990.850	63.71	6.39	68.2	4.49	Peak	204.00	150	Vertical	Pass

U-NII-3 11n20 CH149



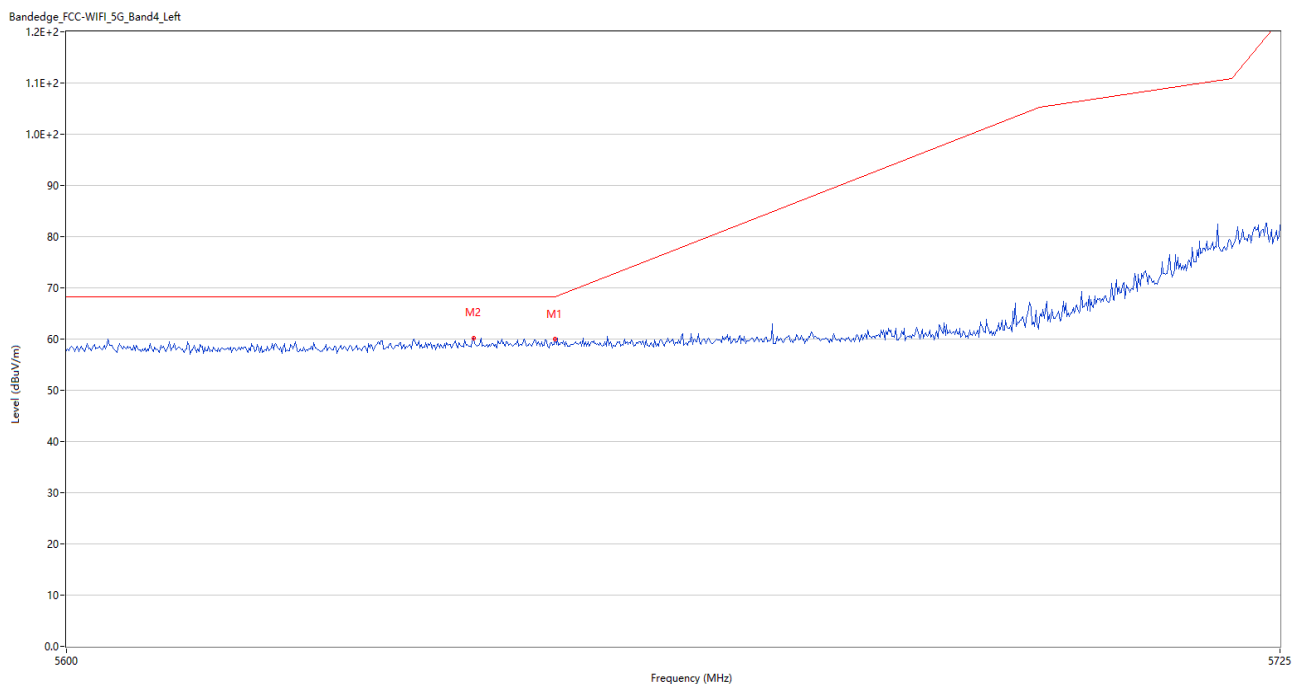
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	5650.000	63.58	3.81	68.2	4.62	Peak	359.93	150	Vertical	Pass
2	5644.250	65.49	3.77	68.2	2.71	Peak	141.00	150	Vertical	Pass

U-NII-3 11n20 CH165



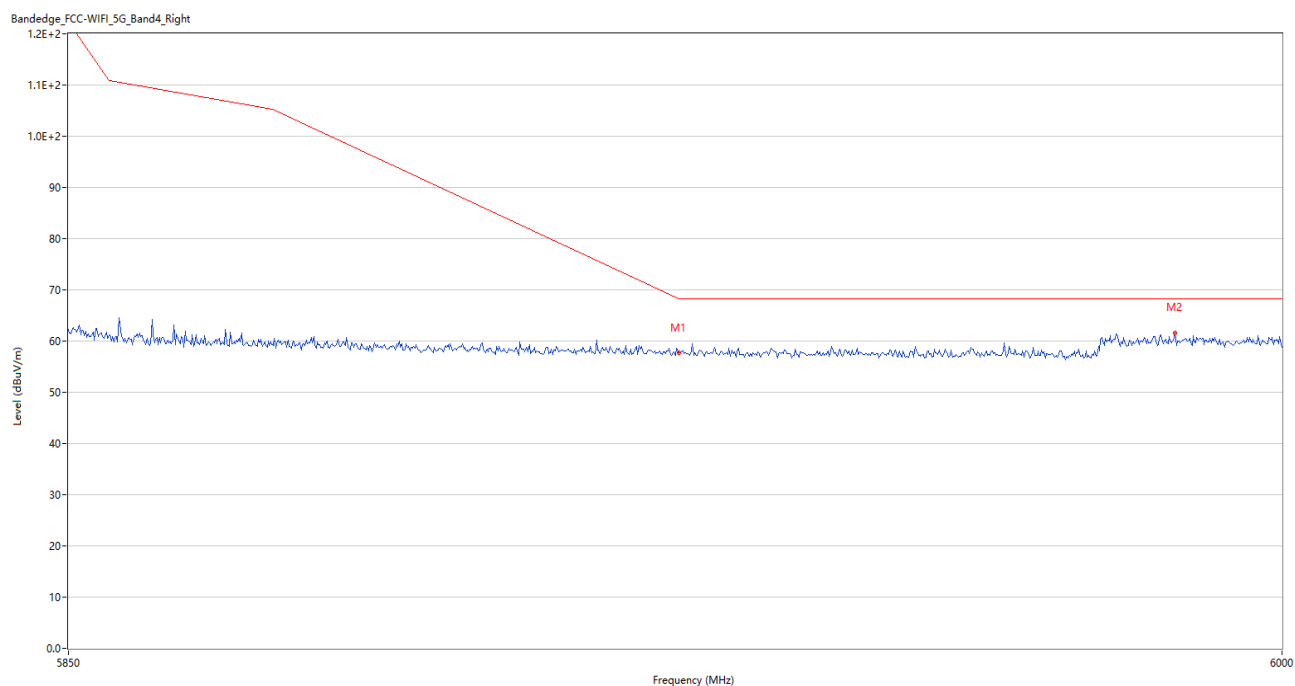
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	5925.000	57.89	6.44	68.2	10.31	Peak	96.00	150	Vertical	Pass
2	5985.750	62.19	6.22	68.2	6.01	Peak	204.00	150	Vertical	Pass

U-NII-3 11n40 CH151



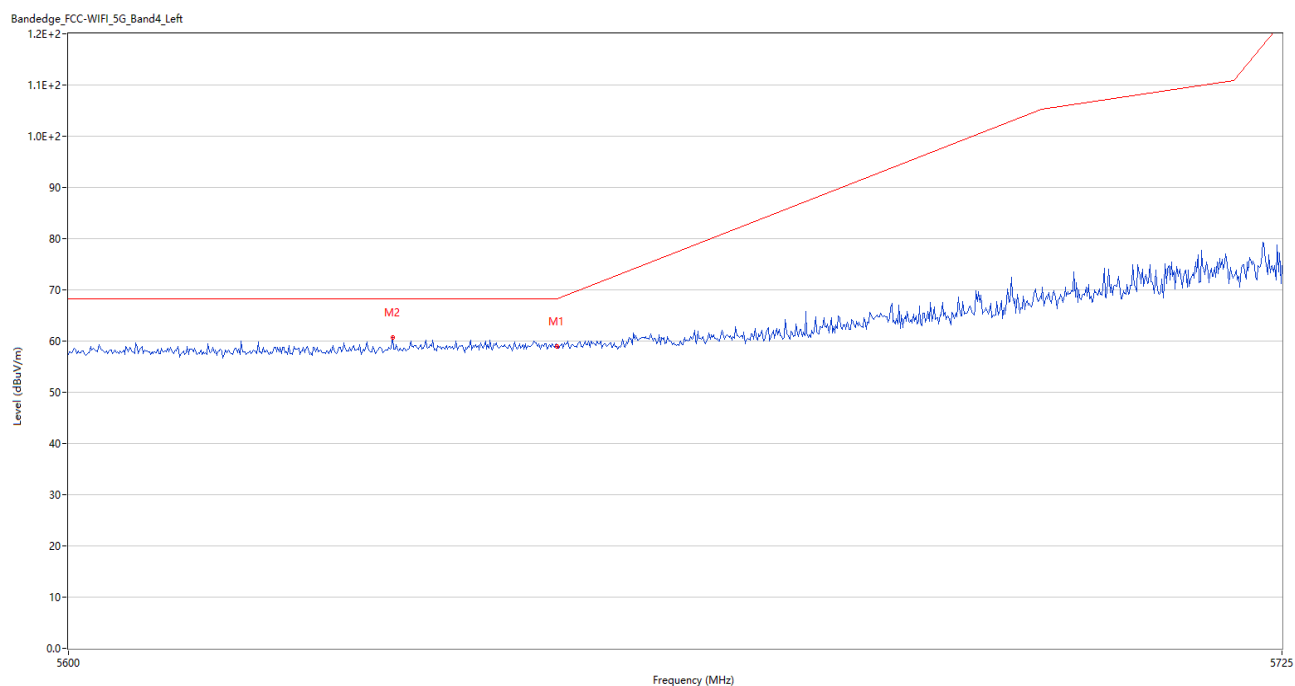
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	5650.000	59.99	3.81	68.2	8.21	Peak	94.94	150	Vertical	Pass
2	5641.625	60.11	3.74	68.2	8.09	Peak	95.00	150	Vertical	Pass

U-NII-3 11n40 CH159



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	5925.000	57.70	6.44	68.2	10.50	Peak	22.99	150	Vertical	Pass
2	5986.650	61.60	6.26	68.2	6.60	Peak	202.00	150	Vertical	Pass

U-NII-3 11ac80 CH155



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	5650.000	58.91	3.81	68.2	9.29	Peak	45.96	150	Vertical	Pass
2	5633.125	60.75	3.70	68.2	7.45	Peak	136.00	150	Vertical	Pass

ANNEX B TEST SETUP PHOTOS

Please refer the document “BL-SH2530225-AR-1.PDF”.

ANNEX C EUT EXTERNAL PHOTOS

Please refer the document “BL-SH2530225-AW.PDF”.

ANNEX D EUT INTERNAL PHOTOS

Please refer the document “BL-SH2530225-AI.PDF”.

Statement

1. The Testing Center guarantees the scientificity, accuracy and impartiality of the test, and is responsible for all the information in the report, except the information provided by the customer. The customer is responsible for the impact of the information provided on the validity of the results.
2. For the report with Accreditation Symbol, the items marked with "☆" are not within the accredited scope.
3. This report is invalid if it is altered, without the signature of the testing and approval personnel, or without the test report stamp.
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6. Any objection shall be raised to the Testing Center within 30 days after receiving the report.

--END OF REPORT--