TEST REPORT

Applicant:	Shanghai Fusion Tech Co., Ltd.
Address:	Floor 13 A5, 1600 North Guoquan Road, Yangpu District Shanghai
Equipment Type:	WIFI Module
Model Name:	AW-NB136NF
Brand Name:	AzureWave
FCC ID:	2APQR-RAISE3D2401
ISED Number:	32497-RAISE3D2401
Test Standard:	47 CFR Part 15 Subpart E RSS-Gen Issue 5 RSS-247 Issue 3 (refer to section 3.1)
Sample Arrival Date:	May 09, 2024
Test Date:	May 11, 2024 – Jun. 05, 2024
Date of Issue:	Jun. 19, 2024

ISSUED BY:

Shenzhen BALUN Technology Co., Ltd.

Tested by: Yu Yingyuan **Checked by:** Ye Hongji **Approved by:** Liao Jianming (Technical Director)

Revision History

Version	Issue Date	Revisions
Rev. 01	Jun. 19, 2024	Initial Issue

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1 GENERAL INFORMATION

1.1 Test Laboratory

Name	Shenzhen BALUN Technology Co., Ltd.
Address	Block B, 1/F, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
Phone Number	+86 755 6685 0100

1.2 Test Location

Name	Shenzhen BALUN Technology Co., Ltd.
Location	☑ Block B, 1/F, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
	☐ 1/F, Building B, Ganghongji High-tech Intelligent Industrial Park, No. 1008, Songbai Road, Yangguang Community, Xili Sub-district, Nanshan District, Shenzhen, Guangdong Province, P. R. China
Accreditation Certificate	The laboratory is a testing organization accredited by FCC as a accredited testing laboratory. The designation number is CN1196. The laboratory has been listed by Industry Canada to perform electromagnetic emission measurements. The recognition numbers of test site are 11524A.

2 PRODUCT INFORMATION

2.1 Applicant Information

Applicant	Shanghai Fusion Tech Co., Ltd.
Address	Floor 13 A5, 1600 North Guoquan Road, Yangpu District Shanghai

2.2 Manufacturer Information

Manufacturer	Azurewave Technologies (Shanghai) Inc.
Address	No1355,Jiaxin Highway,Malu County Jiading District,Shanghai,China

2.3 General Description for Equipment under Test (EUT)

EUT Name	WIFI Module
Model Name Under Test	AW-NB136NF
Series Model Name	N/A
Description of Model name differentiation	N/A
Serial Number	N/A
Hardware Version	N/A
Software Version	N/A
Dimensions (Approx.)	N/A
Weight (Approx.)	N/A

2.4 Technical Information

Network and Wireless connectivity	WIFI_5G a20/n20/n40, U-NII-1/U-NII-3

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
Product Type	☐ Mobile ☒ Portable ☐ Fix Location Indoor for IC standard
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
Channel Bandwidth	802.11a: 20 MHz 802.11n: 20 MHz, 40 MHz
Maximum Output Power	U-NII-1: 37.67 mW U-NII-3:39.17 mW
Antenna System (eg., MIMO, Smart Antenna)	N/A
Categorization as Correlated or Completely Uncorrelated	N/A
Antenna Type	PIFA Antenna
Antenna Gain	U-NII-1: 5150 MHz to 5250 MHz: 1 dBi U-NII-3: 5725 MHz to 5850 MHz: 1 dBi
About the Product	The equipment is WIFI Module, intended for used with information technology equipment.

2.5 Channel List

20 MHz		40 MHz	
Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)
36	**5180**	**38**	**5190**
40	5200	**46**	**5230**
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)

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

For 802.11n(HT40)

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

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 Channel	U-NII-3 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
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
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
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
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
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

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	RSS-Gen Issue 5	General Requirements for Compliance of Radio Apparatus
3	RSS-247 Issue 3	Digital Transmission Systems (DTSs), Frequency Hopping Systems(FHSs) and Licence-Exemp Local Area Network (LE-LAN) Devices
4	KDB Publication 789033 D02v02r01	Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices Part 15, Subpart E
5	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	RSS-247, 6.2	--	Pass[Note1]
2	RF Output Power	15.407(a)	RSS-247, 6.2	ANNEX A.1	Pass
3	Emission Bandwidth & 99% Occupied Bandwidth	15.407(a)	RSS-247, 6.2	ANNEX A.2	Pass
4	6 dB bandwidth	15.407(e)	RSS-247, 6.2	ANNEX A.3	Pass
5	Power Spectral Density	15.407(a)	RSS-247, 6.2	ANNEX A.4	Pass
6	Conducted Emission	15.207	RSS-GEN, 8.8	ANNEX A.5	Pass
7	Radiated Spurious Emissions and Band Edge (Restricted-band)	15.407(b)	RSS-247, 6.2	ANNEX A.6	Pass
8	Receiver Spurious Emissions	--	RSS-Gen, 7.1.2	--	N/A[Note2]

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

Note [2]: Only radio communication receivers operating in stand-alone mode within the U-NII-30-960 MHz, as well as scanner receivers, are subject to Industry Canada requirements, so this test is not applicable.

Note [3]: 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	42% to 64%	
Atmospheric Pressure	100 kPa to 102 kPa	
Temperature	NT (Normal Temperature)	+19.6℃ to +27.4℃
	LT (Low Temperature)	-10.0℃
	HT (High Temperature)	+55.0℃
Working Voltage of the EUT	NV (Normal Voltage)	4 V
	LV (Low Voltage)	3.45 V
	HV (High Voltage)	4.35 V

4.2 Test Equipment List

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Spectrum Analyzer	KEYSIGHT	N9020A	MY50330200	2024.05.08	2025.05.07
Power Sensor	KEYSIGHT	U2063XA	MY58000251	2023.07.12	2024.07.11
Spectrum Analyzer	ROHDE&SCHWARZ	FSV-40	101544	2023.12.27	2024.12.26
Spectrum Analyzer	KEYSIGHT	N9020A	MY50531259	2023.09.05	2024.09.04
Signaling Unit	ROHDE&SCHWARZ	CMW500	171150	2023.06.19	2024.06.18
Test Antenna-Horn	SCHWARZBECK	BBHA 9120D	02460	2024.05.16	2027.05.15
Test Antenna-Horn	A-INFO	LB-180400KF	J211060273	2021.07.02	2024.07.01
Anechoic Chamber	RAINFORD	9m*6m*6m	140	2022.02.19	2024.08.15
Amplifier	COM-MV	ZT30-1000M	07210897	2023.09.05	2024.09.04
Amplifier	COM-MV	LSCX_LNA 1-12G-01	7210214	2023.09.05	2024.09.04
Amplifier	COM-MV	XKu_LNA7-18G-01	7210209	2023.09.05	2024.09.04
Amplifier	COM-MV	KA LNA18 40G-01	18050001	2023.12.06	2024.12.05
EMI Receiver	ROHDE&SCHWARZ	ESRP	101036	2023.09.05	2024.09.04
Test Antenna-Loop	SCHWARZBECK	FMZB 1519	1519-037	2024.01.23	2025.01.22
Anechoic Chamber	EMC Electronic Co., Ltd	20.10*11.60 *7.35m	130	2021.08.15	2024.08.14
Test Antenna-Bi-Log	SCHWARZBECK	VULB 9163	9163-624	2021.08.20	2024.08.19
EMI Receiver	KEYSIGHT	N9038A	MY53220118	2023.09.05	2024.09.04
Anechoic Chamber	RAINFORD	9m*6m*6m	101	2023.03.26	2026.03.03
EMI Receiver	KEYSIGHT	N9010B	MY57110309	2023.09.05	2024.09.04

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
LISN	SCHWARZBECK	NSLK 8127	8127-687	2024.05.08	2025.05.07
Shielded Enclosure	YiHeng Electronic Co., Ltd	3.5m*3.1m* 2.8m	112	2022.02.19	2025.02.18

4.3 Test Software List

Description	Manufacturer	Software Version	Serial No.	Applicable test Setup
BL410R	BALUN	V2.1.1.488	N/A	The section 4.5.1
BL410E	BALUN	V22.930	N/A	The section 4.5.2&4.5.3&4.5.4&4.5.5

4.4 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.

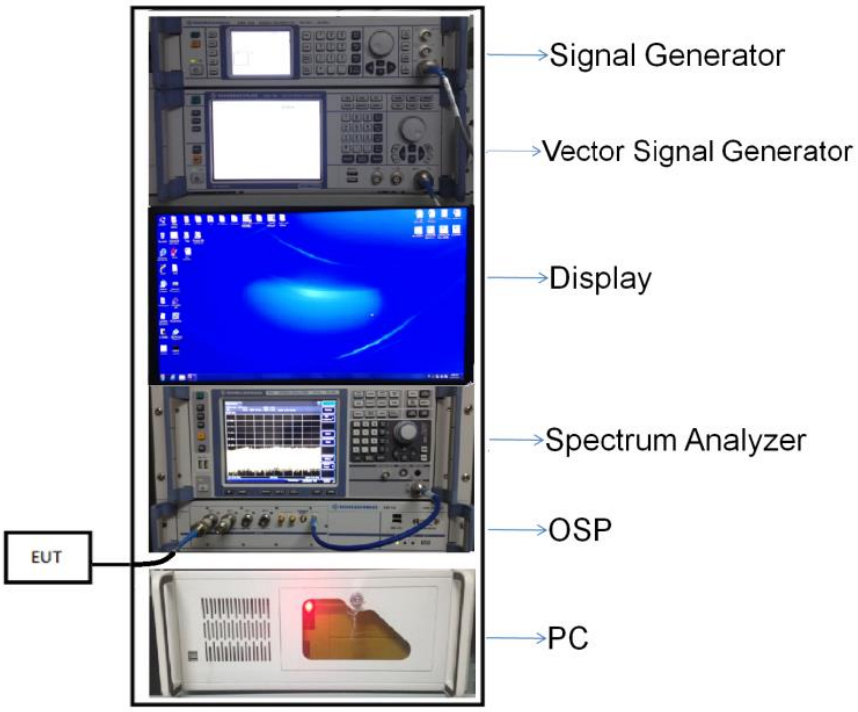
Parameters	Uncertainty
Occupied Channel Bandwidth	2.8%
RF output power, conducted	1.28 dB
Power Spectral Density, conducted	1.30 dB
Unwanted Emissions, conducted	1.84 dB
All emissions, radiated	5.36 dB
Temperature	0.8°C
Humidity	4%

4.5 Description of Test Setup

4.5.1 For Antenna Port Test

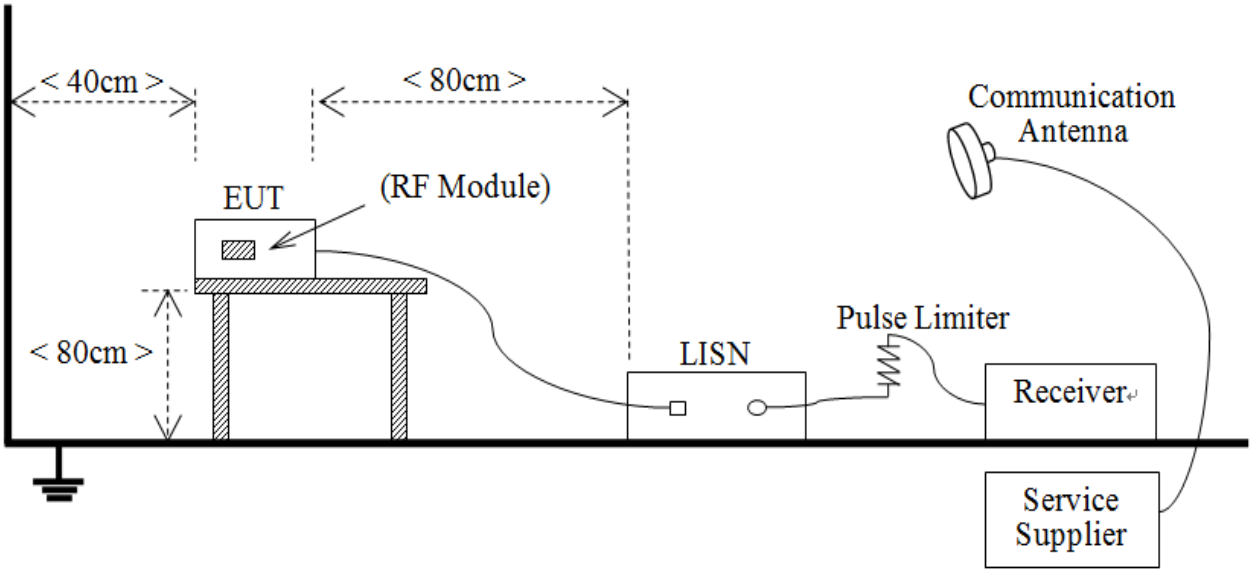
Conducted value (dBm) = Measurement value (dBm) + cable loss (dB)

For example: the measurement value is 10 dBm and the cable 0.5dBm used, then the final result of EUT:
Conducted value (dBm) = 10 dBm + 0.5 dB = 10.5 dBm



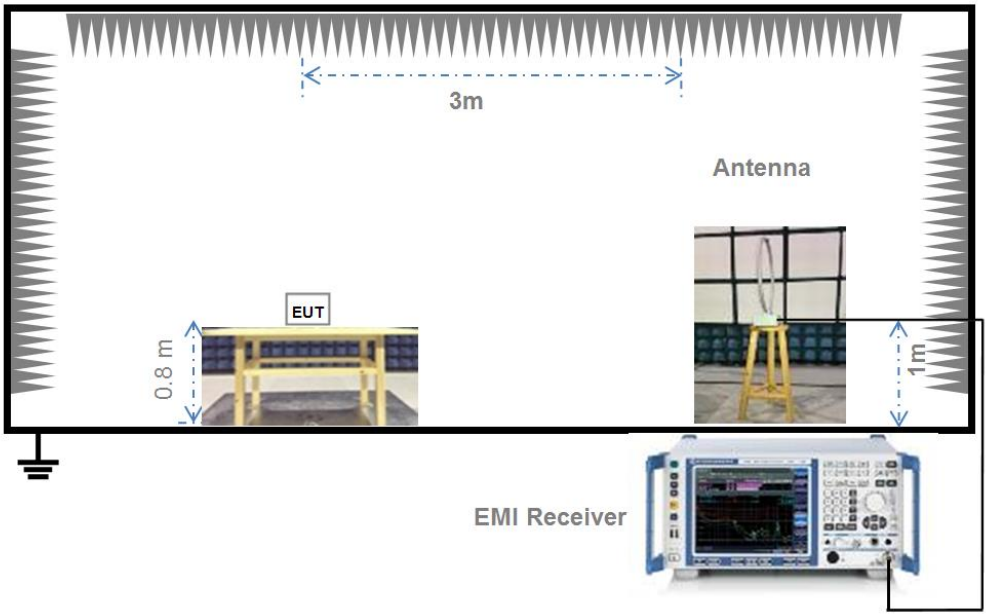
(Diagram 1)

4.5.2 For AC Power Supply Port Test



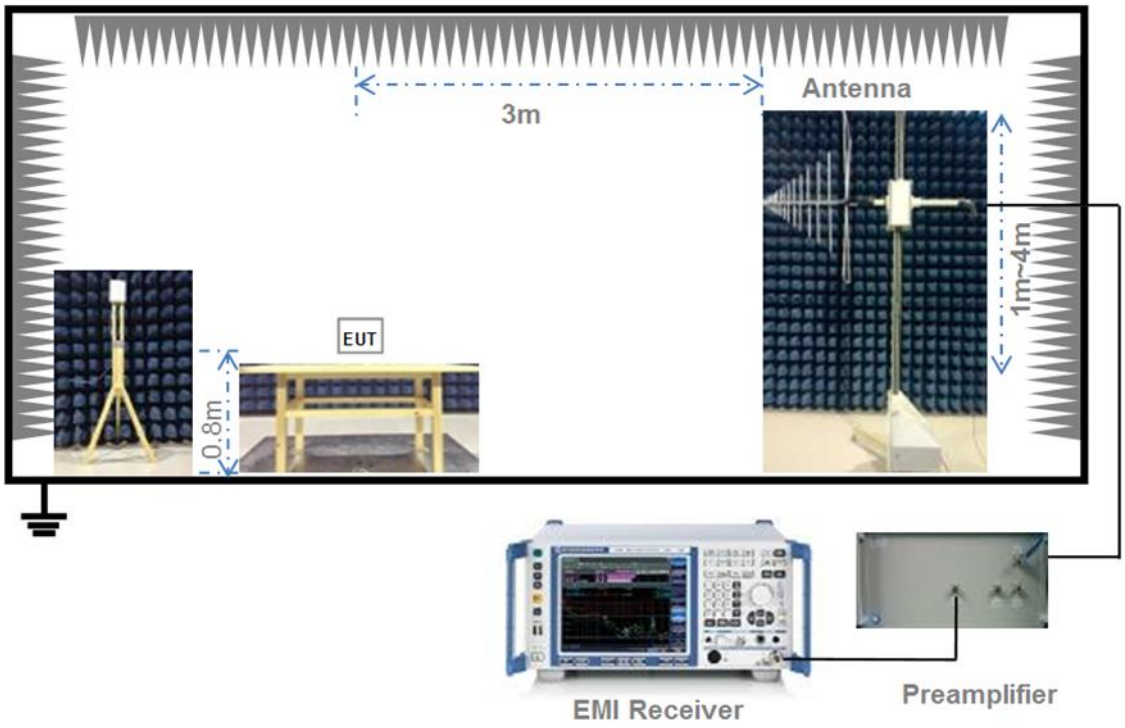
(Diagram 2)

4.5.3 For Radiated Test (Below 30 MHz)



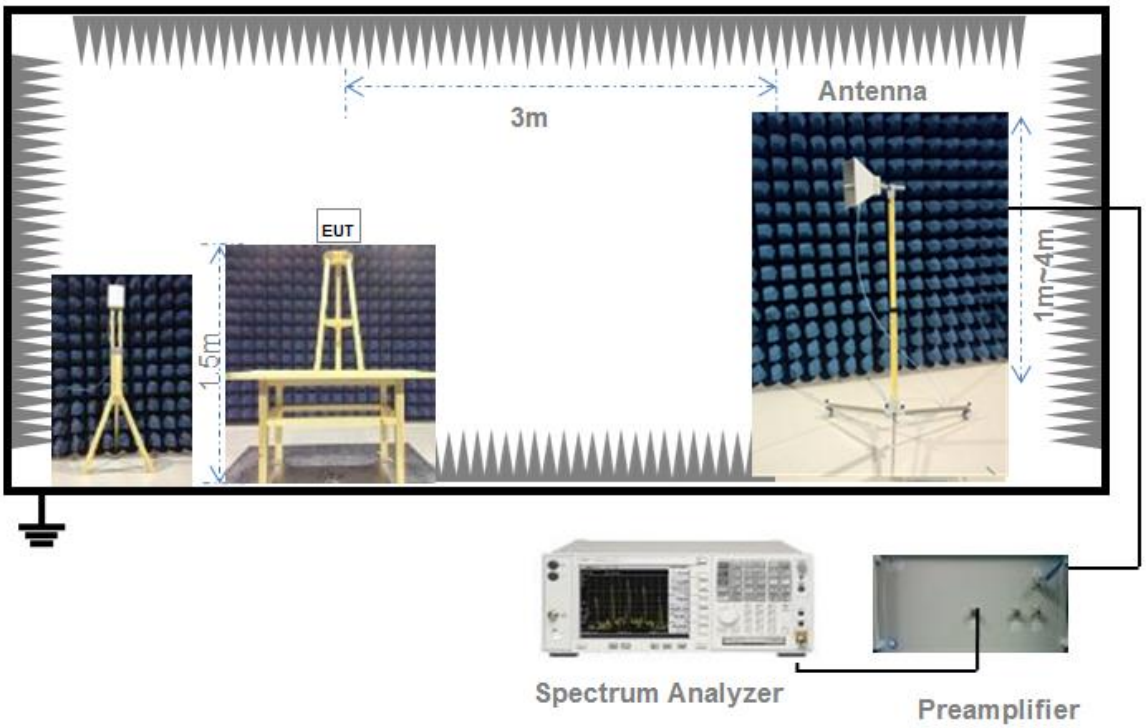
(Diagram 3)

4.5.4 For Radiated Test (30 MHz-1 GHz)



(Diagram 4)

4.5.5 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.	

RSS-247, 6.2

The maximum conducted output power shall not exceed:

Frequency Band (MHz)	Limit
5150-5250	N/A
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 99% emissions bandwidth in MHz.	

The maximum e.i.r.p. shall not exceed:

Frequency Band (MHz)	Limit
5150-5250	200 mW or 10 dBm + 10log B, whichever is less.
5250-5350	1W or 17 dBm + 10log B, whichever is less.
5470-5725	1W or 17 dBm + 10log B, whichever is less.
5725-5850	N/A
Note1: Where “B” is the 99% emissions bandwidth in MHz. Note2: EIRP= maximum conducted output power + Antenna Gain.	

5.1.2 Test Setup

The section 4.5.1 (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

The maximum peak conducted output power may be measured using a broadband Average RF power meter. The power meter shall have a video bandwidth that is greater than or equal to the emission bandwidth and utilize a fast-responding diode detector.

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), RSS-247, 6.2

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 4.5.1 (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 ≥ 3*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 ≥ 3*RBW, Detector = Peak.

4. Trace mode = Max hold.

5. Use the 99% power bandwidth function of the instrument.

6 dB bandwidth

1. Set RBW = 100 kHz, VBW = 300 kHz.

2. Detector = Peak.Trace mode = Max hold.

3. Allow the trace to stabilize.

4. 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

RSS-247, 6.2

The maximum power spectral density should not exceed:

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

The e.i.r.p. spectral density should not exceed:

Frequency Band (MHz)	Limit
5150-5250	10 dBm/MHz
5250-5350	N/A
5470-5725	N/A
5725-5850	N/A
Note: EIRP spectral density= maximum power spectral density+ Antenna Gain.	

5.3.2 Test Setup

The section 4.5.1 (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 ≥ 3*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, RSS-GEN, 8.8

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 50μH/50Ω line impedance stabilization network (LISN).

Frequency range (MHz)	Conducted Limit (dBμV)	
	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 4.5.2 (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.

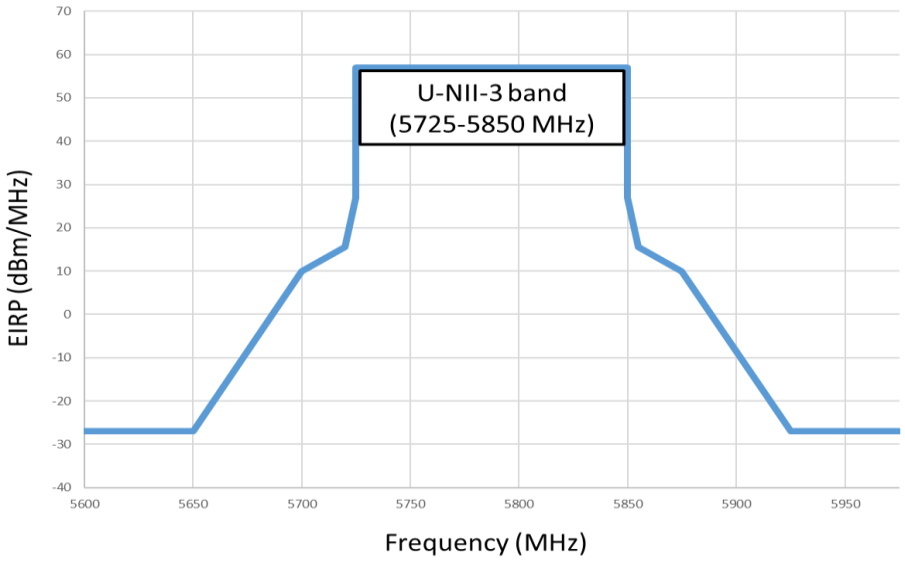
5.5 Radiated Spurious Emissions and Band Edge (Restricted-band)

5.5.1 Limit

FCC §15.209 & 15.407(b), RSS-247, 6.2

Frequency (MHz)	Field Strength (μV/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 4.5.3-4.5.5 (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 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).

c) 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).

d) Convert the resultant EIRP level to an equivalent electric field strength using the following relationship:

$E = EIRP – 20\log D + 104.8$

where:

E = electric field strength in dBμV/m,

EIRP = equivalent isotropic radiated power in dBm

D = specified measurement distance in meters.

e) Compare the resultant electric field strength level to the applicable limit.

f) 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 ≥ 3 x 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 ≥ 3 x RBW.

e) Detector = RMS, if span/(# of points in sweep) ≤ (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 ≥ 1 GHz, 100 kHz for f < 1 GHz
VBW ≥ 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]: For IC standard, the U-NII-3 (5725 - 5850 MHz) maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
Note [3]: All the configurations were tested, but only the worst data was shown in this report.
Note [4] : The Conducted Power has considered the Duty Factor.

Duty Cycle

Test Mode	On Time (ms)	On+Off time (ms)	Duty Cycle	Duty Factor
11a	2.06	2.36	87.18%	0.60
11n (HT20)	1.91	2.04	93.71%	0.28
11n (HT40)	0.90	1.02	88.28%	0.54

Test Data

Conducted Power

U-NII-1 (5150 - 5250 MHz)						
Mode	Channel	Conducted Power (dBm)	Conducted Power (mW)	FCC Limit (mW)	IC Limit (mW)	Verdict
11a	CH36	10.65	11.61	250	N/A	Pass
11a	CH44	16.32	42.85	250	N/A	Pass
11a	CH48	16.36	43.25	250	N/A	Pass
11n (HT20)	CH36	14.89	30.83	250	N/A	Pass
11n (HT20)	CH44	16.10	40.74	250	N/A	Pass
11n (HT20)	CH48	16.15	41.21	250	N/A	Pass
11n (HT40)	CH38	11.97	15.74	250	N/A	Pass
11n (HT40)	CH46	16.44	44.06	250	N/A	Pass

U-NII-3 (5725 - 5850 MHz)						
Mode	Channel	Conducted Power (dBm)	Conducted Power (mW)	FCC Limit (mW)	IC Limit (mW)	Verdict
11a	CH149	15.16	32.81	250	212	Pass
11a	CH157	15.39	34.59	250	212	Pass
11a	CH165	15.49	35.40	250	213	Pass
11n (HT20)	CH149	15.76	37.67	250	225	Pass
11n (HT20)	CH157	15.93	39.17	250	225	Pass
11n (HT20)	CH165	15.85	38.46	250	225	Pass
11n (HT40)	CH151	15.87	38.64	250	250	Pass
11n (HT40)	CH159	15.87	38.64	250	250	Pass

E.I.R.P

U-NII-1 (5150 - 5250 MHz)					
Mode	Channel	E.I.R.P (dBm)	E.I.R.P (mW)	E.I.R.P Limit (mW)	Verdict
11a	CH36	11.65	14.62	165	Pass
11a	CH44	17.32	53.95	165	Pass
11a	CH48	17.36	54.45	165	Pass
11n (HT20)	CH36	15.89	38.82	175	Pass
11n (HT20)	CH44	17.10	51.29	175	Pass
11n (HT20)	CH48	17.15	51.88	175	Pass
11n (HT40)	CH38	12.97	19.82	200	Pass
11n (HT40)	CH46	17.44	55.46	200	Pass

U-NII-3 (5725 - 5850 MHz)					
Mode	Channel	E.I.R.P (dBm)	E.I.R.P (mW)	E.I.R.P Limit (mW)	Verdict
11a	CH52	16.16	41.30	825	Pass
11a	CH60	16.39	43.55	826	Pass
11a	CH64	16.49	44.57	825	Pass
11n (HT20)	CH52	16.76	47.42	877	Pass
11n (HT20)	CH60	16.93	49.32	878	Pass
11n (HT20)	CH64	16.85	48.42	878	Pass
11n (HT40)	CH54	16.87	48.64	1000	Pass
11n (HT40)	CH62	16.87	48.64	1000	Pass

A.2 Emission Bandwidth & 99% Bandwidth

Note: Test plots please refer to the document “Annex No.:BL-SH2450128-602 Data Part 1&1-1.pdf”
.Test Data

U-NII-1 (5150 - 5250 MHz)			
Mode	Channel	26 dB Bandwidth (MHz)	99% Bandwidth (MHz)
11a	CH36	23.88	16.49
11a	CH44	23.08	16.50
11a	CH48	23.79	16.48
11n (HT20)	CH36	25.95	17.52
11n (HT20)	CH44	24.82	17.49
11n (HT20)	CH48	27.01	17.50
11n (HT40)	CH38	45.90	36.33
11n (HT40)	CH46	70.35	36.60

U-NII-3 (5725 - 5850 MHz)			
Mode	Channel	26 dB Bandwidth (MHz)	99% Bandwidth (MHz)
11a	CH149	24.51	16.48
11a	CH157	23.84	16.50
11a	CH165	25.23	16.54
11n (HT20)	CH149	24.42	17.52
11n (HT20)	CH157	25.93	17.54
11n (HT20)	CH165	26.68	17.52
11n (HT40)	CH151	70.76	36.69
11n (HT40)	CH159	73.24	36.71

A.3 6 dB Bandwidth

Note: Test plots please refer to the document “Annex No.: BL-SH2450128-602 Data Part 2.pdf”.

Test Data

U-NII-3 (5725 - 5850 MHz)				
Mode	Channel	6 dB Bandwidth (MHz)	Limit (kHz)	Verdict
11a	CH149	15.60	500.00	Pass
11a	CH157	15.50	500.00	Pass
11a	CH165	15.30	500.00	Pass
11n (HT20)	CH149	15.80	500.00	Pass
11n (HT20)	CH157	15.60	500.00	Pass
11n (HT20)	CH165	15.60	500.00	Pass
11n (HT40)	CH151	36.3	500.00	Pass
11n (HT40)	CH159	36.5	500.00	Pass

A.4 Power Spectral Density

Note [1] : The PSD has considered the Duty Factor.

Note[2]: Test plots please refer to the document “Annex No.: BL-SH2450128-602 Data Part 3&3-1.pdf”.

Test Data

U-NII-1 (5150 - 5250 MHz)				
Mode	Channel	PSD (dBm/MHz)	Limit (dBm/MHz)	Verdict
11a	CH36	-0.88	11.00	Pass
11a	CH44	4.35	11.00	Pass
11a	CH48	4.32	11.00	Pass
11n (HT20)	CH36	0.09	11.00	Pass
11n (HT20)	CH44	4.40	11.00	Pass
11n (HT20)	CH48	4.64	11.00	Pass
11n (HT40)	CH38	-2.46	11.00	Pass
11n (HT40)	CH46	1.05	11.00	Pass

U-NII-3 (5725 - 5850 MHz)				
Mode	Channel	PSD (dBm/MHz)	Limit (dBm/MHz)	Verdict
11a	CH149	1.18	11.00	Pass
11a	CH157	1.59	11.00	Pass
11a	CH165	1.72	11.00	Pass
11n (HT20)	CH149	1.61	11.00	Pass
11n (HT20)	CH157	1.93	11.00	Pass
11n (HT20)	CH165	1.95	11.00	Pass
11n (HT40)	CH151	-1.42	11.00	Pass
11n (HT40)	CH159	-1.52	11.00	Pass

E.I.R.P PSD

U-NII-1 (5150 - 5250 MHz)				
Mode	Channel	PSD (dBm/MHz)	E.I.R.P Limit (dBm/MHz)	Verdict
11a	CH36	0.12	10.00	Pass
11a	CH44	5.35	10.00	Pass
11a	CH48	5.32	10.00	Pass
11n (HT20)	CH36	1.09	10.00	Pass
11n (HT20)	CH44	5.40	10.00	Pass
11n (HT20)	CH48	5.64	10.00	Pass
11n (HT40)	CH38	-1.46	10.00	Pass
11n (HT40)	CH46	2.05	10.00	Pass

U-NII-3 (5725 - 5850 MHz)			
Mode	Channel	PSD (dBm/MHz)	Verdict
11a	CH149	2.18	Pass
11a	CH157	2.59	Pass
11a	CH165	2.72	Pass
11n (HT20)	CH149	2.61	Pass
11n (HT20)	CH157	2.93	Pass
11n (HT20)	CH165	2.95	Pass
11n (HT40)	CH151	-0.42	Pass
11n (HT40)	CH159	-0.52	Pass

A.5 Conducted Emissions

Note: Not applicable.

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

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

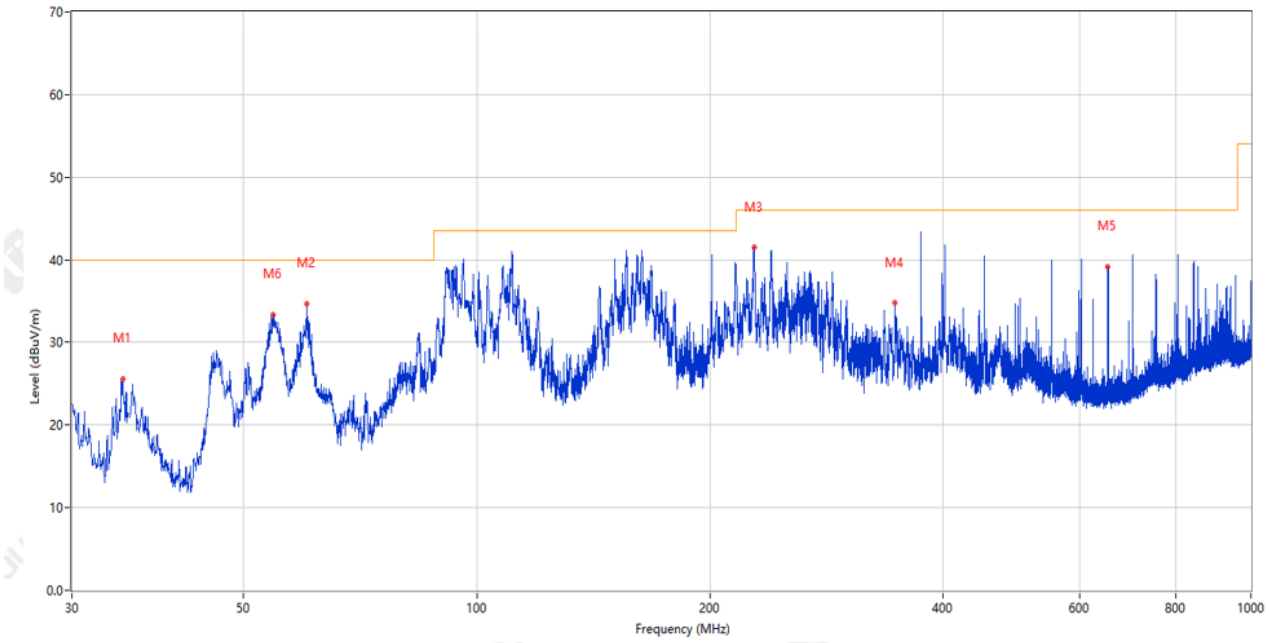
Note [2]: For the test data above 1 GHz，According the ANSI C63.4, where limits are specified for both average and peak (or quasi-peak) detector functions, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement.

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.

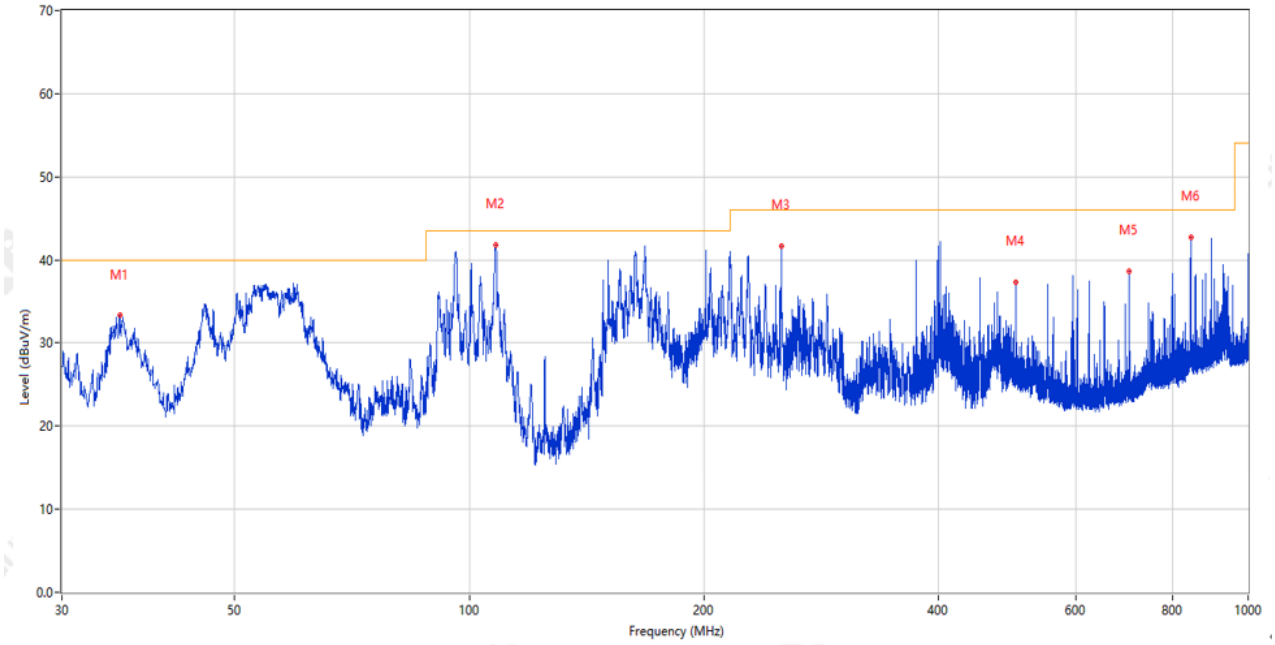
Test Data and Plots

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	34.898	25.55	-27.79	40.0	14.45	Peak	191.00	200	Horizontal	Pass
2	60.312	34.68	-26.10	40.0	5.32	Peak	167.00	200	Horizontal	Pass
3	228.122	41.50	-25.09	46.0	4.50	Peak	112.00	200	Horizontal	Pass
4	346.511	34.82	-21.45	46.0	11.18	Peak	210.00	100	Horizontal	Pass
5	653.710	39.19	-14.39	46.0	6.81	Peak	94.00	100	Horizontal	Pass
6	54.492	33.35	-25.01	40.0	6.65	Peak	246.00	200	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	35.578	33.29	-27.54	40.0	6.71	Peak	241.00	100	Vertical	Pass
2	108.085	41.78	-26.48	43.5	1.72	Peak	258.00	100	Vertical	Pass
3	251.451	41.64	-24.05	46.0	4.36	Peak	0.00	100	Vertical	Pass
4	502.875	37.36	-17.94	46.0	8.64	Peak	94.00	200	Vertical	Pass
5	704.005	38.63	-13.76	46.0	7.37	Peak	156.00	200	Vertical	Pass
6	843.539	42.76	-10.57	46.0	3.24	Peak	301.00	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, Low Channel, ANT H

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1055.750	44.14	-15.63	74.0	29.86	Peak	133.00	150	Horizontal	Pass
1**	1055.750	37.23	-15.63	54.0	16.77	AV	133.00	150	Horizontal	Pass
2	1392.750	48.69	-15.45	74.0	25.31	Peak	163.00	150	Horizontal	Pass
2**	1392.750	31.68	-15.45	54.0	22.32	AV	163.00	150	Horizontal	Pass
3	4189.500	48.58	-2.79	74.0	25.42	Peak	303.00	150	Horizontal	Pass
3**	4189.500	36.78	-2.79	54.0	17.22	AV	303.00	150	Horizontal	Pass
4	5184.500	108.56	-0.94	--	233.44	Peak	342.00	150	Horizontal	N/A
4**	5184.500	100.52	-0.94	--	-100.52	AV	342.00	150	Horizontal	N/A
5	11486.737	50.29	-1.19	74.0	23.71	Peak	117.00	150	Horizontal	Pass
5**	11486.737	38.85	-1.19	54.0	15.15	AV	117.00	150	Horizontal	Pass
6	15540.901	58.75	0.57	74.0	15.25	Peak	50.00	150	Horizontal	Pass
6**	15540.901	48.04	0.57	54.0	5.96	AV	50.00	150	Horizontal	Pass

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

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1106.250	46.55	-15.65	74.0	27.45	Peak	271.00	150	Vertical	Pass
1**	1106.250	41.97	-15.65	54.0	12.03	AV	271.00	150	Vertical	Pass
2	1398.250	57.37	-15.42	74.0	16.63	Peak	101.00	150	Vertical	Pass
2**	1398.250	28.76	-15.42	54.0	25.24	AV	101.00	150	Vertical	Pass
3	2794.500	50.26	-8.21	74.0	23.74	Peak	127.00	150	Vertical	Pass
3**	2794.500	32.79	-8.21	54.0	21.21	AV	127.00	150	Vertical	Pass
4	5175.500	109.97	-0.96	--	181.03	Peak	291.00	150	Vertical	N/A
4**	5175.500	101.84	-0.96	--	-101.84	AV	291.00	150	Vertical	N/A
5	10883.963	50.06	-1.31	74.0	23.94	Peak	42.00	150	Vertical	Pass
5**	10883.963	39.12	-1.31	54.0	14.88	AV	42.00	150	Vertical	Pass
6	15544.575	53.85	0.51	74.0	20.15	Peak	352.00	150	Vertical	Pass
6**	15544.575	43.03	0.51	54.0	10.97	AV	352.00	150	Vertical	Pass

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

1	1056.250	44.12	-15.63	74.0	29.88	Peak	123.00	150	Horizontal	Pass
1**	1056.250	38.91	-15.63	54.0	15.09	AV	123.00	150	Horizontal	Pass
2	1583.750	45.89	-15.58	74.0	28.11	Peak	151.00	150	Horizontal	Pass
2**	1583.750	40.38	-15.58	54.0	13.62	AV	151.00	150	Horizontal	Pass
3	4145.000	48.67	-3.49	74.0	25.33	Peak	62.00	150	Horizontal	Pass
3**	4145.000	36.16	-3.49	54.0	17.84	AV	62.00	150	Horizontal	Pass
4	5216.500	108.03	-0.93	--	230.97	Peak	339.00	150	Horizontal	N/A
4**	5216.500	99.80	-0.93	--	-99.80	AV	339.00	150	Horizontal	N/A
5	11986.912	50.06	-0.85	74.0	23.94	Peak	309.00	150	Horizontal	Pass
5**	11986.912	39.47	-0.85	54.0	14.53	AV	309.00	150	Horizontal	Pass
6	15659.550	59.50	1.55	74.0	14.50	Peak	50.00	150	Horizontal	Pass
6**	15659.550	47.88	1.55	54.0	6.12	AV	50.00	150	Horizontal	Pass
1	1056.250	44.12	-15.63	74.0	29.88	Peak	123.00	150	Horizontal	Pass

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

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1106.250	46.06	-15.65	74.0	27.94	Peak	260.00	150	Vertical	Pass
1**	1106.250	42.10	-15.65	54.0	11.90	AV	260.00	150	Vertical	Pass
2	1397.250	57.42	-15.44	74.0	16.58	Peak	135.00	150	Vertical	Pass
2**	1397.250	28.30	-15.44	54.0	25.70	AV	135.00	150	Vertical	Pass
3	2252.750	45.34	-11.45	74.0	28.66	Peak	155.00	150	Vertical	Pass
3**	2252.750	30.77	-11.45	54.0	23.23	AV	155.00	150	Vertical	Pass
4	4231.500	48.28	-2.80	74.0	25.72	Peak	21.00	150	Vertical	Pass
4**	4231.500	37.03	-2.80	54.0	16.97	AV	21.00	150	Vertical	Pass
5	5224.500	110.92	-0.80	--	198.08	Peak	309.00	150	Vertical	N/A
5**	5224.500	102.49	-0.80	--	-102.49	AV	309.00	150	Vertical	N/A
6	15660.075	55.16	1.50	74.0	18.84	Peak	329.00	150	Vertical	Pass
6**	15660.075	44.65	1.50	54.0	9.35	AV	329.00	150	Vertical	Pass

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

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1056.000	45.10	-15.63	74.0	28.90	Peak	131.00	150	Horizontal	Pass
1**	1056.000	38.12	-15.63	54.0	15.88	AV	131.00	150	Horizontal	Pass
2	1397.750	48.59	-15.42	74.0	25.41	Peak	131.00	150	Horizontal	Pass
2**	1397.750	28.34	-15.42	54.0	25.66	AV	131.00	150	Horizontal	Pass
3	2833.500	46.05	-7.90	74.0	27.95	Peak	25.00	150	Horizontal	Pass
3**	2833.500	33.88	-7.90	54.0	20.12	AV	25.00	150	Horizontal	Pass
4	5238.500	107.40	-0.76	--	220.60	Peak	328.00	150	Horizontal	N/A
4**	5238.500	99.17	-0.76	--	-99.17	AV	328.00	150	Horizontal	N/A
5	11283.438	49.75	-1.44	74.0	24.25	Peak	166.00	150	Horizontal	Pass
5**	11283.438	38.44	-1.44	54.0	15.56	AV	166.00	150	Horizontal	Pass
6	15720.713	60.61	1.40	74.0	13.39	Peak	16.00	150	Horizontal	Pass
6**	15720.713	49.73	1.40	54.0	4.27	AV	16.00	150	Horizontal	Pass

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

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1106.000	46.24	-15.64	74.0	27.76	Peak	261.00	150	Vertical	Pass
1**	1106.000	39.61	-15.64	54.0	14.39	AV	261.00	150	Vertical	Pass
2	1394.000	55.92	-15.45	74.0	18.08	Peak	108.00	150	Vertical	Pass
2**	1394.000	28.76	-15.45	54.0	25.24	AV	108.00	150	Vertical	Pass
3	2843.250	45.81	-7.55	74.0	28.19	Peak	291.00	150	Vertical	Pass
3**	2843.250	33.34	-7.55	54.0	20.66	AV	291.00	150	Vertical	Pass
4	5244.500	110.08	-0.62	--	199.92	Peak	310.00	150	Vertical	N/A
4**	5244.500	102.41	-0.62	--	-102.41	AV	310.00	150	Vertical	N/A
5	11560.362	50.26	-1.13	74.0	23.74	Peak	7.00	150	Vertical	Pass
5**	11560.362	39.03	-1.13	54.0	14.97	AV	7.00	150	Vertical	Pass
6	15730.162	54.61	0.96	74.0	19.39	Peak	84.00	150	Vertical	Pass
6**	15730.162	42.93	0.96	54.0	11.07	AV	84.00	150	Vertical	Pass

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

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1106.500	44.23	-15.65	74.0	29.77	Peak	223.00	150	Horizontal	Pass
1**	1106.500	40.01	-15.65	54.0	13.99	AV	223.00	150	Horizontal	Pass
2	1584.000	46.14	-15.58	74.0	27.86	Peak	56.00	150	Horizontal	Pass
2**	1584.000	41.93	-15.58	54.0	12.07	AV	56.00	150	Horizontal	Pass
3	4143.500	48.40	-3.45	74.0	25.60	Peak	55.00	150	Horizontal	Pass
3**	4143.500	36.13	-3.45	54.0	17.87	AV	55.00	150	Horizontal	Pass
4	5181.500	104.92	-0.94	--	235.08	Peak	340.00	150	Horizontal	N/A
4**	5181.500	96.51	-0.94	--	-96.51	AV	340.00	150	Horizontal	N/A
5	12559.526	50.45	-0.35	74.0	23.55	Peak	173.00	150	Horizontal	Pass
5**	12559.526	39.53	-0.35	54.0	14.47	AV	173.00	150	Horizontal	Pass
6	15546.937	52.95	0.65	74.0	21.05	Peak	7.00	150	Horizontal	Pass
6**	15546.937	42.44	0.65	54.0	11.56	AV	7.00	150	Horizontal	Pass

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

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1106.250	45.83	-15.65	74.0	28.17	Peak	76.00	150	Vertical	Pass
1**	1106.250	41.38	-15.65	54.0	12.62	AV	76.00	150	Vertical	Pass
2	1399.250	59.56	-15.42	74.0	14.44	Peak	113.00	150	Vertical	Pass
2**	1399.250	28.04	-15.42	54.0	25.96	AV	113.00	150	Vertical	Pass
3	4074.000	47.80	-3.69	74.0	26.20	Peak	360.00	150	Vertical	Pass
3**	4074.000	35.99	-3.69	54.0	18.01	AV	360.00	150	Vertical	Pass
4	5177.000	108.94	-0.95	--	203.06	Peak	312.00	150	Vertical	N/A
4**	5177.000	101.13	-0.95	--	-101.13	AV	312.00	150	Vertical	N/A
5	11902.125	49.42	-0.80	74.0	24.58	Peak	196.00	150	Vertical	Pass
5**	11902.125	39.54	-0.80	54.0	14.46	AV	196.00	150	Vertical	Pass
6	15538.013	53.00	0.54	74.0	21.00	Peak	277.00	150	Vertical	Pass
6**	15538.013	42.11	0.54	54.0	11.89	AV	277.00	150	Vertical	Pass

11n20, 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	1106.000	44.23	-15.64	74.0	29.77	Peak	228.00	150	Horizontal	Pass
1**	1106.000	37.25	-15.64	54.0	16.75	AV	228.00	150	Horizontal	Pass
2	1584.000	46.27	-15.58	74.0	27.73	Peak	59.00	150	Horizontal	Pass
2**	1584.000	41.72	-15.58	54.0	12.28	AV	59.00	150	Horizontal	Pass
3	4030.000	47.34	-3.05	74.0	26.66	Peak	58.00	150	Horizontal	Pass
3**	4030.000	35.96	-3.05	54.0	18.04	AV	58.00	150	Horizontal	Pass
4	5224.000	107.42	-0.81	--	243.58	Peak	351.00	150	Horizontal	N/A
4**	5224.000	99.57	-0.81	--	-99.57	AV	351.00	150	Horizontal	N/A
5	11577.463	50.12	-1.29	74.0	23.88	Peak	360.00	150	Horizontal	Pass
5**	11577.463	38.16	-1.29	54.0	15.84	AV	360.00	150	Horizontal	Pass
6	15660.338	58.89	1.48	74.0	15.11	Peak	15.00	150	Horizontal	Pass
6**	15660.338	49.60	1.48	54.0	4.40	AV	15.00	150	Horizontal	Pass

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

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1106.500	45.95	-15.65	74.0	28.05	Peak	112.00	150	Vertical	Pass
1**	1106.500	42.86	-15.65	54.0	11.14	AV	112.00	150	Vertical	Pass
2	1397.500	58.69	-15.43	74.0	15.31	Peak	102.00	150	Vertical	Pass
2**	1397.500	34.73	-15.43	54.0	19.27	AV	102.00	150	Vertical	Pass
3	4188.500	48.06	-2.86	74.0	25.94	Peak	210.00	150	Vertical	Pass
3**	4188.500	36.61	-2.86	54.0	17.39	AV	210.00	150	Vertical	Pass
4	5215.000	110.45	-0.94	--	159.55	Peak	270.00	150	Vertical	N/A
4**	5215.000	101.47	-0.94	--	-101.47	AV	270.00	150	Vertical	N/A
5	11549.674	50.74	-1.29	74.0	23.26	Peak	310.00	150	Vertical	Pass
5**	11549.674	38.58	-1.29	54.0	15.42	AV	310.00	150	Vertical	Pass
6	15662.963	53.18	1.52	74.0	20.82	Peak	84.00	150	Vertical	Pass
6**	15662.963	43.31	1.52	54.0	10.69	AV	84.00	150	Vertical	Pass

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

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1106.250	44.24	-15.65	74.0	29.76	Peak	227.00	150	Horizontal	Pass
1**	1106.250	40.19	-15.65	54.0	13.81	AV	227.00	150	Horizontal	Pass
2	1397.750	49.85	-15.42	74.0	24.15	Peak	97.00	150	Horizontal	Pass
2**	1397.750	33.45	-15.42	54.0	20.55	AV	97.00	150	Horizontal	Pass
3	4214.000	48.84	-2.56	74.0	25.16	Peak	302.00	150	Horizontal	Pass
3**	4214.000	36.94	-2.56	54.0	17.06	AV	302.00	150	Horizontal	Pass
4	5236.500	106.65	-0.82	--	235.35	Peak	342.00	150	Horizontal	N/A
4**	5236.500	99.35	-0.82	--	-99.35	AV	342.00	150	Horizontal	N/A
5	11671.037	49.71	-1.40	74.0	24.29	Peak	69.00	150	Horizontal	Pass
5**	11671.037	38.79	-1.40	54.0	15.21	AV	69.00	150	Horizontal	Pass
6	15728.062	60.36	1.05	74.0	13.64	Peak	49.00	150	Horizontal	Pass
6**	15728.062	49.76	1.05	54.0	4.24	AV	49.00	150	Horizontal	Pass

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

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1060.000	46.29	-15.58	74.0	27.71	Peak	124.00	150	Vertical	Pass
1**	1060.000	29.55	-15.58	54.0	24.45	AV	124.00	150	Vertical	Pass
2	1396.500	56.35	-15.45	74.0	17.65	Peak	112.00	150	Vertical	Pass
2**	1396.500	30.06	-15.45	54.0	23.94	AV	112.00	150	Vertical	Pass
3	4181.000	48.55	-3.07	74.0	25.45	Peak	340.00	150	Vertical	Pass
3**	4181.000	36.68	-3.07	54.0	17.32	AV	340.00	150	Vertical	Pass
4	5236.500	109.94	-0.82	--	211.06	Peak	321.00	150	Vertical	N/A
4**	5236.500	102.89	-0.82	--	-102.89	AV	321.00	150	Vertical	N/A
5	11442.562	49.68	-1.09	74.0	24.32	Peak	112.00	150	Vertical	Pass
5**	11442.562	38.99	-1.09	54.0	15.01	AV	112.00	150	Vertical	Pass
6	15722.812	53.48	1.37	74.0	20.52	Peak	83.00	150	Vertical	Pass
6**	15722.812	44.97	1.37	54.0	9.03	AV	83.00	150	Vertical	Pass

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

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1006.000	45.66	-15.24	74.0	28.34	Peak	238.00	150	Horizontal	Pass
1**	1006.000	42.88	-15.24	54.0	11.12	AV	238.00	150	Horizontal	Pass
2	1454.750	49.06	-15.41	74.0	24.94	Peak	66.00	150	Horizontal	Pass
2**	1454.750	29.69	-15.41	54.0	24.31	AV	66.00	150	Horizontal	Pass
3	4266.500	48.98	-2.65	74.0	25.02	Peak	80.00	150	Horizontal	Pass
3**	4266.500	36.92	-2.65	54.0	17.08	AV	80.00	150	Horizontal	Pass
4	5195.500	97.05	-1.09	--	-49.05	Peak	48.00	150	Horizontal	N/A
4**	5195.500	88.85	-1.09	--	-88.85	AV	48.00	150	Horizontal	N/A
5	11547.775	50.49	-1.40	74.0	23.51	Peak	360.00	150	Horizontal	Pass
5**	11547.775	38.58	-1.40	54.0	15.42	AV	360.00	150	Horizontal	Pass
6	15659.813	51.74	1.53	74.0	22.26	Peak	360.00	150	Horizontal	Pass
6**	15659.813	40.95	1.53	54.0	13.05	AV	360.00	150	Horizontal	Pass

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

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1056.250	47.01	-15.63	74.0	26.99	Peak	279.00	150	Vertical	Pass
1**	1056.250	43.69	-15.63	54.0	10.31	AV	279.00	150	Vertical	Pass
2	1398.750	59.33	-15.42	74.0	14.67	Peak	102.00	150	Vertical	Pass
2**	1398.750	32.87	-15.42	54.0	21.13	AV	102.00	150	Vertical	Pass
3	3990.000	48.79	-3.97	74.0	25.21	Peak	118.00	150	Vertical	Pass
3**	3990.000	36.05	-3.97	54.0	17.95	AV	118.00	150	Vertical	Pass
4	5207.000	103.52	-0.87	--	163.48	Peak	267.00	150	Vertical	N/A
4**	5207.000	96.17	-0.87	--	-96.17	AV	267.00	150	Vertical	N/A
5	12182.375	50.22	-1.46	74.0	23.78	Peak	162.00	150	Vertical	Pass
5**	12182.375	40.12	-1.46	54.0	13.88	AV	162.00	150	Vertical	Pass
6	15727.799	51.84	1.10	74.0	22.16	Peak	50.00	150	Vertical	Pass
6**	15727.799	40.62	1.10	54.0	13.38	AV	50.00	150	Vertical	Pass

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

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1005.750	46.03	-15.24	74.0	27.97	Peak	238.00	150	Horizontal	Pass
1**	1005.750	41.92	-15.24	54.0	12.08	AV	238.00	150	Horizontal	Pass
2	1450.500	49.65	-15.31	74.0	24.35	Peak	66.00	150	Horizontal	Pass
2**	1450.500	28.37	-15.31	54.0	25.63	AV	66.00	150	Horizontal	Pass
3	4295.000	48.95	-3.03	74.0	25.05	Peak	160.00	150	Horizontal	Pass
3**	4295.000	36.73	-3.03	54.0	17.27	AV	160.00	150	Horizontal	Pass
4	5235.000	101.48	-0.85	--	-62.48	Peak	39.00	150	Horizontal	N/A
4**	5235.000	93.48	-0.85	--	-93.48	AV	39.00	150	Horizontal	N/A
5	12032.275	49.91	-1.05	74.0	24.09	Peak	0.00	150	Horizontal	Pass
5**	12032.275	39.03	-1.05	54.0	14.97	AV	0.00	150	Horizontal	Pass
6	15682.125	56.77	1.00	74.0	17.23	Peak	48.00	150	Horizontal	Pass
6**	15682.125	46.70	1.00	54.0	7.30	AV	48.00	150	Horizontal	Pass

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

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1106.250	47.28	-15.65	74.0	26.72	Peak	250.00	150	Vertical	Pass
1**	1106.250	43.87	-15.65	54.0	10.13	AV	250.00	150	Vertical	Pass
2	1449.000	55.99	-15.31	74.0	18.01	Peak	111.00	150	Vertical	Pass
2**	1449.000	32.59	-15.31	54.0	21.41	AV	111.00	150	Vertical	Pass
3	4190.500	48.74	-2.79	74.0	25.26	Peak	359.00	150	Vertical	Pass
3**	4190.500	37.35	-2.79	54.0	16.65	AV	359.00	150	Vertical	Pass
4	5240.500	107.82	-0.72	--	164.18	Peak	272.00	150	Vertical	N/A
4**	5240.500	99.70	-0.72	--	-99.70	AV	272.00	150	Vertical	N/A
5	12680.887	51.05	-0.09	74.0	22.95	Peak	0.00	150	Vertical	Pass
5**	12680.887	39.81	-0.09	54.0	14.19	AV	0.00	150	Vertical	Pass
6	15705.750	53.40	1.28	74.0	20.60	Peak	327.00	150	Vertical	Pass
6**	15705.750	43.27	1.28	54.0	10.73	AV	327.00	150	Vertical	Pass

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

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1056.500	50.18	-15.62	74.0	23.82	Peak	160.00	150	Horizontal	Pass
1**	1056.500	47.19	-15.62	54.0	6.81	AV	160.00	150	Horizontal	Pass
2	1583.750	46.73	-15.58	74.0	27.27	Peak	164.00	150	Horizontal	Pass
2**	1583.750	40.25	-15.58	54.0	13.75	AV	164.00	150	Horizontal	Pass
3	4326.500	49.51	-2.79	74.0	24.49	Peak	160.00	150	Horizontal	Pass
3**	4326.500	38.33	-2.79	54.0	15.67	AV	160.00	150	Horizontal	Pass
4	5748.000	105.86	-0.05	--	213.14	Peak	319.00	150	Horizontal	N/A
4**	5748.000	98.64	-0.05	--	-98.64	AV	319.00	150	Horizontal	N/A
5	12491.600	50.02	0.16	74.0	23.98	Peak	1.00	150	Horizontal	Pass
5**	12491.600	40.29	0.16	54.0	13.71	AV	1.00	150	Horizontal	Pass
6	15431.437	50.58	1.29	74.0	23.42	Peak	155.00	150	Horizontal	Pass
6**	15431.437	40.68	1.29	54.0	13.32	AV	155.00	150	Horizontal	Pass

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

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1056.000	49.61	-15.63	74.0	24.39	Peak	100.00	150	Vertical	Pass
1**	1056.000	45.30	-15.63	54.0	8.70	AV	100.00	150	Vertical	Pass
2	1450.000	49.91	-15.31	74.0	24.09	Peak	23.00	150	Vertical	Pass
2**	1450.000	28.31	-15.31	54.0	25.69	AV	23.00	150	Vertical	Pass
3	4185.500	48.92	-2.98	74.0	25.08	Peak	192.00	150	Vertical	Pass
3**	4185.500	37.73	-2.98	54.0	16.27	AV	192.00	150	Vertical	Pass
4	5746.000	110.08	-0.08	--	185.92	Peak	296.00	150	Vertical	N/A
4**	5746.000	100.70	-0.08	--	-100.70	AV	296.00	150	Vertical	N/A
5	12461.674	50.80	-0.11	74.0	23.20	Peak	354.00	150	Vertical	Pass
5**	12461.674	40.06	-0.11	54.0	13.94	AV	354.00	150	Vertical	Pass
6	15539.588	50.85	0.54	74.0	23.15	Peak	50.00	150	Vertical	Pass
6**	15539.588	40.75	0.54	54.0	13.25	AV	50.00	150	Vertical	Pass

11a, U-NII-3, 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	1056.000	50.48	-15.63	74.0	23.52	Peak	156.00	150	Horizontal	Pass
1**	1056.000	46.84	-15.63	54.0	7.16	AV	156.00	150	Horizontal	Pass
2	1584.000	46.12	-15.58	74.0	27.88	Peak	162.00	150	Horizontal	Pass
2**	1584.000	42.48	-15.58	54.0	11.52	AV	162.00	150	Horizontal	Pass
3	4296.500	49.34	-3.00	74.0	24.66	Peak	320.00	150	Horizontal	Pass
3**	4296.500	38.80	-3.00	54.0	15.20	AV	320.00	150	Horizontal	Pass
4	5788.000	106.84	0.36	--	213.16	Peak	320.00	150	Horizontal	N/A
4**	5788.000	99.13	0.36	--	-99.13	AV	320.00	150	Horizontal	N/A
5	12484.712	50.37	0.11	74.0	23.63	Peak	256.00	150	Horizontal	Pass
5**	12484.712	39.66	0.11	54.0	14.34	AV	256.00	150	Horizontal	Pass
6	15669.526	51.91	1.74	74.0	22.09	Peak	191.00	150	Horizontal	Pass
6**	15669.526	41.13	1.74	54.0	12.87	AV	191.00	150	Horizontal	Pass

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

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1056.000	49.58	-15.63	74.0	24.42	Peak	91.00	150	Vertical	Pass
1**	1056.000	46.80	-15.63	54.0	7.20	AV	91.00	150	Vertical	Pass
2	1452.500	50.17	-15.33	74.0	23.83	Peak	36.00	150	Vertical	Pass
2**	1452.500	30.41	-15.33	54.0	23.59	AV	36.00	150	Vertical	Pass
3	3982.500	48.18	-3.89	74.0	25.82	Peak	353.00	150	Vertical	Pass
3**	3982.500	37.28	-3.89	54.0	16.72	AV	353.00	150	Vertical	Pass
4	5779.500	109.87	0.34	--	188.13	Peak	298.00	150	Vertical	N/A
4**	5779.500	102.29	0.34	--	-102.29	AV	298.00	150	Vertical	N/A
5	12125.850	49.56	-1.18	74.0	24.44	Peak	0.00	150	Vertical	Pass
5**	12125.850	39.19	-1.18	54.0	14.81	AV	0.00	150	Vertical	Pass
6	15881.888	51.67	1.63	74.0	22.33	Peak	190.00	150	Vertical	Pass
6**	15881.888	41.34	1.63	54.0	12.66	AV	190.00	150	Vertical	Pass

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

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1056.250	50.27	-15.63	74.0	23.73	Peak	157.00	150	Horizontal	Pass
1**	1056.250	46.81	-15.63	54.0	7.19	AV	157.00	150	Horizontal	Pass
2	1584.000	46.32	-15.58	74.0	27.68	Peak	163.00	150	Horizontal	Pass
2**	1584.000	42.09	-15.58	54.0	11.91	AV	163.00	150	Horizontal	Pass
3	3932.000	48.69	-2.67	74.0	25.31	Peak	157.00	150	Horizontal	Pass
3**	3932.000	38.23	-2.67	54.0	15.77	AV	157.00	150	Horizontal	Pass
4	5821.500	108.35	0.47	--	209.65	Peak	318.00	150	Horizontal	N/A
4**	5821.500	100.03	0.47	--	-100.03	AV	318.00	150	Horizontal	N/A
5	11003.187	50.18	-0.93	74.0	23.82	Peak	0.00	150	Horizontal	Pass
5**	11003.187	39.64	-0.93	54.0	14.36	AV	0.00	150	Horizontal	Pass
6	15883.463	51.43	1.57	74.0	22.57	Peak	51.00	150	Horizontal	Pass
6**	15883.463	41.42	1.57	54.0	12.58	AV	51.00	150	Horizontal	Pass

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

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1055.750	49.69	-15.63	74.0	24.31	Peak	97.00	150	Vertical	Pass
1**	1055.750	42.74	-15.63	54.0	11.26	AV	97.00	150	Vertical	Pass
2	1401.750	49.46	-15.37	74.0	24.54	Peak	31.00	150	Vertical	Pass
2**	1401.750	28.78	-15.37	54.0	25.22	AV	31.00	150	Vertical	Pass
3	4116.000	48.44	-3.03	74.0	25.56	Peak	326.00	150	Vertical	Pass
3**	4116.000	37.65	-3.03	54.0	16.35	AV	326.00	150	Vertical	Pass
4	5830.500	110.89	0.92	--	184.11	Peak	295.00	150	Vertical	N/A
4**	5830.500	103.16	0.92	--	-103.16	AV	295.00	150	Vertical	N/A
5	12007.338	49.49	-1.19	74.0	24.51	Peak	158.00	150	Vertical	Pass
5**	12007.338	38.38	-1.19	54.0	15.62	AV	158.00	150	Vertical	Pass
6	15990.825	51.20	1.15	74.0	22.80	Peak	84.00	150	Vertical	Pass
6**	15990.825	41.20	1.15	54.0	12.80	AV	84.00	150	Vertical	Pass

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

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1156.250	40.67	-15.41	74.0	33.33	Peak	13.00	150	Horizontal	Pass
1**	1156.250	33.20	-15.41	54.0	20.80	AV	13.00	150	Horizontal	Pass
2	1396.000	46.09	-15.45	74.0	27.91	Peak	41.00	150	Horizontal	Pass
2**	1396.000	30.18	-15.45	54.0	23.82	AV	41.00	150	Horizontal	Pass
3	3870.500	47.86	-4.34	74.0	26.14	Peak	0.00	150	Horizontal	Pass
3**	3870.500	37.92	-4.34	54.0	16.08	AV	0.00	150	Horizontal	Pass
4	5742.500	101.86	-0.11	--	258.14	Peak	50.00	150	Horizontal	N/A
4**	5742.500	94.36	-0.11	--	-94.36	AV	50.00	150	Horizontal	N/A
5	12113.263	49.52	-1.06	74.0	24.48	Peak	22.00	150	Horizontal	Pass
5**	12113.263	39.23	-1.06	54.0	14.77	AV	22.00	150	Horizontal	Pass
6	15763.763	51.92	0.98	74.0	22.08	Peak	82.00	150	Horizontal	Pass
6**	15763.763	40.36	0.98	54.0	13.64	AV	82.00	150	Horizontal	Pass

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

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1062.500	44.68	-15.59	74.0	29.32	Peak	360.00	150	Vertical	Pass
1**	1062.500	30.25	-15.59	54.0	23.75	AV	360.00	150	Vertical	Pass
2	1398.250	47.17	-15.42	74.0	26.83	Peak	94.00	150	Vertical	Pass
2**	1398.250	28.32	-15.42	54.0	25.68	AV	94.00	150	Vertical	Pass
3	4282.500	48.83	-2.73	74.0	25.17	Peak	0.00	150	Vertical	Pass
3**	4282.500	38.59	-2.73	54.0	15.41	AV	0.00	150	Vertical	Pass
4	5748.000	107.48	-0.05	--	252.52	Peak	29.00	150	Vertical	N/A
4**	5748.000	99.32	-0.05	--	-99.32	AV	29.00	150	Vertical	N/A
5	12392.800	50.09	-0.78	74.0	23.91	Peak	308.00	150	Vertical	Pass
5**	12392.800	39.68	-0.78	54.0	14.32	AV	308.00	150	Vertical	Pass
6	15670.050	51.33	1.75	74.0	22.67	Peak	155.00	150	Vertical	Pass
6**	15670.050	41.32	1.75	54.0	12.68	AV	155.00	150	Vertical	Pass

11n20, U-NII-3, 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	1056.000	41.53	-15.63	74.0	32.47	Peak	249.00	150	Horizontal	Pass
1**	1056.000	33.95	-15.63	54.0	20.05	AV	249.00	150	Horizontal	Pass
2	1396.000	43.84	-15.45	74.0	30.16	Peak	114.00	150	Horizontal	Pass
2**	1396.000	27.69	-15.45	54.0	26.31	AV	114.00	150	Horizontal	Pass
3	4242.000	49.69	-2.49	74.0	24.31	Peak	277.00	150	Horizontal	Pass
3**	4242.000	37.90	-2.49	54.0	16.10	AV	277.00	150	Horizontal	Pass
4	5778.500	102.23	0.34	--	257.77	Peak	105.00	150	Horizontal	N/A
4**	5778.500	92.62	0.34	--	-92.62	AV	105.00	150	Horizontal	N/A
5	11894.525	50.05	-0.86	74.0	23.95	Peak	268.00	150	Horizontal	Pass
5**	11894.525	39.07	-0.86	54.0	14.93	AV	268.00	150	Horizontal	Pass
6	15887.400	51.34	1.47	74.0	22.66	Peak	1.00	150	Horizontal	Pass
6**	15887.400	40.92	1.47	54.0	13.08	AV	1.00	150	Horizontal	Pass

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

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1056.000	46.61	-15.63	74.0	27.39	Peak	360.00	150	Vertical	Pass
1**	1056.000	36.51	-15.63	54.0	17.49	AV	360.00	150	Vertical	Pass
2	1397.750	47.78	-15.42	74.0	26.22	Peak	94.00	150	Vertical	Pass
2**	1397.750	29.75	-15.42	54.0	24.25	AV	94.00	150	Vertical	Pass
3	4118.000	49.42	-3.10	74.0	24.58	Peak	0.00	150	Vertical	Pass
3**	4118.000	37.38	-3.10	54.0	16.62	AV	0.00	150	Vertical	Pass
4	5789.000	107.80	0.36	--	252.20	Peak	29.00	150	Vertical	N/A
4**	5789.000	99.63	0.36	--	-99.63	AV	29.00	150	Vertical	N/A
5	12226.550	49.68	-1.25	74.0	24.32	Peak	308.00	150	Vertical	Pass
5**	12226.550	39.05	-1.25	54.0	14.95	AV	308.00	150	Vertical	Pass
6	15891.599	51.80	1.63	74.0	22.20	Peak	155.00	150	Vertical	Pass
6**	15891.599	41.62	1.63	54.0	12.38	AV	155.00	150	Vertical	Pass

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

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1156.750	41.49	-15.42	74.0	32.51	Peak	13.00	150	Horizontal	Pass
1**	1156.750	34.68	-15.42	54.0	19.32	AV	13.00	150	Horizontal	Pass
2	1403.000	44.08	-15.39	74.0	29.92	Peak	41.00	150	Horizontal	Pass
2**	1403.000	27.30	-15.39	54.0	26.70	AV	41.00	150	Horizontal	Pass
3	3866.500	48.33	-4.52	74.0	25.67	Peak	0.00	150	Horizontal	Pass
3**	3866.500	37.61	-4.52	54.0	16.39	AV	0.00	150	Horizontal	Pass
4	5829.000	99.45	0.83	--	260.55	Peak	50.00	150	Horizontal	N/A
4**	5829.000	91.57	0.83	--	-91.57	AV	50.00	150	Horizontal	N/A
5	11470.588	49.69	-1.25	74.0	24.31	Peak	22.00	150	Horizontal	Pass
5**	11470.588	38.60	-1.25	54.0	15.40	AV	22.00	150	Horizontal	Pass
6	15893.175	52.07	1.63	74.0	21.93	Peak	82.00	150	Horizontal	Pass
6**	15893.175	41.12	1.63	54.0	12.88	AV	82.00	150	Horizontal	Pass

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

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1065.000	45.10	-15.57	74.0	28.90	Peak	307.00	150	Vertical	Pass
1**	1065.000	29.56	-15.57	54.0	24.44	AV	307.00	150	Vertical	Pass
2	1396.000	48.66	-15.45	74.0	25.34	Peak	248.00	150	Vertical	Pass
2**	1396.000	28.57	-15.45	54.0	25.43	AV	248.00	150	Vertical	Pass
3	4137.000	48.55	-3.41	74.0	25.45	Peak	360.00	150	Vertical	Pass
3**	4137.000	37.25	-3.41	54.0	16.75	AV	360.00	150	Vertical	Pass
4	5821.500	107.67	0.47	--	252.33	Peak	98.00	150	Vertical	N/A
4**	5821.500	99.99	0.47	--	-99.99	AV	98.00	150	Vertical	N/A
5	11131.912	49.62	-1.46	74.0	24.38	Peak	7.00	150	Vertical	Pass
5**	11131.912	38.26	-1.46	54.0	15.74	AV	7.00	150	Vertical	Pass
6	15910.500	51.67	1.05	74.0	22.33	Peak	102.00	150	Vertical	Pass
6**	15910.500	40.53	1.05	54.0	13.47	AV	102.00	150	Vertical	Pass

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

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1156.500	40.49	-15.41	74.0	33.51	Peak	196.00	150	Horizontal	Pass
1**	1156.500	34.17	-15.41	54.0	19.83	AV	196.00	150	Horizontal	Pass
2	1499.250	46.02	-15.36	74.0	27.98	Peak	210.00	150	Horizontal	Pass
2**	1499.250	28.41	-15.36	54.0	25.59	AV	210.00	150	Horizontal	Pass
3	3795.000	48.04	-4.54	74.0	25.96	Peak	264.00	150	Horizontal	Pass
3**	3795.000	36.68	-4.54	54.0	17.32	AV	264.00	150	Horizontal	Pass
4	5741.500	98.54	-0.14	--	261.46	Peak	105.00	150	Horizontal	N/A
4**	5741.500	90.68	-0.14	--	-90.68	AV	105.00	150	Horizontal	N/A
5	11450.637	49.03	-1.18	74.0	24.97	Peak	124.00	150	Horizontal	Pass
5**	11450.637	38.65	-1.18	54.0	15.35	AV	124.00	150	Horizontal	Pass
6	15755.099	51.81	0.74	74.0	22.19	Peak	138.00	150	Horizontal	Pass
6**	15755.099	40.30	0.74	54.0	13.70	AV	138.00	150	Horizontal	Pass

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

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1060.500	44.27	-15.55	74.0	29.73	Peak	27.00	150	Vertical	Pass
1**	1060.500	27.99	-15.55	54.0	26.01	AV	27.00	150	Vertical	Pass
2	1452.250	46.04	-15.34	74.0	27.96	Peak	117.00	150	Vertical	Pass
2**	1452.250	29.21	-15.34	54.0	24.79	AV	117.00	150	Vertical	Pass
3	4054.000	48.26	-3.03	74.0	25.74	Peak	162.00	150	Vertical	Pass
3**	4054.000	37.23	-3.03	54.0	16.77	AV	162.00	150	Vertical	Pass
4	5749.500	104.75	-0.02	--	255.25	Peak	140.00	150	Vertical	N/A
4**	5749.500	96.45	-0.02	--	-96.45	AV	140.00	150	Vertical	N/A
5	11161.600	49.20	-1.21	74.0	24.80	Peak	0.00	150	Vertical	Pass
5**	11161.600	39.20	-1.21	54.0	14.80	AV	0.00	150	Vertical	Pass
6	15558.750	51.15	0.73	74.0	22.85	Peak	5.00	150	Vertical	Pass
6**	15558.750	40.54	0.73	54.0	13.46	AV	5.00	150	Vertical	Pass

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

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1156.250	40.48	-15.41	74.0	33.52	Peak	270.00	150	Horizontal	Pass
1**	1156.250	32.39	-15.41	54.0	21.61	AV	270.00	150	Horizontal	Pass
2	1394.750	43.50	-15.45	74.0	30.50	Peak	296.00	150	Horizontal	Pass
2**	1394.750	27.68	-15.45	54.0	26.32	AV	296.00	150	Horizontal	Pass
3	4225.500	48.75	-3.06	74.0	25.25	Peak	360.00	150	Horizontal	Pass
3**	4225.500	37.96	-3.06	54.0	16.04	AV	360.00	150	Horizontal	Pass
4	5790.000	98.89	0.35	--	261.11	Peak	141.00	150	Horizontal	N/A
4**	5790.000	91.09	0.35	--	-91.09	AV	141.00	150	Horizontal	N/A
5	11989.526	49.54	-0.90	74.0	24.46	Peak	353.00	150	Horizontal	Pass
5**	11989.526	38.27	-0.90	54.0	15.73	AV	353.00	150	Horizontal	Pass
6	15440.888	52.38	1.30	74.0	21.62	Peak	360.00	150	Horizontal	Pass
6**	15440.888	41.84	1.30	54.0	12.16	AV	360.00	150	Horizontal	Pass

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

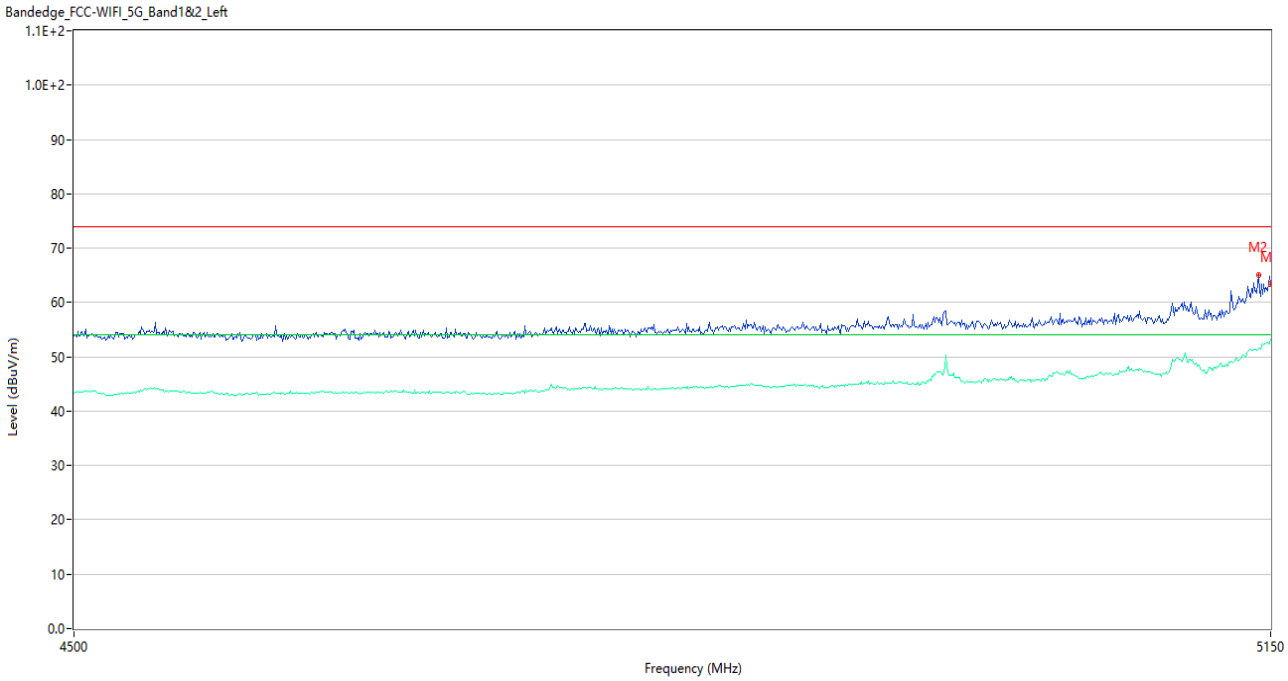
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1065.000	43.98	-15.57	74.0	30.02	Peak	0.00	150	Vertical	Pass
1**	1065.000	28.33	-15.57	54.0	25.67	AV	0.00	150	Vertical	Pass
2	1584.000	44.46	-15.58	74.0	29.54	Peak	187.00	150	Vertical	Pass
2**	1584.000	39.37	-15.58	54.0	14.63	AV	187.00	150	Vertical	Pass
3	4284.000	48.66	-2.86	74.0	25.34	Peak	222.00	150	Vertical	Pass
3**	4284.000	37.88	-2.86	54.0	16.12	AV	222.00	150	Vertical	Pass
4	5789.000	105.04	0.36	--	254.96	Peak	121.00	150	Vertical	N/A
4**	5789.000	96.93	0.36	--	-96.93	AV	121.00	150	Vertical	N/A
5	11435.912	48.90	-1.11	74.0	25.10	Peak	360.00	150	Vertical	Pass
5**	11435.912	38.61	-1.11	54.0	15.39	AV	360.00	150	Vertical	Pass
6	15436.162	52.17	1.47	74.0	21.83	Peak	175.00	150	Vertical	Pass
6**	15436.162	41.02	1.47	54.0	12.98	AV	175.00	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
U-NII-3	802.11a	Low	Pass
		High	Pass
	802.11n(HT20)	Low	Pass
		High	Pass
	802.11n(HT40)	Low	Pass
		High	Pass

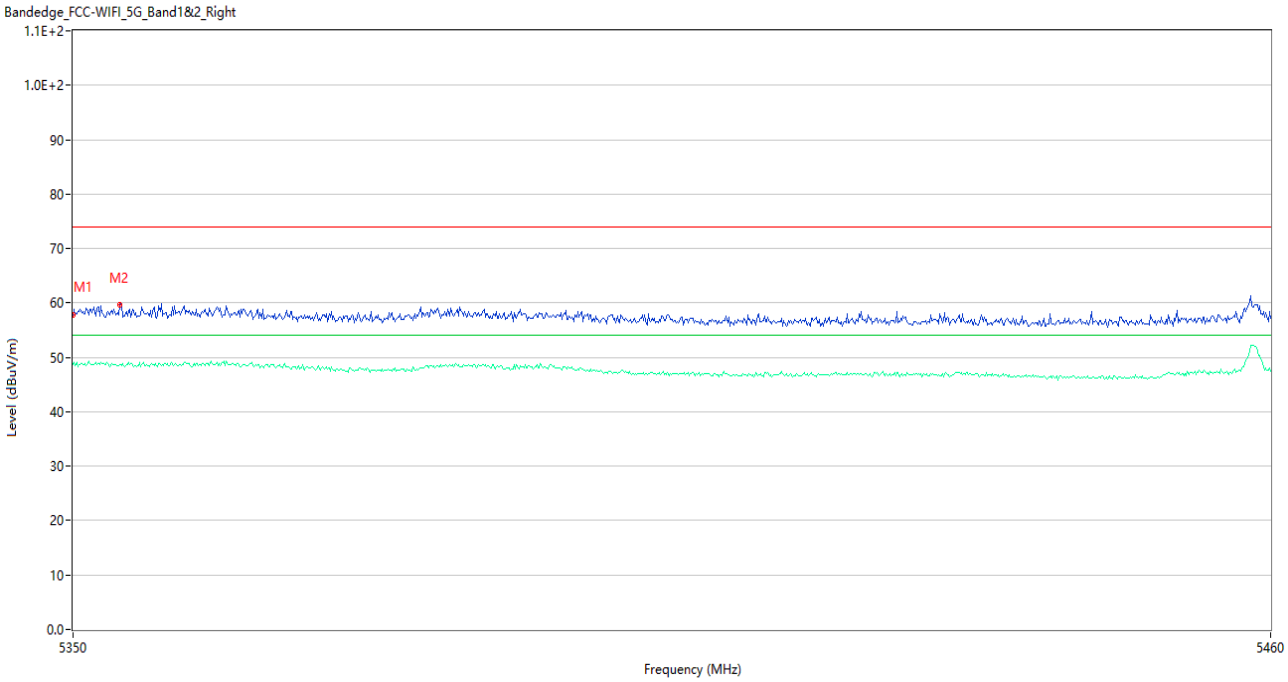
Test Data and Plots

U-NII-1 11a Low Channel



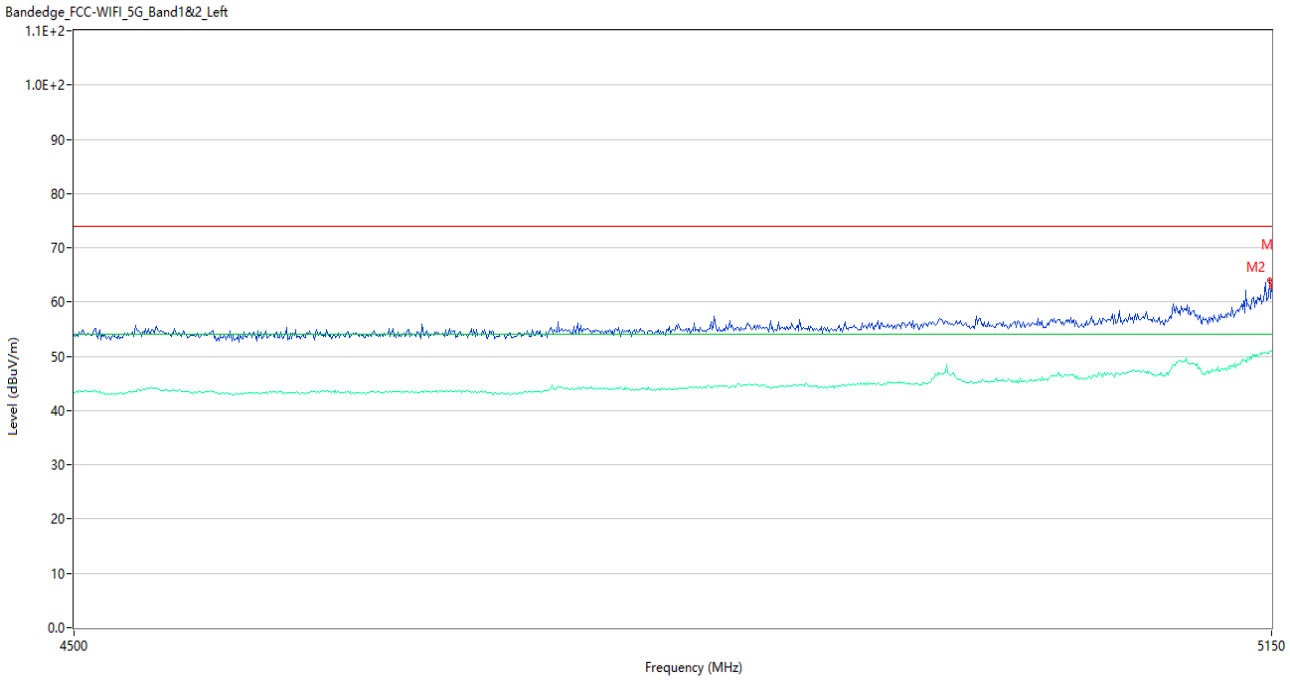
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	5150.000	63.40	5.21	74.0	10.60	Peak	307.99	150	Vertical	Pass
1**	5150.000	53.21	5.21	54.0	0.79	AV	307.99	150	Vertical	Pass
2	5142.850	65.15	5.47	74.0	8.85	Peak	277.00	150	Vertical	Pass
2**	5142.850	51.55	5.47	54.0	2.45	AV	277.00	150	Vertical	Pass

U-NII-1 11a High Channel



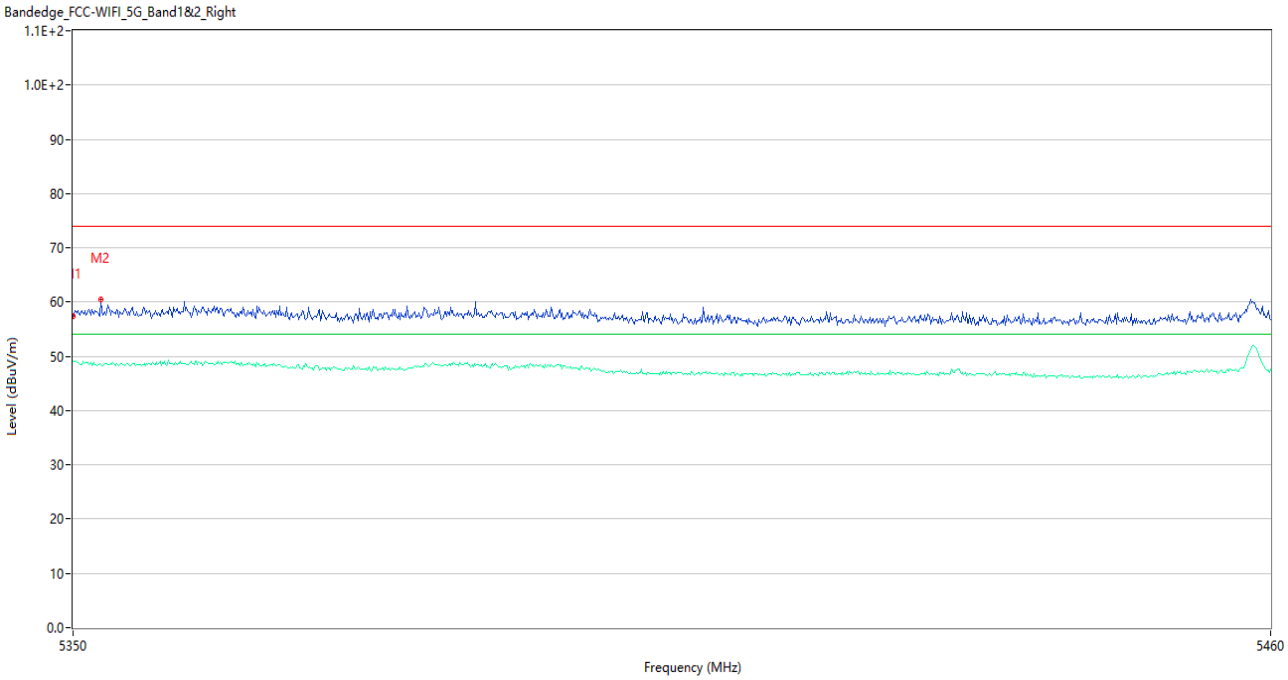
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	5350.000	57.71	5.40	74.0	16.29	Peak	308.00	150	Vertical	Pass
1**	5350.000	48.68	5.40	54.0	5.32	AV	308.00	150	Vertical	Pass
2	5354.290	59.57	5.51	74.0	14.43	Peak	302.00	150	Vertical	Pass
2**	5354.290	48.61	5.51	54.0	5.39	AV	302.00	150	Vertical	Pass

U-NII-1 11n20 Low Channel



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	5150.000	62.95	5.21	74.0	11.05	Peak	290.00	150	Vertical	Pass
1**	5150.000	51.00	5.21	54.0	3.00	AV	290.00	150	Vertical	Pass
2	5148.700	64.03	5.23	74.0	9.97	Peak	317.00	150	Vertical	Pass
2**	5148.700	51.04	5.23	54.0	2.96	AV	317.00	150	Vertical	Pass

U-NII-1 11n20 High Channel

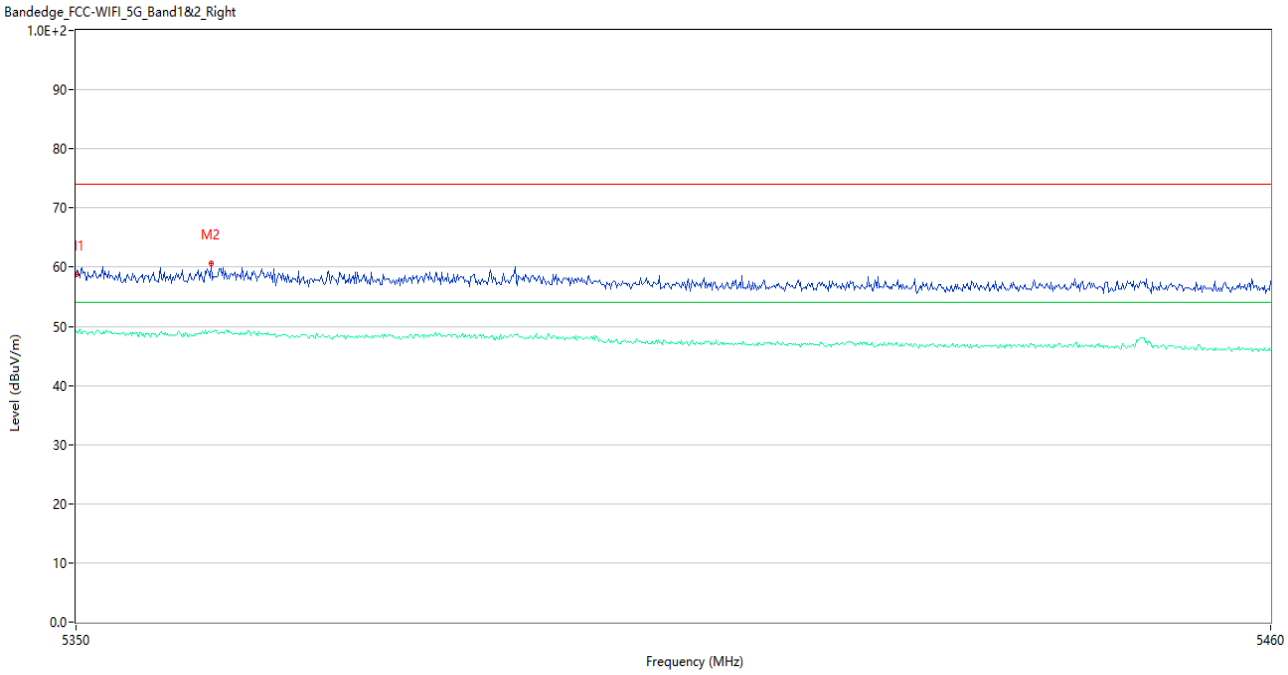


No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	5350.000	56.43	5.40	74.0	17.57	Peak	0.00	150	Vertical	Pass
1**	5350.000	46.13	5.40	54.0	7.87	AV	0.00	150	Vertical	Pass
2	5352.530	60.58	5.47	74.0	13.42	Peak	315.00	150	Vertical	Pass
2**	5352.530	48.55	5.47	54.0	5.45	AV	315.00	150	Vertical	Pass

U-NII-1 11n40 Low Channel

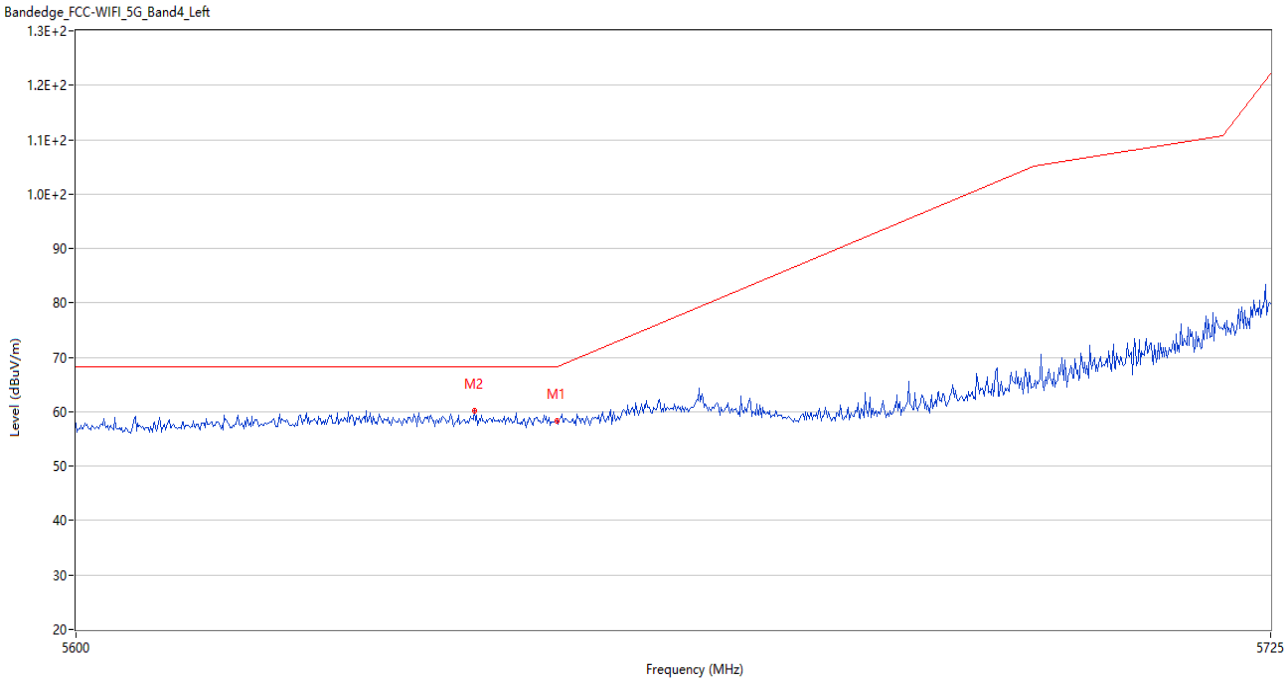
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	5150.000	69.01	5.21	74.0	4.99	Peak	261.01	150	Vertical	Pass
1**	5150.000	53.19	5.21	54.0	0.81	AV	261.01	150	Vertical	Pass
2	5144.150	68.04	5.42	74.0	5.96	Peak	261.00	150	Vertical	Pass
2**	5144.150	51.71	5.42	54.0	2.29	AV	261.00	150	Vertical	Pass

U-NII-1 11n40 High Channel



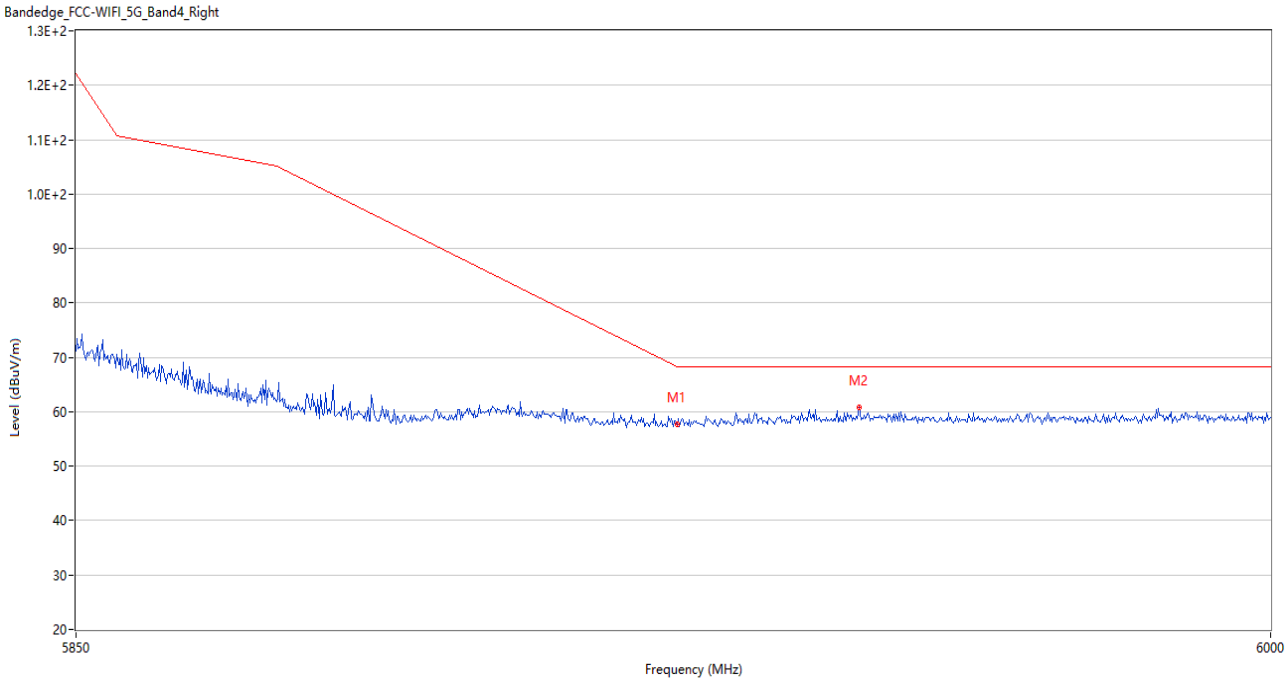
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	5350.000	58.76	5.40	74.0	15.24	Peak	301.00	150	Vertical	Pass
1**	5350.000	49.17	5.40	54.0	4.83	AV	301.00	150	Vertical	Pass
2	5362.320	60.62	5.69	74.0	13.38	Peak	313.00	150	Vertical	Pass
2**	5362.320	48.97	5.69	54.0	5.03	AV	313.00	150	Vertical	Pass

U-NII-3 11a Low Channel



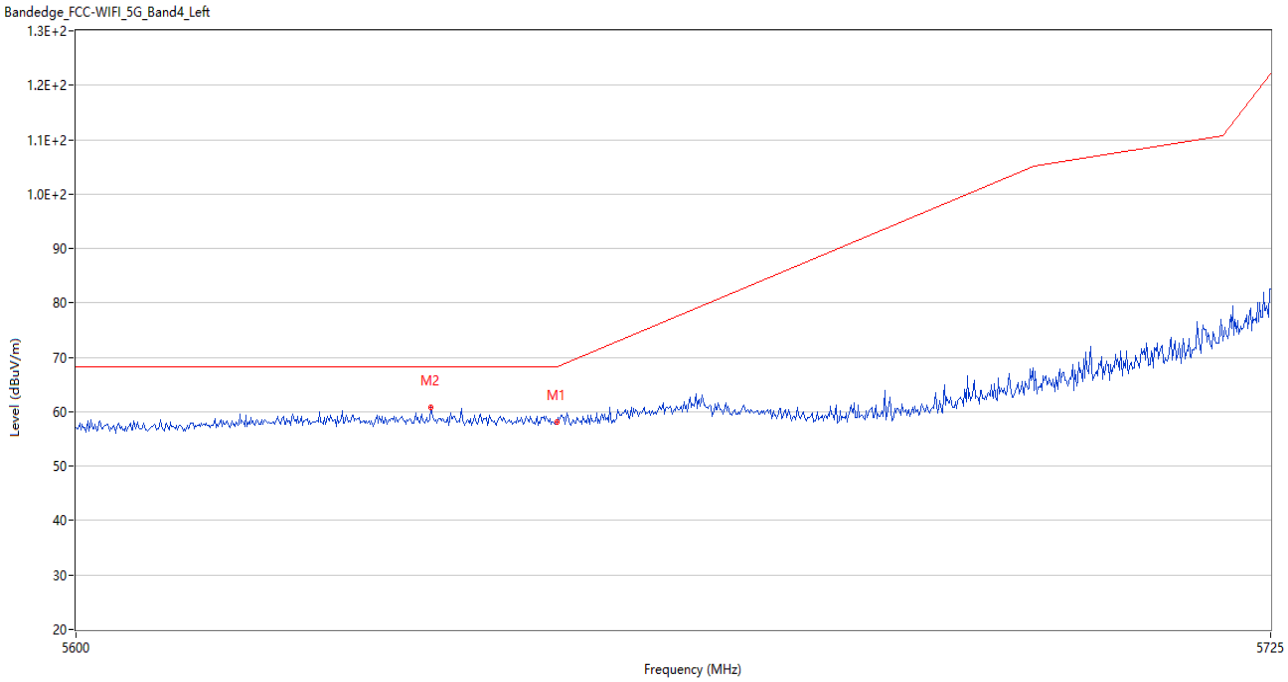
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	5650.000	58.30	5.94	68.2	9.90	Peak	290.98	150	Vertical	Pass
2	5641.375	60.26	5.93	68.2	7.94	Peak	297.00	150	Vertical	Pass

U-NII-3 11a High Channel



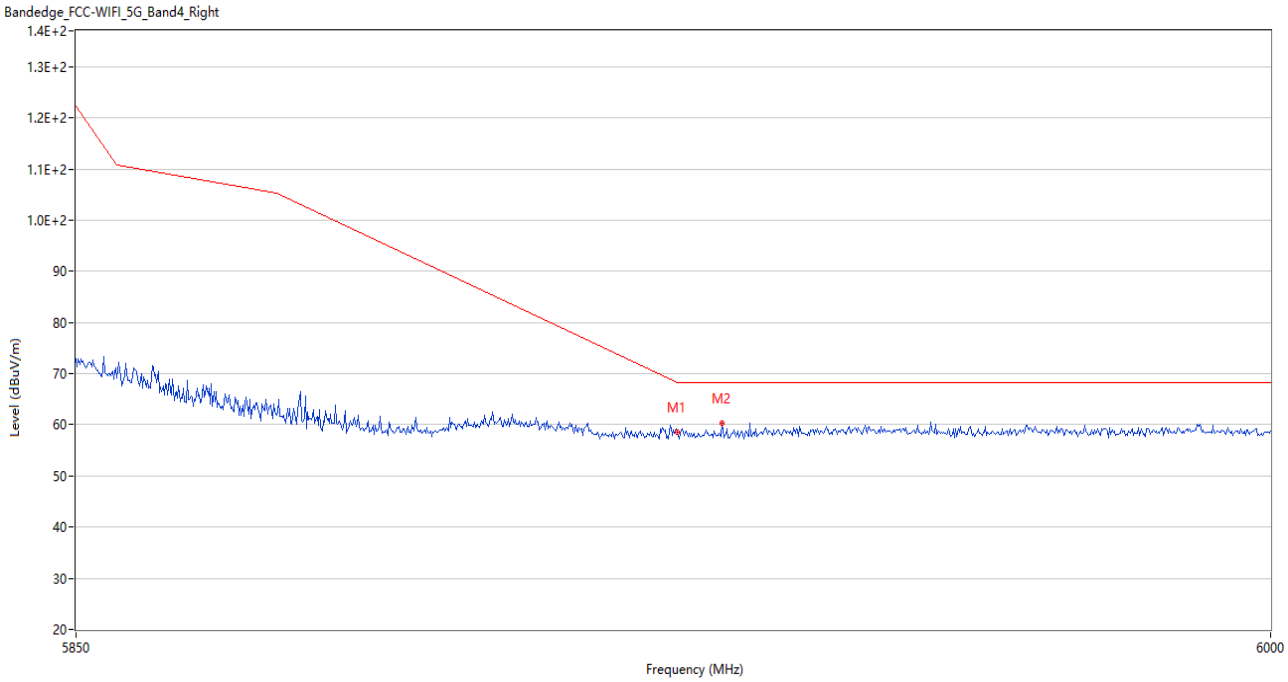
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	5925.000	57.65	7.83	68.2	10.55	Peak	286.64	150	Vertical	Pass
2	5947.950	60.91	7.51	68.2	7.29	Peak	292.00	150	Vertical	Pass

U-NII-3 11n20 Low Channel



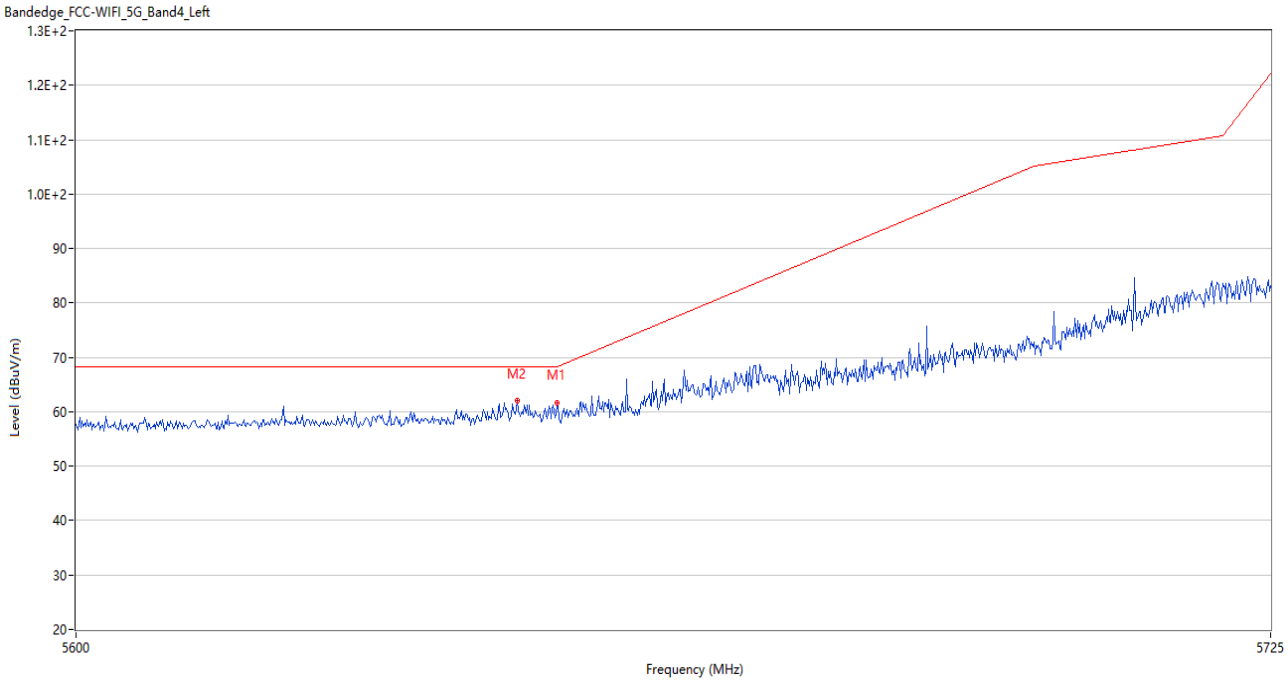
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	5650.000	58.10	5.94	68.2	10.10	Peak	267.03	150	Vertical	Pass
2	5636.875	60.71	5.88	68.2	7.49	Peak	294.00	150	Vertical	Pass

U-NII-3 11n20 High Channel



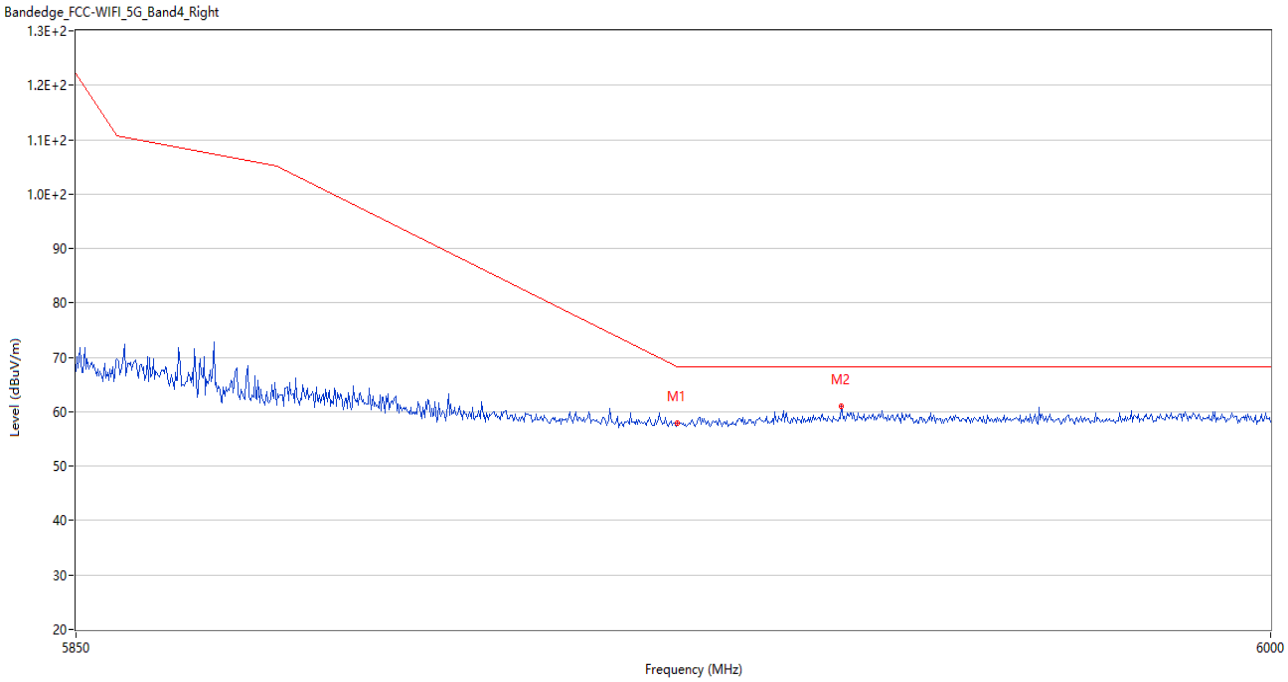
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	5925.000	58.49	7.83	68.2	9.71	Peak	37.96	150	Vertical	Pass
2	5930.700	60.26	7.69	68.2	7.94	Peak	114.00	150	Vertical	Pass

U-NII-3 11n40 Low Channel



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	5650.000	61.72	5.94	68.2	6.48	Peak	292.00	150	Vertical	Pass
2	5645.875	62.13	6.00	68.2	6.07	Peak	296.00	150	Vertical	Pass

U-NII-3 11n40 High Channel



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	5925.000	57.90	7.83	68.2	10.30	Peak	339.58	150	Vertical	Pass
2	5945.700	61.10	7.43	68.2	7.10	Peak	111.00	150	Vertical	Pass

ANNEX B TEST SETUP PHOTOS

Please refer the document “BL-SH2450128-AR.PDF”.

ANNEX C EUT EXTERNAL PHOTOS

Please refer the document “BL-SH2450128-AW.PDF”.

ANNEX D EUT INTERNAL PHOTOS

Please refer the document “BL-SH2450128-AI.PDF”.

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--END OF REPORT--