



RF TEST REPORT

Report No.: 20240117G01085X-W4

Product Name: Cobra-SC250

Model No.: SC 250, SC 250C, SC 250R, SC 220CR

FCC ID: BBOSC250

Applicant: Cobra Electronics Corporation

Address: 1701 Golf Road Suite 3-900, Rolling Meadows, IL 60008, United States.

Dates of Testing: 01/15/2024 - 03/25/2024

Issued by: CCIC Southern Testing Co., Ltd.

Lab Location: Electronic Testing Building, No. 43 Shahe Road, Xili Street, Nanshan District, Shenzhen, Guangdong, China.

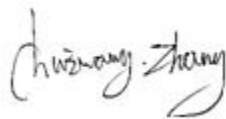
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Test Report

Product.....: Cobra-SC250
Brand Name.....: Cobra
Trade Name: Cobra
Applicant.....: Cobra Electronics Corporation
Applicant Address.....: 1701 Golf Road Suite 3-900, Rolling Meadows, IL 60008,
United States.
Manufacturer.....: Cobra Electronics Corporation
Manufacturer Address.....: 1701 Golf Road Suite 3-900, Rolling Meadows, IL 60008,
United States.
Test Standards.....: 47 CFR Part 15 Subpart E 15.407
ANSI C63.10-2013
Test Result.....: Pass

Tested by:  2024.03.25

Chuiwang Zhang, Test Engineer

Reviewed by.....:  2024.03.25

Chris You, Senior Engineer

Approved by.....:  2024.03.25

Yang Fan, Manager



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Change History		
Issue	Date	Reason for change
1.0	2024.03.25	First edition

1. GENERAL INFORMATION

1.1. EUT Description

Product Name	Cobra-SC250
Model No.	SC 250, SC 250C, SC 250R, SC 220CR
Hardware Version	90100000002820
Software Version	C11-GPS-4K V1.7 20231019
EUT supports Radios application	WLAN5.0GHz 802.11a/n/ac
Product Type	Client devices
Modulation Type	802.11a/n: OFDM (BPSK/QPSK/16QAM/64QAM) 802.11ac: OFDM (BPSK/QPSK/16QAM/64QAM/256QAM)
Transfer Rate	802.11a: 54/48/36/24/18/12/9/6 Mbps 802.11n: up to 150 Mbps 802.11ac: up to 433.333 Mbps
Frequency Range	UNII-1: 5150 ~ 5250MHz UNII-2a: 5250 ~ 5350MHz UNII-2c: 5470 ~ 5725MHz UNII-3: 5725 ~ 5850MHz
Channel Bandwidth	802.11a: 20MHz 802.11n: 20MHz/40MHz 802.11ac: 20MHz/40MHz/80MHz
Channel Number	UNII-1: 4 for 802.11a, 802.11n(HT20), 802.11ac(VHT20) 2 for 802.11n(HT40), 802.11ac(VHT40) 1 for 802.11ac(VHT80) UNII-2a: 4 for 802.11a, 802.11n(HT20), 802.11ac(VHT20) 2 for 802.11n(HT40), 802.11ac(VHT40), 1 for 802.11ac(VHT80) UNII-2c: 11 for 802.11a, 802.11n(HT20), 802.11ac(VHT20) 5 for 802.11n(HT40), 802.11ac(VHT40) 2 for 802.11ac(VHT80) UNII-3: 5 for 802.11a, 802.11n(HT20), 802.11ac(VHT20) 2 for 802.11n(HT40), 802.11ac(VHT40) 1 for 802.11ac(VHT80)
Antenna Type	Internal Antenna
Antenna Gain	2.42dBi
Output Power (Max.)	UNII-1: 14.94dBm UNII-2a: 14.12dBm

	UNII-2c: 13.71dBm UNII-3: 13.77dBm
Test Control Software	SecureCRT
Power supply	DC 5V(USB)

Note 1: The information of antenna gain and cable loss is provided by the manufacturer and our lab is not responsible for the accuracy of the antenna gain and cable loss information.

Note 2: Model: SC 250, SC 250C, SC 250R, SC 220CR have the same PCB board, electromagnetic emissions and electromagnetic compatibility characteristics. The below table show differences:

Model No.	Differences
SC 250	Master
SC 250C	Master +Interior camera
SC 250R	Master + Rear camera
SC 250CR	Master +Interior camera + Rear camera

1.2. Test Standards and Results

The purpose of the report is to conduct testing according to the following FCC/IC certification standards:

No.	Identity	Document Title
1	47 CFR Part 15 Subpart E §15.407	Radio Frequency Devices
2	KDB789033 D02 General UNII Test Procedures New Rules v02r01	Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices Part 15, Subpart E
3	ANSI C63.10-2013	American National Standard for Testing Unlicensed Wireless Devices

Test detailed items/section required by FCC rules and results are as below:

No.	FCC Rule	Description	Result
1	15.203 15.407(a)	Antenna Requirement	PASS
2	15.407(a)(1)(iv) 15.407 (a)(2) 15.407(a)(3)(i)	Maximum Conducted Output Power	PASS
3	15.407(a)(12)	26dB Emission Bandwidth 99% Occupied Bandwidth	PASS
4	15.407(e)	6dB Emission Bandwidth	PASS
5	15.407(a)(1)(iv) 15.407 (a)(2) 15.407(a)(3)(i)	Power spectral density (PSD)	PASS
6	15.207	AC Power Line Conducted Emission	N/A ^{Note 1}
7	15.205 15.209 15.407(b)(1) 15.407(b)(2) 15.407(b)(3) 15.407(b)(4)	Radiated Band Edges and Spurious Emission	PASS
8	15.407(g)	Frequency Stability	PASS

Note 1: Not applicable, the product is only powered by car charger DC.

1.3. Channel List

Operated band in 5150 MHz ~ 5250MHz

4 channels are provided for 802.11a, 802.11n-HT20 and 802.11ac-VHT20.

Channel	Frequency(MHz)	Channel	Frequency(MHz)
36	5180	44	5220
40	5200	48	5240

2 channels are provided for 802.11n-HT40 and 802.11ac-VHT40.

Channel	Frequency(MHz)	Channel	Frequency(MHz)
38	5190	46	5230

1 channels are provided for 802.11ac-VHT80.

Channel	Frequency(MHz)	Channel	Frequency(MHz)
42	5210	/	/

Operated band in 5250 MHz ~ 5350MHz

4 channels are provided for 802.11a, 802.11n-HT20 and 802.11ac-VHT20.

Channel	Frequency(MHz)	Channel	Frequency(MHz)
52	5260	60	5300
56	5280	64	5320

2 channels are provided for 802.11n-HT40 and 802.11ac-VHT40.

Channel	Frequency(MHz)	Channel	Frequency(MHz)
54	5270	62	5310

1 channels are provided for 802.11ac-VHT80.

Channel	Frequency(MHz)	Channel	Frequency(MHz)
58	5290	/	/

Operated band in 5470 MHz ~ 5725MHz

11 channels are provided for 802.11a, 802.11n-HT20 and 802.11ac-VHT20.

Channel	Frequency(MHz)	Channel	Frequency(MHz)	Channel	Frequency(MHz)
100	5500	116	5580	132	5660
104	5520	120	5600	136	5680
108	5540	124	5620	140	5700
112	5560	128	5640	/	/

5 channels are provided for 802.11n-HT40 and 802.11ac-VHT40.

Channel	Frequency(MHz)	Channel	Frequency(MHz)	Channel	Frequency(MHz)
102	5510	118	5590	134	5670
110	5550	126	5630	/	/

2 channels are provided for 802.11ac-VHT80.

Channel	Frequency(MHz)	Channel	Frequency(MHz)	Channel	Frequency(MHz)
106	5530	122	5610	/	/

Operated band in 5725 MHz ~ 5850MHz

5 channels are provided for 802.11a, 802.11n-HT20 and 802.11ac-VHT20.

Channel	Frequency(MHz)	Channel	Frequency(MHz)
149	5745	161	5805
153	5765	165	5825
157	5785		

2 channels are provided for 802.11n-HT40 and 802.11ac-VHT40.

Channel	Frequency(MHz)	Channel	Frequency(MHz)
151	5755	159	5795

1 channel are provided for 802.11ac-VHT80

Channel	Frequency(MHz)	Channel	Frequency(MHz)
155	5775	/	/

1.4. Test environment and mode

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

Operating Environment	
Temperature	15°C - 35°C
Humidity	30% -60%
Atmospheric Pressure	86kPa-106kPa
Test mode:	
Continuously transmitting mode	Keeps the EUT in 100% duty cycle transmitting with modulation in SISO, duty cycle factor is not required.

We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows:

For Frequency band 5150 ~ 5250 MHz				
Test Mode	Frequency(MHz)			Data rate
	LCH	MCH	HCH	
802.11a	5180	5220	5240	6 Mbps
802.11n-HT20/ac-VHT20				MCS 0
802.11n-HT40/ac-VHT40	5190	/	5230	MCS 0
802.11ac-VHT80	5210	/	/	MCS 0
Note: After scanning all modulation types and data rates for all test patterns, the above list was found to be the worst case.				

For Frequency band 5250 ~ 5350 MHz				
Test Mode	Frequency(MHz)			Data rate
	LCH	MCH	HCH	
802.11a	5260	5300	5320	6 Mbps
802.11n-HT20/ac-VHT20				MCS 0
802.11n-HT40/ac-VHT40	5270	/	5310	MCS 0
802.11ac-VHT80	5290	/	/	MCS 0
Note: After scanning all modulation types and data rates for all test patterns, the above list was found to be the worst case.				

For Frequency band 5470 ~ 5725 MHz				
Test Mode	Frequency(MHz)			Data rate
	LCH	MCH	HCH	
802.11a	5500	5580	5700	6 Mbps
802.11n-HT20/ac-VHT20				MCS 0
802.11n-HT40/ac-VHT40	5510	5550	5670	MCS 0
802.11ac-VHT80	5530	/	/	MCS 0
Note: After scanning all modulation types and data rates for all test patterns, the above list was found to be the worst case.				

For Frequency band 5725 ~ 5850 MHz				
Test Mode	Frequency(MHz)			Data rate
	LCH	MCH	HCH	
802.11a	5745	5785	5825	6 Mbps
802.11n-HT20/ac-VHT20				MCS 0
802.11n-HT40/ac-VHT40	5755	/	5795	MCS 0
802.11ac-VHT80	5775	/	/	MCS 0
Note: After scanning all modulation types and data rates for all test patterns, the above list was found to be the worst case.				

1.5. Table for Supporting Units

Support Equipment:

No.	Equipment	Brand Name	Model Name	Manufacturer	Serial No.	Note
1	Laptop	HP	TPN-Q221	HP	5CD14347QB	FCC DOC

Support Cable:

Description	Shield Type	Ferrite Core	Length
DC Power Cable	Un- shielding	/	2m
Data Connection Cable	Un- shielding	/	6m



1.6. Laboratory Facilities

FCC-Registration No.: 406086

CCIC Southern Testing Co., Ltd EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. Designation Number: CN1283, valid time is until Jun. 30th, 2025.

ISED Registration: 11185A

CCIC Southern Testing Co., Ltd. EMC Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 11185A on Aug. 04, 2016, valid time is until Jun. 30th, 2025.

CAB number: CN0064

A2LA Code: 5721.01

CCIC-SET is a third party testing organization accredited by A2LA according to ISO/IEC 17025. The accreditation certificate number is 5721.01.

2. Test Requirements

2.1. Antenna requirement

2.1.1. Applicable Standard

According to FCC 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

According to FCC 15.407(a)(1): For client devices in the 5.15-5.25 GHz band, If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

According to FCC 15.407(a)(2): For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

According to FCC 15.407(a)(3): For the band 5.725-5.850 GHz, If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

2.1.2. Antenna Information

Antenna Category: Internal Antenna

A internal Antenna was soldered to the antenna port of EUT via an adaptor cable, can't be removed.

Antenna General Information:

No.	EUT	Operating frequency range	Ant. Type	Ant. Gain
1	Cobra-SC250	UNII-1, UNII-2a, UNII-2c, UNII-3	Internal	2.42dBi

2.1.3. Result: comply

The EUT has a permanently and irreplaceable attached antenna. Please refer to the EUT internal photos.

2.2. Maximum Conducted Output Power

2.2.1. Limit of Maximum Conducted Output Power

FCC Part 15.407(a):

The maximum conducted output power should not exceed:

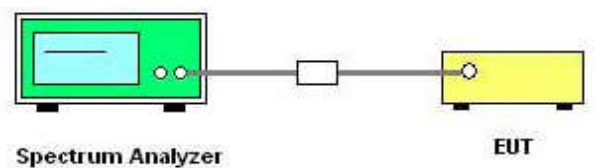
Band	EUT Category	Limit
U-NII-1	☐ Outdoor Access Point	1 Watt (30 dBm) (Max. e.i.r.p $\leq$ 125mW(21dBm) at any elevation angle above 30 degrees as measured from the horizon)
	☐ Fixed point-to-point Access device	1 Watt (30 dBm)
	☐ Indoor Access Point	1 Watt (30 dBm)
	☒ Mobile and portable client device	250mW (24 dBm)
U-NII-2A	☒	250mW (24 dBm) or 11dBm+10logB* Whichever is less.
U-NII-2C	☒	250mW (24 dBm) or 11dBm+10logB* Whichever is less.
U-NII-3	☒	1 Watt (30 dBm)

Note: B* is the 26 dB emission bandwidth in MHz.

2.2.2. Measuring Instruments

The measuring equipment is listed in the section 3 of this test report.

2.2.3. Test Setup



2.2.4. Test Procedures

1. The testing follows the of KDB 789033 D02 v02r01 Section II.E.2.b and ANSI C63.10-2013 Section 12.3.2.2.
2. The RF output of EUT was connected to spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Power is calculated by integrating over the spectrum of the entire 99% OBW signal using the instrument's band power measurement feature.
4. Set span to encompass the entire 99% OBW of the signal.
5. Set RBW = 1MHz, VBW $\geq$ 3MHz, Sweep time = Auto, Detector = power averaging (RMS).

6. Number of points in sweep $\geq 2 \times \text{span} / \text{RBW}$.
7. Trace average at least 100 traces in power averaging (rms) mode.
8. Replace the EUT center frequency and repeat steps 3~7.

2.2.5. Test Results of Maximum Conducted Output Power

Please refer to APPENDIX A for detail.

2.3. Power spectral density (PSD)

2.3.1. Limit of Power Spectral Density

FCC Part 15.407(a)

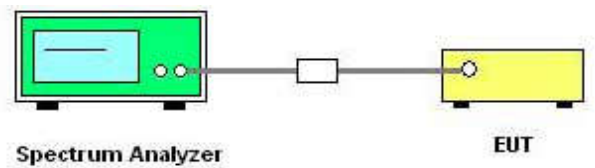
The maximum power spectral density should not exceed:

Band	EUT Category	Limit
U-NII-1	☐ Outdoor Access Point	17 dBm/MHz
	☐ Fixed point-to-point Access device	
	☐ Indoor Access Point	
	☒ Mobile and portable client device	11 dBm/MHz
U-NII-2A	☒	11 dBm/MHz
U-NII-2C	☒	11 dBm/MHz
U-NII-3	☒	30dBm/500kHz

2.3.2. Measuring Instruments

The measuring equipment is listed in the section 3 of this test report.

2.3.3. Test Setup



2.3.4. Test Procedures

1. The testing follows the of KDB 789033 D02 v02r01 Section II.F and ANSI C63.10-2013 Section 12.5.
2. The RF output of EUT was connected to spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set span to encompass the entire 99% OBW of the signal.
4. For U-NII-1, U-NII-2a, U-NII-2c Band: Set RBW = 1MHz, VBW $\geq$ 3MHz, Sweep time = Auto, Detector = power averaging (RMS).
5. For U-NII-3 Band: Set RBW = 500kHz, VBW $\geq$ 3MHz, Sweep time = Auto, Detector = power averaging (RMS).
6. Number of points in sweep $\geq 2 \times \text{span} / \text{RBW}$.
7. Trace average at least 100 traces in power averaging (rms) mode.
8. Use the peak search function on the instrument to find the peak of the spectrum.



9. Replace the EUT center frequency and repeat steps 3~8.

2.3.5. Test Result of Power Spectral Density

Please refer to APPENDIX A for detail.

2.4. 26dB Emission Bandwidth and 99% Occupied Bandwidth

2.4.1. Limit of 26dB Emission Bandwidth and 99% Occupied Bandwidth

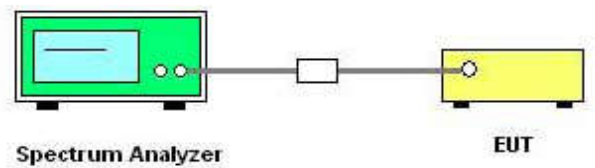
26dB Emission Bandwidth and 99% Occupied Bandwidth no Bandwidth limit.

The minimum 6dB bandwidth of U-NII-3 shall be at least 500 kHz.

2.4.2. Measuring Instruments

The measuring equipment is listed in the section 3 of this test report.

2.4.3. Test Description



2.4.4. Test Procedures

1. The testing follows the of KDB 789033 D02 v02r01 Section II.C.D and ANSI C63.10-2013 Section 12.4.
2. The RF output of EUT was connected to spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Use the spectrum analyzer “Channel Bandwidth” function to easurement the 26dB EBW, 6dB EBW and 99% OBW.
4. Set center frequency to the nominal EUT channel center frequency.
5. Set span = 1.5 times to 5.0 times the OBW or EBW.
6. For 26dB EBW and 99% OBW Measurement:
Set RBW = approximately 1% EBW or 1.5 times to 5.0 times the OBW, VBW $\geq 3 \times$ RBW.
7. For 6dB EBW Measurement:
Set RBW =100kHz, VBW $\geq 3 \times$ RBW.
8. Set Detector = Peak, Trace mode = max hold and Sweep time = auto couple.
9. Allow the trace to stabilize.
10. Replace the EUT center frequency and repeat steps 3~9.



2.4.5. Test Results of 26dB Emission Bandwidth and 99% Occupied Bandwidth

Please refer to APPENDIX A for detail.

2.5. Frequency Stability

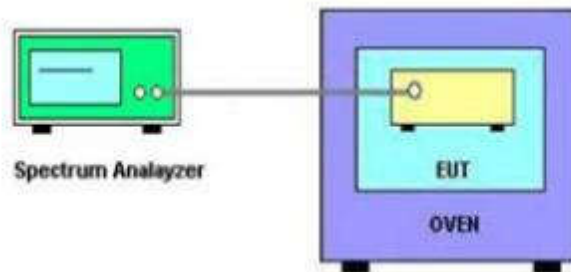
2.5.1. Limit of Frequency Stability

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the users manual.

2.5.2. Measuring Instruments

The measuring equipment is listed in the section 3 of this test report.

2.5.3. Test Setup



2.5.4. Test Procedures

1. The testing follows the of KDB 789033 D02 v02r01 Section II.A.3 and ANSI C63.10-2013 Section 6.8.
2. The EUT is installed in an environment test chamber with external power source, was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Set the chamber to operate at 50°C and external power source to output at nominal voltage of EUT.
5. A sufficient stabilization period at each temperatures in used prior to each frequency measurement.
6. The test shall be performed under -30°C to 50°C and 85% to 115% of the nominal voltage. Change setting of chamber and external power source to complete all conditions.
7. Replace the EUT center frequency and repeat steps 3~6.



2.5.5. Test Result of Frequency Stability

Please refer to APPENDIX A for detail.

2.6. Radiated Band Edge and Spurious Emission

2.6.1. Limit of Radiated Band Edges and Spurious Emission

Radiated emission which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20dB below the highest level of the desired power:

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 lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level ($\mu\text{V/m}$).
3. For frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

Limits of unwanted emission out of the restricted bands

FCC Part 15.407(b)			
Frequency Band (MHz)	Frequency (MHz)	EIRP Limit (dBm)	Equivalent Field Strength @3m (dB $\mu\text{V/m}$)
5150 - 5250	Outside of the 5.15~5.35 GHz	-27	68.2
5725 - 5850	< 5650	-27	68.2
	5650~5700	-27~10	68.2~105.2
	5700~5720	10~15.6	105.2~110.8
	5720~5725	15.6~27	110.8~122.2
	5850~5855	27~15.6	122.2~110.8
	5855~5875	15.6~10	110.8~105.2
	5875~5925	10~-27	105.2~68.2
	> 5925	-27	68.2

Note:

- 1) $\text{EIRP}[\text{dBm}] = \text{E}[\text{dB}\mu\text{V/m}] + 20 \log (d[\text{m}]) - 104.77$, d is the measurement distance in m.
- 2) $\text{E}[\text{dB}\mu\text{V/m}] = \text{EIRP}[\text{dBm}] + 95.2 = 68.2 \text{ dB}\mu\text{V/m}$, for $\text{EIRP}[\text{dBm}] = -27\text{dBm}$.
 $\text{E}[\text{dB}\mu\text{V/m}] = \text{EIRP}[\text{dBm}] + 95.2 = 105.2 \text{ dB}\mu\text{V/m}$, for $\text{EIRP}[\text{dBm}] = 10\text{dBm}$.
 $\text{E}[\text{dB}\mu\text{V/m}] = \text{EIRP}[\text{dBm}] + 95.2 = 110.8 \text{ dB}\mu\text{V/m}$, for $\text{EIRP}[\text{dBm}] = 15.6\text{dBm}$.
 $\text{E}[\text{dB}\mu\text{V/m}] = \text{EIRP}[\text{dBm}] + 95.2 = 122.2 \text{ dB}\mu\text{V/m}$, for $\text{EIRP}[\text{dBm}] = 27\text{dBm}$.

Applicable To	Limit	
KDB 789033 D02 General UNII Test Procedures New Rules v02r01	Field Strength at 3m	
	PK: 68.2(dB μ V/m)	AV: 54 (dB μ V/m)

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

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
10.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	(²)
13.36-13.41	/	/	/

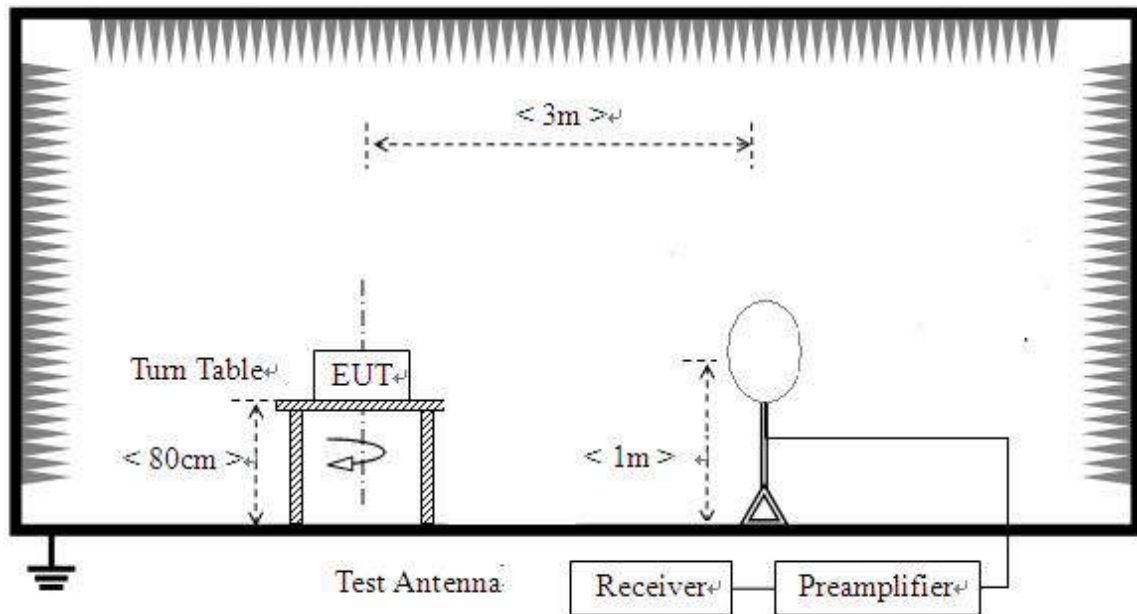
Note: ¹Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.
²Above 38.6.

2.6.2. Measuring Instruments

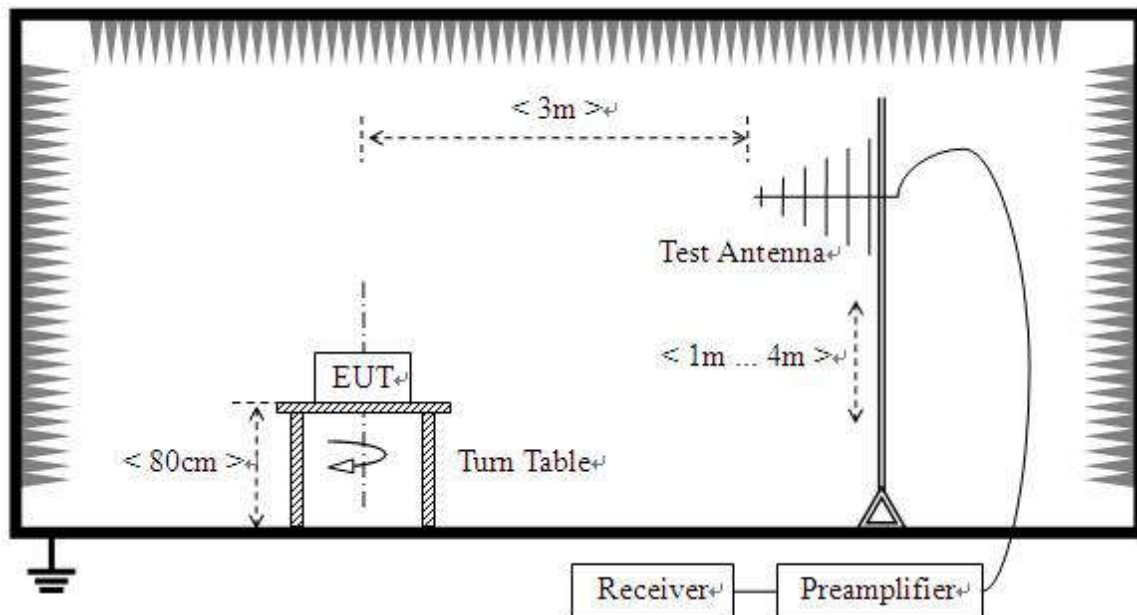
The measuring equipment is listed in the section 3 of this test report.

2.6.3. Test Setup

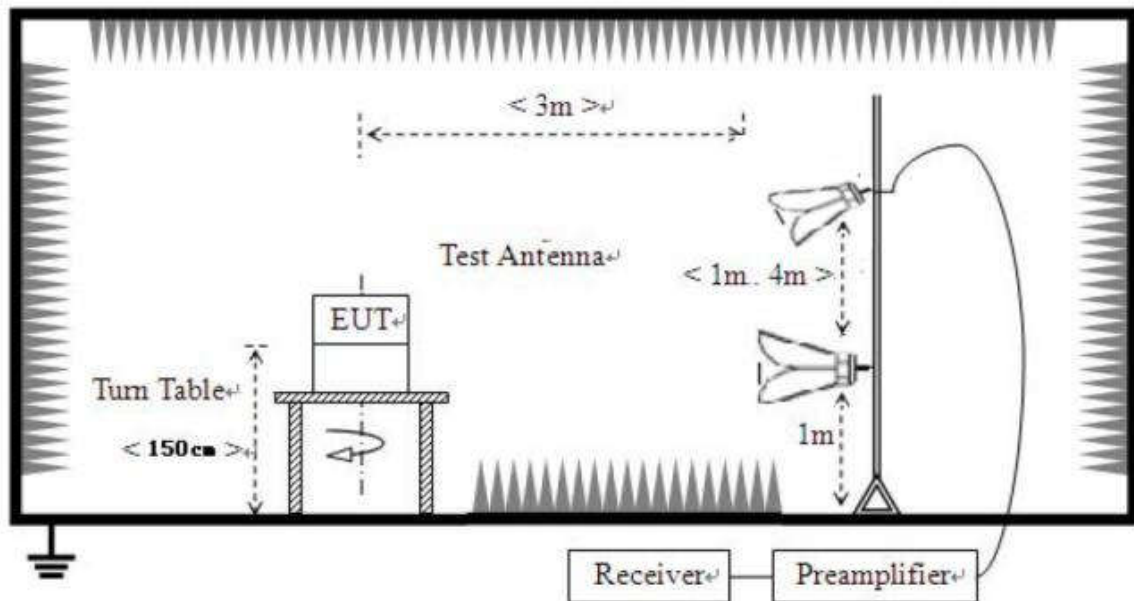
For radiated emissions from 9 kHz to 30 MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



2.6.4. Test Procedures

1. The EUT was placed on the top of a rotating table 0.8 meters (for below 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
3. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
6. The test-receiver system was set to peak and average detects function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for

Quasi-peak detection (QP) at frequency below 1 GHz.

2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for RMS Average (Duty cycle < 98%) for Average detection (AV) at frequency above 1GHz, then the measurement results was added to a correction factor ($10 \log(1/\text{duty cycle})$).
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1GHz.
5. Only worst-Case mode data provide here, 802.11a (20MHz) 5180MHz for Below 1GHz.

2.6.5. Test Result of Radiated Band Edge and Spurious Emission

For 9 kHz to 30MHz, The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

For 30MHz to 1GHz, All of the EUT Configure mode were tested and found 802.11a_5180MHz channel is the worst mode, the worst case is recorded in this report.

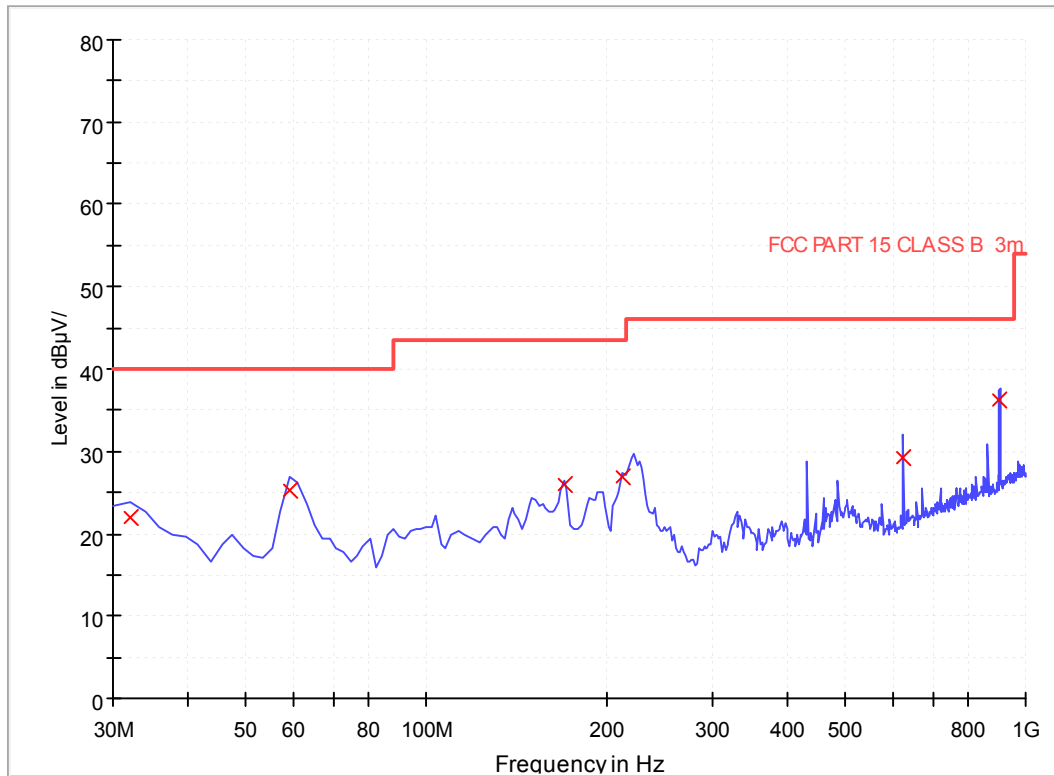
For 1GHz to 18GHz, Only worst-case data is reported.

For above 18GHz, The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

For 30MHz to 1000 MHz

Test site:	3M anechoic chamber	Environment:	Temp: 23℃; Humi:48%;101kPa
Operator:	Deng ShanFei	Test Date:	2024.02.21
Test Mode:	5G WIFI - TX	Test Result:	Pass

EMI Sweep-3M(30-1G)



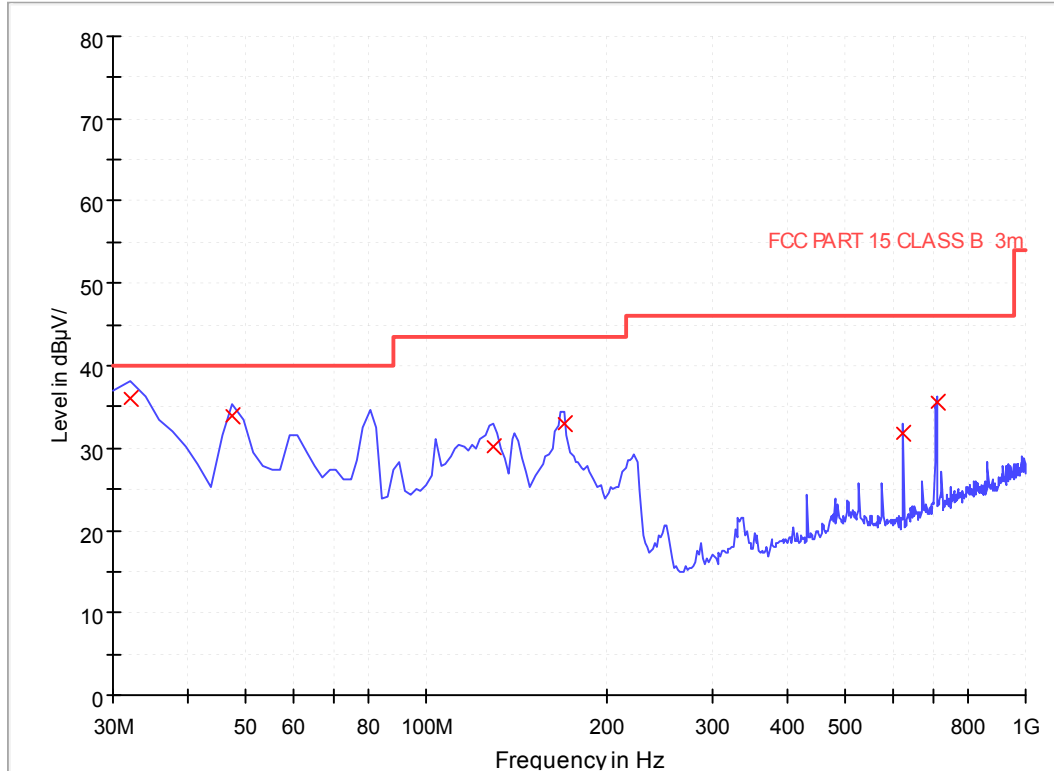
Frequency (MHz)	QuasiPeak (dBμV/m)	Bandwidth (kHz)	Height (cm)	Polarity	Corr. (dB/m)	Margin - QPK	Limit - QPK
31.960000	22.05	120.000	100.0	H	20.1	17.95	40.0
59.160000	25.38	120.000	100.0	H	7.4	14.62	40.0
169.960000	25.85	120.000	100.0	H	12.6	17.65	43.5
212.720000	26.85	120.000	100.0	H	11.6	16.65	43.5
624.840000	29.32	120.000	100.0	H	20.8	16.68	46.0
904.760000	36.33	120.000	100.0	H	24.4	9.67	46.0

Remark:

- Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m).
- Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB).
- Margin value = Limit value - Emission Level.
- The emission levels of other frequencies are very lower than the limit and not show in test report.
- Only the antenna height (from 1m to 4m) at maximum reading are recorded.

Test site:	3M anechoic chamber	Environment:	Temp: 23℃; Humi:48%;101kPa
Operator:	Deng ShanFei	Test Date:	2024.02.21
Test Mode:	5G WIFI - TX	Test Result:	Pass

EMI Sweep-3M(30-1G)



Frequency (MHz)	QuasiPeak (dBμV/m)	Bandwidth (kHz)	Height (cm)	Polarity	Corr. (dB/m)	Margin - QPK	Limit - QPK
31.960000	36.08	120.000	100.0	V	20.1	3.92	40.0
47.480000	34.02	120.000	100.0	V	11.7	5.98	40.0
129.120000	30.13	120.000	100.0	V	13.6	13.37	43.5
169.960000	33.05	120.000	100.0	V	12.6	10.45	43.5
624.840000	31.77	120.000	100.0	V	20.8	14.23	46.0
710.360000	35.47	120.000	100.0	V	22.5	10.53	46.0

Remark:

- Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m).
- Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB).
- Margin value = Limit value - Emission Level.
- The emission levels of other frequencies are very lower than the limit and not show in test report.
- Only the antenna height (from 1m to 4m) at maximum reading are recorded.

For 1GHz to 40 GHz

U-NII-1_802.11a_5180MHz									
Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV/m)	Correction Factor (dB/m)	Polarity	Detector
5150.00	54.68	68.20	-13.52	1.50	120	54.24	0.44	Horizontal	Peak
5150.00	44.01	54.00	-9.99	1.50	120	43.57	0.44	Horizontal	Average
10360.00	52.54	68.20	-15.66	1.50	120	42.08	10.46	Horizontal	Peak
10360.00	43.57	54.00	-10.43	1.50	120	33.11	10.46	Horizontal	Average
5150.00	55.42	68.20	-12.78	1.50	280	54.98	0.44	Vertical	Peak
5150.00	44.06	54.00	-9.94	1.50	280	43.62	0.44	Vertical	Average
10360.00	53.20	68.20	-15.00	1.50	280	42.74	10.46	Vertical	Peak
10360.00	43.55	54.00	-10.45	1.50	280	33.09	10.46	Vertical	Average
U-NII-1_802.11a_5220MHz									
Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV/m)	Correction Factor (dB/m)	Polarity	Detector
10440.00	52.86	68.20	-15.34	1.60	200	42.06	10.80	Horizontal	Peak
10440.00	44.02	54.00	-9.98	1.60	200	33.22	10.80	Horizontal	Average
10440.00	53.62	68.20	-14.58	1.70	180	42.82	10.80	Vertical	Peak
10440.00	43.80	54.00	-10.20	1.70	180	33.00	10.80	Vertical	Average
U-NII-1_802.11a_5240MHz									
Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV/m)	Correction Factor (dB/m)	Polarity	Detector
5350.00	47.56	68.20	-20.64	1.50	120	47.31	0.25	Horizontal	Peak
5350.00	37.74	54.00	-16.26	1.50	120	37.49	0.25	Horizontal	Average
10480.00	52.54	68.20	-15.66	1.50	120	41.54	11.00	Horizontal	Peak
10480.00	43.57	54.00	-10.43	1.50	120	32.57	11.00	Horizontal	Average
5350.00	47.25	68.20	-20.95	1.50	280	47.00	0.25	Vertical	Peak
5350.00	37.73	54.00	-16.27	1.50	280	37.48	0.25	Vertical	Average
10480.00	53.35	68.20	-14.85	1.50	280	42.35	11.00	Vertical	Peak
10480.00	43.77	54.00	-10.23	1.50	280	32.77	11.00	Vertical	Average
Remark: 1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m) 2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) - Pre-Amplifier Factor(dB) 3. Margin value = Emission Level – Limit value 4. The emission levels of other frequencies are very lower than the limit and not show in test report. 5. Only the antenna height (from 1m to 4m) and turntable angle (from 0 degrees to 360 degrees) at maximum reading are recorded.									

**U-NII-1_802.11n-HT40_5190MHz**

Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV/m)	Correction Factor (dB/m)	Polarity	Detector
5150.00	54.13	68.20	-14.07	1.50	120	53.69	0.44	Horizontal	Peak
5150.00	43.84	54.00	-10.16	1.50	120	43.40	0.44	Horizontal	Average
10380.00	52.62	68.20	-15.58	1.50	120	42.09	10.53	Horizontal	Peak
10380.00	42.64	54.00	-11.36	1.50	120	32.11	10.53	Horizontal	Average
5150.00	55.78	68.20	-12.42	1.50	280	55.34	0.44	Vertical	Peak
5150.00	43.04	54.00	-10.96	1.50	280	42.60	0.44	Vertical	Average
10380.00	53.55	68.20	-14.65	1.50	280	43.02	10.53	Vertical	Peak
10380.00	43.88	54.00	-10.12	1.50	280	33.35	10.53	Vertical	Average

U-NII-1_802.11n-HT40_5230MHz

Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV/m)	Correction Factor (dB/m)	Polarity	Detector
5350.00	48.05	68.20	-20.15	1.50	120	47.80	0.25	Horizontal	Peak
5350.00	37.11	54.00	-16.89	1.50	120	36.86	0.25	Horizontal	Average
10460.00	52.66	68.20	-15.54	1.50	120	41.75	10.91	Horizontal	Peak
10460.00	42.56	54.00	-11.44	1.50	120	31.65	10.91	Horizontal	Average
5350.00	47.12	68.20	-21.08	1.50	280	46.87	0.25	Vertical	Peak
5350.00	37.19	54.00	-16.81	1.50	280	36.94	0.25	Vertical	Average
10460.00	52.69	68.20	-15.51	1.50	280	41.78	10.91	Vertical	Peak
10460.00	44.82	54.00	-9.18	1.50	280	33.91	10.91	Vertical	Average

Remark:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) - Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The emission levels of other frequencies are very lower than the limit and not show in test report.
5. Only the antenna height (from 1m to 4m) and turntable angle (from 0 degrees to 360 degrees) at maximum reading are recorded.

**U-NII-1_802.11ac-VHT80_5210MHz**

Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV/m)	Correction Factor (dB/m)	Polarity	Detector
5150.00	53.88	68.20	-14.32	1.50	120	53.44	0.44	Horizontal	Peak
5150.00	43.96	54.00	-10.04	1.50	120	43.52	0.44	Horizontal	Average
5350.00	47.93	68.20	-20.27	1.50	120	47.68	0.25	Horizontal	Peak
5350.00	37.35	54.00	-16.65	1.50	120	37.10	0.25	Horizontal	Average
10420.00	52.71	68.20	-15.49	1.50	120	42.00	10.71	Horizontal	Peak
10420.00	43.14	54.00	-10.86	1.50	120	32.43	10.71	Horizontal	Average
5150.00	55.29	68.20	-12.91	1.50	280	54.85	0.44	Vertical	Peak
5150.00	43.53	54.00	-10.47	1.50	280	43.09	0.44	Vertical	Average
5350.00	47.39	68.20	-20.81	1.50	280	47.14	0.25	Vertical	Peak
5350.00	37.43	54.00	-16.57	1.50	280	37.18	0.25	Vertical	Average
10420.00	52.52	68.20	-15.68	1.50	280	41.81	10.71	Vertical	Peak
10420.00	43.86	54.00	-10.14	1.50	280	33.15	10.71	Vertical	Average

Remark:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) - Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The emission levels of other frequencies are very lower than the limit and not show in test report.
5. Only the antenna height (from 1m to 4m) and turntable angle (from 0 degrees to 360 degrees) at maximum reading are recorded.



U-NII-2A_802.11a_5260MHz									
Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV/m)	Correction Factor (dB/m)	Polarity	Detector
5150.00	55.55	68.20	-12.65	1.50	120	55.11	0.44	Horizontal	Peak
5150.00	45.24	54.00	-8.76	1.50	120	44.80	0.44	Horizontal	Average
10520.00	52.85	68.20	-15.35	1.50	120	41.67	11.18	Horizontal	Peak
10520.00	43.63	54.00	-10.37	1.50	120	32.45	11.18	Horizontal	Average
5150.00	56.13	68.20	-12.07	1.50	280	55.69	0.44	Vertical	Peak
5150.00	44.28	54.00	-9.72	1.50	280	43.84	0.44	Vertical	Average
10520.00	52.61	68.20	-15.59	1.50	280	41.43	11.18	Vertical	Peak
10520.00	43.46	54.00	-10.54	1.50	280	32.28	11.18	Vertical	Average
U-NII-2A_802.11a_5300MHz									
Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV/m)	Correction Factor (dB/m)	Polarity	Detector
10600.00	53.55	68.20	-14.65	1.50	120	42.03	11.52	Horizontal	Peak
10600.00	44.32	54.00	-9.68	1.50	120	32.80	11.52	Horizontal	Average
10600.00	52.88	68.20	-15.32	1.50	280	41.36	11.52	Vertical	Peak
10600.00	44.02	54.00	-9.98	1.50	280	32.50	11.52	Vertical	Average
U-NII-2A_802.11a_5320MHz									
Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV/m)	Correction Factor (dB/m)	Polarity	Detector
5350.00	47.67	68.20	-20.53	1.50	120	47.42	0.25	Horizontal	Peak
5350.00	37.87	54.00	-16.13	1.50	120	37.62	0.25	Horizontal	Average
10640.00	52.15	68.20	-16.05	1.50	120	40.83	11.32	Horizontal	Peak
10640.00	43.43	54.00	-10.57	1.50	120	32.11	11.32	Horizontal	Average
5350.00	47.81	68.20	-20.39	1.50	280	47.56	0.25	Vertical	Peak
5350.00	38.46	54.00	-15.54	1.50	280	38.21	0.25	Vertical	Average
10640.00	53.03	68.20	-15.17	1.50	280	41.71	11.32	Vertical	Peak
10640.00	43.61	54.00	-10.39	1.50	280	32.29	11.32	Vertical	Average
Remark: 1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m) 2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) - Pre-Amplifier Factor(dB) 3. Margin value = Emission Level – Limit value 4. The emission levels of other frequencies are very lower than the limit and not show in test report. 5. Only the antenna height (from 1m to 4m) and turntable angle (from 0 degrees to 360 degrees) at maximum reading are recorded.									

U-NII-2A_802.11n-HT40_5270MHz

Frequency (MHz)	Emssion Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV/m)	Correction Factor (dB/m)	Polarity	Detector
5150.00	55.25	68.20	-12.95	1.50	120	54.81	0.44	Horizontal	Peak
5150.00	44.79	54.00	-9.21	1.50	120	44.35	0.44	Horizontal	Average
10540.00	53.20	68.20	-15.00	1.50	120	41.94	11.26	Horizontal	Peak
10540.00	43.38	54.00	-10.62	1.50	120	32.12	11.26	Horizontal	Average
5150.00	56.45	68.20	-11.75	1.50	280	56.01	0.44	Vertical	Peak
5150.00	43.94	54.00	-10.06	1.50	280	43.50	0.44	Vertical	Average
10540.00	52.61	68.20	-15.59	1.50	280	41.35	11.26	Vertical	Peak
10540.00	43.67	54.00	-10.33	1.50	280	32.41	11.26	Vertical	Average

U-NII-2A_802.11n-HT40_5310MHz

Frequency (MHz)	Emssion Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV/m)	Correction Factor (dB/m)	Polarity	Detector
5350.00	47.85	68.20	-20.35	1.50	120	47.60	0.25	Horizontal	Peak
5350.00	37.48	54.00	-16.52	1.50	120	37.23	0.25	Horizontal	Average
10620.00	52.60	68.20	-15.60	1.50	120	41.19	11.41	Horizontal	Peak
10620.00	43.87	54.00	-10.13	1.50	120	32.46	11.41	Horizontal	Average
5350.00	48.13	68.20	-20.07	1.50	280	47.88	0.25	Vertical	Peak
5350.00	37.99	54.00	-16.01	1.50	280	37.74	0.25	Vertical	Average
10620.00	53.14	68.20	-15.06	1.50	280	41.73	11.41	Vertical	Peak
10620.00	43.26	54.00	-10.74	1.50	280	31.85	11.41	Vertical	Average

Remark:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) - Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The emission levels of other frequencies are very lower than the limit and not show in test report.
5. Tnly the antenna height (from 1m to 4m) and turntable angle (from 0 degrees to 360 degrees) at maximum reading are recorded.

**U-NII-2A_802.11ac-VHT80_5290MHz**

Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV/m)	Correction Factor (dB/m)	Polarity	Detector
5150.00	54.54	68.20	-13.66	1.50	120	54.10	0.44	Horizontal	Peak
5150.00	44.61	54.00	-9.39	1.50	120	44.17	0.44	Horizontal	Average
5350.00	47.43	68.20	-20.77	1.50	120	47.18	0.25	Horizontal	Peak
5350.00	38.30	54.00	-15.70	1.50	120	38.05	0.25	Horizontal	Average
10580.00	51.91	68.20	-16.29	1.50	120	40.47	11.44	Horizontal	Peak
10580.00	43.38	54.00	-10.62	1.50	120	31.94	11.44	Horizontal	Average
5150.00	55.45	68.20	-12.75	1.50	280	55.01	0.44	Vertical	Peak
5150.00	43.09	54.00	-10.91	1.50	280	42.65	0.44	Vertical	Average
5350.00	47.47	68.20	-20.73	1.50	280	47.22	0.25	Vertical	Peak
5350.00	38.32	54.00	-15.68	1.50	280	38.07	0.25	Vertical	Average
10580.00	52.87	68.20	-15.33	1.50	280	41.43	11.44	Vertical	Peak
10580.00	44.30	54.00	-9.70	1.50	280	32.86	11.44	Vertical	Average

Remark:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) - Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The emission levels of other frequencies are very lower than the limit and not show in test report.
5. Only the antenna height (from 1m to 4m) and turntable angle (from 0 degrees to 360 degrees) at maximum reading are recorded.

U-NII-2C_802.11a_5500MHz									
Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV/m)	Correction Factor (dB/m)	Polarity	Detector
5470.00	62.01	68.20	-6.19	1.50	120	62.05	-0.04	Horizontal	Peak
5470.00	49.74	54.00	-4.26	1.50	120	49.78	-0.04	Horizontal	Average
11000.00	53.53	68.20	-14.67	1.50	120	42.11	11.42	Horizontal	Peak
11000.00	43.54	54.00	-10.46	1.50	120	32.12	11.42	Horizontal	Average
5470.00	59.47	68.20	-8.73	1.50	280	59.51	-0.04	Vertical	Peak
5470.00	49.97	54.00	-4.03	1.50	280	50.01	-0.04	Vertical	Average
11000.00	53.84	68.20	-14.36	1.50	280	42.42	11.42	Vertical	Peak
11000.00	43.44	54.00	-10.56	1.50	280	32.02	11.42	Vertical	Average
U-NII-2C_802.11a_5580MHz									
Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV/m)	Correction Factor (dB/m)	Polarity	Detector
11160.00	53.71	68.20	-14.49	1.50	120	42.74	11.35	Horizontal	Peak
11160.00	43.30	54.00	-10.70	1.50	120	32.33	11.35	Horizontal	Average
11160.00	53.55	68.20	-14.65	1.50	280	42.58	11.35	Vertical	Peak
11160.00	43.01	54.00	-10.99	1.50	280	32.04	11.35	Vertical	Average
U-NII-2C_802.11a_5700MHz									
Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV/m)	Correction Factor (dB/m)	Polarity	Detector
5725.00	57.42	68.20	-10.78	1.50	120	56.12	1.30	Horizontal	Peak
5725.00	47.23	54.00	-6.77	1.50	120	45.93	1.30	Horizontal	Average
11400.00	53.64	68.20	-14.56	1.50	120	42.17	11.47	Horizontal	Peak
11400.00	43.31	54.00	-10.69	1.50	120	31.84	11.47	Horizontal	Average
5725.00	57.49	68.20	-10.71	1.50	280	56.19	1.30	Vertical	Peak
5725.00	47.45	54.00	-6.55	1.50	280	46.15	1.30	Vertical	Average
11400.00	53.71	68.20	-14.49	1.50	280	42.24	11.47	Vertical	Peak
11400.00	43.53	54.00	-10.47	1.50	280	32.06	11.47	Vertical	Average
Remark: - Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m) - Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) - Pre-Amplifier Factor(dB) - Margin value = Emission Level – Limit value - The emission levels of other frequencies are very lower than the limit and not show in test report. - Only the antenna height (from 1m to 4m) and turntable angle (from 0 degrees to 360 degrees) at maximum reading are recorded.									

U-NII-2C_802.11n-HT40_5510MHz

Frequency (MHz)	Emssion Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV/m)	Correction Factor (dB/m)	Polarity	Detector
5470.00	61.66	68.20	-6.54	1.50	120	61.70	-0.04	Horizontal	Peak
5470.00	49.19	54.00	-4.81	1.50	120	49.23	-0.04	Horizontal	Average
11020.00	53.00	68.20	-15.20	1.50	120	41.54	11.46	Horizontal	Peak
11020.00	42.75	54.00	-11.25	1.50	120	31.29	11.46	Horizontal	Average
5470.00	58.53	68.20	-9.67	1.50	280	58.57	-0.04	Vertical	Peak
5470.00	50.60	54.00	-3.40	1.50	280	50.64	-0.04	Vertical	Average
11020.00	53.96	68.20	-14.24	1.50	280	42.50	11.46	Vertical	Peak
11020.00	43.70	54.00	-10.30	1.50	280	32.24	11.46	Vertical	Average

U-NII-2C_802.11n-HT40_5550MHz

Frequency (MHz)	Emssion Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV/m)	Correction Factor (dB/m)	Polarity	Detector
11100.00	53.34	68.20	-14.86	1.50	120	42.25	11.73	Horizontal	Peak
11100.00	43.03	54.00	-10.97	1.50	120	31.94	11.73	Horizontal	Average
11100.00	53.73	68.20	-14.47	1.50	280	42.64	11.73	Vertical	Peak
11100.00	42.79	54.00	-11.21	1.50	280	31.70	11.73	Vertical	Average

U-NII-2C_802.11n-HT40_5670MHz

Frequency (MHz)	Emssion Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV/m)	Correction Factor (dB/m)	Polarity	Detector
5725.00	56.76	68.20	-11.44	1.50	120	55.46	1.30	Horizontal	Peak
5725.00	47.69	54.00	-6.31	1.50	120	46.39	1.30	Horizontal	Average
11340.00	54.30	68.20	-13.90	1.50	120	42.88	11.42	Horizontal	Peak
11340.00	43.40	54.00	-10.60	1.50	120	31.98	11.42	Horizontal	Average
5725.00	58.08	68.20	-10.12	1.50	280	56.78	1.30	Vertical	Peak
5725.00	47.83	54.00	-6.17	1.50	280	46.53	1.30	Vertical	Average
11340.00	54.43	68.20	-13.77	1.50	280	43.01	11.42	Vertical	Peak
11340.00	42.80	54.00	-11.20	1.50	280	31.38	11.42	Vertical	Average

Remark:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) - Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The emission levels of other frequencies are very lower than the limit and not show in test report.
5. Tnly the antenna height (from 1m to 4m) and turntable angle (from 0 degrees to 360 degrees) at maximum reading are recorded.

U-NII-2C_802.11ac-VHT80_5530MHz

Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV/m)	Correction Factor (dB/m)	Polarity	Detector
5470.00	62.08	68.20	-6.12	1.50	120	62.12	-0.04	Horizontal	Peak
5470.00	49.22	54.00	-4.78	1.50	120	49.26	-0.04	Horizontal	Average
11060.00	53.52	68.20	-14.68	1.50	120	41.99	11.53	Horizontal	Peak
11060.00	43.32	54.00	-10.68	1.50	120	31.79	11.53	Horizontal	Average
5470.00	57.69	68.20	-10.51	1.50	280	57.73	-0.04	Vertical	Peak
5470.00	50.03	54.00	-3.97	1.50	280	50.07	-0.04	Vertical	Average
11060.00	53.84	68.20	-14.36	1.50	280	42.31	11.53	Vertical	Peak
11060.00	43.53	54.00	-10.47	1.50	280	32.00	11.53	Vertical	Average

Remark:

1. $Emission\ Level(dBuV/m) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB)$
3. $Margin\ value = Emission\ Level - Limit\ value$
4. The emission levels of other frequencies are very lower than the limit and not show in test report.
5. Only the antenna height (from 1m to 4m) and turntable angle (from 0 degrees to 360 degrees) at maximum reading are recorded.

**U-NII-3_802.11a_5745MHz**

Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV/m)	Correction Factor (dB/m)	Polarity	Detector
5650.00	51.01	68.20	-17.19	1.50	120	50.21	0.80	Horizontal	Peak
5700.00	52.21	105.20	-52.99	1.50	120	50.97	1.24	Horizontal	Peak
5720.00	53.72	110.80	-57.08	1.50	120	52.44	1.28	Horizontal	Peak
5725.00	53.97	122.20	-68.23	1.50	120	52.67	1.30	Horizontal	Peak
11490.00	52.84	68.20	-15.36	1.50	120	41.29	11.55	Horizontal	Peak
11490.00	42.94	54.00	-11.06	1.50	120	31.39	11.55	Horizontal	Average
5650.00	51.38	68.20	-16.82	1.50	280	50.58	0.80	Vertical	Peak
5700.00	51.56	105.20	-53.64	1.50	280	50.32	1.24	Vertical	Peak
5720.00	52.84	110.80	-57.96	1.50	280	51.56	1.28	Vertical	Peak
5725.00	53.71	122.20	-68.49	1.50	280	52.41	1.30	Vertical	Peak
11490.00	52.16	68.20	-16.04	1.50	280	40.61	11.55	Vertical	Peak
11490.00	42.34	54.00	-11.66	1.50	280	30.79	11.55	Vertical	Average

U-NII-3_802.11a_5825MHz

Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV/m)	Correction Factor (dB/m)	Polarity	Detector
5850.00	53.37	122.20	-68.83	1.50	120	51.55	1.82	Horizontal	Peak
5855.00	51.72	110.80	-59.08	1.50	120	49.87	1.85	Horizontal	Peak
5875.00	51.45	105.20	-53.75	1.50	120	49.47	1.98	Horizontal	Peak
5925.00	51.40	68.20	-16.80	1.50	120	49.28	2.12	Horizontal	Peak
11650.00	52.74	68.20	-15.46	1.50	120	41.10	11.64	Horizontal	Peak
11650.00	42.83	54.00	-11.17	1.50	120	31.19	11.64	Horizontal	Average
5850.00	52.20	122.20	-70.00	1.50	280	50.38	1.82	Vertical	Peak
5855.00	52.02	110.80	-58.78	1.50	280	50.17	1.85	Vertical	Peak
5875.00	51.35	105.20	-53.85	1.50	280	49.37	1.98	Vertical	Peak
5925.00	53.41	68.20	-14.79	1.50	280	51.29	2.12	Vertical	Peak
11650.00	52.24	68.20	-15.96	1.50	280	40.60	11.64	Vertical	Peak
11650.00	42.51	54.00	-11.49	1.50	280	30.87	11.64	Vertical	Average

Remark:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) - Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The emission levels of other frequencies are very lower than the limit and not show in test report.
5. Tnly the antenna height (from 1m to 4m) and turntable angle (from 0 degrees to 360 degrees) at maximum reading are recorded.

**U-NII-3_802.11n-HT40_5755MHz**

Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV/m)	Correction Factor (dB/m)	Polarity	Detector
5650.00	51.12	68.20	-17.08	1.50	120	50.32	0.80	Horizontal	Peak
5700.00	52.96	105.20	-52.24	1.50	120	51.72	1.24	Horizontal	Peak
5720.00	54.02	110.80	-56.78	1.50	120	52.74	1.28	Horizontal	Peak
5725.00	53.71	122.20	-68.49	1.50	120	52.41	1.30	Horizontal	Peak
11510.00	52.80	68.20	-15.40	1.50	120	41.24	11.56	Horizontal	Peak
11510.00	42.69	54.00	-11.31	1.50	120	31.13	11.56	Horizontal	Average
5650.00	50.93	68.20	-17.27	1.50	280	50.13	0.80	Vertical	Peak
5700.00	51.28	105.20	-53.92	1.50	280	50.04	1.24	Vertical	Peak
5720.00	52.78	110.80	-58.02	1.50	280	51.50	1.28	Vertical	Peak
5725.00	53.30	122.20	-68.90	1.50	280	52.00	1.30	Vertical	Peak
11510.00	52.29	68.20	-15.91	1.50	280	40.73	11.56	Vertical	Peak
11510.00	41.55	54.00	-12.45	1.50	280	29.99	11.56	Vertical	Average

U-NII-3_802.11n-HT40_5795MHz

Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV/m)	Correction Factor (dB/m)	Polarity	Detector
5850.00	53.75	122.20	-68.45	1.50	120	51.93	1.82	Horizontal	Peak
5855.00	52.19	110.80	-58.61	1.50	120	50.34	1.85	Horizontal	Peak
5875.00	50.57	105.20	-54.63	1.50	120	48.59	1.98	Horizontal	Peak
5925.00	51.24	68.20	-16.96	1.50	120	49.12	2.12	Horizontal	Peak
11590.00	52.32	68.20	-15.88	1.50	120	40.81	11.51	Horizontal	Peak
11590.00	43.65	54.00	-10.35	1.50	120	32.14	11.51	Horizontal	Average
5850.00	52.19	122.20	-70.01	1.50	280	50.37	1.82	Vertical	Peak
5855.00	51.66	110.80	-59.14	1.50	280	49.81	1.85	Vertical	Peak
5875.00	50.77	105.20	-54.43	1.50	280	48.79	1.98	Vertical	Peak
5925.00	52.82	68.20	-15.38	1.50	280	50.70	2.12	Vertical	Peak
11590.00	52.80	68.20	-15.40	1.50	280	41.29	11.51	Vertical	Peak
11590.00	42.94	54.00	-11.06	1.50	280	31.43	11.51	Vertical	Average

Remark:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) - Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The emission levels of other frequencies are very lower than the limit and not show in test report.
5. Tnly the antenna height (from 1m to 4m) and turntable angle (from 0 degrees to 360 degrees) at maximum reading are recorded.

**U-NII-3_802.11a_5785MHz**

Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV/m)	Correction Factor (dB/m)	Polarity	Detector
11570.00	54.21	68.20	-13.99	1.50	120	42.69	11.52	Horizontal	Peak
11570.00	42.42	54.00	-11.58	1.50	120	30.90	11.52	Horizontal	Average
11570.00	52.19	68.20	-16.01	1.50	280	40.67	11.52	Vertical	Peak
11570.00	41.15	54.00	-12.85	1.50	280	29.63	11.52	Vertical	Average

U-NII-3_802.11ac-VHT80_5775MHz

Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV/m)	Correction Factor (dB/m)	Polarity	Detector
5650.00	51.61	68.20	-16.59	1.50	120	50.81	0.80	Horizontal	Peak
5700.00	52.68	105.20	-52.52	1.50	120	51.44	1.24	Horizontal	Peak
5720.00	53.24	110.80	-57.56	1.50	120	51.96	1.28	Horizontal	Peak
5725.00	54.17	122.20	-68.03	1.50	120	52.87	1.30	Horizontal	Peak
5850.00	54.22	122.20	-67.98	1.50	120	52.40	1.82	Horizontal	Peak
5855.00	51.91	110.80	-58.89	1.50	120	50.06	1.85	Horizontal	Peak
5875.00	50.76	105.20	-54.44	1.50	120	48.78	1.98	Horizontal	Peak
5925.00	50.73	68.20	-17.47	1.50	120	48.61	2.12	Horizontal	Peak
11550.00	51.69	68.20	-16.51	1.50	120	40.15	11.54	Horizontal	Peak
11550.00	43.46	54.00	-10.54	1.50	120	31.92	11.54	Horizontal	Average
5650.00	51.49	68.20	-16.71	1.50	280	50.69	0.80	Vertical	Peak
5700.00	50.35	105.20	-54.85	1.50	280	49.11	1.24	Vertical	Peak
5720.00	53.00	110.80	-57.80	1.50	280	51.72	1.28	Vertical	Peak
5725.00	53.29	122.20	-68.91	1.50	280	51.99	1.30	Vertical	Peak
5850.00	53.00	122.20	-69.20	1.50	280	51.18	1.82	Vertical	Peak
5855.00	52.38	110.80	-58.42	1.50	280	50.53	1.85	Vertical	Peak
5875.00	51.31	105.20	-53.89	1.50	280	49.33	1.98	Vertical	Peak
5925.00	52.39	68.20	-15.81	1.50	280	50.27	2.12	Vertical	Peak
11550.00	52.86	68.20	-15.34	1.50	280	41.32	11.54	Vertical	Peak
11550.00	42.69	54.00	-11.31	1.50	280	31.15	11.54	Vertical	Average

Remark:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) - Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The emission levels of other frequencies are very lower than the limit and not show in test report.
5. Tnly the antenna height (from 1m to 4m) and turntable angle (from 0 degrees to 360 degrees) at maximum reading are recorded.

2.7. AC Power Line Conducted Emission

2.7.1. Limit of AC Power Line Conducted Emission

FCC Part 15.207:

For equipment 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 or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

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
5 - 30	60	50

2.7.2. Measuring Instruments

The measuring equipment is listed in the section 3 of this test report.

2.7.3. Test Setup

