Shenzhen HTT Technology Co., Ltd.

Report No.: HTT202403662F02

TEST Report

Applicant:	Shenzhen Musheng Technology Co., Ltd.
Address of Applicant:	808,8F,YongChang Building,No.43 Lixin Road,Nanwan Street, LongGang District, Shenzhen, China
Manufacturer :	Shenzhen Musheng Technology Co., Ltd.
Address of Manufacturer :	808,8F,YongChang Building,No.43 Lixin Road,Nanwan Street, LongGang District, Shenzhen, China

Equipment Under Test (EUT)

Product Name:	Driving Recorder
Model No.:	EYES
Series model:	EYES LITE, EYES PRO, EYES PLUS, EYES ULTRA
Trade Mark:	AKEEYO
FCC ID:	2BEAX-EYES
Applicable standards:	FCC CFR Title 47 Part 15 Subpart E Section 15.407
Date of sample receipt:	Mar. 29, 2024
Date of Test:	Mar. 29, 2024~Apr. 07, 2024
Date of report issued:	Apr. 07, 2024
Test Result :	PASS *

* In the configuration tested, the EUT complied with the standards specified above.

1. Version

Version No.	Date	Description
00	*Apr. 07, 2024*	*Original*

Tested/ Prepared By	Heber He	***Date:***	***Apr. 07, 2024***
	Project Engineer		
Check By:	Bruce Zhu	***Date:***	***Apr. 07, 2024***
	Reviewer		
Approved By :	Kevin Yang	***Date:***	***Apr. 07, 2024***
	Authorized Signature		

2. Contents

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3. Test Summary

Test Item	Section in CFR 47	Result
Antenna requirement	15.203	PASS
AC Power Line Conducted Emission	15.207	N/A
26dB Bandwidth	FCC §15.407(a)	PASS
Maximum Conducted Output Power	15.407(a)	PASS
Power Spectral Density	15.407(a)	PASS
Undesirable Emission	FCC Part 15.407(b)	PASS
Radiated Emission	FCC Part 15.407(b)/15.205/15.209	PASS
Frequency Stability	15.407(g)	PASS

Remark: Pass: The EUT complies with the essential requirements in the standard.

Measurement Uncertainty

Test Item	Frequency Range	Measurement Uncertainty	Notes
Radiated Emission	30~1000MHz	3.45 dB	(1)
Radiated Emission	1~6GHz	3.54 dB	(1)
Radiated Emission	6~40GHz	5.38 dB	(1)
Conducted Disturbance	0.15~30MHz	2.66 dB	(1)
Note (1): The measurement uncertainty is for coverage factor of k=2 and a level of confidence of 95%.			

4. General Information

4.1. General Description of EUT

<table>
<tr><td>Product Name:</td><td>Driving Recorder</td></tr>
<tr><td>Model No.:</td><td>EYES</td></tr>
<tr><td>Series model:</td><td>EYES LITE, EYES PRO, EYES PLUS, EYES ULTRA</td></tr>
<tr><td>Test sample(s) ID:</td><td>HTT202403662-1(Engineer sample)
HTT202403662-2(Normal sample)</td></tr>
<tr><td>Operation Frequency:</td><td>
<table>
<tr><th>Band</th><th>Mode</th><th>Frequency Range(MHz)</th><th>Number of channels</th></tr>
<tr><td rowspan="3">U-NII Band I</td><td>IEEE 802.11a</td><td>5180-5240</td><td>4</td></tr>
<tr><td>IEEE 802.11n/ac 20MHz</td><td>5180-5240</td><td>4</td></tr>
<tr><td>IEEE 802.11n/ac 40MHz</td><td>5190-5230</td><td>2</td></tr>
</table>
</td></tr>
<tr><td>Modulation technology:</td><td>OFDM</td></tr>
<tr><td>Antenna Type:</td><td>Internal Antenna</td></tr>
<tr><td>Antenna gain:</td><td>2.0 dBi</td></tr>
<tr><td>Power supply:</td><td>DC 5.0V</td></tr>
<tr><td>Adapter Information：</td><td>Car charging
Input DC 12-24V
Output:DC 5.0V 4.8A 24W</td></tr>
</table>

Channel list for 802.11a/n/ac(HT20)							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
36	5180MHz	40	5200MHz	44	5220MHz	48	5240MHz

Channel list for 802.11n(HT40)/ac(HT40)			
Channel	Frequency	Channel	Frequency
38	5190MHz	46	5230MHz

4.2. Test mode

Transmitting mode	Keep the EUT in continuously transmitting mode

Remark: During the test, the dutycycle >98%, the test voltage was tuned from 85% to 115% of the nominal rated supply voltage, and found that the worst case was under the nominal rated supply condition. So the report just shows that condition's data.

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:

Pre-scan all kind of data rate in lowest channel, and found the follow list which it was worst case.

Mode	Data rate
802.11a/n/ac(HT20)	6/6.5 Mbps
802.11n/ac(HT40)	13.5 Mbps

4.3. Description of Support Units

None.

4.4. Deviation from Standards

None.

4.5. Abnormalities from Standard Conditions

None.

4.6. Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

FCC-Registration No.: 779513 Designation Number: CN1319
Shenzhen HTT Technology Co.,Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements.

A2LA-Lab Cert. No.: 6435.01
Shenzhen HTT Technology Co.,Ltd. has been accredited by American Association for Laboratory Accreditation to perform electromagnetic emission measurement.

The 3m-Semi anechoic test site fulfils CISPR 16-1-4 according to ANSI C63.10 and CISPR 16-1-4:2010.

4.7. Test Location

All tests were performed at:

Shenzhen HTT Technology Co.,Ltd.
1F, Building B, Huafeng International Robotics Industrial Park, Hangcheng Road,Nanchang Community, Xixiang Street, Bao'an District, Shenzhen, Guangdong, China
Tel: 0755-23595200
Fax: 0755-23595201

4.8. Additional Instructions

Test Software	Special AT test command provided by manufacturer to Keep the EUT in continuously transmitting mode and hopping mode
Power level setup	Default

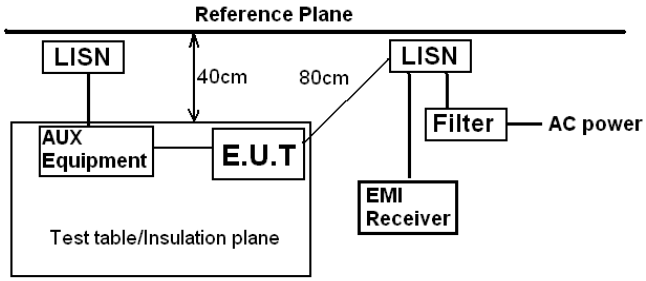
5. Test Instruments list

Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	3m Semi- Anechoic Chamber	Shenzhen C.R.T technology co., LTD	9*6*6	HTT-E028	Aug. 10 2021	Aug. 09 2024
2	Control Room	Shenzhen C.R.T technology co., LTD	4.8*3.5*3.0	HTT-E030	Aug. 10 2021	Aug. 09 2024
3	EMI Test Receiver	Rohde&Schwar	ESCI7	HTT-E022	Apr. 26 2023	Apr. 25 2024
4	Spectrum Analyzer	Rohde&Schwar	FSP	HTT-E037	Apr. 26 2023	Apr. 25 2024
5	Coaxial Cable	ZDecl	ZT26-NJ-NJ-0.6M	HTT-E018	Apr. 26 2023	Apr. 25 2024
6	Coaxial Cable	ZDecl	ZT26-NJ-SMAJ-2M	HTT-E019	Apr. 26 2023	Apr. 25 2024
7	Coaxial Cable	ZDecl	ZT26-NJ-SMAJ-0.6M	HTT-E020	Apr. 26 2023	Apr. 25 2024
8	Coaxial Cable	ZDecl	ZT26-NJ-SMAJ-8.5M	HTT-E021	Apr. 26 2023	Apr. 25 2024
9	Composite logarithmic antenna	Schwarzbeck	VULB 9168	HTT-E017	May. 21 2023	May. 20 2024
10	Horn Antenna	Schwarzbeck	BBHA9120D	HTT-E016	May. 20 2023	May. 19 2024
11	Loop Antenna	Zhinan	ZN30900C	HTT-E039	Apr. 26 2023	Apr. 25 2024
12	Horn Antenna	Beijing Hangwei Dayang	OBH100400	HTT-E040	Apr. 26 2023	Apr. 25 2024
13	low frequency Amplifier	Sonoma Instrument	310	HTT-E015	Apr. 26 2023	Apr. 25 2024
14	high-frequency Amplifier	HP	8449B	HTT-E014	Apr. 26 2023	Apr. 25 2024
15	Variable frequency power supply	Shenzhen Anbiao Instrument Co., Ltd	ANB-10VA	HTT-082	Apr. 26 2023	Apr. 25 2024
16	EMI Test Receiver	Rohde & Schwarz	ESCS30	HTT-E004	Apr. 26 2023	Apr. 25 2024
17	Artificial Mains	Rohde & Schwarz	ESH3-Z5	HTT-E006	May. 23 2023	May. 22 2024
18	Artificial Mains	Rohde & Schwarz	ENV-216	HTT-E038	May. 23 2023	May. 22 2024
19	Cable Line	Robinson	Z302S-NJ-BNCJ-1.5M	HTT-E001	Apr. 26 2023	Apr. 25 2024
20	Attenuator	Robinson	6810.17A	HTT-E007	Apr. 26 2023	Apr. 25 2024
21	Variable frequency power supply	Shenzhen Yanghong Electric Co., Ltd	YF-650（5KVA）	HTT-E032	Apr. 26 2023	Apr. 25 2024
22	Control Room	Shenzhen C.R.T technology co., LTD	8*4*3.5	HTT-E029	Aug. 10 2021	Aug. 09 2024
23	DC power supply	Agilent	E3632A	HTT-E023	Apr. 26 2023	Apr. 25 2024
24	EMI Test Receiver	Agilent	N9020A	HTT-E024	Apr. 26 2023	Apr. 25 2024

25	Analog signal generator	Agilent	N5181A	HTT-E025	Apr. 26 2023	Apr. 25 2024
26	Vector signal generator	Agilent	N5182A	HTT-E026	Apr. 26 2023	Apr. 25 2024
27	Power sensor	Keysight	U2021XA	HTT-E027	Apr. 26 2023	Apr. 25 2024
28	Temperature and humidity meter	Shenzhen Anbiao Instrument Co., Ltd	TH10R	HTT-074	Apr. 28 2023	Apr. 27 2024
29	Radiated Emission Test Software	Farad	EZ-EMC	N/A	N/A	N/A
30	Conducted Emission Test Software	Farad	EZ-EMC	N/A	N/A	N/A
31	RF Test Software	panshanrf	TST	N/A	N/A	N/A

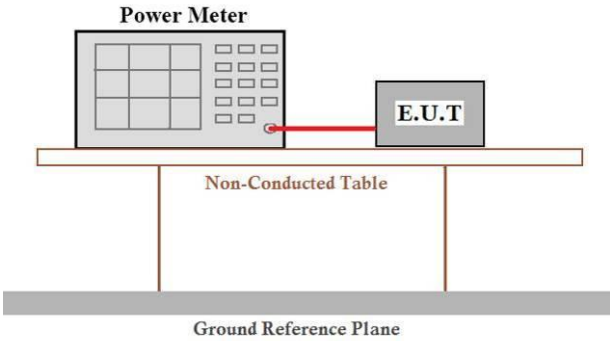
6. Test results and Measurement Data

6.1. Conducted Emissions

Test Requirement:	FCC Part15 C Section 15.207
Test Method:	ANSI C63.10:2013
Test Frequency Range:	150KHz to 30MHz
Class / Severity:	Class B
Receiver setup:	RBW=9KHz, VBW=30KHz
Limit:	Frequency range (MHz) / Limit (dBuV): Quasi-peak / Average 0.15-0.5: 66 to 56* / 56 to 46* 0.5-5: 56 / 46 5-30: 60 / 50 * Decreases with the logarithm of the frequency.
Test setup:	 *Remark:* *E.U.T: Equipment Under Test* *LISN: Line Impedence Stabilization Network* *Test table height=0.8m*
Test procedure:	1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment. 2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs). 3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10:2013 on conducted measurement.
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test environment:	Temp.: 25 °C / Humid.: 52% / Press.: 1012mbar
Test voltage:	AC 120V, 60Hz
Test results:	N/A

1.

6.2. Maximum Conducted Output Power

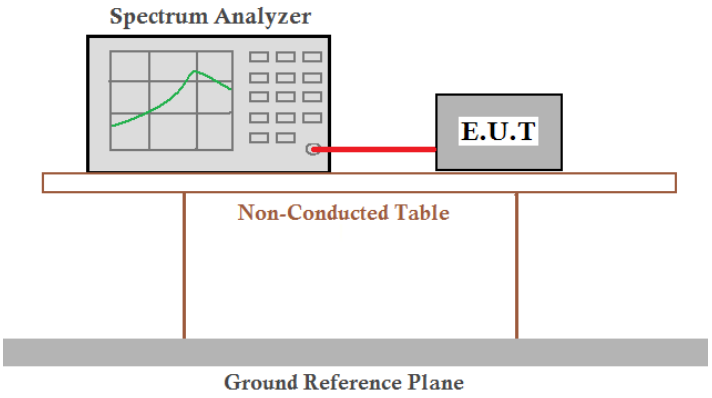
<table>
<tr><td>Test Requirement:</td><td>FCC Part15 E Section 15.407</td></tr>
<tr><td>Test Method:</td><td>KDB 789033 D02 General U-NII Test Procedures New Rules v02r01</td></tr>
<tr><td>Limit:</td><td>
<table>
<tr><td>Frequency band (MHz)</td><td>Limit</td></tr>
<tr><td rowspan="2">5150-5250</td><td>≤1W(30dBm) for master device</td></tr>
<tr><td>≤250mW(23.98dBm) for client device</td></tr>
<tr><td>5250-5350</td><td>≤250mW(23.98dBm) for client device or 11dBm+10logB*</td></tr>
<tr><td>5470-5725</td><td>≤250mW(23.98dBm) for client device or 11dBm+10logB*</td></tr>
<tr><td colspan="2">Remark: *Where B is the 26dB emission bandwidth in MHz.
The maximum conducted output power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage.</td></tr>
</table>
</td></tr>
<tr><td>Test setup:</td><td> 
</td></tr>
<tr><td>Test procedure:</td><td>Measurement using an RF average power meter
(i) Measurements may be performed using a wideband RF power meter with a thermocouple detector or equivalent if all of the conditions listed below are satisfied
a) The EUT is configured to transmit continuously or to transmit with a constant duty cycle.
b) At all times when the EUT is transmitting, it must be transmitting at its maximum power control level.
c) The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a factor of five.
(ii) If the transmitter does not transmit continuously, measure the duty cycle, x, of the transmitter output signal as described in section B).
(iii) Measure the average power of the transmitter. This measurement is an average over both the on and off periods of the transmitter.
(iv) Adjust the measurement in dBm by adding 10 log(1/x) where x is the duty cycle (e.g., 10log(1/0.25) if the duty cycle is 25 percent).</td></tr>
<tr><td>Test Instruments:</td><td>Refer to section 6 for details</td></tr>
<tr><td>Test mode:</td><td>Refer to section 5.2 for details</td></tr>
<tr><td>Test results:</td><td>Pass</td></tr>
</table>

Test environment:	Temp.:	25 °C	Humid.:	52%	Press.:	1012mbar

Measurement Data

Mode	Frequency (MHz)	Maximum Average Conducted Output Power (dBm)		Verdict
		ANT1	Limit	
802.11a	5180	12.93	<=23.98	Pass
	5200	13.28	<=23.98	Pass
	5240	13.08	<=23.98	Pass
802.11n (HT20)	5180	13.27	<=23.98	Pass
	5200	13.20	<=23.98	Pass
	5240	13.13	<=23.98	Pass
802.11n (HT40)	5190	13.20	<=23.98	Pass
	5230	13.18	<=23.98	Pass
802.11ac (VHT20)	5180	12.93	<=23.98	Pass
	5200	12.82	<=23.98	Pass
	5240	12.87	<=23.98	Pass
802.11ac (VHT40)	5190	12.71	<=23.98	Pass
	5230	12.72	<=23.98	Pass

6.3. Emission Bandwidth

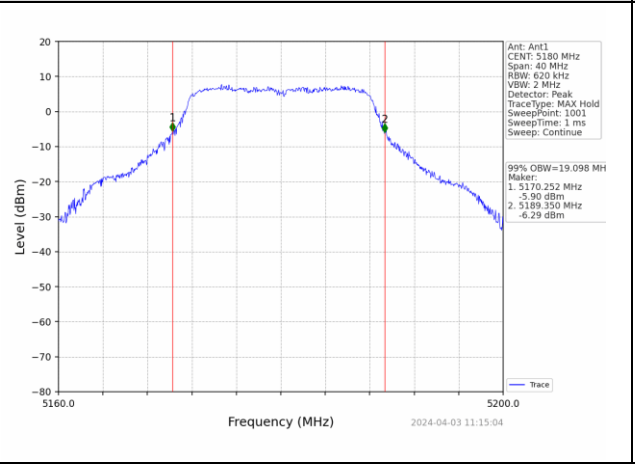
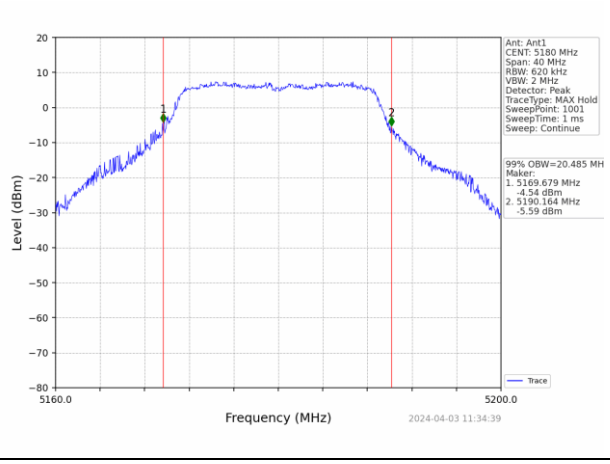
Test Requirement:	FCC Part15 E Section 15.407
Test Method:	KDB 789033 D02 General U-NII Test Procedures New Rules v02r01
Limit:	N/A
Test setup:	
Test procedure:	According to KDB 789033 D02 General U-NII Test Procedures New Rules v02r01.
Test Instruments:	Refer to section 6 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

Test environment:	Temp.:	25 °C	Humid.:	52%	Press.:	1012mbar

Measurement Data

Mode	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)
		Result	Result
802.11a	5180	19.098	24.278
	5200	19.084	24.096
	5240	19.053	24.049
802.11n (HT20)	5180	20.485	26.910
	5200	20.233	26.856
	5240	20.407	27.331
802.11n (HT40)	5190	38.421	48.569
	5230	38.237	48.119
802.11ac (VHT20)	5180	20.021	25.454
	5200	20.328	25.668
	5240	20.239	25.645
802.11ac (VHT40)	5190	47.509	48.455
	5230	38.211	49.158

99% Occupied Bandwidth:

802.11a	802.11n(HT20)
	
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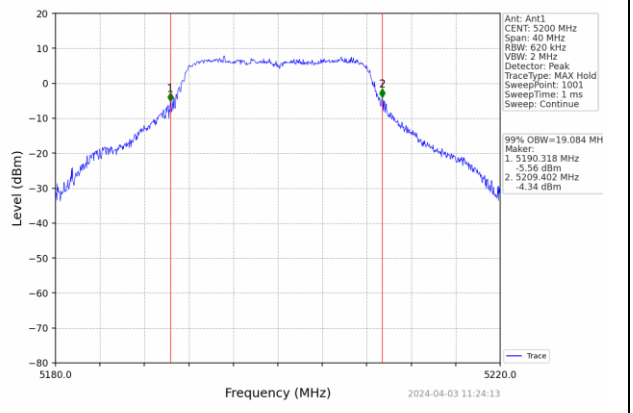
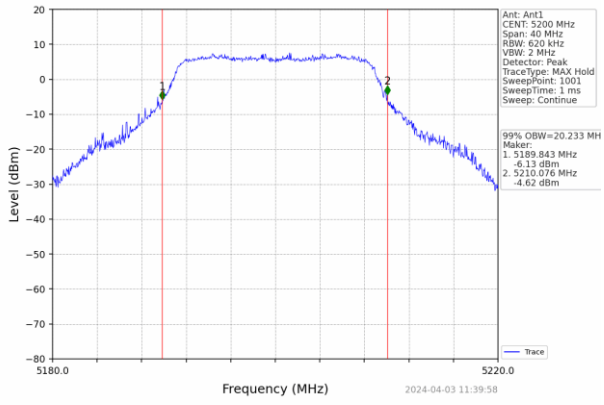
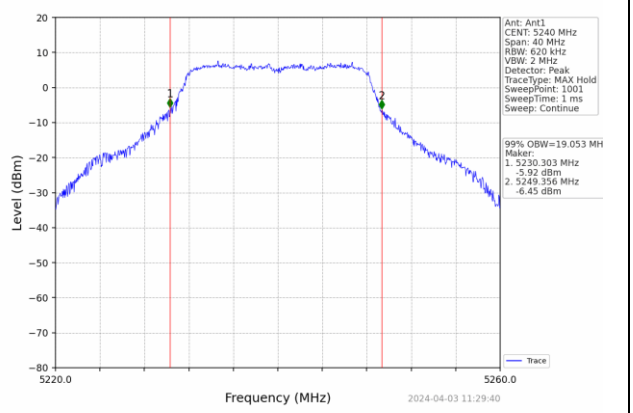
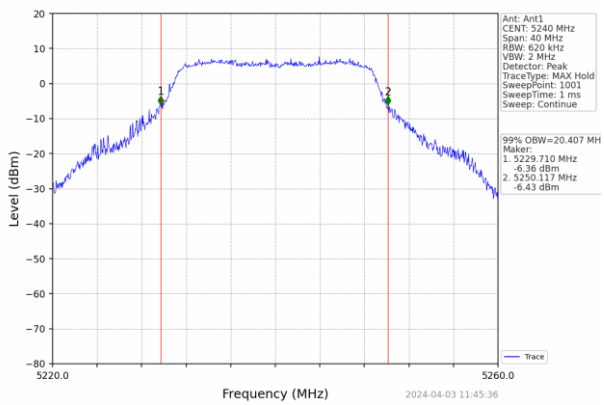
	
5200	
	
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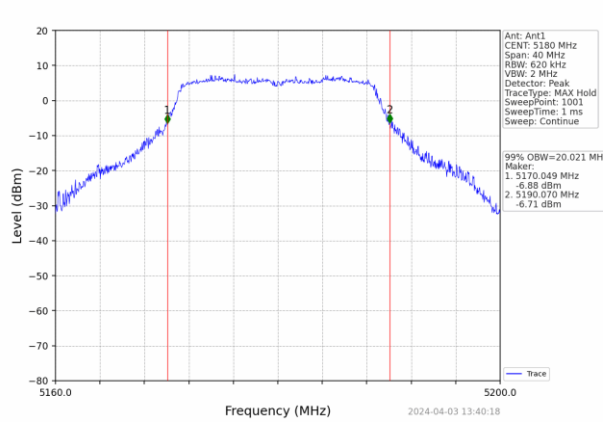
802.11ac(HT20)	
	
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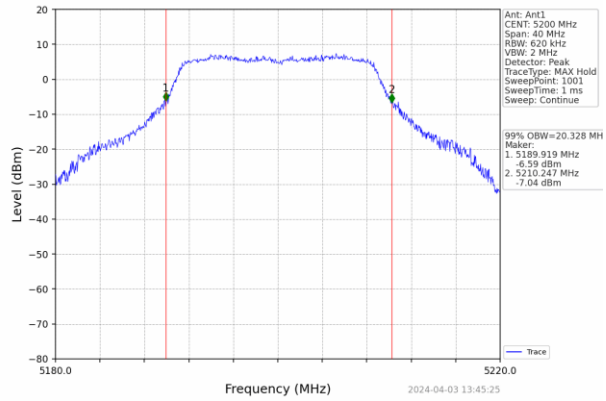	
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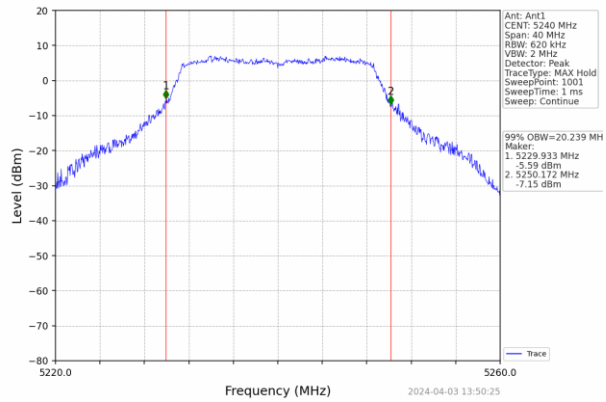
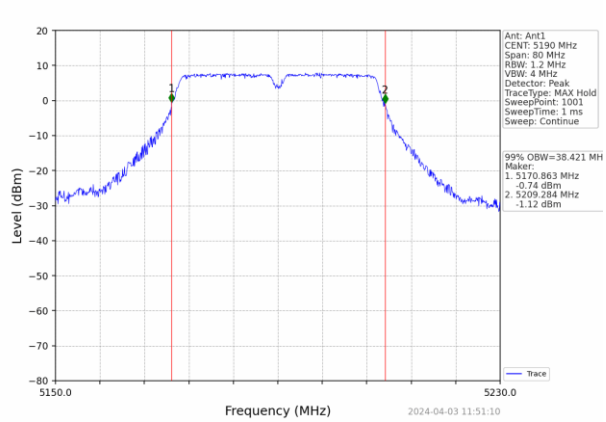
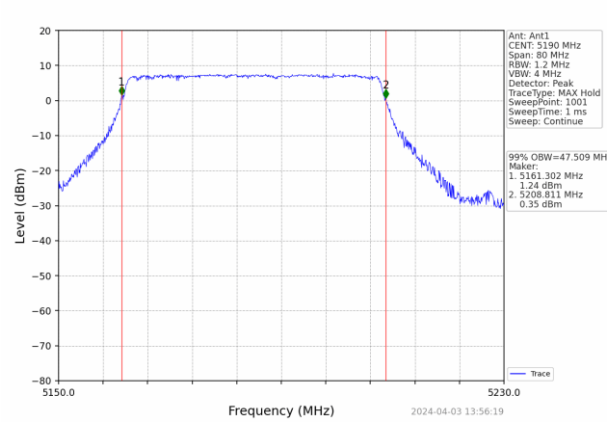
	
5240	

802.11n(HT40)	802.11ac(HT40)
	
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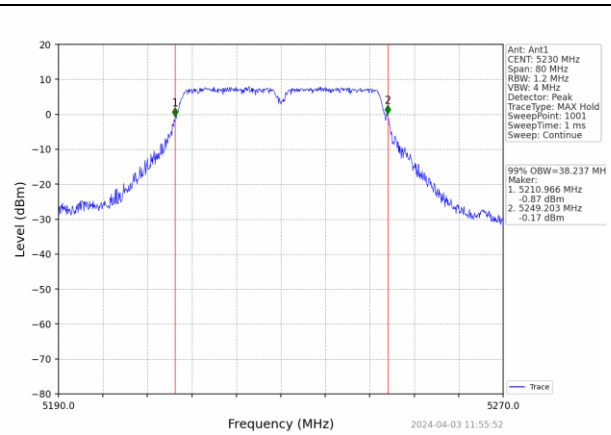
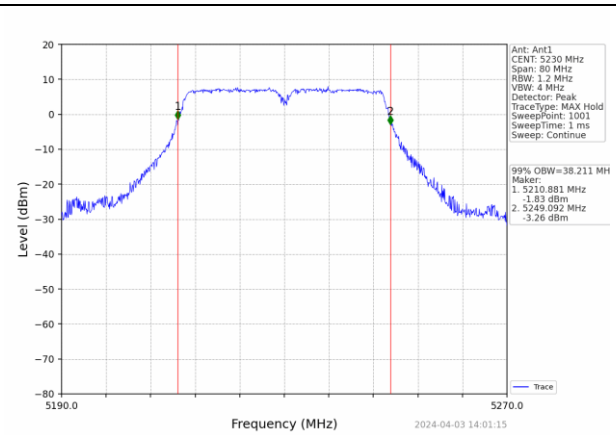
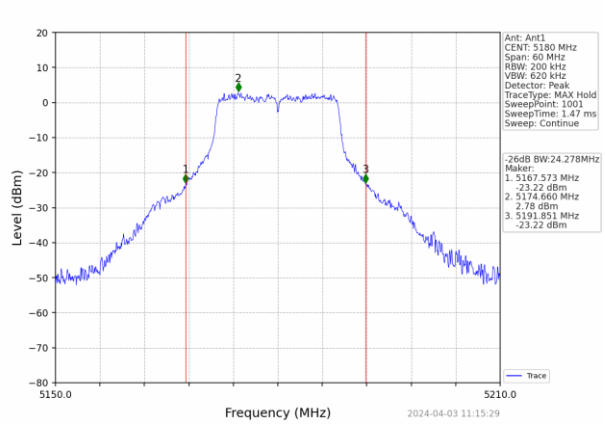
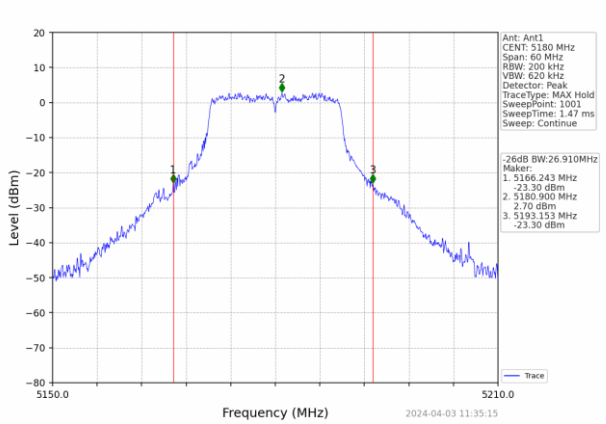
	
5230	

26dB Occupied Bandwidth:

802.11a	802.11n(HT20)
	
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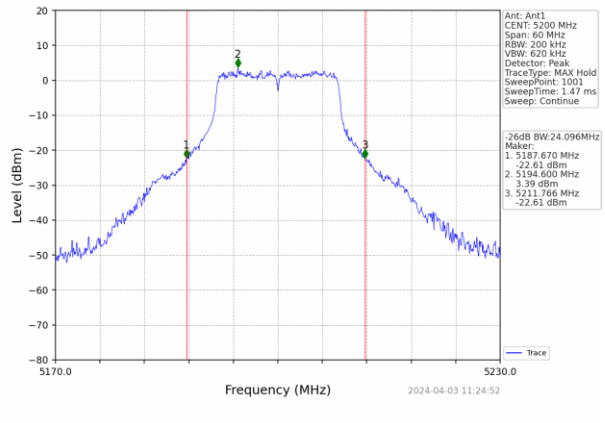	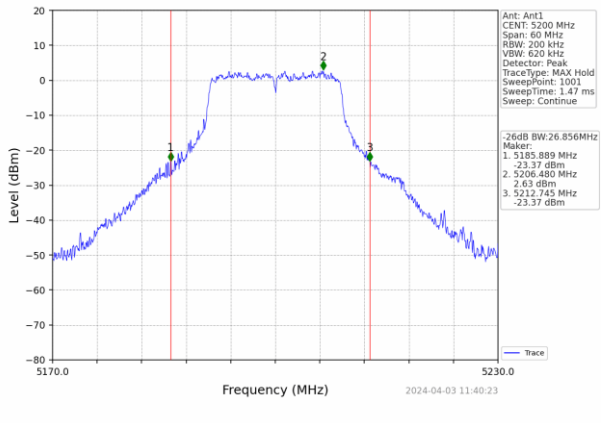
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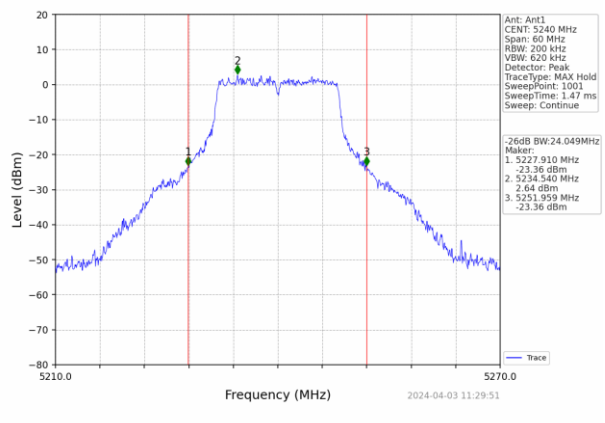
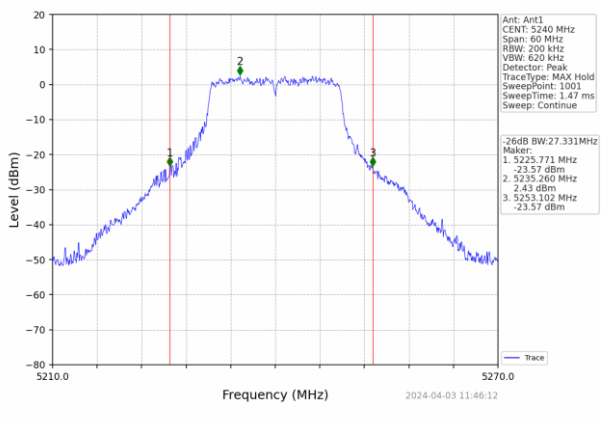
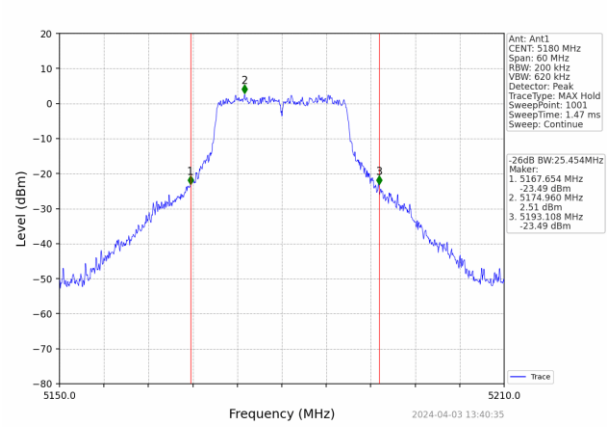
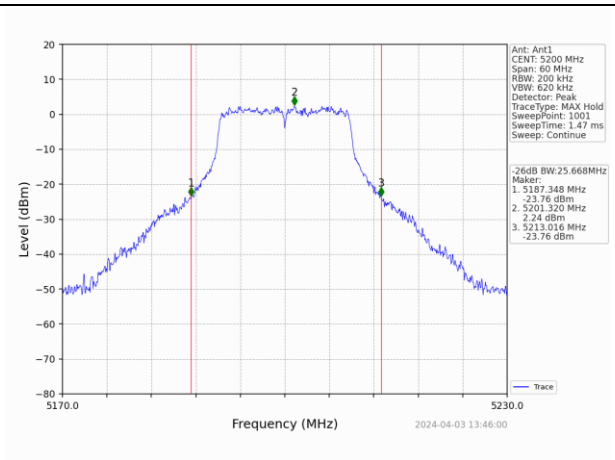
	
5240	

802.11ac(HT20)	
	
5180	
	
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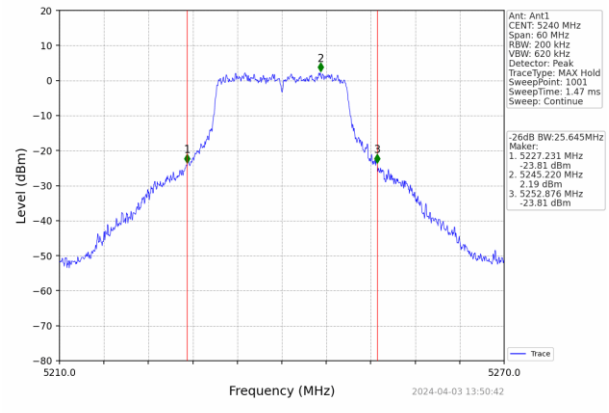
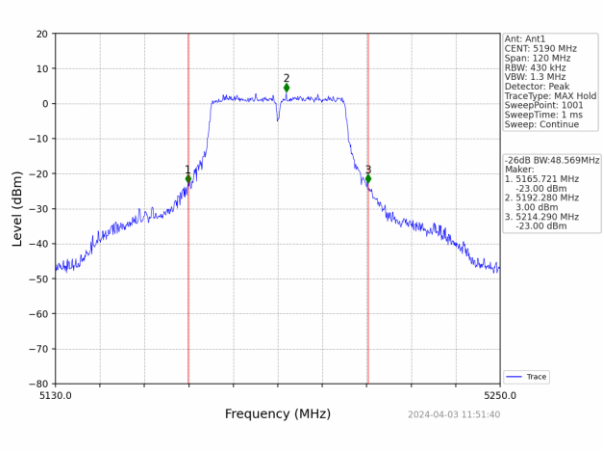
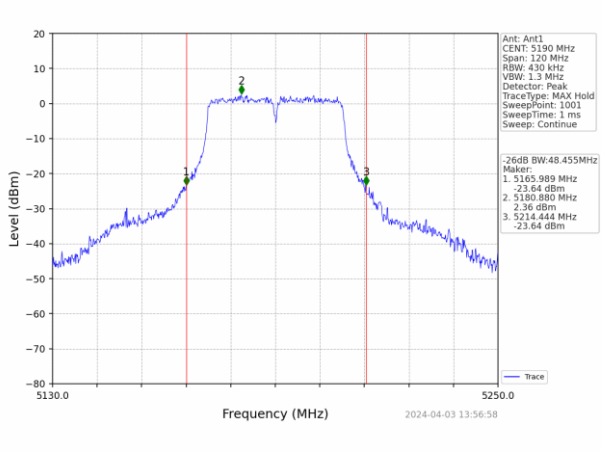
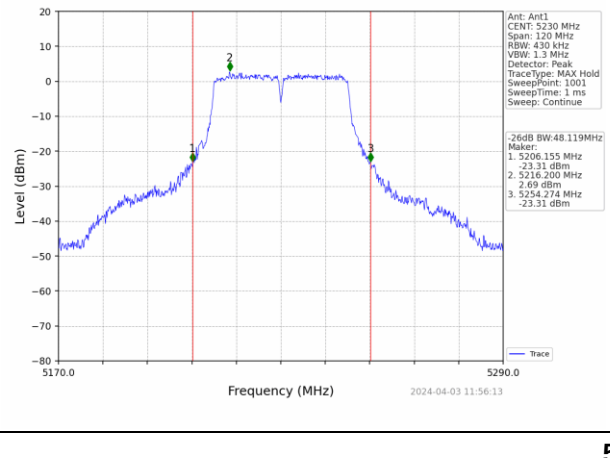
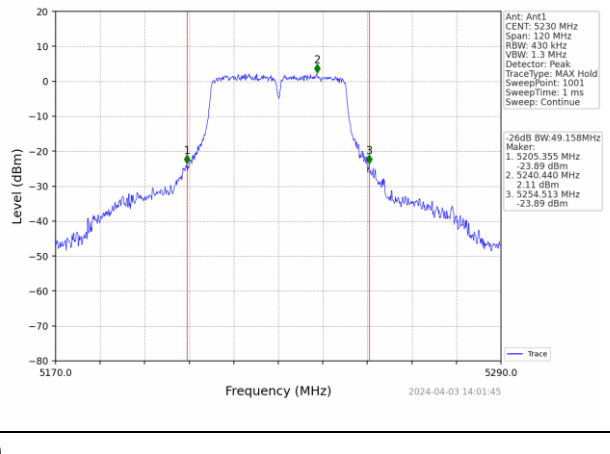
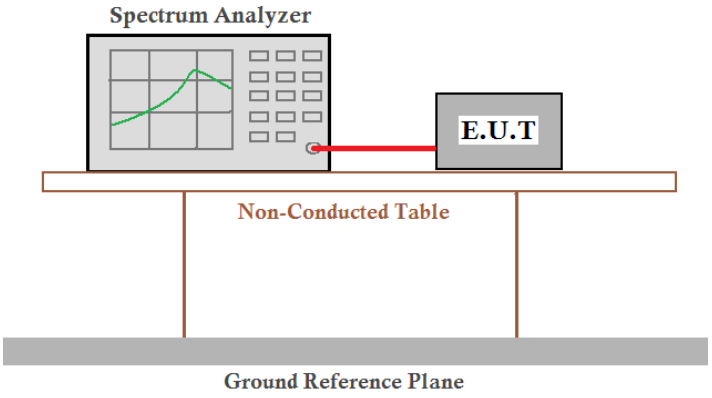
	
5240	

802.11n(HT40)	802.11ac(HT40)
	
5190	
	
5230	

6.4. Power Spectral Density

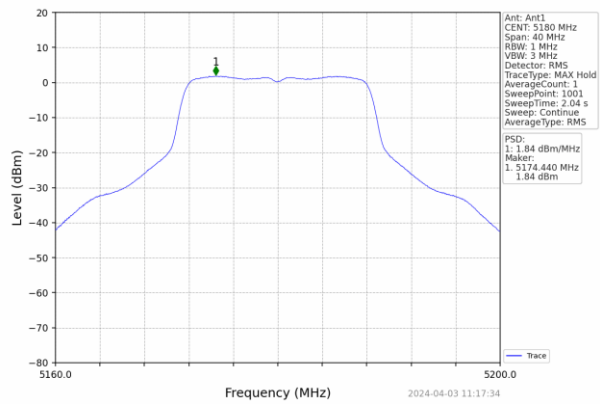
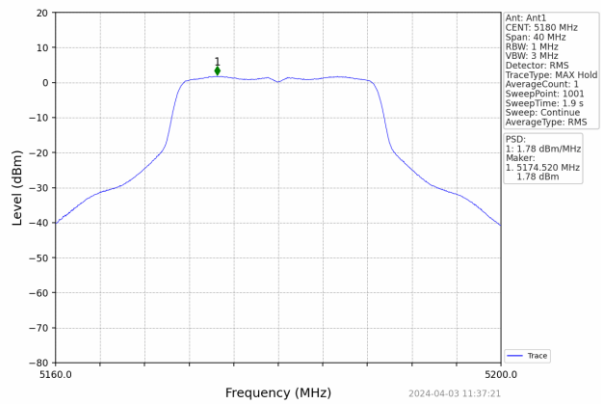
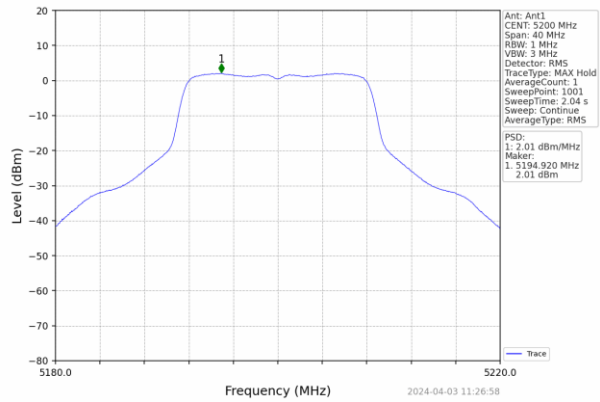
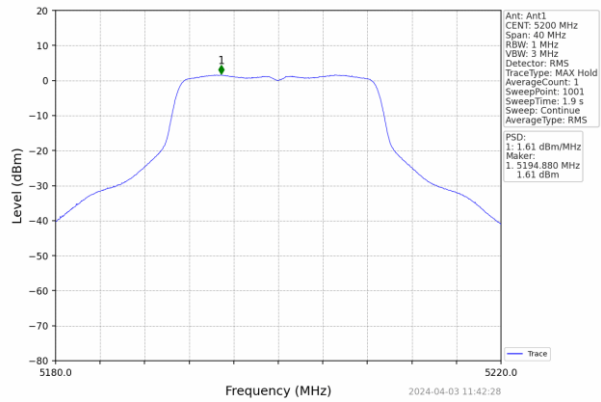
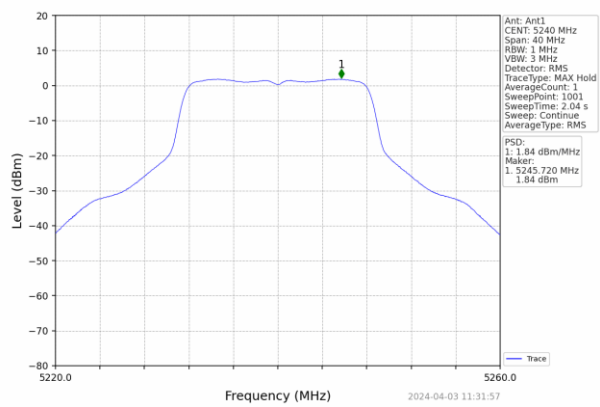
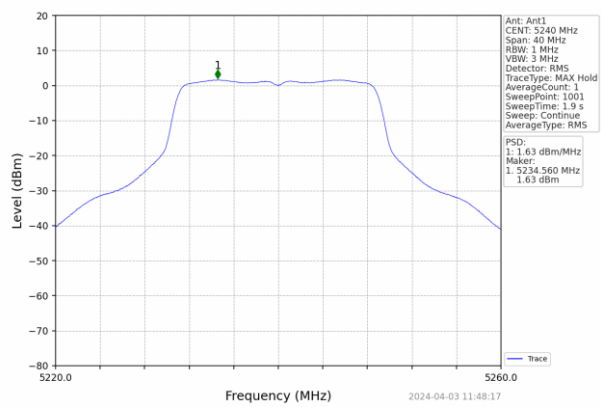
Test Requirement:	FCC Part15 E Section 15.407
Test Method:	KDB 789033 D02 General U-NII Test Procedures New Rules v02r01
Limit:	<table><tr><td>Frequency band (MHz)</td><td>Limit</td></tr><tr><td rowspan="2">5150-5250</td><td>≤17dBm in 1MHz for master device</td></tr><tr><td>≤11dBm in 1MHz for client device</td></tr><tr><td>5250-5350</td><td>≤11dBm in 1MHz for client device</td></tr><tr><td>5470-5725</td><td>≤11dBm in 1MHz for client device</td></tr><tr><td colspan="2">Remark: The maximum power spectral density is measured as a conducted emission by direct connection of a calibrated test instrument to the equipment under test.</td></tr></table>
Test setup:	
Test procedure:	1) Create an average power spectrum for the EUT operating mode being tested by following the instructions in section E)2) for measuring maximum conducted output power using a spectrum analyzer or EMI receiver: select the appropriate test method (SA-1, SA-2, SA-3, or alternatives to each) and apply it up to, but not including, the step labeled, “Compute power…”. 2) Use the peak search function on the instrument to find the peak of the spectrum. 3) Make the following adjustments to the peak value of the spectrum, if applicable: a) If Method SA-2 or SA-2 Alternative was used, add 10 log(1/x), where x is the duty cycle, to the peak of the spectrum. b) If Method SA-3 Alternative was used and the linear mode was used in step E)2)g)(viii), add 1 dB to the final result to compensate for the difference between linear averaging and power averaging. 4) The result is the PSD.
Test Instruments:	Refer to section 6 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

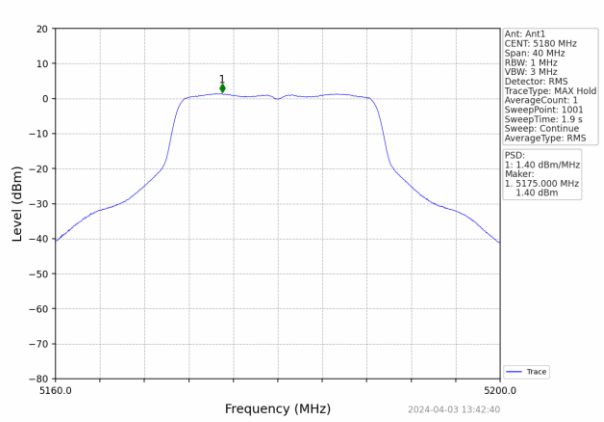
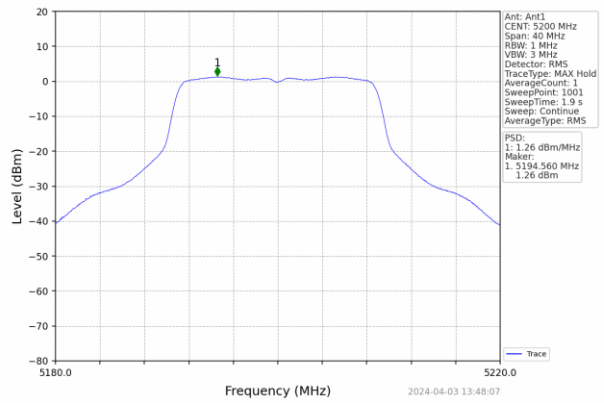
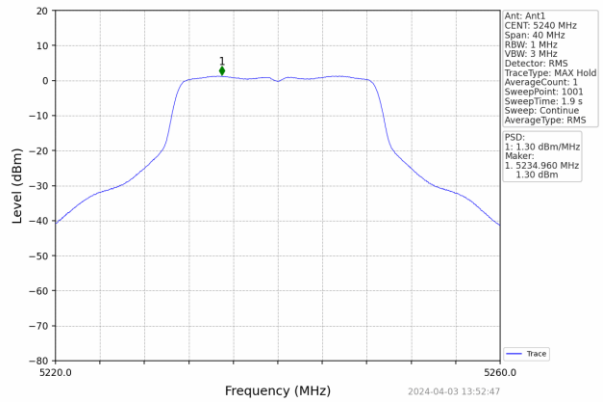
Test environment:	Temp.:	25 °C	Humid.:	52%	Press.:	1012mbar

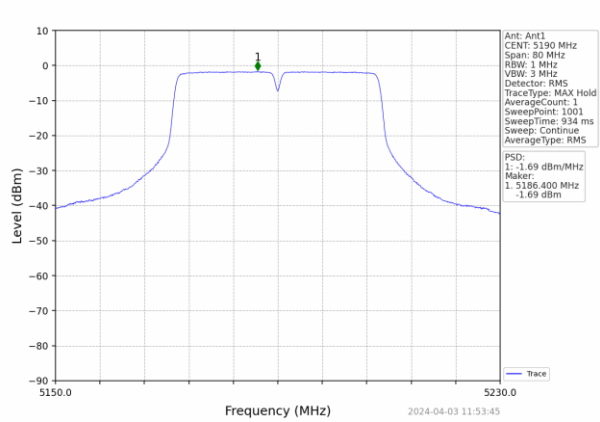
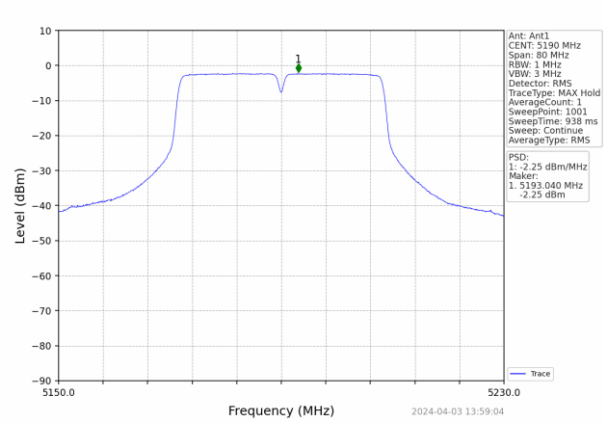
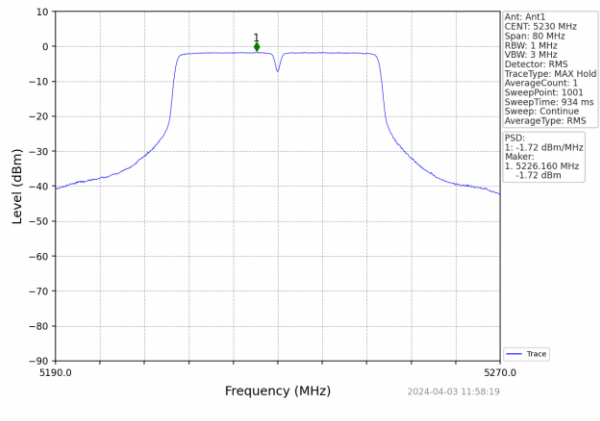
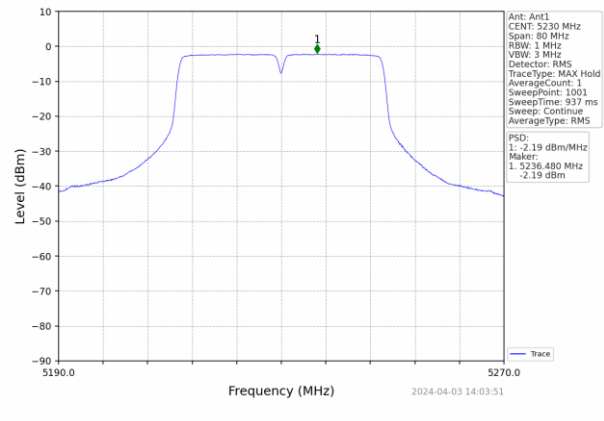
Measurement Data

Mode	Frequency (MHz)	Maximum PSD (dBm/MHz)		Verdict
		ANT1	Limit	
802.11a	5180	1.84	<=11	Pass
	5200	2.01	<=11	Pass
	5240	1.84	<=11	Pass
802.11n (HT20)	5180	1.78	<=11	Pass
	5200	1.61	<=11	Pass
	5240	1.63	<=11	Pass
802.11n (HT40)	5190	-1.69	<=11	Pass
	5230	-1.72	<=11	Pass
802.11ac (VHT20)	5180	1.40	<=11	Pass
	5200	1.26	<=11	Pass
	5240	1.30	<=11	Pass
802.11ac (VHT40)	5190	-2.25	<=11	Pass
	5230	-2.19	<=11	Pass

Test plots as followed:

802.11a	802.11n(HT20)
	
5180	
	
5200	
	
5240	

802.11ac(HT20)	
	
5180	
	
5200	
	
5240	

802.11n(HT40)	802.11ac(HT40)
	
5190	
	
5230	

6.5. Radiated Emission

Test Requirement:	FCC Part15 C Section 15.209
Test Method:	ANSI C63.10:2013
Test Frequency Range:	9kHz to 25GHz
Test site:	Measurement Distance: 3m

Receiver setup:

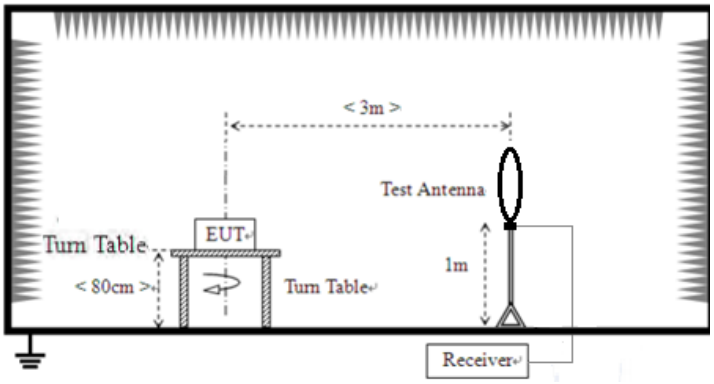
Frequency	Detector	RBW	VBW	Value
9KHz-150KHz	Quasi-peak	200Hz	600Hz	Quasi-peak
150KHz-30MHz	Quasi-peak	9KHz	30KHz	Quasi-peak
30MHz-1GHz	Quasi-peak	120KHz	300KHz	Quasi-peak
Above 1GHz	Peak	1MHz	3MHz	Peak
	Peak	1MHz	10Hz	Average

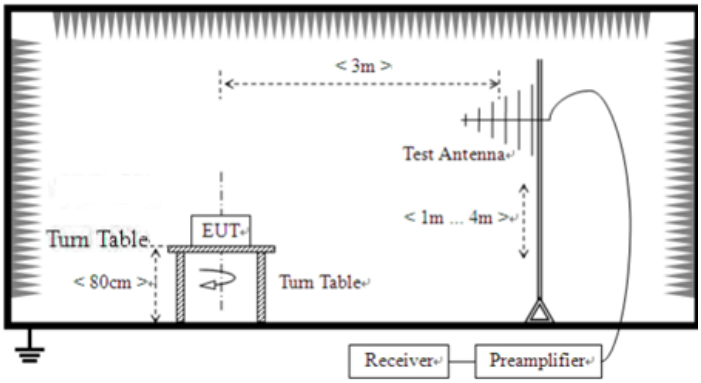
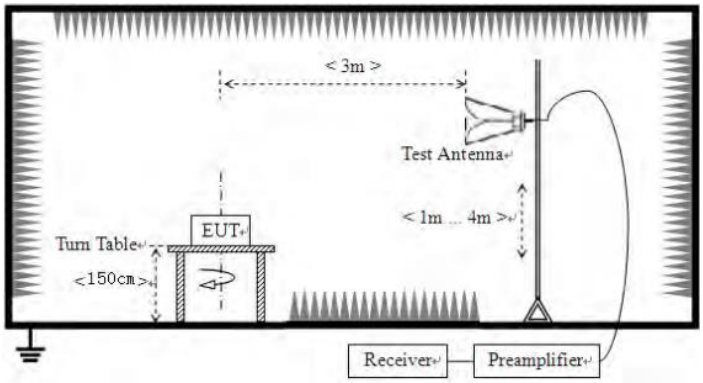
Limit:

Frequency	Limit (uV/m)	Value	Measurement Distance
0.009MHz-0.490MHz	2400/F(KHz)	QP	300m
0.490MHz-1.705MHz	24000/F(KHz)	QP	30m
1.705MHz-30MHz	30	QP	30m
30MHz-88MHz	100	QP	3m
88MHz-216MHz	150	QP	
216MHz-960MHz	200	QP	
960MHz-1GHz	500	QP	
Above 1GHz	500	Average	
	5000	Peak	

Test setup:

For radiated emissions from 9kHz to 30MHz



	For radiated emissions from 30MHz to1GHz  For radiated emissions above 1GHz 
Test Procedure:	1. The EUT was placed on the top of a rotating table (0.8m for below 1G and 1.5m for above 1G) above the ground at a 3 meter camber. 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 antenna height 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 rota table was turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details

Test environment:	Temp.:	25 °C	Humid.:	52%	Press.:	1012mbar
Test voltage:	AC 120V, 60Hz					
Test results:	Pass					

Remarks:
1.Only the worst case Main Antenna test data.
2.Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the Y-axis which it is worse case.

Measurement data:

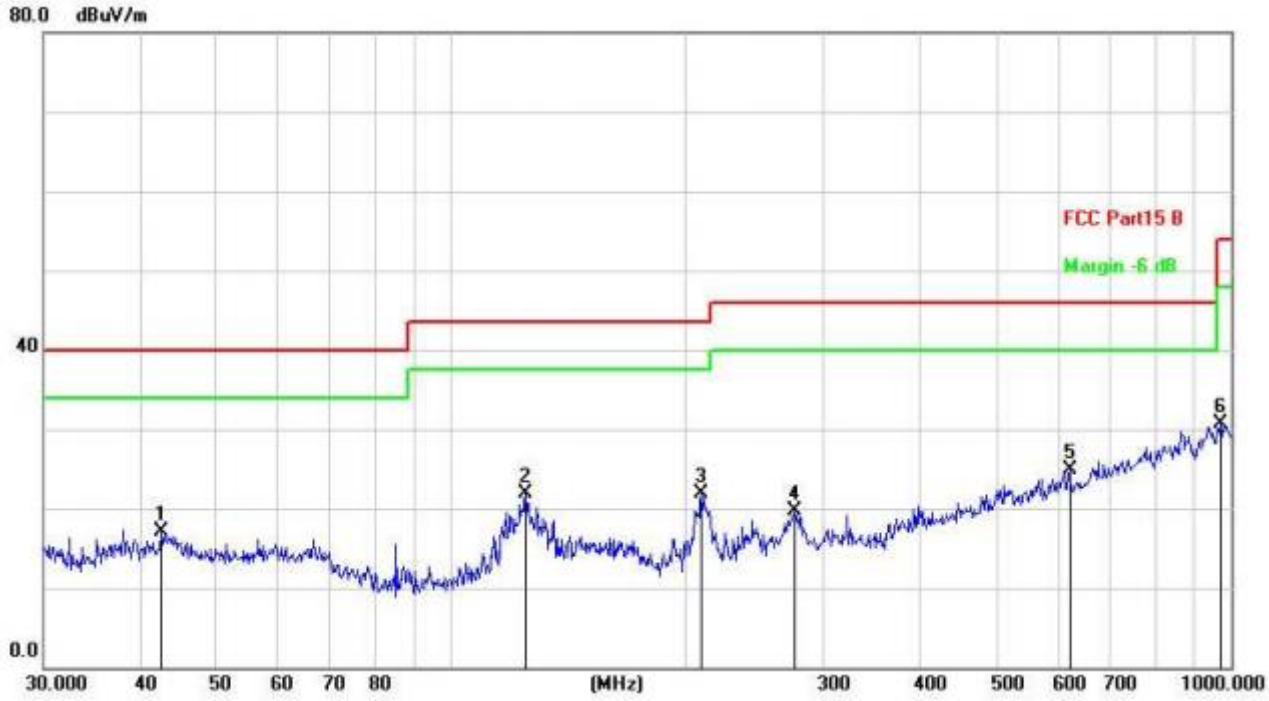
■ **9kHz~30MHz**

The emission from 9 kHz to 30MHz was pre-tested and found the result was 20dB lower than the limit, and according to 15.31(o) & RSS-Gen 6.13, the test result no need to reported.

■ **Below 1GHz**

Pre-scan all test modes, found worst case at 802.11a 5180MHz, and so only show the test result of 802.11a 5180MHz

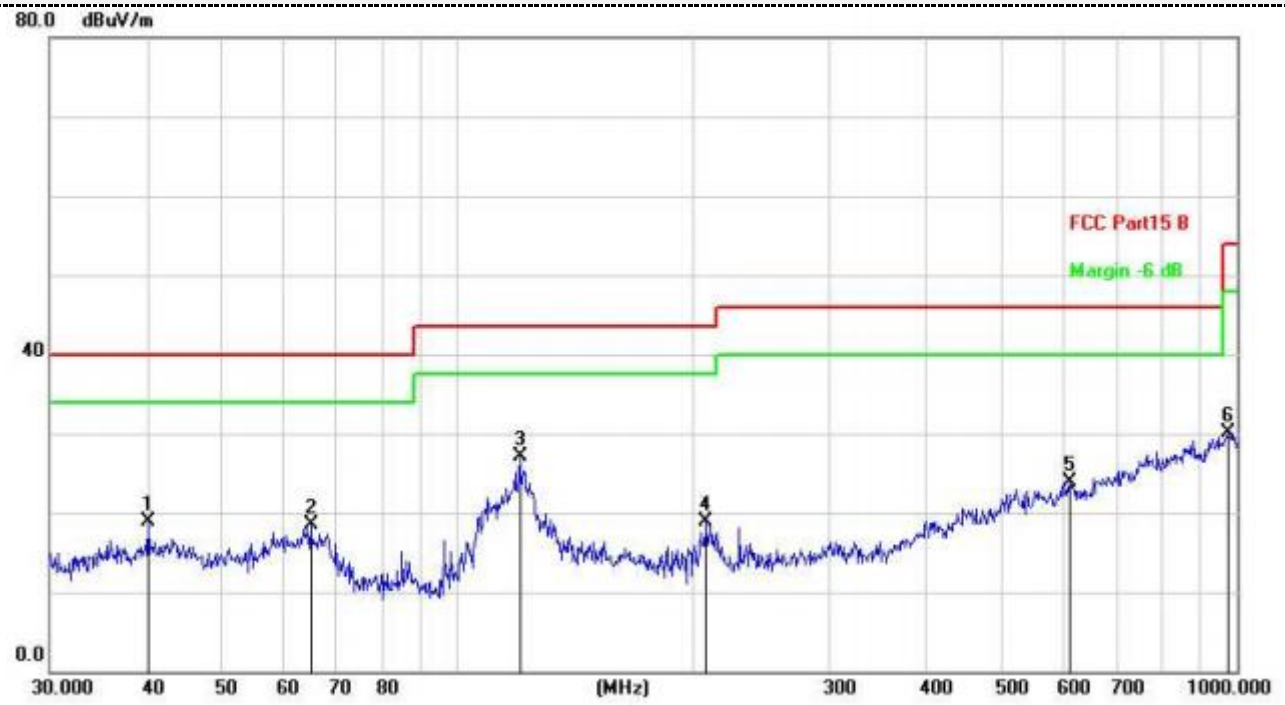
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dB/m	dB	Detector
1		42.4508	27.37	-10.26	17.11	40.00	-22.89	QP
2		124.5690	34.65	-12.81	21.84	43.50	-21.66	QP
3		209.3129	35.18	-13.31	21.87	43.50	-21.63	QP
4		276.1235	31.00	-11.38	19.62	46.00	-26.38	QP
5	*	620.7096	28.16	-3.21	24.95	46.00	-21.05	QP
6		968.9338	27.30	3.34	30.64	54.00	-23.36	QP

Final Level =Receiver Read level + Correct Factor

Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dB/m	dB	Detector
1		40.1347	29.13	-10.21	18.92	40.00	-21.08	QP
2		64.8865	30.95	-12.45	18.50	40.00	-21.50	QP
3	*	120.2766	40.06	-13.04	27.02	43.50	-16.48	QP
4		208.5803	32.28	-13.32	18.96	43.50	-24.54	QP
5		609.9217	27.15	-3.34	23.81	46.00	-22.19	QP
6		972.3374	26.78	3.38	30.16	54.00	-23.84	QP

Final Level =Receiver Read level + Correct Factor

■ **Above 1-40GHz**

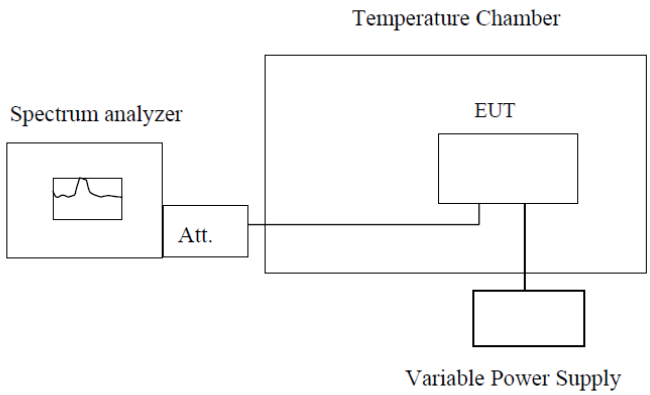
U-NII 1 & 802.11a (above 1GHz)

Tested Channel	Frequency (MHz)	Emission Level (dBuV/m)	Detector Mode	ANT Pol	Limit (dBuV/m)	Margin (dB)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre amplifier (dB)	Correction Factor (dB/m)
	5150.00	53.96	PK	H	68.20	14.24	45.62	31.4	8.44	31.5	8.34
36.00	5150.00	44.15	AV	H	54.00	9.85	35.81	31.4	8.44	31.5	8.34
(5180MHz)	10360.00	54.28	PK	H	68.20	13.92	38.83	38.21	11.59	38.26	11.54
	--	--	--	--	--	--	--	--	--	--	--
40.00	10400.00	53.87	PK	H	68.20	14.33	42.33	38.21	11.59	38.26	11.54
(5200MHz)	--	--	--	--	--	--	--	--	--	--	--
48.00	5350.50	42.93	PK	H	68.20	25.27	34.59	31.4	8.44	31.5	8.34
(5240MHz)	10480.00	55.42	PK	H	68.20	12.78	44.28	38.21	11.19	38.26	11.14
	--	--	--	--	--	--	--	--	--	--	--

Tested Channel	Frequency (MHz)	Emission Level (dBuV/m)	Detector Mode	ANT Pol	Limit (dBuV/m)	Margin (dB)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre amplifier (dB)	Correction Factor (dB/m)
	5150.00	53.08	PK	V	68.20	15.12	44.74	31.4	8.44	31.5	8.34
36.00	5150.00	45.17	AV	V	54.00	8.83	36.83	31.4	8.44	31.5	8.34
(5180MHz)	10360.00	42.65	PK	V	68.20	25.55	31.11	38.21	11.59	38.26	11.54
	--	--	--	--	--	--	--	--	--	--	--
40.00	10400.00	51.85	PK	V	68.20	16.35	40.31	38.21	11.59	38.26	11.54
(5200MHz)	--	--	--	--	--	--	--	--	--	--	--
48.00	5350.50	53.47	PK	V	68.20	14.73	45.13	31.4	8.44	31.5	8.34
(5240MHz)	10480.00	52.04	PK	V	68.20	16.16	40.90	38.21	11.19	38.26	11.14
	--	--	--	--	--	--	--	--	--	--	--

Remark：
(1) Data of measurement within this frequency range shown “--- ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
(2) When the test results of Peak Detected below the limits of Average Detected, the Average Detected is not need completed.

6.6. Frequency stability

Test Requirement:	FCC Part15 C Section 15.407(g)
Test Method:	ANSI C63.10:2013, FCC Part 2.1055
Limit:	Manufactures of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified
Test Procedure:	The EUT was setup to ANSI C63.4, 2003; tested to 2.1055 for compliance to FCC Part 15.407(g) requirements.
Test setup:	 **Note :** Measurement setup for testing on Antenna connector
Test Instruments:	Refer to section 6 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

Test environment:	Temp.:	25 °C	Humid.:	52%	Press.:	1012mbar

Remark: Set the EUT transmits at un-modulation mode to test frequency stability.

Ant1							
Mode	TX Type	Frequency (MHz)	Temperature (°C)	Voltage (VAC)	Measured Frequency (MHz)	Limit (MHz)	Verdict
802.11a	SISO	5180	20	102	5179.940	5150 to 5250	Pass
				120	5179.960	5150 to 5250	Pass
				138	5180.000	5150 to 5250	Pass
			-30	120	5179.960	5150 to 5250	Pass
			-20	120	5179.980	5150 to 5250	Pass
			-10	120	5179.980	5150 to 5250	Pass
			0	120	5179.960	5150 to 5250	Pass
			10	120	5179.940	5150 to 5250	Pass
			30	120	5180.040	5150 to 5250	Pass
			40	120	5180.040	5150 to 5250	Pass
			50	120	5180.020	5150 to 5250	Pass
		5200	20	102	5200.020	5150 to 5250	Pass
				120	5199.960	5150 to 5250	Pass
				138	5199.980	5150 to 5250	Pass
			-30	120	5199.940	5150 to 5250	Pass
			-20	120	5199.940	5150 to 5250	Pass
			-10	120	5200.080	5150 to 5250	Pass
			0	120	5199.980	5150 to 5250	Pass
			10	120	5200.040	5150 to 5250	Pass
			30	120	5200.040	5150 to 5250	Pass
			40	120	5200.020	5150 to 5250	Pass
			50	120	5200.060	5150 to 5250	Pass
		5240	20	102	5240.040	5150 to 5250	Pass
				120	5239.980	5150 to 5250	Pass
				138	5240.060	5150 to 5250	Pass
			-30	120	5239.980	5150 to 5250	Pass
			-20	120	5239.940	5150 to 5250	Pass
			-10	120	5240.020	5150 to 5250	Pass
			0	120	5240.020	5150 to 5250	Pass
			10	120	5239.960	5150 to 5250	Pass
			30	120	5240.020	5150 to 5250	Pass
			40	120	5240.000	5150 to 5250	Pass
			50	120	5239.960	5150 to 5250	Pass
802.11n (HT20)	SISO	5180	20	102	5180.040	5150 to 5250	Pass
				120	5180.040	5150 to 5250	Pass
				138	5179.980	5150 to 5250	Pass
			-30	120	5180.020	5150 to 5250	Pass
			-20	120	5180.000	5150 to 5250	Pass
			-10	120	5180.020	5150 to 5250	Pass
			0	120	5180.040	5150 to 5250	Pass
			10	120	5180.020	5150 to 5250	Pass
			30	120	5180.020	5150 to 5250	Pass
			40	120	5180.020	5150 to 5250	Pass
			50	120	5180.020	5150 to 5250	Pass
		5200	20	102	5200.040	5150 to 5250	Pass
				120	5200.060	5150 to 5250	Pass
				138	5200.000	5150 to 5250	Pass
			-30	120	5200.040	5150 to 5250	Pass
			-20	120	5200.040	5150 to 5250	Pass
			-10	120	5200.020	5150 to 5250	Pass
			0	120	5200.040	5150 to 5250	Pass

			10	120	5200.040	5150 to 5250	Pass
			30	120	5200.020	5150 to 5250	Pass
			40	120	5200.020	5150 to 5250	Pass
			50	120	5199.980	5150 to 5250	Pass
		5240	20	102	5240.060	5150 to 5250	Pass
				120	5239.980	5150 to 5250	Pass
				138	5240.040	5150 to 5250	Pass
			-30	120	5240.020	5150 to 5250	Pass
			-20	120	5239.960	5150 to 5250	Pass
			-10	120	5240.060	5150 to 5250	Pass
			0	120	5240.060	5150 to 5250	Pass
			10	120	5240.060	5150 to 5250	Pass
			30	120	5240.020	5150 to 5250	Pass
			40	120	5239.980	5150 to 5250	Pass
			50	120	5239.980	5150 to 5250	Pass
802.11n (HT40)	SISO	5190	20	102	5190.120	5150 to 5250	Pass
				120	5190.000	5150 to 5250	Pass
				138	5190.040	5150 to 5250	Pass
			-30	120	5189.960	5150 to 5250	Pass
			-20	120	5190.000	5150 to 5250	Pass
			-10	120	5190.120	5150 to 5250	Pass
			0	120	5190.120	5150 to 5250	Pass
			10	120	5190.120	5150 to 5250	Pass
			30	120	5190.080	5150 to 5250	Pass
			40	120	5190.120	5150 to 5250	Pass
			50	120	5190.120	5150 to 5250	Pass
		5230	20	102	5230.040	5150 to 5250	Pass
				120	5230.040	5150 to 5250	Pass
				138	5230.080	5150 to 5250	Pass
			-30	120	5230.080	5150 to 5250	Pass
			-20	120	5230.080	5150 to 5250	Pass
			-10	120	5230.000	5150 to 5250	Pass
			0	120	5230.040	5150 to 5250	Pass
			10	120	5230.000	5150 to 5250	Pass
			30	120	5230.040	5150 to 5250	Pass
			40	120	5230.080	5150 to 5250	Pass
			50	120	5230.080	5150 to 5250	Pass
802.11ac (VHT20)	SISO	5180	20	102	5180.020	5150 to 5250	Pass
				120	5180.020	5150 to 5250	Pass
				138	5179.980	5150 to 5250	Pass
			-30	120	5180.000	5150 to 5250	Pass
			-20	120	5180.080	5150 to 5250	Pass
			-10	120	5180.020	5150 to 5250	Pass
			0	120	5180.020	5150 to 5250	Pass
			10	120	5180.040	5150 to 5250	Pass
			30	120	5180.000	5150 to 5250	Pass
			40	120	5180.000	5150 to 5250	Pass
			50	120	5180.040	5150 to 5250	Pass
		5200	20	102	5200.020	5150 to 5250	Pass
				120	5200.040	5150 to 5250	Pass
				138	5200.040	5150 to 5250	Pass
			-30	120	5200.080	5150 to 5250	Pass
			-20	120	5200.020	5150 to 5250	Pass
			-10	120	5200.060	5150 to 5250	Pass
			0	120	5200.020	5150 to 5250	Pass
			10	120	5200.020	5150 to 5250	Pass
			30	120	5200.020	5150 to 5250	Pass
			40	120	5200.000	5150 to 5250	Pass
			50	120	5200.020	5150 to 5250	Pass
		5240	20	102	5240.000	5150 to 5250	Pass

				120	5240.020	5150 to 5250	Pass
				138	5240.060	5150 to 5250	Pass
			-30	120	5240.020	5150 to 5250	Pass
			-20	120	5239.980	5150 to 5250	Pass
			-10	120	5240.020	5150 to 5250	Pass
			0	120	5240.000	5150 to 5250	Pass
			10	120	5239.980	5150 to 5250	Pass
			30	120	5240.000	5150 to 5250	Pass
			40	120	5240.040	5150 to 5250	Pass
			50	120	5239.960	5150 to 5250	Pass
802.11ac (VHT40)	SISO	5190	20	102	5190.080	5150 to 5250	Pass
				120	5190.080	5150 to 5250	Pass
				138	5190.120	5150 to 5250	Pass
			-30	120	5190.080	5150 to 5250	Pass
			-20	120	5190.080	5150 to 5250	Pass
			-10	120	5190.000	5150 to 5250	Pass
			0	120	5190.040	5150 to 5250	Pass
			10	120	5190.080	5150 to 5250	Pass
			30	120	5190.040	5150 to 5250	Pass
			40	120	5190.040	5150 to 5250	Pass
			50	120	5190.120	5150 to 5250	Pass
		5230	20	102	5230.080	5150 to 5250	Pass
				120	5230.080	5150 to 5250	Pass
				138	5230.080	5150 to 5250	Pass
			-30	120	5230.080	5150 to 5250	Pass
			-20	120	5230.040	5150 to 5250	Pass
			-10	120	5230.080	5150 to 5250	Pass
			0	120	5230.080	5150 to 5250	Pass
			10	120	5230.000	5150 to 5250	Pass
			30	120	5230.040	5150 to 5250	Pass
			40	120	5230.000	5150 to 5250	Pass
			50	120	5230.000	5150 to 5250	Pass

6.7. Antenna Requirement

Standard Applicable

For intentional device, according to FCC 47 CFR Section 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, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited

FCC CFR Title 47 Part 15 Subpart C Section 15.247(c) (1) (I):

(i) Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.

Antenna Connected Construction

The maximum gain of antenna was 2.0 dBi.

Remark:The antenna gain is provided by the customer , if the data provided by the customer is not accurate, Shenzhen HTT Technology Co.,Ltd. does not assume any responsibility.

7. Test Setup Photo

Reference to the **appendix I** for details.

8. EUT Constructional Details

Reference to the **appendix II** for details.

------End------