FCC Part 15E Test Report
FCC ID: 2A54Y-X2

Applicant:	Shenzhen TFIRETEK Technology Co., Ltd.
Address:	4F, Plant5, Detai Industrial Zone, LongHua District, Shenzhen, China
Manufacturer:	Shenzhen TFIRETEK Technology Co., Ltd.
Address:	4F, Plant5, Detai Industrial Zone, LongHua District, Shenzhen, China
EUT:	Projector
Trade Mark:	N/A
Model Number:	X2 X2-A, X2-B, X2-C, X2-D, X2-E, X2-F, X2-G, X2-H, X2-I, X2-J
Date of Receipt:	Jun. 17, 2023
Test Date:	Jun. 17, 2023 - Jun. 29, 2023
Date of Report:	Jun. 29, 2023
Prepared By:	BTF Testing Lab (Shenzhen) Co., Ltd.
Address:	F101, 201 and 301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Street, Bao'an District, Shenzhen, China
Applicable Standards:	FCC PART 15 E 15.407 ANSI C63.10:2013
Test Result:	Pass
Report Number:	BTF230718R01503

Project Engineer:	Elma.yang
EMC Manager:	Ryan.CJ

This test report is based on a single evaluation of one sample of above mentioned products. It is not permitted to be duplicated in extracts without written approval of BTF Testing Lab (Shenzhen) Co., Ltd.

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1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part15 (15.407) , Subpart E			
Standard Section	Test Item	Judgment	Remark
15.207	Conducted Emission	PASS	
15.407(b), 15.209	Radiated Spurious Emission	PASS	
15.407 (b)	Band Edge Emission	PASS	
15.407 (a)	Peak Output Power	PASS	
15.407 (a)	Power Spectral Density	PASS	
15.403(i) 15.407(e)	26dB bandwidth and 99%dB Bandwidth 6dB bandwidth and 99%dB Bandwidth	PASS	
15.407(g)	Frequency Stability	PASS	
15.407(c)	Transmission in case of Absence of Information	PASS	
15.203	Antenna Requirement	PASS	

NOTE:

(1)" N/A" denotes test is not applicable in this Test Report

1.1 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement **y** ± **U**, where expended uncertainty **U** is based on a standard uncertainty multiplied by a coverage factor of **k=2**，providing a level of confidence of approximately **95** %。

No.	Item	Uncertainty
1	Conducted Emission Test	±2.56dB
2	RF power,conducted	±0.42dB
3	Spurious emissions,conducted	±2.76dB
4	All emissions,radiated(<1G)	±3.65dB
5	All emissions,radiated(>1G)	±4.89dB
6	Temperature	±0.5℃
7	Humidity	±2%
8	Bandwidth	±0.2MHz

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Product Name:	Projector
Trademark	N/A
Model No.:	X2 X2-A, X2-B, X2-C, X2-D, X2-E, X2-F, X2-G, X2-H, X2-I, X2-J
Model Difference	The product's different for model number and appearance color.
Operation Frequency:	5180-5240, 5745-5825MHz(802.11a/n/ac(HT20)) 5190-5230, 5755-5795MHz(802.11n/ac(HT40)) 5210MHz , 5775MHz (802.11ac(HT80))
Channel numbers:	See channel list
Channel separation:	20MHz/40MHz/80MHz
Modulation technology:	64QAM, 16QAM, QPSK, BPSK for OFDM
Rate of Transmitter	802.11a: 6Mbps, 9Mbps, 12Mbps, 18Mbps, 24Mbps, 36Mbps, 48Mbps,54Mbps 802.11n: Up to 300Mbps 802.11ac: up to 867Mbps
Antenna Type:	Internal Antenna
Antenna gain:	3.1dBi
Power Supply:	DC 19V from adapter
Adapter:	Model Number: 1AA-190-0500-A Input: 100-240V~ 50/60Hz 1.5A Output: DC 19V/5A

Note:

1.For a more detailed features description, please refer to the manufacturer’s specifications or the User's Manual.

2.The EUT’s all information provided by client.

2. Channel List

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

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

Channel List for 802.11ac(HT80)			
Channel	Frequency (MHz)	Channel	Frequency (MHz)
42	5210	/	/

Channel List for 802.11a/n(HT20)/ac(HT20)			
Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	161	5805
153	5765	165	5825
157	5785		

Channel List for 802.11n(HT40)/ac(HT40)			
Channel	Frequency (MHz)	Channel	Frequency (MHz)
151	5755	159	5795

Channel List for 802.11ac(HT80)			
Channel	Frequency (MHz)	Channel	Frequency (MHz)
155	5775	/	/

2.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

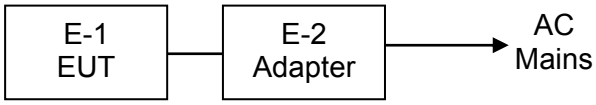
Description			
Pretest Mode	Channel	Band 1	Band 4
Mode 1	802.11a/n/acHT20	CH36, CH44, CH48	CH149, CH157, CH165
Mode 2	802.11n/acHT40	CH38, CH46	CH151, CH159
Mode 3	802.11acHT80	CH42	CH155
Mode 4	Link Mode		

For Radiated Emission			
Pretest Mode	Channel	Band 1	Band 4
Mode 1	802.11a/n/acHT20	CH36, CH44, CH48	CH149, CH157, CH165
Mode 2	802.11n/acHT40	CH38, CH46	CH151, CH159
Mode 3	802.11acHT80	CH42	CH155
Mode 4	Link Mode		

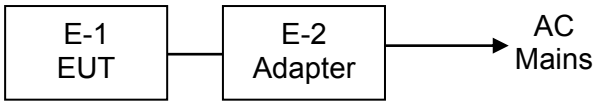
Note: 1. The measurements are performed at the highest, middle, lowest available channels.
2. During the test, the test voltage was tuned from 85% to 115% of the nominal rated supply voltage, and found that the worst case was under the nominal rated supply condition. So the report just shows that condition's data.

2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Radiated Spurious Emission Test



Conducted Spurious Emission Test



2.4 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE)

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Model/Type No.	Series No.	Note
E-1	Projector	X2	N/A	EUT

Item	Shielded Type	Ferrite Core	Length	Note

Note:
(1) For detachable type I/O cable should be specified the length in cm in 『Length』 column.

2.5 TABLE OF PARAMETERS OF TEST SOFTWARE SETTING

During testing, channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the end product.

Max output power Setting				
Test software Version	Test program: AXDN-0002.0			
Mode	802.11a	802.11n HT20	802.11n HT40	802.11ac HT20/HT40/HT80
Data Rate	6Mbps	MSC0	MSC0	MSC0
Power Setting of Softwave	60	60	66	66

2.6 EQUIPMENTS LIST FOR ALL TEST ITEMS

Radiation test, Band-edge test and 6db bandwidth test equipment

Item	Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	Spectrum Analyzer (9kHz-26.5GHz)	Agilent	E4408B	MY50140780	Nov. 05, 2022	Nov. 04, 2023
2	Test Receiver (9kHz-7GHz)	R&S	ESRP7	101393	Nov. 05, 2022	Nov. 04, 2023
3	Bilog Antenna (30MHz-1GHz)	R&S	VULB9162	00306	Nov. 05, 2022	Nov. 04, 2023
4	Horn Antenna (1GHz-18GHz)	Schwarzbeck	BBHA9120D	02139	Nov. 05, 2022	Nov. 04, 2023
5	Horn Antenna (18GHz-40GHz)	A.H. Systems	SAS-574	588	Nov. 05, 2022	Nov. 04, 2023
6	Amplifier (9KHz-6GHz)	Schwarzbeck	BBV9743B	00153	Nov. 05, 2022	Nov. 04, 2023
7	Amplifier (1GHz-18GHz)	EMEC	EM01G8GA	00270	Nov. 05, 2022	Nov. 04, 2023
8	Amplifier (18GHz-40GHz)	Quanjuda	DLE-161	97	Nov. 05, 2022	Nov. 04, 2023
9	Loop Antenna (9KHz-30MHz)	Schwarzbeck	FMZB1519B	00014	Nov. 05, 2022	Nov. 04, 2023
10	RF cables1 (9kHz-1GHz)	ChengYu	966	004	Nov. 05, 2022	Nov. 04, 2023
11	RF cables2 (1GHz-40GHz)	ChengYu	966	003	Nov. 05, 2022	Nov. 04, 2023
12	Antenna connector	Florida RF Labs	N/A	RF 01#	Nov. 05, 2022	Nov. 04, 2023
13	Power probe	KEYSIGHT	U2021XA	MY55210018	Nov. 05, 2022	Nov. 04, 2023
14	Signal Analyzer 9kHz-26.5GHz	Agilent	N9020A	MY55370280	Nov. 05, 2022	Nov. 04, 2023
15	Test Receiver 20kHz-40GHz	R&S	ESU 40	100376	Nov. 05, 2022	Nov. 04, 2023
16	D.C. Power Supply	LongWei	PS-305D	010964729	Nov. 05, 2022	Nov. 04, 2023

Conduction Test equipment

Item	Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	843 Shielded Room	ChengYu	843 Room	843	Sep. 20, 2022	Sep. 19, 2025
2	EMI Receiver	R&S	ESR	101421	Nov. 05, 2022	Nov. 04, 2023
3	LISN	R&S	ENV216	102417	Nov. 05, 2022	Nov. 04, 2023
4	843 Cable 1#	ChengYu	CE Cable	001	Nov. 05, 2022	Nov. 04, 2023

Other

Item	Name	Manufacturer	Model	Software version
1	EMC Conduction Test System	FALA	EZ_EMC	EMC-CON 3A1.1
2	EMC radiation test system	FALA	EZ_EMC	FA-03A2
3	RF test system	MAIWEI	MTS8310	2.0.0.0
4	RF communication test system	MAIWEI	MTS8200	2.0.0.0

3. EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 POWER LINE CONDUCTED EMISSION Limits (Frequency Range 150KHz-30MHz)

FREQUENCY (MHz)	Limit (dBuV)		Standard
	Quasi-peak	Average	
0.15 -0.5	66 - 56 *	56 - 46 *	FCC
0.5 -5.0	56.00	46.00	FCC
5.0 -30.0	60.00	50.00	FCC

Note:

(1) The tighter limit applies at the band edges.

(2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

3.1.2 TEST PROCEDURE

a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.

b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

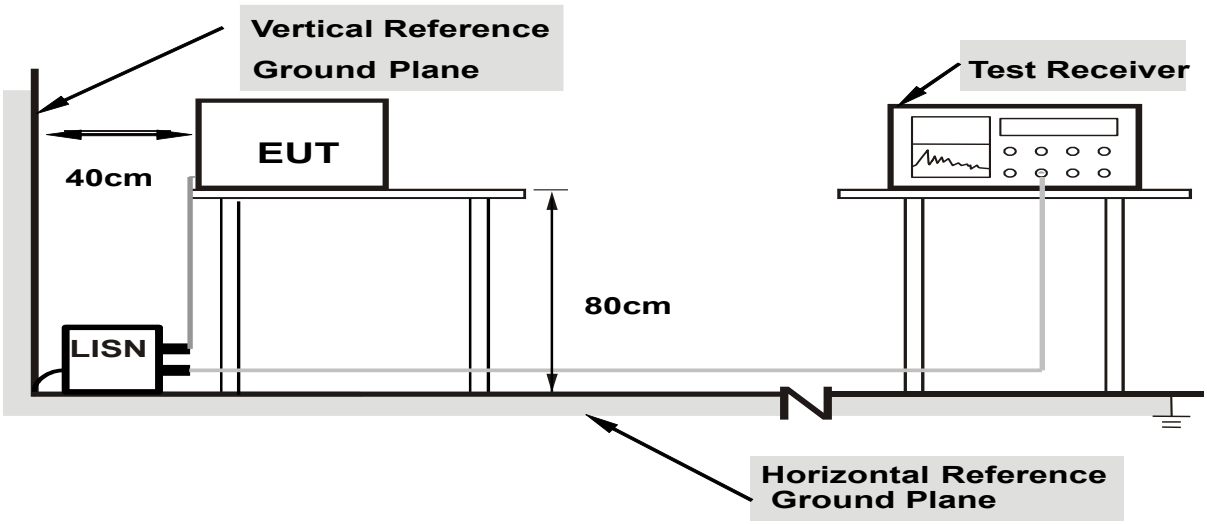
d. LISN at least 80 cm from nearest part of EUT chassis.

e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.1.3 DEVIATION FROM TEST STANDARD

No deviation

3.1.4 TEST SETUP



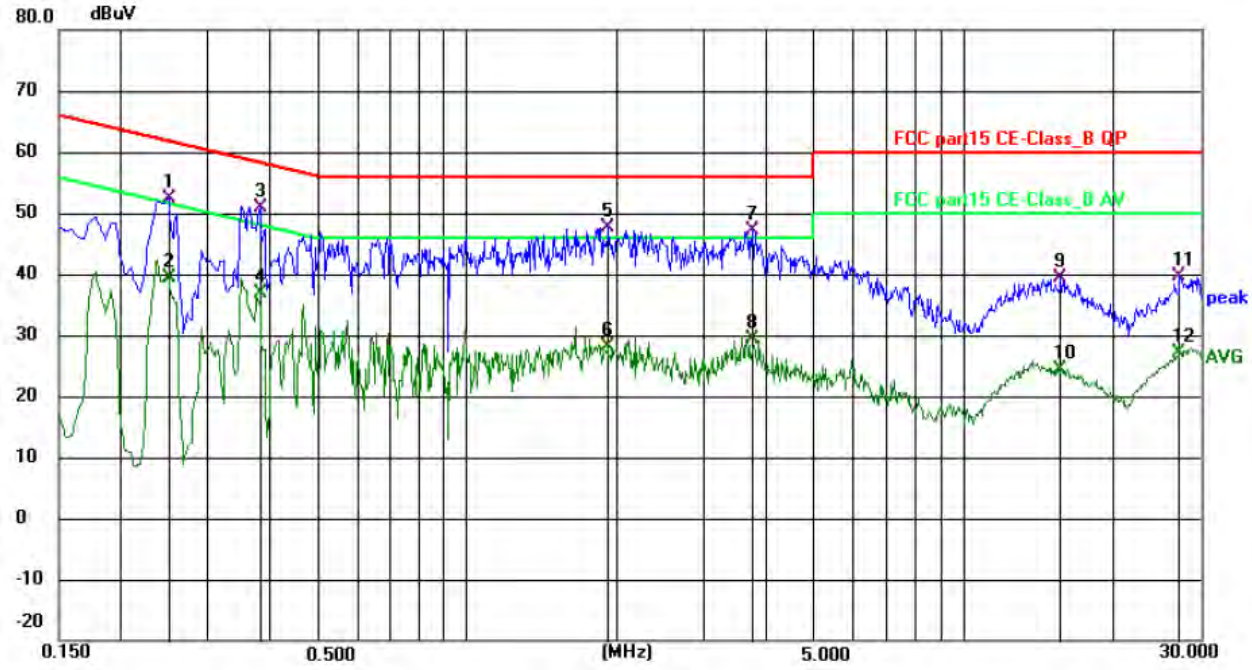
Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

3.1.5 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.
We pretest AC 120V and AC 230V, the worst voltage was AC 120V and the data recording in the report.

3.1.6 TEST RESULTS

Temperature:	25 ℃	Relative Humidity:	54%
Pressure:	1010hPa	Phase :	L
Test Voltage :	AC 120V/60Hz	Test Mode:	Mode 4

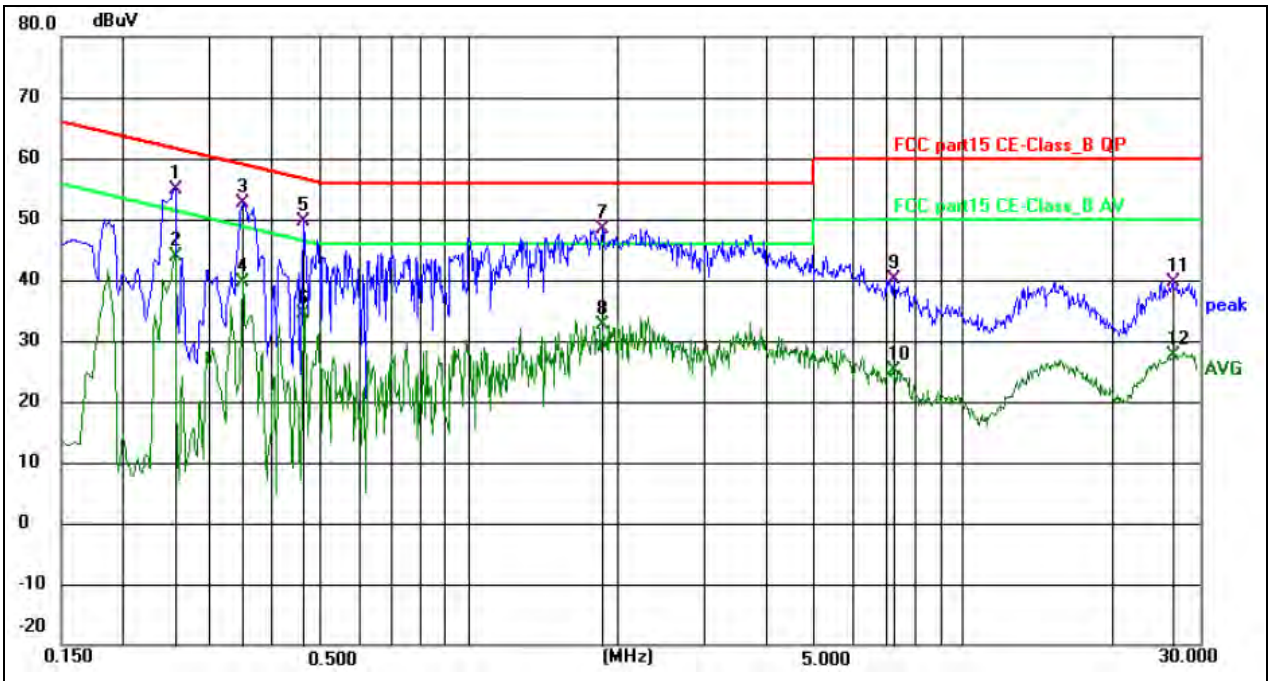


Remark:

Margin = Limit – Level, Correct Factor = Cable lose + LISN insertion loss, Level= Reading + Correct factor

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.248900	43.08	9.38	52.46	61.79	-9.33	QP	P	
2	0.248900	29.94	9.38	39.32	51.79	-12.47	AVG	P	
3 *	0.379500	41.66	9.15	50.81	58.29	-7.48	QP	P	
4	0.379500	27.76	9.15	36.91	48.29	-11.38	AVG	P	
5	1.923000	37.71	9.92	47.63	56.00	-8.37	QP	P	
6	1.923000	18.10	9.92	28.02	46.00	-17.98	AVG	P	
7	3.741000	37.34	9.81	47.15	56.00	-8.85	QP	P	
8	3.741000	19.53	9.81	29.34	46.00	-16.66	AVG	P	
9	15.683900	29.01	10.26	39.27	60.00	-20.73	QP	P	
10	15.683900	14.20	10.26	24.46	50.00	-25.54	AVG	P	
11	27.217500	28.43	11.16	39.59	60.00	-20.41	QP	P	
12	27.217500	16.02	11.16	27.18	50.00	-22.82	AVG	P	

Temperature:	25 ℃	Relative Humidity:	54%
Pressure:	1010hPa	Phase :	N
Test Voltage :	AC 120V/60Hz	Test Mode:	Mode 4



Remark:

Margin = Limit – Level, Correct Factor = Cable lose + LISN insertion loss, Level= Reading + Correct factor

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.253500	45.89	9.01	54.90	61.64	-6.74	QP	P	
2	0.253500	34.79	9.01	43.80	51.64	-7.84	AVG	P	
3 *	0.347800	43.37	9.18	52.55	59.01	-6.46	QP	P	
4	0.347800	30.36	9.18	39.54	49.01	-9.47	AVG	P	
5	0.460500	40.22	9.39	49.61	56.68	-7.07	QP	P	
6	0.460500	25.03	9.39	34.42	46.68	-12.26	AVG	P	
7	1.860000	38.51	9.87	48.38	56.00	-7.62	QP	P	
8	1.860000	22.70	9.87	32.57	46.00	-13.43	AVG	P	
9	7.251000	29.93	10.14	40.07	60.00	-19.93	QP	P	
10	7.251000	14.99	10.14	25.13	50.00	-24.87	AVG	P	
11	26.492900	28.36	11.26	39.62	60.00	-20.38	QP	P	
12	26.492900	16.48	11.26	27.74	50.00	-22.26	AVG	P	

3.2 RADIATED EMISSION MEASUREMENT

3.2.1 RADIATED EMISSION LIMITS (Frequency Range 9kHz-1000MHz)

In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
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

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

FREQUENCY (MHz)	Limit (dBuV/m) (at 3M)	
	PEAK	AVERAGE
Above 1000	74	54

Notes:

(1) The limit for radiated test was performed according to FCC PART 15C.

(2) The tighter limit applies at the band edges.

(3) Emission level (dBuV/m)=20log Emission level (uV/m).

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	40GHz
RB / VB (emission in restricted band)	1 MHz / 1 MHz for Peak, 1 MHz / 10Hz for Average

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

3.2.2 TEST PROCEDURE

Below 1GHz test procedure as below:

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
c. 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.
d. 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 (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
f. 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.

Above 1GHz test procedure as below:

g. Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber and change form table 0.8 metre to 1.5 metre(Above 18GHz the distance is 1 meter and table is 1.5 metre).
h. Test the EUT in the lowest channel, the middle channel, the Highest channel

Note:

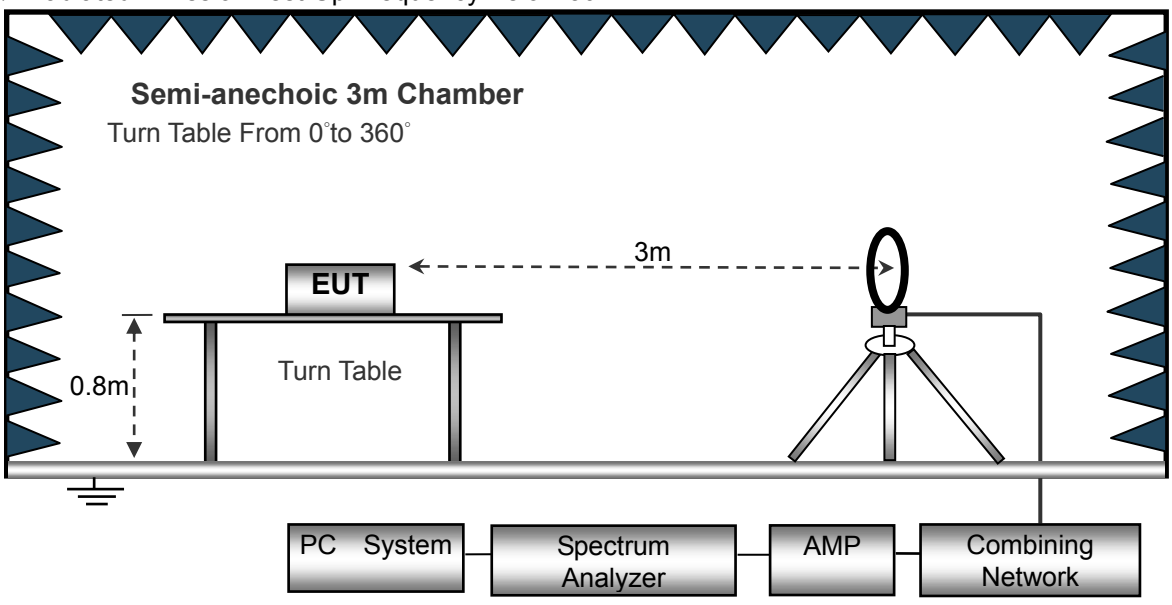
Both horizontal and vertical antenna polarities were tested
and performed pretest to three orthogonal axis. The worst case emissions were reported

3.2.3 DEVIATION FROM TEST STANDARD

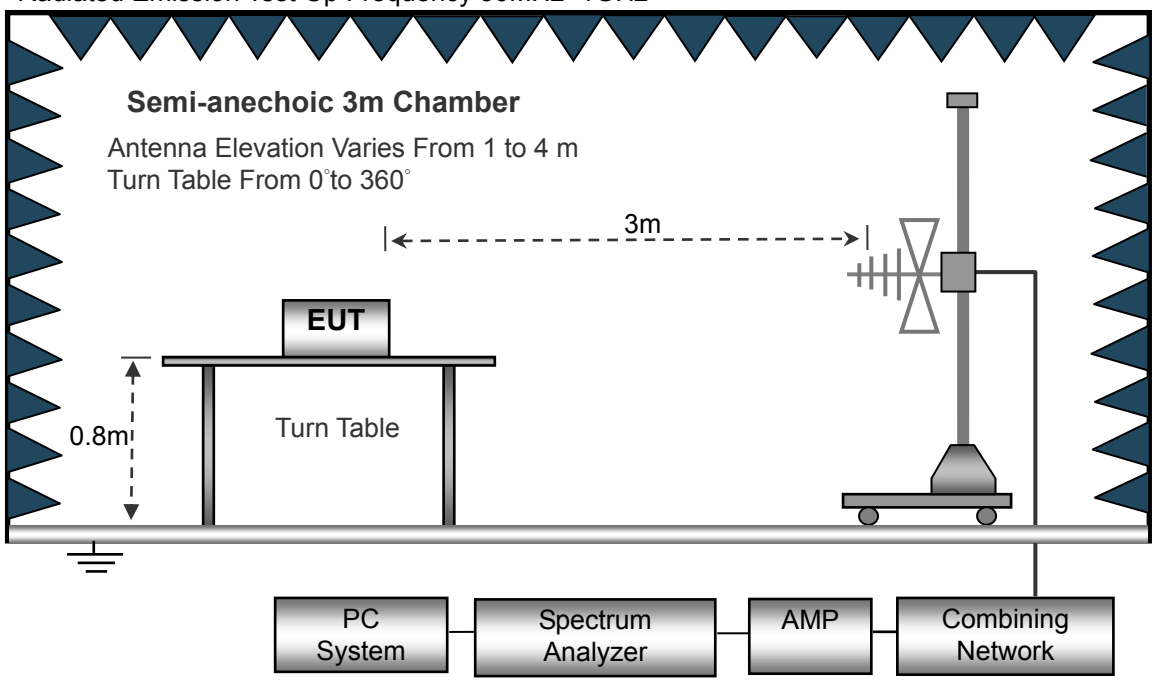
No deviation

3.2.4 TEST SETUP

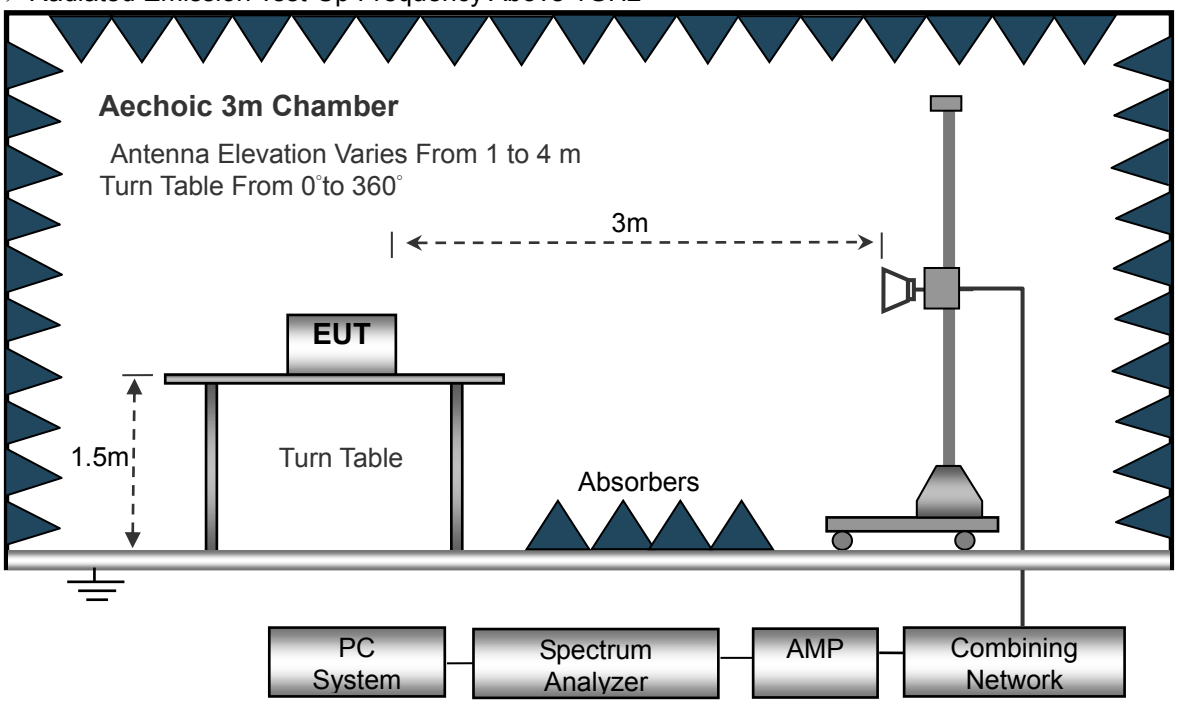
（A）Radiated Emission Test-Up Frequency Below 30MHz



（B）Radiated Emission Test-Up Frequency 30MHz~1GHz



（C）Radiated Emission Test-Up Frequency Above 1GHz



3.2.5 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

3.2.6 TEST RESULTS (Between 9KHz – 30 MHz)

Temperature:	20℃	Relative Humidtity:	48%
Pressure:	1010 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	Mode 4	Polarization :	--

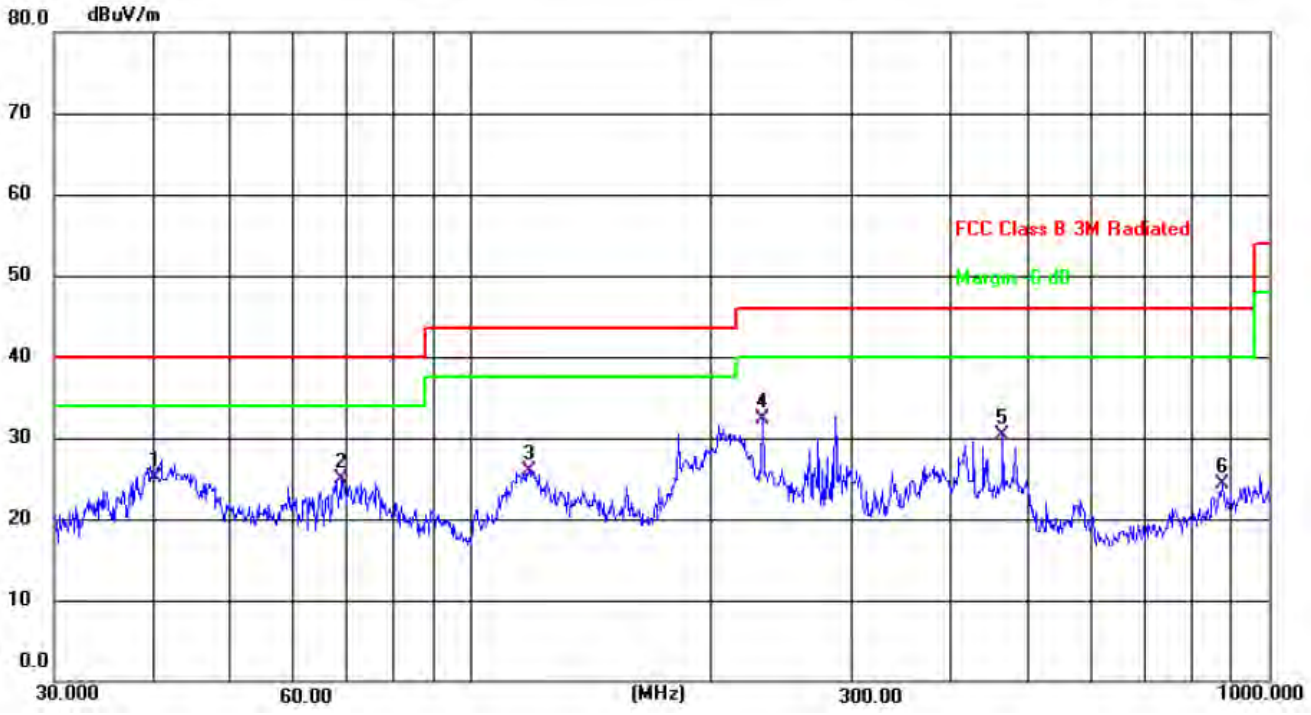
Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	PASS
--	--	--	--	PASS

NOTE:

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
Distance extrapolation factor =40 log (specific distance/test distance)(dB);
Limit line = specific limits(dBuv) + distance extrapolation factor.

3.2.7 TEST RESULTS (Between 30MHz – 1GHz)

Temperature:	26℃	Relative Humidity:	54%
Pressure:	1010 hPa	Polarization :	Horizontal
Test Voltage :	AC 120V/60Hz		
Test Mode :	Mode 4		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		40.1347	37.19	-12.10	25.09	40.00	-14.91	QP
2		68.8721	38.42	-13.60	24.82	40.00	-15.18	QP
3		118.1861	41.53	-15.69	25.84	43.50	-17.66	QP
4	*	231.7178	44.56	-12.32	32.24	46.00	-13.76	QP
5		463.9696	37.88	-7.67	30.21	46.00	-15.79	QP
6		875.2468	25.63	-1.41	24.22	46.00	-21.78	QP

Remark:
Correct Factor = Cable loss + Antenna factor – Preamplifier;
Level = Reading Level + Correct Factor; Margin = Level - Limit;

Temperature:	26℃	Relative Humidity:	54%
Pressure:	1010 hPa	Polarization :	Vertical
test voltage :	AC 120V/60Hz		
Test Mode :	Mode 4		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1	*	36.1269	47.22	-13.46	33.76	40.00	-6.24	QP
2		66.0341	44.72	-13.81	30.91	40.00	-9.09	QP
3		133.1510	45.66	-15.96	29.70	43.50	-13.80	QP
4		213.0150	40.78	-12.47	28.31	43.50	-15.19	QP
5		400.4318	38.49	-8.29	30.20	46.00	-15.80	QP
6		625.0779	27.91	-4.17	23.74	46.00	-22.26	QP

Remark:

Correct Factor = Cable loss + Antenna factor – Preamplifier;

Level = Reading Level + Correct Factor; Margin = Level - Limit;

3.2.8 TEST RESULTS (1ghz~40ghZ)

802.11a band 1

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
operation frequency:5180									
V	10360	56.32	49.05	15.3	37.39	59.96	74	-14.04	PK
V	10360	41.26	49.05	15.3	37.39	44.9	54	-9.10	AV
V	15540	56.68	49.16	15.27	40.45	63.24	74	-10.76	PK
V	15540	39.15	49.16	15.27	40.45	45.71	54	-8.29	AV
H	10360	56.06	49.05	15.3	37.39	59.7	74	-14.30	PK
H	10360	40.44	49.05	15.3	37.39	44.08	54	-9.92	AV
H	15540	59.13	49.16	15.27	40.45	65.69	74	-8.31	PK
H	15540	38.07	49.16	15.27	40.45	44.63	54	-9.37	AV
operation frequency:5200									
V	10400	57.43	49.09	15.34	37.42	61.1	74	-12.90	PK
V	10400	39.35	49.09	15.34	37.42	43.02	54	-10.98	AV
V	15600	59.44	49.18	15.29	40.47	66.02	74	-7.98	PK
V	15600	38.16	49.18	15.29	40.47	44.74	54	-9.26	AV
H	10400	56.96	49.09	15.34	37.42	60.63	74	-13.37	PK
H	10400	39.77	49.09	15.34	37.42	43.44	54	-10.56	AV
H	15600	59.45	49.18	15.29	40.47	66.03	74	-7.97	PK
H	15600	38.36	49.18	15.29	40.47	44.94	54	-9.06	AV
operation frequency:5240									
V	10480	58.52	49.11	15.37	37.46	62.24	74	-11.76	PK
V	10480	39.25	49.11	15.37	37.46	42.97	54	-11.03	AV
V	15720	59.16	49.21	15.34	40.51	65.8	74	-8.20	PK
V	15720	38.37	49.21	15.34	40.51	45.01	54	-8.99	AV
H	10480	57.24	49.11	15.37	31.31	54.81	74	-19.19	PK
H	10480	45.56	49.11	15.37	31.31	43.13	54	-10.87	AV
H	15720	57.44	49.21	15.34	40.51	64.08	74	-9.92	PK
H	15720	37.52	49.21	15.34	40.51	44.16	54	-9.84	AV

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
   Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

802.11n HT20

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
operation frequency:5180									
V	10360	56.13	49.05	15.3	37.39	59.77	74	-14.23	PK
V	10360	38.65	49.05	15.3	37.39	42.29	54	-11.71	AV
V	15540	56.57	49.16	15.27	40.45	63.13	74	-10.87	PK
V	15540	38.24	49.16	15.27	40.45	44.8	54	-9.20	AV
H	10360	56.63	49.05	15.3	37.39	60.27	74	-13.73	PK
H	10360	39.35	49.05	15.3	37.39	42.99	54	-11.01	AV
H	15540	54.19	49.16	15.27	40.45	60.75	74	-13.25	PK
H	15540	38.38	49.16	15.27	40.45	44.94	54	-9.06	AV
operation frequency:5200									
V	10400	56.25	49.09	15.34	37.42	59.92	74	-14.08	PK
V	10400	39.74	49.09	15.34	37.42	43.41	54	-10.59	AV
V	15600	55.36	49.18	15.29	40.47	61.94	74	-12.06	PK
V	15600	38.26	49.18	15.29	40.47	44.84	54	-9.16	AV
H	10400	55.57	49.09	15.34	37.42	59.24	74	-14.76	PK
H	10400	40.35	49.09	15.34	37.42	44.02	54	-9.98	AV
H	15600	55.06	49.18	15.29	40.47	61.64	74	-12.36	PK
H	15600	39.27	49.18	15.29	40.47	45.85	54	-8.15	AV
operation frequency:5240									
V	10480	57.15	49.11	15.37	37.46	60.87	74	-13.13	PK
V	10480	40.56	49.11	15.37	37.46	44.28	54	-9.72	AV
V	15720	54.34	49.21	15.34	40.51	60.98	74	-13.02	PK
V	15720	38.63	49.21	15.34	40.51	45.27	54	-8.73	AV
H	10480	57.15	49.11	15.37	31.31	54.72	74	-19.28	PK
H	10480	44.68	49.11	15.37	31.31	42.25	54	-11.75	AV
H	15720	55.36	49.21	15.34	40.51	62	74	-12.00	PK
H	15720	39.28	49.21	15.34	40.51	45.92	54	-8.08	AV

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
   Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

802.11n HT40

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
operation frequency:5190									
V	10380	56.76	49.07	15.33	37.41	60.43	74	-13.57	PK
V	10380	39.27	49.07	15.33	37.41	42.94	54	-11.06	AV
V	15570	56.24	49.17	15.28	40.46	62.81	74	-11.19	PK
V	15570	38.33	49.17	15.28	40.46	44.9	54	-9.10	AV
H	10380	56.65	49.07	15.33	37.41	60.32	74	-13.68	PK
H	10380	40.32	49.07	15.33	37.41	43.99	54	-10.01	AV
H	15570	54.64	49.17	15.28	40.46	61.21	74	-12.79	PK
H	15570	38.26	49.17	15.28	40.46	44.83	54	-9.17	AV
operation frequency:5230									
V	10460	57.17	49.11	15.37	37.46	60.89	74	-13.11	PK
V	10460	39.64	49.11	15.37	37.46	43.36	54	-10.64	AV
V	15690	54.43	49.21	15.34	40.51	61.07	74	-12.93	PK
V	15690	38.35	49.21	15.34	40.51	44.99	54	-9.01	AV
H	10460	57.23	49.11	15.37	31.31	54.8	74	-19.20	PK
H	10460	44.85	49.11	15.37	31.31	42.42	54	-11.58	AV
H	15690	55.38	49.21	15.34	40.51	62.02	74	-11.98	PK
H	15690	39.04	49.21	15.34	40.51	45.68	54	-8.32	AV

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
   Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

802.11ac HT20

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
operation frequency:5180									
V	10360	56.73	49.05	15.3	37.39	60.37	74	-13.63	PK
V	10360	39.56	49.05	15.3	37.39	43.2	54	-10.80	AV
V	15540	56.18	49.16	15.27	40.45	62.74	74	-11.26	PK
V	15540	38.34	49.16	15.27	40.45	44.9	54	-9.10	AV
H	10360	56.16	49.05	15.3	37.39	59.8	74	-14.20	PK
H	10360	38.28	49.05	15.3	37.39	41.92	54	-12.08	AV
H	15540	54.23	49.16	15.27	40.45	60.79	74	-13.21	PK
H	15540	39.34	49.16	15.27	40.45	45.9	54	-8.10	AV
operation frequency:5200									
V	10400	56.56	49.09	15.34	37.42	60.23	74	-13.77	PK
V	10400	41.77	49.09	15.34	37.42	45.44	54	-8.56	AV
V	15600	55.55	49.18	15.29	40.47	62.13	74	-11.87	PK
V	15600	40.36	49.18	15.29	40.47	46.94	54	-7.06	AV
H	10400	55.14	49.09	15.34	37.42	58.81	74	-15.19	PK
H	10400	40.53	49.09	15.34	37.42	44.2	54	-9.80	AV
H	15600	55.05	49.18	15.29	40.47	61.63	74	-12.37	PK
H	15600	41.26	49.18	15.29	40.47	47.84	54	-6.16	AV
operation frequency:5240									
V	10480	57.47	49.11	15.37	37.46	61.19	74	-12.81	PK
V	10480	40.34	49.11	15.37	37.46	44.06	54	-9.94	AV
V	15720	54.13	49.21	15.34	40.51	60.77	74	-13.23	PK
V	15720	39.95	49.21	15.34	40.51	46.59	54	-7.41	AV
H	10480	57.46	49.11	15.37	31.31	55.03	74	-18.97	PK
H	10480	44.87	49.11	15.37	31.31	42.44	54	-11.56	AV
H	15720	55.64	49.21	15.34	40.51	62.28	74	-11.72	PK
H	15720	40.06	49.21	15.34	40.51	46.7	54	-7.30	AV

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
   Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

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Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
operation frequency:5190									
V	10380	56.47	49.07	15.33	37.41	60.14	74	-13.86	PK
V	10380	40.64	49.07	15.33	37.41	44.31	54	-9.69	AV
V	15570	56.26	49.17	15.28	40.46	62.83	74	-11.17	PK
V	15570	39.52	49.17	15.28	40.46	46.09	54	-7.91	AV
H	10380	56.45	49.07	15.33	37.41	60.12	74	-13.88	PK
H	10380	40.33	49.07	15.33	37.41	44	54	-10.00	AV
H	15570	54.25	49.17	15.28	40.46	60.82	74	-13.18	PK
H	15570	39.57	49.17	15.28	40.46	46.14	54	-7.86	AV
operation frequency:5230									
V	10460	57.23	49.11	15.37	37.46	60.95	74	-13.05	PK
V	10460	41.54	49.11	15.37	37.46	45.26	54	-8.74	AV
V	15690	54.36	49.21	15.34	40.51	61	74	-13.00	PK
V	15690	39.27	49.21	15.34	40.51	45.91	54	-8.09	AV
H	10460	57.15	49.11	15.37	31.31	54.72	74	-19.28	PK
H	10460	44.26	49.11	15.37	31.31	41.83	54	-12.17	AV
H	15690	55.17	49.21	15.34	40.51	61.81	74	-12.19	PK
H	15690	40.04	49.21	15.34	40.51	46.68	54	-7.32	AV

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
   Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

802.11ac HT80

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
operation frequency:5210									
V	10420	56.26	49.07	15.33	37.41	59.93	74	-14.07	PK
V	10420	41.67	49.07	15.33	37.41	45.34	54	-8.66	AV
V	15630	56.14	49.17	15.28	40.46	62.71	74	-11.29	PK
V	15630	39.13	49.17	15.28	40.46	45.7	54	-8.30	AV
H	10420	56.14	49.07	15.33	37.41	59.81	74	-14.19	PK
H	10420	41.26	49.07	15.33	37.41	44.93	54	-9.07	AV
H	15630	54.07	49.17	15.28	40.46	60.64	74	-13.36	PK
H	15630	40.33	49.17	15.28	40.46	46.9	54	-7.10	AV

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
   Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

802.11a band 4

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
operation frequency:5745									
V	11490	54.24	49.05	15.3	37.39	57.88	74	-16.12	PK
V	11490	41.03	49.05	15.3	37.39	44.67	54	-9.33	AV
V	17235	55.38	49.16	15.27	40.45	61.94	68.2	-6.26	PK
V	17235	40.94	49.16	15.27	40.45	47.5	54	-6.50	AV
H	11490	52.36	49.05	15.3	37.39	56	74	-18.00	PK
H	11490	42.15	49.05	15.3	37.39	45.79	54	-8.21	AV
H	17235	51.34	49.16	15.27	40.45	57.9	68.2	-10.30	PK
H	17235	40.23	49.16	15.27	40.45	46.79	54	-7.21	AV
operation frequency:5785									
V	11570	51.68	49.09	15.34	37.42	55.35	74	-18.65	PK
V	11570	41.14	49.09	15.34	37.42	44.81	54	-9.19	AV
V	17355	50.36	49.18	15.29	40.47	56.94	68.2	-11.26	PK
V	17355	40.23	49.18	15.29	40.47	46.81	54	-7.19	AV
H	11570	50.44	49.09	15.34	37.42	54.11	74	-19.89	PK
H	11570	42.06	49.09	15.34	37.42	45.73	54	-8.27	AV
H	17355	48.77	49.18	15.29	40.47	55.35	68.2	-12.85	PK
H	17355	40.14	49.18	15.29	40.47	46.72	54	-7.28	AV
operation frequency:5825									
V	11650	52.06	49.11	15.37	37.46	55.78	74	-18.22	PK
V	11650	41.37	49.11	15.37	37.46	45.09	54	-8.91	AV
V	17475	49.23	49.21	15.34	40.51	55.87	68.2	-12.33	PK
V	17475	40.44	49.21	15.34	40.51	47.08	54	-6.92	AV
H	11650	57.46	49.11	15.37	31.31	55.03	74	-18.97	PK
H	11650	48.05	49.11	15.37	31.31	45.62	54	-8.38	AV
H	17475	49.35	49.21	15.34	40.51	55.99	68.2	-12.21	PK
H	17475	40.13	49.21	15.34	40.51	46.77	54	-7.23	AV

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
   Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

802.11n HT20

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
operation frequency:5745									
V	11490	49.28	49.05	15.3	37.39	52.92	74	-21.08	PK
V	11490	42.16	49.05	15.3	37.39	45.8	54	-8.20	AV
V	17235	48.57	49.16	15.27	40.45	55.13	68.2	-13.07	PK
V	17235	40.24	49.16	15.27	40.45	46.8	54	-7.20	AV
H	11490	49.36	49.05	15.3	37.39	53	74	-21.00	PK
H	11490	41.17	49.05	15.3	37.39	44.81	54	-9.19	AV
H	17235	48.23	49.16	15.27	40.45	54.79	68.2	-13.41	PK
H	17235	40.54	49.16	15.27	40.45	47.1	54	-6.90	AV
operation frequency:5785									
V	11570	52.36	49.09	15.34	37.42	56.03	74	-17.97	PK
V	11570	42.28	49.09	15.34	37.42	45.95	54	-8.05	AV
V	17355	49.14	49.18	15.29	40.47	55.72	68.2	-12.48	PK
V	17355	40.53	49.18	15.29	40.47	47.11	54	-6.89	AV
H	11570	49.35	49.09	15.34	37.42	53.02	74	-20.98	PK
H	11570	43.24	49.09	15.34	37.42	46.91	54	-7.09	AV
H	17355	49.33	49.18	15.29	40.47	55.91	68.2	-12.29	PK
H	17355	40.18	49.18	15.29	40.47	46.76	54	-7.24	AV
operation frequency:5825									
V	11650	51.23	49.11	15.37	37.46	54.95	74	-19.05	PK
V	11650	41.44	49.11	15.37	37.46	45.16	54	-8.84	AV
V	17475	48.26	49.21	15.34	40.51	54.9	68.2	-13.30	PK
V	17475	40.67	49.21	15.34	40.51	47.31	54	-6.69	AV
H	11650	57.23	49.11	15.37	31.31	54.8	74	-19.20	PK
H	11650	44.34	49.11	15.37	31.31	41.91	54	-12.09	AV
H	17475	49.28	49.21	15.34	40.51	55.92	68.2	-12.28	PK
H	17475	40.62	49.21	15.34	40.51	47.26	54	-6.74	AV

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
   Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

802.11n HT40

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
operation frequency:5755									
V	11510	49.13	49.07	15.33	37.41	52.8	74	-21.20	PK
V	11510	41.55	49.07	15.33	37.41	45.22	54	-8.78	AV
V	17265	49.66	49.17	15.28	40.46	56.23	68.2	-11.97	PK
V	17265	40.27	49.17	15.28	40.46	46.84	54	-7.16	AV
H	11510	48.34	49.07	15.33	37.41	52.01	74	-21.99	PK
H	11510	41.15	49.07	15.33	37.41	44.82	54	-9.18	AV
H	17265	49.93	49.17	15.28	40.46	56.5	68.2	-11.70	PK
H	17265	40.24	49.17	15.28	40.46	46.81	54	-7.19	AV
operation frequency:5795									
V	11590	49.13	49.11	15.37	37.46	52.85	74	-21.15	PK
V	11590	41.25	49.11	15.37	37.46	44.97	54	-9.03	AV
V	17385	48.47	49.21	15.34	40.51	55.11	68.2	-13.09	PK
V	17385	40.36	49.21	15.34	40.51	47	54	-7.00	AV
H	11590	57.64	49.11	15.37	31.31	55.21	74	-18.79	PK
H	11590	44.75	49.11	15.37	31.31	42.32	54	-11.68	AV
H	17385	48.13	49.21	15.34	40.51	54.77	68.2	-13.43	PK
H	17385	40.27	49.21	15.34	40.51	46.91	54	-7.09	AV

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
   Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

802.11ac HT20

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
operation frequency:5745									
V	11490	49.36	49.05	15.3	37.39	53	74	-21.00	PK
V	11490	42.45	49.05	15.3	37.39	46.09	54	-7.91	AV
V	17235	48.64	49.16	15.27	40.45	55.2	68.2	-13.00	PK
V	17235	40.26	49.16	15.27	40.45	46.82	54	-7.18	AV
H	11490	48.47	49.05	15.3	37.39	52.11	74	-21.89	PK
H	11490	41.39	49.05	15.3	37.39	45.03	54	-8.97	AV
H	17235	48.25	49.16	15.27	40.45	54.81	68.2	-13.39	PK
H	17235	40.47	49.16	15.27	40.45	47.03	54	-6.97	AV
operation frequency:5785									
V	11570	48.63	49.09	15.34	37.42	52.3	74	-21.70	PK
V	11570	41.84	49.09	15.34	37.42	45.51	54	-8.49	AV
V	17355	49.88	49.18	15.29	40.47	56.46	68.2	-11.74	PK
V	17355	40.45	49.18	15.29	40.47	47.03	54	-6.97	AV
H	11570	49.63	49.09	15.34	37.42	53.3	74	-20.70	PK
H	11570	43.17	49.09	15.34	37.42	46.84	54	-7.16	AV
H	17355	49.35	49.18	15.29	40.47	55.93	68.2	-12.27	PK
H	17355	40.87	49.18	15.29	40.47	47.45	54	-6.55	AV
operation frequency:5825									
V	11650	49.15	49.11	15.37	37.46	52.87	74	-21.13	PK
V	11650	41.36	49.11	15.37	37.46	45.08	54	-8.92	AV
V	17475	48.18	49.21	15.34	40.51	54.82	68.2	-13.38	PK
V	17475	40.64	49.21	15.34	40.51	47.28	54	-6.72	AV
H	11650	57.76	49.11	15.37	31.31	55.33	74	-18.67	PK
H	11650	44.28	49.11	15.37	31.31	41.85	54	-12.15	AV
H	17475	48.35	49.21	15.34	40.51	54.99	68.2	-13.21	PK
H	17475	40.56	49.21	15.34	40.51	47.2	54	-6.80	AV

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
   Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

802.11ac HT40

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
operation frequency:5755									
V	11510	49.28	49.07	15.33	37.41	52.95	74	-21.05	PK
V	11510	42.84	49.07	15.33	37.41	46.51	54	-7.49	AV
V	17265	48.36	49.17	15.28	40.46	54.93	68.2	-13.27	PK
V	17265	41.18	49.17	15.28	40.46	47.75	54	-6.25	AV
H	11510	48.32	49.07	15.33	37.41	51.99	74	-22.01	PK
H	11510	42.45	49.07	15.33	37.41	46.12	54	-7.88	AV
H	17265	48.36	49.17	15.28	40.46	54.93	68.2	-13.27	PK
H	17265	40.27	49.17	15.28	40.46	46.84	54	-7.16	AV
operation frequency:5795									
V	11590	49.43	49.11	15.37	37.46	53.15	74	-20.85	PK
V	11590	41.35	49.11	15.37	37.46	45.07	54	-8.93	AV
V	17385	48.16	49.21	15.34	40.51	54.8	68.2	-13.40	PK
V	17385	40.66	49.21	15.34	40.51	47.3	54	-6.70	AV
H	11590	57.27	49.11	15.37	31.31	54.84	74	-19.16	PK
H	11590	44.75	49.11	15.37	31.31	42.32	54	-11.68	AV
H	17385	48.26	49.21	15.34	40.51	54.9	68.2	-13.30	PK
H	17385	40.14	49.21	15.34	40.51	46.78	54	-7.22	AV

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
   Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

802.11ac HT80

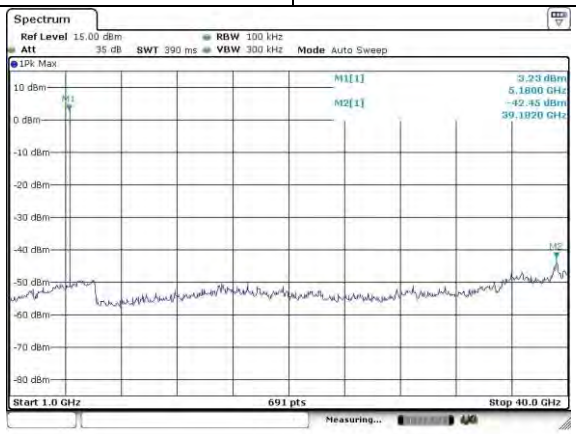
Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
operation frequency:5775									
V	11550	48.36	49.07	15.33	37.41	52.03	74	-21.97	PK
V	11550	42.88	49.07	15.33	37.41	46.55	54	-7.45	AV
V	17325	49.64	49.17	15.28	40.46	56.21	68.2	-11.99	PK
V	17325	40.13	49.17	15.28	40.46	46.7	54	-7.30	AV
H	11550	48.38	49.07	15.33	37.41	52.05	74	-21.95	PK
H	11550	41.25	49.07	15.33	37.41	44.92	54	-9.08	AV
H	17325	48.46	49.17	15.28	40.46	55.03	68.2	-13.17	PK
H	17325	40.68	49.17	15.28	40.46	47.25	54	-6.75	AV

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
   Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

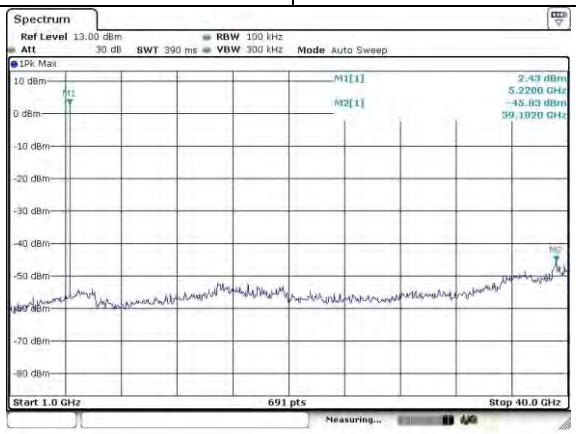
For Conducted
During the test, pre-scan the all modulation, the modulation below were found to have the worst test results, as reflected in the report.

Test channel:	Band 1/802.11a Lowest channel
Limits(dB/m):	-27



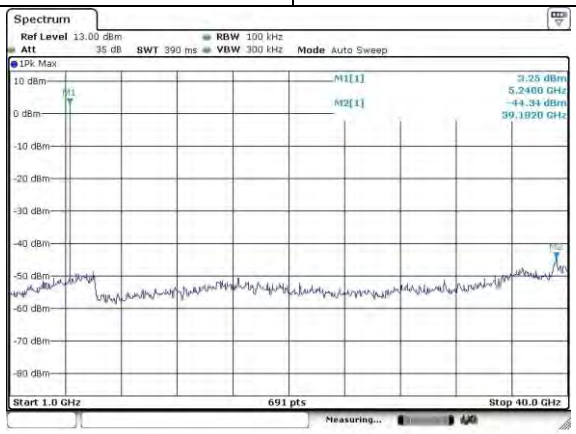
0.03Hz~40GHz

Test channel:	Band 1/802.11a Middle channel
Limits(dB/m):	-27



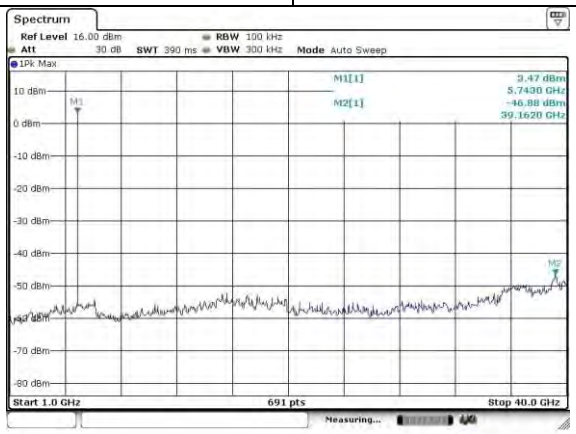
0.03GHz~40GHz

Test channel:	Band 1/802.11a Highest channel
Limits(dB/m):	-27



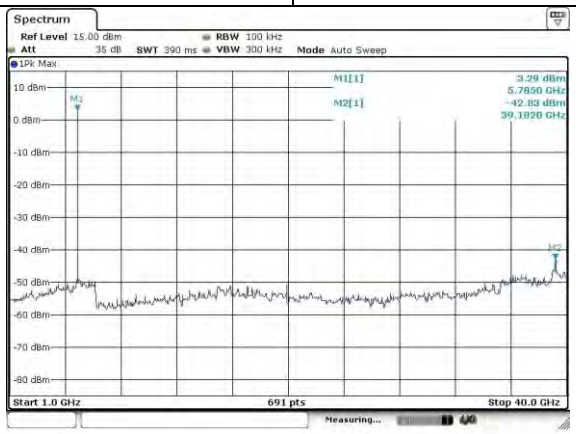
0.03GHz~40GHz

Test channel:	Band 4/802.11a Lowest channel
Limits(dB/m):	-27



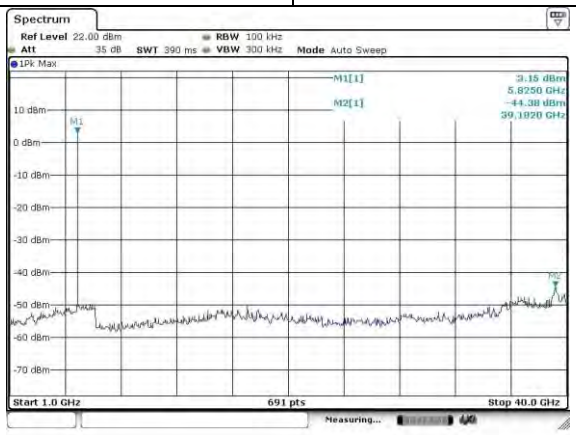
0.03Hz~40GHz

Test channel:	Band 4/802.11a Middle channel
Limits(dB/m):	-27



0.03GHz~40GHz

Test channel:	Band 4/802.11a Highest channel
Limits(dB/m):	-27



0.03GHz~40GHz

3.3 RADIATED BAND EMISSION MEASUREMENT

3.3.1 TEST REQUIREMENT:

RSS-247 Section 5.5

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

FREQUENCY (MHz)	Limit (dBuV/m) (at 3M)	
	PEAK	AVERAGE
Above 1000	74	54

Notes:

(1) The limit for radiated test was performed according to FCC PART 15C.

(2) The tighter limit applies at the band edges.

(3) Emission level (dBuV/m)=20log Emission level (uV/m).

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	5000MHz
Stop Frequency	5420MHz
RB / VB (emission in restricted band)	1 MHz / 1 MHz for Peak, 1 MHz / 10Hz for Average

3.3.2 TEST PROCEDURE

Above 1GHz test procedure as below:

a. 1. The EUT was placed on the top of a rotating table 0.1 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. 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.

d. 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.

e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. 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.

g. Test the EUT in the lowest channel,the Highest channel

Note:

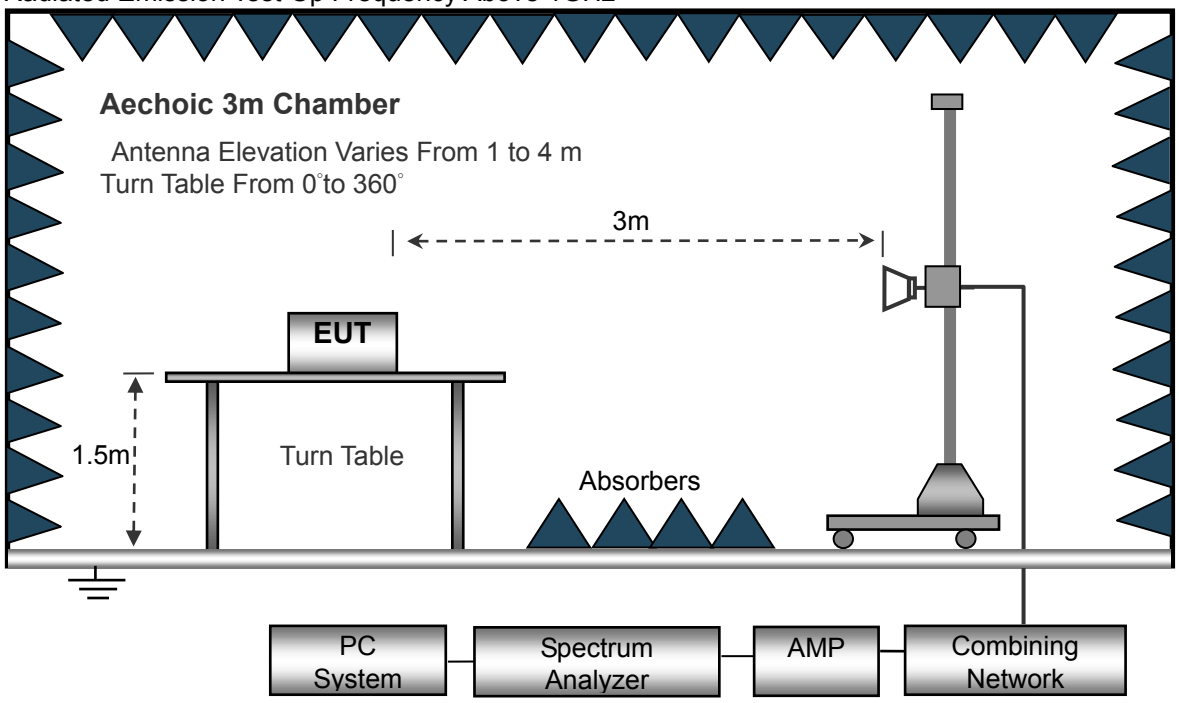
Both horizontal and vertical antenna polarities were tested
and performed pretest to three orthogonal axis. The worst case emissions were reported

3.3.3 DEVIATION FROM TEST STANDARD

No deviation

3.3.4 TEST SETUP

Radiated Emission Test-Up Frequency Above 1GHz



3.3.5 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

3.3.6 TEST RESULT

802.11a

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
operation frequency:5180									
V	5150	53.16	49.12	15.6	37.34	56.98	74	-17.02	PK
V	5150	39.37	49.12	15.6	37.34	43.19	54	-10.81	AV
V	5145	54.25	49.19	15.24	40.43	60.73	74	-13.27	PK
V	5145	36.36	49.19	15.24	40.43	42.84	54	-11.16	AV
H	5150	52.92	49.12	15.6	37.34	56.74	74	-17.26	PK
H	5150	37.58	49.12	15.6	37.34	41.4	54	-12.6	AV
H	5145	54.34	49.19	15.24	40.43	60.82	74	-13.18	PK
H	5145	33.13	49.19	15.24	40.43	39.61	54	-14.39	AV
operation frequency:5240									
V	5350	53.15	49.13	15.32	37.46	56.8	74	-17.2	PK
V	5350	35.46	49.13	15.32	37.46	39.11	54	-14.89	AV
V	5370	53.27	49.24	15.36	40.51	59.9	74	-14.1	PK
V	5370	32.25	49.24	15.36	40.51	38.88	54	-15.12	AV
H	5350	52.11	49.13	15.32	31.31	49.61	74	-24.39	PK
H	5350	40.26	49.13	15.32	31.31	37.76	54	-16.24	AV
H	5370	52.48	49.24	15.36	40.51	59.11	74	-14.89	PK
H	5370	32.55	49.24	15.36	40.51	39.18	54	-14.82	AV

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
   Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

802.11n HT20

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
operation frequency:5180									
V	5150	51.23	49.12	15.6	37.34	55.05	74	-18.95	PK
V	5150	33.14	49.12	15.6	37.34	36.96	54	-17.04	AV
V	5145	51.46	49.19	15.24	40.43	57.94	74	-16.06	PK
V	5145	33.17	49.19	15.24	40.43	39.65	54	-14.35	AV
H	5150	51.45	49.12	15.6	37.34	55.27	74	-18.73	PK
H	5150	33.46	49.12	15.6	37.34	37.28	54	-16.72	AV
H	5145	50.18	49.19	15.24	40.43	56.66	74	-17.34	PK
H	5145	32.64	49.19	15.24	40.43	39.12	54	-14.88	AV
operation frequency:5240									
V	5350	53.66	49.13	15.32	37.46	57.31	74	-16.69	PK
V	5350	34.17	49.13	15.32	37.46	37.82	54	-16.18	AV
V	5370	50.24	49.24	15.36	40.51	56.87	74	-17.13	PK
V	5370	33.56	49.24	15.36	40.51	40.19	54	-13.81	AV
H	5350	54.17	49.13	15.32	31.31	51.67	74	-22.33	PK
H	5350	36.25	49.13	15.32	31.31	33.75	54	-20.25	AV
H	5370	51.26	49.24	15.36	40.51	57.89	74	-16.11	PK
H	5370	33.57	49.24	15.36	40.51	40.2	54	-13.8	AV

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
   Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

802.11ac HT20

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
operation frequency:5180									
V	5150	52.13	49.12	15.33	37.41	55.75	74	-18.25	PK
V	5150	34.58	49.12	15.33	37.41	38.2	54	-15.8	AV
V	5145	51.26	49.19	15.28	40.46	57.81	74	-16.19	PK
V	5145	33.64	49.19	15.28	40.46	40.19	54	-13.81	AV
H	5150	52.45	49.12	15.33	37.41	56.07	74	-17.93	PK
H	5150	34.66	49.12	15.33	37.41	38.28	54	-15.72	AV
H	5145	50.47	49.19	15.28	40.46	57.02	74	-16.98	PK
H	5145	33.55	49.19	15.28	40.46	40.1	54	-13.9	AV
operation frequency:5240									
V	5350	53.66	49.13	15.32	37.46	57.31	74	-16.69	PK
V	5350	36.38	49.13	15.32	37.46	40.03	54	-13.97	AV
V	5370	50.12	49.24	15.36	40.51	56.75	74	-17.25	PK
V	5370	33.61	49.24	15.36	40.51	40.24	54	-13.76	AV
H	5350	53.18	49.13	15.32	31.31	50.68	74	-23.32	PK
H	5350	40.25	49.13	15.32	31.31	37.75	54	-16.25	AV
H	5370	51.86	49.24	15.36	40.51	58.49	74	-15.51	PK
H	5370	35.37	49.24	15.36	40.51	42	54	-12	AV

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
   Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

802.11n HT40

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
operation frequency:5190									
V	5150	52.16	49.12	15.6	37.39	56.03	74	-17.97	PK
V	5150	35.48	49.12	15.6	37.39	39.35	54	-14.65	AV
V	5145	51.55	49.19	15.24	40.45	58.05	74	-15.95	PK
V	5145	34.61	49.19	15.24	40.45	41.11	54	-12.89	AV
H	5150	52.64	49.12	15.6	37.39	56.51	74	-17.49	PK
H	5150	34.76	49.12	15.6	37.39	38.63	54	-15.37	AV
H	5145	50.18	49.19	15.24	40.45	56.68	74	-17.32	PK
H	5145	35.64	49.19	15.24	40.45	42.14	54	-11.86	AV
operation frequency:5230									
V	5350	53.63	49.13	15.34	37.46	57.3	74	-16.7	PK
V	5350	37.65	49.13	15.34	37.46	41.32	54	-12.68	AV
V	5370	50.26	49.24	15.35	40.51	56.88	74	-17.12	PK
V	5370	36.38	49.24	15.35	40.51	43	54	-11	AV
H	5350	54.25	49.13	15.34	31.31	51.77	74	-22.23	PK
H	5350	41.26	49.13	15.34	31.31	38.78	54	-15.22	AV
H	5370	52.64	49.24	15.35	40.51	59.26	74	-14.74	PK
H	5370	36.83	49.24	15.35	40.51	43.45	54	-10.55	AV

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
   Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

802.11ac HT40

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
operation frequency:5190									
V	5150	52.88	49.12	15.32	37.41	56.49	74	-17.51	PK
V	5150	37.64	49.12	15.32	37.41	41.25	54	-12.75	AV
V	5145	52.46	49.19	15.36	40.46	59.09	74	-14.91	PK
V	5145	36.58	49.19	15.36	40.46	43.21	54	-10.79	AV
H	5150	52.95	49.12	15.32	37.41	56.56	74	-17.44	PK
H	5150	37.66	49.12	15.32	37.41	41.27	54	-12.73	AV
H	5145	51.27	49.19	15.36	40.46	57.9	74	-16.1	PK
H	5145	36.65	49.19	15.36	40.46	43.28	54	-10.72	AV
operation frequency:5230									
V	5350	54.66	49.13	15.34	37.34	58.21	74	-15.79	PK
V	5350	36.27	49.13	15.34	37.34	39.82	54	-14.18	AV
V	5370	51.44	49.24	15.35	40.43	57.98	74	-16.02	PK
V	5370	36.96	49.24	15.35	40.43	43.5	54	-10.5	AV
H	5350	54.74	49.13	15.34	37.34	58.29	74	-15.71	PK
H	5350	41.33	49.13	15.34	37.34	44.88	54	-9.12	AV
H	5370	50.24	49.24	15.35	40.43	56.78	74	-17.22	PK
H	5370	35.83	49.24	15.35	40.43	42.37	54	-11.63	AV

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
   Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

802.11ac HT80

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
operation frequency:5210									
V	5350	52.18	49.13	15.32	37.48	55.85	74	-18.15	PK
V	5350	35.85	49.13	15.32	37.48	39.52	54	-14.48	AV
V	5370	51.26	49.24	15.36	40.42	57.8	74	-16.2	PK
V	5370	35.68	49.24	15.36	40.42	42.22	54	-11.78	AV
H	5350	52.44	49.13	15.32	37.48	56.11	74	-17.89	PK
H	5350	36.23	49.13	15.32	37.48	39.9	54	-14.1	AV
H	5370	50.25	49.24	15.36	40.42	56.79	74	-17.21	PK
H	5370	35.23	49.24	15.36	40.42	41.77	54	-12.23	AV

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
   Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

3.3 CONDUCTED BAND EMISSION MEASUREMENT

3.3.1 TEST REQUIREMENT:

FCC Part15 C Section 15.209 and 15.407

(1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.
(4) For transmitters operating in the 5.725-5.85 GHz band: All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

Spectrum Parameter	Setting	
Attenuation	Auto	
Start Frequency	5150MHz	5725MHz
Stop Frequency	5250MHz	5850MHz
RB / VB (emission in restricted band)	1 MHz / 3 MHz for Peak, 1 MHz / 10Hz for Average	

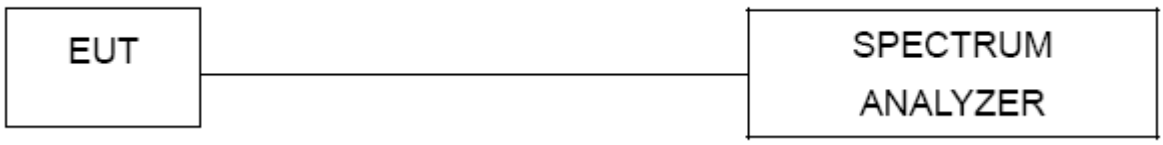
3.3.2 TEST PROCEDURE

Test method: FCC KDB 789033 G)& Parts 15.407(b)(4) & 15.209(a)

3.3.3 DEVIATION FROM TEST STANDARD

No deviation

3.3.4 TEST SETUP

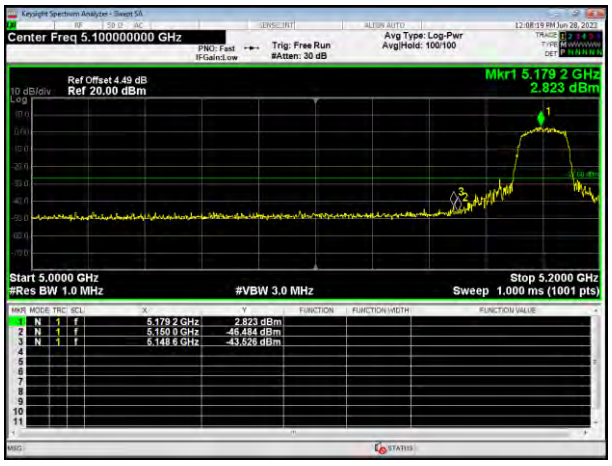
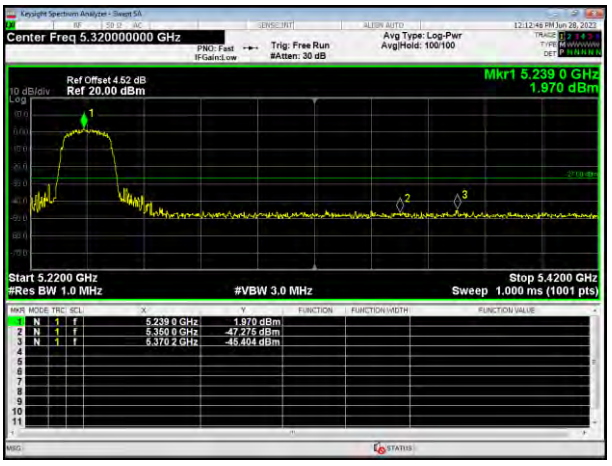
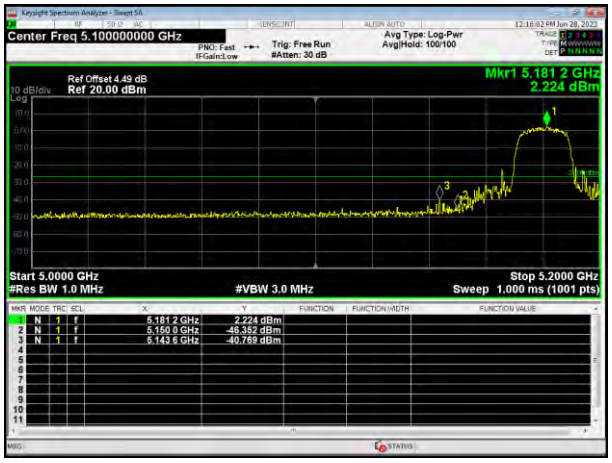
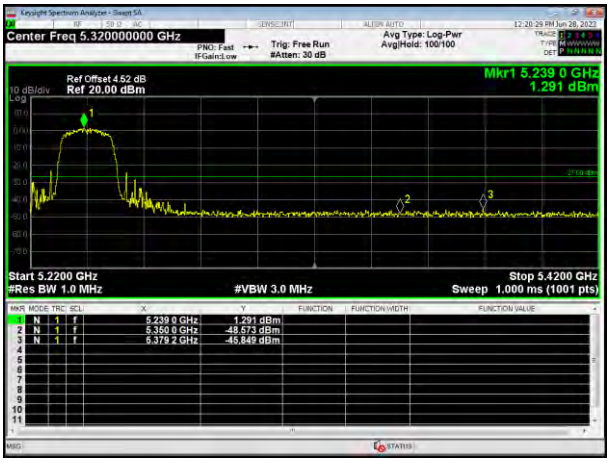
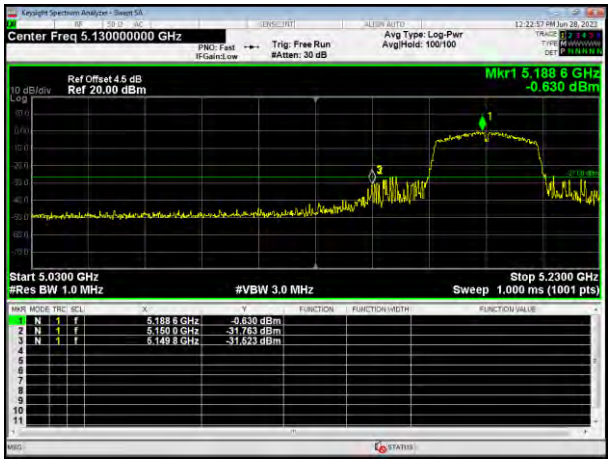
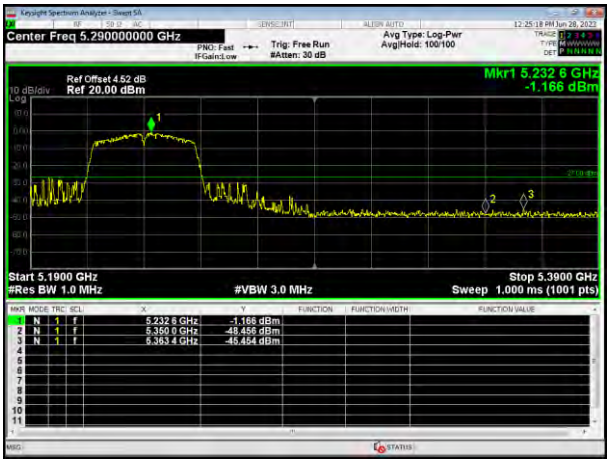


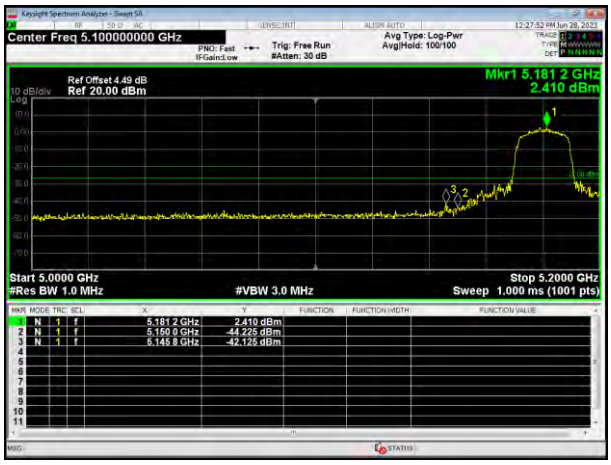
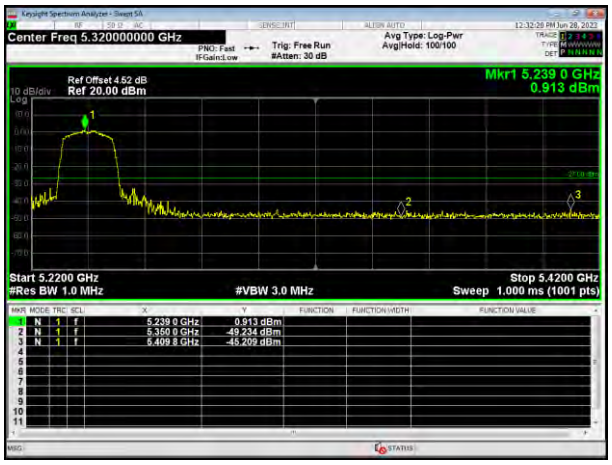
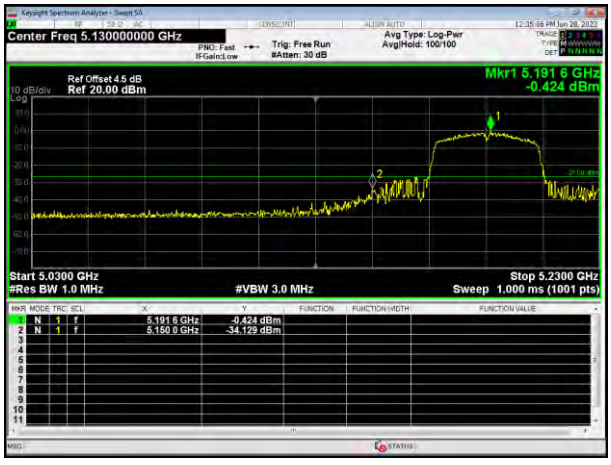
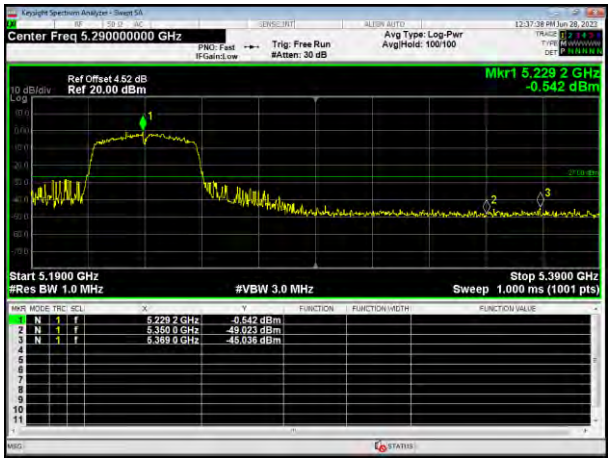
3.3.5 EUT OPERATING CONDITIONS

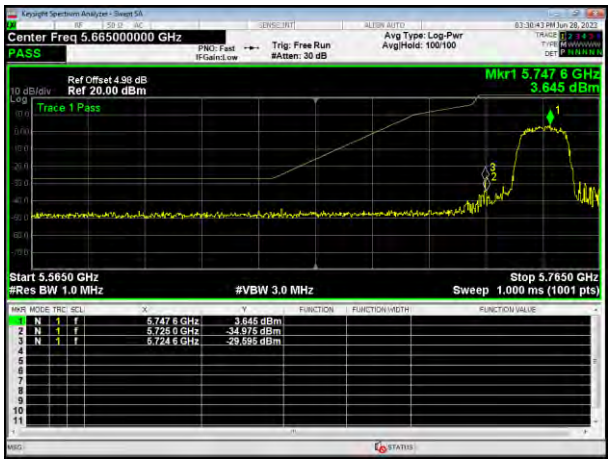
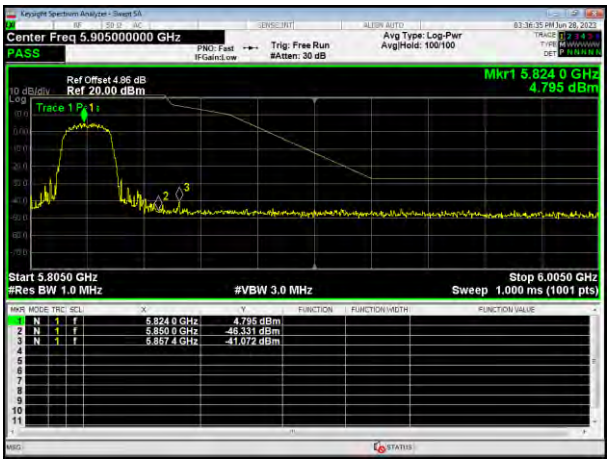
The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

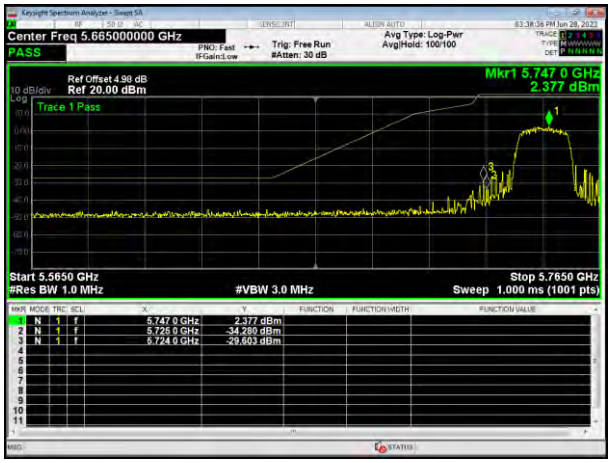
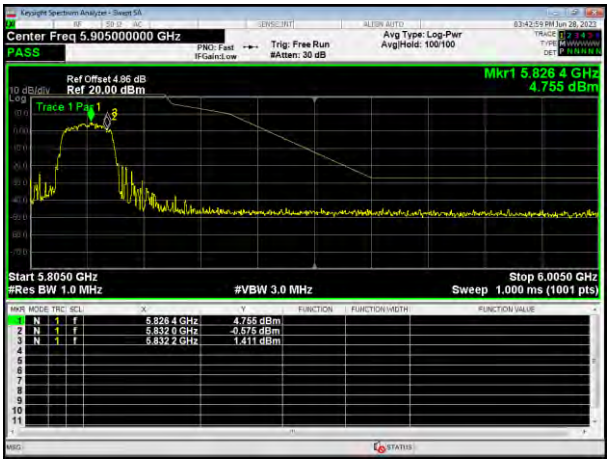
3.3.6 TEST RESULT

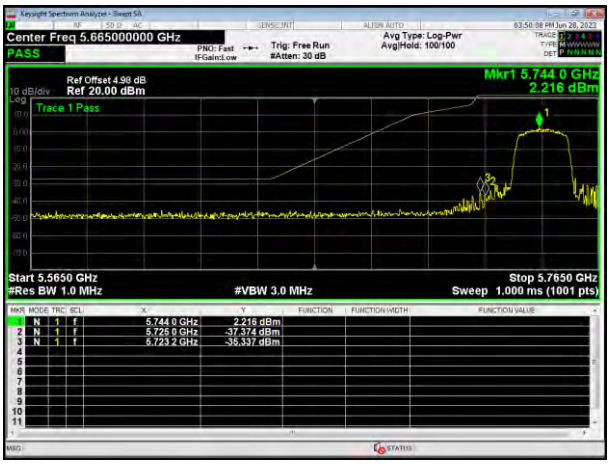
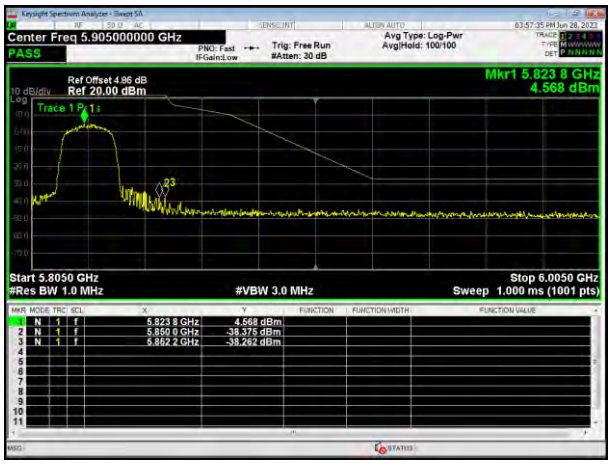
The antenna gain is compensated in the test data.

802.11a	
	
5180MHz	5240MHz
802.11n HT20	
	
5180MHz	5240MHz
802.11n HT40	
	
5190MHz	5230MHz

802.11ac HT20	
	
5180MHz	5240MHz
802.11ac HT40	
	
5190MHz	5230MHz
802.11ac HT80	
	
5210MHz	

802.11a	
	
5745MHz	5825MHz

802.11n HT20	
	
5745MHz	5825MHz
802.11n HT40	
	
5755MHz	5795MHz

802.11ac HT20	
	
5745MHz	5825MHz
802.11ac HT40	
	
5755MHz	5795MHz
802.11ac HT80	
	
5775MHz	

4. AVERAGING OUTPUT POWER

4.1 APPLIED PROCEDURES / LIMIT

For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi.
For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W.

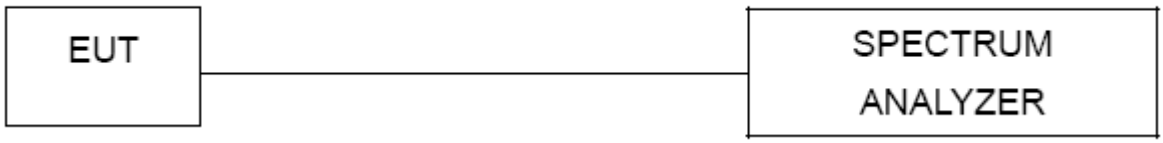
4.1.1 TEST PROCEDURE

a. The EUT was directly connected to the power meter and antenna output port as show in the block diagram below,
b. Spectrum Setting : RBW > the 20 dB bandwidth of the emission being measured
Span = approximately 5 times the 20 dB bandwidth, centered on a hopping channel
VBW ≥ RBW
Sweep = auto
Detector function = RMS (i.e., power averaging), if available. Otherwise, use sample detector mode.
Trace = max hold

4.1.2 DEVIATION FROM STANDARD

No deviation.

4.1.3 TEST SETUP



4.1.4 EUT OPERATION CONDITIONS

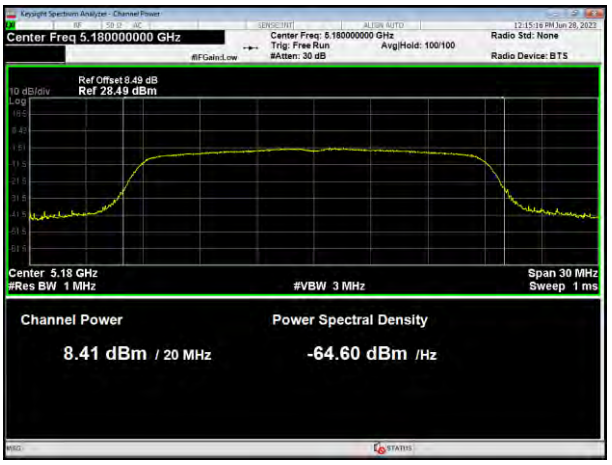
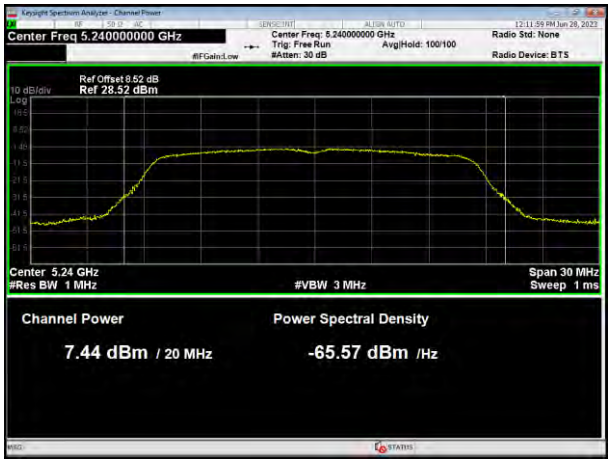
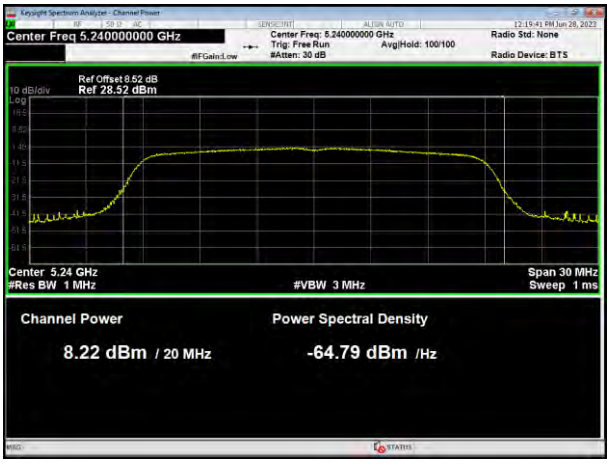
The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

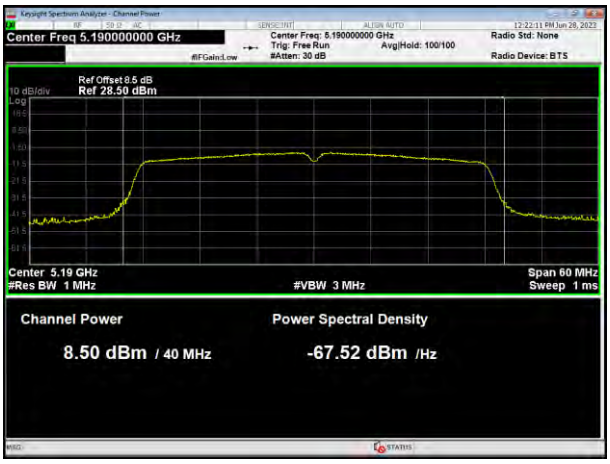
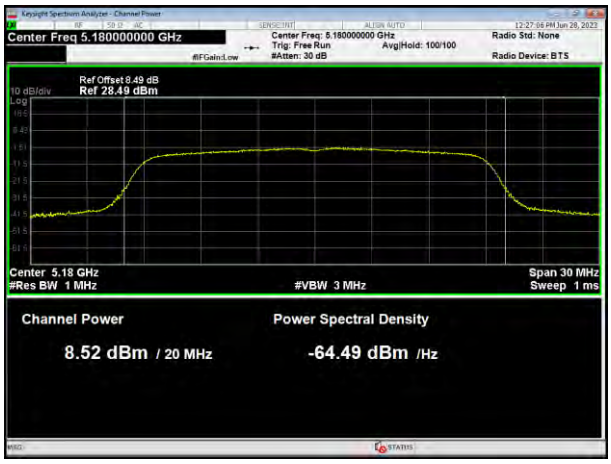
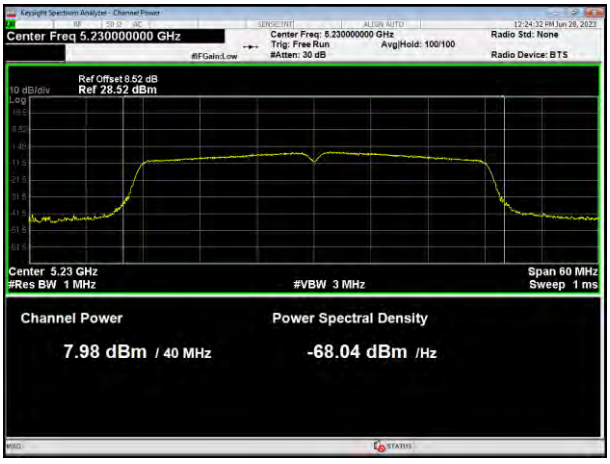
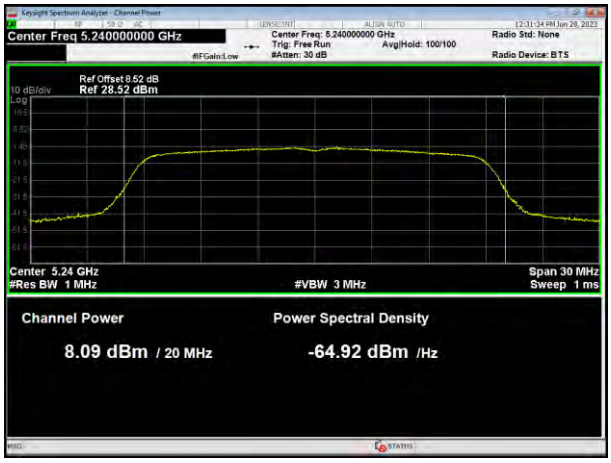
4.1.5 TEST RESULTS

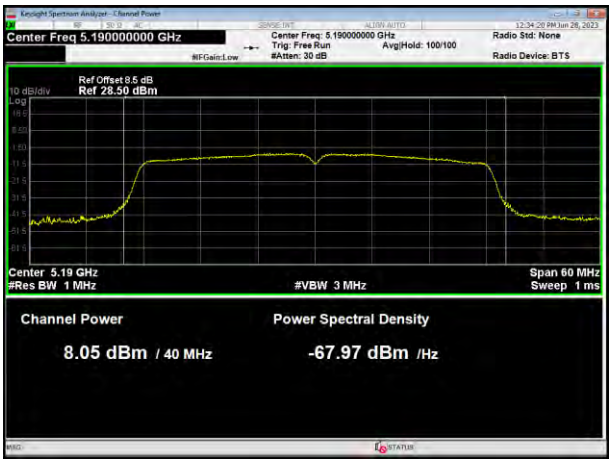
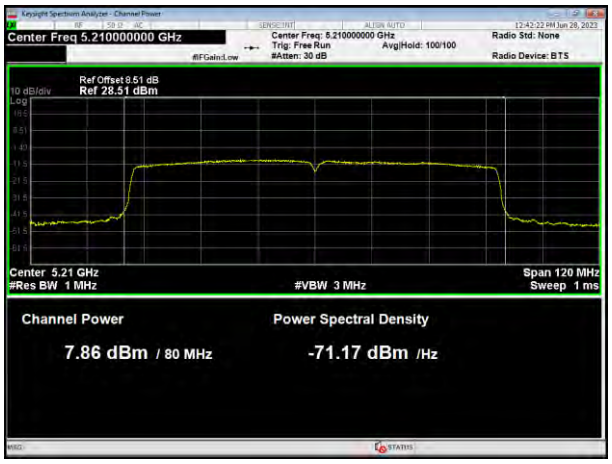
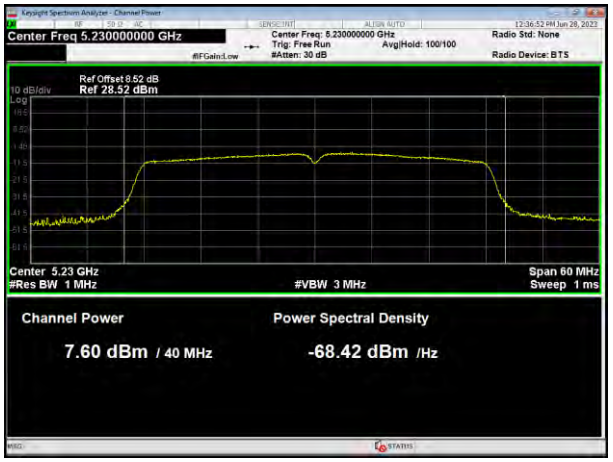
Temperature:	25 ℃	Relative Humidity:	60%
Pressure:	1012 hPa	Test Voltage :	AC 120V/60Hz

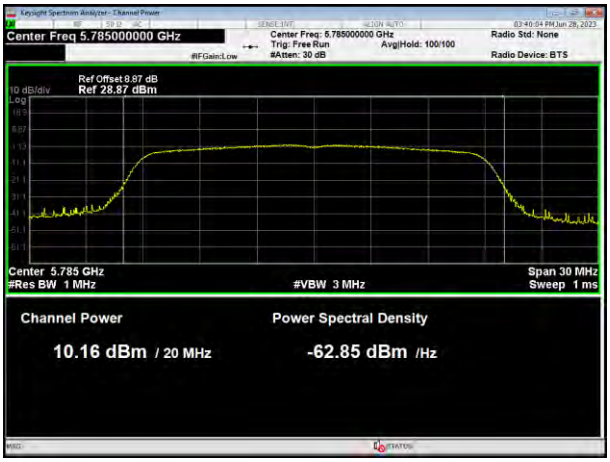
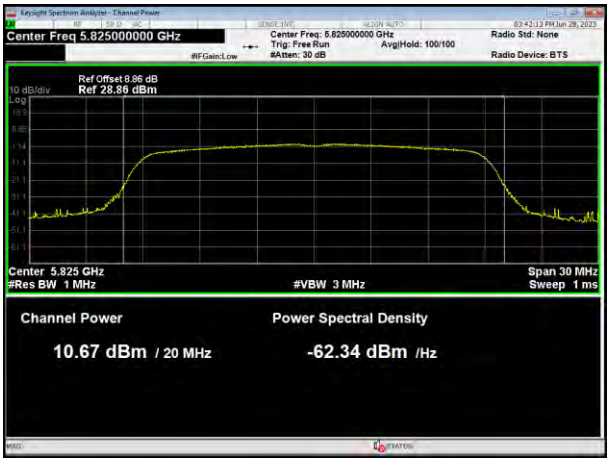
Band	Mode	Test Channel	Average Output Power (dBm)	Duty factor (dB)	Total Output Power(dB)	LIMIT (dBm)
Band 1	802.11a	Low	7.684	0.69	8.374	23.98
		Middle	7.043	0.69	7.733	23.98
		High	7.44	0.69	8.13	23.98
	802.11n HT20	Low	8.406	0.11	8.516	23.98
		Middle	7.766	0.11	7.876	23.98
		High	8.216	0.11	8.326	23.98
	802.11n HT40	Low	8.496	0.21	8.706	23.98
		High	7.982	0.21	8.192	23.98
	802.11ac HT20	Low	8.518	0.2	8.718	23.98
		Middle	7.419	0.2	7.619	23.98
		High	8.089	0.2	8.289	23.98
	802.11ac HT40	Low	8.053	0.37	8.423	23.98
		High	7.6	0.37	7.97	23.98
	802.11ac HT80	/	7.86	0.4	8.26	23.98

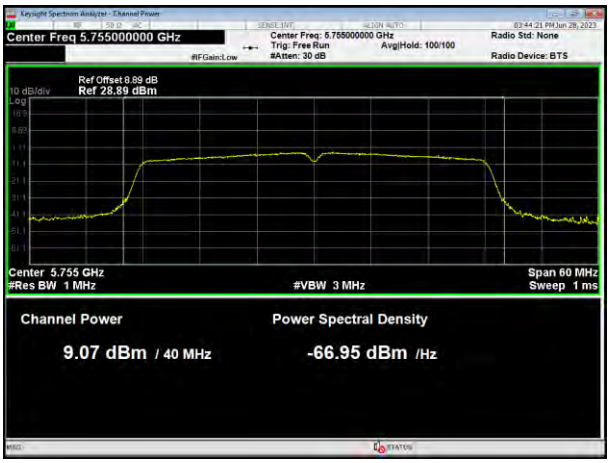
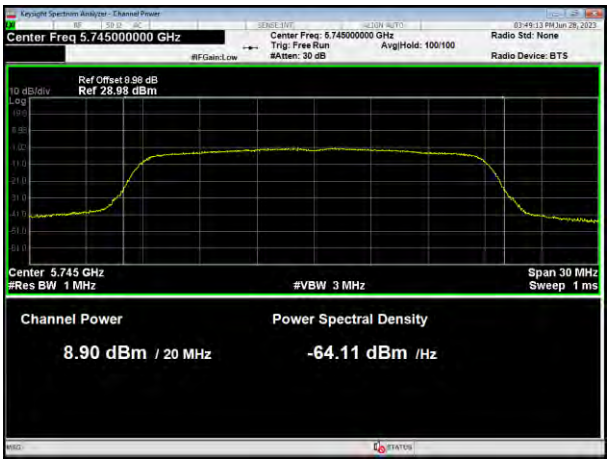
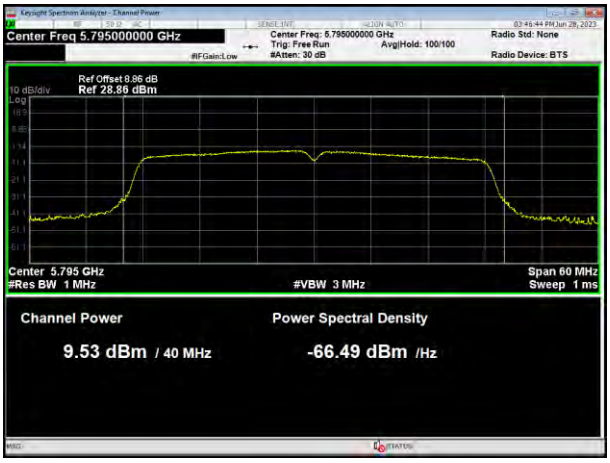
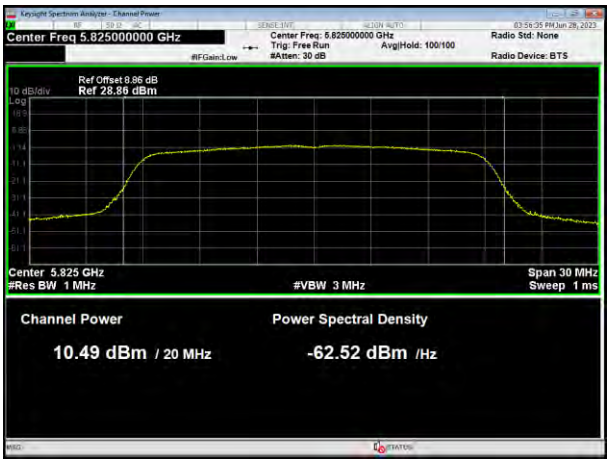
Band	Mode	Test Channel	Average Output Power (dBm)	Duty factor (dB)	Total Output Power(dB)	LIMIT (dBm)
Band 4	802.11a	Low	8.225	0.69	8.915	30
		Middle	9.419	0.69	10.109	30
		High	9.798	0.69	10.488	30
	802.11n HT20	Low	8.956	0.11	9.066	30
		Middle	10.156	0.11	10.266	30
		High	10.667	0.11	10.777	30
	802.11n HT40	Low	9.068	0.21	9.278	30
		High	9.533	0.21	9.743	30
	802.11ac HT20	Low	8.899	0.2	9.099	30
		Middle	9.968	0.2	10.168	30
		High	10.486	0.2	10.686	30
	802.11ac HT40	Low	8.789	0.38	9.169	30
		High	9.309	0.38	9.689	30
	802.11ac HT80	/	8.976	0.66	9.636	30

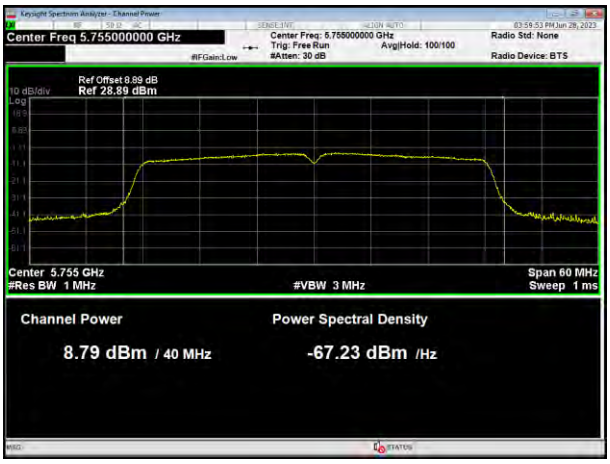
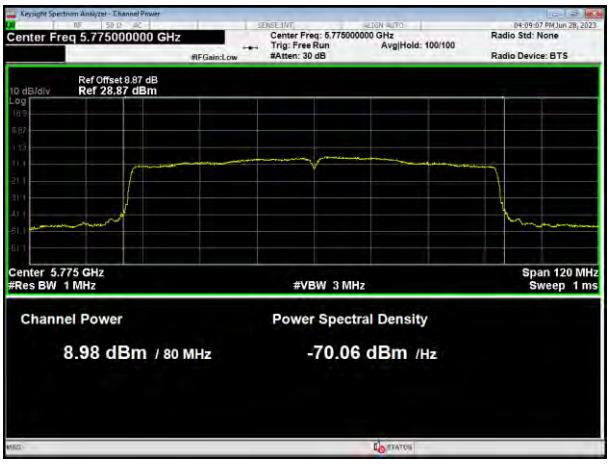
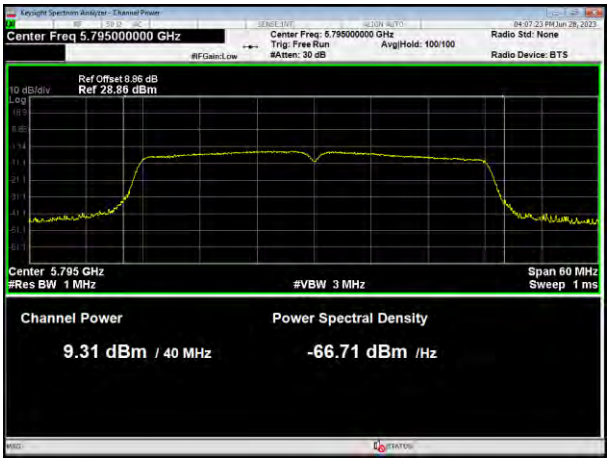
802.11a	802.11n HT20
	
5180MHz	5180MHz
	
5200MHz	5200MHz
	
5240MHz	5240MHz

802.11n HT40	802.11ac HT20
	
5190MHz	5180MHz
	
5230MHz	5200MHz
	
	5240MHz

802.11ac HT40	802.11ac HT80
	
5190MHz	5210MHz
	
5230MHz	

802.11a	802.11n HT20
	
5745MHz	5745MHz
	
5785MHz	5785MHz
	
5825MHz	5825MHz

802.11n HT40	802.11ac HT20
	
5755MHz	5745MHz
	
5795MHz	5785MHz
	
	5825MHz

802.11ac HT40	802.11ac HT80
	
5755MHz	5775MHz
	
5795MHz	

5. POWER SPECTRAL DENSITY TEST

5.1 APPLIED PROCEDURES / LIMIT

In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band.
In addition, the maximum power spectral density shall not exceed 30 dBm in any 500 kHz band.

Spectrum Parameters	Setting
Attenuation	Auto
Span Frequency	= the frequency band of operation
RB	RBW ≥ 1MHz for band 1 RBW ≥ 510KHz for band 4
VB	VBW ≥ 3RBW
Detector	RMS (i.e., power averaging).
Trace	Max Hold
Sweep Time	Auto

5.1.1 TEST PROCEDURE

1. Place the EUT on the table and set it in transmitting mode.
2. The testing follows FCC KDB 789033 D02.
3. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to Spectrum.
4. For U-NII1, U-NII-2A, U-NII-2C Band:
Set RBW=1MHz, VBW=3MHz, where span is enough to capture the entire bandwidth, Sweep time = Auto (601 pts), detector = sample, traces 100 sweeps of video averaging. (SA-2 with the omission of procedure x, the integration with 26dB EBW bandwidth)
For U-NII-3 Band:
Set RBW=510 kHz, VBW=3*RBW, where span is enough to capture the entire bandwidth, Sweep time = Auto (601 pts), detector = sample, traces 100 sweeps of video averaging. (SA-2 with the omission of procedure x, the integration with 26dB EBW bandwidth)
5. User the cursor on spectrum to peak search the highest level of trace
6. Record the max. reading and add 10 log(1/duty cycle).
we test all antennas, the antenna 1 was worst mode and the data recording in the report.
7. Duty factor Reference is made to the test results in Section 7.1.5.

5.1.2 DEVIATION FROM STANDARD

No deviation.

5.1.3 TEST SETUP

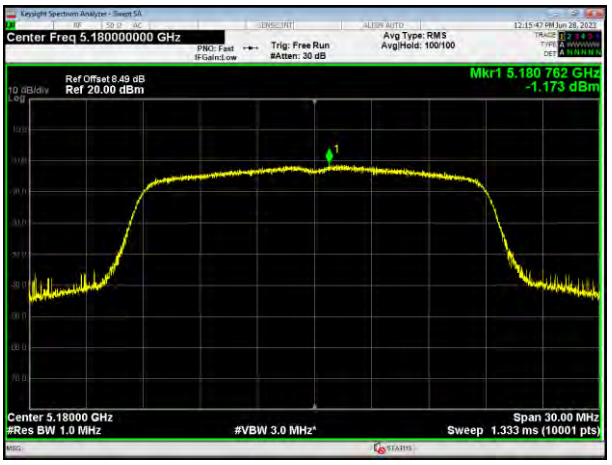
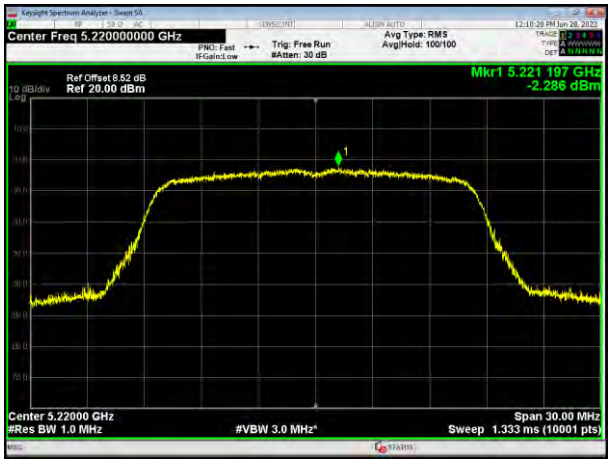
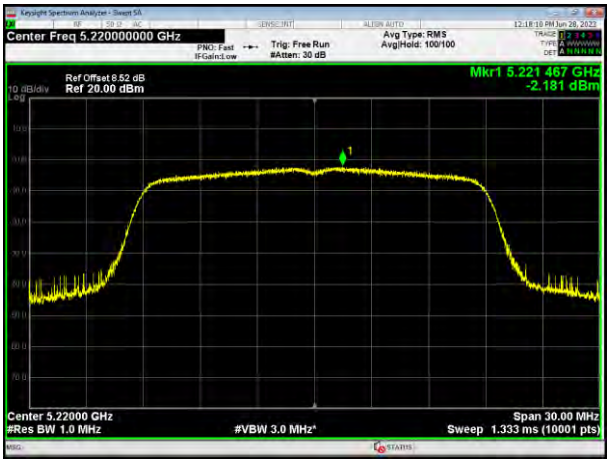
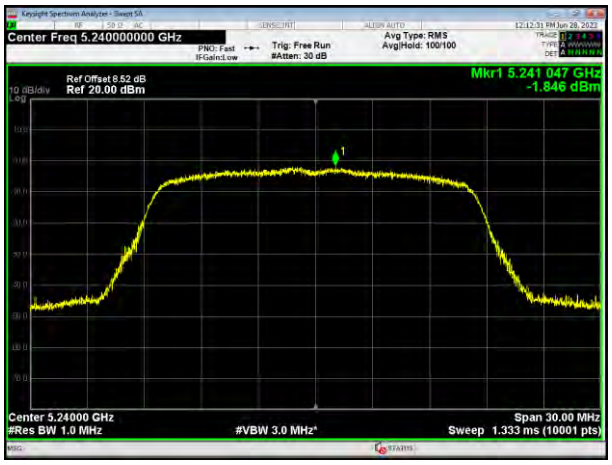
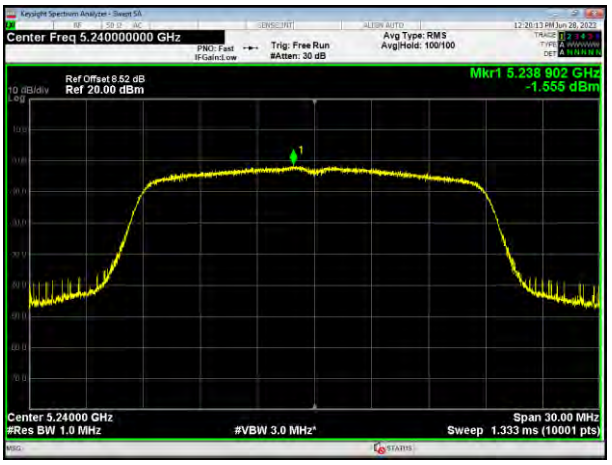
5.1.4 EUT OPERATION CONDITIONS

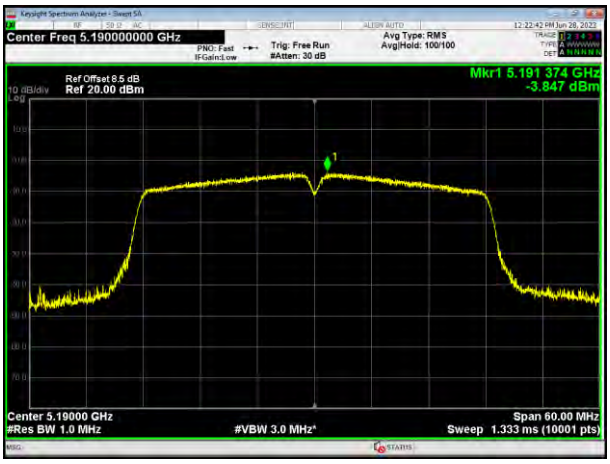
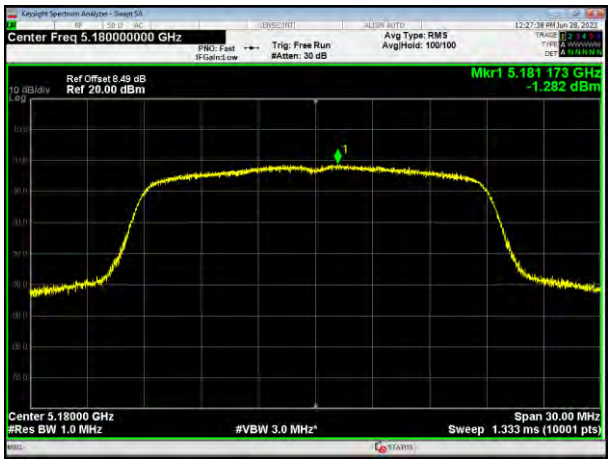
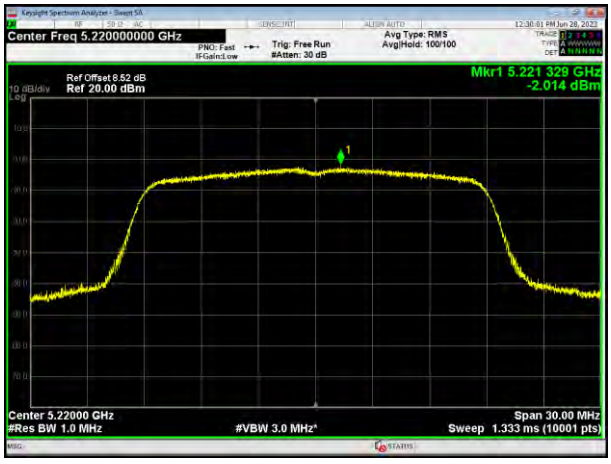
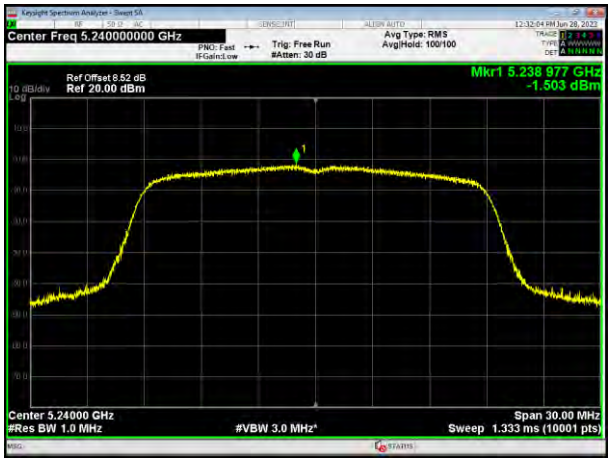
The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

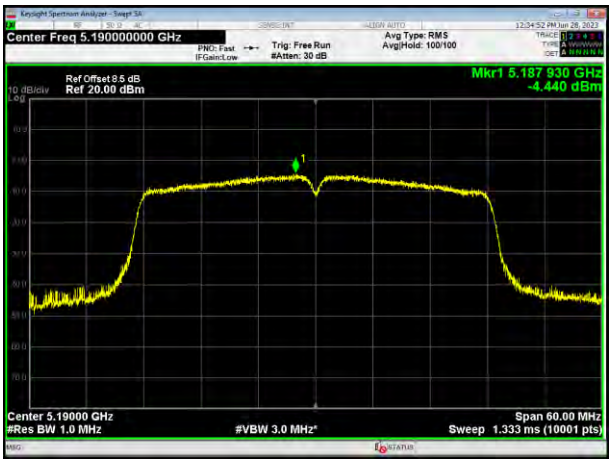
5.1.5 TEST RESULTS

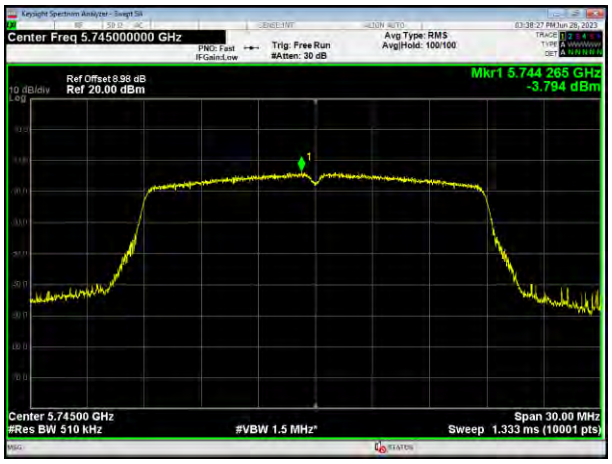
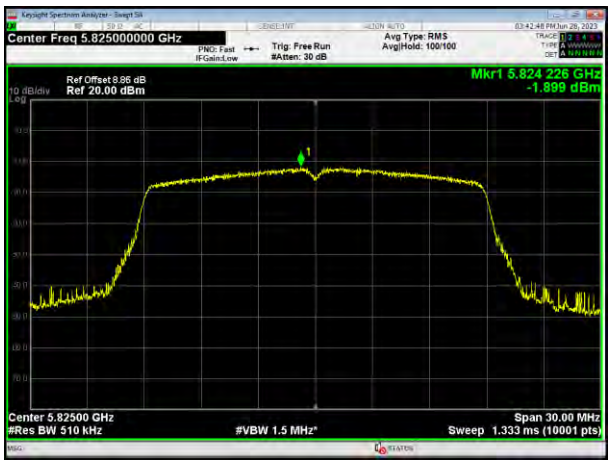
	Mode	Test Channel	Reading Level (dBm)	Duty factor (dB)	PSD (dBm/MHz)	Limit (dBm)	Result
Band1	802.11a	Low	-1.827	0.69	-1.137	11.00	PASS
		Middle	-2.286	0.69	-1.596	11.00	PASS
		High	-1.846	0.69	-1.156	11.00	PASS
	802.11n20	Low	-1.173	0.11	-1.063	11.00	PASS
		Middle	-2.181	0.11	-2.071	11.00	PASS
		High	-1.555	0.11	-1.445	11.00	PASS
	802.11n40	Low	-3.847	0.21	-3.637	11.00	PASS
		High	-4.098	0.21	-3.888	11.00	PASS
	802.11ac20	Low	-1.282	0.2	-1.082	11.00	PASS
		Middle	-2.014	0.2	-1.814	11.00	PASS
		High	-1.503	0.2	-1.303	11.00	PASS
	802.11ac40	Low	-4.44	0.37	-4.07	11.00	PASS
		High	-4.606	0.37	-4.236	11.00	PASS
	802.11ac80	/	-8.338	0.4	-7.938	11.00	PASS

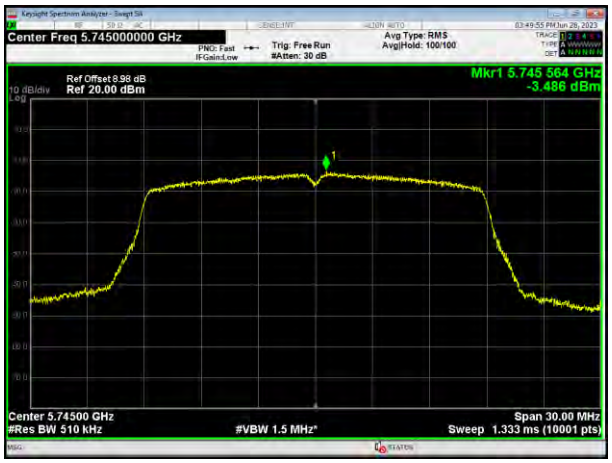
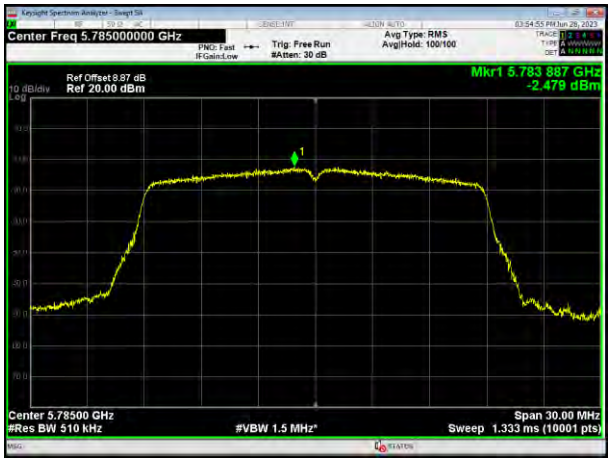
	Mode	Test Channel	Reading Level (dBm)	Duty factor (dB)	PSD (dBm/ 500kHz)	Limit (dBm/ 500kHz)	Result
Band4	802.11a	Low	-3.984	0.69	-3.294	30.00	PASS
		Middle	-2.825	0.69	-2.135	30.00	PASS
		High	-2.238	0.69	-1.548	30.00	PASS
	802.11n20	Low	-3.794	0.11	-3.684	30.00	PASS
		Middle	-2.274	0.11	-2.164	30.00	PASS
		High	-1.899	0.11	-1.789	30.00	PASS
	802.11n40	Low	-6.544	0.21	-6.334	30.00	PASS
		High	-6.266	0.21	-6.056	30.00	PASS
	802.11ac20	Low	-3.486	0.2	-3.286	30.00	PASS
		Middle	-2.479	0.2	-2.279	30.00	PASS
		High	-1.78	0.2	-1.58	30.00	PASS
	802.11ac40	Low	-6.871	0.38	-6.491	30.00	PASS
		High	-5.881	0.38	-5.501	30.00	PASS
	802.11ac80	/	-8.871	0.66	-8.211	30.00	PASS

802.11a	802.11n HT20
	
5180MHz	5180MHz
	
5200MHz	5200MHz
	
5240MHz	5240MHz

802.11n HT40	802.11ac HT20
	
5190MHz	5180MHz
	
5230MHz	5200MHz
	
	5240MHz

802.11ac HT40	802.11ac HT80
	
5190MHz	5210MHz
	
5230MHz	

802.11a	802.11n HT20
	
5745MHz	5745MHz
	
5785MHz	5785MHz
	
5825MHz	5825MHz

802.11n HT40	802.11ac HT20
	
5755MHz	5745MHz
	
5795MHz	5785MHz
	
	5825MHz

802.11ac HT40	802.11ac HT80
	
5755MHz	5775MHz
	
5795MHz	

6. 6DB&26DB&99% BANDWIDTH TEST

6.1 APPLIED PROCEDURES / LIMIT

The 26 dB bandwidth is used to determine the conducted power limits. There is no limit bandwidth for U-NII-1, U-NII-2-A and U-NII-2-C. The minimum of 6dB Bandwidth measurement is 0.5 MHz for U-NII-3

6.1.1 TEST PROCEDURE

6dB Bandwidth	
Spectrum Parameters	Setting
RBW	100KHz
VBW	300KHz
Span	30MHz(20MHz Bandwidth mode) 60MHz(40MHz Bandwidth mode) 120MHz(80MHz Bandwidth mode)
Sweep Time	Auto
Detector	Peak
Trace Mode	Max Hold

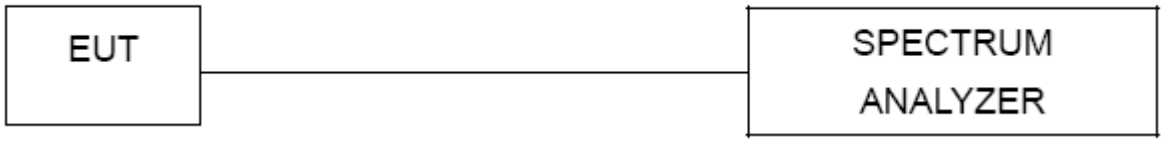
26dB Bandwidth	
Spectrum Parameters	Setting
RBW	approximately 1% of the emission bandwidth
VBW	>RBW
Span	30MHz(20MHz Bandwidth mode) 60MHz(40MHz Bandwidth mode) 120MHz(80MHz Bandwidth mode)
Sweep Time	Auto
Detector	Peak
Trace Mode	Max Hold

99% Occupied Bandwidth	
Spectrum Parameters	Setting
RBW	1% to 5% of the OBW
VBW	Approximately three times the RBW
Span	between 1.5 times and 5.0 times the OBW
Sweep Time	Auto
Detector	Peak
Trace Mode	Max Hold

6.1.2 DEVIATION FROM STANDARD

No deviation.

6.1.3 TEST SETUP



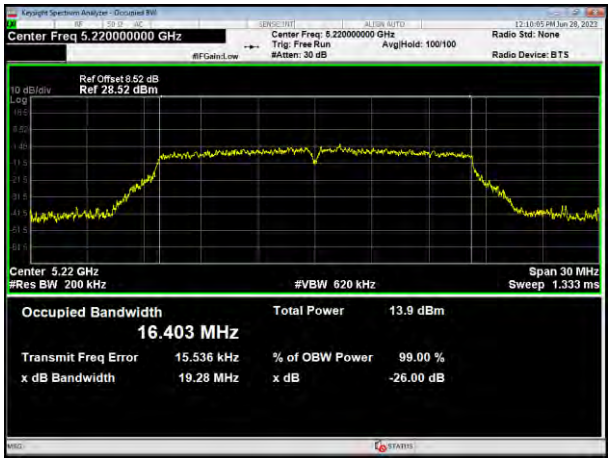
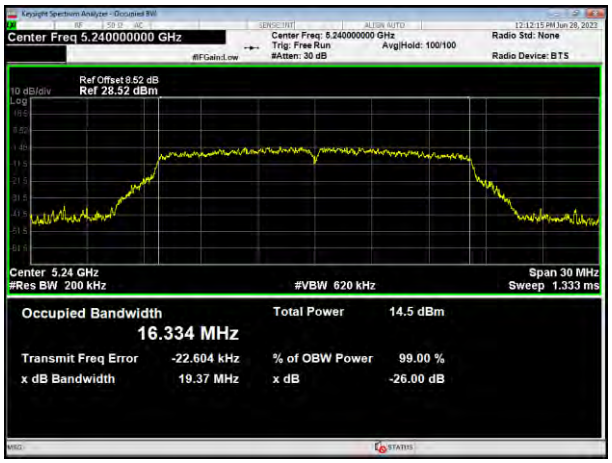
6.1.4 EUT OPERATION CONDITIONS

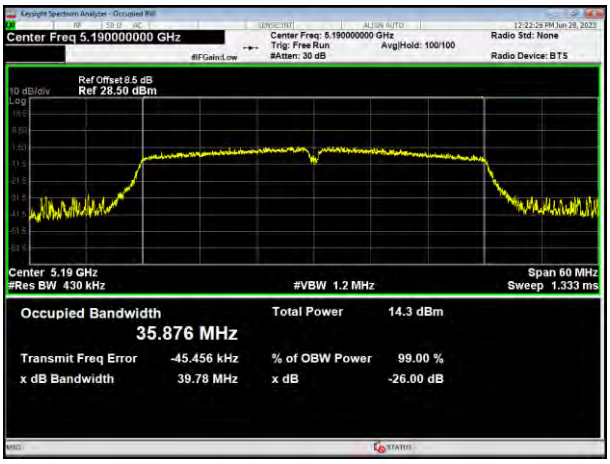
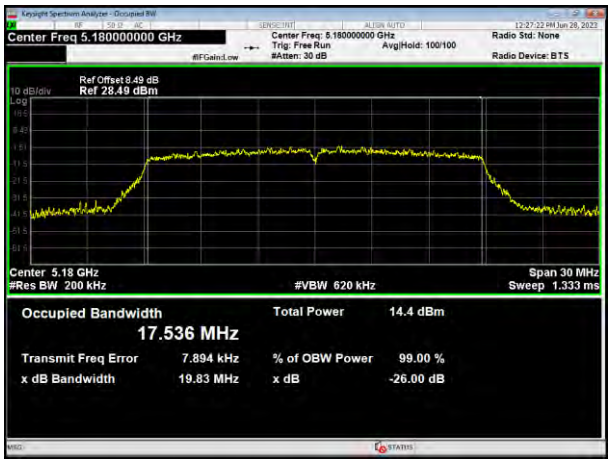
The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

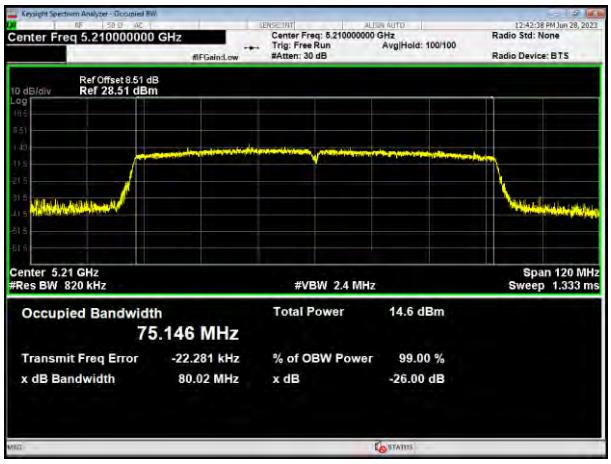
6.1.5 TEST RESULTS

		Test Channel	26dB Bandwidth (MHz)	99% Bandwidth (MHz)	Result
Band 1	802.11a	Low	19.11	16.346	Pass
		Middle	19.28	16.403	Pass
		High	19.37	16.334	Pass
	802.11n HT20	Low	20.00	17.542	Pass
		Middle	20.36	17.580	Pass
		High	19.89	17.525	Pass
	802.11n HT40	Low	39.78	35.876	Pass
		High	39.96	35.885	Pass
	802.11ac HT20	Low	19.83	17.536	Pass
		Middle	20.10	17.544	Pass
		High	19.70	17.508	Pass
	802.11ac HT40	Low	39.65	35.883	Pass
		High	39.91	35.860	Pass
	802.11ac HT80	/	80.02	75.146	Pass

		Test Channel	6dB Bandwidth (MHz)	6dB Bandwidth Limit (MHz)	Result
Band 4	802.11a	Low	15.871	>0.5	Pass
		Middle	15.645	>0.5	Pass
		High	15.651	>0.5	Pass
	802.11n HT20	Low	15.106	>0.5	Pass
		Middle	15.877	>0.5	Pass
		High	13.708	>0.5	Pass
	802.11n HT40	Low	35.06	>0.5	Pass
		High	35.077	>0.5	Pass
	802.11ac HT20	Low	15.13	>0.5	Pass
		Middle	15.06	>0.5	Pass
		High	15.784	>0.5	Pass
	802.11ac HT40	Low	35.097	>0.5	Pass
		High	35.064	>0.5	Pass
	802.11ac HT80	/	75.042	>0.5	Pass

802.11a	802.11n HT20
	
5180MHz	5180MHz
	
5200MHz	5200MHz
	
5240MHz	5240MHz

802.11n HT40	802.11ac HT20
	
5190MHz	5180MHz
	
5230MHz	5200MHz
	
	5240MHz

802.11ac HT40	802.11ac HT80
	
5190MHz	5210MHz
	
5230MHz	

802.11a	802.11n HT20
	
5745MHz	5745MHz
	
5785MHz	5785MHz
	
5825MHz	5825MHz

802.11n HT40	802.11ac HT20
	
5755MHz	5745MHz
	
5795MHz	5785MHz
	
	5825MHz

802.11ac HT40	802.11ac HT80
	
5755MHz	5775MHz
	
5795MHz	

7. DUTY CYCLE TEST SIGNAL

7.1 APPLIED PROCEDURES / LIMIT

Pre-analysis Check: While conducting average power measurement, duty cycle of each mode shall be checked to ensure its duty cycle in order to compensate for the loss due to insufficient ratio of duty cycle. All duty cycle is pre-scanned, and result as obtained below shows only the most representative ones where duty cycle is conducted as the given transmission with given virtual operation that expresses the percentage.

7.1.1 TEST PROCEDURE

1. Set RBW = 1 MHz.
2. Set the video bandwidth (VBW) ≥RBW.
3. Detector = Peak.
4. Sweep = auto couple.
5. Allow the trace to stabilize.
6. Span=0

7.1.2 DEVIATION FROM STANDARD

No deviation.

7.1.3 TEST SETUP

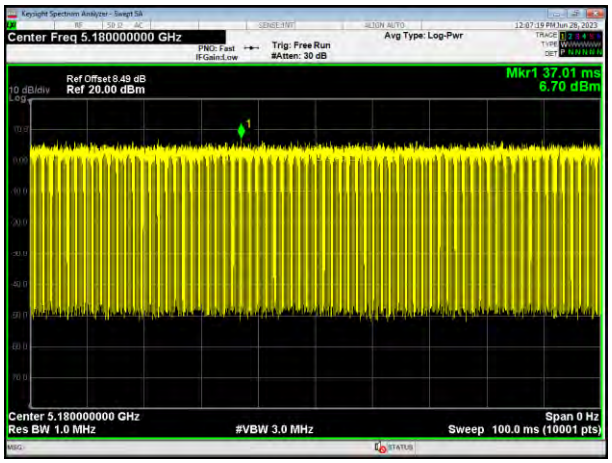
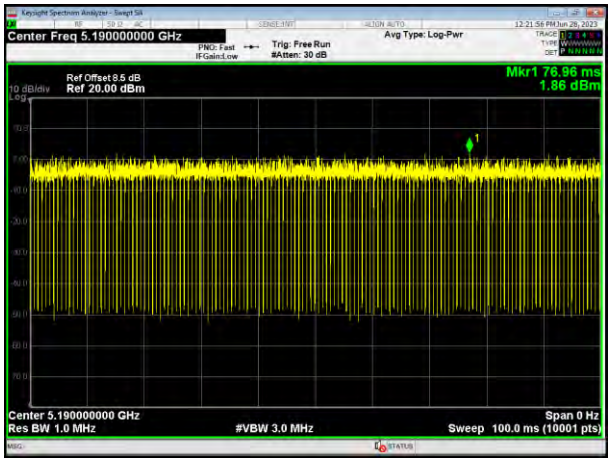
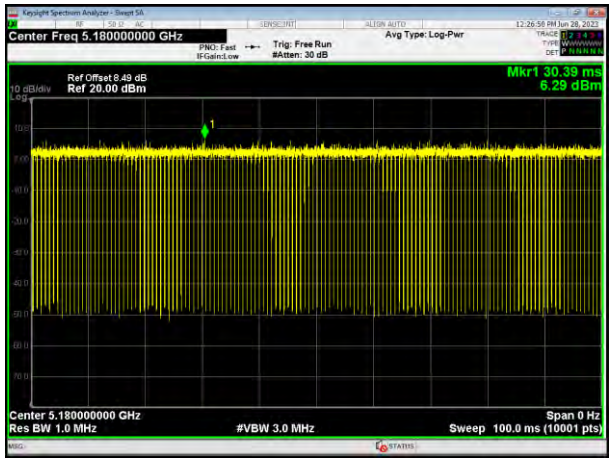
7.1.4 EUT OPERATION CONDITIONS

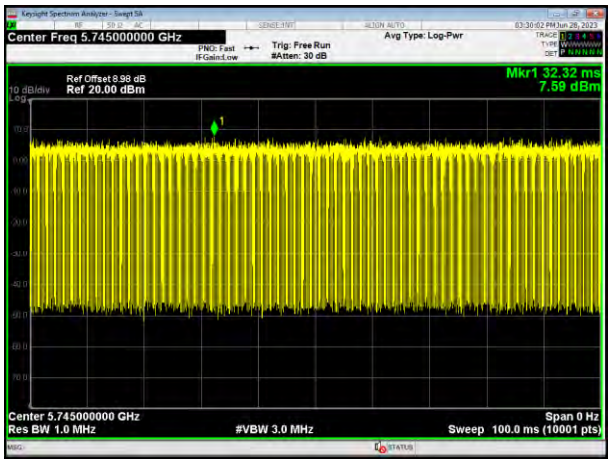
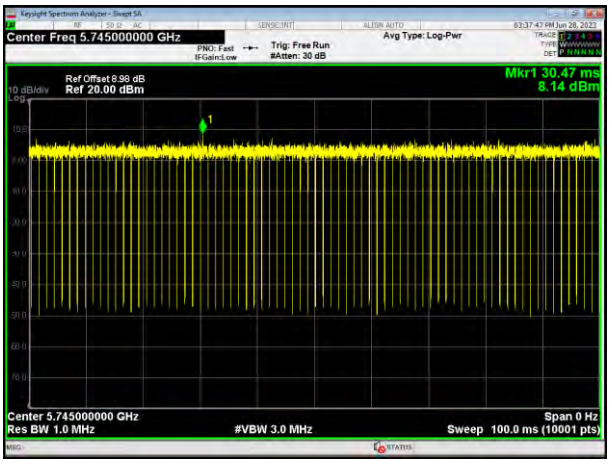
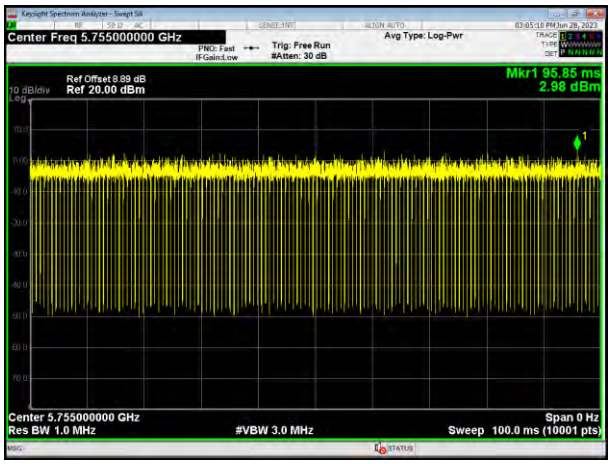
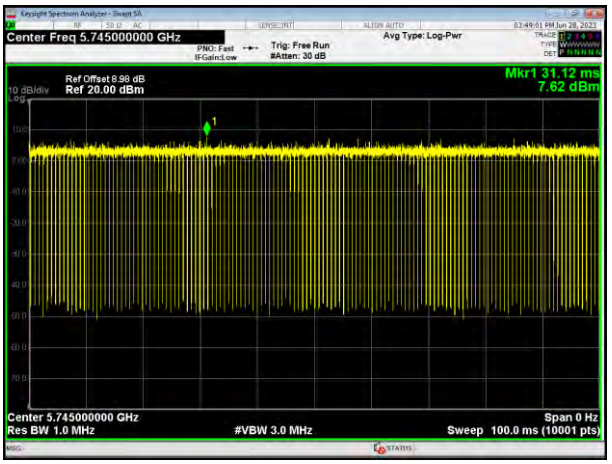
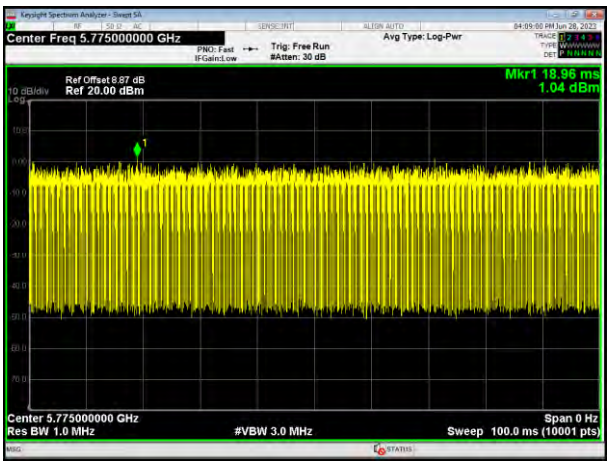
The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

7.1.5 TEST RESULTS

Operation Mode		Duty Cycle(%)	Duty Fator (dB) 10 * log (1/ Duty cycle)
Band 1	802.11a	85.38	0.69
	802.11n(HT20)	97.61	0.11
	802.11n(HT40)	95.34	0.21
	802.11ac(HT20)	95.51	0.2
	802.11ac(HT40)	91.75	0.37
	802.11ac(HT80)	91.19	0.4

Operation Mode		Duty Cycle(%)	Duty Fator (dB) 10 * log (1/ Duty cycle)
Band 4	802.11a	85.36	0.69
	802.11n(HT20)	97.57	0.11
	802.11n(HT40)	95.38	0.21
	802.11ac(HT20)	95.5	0.2
	802.11ac(HT40)	91.72	0.38
	802.11ac(HT80)	85.96	0.66

802.11a	802.11n HT20
	
802.11n HT40	802.11ac HT20
	
802.11ac HT40	802.11ac HT80
	

802.11a	802.11n HT20
	
802.11n HT40	802.11ac HT20
	
802.11ac HT40	802.11ac HT80
	

8. FREQUENCY STABILITY

8.1 APPLIED PROCEDURES / LIMIT

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 user's manual.

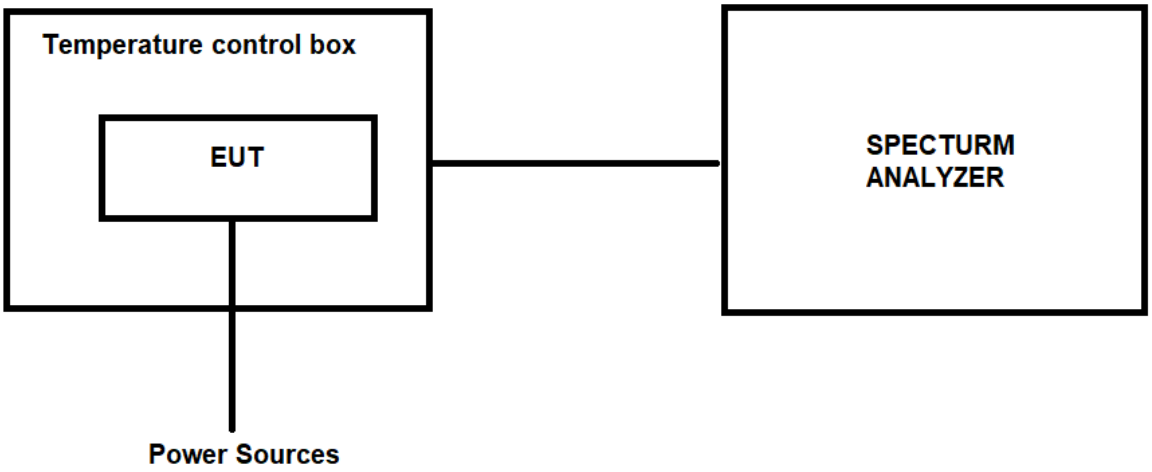
8.1.1 TEST PROCEDURE

1. The EUT was placed inside temperature chamber and powered and powered by nominal DC voltage.
2. Set EUT as normal operation.
3. Turn the EUT on and couple its output to spectrum.
4. Turn the EUT off and set the chamber to the highest temperature specified.
5. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT and measure the operating frequency.
6. Repeat step with the temperature chamber set to the lowest temperature.

8.1.2 DEVIATION FROM STANDARD

No deviation.

8.1.3 TEST SETUP



8.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

8.1.5 TEST RESULTS

Test Voltage	Test Temp.	Measured Frequency	Spectrum Frequency (MHz)			Δ Frequency (MHz)		
		(MHz)	802.11a	802.11n HT20	802.11ac HT20	802.11a	802.11n HT20	802.11ac HT20
132V	-20℃	5180	5180.0353	5180.0355	5180.0364	-0.0353	-0.0355	-0.0364
		5220	5220.0321	5220.0364	5220.0365	-0.0321	-0.0364	-0.0365
		5240	5240.0234	5240.0215	5240.0214	-0.0234	-0.0215	-0.0214
		5745	5745.0367	5745.0328	5745.0326	-0.0367	-0.0328	-0.0326
		5785	5785.0384	5785.0335	5785.0354	-0.0384	-0.0335	-0.0354
		5825	5825.0335	5825.0333	5825.0361	-0.0335	-0.0333	-0.0361
108V		5180	5180.0256	5180.0245	5180.0254	-0.0256	-0.0245	-0.0254
		5220	5220.0312	5220.0336	5220.0358	-0.0312	-0.0336	-0.0358
		5240	5240.0244	5240.0248	5240.0225	-0.0244	-0.0248	-0.0225
		5745	5745.0268	5745.0264	5745.0291	-0.0268	-0.0264	-0.0291
		5785	5785.0325	5785.0376	5785.0354	-0.0325	-0.0376	-0.0354
		5825	5825.0416	5825.0455	5825.0413	-0.0416	-0.0455	-0.0413
120V	25℃	5180	5180.0528	5180.0514	5180.0535	-0.0528	-0.0514	-0.0535
		5220	5220.0264	5220.0247	5220.0246	-0.0264	-0.0247	-0.0246
		5240	5240.0324	5240.0315	5240.0367	-0.0324	-0.0315	-0.0367
		5745	5745.0356	5745.0326	5745.0344	-0.0356	-0.0326	-0.0344
		5785	5785.0434	5785.0418	5785.0464	-0.0434	-0.0418	-0.0464
		5825	5825.0214	5825.0274	5825.0228	-0.0214	-0.0274	-0.0228
132V	50℃	5180	5180.0318	5180.0365	5180.0364	-0.0318	-0.0365	-0.0364
		5220	5220.0234	5220.0246	5220.0276	-0.0234	-0.0246	-0.0276
		5240	5240.0356	5240.0358	5240.0358	-0.0356	-0.0358	-0.0358
		5745	5745.0668	5745.0654	5745.0665	-0.0668	-0.0654	-0.0665
		5785	5785.0424	5785.0425	5785.0446	-0.0424	-0.0425	-0.0446
		5825	5825.0646	5825.0622	5825.0665	-0.0646	-0.0622	-0.0665
108V	50℃	5180	5180.0387	5180.0323	5180.0348	-0.0387	-0.0323	-0.0348
		5220	5220.0255	5220.0266	5220.0255	-0.0255	-0.0266	-0.0255
		5240	5240.0317	5240.0358	5240.0326	-0.0317	-0.0358	-0.0326
		5745	5745.0465	5745.0434	5745.0468	-0.0465	-0.0434	-0.0468
		5785	5785.0256	5785.0254	5785.0244	-0.0256	-0.0254	-0.0244
		5825	5825.0728	5825.0739	5825.0762	-0.0728	-0.0739	-0.0762

Test Voltage	Test Temp.	Measured Frequency (MHz)	Spectrum Frequency (MHz)		Δ Frequency (MHz)	
			802.11n HT40	802.11ac HT40	802.11n HT40	802.11ac HT40
132V	-20℃	5190	5190.0246	5190.0256	-0.0246	-0.0256
		5230	5230.0388	5230.0384	-0.0388	-0.0384
		5755	5755.0575	5755.0543	-0.0575	-0.0543
		5795	5795.0656	5795.0665	-0.0656	-0.0665
108V		5190	5190.0268	5190.0257	-0.0268	-0.0257
		5230	5230.0345	5230.0344	-0.0345	-0.0344
		5755	5755.0234	5755.0665	-0.0234	-0.0665
		5795	5795.0455	5795.0445	-0.0455	-0.0445
120V	25℃	5190	5190.0267	5190.0264	-0.0267	-0.0264
		5230	5230.0673	5230.0652	-0.0673	-0.0652
		5755	5755.0254	5755.0234	-0.0254	-0.0234
		5795	5795.0564	5795.0538	-0.0564	-0.0538
132V	50℃	5190	5190.0665	5190.0654	-0.0665	-0.0654
		5230	5230.0566	5230.0563	-0.0566	-0.0563
		5755	5755.0465	5755.0485	-0.0465	-0.0485
		5795	5795.0324	5795.0356	-0.0324	-0.0356
108V	50℃	5190	5190.0588	5190.0564	-0.0588	-0.0564
		5230	5230.0356	5230.0344	-0.0356	-0.0344
		5755	5755.0354	5755.0364	-0.0354	-0.0364
		5795	5795.0464	5795.0486	-0.0464	-0.0486

Test Voltage	Test Temp.	Measured Frequency (MHz)	Spectrum Frequency (MHz)	Δ Frequency (MHz)
			802.11ac HT80	802.11ac HT80
132V	-20℃	5210	5210.0156	-0.0156
		5775	5775.0168	-0.0168
108V		5210	5210.0274	-0.0274
		5775	5775.0343	-0.0343
120V	25℃	5210	5210.0465	-0.0465
		5775	5775.0364	-0.0364
132V	50℃	5210	5210.0347	-0.0347
		5775	5775.0265	-0.0265
108V	50℃	5210	5210.0336	-0.0336
		5775	5775.0547	-0.0547

9. TRANSMISSION IN THE ABSENCE OF DATA

9.1 STANDARD REQUIREMENT

According to §15.407(c)

The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signaling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals. Applicants shall include in their application for equipment authorization a description of how this requirement is met.

9.2 TEST RESULT

No non-compliance noted:
Refer to the theory of operation.

10. ANTENNA REQUIREMENT

10.1 STANDARD REQUIREMENT

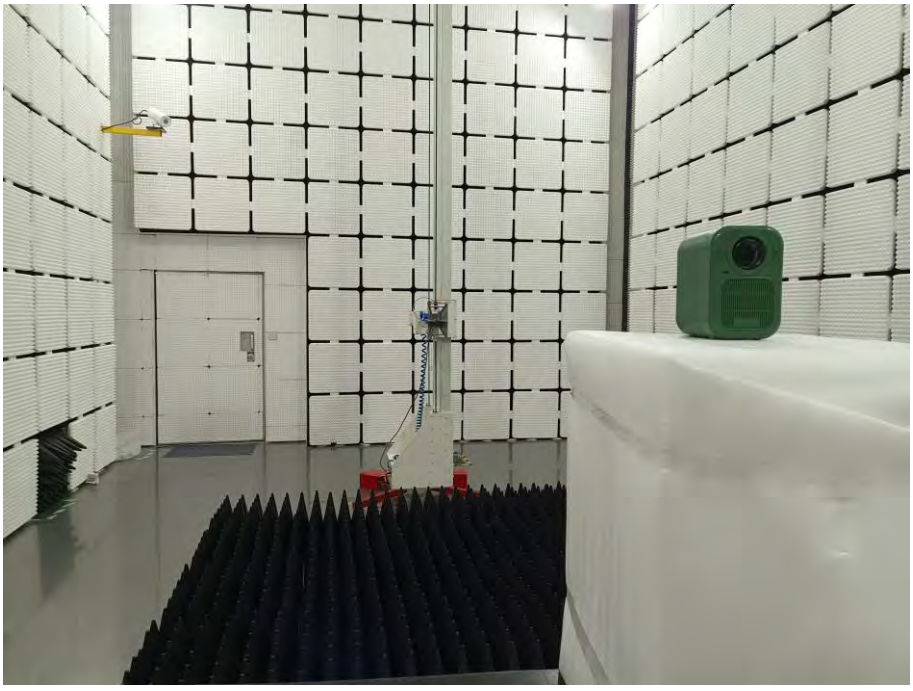
15.203 requirement: For intentional device, according to 15.203: an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

10.2 EUT ANTENNA

The EUT antenna is Internal Antenna, It comply with the standard requirement.

11. TEST SEUUP PHOTO

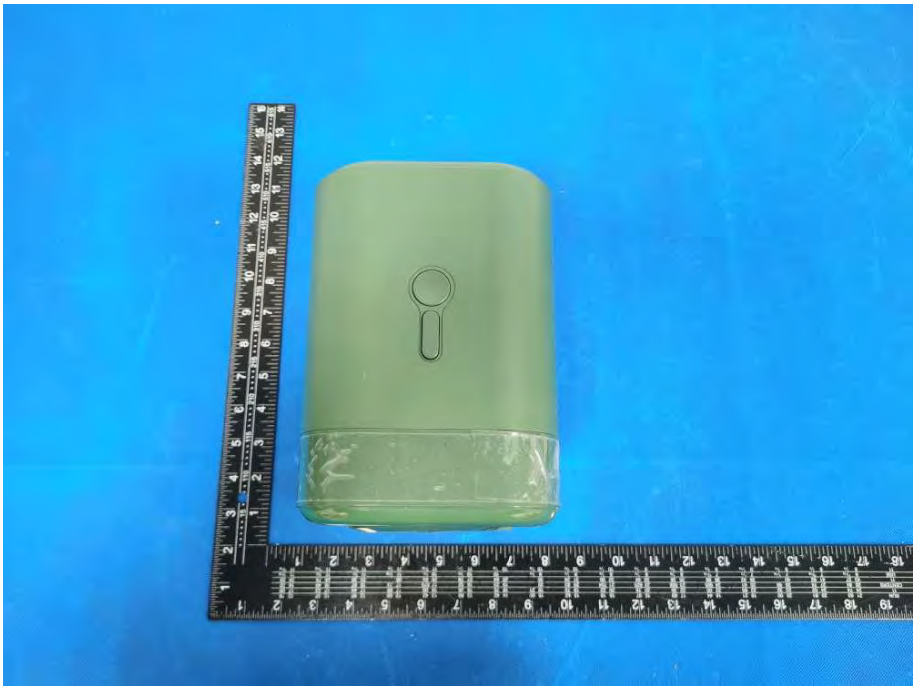
Radiated Measurement Photos

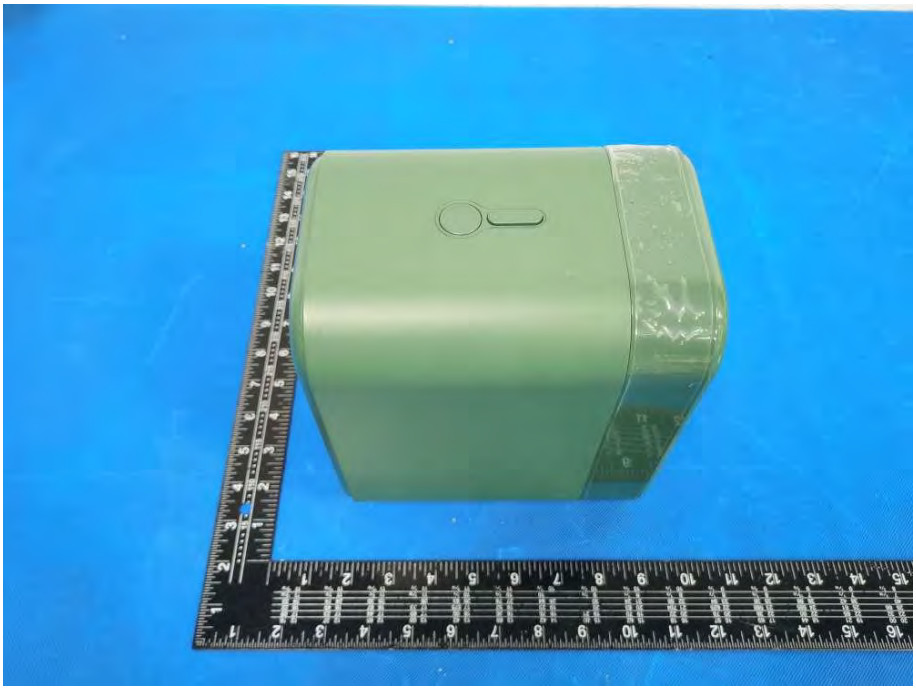


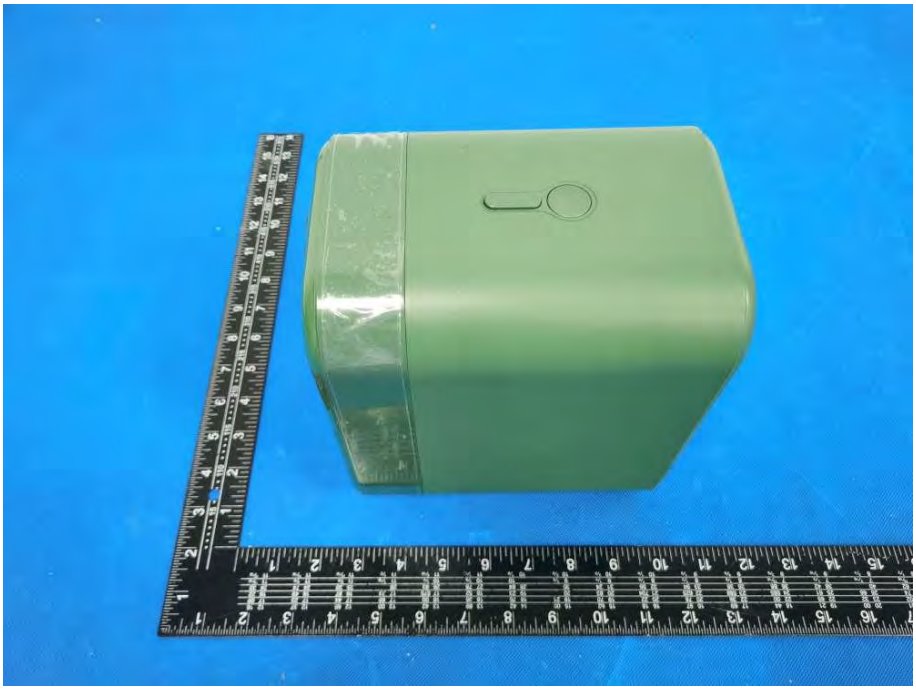
Conducted Measurement Photos

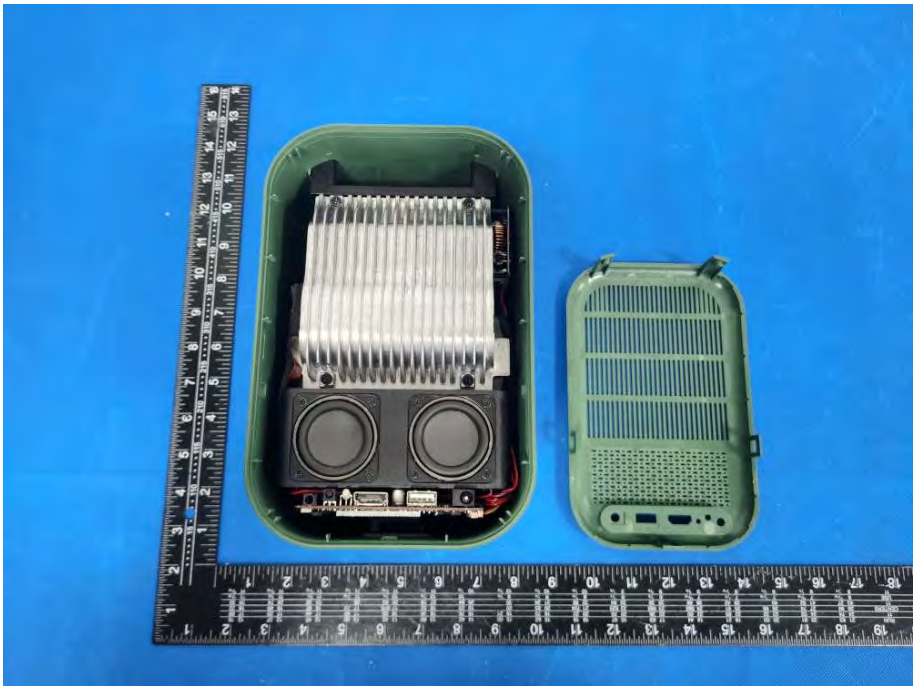
12. EUT PHOTO

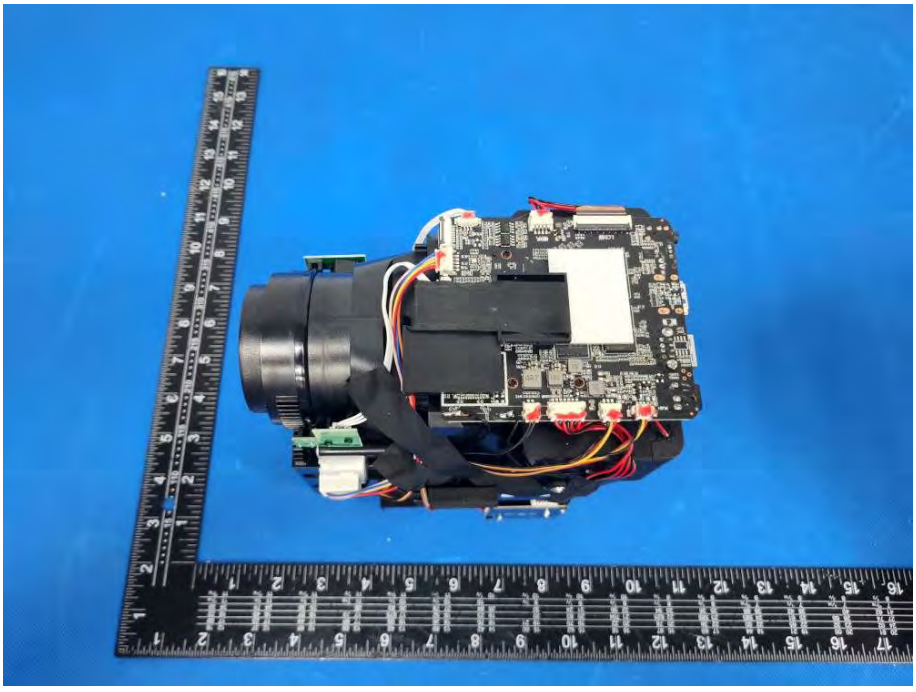

AC Adapter/电源适配器
Model/型号:1AA-190-0500-A
Input/输入:100-240V~50/60Hz 1.5A
Output/输出:19V⎓5A
MADE IN CHINA/中国制造 2250

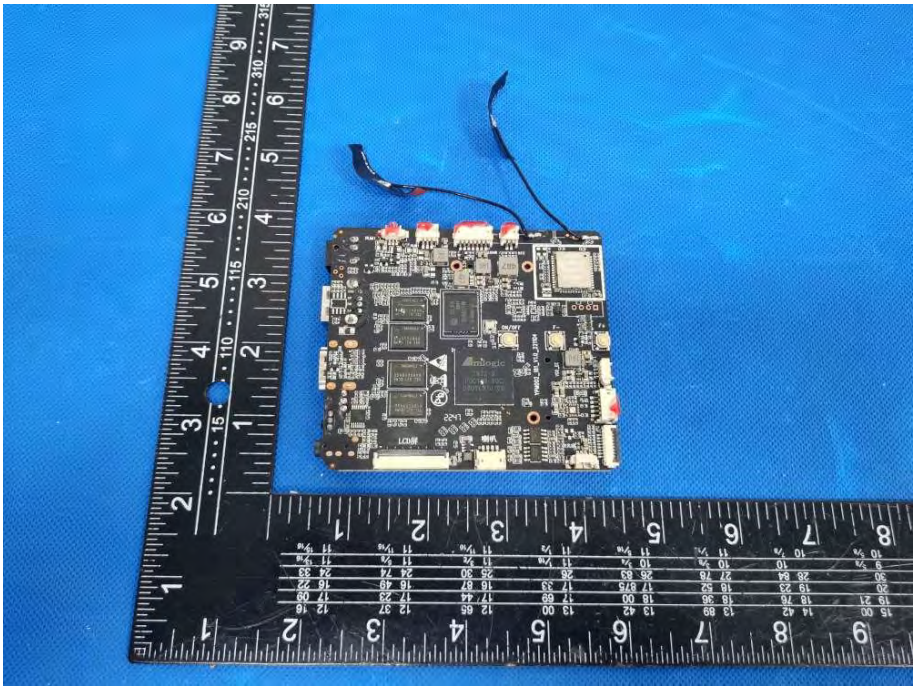


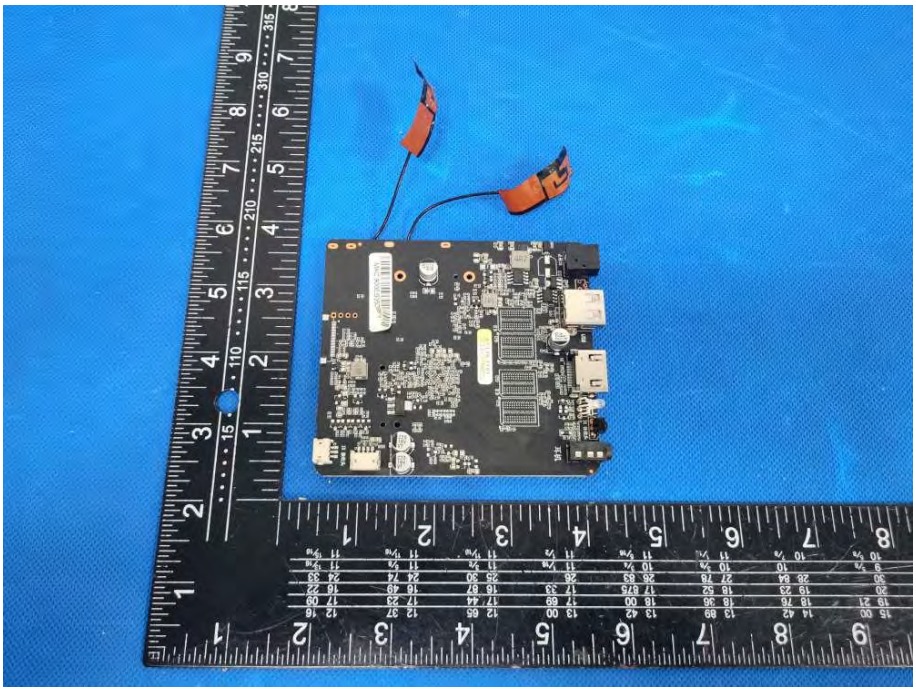


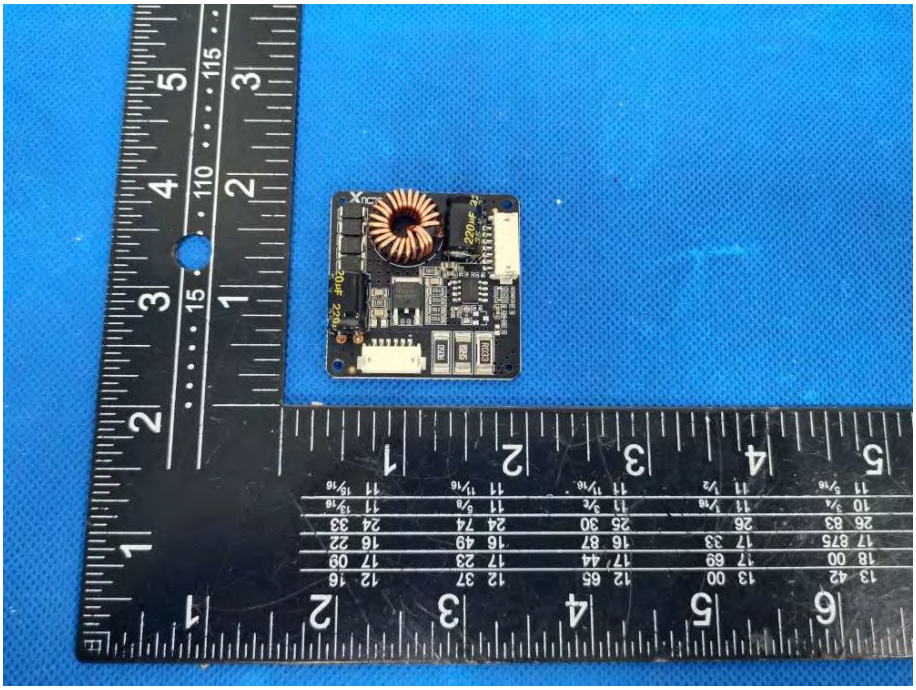


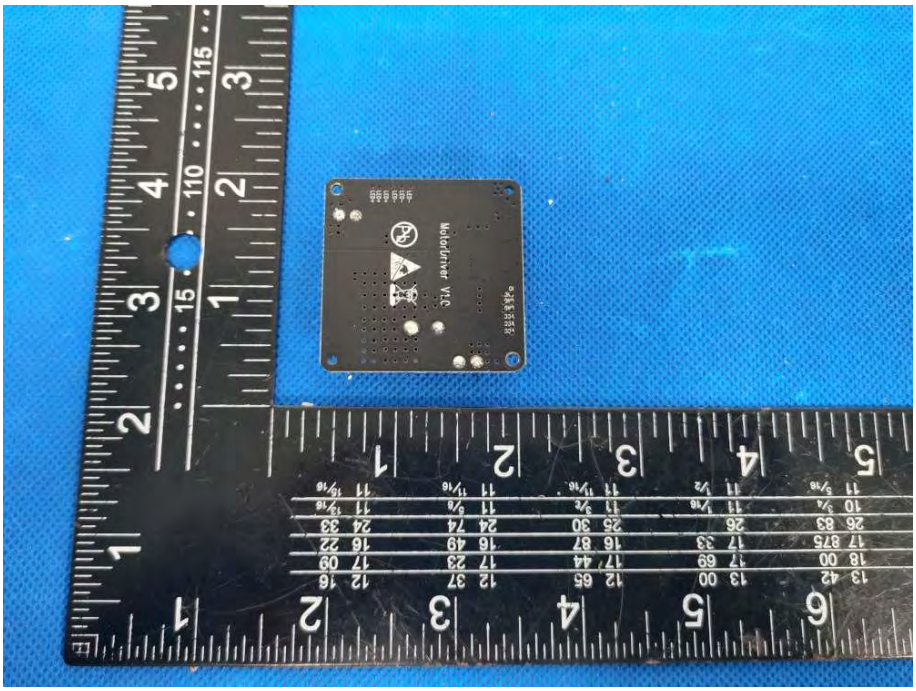


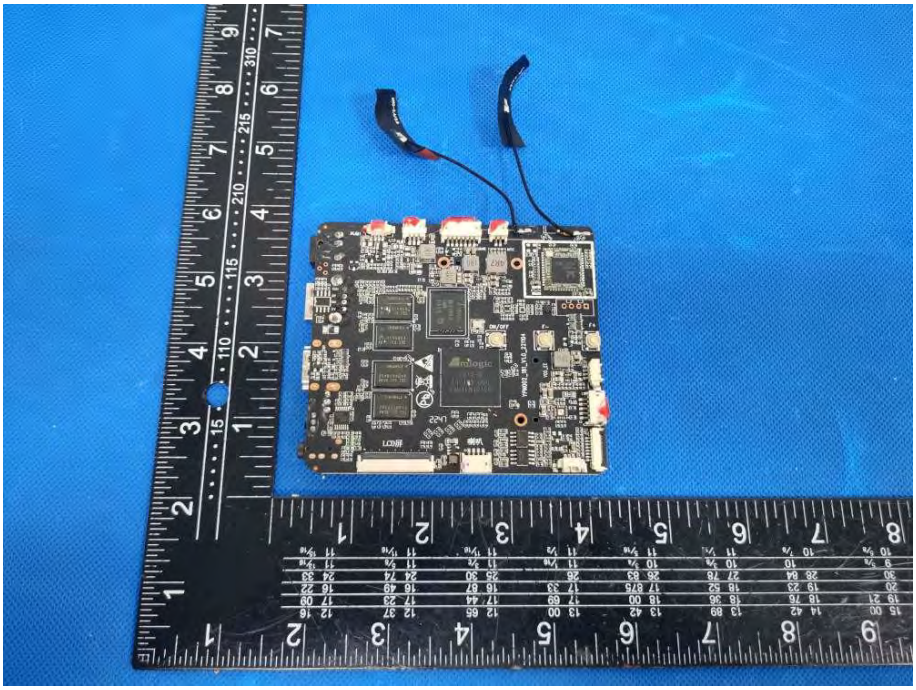


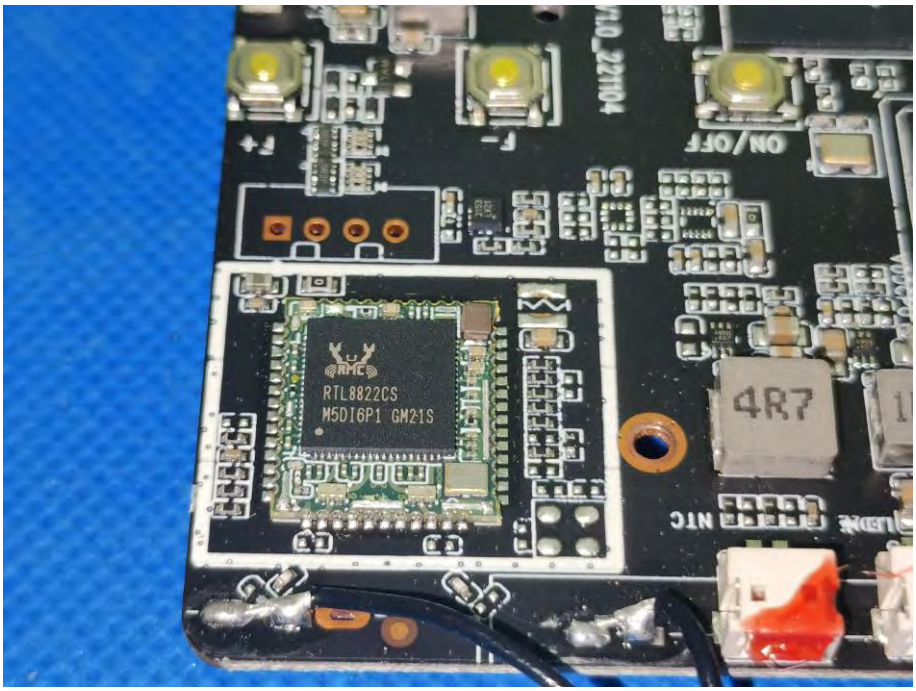












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