



FCC Part 15E Test Report

FCC ID: 2BSVM-MV25002

Applicant: Ningbo Mivi Technology Co., Ltd.

Address: No. 828, Wuxiang East Road, Yinzhou District, Ningbo City, Zhejiang Province

Manufacturer: Ningbo Mivi Technology Co., Ltd.

Address: No. 828, Wuxiang East Road, Yinzhou District, Ningbo City, Zhejiang Province

EUT: smart Wet Feeder

Trade Mark: mivi-home

Model Number: MV25002, SLW-SWFF-01W, EVT-WFF-101B, Europa E1, MS-S100

Date of Receipt: Oct. 11, 2025

Test Date: Oct. 11, 2025 - Oct. 24, 2025

Date of Report: Oct. 24, 2025

Prepared By: Shenzhen DL Testing Technology Co., Ltd.

Address: 101-201, Comprehensive Building, Tongzhou Electronics Longgang Factory Area, No.1 Baolong Fifth Road, Baolong Community, Baolong Street, Longgang District, Shenzhen, China

Applicable Standards: FCC PART 15 E 15.407
ANSI C63.10:2020

Test Result: Pass

Report Number: DLE-251011028R

Prepared (Test Engineer): Ken Tan

Reviewer (Supervisor): Jack Bu

Approved (Manager): Jade Yang



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 Shenzhen DL Testing Technology 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), 15.205, 15.209	Radiated Spurious Emission	PASS	
15.407(b), 15.205, 15.209	Band Edge Emission	PASS	
15.407 (a)	Average Output Power	PASS	
15.407 (a)	Power Spectral Density	PASS	
15.407(a) (e)	6dB 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

Test lab: Shenzhen DL Testing Technology Co., Ltd.

Address: 101-201, Building C, Shuanghuan, No.8, Baoqing Road, Baolong Industrial Zone,
Baolong Street, Longgang District, Shenzhen, Guangdong, China

FCC Test Firm Registration Number: 854456

Designation Number: CN1307

IC Registered No.: 27485

CAB ID.: CN0118

1.1 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, where expanded 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	$\pm 2.56\text{dB}$
2	RF power,conducted	$\pm 0.42\text{dB}$
3	Spurious emissions,conducted	$\pm 2.76\text{dB}$
4	All emissions,radiated(<1G)	$\pm 3.65\text{dB}$
5	All emissions,radiated(>1G)	$\pm 4.89\text{dB}$
6	Temperature	$\pm 0.5^{\circ}\text{C}$
7	Humidity	$\pm 2\%$
8	Bandwidth	$\pm 0.2\%$
9	Power Spectral Density	$\pm 2.45\text{dBm}$
10	Frequency Stability	$\pm 0.3\text{MHz}$
11	Time	$\pm 2\%$



2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Product Name:	smart Wet Feeder
Trademark	mivi-home
Model No.:	MV25002, SLW-SWFF-01W, EVT-WFF-101B, Europa E1, MS-S100
Model Difference	All models are same as the samples except model name, they have the same structure and circuit.
Operation Frequency:	5745-5825MHz(802.11a/n(HT20)) 5755-5795MHz(802.11n(HT40))
Channel numbers:	See channel list
Channel separation:	20MHz/40MHz
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 500Mbps
Antenna Type:	Internal Antenna
Antenna gain:	4.79dBi
Power supply:	DC 12V from adapter
Adapter:	Model: LK150-1201000 Input: 100-240VAC 50/60Hz MAX 2.5A Output: DC 12.0V===10.0A Manufacturer: Shenzhen Liankelilong Electronic Technology Co.,Ltd.

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

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



2.1.1 DESCRIPTION OF TEST MODES

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

Pretest Mode	Modulation	Channel
Mode 1	802.11a	CH149
Mode 2		CH157
Mode 3		CH165
Mode 4	802.11n HT20	CH149
Mode 5		CH157
Mode 6		CH165
Mode 7	802.11n HT40	CH149
Mode 8		CH157
Mode 9		CH165

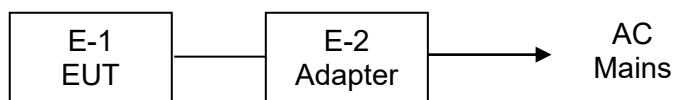
Note: (1) The measurements are performed at the highest, middle, lowest available channels.

(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.

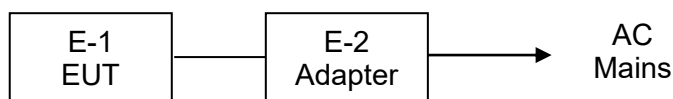
(3) For the two items of conducted disturbance at the power supply end and space radiation below 1GHz, all modes have undergone pre-tests. The report only shows the worst test results of mode 3.

2.2 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Radiated Spurious Emission Test



Power Line Conducted Emission Test





2.3 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	smart Wet Feeder	MV25002	N/A	EUT
E-2	Adapter	LK150-1201000	N/A	Shenzhen Liankelilong Electronic Technology Co.,Ltd.

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.

2.4 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: RF Test_V1.4		
Mode	802.11a	802.11n HT20	802.11n HT40
Data Rate	6Mbps	MSC0	MSC0
Power Setting of Software	60	60	66



2.5 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. 01, 2024	Oct. 31, 2025
2	Test Receiver (9kHz-7GHz)	R&S	ESRP7	101393	Nov. 01, 2024	Oct. 31, 2025
3	Bilog Antenna (30MHz-1GHz)	R&S	VULB9162	00306	Nov. 01, 2024	Oct. 31, 2025
4	Horn Antenna (1GHz-18GHz)	Schwarzbeck	BBHA9120D	02139	Nov. 01, 2024	Oct. 31, 2025
5	Horn Antenna (18GHz-40GHz)	A.H. Systems	SAS-574	588	Nov. 01, 2024	Oct. 31, 2025
6	Amplifier (9KHz-6GHz)	Schwarzbeck	BBV9743B	00153	Nov. 01, 2024	Oct. 31, 2025
7	Amplifier (1GHz-18GHz)	EMEC	EM01G8GA	00270	Nov. 01, 2024	Oct. 31, 2025
8	Amplifier (18GHz-40GHz)	Quanjuda	DLE-161	97	Nov. 01, 2024	Oct. 31, 2025
9	Loop Antenna (9KHz-30MHz)	Schwarzbeck	FMZB1519B	00014	Nov. 01, 2024	Oct. 31, 2025
10	RF cables1 (9kHz-1GHz)	ChengYu	966	004	Nov. 01, 2024	Oct. 31, 2025
11	RF cables2 (1GHz-40GHz)	ChengYu	966	003	Nov. 01, 2024	Oct. 31, 2025
12	Antenna connector	Florida RF Labs	N/A	RF 01#	Nov. 01, 2024	Oct. 31, 2025
13	Power probe	KEYSIGHT	U2021XA	MY55210018	Nov. 01, 2024	Oct. 31, 2025
14	Signal Analyzer 9kHz-26.5GHz	Agilent	N9020A	MY55370280	Nov. 01, 2024	Oct. 31, 2025
15	Test Receiver 20kHz-40GHz	R&S	ESU 40	100376	Nov. 01, 2024	Oct. 31, 2025
16	D.C. Power Supply	LongWei	PS-305D	010964729	Nov. 01, 2024	Oct. 31, 2025

Conduction Test equipment

Item	Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	843 Shielded Room	ChengYu	843 Room	843	Nov. 05, 2023	Nov. 04, 2026
2	EMI Receiver	R&S	ESR	101421	Nov. 01, 2024	Oct. 31, 2025
3	LISN	R&S	ENV216	102417	Nov. 01, 2024	Oct. 31, 2025
4	843 Cable 1#	ChengYu	CE Cable	001	Nov. 01, 2024	Oct. 31, 2025

Other

Item	Name	Manufacturer	Model	Software version
1	EMC Conduction Test System	FALA	EZ_EMCC	EMC-CON 3A1.1
2	EMC radiation test system	FALA	EZ_EMCC	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

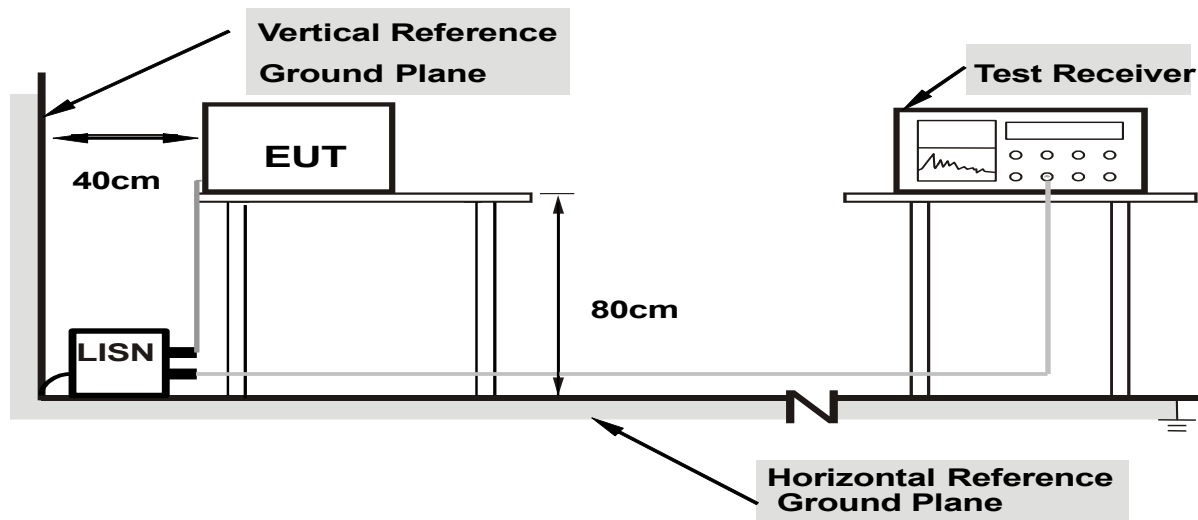
3.1.2 TEST PROCEDURE

- 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.

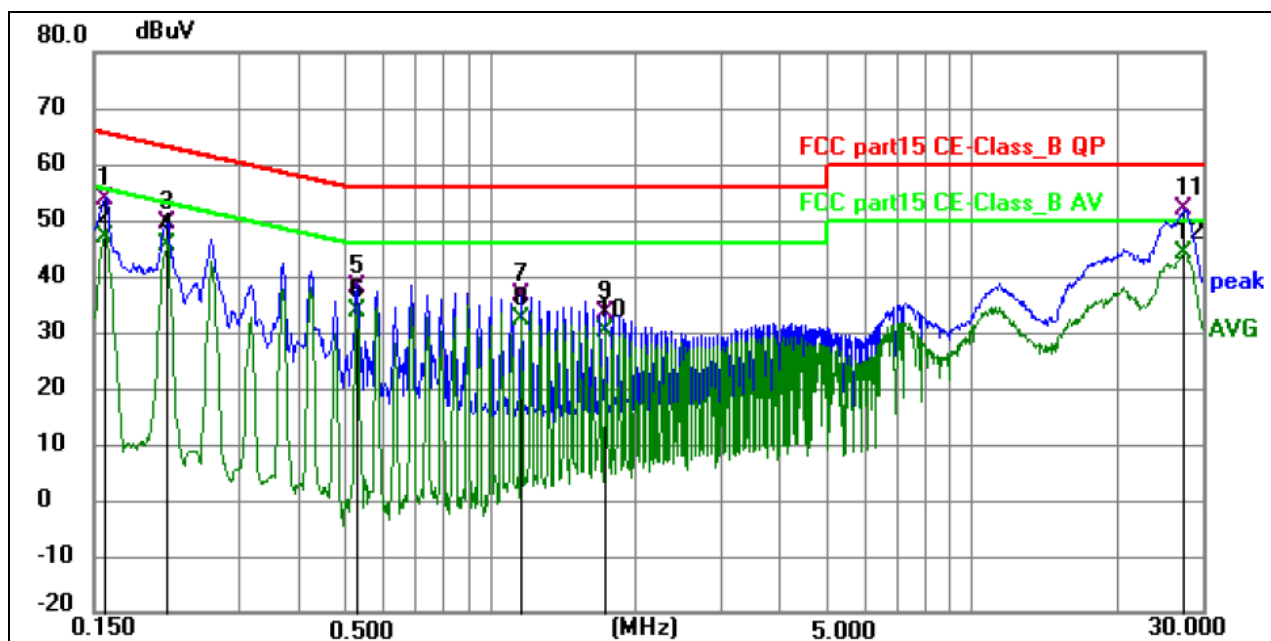
3.1.6 TEST RESULTS

PASS

Please refer to the following page.



Temperature:	25 °C	Relative Humidity:	54%
Pressure:	1010hPa	Phase :	L
Test Voltage :	AC 120V/60Hz	Test Mode:	Mode 3



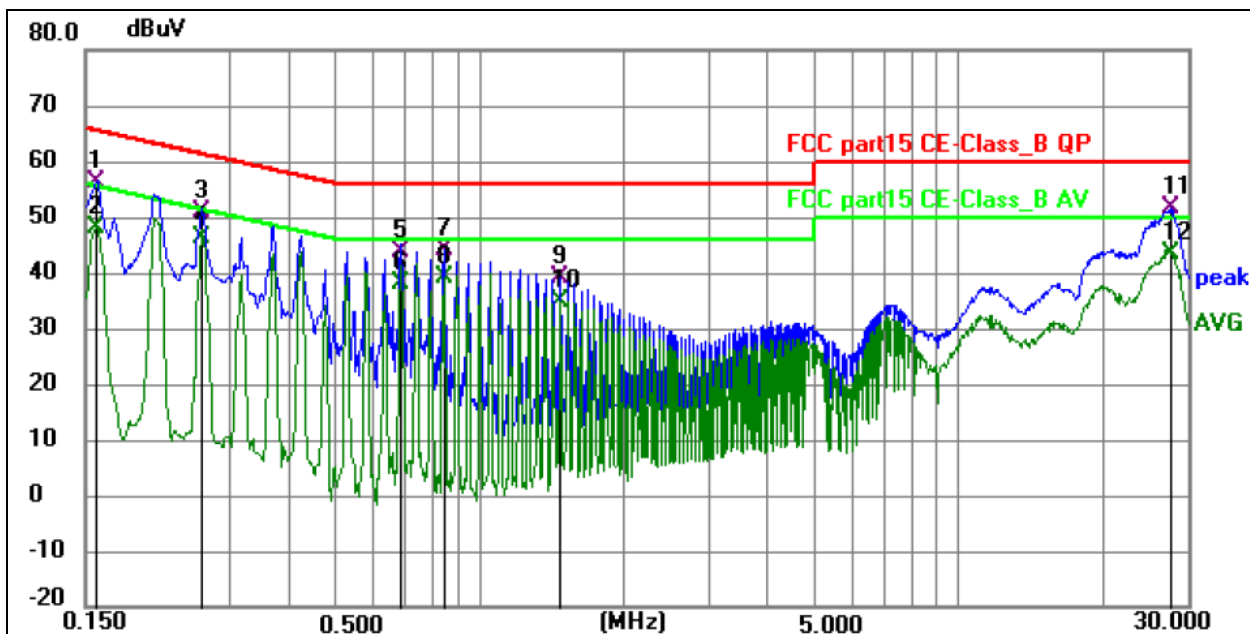
Remark:

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	0.1590	43.94	9.78	53.72	65.52	-11.80	QP	P	
2	0.1590	37.16	9.78	46.94	55.52	-8.58	AVG	P	
3	0.2130	39.49	9.93	49.42	63.09	-13.67	QP	P	
4	0.2130	35.47	9.93	45.40	53.09	-7.69	AVG	P	
5	0.5280	28.09	9.84	37.93	56.00	-18.07	QP	P	
6	0.5280	24.00	9.84	33.84	46.00	-12.16	AVG	P	
7	1.1580	26.65	9.97	36.62	56.00	-19.38	QP	P	
8	1.1580	22.35	9.97	32.32	46.00	-13.68	AVG	P	
9	1.7380	23.34	9.99	33.33	56.00	-22.67	QP	P	
10	1.7380	20.24	9.99	30.23	46.00	-15.77	AVG	P	
11	27.4603	41.52	10.30	51.82	60.00	-8.18	QP	P	
12 *	27.4603	33.69	10.30	43.99	50.00	-6.01	AVG	P	



Temperature:	25 °C	Relative Humidity:	54%
Pressure:	1010hPa	Phase :	N
Test Voltage :	AC 120V/60Hz	Test Mode:	Mode 3



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	0.1590	46.35	9.78	56.13	65.52	-9.39	QP	P	
2	0.1590	38.17	9.78	47.95	55.52	-7.57	AVG	P	
3	0.2625	41.09	9.95	51.04	61.35	-10.31	QP	P	
4 *	0.2625	36.19	9.95	46.14	51.35	-5.21	AVG	P	
5	0.6854	33.78	9.99	43.77	56.00	-12.23	QP	P	
6	0.6854	28.09	9.99	38.08	46.00	-7.92	AVG	P	
7	0.8430	34.03	9.93	43.96	56.00	-12.04	QP	P	
8	0.8430	29.00	9.93	38.93	46.00	-7.07	AVG	P	
9	1.4730	28.98	9.98	38.96	56.00	-17.04	QP	P	
10	1.4730	24.81	9.98	34.79	46.00	-11.21	AVG	P	
11	27.7031	41.32	10.31	51.63	60.00	-8.37	QP	P	
12	27.7031	33.23	10.31	43.54	50.00	-6.46	AVG	P	



3.2 RADIATED EMISSION MEASUREMENT

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

15.407(b) Undesirable emission limits. Except as shown in paragraph (b) (10) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

- (1) For transmitters operating in the 5.15-5.25GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (2) For transmitters operating in the 5.25-5.35 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.
- (3) For transmitters operating in the 5.47-5.725GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (4) For transmitters operating solely in the 5.725-5.850GHz 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.

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 (micovolts/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:

- The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- 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.
- 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.
- The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- 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:

- Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber and change from table 0.8 metre to 1.5 metre.
- Test the EUT in the lowest channel, the middle channel, the Highest channel

Note:

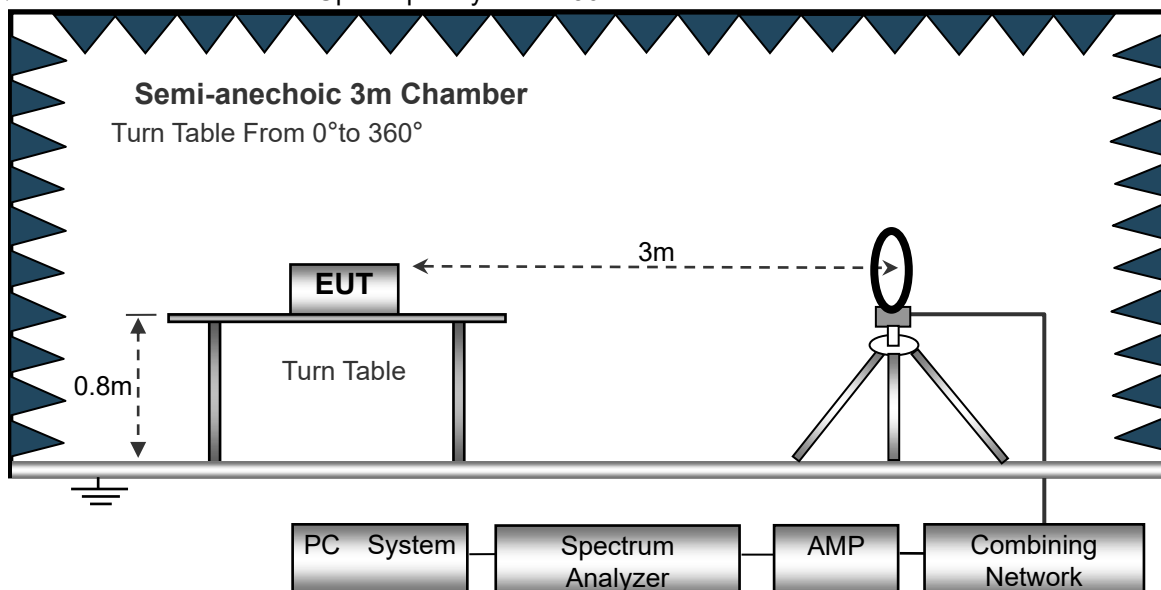
The horizontal and vertical polarities of the antenna were tested, and a pre-test was conducted on the EUT placement as three orthogonal axes X,Y,Z. The worst display of the test results was the Y-axis. The worst case emissions were reported.

3.2.3 DEVIATION FROM TEST STANDARD

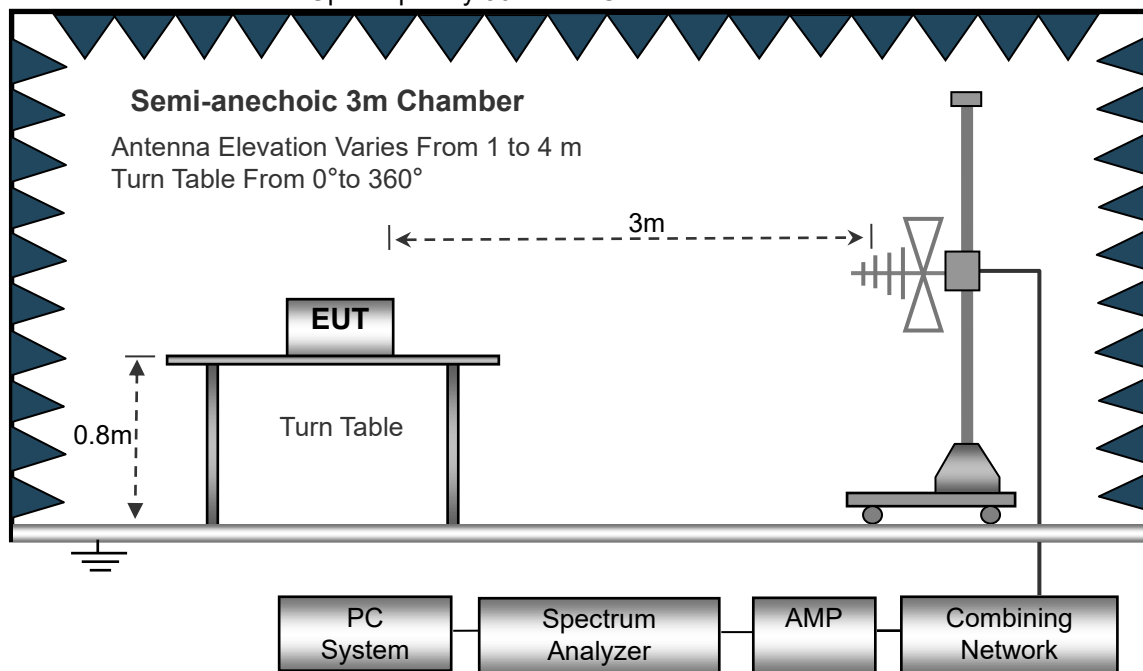
No deviation

3.2.4 TEST SETUP

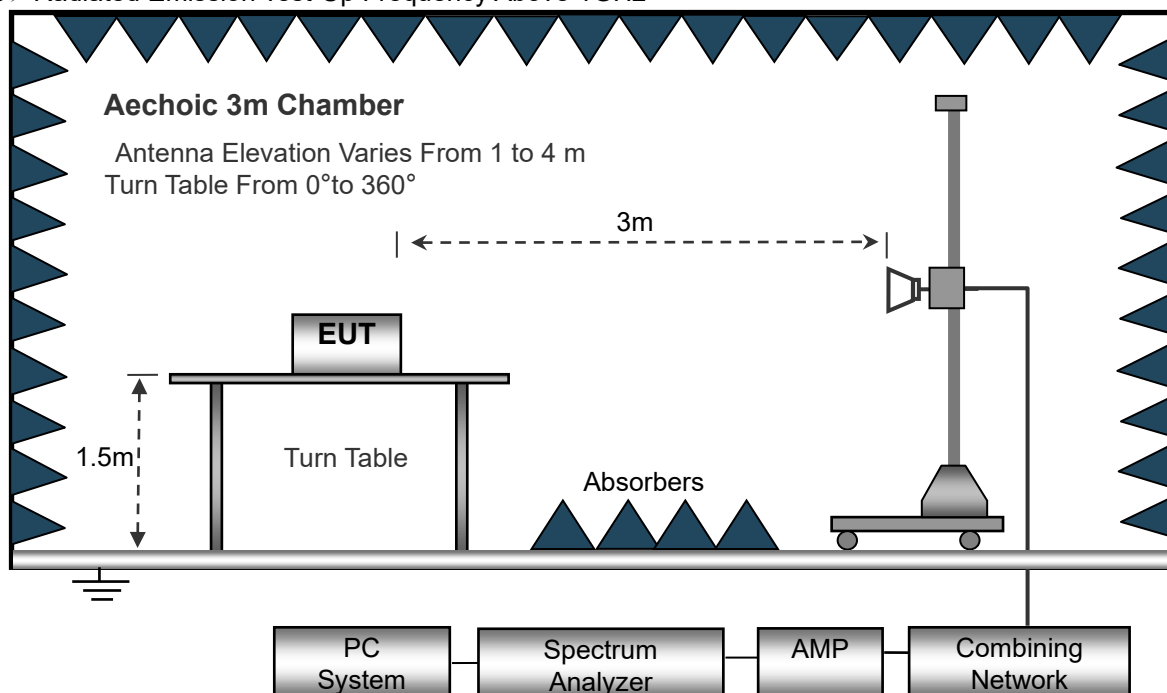
(A) Radiated Emission Test-Up Frequency Below 30MHz



(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 Humidity:	48%
Pressure:	1010 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	Mode 3	Polarization :	--

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

NOTE:

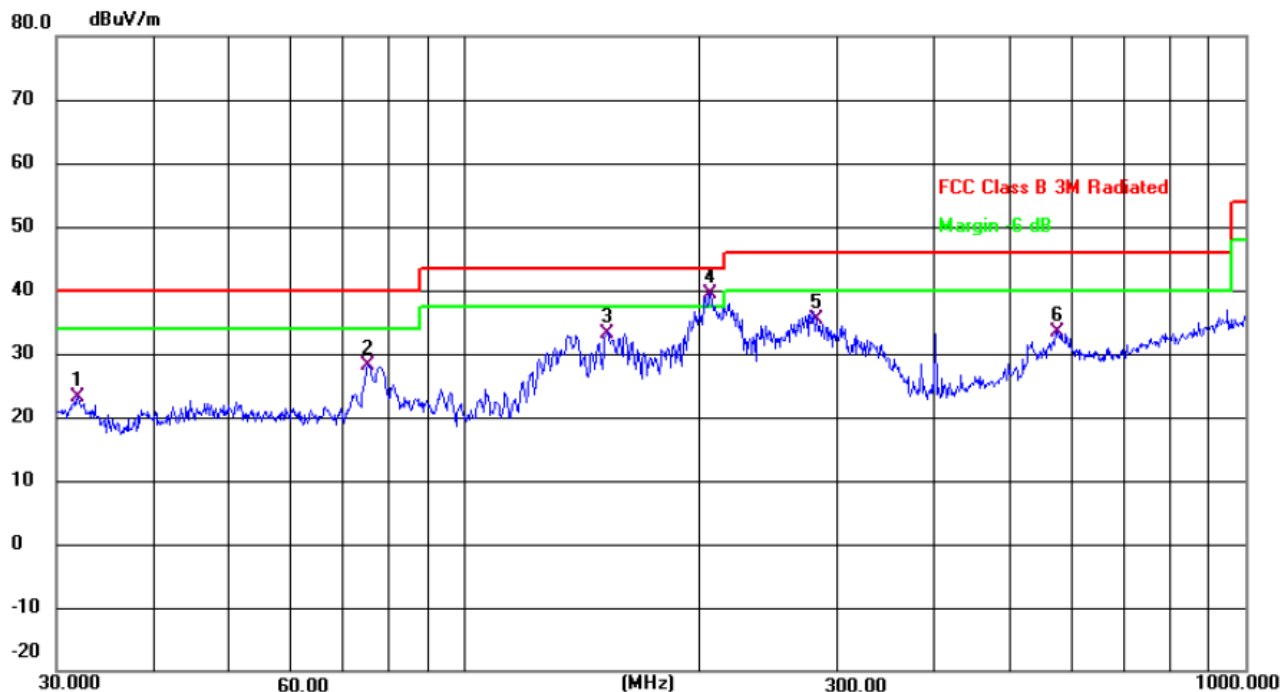
The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Distance extrapolation factor = $40 \log (\text{specific distance}/\text{test distance})$ (dB);

Limit line = specific limits(dBuv) + distance extrapolation factor.

**3.2.7 TEST RESULTS (Between 30MHz – 1GHz)**

Temperature:	26°C	Relative Humidity:	54%
Pressure:	1010 hPa	Polarization :	Horizontal
Test Voltage :	AC 120V/60Hz		
Test Mode :	Mode 3		



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB/m	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector
1		31.9544	33.17	-9.96	23.21	40.00	-16.79	QP
2		75.1821	40.51	-12.39	28.12	40.00	-11.88	QP
3		152.1297	45.45	-12.38	33.07	43.50	-10.43	QP
4	*	206.3975	48.11	-8.83	39.28	43.50	-4.22	QP
5		281.9945	41.80	-6.35	35.45	46.00	-10.55	QP
6		574.6258	33.26	0.16	33.42	46.00	-12.58	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 3		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	!	32.0688	44.39	-9.95	34.44	40.00	-5.56	QP
2	*	72.6556	46.41	-11.96	34.45	40.00	-5.55	QP
3		156.7164	49.28	-12.34	36.94	43.50	-6.56	QP
4		243.0329	40.18	-7.46	32.72	46.00	-13.28	QP
5		533.4968	39.37	-0.57	38.80	46.00	-7.20	QP
6		952.0469	30.66	5.68	36.34	46.00	-9.66	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 4

Polar (H/V)	Frequency	Meter Reading	Pre- amplifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
operation frequency:5745									
V	11490	54.36	49.05	15.3	37.39	58	74	-16.00	PK
V	11490	41.91	49.05	15.3	37.39	45.55	54	-8.45	AV
V	17235	55.28	49.16	15.27	40.45	61.84	68.2	-6.36	PK
V	17235	40.63	49.16	15.27	40.45	47.19	54	-6.81	AV
H	11490	52.62	49.05	15.3	37.39	56.26	74	-17.74	PK
H	11490	42.14	49.05	15.3	37.39	45.78	54	-8.22	AV
H	17235	51.58	49.16	15.27	40.45	58.14	68.2	-10.06	PK
H	17235	40.63	49.16	15.27	40.45	47.19	54	-6.81	AV
operation frequency:5785									
V	11570	51.21	49.09	15.34	37.42	54.88	74	-19.12	PK
V	11570	41.24	49.09	15.34	37.42	44.91	54	-9.09	AV
V	17355	50.48	49.18	15.29	40.47	57.06	68.2	-11.14	PK
V	17355	40.46	49.18	15.29	40.47	47.04	54	-6.96	AV
H	11570	50.52	49.09	15.34	37.42	54.19	74	-19.81	PK
H	11570	42.26	49.09	15.34	37.42	45.93	54	-8.07	AV
H	17355	48.24	49.18	15.29	40.47	54.82	68.2	-13.38	PK
H	17355	40.57	49.18	15.29	40.47	47.15	54	-6.85	AV
operation frequency:5825									
V	11650	52.63	49.11	15.37	37.46	56.35	74	-17.65	PK
V	11650	41.22	49.11	15.37	37.46	44.94	54	-9.06	AV
V	17475	49.63	49.21	15.34	40.51	56.27	68.2	-11.93	PK
V	17475	40.87	49.21	15.34	40.51	47.51	54	-6.49	AV
H	11650	57.34	49.11	15.37	31.31	54.91	74	-19.09	PK
H	11650	48.56	49.11	15.37	31.31	46.13	54	-7.87	AV
H	17475	49.55	49.21	15.34	40.51	56.19	68.2	-12.01	PK
H	17475	40.63	49.21	15.34	40.51	47.27	54	-6.73	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	Meter Reading	Pre- amplifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
operation frequency:5745									
V	11490	49.21	49.05	15.3	37.39	52.85	74	-21.15	PK
V	11490	42.59	49.05	15.3	37.39	46.23	54	-7.77	AV
V	17235	48.52	49.16	15.27	40.45	55.08	68.2	-13.12	PK
V	17235	40.93	49.16	15.27	40.45	47.49	54	-6.51	AV
H	11490	49.58	49.05	15.3	37.39	53.22	74	-20.78	PK
H	11490	41.24	49.05	15.3	37.39	44.88	54	-9.12	AV
H	17235	48.33	49.16	15.27	40.45	54.89	68.2	-13.31	PK
H	17235	40.55	49.16	15.27	40.45	47.11	54	-6.89	AV
operation frequency:5785									
V	11570	52.63	49.09	15.34	37.42	56.3	74	-17.70	PK
V	11570	42.61	49.09	15.34	37.42	46.28	54	-7.72	AV
V	17355	49.58	49.18	15.29	40.47	56.16	68.2	-12.04	PK
V	17355	40.63	49.18	15.29	40.47	47.21	54	-6.79	AV
H	11570	49.54	49.09	15.34	37.42	53.21	74	-20.79	PK
H	11570	43.85	49.09	15.34	37.42	47.52	54	-6.48	AV
H	17355	49.24	49.18	15.29	40.47	55.82	68.2	-12.38	PK
H	17355	40.63	49.18	15.29	40.47	47.21	54	-6.79	AV
operation frequency:5825									
V	11650	51.44	49.11	15.37	37.46	55.16	74	-18.84	PK
V	11650	41.65	49.11	15.37	37.46	45.37	54	-8.63	AV
V	17475	48.26	49.21	15.34	40.51	54.9	68.2	-13.30	PK
V	17475	40.68	49.21	15.34	40.51	47.32	54	-6.68	AV
H	11650	57.55	49.11	15.37	31.31	55.12	74	-18.88	PK
H	11650	44.83	49.11	15.37	31.31	42.4	54	-11.60	AV
H	17475	49.21	49.21	15.34	40.51	55.85	68.2	-12.35	PK
H	17475	40.38	49.21	15.34	40.51	47.02	54	-6.98	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	Meter Reading	Pre- amplifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
operation frequency:5755									
V	11510	49.63	49.07	15.33	37.41	53.3	74	-20.70	PK
V	11510	41.65	49.07	15.33	37.41	45.32	54	-8.68	AV
V	17265	49.84	49.17	15.28	40.46	56.41	68.2	-11.79	PK
V	17265	40.18	49.17	15.28	40.46	46.75	54	-7.25	AV
H	11510	48.36	49.07	15.33	37.41	52.03	74	-21.97	PK
H	11510	41.82	49.07	15.33	37.41	45.49	54	-8.51	AV
H	17265	49.28	49.17	15.28	40.46	55.85	68.2	-12.35	PK
H	17265	40.41	49.17	15.28	40.46	46.98	54	-7.02	AV
operation frequency:5795									
V	11590	49.63	49.11	15.37	37.46	53.35	74	-20.65	PK
V	11590	41.65	49.11	15.37	37.46	45.37	54	-8.63	AV
V	17385	48.18	49.21	15.34	40.51	54.82	68.2	-13.38	PK
V	17385	40.63	49.21	15.34	40.51	47.27	54	-6.73	AV
H	11590	57.54	49.11	15.37	31.31	55.11	74	-18.89	PK
H	11590	44.52	49.11	15.37	31.31	42.09	54	-11.91	AV
H	17385	48.13	49.21	15.34	40.51	54.77	68.2	-13.43	PK
H	17385	40.31	49.21	15.34	40.51	46.95	54	-7.05	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 RADIATED BAND EMISSION MEASUREMENT****3.3.1 TEST REQUIREMENT:**

15.407 (b)

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

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.

For transmitters operating solely in the 5.725-5.850 GHz band:

(i) All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

(ii) Devices certified before March 2, 2017 with antenna gain greater than 10 dBi may demonstrate compliance with the emission limits in § 15.247(d), but manufacturing, marketing and importing of devices certified under this alternative must cease by March 2, 2018. Devices certified before March 2, 2018 with antenna gain of 10 dBi or less may demonstrate compliance with the emission limits in § 15.247(d), but manufacturing, marketing and importing of devices certified under this alternative must cease before March 2, 2020.

The provisions of §15.205 apply to intentional radiators operating under this section, 15.205 Restricted bands of operation

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

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) = $20 \log$ Emission level (uV/m).

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	5600MHz-5785MHz
Stop Frequency	5780MHz-6000MHz
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:

- The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- 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.
- 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.
- The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- 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 the EUT in the lowest channel,the Highest channel

Note:

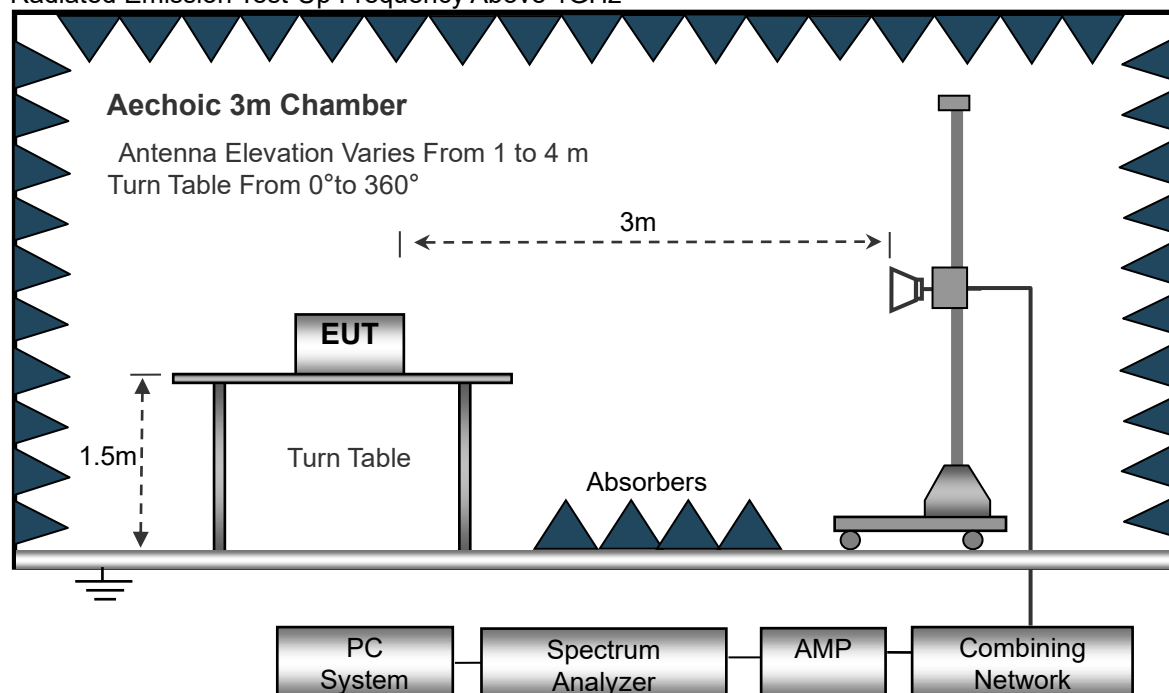
Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported

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(Band 4)**

Polar (H/V)	Frequency	Meter Reading	Pre- amplifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
operation frequency:5745									
V	5725	53.68	46.38	12.43	35.65	55.38	68.2	-12.82	PK
V	5725	40.32	46.38	12.43	35.65	42.02	54	-11.98	AV
V	5720	54.77	46.56	12.47	35.76	56.44	68.2	-11.76	PK
V	5720	37.20	46.56	12.47	35.76	38.87	54	-15.13	AV
H	5725	52.98	46.38	12.43	35.65	54.68	68.2	-13.52	PK
H	5725	37.89	46.38	12.43	35.65	39.59	54	-14.41	AV
H	5720	54.61	46.56	12.47	35.76	56.28	68.2	-11.92	PK
H	5720	33.96	46.56	12.47	35.76	35.63	54	-18.37	AV

Polar (H/V)	Frequency	Meter Reading	Pre- amplifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
operation frequency:5825									
V	5850	53.56	46.55	12.65	35.87	55.53	68.2	-12.67	PK
V	5850	36.19	46.55	12.65	35.87	38.16	54	-15.84	AV
V	5870	53.59	46.58	12.67	35.93	55.61	68.2	-12.59	PK
V	5870	32.49	46.58	12.67	35.93	34.51	54	-19.49	AV
H	5850	53.05	46.55	12.65	35.87	55.02	68.2	-13.18	PK
H	5850	41.10	46.55	12.65	35.87	43.07	54	-10.93	AV
H	5870	52.87	46.58	12.67	35.93	54.89	68.2	-13.31	PK
H	5870	33.18	46.58	12.67	35.93	35.2	54	-18.8	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.



802.11n HT20

Polar (H/V)	Frequency	Meter Reading	Pre- amplifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
operation frequency:5745									
V	5725	52.04	48.32	15.24	37.37	56.33	68.2	-11.87	PK
V	5725	33.47	48.32	15.24	37.37	37.76	54	-16.24	AV
V	5720	52.30	48.36	15.27	37.39	56.6	68.2	-11.6	PK
V	5720	33.96	48.36	15.27	37.39	38.26	54	-15.74	AV
H	5725	51.67	48.32	15.24	37.37	55.96	68.2	-12.24	PK
H	5725	33.69	48.32	15.24	37.37	37.98	54	-16.02	AV
H	5720	51.27	48.36	15.27	37.39	55.57	68.2	-12.63	PK
H	5720	32.68	48.36	15.27	37.39	36.98	54	-17.02	AV

Polar (H/V)	Frequency	Meter Reading	Pre- amplifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
operation frequency:5825									
V	5850	53.52	46.38	12.43	35.65	55.22	68.2	-12.98	PK
V	5850	35.09	46.38	12.43	35.65	36.79	54	-17.21	AV
V	5870	51.11	46.56	12.47	35.76	52.78	68.2	-15.42	PK
V	5870	33.59	46.56	12.47	35.76	35.26	54	-18.74	AV
H	5850	54.52	46.38	12.43	35.65	56.22	68.2	-11.98	PK
H	5850	36.92	46.38	12.43	35.65	38.62	54	-15.38	AV
H	5870	51.68	46.56	12.47	35.76	53.35	68.2	-14.85	PK
H	5870	34.12	46.56	12.47	35.76	35.79	54	-18.21	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	Meter Reading	Pre- amplifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
operation frequency:5755									
V	5725	52.89	46.55	12.65	35.87	54.86	68.2	-13.34	PK
V	5725	35.80	46.55	12.65	35.87	37.77	54	-16.23	AV
V	5720	51.93	46.58	12.67	35.93	53.95	68.2	-14.25	PK
V	5720	34.67	46.58	12.67	35.93	36.69	54	-17.31	AV
H	5725	52.84	46.55	12.65	35.87	54.81	68.2	-13.39	PK
H	5725	35.20	46.55	12.65	35.87	37.17	54	-16.83	AV
H	5720	50.81	46.58	12.67	35.93	52.83	68.2	-15.37	PK
H	5720	35.48	46.58	12.67	35.93	37.5	54	-16.5	AV

Polar (H/V)	Frequency	Meter Reading	Pre- amplifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
operation frequency:5795									
V	5850	53.56	48.32	15.24	37.37	57.85	68.2	-10.35	PK
V	5850	37.65	48.32	15.24	37.37	41.94	54	-12.06	AV
V	5870	50.45	48.36	15.27	37.39	54.75	68.2	-13.45	PK
V	5870	36.75	48.36	15.27	37.39	41.05	54	-12.95	AV
H	5850	54.63	48.32	15.24	37.37	58.92	68.2	-9.28	PK
H	5850	42.09	48.32	15.24	37.37	46.38	54	-7.62	AV
H	5870	52.82	48.36	15.27	37.39	57.12	68.2	-11.08	PK
H	5870	36.70	48.36	15.27	37.39	41	54	-13	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.



3.4 CONDUCTED BAND EMISSION MEASUREMENT

3.4.1 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	5725MHz
Stop Frequency	5850MHz
RB / VB (emission in restricted band)	1 MHz / 3 MHz for Peak, 1 MHz / 10Hz for Average

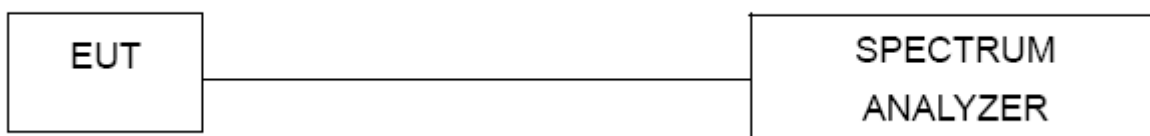
3.4.2 TEST PROCEDURE

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

3.4.3 DEVIATION FROM TEST STANDARD

No deviation

3.4.4 TEST SETUP



3.4.5 EUT OPERATING CONDITIONS

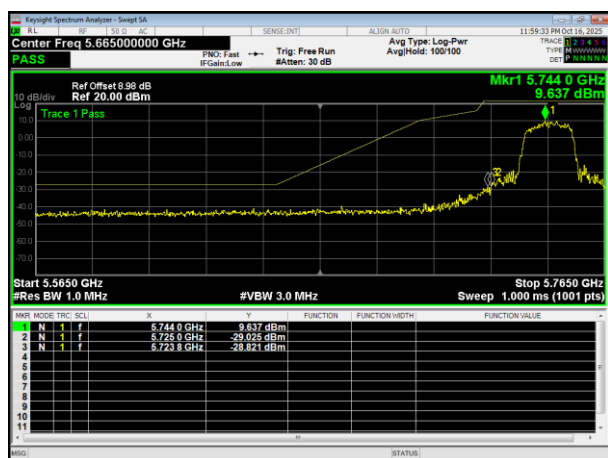
The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

3.4.6 TEST RESULT



The antenna gain is compensated in the test data.

802.11a

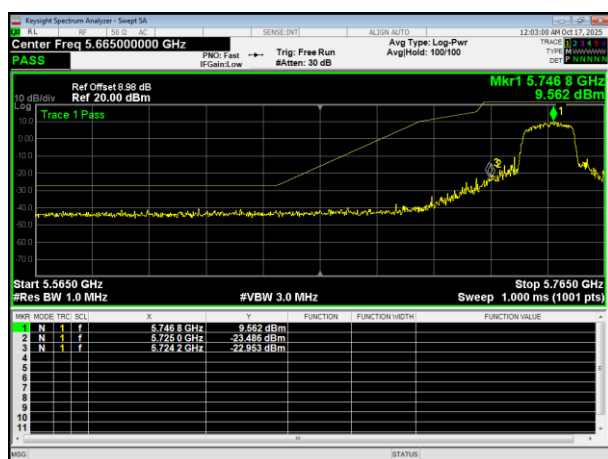


5745MHz



5825MHz

802.11n HT20

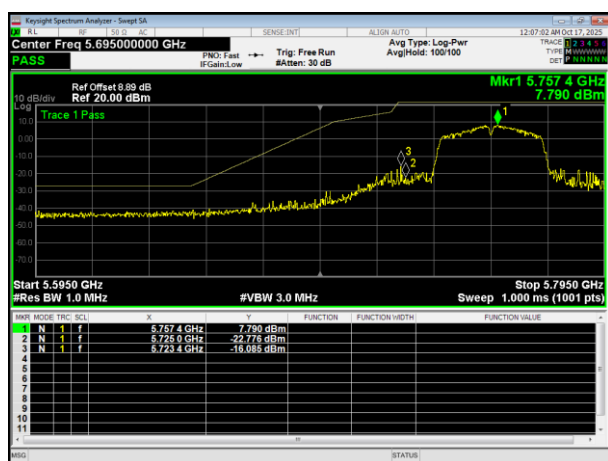


5745MHz



5825MHz

802.11n HT40



5755MHz



5795MHz



4. AVERAGE 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. Method SA-2 uses trace averaging across ON and OFF times of the EUT transmissions, followed by duty cycle correction. The procedure for this method is as follows:
 - a) Measure the duty cycle D of the transmitter output signal as described in 12.2.
 - b) Set span to encompass the entire 26 dB EBW or 99% OBW of the signal.
 - c) Set RBW=1MHz
 - d) Set VBW $\geq$ 3 MHz
 - e) Number of points in sweep $\geq [2 \times \text{span} / \text{RBW}]$. (This gives bin-to-bin spacing $\leq \text{RBW} / 2$, so that narrowband signals are not lost between frequency bins.)
 - f) Sweep time- auto.
 - g) Detector = RMS (i.e., power averaging), if available. Otherwise, use sample detector mode.
 - h) Do not use sweep triggering. Allow the sweep to "free run."
 - i) Trace average at least 100 traces in power averaging (rms) mode; however, the number of traces to be averaged shall be increased above 100 as needed such that the average accurately represents the true average over the ON and OFF periods of the transmitter.
 - j) Compute power by integrating the spectrum across the 26 dB EBW or 99% OBW of the signal using the instrument's band power measurement function with band limits set equal to the EBW or OBW band edges. If the instrument does not have a band power function, then sum the spectrum levels (in power units) at 1 MHz intervals extending across the 26 dB EBW or 99%OBW of the spectrum.
 - k) Add $[10 \log (1 / D)]$, where D is the duty cycle, to the measured power to compute the average power during the actual transmission times (because the measurement represents an average over both the ON and OFF times of the transmission). For example, add $[10 \log (1 / 0.25)] = 6 \text{ dB}$ if the duty cycle is 25%.

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.

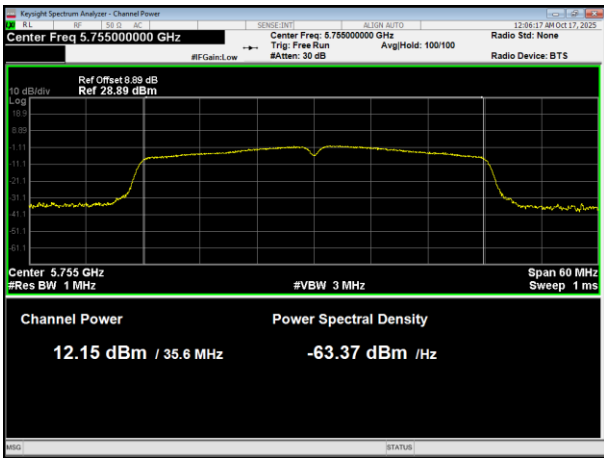
**4.1.5 TEST RESULTS**

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

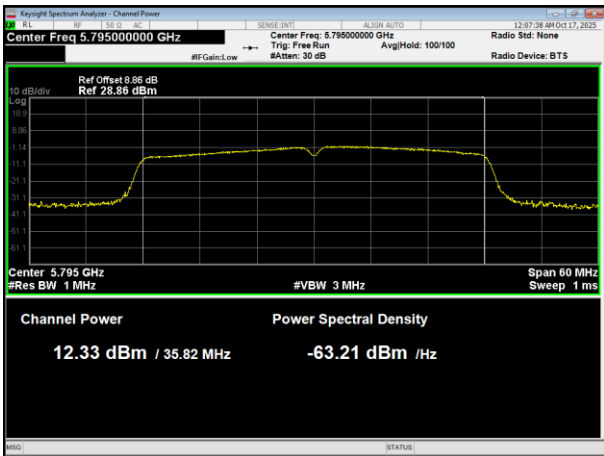
Mode	Test Channel	Average Output Power (dBm)	Duty factor (dB)	Total Output Power(dB)	LIMIT (dBm)
802.11a	Low	10.032	0.87	10.902	30
	Middle	10.592	0.87	11.462	30
	High	11.37	0.87	12.24	30
802.11n HT20	Low	11.831	0.13	11.961	30
	Middle	11.47	0.16	11.63	30
	High	12.255	0.16	12.415	30
802.11n HT40	Low	12.145	0.32	12.465	30
	High	12.331	0.26	12.591	30



802.11n HT40



5755MHz



5795MHz



5. POWER SPECTRAL DENSITY TEST

5.1 APPLIED PROCEDURES / LIMIT

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 $\geq$ 1MHz for band 1 RBW $\geq$ 510KHz for band 4
VB	VBW $\geq$ 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. Use 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

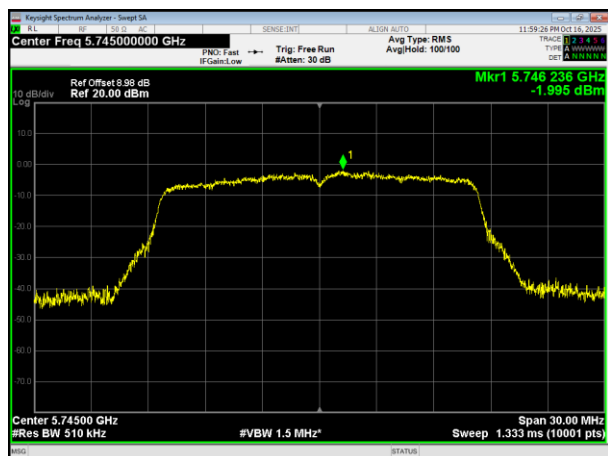
The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

**5.1.5 TEST RESULTS**

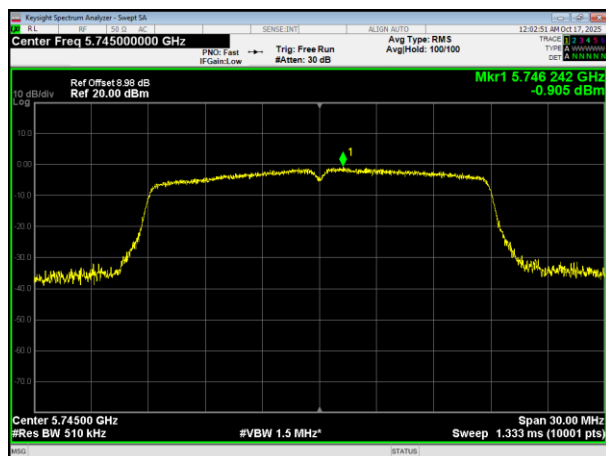
	Mode	Test Channel	Reading Level (dBm)	Duty factor (dB)	PSD (dBm/500kHz)	Limit (dBm/500kHz)	Result
Band4	802.11a	Low	-1.995	0.87	-1.125	30.00	PASS
		Middle	-1.789	0.87	-0.919	30.00	PASS
		High	-1.167	0.87	-0.297	30.00	PASS
	802.11n20	Low	-0.905	0.13	-0.775	30.00	PASS
		Middle	-1.223	0.16	-1.063	30.00	PASS
		High	-0.064	0.16	0.096	30.00	PASS
	802.11n40	Low	-2.662	0.32	-2.342	30.00	PASS
		High	-2.859	0.26	-2.599	30.00	PASS



802.11a



802.11n HT20



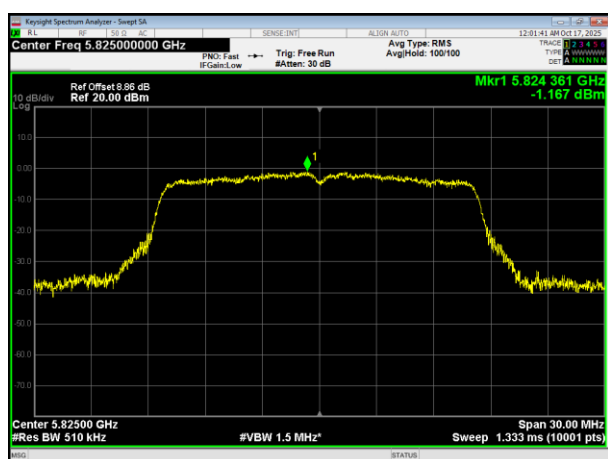
5745MHz



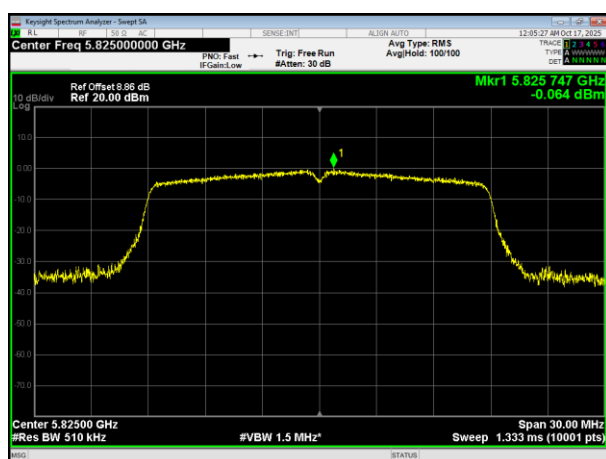
5745MHz



5785MHz



5785MHz

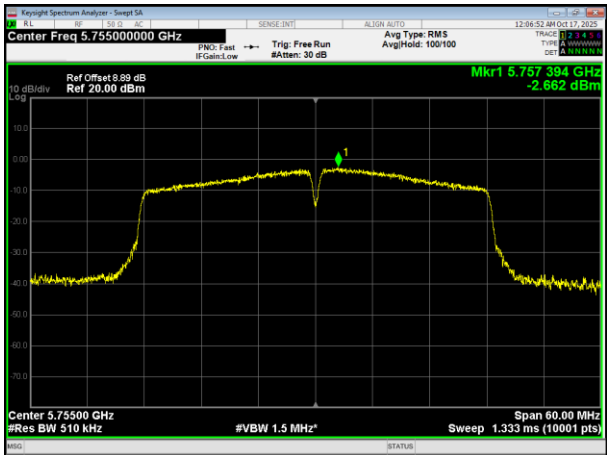


5825MHz

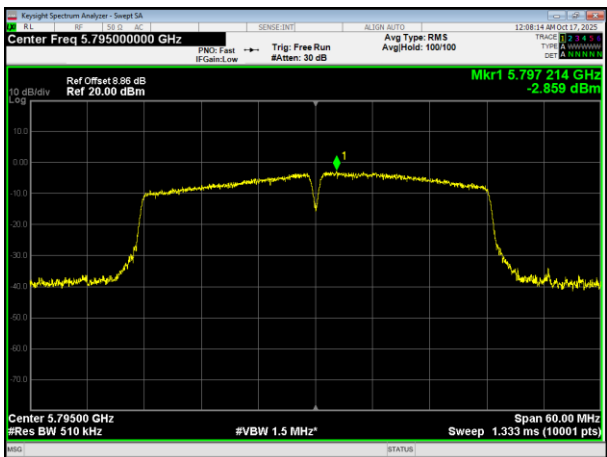
5825MHz



802.11n HT40



5755MHz



5795MHz



6. 6DB BANDWIDTH TEST

6.1 APPLIED PROCEDURES / LIMIT

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

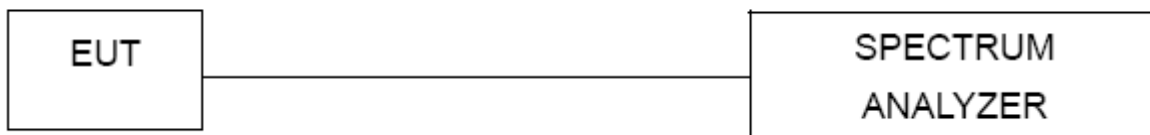
6.1.1 TEST PROCEDURE

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

6.1.2 DEVIATION FROM STANDARD

No deviation.

6.1.3 TEST SETUP



6.1.4 EUT OPERATION CONDITIONS

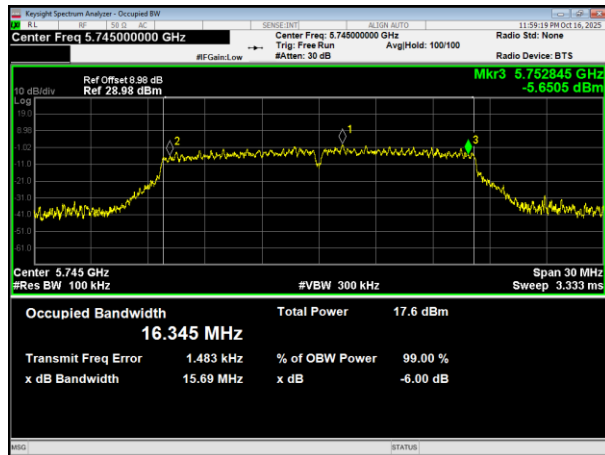
The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

**6.1.5 TEST RESULTS**

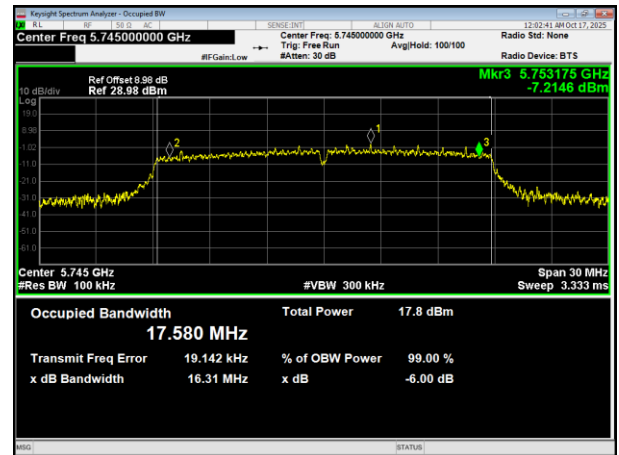
		Test Channel	6dB Bandwidth (MHz)	6dB Bandwidth Limit (MHz)	Result
Band 4	802.11a	Low	15.69	>0.5	Pass
		Middle	15.73	>0.5	Pass
		High	16.31	>0.5	Pass
	802.11n HT20	Low	16.31	>0.5	Pass
		Middle	16.32	>0.5	Pass
		High	15.54	>0.5	Pass
	802.11n HT40	Low	27.51	>0.5	Pass
		High	32.59	>0.5	Pass



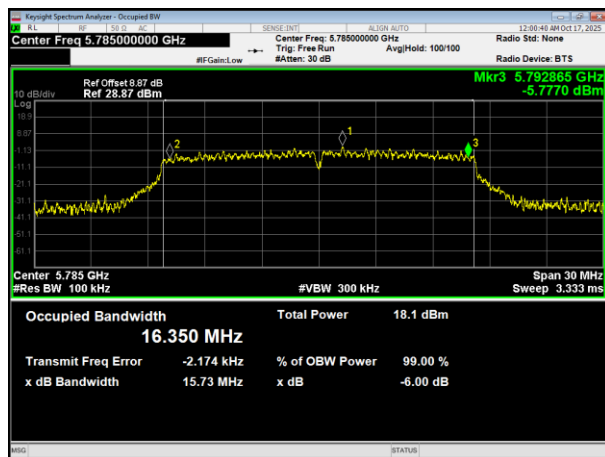
802.11a



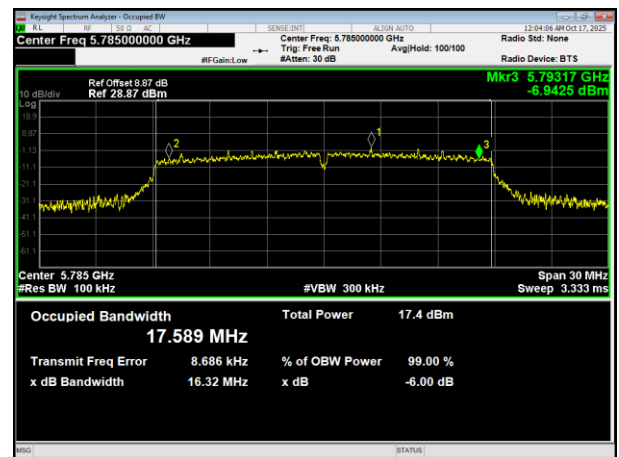
802.11n HT20



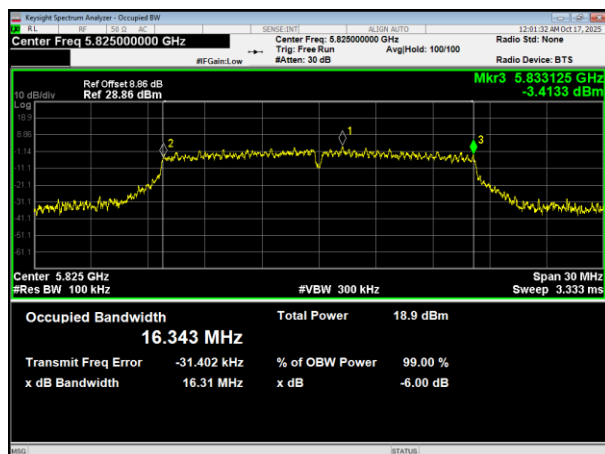
5745MHz



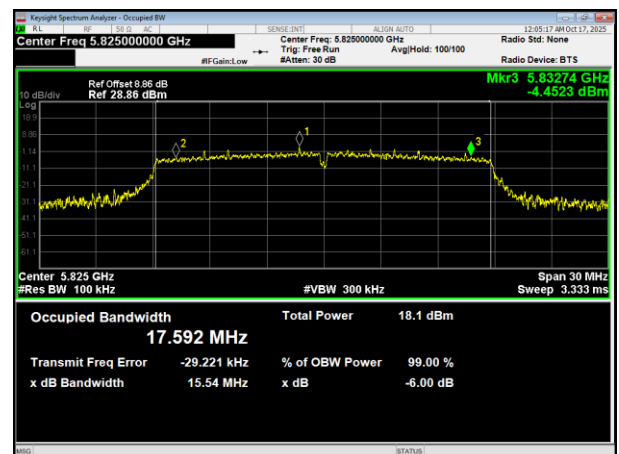
5745MHz



5785MHz



5785MHz

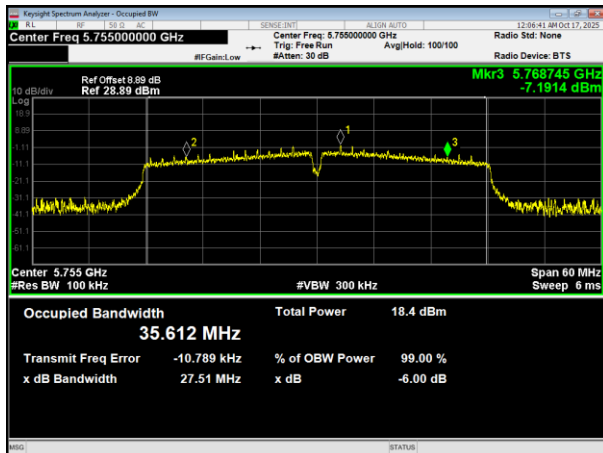


5825MHz

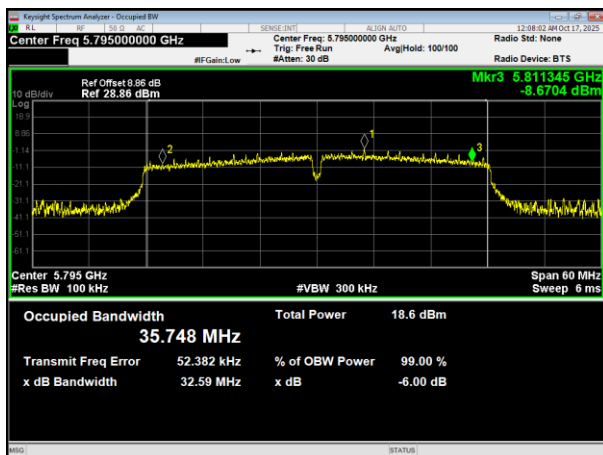
5825MHz



802.11n HT40



5755MHz



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) $\geq$ 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

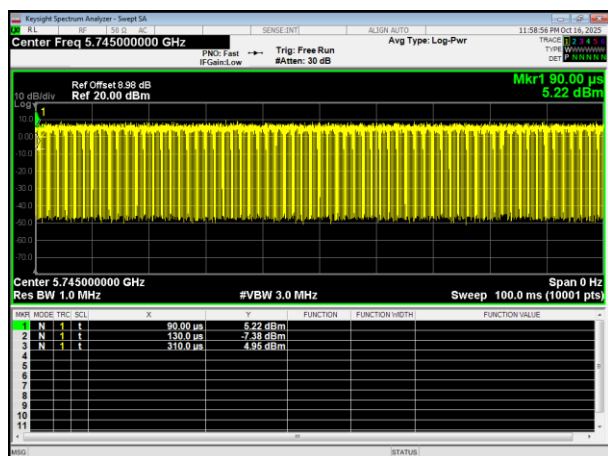
The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

**7.1.5 TEST RESULTS**

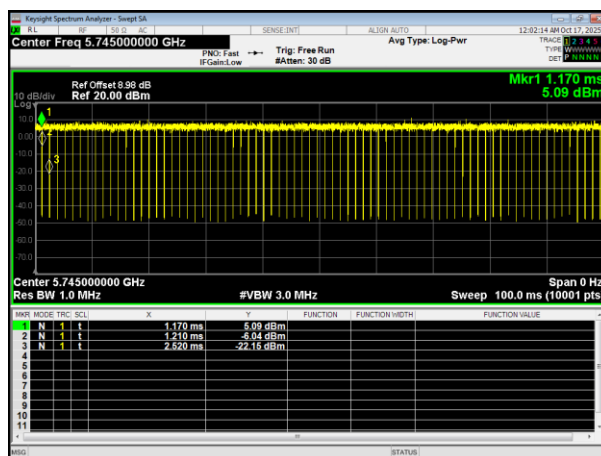
Operation Mode			Duty Cycle(%)	Duty Fator (dB) 10 * log (1/ Duty cycle)
Band 4	802.11a	Low	81.82	0.87
		Middle	81.82	0.87
		High	81.82	0.87
	802.11n HT20	Low	97.04	0.13
		Middle	96.3	0.16
		High	96.3	0.16
	802.11n HT40	Low	92.86	0.32
		High	94.2	0.26



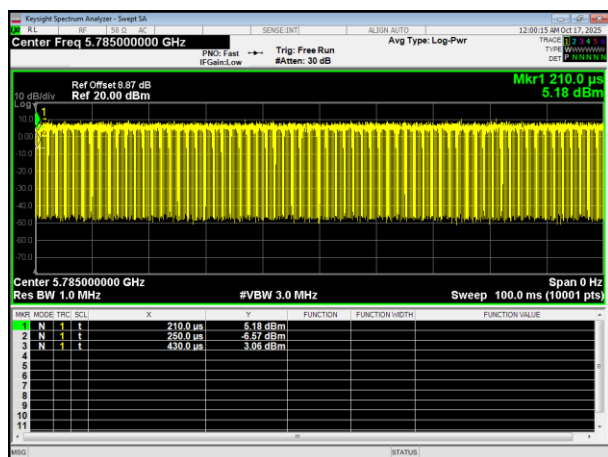
802.11a



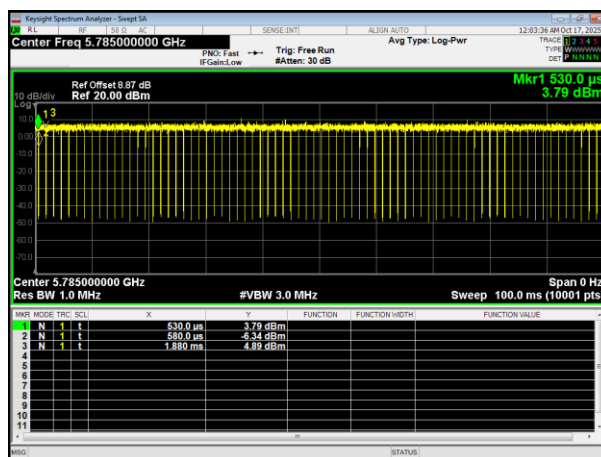
802.11n HT20



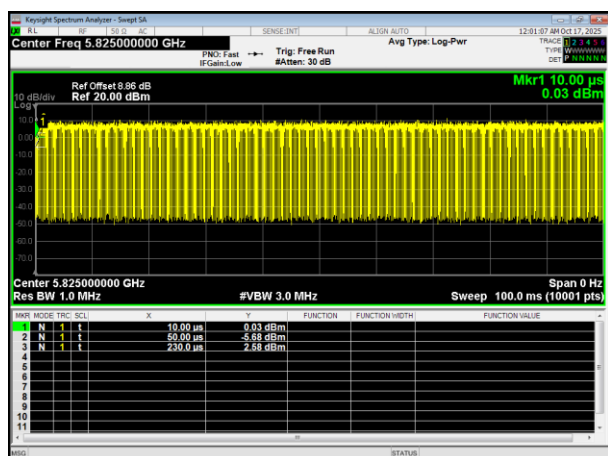
5745MHz



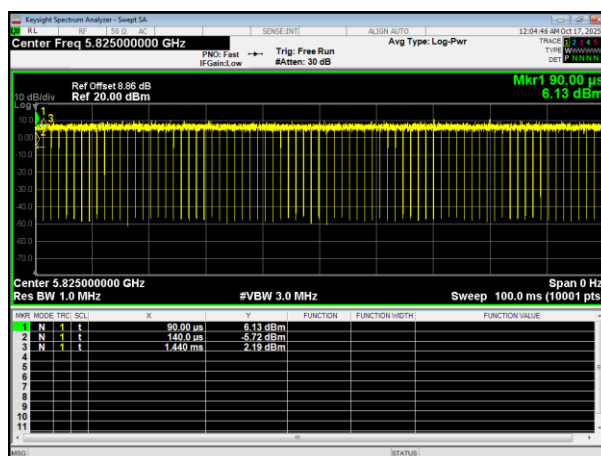
5745MHz



5785MHz



5785MHz

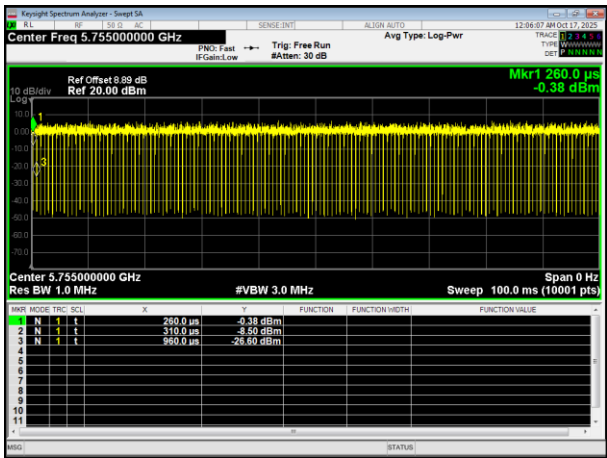


5825MHz

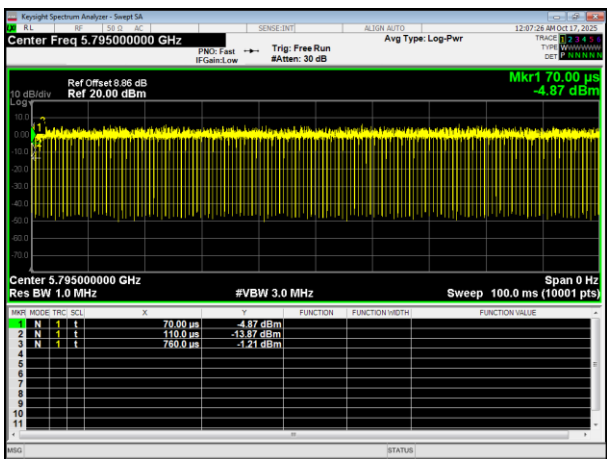
5825MHz



802.11n HT40



5755MHz



5795MHz



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.

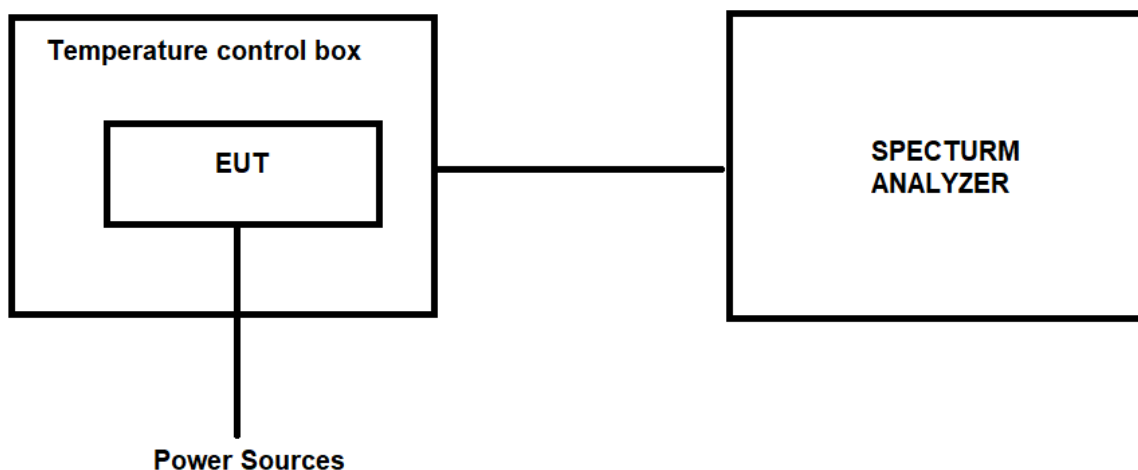
8.1.1 TEST PROCEDURE

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 (MHz)	Spectrum Frequency (MHz)		Δ Frequency (MHz)	
			802.11a	802.11n HT20	802.11a	802.11n HT20
132V	-20℃	5745	5745.0056	5745.0055	0.9748	0.9574
		5785	5785.0031	5785.0033	0.5359	0.5704
		5825	5825.0018	5825.0052	0.3090	0.8927
108V		5745	5745.0032	5745.0001	0.5570	0.0174
		5785	5785.0013	5785.0043	0.2247	0.7433
		5825	5825.0024	5825.0054	0.4120	0.9270
120V	25℃	5745	5745.0031	5745.0035	0.5396	0.6092
		5785	5785.0043	5785.0033	0.7433	0.5704
		5825	5825.0033	5825.0015	0.5665	0.2575
132V	50℃	5745	5745.0055	5745.0054	0.9574	0.9399
		5785	5785.0046	5785.0026	0.7952	0.4494
		5825	5825.0017	5825.0063	0.2918	1.0815
108V	50℃	5745	5745.0081	5745.0001	1.4099	0.0174
		5785	5785.0066	5785.0001	1.1409	0.0173
		5825	5825.0002	5825.0006	0.0343	0.1030

Test Voltage	Test Temp.	Measured Frequency (MHz)	Spectrum Frequency (MHz)	Δ Frequency (MHz)
			802.11n HT40	802.11n HT40
132V	-20℃	5755	5755.0012	0.2085
		5795	5795.0006	0.1035
108V		5755	5755.0015	0.2606
		5795	5795.0002	0.0345
120V	25℃	5755	5755.0066	1.1468
		5795	5795.0005	0.0863
132V	50℃	5755	5755.0018	0.3128
		5795	5795.0006	0.1035
108V	50℃	5755	5755.0055	0.9557
		5795	5795.0001	0.0173



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

Reference to the appendix I for details.

12. EUT PHOTO

Reference to the appendix II for details.

******* END OF REPORT *******