



FCC Part 15E Test Report

FCC ID: 2BFI9-F2-1

Applicant: Shenzhen Zhongxin Shidai Technology Co.,Ltd.

Address: 201, Building B, Chunenghui, No.11Qinghuamei Road, Guanhu Street, Longhua District, Shenzhen, China

Manufacturer: Shenzhen Zhongxin Shidai Technology Co.,Ltd.

Address: 201, Building B, Chunenghui, No.11Qinghuamei Road, Guanhu Street, Longhua District, Shenzhen, China

Product Name: Security Camera

Trade Mark: N/A

Model Number: F2

Date of Receipt: Jun. 23, 2026

Test Date: Jun. 23, 2026 - Jul. 03, 2026

Date of Report: Jul. 03, 2026

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 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024

Test Result: Pass

Report Number: DLE-260623016R

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.



Table of Contents	Page
1 . SUMMARY OF TEST RESULTS	5
1.1 MEASUREMENT UNCERTAINTY	5
2 . GENERAL INFORMATION	6
2.1 GENERAL DESCRIPTION OF EUT	6
2.2 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED	7
2.3 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE)	8
2.4 TABLE OF PARAMETERS OF TEST SOFTWARE SETTING	8
2.5 EQUIPMENTS LIST FOR ALL TEST ITEMS	9
3 . EMC EMISSION TEST	10
3.1 CONDUCTED EMISSION MEASUREMENT	10
3.1.1 POWER LINE CONDUCTED EMISSION LIMITS	10
3.1.2 TEST PROCEDURE	10
3.1.3 DEVIATION FROM TEST STANDARD	10
3.1.4 TEST SETUP	11
3.1.5 EUT OPERATING CONDITIONS	11
3.1.6 TEST RESULTS	11
3.2 RADIATED EMISSION MEASUREMENT	14
3.2.1 RADIATED EMISSION LIMITS	14
3.2.2 TEST PROCEDURE	15
3.2.3 DEVIATION FROM TEST STANDARD	15
3.2.4 TEST SETUP	16
3.2.5 EUT OPERATING CONDITIONS	17
3.2.6 TEST RESULTS (BETWEEN 9KHZ – 30 MHZ)	18
3.2.7 TEST RESULTS (BETWEEN 30MHZ – 1GHZ)	19
3.2.8 TEST RESULTS (1GHZ~40GHZ)	21
3.3 RADIATED BAND EMISSION MEASUREMENT	24
3.3.1 TEST REQUIREMENT:	24
3.3.2 TEST PROCEDURE	25
3.3.3 DEVIATION FROM TEST STANDARD	25
3.3.4 TEST SETUP	25
3.3.5 EUT OPERATING CONDITIONS	25
3.4 CONDUCTED BAND EMISSION MEASUREMENT	29
3.4.1 TEST REQUIREMENT:	29
3.4.2 TEST PROCEDURE	29
3.4.3 DEVIATION FROM TEST STANDARD	29
3.4.4 TEST SETUP	29
3.4.5 EUT OPERATING CONDITIONS	29



Table of Contents	Page
4 . CONDUCTED OUTPUT POWER	30
4.1 APPLIED PROCEDURES / LIMIT	30
4.1.1 TEST PROCEDURE	30
4.1.2 DEVIATION FROM STANDARD	30
4.1.3 TEST SETUP	30
4.1.4 EUT OPERATION CONDITIONS	30
4.1.5 TEST RESULTS	30
5 . POWER SPECTRAL DENSITY TEST	31
5.1 APPLIED PROCEDURES / LIMIT	31
5.1.1 TEST PROCEDURE	31
5.1.2 DEVIATION FROM STANDARD	31
5.1.3 TEST SETUP	31
5.1.4 EUT OPERATION CONDITIONS	31
5.1.5 TEST RESULTS	31
6 . 6DB BANDWIDTH TEST	32
6.1 APPLIED PROCEDURES / LIMIT	32
6.1.1 TEST PROCEDURE	32
6.1.2 DEVIATION FROM STANDARD	32
6.1.3 TEST SETUP	32
6.1.4 EUT OPERATION CONDITIONS	32
6.1.5 TEST RESULTS	32
7 . DUTY CYCLE TEST SIGNAL	33
7.1 APPLIED PROCEDURES / LIMIT	33
7.1.1 TEST PROCEDURE	33
7.1.2 DEVIATION FROM STANDARD	33
7.1.3 TEST SETUP	33
7.1.4 EUT OPERATION CONDITIONS	33
7.1.5 TEST RESULTS	33
8 . FREQUENCY STABILITY	34
8.1 APPLIED PROCEDURES / LIMIT	34
8.1.1 TEST PROCEDURE	34
8.1.2 DEVIATION FROM STANDARD	34
8.1.3 TEST SETUP	34
8.1.4 EUT OPERATION CONDITIONS	34
8.1.5 TEST RESULTS	35
9 . TRANSMISSION IN THE ABSENCE OF DATA	36
9.1 STANDARD REQUIREMENT	36
9.2 TEST RESULT	36



Table of Contents	Page
10 . ANTENNA REQUIREMENT	36
10.1 STANDARD REQUIREMENT	36
10.2 EUT ANTENNA	36
11 . TEST SETUP PHOTO	36
12 . EUT PHOTO	36



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)	Maximum Conducted 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:	Security Camera
Trademark	N/A
Model No.:	F2
Model Difference	N/A
Operation Frequency:	5745-5825MHz(802.11a/n(HT20)) 5755-5795MHz(802.11n(HT40))
Channel numbers:	See channel list
Channel separation:	5MHz
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:	1.79dBi
Power Supply:	DC 5V from USB Port

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	CH151
Mode 8		CH159

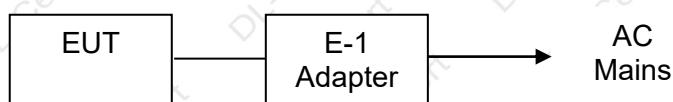
Note: (1) The measurements are performed at the highest, middle, lowest available channels.

(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.

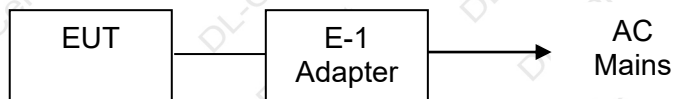
(3) For the two items of conducted disturbance at the power supply end and space radiation below 1GHz, all modes have undergone pre-tests. The report only shows the worst test results of mode 3.

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	Adapter	MDY-08-EF	N/A	XIAOMI

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 20db bandwidth test equipment

Item	Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	Spectrum Analyzer (9kHz-26.5GHz)	Agilent	E4408B	MY50140780	Oct. 25, 2025	Oct. 24, 2026
2	Test Receiver (9kHz-7GHz)	R&S	ESRP7	101393	Oct. 25, 2025	Oct. 24, 2026
3	Bilog Antenna (30MHz-1GHz)	R&S	VULB9162	00306	Oct. 25, 2025	Oct. 24, 2026
4	Horn Antenna (1GHz-18GHz)	Schwarzbeck	BBHA9120D	02139	Oct. 26, 2025	Oct. 25, 2026
5	Horn Antenna (18GHz-40GHz)	A.H. Systems	SAS-574	588	Oct. 25, 2025	Oct. 24, 2026
6	Amplifier (9KHz-6GHz)	Schwarzbeck	BBV9743B	00153	Oct. 25, 2025	Oct. 24, 2026
7	Amplifier (1GHz-18GHz)	EMEC	EM01G8GA	00270	Oct. 25, 2025	Oct. 24, 2026
8	Amplifier (18GHz-40GHz)	Quanjuda	DLE-161	97	Oct. 25, 2025	Oct. 24, 2026
9	Loop Antenna (9KHz-30MHz)	Schwarzbeck	FMZB1519B	00014	Oct. 25, 2025	Oct. 24, 2026
10	RF cables1 (9kHz-1GHz)	ChengYu	966	004	Oct. 25, 2025	Oct. 24, 2026
11	RF cables2 (1GHz-40GHz)	ChengYu	966	003	Oct. 25, 2025	Oct. 24, 2026
12	Antenna connector	Florida RF Labs	N/A	RF 01#	Oct. 25, 2025	Oct. 24, 2026
13	Power probe	KEYSIGHT	U2021XA	MY55210018	Oct. 25, 2025	Oct. 24, 2026
14	Signal Analyzer 9kHz-26.5GHz	Agilent	N9020A	MY55370280	Oct. 25, 2025	Oct. 24, 2026
15	Test Receiver 20kHz-40GHz	R&S	ESU 40	100376	Oct. 25, 2025	Oct. 24, 2026
16	D.C. Power Supply	LongWei	PS-305D	010964729	Oct. 25, 2025	Oct. 24, 2026
17	Temperature & humidity chamber	Changfeng	CF-150-40-P	CF170802-01	Oct. 25, 2025	Oct. 24, 2026
18	966 chamber	YIHENG	966 Room	966	Nov. 06, 2023	Nov. 05, 2026

Conduction Test equipment

Item	Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	843 Shielded Room	YIHENG	843 Room	843	Nov. 05, 2023	Nov. 04, 2026
2	EMI Receiver	R&S	ESR	101421	Oct. 25, 2025	Oct. 24, 2026
3	LISN	R&S	ENV216	102417	Oct. 25, 2025	Oct. 24, 2026
4	843 Cable 1#	ChengYu	CE Cable	001	Oct. 25, 2025	Oct. 24, 2026

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

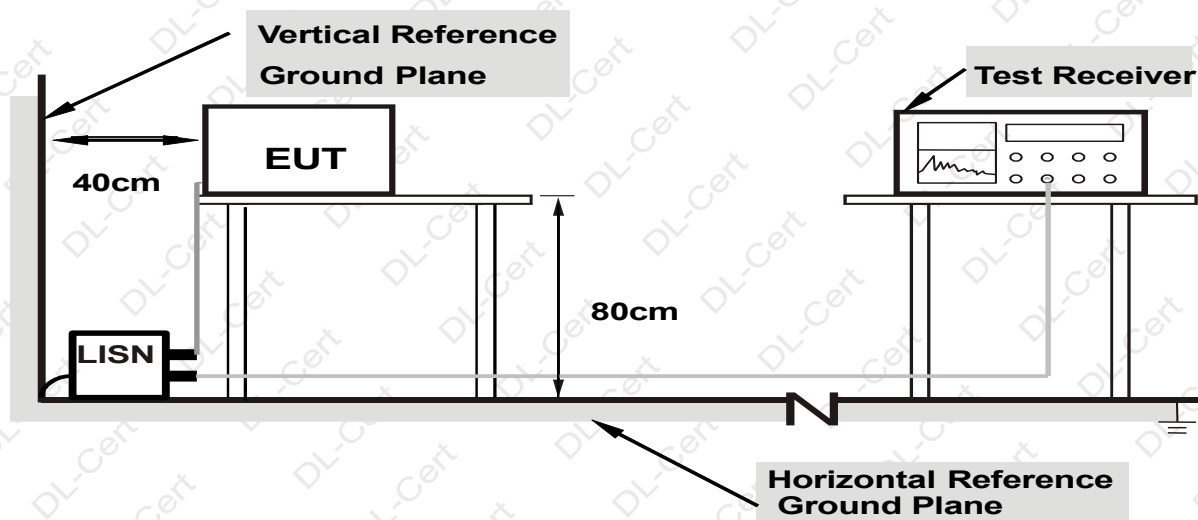
- a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.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

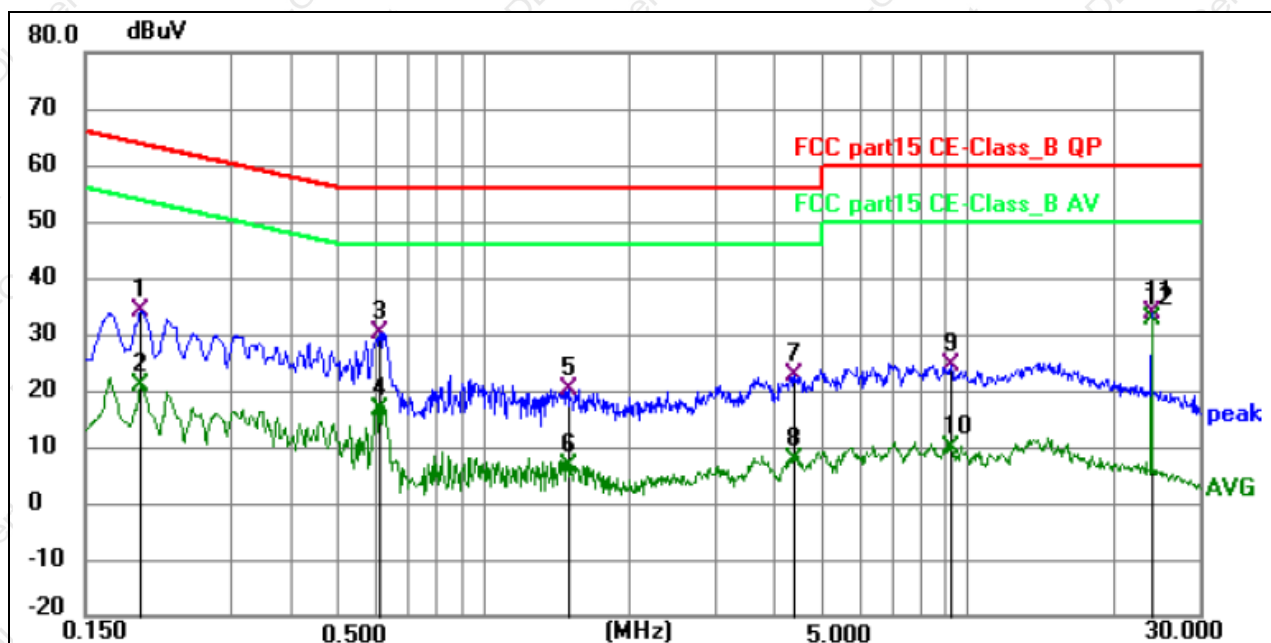
3.1.6 TEST RESULTS

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



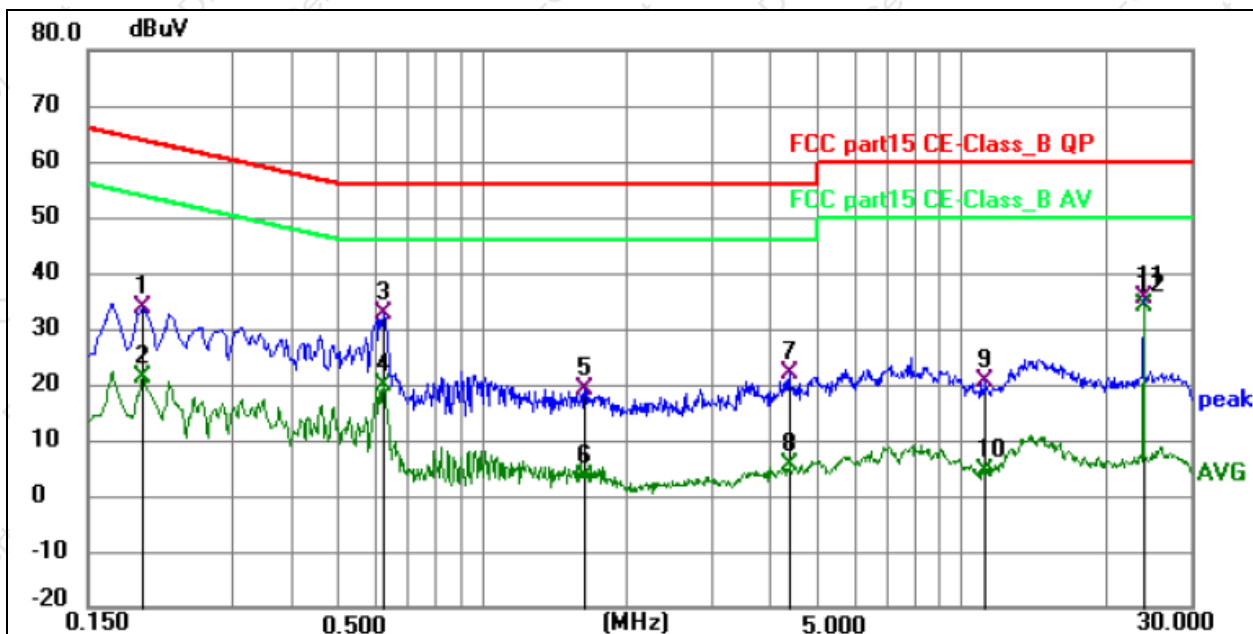
Remark:

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	0.1949	23.95	10.00	33.95	63.83	-29.88	QP	P	
2	0.1949	10.88	10.00	20.88	53.83	-32.95	AVG	P	
3	0.6134	20.16	9.89	30.05	56.00	-25.95	QP	P	
4	0.6134	6.57	9.89	16.46	46.00	-29.54	AVG	P	
5	1.4955	10.44	9.82	20.26	56.00	-35.74	QP	P	
6	1.4955	-3.18	9.82	6.64	46.00	-39.36	AVG	P	
7	4.3620	12.44	10.10	22.54	56.00	-33.46	QP	P	
8	4.3620	-2.40	10.10	7.70	46.00	-38.30	AVG	P	
9	9.2309	14.10	10.20	24.30	60.00	-35.70	QP	P	
10	9.2309	-0.22	10.20	9.98	50.00	-40.02	AVG	P	
11	24.0000	23.29	10.35	33.64	60.00	-26.36	QP	P	
12 *	24.0000	22.16	10.35	32.51	50.00	-17.49	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	0.1949	23.81	9.87	33.68	63.83	-30.15	QP	P	
2	0.1949	11.43	9.87	21.30	53.83	-32.53	AVG	P	
3	0.6225	22.68	9.87	32.55	56.00	-23.45	QP	P	
4	0.6225	10.04	9.87	19.91	46.00	-26.09	AVG	P	
5	1.6395	9.27	9.96	19.23	56.00	-36.77	QP	P	
6	1.6395	-6.66	9.96	3.30	46.00	-42.70	AVG	P	
7	4.3800	11.80	10.09	21.89	56.00	-34.11	QP	P	
8	4.3800	-4.68	10.09	5.41	46.00	-40.59	AVG	P	
9	11.2290	10.18	10.20	20.38	60.00	-39.62	QP	P	
10	11.2290	-5.65	10.20	4.55	50.00	-45.45	AVG	P	
11	24.0000	25.28	10.28	35.56	60.00	-24.44	QP	P	
12 *	24.0000	24.00	10.28	34.28	50.00	-15.72	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 (micровolts/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 form 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.

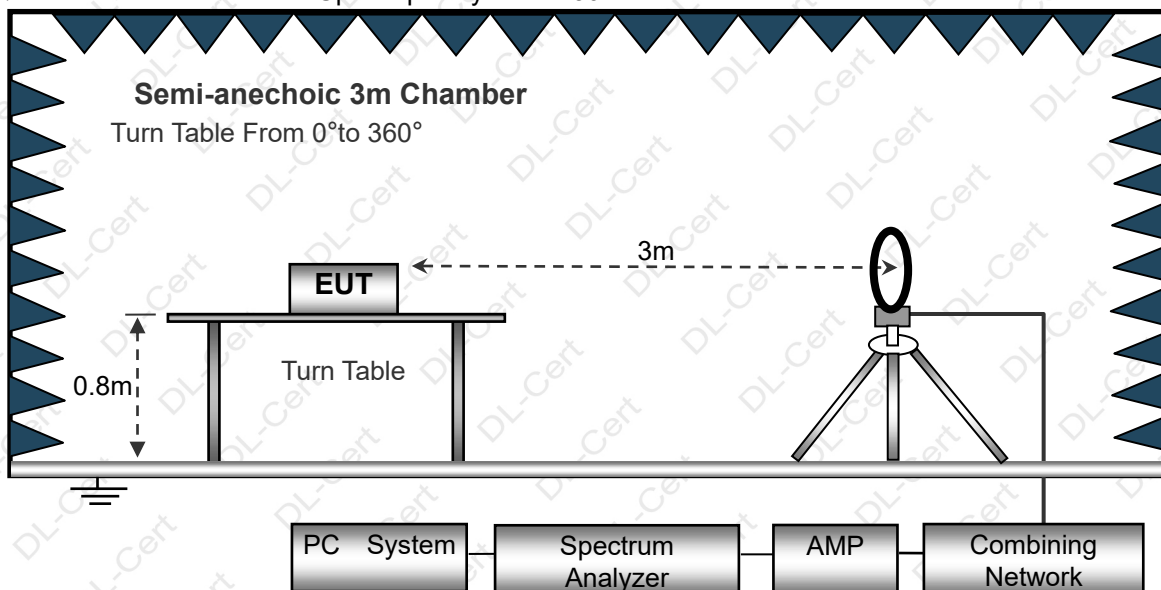
3.2.3 DEVIATION FROM TEST STANDARD

No deviation

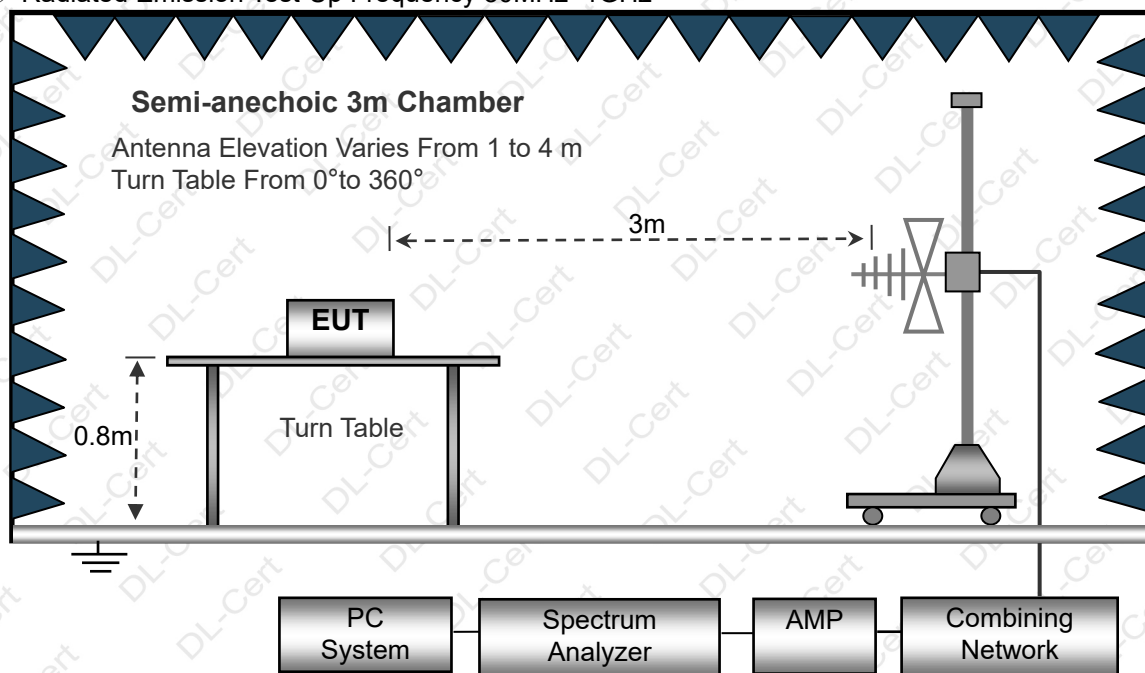


3.2.4 TEST SETUP

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

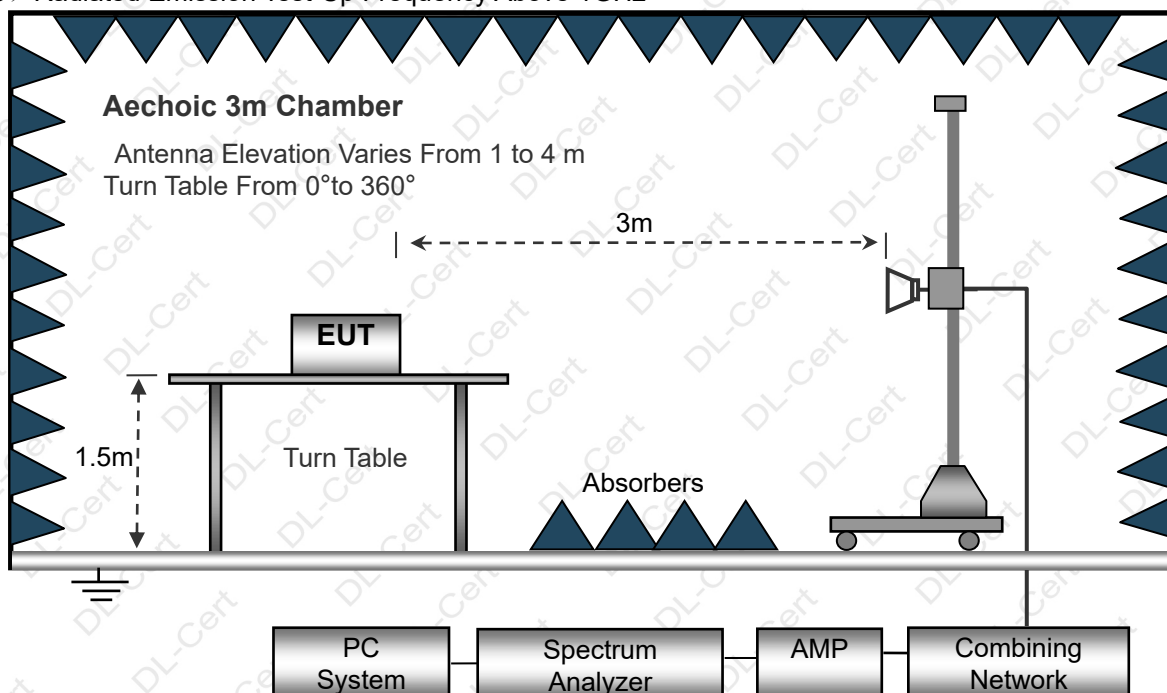


(B) Radiated Emission Test-Up Frequency 30MHz~1GHz





(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:

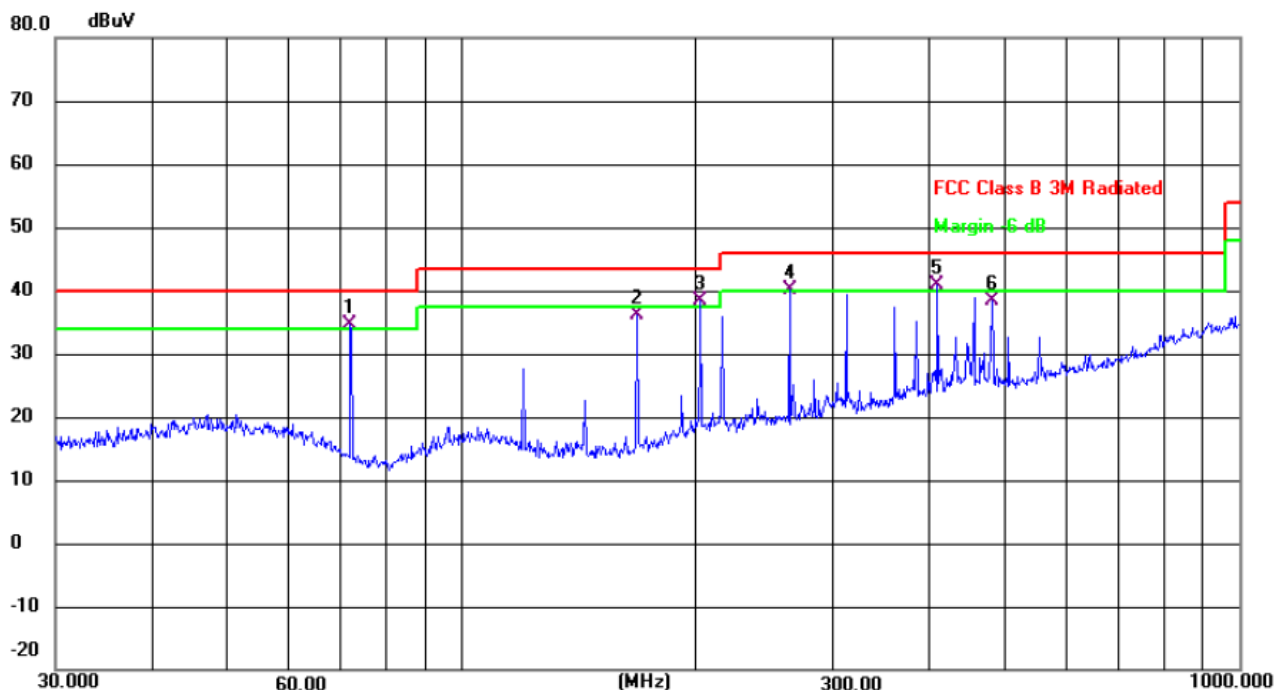
The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

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



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1	!	71.8320	46.86	-12.19	34.67	40.00	-5.33	QP
2		167.8243	47.65	-11.44	36.21	43.50	-7.29	QP
3	*	202.8104	47.44	-8.95	38.49	43.50	-5.01	QP
4	!	263.8190	47.19	-7.12	40.07	46.00	-5.93	QP
5	!	408.9460	44.21	-3.36	40.85	46.00	-5.15	QP
6		480.5276	40.19	-1.93	38.26	46.00	-7.74	QP

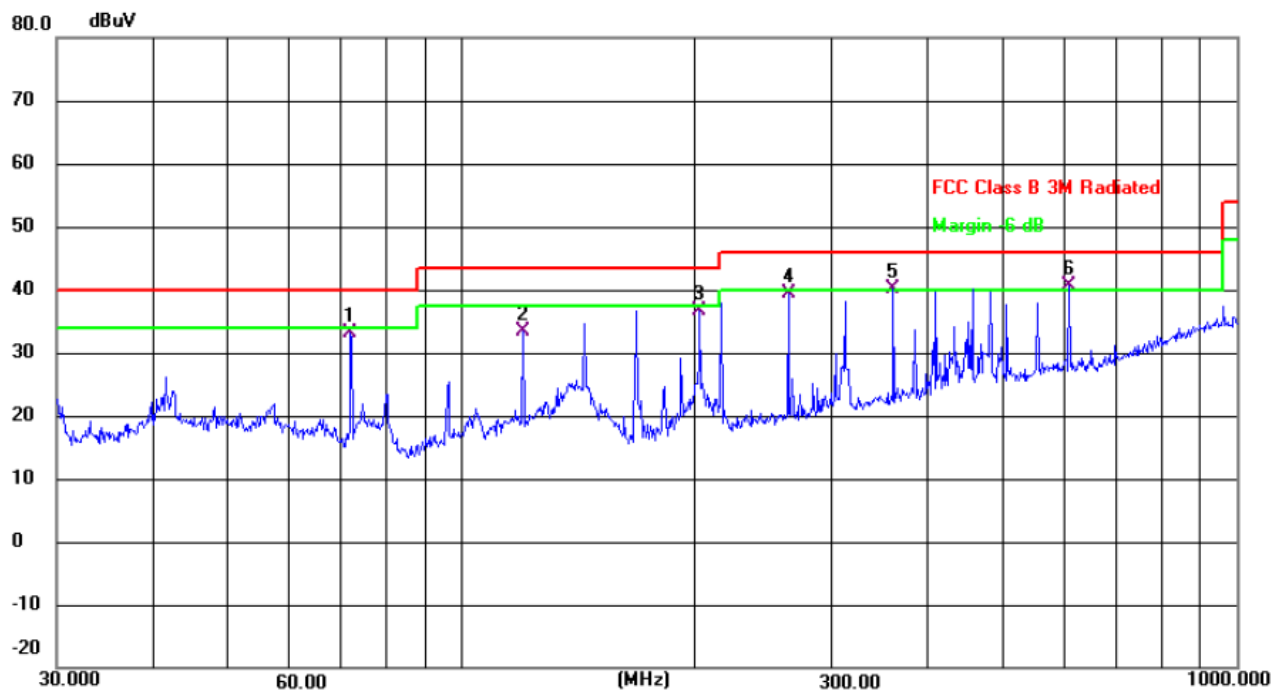
Remark:

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	Detector
		MHz	dBuV	dB	dBuV	dBuV	dB	
1		71.8320	45.43	-12.19	33.24	40.00	-6.76	QP
2		119.8556	44.64	-11.30	33.34	43.50	-10.16	QP
3		202.8104	45.65	-8.95	36.70	43.50	-6.80	QP
4		263.8190	46.59	-7.12	39.47	46.00	-6.53	QP
5	!	360.4476	44.30	-4.26	40.04	46.00	-5.96	QP
6	*	607.7867	40.26	0.45	40.71	46.00	-5.29	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 (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	53.66	49.05	15.3	37.39	57.3	74	-16.70	PK
V	11490	41.34	49.05	15.3	37.39	44.98	54	-9.02	AV
V	17235	54.67	49.16	15.27	40.45	61.23	68.2	-6.97	PK
V	17235	39.98	49.16	15.27	40.45	46.54	54	-7.46	AV
H	11490	52.09	49.05	15.3	37.39	55.73	74	-18.27	PK
H	11490	41.54	49.05	15.3	37.39	45.18	54	-8.82	AV
H	17235	50.92	49.16	15.27	40.45	57.48	68.2	-10.72	PK
H	17235	39.51	49.16	15.27	40.45	46.07	54	-7.93	AV
operation frequency:5785									
V	11570	50.76	49.09	15.34	37.42	54.43	74	-19.57	PK
V	11570	40.65	49.09	15.34	37.42	44.32	54	-9.68	AV
V	17355	49.81	49.18	15.29	40.47	56.39	68.2	-11.81	PK
V	17355	39.8	49.18	15.29	40.47	46.38	54	-7.62	AV
H	11570	49.65	49.09	15.34	37.42	53.32	74	-20.68	PK
H	11570	41.59	49.09	15.34	37.42	45.26	54	-8.74	AV
H	17355	47.66	49.18	15.29	40.47	54.24	68.2	-13.96	PK
H	17355	39.93	49.18	15.29	40.47	46.51	54	-7.49	AV
operation frequency:5825									
V	11650	51.62	49.11	15.37	37.46	55.34	74	-18.66	PK
V	11650	40.66	49.11	15.37	37.46	44.38	54	-9.62	AV
V	17475	48.92	49.21	15.34	40.51	55.56	68.2	-12.64	PK
V	17475	40.21	49.21	15.34	40.51	46.85	54	-7.15	AV
H	11650	56.78	49.11	15.37	31.31	54.35	74	-19.65	PK
H	11650	47.92	49.11	15.37	31.31	45.49	54	-8.51	AV
H	17475	48.98	49.21	15.34	40.51	55.62	68.2	-12.58	PK
H	17475	39.8	49.21	15.34	40.51	46.44	54	-7.56	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	49.25	49.05	15.3	37.39	52.89	74	-21.11	PK
V	11490	41.91	49.05	15.3	37.39	45.55	54	-8.45	AV
V	17235	48.14	49.16	15.27	40.45	54.7	68.2	-13.50	PK
V	17235	40.33	49.16	15.27	40.45	46.89	54	-7.11	AV
H	11490	48.92	49.05	15.3	37.39	52.56	74	-21.44	PK
H	11490	40.65	49.05	15.3	37.39	44.29	54	-9.71	AV
H	17235	47.75	49.16	15.27	40.45	54.31	68.2	-13.89	PK
H	17235	39.91	49.16	15.27	40.45	46.47	54	-7.53	AV
operation frequency:5785									
V	11570	51.62	49.09	15.34	37.42	55.29	74	-18.71	PK
V	11570	42.07	49.09	15.34	37.42	45.74	54	-8.26	AV
V	17355	48.92	49.18	15.29	40.47	55.5	68.2	-12.70	PK
V	17355	39.6	49.18	15.29	40.47	46.18	54	-7.82	AV
H	11570	48.98	49.09	15.34	37.42	52.65	74	-21.35	PK
H	11570	42.59	49.09	15.34	37.42	46.26	54	-7.74	AV
H	17355	49.36	49.18	15.29	40.47	55.94	68.2	-12.26	PK
H	17355	39.58	49.18	15.29	40.47	46.16	54	-7.84	AV
operation frequency:5825									
V	11650	51.26	49.11	15.37	37.46	54.98	74	-19.02	PK
V	11650	41	49.11	15.37	37.46	44.72	54	-9.28	AV
V	17475	47.6	49.21	15.34	40.51	54.24	68.2	-13.96	PK
V	17475	40	49.21	15.34	40.51	46.64	54	-7.36	AV
H	11650	56.96	49.11	15.37	31.31	54.53	74	-19.47	PK
H	11650	44.23	49.11	15.37	31.31	41.8	54	-12.20	AV
H	17475	49.03	49.21	15.34	40.51	55.67	68.2	-12.53	PK
H	17475	39.71	49.21	15.34	40.51	46.35	54	-7.65	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	48.92	49.07	15.33	37.41	52.59	74	-21.41	PK
V	11510	41	49.07	15.33	37.41	44.67	54	-9.33	AV
V	17265	49.25	49.17	15.28	40.46	55.82	68.2	-12.38	PK
V	17265	39.52	49.17	15.28	40.46	46.09	54	-7.91	AV
H	11510	48.23	49.07	15.33	37.41	51.9	74	-22.10	PK
H	11510	41.23	49.07	15.33	37.41	44.9	54	-9.10	AV
H	17265	48.61	49.17	15.28	40.46	55.18	68.2	-13.02	PK
H	17265	40.06	49.17	15.28	40.46	46.63	54	-7.37	AV
operation frequency:5795									
V	11590	48.81	49.11	15.37	37.46	52.53	74	-21.47	PK
V	11590	41	49.11	15.37	37.46	44.72	54	-9.28	AV
V	17385	47.51	49.21	15.34	40.51	54.15	68.2	-14.05	PK
V	17385	39.84	49.21	15.34	40.51	46.48	54	-7.52	AV
H	11590	56.98	49.11	15.37	31.31	54.55	74	-19.45	PK
H	11590	43.96	49.11	15.37	31.31	41.53	54	-12.47	AV
H	17385	47.54	49.21	15.34	40.51	54.18	68.2	-14.02	PK
H	17385	39.73	49.21	15.34	40.51	46.37	54	-7.63	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.									

**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)=20log 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:

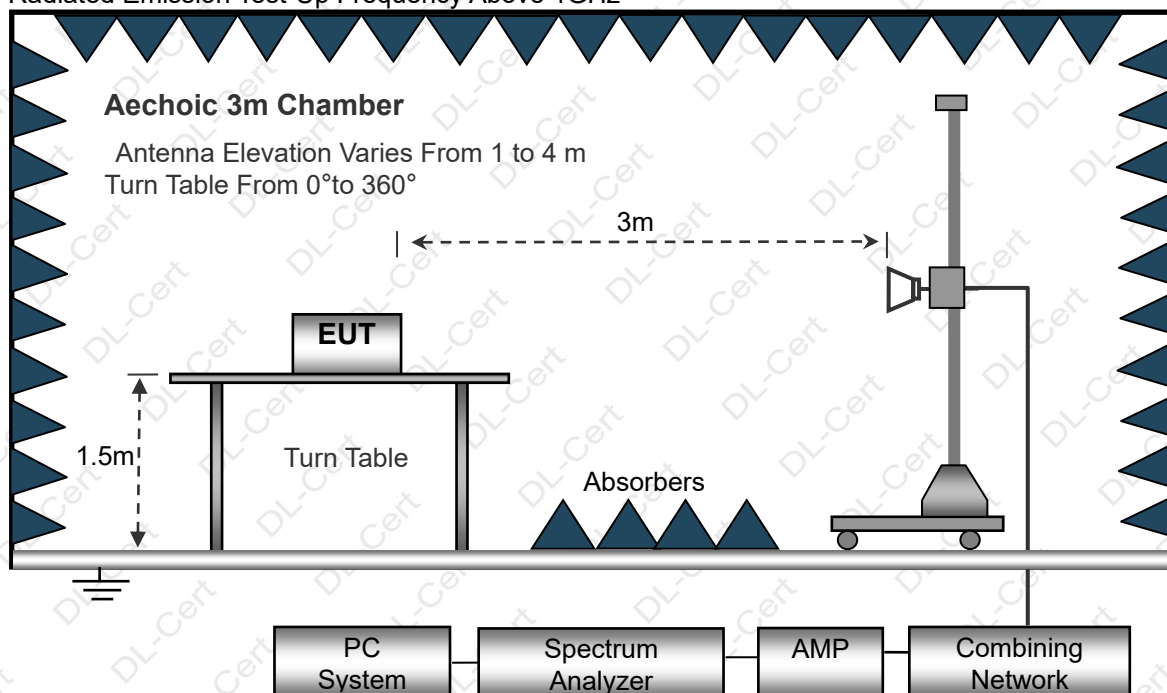
Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported

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 (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	5725	50.63	48.32	15.24	37.37	54.92	68.2	-13.28	PK
V	5725	40.22	48.32	15.24	37.37	44.51	54	-9.49	AV
V	5720	51.41	48.36	15.27	37.39	55.71	68.2	-12.49	PK
V	5720	40.96	48.36	15.27	37.39	45.26	54	-8.74	AV
H	5725	50.94	48.32	15.24	37.37	55.23	68.2	-12.97	PK
H	5725	40.05	48.32	15.24	37.37	44.34	54	-9.66	AV
H	5720	49.57	48.36	15.27	37.39	53.87	68.2	-14.33	PK
H	5720	40.05	48.36	15.27	37.39	44.35	54	-9.65	AV

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:5825									
V	5850	50.57	46.38	12.43	35.65	52.27	68.2	-15.93	PK
V	5850	40.26	46.38	12.43	35.65	41.96	54	-12.04	AV
V	5870	50.55	46.56	12.47	35.76	52.22	68.2	-15.98	PK
V	5870	40.01	46.56	12.47	35.76	41.68	54	-12.32	AV
H	5850	49.99	46.38	12.43	35.65	51.69	68.2	-16.51	PK
H	5850	40.01	46.38	12.43	35.65	41.71	54	-12.29	AV
H	5870	50.55	46.56	12.47	35.76	52.22	68.2	-15.98	PK
H	5870	39.74	46.56	12.47	35.76	41.41	54	-12.59	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	54.81	46.55	12.65	35.87	56.78	68.2	-11.42	PK
V	5725	42.48	46.55	12.65	35.87	44.45	54	-9.55	AV
V	5720	55.41	46.58	12.67	35.93	57.43	68.2	-10.77	PK
V	5720	41.87	46.58	12.67	35.93	43.89	54	-10.11	AV
H	5725	55.19	46.55	12.65	35.87	57.16	68.2	-11.04	PK
H	5725	41.93	46.55	12.65	35.87	43.9	54	-10.1	AV
H	5720	54.74	46.58	12.67	35.93	56.76	68.2	-11.44	PK
H	5720	41.88	46.58	12.67	35.93	43.9	54	-10.1	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	49.68	47.36	13.18	36.26	51.76	68.2	-16.44	PK
V	5850	39.89	47.36	13.18	36.26	41.97	54	-12.03	AV
V	5870	50.97	47.38	13.2	36.29	53.08	68.2	-15.12	PK
V	5870	40.65	47.38	13.2	36.29	42.76	54	-11.24	AV
H	5850	50.73	47.36	13.18	36.26	52.81	68.2	-15.39	PK
H	5850	41.16	47.36	13.18	36.26	43.24	54	-10.76	AV
H	5870	50.9	47.38	13.2	36.29	53.01	68.2	-15.19	PK
H	5870	40.08	47.38	13.2	36.29	42.19	54	-11.81	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	56.14	48.32	15.24	37.37	60.43	68.2	-7.77	PK
V	5725	43.21	48.32	15.24	37.37	47.5	54	-6.5	AV
V	5720	56.3	48.36	15.27	37.39	60.6	68.2	-7.6	PK
V	5720	42.73	48.36	15.27	37.39	47.03	54	-6.97	AV
H	5725	55.19	48.32	15.24	37.37	59.48	68.2	-8.72	PK
H	5725	41.86	48.32	15.24	37.37	46.15	54	-7.85	AV
H	5720	54.92	48.36	15.27	37.39	59.22	68.2	-8.98	PK
H	5720	42.19	48.36	15.27	37.39	46.49	54	-7.51	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	50.75	46.55	12.65	35.87	52.72	68.2	-15.48	PK
V	5850	41.15	46.55	12.65	35.87	43.12	54	-10.88	AV
V	5870	50.75	46.58	12.67	35.93	52.77	68.2	-15.43	PK
V	5870	41.37	46.58	12.67	35.93	43.39	54	-10.61	AV
H	5850	50.75	46.55	12.65	35.87	52.72	68.2	-15.48	PK
H	5850	41.03	46.55	12.65	35.87	43	54	-11	AV
H	5870	50.81	46.58	12.67	35.93	52.83	68.2	-15.37	PK
H	5870	39.66	46.58	12.67	35.93	41.68	54	-12.32	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.



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.

For the measurement records, refer to the annex.



4. CONDUCTED OUTPUT POWER

4.1 APPLIED PROCEDURES / LIMIT

FCC Part15, Subpart E		
Test Item	Limit	Frequency Range (MHz)
Conducted Output Power	1Watt(30dBm)	5725-5850

4.1.1 TEST PROCEDURE

a) Measurements may be performed using a wideband RF power meter with a thermocouple detector or equivalent if all of the following conditions are satisfied:

- 1) The EUT is configured to transmit continuously, or to transmit with a constant duty cycle.
- 2) At all times when the EUT is transmitting, it shall be transmitting at its maximum power control level.
- 3) The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a factor of five.

b) If the transmitter does not transmit continuously, measure the duty cycle D of the transmitter output signal as described in 12.2.

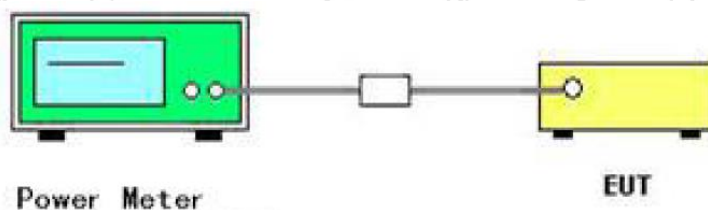
c) Measure the average power of the transmitter. This measurement is an average over both the ON and OFF periods of the transmitter.

d) Correct the measurement in dBm by adding $[10 \log (1 / D)]$, where D is the duty cycle (e.g., $[10 \log (1 / 0.25)]$, 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

- 1) The EUT is configured to transmit continuously.
- 2) At all times when the EUT is transmitting, it shall be transmitting at its maximum power control level.
- 3) The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a factor of five.

4.1.5 TEST RESULTS

For the measurement records, refer to the annex.



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

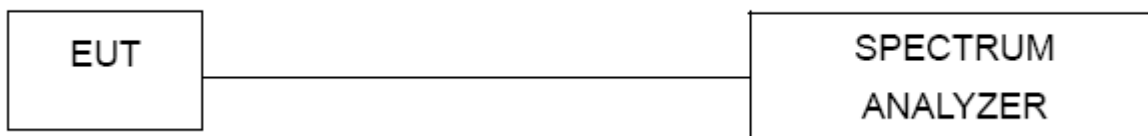
5.1.1 TEST PROCEDURE

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

For the measurement records, refer to the annex.



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

For the measurement records, refer to the annex.



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

For the measurement records, refer to the annex.



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.

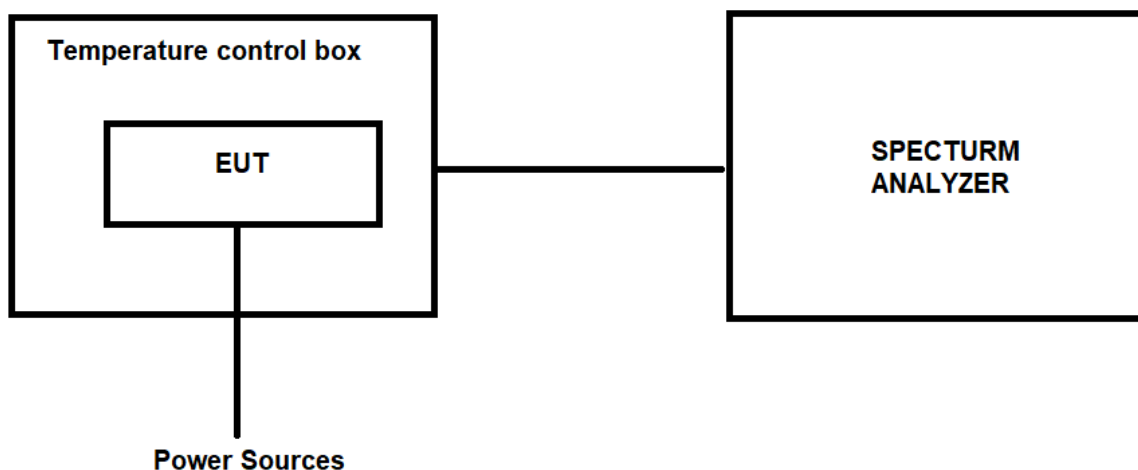
8.1.1 TEST PROCEDURE

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 (PPM)	
			802.11a	802.11n HT20	802.11a	802.11n HT20
132V	-20°C	5745	5745.0365	5745.0381	0.0365	0.0381
		5785	5785.0414	5785.0365	0.0414	0.0365
		5825	5825.0353	5825.0383	0.0353	0.0383
108V		5745	5745.0385	5745.0336	0.0385	0.0336
		5785	5785.0350	5785.0374	0.0350	0.0374
		5825	5825.0357	5825.0385	0.0357	0.0385
120V	25°C	5745	5745.0361	5745.0380	0.0361	0.0380
		5785	5785.0377	5785.0365	0.0377	0.0365
		5825	5825.0370	5825.0341	0.0370	0.0341
132V	50°C	5745	5745.0375	5745.0392	0.0375	0.0392
		5785	5785.0351	5785.0350	0.0351	0.0350
		5825	5825.0347	5825.0381	0.0347	0.0381
108V	50°C	5745	5745.0344	5745.0392	0.0344	0.0392
		5785	5785.0391	5785.0350	0.0391	0.0350
		5825	5825.0330	5825.0379	0.0330	0.0379

Note:The test result is PASS.

Test Voltage	Test Temp.	Measured Frequency (MHz)	Spectrum Frequency (MHz)	Δ Frequency (PPM)
			802.11n HT40	802.11n HT40
132V	-20°C	5755	5755.0351	0.0351
		5795	5795.0366	0.0366
108V		5755	5755.0351	0.0351
		5795	5795.0334	0.0334
120V	25°C	5755	5755.0415	0.0415
		5795	5795.0362	0.0362
132V	50°C	5755	5755.0341	0.0341
		5795	5795.0333	0.0333
108V	50°C	5755	5755.0388	0.0388
		5795	5795.0371	0.0371

Note:The test result is PASS.



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 SETUP PHOTO

Reference to the appendix I for details.

12. EUT PHOTO

Reference to the appendix II for details.

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