FCC TEST REPORT

Client Name	:	Hangzhou Vision Insight Technology Co., Ltd.
Address	:	Room 203, South Floor 2, Building 5, 90 Wensan Road, Xihu District, Hangzhou, China
Product Name	:	Smart Indoor PTZ Camera
Date	:	Jun. 27, 2022

Shenzhen Anbotek Compliance Laboratory Limited

Contents

TEST REPORT

Applicant	:	Hangzhou Vision Insight Technology Co., Ltd.
Manufacturer	:	Hangzhou Vision Insight Technology Co., Ltd.
Product Name	:	Smart Indoor PTZ Camera
Model No.	:	A31P, A31C, A13S, A31U, A31P-Kit, A31C-Kit, A31S-Kit, A31U-Kit
Trade Mark	:	N/A
Rating(s)	:	Input: 5V⎓ 1A
Test Standard(s)	:	**FCC Part15 Subpart E, Paragraph 15.407**
Test Method(s)	:	**ANSI C63.10: 2020, KDB 789033 D02 General UNII Test Procedures New Rules v02r01**

The device described above is tested by Shenzhen Anbotek Compliance Laboratory Limited to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and Shenzhen Anbotek Compliance Laboratory Limited is assumed full of responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT (Equipment Under Test) is technically compliant with the FCC Part 15 Subpart E requirements.

This report applies to above tested sample only and shall not be reproduced in part without written approval of Shenzhen Anbotek Compliance Laboratory Limited.

Date of Receipt	Jun 07, 2022
Date of Test	Jun 07~13, 2022
Prepared By	Ella Liang (Ella Liang)
Approved & Authorized Signer	Kingkong Jin (Kingkong Jin)

1. General Information

1.1. Client Information

Applicant	:	Hangzhou Vision Insight Technology Co., Ltd.
Address	:	Room 203, South Floor 2, Building 5, 90 Wensan Road, Xihu District, Hangzhou, China
Manufacturer	:	Hangzhou Vision Insight Technology Co., Ltd.
Address	:	Room 203, South Floor 2, Building 5, 90 Wensan Road, Xihu District, Hangzhou, China
Factory	:	Hangzhou Vision Insight Technology Co., Ltd.
Address	:	Room 203, South Floor 2, Building 5, 90 Wensan Road, Xihu District, Hangzhou, China

1.2. Description of Device (EUT)

Product Name	:	Smart Indoor PTZ Camera	
Model No.	:	A31P, A31C, A13S, A31U, A31P-Kit, A31C-Kit, A31S-Kit, A31U-Kit (Note: All samples are the same except the model number and appearance, so we prepare "A31P" for test only.)	
Trade Mark	:	N/A	
Test Power Supply	:	AC 120V, 60Hz for Adapter/ AC 240V, 60Hz for Adapter	
Test Sample No.	:	1-2-1(Normal Sample), 1-2-2(Engineering Sample)	
Product Description	:	Operation Frequency:	WiFi 2.4G: 802.11b/ g/ n(HT20): 2412-2462MHz 802.11n (HT40): 2422-2452MHz WiFi 5.2G: 5180MHz~5240MHz WiFi 5.8G: 5745MHz~5825MHz
		Number of Channel:	WiFi 2.4G: 802.11b/ g/ n(HT20): 11 Channels 802.11n (HT40): 7 Channels WiFi 5.2G: 4 Channels for 802.11a/n(HT20)/ac(HT20) 2 Channels for 802.11n(HT40)/ac(HT40) WiFi 5.8G: 5 Channels for 802.11a/n(HT20)/ac(HT20) 2 Channels for 802.11n(HT40)/ac(HT40)
		Modulation Type:	WiFi 2.4G: CCK, DQPSK, DBPSK for DSSS; 64QAM, 16QAM, QPSK, BPSK for OFDM WiFi 5G: OFDM with BPSK, QPSK, 16QAM, 64QAM, 256QAM
		Antenna Type:	FPC antenna
		Antenna	WiFi 2.4G: 2 dBi (Provided by customer)

		Gain(Peak):	WiFi 5.2G: 3 dBi (Provided by customer) WiFi 5.8G: 3 dBi (Provided by customer)
		Adapter:	Model No: XED-UL050100CU Input: 100-240V~50/ 60Hz 0.2A Output: 5V⎓1.0A
Remark: 1) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual. 2) This report is for WiFi 5.2G & WiFi 5.8G module.			

1.3. Auxiliary Equipment Used During Test

N.A	:	

1.4. Description of Test Modes

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

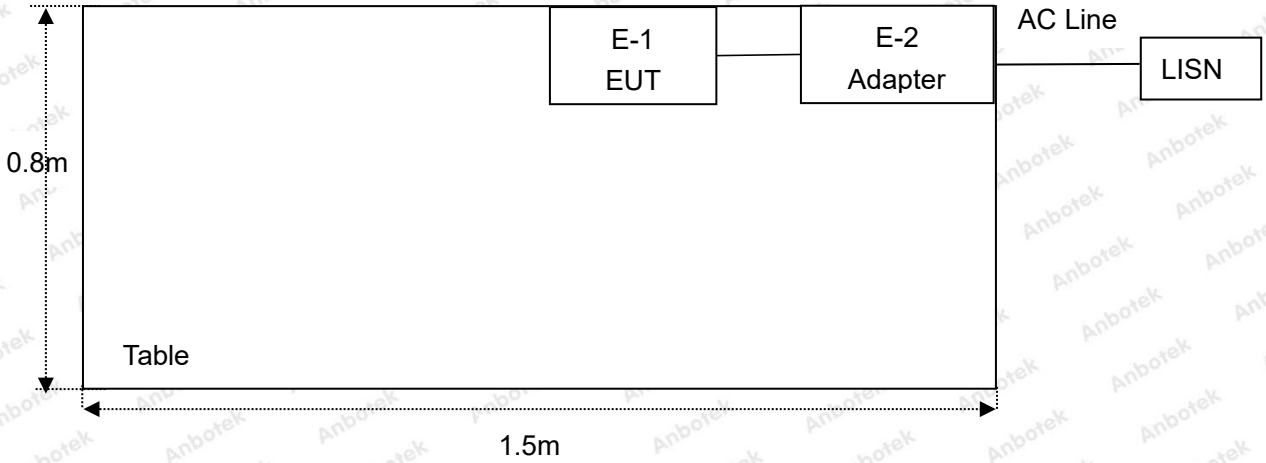
Frequency Band	Mode	Test channel	Frequency (MHz)
5.2GHz	OFDM(802.11a/n20/ac20)	CH 36	5180MHz
		CH 40	5200MHz
		CH 48	5240MHz
	OFDM(802.11n40/ac40)	CH 38	5190MHz
		CH 46	5230MHz
5.8GHz	OFDM(802.11a/n20/ac20)	CH 149	5745MHz
		CH 157	5785MHz
		CH 165	5825MHz
	OFDM(802.11n40/ac40)	CH 151	5755MHz
		CH 159	5795MHz

Note:

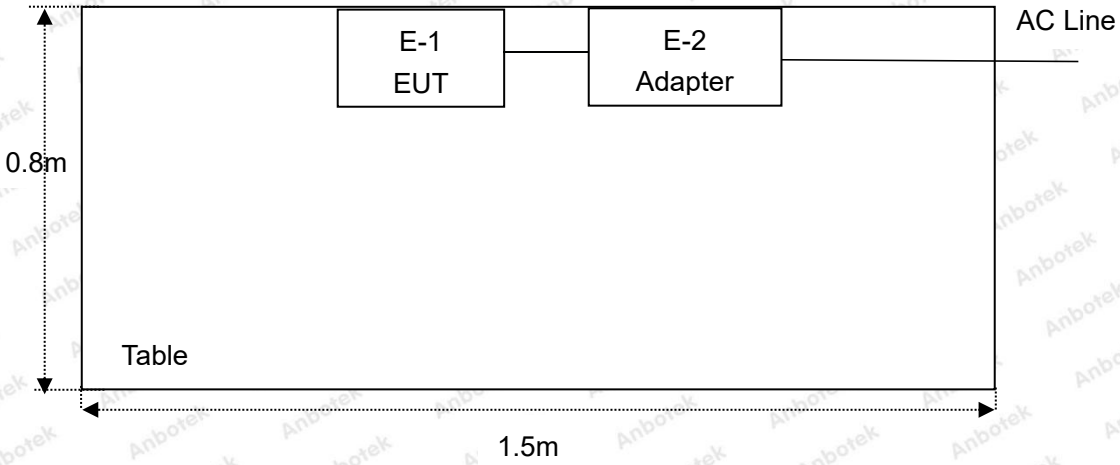
1. The measurements are performed at the highest, middle, lowest available channels.
2. The EUT has been tested as an independent unit. And Continual Transmitting in maximum power.
3. For the relevant Conducted Measurement, the temporary antenna connector is used during the measurement. Antenna Connector Impedance: 50Ω, Cable Loss: 1.0 dB
4. The EUT was programmed to be in continuously transmitting mode

1.5. Description Of Test Setup

CE



RE



1.6. Test Equipment List

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	L.I.S.N. Artificial Mains Network	Schwarzbeck	NSLK 8127	8127386	Sept. 7, 2021	1 Year
2.	EMI Test Receiver	Rohde & Schwarz	ESPI	101604	Sept. 7, 2021	1 Year
3.	Spectrum Analysis	Keysight	N9020A	MY53100616	Nov.11 , 2021	1 Year
4.	Preamplifier	SKET Electronic	BK1G18G30D	KD17503	Oct. 25, 2021	1 Year
5.	Pre-amplifier	EMtrace	RP01A	50017	Sept. 7, 2021	1 Year
6.	Double Ridged Horn Antenna	Instruments corporation	GTH-0118	351600	Nov. 02, 2020	2 Year
7.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	01417	Nov. 02, 2020	2 Year
8.	Loop Antenna	Schwarzbeck	FMZB1519B	00053	Nov. 02, 2020	2 Year
9.	Test Software	Ferrari Technology	EZ-EMC	N/A	N/A	N/A
10.	Switch box	Meike	/	/	Nov. 10, 2021	1 Year
11.	Power Sensor box	Meike	/	/	Oct. 23, 2021	1 Year
12.	MXG RF Vector Signal Generator	Agilent	N5182A	MY47420822	Feb. 28, 2022	1 Year
13.	Signal Generator	Agilent	E4425B	GB39340038	Oct. 23, 2021	1 Year
14.	DC Power Supply	Longwei	TPR-6420D	020215240	N/A	N/A

1.7. Measurement Uncertainty

Radiation Uncertainty	:	Ur = 3.9 dB (Horizontal)
		Ur = 3.8 dB (Vertical)
Conduction Uncertainty	:	Uc = 3.4 dB

1.8. Description of Test Facility

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

FCC-Registration No.: 184111

Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration No. 184111.

ISED-Registration No.: 8058A

Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory has been registered and fully described in a report filed with the (ISED) Innovation, Science and Economic Development Canada. The acceptance letter from the ISED is maintained in our files. Registration 8058A.

Test Location

Shenzhen Anbotek Compliance Laboratory Limited.
1/F, Building D, Sogood Science and Technology Park, Sanwei community, Hangcheng Street, Bao'an District, Shenzhen, Guangdong, China.518102

2. Summary of Test Results

Standard	Test Type	Result
15.207 & 15.407	Conducted Emission	PASS
15.205/15.209	Spurious Emission	PASS
15.407(b)	Band Edge	PASS
15.407(a)(5)	Occupy Bandwidth	PASS
15.407(a)(1)(ii)	Maximum Conducted Output Power	PASS
15.407(a)(1)	Peak Power Spectral Density	PASS
15.203	Antenna Requirement	PASS
15.407(g)	Frequency Stability	PASS

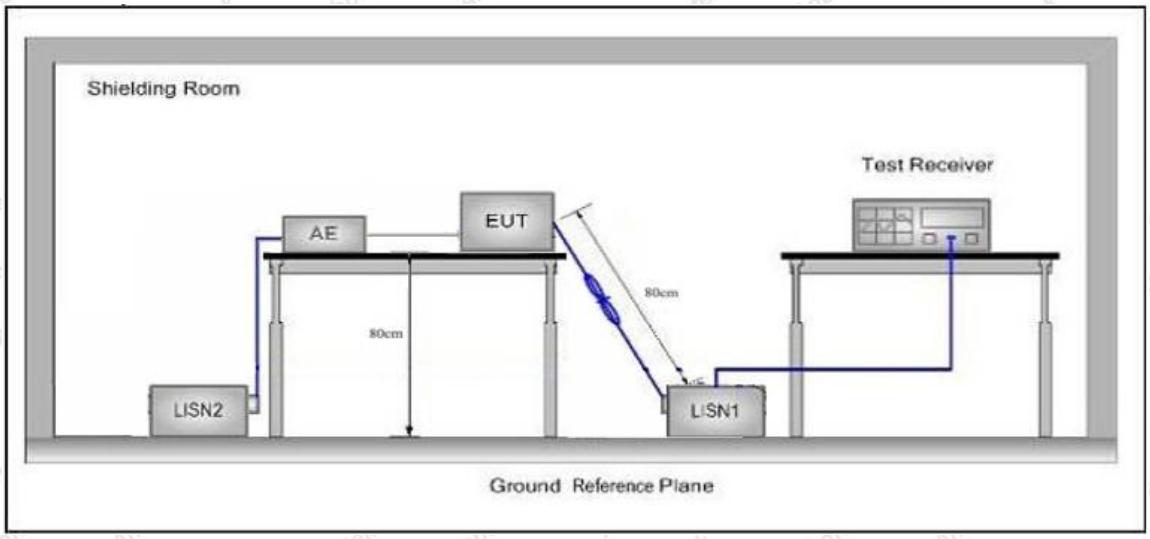
Remark: “N/A” is an abbreviation for Not Applicable.

3. Conducted Emission Test

3.1. Test Standard and Limit

Test Standard	FCC Part15 Section 15.207&15.407		
Test Limit	Frequency	Maximum RF Line Voltage (dBuV)	
		Quasi-peak Level	Average Level
	150kHz~500kHz	66 ~ 56 *	56 ~ 46 *
	500kHz~5MHz	56	46
	5MHz~30MHz	60	50
Remark: (1) *Decreasing linearly with logarithm of the frequency. (2) The lower limit shall apply at the transition frequency.			

3.2. Test Setup



3.3. Test Procedure

The EUT system is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to FCC ANSI C63.10: 2020 on Conducted Emission Measurement.

The bandwidth of test receiver (ESCI) set at 9kHz.

The frequency range from 150kHz to 30MHz is checked.

3.4. Test Data

During the test, pre-scan all modes, only the worst case is recorded in the report.

Conducted Emission Test Data

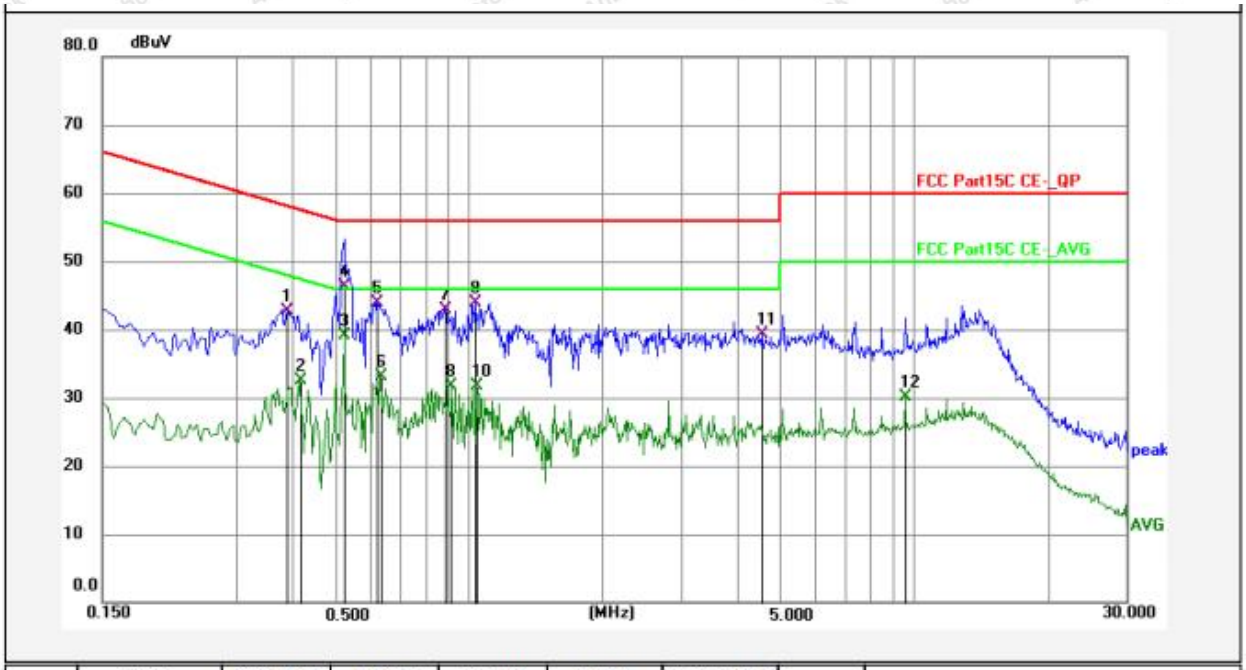
Test Site: 1# Shielded Room

Operating Condition: 802.11ac (HT20) CH48

Test Specification: AC 120V, 60Hz for Adapter

Comment: Live Line

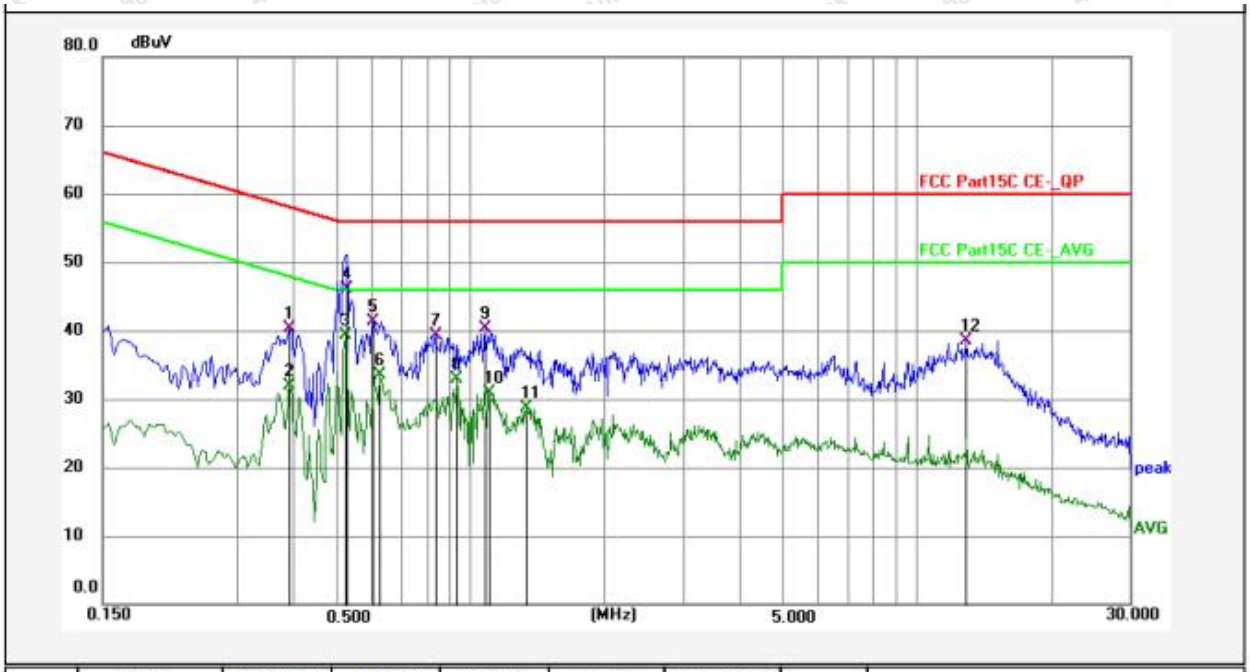
Tem.: 22.3℃ Hum.: 50%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Over Limit (dB)	Detector	Remark
1	0.3885	41.91	0.88	42.79	58.10	-15.31	QP	
2	0.4155	31.68	0.87	32.55	47.54	-14.99	AVG	
3	0.5233	38.24	0.87	39.11	46.00	-6.89	AVG	
4	0.5235	45.38	0.87	46.25	56.00	-9.75	QP	
5	0.6180	43.06	0.90	43.96	56.00	-12.04	QP	
6	0.6315	32.12	0.90	33.02	46.00	-12.98	AVG	
7	0.8880	41.94	0.93	42.87	56.00	-13.13	QP	
8	0.9150	30.87	0.93	31.80	46.00	-14.20	AVG	
9	1.0365	43.02	0.94	43.96	56.00	-12.04	QP	
10	1.0410	30.71	0.94	31.65	46.00	-14.35	AVG	
11	4.5510	38.28	0.98	39.26	56.00	-16.74	QP	
12	9.5864	29.07	1.03	30.10	50.00	-19.90	AVG	

Conducted Emission Test Data

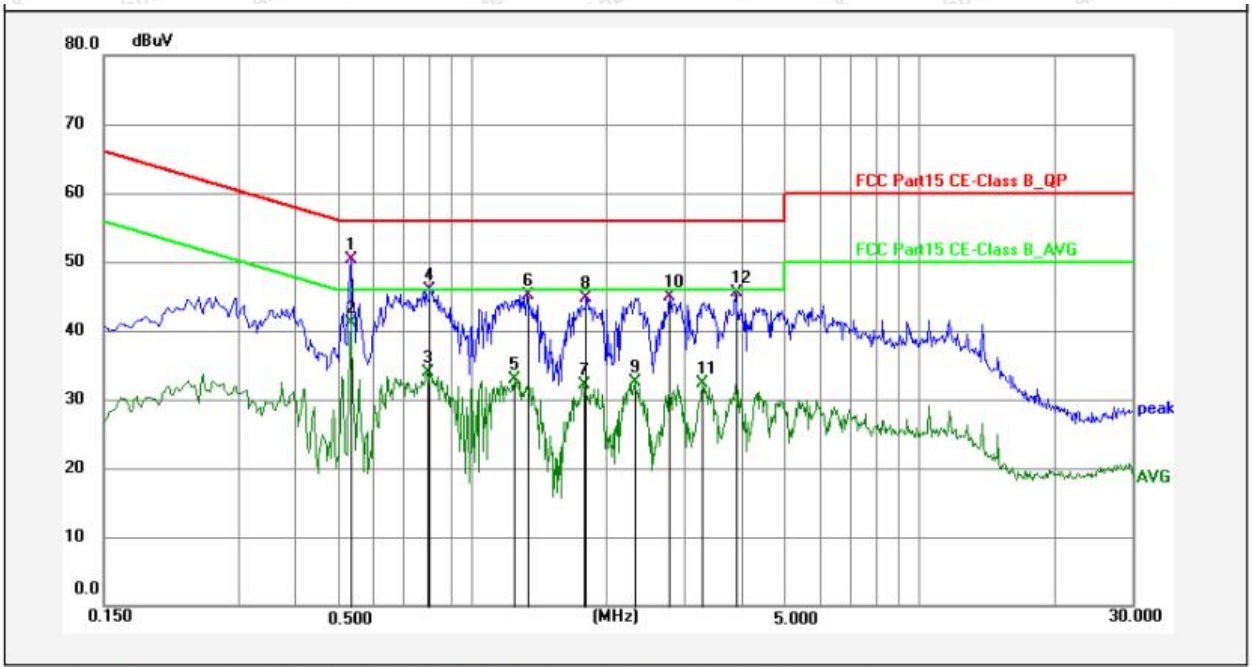
Test Site: 1# Shielded Room
Operating Condition: 802.11ac (HT20) CH48
Test Specification: AC 120V, 60Hz for Adapter
Comment: Neutral Line
Tem.: 22.3℃ Hum.: 50%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Over Limit (dB)	Detector	Remark
1	0.3930	39.40	0.83	40.23	58.00	-17.77	QP	
2	0.3930	31.12	0.83	31.95	48.00	-16.05	AVG	
3	0.5233	38.50	0.84	39.34	46.00	-6.66	AVG	
4	0.5280	45.29	0.84	46.13	56.00	-9.87	QP	
5	0.6045	40.49	0.86	41.35	56.00	-14.65	QP	
6	0.6270	32.59	0.85	33.44	46.00	-12.56	AVG	
7	0.8385	38.45	0.85	39.30	56.00	-16.70	QP	
8	0.9375	32.13	0.85	32.98	46.00	-13.02	AVG	
9	1.0815	39.37	0.85	40.22	56.00	-15.78	QP	
10	1.0950	30.08	0.85	30.93	46.00	-15.07	AVG	
11	1.3335	27.79	0.87	28.66	46.00	-17.34	AVG	
12	12.9435	37.47	0.99	38.46	60.00	-21.54	QP	

Conducted Emission Test Data

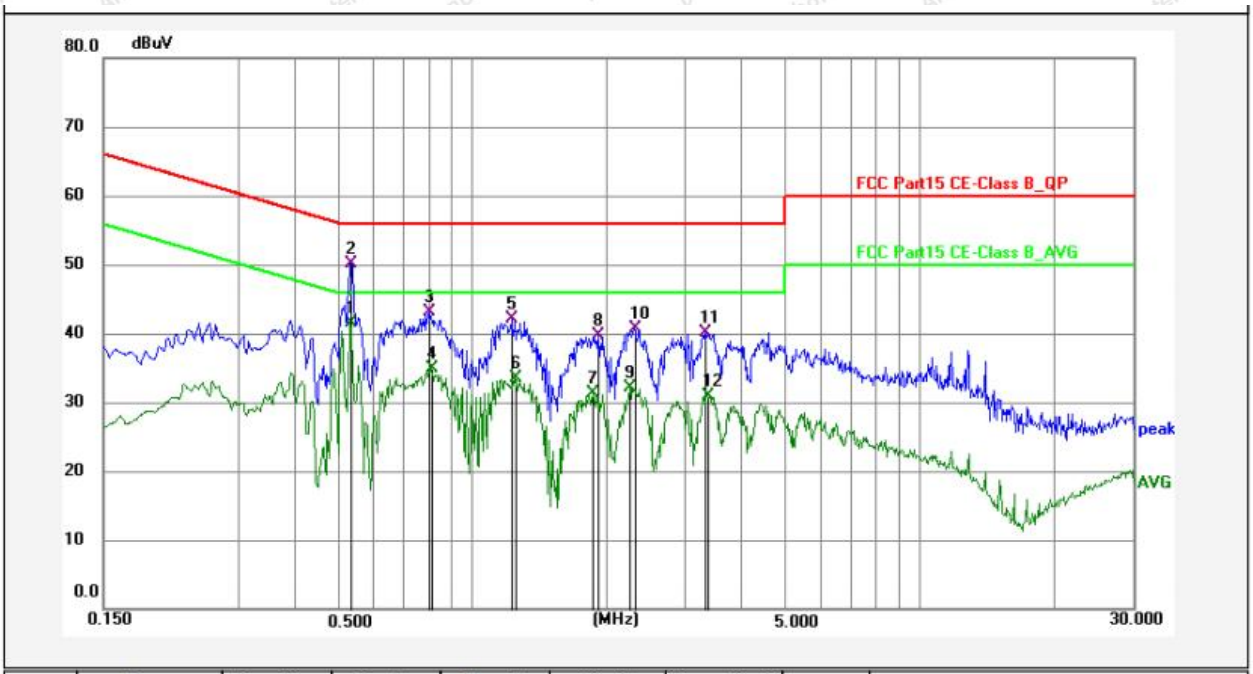
Test Site: 1# Shielded Room
Operating Condition: 802.11ac (HT20) CH48
Test Specification: AC 240V, 60Hz for Adapter
Comment: Live Line
Tem.: 24.5℃ Hum.: 47%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Over Limit (dB)	Detector	Remark
1	0.5370	49.44	0.87	50.31	56.00	-5.69	QP	
2	0.5370	40.30	0.87	41.17	46.00	-4.83	AVG	
3	0.7935	33.07	0.92	33.99	46.00	-12.01	AVG	
4	0.8070	44.95	0.92	45.87	56.00	-10.13	QP	
5	1.2435	31.96	0.93	32.89	46.00	-13.11	AVG	
6	1.3290	44.23	0.94	45.17	56.00	-10.83	QP	
7	1.7790	31.14	0.94	32.08	46.00	-13.92	AVG	
8	1.8060	43.73	0.94	44.67	56.00	-11.33	QP	
9	2.3190	31.52	0.94	32.46	46.00	-13.54	AVG	
10	2.7690	43.98	0.94	44.92	56.00	-11.08	QP	
11	3.2865	31.35	0.94	32.29	46.00	-13.71	AVG	
12	3.8895	44.49	0.96	45.45	56.00	-10.55	QP	

Conducted Emission Test Data

Test Site: 1# Shielded Room
Operating Condition: 802.11ac (HT20) CH48
Test Specification: AC 240V, 60Hz for Adapter
Comment: Neutral Line
Tem.: 24.5℃ Hum.: 497%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Over Limit (dB)	Detector	Remark
1	0.5324	40.64	0.84	41.48	46.00	-4.52	AVG	
2	0.5370	49.26	0.84	50.10	56.00	-5.90	QP	
3	0.8025	42.26	0.85	43.11	56.00	-12.89	QP	
4	0.8115	34.04	0.85	34.89	46.00	-11.11	AVG	
5	1.2255	41.19	0.86	42.05	56.00	-13.95	QP	
6	1.2480	32.72	0.86	33.58	46.00	-12.42	AVG	
7	1.8600	30.38	0.90	31.28	46.00	-14.72	AVG	
8	1.9230	38.84	0.90	39.74	56.00	-16.26	QP	
9	2.2559	31.10	0.91	32.01	46.00	-13.99	AVG	
10	2.3055	39.81	0.92	40.73	56.00	-15.27	QP	
11	3.3270	39.16	0.94	40.10	56.00	-15.90	QP	
12	3.3495	29.97	0.94	30.91	46.00	-15.09	AVG	

4. Radiation Spurious Emission and Band Edge

4.1. Test Standard and Limit

Radiated Spurious Emission					
Test Standard	FCC Part15 C Section 15.209, 15.205 and 15.407				
Test Limit	Frequency (MHz)	Field strength (microvolt/meter)	Limit (dBuV/m)	Remark	Measurement distance (m)
	0.009MHz~0.490MHz	2400/F(kHz)	-	-	300
	0.490MHz-1.705MHz	24000/F(kHz)	-	-	30
	1.705MHz-30MHz	30	-	-	30
	30MHz~88MHz	100	40.0	Quasi-peak	3
	88MHz~216MHz	150	43.5	Quasi-peak	3
	216MHz~960MHz	200	46.0	Quasi-peak	3
	960MHz~1000MHz	500	54.0	Quasi-peak	3
	Above 1000MHz	500	54.0	Average	3
		-	68.2	Peak	3

Band Edge				
Test Standard	15.407(b)			
Test Limit	Operating Band	Frequency	EIRP Limit	Remark
	5150-5250MHz	Above 1GHz	-27dBm/MHz(68.2dBuV/m)@3m	Peak
	5250-5350MHz	Above 1GHz	-27dBm/MHz(68.2dBuV/m)@3m	Peak
	5470-5725MHz	Above 1GHz	-27dBm/MHz(68.2dBuV/m)@3m	Peak
	5725-5850 MHz	Above 1GHz	-27dBm/MHz(68.2dBuV/m)@3m	Peak
		1GHz-5.65GHz	-27*dBm/MHz to 10dBm/MHz (68.2* dBuV/m to 105.6dBuV/m)	Peak
		5.65GHz-5.7GHz	10*dBm/MHz to 15.6dBm/MHz (105.6*dBuV/m to 110.8dBuV/m)	Peak
		5.7GHz-5.72GHz	15.6*dBm/MHz to 27dBm/MHz (110.8dBuV/m to* 122.2dBuV/m)	Peak
		5.72GHz-5.725GHz	27dBm/MHz to 15.6*dBm/MHz (122.2dBuV/m to110.8* dBuV/m)	Peak
		5.85GHz-5.855GHz	15.6dBm/MHz to 10*dBm/MHz (110.8dBuV/m to 105.6* dBuV/m	Peak

		5.855GHz-5.875GHz	10dBm/MHz to -27*dBm/MHz (105.6dBuV/m to 68.2* dBuV/m)	Peak
		5.875GHz-5.925GHz	-27 dBm/MHz(68.2dBuV/m)@3m	Peak

Remark:

(1)The lower limit shall apply at the transition frequency.

(2) 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.

(3)Above 1GHz limit:E[dBμV/m] = EIRP[dBm] + 95.2=68.2 dBuV/m, for EIPR[dBm]=-27dBm.

4.2. Test Setup

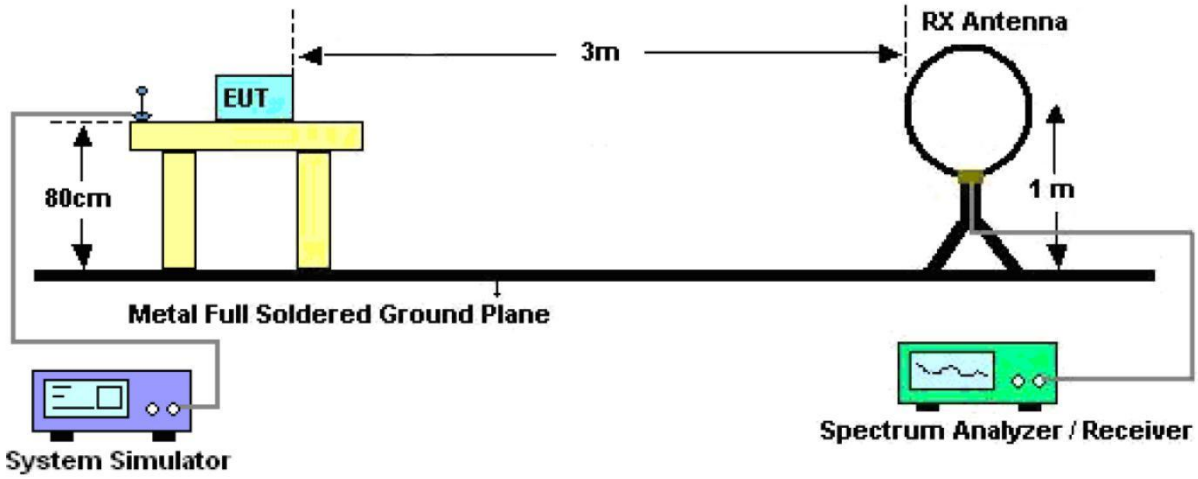


Figure 1. Below 30MHz

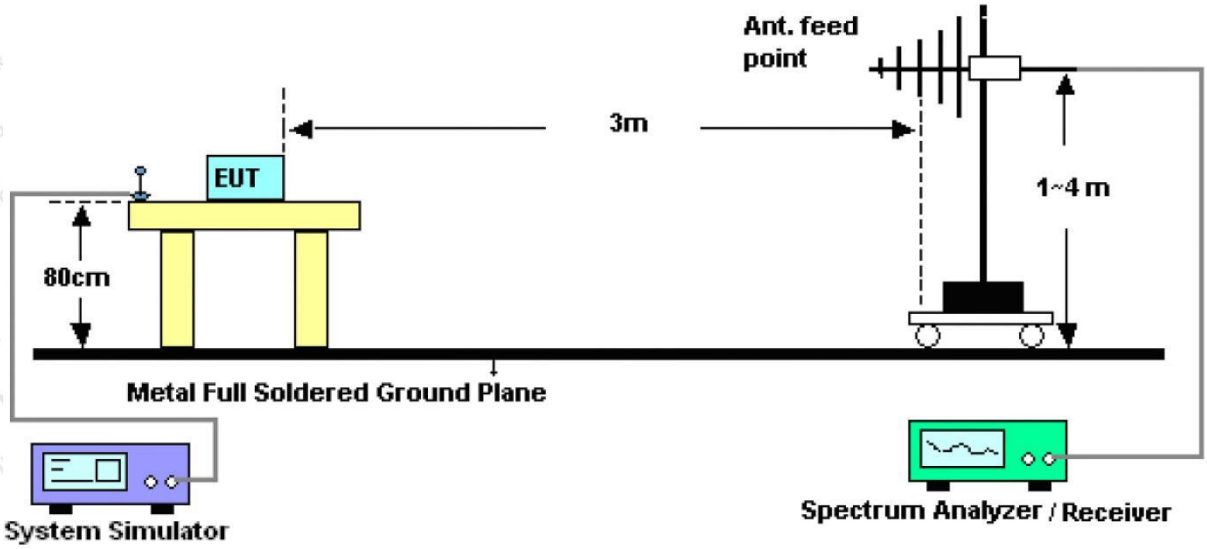


Figure 2. 30MHz to 1GHz

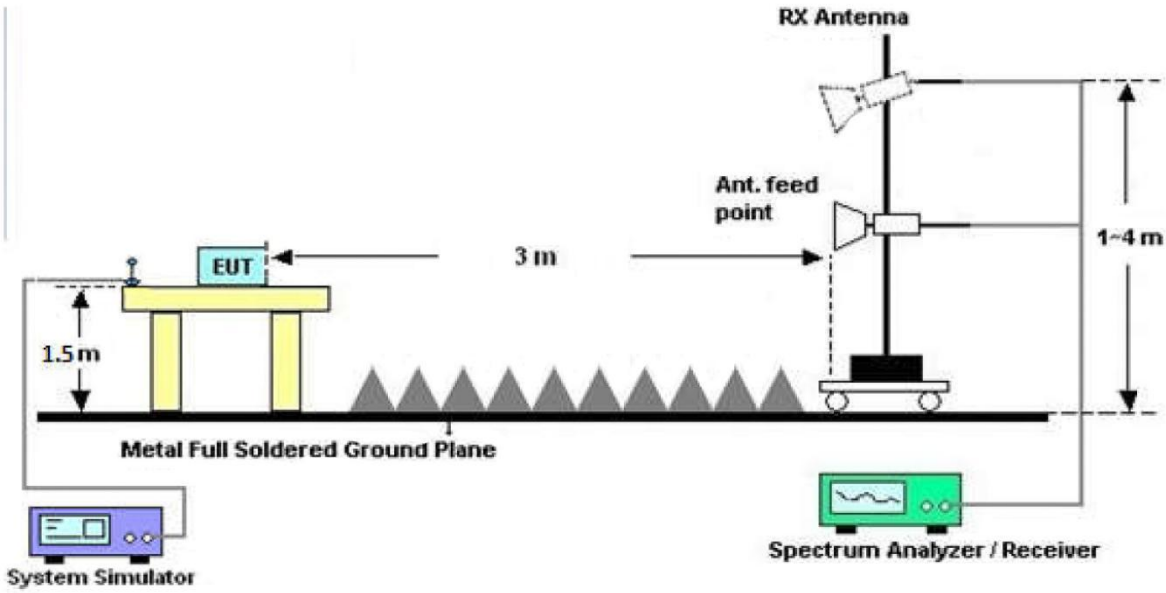


Figure 3. Above 1 GHz

4.3. Test Procedure

For below 1GHz: The EUT is placed on a turntable, which is 0.8m above the ground plane.
For above 1GHz: The EUT is placed on a turntable, which is 1.5m above the ground plane.
The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna which is mounted on a antenna tower. The antenna can be moved up and down from 1 to 4 meters to find out the maximum emission level. Rotated the EUT through three orthogonal axes to determine the maximum emissions, both horizontal and vertical polarization of the antenna are set on test. The EUT is tested in 9*6*6 Chamber. The device is evaluated in xyz orientation.
For the radiated emission test above 1GHz:
Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.

For 9kHz to 150kHz, Set the spectrum analyzer as:
RBW = 200Hz, VBW =1kHz, Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.

For 150kHz to 30MHz, Set the spectrum analyzer as:
RBW = 9KHz, VBW =30kHz, Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.

For 30MHz to 1000MHz, Set the spectrum analyzer as:
RBW = 100kHz, VBW =300kHz, Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.
.
For above 1GHz, Set the spectrum analyzer as:
RBW =1MHz, VBW =1MHz, Detector= Peak, Trace mode= Max hold, Sweep- auto couple.
RBW =1MHz, VBW =10Hz, Detector= Average, Trace mode= Max hold, Sweep- auto couple.

4.4. Test Data

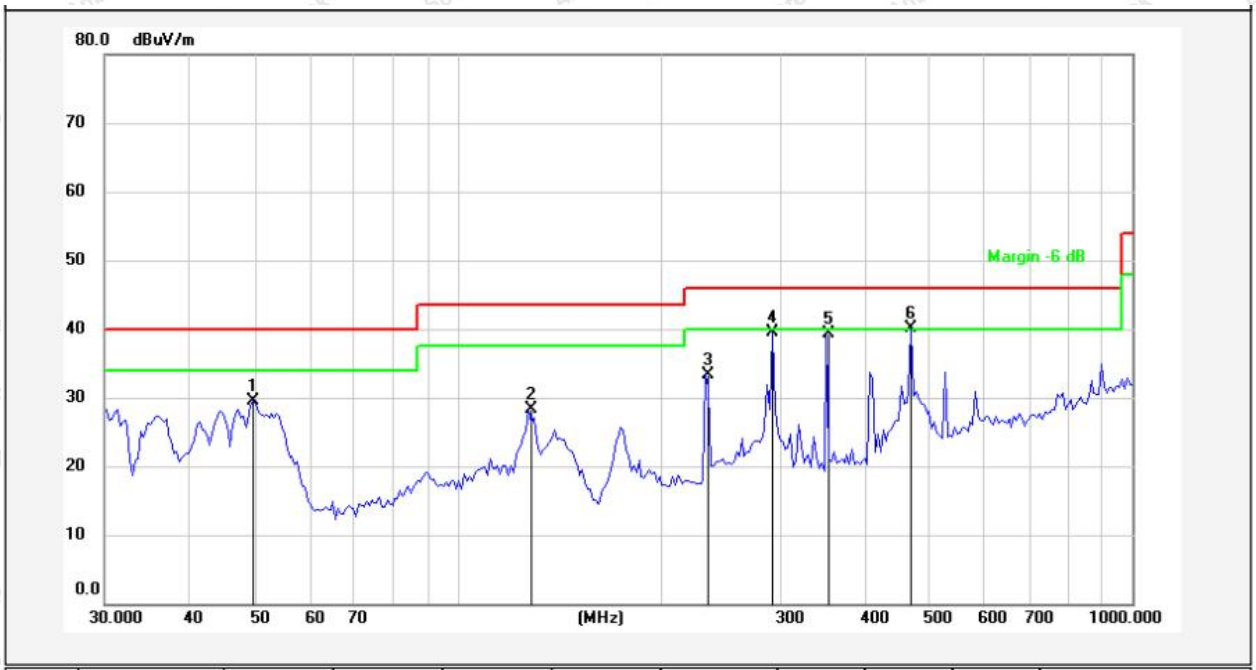
PASS

The test results of 9kHz-30MHz was attenuated more than 20dB below the permissible limits, so the results don't record in the report.

During the test, pre-scan all modes, only the worst case is recorded in the report.

Test Results (30~1000MHz)

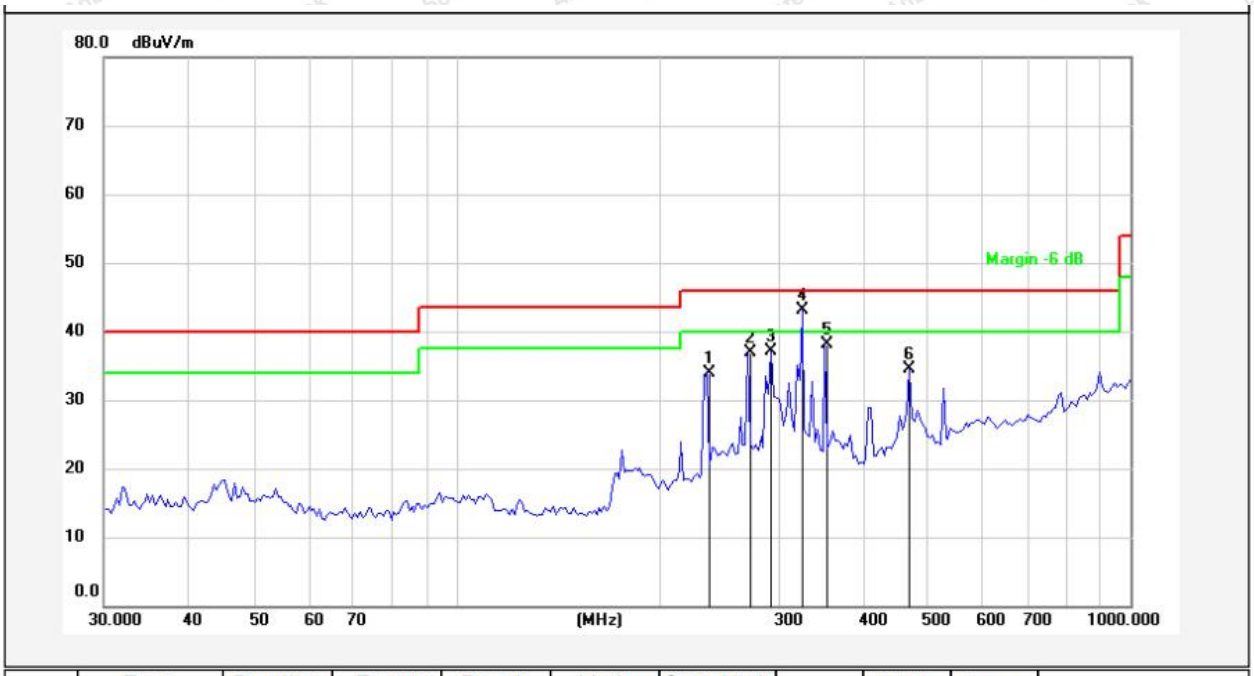
Test Mode: 802.11a CH40
Power Source: AC 120V, 60Hz for Adapter
Polarization: Vertical
Temp.(℃)/Hum.(%RH): 24.2℃/57%RH



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	49.8814	44.89	-15.32	29.57	40.00	-10.43	QP			
2	127.4409	45.87	-17.62	28.25	43.50	-15.25	QP			
3	233.3487	46.39	-13.03	33.36	46.00	-12.64	QP			
4	293.0842	51.55	-12.06	39.49	46.00	-6.51	QP			
5	352.3251	49.94	-10.65	39.29	46.00	-6.71	QP			
6	470.5232	48.26	-8.14	40.12	46.00	-5.88	QP			

Test Results (30~1000MHz)

Test Mode: 802.11a CH40
Power Source: AC 120V, 60Hz for Adapter
Polarization: Horizontal
Temp.(℃)/Hum.(%RH): 24.2℃/57%RH



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	235.4033	46.86	-12.94	33.92	46.00	-12.08	QP			
2	270.8493	48.85	-12.04	36.81	46.00	-9.19	QP			
3	293.0842	49.20	-12.06	37.14	46.00	-8.86	QP			
4	325.5958	53.90	-10.89	43.01	46.00	-2.99	QP			
5	352.3251	48.68	-10.65	38.03	46.00	-7.97	QP			
6	470.5232	42.63	-8.14	34.49	46.00	-11.51	QP			

Test Results (Above 1000MHz)

Test Mode: IEEE 802.11a				Test channel: Low CH		
Peak value:						
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.00	31.10	23.81	54.91	68.20	-13.29	V
15540.00	32.13	28.68	60.81	68.20	-7.39	V
10360.00	31.04	23.81	54.85	68.20	-13.35	H
15540.00	32.37	28.68	61.05	68.20	-7.15	H
Average value:						
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	polarization
10360.00	20.184	23.81	43.99	54.00	-10.01	V
15540.00	20.967	28.68	49.65	54.00	-4.35	V
10360.00	20.230	23.81	44.04	54.00	-9.96	H
15540.00	21.201	28.68	49.88	54.00	-4.12	H

Test Mode: IEEE 802.11a				Test channel: Middle CH		
Peak value:						
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10400.00	30.46	23.81	54.27	68.20	-13.93	V
15600.00	31.66	29.13	60.79	68.20	-7.41	V
10400.00	30.53	23.81	54.34	68.20	-13.86	H
15600.00	31.89	29.13	61.02	68.20	-7.18	H
Average value:						
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	polarization
10400.00	20.454	23.81	44.26	54.00	-9.74	V
15600.00	21.087	29.13	50.22	54.00	-3.78	V
10400.00	20.220	23.81	44.03	54.00	-9.97	H
15600.00	21.281	29.13	50.41	54.00	-3.59	H

Test Mode: IEEE 802.11a				Test channel: High CH		
Peak value:						
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10480.00	30.03	23.80	53.83	68.20	-14.37	V
15720.00	31.14	30.03	61.17	68.20	-7.03	V
10480.00	30.17	23.80	53.97	68.20	-14.23	H
15720.00	30.80	30.03	60.83	68.20	-7.37	H
Average value:						
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	polarization
10480.00	19.12	23.80	42.92	54.00	-11.08	V
15720.00	19.85	30.03	49.88	54.00	-4.12	V
10480.00	19.43	23.80	43.23	54.00	-10.77	H
15720.00	20.07	30.03	50.10	54.00	-3.90	H

Remark:

1. During the test, pre-scan the 802.11a, 802.11n(HT20), ac(HT20), n(HT40), ac(HT40) mode, and found the 802.11a mode is worse case , the report only record this mode.

2. Result =Reading + Factor

5.2G:

Radiated Band Edge:

Test Mode: 802.11a	Test channel: Lowest

Peak value:

Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5150.00	36.75	15.99	52.74	68.20	-15.46	Horizontal
5150.00	38.77	15.99	54.76	68.20	-13.44	Vertical

Average value:

Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Polarization
5150.00	26.75	15.99	42.74	54.00	-11.26	Horizontal
5150.00	28.74	15.99	44.73	54.00	-9.27	Vertical

Test Mode: 802.11a	Test channel: Highest

Peak value:

Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5250.00	37.26	16.43	53.69	68.20	-14.51	Horizontal
5250.00	40.05	16.43	56.48	68.20	-11.72	Vertical

Average value:

Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Polarization
5250.00	28.50	16.43	44.93	54.00	-9.07	Horizontal
5250.00	29.48	16.43	45.91	54.00	-8.09	Vertical

Remark: 1. Result =Reading + Factor

Radiated Band Edge:

Test Mode: 802.11n20	Test channel: Lowest

Peak value:

Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5150.00	35.78	15.99	51.77	68.20	-16.43	Horizontal
5150.00	37.11	15.99	53.10	68.20	-15.10	Vertical

Average value:

Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Polarization
5150.00	26.50	15.99	42.49	54.00	-11.51	Horizontal
5150.00	27.51	15.99	43.50	54.00	-10.50	Vertical

Test Mode: 802.11n20	Test channel: Highest

Peak value:

Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5250.00	37.56	16.43	53.99	68.20	-14.21	Horizontal
5250.00	38.64	16.43	55.07	68.20	-13.13	Vertical

Average value:

Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Polarization
5250.00	27.57	16.43	44.00	54.00	-10.00	Horizontal
5250.00	28.95	16.43	45.38	54.00	-8.62	Vertical

Remark: 1. Result =Reading + Factor

Radiated Band Edge:

Test Mode: 802.11n40	Test channel: Lowest

Peak value:

Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5150.00	36.22	15.99	52.21	68.20	-15.99	Horizontal
5150.00	38.09	15.99	54.08	68.20	-14.12	Vertical

Average value:

Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Polarization
5150.00	26.76	15.99	42.75	54.00	-11.25	Horizontal
5150.00	28.64	15.99	44.63	54.00	-9.37	Vertical

Test Mode: 802.11n40	Test channel: Highest

Peak value:

Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5250.00	37.91	16.43	54.34	68.20	-13.86	Horizontal
5250.00	36.84	16.43	53.27	68.20	-14.93	Vertical

Average value:

Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Polarization
5250.00	28.01	16.43	44.44	54.00	-9.56	Horizontal
5250.00	29.17	16.43	45.60	54.00	-8.40	Vertical

Remark: 1. Result =Reading + Factor

Radiated Band Edge:

Test Mode: 802.11ac(HT20)	Test channel: Lowest

Peak value:

Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5150.00	36.65	15.99	52.64	68.20	-15.56	Horizontal
5150.00	38.36	15.99	54.35	68.20	-13.85	Vertical

Average value:

Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Polarization
5150.00	26.41	15.99	42.40	54.00	-11.60	Horizontal
5150.00	28.52	15.99	44.51	54.00	-9.49	Vertical

Test Mode: 802.11ac(HT20)	Test channel: Highest

Peak value:

Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5250.00	37.73	16.43	54.16	68.20	-14.04	Horizontal
5250.00	38.00	16.43	54.43	68.20	-13.77	Vertical

Average value:

Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Polarization
5250.00	27.60	16.43	44.03	54.00	-9.97	Horizontal
5250.00	28.07	16.43	44.50	54.00	-9.50	Vertical

Remark: 1. Result =Reading + Factor

Radiated Band Edge:

Test Mode: 802.11ac(HT40)	Test channel: Lowest

Peak value:

Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5150.00	35.63	15.99	51.62	68.20	-16.58	Horizontal
5150.00	36.16	15.99	52.15	68.20	-16.05	Vertical

Average value:

Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Polarization
5150.00	25.70	15.99	41.69	54.00	-12.31	Horizontal
5150.00	26.55	15.99	42.54	54.00	-11.46	Vertical

Test Mode: 802.11ac(HT40)	Test channel: Highest

Peak value:

Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5250.00	37.82	16.43	54.25	68.20	-13.95	Horizontal
5250.00	37.03	16.43	53.46	68.20	-14.74	Vertical

Average value:

Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Polarization
5250.00	27.34	16.43	43.77	54.00	-10.23	Horizontal
5250.00	27.12	16.43	43.55	54.00	-10.45	Vertical

Remark: 1. Result =Reading + Factor

5.8G:

Radiated Band Edge:

Test Mode: 802.11a	Test channel: Lowest

Peak value:

Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5725.00	38.75	17.05	55.80	68.20	-12.40	Horizontal
5725.00	39.36	17.05	56.41	68.20	-11.79	Vertical

Average value:

Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Polarization
5725.00	28.78	17.05	45.83	54.00	-8.17	Horizontal
5725.00	29.86	17.05	46.91	54.00	-7.09	Vertical

Test Mode: 802.11a	Test channel: Highest

Peak value:

Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5850.00	38.70	17.21	55.91	68.20	-12.29	Horizontal
5850.00	39.00	17.21	56.21	68.20	-11.99	Vertical

Average value:

Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Polarization
5850.00	28.75	17.21	45.96	54.00	-8.04	Horizontal
5850.00	28.83	17.21	46.04	54.00	-7.96	Vertical

Remark: 1. Result =Reading + Factor

Radiated Band Edge:

Test Mode: 802.11n20	Test channel: Lowest

Peak value:

Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5725.00	37.87	17.05	54.92	68.20	-13.28	Horizontal
5725.00	38.19	17.05	55.24	68.20	-12.96	Vertical

Average value:

Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Polarization
5725.00	27.40	17.05	44.45	54.00	-9.55	Horizontal
5725.00	27.84	17.05	44.89	54.00	-9.11	Vertical

Test Mode: 802.11n20	Test channel: Highest

Peak value:

Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Polarization
5850.00	36.94	17.21	54.15	68.20	-14.05	Horizontal
5850.00	37.65	17.21	54.86	68.20	-13.34	Vertical

Average value:

Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Polarization
5850.00	27.11	17.21	44.32	54.00	-9.68	Horizontal
5850.00	28.07	17.21	45.28	54.00	-8.72	Vertical

Remark: 1. Result =Reading + Factor

Radiated Band Edge:

Test Mode: 802.11n40	Test channel: Lowest

Peak value:

Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5725.00	38.17	17.05	55.22	68.20	-12.98	Horizontal
5725.00	38.73	17.05	55.78	68.20	-12.42	Vertical

Average value:

Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Polarization
5725.00	26.76	17.05	43.81	54.00	-10.19	Horizontal
5725.00	28.20	17.05	45.25	54.00	-8.75	Vertical

Test Mode: 802.11n40	Test channel: Highest

Peak value:

Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5850.00	37.70	17.21	54.91	68.20	-13.29	Horizontal
5850.00	38.18	17.21	55.39	68.20	-12.81	Vertical

Average value:

Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Polarization
5850.00	27.84	17.21	45.05	54.00	-8.95	Horizontal
5850.00	29.03	17.21	46.24	54.00	-7.76	Vertical

Remark: 1. Result =Reading + Factor

Radiated Band Edge:

Test Mode: 802.11ac(HT20)	Test channel: Lowest

Peak value:

Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Polarization
5725.00	37.63	17.05	54.68	68.20	-13.52	Horizontal
5725.00	38.16	17.05	55.21	68.20	-12.99	Vertical

Average value:

Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Polarization
5725.00	28.07	17.05	45.12	54.00	-8.88	Horizontal
5725.00	28.71	17.05	45.76	54.00	-8.24	Vertical

Test Mode: 802.11ac(HT20)	Test channel: Highest

Peak value:

Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Polarization
5850.00	37.79	17.21	55.00	68.20	-13.20	Horizontal
5850.00	38.74	17.21	55.95	68.20	-12.25	Vertical

Average value:

Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Polarization
5850.00	27.73	17.21	44.94	54.00	-9.06	Horizontal
5850.00	28.67	17.21	45.88	54.00	-8.12	Vertical

Remark: 1. Result =Reading + Factor

Radiated Band Edge:

Test Mode: 802.11ac(HT40)	Test channel: Lowest

Peak value:

Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Polarization
5725.00	36.46	17.05	53.51	68.20	-14.69	Horizontal
5725.00	37.98	17.05	55.03	68.20	-13.17	Vertical

Average value:

Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Polarization
5725.00	27.35	17.05	44.40	54.00	-9.60	Horizontal
5725.00	28.06	17.05	45.11	54.00	-8.89	Vertical

Test Mode: 802.11ac(HT40)	Test channel: Highest

Peak value:

Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Polarization
5850.00	37.41	17.21	54.62	68.20	-13.58	Horizontal
5850.00	38.11	17.21	55.32	68.20	-12.88	Vertical

Average value:

Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Polarization
5850.00	27.38	17.21	44.59	54.00	-9.41	Horizontal
5850.00	26.90	17.21	44.11	54.00	-9.89	Vertical

Remark: 1. Result =Reading + Factor

Conducted Measurement:

5.2G: Please refer to clause 5 of the Appendix Test Data.

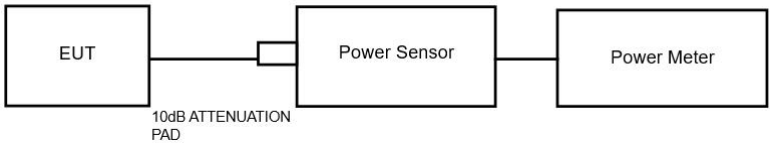
5.8G: Please refer to clause 6 of the Appendix Test Data.

5. Maximum conducted output power Test

5.1. Test Standard and Limit

Test Standard	FCC Part15 C Section 15.407(a)	
Test Limit	5.15 - 5.25GHz	1) Outdoor AP The maximum conducted output power (Pout) shall not exceed the lesser of 1W (30dBm). if GTx>6dBi, then Pout =30-(GTx-6). e.i.r.p. at any elevation angle above 30 degrees≤125mW (21dBm) 2) Indoor AP The maximum conducted output power (Pout) shall not exceed the lesser of 1W (30dBm). if GTx>6dBi, then Pout =30-(GTx-6). 3) Point-to-point AP The maximum conducted output power (Pout) shall not exceed the lesser of 1W (30dBm). if GTx>23dBi, then Pout =30-(GTx-23). 4) Client devices The maximum conducted output power (Pout) shall not exceed the lesser of 250W (24dBm). if GTx>6dBi, then Pout =24-(GTx-6).
	5.725 - 5.85GHz	1) Point-to-multipoint systems (P2M) The maximum conducted output power (Pout) shall not exceed the lesser of 1W (30dBm). if GTx>6dBi, then Pout =30-(GTx-6). 2) Point-to-point systems (P2P) The maximum conducted output power (Pout) shall not exceed the lesser of 1W (30dBm).

5.2. Test Setup



5.3. Test Procedure

1. The Transmitter output (antenna port) was connected to the power meter.
2. Turn on the EUT and power meter and then record the power value.
3. Repeat above procedures on all channels needed to be tested.

Note: The cable loss and attenuator loss were offset into measure device as an amplitude offset.

5.4. Test Data

Pass

5.2G: Please refer to clause 3 of the Appendix Test Data.
5.8G: Please refer to clause 4 of the Appendix Test Data.

Additional test for duty cycle.

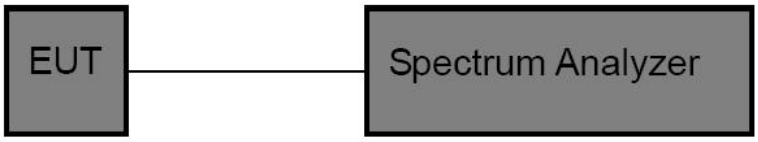
5.2G: Please refer to clause 2 of the Appendix Test Data.
5.8G: Please refer to clause 3 of the Appendix Test Data.

6. Occupy Bandwidth Test

6.1. Test Standard

Test Standard	FCC Part15 C Section 15.407 (a)(5)

6.2. Test Setup



6.3. Test Procedure

1. Place the EUT on the table and set it in the transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.

3. Set the spectrum analyzer as:

26 dB &99%bandwidth

RBW = approximately 1% of the emission bandwidth;
Set the VBW＞RBW;
Detector= Peak
Trace mode= Max hold.
Sweep- auto couple.

6 dB bandwidth

RBW = approximately 1% of the emission bandwidth;
Set the VBW＞RBW;
Detector= Peak
Trace mode= Max hold.
Sweep- auto couple.

4. Measure the maximum width of the emission that is 26dB /6dB down from the maximum of the emission. Compare this with the RBW setting of the analyzer.

5. Repeat until all the rest channels are investigated.

6.4. Test Data

Pass

5.2G: Please refer to clause 1 of the Appendix Test Data.

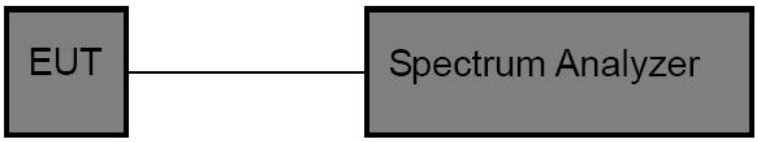
5.8G: Please refer to clause 1&2 of the Appendix Test Data.

7. Power Spectral Density Test

7.1. Test Standard and Limit

Test Standard	FCC Part15 C Section 15.407(a)	
Test Limit	5.15 - 5.25GHz	1) Outdoor AP The peak power spectral density (PSD) shall not exceed the lesser of 17dBm/MHz. if GTx>6dBi, then PSD =17-(GTx-6). 2) Indoor AP The peak power spectral density (PSD) shall not exceed the lesser of 17dBm/MHz. if GTx>6dBi, then PSD =17-(GTx-6). 3) Point-to-point AP The peak power spectral density (PSD) shall not exceed the lesser of 17dBm/MHz. if GTx>23dBi, then PSD =17-(GTx-23). 4) Client devices The peak power spectral density (PSD) shall not exceed the lesser of 11dBm/MHz. if GTx>6dBi, then PSD =11-(GTx-6).
	5.725 - 5.85GHz	1) Point-to-multipoint systems (P2M) The peak power spectral density (PSD) shall not exceed the lesser of 30dBm/500kHz. if GTx>6dBi, then PSD =30-(GTx-6). 2) Point-to-point systems (P2P) The peak power spectral density (PSD) shall not exceed the lesser of 30dBm/500kHz.

7.2. Test Setup



7.3. Test Procedure

For devices operating in the bands 5.15-5.25 GHz the above procedures make use of 1 MHz RBW to satisfy directly the 1 MHz reference bandwidth specified in § 15.407(a)(5). For devices operating in the band 5.725-5.85 GHz, the rules specify a measurement bandwidth of 500 kHz. Many spectrum analyzers do not have 500 kHz RBW, thus a narrower RBW may need to be used. The rules permit the use of a RBWs less than 1 MHz, or 500 kHz, “provided that the measured power is integrated over the full reference bandwidth” to show the total power over the specified measurement bandwidth (i.e., 1 MHz, or 500 kHz).

1. The EUT is directly connected to the spectrum analyzer;
2. Set RBW =1MHz(for WIFI 5.2G) or Set RBW =300kHz(for WIFI 5.8G);
3. Set VBW ≥ 3 RBW=3MHz(for WIFI 5.2G) or Set VBW ≥ 3 RBW=1MHz (for WIFI 5.8G);

4. Set the span to encompass the entire emissions bandwidth (EBW) of the signal;
5. Detector=RMS;
6. Sweep time= auto couple;
7. Trace mode=max. hold;

7.4. Test Data

Pass

5.2G: Please refer to clause 4 of the Appendix Test Data.

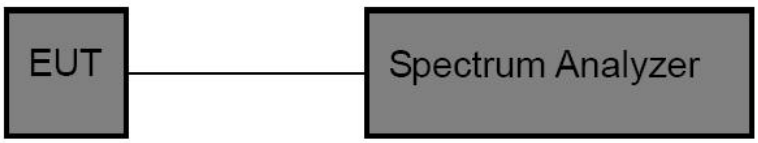
5.8G: Please refer to clause 5 of the Appendix Test Data.

8. Frequency Stability

8.1. Test Standard and Limit

Test Standard	FCC Part15 Section 15.407(g) &Part2 J Section 2.1055
Test Limit	The frequency tolerance shall be maintained within the band of operation frequency over a temperature variation of 0 degrees to 35 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C.

8.2. Test Setup



8.3. Test Procedure

The EUT was placed inside the environmental test chamber and powered by nominal AC/DC voltage. b. Turn the EUT on and couple its output to a spectrum analyzer. c. Turn the EUT off and set the chamber to the highest temperature specified. d. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize. e. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature. f. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

8.4. Test Data

Pass

Please to see the following pages.

Test Mode: 5.2G							
Mode	TX Type	Frequency (MHz)	Temperature (°C)	Voltage (VDC)	Measured Frequency (MHz)	Limit	Verdict
802.11a	SISO	5180	20	102.00	5180.08	5172 to 5188	Pass
				120.00	5180.13	5172 to 5188	Pass
				138.00	5180.08	5172 to 5188	Pass
			-30	120.00	5180.09	5172 to 5188	Pass
			-20	120.00	5180.05	5150 to 5250	Pass
			-10	120.00	5180.02	5150 to 5250	Pass
			0	120.00	5180.08	5150 to 5250	Pass
			10	120.00	5180.01	5150 to 5250	Pass
			30	120.00	5180.08	5150 to 5250	Pass
			40	120.00	5180.01	5150 to 5250	Pass
			50	120.00	5180.01	5172 to 5188	Pass
		5200	20	102.00	5200.03	5192 to 5208	Pass
				120.00	5200.02	5192 to 5208	Pass
				138.00	5200.01	5192 to 5208	Pass
			-30	120.00	5200.10	5192 to 5208	Pass
			-20	120.00	5200.09	5150 to 5250	Pass
			-10	120.00	5200.07	5150 to 5250	Pass
			0	120.00	5200.07	5150 to 5250	Pass
			10	120.00	5200.08	5150 to 5250	Pass
			30	120.00	5200.07	5150 to 5250	Pass
			40	120.00	5200.07	5150 to 5250	Pass
			50	120.00	5200.01	5192 to 5208	Pass
		5240	20	102.00	5240.13	5232 to 5248	Pass
				120.00	5240.13	5232 to 5248	Pass
				138.00	5240.07	5232 to 5248	Pass
			-30	120.00	5240.06	5232 to 5248	Pass
			-20	120.00	5240.02	5150 to 5250	Pass
			-10	120.00	5240.06	5150 to 5250	Pass
			0	120.00	5240.02	5150 to 5250	Pass
			10	120.00	5240.03	5150 to 5250	Pass
			30	120.00	5240.07	5150 to 5250	Pass
			40	120.00	5240.12	5150 to 5250	Pass
			50	120.00	5240.07	5232 to 5248	Pass
802.11n (HT20)	SISO	5180	20	102.00	5180.06	5172 to 5188	Pass
				120.00	5180.06	5172 to 5188	Pass
				138.00	5180.03	5172 to 5188	Pass
			-30	120.00	5180.06	5172 to 5188	Pass
			-20	120.00	5180.05	5150 to 5250	Pass

			-10	120.00	5180.04	5150 to 5250	Pass
			0	120.00	5180.09	5150 to 5250	Pass
			10	120.00	5180.04	5150 to 5250	Pass
			30	120.00	5180.10	5150 to 5250	Pass
			40	120.00	5180.04	5150 to 5250	Pass
			50	120.00	5180.12	5172 to 5188	Pass
		5200	20	102.00	5200.12	5192 to 5208	Pass
				120.00	5200.04	5192 to 5208	Pass
				138.00	5200.03	5192 to 5208	Pass
			-30	120.00	5200.12	5192 to 5208	Pass
			-20	120.00	5200.07	5150 to 5250	Pass
			-10	120.00	5200.12	5150 to 5250	Pass
			0	120.00	5200.01	5150 to 5250	Pass
			10	120.00	5200.06	5150 to 5250	Pass
			30	120.00	5200.09	5150 to 5250	Pass
			40	120.00	5200.03	5150 to 5250	Pass
			50	120.00	5200.11	5192 to 5208	Pass
		5240	20	102.00	5240.13	5232 to 5248	Pass
				120.00	5240.12	5232 to 5248	Pass
				138.00	5240.08	5232 to 5248	Pass
			-30	120.00	5240.00	5232 to 5248	Pass
			-20	120.00	5240.11	5150 to 5250	Pass
			-10	120.00	5240.00	5150 to 5250	Pass
			0	120.00	5240.01	5150 to 5250	Pass
			10	120.00	5240.10	5150 to 5250	Pass
			30	120.00	5240.03	5150 to 5250	Pass
			40	120.00	5240.11	5150 to 5250	Pass
			50	120.00	5240.07	5232 to 5248	Pass
802.11n (HT40)	SISO	5190	20	102.00	5190.05	5174 to 5206	Pass
				120.00	5190.07	5174 to 5206	Pass
				138.00	5190.07	5174 to 5206	Pass
			-30	120.00	5190.07	5174 to 5206	Pass
			-20	120.00	5190.10	5150 to 5250	Pass
			-10	120.00	5190.12	5150 to 5250	Pass
			0	120.00	5190.06	5150 to 5250	Pass
			10	120.00	5190.12	5150 to 5250	Pass
			30	120.00	5190.11	5150 to 5250	Pass
			40	120.00	5190.10	5150 to 5250	Pass
			50	120.00	5190.04	5174 to 5206	Pass
		5230	20	102.00	5230.09	5214 to 5246	Pass
				120.00	5230.08	5214 to 5246	Pass

				138.00	5230.11	5214 to 5246	Pass
			-30	120.00	5230.08	5214 to 5246	Pass
			-20	120.00	5230.02	5150 to 5250	Pass
			-10	120.00	5230.02	5150 to 5250	Pass
			0	120.00	5230.11	5150 to 5250	Pass
			10	120.00	5230.11	5150 to 5250	Pass
			30	120.00	5230.00	5150 to 5250	Pass
			40	120.00	5230.08	5150 to 5250	Pass
			50	120.00	5230.08	5214 to 5246	Pass
802.11ac (VHT20)	SISO	5180	20	102.00	5180.08	5172 to 5188	Pass
				120.00	5180.06	5172 to 5188	Pass
				138.00	5180.09	5172 to 5188	Pass
			-30	120.00	5180.02	5172 to 5188	Pass
			-20	120.00	5180.13	5150 to 5250	Pass
			-10	120.00	5180.06	5150 to 5250	Pass
			0	120.00	5180.06	5150 to 5250	Pass
			10	120.00	5180.01	5150 to 5250	Pass
			30	120.00	5180.09	5150 to 5250	Pass
			40	120.00	5180.01	5150 to 5250	Pass
			50	120.00	5180.00	5172 to 5188	Pass
		5200	20	102.00	5200.01	5192 to 5208	Pass
				120.00	5200.02	5192 to 5208	Pass
				138.00	5200.08	5192 to 5208	Pass
			-30	120.00	5200.05	5192 to 5208	Pass
			-20	120.00	5200.07	5150 to 5250	Pass
			-10	120.00	5200.13	5150 to 5250	Pass
			0	120.00	5200.11	5150 to 5250	Pass
			10	120.00	5200.00	5150 to 5250	Pass
			30	120.00	5200.11	5150 to 5250	Pass
			40	120.00	5200.09	5150 to 5250	Pass
			50	120.00	5200.10	5192 to 5208	Pass
		5240	20	102.00	5240.03	5232 to 5248	Pass
				120.00	5240.06	5232 to 5248	Pass
				138.00	5240.11	5232 to 5248	Pass
			-30	120.00	5240.12	5232 to 5248	Pass
			-20	120.00	5240.07	5150 to 5250	Pass
			-10	120.00	5240.08	5150 to 5250	Pass
			0	120.00	5240.00	5150 to 5250	Pass
			10	120.00	5240.13	5150 to 5250	Pass
			30	120.00	5240.10	5150 to 5250	Pass
			40	120.00	5240.08	5150 to 5250	Pass

			50	120.00	5240.06	5232 to 5248	Pass
802.11ac (VHT40)	SISO	5190	20	102.00	5190.10	5174 to 5206	Pass
				120.00	5190.09	5174 to 5206	Pass
				138.00	5190.12	5174 to 5206	Pass
			-30	120.00	5190.01	5174 to 5206	Pass
			-20	120.00	5190.02	5150 to 5250	Pass
			-10	120.00	5190.12	5150 to 5250	Pass
			0	120.00	5190.09	5150 to 5250	Pass
			10	120.00	5190.05	5150 to 5250	Pass
			30	120.00	5190.05	5150 to 5250	Pass
			40	120.00	5190.07	5150 to 5250	Pass
			50	120.00	5190.05	5174 to 5206	Pass
		5230	20	102.00	5230.12	5214 to 5246	Pass
				120.00	5230.09	5214 to 5246	Pass
				138.00	5230.06	5214 to 5246	Pass
			-30	120.00	5230.09	5214 to 5246	Pass
			-20	120.00	5230.08	5150 to 5250	Pass
			-10	120.00	5230.00	5150 to 5250	Pass
			0	120.00	5230.11	5150 to 5250	Pass
			10	120.00	5230.06	5150 to 5250	Pass
			30	120.00	5230.09	5150 to 5250	Pass
			40	120.00	5230.10	5150 to 5250	Pass
			50	120.00	5230.12	5214 to 5246	Pass

Test Mode: 5.8G							
Mode	TX Type	Frequency (MHz)	Temperature (°C)	Voltage (VDC)	Measured Frequency (MHz)	Limit	Verdict
802.11a	SISO	5745	20	102.00	5745.00	5737 to 5753	Pass
				120.00	5745.12	5737 to 5753	Pass
				138.00	5745.12	5737 to 5753	Pass
			-30	102.00	5745.11	5737 to 5753	Pass
			-20	120.00	5745.11	5725 to 5850	Pass
			-10	120.00	5745.00	5725 to 5850	Pass
			0	120.00	5745.06	5725 to 5850	Pass
			10	120.00	5745.12	5725 to 5850	Pass
			30	120.00	5745.10	5725 to 5850	Pass
			40	120.00	5745.12	5725 to 5850	Pass
			50	120.00	5745.08	5737 to 5753	Pass
		5785	20	102.00	5785.09	5777 to 5793	Pass
				120.00	5785.13	5777 to 5793	Pass
				138.00	5785.13	5777 to 5793	Pass
			-30	102.00	5785.07	5777 to 5793	Pass
			-20	120.00	5785.02	5725 to 5850	Pass
			-10	120.00	5785.04	5725 to 5850	Pass
			0	120.00	5785.03	5725 to 5850	Pass
			10	120.00	5785.01	5725 to 5850	Pass
			30	120.00	5785.12	5725 to 5850	Pass
			40	120.00	5785.12	5725 to 5850	Pass
			50	120.00	5785.01	5777 to 5793	Pass
		5825	20	102.00	5825.06	5817 to 5833	Pass
				120.00	5825.12	5817 to 5833	Pass
				138.00	5825.00	5817 to 5833	Pass
			-30	102.00	5825.12	5817 to 5833	Pass
			-20	120.00	5825.08	5725 to 5850	Pass
			-10	120.00	5825.13	5725 to 5850	Pass
			0	120.00	5825.01	5725 to 5850	Pass
			10	120.00	5825.10	5725 to 5850	Pass
			30	120.00	5825.04	5725 to 5850	Pass
			40	120.00	5825.08	5725 to 5850	Pass
			50	120.00	5825.04	5817 to 5833	Pass
802.11n (HT20)	SISO	5745	20	102.00	5745.04	5737 to 5753	Pass
				120.00	5745.00	5737 to 5753	Pass
				138.00	5745.12	5737 to 5753	Pass
			-30	102.00	5745.09	5737 to 5753	Pass
			-20	120.00	5745.04	5725 to 5850	Pass

			-10	120.00	5745.10	5725 to 5850	Pass
			0	120.00	5745.07	5725 to 5850	Pass
			10	120.00	5745.08	5725 to 5850	Pass
			30	120.00	5745.01	5725 to 5850	Pass
			40	120.00	5745.09	5725 to 5850	Pass
			50	120.00	5745.04	5737 to 5753	Pass
		5785	20	102.00	5785.06	5777 to 5793	Pass
				120.00	5785.02	5777 to 5793	Pass
				138.00	5785.11	5777 to 5793	Pass
			-30	102.00	5785.10	5777 to 5793	Pass
			-20	120.00	5785.03	5725 to 5850	Pass
			-10	120.00	5785.01	5725 to 5850	Pass
			0	120.00	5785.00	5725 to 5850	Pass
			10	120.00	5785.07	5725 to 5850	Pass
			30	120.00	5785.07	5725 to 5850	Pass
			40	120.00	5785.07	5725 to 5850	Pass
			50	120.00	5785.04	5777 to 5793	Pass
		5825	20	102.00	5825.02	5817 to 5833	Pass
				120.00	5825.01	5817 to 5833	Pass
				138.00	5825.09	5817 to 5833	Pass
			-30	102.00	5825.10	5817 to 5833	Pass
			-20	120.00	5825.03	5725 to 5850	Pass
			-10	120.00	5825.05	5725 to 5850	Pass
			0	120.00	5825.04	5725 to 5850	Pass
			10	120.00	5825.04	5725 to 5850	Pass
			30	120.00	5825.11	5725 to 5850	Pass
			40	120.00	5825.00	5725 to 5850	Pass
			50	120.00	5825.03	5817 to 5833	Pass
802.11n (HT40)	SISO	5755	20	102.00	5755.05	5739 to 5771	Pass
				120.00	5755.03	5739 to 5771	Pass
				138.00	5755.09	5739 to 5771	Pass
			-30	102.00	5755.12	5739 to 5771	Pass
			-20	120.00	5755.08	5725 to 5850	Pass
			-10	120.00	5755.01	5725 to 5850	Pass
			0	120.00	5755.05	5725 to 5850	Pass
			10	120.00	5755.02	5725 to 5850	Pass
			30	120.00	5755.10	5725 to 5850	Pass
			40	120.00	5755.01	5725 to 5850	Pass
			50	120.00	5755.13	5739 to 5771	Pass
		5795	20	102.00	5795.03	5779 to 5811	Pass
				120.00	5795.09	5779 to 5811	Pass

				138.00	5795.04	5779 to 5811	Pass
			-30	102.00	5795.12	5779 to 5811	Pass
			-20	120.00	5795.10	5725 to 5850	Pass
			-10	120.00	5795.00	5725 to 5850	Pass
			0	120.00	5795.10	5725 to 5850	Pass
			10	120.00	5795.09	5725 to 5850	Pass
			30	120.00	5795.06	5725 to 5850	Pass
			40	120.00	5795.10	5725 to 5850	Pass
			50	120.00	5795.08	5779 to 5811	Pass
802.11ac (VHT20)	SISO	5745	20	102.00	5745.01	5737 to 5753	Pass
				120.00	5745.02	5737 to 5753	Pass
				138.00	5745.12	5737 to 5753	Pass
			-30	102.00	5745.07	5737 to 5753	Pass
			-20	120.00	5745.08	5725 to 5850	Pass
			-10	120.00	5745.09	5725 to 5850	Pass
			0	120.00	5745.11	5725 to 5850	Pass
			10	120.00	5745.12	5725 to 5850	Pass
			30	120.00	5745.04	5725 to 5850	Pass
			40	120.00	5745.07	5725 to 5850	Pass
			50	120.00	5745.07	5737 to 5753	Pass
		5785	20	102.00	5785.10	5777 to 5793	Pass
				120.00	5785.10	5777 to 5793	Pass
				138.00	5785.01	5777 to 5793	Pass
			-30	102.00	5785.06	5777 to 5793	Pass
			-20	120.00	5785.11	5725 to 5850	Pass
			-10	120.00	5785.00	5725 to 5850	Pass
			0	120.00	5785.01	5725 to 5850	Pass
			10	120.00	5785.02	5725 to 5850	Pass
			30	120.00	5785.01	5725 to 5850	Pass
			40	120.00	5785.06	5725 to 5850	Pass
			50	120.00	5785.09	5777 to 5793	Pass
		5825	20	102.00	5825.11	5817 to 5833	Pass
				120.00	5825.10	5817 to 5833	Pass
				138.00	5825.10	5817 to 5833	Pass
			-30	102.00	5825.05	5817 to 5833	Pass
			-20	120.00	5825.06	5725 to 5850	Pass
			-10	120.00	5825.03	5725 to 5850	Pass
			0	120.00	5825.11	5725 to 5850	Pass
			10	120.00	5825.08	5725 to 5850	Pass
			30	120.00	5825.01	5725 to 5850	Pass
			40	120.00	5825.03	5725 to 5850	Pass

			50	120.00	5825.12	5817 to 5833	Pass
802.11ac (VHT40)	SISO	5755	20	102.00	5755.04	5739 to 5771	Pass
				120.00	5755.11	5739 to 5771	Pass
				138.00	5755.05	5739 to 5771	Pass
			-30	102.00	5755.09	5739 to 5771	Pass
			-20	120.00	5755.06	5725 to 5850	Pass
			-10	120.00	5755.01	5725 to 5850	Pass
			0	120.00	5755.11	5725 to 5850	Pass
			10	120.00	5755.04	5725 to 5850	Pass
			30	120.00	5755.01	5725 to 5850	Pass
			40	120.00	5755.04	5725 to 5850	Pass
			50	120.00	5755.02	5739 to 5771	Pass
		5795	20	102.00	5795.10	5779 to 5811	Pass
				120.00	5795.07	5779 to 5811	Pass
				138.00	5795.05	5779 to 5811	Pass
			-30	102.00	5795.12	5779 to 5811	Pass
			-20	120.00	5795.05	5725 to 5850	Pass
			-10	120.00	5795.06	5725 to 5850	Pass
			0	120.00	5795.08	5725 to 5850	Pass
			10	120.00	5795.08	5725 to 5850	Pass
			30	120.00	5795.12	5725 to 5850	Pass
			40	120.00	5795.05	5725 to 5850	Pass
			50	120.00	5795.06	5779 to 5811	Pass

9. Antenna Requirement

9.1. Test Standard and Requirement

Test Standard	FCC Part15 Section 15.203 /15.407
Requirement	1) 15.203 requirement: An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. 2) 15.407 requirement: An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

9.2. Antenna Connected Construction

The antenna is a FPC antenna which permanently attached, and the best case gain of the antenna is 3 dBi It complies with the standard requirement.

APPENDIX I -- TEST SETUP PHOTOGRAPH

Photo of Conducted Emission Measurement

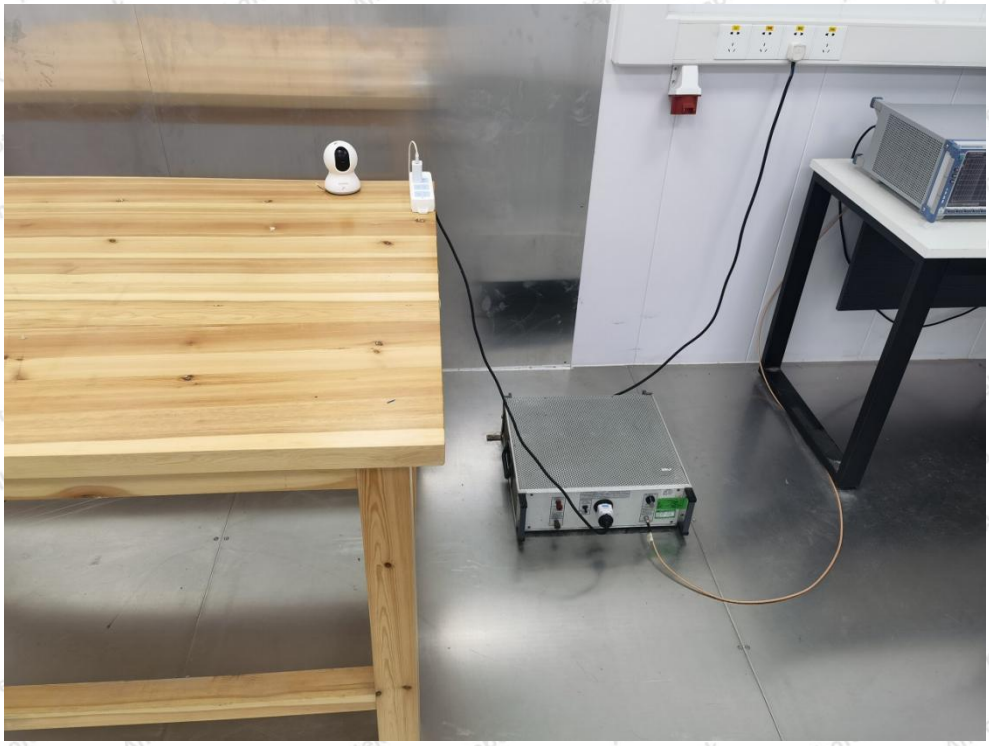
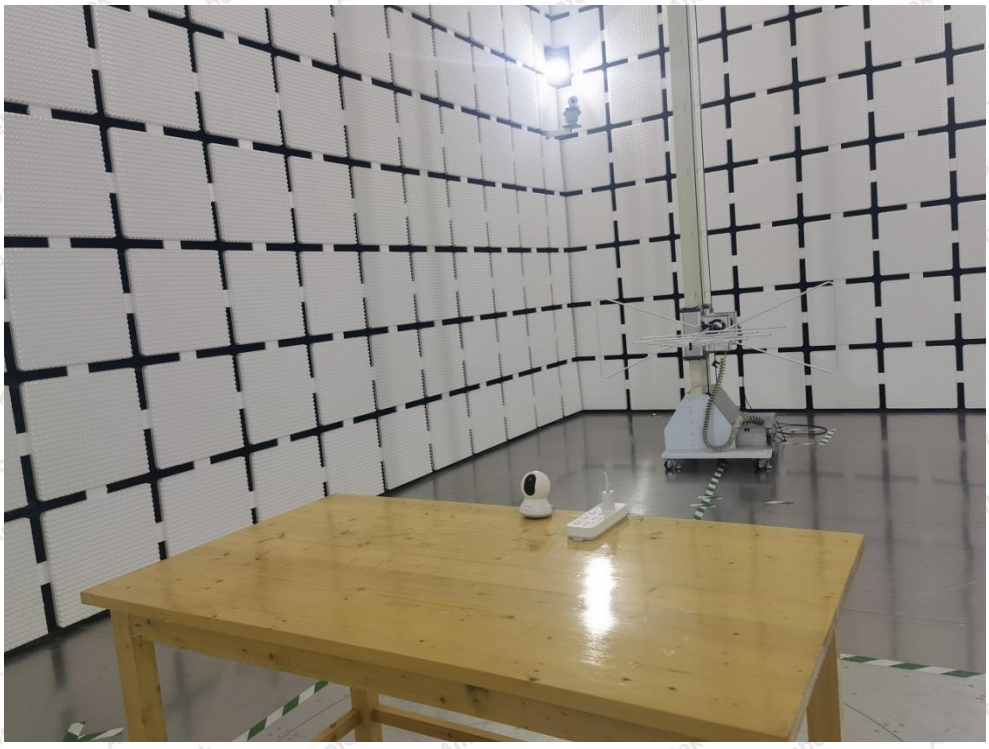


Photo of Radiation Emission Test



APPENDIX II -- EXTERNAL PHOTOGRAPH

Reference to the test report 78340WC20000101.

APPENDIX III -- INTERNAL PHOTOGRAPH

Reference to the test report 78340WC20000101.

APPENDIX IV – Appendix Test Data