

FCC Test Report

Client Name : Flyingvoice Network Technology Co., Ltd

Client Address : Room 01-02, Floor 18, Building 1, Nanshan
Zhiyuan, Chongwen Park, Taoyuan Street,
Nanshan District, Shenzhen, China

Product Name : IP Phone

Report Date : Apr. 04, 2023

Shenzhen Anbotech Compliance Laboratory Limited



Shenzhen Anbotech Compliance Laboratory Limited

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TEST REPORT

Applicant : Flyingvoice Network Technology Co., Ltd
Manufacturer : Flyingvoice Network Technology Co., Ltd
Product Name : IP Phone
Model No. : P23GW
Trade Mark : Flyingvoice
Input:
Rating(s) : DC Adapter:5V== 2A
POE Adapter:37V-57V==
Test Standard(s) : FCC Part15 Subpart E, Paragraph 15.407
ANSI C63.10: 2020
Test Method(s) : 789033 D02 General UNII Test Procedures New Rules v02r01
662911 D01 Multiple Transmitter Output 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

Feb. 27, 2023

Date of Test

Feb. 27~Mar. 27, 2023

Prepared By

Tu Tu Hong

(TuTu Hong)

Approved & Authorized Signer

Kingkong Jin

(Kingkong Jin)



Revision History

Report Version	Description	Issued Date
R00	Original Issue.	Apr. 04, 2023



1. General Information

1.1. Client Information

Applicant	:	Flyingvoice Network Technology Co., Ltd
Address	:	Room 01-02, Floor 18, Building 1, Nanshan Zhiyuan, Chongwen Park, Taoyuan Street, Nanshan District, Shenzhen, China
Manufacturer	:	Flyingvoice Network Technology Co., Ltd
Address	:	Room 01-02, Floor 18, Building 1, Nanshan Zhiyuan, Chongwen Park, Taoyuan Street, Nanshan District, Shenzhen, China
Factory	:	Flyingvoice Network Technology Co., Ltd
Address	:	Room 01-02, Floor 18, Building 1, Nanshan Zhiyuan, Chongwen Park, Taoyuan Street, Nanshan District, Shenzhen, China

1.2. Description of Device (EUT)

Product Name	:	IP Phone
Model No.	:	P23GW
Trade Mark	:	Flyingvoice
Test Power Supply	:	AC 120V, 60Hz for Adapter/ DC 5V
Test Sample No.	:	1-2-1(Normal Sample), 1-2-2(Engineering Sample)
Adapter	:	N/A
RF Specification		
Operation Mode	:	☒ a ☒ n(HT20) ☒ n(HT40) ☒ ac(VHT20) ☒ ac(VHT40) ☒ ac(VHT80) ☐ ac(VHT160) ☐ ax(HEW20) ☐ ax(HEW40) ☐ ax(HEW80) ☐ ax(HEW160)
Device Type	:	☐ Outdoor AP ☐ Indoor AP ☐ Point-to-point AP ☒ Client
TPC Function	:	☐ With TPC ☒ Without TPC
DFS Type	:	☒ Slave without radar detection ☐ Slave with radar detection ☐ Master
Operation Frequency	:	☒ Wi-Fi 5.2G: 5150~5250MHz ☒ Wi-Fi 5.3G: 5250~5350MHz ☒ Wi-Fi 5.6G: 5470~5725MHz ☒ Wi-Fi 5.8G: 5725~5850MHz
Number of Channel	:	Wi-Fi 5.2G: ☒ 4 Channels for 20MHz bandwidth (5180-5240MHz) ☒ 2 Channels for 40MHz bandwidth (5190-5230MHz)



	☒ 1 Channels for 80MHz bandwidth (5210MHz) Wi-Fi 5.3G: ☒ 4 Channels for 20MHz bandwidth (5260-5320MHz) ☒ 2 Channels for 40MHz bandwidth (5270-5310MHz) ☒ 1 Channels for 80MHz bandwidth (5290MHz) Wi-Fi 5.6G: ☒ 11 Channels for 20MHz bandwidth (5500-5700MHz) ☒ 5 Channels for 40MHz bandwidth (5510-5670MHz) ☒ 2 Channels for 80MHz bandwidth (5530~5610MHz) Wi-Fi 5.8G: ☒ 5 Channels for 20MHz bandwidth (5745MHz ~ 5825MHz) ☒ 2 Channels for 40MHz bandwidth (5755MHz ~ 5795MHz) ☒ 1 Channels for 80MHz bandwidth (5775MHz)
Modulation Type	☒ 802.11a: OFDM (64QAM, 16QAM, QPSK, BPSK) ☒ 802.11n: OFDM (BPSK, QPSK, 16QAM, 64QAM) ☒ 802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM) ☐ 802.11ax: OFDMA(BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM)
Antenna Type	ANT 1:FPC antenna ANT 2:PCB antenna
Antenna Gain(Peak)	ANT 1: Wi-Fi 5.2G: 3.0dBi (Provided by customer) Wi-Fi 5.3G: 2.7dBi (Provided by customer) Wi-Fi 5.6G: 3.8dBi (Provided by customer) Wi-Fi 5.8G: 3.5dBi (Provided by customer) ANT 2: Wi-Fi 5.2G: 4.1dBi (Provided by customer) Wi-Fi 5.3G: 3.72dBi (Provided by customer) Wi-Fi 5.6G: 3.35dBi (Provided by customer) Wi-Fi 5.8G: 4.19dBi (Provided by customer)
Directional antenna gain	Wi-Fi 5.2G: 6.60dBi Wi-Fi 5.3G: 6.25dBi Wi-Fi 5.6G: 6.59dBi Wi-Fi 5.8G: 6.87dBi
Remark: 1) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual. 2) Only 802.11n(HT20), 802.11n(HT40), 802.11ac(HT20), 802.11ac(HT40), 802.11ac(HT80) support MIMO.	



1.3. Auxiliary Equipment Used During Test

Description	Rating(s)
Computer	Model: A1708 Input: 20.3V $\overline{=}$ 3A
Adapter	Model: PA-1650-58 Input: AC100-240~50/60Hz, 1.6A CMIIT KP06503020

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/n(HT20) /ac(HT20)	CH 36	5180MHz
		CH 40	5200MHz
		CH 48	5240MHz
	OFDM 802.11n(HT40)/ac(HT40)	CH 38	5190MHz
		CH 46	5230MHz
	OFDM 802.11ac(HT80)	CH 42	5210MHz
5.3GHz	OFDM 802.11a/n(HT20) /ac(HT20)	CH 52	5260MHz
		CH 60	5300MHz
		CH 64	5320MHz
	OFDM 802.11n(HT40)/ac(HT40)	CH 54	5270MHz
		CH 62	5310MHz
	OFDM 802.11ac(HT80)	CH 58	5290MHz
5.6GHz	OFDM 802.11a/n(HT20) /ac(HT20)	CH 100	5500MHz
		CH 120	5600MHz
		CH 140	5700MHz
	OFDM 802.11n(HT40)/ac(HT40)	CH 102	5510MHz
		CH 118	5590MHz
		CH 134	5670MHz
	OFDM 802.11ac(HT80)	CH 106	5530MHz
		CH 122	5610MHz
5.8GHz	OFDM 802.11a/n(HT20) /ac(HT20)	CH 149	5745MHz
		CH 157	5785MHz

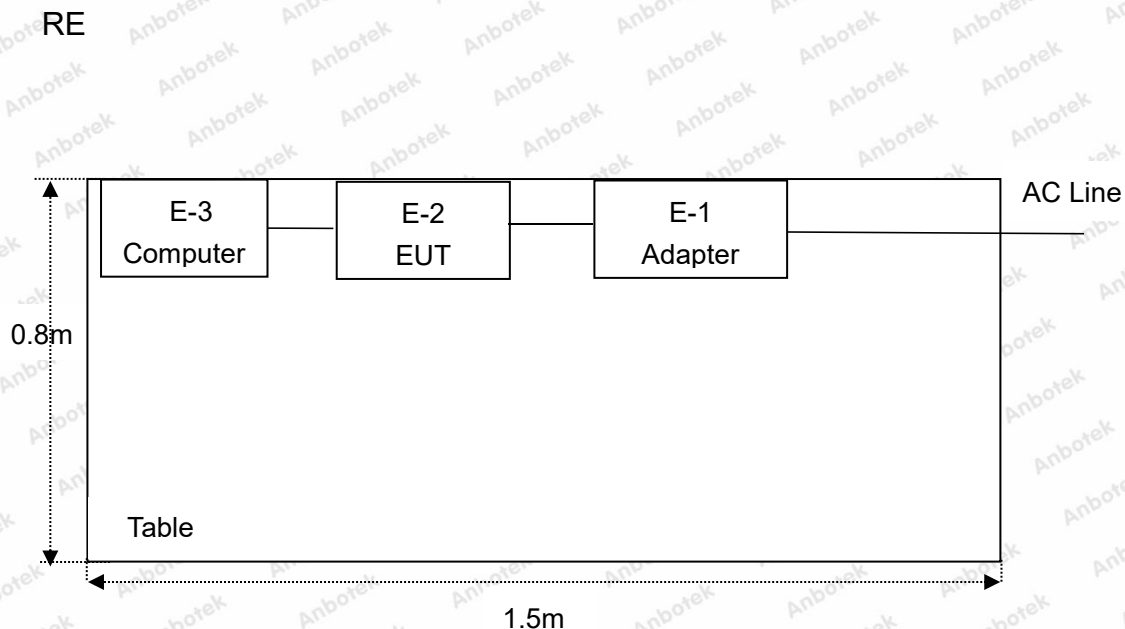
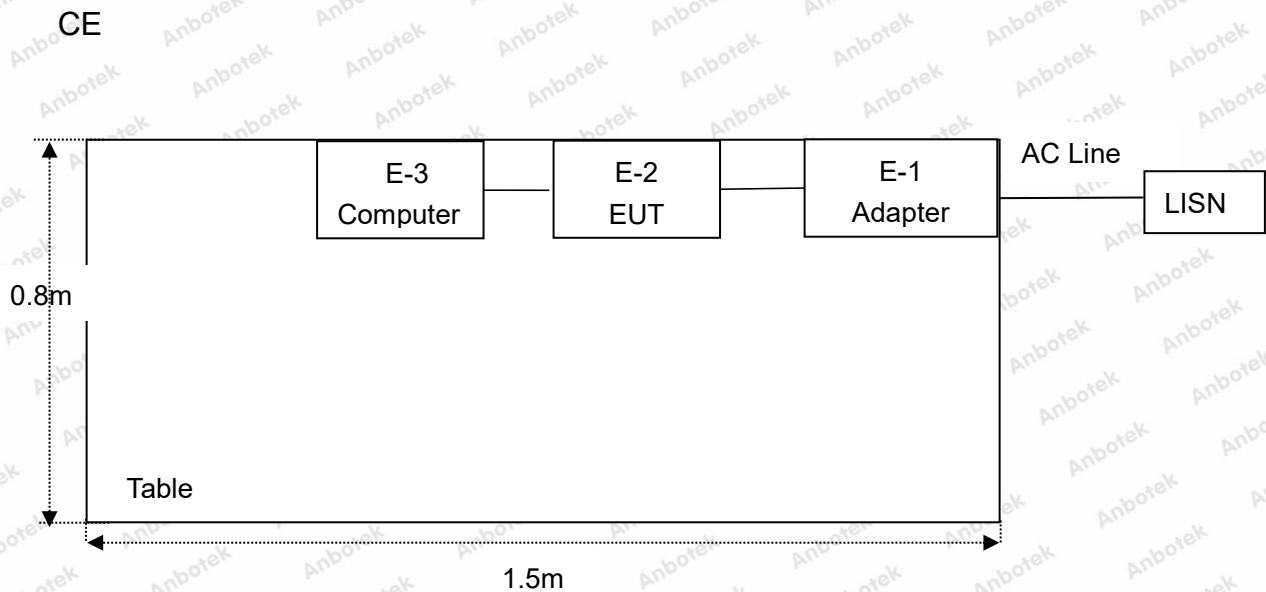


	OFDM 802.11n(HT40)/ac(HT40)	CH 165	5825MHz
		CH 151	5755MHz
	OFDM 802.11ac(HT80)	CH 159	5795MHz
		CH 155	5775MHz

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

1.6. Test Equipment List

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	L.I.S.N. Artificial Mains Network	Rohde & Schwarz	ENV216	100055	Oct. 23, 2022	1 Year
2.	Three Phase V-type Artificial Power Network	CYBERTEK	EM5040DT	E215040DT001	Jul. 05, 2022	1 Year
3.	EMI Test Receiver	Rohde & Schwarz	ESCI	100627	Oct. 13, 2022	1 Year
4.	EMI Test Receiver	Rohde & Schwarz	ESR26	101481	Oct. 23, 2022	1 Year
5.	RF Switching Unit	Compliance Direction	RSU-M2	38303	Oct. 22, 2022	1 Year
6.	MXA Spectrum Analysis	Agilent	N9020A	MY51170037	Oct. 13, 2022	1 Year
7.	EMI Preamplifier	SKET Electronic	LNPA-0118G -45	SKET-PA-002	Oct. 13, 2022	1 Year
8.	Double Ridged Horn Antenna	SCHWARZBECK	BBHA 9120D	02555	Oct. 16, 2022	3 Year
9.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	Oct. 23, 2022	1 Year
10.	Loop Antenna	Schwarzbeck	FMZB1519B	00053	Oct. 23, 2022	1 Year
11.	Horn Antenna	A-INFO	LB-180400-K F	J211060628	Oct. 23, 2022	1 Year
12.	Pre-amplifier	SONOMA	310N	186860	Oct. 23, 2022	1 Year
13.	EMI Test Software EZ-EMC	SHURPLE	N/A	N/A	N/A	N/A
14.	MXA Spectrum Analysis	KEYSIGHT	N9020A	MY53280032	Oct. 13, 2022	1 Year
15.	MXG RF Vector Signal Generator	Agilent	N5182A	MY48180656	Oct. 13, 2022	1 Year
16.	Signal Generator	Agilent	E4421B	MY41000743	Oct. 13, 2022	1 Year
17.	DC Power Supply	IVYTECH	IV3605	1804D360510	Oct. 22, 2022	1 Year
18.	Constant Temperature Humidity Chamber	ZHONGJIAN	ZJ-KHWS80 B	N/A	Oct. 19, 2022	1 Year
19.	Power Meter	Agilent	N1914A	MY50001102	Oct.26, 2022	1 Year



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(b)	Conducted Emission	PASS
15.205 & 15.209	Spurious Emission	PASS
15.407(b)	Band Edge	PASS
15.407(a) & 2.1049	26dB Bandwidth & 99% Occupied Bandwidth	PASS
15.407(e)	Minimum 6dB bandwidth (5.725-5.85GHz band)	PASS
15.407(a)	Maximum Conducted Output Power	PASS
15.407(a)	Peak Power Spectral Density	PASS
15.407(g)	Frequency Stability	PASS
15.407(h)	Dynamic Frequency Selection (DFS)	PASS (Please Refer to DFS Report)
15.203	Antenna Requirement	PASS
Remark: "N/A" is an abbreviation for Not Applicable.		



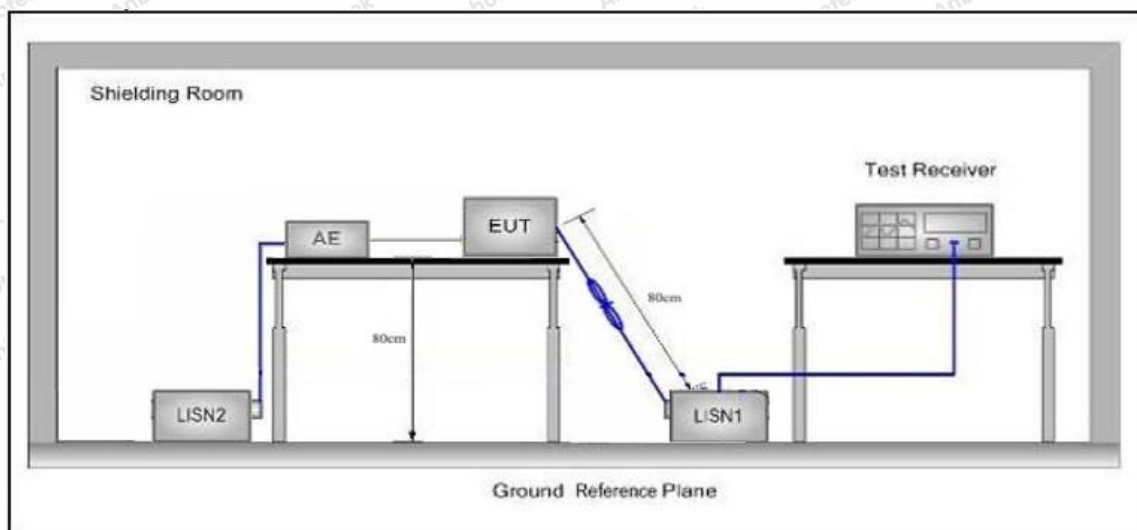
3. Conducted Emission Test

3.1. Test Standard and Limit

Test Standard	FCC Part15 Section 15.207 & 15.407(b)		
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

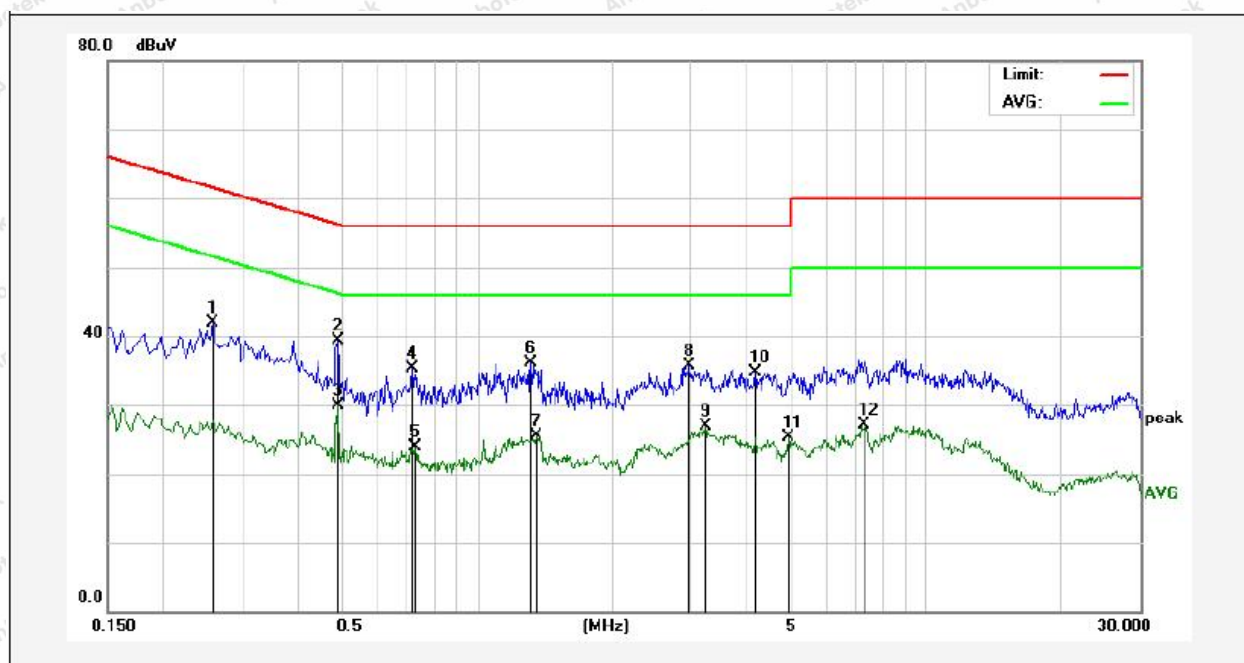
During the test, pre-scan all modes, only the worst case is recorded in the report.

AC conducted emission pre-test at both at AC 120V/60Hz and AC 240V/60Hz modes, recorded worst case AC 120V/60Hz.



Conducted Emission Test Data

Test Site: 1# Shielded Room
Operating Condition: 802.11n(HT20) 5240MHz MIMO
Test Specification: AC 120V, 60Hz for adapter
Comment: Live Line
Temp.(°C)/Hum.(%RH): 22.1°C/52%RH

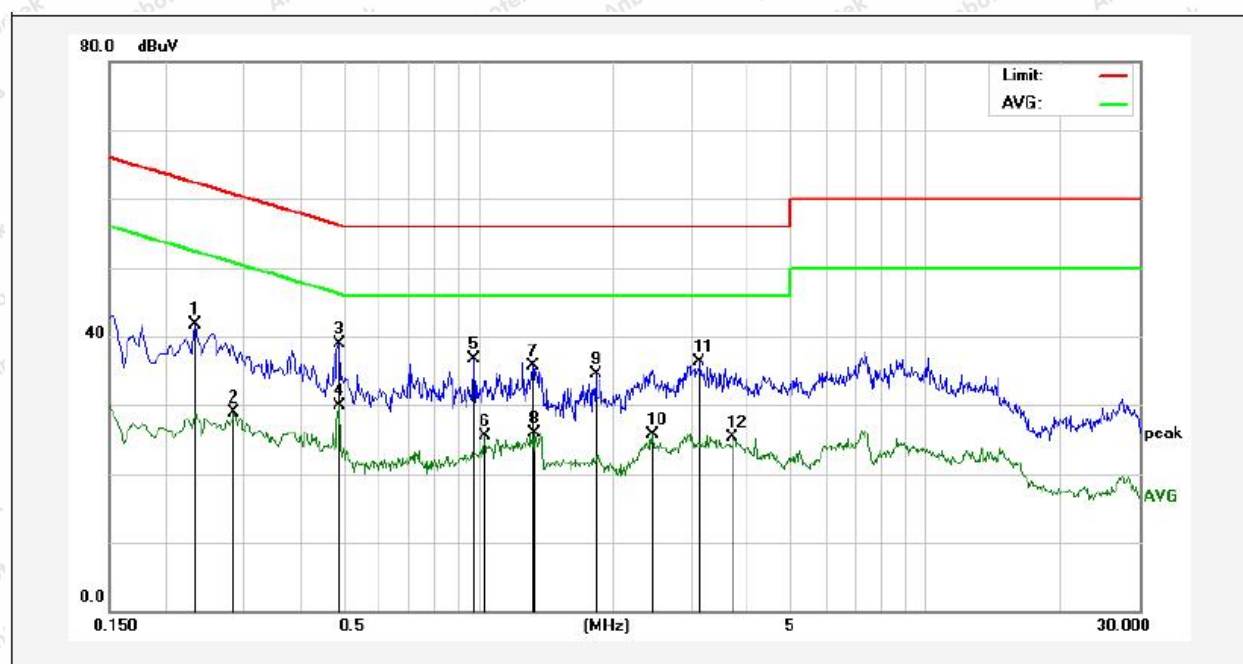


No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Over Limit (dB)	Detector	Remark
1	0.2575	32.05	9.83	41.88	61.51	-19.63	QP	
2	0.4889	29.55	9.85	39.40	56.19	-16.79	QP	
3	0.4889	20.02	9.85	29.87	46.19	-16.32	AVG	
4	0.7159	25.39	9.87	35.26	56.00	-20.74	QP	
5	0.7273	13.96	9.87	23.83	46.00	-22.17	AVG	
6	1.3167	26.19	9.84	36.03	56.00	-19.97	QP	
7	1.3521	15.68	9.84	25.52	46.00	-20.48	AVG	
8	2.9618	25.81	9.84	35.65	56.00	-20.35	QP	
9	3.2238	16.99	9.84	26.83	46.00	-19.17	AVG	
10	4.1574	24.95	9.84	34.79	56.00	-21.21	QP	
11	4.9256	15.52	9.85	25.37	46.00	-20.63	AVG	
12	7.2903	17.14	9.87	27.01	50.00	-22.99	AVG	



Conducted Emission Test Data

Test Site: 1# Shielded Room
Operating Condition: 802.11n(HT20) 5240MHz MIMO
Test Specification: AC 120V, 60Hz for adapter
Comment: Neutral Line
Temp.(°C)/Hum.(%RH): 22.1°C/52%RH

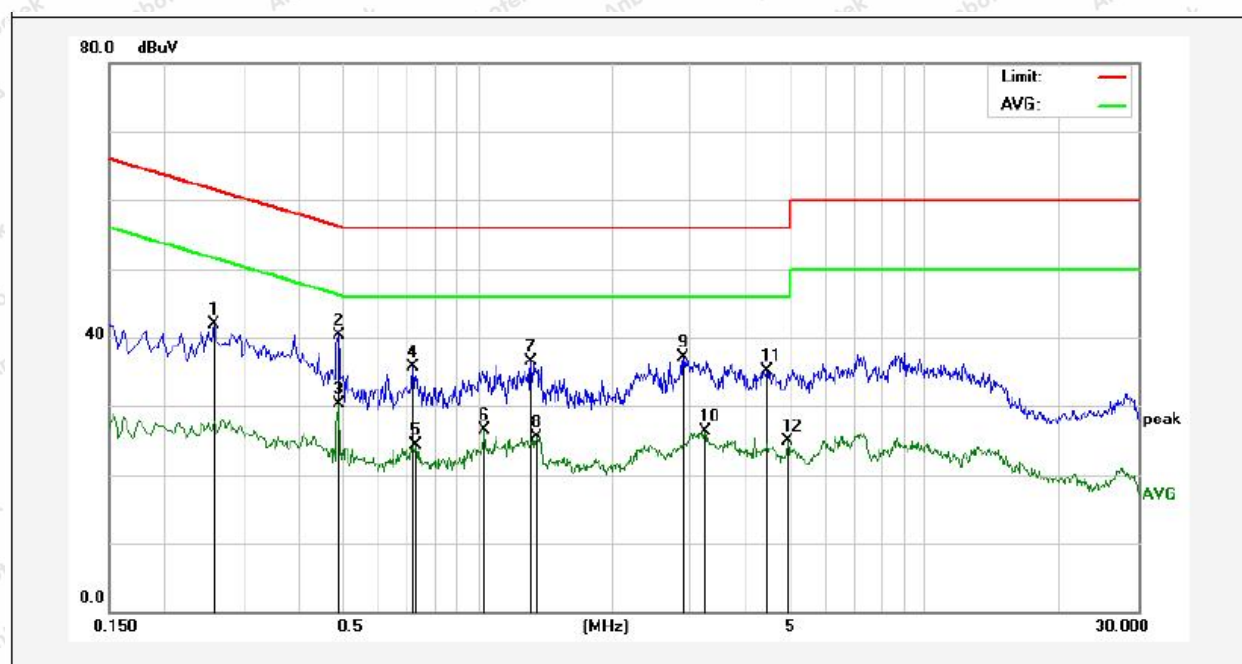


No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Over Limit (dB)	Detector	Remark
1	0.2328	31.80	9.83	41.63	62.35	-20.72	QP	
2	0.2847	19.00	9.83	28.83	50.68	-21.85	AVG	
3	0.4889	29.08	9.85	38.93	56.19	-17.26	QP	
4	0.4889	19.96	9.85	29.81	46.19	-16.38	AVG	
5	0.9787	26.92	9.85	36.77	56.00	-19.23	QP	
6	1.0375	15.65	9.85	25.50	46.00	-20.50	AVG	
7	1.3238	25.92	9.84	35.76	56.00	-20.24	QP	
8	1.3379	16.10	9.84	25.94	46.00	-20.06	AVG	
9	1.8287	24.63	9.84	34.47	56.00	-21.53	QP	
10	2.4475	15.91	9.83	25.74	46.00	-20.26	AVG	
11	3.1230	26.39	9.84	36.23	56.00	-19.77	QP	
12	3.7000	15.49	9.85	25.34	46.00	-20.66	AVG	



Conducted Emission Test Data

Test Site: 1# Shielded Room
Operating Condition: 802.11n(HT20) 5320MHz MIMO
Test Specification: AC 120V, 60Hz for adapter
Comment: Live Line
Temp.(°C)/Hum.(%RH): 22.1°C/52%RH

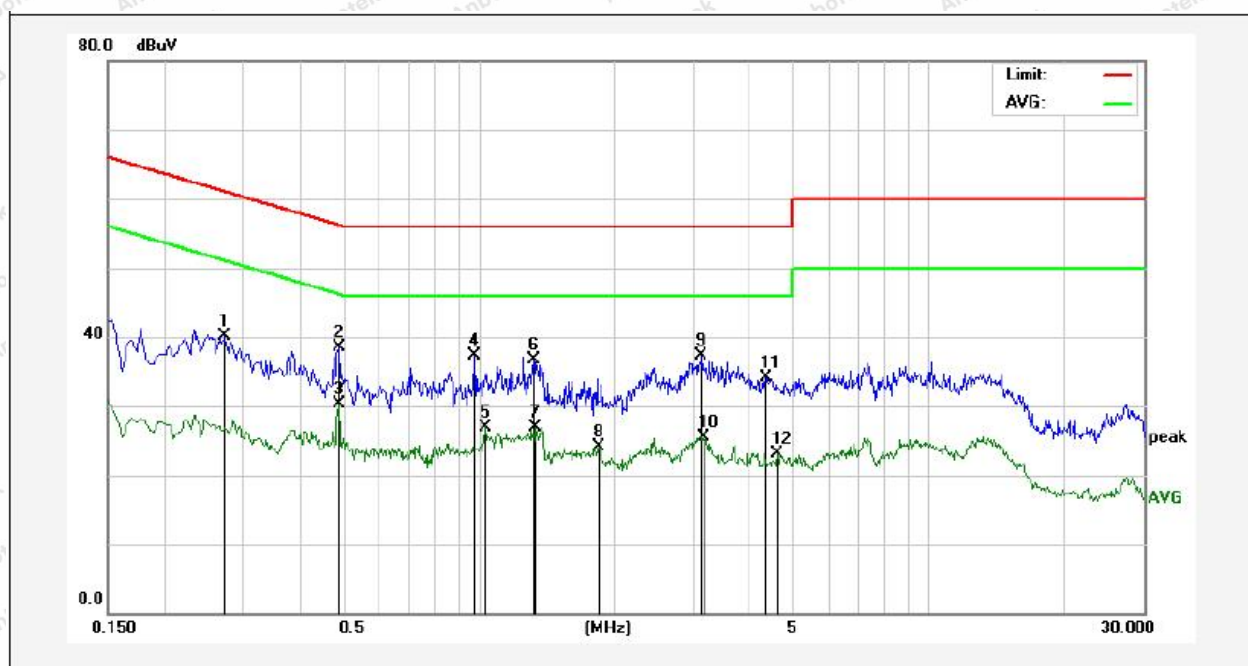


No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Over Limit (dB)	Detector	Remark
1	0.2575	32.05	9.83	41.88	61.51	-19.63	QP	
2	0.4889	30.55	9.85	40.40	56.19	-15.79	QP	
3	0.4889	20.52	9.85	30.37	46.19	-15.82	AVG	
4	0.7159	25.89	9.87	35.76	56.00	-20.24	QP	
5	0.7273	14.46	9.87	24.33	46.00	-21.67	AVG	
6	1.0375	16.64	9.85	26.49	46.00	-19.51	AVG	
7	1.3167	26.69	9.84	36.53	56.00	-19.47	QP	
8	1.3521	15.68	9.84	25.52	46.00	-20.48	AVG	
9	2.8845	27.22	9.84	37.06	56.00	-18.94	QP	
10	3.2238	16.49	9.84	26.33	46.00	-19.67	AVG	
11	4.4305	25.24	9.84	35.08	56.00	-20.92	QP	
12	4.9256	15.02	9.85	24.87	46.00	-21.13	AVG	



Conducted Emission Test Data

Test Site: 1# Shielded Room
Operating Condition: 802.11n(HT20) 5320MHz MIMO
Test Specification: AC 120V, 60Hz for adapter
Comment: Neutral Line
Temp.(°C)/Hum.(%RH): 22.1°C/52%RH

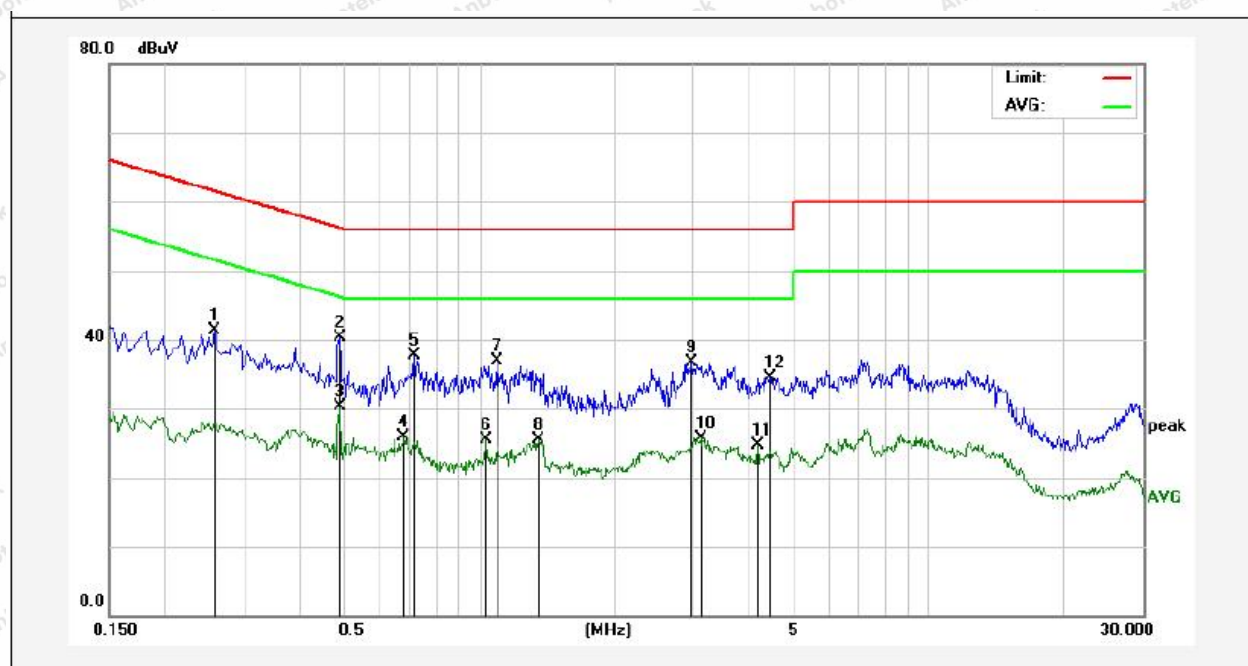


No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Over Limit (dB)	Detector	Remark
1	0.2730	30.20	9.83	40.03	61.02	-20.99	QP	
2	0.4889	28.58	9.85	38.43	56.19	-17.76	QP	
3	0.4889	20.46	9.85	30.31	46.19	-15.88	AVG	
4	0.9787	27.42	9.85	37.27	56.00	-18.73	QP	
5	1.0375	17.15	9.85	27.00	46.00	-19.00	AVG	
6	1.3238	26.92	9.84	36.76	56.00	-19.24	QP	
7	1.3379	17.10	9.84	26.94	46.00	-19.06	AVG	
8	1.8483	14.29	9.83	24.12	46.00	-21.88	AVG	
9	3.1230	27.39	9.84	37.23	56.00	-18.77	QP	
10	3.1562	15.74	9.84	25.58	46.00	-20.42	AVG	
11	4.3376	24.30	9.84	34.14	56.00	-21.86	QP	
12	4.5979	13.32	9.85	23.17	46.00	-22.83	AVG	



Conducted Emission Test Data

Test Site: 1# Shielded Room
Operating Condition: 802.11n(HT20) 5700MHz MIMO
Test Specification: AC 120V, 60Hz for adapter
Comment: Live Line
Temp.(°C)/Hum.(%RH): 22.1°C/52%RH

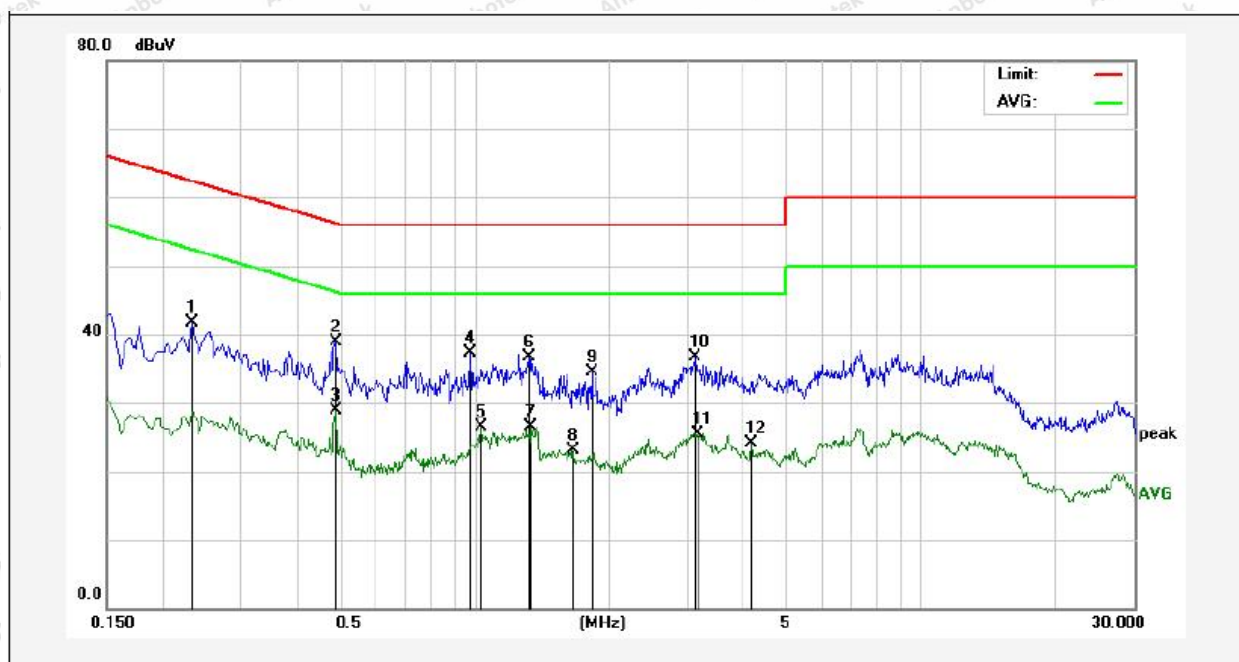


No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Over Limit (dB)	Detector	Remark
1	0.2575	31.55	9.83	41.38	61.51	-20.13	QP	
2	0.4889	30.55	9.85	40.40	56.19	-15.79	QP	
3	0.4889	20.52	9.85	30.37	46.19	-15.82	AVG	
4	0.6790	16.00	9.87	25.87	46.00	-20.13	AVG	
5	0.7159	27.89	9.87	37.76	56.00	-18.24	QP	
6	1.0375	15.64	9.85	25.49	46.00	-20.51	AVG	
7	1.0939	26.98	9.85	36.83	56.00	-19.17	QP	
8	1.3521	15.68	9.84	25.52	46.00	-20.48	AVG	
9	2.9618	26.81	9.84	36.65	56.00	-19.35	QP	
10	3.1230	15.86	9.84	25.70	46.00	-20.30	AVG	
11	4.1574	14.93	9.84	24.77	46.00	-21.23	AVG	
12	4.4305	24.74	9.84	34.58	56.00	-21.42	QP	



Conducted Emission Test Data

Test Site: 1# Shielded Room
Operating Condition: 802.11n(HT20) 5700MHz MIMO
Test Specification: AC 120V, 60Hz for adapter
Comment: Neutral Line
Temp.(°C)/Hum.(%RH): 22.1°C/52%RH

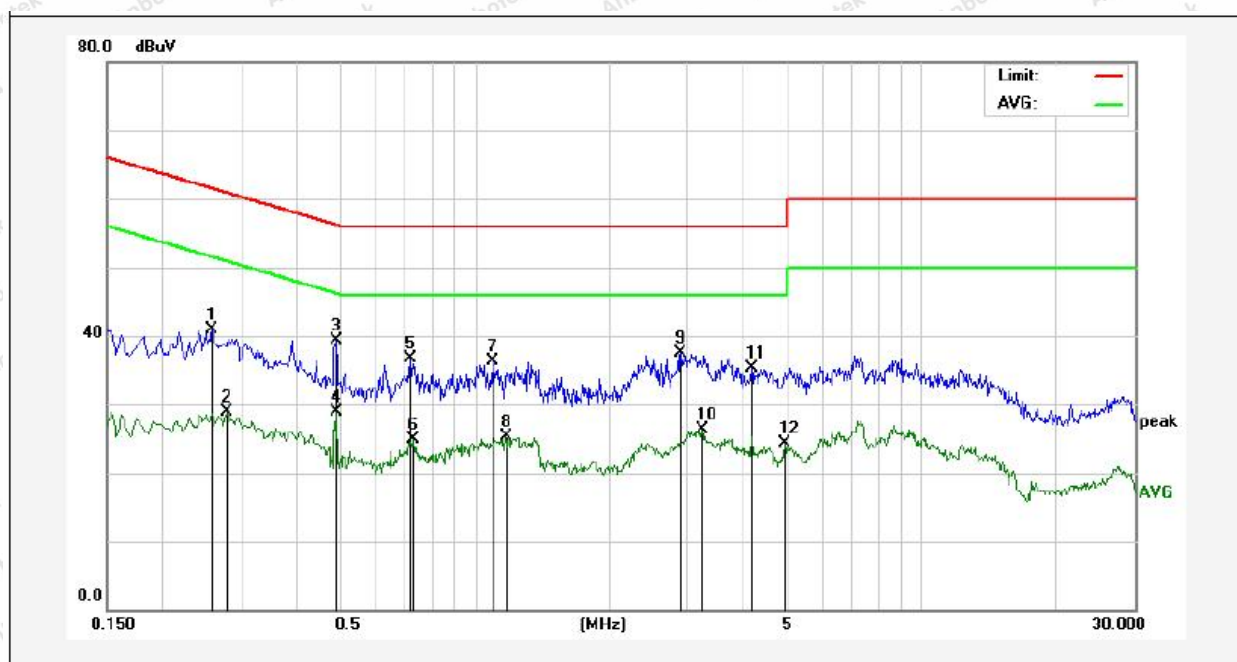


No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Over Limit (dB)	Detector	Remark
1	0.2328	31.80	9.83	41.63	62.35	-20.72	QP	
2	0.4889	29.08	9.85	38.93	56.19	-17.26	QP	
3	0.4889	18.96	9.85	28.81	46.19	-17.38	AVG	
4	0.9787	27.42	9.85	37.27	56.00	-18.73	QP	
5	1.0375	16.65	9.85	26.50	46.00	-19.50	AVG	
6	1.3238	26.92	9.84	36.76	56.00	-19.24	QP	
7	1.3379	16.60	9.84	26.44	46.00	-19.56	AVG	
8	1.6536	13.23	9.84	23.07	46.00	-22.93	AVG	
9	1.8287	24.63	9.84	34.47	56.00	-21.53	QP	
10	3.1230	26.89	9.84	36.73	56.00	-19.27	QP	
11	3.1562	15.74	9.84	25.58	46.00	-20.42	AVG	
12	4.1574	14.23	9.84	24.07	46.00	-21.93	AVG	



Conducted Emission Test Data

Test Site: 1# Shielded Room
Operating Condition: 802.11n(HT20) 5825MHz MIMO
Test Specification: AC 120V, 60Hz for adapter
Comment: Live Line
Temp.(°C)/Hum.(%RH): 22.1°C/52%RH

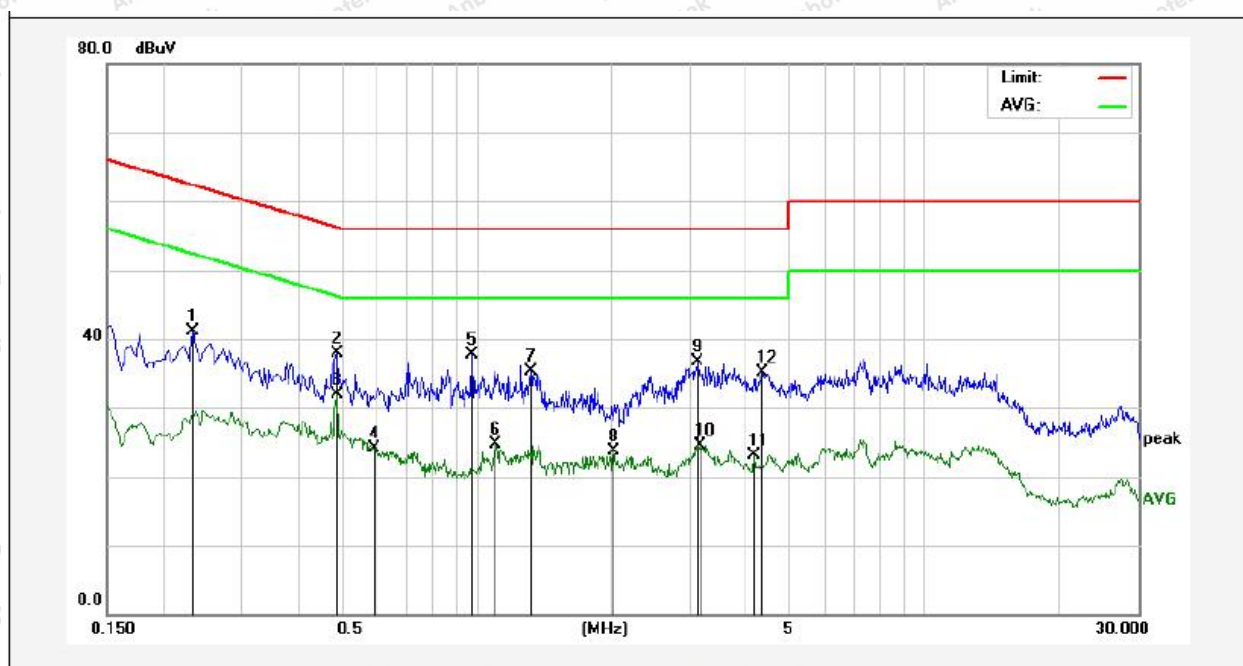


No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Over Limit (dB)	Detector	Remark
1	0.2575	31.05	9.83	40.88	61.51	-20.63	QP	
2	0.2772	19.04	9.83	28.87	50.90	-22.03	AVG	
3	0.4889	29.55	9.85	39.40	56.19	-16.79	QP	
4	0.4889	19.02	9.85	28.87	46.19	-17.32	AVG	
5	0.7158	26.89	9.87	36.76	56.00	-19.24	QP	
6	0.7273	14.96	9.87	24.83	46.00	-21.17	AVG	
7	1.0939	26.48	9.85	36.33	56.00	-19.67	QP	
8	1.1655	15.41	9.84	25.25	46.00	-20.75	AVG	
9	2.8845	27.72	9.84	37.56	56.00	-18.44	QP	
10	3.2238	16.49	9.84	26.33	46.00	-19.67	AVG	
11	4.1573	25.45	9.84	35.29	56.00	-20.71	QP	
12	4.9256	14.52	9.85	24.37	46.00	-21.63	AVG	



Conducted Emission Test Data

Test Site: 1# Shielded Room
Operating Condition: 802.11n(HT20) 5825MHz MIMO
Test Specification: AC 120V, 60Hz for adapter
Comment: Neutral Line
Temp.(°C)/Hum.(%RH): 22.1°C/52%RH



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Over Limit (dB)	Detector	Remark
1	0.2328	31.30	9.83	41.13	62.35	-21.22	QP	
2	0.4889	28.08	9.85	37.93	56.19	-18.26	QP	
3	0.4889	21.96	9.85	31.81	46.19	-14.38	AVG	
4	0.5916	14.30	9.86	24.16	46.00	-21.84	AVG	
5	0.9787	27.92	9.85	37.77	56.00	-18.23	QP	
6	1.0995	14.81	9.85	24.66	46.00	-21.34	AVG	
7	1.3238	25.42	9.84	35.26	56.00	-20.74	QP	
8	2.0224	13.89	9.83	23.72	46.00	-22.28	AVG	
9	3.1230	26.89	9.84	36.73	56.00	-19.27	QP	
10	3.1562	14.74	9.84	24.58	46.00	-21.42	AVG	
11	4.1574	13.23	9.84	23.07	46.00	-22.93	AVG	
12	4.3376	25.30	9.84	35.14	56.00	-20.86	QP	



4. Radiation Spurious Emission and Band Edge

4.1. Test Standard and Limit

Radiated Spurious Emission					
Test Standard	FCC Part15 C Section 15.205 & 15.209				
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: $E[dBuV/m] = EIRP[dBm] + 95.2 = 68.2 \text{ dBuV/m}$, for $EIRP[dBm] = -27\text{dBm}$.

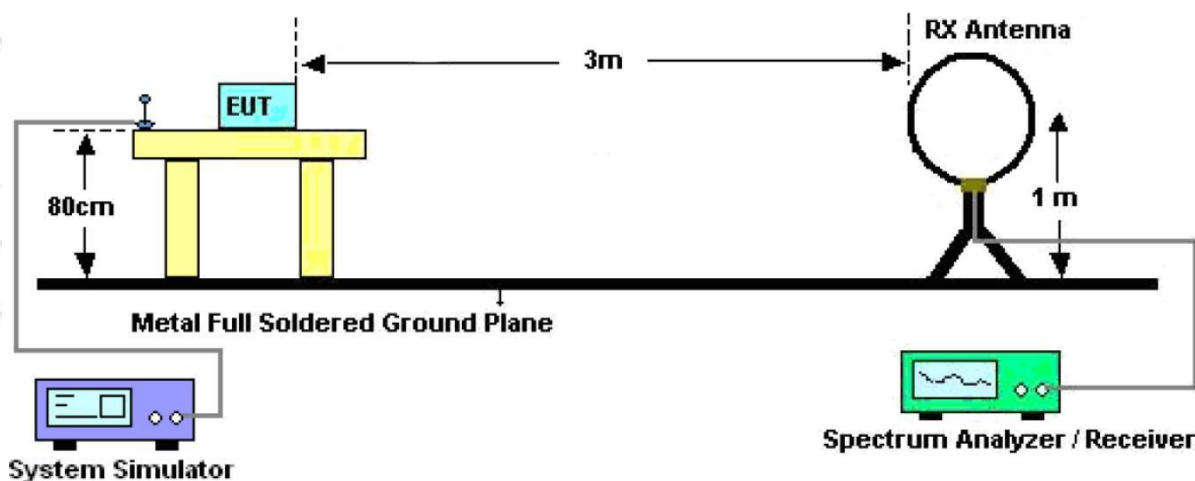
4.2. Test Setup

Figure 1. Below 30MHz



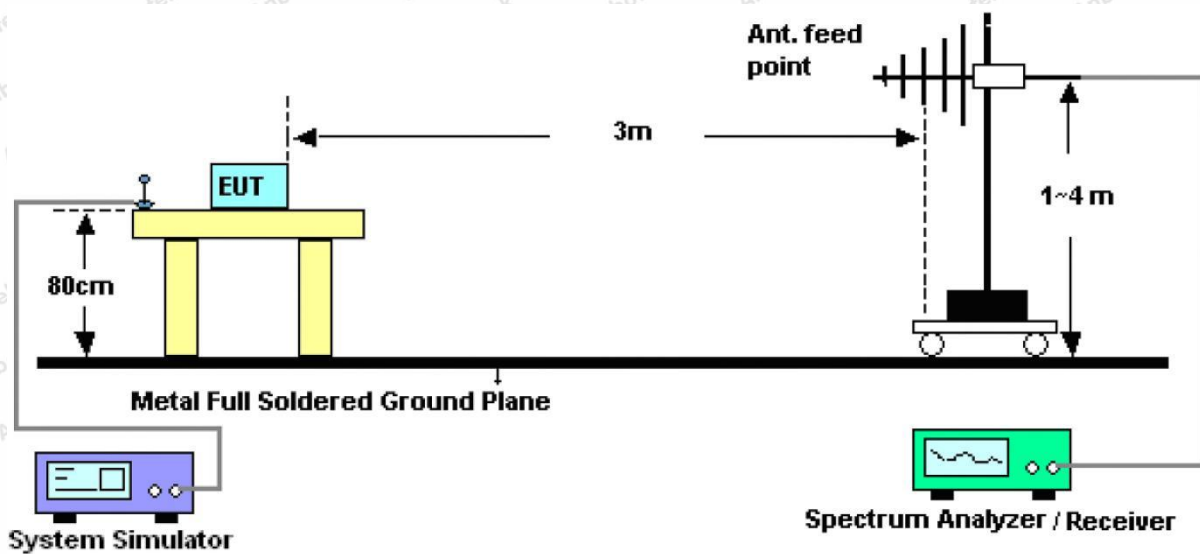


Figure 2. 30MHz to 1GHz

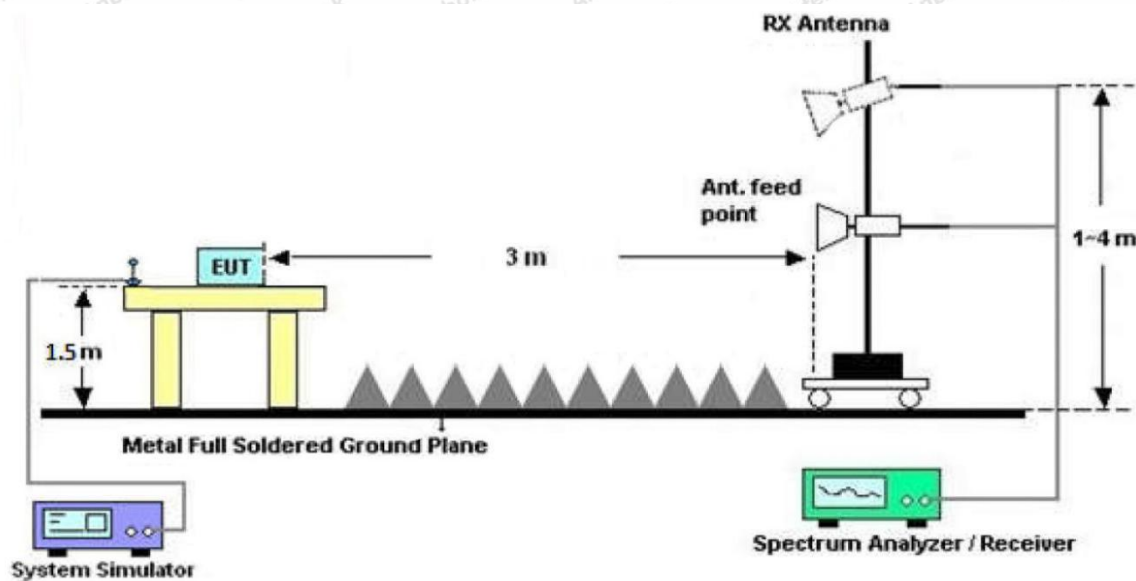


Figure 3. Above 1 GHz

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

During the test, Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the X-axis is the worst case.

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 the modes, only the worst case is recorded in the report.



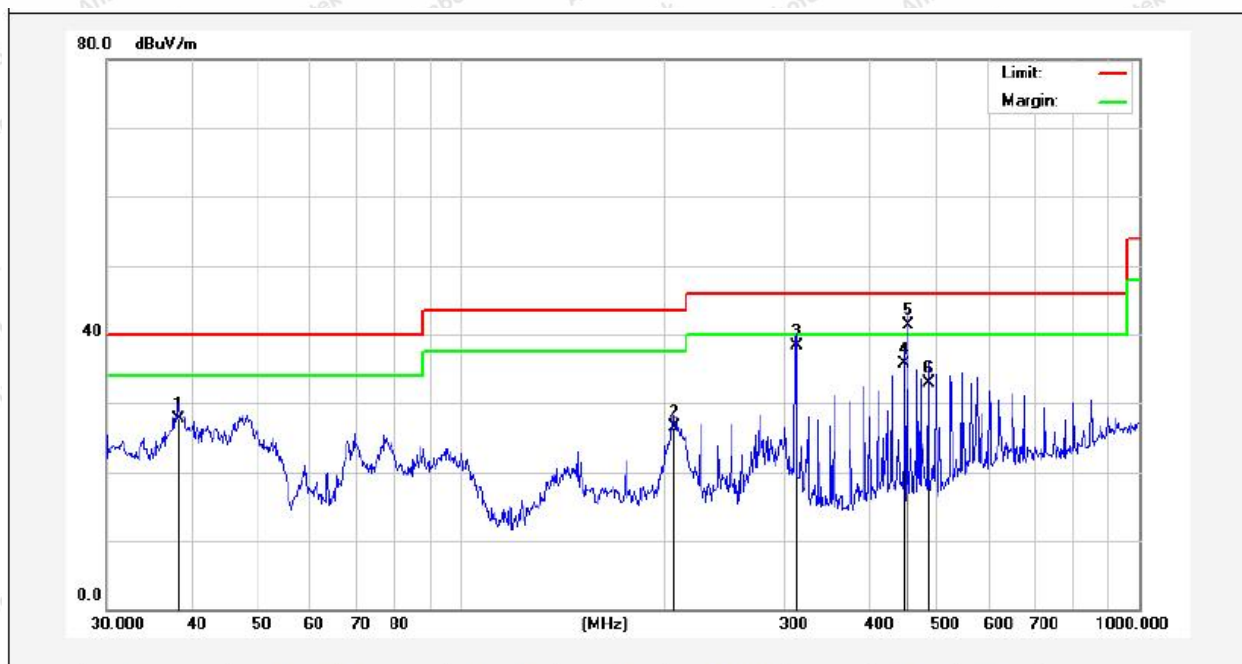
Test Results (30~1000MHz)

Test Mode: 802.11n(HT20) 5240MHz MIMO

Power Source: AC 120V, 60Hz for Adapter

Polarization: Vertical

Temp.(°C)/Hum.(%RH): 24.8°C/41%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	38.3462	43.15	-15.42	27.73	40.00	-12.27	QP			
2	206.3976	45.93	-19.44	26.49	43.50	-17.01	QP			
3	312.1794	54.20	-15.96	38.24	46.00	-7.76	QP			
4	451.1350	49.41	-13.65	35.76	46.00	-10.24	QP			
5	455.9058	54.83	-13.51	41.32	46.00	-4.68	QP			
6	489.0269	45.53	-12.54	32.99	46.00	-13.01	QP			



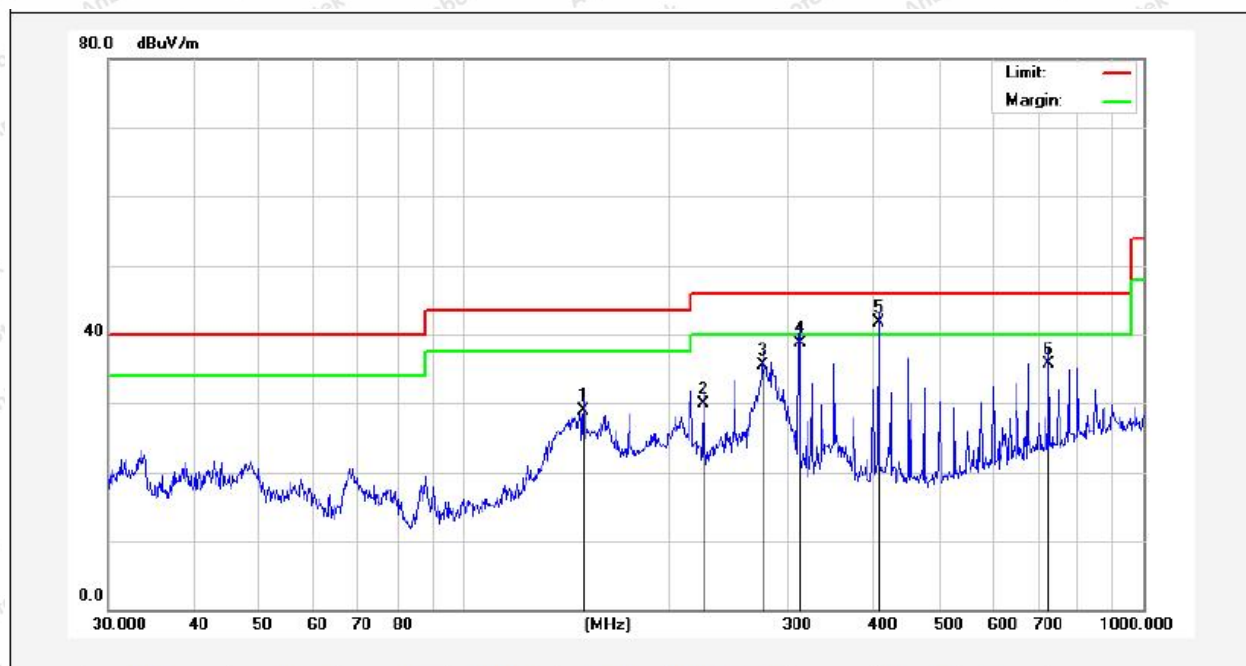
Test Results (30~1000MHz)

Test Mode: 802.11n(HT20) 5240MHz MIMO

Power Source: AC 120V, 60Hz for Adapter

Polarization: Horizontal

Temp.(°C)/Hum.(%RH): 24.8°C/41%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	150.0108	51.67	-22.85	28.82	43.50	-14.68	QP			
2	225.3080	51.85	-21.91	29.94	46.00	-16.06	QP			
3	275.1570	54.82	-19.32	35.50	46.00	-10.50	QP			
4	312.1794	55.67	-16.88	38.79	46.00	-7.21	QP			
5	407.5145	57.69	-16.04	41.65	46.00	-4.35	QP			
6	726.8052	45.30	-9.56	35.74	46.00	-10.26	QP			



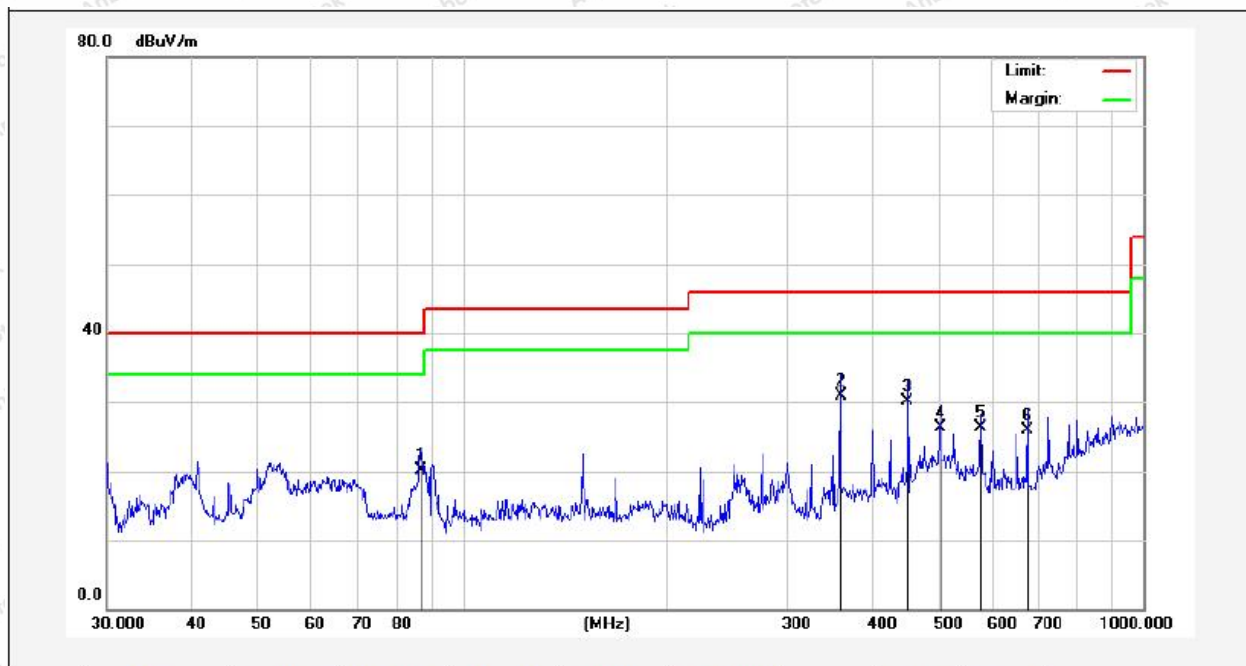
Test Results (30~1000MHz)

Test Mode: 802.11n(HT20) 5320MHz MIMO

Power Source: AC 120V, 60Hz for Adapter

Polarization: Vertical

Temp.(°C)/Hum.(%RH): 24.8°C/41%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	86.8067	38.21	-18.19	20.02	40.00	-19.98	QP			
2	359.1859	45.73	-14.90	30.83	46.00	-15.17	QP			
3	451.1349	43.75	-13.65	30.10	46.00	-15.90	QP			
4	502.9395	38.49	-12.19	26.30	46.00	-19.70	QP			
5	576.6443	37.50	-11.10	26.40	46.00	-19.60	QP			
6	675.2078	36.19	-10.29	25.90	46.00	-20.10	QP			



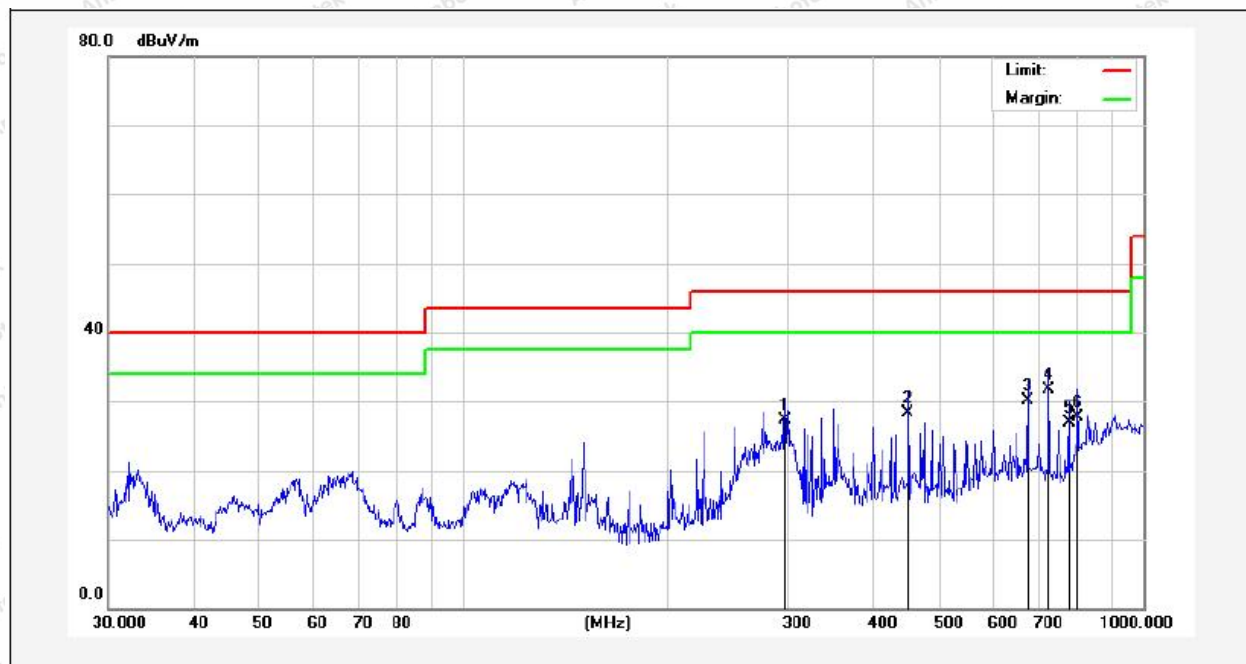
Test Results (30~1000MHz)

Test Mode: 802.11n(HT20) 5320MHz MIMO

Power Source: AC 120V, 60Hz for Adapter

Polarization: Horizontal

Temp.(°C)/Hum.(%RH): 24.8°C/41%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	297.2241	44.74	-17.40	27.34	46.00	-18.66	QP			
2	451.1349	43.80	-15.44	28.36	46.00	-17.64	QP			
3	675.2078	40.37	-10.29	30.08	46.00	-15.92	QP			
4	726.8052	41.19	-9.56	31.63	46.00	-14.37	QP			
5	776.8777	35.58	-8.71	26.87	46.00	-19.13	QP			
6	801.7862	35.98	-8.24	27.74	46.00	-18.26	QP			



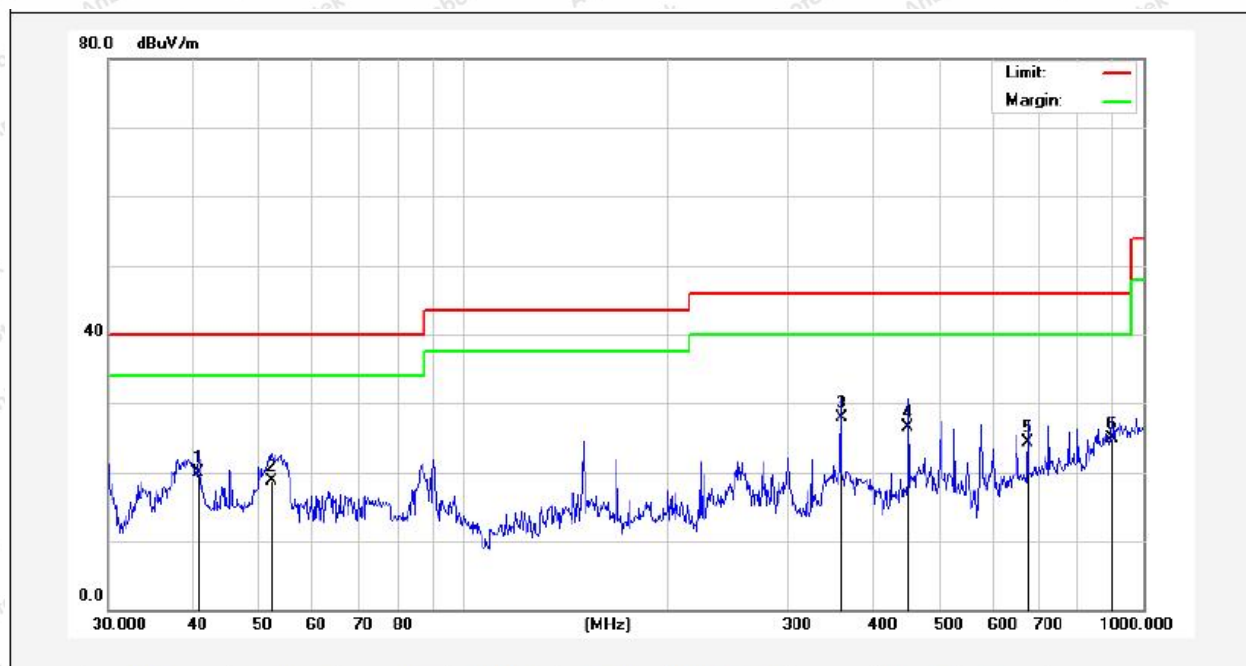
Test Results (30~1000MHz)

Test Mode: 802.11n(HT20) 5700MHz MIMO

Power Source: AC 120V, 60Hz for Adapter

Polarization: Vertical

Temp.(°C)/Hum.(%RH): 24.8°C/41%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	40.7014	34.52	-14.63	19.89	40.00	-20.11	QP			
2	52.2079	35.25	-16.59	18.66	40.00	-21.34	QP			
3	359.1859	42.73	-14.90	27.83	46.00	-18.17	QP			
4	451.1349	40.25	-13.65	26.60	46.00	-19.40	QP			
5	675.2078	34.69	-10.29	24.40	46.00	-21.60	QP			
6	900.1471	31.15	-6.22	24.93	46.00	-21.07	QP			



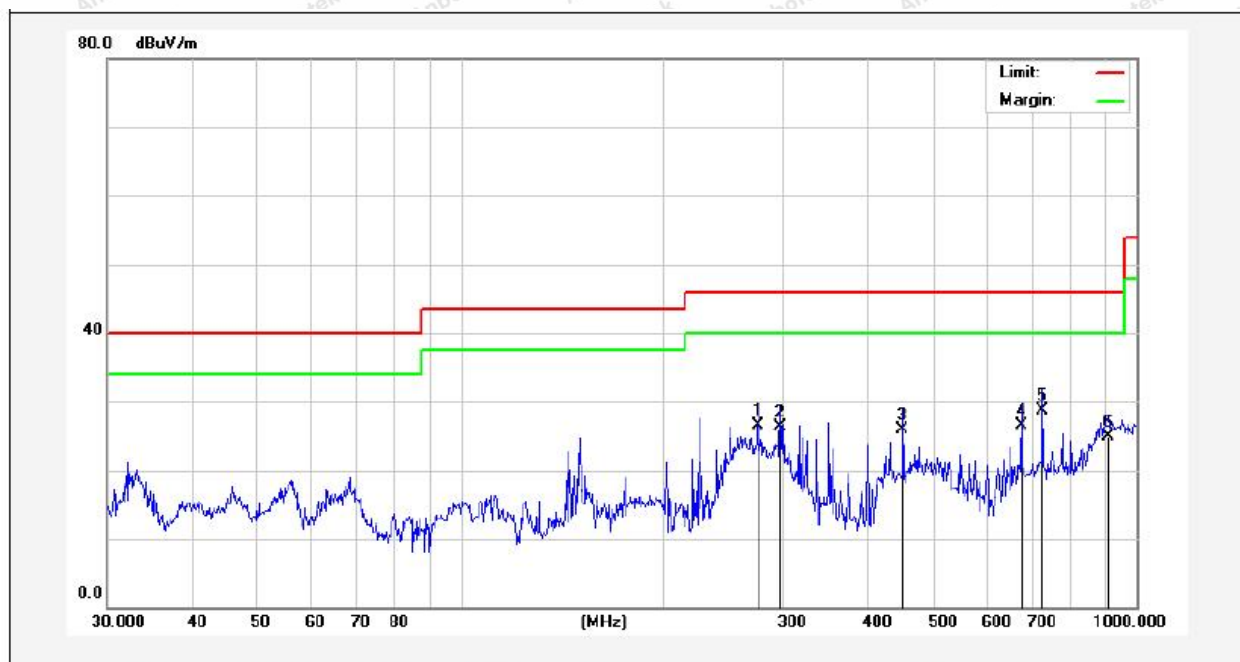
Test Results (30~1000MHz)

Test Mode: 802.11n(HT20) 5700MHz MIMO

Power Source: AC 120V, 60Hz for Adapter

Polarization: Horizontal

Temp.(°C)/Hum.(%RH): 24.8°C/41%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	275.1569	45.88	-19.32	26.56	46.00	-19.44	QP			
2	297.2241	43.74	-17.40	26.34	46.00	-19.66	QP			
3	451.1349	41.30	-15.44	25.86	46.00	-20.14	QP			
4	675.2078	36.87	-10.29	26.58	46.00	-19.42	QP			
5	726.8052	38.19	-9.56	28.63	46.00	-17.37	QP			
6	909.6666	30.99	-6.11	24.88	46.00	-21.12	QP			



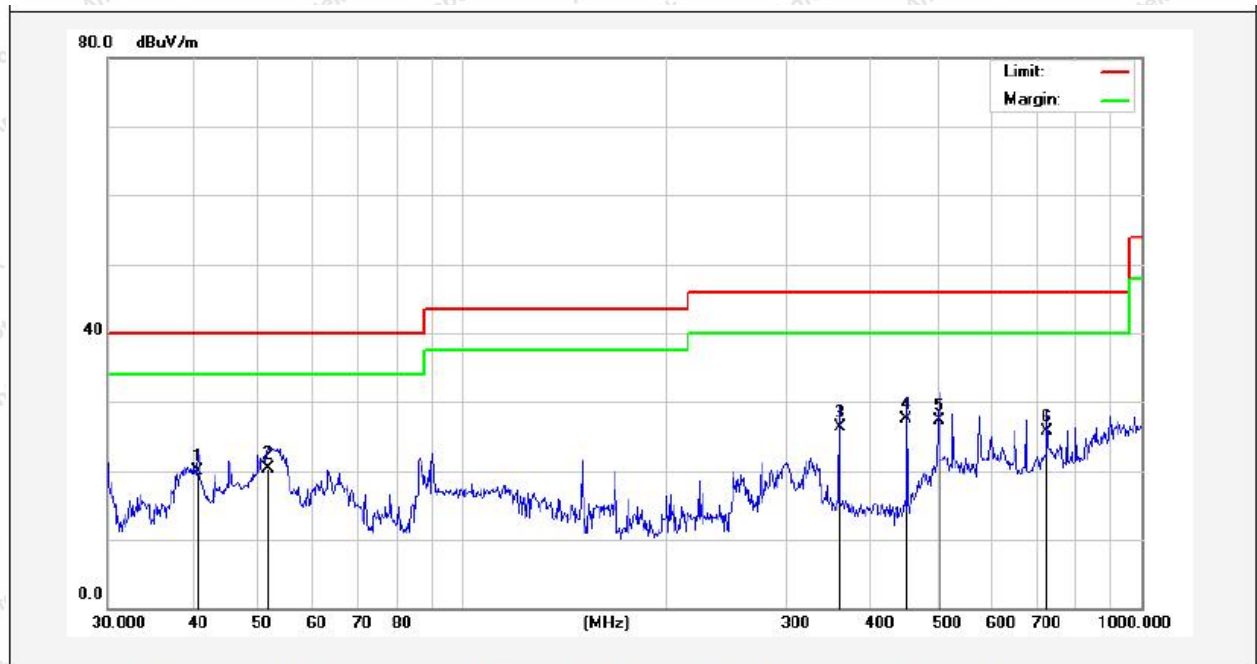
Test Results (30~1000MHz)

Test Mode: 802.11n(HT20) 5825MHz MIMO

Power Source: AC 120V, 60Hz for Adapter

Polarization: Vertical

Temp.(°C)/Hum.(%RH): 24.8°C/41%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	40.7014	34.52	-14.63	19.89	40.00	-20.11	QP			
2	51.6613	36.63	-16.38	20.25	40.00	-19.75	QP			
3	359.1859	41.23	-14.90	26.33	46.00	-19.67	QP			
4	451.1349	41.25	-13.65	27.60	46.00	-18.40	QP			
5	502.9395	39.49	-12.19	27.30	46.00	-18.70	QP			
6	726.8052	35.28	-9.56	25.72	46.00	-20.28	QP			



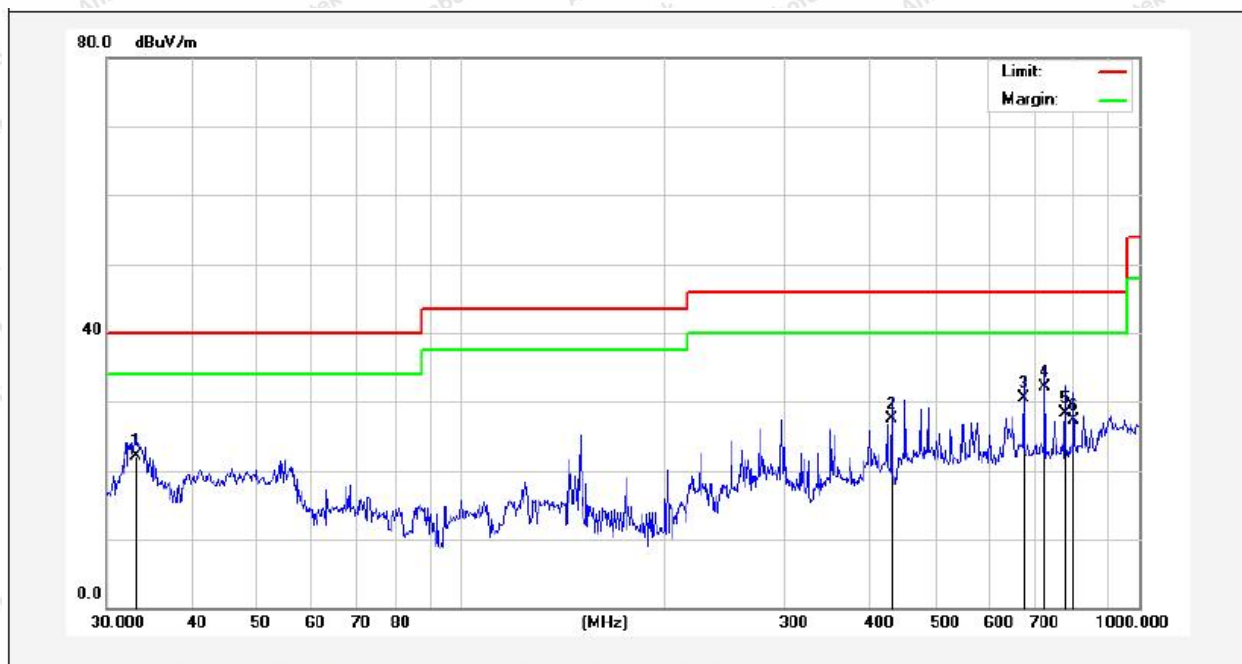
Test Results (30~1000MHz)

Test Mode: 802.11n(HT20) 5825MHz MIMO

Power Source: AC 120V, 60Hz for Adapter

Polarization: Horizontal

Temp.(°C)/Hum.(%RH): 24.8°C/41%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	33.2111	41.19	-19.10	22.09	40.00	-17.91	QP			
2	431.0316	43.33	-15.73	27.60	46.00	-18.40	QP			
3	675.2078	40.87	-10.29	30.58	46.00	-15.42	QP			
4	726.8052	41.69	-9.56	32.13	46.00	-13.87	QP			
5	776.8777	37.08	-8.71	28.37	46.00	-17.63	QP			
6	801.7862	35.48	-8.24	27.24	46.00	-18.76	QP			



Test Results (Above 1000MHz)

For WiFi 5.2G:

Test Mode: IEEE 802.11n(HT20)							
Test channel: Low CH							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit (dB)	Antenna Pol.	Detector
10360.00	31.30	23.81	55.11	68.20	-13.09	V	Peak
15540.00	32.49	28.68	61.17	68.20	-7.03	V	Peak
10360.00	31.47	23.81	55.28	68.20	-12.92	H	Peak
15540.00	32.64	28.68	61.32	68.20	-6.88	H	Peak
10360.00	20.537	23.81	44.35	54.00	-9.65	V	AVG
15540.00	21.476	28.68	50.16	54.00	-3.84	V	AVG
10360.00	20.661	23.81	44.47	54.00	-9.53	H	AVG
15540.00	21.397	28.68	50.08	54.00	-3.92	H	AVG
Test channel: Middle CH							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit (dB)	Antenna Pol.	Detector
10400.00	30.66	23.81	54.47	68.20	-13.73	V	Peak
15600.00	32.02	29.13	61.15	68.20	-7.05	V	Peak
10400.00	30.96	23.81	54.77	68.20	-13.43	H	Peak
15600.00	32.16	29.13	61.29	68.20	-6.91	H	Peak
10400.00	20.807	23.81	44.62	54.00	-9.38	V	AVG
15600.00	21.596	29.13	50.73	54.00	-3.27	V	AVG
10400.00	20.651	23.81	44.46	54.00	-9.54	H	AVG
15600.00	21.477	29.13	50.61	54.00	-3.39	H	AVG
Test channel: High CH							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit (dB)	Antenna Pol.	Detector
10480.00	30.23	23.80	54.03	68.20	-14.17	V	Peak
15720.00	31.50	30.03	61.53	68.20	-6.67	V	Peak
10480.00	30.60	23.80	54.40	68.20	-13.80	H	Peak
15720.00	31.07	30.03	61.10	68.20	-7.10	H	Peak
10480.00	19.48	23.80	43.28	54.00	-10.72	V	AVG
15720.00	20.36	30.03	50.39	54.00	-3.61	V	AVG
10480.00	19.86	23.80	43.66	54.00	-10.34	H	AVG
15720.00	20.27	30.03	50.30	54.00	-3.70	H	AVG

Remark:

1. During the test, pre-scan the 802.11a, 802.11n(HT20), ac(HT20), n(HT40), ac(HT40), ac(HT80) mode, and found the 802.11n(HT20) mode is worse case, the report only record this mode.
2. Result = Reading + Factor



For WiFi 5.3G:

Test Mode: IEEE 802.11n(HT20)

Test channel: Low CH							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit (dB)	Antenna Pol.	Detector
10520.00	27.50	23.81	51.31	68.20	-16.89	V	Peak
15780.00	28.75	30.48	59.23	68.20	-8.97	V	Peak
10520.00	28.49	23.81	52.30	68.20	-15.90	H	Peak
15780.00	27.65	30.48	58.13	68.20	-10.07	H	Peak
10520.00	17.468	23.81	41.28	54.00	-12.72	V	AVG
15780.00	19.049	30.48	49.53	54.00	-4.47	V	AVG
10520.00	18.786	23.81	42.60	54.00	-11.40	H	AVG
15780.00	18.395	30.48	48.88	54.00	-5.12	H	AVG
Test channel: Middle CH							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit (dB)	Antenna Pol.	Detector
10600.00	28.69	23.87	52.56	68.20	-15.64	V	Peak
15900.00	27.80	31.38	59.18	68.20	-9.02	V	Peak
10600.00	27.79	23.87	51.66	68.20	-16.54	H	Peak
15900.00	28.07	31.38	59.45	68.20	-8.75	H	Peak
10600.00	18.138	23.87	42.01	54.00	-11.99	V	AVG
15900.00	18.799	31.38	50.18	54.00	-3.82	V	AVG
10600.00	18.066	23.87	41.94	54.00	-12.06	H	AVG
15900.00	18.545	31.38	49.93	54.00	-4.07	H	AVG
Test channel: High CH							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit (dB)	Antenna Pol.	Detector
10640.00	28.03	23.90	51.93	68.20	-16.27	V	Peak
15960.00	27.30	31.83	59.13	68.20	-9.07	V	Peak
10640.00	28.16	23.90	52.06	68.20	-16.14	H	Peak
15960.00	27.63	31.83	59.46	68.20	-8.74	H	Peak
10640.00	16.88	23.90	40.78	54.00	-13.22	V	AVG
15960.00	17.76	31.83	49.59	54.00	-4.41	V	AVG
10640.00	17.24	23.90	41.14	54.00	-12.86	H	AVG
15960.00	18.87	31.83	50.70	54.00	-3.30	H	AVG

Remark:

1. During the test, pre-scan the 802.11a, 802.11n(HT20), ac(HT20), n(HT40), ac(HT40), ac(HT80) mode, and found the 802.11n(HT20) mode is worse case, the report only record this mode.
2. Result = Reading + Factor



For WiFi 5.6G:

Test Mode: IEEE 802.11n(HT20)

Test channel: Low CH							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit (dB)	Antenna Pol.	Detector
11000.00	26.88	24.15	51.03	68.20	-17.17	V	Peak
16500.00	28.90	33.05	61.95	68.20	-6.25	V	Peak
11000.00	28.62	24.15	52.77	68.20	-15.43	H	Peak
16500.00	29.07	33.05	62.12	68.20	-6.08	H	Peak
11000.00	16.469	24.15	40.62	54.00	-13.38	V	AVG
16500.00	17.722	33.05	50.77	54.00	-3.23	V	AVG
11000.00	16.635	24.15	40.79	54.00	-13.21	H	AVG
16500.00	16.646	33.05	49.70	54.00	-4.30	H	AVG
Test channel: Middle CH							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit (dB)	Antenna Pol.	Detector
11200.000	26.56	23.83	50.39	68.20	-17.81	V	Peak
16800.000	27.07	32.16	59.23	68.20	-8.97	V	Peak
11200.000	27.55	23.83	51.38	68.20	-16.82	H	Peak
16800.000	27.68	32.16	59.84	68.20	-8.36	H	Peak
11200.000	16.719	23.83	40.55	54.00	-13.45	V	AVG
16800.000	18.122	32.16	50.28	54.00	-3.72	V	AVG
11200.000	17.135	23.83	40.97	54.00	-13.03	H	AVG
16800.000	18.506	32.16	50.67	54.00	-3.33	H	AVG
Test channel: High CH							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit (dB)	Antenna Pol.	Detector
11400.000	25.65	23.51	49.16	68.20	-19.04	V	Peak
17100.000	26.96	31.73	58.69	68.20	-9.51	V	Peak
11400.000	26.45	23.51	49.96	68.20	-18.24	H	Peak
17100.000	27.68	31.73	59.41	68.20	-8.79	H	Peak
11400.000	16.10	23.51	39.61	54.00	-14.39	V	AVG
17100.000	17.33	31.73	49.06	54.00	-4.94	V	AVG
11400.000	19.93	23.51	43.44	54.00	-10.56	H	AVG
17100.000	18.30	31.73	50.03	54.00	-3.97	H	AVG

Remark:

1. During the test, pre-scan the 802.11a, 802.11n(HT20), ac(HT20), n(HT40), ac(HT40), ac(HT80) mode, and found the 802.11n(HT20) mode is worse case, the report only record this mode.
2. Result = Reading + Factor



For WiFi 5.8G:

Test Mode: IEEE 802.11n(HT20)

Test channel: Low CH							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit (dB)	Antenna Pol.	Detector
11490.000	28.38	23.36	51.74	68.20	-16.46	V	Peak
17235.000	29.61	31.97	61.58	68.20	-6.62	V	Peak
11490.000	28.66	23.36	52.02	68.20	-16.18	H	Peak
17235.000	29.89	31.97	61.86	68.20	-6.34	H	Peak
11490.000	17.56	23.36	40.92	54.00	-13.08	V	AVG
17235.000	18.20	31.97	50.17	54.00	-3.83	V	AVG
11490.000	17.69	23.36	41.05	54.00	-12.95	H	AVG
17235.000	17.91	31.97	49.88	54.00	-4.12	H	AVG
Test channel: Middle CH							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit (dB)	Antenna Pol.	Detector
11570.000	28.96	23.42	52.38	68.20	-15.82	V	Peak
17355.000	29.49	32.18	61.67	68.20	-6.53	V	Peak
11570.000	28.86	23.42	52.28	68.20	-15.92	H	Peak
17355.000	29.98	32.18	62.16	68.20	-6.04	H	Peak
11570.000	18.826	23.42	42.25	54.00	-11.75	V	AVG
17355.000	18.525	32.18	50.70	54.00	-3.30	V	AVG
11570.000	18.676	23.42	42.10	54.00	-11.90	H	AVG
17355.000	18.288	32.18	50.47	54.00	-3.53	H	AVG
Test channel: High CH							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit (dB)	Antenna Pol.	Detector
11650.000	28.47	23.49	51.96	68.20	-16.24	V	Peak
17475.000	29.73	32.39	62.12	68.20	-6.08	V	Peak
11650.000	28.60	23.49	52.09	68.20	-16.11	H	Peak
17475.000	29.59	32.39	61.98	68.20	-6.22	H	Peak
11650.000	17.90	23.49	41.39	54.00	-12.61	V	AVG
17475.000	18.32	32.39	50.71	54.00	-3.29	V	AVG
11650.000	17.86	23.49	41.35	54.00	-12.65	H	AVG
17475.000	18.26	32.39	50.65	54.00	-3.35	H	AVG

Remark:

- During the test, pre-scan the 802.11a, 802.11n(HT20), ac(HT20), n(HT40), ac(HT40), ac(HT80) mode, and found the 802.11n(HT20) mode is worse case, the report only record this mode.
- Result = Reading + Factor



For 5.2G&5.3G ANT1:**Radiated Band Edge:**

Test Mode: IEEE 802.11a							
Test channel: Lowest							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit (dB)	Antenna Pol.	Detector
5150.00	36.87	15.99	52.86	68.20	-15.34	H	Peak
5150.00	38.92	15.99	54.91	68.20	-13.29	V	Peak
5150.00	26.84	15.99	42.83	54.00	-11.17	H	AVG
5150.00	28.86	15.99	44.85	54.00	-9.15	V	AVG
Test channel: Highest							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit (dB)	Antenna Pol.	Detector
5350.00	37.35	16.43	53.78	68.20	-14.42	H	Peak
5350.00	40.23	16.43	56.66	68.20	-11.54	V	Peak
5350.00	28.63	16.43	45.06	54.00	-8.94	H	AVG
5350.00	29.57	16.43	46.00	54.00	-8.00	V	AVG

Remark: 1. Result =Reading + Factor

For 5.2G&5.3G ANT2:**Radiated Band Edge:**

Test Mode: IEEE 802.11a							
Test channel: Lowest							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit (dB)	Antenna Pol.	Detector
5150.00	37.03	15.99	53.02	68.20	-15.19	H	Peak
5150.00	39.11	15.99	55.10	68.20	-13.11	V	Peak
5150.00	26.95	15.99	42.94	54.00	-11.06	H	AVG
5150.00	29.02	15.99	45.01	54.00	-9.00	V	AVG
Test channel: Highest							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit (dB)	Antenna Pol.	Detector
5350.00	37.46	16.43	53.89	68.20	-14.31	H	Peak
5350.00	40.44	16.43	56.87	68.20	-11.34	V	Peak
5350.00	28.80	16.43	45.23	54.00	-8.77	H	AVG
5350.00	29.68	16.43	46.11	54.00	-7.89	V	AVG

Remark: 1. Result =Reading + Factor



For 5.2G&5.3G MIMO:

Test Mode: IEEE 802.11n(HT20)							
Test channel: Lowest							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit (dB)	Antenna Pol.	Detector
5150.00	35.86	15.99	51.85	68.20	-16.35	H	Peak
5150.00	37.22	15.99	53.21	68.20	-14.99	V	Peak
5150.00	26.58	15.99	42.57	54.00	-11.43	H	AVG
5150.00	27.58	15.99	43.57	54.00	-10.43	V	AVG
Test channel: Highest							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit (dB)	Antenna Pol.	Detector
5350.00	37.66	16.43	54.09	68.20	-14.11	H	Peak
5350.00	38.72	16.43	55.15	68.20	-13.05	V	Peak
5350.00	27.68	16.43	44.11	54.00	-9.89	H	AVG
5350.00	29.10	16.43	45.53	54.00	-8.47	V	AVG

Remark:

1. Result = Reading + Factor
2. During the test, pre-scan 802.11n(HT20) SISO and MIMO modes, and only the worst case (MIMO) is recorded in the report.

Test Mode: IEEE 802.11n(HT40)							
Test channel: Lowest							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit (dB)	Antenna Pol.	Detector
5150.00	36.35	15.99	52.34	68.20	-15.86	H	Peak
5150.00	38.21	15.99	54.20	68.20	-14.00	V	Peak
5150.00	26.91	15.99	42.90	54.00	-11.10	H	AVG
5150.00	28.70	15.99	44.69	54.00	-9.31	V	AVG
Test channel: Highest							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit (dB)	Antenna Pol.	Detector
5350.00	38.00	16.43	54.43	68.20	-13.77	H	Peak
5350.00	36.90	16.43	53.33	68.20	-14.87	V	Peak
5350.00	28.16	16.43	44.59	54.00	-9.41	H	AVG
5350.00	29.35	16.43	45.78	54.00	-8.22	V	AVG

Remark:

1. Result = Reading + Factor
2. During the test, pre-scan 802.11n(HT40) SISO and MIMO modes, and only the worst case (MIMO) is recorded in the report.



Test Mode: IEEE 802.11ac(HT20)							
Test channel: Lowest							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit (dB)	Antenna Pol.	Detector
5150.00	36.80	15.99	52.79	68.20	-15.41	H	Peak
5150.00	38.54	15.99	54.53	68.20	-13.67	V	Peak
5150.00	26.49	15.99	42.48	54.00	-11.52	H	AVG
5150.00	28.64	15.99	44.63	54.00	-9.37	V	AVG
Test channel: Highest							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit (dB)	Antenna Pol.	Detector
5350.00	37.81	16.43	54.24	68.20	-13.96	H	Peak
5350.00	38.07	16.43	54.50	68.20	-13.70	V	Peak
5350.00	27.70	16.43	44.13	54.00	-9.87	H	AVG
5350.00	28.22	16.43	44.65	54.00	-9.35	V	AVG

Remark:

1. Result = Reading + Factor
2. During the test, pre-scan 802.11ac(HT20) SISO and MIMO modes, and only the worst case (MIMO) is recorded in the report.

Test Mode: IEEE 802.11ac(HT40)							
Test channel: Lowest							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit (dB)	Antenna Pol.	Detector
5150.00	35.76	15.99	51.75	68.20	-16.45	H	Peak
5150.00	36.25	15.99	52.24	68.20	-15.96	V	Peak
5150.00	25.90	15.99	41.89	54.00	-12.11	H	AVG
5150.00	26.68	15.99	42.67	54.00	-11.33	V	AVG
Test channel: Highest							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit (dB)	Antenna Pol.	Detector
5350.00	37.93	16.43	54.36	68.20	-13.84	H	Peak
5350.00	37.11	16.43	53.54	68.20	-14.66	V	Peak
5350.00	27.42	16.43	43.85	54.00	-10.15	H	AVG
5350.00	27.31	16.43	43.74	54.00	-10.26	V	AVG

Remark:

1. Result = Reading + Factor
2. During the test, pre-scan 802.11ac(HT40) SISO and MIMO modes, and only the worst case (MIMO) is recorded in the report.



Test Mode: IEEE 802.11ac(HT80)							
Test channel: Lowest							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit (dB)	Antenna Pol.	Detector
5150.00	35.95	15.99	51.94	68.20	-16.26	H	Peak
5150.00	36.28	15.99	52.27	68.20	-15.93	V	Peak
5150.00	26.41	15.99	42.40	54.00	-11.60	H	AVG
5150.00	26.72	15.99	42.71	54.00	-11.29	V	AVG
Test channel: Highest							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit (dB)	Antenna Pol.	Detector
5350.00	38.14	16.43	54.57	68.20	-13.63	H	Peak
5350.00	37.31	16.43	53.74	68.20	-14.46	V	Peak
5350.00	28.60	16.43	45.03	54.00	-8.97	H	AVG
5350.00	27.99	16.43	44.42	54.00	-9.58	V	AVG

Remark:

1. Result = Reading + Factor
2. During the test, pre-scan 802.11ac(HT80) SISO and MIMO modes, and only the worst case (MIMO) is recorded in the report.



For 5.6G&5.8G ANT1:

Radiated Band Edge:

Test Mode: IEEE 802.11a							
Test channel: Lowest							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit (dB)	Antenna Pol.	Detector
5460.00	37.98	16.37	54.35	74.00	-19.65	H	Peak
5460.00	39.30	16.37	55.67	74.00	-18.33	V	Peak
5470.00	38.52	16.70	55.22	68.20	-12.98	H	Peak
5470.00	39.05	16.70	55.75	68.20	-12.45	V	Peak
5460.00	28.63	16.37	45.00	54.00	-9.00	H	AVG
5460.00	28.48	16.37	44.85	54.00	-9.15	V	AVG
5470.00	28.61	16.70	45.31	54.00	-8.69	H	AVG
5470.00	29.67	16.70	46.37	54.00	-7.63	V	AVG
Test channel: Highest							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit (dB)	Antenna Pol.	Detector
5850.00	38.90	17.21	56.11	68.20	-12.09	H	Peak
5850.00	39.23	17.21	56.44	68.20	-11.76	V	Peak
5850.00	28.91	17.21	46.12	54.00	-7.88	H	AVG
5850.00	28.96	17.21	46.17	54.00	-7.83	V	AVG

Remark: Result = Reading + Factor

For 5.6G&5.8G ANT2:

Radiated Band Edge:

Test Mode: IEEE 802.11a							
Test channel: Lowest							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit (dB)	Antenna Pol.	Detector
5460.00	38.09	16.37	54.46	74.00	-19.55	H	Peak
5460.00	39.44	16.37	55.81	74.00	-18.20	V	Peak
5470.00	38.52	16.70	55.22	68.20	-12.98	H	Peak
5470.00	39.05	16.70	55.75	68.20	-12.45	V	Peak
5460.00	28.70	16.37	45.07	54.00	-8.93	H	AVG
5460.00	28.57	16.37	44.94	54.00	-9.07	V	AVG
5470.00	28.61	16.70	45.31	54.00	-8.69	H	AVG
5470.00	29.67	16.70	46.37	54.00	-7.63	V	AVG
Test channel: Highest							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit (dB)	Antenna Pol.	Detector
5850.00	39.02	17.21	56.23	68.20	-11.98	H	Peak
5850.00	39.37	17.21	56.58	68.20	-11.63	V	Peak
5850.00	29.02	17.21	46.23	54.00	-7.78	H	AVG
5850.00	29.05	17.21	46.26	54.00	-7.75	V	AVG

Remark: Result = Reading + Factor



For 5.6G&5.8G MIMO:

Radiated Band Edge:

Test Mode: IEEE 802.11n(HT20)

Test channel: Lowest							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit (dB)	Antenna Pol.	Detector
5460.00	37.94	16.37	54.31	74.00	-19.69	H	Peak
5460.00	38.47	16.37	54.84	74.00	-19.16	V	Peak
5470.00	37.62	16.70	54.32	68.20	-13.88	H	Peak
5470.00	37.88	16.70	54.58	68.20	-13.62	V	Peak
5460.00	27.05	16.37	43.42	54.00	-10.58	H	AVG
5460.00	27.43	16.37	43.80	54.00	-10.20	V	AVG
5470.00	27.28	16.70	43.98	54.00	-10.02	H	AVG
5470.00	27.65	16.70	44.35	54.00	-9.65	V	AVG
Test channel: Highest							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit (dB)	Antenna Pol.	Detector
5850.00	37.14	17.21	54.35	68.20	-13.85	H	Peak
5850.00	37.80	17.21	55.01	68.20	-13.19	V	Peak
5850.00	27.35	17.21	44.56	54.00	-9.44	H	AVG
5850.00	28.25	17.21	45.46	54.00	-8.54	V	AVG

Remark:

1. Result = Reading + Factor
2. During the test, pre-scan 802.11n(HT20) SISO and MIMO modes, and only the worst case (MIMO) is recorded in the report.

Test Mode: IEEE 802.11n(HT40)

Test channel: Lowest							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit (dB)	Antenna Pol.	Detector
5460.00	37.52	16.37	53.89	74.00	-20.11	H	Peak
5460.00	38.35	16.37	54.72	74.00	-19.28	V	Peak
5470.00	37.92	16.70	54.62	68.20	-13.58	H	Peak
5470.00	38.42	16.70	55.12	68.20	-13.08	V	Peak
5460.00	26.69	16.37	43.06	54.00	-10.94	H	AVG
5460.00	28.61	16.37	44.98	54.00	-9.02	V	AVG
5470.00	26.57	16.70	43.27	54.00	-10.73	H	AVG
5470.00	28.08	16.70	44.78	54.00	-9.22	V	AVG
Test channel: Highest							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit (dB)	Antenna Pol.	Detector
5850.00	37.88	17.05	54.93	68.20	-13.27	H	Peak
5850.00	38.31	17.05	55.36	68.20	-12.84	V	Peak
5850.00	28.04	17.05	45.09	54.00	-8.91	H	AVG
5850.00	29.18	17.05	46.23	54.00	-7.77	V	AVG

Remark:

1. Result = Reading + Factor
2. During the test, pre-scan 802.11n(HT40) SISO and MIMO modes, and only the worst case (MIMO) is recorded in the report.



Test Mode: IEEE 802.11ac(HT20)							
Test channel: Lowest							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit (dB)	Antenna Pol.	Detector
5460.00	37.20	16.37	53.57	74.00	-20.43	H	Peak
5460.00	37.44	16.37	53.81	74.00	-20.19	V	Peak
5470.00	37.42	16.70	54.12	68.20	-14.08	H	Peak
5470.00	38.06	16.70	54.76	68.20	-13.44	V	Peak
5460.00	27.89	16.37	44.26	54.00	-9.74	H	AVG
5460.00	28.43	16.37	44.80	54.00	-9.20	V	AVG
5470.00	27.92	16.70	44.62	54.00	-9.38	H	AVG
5470.00	28.46	16.70	45.16	54.00	-8.84	V	AVG
Test channel: Highest							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit (dB)	Antenna Pol.	Detector
5850.00	37.94	17.21	55.15	68.20	-13.05	H	Peak
5850.00	38.86	17.21	56.07	68.20	-12.13	V	Peak
5850.00	27.85	17.21	45.06	54.00	-8.94	H	AVG
5850.00	28.85	17.21	46.06	54.00	-7.94	V	AVG

Remark:

1. Result = Reading + Factor
2. During the test, pre-scan 802.11ac(HT20) SISO and MIMO modes, and only the worst case (MIMO) is recorded in the report.

Test Mode: IEEE 802.11ac(HT40)							
Test channel: Lowest							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit (dB)	Antenna Pol.	Detector
5460.00	36.16	16.37	52.53	74.00	-21.47	H	Peak
5460.00	37.73	16.37	54.10	74.00	-19.90	V	Peak
5470.00	36.27	16.70	52.97	68.20	-15.23	H	Peak
5470.00	37.86	16.70	54.56	68.20	-13.64	V	Peak
5460.00	27.20	16.37	43.57	54.00	-10.43	H	AVG
5460.00	27.34	16.37	43.71	54.00	-10.29	V	AVG
5470.00	27.20	16.70	43.90	54.00	-10.10	H	AVG
5470.00	27.94	16.70	44.64	54.00	-9.36	V	AVG
Test channel: Highest							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit (dB)	Antenna Pol.	Detector
5725.00	37.53	17.21	54.74	68.20	-13.46	H	Peak
5725.00	38.29	17.21	55.50	68.20	-12.70	V	Peak
5725.00	27.51	17.21	44.72	54.00	-9.28	H	AVG
5725.00	27.08	17.21	44.29	54.00	-9.71	V	AVG

Remark:

1. Result = Reading + Factor
2. During the test, pre-scan 802.11ac(HT40) SISO and MIMO modes, and only the worst case (MIMO) is recorded in the report.



Test Mode: IEEE 802.11ac(HT80)							
Test channel: Lowest							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit (dB)	Antenna Pol.	Detector
5460.00	35.46	16.37	51.83	74.00	-22.17	H	Peak
5460.00	36.93	16.37	53.30	74.00	-20.70	V	Peak
5470.00	35.53	16.70	52.23	68.20	-15.97	H	Peak
5470.00	37.49	16.70	54.19	68.20	-14.01	V	Peak
5460.00	25.64	16.37	42.01	54.00	-11.99	H	AVG
5460.00	26.84	16.37	43.21	54.00	-10.79	V	AVG
5470.00	25.92	16.70	42.62	54.00	-11.38	H	AVG
5470.00	26.76	16.70	43.46	54.00	-10.54	V	AVG
Test channel: Highest							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit (dB)	Antenna Pol.	Detector
5850.00	37.34	17.21	54.55	68.20	-13.65	H	Peak
5850.00	37.71	17.21	54.92	68.20	-13.28	V	Peak
5850.00	27.65	17.21	44.86	54.00	-9.14	H	AVG
5850.00	28.10	17.21	45.31	54.00	-8.69	V	AVG

Remark:

1. Result = Reading + Factor
2. During the test, pre-scan 802.110ac(HT80) SISO and MIMO modes, and only the worst case (MIMO) is recorded in the report.

Conducted Measurement:

Please refer to Appendix D of the Appendix Test Data.

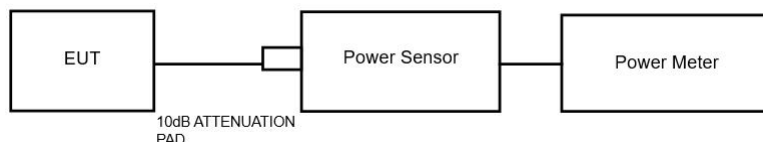


5. Maximum conducted output power Test

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 $GT_x > 6\text{dBi}$, then $P_{out} = 30 - (GT_x - 6)$. e.i.r.p. at any elevation angle above 30 degrees $\leq 125\text{mW}$ (21dBm) 2) Indoor AP The maximum conducted output power (Pout) shall not exceed the lesser of 1W (30dBm). if $GT_x > 6\text{dBi}$, then $P_{out} = 30 - (GT_x - 6)$. 3) Point-to-point AP The maximum conducted output power (Pout) shall not exceed the lesser of 1W (30dBm). if $GT_x > 23\text{dBi}$, then $P_{out} = 30 - (GT_x - 23)$. 4) Client devices The maximum conducted output power (Pout) shall not exceed the lesser of 250W (23.98dBm). if $GT_x > 6\text{dBi}$, then $P_{out} = 24 - (GT_x - 6)$.
	5.25 - 5.35GHz	The maximum conducted output power (Pout) shall not exceed the lesser of 250mW (24dBm) or $11\text{dBm} + 10 \log B$, where B is the 26dB emission bandwidth in MHz. if $GT_x > 6\text{dBi}$, then $P_{out} = 24 - (GT_x - 6)$.
	5.47- 5.725GHz	The maximum conducted output power (Pout) shall not exceed the lesser of 250mW (23.98dBm) or $11\text{dBm} + 10 \log B$, where B is the 26dB emission bandwidth in MHz. if $GT_x > 6\text{dBi}$, then $P_{out} = 24 - (GT_x - 6)$.
	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 $GT_x > 6\text{dBi}$, then $P_{out} = 30 - (GT_x - 6)$. 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

Please refer to Appendix B of the Appendix Test Data.

Additional test for duty cycle.

Please refer to Appendix H of the Appendix Test Data.

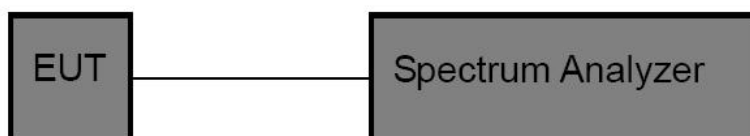


6. 26dB Bandwidth & 99% Occupied Bandwidth Test

6.1. Test Standard

Test Standard	FCC Part15 C Section 15.407(a) & 2.1049
Test Limit	N/A

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.

4. Measure the maximum width of the emission that is 26dB 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

Please refer to Appendix A1&A2 of the Appendix Test Data.

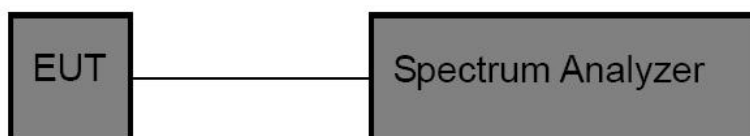


7. Minimum 6dB bandwidth Test

7.1. Test Standard

Test Standard	FCC Part15 C Section 15.407(e)
Test Limit	≥ 500 kHz

7.2. Test Setup



7.3. 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.

4. Set the spectrum analyzer as:

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 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.

7.4. Test Data

Pass

Please refer to Appendix A3 of the Appendix Test Data.

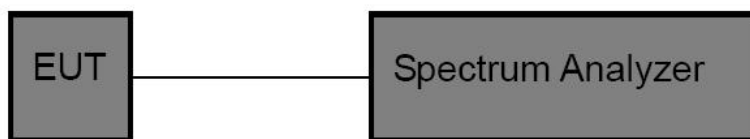


8. Power Spectral Density Test

8.1. 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 $GT_x > 6\text{dBi}$, then $PSD = 17 - (GT_x - 6)$. 2) Indoor AP The peak power spectral density (PSD) shall not exceed the lesser of 17dBm/MHz. if $GT_x > 6\text{dBi}$, then $PSD = 17 - (GT_x - 6)$. 3) Point-to-point AP The peak power spectral density (PSD) shall not exceed the lesser of 17dBm/MHz. if $GT_x > 23\text{dBi}$, then $PSD = 17 - (GT_x - 23)$. 4) Client devices The peak power spectral density (PSD) shall not exceed the lesser of 11dBm/MHz. if $GT_x > 6\text{dBi}$, then $PSD = 11 - (GT_x - 6)$.
	5.25 - 5.35GHz	The peak power spectral density (PSD) shall not exceed the lesser of 11dBm/MHz. if $GT_x > 6\text{dBi}$, then $PSD = 11 - (GT_x - 6)$.
	5.47- 5.725GHz	The peak power spectral density (PSD) shall not exceed the lesser of 11dBm/MHz. if $GT_x > 6\text{dBi}$, then $PSD = 11 - (GT_x - 6)$.
	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 $GT_x > 6\text{dBi}$, then $PSD = 30 - (GT_x - 6)$. 2) Point-to-point systems (P2P) The peak power spectral density (PSD) shall not exceed the lesser of 30dBm/500kHz.

8.2. Test Setup



8.3. Test Procedure

For devices operating in the bands 5.15-5.25 GHz, 5.25-5.35 GHz, and 5.47-5.725 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;



3. Set VBW $\geq$ 3 RBW=3MHz;
3. 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;

8.4. Test Data

Pass

Please refer to Appendix C of the Appendix Test Data.

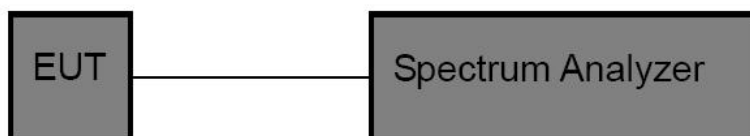


9. Frequency Stability

9.1. Test Standard and Limit

Test Standard	FCC Part15 Section 15.407(g)
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.

9.2. Test Setup



9.3. 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.

9.4. Test Data

Pass

Please to see the following pages.



Test Mode: 5.2G							
Mode	TX Type	Frequency (MHz)	Temperature (°C)	Voltage (VAC)	Measured Frequency (MHz)	Limit	Verdict
802.11a	SISO	5180	20	102.00	5180.09	5172 to 5188	Pass
				120.00	5180.02	5172 to 5188	Pass
				138.00	5180.12	5172 to 5188	Pass
			-30	120.00	5180.05	5172 to 5188	Pass
				120.00	5180.01	5150 to 5250	Pass
				120.00	5180.05	5150 to 5250	Pass
			0	120.00	5180.08	5150 to 5250	Pass
				120.00	5180.10	5150 to 5250	Pass
				120.00	5180.11	5150 to 5250	Pass
			50	120.00	5180.07	5150 to 5250	Pass
				120.00	5180.10	5172 to 5188	Pass
		5200	20	102.00	5200.07	5192 to 5208	Pass
				120.00	5200.08	5192 to 5208	Pass
				138.00	5200.05	5192 to 5208	Pass
			-30	120.00	5200.13	5192 to 5208	Pass
				120.00	5200.11	5150 to 5250	Pass
				120.00	5200.01	5150 to 5250	Pass
			0	120.00	5200.06	5150 to 5250	Pass
				120.00	5200.06	5150 to 5250	Pass
				120.00	5200.07	5150 to 5250	Pass
			50	120.00	5200.08	5150 to 5250	Pass
				120.00	5200.01	5192 to 5208	Pass
		5240	20	102.00	5240.12	5232 to 5248	Pass
				120.00	5240.10	5232 to 5248	Pass
				138.00	5240.04	5232 to 5248	Pass
			-30	120.00	5240.01	5232 to 5248	Pass
				120.00	5240.07	5150 to 5250	Pass
				120.00	5240.05	5150 to 5250	Pass
			0	120.00	5240.09	5150 to 5250	Pass
				120.00	5240.09	5150 to 5250	Pass
				120.00	5240.06	5150 to 5250	Pass
			50	120.00	5240.06	5150 to 5250	Pass
				120.00	5240.13	5232 to 5248	Pass
802.11n (HT20)	MIMO	5180	20	102.00	5180.05	5172 to 5188	Pass
				120.00	5180.10	5172 to 5188	Pass
				138.00	5180.07	5172 to 5188	Pass
			-30	120.00	5180.06	5172 to 5188	Pass



			-20	120.00	5180.07	5150 to 5250	Pass
			-10	120.00	5180.07	5150 to 5250	Pass
			0	120.00	5180.05	5150 to 5250	Pass
			10	120.00	5180.10	5150 to 5250	Pass
			30	120.00	5180.12	5150 to 5250	Pass
			40	120.00	5180.11	5150 to 5250	Pass
			50	120.00	5180.10	5172 to 5188	Pass
		5200	20	102.00	5200.02	5192 to 5208	Pass
				120.00	5200.12	5192 to 5208	Pass
				138.00	5200.00	5192 to 5208	Pass
			-30	120.00	5200.02	5192 to 5208	Pass
			-20	120.00	5200.13	5150 to 5250	Pass
			-10	120.00	5200.05	5150 to 5250	Pass
			0	120.00	5200.12	5150 to 5250	Pass
			10	120.00	5200.02	5150 to 5250	Pass
			30	120.00	5200.05	5150 to 5250	Pass
			40	120.00	5200.12	5150 to 5250	Pass
			50	120.00	5200.04	5192 to 5208	Pass
		5240	20	102.00	5240.11	5232 to 5248	Pass
				120.00	5240.12	5232 to 5248	Pass
				138.00	5240.10	5232 to 5248	Pass
			-30	120.00	5240.10	5232 to 5248	Pass
			-20	120.00	5240.12	5150 to 5250	Pass
			-10	120.00	5240.04	5150 to 5250	Pass
			0	120.00	5240.12	5150 to 5250	Pass
			10	120.00	5240.02	5150 to 5250	Pass
			30	120.00	5240.07	5150 to 5250	Pass
			40	120.00	5240.11	5150 to 5250	Pass
			50	120.00	5240.07	5232 to 5248	Pass
		5190	20	102.00	5190.03	5174 to 5206	Pass
				120.00	5190.05	5174 to 5206	Pass
				138.00	5190.09	5174 to 5206	Pass
			-30	120.00	5190.07	5174 to 5206	Pass
			-20	120.00	5190.04	5150 to 5250	Pass
			-10	120.00	5190.01	5150 to 5250	Pass
			0	120.00	5190.03	5150 to 5250	Pass
			10	120.00	5190.01	5150 to 5250	Pass
			30	120.00	5190.04	5150 to 5250	Pass
			40	120.00	5190.07	5150 to 5250	Pass
			50	120.00	5190.10	5174 to 5206	Pass

802.11n
(HT40)

MIMO



		5230	20	102.00	5230.05	5214 to 5246	Pass
				120.00	5230.12	5214 to 5246	Pass
				138.00	5230.06	5214 to 5246	Pass
			-30	120.00	5230.09	5214 to 5246	Pass
			-20	120.00	5230.05	5150 to 5250	Pass
			-10	120.00	5230.04	5150 to 5250	Pass
			0	120.00	5230.08	5150 to 5250	Pass
			10	120.00	5230.09	5150 to 5250	Pass
			30	120.00	5230.05	5150 to 5250	Pass
			40	120.00	5230.04	5150 to 5250	Pass
			50	120.00	5230.00	5214 to 5246	Pass
802.11ac (VHT20)	MIMO	5180	20	102.00	5180.06	5172 to 5188	Pass
				120.00	5180.02	5172 to 5188	Pass
				138.00	5180.04	5172 to 5188	Pass
			-30	120.00	5180.13	5172 to 5188	Pass
			-20	120.00	5180.09	5150 to 5250	Pass
			-10	120.00	5180.07	5150 to 5250	Pass
			0	120.00	5180.00	5150 to 5250	Pass
			10	120.00	5180.06	5150 to 5250	Pass
			30	120.00	5180.07	5150 to 5250	Pass
			40	120.00	5180.05	5150 to 5250	Pass
			50	120.00	5180.02	5172 to 5188	Pass
		5200	20	102.00	5200.04	5192 to 5208	Pass
				120.00	5200.08	5192 to 5208	Pass
				138.00	5200.02	5192 to 5208	Pass
			-30	120.00	5200.09	5192 to 5208	Pass
			-20	120.00	5200.00	5150 to 5250	Pass
			-10	120.00	5200.05	5150 to 5250	Pass
			0	120.00	5200.04	5150 to 5250	Pass
			10	120.00	5200.11	5150 to 5250	Pass
			30	120.00	5200.03	5150 to 5250	Pass
			40	120.00	5200.05	5150 to 5250	Pass
			50	120.00	5200.05	5192 to 5208	Pass
		5240	20	102.00	5240.06	5232 to 5248	Pass
				120.00	5240.11	5232 to 5248	Pass
				138.00	5240.11	5232 to 5248	Pass
			-30	120.00	5240.06	5232 to 5248	Pass
			-20	120.00	5240.12	5150 to 5250	Pass
			-10	120.00	5240.12	5150 to 5250	Pass
			0	120.00	5240.09	5150 to 5250	Pass



802.11ac (VHT40)	MIMO		10	120.00	5240.02	5150 to 5250	Pass
			30	120.00	5240.02	5150 to 5250	Pass
			40	120.00	5240.06	5150 to 5250	Pass
			50	120.00	5240.09	5232 to 5248	Pass
		5190	20	102.00	5190.02	5174 to 5206	Pass
				120.00	5190.10	5174 to 5206	Pass
				138.00	5190.07	5174 to 5206	Pass
			-30	120.00	5190.11	5174 to 5206	Pass
			-20	120.00	5190.11	5150 to 5250	Pass
			-10	120.00	5190.03	5150 to 5250	Pass
			0	120.00	5190.12	5150 to 5250	Pass
			10	120.00	5190.07	5150 to 5250	Pass
			30	120.00	5190.02	5150 to 5250	Pass
			40	120.00	5190.09	5150 to 5250	Pass
			50	120.00	5190.07	5174 to 5206	Pass
		5230	20	102.00	5230.10	5214 to 5246	Pass
				120.00	5230.08	5214 to 5246	Pass
				138.00	5230.04	5214 to 5246	Pass
			-30	120.00	5230.03	5214 to 5246	Pass
			-20	120.00	5230.00	5150 to 5250	Pass
			-10	120.00	5230.03	5150 to 5250	Pass
			0	120.00	5230.07	5150 to 5250	Pass
			10	120.00	5230.13	5150 to 5250	Pass
			30	120.00	5230.02	5150 to 5250	Pass
			40	120.00	5230.13	5150 to 5250	Pass
			50	120.00	5230.01	5214 to 5246	Pass
802.11ac (VHT80)	MIMO	5210	20	102.00	5210.09	5178 to 5242	Pass
				120.00	5210.02	5178 to 5242	Pass
				138.00	5210.01	5178 to 5242	Pass
			-30	120.00	5210.09	5178 to 5242	Pass
			-20	120.00	5210.05	5150 to 5250	Pass
			-10	120.00	5210.07	5150 to 5250	Pass
			0	120.00	5210.05	5150 to 5250	Pass
			10	120.00	5210.04	5150 to 5250	Pass
			30	120.00	5210.10	5150 to 5250	Pass
			40	120.00	5210.01	5150 to 5250	Pass
			50	120.00	5210.02	5178 to 5242	Pass



Test Mode: 5.3G							
Mode	TX Type	Frequency (MHz)	Temperature (°C)	Voltage (VAC)	Measured Frequency (MHz)	Limit	Verdict
802.11a	SISO	5180	20	102.00	5260.02	5252 to 5268	Pass
				120.00	5260.04	5252 to 5268	Pass
				138.00	5260.12	5252 to 5268	Pass
			-30	102.00	5260.03	5252 to 5268	Pass
				120.00	5260.10	5250 to 5350	Pass
				120.00	5260.10	5250 to 5350	Pass
			0	120.00	5260.04	5250 to 5350	Pass
				120.00	5260.09	5250 to 5350	Pass
				120.00	5260.12	5250 to 5350	Pass
			40	120.00	5260.06	5250 to 5350	Pass
				120.00	5260.03	5252 to 5268	Pass
				120.00	5300.05	5292 to 5308	Pass
		5200	20	120.00	5300.10	5292 to 5308	Pass
				138.00	5300.03	5292 to 5308	Pass
				102.00	5300.11	5292 to 5308	Pass
			-30	120.00	5300.10	5250 to 5350	Pass
				120.00	5300.04	5250 to 5350	Pass
				120.00	5300.05	5250 to 5350	Pass
			0	120.00	5300.01	5250 to 5350	Pass
				120.00	5300.02	5250 to 5350	Pass
				120.00	5300.03	5250 to 5350	Pass
			40	120.00	5300.09	5292 to 5308	Pass
		5240	20	102.00	5320.05	5312 to 5328	Pass
				120.00	5320.12	5312 to 5328	Pass
				138.00	5320.11	5312 to 5328	Pass
			-30	102.00	5320.09	5312 to 5328	Pass
				120.00	5320.04	5250 to 5350	Pass
				120.00	5320.01	5250 to 5350	Pass
			0	120.00	5320.02	5250 to 5350	Pass
				120.00	5320.05	5250 to 5350	Pass
				120.00	5320.12	5250 to 5350	Pass
			40	120.00	5320.08	5250 to 5350	Pass
				120.00	5320.11	5312 to 5328	Pass
802.11n (HT20)	MIMO	5180	20	102.00	5260.12	5252 to 5268	Pass
				120.00	5260.00	5252 to 5268	Pass
				138.00	5260.05	5252 to 5268	Pass
				102.00	5260.07	5252 to 5268	Pass



		5200	-20	120.00	5260.06	5250 to 5350	Pass
			-10	120.00	5260.07	5250 to 5350	Pass
			0	120.00	5260.07	5250 to 5350	Pass
			10	120.00	5260.02	5250 to 5350	Pass
			30	120.00	5260.12	5250 to 5350	Pass
			40	120.00	5260.04	5250 to 5350	Pass
			50	120.00	5260.09	5252 to 5268	Pass
			20	102.00	5300.09	5292 to 5308	Pass
				120.00	5300.13	5292 to 5308	Pass
				138.00	5300.10	5292 to 5308	Pass
			-30	102.00	5300.12	5292 to 5308	Pass
			-20	120.00	5300.08	5250 to 5350	Pass
			-10	120.00	5300.09	5250 to 5350	Pass
			0	120.00	5300.12	5250 to 5350	Pass
		10	120.00	5300.08	5250 to 5350	Pass	
		30	120.00	5300.09	5250 to 5350	Pass	
		40	120.00	5300.00	5250 to 5350	Pass	
		50	120.00	5300.04	5292 to 5308	Pass	
		5240	20	102.00	5320.09	5312 to 5328	Pass
				120.00	5320.13	5312 to 5328	Pass
				138.00	5320.08	5312 to 5328	Pass
			-30	102.00	5320.04	5312 to 5328	Pass
			-20	120.00	5320.10	5250 to 5350	Pass
			-10	120.00	5320.09	5250 to 5350	Pass
			0	120.00	5320.01	5250 to 5350	Pass
			10	120.00	5320.09	5250 to 5350	Pass
			30	120.00	5320.11	5250 to 5350	Pass
			40	120.00	5320.02	5250 to 5350	Pass
			50	120.00	5320.07	5312 to 5328	Pass
			802.11n (HT40)	MIMO	5190	20	102.00
120.00	5270.08	5254 to 5286					Pass
138.00	5270.11	5254 to 5286					Pass
-30	102.00	5270.06				5254 to 5286	Pass
-20	120.00	5270.12				5250 to 5350	Pass
-10	120.00	5270.03				5250 to 5350	Pass
0	120.00	5270.10				5250 to 5350	Pass
10	120.00	5270.04				5250 to 5350	Pass
30	120.00	5270.01				5250 to 5350	Pass
40	120.00	5270.06				5250 to 5350	Pass
50	120.00	5270.00				5254 to 5286	Pass



802.11ac (VHT20)	MIMO	5230	20	102.00	5310.11	5294 to 5326	Pass
				120.00	5310.07	5294 to 5326	Pass
				138.00	5310.02	5294 to 5326	Pass
			-30	102.00	5310.03	5294 to 5326	Pass
			-20	120.00	5310.04	5250 to 5350	Pass
			-10	120.00	5310.06	5250 to 5350	Pass
			0	120.00	5310.02	5250 to 5350	Pass
			10	120.00	5310.09	5250 to 5350	Pass
			30	120.00	5310.01	5250 to 5350	Pass
			40	120.00	5310.11	5250 to 5350	Pass
			50	120.00	5310.07	5294 to 5326	Pass
		5180	20	102.00	5260.11	5252 to 5268	Pass
				120.00	5260.11	5252 to 5268	Pass
				138.00	5260.04	5252 to 5268	Pass
			-30	102.00	5260.08	5252 to 5268	Pass
			-20	120.00	5260.09	5250 to 5350	Pass
			-10	120.00	5260.01	5250 to 5350	Pass
			0	120.00	5260.02	5250 to 5350	Pass
			10	120.00	5260.04	5250 to 5350	Pass
			30	120.00	5260.00	5250 to 5350	Pass
			40	120.00	5260.07	5250 to 5350	Pass
			50	120.00	5260.07	5252 to 5268	Pass
		5200	20	102.00	5300.02	5292 to 5308	Pass
				120.00	5300.10	5292 to 5308	Pass
				138.00	5300.13	5292 to 5308	Pass
			-30	102.00	5300.02	5292 to 5308	Pass
			-20	120.00	5300.08	5250 to 5350	Pass
			-10	120.00	5300.07	5250 to 5350	Pass
			0	120.00	5300.12	5250 to 5350	Pass
			10	120.00	5300.12	5250 to 5350	Pass
			30	120.00	5300.06	5250 to 5350	Pass
			40	120.00	5300.11	5250 to 5350	Pass
			50	120.00	5300.07	5292 to 5308	Pass
		5240	20	102.00	5320.06	5312 to 5328	Pass
				120.00	5320.11	5312 to 5328	Pass
				138.00	5320.06	5312 to 5328	Pass
			-30	102.00	5320.10	5312 to 5328	Pass
			-20	120.00	5320.11	5250 to 5350	Pass
			-10	120.00	5320.12	5250 to 5350	Pass
			0	120.00	5320.03	5250 to 5350	Pass



			10	120.00	5320.02	5250 to 5350	Pass
			30	120.00	5320.11	5250 to 5350	Pass
			40	120.00	5320.06	5250 to 5350	Pass
			50	120.00	5320.04	5312 to 5328	Pass
802.11ac (VHT40)	MIMO	5190	20	102.00	5270.07	5254 to 5286	Pass
				120.00	5270.08	5254 to 5286	Pass
				138.00	5270.11	5254 to 5286	Pass
			-30	102.00	5270.01	5254 to 5286	Pass
			-20	120.00	5270.02	5250 to 5350	Pass
			-10	120.00	5270.07	5250 to 5350	Pass
			0	120.00	5270.11	5250 to 5350	Pass
			10	120.00	5270.02	5250 to 5350	Pass
			30	120.00	5270.09	5250 to 5350	Pass
			40	120.00	5270.05	5250 to 5350	Pass
			50	120.00	5270.12	5254 to 5286	Pass
		5230	20	102.00	5310.00	5294 to 5326	Pass
				120.00	5310.01	5294 to 5326	Pass
				138.00	5310.01	5294 to 5326	Pass
			-30	102.00	5310.02	5294 to 5326	Pass
			-20	120.00	5310.03	5250 to 5350	Pass
			-10	120.00	5310.02	5250 to 5350	Pass
			0	120.00	5310.09	5250 to 5350	Pass
			10	120.00	5310.08	5250 to 5350	Pass
			30	120.00	5310.08	5250 to 5350	Pass
			40	120.00	5310.02	5250 to 5350	Pass
			50	120.00	5310.01	5294 to 5326	Pass
802.11ac (VHT80)	MIMO	5210	20	102.00	5290.04	5258 to 5322	Pass
				120.00	5290.02	5258 to 5322	Pass
				138.00	5290.08	5258 to 5322	Pass
			-30	102.00	5290.01	5258 to 5322	Pass
			-20	120.00	5290.06	5250 to 5350	Pass
			-10	120.00	5290.08	5250 to 5350	Pass
			0	120.00	5290.07	5250 to 5350	Pass
			10	120.00	5290.11	5250 to 5350	Pass
			30	120.00	5290.02	5250 to 5350	Pass
			40	120.00	5290.05	5250 to 5350	Pass
			50	120.00	5290.12	5258 to 5322	Pass



Test Mode: 5.6G							
Mode	TX Type	Frequency (MHz)	Temperature (°C)	Voltage (VAC)	Measured Frequency (MHz)	Limit	Verdict
802.11a	SISO	5500	20	102.00	5500.13	5492 to 5508	Pass
				120.00	5500.07	5492 to 5508	Pass
				138.00	5500.01	5492 to 5508	Pass
			-30	102.00	5500.04	5492 to 5508	Pass
				120.00	5500.09	5470 to 5725	Pass
				120.00	5500.10	5470 to 5725	Pass
			0	120.00	5500.08	5470 to 5725	Pass
				120.00	5500.02	5470 to 5725	Pass
				120.00	5500.11	5470 to 5725	Pass
			40	120.00	5500.07	5470 to 5725	Pass
				120.00	5500.01	5492 to 5508	Pass
				120.00	5500.01	5492 to 5508	Pass
		5580	20	102.00	5580.12	5572 to 5588	Pass
				120.00	5580.08	5572 to 5588	Pass
				138.00	5580.03	5572 to 5588	Pass
			-30	102.00	5580.03	5572 to 5588	Pass
				120.00	5580.02	5470 to 5725	Pass
				120.00	5580.08	5470 to 5725	Pass
			0	120.00	5580.05	5470 to 5725	Pass
				120.00	5580.02	5470 to 5725	Pass
				120.00	5580.02	5470 to 5725	Pass
			40	120.00	5580.02	5470 to 5725	Pass
				120.00	5580.01	5572 to 5588	Pass
				120.00	5580.01	5572 to 5588	Pass
		5700	20	102.00	5700.09	5692 to 5708	Pass
				120.00	5700.09	5692 to 5708	Pass
				138.00	5700.10	5692 to 5708	Pass
			-30	102.00	5700.10	5692 to 5708	Pass
				120.00	5700.01	5470 to 5725	Pass
				120.00	5700.01	5470 to 5725	Pass
			0	120.00	5700.11	5470 to 5725	Pass
				120.00	5700.08	5470 to 5725	Pass
				120.00	5700.13	5470 to 5725	Pass
			40	120.00	5700.11	5470 to 5725	Pass
				120.00	5700.08	5692 to 5708	Pass
				120.00	5700.08	5692 to 5708	Pass
802.11n (HT20)	MIMO	5500	20	102.00	5500.07	5492 to 5508	Pass
				120.00	5500.06	5492 to 5508	Pass
				138.00	5500.13	5492 to 5508	Pass



			-30	102.00	5500.12	5492 to 5508	Pass
			-20	120.00	5500.06	5470 to 5725	Pass
			-10	120.00	5500.06	5470 to 5725	Pass
			0	120.00	5500.03	5470 to 5725	Pass
			10	120.00	5500.01	5470 to 5725	Pass
			30	120.00	5500.09	5470 to 5725	Pass
			40	120.00	5500.09	5470 to 5725	Pass
			50	120.00	5500.06	5492 to 5508	Pass
		5580	20	102.00	5580.02	5572 to 5588	Pass
				120.00	5580.13	5572 to 5588	Pass
				138.00	5580.09	5572 to 5588	Pass
			-30	102.00	5580.01	5572 to 5588	Pass
			-20	120.00	5580.03	5470 to 5725	Pass
			-10	120.00	5580.03	5470 to 5725	Pass
			0	120.00	5580.05	5470 to 5725	Pass
			10	120.00	5580.09	5470 to 5725	Pass
			30	120.00	5580.05	5470 to 5725	Pass
			40	120.00	5580.12	5470 to 5725	Pass
			50	120.00	5580.05	5572 to 5588	Pass
		5700	20	102.00	5700.07	5692 to 5708	Pass
				120.00	5700.03	5692 to 5708	Pass
				138.00	5700.05	5692 to 5708	Pass
			-30	102.00	5700.13	5692 to 5708	Pass
			-20	120.00	5700.01	5470 to 5725	Pass
			-10	120.00	5700.02	5470 to 5725	Pass
			0	120.00	5700.01	5470 to 5725	Pass
			10	120.00	5700.08	5470 to 5725	Pass
			30	120.00	5700.02	5470 to 5725	Pass
			40	120.00	5700.08	5470 to 5725	Pass
			50	120.00	5700.06	5692 to 5708	Pass
	802.11n (HT40)	MIMO	5510	102.00	5510.08	5494 to 5526	Pass
				120.00	5510.10	5494 to 5526	Pass
				138.00	5510.01	5494 to 5526	Pass
			-30	102.00	5510.02	5494 to 5526	Pass
			-20	120.00	5510.08	5470 to 5725	Pass
			-10	120.00	5510.05	5470 to 5725	Pass
			0	120.00	5510.07	5470 to 5725	Pass
			10	120.00	5510.12	5470 to 5725	Pass
			30	120.00	5510.03	5470 to 5725	Pass



802.11ac (VHT20)	MIMO	5550	40	120.00	5510.10	5470 to 5725	Pass
			50	120.00	5510.05	5494 to 5526	Pass
			20	102.00	5550.11	5534 to 5566	Pass
				120.00	5550.04	5534 to 5566	Pass
				138.00	5550.05	5534 to 5566	Pass
			-30	102.00	5550.06	5534 to 5566	Pass
			-20	120.00	5550.08	5470 to 5725	Pass
			-10	120.00	5550.10	5470 to 5725	Pass
			0	120.00	5550.09	5470 to 5725	Pass
			10	120.00	5550.13	5470 to 5725	Pass
			30	120.00	5550.07	5470 to 5725	Pass
			40	120.00	5550.00	5470 to 5725	Pass
			50	120.00	5550.12	5534 to 5566	Pass
		5670	20	102.00	5670.04	5654 to 5686	Pass
				120.00	5670.09	5654 to 5686	Pass
				138.00	5670.12	5654 to 5686	Pass
			-30	102.00	5670.09	5654 to 5686	Pass
			-20	120.00	5670.03	5470 to 5725	Pass
			-10	120.00	5670.01	5470 to 5725	Pass
			0	120.00	5670.02	5470 to 5725	Pass
			10	120.00	5670.06	5470 to 5725	Pass
			30	120.00	5670.09	5470 to 5725	Pass
			40	120.00	5670.11	5470 to 5725	Pass
			50	120.00	5670.13	5654 to 5686	Pass
		5500	20	102.00	5500.03	5492 to 5508	Pass
				120.00	5500.09	5492 to 5508	Pass
				138.00	5500.02	5492 to 5508	Pass
			-30	102.00	5500.06	5492 to 5508	Pass
			-20	120.00	5500.09	5470 to 5725	Pass
			-10	120.00	5500.00	5470 to 5725	Pass
			0	120.00	5500.06	5470 to 5725	Pass
			10	120.00	5500.10	5470 to 5725	Pass
			30	120.00	5500.04	5470 to 5725	Pass
			40	120.00	5500.12	5470 to 5725	Pass
			50	120.00	5500.09	5492 to 5508	Pass
		5580	20	102.00	5580.03	5572 to 5588	Pass
				120.00	5580.10	5572 to 5588	Pass
				138.00	5580.02	5572 to 5588	Pass
			-30	102.00	5580.11	5572 to 5588	Pass



802.11ac (VHT40)	MIMO	5700	-20	120.00	5580.05	5470 to 5725	Pass
			-10	120.00	5580.01	5470 to 5725	Pass
			0	120.00	5580.07	5470 to 5725	Pass
			10	120.00	5580.05	5470 to 5725	Pass
			30	120.00	5580.05	5470 to 5725	Pass
			40	120.00	5580.08	5470 to 5725	Pass
			50	120.00	5580.07	5572 to 5588	Pass
		5700	20	102.00	5700.02	5692 to 5708	Pass
				120.00	5700.03	5692 to 5708	Pass
				138.00	5700.02	5692 to 5708	Pass
			-30	102.00	5700.10	5692 to 5708	Pass
			-20	120.00	5700.06	5470 to 5725	Pass
			-10	120.00	5700.11	5470 to 5725	Pass
			0	120.00	5700.11	5470 to 5725	Pass
			10	120.00	5700.04	5470 to 5725	Pass
			30	120.00	5700.05	5470 to 5725	Pass
			40	120.00	5700.12	5470 to 5725	Pass
			50	120.00	5700.06	5692 to 5708	Pass
		5510	20	102.00	5510.03	5494 to 5526	Pass
				120.00	5510.01	5494 to 5526	Pass
				138.00	5510.05	5494 to 5526	Pass
			-30	102.00	5510.06	5494 to 5526	Pass
			-20	120.00	5510.12	5470 to 5725	Pass
			-10	120.00	5510.07	5470 to 5725	Pass
			0	120.00	5510.05	5470 to 5725	Pass
			10	120.00	5510.12	5470 to 5725	Pass
			30	120.00	5510.08	5470 to 5725	Pass
			40	120.00	5510.07	5470 to 5725	Pass
			50	120.00	5510.04	5494 to 5526	Pass
		5550	20	102.00	5550.04	5534 to 5566	Pass
				120.00	5550.11	5534 to 5566	Pass
				138.00	5550.12	5534 to 5566	Pass
			-30	102.00	5550.02	5534 to 5566	Pass
			-20	120.00	5550.07	5470 to 5725	Pass
			-10	120.00	5550.12	5470 to 5725	Pass
			0	120.00	5550.05	5470 to 5725	Pass
			10	120.00	5550.12	5470 to 5725	Pass
			30	120.00	5550.11	5470 to 5725	Pass
			40	120.00	5550.11	5470 to 5725	Pass



		5670	50	120.00	5550.05	5534 to 5566	Pass
			20	102.00	5670.05	5654 to 5686	Pass
				120.00	5670.13	5654 to 5686	Pass
				138.00	5670.12	5654 to 5686	Pass
			-30	102.00	5670.01	5654 to 5686	Pass
			-20	120.00	5670.07	5470 to 5725	Pass
			-10	120.00	5670.05	5470 to 5725	Pass
			0	120.00	5670.03	5470 to 5725	Pass
			10	120.00	5670.08	5470 to 5725	Pass
			30	120.00	5670.01	5470 to 5725	Pass
			40	120.00	5670.10	5470 to 5725	Pass
			50	120.00	5670.10	5654 to 5686	Pass
802.11ac (VHT80)	MIMO	5530	20	102.00	5530.09	5498 to 5562	Pass
				120.00	5530.10	5498 to 5562	Pass
				138.00	5530.12	5498 to 5562	Pass
			-30	102.00	5530.08	5498 to 5562	Pass
			-20	120.00	5530.05	5470 to 5725	Pass
			-10	120.00	5530.04	5470 to 5725	Pass
			0	120.00	5530.12	5470 to 5725	Pass
			10	120.00	5530.03	5470 to 5725	Pass
			30	120.00	5530.01	5470 to 5725	Pass
			40	120.00	5530.10	5470 to 5725	Pass
			50	120.00	5530.09	5498 to 5562	Pass



Test Mode: 5.8G							
Mode	TX Type	Frequency (MHz)	Temperature (°C)	Voltage (VAC)	Measured Frequency (MHz)	Limit	Verdict
802.11a	SISO	5745	20	102.00	5745.04	5737 to 5753	Pass
				120.00	5745.06	5737 to 5753	Pass
				138.00	5745.03	5737 to 5753	Pass
			-30	102.00	5745.05	5737 to 5753	Pass
				120.00	5745.08	5725 to 5850	Pass
				120.00	5745.06	5725 to 5850	Pass
			0	120.00	5745.05	5725 to 5850	Pass
				120.00	5745.01	5725 to 5850	Pass
				120.00	5745.09	5725 to 5850	Pass
			50	120.00	5745.03	5725 to 5850	Pass
				120.00	5745.11	5737 to 5753	Pass
		5785	20	102.00	5785.09	5777 to 5793	Pass
				120.00	5785.07	5777 to 5793	Pass
				138.00	5785.05	5777 to 5793	Pass
			-30	102.00	5785.06	5777 to 5793	Pass
				120.00	5785.05	5725 to 5850	Pass
				120.00	5785.09	5725 to 5850	Pass
			0	120.00	5785.06	5725 to 5850	Pass
				120.00	5785.05	5725 to 5850	Pass
				120.00	5785.03	5725 to 5850	Pass
			50	120.00	5785.12	5725 to 5850	Pass
				120.00	5785.01	5777 to 5793	Pass
		5825	20	102.00	5825.03	5817 to 5833	Pass
				120.00	5825.13	5817 to 5833	Pass
				138.00	5825.12	5817 to 5833	Pass
			-30	102.00	5825.07	5817 to 5833	Pass
				120.00	5825.01	5725 to 5850	Pass
				120.00	5825.01	5725 to 5850	Pass
			0	120.00	5825.11	5725 to 5850	Pass
				120.00	5825.13	5725 to 5850	Pass
				120.00	5825.10	5725 to 5850	Pass
			50	120.00	5825.02	5725 to 5850	Pass
				120.00	5825.13	5817 to 5833	Pass
802.11n (HT20)	MIMO	5745	20	102.00	5745.10	5737 to 5753	Pass
				120.00	5745.04	5737 to 5753	Pass
				138.00	5745.09	5737 to 5753	Pass
			-30	102.00	5745.07	5737 to 5753	Pass



			-20	120.00	5745.05	5725 to 5850	Pass
			-10	120.00	5745.03	5725 to 5850	Pass
			0	120.00	5745.03	5725 to 5850	Pass
			10	120.00	5745.04	5725 to 5850	Pass
			30	120.00	5745.08	5725 to 5850	Pass
			40	120.00	5745.04	5725 to 5850	Pass
			50	120.00	5745.00	5737 to 5753	Pass
		5785	20	102.00	5785.03	5777 to 5793	Pass
				120.00	5785.09	5777 to 5793	Pass
				138.00	5785.12	5777 to 5793	Pass
			-30	102.00	5785.11	5777 to 5793	Pass
			-20	120.00	5785.13	5725 to 5850	Pass
			-10	120.00	5785.06	5725 to 5850	Pass
			0	120.00	5785.04	5725 to 5850	Pass
			10	120.00	5785.12	5725 to 5850	Pass
			30	120.00	5785.08	5725 to 5850	Pass
			40	120.00	5785.11	5725 to 5850	Pass
			50	120.00	5785.08	5777 to 5793	Pass
		5825	20	102.00	5825.07	5817 to 5833	Pass
				120.00	5825.04	5817 to 5833	Pass
				138.00	5825.02	5817 to 5833	Pass
			-30	102.00	5825.10	5817 to 5833	Pass
			-20	120.00	5825.13	5725 to 5850	Pass
			-10	120.00	5825.06	5725 to 5850	Pass
			0	120.00	5825.04	5725 to 5850	Pass
			10	120.00	5825.03	5725 to 5850	Pass
			30	120.00	5825.03	5725 to 5850	Pass
			40	120.00	5825.01	5725 to 5850	Pass
			50	120.00	5825.04	5817 to 5833	Pass
		5755	20	102.00	5755.10	5739 to 5771	Pass
				120.00	5755.10	5739 to 5771	Pass
				138.00	5755.02	5739 to 5771	Pass
			-30	102.00	5755.01	5739 to 5771	Pass
			-20	120.00	5755.09	5725 to 5850	Pass
			-10	120.00	5755.05	5725 to 5850	Pass
			0	120.00	5755.04	5725 to 5850	Pass
			10	120.00	5755.01	5725 to 5850	Pass
			30	120.00	5755.08	5725 to 5850	Pass
			40	120.00	5755.13	5725 to 5850	Pass
			50	120.00	5755.08	5739 to 5771	Pass



802.11ac (VHT20)	MIMO	5795	20	102.00	5795.11	5779 to 5811	Pass
				120.00	5795.11	5779 to 5811	Pass
				138.00	5795.10	5779 to 5811	Pass
			-30	102.00	5795.01	5779 to 5811	Pass
			-20	120.00	5795.04	5725 to 5850	Pass
			-10	120.00	5795.04	5725 to 5850	Pass
			0	120.00	5795.04	5725 to 5850	Pass
			10	120.00	5795.12	5725 to 5850	Pass
			30	120.00	5795.03	5725 to 5850	Pass
			40	120.00	5795.10	5725 to 5850	Pass
			50	120.00	5795.06	5779 to 5811	Pass
		5745	20	102.00	5745.09	5737 to 5753	Pass
				120.00	5745.01	5737 to 5753	Pass
				138.00	5745.07	5737 to 5753	Pass
			-30	102.00	5745.10	5737 to 5753	Pass
			-20	120.00	5745.06	5725 to 5850	Pass
			-10	120.00	5745.01	5725 to 5850	Pass
			0	120.00	5745.07	5725 to 5850	Pass
			10	120.00	5745.10	5725 to 5850	Pass
			30	120.00	5745.12	5725 to 5850	Pass
			40	120.00	5745.13	5725 to 5850	Pass
			50	120.00	5745.04	5737 to 5753	Pass
		5785	20	102.00	5785.11	5777 to 5793	Pass
				120.00	5785.04	5777 to 5793	Pass
				138.00	5785.01	5777 to 5793	Pass
			-30	102.00	5785.07	5777 to 5793	Pass
			-20	120.00	5785.03	5725 to 5850	Pass
			-10	120.00	5785.02	5725 to 5850	Pass
			0	120.00	5785.07	5725 to 5850	Pass
			10	120.00	5785.11	5725 to 5850	Pass
			30	120.00	5785.07	5725 to 5850	Pass
			40	120.00	5785.03	5725 to 5850	Pass
			50	120.00	5785.09	5777 to 5793	Pass
		5825	20	102.00	5825.06	5817 to 5833	Pass
				120.00	5825.13	5817 to 5833	Pass
				138.00	5825.02	5817 to 5833	Pass
			-30	102.00	5825.11	5817 to 5833	Pass
			-20	120.00	5825.08	5725 to 5850	Pass
			-10	120.00	5825.11	5725 to 5850	Pass
			0	120.00	5825.03	5725 to 5850	Pass



			10	120.00	5825.03	5725 to 5850	Pass
			30	120.00	5825.10	5725 to 5850	Pass
			40	120.00	5825.06	5725 to 5850	Pass
			50	120.00	5825.10	5817 to 5833	Pass
802.11ac (VHT40)	MIMO	5755	20	102.00	5755.10	5739 to 5771	Pass
				120.00	5755.05	5739 to 5771	Pass
				138.00	5755.07	5739 to 5771	Pass
			-30	102.00	5755.08	5739 to 5771	Pass
			-20	120.00	5755.03	5725 to 5850	Pass
			-10	120.00	5755.04	5725 to 5850	Pass
			0	120.00	5755.06	5725 to 5850	Pass
			10	120.00	5755.05	5725 to 5850	Pass
			30	120.00	5755.10	5725 to 5850	Pass
			40	120.00	5755.09	5725 to 5850	Pass
			50	120.00	5755.05	5739 to 5771	Pass
		5795	20	102.00	5795.10	5779 to 5811	Pass
				120.00	5795.10	5779 to 5811	Pass
				138.00	5795.05	5779 to 5811	Pass
			-30	102.00	5795.04	5779 to 5811	Pass
			-20	120.00	5795.05	5725 to 5850	Pass
			-10	120.00	5795.04	5725 to 5850	Pass
			0	120.00	5795.06	5725 to 5850	Pass
			10	120.00	5795.09	5725 to 5850	Pass
			30	120.00	5795.12	5725 to 5850	Pass
			40	120.00	5795.11	5725 to 5850	Pass
			50	120.00	5795.10	5779 to 5811	Pass
802.11ac (VHT80)	MIMO	5775	20	102.00	5775.01	5743 to 5807	Pass
				120.00	5775.05	5743 to 5807	Pass
				138.00	5775.02	5743 to 5807	Pass
			-30	102.00	5775.02	5743 to 5807	Pass
			-20	120.00	5775.02	5725 to 5850	Pass
			-10	120.00	5775.02	5725 to 5850	Pass
			0	120.00	5775.10	5725 to 5850	Pass
			10	120.00	5775.13	5725 to 5850	Pass
			30	120.00	5775.05	5725 to 5850	Pass
			40	120.00	5775.04	5725 to 5850	Pass
			50	120.00	5775.13	5743 to 5807	Pass



10. Antenna Requirement

10.1. 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: if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

10.2. Antenna Connected Construction

The antenna is a ANT 1:FPC antenna,ANT 2:PCB antenna which permanently attached, and the best case gain of the Wi-Fi 5.2G ANT1: 3.0dBi, ANT2: 4.1dBi; Wi-Fi 5.3G ANT1: 2.7dBi, ANT2: 3.72dBi; Wi-Fi 5.6G ANT1: 3.8dBi, ANT2: 3.35dBi; Wi-Fi 5.8G ANT1: 3.5dBi, ANT2: 4.19dBi. It complies with the standard requirement.



APPENDIX I -- TEST SETUP PHOTOGRAPH

Please refer to separated files Appendix I -- Test Setup Photograph

APPENDIX II -- EXTERNAL PHOTOGRAPH

Please refer to separated files Appendix II -- External Photograph

APPENDIX III -- INTERNAL PHOTOGRAPH

Please refer to separated files Appendix III -- Internal Photograph

----- End of Report -----

