

FCC Test Report

Applicant : SHENZHEN ELECTRON TECHNOLOGY CO.,LTD.

Address : Bld.2, Yingfeng Industrial Zone, Tantou
Community, Songgang Street, Bao'an,
Shenzhen, China.

Product Name : Smart Home

Report Date : Jun. 24, 2024

Shenzhen Anbotek Compliance Laboratory Limited



Contents

1. General Information	6
1.1. Client Information	6
1.2. Description of Device (EUT)	6
1.3. Auxiliary Equipment Used During Test	8
1.4. Description of Test Modes	8
1.5. Description Of Test Setup	10
1.6. Test Equipment List	11
1.7. Measurement Uncertainty	12
1.8. Description of Test Facility	12
1.9. Disclaimer	13
2. Summary of Test Results	14
3. Conducted Emission Test	15
3.1. Test Standard and Limit	15
3.2. Test Setup	15
3.3. Test Procedure	15
3.4. Test Data	15
4. Radiation Spurious Emission and Band Edge	22
4.1. Test Standard and Limit	22
4.2. Test Setup	23
4.3. Test Procedure	24
4.4. Test Data	25
5. Maximum Output Power Test	35
5.1. Test Standard and Limit	35
5.2. Test Setup	35
5.3. Test Procedure	35
5.4. Test Data	36
6. Power Spectral Density Test	37
6.1. Test Standard and Limit	37
6.2. Test Setup	37
6.3. Test Procedure	37
6.4. Test Data	38
7. 26dB Bandwidth & 99% Occupied Bandwidth Test	39
7.1. Test Standard	39
7.2. Test Setup	39
7.3. Test Procedure	39
7.4. Test Data	39
8. Emission Mask	40
8.1. Test Standard	40



8.2. Test Setup	40
8.3. Test Procedure	40
8.4. Test Data	41
9. Contention-Based Protocol	42
9.1. Test Standard and Limit	42
9.2. Test Setup	42
9.3. Test Procedure	42
9.4. Test Data	43
10. Antenna Requirement	44
10.1. Test Standard and Requirement	44
10.2. Antenna Connected Construction	44
APPENDIX I -- TEST SETUP PHOTOGRAPH	45
APPENDIX II -- EXTERNAL PHOTOGRAPH	45
APPENDIX III -- INTERNAL PHOTOGRAPH	45



TEST REPORT

Applicant : SHENZHEN ELECTRON TECHNOLOGY CO.,LTD.
Manufacturer : SHENZHEN ELECTRON TECHNOLOGY CO.,LTD.
Product Name : Smart Home
Test Model No. : SMT156
Reference Model No. : SMT97, SMT101
Trade Mark : N/A
Rating(s) : SMT156:
DC Input: 12V== 2A
POE Input: 48V==
SMT97/SMT101:
DC Input: 12V== 1.5A
POE Input: 48V==

Test Standard(s) : 47 CFR Part 15E

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 47 CFR Part 15E 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

Mar. 12, 2024

Date of Test

Mar. 12, 2024 to May 21, 2024

Prepared By

Ella Liang

(Ella Liang)

Approved & Authorized Signer

Edward Pan

(Edward Pan)



Revision History

Report Version	Description	Issued Date
R00	Original Issue.	Jun. 24, 2024



1. General Information

1.1. Client Information

Applicant	:	SHENZHEN ELECTRON TECHNOLOGY CO.,LTD.
Address	:	Bld.2, Yingfeng Industrial Zone, Tantou Community, Songgang Street, Bao'an, Shenzhen, China.
Manufacturer	:	SHENZHEN ELECTRON TECHNOLOGY CO.,LTD.
Address	:	Bld.2, Yingfeng Industrial Zone, Tantou Community, Songgang Street, Bao'an, Shenzhen, China.
Factory	:	SHENZHEN ELECTRON TECHNOLOGY CO.,LTD.
Address	:	Bld.2, Yingfeng Industrial Zone, Tantou Community, Songgang Street, Bao'an, Shenzhen, China.

1.2. Description of Device (EUT)

Product Name	:	Smart Home
Test Model No.	:	SMT156
Reference Model No.	:	SMT97, SMT101 (Note: According to the model differences on page 7, we prepare "SMT156" for all tests, and prepared SMT97, SMT101 for conducted emission and radiated spurious emissions (below 1GHz) difference testing.)
Trade Mark	:	N/A
Test Power Supply	:	DC 12V from adapter input AC 120V/60Hz
Test Sample No.	:	1-2-1(Normal Sample), 1-2-2(Engineering Sample)
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 Category	:	☐ Indoor Access Point ☐ Standard Power Access Point
	:	☐ Subordinate Device ☐ Fixed Client
	:	☐ Standard Client ☐ Dual Client
	:	☒ Indoor Client
RU Configuration	:	☒ Full RU ☒ Partial RU
Operation Frequency	:	☒ Wi-Fi UNII5: 5925~6425MHz ☒ Wi-Fi UNII6: 6425~6525MHz
	:	☒ Wi-Fi UNII7: 6525~6875MHz ☒ Wi-Fi UNII8: 6875~7125MHz



Number of Channel	:	Wi-Fi UNII5: ☒ 24 Channels for 20MHz bandwidth (5955-6415MHz) ☒ 12 Channels for 40MHz bandwidth (5965-6405MHz) ☒ 6 Channels for 80MHz bandwidth (5985-6385MHz) ☐ 3 Channels for 160MHz bandwidth (6025-6345MHz) Wi-Fi UNII6: ☒ 5 Channels for 20MHz bandwidth (6435-6515MHz) ☒ 3 Channels for 40MHz bandwidth (6445-6525MHz) ☒ 1 Channels for 80MHz bandwidth (6465MHz) ☐ 1 Channels for 160MHz bandwidth (6505MHz) Wi-Fi UNII7: ☒ 18 Channels for 20MHz bandwidth (6535-6875MHz) ☒ 8 Channels for 40MHz bandwidth (6565-6845MHz) ☒ 5 Channels for 80MHz bandwidth (6545-6865MHz) ☐ 2 Channels for 160MHz bandwidth (6665-6825MHz) Wi-Fi UNII8: ☒ 12 Channels for 20MHz bandwidth (6895-7115MHz) ☒ 12 Channels for 40MHz bandwidth (5965-6405MHz) ☒ 6 Channels for 80MHz bandwidth (5985-6385MHz) ☐ 3 Channels for 160MHz bandwidth (6025-6345MHz)
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	:	FPC Antenna
Antenna Gain(Peak)	:	Wi-Fi UNII5: 3.05dBi Wi-Fi UNII6: 2.33dBi Wi-Fi UNII7: 3.79dBi Wi-Fi UNII8: 3.55dBi
Remark: 1) All of the RF specification are provided by customer. 2) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.		

Model differences

Model	Display screen size	Input	Adapter
SMT156	15.6-inch	DC Input: 12V== 2A POE Input: 48V==	Manufacturer: SHENZHEN FUJIA APPLIANCE CO., LTD. Model No.: FJ-SW126G1202000U Input: 100-240V~50/60Hz 0.6A Max Output: 12V== 2A
SMT97	9.7-inch	DC Input: 12V== 1.5A POE Input: 48V==	Manufacturer: SHENZHEN FUJIA APPLIANCE CO., LTD. Model No.: FJ-SW126G1201500U Input: 100-240V~50/60Hz 0.6A Max Output: 12V== 1.5A
SMT101	10.1-inch		



1.3. Auxiliary Equipment Used During Test

Title	Manufacturer	Model No.	Serial No.
/	/	/	/

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)
Wi-Fi UNII5	802.11ax(HEW20)	CH 1	5955MHz
		CH 45	6175MHz
		CH 93	6415MHz
	802.11ax(HEW40)	CH 3	5965MHz
		CH 43	6165MHz
		CH 91	6405MHz
	802.11ax(HEW80)	CH 7	5985MHz
		CH 39	6145MHz
		CH 87	6385MHz
Wi-Fi UNII6	802.11ax(HEW20)	CH 97	6435MHz
		CH 105	6475MHz
		CH 113	6515MHz
	802.11ax(HEW40)	CH 99	6445MHz
		CH 107	6485MHz
	802.11ax(HEW80)	CH 115	6525MHz
Wi-Fi UNII7	802.11ax(HEW20)	CH 103	6465MHz
		CH 117	6535MHz
		CH 149	6695MHz
	802.11ax(HEW40)	CH 185	6875MHz
		CH 123	6565MHz
		CH 147	6685MHz
	802.11ax(HEW80)	CH 179	6845MHz
		CH 119	6545MHz
		CH 151	6705MHz
		CH 183	6865MHz



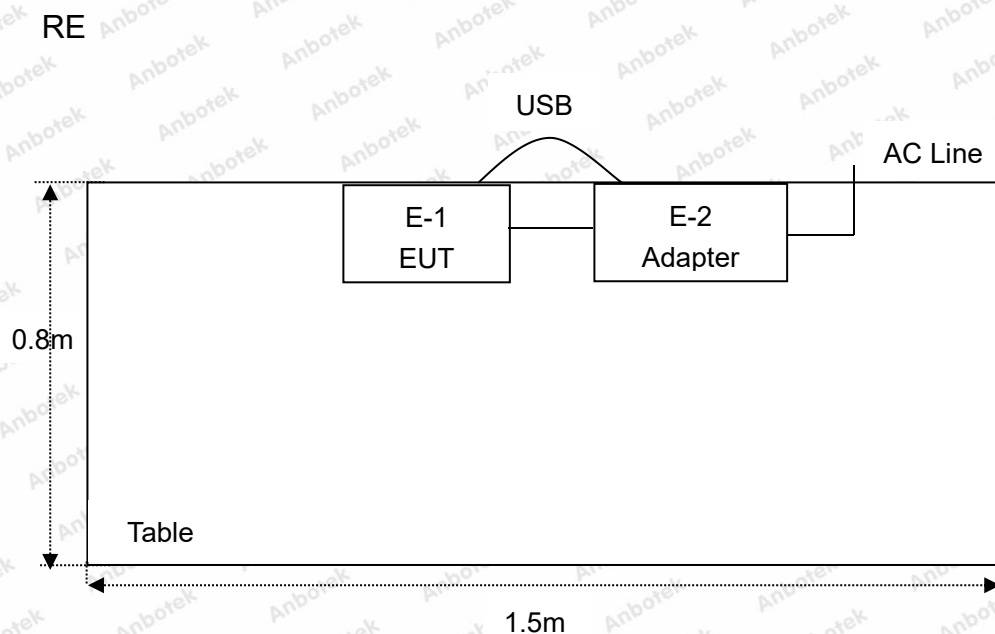
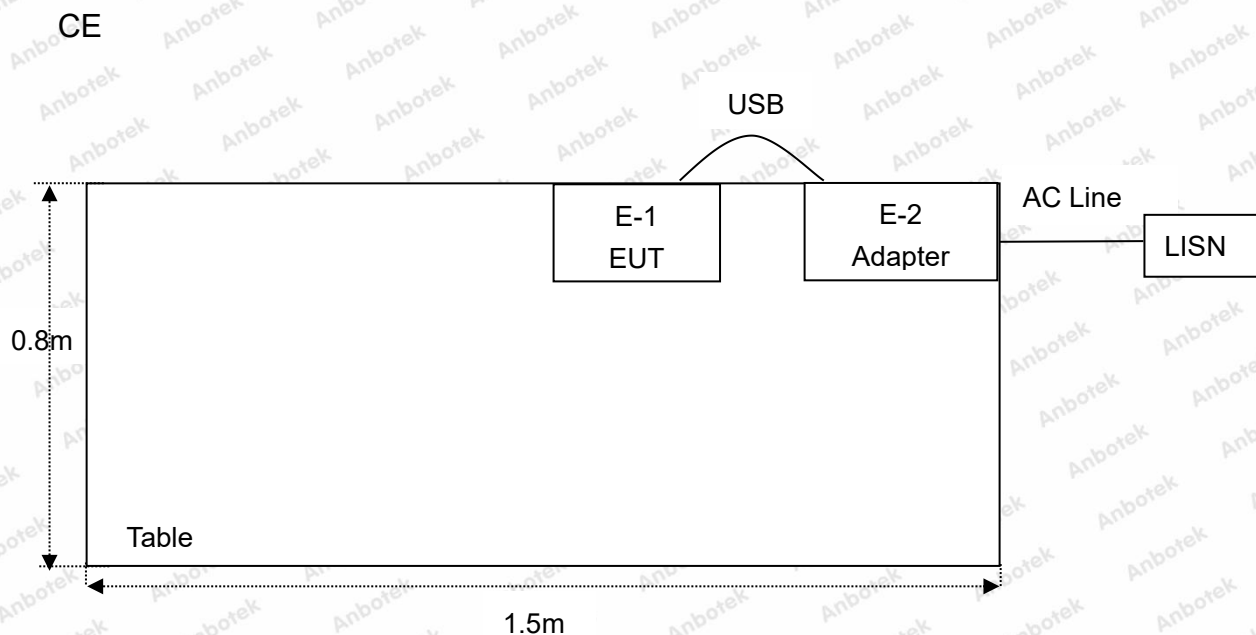
Wi-Fi UNII8	802.11ax(HEW20)	CH 175	6825MHz
		CH 189	6895MHz
		CH 213	7015MHz
		CH 223	7115MHz
	802.11ax(HEW40)	CH 187	6885MHz
		CH 211	7005MHz
		CH 227	7085MHz
	802.11ax(HEW80)	CH 199	6945MHz
		CH 215	7025MHz

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.
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	Jan. 18, 2024	1 Year
2.	Three Phase V-type Artificial Power Network	CYBERTEK	EM5040DT	E215040DT001	Jan. 18, 2024	1 Year
3.	EMI Test Receiver	Rohde & Schwarz	ESCI	100627	Oct. 12, 2023	1 Year
4.	EMI Test Receiver	Rohde & Schwarz	ESR26	101481	Jan. 23, 2024	1 Year
5.	MXA Spectrum Analysis	Agilent	N9020A	MY51170037	Oct. 12, 2023	1 Year
6.	EMI Preamplifier	SKET Electronic	LNPA-0118G -45	SKET-PA-002	Jan. 17, 2024	1 Year
7.	Double Ridged Horn Antenna	SCHWARZBECK	BBHA 9120D	02555	Oct. 16, 2022	3 Year
8.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	345	Oct. 23, 2022	3 Year
9.	Loop Antenna	Schwarzbeck	FMZB1519B	00053	Oct. 12, 2023	1 Year
10.	Horn Antenna	A-INFO	LB-180400- KF	J211060628	Oct. 12, 2023	1 Year
11.	Pre-amplifier	SONOMA	310N	186860	Jan. 17, 2024	1 Year
12.	EMI Test Software EZ-EMC	SHURPLE	N/A	N/A	N/A	N/A
13.	MXA Spectrum Analysis	KEYSIGHT	N9020A	MY53280032	Oct. 12, 2023	1 Year
14.	MXG RF Vector Signal Generator	Agilent	N5182A	MY48180656	Oct. 12, 2023	1 Year
15.	Signal Generator	Agilent	E4421B	MY41000743	Oct. 12, 2023	1 Year
16.	DC Power Supply	IVYTECH	IV3605	1804D360510	Oct. 20, 2023	1 Year
17.	Constant Temperature Humidity Chamber	ZHONGJIAN	ZJ-KHWS80 B	N/A	Oct. 16, 2023	1 Year
18.	Spectrum Analyzer	Rohde & Schwarz	FSV40-N	101792	May. 26, 2023	1 Year
19.	WiFi 7GHz Band Extender	Tonscend	TS-WF7U2	24E806WF7U086 2	Oct. 12, 2023	1 Year
20.	8 Channel RF Control Unit	Tonscend	JS0806-2	24E80620861	Oct. 12, 2023	1 Year



1.7. Measurement Uncertainty

Parameter	Uncertainty
Conducted emissions (AMN 150kHz~30MHz)	3.8dB
Occupied Bandwidth	925Hz
Conducted Output Power	0.76dB
Conducted Spurious Emission	1.24dB
Radiated spurious emissions (Below 30MHz)	3.53dB
Radiated spurious emissions (30MHz~1GHz)	Horizontal: 3.92dB; Vertical: 4.52dB
Radiated spurious emissions (above 1GHz)	1G-6GHz: 4.78dB; 6G-18GHz: 4.88dB 18G-40GHz: 5.68dB
The measurement uncertainty and decision risk evaluated according to AB/WI-RF-F-032. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	

1.8. Description of Test Facility

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

FCC-Registration No.: 434132

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. 434132.

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.



1.9. Disclaimer

1. The test report is invalid if not marked with the signatures of the persons responsible for preparing and approving the test report.
2. The test report is invalid if there is any evidence and/or falsification.
3. The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein.
4. This document may not be altered or revised in any way unless done so by Anbotech and all revisions are duly noted in the revisions section.
5. Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.
6. The authenticity of the information provided by the customer is the responsibility of the customer and the laboratory is not responsible for its authenticity.

The laboratory is only responsible for the data released by the laboratory, except for the part provided by the applicant.



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(a)(4)(5)(6)(7)(8)	Maximum Output Power Test	PASS
15.407(a)(4)(5)(6)(7)(8)	Power Spectral Density Test	PASS
15.407(a)(10) & 2.1049	26dB Bandwidth & 99% Occupied Bandwidth	PASS
15.407(b)(6)(7)	Emission Mask	PASS
15.407(g)	Frequency Stability	PASS
15.203	Antenna Requirement	PASS

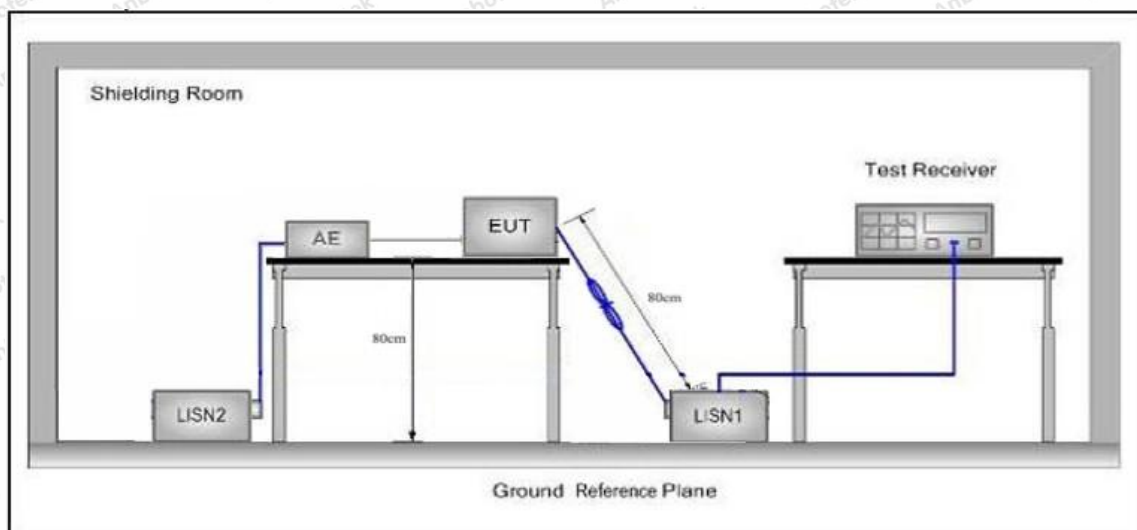


3. Conducted Emission Test

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.

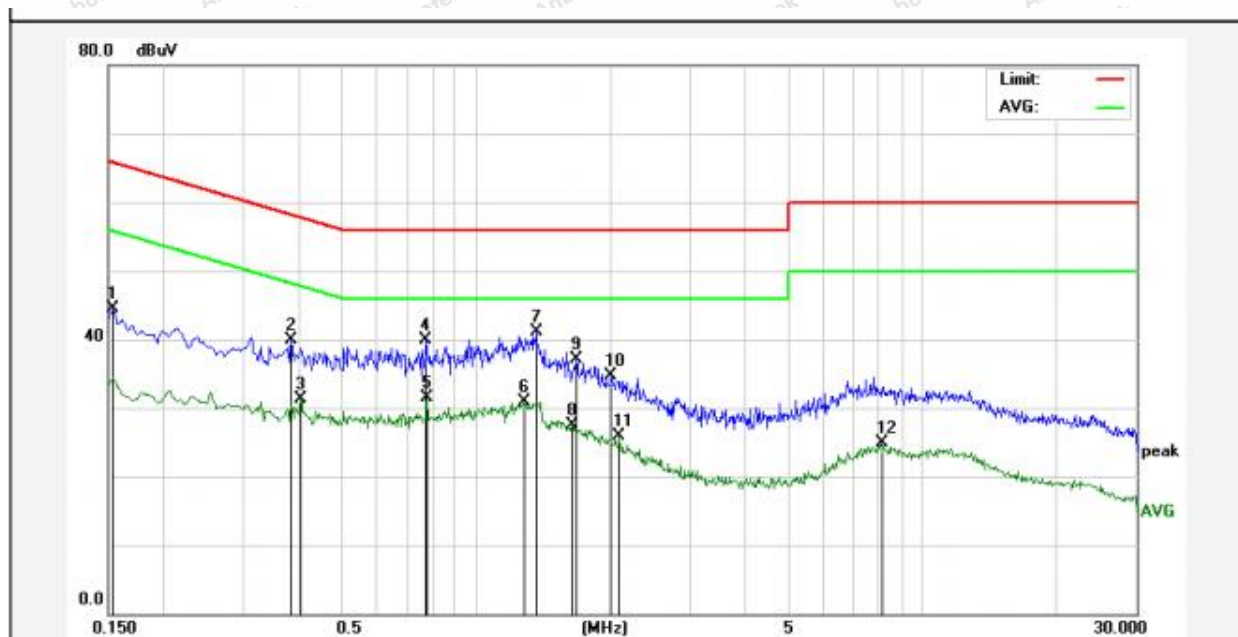
3.4. Test Data

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



Temperature:	24.1 °C	Humidity:	52.6 %	Atmospheric Pressure:	101 kPa
Test Model:	SMT156				

802.11ax(HEW40) / Line: Line / Band: 6875~7125MHz / BW: 40 / CH: H

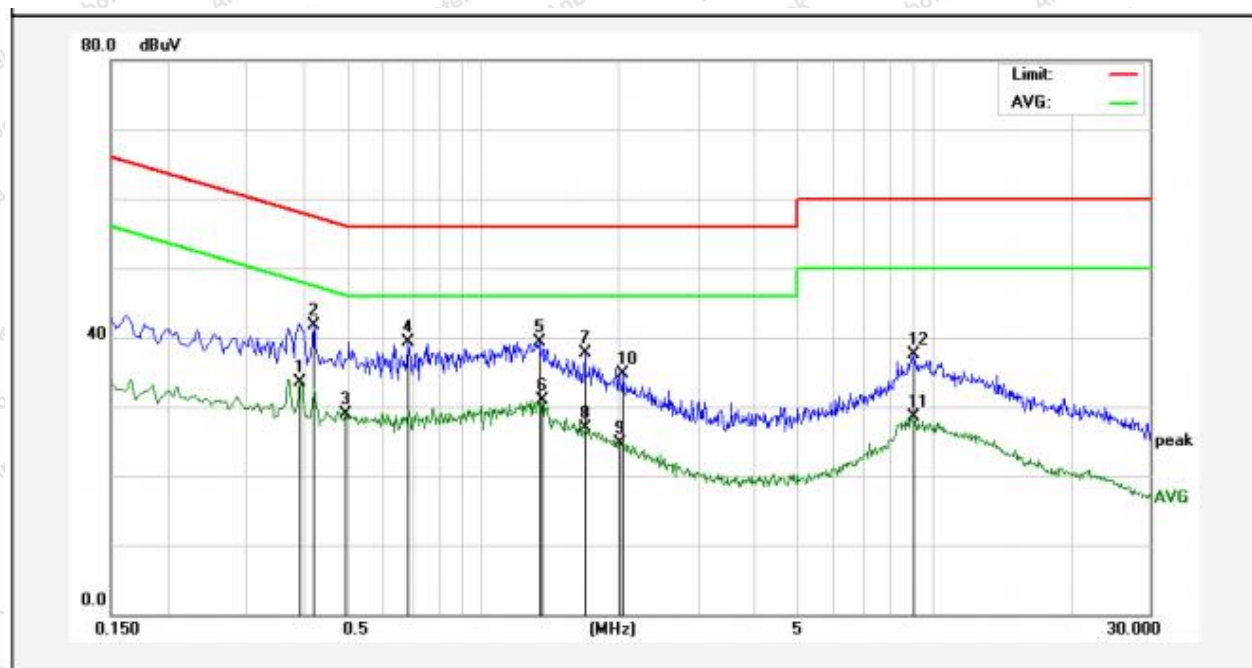


No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Over Limit (dB)	Detector	Remark
1	0.1539	26.74	17.83	44.57	65.78	-21.21	QP	
2	0.3860	22.02	17.81	39.83	58.15	-18.32	QP	
3	0.4060	13.51	17.81	31.32	47.73	-16.41	AVG	
4	0.7740	22.07	17.87	39.94	56.00	-16.06	QP	
5	0.7780	13.58	17.87	31.45	46.00	-14.55	AVG	
6	1.2820	13.01	17.86	30.87	46.00	-15.13	AVG	
7	1.3619	23.22	17.86	41.08	56.00	-14.92	QP	
8	1.6420	9.72	17.85	27.57	46.00	-18.43	AVG	
9	1.6740	19.29	17.85	37.14	56.00	-18.86	QP	
10	2.0100	16.84	17.85	34.69	56.00	-21.31	QP	
11	2.0940	7.97	17.85	25.82	46.00	-20.18	AVG	
12	8.0580	6.97	17.93	24.90	50.00	-25.10	AVG	



Temperature:	24.1 °C	Humidity:	52.6 %	Atmospheric Pressure:	101 kPa
Test Model:	SMT156				

802.11ax(HEW40) / Line: Neutral / Band: 6875~7125MHz / BW: 40 / CH: H



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Over Limit (dB)	Detector	Remark
1	0.3940	15.71	17.81	33.52	47.98	-14.46	AVG	
2	0.4220	23.88	17.82	41.70	57.41	-15.71	QP	
3	0.4980	10.97	17.86	28.83	46.03	-17.20	AVG	
4	0.6860	21.39	17.87	39.26	56.00	-16.74	QP	
5	1.3340	21.54	17.86	39.40	56.00	-16.60	QP	
6	1.3540	13.10	17.86	30.96	46.00	-15.04	AVG	
7	1.6820	19.76	17.85	37.61	56.00	-18.39	QP	
8	1.6820	9.08	17.85	26.93	46.00	-19.07	AVG	
9	2.0180	6.84	17.85	24.69	46.00	-21.31	AVG	
10	2.0460	16.77	17.85	34.62	56.00	-21.38	QP	
11	8.9740	10.60	17.95	28.55	50.00	-21.45	AVG	
12	9.0380	19.46	17.95	37.41	60.00	-22.59	QP	



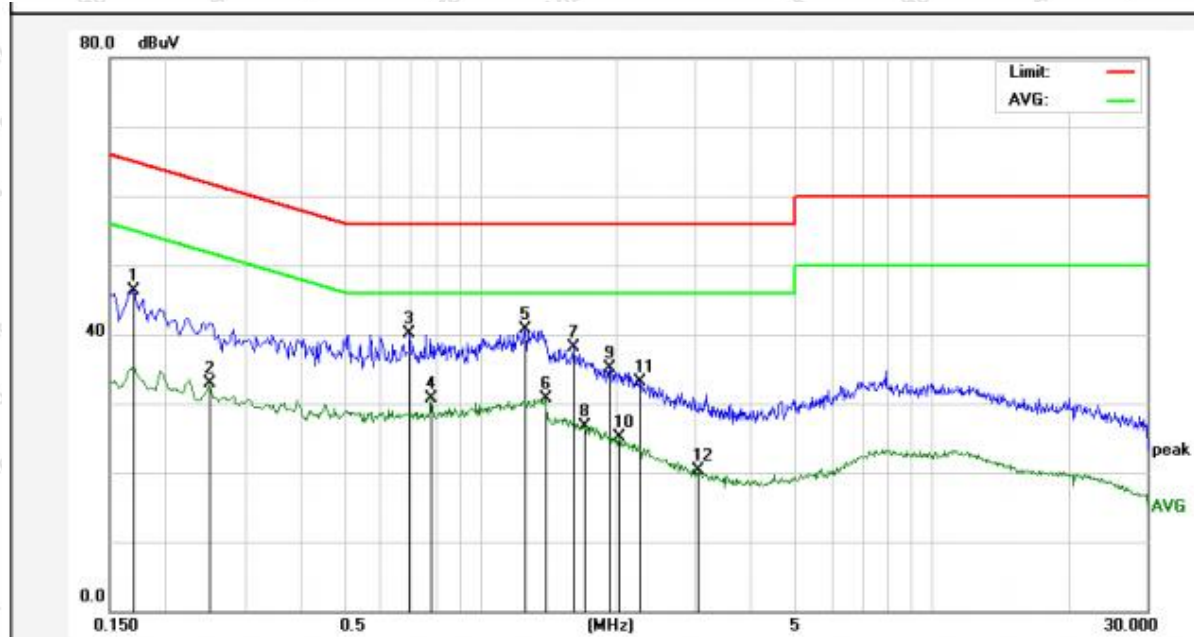
Report No.: 18220WC40042206

FCC ID: 2ABC5-E0062

Page 18 of 45

Temperature:	24.1 °C	Humidity:	52.6 %	Atmospheric Pressure:	101 kPa
Test Model:	SMT97				

802.11ax(HEW40) / Line: Line / Band: 6875~7125MHz / BW: 40 / CH: H

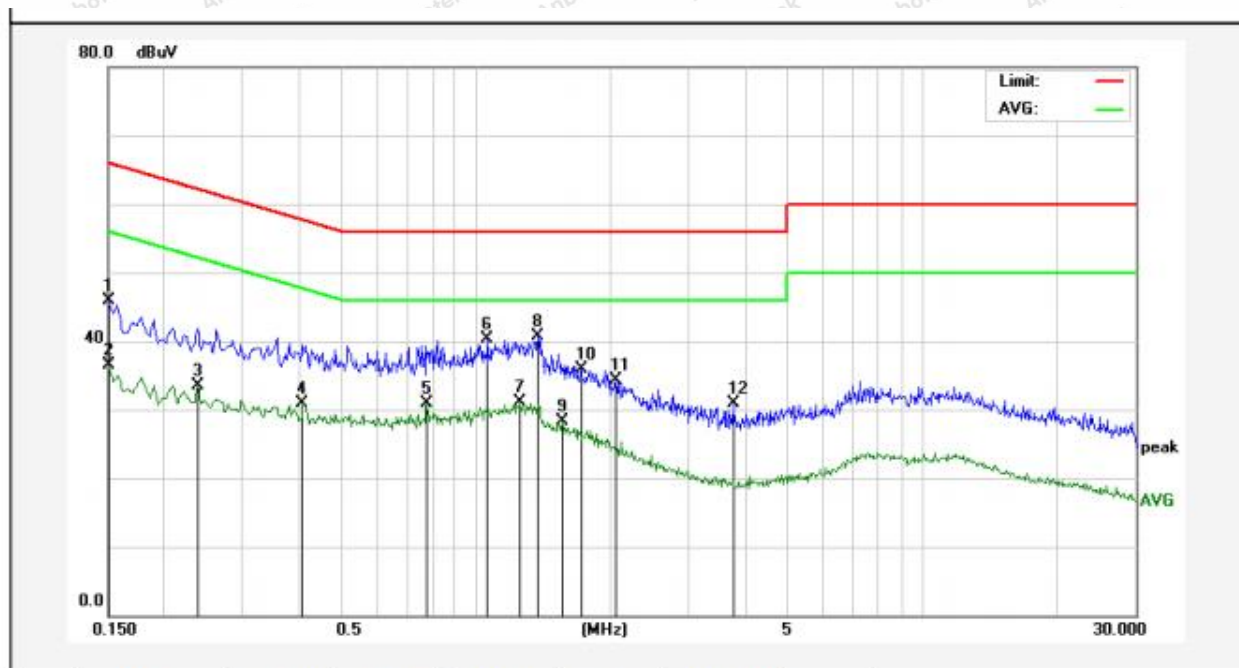


No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Over Limit (dB)	Detector	Remark
1	0.1700	28.56	17.83	46.39	64.96	-18.57	QP	
2	0.2500	15.12	17.82	32.94	51.75	-18.81	AVG	
3	0.6940	22.24	17.87	40.11	56.00	-15.89	QP	
4	0.7780	12.79	17.86	30.65	46.00	-15.35	AVG	
5	1.2579	22.83	17.84	40.67	56.00	-15.33	QP	
6	1.3900	12.81	17.84	30.65	46.00	-15.35	AVG	
7	1.6019	20.20	17.84	38.04	56.00	-17.96	QP	
8	1.7020	8.91	17.84	26.75	46.00	-19.25	AVG	
9	1.9340	17.37	17.83	35.20	56.00	-20.80	QP	
10	2.0260	7.31	17.83	25.14	46.00	-20.86	AVG	
11	2.2580	15.19	17.83	33.02	56.00	-22.98	QP	
12	3.0300	2.40	17.84	20.24	46.00	-25.76	AVG	



Temperature:	24.1 °C	Humidity:	52.6 %	Atmospheric Pressure:	101 kPa
Test Model:	SMT97				

802.11ax(HEW40) / Line: Neutral / Band: 6875~7125MHz / BW: 40 / CH: H

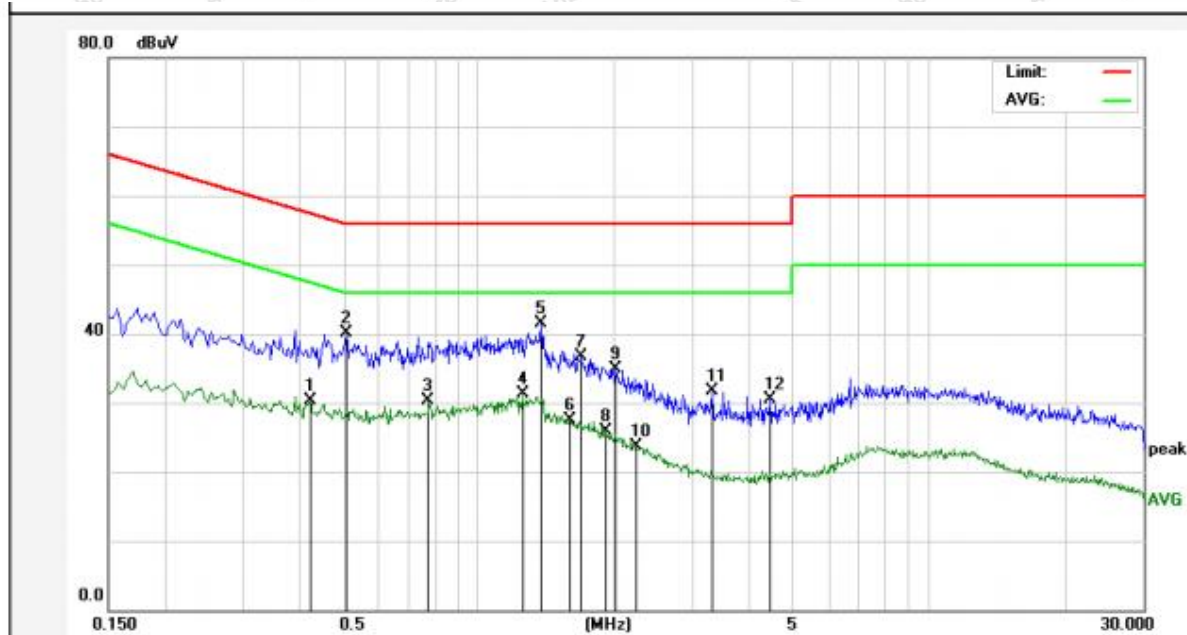


No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Over Limit (dB)	Detector	Remark
1	0.1500	28.01	17.82	45.83	65.99	-20.16	QP	
2	0.1500	18.74	17.82	36.56	55.99	-19.43	AVG	
3	0.2380	15.74	17.82	33.56	52.16	-18.60	AVG	
4	0.4100	13.01	17.81	30.82	47.65	-16.83	AVG	
5	0.7780	13.09	17.87	30.96	46.00	-15.04	AVG	
6	1.0620	22.39	17.86	40.25	56.00	-15.75	QP	
7	1.2620	13.20	17.86	31.06	46.00	-14.94	AVG	
8	1.3740	22.87	17.86	40.73	56.00	-15.27	QP	
9	1.5660	10.41	17.85	28.26	46.00	-17.74	AVG	
10	1.7180	18.09	17.85	35.94	56.00	-20.06	QP	
11	2.0620	16.45	17.85	34.30	56.00	-21.70	QP	
12	3.7660	13.01	17.86	30.87	56.00	-25.13	QP	



Temperature:	24.1 °C	Humidity:	52.6 %	Atmospheric Pressure:	101 kPa
Test Model:	SMT101				

802.11ax(HEW40) / Line: Line / Band: 6875~7125MHz / BW: 40 / CH: H

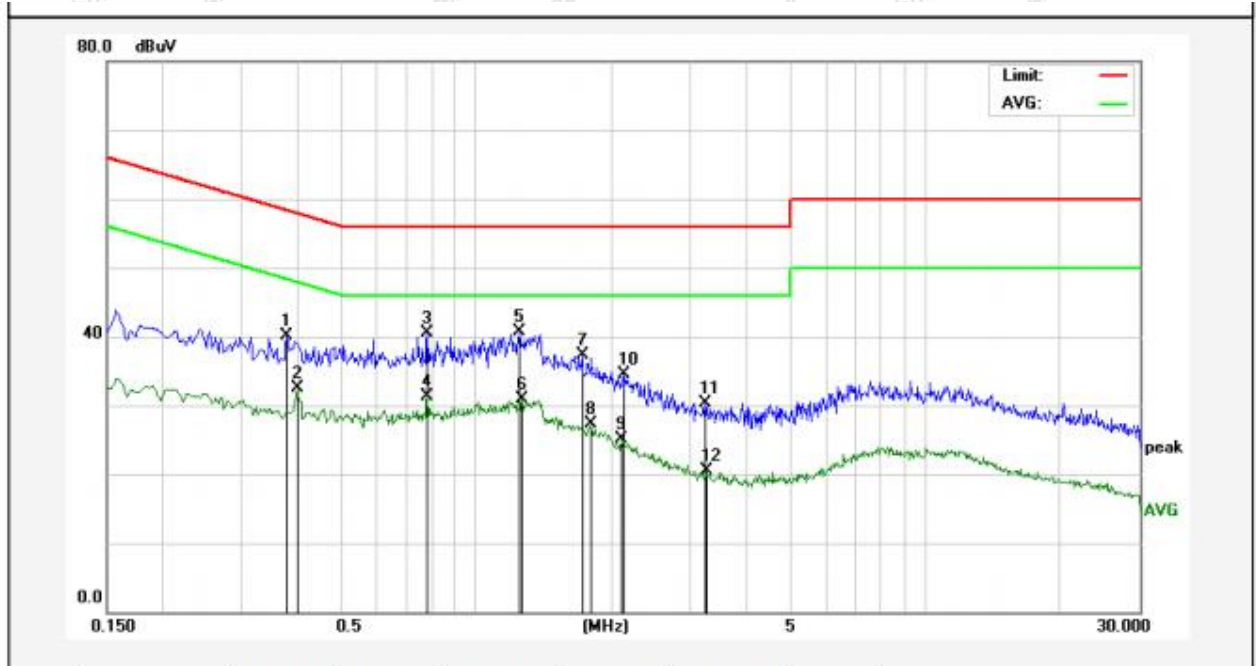


No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Over Limit (dB)	Detector	Remark
1	0.4220	12.55	17.82	30.37	47.41	-17.04	AVG	
2	0.5100	22.32	17.86	40.18	56.00	-15.82	QP	
3	0.7740	12.42	17.87	30.29	46.00	-15.71	AVG	
4	1.2540	13.39	17.86	31.25	46.00	-14.75	AVG	
5	1.3740	23.69	17.86	41.55	56.00	-14.45	QP	
6	1.5940	9.62	17.85	27.47	46.00	-18.53	AVG	
7	1.6940	18.93	17.85	36.78	56.00	-19.22	QP	
8	1.9260	8.05	17.85	25.90	46.00	-20.10	AVG	
9	2.0140	16.99	17.85	34.84	56.00	-21.16	QP	
10	2.2420	5.82	17.85	23.67	46.00	-22.33	AVG	
11	3.3020	13.87	17.85	31.72	56.00	-24.28	QP	
12	4.4540	12.70	17.85	30.55	56.00	-25.45	QP	



Temperature:	24.1 °C	Humidity:	52.6 %	Atmospheric Pressure:	101 kPa
Test Model:	SMT101				

802.11ax(HEW40) / Line: Neutral / Band: 6875~7125MHz / BW: 40 / CH: H



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Over Limit (dB)	Detector	Remark
1	0.3780	22.36	17.81	40.17	58.32	-18.15	QP	
2	0.3980	14.64	17.81	32.45	47.89	-15.44	AVG	
3	0.7780	22.68	17.87	40.55	56.00	-15.45	QP	
4	0.7780	13.46	17.87	31.33	46.00	-14.67	AVG	
5	1.2460	22.95	17.85	40.80	56.00	-15.20	QP	
6	1.2660	13.13	17.86	30.99	46.00	-15.01	AVG	
7	1.7220	19.55	17.85	37.40	56.00	-18.60	QP	
8	1.8020	9.52	17.86	27.38	46.00	-18.62	AVG	
9	2.1060	7.25	17.85	25.10	46.00	-20.90	AVG	
10	2.1260	16.70	17.85	34.55	56.00	-21.45	QP	
11	3.2300	12.50	17.85	30.35	56.00	-25.65	QP	
12	3.2500	2.67	17.85	20.52	46.00	-25.48	AVG	



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 & 15.407(b)(6)(7)				
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
For transmitters operating within the 5.925-7.125 GHz band: Any emissions outside of the 5.925-7.125 GHz band must not exceed an e.i.r.p. of -27dBm/MHz.					
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 $EIPR[dBm]=-27dBm$.					



4.2. Test Setup

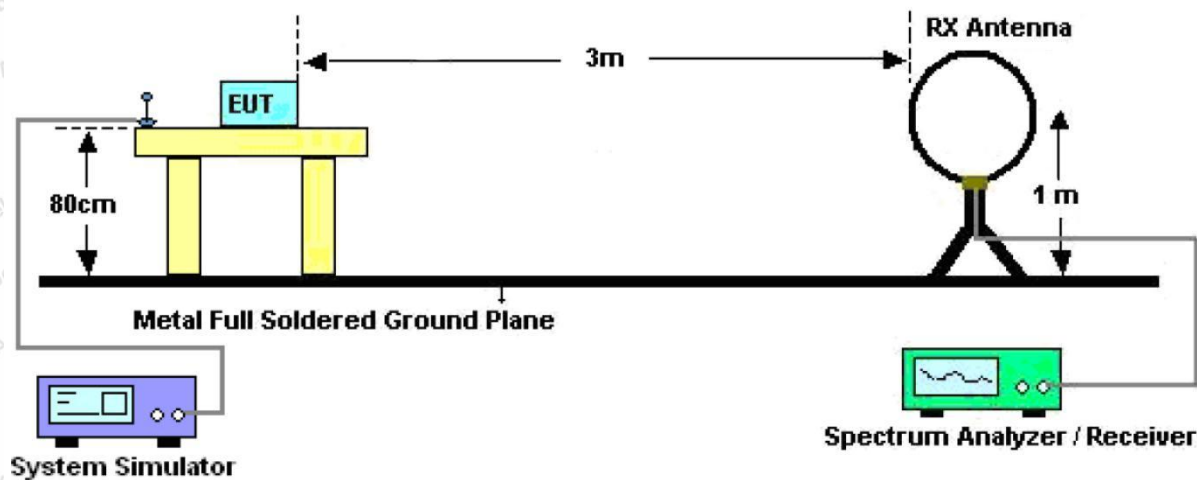


Figure 1. Below 30MHz

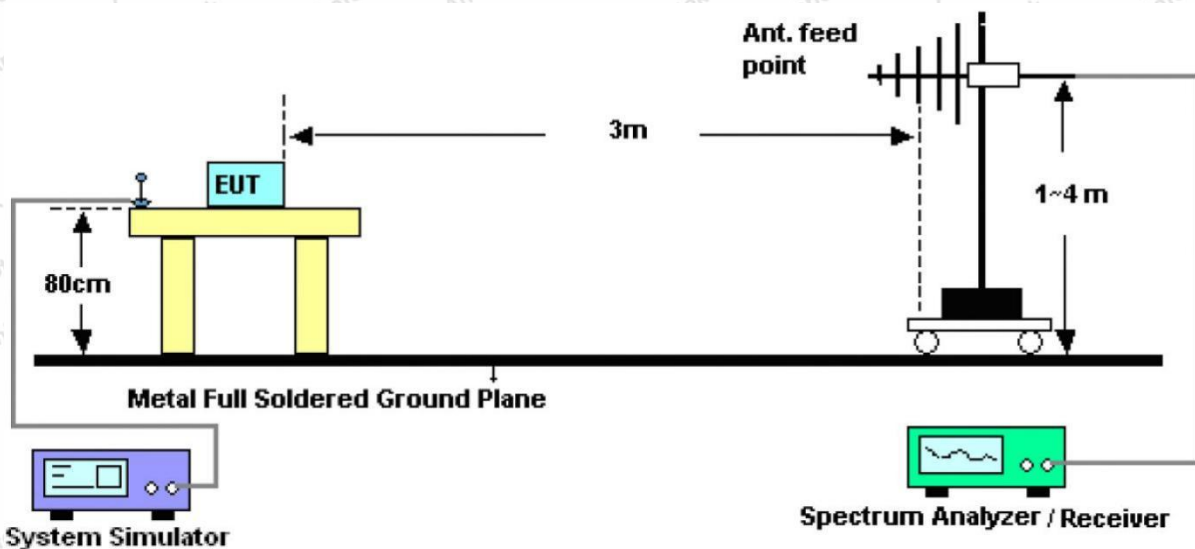


Figure 2. 30MHz to 1GHz



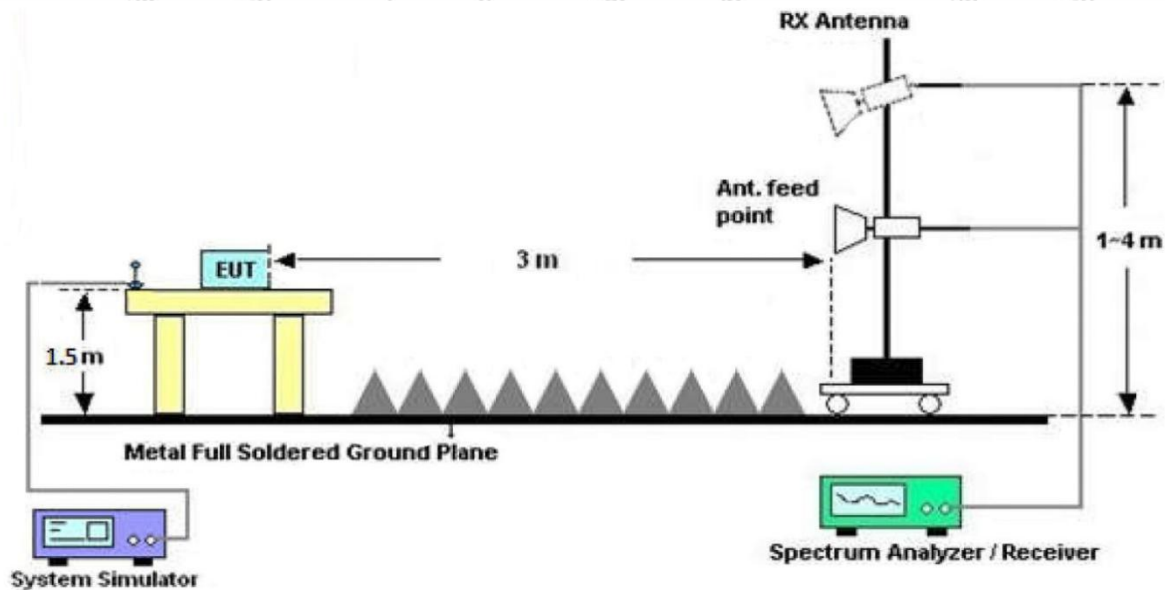


Figure 3. Above 1 GHz

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

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.

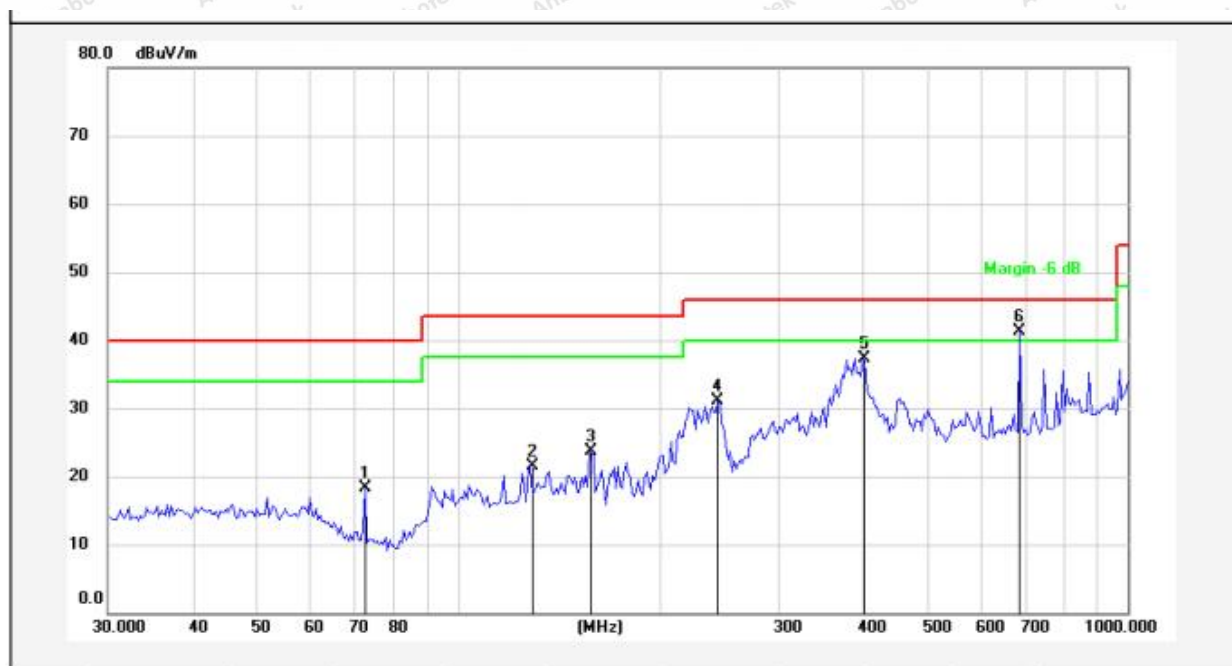
The test results of 9kHz-30MHz was attenuated more than 20dB below the permissible limits, so the results don't record in the report.

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



Temperature:	25.3 °C	Humidity:	49 %	Atmospheric Pressure:	101 kPa
Test Model:	SMT156				

802.11ax(HEW40) / Polarization: Horizontal / Band: 6875~7125MHz / BW: 40 / CH: H



No.	Freq. (MHz)	Reading (dBuV)	Factor ()	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	72.5916	39.92	-21.66	18.26	40.00	-21.74	QP			
2	128.1130	42.09	-20.57	21.52	43.50	-21.98	QP			
3	157.0074	44.49	-20.70	23.79	43.50	-19.71	QP			
4	244.2321	47.40	-16.30	31.10	46.00	-14.90	QP			
5	401.8385	49.71	-12.38	37.33	46.00	-8.67	QP			
6	689.5644	48.73	-7.49	41.24	46.00	-4.76	QP			



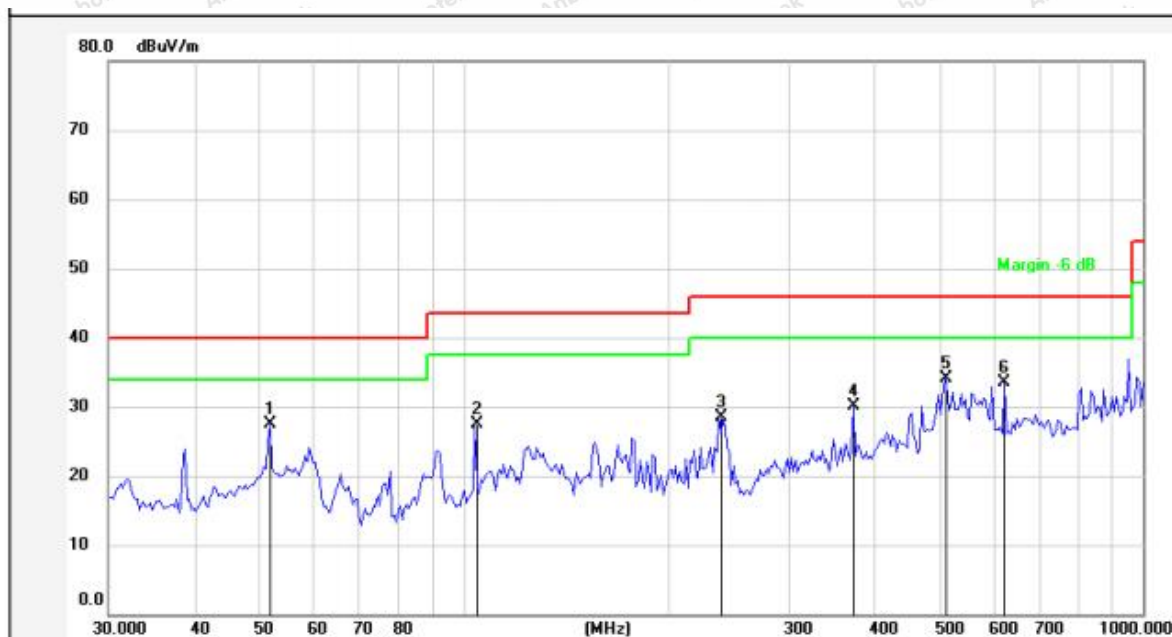
Report No.: 18220WC40042206

FCC ID: 2ABC5-E0062

Page 27 of 45

Temperature:	25.3 °C	Humidity:	49 %	Atmospheric Pressure:	101 kPa
Test Model:	SMT156				

802.11ax(HEW40) / Polarization: Vertical / Band: 6875~7125MHz / BW: 40 / CH: H



No.	Freq. (MHz)	Reading (dBuV)	Factor ()	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	51.8430	44.70	-17.27	27.43	40.00	-12.57	QP			
2	103.8055	45.00	-17.44	27.56	43.50	-15.94	QP			
3	237.4760	45.04	-16.59	28.45	46.00	-17.55	QP			
4	374.6225	43.11	-13.03	30.08	46.00	-15.92	QP			
5	510.0436	44.38	-10.33	34.05	46.00	-11.95	QP			
6	625.0780	41.60	-8.03	33.57	46.00	-12.43	QP			



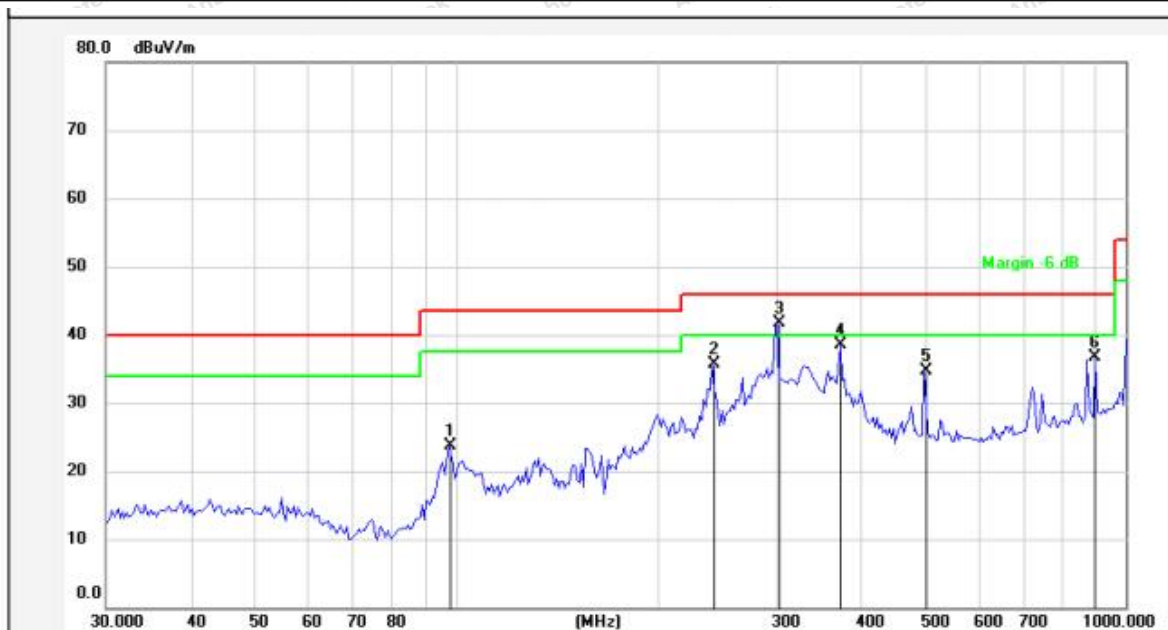
Report No.: 18220WC40042206

FCC ID: 2ABC5-E0062

Page 28 of 45

Temperature:	25.3 °C	Humidity:	49 %	Atmospheric Pressure:	101 kPa
Test Model:	SMT97				

802.11ax(HEW40) / Polarization: Horizontal / Band: 6875~7125MHz / BW: 40 / CH: H



No.	Freq. (MHz)	Reading (dBuV)	Factor ()	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	97.4560	41.00	-17.30	23.70	43.50	-19.80	QP			
2	240.8304	52.12	-16.46	35.66	46.00	-10.34	QP			
3	301.4224	56.52	-14.82	41.70	46.00	-4.30	QP			
4	374.6225	51.57	-13.03	38.54	46.00	-7.46	QP			
5	499.4247	45.28	-10.57	34.71	46.00	-11.29	QP			
6	900.1474	41.23	-4.48	36.75	46.00	-9.25	QP			



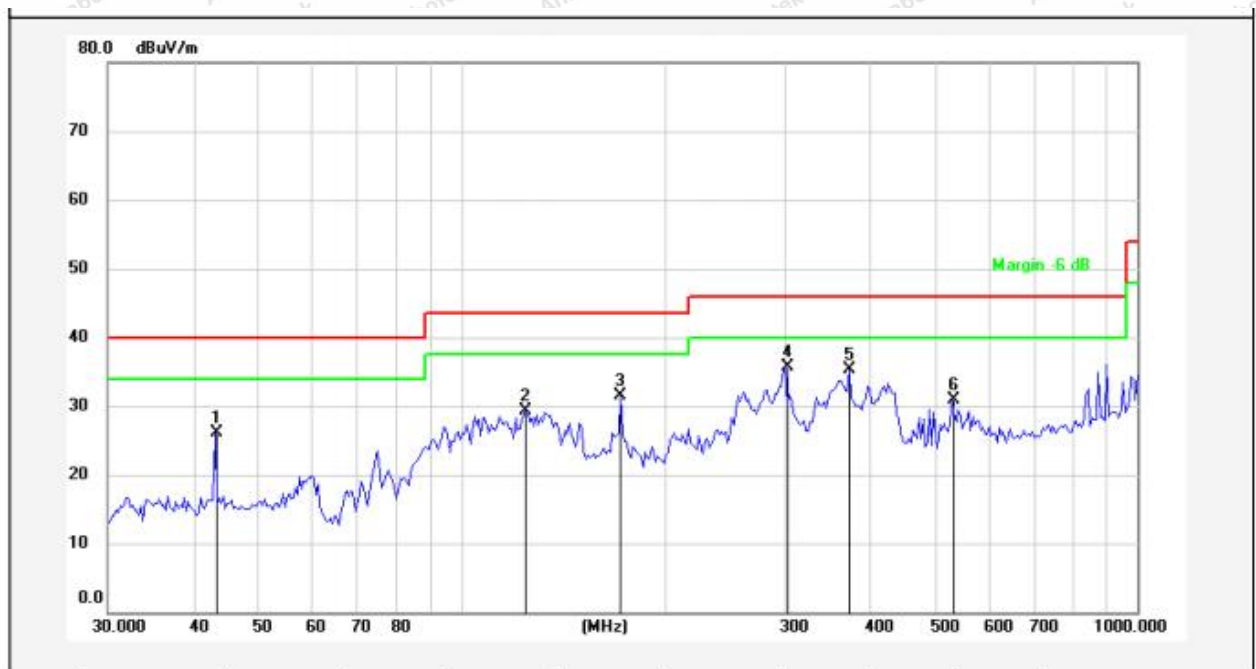
Report No.: 18220WC40042206

FCC ID: 2ABC5-E0062

Page 29 of 45

Temperature:	25.3 °C	Humidity:	49 %	Atmospheric Pressure:	101 kPa
Test Model:	SMT97				

802.11ax(HEW40) / Polarization: Vertical / Band: 6875~7125MHz / BW: 40 / CH: H



No.	Freq. (MHz)	Reading (dBuV)	Factor ()	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	43.2017	43.09	-16.95	26.14	40.00	-13.86	QP			
2	124.5690	49.52	-20.12	29.40	43.50	-14.10	QP			
3	171.9946	51.30	-19.82	31.48	43.50	-12.02	QP			
4	301.4224	50.61	-14.82	35.79	46.00	-10.21	QP			
5	374.6225	48.38	-13.03	35.35	46.00	-10.65	QP			
6	531.9635	40.63	-9.82	30.81	46.00	-15.19	QP			



Report No.: 18220WC40042206

FCC ID: 2ABC5-E0062

Page 30 of 45

Temperature:	25.3 °C	Humidity:	49 %	Atmospheric Pressure:	101 kPa
Test Model:	SMT101				

802.11ax(HEW40) / Polarization: Horizontal / Band: 6875~7125MHz / BW: 40 / CH: H



No.	Freq. (MHz)	Reading (dBuV)	Factor ()	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	51.8430	33.68	-17.27	16.41	40.00	-23.59	QP			
2	136.4598	46.20	-21.17	25.03	43.50	-18.47	QP			
3	175.6516	49.45	-19.60	29.85	43.50	-13.65	QP			
4	260.1444	56.36	-15.82	40.54	46.00	-5.46	QP			
5	374.6225	53.64	-13.03	40.61	46.00	-5.39	QP			
6	810.2654	43.89	-5.75	38.14	46.00	-7.86	QP			



Report No.: 18220WC40042206

FCC ID: 2ABC5-E0062

Page 31 of 45

Temperature:	25.3 °C	Humidity:	49 %	Atmospheric Pressure:	101 kPa
Test Model:	SMT101				

802.11ax(HEW40) / Polarization: Vertical / Band: 6875~7125MHz / BW: 40 / CH: H



No.	Freq. (MHz)	Reading (dBuV)	Factor ()	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	69.1141	49.69	-21.30	28.39	40.00	-11.61	QP			
2	131.7577	52.16	-20.91	31.25	43.50	-12.25	QP			
3	173.2051	53.49	-19.76	33.73	43.50	-9.77	QP			
4	254.7284	55.74	-15.95	39.79	46.00	-6.21	QP			
5	374.6225	50.39	-13.03	37.36	46.00	-8.64	QP			
6	410.3825	47.96	-12.22	35.74	46.00	-10.26	QP			



Test Results (Above 1000MHz)

Test Mode: IEEE 802.11ax(HEW40) / Band 6525~6875MHz							
Test channel: Low CH							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit (dB)	Antenna Pol.	Detector
13130.00	31.32	25.66	56.98	74.00	-17.02	V	Peak
19695.00	27.53	34.68	62.21	74.00	-11.79	V	Peak
13130.00	31.52	25.66	57.18	74.00	-16.82	H	Peak
19695.00	27.67	34.68	62.35	74.00	-11.65	H	Peak
13130.00	20.577	25.66	46.24	54.00	-7.76	V	AVG
19695.00	15.535	34.68	50.21	54.00	-3.79	V	AVG
13130.00	20.711	25.66	46.37	54.00	-7.63	H	AVG
19695.00	15.420	34.68	50.10	54.00	-3.90	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
13370.00	30.68	26.17	56.85	74.00	-17.15	V	Peak
20055.00	28.06	35.84	63.90	74.00	-10.10	V	Peak
13370.00	31.01	26.17	57.18	74.00	-16.82	H	Peak
20055.00	27.19	35.84	63.03	74.00	-10.97	H	Peak
13370.00	20.847	26.17	47.02	54.00	-6.98	V	AVG
20055.00	14.655	35.84	50.49	54.00	-3.51	V	AVG
13370.00	20.701	26.17	46.87	54.00	-7.13	H	AVG
20055.00	14.500	35.84	50.34	54.00	-3.66	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
13690.00	30.25	26.56	56.81	74.00	-17.19	V	Peak
20535.00	27.54	36.33	63.87	74.00	-10.13	V	Peak
13690.00	30.65	26.56	57.21	74.00	-16.79	H	Peak
20535.00	28.10	36.33	64.43	74.00	-9.57	H	Peak
13690.00	19.52	26.56	46.08	54.00	-7.92	V	AVG
20535.00	14.41	36.33	50.74	54.00	-3.26	V	AVG
13690.00	19.91	26.56	46.47	54.00	-7.53	H	AVG
20535.00	14.29	36.33	50.62	54.00	-3.38	H	AVG

Remark:

1. Only record the worst data (802.11ax(HEW40)) in the report.
2. Result = Reading + Factor



Radiated Band Edge:

Test Mode: IEEE 802.11ax(HEW20)							
Test channel: Lowest							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit (dB)	Antenna Pol.	Detector
5925.00	37.13	16.75	53.88	74.00	-20.12	H	Peak
5925.00	39.23	16.75	55.98	74.00	-18.02	V	Peak
5925.00	27.03	16.75	43.78	54.00	-10.22	H	AVG
5925.00	29.12	16.75	45.87	54.00	-8.13	V	AVG
Test channel: Highest							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit (dB)	Antenna Pol.	Detector
7125.00	37.54	17.83	55.37	74.00	-18.63	H	Peak
7125.00	40.58	17.83	58.41	74.00	-15.59	V	Peak
7125.00	28.92	17.83	46.75	54.00	-7.25	H	AVG
7125.00	29.76	17.83	47.59	54.00	-6.41	V	AVG

Remark: 1. Result =Reading + Factor

Test Mode: IEEE 802.11ax(HEW40)							
Test channel: Lowest							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit (dB)	Antenna Pol.	Detector
5925.00	36.05	16.75	52.80	74.00	-21.20	H	Peak
5925.00	36.44	16.75	53.19	74.00	-20.81	V	Peak
5925.00	26.30	16.75	43.05	54.00	-10.95	H	AVG
5925.00	26.97	16.75	43.72	54.00	-10.28	V	AVG
Test channel: Highest							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit (dB)	Antenna Pol.	Detector
7125.00	38.17	17.83	56.00	74.00	-18.00	H	Peak
7125.00	37.27	17.83	55.10	74.00	-18.90	V	Peak
7125.00	27.58	17.83	45.41	54.00	-8.59	H	AVG
7125.00	27.69	17.83	45.52	54.00	-8.48	V	AVG

Remark: 1. Result =Reading + Factor



Test Mode: IEEE 802.11ax(HEW80)**Test channel: Lowest**

Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit (dB)	Antenna Pol.	Detector
5925.00	36.11	16.75	52.86	68.20	-15.34	H	Peak
5925.00	36.63	16.75	53.38	68.20	-14.82	V	Peak
5925.00	26.79	16.75	43.54	54.00	-10.46	H	AVG
5925.00	26.98	16.75	43.73	54.00	-10.27	V	AVG

Test channel: Highest

Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over limit (dB)	Antenna Pol.	Detector
7125.00	38.49	17.83	56.32	68.20	-11.88	H	Peak
7125.00	37.60	17.83	55.43	68.20	-12.77	V	Peak
7125.00	29.02	17.83	46.85	54.00	-7.15	H	AVG
7125.00	28.25	17.83	46.08	54.00	-7.92	V	AVG

Remark: 1. Result =Reading + Factor

Conducted Spurious Emission:

Please refer to Appendix F of the Appendix Test Data.

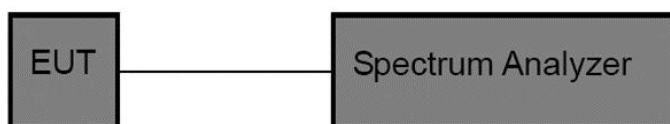


5. Maximum Output Power Test

5.1. Test Standard and Limit

Test Standard	FCC Part15 C Section 15.407(a)(4)(5)(6)(7)(8)	
Test Limit	5.925 - 6.425GHz	1) For standard power access point and fixed client device: e.i.r.p. ≤ 36 dBm. For outdoor devices, the maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm). 2) For indoor access point: e.i.r.p. ≤ 30 dBm. 3) For subordinate device operating under the control of an indoor access point: e.i.r.p. ≤ 30 dBm. 4) For client devices operating under the control of a standard power access point: e.i.r.p. ≤ 30 dBm. 5) For client devices operating under the control of an indoor access point: e.i.r.p. ≤ 24 dBm.
	6.425 - 6.525GHz	1) For indoor access point: e.i.r.p. ≤ 30 dBm. 2) For subordinate device operating under the control of an indoor access point: e.i.r.p. ≤ 30 dBm. 3) For client devices operating under the control of an indoor access point: e.i.r.p. ≤ 24 dBm.
	6.525 - 6.875GHz	1) For standard power access point and fixed client device: e.i.r.p. ≤ 36 dBm. For outdoor devices, the maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm). 2) For indoor access point: e.i.r.p. ≤ 30 dBm. 3) For subordinate device operating under the control of an indoor access point: e.i.r.p. ≤ 30 dBm. 4) For client devices operating under the control of a standard power access point: e.i.r.p. ≤ 30 dBm. 5) For client devices operating under the control of an indoor access point: e.i.r.p. ≤ 24 dBm.
	6.875 - 7.125GHz	1) For indoor access point: e.i.r.p. ≤ 30 dBm. 2) For subordinate device operating under the control of an indoor access point: e.i.r.p. ≤ 30 dBm. 3) For client devices operating under the control of an indoor access point: e.i.r.p. ≤ 24 dBm.

5.2. Test Setup



5.3. Test Procedure

1. Measure the duty cycle D of the transmitter output signal.
2. Set span to encompass the entire 99% OBW of the signal.



3. Set RBW = 1 MHz.
4. Set VBW $\geq [3 \times \text{RBW}]$.
5. Number of points in sweep $\geq [2 \times \text{span} / \text{RBW}]$.
6. Sweep time = auto.
7. Detector = RMS
8. Trace average at least 100 traces in power averaging (rms) mode; however, the number of traces to be averaged shall be increased above 100 as needed such that the average accurately represents the true average over the ON and OFF periods of the transmitter.
9. Compute power by integrating the spectrum across the OBW of the signal using the instrument's band power measurement function with band limits set equal to the OBW band edges. If the instrument does not have a band power function, then sum the spectrum levels (in power units) at intervals equal to the RBW extending across the entire OBW of the spectrum.
10. Add $[10 \log (1 / D)]$, where D is the duty cycle, to the measured power to compute the average power during the actual transmission times.

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

5.4. Test Data

Pass

Please refer to Appendix C of the Appendix Test Data.

Additional test for duty cycle.

Please refer to Appendix B of the Appendix Test Data.

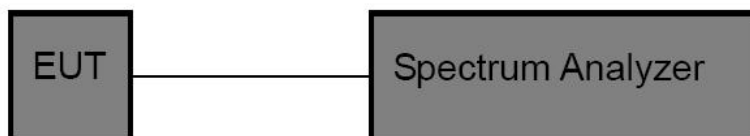


6. Power Spectral Density Test

6.1. Test Standard and Limit

Test Standard	FCC Part15 C Section 15.407(a)(4)(5)(6)(7)(8)	
Test Limit	5.925 - 6.425GHz	1) For standard power access point and fixed client device: e.i.r.p. PSD $\leq$ 23dBm/MHz. 2) For indoor access point: e.i.r.p. PSD $\leq$ 5dBm/MHz. 3) For subordinate device operating under the control of an indoor access point: e.i.r.p. PSD $\leq$ 5dBm/MHz. 4) For client devices operating under the control of a standard power access point: e.i.r.p. PSD $\leq$ 17dBm/MHz. 5) For client devices operating under the control of an indoor access point: e.i.r.p. PSD $\leq$ -1dBm/MHz.
	6.425 - 6.525GHz	1) For indoor access point: e.i.r.p. PSD $\leq$ 5dBm/MHz. 2) For subordinate device operating under the control of an indoor access point: e.i.r.p. PSD $\leq$ 5dBm/MHz. 3) For client devices operating under the control of an indoor access point: e.i.r.p. PSD $\leq$ -1dBm/MHz.
	6.525 - 6.875GHz	1) For standard power access point and fixed client device: e.i.r.p. PSD $\leq$ 23dBm/MHz. 2) For indoor access point: e.i.r.p. PSD $\leq$ 5dBm/MHz. 3) For subordinate device operating under the control of an indoor access point: e.i.r.p. PSD $\leq$ 5dBm/MHz. 4) For client devices operating under the control of a standard power access point: e.i.r.p. PSD $\leq$ 17dBm/MHz. 5) For client devices operating under the control of an indoor access point: e.i.r.p. PSD $\leq$ -1dBm/MHz.
	6.875 - 7.125GHz	1) For indoor access point: e.i.r.p. PSD $\leq$ 5dBm/MHz. 2) For subordinate device operating under the control of an indoor access point: e.i.r.p. PSD $\leq$ 5dBm/MHz. 3) For client devices operating under the control of an indoor access point: e.i.r.p. PSD $\leq$ -1dBm/MHz.

6.2. Test Setup



6.3. 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;

6.4. Test Data

Pass

Please refer to Appendix D of the Appendix Test Data.

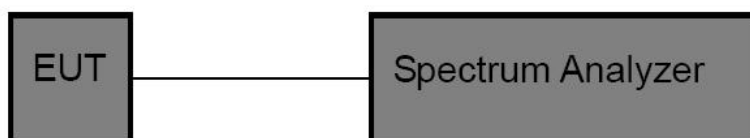


7. 26dB Bandwidth & 99% Occupied Bandwidth Test

7.1. Test Standard

Test Standard	FCC Part15 C Section 15.407(a) (10)& 2.1049
Test Limit	The maximum transmitter channel bandwidth for U-NII devices in the 5.925-7.125 GHz band is 320 megahertz.

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.
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.

7.4. Test Data

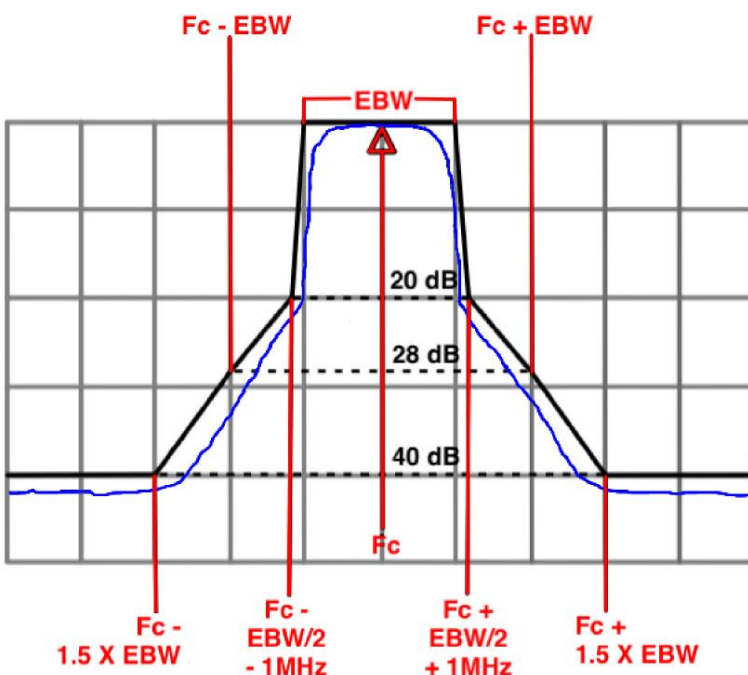
Pass

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

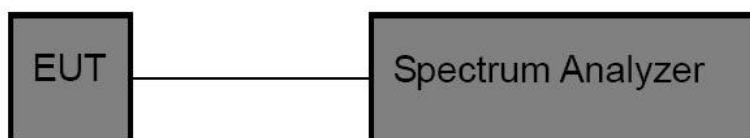


8. Emission Mask

8.1. Test Standard

Test Standard	FCC Part15 C Section 15.407(b)(6)(7)
Test Limit	(1) For transmitters operating within the 5.925-7.125 GHz bands: Power spectral density must be suppressed by 20 dB at 1 MHz outside of channel edge, by 28 dB at one channel bandwidth from the channel center, and by 40 dB at one- and one-half times the channel bandwidth away from channel center. At frequencies between one megahertz outside an unlicensed device's channel edge and one channel bandwidth from the center of the channel, the limits must be linearly interpolated between 20 dB and 28 dB suppression, and at frequencies between one and one- and one-half times an unlicensed device's channel bandwidth, the limits must be linearly interpolated between 28 dB and 40 dB suppression. Emissions removed from the channel center by more than one- and one-half times the channel bandwidth must be suppressed by at least 40 dB. (2) For transmitters operating within the 5.925-7.125 GHz band: Any emissions outside of the 5.925-7.125 GHz band must not exceed an e.i.r.p. of -27dBm/MHz. 

8.2. Test Setup



8.3. Test Procedure

1. Connect output of the antenna port to a spectrum analyzer.



2. Set the reference level based on power measurements of the signal.
3. Measure the 26dB EBW which will be used to determine the channel edge.
4. Measure the power spectral density which will be used for emission mask reference.
5. Measure the power spectral density used for emissions mask reference.
6. Set the spectrum analyzer as:
 - a) Set span to encompass the entire 26dB EBW of the signal.
 - b) Set RBW = same RBW used for 26dB EBW measurement.
 - c) Set VBW $\geq 3 \times$ RBW
 - d) Sweep time = auto
 - e) Detect = RMS
 - f) Trace average at least 100 traces
7. For the purposes of developing the emission mask, the channel bandwidth is defined as the 26dB EBW.
8. Repeat until all the rest channels are investigated.

8.4. Test Data

Pass

Please refer to Appendix E of the Appendix Test Data.

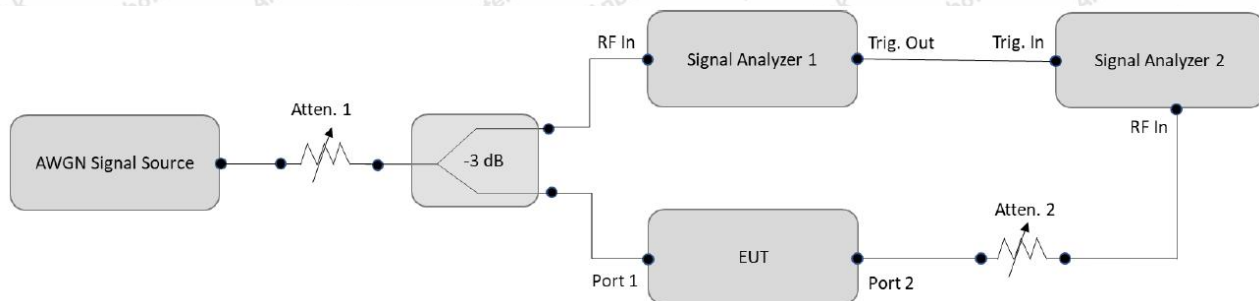


9. Contention-Based Protocol

9.1. Test Standard and Limit

Test Standard	FCC Part15 Section 15.407d(6)
Test Limit	Indoor access points, subordinate devices and client devices operating in the 5.925–7.125 GHz band must employ a contention-based protocol. Unlicensed low-power indoor devices must detect co-channel radio frequency power that is at least -62 dBm or lower. Upon detection of energy in the band, unlicensed low power indoor devices must vacate the channel (in which incumbent signal is transmitted) and stay off the incumbent channel as long as detected radio frequency power is equal to or greater than the threshold (-62 dBm)¹. The -62 dBm (or lower) threshold is referenced to a 0 dBi antenna gain. To ensure incumbent operations are reliably detected in the band, low power indoor devices must detect RF energy throughout their intended operating channel. For example, an 802.11 device that plans to transmit a 40 MHz- wide signal (on a primary 20 MHz channel and a secondary 20 MHz channel) must detect energy throughout the entire 40 MHz channel. Additionally, low-power indoor devices must detect co-channel energy with 90% or greater certainty.

9.2. Test Setup



9.3. Test Procedure

1. Configure the EUT to transmit with a constant duty cycle.
2. Set the operating parameters of the EUT including power level, operating frequency, modulation and bandwidth.
3. Set the signal analyzer center frequency to the nominal EUT channel center frequency. The span range of the signal analyzer shall be between two times and five times the OBW of the EUT. Connect the output port of the EUT to the signal analyzer 2, as shown in Figure 2. Ensure that the attenuator 2 provides enough attenuation to not overload the signal analyzer 2 receiver.
4. Monitoring the signal analyzer 2, verify the EUT is operating and transmitting with the parameters set at step two.
5. Using an AWGN signal source, generate (but do not transmit, i.e., RF OFF) a 10 MHz-wide AWGN signal. Use Table 1 to determine the center frequency of the 10 MHz AWGN signal relative to the EUT's channel bandwidth and center frequency.



6. Set the AWGN signal power to an extremely low level (more than 20 dB below the -62 dBm threshold). Connect the AWGN signal source, via a 3-dB splitter, to the signal analyzer 1 and the EUT as shown in Figure 2.
7. Transmit the AWGN signal (RF ON) and verify its characteristics on the signal analyzer 1.
8. Monitor the signal analyzer 2 to verify if the AWGN signal has been detected and the EUT has ceased transmission. If the EUT continues to transmit, then incrementally increase the AWGN signal power level until the EUT stops transmitting.
9. (Including all losses in the RF paths) Determine and record the AWGN signal power level (at the EUT's antenna port) at which the EUT ceased transmission. Repeat the procedure at least 10 times to verify the EUT can detect an AWGN signal with 90% (or better) level of certainty.
10. Refer to Table 1 to determine number of times the detection threshold testing needs to be repeated. If testing is required more than once, then go back to step 5, choose a different center frequency for the AWGN signal and repeat the process.

9.4. Test Data

Pass

Please refer to Appendix G of the Appendix Test Data.



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 FPC Antenna which permanently attached, and the best case gain of the 3.05dBi for Wi-Fi UNII5, 2.33dBi for Wi-Fi UNII6, 3.79dBi for Wi-Fi UNII7,3.55dBi for Wi-Fi UNII8. It complies with the standard requirement.



APPENDIX I -- TEST SETUP PHOTOGRAPH

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

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 -----

