TEST REPORT

Applicant:	Shenzhen AZW Technology Co., Ltd.
Address of Applicant:	3th Floor, Building 11, 4th Floor, Building 18, longjun Industrial park,Longhua New District,ShenZhen,China
Manufacturer/Factory:	Shenzhen AZW Technology Co., Ltd.
Address of Manufacturer	3th Floor, Building 11, 4th Floor, Building 18, longjun Industrial park,Longhua New District,ShenZhen,China
Product Name:	Mini PC
Model No.:	EQ、EQ Pro、EQ Plus、EQ Pro Plus、EQ Mini
Trade Mark:	N/A
FCC ID:	2A4J2-EQ
Applicable standards:	FCC CFR Title 47 Part 15 Subpart E Section 15.407
Date of Test:	Mar.24, 2023- Apri.07, 2023
Date of report issued:	Apri.08, 2023
Test Result :	PASS *

Remark:
* In the configuration tested, the EUT complied with the standards specified above.

The results shown in this test report refer only to the sample(s) tested , this test report cannot be reproduced, except in full without prior written permission of the company.

The report would be invalid without specific stamp of test institute and the signatures of compiler and approver

Prepared By

Shenzhen ETR Standard Technology Co., Ltd.

Address: No.103, No.10, Phase I, Zone 3, Xinxing Industrial Park, Xinhe, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

Compiled by:	Reviewed by:	Approved by:
Carr Kang	Smith Chen	Smith Chen
Project Engineer	Project Manager	Authorized Signature

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Report Revision History		
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1 Test Summary

Test Item	Section in CFR 47	Result	Test by
Antenna requirement	15.203	Pass	/
AC Power Line Conducted Emission	15.207	Pass	Carr Kang
Conducted Output Power	15.407 (a)(1)/(a)(3)	Pass	Yvan Fan
26dB Bandwidth and 99% Occupied Bandwidth	15.407 (a)(12)	Pass	Yvan Fan
6dB Bandwidth	15.407 (e)	Pass	Yvan Fan
Power Spectral Density	15.407(a)(1)/(a)(3)	Pass	Yvan Fan
Band Edge	15.407(b)(1)/(b)(4)	Pass	Yvan Fan
Spurious Emission	15.205/15.209 15.407(b)(1)/(b)(4)/(b)(8)	Pass	Qiao Li
Frequency Stability	15.407(g)	Pass	Yvan Fan

Remarks：

1. *Pass: The EUT complies with the essential requirements in the standard.*
2. *Test according to ANSI C63.10:2013.*

1.1 Measurement Uncertainty

Test Item	Measurement Uncertainty	Notes
Occupied Channel Bandwidth	±0.55%	(1)
RF output power, conducted	±0.99dB	(1)
Power Spectral Density, conducted	±0.61dB	(1)
Unwanted Emissions, conducted	±0.64dB	(1)
AC Power Line Conducted Emission	± 3.02dB	(1)
Radiated emissions 9K-30MHz	±3.98dB	(1)
Radiated emissions 30M- 1GHz	±4.30dB	(1)
Radiated emissions 1GHz-18GHz	±4.35dB	(1)
Radiated emissions 18GHz-40GHz	±4.59 dB	(1)
Note (1): The measurement uncertainty is for coverage factor of k=2 and a level of confidence of 95%.		

2 General Information

2.1 General Description of EUT

Product Name:	MiniPC
Model No.:	EQ, EQ Pro、EQ Plus、EQ Pro Plus、EQ Mini
Difference of model(s)	All the model are the same circuit and RF module, except the model names and colors
Test Model:	EQ
Hardware Version:	N/A
Software Version:	N/A
Sample(s) Status:	Engineer sample
Operation Frequency:	☒5180-5240MHz for 802.11a/n(HT20)/ac20; 5190-5230MHz for 802.11n(HT40)/ac40; 5210MHz for 802.11 ac80; ☒5745-5825 MHz for 802.11a/n(HT20)/ac20; 5755-5795 MHz for 802.11n(HT40)/ac40; 5775MHz for 802.11 ac80;
Channel numbers:	☒4 channels for 802.11a/n20/ac20 in the 5180-5240MHz band; 2 channels for 802.11 n40/ac40 in the 5190-5230MHz band ; 1 channels for 802.11 ac80 in the 5210MHz band ; ☒5 channels for 802.11a/n20/ac20 in the 5745-5825MHz band ; 2 channels for 802.11 n40/ac40 in the 5755-5795MHz band ; 1 channels for 802.11 ac80 in the 5775MHz band
Channel bandwidth:	802.11a/802.11n(HT20)/ 802.11ac(HT20): 20MHz 802.11n(HT40)/ 802.11ac(HT40) : 40MHz 802.11ac(HT80) : 80MHz
Data Rate	802.11a: 6,9,12,18,24,36,48,54Mbps; 802.11n(HT20/HT40):MCS0-MCS15; 802.11ac(VHT/20/40/80):NSS1, MCS0-MCS9
Modulation technology:	Orthogonal Frequency Division Multiplexing (OFDM) with BPSK/QPSK/16QAM/64QAM/256QAM
Antenna Type:	Integrated antenna
Antenna gain:	5.26dBi(Declare by applicant)
Power supply:	DC 12V for adapter with AC 100-240V 50/60Hz

Operation Frequency each of channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
36	5180MHz	38	5190MHz	40	5200MHz	42	5210MHz
44	5220MHz	46	5230MHz	48	5240MHz	/	/
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
149	5745MHz	151	5755MHz	153	5765MHz	155	5775MHz
157	5785MHz	159	5795MHz	161	5805MHz	/	/
165	5825MHz	/					

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Test channel	**Frequency (MHz)**		
	802.11 a /n(HT20)/ac(HT20)	802.11 n(HT40)/ac(HT40)	802.11ac(HT80)
Lowest channel	5180	5190	5210
Middle channel	5200		
Highest channel	5240	5230	

Test channel	**Frequency (MHz)**		
	802.11 a /n(HT20)/ac(HT20)	802.11 n(HT40)/ac(HT40)	802.11ac(HT80)
Lowest channel	5745	5755	5775
Middle channel	5785		
Highest channel	5825	5795	

2.2 Test mode

Transmitting mode	Keep the EUT in continuously transmitting mode(or with a duty cycle ≥ 98%)

Remark: During the test, the test voltage was tuned from 85% to 115% of the nominal rated supply voltage, and found that the worst case was under the nominal rated supply condition. So the report just shows that condition's data.

We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows:

Pretest Mode	Description
Mode 1	802.11a / n 20 CH36/ CH40/ CH 48 802.11a /n 20 CH149/ CH157/ CH 165
Mode 2	802.11n 40 CH38/ CH 46 802.11n 40 CH 151 / CH 159
Mode 3	802.11 ac80 CH 42/CH 155
Mode 4	802.11a / n 20 CH36/ CH40/ CH 48 802.11a /n 20 CH149/ CH157/ CH 165
Mode 5	Link Mode

Conducted Emission	
Final Test Mode	Description
Mode 5	Link Mode

For Radiated Emission	
Final Test Mode	Description
Mode 1	802.11a / n 20 CH36/ CH40/ CH 48 802.11a /n 20 CH149/ CH157/ CH 165
Mode 2	802.11n 40 CH38/ CH 46 802.11n 40 CH 151 / CH 159
Mode 3	802.11 ac80 CH 42/CH 155
Mode 4	802.11a / n 20 CH36/ CH40/ CH 48 802.11a /n 20 CH149/ CH157/ CH 165

Note:

(1) The measurements are performed at all Bit Rate of Transmitter, the worst data was reported.

2.3 Description of Support Units

No.	Description	Manufacturer	Model	Serial Number	Certification or SDOC
1	LED Screen	Dell	ZQT	N/A	N/A
2	Mouse	Dell	/	N/A	N/A
3	keyboard	Dell	/	N/A	N/A
4	USB drive	Aigo	/	N/A	N/A
5	earphone	HUAWEI	/	N/A	N/A

2.4 Deviation from Standards

None.

2.5 Abnormalities from Standard Conditions

None.

2.6 Test Facility

Test laboratory:	Shenzhen ETR Standard Technology Co., Ltd.
CNAS Registration Number:	L11864
A2LA Certificate Number:	6640.01
FCC Designation Number:	CN1326
FCC Test Firm Registration:	183064

2.7 Test Location

All tests were performed at:	
Laboratory location:	No.103, No.10, Phase I, Zone 3, Xinxing Industrial Park, Xinhe, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China
Telephone:	+86 755 85259392

2.8 Additional Instructions

Test Software	QATool_Dbg.exe
Power level setup	Default

3 Test Instruments list

Conducted Emission

Item	Equipment name	Manufacturer	Model	Serial No.	Calibration date	Due date
1	EMI Test Receiver	Rohde&schwarz	ESCI3	100605	2023.3.02	2024.3.01
2	amplifier	EMtrace	RP01A	50117	2023.3.02	2024.3.01
3	Artificial power network	schwarabeck	NSLK8127	8127483	2023.3.02	2024.3.01
4	Artificial power network	ETS	3186/2NM	1132	2023.3.02	2024.3.01
5	10dB attenuator	HUBER+SUHNER	10dB	/	2023.3.02	2024.3.01
6	Cable 4	HUBER SUNNER	3M	/	2023.3.02	2024.3.01
7	Absorbing Clamp	schwarabeck	MDS21	D69250	2023.3.06	2024.3.05

Radiated Emission &RF Conducted test:

Item	Equipment name	Manufacturer	Model	Serial No.	Calibration date	Due date
1	EMI Test Receiver	Rohde&schwarz	ESPI7	100605	2023.3.02	2024.3.01
2	Broadband antenna	schwarabeck	VULB9168	1064	2022.3.11	2024.3.10
3	Horn antenna	schwarabeck	BBHA9120D	9120D-1145	2022.3.11	2024.3.10
4	amplifier	EMtrace	RP01A	50117	2023.3.02	2024.3.01
5	amplifier	Space-Dtronics	EWLAN0118G-P40	19113001	2023.3.02	2024.3.01
6	Spectrum analyzer	KEYSIGHT	N9020A	MY55370280	2023.3.06	2024.3.05
7	Power detector box	MWRFtest	MW100-PSB	MW201020JYT	2022.11.09	2023.11.08
8	Signal generator	Agilent	N5182A	MY49060455	2022.11.09	2023.11.08
9	Spectrum analyzer	Rohde&schwarz	FSV40	100363	2022.3.09	2023.3.08
10	amplifier	Aeroflex	DLE-161	097	2022.3.09	2023.3.08
11	Horn antenna	Com-Power	SAS-574	588	2022.3.11	2024.3.10
12	Loop antenna	schwarabeck	FMZB 1519 B	1519	2022.3.11	2024.3.10
13	Cable 6	HUBER SUNNER	0.5M	/	2023.3.02	2024.3.01
14	Cable7	HUBER SUNNER	2.0M	/	2023.3.02	2024.3.01
15	Cable8	HUBER SUNNER	6.0M	/	2023.3.02	2024.3.01

Note: the calibration interval of the above test instruments is 12 or 24 months and the calibrations are traceable to international system unit (SI).

Software Name	Manufacturer	Model	Version
RF test software	MWRFtest	MTS 8310	V2.0.0.0
Conducted test software	EZ-EMC	Farad	Ver.EMC-CON 3A1.1
Radiated test software	EZ-EMC	Farad	Ver.FA-03A2 RE

4 Test results and Measurement Data

4.1 Antenna requirement

Standard requirement:	FCC Part15 C Section 15.203
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.*	
E.U.T Antenna:	
The antennas are Integrated antenna, the best case gain of the antennas are 5.26 dBi, reference to the appendix II for details	

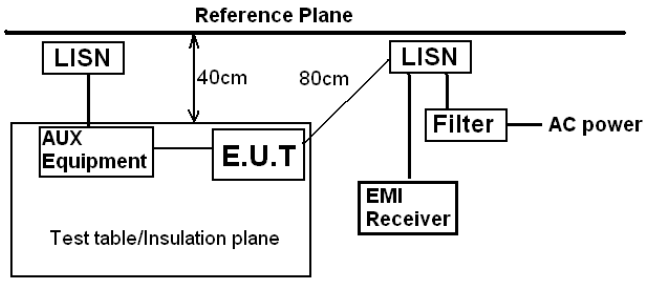
4.2 Conducted Emissions

Test Requirement:	FCC Part15 C Section 15.207
Test Method:	ANSI C63.10:2013
Test Frequency Range:	150KHz to 30MHz
Class / Severity:	Class B
Receiver setup:	RBW=9KHz, VBW=30KHz, Sweep time=auto
Limit:	

Frequency range (MHz)	Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency.

Test setup:



Remark:
E.U.T: Equipment Under Test
LISN: Line Impedence Stabilization Network
Test table height=0.8m

Test procedure:

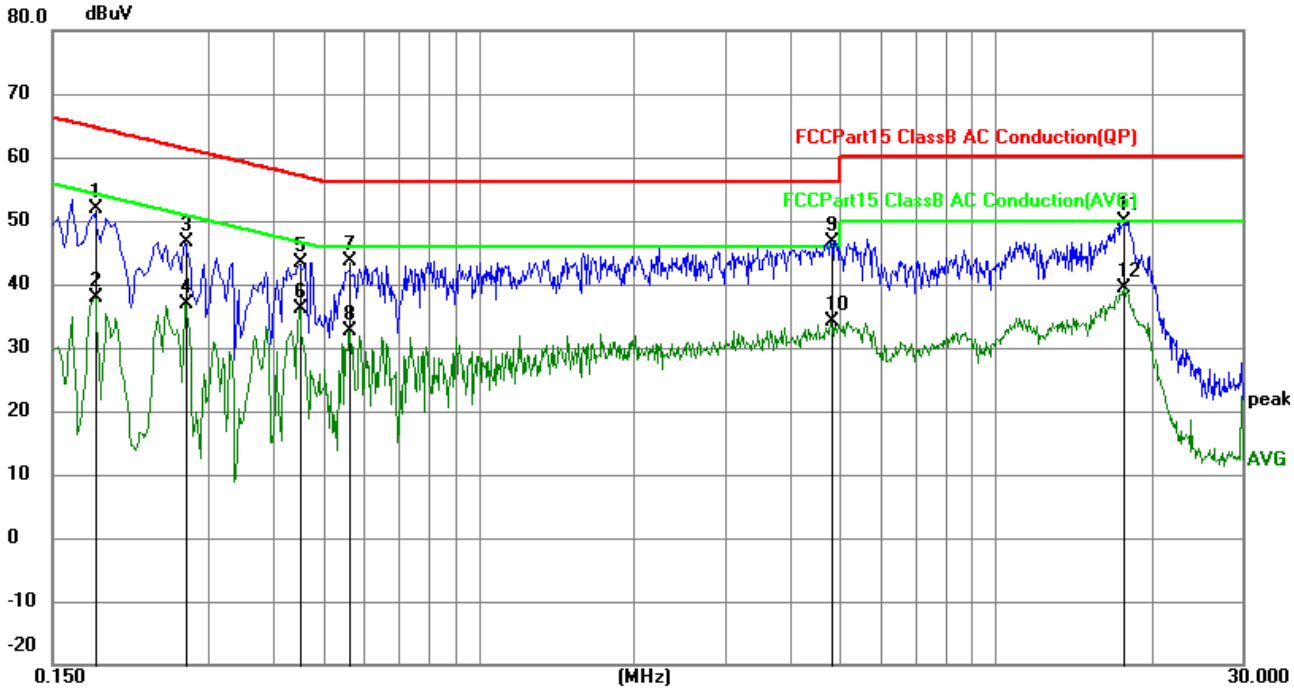
1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment.
2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs).
3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10:2013 on conducted measurement.

Test Instruments:	Refer to section 3.0 for details					
Test mode:	Refer to section 2.2 for details					
Test environment:	Temp.:	23.6°C	Humid.:	52%	Press.:	1012mbar
Test voltage:	AC 120V, 60Hz					
Test results:	Pass					

Remark:
1. Both high voltage and low voltage have been tested, and the report only shows the worst case data with AC 120V/60Hz.
2. All mode have been tested, the report only shows the worst mode 802.11 a (5180MHz) data.

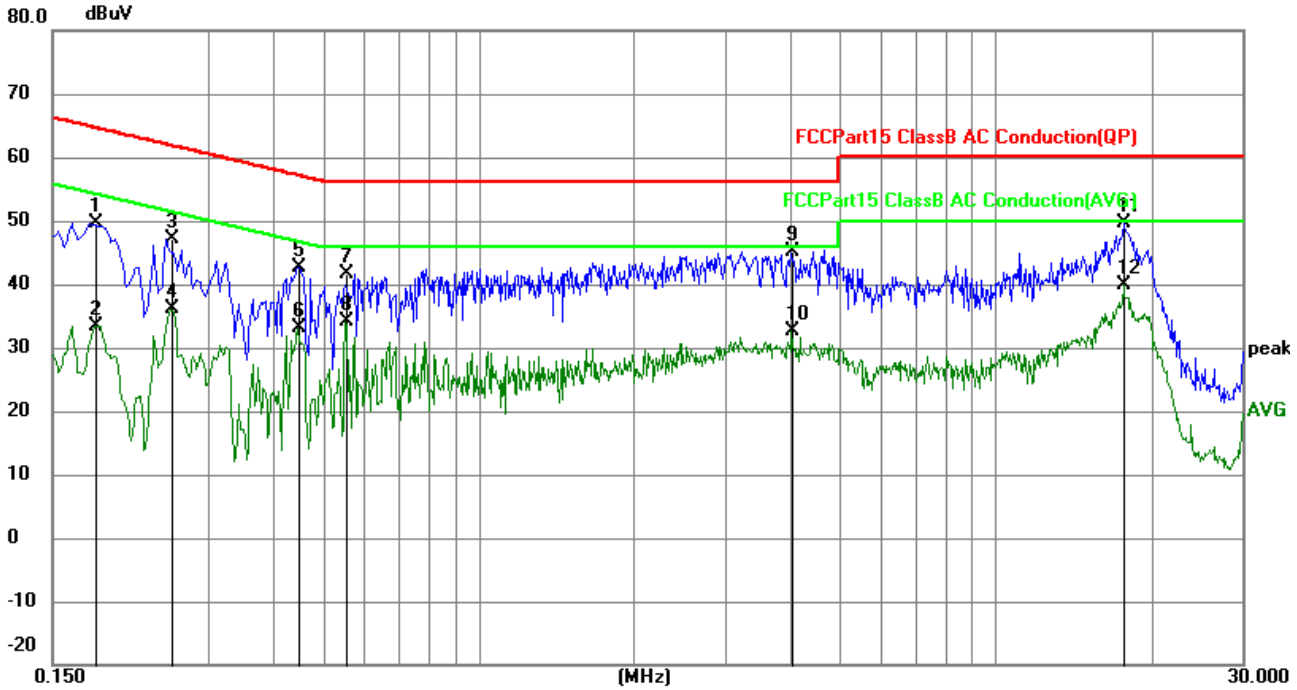
Measurement data

Line:



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1815	42.06	9.81	51.87	64.42	-12.55	QP
2	0.1815	28.02	9.81	37.83	54.42	-16.59	AVG
3	0.2714	36.85	9.83	46.68	61.07	-14.39	QP
4	0.2714	27.12	9.83	36.95	51.07	-14.12	AVG
5	0.4515	33.51	9.92	43.43	56.85	-13.42	QP
6	0.4515	26.20	9.92	36.12	46.85	-10.73	AVG
7	0.5639	33.61	9.94	43.55	56.00	-12.45	QP
8	0.5639	22.76	9.94	32.70	46.00	-13.30	AVG
9	4.7985	36.76	9.83	46.59	56.00	-9.41	QP
10	4.7985	24.38	9.83	34.21	46.00	-11.79	AVG
11	17.7314	40.07	9.71	49.78	60.00	-10.22	QP
12	17.7314	29.77	9.71	39.48	50.00	-10.52	AVG

Neutral:

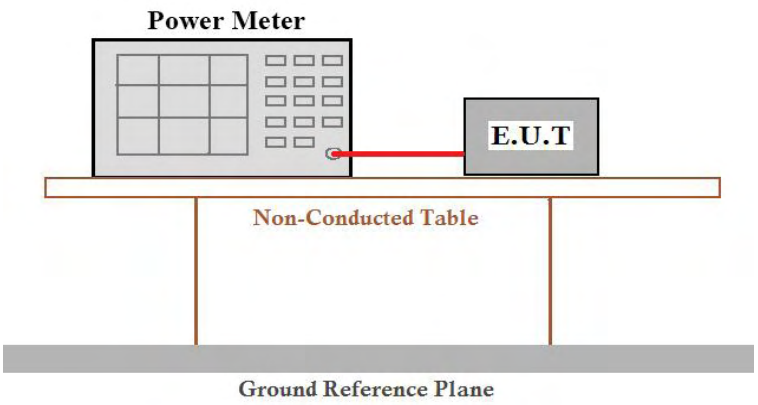


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1815	39.74	9.81	49.55	64.42	-14.87	QP
2	0.1815	23.51	9.81	33.32	54.42	-21.10	AVG
3	0.2535	37.42	9.83	47.25	61.64	-14.39	QP
4	0.2535	26.23	9.83	36.06	51.64	-15.58	AVG
5	0.4470	32.82	9.92	42.74	56.93	-14.19	QP
6	0.4470	23.11	9.92	33.03	46.93	-13.90	AVG
7	0.5550	31.62	9.94	41.56	56.00	-14.44	QP
8	0.5550	24.25	9.94	34.19	46.00	-11.81	AVG
9	4.0290	35.30	9.84	45.14	56.00	-10.86	QP
10	4.0290	22.70	9.84	32.54	46.00	-13.46	AVG
11	17.7405	40.03	9.71	49.74	60.00	-10.26	QP
12	17.7405	30.13	9.71	39.84	50.00	-10.16	AVG

Notes:

1. An initial pre-scan was performed on the line and neutral lines with peak detector.
2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3. Final Level =Receiver Read level + LISN Factor + Cable Loss
4. If the average limit is met when using a quasi-peak detector receiver, the EUT shall be deemed to meet both *limits and measurement with the average detector receiver is unnecessary.*

4.3 Conducted Peak Output Power

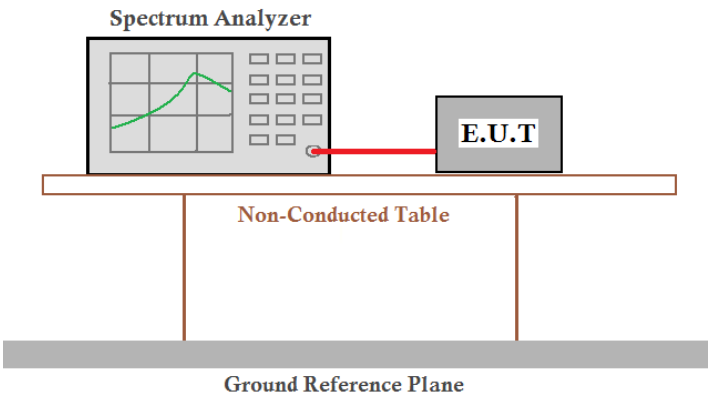
Test Requirement:	FCC Part15 E Section 15.407 (a)(1)/(a)(3)
Test Method:	ANSI C63.10:2013 and KDB 789033 D02 General U-NII Test Procedures New Rules v02r01
Limit:	5150-5250MHz : 250mW 5725~5850MHz : 1W
Test setup:	
Test Instruments:	Refer to section 3.0 for details
Test mode:	Refer to section 2.2 for details
Test results:	Pass

Measurement Data

Test Channel	Frequency (MHz)	Maximum output power (dBm)	LIMIT dBm	Result
TX 802.11a Mode				
CH36	5180	15.80	23.98	Pass
CH40	5200	15.38	23.98	Pass
CH48	5240	14.60	23.98	Pass
TX 802.11 n20 Mode				
CH36	5180	15.77	23.98	Pass
CH40	5200	15.48	23.98	Pass
CH48	5240	14.65	23.98	Pass
TX 802.11 ac20 Mode				
CH36	5180	15.76	23.98	Pass
CH40	5200	15.54	23.98	Pass
CH48	5240	14.66	23.98	Pass
TX 802.11 n40 Mode				
CH38	5190	14.34	23.98	Pass
CH46	5230	13.35	23.98	Pass
TX 802.11 ac40 Mode				
CH38	5190	14.07	23.98	Pass
CH46	5230	13.42	23.98	Pass
TX 802.11 ac80 Mode				
CH42	5210	12.30	23.98	Pass

Test Channel	Frequency (MHz)	Maximum output power. (dBm)	LIMIT dBm	Result
TX 802.11a Mode				
CH149	5745	10.15	30	Pass
CH157	5785	10.24	30	Pass
CH165	5825	10.54	30	Pass
TX 802.11 n20 Mode				
CH149	5745	10.16	30	Pass
CH157	5785	10.26	30	Pass
CH165	5825	10.37	30	Pass
TX 802.11 ac20 Mode				
CH149	5745	10.03	30	Pass
CH157	5785	10.26	30	Pass
CH165	5825	10.51	30	Pass
TX 802.11 n40 Mode				
CH151	5755	9.20	30	Pass
CH159	5795	9.45	30	Pass
TX 802.11 ac40 Mode				
CH151	5755	9.18	30	Pass
CH159	5795	9.32	30	Pass
TX 802.11 ac80 Mode				
CH155	5775	8.17	30	Pass

4.4 Bandwidth &99% Occupy Bandwidth

Test Requirement:	FCC Part15 E Section 15.407(a)(12)&15.407(e)
Test Method:	ANSI C63.10:2013 and KDB 789033 D02 General U-NII Test Procedures New Rules v02r01
Limit:	Measurements in the 5.725-5.85 GHz band, the minimum bandwidth 6 dB bandwidth of U-NII devices shall be at least 500KHz. Measurements in the 5.15-5.25 GHz, 5.25-5.35 GHz, and the 5.47-5.725 GHz bands are made over a bandwidth of 1 MHz or the 26 dB emission bandwidth of the device, whichever is less. A narrower resolution bandwidth can be used, provided that the measured power is integrated over the full reference bandwidth.
Test setup:	
Test Instruments:	Refer to section 3.0 for details
Test mode:	Refer to section 2.2 for details
Test results:	Pass

Measurement Data

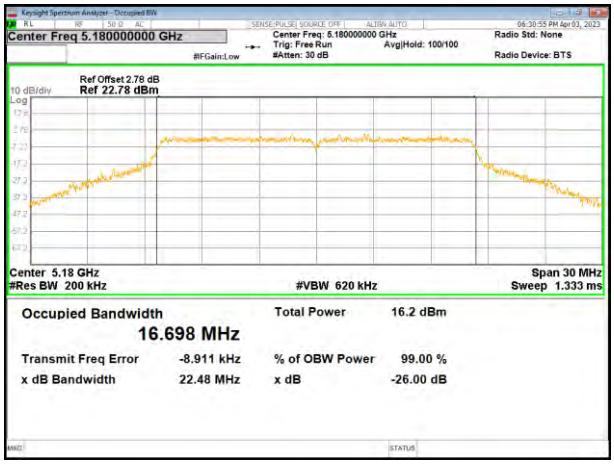
5180-5240MHz

Test CH	-26dB Channel Bandwidth (MHz)						Result
	802.11a	802.11n (HT20)	802.11ac (HT20)	802.11n (HT40)	802.11ac (HT40)	802.11ac (HT80)	
Lowest	22.48	23.58	23.51	44.49	44.00	--	Pass
Middle	23.08	23.81	23.69	--	--	83.71	
Highest	23.48	23.86	23.41	43.49	44.72	--	

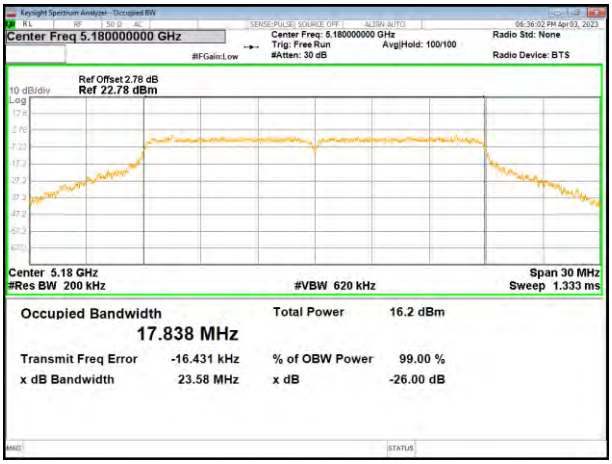
Test CH	99% Occupy Bandwidth (MHz)						Result
	802.11a	802.11n (HT20)	802.11ac (HT20)	802.11n (HT40)	802.11ac (HT40)	802.11ac (HT80)	
Lowest	16.698	17.838	17.828	36.346	36.321	--	Pass
Middle	16.717	17.839	17.859	--	--	75.122	
Highest	16.657	17.847	17.869	36.359	36.370	--	

Test plot

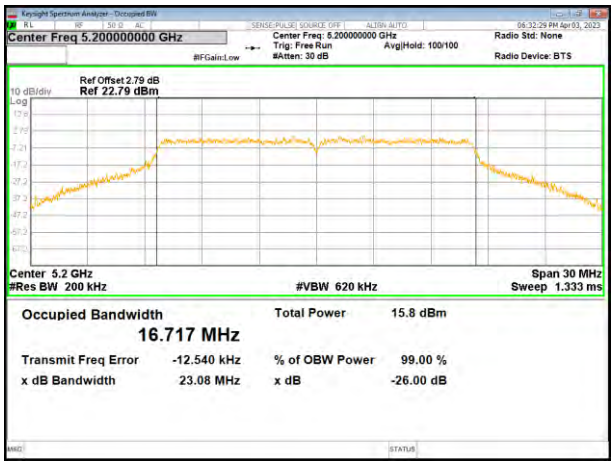
(802.11a) plot on channel 36



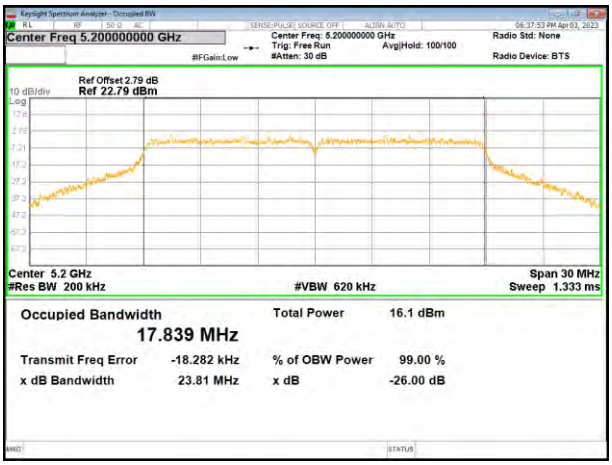
(802.11 n20) plot on channel 36



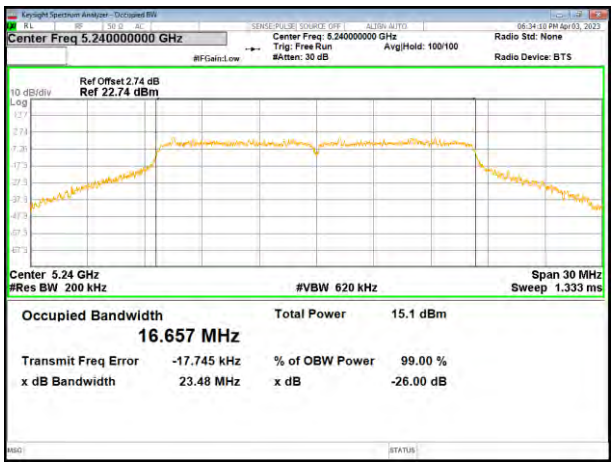
(802.11a) plot on channel 40



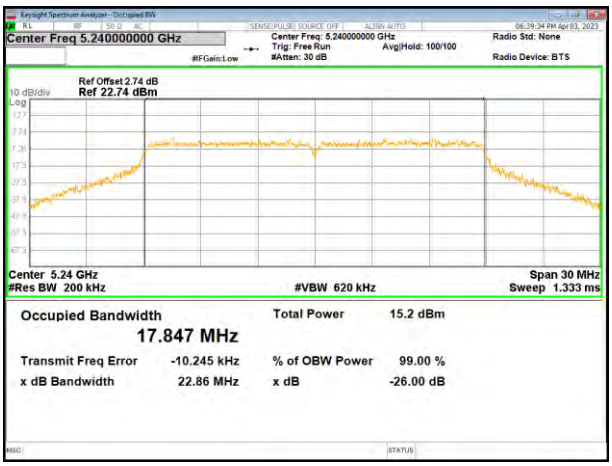
(802.11 n20) plot on channel 40



(802.11a) plot on channel 48

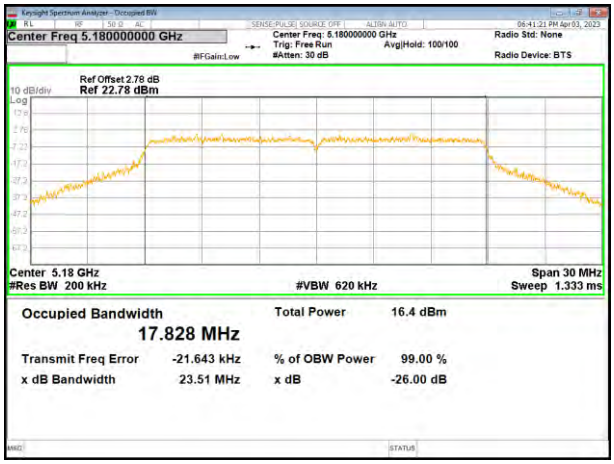


(802.11 n20) plot on channel 48

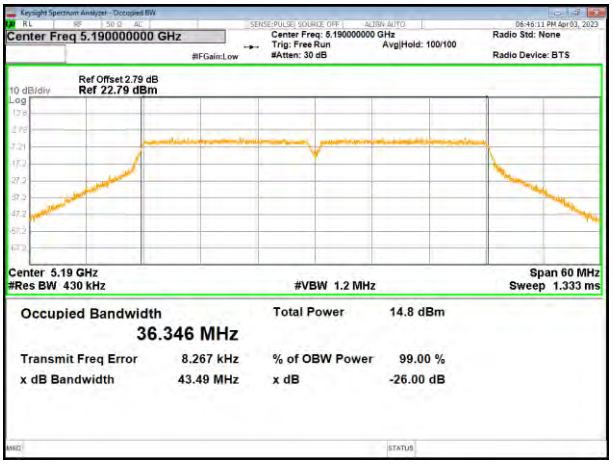


Test plot

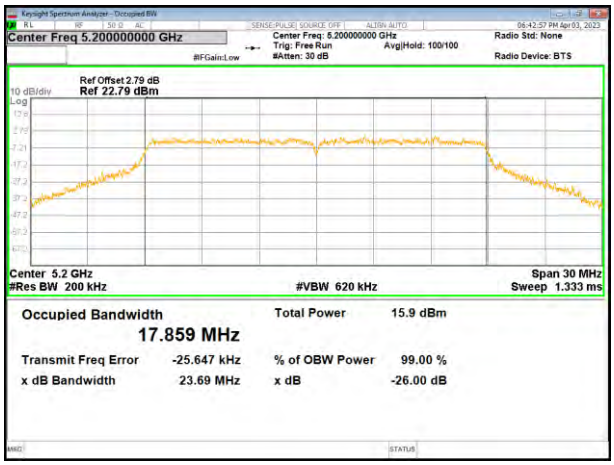
(802.11ac20) plot on channel 36



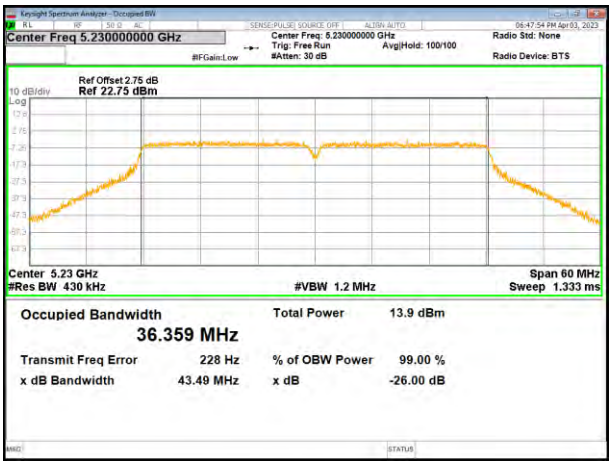
(802.11 n40) plot on channel 38



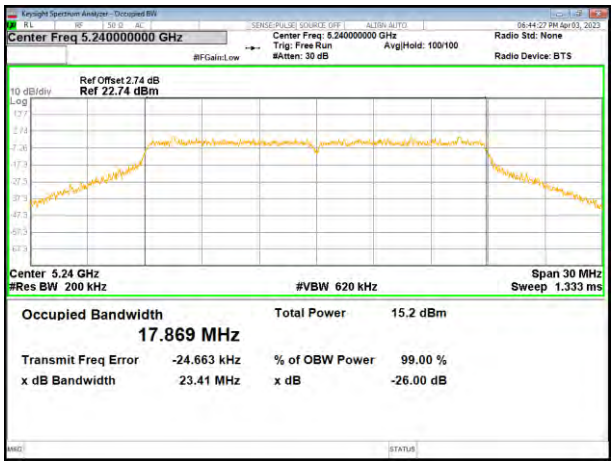
(802.11ac20) plot on channel 40



(802.11 n40) plot on channel 46

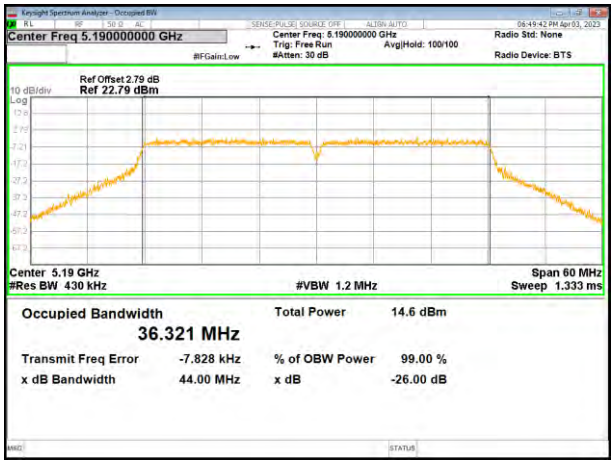


(802.11ac20) plot on channel 48

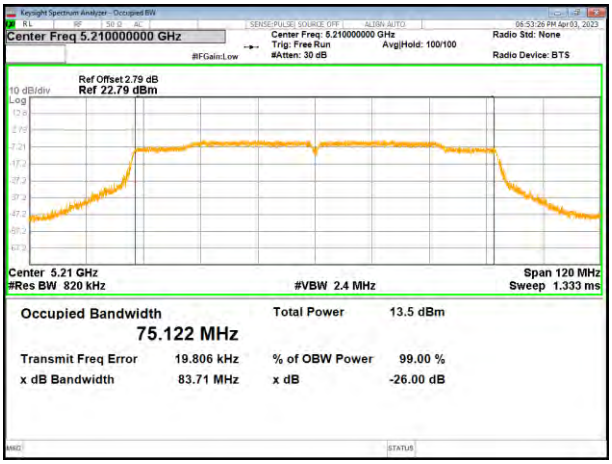


Test plot

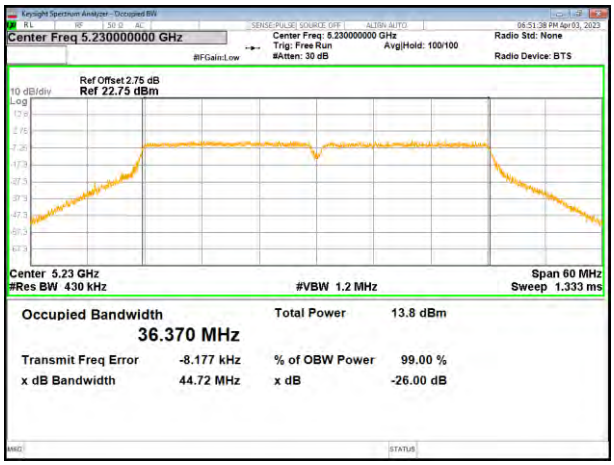
(802.11ac40) plot on channel 38



(802.11ac80) plot on channel 42



(802.11ac40) plot on channel 46



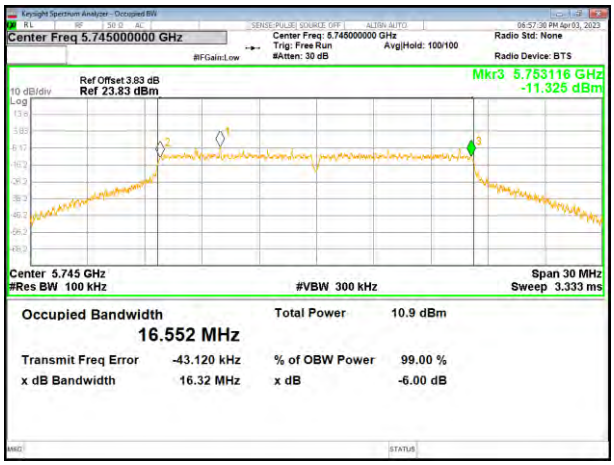
5745-5825MHz

Test CH	-6dB Channel Bandwidth (MHz)						Limit (KHz)	Result
	802.11a	802.11n (HT20)	802.11ac (HT20)	802.11n (HT40)	802.11ac (HT40)	802.11ac (HT80)		
Lowest	16.32	17.64	17.54	36.31	36.33	--	>500	Pass
Middle	16.31	17.31	17.59	--	--	72.59		
Highest	16.33	17.57	17.61	36.31	36.29	--		

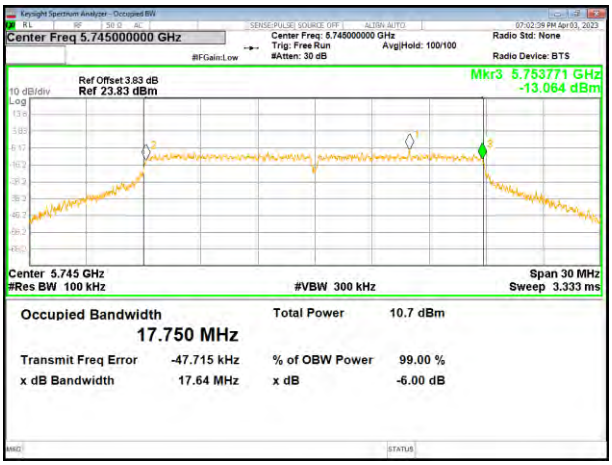
Remark: “---“is not applicable

Test plot

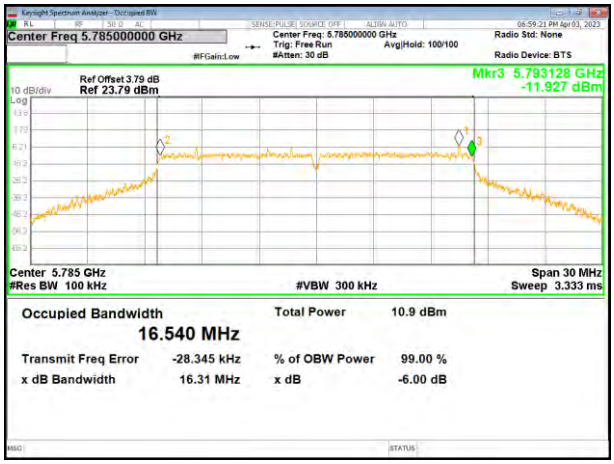
(802.11a) plot on channel 149



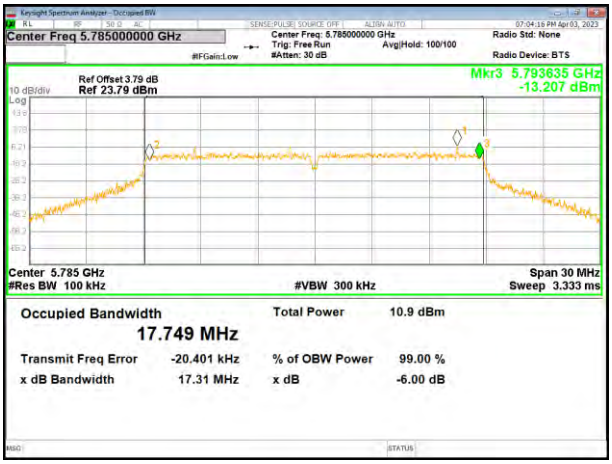
(802.11 n20) plot on channel 149



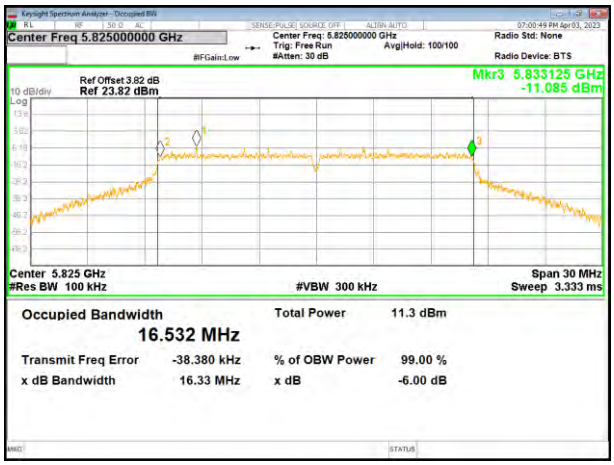
(802.11a) plot on channel 157



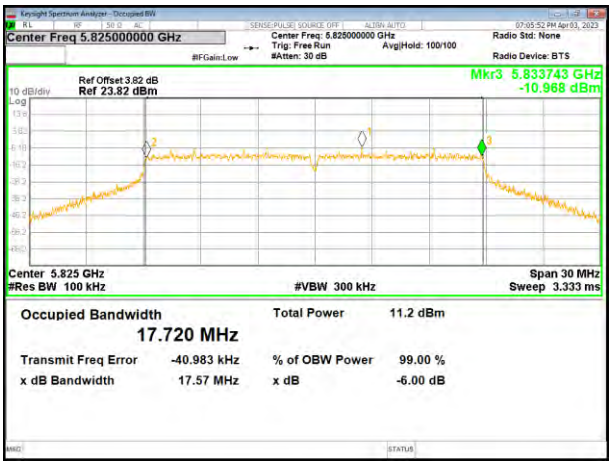
(802.11 n20) plot on channel 157



(802.11a) plot on channel 165

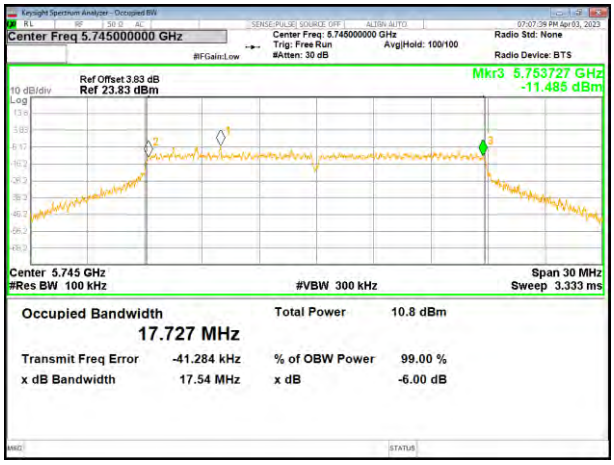


(802.11 n20) plot on channel 165

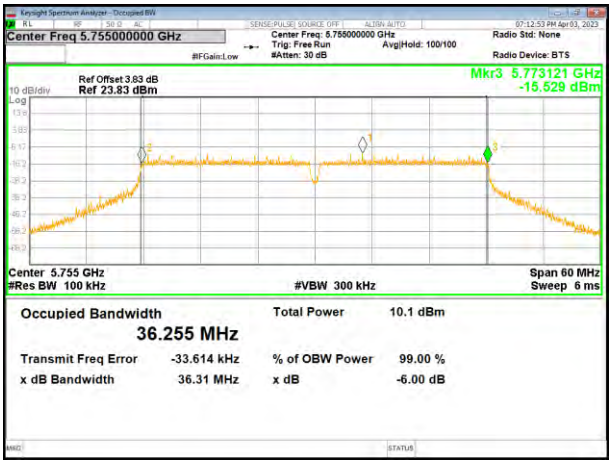


Test plot

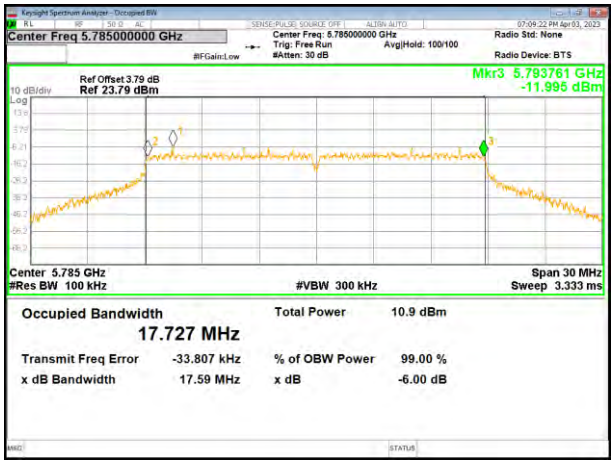
(802.11ac20) plot on channel 149



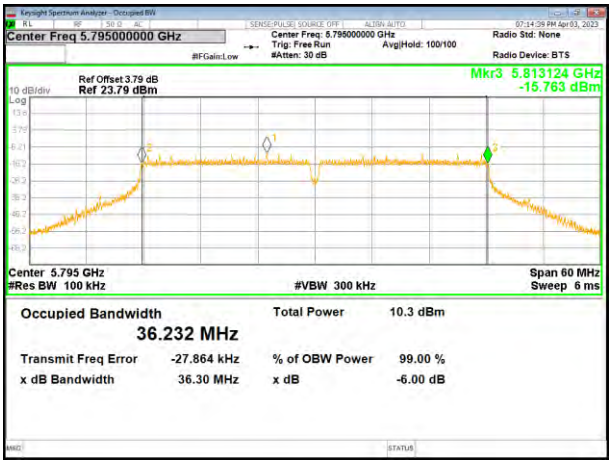
(802.11 n40) plot on channel 151



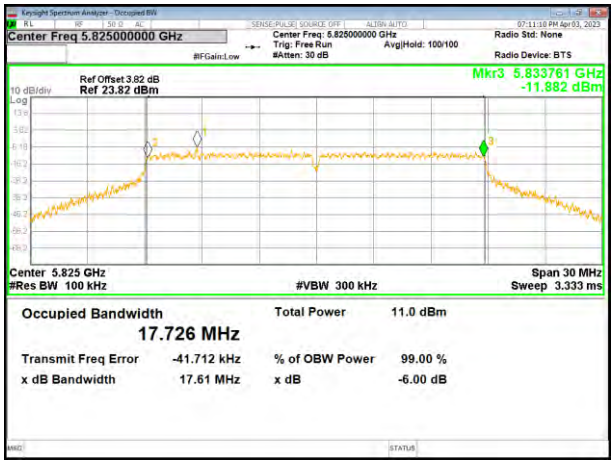
(802.11ac20) plot on channel 157



(802.11 n40) plot on channel 159

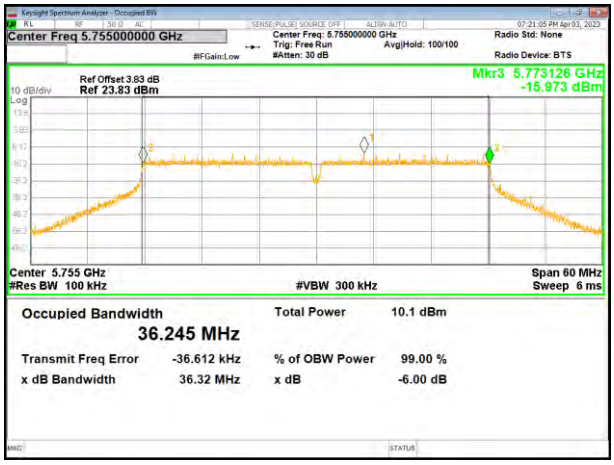


(802.11ac20) plot on channel 165

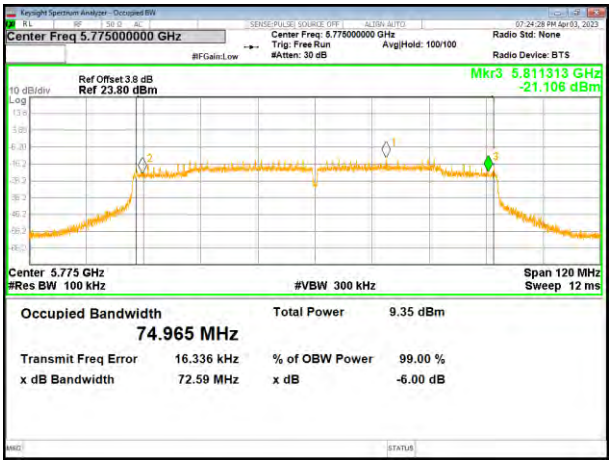


Test plot

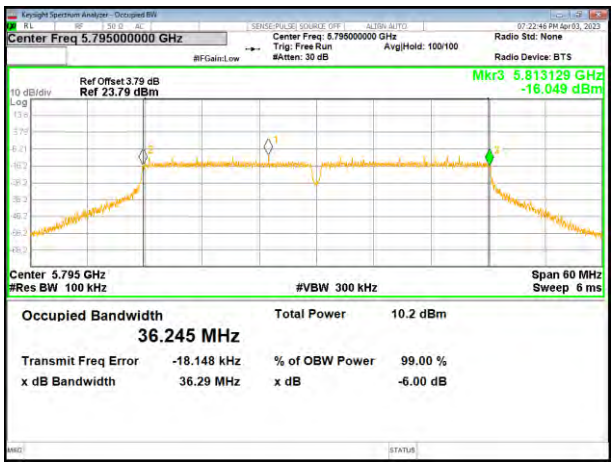
(802.11 ac40) plot on channel 151



(802.11 ac80) plot on channel 155



(802.11 ac40) plot on channel 159

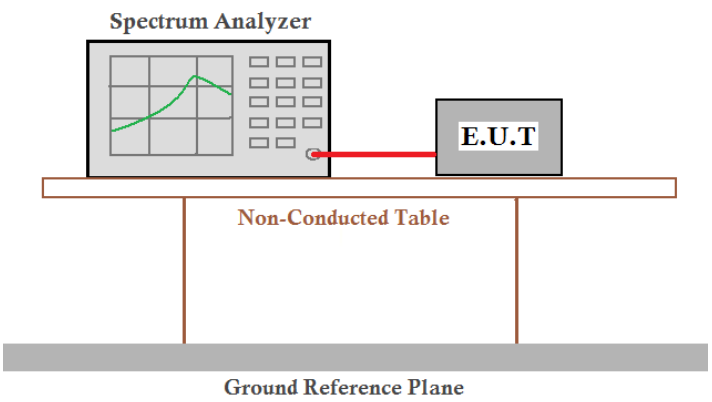


4.5 Power Spectral Density

Test Requirement:	FCC Part15 E Section 15.407(a)(1)/ (a)(3)
Test Method:	ANSI C63.10:2013 and KDB 789033 D02 General U-NII Test Procedures New Rules v02r01
Limit:	

Frequency band (MHz)	Limit
5150-5250	≤17dBm/1MHz for master device
	≤11dBm/1MHz for client device
5250-5350	≤11dBm/1MHz for client device
5470-5725	≤11dBm/1MHz for client device
5725-5850	≤30dBm/500kHz

Test setup:



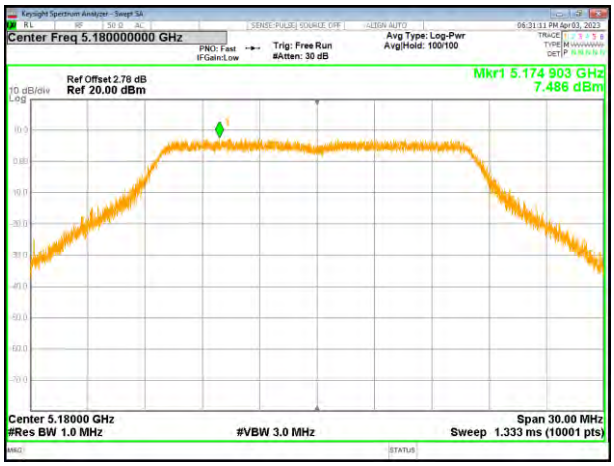
Test Instruments:	Refer to section 3.0 for details
Test mode:	Refer to section 2.2 for details
Test results:	Pass

Measurement Data

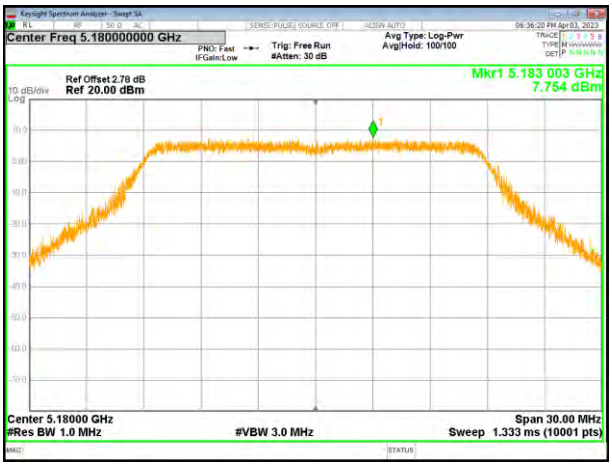
5180-5240MHz

Mode	Frequency	Measured Power Density (dBm/MHz)	Limit (dBm/MHz)
802.11 a	5180 MHz	7.486	11
	5200 MHz	7.120	11
	5240 MHz	6.482	11
802.11 n20	5180 MHz	7.754	11
	5200 MHz	7.217	11
	5240 MHz	6.109	11
802.11 ac20	5180 MHz	7.412	11
	5200 MHz	7.011	11
	5240 MHz	6.228	11
802.11 n40	5190 MHz	3.133	11
	5230 MHz	2.396	11
802.11 ac40	5190 MHz	3.219	11
	5230 MHz	2.661	11
802.11 ac80	5210 MHz	-1.133	11

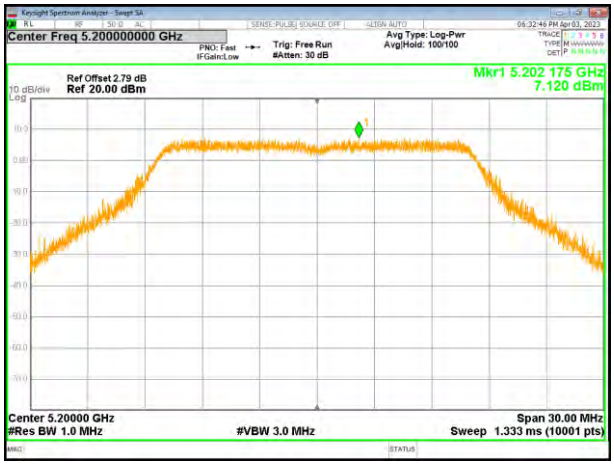
(802.11a) PSD plot on channel 36



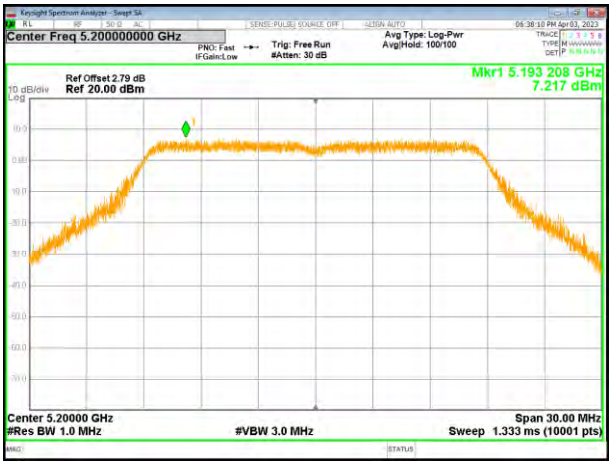
(802.11n20) PSD plot on channel 36



(802.11a) PSD plot on channel 40

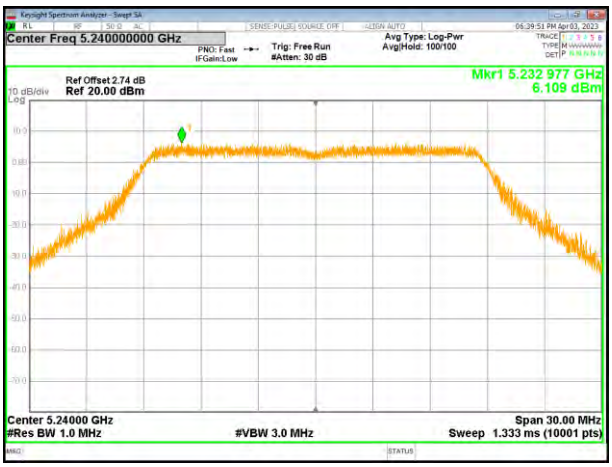


(802.11n20) PSD plot on channel 40

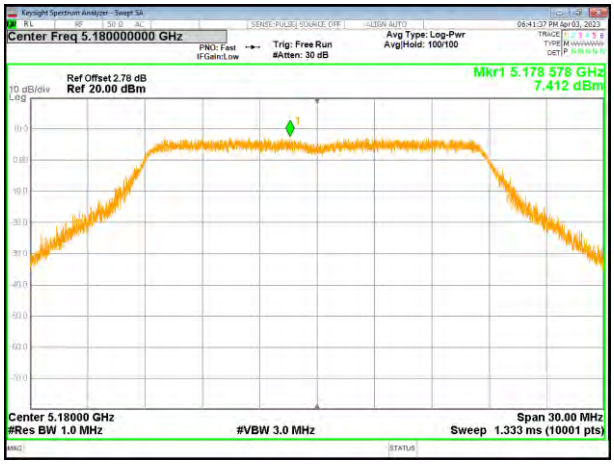


(802.11a) PSD plot on channel 48

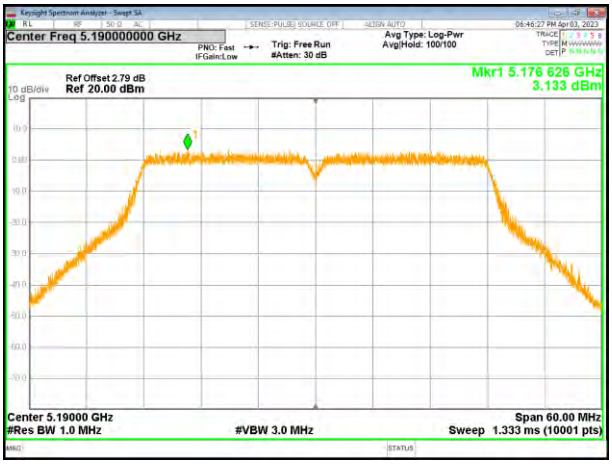
(802.11n20) PSD plot on channel 48



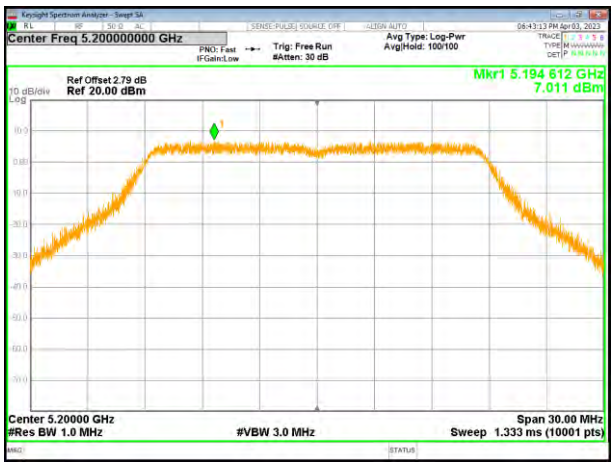
(802.11ac20) PSD plot on channel 36



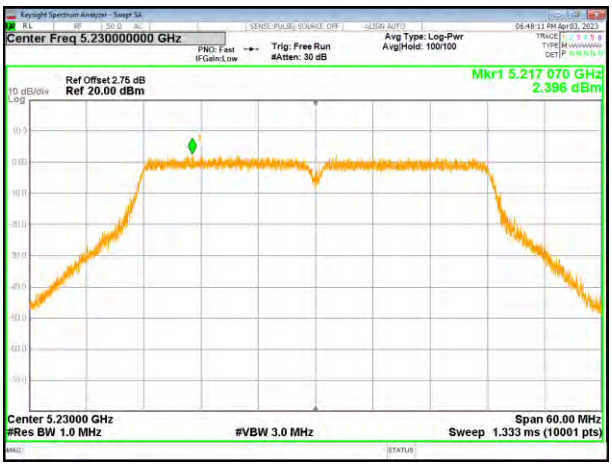
(802.11n40) PSD plot on channel 38



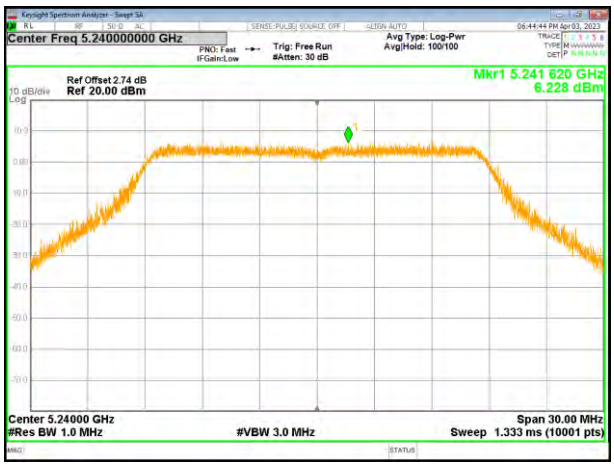
(802.11ac20) PSD plot on channel 40



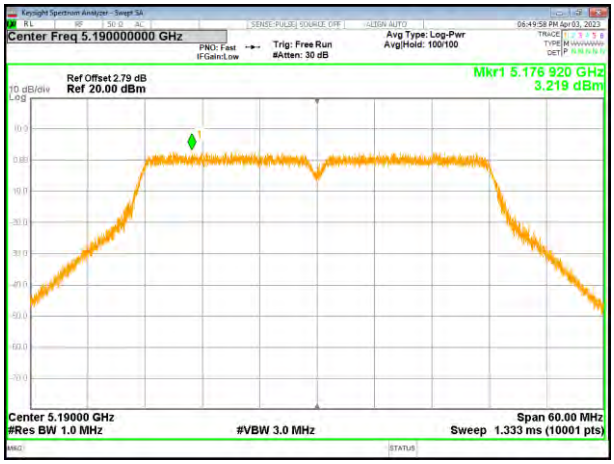
(802.11n40) PSD plot on channel 46



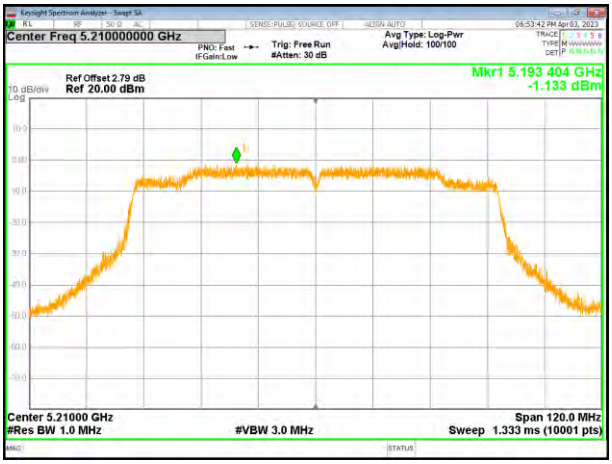
(802.11ac20) PSD plot on channel 48



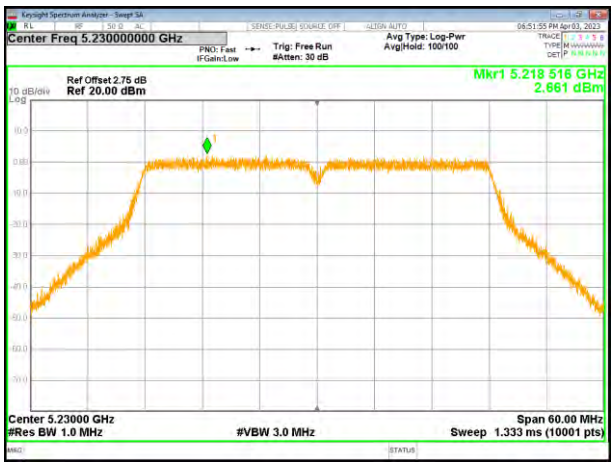
(802.11ac40) PSD plot on channel 38



(802.11ac80) PSD plot on channel 42



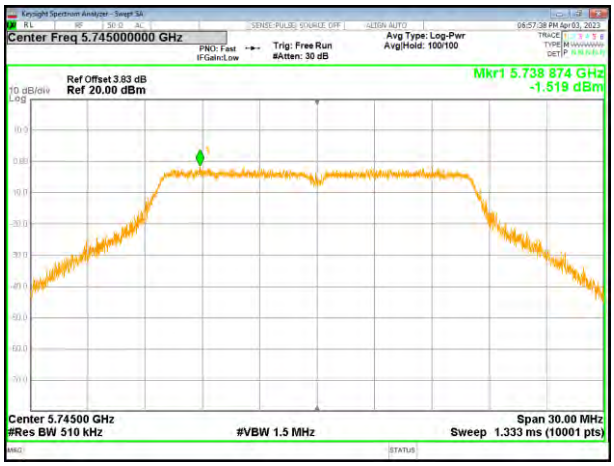
(802.11ac40) PSD plot on channel 46



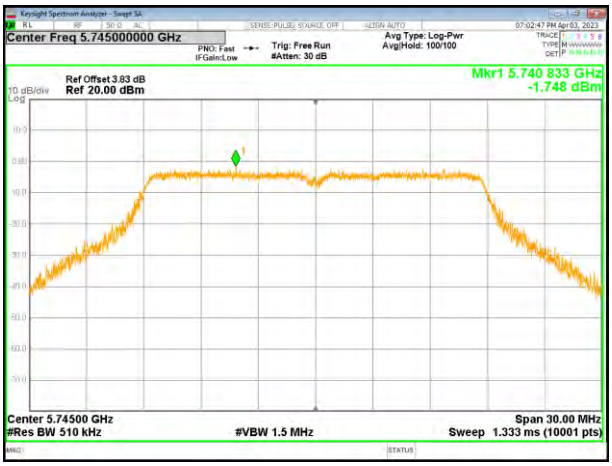
Mode	Frequency	Measured Power Density (dBm/510KHz)	Measured Power Density (dBm/500KHz)	Limit (dBm/MHz)
802.11 a	5745 MHz	-1.519	-1.528	30
	5785 MHz	-1.249	-1.258	30
	5825 MHz	-1.562	-1.571	30
802.11 n20	5745 MHz	-1.748	-1.757	30
	5785 MHz	-1.557	-1.566	30
	5825 MHz	-1.462	-1.471	30
802.11 ac20	5745 MHz	-1.884	-1.893	30
	5785 MHz	-1.745	-1.754	30
	5825 MHz	-1.667	-1.676	30
802.11 n40	5755 MHz	-5.939	-5.948	30
	5795 MHz	-5.833	-5.842	30
802.11 ac40	5755 MHz	-6.186	-6.195	30
	5795 MHz	-4.706	-4.715	30
802.11 AC80	5775 MHz	-9.884	-9.893	30

Note: If the measurement is X dBm/510kHz, thus X dBm/510kHz = $(10^{X/10})$*(500 / 510) dBm/500kHz

(802.11a) PSD plot on channel 149

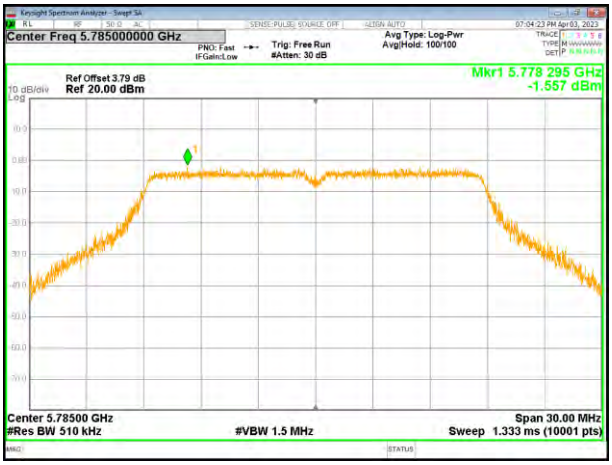


(802.11n20) PSD plot on channel 149

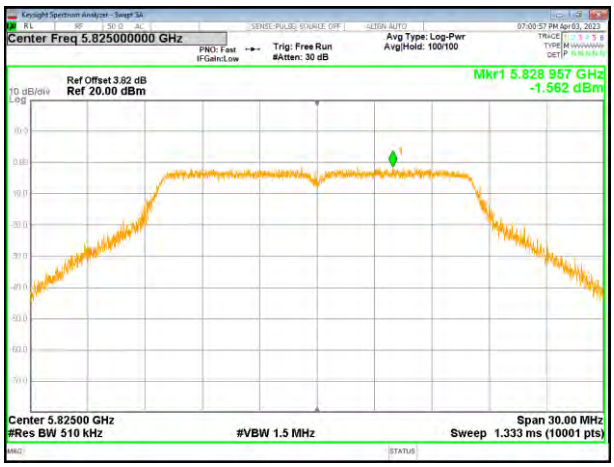


(802.11a) PSD plot on channel 157

(802.11n20) PSD plot on channel 157



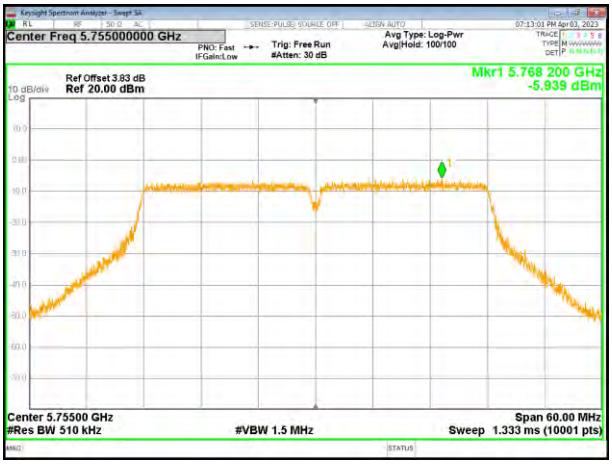
(802.11a) PSD plot on channel 165



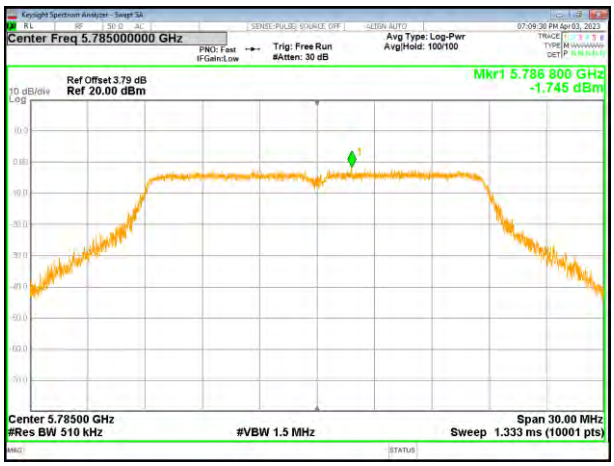
(802.11n20) PSD plot on channel 165

(802.11ac20) PSD plot on channel 149

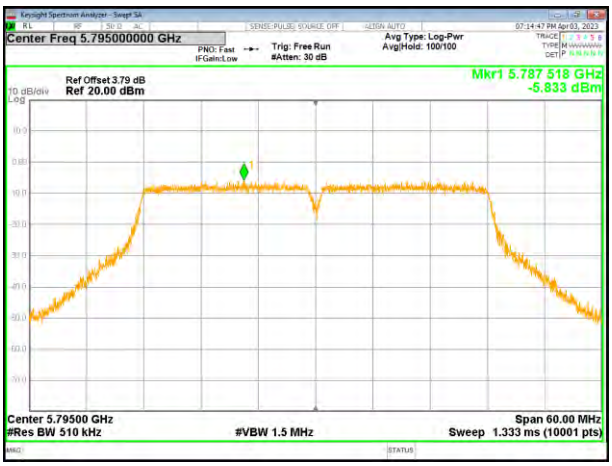
(802.11n40) PSD plot on channel 151



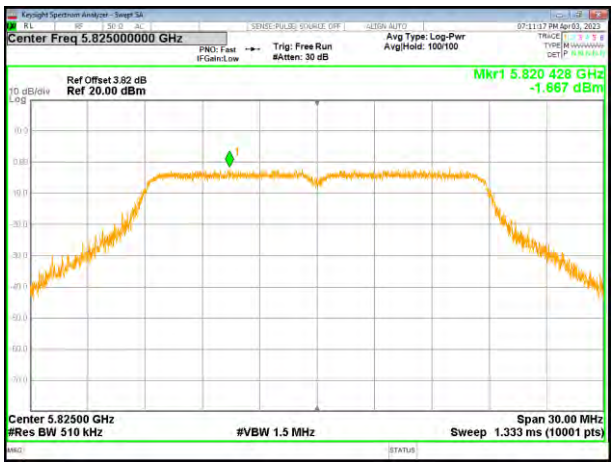
(802.11ac20) PSD plot on channel 157



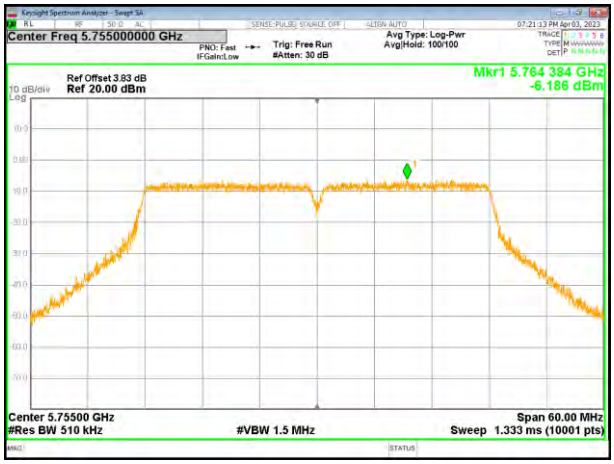
(802.11n40) PSD plot on channel 159



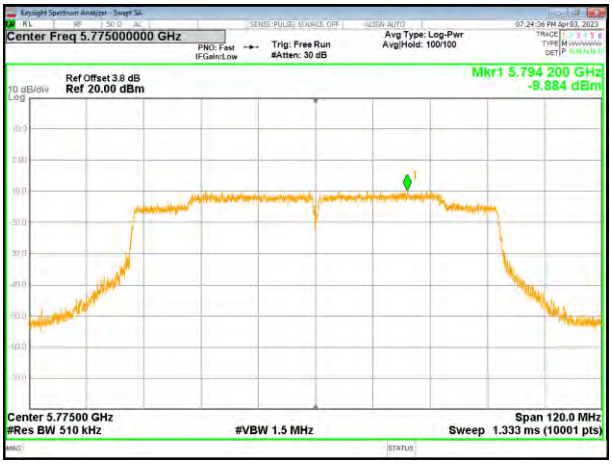
(802.11ac20) PSD plot on channel 165



(802.11ac40) PSD plot on channel 151



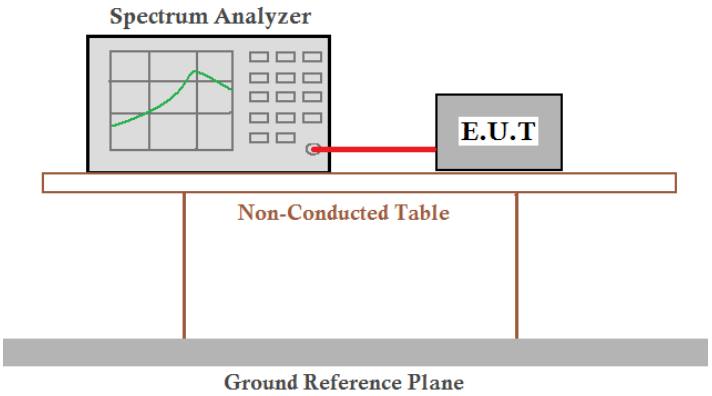
(802.11ac80) PSD plot on channel 155



(802.11ac40) PSD plot on channel 159

4.6 Band edge

4.6.1 Conducted test Method

Test Requirement:	FCC Part15 C Section 15.209 and 15.205
Test Method:	ANSI C63.10: 2013
Limit:	All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.
Test setup:	
Test Procedure:	1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator. 2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range. 3. Set RBW of spectrum analyzer to 1 MHz with a convenient frequency span. 4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency. 5. Repeat above procedures until all measured frequencies were complete..
Test Instruments:	Refer to section 3.0 for details
Test mode:	Refer to section 2.2 for details
Test results:	Pass

Remarks:/

5.180~5.240 GHz

(802.11a) Band Edge, Left Side

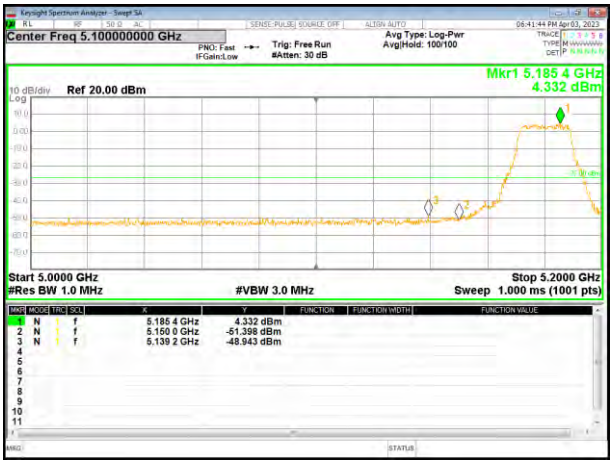
(802.11n20) Band Edge, Left Side

(802.11a) Band Edge, Right Side

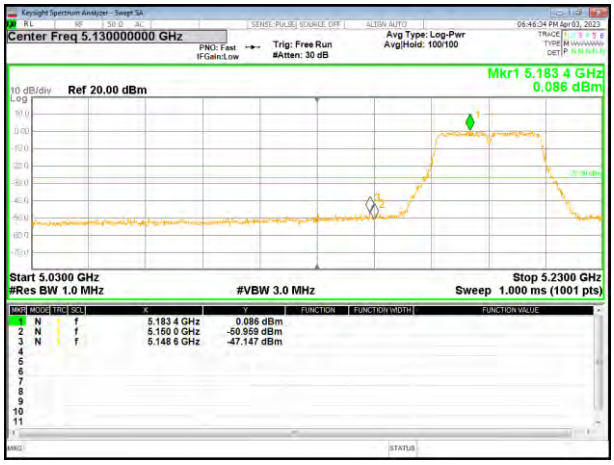
(802.11n20) Band Edge, Right Side

5.180~5.240 GHz

(802.11ac20) Band Edge, Left Side

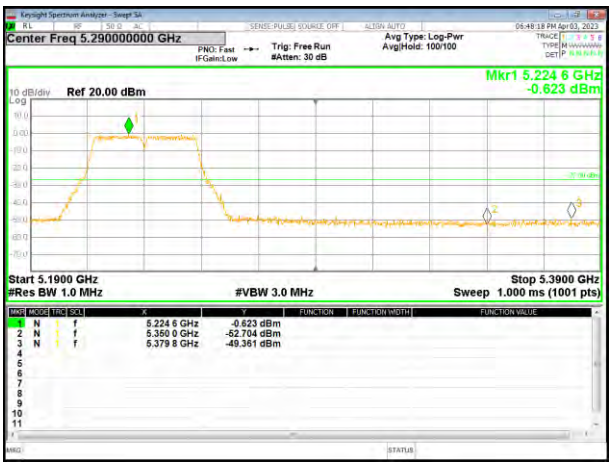


(802.11n40) Band Edge, Left Side



(802.11ac20) Band Edge, Right Side

(802.11n40) Band Edge, Right Side



5.180~5.240 GHz

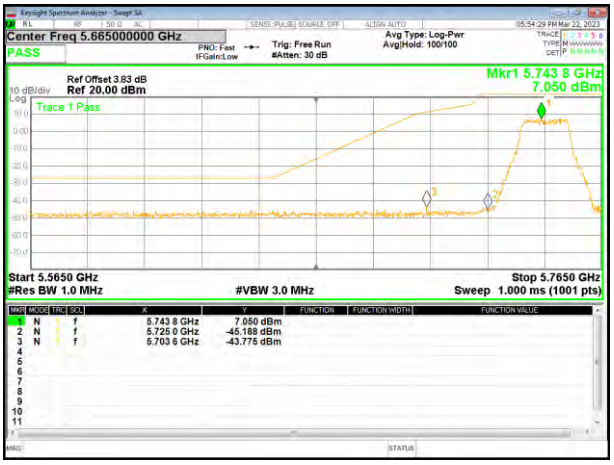
(802.11ac40) Band Edge, Left Side

(802.11ac80) Band Edge

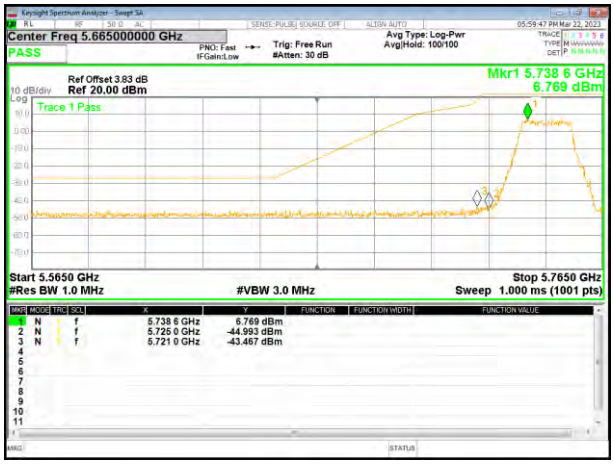
(802.11ac40) Band Edge, Right Side

5.745~5.825 GHz

(802.11a) Band Edge, Left Side

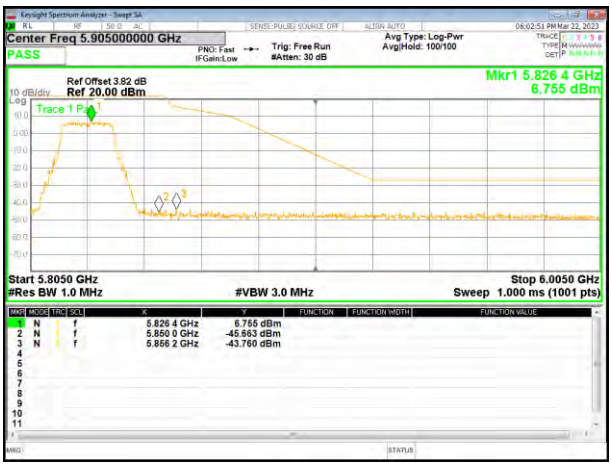


(802.11n20) Band Edge, Left Side



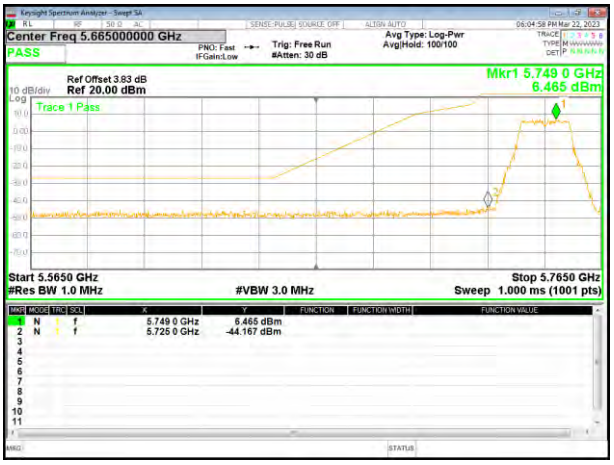
(802.11a) Band Edge, Right Side

(802.11n20) Band Edge, Right Side



5.745~5.825 GHz

(802.11ac20) Band Edge, Left Side



(802.11n40) Band Edge, Left Side

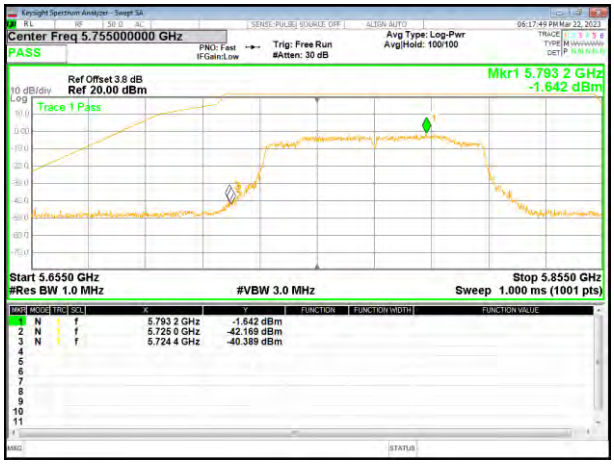
(802.11ac20) Band Edge, Right Side

(802.11n40) Band Edge, Right Side

5.745~5.825 GHz

(802.11ac40) Band Edge, Left Side

(802.11ac80) Band Edge



(802.11ac40) Band Edge, Right Side

4.7 Spurious Emission

4.7.1 Radiated Emission Method

Test Requirement:	FCC Part15 C Section 15.209, Part 15E Section 15.407(b)(4)
Test Method:	ANSI C63.10:2013
Test Frequency Range:	9kHz to 40GHz
Test site:	Measurement Distance: 3m

Receiver setup:

Frequency	Detector	RBW	VBW	Value
9kHz-150KHz	Quasi-peak	200Hz	1kHz	Quasi-peak Value
150kHz-30MHz	Quasi-peak	9kHz	30kHz	Quasi-peak Value
30MHz-1GHz	Quasi-peak	120KHz	300KHz	Quasi-peak Value
Above 1GHz	Peak	1MHz	3MHz	Peak Value
	AV	1MHz	3MHz	Average Value

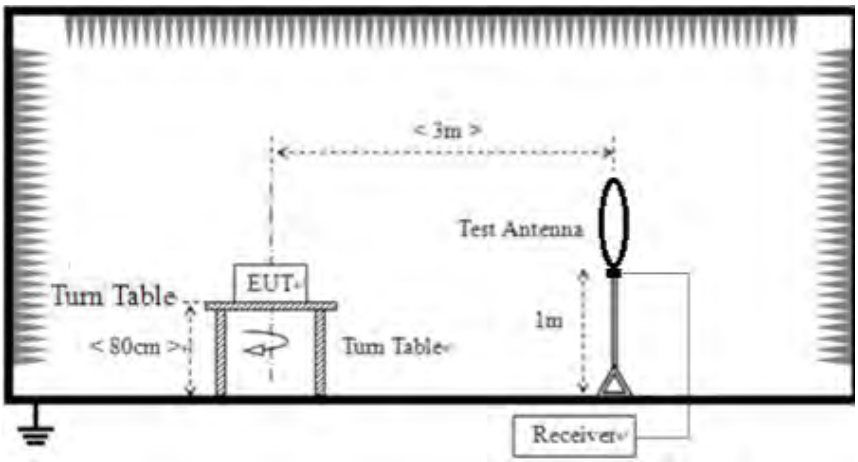
Limit:

Frequency	Limit (uV/m)	Value	Measurement Distance
0.009MHz-0.490MHz	2400/F(KHz)	QP	300m
0.490MHz-1.705MHz	24000/F(KHz)	QP	300m
1.705MHz-30MHz	30	QP	30m
30MHz-88MHz	100	QP	3m
88MHz-216MHz	150	QP	
216MHz-960MHz	200	QP	
960MHz-1GHz	500	QP	

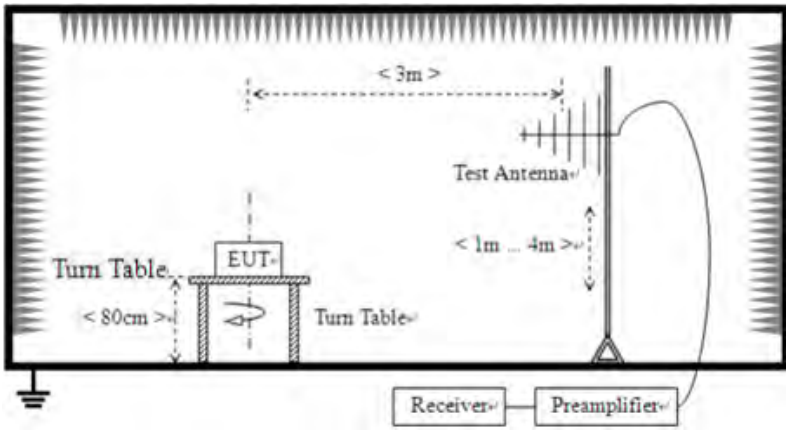
Frequency	Limit (dBm/MHz)	Remark
Above 1GHz	-27.0	Peak Value

Test setup:

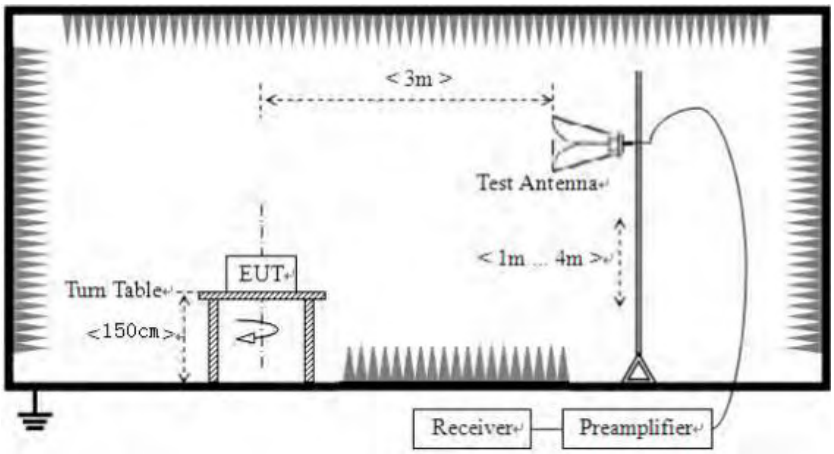
For radiated emissions from 9kHz to 30MHz



For radiated emissions from 30MHz to1GHz



For radiated emissions above 1GHz



Test Procedure:

1. The EUT was placed on the top of a rotating table (0.8m for below 1GHz and 1.5 meters for above 1GHz) above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.
2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average

	method as specified and then reported in a data sheet. 7. The radiation measurements are performed in X, Y, Z axis positioning. And found the X axis positioning which it is worse case, only the test worst case mode is recorded in the report.					
Test Instruments:	Refer to section 3.0 for details					
Test mode:	Refer to section 2.2 for details					
Test environment:	Temp.:	23.8°C	Humid.:	54%	Press.:	1012mbar
Test results:	Pass					

Remarks:

1. *All antennas was tested, only show the worst case 802.11n20 mode test data.*
2. *Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the Y-axis which it is worse case.*

Measurement Data:

9 kHz ~ 30 MHz

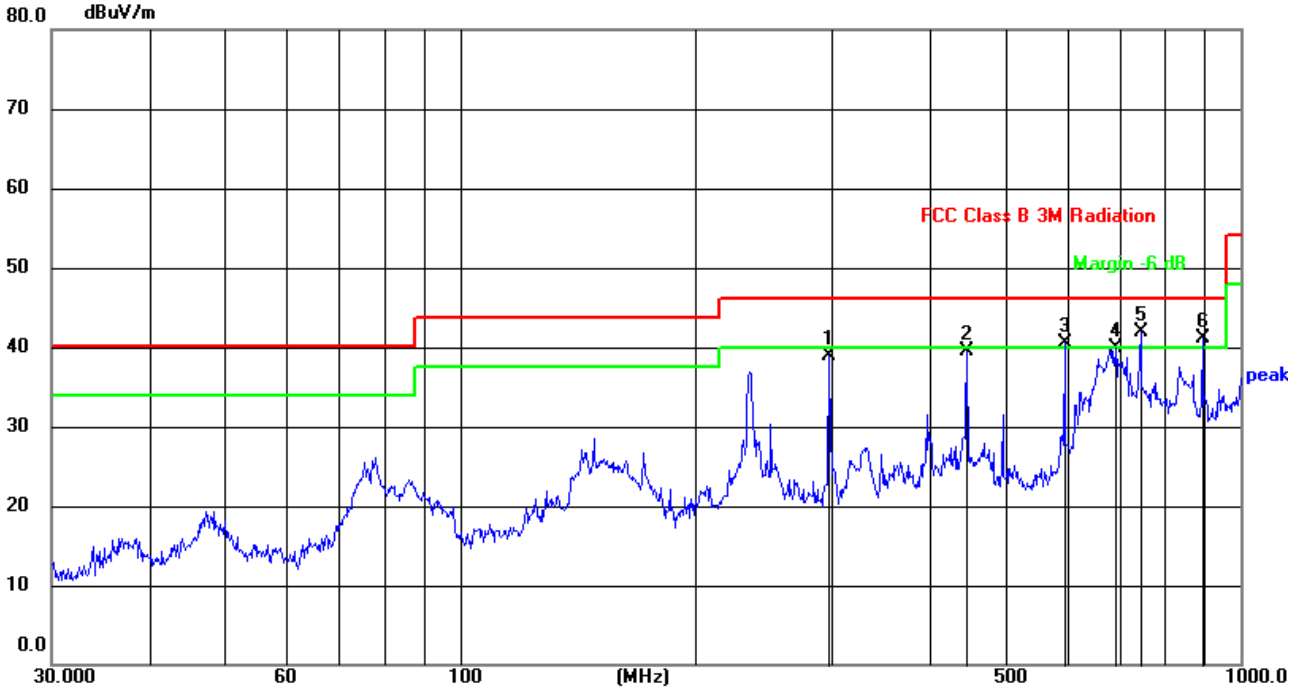
The emission from 9 kHz to 30MHz was pre-tested and found the result was 20dB lower than the limit, and according to 15.31(o) & RSS-Gen 6.13, the test result no need to reported.

Below 1GHz

Remark: The test data shows only the worst case 802.11n20 mode.

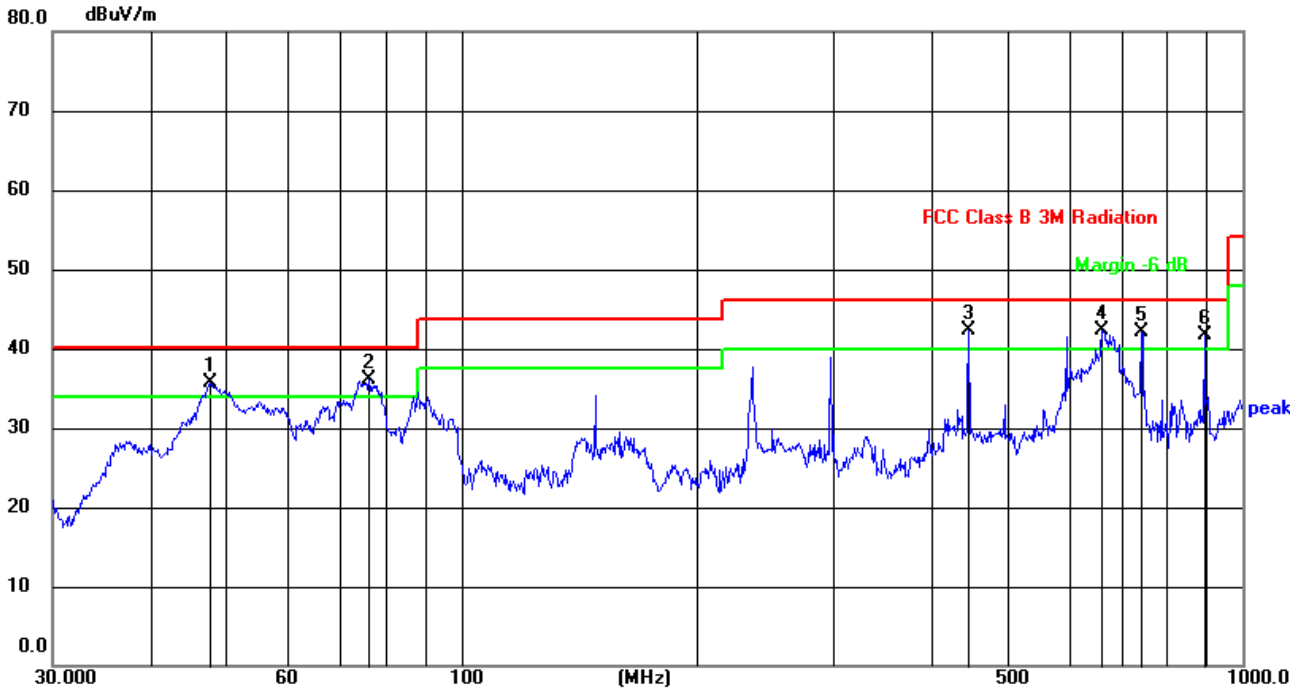
Temperature:	23.8℃	Relative Humidity:	54%
Pressure:	1010 hPa	Test Voltage :	DC 12V From adapter
Test Mode :	5.2G TX- 802.11n20		

Horizontal:



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	297.2238	59.35	-20.40	38.95	46.00	-7.05	QP
2	446.4139	55.17	-15.65	39.52	46.00	-6.48	QP
3	595.1326	52.44	-11.86	40.58	46.00	-5.42	QP
4	691.9864	49.31	-9.40	39.91	46.00	-6.09	QP
5	744.8659	50.15	-8.21	41.94	46.00	-4.06	QP
6	893.8564	46.56	-5.54	41.02	46.00	-4.98	QP

Vertical:



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	47.6584	57.16	-21.52	35.64	40.00	-4.36	QP
2	76.2442	61.52	-25.36	36.16	40.00	-3.84	QP
3	446.4139	57.91	-15.65	42.26	46.00	-3.74	QP
4	661.1503	52.48	-10.18	42.30	46.00	-3.70	QP
5	742.2586	50.35	-8.27	42.08	46.00	-3.92	QP
6	893.8564	47.28	-5.54	41.74	46.00	-4.26	QP

Remarks:
1. Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
2. The emission levels of other frequencies are very lower than the limit and not show in test report.

Above 1GHz:

Remark: The test data shows only the worst case 802.11n20 mode.

Temperature:	23.8℃	Relative Humidity:	54%
Pressure:	1010 hPa	Test Voltage :	DC 12V From adapter
Test Mode :	5.2G TX- 802.11n20		

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Low Channel:5180MHz									
V	10360.00	34.26	46.20	8.27	38.50	34.83	68.20	-33.37	PK
V	10360.00	34.43	46.20	8.27	38.50	35.00	54.00	-19.00	AV
V	15540.00	32.18	46.30	10.35	38.70	34.93	74.00	-39.07	PK
V	15540.00	31.73	46.30	10.35	38.70	34.48	54.00	-19.52	AV
V	20720.00	38.74	57.40	11.93	37.80	31.07	68.20	-37.13	PK
V	20720.00	40.06	57.40	11.93	37.80	32.39	54.00	-21.61	AV
V	25900.00	37.04	56.50	13.45	39.70	33.69	68.20	-34.51	PK
V	25900.00	37.54	56.50	13.45	39.70	34.19	54.00	-19.81	AV
H	10360.00	34.20	46.20	8.27	38.50	34.77	68.20	-33.43	PK
H	10360.00	33.17	46.20	8.27	38.50	33.74	54.00	-20.26	AV
H	15540.00	31.47	46.30	10.35	38.70	34.22	74.00	-39.78	PK
H	15540.00	29.49	46.30	10.35	38.70	32.24	54.00	-21.76	AV
H	20720.00	40.33	57.40	11.93	37.80	32.66	68.20	-35.54	PK
H	20720.00	40.89	57.40	11.93	37.80	33.22	54.00	-20.78	AV
H	25900.00	37.77	56.50	13.45	39.70	34.42	68.20	-33.78	PK
H	25900.00	37.56	56.50	13.45	39.70	34.21	54.00	-19.79	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Middle Channel:5200MHz									
V	10400.00	32.70	46.20	8.27	38.50	33.27	68.20	-34.93	PK
V	10400.00	33.09	46.20	8.27	38.50	33.66	54.00	-20.34	AV
V	15600.00	31.54	46.30	10.35	38.70	34.29	74.00	-39.71	PK
V	15600.00	32.01	46.30	10.35	38.70	34.76	54.00	-19.24	AV
V	20800.00	38.73	57.40	11.93	37.80	31.06	68.20	-37.14	PK
V	20800.00	40.35	57.40	11.93	37.80	32.68	54.00	-21.32	AV
V	26000.00	35.22	56.50	13.45	39.70	31.87	68.20	-36.33	PK
V	26000.00	37.56	56.50	13.45	39.70	34.21	54.00	-19.79	AV
H	10400.00	33.14	46.20	8.27	38.50	33.71	68.20	-34.49	PK
H	10400.00	33.33	46.20	8.27	38.50	33.90	54.00	-20.10	AV
H	15600.00	31.53	46.30	10.35	38.70	34.28	74.00	-39.72	PK
H	15600.00	32.01	46.30	10.35	38.70	34.76	54.00	-19.24	AV
H	20800.00	37.97	57.40	11.93	37.80	30.30	68.20	-37.90	PK
H	20800.00	38.42	57.40	11.93	37.80	30.75	54.00	-23.25	AV
H	26000.00	35.01	56.50	13.45	39.70	31.66	68.20	-36.54	PK
H	26000.00	36.84	56.50	13.45	39.70	33.49	54.00	-20.51	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
High Channel:5240MHz									
V	10480.00	33.58	46.20	8.27	38.50	34.15	68.20	-34.05	PK
V	10480.00	33.52	46.20	8.27	38.50	34.09	54.00	-19.91	AV
V	15720.00	31.82	46.30	10.35	38.70	34.57	74.00	-39.43	PK
V	15720.00	31.44	46.30	10.35	38.70	34.19	54.00	-19.81	AV
V	20960.00	39.12	57.40	11.93	37.80	31.45	68.20	-36.75	PK
V	20960.00	41.88	57.40	11.93	37.80	34.21	54.00	-19.79	AV
V	26200.00	36.22	56.50	13.45	39.70	32.87	68.20	-35.33	PK
V	26200.00	37.41	56.50	13.45	39.70	34.06	54.00	-19.94	AV
H	10480.00	33.75	46.20	8.27	38.50	34.32	68.20	-33.88	PK
H	10480.00	33.52	46.20	8.27	38.50	34.09	54.00	-19.91	AV
H	15720.00	32.06	46.30	10.35	38.70	34.81	74.00	-39.19	PK
H	15720.00	31.54	46.30	10.35	38.70	34.29	54.00	-19.71	AV
H	20960.00	39.25	57.40	11.93	37.80	31.58	68.20	-36.62	PK
H	20960.00	41.78	57.40	11.93	37.80	34.11	54.00	-19.89	AV
H	26200.00	36.01	56.50	13.45	39.70	32.66	68.20	-35.54	PK
H	26200.00	36.84	56.50	13.45	39.70	33.49	54.00	-20.51	AV

Remark:
1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Temperature:	23.8℃	Relative Humidity:	54%
Pressure:	1010 hPa	Test Voltage :	DC 12V From adapter
Test Mode :	5.8G TX- 802.11n20		

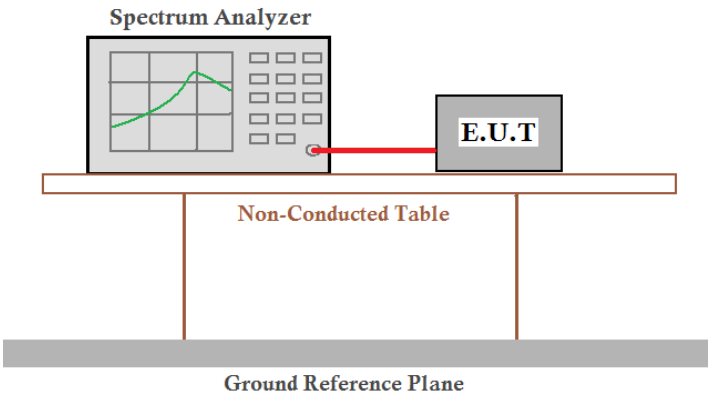
Polar (H/V)	Frequency (MHz)	Meter Readi g (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenn Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Typ
Low Channel:5745MHz									
V	11490.00	31.31	46.20	8.27	38.50	31.88	74.00	-42.12	PK
V	11490.00	25.50	46.20	8.27	38.50	26.07	54.00	-27.93	AV
V	17235.00	29.58	46.30	10.35	38.70	32.33	68.20	-35.87	PK
V	17235.00	31.00	46.30	10.35	38.70	33.75	54.00	-20.25	AV
V	22980.00	35.79	57.40	11.93	37.80	28.12	74.00	-45.88	PK
V	22980.00	30.10	57.40	11.93	37.80	22.43	54.00	-31.57	AV
V	28725.00	33.51	56.50	13.45	39.70	30.16	68.20	-38.04	PK
V	28725.00	34.92	56.50	13.45	39.70	31.57	54.00	-22.43	AV
H	11490.00	31.64	46.20	8.27	38.50	32.21	74.00	-41.79	PK
H	11490.00	28.99	46.20	8.27	38.50	29.56	54.00	-24.44	AV
H	17235.00	30.30	46.30	10.35	38.70	33.05	68.20	-35.15	PK
H	17235.00	31.38	46.30	10.35	38.70	34.13	54.00	-19.87	AV
H	22980.00	37.35	57.40	11.93	37.80	29.68	74.00	-44.32	PK
H	22980.00	34.20	57.40	11.93	37.80	26.53	54.00	-27.47	AV
H	28725.00	34.92	56.50	13.45	39.70	31.57	68.20	-36.63	PK
H	28725.00	35.49	56.50	13.45	39.70	32.14	54.00	-21.86	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Middle Channel:5785MHz									
V	11570.00	32.00	46.20	8.27	38.50	32.57	74.00	-41.43	PK
V	11570.00	25.63	46.20	8.27	38.50	26.20	54.00	-27.80	AV
V	17355.00	31.29	46.30	10.35	38.70	34.04	68.20	-34.16	PK
V	17355.00	32.51	46.30	10.35	38.70	35.26	54.00	-18.74	AV
V	23140.00	37.14	57.40	11.93	37.80	29.47	74.00	-44.53	PK
V	23140.00	30.88	57.40	11.93	37.80	23.21	54.00	-30.79	AV
V	28925.00	34.33	56.50	13.45	39.70	30.98	68.20	-37.22	PK
V	28925.00	36.37	56.50	13.45	39.70	33.02	54.00	-20.98	AV
H	11570.00	33.24	46.20	8.27	38.50	33.81	74.00	-40.19	PK
H	11570.00	30.24	46.20	8.27	38.50	30.81	54.00	-23.19	AV
H	17355.00	31.05	46.30	10.35	38.70	33.80	68.20	-34.40	PK
H	17355.00	32.04	46.30	10.35	38.70	34.79	54.00	-19.21	AV
H	23140.00	37.78	57.40	11.93	37.80	30.11	74.00	-43.89	PK
H	23140.00	36.34	57.40	11.93	37.80	28.67	54.00	-25.33	AV
H	28925.00	35.40	56.50	13.45	39.70	32.05	68.20	-36.15	PK
H	28925.00	37.09	56.50	13.45	39.70	33.74	54.00	-20.26	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
High Channel:5825MHz									
V	11650.00	31.94	46.20	8.27	38.50	32.51	74.00	-41.49	PK
V	11650.00	25.49	46.20	8.27	38.50	26.06	54.00	-27.94	AV
V	17475.00	30.43	46.30	10.35	38.70	33.18	68.20	-35.02	PK
V	17475.00	31.76	46.30	10.35	38.70	34.51	54.00	-19.49	AV
V	23300.00	37.31	57.40	11.93	37.80	29.64	74.00	-44.36	PK
V	23300.00	30.62	57.40	11.93	37.80	22.95	54.00	-31.05	AV
V	29125.00	34.98	56.50	13.45	39.70	31.63	68.20	-36.57	PK
V	29125.00	36.45	56.50	13.45	39.70	33.10	54.00	-20.90	AV
H	11650.00	33.37	46.20	8.27	38.50	33.94	74.00	-40.06	PK
H	11650.00	31.08	46.20	8.27	38.50	31.65	54.00	-22.35	AV
H	17475.00	31.29	46.30	10.35	38.70	34.04	68.20	-34.16	PK
H	17475.00	32.91	46.30	10.35	38.70	35.66	54.00	-18.34	AV
H	23300.00	38.30	57.40	11.93	37.80	30.63	74.00	-43.37	PK
H	23300.00	36.17	57.40	11.93	37.80	28.50	54.00	-25.50	AV
H	29125.00	35.73	56.50	13.45	39.70	32.38	68.20	-35.82	PK
H	29125.00	37.11	56.50	13.45	39.70	33.76	54.00	-20.24	AV

Remark:
1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

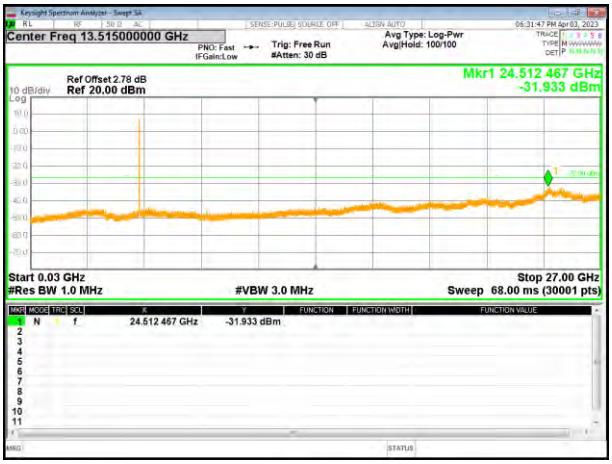
4.7.2 Conducted Emission Method

Test Requirement:	FCC Part15 C Section 15.209, Part 15E Section 15.407(b)(4)
Test Method:	ANSI C63.10:2013
Limit:	-27dBm/MHz
Test setup:	
Test Instruments:	Refer to section 3.0 for details
Test mode:	Refer to section 2.2 for details
Test results:	Pass

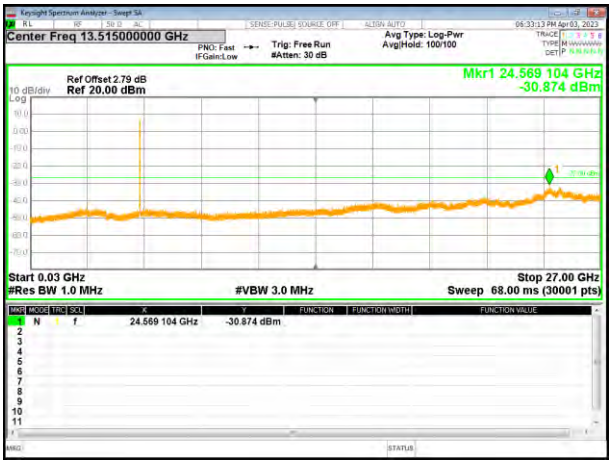
5180-5240MHz

Test Plot

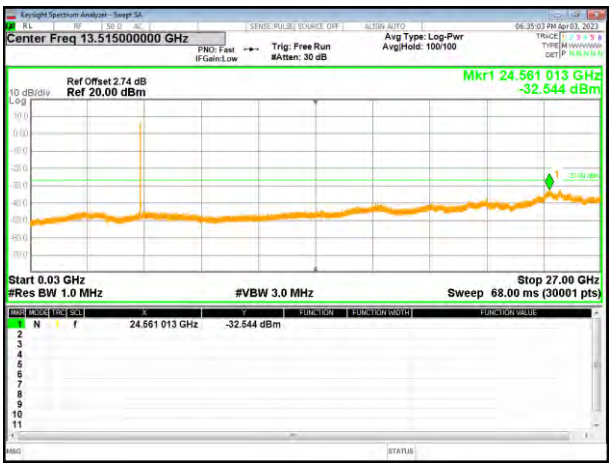
802.11a on channel 36



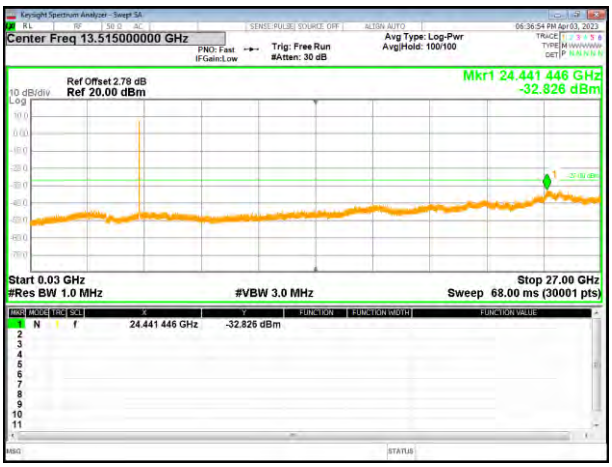
802.11a on channel 40



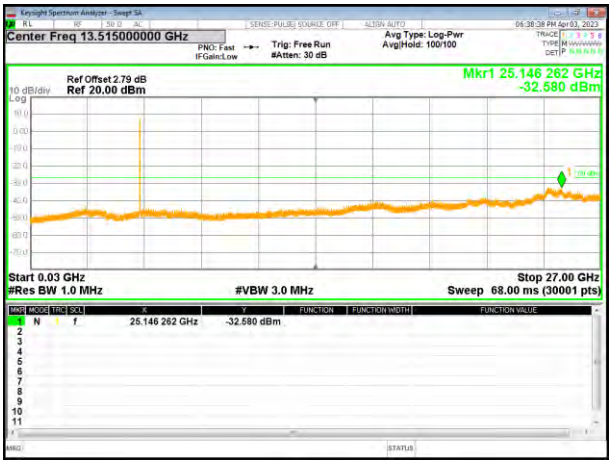
802.11a on channel 48



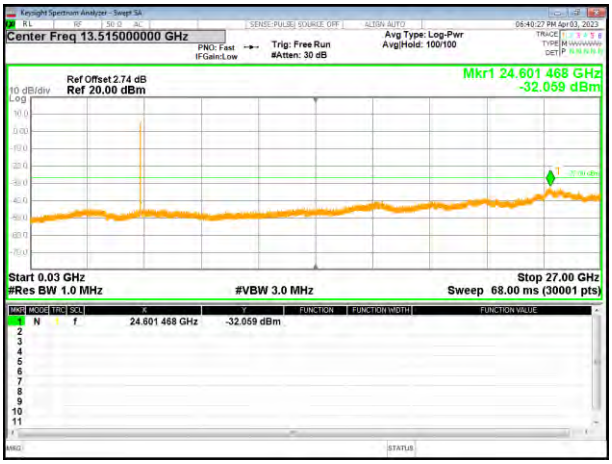
802.11n20 on channel 36



802.11n20 on channel 40

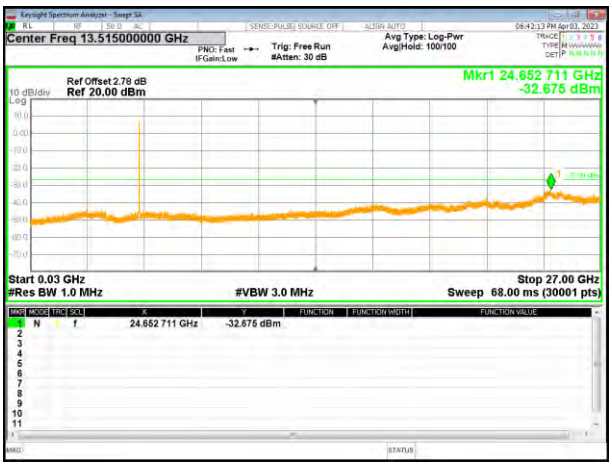


802.11n20 on channel 48



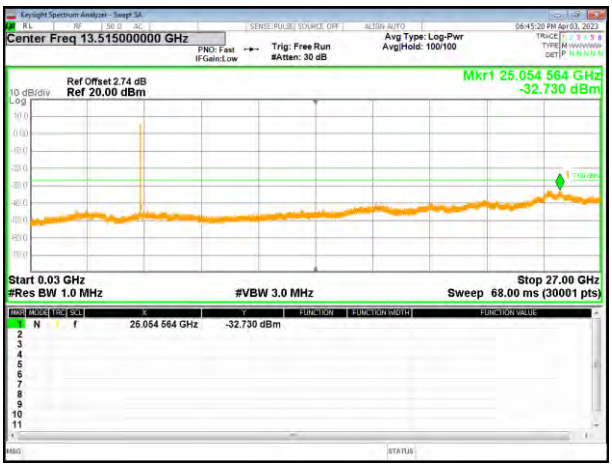
Test Plot

802.11ac20 on channel 36

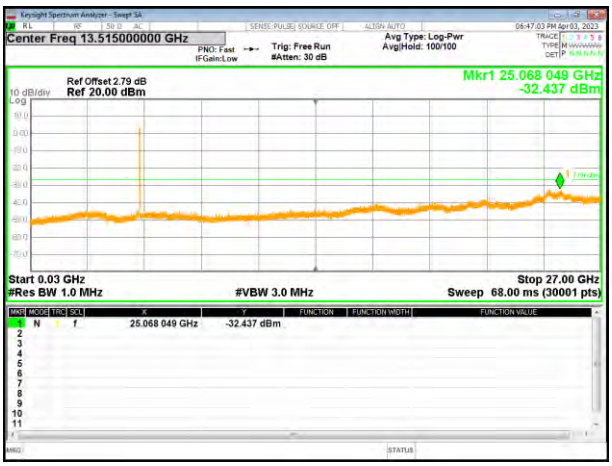


802.11ac20 on channel 40

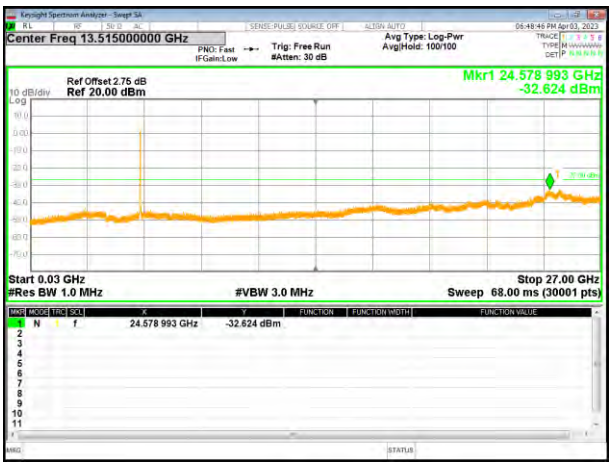
802.11ac20 on channel 48



802.11n40 on channel 38

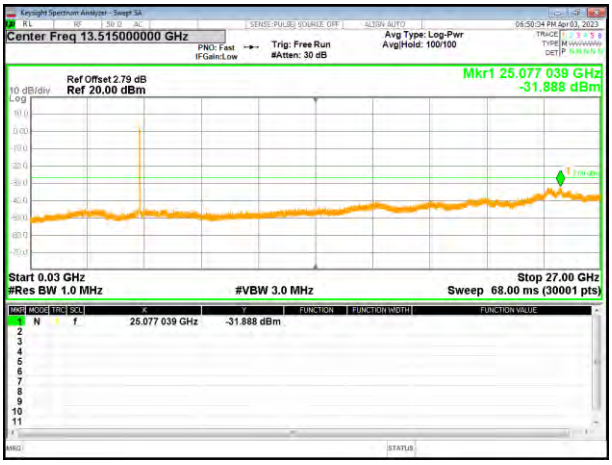


802.11n40 on channel 46

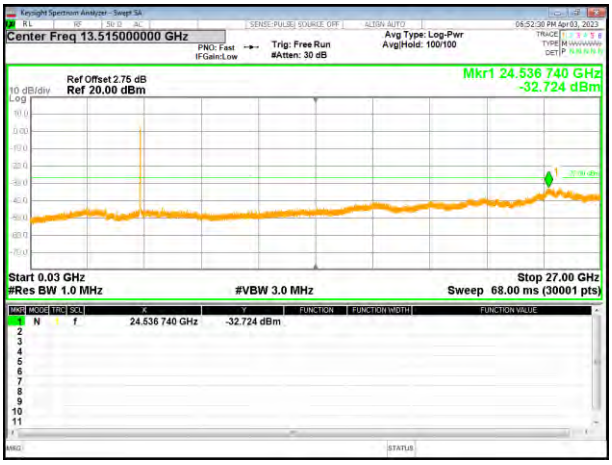


Test Plot

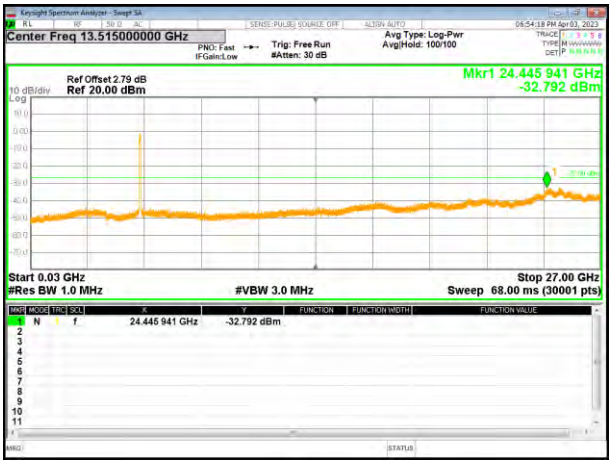
802.11ac40 on channel 38



802.11ac40 on channel 46



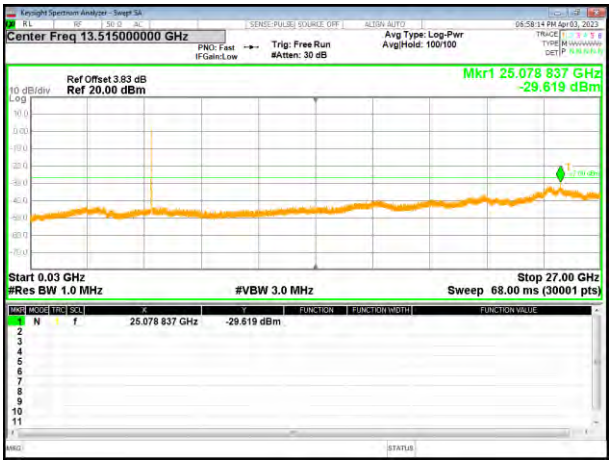
802.11ac80 on channel 42



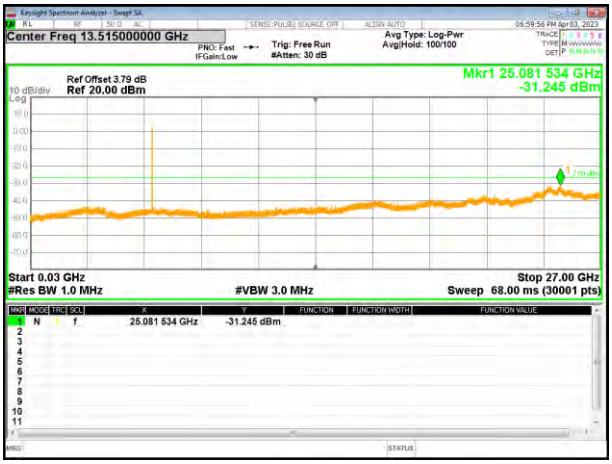
5745-5825MHz

Test Plot

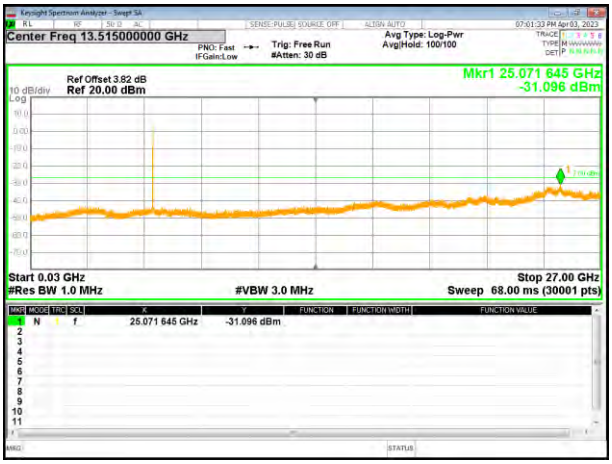
802.11a on channel 149



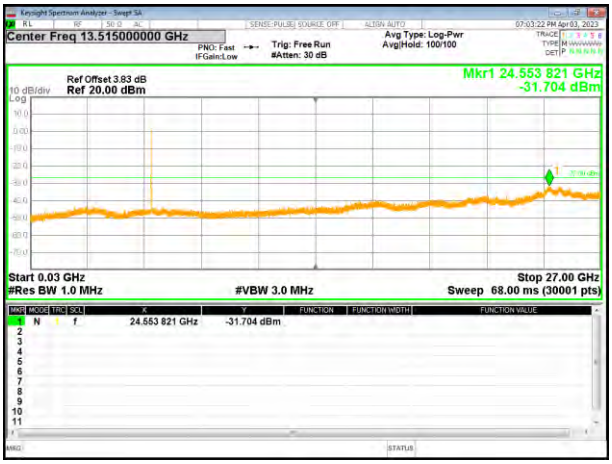
802.11a on channel 157



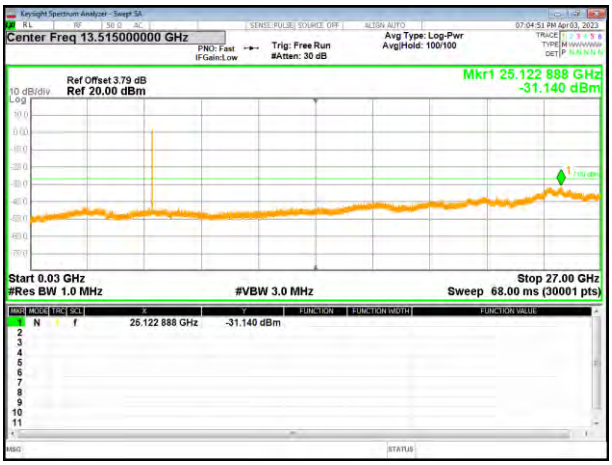
802.11a on channel 165



802.11n20 on channel 149



802.11n20 on channel 157



802.11n20 on channel 165

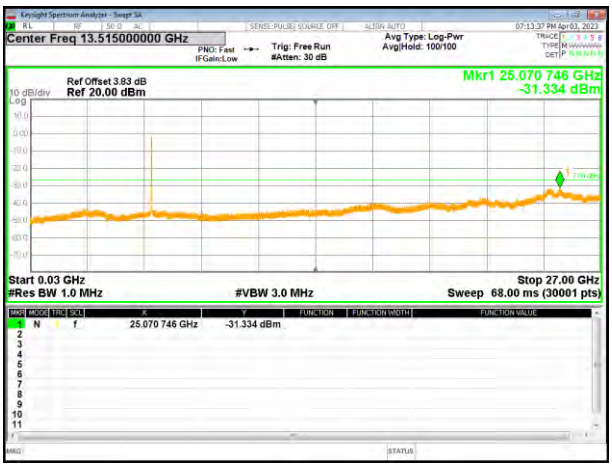
Test Plot

802.11ac20 on channel 149

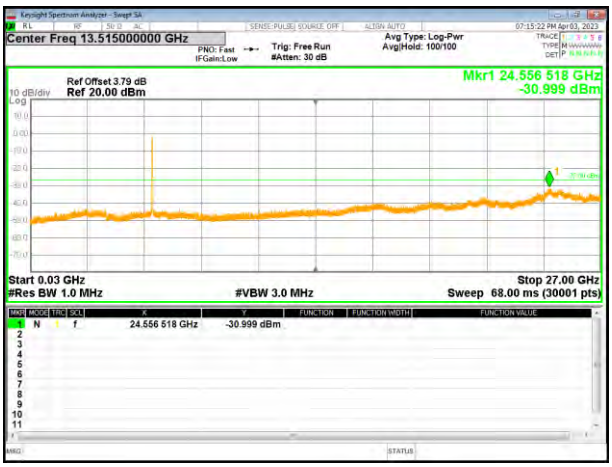
802.11ac20 on channel 157

802.11ac20 on channel 165

802.11n40 on channel 151



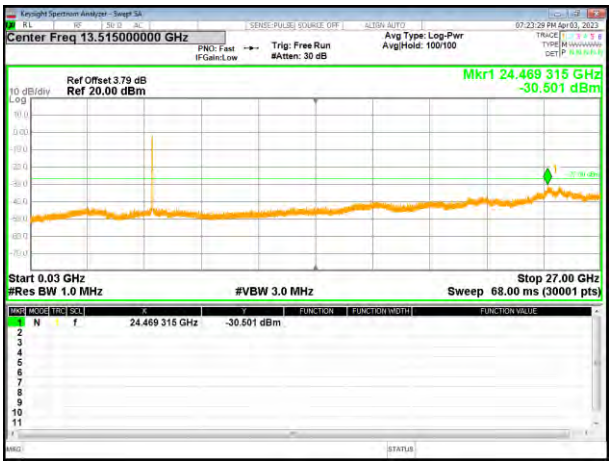
802.11n40 on channel 159



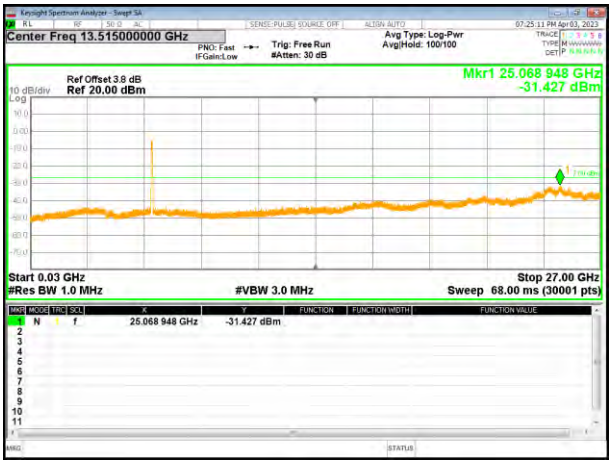
Test Plot

802.11ac40 on channel 151

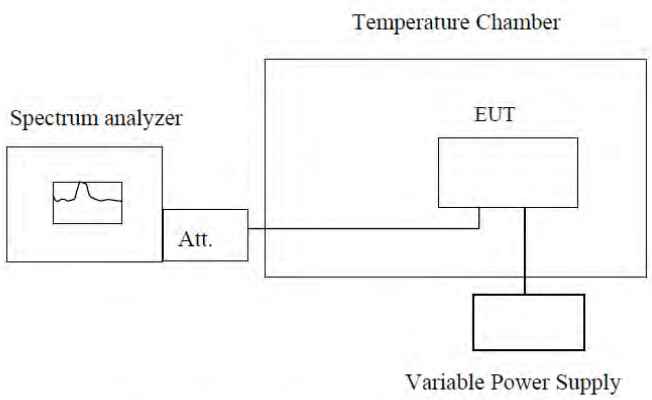
802.11ac40 on channel 159



802.11ac80 on channel 155



4.8 Frequency stability

Test Requirement:	FCC Part15 C Section 15.407(g)
Test Method:	ANSI C63.10:2013, FCC Part 2.1055
Limit:	Manufactures of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified
Test Procedure:	a. The EUT was placed inside the environmental test chamber and powered by nominal 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, turn the EUT on and measure the operating frequency after 2, 5, and 10 Minutes. 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 Minute s. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.
Test setup:	 **Note :** Measurement setup for testing on Antenna connector
Test Instruments:	Refer to section 3.0 for details
Test mode:	Refer to section 2.2 for details
Test results:	Pass

Remark: Set the EUT transmits at un-modulation mode to test frequency stability.

Measurement data:

Frequency stability versus Temp.					
Power Supply: DC 12V					
Temp. (°C)	Operating Frequency (MHz)	0 minute	2 minute	5 minute	10 minute
		Measured Frequency (MHz)	Measured Frequency (MHz)	Measured Frequency (MHz)	Measured Frequency (MHz)
-30	5180	5179.977	5180.018	5180.091	5180.322
	5190	5189.973	5199.892	5199.966	5190.334
	5200	5199.968	5199.917	5199.991	5200.325
	5210	5209.974	5209.895	5209.969	5210.327
	5220	5219.969	5219.909	5219.984	5220.336
	5230	5229.967	5229.902	5229.977	5230.354
	5240	5239.940	5239.910	5239.985	5240.340
-20	5180	5179.968	5179.894	5179.976	5180.343
	5190	5189.959	5189.884	5189.975	5190.340
	5200	5199.967	5199.892	5199.969	5200.335
	5210	5209.959	5209.884	5209.959	5210.342
	5220	5219.980	5219.904	5219.969	5220.339
	5230	5229.958	5229.882	5299.967	5230.337
	5240	5239.976	5239.900	5239.971	5240.311
-10	5180	5179.977	5179.903	5179.955	5180.322
	5190	5189.973	5189.898	5189.966	5190.334
	5200	5199.968	5199.893	5199.957	5200.325
	5210	5209.974	5209.899	5209.958	5210.327
	5220	5219.969	5219.893	5219.965	5220.336
	5230	5229.967	5229.891	5229.983	5230.354
	5240	5239.940	5239.864	5239.955	5240.327
0	5180	5179.754	5179.882	5179.967	5180.333
	5190	5199.926	5189.892	5189.958	5190.335
	5200	5199.924	5199.883	5199.966	5200.326
	5210	5209.979	5209.884	5209.958	5300.342
	5220	5219.968	5219.890	5219.979	5220.329
	5230	5229.955	5229.908	5229.957	5230.350
	5240	5239.972	5239.880	5239.975	5240.329
10	5180	5179.956	5179.894	5179.976	5180.334
	5190	5189.967	5189.884	5189.972	5190.326
	5200	5199.958	5199.892	5199.967	5200.334
	5210	5209.959	5209.884	5209.973	5210.327
	5220	5219.966	5219.904	5219.968	5220.350
	5230	5229.984	5229.882	5229.966	5230.328
	5240	5239.969	5239.900	5239.939	5240.347

20	5180	5179.977	5179.893	5179.967	5180.295
	5190	5189.973	5189.893	5189.958	5190.326
	5200	5199.968	5199.884	5199.966	5200.351
	5210	5209.974	5299.891	5209.958	5210.336
	5220	5219.969	5219.883	5219.979	5220.329
	5230	5229.967	5229.904	5229.957	5230.357
	5240	5239.940	5239.882	5239.975	5240.346
30	5180	5179.956	5179.894	5179.967	5180.343
	5190	5189.967	5189.884	5189.958	5180.343
	5200	5199.958	5199.892	5199.966	5190.340
	5210	5209.959	5209.884	5209.958	5200.335
	5220	5219.966	5219.904	5219.979	5210.342
	5230	5229.984	5229.882	5229.957	5220.339
	5240	5239.956	5239.900	5239.975	5230.337
40	5180	5179.968	5179.893	5179.753	5180.322
	5190	5189.959	5189.893	5199.925	5190.334
	5200	5199.967	5199.884	5199.923	5200.325
	5210	5209.959	5299.891	5209.978	5210.327
	5220	5219.980	5219.883	5219.967	5220.336
	5230	5229.958	5229.904	5229.954	5230.354
	5240	5239.976	5239.882	5239.971	5240.327
50	5180	5179.968	5179.894	5179.967	5180.295
	5190	5189.959	5189.884	5189.958	5190.326
	5200	5199.967	5199.892	5199.966	5200.351
	5210	5209.959	5209.884	5209.958	5210.336
	5220	5219.980	5219.904	5219.979	5220.329
	5230	5229.958	5229.882	5229.957	5230.357
	5240	5239.976	5239.900	5239.975	5240.346

Frequency stability versus Voltage					
Temperature: 25°C					
Power Supply (VDC)	Operating Frequency (MHz)	0 minute	2 minute	5 minute	10 minute
		Measured Frequency (MHz)	Measured Frequency (MHz)	Measured Frequency (MHz)	Measured Frequency (MHz)
10.20	5180	5179.977	5180.018	5179.967	5180.458
	5190	5189.973	5199.892	5189.958	5200.334
	5200	5199.968	5199.917	5199.966	5200.359
	5210	5209.974	5209.895	5209.958	5210.338
	5220	5219.969	5219.909	5219.979	5220.355
	5230	5229.967	5229.902	5229.957	5230.348
	5240	5239.940	5239.910	5239.975	5240.357
12.0	5180	5179.968	5179.912	5179.966	5180.343
	5190	5189.959	5180.018	5189.967	5190.343
	5200	5199.967	5199.892	5199.958	5200.337
	5210	5209.959	5209.917	5299.966	5210.328
	5220	5219.980	5219.894	5219.958	5220.340
	5230	5229.958	5229.909	5229.979	5300.343
	5240	5239.976	5239.902	5239.957	5240.343
13.80	5180	5179.977	5179.903	5179.955	5180.322
	5190	5189.973	5189.898	5189.966	5190.334
	5200	5199.968	5199.893	5199.957	5200.325
	5210	5209.974	5209.899	5209.958	5210.327
	5220	5219.969	5219.893	5219.965	5220.336
	5230	5229.967	5229.891	5229.983	5230.354
	5240	5239.940	5239.864	5239.955	5240.327

Frequency stability versus Temp.					
Power Supply: DC12V					
Temp. (°C)	Operating Frequency (MHz)	0 minute	2 minute	5 minute	10 minute
		Measured Frequency (MHz)	Measured Frequency (MHz)	Measured Frequency (MHz)	Measured Frequency (MHz)
-30	5745	5744.960	5744.875	5744.958	5745.364
	5755	5754.967	5754.882	5754.965	5755.353
	5775	5774.983	5774.874	5774.981	5775.366
	5785	5784.959	5784.866	5784.957	5785.373
	5795	5794.955	5794.872	5794.953	5795.393
	5825	5824.958	5824.800	5824.956	5825.387
-20	5745	5744.949	5744.886	5744.952	5745.375
	5755	5754.965	5754.888	5754.977	5755.389
	5775	5774.963	5774.891	5774.957	5775.376
	5785	5784.966	5784.883	5784.966	5785.363
	5795	5794.977	5794.873	5794.964	5795.359
	5825	5824.958	5824.881	5824.974	5825.395
-10	5745	5744.960	5744.876	5744.968	5744.995
	5755	5754.986	5754.883	5754.970	5755.378
	5775	5774.981	5774.900	5774.972	5775.381
	5785	5784.965	5784.876	5784.964	5785.384
	5795	5794.954	5794.871	5794.955	5795.369
	5825	5824.889	5824.873	5824.964	5825.367
0	5745	5744.954	5744.865	5744.968	5744.975
	5755	5754.979	5754.881	5754.970	5755.391
	5775	5774.959	5774.880	5774.972	5775.389
	5785	5784.968	5784.883	5784.964	5785.373
	5795	5794.966	5794.893	5794.955	5795.364
	5825	5824.976	5824.873	5824.964	5825.301
10	5745	5744.954	5744.875	5744.957	5745.365
	5755	5754.979	5754.892	5754.964	5755.372
	5775	5774.959	5774.893	5774.955	5775.391
	5785	5784.968	5784.875	5784.947	5785.367
	5795	5794.966	5794.891	5794.954	5795.365
	5825	5824.976	5824.888	5824.883	5825.370
20	5745	5744.970	5744.900	5744.968	5745.364
	5755	5754.984	5754.872	5754.982	5755.383
	5775	5774.968	5774.895	5774.966	5775.365
	5785	5784.955	5784.895	5784.953	5785.392
	5795	5794.949	5794.885	5794.947	5795.386
	5825	5744.960	5744.875	5744.958	5745.364
30	5745	5754.967	5754.882	5754.965	5755.353
	5755	5774.983	5774.874	5774.981	5775.366
	5775	5784.959	5784.866	5784.957	5785.373
	5785	5794.955	5794.872	5794.953	5795.393
	5795	5824.958	5824.800	5824.956	5825.387
	5825	5744.949	5744.886	5744.952	5745.375
40	5745	5754.965	5754.888	5754.977	5755.389
	5755	5774.963	5774.891	5774.957	5775.376

	5775	5774.968	5774.876	5774.972	5775.389
	5785	5784.955	5784.885	5784.964	5785.373
	5795	5794.949	5794.882	5794.955	5795.364
	5825	5824.983	5824.891	5824.964	5825.301
50	5745	5744.970	5744.900	5744.968	5745.364
	5755	5754.984	5754.872	5754.982	5755.383
	5775	5774.968	5774.895	5774.966	5775.365
	5785	5784.955	5784.895	5784.953	5785.392
	5795	5794.949	5794.885	5794.947	5795.386
	5825	5824.983	5824.899	5824.981	5825.397

Frequency stability versus Voltage					
Temperature: 25°C					
Power Supply (VAC)	Operating Frequency (MHz)	0 minute Measured Frequency (MHz)	2 minute Measured Frequency (MHz)	5 minute Measured Frequency (MHz)	10 minute Measured Frequency (MHz)
10.2	5745	5744.949	5744.875	5744.957	5745.359
	5755	5754.965	5754.882	5754.974	5755.384
	5775	5774.963	5774.874	5774.974	5775.367
	5785	5784.966	5784.866	5784.956	5785.376
	5795	5794.977	5794.872	5794.973	5795.376
	5825	5824.958	5824.800	5824.971	5825.388
12.0	5745	5744.949	5744.886	5744.952	5745.375
	5755	5754.965	5754.888	5754.977	5755.389
	5775	5774.963	5774.891	5774.957	5775.376
	5785	5784.966	5784.883	5784.966	5785.363
	5795	5794.977	5794.873	5794.964	5795.359
	5825	5824.958	5824.881	5824.974	5825.395
13.80	5745	5744.970	5744.900	5744.968	5745.364
	5755	5754.984	5754.872	5754.982	5755.383
	5775	5774.968	5774.895	5774.966	5775.365
	5785	5784.955	5784.895	5784.953	5785.392
	5795	5794.949	5794.885	5794.947	5795.386
	5825	5824.983	5824.899	5824.981	5825.397

5 Test Setup Photo

Reference to the **appendix I** for details.

6 EUT Constructional Details

Reference to the **appendix II** for details.

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