Report No.: ET-23121529E01

TEST REPORT

Applicant:	Shenzhen Chuangruixin Technology Co.,Ltd.
Address of Applicant:	Floor 3, Building B5, Tower Xufa Science Park, Liantang Industrial City,Gongming Town, Shenzhen
Manufacturer/Factory:	Shenzhen Chuangruixin Technology Co.,Ltd.
Address of Manufacturer	Floor 3, Building B5, Tower Xufa Science Park, Liantang Industrial City,Gongming Town, Shenzhen
Product Name:	NOTE BOOK
Model No.:	R14,R16 Pro, R16 Air,T11,T11 Mini,M16,T30 Pro,T40,T60 Air, T60 Pro,DG2,T10,T126, R15,M30,DS30,DS40,DS50,A60,A21
Trade Mark:	DAYSKY
FCC ID:	2AXUH-R14
Applicable standards:	FCC CFR Title 47 Part 15 Subpart E Section 15.407
Date of Test:	Dec.27, 2023- Jan.05, 2024
Date of report issued:	Jan.19, 2024
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:
Project Engineer	Project Manager	Authorized Signature

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Report Revision History		
Report No.	Description	Issue Date
ET-23121529E03	Original	Jan.19, 2024

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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:	NOTE BOOK
Model No.:	R14,R16 Pro, R16 Air,T11,T11 Mini,M16,T30 Pro,T40,T60 Air, T60 Pro,DG2,T10,T126, R15,M30,DS30,DS40,DS50,A60,A21
Difference of model(s)	All the model are the same circuit and RF module, except the model names and colors
Test Model:	R14
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:	FPC antenna
Antenna gain:	2.24 dBi(Declare by applicant) Note: Antenna information is provided by applicant, Testing lab is not responsible for the accuracy of the information.
Battery	DC 7.6V from battery
Adapter information:	Model：JHD-AD065B-120500BA-A Input：100-240v 50/60Hz 1.5A Output: DC 12V 5A

Note: Other information please refer user manual.

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 EUT was test with maximum power control level.
Remark: For battery operated equipment, the EUT was performed using a new DC 7.6V battery.	

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
1	monitor	DELL	SE2416HC	/
2	mouse	DELL	/	/
3	keyboard	DELL	/	/
4	Adapter	JHD	JHD-AD065B-120500BA-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	DRTU.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	Artificial power network	schwarabeck	NSLK8127	8127483	2023.3.02	2024.3.01
3	Artificial power network	ETS	3186/2NM	1132	2023.3.02	2024.3.01
4	10dB attenuator	HUBER+SUHNER	10dB	/	2023.3.02	2024.3.01
5	Cable 4	HUBER SUNNER	3M	/	2023.3.02	2024.3.01
6	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	ESCI7	101032	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	2023.3.02	2024.3.01
7	Power detector meter	MWRFtest	MW100-PSB	MW201020JYT	2023.10.18	2024.10.17
8	Signal generator	Agilent	N5182A	MY49060455	2023.10.18	2024.10.17
9	Spectrum analyzer	Rohde&schwarz	FSU40	1166.1660K43	2023.8.16	2024.8.15
10	Amplifier	SKET	LNPA_1840-50	SK2019040302	2023.8.16	2024.8.15
11	Horn antenna	schwarabeck	BBHA 9170	946	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
16	Filter	Xin bo	XBLBQ-GTA29	210410-3-2	2023.3.06	2024.3.05

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

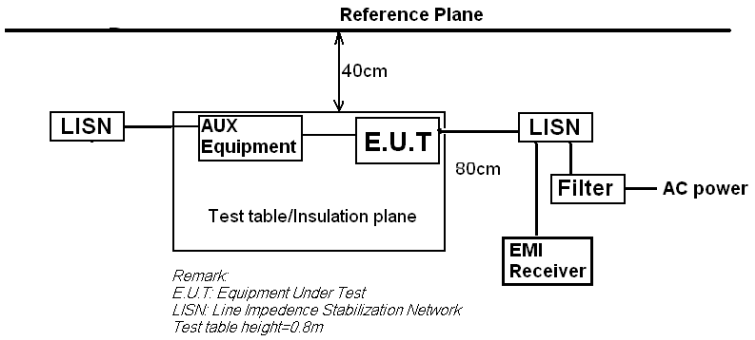
Software Name	Manufacturer	Model	Version
RF test software	MWRFtest	MTS 8310	V2.0.0.0
Conducted test software	EZ-EMC	Farad	Ver.EMC-CON 3A1.1
Radiated test software	EZ-EMC	Farad	Ver.FA-03A2 RE

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 FPC Antenna, the best case gain of the antennas are 2.24 dBi, reference to the appendix II for details	

4.2 Conducted Emissions

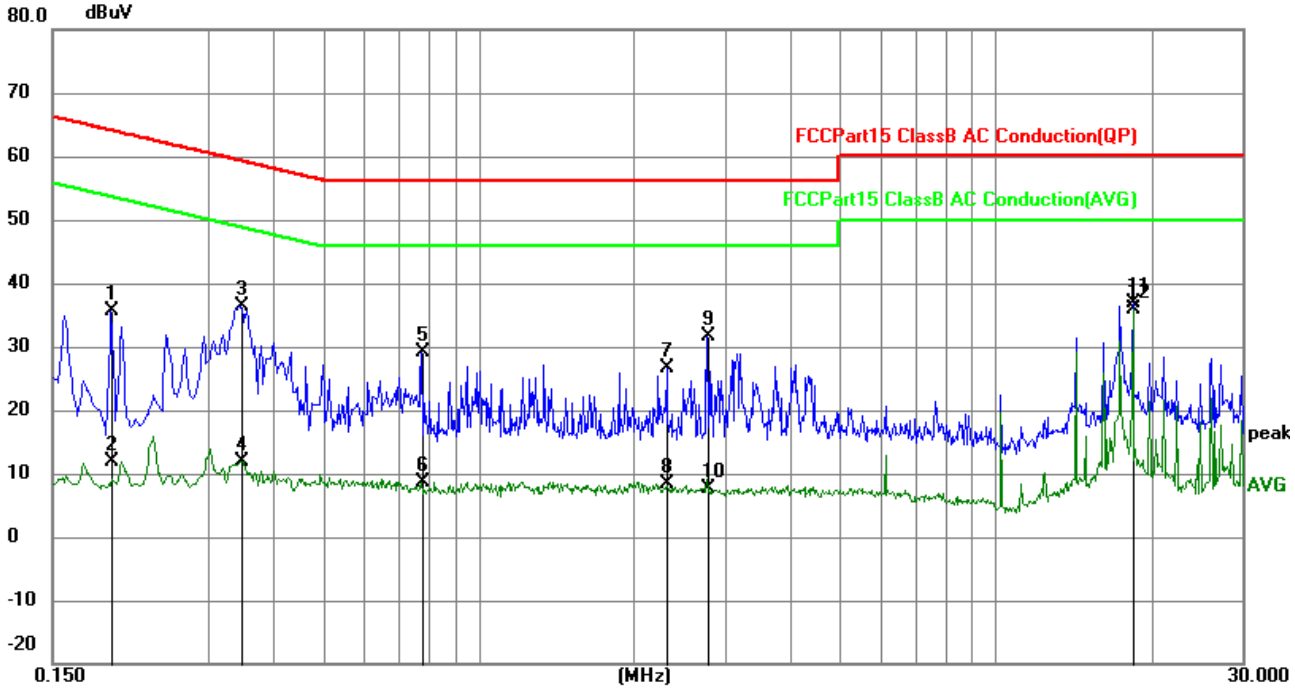
<table>
<tr><td>Test Requirement:</td><td colspan="6">FCC Part15 C Section 15.207</td></tr>
<tr><td>Test Method:</td><td colspan="6">ANSI C63.10:2013</td></tr>
<tr><td>Test Frequency Range:</td><td colspan="6">150KHz to 30MHz</td></tr>
<tr><td>Class / Severity:</td><td colspan="6">Class B</td></tr>
<tr><td>Receiver setup:</td><td colspan="6">RBW=9KHz, VBW=30KHz, Sweep time=auto</td></tr>
<tr><td>Limit:</td><td colspan="6">
<table>
<tr><td rowspan="2">Frequency range (MHz)</td><td colspan="2">Limit (dBuV)</td></tr>
<tr><td>Quasi-peak</td><td>Average</td></tr>
<tr><td>0.15-0.5</td><td>66 to 56*</td><td>56 to 46*</td></tr>
<tr><td>0.5-5</td><td>56</td><td>46</td></tr>
<tr><td>5-30</td><td>60</td><td>50</td></tr>
</table>
* Decreases with the logarithm of the frequency.
</td></tr>
<tr><td>Test setup:</td><td colspan="6"> 
</td></tr>
<tr><td>Test procedure:</td><td colspan="6">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.</td></tr>
<tr><td>Test Instruments:</td><td colspan="6">Refer to section 3.0 for details</td></tr>
<tr><td>Test mode:</td><td colspan="6">Refer to section 2.2 for details</td></tr>
<tr><td>Test environment:</td><td>Temp.:</td><td>21.0°C</td><td>Humid.:</td><td>34%</td><td>Press.:</td><td>1012mbar</td></tr>
<tr><td>Test voltage:</td><td colspan="6">AC 120V, 60Hz</td></tr>
<tr><td>Test results:</td><td colspan="6">Pass</td></tr>
</table>

Remark:

1. Both high voltage and low voltage have been tested, and the report only shows the worst case data with AC 120V/60Hz.

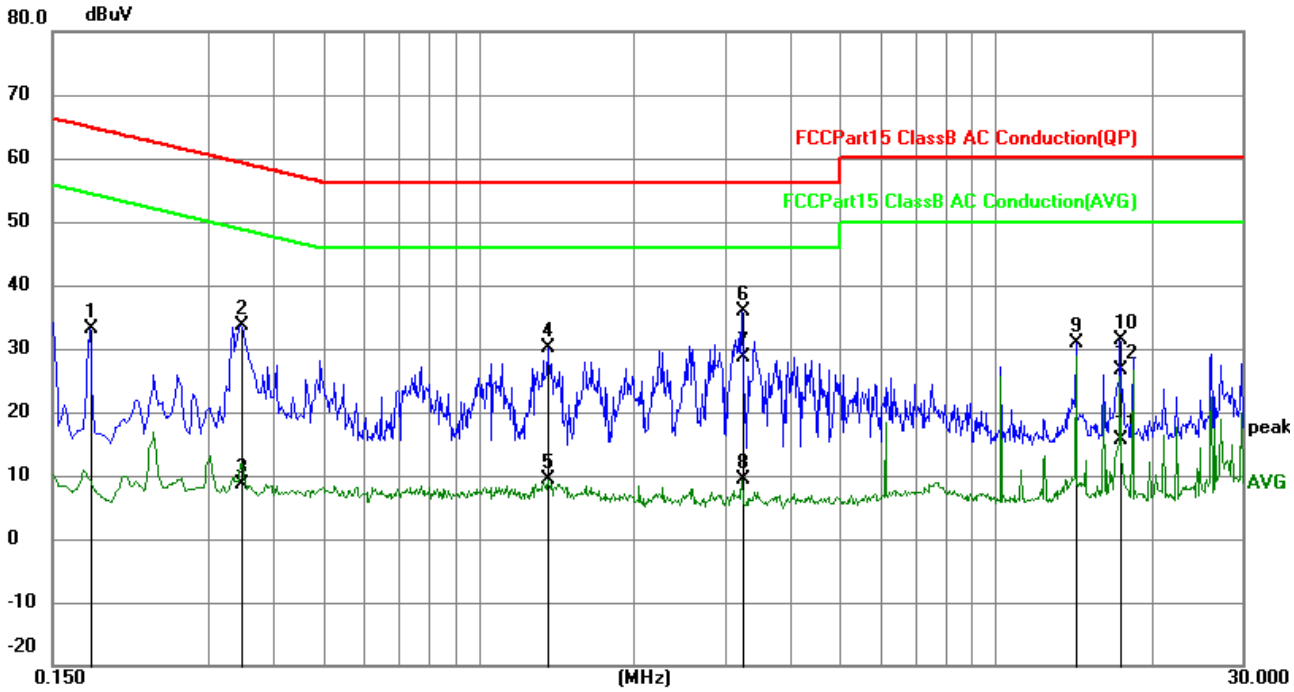
2. All mode have been tested, the report only shows the worst mode (802.11 n 5825MHz) data.

Measurement data
Line:



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1949	25.73	9.81	35.54	63.83	-28.29	QP
2	0.1949	1.97	9.81	11.78	53.83	-42.05	AVG
3	0.3478	26.47	9.88	36.35	59.01	-22.66	QP
4	0.3478	2.02	9.88	11.90	49.01	-37.11	AVG
5	0.7752	19.09	9.96	29.05	56.00	-26.95	QP
6	0.7752	-1.33	9.96	8.63	46.00	-37.37	AVG
7	2.3189	16.68	9.85	26.53	56.00	-29.47	QP
8	2.3189	-1.56	9.85	8.29	46.00	-37.71	AVG
9	2.7780	21.89	9.85	31.74	56.00	-24.26	QP
10	2.7780	-2.18	9.85	7.67	46.00	-38.33	AVG
11	18.4333	27.17	9.70	36.87	60.00	-23.13	QP
12	18.4333	26.14	9.70	35.84	50.00	-14.16	AVG

Neutral:

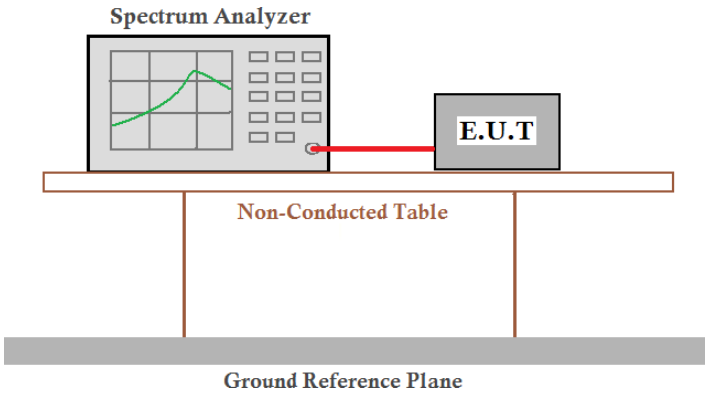


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1768	23.26	9.81	33.07	64.63	-31.56	QP
2	0.3478	23.85	9.88	33.73	59.01	-25.28	QP
3	0.3478	-1.32	9.88	8.56	49.01	-40.45	AVG
4	1.3604	20.20	9.91	30.11	56.00	-25.89	QP
5	1.3604	-0.60	9.91	9.31	46.00	-36.69	AVG
6	3.2324	25.96	9.84	35.80	56.00	-20.20	QP
7	3.2324	18.91	9.84	28.75	46.00	-17.25	AVG
8	3.2324	-0.54	9.84	9.30	46.00	-36.70	AVG
9	14.3339	21.03	9.76	30.79	60.00	-29.21	QP
10	17.4300	21.62	9.71	31.33	60.00	-28.67	QP
11	17.4300	5.95	9.71	15.66	50.00	-34.34	AVG
12	17.4300	16.97	9.71	26.68	50.00	-23.32	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 Duty cycle

Test Method :	ANSI C63.10:2013	
Limit:	/	
Test setup:		
Test Instruments:	Refer to section 3.0 for details	
Test mode:	Refer to section 2.2 for details	
Test environment:	Temp.: 21.4°C	Humid.: 40%RH
Test voltage:	DC 7.6V	
Test results:	Pass	

Measurement Result

5180-5240MHz

Mode	Test Channel	Frequency (MHz)	Duty cycle (%)	Correction Factor (dB)
TX 802.11a Mode	CH36	5180	98.44	0.07
	CH40	5200	98.38	0.07
	CH48	5240	98.36	0.07
TX 802.11n20 Mode	CH36	5180	98.27	0.08
	CH40	5200	98.27	0.08
	CH48	5240	98.24	0.08
TX 802.11ac20 Mode	CH36	5180	98.29	0.07
	CH40	5200	98.27	0.08
	CH48	5240	98.28	0.08
TX 802.11n40 Mode	CH38	5190	96.51	0.15
	CH46	5230	96.52	0.15
TX 802.11a40 Mode	CH38	5190	96.58	0.15
	CH46	5230	96.55	0.15
TX 802.11ac80 Mode	CH42	5210	93.07	0.31

5745-5825 MHz

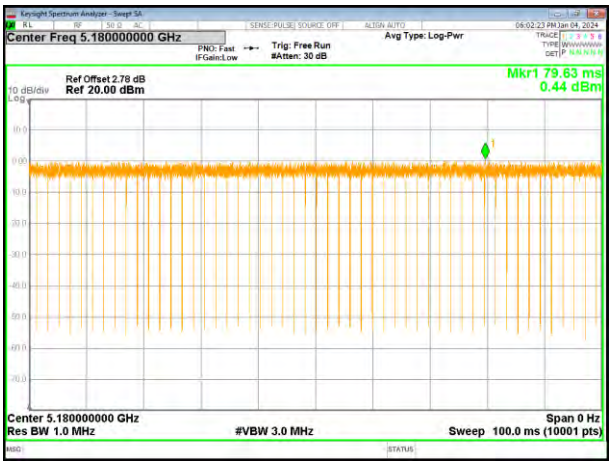
Mode	Test Channel	Frequency (MHz)	Duty cycle (%)	Correction Factor (dB)
TX 802.11a Mode	CH149	5745	98.42	0.07
	CH157	5785	98.42	0.07
	CH165	5825	98.39	0.07
TX 802.11n20 Mode	CH149	5745	98.29	0.07
	CH157	5785	98.27	0.08
	CH165	5825	98.27	0.08
TX 802.11ac20 Mode	CH149	5745	98.28	0.08
	CH157	5785	98.27	0.08
	CH165	5825	98.24	0.08
TX 802.11n40 Mode	CH151	5755	96.54	0.15
	CH159	5795	96.53	0.15
TX 802.11a40 Mode	CH151	5755	96.56	0.15
	CH159	5795	96.58	0.15
TX 802.11ac80 Mode	CH155	5775	93.07	0.31

Test plot

5180-5240MHz

(802.11a) plot on channel 36

(802.11 n20) plot on channel 36

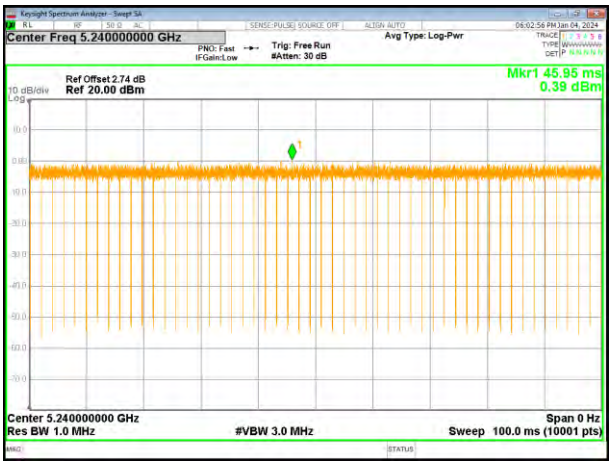


(802.11a) plot on channel 40

(802.11 n20) plot on channel 40

(802.11a) plot on channel 48

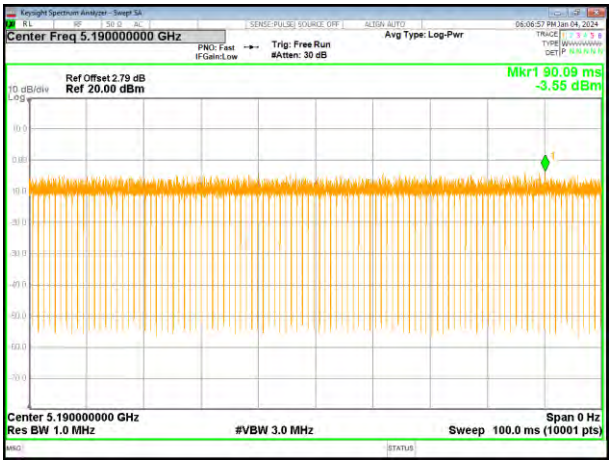
(802.11 n20) plot on channel 48



Test plot

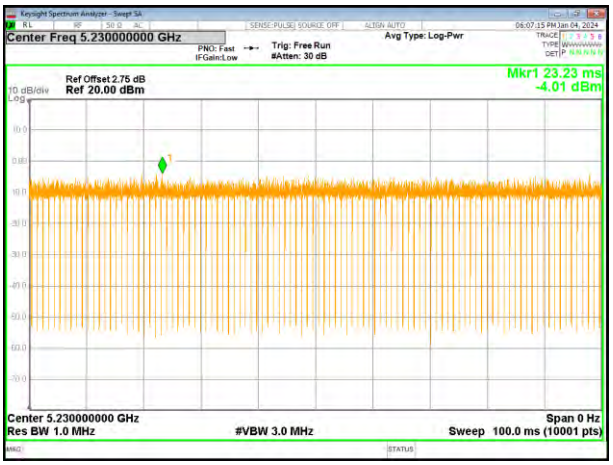
(802.11ac20) plot on channel 36

(802.11 n40) plot on channel 38



(802.11ac20) plot on channel 40

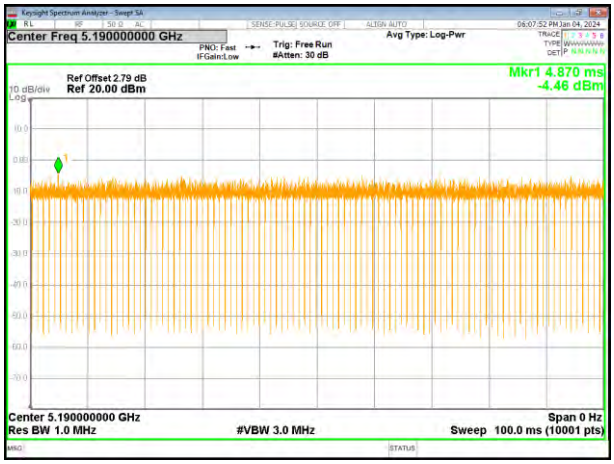
(802.11 n40) plot on channel 46



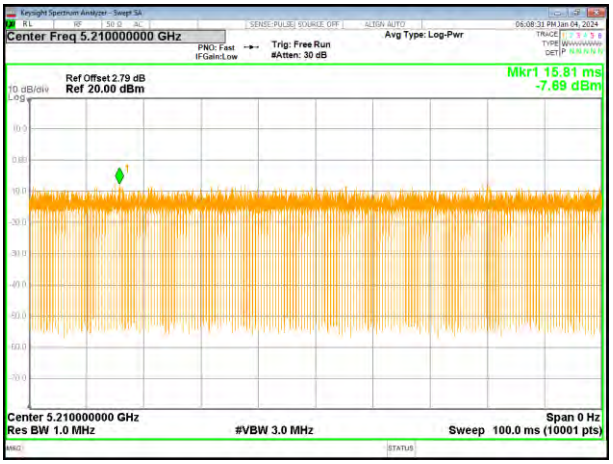
(802.11ac20) plot on channel 48

Test plot

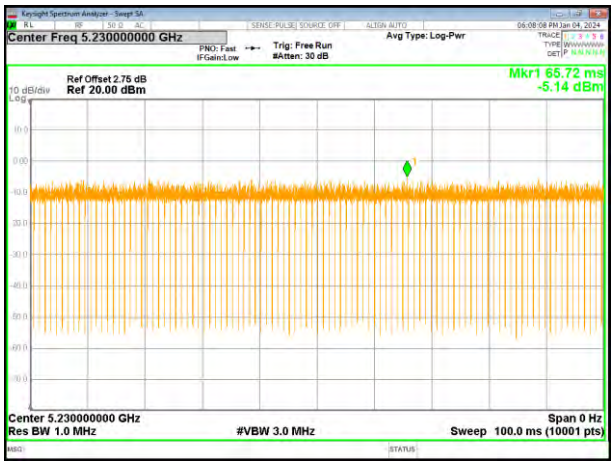
(802.11ac40) plot on channel 38



(802.11ac80) plot on channel 42



(802.11ac40) plot on channel 46

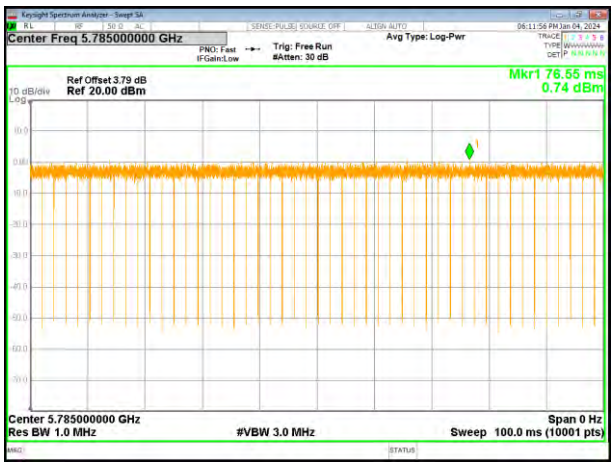


5745-5825 MHz

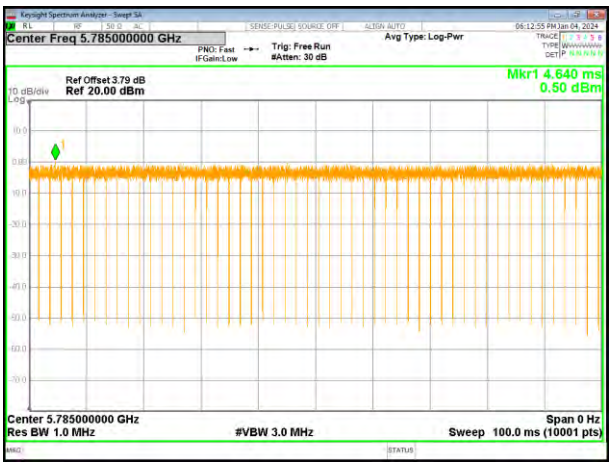
(802.11a) plot on channel 36

(802.11 n20) plot on channel 36

(802.11a) plot on channel 40

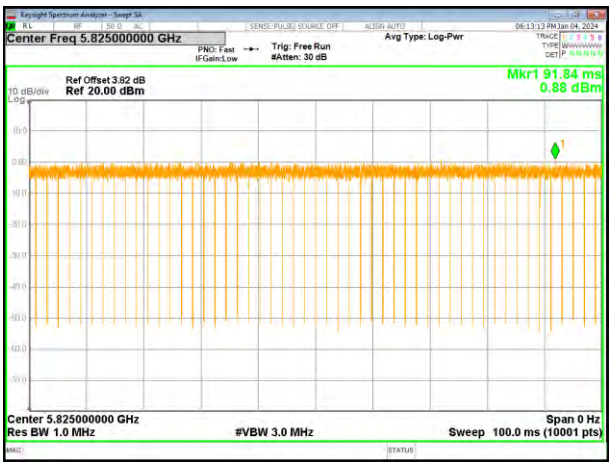


(802.11 n20) plot on channel 40



(802.11a) plot on channel 48

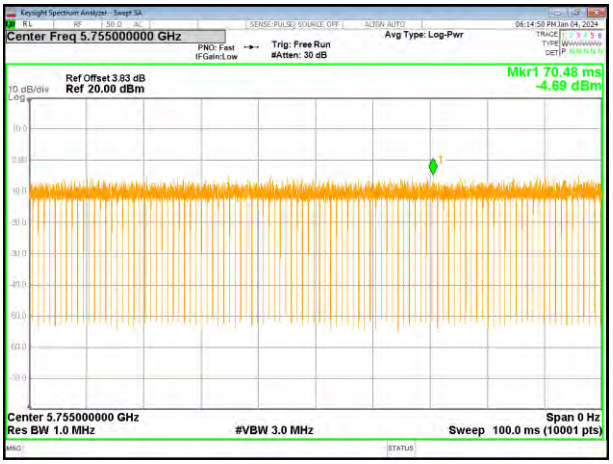
(802.11 n20) plot on channel 48



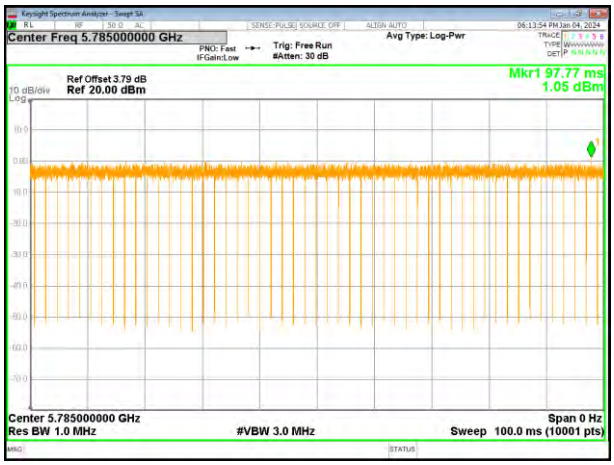
Test plot

(802.11ac20) plot on channel 36

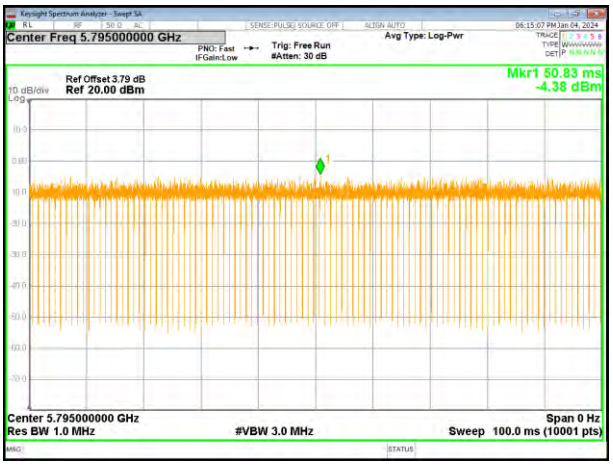
(802.11 n40) plot on channel 38



(802.11ac20) plot on channel 40



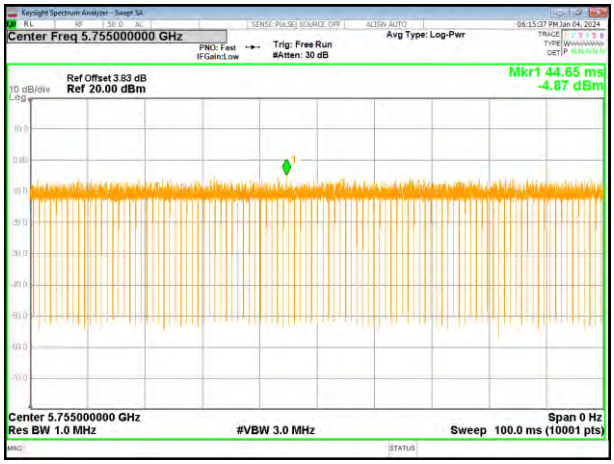
(802.11 n40) plot on channel 46



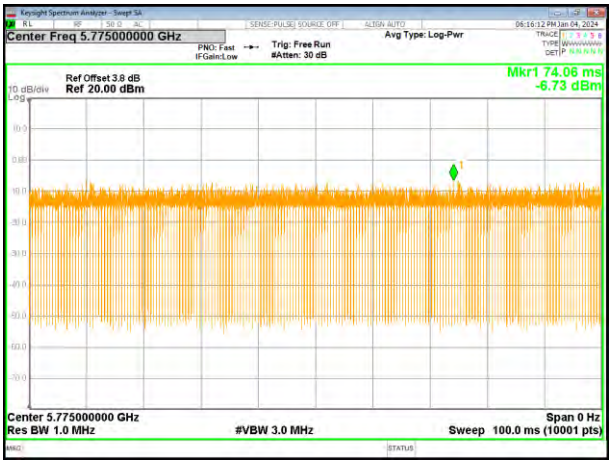
(802.11ac20) plot on channel 48

Test plot

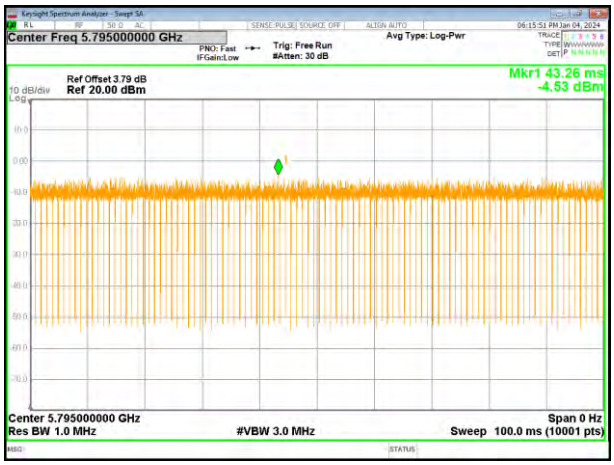
(802.11ac40) plot on channel 38



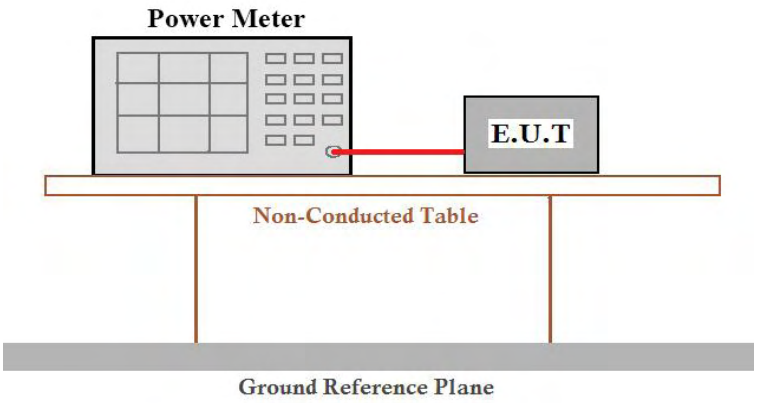
(802.11ac80) plot on channel 42



(802.11ac40) plot on channel 46



4.4 Conducted 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 environment:	Temp.: 21.4°C	Humid.: 40%RH
Test voltage:	DC 7.6V	
Test results:	Pass	

Measurement Result

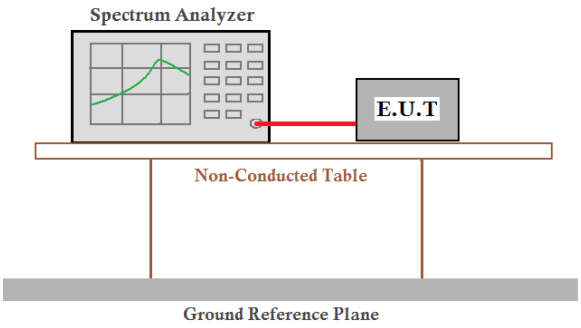
5180-5240MHz

Test Channel	Frequency	Correction Factor	Maximum output power	Total Power	LIMIT	Result
	(MHz)	(dB)	(dBm)	(dBm)	dBm	
TX 802.11a Mode						
CH36	5180	0.07	7.60	6.67	23.98	Pass
CH40	5200	0.07	7.30	6.37	23.98	Pass
CH48	5240	0.07	7.00	6.07	23.98	Pass
TX 802.11 n20 Mode						
CH36	5180	0.08	7.57	6.65	23.98	Pass
CH40	5200	0.08	7.28	6.36	23.98	Pass
CH48	5240	0.08	7.07	6.15	23.98	Pass
TX 802.11 ac20 Mode						
CH36	5180	0.07	5.83	5.90	23.98	Pass
CH40	5200	0.08	5.29	5.37	23.98	Pass
CH48	5240	0.08	4.87	4.95	23.98	Pass
TX 802.11 n40 Mode						
CH38	5190	0.15	4.68	4.83	23.98	Pass
CH46	5230	0.15	4.94	5.09	23.98	Pass
TX 802.11 ac40 Mode						
CH38	5190	0.15	5.21	5.36	23.98	Pass
CH46	5230	0.15	5.20	5.35	23.98	Pass
TX 802.11 ac80 Mode						
CH42	5210	0.31	4.99	5.30	23.98	Pass

5745-5825 MHz

Test Channel	Frequency	Correction Factor	Maximum output power	Total Power	LIMIT	Result
	(MHz)	(dB)	(dBm)	(dBm)	dBm	
TX 802.11a Mode						
CH149	5745	0.07	6.34	6.41	30	Pass
CH157	5785	0.07	6.06	6.13	30	Pass
CH165	5825	0.07	6.43	6.50	30	Pass
TX 802.11 n20 Mode						
CH149	5745	0.07	5.89	5.96	30	Pass
CH157	5785	0.08	5.71	5.79	30	Pass
CH165	5825	0.08	6.18	6.26	30	Pass
TX 802.11 ac20 Mode						
CH149	5745	0.08	5.75	5.83	30	Pass
CH157	5785	0.08	5.74	5.82	30	Pass
CH165	5825	0.08	6.19	6.27	30	Pass
TX 802.11 n40 Mode						
CH151	5755	0.15	5.43	5.58	30	Pass
CH159	5795	0.15	5.91	6.06	30	Pass
TX 802.11 ac40 Mode						
CH151	5755	0.15	5.74	5.89	30	Pass
CH159	5795	0.15	6.20	6.35	30	Pass
TX 802.11 ac80 Mode						
CH155	5775	0.31	6.25	6.56	30	Pass

4.5 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 environment:	Temp.: 21.4°C Humid.: 40%RH
Test voltage:	DC 7.6V
Test results:	Pass

Measurement Result

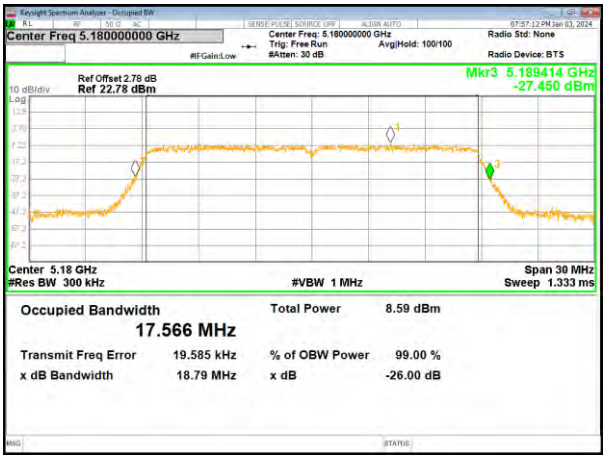
5180-5240MHz

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	18.79	18.77	19.52	40.30	39.74	--	Pass
Middle	18.82	18.77	19.57	--	--	79.18	
Highest	18.94	18.79	19.58	40.22	39.25	--	

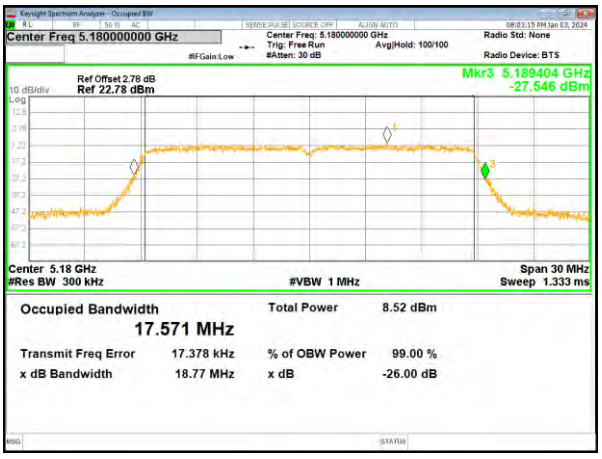
Test CH	99% Occupy Bandwidth (MHz)						Result
	802.11a	802.11n (HT20)	802.11ac (HT20)	802.11n (HT40)	802.11ac (HT40)	802.11ac (HT80)	
Lowest	17.536	17.526	17.531	36.013	36.008	--	Pass
Middle	17.534	17.535	17.530	--	--	74.497	
Highest	17.550	17.543	17.522	35.999	36.067	--	

Test plot -26dB Channel Bandwidth

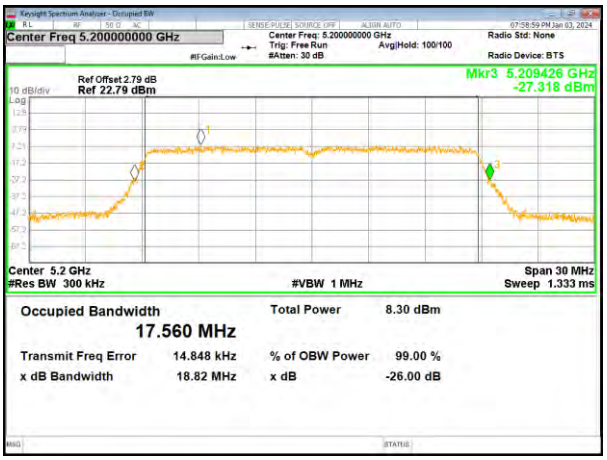
(802.11a) plot on channel 36



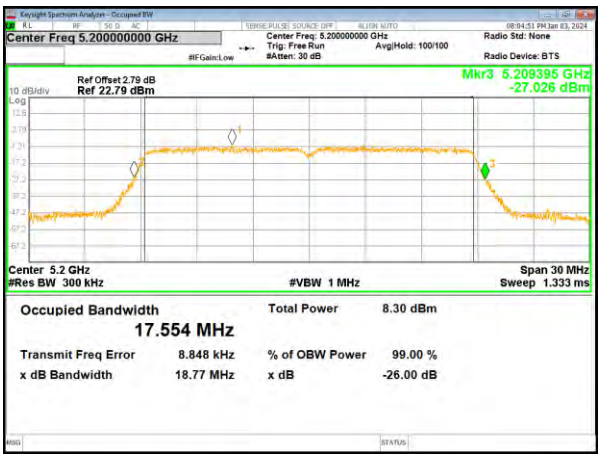
(802.11 n20) plot on channel 36



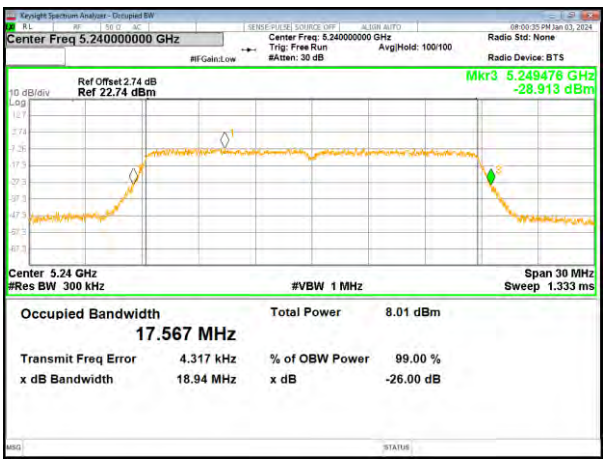
(802.11a) plot on channel 40



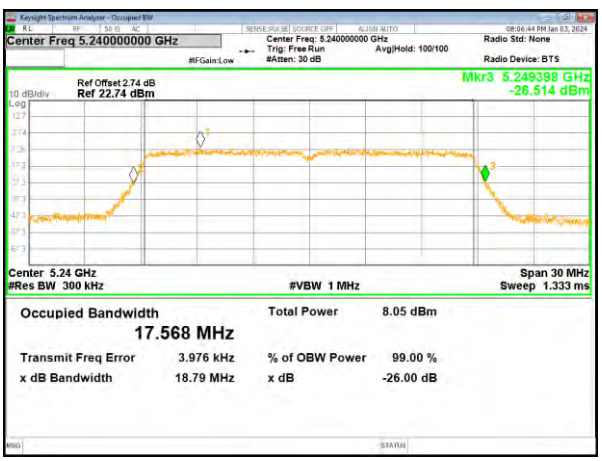
(802.11 n20) plot on channel 40



(802.11a) plot on channel 48

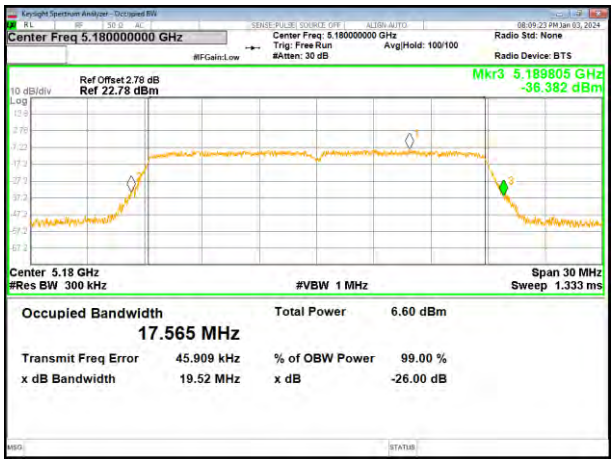


(802.11 n20) plot on channel 48

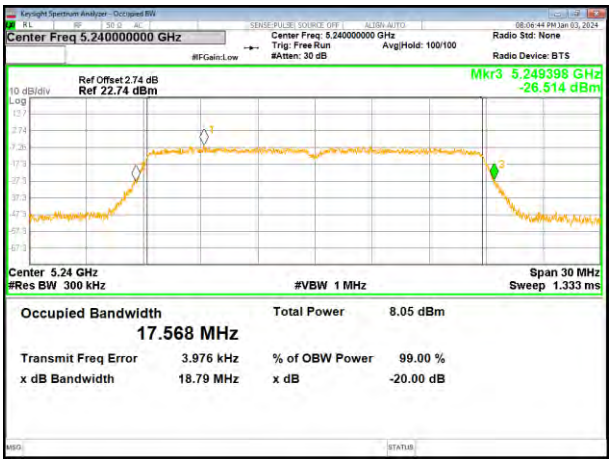


Test plot

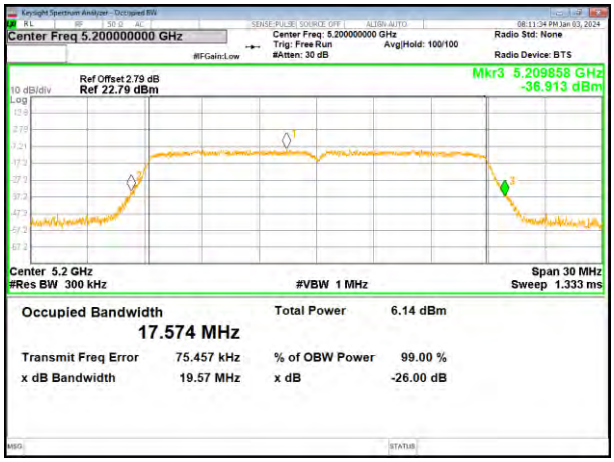
(802.11ac20) plot on channel 36



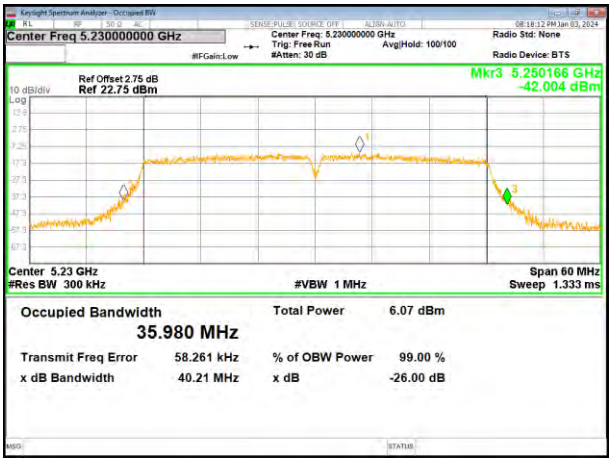
(802.11 n40) plot on channel 38



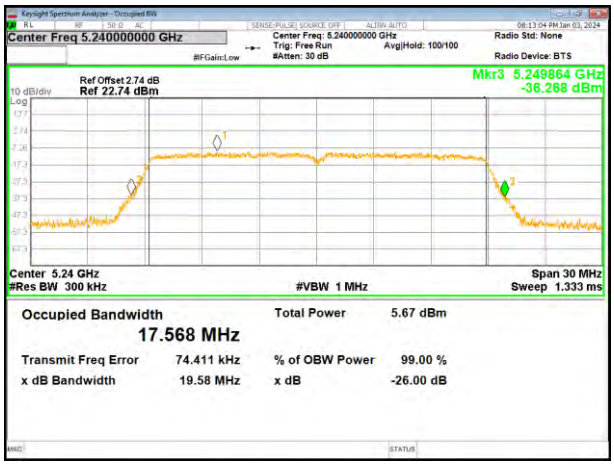
(802.11ac20) plot on channel 40



(802.11 n40) plot on channel 46

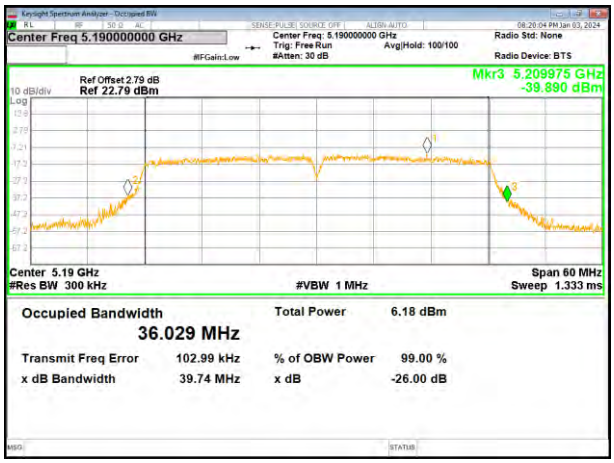


(802.11ac20) plot on channel 48

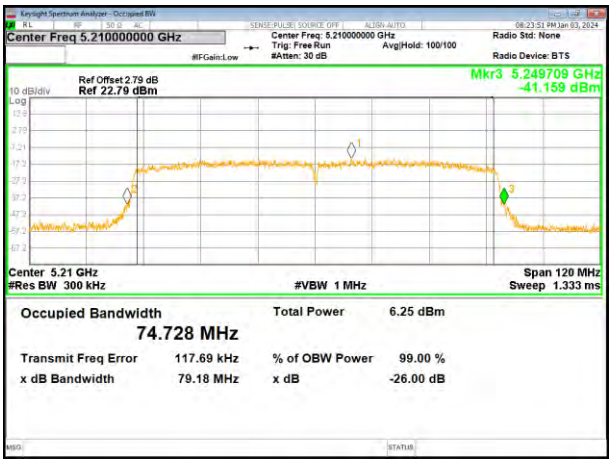


Test plot

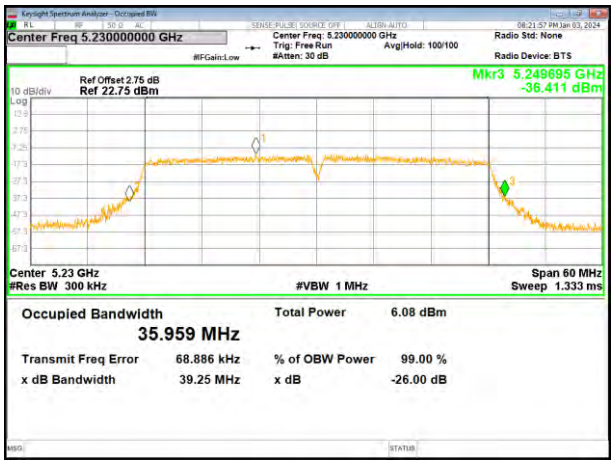
(802.11ac40) plot on channel 38



(802.11ac80) plot on channel 42

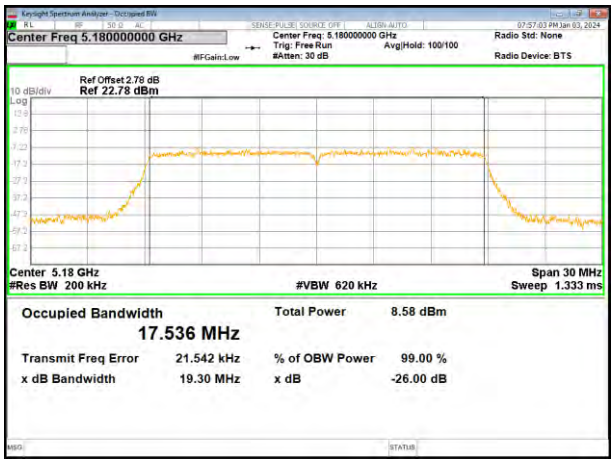


(802.11ac40) plot on channel 46

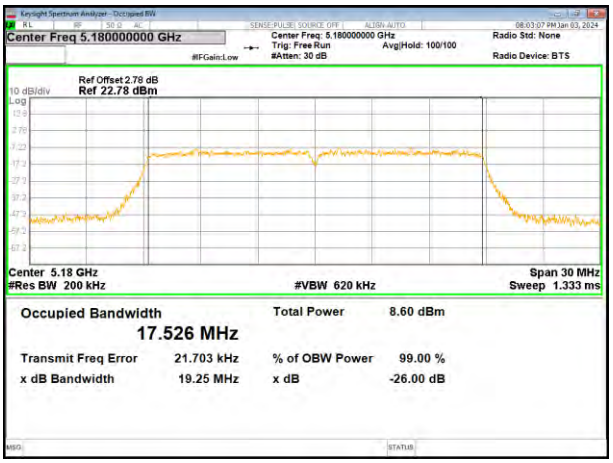


Test plot 99% Occupy Bandwidth

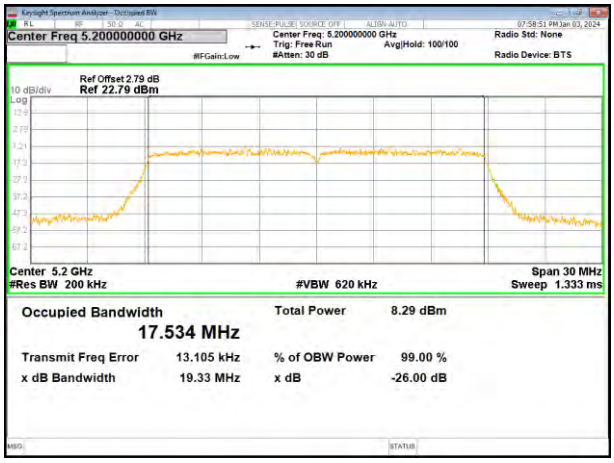
(802.11a) plot on channel 36



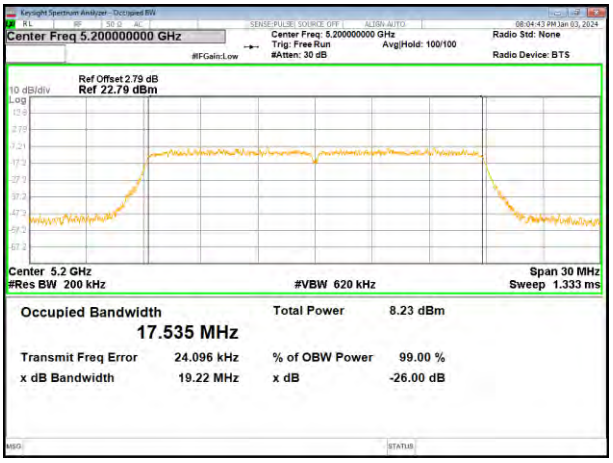
(802.11 n20) plot on channel 36



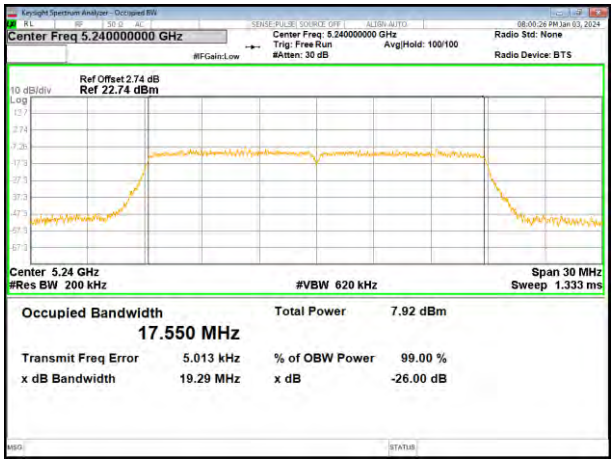
(802.11a) plot on channel 40



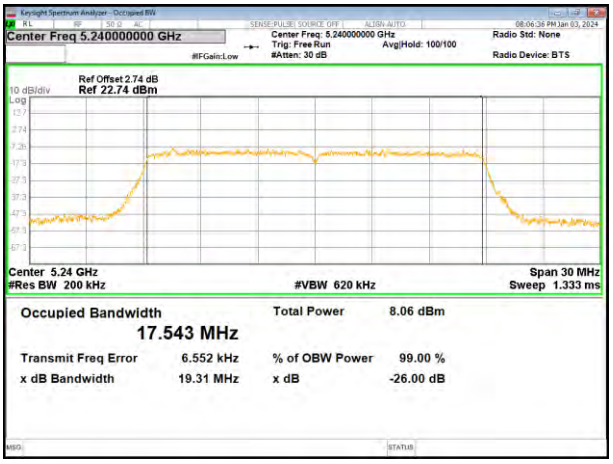
(802.11 n20) plot on channel 40



(802.11a) plot on channel 48

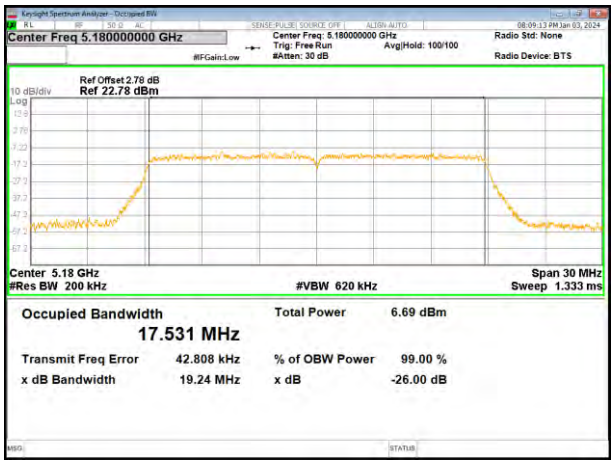


(802.11 n20) plot on channel 48

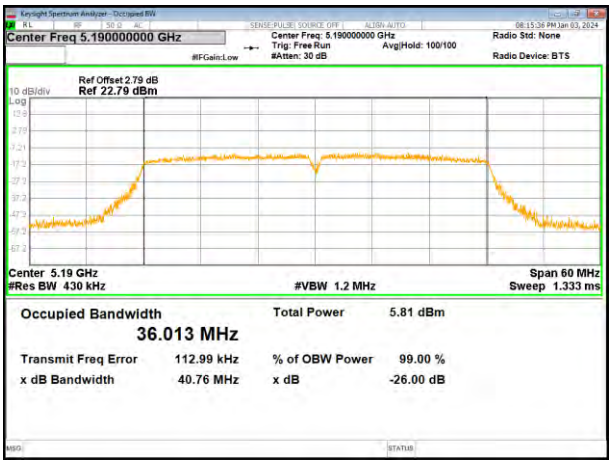


Test plot

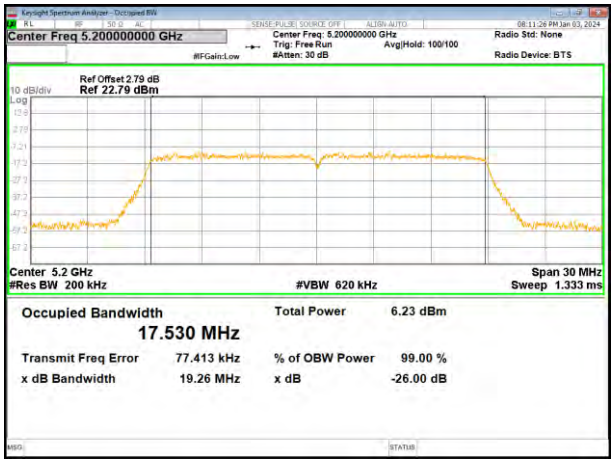
(802.11ac20) plot on channel 36



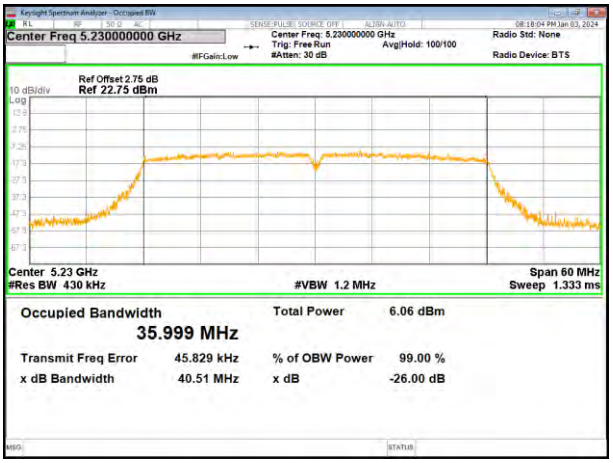
(802.11 n40) plot on channel 38



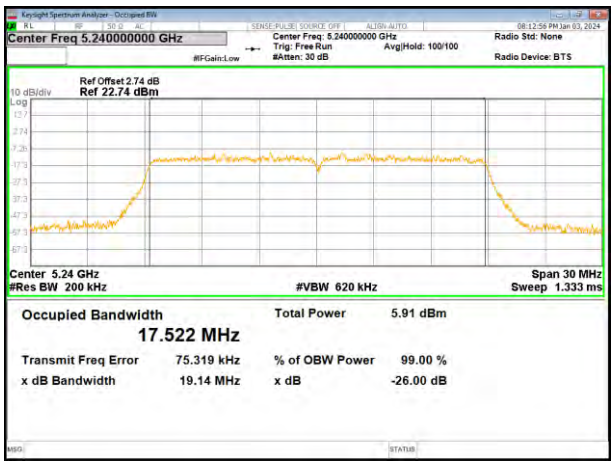
(802.11ac20) plot on channel 40



(802.11 n40) plot on channel 46

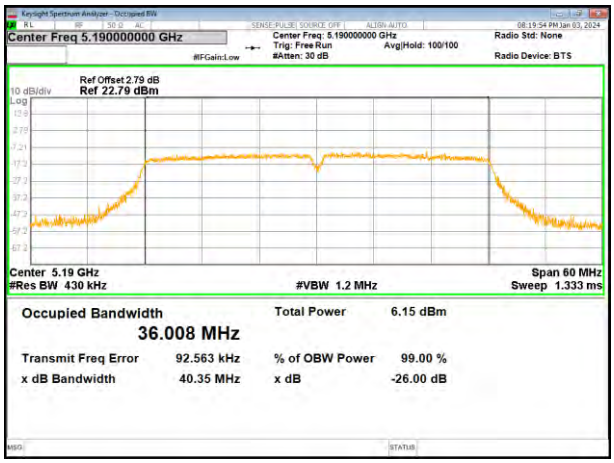


(802.11ac20) plot on channel 48

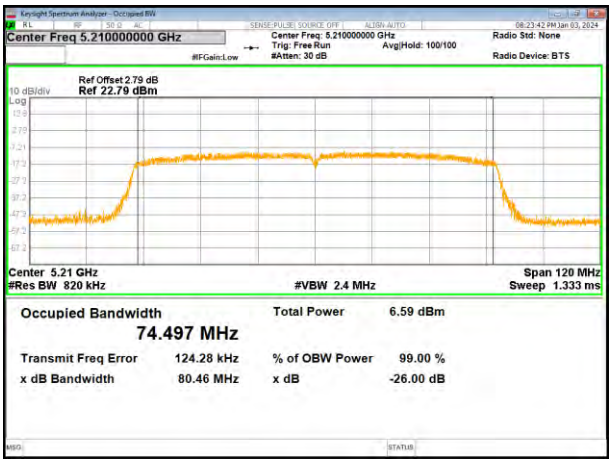


Test plot

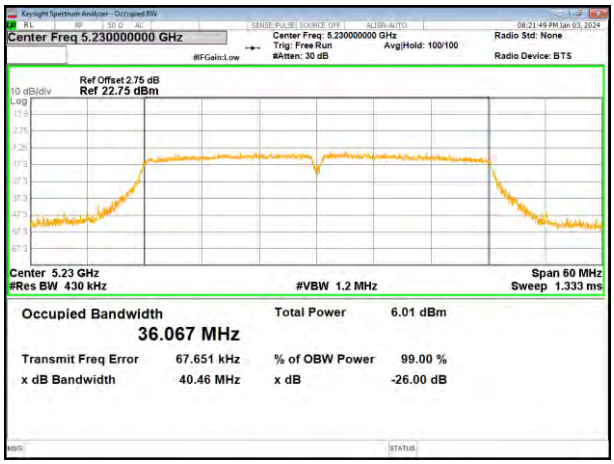
(802.11ac40) plot on channel 38



(802.11ac80) plot on channel 42



(802.11ac40) plot on channel 46



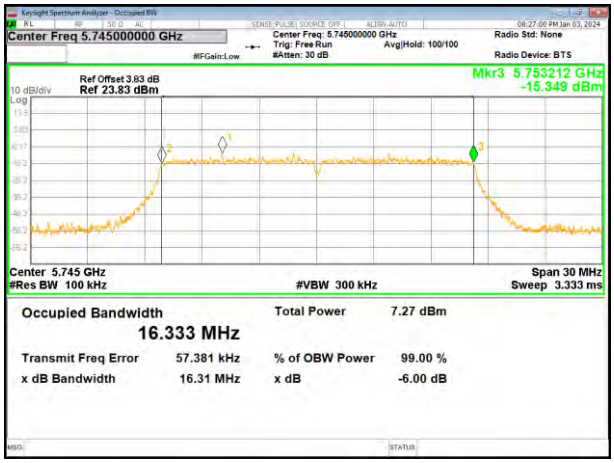
5745-5825MHz

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	16.31	17.56	17.52	35.66	35.10	--	>500	Pass
Middle	16.34	16.91	17.57	--	--	73.83		
Highest	16.30	17.32	17.18	33.83	35.13	--		

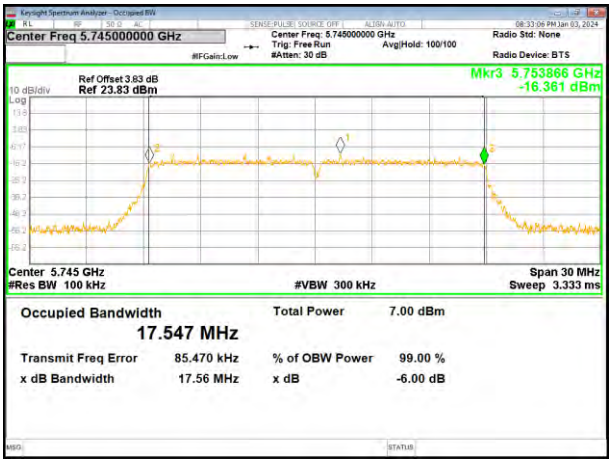
Remark: “---“is not applicable

Test plot

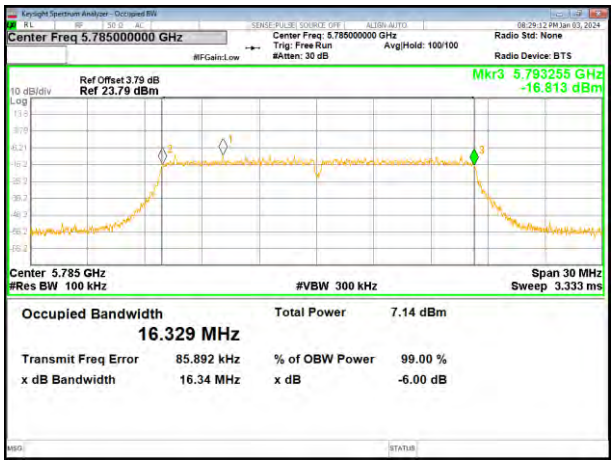
(802.11a) plot on channel 149



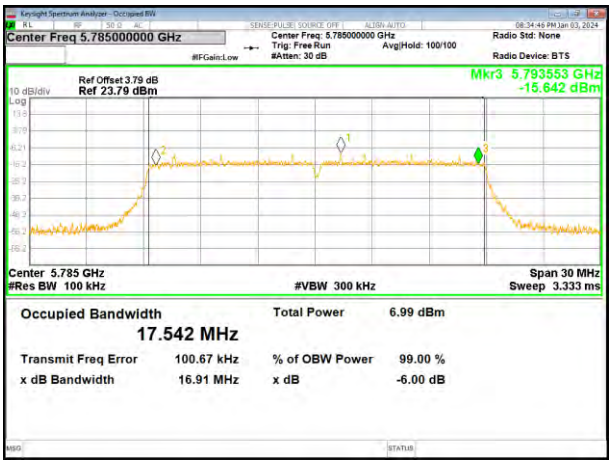
(802.11 n20) plot on channel 149



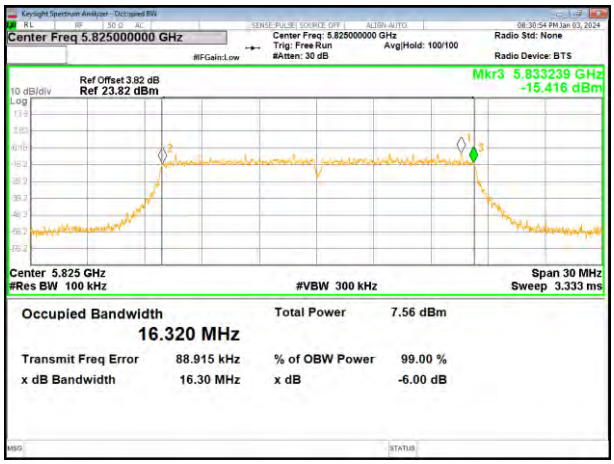
(802.11a) plot on channel 157



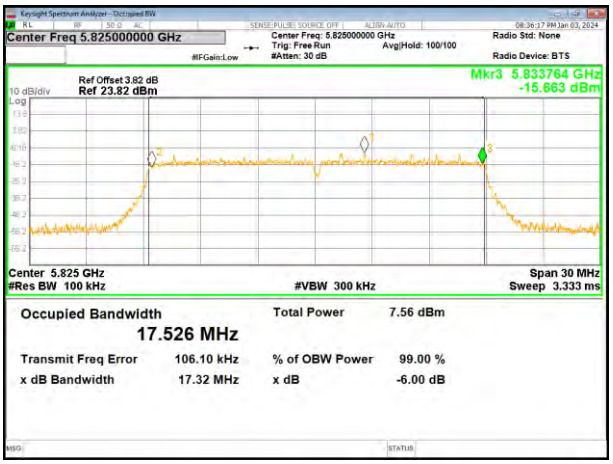
(802.11 n20) plot on channel 157



(802.11a) plot on channel 165

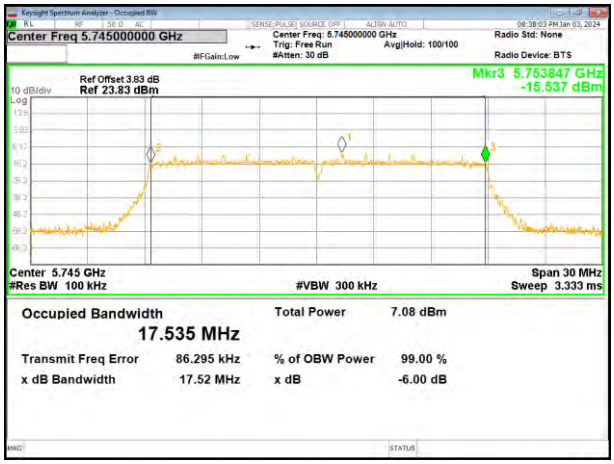


(802.11 n20) plot on channel 165



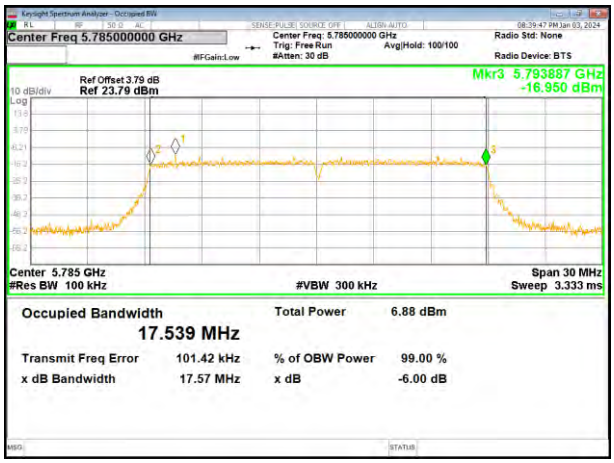
Test plot

(802.11ac20) plot on channel 149



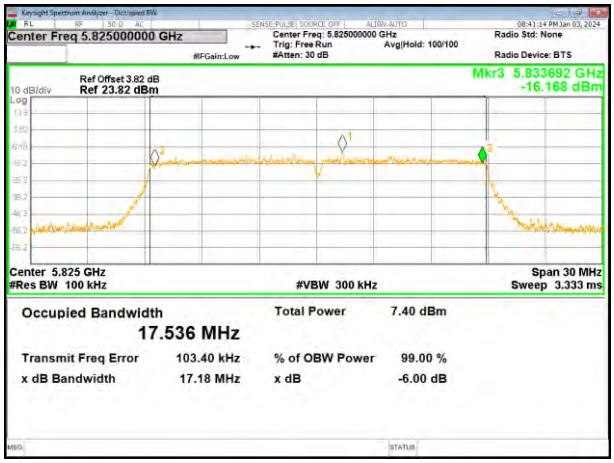
(802.11 n40) plot on channel 151

(802.11ac20) plot on channel 157



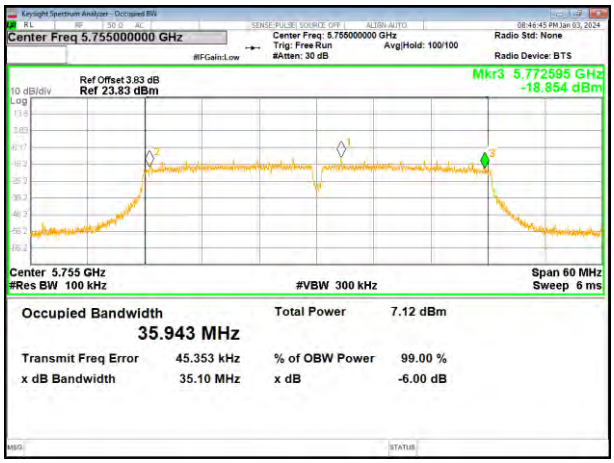
(802.11 n40) plot on channel 159

(802.11ac20) plot on channel 165

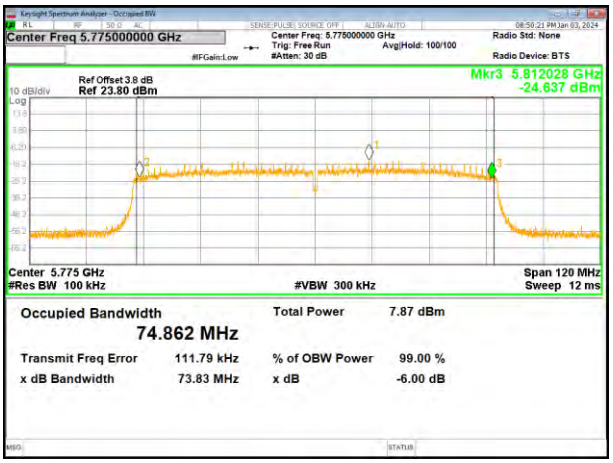


Test plot

(802.11 ac40) plot on channel 151

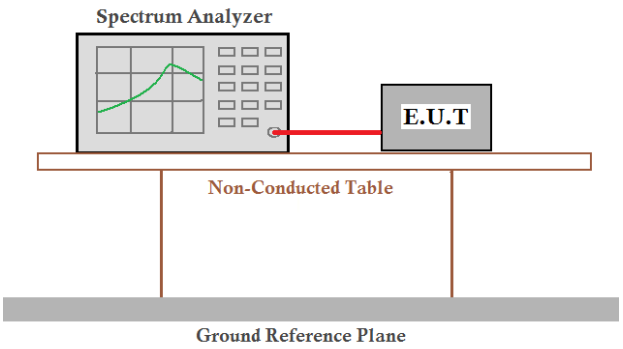


(802.11 ac80) plot on channel 155



(802.11 ac40) plot on channel 159

4.6 Power Spectral Density

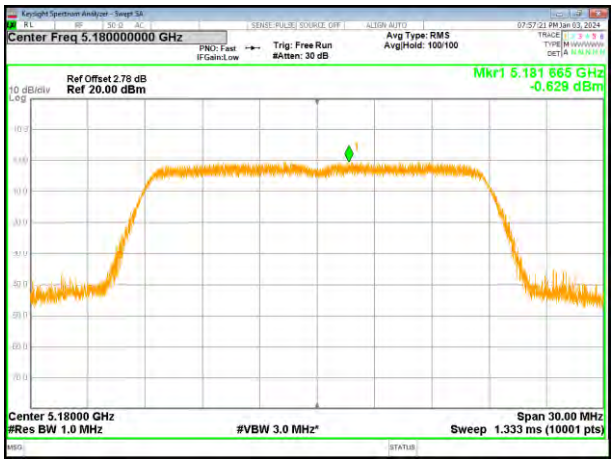
Test Requirement:	FCC Part15 E Section 15.407(a)(1)/ (a)(3)
Test Method:	ANSI C63.10:2013 and KDB 789033 D02 General U-NII Test Procedures New Rules v02r01
Limit:	Frequency band (MHz) / Limit 5150-5250 / ≤17dBm/1MHz for master device 5150-5250 / ≤11dBm/1MHz for client device 5250-5350 / ≤11dBm/1MHz for 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 environment:	Temp.: 21.4°C / Humid.: 40%RH
Test voltage:	DC 7.6V
Test results:	Pass

Measurement Result

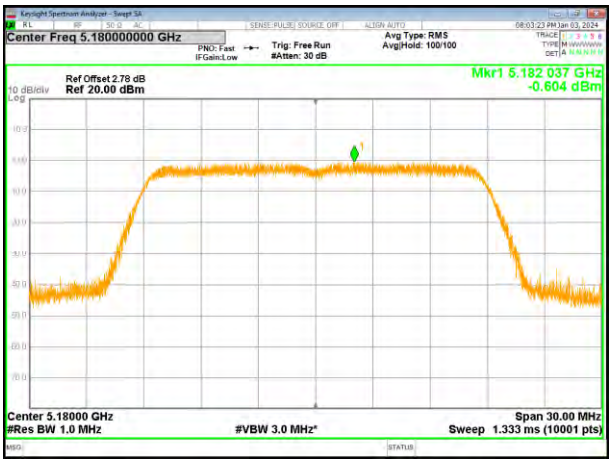
5180-5240MHz

Mode	Frequency	Measured Power Density (dBm/MHz)	Correction Factor (dB)	Total Measured Power Density (dBm/MHz)	Limit (dBm/MHz)
802.11 a	5180 MHz	-0.629	0.07	-0.559	11
	5200 MHz	-0.963	0.07	-0.893	11
	5240 MHz	-1.152	0.07	-1.082	11
802.11 n20	5180 MHz	-0.604	0.08	-0.524	11
	5200 MHz	-0.962	0.08	-0.882	11
	5240 MHz	-1.149	0.08	-1.069	11
802.11 ac20	5180 MHz	-5.792	0.07	-5.722	11
	5200 MHz	-5.547	0.08	-5.467	11
	5240 MHz	-2.644	0.08	-2.564	11
802.11 n40	5190 MHz	-2.783	0.15	-2.633	11
	5230 MHz	-3.089	0.15	-2.939	11
802.11 ac40	5190 MHz	-5.545	0.15	-5.395	11
	5230 MHz	-5.502	0.15	-5.352	11
802.11 ac80	5210 MHz	-8.164	0.31	-7.854	11

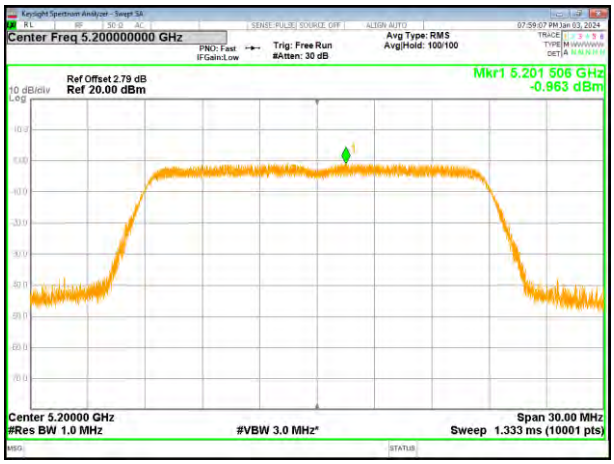
(802.11a) PSD plot on channel 36



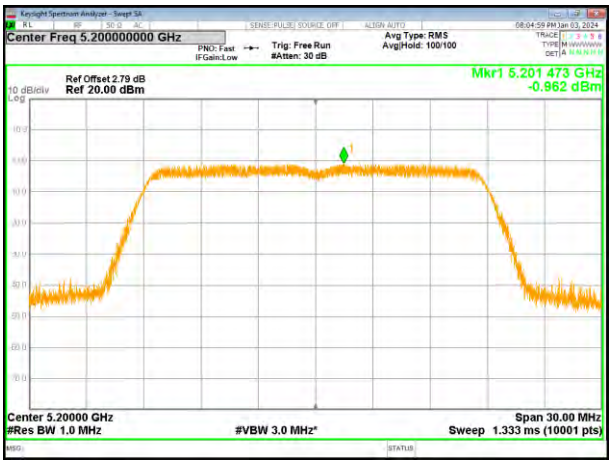
(802.11n20) PSD plot on channel 36



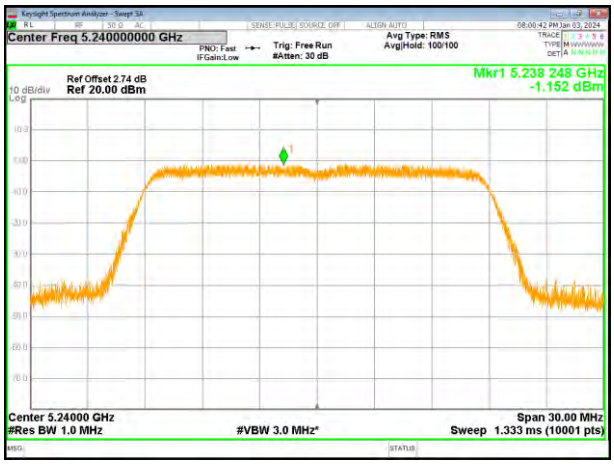
(802.11a) PSD plot on channel 40



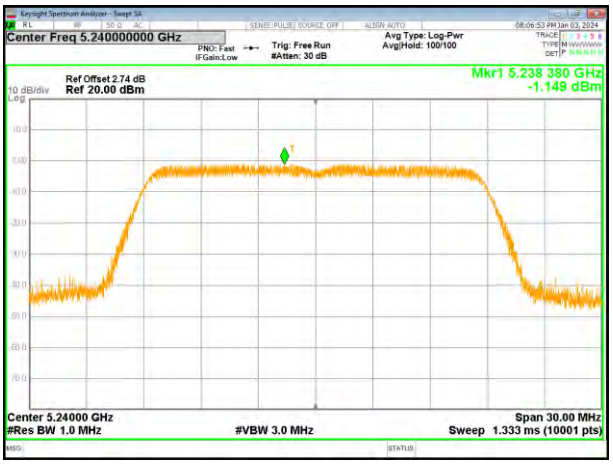
(802.11n20) PSD plot on channel 40



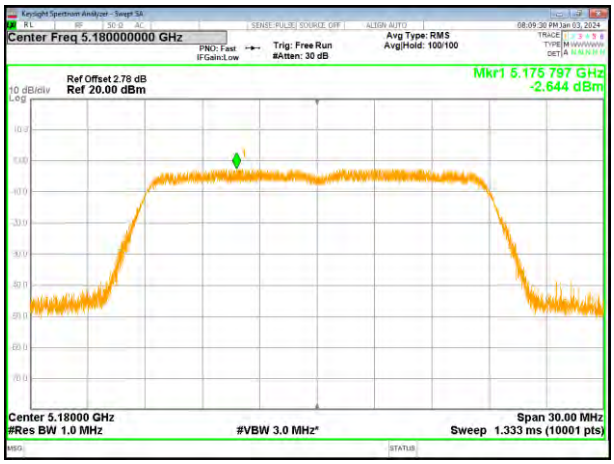
(802.11a) PSD plot on channel 48



(802.11n20) PSD plot on channel 48

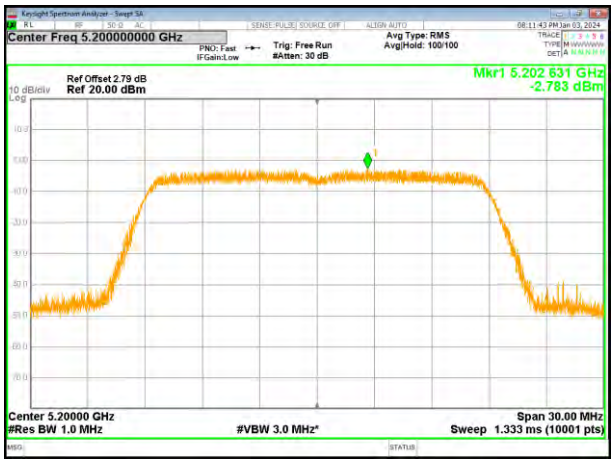


(802.11ac20) PSD plot on channel 36

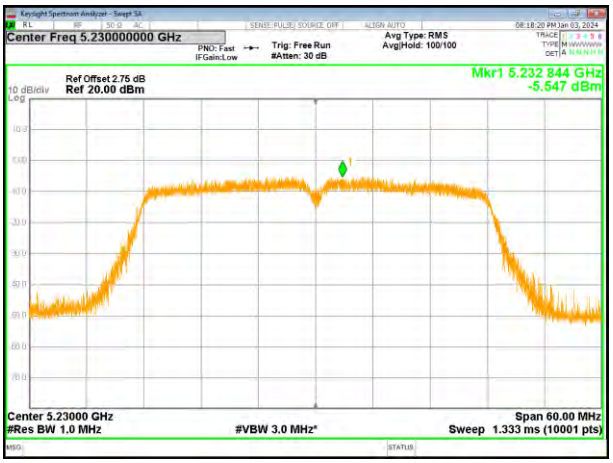


(802.11n40) PSD plot on channel 38

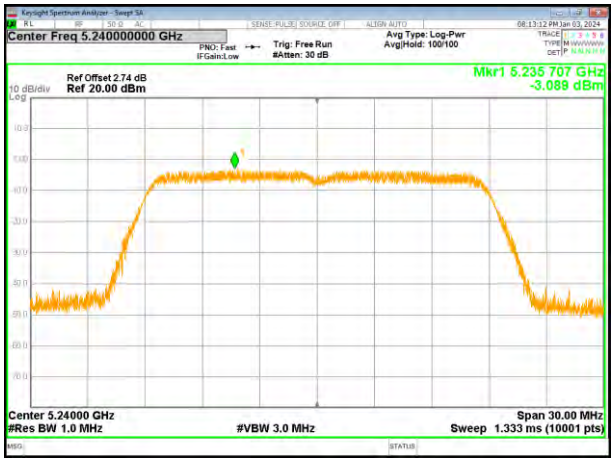
(802.11ac20) PSD plot on channel 40



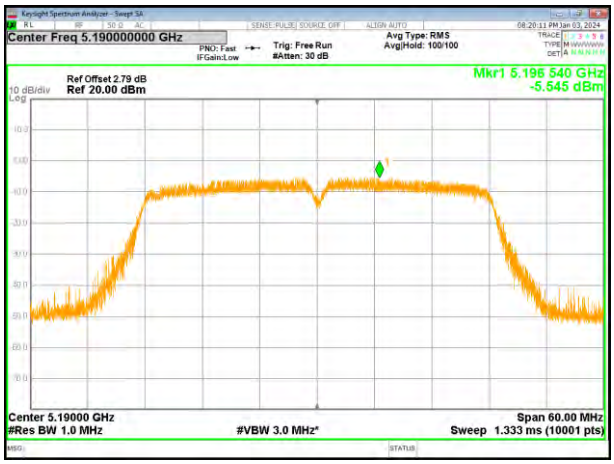
(802.11n40) PSD plot on channel 46



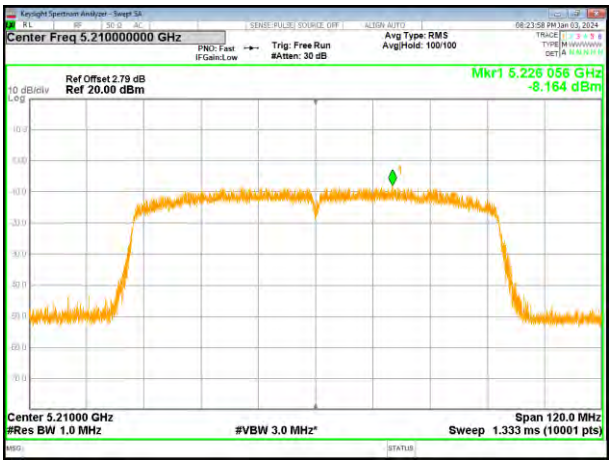
(802.11ac20) PSD plot on channel 48



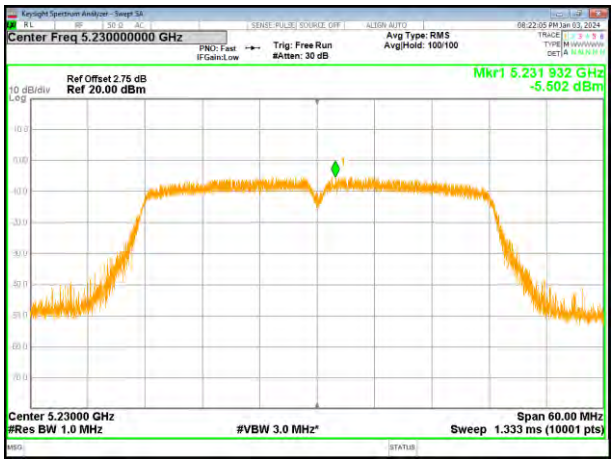
(802.11ac40) PSD plot on channel 38



(802.11ac80) PSD plot on channel 42



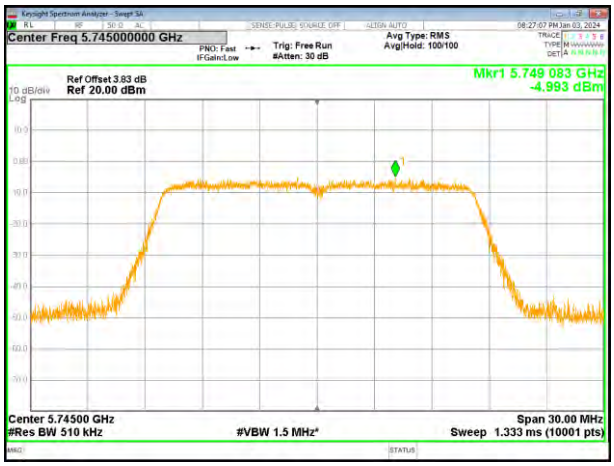
(802.11ac40) PSD plot on channel 46



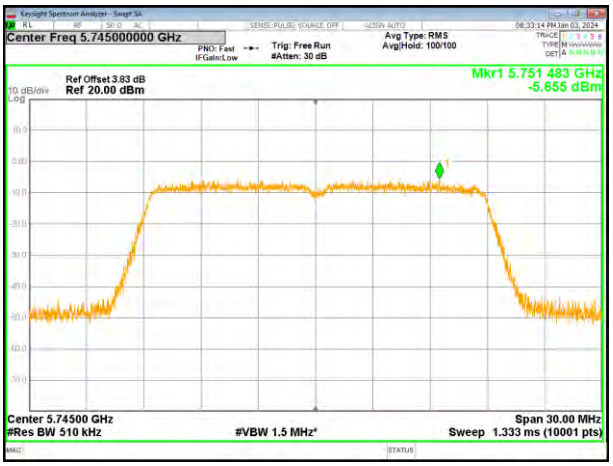
Mode	Frequency	Measured Power Density (dBm/510KHz)	Measured Power Density(dBm/500KHz)	Correction Factor (dB)	Total Measured Power Density (dBm/500KHz)	Limit (dBm/MHz)
802.11 a	5745 MHz	-4.993	-5.079	0.07	-5.009	30
	5785 MHz	-4.680	-4.766	0.07	-4.696	30
	5825 MHz	-4.164	-4.250	0.07	-4.180	30
802.11 n20	5745 MHz	-5.655	-5.741	0.07	-5.671	30
	5785 MHz	-5.617	-5.703	0.08	-5.623	30
	5825 MHz	-5.048	-5.134	0.08	-5.054	30
802.11ac20	5745 MHz	-8.436	-8.522	0.08	-8.442	30
	5785 MHz	-8.222	-8.308	0.08	-8.228	30
	5825 MHz	-5.796	-5.882	0.08	-5.802	30
802.11 n40	5755 MHz	-5.323	-5.409	0.15	-5.259	30
	5795 MHz	-5.215	-5.301	0.15	-5.151	30
802.11ac40	5755 MHz	-8.384	-8.470	0.15	-8.320	30
	5795 MHz	-7.958	-8.044	0.15	-7.894	30
802.11ac80	5775 MHz	-10.895	-10.981	0.31	-10.671	30

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

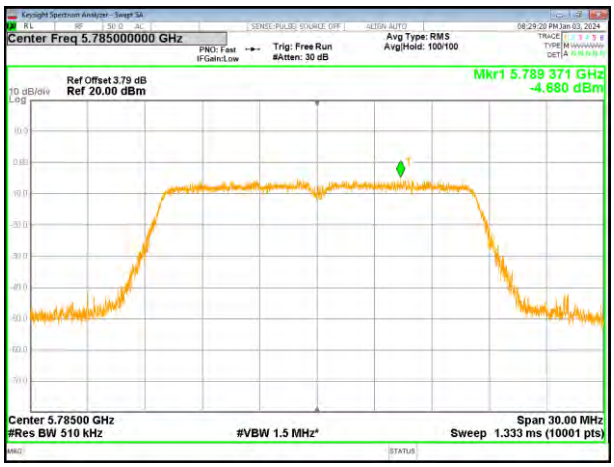
(802.11a) PSD plot on channel 149



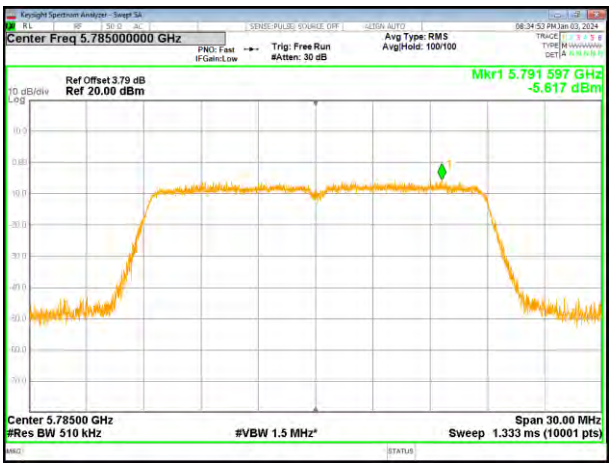
(802.11n20) PSD plot on channel 149



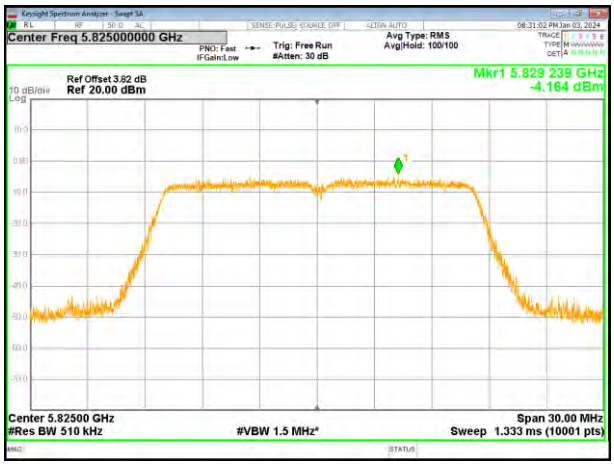
(802.11a) PSD plot on channel 157



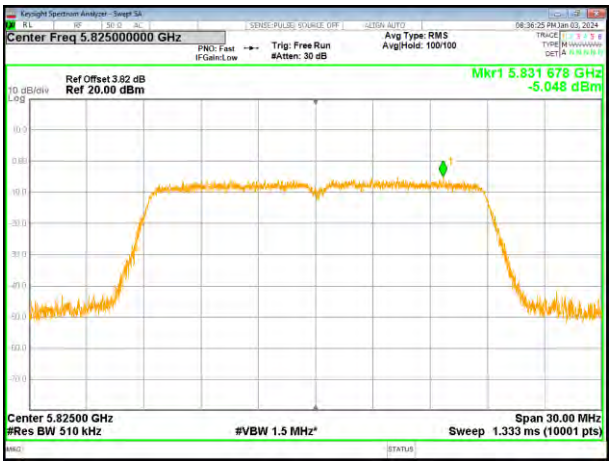
(802.11n20) PSD plot on channel 157



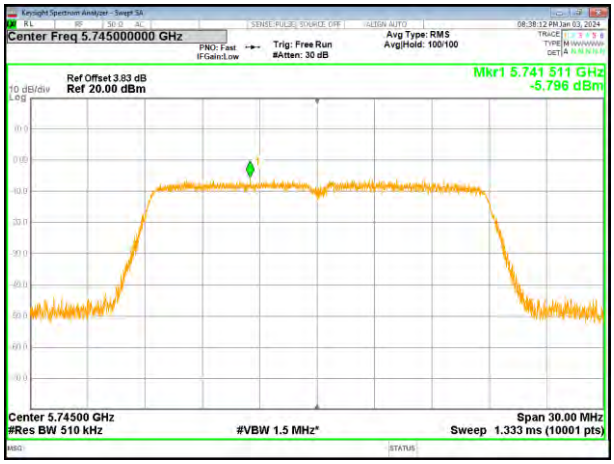
(802.11a) PSD plot on channel 165



(802.11n20) PSD plot on channel 165

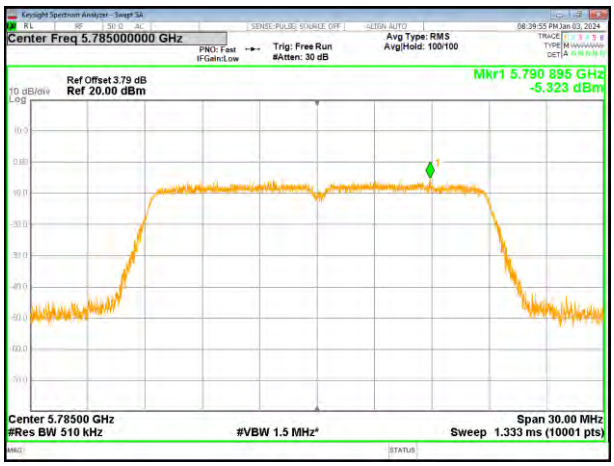


(802.11ac20) PSD plot on channel 149

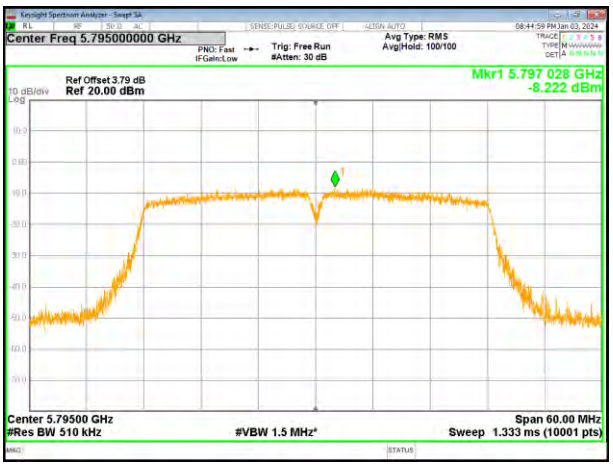


(802.11n40) PSD plot on channel 151

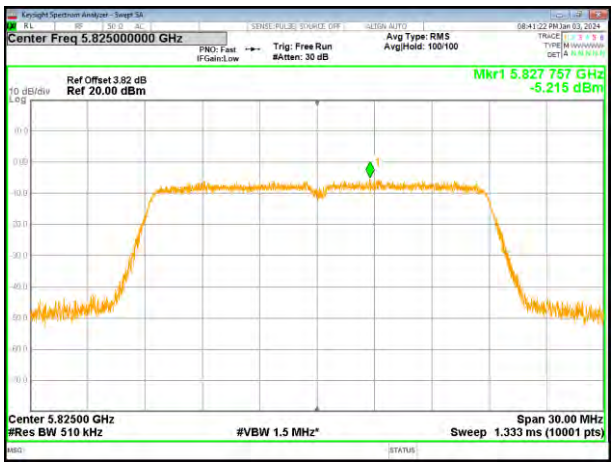
(802.11ac20) PSD plot on channel 157



(802.11n40) PSD plot on channel 159



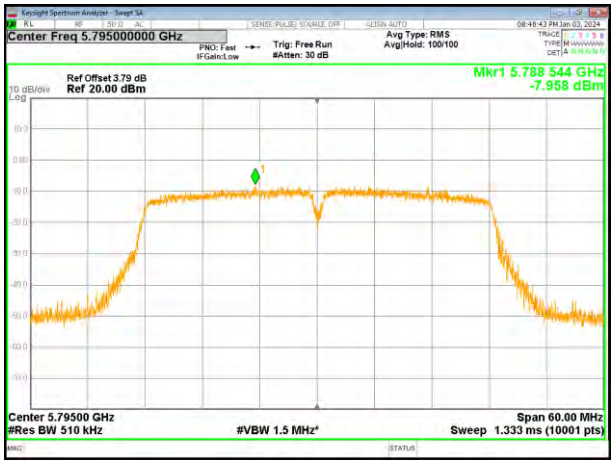
(802.11ac20) PSD plot on channel 165



(802.11ac40) PSD plot on channel 151

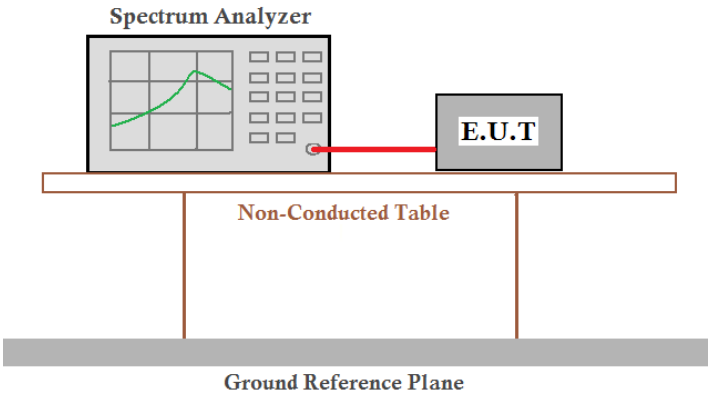
(802.11ac80) PSD plot on channel 155

(802.11ac40) PSD plot on channel 159



4.7 Band edge

4.7.1 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 environment:	Temp.: 21.4°C Humid.: 40%RH
Test voltage:	DC 7.6V
Test results:	Pass

5.180~5.240 GHz

(802.11a) Band Edge, Left Side

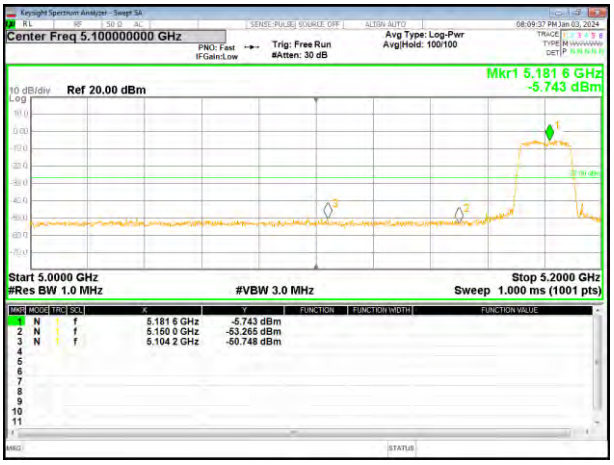
(802.11n20) Band Edge, Left Side

(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

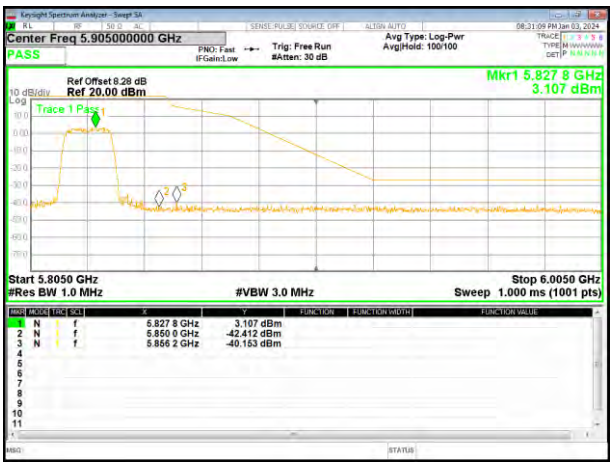
(802.11ac40) Band Edge, Right Side

5.745~5.825 GHz

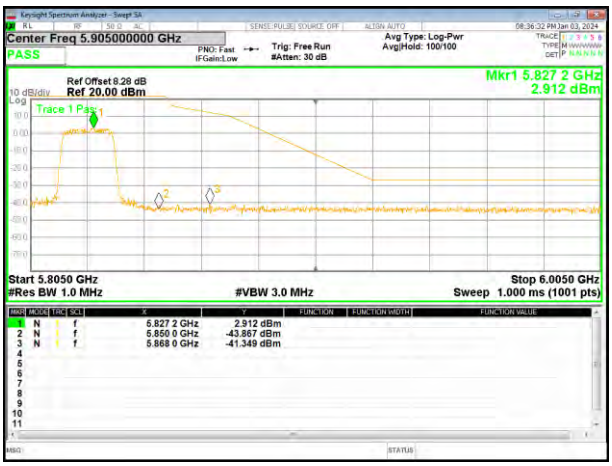
(802.11a) Band Edge, Left Side

(802.11n20) Band Edge, Left Side

(802.11a) Band Edge, Right Side

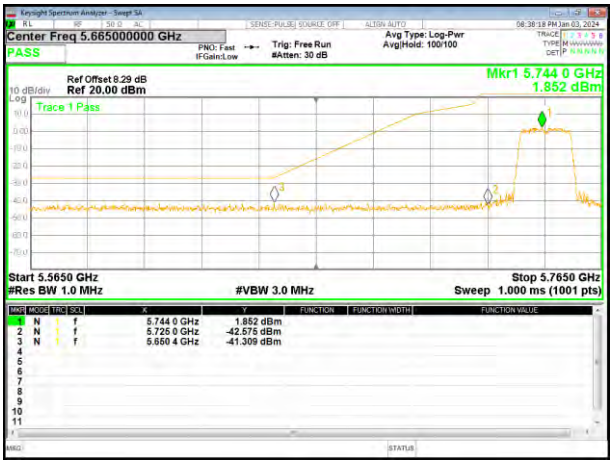


(802.11n20) Band Edge, Right Side



5.745~5.825 GHz

(802.11ac20) Band Edge, Left Side



(802.11n40) Band Edge, Left Side

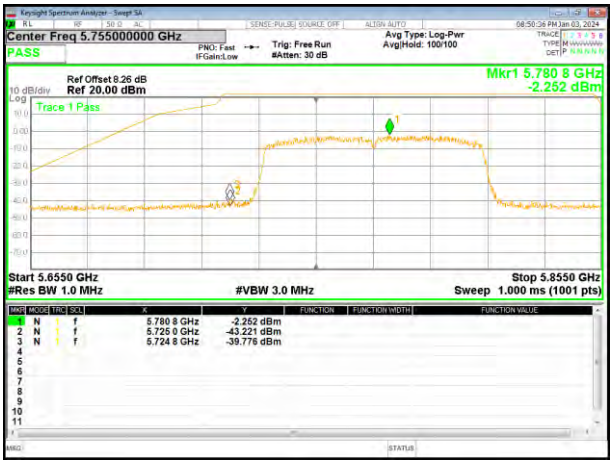
(802.11ac20) Band Edge, Right Side

(802.11n40) Band Edge, Right Side

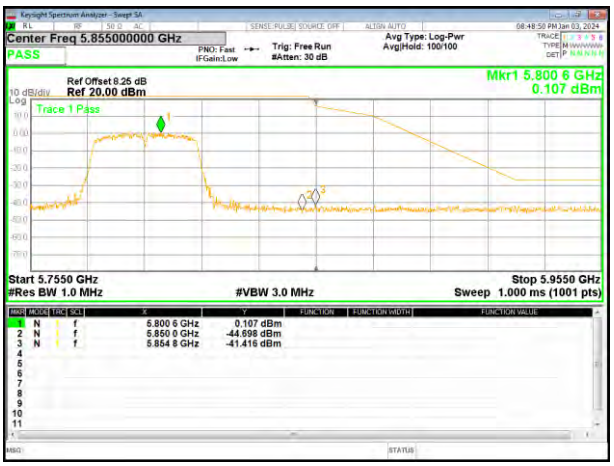
5.745~5.825 GHz

(802.11ac40) Band Edge, Left Side

(802.11ac80) Band Edge



(802.11ac40) Band Edge, Right Side



4.8 Spurious Emission

4.8.1 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

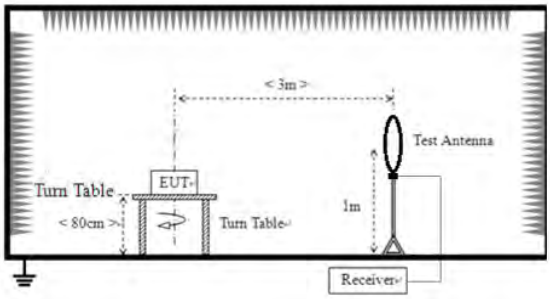
Limit:

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	

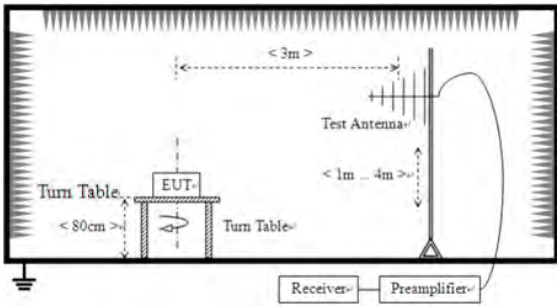
Frequency	Limit (dBm/MHz)	Remark
Above 1GHz	-27.0	Peak Value

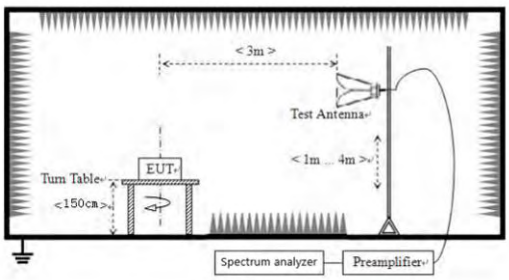
Test setup:

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. 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 results:	Pass

Remarks:

1. *The report only shows the worst mode.*
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

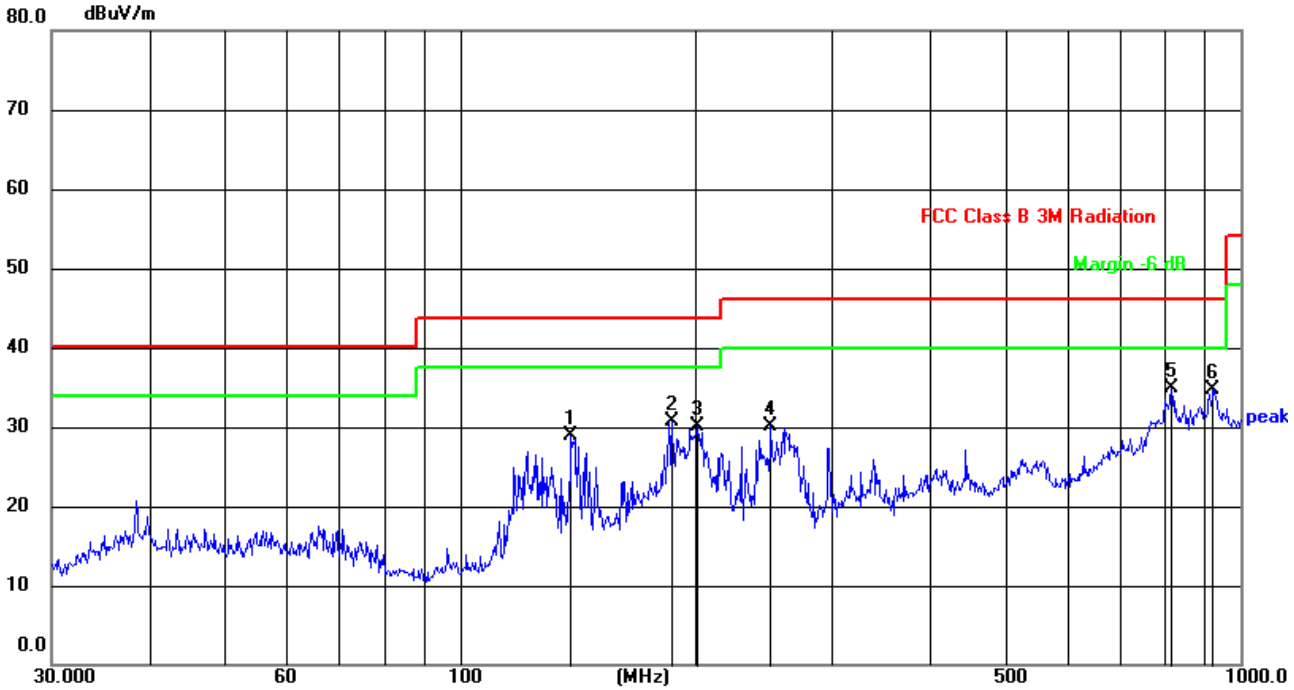
The emission from 9 kHz to 30MHz was pre-tested and found the result was 20dB lower than the limit, and according to 15.31(o) & RSS-Gen 6.13, the test result no need to reported.

Below 1GHz

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

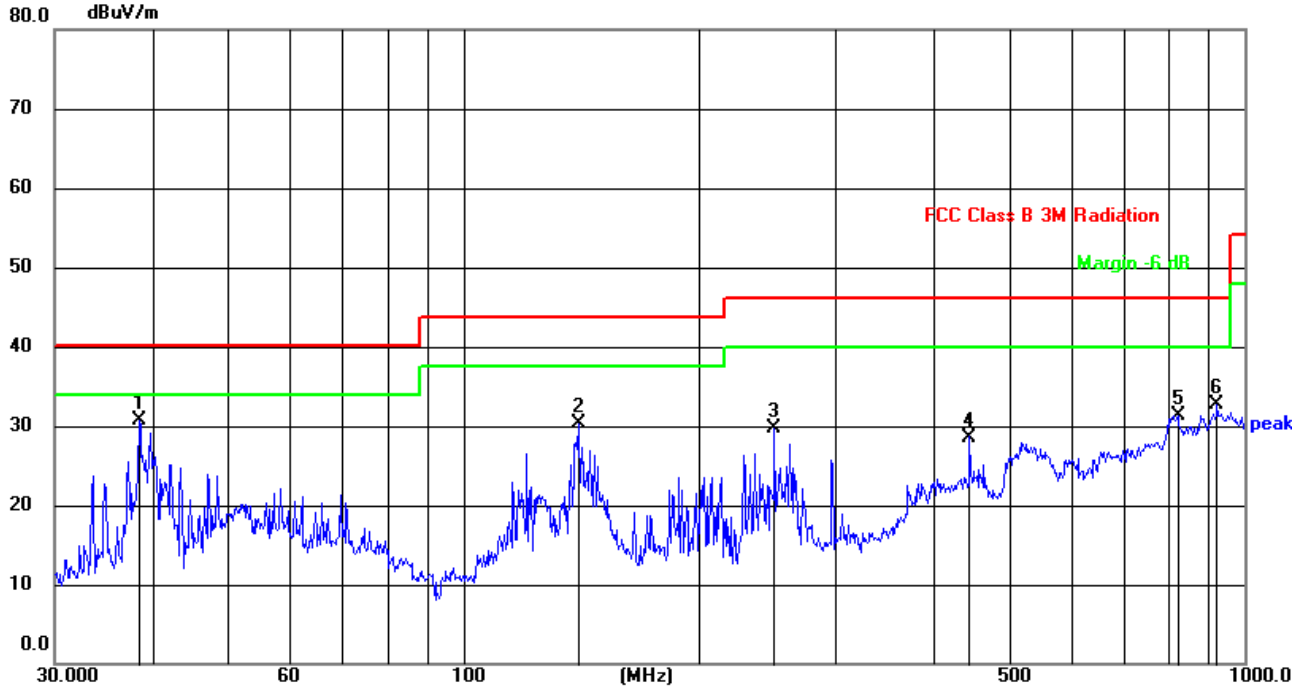
Temperature：	21.4℃	Relative Humidity：	40%
Pressure：	101.2kPar	Test Voltage：	DC 7.6V
Test Mode：	5.8G TX- 802.11n20 (5825MHz)		

Horizontal:



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	138.8734	50.60	-21.73	28.87	43.50	-14.63	QP
2	187.0955	53.70	-22.94	30.76	43.50	-12.74	QP
3	201.3930	53.41	-23.39	30.02	43.50	-13.48	QP
4	250.3009	52.40	-22.25	30.15	46.00	-15.85	QP
5	815.9678	41.29	-6.43	34.86	46.00	-11.14	QP
6	922.5157	39.49	-4.71	34.78	46.00	-11.22	QP

Vertical:



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	38.4808	51.87	-21.18	30.69	40.00	-9.31	QP
2	140.3420	51.94	-21.59	30.35	43.50	-13.15	QP
3	250.3009	52.02	-22.25	29.77	46.00	-16.23	QP
4	444.8514	44.29	-15.69	28.60	46.00	-17.40	QP
5	821.7103	37.66	-6.39	31.27	46.00	-14.73	QP
6	922.5157	37.36	-4.71	32.65	46.00	-13.35	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.
3. The test data shows only the worst case 802.11n20 mode

Above 1GHz:

Temperature：	21.4℃	Relative Humidity：	40%
Pressure：	101.2kPar	Test Voltage ：	DC 7.6V
Test Mode ：	5.2G TX- 802.11a		

Polar (H/V)	Frequency	Meter Reading	Pre-amplifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detector Type
	MHz	dBuV	dB	dB	dB	dBuV/m	dBuV/m	dB	
Low Channel:5180MHz									
V	10360.00	50.38	46.20	8.27	38.50	50.95	68.20	-17.25	PK
V	10360.00	40.45	46.20	8.27	38.50	41.02	54.00	-12.98	AV
V	15540.00	47.50	46.30	10.35	38.70	50.25	74.00	-23.75	PK
V	15540.00	37.52	46.30	10.35	38.70	40.27	54.00	-13.73	AV
V	20720.00	56.55	57.40	11.93	37.80	48.88	68.20	-19.32	PK
V	20720.00	46.58	57.40	11.93	37.80	38.91	54.00	-15.09	AV
V	25900.00	54.21	56.50	13.45	39.70	50.86	68.20	-17.34	PK
V	25900.00	43.84	56.50	13.45	39.70	40.49	54.00	-13.51	AV
H	10360.00	50.30	46.20	8.27	38.50	50.87	68.20	-17.33	PK
H	10360.00	39.08	46.20	8.27	38.50	39.65	54.00	-14.35	AV
H	15540.00	46.52	46.30	10.35	38.70	49.27	74.00	-24.73	PK
H	15540.00	35.10	46.30	10.35	38.70	37.85	54.00	-16.15	AV
H	20720.00	58.76	57.40	11.93	37.80	51.09	68.20	-17.11	PK
H	20720.00	47.47	57.40	11.93	37.80	39.80	54.00	-14.20	AV
H	25900.00	55.23	56.50	13.45	39.70	51.88	68.20	-16.32	PK
H	25900.00	43.87	56.50	13.45	39.70	40.52	54.00	-13.48	AV

Polar (H/V)	Frequency	Meter Reading	Pre-amplifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Middle Channel:5200MHz									
V	10400.00	49.44	46.20	8.27	38.50	50.01	68.20	-18.19	PK
V	10400.00	40.21	46.20	8.27	38.50	40.78	54.00	-13.22	AV
V	15600.00	47.82	46.30	10.35	38.40	50.27	74.00	-23.73	PK
V	15600.00	39.04	46.30	10.35	38.40	41.49	54.00	-12.51	AV
V	20800.00	57.76	57.40	11.93	37.80	50.09	68.20	-18.11	PK
V	20800.00	48.09	57.40	11.93	37.80	40.42	54.00	-13.58	AV
V	26000.00	52.90	56.50	13.45	39.80	49.65	68.20	-18.55	PK
V	26000.00	45.07	56.50	13.45	39.80	41.82	54.00	-12.18	AV
H	10400.00	50.03	46.20	8.27	38.50	50.60	68.20	-17.60	PK
H	10400.00	40.47	46.20	8.27	38.50	41.04	54.00	-12.96	AV
H	15600.00	47.80	46.30	10.35	38.40	50.25	74.00	-23.75	PK
H	15600.00	39.04	46.30	10.35	38.40	41.49	54.00	-12.51	AV
H	20800.00	56.71	57.40	11.93	37.80	49.04	68.20	-19.16	PK
H	20800.00	46.00	57.40	11.93	37.80	38.33	54.00	-15.67	AV
H	26000.00	52.63	56.50	13.45	39.80	49.38	68.20	-18.82	PK
H	26000.00	44.28	56.50	13.45	39.80	41.03	54.00	-12.97	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	46.26	46.20	8.27	38.60	46.93	68.20	-21.27	PK
V	10480.00	36.28	46.20	8.27	38.60	36.95	54.00	-17.05	AV
V	15720.00	43.84	46.30	10.35	38.40	46.29	74.00	-27.71	PK
V	15720.00	34.04	46.30	10.35	38.40	36.49	54.00	-17.51	AV
V	20960.00	53.90	57.40	11.93	37.50	45.93	68.20	-22.27	PK
V	20960.00	45.37	57.40	11.93	37.50	37.40	54.00	-16.60	AV
V	26200.00	49.90	56.50	13.45	40.10	46.95	68.20	-21.25	PK
V	26200.00	40.52	56.50	13.45	40.10	37.57	54.00	-16.43	AV
H	10480.00	46.50	46.20	8.27	38.60	47.17	68.20	-21.03	PK
H	10480.00	36.28	46.20	8.27	38.60	36.95	54.00	-17.05	AV
H	15720.00	44.16	46.30	10.35	38.40	46.61	74.00	-27.39	PK
H	15720.00	34.13	46.30	10.35	38.40	36.58	54.00	-17.42	AV
H	20960.00	54.09	57.40	11.93	37.50	46.12	68.20	-22.08	PK
H	20960.00	45.26	57.40	11.93	37.50	37.29	54.00	-16.71	AV
H	26200.00	49.61	56.50	13.45	40.10	46.66	68.20	-21.54	PK
H	26200.00	39.90	56.50	13.45	40.10	36.95	54.00	-17.05	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：	21.4℃	Relative Humidity：	40%
Pressure：	101.2kPar	Test Voltage ：	DC 7.6V
Test Mode ：	5.8G TX- 802.11a		

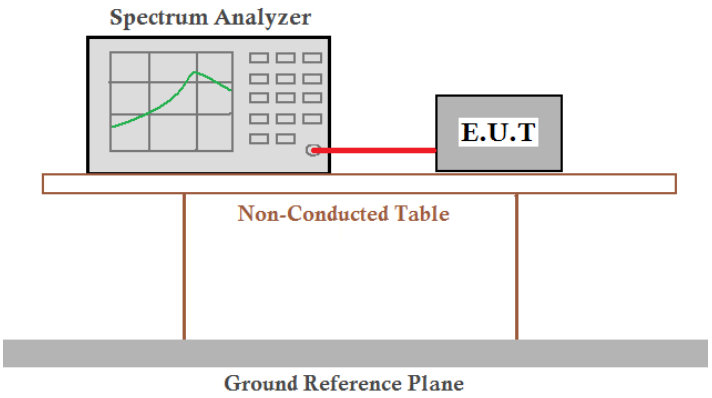
Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenn Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detect or Typ
Low Channel:5745MHz									
V	11490.00	45.59	46.10	8.77	39.10	47.36	74.00	-26.64	PK
V	11490.00	37.74	46.10	8.77	39.10	39.51	54.00	-14.49	AV
V	17235.00	43.27	47.60	11.10	38.70	45.47	68.20	-22.73	PK
V	17235.00	36.24	47.60	11.10	38.70	38.44	54.00	-15.56	AV
V	22980.00	51.68	56.90	12.73	37.70	45.21	74.00	-28.80	PK
V	22980.00	43.96	56.90	12.73	37.70	37.49	54.00	-16.51	AV
V	28725.00	48.60	55.60	14.25	40.30	47.55	68.20	-20.65	PK
V	28725.00	40.41	55.60	14.25	40.30	39.36	54.00	-14.64	AV
H	11490.00	46.06	46.10	8.77	39.10	47.83	74.00	-26.17	PK
H	11490.00	37.57	46.10	8.77	39.10	39.34	54.00	-14.66	AV
H	17235.00	44.26	47.60	11.10	38.70	46.46	68.20	-21.75	PK
H	17235.00	36.63	47.60	11.10	38.70	38.83	54.00	-15.17	AV
H	22980.00	53.81	56.90	12.73	37.70	47.34	74.00	-26.66	PK
H	22980.00	43.74	56.90	12.73	37.70	37.27	54.00	-16.73	AV
H	28725.00	50.50	55.60	14.25	40.30	49.45	68.20	-18.75	PK
H	28725.00	41.01	55.60	14.25	40.30	39.96	54.00	-14.04	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)	Detect or Type
Middle Channel:5785MHz									
V	11570.00	45.41	46.10	8.77	39.10	47.18	74.00	-26.82	PK
V	11570.00	37.56	46.10	8.77	39.10	39.33	54.00	-14.67	AV
V	17355.00	43.09	47.60	11.10	38.70	45.29	68.20	-22.91	PK
V	17355.00	36.03	47.60	11.10	38.70	38.23	54.00	-15.77	AV
V	23140.00	51.51	56.90	12.73	37.70	45.04	74.00	-28.96	PK
V	23140.00	43.78	56.90	12.73	37.70	37.31	54.00	-16.69	AV
V	28925.00	48.42	55.60	14.25	40.30	47.37	68.20	-20.83	PK
V	28925.00	40.22	55.60	14.25	40.30	39.17	54.00	-14.83	AV
H	11570.00	45.88	46.10	8.77	39.10	47.65	74.00	-26.35	PK
H	11570.00	37.38	46.10	8.77	39.10	39.15	54.00	-14.85	AV
H	17355.00	44.07	47.60	11.10	38.70	46.27	68.20	-21.93	PK
H	17355.00	36.45	47.60	11.10	38.70	38.65	54.00	-15.35	AV
H	23140.00	53.61	56.90	12.73	37.70	47.14	74.00	-26.86	PK
H	23140.00	43.57	56.90	12.73	37.70	37.10	54.00	-16.90	AV
H	28925.00	50.32	55.60	14.25	40.30	49.27	68.20	-18.93	PK
H	28925.00	40.83	55.60	14.25	40.30	39.78	54.00	-14.22	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	46.47	46.10	8.77	39.10	48.24	74.00	-25.76	PK
V	11650.00	37.74	46.10	8.77	39.10	39.51	54.00	-14.49	AV
V	17475.00	44.41	47.90	11.23	38.90	46.64	68.20	-21.56	PK
V	17475.00	37.03	47.90	11.23	38.90	39.26	54.00	-14.74	AV
V	23300.00	53.74	57.10	12.73	37.80	47.17	68.20	-21.03	PK
V	23300.00	44.67	57.10	12.73	37.80	38.10	54.00	-15.90	AV
V	29125.00	50.58	55.80	14.25	40.50	49.53	68.20	-18.67	PK
V	29125.00	42.04	55.80	14.25	40.50	40.99	54.00	-13.01	AV
H	11650.00	48.40	46.10	8.77	39.10	50.17	74.00	-23.83	PK
H	11650.00	40.04	46.10	8.77	39.10	41.81	54.00	-12.19	AV
H	17475.00	45.58	47.90	11.23	38.90	47.81	68.20	-20.39	PK
H	17475.00	38.27	47.90	11.23	38.90	40.50	54.00	-13.50	AV
H	23300.00	55.08	57.10	12.73	37.80	48.51	68.20	-19.69	PK
H	23300.00	46.08	57.10	12.73	37.80	39.51	54.00	-14.49	AV
H	29125.00	51.60	55.80	14.25	40.50	50.55	68.20	-17.65	PK
H	29125.00	42.74	55.80	14.25	40.50	41.69	54.00	-12.31	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.

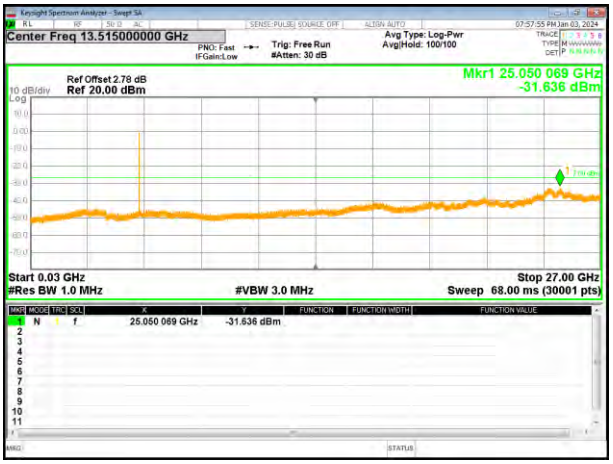
4.8.2 Conducted Emission Method

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 environment:	Temp.: 21.4°C	Humid.:40%RH
Test voltage:	DC 7.6V	
Test results:	Pass	

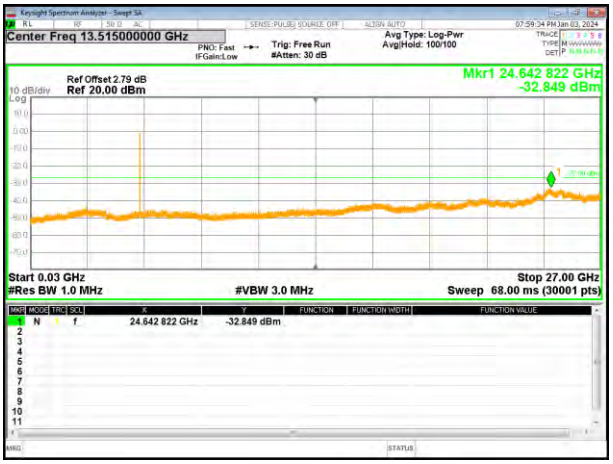
5180-5240MHz

Test Plot

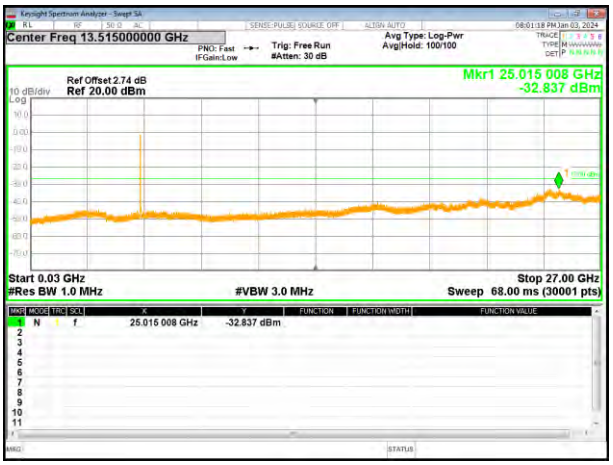
802.11a on channel 36



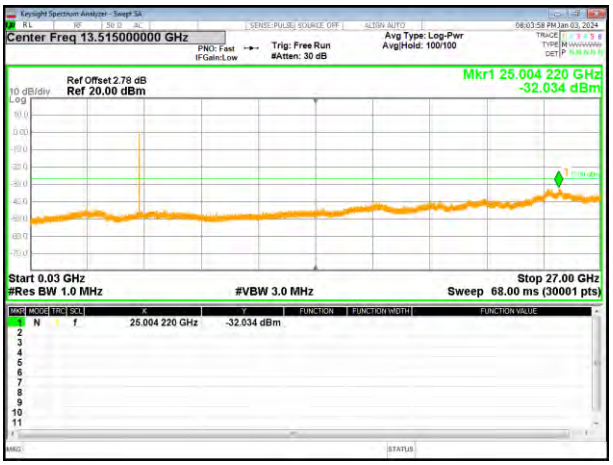
802.11a on channel 40



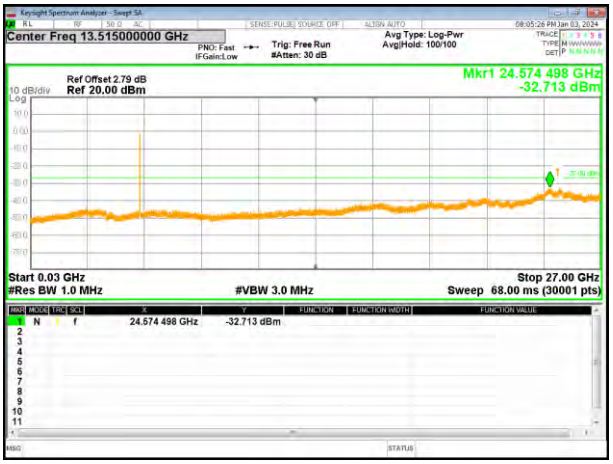
802.11a on channel 48



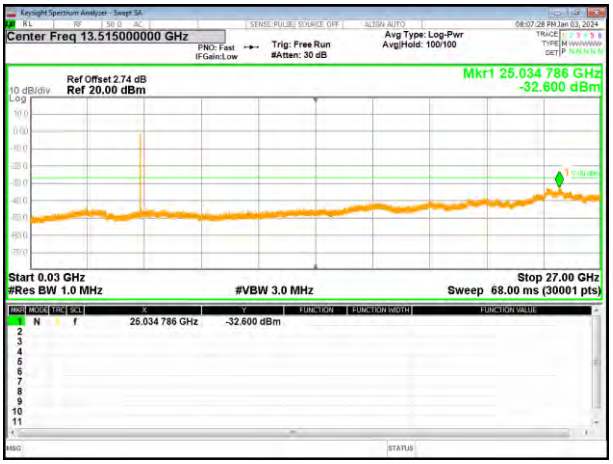
802.11n20 on channel 36



802.11n20 on channel 40



802.11n20 on channel 48

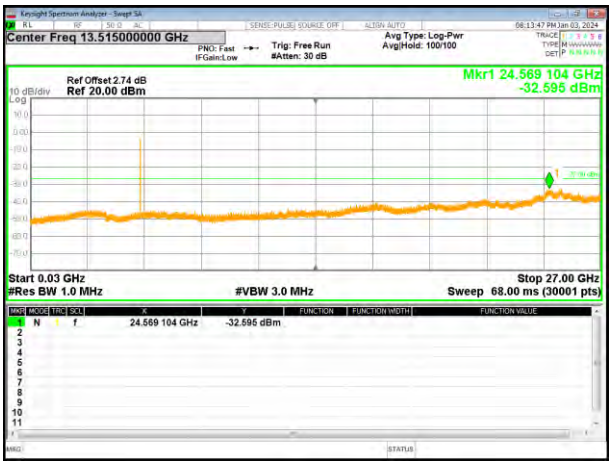


Test Plot

802.11ac20 on channel 36

802.11ac20 on channel 40

802.11ac20 on channel 48

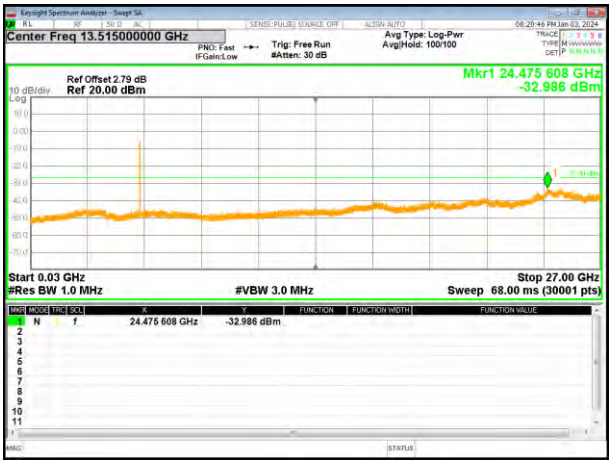


802.11n40 on channel 38

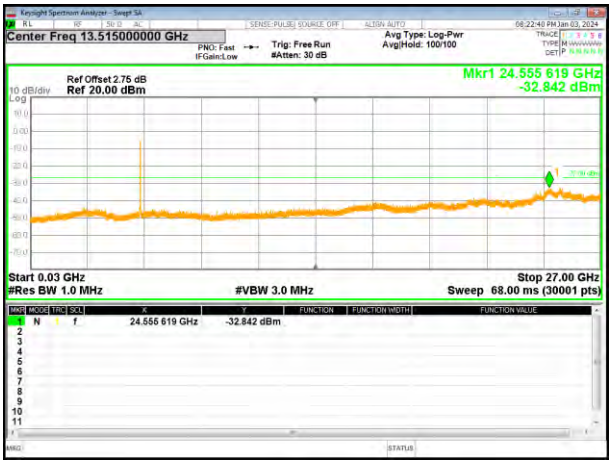
802.11n40 on channel 46

Test Plot

802.11ac40 on channel 38



802.11ac40 on channel 46

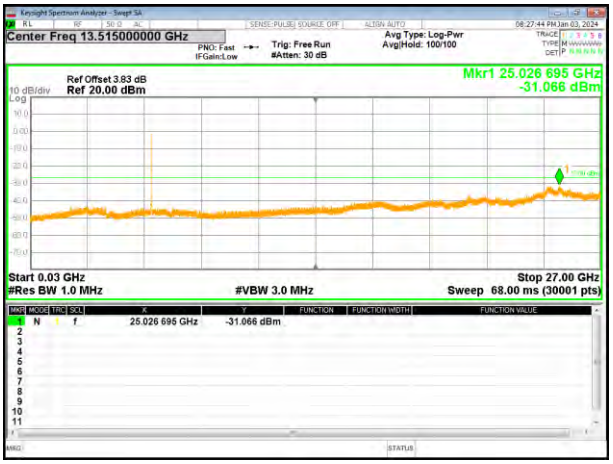


802.11ac80 on channel 42

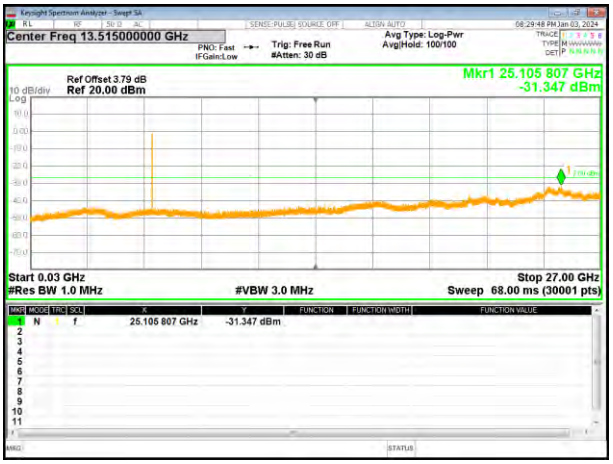
5745-5825MHz

Test Plot

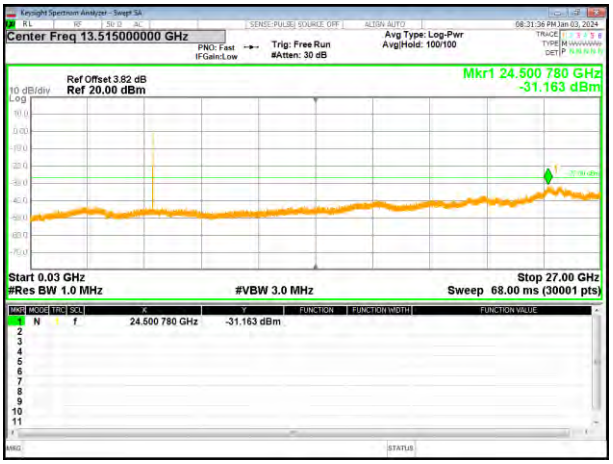
802.11a on channel 149



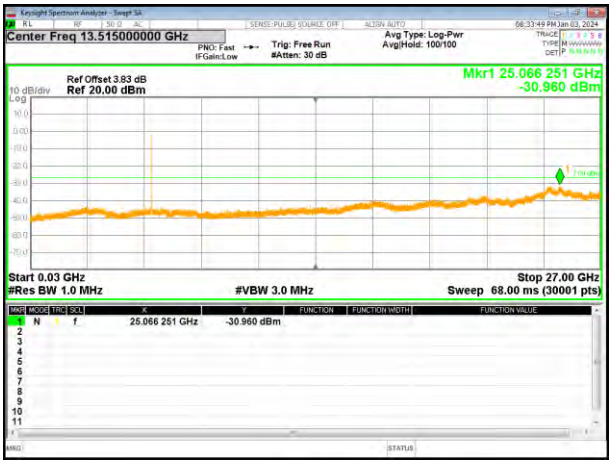
802.11a on channel 157



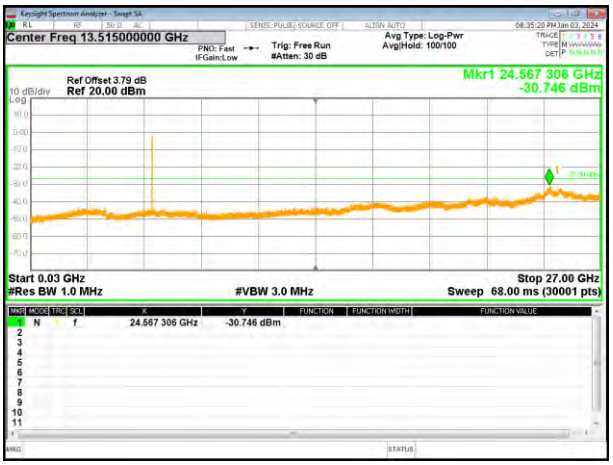
802.11a on channel 165



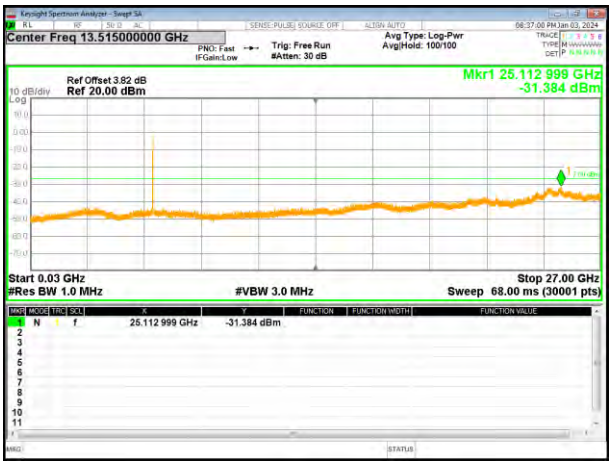
802.11n20 on channel 149



802.11n20 on channel 157



802.11n20 on channel 165

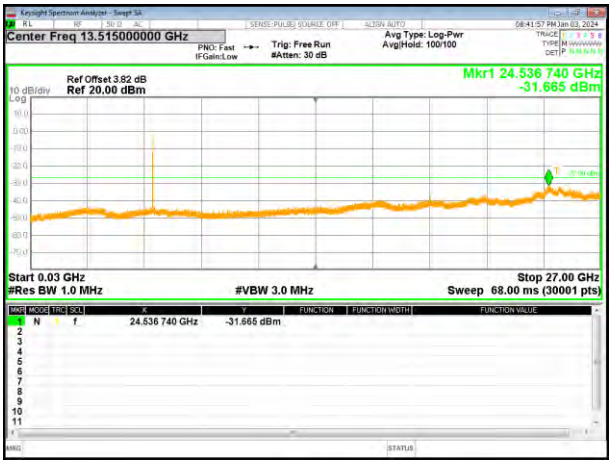


Test Plot

802.11ac20 on channel 149

802.11ac20 on channel 157

802.11ac20 on channel 165



802.11n40 on channel 151

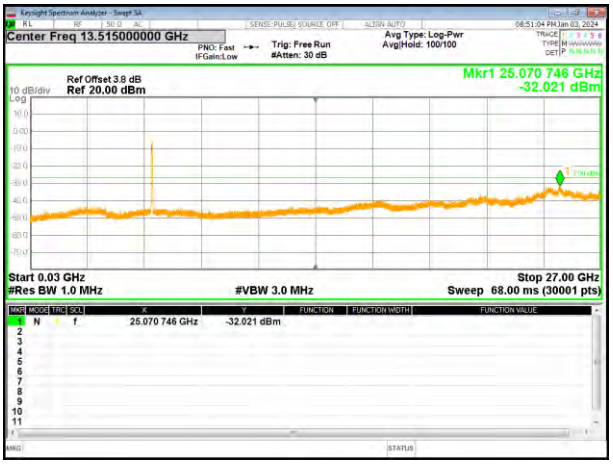
802.11n40 on channel 159

Test Plot

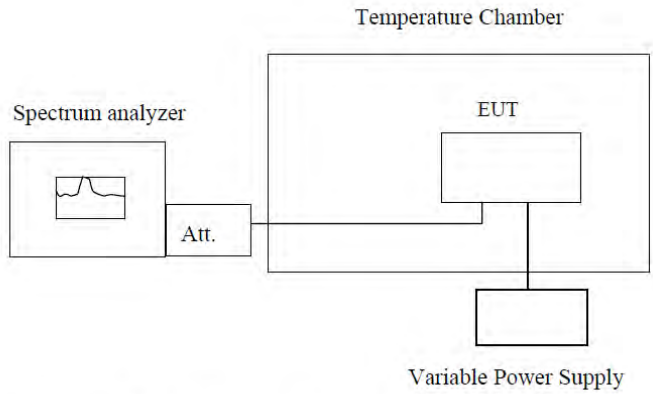
802.11ac40 on channel 151

802.11ac40 on channel 159

802.11ac80 on channel 155



4.9 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 7.6V					
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	5180.022	5180.130	5179.663	5179.790
	5190	5190.012	5200.145	5199.537	5189.800
	5200	5200.015	5200.130	5199.562	5199.791
	5210	5210.021	5210.108	5209.539	5209.792
	5220	5220.016	5220.123	5219.554	5219.797
	5230	5230.014	5230.116	5229.545	5229.815
	5240	5239.987	5240.125	5239.553	5239.800
-20	5180	5180.015	5180.106	5179.548	5179.811
	5190	5190.006	5190.097	5189.547	5189.806
	5200	5200.014	5200.105	5199.540	5199.801
	5210	5210.006	5210.097	5209.529	5209.807
	5220	5220.027	5220.118	5219.539	5219.800
	5230	5230.005	5230.096	5299.530	5229.798
	5240	5240.023	5240.115	5239.539	5239.771
-10	5180	5180.024	5180.115	5179.527	5179.790
	5190	5190.020	5190.111	5189.538	5189.800
	5200	5200.015	5200.106	5199.528	5199.791
	5210	5210.021	5210.112	5209.528	5209.792
	5220	5220.016	5220.107	5219.535	5219.797
	5230	5230.014	5230.105	5229.551	5229.815
	5240	5239.987	5240.079	5239.523	5239.787
0	5180	5179.801	5180.094	5179.539	5179.801
	5190	5199.973	5190.105	5189.530	5189.801
	5200	5199.971	5200.096	5199.537	5199.792
	5210	5210.026	5210.097	5209.528	5299.796
	5220	5220.015	5220.104	5219.549	5219.790
	5230	5230.002	5230.122	5229.525	5229.811
	5240	5240.019	5240.095	5239.543	5239.789
10	5180	5180.003	5180.106	5179.548	5179.802
	5190	5190.014	5190.097	5189.544	5189.792
	5200	5200.005	5200.105	5199.538	5199.800

	5210	5210.006	5210.097	5209.543	5209.792
	5220	5220.013	5220.118	5219.538	5219.811
	5230	5230.031	5230.096	5229.534	5229.789
	5240	5240.016	5240.115	5239.507	5239.807
20	5180	5180.081	5179.359	5179.797	5179.564
	5190	5190.024	5190.148	5189.841	5189.828
	5200	5200.019	5200.139	5199.849	5199.853
	5210	5210.025	5300.150	5209.841	5209.837
	5220	5220.020	5220.139	5219.862	5219.827
	5230	5230.018	5230.160	5229.839	5229.855
	5240	5239.991	5240.139	5239.857	5239.843
30	5180	5180.007	5180.147	5179.850	5179.847
	5190	5190.018	5190.139	5189.841	5179.847
	5200	5200.009	5200.147	5199.849	5189.842
	5210	5210.010	5210.139	5209.841	5199.837
	5220	5220.017	5220.160	5219.862	5209.843
	5230	5230.035	5230.138	5229.839	5219.837
	5240	5240.007	5240.157	5239.857	5229.835
40	5180	5180.019	5180.146	5179.636	5179.826
	5190	5190.010	5190.148	5199.808	5189.836
	5200	5200.018	5200.139	5199.806	5199.827
	5210	5210.010	5300.150	5209.861	5209.828
	5220	5220.031	5220.139	5219.850	5219.834
	5230	5230.009	5230.160	5229.836	5229.852
	5240	5240.027	5240.139	5239.853	5239.824
50	5180	5180.019	5180.147	5179.850	5179.799
	5190	5190.010	5190.139	5189.841	5189.828
	5200	5200.018	5200.147	5199.849	5199.853
	5210	5210.010	5210.139	5209.841	5209.837
	5220	5220.031	5220.160	5219.862	5219.827
	5230	5230.009	5230.138	5229.839	5229.855
	5240	5240.027	5240.157	5239.857	5239.843

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)
6.545	5180	5180.028	5180.150	5179.850	5179.962
	5190	5190.024	5200.144	5189.841	5199.836
	5200	5200.019	5200.172	5199.849	5199.861
	5210	5210.025	5210.150	5209.841	5209.839
	5220	5220.020	5220.165	5219.862	5219.853
	5230	5230.018	5230.158	5229.839	5229.846
	5240	5239.991	5240.167	5239.853	5239.854
7.60	5180	5180.014	5180.165	5179.849	5179.847
	5190	5190.010	5180.271	5189.850	5189.845
	5200	5200.018	5200.147	5199.841	5199.839
	5210	5210.011	5210.172	5299.847	5209.829
	5220	5220.031	5220.150	5219.841	5219.838
	5230	5230.009	5230.165	5229.860	5299.834
	5240	5240.027	5240.159	5239.839	5239.840
8.855	5180	5180.028	5180.156	5179.838	5179.826
	5190	5190.024	5190.153	5189.849	5189.836
	5200	5200.019	5200.148	5199.840	5199.826
	5210	5210.025	5210.154	5209.841	5209.828
	5220	5220.020	5220.149	5219.848	5219.834
	5230	5230.018	5230.147	5229.865	5229.857
	5240	5239.991	5240.121	5239.837	5239.824

Frequency stability versus Temp.					
Power Supply: DC 7.6V					
Temp. (°C)	Operating Frequency (MHz)	0 minute Measured Frequency (MHz)	2 minute Measured Frequency (MHz)	5 minute Measured Frequency (MHz)	10 minute Measured Frequency (MHz)
-30	5745	5745.004	5745.157	5744.831	5744.812
	5755	5755.014	5755.164	5754.838	5754.800
	5775	5775.035	5775.157	5774.855	5774.811
	5785	5785.011	5785.149	5784.830	5784.817
	5795	5795.007	5795.156	5794.826	5794.835
	5825	5825.005	5825.086	5824.829	5824.826
-20	5745	5745.001	5745.168	5744.825	5744.823
	5755	5755.016	5755.170	5754.850	5754.836
	5775	5775.015	5775.174	5774.831	5774.821
	5785	5785.018	5785.166	5784.839	5784.807
	5795	5795.028	5795.157	5794.837	5794.801
	5825	5825.010	5825.167	5824.847	5824.834
-10	5745	5745.011	5745.158	5744.841	5744.442
	5755	5755.037	5755.165	5754.843	5754.825
	5775	5775.033	5775.183	5774.846	5774.826
	5785	5785.017	5785.159	5784.837	5784.828
	5795	5795.006	5795.155	5794.828	5794.811
	5825	5824.941	5825.158	5824.837	5824.806
0	5745	5745.005	5745.147	5744.841	5744.813
	5755	5755.030	5755.163	5754.843	5754.838
	5775	5775.011	5775.163	5774.846	5774.834
	5785	5785.020	5785.166	5784.837	5784.817
	5795	5795.018	5795.179	5794.828	5794.806
	5825	5825.028	5825.159	5824.837	5824.740
10	5745	5745.005	5745.157	5744.830	5744.808
	5755	5755.030	5755.174	5754.837	5754.819
	5775	5775.011	5775.176	5774.829	5774.836
	5785	5785.020	5785.158	5784.820	5784.811
	5795	5795.018	5795.175	5794.827	5794.807
	5825	5825.028	5825.174	5824.756	5824.809
20	5745	5745.021	5745.182	5744.839	5744.812
	5755	5755.035	5755.154	5754.855	5754.830
	5775	5775.020	5775.178	5774.840	5774.810
	5785	5785.007	5785.178	5784.826	5784.836
	5795	5795.001	5795.169	5794.820	5794.828
	5825	5825.035	5825.185	5824.854	5824.836
30	5745	5745.011	5745.168	5744.824	5744.837
	5755	5755.018	5755.170	5754.847	5754.808
	5775	5775.035	5775.174	5774.848	5774.831
	5785	5785.011	5785.166	5784.829	5784.830
	5795	5795.007	5795.157	5794.846	5794.821
	5825	5825.010	5825.167	5824.844	5824.835
40	5745	5745.021	5745.152	5744.841	5744.806
	5755	5755.035	5755.177	5754.843	5754.838

	5775	5775.020	5775.159	5774.846	5774.834
	5785	5785.007	5785.168	5784.837	5784.817
	5795	5795.001	5795.166	5794.828	5794.806
	5825	5825.035	5825.177	5824.837	5824.740
50	5745	5745.021	5745.182	5744.841	5744.812
	5755	5755.015	5755.154	5754.854	5754.830
	5775	5775.020	5775.178	5774.840	5774.810
	5785	5785.007	5785.178	5784.826	5784.837
	5795	5795.001	5795.168	5794.820	5794.828
	5825	5825.035	5825.189	5824.854	5824.836

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)
6.545	5745	5745.000	5745.157	5744.830	5744.807
	5755	5755.016	5755.164	5754.847	5754.831
	5775	5775.015	5775.157	5774.848	5774.812
	5785	5785.018	5785.149	5784.829	5784.820
	5795	5795.029	5795.156	5794.847	5794.818
	5825	5825.010	5825.086	5824.844	5824.827
7.70	5745	5745.000	5745.168	5744.825	5744.823
	5755	5755.016	5755.170	5754.850	5754.836
	5775	5775.015	5775.174	5774.831	5774.821
	5785	5785.018	5785.166	5784.839	5784.807
	5795	5795.025	5795.157	5794.837	5794.801
	5825	5825.010	5825.167	5824.847	5824.834
8.855	5745	5745.021	5745.181	5744.841	5744.812
	5755	5755.035	5755.154	5754.855	5754.830
	5775	5775.020	5775.178	5774.840	5774.810
	5785	5785.007	5785.178	5784.826	5784.836
	5795	5795.001	5795.169	5794.820	5794.828
	5825	5825.035	5825.185	5824.854	5824.836

5 Test Setup Photo

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

6 EUT Constructional Details

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

------END------