



TEST REPORT

Applicant: QINGDAO HISTONE INTELLIGENT COMMERCIAL SYSTEM CO., LTD.
Address of Applicant: Wisdom Valley, No.8 Shengshui Road, Laoshan District, Qingdao City, China
Manufacturer: QINGDAO HISTONE INTELLIGENT COMMERCIAL SYSTEM CO., LTD.
Address of Manufacturer: Wisdom Valley, No.8 Shengshui Road, Laoshan District, Qingdao City, China
Product Name: POS COMPUTER
Model No.: HD220N, HD220
Trade Mark: HiStone
FCC ID: 2A397-HD220N
Applicable standards: FCC CFR Title 47 Part 15 Subpart E Section 15.407
Date of Test: Jan.19, 2026-Feb.28, 2026
Date of report issued: Mar.05, 2026

Remark:

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

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1 Test Summary

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

Remarks:

1. Pass: The EUT complies with the essential requirements in the standard.
2. Test according to ANSI C63.10-2020 KDB 789033 D02 General U-NII Test Procedures New Rules v02r01
3. Note: Compliance determination rules
 - 1).The Compliance determination of test results does not take into account measurement uncertainty. Measurement results are determined based on regulatory limitations or requirements specified by the applicant/manufacturer. If measurement uncertainty is taken into account, the applicant/manufacturer will bear all possible risks of non-compliance.
 - 2).The measurement uncertainty please refer to each test result in the "Measurement Uncertainty"

1.1 Measurement Uncertainty

Test Item	Measurement Uncertainty	Notes
Occupied Channel Bandwidth	0.55%	(1)
RF output power, conducted	±0.57 dB	(1)
Power Spectral Density, conducted	±0.61 dB	(1)
Unwanted Emissions, conducted	±0.64 dB	(1)
AC Power Line Conducted Emission	± 2.55 dB	(1)
Radiated emissions 9K-30MHz	±3.79 dB	(1)
Radiated emissions 30M- 1GHz	± 4.24 dB	(1)
Radiated emissions 1GHz-18GHz	± 4.26 dB	(1)
Radiated emissions 18GHz-40GHz	±4.17 dB	(1)
Frequency error	Uc=1X10-7	(1)
Duty Cycle	0.03%	(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:	POS COMPUTER
Model No.:	HD220N, HD220
Difference of model(s)	All models have the same circuit and RF module, except for the model name and color
Test Model:	HD220N
Hardware Version:	N/A
Software Version:	N/A
Sample(s) Status:	Engineer sample
Operation Frequency:	☒ 5180-5240MHz for 802.11a/n(HT20)/ac20(VHT20); 5190-5230MHz for 802.11n(HT40)/ac40(VHT40); 5210MHz for 802.11 ac80(VHT80); ☒ 5745-5825 MHz for 802.11a/n(HT20)/ac20(VHT20); 5755-5795 MHz for 802.11n(HT40)/ac40(VHT40); 5775MHz for 802.11 ac80(VHT80);
Channel numbers:	☒ 4 channels for 802.11a/n20(HT20)/ac20(VHT20) in the 5180-5240MHz band; 2 channels for 802.11 n40(HT40)/ac40(VHT40) in the 5190-5230MHz band ; 1 channels for 802.11 ac80(VHT80) in the 5210MHz band ; ☒ 5 channels for 802.11802.11a/n20(HT20)/ac20(VHT20) in the 5745-5825MHz band ; 2 channels for 802.11 n40(HT40)/ac40(VHT40) in the 5755-5795MHz band ; 1 channels for 802.11 ac80(VHT80) in the 5775MHz band
Channel bandwidth:	802.11a/802.11n(HT20)/ 802.11ac(VHT20): 20MHz 802.11n(HT40)/ 802.11ac(VHT40) : 40MHz 802.11ac(VHT80) : 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:	External antenna
Antenna gain:	4.34dBi (Note: Antenna information is provided by applicant, Testing lab is not responsible for the accuracy of the information.)
Battery	N/A
Power supply:	DC 12V From Adapter
Adapter Model:	Model:GM60-120500-F INPUT:AC100-240V 50/60Hz 2A OUTPUT:DC 12V 5A

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(VHT20)	802.11 n(HT40)/ac(VHT40)	802.11ac(VHT80)
Lowest channel	5180	5190	5210
Middle channel	5200	X	
Highest channel	5240		

Test channel	Frequency (MHz)		
	802.11 a /n(HT20)/ac(VHT20)	802.11 n(HT40)/ac(VHT40)	802.11ac(VHT80)
Lowest channel	5745	5755	5775
Middle channel	5785	X	
Highest channel	5825		

2.2 Test mode

Transmitting mode	Keep the EUT in continuously transmitting mode.
<i>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.</i>	

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

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	SKYWORTH	2BU1	/
2	Mouse	DELL	MS116	/
3	Keyboard	DELL	KB216t	/

2.4 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
IC Company Number:	28440
IC CAB identifier:	CN0132
Laboratory location:	No.103, No.10, Phase I, Zone 3, Xinxing Industrial Park, Xinhe, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

2.5 Additional Instructions

Test Software	MP TOOL.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	ESC13	100605	2025.3.06	2026.3.05
2	Artificial power network	schwarabeck	NSLK8127	8127483	2025.3.06	2026.3.05
3	Artificial power network	ETS	3186/2NM	1132	2025.3.06	2026.3.05
4	10dB attenuator	HUBER+SUHNER	10dB	/	2025.3.06	2026.3.05
5	Cable 4	HUBER SUNNER	3M	/	2025.3.06	2026.3.05
6	Absorbing Clamp	schwarabeck	MDS21	D69250	2025.3.06	2026.3.05

Radiated Emission &RF Conducted test:

Item	Equipment name	Manufacturer	Model	Serial No.	Calibration date	Due date
1	EMI Test Receiver	Rohde&schwarz	ESC17	101032	2025.3.06	2026.3.05
2	Broadband antenna	schwarabeck	VULB9168	1064	2024.3.26	2026.3.25
3	Horn antenna	schwarabeck	BBHA9120D	9120D-1145	2024.3.22	2026.3.21
4	Amplifier	EMtrace	RP01A	50117	2025.3.06	2026.3.05
5	Amplifier	Space-Dtronic	EWLAN0118G-P40	19113001	2025.3.06	2026.3.05
6	Spectrum analyzer	KEYSIGHT	N9020A	MY55370280	2025.3.06	2026.3.05
7	Power detector meter	MWRFTest	MW100-PSB	MW201020JYT	2025.3.06	2026.3.05
8	Signal generator	Agilent	N5182A	MY49060455	2025.3.06	2026.3.05
9	Spectrum analyzer	Rohde&schwarz	FSV-40N	101321	2025.3.06	2026.3.05
10	Amplifier	SKET	LNPA_1840-50	SK2019040302	2025.3.06	2026.3.05
11	Horn antenna	schwarabeck	BBHA 9170	946	2024.3.22	2026.3.21
12	Loop antenna	schwarabeck	FMZB 1519 B	1519	2024.3.22	2026.3.21
13	Cable 6	HUBER SUNNER	0.5M	/	2025.3.06	2026.3.05
14	Cable7	HUBER SUNNER	2.0M	/	2025.3.06	2026.3.05
15	Cable8	HUBER SUNNER	6.0M	/	2025.3.06	2026.3.05
16	Filter	Xin bo	XBLBQ-GTA29	210410-3-2	2025.3.06	2026.3.05
17	Power Sensor	Keysight	U2021XA	MY54111006	2025.3.06	2026.3.05
18	Temp. & Humidity Chamber	Jiecheng Instrument	QA-LP-80	20160705001	2025/3/07	2026/3/06

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:	47CFR Part 15.203
<i>15.203 requirement:</i> <i>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.</i>	
E.U.T Antenna:	
The antenna is External antenna, the best case gain of the is 4.34dBi, reference to the Internal photos for details.	

4.2 Conducted Emissions

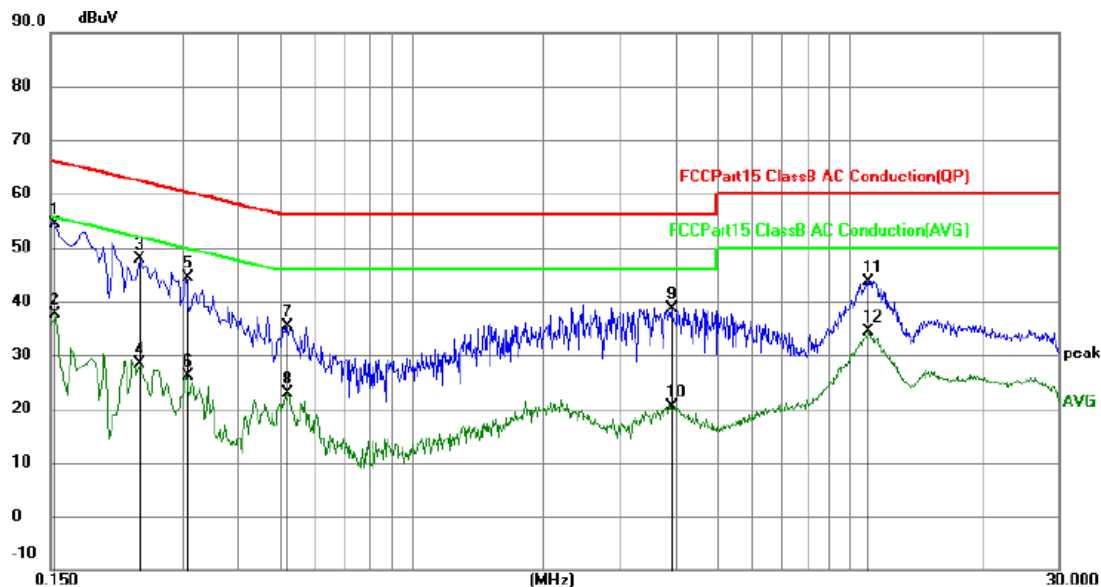
Test Requirement:	47CFR Part 15.207					
Test Method:	ANSI C63.10-2020 §6.2					
Test Frequency Range:	150KHz to 30MHz					
Class / Severity:	Class B					
Receiver setup:	RBW=9KHz, VBW=30KHz, Sweep time=auto					
Limit:	Frequency range (MHz)		Limit (dBuV)			
			Quasi-peak		Average	
	0.15-0.5		66 to 56*		56 to 46*	
	0.5-5		56		46	
	5-30		60		50	
* Decreases with the logarithm of the frequency.						
Test setup:	Reference Plane Remark E.U.T: Equipment Under Test LISN: Line Impedance Stabilization Network					
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 C63.10-2020 on conducted measurement.					
Test Instruments:	Refer to section 3.0 for details					
Test mode:	Refer to section 2.2 for details					
Test environment:	Temp.:	24.7°C	Humid.:	60%	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 (802.11ac20 5200MHz)

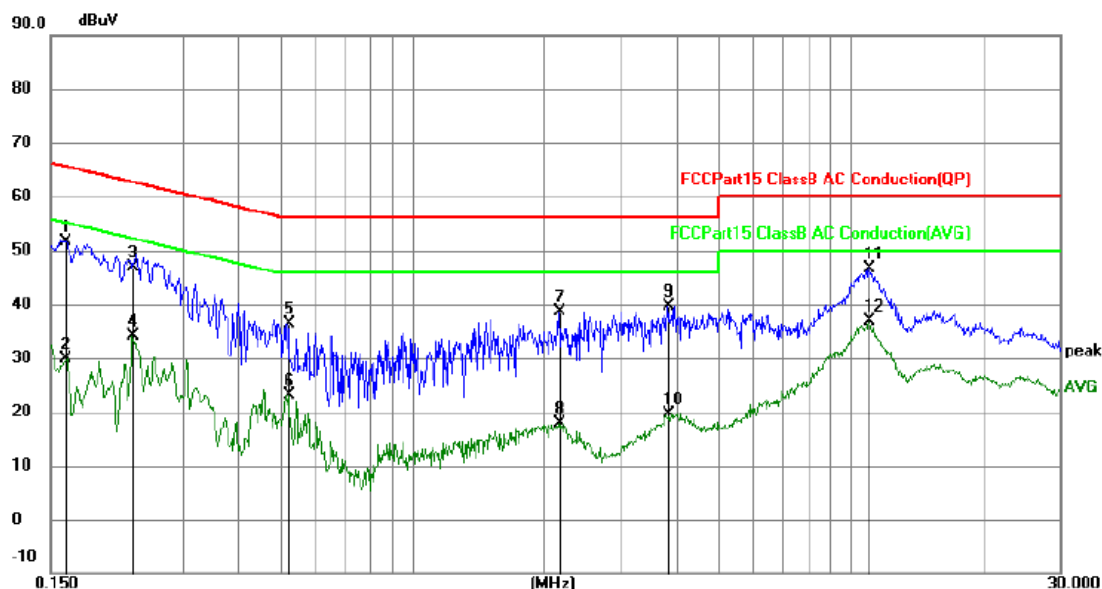
Measurement Result

Line:



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1532	44.54	9.80	54.34	65.82	-11.48	QP
2	0.1532	27.73	9.80	37.53	55.82	-18.29	AVG
3	0.2400	38.13	9.82	47.95	62.10	-14.15	QP
4	0.2400	18.46	9.82	28.28	52.10	-23.82	AVG
5	0.3074	34.43	9.87	44.30	60.04	-15.74	QP
6	0.3074	16.15	9.87	26.02	50.04	-24.02	AVG
7	0.5190	25.51	9.94	35.45	56.00	-20.55	QP
8	0.5190	12.95	9.94	22.89	46.00	-23.11	AVG
9	3.9253	28.89	9.84	38.73	56.00	-17.27	QP
10	3.9253	10.48	9.84	20.32	46.00	-25.68	AVG
11	10.9905	33.88	9.82	43.70	60.00	-16.30	QP
12	10.9905	24.50	9.82	34.32	50.00	-15.68	AVG

Neutral:

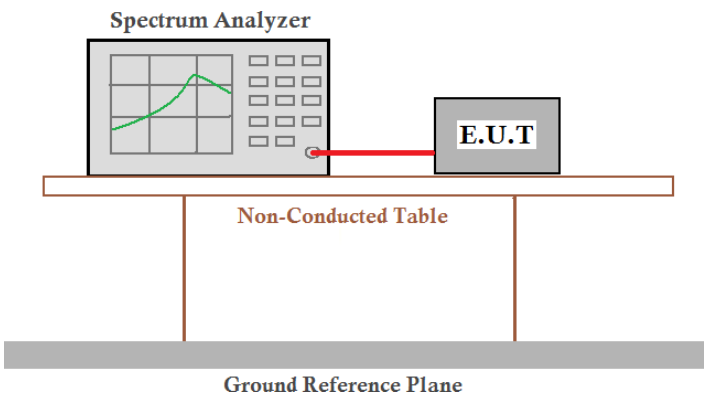


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1621	41.71	9.80	51.51	65.36	-13.85	QP
2	0.1621	20.02	9.80	29.82	55.36	-25.54	AVG
3	0.2310	37.14	9.82	46.96	62.41	-15.45	QP
4	0.2310	24.24	9.82	34.06	52.41	-18.35	AVG
5	0.5231	26.51	9.94	36.45	56.00	-19.55	QP
6	0.5231	13.17	9.94	23.11	46.00	-22.89	AVG
7	2.1568	28.79	9.85	38.64	56.00	-17.36	QP
8	2.1568	8.07	9.85	17.92	46.00	-28.08	AVG
9	3.8309	29.77	9.84	39.61	56.00	-16.39	QP
10	3.8309	9.74	9.84	19.58	46.00	-26.42	AVG
11	10.9679	36.93	9.82	46.75	60.00	-13.25	QP
12	10.9679	26.95	9.82	36.77	50.00	-13.23	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 C63.10-2020§11.6	
Limit:	/	
Test setup:	 The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T (Equipment Under Test) via a red cable. Both are placed on a Non-Conducted Table, which is supported by a Ground Reference Plane.	
Test Instruments:	Refer to section 3.0 for details	
Test mode:	Refer to section 2.2 for details	
Test environment:	Temp.: 24.7°C	Humid.: 60%RH
Test voltage:	AC 120V 60Hz	
Test results:	Pass	

Measurement Result

5180-5240MHz

Mode	Duty cycle (%)	Correction Factor (dB)
TX 802.11a Mode	100	0.00
TX 802.11n20 Mode	100	0.00
TX 802.11ac20 Mode	100	0.00
TX 802.11n40 Mode	100	0.00
TX 802.11a40 Mode	100	0.00
TX 802.11ac80 Mode	100	0.00

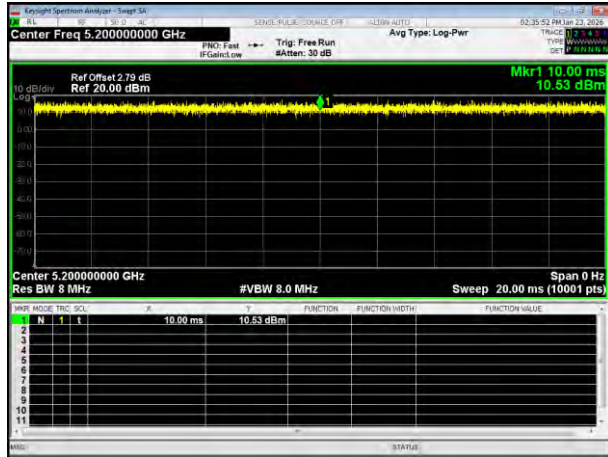
5745-5825 MHz

Mode	Duty cycle (%)	Correction Factor (dB)
TX 802.11a Mode	100	0.00
TX 802.11n20 Mode	100	0.00
TX 802.11ac20 Mode	100	0.00
TX 802.11n40 Mode	100	0.00
TX 802.11a40 Mode	100	0.00
TX 802.11ac80 Mode	100	0.00

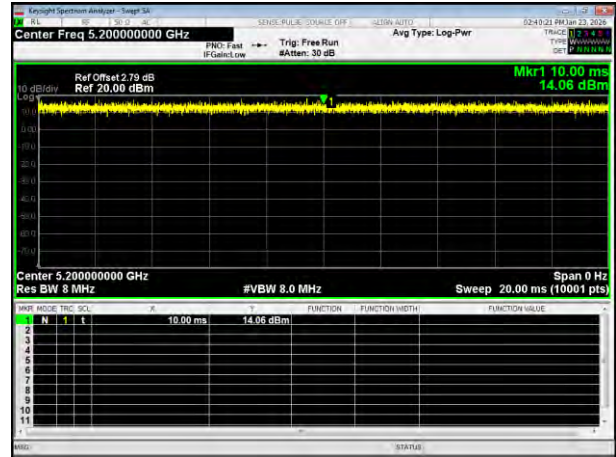
Test plot

5180-5240MHz

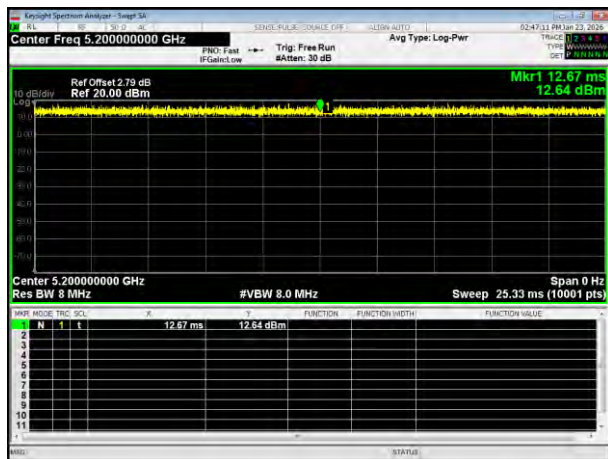
(802.11a) plot



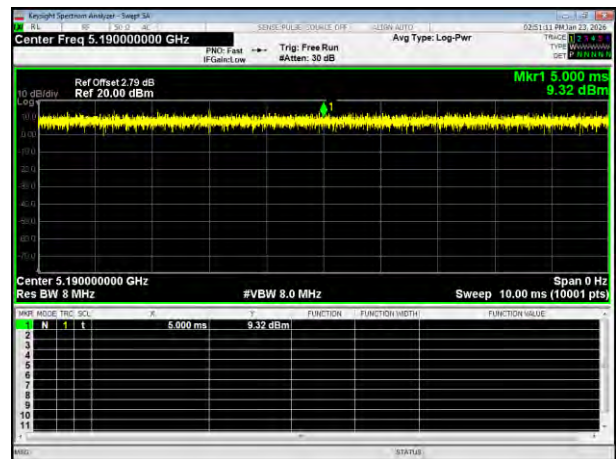
(802.11 n20) plot



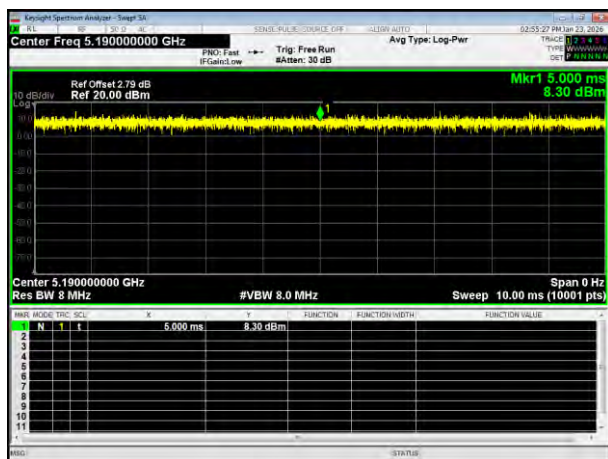
(802.11ac20) plot



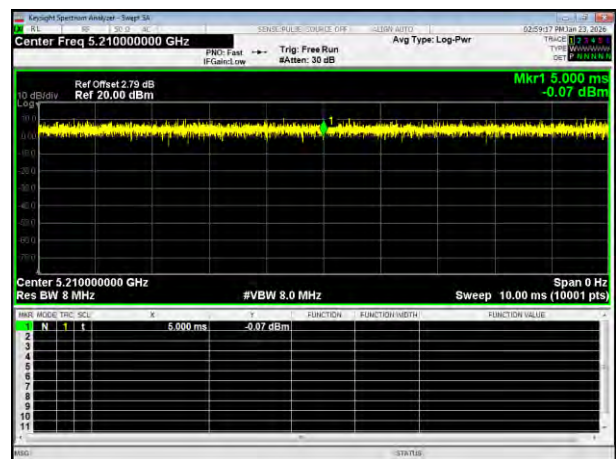
(802.11 n40) plot



(802.11ac40) plot



(802.11ac80) plot



5745-5825 MHz

(802.11a) plot



(802.11 n20) plot



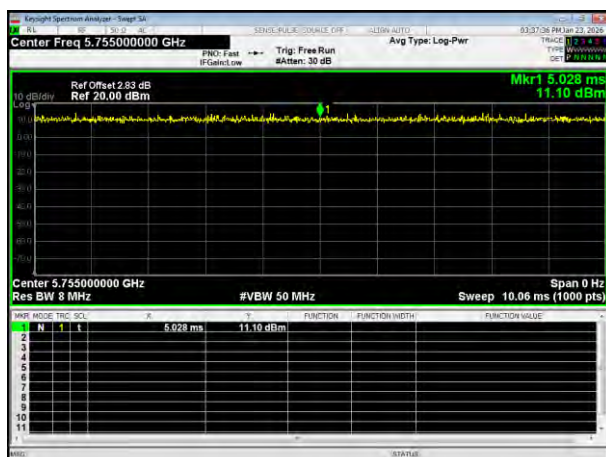
(802.11ac20) plot



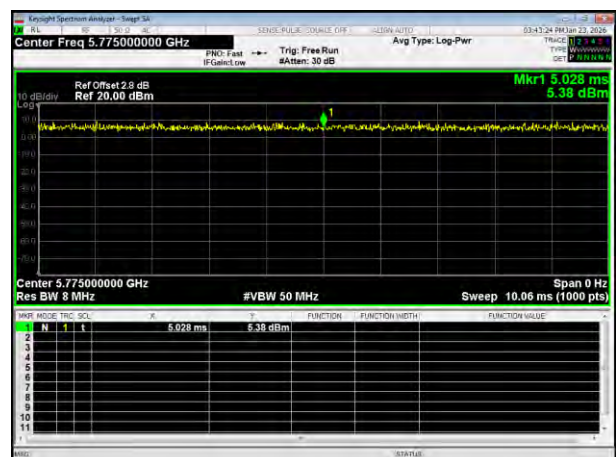
(802.11 n40) plot



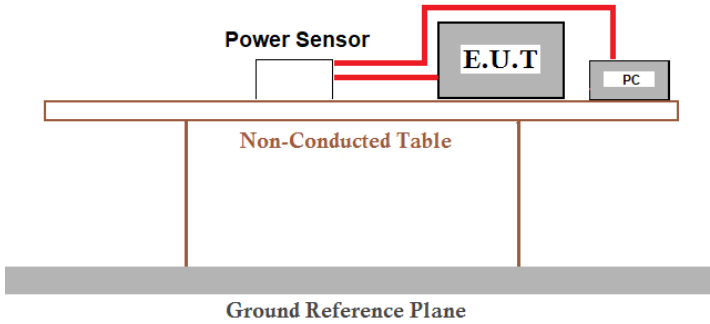
(802.11ac40) plot



(802.11ac80) plot



4.4 Conducted Output Power

Test Requirement:	47CFR Part 15.407 (a)(1)/(a)(3)	
Test Method:	KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 ANSI C63.10-2020 § 12.4	
Limit:	5150-5250MHz : 250mW 5725~5850MHz : 1W	
Test setup:	 The diagram illustrates the test setup. A 'Power Sensor' is connected via red lines to the 'E.U.T.' (Equipment Under Test) and a 'PC'. These components are placed on a 'Non-Conducted Table'. The table is supported by a 'Ground Reference Plane'.	
Test Instruments:	Refer to section 3.0 for details	
Test mode:	Refer to section 2.2 for details	
Test environment:	Temp.: 24.7°C	Humid.: 60%RH
Test voltage:	AC 120V 60Hz	
Test results:	Pass	

Measurement Result

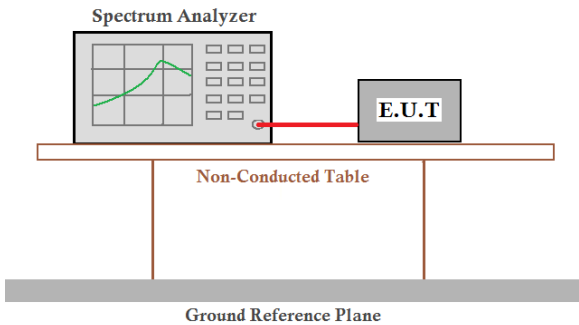
5180-5240MHz

Test Channel	Frequency	Correction Factor	Maximum output power	Total Power	Result
	(MHz)	(dB)	(dBm)	(dBm)	
TX 802.11a Mode					
CH36	5180	0.00	14.06	14.06	Pass
CH40	5200	0.00	14.03	14.03	Pass
CH48	5240	0.00	14.38	14.38	Pass
TX 802.11 n20 Mode					
CH36	5180	0.00	14.37	14.37	Pass
CH40	5200	0.00	14.38	14.38	Pass
CH48	5240	0.00	14.01	14.01	Pass
TX 802.11 ac20 Mode					
CH36	5180	0.00	14.52	14.52	Pass
CH40	5200	0.00	14.77	14.77	Pass
CH48	5240	0.00	14.07	14.07	Pass
TX 802.11 n40 Mode					
CH38	5190	0.00	13.12	13.12	Pass
CH46	5230	0.00	13.00	13.00	Pass
TX 802.11 ac40 Mode					
CH38	5190	0.00	13.35	13.35	Pass
CH46	5230	0.00	13.24	13.24	Pass
TX 802.11 ac80 Mode					
CH42	5210	0.00	12.64	12.64	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	0.00	14.13	14.13	30	Pass
CH157	5785	0.00	14.41	14.41	30	Pass
CH165	5825	0.00	14.77	14.77	30	Pass
TX 802.11 n20 Mode						
CH149	5745	0.00	14.54	14.54	30	Pass
CH157	5785	0.00	14.30	14.30	30	Pass
CH165	5825	0.00	14.63	14.63	30	Pass
TX 802.11 ac20 Mode						
CH149	5745	0.00	14.45	14.45	30	Pass
CH157	5785	0.00	14.37	14.37	30	Pass
CH165	5825	0.00	14.73	14.73	30	Pass
TX 802.11 n40 Mode						
CH151	5755	0.00	13.64	13.64	30	Pass
CH159	5795	0.00	13.49	13.49	30	Pass
TX 802.11 ac40 Mode						
CH151	5755	0.00	13.60	13.60	30	Pass
CH159	5795	0.00	13.46	13.46	30	Pass
TX 802.11 ac80 Mode						
CH155	5775	0.00	12.01	12.01	30	Pass

4.5 Bandwidth & 99% Occupancy Bandwidth

Test Requirement:	47CFR Part 15.407(a)(12)&15.407(e),	
Test Method:	KDB 789033 D02 General U-NII Test Procedures New Rules v02r01, ANSI C63.10-2020§12.5	
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.: 24.7°C	Humid.: 60%RH
Test voltage:	AC 120V 60Hz	
Test results:	Pass	

Measurement Result

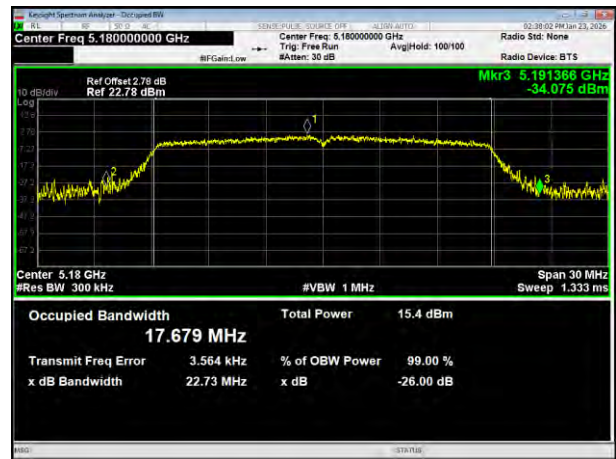
5180-5240MHz

Test CH	-26dB Channel Bandwidth (MHz)						Result
	802.11a	802.11n (HT20)	802.11ac (VHT20)	802.11n (HT40)	802.11ac (VHT40)	802.11ac (VHT80)	
Lowest	19.82	22.73	24.43	40.23	40.60	--	Pass
Middle	22.85	21.68	23.16	--	--	83.93	
Highest	26.35	24.82	25.18	40.41	40.42	--	

(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

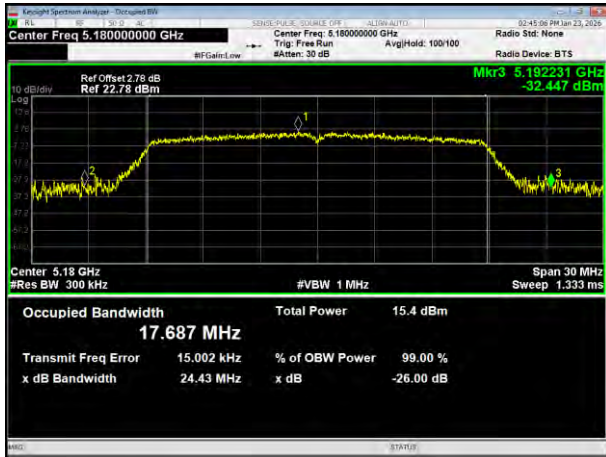


(802.11 n20) plot on channel 48



Test plot

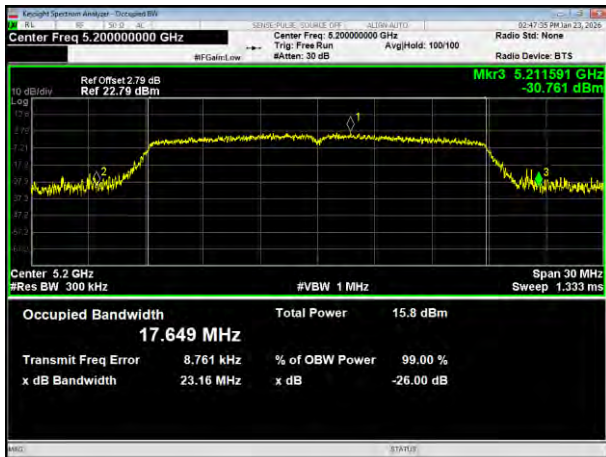
(802.11ac20) plot on channel 36



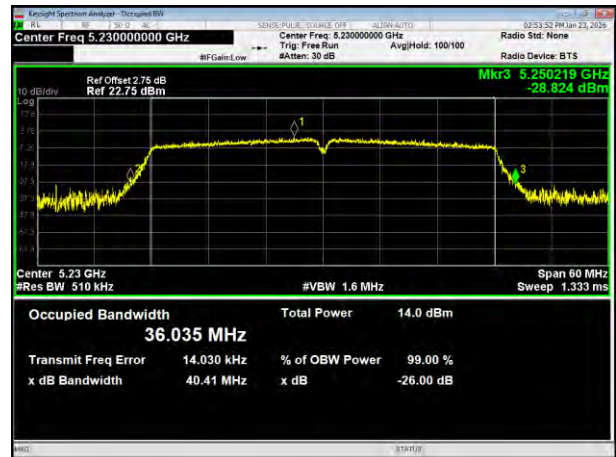
(802.11 n40) plot on channel 38



(802.11ac20) plot on channel 40



(802.11 n40) plot on channel 46



(802.11ac20) plot on channel 48

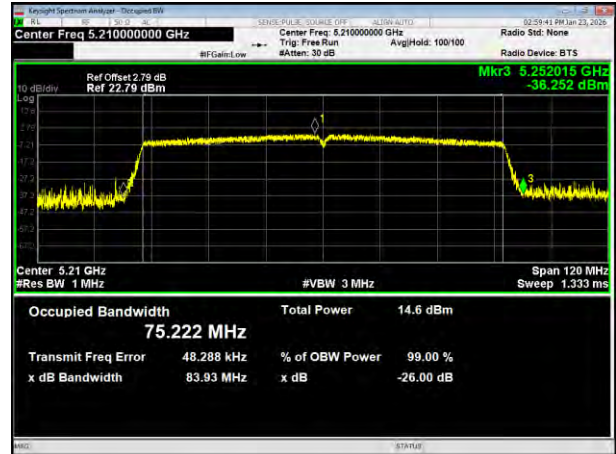


Test plot

(802.11ac40) plot on channel 38



(802.11ac80) plot on channel 42



(802.11ac40) plot on channel 46



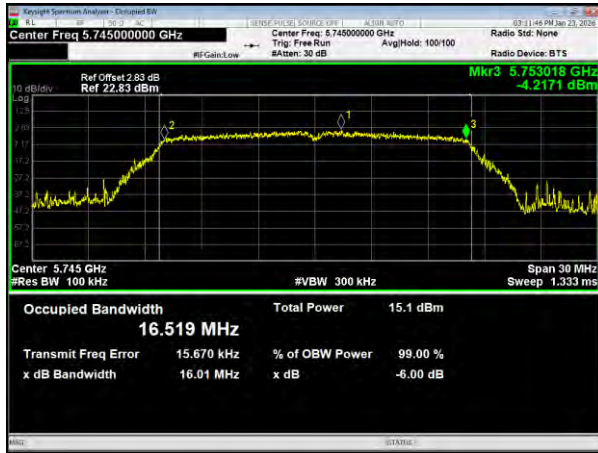
5745-5825MHz

Test CH	-6dB Channel Bandwidth (MHz)						Limit (KHz)	Result
	802.11a	802.11n (HT20)	802.11ac (VHT20)	802.11n (HT40)	802.11ac (VHT40)	802.11ac (VHT80)		
Lowest	16.01	17.10	17.32	35.71	35.24	--	>500	Pass
Middle	16.09	17.45	16.97	--	--	75.33		
Highest	16.16	17.15	17.30	35.73	35.57	--		

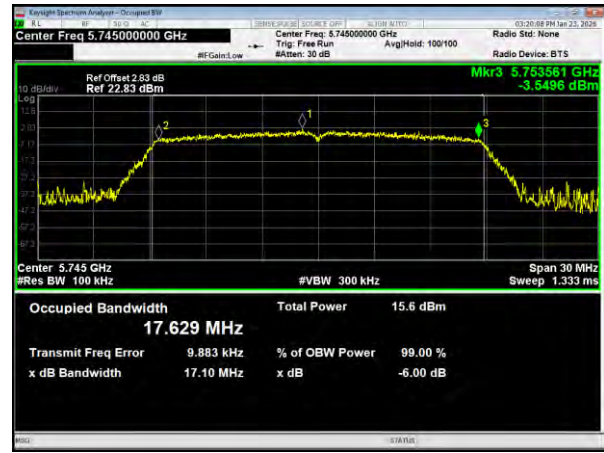
Remark: "---" is not applicable

Test plot

(802.11a) plot on channel 149



(802.11 n20) plot on channel 149



(802.11a) plot on channel 157



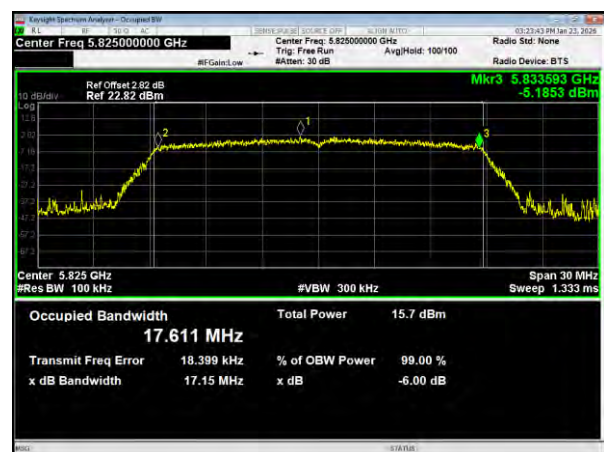
(802.11 n20) plot on channel 157



(802.11a) plot on channel 165



(802.11 n20) plot on channel 165

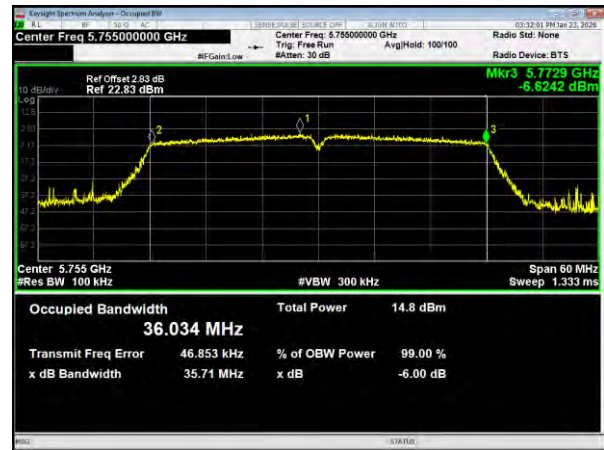


Test plot

(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



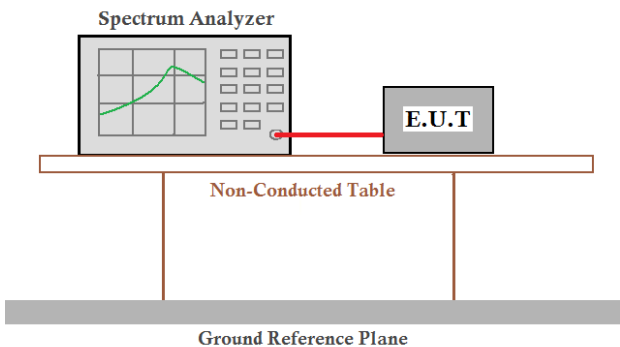
(802.11 ac80) plot on channel 155



(802.11 ac40) plot on channel 159



4.6 Power Spectral Density

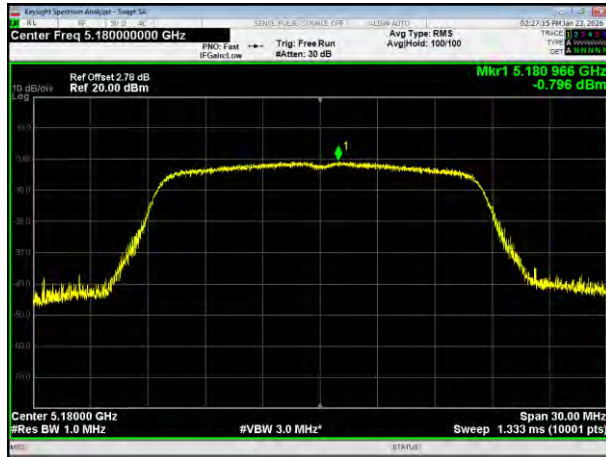
Test Requirement:	47CFR Part 15.407(a)(1)/ (a)(3)	
Test Method:	KDB 789033 D02 General U-NII Test Procedures New Rules v02r01, ANSI C63.10-2020§12.6	
Limit:	Frequency band (MHz)	Limit
	5150-5250	≤17dBm/1MHz for master device
		≤11dBm/1MHz for client device
	5250-5350	≤11dBm/1MHz for client device
	5470-5725	≤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 environment:	Temp.: 24.7°C	Humid.: 60%RH
Test voltage:	AC 120V 60Hz	
Test results:	Pass	

Measurement Result

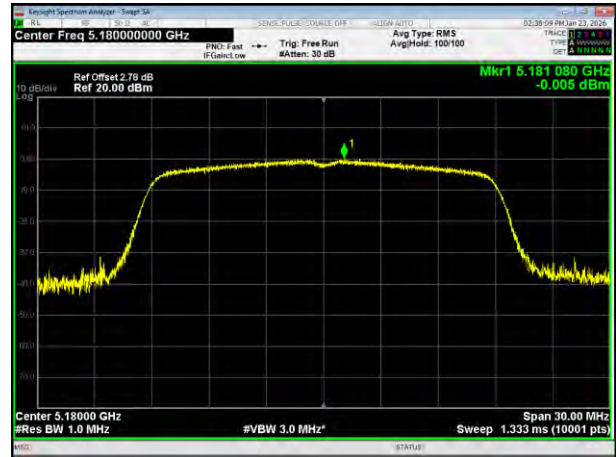
5180-5240MHz

Mode	Frequency	Measured Power Density (dBm/MHz)	Correction Factor (dB)	Total Measured Power Density (dBm/MHz)	Limit (dBm/MHz)
802.11 a	5180 MHz	-0.796	0.00	-0.796	11
	5200 MHz	-0.111	0.00	-0.111	11
	5240 MHz	0.471	0.00	0.471	11
802.11 n20	5180 MHz	-0.005	0.00	-0.005	11
	5200 MHz	-0.09	0.00	-0.09	11
	5240 MHz	-0.07	0.00	-0.07	11
802.11 ac20	5180 MHz	-0.005	0.00	-0.005	11
	5200 MHz	0.49	0.00	0.49	11
	5240 MHz	-0.302	0.00	-0.302	11
802.11 n40	5190 MHz	-4.023	0.00	-4.023	11
	5230 MHz	-4.142	0.00	-4.142	11
802.11 ac40	5190 MHz	-3.931	0.00	-3.931	11
	5230 MHz	-4.155	0.00	-4.155	11
802.11 ac80	5210 MHz	-7.939	0.00	-7.939	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



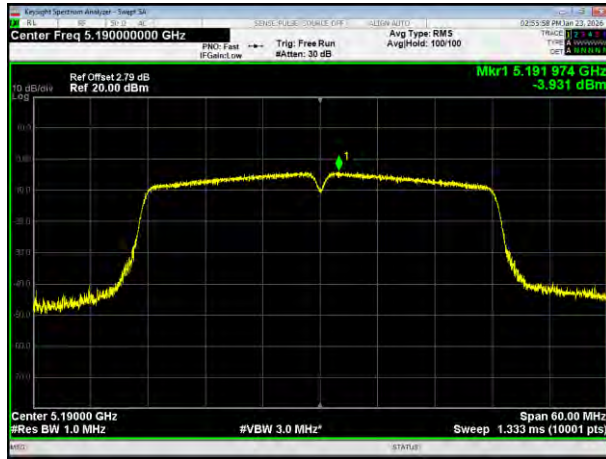
(802.11n40) PSD plot on channel 46



(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/500kHz)
802.11 a	5745 MHz	-3.077	-3.163	0.00	-3.163	30
	5785 MHz	-2.58	-2.666	0.00	-2.666	30
	5825 MHz	-2.103	-2.189	0.00	-2.189	30
802.11 n20	5745 MHz	-2.751	-2.837	0.00	-2.837	30
	5785 MHz	-2.666	-2.752	0.00	-2.752	30
	5825 MHz	-2.489	-2.575	0.00	-2.575	30
802.11ac20	5745 MHz	-2.882	-2.968	0.00	-2.968	30
	5785 MHz	-2.978	-3.064	0.00	-3.064	30
	5825 MHz	-2.403	-2.489	0.00	-2.489	30
802.11 n40	5755 MHz	-6.419	-6.505	0.00	-6.505	30
	5795 MHz	-6.804	-6.89	0.00	-6.89	30
802.11ac40	5755 MHz	-6.781	-6.867	0.00	-6.867	30
	5795 MHz	-6.703	-6.789	0.00	-6.789	30
802.11ac80	5775 MHz	-11.745	-11.831	0.00	-11.831	30

Note: 1. Total Measured Power Density (dBm/500KHz)=dbm/510KHz-(10*log(510/500))+Duty cycle factor.

2. Correction Factor (dB)= duty cycle factor, RB Factor=10*log(510KHz/500KHz).

3. Offset= cable loss

(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

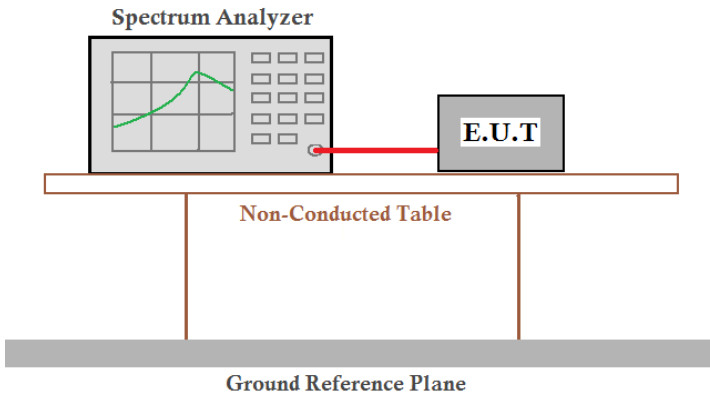


(802.11ac40) PSD plot on channel 159



4.7 Band edge

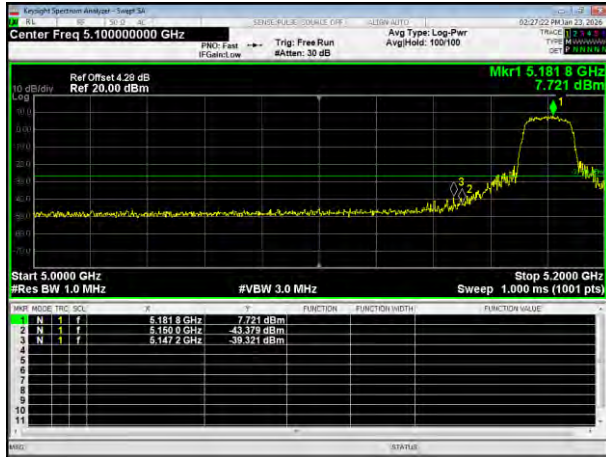
4.7.1 Conducted test Method

Test Requirement:	47CFR Part 15.209 and 15.205	
Test Method:	ANSI C63.10-2020 § 6.10	
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:	 The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T. (Equipment Under Test) via a red cable. Both are placed on a Non-Conducted Table. Below the table is a Ground Reference Plane.	
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.: 24.7°C	Humid.: 60%RH
Test voltage:	AC 120V 60Hz	
Test results:	Pass	

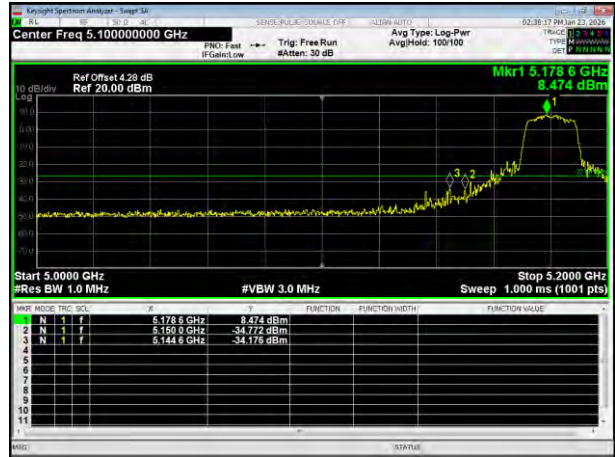
Remark: Antenna gain and cable loss data included in Offset.

5.180~5.240 GHz

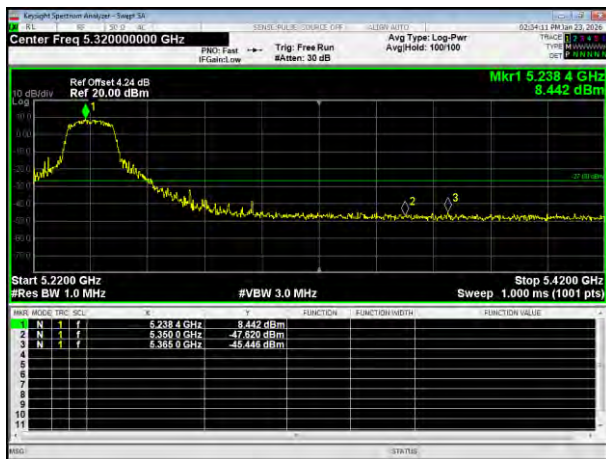
(802.11a) Band Edge, Left Side



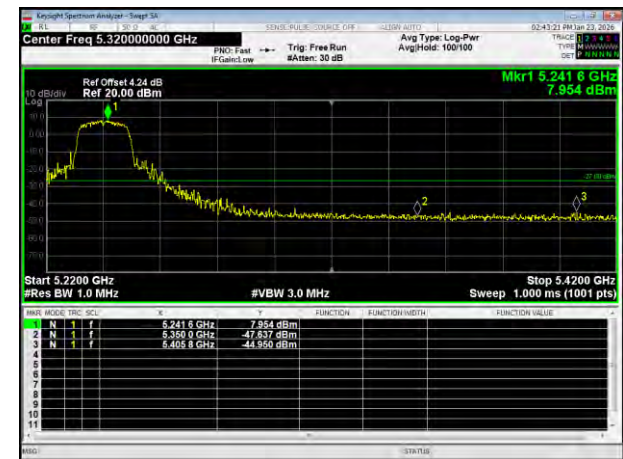
(802.11n20) Band Edge, Left Side



(802.11a) Band Edge, Right Side

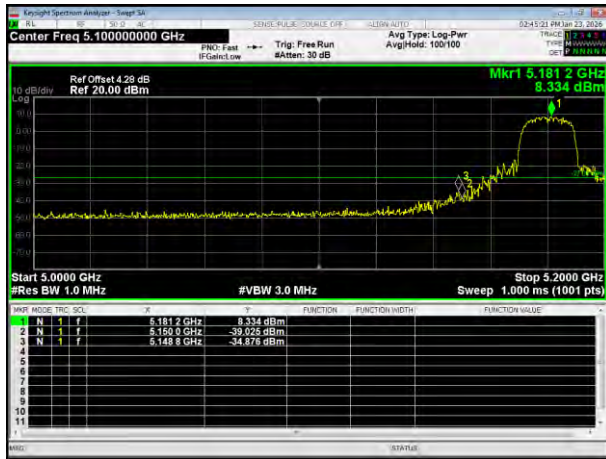


(802.11n20) Band Edge, Right Side

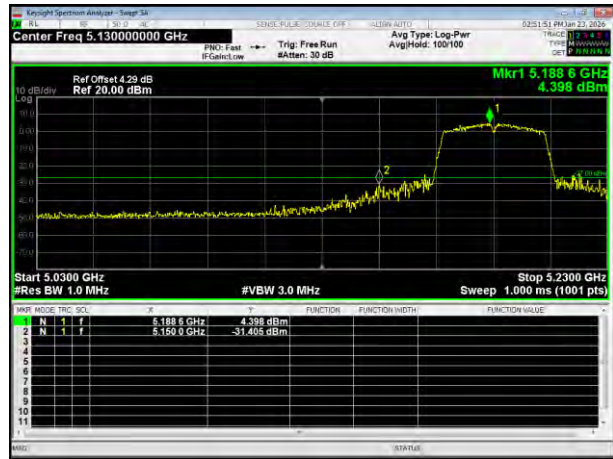


Remark: Antenna gain and cable loss data included in Offset.

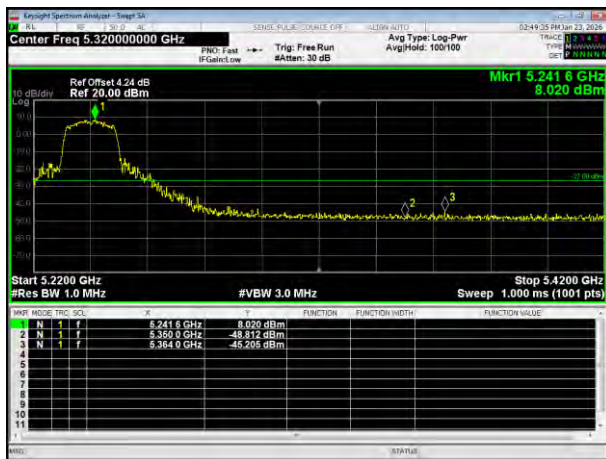
(802.11ac20) Band Edge, Left Side



(802.11n40) Band Edge, Left Side



(802.11ac20) Band Edge, Right Side

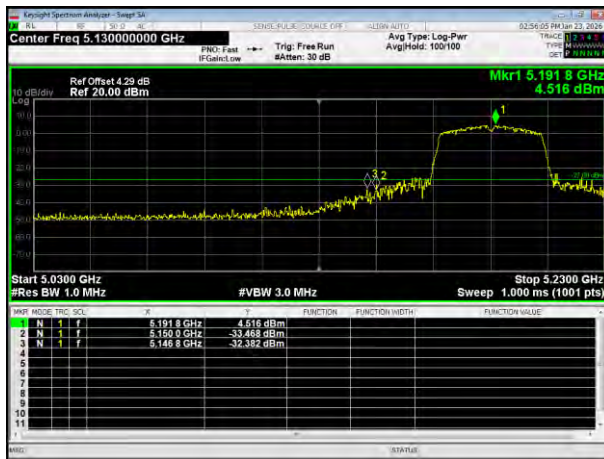


(802.11n40) Band Edge, Right Side

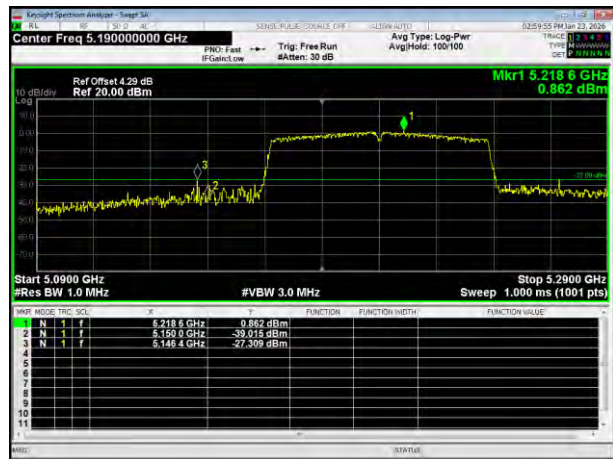


Remark: Antenna gain and cable loss data included in Offset.

(802.11ac40) Band Edge, Left Side



(802.11ac80) Band Edge



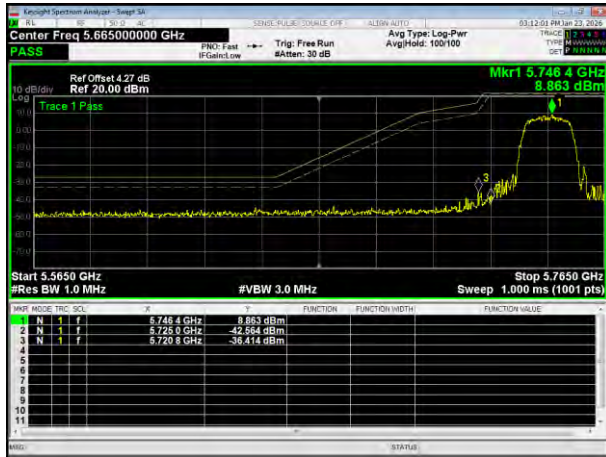
(802.11ac40) Band Edge, Right Side



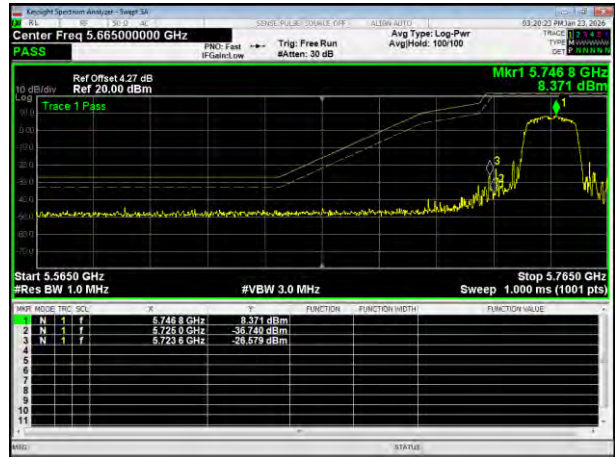
Remark: Antenna gain and cable loss data included in Offset.

5.745~5.825 GHz

(802.11a) Band Edge, Left Side



(802.11n20) Band Edge, Left Side



(802.11a) Band Edge, Right Side

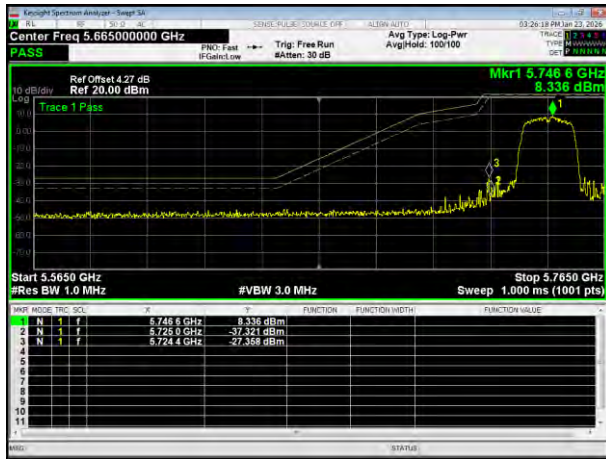


(802.11n20) Band Edge, Right Side



Remark: Antenna gain and cable loss data included in Offset.

(802.11ac20) Band Edge, Left Side



(802.11n40) Band Edge, Left Side



(802.11ac20) Band Edge, Right Side

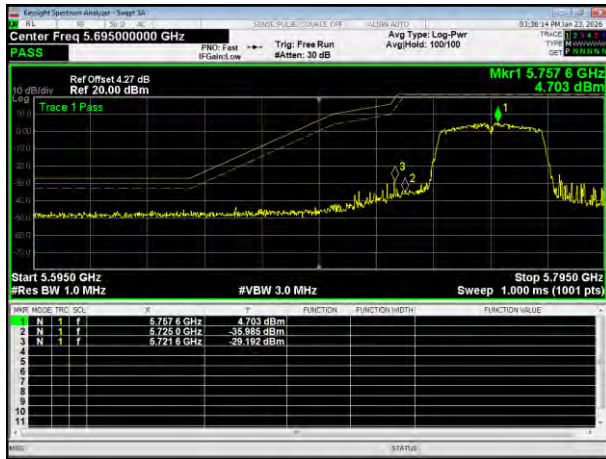


(802.11n40) Band Edge, Right Side



Remark: Antenna gain and cable loss data included in Offset.

(802.11ac40) Band Edge, Left Side



(802.11ac80) Band Edge



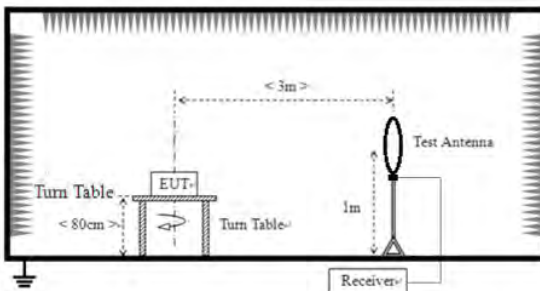
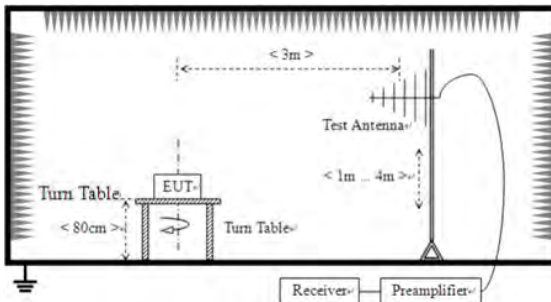
(802.11ac40) Band Edge, Right Side

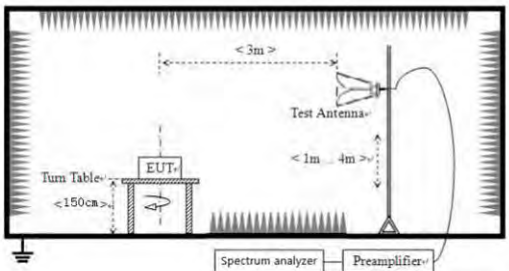


Remark: Antenna gain and cable loss data included in Offset.

4.8 Spurious Emission

4.8.1 Radiated Emission Method

Test Requirement:	47CFR Part 15.209, Part 15E Section 15.407(b)(4)				
Test Method:	ANSI C63.10-2020§6.4&6.5&6.6				
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 to 1GHz				
Test setup:					
	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.
3. All models and modes have been tested, and the report only displays the worst mode 802.11n20 (5745MHz) data

Measurement Data:

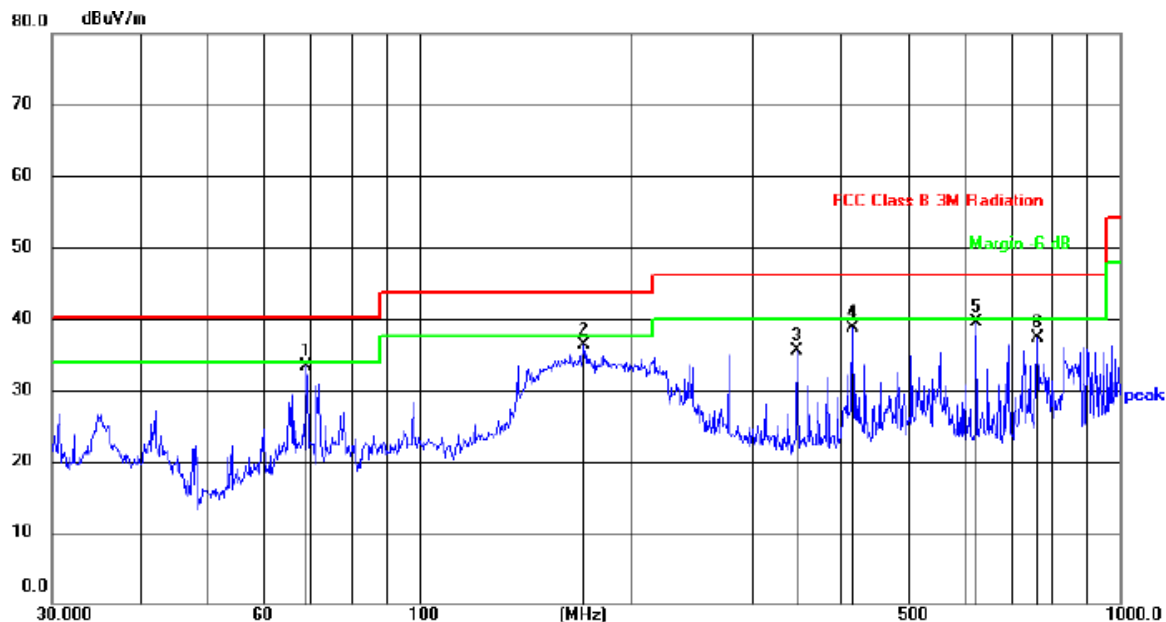
9 kHz ~ 30 MHz

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

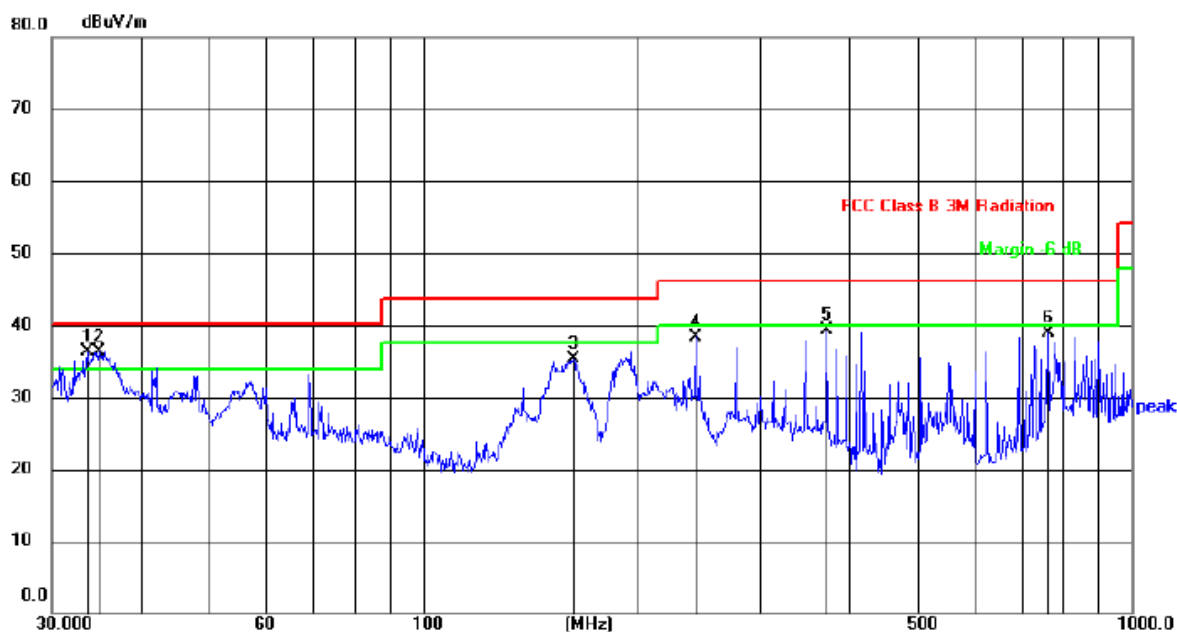
Temperature:	24.7°C	Relative Humidity:	60%RH
Pressure:	101.2kPa	Test Voltage :	AC 120V 60Hz
Test Mode :	TX- 802.11n20 (5745MHz)		

Horizontal:



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	69.1140	57.28	-24.01	33.27	40.00	-6.73	QP
2	171.9944	57.52	-21.26	36.26	43.50	-7.24	QP
3	346.8091	54.83	-19.40	35.43	46.00	-10.57	QP
4	416.1791	55.31	-16.62	38.69	46.00	-7.31	QP
5	625.0778	50.13	-10.67	39.46	46.00	-6.54	QP
6	763.3757	45.07	-7.68	37.39	46.00	-8.61	QP

Vertical:



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	33.5623	58.41	-22.01	36.40	40.00	-3.60	QP
2	34.8821	58.12	-21.73	36.39	40.00	-3.61	QP
3	163.1817	55.90	-20.69	35.21	43.50	-8.29	QP
4	242.5252	60.82	-22.42	38.40	46.00	-7.60	QP
5	372.0045	57.60	-18.30	39.30	46.00	-6.70	QP
6	763.3757	46.49	-7.68	38.81	46.00	-7.19	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 802.11a mode

Above 1GHz:

Remark: The test data shows only the worst case 802.11ac20 mode.

Temperature:	24.7°C	Relative Humidity:	60%RH
Pressure:	101.2kPa	Test Voltage :	AC 120V 60Hz
Test Mode :	5.2G TX- 802.11ac20		

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detect or Type
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
Low Channel:5180MHz							
V	10360.00	44.04	1.77	45.81	68.20	-22.39	PK
V	10360.00	39.02	1.77	40.79	54.00	-13.21	AV
V	15540.00	46.56	7.72	54.28	74.00	-19.72	PK
V	15540.00	34.98	7.72	42.70	54.00	-11.30	AV
V	20720.00	51.27	-5.73	45.54	68.20	-22.66	PK
V	20720.00	45.51	-5.73	39.78	54.00	-14.22	AV
V	25900.00	48.27	-2.89	45.38	68.20	-22.82	PK
V	25900.00	43.25	-2.89	40.36	54.00	-13.64	AV
V	31080.00	49.95	1.66	51.61	68.20	-16.59	PK
V	31080.00	43.69	1.66	45.35	54.00	-8.65	AV
V	36260.00	46.80	4.63	51.43	68.20	-16.77	PK
V	36260.00	40.48	4.63	45.11	54.00	-8.89	AV
H	10360.00	44.35	1.77	46.12	68.20	-22.08	PK
H	10360.00	39.21	1.77	40.98	54.00	-13.02	AV
H	15540.00	45.93	7.72	53.65	74.00	-20.35	PK
H	15540.00	35.08	7.72	42.80	54.00	-11.20	AV
H	20720.00	50.33	-5.73	44.60	68.20	-23.60	PK
H	20720.00	44.19	-5.73	38.46	54.00	-15.54	AV
H	25900.00	48.24	-2.89	45.35	68.20	-22.85	PK
H	25900.00	42.43	-2.89	39.54	54.00	-14.46	AV
H	31080.00	48.93	1.66	50.59	68.20	-17.61	PK
H	31080.00	43.28	1.66	44.94	54.00	-9.06	AV
H	36260.00	46.33	4.63	50.96	68.20	-17.24	PK
H	36260.00	40.88	4.63	45.51	54.00	-8.49	AV

Remark:

1. Emission Level = Meter Reading + Factor,
Factor=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.

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detect or Type
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
Middle Channel:5200Hz							
V	10400.00	43.52	1.85	45.37	68.20	-22.83	PK
V	10400.00	38.44	1.85	40.29	54.00	-13.71	AV
V	15600.00	45.50	7.64	53.14	74.00	-20.86	PK
V	15600.00	33.67	7.64	41.31	54.00	-12.69	AV
V	20800.00	54.45	-5.67	48.78	68.20	-19.42	PK
V	20800.00	49.56	-5.67	43.89	54.00	-10.11	AV
V	26000.00	48.38	-2.85	45.53	68.20	-22.67	PK
V	26000.00	42.84	-2.85	39.99	54.00	-14.01	AV
V	31200.00	46.99	1.57	48.56	68.20	-19.64	PK
V	31200.00	42.86	1.57	44.43	54.00	-9.57	AV
V	36400.00	46.59	4.93	51.52	68.20	-16.68	PK
V	36400.00	41.29	4.93	46.22	54.00	-7.78	AV
H	10400.00	43.70	1.85	45.55	68.20	-22.65	PK
H	10400.00	38.87	1.85	40.72	54.00	-13.28	AV
H	15600.00	45.27	7.64	52.91	74.00	-21.09	PK
H	15600.00	33.90	7.64	41.54	54.00	-12.46	AV
H	20800.00	50.99	-5.67	45.32	68.20	-22.88	PK
H	20800.00	45.87	-5.67	40.20	54.00	-13.80	AV
H	26000.00	50.12	-2.85	47.27	68.20	-20.93	PK
H	26000.00	44.82	-2.85	41.97	54.00	-12.03	AV
H	31200.00	48.88	1.57	50.45	68.20	-17.75	PK
H	31200.00	43.03	1.57	44.60	54.00	-9.40	AV
H	36400.00	46.01	4.93	50.94	68.20	-17.26	PK
H	36400.00	41.11	4.93	46.04	54.00	-7.96	AV

Remark:

1. Emission Level = Meter Reading + Factor,
Factor=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.

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detect or Type
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
High Channel:5240MHz							
V	10480.00	44.45	2.02	46.47	68.20	-21.73	PK
V	10480.00	38.84	2.02	40.86	54.00	-13.14	AV
V	15720.00	44.89	7.46	52.35	74.00	-21.65	PK
V	15720.00	34.02	7.46	41.48	54.00	-12.52	AV
V	20960.00	51.06	-5.56	45.50	68.20	-22.70	PK
V	20960.00	45.86	-5.56	40.30	54.00	-13.70	AV
V	26200.00	48.55	-2.50	46.05	68.20	-22.15	PK
V	26200.00	44.03	-2.50	41.53	54.00	-12.47	AV
V	31440.00	49.93	1.39	51.32	68.20	-16.88	PK
V	31440.00	44.91	1.39	46.30	54.00	-7.70	AV
V	36680.00	45.79	5.25	51.04	68.20	-17.16	PK
V	36680.00	41.14	5.25	46.39	54.00	-7.61	AV
H	10480.00	44.88	2.02	46.90	68.20	-21.30	PK
H	10480.00	39.76	2.02	41.78	54.00	-12.22	AV
H	15720.00	45.17	7.46	52.63	74.00	-21.37	PK
H	15720.00	34.08	7.46	41.54	54.00	-12.46	AV
H	20960.00	50.85	-5.56	45.29	68.20	-22.91	PK
H	20960.00	45.98	-5.56	40.42	54.00	-13.58	AV
H	26200.00	50.70	-2.50	48.20	68.20	-20.00	PK
H	26200.00	47.18	-2.50	44.68	54.00	-9.32	AV
H	31440.00	49.23	1.39	50.62	68.20	-17.58	PK
H	31440.00	44.12	1.39	45.51	54.00	-8.49	AV
H	36680.00	46.10	5.15	51.25	68.20	-16.96	PK
H	36680.00	40.79	5.15	45.94	54.00	-8.06	AV

Remark:

1. Emission Level = Meter Reading + Factor,
Factor=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:	24.7°C	Relative Humidity:	60%RH
Pressure:	101.2kPa	Test Voltage :	AC 120V 60Hz
Test Mode :	5.8G TX- 802.11n20		

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detect or Type
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
Low Channel:5745MHz							
V	11490.00	47.60	3.31	50.91	74.00	-23.09	PK
V	11490.00	37.49	3.31	40.80	54.00	-13.21	AV
V	17235.00	36.80	10.10	46.90	68.20	-21.30	PK
V	17235.00	31.75	10.10	41.85	54.00	-12.15	AV
V	22980.00	54.29	-4.61	49.68	74.00	-24.33	PK
V	22980.00	43.34	-4.61	38.73	54.00	-15.27	AV
V	28725.00	44.93	0.87	45.80	68.20	-22.40	PK
V	28725.00	40.53	0.87	41.40	54.00	-12.60	AV
V	34470.00	45.49	3.82	49.31	68.20	-18.89	PK
V	34470.00	40.09	3.82	43.91	54.00	-10.09	AV
H	11490.00	48.26	3.31	51.57	74.00	-22.43	PK
H	11490.00	37.70	3.31	41.01	54.00	-13.00	AV
H	17235.00	35.90	10.10	46.00	68.20	-22.20	PK
H	17235.00	31.04	10.10	41.14	54.00	-12.86	AV
H	22980.00	53.85	-4.61	49.24	74.00	-24.76	PK
H	22980.00	43.09	-4.61	38.48	54.00	-15.52	AV
H	28725.00	47.23	0.87	48.10	68.20	-20.10	PK
H	28725.00	43.00	0.87	43.87	54.00	-10.13	AV
H	34470.00	45.99	3.82	49.81	68.20	-18.39	PK
H	34470.00	41.41	3.82	45.23	54.00	-8.77	AV

Remark:

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

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detect or Type
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
Low Channel:5785MHz							
V	11570.00	47.37	3.34	50.71	74.00	-23.29	PK
V	11570.00	37.12	3.34	40.46	54.00	-13.54	AV
V	17355.00	35.36	10.52	45.88	68.20	-22.32	PK
V	17355.00	30.68	10.52	41.20	54.00	-12.80	AV
V	23140.00	53.94	-4.66	49.28	74.00	-24.72	PK
V	23140.00	43.65	-4.66	38.99	54.00	-15.01	AV
V	28925.00	46.75	1.36	48.11	68.20	-20.09	PK
V	28925.00	41.83	1.36	43.19	54.00	-10.81	AV
V	34710.00	46.33	3.95	50.28	68.20	-17.92	PK
V	34710.00	41.02	3.95	44.97	54.00	-9.03	AV
H	11570.00	48.44	3.34	51.78	74.00	-22.22	PK
H	11570.00	38.19	3.34	41.53	54.00	-12.47	AV
H	17355.00	34.51	10.52	45.03	68.20	-23.17	PK
H	17355.00	31.04	10.52	41.56	54.00	-12.44	AV
H	23140.00	54.48	-4.66	49.82	74.00	-24.18	PK
H	23140.00	43.51	-4.66	38.85	54.00	-15.15	AV
H	28925.00	47.53	1.36	48.89	68.20	-19.31	PK
H	28925.00	43.09	1.36	44.45	54.00	-9.55	AV
H	34710.00	46.92	3.95	50.87	68.20	-17.33	PK
H	34710.00	41.40	3.95	45.35	54.00	-8.65	AV

Remark:

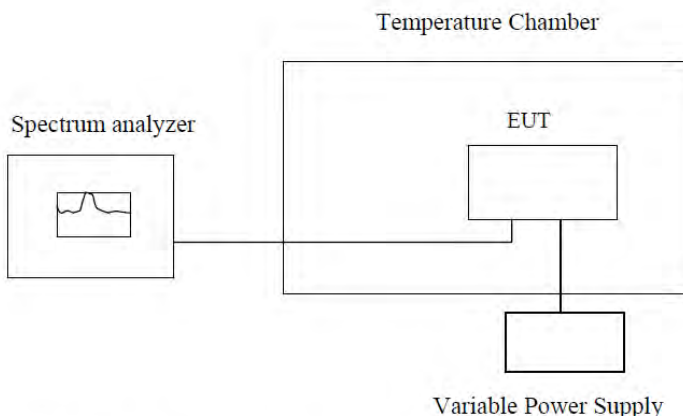
1. Emission Level = Meter Reading + Factor,
Factor=Antenna Factor + Cable Loss – Pre-amplifier
Margin= Emission Level – Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value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

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detect or Type
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
Low Channel:5825MHz							
V	11650.00	47.34	3.36	50.70	74.00	-23.30	PK
V	11650.00	36.86	3.36	40.22	54.00	-13.79	AV
V	17475.00	34.88	10.93	45.81	68.20	-22.39	PK
V	17475.00	31.09	10.93	42.02	54.00	-11.98	AV
V	23300.00	49.92	-4.77	45.15	68.20	-23.05	PK
V	23300.00	45.24	-4.77	40.47	54.00	-13.53	AV
V	29125.00	47.44	1.65	49.09	68.20	-19.11	PK
V	29125.00	41.88	1.65	43.53	54.00	-10.47	AV
V	34950.00	45.63	4.09	49.72	68.20	-18.48	PK
V	34950.00	41.22	4.09	45.31	54.00	-8.69	AV
H	11650.00	48.74	3.36	52.10	74.00	-21.90	PK
H	11650.00	38.17	3.36	41.53	54.00	-12.47	AV
H	17475.00	34.98	10.93	45.91	68.20	-22.29	PK
H	17475.00	29.89	10.93	40.82	54.00	-13.18	AV
H	23300.00	49.47	-4.77	44.70	68.20	-23.50	PK
H	23300.00	44.66	-4.77	39.89	54.00	-14.11	AV
H	29125.00	46.26	1.65	47.91	68.20	-20.29	PK
H	29125.00	42.92	1.65	44.57	54.00	-9.43	AV
H	34950.00	46.64	4.09	50.73	68.20	-17.47	PK
H	34950.00	41.41	4.09	45.50	54.00	-8.50	AV

Remark:

1. Emission Level = Meter Reading + Factor,
Factor=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.

4.9 Frequency stability

Test Requirement:	47CFR Part 15.407(g)
Test Method:	ANSI C63.10-2020§6.8
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: AC 120V					
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	5179.987	5179.999	5179.999	5179.988
	5190	5189.983	5190.000	5189.990	5190.018
	5200	5199.978	5199.991	5199.998	5200.043
	5210	5209.984	5209.999	5209.990	5210.027
	5220	5219.979	5219.991	5220.011	5220.018
	5230	5229.977	5230.012	5229.989	5230.046
	5240	5239.990	5239.990	5240.007	5240.034
-20	5180	5179.939	5179.999	5179.987	5180.031
	5190	5189.969	5190.000	5189.998	5190.026
	5200	5199.964	5199.991	5199.989	5200.028
	5210	5209.978	5209.999	5209.990	5210.029
	5220	5219.969	5219.991	5219.997	5220.044
	5230	5229.977	5230.012	5230.005	5230.037
	5240	5239.985	5239.990	5239.987	5240.045
-10	5180	5179.977	5179.999	5179.999	5179.995
	5190	5189.978	5190.000	5189.990	5190.025
	5200	5199.969	5199.991	5199.998	5200.030
	5210	5209.977	5209.999	5209.990	5210.034
	5220	5219.969	5219.991	5220.011	5220.025
	5230	5229.990	5230.012	5229.989	5230.033
	5240	5239.968	5239.990	5240.007	5240.041
0	5180	5179.929	5180.002	5180.005	5180.033
	5190	5189.925	5189.998	5189.995	5190.033
	5200	5199.920	5199.993	5200.005	5200.044
	5210	5209.926	5209.999	5209.955	5210.045
	5220	5219.921	5220.004	5220.001	5220.030
	5230	5229.919	5230.008	5230.007	5230.047
	5240	5239.982	5240.008	5240.008	5240.032
10	5180	5179.966	5180.000	5179.999	5180.036
	5190	5189.977	5189.991	5189.990	5190.036
	5200	5199.968	5199.999	5199.998	5200.032
	5210	5209.969	5209.991	5209.990	5210.027
	5220	5219.976	5220.012	5220.011	5220.043
	5230	5229.984	5229.990	5229.989	5230.028
	5240	5239.966	5240.008	5240.007	5240.026
20	5180	5179.987	5179.999	5179.999	5179.988
	5190	5189.983	5190.000	5189.990	5190.018

	5200	5199.978	5199.991	5199.998	5200.043
	5210	5209.984	5299.999	5209.990	5210.027
	5220	5219.979	5219.991	5220.011	5220.018
	5230	5229.977	5230.012	5229.989	5230.046
	5240	5239.950	5239.990	5240.007	5240.034
30	5180	5179.917	5179.997	5179.998	5180.037
	5190	5189.913	5190.011	5189.829	5190.041
	5200	5199.908	5199.994	5199.997	5200.026
	5210	5209.914	5209.997	5209.999	5210.047
	5220	5219.909	5220.012	5220.000	5220.038
	5230	5229.906	5230.005	5229.997	5230.033
	5240	5239.879	5240.013	5240.001	5240.038
40	5180	5179.977	5179.988	5179.999	5180.026
	5190	5189.978	5189.999	5189.990	5190.027
	5200	5199.908	5199.999	5200.007	5200.026
	5210	5209.914	5209.997	5209.999	5210.034
	5220	5219.909	5220.004	5220.000	5220.038
	5230	5229.990	5230.006	5229.989	5230.039
	5240	5239.968	5239.988	5240.007	5240.017
50	5180	5179.939	5179.999	5179.987	5180.041
	5190	5189.969	5190.000	5189.998	5190.026
	5200	5199.984	5199.991	5199.989	5200.038
	5210	5209.914	5210.011	5209.999	5210.038
	5220	5219.909	5220.006	5220.006	5220.039
	5230	5229.906	5230.013	5230.001	5230.037
	5240	5239.979	5240.011	5239.995	5240.038

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)
102V AC	5180	5179.903	5180.012	5179.997	5180.032
	5190	5189.979	5190.002	5189.998	5190.030
	5200	5199.977	5200.004	5199.999	5200.034
	5210	5209.980	5209.989	5209.995	5210.044
	5220	5219.990	5219.997	5219.999	5220.033
	5230	5229.967	5230.002	5229.998	5300.037
	5240	5239.975	5240.011	5240.007	5240.034
120V AC	5180	5179.917	5180.007	5179.998	5180.037
	5190	5189.973	5190.001	5189.999	5190.021
	5200	5199.978	5199.989	5199.997	5200.026
	5210	5209.914	5209.997	5209.973	5210.044
	5220	5219.909	5220.012	5220.000	5220.038
	5230	5229.906	5230.004	5229.997	5230.030
	5240	5239.979	5240.011	5240.001	5240.038
138V AC	5180	5179.987	5180.009	5179.987	5180.015
	5190	5189.983	5190.005	5189.998	5190.026
	5200	5199.978	5200.000	5199.989	5200.016
	5210	5209.984	5210.006	5209.990	5210.018
	5220	5219.979	5220.001	5219.997	5220.025
	5230	5229.977	5229.999	5230.002	5230.048
	5240	5239.980	5240.002	5239.987	5240.015

Frequency stability versus Temp.					
Power Supply:AC 120V					
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	5744.990	5745.001	5745.000	5745.036
	5755	5754.978	5754.997	5755.004	5755.018
	5775	5774.970	5774.996	5775.005	5775.027
	5785	5784.979	5784.999	5785.008	5785.018
	5795	5794.970	5795.010	5794.991	5795.029
	5825	5824.981	5824.991	5824.987	5825.032
-20	5745	5744.884	5744.981	5745.001	5745.019
	5755	5754.909	5754.997	5755.003	5755.045
	5775	5774.889	5774.996	5775.006	5775.041
	5785	5784.898	5784.999	5784.998	5785.025
	5795	5794.976	5795.010	5794.989	5795.014
	5825	5824.981	5824.991	5824.998	5825.028
-10	5745	5744.970	5744.992	5744.985	5745.033
	5755	5754.977	5754.999	5755.010	5755.028
	5775	5774.969	5774.996	5774.991	5775.032
	5785	5784.961	5784.992	5785.000	5785.033
	5795	5794.968	5794.988	5794.998	5795.036
	5825	5824.977	5824.991	5825.008	5825.037
0	5745	5744.964	5744.991	5744.991	5745.038
	5755	5754.974	5754.998	5754.998	5755.037
	5775	5774.985	5774.990	5775.002	5775.028
	5785	5784.971	5784.982	5784.991	5785.025
	5795	5794.967	5794.989	5794.987	5795.043
	5825	5824.965	5824.998	5824.990	5825.035
10	5745	5744.961	5745.002	5744.985	5745.029
	5755	5754.976	5755.004	5755.010	5755.043
	5775	5774.975	5775.007	5774.991	5775.028
	5785	5784.978	5784.999	5785.000	5785.015
	5795	5794.988	5794.990	5794.998	5795.009
	5825	5824.970	5824.999	5825.008	5825.043
20	5745	5744.981	5744.991	5745.001	5745.018
	5755	5754.983	5755.008	5755.005	5755.037
	5775	5774.980	5775.009	5775.000	5775.017
	5785	5784.967	5784.991	5784.987	5785.044
	5795	5794.961	5795.008	5794.981	5795.036
	5825	5824.987	5825.006	5824.951	5825.045
30	5745	5744.960	5745.002	5744.985	5745.037
	5755	5754.976	5755.004	5755.010	5755.043
	5775	5774.975	5775.007	5774.991	5775.028
	5785	5784.978	5784.999	5785.000	5785.015
	5795	5794.989	5794.990	5794.998	5795.009
	5825	5824.970	5824.999	5825.008	5825.043
40	5745	5744.971	5744.991	5744.985	5745.013
	5755	5754.978	5755.008	5755.010	5755.038
	5775	5774.970	5775.009	5774.991	5775.019
	5785	5784.962	5784.991	5785.000	5785.028

50	5795	5794.969	5795.008	5794.998	5795.026
	5825	5824.988	5825.006	5825.008	5825.036
	5745	5744.965	5744.991	5744.990	5745.019
	5755	5754.990	5755.008	5754.997	5755.026
	5775	5774.971	5775.009	5774.989	5775.043
	5785	5784.980	5784.991	5784.981	5785.019
	5795	5794.978	5795.008	5794.988	5795.015
	5825	5824.988	5825.006	5824.917	5825.018

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)
102V AC	5745	5744.980	5745.001	5745.001	5745.033
	5755	5754.976	5754.998	5755.007	5755.038
	5775	5774.975	5774.990	5775.008	5775.019
	5785	5784.978	5784.982	5784.990	5785.028
	5795	5794.989	5794.989	5795.008	5795.026
	5825	5824.970	5825.008	5825.005	5825.036
120V AC	5745	5744.960	5745.002	5744.985	5745.029
	5755	5754.976	5755.004	5755.010	5755.043
	5775	5774.975	5775.007	5774.991	5775.028
	5785	5784.978	5784.999	5785.000	5785.015
	5795	5794.985	5794.990	5794.998	5795.009
	5825	5824.970	5824.999	5825.008	5825.043
138V AC	5745	5744.890	5744.999	5745.001	5745.046
	5755	5754.977	5755.011	5755.005	5755.034
	5775	5774.983	5774.995	5775.000	5775.044
	5785	5784.989	5785.995	5784.987	5785.040
	5795	5794.988	5794.990	5794.998	5795.009
	5825	5824.970	5824.999	5825.008	5825.043

5 Test Setup Photo

Reference to the file No.: ET-26010206SP for details.

6 EUT Constructional Details

Reference to the file No.: ET-26010206EP and ET-26010206IP for details

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