



# TEST REPORT

Applicant: HK NOMI LIMITED  
Address of Applicant: FLAT/RM 1406B 14/F THE BELGIAN BANK BUILDING NOS 721-725 NATHAN ROAD MONGKOK KL  
Manufacturer: Daxinkai (Shenzhen) Electronic Technology Co. Ltd  
Address of Manufacturer: Room 402, Building 1, No. 349, Pinglong East Road, Pinghu Street, Longgang District, Shenzhen City  
Product Name: MiniPC  
Model No.: MID3  
Trade Mark: KTHIN  
FCC ID: 2BP97-MID3  
Applicable standards: CFR Title 47 Part 15.407  
Date of Test: Jun.09, 2025-Jun.30, 2025  
Date of report issued: Jul.03, 2025

*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*

## Prepared By

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<b>Report Revision History</b>		
<b>Report No.</b>	<b>Description</b>	<b>Issue Date</b>
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# 1 Test Summary

Test Item	Section	Result	Test by
Antenna requirement	47CRF part 15.203	Pass	/
AC Power Line Conducted Emission	47CRF part 15.207	Pass	Jason Huang
Conducted Output Power	47CRF part 15.407 (a)(1)/(a)(3)	Pass	Kara Wu
26dB Bandwidth and 99% Occupied Bandwidth	47CRF part 15.407 (a)(12)	Pass	Kara Wu
6dB Bandwidth	47CRF part 15.407 (e)	Pass	Kara Wu
Power Spectral Density	47CRF part 15.407(a)(1)/(a)(3)	Pass	Kara Wu
Band Edge	47CRF part 15.407(b)(1)/(b)(4)	Pass	Kara Wu
Spurious Emission	47CRF part 15.205/15.209 47CRF part 15.407(b)(1)/(b)(4)/(b)(8)	Pass	Jason Huang
Frequency Stability	47CRF 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 C63.10:2013 and 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"*

**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:	MiniPC
Model No.:	MID3
Difference of model(s)	N/A
Test Model:	MID3
Hardware Version:	V21
Software Version:	2.22.1289
Sample(s) Status:	Engineer sample
Operation Frequency:	<input checked="" type="checkbox"/> 5180-5240MHz for 802.11a/n20/ac20; 5190-5230MHz for 802.11n40/ac40; 5210MHz for 802.11ac80 <input checked="" type="checkbox"/> 5745-5825 MHz for 802.11a/n20/ac20; 5755-5795 MHz for 802.11n40)ac40; 5775MHz for 802.11 ac80
Channel numbers:	<input checked="" type="checkbox"/> 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 ; <input checked="" type="checkbox"/> 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/802.11n20/ 802.11ac20/ : 20MHz 802.11n(HT40)/ 802.11ac40 : 40MHz 802.11ac(VHT80) : 80MHz
Data Rate	802.11a: 6,9,12,18,24,36,48,54Mbps; 802.11n(20/40):MCS0-MCS15; 802.11ac(20/40/80):NSS1, MCS0-MCS9
Modulation technology:	Orthogonal Frequency Division Multiplexing (OFDM) with BPSK/QPSK/16QAM/64QAM/256QAM/1024QAM
Antenna Type:	FPCB antenna
Antenna gain:	5.45 dBi (Note: Antenna information is provided by applicant, Testing lab is not responsible for the accuracy of the information.)
Power supply:	20VDC from adapter with 100-240Vac
Battery	N/A
Adapter Model:	Model: GQ100APD01-ZU Input:100-240Vac 1.5a Output: 20V 5A

For more details, refer to the user's manual of the EUT.



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 /n20/ac20/	802.11 n40/ac40/	802.11ac80
Lowest channel	5180	5190	5210
Middle channel	5200	<del>5230</del>	<del>5240</del>
Highest channel	5240	5230	<del>5210</del>

Test channel	Frequency (MHz)		
	802.11 a /n20/ac20	802.11 n40/ac40	802.11ac80
Lowest channel	5745	5755	5775
Middle channel	5785	<del>5795</del>	<del>5805</del>
Highest channel	5825	5795	<del>5775</del>

## 2.2 Test mode

Transmitting mode	Keep the EUT in continuously transmitting mode(or with max duty cycle.)
<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 20CH36/CH40/CH48 802.11a / n 20/ac 20CH149/CH157/CH165
Mode 2	802.11n40/CH38/CH46 802.11n 40CH 151/CH159
Mode 3	802.11 ac80 CH 42/CH155
Mode 4	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/ac20CH36/ CH40/ CH 48 802.11a/n 20/ac 20CH149/ CH157/ CH165
Mode 2	802.11n40CH38/ CH46 802.11n40CH 151/CH159
Mode 3	802.11 ac80 CH 42/CH155

Note: 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	mouse	DELL	MS116	/
2	keyboard	DELL	KB216t	/
3	Monitor	SKYWORTH	2BU1	/
4	Earphone	Feilida	i6	/

## 2.4 Test Facility

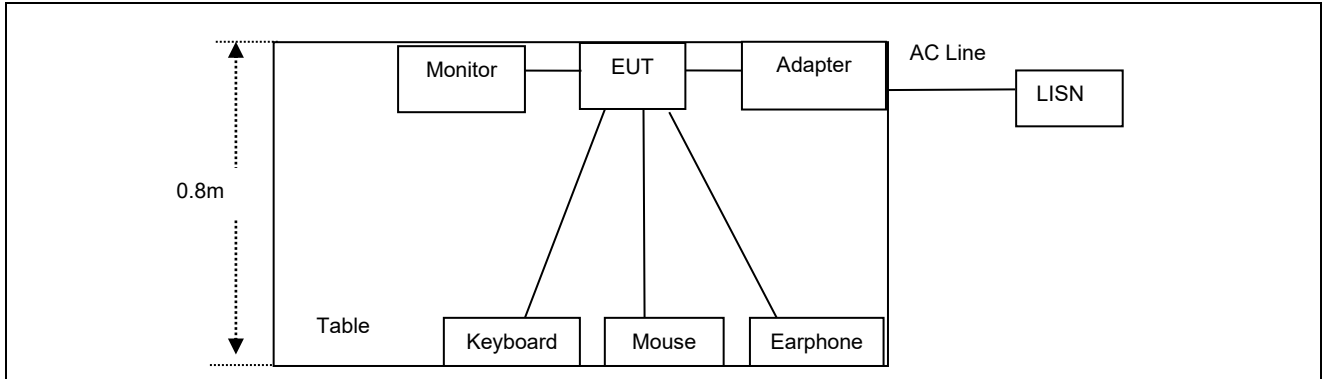
Test laboratory:	Shenzhen ETR Standard Technology Co., Ltd.
CNAS Registration Number:	L11864
A2LA Certificate Number:	6640.01
FCC Designation Number:	CN1326
FCC Test Firm Registration:	183064
IC Company Number:	28440
IC CAB identifier:	CN0132
Laboratory location:	No.103, No.10, Phase I, Zone 3, Xinxing Industrial Park, Xinhe, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

## 2.5 Additional Instructions

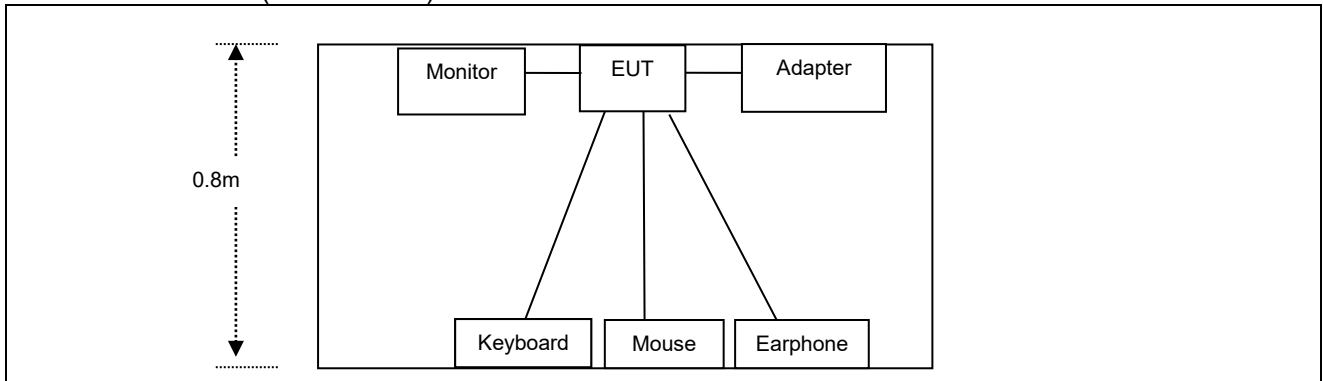
Test Software	DRTU.EXE(VERSION:0.0.0.0)
Power level setup	Default

## 2.6 Block diagram displaying the configuration of the tested system

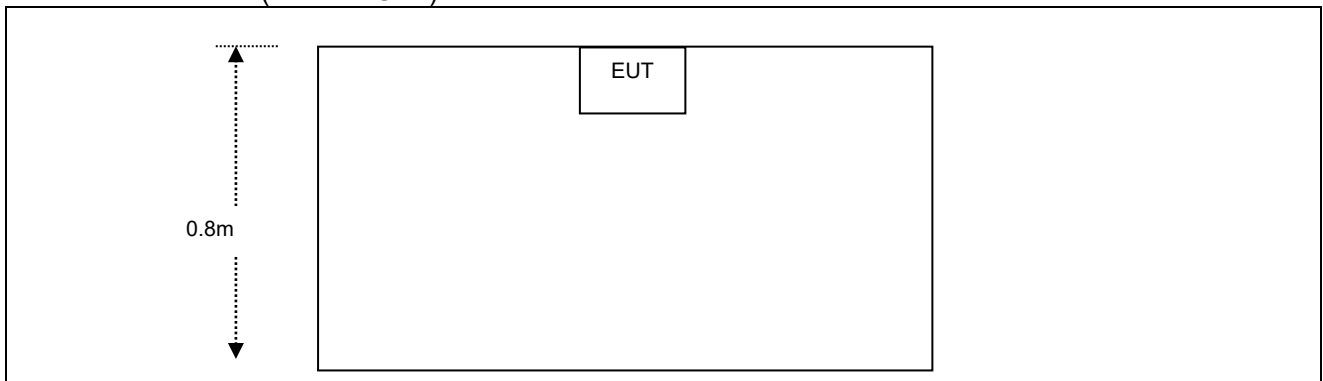
Conducted emission



Radiated emission (Below 1GHz)



Radiated emission (Above 1GHz)







### 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	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+SUNNER	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	ESCI7	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-Dtronics	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).

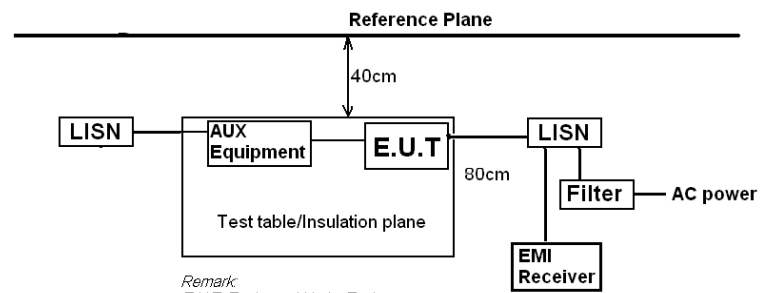
Software Name	Manufacturer	Model	Version
RF test software	MWRftest	MTS 8310	V2.0.0.0
Conducted test software	EZ-EMC	Farad	Ver.EMC-CON 3A1.1
Radiated test software	EZ-EMC	Farad	Ver.FA-03A2 RE

## 4 Test results and Measurement Data

### 4.1 Antenna requirement

<b>Standard requirement:</b>	47CRF Part 15.203
<b>15.203 requirement:</b>	<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>
<b>EUT Antenna:</b>	The antenna is FPCB antenna, the best case gain of the is 5.45dBi, reference to the Internal photos for details.

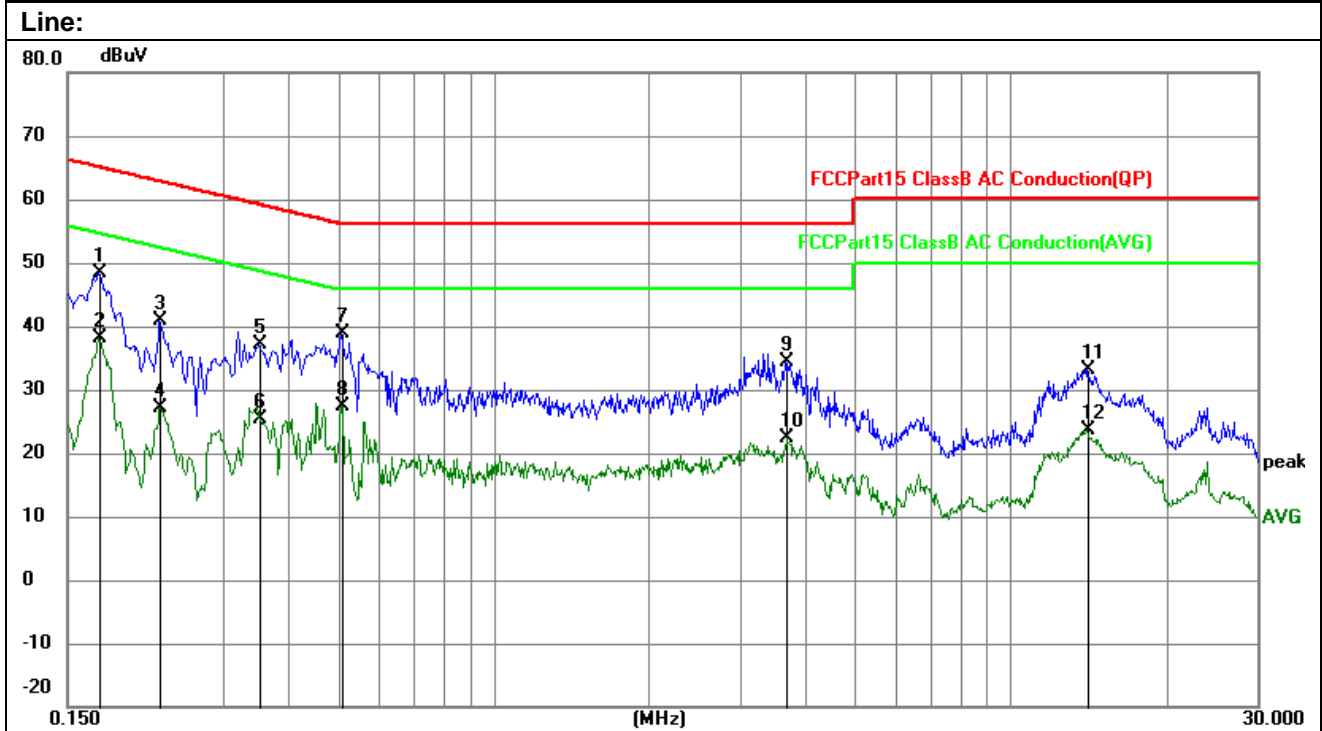
### 4.2 Conducted Emissions

Test Requirement:	47CRF Part 15.207					
Test Method:	ANSI C63.10:2013					
Test Frequency Range:	150KHz to 30MHz					
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:	 <p style="text-align: center;"> <i>Remark</i>  <i>E.U.T: Equipment Under Test</i>  <i>LISN: Line Impedance Stabilization Network</i>  <i>Test table height=0.6m</i> </p>					
Test procedure:	<ol style="list-style-type: none"> <li>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.</li> <li>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).</li> <li>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.</li> </ol>					
Test Instruments:	Refer to section 3.0 for details					
Test mode:	Refer to section 2.2 for details					
Test environment:	Temp.:	26.4°C	Humid.:	51%	Press.:	1012mbar
Test voltage:	AC 120V 60Hz					
Test results:	Pass					

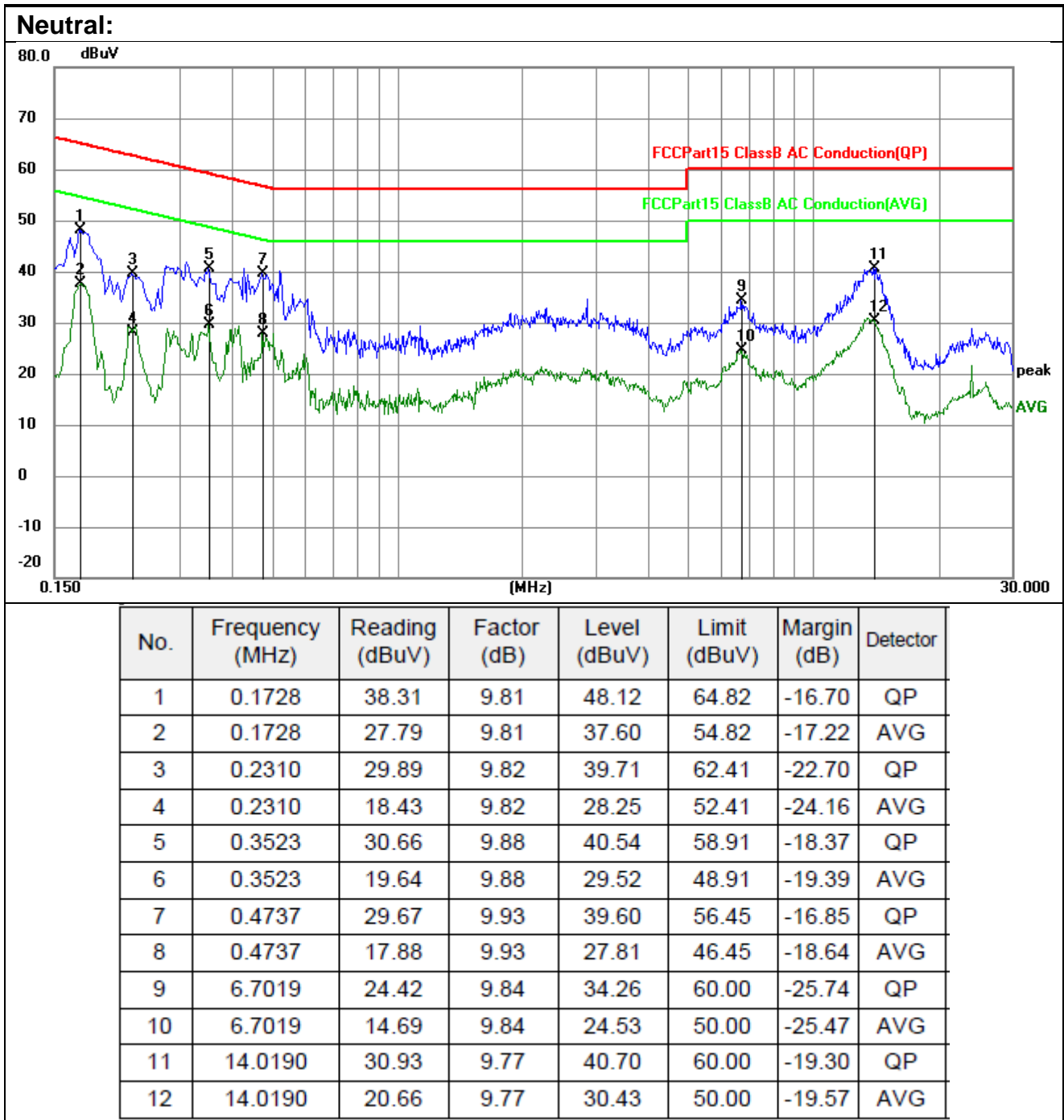
**Remark:**

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 (802.11n20 5785MHz)

**Measurement Result**



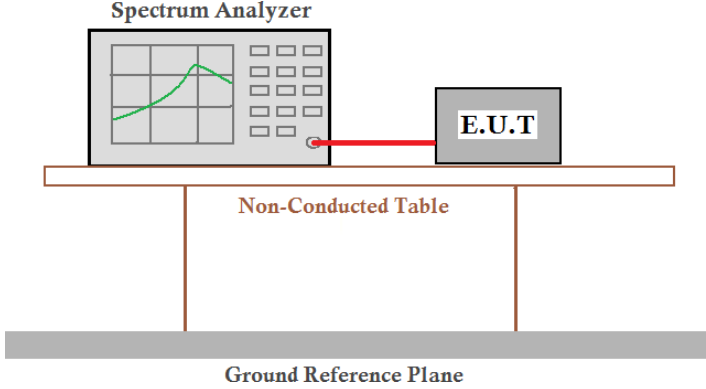
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1723	38.61	9.81	48.42	64.85	-16.43	QP
2	0.1723	28.41	9.81	38.22	54.85	-16.63	AVG
3	0.2265	31.02	9.82	40.84	62.58	-21.74	QP
4	0.2265	17.23	9.82	27.05	52.58	-25.53	AVG
5	0.3523	27.18	9.88	37.06	58.91	-21.85	QP
6	0.3523	15.59	9.88	25.47	48.91	-23.44	AVG
7	0.5100	28.95	9.94	38.89	56.00	-17.11	QP
8	0.5100	17.46	9.94	27.40	46.00	-18.60	AVG
9	3.6644	24.48	9.84	34.32	56.00	-21.68	QP
10	3.6644	12.62	9.84	22.46	46.00	-23.54	AVG
11	14.0862	23.44	9.77	33.21	60.00	-26.79	QP
12	14.0862	13.88	9.77	23.65	50.00	-26.35	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:	 <p>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.</p>	
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.: 63%RH
Test voltage:	20V DC	
Test results:	Pass	



**Measurement Result**

5180-5240MHz

Mode	Duty cycle (%)	Correction Factor (dB)
TX 802.11a Mode	87.50	0.58
TX 802.11n20 Mode	87.50	0.58
TX 802.11ac20 Mode	81.99	0.86
TX 802.11n40 Mode	80.45	0.94
TX 802.11a40 Mode	80.45	0.94
TX 802.11ac80 Mode	72.13	1.42

5745-5825 MHz

Mode	Duty cycle (%)	Correction Factor (dB)
TX 802.11a Mode	92.59	0.33
TX 802.11n20 Mode	76.00	1.19
TX 802.11ac20 Mode	93.75	0.28
TX 802.11n40 Mode	66.67	1.76
TX 802.11ac40 Mode	62.50	2.04
TX 802.11ac80 Mode	73.91	1.31





Test plot

5180-5240MHz

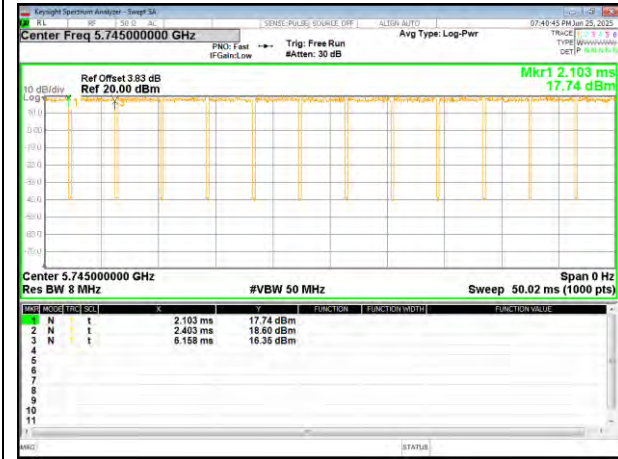




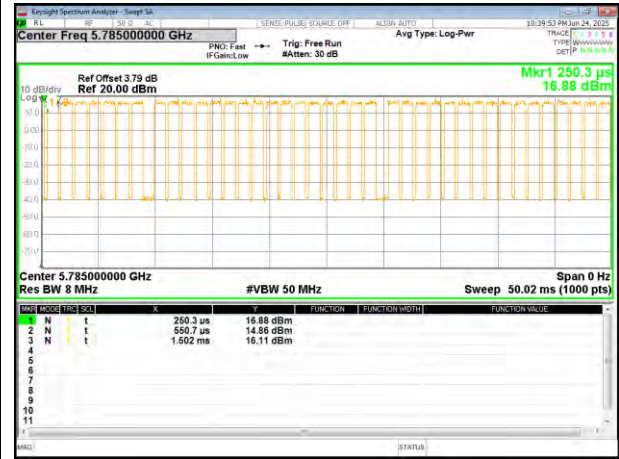


5745-5825 MHz

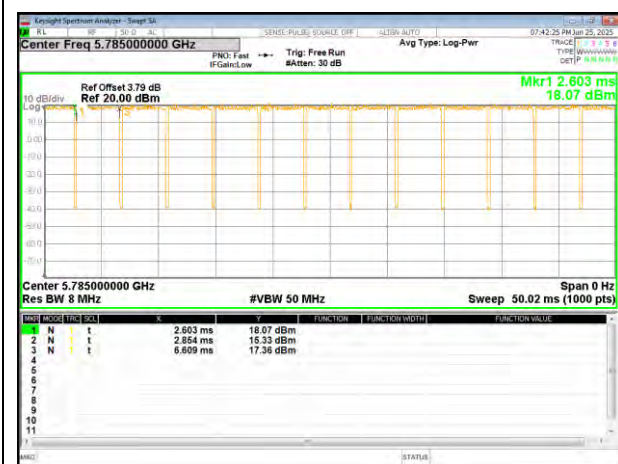
(802.11a) plot



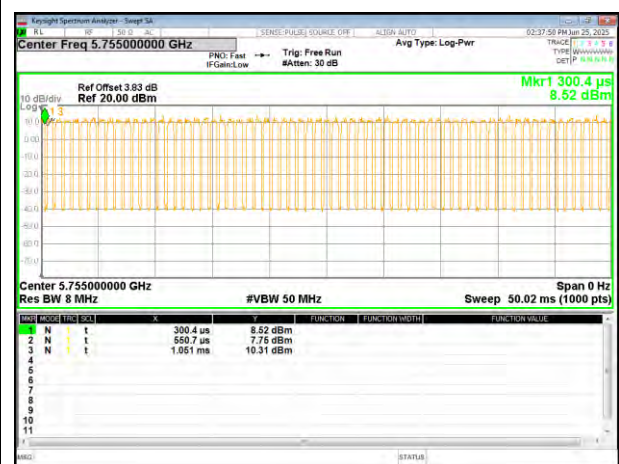
(802.11 n20) plot



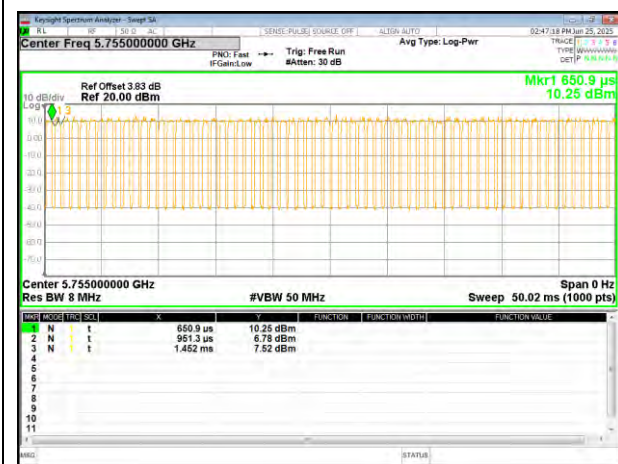
(802.11ac20) plot



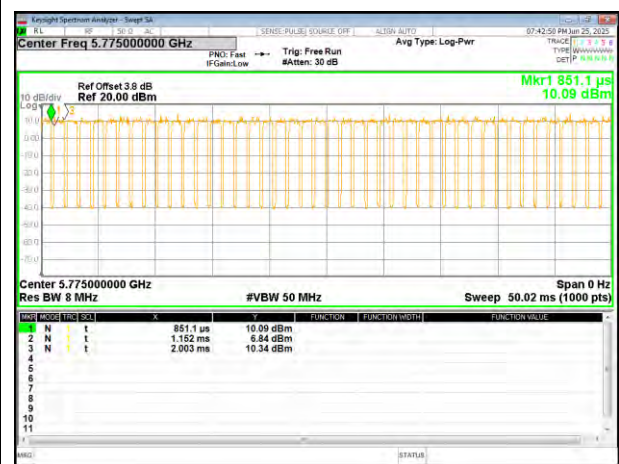
(802.11 n40) plot



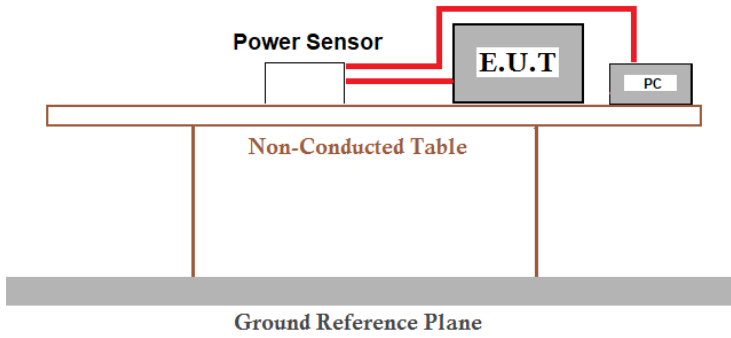
(802.11 ac40) plot



(802.11 ac80) plot



#### 4.4 Conducted Output Power

Test Requirement:	47CRF Part 15.407 (a)(1)/(a)(3)	
Test Method:	KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 ANSI C63.10-2013	
Limit:	5150-5250MHz : 250mW 5725~5850MHz : 1W	
Test setup:	 <p>The diagram illustrates the test setup. A Power Sensor is connected to an E.U.T. (Equipment Under Test) and a PC. The E.U.T. and PC are placed on a Non-Conducted Table, which is supported by a Ground Reference Plane.</p>	
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.: 63%RH
Test voltage:	20V DC	
Test results:	Pass	



Measurement Result

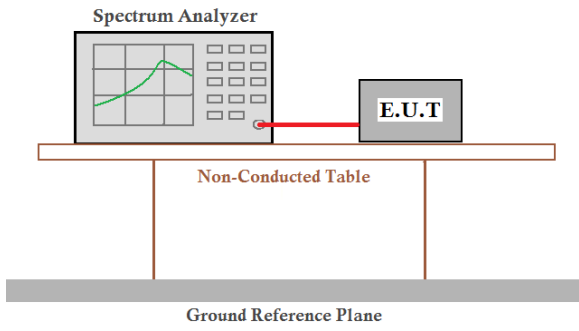
5180-5240MHz

Test Channel	Frequency	Correction Factor	Maximum output power	Total Power	LIMIT	Result
	(MHz)	(dB)	(dBm)	(dBm)	dBm	
TX 802.11a Mode						
CH36	5180	0.58	14.95	15.53	23.98	Pass
CH40	5200	0.58	14.57	15.15	23.98	Pass
CH48	5240	0.58	14.71	15.29	23.98	Pass
TX 802.11 n20 Mode						
CH36	5180	0.58	14.62	15.20	23.98	Pass
CH40	5200	0.58	14.39	14.97	23.98	Pass
CH48	5240	0.58	14.29	14.87	23.98	Pass
TX 802.11 ac20 Mode						
CH36	5180	0.86	14.49	15.35	23.98	Pass
CH40	5200	0.86	14.20	15.06	23.98	Pass
CH48	5240	0.86	14.24	15.10	23.98	Pass
TX 802.11 n40 Mode						
CH38	5190	0.94	13.96	14.90	23.98	Pass
CH46	5230	0.94	13.50	14.44	23.98	Pass
TX 802.11 ac40 Mode						
CH38	5190	0.94	13.00	13.94	23.98	Pass
CH46	5230	0.94	13.34	14.28	23.98	Pass
TX 802.11 ac80 Mode						
CH42	5210	1.42	12.62	14.04	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	0.33	14.49	14.82	30	Pass
CH157	5785	0.33	14.47	14.80	30	Pass
CH165	5825	0.33	14.76	15.09	30	Pass
TX 802.11 n20 Mode						
CH149	5745	1.19	14.39	15.58	30	Pass
CH157	5785	1.19	14.65	15.84	30	Pass
CH165	5825	1.19	14.15	15.34	30	Pass
TX 802.11 ac20 Mode						
CH149	5745	0.28	14.35	14.63	30	Pass
CH157	5785	0.28	14.76	15.04	30	Pass
CH165	5825	0.28	14.49	14.77	30	Pass
TX 802.11 n40 Mode						
CH151	5755	1.76	13.07	14.83	30	Pass
CH159	5795	1.76	13.36	15.12	30	Pass
TX 802.11 ac40 Mode						
CH151	5755	2.04	13.31	15.35	30	Pass
CH159	5795	2.04	13.48	15.52	30	Pass
TX 802.11 ac80 Mode						
CH155	5775	1.31	12.80	14.11	30	Pass

### 4.5 Bandwidth

Test Requirement:	47CRF Part 15.407(a)(12)&15.407(e),	
Test Method:	KDB 789033 D02 General U-NII Test Procedures New Rules v02r01, ANSI C63.10:2013	
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.: 63%RH
Test voltage:	20V DC	
Test results:	Pass	

### Measurement Result

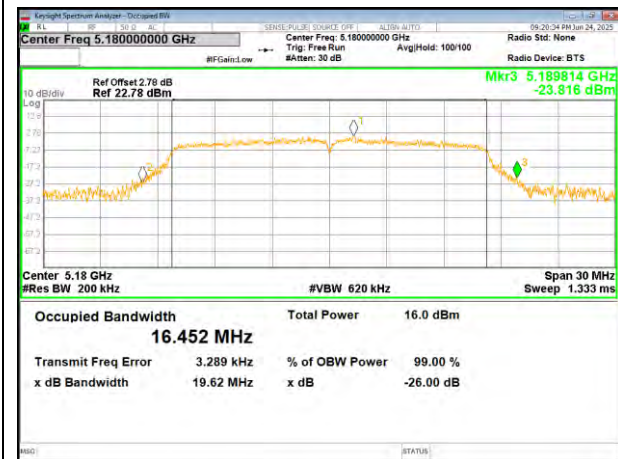
5180-5240MHz

Test CH	-26dB Channel Bandwidth (MHz)						Result
	802.11a	802.11n20	802.11ac20	802.11n40	802.11ac40	802.11ac80	
Lowest	19.62	19.80	19.69	40.11	39.63	--	Pass
Middle	20.09	20.23	19.75	--	--	80.47	
Highest	19.86	19.88	19.89	39.83	39.90	--	

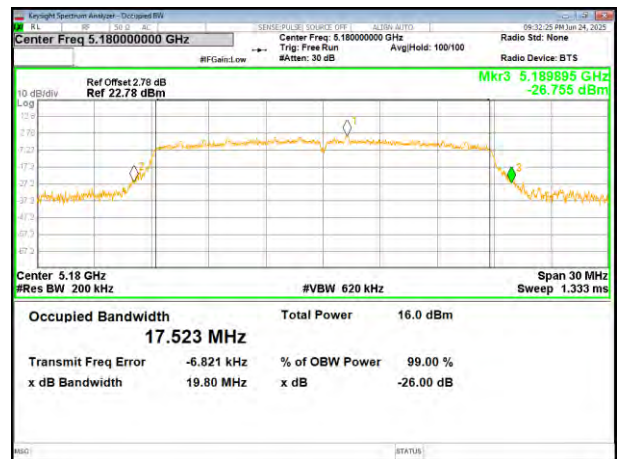
Remark: "--"is not applicable



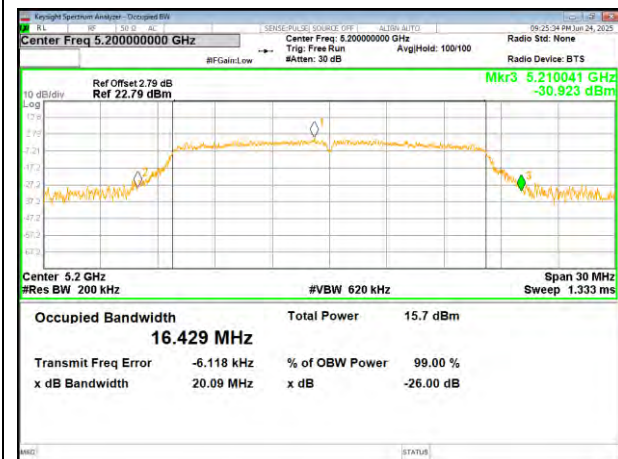
(802.11a) plot on channel 36



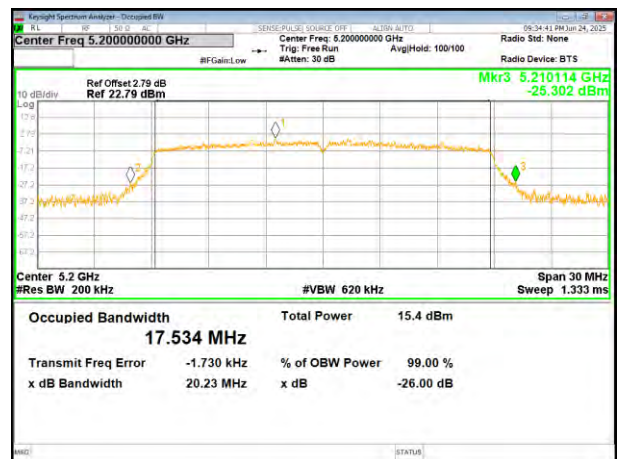
(802.11 n20) plot on channel 36



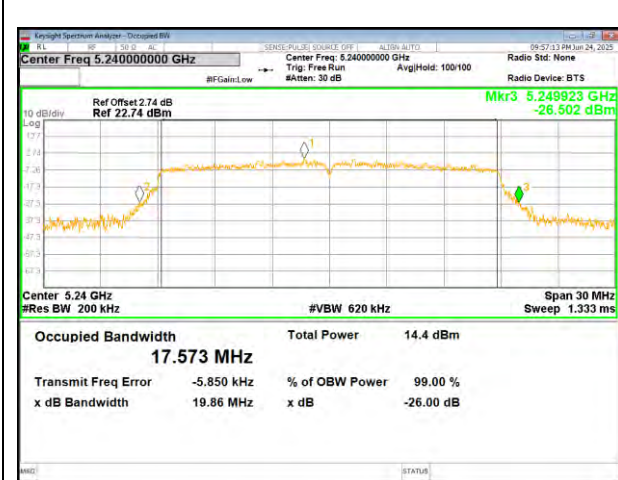
(802.11a) plot on channel 40



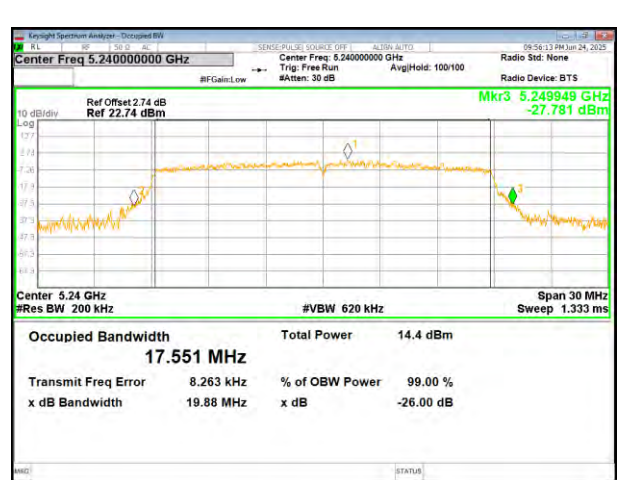
(802.11 n20) plot on channel 40



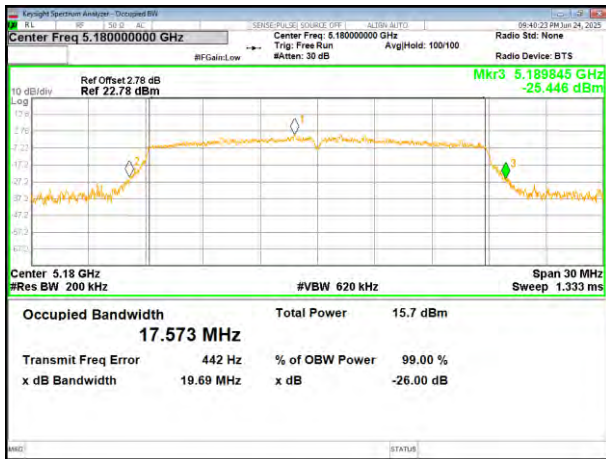
(802.11a) plot on channel 48



(802.11 n20) plot on channel 48



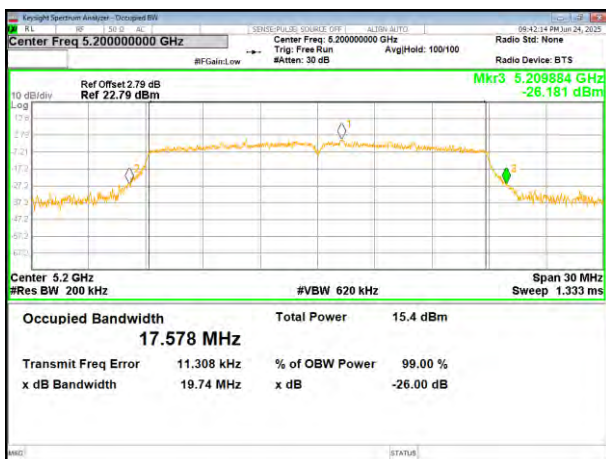
(802.11ac20) plot on channel 36



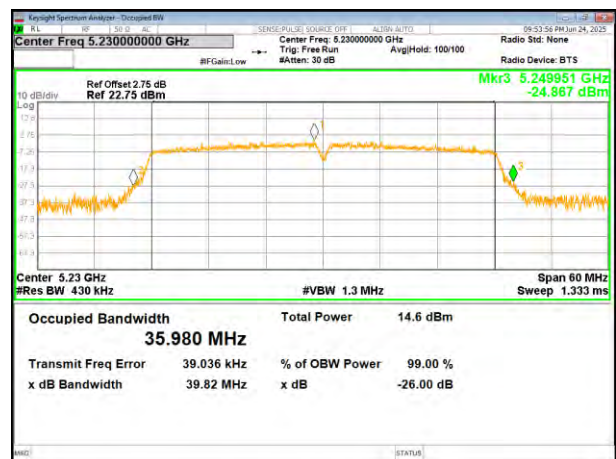
(802.11n40) plot on channel 38



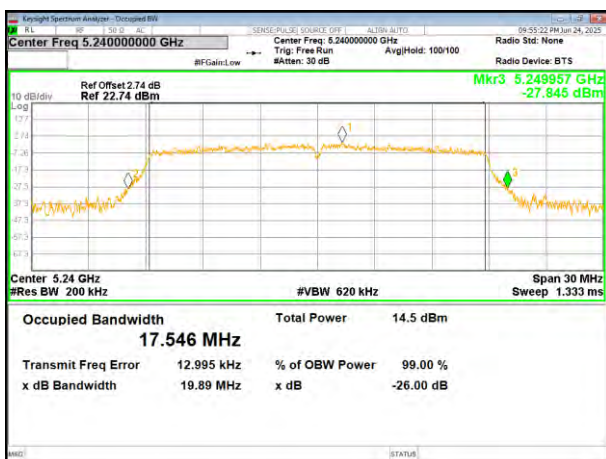
(802.11ac20) plot on channel 40



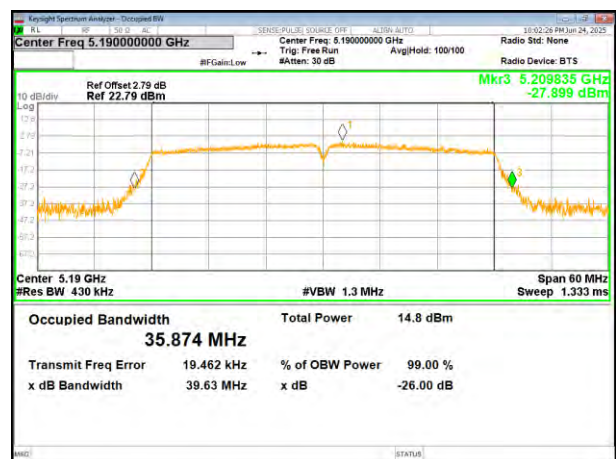
(802.11n40) plot on channel 46

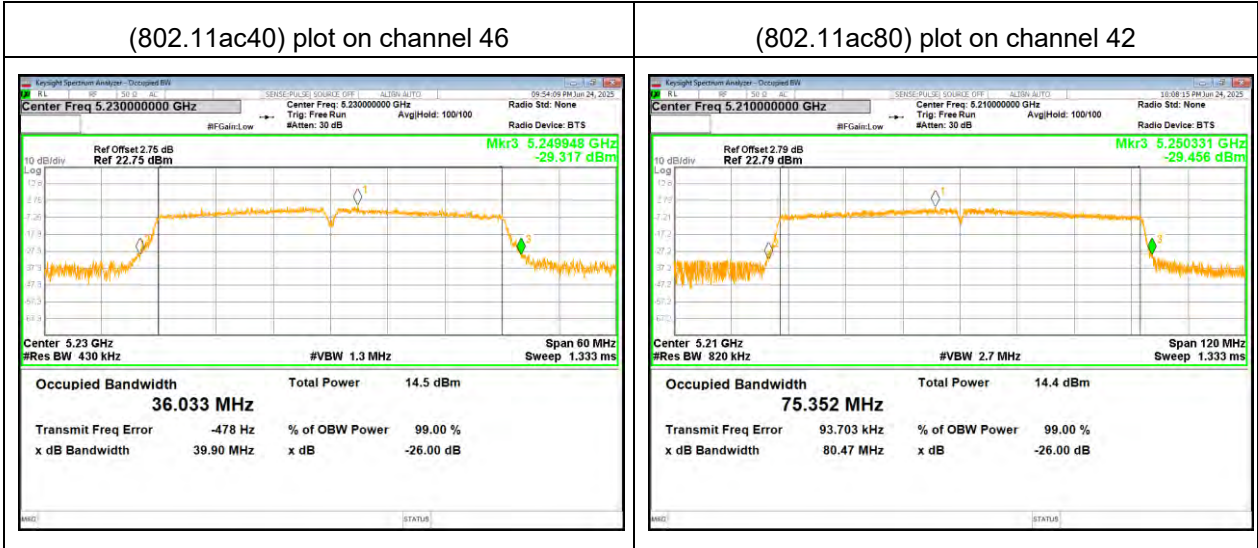


(802.11ac20) plot on channel 48



(802.11ac40) plot on channel 38







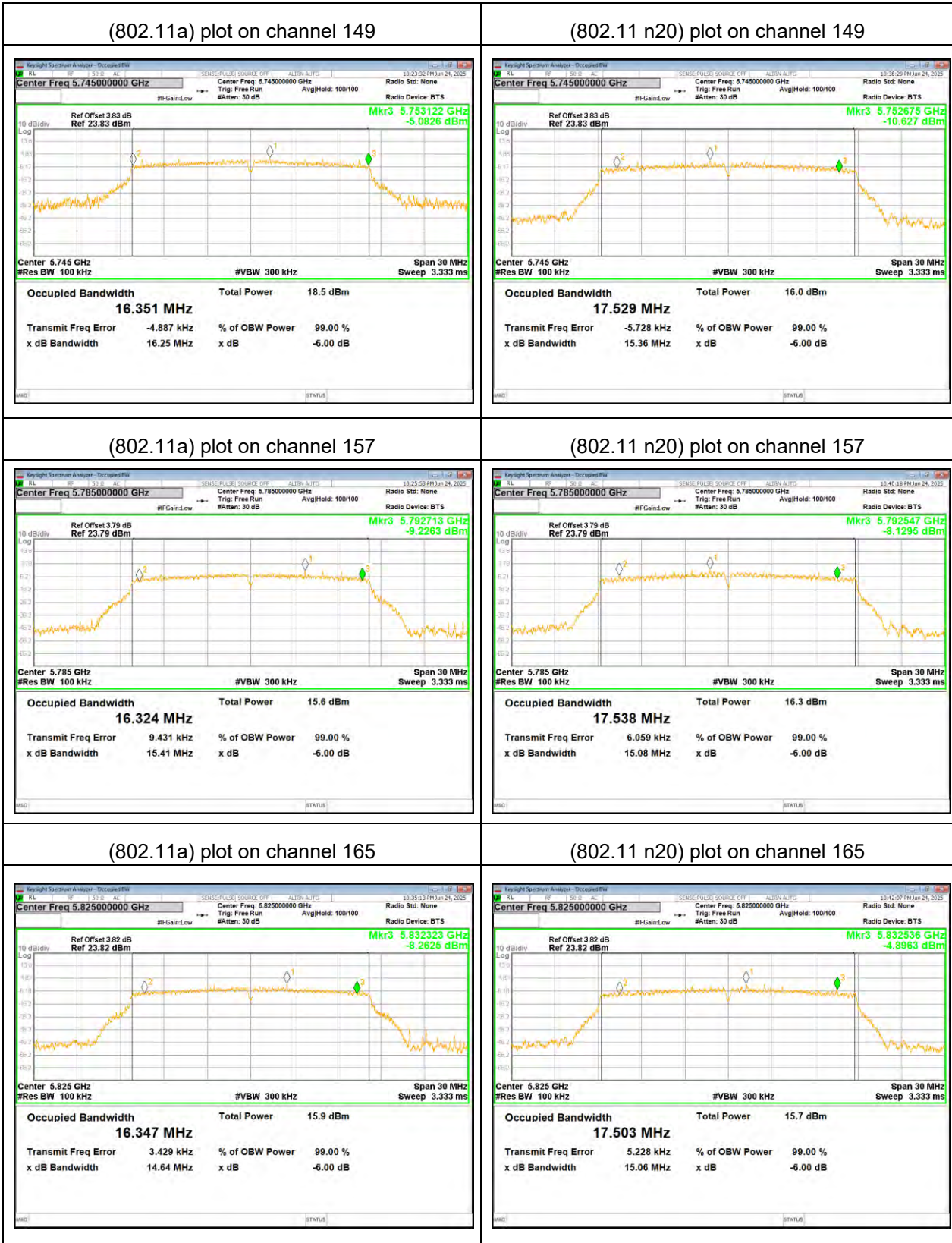
5745-5825MHz

Test CH	-6dB Channel Bandwidth (MHz)						Limit (KHz)	Result
	802.11a	802.11n 20	802.11ac 20	802.11n 40	802.11ac 40	802.11ac 80		
Lowest	16.25	15.36	15.06	33.85	33.85	--	>500	Pass
Middle	15.41	15.08	14.12	--	--	75.07		
Highest	14.64	15.06	16.94	35.10	33.81	--		

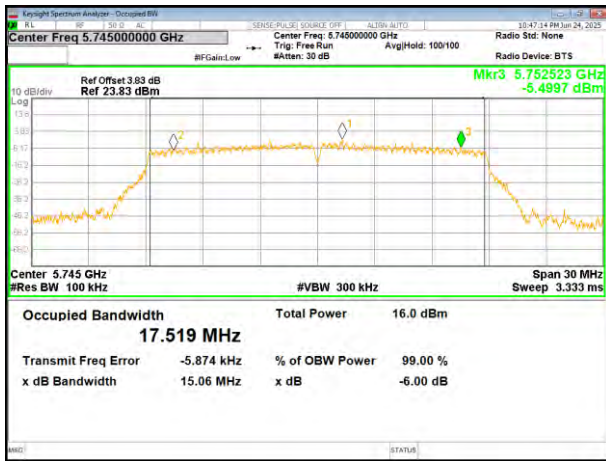
Remark: "--" is not applicable



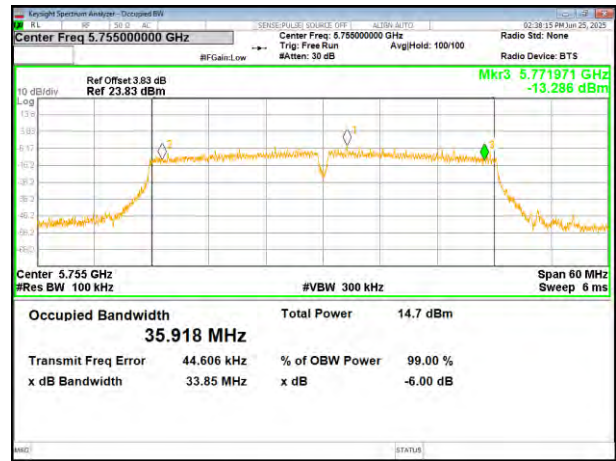
**Test plot -6dB Channel Bandwidth**



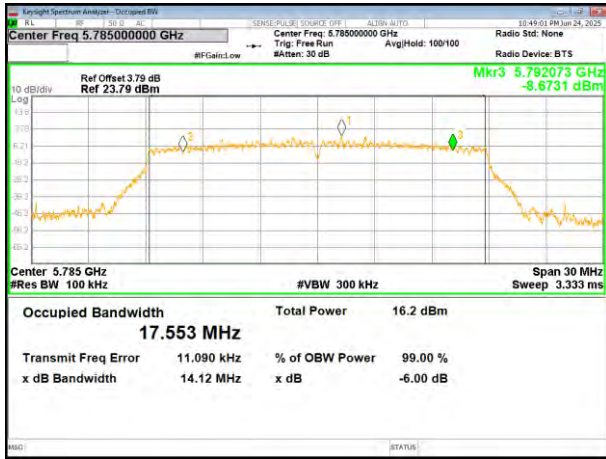
(802.11ac20) plot on channel 149



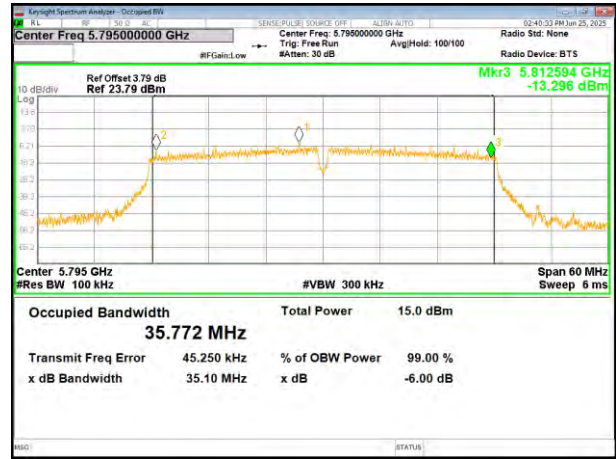
(802.11 n40) plot on channel 151



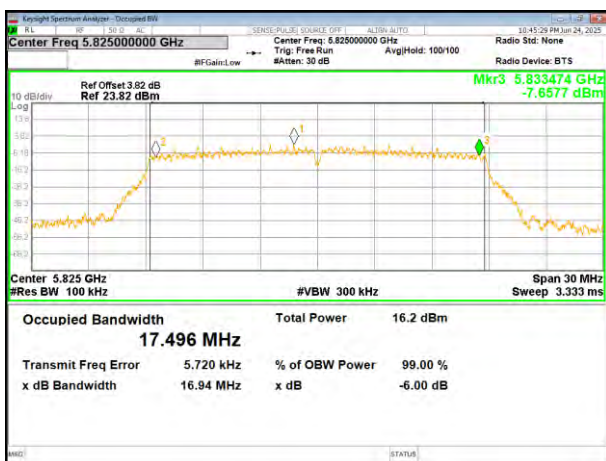
(802.11ac20) plot on channel 157



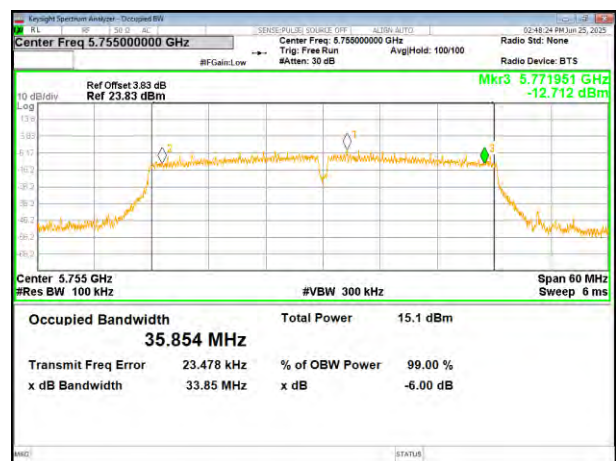
(802.11 n40) plot on channel 159

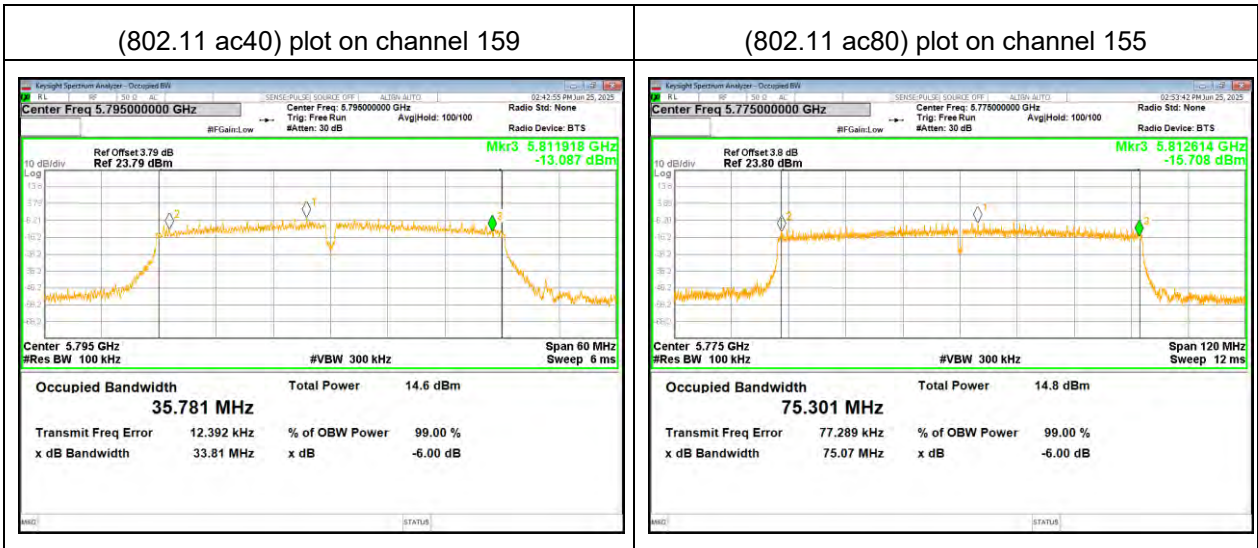


(802.11ac20) plot on channel 165



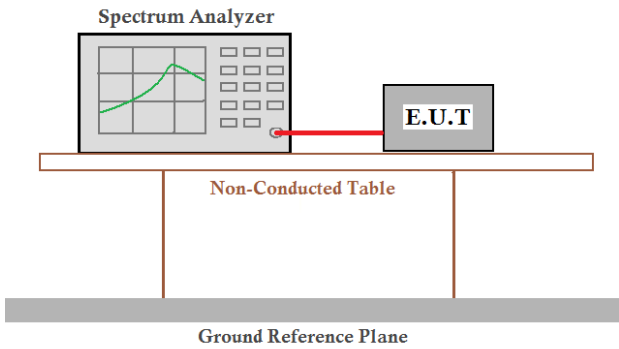
(802.11 ac40) plot on channel 151







### 4.6 Power Spectral Density

Test Requirement:	47CRF Part 15.407(a)(1)/ (a)(3)	
Test Method:	KDB 789033 D02 General U-NII Test Procedures New Rules v02r01, ANSI C63.10:2013	
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:	 <p>The diagram illustrates the test setup. A Spectrum Analyzer is connected via a red cable to an E.U.T. (Equipment Under Test). Both are placed on a Non-Conducted Table. Below the table is a Ground Reference Plane.</p>	
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.: 63%RH
Test voltage:	20V DC	
Test results:	Pass	

**Measurement Result See next page**

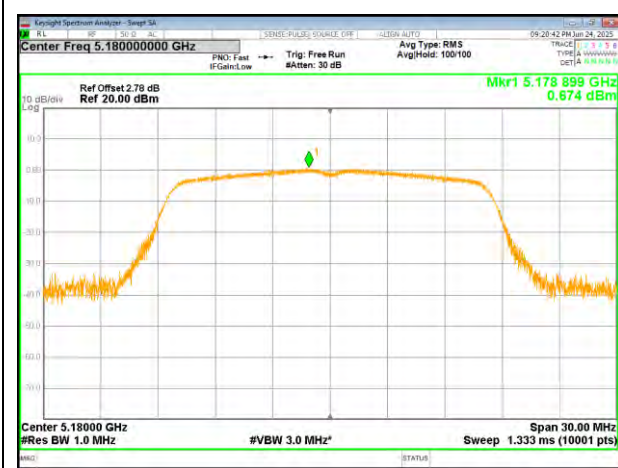


**5180-5240MHz**

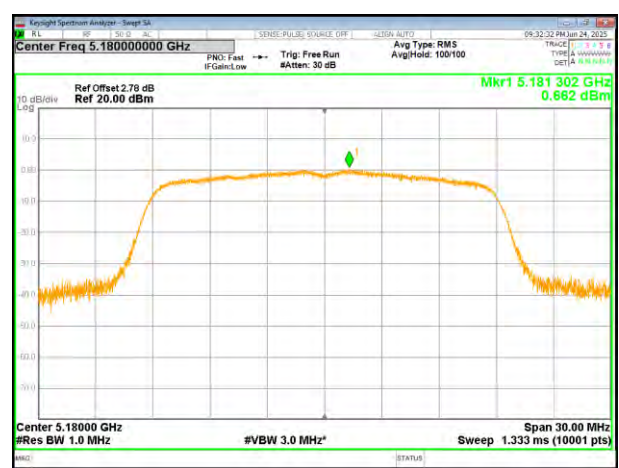
Mode	Frequency	Measured Power Density (dBm/MHz)	Correction Factor (dB)	Total Measured Power Density (dBm/MHz)	Limit (dBm/MHz)
802.11 a	5180 MHz	0.674	0.58	1.254	11
	5200 MHz	0.349	0.58	0.929	11
	5240 MHz	0.423	0.58	1.003	11
802.11 n20	5180 MHz	0.662	0.58	1.242	11
	5200 MHz	-0.273	0.58	0.307	11
	5240 MHz	-0.616	0.58	-0.036	11
802.11 ac20	5180 MHz	-0.374	0.86	0.486	11
	5200 MHz	-0.906	0.86	-0.046	11
	5240 MHz	-0.464	0.86	0.396	11
802.11 n40	5190 MHz	-4.172	0.94	-3.232	11
	5230 MHz	-4.871	0.94	-3.931	11
802.11 ac40	5190 MHz	-4.602	0.94	-3.662	11
	5230 MHz	-4.717	0.94	-3.777	11
802.11 ac80	5210 MHz	-8.408	1.42	-6.988	11



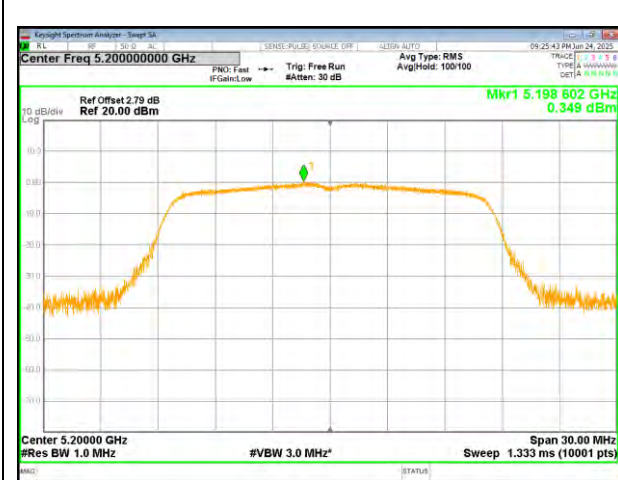
(802.11a) PSD plot on channel 36



(802.11n20) PSD plot on channel 36



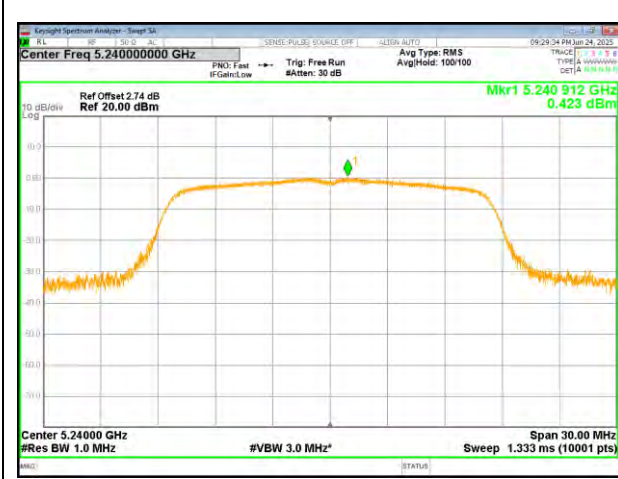
(802.11a) PSD plot on channel 40



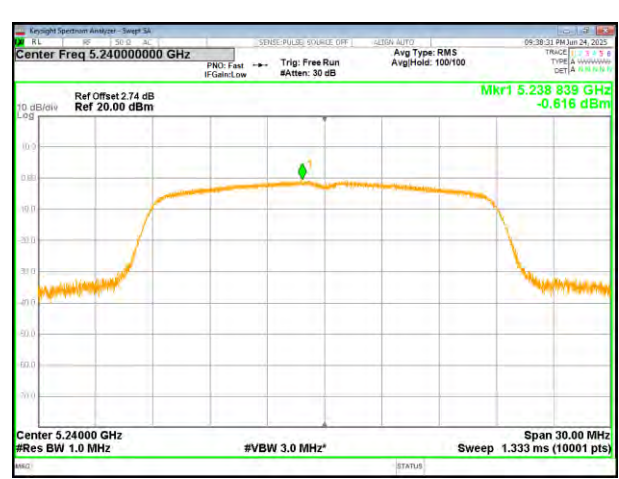
(802.11n20) PSD plot on channel 40

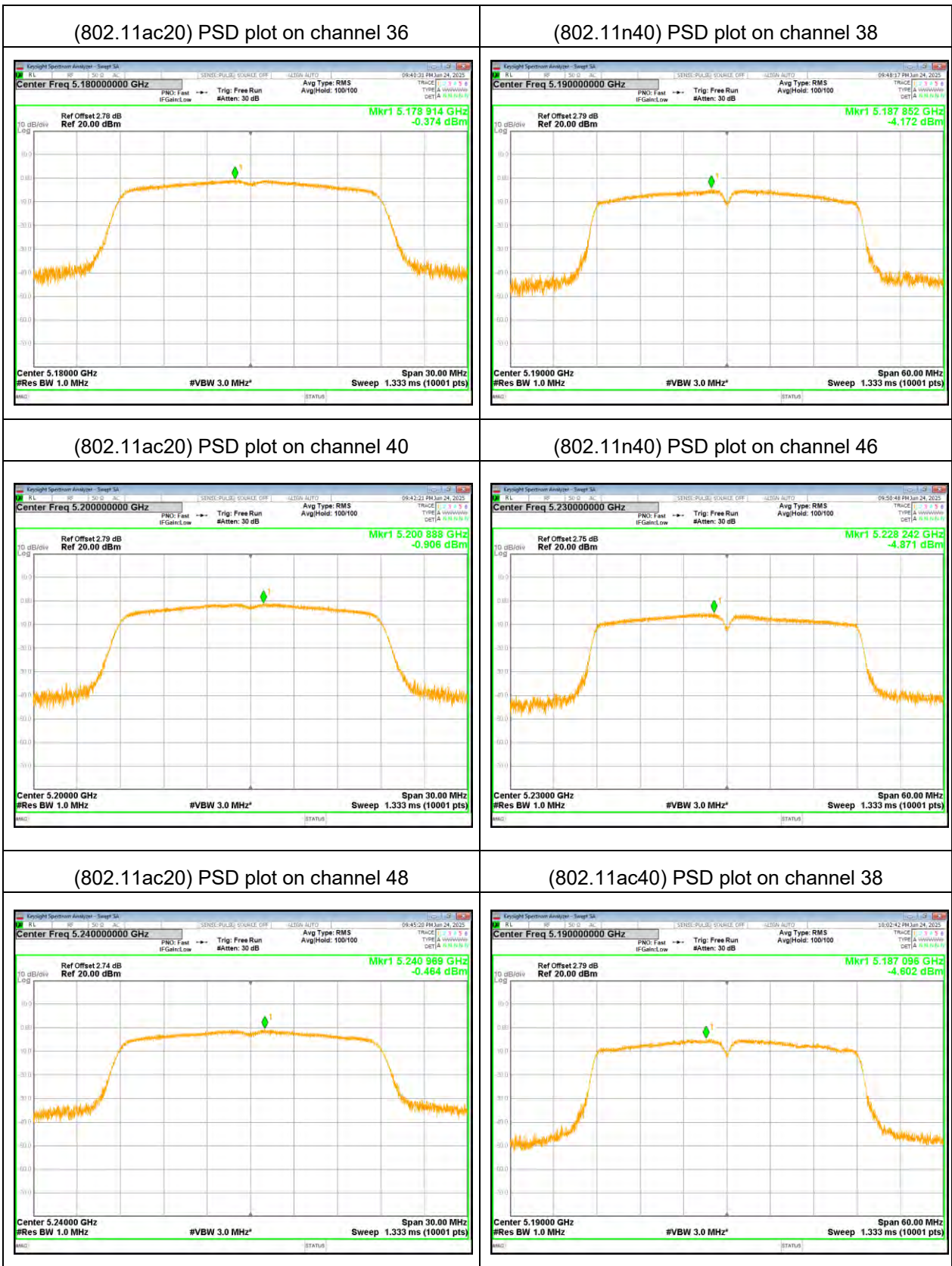


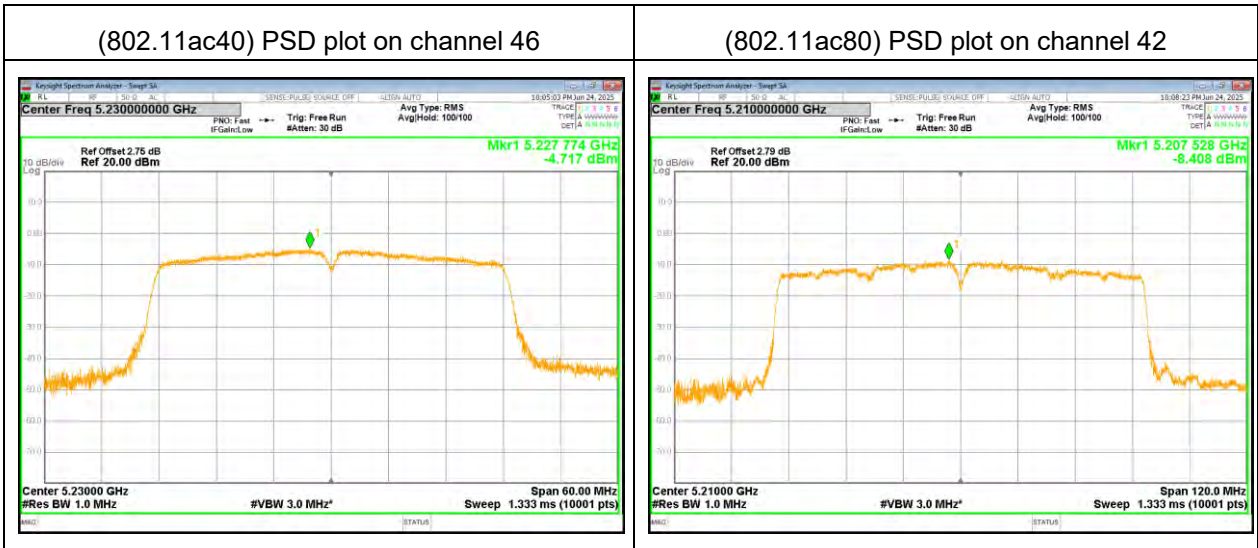
(802.11a) PSD plot on channel 48



(802.11n20) PSD plot on channel 48











**5745-5825MHz**

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	-0.643	-0.729	0.330	-0.399	30
	5785 MHz	-3.428	-3.514	0.330	-3.184	30
	5825 MHz	-3.095	-3.181	0.330	-2.851	30
802.11 n20	5745 MHz	-4.180	-4.266	1.190	-3.076	30
	5785 MHz	-4.598	-4.684	1.190	-3.494	30
	5825 MHz	-4.275	-4.361	1.190	-3.171	30
802.11ac20	5745 MHz	-4.129	-4.215	0.280	-3.935	30
	5785 MHz	-4.121	-4.207	0.280	-3.927	30
	5825 MHz	-3.360	-3.446	0.280	-3.166	30
802.11 n40	5755 MHz	-8.950	-9.036	1.760	-7.276	30
	5795 MHz	-8.667	-8.753	1.760	-6.993	30
802.11ac40	5755 MHz	-8.696	-8.782	2.040	-6.742	30
	5795 MHz	-9.612	-9.698	2.040	-7.658	30
802.11ac80	5775 MHz	-13.045	-13.131	1.310	-11.821	30

Note: 1. If the measurement is X dBm/510kHz, thus X dBm/510kHz =  $(10^{X/10}) \cdot (500 / 510)$  dBm/500kHz

2. Correction Factor (dB)= duty cycle factor

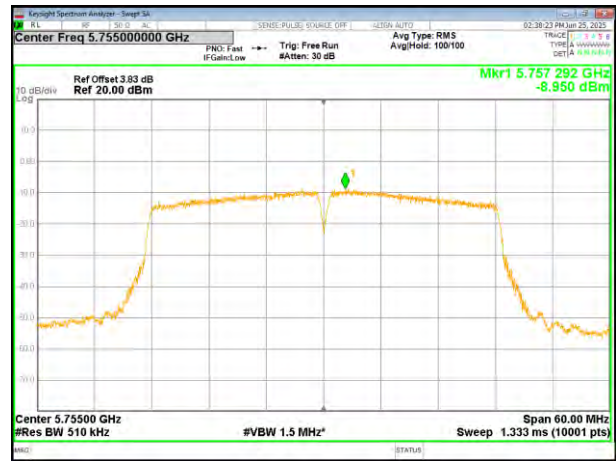




(802.11ac20) PSD plot on channel 149



(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



(802.11ac40) PSD plot on channel 159



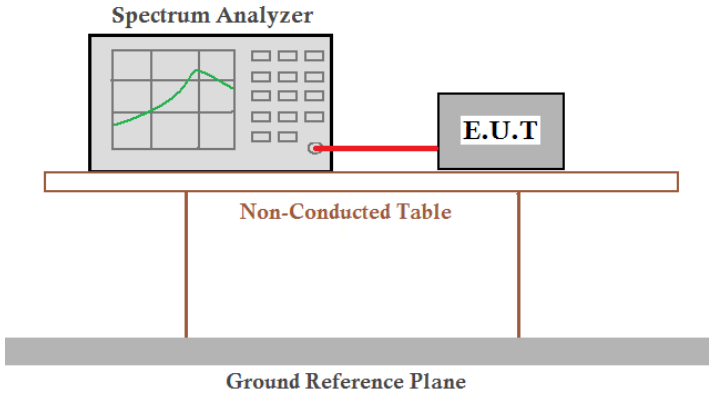
(802.11ac80) PSD plot on channel 155





## 4.7 Band edge

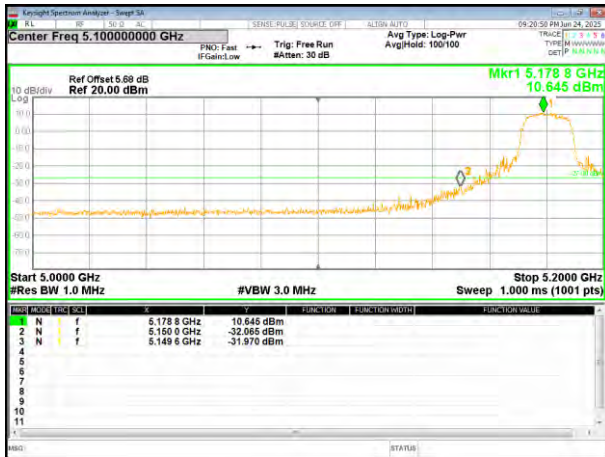
### 4.7.1 Conducted test Method

Test Requirement:	47CRF Part 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:	 <p>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.</p>	
Test Procedure:	<ol style="list-style-type: none"> <li>1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.</li> <li>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.</li> <li>3. Set RBW of spectrum analyzer to 1 MHz with a convenient frequency span.</li> <li>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.</li> <li>5. Repeat above procedures until all measured frequencies were complete..</li> </ol>	
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.: 63%RH
Test voltage:	20V DC	
Test results:	Pass	



5.180~5.240 GHz

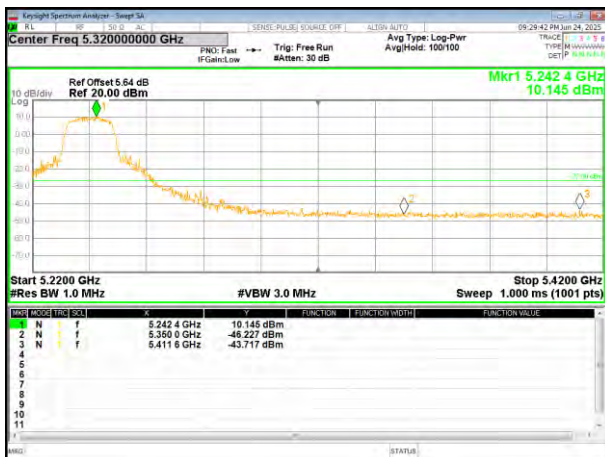
(802.11a) Band Edge, Left Side



(802.11n20) Band Edge, Left Side



(802.11a) Band Edge, Right Side

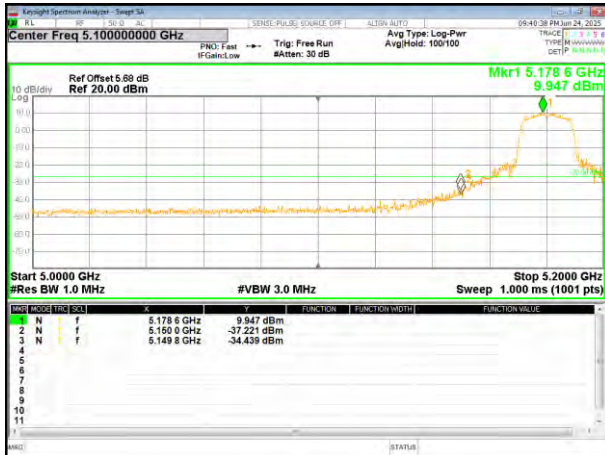


(802.11n20) Band Edge, Right Side

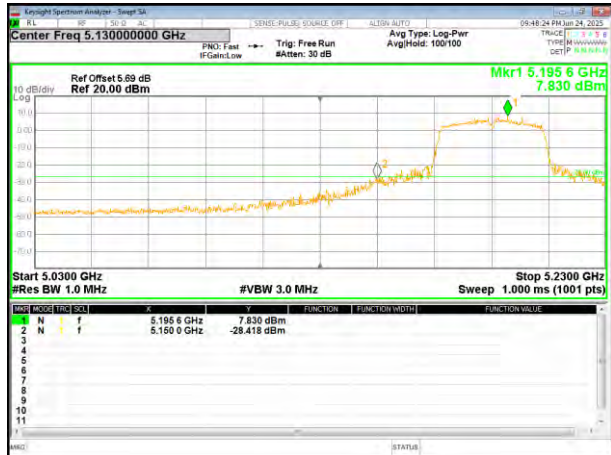


Remark: The antenna gain and cable loss were not compensated in the test data, and the margin value of the Band Edge test was greater than the sum of the antenna gain and cable loss, so the test met the requirements

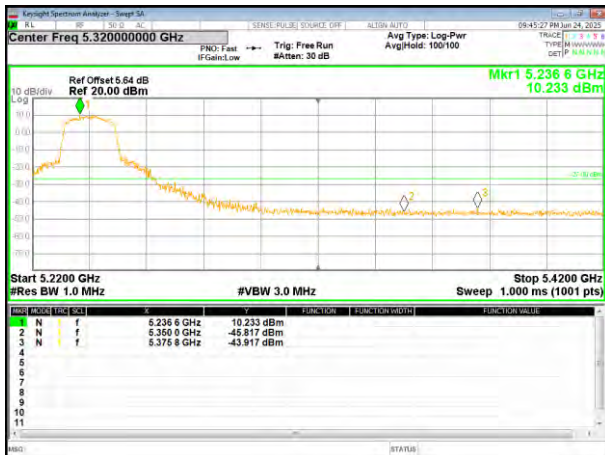
(802.11ac20) Band Edge, Left Side



(802.11n40) Band Edge, Left Side



(802.11ac20) Band Edge, Right Side



(802.11n40) Band Edge, Right Side



Remark: The antenna gain and cable loss were not compensated in the test data, and the margin value of the Band Edge test was greater than the sum of the antenna gain and cable loss, so the test met the requirements

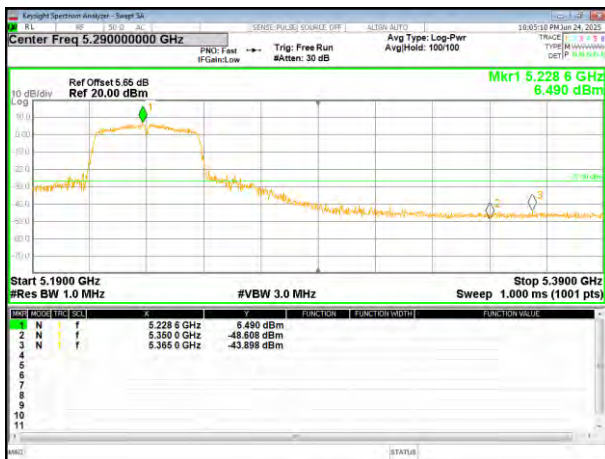
(802.11ac40) Band Edge, Left Side



(802.11ac80) Band Edge



(802.11ac40) Band Edge, Right Side



Remark: The antenna gain and cable loss were not compensated in the test data, and the margin value of the Band Edge test was greater than the sum of the antenna gain and cable loss, so the test met the requirements





5.745~5.825 GHz

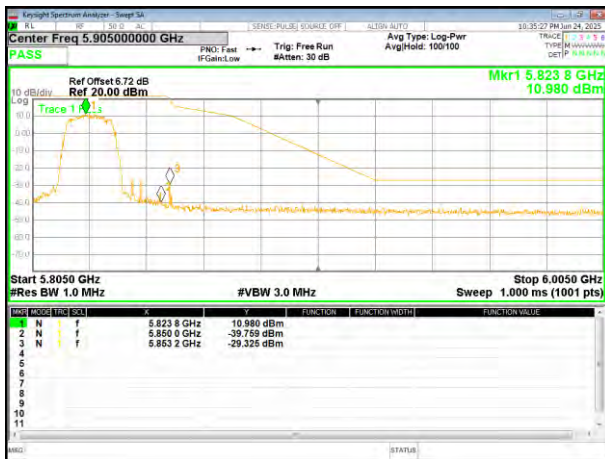
(802.11a) Band Edge, Left Side



(802.11n20) Band Edge, Left Side



(802.11a) Band Edge, Right Side



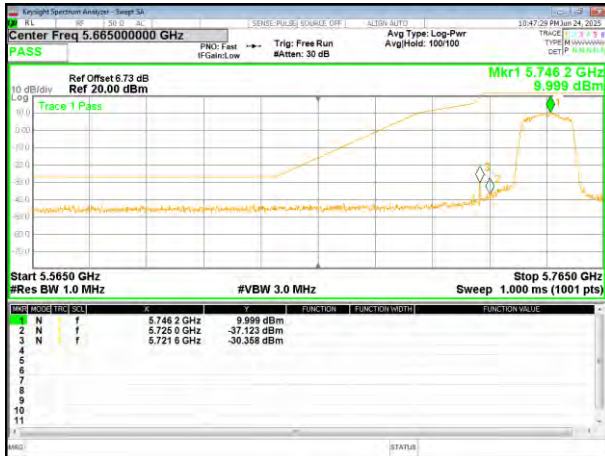
(802.11n20) Band Edge, Right Side



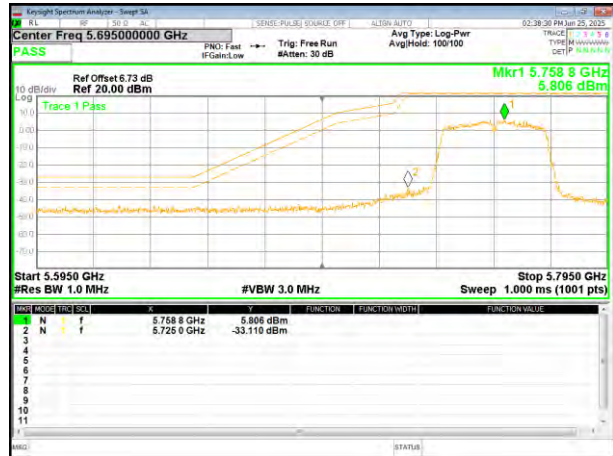
Remark: Antenna gain and cable loss data included in Offset.



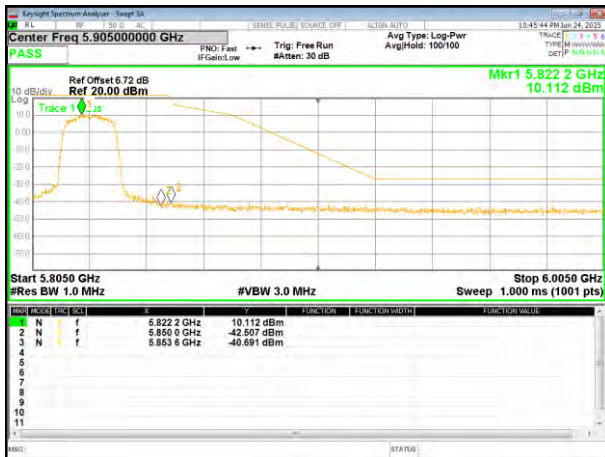
(802.11ac20) Band Edge, Left Side



(802.11n40) Band Edge, Left Side



(802.11ac20) Band Edge, Right Side



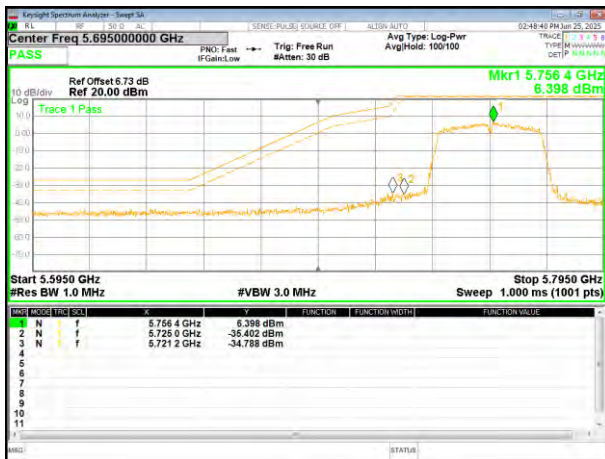
(802.11n40) Band Edge, Right Side



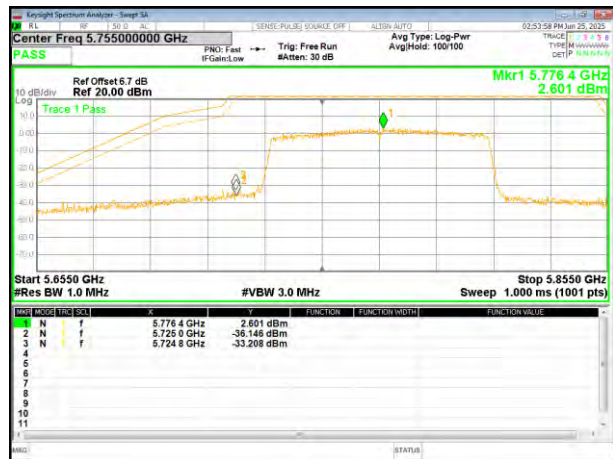
Remark: Antenna gain and cable loss data included in Offset.



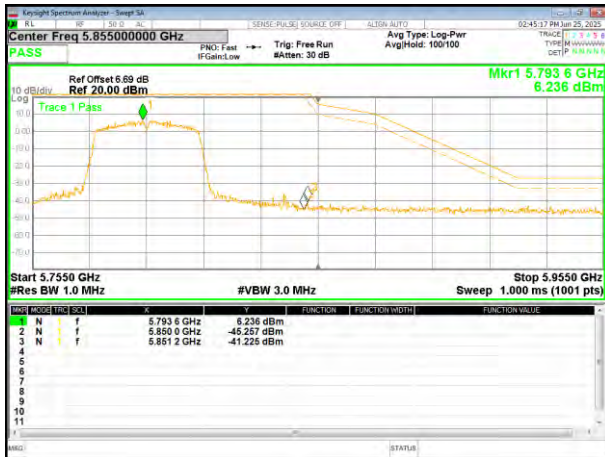
(802.11ac40) Band Edge, Left Side



(802.11ac80) Band Edge



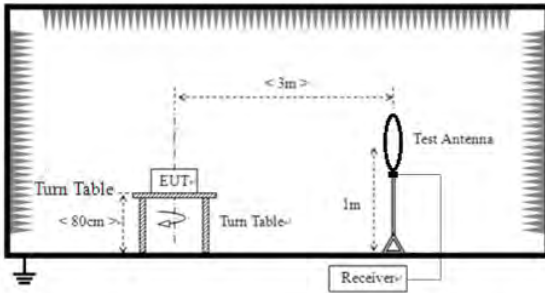
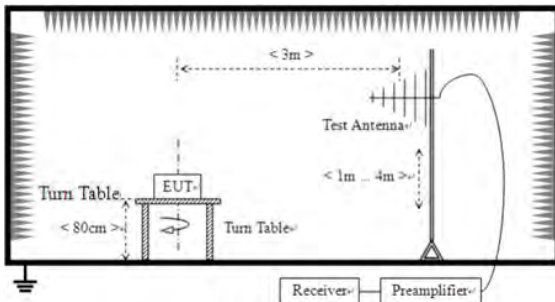
(802.11ac40) Band Edge, Right Side



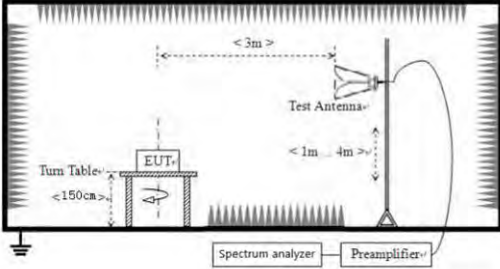
Remark: Antenna gain and cable loss data included in Offset.

## 4.8 Spurious Emission

### 4.8.1 Radiated Emission Method

Test Requirement:	47CRF Part 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					
						
Test setup:	For radiated emissions from 30MHz to 1GHz					
						



	<p>For radiated emissions above 1GHz</p> 
<p>Test Procedure:</p>	<ol style="list-style-type: none"> <li>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.</li> <li>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.</li> <li>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.</li> <li>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.</li> <li>5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</li> <li>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.</li> </ol> <p>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.</p>
<p>Test Instruments:</p>	<p>Refer to section 3.0 for details</p>
<p>Test mode:</p>	<p>Refer to section 2.2 for details</p>
<p>Test results:</p>	<p>Pass</p>

**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.

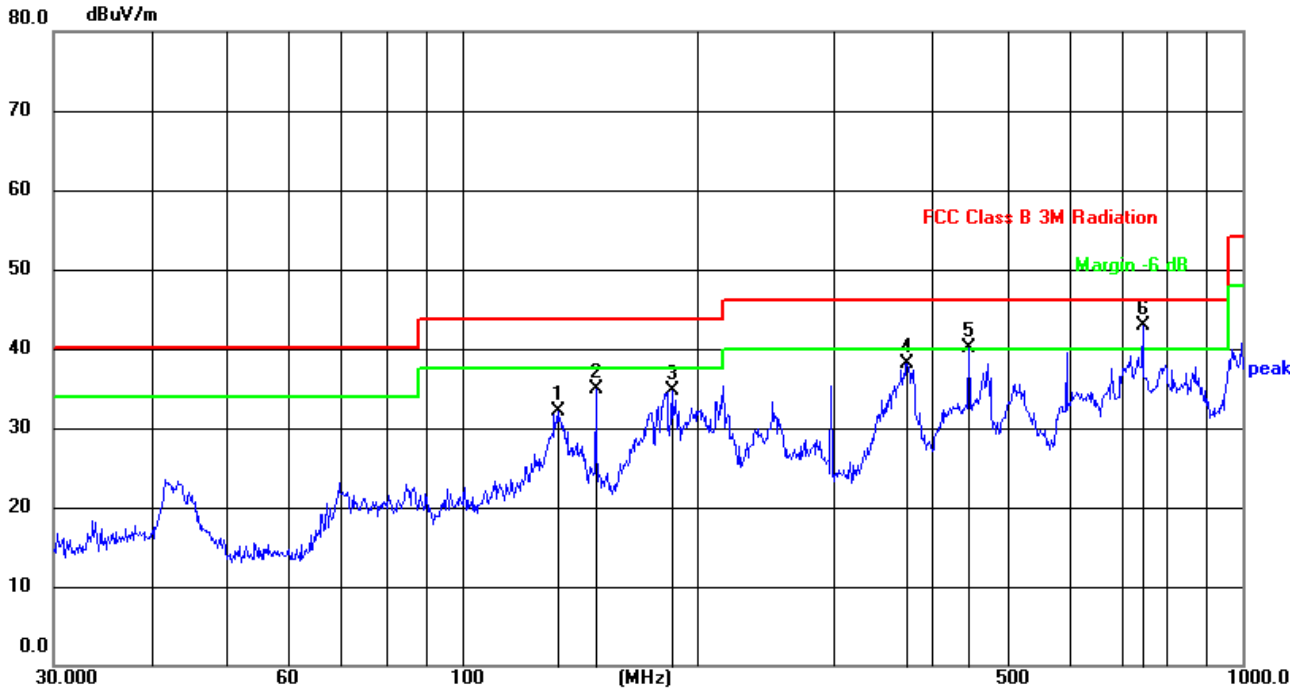




**Below 1GHz**

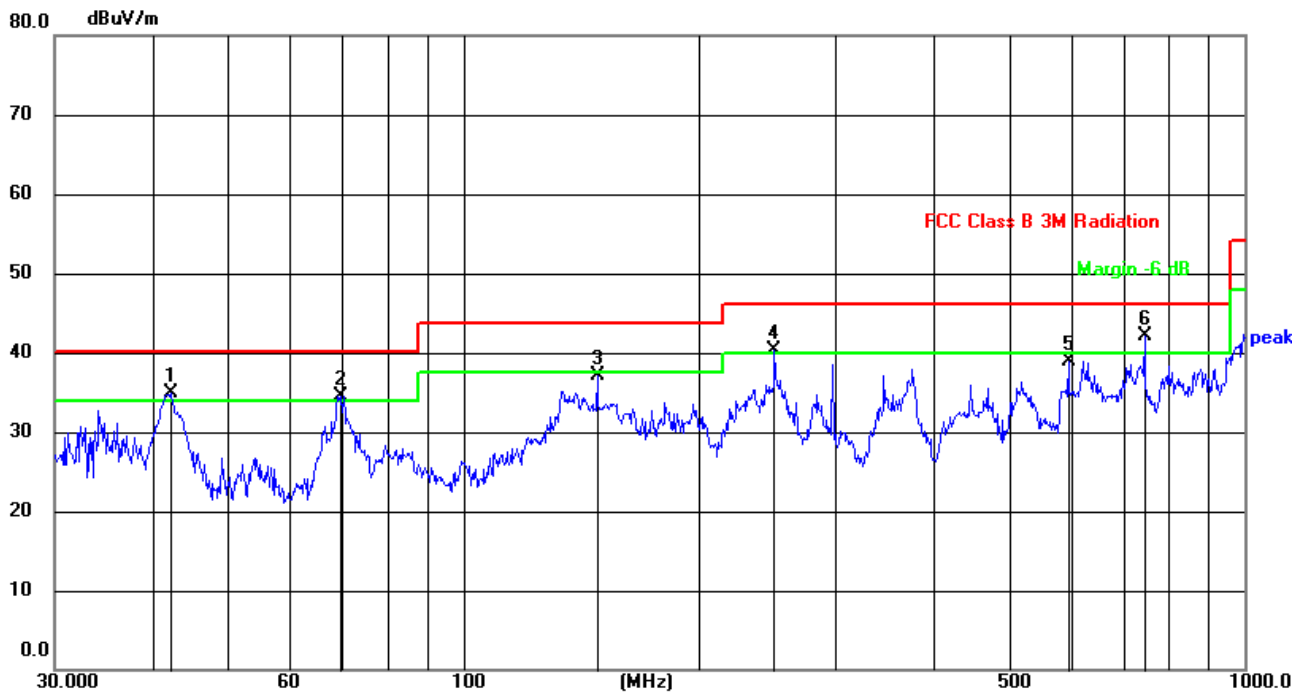
Temperature:	24.7°C	Relative Humidity:	63%RH
Pressure:	101.2kPar	Test Voltage :	20VDC from adapter with 120Vac
Test Mode :	TX- 802.11n20 (5785MHz)		

**Horizontal:**



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	132.6850	51.05	-18.94	32.11	43.50	-11.39	QP
2	148.4410	53.59	-18.72	34.87	43.50	-8.63	QP
3	185.7880	52.73	-18.06	34.67	43.50	-8.83	QP
4	372.0045	55.17	-16.99	38.18	46.00	-7.82	QP
5	446.4139	54.99	-14.90	40.09	46.00	-5.91	QP
6	744.8659	51.25	-8.33	42.92	46.00	-3.08	QP

Vertical:



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	42.3021	55.60	-20.73	34.87	40.00	-5.13	QP
2	69.8448	55.14	-20.54	34.60	40.00	-5.40	QP
3	148.4410	56.01	-19.00	37.01	43.50	-6.49	QP
4	250.3009	58.53	-18.25	40.28	46.00	-5.72	QP
5	595.1326	50.26	-11.36	38.90	46.00	-7.10	QP
6	744.8659	50.46	-8.32	42.14	46.00	-3.86	QP

Remarks:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Pre-amplifier 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:**

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

Temperature:	24.7°C	Relative Humidity:	63%RH
Pressure:	101.2kPa	Test Voltage :	20V DC
Test Mode :	5.2G TX- 802.11a		

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detect or Type
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
<i>Low Channel:5180MHz</i>							
V	10360.00	40.97	1.77	42.74	68.20	-25.46	PK
V	10360.00	36.30	1.77	38.07	54.00	-15.93	AV
V	15540.00	43.32	7.72	51.04	74.00	-22.96	PK
V	15540.00	32.55	7.72	40.27	54.00	-13.73	AV
V	20720.00	47.71	-5.73	41.98	68.20	-26.22	PK
V	20720.00	42.33	-5.73	36.60	54.00	-17.40	AV
V	25900.00	44.91	-2.89	42.02	68.20	-26.18	PK
V	25900.00	40.24	-2.89	37.35	54.00	-16.65	AV
V	31080.00	46.47	1.66	48.13	68.20	-20.07	PK
V	31080.00	40.66	1.66	42.32	54.00	-11.68	AV
V	36260.00	43.55	4.63	48.18	68.20	-20.02	PK
V	36260.00	37.66	4.63	42.29	54.00	-11.71	AV
H	10360.00	41.28	1.77	43.05	68.20	-25.15	PK
H	10360.00	36.46	1.77	38.23	54.00	-15.77	AV
H	15540.00	42.74	7.72	50.46	74.00	-23.54	PK
H	15540.00	32.65	7.72	40.37	54.00	-13.63	AV
H	20720.00	46.84	-5.73	41.11	68.20	-27.09	PK
H	20720.00	41.13	-5.73	35.40	54.00	-18.60	AV
H	25900.00	44.88	-2.89	41.99	68.20	-26.21	PK
H	25900.00	39.48	-2.89	36.59	54.00	-17.41	AV
H	31080.00	45.53	1.66	47.19	68.20	-21.01	PK
H	31080.00	40.28	1.66	41.94	54.00	-12.06	AV
H	36260.00	43.10	4.63	47.73	68.20	-20.47	PK
H	36260.00	38.04	4.63	42.67	54.00	-11.33	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	
<i>Middle Channel:5200Hz</i>							
V	10400.00	40.50	1.85	42.35	68.20	-25.85	PK
V	10400.00	35.77	1.85	37.62	54.00	-16.38	AV
V	15600.00	42.32	7.64	49.96	74.00	-24.04	PK
V	15600.00	31.32	7.64	38.96	54.00	-15.04	AV
V	20800.00	50.67	-5.67	45.00	68.20	-23.20	PK
V	20800.00	46.12	-5.67	40.45	54.00	-13.55	AV
V	26000.00	45.02	-2.85	42.17	68.20	-26.03	PK
V	26000.00	39.86	-2.85	37.01	54.00	-16.99	AV
V	31200.00	43.72	1.57	45.29	68.20	-22.91	PK
V	31200.00	39.88	1.57	41.45	54.00	-12.55	AV
V	36400.00	43.35	4.93	48.28	68.20	-19.92	PK
V	36400.00	38.41	4.93	43.34	54.00	-10.66	AV
H	10400.00	40.68	1.85	42.53	68.20	-25.67	PK
H	10400.00	36.17	1.85	38.02	54.00	-15.98	AV
H	15600.00	42.12	7.64	49.76	74.00	-24.24	PK
H	15600.00	31.54	7.64	39.18	54.00	-14.82	AV
H	20800.00	47.44	-5.67	41.77	68.20	-26.43	PK
H	20800.00	42.68	-5.67	37.01	54.00	-16.99	AV
H	26000.00	46.63	-2.85	43.78	68.20	-24.42	PK
H	26000.00	41.70	-2.85	38.85	54.00	-15.15	AV
H	31200.00	45.48	1.57	47.05	68.20	-21.15	PK
H	31200.00	40.04	1.57	41.61	54.00	-12.39	AV
H	36400.00	42.81	4.93	47.74	68.20	-20.46	PK
H	36400.00	38.25	4.93	43.18	54.00	-10.82	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	
<i>High Channel:5240MHz</i>							
V	10480.00	41.34	2.02	43.36	68.20	-24.84	PK
V	10480.00	36.14	2.02	38.16	54.00	-15.84	AV
V	15720.00	41.76	7.46	49.22	74.00	-24.78	PK
V	15720.00	31.66	7.46	39.12	54.00	-14.88	AV
V	20960.00	47.52	-5.56	41.96	68.20	-26.24	PK
V	20960.00	42.67	-5.56	37.11	54.00	-16.89	AV
V	26200.00	45.20	-2.50	42.70	68.20	-25.50	PK
V	26200.00	40.96	-2.50	38.46	54.00	-15.54	AV
V	31440.00	46.46	1.39	47.85	68.20	-20.35	PK
V	31440.00	41.78	1.39	43.17	54.00	-10.83	AV
V	36680.00	42.61	5.25	47.86	68.20	-20.34	PK
V	36680.00	38.27	5.25	43.52	54.00	-10.48	AV
H	10480.00	41.75	2.02	43.77	68.20	-24.43	PK
H	10480.00	37.01	2.02	39.03	54.00	-14.97	AV
H	15720.00	42.03	7.46	49.49	74.00	-24.51	PK
H	15720.00	31.71	7.46	39.17	54.00	-14.83	AV
H	20960.00	47.32	-5.56	41.76	68.20	-26.44	PK
H	20960.00	42.77	-5.56	37.21	54.00	-16.79	AV
H	26200.00	47.19	-2.50	44.69	68.20	-23.51	PK
H	26200.00	43.89	-2.50	41.39	54.00	-12.61	AV
H	31440.00	45.81	1.39	47.20	68.20	-21.00	PK
H	31440.00	41.06	1.39	42.45	54.00	-11.55	AV
H	36680.00	42.89	5.15	48.04	68.20	-20.16	PK
H	36680.00	37.96	5.15	43.11	54.00	-10.89	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:	63%RH
Pressure:	101.2kPa	Test Voltage :	20V DC
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	
<i>Low Channel:5745MHz</i>							
V	11490.00	45.35	3.31	48.66	74.00	-25.34	PK
V	11490.00	35.67	3.31	38.98	54.00	-15.02	AV
V	17235.00	35.00	10.10	45.10	68.20	-23.10	PK
V	17235.00	30.17	10.10	40.27	54.00	-13.73	AV
V	22980.00	51.76	-4.61	47.15	74.00	-26.85	PK
V	22980.00	41.27	-4.61	36.66	54.00	-17.34	AV
V	28725.00	42.79	0.87	43.66	68.20	-24.54	PK
V	28725.00	38.58	0.87	39.45	54.00	-14.55	AV
V	34470.00	43.32	3.82	47.14	68.20	-21.06	PK
V	34470.00	38.15	3.82	41.97	54.00	-12.03	AV
H	11490.00	45.98	3.31	49.29	74.00	-24.71	PK
H	11490.00	35.84	3.31	39.15	54.00	-14.85	AV
H	17235.00	34.14	10.10	44.24	68.20	-23.96	PK
H	17235.00	29.46	10.10	39.56	54.00	-14.44	AV
H	22980.00	51.36	-4.61	46.75	74.00	-27.25	PK
H	22980.00	41.05	-4.61	36.44	54.00	-17.56	AV
H	28725.00	45.00	0.87	45.87	68.20	-22.33	PK
H	28725.00	40.92	0.87	41.79	54.00	-12.21	AV
H	34470.00	43.80	3.82	47.62	68.20	-20.58	PK
H	34470.00	39.41	3.82	43.23	54.00	-10.77	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	
<i>Low Channel:5785MHz</i>							
V	11570.00	45.13	3.34	48.47	74.00	-25.53	PK
V	11570.00	35.30	3.34	38.64	54.00	-15.36	AV
V	17355.00	33.63	10.52	44.15	68.20	-24.05	PK
V	17355.00	29.12	10.52	39.64	54.00	-14.36	AV
V	23140.00	51.43	-4.66	46.77	74.00	-27.23	PK
V	23140.00	41.57	-4.66	36.91	54.00	-17.09	AV
V	28925.00	44.54	1.36	45.90	68.20	-22.30	PK
V	28925.00	39.82	1.36	41.18	54.00	-12.82	AV
V	34710.00	44.13	3.95	48.08	68.20	-20.12	PK
V	34710.00	39.06	3.95	43.01	54.00	-10.99	AV
H	11570.00	46.15	3.34	49.49	74.00	-24.51	PK
H	11570.00	36.32	3.34	39.66	54.00	-14.34	AV
H	17355.00	32.80	10.52	43.32	68.20	-24.88	PK
H	17355.00	29.46	10.52	39.98	54.00	-14.02	AV
H	23140.00	51.96	-4.66	47.30	74.00	-26.70	PK
H	23140.00	41.44	-4.66	36.78	54.00	-17.22	AV
H	28925.00	45.29	1.36	46.65	68.20	-21.55	PK
H	28925.00	41.05	1.36	42.41	54.00	-11.59	AV
H	34710.00	44.70	3.95	48.65	68.20	-19.55	PK
H	34710.00	39.40	3.95	43.35	54.00	-10.65	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.

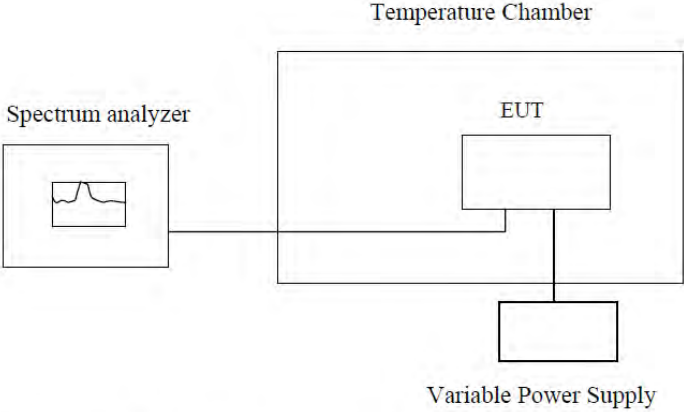


Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detect or Type
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
<i>Low Channel:5825MHz</i>							
V	11650.00	45.10	3.36	48.46	74.00	-25.54	PK
V	11650.00	35.06	3.36	38.42	54.00	-15.58	AV
V	17475.00	33.16	10.93	44.09	68.20	-24.11	PK
V	17475.00	29.52	10.93	40.45	54.00	-13.55	AV
V	23300.00	46.60	-4.77	41.83	68.20	-26.37	PK
V	23300.00	42.22	-4.77	37.45	54.00	-16.55	AV
V	29125.00	44.27	1.65	45.92	68.20	-22.28	PK
V	29125.00	39.07	1.65	40.72	54.00	-13.28	AV
V	34950.00	42.58	4.09	46.67	68.20	-21.53	PK
V	34950.00	38.43	4.09	42.52	54.00	-11.48	AV
H	11650.00	45.49	3.36	48.85	74.00	-25.15	PK
H	11650.00	35.57	3.36	38.93	54.00	-15.07	AV
H	17475.00	32.57	10.93	43.50	68.20	-24.70	PK
H	17475.00	27.79	10.93	38.72	54.00	-15.28	AV
H	23300.00	46.18	-4.77	41.41	68.20	-26.79	PK
H	23300.00	41.67	-4.77	36.90	54.00	-17.10	AV
H	29125.00	43.17	1.65	44.82	68.20	-23.38	PK
H	29125.00	40.03	1.65	41.68	54.00	-12.32	AV
H	34950.00	43.51	4.09	47.60	68.20	-20.60	PK
H	34950.00	38.62	4.09	42.71	54.00	-11.29	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.

### 4.9 Frequency stability

Test Requirement:	47CRF Part 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:	<ol style="list-style-type: none"> <li>The EUT was placed inside the environmental test chamber and powered by nominal DC voltage.</li> <li>Turn the EUT on and couple its output to a spectrum analyzer.</li> <li>Turn the EUT off and set the chamber to the highest temperature specified.</li> <li>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.</li> <li>Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.</li> <li>The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 Minute</li> <li>The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.</li> </ol>
Test setup:	 <p style="text-align: center;">Temperature Chamber</p> <p style="text-align: center;">Spectrum analyzer</p> <p style="text-align: center;">EUT</p> <p style="text-align: center;">Variable Power Supply</p> <p><b>Note :</b> Measurement setup for testing on Antenna connector</p>
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: 20VDC					
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	5179.999	5179.981	5179.988	5179.941
	5190	5189.995	5189.982	5189.979	5189.971
	5200	5199.990	5199.973	5199.987	5199.996
	5210	5209.996	5209.981	5209.979	5209.980
	5220	5219.991	5219.973	5220.000	5219.971
	5230	5229.989	5229.994	5229.978	5229.999
	5240	5240.002	5239.972	5239.996	5239.987
-20	5180	5179.951	5179.981	5179.976	5179.984
	5190	5189.981	5189.982	5189.987	5189.979
	5200	5199.976	5199.973	5199.978	5199.981
	5210	5209.990	5209.981	5209.979	5209.982
	5220	5219.981	5219.973	5219.986	5219.997
	5230	5229.989	5229.994	5229.994	5229.990
	5240	5239.997	5239.972	5239.976	5239.998
-10	5180	5179.989	5179.981	5179.988	5179.948
	5190	5189.990	5189.982	5189.979	5189.978
	5200	5199.981	5199.973	5199.987	5199.983
	5210	5209.989	5209.981	5209.979	5209.987
	5220	5219.981	5219.973	5220.000	5219.978
	5230	5230.002	5229.994	5229.978	5229.986
	5240	5239.980	5239.972	5239.996	5239.994
0	5180	5179.941	5179.984	5179.994	5179.986
	5190	5189.937	5189.980	5189.984	5189.986
	5200	5199.932	5199.975	5199.994	5199.997
	5210	5209.938	5209.981	5209.944	5209.998
	5220	5219.933	5219.986	5219.990	5219.983
	5230	5229.931	5229.990	5229.996	5230.000
	5240	5239.994	5239.990	5239.997	5239.985
10	5180	5179.978	5179.982	5179.988	5179.989
	5190	5189.989	5189.973	5189.979	5189.989
	5200	5199.980	5199.981	5199.987	5199.985
	5210	5209.981	5209.973	5209.979	5209.980
	5220	5219.988	5219.994	5220.000	5219.996
	5230	5229.996	5229.972	5229.978	5229.981
	5240	5239.978	5239.990	5239.996	5239.979
20	5180	5179.999	5179.981	5179.988	5179.941
	5190	5189.995	5189.982	5189.979	5189.971





	5200	5199.990	5199.973	5199.987	5199.996
	5210	5209.996	5299.981	5209.979	5209.980
	5220	5219.991	5219.973	5220.000	5219.971
	5230	5229.989	5229.994	5229.978	5229.999
	5240	5239.962	5239.972	5239.996	5239.987
30	5180	5179.929	5179.979	5179.987	5179.990
	5190	5189.925	5189.993	5189.818	5189.994
	5200	5199.920	5199.976	5199.986	5199.979
	5210	5209.926	5209.979	5209.988	5210.000
	5220	5219.921	5219.994	5219.989	5219.991
	5230	5229.918	5229.987	5229.986	5229.986
	5240	5239.891	5239.995	5239.990	5239.991
40	5180	5179.989	5179.970	5179.988	5179.979
	5190	5189.990	5189.981	5189.979	5189.980
	5200	5199.920	5199.981	5199.996	5199.979
	5210	5209.926	5209.979	5209.988	5209.987
	5220	5219.921	5219.986	5219.989	5219.991
	5230	5230.002	5229.988	5229.978	5229.992
	5240	5239.980	5239.970	5239.996	5239.970
50	5180	5179.951	5179.981	5179.976	5179.994
	5190	5189.981	5189.982	5189.987	5189.979
	5200	5199.996	5199.973	5199.978	5199.991
	5210	5209.926	5209.993	5209.988	5209.991
	5220	5219.921	5219.988	5219.995	5219.992
	5230	5229.918	5229.995	5229.990	5229.990
	5240	5239.991	5239.993	5239.984	5239.991



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)
17VDC	5180	5179.915	5179.994	5179.986	5179.985
	5190	5189.991	5189.984	5189.987	5189.983
	5200	5199.989	5199.986	5199.988	5199.987
	5210	5209.992	5209.971	5209.984	5209.997
	5220	5220.002	5219.979	5219.988	5219.986
	5230	5229.979	5229.984	5229.987	5299.990
	5240	5239.987	5239.993	5239.996	5239.987
20VDC	5180	5179.929	5179.989	5179.987	5179.990
	5190	5189.985	5189.983	5189.988	5189.974
	5200	5199.990	5199.971	5199.986	5199.979
	5210	5209.926	5209.979	5209.962	5209.997
	5220	5219.921	5219.994	5219.989	5219.991
	5230	5229.918	5229.986	5229.986	5229.983
	5240	5239.991	5239.993	5239.990	5239.991
23VDC	5180	5179.999	5179.991	5179.976	5179.968
	5190	5189.995	5189.987	5189.987	5189.979
	5200	5199.990	5199.982	5199.978	5199.969
	5210	5209.996	5209.988	5209.979	5209.971
	5220	5219.991	5219.983	5219.986	5219.978
	5230	5229.989	5229.981	5229.991	5230.001
	5240	5239.992	5239.984	5239.976	5239.968



Frequency stability versus Temp.					
Power Supply: 20VDC					
Temp. (°C)	Operating Frequency (MHz)	0 minute	2 minute	5 minute	10 minute
		Measured Frequency (MHz)	Measured Frequency (MHz)	Measured Frequency (MHz)	Measured Frequency (MHz)
-30	5745	5745.002	5744.983	5744.989	5744.989
	5755	5754.990	5754.979	5754.993	5754.971
	5775	5774.982	5774.978	5774.994	5774.980
	5785	5784.991	5784.981	5784.997	5784.971
	5795	5794.982	5794.992	5794.980	5794.982
	5825	5824.993	5824.973	5824.976	5824.985
-20	5745	5744.896	5744.963	5744.990	5744.972
	5755	5754.921	5754.979	5754.992	5754.998
	5775	5774.901	5774.978	5774.995	5774.994
	5785	5784.910	5784.981	5784.987	5784.978
	5795	5794.988	5794.992	5794.978	5794.967
	5825	5824.993	5824.973	5824.987	5824.981
-10	5745	5744.982	5744.974	5744.974	5744.986
	5755	5754.989	5754.981	5754.999	5754.981
	5775	5774.981	5774.978	5774.980	5774.985
	5785	5784.973	5784.974	5784.989	5784.986
	5795	5794.980	5794.970	5794.987	5794.989
	5825	5824.989	5824.973	5824.997	5824.990
0	5745	5744.976	5744.973	5744.980	5744.991
	5755	5754.986	5754.980	5754.987	5754.990
	5775	5774.997	5774.972	5774.991	5774.981
	5785	5784.983	5784.964	5784.980	5784.978
	5795	5794.979	5794.971	5794.976	5794.996
	5825	5824.977	5824.980	5824.979	5824.988
10	5745	5744.973	5744.984	5744.974	5744.982
	5755	5754.988	5754.986	5754.999	5754.996
	5775	5774.987	5774.989	5774.980	5774.981
	5785	5784.990	5784.981	5784.989	5784.968
	5795	5795.000	5794.972	5794.987	5794.962
	5825	5824.982	5824.981	5824.997	5824.996
20	5745	5744.993	5744.973	5744.990	5744.971
	5755	5754.995	5754.990	5754.994	5754.990
	5775	5774.992	5774.991	5774.989	5774.970
	5785	5784.979	5784.973	5784.976	5784.997
	5795	5794.973	5794.990	5794.970	5794.989
	5825	5824.999	5824.988	5824.940	5824.998
30	5745	5744.972	5744.984	5744.974	5744.990
	5755	5754.988	5754.986	5754.999	5754.996
	5775	5774.987	5774.989	5774.980	5774.981
	5785	5784.990	5784.981	5784.989	5784.968
	5795	5795.001	5794.972	5794.987	5794.962
	5825	5824.982	5824.981	5824.997	5824.996
40	5745	5744.983	5744.973	5744.974	5744.966
	5755	5754.990	5754.990	5754.999	5754.991
	5775	5774.982	5774.991	5774.980	5774.972
	5785	5784.974	5784.973	5784.989	5784.981
	5795	5794.981	5794.990	5794.987	5794.979
	5825	5825.000	5824.988	5824.997	5824.989



50	5745	5744.977	5744.973	5744.979	5744.972
	5755	5755.002	5754.990	5754.986	5754.979
	5775	5774.983	5774.991	5774.978	5774.996
	5785	5784.992	5784.973	5784.970	5784.972
	5795	5794.990	5794.990	5794.977	5794.968
	5825	5825.000	5824.988	5824.906	5824.971

Frequency stability versus Voltage					
Temperature: 25°C					
Power Supply (VDC)	Operating Frequency (MHz)	0 minute Measured Frequency (MHz)	2 minute Measured Frequency (MHz)	5 minute Measured Frequency (MHz)	10 minute Measured Frequency (MHz)
17VDC	5745	5744.992	5744.983	5744.990	5744.986
	5755	5754.988	5754.980	5754.996	5754.991
	5775	5774.987	5774.972	5774.997	5774.972
	5785	5784.990	5784.964	5784.979	5784.981
	5795	5795.001	5794.971	5794.997	5794.979
	5825	5824.982	5824.990	5824.994	5824.989
20VDC	5745	5744.972	5744.984	5744.974	5744.982
	5755	5754.988	5754.986	5754.999	5754.996
	5775	5774.987	5774.989	5774.980	5774.981
	5785	5784.990	5784.981	5784.989	5784.968
	5795	5794.997	5794.972	5794.987	5794.962
	5825	5824.982	5824.981	5824.997	5824.996
23VDC	5745	5744.902	5744.981	5744.990	5744.999
	5755	5754.989	5754.993	5754.994	5754.987
	5775	5774.995	5774.977	5774.989	5774.997
	5785	5785.001	5785.977	5784.976	5784.993
	5795	5795.000	5794.972	5794.987	5794.962
	5825	5824.982	5824.981	5824.997	5824.996



## **5 Test Setup Photo**

Reference to the file No.: ET-25061752SP for details.

## **6 EUT Constructional Details**

Reference to the file No.: ET-25061752EP and ET-25061752IP for details.

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