

TEST REPORT

Applicant: Elo Touch Solutions, Inc.

Address of Applicant: 670 N McCarthy Blvd, Suite 100 Milpitas CA 95035, USA

Manufacturer/Factory: Elo Touch Solutions, Inc.

Address of Manufacturer/Factory: 670 N McCarthy Blvd, Suite 100 Milpitas CA 95035, USA

Equipment Under Test (EUT)

Product Name: Touch All-in-One Computer

Model No.: ESY15I1D

Trade Mark: Elo

FCC ID: RBWESY15I1D

Applicable standards: FCC CFR Title 47 Part 15 Subpart E Section 15.407

Date of sample receipt: Mar. 28, 2020

Date of Test: Mar. 28, 2020~Apr. 01, 2021

Date of report issued: Apr. 01, 2021

Test Result : PASS *

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

Authorized Signature:

A circular blue ink stamp for GTS Global United Technology Services Co., Ltd. is overlaid on a handwritten signature. The stamp contains the text 'GTS', 'GLOBAL UNITED TECHNOLOGY SERVICES CO., LTD.', and 'TV8079'. The signature is written in blue ink over the stamp.

Robinson Lo

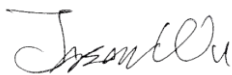
Laboratory Manager

This 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.

2 Version

Version No.	Date	Description
00	Apr. 01, 2021	Original

Prepared By:



Date:

Apr. 01, 2021

Tested/Project Engineer

Check By:


Reviewer

Date:

Apr. 01, 2021

3 Contents

	Page
1 COVER PAGE	1
2 VERSION	2
3 CONTENTS	3
4 TEST SUMMARY	4
4.1 MEASUREMENT UNCERTAINTY	4
5 GENERAL INFORMATION	5
5.1 GENERAL DESCRIPTION OF EUT	5
5.2 TEST MODE	7
5.3 DESCRIPTION OF SUPPORT UNITS	7
5.4 DEVIATION FROM STANDARDS	7
5.5 ABNORMALITIES FROM STANDARD CONDITIONS	7
5.6 TEST FACILITY	8
5.7 TEST LOCATION	8
6 TEST INSTRUMENTS LIST	9
7 TEST RESULTS AND MEASUREMENT DATA	11
7.1 ANTENNA REQUIREMENT	11
7.2 CONDUCTED EMISSIONS	12
7.3 CONDUCTED PEAK OUTPUT POWER	15
7.4 CHANNEL BANDWIDTH AND 99% OCCUPIED BANDWIDTH	24
7.5 BAND EDGE	62
7.5.1 Radiated Emission Method	62
7.6 SPURIOUS EMISSION	66
7.6.1 Radiated Emission Method	66
7.7 FREQUENCY STABILITY	73
8 TEST SETUP PHOTO	77
9 EUT CONSTRUCTIONAL DETAILS	77

4 Test Summary

Test Item	Section in CFR 47	Result
Antenna requirement	15.203	Pass
AC Power Line Conducted Emission	15.207	Pass
Conducted Peak Output Power	15.407(a)(3)	Pass
Channel Bandwidth	15.407(e)	Pass
Power Spectral Density	15.407(a)(3)	Pass
Band Edge	15.407(b)(4)	Pass
Spurious Emission	15.205/15.209/15.407(b)(4)	Pass
Frequency Stability	15.407(g)	Pass

Remarks:

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

4.1 Measurement Uncertainty

Test Item	Frequency Range	Measurement Uncertainty	Notes
Radiated Emission	30MHz-200MHz	3.8039dB	(1)
Radiated Emission	200MHz-1GHz	3.9679dB	(1)
Radiated Emission	1GHz-18GHz	4.29dB	(1)
Radiated Emission	18GHz-40GHz	3.30dB	(1)
AC Power Line Conducted Emission	0.15MHz ~ 30MHz	3.44dB	(1)

Note (1): The measurement uncertainty is for coverage factor of k=2 and a level of confidence of 95%.

5 General Information

5.1 General Description of EUT

Product Name:	Touch All-in-One Computer
Model No.:	ESY15I1D
Serial No.:	N/A
Hardware Version:	N/A
Software Version:	N/A
Test sample(s) ID:	GTSL202103000292-1(Engineer sample) GTSL202103000292-2(Normal sample)
Operation Frequency:	802.11a/802.11n(HT20)/802.11ac(HT20): 5745MHz ~ 5825MHz 802.11n(HT40)/ 802.11ac(HT40): 5755MHz ~ 5795MHz 802.11ac(HT80): 5775MHz
Channel numbers:	802.11a/802.11n(HT20)/802.11ac(HT20): 5 802.11n(HT40)/ 802.11ac(HT40): 2 802.11ac(HT80): 1
Channel bandwidth:	802.11a/802.11n(HT20)/802.11ac(HT20) : 20MHz 802.11n(HT40)/802.11ac(HT40) : 40MHz 802.11ac(HT80): 80MHz
Modulation technology:	802.11a/802.11n(H20)/802.11n(H40)/802.11ac(HT20)/802.11ac(HT40) /802.11ac(HT80): Orthogonal Frequency Division Multiplexing (OFDM)
Antenna Type:	FPCB antenna
Antenna gain:	Antenna 1:1dBi Antenna 2:1dBi MIMO: 4.01dBi
Power supply:	DC 19V 3.0A

Operation Frequency each of channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
149	5745MHz	151	5755MHz	153	5765MHz	155	5775MHz
157	5785MHz	159	5795MHz	161	5805MHz	163	5815MHz
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/ac(HT20/VHT20)	802.11 n/ac(HT40/VHT40)	802.11ac(VHT80)
Lowest channel	5745	5755	
Middle channel	5785		5775
Highest channel	5825	5795	

5.2 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:

Per-scan all kind of data rate in lowest channel, and found the follow list which it was worst case.

Mode	Data rate
802.11a	6Mbps
802.11n(HT20)	6.5Mbps
802.11n(HT40)	13Mbps
802.11ac(VHT20)	6.5Mbps
802.11ac(VHT40)	13.5Mbps
802.11ac(VHT80)	29.3Mbps

5.3 Description of Support Units

None.

5.4 Deviation from Standards

None.

5.5 Abnormalities from Standard Conditions

None.

5.6 Test Facility

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

- **FCC —Registration No.: 381383**

Global United Technology Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in files. Registration 381383.

- **IC —Registration No.: 9079A**

The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 9079A

- **NVLAP (LAB CODE:600179-0)**

Global United Technology Services Co., Ltd., is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP). LAB CODE:600179-0

5.7 Test Location

All tests were performed at:

Global United Technology Services Co., Ltd.

No. 123-128, Tower A, Jinyuan Business Building, No.2, Laodong Industrial Zone,
Xixiang Road, Baoan District, Shenzhen, Guangdong, China 518102

Tel: 0755-27798480

Fax: 0755-27798960

6 Test Instruments list

Radiated Emission:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	3m Semi- Anechoic Chamber	ZhongYu Electron	9.2(L)*6.2(W)* 6.4(H)	GTS250	July. 02 2020	July. 01 2025
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A
3	EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	June. 25 2020	June. 24 2021
4	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	GTS214	June. 25 2020	June. 24 2021
5	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120 D	GTS208	June. 25 2020	June. 24 2021
6	Horn Antenna	ETS-LINDGREN	3160	GTS217	June. 25 2020	June. 24 2021
7	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
8	Coaxial Cable	GTS	N/A	GTS213	June. 25 2020	June. 24 2021
9	Coaxial Cable	GTS	N/A	GTS211	June. 25 2020	June. 24 2021
10	Coaxial cable	GTS	N/A	GTS210	June. 25 2020	June. 24 2021
11	Coaxial Cable	GTS	N/A	GTS212	June. 25 2020	June. 24 2021
12	Amplifier(100kHz-3GHz)	HP	8347A	GTS204	June. 25 2020	June. 24 2021
13	Amplifier(2GHz-20GHz)	HP	84722A	GTS206	June. 25 2020	June. 24 2021
14	Amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	June. 25 2020	June. 24 2021
15	Band filter	Amindeon	82346	GTS219	June. 25 2020	June. 24 2021
16	Power Meter	Anritsu	ML2495A	GTS540	June. 25 2020	June. 24 2021
17	Power Sensor	Anritsu	MA2411B	GTS541	June. 25 2020	June. 24 2021
18	Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	GTS575	June. 25 2020	June. 24 2021
19	Splitter	Agilent	11636B	GTS237	June. 25 2020	June. 24 2021
20	Loop Antenna	ZHINAN	ZN30900A	GTS534	June. 25 2020	June. 24 2021
21	Breitband hornantenne	SCHWARZBECK	BBHA 9170	GTS579	Oct. 19 2020	Oct. 18 2021
22	Amplifier	TDK	PA-02-02	GTS574	Oct. 19 2020	Oct. 18 2021
23	Amplifier	TDK	PA-02-03	GTS576	Oct. 19 2020	Oct. 18 2021
24	PSA Series Spectrum Analyzer	Rohde & Schwarz	FSP	GTS578	June. 25 2020	June. 24 2021

Conducted Emission						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	Shielding Room	ZhongYu Electron	7.3(L)x3.1(W)x2.9(H)	GTS252	May.15 2019	May.14 2022
2	EMI Test Receiver	R&S	ESCI 7	GTS552	June. 25 2020	June. 24 2021
3	Coaxial Switch	ANRITSU CORP	MP59B	GTS225	June. 25 2020	June. 24 2021
4	ENV216 2-L-V-NETZNACHB.DE	ROHDE&SCHWARZ	ENV216	GTS226	June. 25 2020	June. 24 2021
5	Coaxial Cable	GTS	N/A	GTS227	N/A	N/A
6	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
7	Thermo meter	KTJ	TA328	GTS233	June. 25 2020	June. 24 2021
8	Absorbing clamp	Elektronik-Feinmechanik	MDS21	GTS229	June. 25 2020	June. 24 2021
9	ISN	SCHWARZBECK	NTFM 8158	GTD565	June. 25 2020	June. 24 2021

RF Conducted Test:						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	MXA Signal Analyzer	Agilent	N9020A	GTS566	June. 25 2020	June. 24 2021
2	EMI Test Receiver	R&S	ESCI 7	GTS552	June. 25 2020	June. 24 2021
3	Spectrum Analyzer	Agilent	E4440A	GTS533	June. 25 2020	June. 24 2021
4	MXG vector Signal Generator	Agilent	N5182A	GTS567	June. 25 2020	June. 24 2021
5	ESG Analog Signal Generator	Agilent	E4428C	GTS568	June. 25 2020	June. 24 2021
6	USB RF Power Sensor	DARE	RPR3006W	GTS569	June. 25 2020	June. 24 2021
7	RF Switch Box	Shongyi	RFSW3003328	GTS571	June. 25 2020	June. 24 2021
8	Programmable Constant Temp & Humi Test Chamber	WEWON	WHTH-150L-40-880	GTS572	June. 25 2020	June. 24 2021
9	Spectrum Analyzer	R&S	FSV40	GTS559	June. 25 2020	June. 24 2021

General used equipment:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	Humidity/ Temperature Indicator	KTJ	TA328	GTS243	June. 25 2020	June. 24 2021
2	Barometer	ChangChun	DYM3	GTS255	June. 25 2020	June. 24 2021

7 Test results and Measurement Data

7.1 Antenna requirement

Standard requirement:	FCC Part15 C Section 15.203
<i>15.203 requirement: An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.</i>	
E.U.T Antenna:	
<i>The antennas are FPCB antenna, the best case gain of the antennas are 1 dBi, reference to the appendix II for details</i>	

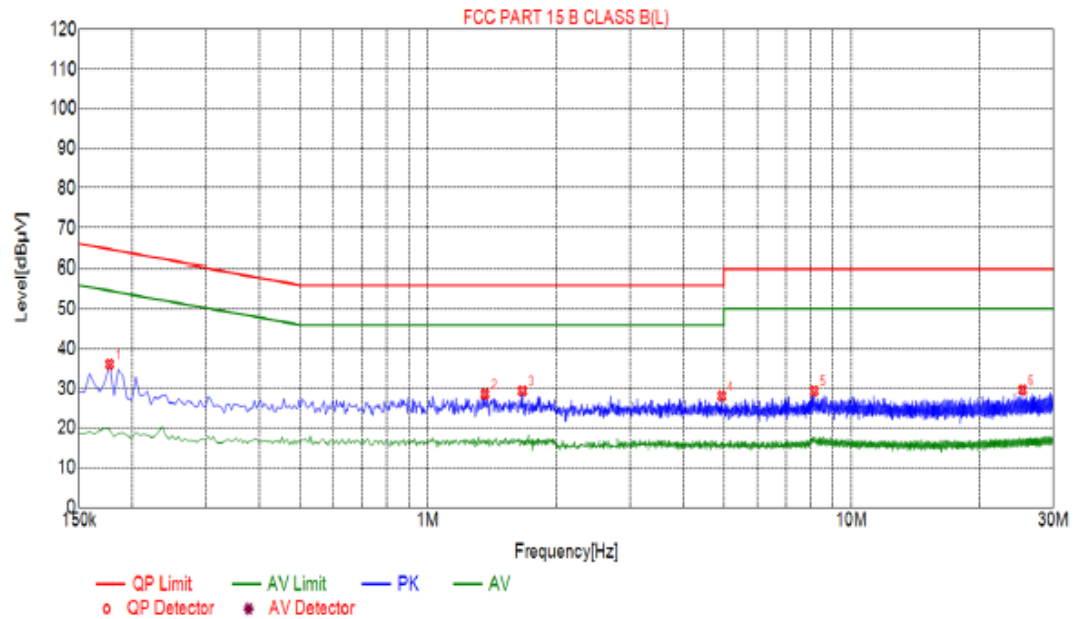
7.2 Conducted Emissions

Test Requirement:	FCC Part15 C Section 15.207					
Test Method:	ANSI C63.10:2013					
Test Frequency Range:	150KHz to 30MHz					
Class / Severity:	Class B					
Receiver setup:	RBW=9KHz, VBW=30KHz, Sweep time=auto					
Limit:	Frequency range (MHz)		Limit (dBuV)			
			Quasi-peak		Average	
	0.15-0.5		66 to 56*		56 to 46*	
	0.5-5		56		46	
	5-30		60		50	
* Decreases with the logarithm of the frequency.						
Test setup:	Reference Plane LISN AUX Equipment E.U.T 40cm 80cm LISN Filter EMI Receiver AC power Test table/Insulation plane Remark: E.U.T: Equipment Under Test LISN: Line Impedance Stabilization Network Test table height=0.8m					
Test procedure:	1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment. 2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs). 3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10:2013 on conducted measurement.					
Test Instruments:	Refer to section 6.0 for details					
Test mode:	Refer to section 5.2 for details					
Test environment:	Temp.:	25 °C	Humid.:	52%	Press.:	1012mbar
Test voltage:	AC 120V, 60Hz					
Test results:	Pass					

Remark: Both high and low voltages have been tested to show only the worst low voltage test data.

Measurement data

Line:



Suspected List

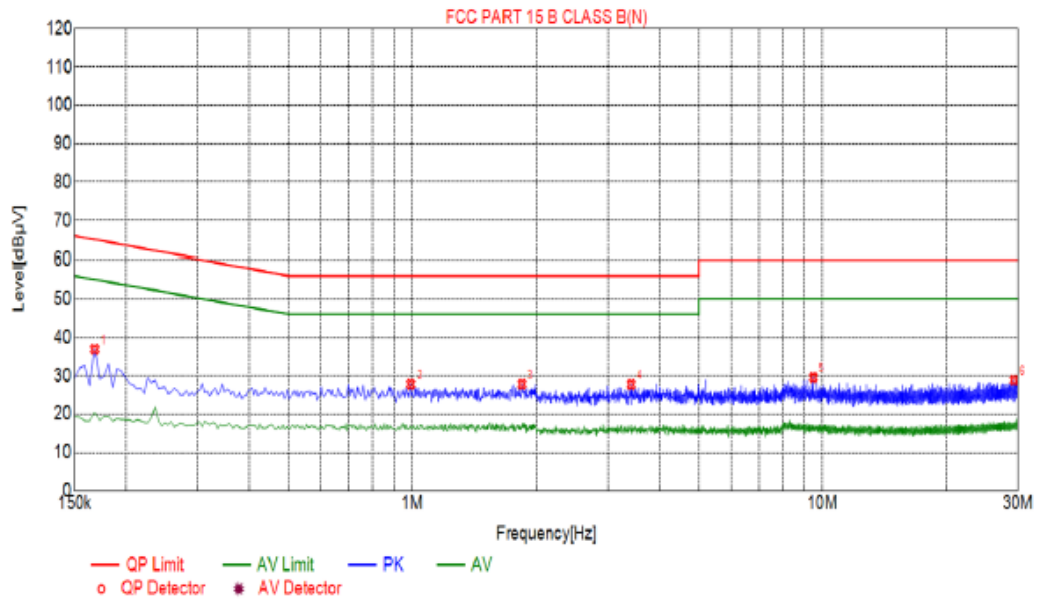
NO.	Freq. [MHz]	Level [dBμV]	Factor [dB]	Limit [dBμV]	Margin [dB]	Reading [dBμV]	Detector	Type
1	0.1770	36.10	10.05	64.63	28.53	26.05	PK	L
2	1.3650	28.55	10.11	56.00	27.45	18.44	PK	L
3	1.6710	29.36	10.12	56.00	26.64	19.24	PK	L
4	4.9425	28.10	10.26	56.00	27.90	17.84	PK	L
5	8.1735	29.35	10.14	60.00	30.65	19.21	PK	L
6	25.3500	29.65	10.25	60.00	30.35	19.40	PK	L

Remark: Margin = Limit – Level

Correction factor = Cable lose + LISN insertion loss

Level=Test receiver reading + correction factor

Neutral:



Suspected List								
NO.	Freq. [MHz]	Level [dBμV]	Factor [dB]	Limit [dBμV]	Margin [dB]	Reading [dBμV]	Detector	Type
1	0.1680	36.90	10.01	65.06	28.16	26.89	PK	N
2	0.9915	27.81	10.06	56.00	28.19	17.75	PK	N
3	1.8510	27.82	10.14	56.00	28.18	17.68	PK	N
4	3.4125	27.74	10.24	56.00	28.26	17.50	PK	N
5	9.5055	29.54	10.09	60.00	30.46	19.45	PK	N
6	29.2965	28.84	10.26	60.00	31.16	18.58	PK	N

Remark: $\text{Margin} = \text{Limit} - \text{Level}$

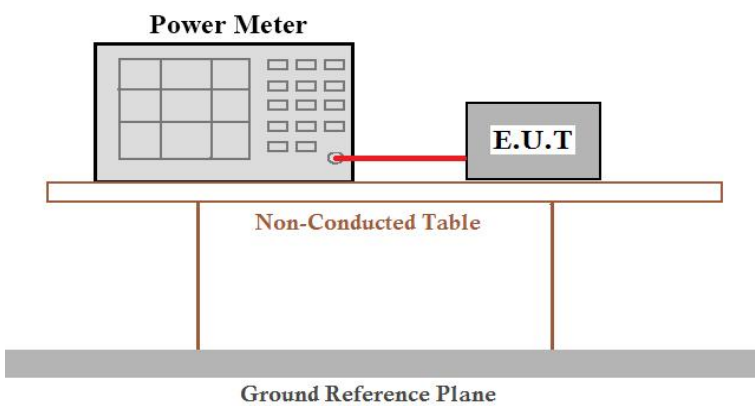
Correction factor = Cable loss + LISN insertion loss

Level = Test receiver reading + correction factor

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.

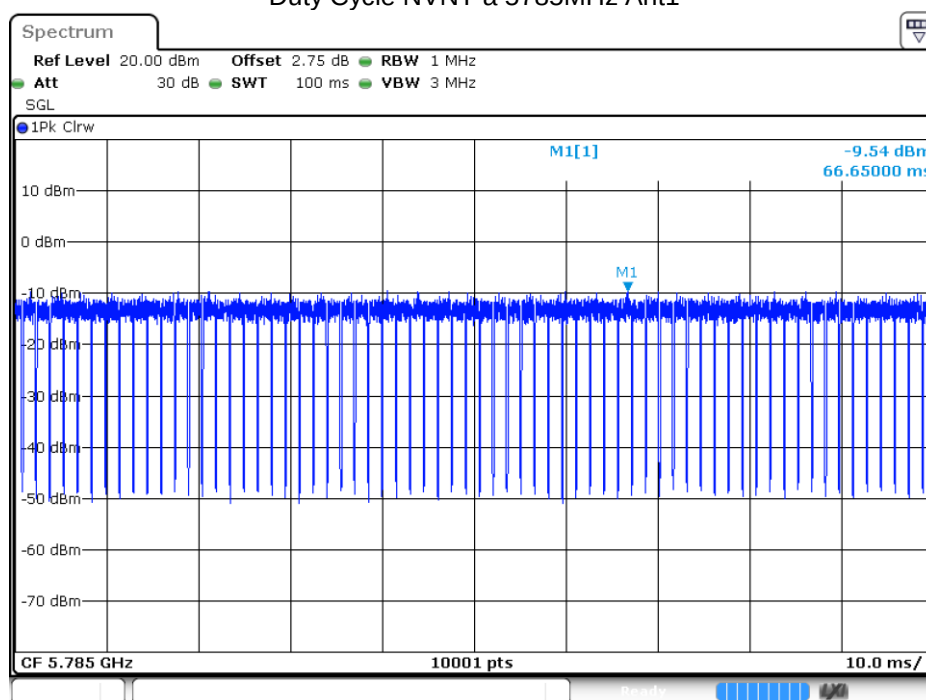
7.3 Conducted Peak Output Power

Test Requirement:	FCC Part15 E Section 15.407(a)(3)					
Test Method:	ANSI C63.10:2013 and KDB 789033 D02 General U-NII Test Procedures New Rules v02r01					
Limit:	30dBm					
Test setup:	 The diagram illustrates the test setup. A 'Power Meter' is connected to an 'E.U.T.' (Equipment Under Test) via a red cable. Both components are placed on a 'Non-Conducted Table'. The table is supported by two vertical legs. Below the table is a 'Ground Reference Plane'.					
Test Instruments:	Refer to section 6.0 for details					
Test mode:	Refer to section 5.2 for details					
Test environment:	Temp.:	24 °C	Humid.:	53%	Press.:	1012mbar
Test voltage:	AC 120V, 60Hz					
Test results:	Pass					

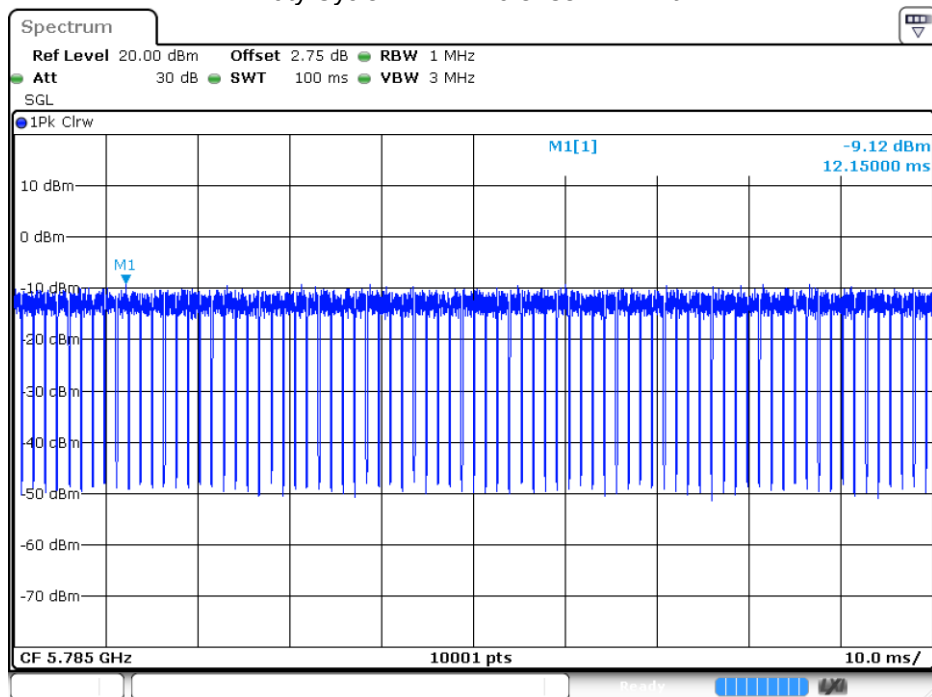
Measurement Data

Modulation	Duty cycle Ant1	Duty cycle Ant2	Duty Factor Ant1	Duty Factor Ant2
802.11a	91.22	91.2	0.4	0.4
802.11n(HT20)	89.82	89.44	0.47	0.48
802.11n(HT40)	81.77	81.35	0.87	0.9
802.11ac(HT20)	89.75	89.61	0.47	0.48
802.11ac(HT40)	81.41	81.51	0.89	0.89
802.11ac(HT80)	66.4	67.23	1.78	1.72

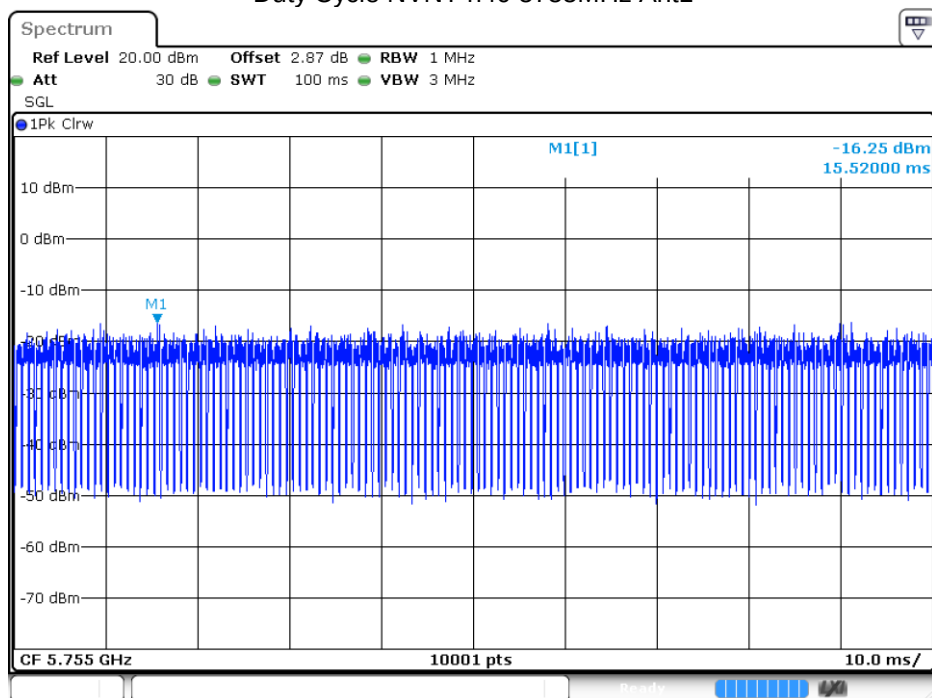
Duty Cycle NVNT a 5785MHz Ant1



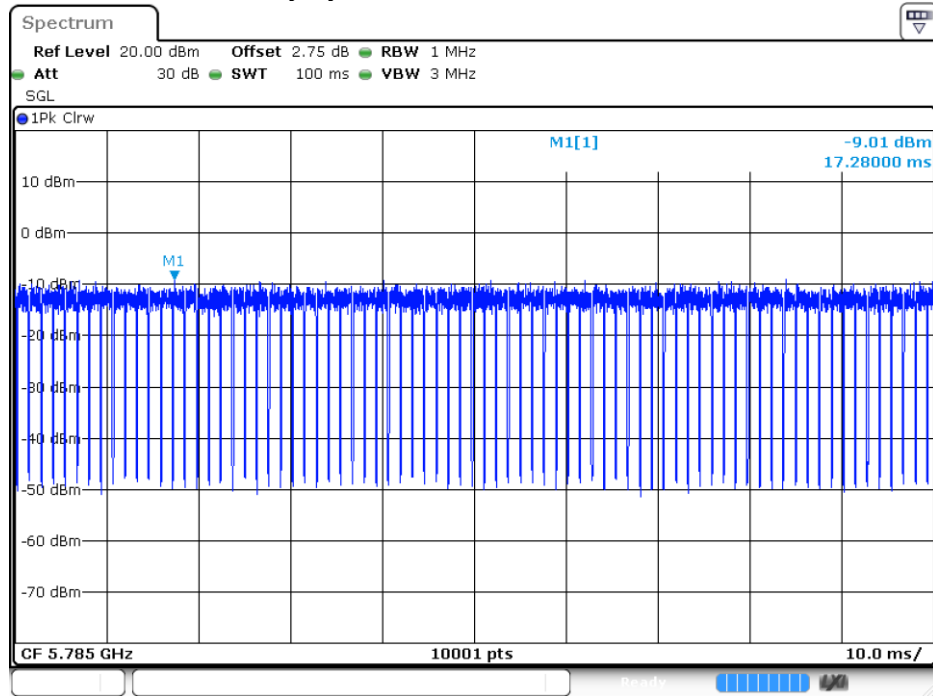
Duty Cycle NVNT n20 5785MHz Ant1



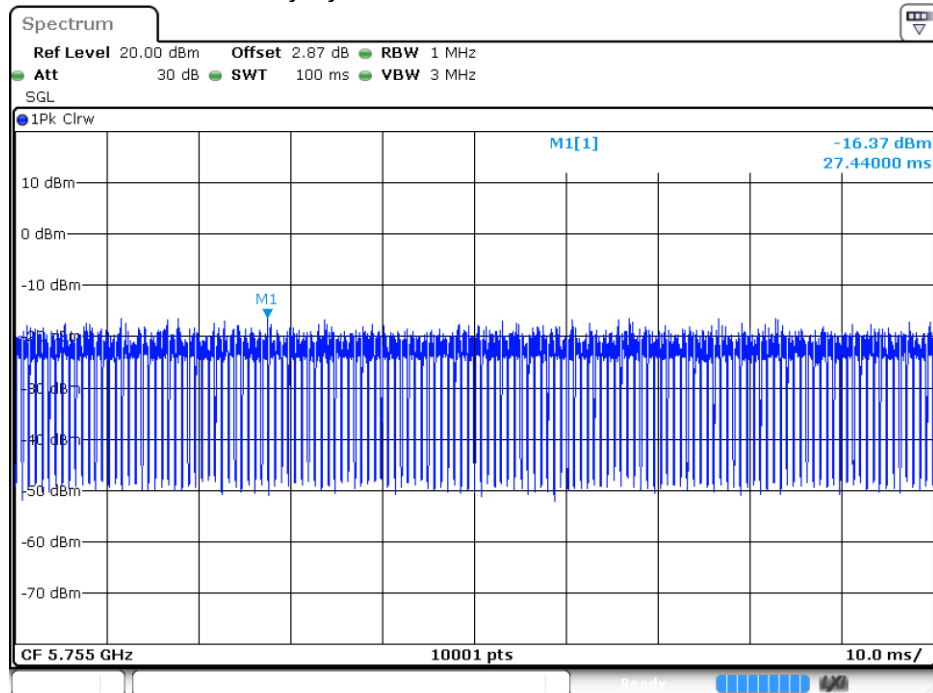
Duty Cycle NVNT n40 5755MHz Ant1



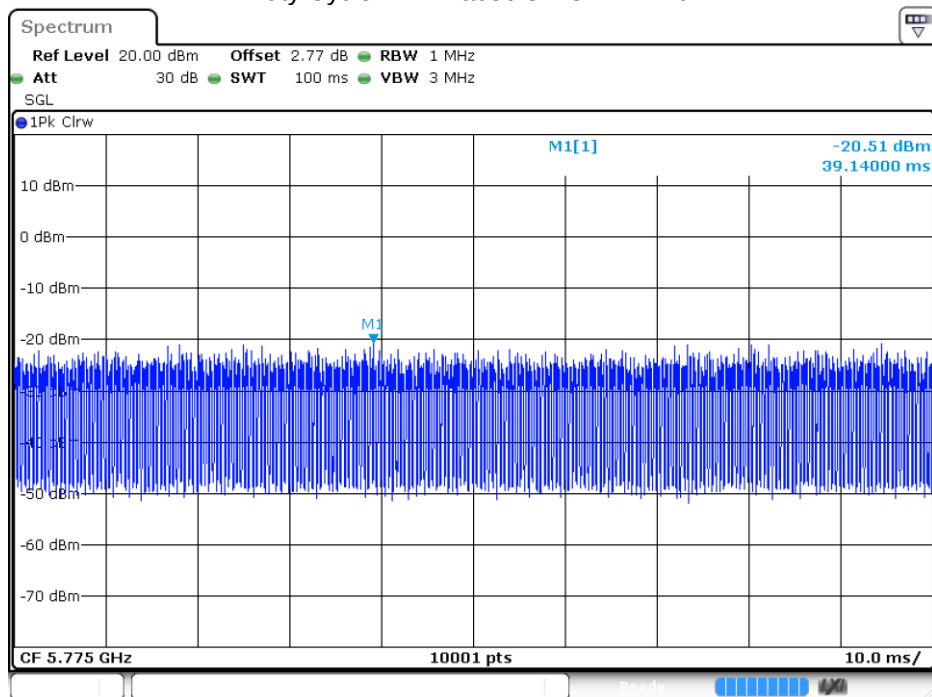
Duty Cycle NVNT ac20 5785MHz Ant1



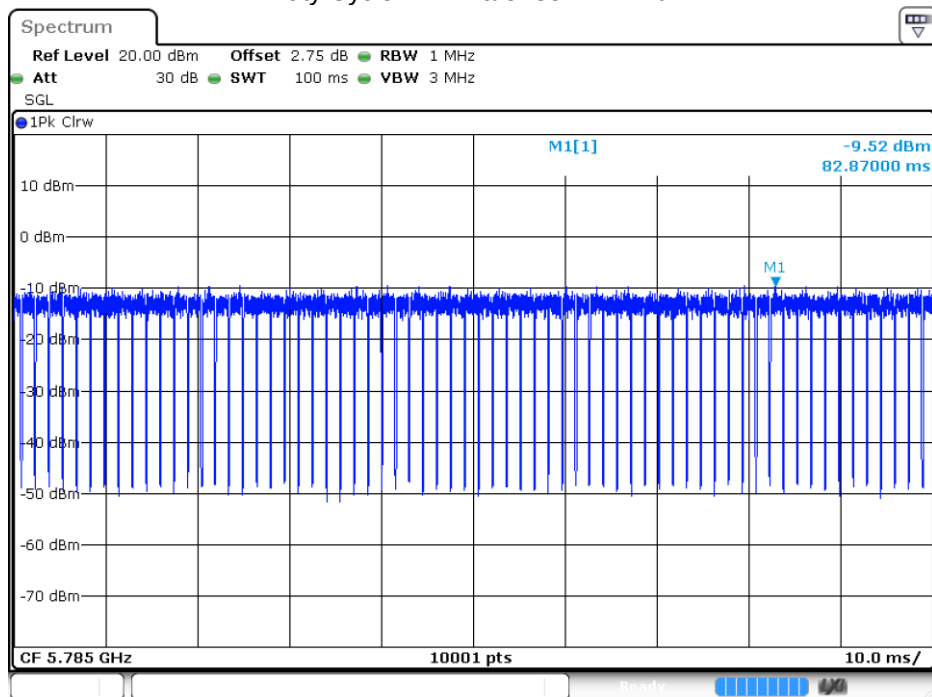
Duty Cycle NVNT ac40 5755MHz Ant1



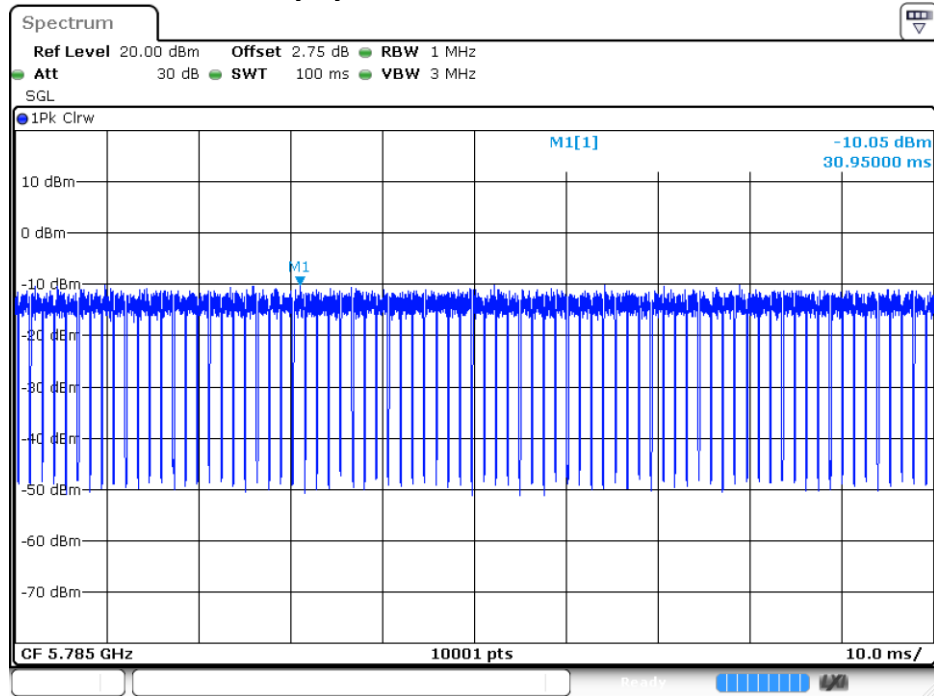
Duty Cycle NVNT ac80 5775MHz Ant1



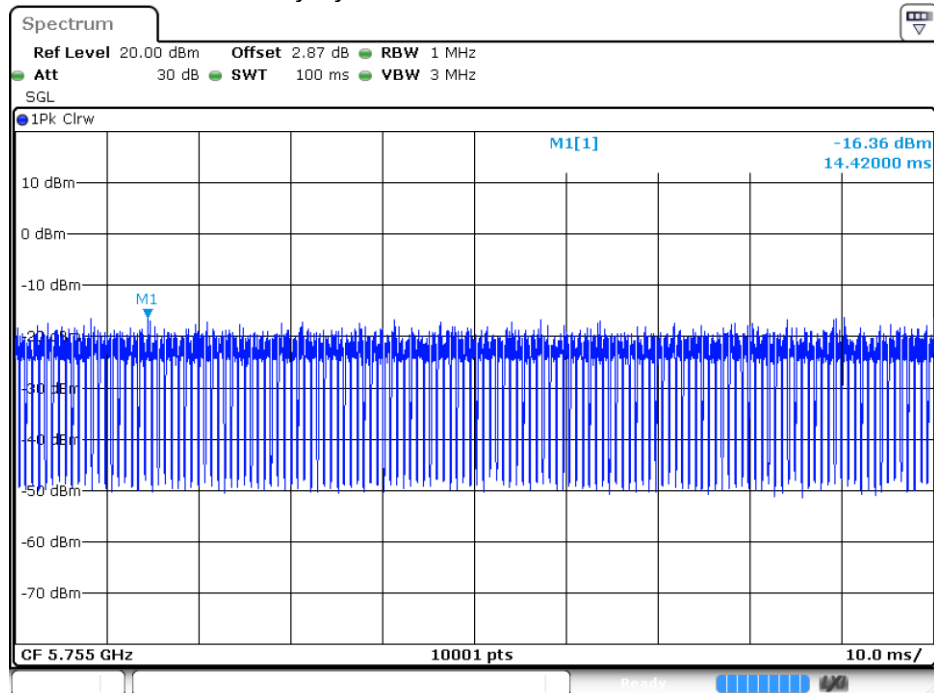
Duty Cycle NVNT a 5785MHz Ant2



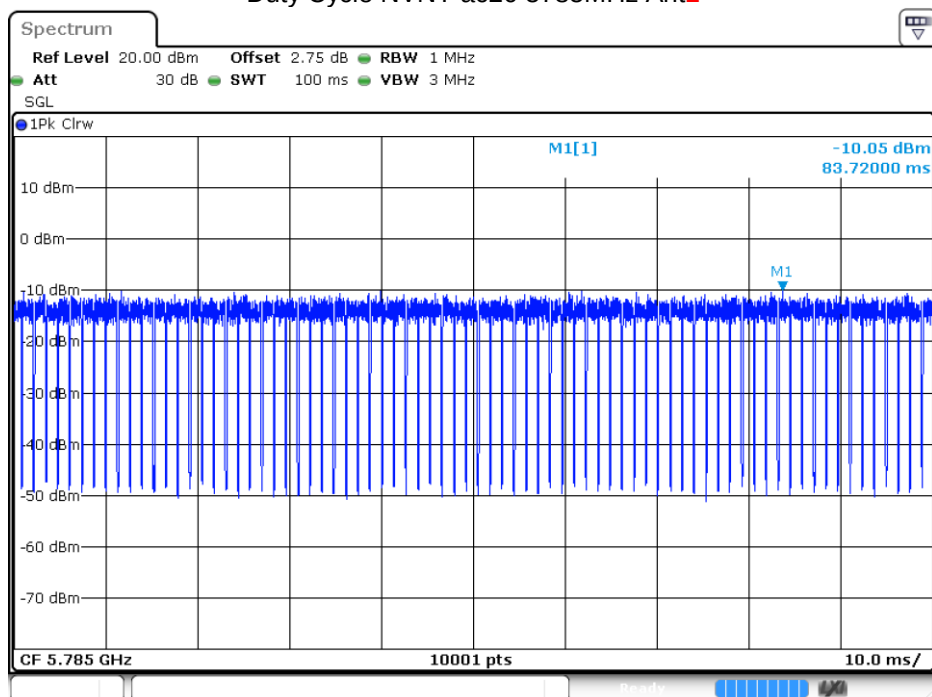
Duty Cycle NVNT n20 5785MHz Ant2



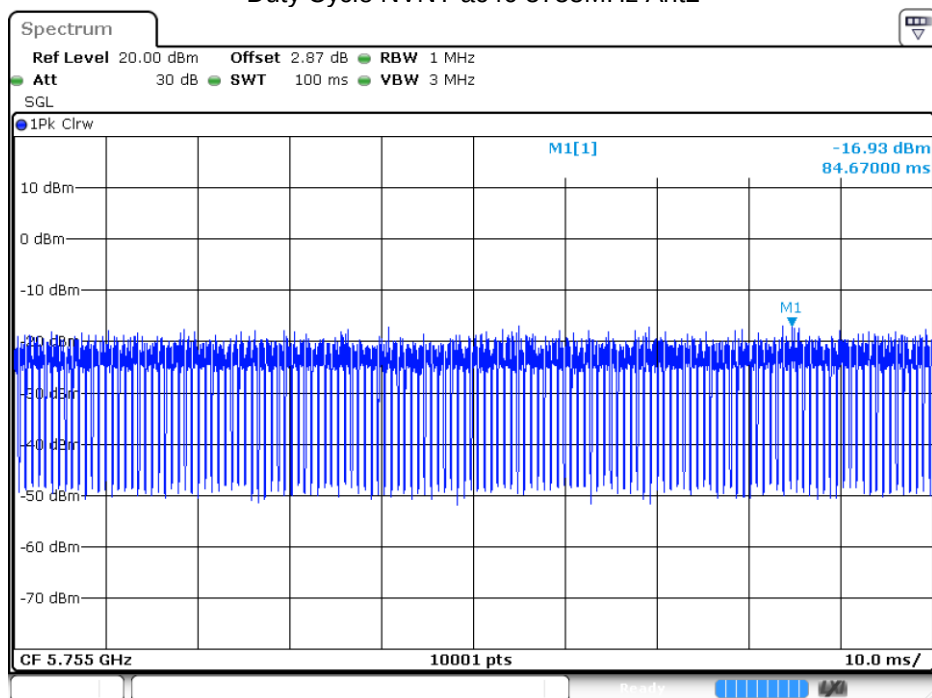
Duty Cycle NVNT n40 5755MHz Ant2



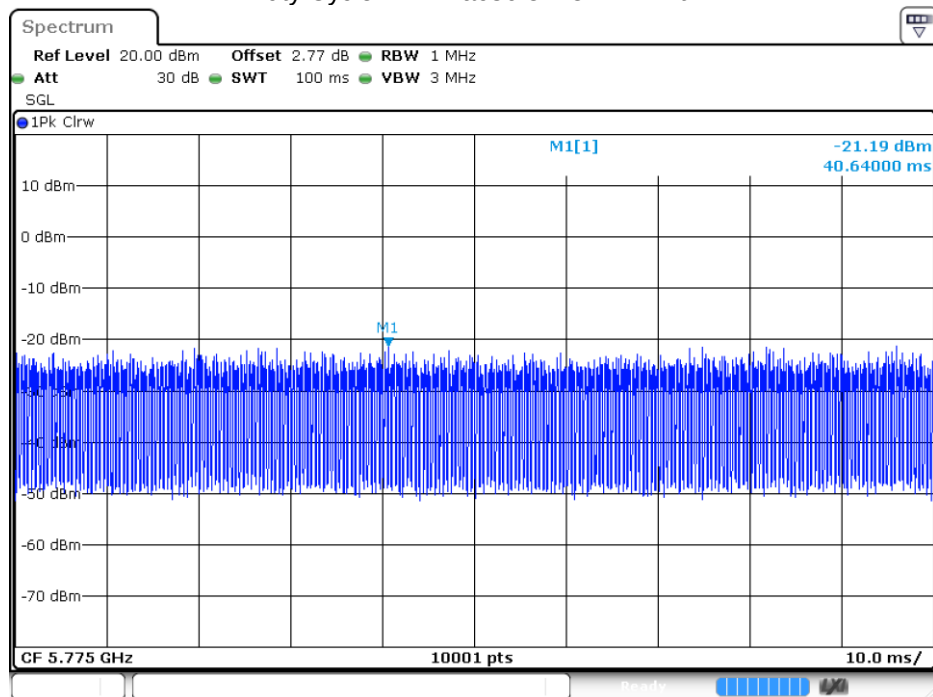
Duty Cycle NVNT ac20 5785MHz Ant2



Duty Cycle NVNT ac40 5755MHz Ant2



Duty Cycle NVNT ac80 5775MHz Ant2



802.11a mode								
CH No.	Frequency (MHz)	Duty Factor	Total Output Power Ant1 (dBm)	Duty Factor	Total Output Power Ant2 (dBm)	Mimo	Limit (dBm)	Result
149	5745	0.4	0.08	0.4	0.03	/	30	Pass
157	5785	0.4	-0.03	0.4	-0.09	/	30	Pass
165	5825	0.4	-0.07	0.4	-0.1	/	30	Pass

802.11n(HT20) mode								
CH No.	Frequency (MHz)	Duty Factor	Total Output Power Ant1 (dBm)	Duty Factor	Total Output Power Ant2 (dBm)	Mimo	Limit (dBm)	Result
149	5745	0.47	0.04	0.47	-0.04	3.01	30	Pass
157	5785	0.47	0.03	0.47	0.04	3.05	30	Pass
165	5825	0.47	0.08	0.47	-0.08	3.01	30	Pass

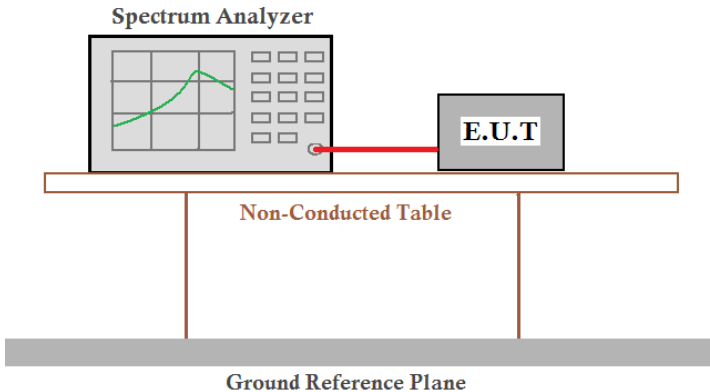
802.11ac(HT20) mode								
CH No.	Frequency (MHz)	Duty Factor	Total Output Power Ant1 (dBm)	Duty Factor	Total Output Power Ant2 (dBm)	Mimo	Limit (dBm)	Result
149	5745	0.47	-0.02	0.48	-0.14	2.93	30	Pass
157	5785	0.47	-0.2	0.48	-0.23	2.80	30	Pass
165	5825	0.47	-0.14	0.48	-0.2	2.84	30	Pass

802.11n(HT40) mode								
CH No.	Frequency (MHz)	Duty Factor	Total Output Power Ant1 (dBm)	Duty Factor	Total Output Power Ant2 (dBm)	Mimo	Limit (dBm)	Result
151	5755	0.87	-2.1	0.9	-2.24	0.84	30	Pass
159	5795	0.87	-2.03	0.9	-2.19	0.90	30	Pass

802.11ac(HT40) mode								
CH No.	Frequency (MHz)	Duty Factor	Total Output Power Ant1 (dBm)	Duty Factor	Total Output Power Ant2 (dBm)	Mimo	Limit (dBm)	Result
151	5755	0.89	-2.03	0.89	-2.08	0.96	30	Pass
159	5795	0.89	-1.95	0.89	-2.13	0.97	30	Pass

802.11 ac(HT80)								
CH No.	Frequency (MHz)	Duty Factor	Total Output Power Ant1(dBm)	Duty Factor	Total Output Power Ant2(dBm)	Mimo	Limit (dBm)	Result
155	5775	1.78	-3.03	1.72	-3.28	-0.14	30	Pass

7.4 Channel Bandwidth and 99% Occupied Bandwidth

Test Requirement:	FCC Part15 E Section 15.407(e)					
Test Method:	ANSI C63.10:2013 and KDB 789033 D02 General U-NII Test Procedures New Rules v02r01					
Limit:	>500KHz					
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 the Spectrum Analyzer and the E.U.T. are placed on a Non-Conducted Table. The table is supported by two vertical legs. Below the table is a Ground Reference Plane.					
Test Instruments:	Refer to section 6.0 for details					
Test mode:	Refer to section 5.2 for details					
Test environment:	Temp.:	24 °C	Humid.:	53%	Press.:	1012mbar
Test voltage:	AC 120V, 60Hz					
Test results:	Pass					

t Data

Ant1:

Test CH	Channel Bandwidth (MHz)						Limit (KHz)	Result
	802.11a	802.11n (HT20)	802.11ac (VHT20)	802.11n (HT40)	802.11ac (VHT40)	802.11ac (VHT80)		
Lowest	16.32	17.56	17.56	36.32	36.32	75.06	>500	Pass
Middle	16.33	17.57	17.57	--	--	--		
Highest	16.33	17.56	17.56	36.33	36.26	--		

Test CH	99%Channel Bandwidth (MHz)						Limit (KHz)	Result
	802.11a	802.11n (HT20)	802.11ac (VHT20)	802.11n (HT40)	802.11ac (VHT40)	802.11ac (VHT80)		
Lowest	16.95	17.79	17.76	36.27	36.26	75.08	>500	Pass
Middle	16.72	17.76	17.74	--	--	--		
Highest	16.71	17.76	17.75	36.25	36.24	--		

Remark: "---"is not applicable

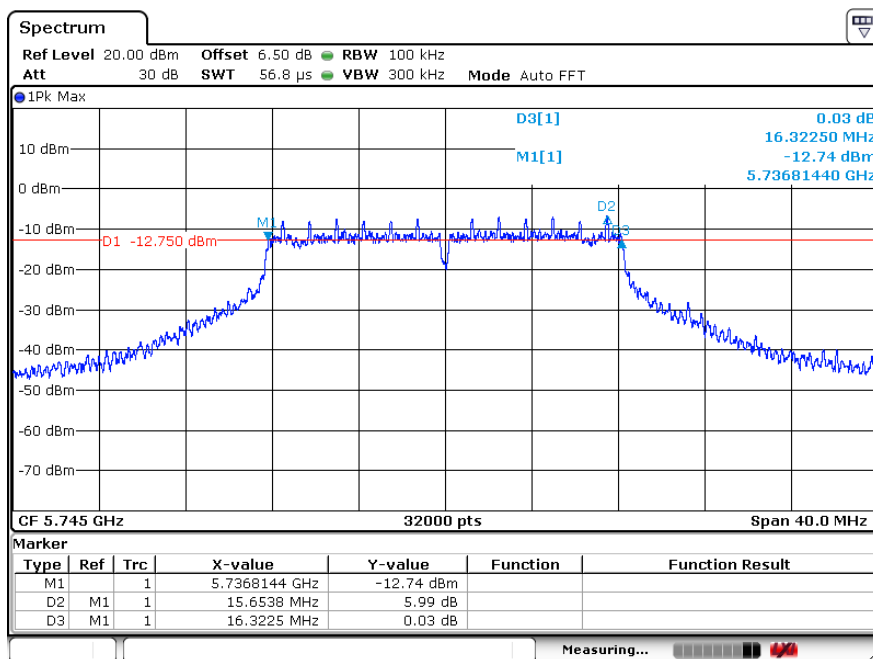
Note: The worst data is Antenna 1, only shown Antenna 1 Plot

Test plot as follows:

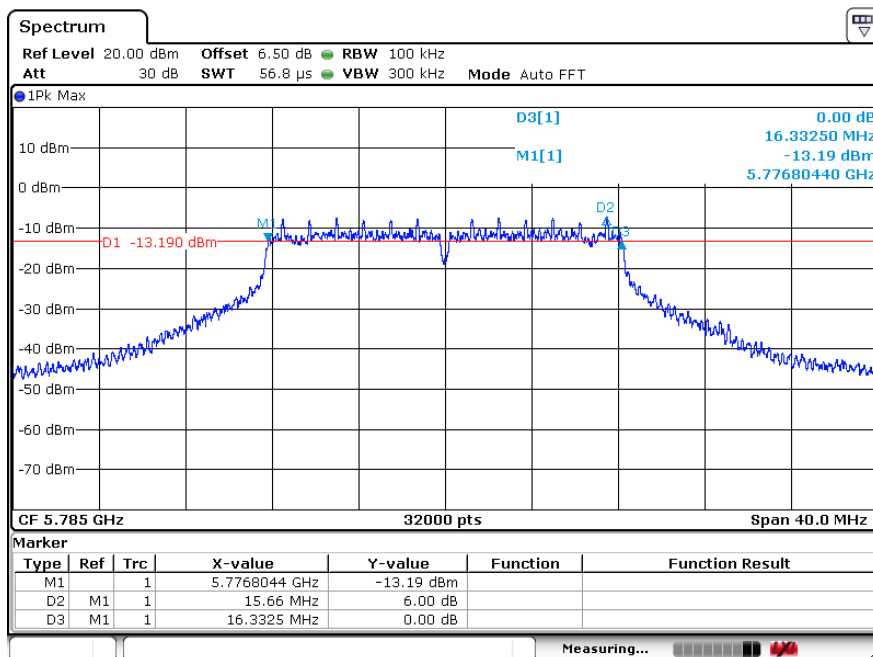
6dB Occupied Bandwidth

Ant1:

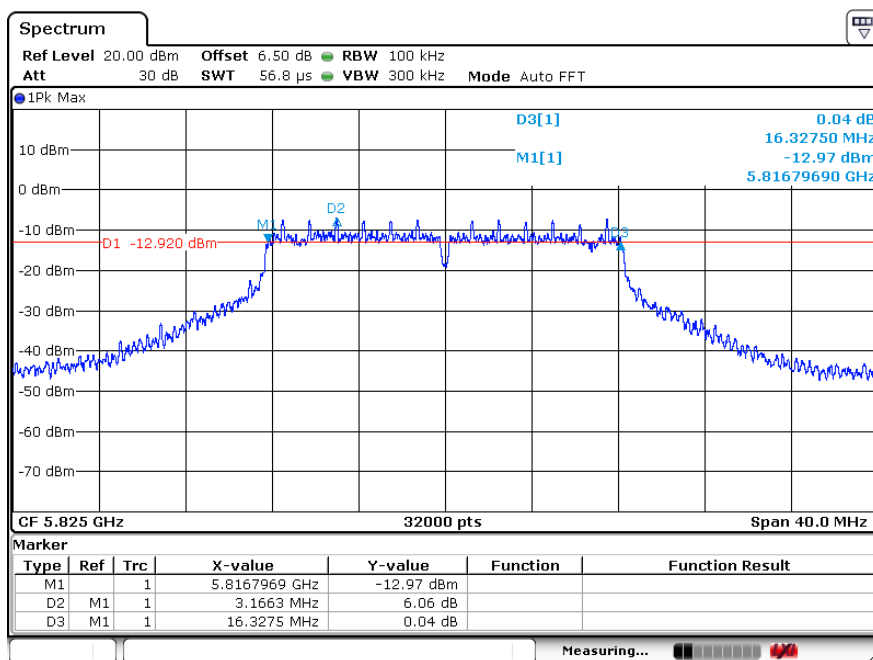
Test mode: 802.11a



Lowest channel

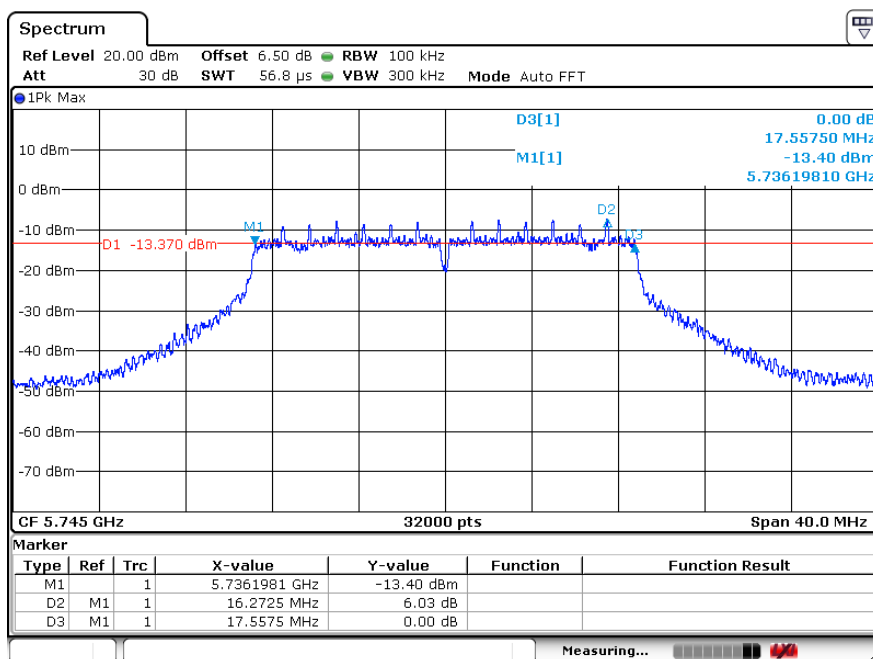


Middle channel

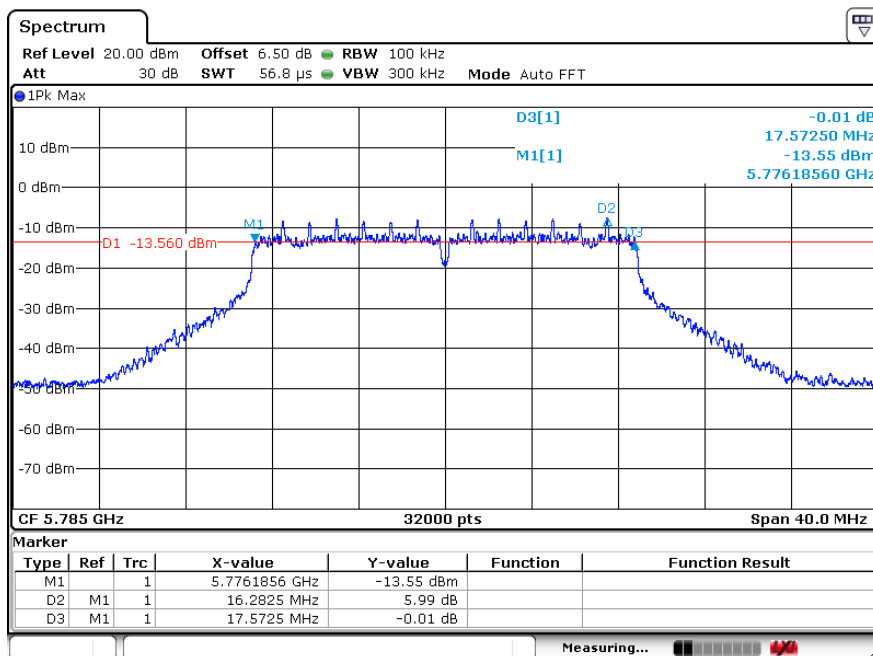


Highest channel

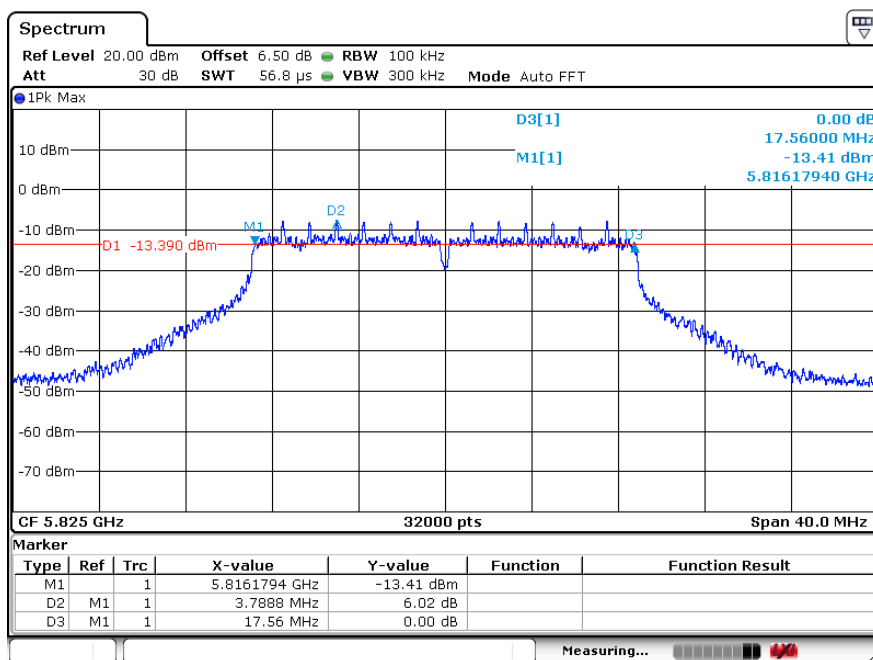
Test mode: 802.11n(HT20)



Lowest channel

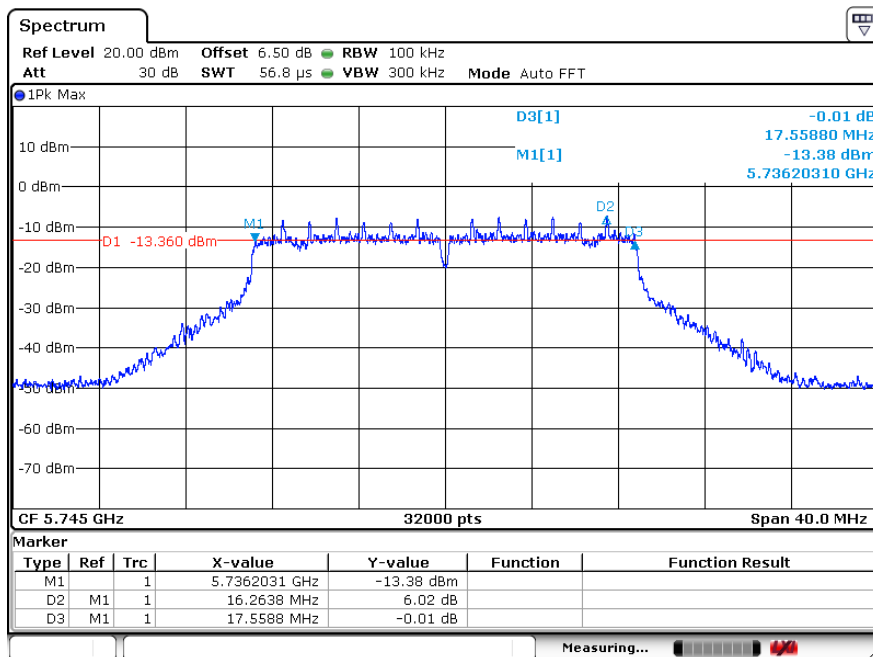


Middle channel

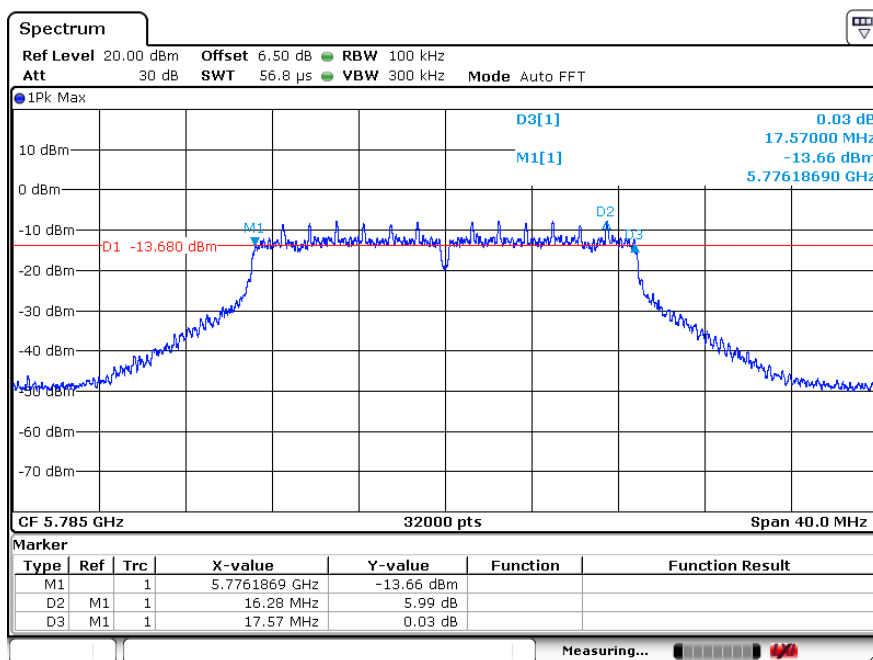


Highest channel

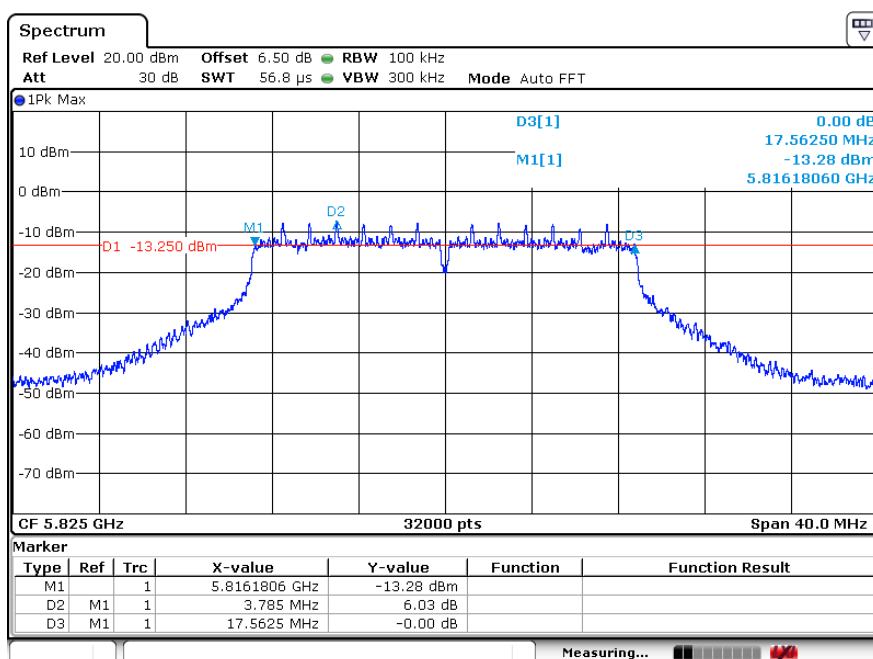
Test mode: 802.11ac(VHT20)



Lowest channel

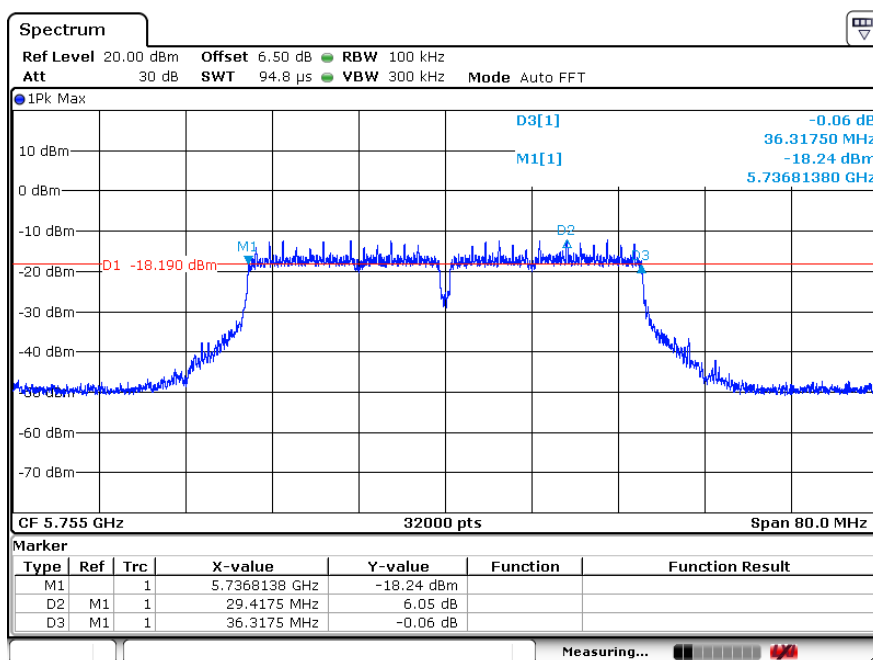


Middle channel

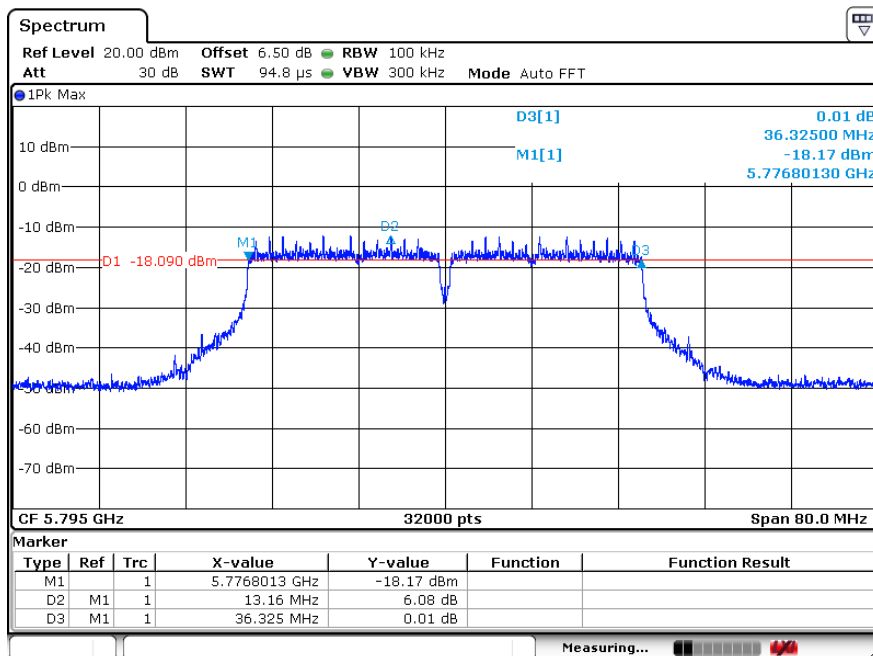


Highest channel

Test mode: 802.11n(HT40)

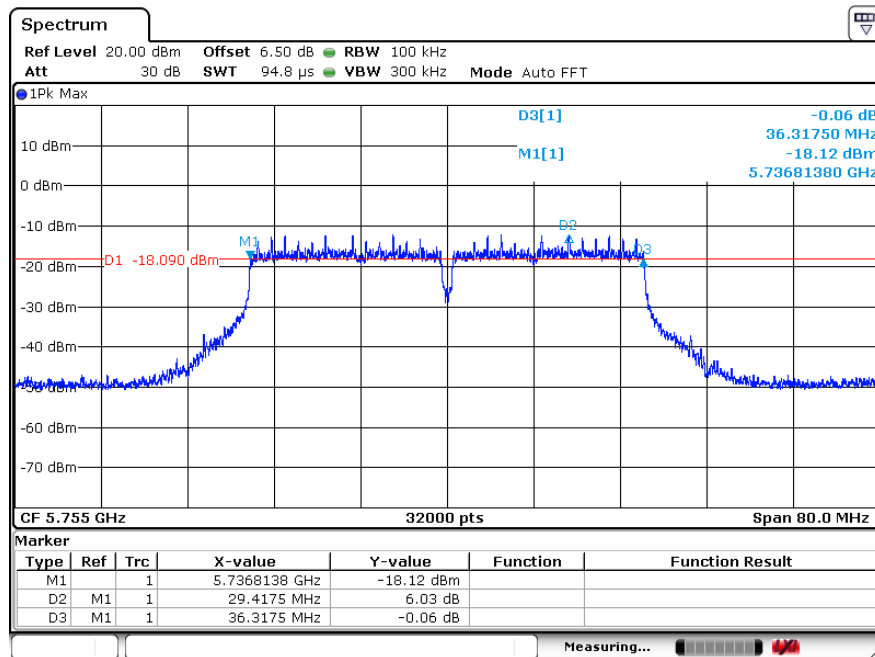


Lowest channel

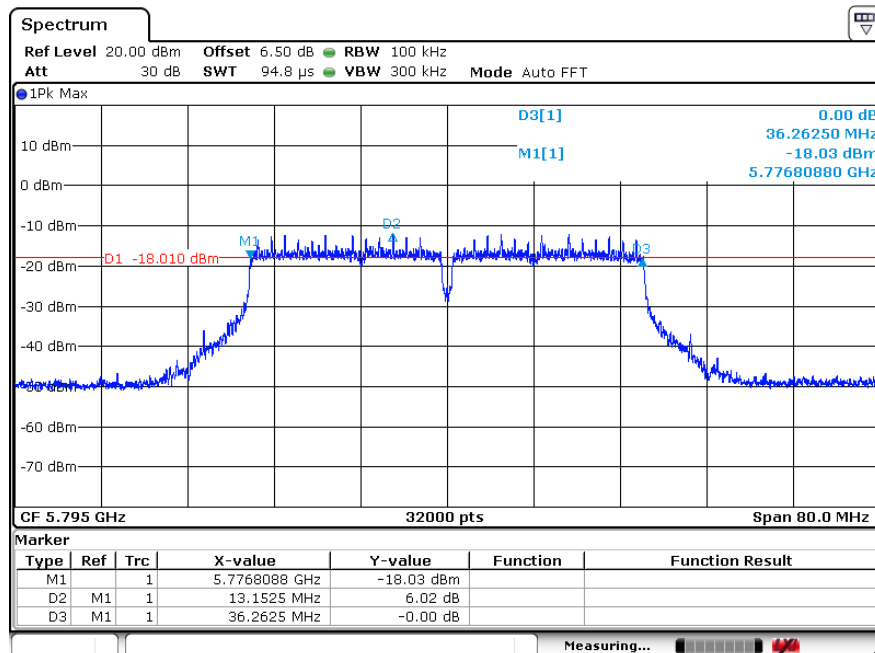


Highest channel

Test mode: 802.11ac(VHT40)

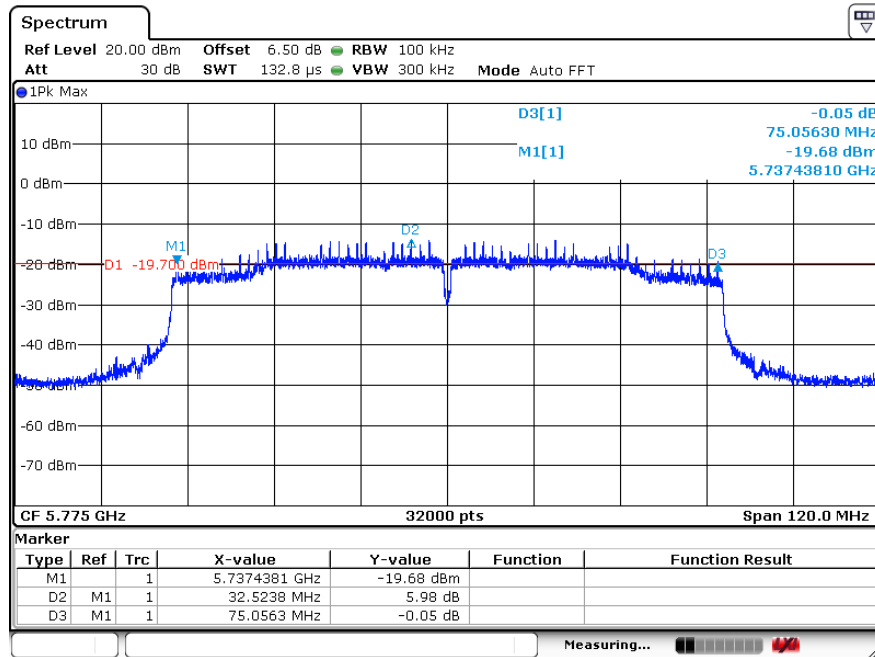


Lowest channel



Highest channel

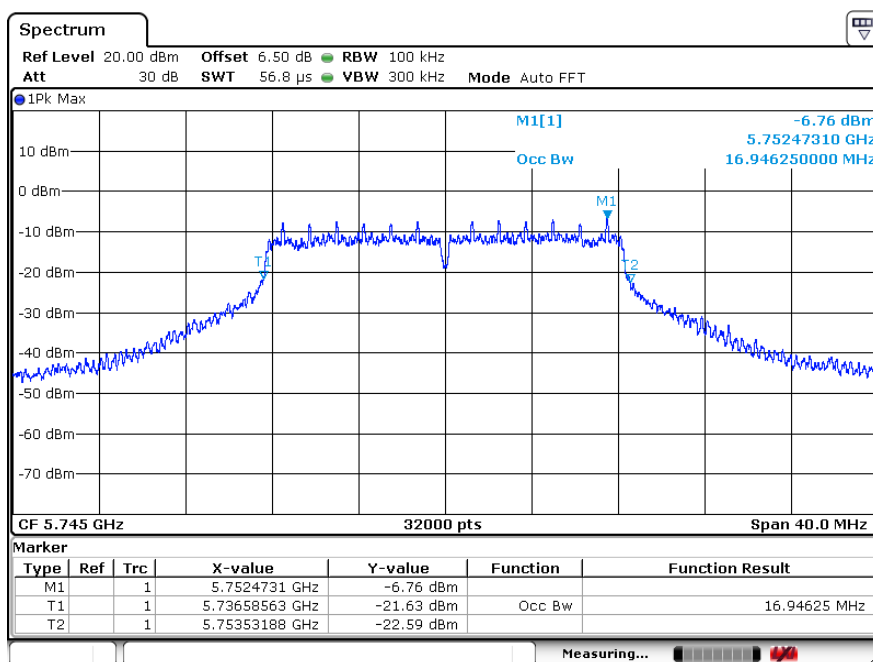
Test mode: 802.11ac(VHT80)



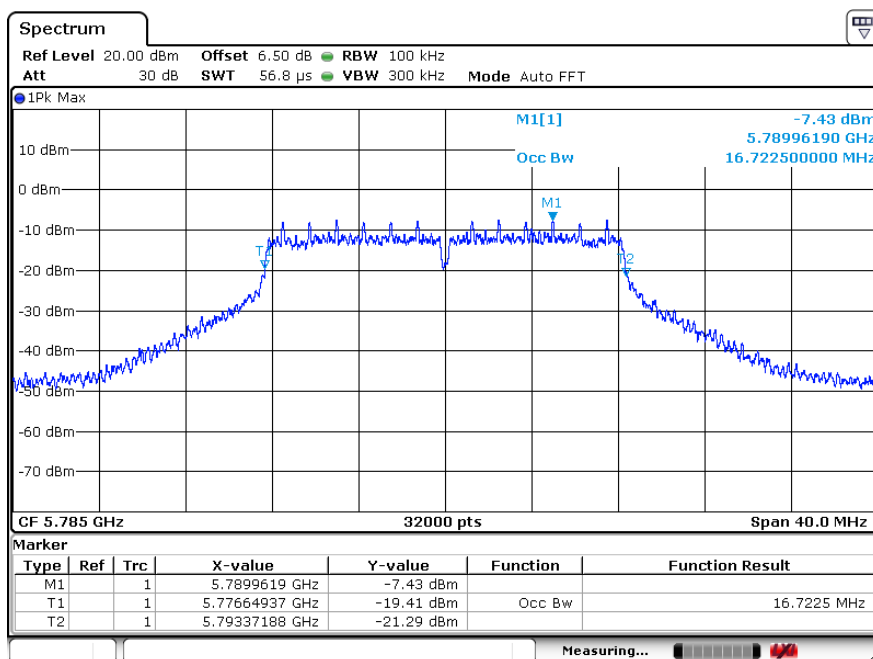
99% Occupied Bandwidth

Ant1:

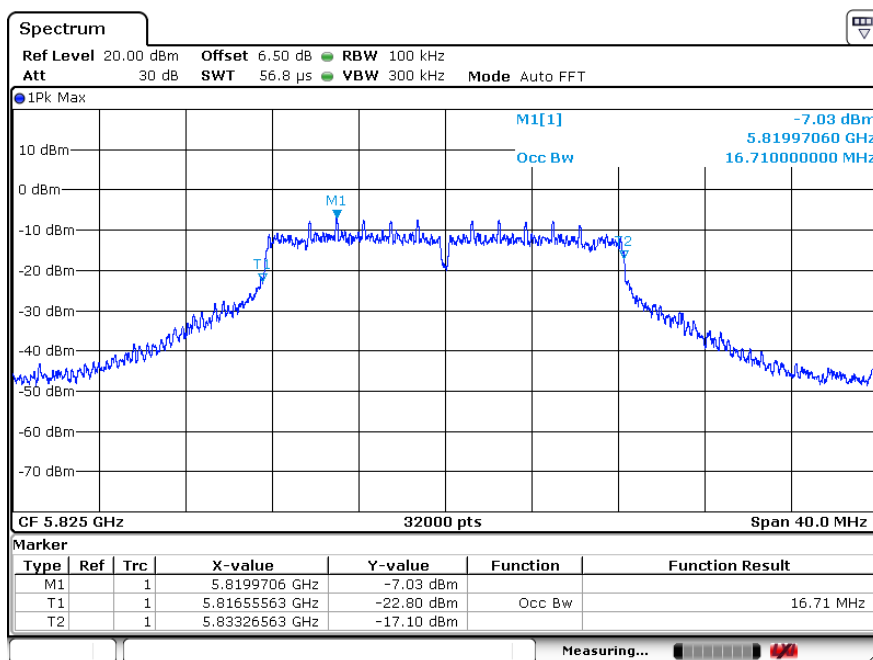
Test mode: 802.11a



Lowest channel

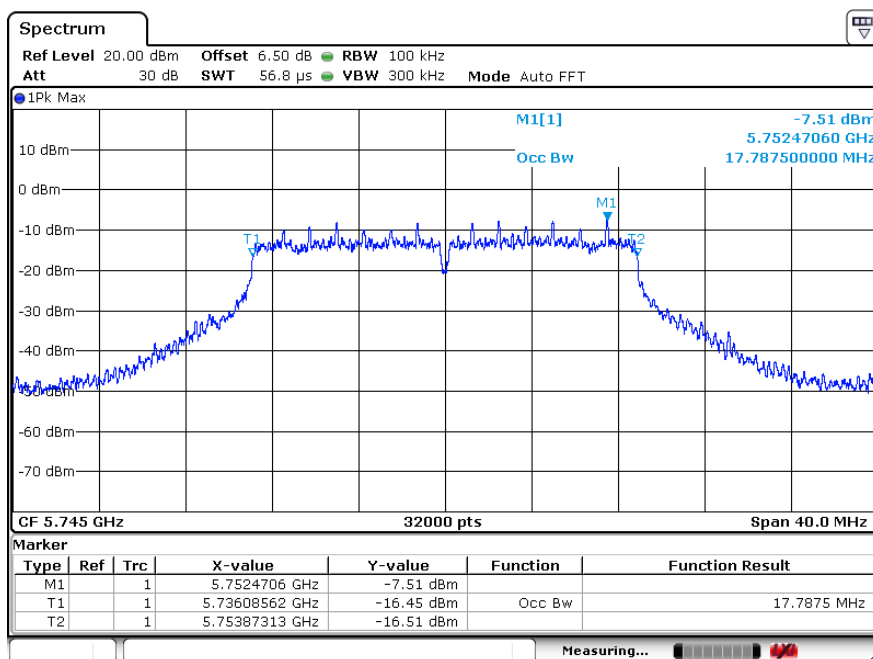


Middle channel

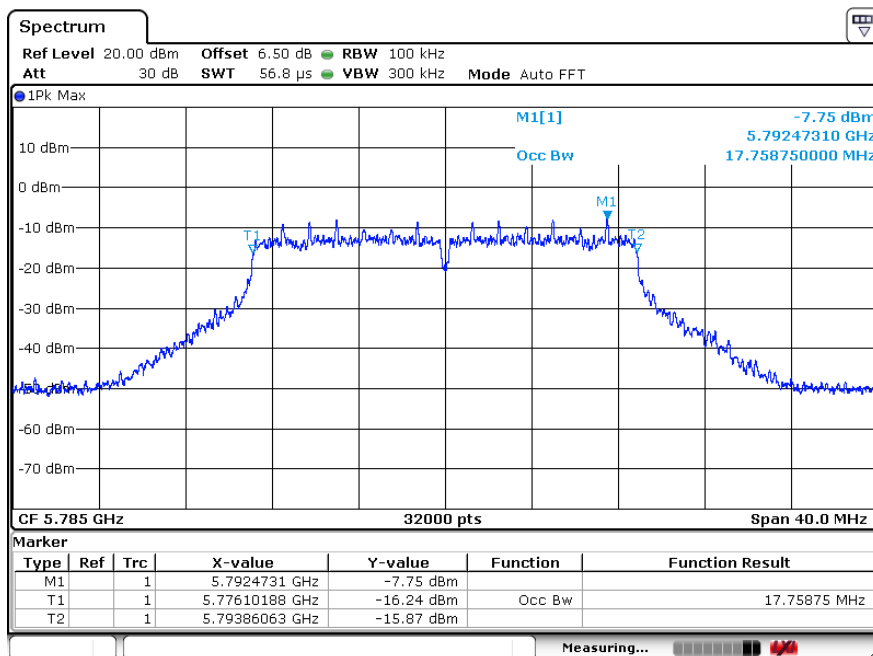


Highest channel

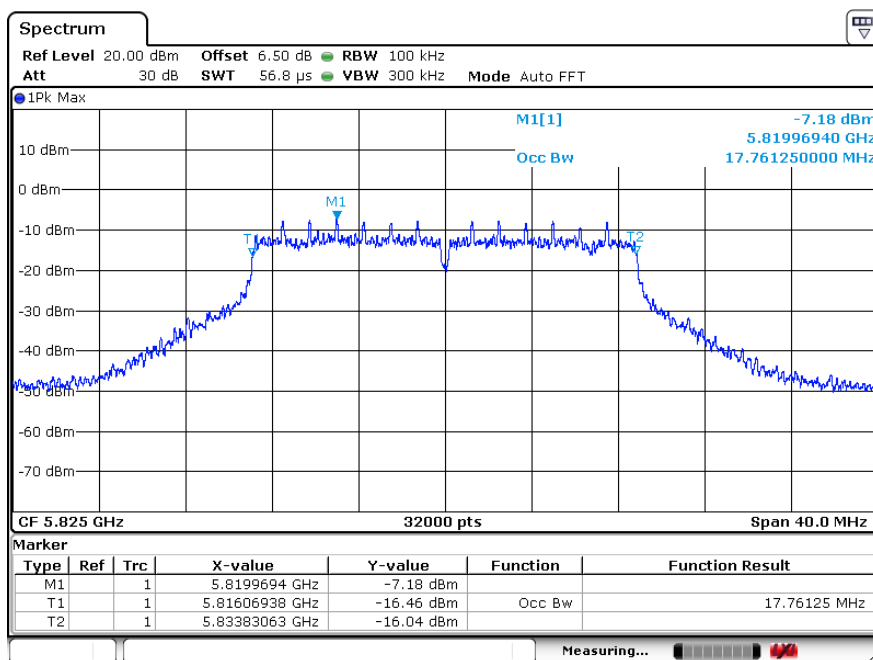
Test mode: 802.11n(HT20)



Lowest channel

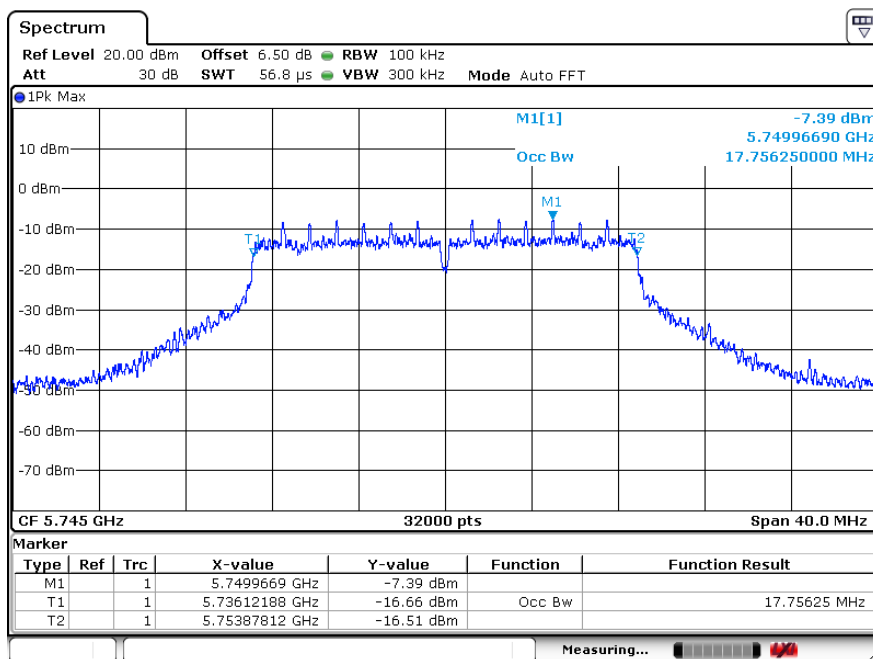


Middle channel

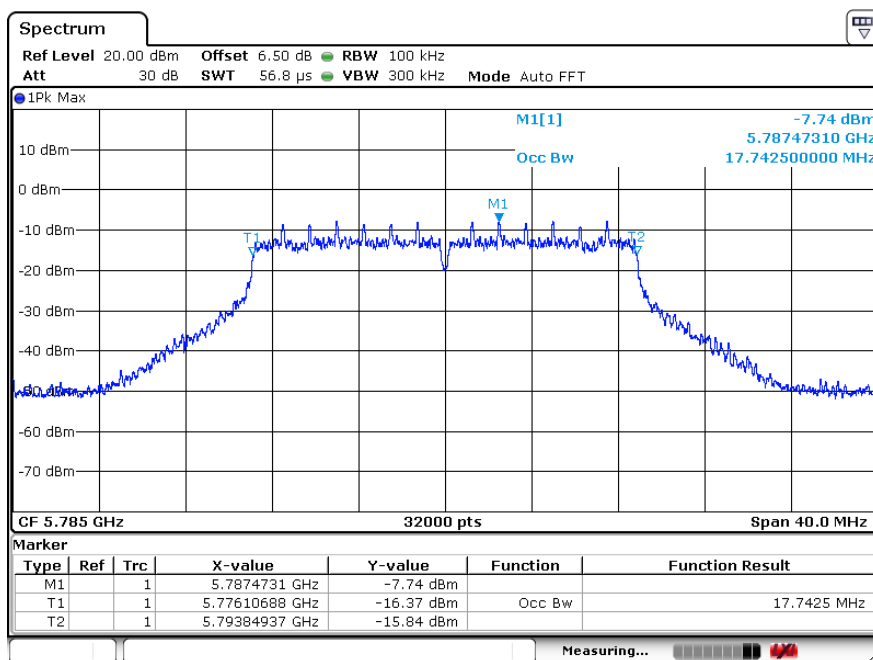


Highest channel

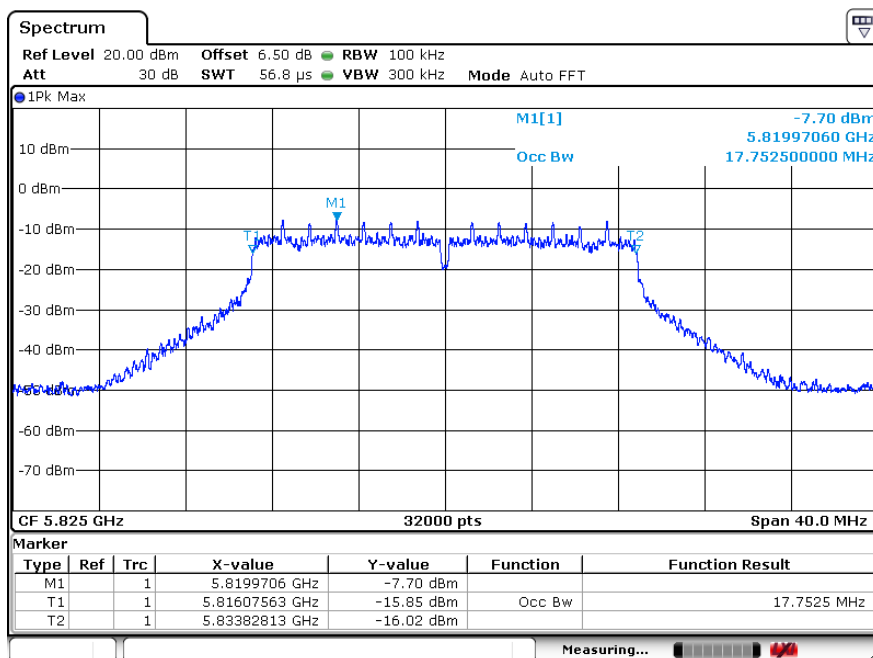
Test mode: 802.11ac(VHT20)



Lowest channel

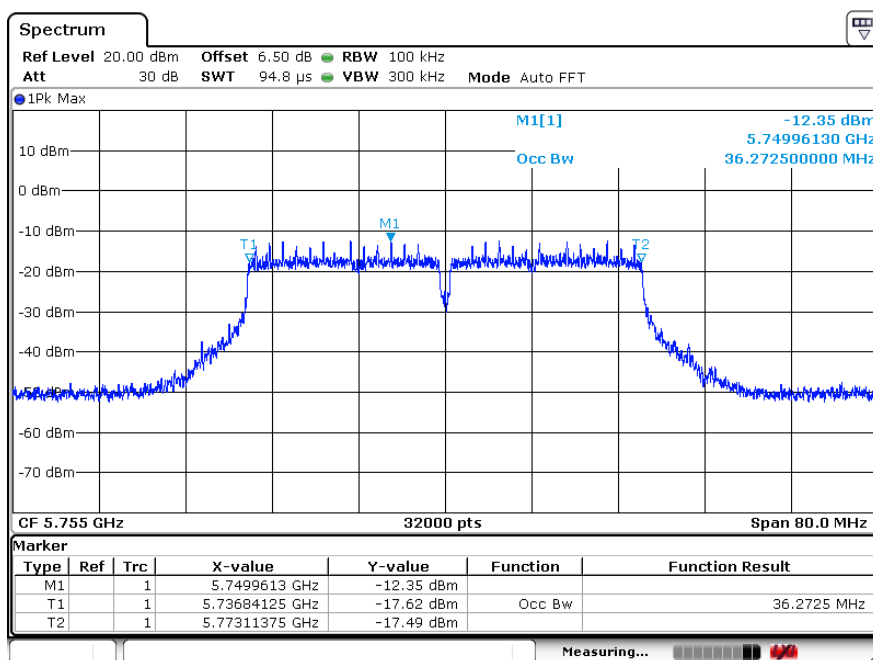


Middle channel

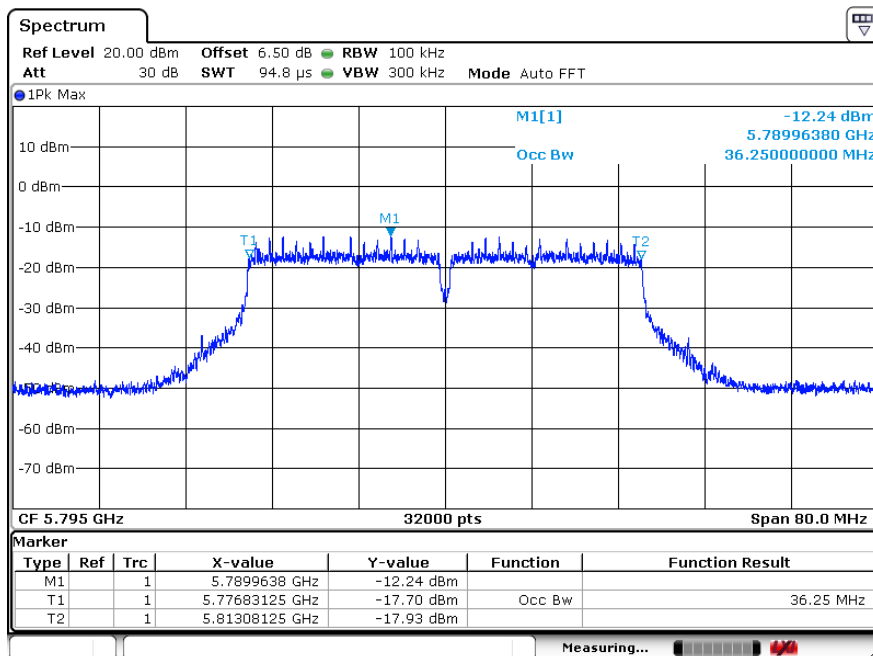


Highest channel

Test mode: 802.11n(VHT40)

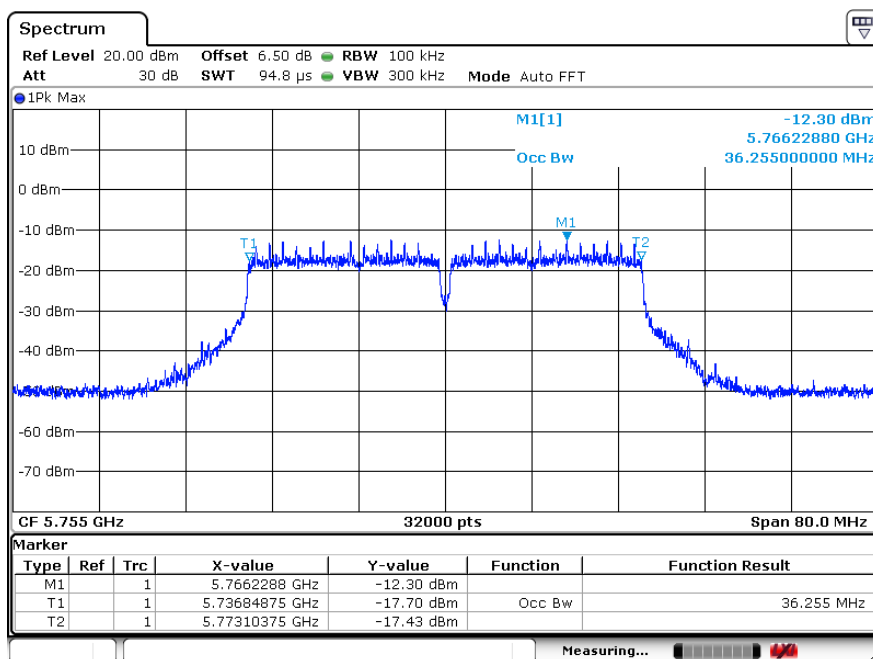


Lowest channel

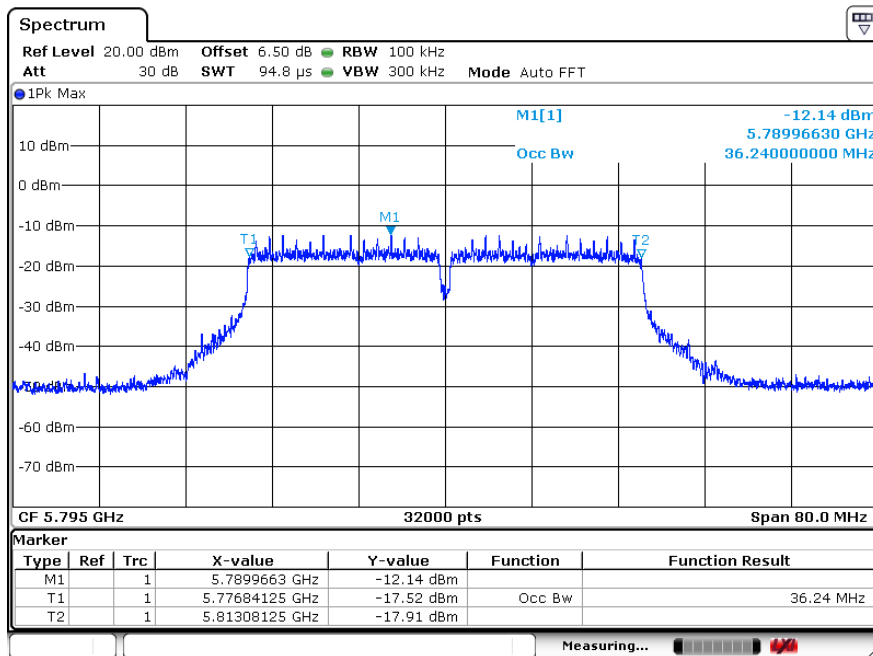


Highest channel

Test mode: 802.11ac(VHT40)

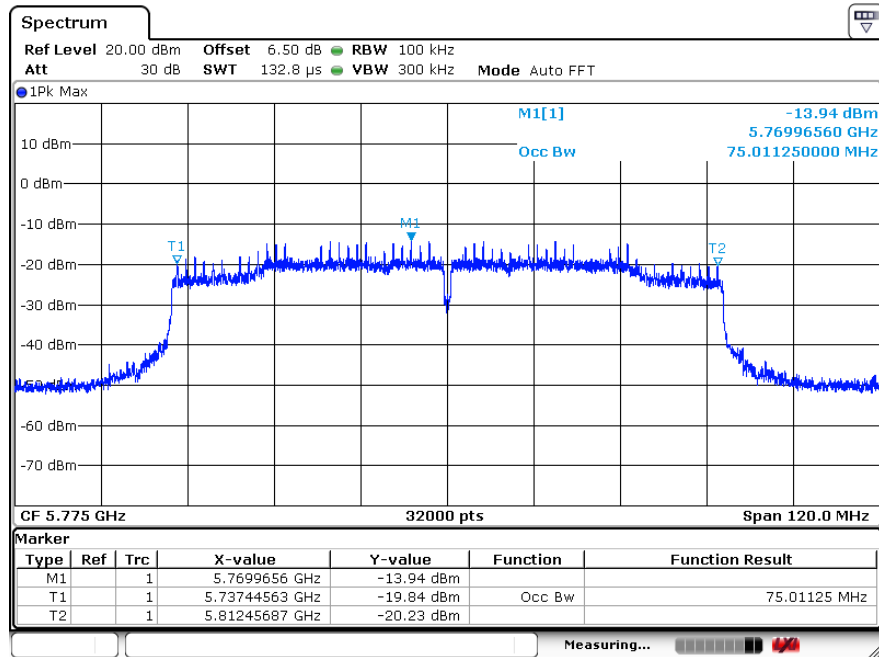


Lowest channel

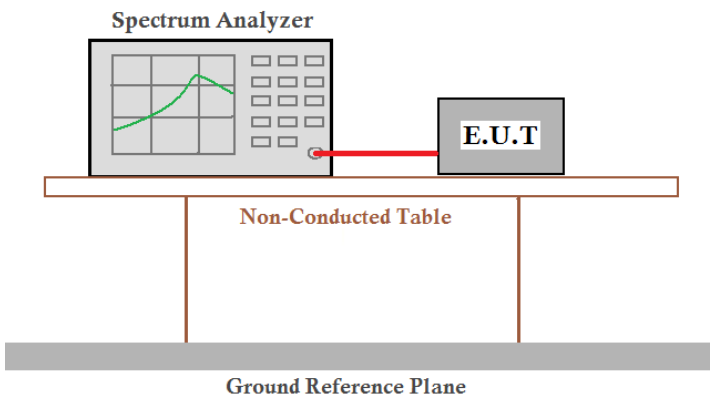


Highest channel

Test mode: 802.11ac(VHT80)



Power Spectral Density

Test Requirement:	FCC Part15 E Section 15.407(a)(3)					
Test Method:	ANSI C63.10:2013 and KDB 789033 D02 General U-NII Test Procedures New Rules v02r01					
Limit:	30dBm/500kHz					
Test setup:						
Test Instruments:	Refer to section 6.0 for details					
Test mode:	Refer to section 5.2 for details					
Test environment:	Temp.:	24 °C	Humid.:	53%	Press.:	1012mbar
Test voltage:	AC 120V, 60Hz					
Test results:	Pass					

Measurement Data

Modulation	Duty cycle Ant1	Duty cycle Ant2	Duty Factor Ant1	Duty Factor Ant2
802.11a	91.22	91.2	0.4	0.4
802.11n(HT20)	89.82	89.44	0.47	0.48
802.11n(HT40)	81.77	81.35	0.87	0.9
802.11ac(HT20)	89.75	89.61	0.47	0.48
802.11ac(HT40)	81.41	81.51	0.89	0.89
802.11ac(HT80)	66.4	67.23	1.78	1.72

802.11a mode								
CH No.	Frequency (MHz)	Duty Factor	Total PSD Power Ant1(dBm/MHz)	Duty Factor	Total PSD Power Ant2(dBm/MHz)	Mimo	Limit (dBm/MHz)	Result
149	5745	0.4	-12.92	0.4	-12.24	/	30	Pass
157	5785	0.4	-12.23	0.4	-12.77	/	30	Pass
165	5825	0.4	-13.21	0.4	-12.91	/	30	Pass

802.11n(HT20) mode								
CH No.	Frequency (MHz)	Duty Factor	Total PSD Power Ant1(dBm/MHz)	Duty Factor	Total PSD Power Ant2(dBm/MHz)	Mimo	Limit (dBm/MHz)	Result
149	5745	0.47	-12.23	0.47	-13.81	-9.94	30	Pass
157	5785	0.47	-11.07	0.47	-12.79	-8.84	30	Pass
165	5825	0.47	-10.93	0.47	-13.09	-8.87	30	Pass

802.11ac(HT20) mode								
CH No.	Frequency (MHz)	Duty Factor	Total PSD Power Ant1(dBm/MHz)	Duty Factor	Total PSD Power Ant2(dBm/MHz)	Mimo	Limit (dBm/MHz)	Result
149	5745	0.47	-11.27	0.48	-13.64	-9.28	30	Pass
157	5785	0.47	-12.01	0.48	-12.4	-9.19	30	Pass
165	5825	0.47	-12.49	0.48	-13.46	-9.94	30	Pass

802.11n(HT40) mode								
CH No.	Frequency (MHz)	Duty Factor	Total PSD Power Ant1(dBm/MHz)	Duty Factor	Total PSD Power Ant2(dBm/MHz)	Mimo	Limit (dBm/MHz)	Result
151	5755	0.87	-18.01	0.9	-17.86	-14.92	30	Pass
159	5795	0.87	-18.62	0.9	-18.46	-15.53	30	Pass

802.11ac(HT40) mode								
CH No.	Frequency (MHz)	Duty Factor	Total PSD Power Ant1(dBm/MHz)	Duty Factor	Total PSD Power Ant2(dBm/MHz)	Mimo	Limit (dBm/MHz)	Result
151	5755	0.89	-17.54	0.89	-17.95	-14.73	30	Pass
159	5795	0.89	-18.54	0.89	-17.94	-15.22	30	Pass

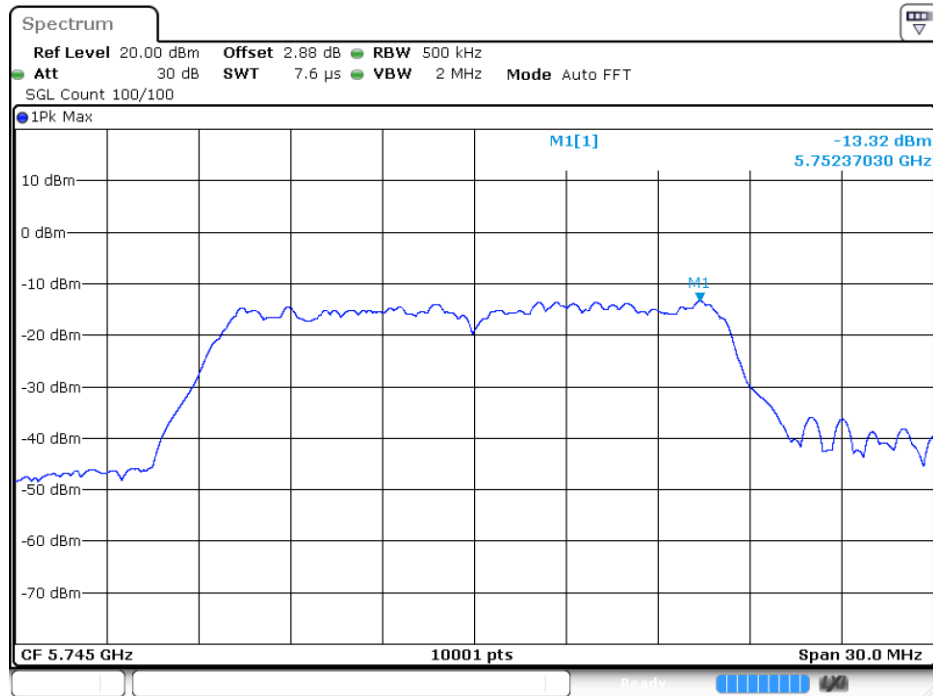
802.11 ac(HT80)								
CH No.	Frequency (MHz)	Duty Factor	Total PSD Power Ant1(dBm/MHz)	Duty Factor	Total PSD Power Ant2(dBm/MHz)	Mimo	Limit (dBm/MHz)	Limit (dBm/MHz)
155	5775	1.78	-21.34	1.72	-21.59	-18.45	30	Pass

Note: This product supports antenna 1 and antenna 2 launch, but only support 802.11 n/ac for MIMO mode,not support 802.11 a for MIMO mode.

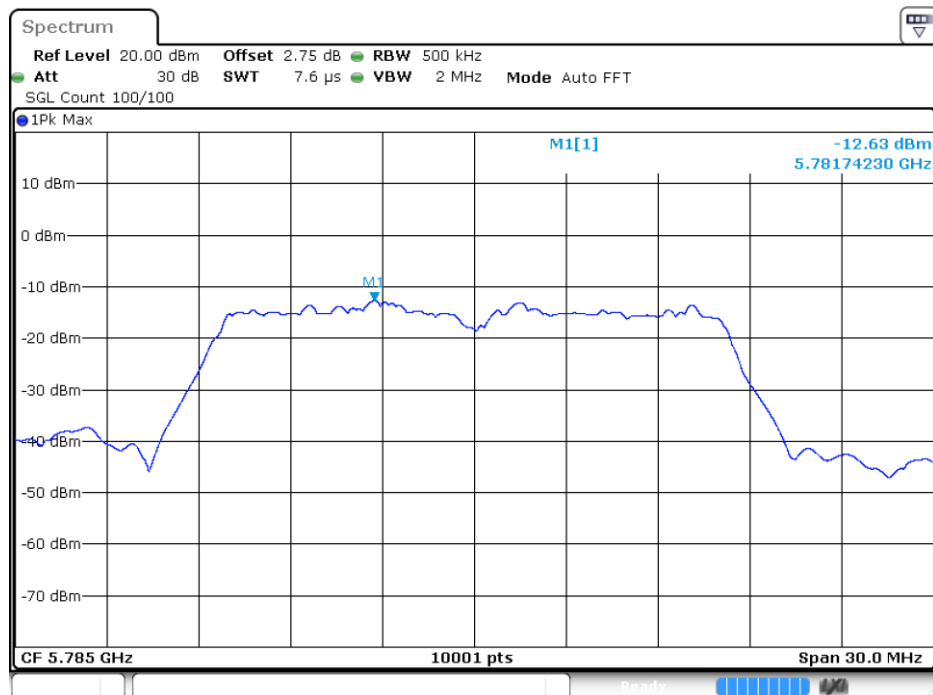
Test plot as follows:

Ant1:

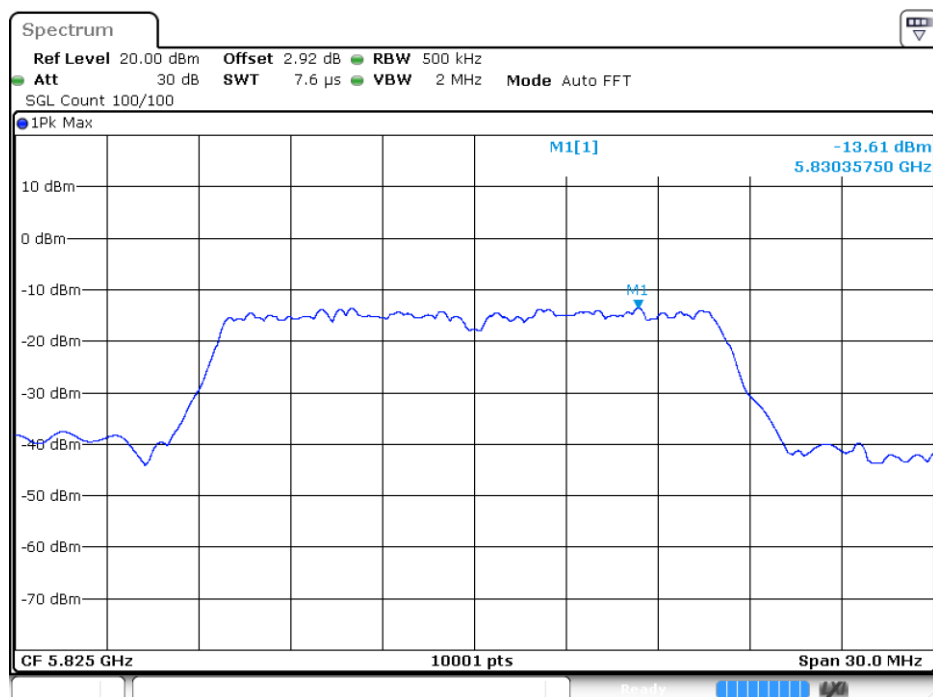
Test mode: 802.11a



Lowest channel

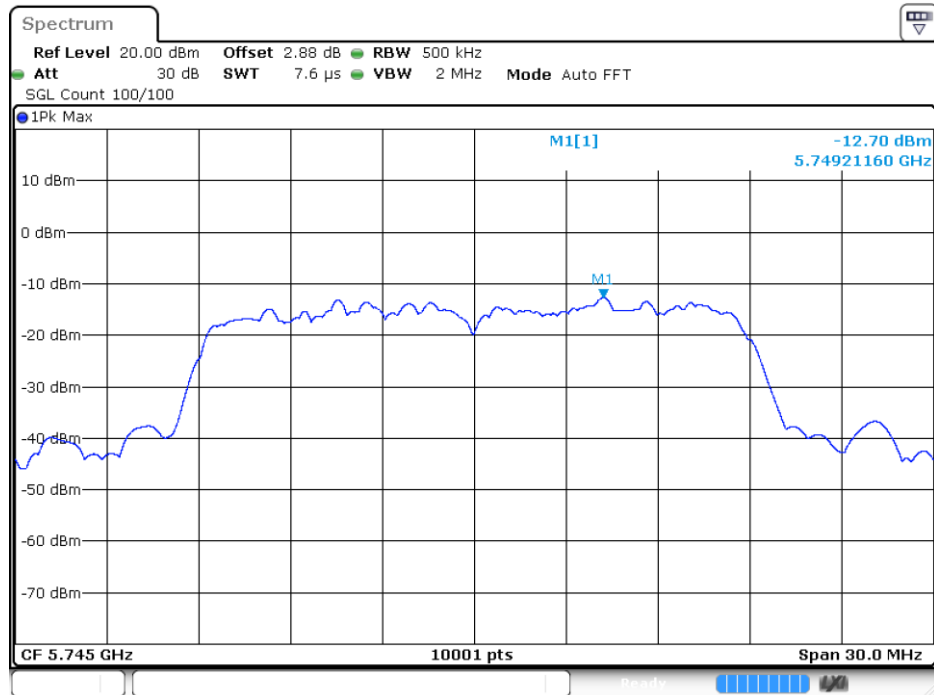


Middle channel

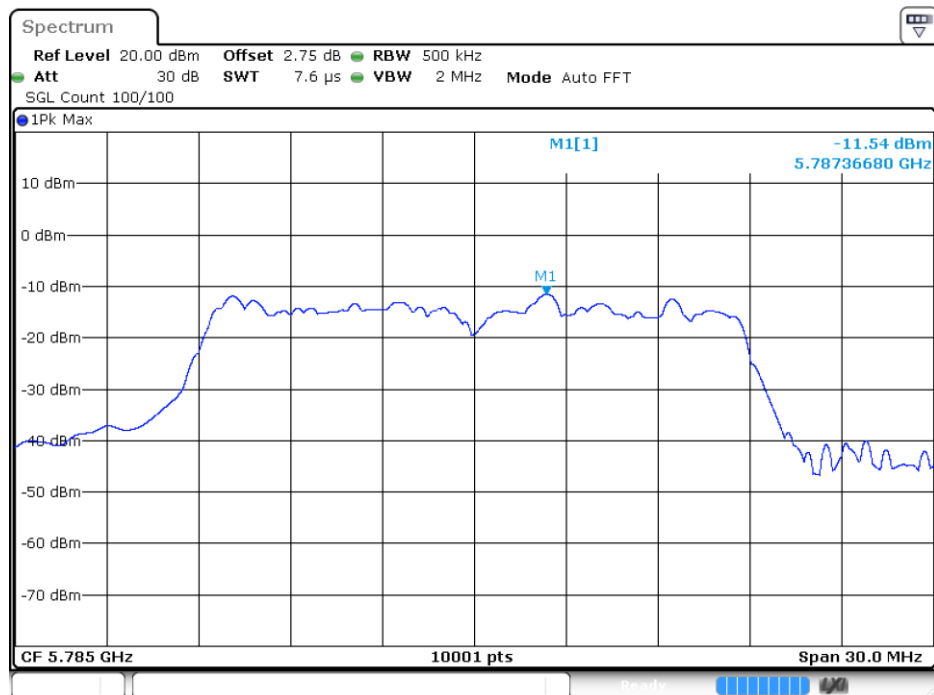


Highest channel

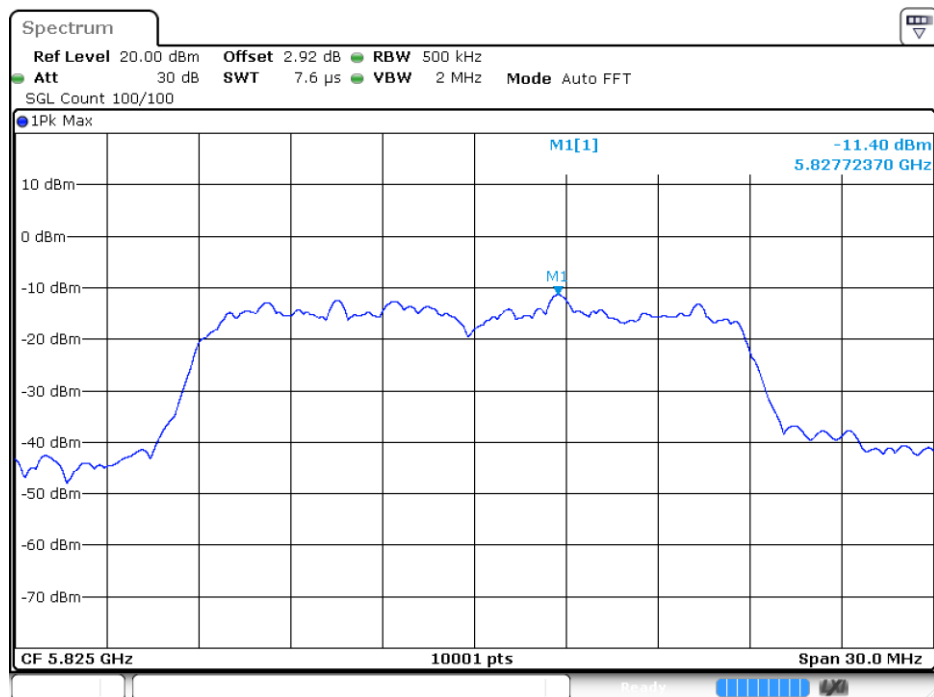
Test mode: 802.11n(HT20)



Lowest channel

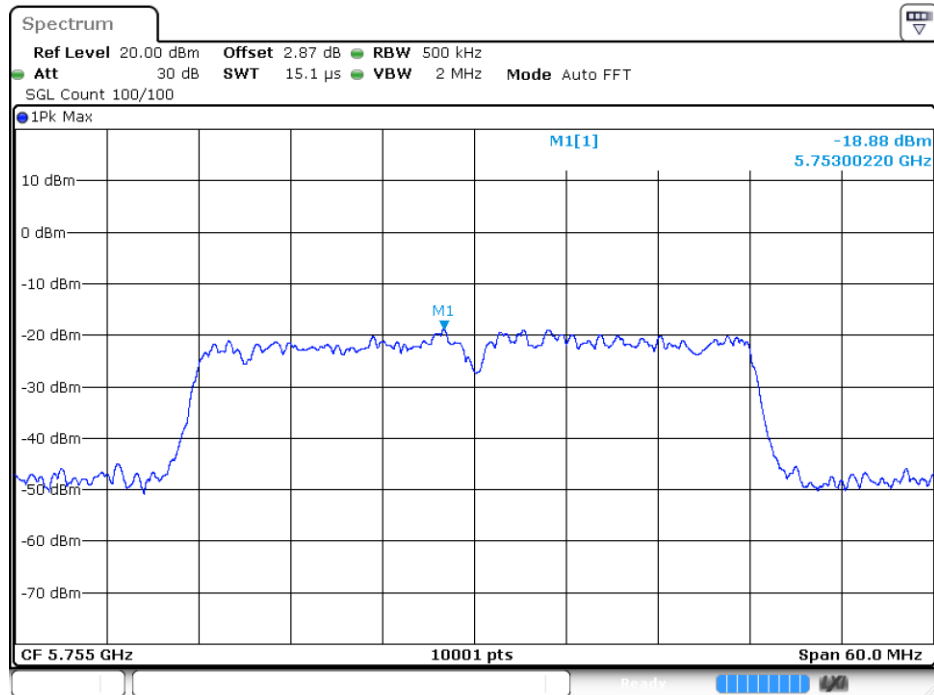


Middle channel

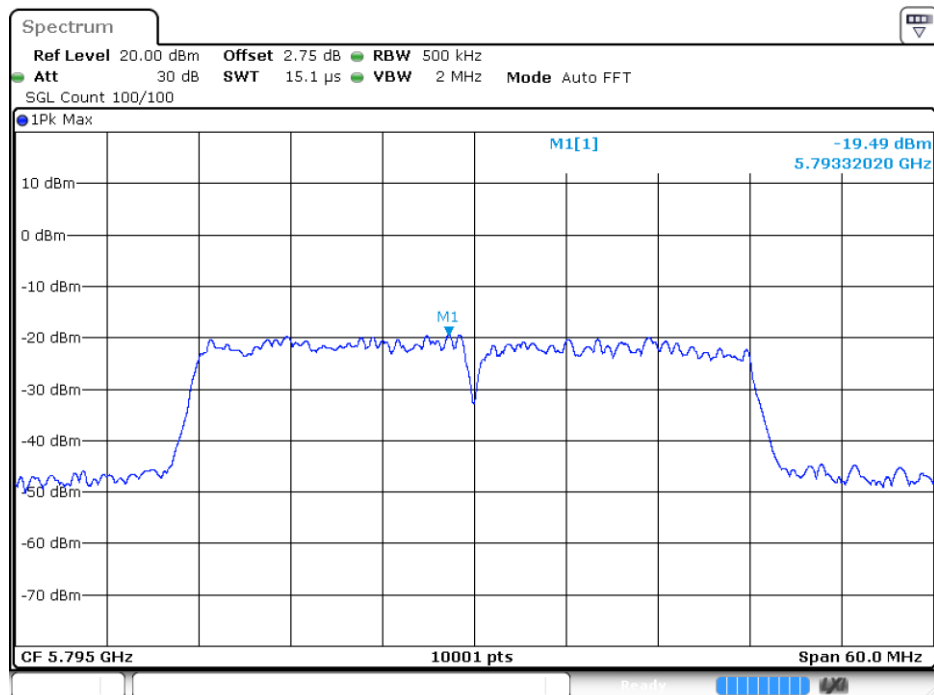


Highest channel

Test mode: 802.11n(HT40)

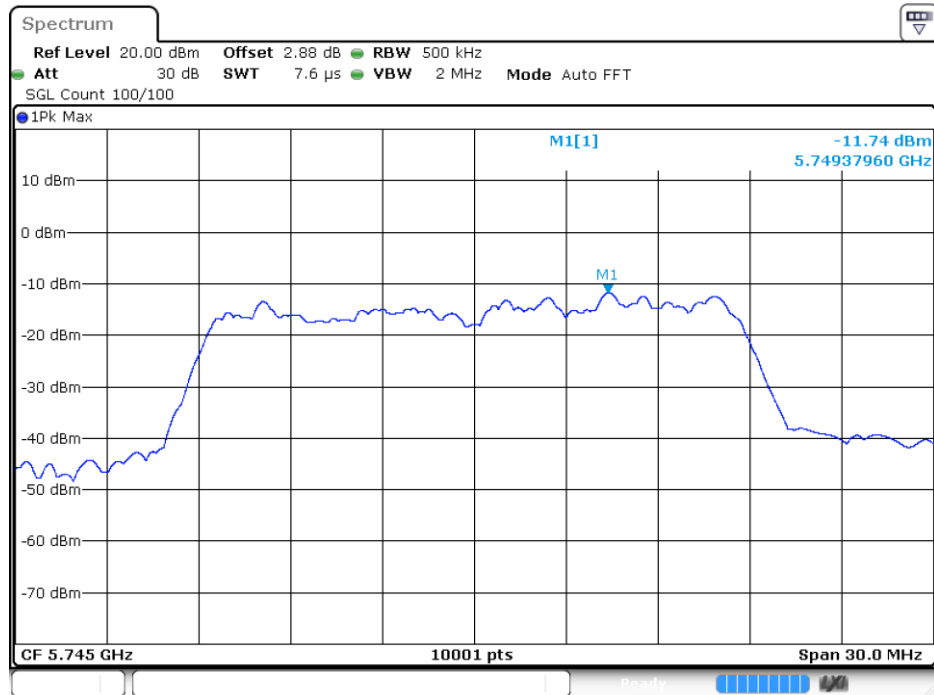


Lowest channel

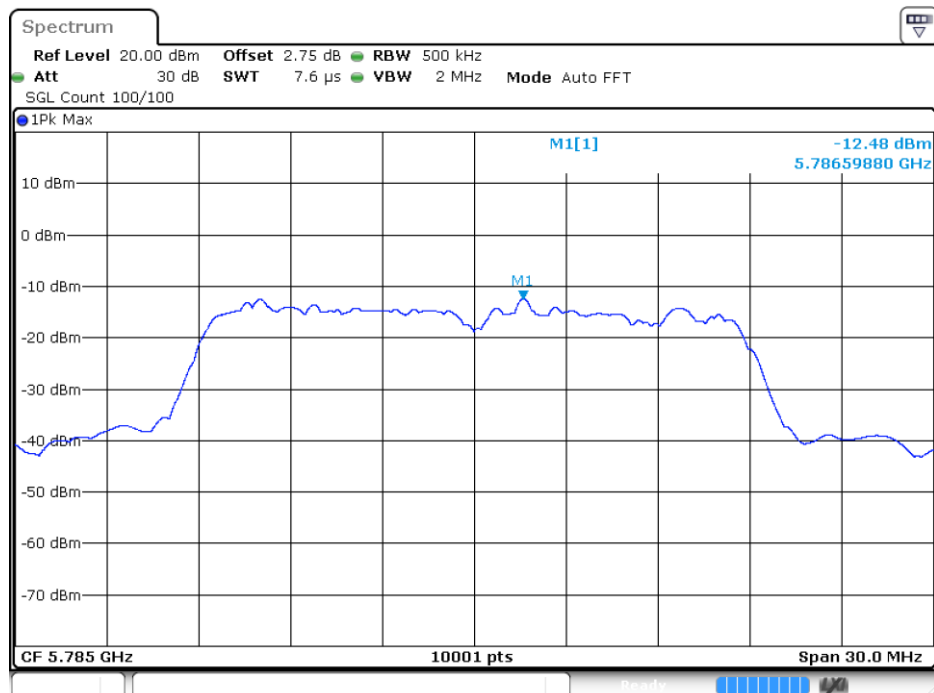


Highest channel

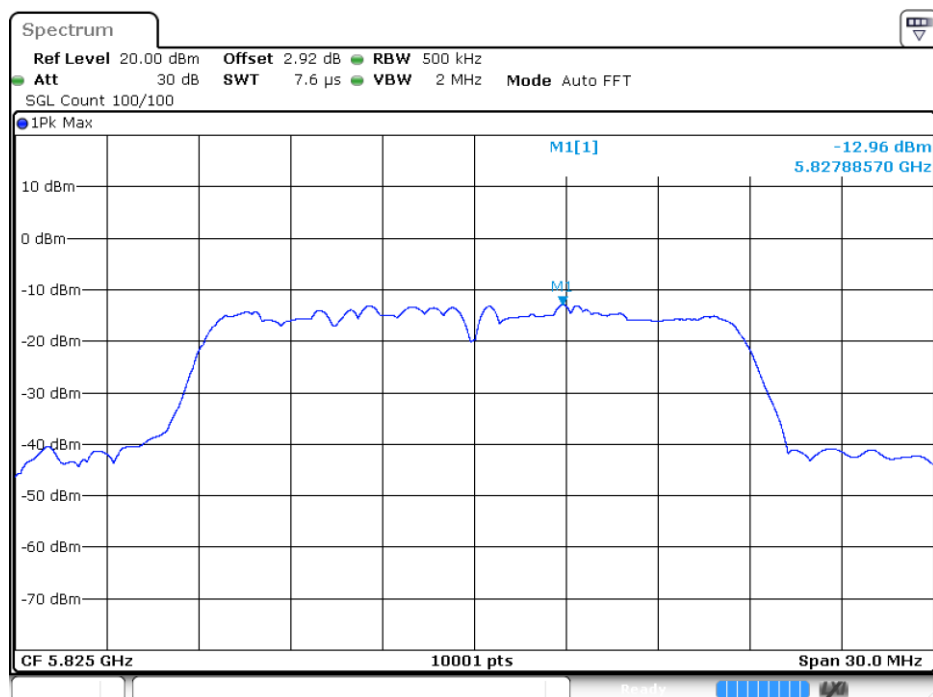
Test mode: 802.11ac(HT20)



Lowest channel

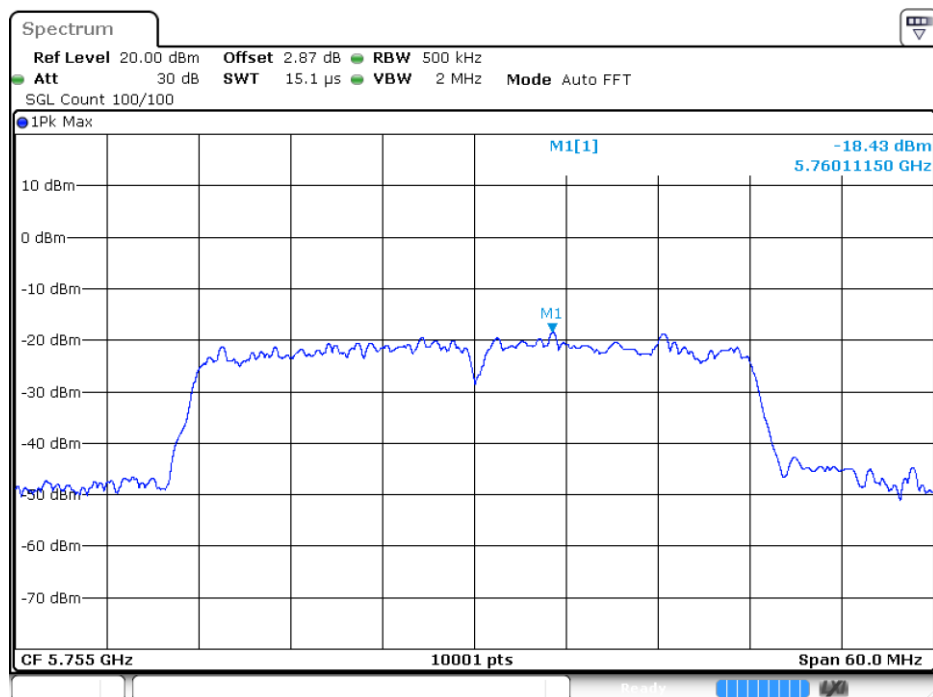


Middle channel

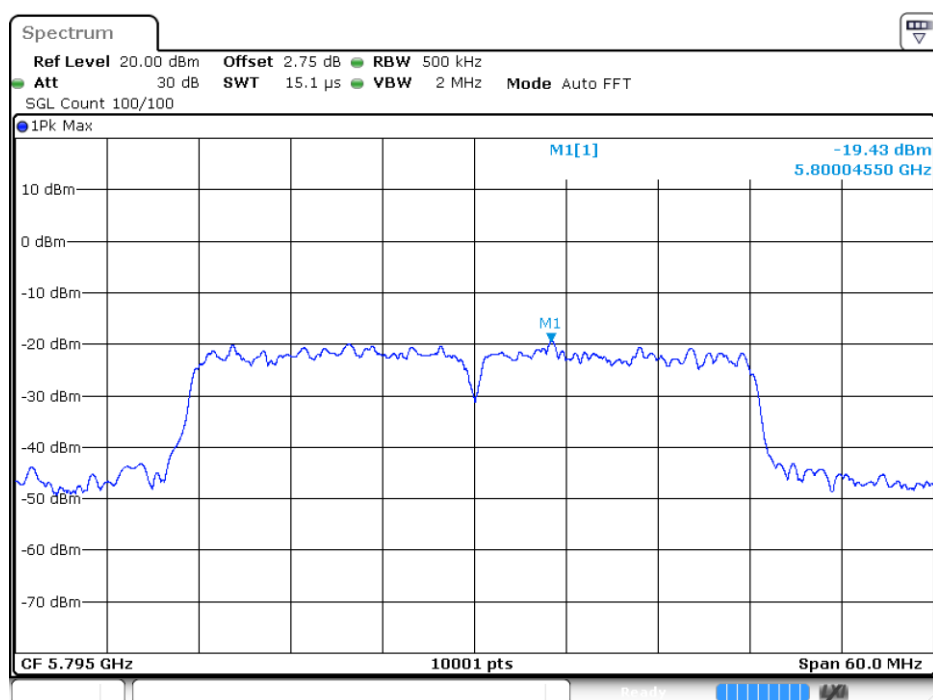


Highest channel

Test mode: 802.11ac(HT40)

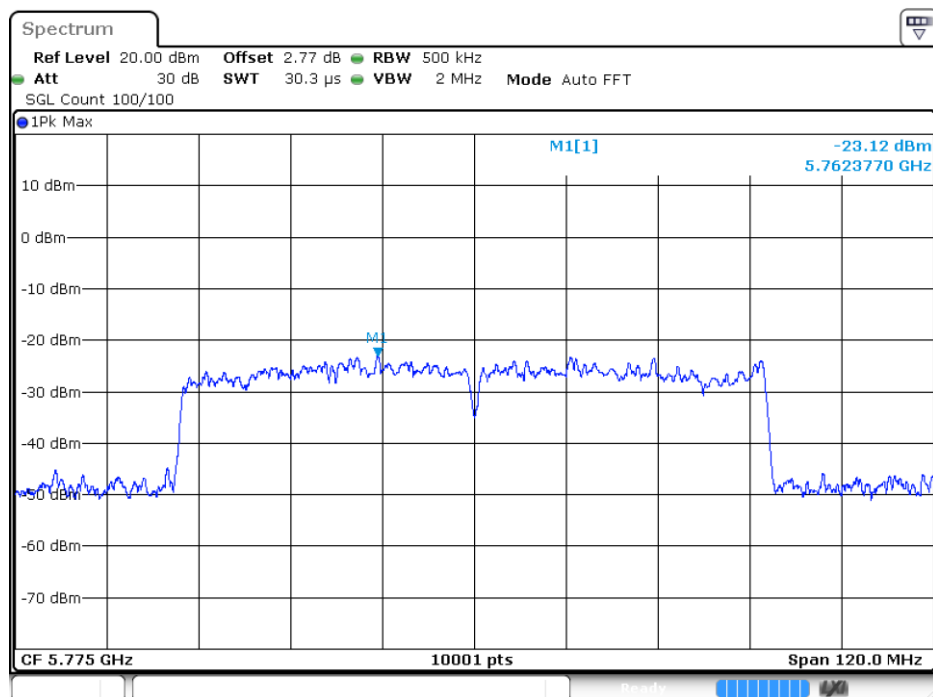


Lowest channel



Highest channel

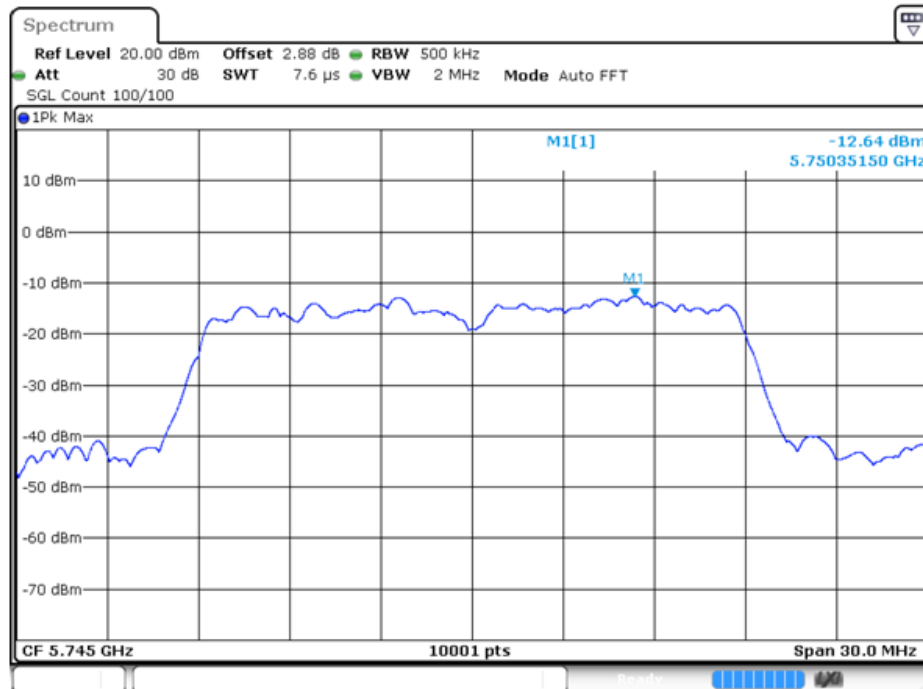
Test mode: 802.11ac(HT80)



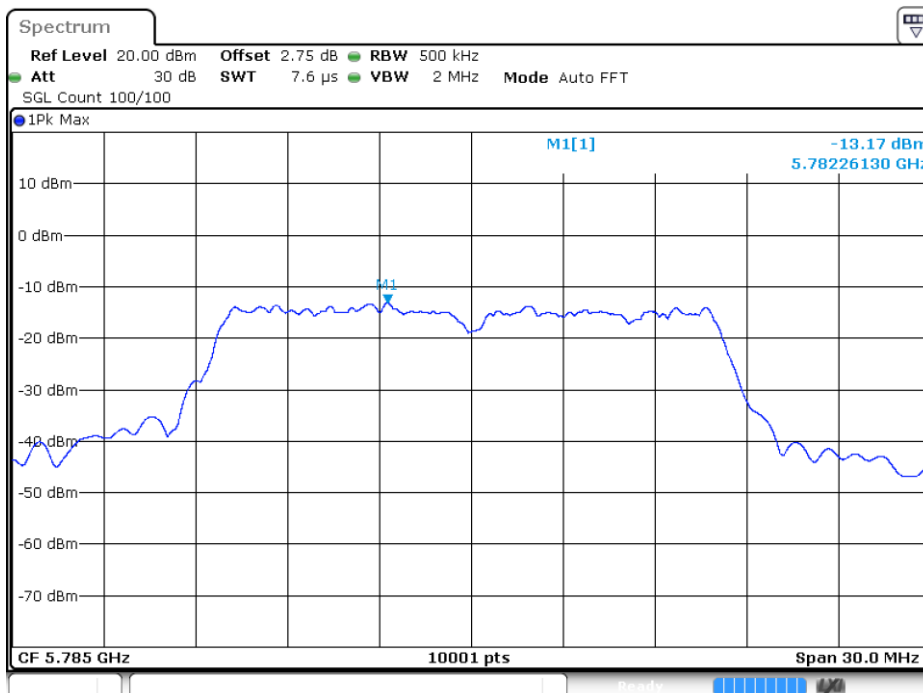
Middle channel

Ant2:

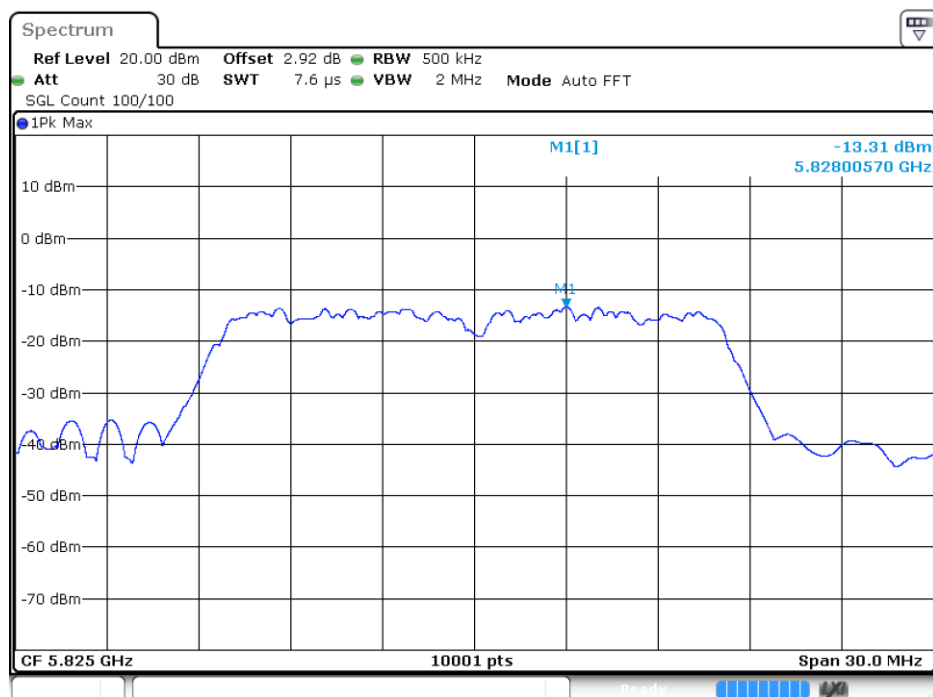
Test mode: 802.11a



Lowest channel

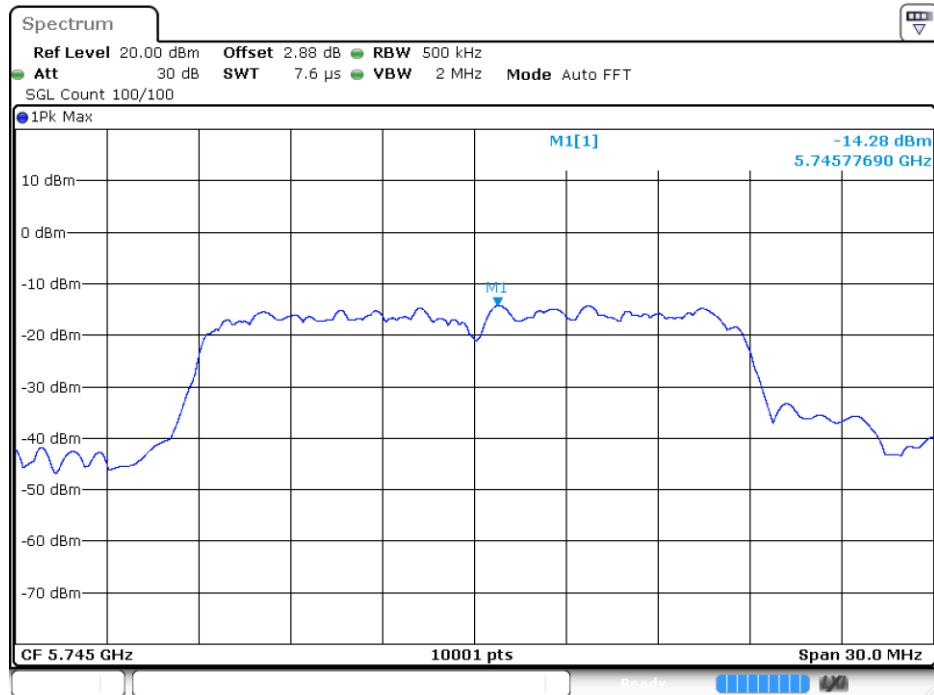


Middle channel

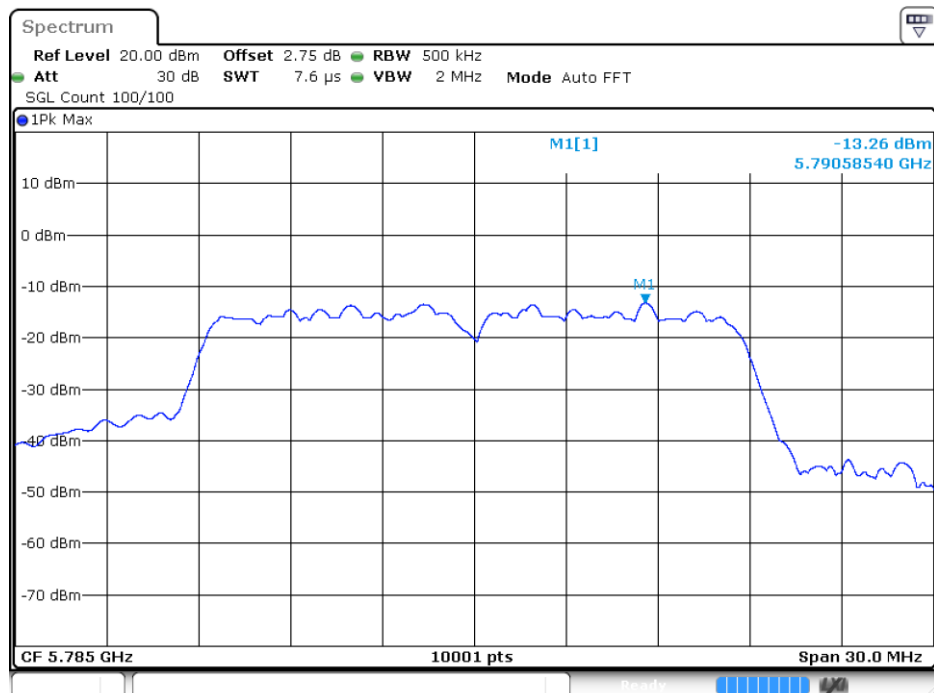


Highest channel

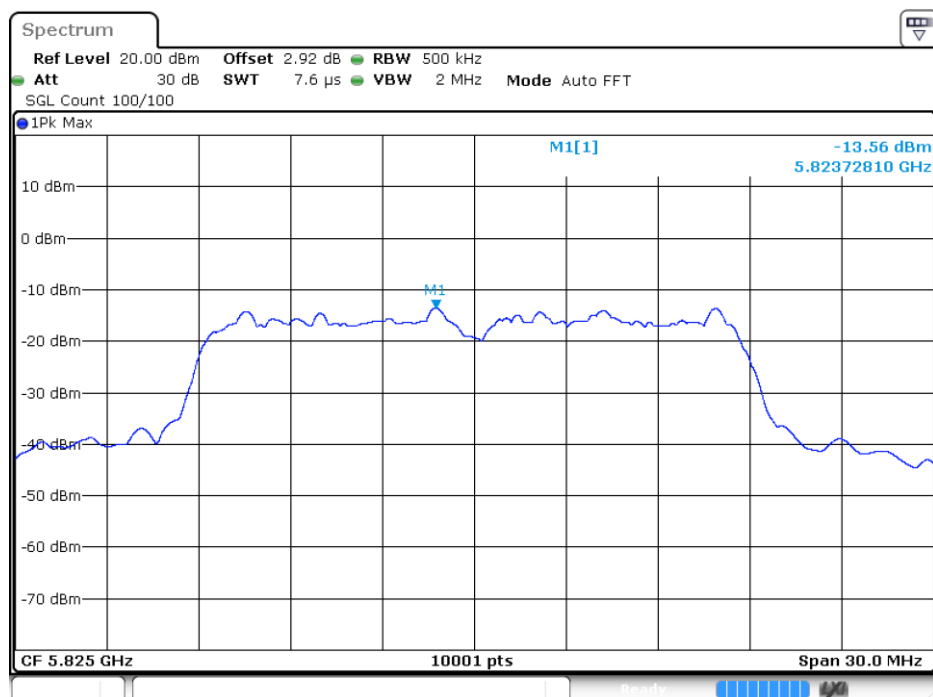
Test mode: 802.11n(HT20)



Lowest channel

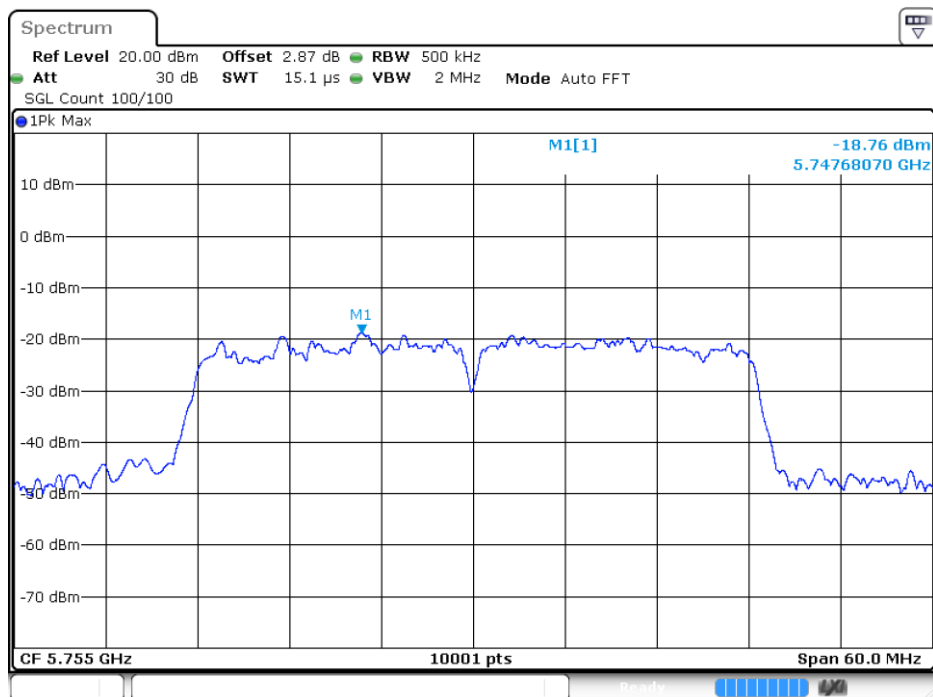


Middle channel

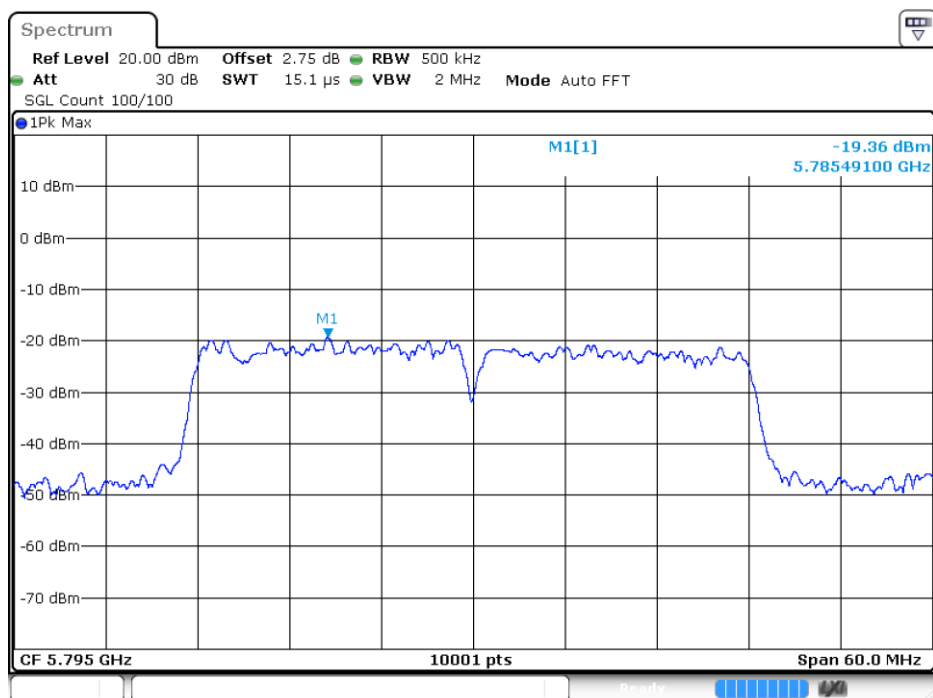


Highest channel

Test mode: 802.11n(HT40)

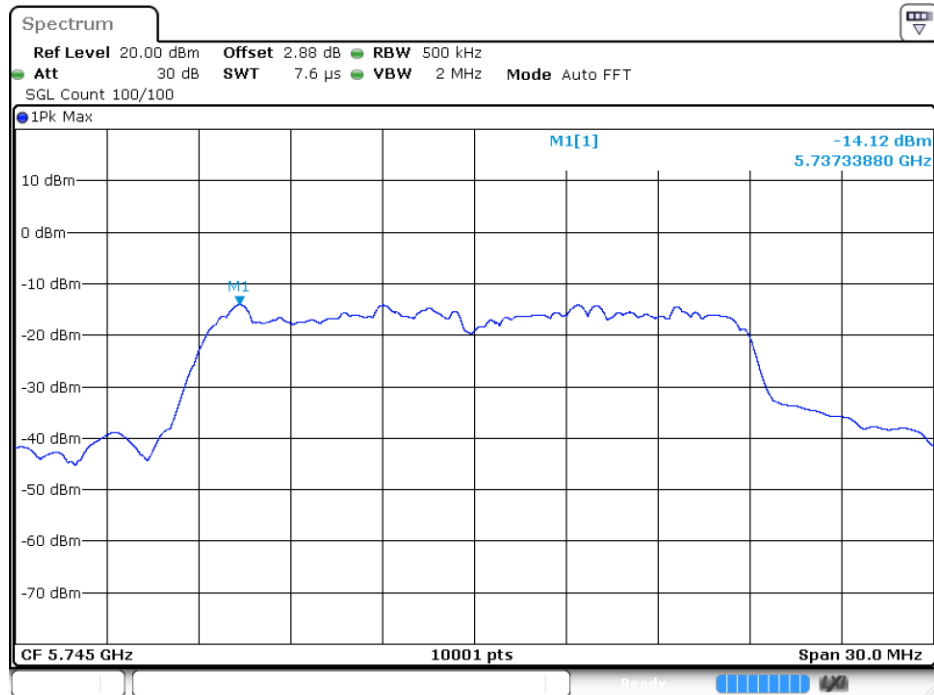


Lowest channel

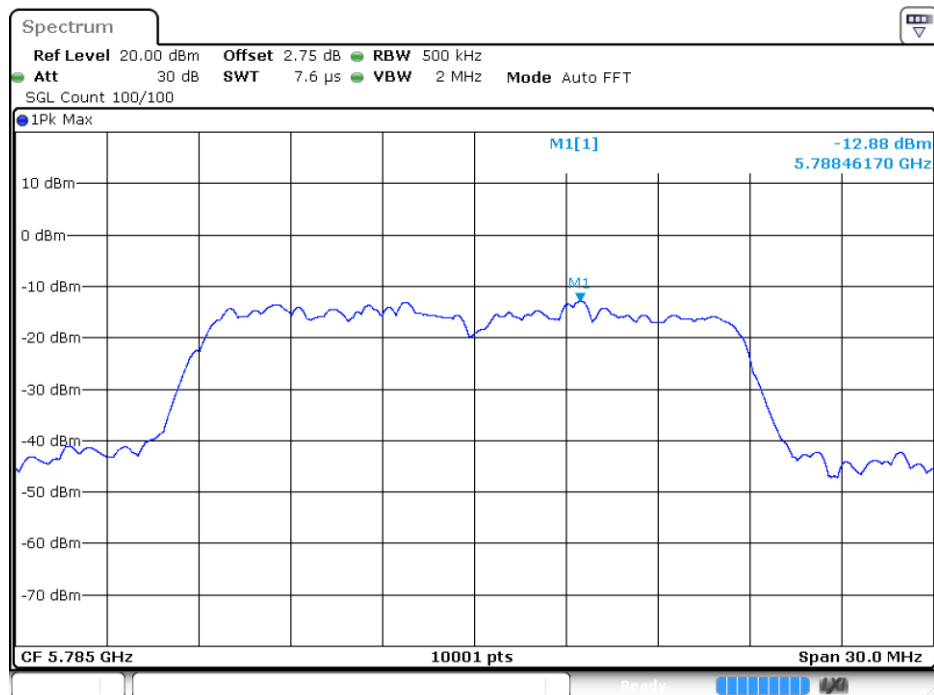


Highest channel

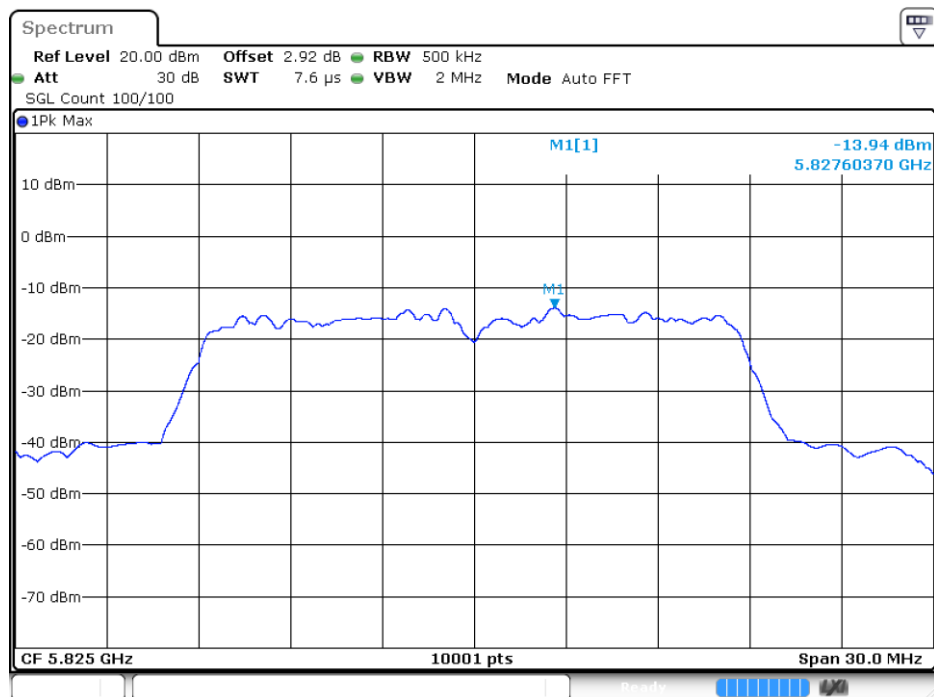
Test mode: 802.11ac(HT20)



Lowest channel

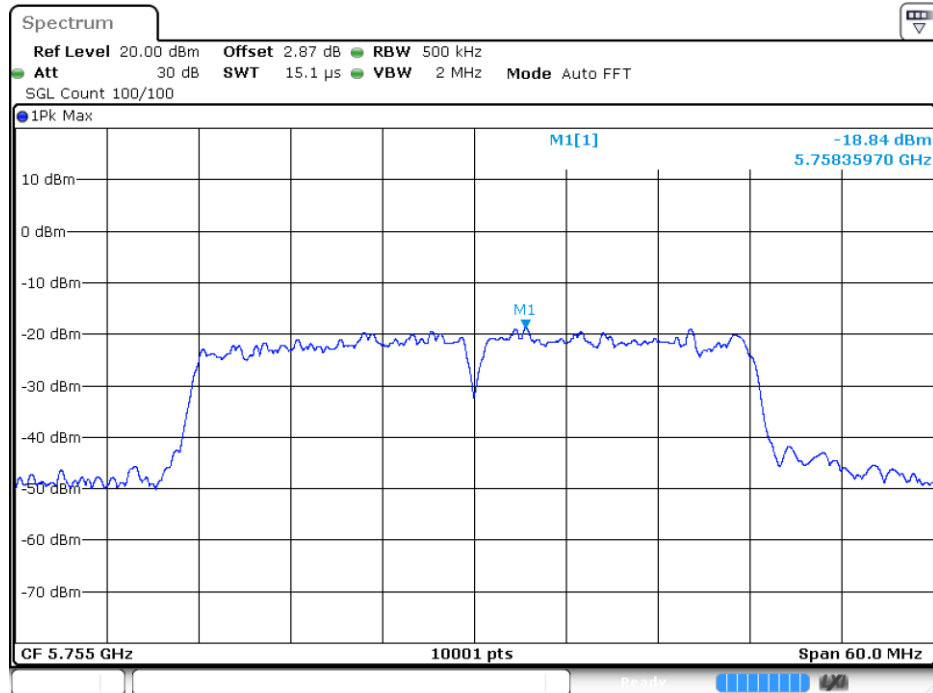


Middle channel

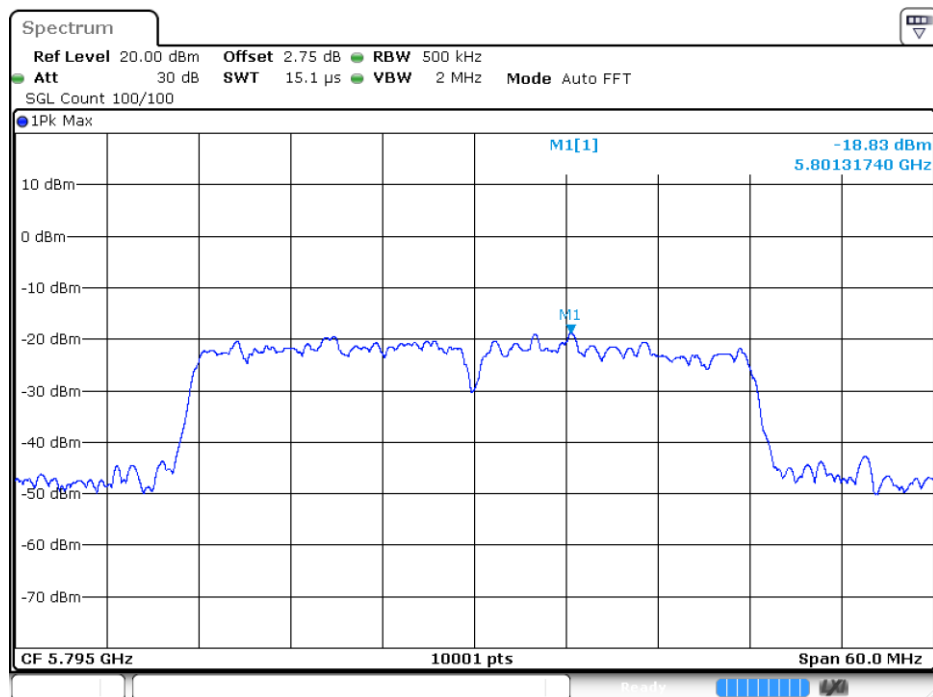


Highest channel

Test mode: 802.11ac(HT40)

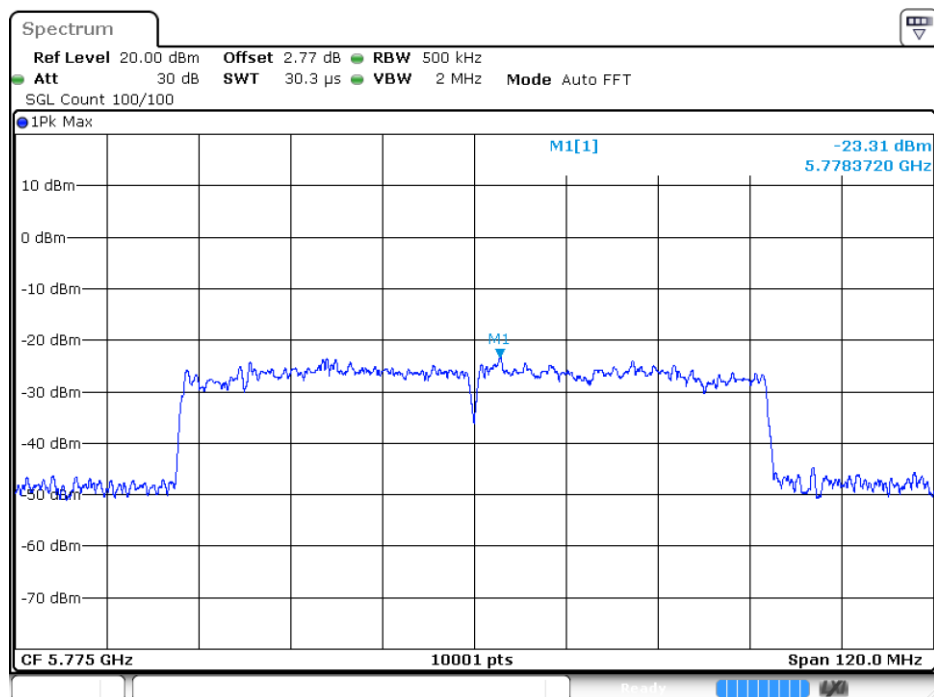


Lowest channel



Highest channel

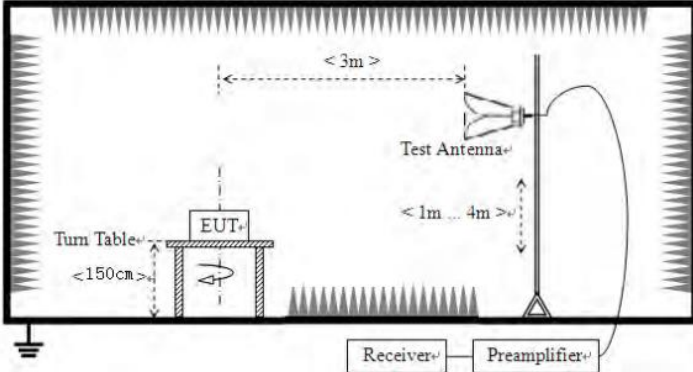
Test mode: 802.11ac(HT80)



Middle channel

7.5 Band edge

7.5.1 Radiated Emission Method

Test Requirement:	FCC Part15 C Section 15.209 and 15.205				
Test Method:	ANSI C63.10: 2013				
Test Frequency Range:	9kHz to 40GHz, only worse case is reported				
Test site:	Measurement Distance: 3m				
Receiver setup:	Frequency	Detector	RBW	VBW	Value
	Above 1GHz	Peak	1MHz	3MHz	Peak
		RMS	1MHz	3MHz	RMS
Limit:	All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.				
Test setup:					
Test Procedure:	1. The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet. 7. The radiation measurements are performed in X, Y, Z axis positioning. And found the X axis positioning which it is worse case, only the test worst case mode is recorded in the report.				

Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

Remarks:

1. Only the worst case Main Antenna test data..
2. Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
3. The emission levels of other frequencies are very lower than the limit and not show in test report.
4. The pre-test were performed on lowest, middle and highest frequencies, only the worst case's (lowest and highest frequencies) data was showed.
5. According to KDB 789033 D02v02r01 section G) 1) d),for measurements above 1000 MHz @3m distance, the limit of field strength is computed as follows:
 $E[\text{dBuV/m}] = \text{EIRP}[\text{dBm}] + 95.2;$
 $E[\text{dBuV/m}] = -27 + 95.2 = 68.2\text{dBuV/m}.$
 $E[\text{dBuV/m}] = 10 + 95.2 = 105.2\text{dBuV/m}.$
 $E[\text{dBuV/m}] = 15.6 + 95.2 = 110.8\text{dBuV/m}.$
 $E[\text{dBuV/m}] = 27 + 95.2 = 122.2\text{dBuV/m}$

Measurement data:
IEEE 802.11a

Freq. (MHz)	Ant.Pol. H/V	Reading (dBuv)	Ant/CF (dB)	Act (dBuv/m)	Limit (dBuv/m)	Note
5725.000	V	57.74	3.95	61.69	122.2	CH 149
5725.000	H	58.36	3.95	62.31	122.2	CH 149
5850.000	V	50.28	3.96	54.24	122.2	CH 165
5850.000	H	50.16	3.96	54.12	122.2	CH 165

IEEE 802.11n HT20

Freq. (MHz)	Ant.Pol. H/V	Reading (dBuv)	Ant/CF (dB)	Act (dBuv/m)	Limit (dBuv/m)	Note
5725.000	V	56.49	3.95	60.44	122.2	CH 149
5725.000	H	57.74	3.95	61.69	122.2	CH 149
5850.000	V	53.68	3.96	57.64	122.2	CH 165
5850.000	H	53.49	3.96	57.45	122.2	CH 165

IEEE 802.11ac HT20

Freq. (MHz)	Ant.Pol. H/V	Reading (dBuv)	Ant/CF (dB)	Act (dBuv/m)	Limit (dBuv/m)	Note
5725.000	V	55.46	3.95	59.41	122.2	CH 149
5725.000	H	57.13	3.95	61.08	122.2	CH 149
5850.000	V	52.21	3.96	56.17	122.2	CH 165
5850.000	H	51.49	3.96	55.45	122.2	CH 165

IEEE 802.11n HT40

Freq. (MHz)	Ant.Pol. H/V	Reading (dBuv)	Ant/CF (dB)	Act (dBuv/m)	Limit (dBuv/m)	Note
5725.000	V	55.17	3.95	59.12	122.2	CH 151
5725.000	H	58.35	3.95	62.3	122.2	CH 151
5850.000	V	48.66	3.96	52.62	122.2	CH 159
5850.000	H	47.59	3.96	51.55	122.2	CH 159

IEEE 802.11ac HT40

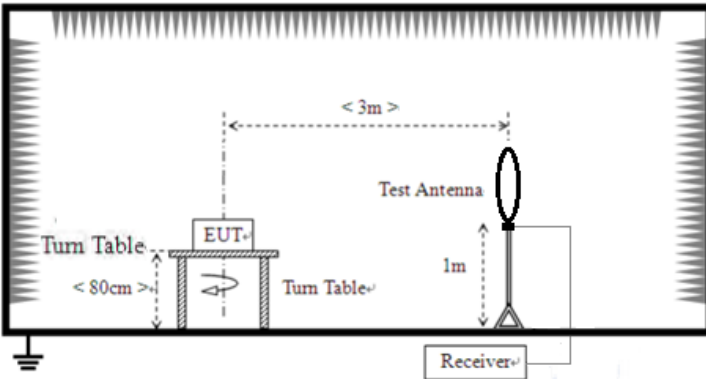
Freq. (MHz)	Ant.Pol. H/V	Reading (dBuv)	Ant/CF (dB)	Act (dBuv/m)	Limit (dBuv/m)	Note
5725.000	V	56.39	3.95	60.34	122.2	CH 151
5725.000	H	56.87	3.95	60.82	122.2	CH 151
5850.000	V	45.36	3.96	49.32	122.2	CH 159
5850.000	H	48.42	3.96	52.38	122.2	CH 159

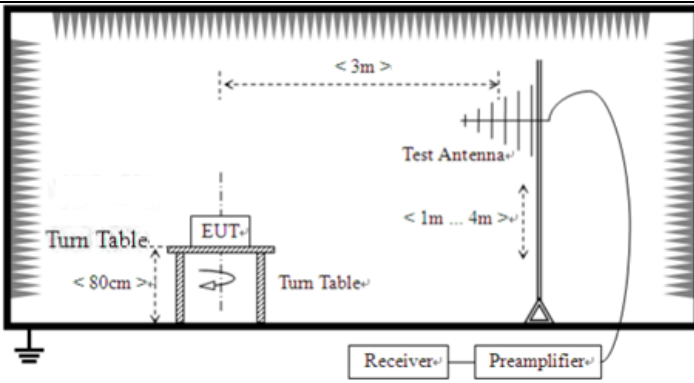
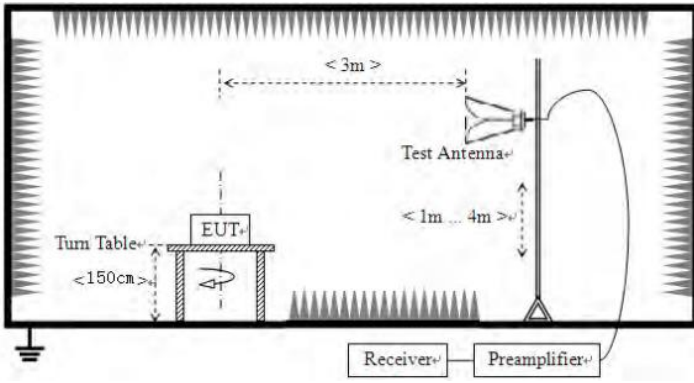
IEEE 802.11ac HT80

Freq. (MHz)	Ant.Pol. H/V	Reading (dBuv)	Ant/CF (dB)	Act (dBuv/m)	Limit (dBuv/m)	Note
5725.000	V	58.69	3.95	62.64	122.2	CH 155
5850.000	V	55.28	3.96	59.24	122.2	CH 155
5725.000	H	59.46	3.95	63.41	122.2	CH 155
5850.000	H	53.49	3.96	57.45	122.2	CH 155

7.6 Spurious Emission

7.6.1 Radiated Emission Method

Test Requirement:	FCC Part15 C Section 15.209, Part 15E Section 15.407(b)(4)				
Test Method:	ANSI C63.10:2013				
Test Frequency Range:	9kHz to 40GHz				
Test site:	Measurement Distance: 3m				
Receiver setup:	Frequency	Detector	RBW	VBW	Value
	9kHz-150KHz	Quasi-peak	200Hz	1kHz	Quasi-peak Value
	150kHz-30MHz	Quasi-peak	9kHz	30kHz	Quasi-peak Value
	30MHz-1GHz	Quasi-peak	100KHz	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					

	 For radiated emissions above 1GHz 
Test Procedure:	1. The EUT was placed on the top of a rotating table (0.8m for below 1GHz and 1.5 meters for above 1GHz) above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet. 7. The radiation measurements are performed in X, Y, Z axis positioning. And found the X axis positioning which it is worse case, only the test

	worst case mode is recorded in the report.					
Test Instruments:	Refer to section 6.0 for details					
Test mode:	Refer to section 5.2 for details					
Test environment:	Temp.:	25 °C	Humid.:	52%	Press.:	1012mbar
Test voltage:	AC 120V, 60Hz					
Test results:	Pass					

Remarks:

1. Only the worst case Main Antenna test data.
2. Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the Y-axis which it is worse case.

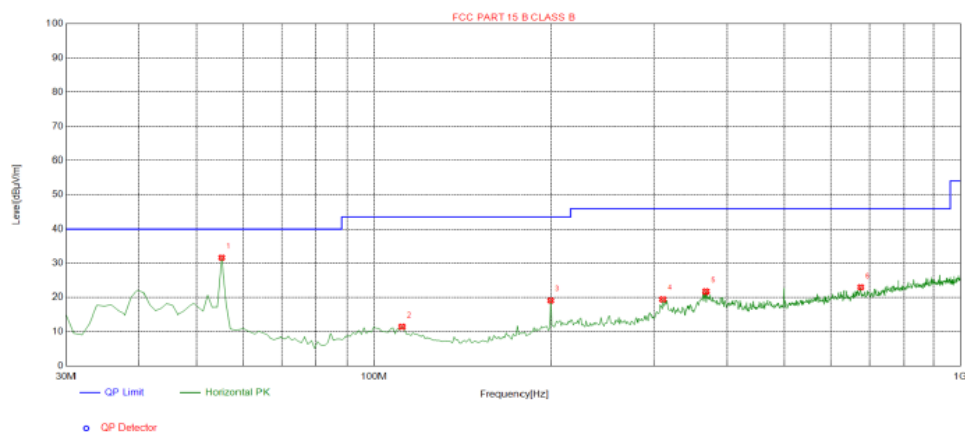
Measurement Data:**9 kHz ~ 30 MHz**

The low frequency, which started from 9 kHz to 30 MHz, was pre-scanned and the result which was 20 dB lower than the limit line per 15.31(o) was not reported.

Below 1GHz

Pre-scan all test modes, found worst case at 802.11ac(HT80), and so only show the test result of 802.11ac(HT80)

Horizontal:

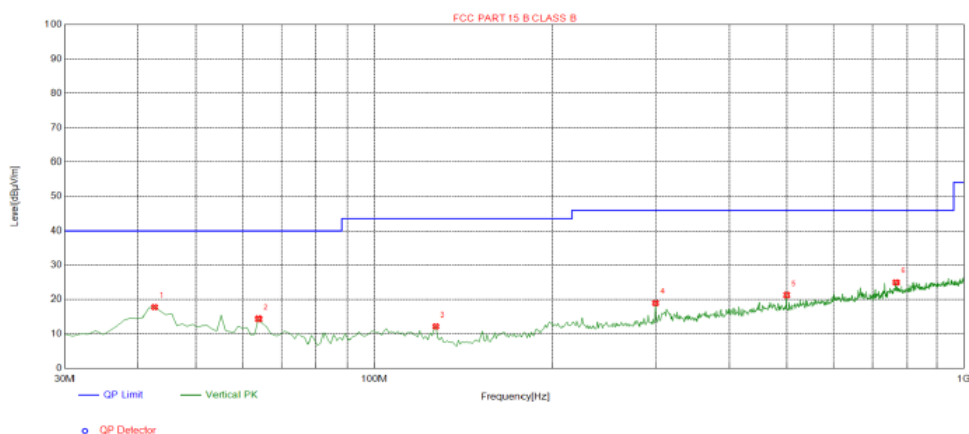


Suspected List									
NO.	Freq. [MHz]	Factor [dB]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	55.2452	-14.44	46.07	31.63	40.00	8.37	100	124	Horizontal
2	111.5616	-15.69	27.10	11.41	43.50	32.09	100	296	Horizontal
3	199.9199	-15.07	34.20	19.13	43.50	24.37	100	34	Horizontal
4	310.6106	-12.58	32.05	19.47	46.00	26.53	100	147	Horizontal
5	367.8979	-11.07	32.76	21.69	46.00	24.31	100	112	Horizontal
6	675.6957	-4.75	27.67	22.92	46.00	23.08	100	157	Horizontal

Final Data List

Remark: Factor = Cable loss + Antenna factor – Preamplifier; Level = Reading + Factor; Margin = Limit – Level;

Vertical:



Suspected List									
NO.	Freq. [MHz]	Factor [dB]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	42.6226	-14.07	31.83	17.76	40.00	22.24	100	57	Vertical
2	63.9840	-16.16	30.52	14.36	40.00	25.64	100	322	Vertical
3	127.0971	-18.14	30.31	12.17	43.50	31.33	100	296	Vertical
4	299.9299	-12.74	31.71	18.97	46.00	27.03	100	96	Vertical
5	499.9500	-8.30	29.58	21.28	46.00	24.72	100	0	Vertical
6	766.9670	-3.32	28.29	24.97	46.00	21.03	100	242	Vertical

Final Data List

Remark: Factor = Cable loss + Antenna factor – Preamplifier; Level = Reading + Factor; Margin = Limit – Level;

Above 1GHz:

802.11a,11n(HT20),11ac(HT20),11n(HT40),11ac(HT40),11ac(HT80) all have been tested,
Only the data of worst case at each channel plan (nominal bandwidth =20MHz, 40MHz, 80MHz) is reported.

Test mode:		802.11a		Test channel:		lowest	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dBuV/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
V	11490	32.73	16.82	49.55	68.2	-18.65	PK
V	17235	29.82	22.93	52.75	68.2	-15.45	PK
H	11490	31.04	16.82	47.86	68.2	-20.34	PK
H	17235	29.72	22.93	52.65	68.2	-15.55	PK

Test mode:		802.11a		Test channel:		Middle	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dBuV/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
V	11570	31.77	16.71	48.48	68.2	-19.72	PK
V	17355	27.39	24.37	51.76	68.2	-16.44	PK
H	11570	30.36	16.71	47.07	68.2	-21.13	PK
H	17355	28.09	24.37	52.46	68.2	-15.74	PK

Test mode:		802.11a		Test channel:		Highest	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dBuV/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
V	11650	33.74	16.61	50.35	68.2	-17.85	PK
V	17475	27.15	25.01	52.16	68.2	-16.04	PK
H	11650	32.14	16.61	48.75	68.2	-19.45	PK
H	17475	28.26	25.01	53.27	68.2	-14.93	PK

Test mode:		802.11ac(HT40)		Test channel:		Lowest	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dBuV/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
V	11510	32.15	16.78	48.93	68.2	-19.27	PK
V	17265	28.03	23.29	51.32	68.2	-16.88	PK
H	11510	33.83	16.78	50.61	68.2	-17.59	PK
H	17265	29.09	23.29	52.38	68.2	-15.82	PK

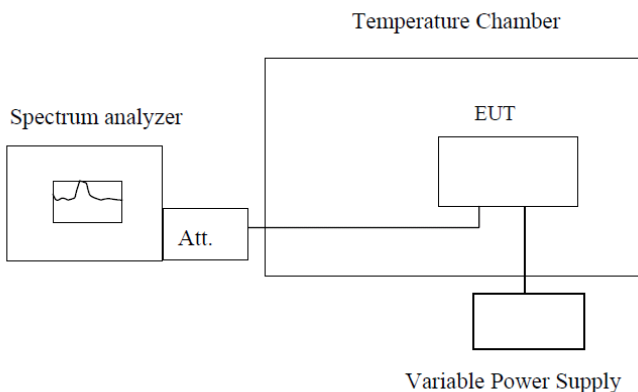
Test mode:		802.11ac(HT40)		Test channel:		Highest	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dBuV/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
V	11590	30.85	16.69	47.54	68.2	-20.66	PK
V	17385	26.57	24.73	51.3	68.2	-16.9	PK
H	11590	32.71	16.69	49.4	68.2	-18.8	PK
H	17385	27.73	24.73	52.46	68.2	-15.74	PK

Test mode:		802.11ac(HT80)		Test channel:		Middle	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dBuV/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
V	11550	31.64	16.73	48.37	68.2	-19.83	PK
V	17325	26.40	24.01	50.41	68.2	-17.79	PK
H	11550	29.45	16.73	46.18	68.2	-22.02	PK
H	17325	24.96	24.01	48.97	68.2	-19.23	PK

Notes:

1. Measure Level = Reading Level + Factor.
2. The test trace is same as the ambient noise (the test frequency range: 18GHz~40GHz), therefore no data appear in the report.
3. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

7.7 Frequency stability

Test Requirement:	FCC Part15 C Section 15.407(g)					
Test Method:	ANSI C63.10:2013, FCC Part 2.1055					
Limit:	Manufactures of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified					
Test Procedure:	The EUT was setup to ANSI C63.4, 2003; tested to 2.1055 for compliance to FCC Part 15.407(g) requirements.					
Test setup:	 Temperature Chamber Spectrum analyzer Att. EUT Variable Power Supply Note : Measurement setup for testing on Antenna connector					
Test Instruments:	Refer to section 5.10 for details					
Test mode:	Refer to section 5.2 for details					
Test environment:	Temp.:	24 °C	Humid.:	53%	Press.:	1012mbar
Test voltage:	AC 120V, 60Hz					
Test results:	Pass					

Measurement data:

HT 20MHz					
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	5744.9675	5745.0625	5745.0923	5745.1162
	5785	5785.1029	5784.8679	5785.2028	5785.0065
	5825	5825.1755	5825.1670	5824.9471	5824.9172
-20	5745	5744.9747	5745.1710	5744.9880	5745.0855
	5785	5785.1076	5785.0849	5784.8992	5785.0155
	5825	5824.9888	5824.8356	5825.0931	5824.9632
-10	5745	5745.0995	5745.0967	5745.2143	5745.1031
	5785	5785.2236	5785.1202	5785.0115	5785.1225
	5825	5825.0664	5824.9249	5825.0737	5824.9576
0	5745	5745.0427	5745.0079	5745.0153	5744.8745
	5785	5785.0309	5785.0792	5784.9053	5784.9288
	5825	5825.0177	5825.0672	5824.8510	5824.9803
10	5745	5744.9746	5745.0868	5744.8405	5745.1439
	5785	5784.9922	5785.1594	5784.7937	5785.0051
	5825	5824.9220	5824.8456	5824.8630	5824.9575
20	5745	5744.8451	5745.0426	5744.9910	5745.1077
	5785	5784.8676	5785.1501	5785.0575	5785.2205
	5825	5824.9755	5824.9694	5824.9192	5824.9123
30	5745	5745.1004	5745.0074	5745.0688	5744.9511
	5785	5785.0414	5785.0191	5784.9678	5784.8738
	5825	5825.0114	5824.8783	5825.1281	5824.9701
40	5745	5744.9484	5744.9920	5745.0203	5745.0759
	5785	5785.0684	5785.0656	5785.1347	5785.1516
	5825	5825.1660	5825.2552	5825.1017	5824.9633
50	5745	5745.1150	5744.9182	5745.0178	5744.9387
	5785	5785.2018	5785.0803	5785.0802	5784.9381
	5825	5824.9359	5824.8975	5824.8984	5825.0461

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)
108	5745	5745.1212	5745.0037	5745.1943	5745.2282
	5785	5785.0187	5784.8933	5784.9709	5785.0485
	5825	5825.1846	5825.2482	5824.9788	5825.0764
120	5745	5744.9026	5745.0017	5744.9738	5744.9932
	5785	5785.1692	5785.0199	5785.1471	5785.0748
	5825	5825.0093	5825.0873	5825.1215	5824.8264
132	5745	5745.0572	5745.1632	5745.0740	5744.8976
	5785	5785.1387	5784.9816	5785.1266	5785.0317
	5825	5825.1248	5825.0436	5825.0424	5825.0992

HT40 MHz					
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	5745.2827	5745.0939	5745.1304	5745.0399
	5785	5784.9750	5785.1311	5785.1304	5784.8439
-20	5825	5825.0234	5825.3097	5825.2245	5825.1075
	5745	5745.1107	5744.9985	5744.9258	5745.0986
-10	5785	5784.9707	5785.1818	5785.2216	5784.9744
	5825	5824.9640	5824.9358	5825.0511	5825.0961
0	5745	5744.9526	5744.9160	5745.0849	5744.9470
	5785	5785.0671	5785.1719	5784.8035	5784.8220
10	5825	5824.8965	5825.0287	5825.0173	5825.2509
	5745	5745.0072	5745.1091	5744.9729	5744.9467
20	5785	5785.0686	5784.8072	5784.9218	5784.9128
	5825	5824.8565	5824.8640	5825.0178	5824.9329
30	5745	5744.8159	5744.9086	5744.8466	5744.7881
	5785	5784.9055	5784.9841	5784.9397	5784.8521
40	5825	5744.9657	5744.9882	5744.9286	5745.1633
	5745	5785.0833	5785.0506	5785.1121	5785.1171
50	5785	5825.2115	5825.0210	5825.0238	5825.0232
	5825	5744.8490	5745.0757	5745.0560	5744.9843

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)
108	5745	5745.1294	5745.0582	5745.0168	5744.9927
	5785	5785.0926	5784.9584	5785.0897	5785.0477
120	5825	5825.1310	5825.0068	5824.9317	5824.8209
	5745	5745.0109	5744.9704	5744.8911	5745.0012
132	5785	5785.1940	5785.1609	5785.1183	5785.2773
	5825	5825.2168	5824.7484	5825.0859	5824.9113

HT80 MHz					
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	5745	5744.9403	5745.1353	5744.9952	5745.1017
-20	5785	5785.0272	5785.0186	5785.1780	5784.9640
-10	5825	5825.1581	5825.0446	5825.0387	5824.9984
0	5745	5745.0926	5744.8888	5745.1701	5744.8768
10	5785	5784.8794	5785.0373	5785.0919	5784.9261
20	5825	5824.9983	5824.9409	5824.8002	5825.0322
30	5745	5745.0970	5744.9985	5744.9038	5745.0193
40	5785	5784.8999	5784.9761	5785.0207	5784.9503
50	5825	5825.0412	5825.1961	5824.9593	5825.0189

Frequency stability versus Voltage					
Temperature: 25°C					
Power Supply (VAC)	Operating Frequency (MHz)	0 minute	2 minute	5 minute	10 minute
		Measured Frequency (MHz)	Measured Frequency (MHz)	Measured Frequency (MHz)	Measured Frequency (MHz)
108	5745	5745.2518	5745.0541	5744.9459	5745.0561
120	5785	5785.1572	5785.0162	5785.0423	5784.9266
132	5825	5825.1079	5824.9671	5825.1200	5824.8870

8 Test Setup Photo

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

9 EUT Constructional Details

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

-----END-----