FCC PART 15E TEST REPORT FOR CERTIFICATION
On Behalf of

The Art of Utility AB

Defunc HOME LARGE

Model Number: D2071

Additional Model: D2072, D2091, D2092

FCC ID: 2AKFED207

Applicant :	The Art of Utility AB
Address:	Upplandsgatan 7, 111 23, Stockholm, Sweden
Prepared By:	EST Technology Co., Ltd.
	Chilingxiang, Qishantou, Santun, Houjie, Dongguan, Guangdong, China
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Report Number:	ESTE-R2112182
Date of Test:	Nov. 16~Dec. 20, 2021
Date of Report:	Dec. 21, 2021

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EST Technology Co., Ltd.

Applicant: **Address:**	The Art of Utility AB Upplandsgatan 7, 111 23, Stockholm, Sweden
Manufacturer: **Address:**	Topalong Intelligent Technology (Dongguan) Co., Ltd Topalong : 3rd Floor, No.2 Building, Shijing Stech park, Dongcheng district, Dongguan city, Guangdong province, PRC
Factory: **Address:**	Topalong Intelligent Technology (Dongguan) Co., Ltd Topalong : 3rd Floor, No.2 Building, Shijing Stech park, Dongcheng district, Dongguan city, Guangdong province, PRC
E.U.T:	Defunc HOME LARGE
Model Number:	D2071
Additional Model:	D2072, D2091, D2092 Note: The model and appearance are different in color, but everything else is the same.
Power Supply:	DC 24V From Adapter Input AC 120V/60Hz
Trade Name:	defunc Serial No.: ------
Date of Receipt:	Nov. 16, 2021 Date of Test: Nov. 16~Dec. 20, 2021
Test Specification:	FCC Part 15 Subpart E 15.407 ANSI C63.10:2013 FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01 FCC KDB 662911 D01 Multiple Transmitter Output v02r01
Test Result:	The device described above is tested by EST Technology Co., Ltd. The measurement results were contained in this test report and EST Technology Co., Ltd. was assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT to be technically compliance with the FCC Rules and Regulations Part 15 Subpart E requirements. This report applies to above tested sample only and shall not be reproduced in part without written approval of EST Technology Co., Ltd. **Date:** Dec. 21, 2021

Prepared by:	Reviewed by:	Approved by:
Emily Cai / Assistant	Seven Wang / Engineer	Iceman Hu / Manager

Other Aspects:
None.

Abbreviations: OK/P=passed fail/F=failed n.a/N=not applicable E.U.T=equipment under tested

This test report is based on a single evaluation of one sample of above mentioned products ,It is not permitted to be duplicated in extracts without written approval of EST Technology Co., Ltd.

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

FCC ID	:	2AKFED207
Product Name	:	Defunc HOME LARGE
Model Number	:	D2071
Software Version	:	4.5.328153
Hardware Version	:	V10
Operation frequency	:	U-NII-1: 5150 MHz~5250 MHz U-NII-2A: 5250 MHz~5350 MHz U-NII-2C: 5470 MHz~5725 MHz U-NII-3: 5725 MHz~5850 MHz
Number of channel	:	U-NII-1: IEEE 802.11a / n HT20 / ac VHT20: 4 Channels; IEEE 802.11n HT40 / ac VHT40: 2 Channels; IEEE 802.11ac VHT80: 1 Channel. U-NII-2A: IEEE 802.11a / n HT20 / ac VHT20: 4 Channels; IEEE 802.11n HT40 / ac VHT40: 2 Channels; IEEE 802.11ac VHT80: 1 Channel. U-NII-2C: IEEE 802.11a / n HT20 / ac VHT20: 11 Channels; IEEE 802.11n HT40 / ac VHT40: 5 Channels; IEEE 802.11ac VHT80: 2 Channel. U-NII-3: IEEE 802.11a / n HT20 / ac VHT20: 5 Channels; IEEE 802.11n HT40 / ac VHT40: 2 Channels; IEEE 802.11ac VHT80: 1 Channel.
Modulation	:	OFDM(QPSK, BPSK, 16-QAM, 64-QAM,256-QAM)
Transmit Data Rate	:	IEEE 802.11a: 54, 48, 36, 24, 18, 12, 9, 6Mbps; IEEE 802.11n: up 150Mbps; IEEE 802.11ac: up to 433.3Mbps;
Channels Spacing	:	IEEE 802.11a: 20MHz; IEEE 802.11n HT20: 20MHz; IEEE 802.11n HT40: 40MHz; IEEE 802.11ac VHT20: 20MHz; IEEE 802.11ac VHT40: 40MHz; IEEE 802.11ac VHT80: 80MHz;

Transmit Power	:	U-NII-1	IEEE 802.11a: 13.672dBm IEEE 802.11n HT20: 13.049dBm IEEE 802.11n HT40: 12.816dBm IEEE 802.11ac VHT20: 12.927dBm IEEE 802.11ac VHT40: 12.893dBm IEEE 802.11ac VHT80: 12.166dBm
		U-NII-2A	IEEE 802.11a: 12.912dBm IEEE 802.11n HT20: 12.311dBm IEEE 802.11n HT40: 11.799dBm IEEE 802.11ac VHT20: 12.164dBm IEEE 802.11ac VHT40: 11.809dBm IEEE 802.11ac VHT80: 11.143dBm
		U-NII-2C	IEEE 802.11a: 12.3dBm IEEE 802.11n HT20: 11.757dBm IEEE 802.11n HT40: 12.160dBm IEEE 802.11ac VHT20: 11.549dBm IEEE 802.11ac VHT40: 12.160dBm IEEE 802.11ac VHT80: 11.538dBm
		U-NII-3	IEEE 802.11a: 13.343dBm IEEE 802.11n HT20: 12.873dBm IEEE 802.11n HT40: 12.736dBm IEEE 802.11ac VHT20: 12.905dBm IEEE 802.11ac VHT40: 12.727dBm IEEE 802.11ac VHT80: 11.670dBm
Sample Type	:	Prototype production	

Note：

For a more detailed features description, please refer to the manufacturer’s specifications or the user's manual.

1.2. The antenna information for EUT

Ant No.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	-	-	Internal	-	4.88

Note: This information is provided by the applicant.

1.3. Information of RF Cable

Cable Loss(dB)	Provided by
1.0	The Art of Utility AB
Note: 1.The customer declared the loss value of the RF Cable, and the test results of this report only apply to the sample as received. 2. This information is provided by the applicant.	

2. SUMMARY OF TEST

2.1. Summary of test result

Report Section	Description of Test Item	FCC Standard Section	Results
3	6dB Bandwidth &26dB Bandwidth & 99% Occupied Bandwidth	15.407(a) 15.407(e)	PASS
4	Maximum Conducted Output Power	15.407(a)	PASS
5	Peak Power Spectral Density	15.407(a)	PASS
6	Unwanted Emissions and Band Edge	15.205 15.209 15.407(b)	PASS
7	Frequency Stability	15.407(g)	PASS
8	AC Power Line Conducted Emissions	15.207 15.407(b)(9)	PASS
9	Antenna Requirement	15.203	PASS

Note:

(1) “N/A” denotes test is not applicable in this test report

2.2. Test Facilities

EMC Lab	:	Certificated by CNAS, CHINA Registration No.: L5288 This Certificate is valid until: November 12, 2023 Certificated by FCC, USA Designation Number: CN1215 This Certificate is valid until: January 31, 2024 Certificated by A2LA, USA Registration No.: 4366.01 This Certificate is valid until: January 31, 2024 Certificated by Industry Canada CAB identifier No.: CN0035 This Certificate is valid until: January 31, 2024 Certificated by VCCI, Japan Registration No.:C-14103; T-20073; R-13663; R-20103; G-20097 Date of registration: Apr. 20, 2020 This Certificate is valid until: Apr. 19, 2023 Certificated by TUV Rheinland, Germany Registration No.: UA 50413872 0001 Date of registration: July 31, 2018 Certificated by Intertek Registration No.: 2011-RTL-L2-64 Date of registration: November 08, 2018
Name of Firm	:	EST Technology Co., Ltd.
Site Location	:	Chilingxiang, Qishantou, Santun, Houjie, Dongguan, Guangdong, China

2.3. Measurement uncertainty for EST Technology Co., Ltd.

Test Item	Uncertainty
Uncertainty for Conduction emission test	2.54dB
Uncertainty for Radiation Emission test (30MHz-1GHz)	3.62
Uncertainty for Radiation Emission test (1GHz to 18GHz)	4.86
Uncertainty for spurious emissions test (18GHz to 40GHz)	4.67
Uncertainty for radio frequency	7×10-8
Uncertainty for conducted RF Power	1.08dB
Uncertainty for Power density test	0.26dB
Temperature	±0.6°C
Humidity	±4.0 %
Volatage DC	±1.0%
Volatage (AC, <10KHz)	±1.5%

Note:

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

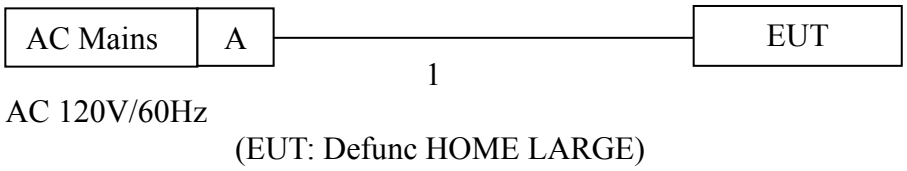
2.4. Assistant equipment used for test

Item	Equipment	Brand	Model Name/Type No.	FCC ID	Series No.
A	Adapter	-	EA11301K-240	-	-

Item	Shielded Type	Ferrite Core	Length	Note
1	NO	NO	1.5m	DC Cable

2.5. Block Diagram

For radiated emissions test: EUT was placed on a turn table, which is 0.8 (or 1.5) meter high above ground.



(EUT: Defunc HOME LARGE)

2.6. Test Mode

Pre-scan has been combined all possible modulations and date rates to determine the worst case test mode,the worst case test mode was selected for the final test as listed below.

Test Item	Test Mode	Channel	Modulation	Data rate
6dB Bandwidth	IEEE 802.11a	149/157/165	OFDM	6Mbps
	IEEE 802.11n HT20	149/157/165	OFDM	MCS0
	IEEE 802.11n HT40	151/159	OFDM	MCS0
	IEEE 802.11ac VHT20	149/157/165	OFDM	MCS0
	IEEE 802.11ac VHT40	151/159	OFDM	MCS0
	IEEE 802.11ac VHT80	155	OFDM	MCS0
26dB Bandwidth	IEEE 802.11a	36/40/48/52/60/64/100/116/140	OFDM	6Mbps
	IEEE 802.11n HT20	36/40/48/52/60/64/100/116/140	OFDM	MCS0
	IEEE 802.11n HT40	38/46/54/62/102/114/134	OFDM	MCS0
	IEEE 802.11ac VHT20	36/40/48/52/60/64/100/116/140	OFDM	MCS0
	IEEE 802.11ac VHT40	38/46/54/62/102/114/134	OFDM	MCS0
	IEEE 802.11ac VHT80	42/58/106/122	OFDM	MCS0
99% Occupied Bandwidth	IEEE 802.11a	36/40/48/52/60/64/100/116/140/ 149/157/165	OFDM	6Mbps
	IEEE 802.11n HT20	36/40/48/52/60/64/100/116/140/ 149/157/165	OFDM	MCS0
	IEEE 802.11n HT40	38/46/54/62/102/114/134/151/159	OFDM	MCS0
	IEEE 802.11ac VHT20	36/40/48/52/60/64/100/116/140/ 149/157/165	OFDM	MCS0
	IEEE 802.11ac VHT40	38/46/54/62/102/114/134/151/ 159	OFDM	MCS0
	IEEE 802.11ac VHT80	42/58/106/122/155	OFDM	MCS0
Maximum Conducted Output Power	IEEE 802.11a	36/40/48/52/60/64/100/116/140/ 149/157/165	OFDM	6Mbps
	IEEE 802.11n HT20	36/40/48/52/60/64/100/116/140/ 149/157/165	OFDM	MCS0
	IEEE 802.11n HT40	38/46/54/62/102/114/134/151/159	OFDM	MCS0
	IEEE 802.11ac VHT20	36/40/48/52/60/64/100/116/140/ 149/157/165	OFDM	MCS0
	IEEE 802.11ac VHT40	38/46/54/62/102/114/134/151/ 159	OFDM	MCS0
	IEEE 802.11ac VHT80	42/58/106/122/155	OFDM	MCS0

Peak Power Spectral Density	IEEE 802.11a	36/40/48/52/60/64/100/116/140/149/157/165	OFDM	6Mbps
	IEEE 802.11n HT20	36/40/48/52/60/64/100/116/140/149/157/165	OFDM	MCS0
	IEEE 802.11n HT40	38/46/54/62/102/114/134/151/159	OFDM	MCS0
	IEEE 802.11ac VHT20	36/40/48/52/60/64/100/116/140/149/157/165	OFDM	MCS0
	IEEE 802.11ac VHT40	38/46/54/62/102/114/134/151/159	OFDM	MCS0
	IEEE 802.11ac VHT80	42/58/106/122/155	OFDM	MCS0
Unwanted Emissions and Band Edge(Above 1GHz)	IEEE 802.11a	36/40/48/52/60/64/100/116/140/149/157/165	OFDM	6Mbps
	IEEE 802.11n HT20	36/40/48/52/60/64/100/116/140/149/157/165	OFDM	MCS0
	IEEE 802.11n HT40	38/46/54/62/102/114/134/151/159	OFDM	MCS0
	IEEE 802.11ac VHT20	36/40/48/52/60/64/100/116/140/149/157/165	OFDM	MCS0
	IEEE 802.11ac VHT40	38/46/54/62/102/114/134/151/159	OFDM	MCS0
	IEEE 802.11ac VHT80	42/58/106/122/155	OFDM	MCS0
Unwanted Emissions Below 1GHz	IEEE 802.11a	100	OFDM	6Mbps
Frequency Stability	Unmodulation	36/64/100/149	N/A	N/A
AC Power Line Conducted Emissions	IEEE 802.11a	100	OFDM	6Mbps

Note:

1. In radiated measurement,the EUT had been pre-scan on the positioned of each 3 axis(X,Y,Z), the worst case was found when positioned on **X-plane.**

2.7. Channel List

Band	Mode	Channel	Frequency (MHz)
U-NII-1	IEEE 802.11a & n HT20 & ac VHT20	36	5180
		40	5200
		44	5220
		48	5240
	IEEE 802.11n HT40 & ac VHT40	38	5190
		46	5230
	IEEE 802.11ac VHT80	42	5210
U-NII-2A	IEEE 802.11a & n HT20 & ac VHT20	52	5260
		56	5280
		60	5300
		64	5320
	IEEE 802.11n HT40 & ac VHT40	54	5270
		62	5310
	IEEE 802.11ac VHT80	58	5290
U-NII-2C	IEEE 802.11a & n HT20 & ac VHT20	100	5500
		104	5520
		108	5540
		112	5560
		116	5580
		120	5600
		124	5620
		128	5640
		132	5660
		136	5680
		140	5700
	IEEE 802.11n HT40 & ac VHT40	102	5510
		110	5550
		118	5590
		126	5630
		134	5670
	IEEE 802.11ac VHT80	106	5530
		122	5610
U-NII-3	IEEE 802.11a & n HT20 & ac VHT20	149	5745
		153	5765
		157	5785
		161	5805
		165	5825
	IEEE 802.11n HT40 & ac VHT40	151	5755
		159	5795
	IEEE 802.11ac VHT80	155	5775

2.8. Power Setting of Test Software

Software Name	CMD		
U-NII-1			
Frequency(MHz)	5180	5200	5240
IEEE 802.11a Setting	15	15	15
IEEE 802.11n HT20 Setting	15	15	15
IEEE 802.11ac VHT20 Setting	15	15	15
Frequency(MHz)	5190	5230	
IEEE 802.11n HT40 Setting	15	15	
IEEE 802.11ac VHT40 Setting	15	15	
Frequency(MHz)	5210		
IEEE 802.11ac VHT80 Setting	15		
U-NII-2A			
Frequency(MHz)	5260	5300	5320
IEEE 802.11a Setting	15	15	15
IEEE 802.11n HT20 Setting	15	15	15
IEEE 802.11ac VHT20 Setting	15	15	15
Frequency(MHz)	5270	5310	
IEEE 802.11n HT40 Setting	15	15	
IEEE 802.11ac VHT40 Setting	15	15	
Frequency(MHz)	5290		
IEEE 802.11ac VHT80 Setting	15		
U-NII-2C			
Frequency(MHz)	5500	5580	5700
IEEE 802.11a Setting	15	15	15
IEEE 802.11n HT20 Setting	15	15	15
IEEE 802.11ac VHT20 Setting	15	15	15
Frequency(MHz)	5510	5590	5670
IEEE 802.11n HT40 Setting	15	15	15
IEEE 802.11ac VHT40 Setting	15	15	15
Frequency(MHz)	5530	5610	
IEEE 802.11ac VHT80 Setting	15	15	
U-NII-3			
Frequency(MHz)	5745	5785	5825
IEEE 802.11a Setting	15	15	15
IEEE 802.11n HT20 Setting	15	15	15
IEEE 802.11ac VHT20 Setting	15	15	15
Frequency(MHz)	5755	5795	
IEEE 802.11n HT40 Setting	15	15	
IEEE 802.11ac VHT40 Setting	15	15	
Frequency(MHz)	5775		
IEEE 802.11ac VHT80 Setting	15		

Note: This information is provided by the applicant.

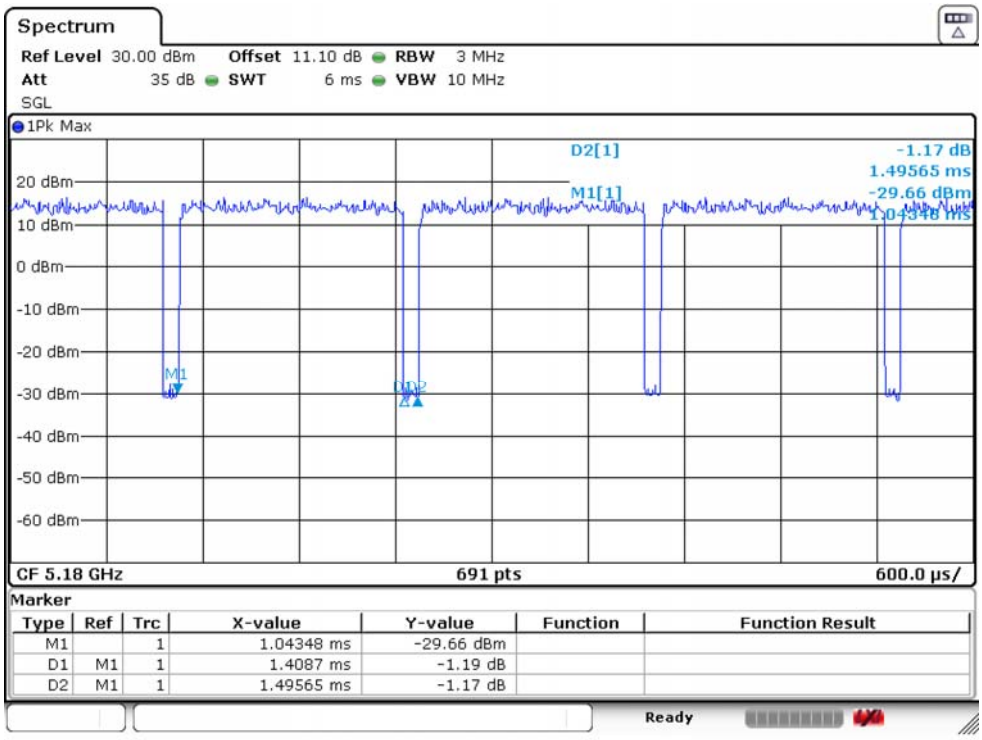
2.9. Duty Cycle of Test Signal

Temperature	23.6℃	Relative Humidity		60%	Test Voltage		AC 120V/60Hz
Mode	Frequency (MHz)	On time (ms)	Total Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T (Hz)	VBW Setting (Hz)
IEEE 802.11a	5180	1.40870	1.49565	94.19	0.26	710	710
IEEE 802.11n HT20	5180	1.33043	1.41739	93.86	0.27	752	752
IEEE 802.11ac VHT20	5190	1.33043	1.41739	93.86	0.27	752	752
IEEE 802.11n HT40	5180	0.66957	0.75652	88.51	0.53	1493	1493
IEEE 802.11ac VHT40	5190	0.67826	0.76522	88.64	0.52	1474	1474
IEEE 802.11ac VHT80	5210	0.33913	0.41739	81.25	0.90	2949	2949

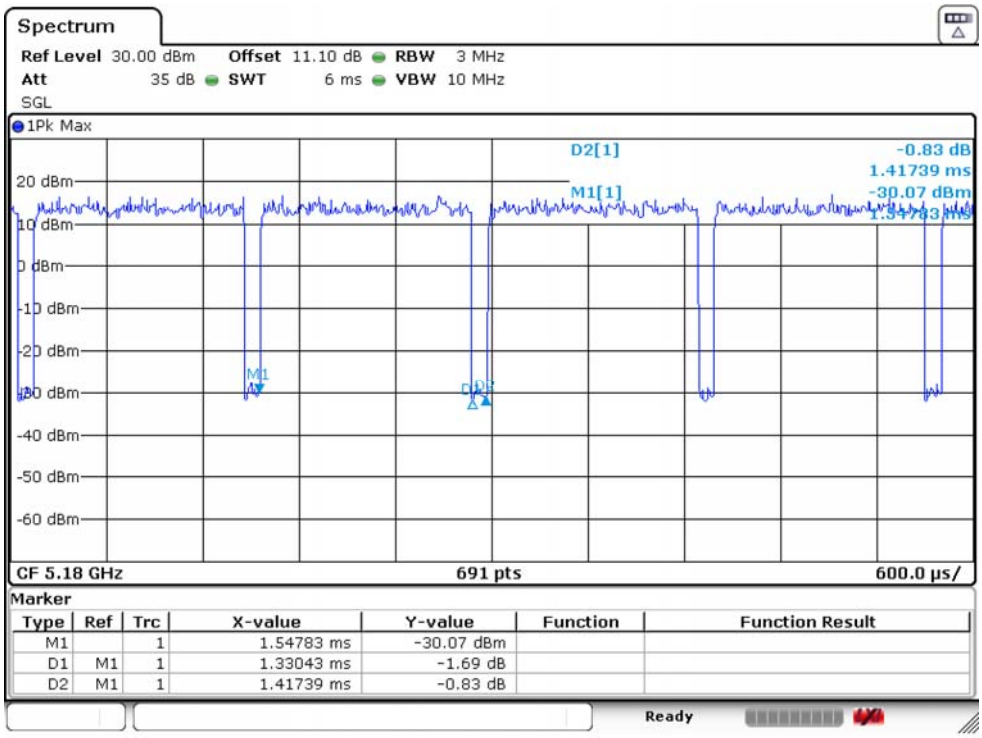
Note:

1. Duty Cycle=On Time/Total Time×100%.
2. Duty Factor=10×LOG(1/Duty Cycle).
3. If duty cycle <98 %, the conducted average output power and average power spectral density should be add duty factor.
4. If duty cycle⩾98 %,the EUT is consider to be transmitting continuously,the conducted average output power and average power spectral density no need to add duty factor.
5. The on-time time is transmission duration(T).
6. The VBW Setting is use for RMS measurement in Unwanted Emissions and Band Edge(Above 1GHz) Test.

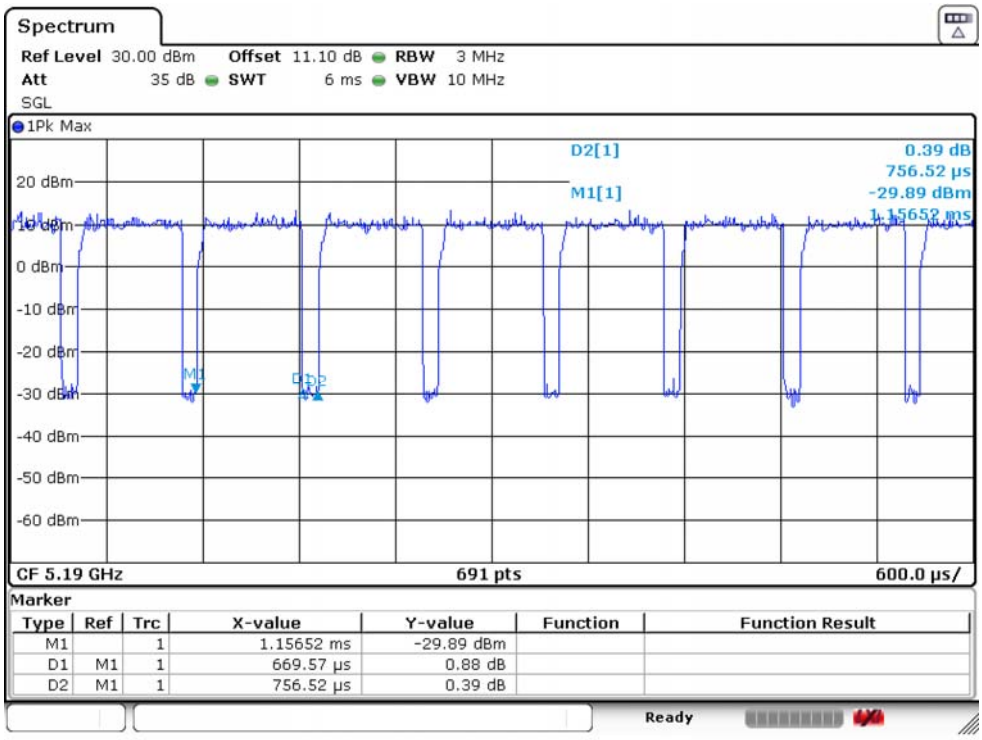
IEEE 802.11a 5180MHz



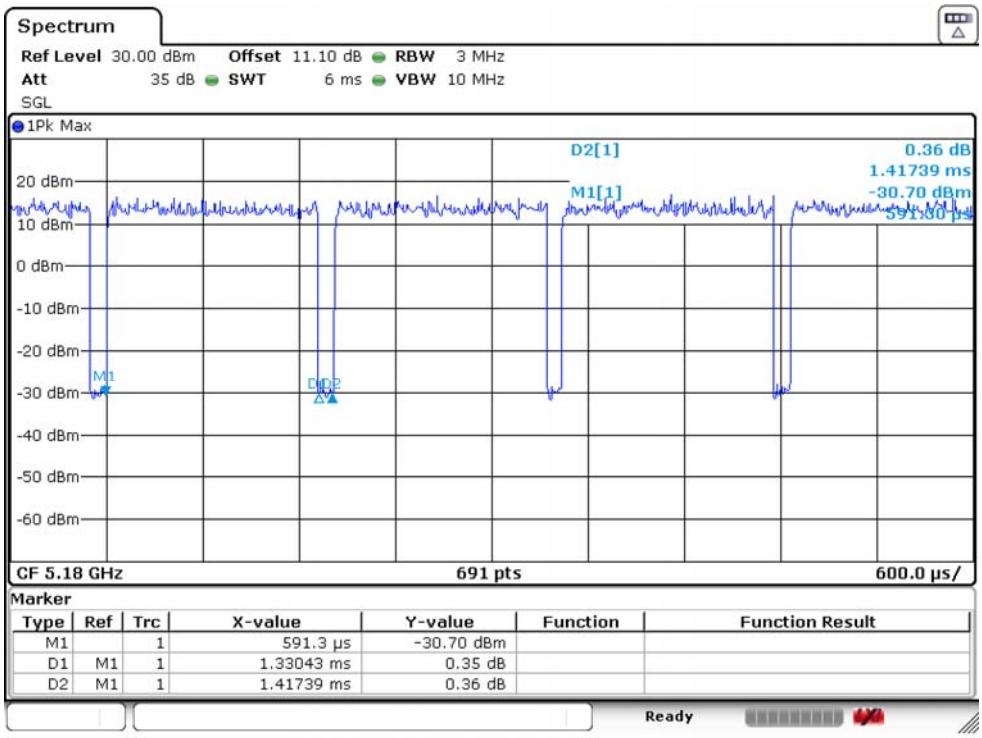
IEEE 802.11n HT20 5180MHz



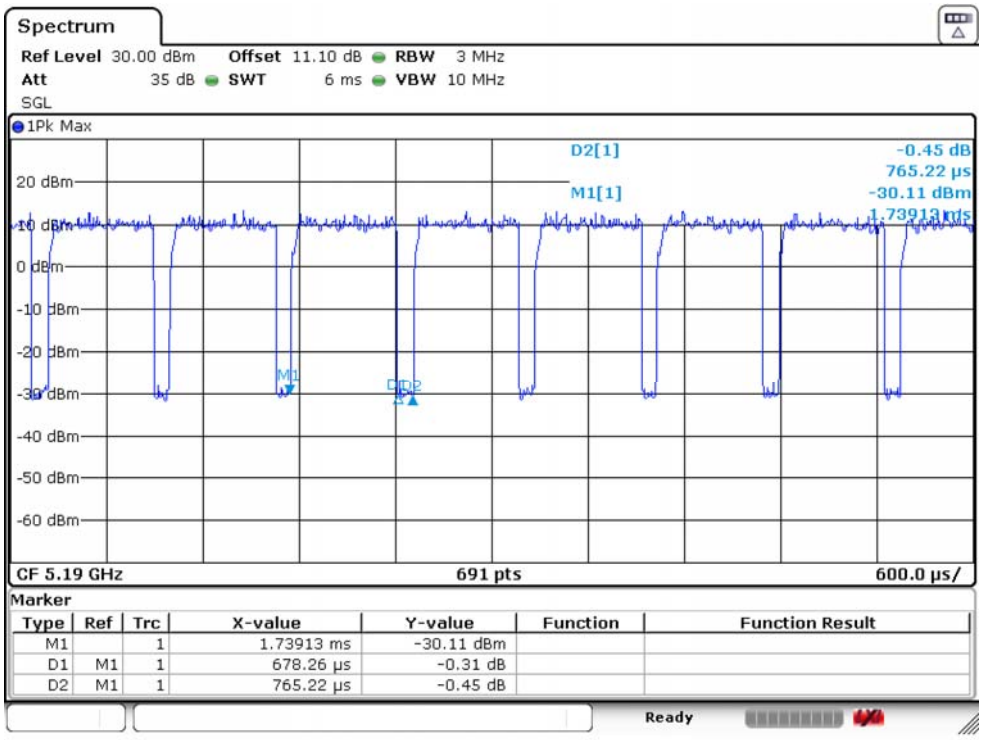
IEEE 802.11n HT40 5190MHz



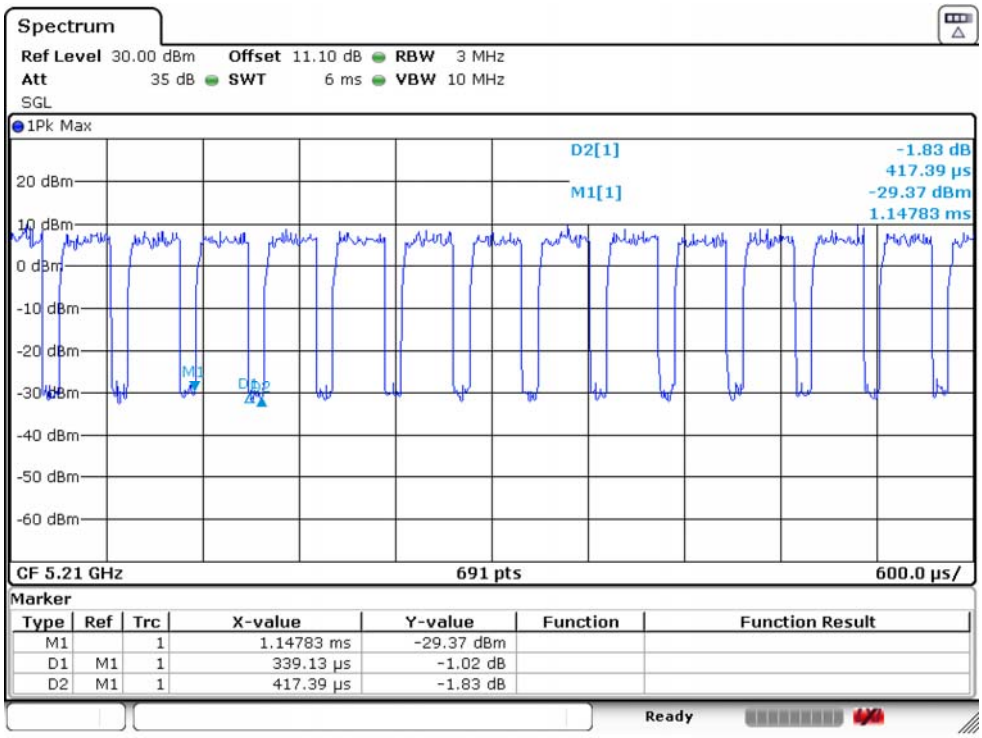
IEEE 802.11ac VHT20 5180MHz



IEEE 802.11ac VHT40 5190MHz



IEEE 802.11ac VHT80 5210MHz



2.10. Test Equipment List

For AC power conducted emissions test						
Equipment	Manufacturer	Model No.	Serial No.	Calibration Body	Last Cal.	Next Cal.
EMI Test Receiver	Rohde & Schwarz	ESHS30	EST-E001	LISAI	June 13,21	1 Year
Artificial Mains Network	Rohde & Schwarz	ENV216	EST-E002	LISAI	June 13,21	1 Year
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	EST-E078	LISAI	June 13,21	1 Year
Test Software	Audix	e3-6.111221a	N/A	N/A	N/A	N/A

For radiated emissions test(9KHz-30MHz)						
Equipment	Manufacturer	Model No.	Serial No.	Calibration Body	Last Cal.	Next Cal.
EMI Test Receiver	Rohde & Schwarz	ESR7	EST-E047	LISAI	June 13,21	1 Year
Active Loop Antenna	SCHWAREB ECK	FMZB 1519B	EST-E054	LISAI	June 13,21	1 Year
Test Software	Audix	e3-6.111221a	N/A	N/A	N/A	N/A
9kHz-30MHz Cable	N/A	EST-001	N/A	N/A	N/A	N/A

For radiated emissions test(30MHz-1000MHz)						
Equipment	Manufacturer	Model No.	Serial No.	Calibration Body	Last Cal.	Next Cal.
EMI Test Receiver	Rohde & Schwarz	ESR7	EST-E047	LISAI	June 13,21	1 Year
Bilog Antenna	Teseq	CBL 6111D	EST-E034	LISAI	June 13,21	1 Year
Test Software	Audix	e3-6.111221a	N/A	N/A	N/A	N/A
30-1000MHz Cable	N/A	EST-002	N/A	N/A	N/A	N/A

For radiated emissions test(Above 1000MHz)						
Equipment	Manufacturer	Model No.	Serial No.	Calibration Body	Last Cal.	Next Cal.
Horn Antenna	SCHWARZB ECK	BBHA 9120 D	EST-E031	LISAI	June 13,21	1 Year
Signal Amplifier	SCHWARZB ECK	BBV9718	EST-E032	LISAI	June 13,21	1 Year
Spectrum Analyzer	Rohde &Schwarz	FSV40	EST-E069	LISAI	July 19,21	1 Year
Test Software	Audix	e3-6.111221a	N/A	N/A	N/A	N/A
Above 1GHz Cable	N/A	EST-003	N/A	N/A	N/A	N/A

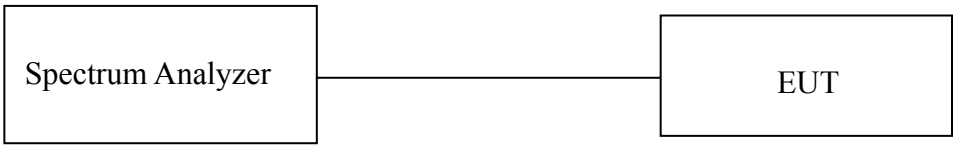
For connect EUT antenna terminal test						
Equipment	Manufacturer	Model No.	Serial No.	Calibration Body	Last Cal.	Next Cal.
TS 8997	Rohde &Schwarz	/	/	/	/	/
Open Switch and Control Unit	Rohde &Schwarz	OSP-B157WB	EST-E036	LISAI	June 13,21	1Year
Signal and Spectrum Analyzer	Rohde &Schwarz	FSV	EST-E037	LISAI	June 13,21	1 Year
Signal Generator	Rohde &Schwarz	SMB100A	EST-E038	LISAI	June 13,21	1 Year
Vector Signal Generator	Rohde &Schwarz	SMBV100A	EST-E039	LISAI	June 13,21	1Year
Test Software	Rohde &Schwarz	WMS32	V10.50.00	N/A	N/A	N/A
Temperature controller	Terchy	MHQ	EST-E101	LISAI	June 13,21	1 Year

3. 6dB Bandwidth &26dB Bandwidth & 99% Occupied Bandwidth

3.1. Limit

Band	Frequency (MHz)	Test Item	Limit
U-NII-1	5150-5250	26dB Bandwidth&99% Occupied Bandwidth	N/A
U-NII-2A	5250-5350	26dB Bandwidth&99% Occupied Bandwidth	N/A
U-NII-2C	5470-5725	26dB Bandwidth&99% Occupied Bandwidth	N/A
U-NII-3	5725-5850	6dB Bandwidth&99% Occupied Bandwidth	6dB Bandwidth≥500KHz

3.2. Test Setup



3.3. Spectrum Analyzer Setting

6dB Bandwidth	
Spectrum Parameters	Setting
RBW	100KHz
VBW	300KHz
Span	40MHz(20MHz Bandwidth mode) 60MHz(40MHz Bandwidth mode) 120MHz(80MHz Bandwidth mode)
Sweep Time	Auto
Detector	Peak
Trace Mode	Max Hold

26dB Bandwidth	
Spectrum Parameters	Setting
RBW	approximately 1% of the emission bandwidth
VBW	＞RBW
Span	40MHz(20MHz Bandwidth mode) 60MHz(40MHz Bandwidth mode) 120MHz(80MHz Bandwidth mode)
Sweep Time	Auto
Detector	Peak
Trace Mode	Max Hold

99% Occupied Bandwidth	
Spectrum Parameters	Setting
RBW	1% to 5% of the OBW
VBW	approximately three times the RBW
Span	between 1.5 times and 5.0 times the OBW
Sweep Time	Auto
Detector	Peak
Trace Mode	Max Hold

3.4. Test Procedure

For 26dB Bandwidth Measurement :

a. Connect EUT antenna terminal to the spectrum analyzer with RF cable.
b. Spectrum analyzer setting parameters in accordance with section 3.3.
c. Set the EUT transmit continuously with maximum output power.
d. Allow trace to stabilize, measure the maximum width of the emission that is 26 dB down from the peak of the emission.Compare this with the RBW setting of the instrument. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.
e. Repeat above procedures until all modes and channels were measured.
f. Record the results in the test report.

For 6dB Bandwidth Measurement :

a. Connect EUT antenna terminal to the spectrum analyzer with RF cable.
b. Spectrum analyzer setting parameters in accordance with section 3.3.
c. Set the EUT transmit continuously with maximum output power.
d. Allow trace to stabilize, measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.
e. Repeat above procedures until all modes and channels were measured.
f. Record the results in the test report.

For 99% Occupied Bandwidth Measurement :

a. Connect EUT antenna terminal to the spectrum analyzer with RF cable.
b. Spectrum analyzer setting parameters in accordance with section 3.3.
c. Set the EUT transmit continuously with maximum output power.
d. Allow trace to stabilize, use the 99% power bandwidth function to measure bandwidth.
e. Repeat above procedures until all modes and channels were measured.
f. Record the results in the test report.

3.5. Test Result

Temperature	23.6℃	Relative Humidity	60%	Test Voltage	AC 120V/60Hz

26dB Bandwidth&99% Occupied Bandwidth

BAND	Test Mode	Fre (MHz)	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Calculate Power Limit (W)	Calculate Power Limit (dBm)
U-NII-1	IEEE 802.11a	5180	21.708	17.019		
		5200	21.766	17.134		
		5240	21.476	17.077		
	IEEE 802.11n HT20	5180	21.708	18.061		
		5200	21.708	17.829		
		5240	21.534	18.061		
	IEEE 802.11ac VHT20	5180	22.055	18.177		
		5200	21.592	17.945		
		5240	21.592	18.061		
	IEEE 802.11n HT40	5190	40.290	37.048		
		5230	40.410	37.048		
	IEEE 802.11ac VHT40	5190	40.290	37.164		
		5230	40.410	36.932		
	IEEE 802.11ac VHT80	5210	82.430	75.948		
U-NII-2A	IEEE 802.11a	5260	21.418	17.192	0.2500	23.98
		5300	21.592	17.019	0.2500	23.98
		5320	21.476	17.077	0.2500	23.98
	IEEE 802.11n HT20	5260	21.939	18.119	0.2500	23.98
		5300	21.766	18.234	0.2500	23.98
		5320	21.766	18.177	0.2500	23.98
	IEEE 802.11ac VHT20	5260	21.650	18.061	0.2500	23.98
		5300	22.055	18.234	0.2500	23.98
		5320	22.113	18.061	0.2500	23.98
	IEEE 802.11n HT40	5270	40.170	37.164	0.2500	23.98
		5310	40.410	37.164	0.2500	23.98
	IEEE 802.11ac VHT40	5270	40.170	37.048	0.2500	23.98
		5310	40.290	37.048	0.2500	23.98
	IEEE 802.11ac VHT80	5290	81.970	75.948	0.2500	23.98

BAND	Test Mode	Fre (MHz)	26dB Bandwidth (MHz)	99% Occupied Bandwidth（MHz）	Calculate Power Limit (W)	Calculate Power Limit (dBm)
U-NII-2C	IEEE 802.11a	5500	21.476	17.019	23.31	29.31
		5580	21.650	16.903	23.28	29.28
		5700	21.708	17.019	23.31	29.31
	IEEE 802.11n HT20	5500	21.766	18.003	23.55	29.55
		5580	21.650	18.119	23.58	29.58
		5700	21.650	18.003	23.55	29.55
	IEEE 802.11ac VHT20	5500	21.650	18.061	23.57	29.57
		5580	21.766	18.177	23.60	29.60
		5700	21.823	18.119	23.58	29.58
	IEEE 802.11n HT40	5510	39.940	37.048	23.98	30.00
		5590	40.410	37.048	23.98	30.00
		5670	40.170	37.048	23.98	30.00
	IEEE 802.11ac VHT40	5510	40.170	36.816	23.98	30.00
		5590	40.290	36.932	23.98	30.00
		5670	82.200	75.948	23.98	30.00
	IEEE 802.11ac VHT80	5530	81.970	75.716	23.98	30.00
		5610	83.36	75.716	23.98	30.00

Temperature	23.6℃	Relative Humidity	60%	Test Voltage	AC 120V/60Hz

6dB Bandwidth&99% Occupied Bandwidth

BAND	Test Mode	Frequency (MHz)	6dB Bandwidth (MHz)	99% Occupied Bandwidth（MHz）	6dB BW Min Limit (MHz)	Result
U-NII-3	IEEE 802.11a	5745	16.3064	17.308	0.5	PASS
		5785	16.3064	17.135	0.5	PASS
		5825	16.3024	17.308	0.5	PASS
	IEEE 802.11n HT20	5745	17.5342	18.177	0.5	PASS
		5785	17.5342	18.292	0.5	PASS
		5825	17.5382	18.408	0.5	PASS
	IEEE 802.11ac VHT20	5745	17.5262	18.408	0.5	PASS
		5785	17.5262	18.061	0.5	PASS
		5825	17.5262	18.234	0.5	PASS
	IEEE 802.11n HT40	5755	36.0444	37.164	0.5	PASS
		5795	35.9244	37.395	0.5	PASS
	IEEE 802.11ac VHT40	5755	36.0324	37.279	0.5	PASS
		5795	36.0384	37.164	0.5	PASS
	IEEE 802.11ac VHT80	5775	75.3520	76.179	0.5	PASS

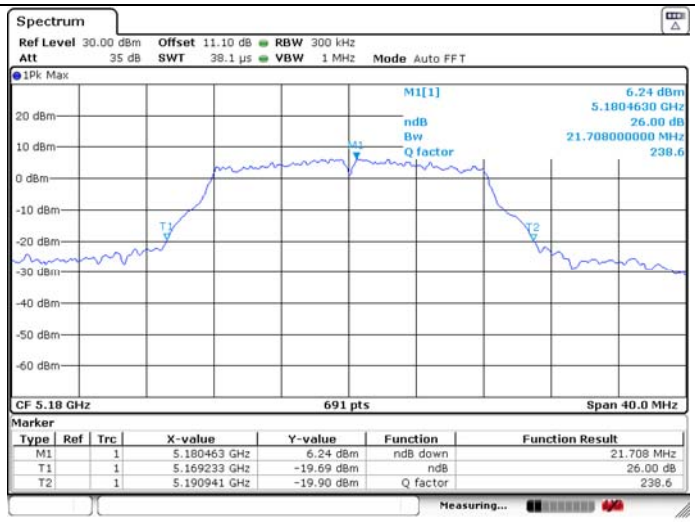
Note :

For Band U-NII-2A and U-NII-2C,the maximum conducted output power limit is 250mw or 11+10×Log B, which is lesser,where B is the 26dB Bandwidth in MHz.So in this section,the maximum conducted output power limit can calculate with 26dB Bandwidth.

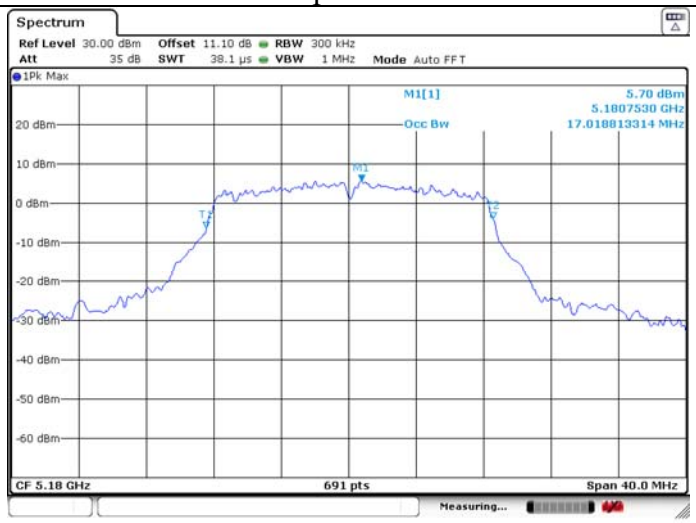
3.6. Test Result

U-NII-1 IEEE 802.11a 5180MHz

26dB Bandwidth

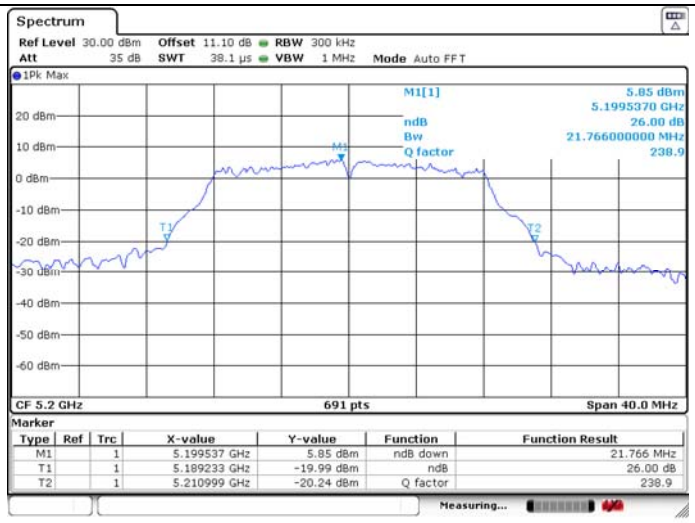


99% Occupied Bandwidth

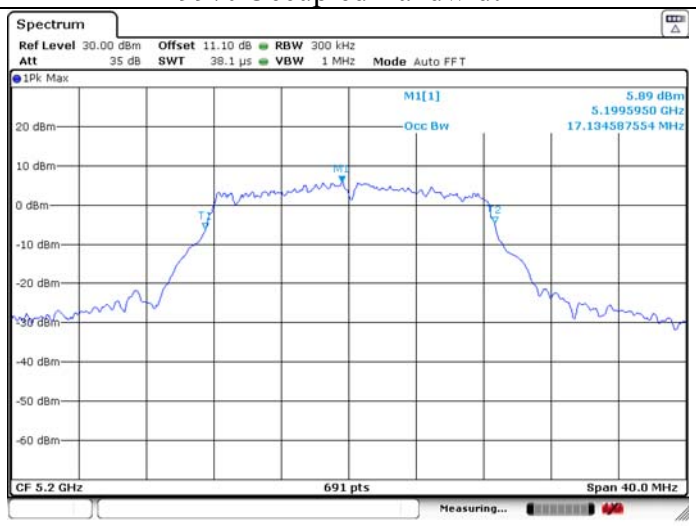


U-NII-1 IEEE 802.11a 5200MHz

26dB Bandwidth

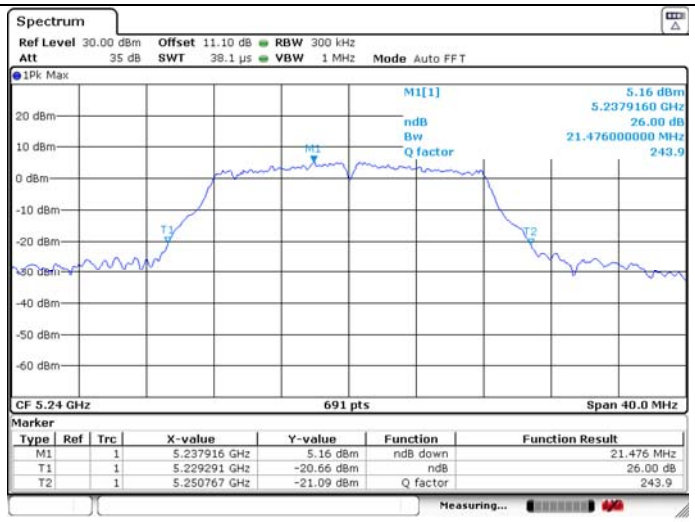


99% Occupied Bandwidth



U-NII-1 IEEE 802.11a 5240MHz

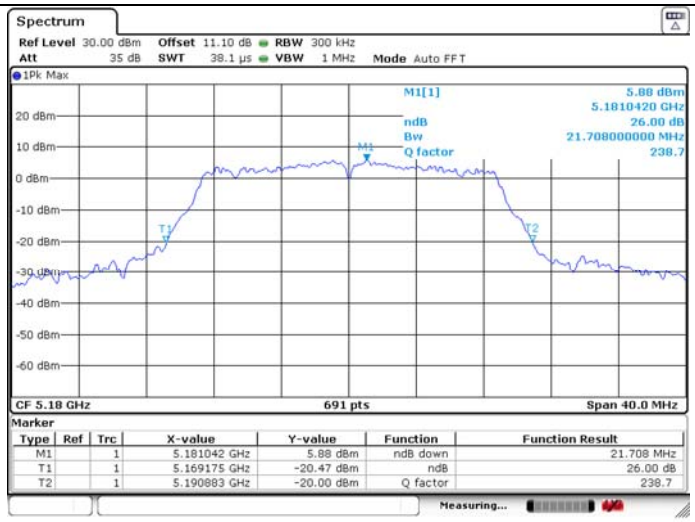
26dB Bandwidth



99% Occupied Bandwidth

U-NII-1 IEEE 802.11n HT20 5180MHz

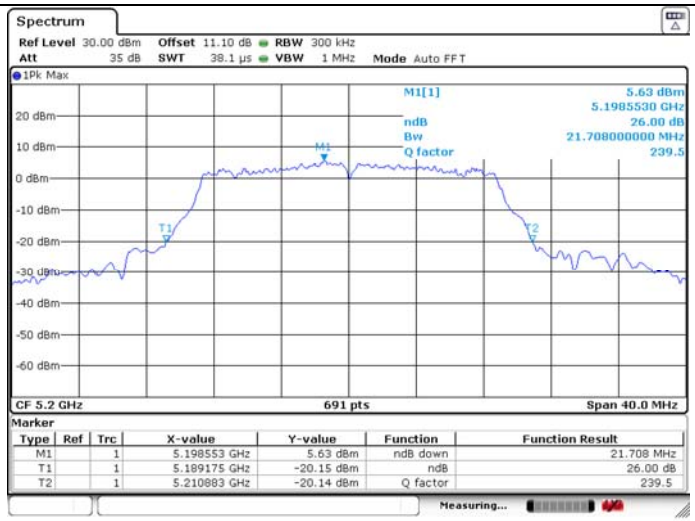
26dB Bandwidth



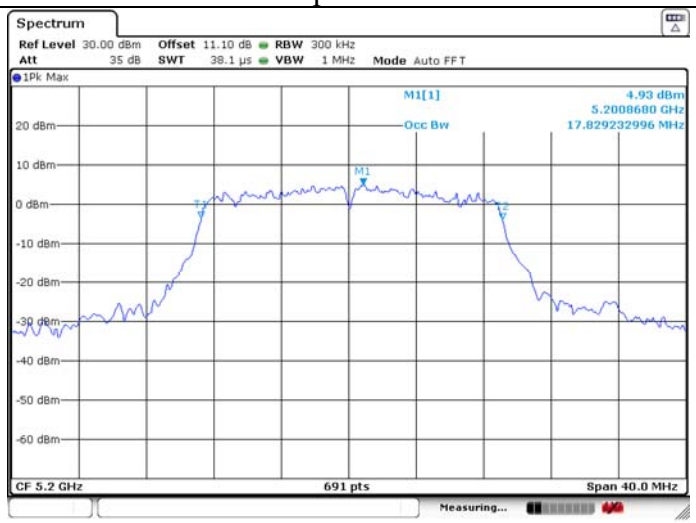
99% Occupied Bandwidth

U-NII-1 IEEE 802.11n HT20 5200MHz

26dB Bandwidth

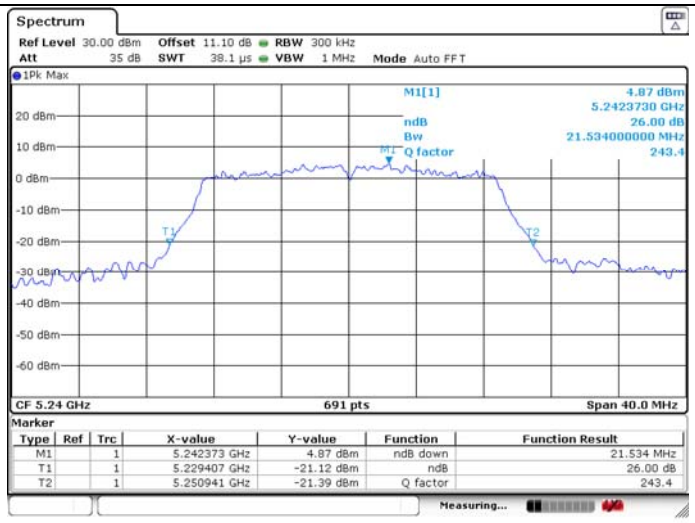


99% Occupied Bandwidth

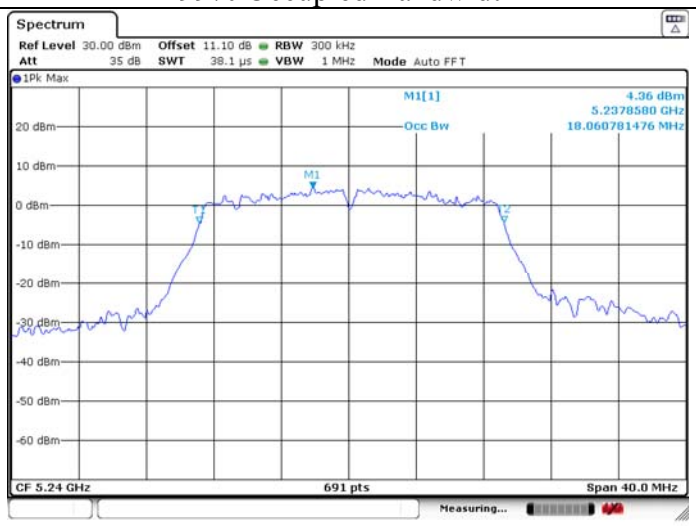


U-NII-1 IEEE 802.11n HT20 5240MHz

26dB Bandwidth

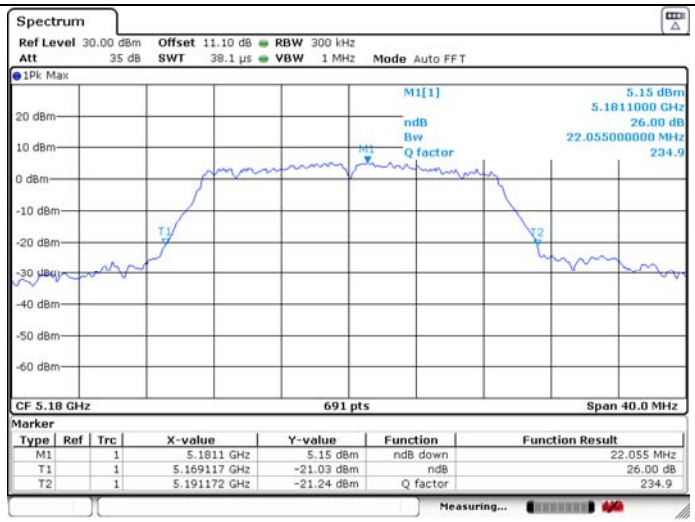


99% Occupied Bandwidth



U-NII-1 IEEE 802.11ac VHT20 5180MHz

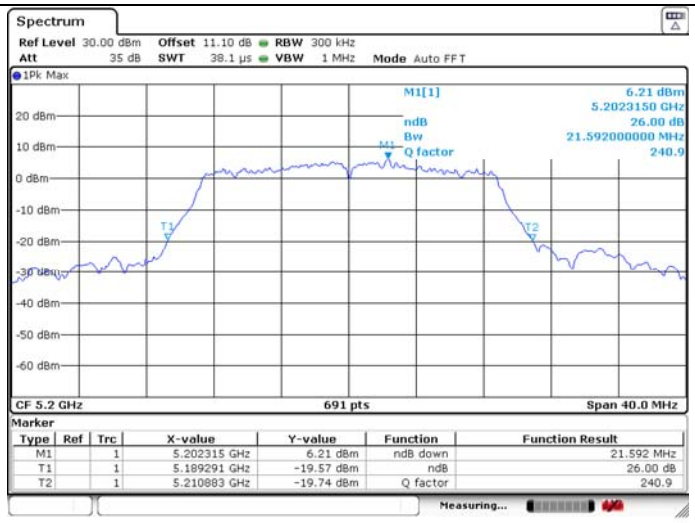
26dB Bandwidth



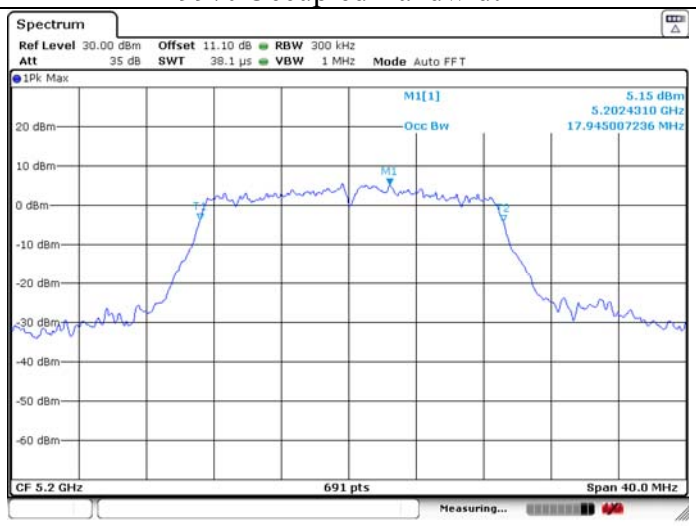
99% Occupied Bandwidth

U-NII-1 IEEE 802.11ac VHT20 5200MHz

26dB Bandwidth

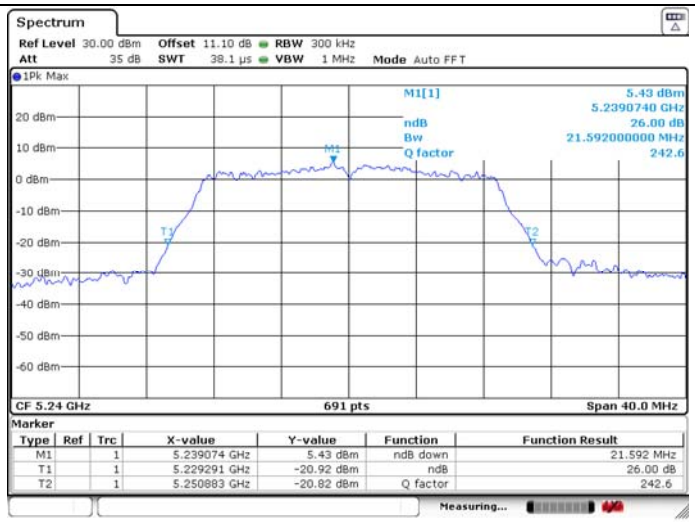


99% Occupied Bandwidth



U-NII-1 IEEE 802.11ac VHT20 5240MHz

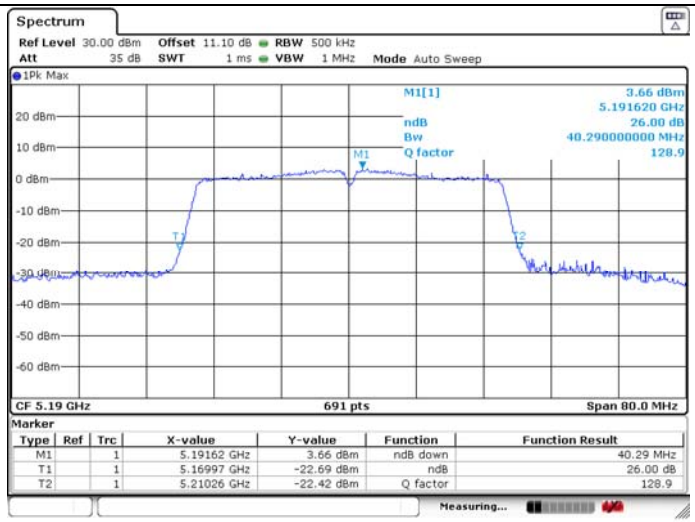
26dB Bandwidth



99% Occupied Bandwidth

U-NII-1 IEEE 802.11n HT40 5190MHz

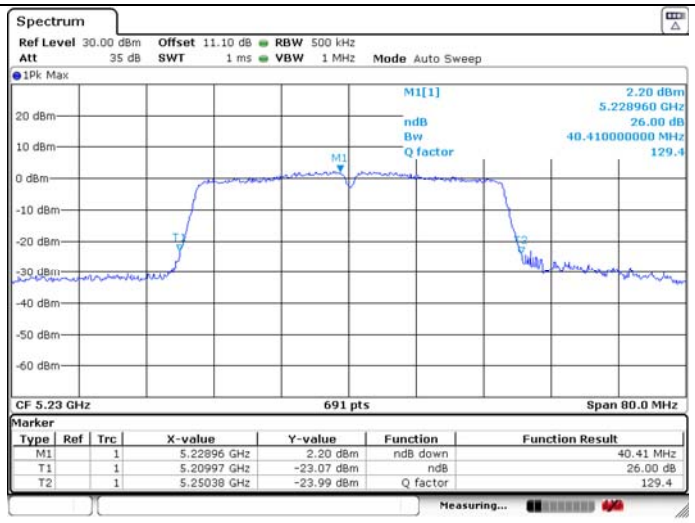
26dB Bandwidth



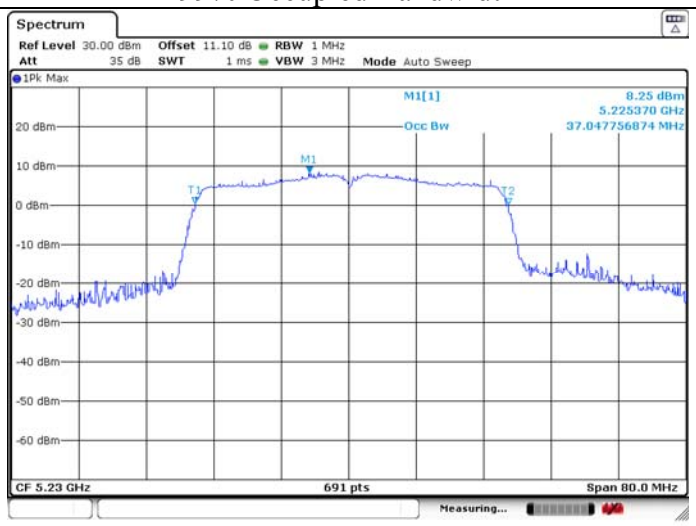
99% Occupied Bandwidth

U-NII-1 IEEE 802.11n HT40 5230MHz

26dB Bandwidth

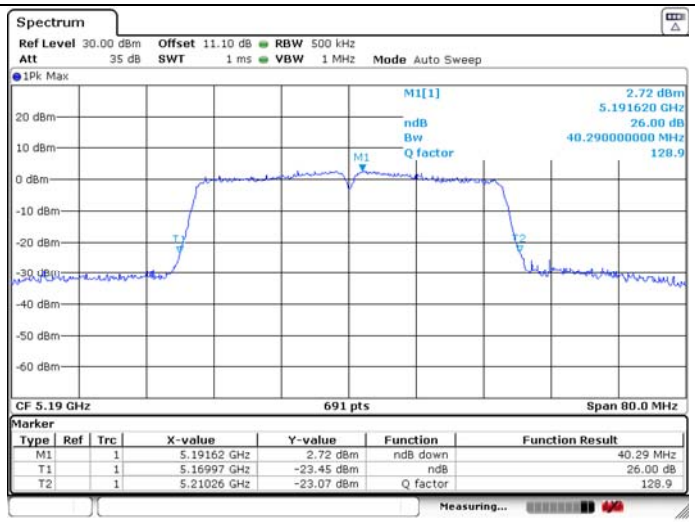


99% Occupied Bandwidth



U-NII-1 IEEE 802.11ac VHT40 5190MHz

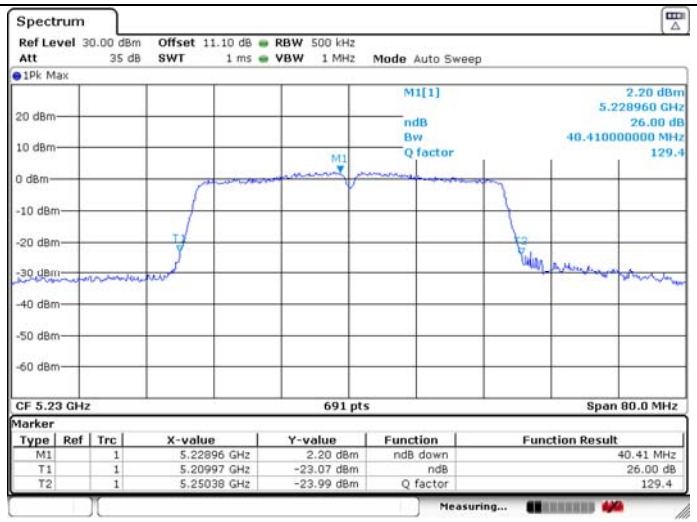
26dB Bandwidth



99% Occupied Bandwidth

U-NII-1 IEEE 802.11ac VHT40 5230MHz

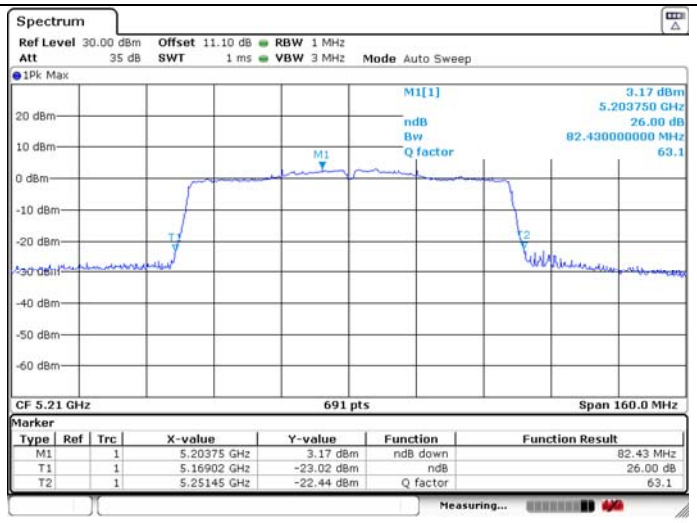
26dB Bandwidth



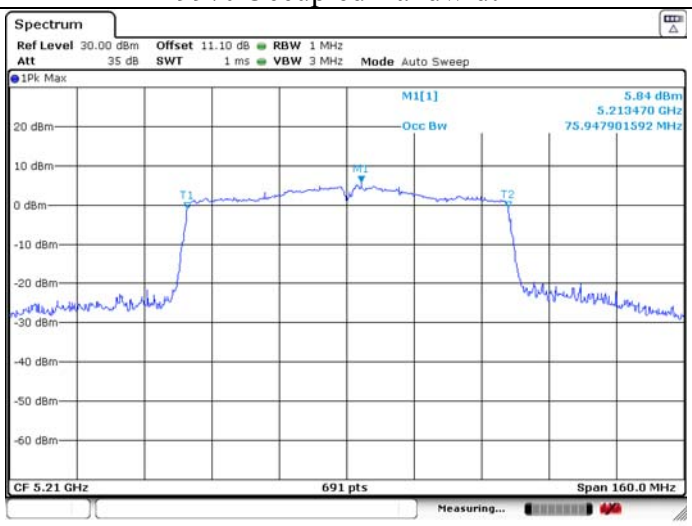
99% Occupied Bandwidth

U-NII-1 IEEE 802.11ac VHT80 5210MHz

26dB Bandwidth

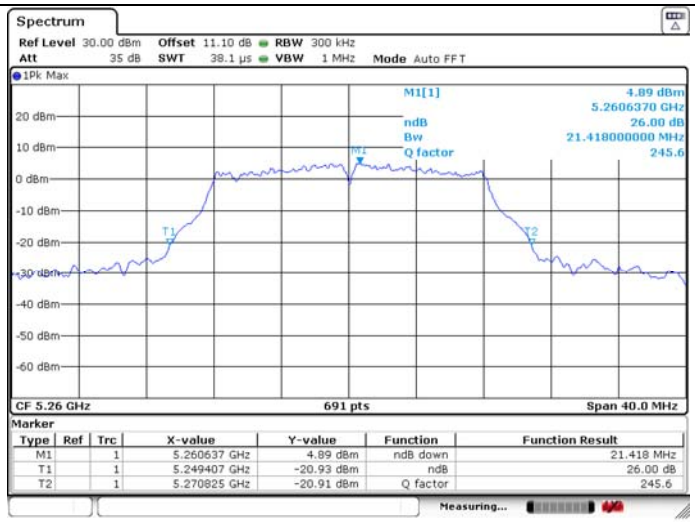


99% Occupied Bandwidth

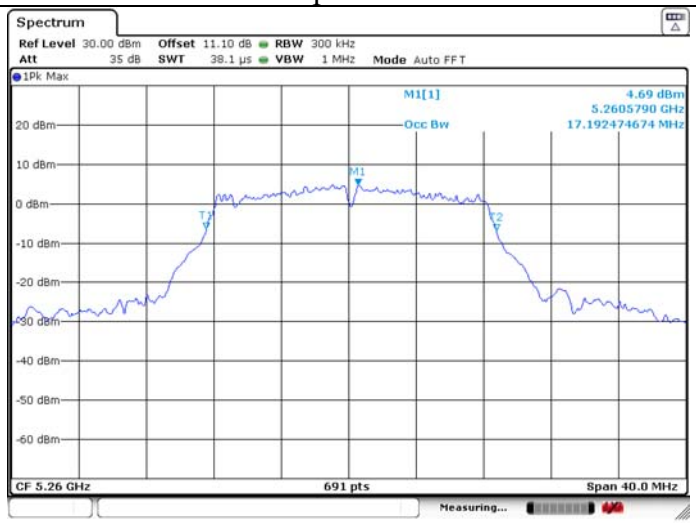


U-NII-2A IEEE 802.11a 5260MHz

26dB Bandwidth



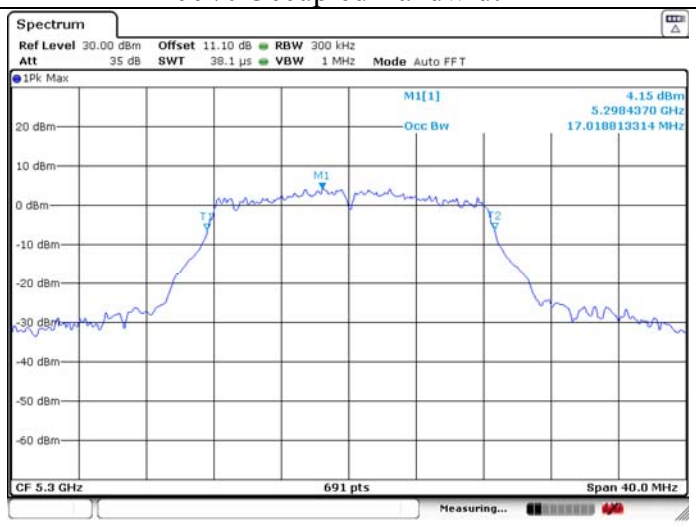
99% Occupied Bandwidth



U-NII-2A IEEE 802.11a 5300MHz

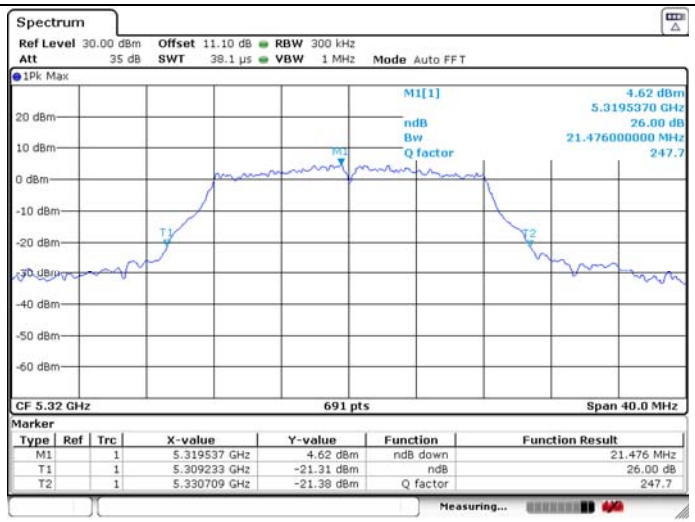
26dB Bandwidth

99% Occupied Bandwidth

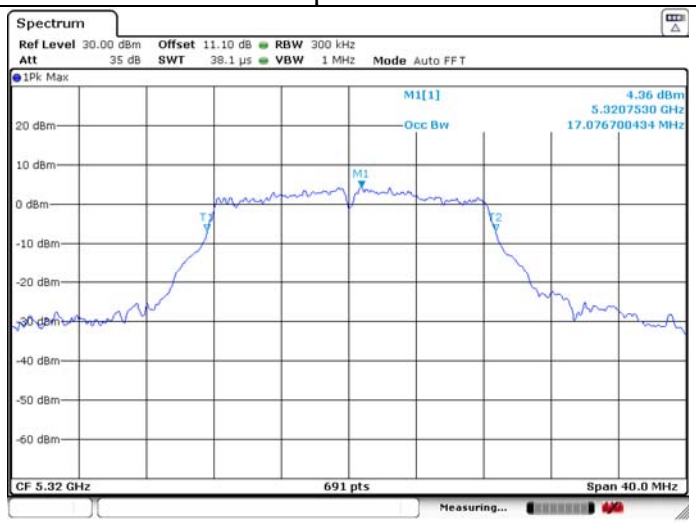


U-NII-2A IEEE 802.11a 5320MHz

26dB Bandwidth

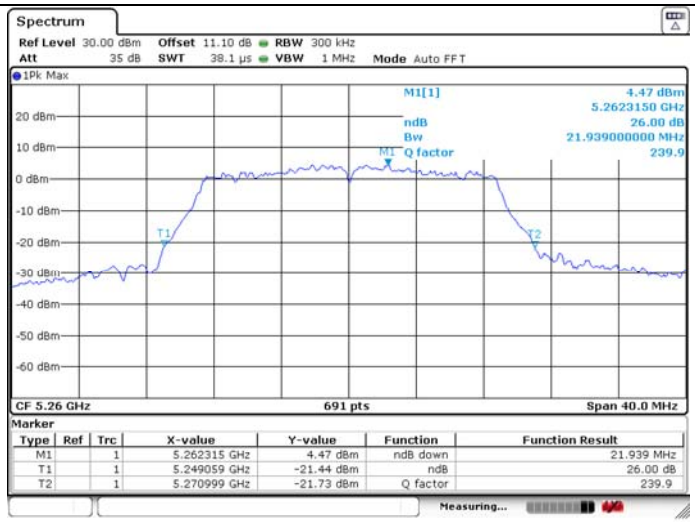


99% Occupied Bandwidth



U-NII-2A IEEE 802.11n HT20 5260MHz

26dB Bandwidth

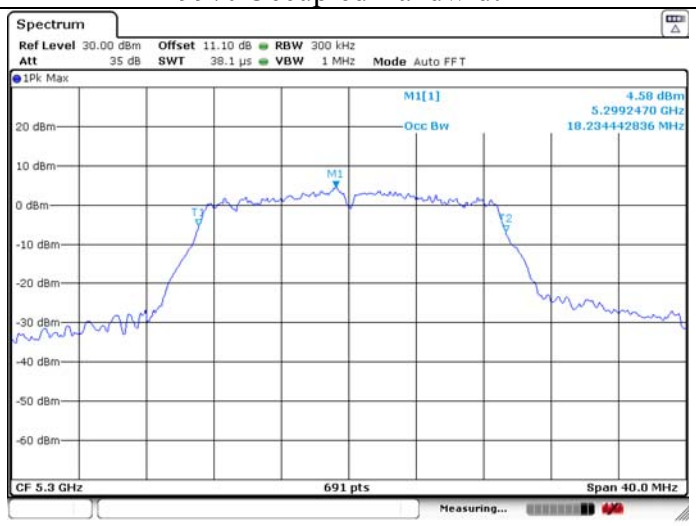


99% Occupied Bandwidth

U-NII-2A IEEE 802.11n HT20 5300MHz

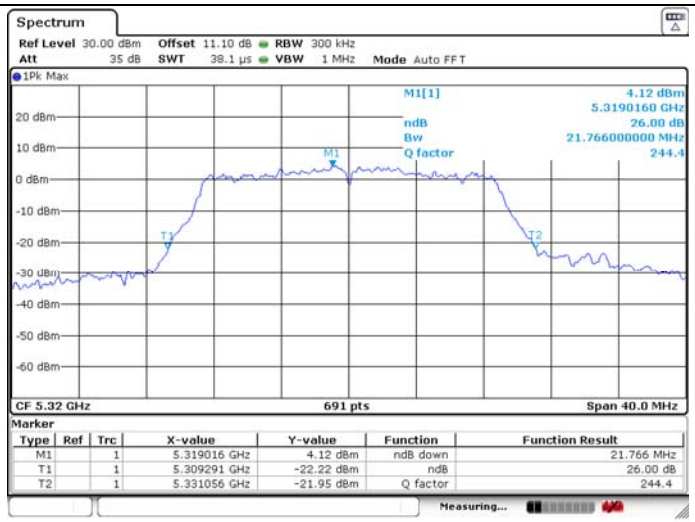
26dB Bandwidth

99% Occupied Bandwidth



U-NII-2A IEEE 802.11n HT20 5320MHz

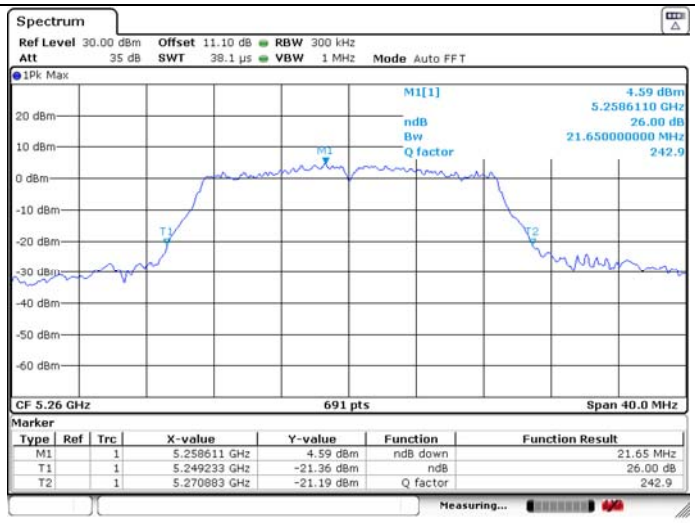
26dB Bandwidth



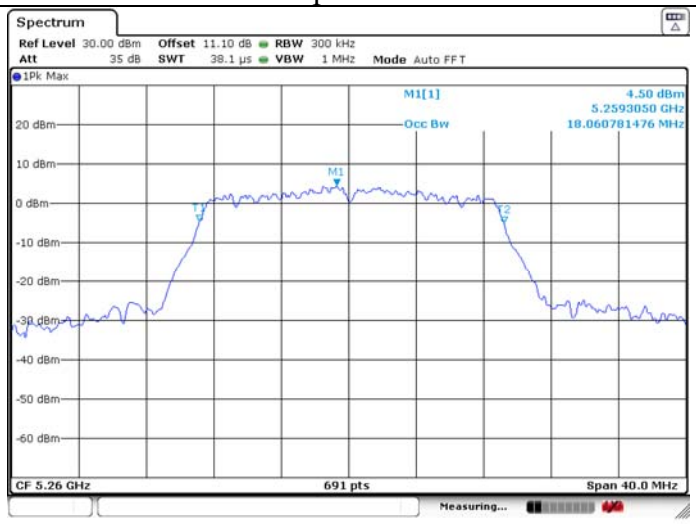
99% Occupied Bandwidth

U-NII-2A IEEE 802.11ac VHT20 5260MHz

26dB Bandwidth

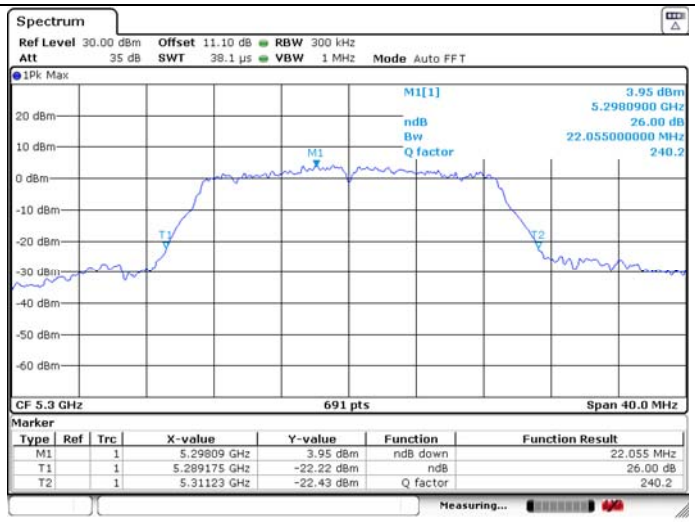


99% Occupied Bandwidth

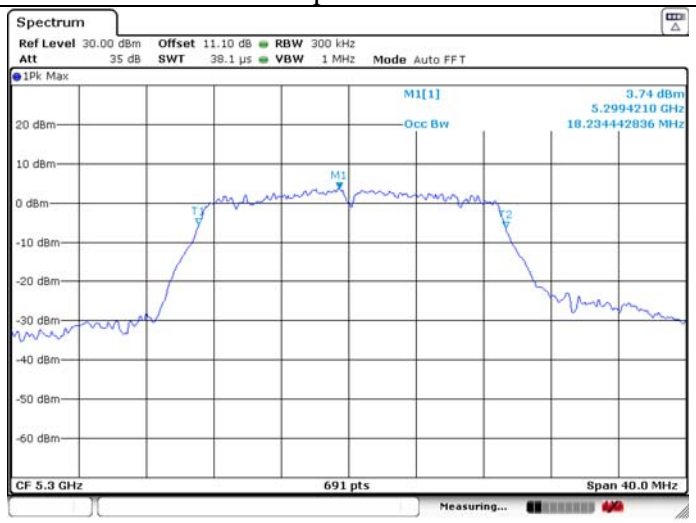


U-NII-2A IEEE 802.11ac VHT20 5300MHz

26dB Bandwidth

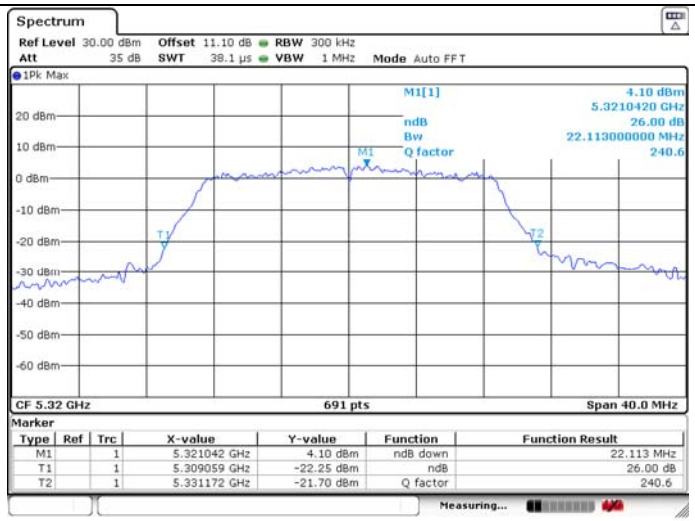


99% Occupied Bandwidth



U-NII-2A IEEE 802.11ac VHT20 5320MHz

26dB Bandwidth



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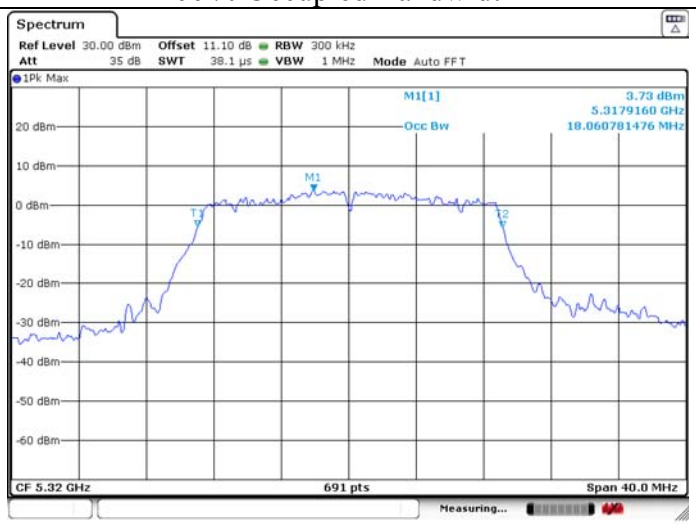
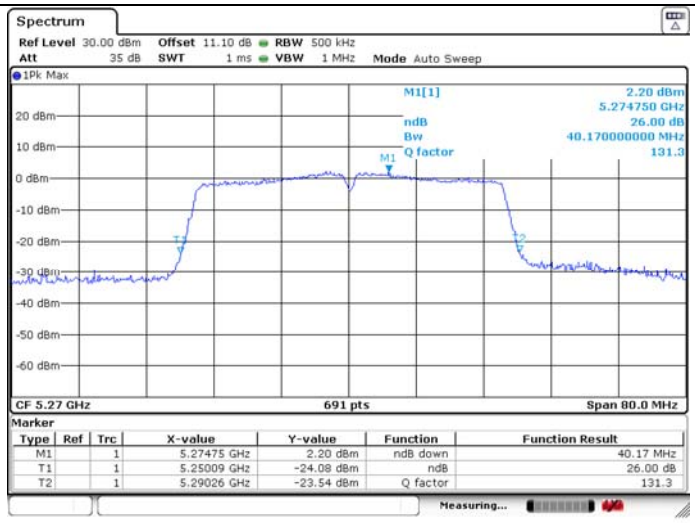


U-NII-2A IEEE 802.11n HT40 5270MHz

26dB Bandwidth



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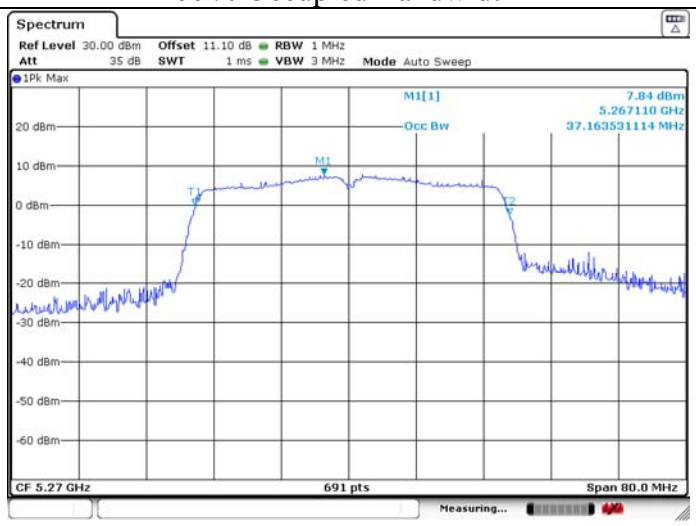
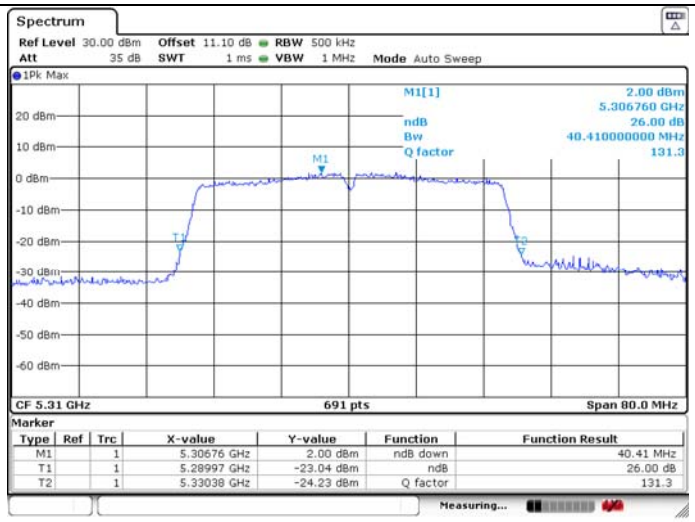


U-NII-2A IEEE 802.11n HT40 5310MHz

26dB Bandwidth



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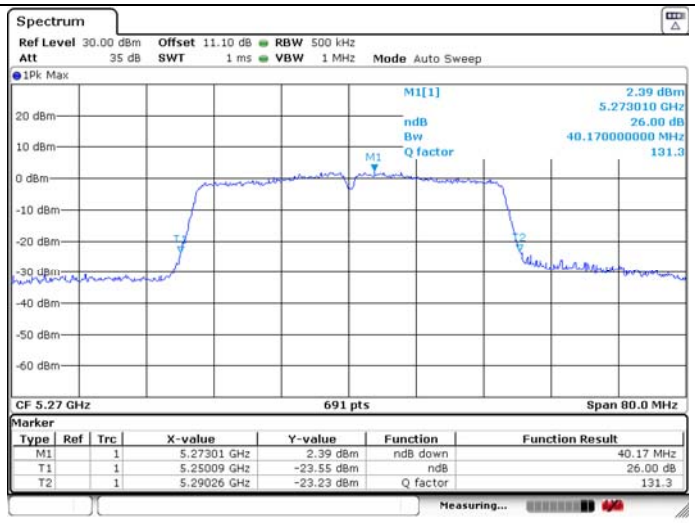
U-NII-2A IEEE 802.11ac VHT40 5270MHz

26dB Bandwidth



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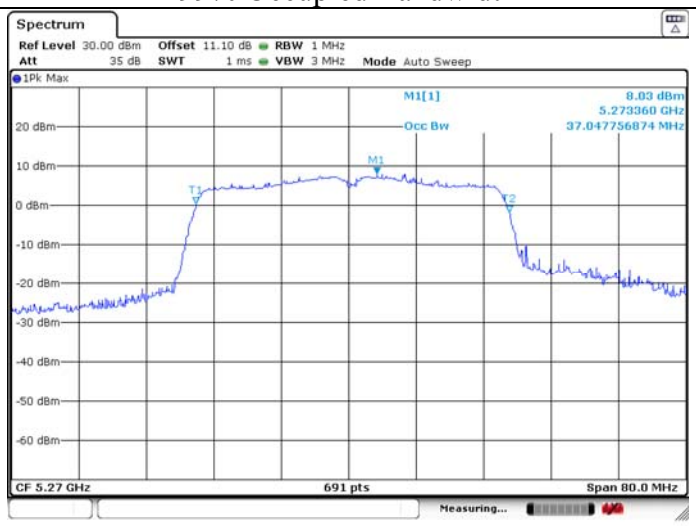
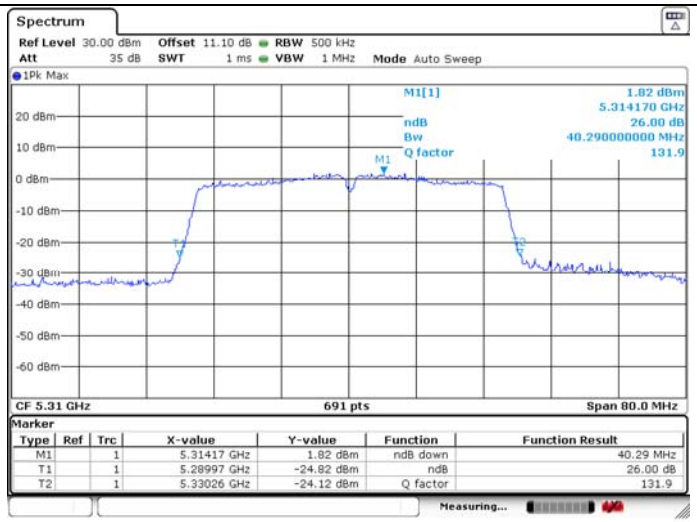


U-NII-2A IEEE 802.11ac VHT40 5310MHz

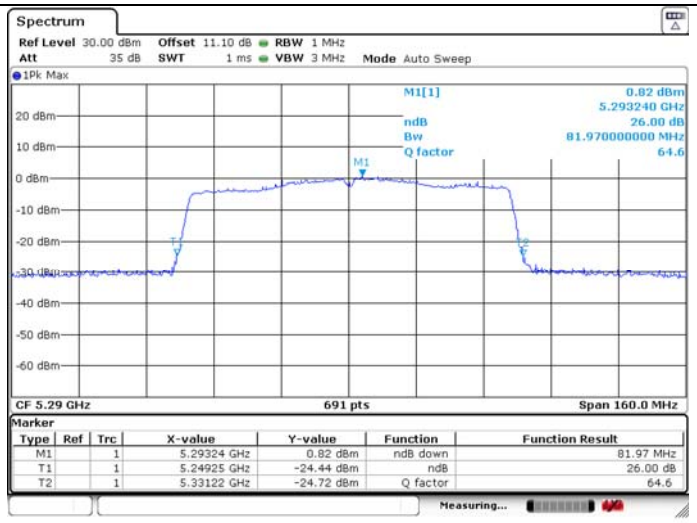
26dB Bandwidth



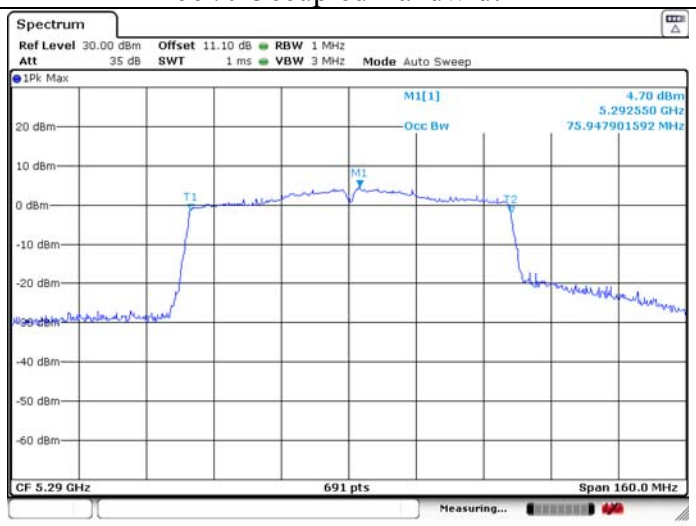
99% Occupied Bandwidth

U-NII-2A IEEE 802.11ac VHT80 5290MHz

26dB Bandwidth

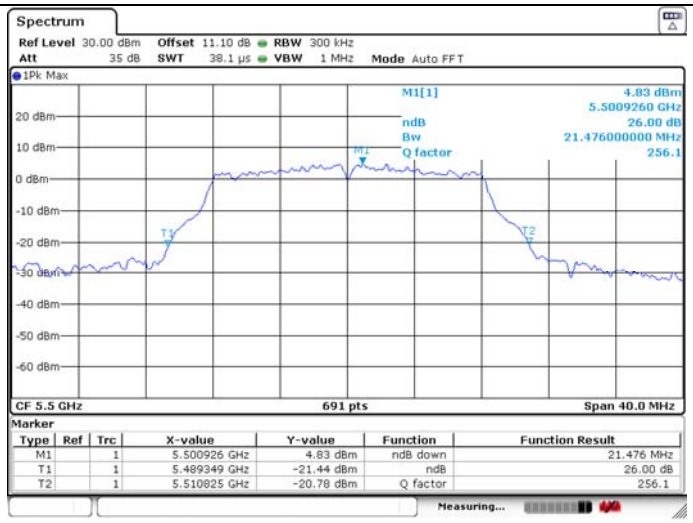


99% Occupied Bandwidth



U-NII-2C IEEE 802.11a 5500MHz

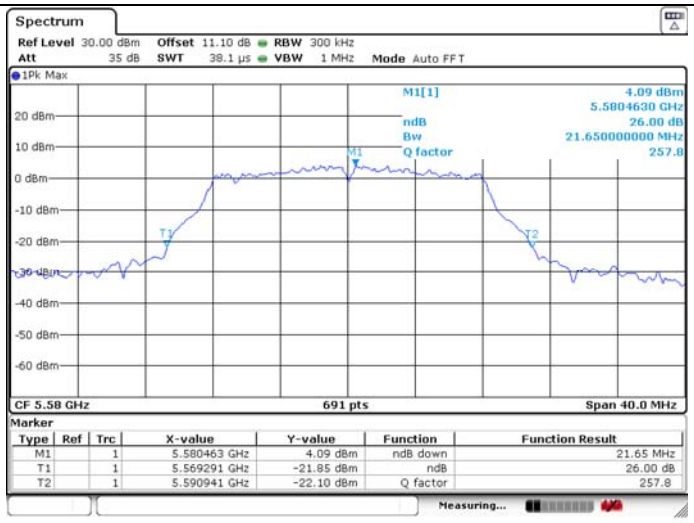
26dB Bandwidth



99% Occupied Bandwidth

U-NII-2C IEEE 802.11a 5580MHz

26dB Bandwidth



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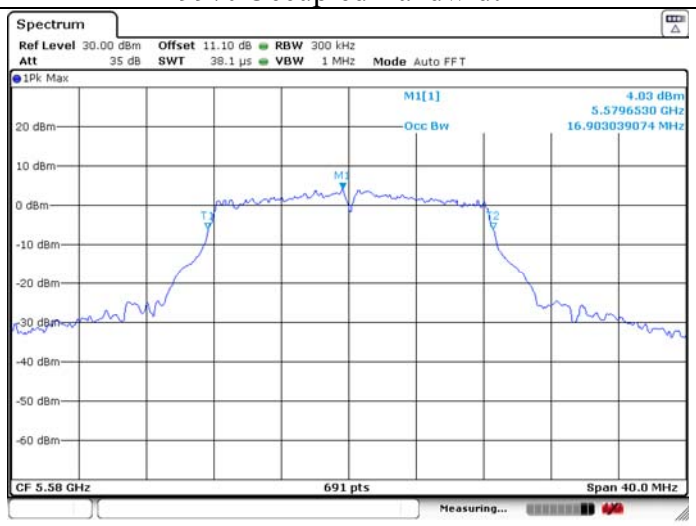
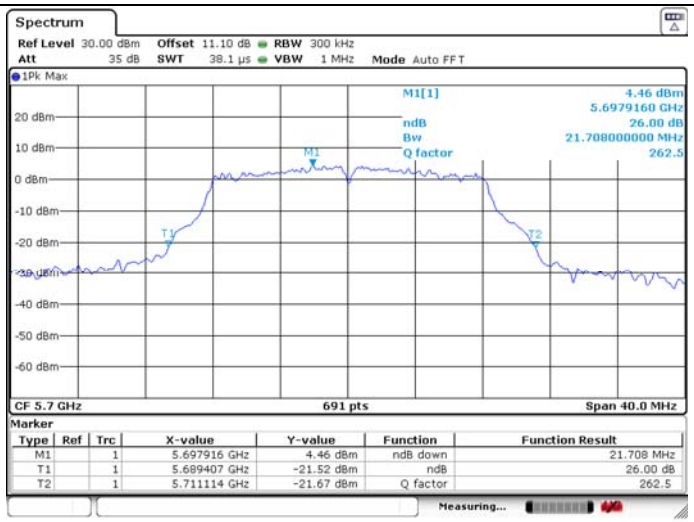
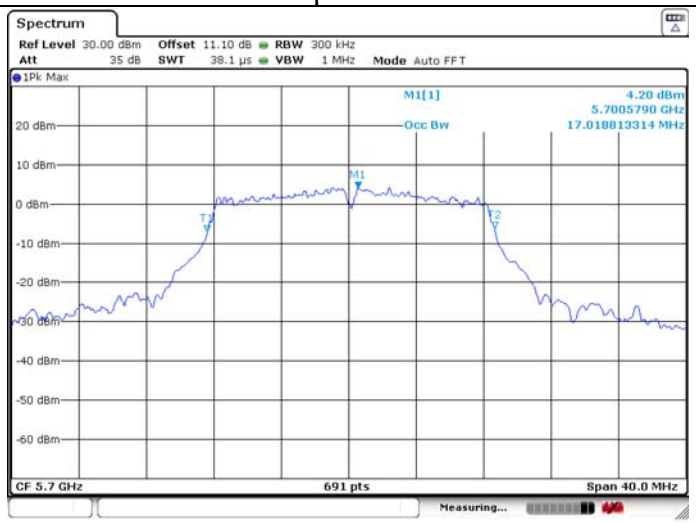


U-NII-2C IEEE 802.11a 5700MHz

26dB Bandwidth

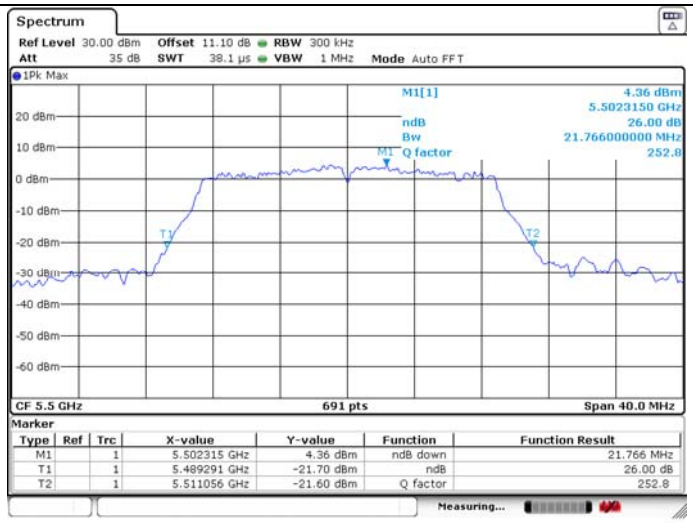


99% Occupied Bandwidth



U-NII-2C IEEE 802.11n HT20 5500MHz

26dB Bandwidth



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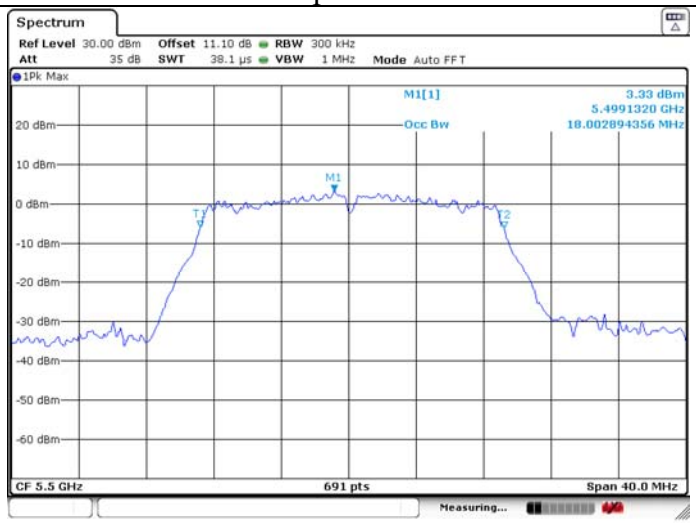
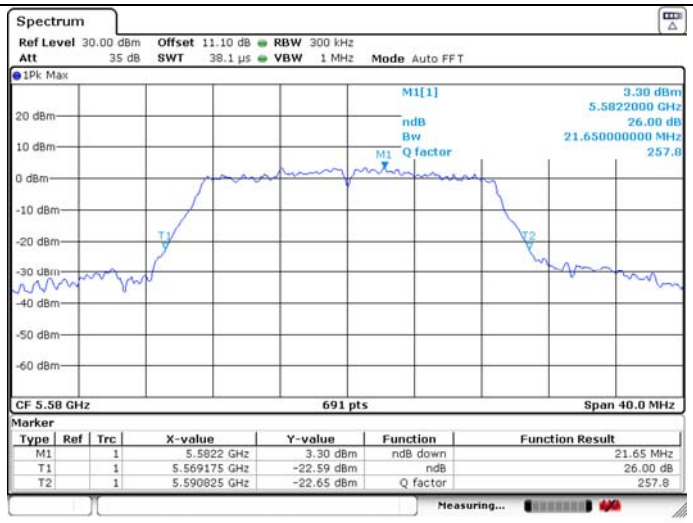


U-NII-2C IEEE 802.11n HT20 5580MHz

26dB Bandwidth



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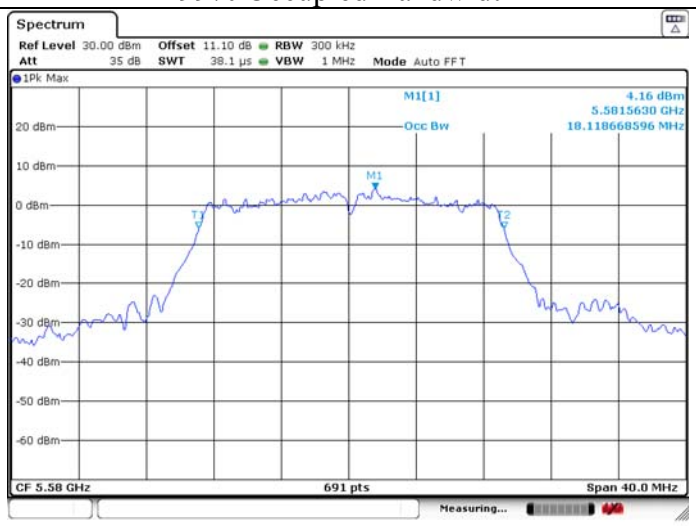
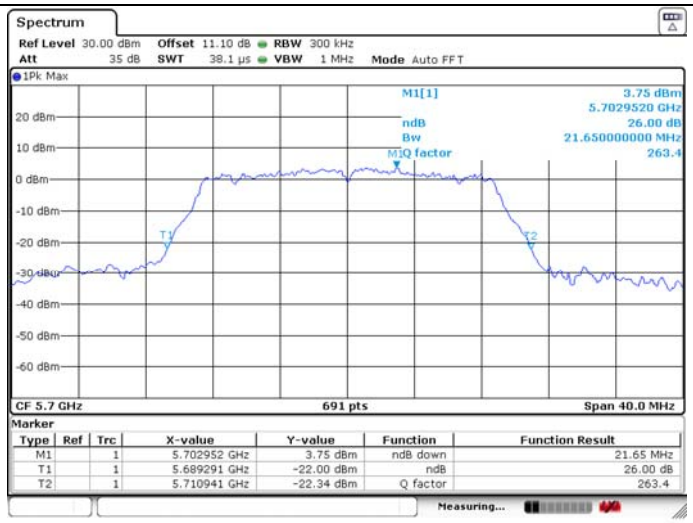


U-NII-2C IEEE 802.11n HT20 5700MHz

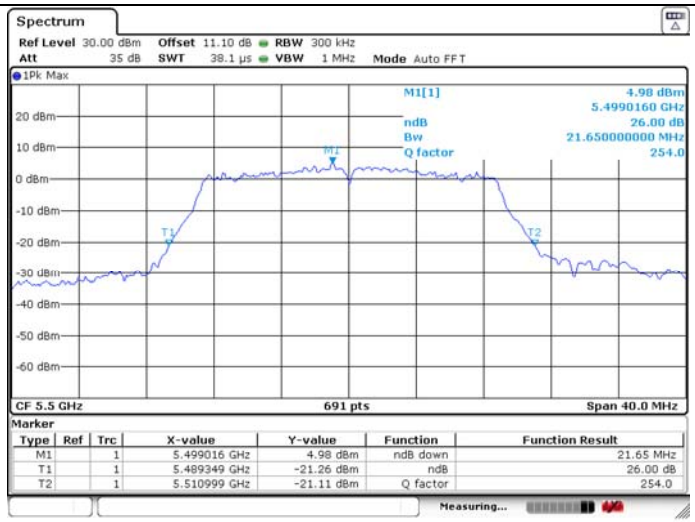
26dB Bandwidth



99% Occupied Bandwidth

U-NII-2C IEEE 802.11ac VHT20 5500MHz

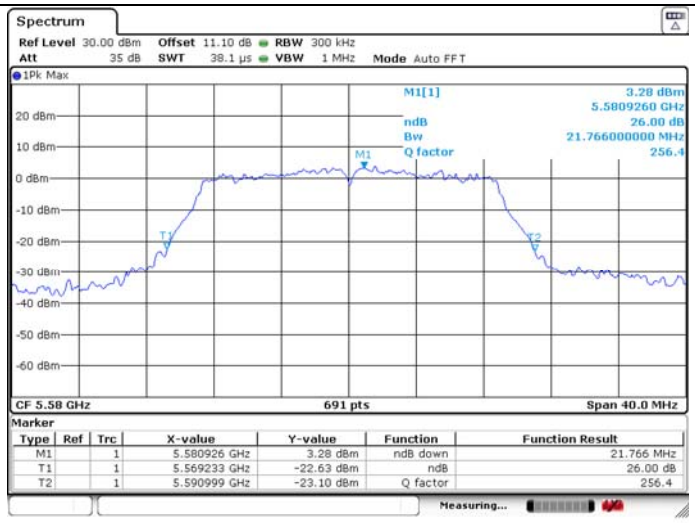
26dB Bandwidth



99% Occupied Bandwidth

U-NII-2C IEEE 802.11ac VHT20 5580MHz

26dB Bandwidth



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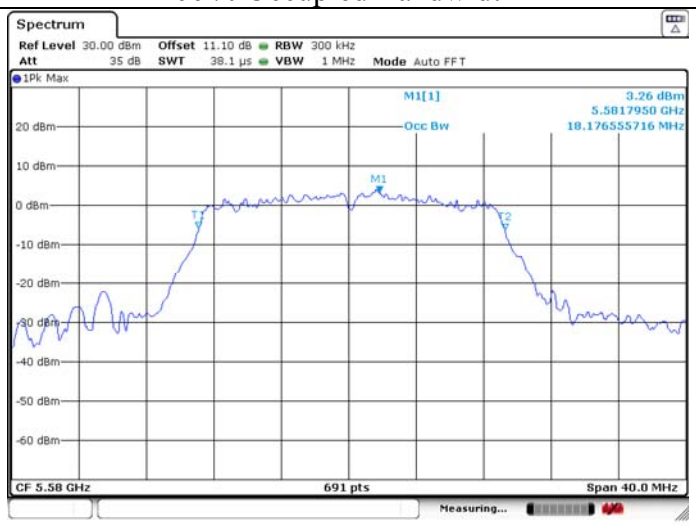
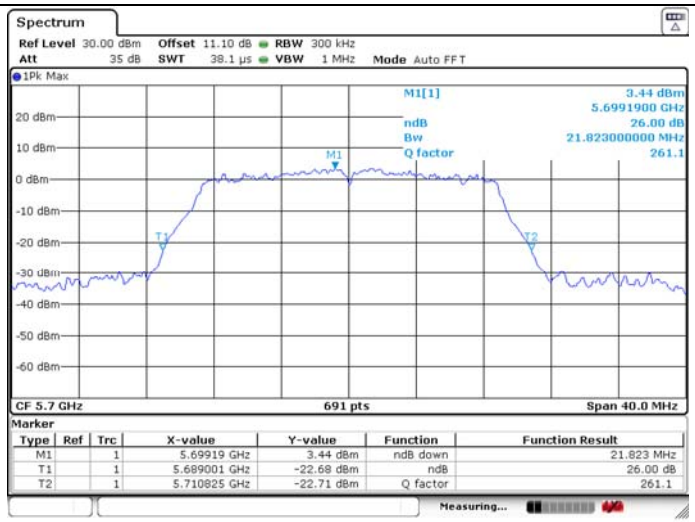


U-NII-2C IEEE 802.11ac VHT20 5700MHz

26dB Bandwidth



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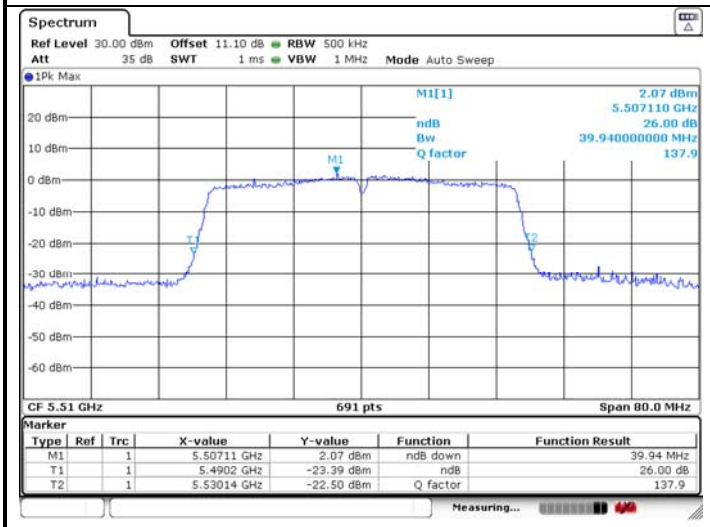
U-NII-2C IEEE 802.11n HT40 5510MHz

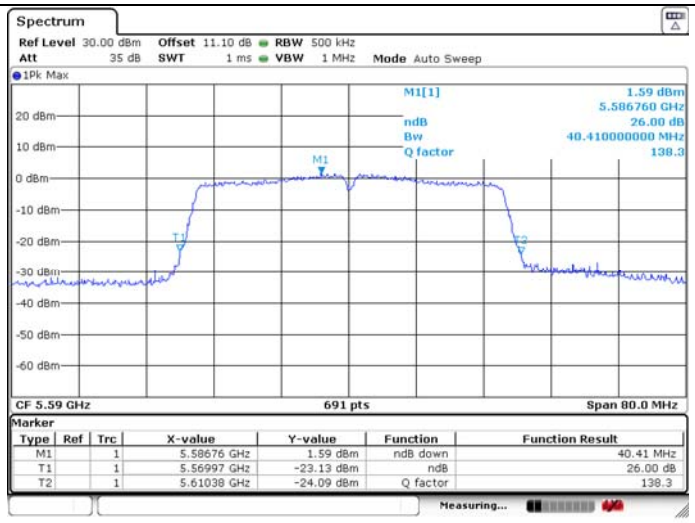
26dB Bandwidth



99% Occupied Bandwidth

U-NII-2C IEEE 802.11n HT40 5590MHz

26dB Bandwidth



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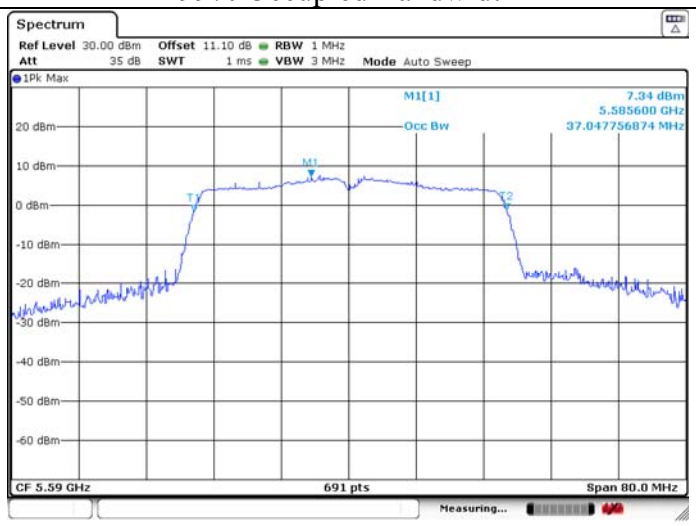
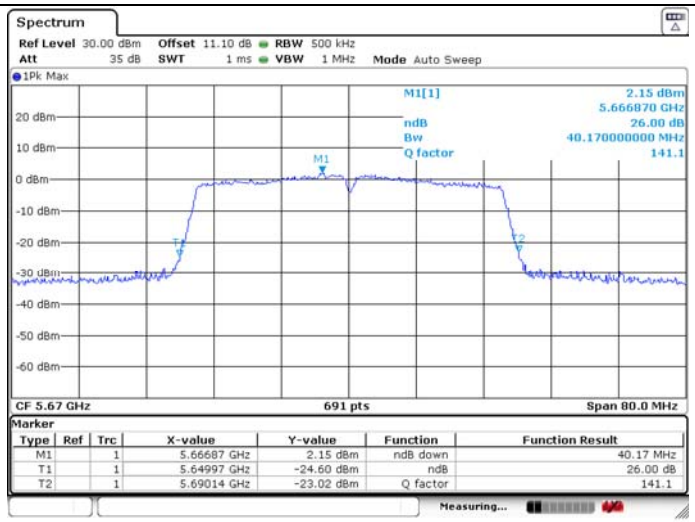


U-NII-2C IEEE 802.11n HT40 5670MHz

26dB Bandwidth



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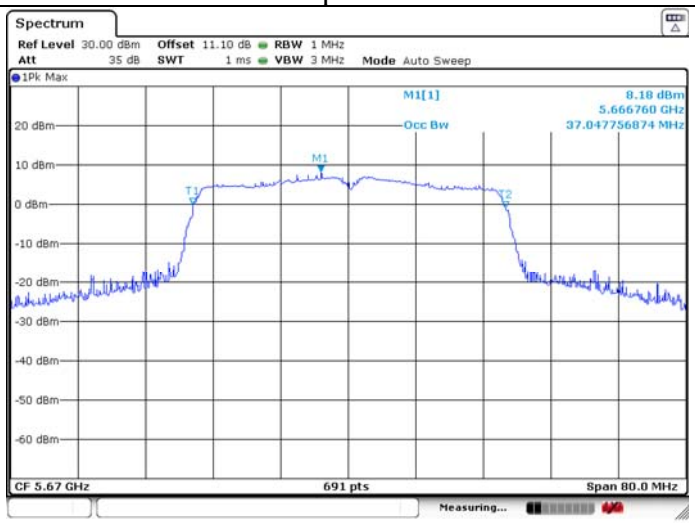
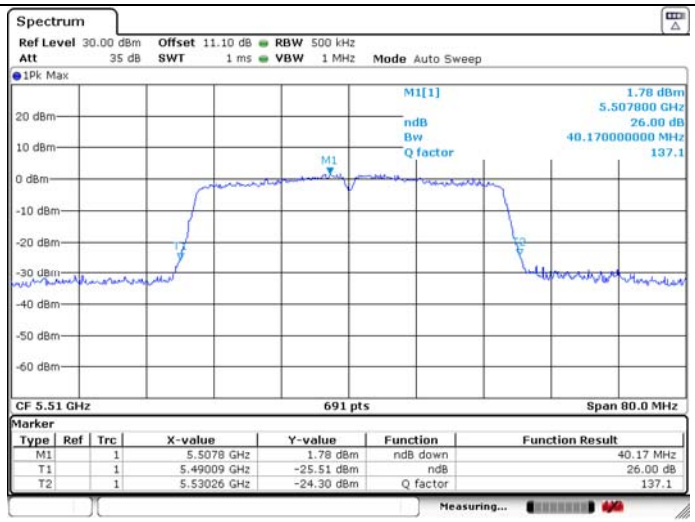


U-NII-2C IEEE 802.11ac VHT40 5510MHz

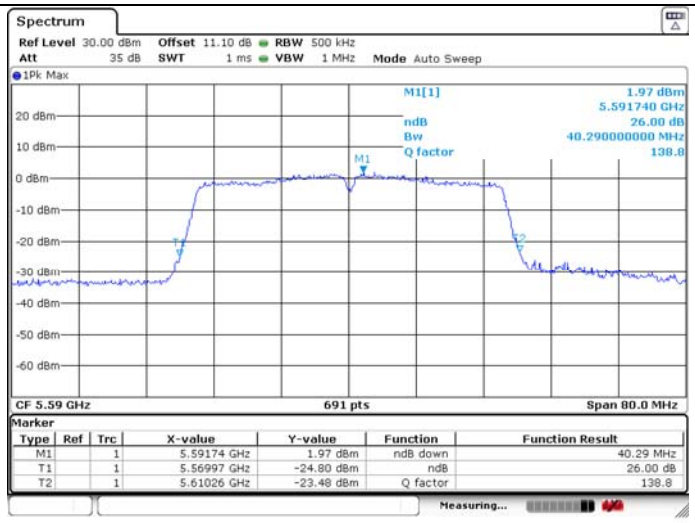
26dB Bandwidth



99% Occupied Bandwidth

U-NII-2C IEEE 802.11ac VHT40 5590MHz

26dB Bandwidth



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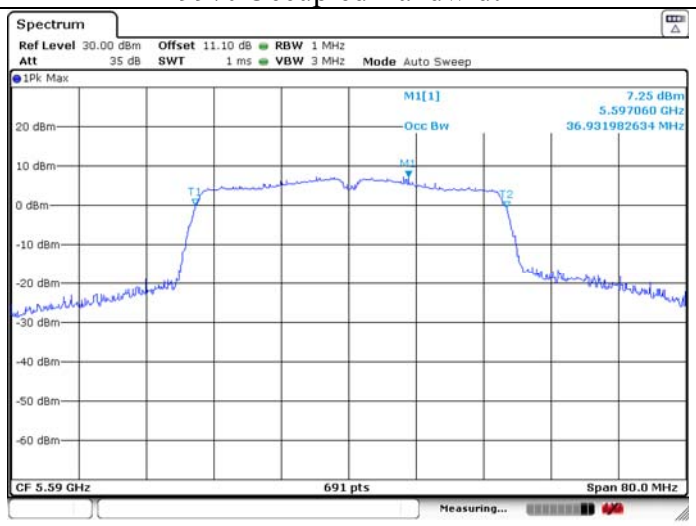
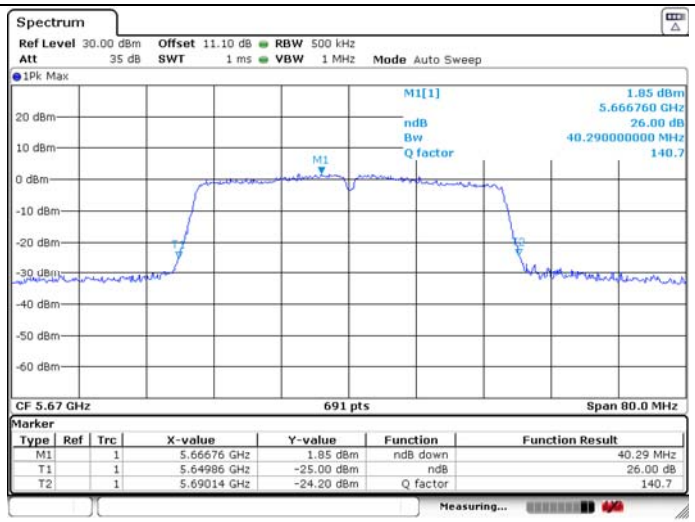


U-NII-2C IEEE 802.11ac VHT40 5670MHz

26dB Bandwidth



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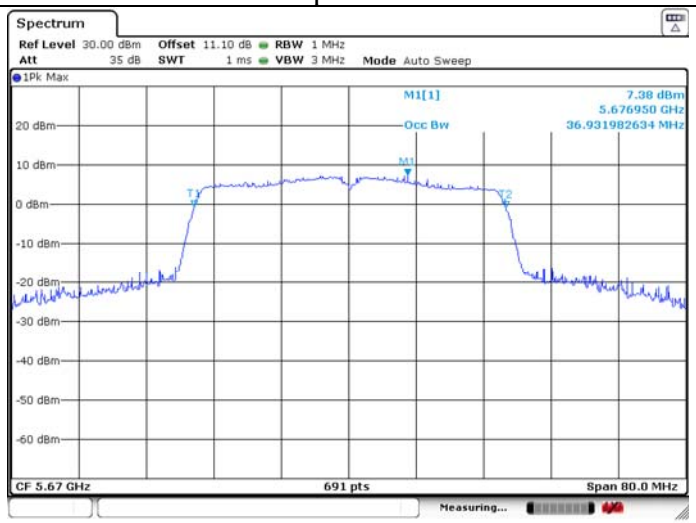
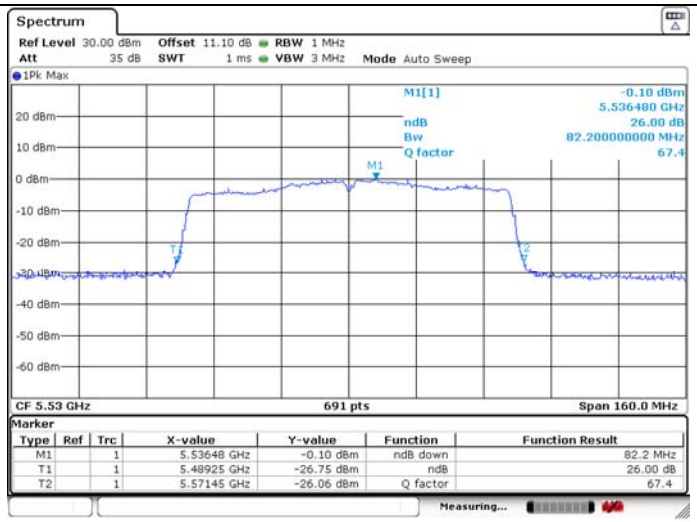


U-NII-2C IEEE 802.11ac VHT80 5530MHz

26dB Bandwidth



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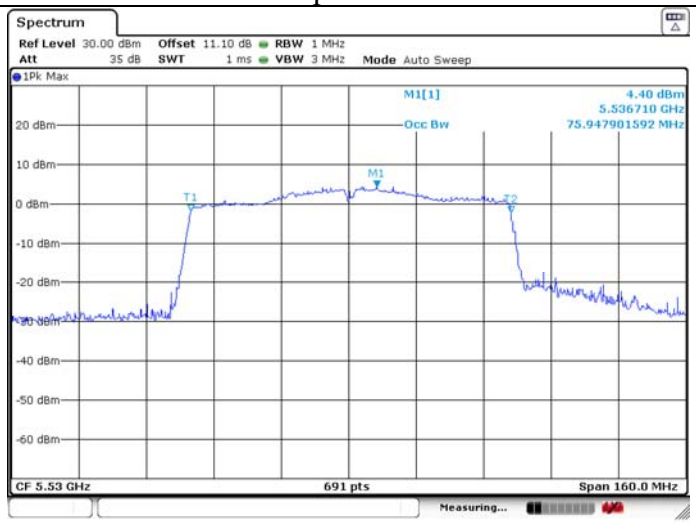
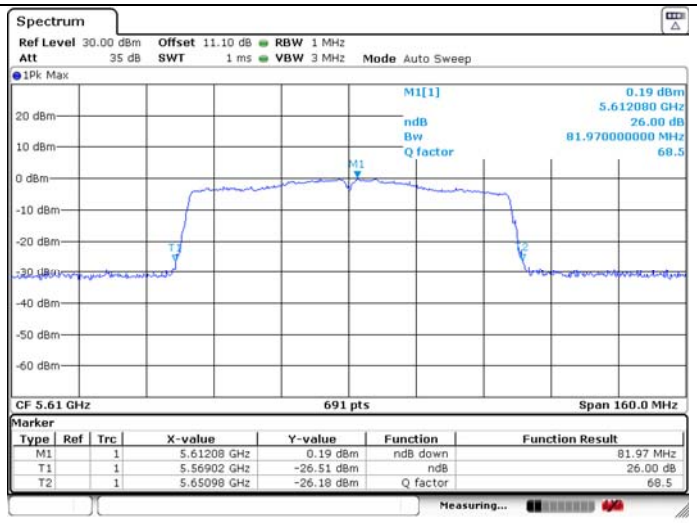


U-NII-2C IEEE 802.11ac VHT80 5610MHz

26dB Bandwidth



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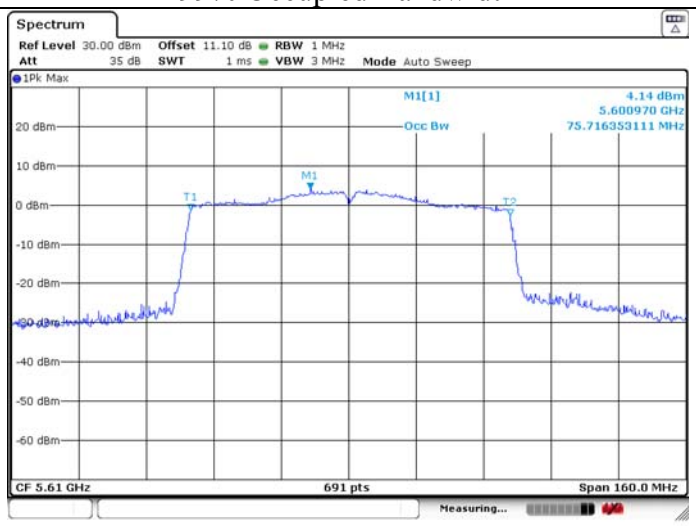
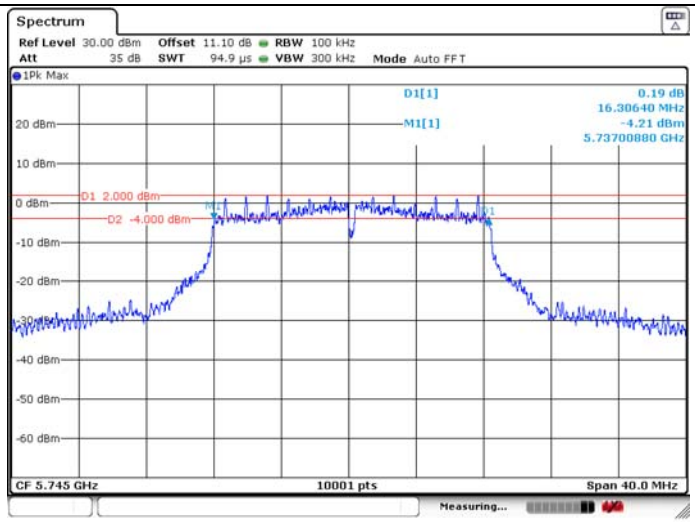


U-NII-3 IEEE 802.11a 5745MHz

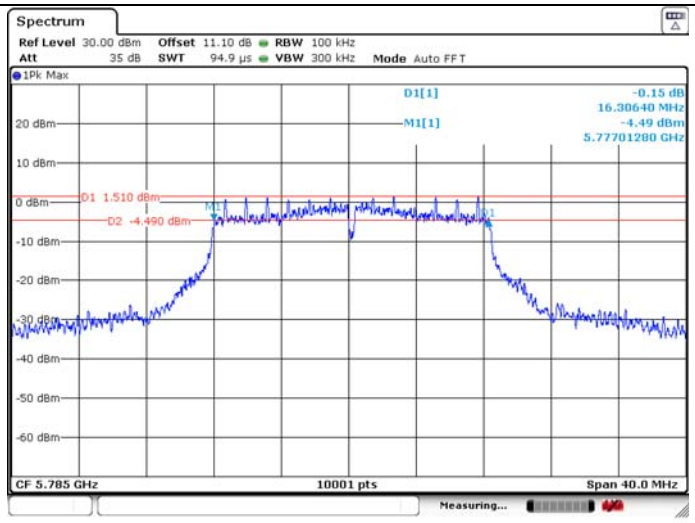
6dB Bandwidth



99% Occupied Bandwidth

U-NII-3 IEEE 802.11a 5785MHz

6dB Bandwidth



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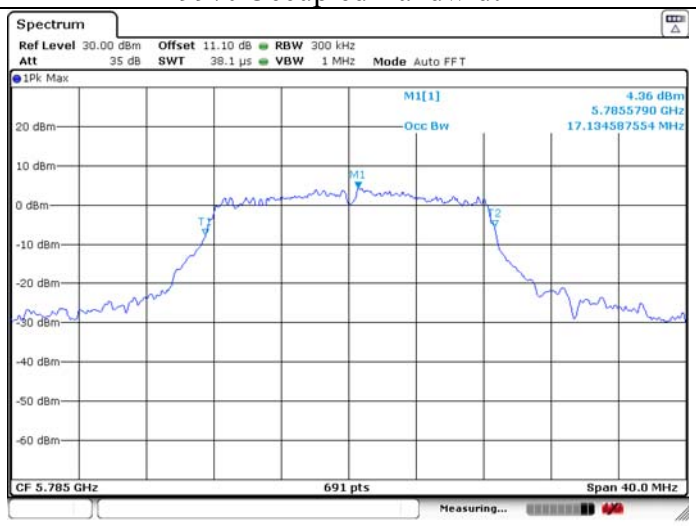
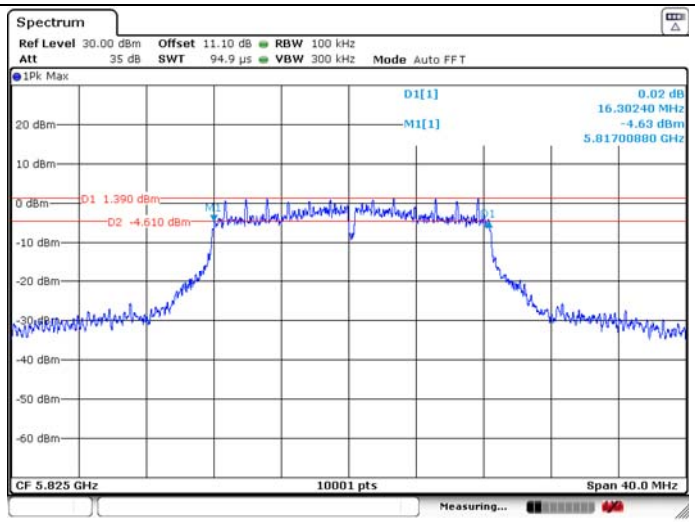
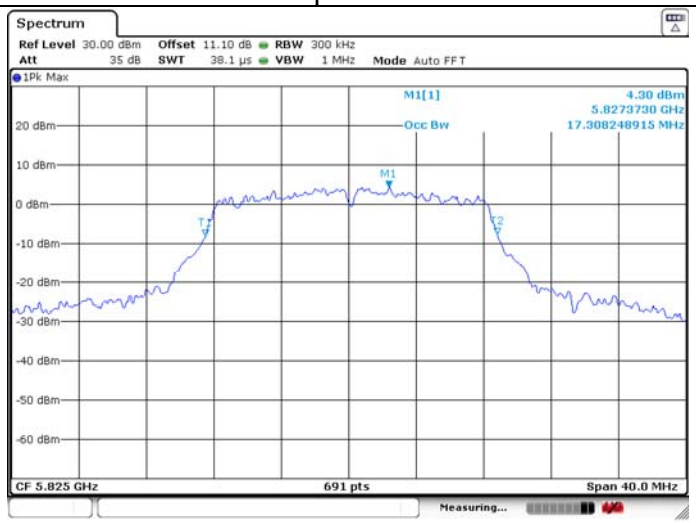


U-NII-3 IEEE 802.11a 5825MHz

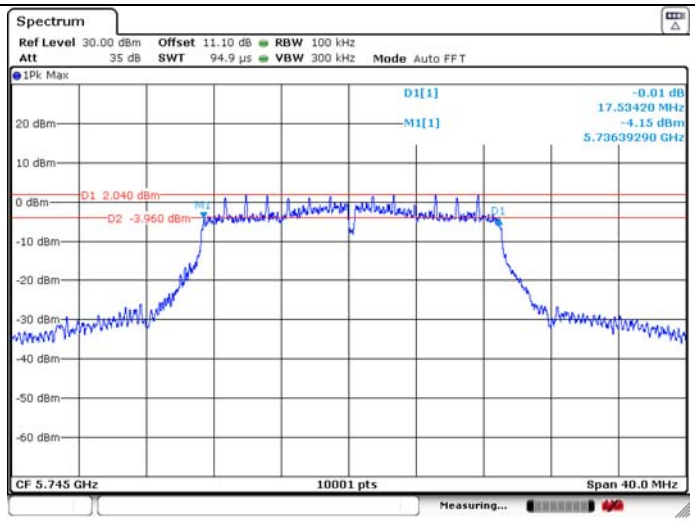
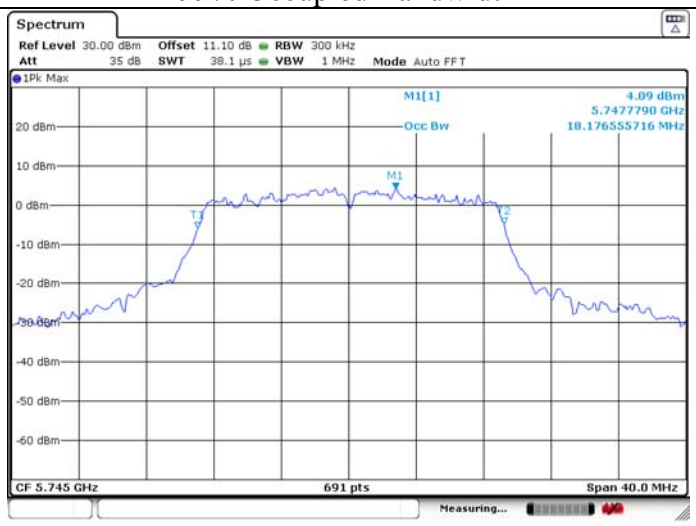
6dB Bandwidth



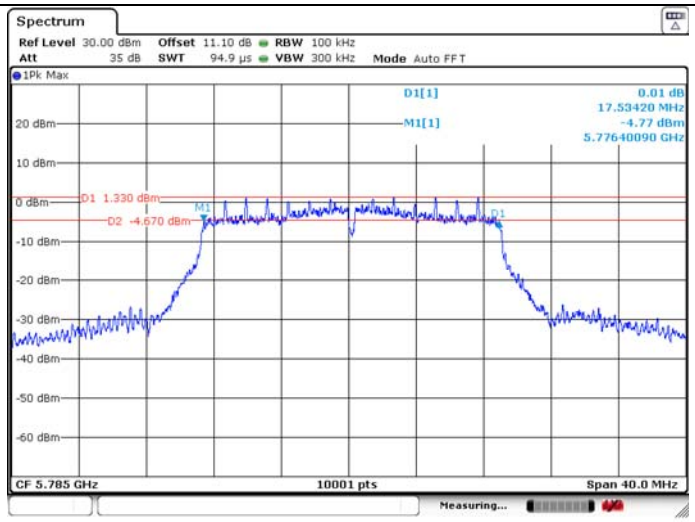
99% Occupied Bandwidth



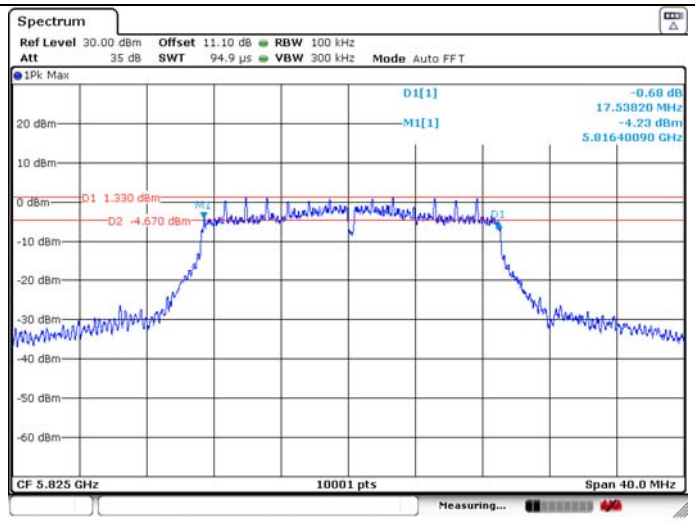
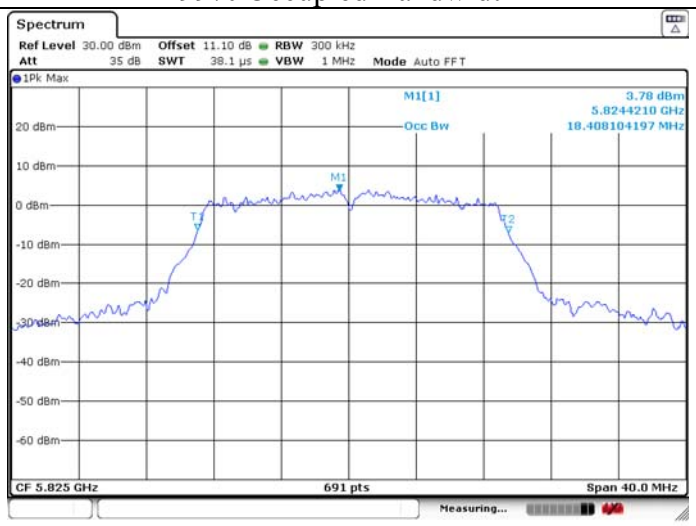
U-NII-3 IEEE 802.11n HT20 5745MHz

6dB Bandwidth	99% Occupied Bandwidth
	

U-NII-3 IEEE 802.11n HT20 5785MHz

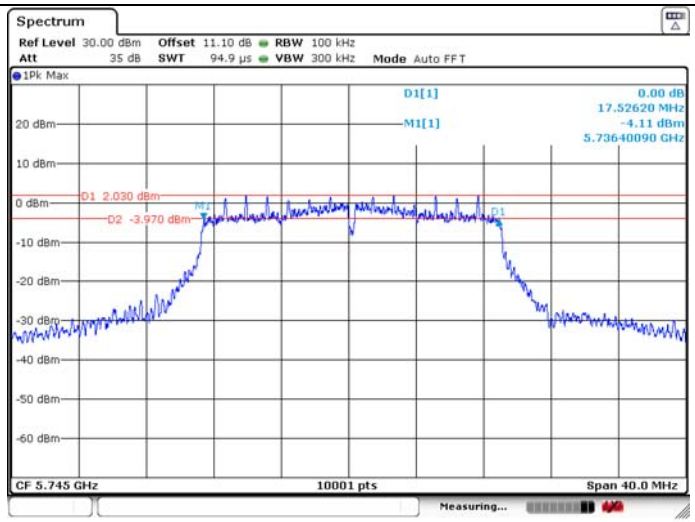
6dB Bandwidth	99% Occupied Bandwidth
	

U-NII-3 IEEE 802.11n HT20 5825MHz

6dB Bandwidth	99% Occupied Bandwidth
	

U-NII-3 IEEE 802.11ac VHT20 5745MHz

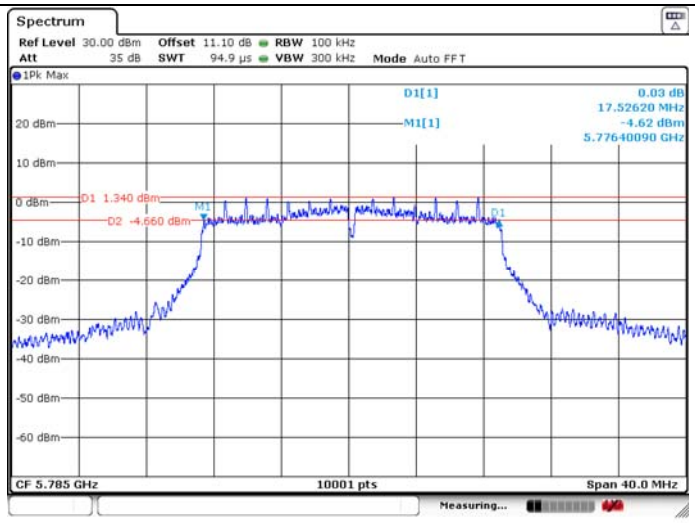
6dB Bandwidth



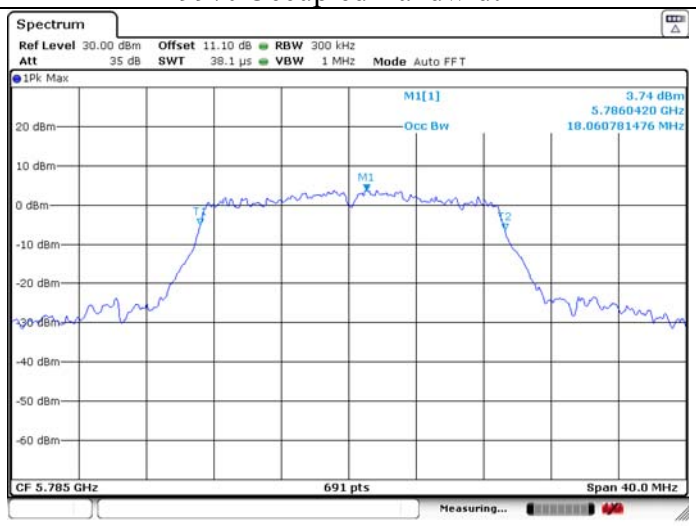
99% Occupied Bandwidth

U-NII-3 IEEE 802.11ac VHT20 5785MHz

6dB Bandwidth

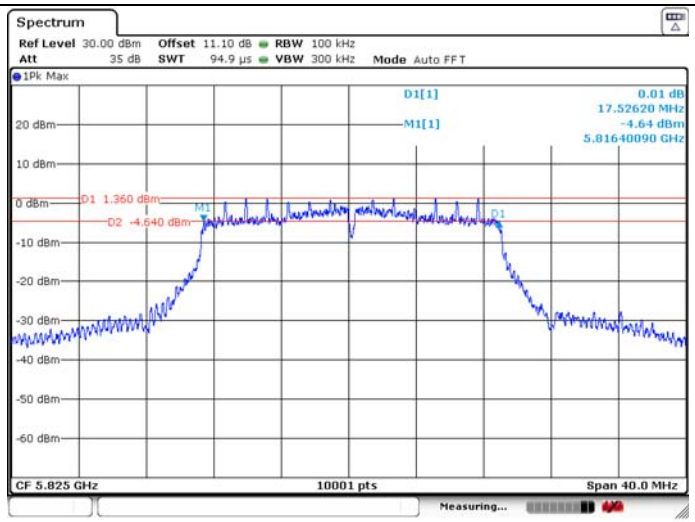


99% Occupied Bandwidth



U-NII-3 IEEE 802.11ac VHT20 5825MHz

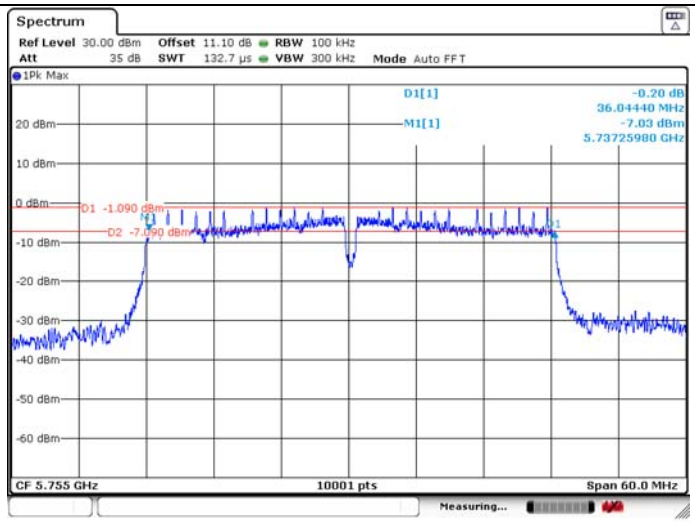
6dB Bandwidth



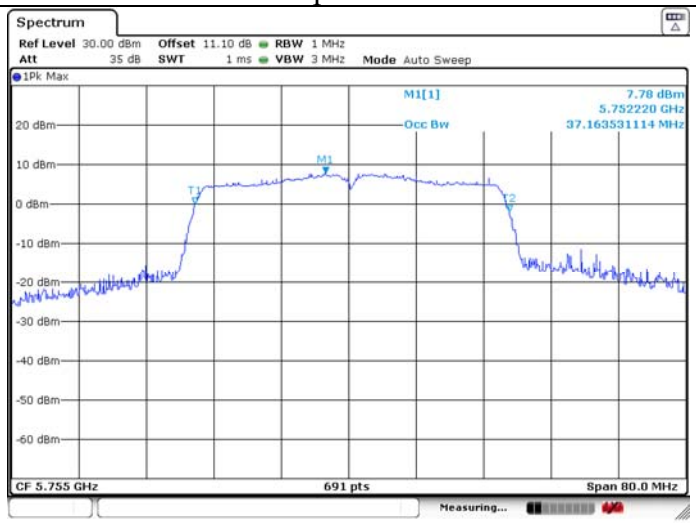
99% Occupied Bandwidth

U-NII-3 IEEE 802.11n HT40 5755MHz

6dB Bandwidth

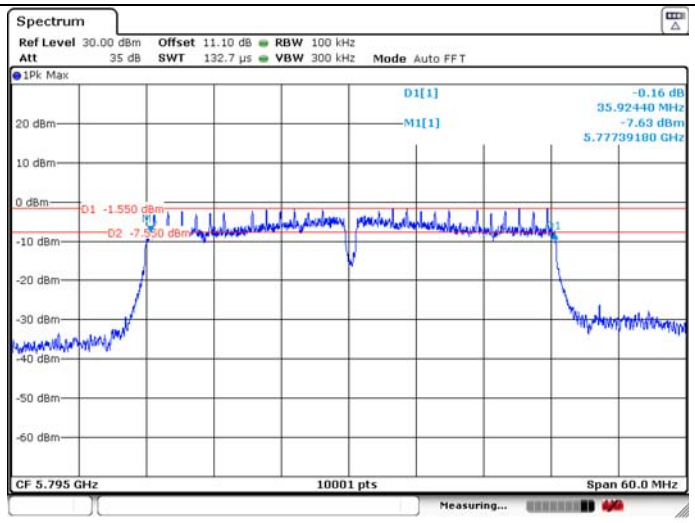


99% Occupied Bandwidth

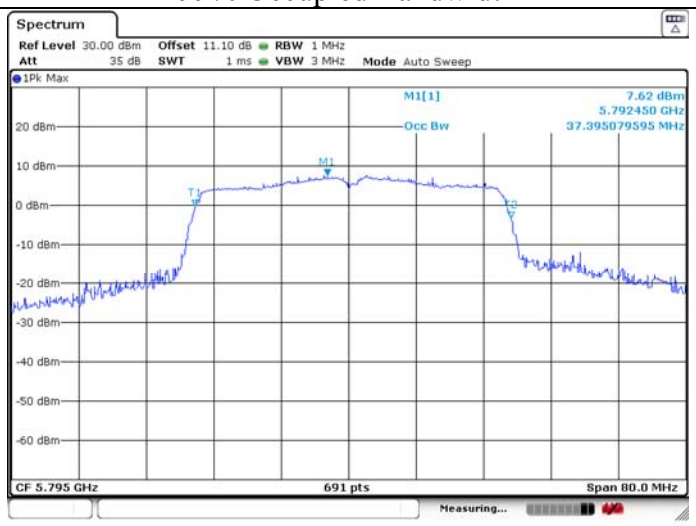


U-NII-3 IEEE 802.11n HT40 5795MHz

6dB Bandwidth

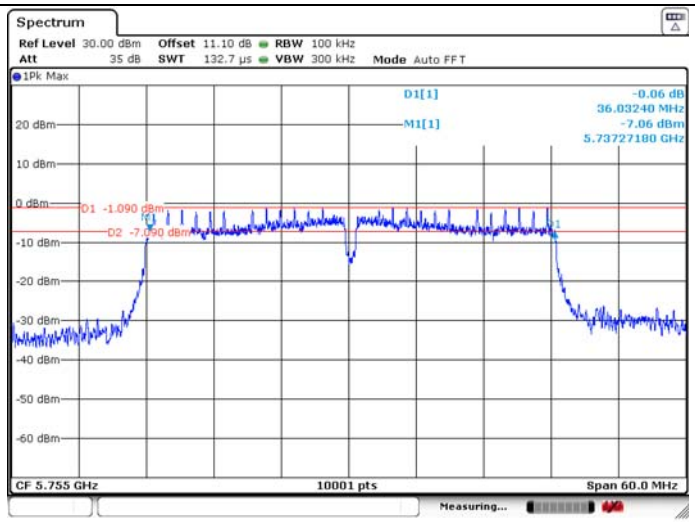


99% Occupied Bandwidth

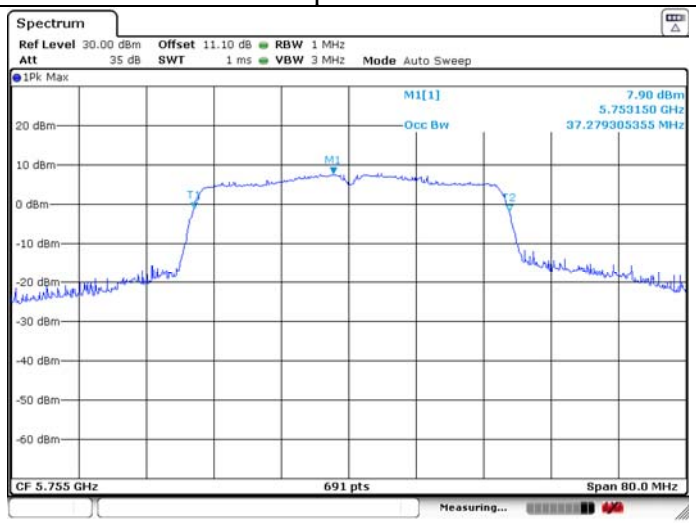


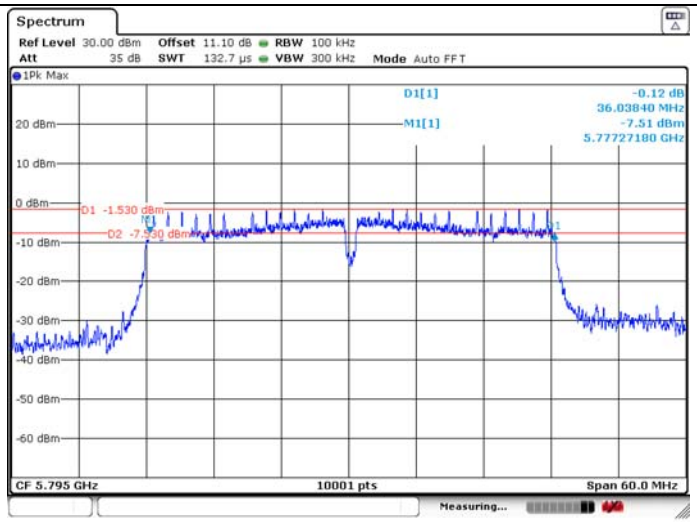
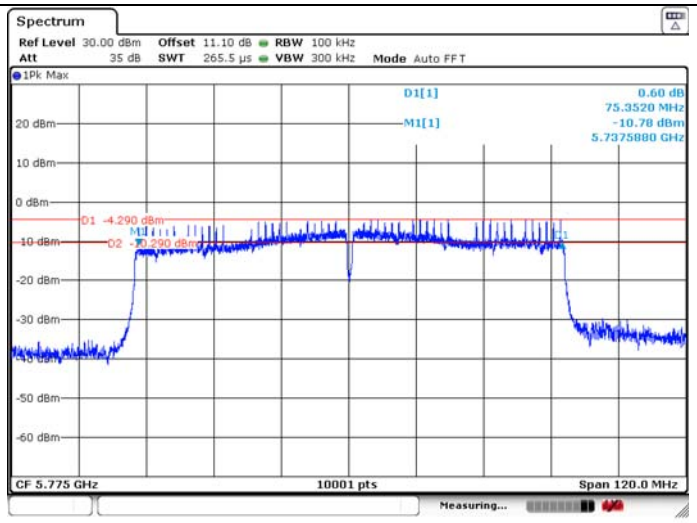
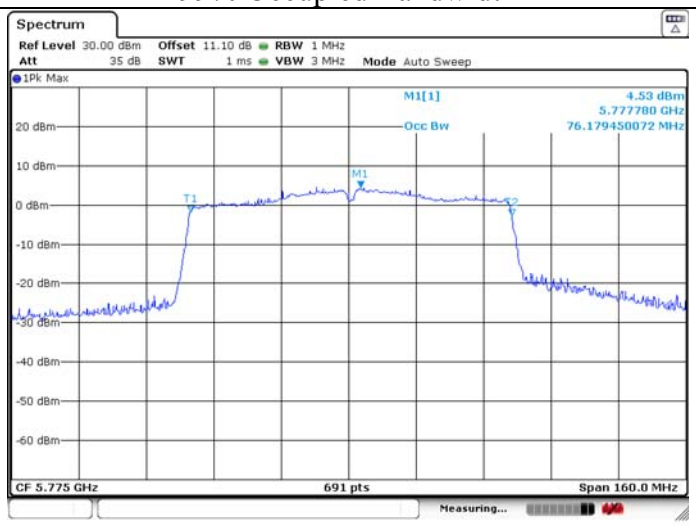
U-NII-3 IEEE 802.11ac VHT40 5755MHz

6dB Bandwidth



99% Occupied Bandwidth



U-NII-3 IEEE 802.11ac VHT40 5795MHz	
6dB Bandwidth	99% Occupied Bandwidth
	

U-NII-3 IEEE 802.11ac VHT80 5775MHz	
6dB Bandwidth	99% Occupied Bandwidth