FCC PART 15E TEST REPORT FOR CERTIFICATION
On Behalf of

Hunan Greatwall Computer System Co.,Ltd

onn.8" Tablet

Model Number: TBGRY100071483

Additional Model: TBPRP100071483, TBBLU100071483, TBYLW100071483

FCC ID: 2APUQWM836P

Applicant :	Hunan Greatwall Computer System Co.,Ltd
Address:	Hu'nan Greatwall Industrial Park,Xiangyun Middle Rd.,Tianyuan Dist.
	Zhuzhou, Hu'nan, China
Prepared By:	EST Technology Co., Ltd.
	Chilingxiang, Qishantou, Santun, Houjie, Dongguan, Guangdong, China
Tel: 86-769-83081888-808	

Report Number:	ESTE-R2112010
Date of Test:	Nov. 05-29, 2021
Date of Report:	Dec. 20, 2021

TABLE OF CONTENTS

Description Page

EST Technology Co., Ltd.

Applicant: **Address:**	Hunan Greatwall Computer System Co.,Ltd Hu'nan Greatwall Industrial Park,Xiangyun Middle Rd.,Tianyuan Dist. Zhuzhou, Hu'nan, China
Manufacturer: **Address:**	Hunan Greatwall Computer System Co.,Ltd Hu'nan Greatwall Industrial Park,Xiangyun Middle Rd.,Tianyuan Dist. Zhuzhou, Hu'nan, China
Factory: **Address:**	Hunan Greatwall Computer System Co.,Ltd Hu'nan Greatwall Industrial Park,Xiangyun Middle Rd.,Tianyuan Dist. Zhuzhou, Hu'nan, China
E.U.T:	onn.8" Tablet
Model Number:	TBGRY100071483
Additional Model:	TBPRP100071483, TBBLU100071483, TBYLW100071483 Note: The model, color, component manufacturer and memory are different, and the technical specifications are the same.
Power Supply:	DC 5V From Adapter Input AC 120V/60Hz DC 3.8V From Battery
Trade Name:	onn. Serial No.: ------
Date of Receipt:	Nov. 05, 2021 Date of Test: Nov. 05-29, 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. 20, 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	:	2APUQWM836P
Product Name	:	onn.8" Tablet
Model Number	:	TBGRY100071483
Software Version	:	100071483_YYYYMMDD
Hardware Version	:	RC_F734
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: 6.202dBm IEEE 802.11n HT20: 6.191dBm IEEE 802.11n HT40: 6.193dBm IEEE 802.11ac VHT20: 6.07dBm IEEE 802.11ac VHT40: 6.039dBm IEEE 802.11ac VHT80: 5.637dBm
		U-NII-2A	IEEE 802.11a: 6.197dBm IEEE 802.11n HT20: 6.069dBm IEEE 802.11n HT40: 6.037dBm IEEE 802.11ac VHT20: 5.522dBm IEEE 802.11ac VHT40: 6.135dBm IEEE 802.11ac VHT80: 5.391dBm
		U-NII-2C	IEEE 802.11a:6.22dBm IEEE 802.11n HT20: 6.069dBm IEEE 802.11n HT40:6.253dBm IEEE 802.11ac VHT20: 6.376dBm IEEE 802.11ac VHT40: 6.358dBm IEEE 802.11ac VHT80:6.269dBm
		U-NII-3	IEEE 802.11a:6.317dBm IEEE 802.11n HT20:6.145dBm IEEE 802.11n HT40: 6.181dBm IEEE 802.11ac VHT20:6.06dBm IEEE 802.11ac VHT40: 6.246dBm IEEE 802.11ac VHT80:5.848dBm
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	-	2.92

Note: This information is provided by the applicant.

1.3. Information of RF Cable

Cable Loss(dB)	Provided by
1.0	Hunan Greatwall Computer System Co.,Ltd
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, 2022

Certificated by A2LA, USA
Registration No.: 4366.01
This Certificate is valid until: January 31, 2022

Certificated by Industry Canada
CAB identifier No.: CN0035
This Certificate is valid until: January 31, 2022

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℃
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.

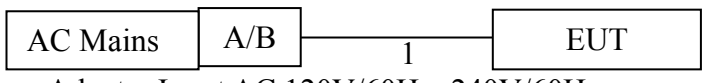
2.4. Assistant equipment used for test

Item	Equipment	Brand	Model Name/Type No.	FCC ID	Series No.
A	adapter	onn.	BSY01J3050200U U	-	-
B	adapter	onn.	GDA0101H-U0500200	-	-

Item	Shielded Type	Ferrite Core	Length	Note
1	NO	NO	1.0m	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.



DC 5V From Adapter Input AC 120V/60Hz~240V/60Hz

(EUT: onn.8" Tablet)

2.6. Difference between Model Numbers

Note: 1: The components mentioned above are produced by different manufacturers and have the same technical specifications. They may be produced and sold in any combination.

2: Model and appearance color difference, other completely the same.

Seria	Model	DDR	EMMC	Power
1	TBGRY100071483 TBPRP100071483, TBLUL100071483, TBYLW00071483,	RS512M32LM4D2BDS-53BT 2GB (Rayson)	KM110SA1032GxA-AAA00 WT 32GB (Kimtigo)	MT6357ARV /A (MTK)
2		MDXC1016G-M2 2GB (ISOCOM)	MEMDNN032G-58A4632G B 3GB (ISOCOM)	MT6390ARV /A (MTK)

3: The TBGRY100071483 and BSY01J3050200U Adapters show The worst data in The report

2.7. 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.**

2.8. 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

2.9. Power Setting of Test Software

Software Name	N/A		
U-NII-1			
Frequency(MHz)	5180	5200	5240
IEEE 802.11a Setting	10	10	10
IEEE 802.11n HT20 Setting	10	10	10
IEEE 802.11ac VHT20 Setting	10	10	10
Frequency(MHz)	5190	5230	
IEEE 802.11n HT40 Setting	10	10	
IEEE 802.11ac VHT40 Setting	10	10	
Frequency(MHz)	5210		
IEEE 802.11ac VHT80 Setting	10		
U-NII-2A			
Frequency(MHz)	5260	5300	5320
IEEE 802.11a Setting	10	10	10
IEEE 802.11n HT20 Setting	10	10	10
IEEE 802.11ac VHT20 Setting	10	10	10
Frequency(MHz)	5270	5310	
IEEE 802.11n HT40 Setting	10	10	
IEEE 802.11ac VHT40 Setting	10	10	
Frequency(MHz)	5290		
IEEE 802.11ac VHT80 Setting	10		
U-NII-2C			
Frequency(MHz)	5500	5580	5700
IEEE 802.11a Setting	10	10	10
IEEE 802.11n HT20 Setting	10	10	10
IEEE 802.11ac VHT20 Setting	10	10	10
Frequency(MHz)	5510	5590	5670
IEEE 802.11n HT40 Setting	10	10	10
IEEE 802.11ac VHT40 Setting	10	10	10
Frequency(MHz)	5530	5610	
IEEE 802.11ac VHT80 Setting	10	10	
U-NII-3			
Frequency(MHz)	5745	5785	5825
IEEE 802.11a Setting	10	10	10
IEEE 802.11n HT20 Setting	10	10	10
IEEE 802.11ac VHT20 Setting	10	10	10
Frequency(MHz)	5755	5795	
IEEE 802.11n HT40 Setting	10	10	
IEEE 802.11ac VHT40 Setting	10	10	
Frequency(MHz)	5775		
IEEE 802.11ac VHT80 Setting	10		

Note: This information is provided by the applicant.

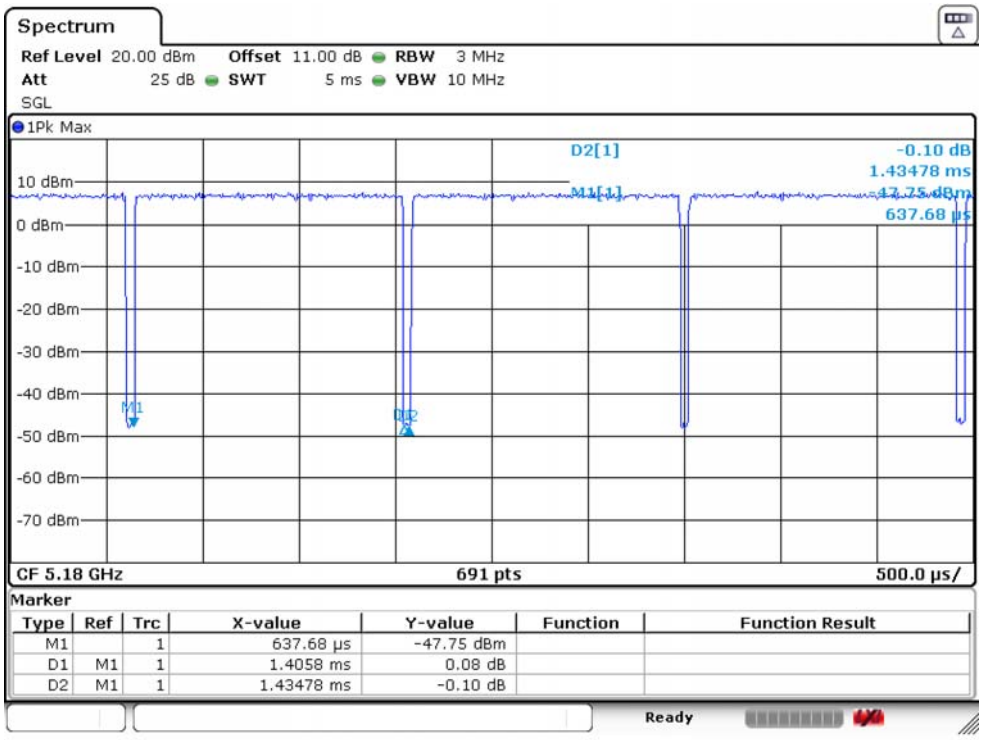
2.10.Duty Cycle of Test Signal

Temperature	26.9℃	Relative Humidity		48.5%	Test Voltage		DC 5V
Mode	Frequency (MHz)	On time (ms)	Total Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T (Hz)	VBW Setting (Hz)
IEEE 802.11a	5180	1.40580	1.43478	97.98	0.09	711	711
IEEE 802.11n HT20	5180	1.32609	1.35507	97.86	0.09	754	754
IEEE 802.11ac VHT20	5190	1.33333	1.36232	97.87	0.09	750	750
IEEE 802.11n HT40	5180	0.64783	0.68261	94.90	0.23	1544	1544
IEEE 802.11ac VHT40	5190	0.66522	0.70000	95.03	0.22	1503	1503
IEEE 802.11ac VHT80	5210	0.33478	0.36522	91.67	0.38	2987	2987

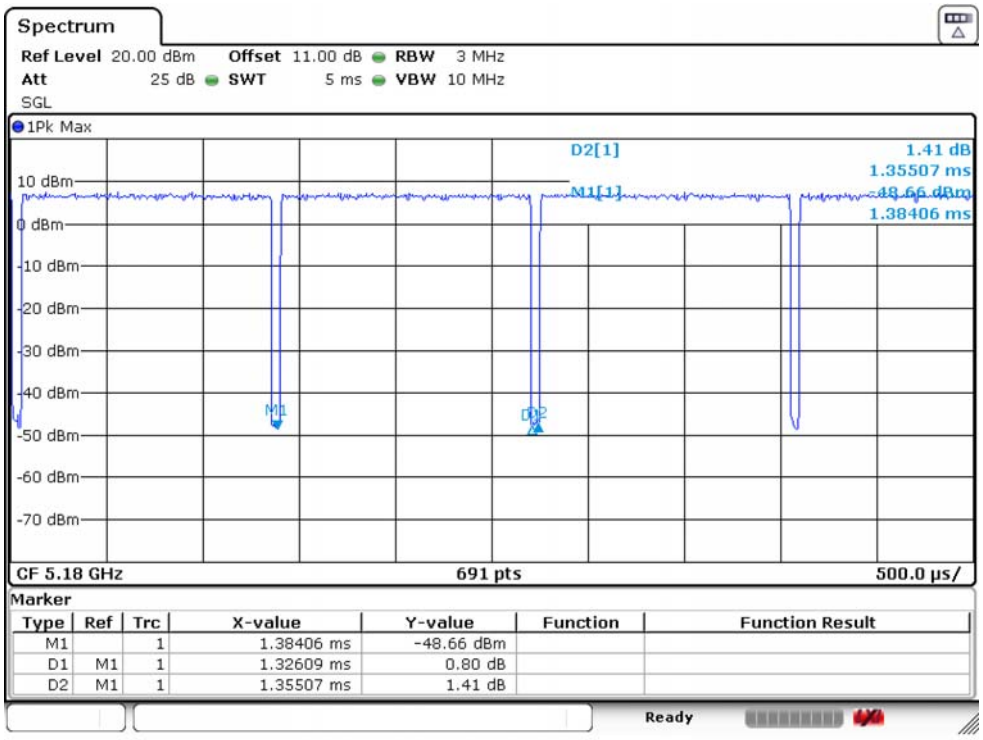
Note:

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.

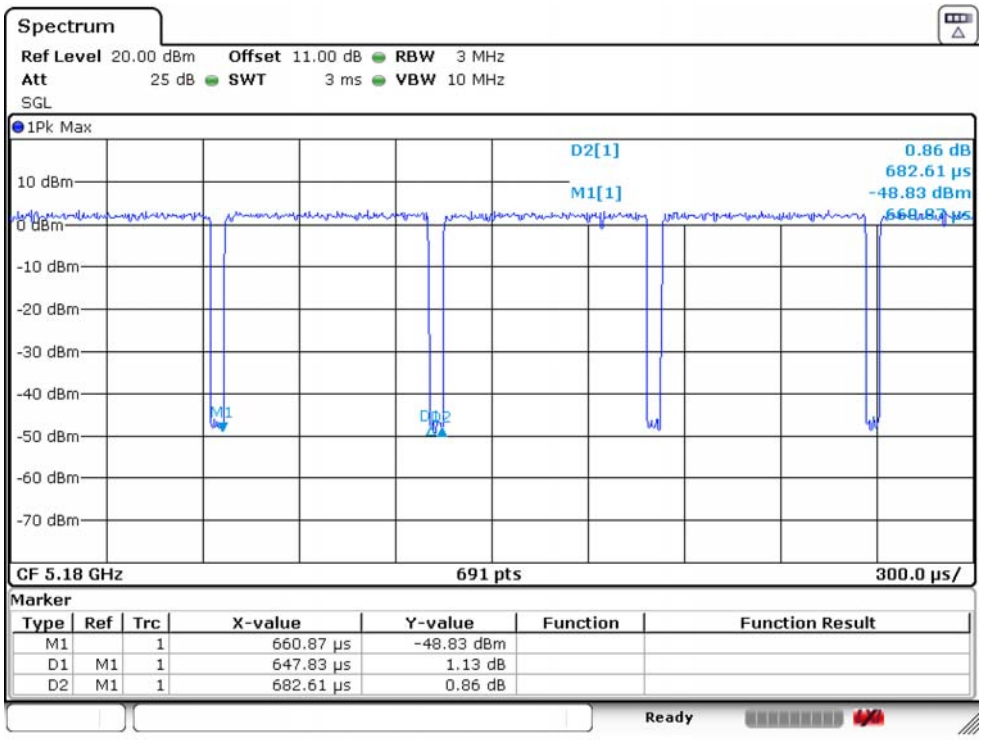
IEEE 802.11a 5180MHz



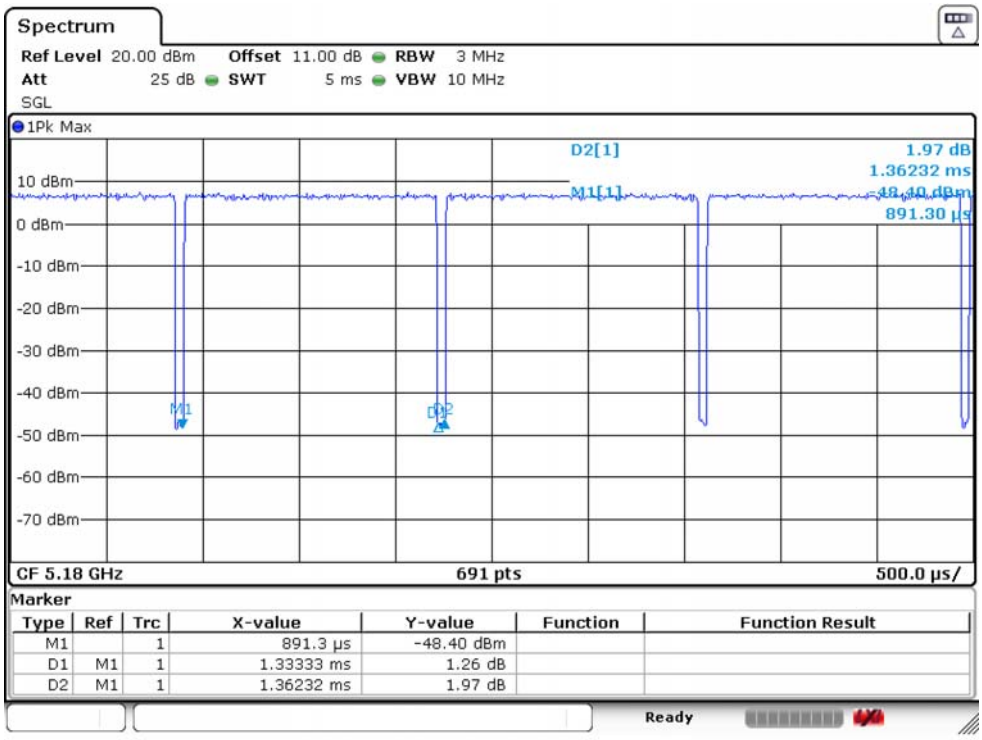
IEEE 802.11n HT20 5180MHz



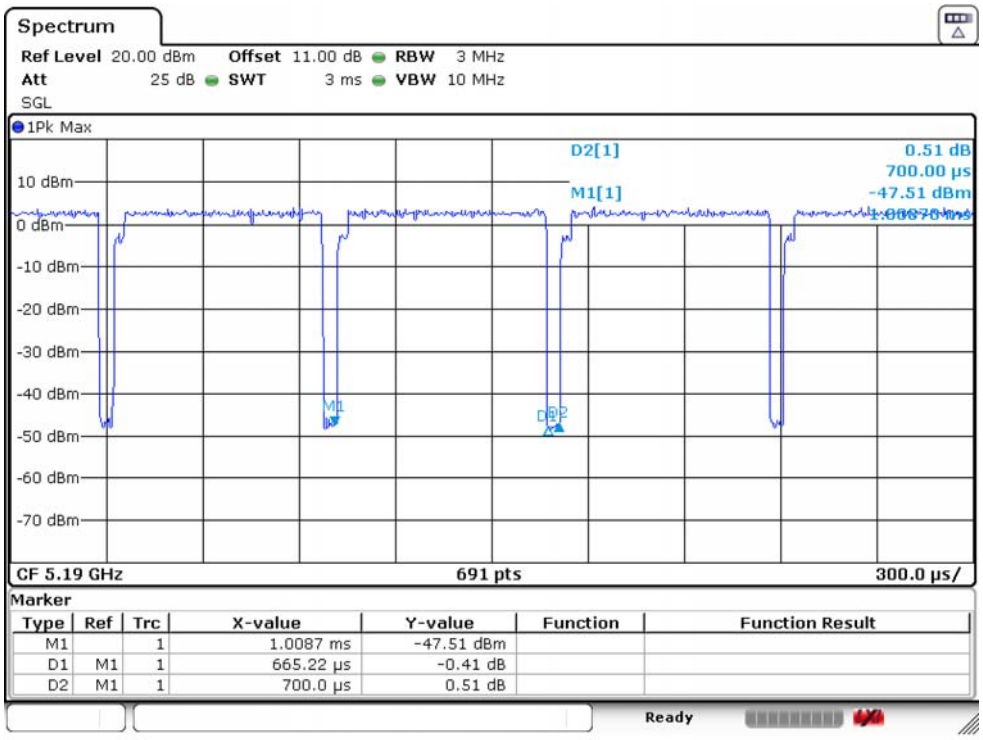
IEEE 802.11n HT40 5190MHz



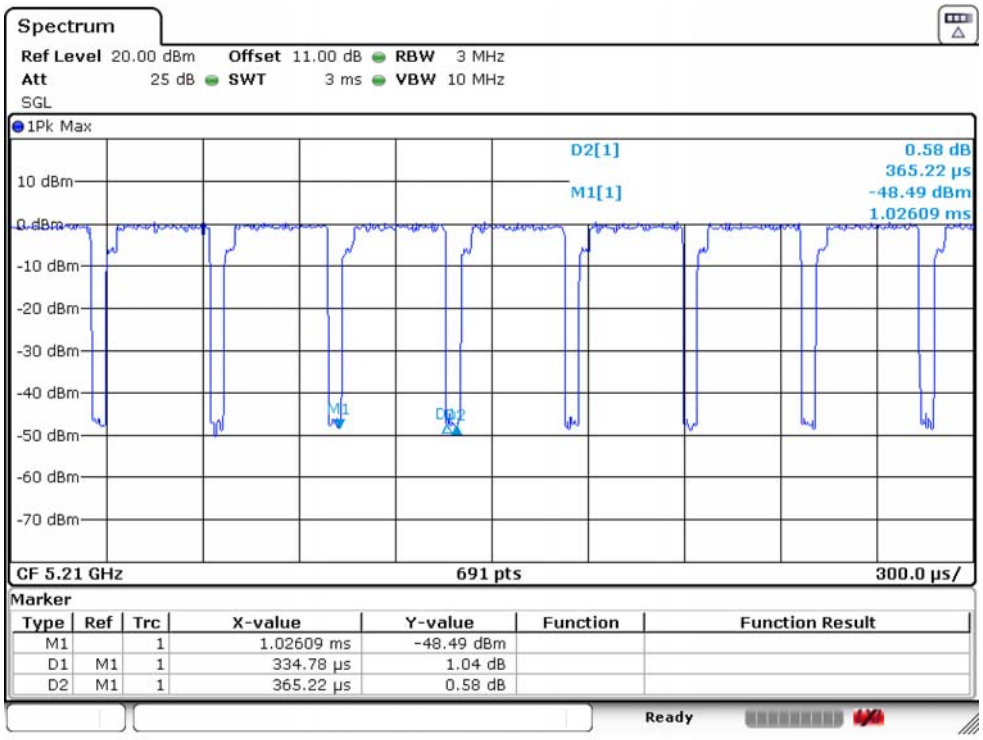
IEEE 802.11ac VHT20 5180MHz



IEEE 802.11ac VHT40 5190MHz



IEEE 802.11ac VHT80 5210MHz



2.11. 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	SCHWAREBECK	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	SCHWARZBECK	BBHA 9120 D	EST-E031	LISAI	June 13,21	1 Year
Signal Amplifier	SCHWARZBECK	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

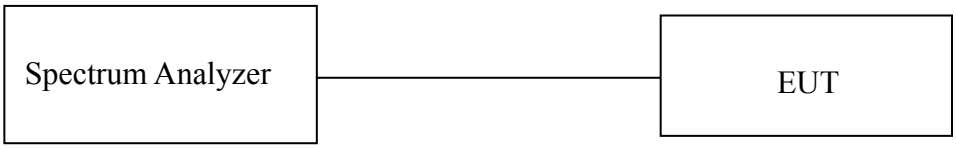
For connect EUT antenna terminal test						
Equipment	Manufacturer	Model No.	Serial No.	Calibration Body	Last Cal.	Next Cal.
TS 8997	Rohde &Schwarz	/	/	/	/	/
Open Switch and Control Unit	Rohde &Schwarz	OSP-B157WB	EST-E036	LISAI	June 13,21	1Year
Signal and Spectrum Analyzer	Rohde &Schwarz	FSV	EST-E037	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	26.9℃	Relative Humidity		48.5%	Test Voltage	DC 5V
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	20.260	16.663		
		5200	20.318	16.783		
		5240	19.971	16.583		
	IEEE 802.11n HT20	5180	20.434	17.862		
		5200	20.608	17.822		
		5240	20.260	17.662		
	IEEE 802.11ac VHT20	5180	20.434	17.742		
		5200	20.550	17.782		
		5240	20.434	17.622		
	IEEE 802.11n HT40	5190	40.520	36.843		
		5230	40.750	36.843		
	IEEE 802.11ac VHT40	5190	40.060	36.683		
		5230	39.830	36.603		
	IEEE 802.11ac VHT80	5210	80.810	75.285		
U-NII-2A	IEEE 802.11a	5260	20.145	16.583	0.2500	23.98
		5300	20.203	16.503	0.2500	23.98
		5320	20.029	16.783	0.2500	23.98
	IEEE 802.11n HT20	5260	20.434	17.662	0.2500	23.98
		5300	20.550	17.742	0.2500	23.98
		5320	20.492	17.742	0.2500	23.98
	IEEE 802.11ac VHT20	5260	20.492	17.662	0.2500	23.98
		5300	20.376	17.622	0.2500	23.98
		5320	20.145	17.782	0.2500	23.98
	IEEE 802.11n HT40	5270	40.410	36.763	0.2500	23.98
		5310	40.640	36.843	0.2500	23.98
	IEEE 802.11ac VHT40	5270	39.940	36.523	0.2500	23.98
		5310	39.940	36.444	0.2500	23.98
	IEEE 802.11ac VHT80	5290	80.810	75.285	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	20.260	16.663	0.2500	23.98
		5580	20.029	16.743	0.2500	23.98
		5700	20.145	16.543	0.2500	23.98
	IEEE 802.11n HT20	5500	20.492	17.742	0.2500	23.98
		5580	20.434	17.702	0.2500	23.98
		5700	20.550	17.662	0.2500	23.98
	IEEE 802.11ac VHT20	5500	20.376	17.662	0.2500	23.98
		5580	20.492	17.662	0.2500	23.98
		5700	20.376	17.622	0.2500	23.98
	IEEE 802.11n HT40	5510	40.520	36.763	0.2500	23.98
		5590	40.980	36.763	0.2500	23.98
		5670	40.410	36.843	0.2500	23.98
	IEEE 802.11ac VHT40	5510	39.940	36.444	0.2500	23.98
		5590	39.940	36.603	0.2500	23.98
		5670	81.040	75.125	0.2500	23.98
	IEEE 802.11ac VHT80	5530	80.580	75.125	0.2500	23.98
		5610	80.580	75.125	0.2500	23.98

Temperature	26.9℃	Relative Humidity	48.5%	Test Voltage	DC 5V

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	15.630	16.783	0.5	PASS
		5785	15.624	16.663	0.5	PASS
		5825	15.624	16.623	0.5	PASS
	IEEE 802.11n HT20	5745	15.345	17.782	0.5	PASS
		5785	15.145	17.662	0.5	PASS
		5825	15.145	17.742	0.5	PASS
	IEEE 802.11ac VHT20	5745	17.063	17.622	0.5	PASS
		5785	16.144	17.622	0.5	PASS
		5825	15.345	17.662	0.5	PASS
	IEEE 802.11n HT40	5755	35.165	36.683	0.5	PASS
		5795	35.245	36.763	0.5	PASS
	IEEE 802.11ac VHT40	5755	35.165	36.444	0.5	PASS
		5795	35.245	36.523	0.5	PASS
	IEEE 802.11ac VHT80	5775	75.112	75.285	0.5	PASS

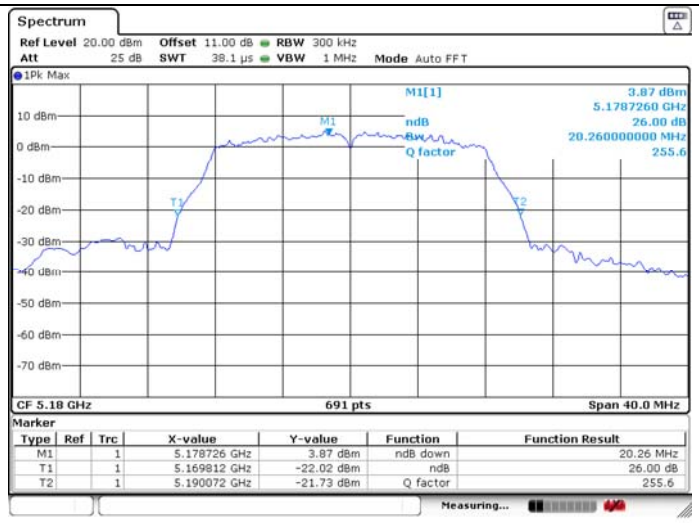
Note :

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.

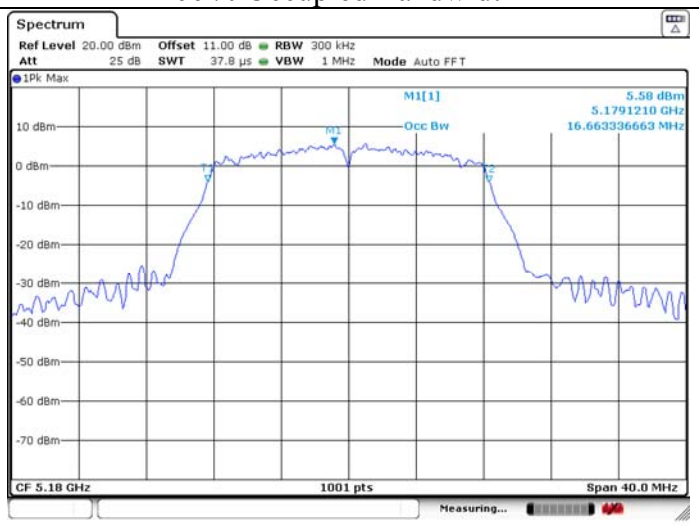
3.6. Test Result

U-NII-1 IEEE 802.11a 5180MHz

26dB Bandwidth

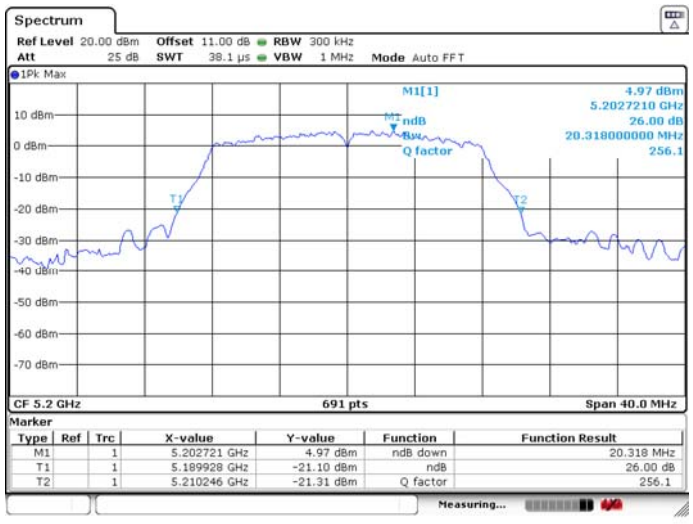


99% Occupied Bandwidth



U-NII-1 IEEE 802.11a 5200MHz

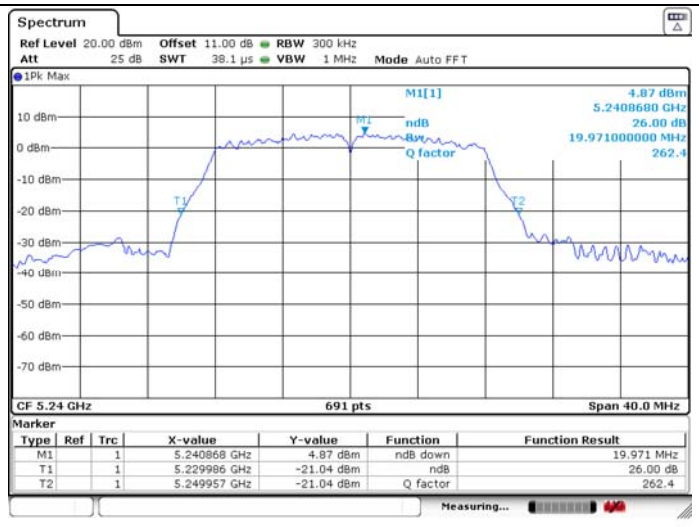
26dB Bandwidth



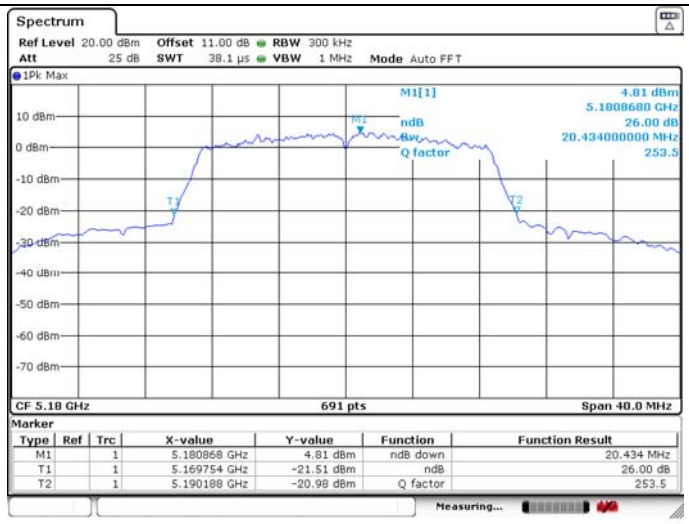
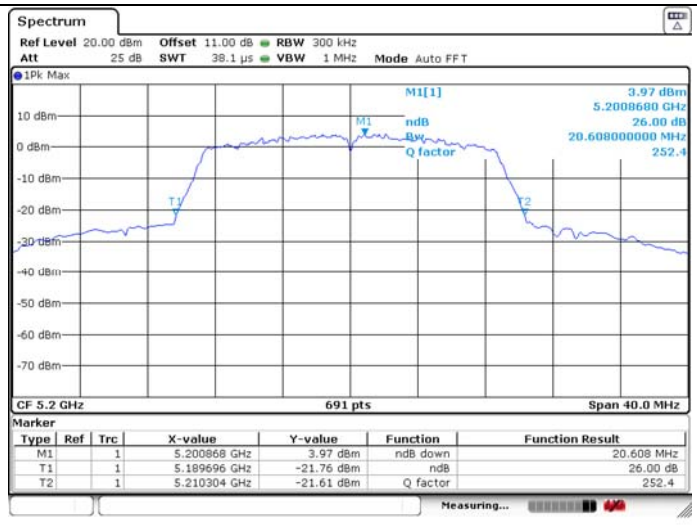
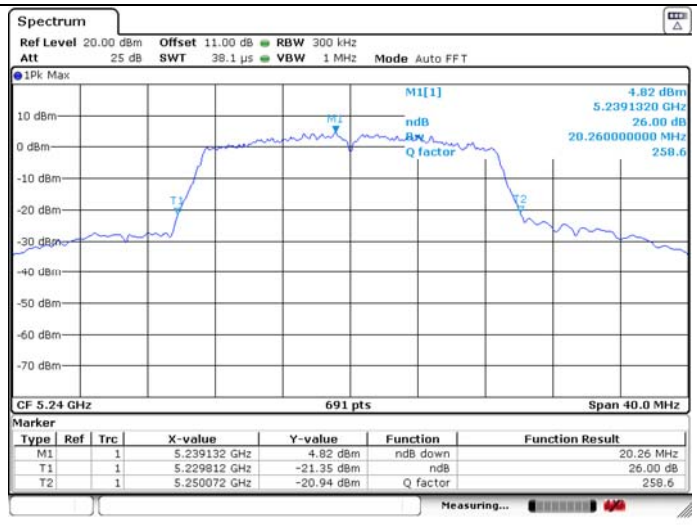
99% Occupied Bandwidth

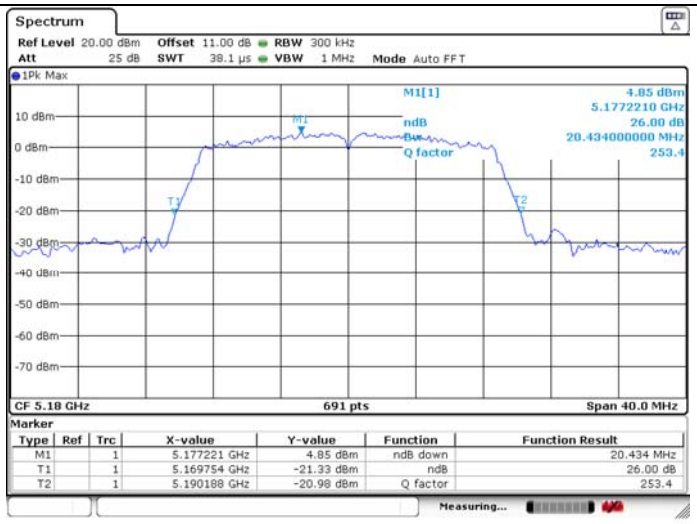
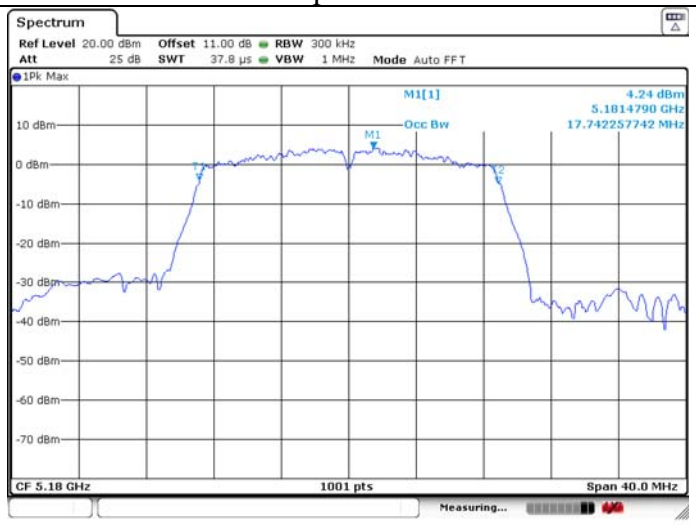
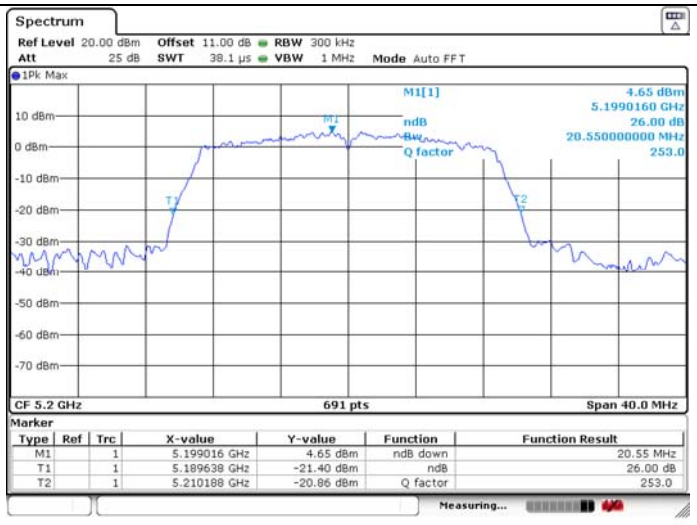
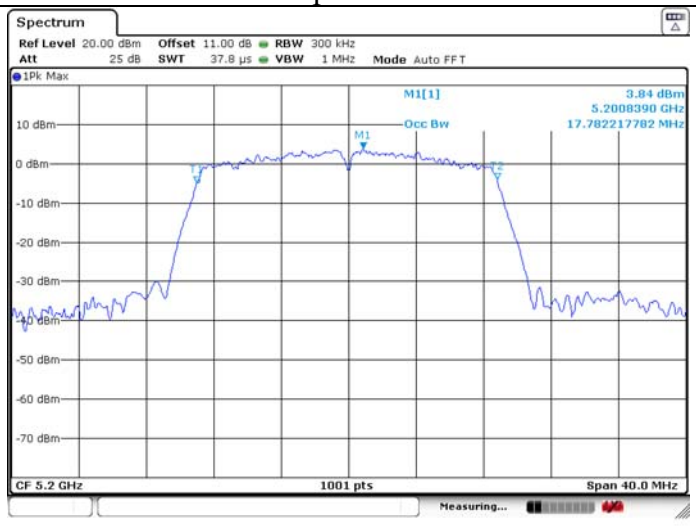
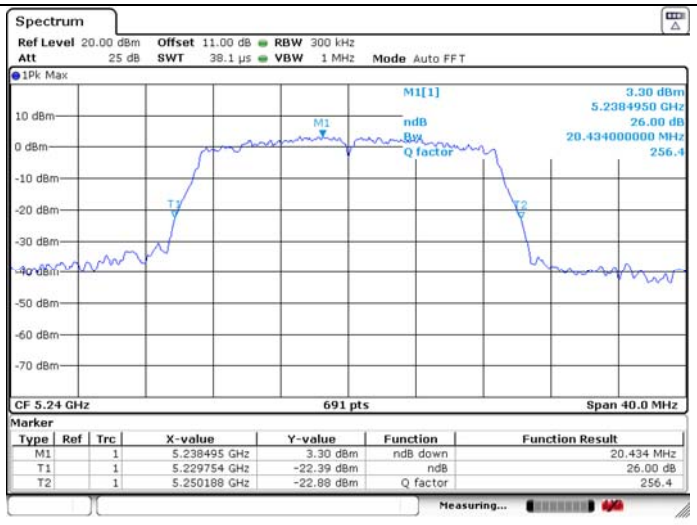
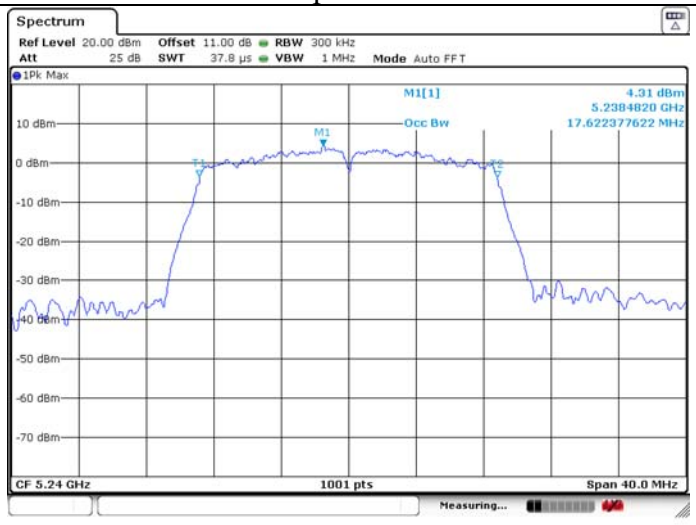
U-NII-1 IEEE 802.11a 5240MHz

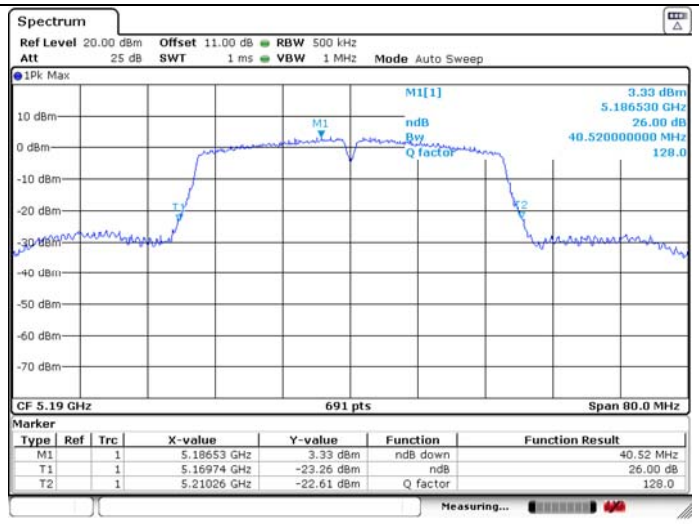
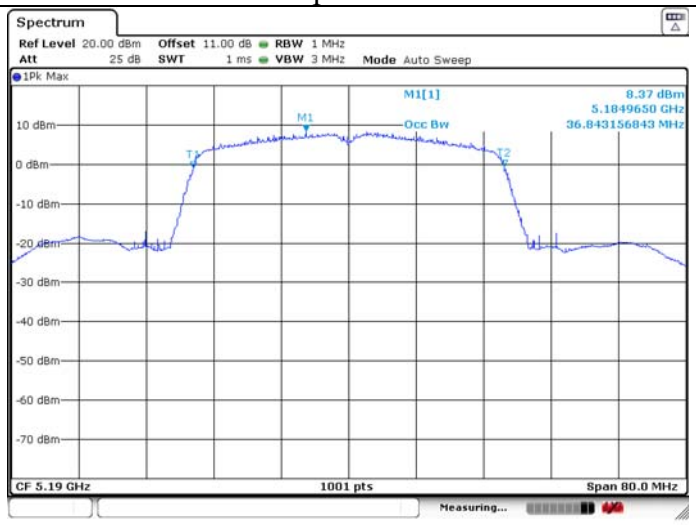
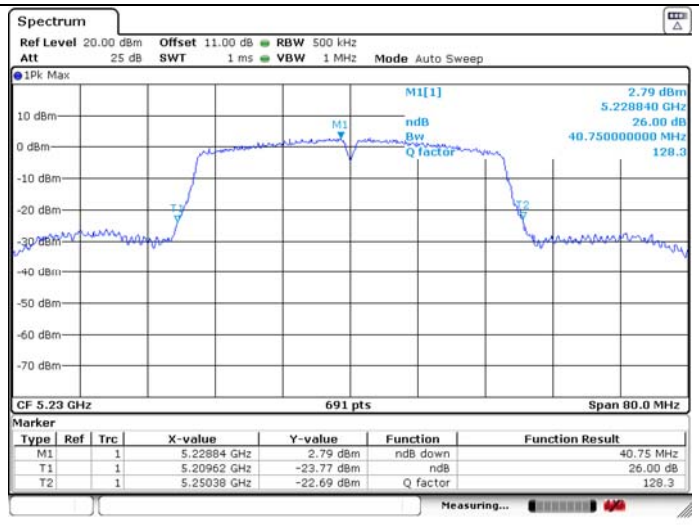
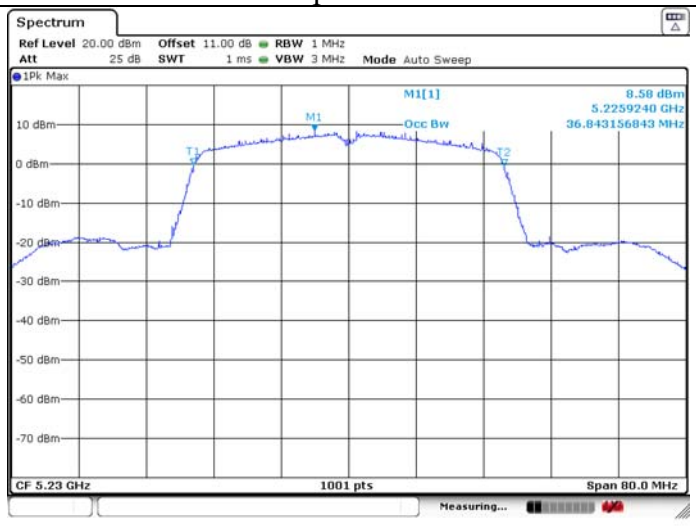
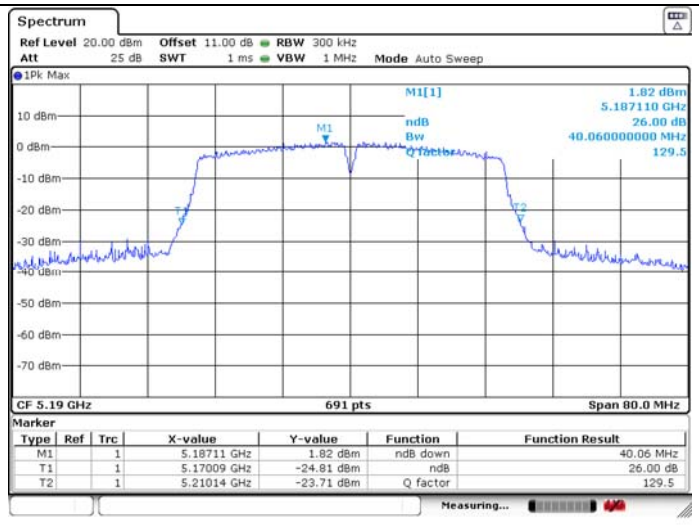
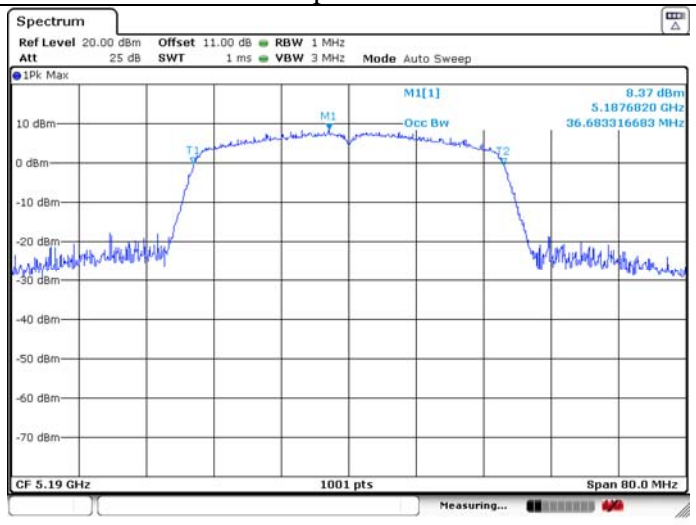
26dB Bandwidth

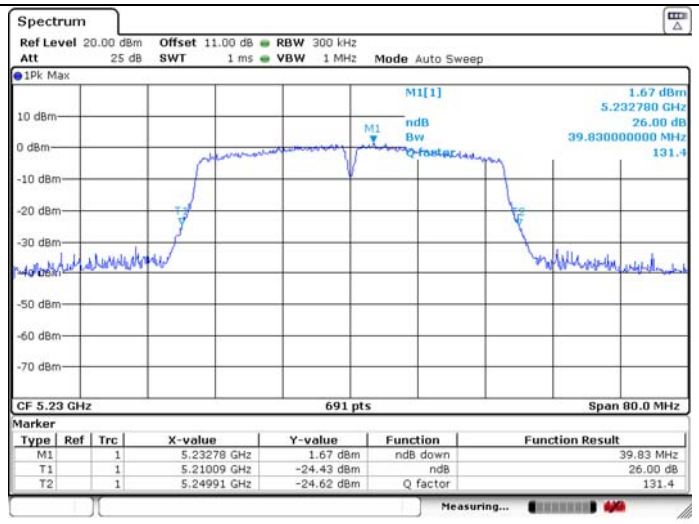
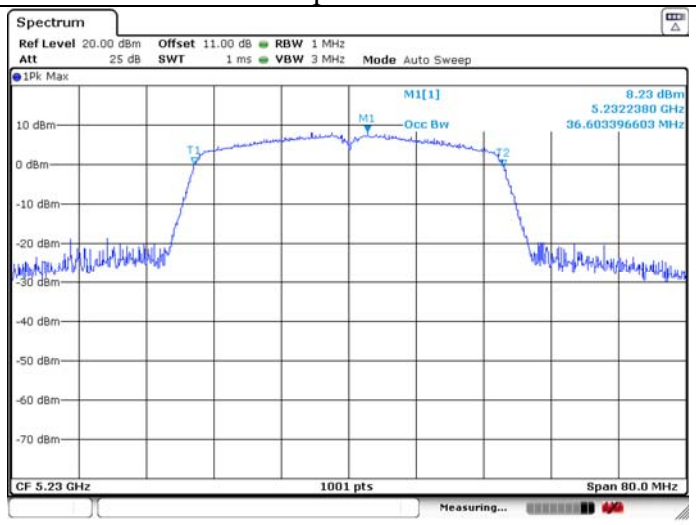
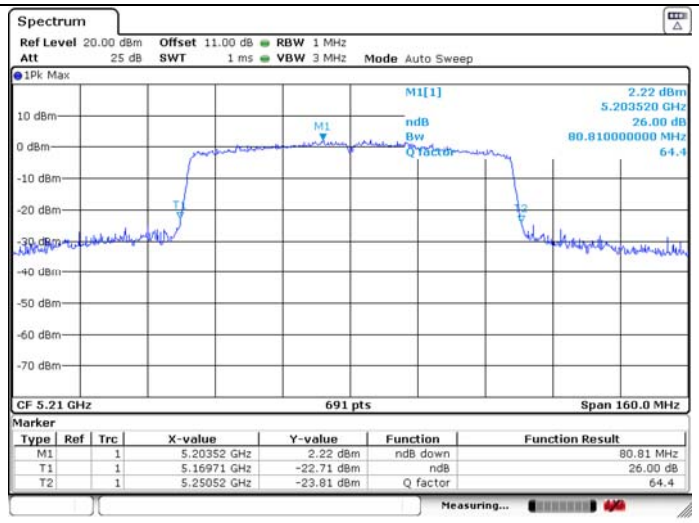
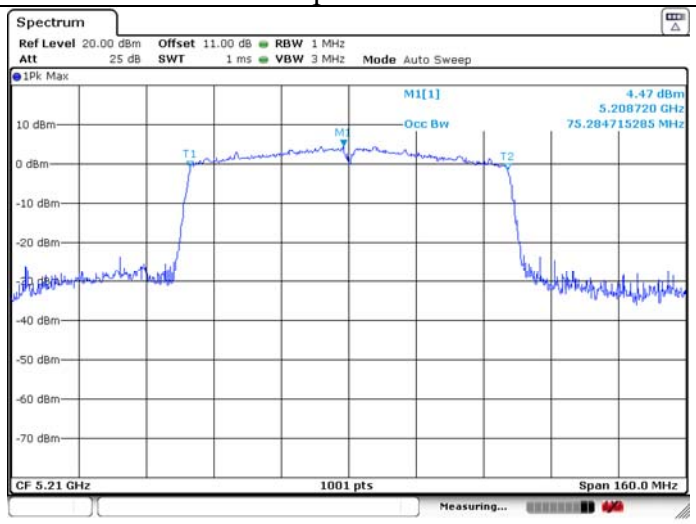


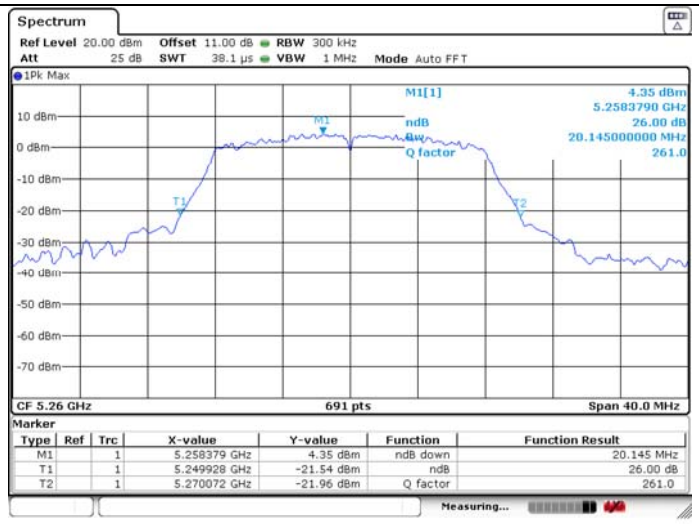
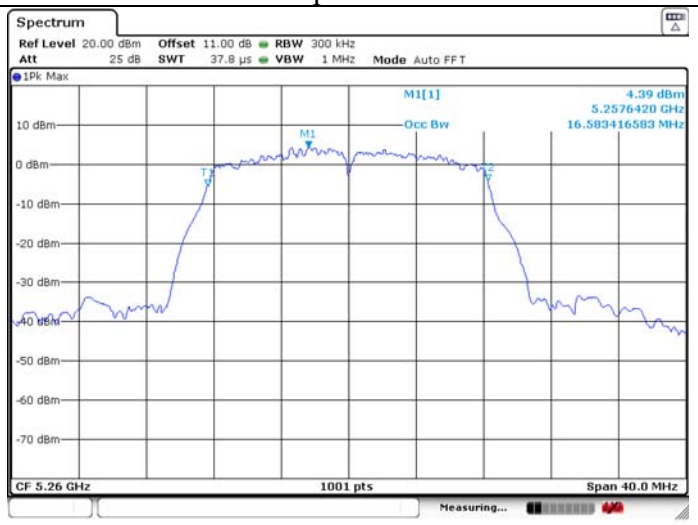
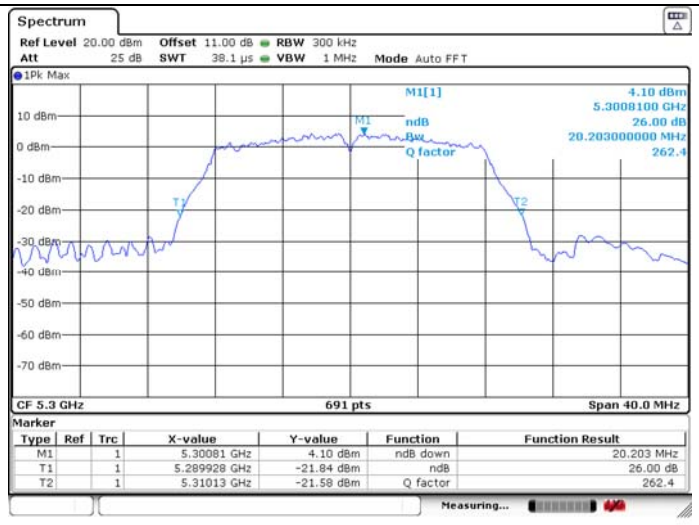
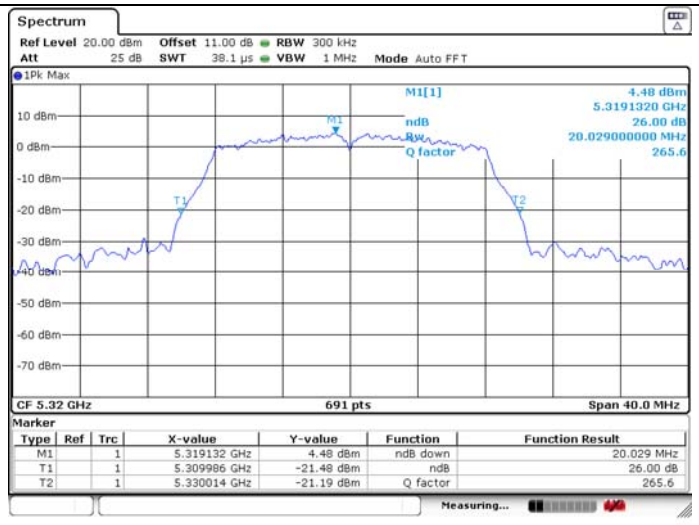
99% Occupied Bandwidth

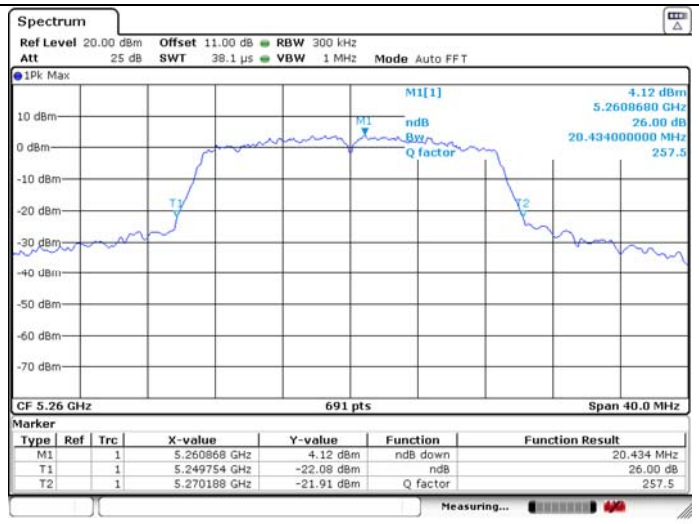
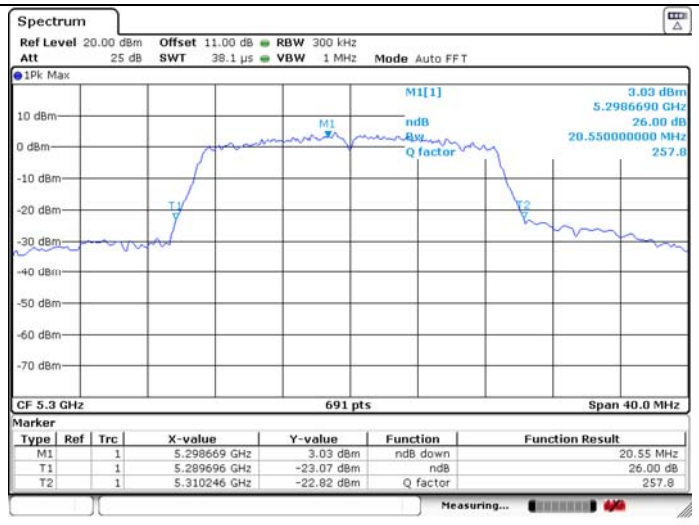
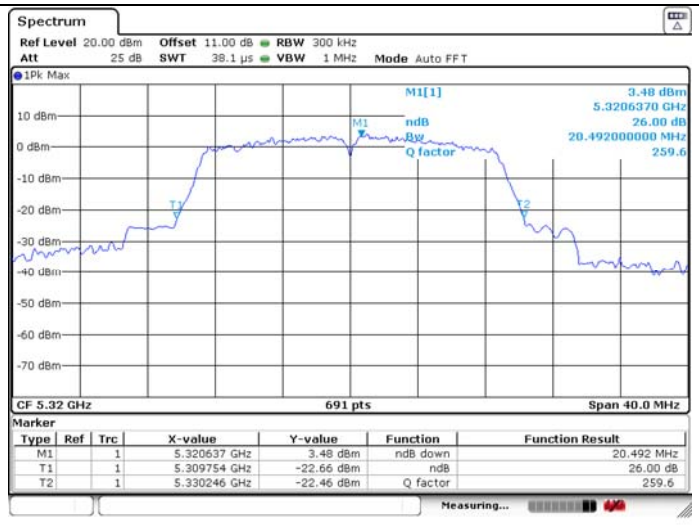
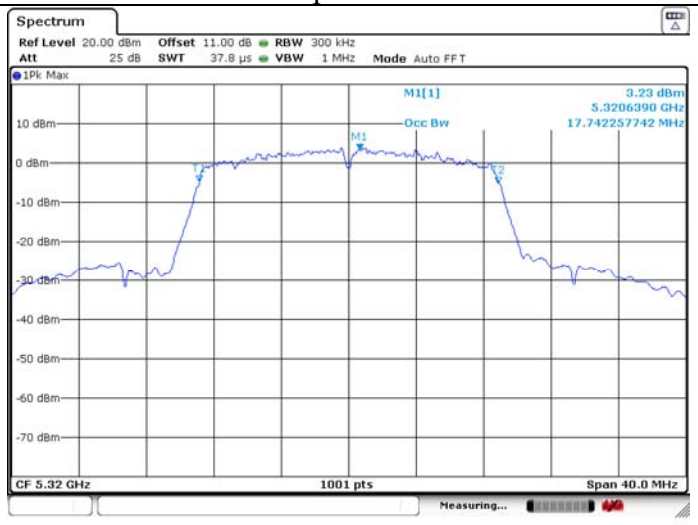
U-NII-1 IEEE 802.11n HT20 5180MHz	
26dB Bandwidth	99% Occupied Bandwidth
	
U-NII-1 IEEE 802.11n HT20 5200MHz	
26dB Bandwidth	99% Occupied Bandwidth
	
U-NII-1 IEEE 802.11n HT20 5240MHz	
26dB Bandwidth	99% Occupied Bandwidth
	

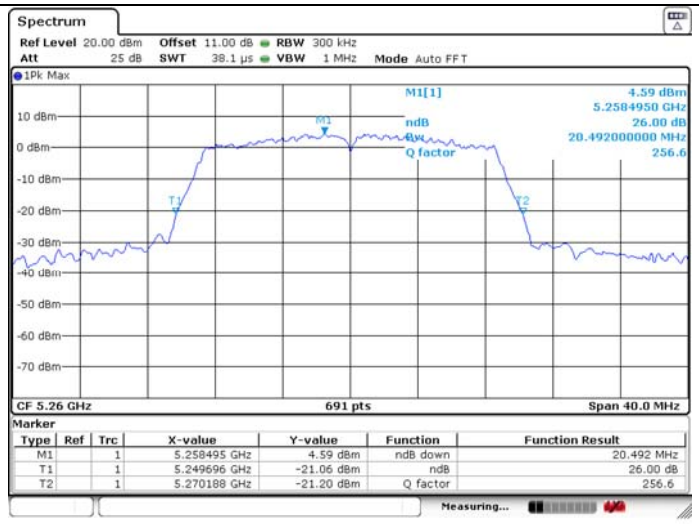
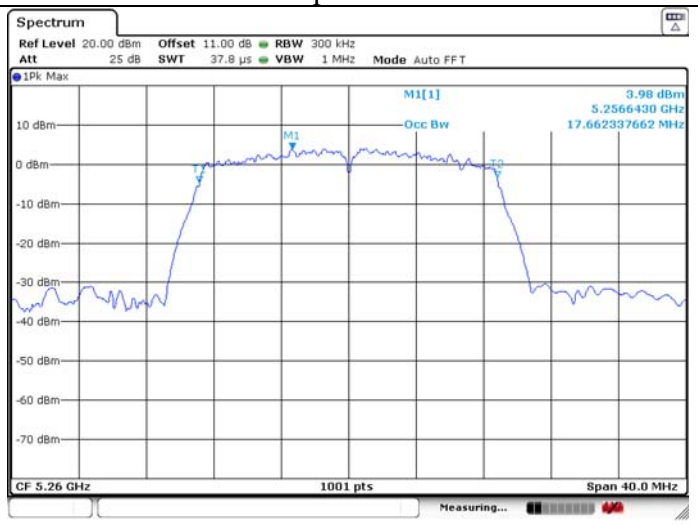
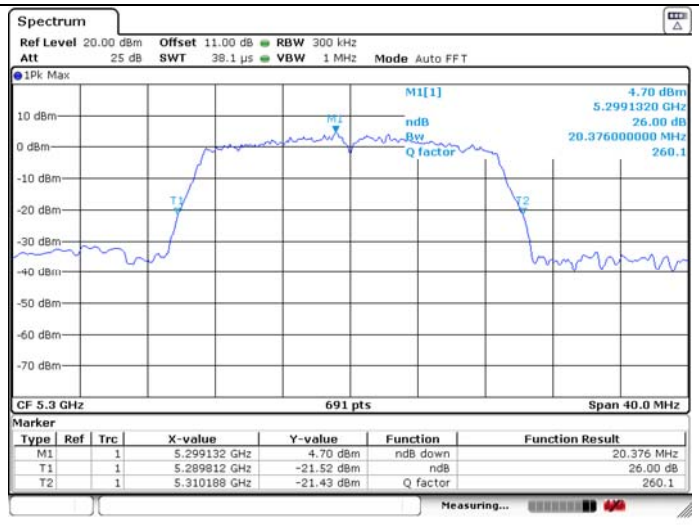
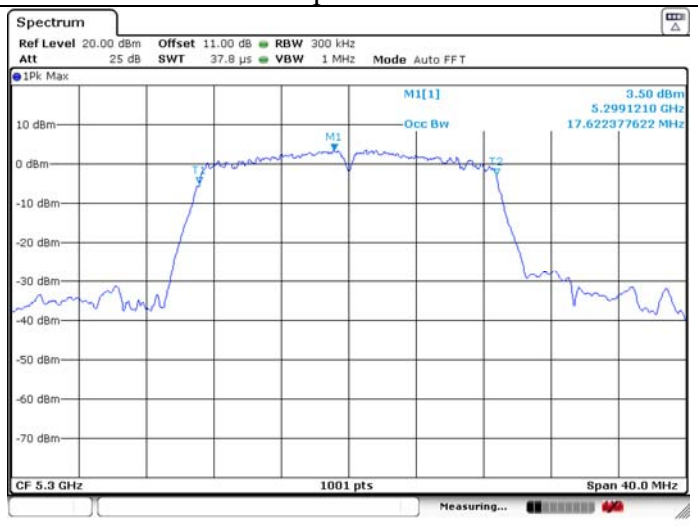
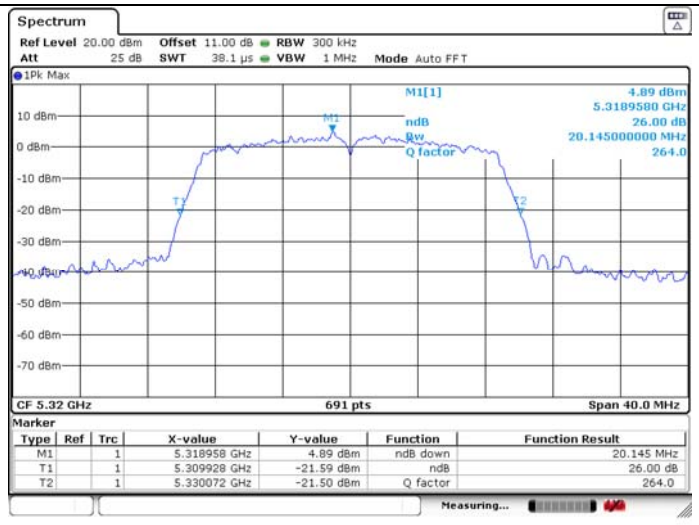
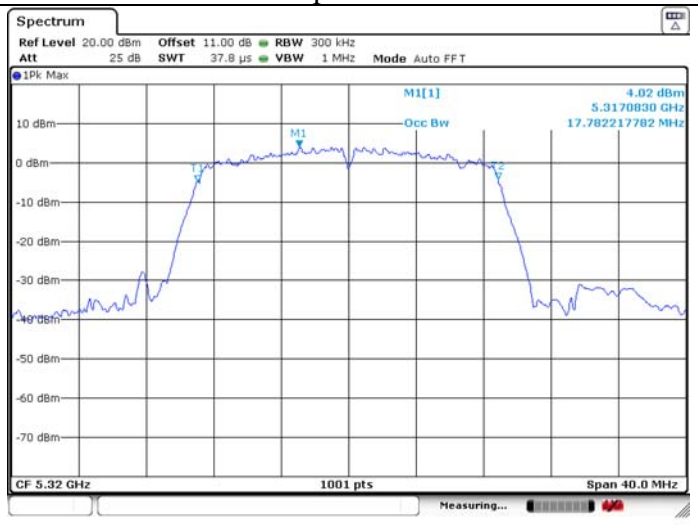
U-NII-1 IEEE 802.11ac VHT20 5180MHz	
26dB Bandwidth	99% Occupied Bandwidth
	
U-NII-1 IEEE 802.11ac VHT20 5200MHz	
26dB Bandwidth	99% Occupied Bandwidth
	
U-NII-1 IEEE 802.11ac VHT20 5240MHz	
26dB Bandwidth	99% Occupied Bandwidth
	

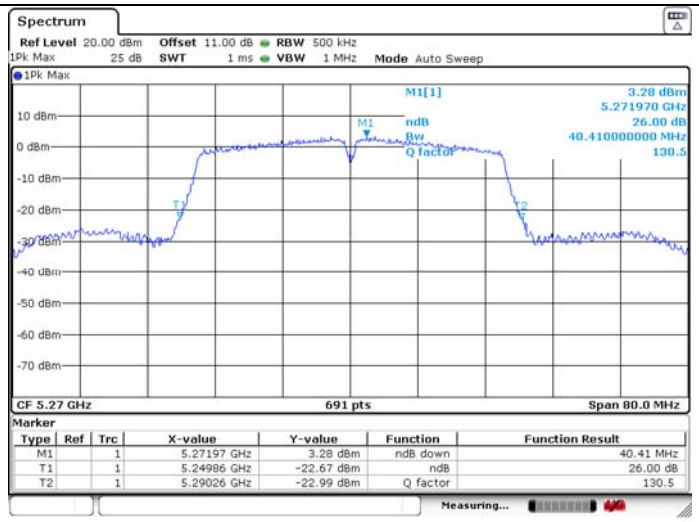
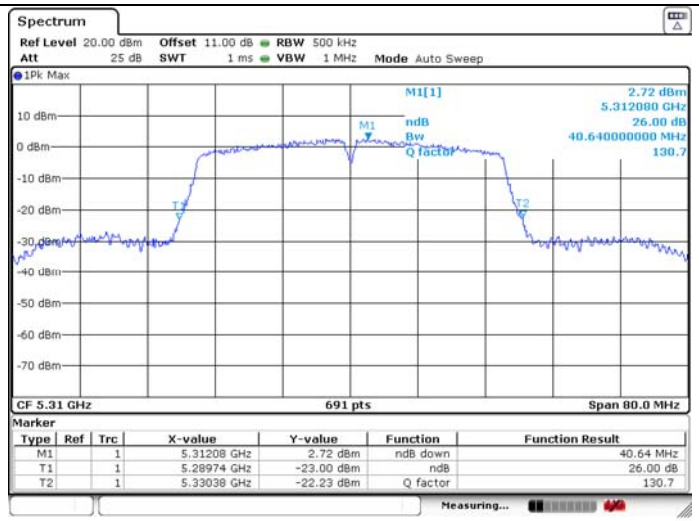
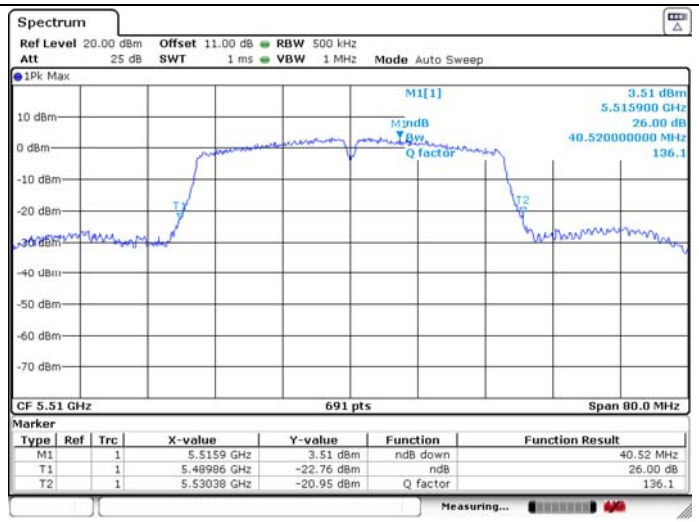
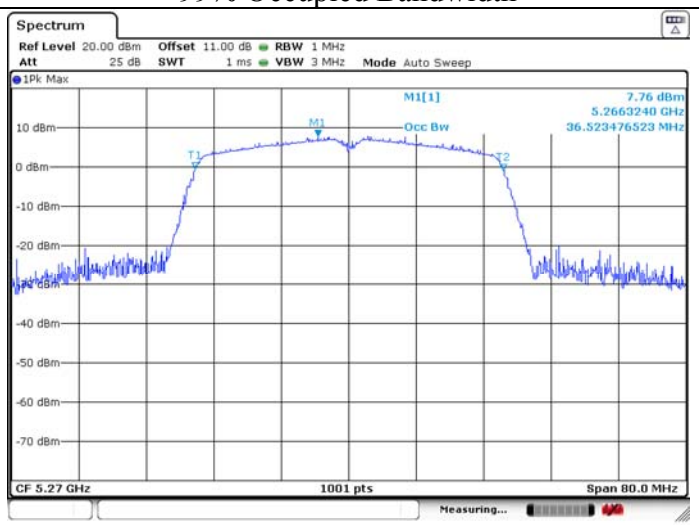
U-NII-1 IEEE 802.11n HT40 5190MHz	
26dB Bandwidth	99% Occupied Bandwidth
	
U-NII-1 IEEE 802.11n HT40 5230MHz	
26dB Bandwidth	99% Occupied Bandwidth
	
U-NII-1 IEEE 802.11ac VHT40 5190MHz	
26dB Bandwidth	99% Occupied Bandwidth
	

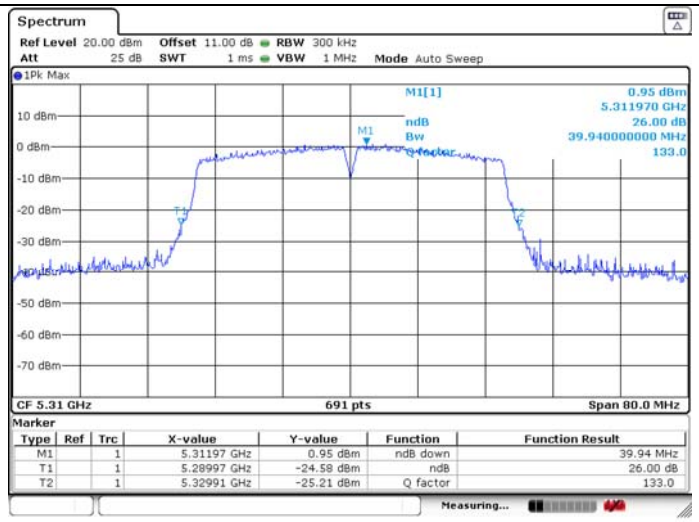
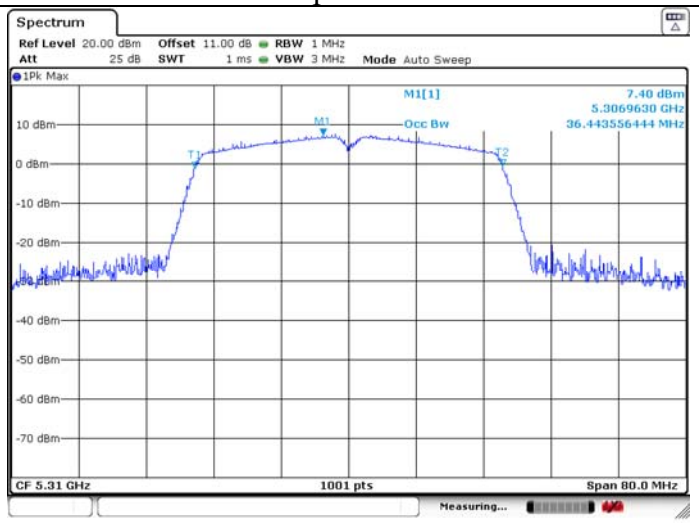
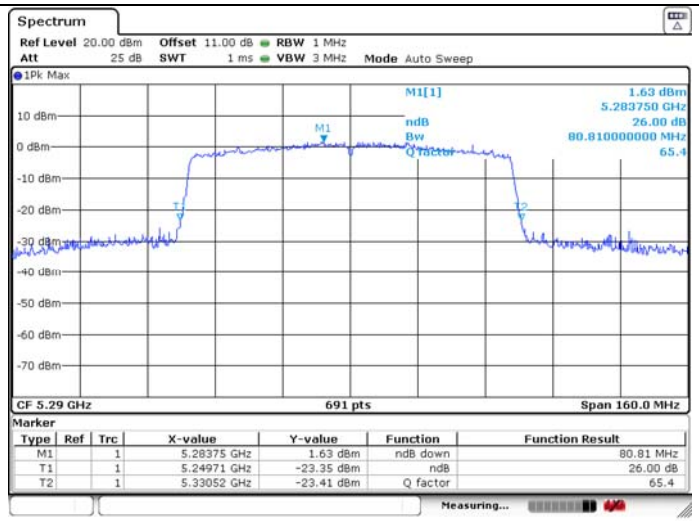
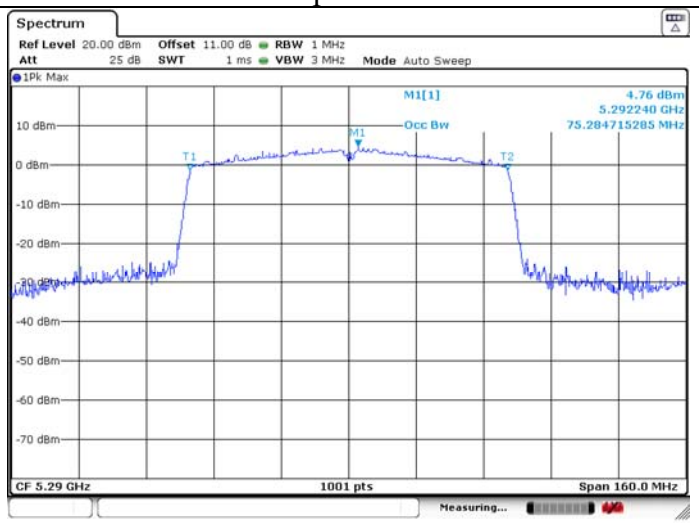
U-NII-1 IEEE 802.11ac VHT40 5230MHz	
26dB Bandwidth	99% Occupied Bandwidth
	
U-NII-1 IEEE 802.11ac VHT80 5210MHz	
26dB Bandwidth	99% Occupied Bandwidth
	

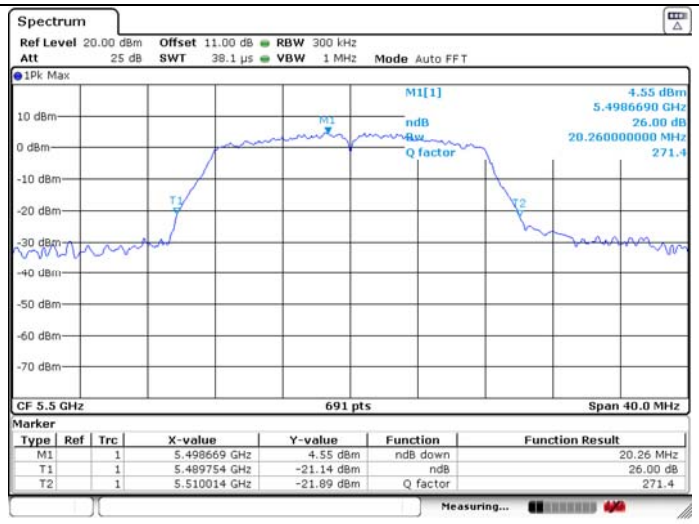
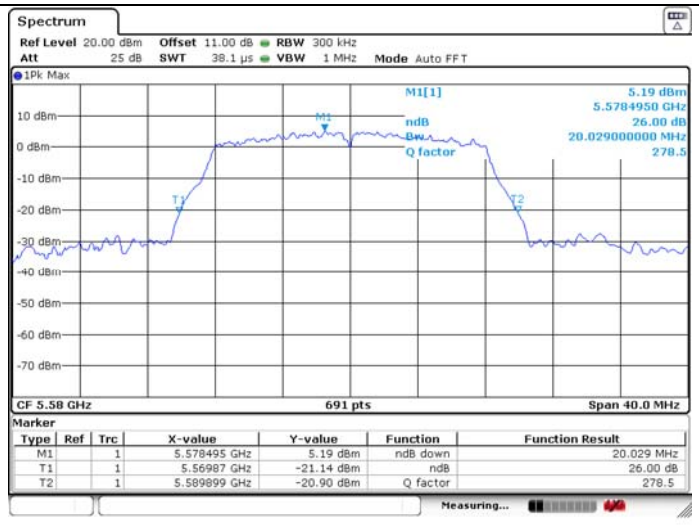
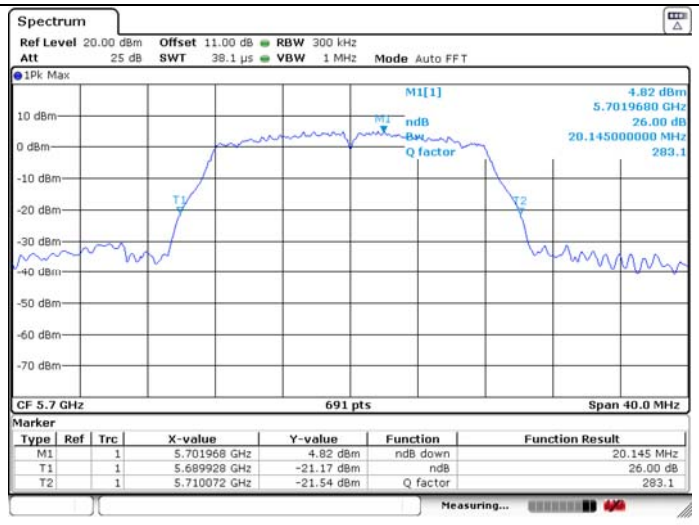
U-NII-2A IEEE 802.11a 5260MHz	
26dB Bandwidth	99% Occupied Bandwidth
	
U-NII-2A IEEE 802.11a 5300MHz	
26dB Bandwidth	99% Occupied Bandwidth
	
U-NII-2A IEEE 802.11a 5320MHz	
26dB Bandwidth	99% Occupied Bandwidth
	

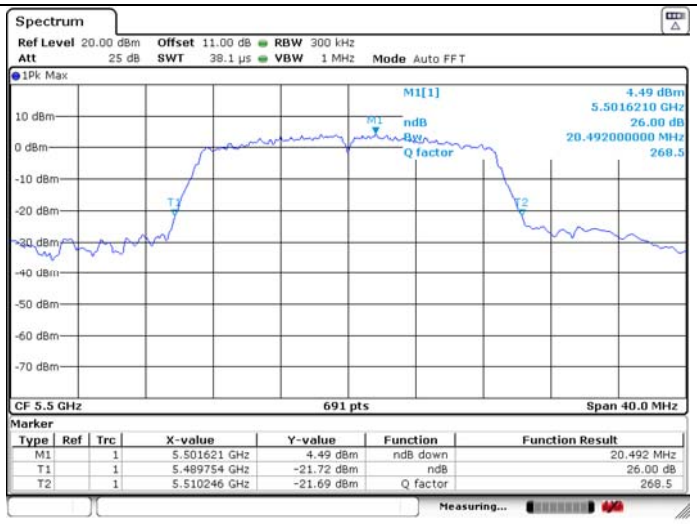
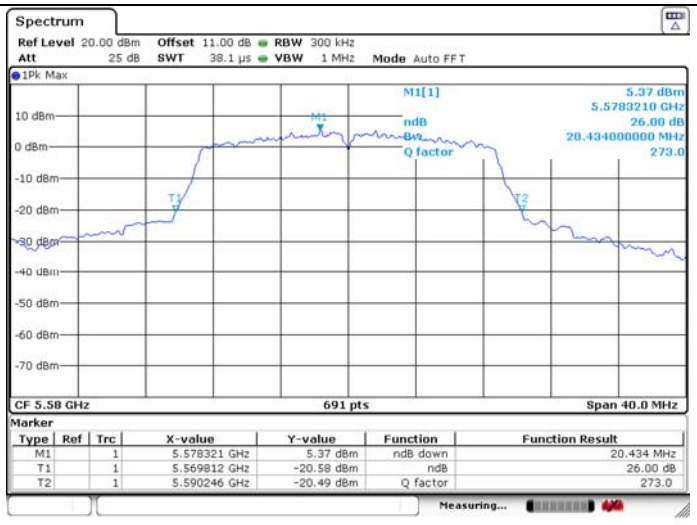
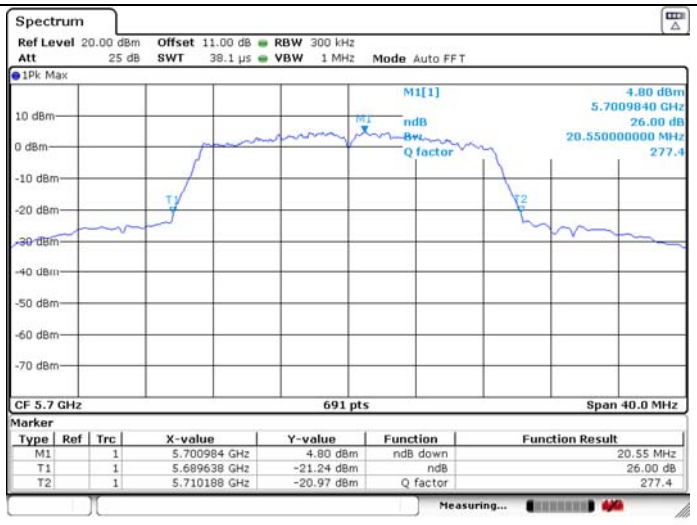
U-NII-2A IEEE 802.11n HT20 5260MHz	
26dB Bandwidth	99% Occupied Bandwidth
	
U-NII-2A IEEE 802.11n HT20 5300MHz	
26dB Bandwidth	99% Occupied Bandwidth
	
U-NII-2A IEEE 802.11n HT20 5320MHz	
26dB Bandwidth	99% Occupied Bandwidth
	

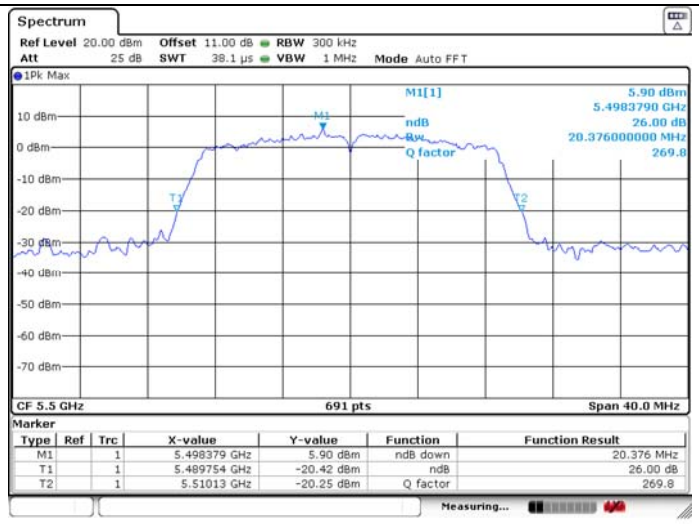
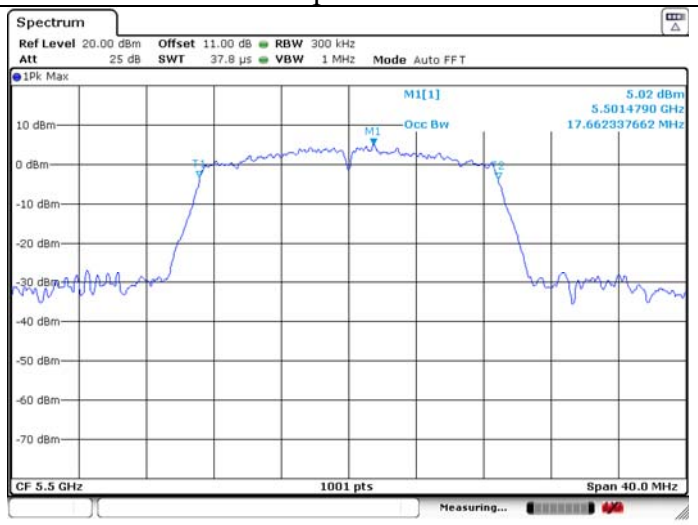
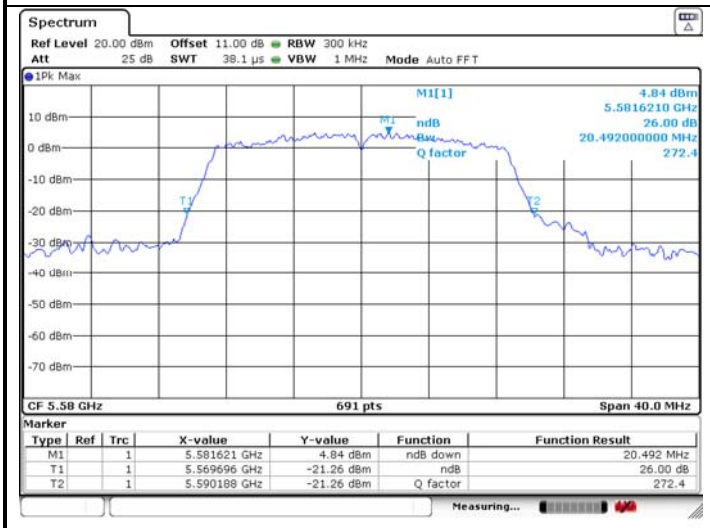
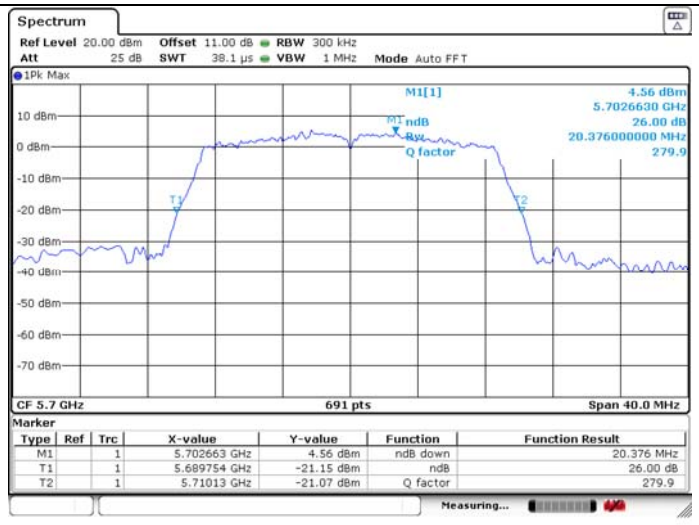
U-NII-2A IEEE 802.11ac VHT20 5260MHz	
26dB Bandwidth	99% Occupied Bandwidth
	
U-NII-2A IEEE 802.11ac VHT20 5300MHz	
26dB Bandwidth	99% Occupied Bandwidth
	
U-NII-2A IEEE 802.11ac VHT20 5320MHz	
26dB Bandwidth	99% Occupied Bandwidth
	

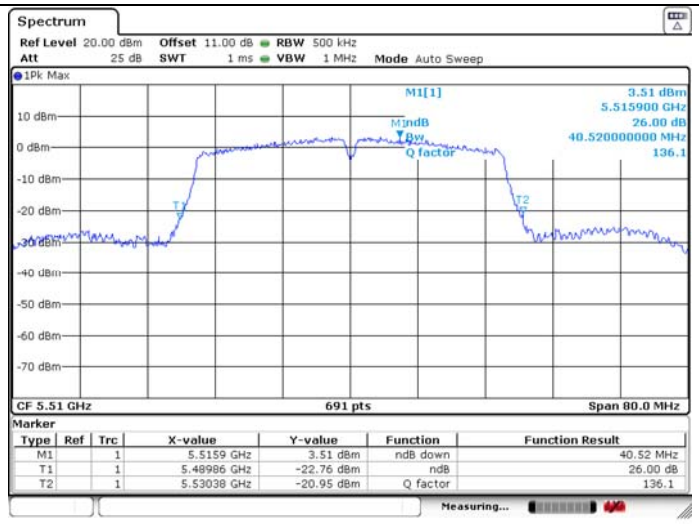
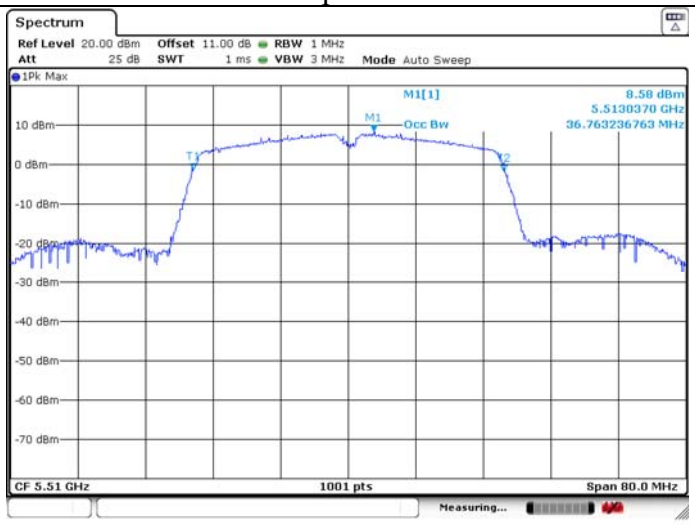
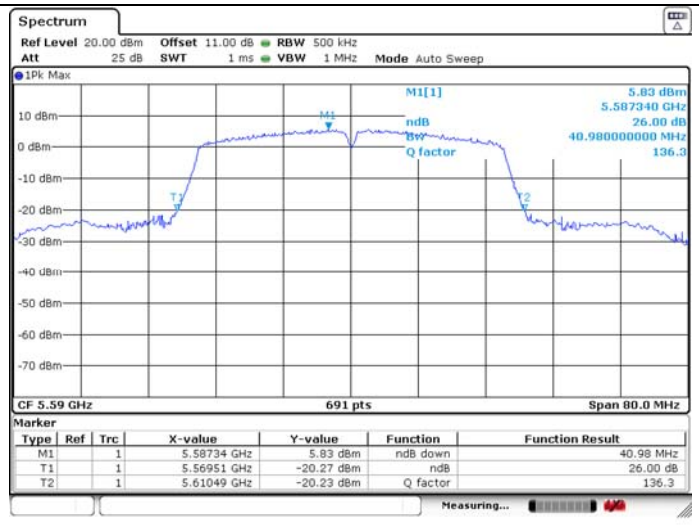
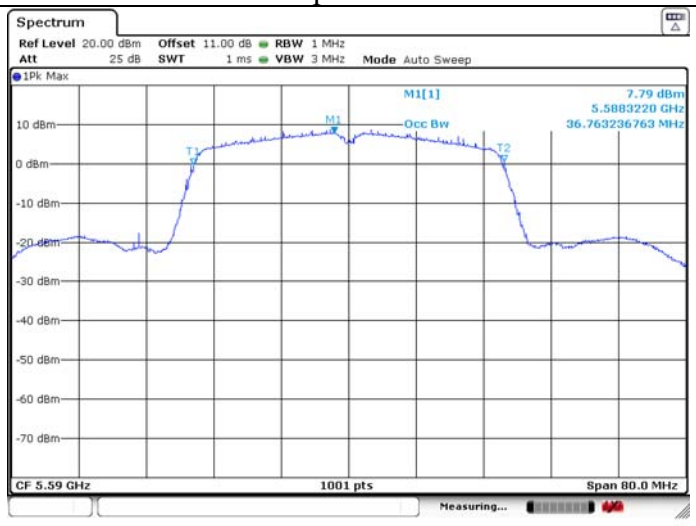
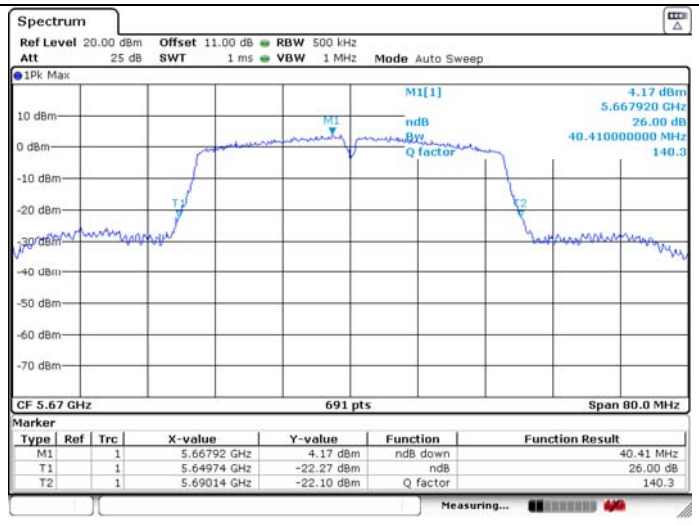
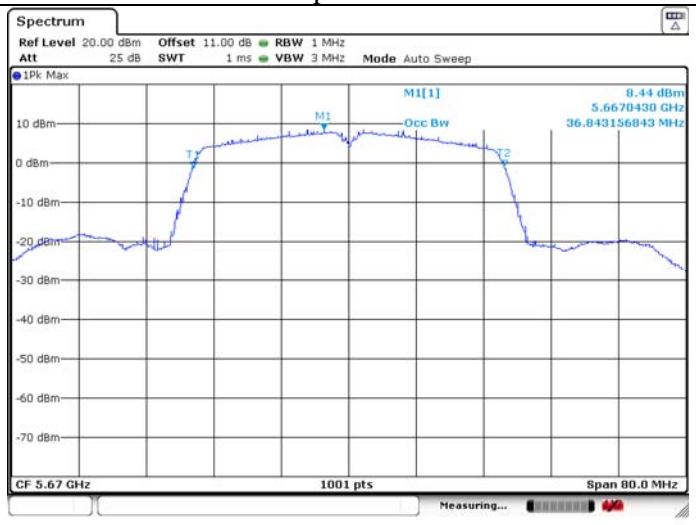
U-NII-2A IEEE 802.11n HT40 5270MHz	
26dB Bandwidth	99% Occupied Bandwidth
	
U-NII-2A IEEE 802.11n HT40 5310MHz	
26dB Bandwidth	99% Occupied Bandwidth
	
U-NII-2A IEEE 802.11ac VHT40 5270MHz	
26dB Bandwidth	99% Occupied Bandwidth
	

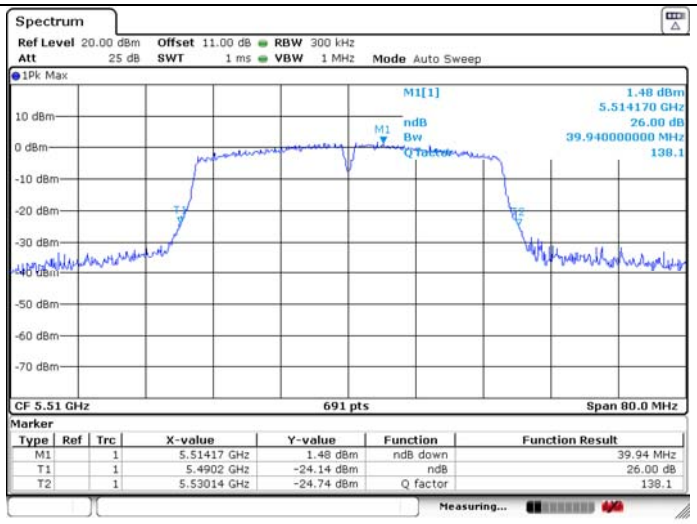
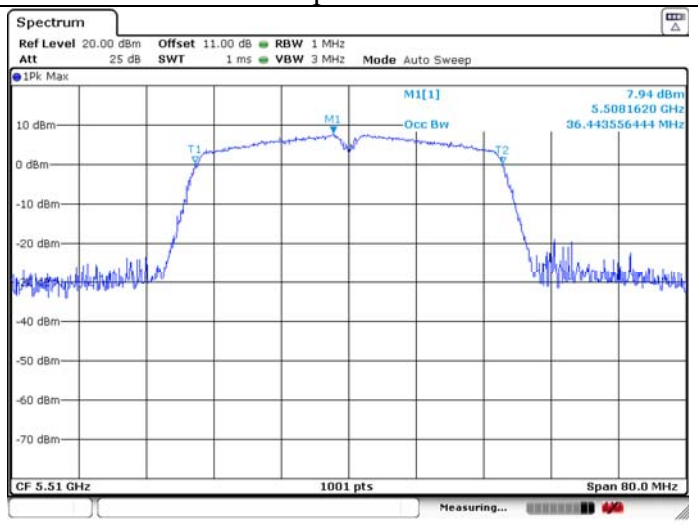
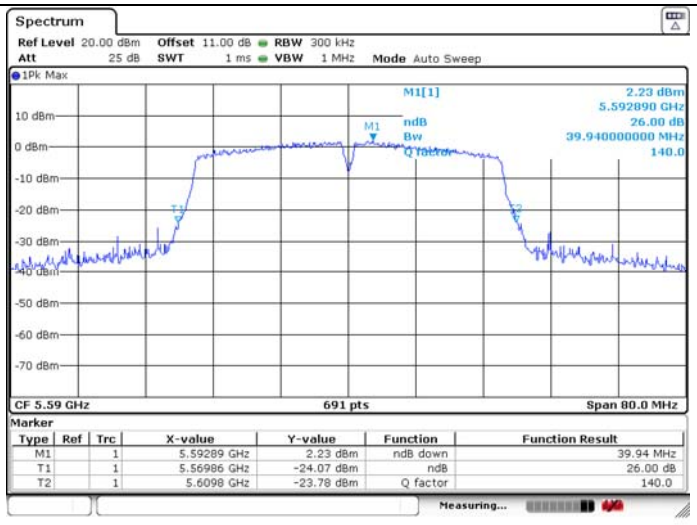
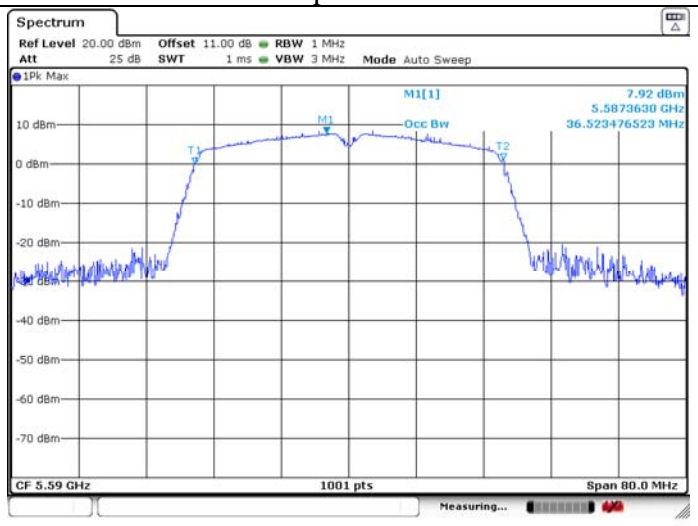
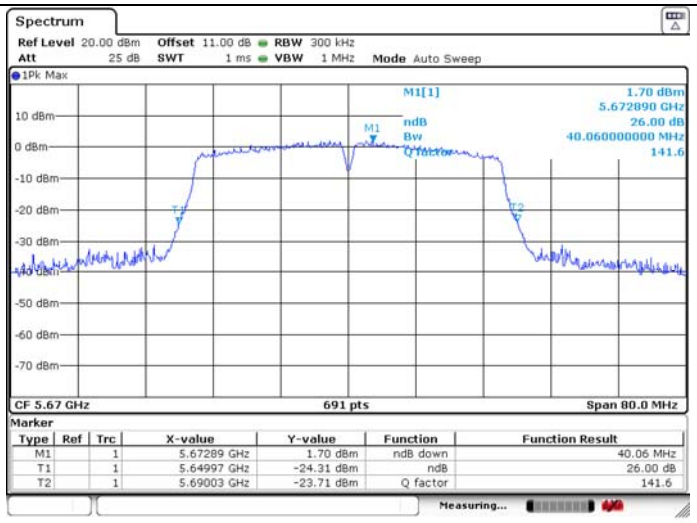
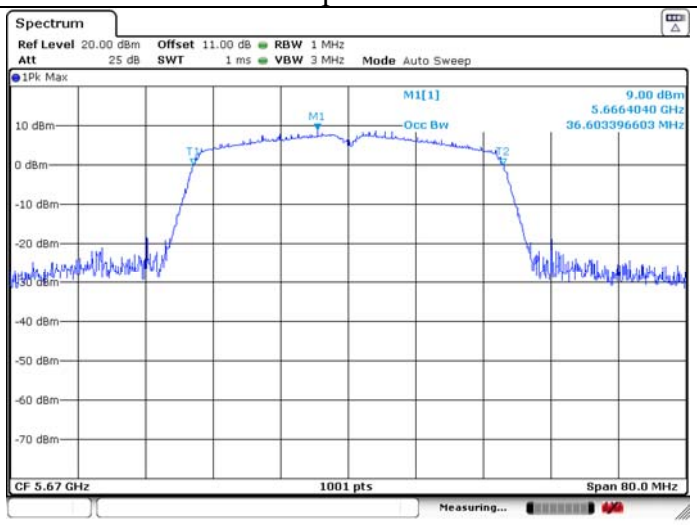
U-NII-2A IEEE 802.11ac VHT40 5310MHz	
26dB Bandwidth	99% Occupied Bandwidth
	
U-NII-2A IEEE 802.11ac VHT80 5290MHz	
26dB Bandwidth	99% Occupied Bandwidth
	

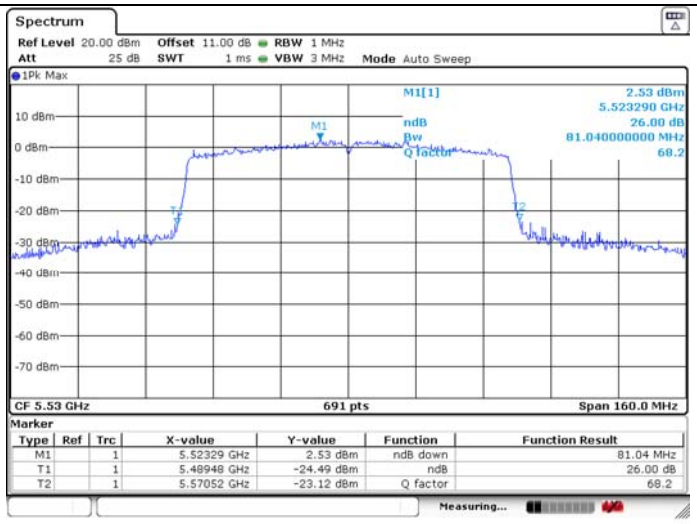
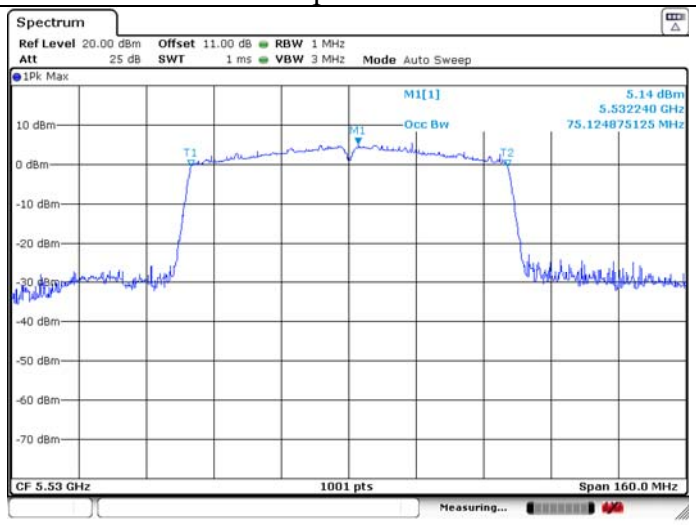
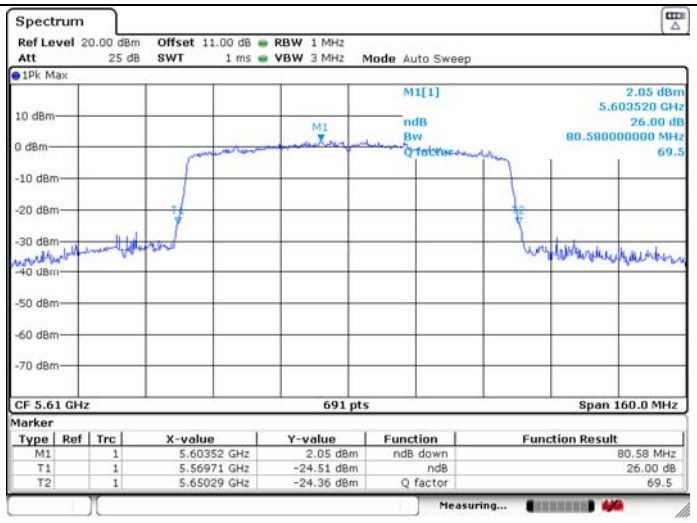
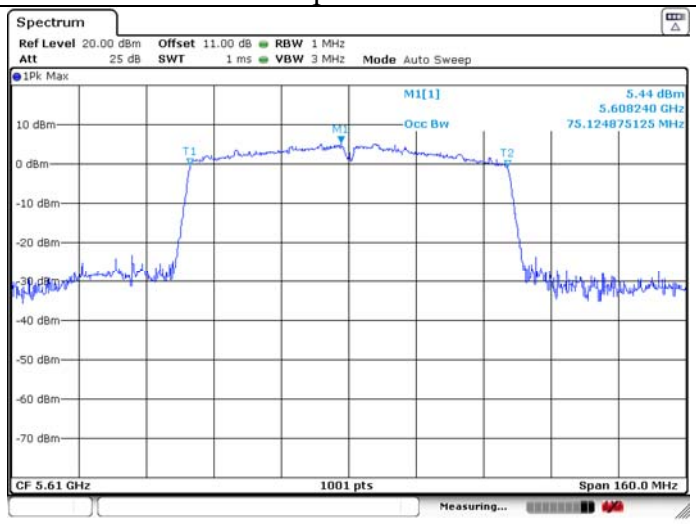
U-NII-2C IEEE 802.11a 5500MHz	
26dB Bandwidth	99% Occupied Bandwidth
	
U-NII-2C IEEE 802.11a 5580MHz	
26dB Bandwidth	99% Occupied Bandwidth
	
U-NII-2C IEEE 802.11a 5700MHz	
26dB Bandwidth	99% Occupied Bandwidth
	

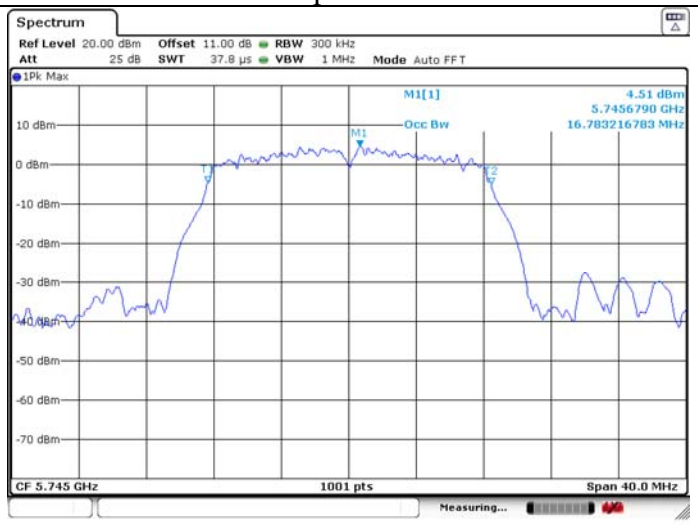
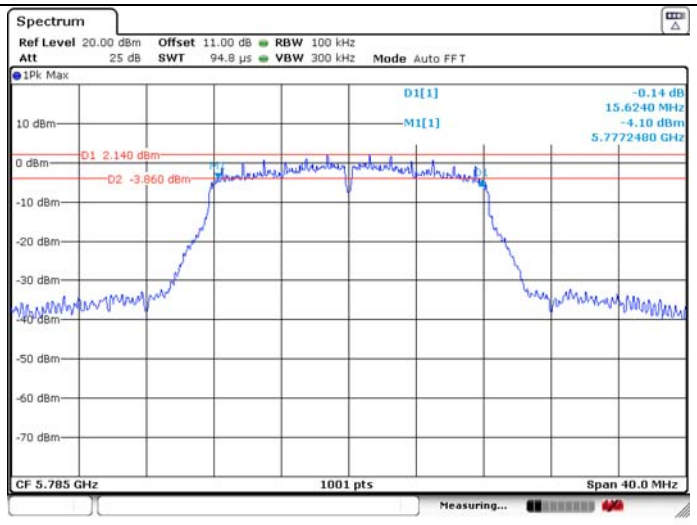
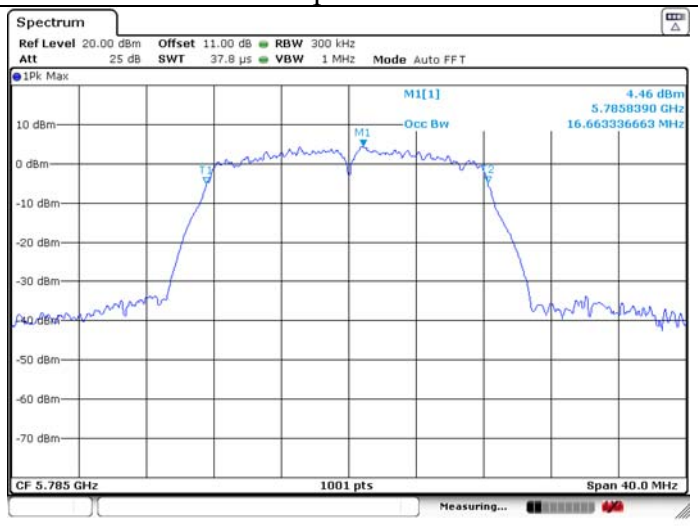
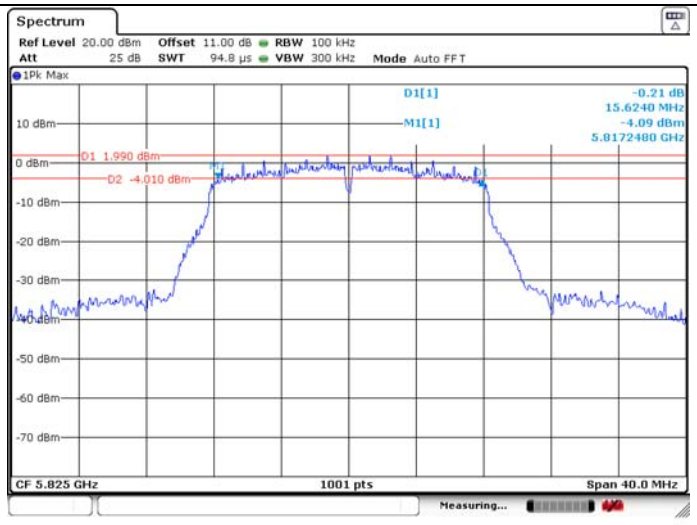
U-NII-2C IEEE 802.11n HT20 5500MHz	
26dB Bandwidth	99% Occupied Bandwidth
	
U-NII-2C IEEE 802.11n HT20 5580MHz	
26dB Bandwidth	99% Occupied Bandwidth
	
U-NII-2C IEEE 802.11n HT20 5700MHz	
26dB Bandwidth	99% Occupied Bandwidth
	

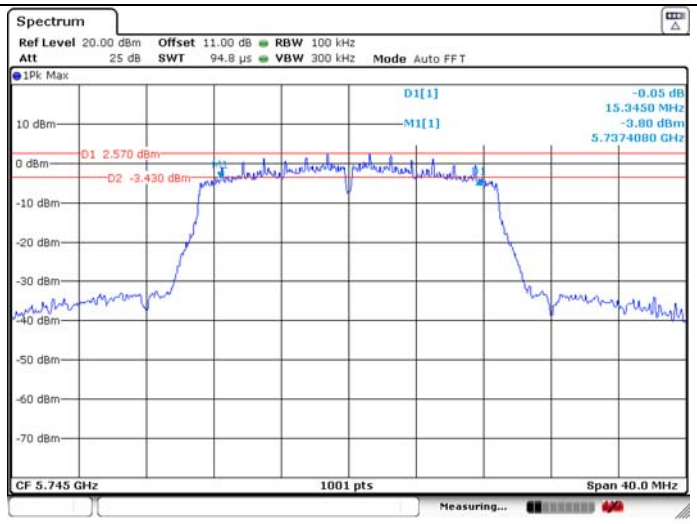
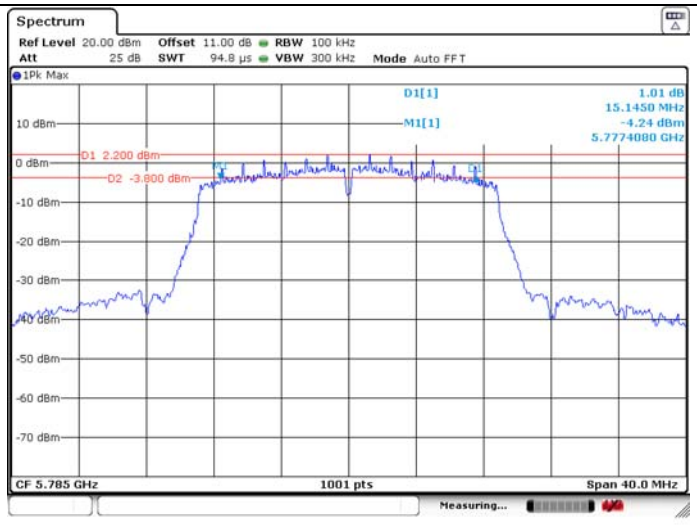
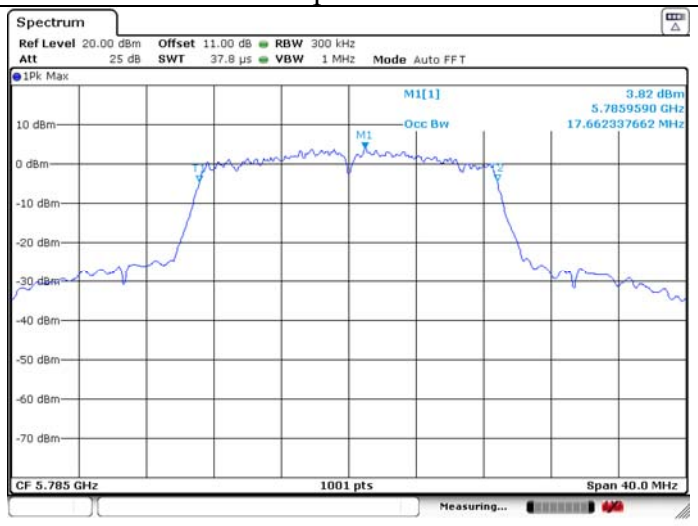
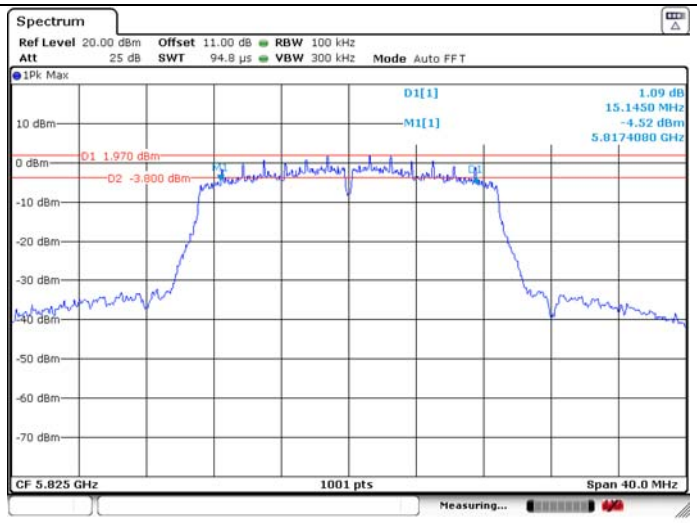
U-NII-2C IEEE 802.11ac VHT20 5500MHz	
26dB Bandwidth	99% Occupied Bandwidth
	
U-NII-2C IEEE 802.11ac VHT20 5580MHz	
26dB Bandwidth	99% Occupied Bandwidth
	
U-NII-2C IEEE 802.11ac VHT20 5700MHz	
26dB Bandwidth	99% Occupied Bandwidth
	

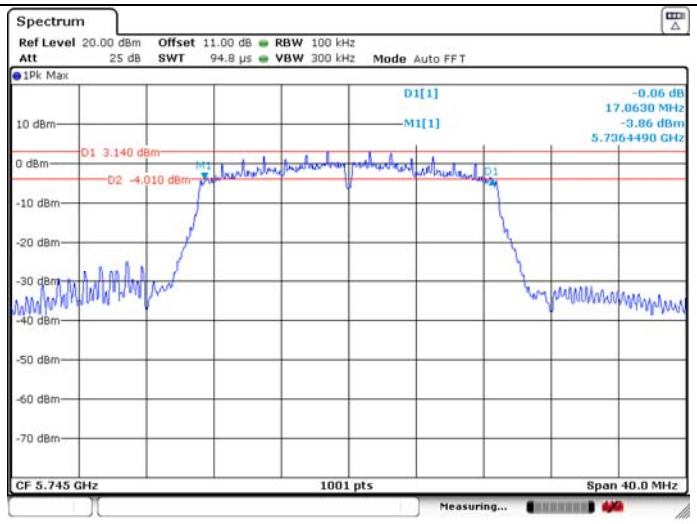
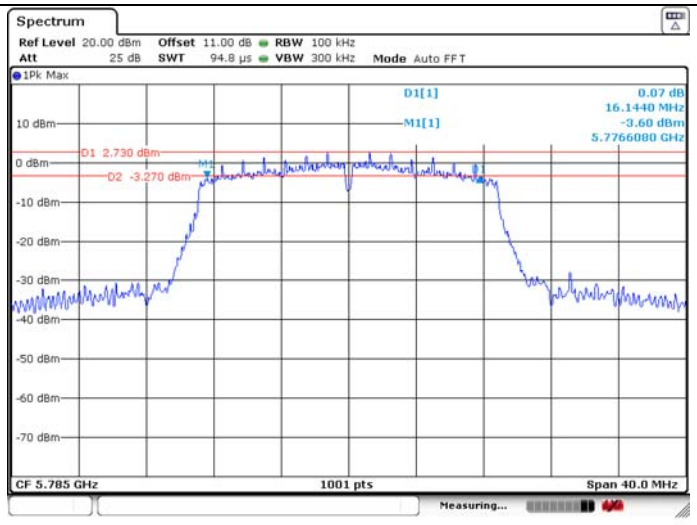
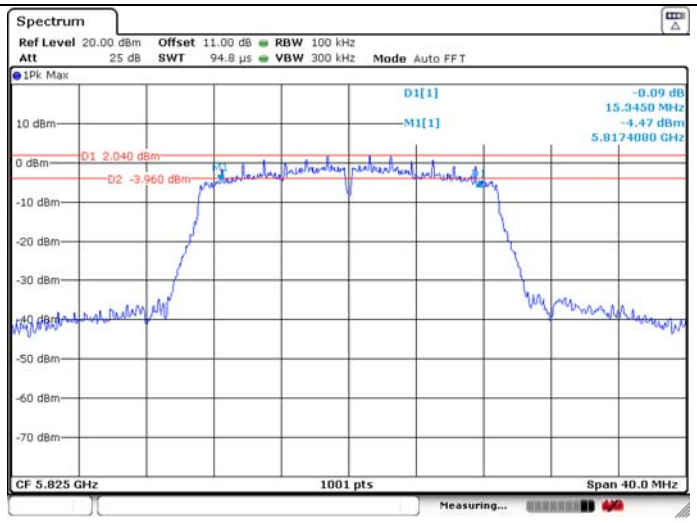
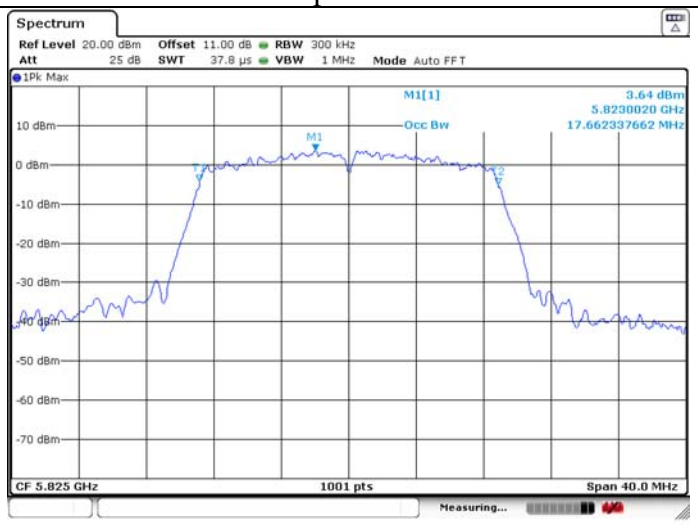
U-NII-2C IEEE 802.11n HT40 5510MHz	
26dB Bandwidth	99% Occupied Bandwidth
	
U-NII-2C IEEE 802.11n HT40 5590MHz	
26dB Bandwidth	99% Occupied Bandwidth
	
U-NII-2C IEEE 802.11n HT40 5670MHz	
26dB Bandwidth	99% Occupied Bandwidth
	

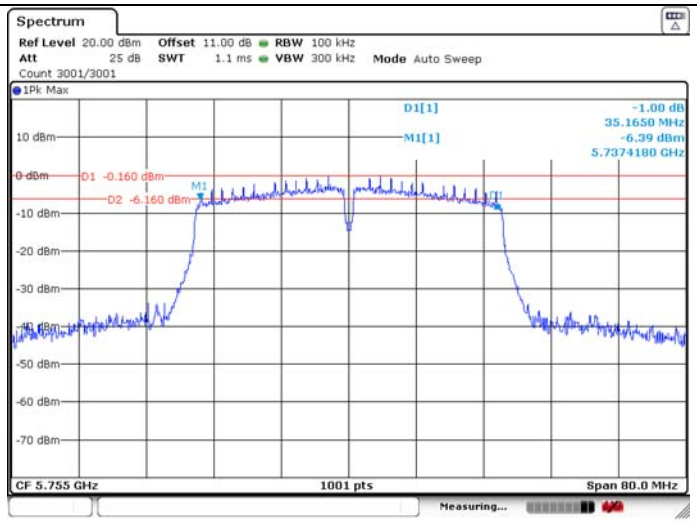
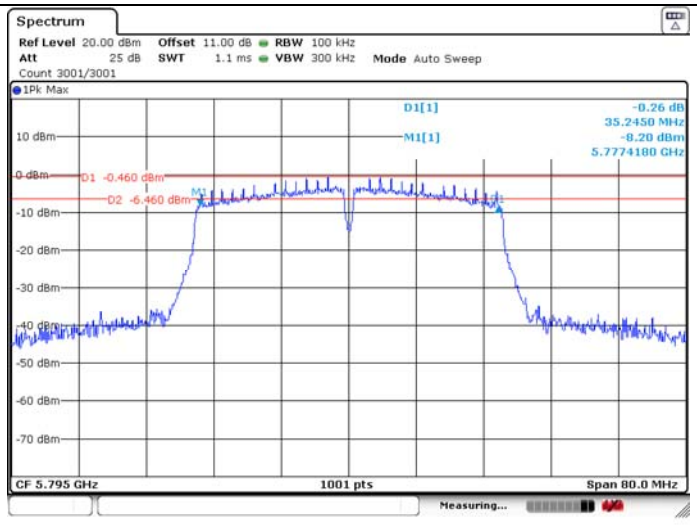
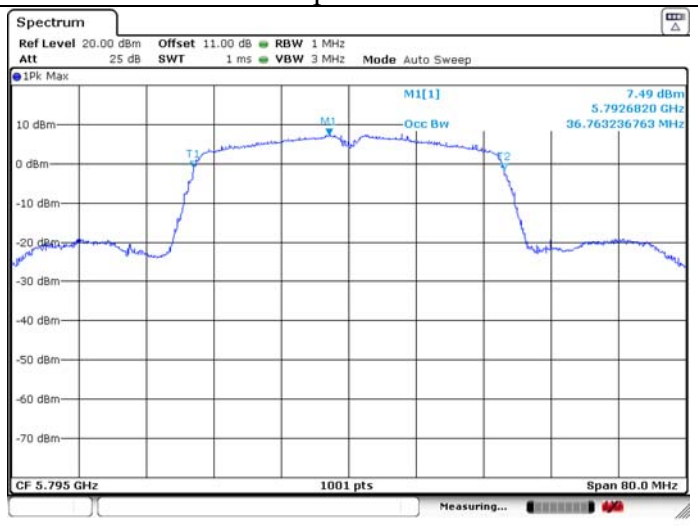
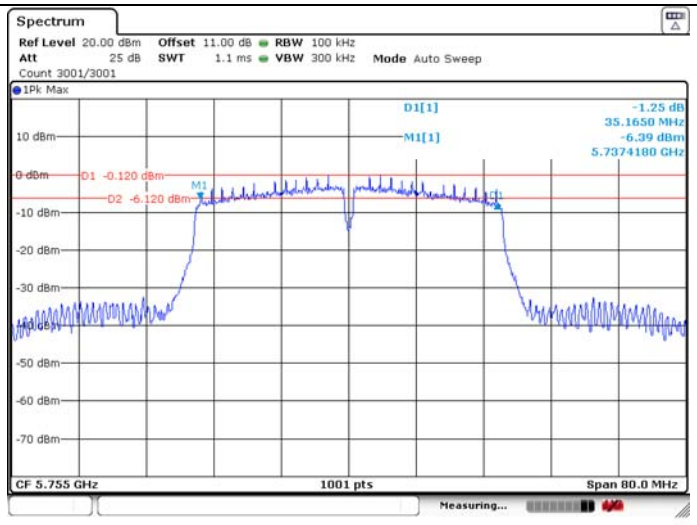
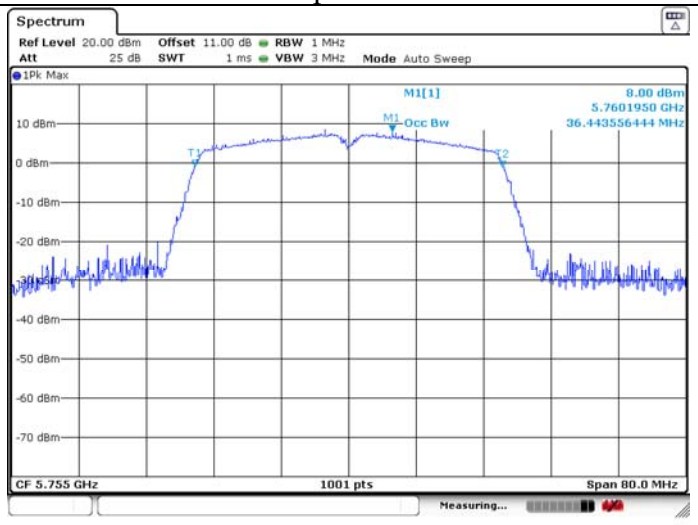
U-NII-2C IEEE 802.11ac VHT40 5510MHz	
26dB Bandwidth	99% Occupied Bandwidth
	
U-NII-2C IEEE 802.11ac VHT40 5590MHz	
26dB Bandwidth	99% Occupied Bandwidth
	
U-NII-2C IEEE 802.11ac VHT40 5670MHz	
26dB Bandwidth	99% Occupied Bandwidth
	

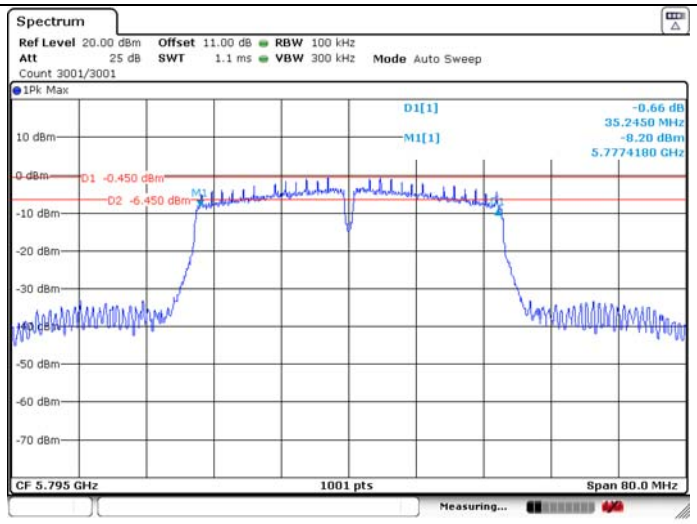
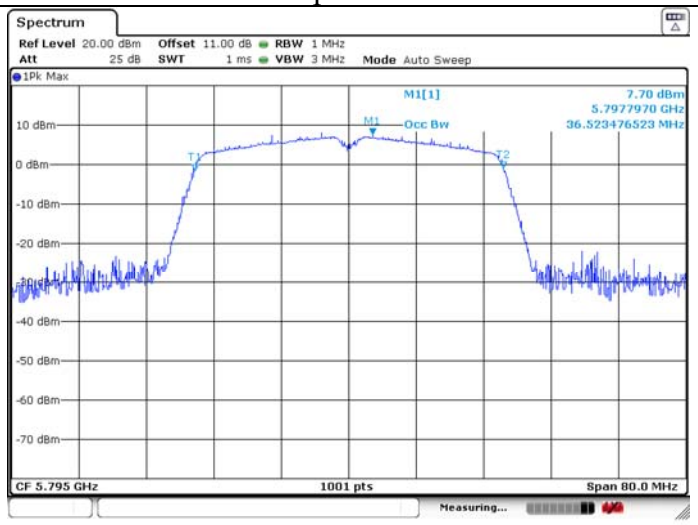
U-NII-2C IEEE 802.11ac VHT80 5530MHz	
26dB Bandwidth	99% Occupied Bandwidth
	
U-NII-2C IEEE 802.11ac VHT80 5610MHz	
26dB Bandwidth	99% Occupied Bandwidth
	

U-NII-3 IEEE 802.11a 5745MHz	
6dB Bandwidth	99% Occupied Bandwidth
	
U-NII-3 IEEE 802.11a 5785MHz	
6dB Bandwidth	99% Occupied Bandwidth
	
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