FCC PART 15E TEST REPORT FOR CERTIFICATION
On Behalf of

Acer Incorporated

Halo Smart Speaker

Model Number: HSP3100G

FCC ID: HLZSP3100

Prepared for:	Acer Incorporated
	8F, 88, Sec 1, Hsin Tai Wu Rd, Hsichih, Taipei Hsien, 221, Taiwan
Prepared By:	EST Technology Co., Ltd.
	Chilingxiang, Qishantou, Santun, Houjie, Dongguan, Guangdong, China
Tel: 86-769-83081888-808	

Report Number:	ESTE-R2011150
Date of Test:	Nov. 04~16, 2020
Date of Report:	Nov. 18, 2020

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Description Page

EST Technology Co., Ltd.

Applicant: **Address:**	Acer Incorporated 8F, 88, Sec 1, Hsin Tai Wu Rd, Hsichih, Taipei Hsien, 221, Taiwan
Manufacturer: **Address:**	Acer Incorporated 8F, 88, Sec 1, Hsin Tai Wu Rd, Hsichih, Taipei Hsien, 221, Taiwan
E.U.T:	Halo Smart Speaker
Model Number:	HSP3100G
Power Supply:	DC 16V From Adapter Input AC 100-240V, 50/60Hz
Trade Name:	acer or ACER Serial No.: ------
Date of Receipt:	Nov. 04, 2020 Date of Test: Nov. 04~Nov. 16, 2020
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:** Nov. 18, 2020

Prepared by:	Reviewed by:	Approved by:
Ring Yang	Seven Wang	Iceman Hu
Ring Yang / 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	:	HLZSP3100
Product Name	:	Halo Smart Speaker
Model Number	:	HSP3100G
Software Version	:	1.44.0.0.12
Hardware Version	:	VER-03
Operation frequency	:	U-NII-2C: 5600MHz~5650MHz
Number of channel	:	U-NII-2C: IEEE 802.11a / n HT20 / ac VHT20: 3 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-2C IEEE 802.11a: 11.85dBm IEEE 802.11n HT20: 13.91dBm IEEE 802.11n HT40: 14.83dBm IEEE 802.11ac VHT20: 14.96dBm IEEE 802.11ac VHT40: 14.93dBm IEEE 802.11ac VHT80: 15.02dBm
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	N/A	N/A	Internal	N/A	3.4
2	N/A	N/A	Internal	N/A	2.8

Remark:

(1) The EUT can work as CDD mode in IEEE 802.11n and IEEE 802.11ac,and can operate with one spatial stream.
According to KDB 662911 F 2) f) (ii):
Directional gain=10×log[($10^{3.4/20}$+$10^{2.8/20}$)^2/2]=6.12dBi＞6dBi
So,the output power limit and power spectral density should be reduced.
For output Power：
U-NII-2C Limit is 24dBm-(6.12dBi-6dBi)=23.88dBm
For power spectral density:
U-NII-2C Limit is 11dBm/MHz-(6.12dBi-6dBi)=10.88dBm/MHz

ANT No. / TX Mode	SISO Configuration	MIMO Configuration
IEEE 802.11a	ANT 1 and ANT 2	/
IEEE 802.11n HT20	/	ANT1+ANT2
IEEE 802.11n HT40	/	ANT1+ANT2
IEEE 802.11ac VHT20	/	ANT1+ANT2
IEEE 802.11ac VHT40	/	ANT1+ANT2
IEEE 802.11ac VHT80	/	ANT1+ANT2

2. SUMMARY OF TEST

2.1. Summary of test result

Report Section	Description of Test Item	FCC Standard Section	Results
3	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)(6)	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	0.20dB
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.

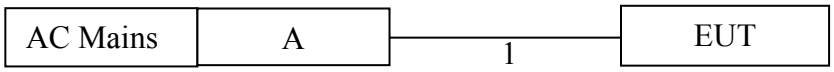
2.4. Assistant equipment used for test

Item	Equipment	Brand	Model Name/Type No.	FCC ID	Series No.
A	Adapter	DYS	DYS824-160150W-K	-	-

Item	Shielded Type	Ferrite Core	Length	Note
1	NO	NO	1.6m	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.



AC 120V/60Hz&
AC 240V/60Hz

(EUT: Halo Smart Speaker)

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
26dB Bandwidth	IEEE 802.11a	120/124/128	OFDM	6Mbps
	IEEE 802.11n HT20	120/124/128	OFDM	MCS0
	IEEE 802.11n HT40	118/126	OFDM	MCS0
	IEEE 802.11ac VHT20	120/124/128	OFDM	MCS0
	IEEE 802.11ac VHT40	118/126	OFDM	MCS0
	IEEE 802.11ac VHT80	122	OFDM	MCS0
99% Occupied Bandwidth	IEEE 802.11a	120/124/128	OFDM	6Mbps
	IEEE 802.11n HT20	120/124/128	OFDM	MCS0
	IEEE 802.11n HT40	118/126	OFDM	MCS0
	IEEE 802.11ac VHT20	120/124/128	OFDM	MCS0
	IEEE 802.11ac VHT40	118/126	OFDM	MCS0
	IEEE 802.11ac VHT80	122	OFDM	MCS0
Maximum Conducted Output Power	IEEE 802.11a	120/124/128	OFDM	6Mbps
	IEEE 802.11n HT20	120/124/128	OFDM	MCS0
	IEEE 802.11n HT40	118/126	OFDM	MCS0
	IEEE 802.11ac VHT20	120/124/128	OFDM	MCS0
	IEEE 802.11ac VHT40	118/126	OFDM	MCS0
	IEEE 802.11ac VHT80	122	OFDM	MCS0

Peak Power Spectral Density	IEEE 802.11a	120/124/128	OFDM	6Mbps
	IEEE 802.11n HT20	120/124/128	OFDM	MCS0
	IEEE 802.11n HT40	118/126	OFDM	MCS0
	IEEE 802.11ac VHT20	120/124/128	OFDM	MCS0
	IEEE 802.11ac VHT40	118/126	OFDM	MCS0
	IEEE 802.11ac VHT80	122	OFDM	MCS0
Unwanted Emissions and Band Edge(Above 1GHz)	IEEE 802.11a	120/124/128	OFDM	6Mbps
	IEEE 802.11n HT20	120/124/128	OFDM	MCS0
	IEEE 802.11n HT40	118/126	OFDM	MCS0
	IEEE 802.11ac VHT20	120/124/128	OFDM	MCS0
	IEEE 802.11ac VHT40	118/126	OFDM	MCS0
	IEEE 802.11ac VHT80	122	OFDM	MCS0
Unwanted Emissions Below 1GHz	IEEE 802.11a	124	OFDM	6Mbps
Frequency Stability	Unmodulation	120/124/128	N/A	N/A
AC Power Line Conducted Emissions	IEEE 802.11a	124	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-2C	IEEE 802.11a & n HT20 & ac VHT20	120	5600
		124	5620
		128	5640
	IEEE 802.11n HT40 & ac VHT40	118	5590
		126	5630
	IEEE 802.11ac VHT80	122	5610

2.8. Power Setting of Test Software

Software Name	CMD		
U-NII-2C			
Frequency(MHz)	5600	5620	5640
IEEE 802.11a Setting	50	50	50
IEEE 802.11n HT20 Setting	50	50	50
IEEE 802.11ac VHT20 Setting	50	50	50
Frequency(MHz)	5590	5630	
IEEE 802.11n HT40 Setting	55	55	
IEEE 802.11ac VHT40 Setting	55	55	
Frequency(MHz)	5610		
IEEE 802.11ac VHT80 Setting	60		

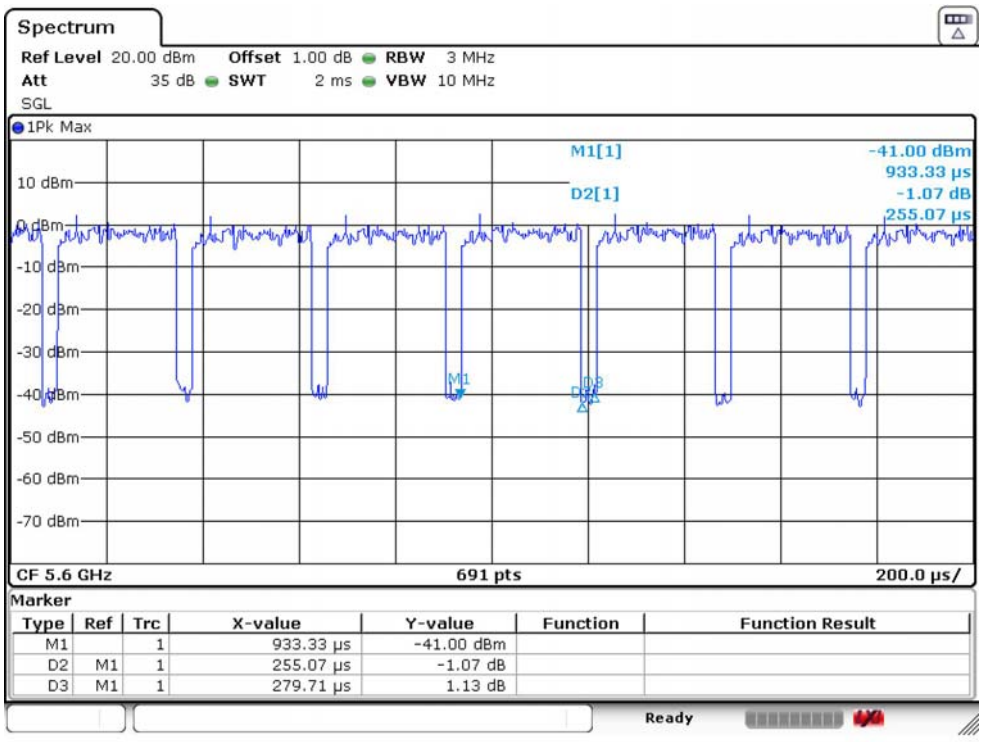
2.9. Duty Cycle of Test Signal

Temperature	27.2℃	Relative Humidity		51%	Test Voltage		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	5600	0.25507	0.27971	91.19	0.40	3920	3920
IEEE 802.11n HT20	5600	0.20580	0.23043	89.31	0.49	4859	4859
IEEE 802.11ac VHT20	5600	0.23478	0.25942	90.50	0.43	4259	4259
IEEE 802.11n HT40	5630	0.11884	0.14493	82.00	0.86	8415	8415
IEEE 802.11ac VHT40	5630	0.13623	0.15942	85.45	0.68	7341	7341
IEEE 802.11ac VHT80	5610	0.06957	0.10725	64.87	1.88	14374	14374

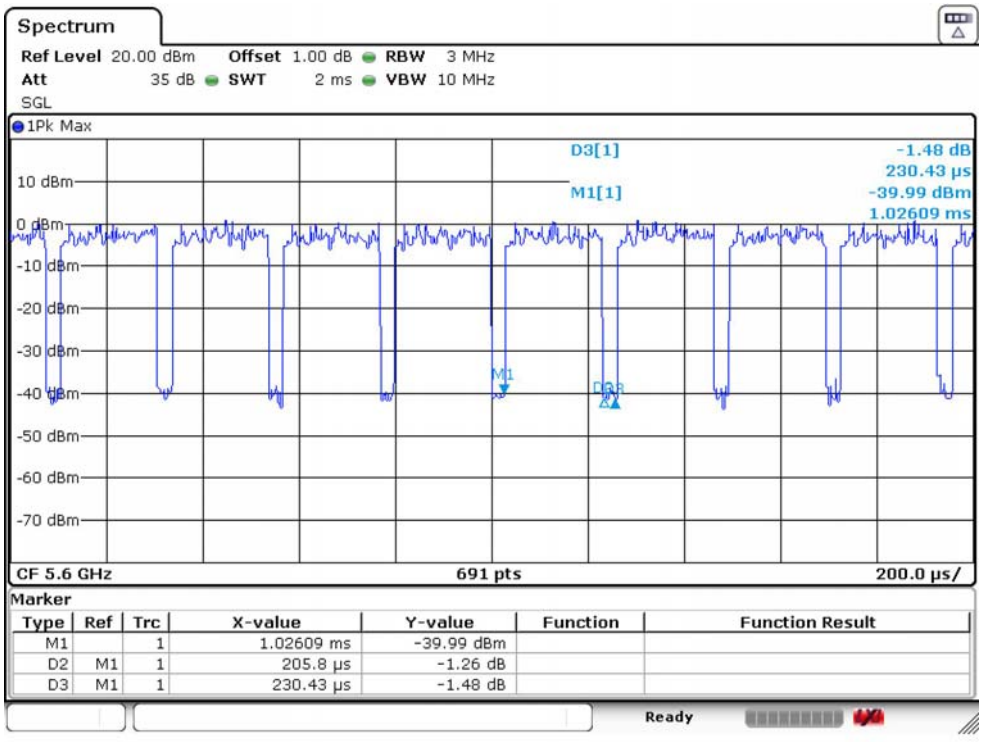
Note:

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.

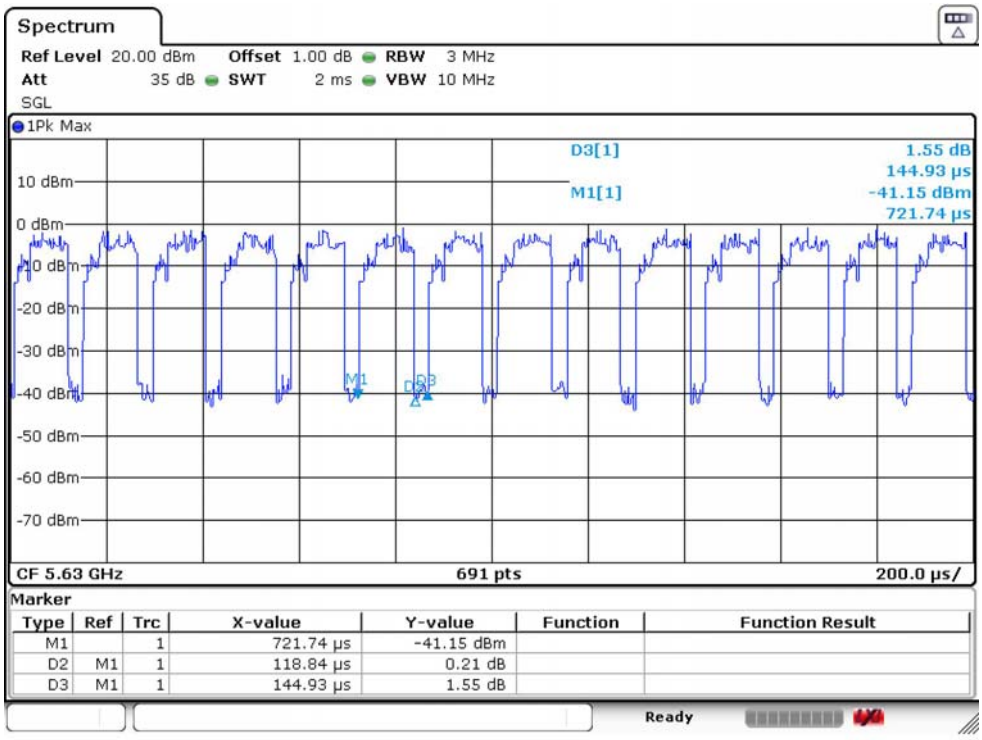
IEEE 802.11a 5600MHz



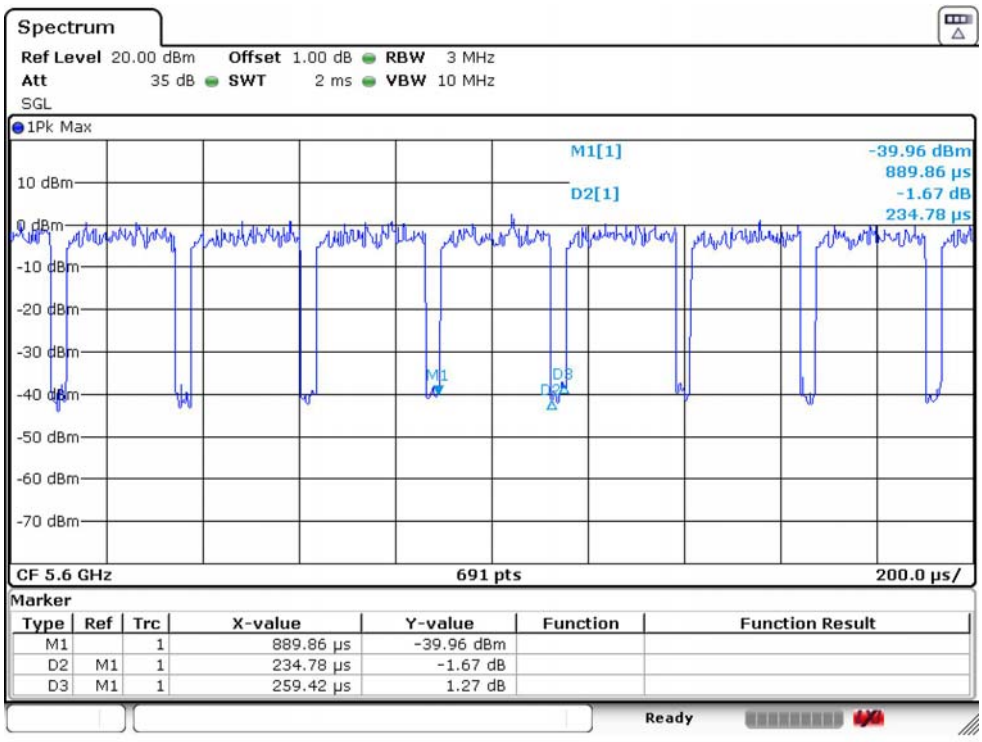
IEEE 802.11n HT20 5600MHz



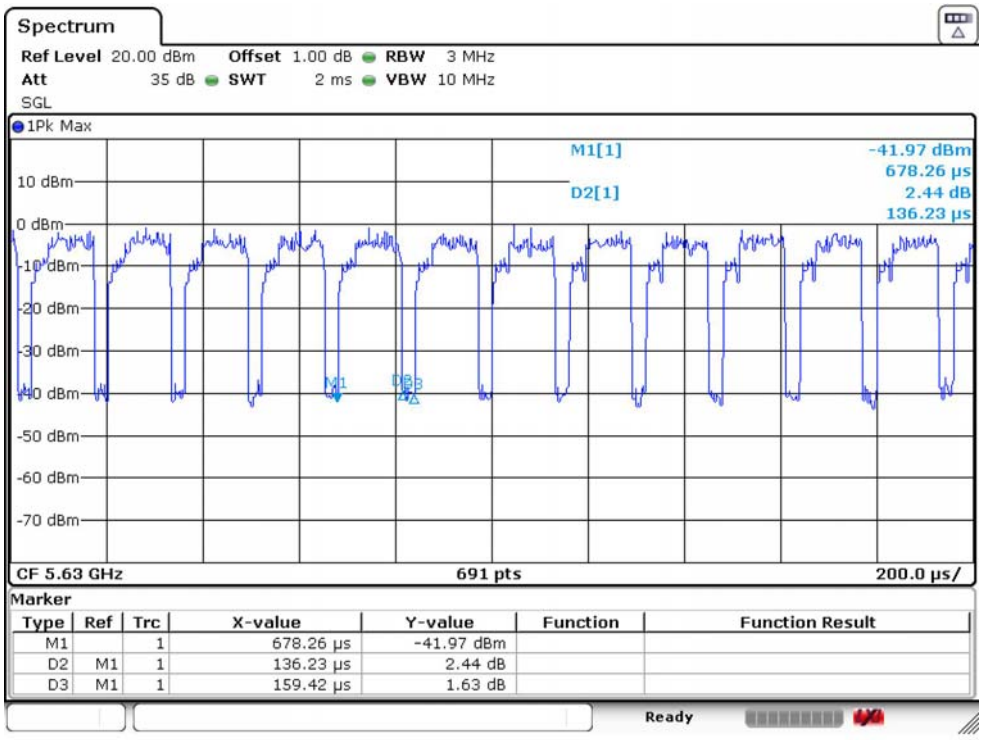
IEEE 802.11n HT40 5630MHz



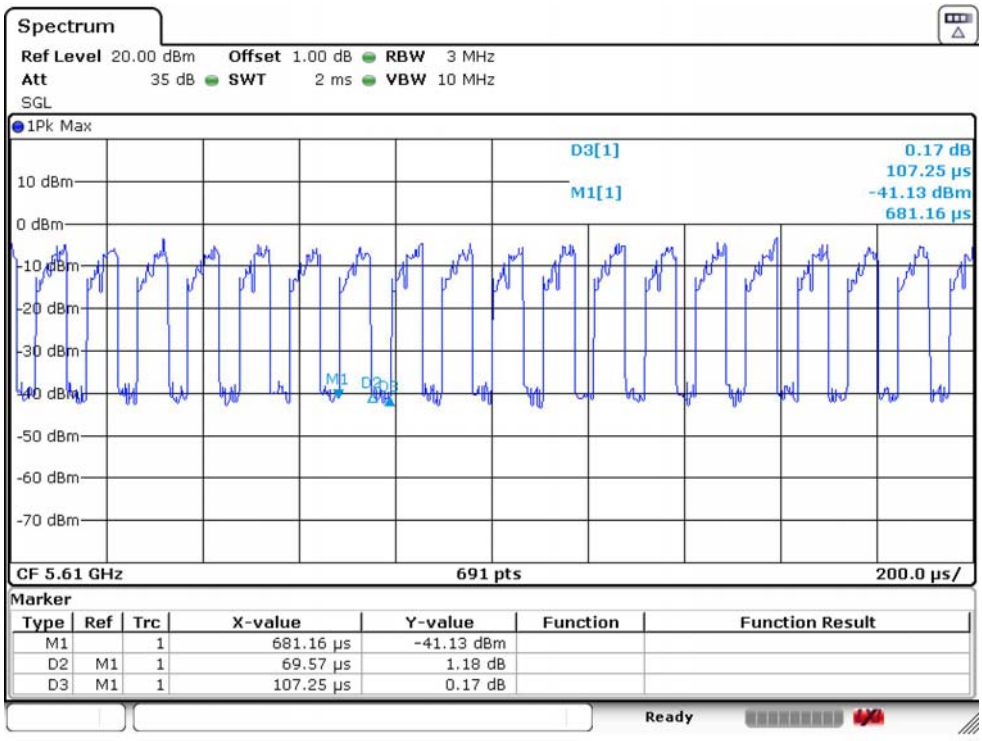
IEEE 802.11ac VHT20 5600MHz



IEEE 802.11ac VHT40 5630MHz



IEEE 802.11ac VHT80 5610MHz



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 13,20	1 Year
Artificial Mains Network	Rohde & Schwarz	ENV216	EST-E002	LISAI	June 13,20	1 Year
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	EST-E078	LISAI	June 13,20	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 13,20	1 Year
Active Loop Antenna	SCHWAREBECK	FMZB 1519B	EST-E054	LISAI	June 13,20	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 13,20	1 Year
Bilog Antenna	Teseq	CBL 6111D	EST-E034	LISAI	June 13,20	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 13,20	1 Year
Signal Amplifier	SCHWARZBECK	BBV9718	EST-E032	LISAI	June 13,20	1 Year
Spectrum Analyzer	Rohde &Schwarz	FSV40	EST-E069	LISAI	June 13,20	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

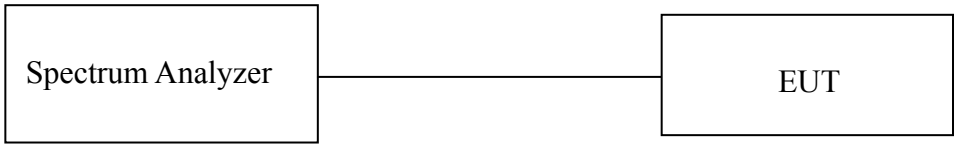
For connect EUT antenna terminal test						
Equipment	Manufacturer	Model No.	Serial No.	Calibration Body	Last Cal.	Next Cal.
TS 8997	Rohde &Schwarz	/	/	/	/	/
Open Switch and Control Unit	Rohde &Schwarz	OSP-B157WB	EST-E036	LISAI	June 13,20	1Year
Signal and Spectrum Analyzer	Rohde &Schwarz	FSV	EST-E037	LISAI	June 13,20	1 Year
Signal Generator	Rohde &Schwarz	SMB100A	EST-E038	LISAI	June 13,20	1 Year
Vector Signal Generator	Rohde &Schwarz	SMBV100A	EST-E039	LISAI	June 13,20	1Year
Test Software	Rohde &Schwarz	WMS32	V10.50.00	N/A	N/A	N/A
Temperature controller	Terchy	MHQ	EST-E101	LISAI	June 13,20	1 Year

3. 26DB BANDWIDTH & 99% OCCUPIED BANDWIDTH

3.1. Limit

Band	Frequency (MHz)	Test Item	Limit
U-NII-2C	5470-5725	26dB Bandwidth&99% Occupied Bandwidth	N/A

3.2. Test Setup



3.3. Spectrum Analyzer Setting

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 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.

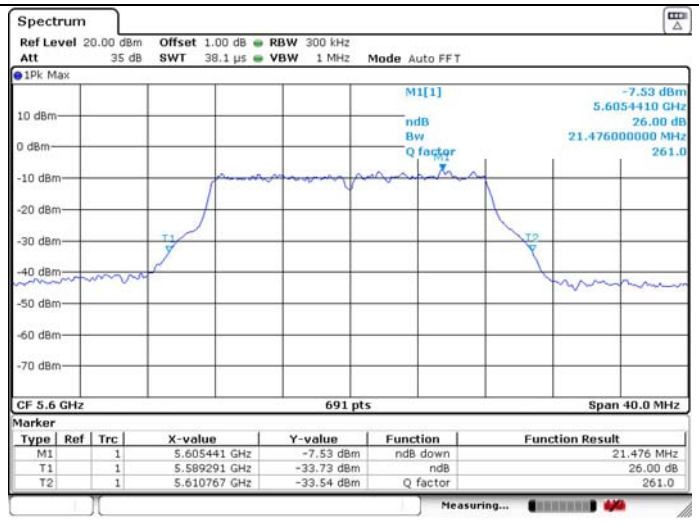
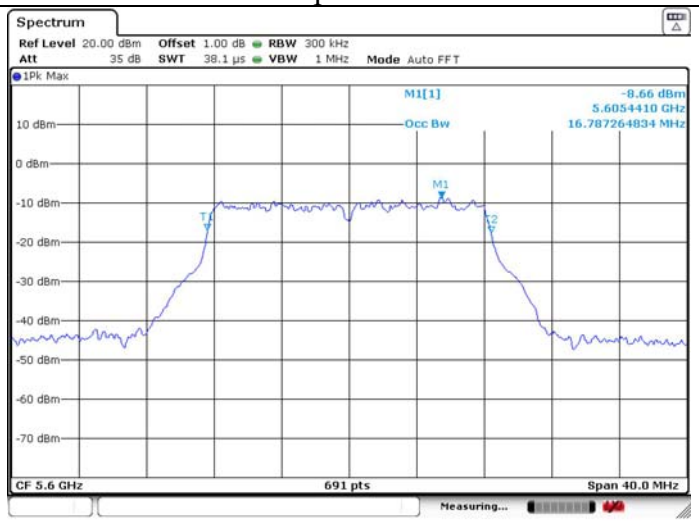
3.5. Test Result

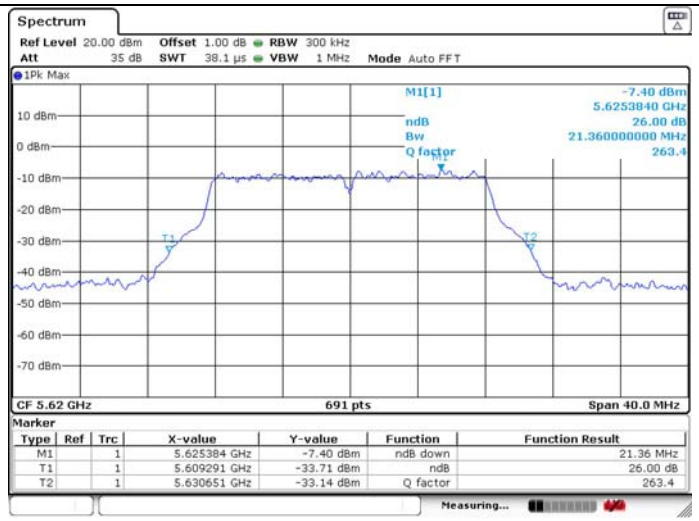
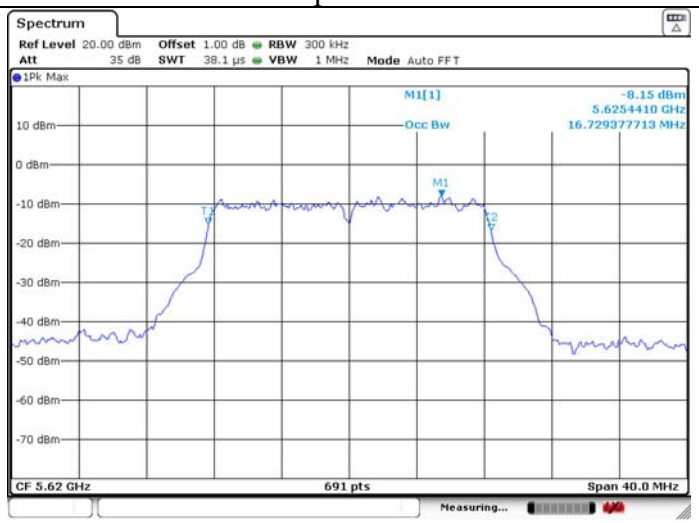
Temperature	24.7℃	Relative Humidity		53%		Test Voltage	120V/60Hz
26dB Bandwidth&99% Occupied Bandwidth							
AND	Test Mode	Fre (MHz)	26dB Bandwidth (MHz)		99% Occupied Bandwidth （MHz）		Calculate Power Limit (W)	Calculate Power Limit (dBm)
			Ant 1	Ant 2	Ant 1	Ant 2		
U-NII-2C	IEEE 802.11a	5600	21.476	21.418	16.787	17.135	0.2500	23.98
		5620	21.360	21.418	16.729	17.192	0.2500	23.98
		5640	21.360	21.476	16.787	17.308	0.2500	23.98
	IEEE 802.11n HT20	5600	21.881	22.113	18.003	18.119	0.2500	23.98
		5620	21.823	21.766	18.119	18.061	0.2500	23.98
		5640	21.766	21.766	18.003	18.119	0.2500	23.98
	IEEE 802.11ac VHT20	5600	21.476	21.708	18.061	18.292	0.2500	23.98
		5620	21.534	21.708	18.234	18.119	0.2500	23.98
		5640	21.592	21.766	18.061	18.177	0.2500	23.98
	IEEE 802.11n HT40	5590	39.942	40.289	37.048	37.164	0.2500	23.98
		5630	39.942	40.637	36.903	37.077	0.2500	23.98
	IEEE 802.11ac VHT40	5590	40.463	40.116	37.048	37.164	0.2500	23.98
		5630	40.116	40.029	36.903	36.990	0.2500	23.98
	IEEE 802.11ac VHT80	5610	82.140	80.750	76.064	76.411	0.2500	23.98

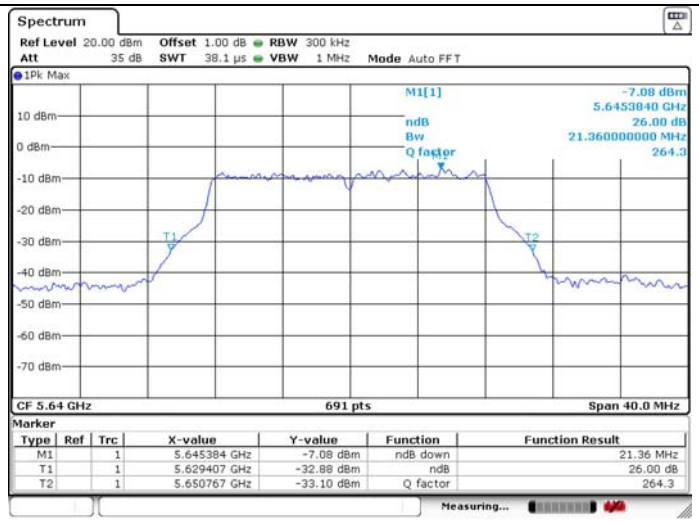
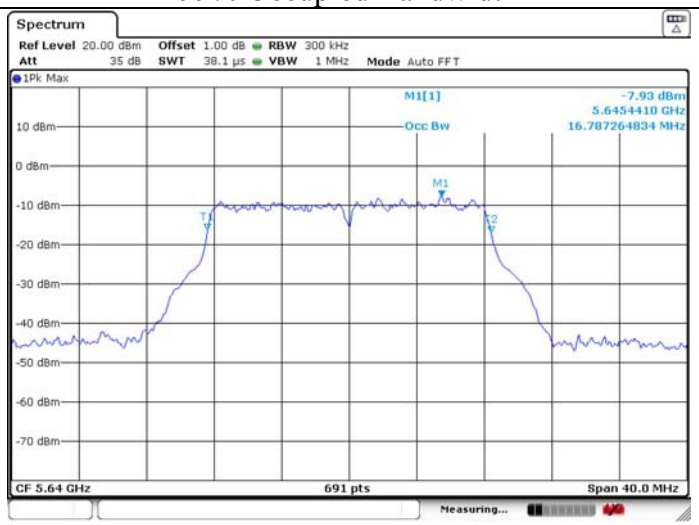
Note :

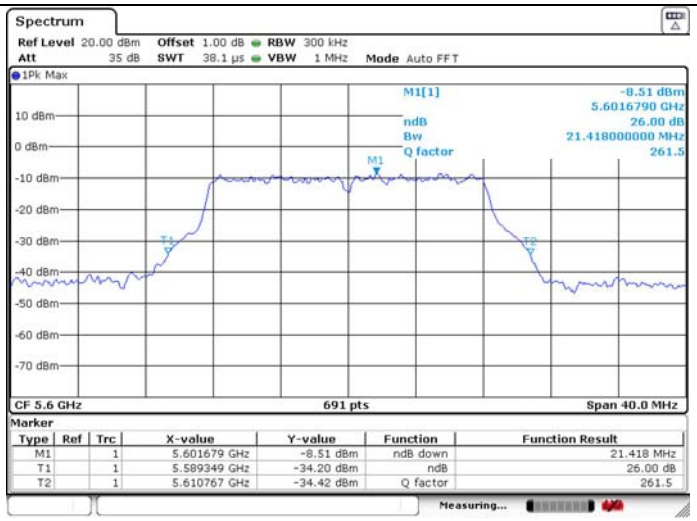
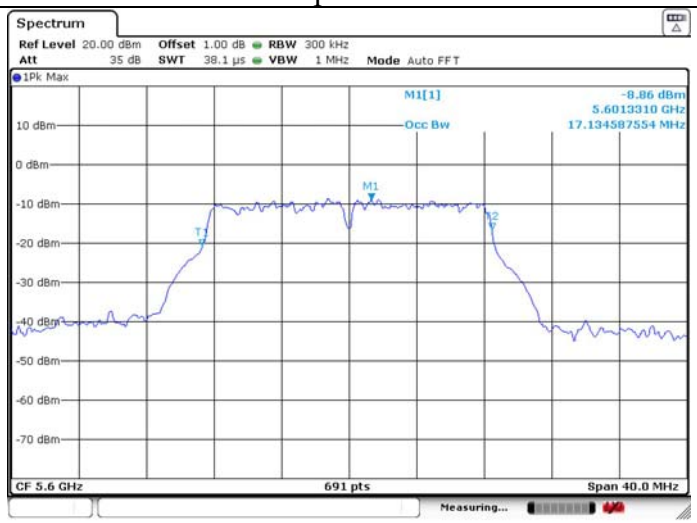
For Band U-NII-2C,the maximum conducted output power limit is 250mw or 11+10×Log B, which is lesser,where B is the 26dB Bandwidth in MHz.So in this section,the maximum conducted output power limit can calculate with 26dB Bandwidth.

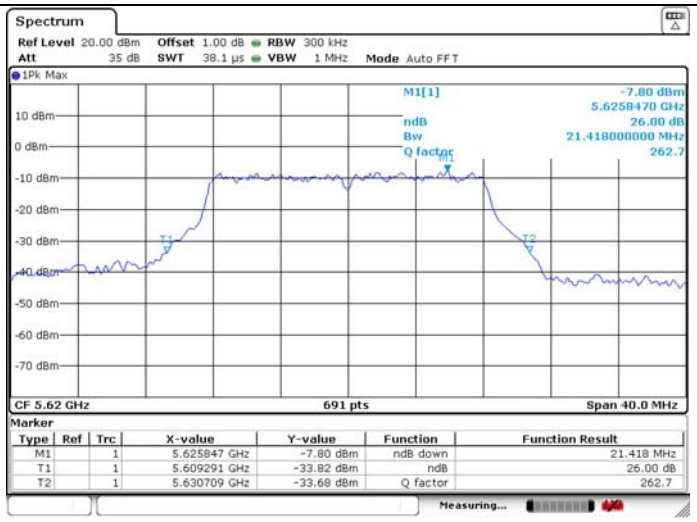
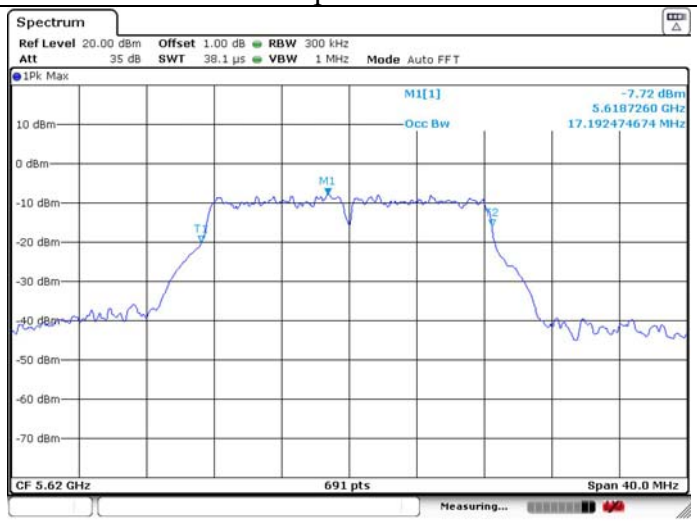
3.6. Test Result

U-NII-2C IEEE 802.11a 5600MHz_Ant 1	
26dB Bandwidth	99% Occupied Bandwidth
	

U-NII-2C IEEE 802.11a 5620MHz_Ant 1	
26dB Bandwidth	99% Occupied Bandwidth
	

U-NII-2C IEEE 802.11a 5640MHz_Ant 1	
26dB Bandwidth	99% Occupied Bandwidth
	

U-NII-2C IEEE 802.11a 5600MHz_Ant 2	
26dB Bandwidth	99% Occupied Bandwidth
	

U-NII-2C IEEE 802.11a 5620MHz_Ant 2	
26dB Bandwidth	99% Occupied Bandwidth
	

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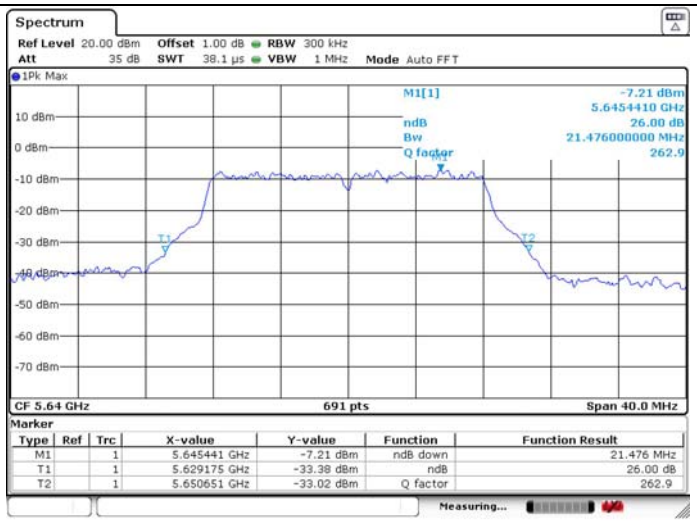
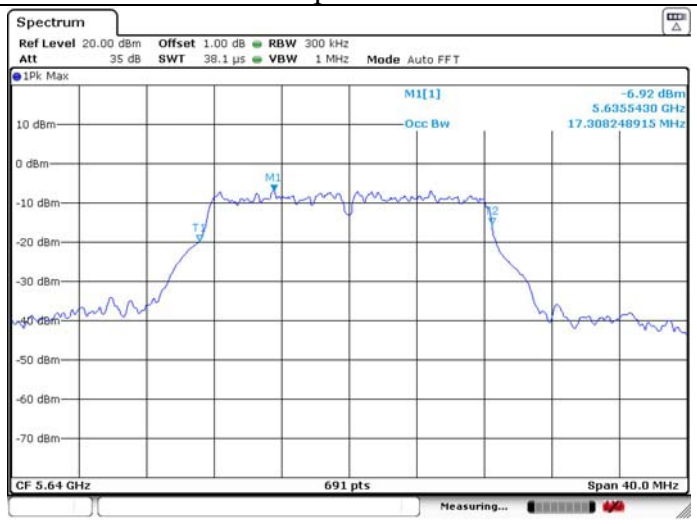
26dB Bandwidth	99% Occupied Bandwidth
	

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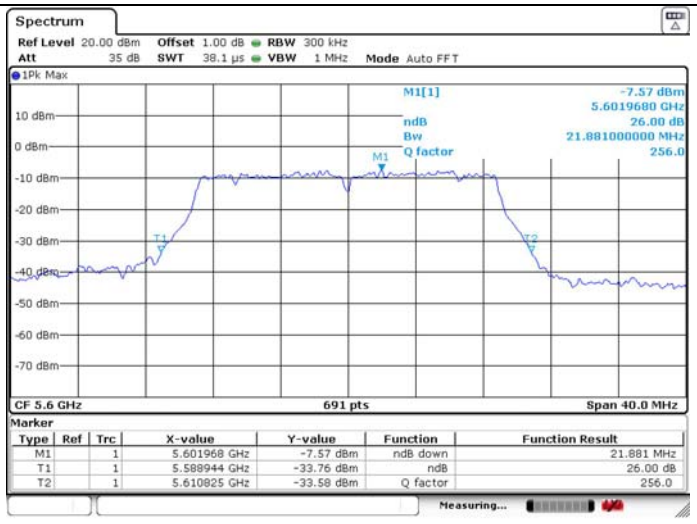
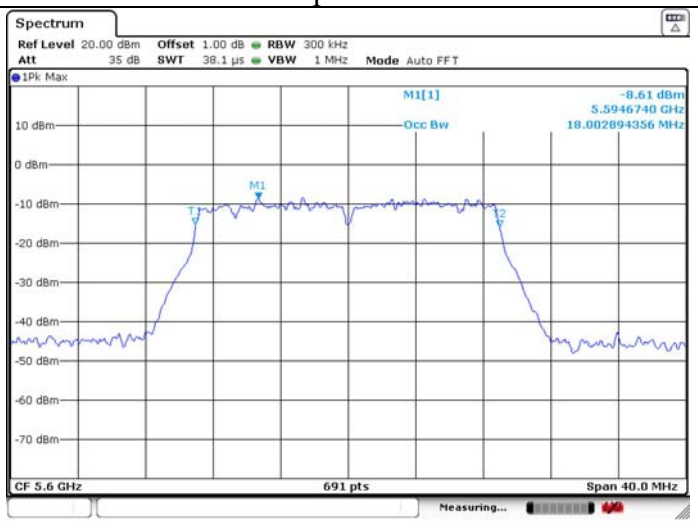
26dB Bandwidth	99% Occupied Bandwidth
	
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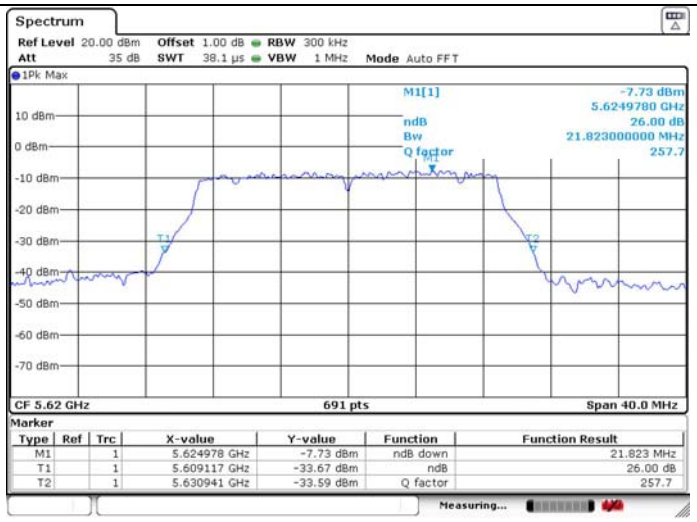
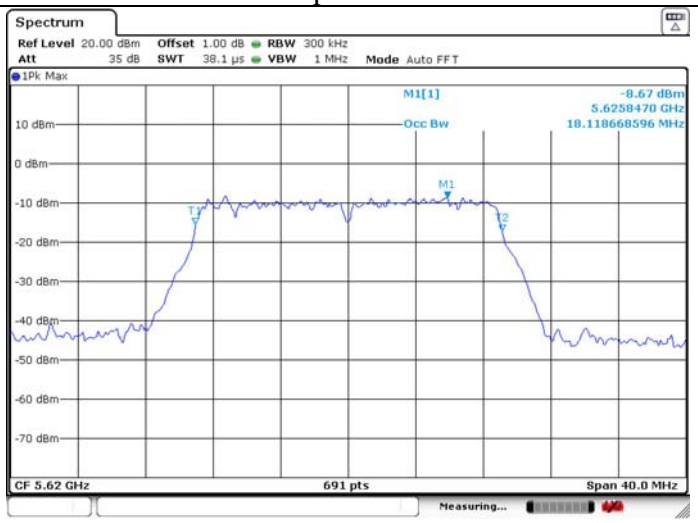
26dB Bandwidth	99% Occupied Bandwidth
	
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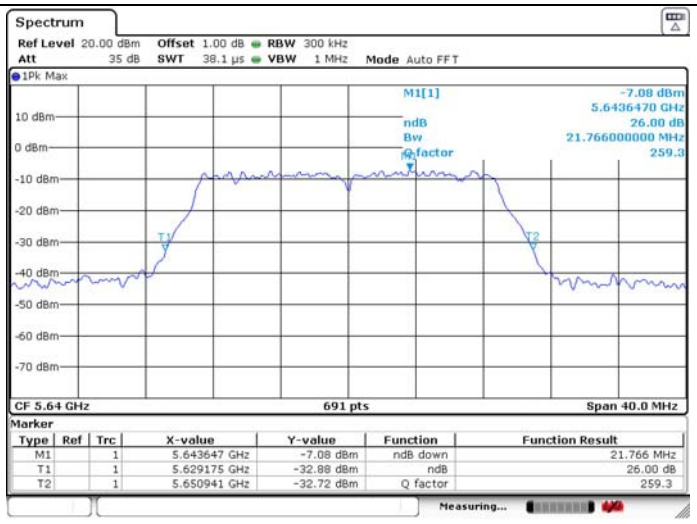
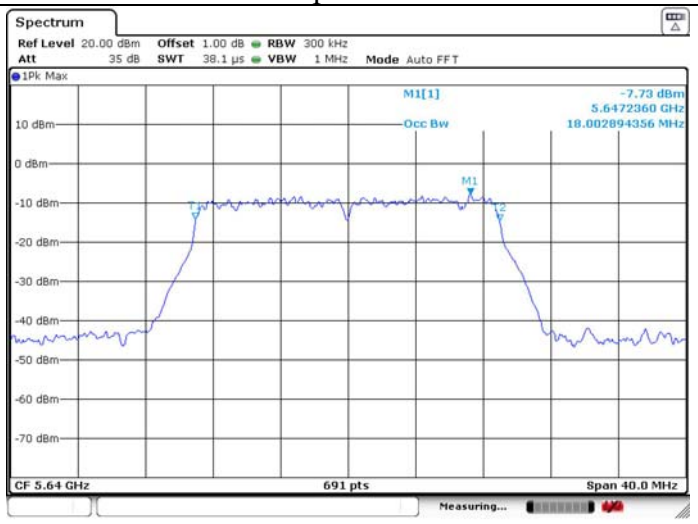
26dB Bandwidth	99% Occupied Bandwidth
	

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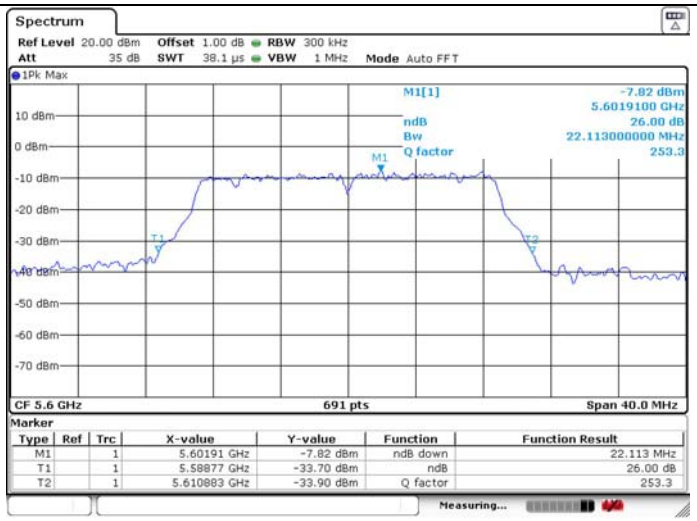
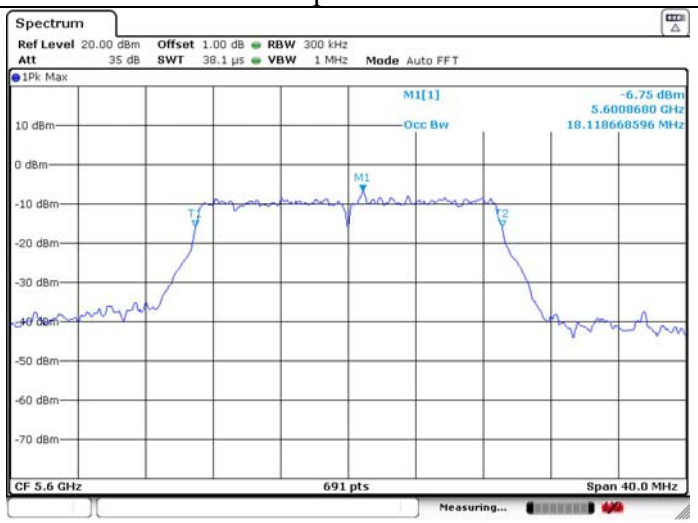
26dB Bandwidth	99% Occupied Bandwidth
	

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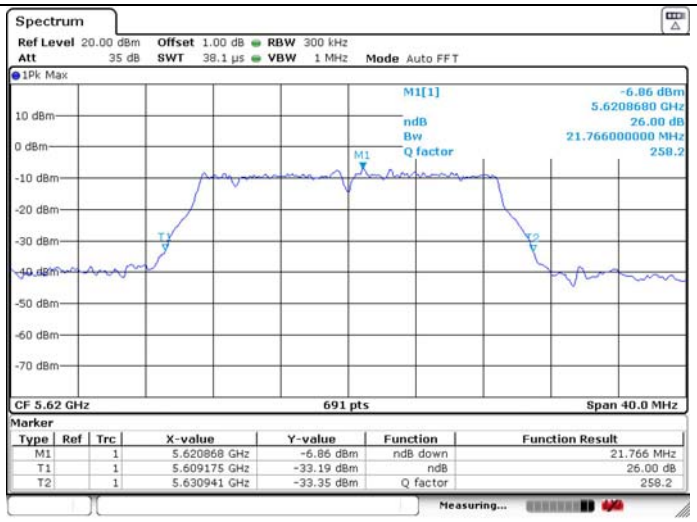
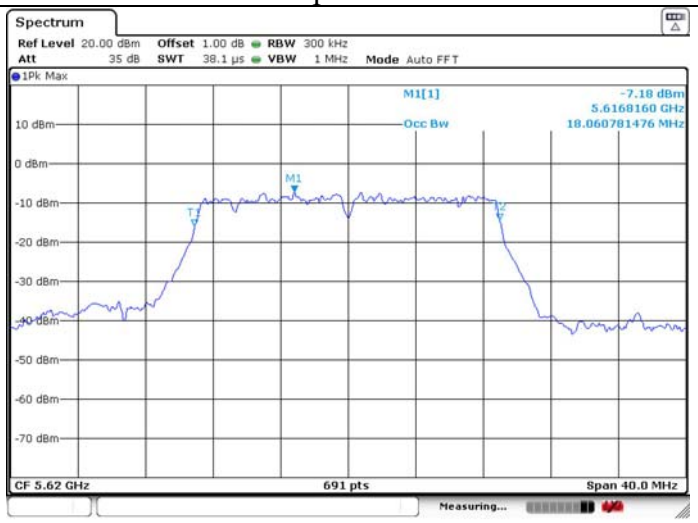
26dB Bandwidth	99% Occupied Bandwidth
	

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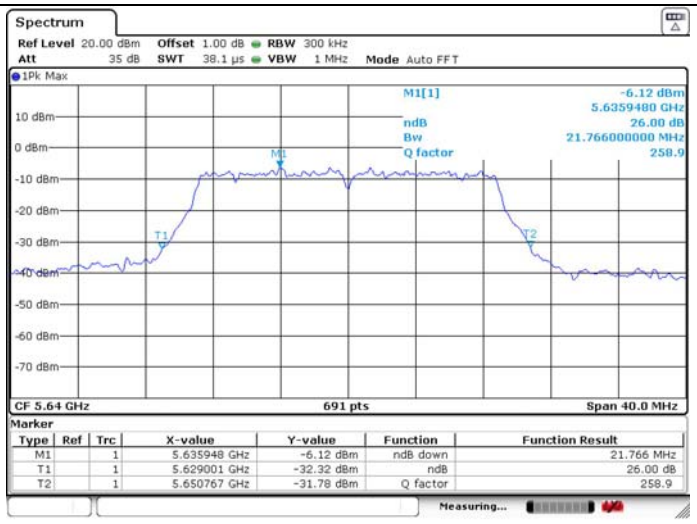
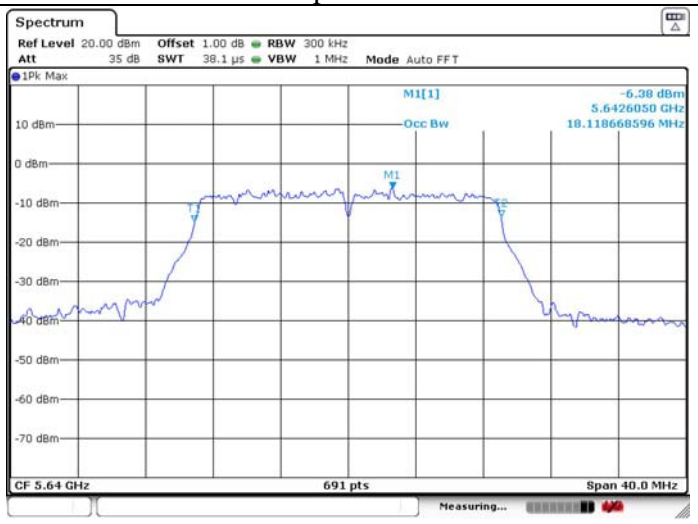
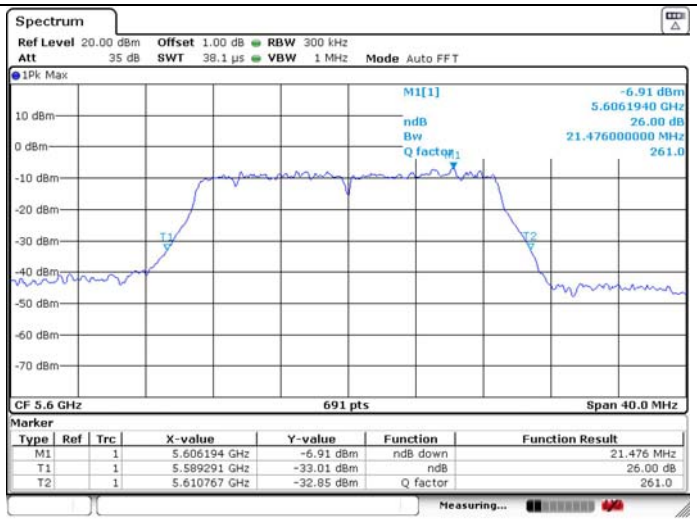
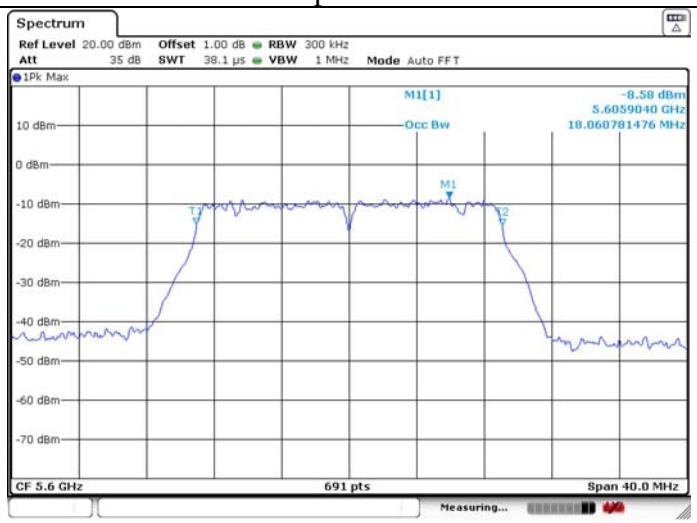
26dB Bandwidth	99% Occupied Bandwidth
	

U-NII-2C IEEE 802.11ac VHT20 5600MHz_Ant 1	
26dB Bandwidth	99% Occupied Bandwidth
	
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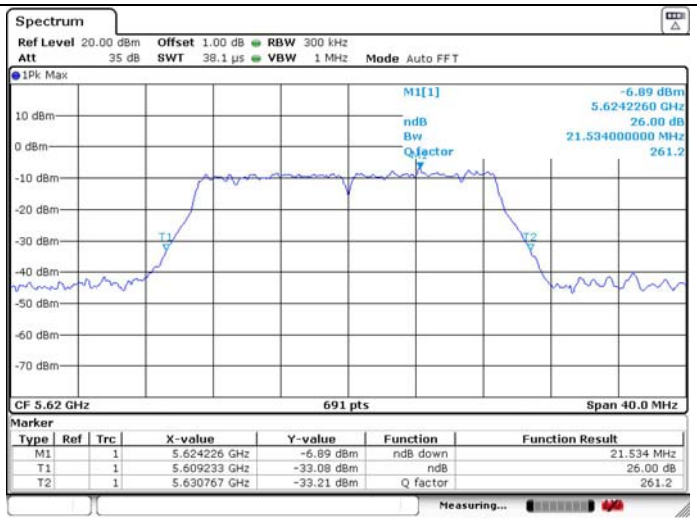
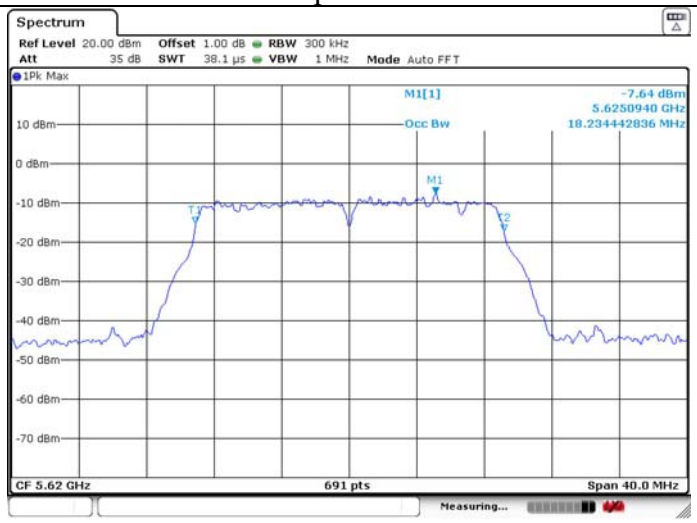
26dB Bandwidth	99% Occupied Bandwidth
	
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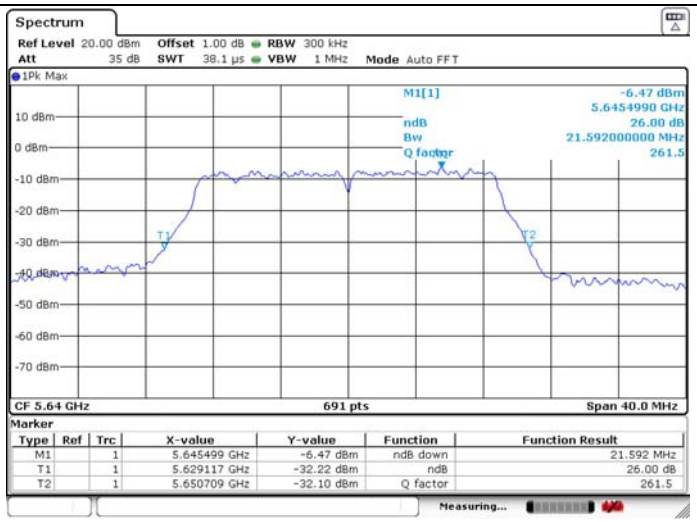
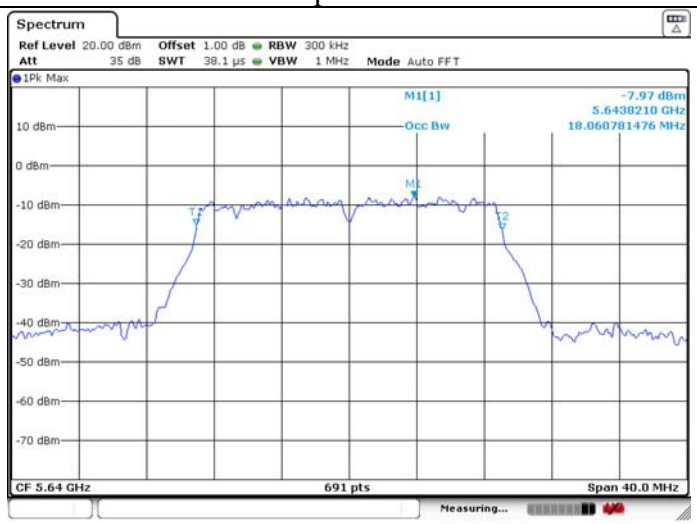
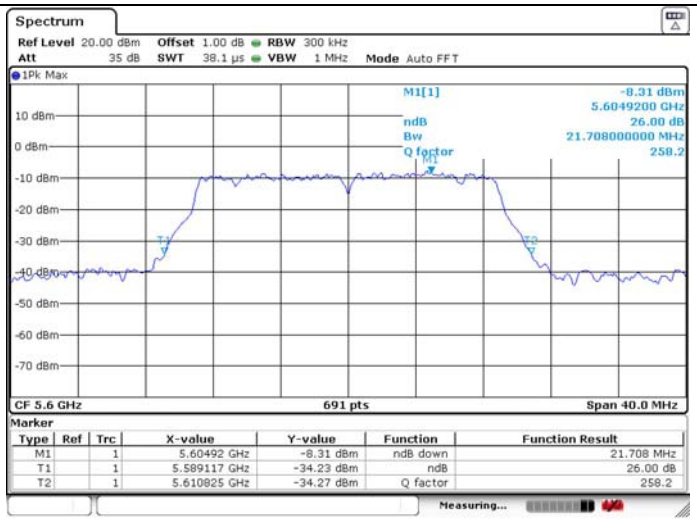
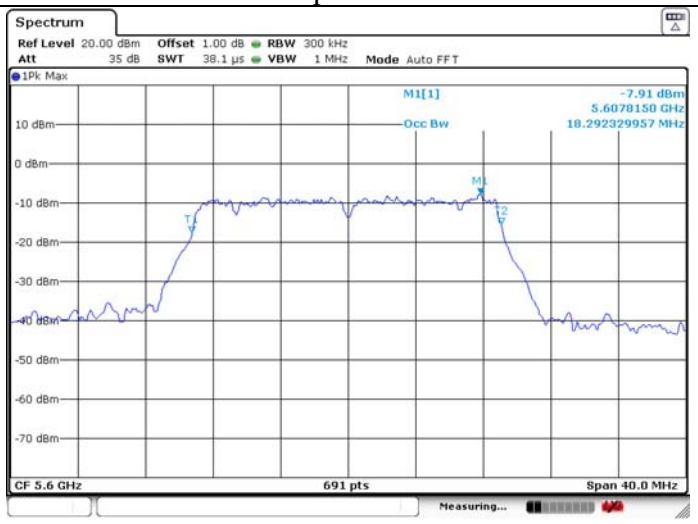
26dB Bandwidth	99% Occupied Bandwidth
	

U-NII-2C IEEE 802.11ac VHT20 5600MHz_Ant 2

26dB Bandwidth

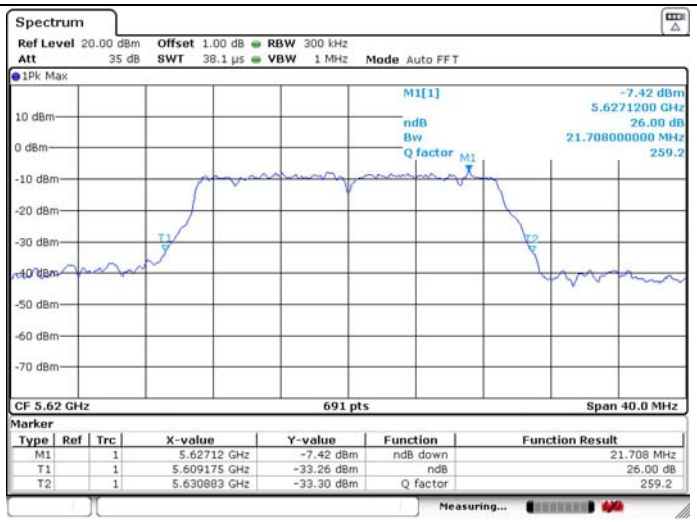


99% Occupied Bandwidth

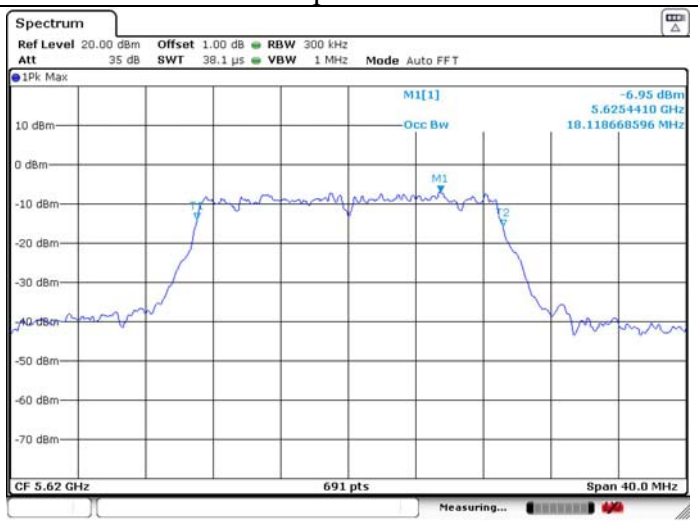


U-NII-2C IEEE 802.11ac VHT20 5620MHz_Ant 2

26dB Bandwidth

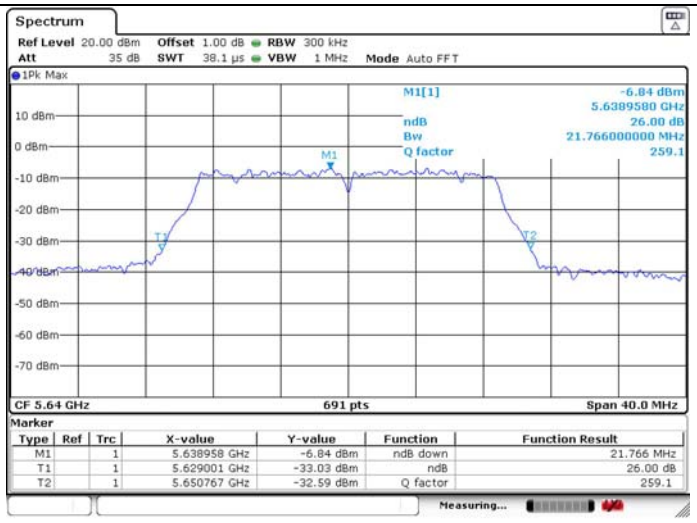


99% Occupied Bandwidth

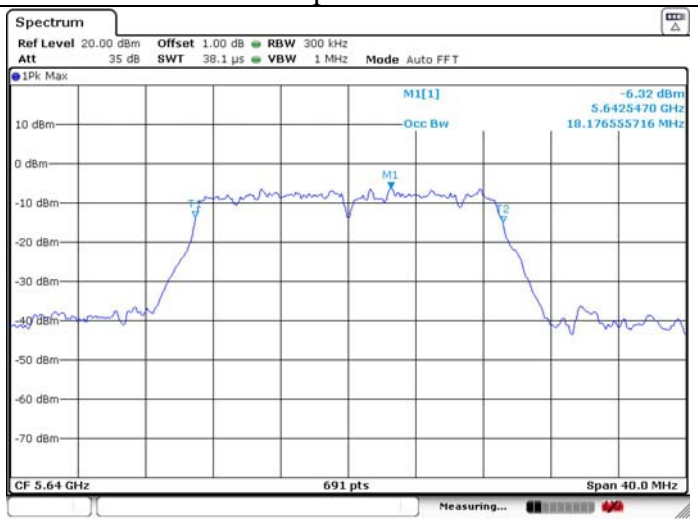


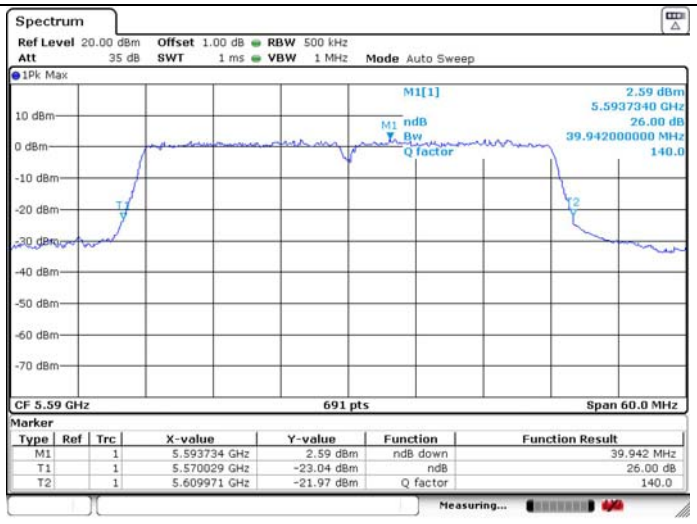
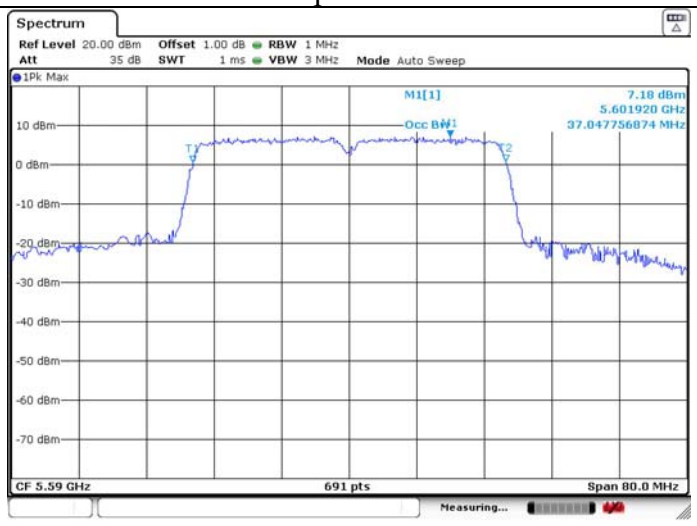
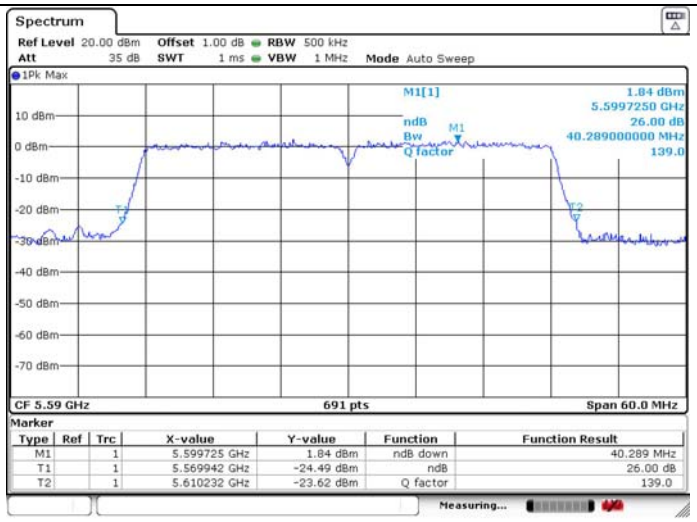
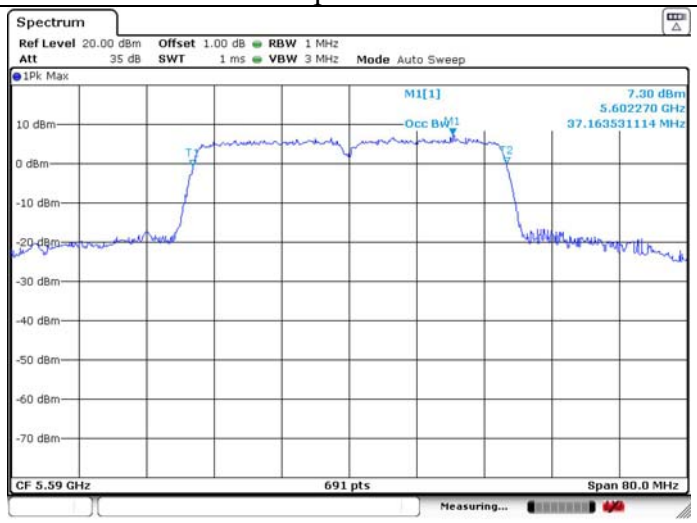
U-NII-2C IEEE 802.11ac VHT20 5640MHz_Ant 2

26dB Bandwidth



99% Occupied Bandwidth



U-NII-2C IEEE 802.11n HT40 5590MHz_Ant 1	
26dB Bandwidth	99% Occupied Bandwidth
	
U-NII-2C IEEE 802.11n HT40 5590 MHz_Ant 2	
26dB Bandwidth	99% Occupied Bandwidth
	
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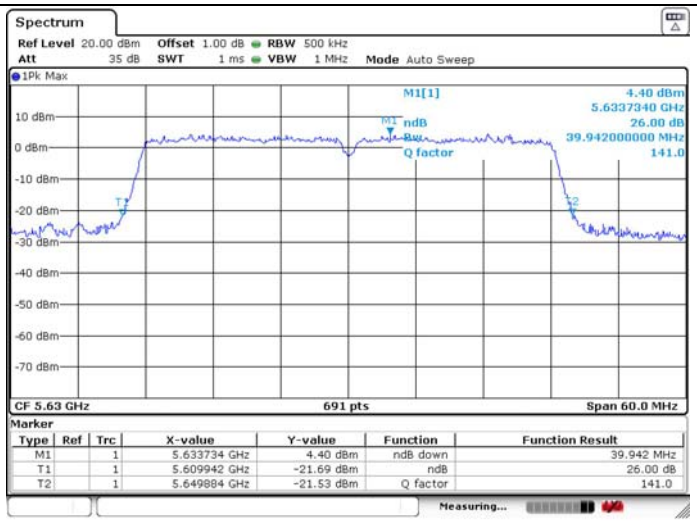
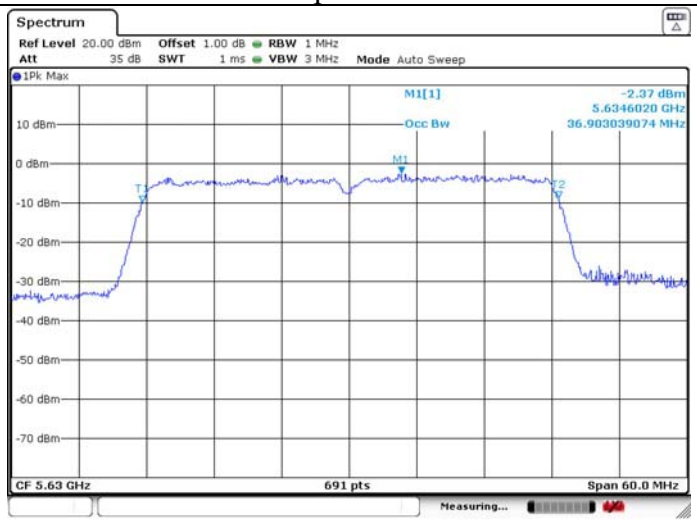
26dB Bandwidth	99% Occupied Bandwidth
	

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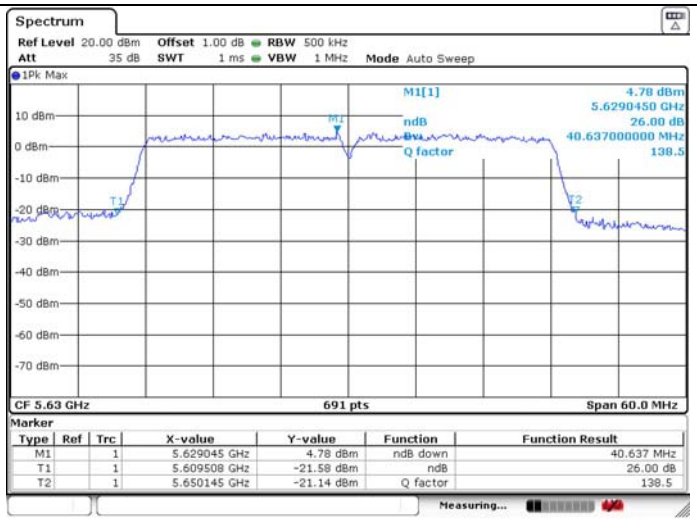
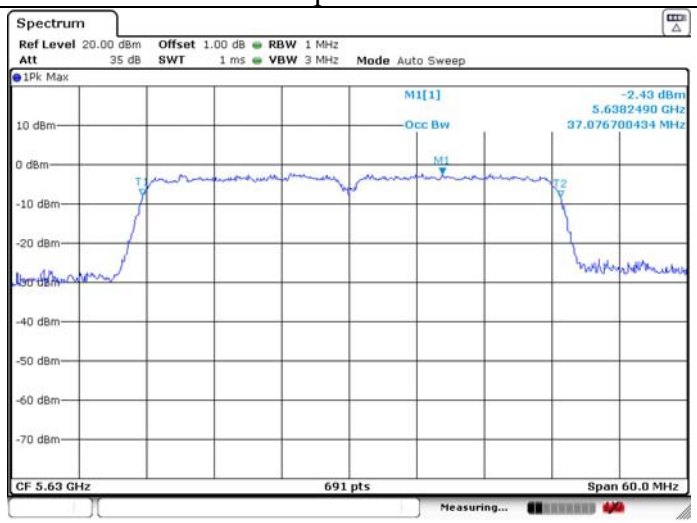
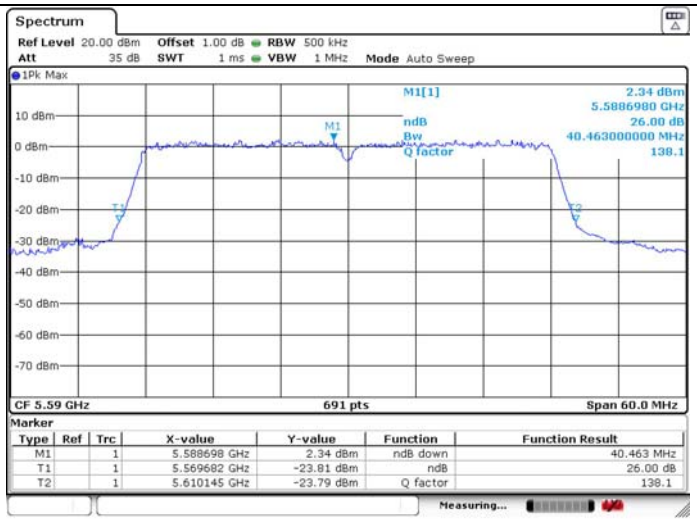
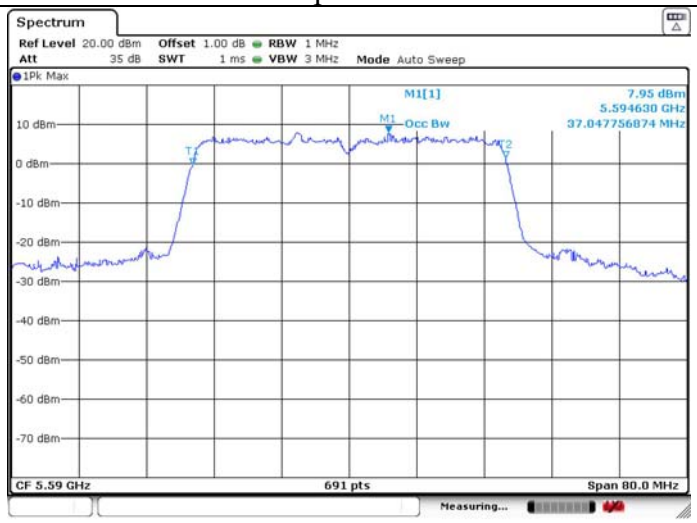
26dB Bandwidth	99% Occupied Bandwidth
	
U-NII-2C IEEE 802.11ac VHT40 5590MHz_Ant 1	
26dB Bandwidth	99% Occupied Bandwidth
	
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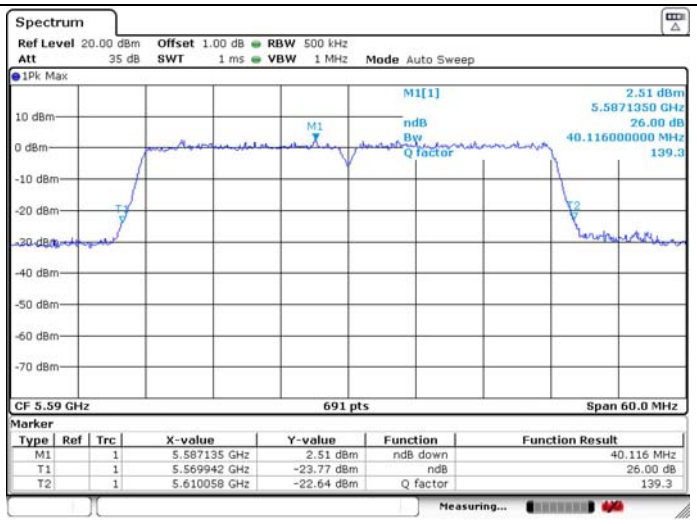
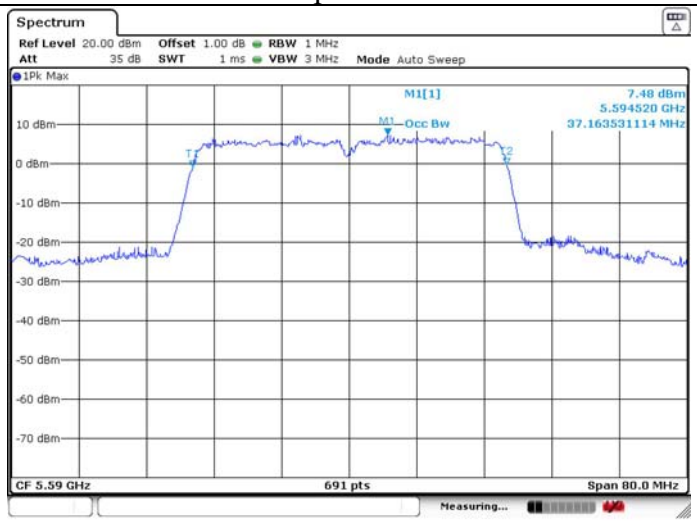
26dB Bandwidth	99% Occupied Bandwidth
	

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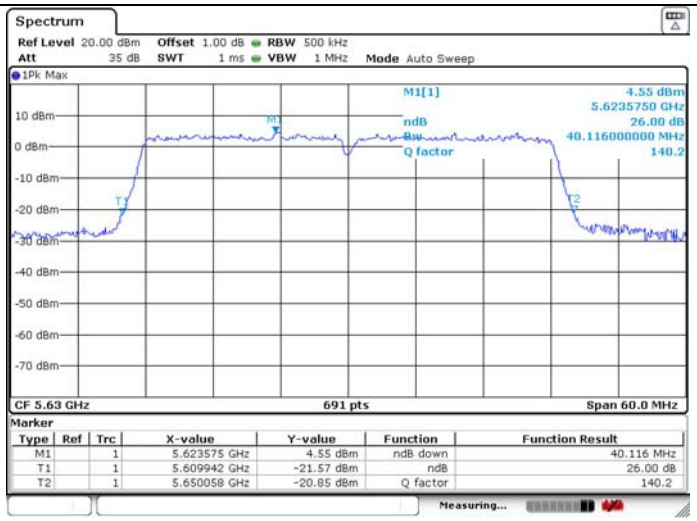
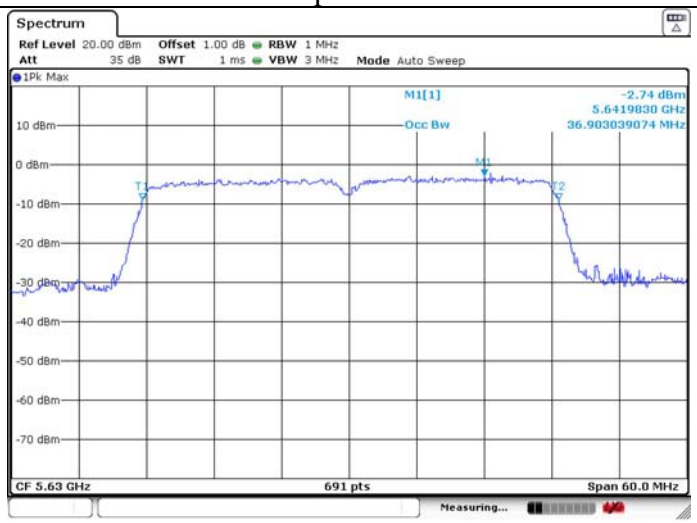
26dB Bandwidth	99% Occupied Bandwidth
	
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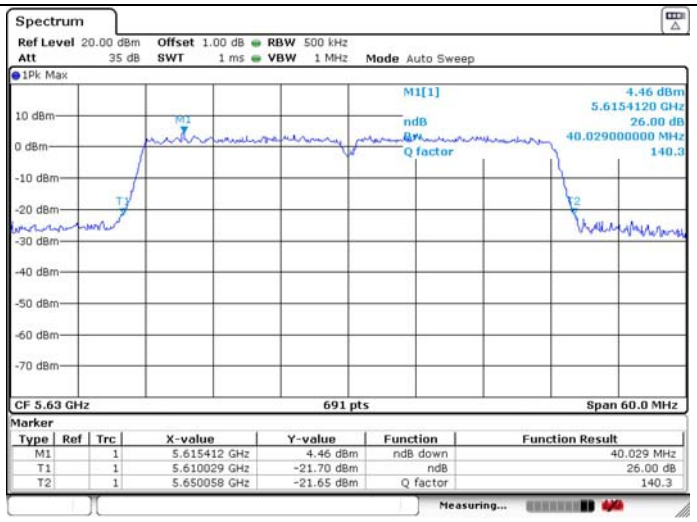
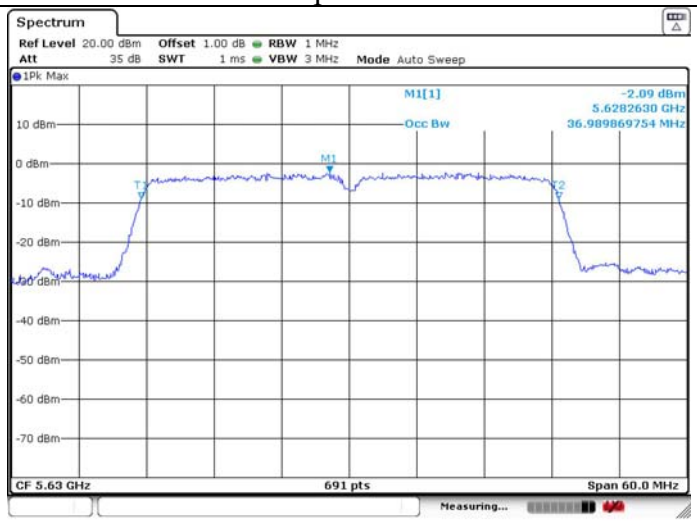
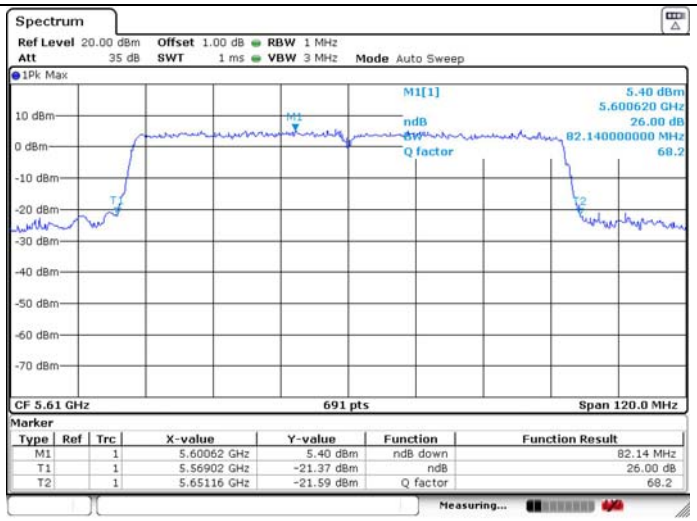
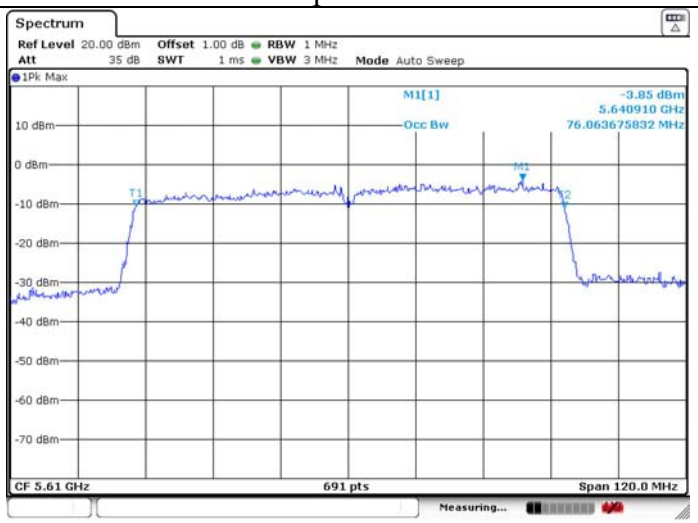
	

U-NII-2C IEEE 802.11ac VHT80 5610MHz_Ant 1	
26dB Bandwidth	99% Occupied Bandwidth
	
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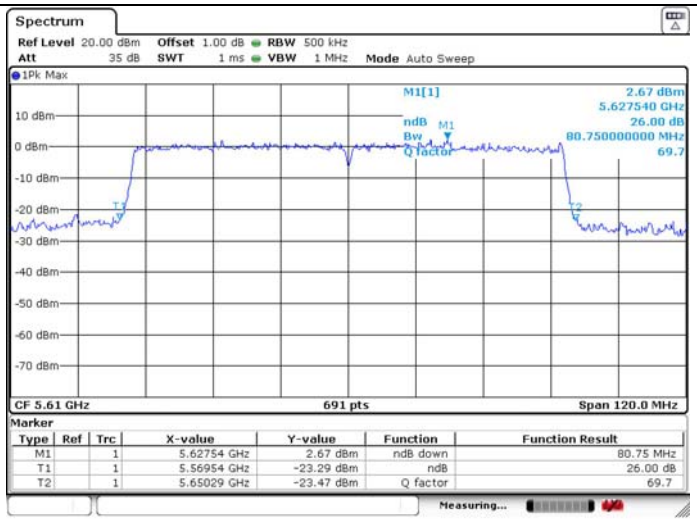
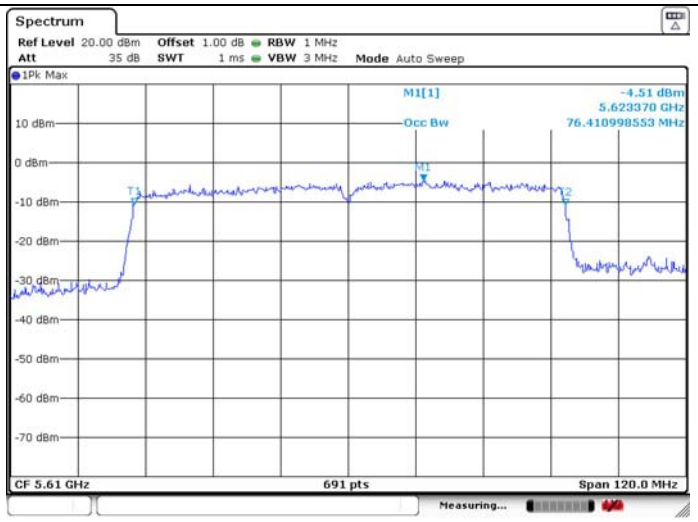
26dB Bandwidth	26dB Bandwidth
	

4. MAXIMUM CONDUCTED OUTPUT POWER

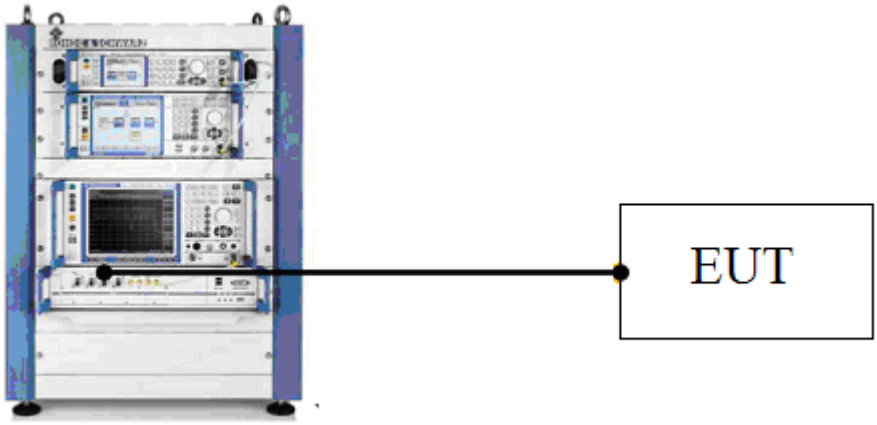
4.1. Limit

Band	EUT Type	Limit
U-NII-2C	All Device	250mW(23.98dBm) or 11dBm+10 log B,Which is lesser. (B is 26dB Bandwidth in MHz)

Note:

For the Band U-NII-2C,the maximum conducted output power limit calculate result refer to section 3.5.

4.2. Test Setup



4.3. Test Procedure

a. Connect EUT antenna terminal to the OSP-B157WB with RF cable.
b. Set the EUT transmit continuously with maximum output power.
c. Through the test software in TS8897 to control a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Because the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.
d. Repeat above procedures until all modes and channels were measured.
e. Record the results in the test report.

4.4. Test Result

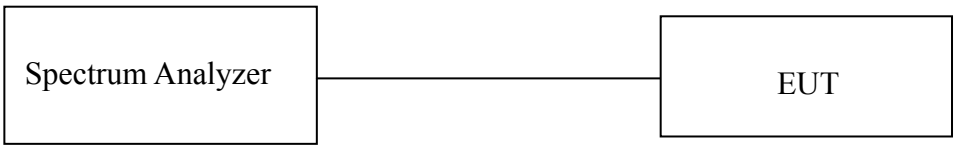
Temperature	27.2℃	Relative Humidity			51%	Test Voltage	120V/60Hz	
BAND	Test Mode	Fre (MHz)	Conducted AVG Output Power (dBm)		Total Conducted Output Power (W)	Total Conducted Output Power (dBm)	Limit (dBm)	Result
			Ant 1	Ant 2				
U-NII-2C	IEEE 802.11a	5600	11.65	11.69	0.01476	11.69	23.86	PASS
		5620	11.71	11.76	0.01500	11.76	23.86	PASS
		5640	11.66	11.85	0.01531	11.85	23.86	PASS
	IEEE 802.11n HT20	5600	10.87	10.75	0.02410	13.82	23.86	PASS
		5620	10.89	10.81	0.02432	13.86	23.86	PASS
		5640	10.88	10.92	0.02461	13.91	23.86	PASS
	IEEE 802.11ac VHT20	5600	11.93	11.97	0.03134	14.96	23.86	PASS
		5620	11.89	11.88	0.03087	14.90	23.86	PASS
		5640	11.75	11.67	0.02965	14.72	23.86	PASS
	IEEE 802.11n HT40	5590	11.52	11.47	0.02822	14.51	23.86	PASS
		5630	11.85	11.79	0.03041	14.83	23.86	PASS
	IEEE 802.11ac VHT40	5590	11.84	11.76	0.03027	14.81	23.86	PASS
		5630	11.97	11.86	0.03109	14.93	23.86	PASS
	IEEE 802.11ac VHT80	5610	12.02	11.99	0.03173	15.02	23.86	PASS

5. PEAK POWER SPECTRAL DENSITY

5.1. Limit

Band	EUT Type	Limit
U-NII-2C	All Device	11dBm/MHz

5.2. Test Setup



5.3. Spectrum Analyzer Setting

Spectrum Parameters	Setting
RBW	1MHz
VBW	3MHz
Span	encompass the entire 26 dB EBW or 99% OBW of the signal
Sweep Time	Auto
Number of Sweep Point	≥2×SPAN/RBW
Detector	RMS(power averaging)
Trace Average	≥100 traces

5.4. Test Procedure

a. Connect EUT antenna terminal to the spectrum analyzer with RF cable.
b. Spectrum analyzer setting parameters in accordance with section 5.3.
c. Set the EUT transmit continuously with maximum output power.
d. Allow trace to stabilize, use the marker-to-peak function to set the marker to the average of the emission.
e. If the duty cycle of test siganl＜98%,the result=max measured value+10×log(1/duty cycle);
If the duty cycle of test siganl≥98%,the esult=max measured value.
f. Repeat above procedures until all modes and channels were measured.
g. Record the results in the test report.

5.5. Test Result

Temperature		27.2℃	Relative Humidity		51%	Test Voltage	120V/60Hz	
BAND	Test Mode	Fre (MHz)	Power Density (dBm/MHz)		Duty Factor (dB)	Total Power Density (dBm/MHz)	Limit (dBm/MHz)	Result
			Ant 1	Ant 2				
U-NII-2C	IEEE 802.11a	5600	4.91	5.68	0.40	6.08	10.88	PASS
		5620	5.30	5.66	0.40	6.06	10.88	PASS
		5640	4.97	5.63	0.40	6.03	10.88	PASS
	IEEE 802.11n HT20	5600	5.90	6.21	0.49	9.56	10.88	PASS
		5620	5.99	6.10	0.49	9.55	10.88	PASS
		5640	5.66	6.11	0.49	9.39	10.88	PASS
	IEEE 802.11ac VHT20	5600	5.69	6.07	0.43	9.33	10.88	PASS
		5620	5.70	5.82	0.43	9.20	10.88	PASS
		5640	5.44	5.69	0.43	9.01	10.88	PASS
	IEEE 802.11n HT40	5590	4.50	4.20	0.86	8.22	10.88	PASS
		5630	4.90	5.32	0.86	8.99	10.88	PASS
	IEEE 802.11ac VHT40	5590	4.15	3.71	0.68	7.63	10.88	PASS
		5630	5.14	4.53	0.68	8.54	10.88	PASS
	IEEE 802.11ac VHT80	5610	2.78	2.73	1.88	7.65	10.88	PASS

U-NII-2C IEEE 802.11a 5600MHz	
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	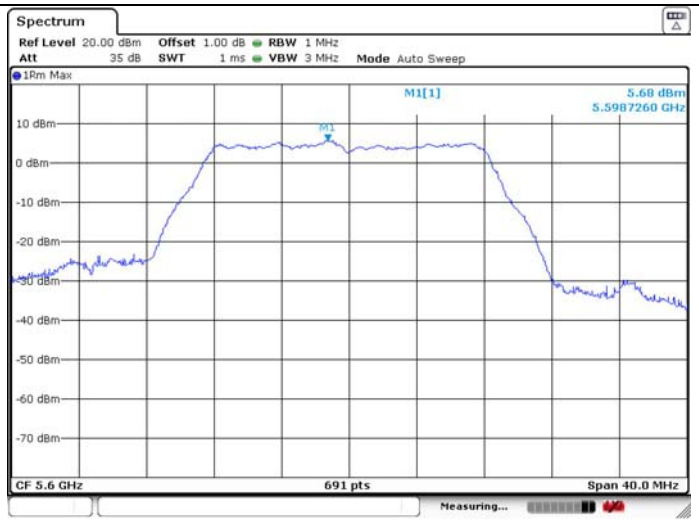
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	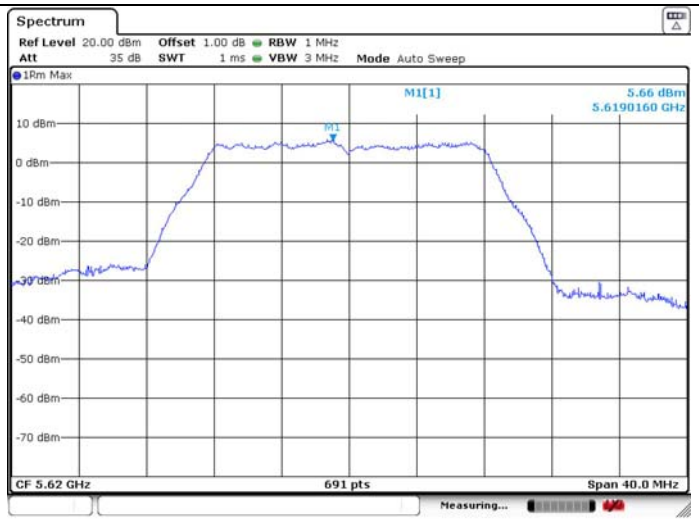
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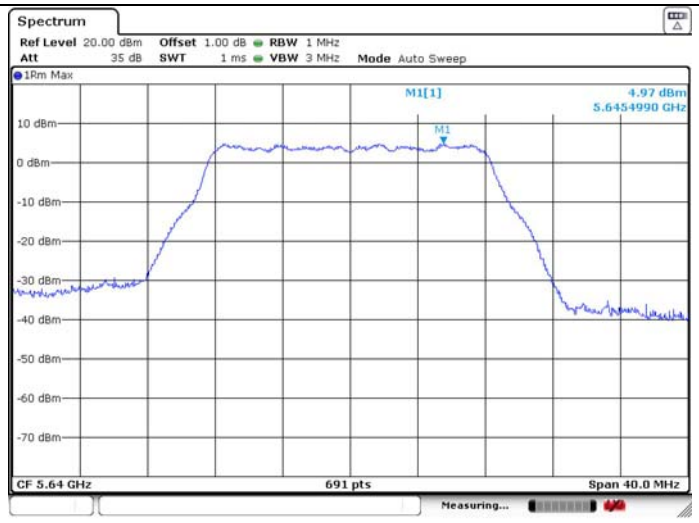	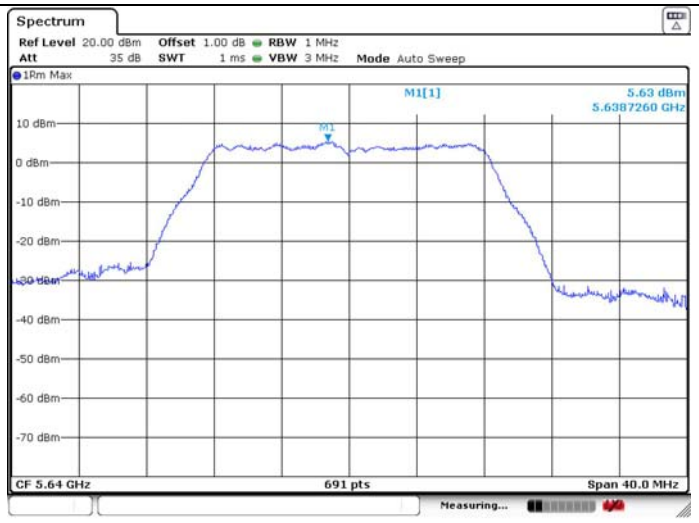

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	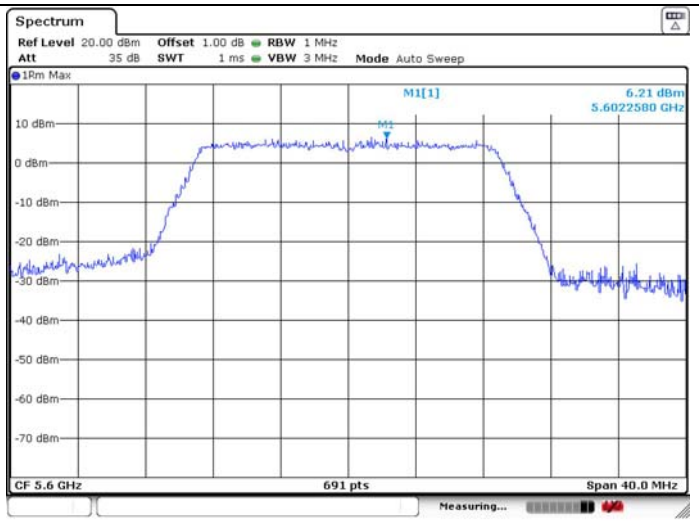
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	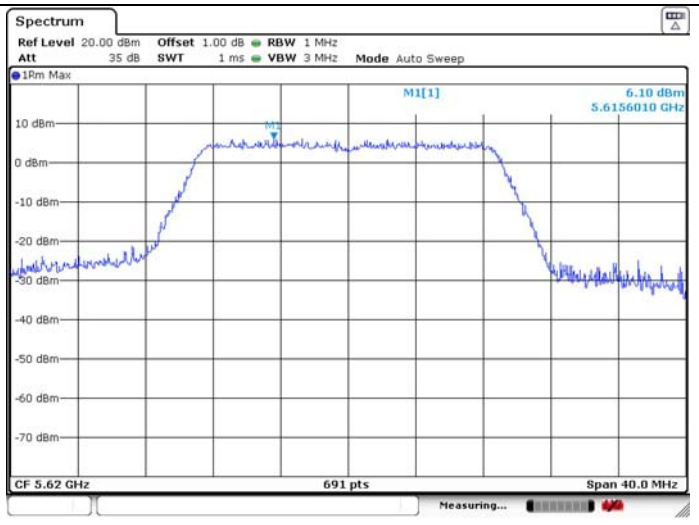
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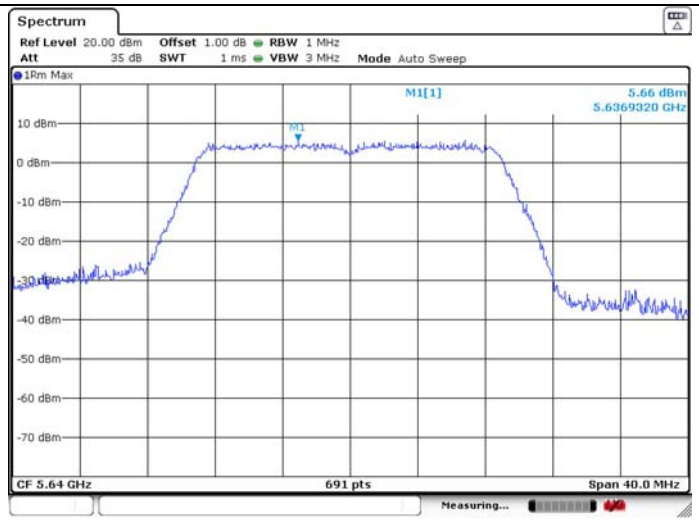	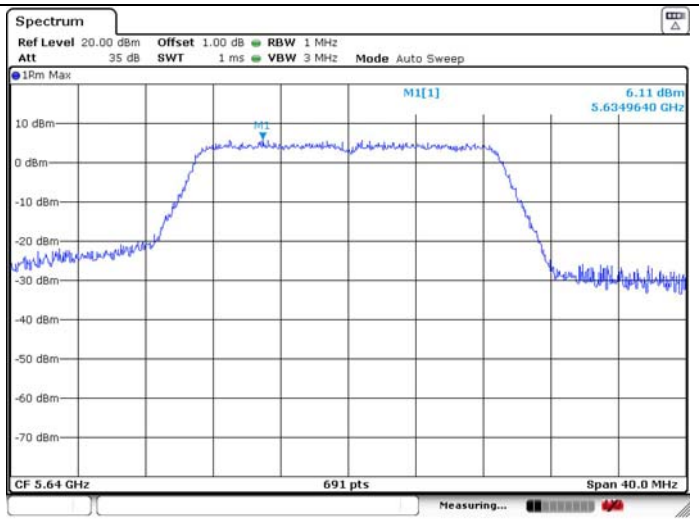

U-NII-2C IEEE 802.11ac VHT20 5600MHz	
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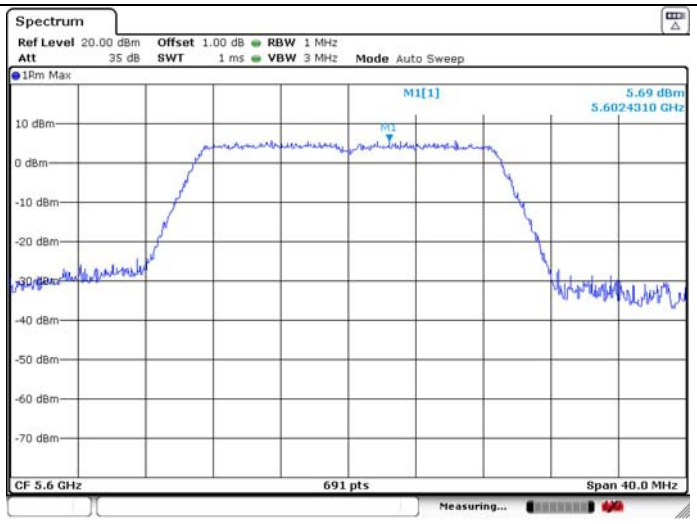	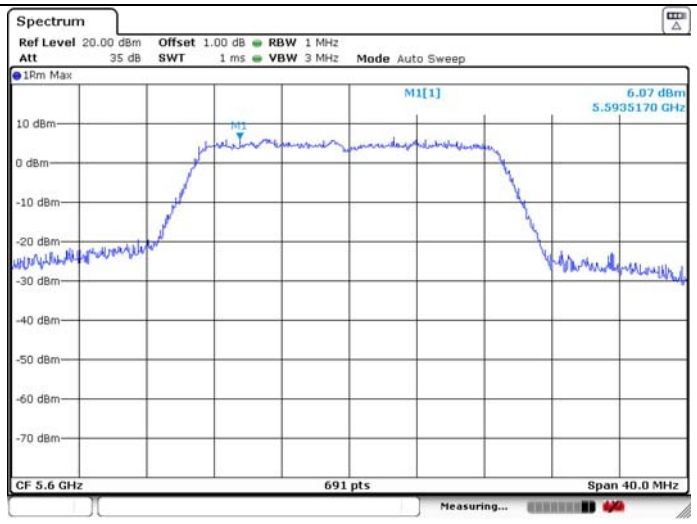
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	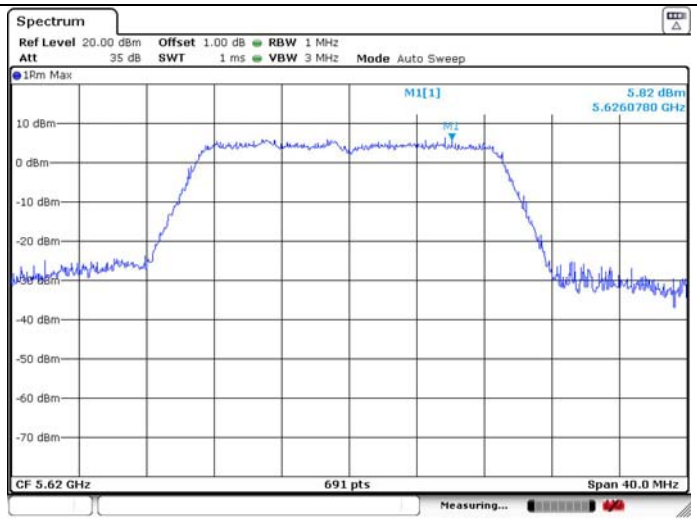
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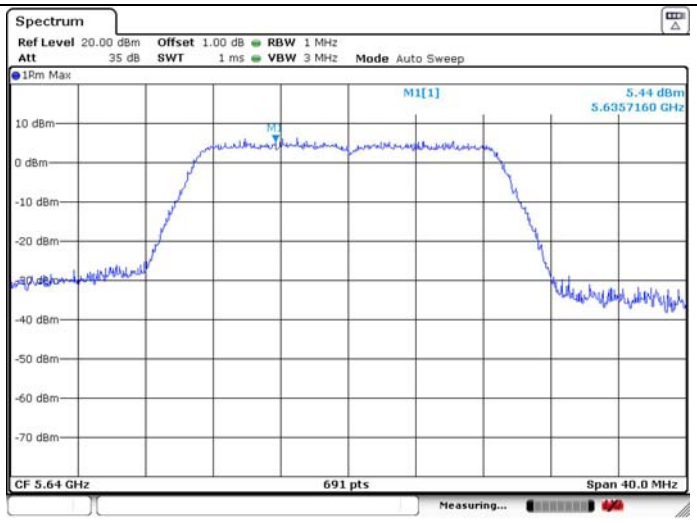	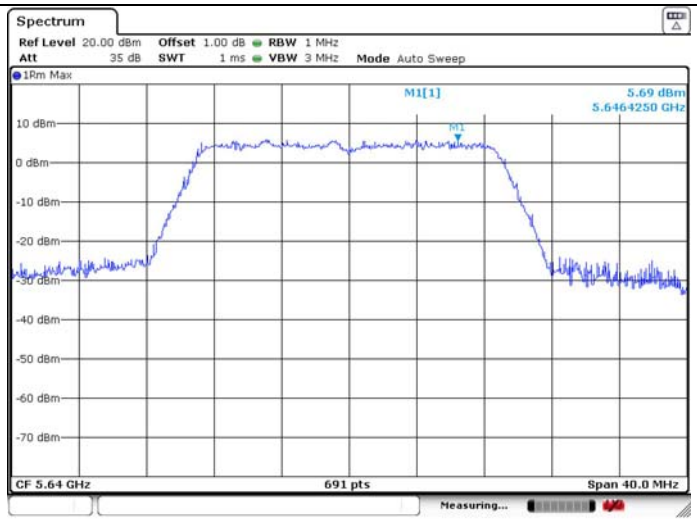

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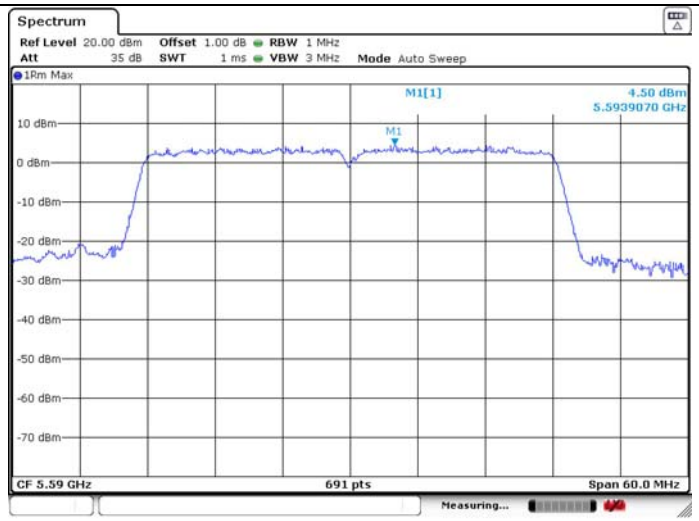	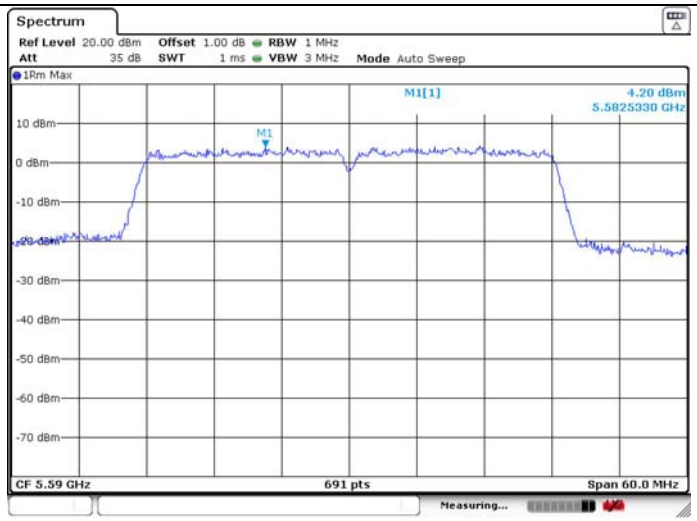
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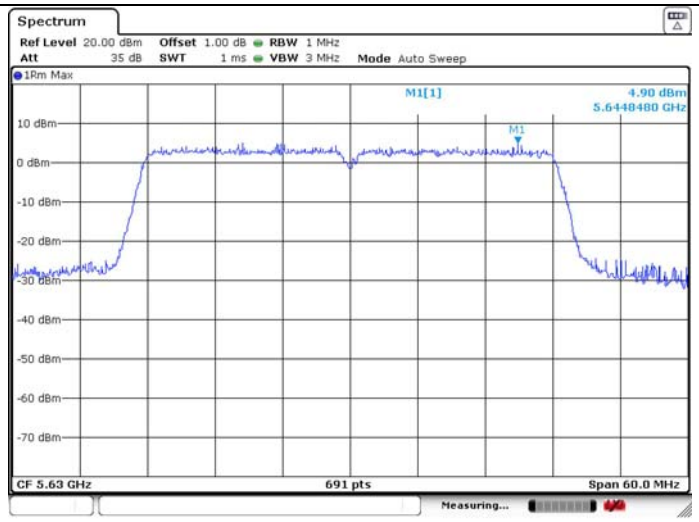	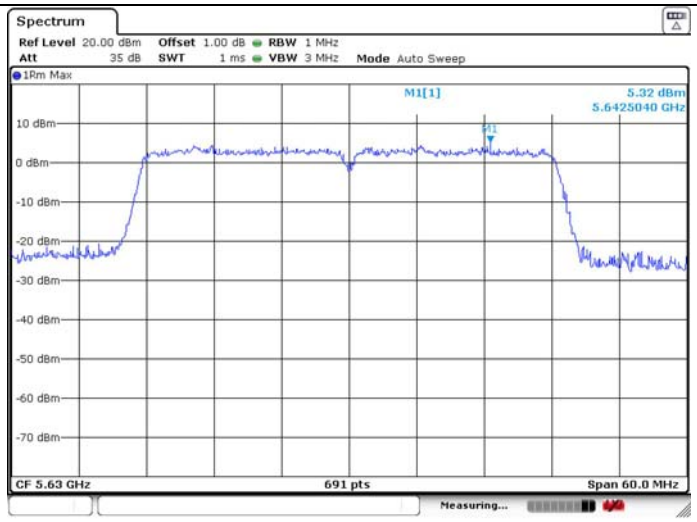
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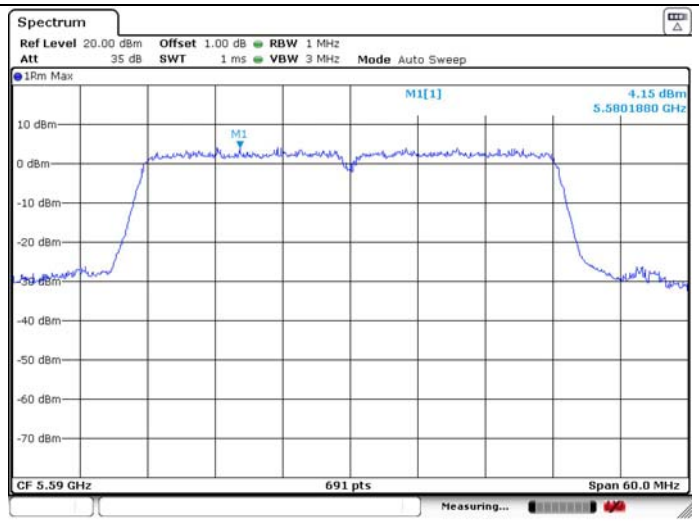	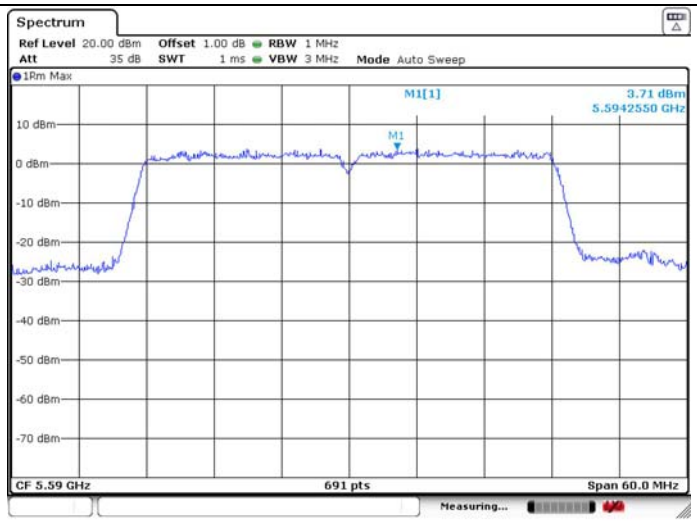

U-NII-2C IEEE 802.11ac VHT40 5630MHz	
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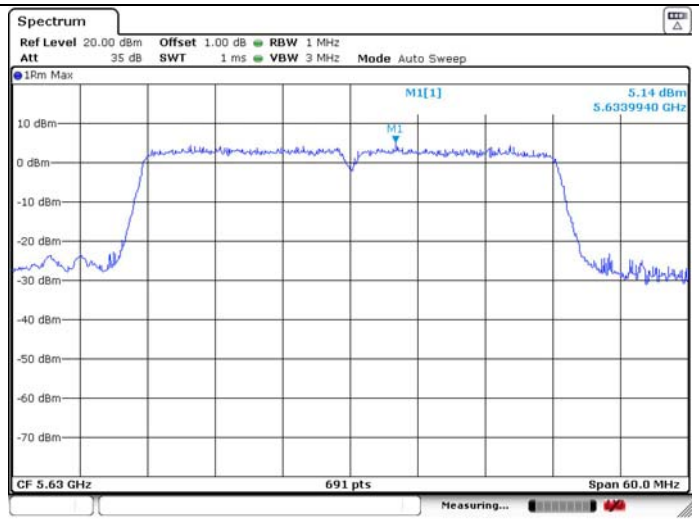	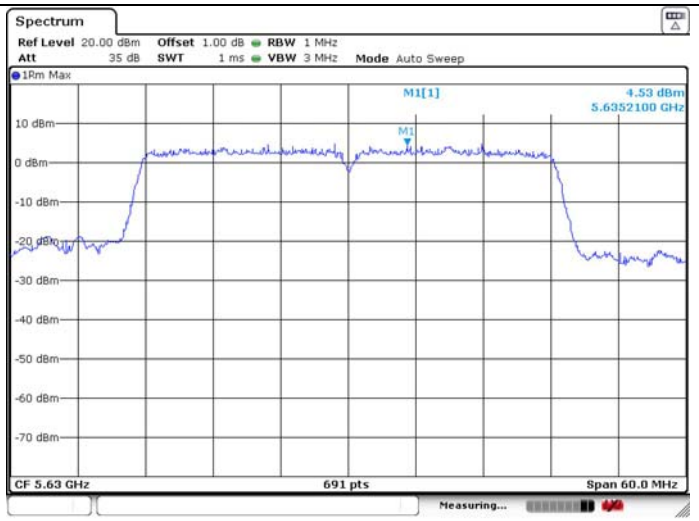
U-NII-2C IEEE 802.11ac VHT80 5610MHz	
ANT 1	**ANT 2**