TEST REPORT

Reference No.	:	WTS18S05110676-2W
FCC ID	:	XOMEL161WL
Applicant	:	Shenzhen Qiyue Optronics Company Limited
Address	:	Flat3,Tower 3, Excellence Meilin Center Plaza, Zhongkang Road 128, Shangmeilin, Futian District, Shenzhen ,China
Manufaturer	:	SHENZHEN QIYUE OPTRONICS COMPANY LIMITED BRANCH
Address	:	SEIYU INDUSTRIAL PARK,DA SAN VILLAGE,DA SHUI KENG,GUANLAN TOWN,LONGHUA NEW DISTRICT,SHENZHEN,P.R.C
Product	:	Electronic shelf display
Model(s)	:	EL161WLBC0HWWW, EL161WL, XXXXXXXXXX16XXXXXXXXXXXXX(Where"X"can be any alphanumeric of a-z,A-Z or 0-9 or blank or-)
Standards	:	FCC CFR47 Part 15 C Section 15.407: 2017
Date of Receipt sample	:	2018-05-07
Date of Test	:	2018-05-08 to 2018-05-16
Date of Issue	:	2018-05-17
Test Result	:	**Pass**

Remarks:
The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company.
The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

Prepared By:
Waltek Services (Shenzhen) Co., Ltd.
Address: 1/F., Fukangtai Building, West Baima Road, Songgang Street, Baoan District, Shenzhen, Guangdong, China
Tel :+86-755-83551033
Fax:+86-755-83552400

Compiled by:

Jack Wen / Test Engineer

Approved by:

Philo Zhong / Manager

2 Laboratories Introduction

Waltek Services (Shenzhen) Co., Ltd is a professional third-party testing and certification laboratory with multi-year product testing and certification experience, established strictly in accordance with ISO/IEC 17025 requirements, and accredited by ILAC (International Laboratory Accreditation Cooperation) member. A2LA (American Association for Laboratory Accreditation) of USA, Meanwhile, Waltek has got recognition as registration and accreditation laboratory from EMSD (Electrical and Mechanical Services Department), and American Energy star, FCC(The Federal Communications Commission), CEC(California energy efficiency), IC(Industry Canada). It's the strategic partner and data recognition laboratory of international authoritative organizations, such as Intertek(ETL-SEMKO), TÜV Rheinland, TÜV SÜD, etc.

Waltek Services (Shenzhen) Co., Ltd is one of the largest and the most comprehensive third party testing laboratory in China. Our test capability covered four large fields: safety test. ElectroMagnetic Compatibility(EMC), and energy performance, wireless radio. As a professional, comprehensive, justice international test organization, we still keep the scientific and rigorous work attitude to help each client satisfy the international standards and assist their product enter into globe market smoothly.

2.1 Test Facility

A. Accreditations for Conformity Assessment (International)

Country/Region	Accreditation Body	Scope	Note
USA	**A2LA (Certificate No.: 4243.01)**	FCC ID \ DOC \ VOC	1
Canada		IC ID \ VOC	2
Japan		MIC-T \ MIC-R	-
Europe		EMCD \ RED	-
Taiwan		NCC	-
Hong Kong		OFCA	-
Australia		RCM	-
India	**International Services**	WPC	-
Thailand		NTC	-
Singapore		IDA	-

Note:

1. FCC Designation No.: CN1201. Test Firm Registration No.: 523476.
2. IC Canada Registration No.: 7760A

B.TCBs and Notify Bodies Recognized Testing Laboratory.

Recognized Testing Laboratory of …	Notify body number
TUV Rheinland	Optional.
Intertek	
TUV SUD	
SGS	
Phoenix Testlab GmbH	0700
Element Materials Technology Warwick Ltd	0891
Timco Engineering, Inc.	1177
Eurofins Product Service GmbH	0681

3 Revision History

Test report #	Date of Receipt sample	Date of Test	Date of Issue	Purpose	Comment	Approved
WTS18S05110676-2W	2018-05-07	2018-05-08 to2018-05-16	2018-05-17	Original	-	Valid

4 Test Summary

Test Items	Test Requirement	Result
Conducted Emissions	15.207(a)	PASS
Radiated Emissions	15.407(a) 15.205(a) 15.209(a)	PASS
Duty Cycle	KDB 789033	PASS
6dB Bandwidth	15.407(a)	PASS
26 dB Emission Bandwidth & 99% Occupied Bandwidth	15.407(a)	PASS
Maximum Conducted Output Power	15.407(a)	PASS
Power Spectral Density	15.407(a)	PASS
Restricted bands around fundamental frequency	15.407(a)	PASS
Antenna Requirement	15.203	PASS
Maximum Permissible Exposure (Exposure of Humans to RF Fields)	1.1307(b)(1)	PASS

5 Contents

6 General Information

6.1 General Description of E.U.T

Product:	Electronic shelf display
Model(s):	EL161WLBC0HWWW, EL161WL, XXXXXXXXXX16XXXXXXXXXXXX(Where"X"can be any alphanumeric of a-z,A-Z or 0-9 or blank or-)
Model Description:	Only the model names are different. The model EL161WLBC0HWWW is the test sample.
Operation Frequency:	IEEE 802.11a/ n(HT20/40)/ac(HT20/40/80): 5150MHz to 5250MHz
	IEEE 802.11a/ n(HT20/40)/ac(HT20/40/80): 5725MHz to 5850MHz
Type of modulation:	IEEE for 802.11a: OFDM(BPSK/QPSK/16QAM/64QAM)
	IEEE for 802.11n : OFDM(BPSK/QPSK/16QAM/64QAM)
	IEEE for 802.11ac : OFDM (BPSK/QPSK/16QAM/64QAM/256QAM)
The Lowest Oscillator:	32.768KHz
Antenna installation:	Internal Antenna
Antenna Gain:	3dBi

6.2 Details of E.U.T

Ratings	Input: 100-240V~, 50/60Hz, 0.3A
Adapter	Model: A1812_SM

6.3 Channel List

U-NII-1 (5.15-5.25GHz)		U-NII-3 (5.725-5.85GHz)	
channel	Frequency(MHz)	channel	Frequency(MHz)
36	5180	149	5745
38	5190	151	5755
40	5200	153	5765
42	5210	155	5785
44	5220	157	5785
46	5230	159	5795
48	5240	161	5805
		165	5825

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

For 802.11a/n(HT20)/ac(HT20):

channel	Frequency(MHz)	channel	Frequency(MHz)
36	5180	149	5745
40	5200	157	5785
48	5240	165	5825

For 802.11 n(HT40)/ac(HT40):

channel	Frequency(MHz)	channel	Frequency(MHz)
38	5190	151	5755
46	5230	159	5795

For 802.11 ac(HT80):

channel	Frequency(MHz)	channel	Frequency(MHz)
42	5210	155	5775

Test Mode Description:

During testing, Channel and Power Controlling Software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.
Transmitting duty cycle is no less 98%.

Test Items	Mode	Data Rate	Channel	TX/RX
Radiated Emissions	802.11a	6 Mbps	U-NII-1 36/40/48 U-NII-3 149/155/165	TX
	802.11n(HT20)	MCS0	U-NII-1 36/40/48 U-NII-3 149/155/165	TX
	802.11n(HT40)	MCS0	U-NII-1 38/46 U-NII-3 151/159	TX
	802.11ac(HT20)	MCS0	U-NII-1 36/40/48 U-NII-3 149/155/165	TX
	802.11ac(HT40)	MCS0	U-NII-1 38/46 U-NII-3 151/159	TX
	802.11ac(HT80)	MCS0	U-NII-1 42 U-NII-3 155	TX
Duty Cycle	802.11a	6 Mbps	U-NII-1 36/40/48 U-NII-3 149/155/165	TX
	802.11n(HT20)	MCS0	U-NII-1 36/40/48 U-NII-3 149/155/165	TX
	802.11n(HT40)	MCS0	U-NII-1 38/46 U-NII-3 151/159	TX
	802.11ac(HT20)	MCS0	U-NII-1 36/40/48 U-NII-3 149/155/165	TX
	802.11ac(HT40)	MCS0	U-NII-1 38/46 U-NII-3 151/159	TX
	802.11ac(HT80)	MCS0	U-NII-1 42 U-NII-3 155	TX
Band Edge	802.11a	6 Mbps	U-NII-1 36/40/48 U-NII-3 149/155/165	TX
	802.11n(HT20)	MCS0	U-NII-1 36/40/48 U-NII-3 149/155/165	TX
	802.11n(HT40)	MCS0	U-NII-1 38/46 U-NII-3 151/159	TX
	802.11ac(HT20)	MCS0	U-NII-1 36/40/48 U-NII-3 149/155/165	TX
	802.11ac(HT40)	MCS0	U-NII-1 38/46 U-NII-3 151/159	TX
	802.11ac(HT80)	MCS0	U-NII-1 42 U-NII-3 155	TX

6dB Bandwidth	802.11a	6 Mbps	U-NII-1 36/40/48 U-NII-3 149/155/165	TX
	802.11n(HT20)	MCS0	U-NII-1 36/40/48 U-NII-3 149/155/165	TX
	802.11n(HT40)	MCS0	U-NII-1 38/46 U-NII-3 151/159	TX
	802.11ac(HT20)	MCS0	U-NII-1 36/40/48 U-NII-3 149/155/165	TX
	802.11ac(HT40)	MCS0	U-NII-1 38/46 U-NII-3 151/159	TX
	802.11ac(HT80)	MCS0	U-NII-1 42 U-NII-3 155	TX
26dB Bandwidth and 99% Occupied Bandwidth	802.11a	6 Mbps	U-NII-1 36/40/48 U-NII-3 149/155/165	TX
	802.11n(HT20)	MCS0	U-NII-1 36/40/48 U-NII-3 149/155/165	TX
	802.11n(HT40)	MCS0	U-NII-1 38/46 U-NII-3 151/159	TX
	802.11ac(HT20)	MCS0	U-NII-1 36/40/48 U-NII-3 149/155/165	TX
	802.11ac(HT40)	MCS0	U-NII-1 38/46 U-NII-3 151/159	TX
	802.11ac(HT80)	MCS0	U-NII-1 42 U-NII-3 155	TX
Conducted Output Power	802.11a	6 Mbps	U-NII-1 36/40/48 U-NII-3 149/155/165	TX
	802.11n(HT20)	MCS0	U-NII-1 36/40/48 U-NII-3 149/155/165	TX
	802.11n(HT40)	MCS0	U-NII-1 38/46 U-NII-3 151/159	TX
	802.11ac(HT20)	MCS0	U-NII-1 36/40/48 U-NII-3 149/155/165	TX
	802.11ac(HT40)	MCS0	U-NII-1 38/46 U-NII-3 151/159	TX
	802.11ac(HT80)	MCS0	U-NII-1 42 U-NII-3 155	TX
Power Spectral Density	802.11a	6 Mbps	U-NII-1 36/40/48 U-NII-3 149/155/165	TX
	802.11n(HT20)	MCS0	U-NII-1 36/40/48 U-NII-3 149/155/165	TX
	802.11n(HT40)	MCS0	U-NII-1 38/46 U-NII-3 151/159	TX
	802.11ac(HT20)	MCS0	U-NII-1 36/40/48 U-NII-3 149/155/165	TX

	802.11ac(HT40)	MCS0	U-NII-1 38/46 U-NII-3 151/159	TX
	802.11ac(HT80)	MCS0	U-NII-1 42 U-NII-3 155	TX
Frequency Stability	Un-modulation	/	U-NII-1 36/40/48 U-NII-3 149/155/165	TX

7 Equipment Used during Test

7.1 Equipments List

Conducted Emissions Test Site						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1.	EMI Test Receiver	R&S	ESCI	101155	2017-09-12	2018-09-11
2.	LISN	SCHWARZBECK	NSLK 8128	8128-289	2017-09-12	2018-09-11
3.	Limiter	York	MTS-IMP-136	261115-001-0024	2017-09-12	2018-09-11
4.	Cable	LARGE	RF300	-	2017-09-12	2018-09-11
3m Semi-anechoic Chamber for Radiation Emissions Test site 1#						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1	Spectrum Analyzer	R&S	FSP30	100091	2018-04-29	2019-04-28
2	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9120 D	667	2018-04-09	2019-04-08
3	Broadband Preamplifier	COMPLIANCE DIRECTION	PAP-1G18	2004	2018-04-13	2019-04-12
4	Coaxial Cable (above 1GHz)	Top	1GHz-18GHz	EW02014-7	2018-04-13	2019-04-12
5	Spectrum Analyzer	R&S	FSP40	100501	2017-10-20	2018-10-19
6	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9170	335	2017-09-14	2018-09-13
7	Microwave Broadband Preamplifier	SCHWARZBECK	BBV 9721	100472	2017-10-25	2018-10-24
8	Cable	Top	18GHz-40GHz	-	2017-10-25	2018-10-24
3m Semi-anechoic Chamber for Radiation Emissions Test site						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No**	**Last Calibration Date**	**Calibration Due Date**
1	Test Receiver	R&S	ESCI	101296	2018-04-13	2019-04-12
2	Ative Loop Antenna	Beijing Dazhi	ZN30900A	-	2017-10-17	2018-10-16
3	Trilog Broadband Antenna	SCHWARZBECK	VULB9160	9160-3325	2018-04-08	2019-04-07
4	Amplifier	ANRITSU	MH648A	M43381	2018-04-13	2019-04-12
5	Cable	HUBER+SUHNER	CBL2	525178	2018-04-13	2019-04-12
6	Coaxial Cable (below 1GHz)	Top	TYPE16(13M)	-	2017-09-12	2018-09-11
RF Conducted Testing						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1.	EMC Analyzer (9k~26.5GHz)	Agilent	E7405A	MY45114943	2017-09-14	2018-09-13
2.	Spectrum Analyzer (9k-6GHz)	R&S	FSL6	100959	2017-09-12	2018-09-11

3.	Signal Analyzer (9k~26.5GHz)	Agilent	N9010A	MY50520207	2017-09-12	2018-09-11
4.	Coaxial Cable (10Hz-30GHz)	/	/	/	2017-09-12	2018-09-11
5.	Antenna Connector*	/	/	/	2017-09-12	2018-09-11

"*": The temporary antenna connector is soldered on the PCB board in order to perform conducted tests and this temporary antenna connector is listed in the equipment list.

7.2 Description of Support Units

Equipment	Manufaturer	Model No.	Series No.
/	/	/	/

7.3 Measurement Uncertainty

Parameter	Uncertainty
Radio Frequency	± 1 x 10^{-6}
RF Power	± 1.0 dB
RF Power Density	± 2.2 dB
Radiated Spurious Emissions test	± 5.03 dB (30M~1000MHz)
	± 5.47 dB (1000M~25000MHz)
Conducted Spurious Emissions test	± 3.64 dB (A mains 150KHz~30MHz)

7.4 Test Equipment Calibration

All the test equipments used are valid and calibrated by GUANG ZHOU GRG METROLOGY & TEST CO., LTD. address is No.163, Pingyun Rd. West of Huangpu Ave,Tianhe District, Guangzhou, Guangdong, China.

8 Conducted Emission

Test Requirement:	FCC CFR 47 Part 15 Section 15.207
Test Method:	ANSI C63.10:2013
Test Result:	PASS
Frequency Range:	150kHz to 30MHz
Class/Severity:	Class B
Limit:	66-56 dBμV between 0.15MHz & 0.5MHz
	56 dBμV between 0.5MHz & 5MHz
	60 dBμV between 5MHz & 30MHz
Detector:	Peak for pre-scan (9kHz Resolution Bandwidth)

8.1 E.U.T. Operation

Operating Environment **:**

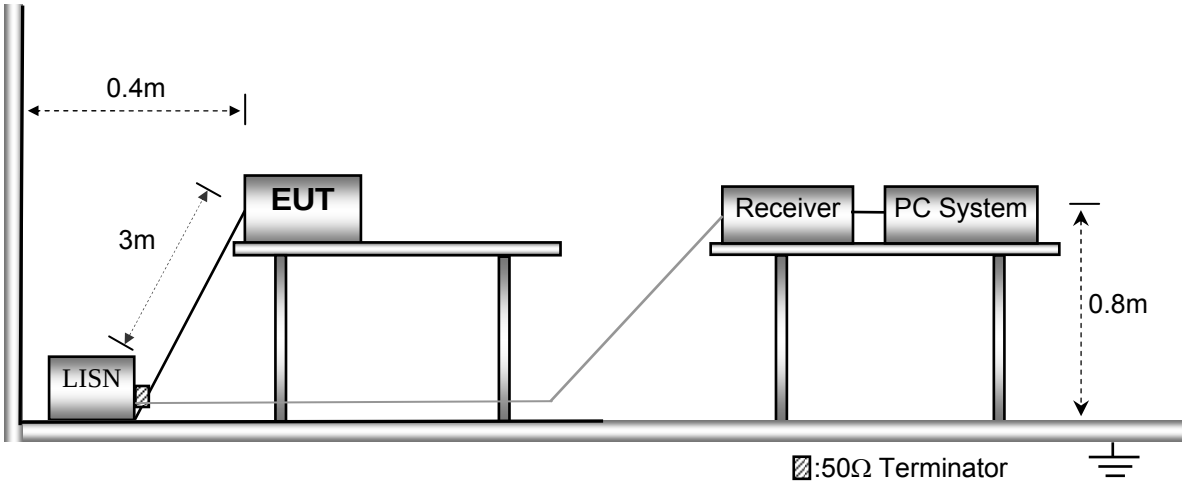
Temperature:	21.5 °C
Humidity:	51.9 % RH
Atmospheric Pressure:	101.2kPa
EUT Operation **:**	Transmitting mode

The test was performed in Transmitting mode(For WIFI), Only the worst case 802.11 mode were record in the report.

8.2 EUT Setup

The conducted emission tests were performed using the setup acordance with the

ANSI C63.10:2013.



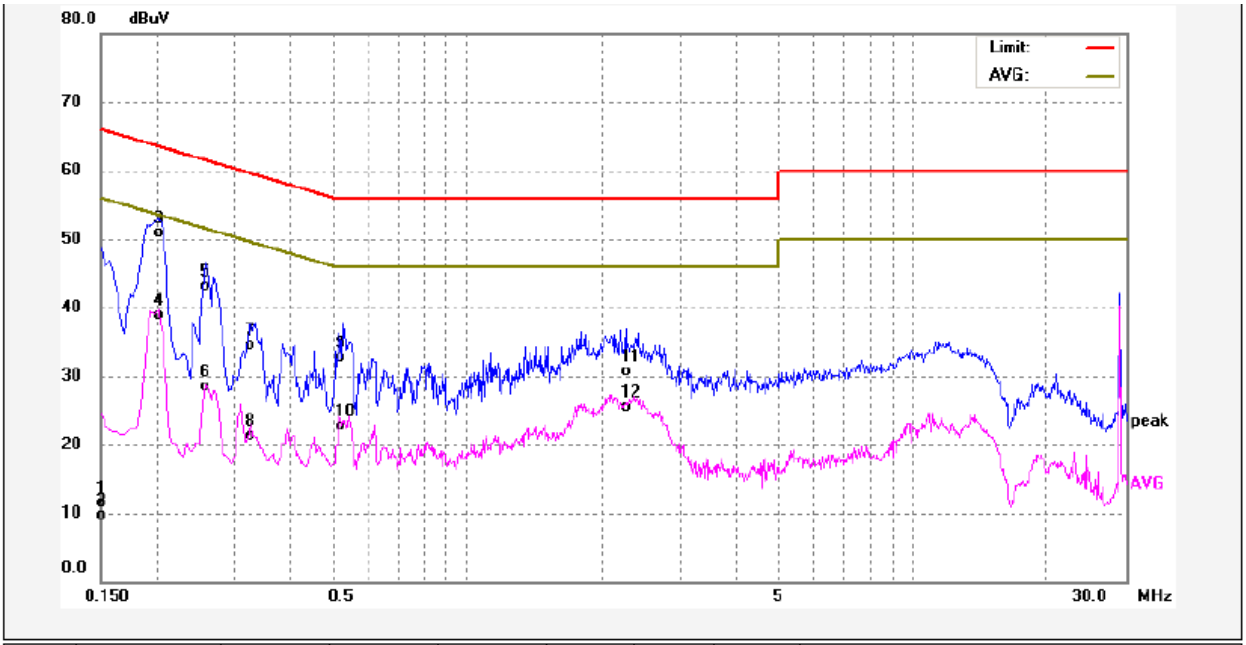
8.3 Measurement Description

The maximised peak emissions from the EUT was scanned and measured for both the Live and Neutral Lines. Quasi-peak & average measurements were performed if peak emissions were within 6dB of the average limit line.

8.4 Conducted Emission Test Result

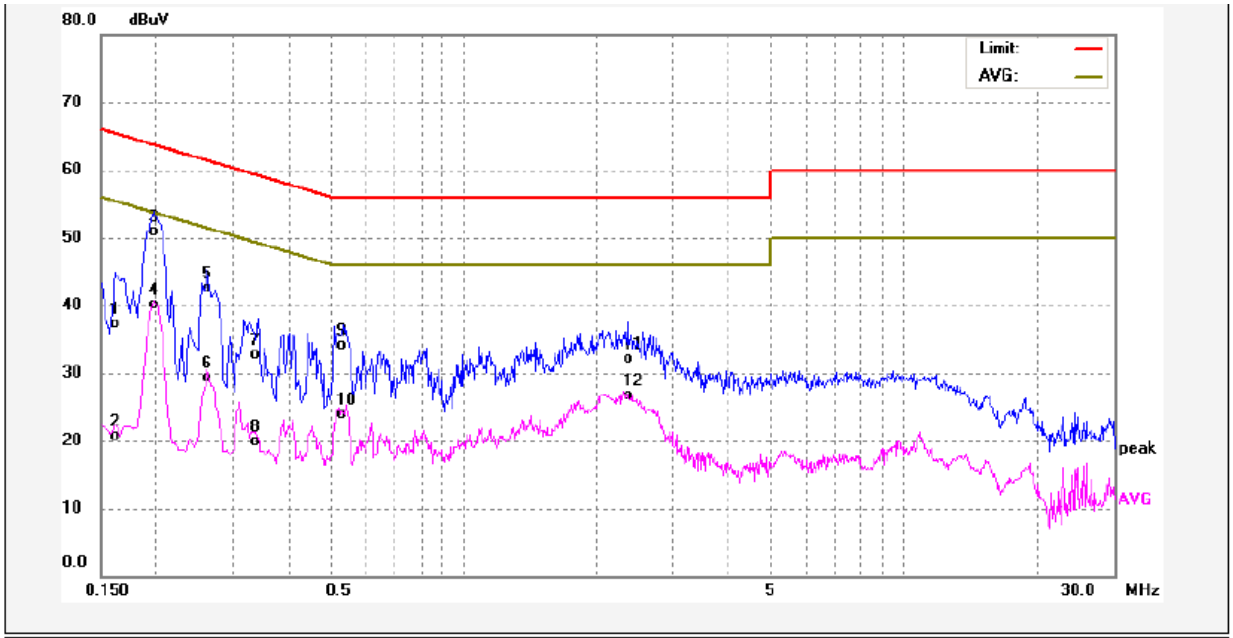
An initial pre-scan was performed on the live and neutral lines.

Live line:



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.1499	1.40	10.06	11.46	66.00	-54.54	QP	
2	0.1499	-0.31	10.06	9.75	56.00	-46.25	AVG	
3	0.2020	40.89	9.92	50.81	63.52	-12.71	QP	
4	0.2020	28.99	9.92	38.91	53.52	-14.61	AVG	
5	0.2580	33.00	10.01	43.01	61.49	-18.48	QP	
6	0.2580	18.42	10.01	28.43	51.49	-23.06	AVG	
7	0.3260	24.56	10.02	34.58	59.55	-24.97	QP	
8	0.3260	11.29	10.02	21.31	49.55	-28.24	AVG	
9	0.5260	22.58	10.07	32.65	56.00	-23.35	QP	
10	0.5260	12.56	10.07	22.63	46.00	-23.37	AVG	
11	2.2659	20.40	10.22	30.62	56.00	-25.38	QP	
12	2.2659	15.38	10.22	25.60	46.00	-20.40	AVG	

Neutral line:



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.1620	27.31	9.94	37.25	65.36	-28.11	QP	
2	0.1620	10.81	9.94	20.75	55.36	-34.61	AVG	
3	0.1980	40.96	9.91	50.87	63.69	-12.82	QP	
4	0.1980	30.26	9.91	40.17	53.69	-13.52	AVG	
5	0.2620	32.56	10.00	42.56	61.36	-18.80	QP	
6	0.2620	19.33	10.00	29.33	51.36	-22.03	AVG	
7	0.3420	22.65	10.05	32.70	59.15	-26.45	QP	
8	0.3420	9.94	10.05	19.99	49.15	-29.16	AVG	
9	0.5340	24.12	10.07	34.19	56.00	-21.81	QP	
10	0.5340	13.93	10.07	24.00	46.00	-22.00	AVG	
11	2.3660	21.82	10.22	32.04	56.00	-23.96	QP	
12	2.3660	16.49	10.22	26.71	46.00	-19.29	AVG	

9 Radiated Emissions

Test Requirement: FCC CFR47 Part 15 Section 15.209 & 15.407

Test Method: ANSI C63.10:2013

Test Result: PASS

Measurement Distance: 3m

Limit:

Frequency (MHz)	Field Strength		Field Strength Limit at 3m Measurement Distance	
	uV/m	Distance (m)	uV/m	dBuV/m
0.009 ~ 0.490	2400/F(kHz)	300	10000 * 2400/F(kHz)	$20\log^{(2400/F(kHz))} + 80$
0.490 ~ 1.705	24000/F(kHz)	30	100 * 24000/F(kHz)	$20\log^{(24000/F(kHz))} + 40$
1.705 ~ 30	30	30	100 * 30	$20\log^{(30)} + 40$
30 ~ 88	100	3	100	$20\log^{(100)}$
88 ~ 216	150	3	150	$20\log^{(150)}$
216 ~ 960	200	3	200	$20\log^{(200)}$
Above 960	500	3	500	$20\log^{(500)}$

9.1 EUT Operation

Operating Environment **:**

Temperature: 23.5 °C

Humidity: 52.1 % RH

Atmospheric Pressure: 101.2kPa

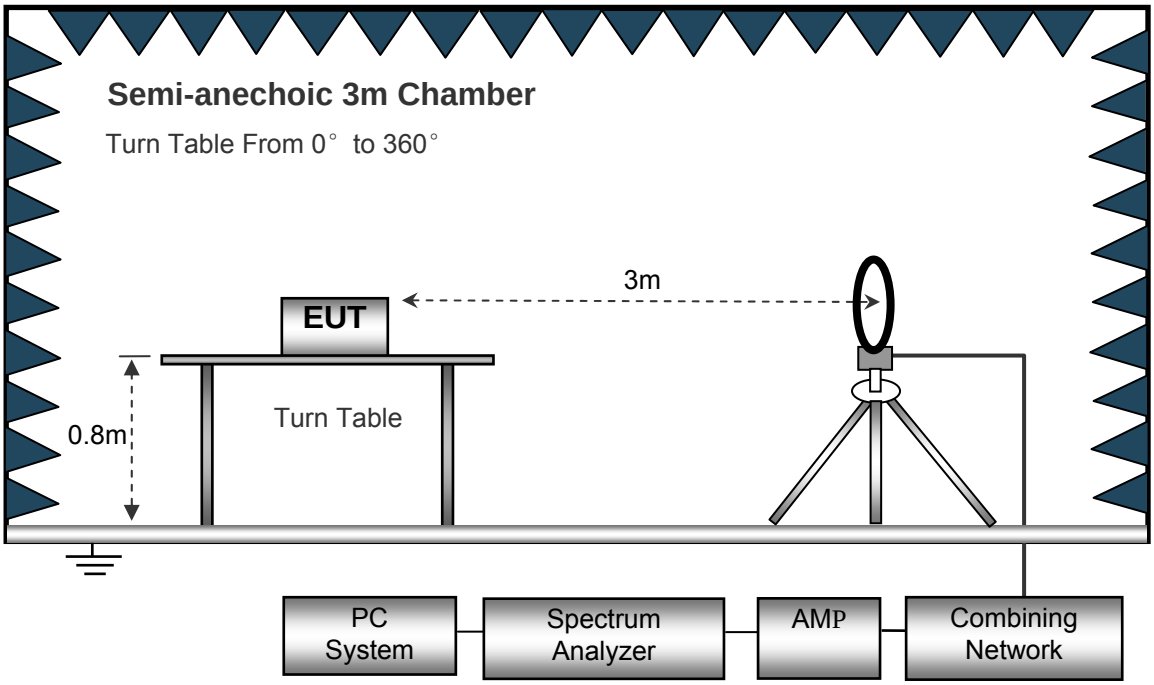
EUT Operation **:**

The test was performed in transmitting mode, the test data were shown in the report.

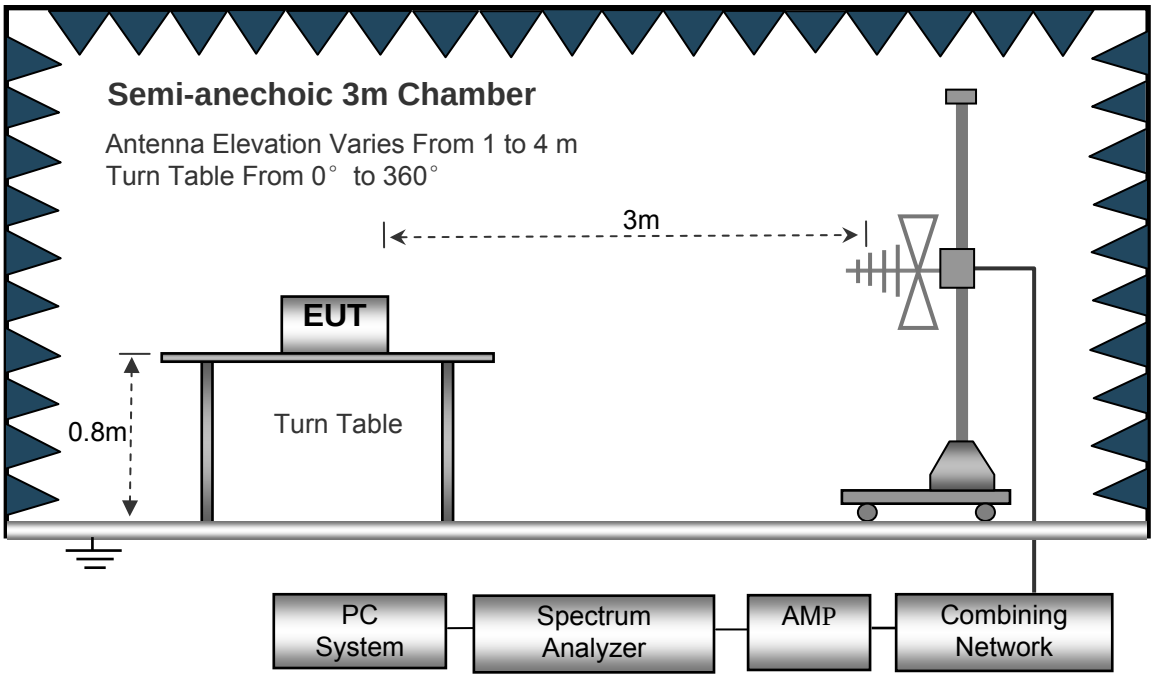
9.2 Test Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup acordance with the ANSI C63.10: 2013.

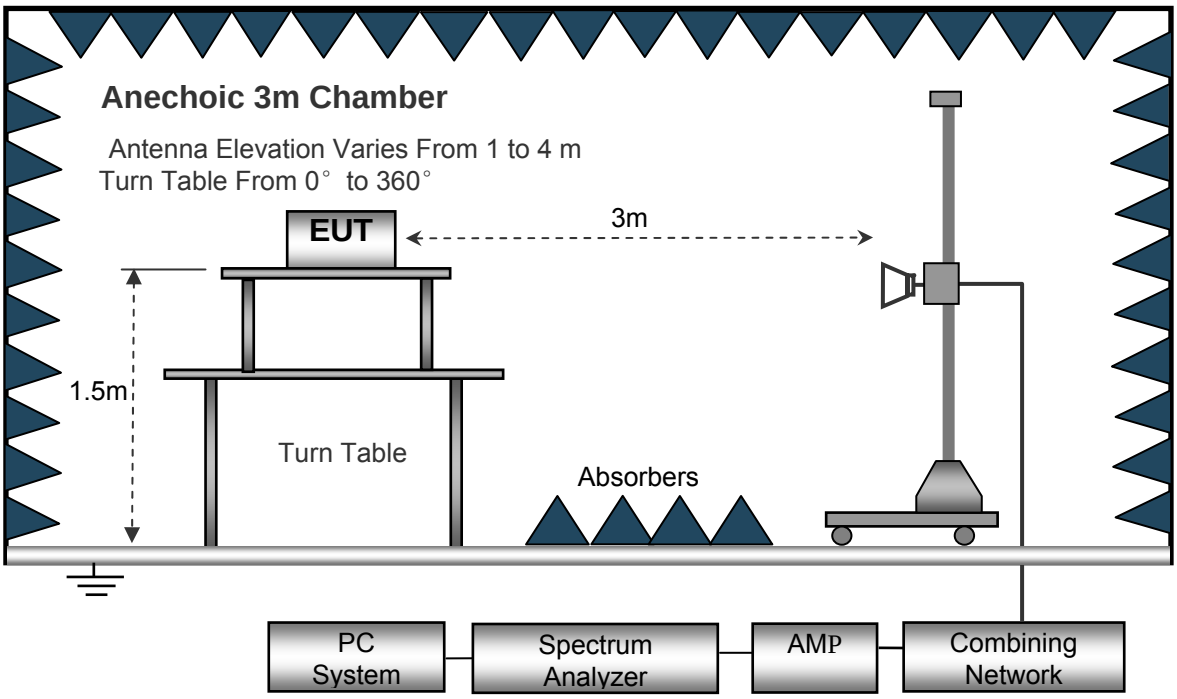
The test setup for emission measurement below 30MHz.



The test setup for emission measurement from 30 MHz to 1 GHz.



The test setup for emission measurement above 1 GHz.



9.3 Spectrum Analyzer Setup

Below 30MHz

Sweep Speed ..... Auto
IF Bandwidth..... 10kHz
Video Bandwidth..... 10kHz
Resolution Bandwidth..... 10kHz

30MHz ~ 1GHz

Sweep Speed ..... Auto
Detector ..... PK
Resolution Bandwidth..... 100kHz
Video Bandwidth..... 300kHz

Above 1GHz

Sweep Speed ..... Auto
Detector ..... PK
Resolution Bandwidth..... 1MHz
Video Bandwidth..... 3MHz
Detector ..... Ave.
Resolution Bandwidth..... 1MHz
Video Bandwidth..... 10Hz

9.4 Test Procedure

1. The EUT is plaed on a turntable, which is 0.8m above ground plane for below 1GHz and 1.5m for above 1GHz.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is moved from 1m to 4m to find out the maximum emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, eah emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.
7. The radiation measurements are performed in X,Y and Z axis positioning(X denotes lying on the table, Y denotes side stand and Z denotes vertical stand),the worst condition was tested putting the eut in X axis,so the worst data were shown as follow.
8. A 2.4GHz high –pass filter is used druing radiated emissions above 1GHz measurement.

9.5 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Fator and Cable Fator, and subtrating the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

Corr. Ampl. = Indicated Reading + Antenna Fator + Cable Fator - Amplifier Gain

The “Margin” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dB means the emission is 7dB below the maximum limit for Class B. The equation for margin calculation is as follows:

Margin = Corr. Ampl. – Limit

9.6 Summary of Test Results

FCC Part15.33: For an intentional radiator, the spectrum shall be investigated from the lowest radio frequency signal generated in the device, without going below 9 kHz, up to at least the frequency shown in this paragraph: If the intentional radiator operates below 10 GHz: to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.

Test Frequency : 30MHz ~ 18GHz

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Fator	Corrected Amplitude	FCC Part 15.407/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
802.11n(HT20) U-NII-1 low Channel 5180MHz									
226.36	46.22	QP	324	1.6	H	-11.25	34.97	46.00	-11.03
226.36	46.58	QP	291	1.1	V	-11.25	35.33	46.00	-10.67
4511.65	45.60	PK	135	1.4	H	-1.54	44.06	74.00	-29.94
4511.65	38.84	Ave	135	1.4	H	-1.54	37.30	54.00	-16.70
5110.04	45.37	PK	128	1.2	H	-0.75	44.62	74.00	-29.38
5110.04	46.33	Ave	128	1.2	H	-0.75	45.58	54.00	-8.42
10360.00	37.99	PK	202	1.4	H	5.33	43.32	74.00	-30.68
10360.00	25.41	Ave	202	1.4	H	5.33	30.74	54.00	-23.26
15540.00	43.27	PK	239	1.4	H	5.29	48.56	74.00	-25.44
15540.00	38.61	Ave	239	1.4	H	5.29	43.90	54.00	-10.10
802.11n(HT20) U-NII-1 middle channel 5200MHz									
226.52	44.25	QP	322	2.0	H	-10.96	33.29	46.00	-12.71
226.52	47.57	QP	71	1.6	V	-10.96	36.61	46.00	-9.39
4518.39	46.35	PK	276	1.1	H	-1.64	44.71	74.00	-29.29
4518.39	43.45	Ave	276	1.1	H	-1.64	41.81	54.00	-12.19
5144.14	45.66	PK	323	1.1	H	-0.91	44.75	74.00	-29.25
5144.14	43.77	Ave	323	1.1	H	-0.91	42.86	54.00	-11.14
10400.00	38.70	PK	21	1.4	H	5.21	43.91	74.00	-30.09
10400.00	23.06	Ave	21	1.4	H	5.21	28.27	54.00	-25.73
15600.00	46.67	PK	233	1.7	H	5.30	51.97	74.00	-22.03
15600.00	38.07	Ave	233	1.7	H	5.30	43.37	54.00	-10.63

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Fator	Corrected Amplitude	FCC Part 15.407/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
802.11n(HT20) U-NII-1 High channel 5240MHz									
226.64	45.26	QP	208	1.8	H	-10.97	34.29	46.00	-11.71
226.64	44.19	QP	94	1.7	V	-10.97	33.22	46.00	-12.78
4504.45	41.58	PK	254	1.9	H	-1.56	40.02	74.00	-33.98
4504.45	43.13	Ave	254	1.9	H	-1.56	41.57	54.00	-12.43
5113.71	44.95	PK	159	1.2	H	-0.81	44.14	74.00	-29.86
5113.71	43.92	Ave	159	1.2	H	-0.81	43.11	54.00	-10.89
10480.00	41.44	PK	311	1.4	H	5.14	46.58	74.00	-27.42
10480.00	35.54	Ave	311	1.4	H	5.14	40.68	54.00	-13.32
15720.00	46.89	PK	284	1.6	H	5.10	51.99	74.00	-22.01
15720.00	39.36	Ave	284	1.6	H	5.10	44.46	54.00	-9.54
802.11n(HT20) U-NII-3 low Channel 5745MHz									
227.30	46.24	QP	47	1.9	H	-10.99	35.25	46.00	-10.75
227.30	44.06	QP	359	1.9	V	-10.99	33.07	46.00	-12.93
4538.84	44.87	PK	331	1.1	H	-1.80	43.07	74.00	-30.93
4538.84	39.31	Ave	331	1.1	H	-1.80	37.51	54.00	-16.49
5144.75	42.49	PK	192	1.3	H	-0.96	41.53	74.00	-32.47
5144.75	36.83	Ave	192	1.3	H	-0.96	35.87	54.00	-18.13
11490.00	46.80	PK	147	1.7	H	5.93	52.73	74.00	-21.27
11490.00	37.85	Ave	147	1.7	H	5.93	43.78	54.00	-10.22
17235.00	46.60	PK	291	1.2	H	10.35	56.95	74.00	-17.05
17235.00	38.28	Ave	291	1.2	H	10.35	48.63	54.00	-5.37

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Fator	Corrected Amplitude	FCC Part 15.407/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
802.11n(HT20) U-NII-3 middle channel 5785MHz									
227.36	46.75	QP	346	1.1	H	-11.13	35.62	46.00	-10.38
227.36	46.16	QP	335	1.8	V	-11.13	35.03	46.00	-10.97
4505.04	44.03	PK	91	1.4	H	-1.59	42.44	74.00	-31.56
4505.04	42.52	Ave	91	1.4	H	-1.59	40.93	54.00	-13.07
5125.35	41.12	PK	350	1.9	H	-0.95	40.17	74.00	-33.83
5125.35	35.36	Ave	350	1.9	H	-0.95	34.41	54.00	-19.59
11570.00	46.99	PK	212	1.6	H	5.81	52.80	74.00	-21.20
11570.00	38.71	Ave	212	1.6	H	5.81	44.52	54.00	-9.48
17355.00	45.72	PK	275	1.9	H	10.37	56.09	74.00	-17.91
17355.00	39.42	Ave	275	1.9	H	10.37	49.79	54.00	-4.21
802.11n(HT20) U-NII-3 High channel 5825MHz									
227.14	44.85	QP	176	1.7	H	-11.03	33.82	46.00	-12.18
227.14	46.95	QP	58	1.4	V	-11.03	35.92	46.00	-10.08
4527.42	43.00	PK	261	1.4	H	-1.68	41.32	74.00	-32.68
4527.42	43.64	Ave	261	1.4	H	-1.68	41.96	54.00	-12.04
5127.21	42.25	PK	27	1.2	H	-0.96	41.29	74.00	-32.71
5127.21	35.37	Ave	27	1.2	H	-0.96	34.41	54.00	-19.59
11650.00	45.14	PK	299	1.9	H	5.84	50.98	74.00	-23.02
11650.00	38.12	Ave	299	1.9	H	5.84	43.96	54.00	-10.04
17475.00	45.17	PK	109	1.0	H	10.41	55.58	74.00	-18.42
17475.00	39.12	Ave	109	1.0	H	10.41	49.53	54.00	-4.47

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Fator	Corrected Amplitude	FCC Part 15.407/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
802.11a(HT20) U-NII-1 low Channel 5180MHz									
227.05	45.60	QP	125	1.6	H	-11.20	34.40	46.00	-11.60
227.05	44.53	QP	280	1.8	V	-11.20	33.33	46.00	-12.67
4510.91	43.26	PK	247	1.7	H	-1.80	41.46	74.00	-32.54
4510.91	43.07	Ave	247	1.7	H	-1.80	41.27	54.00	-12.73
5143.01	41.47	PK	68	1.3	H	-0.94	40.53	74.00	-33.47
5143.01	34.20	Ave	68	1.3	H	-0.94	33.26	54.00	-20.74
10360.00	41.96	PK	195	1.4	H	5.33	47.29	74.00	-26.71
10360.00	25.08	Ave	195	1.4	H	5.33	30.41	54.00	-23.59
15540.00	43.46	PK	75	1.7	H	5.29	48.75	74.00	-25.25
15540.00	38.74	Ave	75	1.7	H	5.29	44.03	54.00	-9.97
802.11a(HT20) U-NII-1 middle channel 5200MHz									
226.87	47.15	QP	47	1.4	H	-11.15	36.00	46.00	-10.00
226.87	42.64	QP	164	1.1	V	-11.15	31.49	46.00	-14.51
4525.30	42.34	PK	42	1.1	H	-1.69	40.65	74.00	-33.35
4525.30	41.01	Ave	42	1.1	H	-1.69	39.32	54.00	-14.68
5140.78	42.41	PK	90	1.9	H	-0.91	41.50	74.00	-32.50
5140.78	43.94	Ave	90	1.9	H	-0.91	43.03	54.00	-10.97
10400.00	40.08	PK	264	1.6	H	5.21	45.29	74.00	-28.71
10400.00	23.68	Ave	264	1.6	H	5.21	28.89	54.00	-25.11
15600.00	46.83	PK	8	1.8	H	5.30	52.13	74.00	-21.87
15600.00	39.97	Ave	8	1.8	H	5.30	45.27	54.00	-8.73

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Fator	Corrected Amplitude	FCC Part 15.407/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
802.11a(HT20) U-NII-1 High channel 5240MHz									
226.92	47.51	QP	58	1.9	H	-11.18	36.33	46.00	-9.67
226.92	44.27	QP	11	1.2	V	-11.18	33.09	46.00	-12.91
4522.96	43.19	PK	300	1.2	H	-1.77	41.42	74.00	-32.58
4522.96	42.93	Ave	300	1.2	H	-1.77	41.16	54.00	-12.84
5135.35	45.28	PK	155	1.9	H	-0.79	44.49	74.00	-29.51
5135.35	44.08	Ave	155	1.9	H	-0.79	43.29	54.00	-10.71
10480.00	40.49	PK	351	1.7	H	5.14	45.63	74.00	-28.37
10480.00	35.65	Ave	351	1.7	H	5.14	40.79	54.00	-13.21
15720.00	46.41	PK	117	1.2	H	5.10	51.51	74.00	-22.49
15720.00	39.18	Ave	117	1.2	H	5.10	44.28	54.00	-9.72
802.11a(HT20) U-NII-3 low Channel 5745MHz									
226.64	48.59	QP	13	2.0	H	-11.15	37.44	46.00	-8.56
226.64	45.54	QP	4	1.5	V	-11.15	34.39	46.00	-11.61
4527.60	40.81	PK	31	1.4	H	-1.64	39.17	74.00	-34.83
4527.60	41.50	Ave	31	1.4	H	-1.64	39.86	54.00	-14.14
5147.71	39.60	PK	250	1.9	H	-0.84	38.76	74.00	-35.24
5147.71	36.60	Ave	250	1.9	H	-0.84	35.76	54.00	-18.24
11490.00	46.52	PK	49	1.3	H	5.93	52.45	74.00	-21.55
11490.00	38.72	Ave	49	1.3	H	5.93	44.65	54.00	-9.35
17235.00	46.92	PK	180	1.4	H	10.35	57.27	74.00	-16.73
17235.00	39.83	Ave	180	1.4	H	10.35	50.18	54.00	-3.82

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Fator	Corrected Amplitude	FCC Part 15.407/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
802.11a(HT20) U-NII-3 middle channel 5785MHz									
226.78	45.95	QP	333	1.9	H	-11.02	34.93	46.00	-11.07
226.78	44.89	QP	272	1.4	V	-11.02	33.87	46.00	-12.13
4527.58	43.05	PK	230	1.6	H	-1.63	41.42	74.00	-32.58
4527.58	41.81	Ave	230	1.6	H	-1.63	40.18	54.00	-13.82
5133.98	40.62	PK	206	1.1	H	-0.73	39.89	74.00	-34.11
5133.98	36.12	Ave	206	1.1	H	-0.73	35.39	54.00	-18.61
11570.00	46.29	PK	257	1.4	H	5.81	52.10	74.00	-21.90
11570.00	37.76	Ave	257	1.4	H	5.81	43.57	54.00	-10.43
17355.00	46.26	PK	281	1.4	H	10.37	56.63	74.00	-17.37
17355.00	38.44	Ave	281	1.4	H	10.37	48.81	54.00	-5.19
802.11a(HT20) U-NII-3 High channel 5825MHz									
227.11	45.80	QP	359	1.4	H	-11.25	34.55	46.00	-11.45
227.11	44.25	QP	358	1.4	V	-11.25	33.00	46.00	-13.00
4523.25	43.70	PK	1	1.9	H	-1.67	42.03	74.00	-31.97
4523.25	44.58	Ave	1	1.9	H	-1.67	42.91	54.00	-11.09
5143.96	41.57	PK	201	1.6	H	-0.83	40.74	74.00	-33.26
5143.96	35.64	Ave	201	1.6	H	-0.83	34.81	54.00	-19.19
11650.00	46.44	PK	184	1.5	H	5.84	52.28	74.00	-21.72
11650.00	37.89	Ave	184	1.5	H	5.84	43.73	54.00	-10.27
17475.00	46.63	PK	31	1.1	H	10.41	57.04	74.00	-16.96
17475.00	37.55	Ave	31	1.1	H	10.41	47.96	54.00	-6.04

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.407/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
802.11n(HT40) U-NII-1 low Channel 5190MHz									
227.12	45.06	QP	167	1.5	H	-11.20	33.86	46.00	-12.14
227.12	44.52	QP	176	1.9	V	-11.20	33.32	46.00	-12.68
4511.87	38.65	PK	148	2.0	H	-1.50	37.15	74.00	-36.85
4511.87	37.81	Ave	148	2.0	H	-1.50	36.31	54.00	-17.69
5111.63	46.74	PK	141	1.3	H	-0.86	45.88	74.00	-28.12
5111.63	38.75	Ave	141	1.3	H	-0.86	37.89	54.00	-16.11
10380.00	38.37	PK	346	1.4	H	5.26	43.63	74.00	-30.37
10380.00	34.53	Ave	346	1.4	H	5.26	39.79	54.00	-14.21
15570.00	45.30	PK	333	1.7	H	5.13	50.43	74.00	-23.57
15570.00	38.47	Ave	333	1.7	H	5.13	43.60	54.00	-10.40
802.11n(HT40) U-NII-1 High channel 5230MHz									
227.02	45.97	QP	279	1.7	H	-11.12	34.85	46.00	-11.15
227.02	43.52	QP	330	1.6	V	-11.12	32.40	46.00	-13.60
4502.50	44.31	PK	87	1.1	H	-1.63	42.68	74.00	-31.32
4502.50	42.27	Ave	87	1.1	H	-1.63	40.64	54.00	-13.36
5117.06	44.36	PK	40	1.5	H	-0.90	43.46	74.00	-30.54
5117.06	43.30	Ave	40	1.5	H	-0.90	42.40	54.00	-11.60
10460.00	41.64	PK	37	2.0	H	5.28	46.92	74.00	-27.08
10460.00	37.28	Ave	37	2.0	H	5.28	42.56	54.00	-11.44
15690.00	46.15	PK	320	1.2	H	5.02	51.17	74.00	-22.83
15690.00	39.39	Ave	320	1.2	H	5.02	44.41	54.00	-9.59

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.407/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
802.11n(HT40) U-NII-3 low Channel 5755MHz									
227.04	47.88	QP	348	1.2	H	-10.98	36.90	46.00	-9.10
227.04	44.36	QP	15	1.6	V	-10.98	33.38	46.00	-12.62
4517.62	35.46	PK	255	1.3	H	-1.69	33.77	74.00	-40.23
4517.62	34.83	Ave	255	1.3	H	-1.69	33.14	54.00	-20.86
5114.28	39.97	PK	244	1.2	H	-0.74	39.23	74.00	-34.77
5114.28	35.14	Ave	244	1.2	H	-0.74	34.40	54.00	-19.60
11510.00	45.55	PK	6	1.1	H	5.88	51.43	74.00	-22.57
11510.00	38.81	Ave	6	1.1	H	5.88	44.69	54.00	-9.31
17265.00	45.20	PK	234	1.4	H	10.42	55.62	74.00	-18.38
17265.00	38.59	Ave	234	1.4	H	10.42	49.01	54.00	-4.99
802.11n(HT40) U-NII-3 High channel 5795MHz									
227.00	44.77	QP	247	1.9	H	-11.19	33.58	46.00	-12.42
227.00	45.16	QP	105	2.0	V	-11.19	33.97	46.00	-12.03
4517.88	45.18	PK	20	1.3	H	-1.69	43.49	74.00	-30.51
4517.88	42.52	Ave	20	1.3	H	-1.69	40.83	54.00	-13.17
5121.43	40.37	PK	81	1.3	H	-0.89	39.48	74.00	-34.52
5121.43	36.36	Ave	81	1.3	H	-0.89	35.47	54.00	-18.53
11590.00	45.89	PK	264	1.5	H	5.63	51.52	74.00	-22.48
11590.00	37.49	Ave	264	1.5	H	5.63	43.12	54.00	-10.88
17385.00	46.94	PK	123	1.1	H	10.63	57.57	74.00	-16.43
17385.00	37.81	Ave	123	1.1	H	10.63	48.44	54.00	-5.56

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.407/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
802.11ac(HT40) U-NII-1 low Channel 5190MHz									
226.82	49.49	QP	110	2.0	H	-11.09	38.40	46.00	-7.60
226.82	50.46	QP	226	1.1	V	-11.09	39.37	46.00	-6.63
4530.74	41.11	PK	276	1.6	H	-1.70	39.41	74.00	-34.59
4530.74	40.74	Ave	276	1.6	H	-1.70	39.04	54.00	-14.96
5127.80	46.69	PK	45	1.9	H	-0.78	45.91	74.00	-28.09
5127.80	36.81	Ave	45	1.9	H	-0.78	36.03	54.00	-17.97
10380.00	40.04	PK	74	1.1	H	5.26	45.30	74.00	-28.70
10380.00	34.08	Ave	74	1.1	H	5.26	39.34	54.00	-14.66
15570.00	46.15	PK	77	1.3	H	5.13	51.28	74.00	-22.72
15570.00	38.42	Ave	77	1.3	H	5.13	43.55	54.00	-10.45
802.11ac(HT40) U-NII-1 High channel 5230MHz									
226.83	45.80	QP	4	1.3	H	-11.25	34.55	46.00	-11.45
226.83	44.17	QP	235	1.6	V	-11.25	32.92	46.00	-13.08
4502.83	41.44	PK	320	2.0	H	-1.50	39.94	74.00	-34.06
4502.83	39.84	Ave	320	2.0	H	-1.50	38.34	54.00	-15.66
5124.52	38.83	PK	343	1.7	H	-0.85	37.98	74.00	-36.02
5124.52	35.92	Ave	343	1.7	H	-0.85	35.07	54.00	-18.93
10460.00	41.35	PK	127	1.6	H	5.28	46.63	74.00	-27.37
10460.00	36.26	Ave	127	1.6	H	5.28	41.54	54.00	-12.46
15690.00	45.47	PK	76	1.5	H	5.02	50.49	74.00	-23.51
15690.00	39.62	Ave	76	1.5	H	5.02	44.64	54.00	-9.36

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.407/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
802.11ac(HT40) U-NII-3 low Channel 5755MHz									
226.84	48.72	QP	211	1.8	H	-10.99	37.73	46.00	-8.27
226.84	44.90	QP	265	1.3	V	-10.99	33.91	46.00	-12.09
4526.73	39.09	PK	326	1.8	H	-1.79	37.30	74.00	-36.70
4526.73	40.87	Ave	326	1.8	H	-1.79	39.08	54.00	-14.92
5133.50	39.78	PK	201	1.8	H	-0.81	38.97	74.00	-35.03
5133.50	34.86	Ave	201	1.8	H	-0.81	34.05	54.00	-19.95
11510.00	45.45	PK	222	1.8	H	5.88	51.33	74.00	-22.67
11510.00	39.46	Ave	222	1.8	H	5.88	45.34	54.00	-8.66
17265.00	45.96	PK	283	1.3	H	10.42	56.38	74.00	-17.62
17265.00	38.17	Ave	283	1.3	H	10.42	48.59	54.00	-5.41
802.11ac(HT40) U-NII-3 High channel 5795MHz									
226.84	44.61	QP	196	1.0	H	-10.99	33.62	46.00	-12.38
226.84	45.33	QP	138	1.6	V	-10.99	34.34	46.00	-11.66
4535.25	43.71	PK	4	1.1	H	-1.54	42.17	74.00	-31.83
4535.25	42.68	Ave	4	1.1	H	-1.54	41.14	54.00	-12.86
5146.12	41.88	PK	154	1.1	H	-0.89	40.99	74.00	-33.01
5146.12	37.18	Ave	154	1.1	H	-0.89	36.29	54.00	-17.71
11590.00	46.59	PK	312	1.8	H	5.63	52.22	74.00	-21.78
11590.00	39.39	Ave	312	1.8	H	5.63	45.02	54.00	-8.98
17385.00	45.77	PK	247	1.5	H	10.63	56.40	74.00	-17.60
17385.00	37.33	Ave	247	1.5	H	10.63	47.96	54.00	-6.04

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.407/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
802.11ac(HT80) U-NII-1 low Channel 5210MHz									
226.84	44.87	QP	333	1.0	H	-11.18	33.69	46.00	-12.31
226.84	45.97	QP	324	1.0	V	-11.18	34.79	46.00	-11.21
4535.25	44.80	PK	322	1.2	H	-1.77	43.03	74.00	-30.97
4535.25	43.03	Ave	322	1.2	H	-1.77	41.26	54.00	-12.74
5146.12	41.83	PK	164	1.4	H	-0.82	41.01	74.00	-32.99
5146.12	49.47	Ave	164	1.4	H	-0.82	48.65	54.00	-5.35
10420.00	41.42	PK	276	1.8	H	4.65	46.07	74.00	-27.93
10420.00	37.58	Ave	276	1.8	H	4.65	42.23	54.00	-11.77
15630.00	45.28	PK	232	1.0	H	5.10	50.38	74.00	-23.62
15630.00	37.14	Ave	232	1.0	H	5.10	42.24	54.00	-11.76
802.11ac(HT80) U-NII-3 low Channel 5775MHz									
226.84	47.35	QP	221	1.3	H	-11.13	36.22	46.00	-9.78
226.84	43.20	QP	28	1.9	V	-11.13	32.07	46.00	-13.93
4515.97	44.03	PK	187	1.2	H	-1.75	42.28	74.00	-31.72
4515.97	42.64	Ave	187	1.2	H	-1.75	40.89	54.00	-13.11
5133.12	44.01	PK	221	1.5	H	-0.95	43.06	74.00	-30.94
5133.12	44.96	Ave	221	1.5	H	-0.95	44.01	54.00	-9.99
11550.00	42.24	PK	13	1.8	H	4.83	47.07	74.00	-26.93
11550.00	35.51	Ave	13	1.8	H	4.83	40.34	54.00	-13.66
17325.00	46.19	PK	150	1.3	H	10.55	56.74	74.00	-17.26
17325.00	38.19	Ave	150	1.3	H	10.55	48.74	54.00	-5.26

Test Frequency: 18GHz~40GHz

The measurements were more than 20 dB below the limit and not reported.

10 Duty cycle

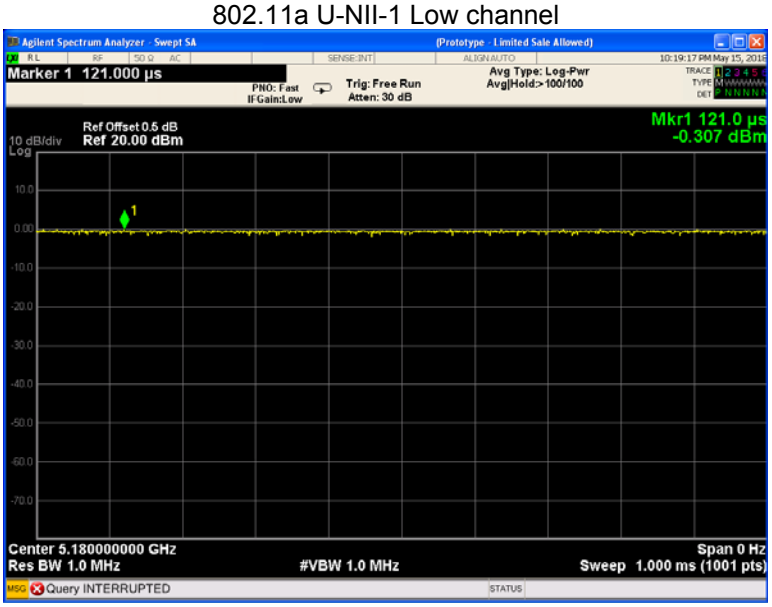
Test Requirement:	47 CFR Part 15C 15.407 and 789033 D02 General UNII Test Procedures New Rules v02r01, Section (B)
Test Method:	ANSI C63.10: 2013
Test Limit:	N/A
Test Result:	PASS
Remark:	Through Pre-scan, and found 802.11a at lowest channel is the worst case. Only the worst case is recorded in the report.

10.1 Summary of Test Results

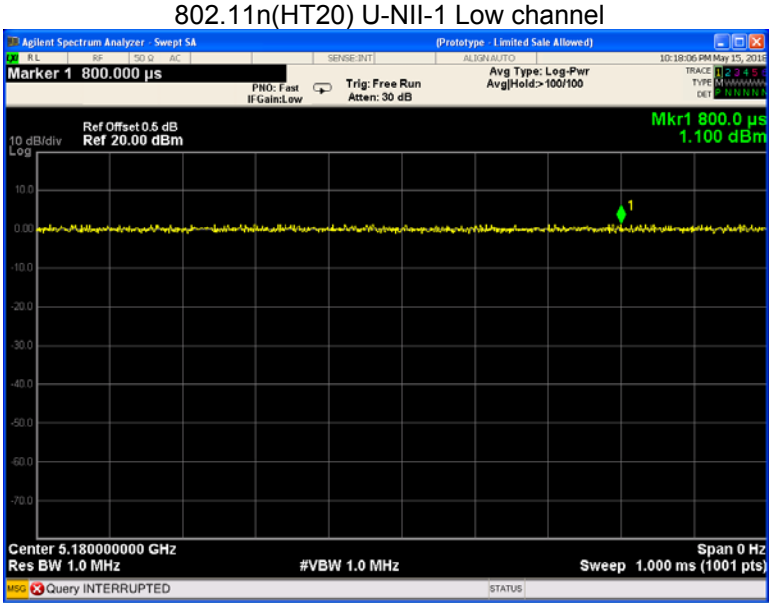
802.11a mode			
channel	On time(ms)	Period(ms)	Duty Cycle(%)
36	100	100	100
149	100	100	100
802.11n(HT20) mode			
channel	On time(ms)	Period(ms)	Duty Cycle(%)
36	100	100	100
149	100	100	100
802.11n(HT40) mode			
channel	On time(ms)	Period(ms)	Duty Cycle(%)
38	100	100	100
151	100	100	100
802.11ac(HT20) mode			
channel	On time(ms)	Period(ms)	Duty Cycle(%)
36	100	100	100
149	100	100	100
802.11ac(HT40) mode			
channel	On time(ms)	Period(ms)	Duty Cycle(%)
38	100	100	100
151	100	100	100
802.11ac(HT80) mode			
channel	On time(ms)	Period(ms)	Duty Cycle(%)
42	100	100	100
155	100	100	100

Test result plots shown as follows:

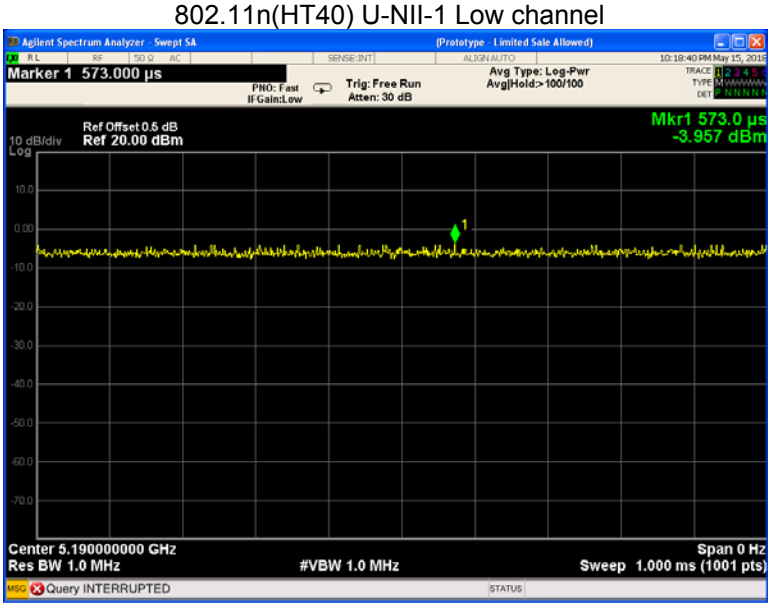
802.11a U-NII-1 Low channel



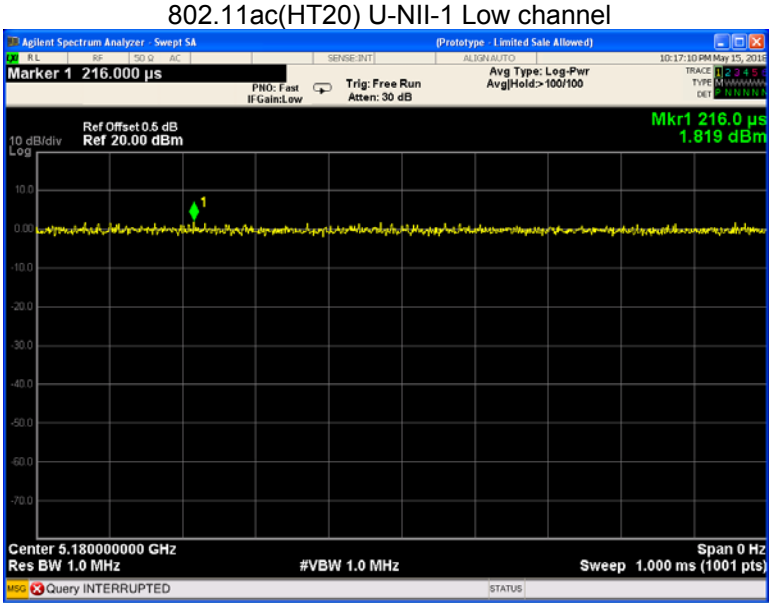
802.11n(HT20) U-NII-1 Low channel



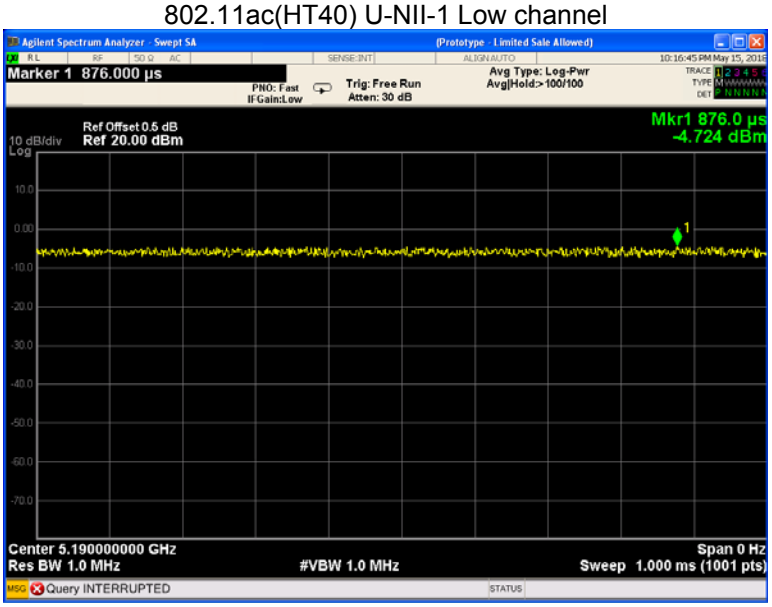
802.11n(HT40) U-NII-1 Low channel



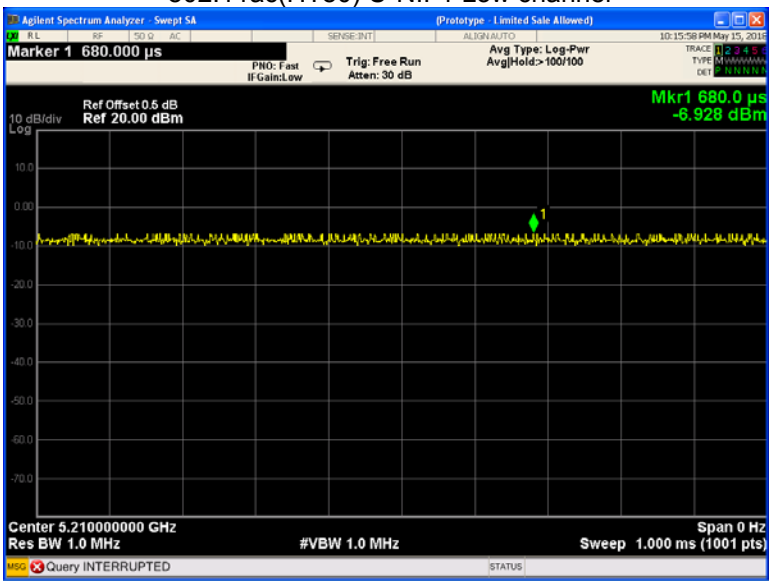
802.11ac(HT20) U-NII-1 Low channel



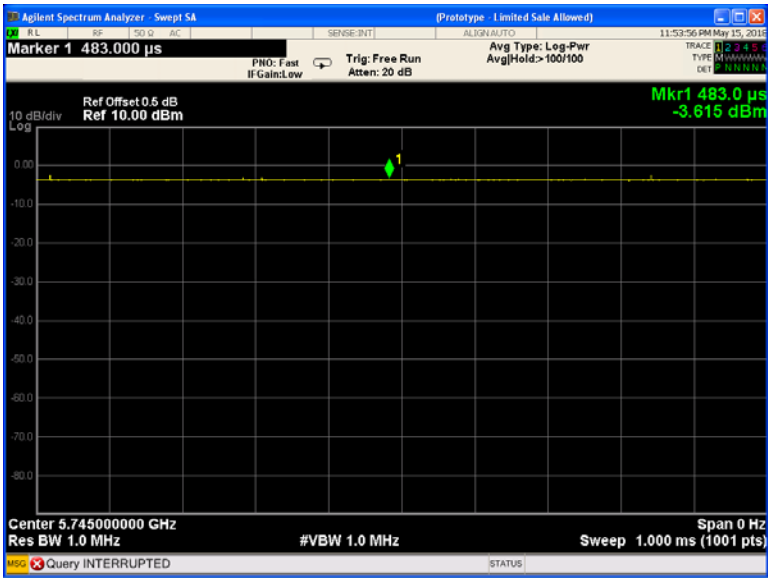
802.11ac(HT40) U-NII-1 Low channel



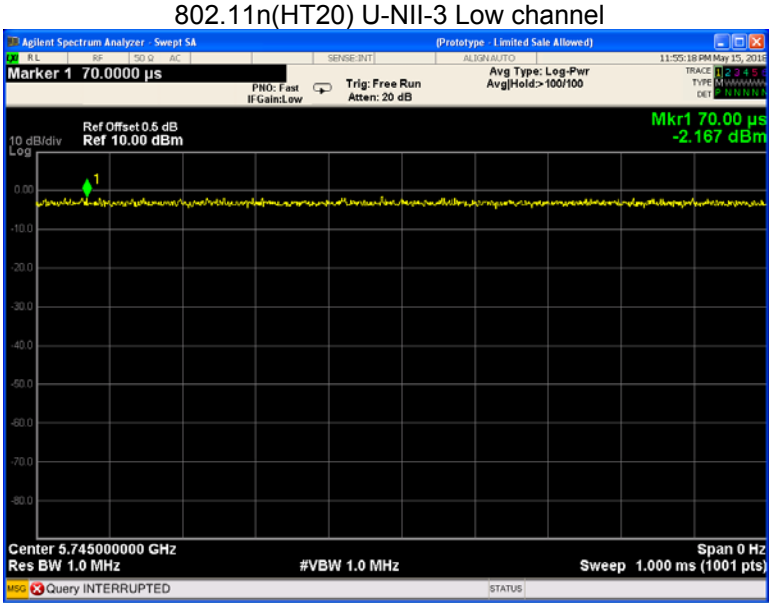
802.11ac(HT80) U-NII-1 Low channel



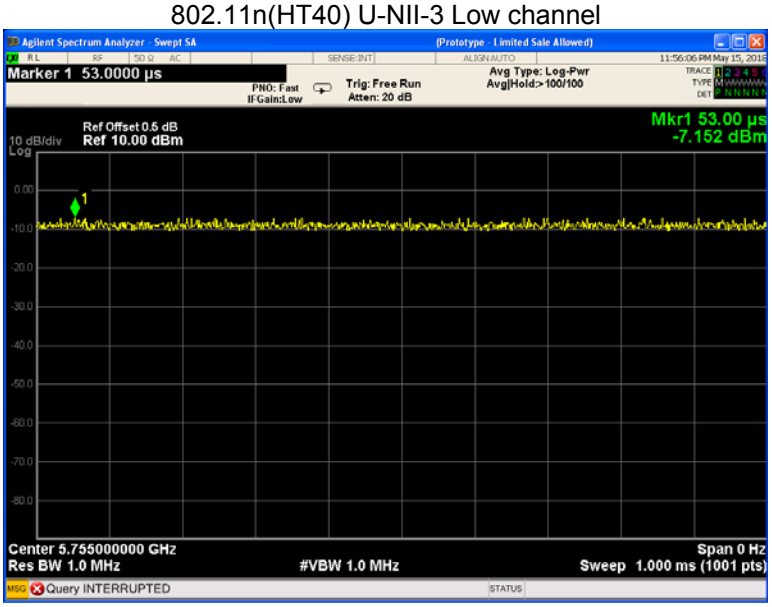
802.11a U-NII-3 Low channel



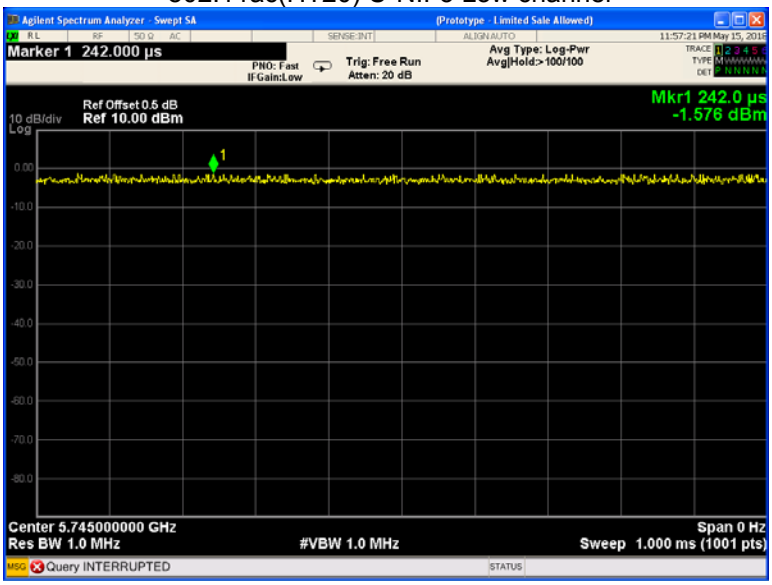
802.11n(HT20) U-NII-3 Low channel



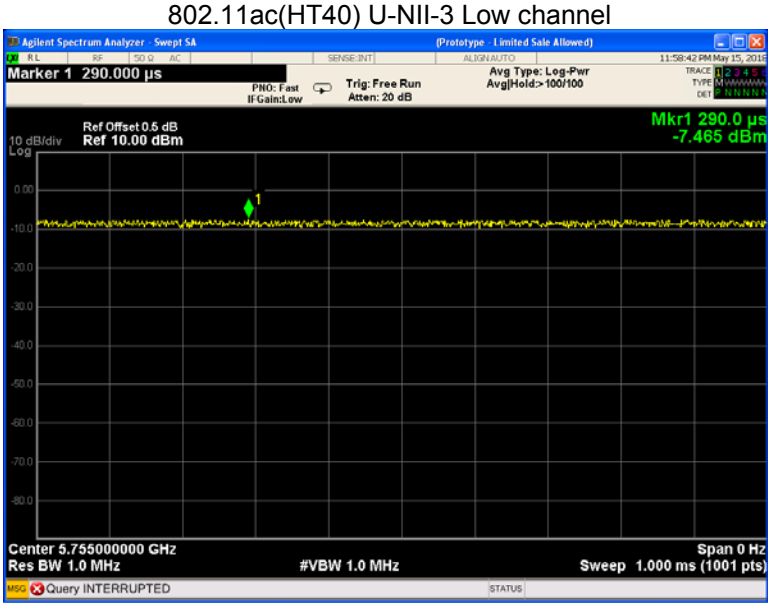
802.11n(HT40) U-NII-3 Low channel



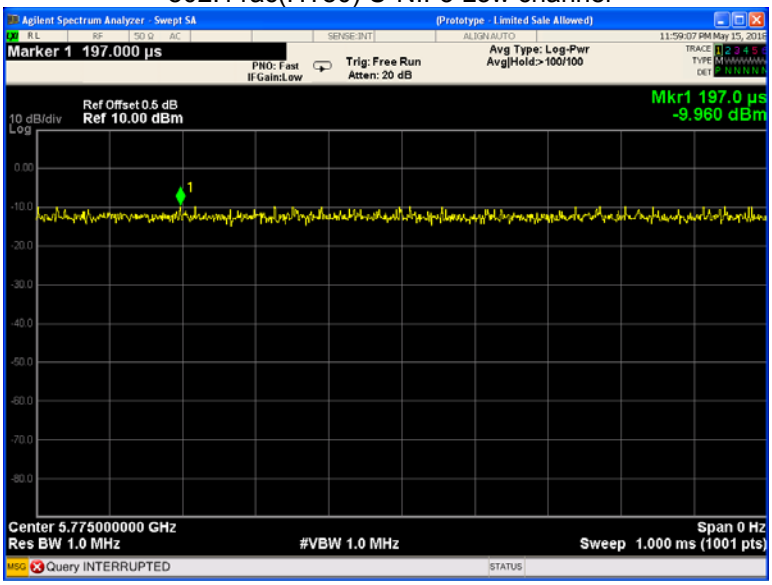
802.11ac(HT20) U-NII-3 Low channel



802.11ac(HT40) U-NII-3 Low channel



802.11ac(HT80) U-NII-3 Low channel



11 Band Edge

Test Requirement:	FCC CFR47 Part 15 Section 15.407
Test Method:	ANSI C63.10 2013
Test Limit:	(1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27dBm/MHz. (2) For transmitters operating in the 5.725-5.85 GHz band: All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.
Test Result:	PASS

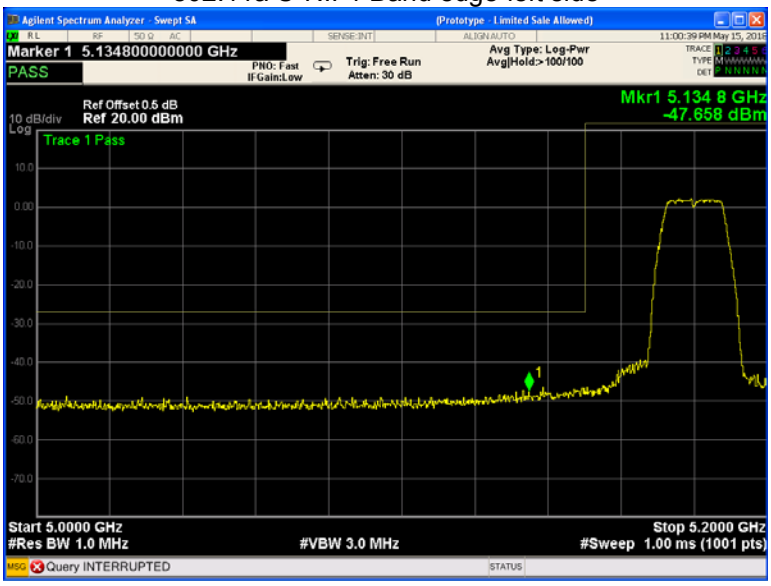
11.1 Test Produce

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set RBW to 100 kHz and VBW of spectrum analyzer to 300 kHz with a convenient frequency span including 100 kHz bandwidth from band edge.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

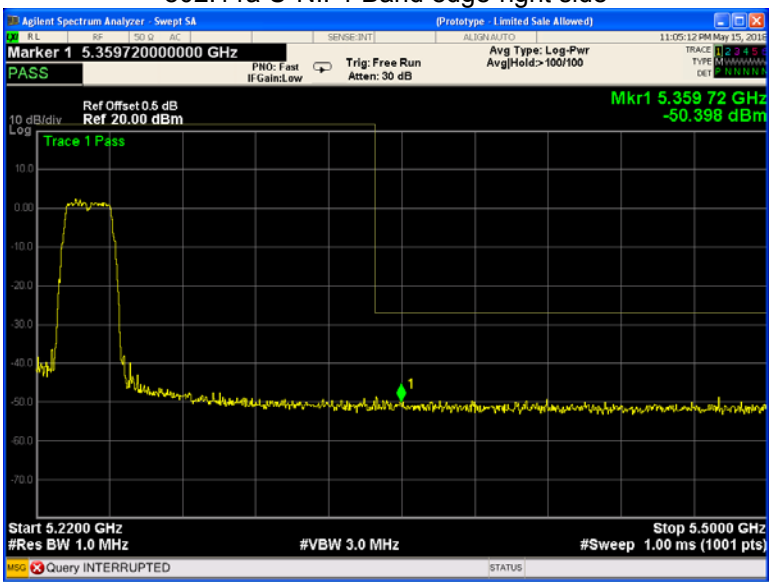
11.2 Test Result

Test result plots shown as follows:

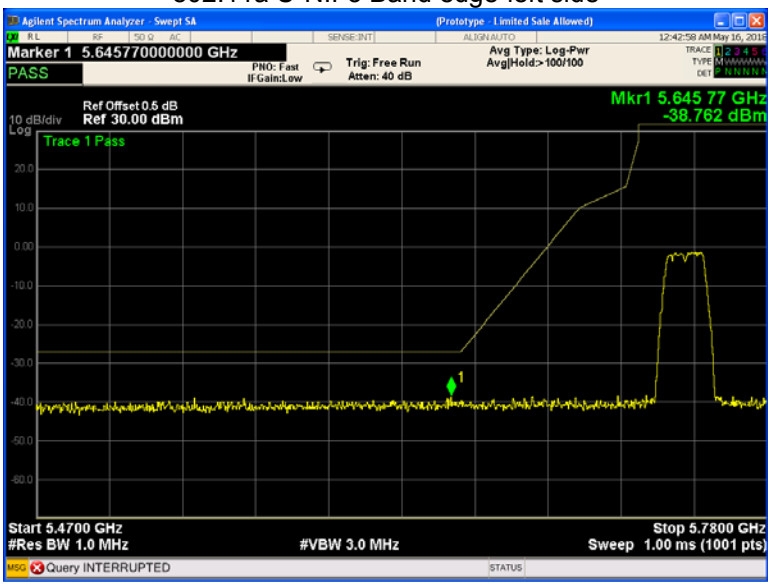
802.11a U-NII-1 Band edge-left side



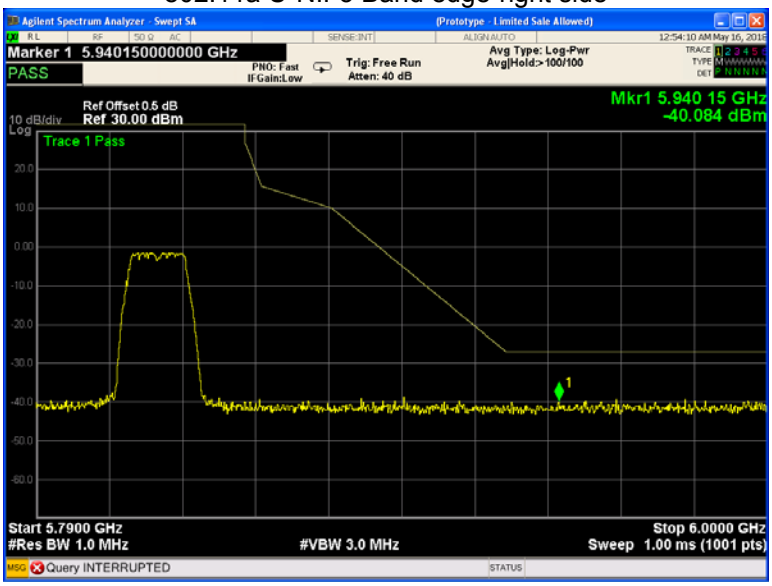
802.11a U-NII-1 Band edge-right side



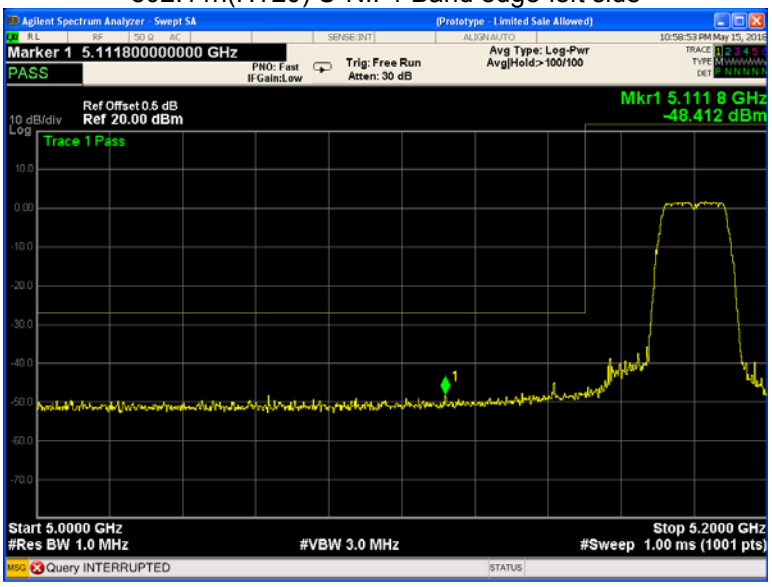
802.11a U-NII-3 Band edge-left side



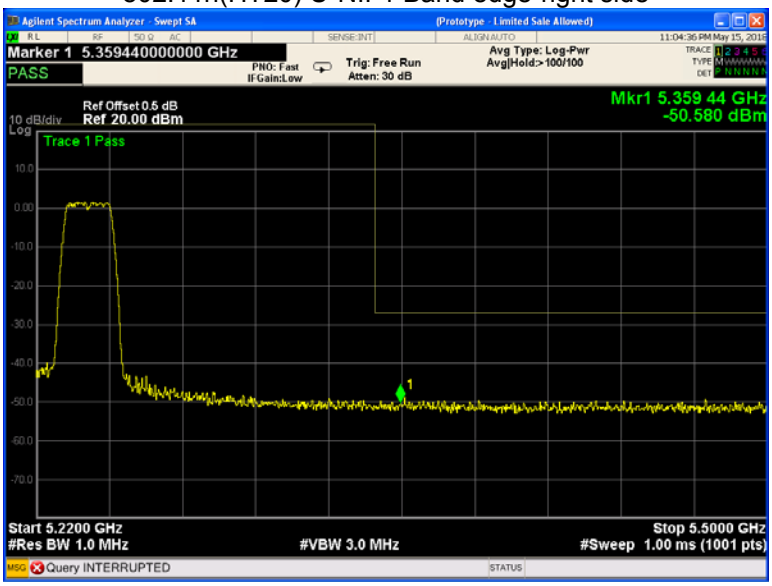
802.11a U-NII-3 Band edge-right side



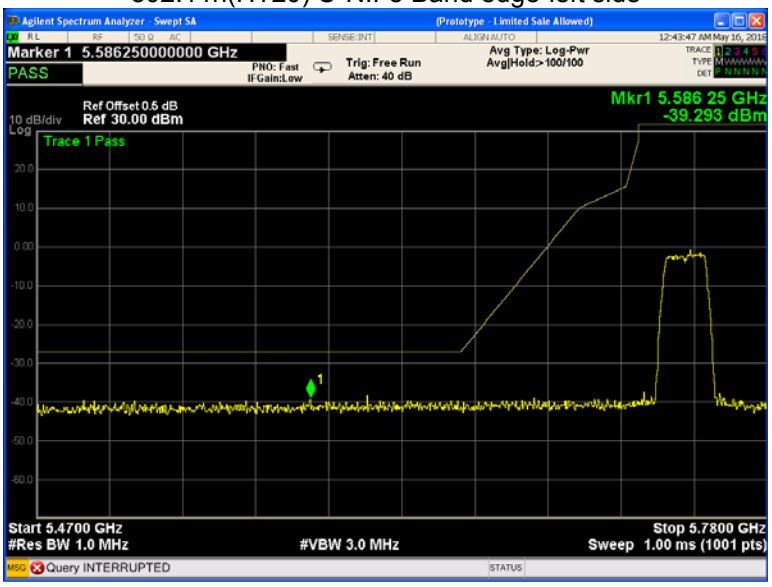
802.11n(HT20) U-NII-1 Band edge-left side



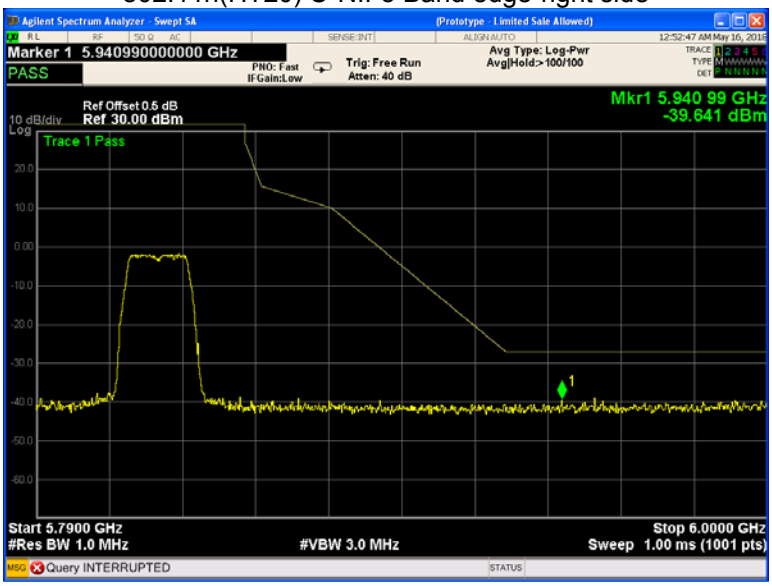
802.11n(HT20) U-NII-1 Band edge-right side



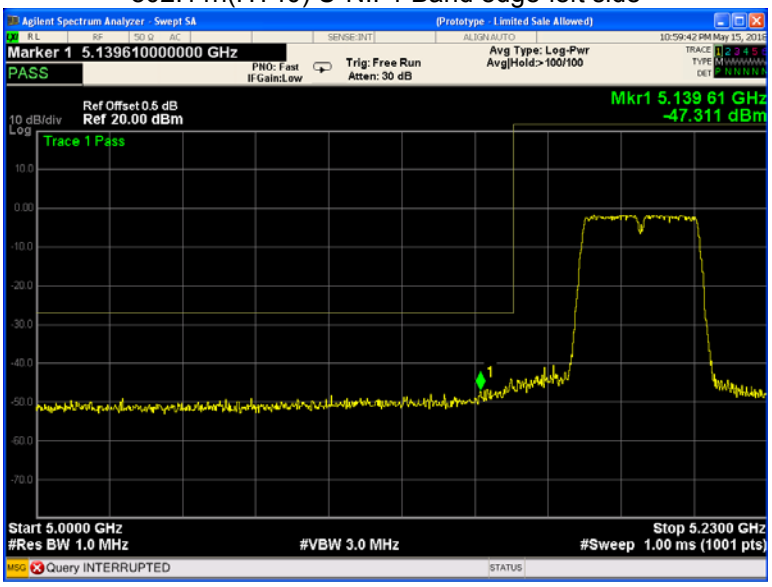
802.11n(HT20) U-NII-3 Band edge-left side



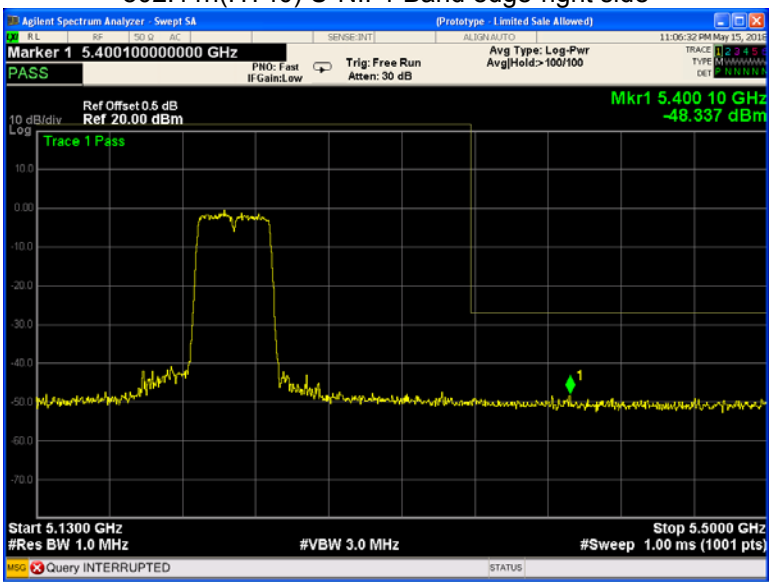
802.11n(HT20) U-NII-3 Band edge-right side



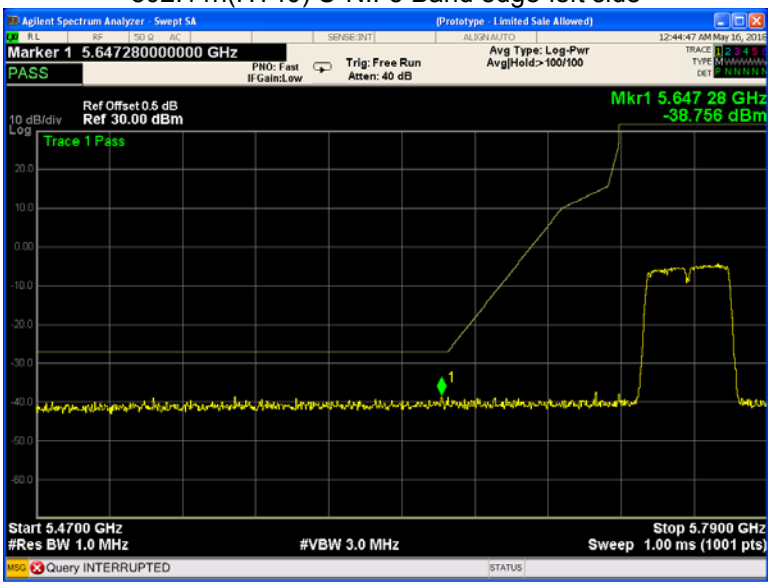
802.11n(HT40) U-NII-1 Band edge-left side



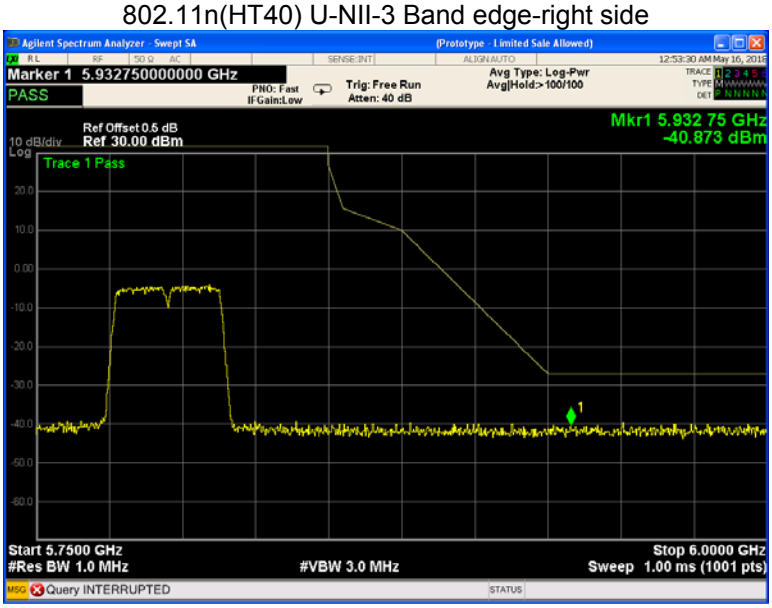
802.11n(HT40) U-NII-1 Band edge-right side



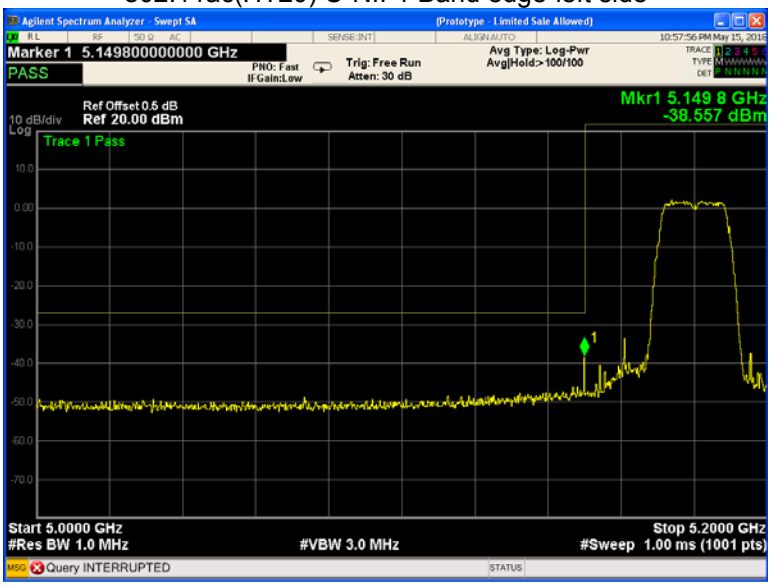
802.11n(HT40) U-NII-3 Band edge-left side



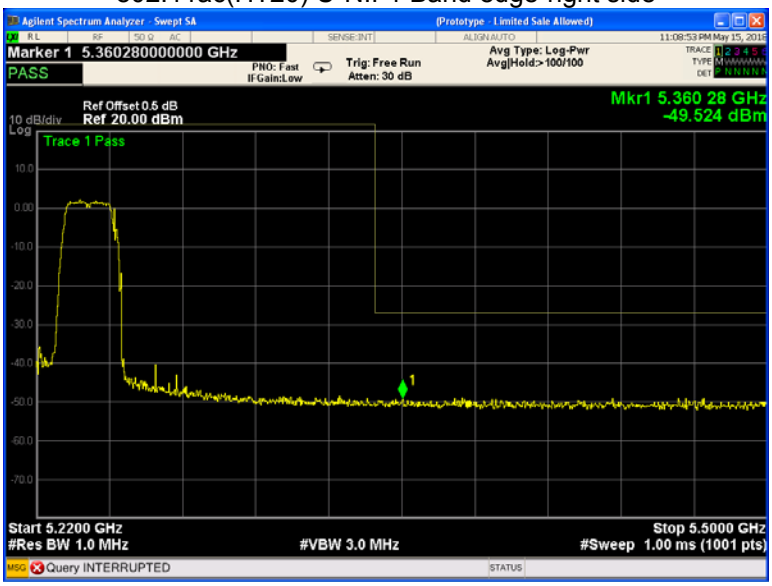
802.11n(HT40) U-NII-3 Band edge-right side



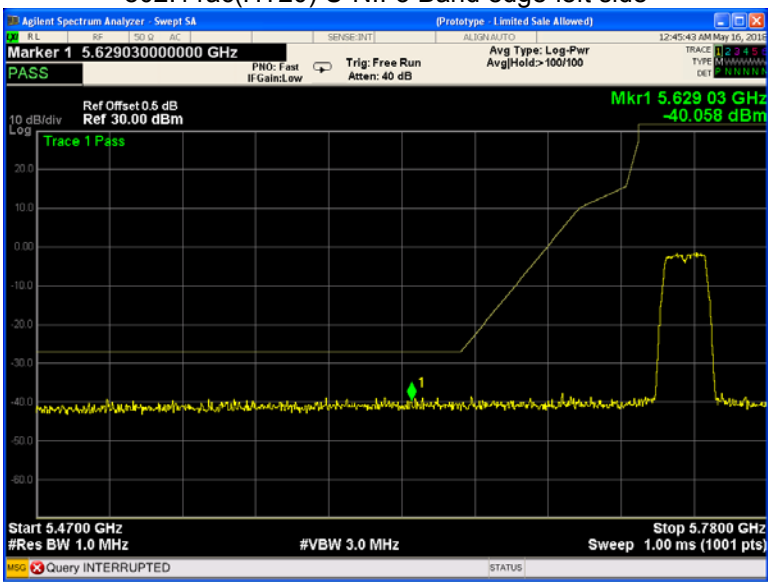
802.11ac(HT20) U-NII-1 Band edge-left side



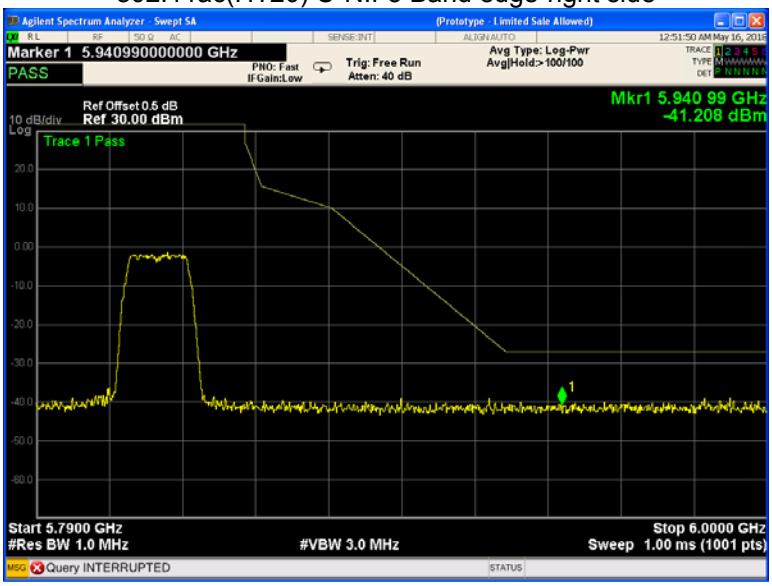
802.11ac(HT20) U-NII-1 Band edge-right side



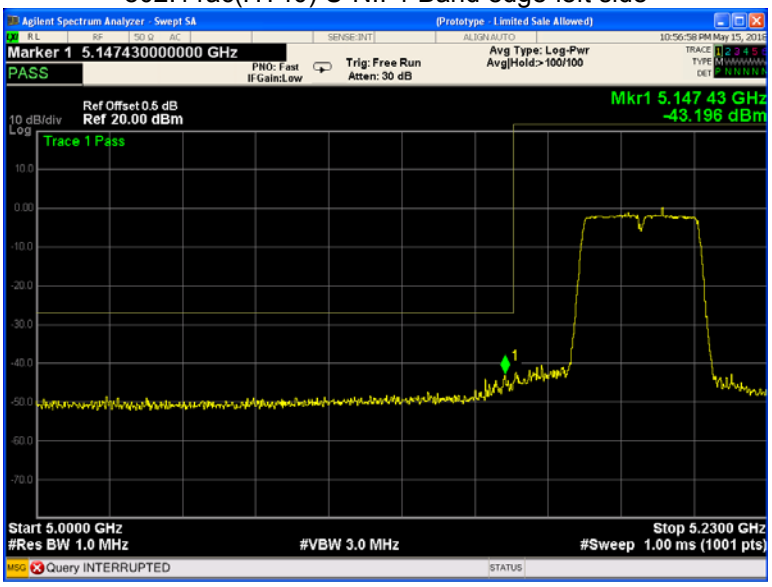
802.11ac(HT20) U-NII-3 Band edge-left side



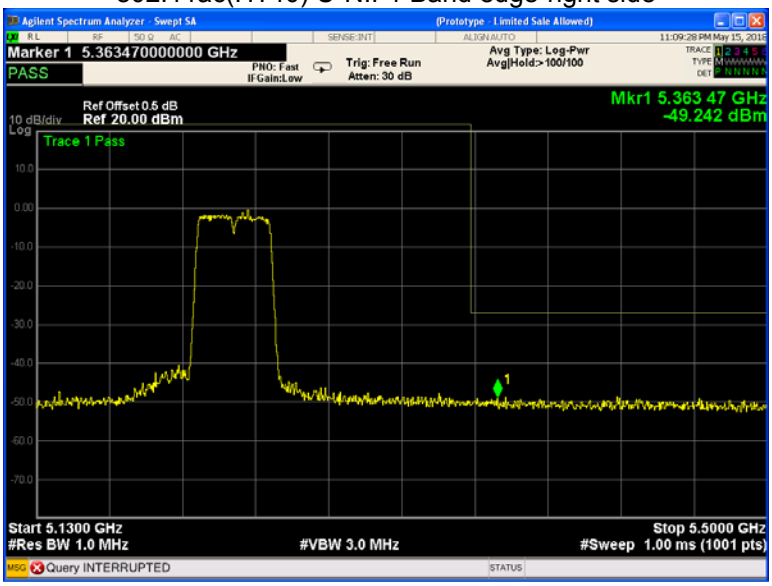
802.11ac(HT20) U-NII-3 Band edge-right side



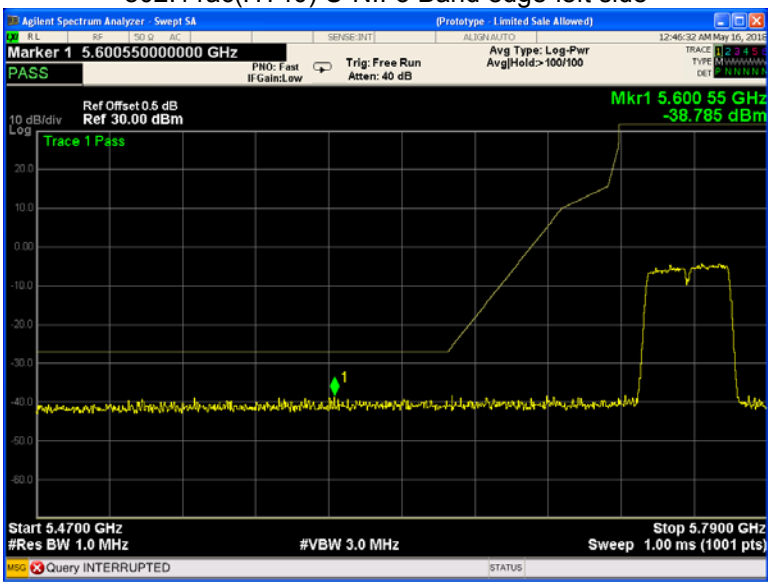
802.11ac(HT40) U-NII-1 Band edge-left side



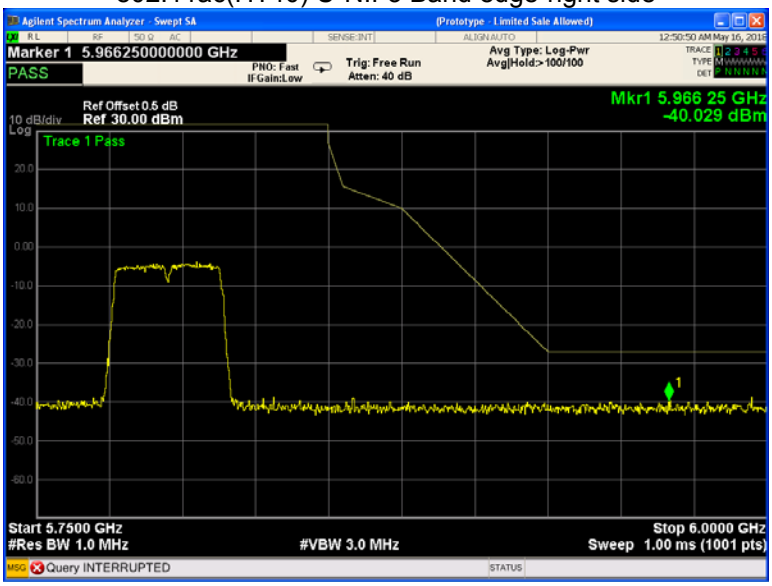
802.11ac(HT40) U-NII-1 Band edge-right side



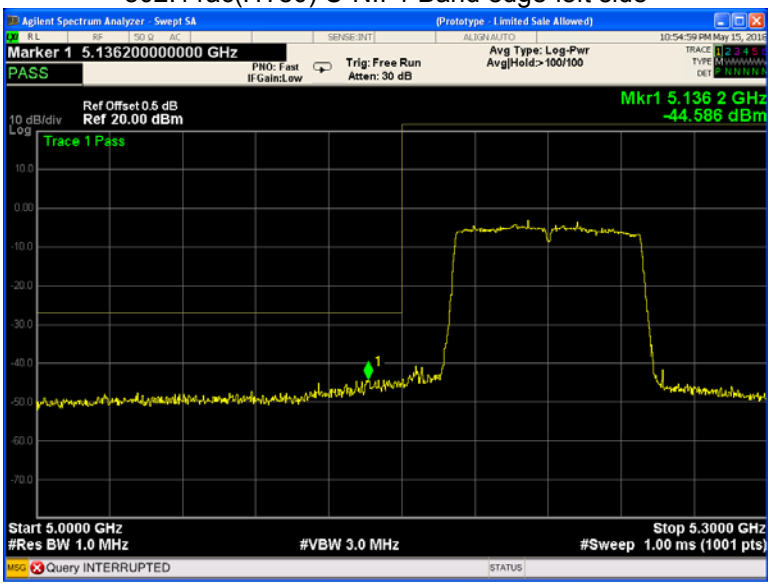
802.11ac(HT40) U-NII-3 Band edge-left side



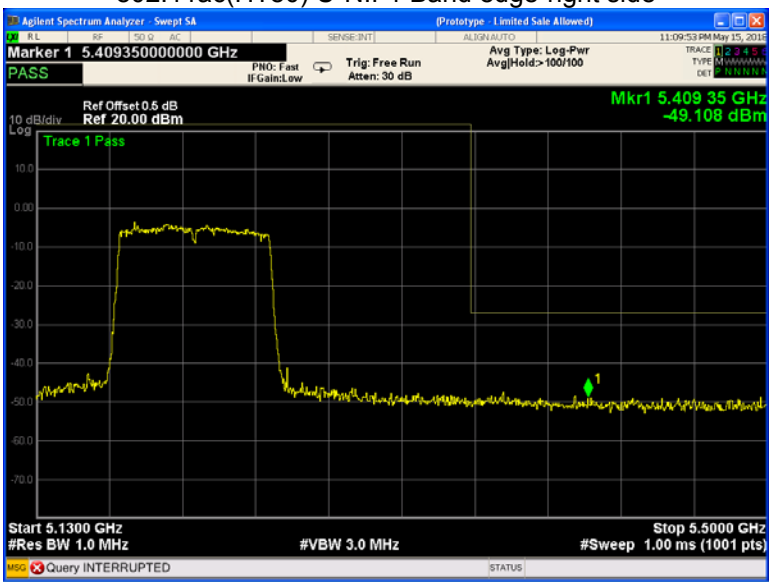
802.11ac(HT40) U-NII-3 Band edge-right side



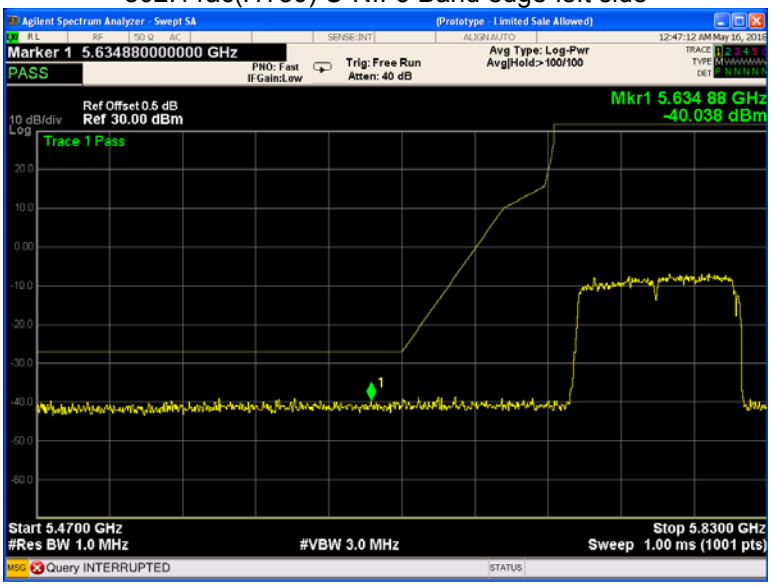
802.11ac(HT80) U-NII-1 Band edge-left side



802.11ac(HT80) U-NII-1 Band edge-right side



802.11ac(HT80) U-NII-3 Band edge-left side



802.11ac(HT80) U-NII-3 Band edge-right side

12 6 dB Bandwidth

Test Requirement:	FCC CFR47 Part 15 Section 15.407(e)
Test Method:	KDB789033 D02 General UNII Test Procedures New Rules v02r01 Section C
Test Limit:	≥ 500 kHz
Test Result:	PASS

12.1 Test Procedure:

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;

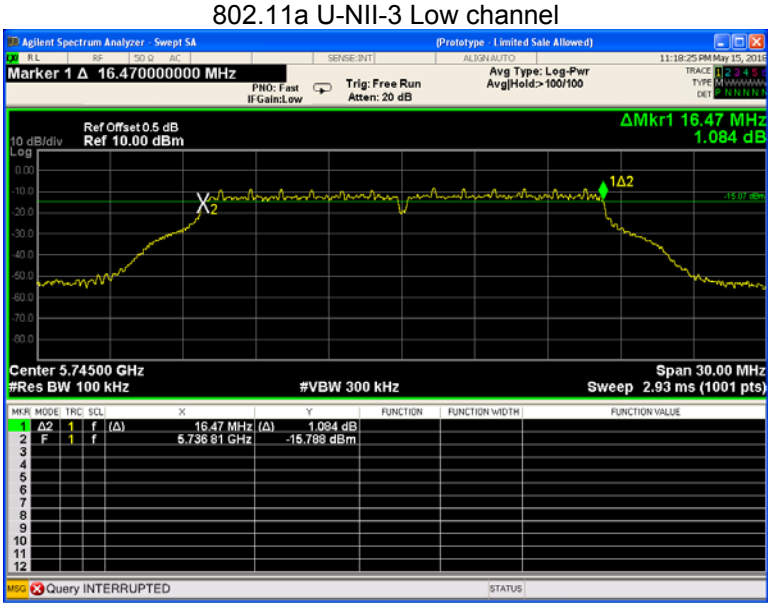
2. Set the spectrum analyzer: RBW = 100kHz, VBW = 300kHz

12.2 Test Result:

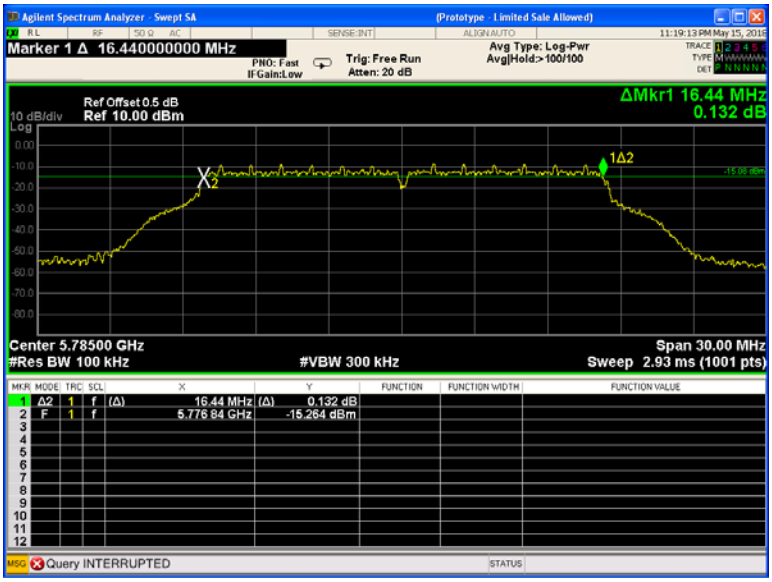
Band	Operation mode	6 dB Bandwidth (MHz)		
		Low	Middle	High
U-NII-3	802.11a	16.47	16.44	16.44
	802.11n(HT20)	17.67	17.67	17.64
	802.11n(HT40)	36.48	/	36.60
	802.11ac(HT20)	17.70	17.76	17.70
	802.11ac(HT40)	36.42	/	36.48
	802.11ac(HT80)	76.08	/	/

Test result plots shown as follows:

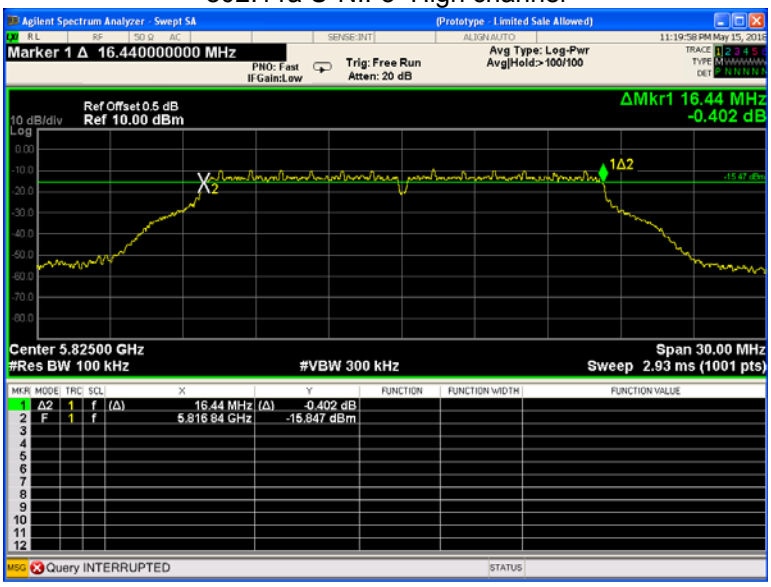
802.11a U-NII-3 Low channel



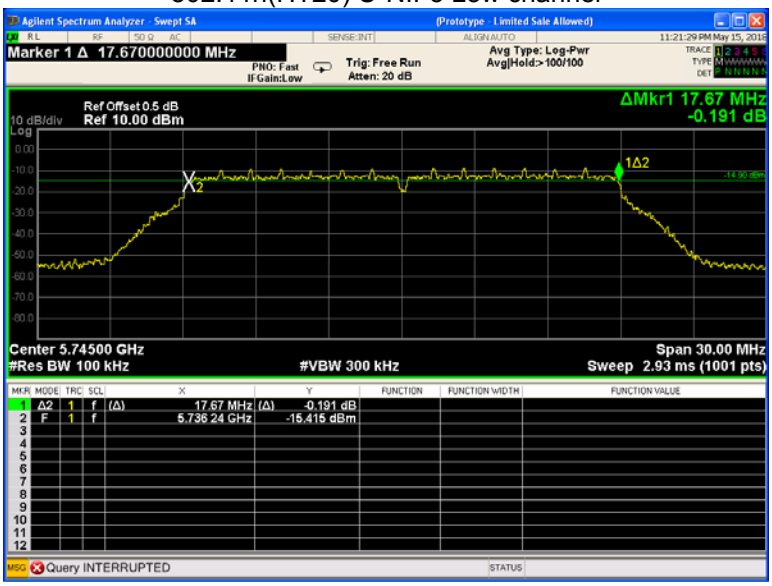
802.11a U-NII-3 Middle channel



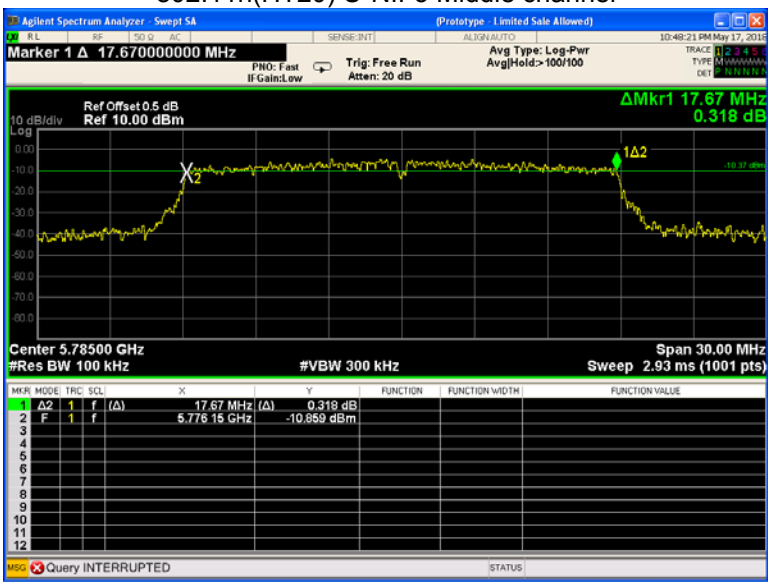
802.11a U-NII-3 High channel



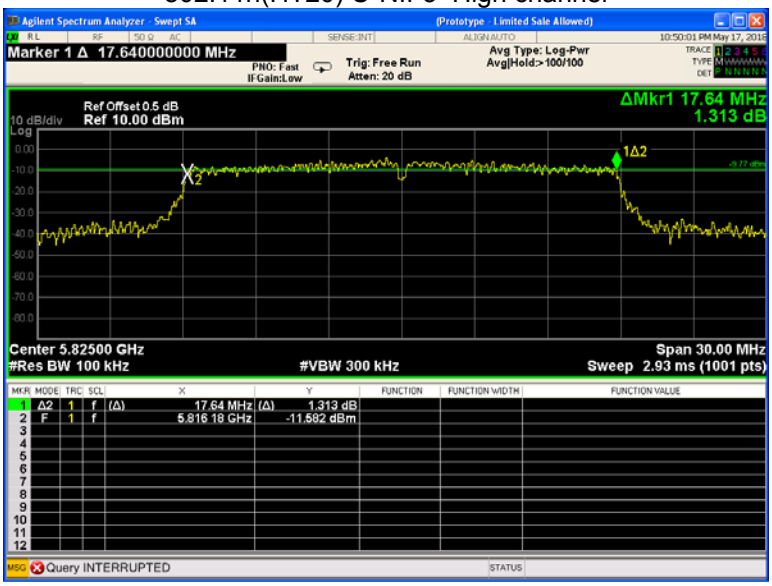
802.11n(HT20) U-NII-3 Low channel



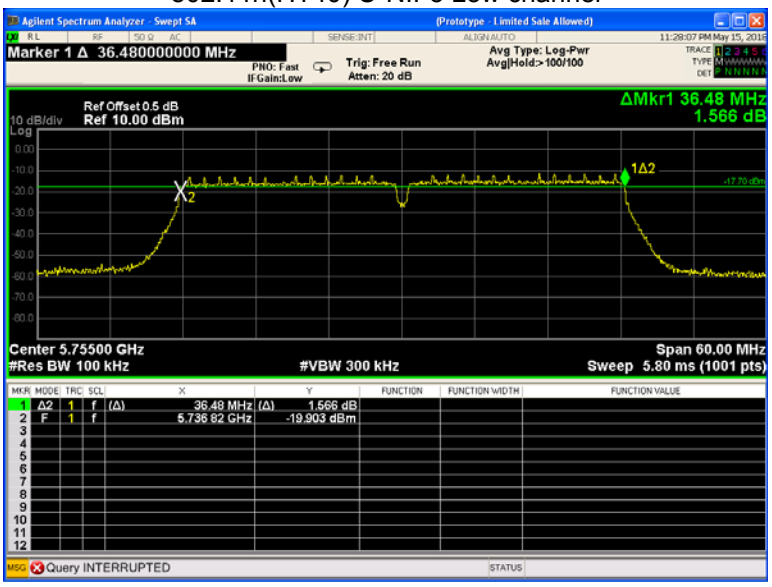
802.11n(HT20) U-NII-3 Middle channel



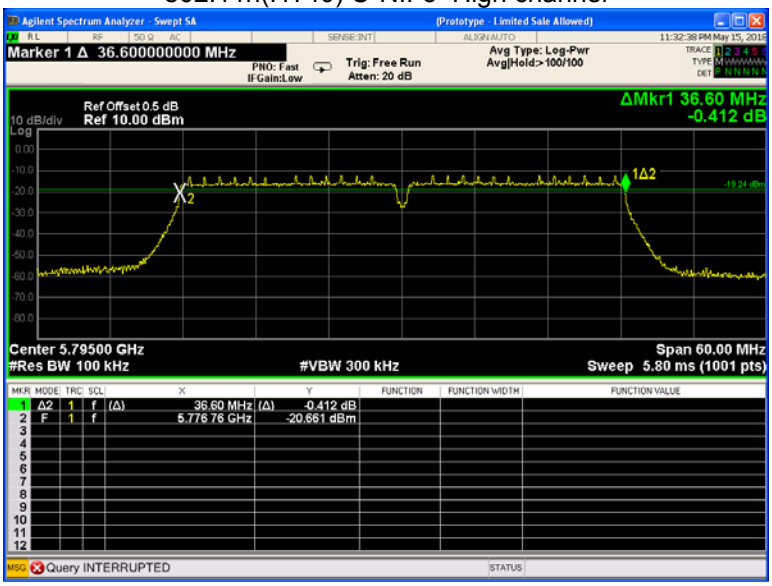
802.11n(HT20) U-NII-3 High channel



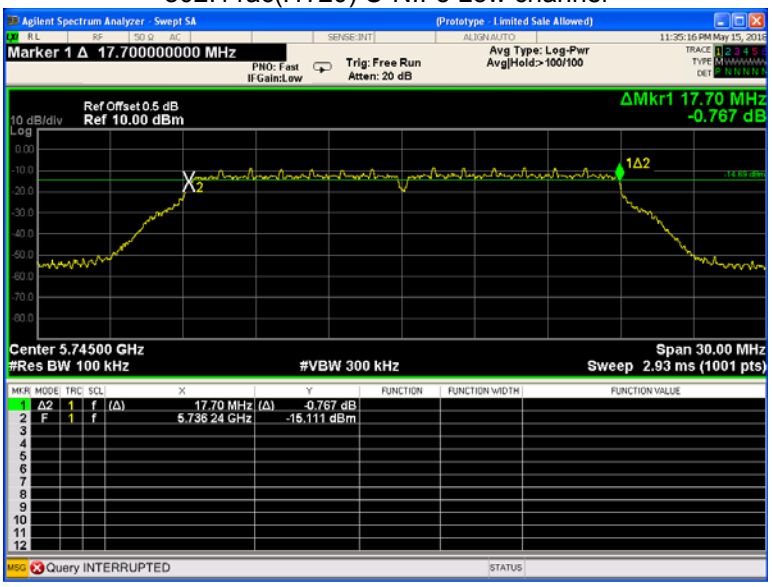
802.11n(HT40) U-NII-3 Low channel



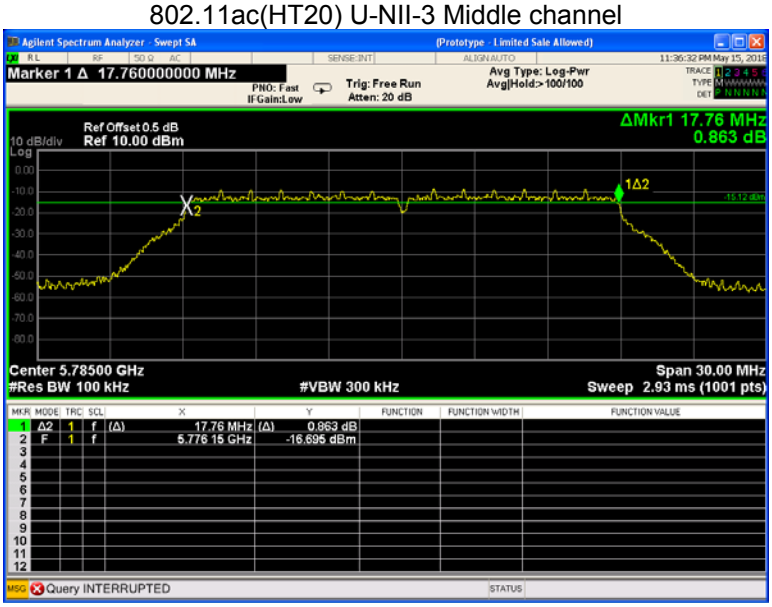
802.11n(HT40) U-NII-3 High channel



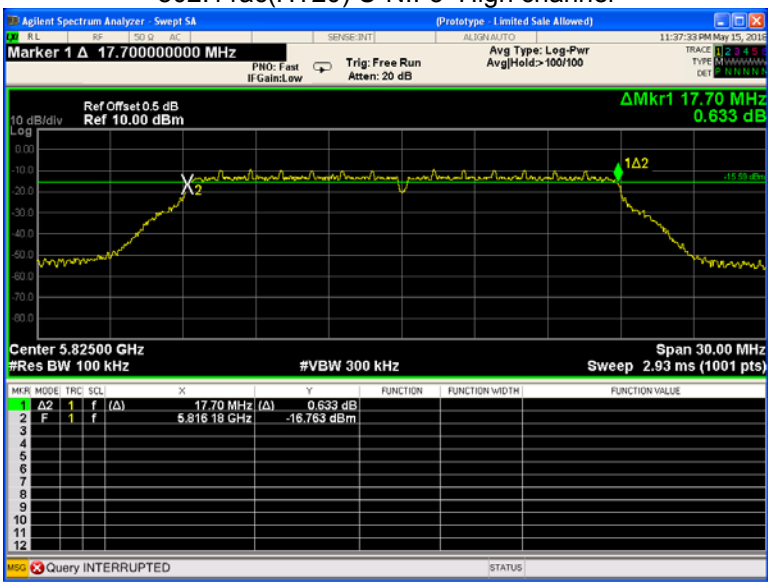
802.11ac(HT20) U-NII-3 Low channel



802.11ac(HT20) U-NII-3 Middle channel



802.11ac(HT20) U-NII-3 High channel



802.11ac(HT40) U-NII-3 Low channel