TEST REPORT

Reference No.	:	WTS18S10126731-3W
FCC ID	:	XUJS3001
Applicant	:	Launch Tech Co., Ltd.
Address	:	Launch Industrial Park, North of Wuhe Rd. Banxuegang, Longgang, Shenzhen, China
Manufacturer	:	The same as above
Address	:	The same as above
Product	:	Heavy duty / Medium duty / Light duty Vehicle Communication Interface
Model(s)	:	S3001
Brand Name		LAUNCH
Standards	:	FCC CFR47 Part 15 E Section 15.407: 2018
Date of Receipt sample	:	2018-10-19
Date of Test	:	2018-10-20 to 2019-04-24
Date of Issue	:	2019-04-25
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.

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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, the certification number is 4243.01) of USA, CNAS (China National Accreditation Service for Conformity Assessment, the registration number is L3110) of China. 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), ISED (Innovation, Science and Economic Development 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. Electro Magnetic 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.

Test Facility:

A. Accreditations for Conformity Assessment (International)

Country/Region	Scope Covered By	Scope	Note
USA	ISO/IEC 17025	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		WPC	-
Thailand		NTC	-
Singapore		IDA	-
Note: 1. FCC Designation No.: CN1201. Test Firm Registration No.: 523476. 2. ISED CAB identifier: CN0013			

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 Contents

4 Revision History

Test report No.	Date of Receipt sample	Date of Test	Date of Issue	Purpose	Comment	Approved
WTS18S10126731-3W	2018-10-19	2018-10-20 to 2019-04-24	2019-04-25	original	-	Valid

5 General Information

5.1 General Description of E.U.T.

Product:	Heavy duty / Medium duty / Light duty Vehicle Communication Interface
Model(s):	S3001
Model Description:	N/A
Wi-Fi Specification:	2.4G-802.11b/g/n HT20/n HT40 5G-802.11a/n/ac HT20 /n/ac HT40 /ac HT80
Bluetooth Version:	Bluetooth v4.0 with BLE
Hardware Version:	V1.00
Software Version:	S153MWB_TL_AO1_V0.4_201512211540

5.2 Details of E.U.T.

Operation Frequency:	802.11a/n/ac (HT20): U-NII-1: 5150-5250MHz, U-NII-2A: 5250-5350MHz(DFS), U-NII-3:5725-5850MHz 802.11n/ac (HT40): U-NII-1: 5190-5230MHz, U-NII-2A: 5270-5310MHz(DFS), U-NII-3: 5755-5795MHz 802.11ac (HT80): U-NII-1: 5210MHz, U-NII-2A: 5290MHz(DFS), U-NII-3: 5775MHz
Max. RF output power:	U-NII-1: 18.51dBm U-NII-2A: 18.64dBm U-NII-3: 15.94dBm
Type of Modulation:	OFDM
Antenna installation:	internal permanent antenna
Antenna Gain:	U-NII-1: 4.19dBi U-NII-2A: 4.19dBi U-NII-3: 4.19dBi
Ratings:	Battery DC 12/24V

5.3 Channel List

U-NII-1 (5.15-5.25GHz)			
channel	**Frequency(MHz)**	**channel**	**Frequency(MHz)**
36	5180	38	5190
40	5200	42	5210
44	5220	46	5230
48	5240		

U-NII-2A (5.25-5.35GHz)			
channel	**Frequency(MHz)**	**channel**	**Frequency(MHz)**
52	5260	54	5270
56	5280	58	5290
60	5300	62	5310
64	5320		

U-NII-3 (5.725-5.85GHz)			
channel	**Frequency(MHz)**	**channel**	**Frequency(MHz)**
149	5745	151	5755
153	5765	155	5775
157	5785	159	5795
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/ac(HT20):

channel	**Frequency(MHz)**	**channel**	**Frequency(MHz)**
36	5180	40	5200
48	5240		

channel	**Frequency(MHz)**	**channel**	**Frequency(MHz)**
52	5260	56	5280
64	5320		

channel	**Frequency(MHz)**	**channel**	**Frequency(MHz)**
149	5745	157	5785
165	5825		

For 802.11n/ac(HT40)

channel	Frequency(MHz)	channel	Frequency(MHz)
38	5190	46	5230

channel	Frequency(MHz)	channel	Frequency(MHz)
54	5270	62	5310

channel	Frequency(MHz)	channel	Frequency(MHz)
151	5755	159	5795

For 802.11ac(VHT80)

channel	Frequency(MHz)	channel	Frequency(MHz)
42	5210		

channel	Frequency(MHz)	channel	Frequency(MHz)
58	5290		

channel	Frequency(MHz)	channel	Frequency(MHz)
155	5775		

6 Equipment Used during Test

6.1 Equipments List

Conducted Emissions Test Site 1#						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1.	EMI Test Receiver	R&S	ESCI	100947	2018-09-14	2019-09-13
2.	LISN	R&S	ENV216	101215	2018-09-14	2019-09-13
3.	Cable	Top	TYPE16(3.5M)	-	2018-09-14	2019-09-13
Conducted Emissions Test Site 2#						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1.	EMI Test Receiver	R&S	ESCI	101155	2018-09-14	2019-09-13
2.	LISN	SCHWARZBECK	NSLK 8128	8128-289	2018-09-14	2019-09-13
3.	Limiter	York	MTS-IMP-136	261115-001-0024	2018-09-14	2019-09-13
4.	Cable	LARGE	RF300	-	2018-09-14	2019-09-13
3m Semi-anechoic Chamber for Radiation Emissions Test site 1#						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1	EMC Analyzer	Agilent	E7405A	MY45114943	2018-09-14	2019-09-13
2	Active Loop Antenna	Beijing Dazhi	ZN30900A	-	2018-09-14	2019-09-13
3	Trilog Broadband Antenna	SCHWARZBECK	VULB9163	336	2018-09-14	2019-09-13
4	Coaxial Cable (below 1GHz)	Top	TYPE16(13M)	-	2018-09-14	2019-09-13
5	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9120 D	667	2018-09-14	2019-09-13
6	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9170	335	2018-09-14	2019-09-13
7	Broadband Preamplifier	COMPLIANCE DIRECTION	PAP-1G18	2004	2018-09-14	2019-09-13
8	Coaxial Cable (above 1GHz)	Top	1GHz-25GHz	EW02014-7	2018-09-14	2019-09-13
3m Semi-anechoic Chamber for Radiation Emissions Test site 2#						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No**	**Last Calibration Date**	**Calibration Due Date**
1	Test Receiver	R&S	ESCI	101296	2018-09-14	2019-09-13
2	Trilog Broadband Antenna	SCHWARZBECK	VULB9160	9160-3325	2018-09-14	2019-09-13
3	Amplifier	Compliance pirection systems inc	PAP-0203	22024	2018-09-14	2019-09-13
4	Cable	HUBER+SUHNER	CBL2	525178	2018-09-14	2019-09-13
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	2018-09-14	2019-09-13
2.	Spectrum Analyzer (9k-6GHz)	R&S	FSL6	100959	2018-09-14	2019-09-13
3.	Signal Analyzer (9k~26.5GHz)	Agilent	N9010A	MY50520207	2018-09-14	2019-09-13

6.2 Description of Support Units

Equipment	Manufacturer	Model No.	Series No.
/	/	/	/

6.3 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 (AC mains 150KHz~30MHz)

6.4 Test Equipment Calibration

All the test equipments used are valid and calibrated by CEPREI Certification Body that address is No.110 Dongguan Zhuang RD. Guangzhou, P.R.China.

7 Test Summary

Test Items	Test Requirement	Result
Conducted Emissions	15.207(a)	N/A
Radiated Emissions	15.407(a) 15.205(a) 15.209(a)	PASS
Duty Cycle	KDB 789033	--
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

8 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	$20\log^{(500)}$

8.1 EUT Operation

Operating Environment **:**

Temperature: 23.5 °C

Humidity: 52.1 % RH

Atmospheric Pressure: 101.2kPa

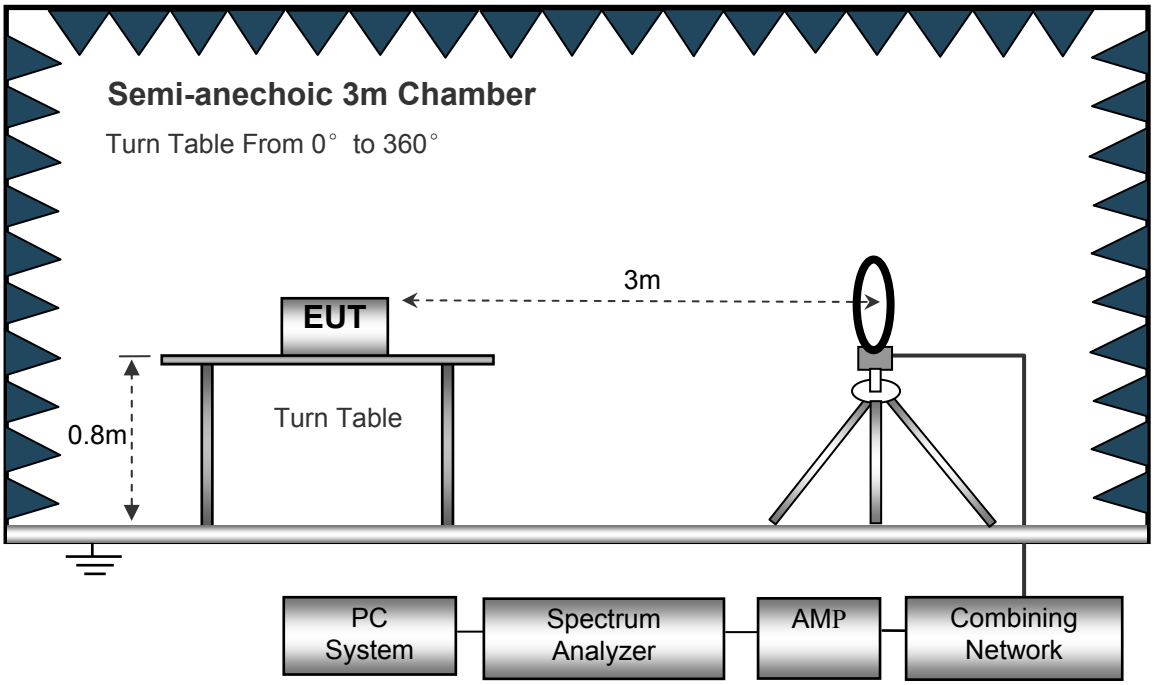
EUT Operation **:**

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

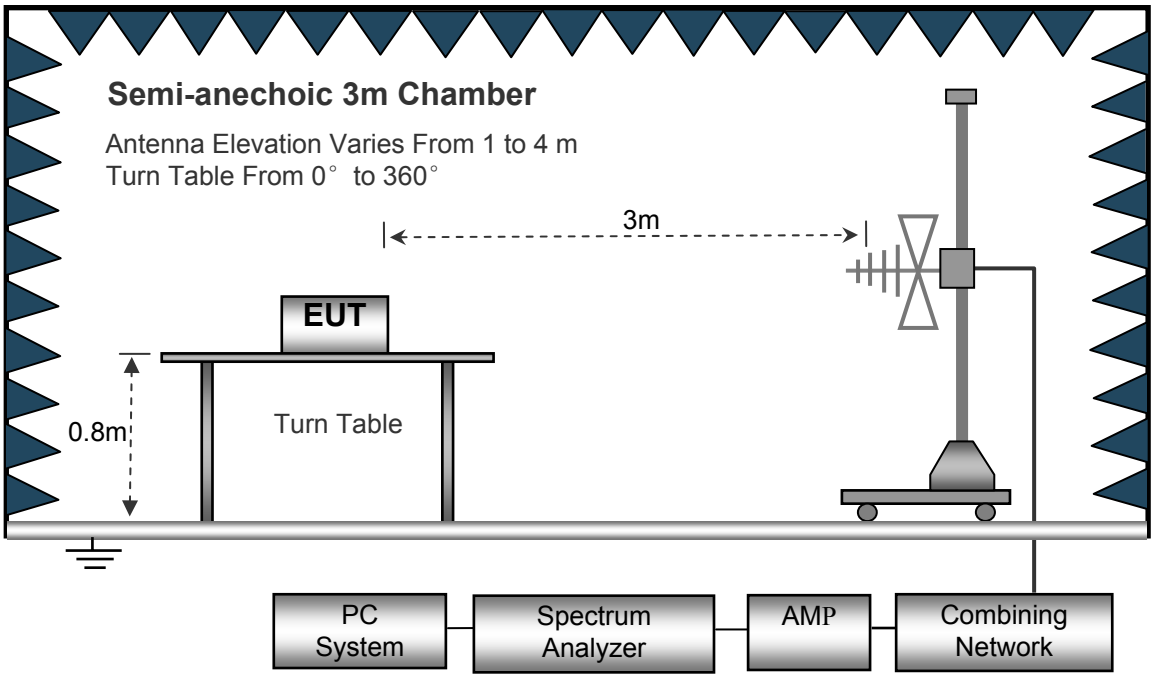
8.2 Test Setup

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

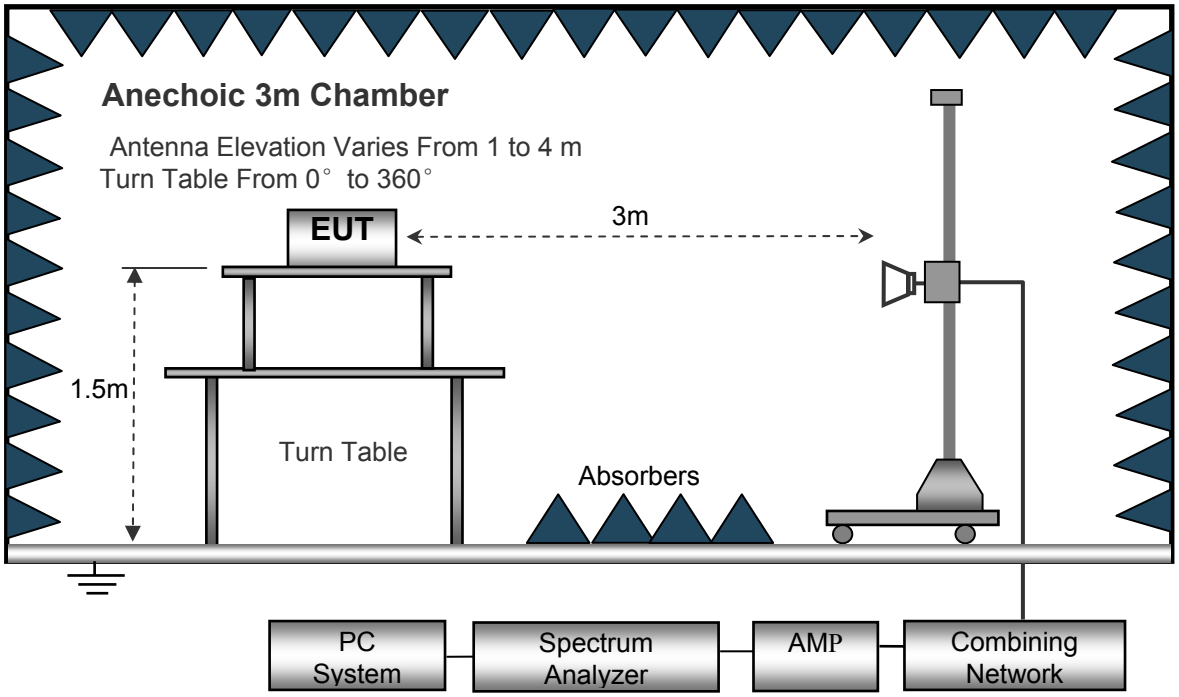
The test setup for emission measurement below 30MHz.



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



The test setup for emission measurement above 1 GHz.



8.3 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

8.4 Test Procedure

1. The EUT is placed 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, each 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.

8.5 Corrected Amplitude & Margin Calculation

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

Corr. Ampl. = Indicated Reading + Antenna Factor + Cable Factor - 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

8.6 Summary of Test Results

Test Frequency: 9KHz~30MHz

Frequency	Measurement results dBμV @3m	Detector PK/QP	Correct factor dB/m	Extrapolation factor dB	Measurement results (calculated) dBμV/m @30m	Limits dBμV/m @30m	Margin dB
(MHz)	Measurement results	Detector	Correct factor	Extrapolation factor	Measurement results (calculated)	Limits	Margin
U-NII-1:802.11a 5180MHz							
6.021	25.34	QP	21.84	40.00	7.18	29.54	-22.36
15.730	25.36	QP	21.35	40.00	6.71	29.54	-22.83
25.680	25.18	QP	20.67	40.00	5.85	29.54	-23.69
U-NII-1:802.11n20 5180MHz							
6.021	25.30	QP	21.84	40.00	7.14	29.54	-22.40
15.730	25.12	QP	21.35	40.00	6.47	29.54	-23.07
25.680	25.34	QP	20.67	40.00	6.01	29.54	-23.53
U-NII-1:802.11ac 20 5180MHz							
6.021	25.52	QP	21.84	40.00	7.36	29.54	-22.18
15.730	24.85	QP	21.35	40.00	6.20	29.54	-23.34
25.680	25.16	QP	20.67	40.00	5.83	29.54	-23.71
U-NII-1:802.11n40 5190MHz							
6.021	25.63	QP	21.84	40.00	7.47	29.54	-22.07
15.730	24.87	QP	21.35	40.00	6.22	29.54	-23.32
25.680	24.96	QP	20.67	40.00	5.63	29.54	-23.91
U-NII-1:802.11ac40 5190MHz							
6.021	25.61	QP	21.84	40.00	7.45	29.54	-22.09
15.730	25.20	QP	21.35	40.00	6.55	29.54	-22.99
25.680	24.97	QP	20.67	40.00	5.64	29.54	-23.90
U-NII-1:802.11ac80 5210MHz							
6.021	25.10	QP	21.84	40.00	6.94	29.54	-22.60
15.730	24.52	QP	21.35	40.00	5.87	29.54	-23.67
25.680	24.65	QP	20.67	40.00	5.32	29.54	-24.22

Frequency	Measurement results dBμV @3m	Detector PK/QP	Correct factor dB/m	Extrapolation factor dB	Measurement results (calculated) dBμV/m @30m	Limits dBμV/m @30m	Margin dB
(MHz)	Measurement results	Detector	Correct factor	Extrapolation factor	Measurement results (calculated)	Limits	Margin
U-NII-2A:802.11a 5260MHz							
6.021	25.98	QP	21.84	40.00	7.82	29.54	-21.72
15.730	24.33	QP	21.35	40.00	5.68	29.54	-23.86
25.680	24.75	QP	20.67	40.00	5.42	29.54	-24.12
U-NII-2A:802.11n20 5260MHz							
6.021	25.02	QP	21.84	40.00	6.86	29.54	-22.68
15.730	24.63	QP	21.35	40.00	5.98	29.54	-23.56
25.680	24.19	QP	20.67	40.00	4.86	29.54	-24.68
U-NII-2A:802.11ac 5260MHz							
6.021	25.38	QP	21.84	40.00	7.22	29.54	-22.32
15.730	24.71	QP	21.35	40.00	6.06	29.54	-23.48
25.680	24.56	QP	20.67	40.00	5.23	29.54	-24.31
U-NII-2A:802.11n40 5270MHz							
6.021	25.08	QP	21.84	40.00	6.92	29.54	-22.62
15.730	24.55	QP	21.35	40.00	5.90	29.54	-23.64
25.680	25.70	QP	20.67	40.00	6.37	29.54	-23.17
U-NII-2A:802.11ac40 5270MHz							
6.021	25.10	QP	21.84	40.00	6.94	29.54	-22.60
15.730	24.88	QP	21.35	40.00	6.23	29.54	-23.31
25.680	24.25	QP	20.67	40.00	4.92	29.54	-24.62
U-NII-2A:802.11ac80 5290MHz							
6.021	24.59	QP	21.84	40.00	6.43	29.54	-23.11
15.730	25.13	QP	21.35	40.00	6.48	29.54	-23.06
25.680	24.87	QP	20.67	40.00	5.54	29.54	-24.00

Frequency	Measurement results dBμV @3m	Detector PK/QP	Correct factor dB/m	Extrapolation factor dB	Measurement results (calculated) dBμV/m @30m	Limits dBμV/m @30m	Margin dB
(MHz)	Measurement results	Detector	Correct factor	Extrapolation factor	Measurement results (calculated)	Limits	Margin
U-NII-3 802.11a 5745MHz							
6.021	24.57	QP	21.84	40.00	6.41	29.54	-23.13
15.730	25.15	QP	21.35	40.00	6.50	29.54	-23.04
25.680	25.69	QP	20.67	40.00	6.36	29.54	-23.18
U-NII-3 802.11n20 5745MHz							
6.021	24.58	QP	21.84	40.00	6.42	29.54	-23.12
15.730	25.43	QP	21.35	40.00	6.78	29.54	-22.76
25.680	24.25	QP	20.67	40.00	4.92	29.54	-24.62
U-NII-3 802.11ac 5745MHz							
6.021	24.17	QP	21.84	40.00	6.01	29.54	-23.53
15.730	25.34	QP	21.35	40.00	6.69	29.54	-22.85
25.680	24.38	QP	20.67	40.00	5.05	29.54	-24.49
U-NII-3 802.11n40 5755MHz							
6.021	24.50	QP	21.84	40.00	6.34	29.54	-23.20
15.730	24.64	QP	21.35	40.00	5.99	29.54	-23.55
25.680	24.36	QP	20.67	40.00	5.03	29.54	-24.51
U-NII-3 802.11ac40 5755MHz							
6.021	25.28	QP	21.84	40.00	7.12	29.54	-22.42
15.730	24.37	QP	21.35	40.00	5.72	29.54	-23.82
25.680	24.19	QP	20.67	40.00	4.86	29.54	-24.68
U-NII-3 802.11ac80 5775MHz							
6.021	25.13	QP	21.84	40.00	6.97	29.54	-22.57
15.730	24.57	QP	21.35	40.00	5.92	29.54	-23.62
25.680	25.16	QP	20.67	40.00	5.83	29.54	-23.71

Test Frequency : 30MHz ~ 18GHz

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)
802.11a U-NII-1 Low Channel 5180MHz									
223.45	39.99	QP	242	1.2	H	-11.62	28.37	46.00	-17.63
223.45	35.21	QP	57	1.3	V	-11.62	23.59	46.00	-22.41
4500.37	49.00	PK	109	1.8	H	-2.03	46.97	74.00	-27.03
4500.37	45.66	Ave	109	1.8	H	-2.03	43.63	54.00	-10.37
10360.00	41.87	PK	359	1.3	H	5.33	47.20	74.00	-26.80
10360.00	36.00	Ave	359	1.3	H	5.33	41.33	54.00	-12.67
802.11a U-NII-1 Middle channel 5200MHz									
223.45	40.79	QP	286	1.2	H	-11.62	29.17	46.00	-16.83
223.45	34.59	QP	164	1.2	V	-11.62	22.97	46.00	-23.03
4531.52	50.05	PK	246	1.8	H	-1.94	48.11	74.00	-25.89
4531.52	44.98	Ave	246	1.8	H	-1.94	43.04	54.00	-10.96
10400.00	42.05	PK	110	1.6	H	5.21	47.26	74.00	-26.74
10400.00	36.17	Ave	110	1.6	H	5.21	41.38	54.00	-12.62
802.11a U-NII-1 High channel 5240MHz									
223.45	39.33	QP	308	1.5	H	-11.62	27.71	46.00	-18.29
223.45	35.16	QP	48	1.8	V	-11.62	23.54	46.00	-22.46
4502.74	49.98	PK	298	1.7	H	-2.24	47.74	74.00	-26.26
4502.74	43.84	Ave	298	1.7	H	-2.24	41.60	54.00	-12.40
10480.00	42.03	PK	118	1.4	H	5.14	47.17	74.00	-26.83
10480.00	35.42	Ave	118	1.4	H	5.14	40.56	54.00	-13.44

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)
802.11a U-NII-2A Low channel 5260MHz									
223.45	41.05	QP	138	1.8	H	-11.62	29.43	46.00	-16.57
223.45	36.26	QP	173	1.0	V	-11.62	24.64	46.00	-21.36
4527.26	50.44	PK	345	1.1	H	-2.03	48.41	74.00	-25.59
4527.26	46.32	Ave	345	1.1	H	-2.03	44.29	54.00	-9.71
5133.15	52.53	PK	142	1.6	H	-1.02	51.51	74.00	-22.49
5133.15	48.18	Ave	142	1.6	H	-1.02	47.16	54.00	-6.84
802.11a U-NII-2A Middle channel 5280MHz									
223.45	40.26	QP	222	1.3	H	-11.62	28.64	46.00	-17.36
223.45	36.34	QP	121	1.3	V	-11.62	24.72	46.00	-21.28
4536.70	50.33	PK	352	1.6	H	-1.94	48.39	74.00	-25.61
4536.70	45.28	Ave	352	1.6	H	-1.94	43.34	54.00	-10.66
10560.00	39.59	PK	32	1.7	H	5.21	44.80	74.00	-29.20
10560.00	37.35	Ave	32	1.7	H	5.21	42.56	54.00	-11.44
223.45	40.26	QP	222	1.3	H	-11.62	28.64	46.00	-17.36
802.11a U-NII-2A High channel 5320MHz									
223.45	39.97	QP	247	1.7	H	-11.62	28.35	46.00	-17.65
223.45	35.19	QP	59	1.1	V	-11.62	23.57	46.00	-22.43
4503.21	51.70	PK	306	1.5	H	-2.24	49.46	74.00	-24.54
4503.21	46.06	Ave	306	1.5	H	-2.24	43.82	54.00	-10.18
10640.00	41.52	PK	73	2.0	H	5.14	46.66	68.20	-21.54
10640.00	36.45	Ave	73	2.0	H	5.14	41.59	54.00	-12.41

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)
802.11a U-NII-3 Low Channel 5745MHz									
223.45	39.11	QP	339	1.4	H	-11.62	27.49	46.00	-18.51
223.45	33.84	QP	97	2.0	V	-11.62	22.22	46.00	-23.78
4504.10	49.22	PK	114	1.3	H	-2.06	47.16	74.00	-26.84
4504.10	44.02	Ave	114	1.3	H	-2.06	41.96	54.00	-12.04
11490.00	43.05	PK	327	1.5	H	5.93	48.98	74.00	-25.02
11490.00	37.22	Ave	327	1.5	H	5.93	43.15	54.00	-10.85
802.11a U-NII-3 Middle channel 5785MHz									
223.45	37.86	QP	197	1.2	H	-11.62	26.24	46.00	-19.76
223.45	33.33	QP	359	1.1	V	-11.62	21.71	46.00	-24.29
4505.68	49.64	PK	301	1.1	H	-2.03	47.61	74.00	-26.39
4505.68	44.19	Ave	301	1.1	H	-2.03	42.16	54.00	-11.84
11570.00	42.39	PK	67	1.2	H	5.81	48.20	74.00	-25.80
11570.00	37.03	Ave	67	1.2	H	5.81	42.84	54.00	-11.16
802.11a U-NII-3 High channel 5825MHz									
223.45	36.43	QP	134	1.3	H	-11.62	24.81	46.00	-21.19
223.45	33.58	QP	238	1.1	V	-11.62	21.96	46.00	-24.04
4506.47	49.90	PK	27	1.2	H	-1.84	48.06	74.00	-25.94
4506.47	45.26	Ave	27	1.2	H	-1.84	43.42	54.00	-10.58
11650.00	40.65	PK	188	1.5	H	5.84	46.49	74.00	-27.51
11650.00	36.39	Ave	188	1.5	H	5.84	42.23	54.00	-11.77

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(HT20) U-NII-1 Low Channel 5180MHz									
223.45	37.91	QP	161	1.6	H	-11.62	26.29	46.00	-19.71
223.45	34.78	QP	354	1.5	V	-11.62	23.16	46.00	-22.84
4501.82	48.54	PK	162	1.4	H	-2.14	46.40	74.00	-27.60
4501.82	45.07	Ave	162	1.4	H	-2.14	42.93	54.00	-11.07
10360.00	42.12	PK	37	1.6	H	5.33	47.45	74.00	-26.55
10360.00	34.80	Ave	37	1.6	H	5.33	40.13	54.00	-13.87
802.11n(HT20) U-NII-1 Middle channel 5200MHz									
223.45	39.01	QP	173	1.6	H	-11.62	27.39	46.00	-18.61
223.45	33.92	QP	233	1.9	V	-11.62	22.30	46.00	-23.70
4536.90	49.22	PK	143	1.5	H	-2.12	47.10	74.00	-26.90
4536.90	46.16	Ave	143	1.5	H	-2.12	44.04	54.00	-9.96
10400.00	42.80	PK	21	1.9	H	5.21	48.01	74.00	-25.99
10400.00	36.07	Ave	21	1.9	H	5.21	41.28	54.00	-12.72
802.11n(HT20) U-NII-1 High channel 5240MHz									
223.45	39.96	QP	68	1.7	H	-11.62	28.34	46.00	-17.66
223.45	33.13	QP	22	1.1	V	-11.62	21.51	46.00	-24.49
4512.97	48.22	PK	257	1.6	H	-1.96	46.26	74.00	-27.74
4512.97	45.88	Ave	257	1.6	H	-1.96	43.92	54.00	-10.08
10480.00	41.17	PK	162	1.4	H	5.14	46.31	74.00	-27.69
10480.00	36.78	Ave	162	1.4	H	5.14	41.92	54.00	-12.08

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(HT20) U-NII-2A Low Channel 5260MHz									
223.45	41.78	QP	154	1.6	H	-11.62	30.16	46.00	-15.84
223.45	41.17	QP	274	1.5	V	-11.62	29.55	46.00	-16.45
4526.33	38.75	PK	103	1.8	H	-2.03	36.72	74.00	-37.28
4526.33	47.77	Ave	103	1.8	H	-2.03	45.74	54.00	-8.26
10520.00	43.14	PK	339	1.7	H	5.33	48.47	74.00	-25.53
10520.00	35.79	Ave	339	1.7	H	5.33	41.12	54.00	-12.88
802.11n(HT20) U-NII-2A Middle Channel 5280MHz									
223.45	41.27	QP	348	1.3	H	-11.62	29.65	46.00	-16.35
223.45	41.94	QP	206	1.6	V	-11.62	30.32	46.00	-15.68
4529.97	37.83	PK	183	1.5	H	-1.94	35.89	74.00	-38.11
4529.97	46.53	Ave	183	1.5	H	-1.94	44.59	54.00	-9.41
10560.00	42.14	PK	264	1.1	H	5.21	47.35	74.00	-26.65
10560.00	36.98	Ave	264	1.1	H	5.21	42.19	54.00	-11.81
802.11n(HT20) U-NII-2A High Channel 5320MHz									
223.45	41.02	QP	30	1.7	H	-11.62	29.40	46.00	-16.60
223.45	41.95	QP	315	1.4	V	-11.62	30.33	46.00	-15.67
4515.07	38.65	PK	333	1.7	H	-2.24	36.41	74.00	-37.59
4515.07	45.60	Ave	333	1.7	H	-2.24	43.36	54.00	-10.64
10640.00	42.49	PK	192	1.1	H	5.14	47.63	68.20	-20.57
10640.00	36.62	Ave	192	1.1	H	5.14	41.76	54.00	-12.24

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(HT20) U-NII-3 Low Channel 5745MHz									
223.45	38.74	QP	114	1.0	H	-11.62	27.12	46.00	-18.88
223.45	32.93	QP	1	1.7	V	-11.62	21.31	46.00	-24.69
4528.18	46.98	PK	330	2.0	H	-1.85	45.13	74.00	-28.87
4528.18	44.16	Ave	330	2.0	H	-1.85	42.31	54.00	-11.69
11490.00	40.72	PK	328	1.9	H	5.93	46.65	74.00	-27.35
11490.00	34.03	Ave	328	1.9	H	5.93	39.96	54.00	-14.04
802.11n(HT20) U-NII-3 Middle channel 5785MHz									
223.45	38.19	QP	295	1.9	H	-11.62	26.57	46.00	-19.43
223.45	33.03	QP	303	1.2	V	-11.62	21.41	46.00	-24.59
4507.05	46.06	PK	219	1.9	H	-1.89	44.17	74.00	-29.83
4507.05	44.49	Ave	219	1.9	H	-1.89	42.60	54.00	-11.40
11570.00	42.16	PK	90	2.0	H	5.81	47.97	74.00	-26.03
11570.00	35.03	Ave	90	2.0	H	5.81	40.84	54.00	-13.16
802.11n(HT20) U-NII-3 High channel 5825MHz									
223.45	37.19	QP	266	1.2	H	-11.62	25.57	46.00	-20.43
223.45	32.94	QP	238	1.6	V	-11.62	21.32	46.00	-24.68
4505.36	45.70	PK	182	1.4	H	-1.97	43.73	74.00	-30.27
4505.36	43.93	Ave	182	1.4	H	-1.97	41.96	54.00	-12.04
11650.00	42.30	PK	89	1.9	H	5.84	48.14	74.00	-25.86
11650.00	35.48	Ave	89	1.9	H	5.84	41.32	54.00	-12.68

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									
223.45	39.25	QP	313	1.4	H	-11.62	27.63	46.00	-18.37
223.45	32.75	QP	244	1.6	V	-11.62	21.13	46.00	-24.87
4506.90	39.13	PK	6	1.8	H	-1.89	37.24	74.00	-36.76
4506.90	39.39	Ave	6	1.8	H	-1.89	37.50	54.00	-16.50
10380.00	39.66	PK	122	1.1	H	5.26	44.92	74.00	-29.08
10380.00	34.53	Ave	122	1.1	H	5.26	39.79	54.00	-14.21
802.11n(HT40) U-NII-1 High channel 5230MHz									
223.45	40.38	QP	173	1.0	H	-11.62	28.76	46.00	-17.24
223.45	33.60	QP	197	2.0	V	-11.62	21.98	46.00	-24.02
4507.99	38.61	PK	64	1.3	H	-1.94	36.67	74.00	-37.33
4507.99	34.99	Ave	64	1.3	H	-1.94	33.05	54.00	-20.95
10480.00	42.10	PK	98	1.2	H	5.28	47.38	74.00	-26.62
10480.00	36.23	Ave	98	1.2	H	5.28	41.51	54.00	-12.49
802.11n(HT40) U-NII-2A Low channel 5270MHz									
223.45	50.03	QP	126	1.1	H	-11.62	38.41	46.00	-7.59
223.45	38.29	QP	142	1.7	V	-11.62	26.67	46.00	-19.33
4512.00	41.34	PK	13	1.4	H	-1.89	39.45	74.00	-34.55
4512.00	38.04	Ave	13	1.4	H	-1.89	36.15	54.00	-17.85
10540.00	46.02	PK	70	1.1	H	5.26	51.28	74.00	-22.72
10540.00	40.77	Ave	70	1.1	H	5.26	46.03	54.00	-7.97

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-2A High channel 5310MHz									
223.45	50.55	QP	94	1.4	H	-11.62	38.93	46.00	-7.07
223.45	38.85	QP	236	1.7	V	-11.62	27.23	46.00	-18.77
4529.87	42.08	PK	56	1.5	H	-1.94	40.14	74.00	-33.86
4529.87	38.54	Ave	56	1.5	H	-1.94	36.60	54.00	-17.40
10620.00	40.70	PK	186	1.4	H	5.28	45.98	68.20	-22.22
10620.00	36.55	Ave	186	1.4	H	5.28	41.83	54.00	-12.17
802.11n(HT40) U-NII-3 Low channel 5755MHz									
223.45	38.06	QP	44	1.1	H	-11.62	26.44	46.00	-19.56
223.45	49.27	QP	288	1.9	V	-11.62	37.65	46.00	-8.35
4531.78	41.23	PK	7	1.0	H	-1.96	39.27	74.00	-34.73
4531.78	36.74	Ave	7	1.0	H	-1.96	34.78	54.00	-19.22
11510.00	40.04	PK	279	1.5	H	5.88	45.92	68.20	-22.28
11510.00	35.50	Ave	279	1.5	H	5.88	41.38	54.00	-12.62

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 High channel 5795MHz									
223.45	42.24	QP	250	1.4	H	-11.62	30.62	46.00	-43.38
223.45	35.00	QP	265	1.2	V	-11.62	23.38	46.00	-50.62
4538.78	37.27	PK	98	1.1	H	-1.92	35.35	74.00	-38.65
4538.78	33.15	Ave	98	1.1	H	-1.92	31.23	54.00	-22.77
11590.00	42.07	PK	182	1.5	H	5.63	47.70	74.00	-26.30
11590.00	35.50	Ave	182	1.5	H	5.63	41.13	54.00	-12.87
802.11ac(HT20) U-NII-1 Low Channel 5180MHz									
223.45	38.32	QP	273	1.2	H	-11.62	26.70	46.00	-19.30
223.45	33.86	QP	43	1.4	V	-11.62	22.24	46.00	-23.76
4538.56	43.02	PK	185	1.9	H	-1.86	41.16	74.00	-32.84
4538.56	42.55	Ave	185	1.9	H	-1.86	40.69	54.00	-13.31
10360.00	40.79	PK	180	1.6	H	5.33	46.12	74.00	-27.88
10360.00	34.62	Ave	180	1.6	H	5.33	39.95	54.00	-14.05
802.11ac(HT20) U-NII-1 Middle channel 5200MHz									
223.45	39.29	QP	246	1.2	H	-11.62	27.67	46.00	-18.33
223.45	33.82	QP	37	2.0	V	-11.62	22.20	46.00	-23.80
4526.69	43.22	PK	27	1.8	H	-1.82	41.40	74.00	-32.60
4526.69	42.56	Ave	27	1.8	H	-1.82	40.74	54.00	-13.26
10400.00	42.18	PK	338	1.9	H	5.21	47.39	74.00	-26.61
10400.00	36.67	Ave	338	1.9	H	5.21	41.88	54.00	-12.12

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(HT20) U-NII-1 High channel 5240MHz									
223.45	39.24	QP	346	1.5	H	-11.62	27.62	46.00	-18.38
223.45	34.80	QP	134	1.4	V	-11.62	23.18	46.00	-22.82
4519.50	43.03	PK	167	1.4	H	-1.81	41.22	74.00	-32.78
4519.50	43.01	Ave	167	1.4	H	-1.81	41.20	54.00	-12.80
5122.32	47.31	PK	303	1.3	H	-1.06	46.25	74.00	-27.75
5122.32	40.75	Ave	303	1.3	H	-1.06	39.69	54.00	-14.31
802.11ac(HT20) U-NII-2A Low channel 5260MHz									
223.45	37.73	QP	150	1.8	H	-11.62	26.11	46.00	-19.89
223.45	33.31	QP	309	1.0	V	-11.62	21.69	46.00	-24.31
4539.06	42.40	PK	50	1.3	H	-2.03	40.37	74.00	-33.63
4539.06	35.00	Ave	50	1.3	H	-2.03	32.97	54.00	-21.03
10520.00	37.69	PK	56	1.2	H	5.33	43.02	74.00	-30.98
10520.00	35.49	Ave	56	1.2	H	5.33	40.82	54.00	-13.18
802.11ac(HT20) U-NII-2A Middle channel 5280MHz									
223.45	37.97	QP	123	1.6	H	-11.62	26.35	46.00	-19.65
223.45	32.68	QP	48	1.4	V	-11.62	21.06	46.00	-24.94
4509.39	41.89	PK	190	1.7	H	-1.94	39.95	74.00	-34.05
4509.39	36.11	Ave	190	1.7	H	-1.94	34.17	54.00	-19.83
10560.00	37.46	PK	243	1.7	H	5.21	42.67	74.00	-31.33
10560.00	35.13	Ave	243	1.7	H	5.21	40.34	54.00	-13.66

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(HT20) U-NII-2A High channel 5320MHz									
223.45	36.94	QP	47	1.3	H	-11.62	25.32	46.00	-20.68
223.45	34.14	QP	222	1.6	V	-11.62	22.52	46.00	-23.48
4535.04	40.72	PK	236	1.4	H	-2.24	38.48	74.00	-35.52
4535.04	36.29	Ave	236	1.4	H	-2.24	34.05	54.00	-19.95
10640.00	38.69	PK	112	1.6	H	5.14	43.83	68.20	-24.37
10640.00	34.14	Ave	112	1.6	H	5.14	39.28	54.00	-14.72
802.11ac(HT20) U-NII-3 Low Channel 5745MHz									
223.45	38.92	QP	49	1.3	H	-11.62	27.30	46.00	-18.70
223.45	34.49	QP	221	1.2	V	-11.62	22.87	46.00	-23.13
4503.04	41.31	PK	106	2.0	H	-1.92	39.39	74.00	-34.61
4503.04	41.82	Ave	106	2.0	H	-1.92	39.90	54.00	-14.10
11490.00	40.05	PK	252	1.9	H	5.93	45.98	74.00	-28.02
11490.00	33.97	Ave	252	1.9	H	5.93	39.90	54.00	-14.10
802.11ac(HT20) U-NII-3 Middle channel 5785MHz									
223.45	39.73	QP	326	1.5	H	-11.62	28.11	46.00	-17.89
223.45	34.07	QP	60	1.5	V	-11.62	22.45	46.00	-23.55
4525.33	41.40	PK	25	1.5	H	-1.97	39.43	74.00	-34.57
4525.33	42.19	Ave	25	1.5	H	-1.97	40.22	54.00	-13.78
11570.00	41.71	PK	322	1.0	H	5.81	47.52	74.00	-26.48
11570.00	36.95	Ave	322	1.0	H	5.81	42.76	54.00	-11.24

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(HT20) U-NII-3 High channel 5825MHz									
223.45	40.27	QP	300	1.3	H	-11.62	28.65	46.00	-17.35
223.45	33.48	QP	239	1.1	V	-11.62	21.86	46.00	-24.14
4535.36	41.97	PK	149	1.2	H	-1.88	40.09	74.00	-33.91
4535.36	41.84	Ave	149	1.2	H	-1.88	39.96	54.00	-14.04
11650.00	41.30	PK	332	1.8	H	5.84	47.14	74.00	-26.86
11650.00	35.69	Ave	332	1.8	H	5.84	41.53	54.00	-12.47
802.11ac(HT40) U-NII-1 Low Channel 5190MHz									
223.45	42.47	QP	145	1.7	H	-11.62	30.85	46.00	-43.15
223.45	34.72	QP	22	1.7	V	-11.62	23.10	46.00	-50.90
4500.14	35.59	PK	141	1.2	H	-1.91	33.68	74.00	-40.32
4500.14	30.29	Ave	141	1.2	H	-1.91	28.38	54.00	-25.62
10380.00	39.59	PK	151	1.9	H	5.26	44.85	74.00	-29.15
10380.00	34.79	Ave	151	1.9	H	5.26	40.05	54.00	-13.95
802.11ac(HT40) U-NII-1 High channel 5230MHz									
223.45	42.93	QP	199	1.7	H	-11.62	31.31	46.00	-42.69
223.45	34.22	QP	185	1.5	V	-11.62	22.60	46.00	-51.40
4503.44	36.59	PK	293	1.4	H	-1.93	34.66	74.00	-39.34
4503.44	31.09	Ave	293	1.4	H	-1.93	29.16	54.00	-24.84
10460.00	40.89	PK	87	2.0	H	5.28	46.17	74.00	-27.83
10480.00	36.20	Ave	87	2.0	H	5.28	41.48	54.00	-12.52

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-2A Low channel 5270MHz									
223.45	43.62	QP	60	1.9	H	-11.62	32.00	46.00	-14.00
223.45	39.15	QP	319	1.6	V	-11.62	27.53	46.00	-18.47
4517.69	41.76	PK	73	1.8	H	-1.89	39.87	74.00	-34.13
4517.69	35.13	Ave	73	1.8	H	-1.89	33.24	54.00	-20.76
10540.00	38.73	PK	212	1.3	H	5.26	43.99	74.00	-30.01
10540.00	42.15	Ave	212	1.3	H	5.26	47.41	54.00	-6.59
802.11ac(HT40) U-NII-2A High channel 5310MHz									
223.45	49.36	QP	180	1.4	H	-11.62	37.74	46.00	-8.26
223.45	40.07	QP	61	1.8	V	-11.62	28.45	46.00	-17.55
4526.36	41.12	PK	18	1.1	H	-1.94	39.18	74.00	-34.82
4526.36	37.46	Ave	18	1.1	H	-1.94	35.52	54.00	-18.48
10620.00	0.30	PK	284	1.3	H	5.28	5.58	68.20	-62.62
10620.00	40.52	Ave	284	1.3	H	5.28	45.80	54.00	-8.20
802.11ac(HT40) U-NII-3 Low Channel 5755MHz									
223.45	42.52	QP	159	1.9	H	-11.62	30.90	46.00	-43.10
223.45	35.33	QP	292	1.9	V	-11.62	23.71	46.00	-50.29
4536.79	35.47	PK	244	1.4	H	-1.92	33.55	74.00	-40.45
4536.79	29.88	Ave	244	1.4	H	-1.92	27.96	54.00	-26.04
11510.00	40.00	PK	208	2.0	H	5.88	45.88	74.00	-28.12
11510.00	33.47	Ave	208	2.0	H	5.88	39.35	54.00	-14.65

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 High channel 5795MHz									
223.45	42.13	QP	24	1.6	H	-11.62	30.51	46.00	-43.49
223.45	34.98	QP	110	1.6	V	-11.62	23.36	46.00	-50.64
4524.10	34.49	PK	256	1.1	H	-1.86	32.63	74.00	-41.37
4524.10	29.45	Ave	256	1.1	H	-1.86	27.59	54.00	-26.41
11590.00	42.63	PK	347	1.1	H	5.63	48.26	74.00	-25.74
11590.00	36.04	Ave	347	1.1	H	5.63	41.67	54.00	-12.33
802.11ac(HT80) U-NII-1 Low Channel 5210MHz									
223.45	35.80	QP	14	1.1	H	-11.62	24.18	46.00	-29.82
223.45	33.98	QP	200	1.2	V	-11.62	22.36	46.00	-31.64
4534.47	28.57	PK	298	1.9	H	-1.88	26.69	74.00	-47.31
4534.47	42.75	Ave	298	1.9	H	-1.88	40.87	54.00	-13.13
10420.00	41.85	PK	82	1.3	H	4.65	46.50	74.00	-27.50
10420.00	35.78	Ave	82	1.3	H	4.65	40.43	54.00	-13.57
802.11ac(HT80) U-NII-2A Low Channel 5290MHz									
4501.58	32.83	QP	121	1.9	H	-11.62	21.21	46.00	-24.79
4502.35	28.13	QP	49	1.0	V	-11.62	16.51	46.00	-29.49
4528.95	40.88	PK	234	1.8	H	-1.88	39.00	74.00	-35.00
4528.95	37.71	Ave	234	1.8	H	-1.88	35.83	54.00	-18.17
10580.00	35.05	PK	295	1.4	H	4.65	39.70	74.00	-34.30
10580.00	45.16	Ave	295	1.4	H	4.65	49.81	54.00	-4.19

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-3 Low Channel 5775MHz									
223.45	34.12	QP	355	1.2	H	-11.62	22.50	46.00	-51.50
223.45	29.23	QP	84	1.4	V	-11.62	17.61	46.00	-56.39
4535.74	43.22	PK	192	1.6	H	-1.85	41.37	74.00	-32.63
4535.74	42.71	Ave	192	1.6	H	-1.85	40.86	54.00	-13.14
11550.00	45.50	PK	82	1.1	H	-1.14	44.36	74.00	-29.64
11550.00	37.31	Ave	82	1.1	H	-1.14	36.17	54.00	-17.83

Test Frequency: 18GHz~40GHz

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

9 Duty cycle

Test Requirement:	47 CFR Part 15C 15.407 KDB789033 D02 General U-NII 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.

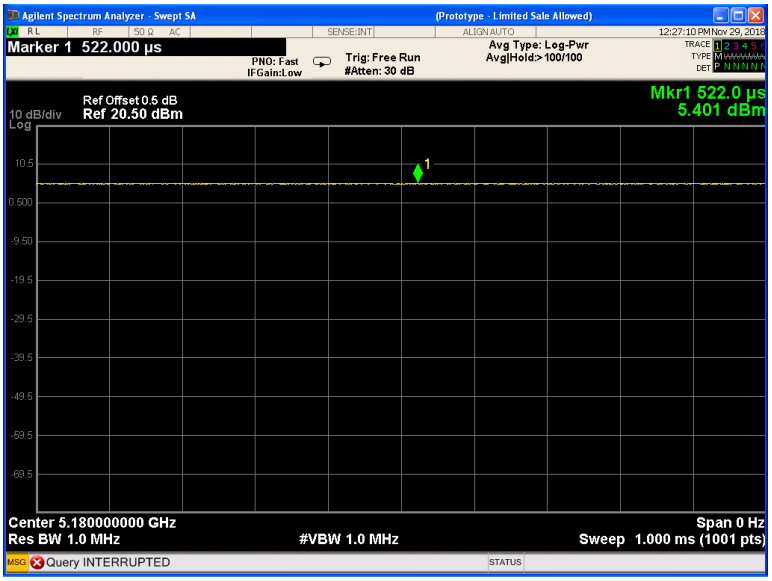
9.1 Summary of Test Results

802.11a mode			
channel	On time(ms)	Period(ms)	Duty Cycle(%)
36	100	100	100
52	100	100	100
149	100	100	100
802.11n(HT20) mode			
channel	On time(ms)	Period(ms)	Duty Cycle(%)
36	100	100	100
52	100	100	100
149	100	100	100
802.11n(HT40) mode			
channel	On time(ms)	Period(ms)	Duty Cycle(%)
38	100	100	100
54	100	100	100
151	100	100	100
802.11ac(HT20) mode			
channel	On time(ms)	Period(ms)	Duty Cycle(%)
36	100	100	100
52	100	100	100
149	100	100	100
802.11ac(HT40) mode			
channel	On time(ms)	Period(ms)	Duty Cycle(%)
38	100	100	100
54	100	100	100

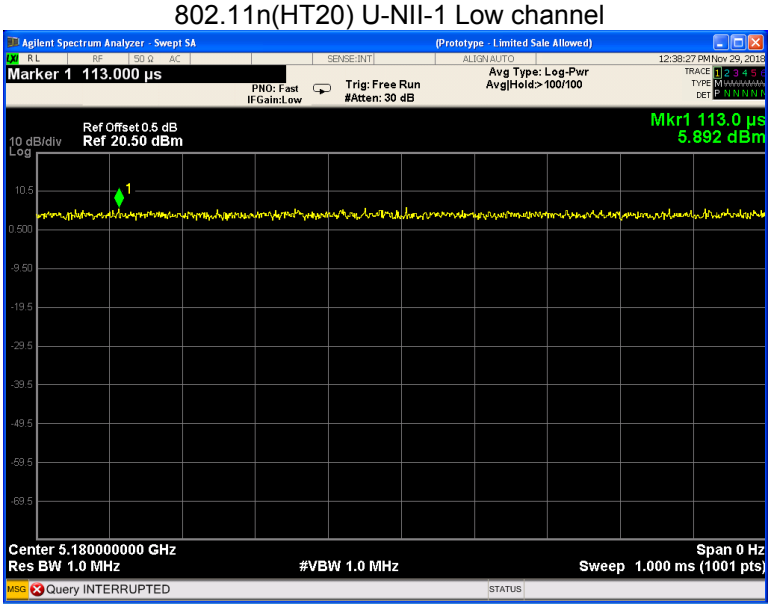
151	100	100	100
802.11ac(HT80) mode			
channel	On time(ms)	Period(ms)	Duty Cycle(%)
42	100	100	100
58	100	100	100
155	100	100	100

Test result plots shown as follows:

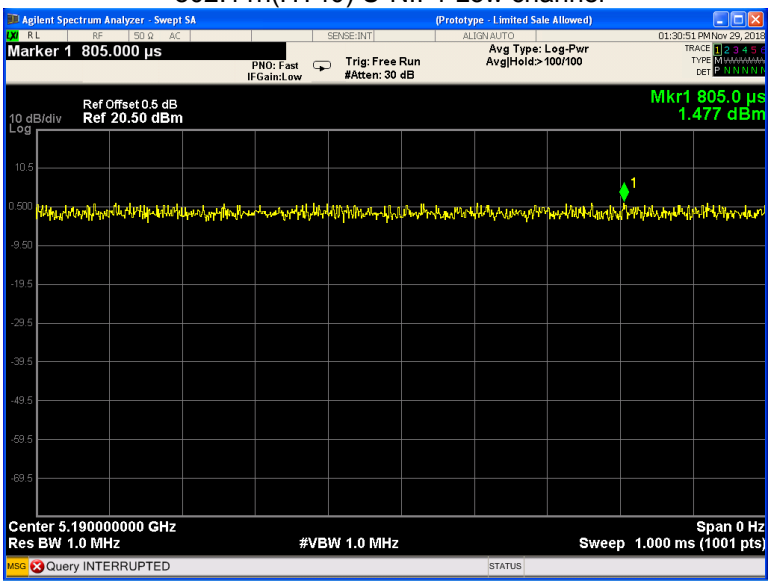
802.11a U-NII-1 Low channel



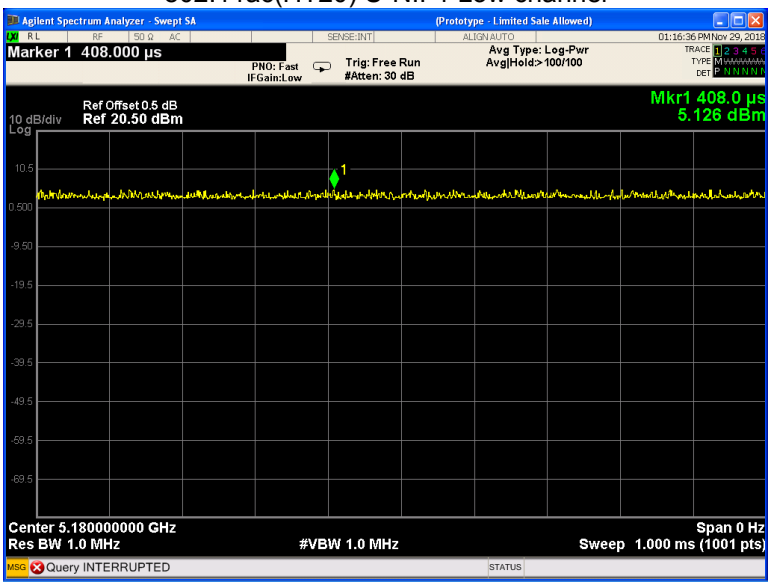
802.11n(HT20) U-NII-1 Low channel



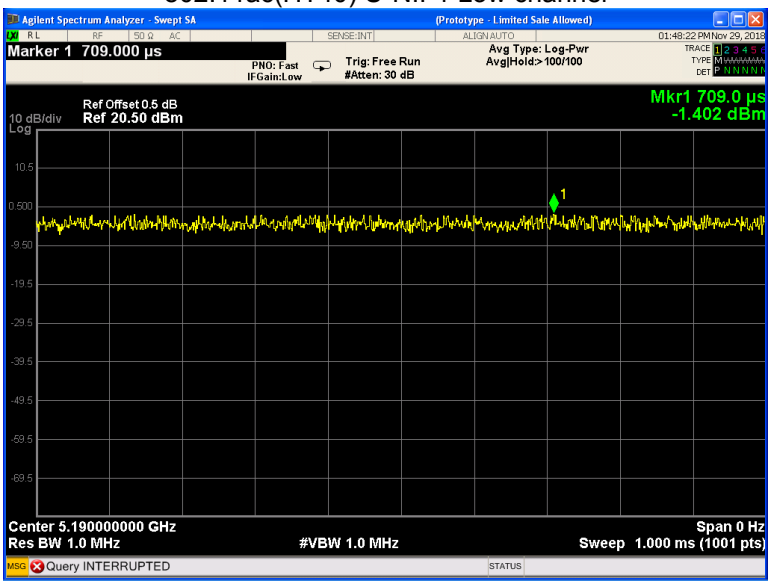
802.11n(HT40) U-NII-1 Low channel



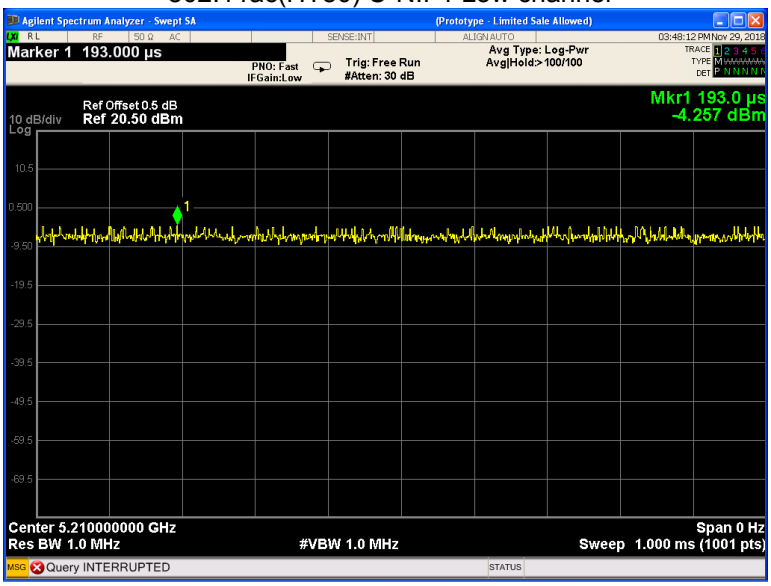
802.11ac(HT20) U-NII-1 Low channel



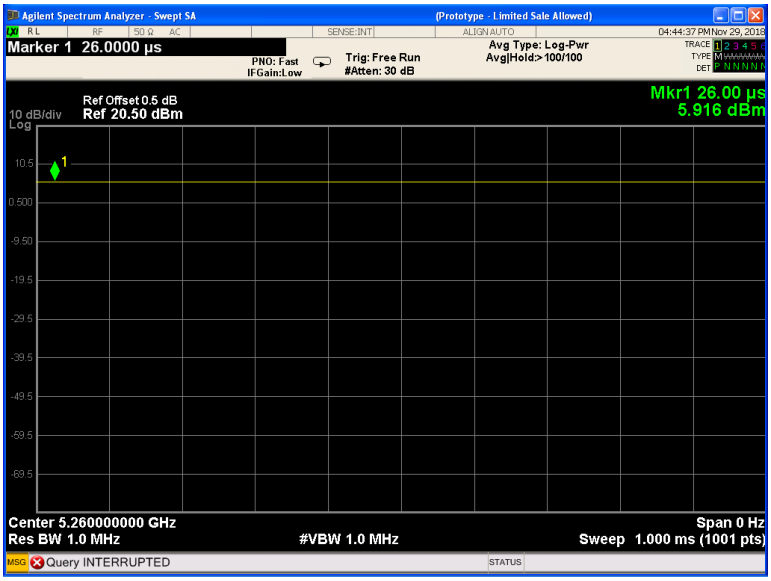
802.11ac(HT40) U-NII-1 Low channel



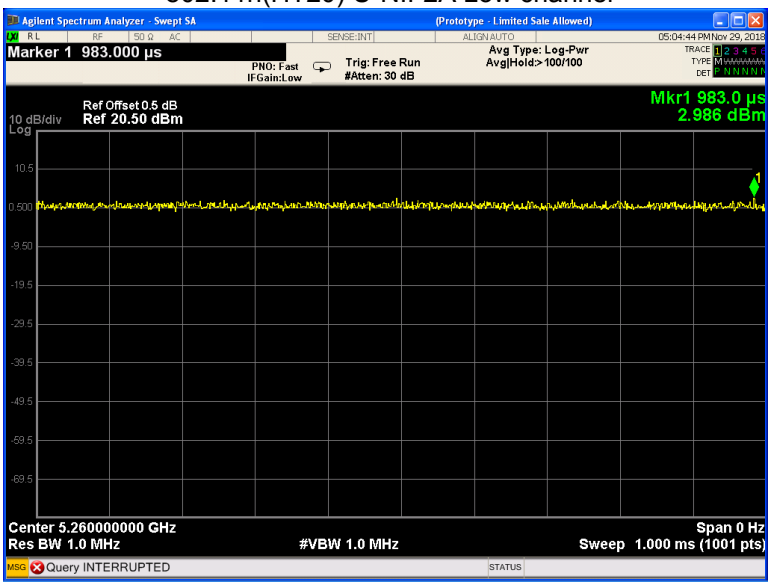
802.11ac(HT80) U-NII-1 Low channel



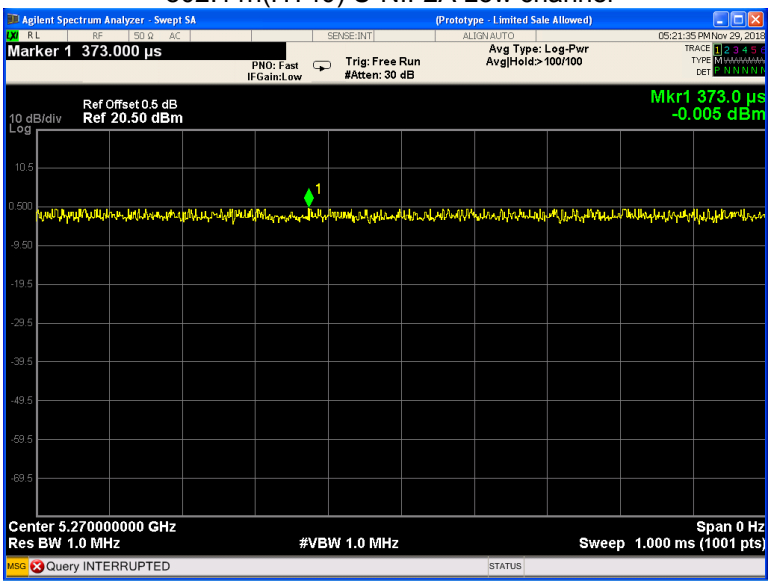
802.11a U-NII-2A Low channel



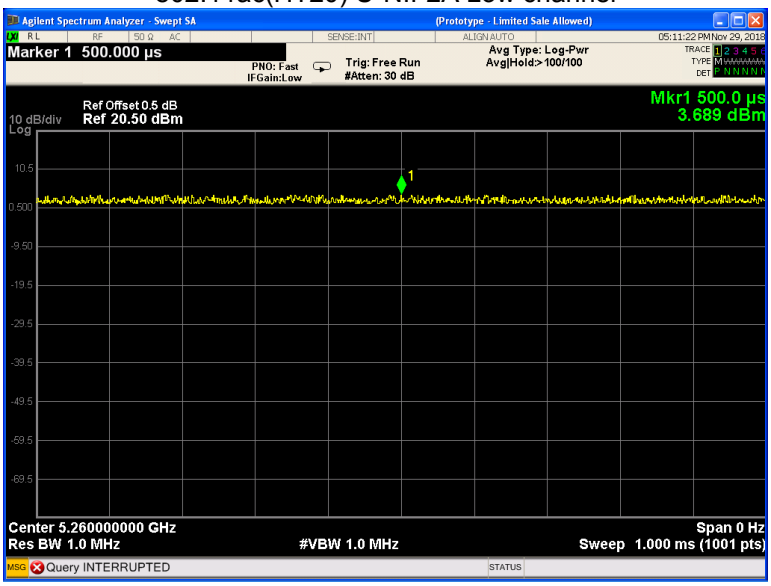
802.11n(HT20) U-NII-2A Low channel



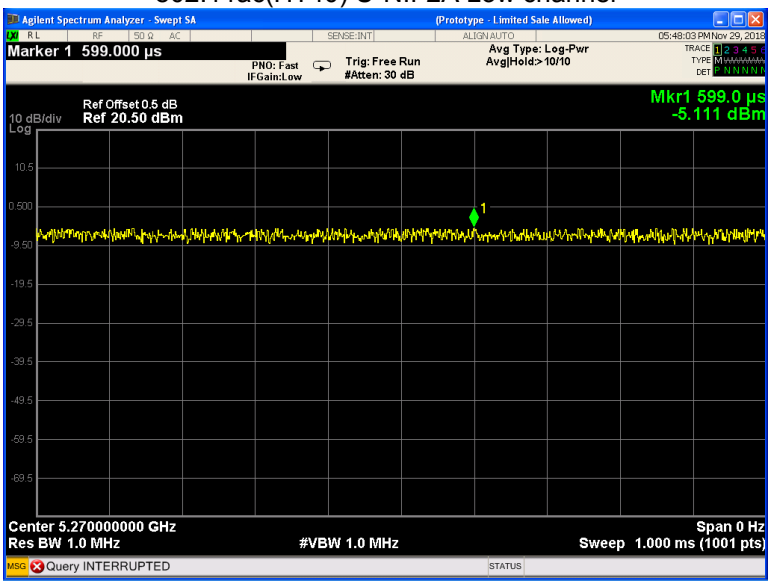
802.11n(HT40) U-NII-2A Low channel



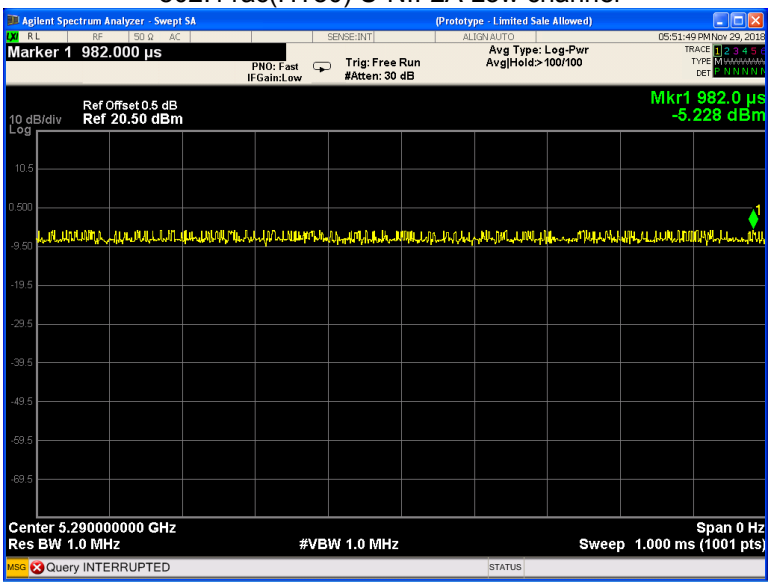
802.11ac(HT20) U-NII-2A Low channel



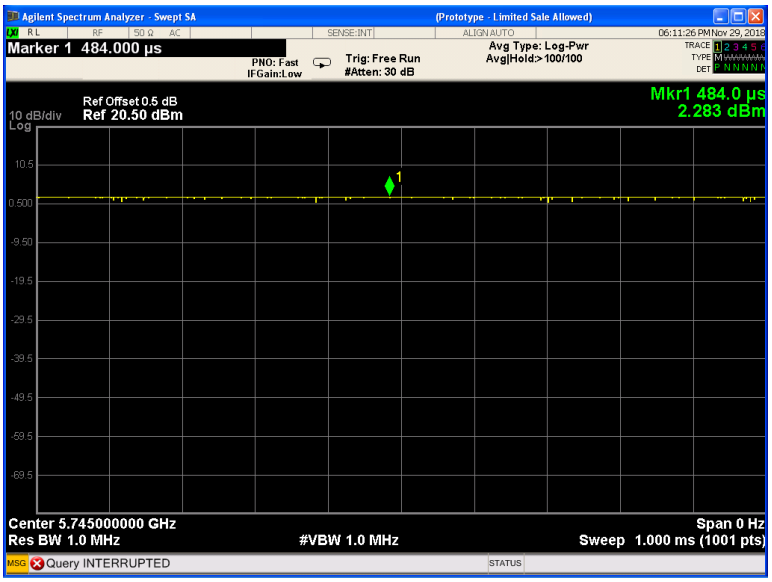
802.11ac(HT40) U-NII-2A Low channel



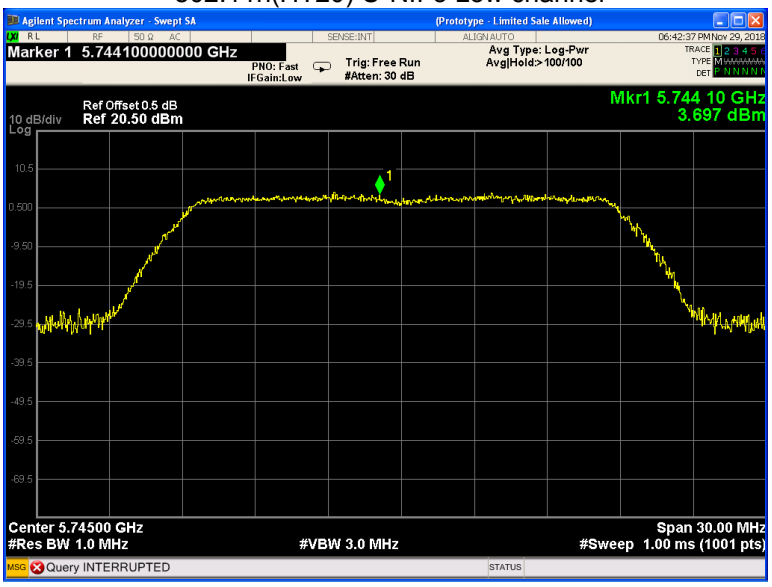
802.11ac(HT80) U-NII-2A Low channel



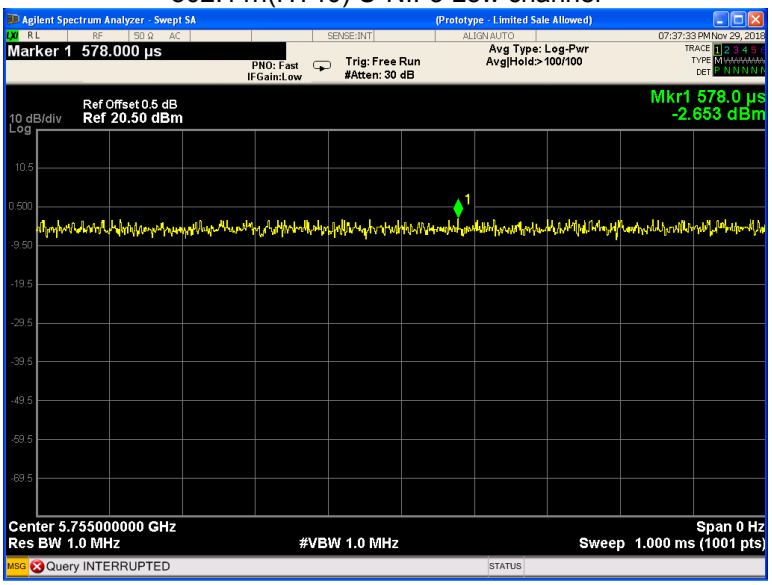
802.11a U-NII-3 Low channel



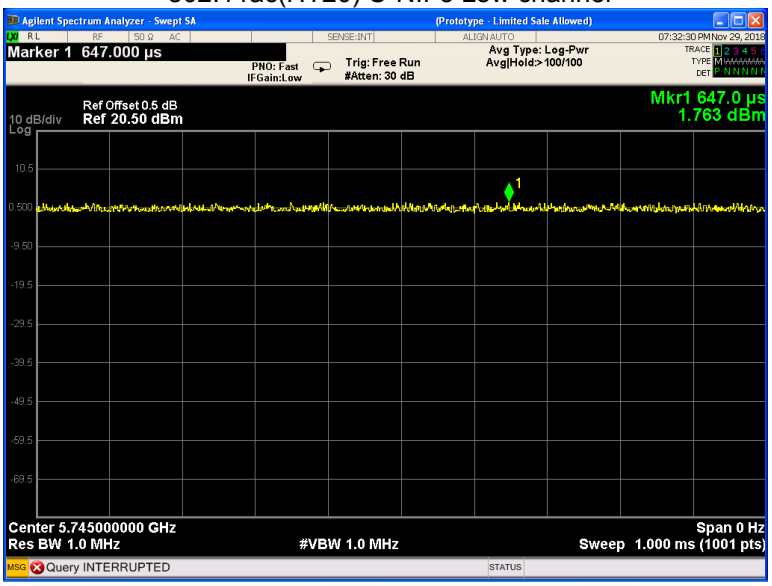
802.11n(HT20) U-NII-3 Low channel



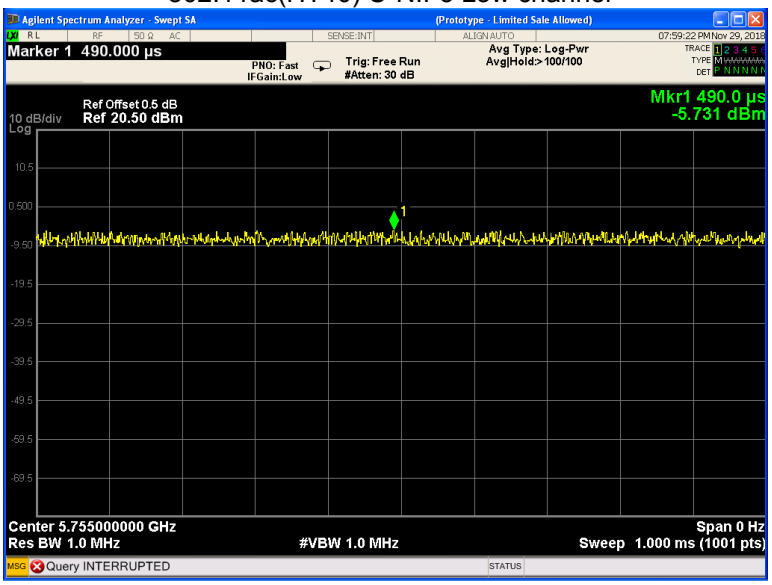
802.11n(HT40) U-NII-3 Low channel



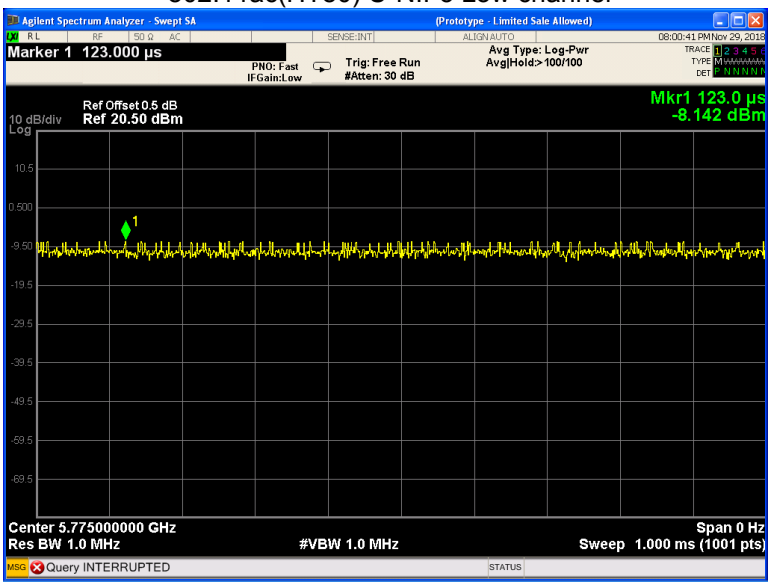
802.11ac(HT20) U-NII-3 Low channel



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



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



10 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 within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an e.i.r.p. of −17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of −27 dBm/MHz.
Test Result:	PASS

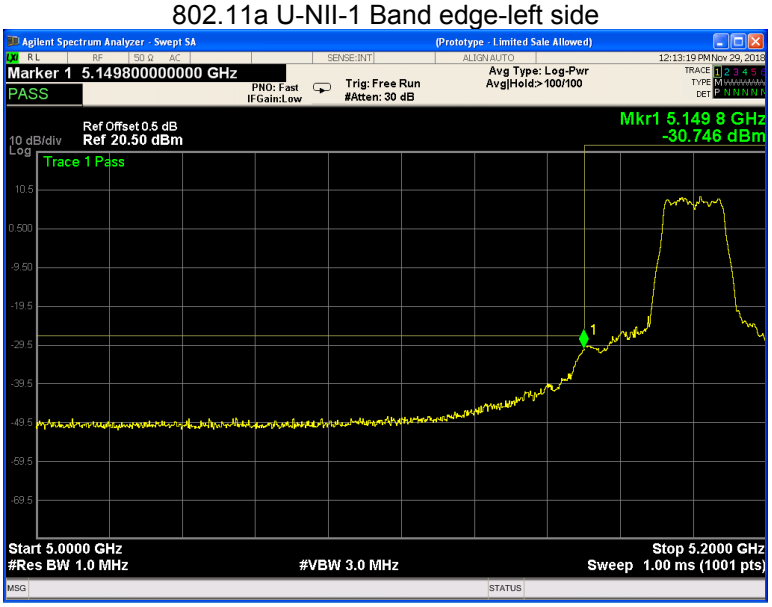
10.1 Test Produce

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.

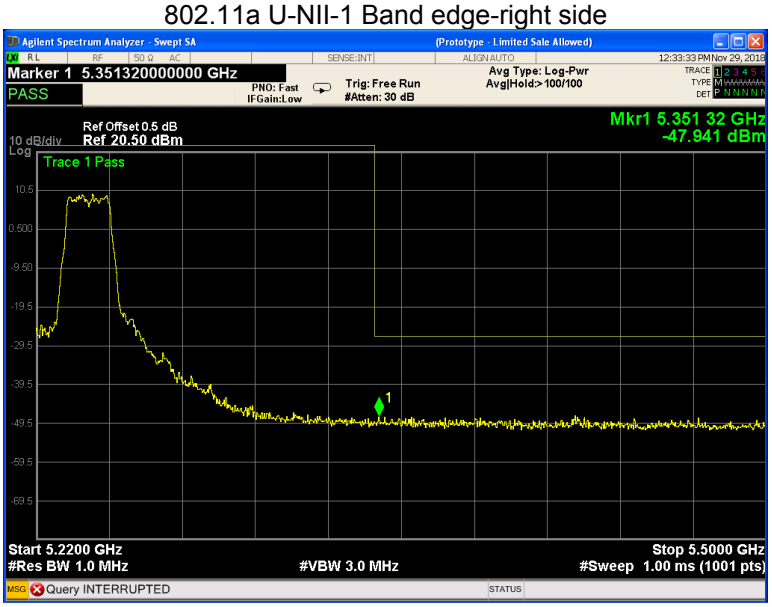
10.2 Test Result

Test result plots shown as follows:

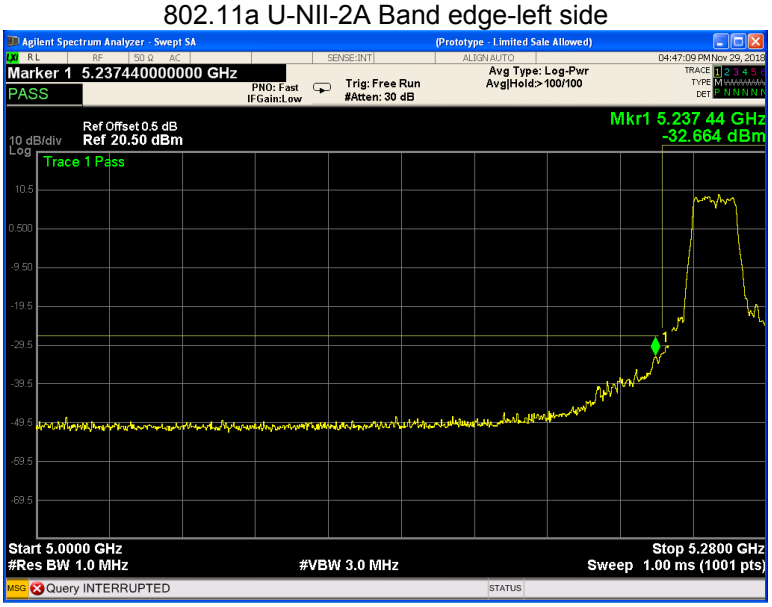
802.11a U-NII-1 Band edge-left side



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

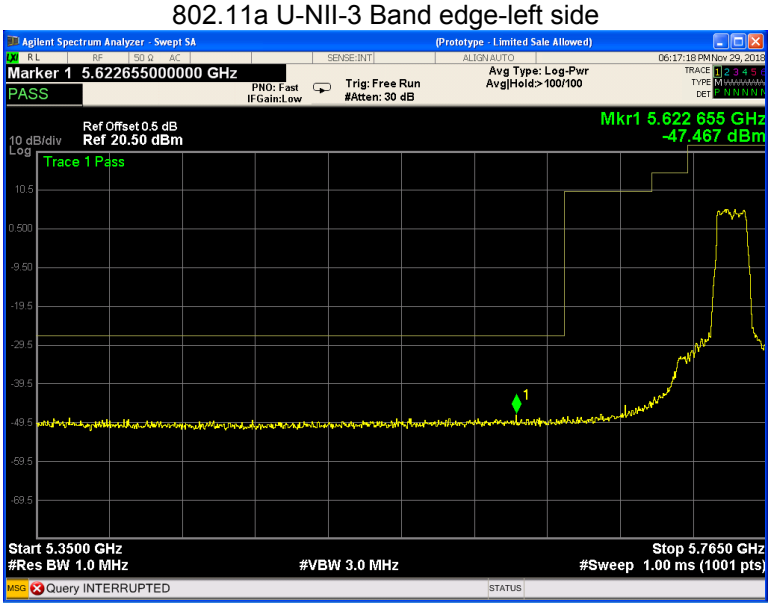


802.11a U-NII-2A Band edge-left side

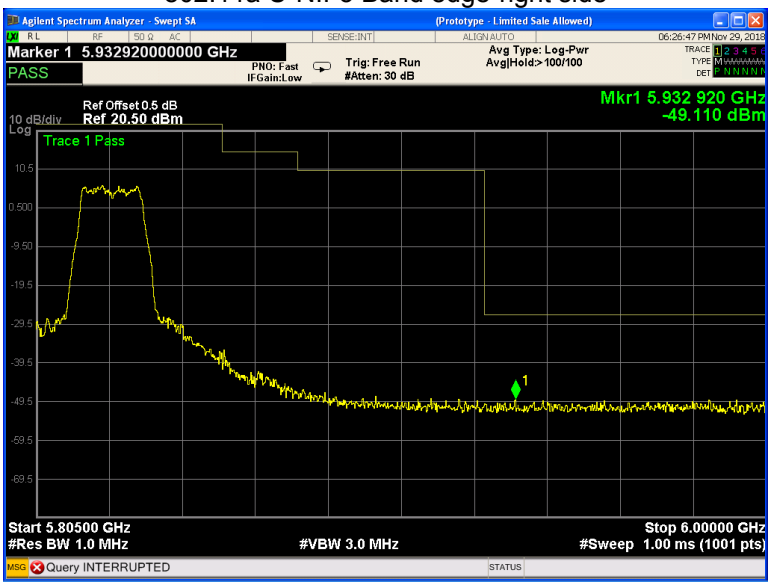


802.11a U-NII-2A Band edge-right side

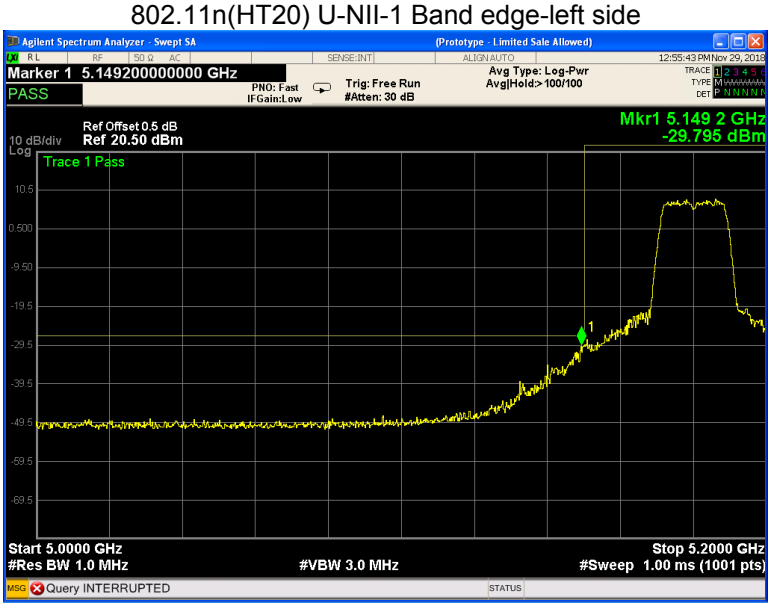
802.11a U-NII-3 Band edge-left side



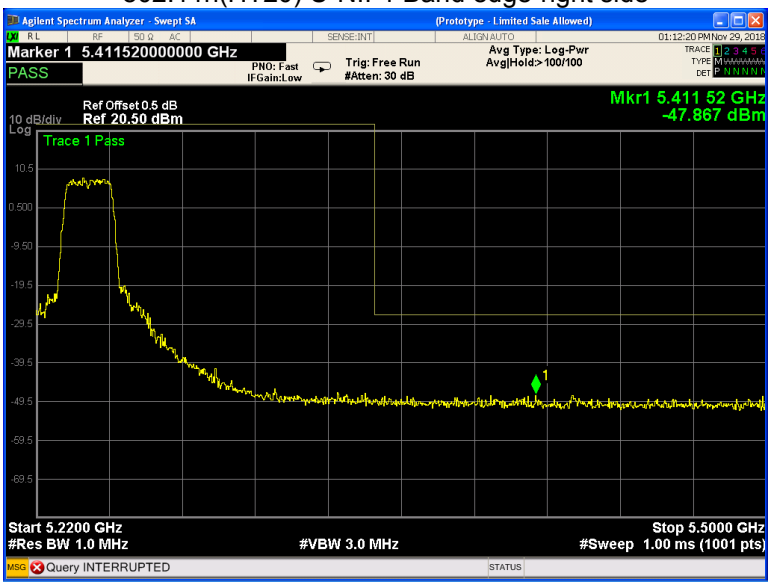
802.11a U-NII-3 Band edge-right side



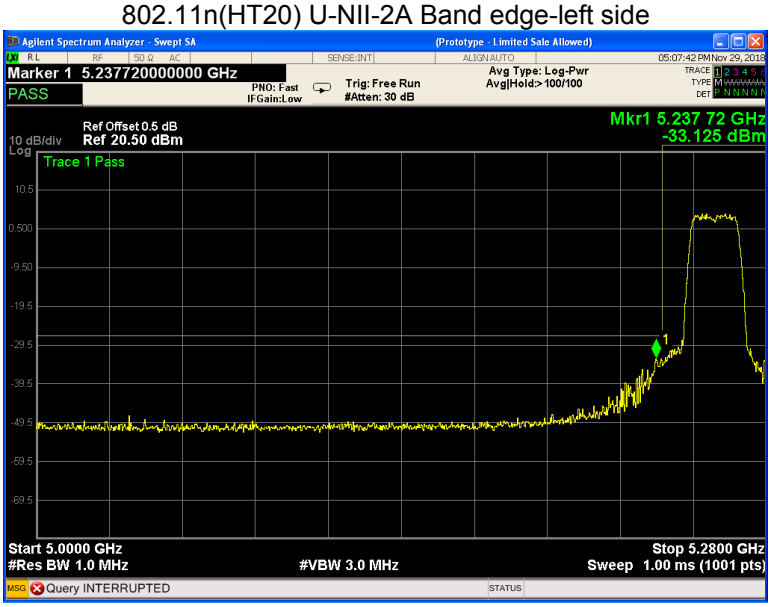
802.11n(HT20) U-NII-1 Band edge-left side



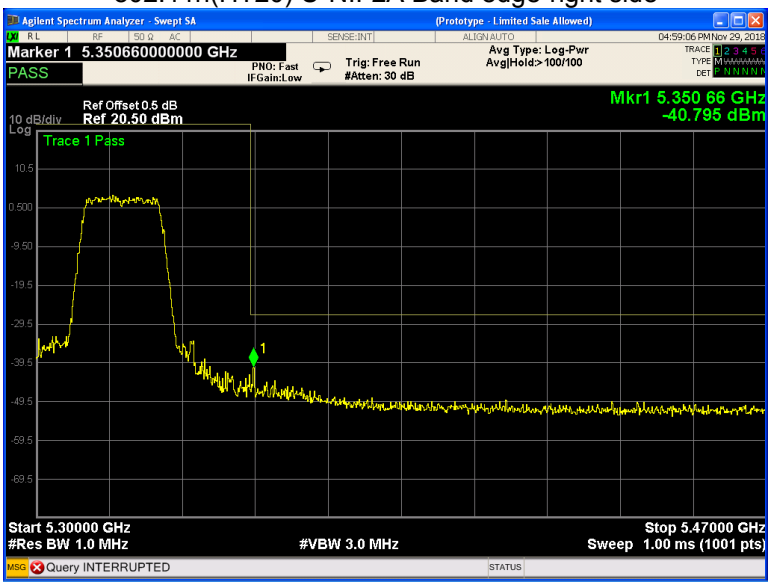
802.11n(HT20) U-NII-1 Band edge-right side



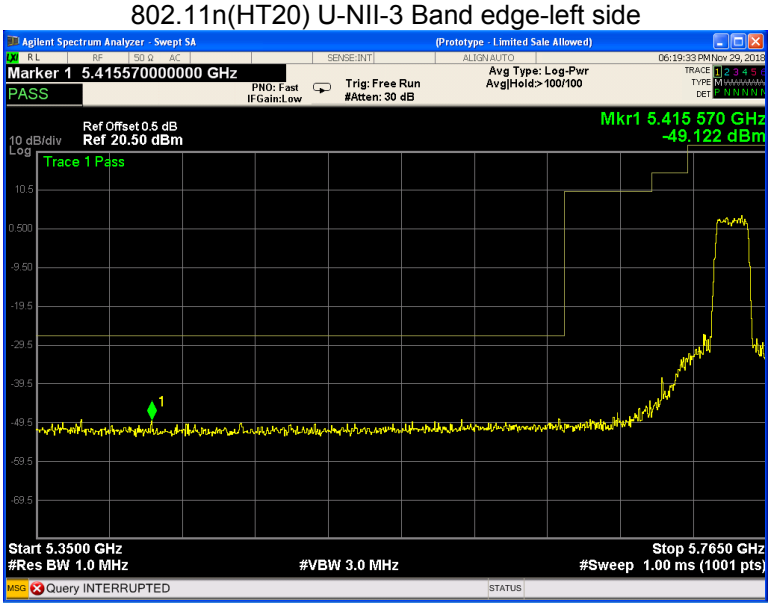
802.11n(HT20) U-NII-2A Band edge-left side



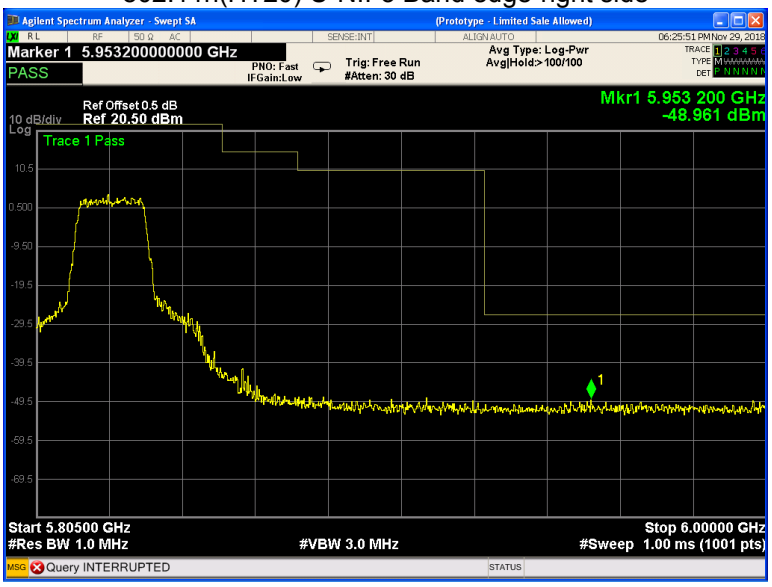
802.11n(HT20) U-NII-2A Band edge-right side



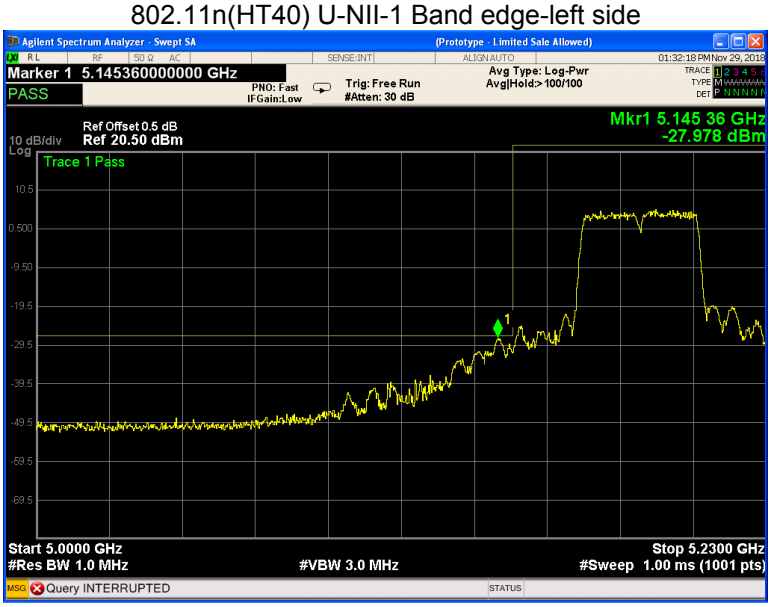
802.11n(HT20) U-NII-3 Band edge-left side



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

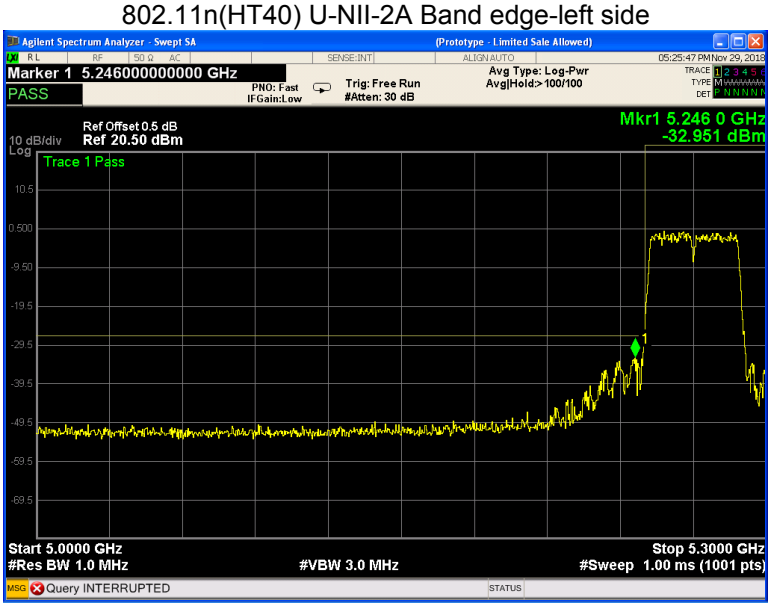


802.11n(HT40) U-NII-1 Band edge-left side

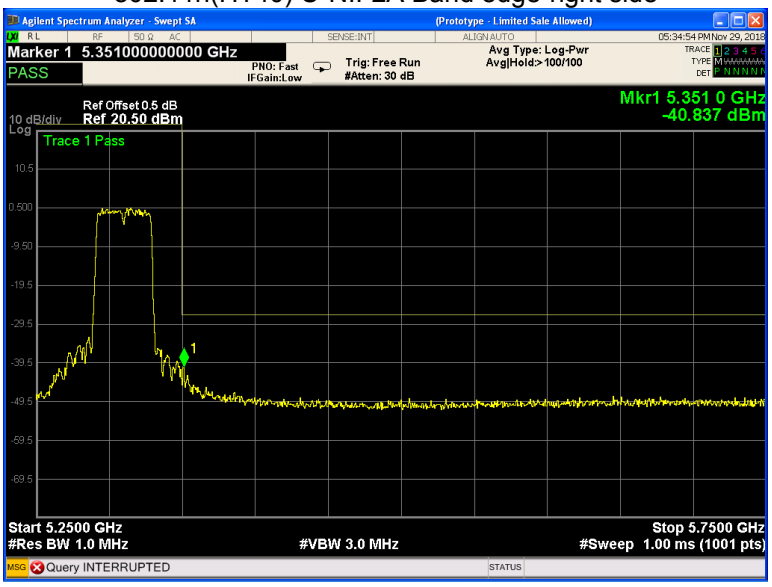


802.11n(HT40) U-NII-1 Band edge-right side

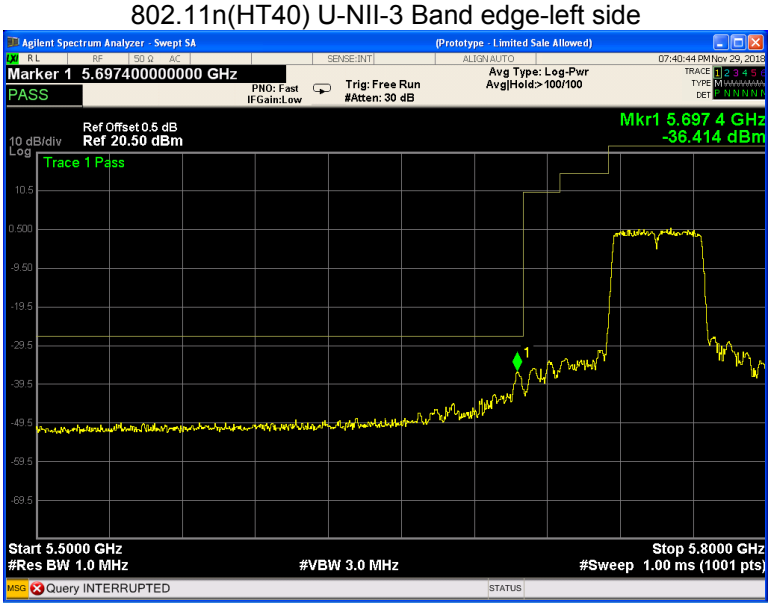
802.11n(HT40) U-NII-2A Band edge-left side



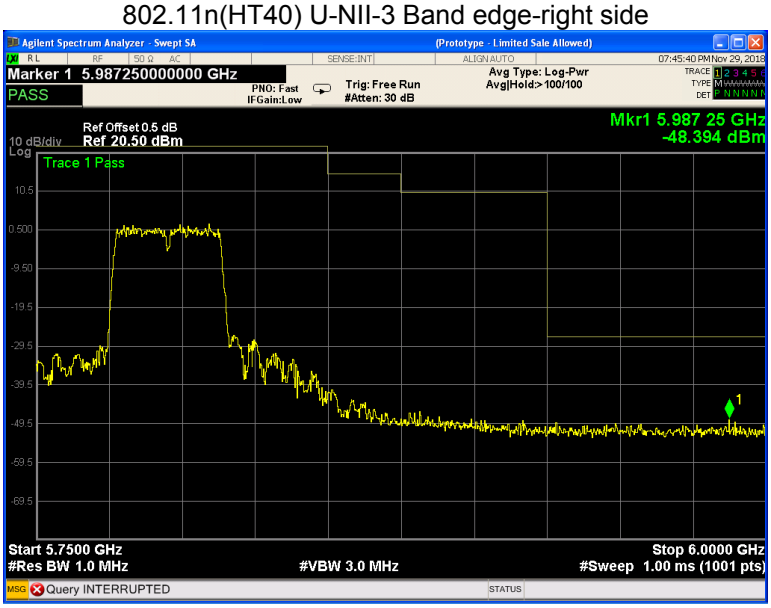
802.11n(HT40) U-NII-2A Band edge-right side



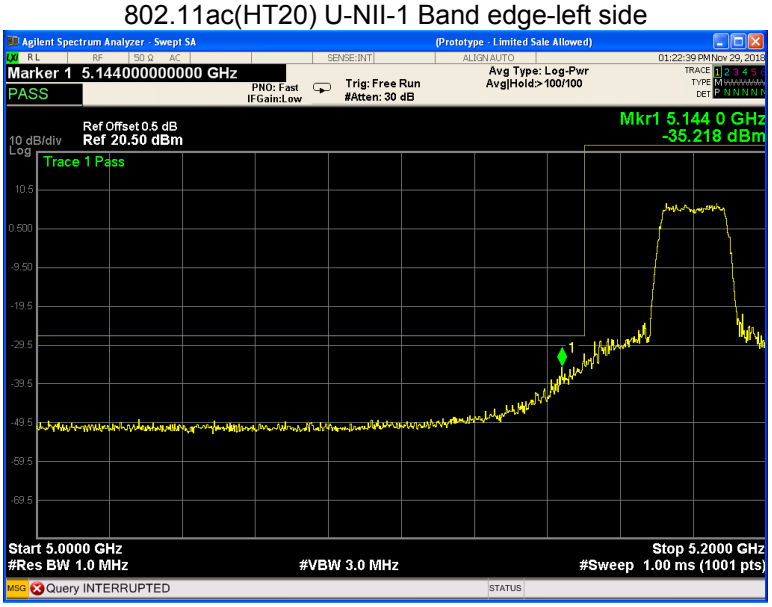
802.11n(HT40) U-NII-3 Band edge-left side



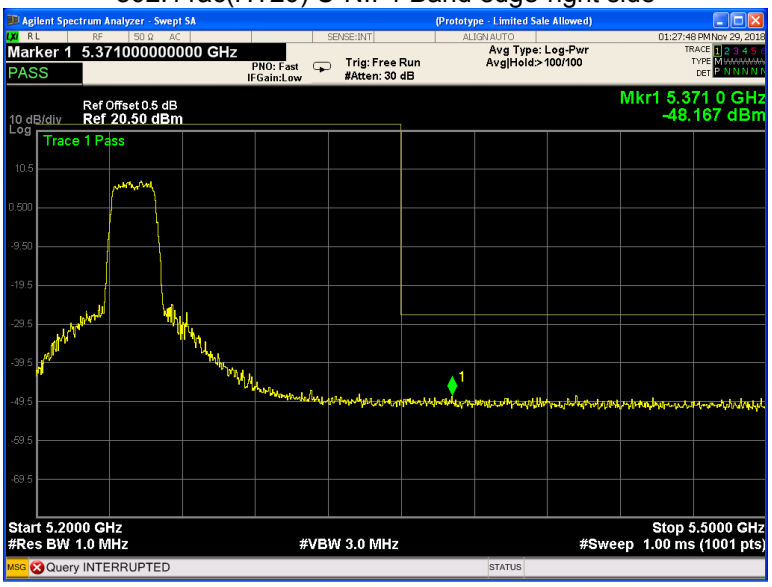
802.11n(HT40) U-NII-3 Band edge-right side



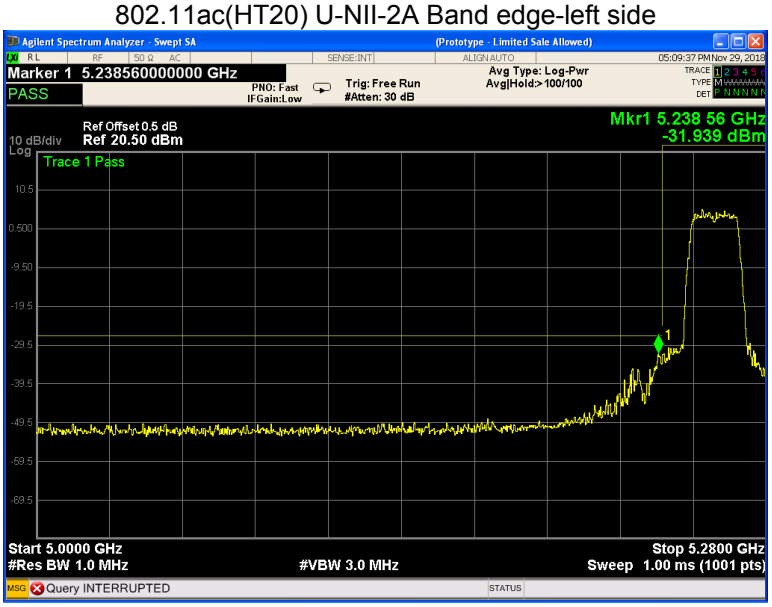
802.11ac(HT20) U-NII-1 Band edge-left side



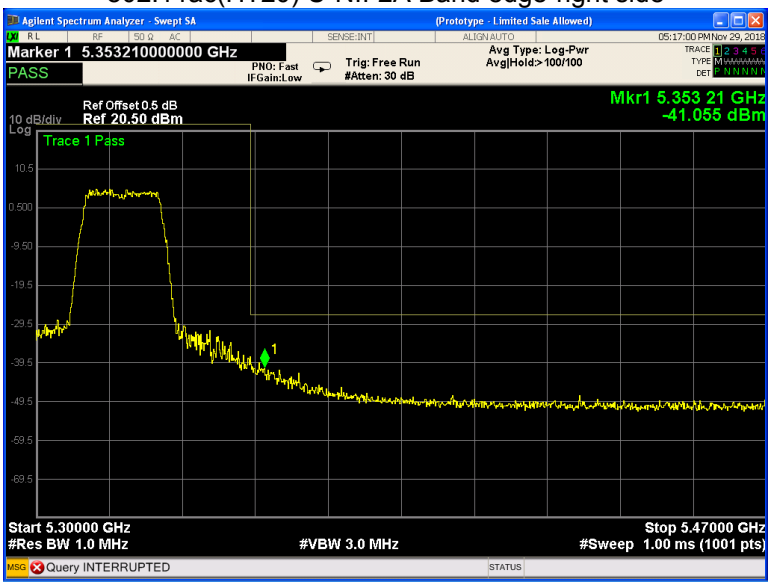
802.11ac(HT20) U-NII-1 Band edge-right side



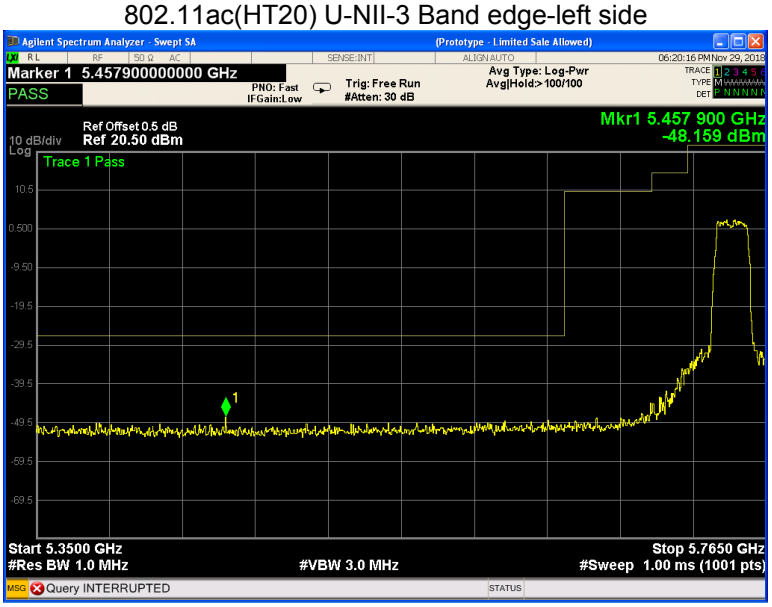
802.11ac(HT20) U-NII-2A Band edge-left side



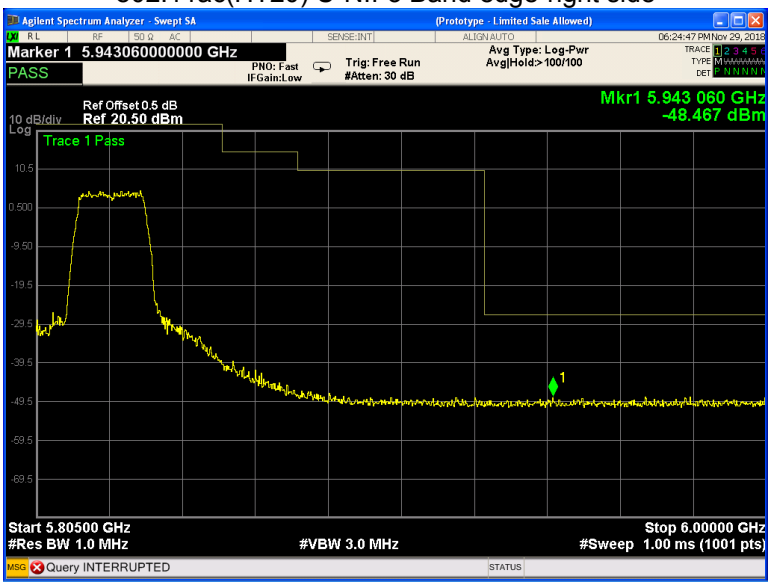
802.11ac(HT20) U-NII-2A Band edge-right side



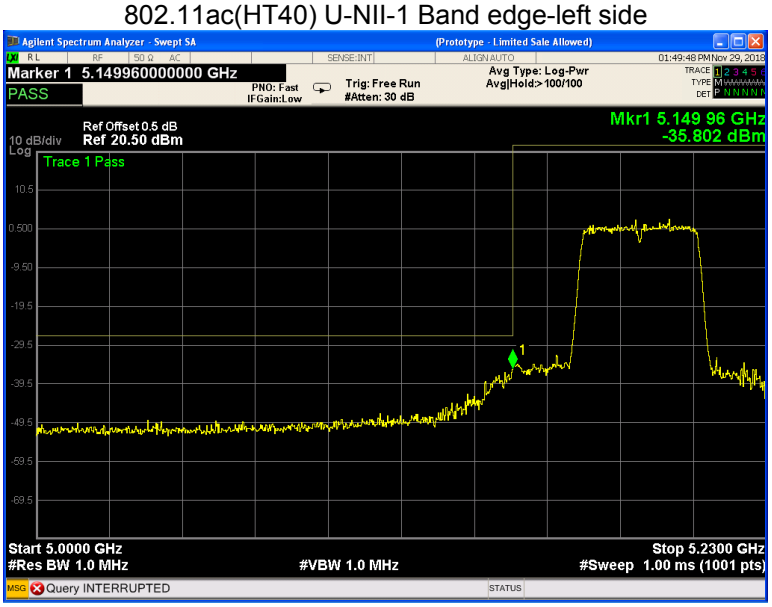
802.11ac(HT20) U-NII-3 Band edge-left side



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

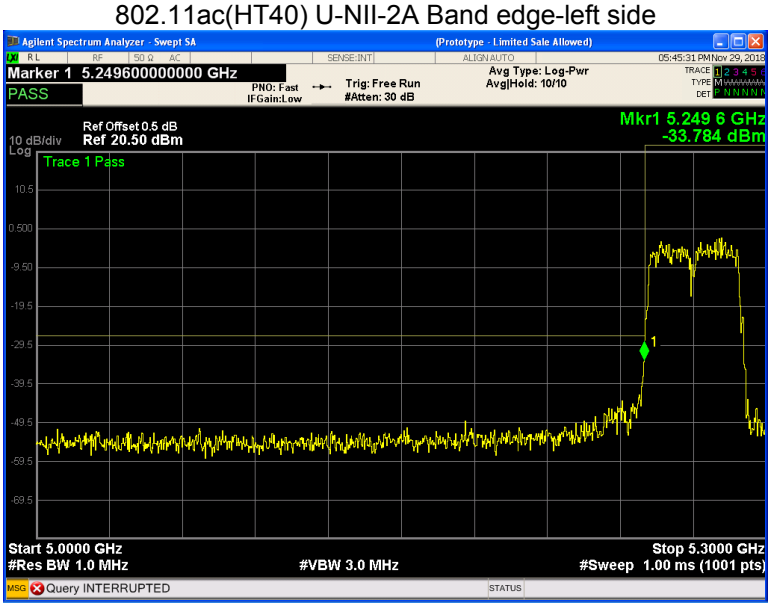


802.11ac(HT40) U-NII-1 Band edge-left side

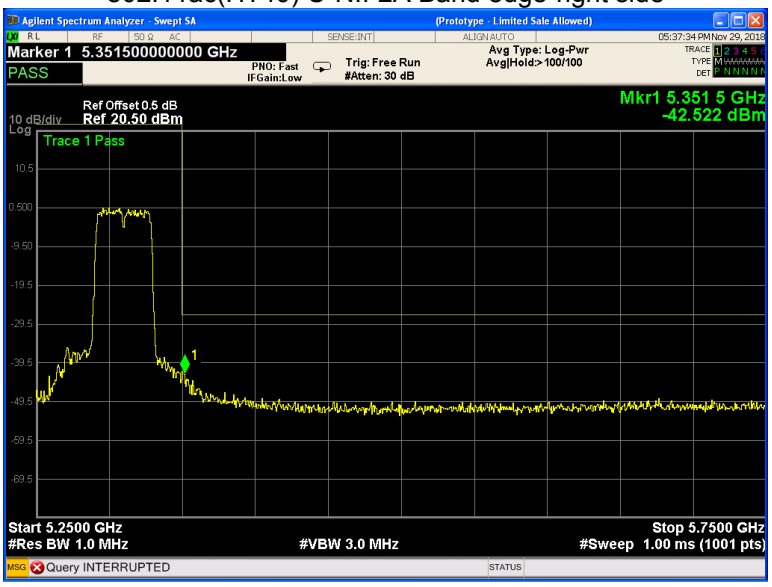


802.11ac(HT40) U-NII-1 Band edge-right side

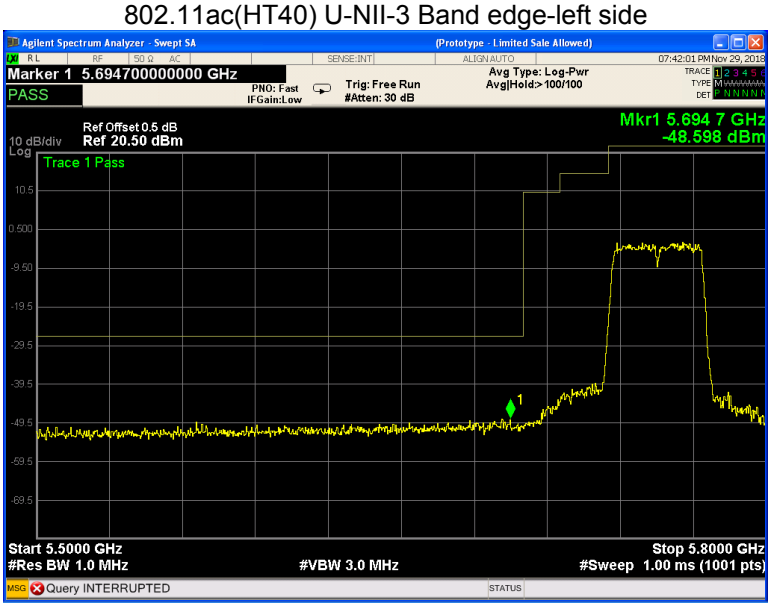
802.11ac(HT40) U-NII-2A Band edge-left side



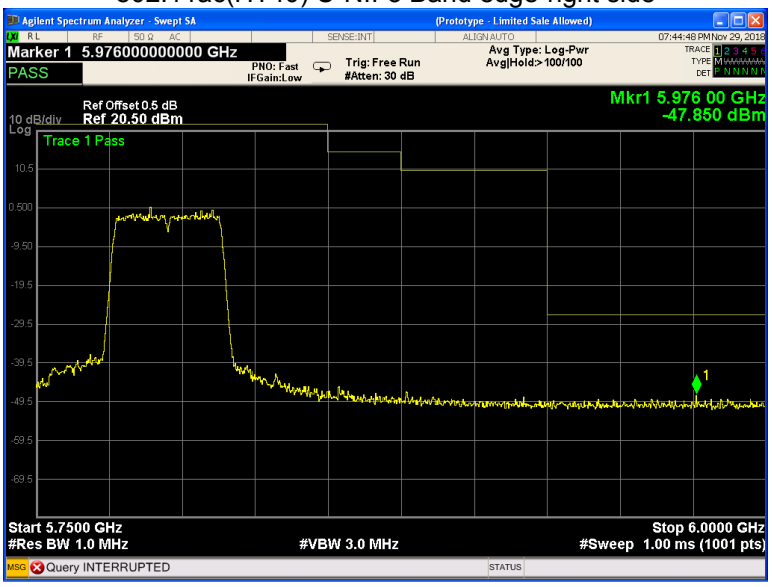
802.11ac(HT40) U-NII-2A Band edge-right side



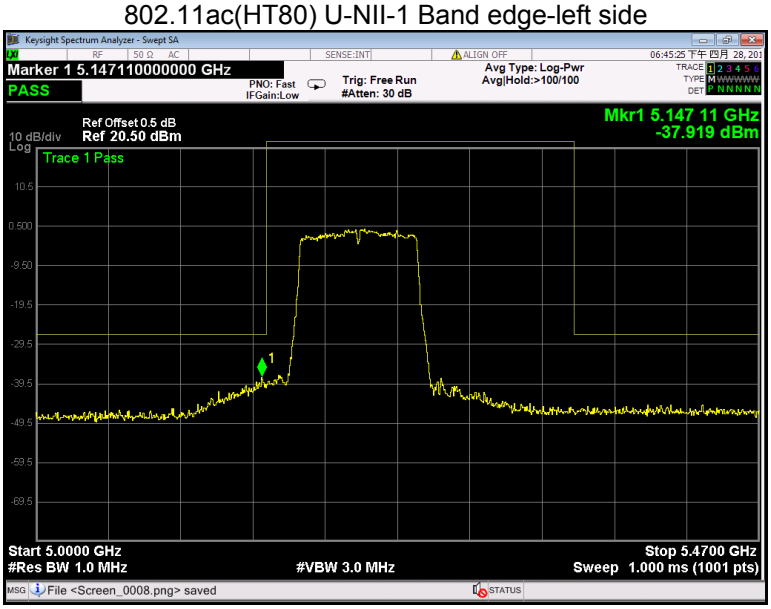
802.11ac(HT40) U-NII-3 Band edge-left side



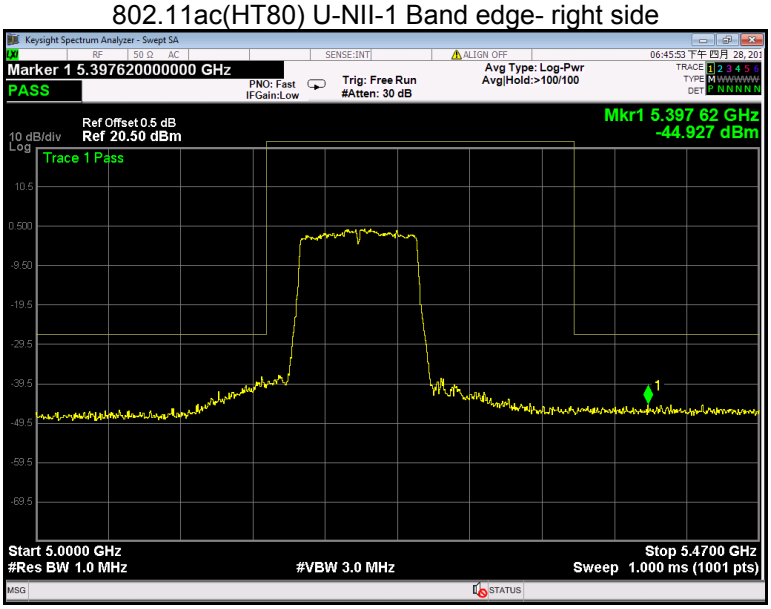
802.11ac(HT40) U-NII-3 Band edge-right side



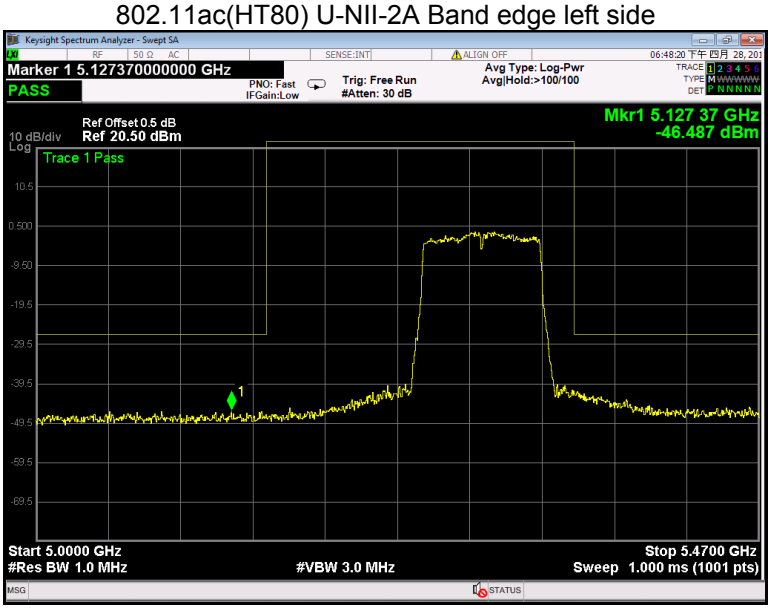
802.11ac(HT80) U-NII-1 Band edge-left side



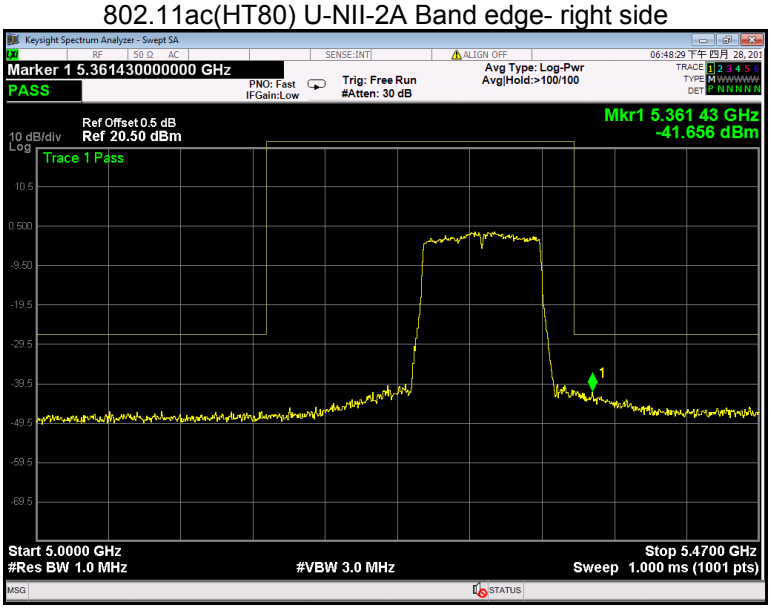
802.11ac(HT80) U-NII-1 Band edge- right side



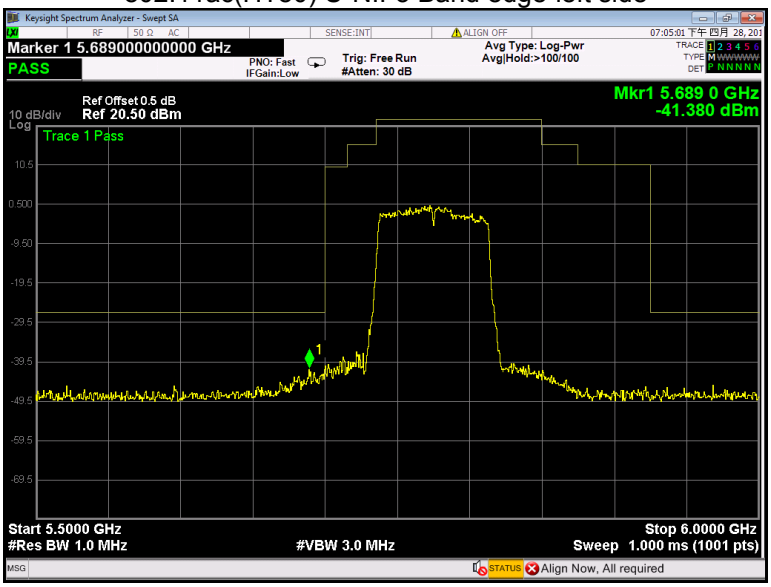
802.11ac(HT80) U-NII-2A Band edge left side



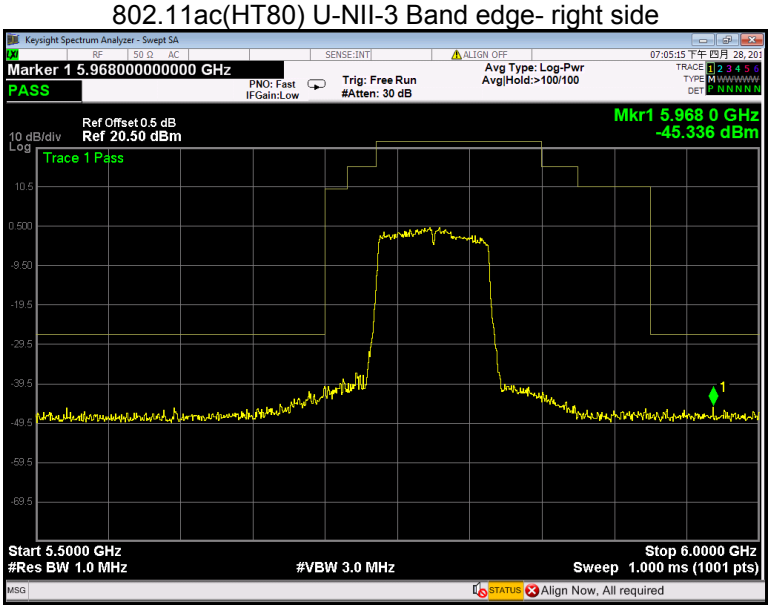
802.11ac(HT80) U-NII-2A Band edge- right side



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



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



11 6 dB Bandwidth

Test Requirement:	FCC CFR47 Part 15 Section 15.407(e)
Test Method:	KDB662911 D01 Multiple Transmitter Output v02r01 KDB789033 D02 General U-NII Test Procedures New Rules v02r01 Section C
Test Limit:	≥ 500 kHz
Test Result:	PASS

11.1 Test Procedure:

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

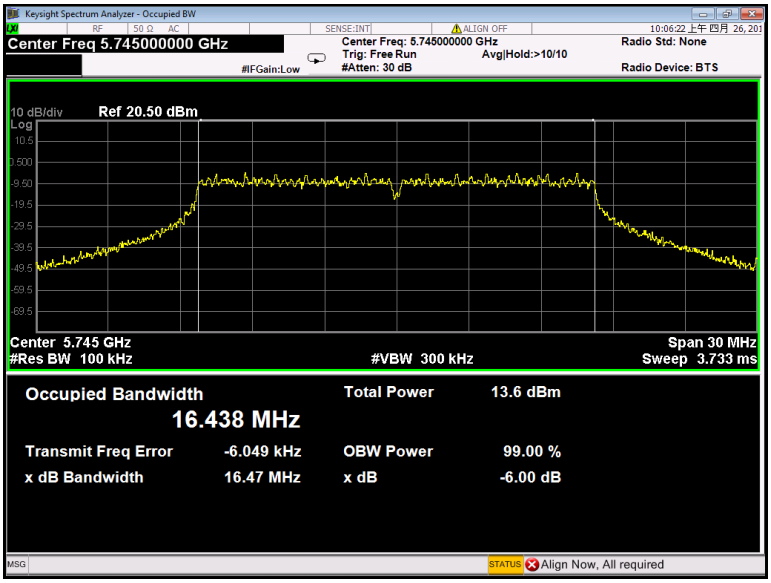
2. Set the spectrum analyzer: RBW = 100kHz, VBW = 300kHz

11.2 Test Result:

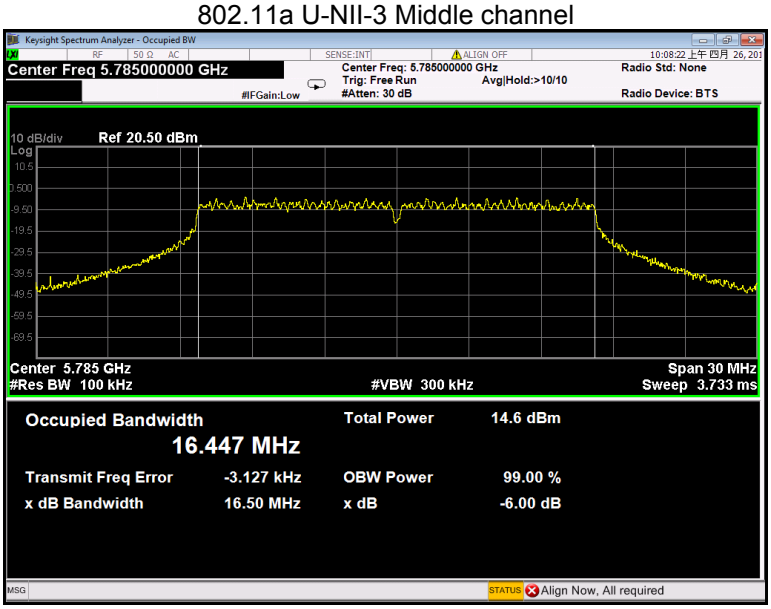
Band	Operation mode	6 dB Bandwidth (MHz)		
		Low	Middle	High
U-NII-3	802.11a	16.47	16.50	16.49
	802.11n(HT20)	16.30	15.89	15.09
	802.11n(HT40)	36.01	/	35.70
	802.11ac(HT20)	16.30	16.90	15.30
	802.11ac(HT40)	36.29	/	35.72
	802.11ac(HT80)	75.04	/	/

Test result plots shown as follows:

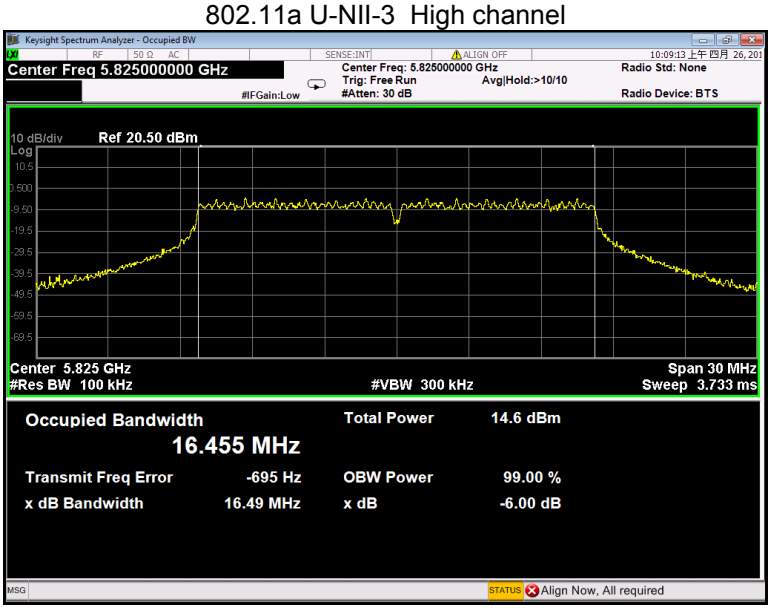
802.11a U-NII-3 Low channel



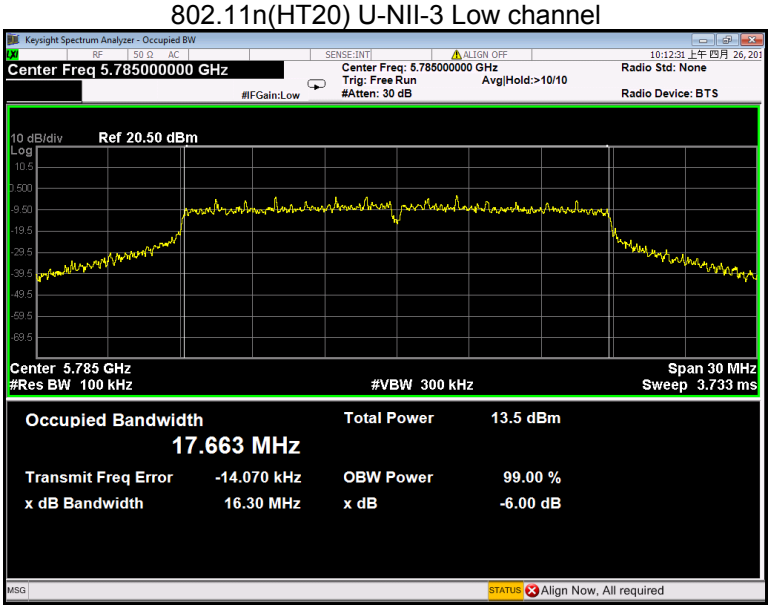
802.11a U-NII-3 Middle channel



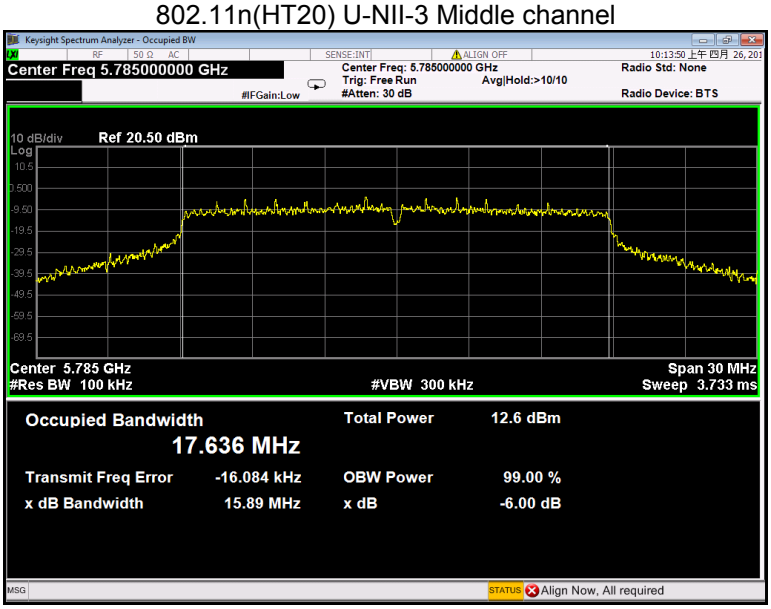
802.11a U-NII-3 High channel



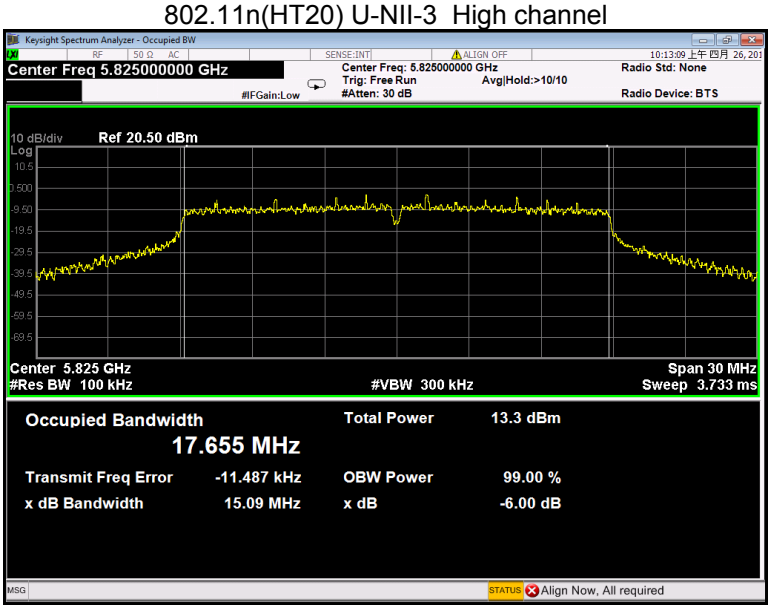
802.11n(HT20) U-NII-3 Low channel



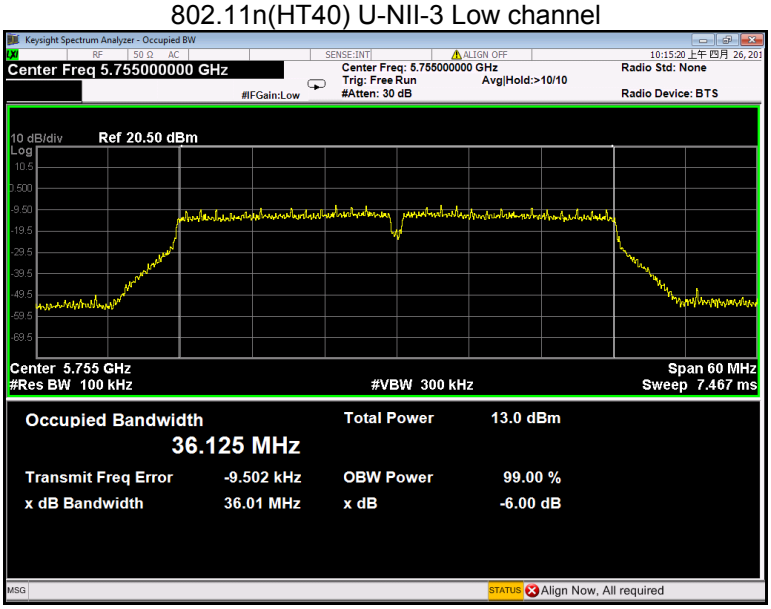
802.11n(HT20) U-NII-3 Middle channel



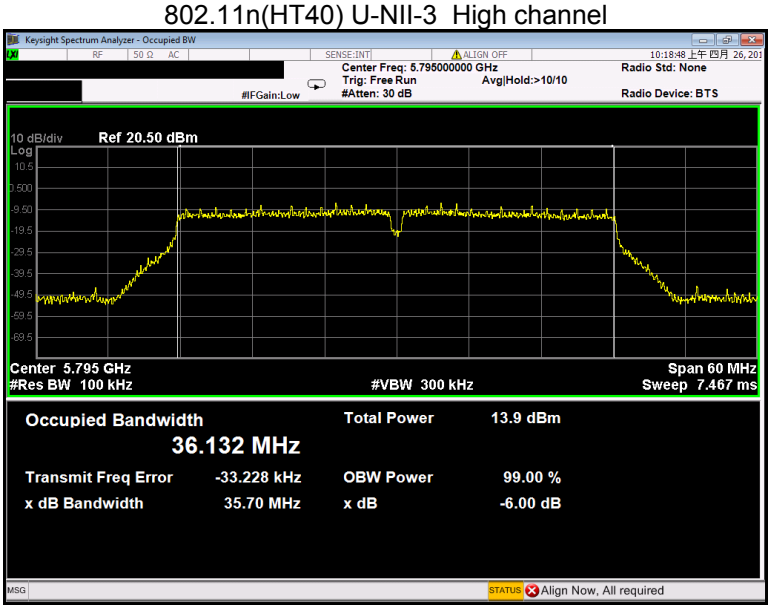
802.11n(HT20) U-NII-3 High channel



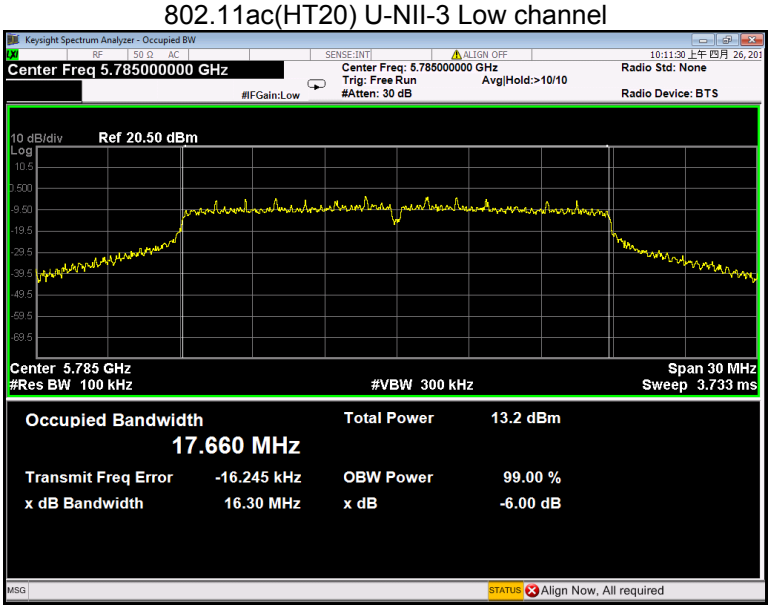
802.11n(HT40) U-NII-3 Low channel



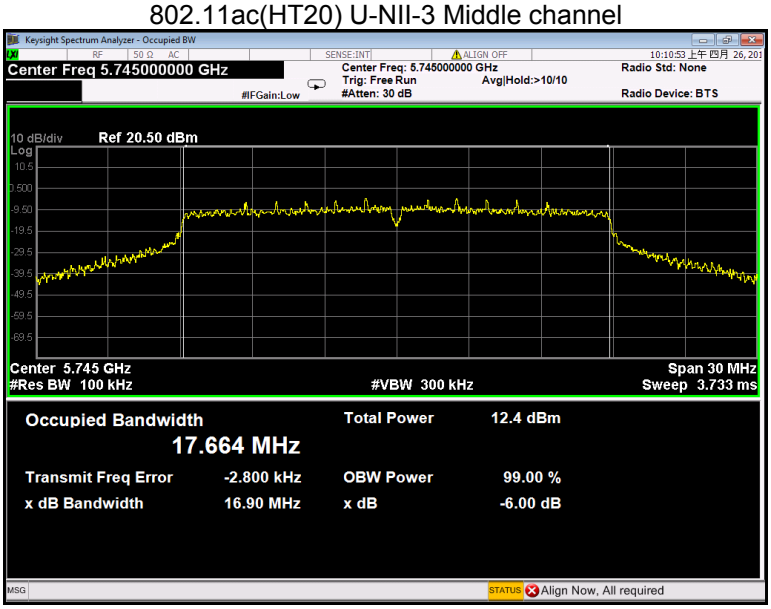
802.11n(HT40) U-NII-3 High channel



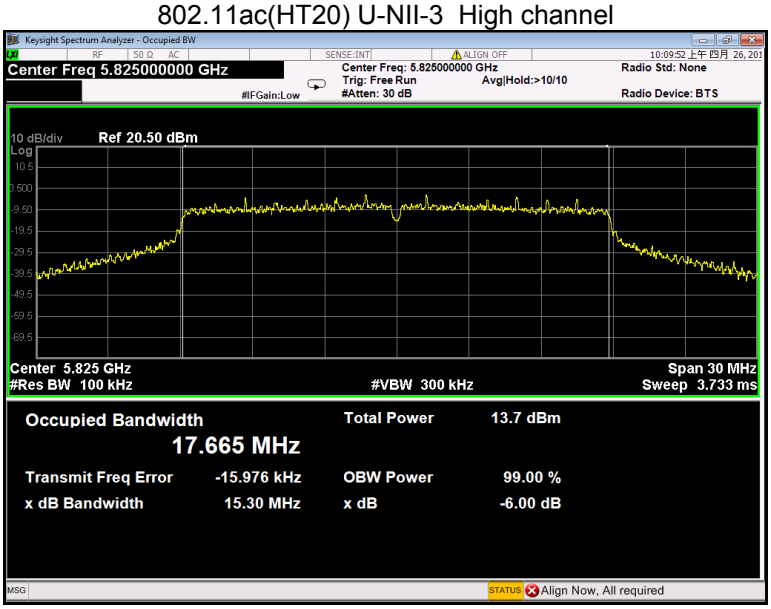
802.11ac(HT20) U-NII-3 Low channel



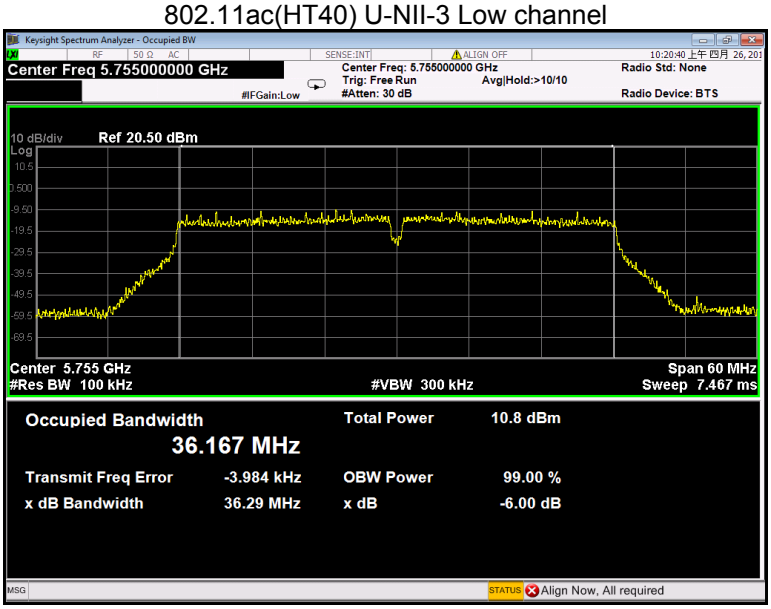
802.11ac(HT20) U-NII-3 Middle channel



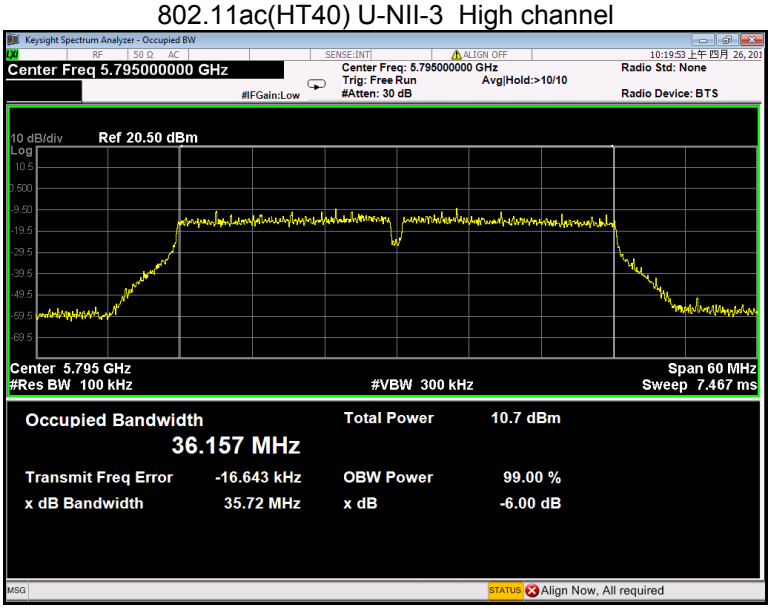
802.11ac(HT20) U-NII-3 High channel



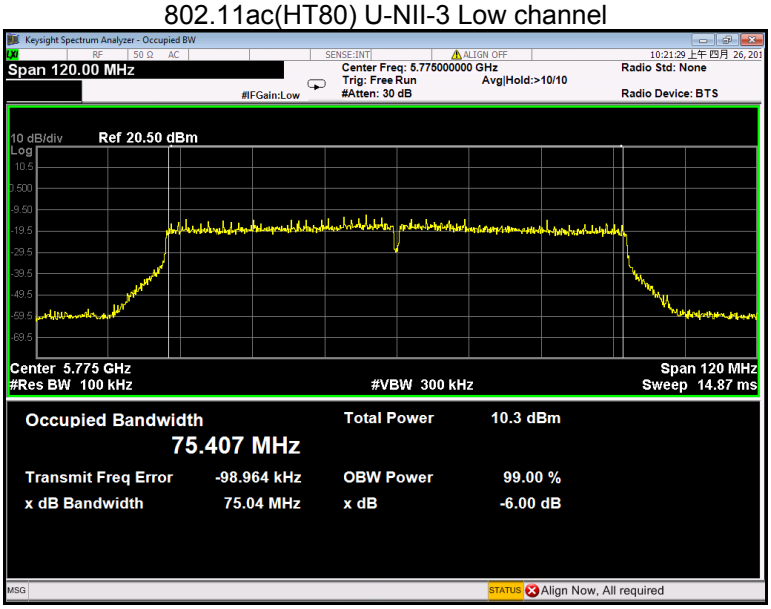
802.11ac(HT40) U-NII-3 Low channel



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



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



12 26 dB Bandwidth and 99% Occupied Bandwidth

Test Requirement:	47 CFR Part 15C Section 15.407 (a)
Test Method:	KDB662911 D01 Multiple Transmitter Output v02r01 KDB789033 D02 General U-NII Test Procedures New Rules v02r01 Section D
Test Limit:	No restriction limits
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;

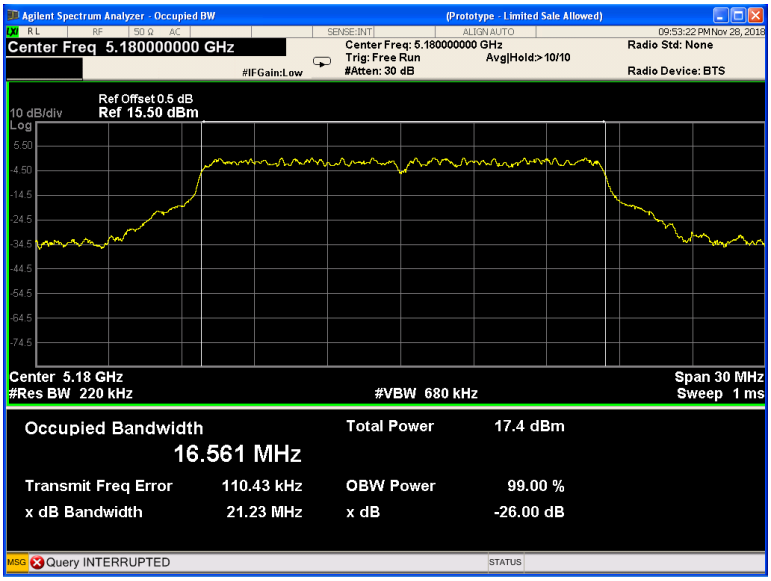
2. Set the spectrum analyzer: RBW = 1% to 5% of the OBW, VBW = 3x RBW

12.2 Test Result:

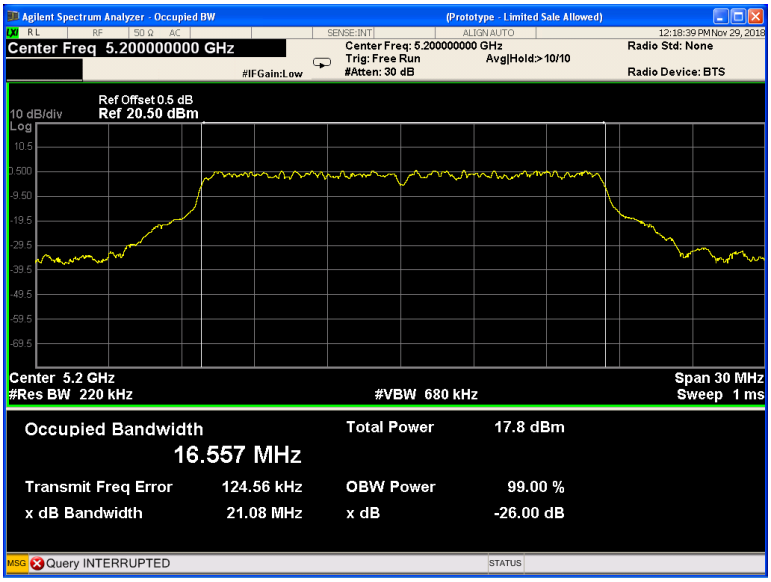
Band	Operation mode	26 dB Bandwidth (MHz)			99% Bandwidth (MHz)		
		Low	Middle	High	Low	Middle	High
U-NII-1	802.11a	21.23	21.08	21.08	16.561	16.557	16.559
	802.11n(HT20)	21.30	21.55	21.38	17.813	17.817	17.758
	802.11n(HT40)	39.55	/	39.36	36.336	/	36.366
	802.11ac(HT20)	21.37	21.40	21.39	17.835	17.812	17.831
	802.11ac(HT40)	40.34	/	39.49	36.521	/	36.507
	802.11ac(HT80)	80.98	/	/	75.731	/	/
U-NII-2A	802.11a	21.53	21.11	20.99	16.557	16.536	16.556
	802.11n(HT20)	21.33	21.29	21.40	17.806	17.749	17.818
	802.11n(HT40)	39.61	/	39.48	36.337	/	36.352
	802.11ac(HT20)	21.14	21.38	21.40	17.855	17.804	17.854
	802.11ac(HT40)	40.05	/	39.90	36.438	/	36.472
	802.11ac(HT80)	80.61	/	/	75.748	/	/
U-NII-3	802.11a	20.97	20.91	21.02	16.556	16.548	16.556
	802.11n(HT20)	21.26	21.03	21.17	17.804	17.820	17.785
	802.11n(HT40)	39.30	/	39.53	36.312	/	36.331
	802.11ac(HT20)	21.36	21.43	21.38	17.845	17.874	17.847
	802.11ac(HT40)	40.18	/	39.79	36.534	/	36.460
	802.11ac(HT80)	81.10	/	/	75.811	/	/

Test result plots shown as follows:

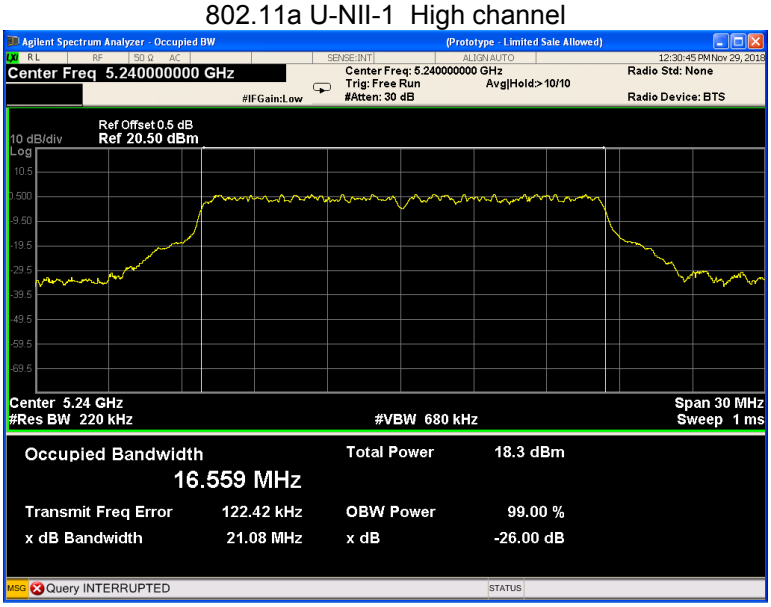
802.11a U-NII-1 Low channel



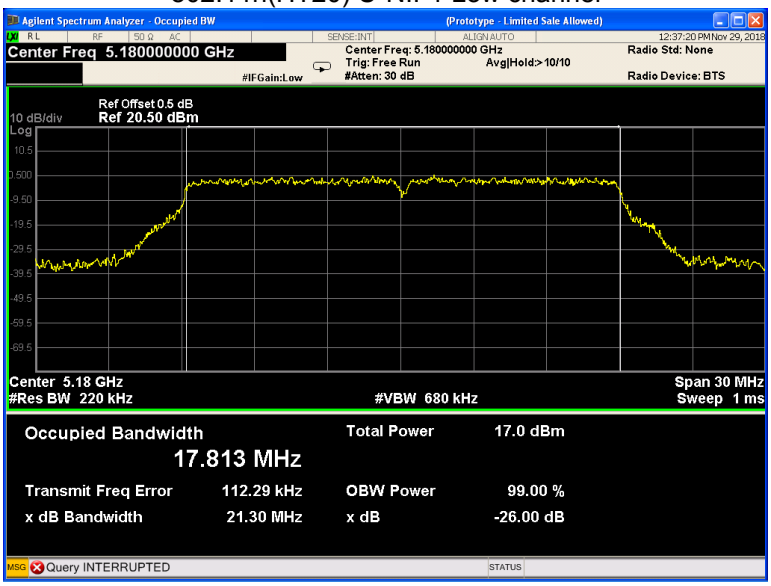
802.11a U-NII-1 Middle channel



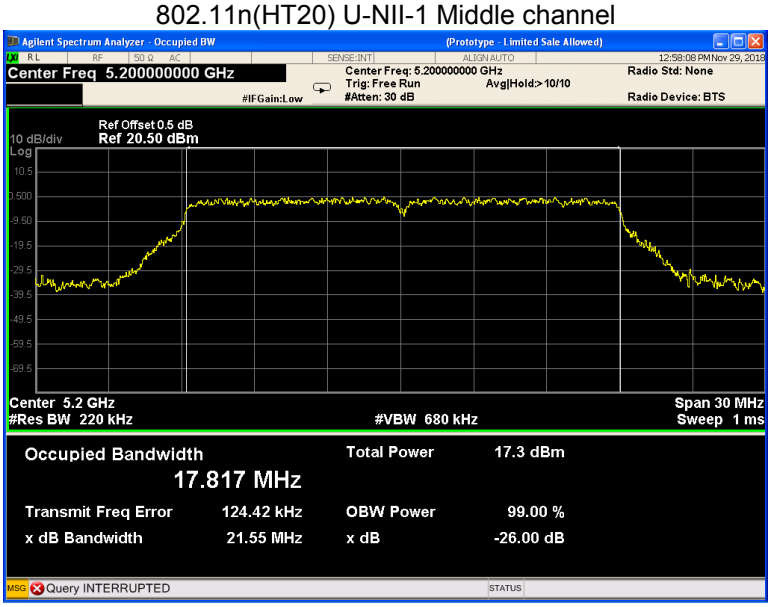
802.11a U-NII-1 High channel



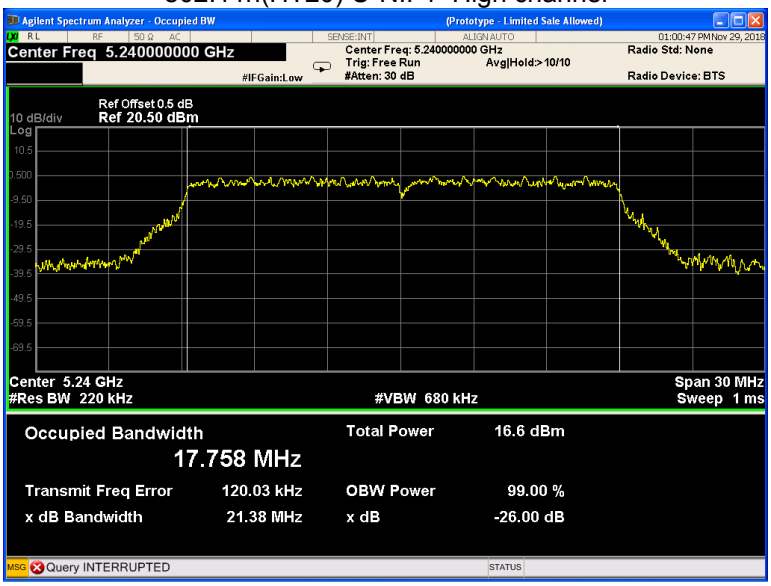
802.11n(HT20) U-NII-1 Low channel



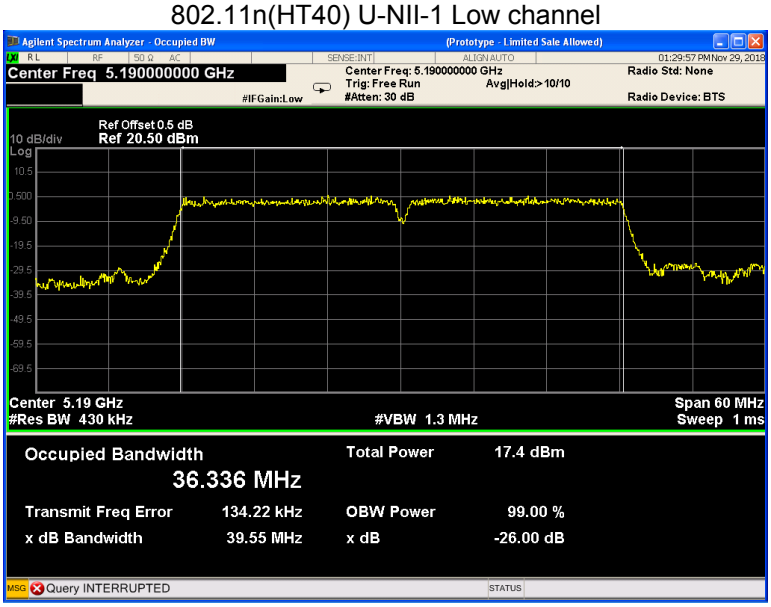
802.11n(HT20) U-NII-1 Middle channel



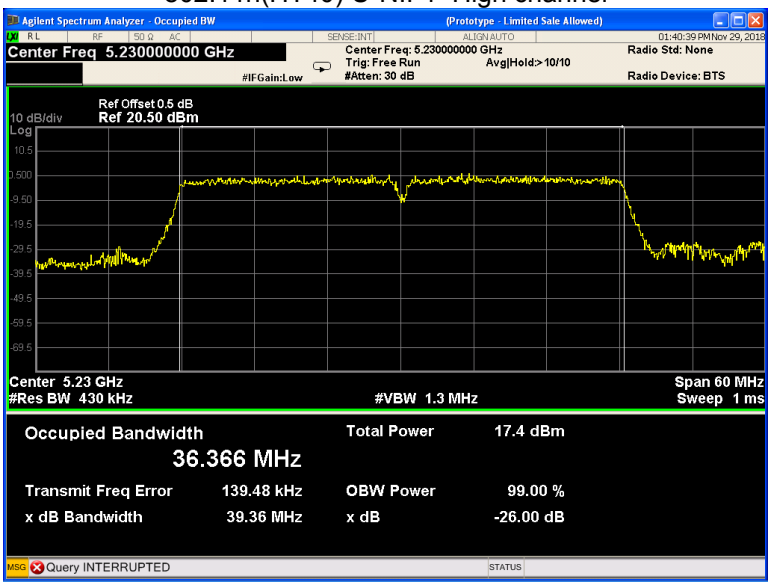
802.11n(HT20) U-NII-1 High channel



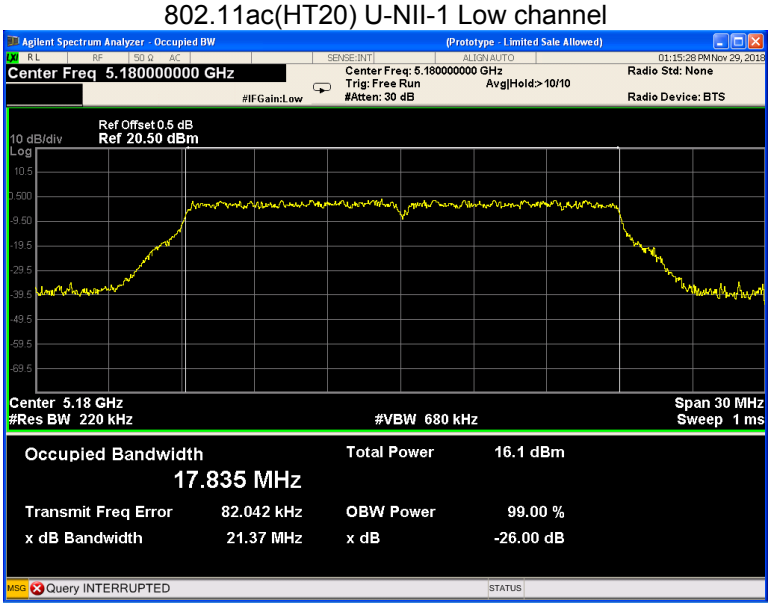
802.11n(HT40) U-NII-1 Low channel



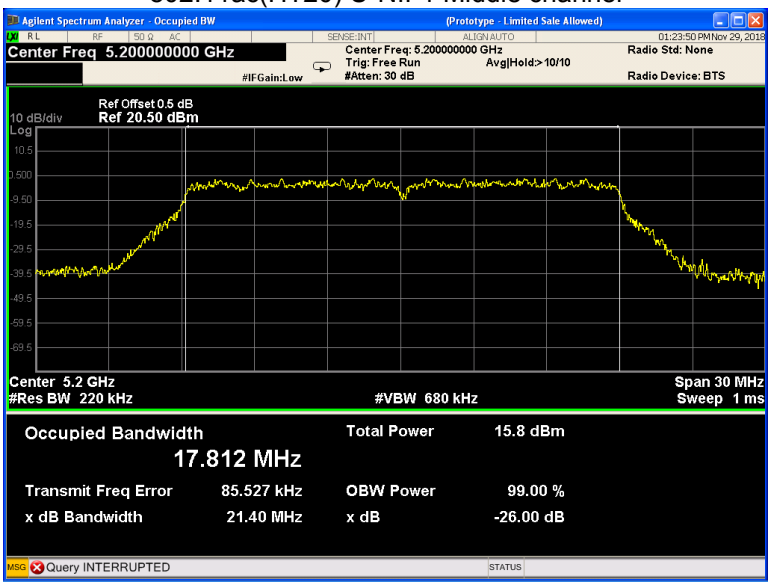
802.11n(HT40) U-NII-1 High channel



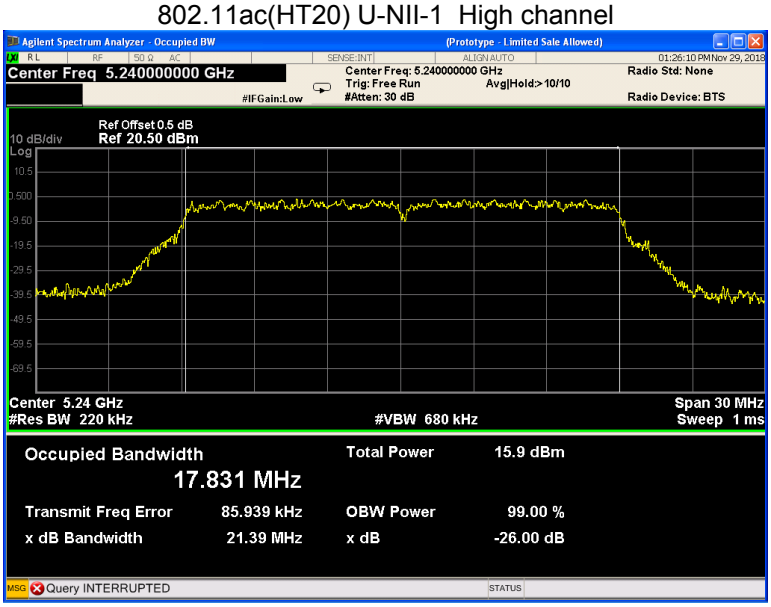
802.11ac(HT20) U-NII-1 Low channel



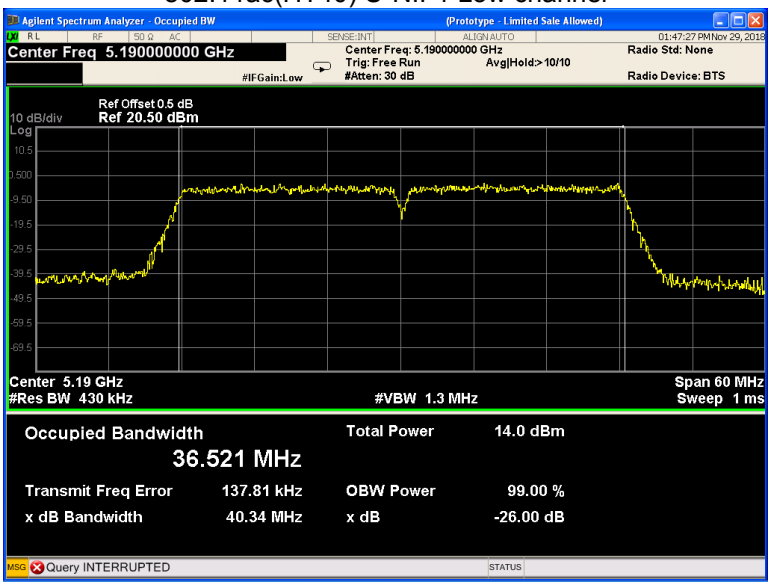
802.11ac(HT20) U-NII-1 Middle channel



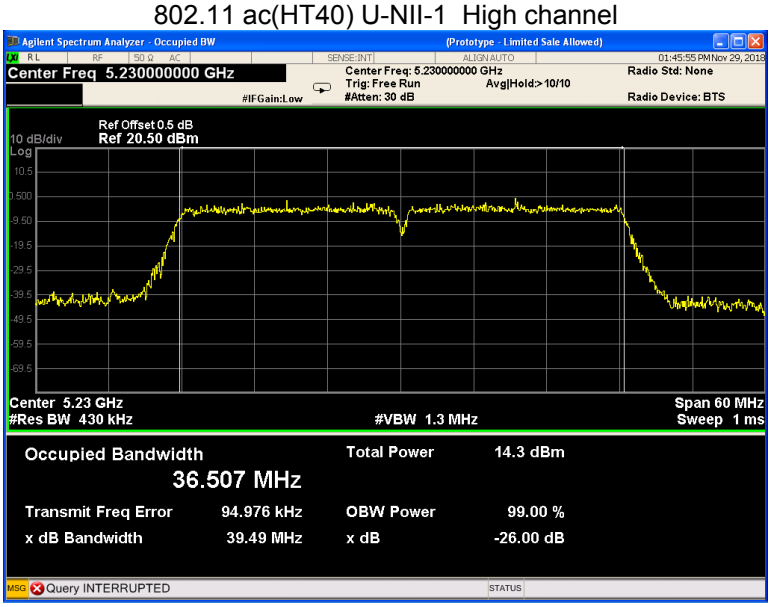
802.11ac(HT20) U-NII-1 High channel



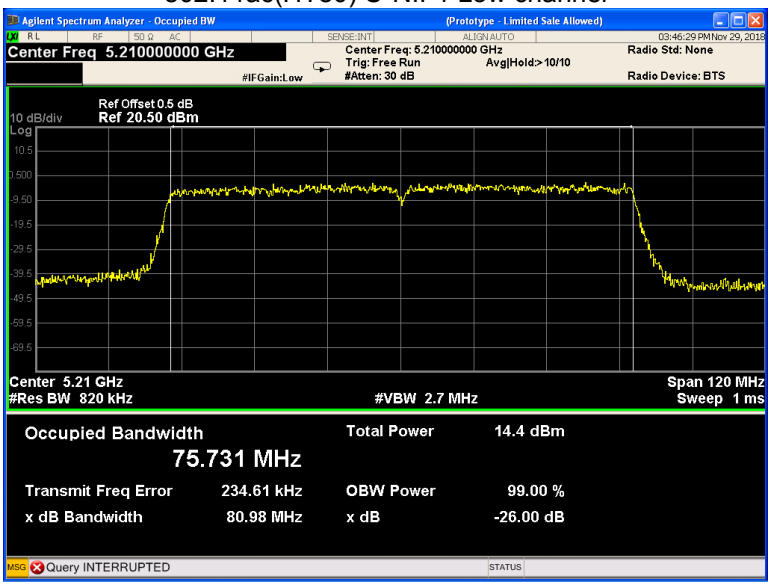
802.11ac(HT40) U-NII-1 Low channel



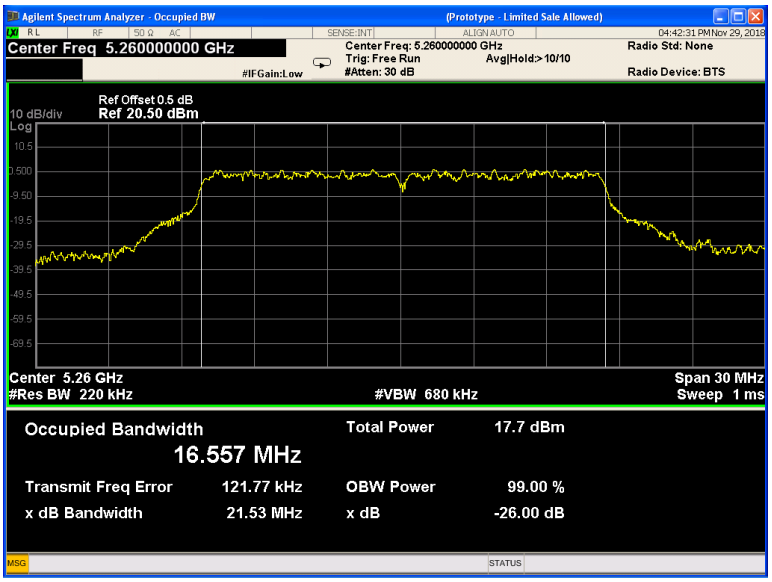
802.11 ac(HT40) U-NII-1 High channel



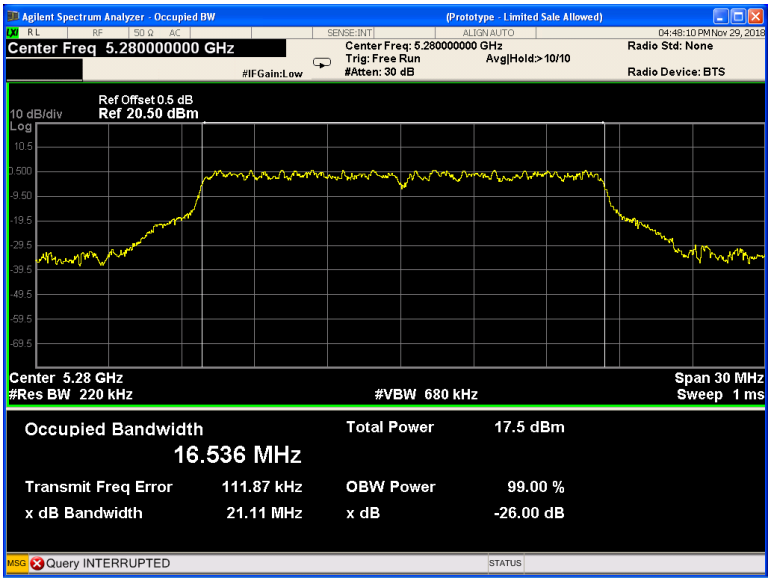
802.11ac(HT80) U-NII-1 Low channel



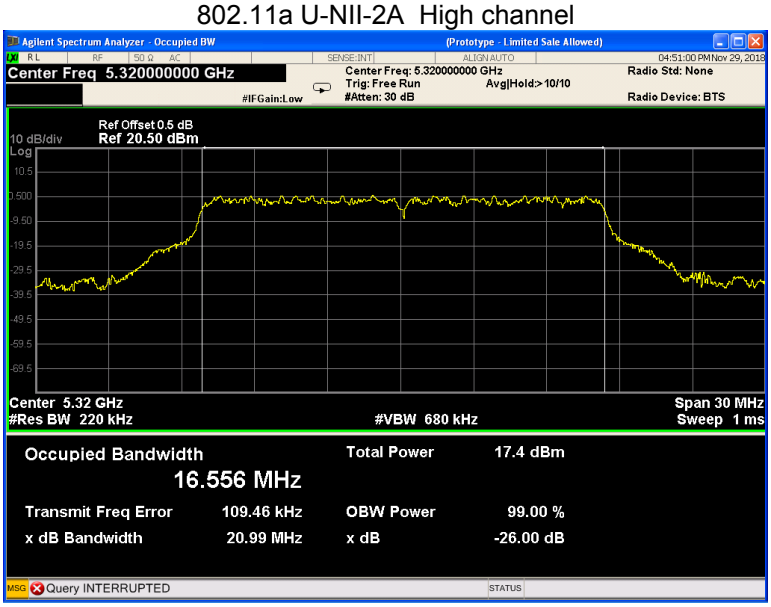
802.11a U-NII-2A Low channel



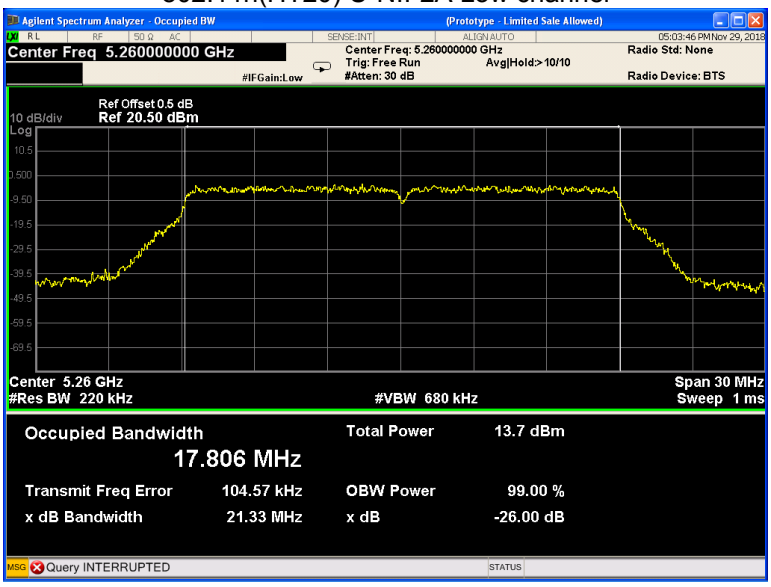
802.11a U-NII-2A Middle channel



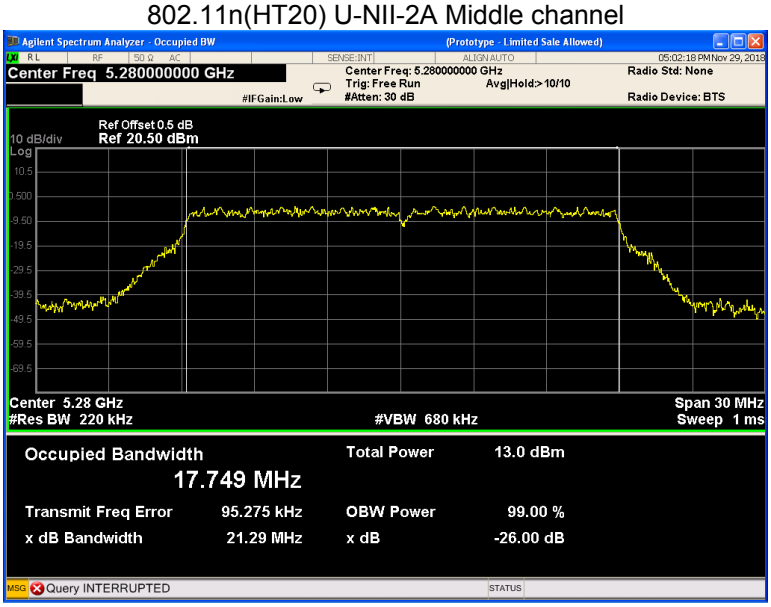
802.11a U-NII-2A High channel



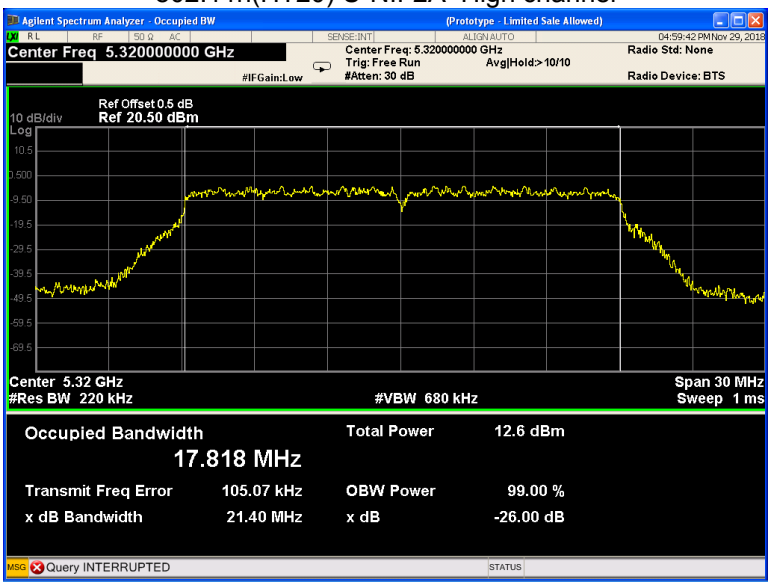
802.11n(HT20) U-NII-2A Low channel



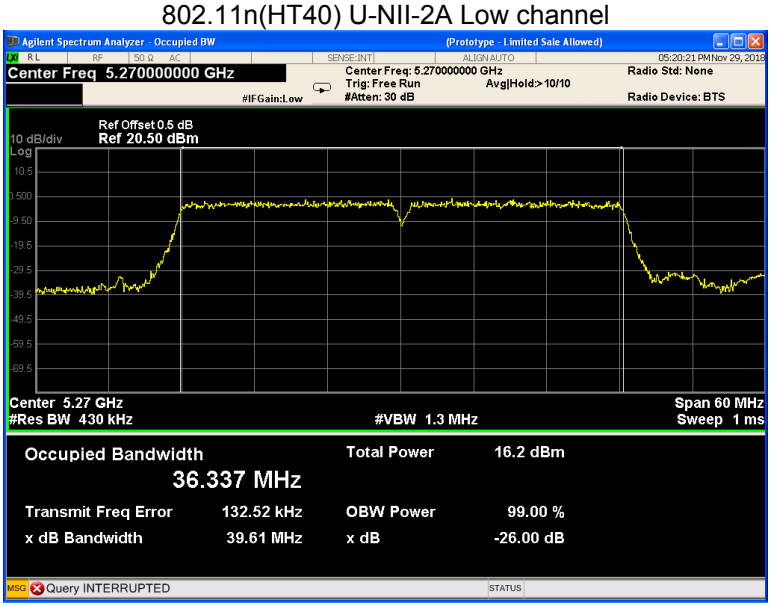
802.11n(HT20) U-NII-2A Middle channel



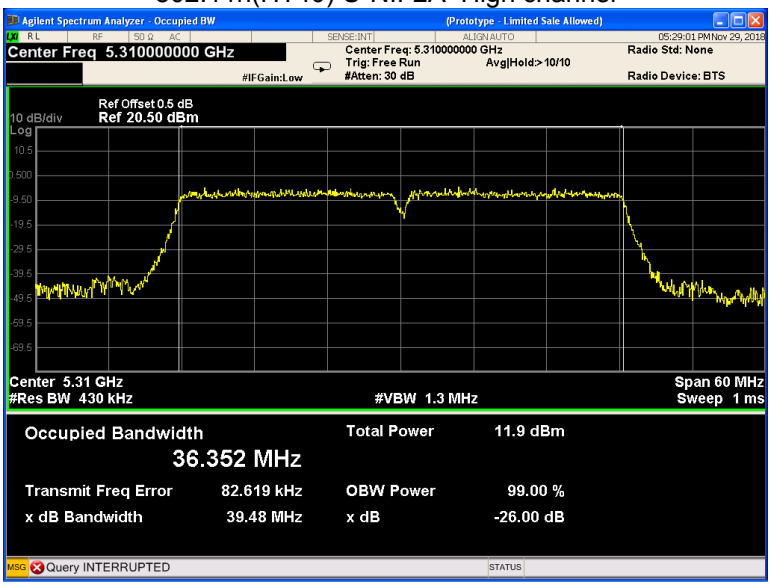
802.11n(HT20) U-NII-2A High channel



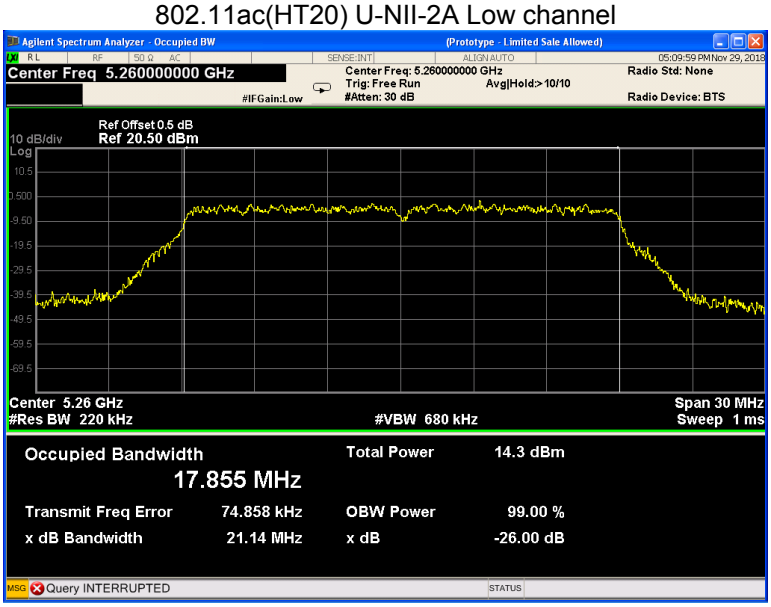
802.11n(HT40) U-NII-2A Low channel



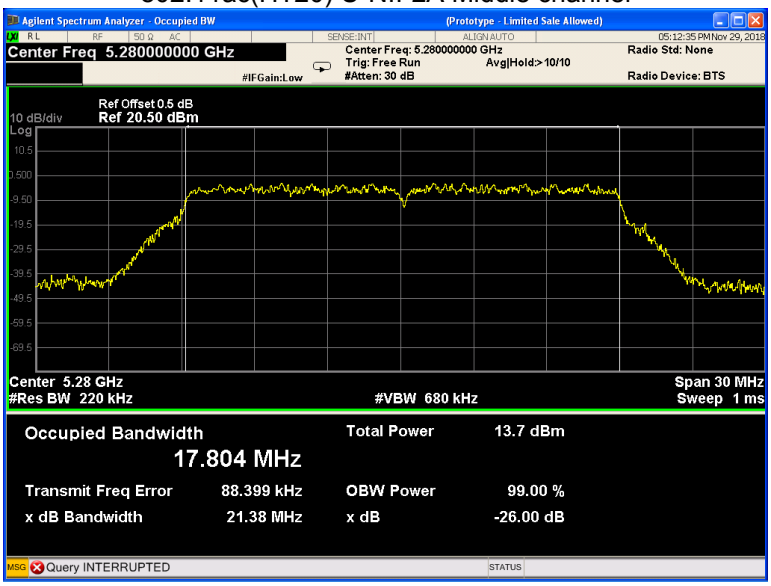
802.11n(HT40) U-NII-2A High channel



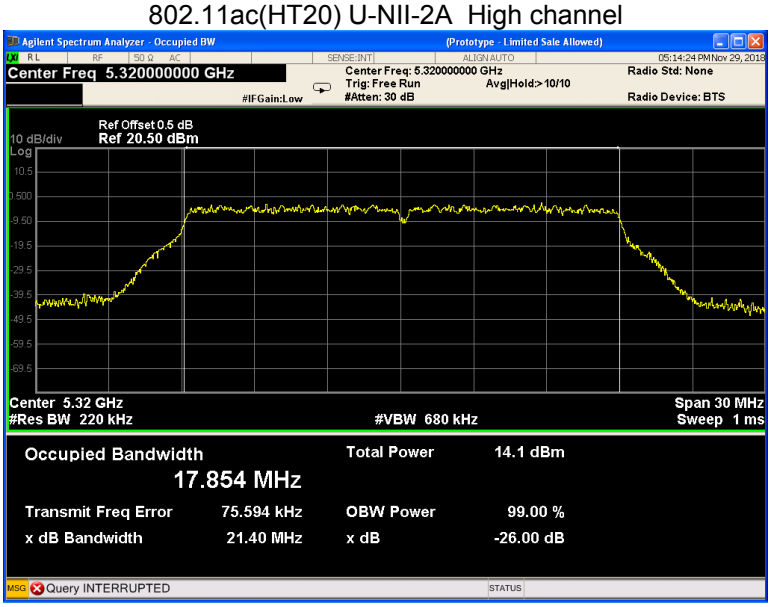
802.11ac(HT20) U-NII-2A Low channel



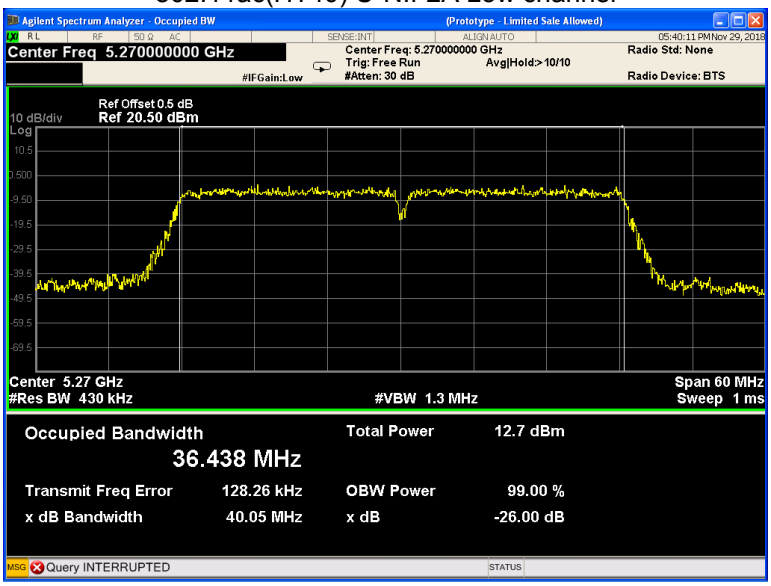
802.11ac(HT20) U-NII-2A Middle channel



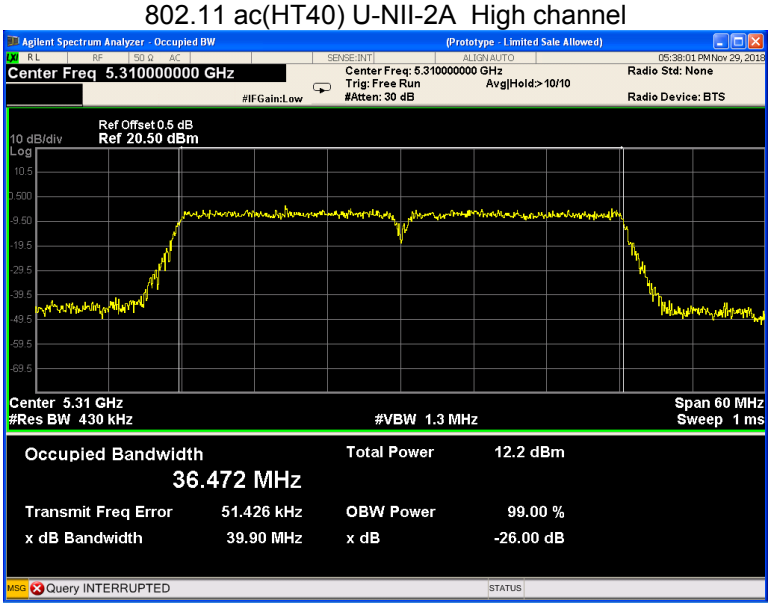
802.11ac(HT20) U-NII-2A High channel



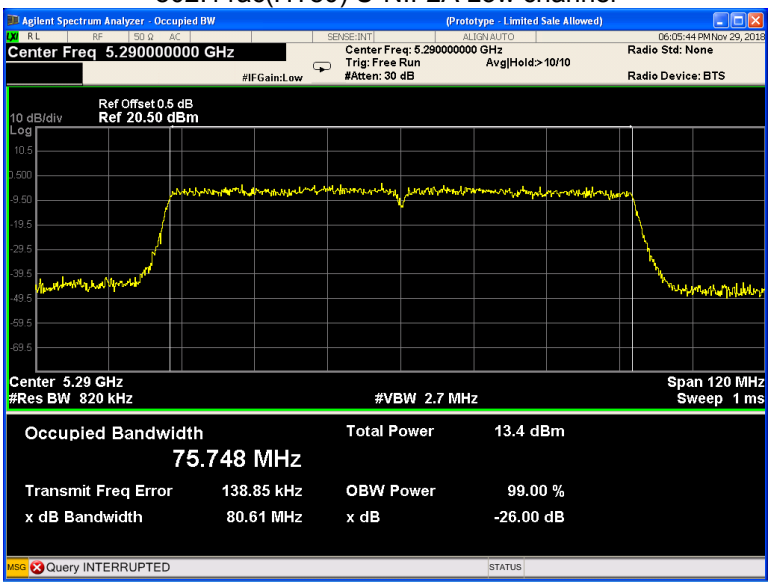
802.11ac(HT40) U-NII-2A Low channel



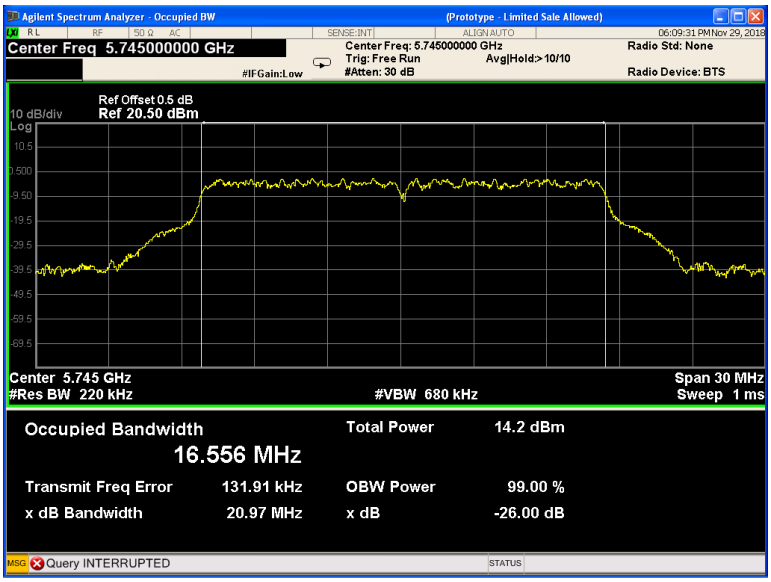
802.11 ac(HT40) U-NII-2A High channel



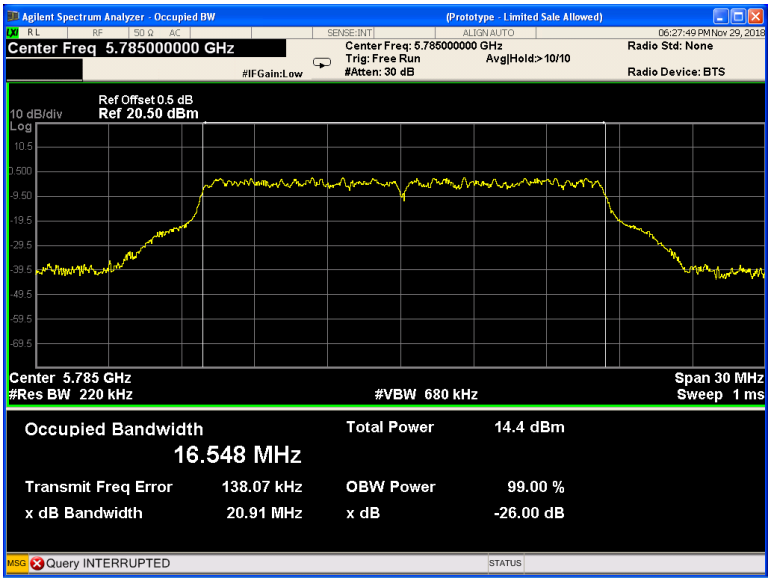
802.11ac(HT80) U-NII-2A Low channel



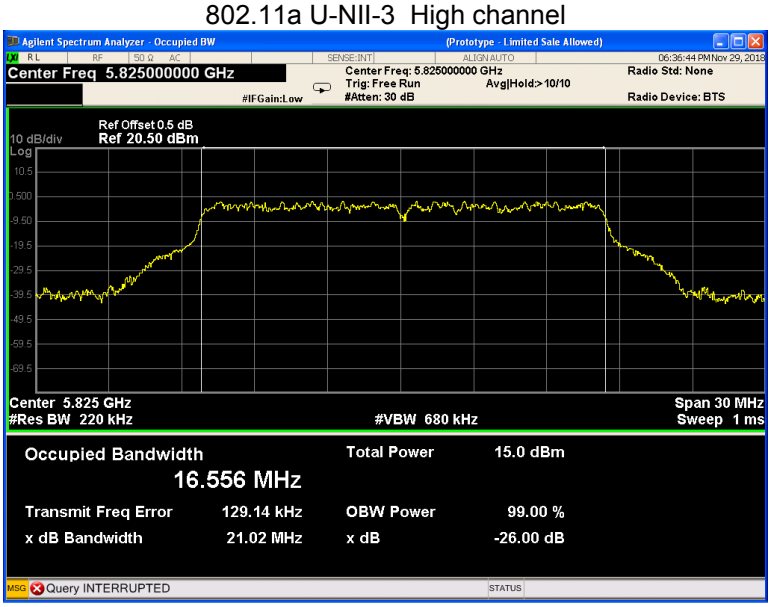
802.11a U-NII-3 Low channel



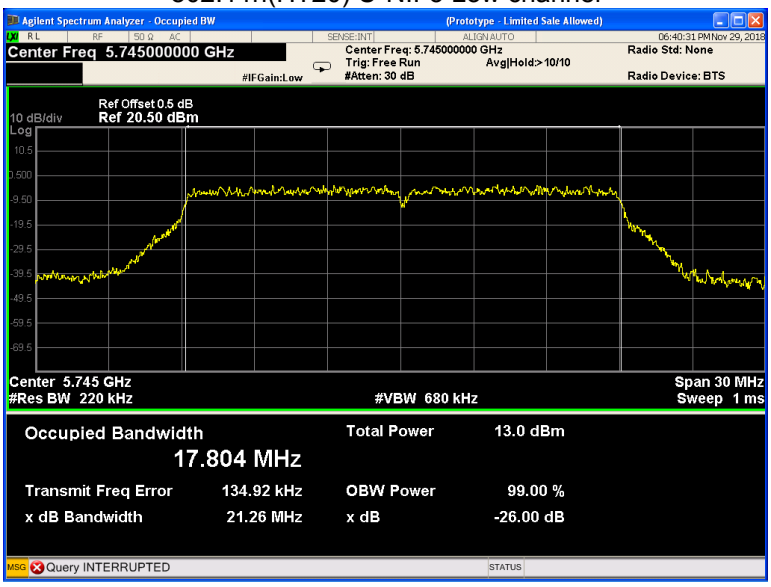
802.11a U-NII-3 Middle channel



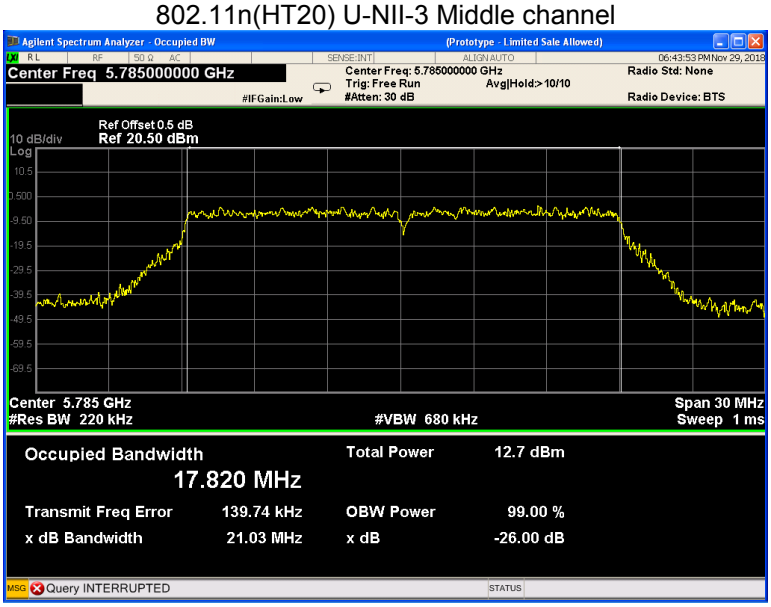
802.11a U-NII-3 High channel



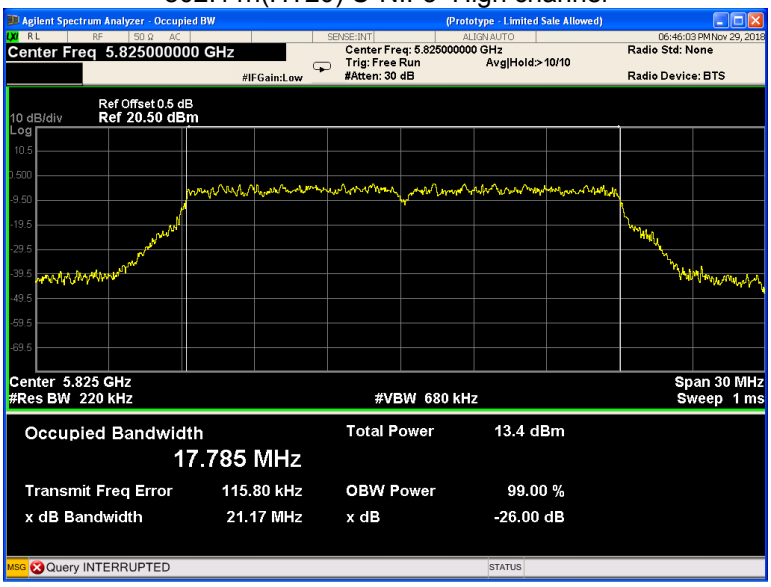
802.11n(HT20) U-NII-3 Low channel



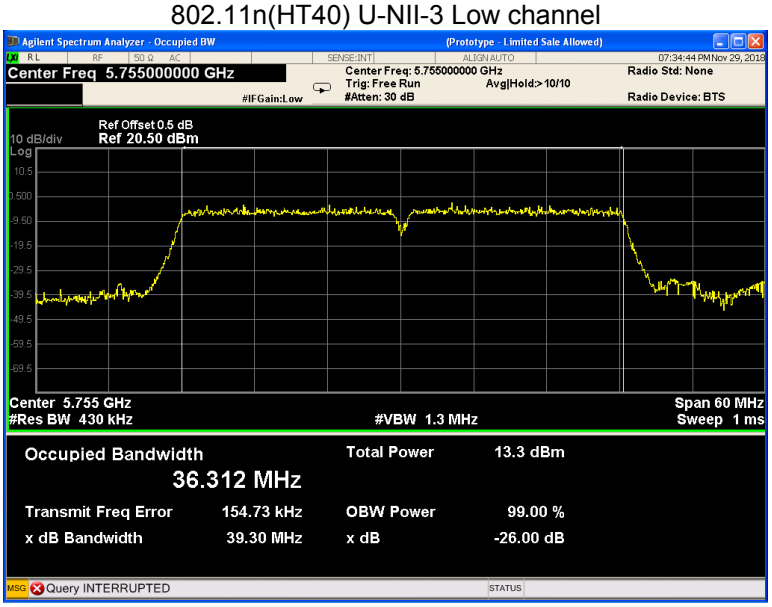
802.11n(HT20) U-NII-3 Middle channel



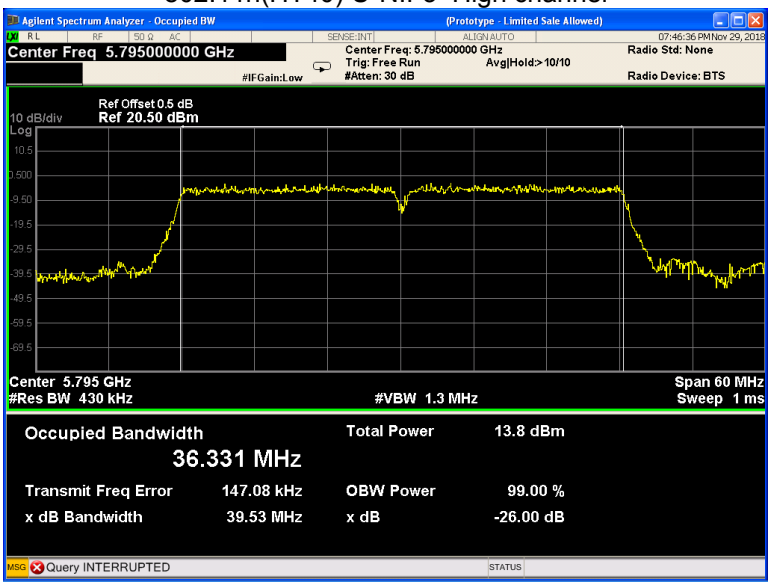
802.11n(HT20) U-NII-3 High channel



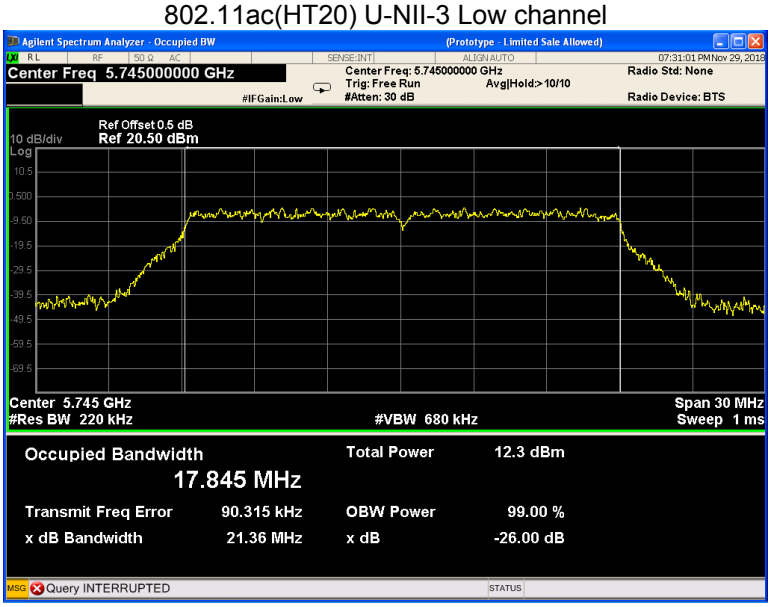
802.11n(HT40) U-NII-3 Low channel



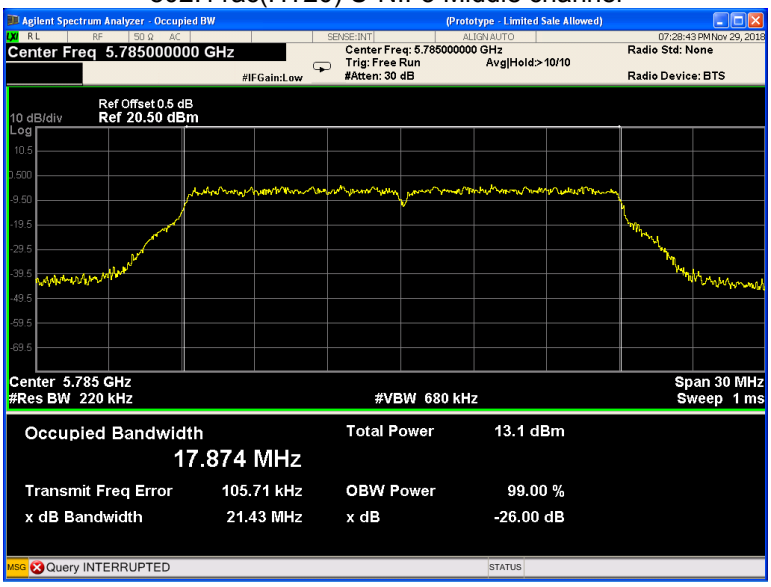
802.11n(HT40) U-NII-3 High channel



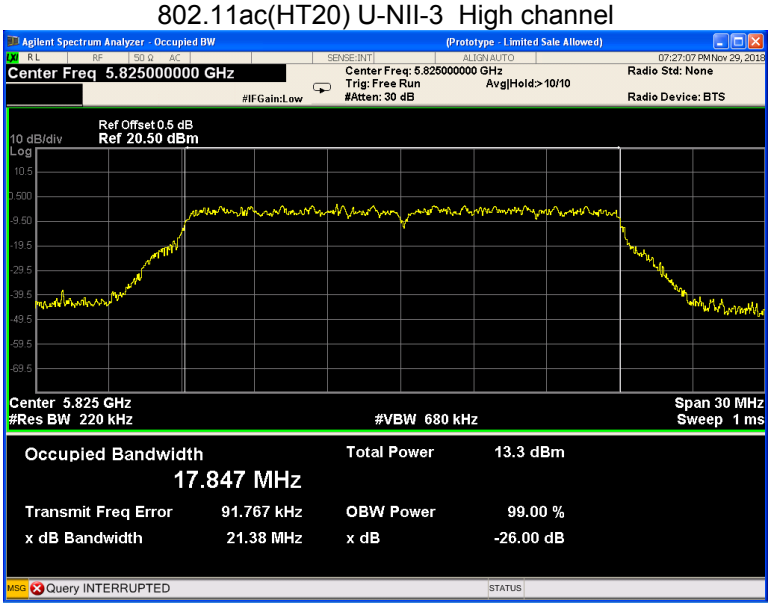
802.11ac(HT20) U-NII-3 Low channel



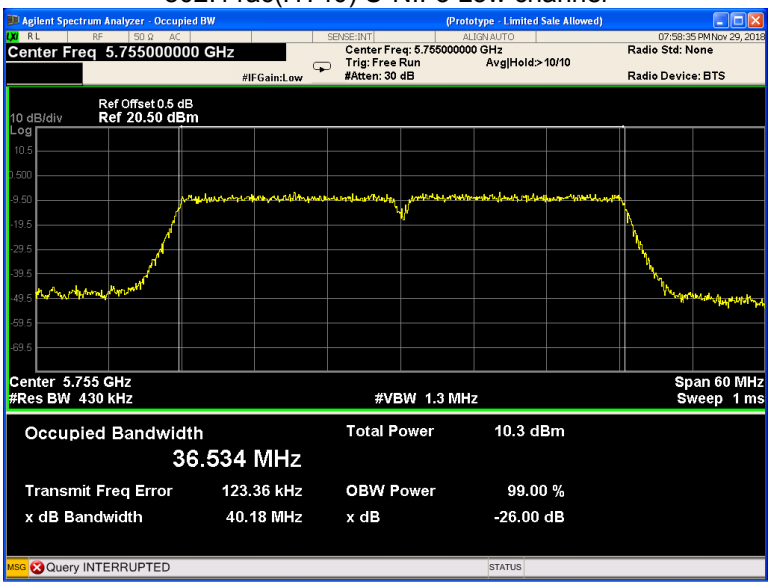
802.11ac(HT20) U-NII-3 Middle channel



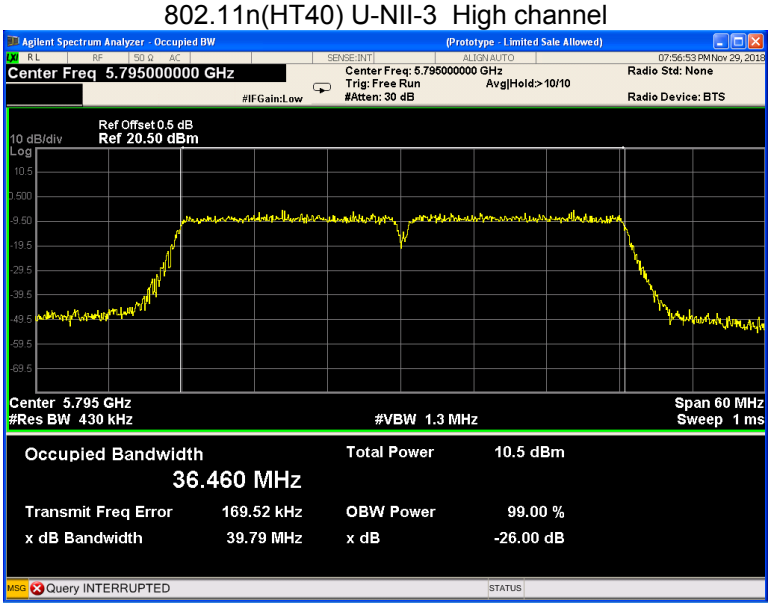
802.11ac(HT20) U-NII-3 High channel



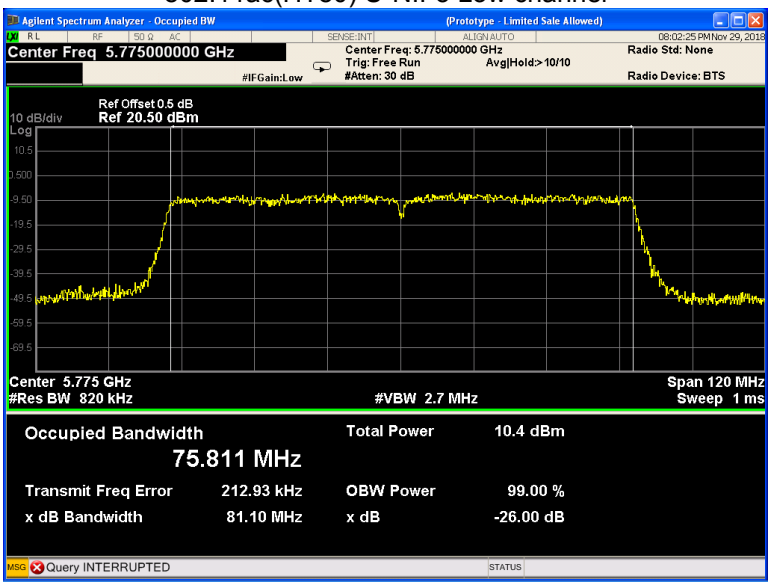
802.11ac(HT40) U-NII-3 Low channel



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



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



13 Conducted Output Power

Test Requirement:	FCC CFR47 Part 15 Section 15.407(a)
Test Method:	KDB662911 D01 Multiple Transmitter Output v02r01 KDB789033 D02 General U-NII Test Procedures New Rules v02r01 Section E
Test Limit:	U-NII-1 250mW(24dBm) U-NII-3 1W(30dBm)
Test Result:	PASS
Remark:	Conducted output power= measurement power+10log(1/x) X is duty cycle=1, so 10log(1/1)=0 Conducted output power= measurement power

13.1 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 = 1 MHz. VBW = 3 MHz. Sweep = auto; Detector Function = Peak, Set the span to fully encompass the DTS bandwidth.
3. Keep the EUT in transmitting at lowest, medium and highest channel individually. Record the max value.

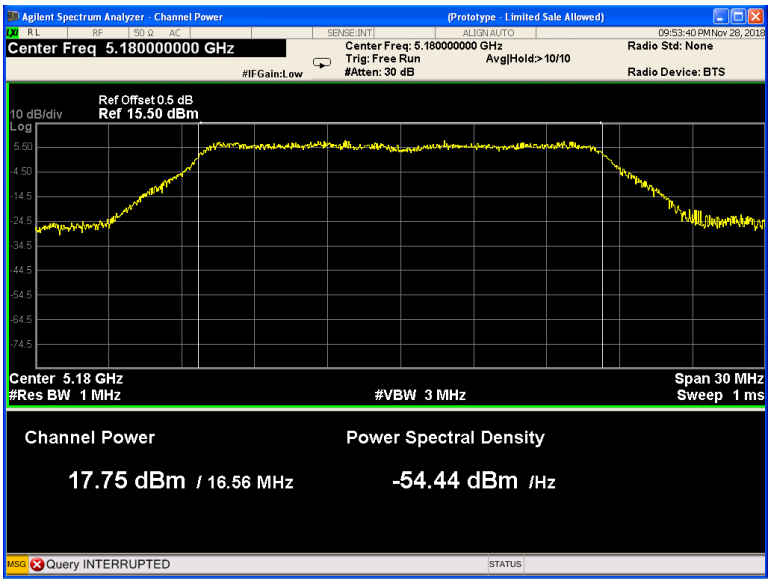
13.2 Test Result :

Band	Operation mode	Conducted Output Power (dBm)		
		Low	Middle	High
U-NII-1	802.11a	17.75	18.11	18.51
	802.11n(HT20)	16.31	16.99	16.81
	802.11n(HT40)	16.65	/	17.18
	802.11ac(HT20)	15.95	16.17	15.85
	802.11ac(HT40)	14.69	/	13.97
	802.11ac(HT80)	14.30	/	/
U-NII-2A	802.11a	18.64	17.77	17.51
	802.11n(HT20)	13.42	13.10	12.92
	802.11n(HT40)	15.51	/	12.11
	802.11ac(HT20)	14.16	14.48	13.78
	802.11ac(HT40)	13.09	/	12.64
	802.11ac(HT80)	12.74	/	/
U-NII-3	802.11a	15.59	14.51	15.94
	802.11n(HT20)	13.57	12.73	13.57
	802.11n(HT40)	13.17	/	13.86
	802.11ac(HT20)	12.46	13.37	13.59
	802.11ac(HT40)	10.32	/	10.94
	802.11ac(HT80)	10.50	/	/

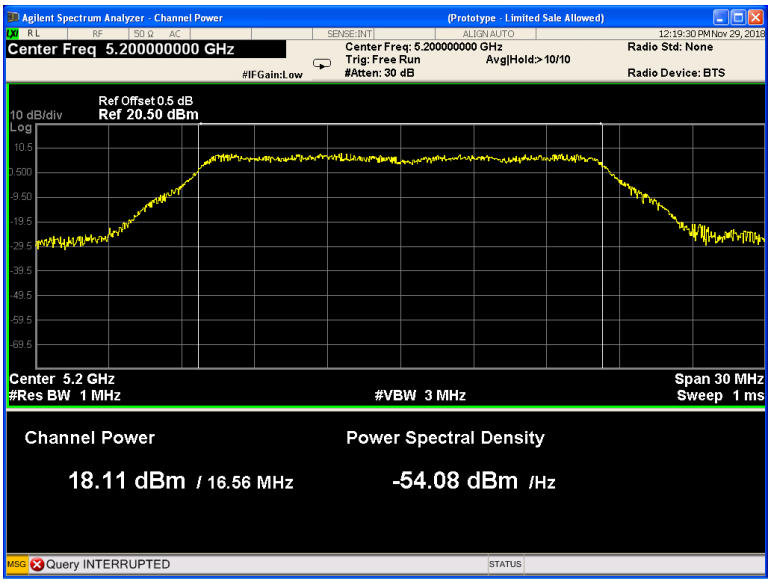
* All transmit signals are completely uncorrelated with each other, Directional gain = G_{ANT} which is less than 6dBi. So the limit does not be reduced.

Test result plots shown as follows:

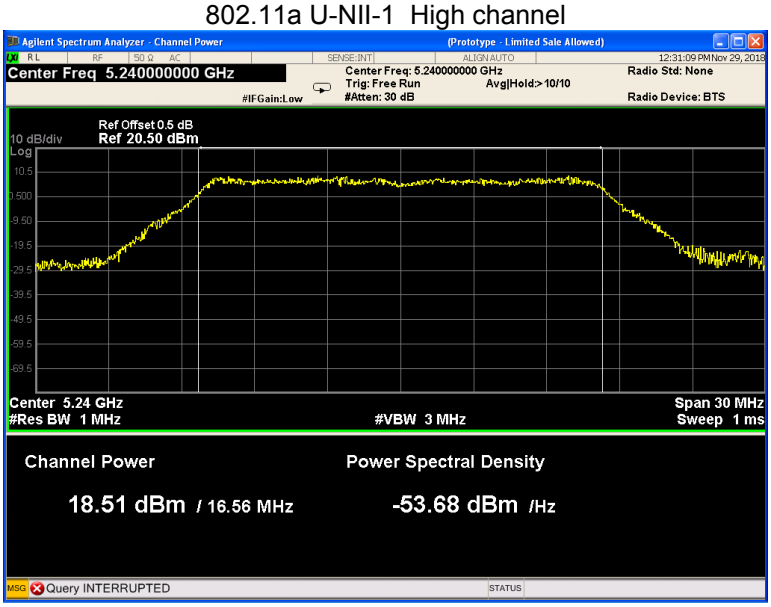
802.11a U-NII-1 Low channel



802.11a U-NII-1 Middle channel



802.11a U-NII-1 High channel



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