



TEST REPORT

FCC ID: 2AAD8-U0631

Applicant : HAOLIYUAN(SHENZHEN) ELECTRONIC CO.,LTD
Address : 3/F, Building A1, Junfeng Industrial Park, Yonghe Road, Fuyong, Bao'an District, Shenzhen, Guangdong, China

Equipment under Test (EUT):

Name : Mini 802.11ac Wireless USB Adapter
Model : U0631

Standards : FCC PART 15, SUBPART C : 2015 (Section 15.407)
RSS-247 ISSUE 1 MAY 2015
ANSI C63.4:2014 ; ANSI C63.10:2013

Report No. : T1862098 02
Date of Test : October 21, 2016- November 02, 2016
Date of Issue : November 02, 2016

Test Result :	PASS *
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* In the configuration tested, the EUT complied with the standards specified above

Authorized Signature

A handwritten signature in black ink, appearing to read "Mark Zhu".

(Mark Zhu)
General Manager

The manufacturer should ensure that all the products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of Shenzhen Alpha Product Testing Co., Ltd. Or test done by Shenzhen Alpha Product Testing Co., Ltd. Approvals in connection with, distribution or use of the product described in this report must be approved by Shenzhen Alpha Product Testing Co., Ltd. Approvals in writing.

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TEST REPORT VERIFICATION

Applicant : HAOLIYUAN(SHENZHEN) ELECTRONIC CO.,LTD
Manufacturer : HAOLIYUAN(SHENZHEN) ELECTRONIC CO.,LTD
EUT Description : Mini 802.11ac Wireless USB Adapter

(A) Model No. : U0631
(B) Trademark : N/A
(C) Ratings Supply : DC 5V from USB Port
(D) Test Voltage : DC 5V from USB Port

Measurement Standard Used:

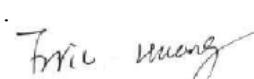
FCC Rules and Regulations Part 15 Subpart C 2015, ANSI C63.10-2013, ANSI C63.4-2014

The device described above is tested by Shenzhen Alpha Product Testing Co., Ltd. to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart C limits both conducted and radiated emissions. The test results are contained in this test report and Shenzhen Alpha Product Testing Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these tests.

After the test, our opinion is that EUT compliance with the requirement of the above standards.

This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Shenzhen Alpha Product Testing Co., Ltd.

Tested by (name + signature).....: Eric Huang
Test Engineer



Approved by (name + signature).....: Simple Guan
Project Manager



Date of issue.....: November 02, 2016

1 General Information

1.1 Description of Device (EUT)

Trade Name	:	N/A
EUT	:	Mini 802.11ac Wireless USB Adapter
Model No.		U0631
DIFF.	:	N/A
Antenna Type	:	Integrated antenna :4.39 dBi
Operation Frequency	:	IEEE 802.11a:5180MHz-5240MHz, 5745MHz-5825MHz IEEE 802.11n HT20: 5180MHz-5240MHz,5745MHz-5825MHz IEEE 802.11n HT40:5190MHz-5230MHz,5755MHz-5795MHz IEEE 802.11ac:5210MHz, 5775MHz
Channel number	:	IEEE 802.11n HT20 5.2GHz band: 4 Channels IEEE 802.11n HT20 5.8GHz band: 5 Channels IEEE 802.11n HT40 5.2GHz band: 2Channels IEEE 802.11n HT40 5.8GHz band: 2Channels IEEE 802.11a 5.2GHz band :4Channels IEEE 802.11a 5.8GHz band :5Channels IEEE 802.11ac:1channel for 5.2GHz IEEE 802.11ac:1channel for 5.8GHz
Modulation type	:	IEEE 802.11n :OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE 802.11a :OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ac: OFDM(256 QAM)
Power Supply	:	DC 5V from USB Port
Applicant	:	HAOLIYUAN(SHENZHEN) ELECTRONIC CO.,LTD
Address	:	3/F, Building A1, Junfeng Industrial Park, Yonghe Road, Fuyong, Bao'an District, Shenzhen, Guangdong, China
Manufacturer	:	HAOLIYUAN(SHENZHEN) ELECTRONIC CO.,LTD
Address	:	3/F, Building A1, Junfeng Industrial Park, Yonghe Road, Fuyong, Bao'an District, Shenzhen, Guangdong, China

1.2 Description of Test Facility

Shenzhen Alpha Product Testing Co., Ltd
 Building B, East Area of Nanchang Second, Industrial Zone, Gushu 2nd Road,
 Bao'an, Shenzhen, China

March 25, 2015 File on Federal Communication Commission
 Registration Number: 203110

July 18, 2014 Certificated by IC
 Registration Number: 12135A

2 EMC Equipment List

Equipment	Manufacture	Model No.	Serial No.	Last cal. Due to	Cal Interval
3m Semi-Anechoic	CHENYU	N/A	N/A	2018.01.18	2Year
Spectrum analyzer	Agilent	E4407B	MY46185649	2017.01.16	1 Year
Receiver	R&S	ESPI	101873	2017.01.16	1 Year
Receiver	R&S	ESCI	101165	2017.01.16	1 Year
Bilog Antenna	SCHWARZBECK	VULB 9168	VULB9168-438	2018.01.18	2Year
Horn Antenna	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D(1201)	2017.01.20	2Year
Cable	Resenberger	N/A	No.1	2017.01.16	1 Year
Cable	SCHWARZBECK	N/A	No.2	2017.01.16	1 Year
Cable	SCHWARZBECK	N/A	No.3	2017.01.16	1 Year
Pre-amplifier	HP	HP8347A	2834A00455	2017.01.18	1 Year
Pre-amplifier	Agilent	8449B	3008A02664	2017.01.18	1 Year
vector Signal Generator	Agilent	N5182A	MY49060042	2016.11.16	1 Year
vector Signal Generator	Agilent	E4438C	US44271917	2016.11.16	1 Year
X-series USB Peak and Average Power Sensor	Agilent	U2021XA	MY54080020	2016.11.16	1 Year
X-series USB Peak and Average Power Sensor	Agilent	U2021XA	MY54110001	2016.11.16	1 Year

Signal Analyzer	Agilent	N9020A	MY48030494	2016.11.16	1 Year
L.I.S.N.#1	Schwarzbeck	NSLK8126	8126466	2017.01.16	1 Year
L.I.S.N.#2	ROHDE&SCHWABE RZ	ENV216	101043	2017.01.16	1 Year

3 Test Procedure

POWER LINE CONDUCTED INTERFERENCE: The test procedure used was ANSI Standard ANSI C63.4:2014 using a 50 μ H LISN. Both Lines were observed. The bandwidth of the receiver was 10kHz with an appropriate sweep speed. The ambient temperature of the EUT was 25°C with a humidity of 58%.

RADIATION INTERFERENCE: The test procedure used was ANSI Standard ANSI C63.4:2014 using a ANRITSU spectrum analyzer with a pre-selector. The analyzer was calibrated in dB above a micro volt at the output of the antenna. The resolution bandwidth was 100kHz and the video bandwidth was 300 kHz up to 1 GHz and 1 MHz with a video BW of 3MHz above 1 GHz. The ambient temperature of the EUT was 25°C with a humidity of 58%.

FORMULA OF CONVERSION FACTORS: The Field Strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of dBuV) to the antenna correction factor supplied by the antenna manufacturer and cable loss. The antenna correction factors and cable loss are stated in terms of dB. The gain of the Pre-selector was accounted for in the Spectrum Analyzer Meter Reading.

Example:

$$\text{Freq (MHz) METER READING + ACF + CABLE = FS}$$

$$33.20 \text{ dBuV} + 10.36 \text{ dB} + 0.9 \text{ dB} = 44.46 \text{ dBuV/m @ 3m}$$

ANSI STANDARD ANSI C63.4:2014 10.1.7 MEASUREMENT PROCEDURES: The EUT was placed on a table 80 cm high and with dimensions of 1m by 1.5m. The EUT was placed in the center of the table (1.5m side). The table used for radiated measurements is capable of continuous rotation. When an emission was found, the table was rotated to produce the maximum signal strength. At this point, the antenna was raised and lowered from 1m to 4m. The antenna was placed in both the horizontal and vertical planes. The situation was similar for the conducted measurement except that the table did not rotate. The EUT was setup as described in ANSI Standard ANSI C63.4:2014 10.1.7 with the EUT 40 cm from the vertical ground wall.

4 Summary of Measurement

4.1 Summary of test result

Test Item	Test Requirement	Standards Paragraph	Result
Spurious Emission	FCC PART 15 : 2015	Section 15.407(b)&15.209	Compliance
Conduction Emission	FCC PART 15 : 2015	Section 15.207	Compliance
Bandwidth Test	FCC PART 15 : 2015	Section 15.407(a)	Compliance
Peak Power	FCC PART 15 : 2015	Section 15.407(a)	Compliance
Power Density	FCC PART 15 : 2015	Section 15.407(a)	Compliance
Undesirable emission	FCC PART 15 : 2015	Section 15.407(b)	Compliance
Antenna Requirement	FCC PART 15 : 2015	Section 15.203	Compliance
Test Item	Test Requirement	Standards Paragraph	Result
Spurious Emission	IC RSS-247	Section RSS-247 Section 6.2.1 ; 6.2.4	Compliance
Conduction Emission	IC RSS Gen	Section 8.8	Compliance
Bandwidth Test	IC RSS-247	Section 6.2.1 ; 6.2.4	Compliance
Peak Power	IC RSS-247	Section 6.2.1 ; 6.2.4	Compliance
Power Density	IC RSS-247	Section 6.2.1 ; 6.2.4	Compliance
Undesirable emission	IC RSS-247	Section 6.2.1 ; 6.2.4	Compliance
Antenna Requirement	IC RSS Gen	Section 8.3	Compliance

Note: The EUT has been tested as an independent unit. And Continual Transmitting in maximum power (The adapter be used during Test)

4.2 Test connection



4.3 Assistant equipment used for test

Description	:	TABLET PC
Manufacturer	:	N/A
Model No.	:	IT15V090080X

4.4 Test mode

Dutycycle :100%			
Mode	Data rate (Mpbs) see Note	Channel	Frequency (MHz)
IEEE 802.11n HT20	6.5	CH36	5180
	6.5	CH40	5200
	6.5	CH48	5240
IEEE 802.11n HT40	13.5	CH38	5190
	13.5	CH46	5230
IEEE 802.11a	6	CH36	5180
	6	CH40	5200
	6	CH48	5240
IEEE 802.11ac	433.3	CH42	5210

Note: According exploratory test and product specification EUT will have maximum output power in those data rate, so those data rate were used for all test.

Dutycycle :100%			
Mode	data rate (Mpbs)(see Note)	Channel	Frequency (MHz)
IEEE 802.11 n/HT20 with 5.8G	6.5	CH149	5745
	6.5	CH157	5785
	6.5	CH165	5825
IEEE 802.11 n/HT40 with 5.8G	13.5	CH151	5755
	13.5	CH159	5795
IEEE 802.11a with 5.8G	6	CH149	5745
	6	CH157	5785
	6	CH165	5825
IEEE 802.11ac with 5.8G	433.3	CH155	5775

Note: According exploratory test, EUT will have maximum output power in those data rate. so those data rate were used for all test.

4.5 Channel list

For IEEE 802.11 a with 5.2G			
Channel	Frequency (MHz)	Channel	Frequency (MHz)
CH36	5180	CH44	5220
CH40	5200	CH48	5240

For IEEE 802.11 n/HT20 with 5.2G			
Channel	Frequency (MHz)	Channel	Frequency (MHz)
CH36	5180	CH44	5220
CH40	5200	CH48	5240

For IEEE 802.11 n/HT40 with 5.2G			
Channel	Frequency (MHz)	Channel	Frequency (MHz)
CH38	5190	CH46	5230

For IEEE 802.11 ac with 5.2G			
Channel	Frequency (MHz)	Channel	Frequency (MHz)
CH42	5210		

For IEEE 802.11 a with 5.8G					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
CH149	5745	CH157	5785	CH165	5825
CH153	5765	CH161	5805		

For IEEE 802.11n/HT20 with 5.8G					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
CH149	5745	CH157	5785	CH165	5825
CH153	5765	CH161	5805		

For IEEE 802.11n/HT40 with 5.8G					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
CH151	5755	CH159	5795		

For IEEE 802.11 ac with 5.8G					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
CH155	5775				

4.6 Test Conditions

Temperature range	21-25°C
Humidity range	40-75%
Pressure range	86-106kPa

4.7 Measurement Uncertainty (95% confidence levels, k=2)

Item	MU	Remark
Uncertainty for Power point Conducted Emissions Test	2.71dB	
Uncertainty for Radiation Emission test in 3m chamber (30MHz to 1GHz)	3.90 dB	Polarize: V
	3.92dB	Polarize: H
Uncertainty for Radiation Emission test in 3m chamber (1GHz to 25GHz)	4.26 dB	Polarize: H
	4.28 dB	Polarize: V
Uncertainty for conducted RF Power	0.16dB	

5 Spurious Emission

5.1 Radiation Emission

5.1.1 Radiation Emission Limits(15.209)

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

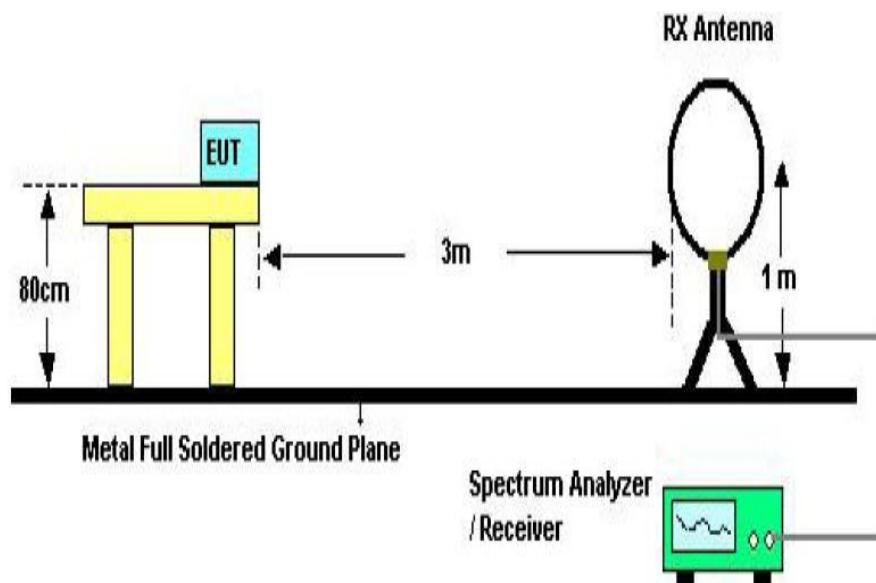
Harmonic emissions limits comply with below 54 dBuV/m at 3m. Other emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or comply with the radiated emissions limits specified in section 15.209(a) limit in the table below has to be followed.

NOTE:

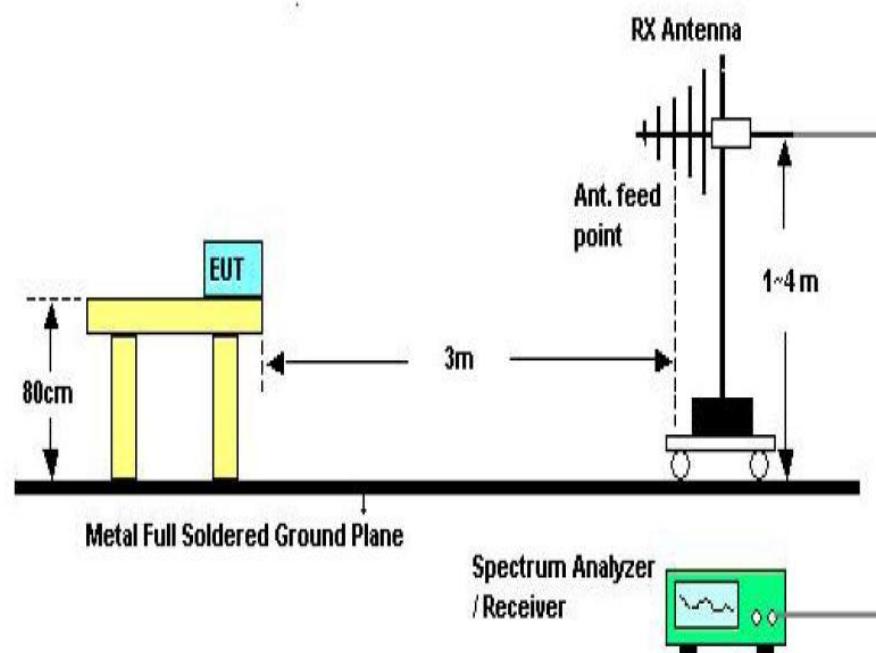
- a) The tighter limit applies at the band edges.
- b) Emission Level(dB uV/m)=20log Emission Level(Uv/m)

5.1.2 Test Setup

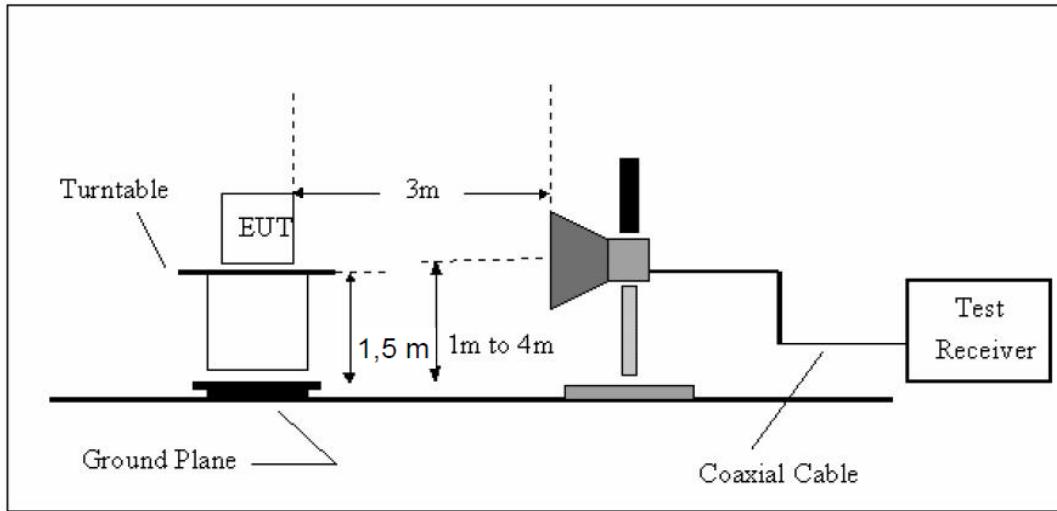
See the next page



Below 30MHz Test Setup



Above 30MHz Test Setup



Above 1GHz Test Setup

5.1.3 Test Procedure

- The measuring distance of 3m shall be used for measurements at frequency up to 1GHz and above 1GHz. The EUT was placed on a rotating 0.8 m high above ground. The table was rotated 360 degrees to determine the position of the highest radiation
- The Test antenna shall vary between 1m and 4m, Both Horizontal and Vertical antenna are set of make measurement.
- The initial step in collecting conducted emission data is a spectrum analyzer Peak detector mode pre-scanning the measurement frequency range. Significant Peaks are then marked. and then Qusia Peak Detector mode premeasured
- If Peak value comply with QP limit Below 1GHz. The EUT deemed to comply with QP limit. But the Peak value and average value both need to comply with applicable limit above 1GHz.
- For the actual test configuration, please see the test setup photo.

5.1.4 Test Equipment Setting For emission test Result

9KHz~150KHz	RBW 200Hz	VBW1KHz
150KHz~30MHz	RBW 9KHz	VBW 30KHz
30MHZ~1GHz	RBW 120KHz	VBW 300KHz
Above 1GHz	RBW 1MHz	VBW 3MHz

5.1.5 Test Condition

Continual Transmitting in maximum power.

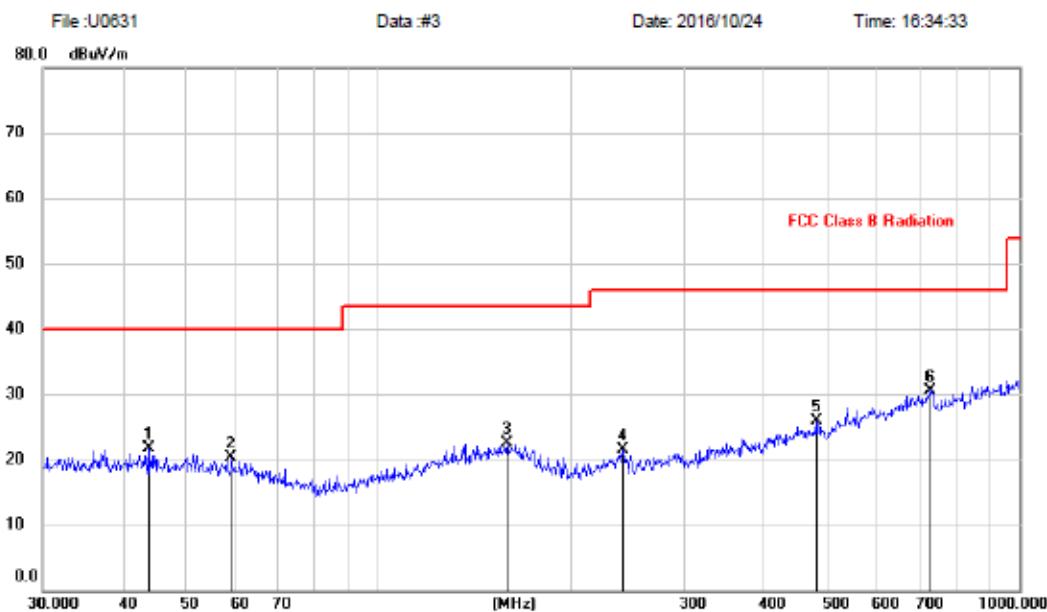
5.1.6 Test Result

We have scanned the 9KHz from 25GHz to the EUT.
Detailed information please see the following page.

From 9KHz to 30MHz: Conclusion: PASS

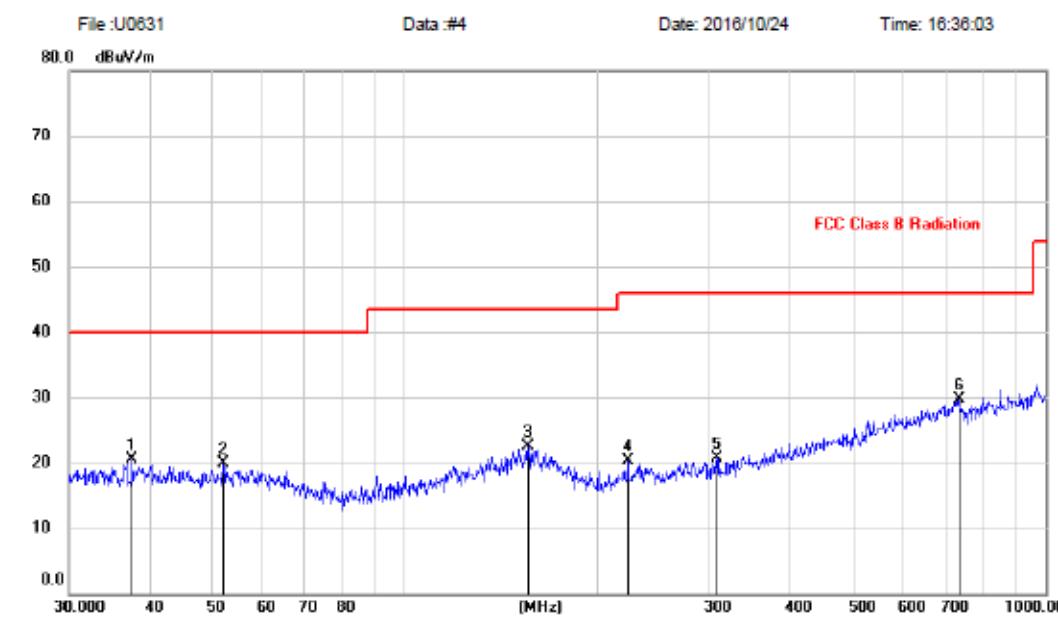
Note: The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

H:

Radiated Emission Measurement

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Antenna Height cm	Table Degree	Comment
1	43.8119	7.82	13.89	21.71	40.00	-18.29	peak			
2	59.0251	7.32	13.07	20.39	40.00	-19.61	peak			
3	158.6677	7.93	14.57	22.50	43.50	-21.00	peak			
4	240.8304	9.42	11.99	21.41	46.00	-24.59	peak			
5	482.2156	8.74	17.14	25.88	46.00	-20.12	peak			
6 *	724.2611	9.30	21.24	30.54	46.00	-15.46	peak			

V:

Radiated Emission Measurement

No.	Mk.	Freq. MHz	Reading	Correct	Measure-	Limit dBuV/m	Margin dB	Antenna Height cm	Table Degree	Comment
			Level dBuV	Factor	ment dBuV/m					
1		37.6798	6.78	13.82	20.60	40.00	-19.40	peak		
2		52.3912	6.39	13.55	19.94	40.00	-20.06	peak		
3		155.9101	7.89	14.57	22.46	43.50	-21.04	peak		
4		222.9502	8.80	11.45	20.25	46.00	-25.75	peak		
5		306.7537	7.13	13.59	20.72	46.00	-25.28	peak		
6	*	731.9203	8.34	21.37	29.71	46.00	-16.29	peak		

From 1G-25GHz
IEEE 802.11a with 5.2G

EUT	Mini 802.11ac Wireless USB Adapter	Model Name	U0631
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 5V from USB Port
Test Mode	TX Low		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/ m)	AV Reading (dBuV/ m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
10360	V	46.26	---	2.36	48.62	---	74	/	25.38	Peak
15540	V	45.91	---	4.52	50.43	---	74	/	23.57	Peak
N/A										

EUT	Mini 802.11ac Wireless USB Adapter	Model Name	U0631
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 5V from USB Port
Test Mode	TX Low		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/ m)	AV Reading (dBuV/ m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
10360	H	48.19	---	2.36	50.55	---	74	/	23.45	Peak
15540	H	46.91	---	4.52	51.43	---	74	/	22.57	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

EUT	Mini 802.11ac Wireless USB Adapter	Model Name	U0631
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 5V from USB Port
Test Mode	TX Mid		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/ m)	AV Reading (dBuV/ m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
10400	V	47.32	---	2.36	49.68	---	74	/	24.32	Peak
15600	V	46.37	---	4.52	50.89	---	74	/	23.11	Peak
N/A										

EUT	Mini 802.11ac Wireless USB Adapter	Model Name	U0631
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 5V from USB Port
Test Mode	TX Mid		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/ m)	AV Reading (dBuV/ m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
10400	H	47.90	---	2.36	50.26	---	74	/	23.74	Peak
15600	H	47.90	---	4.52	52.42	---	74	/	21.58	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

EUT	Mini 802.11ac Wireless USB Adapter	Model Name	U0631
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 5V from USB Port
Test Mode	TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/ m)	AV Reading (dBuV/ m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
10480	V	46.85	---	2.36	49.21	---	74	/	24.79	Peak
15720	V	47.16	---	4.52	51.68	---	74	/	22.32	Peak
N/A										

EUT	Mini 802.11ac Wireless USB Adapter	Model Name	U0631
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 5V from USB Port
Test Mode	TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/ m)	AV Reading (dBuV/ m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
10480	H	47.01	---	2.36	49.37	---	74	/	24.63	Peak
15720	H	27.72	---	4.52	32.24	---	54	/	21.76	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

IEEE 802.11n/HT20 with 5.2G

EUT		Mini 802.11ac Wireless USB Adapter			Model Name		U0631			
Temperature		26°C			Relative Humidity		56%			
Pressure		960hPa			Test voltage		DC 5V from USB Port			
Test Mode		TX Low								
Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/ m)	AV Reading (dBuV/ m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
10360	V	47.96	---	2.36	50.32	---	74	/	23.68	Peak
15540	V	46.80	---	4.52	51.32	---	74	/	22.68	Peak
N/A										

EUT		Mini 802.11ac Wireless USB Adapter			Model Name		U0631		
Temperature		26°C			Relative Humidity		56%		
Pressure		960hPa			Test voltage		DC 5V from USB Port		
Test Mode		TX Low							

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/ m)	AV Reading (dBuV/ m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
10360	H	48.17	---	2.36	50.53	---	74	/	23.47	Peak
15540	H	47.90	---	4.52	52.42	---	74	/	21.58	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

EUT	Mini 802.11ac Wireless USB Adapter	Model Name	U0631
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 5V from USB Port
Test Mode	TX Mid		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/ m)	AV Reading (dBuV/ m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
10400	V	47.01	---	2.36	49.37	---	74	/	24.63	Peak
15600	V	47.42	---	4.52	51.94	---	74	/	22.06	Peak
N/A										

EUT	Mini 802.11ac Wireless USB Adapter	Model Name	U0631
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 5V from USB Port
Test Mode	TX Mid		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/ m)	AV Reading (dBuV/ m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
10400	H	47.71	---	2.36	50.07	---	74	/	23.93	Peak
15600	H	48.24	---	4.52	52.76	---	74	/	21.24	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

EUT	Mini 802.11ac Wireless USB Adapter	Model Name	U0631
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 5V from USB Port
Test Mode	TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/ m)	AV Reading (dBuV/ m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
10480	V	48.16	---	2.36	50.52	---	74	/	23.48	Peak
15720	V	47.47	---	4.52	51.99	---	74	/	22.01	Peak
N/A										

EUT	Mini 802.11ac Wireless USB Adapter	Model Name	U0631
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 5V from USB Port
Test Mode	TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/ m)	AV Reading (dBuV/ m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
10480	H	48.07	---	2.36	50.43	---	74	/	23.57	Peak
15720	H	47.80	---	4.52	52.32	---	74	/	21.68	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

IEEE 802.11n/HT40 with 5.2G

EUT		Mini 802.11ac Wireless USB Adapter			Model Name		U0631			
Temperature		26°C			Relative Humidity		56%			
Pressure		960hPa			Test voltage		DC 5V from USB Port			
Test Mode		TX Low								
Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/ m)	AV Reading (dBuV/ m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
10380	V	48.01	---	2.36	50.37	---	74	/	23.63	Peak
15570	V	47.91	---	4.52	52.43	---	74	/	21.57	Peak
N/A										

EUT		Mini 802.11ac Wireless USB Adapter			Model Name		U0631			
Temperature		26°C			Relative Humidity		56%			
Pressure		960hPa			Test voltage		DC 5V from USB Port			
Test Mode		TX Low								
Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/ m)	AV Reading (dBuV/ m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
10380	H	48.07	---	2.36	50.43	---	74	/	23.57	Peak
15570	H	47.80	---	4.52	52.32	---	74	/	21.68	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

EUT	Mini 802.11ac Wireless USB Adapter	Model Name	U0631
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 5V from USB Port
Test Mode	TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/ m)	AV Reading (dBuV/ m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
10460	V	47.96	---	2.36	50.32	---	74	/	23.68	Peak
15690	V	47.72	---	4.52	52.24	---	74	/	21.76	Peak
N/A										

EUT	Mini 802.11ac Wireless USB Adapter	Model Name	U0631
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 5V from USB Port
Test Mode	TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/ m)	AV Reading (dBuV/ m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
10460	H	48.48	---	2.36	50.84	---	74	/	23.16	Peak
15690	H	48.03	---	4.52	52.55	---	74	/	21.45	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

IEEE 802.11ac with 5.2G

EUT		Mini 802.11ac Wireless USB Adapter			Model Name		U0631			
Temperature		26°C			Relative Humidity		56%			
Pressure		960hPa			Test voltage		DC 5V from USB Port			
Test Mode		TX								
Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/ m)	AV Reading (dBuV/ m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
10460	V	47.90	---	2.42	50.32	---	74	/	23.68	Peak
15570	V	47.46	---	4.52	51.98	---	74	/	22.02	Peak
N/A										

EUT		Mini 802.11ac Wireless USB Adapter			Model Name		U0631		
Temperature		26°C			Relative Humidity		56%		
Pressure		960hPa			Test voltage		DC 5V from USB Port		
Test Mode		TX							

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/ m)	AV Reading (dBuV/ m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
10460	H	48.63	---	2.42	51.05	---	74	/	22.95	Peak
15570	H	47.97	---	4.52	52.49	---	74	/	21.51	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

From 1G-25GHz:
IEEE 802.11a with 5.8G

EUT	Mini 802.11ac Wireless USB Adapter	Model Name	U0631
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 5V from USB Port
Test Mode	TX Low		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/ m)	AV Reading (dBuV/ m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
		Peak (dBuV/m)	AV (dBuV/m)							
11490	V	48.17	---	2.36	50.53	---	74	/	23.47	Peak
17235	V	47.90	---	4.52	52.42	---	74	/	21.58	Peak
N/A										

EUT	Mini 802.11ac Wireless USB Adapter	Model Name	U0631
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 5V from USB Port
Test Mode	TX Low		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/ m)	AV Reading (dBuV/ m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
		Peak (dBuV/m)	AV (dBuV/m)							
11490	H	48.40	---	2.36	50.76	---	74	/	23.24	Peak
17235	H	47.72	---	4.52	52.24	---	74	/	21.76	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

EUT	Mini 802.11ac Wireless USB Adapter	Model Name	U0631
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 5V from USB Port
Test Mode	TX Mid		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/ m)	AV Reading (dBuV/ m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
11570	V	47.96	---	2.36	50.32	---	74	/	23.68	Peak
17355	V	47.72	---	4.52	52.24	---	74	/	21.76	Peak
N/A										

EUT	Mini 802.11ac Wireless USB Adapter	Model Name	U0631
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 5V from USB Port
Test Mode	TX Mid		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/ m)	AV Reading (dBuV/ m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
11570	H	48.39	---	2.36	50.75	---	74	/	23.25	Peak
17355	H	47.79	---	4.52	52.31	---	74	/	21.69	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

EUT	Mini 802.11ac Wireless USB Adapter	Model Name	U0631
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 5V from USB Port
Test Mode	TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/ m)	AV Reading (dBuV/ m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
11650	V	47.81	---	2.36	50.17	---	74	/	23.83	Peak
17475	V	48.13	---	4.52	52.65	---	74	/	21.35	Peak
N/A										

EUT	Mini 802.11ac Wireless USB Adapter	Model Name	U0631
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 5V from USB Port
Test Mode	TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/ m)	AV Reading (dBuV/ m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
11650	H	48.56	---	2.36	50.92	---	74	/	23.08	Peak
17475	H	28.15	---	4.52	32.67	---	54	/	21.33	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

IEEE 802.11n/HT20 with 5.8G

EUT	Mini 802.11ac Wireless USB Adapter			Model Name			U0631			
Temperature	26°C			Relative Humidity			56%			
Pressure	960hPa			Test voltage			DC 5V from USB Port			
Test Mode	TX Low									
Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/ m)	AV Reading (dBuV/ m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
11490	V	48.38	---	2.36	50.74	---	74	/	23.26	Peak
17235	V	48.12	---	4.52	52.64	---	74	/	21.36	Peak
N/A										

EUT	Mini 802.11ac Wireless USB Adapter			Model Name			U0631			
Temperature	26°C			Relative Humidity			56%			
Pressure	960hPa			Test voltage			DC 5V from USB Port			
Test Mode	TX Low									
Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/ m)	AV Reading (dBuV/ m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
11490	H	49.47	---	2.36	51.83	---	74	/	22.17	Peak
17235	H	48.22	---	4.52	52.74	---	74	/	21.26	Peak
N/A										

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/ m)	AV Reading (dBuV/ m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
11490	H	49.47	---	2.36	51.83	---	74	/	22.17	Peak
17235	H	48.22	---	4.52	52.74	---	74	/	21.26	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

EUT	Mini 802.11ac Wireless USB Adapter	Model Name	U0631
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 5V from USB Port
Test Mode	TX Mid		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/ m)	AV Reading (dBuV/ m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
11570	V	48.39	---	2.36	50.75	---	74	/	23.25	Peak
17355	V	48.02	---	4.52	52.54	---	74	/	21.46	Peak
N/A										

EUT	Mini 802.11ac Wireless USB Adapter	Model Name	U0631
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 5V from USB Port
Test Mode	TX Mid		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/ m)	AV Reading (dBuV/ m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
11570	H	48.50	---	2.36	50.86	---	74	/	23.14	Peak
17355	H	47.65	---	4.52	52.17	---	74	/	21.83	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

EUT	Mini 802.11ac Wireless USB Adapter	Model Name	U0631
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 5V from USB Port
Test Mode	TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/ m)	AV Reading (dBuV/ m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
11650	V	48.29	---	2.36	50.65	---	74	/	23.35	Peak
17475	V	47.75	---	4.52	52.27	---	74	/	21.73	Peak
N/A										

EUT	Mini 802.11ac Wireless USB Adapter	Model Name	U0631
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 5V from USB Port
Test Mode	TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/ m)	AV Reading (dBuV/ m)	Ant. / CL CF (dB))	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
11650	H	48.48	---	2.36	50.84	---	74	/	23.16	Peak
17475	H	48.21	---	4.52	52.73	---	74	/	21.27	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.
Emissions attenuated more than 20 dB below the permissible value are not reported.

IEEE 802.11n/HT40 with 5.8G

EUT		Mini 802.11ac Wireless USB Adapter			Model Name		U0631			
Temperature		26°C			Relative Humidity		56%			
Pressure		960hPa			Test voltage		DC 5V from USB Port			
Test Mode		TX Low								
Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/ m)	AV Reading (dBuV/ m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
11510	V	48.17	---	2.36	50.53	---	74	/	23.47	Peak
17265	V	48.29	---	4.52	52.81	---	74	/	21.19	Peak
N/A										

EUT		Mini 802.11ac Wireless USB Adapter			Model Name		U0631		
Temperature		26°C			Relative Humidity		56%		
Pressure		960hPa			Test voltage		DC 5V from USB Port		
Test Mode		TX Low							

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/ m)	AV Reading (dBuV/ m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
11510	H	49.38	---	2.36	51.74	---	74	/	22.26	Peak
17265	H	48.14	---	4.52	52.66	---	74	/	21.34	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

EUT	Mini 802.11ac Wireless USB Adapter	Model Name	U0631
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 5V from USB Port
Test Mode	TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/ m)	AV Reading (dBuV/ m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
11590	V	49.59	---	2.36	51.95	---	74	/	22.05	Peak
17385	V	48.09	---	4.52	52.61	---	74	/	21.39	Peak
N/A										

EUT	Mini 802.11ac Wireless USB Adapter	Model Name	U0631
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 5V from USB Port
Test Mode	TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/ m)	AV Reading (dBuV/ m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
11590	H	49.21	---	2.36	51.57	---	74	/	22.43	Peak
17385	H	48.21	---	4.52	52.73	---	74	/	21.27	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

IEEE 802.11ac with 5.8G

EUT		Mini 802.11ac Wireless USB Adapter			Model Name		U0631			
Temperature		26°C			Relative Humidity		56%			
Pressure		960hPa			Test voltage		DC 5V from USB Port			
Test Mode		TX								
Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/ m)	AV Reading (dBuV/ m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
11550	V	48.19	---	2.38	50.57	---	74	/	23.43	Peak
17265	V	48.43	---	4.52	52.95	---	74	/	21.05	Peak
N/A										

EUT		Mini 802.11ac Wireless USB Adapter			Model Name		U0631		
Temperature		26°C			Relative Humidity		56%		
Pressure		960hPa			Test voltage		DC 5V from USB Port		
Test Mode		TX							

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/ m)	AV Reading (dBuV/ m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
11550	H	48.46	---	2.38	50.84	---	74	/	23.16	Peak
17265	H	48.10	---	4.52	52.62	---	74	/	21.38	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

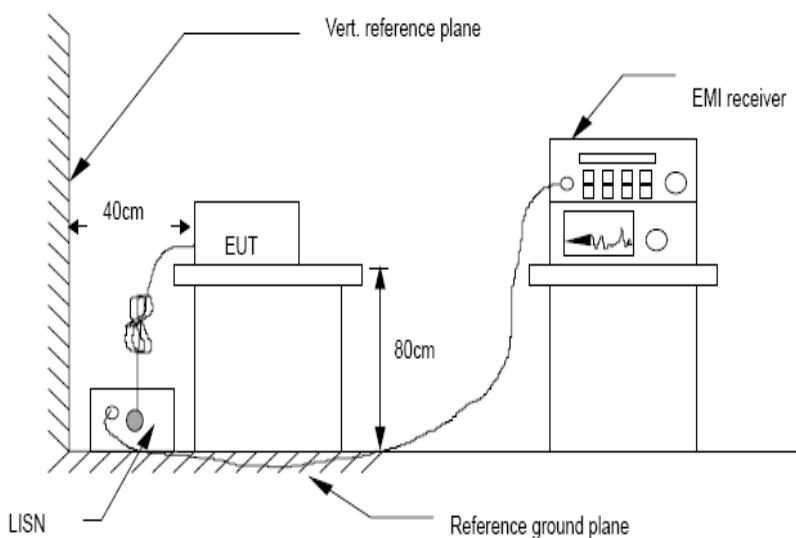
6 POWER LINE CONDUCTED EMISSION

6.1 Conducted Emission Limits(15.207)

Frequency MHz	Limits dB(μ V)	
	Quasi-peak Level	Average Level
0.15 -0.50	66 -56*	56 - 46*
0.50 -5.00	56	46
5.00 -30.00	60	50

- Notes:
1. *Decreasing linearly with logarithm of frequency.
 2. The lower limit shall apply at the transition frequencies.
 3. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.

6.2 Test Setup



6.3 Test Procedure

The EUT is put on the plane 0.8m high above the ground by insulating support and is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC lines are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI ANSI C63.4:2014 on Conducted Emission Measurement.

The bandwidth of test receiver is set at 9 kHz.

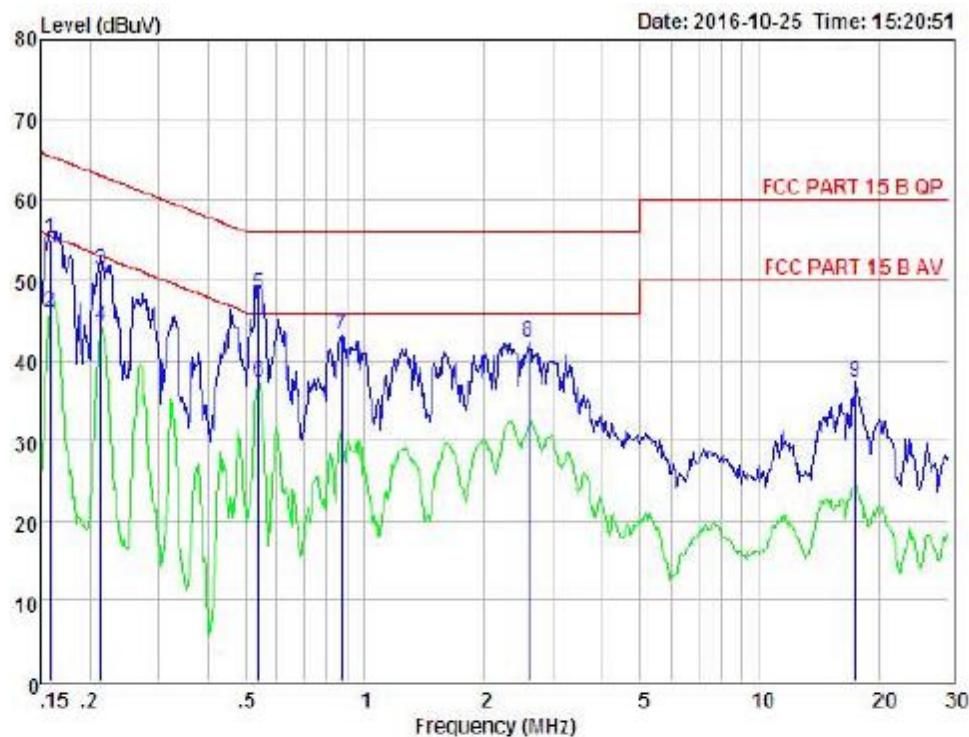
6.4 Test Results

TX MODE

Worse case is reported only

PASS

Detailed information please see the following page.



Condition : FCC PART 15 B QP POL: LINE Temp: 25°C Hum: 51 %

EUT : Mini 802.11ac Wireless USB Adapter

Model No : U0631

Test Mode :

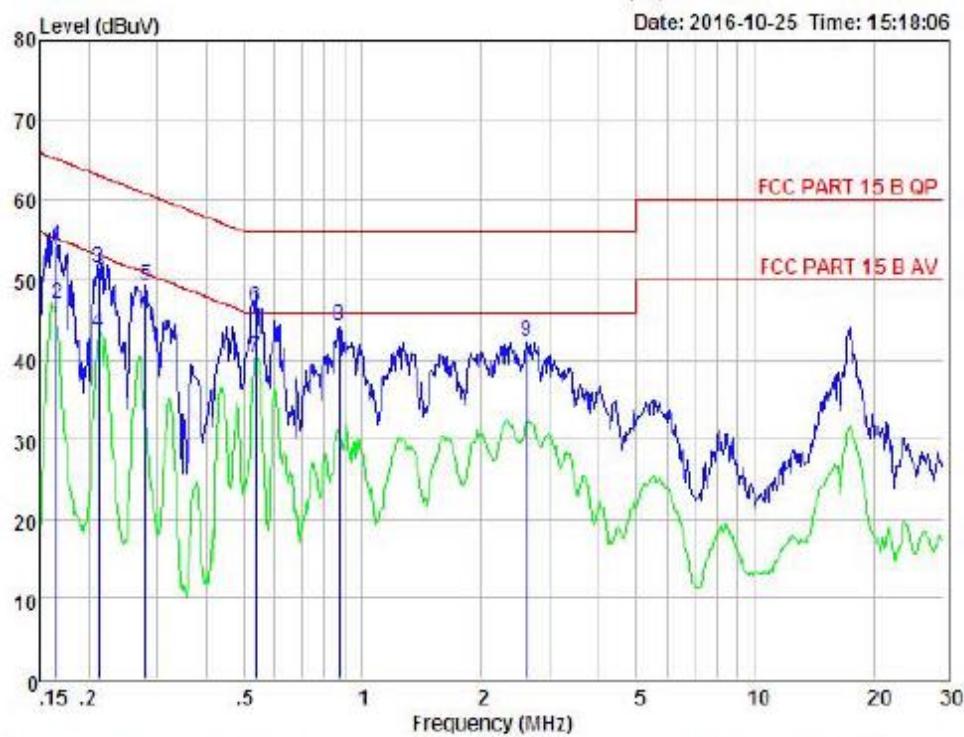
Power : DC 5V from PC with AC 120V/60Hz

Test Engineer : Eric

Remark :

Item	Freq	Read Level	LISN Factor	Preamp Factor	Cable Loss	Level	Limit	Margin	Remark
	MHz	---	dB	dB	dB	dBuV	dBuV	dBuV	
1	0.159	45.41	0.03	-9.52	0.10	55.06	65.52	-10.46	QP
2	0.159	36.33	0.03	-9.52	0.10	45.98	55.52	-9.54	Average
3	0.214	41.55	0.03	-9.52	0.10	51.20	63.05	-11.85	QP
4	0.214	34.52	0.03	-9.52	0.10	44.17	53.05	-8.88	Average
5	0.538	38.62	0.03	-9.58	0.10	48.33	56.00	-7.67	QP
6	0.538	27.53	0.03	-9.58	0.10	37.24	46.00	-8.76	Average
7	0.871	33.34	0.04	-9.62	0.10	43.10	56.00	-12.90	Peak
8	2.594	32.23	0.06	-9.76	0.11	42.16	56.00	-13.84	Peak
9	17.475	26.96	0.28	-9.82	0.30	37.36	60.00	-22.64	Peak

Remark: Level = Read Level + LISN Factor - Preamp Factor + Cable Loss



Condition : FCC PART 15 B QP POI: NEUTRAL Temp: 25°C Hum: 51 %

EUT : Mini 802.11ac Wireless USB Adapter

Model No : U0631

Test Mode :

Power : DC 5V from PC with AC 120V/60Hz

Test Engineer : Eric

Remark :

Item	Freq	Read Level	LISN Factor	Preamp Factor	Cable Loss	Level	Limit	Margin	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dBuV	
1	0.166	44.59	0.03	-9.52	0.10	54.24	65.16	-10.92	QP
2	0.166	37.33	0.03	-9.52	0.10	46.88	55.16	-8.18	Average
3	0.213	41.80	0.03	-9.52	0.10	51.45	63.10	-11.65	QP
4	0.213	33.66	0.03	-9.52	0.10	43.31	53.10	-9.79	Average
5	0.280	39.56	0.03	-9.56	0.10	49.25	60.81	-11.56	Peak
6	0.535	36.87	0.03	-9.58	0.10	46.88	56.00	-9.42	QP
7	0.535	30.61	0.03	-9.58	0.10	40.32	46.00	-5.68	Average
8	0.871	34.32	0.04	-9.62	0.10	44.08	56.00	-11.92	Peak
9	2.622	32.33	0.06	-9.76	0.11	42.26	56.00	-13.74	Peak

Remark: Level = Read Level + LISN Factor - Preamp Factor + Cable Loss

7 Conducted Maximum Output Power

7.1 Test limit

Band 5150-5250MHz

The maximum e.i.r.p. shall not exceed 200 mW or $10 + 10 \log_{10}B$, dBm, whichever power is less. B is the 99% emission bandwidth in megahertz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

Band 5725-5850MHz

The maximum conducted output power shall not exceed 1 W. The power spectral density shall not exceed 30 dBm in any 500 kHz band

7.2 Test Procedure

Details see the KDB558074 Meas Guidance V03

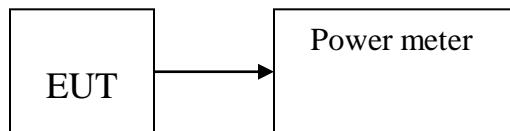
7.2.1 Place the EUT on the table and set it in transmitting mode.

7.2.2 Connected the EUT's antenna port to peak power meter by 20dB attenuator.

7.2.3 Measure out each mode and each bands peak output power of EUT.

Note: The cable loss and attenuator loss were offset into measure device as amplitude offset. Details see the KDB558074 DTS Meas Guidance V03

7.3 Test Setup



7.4 Test Results

PASS

Detailed information please see the following page.

5.2G Band

EUT: Mini 802.11ac Wireless USB Adapter		M/N: U0631		
Test date: 2016-10-22		Test site: RF site	Tested by: Simple Guan	
Mode	Frequency (MHz)	PK Output power(dBm)	Limit (dBm)	Result
IEEE 802.11 a with 5.2G	CH36:5180	7.19	23	Pass
	CH40:5200	7.27	23	Pass
	CH48:5240	7.75	23	Pass
IEEE 802.11 n/HT20 with 5.2G	CH36:5180	7.68	23	Pass
	CH40:5200	7.55	23	Pass
	CH48:5240	7.32	23	Pass
IEEE 802.11 n/HT40 with 5.2G	CH38:5190	7.64	23	Pass
	CH46:5230	7.47	23	Pass
IEEE 802.11 ac with 5.2G	CH42:5210	7.61	23	Pass
Conclusion: PASS				

5.8G Band

EUT: Mini 802.11ac Wireless USB Adapter		M/N: U0631		
Test date: 2016-10-22		Test site: RF site	Tested by: Simple Guan	
Mode	Frequency (MHz)	PK Output power(dBm)	Limit (dBm)	Result
IEEE 802.11 a with 5.8G	CH149:5745	7.16	30	Pass
	CH157:5785	7.49	30	Pass
	CH165:5825	7.25	30	Pass
IEEE 802.11 n/HT20 with 5.8G	CH149:5745	7.26	30	Pass
	CH157:5785	7.41	30	Pass
	CH165:5825	7.26	30	Pass
IEEE 802.11 n/HT40 with 5.8G	CH151:5755	7.57	30	Pass
	CH159:5795	7.36	30	Pass
IEEE 802.11 ac with 5.8G	CH155:5775	7.48	30	Pass
Conclusion: PASS				

8 PEAK POWER SPECTRAL DENSITY

8.1 Test limit

Band 5150-5250MHz

The maximum e.i.r.p. shall not exceed 200 mW or $10 + 10 \log_{10}B$, dBm, whichever power is less. B is the 99% emission bandwidth in megahertz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

Band 5725-5850MHz

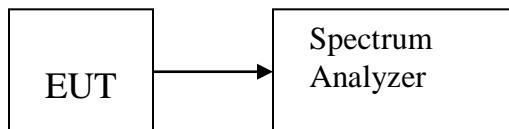
The maximum conducted output power shall not exceed 1 W. The power spectral density shall not exceed 30 dBm in any 500 kHz band

8.2 Method of measurement

Details see the KDB558074 DTS Meas Guidance V03

- 8.2.1 Place the EUT on the table and set it in transmitting mode.
- 8.2.2 Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
- 8.2.3 Set the spectrum analyzer as RBW = 3kHz, VBW = 10kHz, span=5-30%EBW, detail see the test plot.
- 8.2.4 Record the max reading.
- 8.2.5 Repeat the above procedure until the measurements for all frequencies are completed.

8.3 Test Setup



8.4 Test Results

PASS.

Detailed information please see the following page.

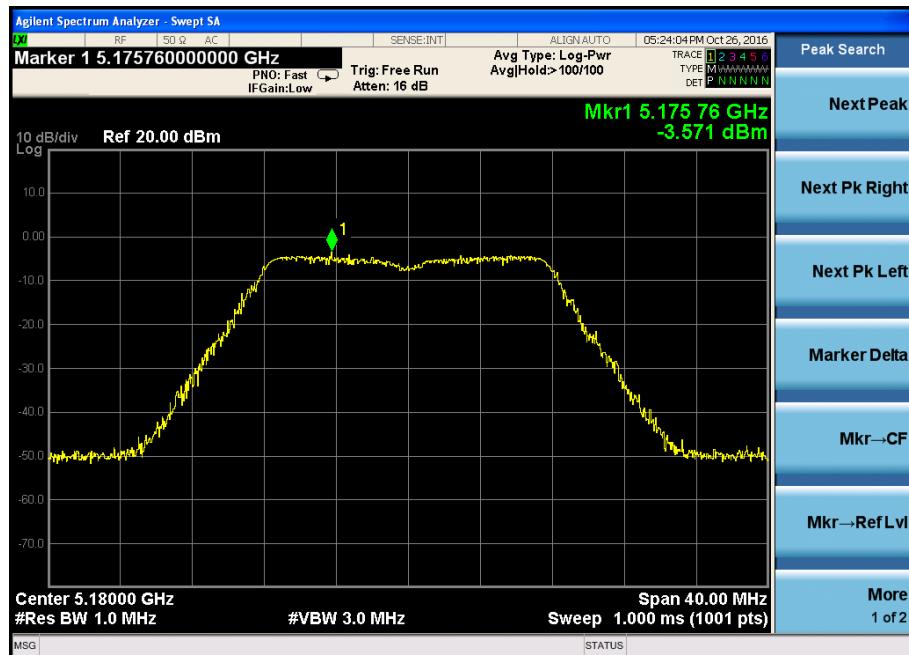
5.2G Band

EUT: Mini 802.11ac Wireless USB Adapter		M/N: U0631		
Test date: 2016-10-22		Test site: RF site	Tested by: Simple Guan	
Mode	Frequency (MHz)	PK Output power(dBm)	Limit (dBm)	Result
IEEE 802.11 a with 5.2G	CH36:5180	-3.571	10	Pass
	CH40:5200	-4.525	10	Pass
	CH48:5240	-4.018	10	Pass
IEEE 802.11 n/HT20 with 5.2G	CH36:5180	-4.065	10	Pass
	CH40:5200	-4.912	10	Pass
	CH48:5240	-4.874	10	Pass
IEEE 802.11 n/HT40 with 5.2G	CH38:5190	-8.084	10	Pass
	CH46:5230	-8.624	10	Pass
IEEE 802.11 ac with 5.2G	CH42:5210	-9.637	10	Pass
Conclusion: PASS				

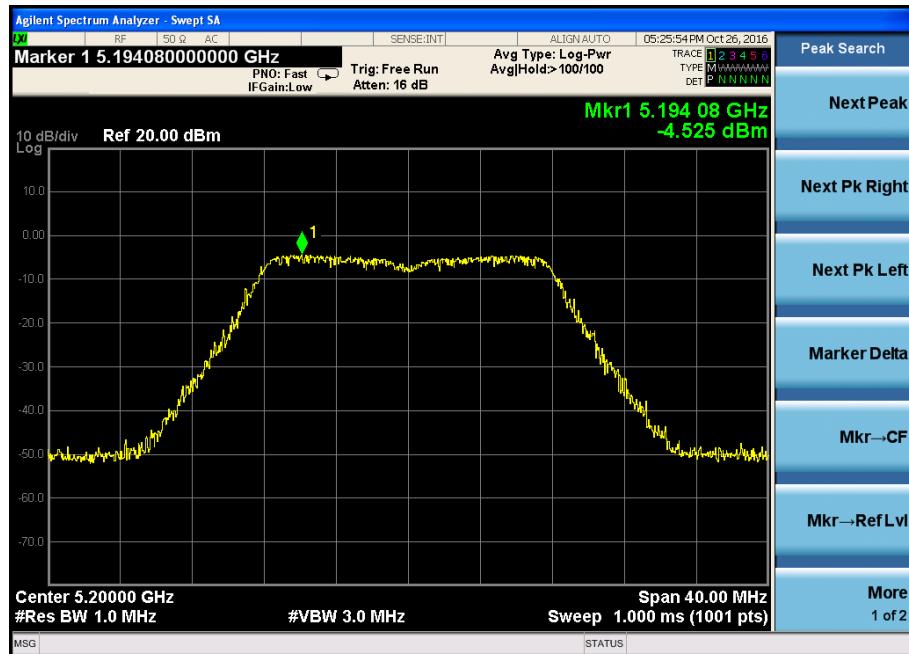
5.8G Band

EUT: Mini 802.11ac Wireless USB Adapter		M/N: U0631		
Test date: 2016-10-22		Test site: RF site	Tested by: Simple Guan	
Mode	Frequency (MHz)	PK Output power(dBm)	Limit (dBm)	Result
IEEE 802.11 a with 5.8G	CH149:5745	-10.306	30	Pass
	CH157:5785	-12.073		Pass
	CH165:5825	-12.087	30	Pass
IEEE 802.11 n/HT20 with 5.8G	CH149:5745	-11.410	30	Pass
	CH157:5785	-11.516	30	Pass
	CH165:5825	-12.270	30	Pass
IEEE 802.11 n/HT40 with 5.8G	CH151:5755	-15.628	30	Pass
	CH159:5795	-15.320	30	Pass
IEEE 802.11 ac with 5.8G	CH155:5755	-15.784	30	Pass
Conclusion: PASS				

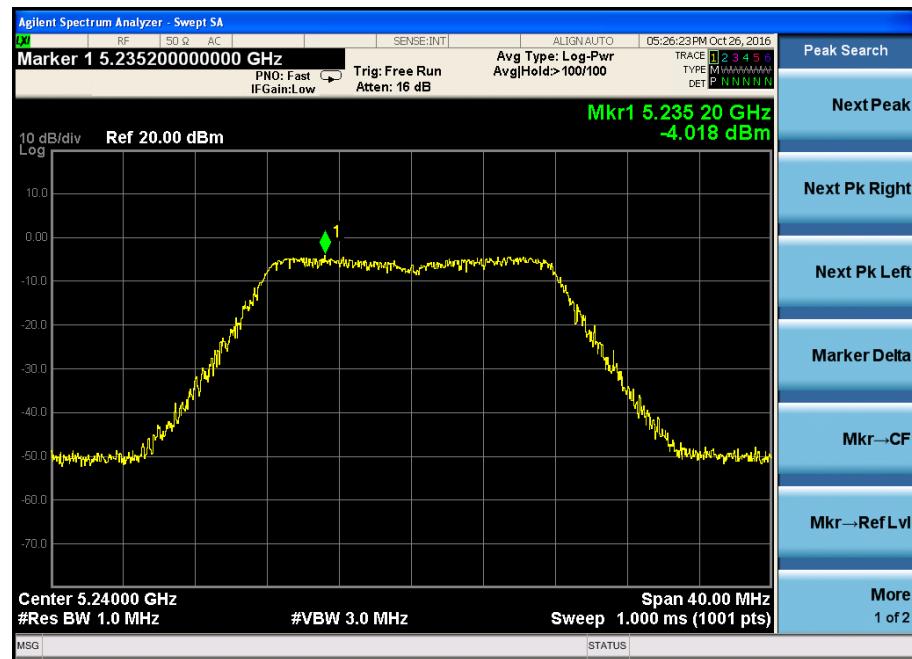
5.2G Band:
CH Low :



CH Mid:

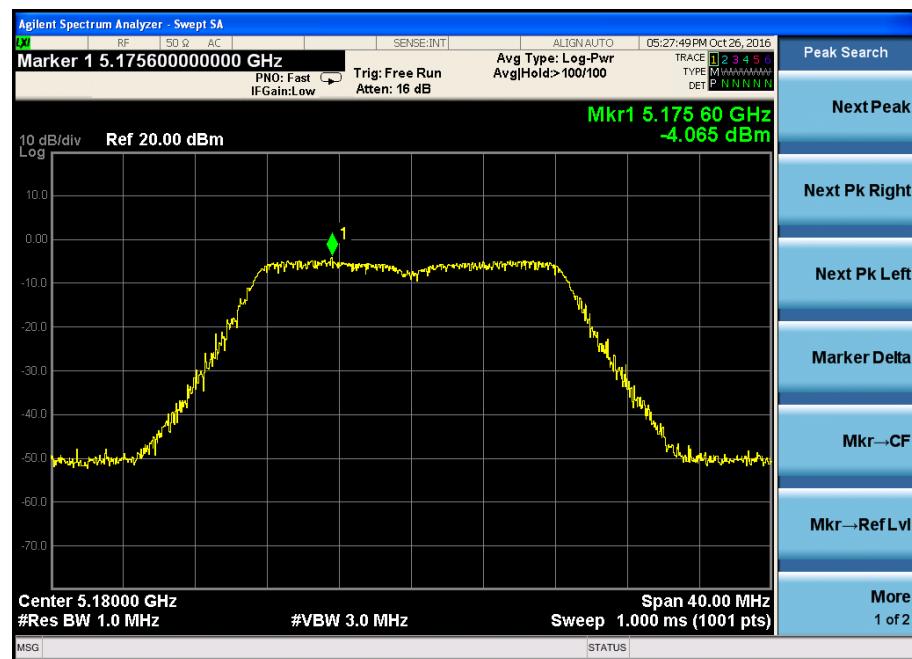


CH Hig:

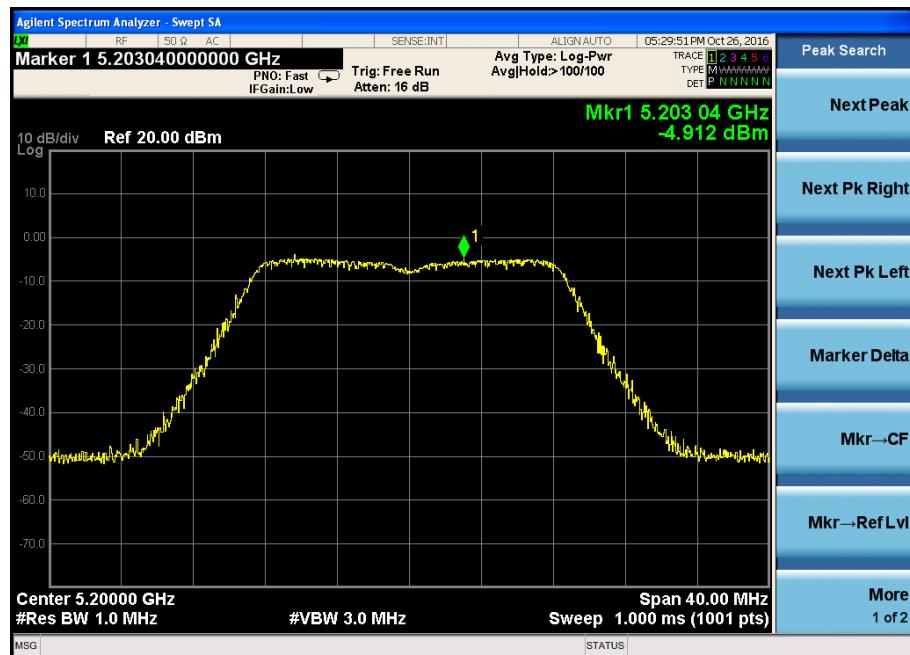


IEEE 802.11n HT20:

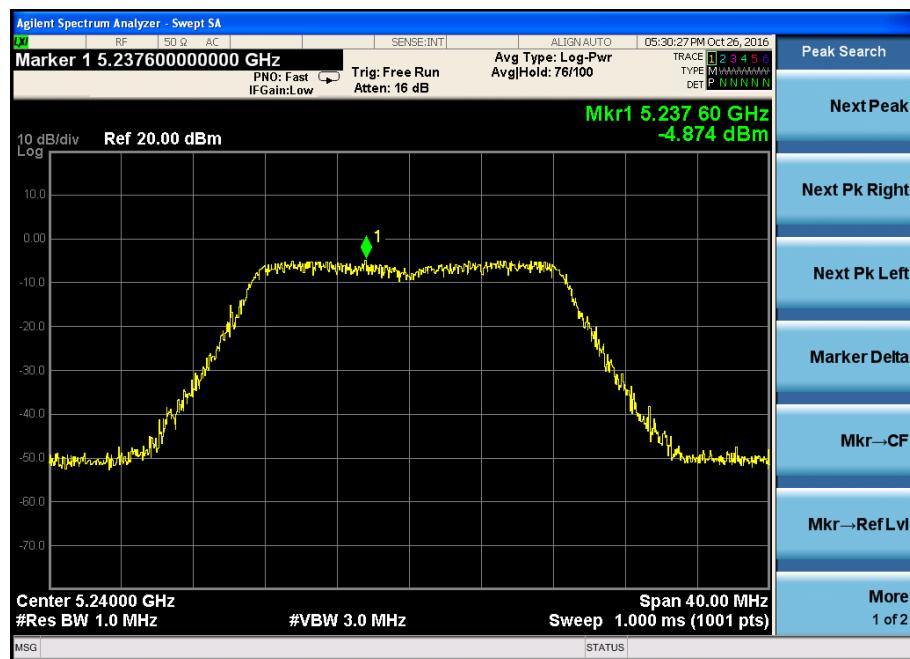
CH Low :



CH Mid:

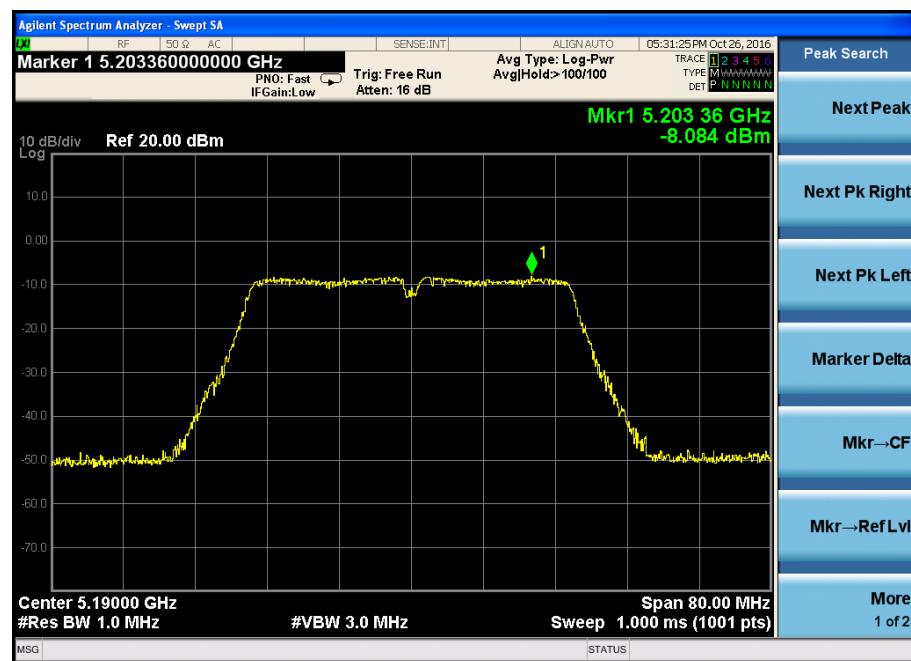


CH Hig:

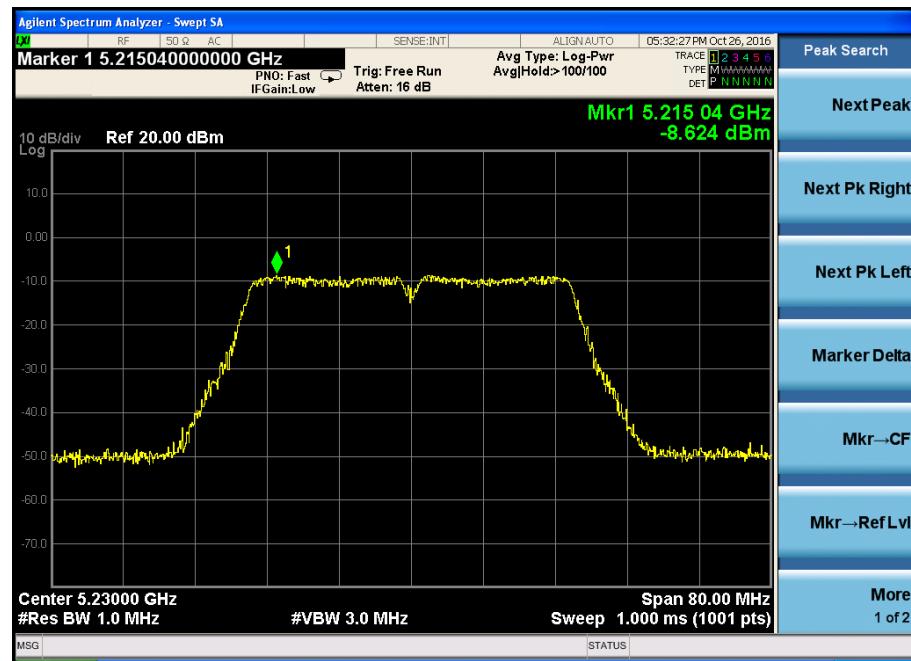


IEEE 802.11n HT40:

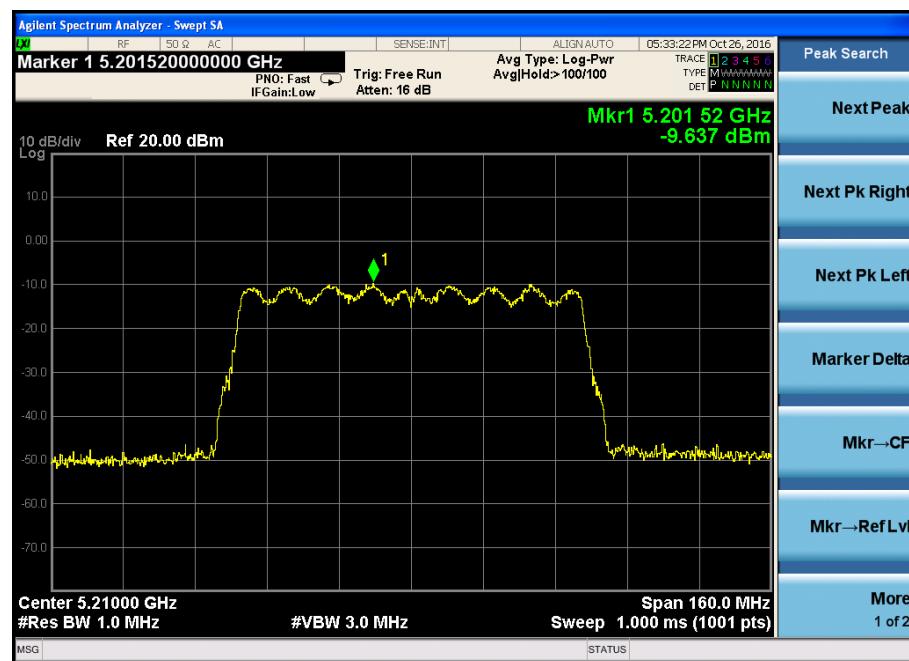
CH Low :



CH Hig:



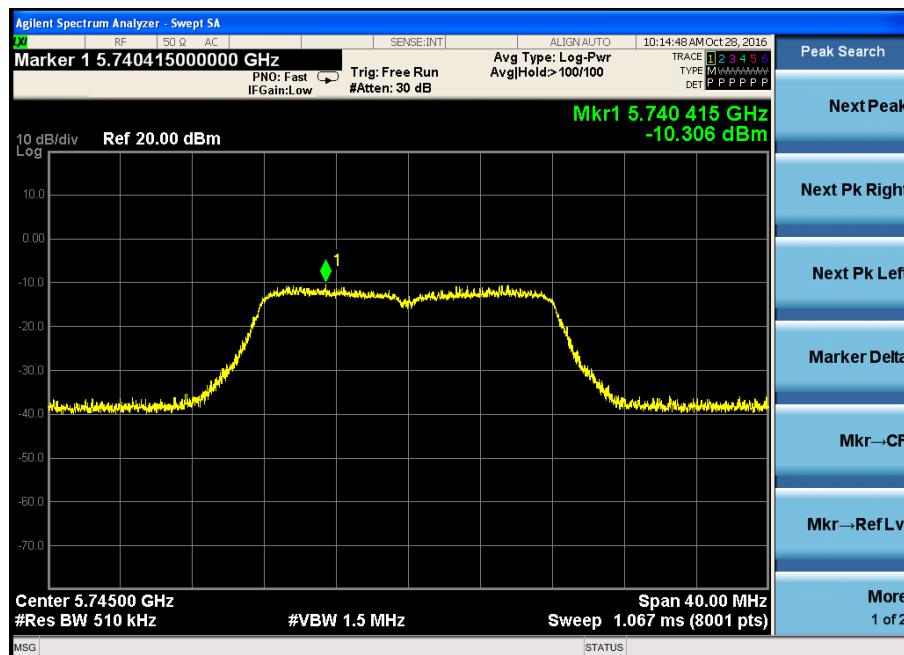
IEEE 802.11ac:



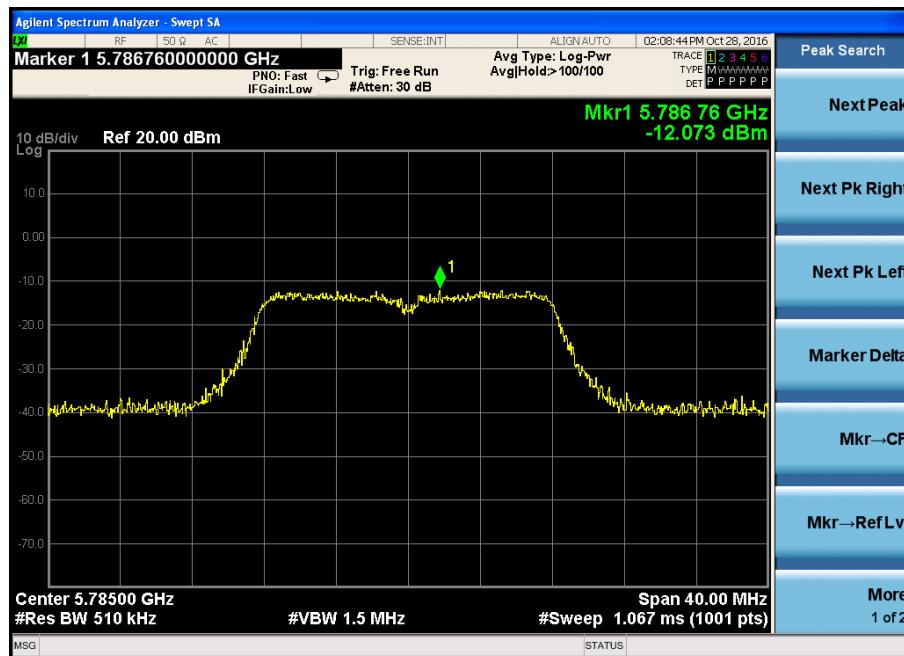
5.8G Band

IEEE 802.11a :

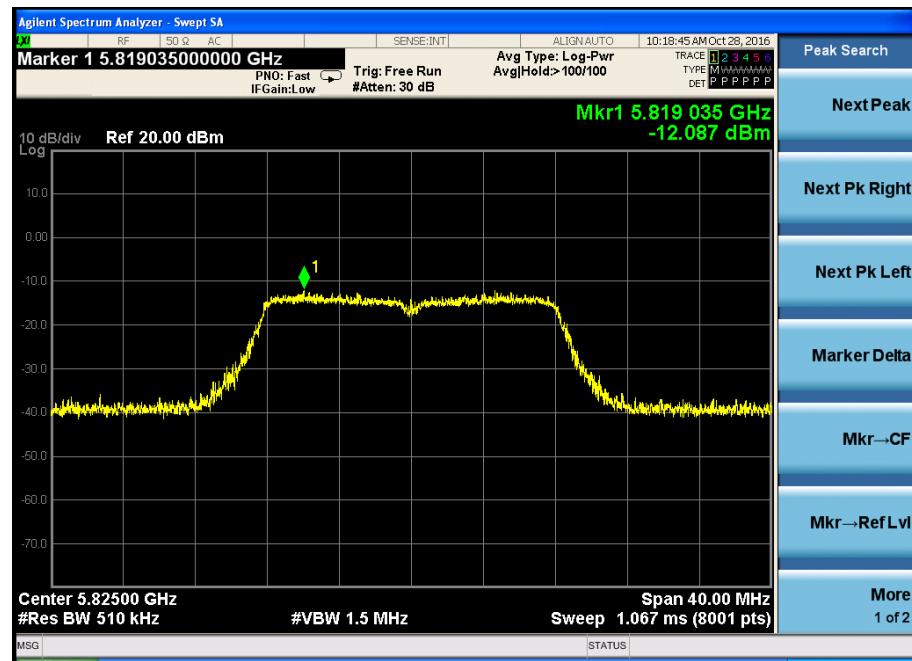
CH Low :



CH Mid:

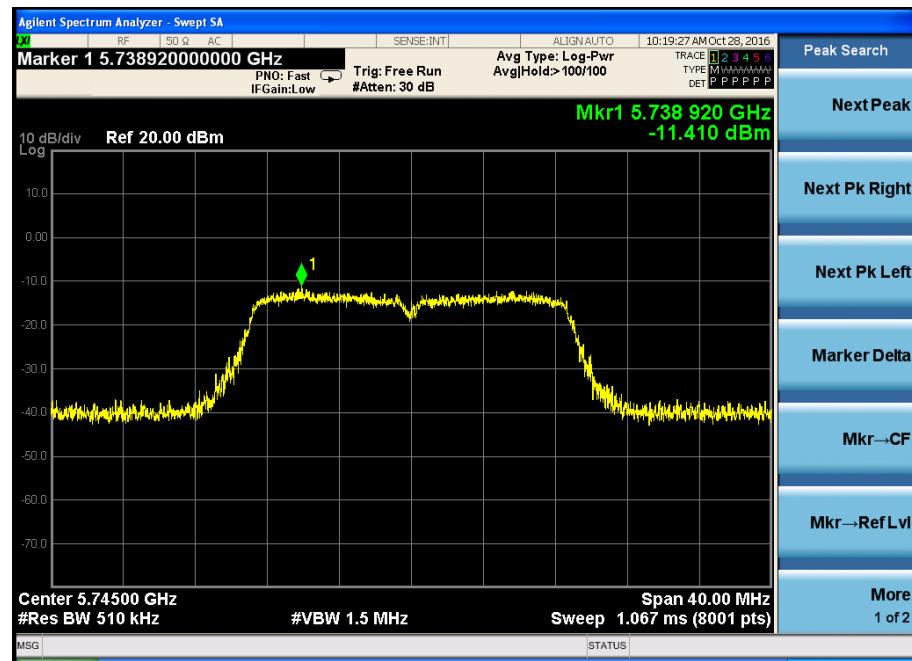


CH Hig:

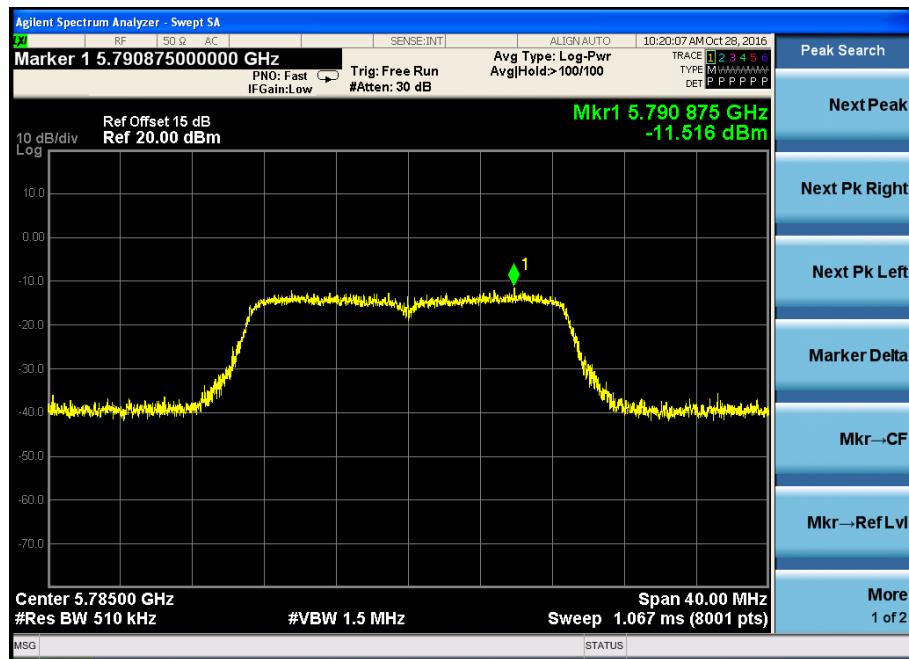


IEEE 802.11n HT20 :

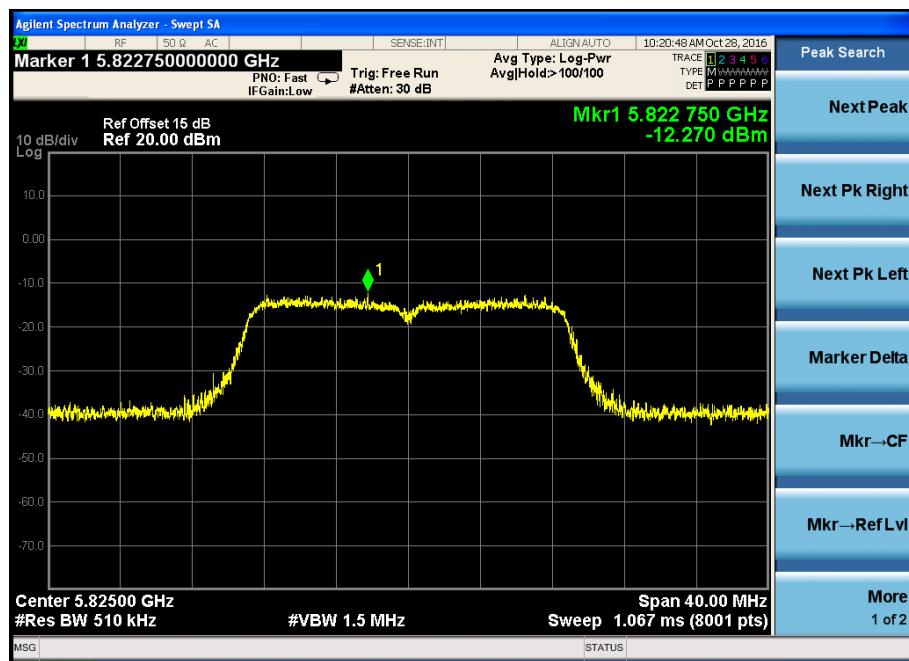
CH Low :



CH Mid:

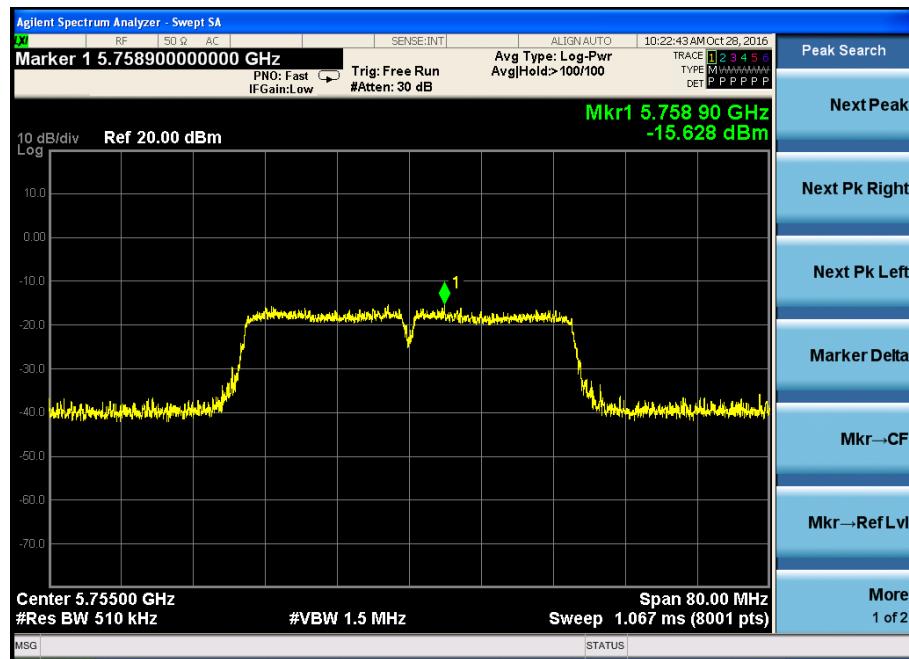


CH Hig:

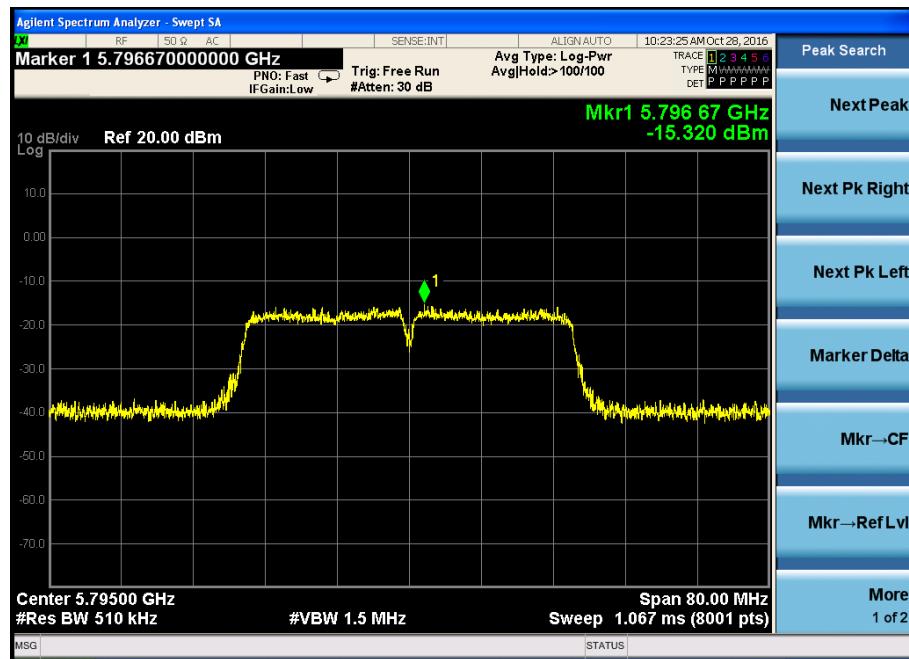


IEEE 802.11n HT40 :

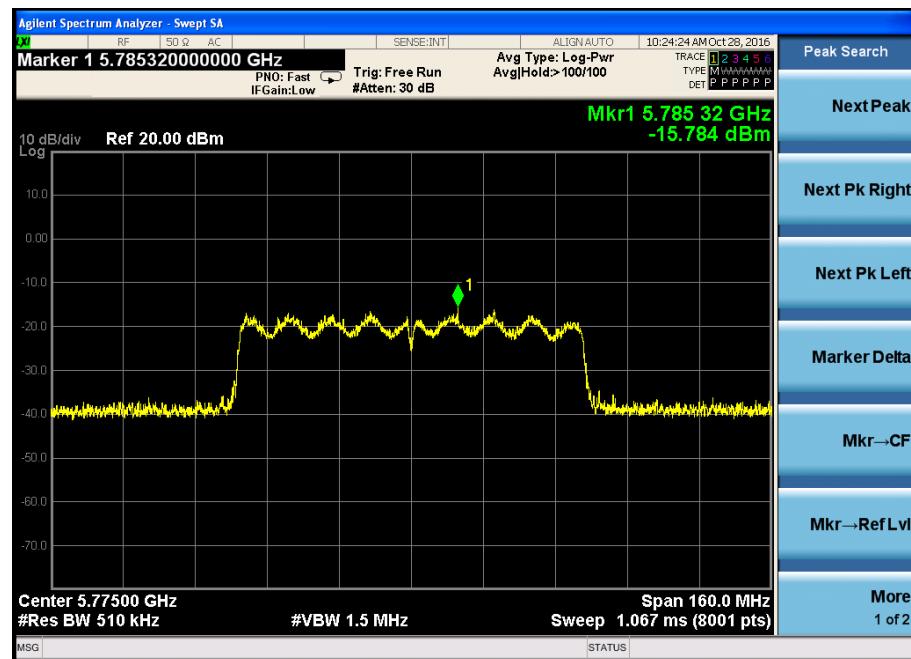
CH Low :



CH Hig:



IEEE 802.11ac :



Remark: A RBW of 500KHz can not be set for the Spectrum Analyzer, and the results of RBW 510KHz are worse than RBW of 500KHz, therefore, if results of the RBW 510KHz complies with limit, results of RBW 500KHz are deemed to comply with limit

9 Bandwidth

9.1 Test limit

Please refer section 15.407

For purposes of this subpart the emission bandwidth shall be determined by measuring the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, that are 26 dB down relative to the maximum level of the modulated carrier

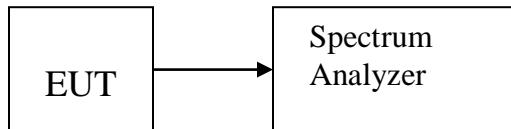
Within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

9.2 Method of measurement

Details see the KDB558074 D01 Meas Guidance

- a) The bandwidth is measured at an amplitude level reduced 26dB from the reference level. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. Once the reference level is established, the equipment is conditioned with typical modulating signal to produce the worst-case (i.e. the widest) bandwidth.
- b) The test receiver set RBW = 1-5 % EBW, VBW \geq 3RBW, Sweep time set auto, detail see the test plot. Peak detector is used.

9.3 Test Setup



9.4 Test Results

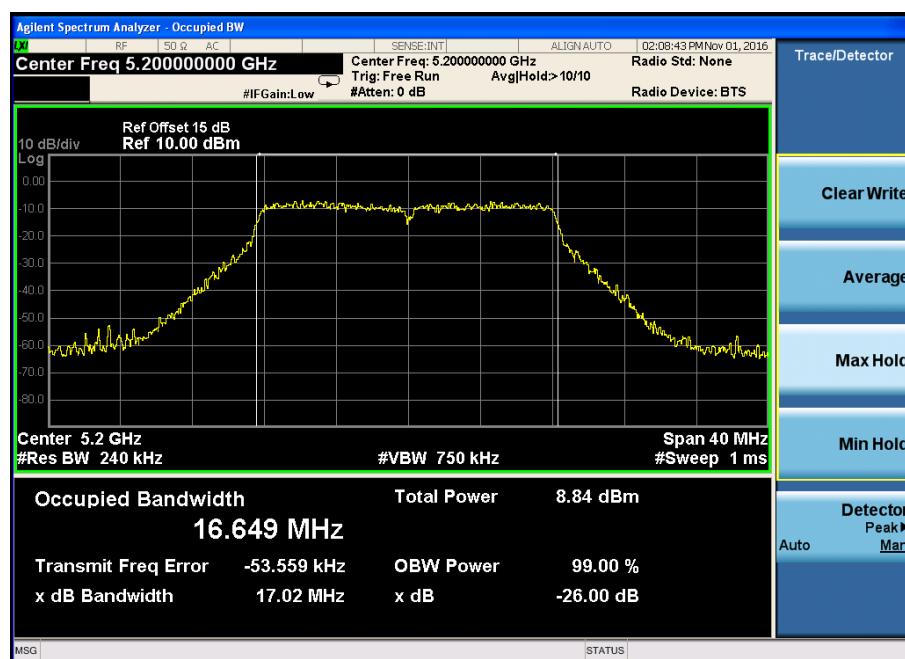
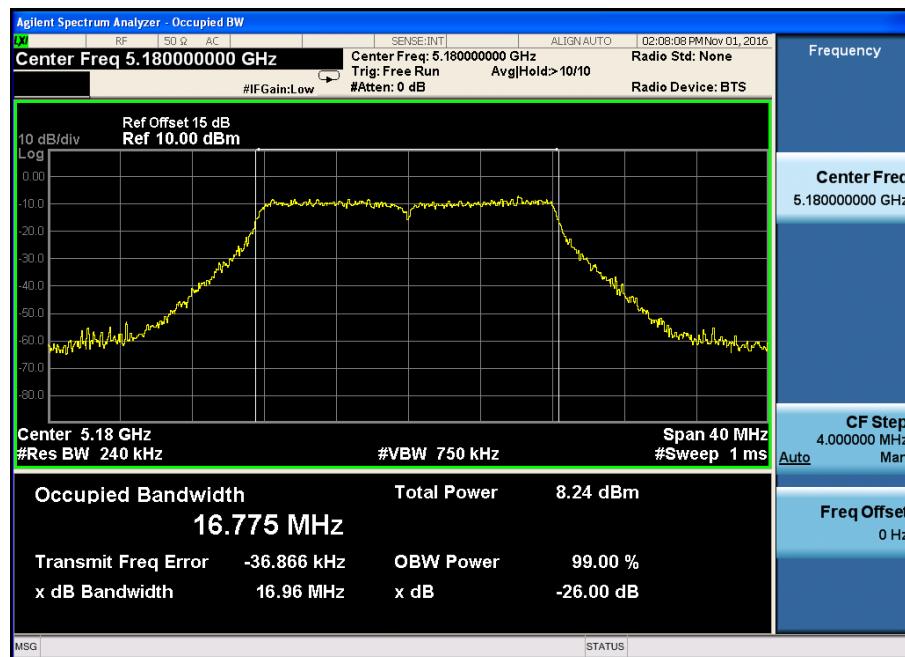
PASS.

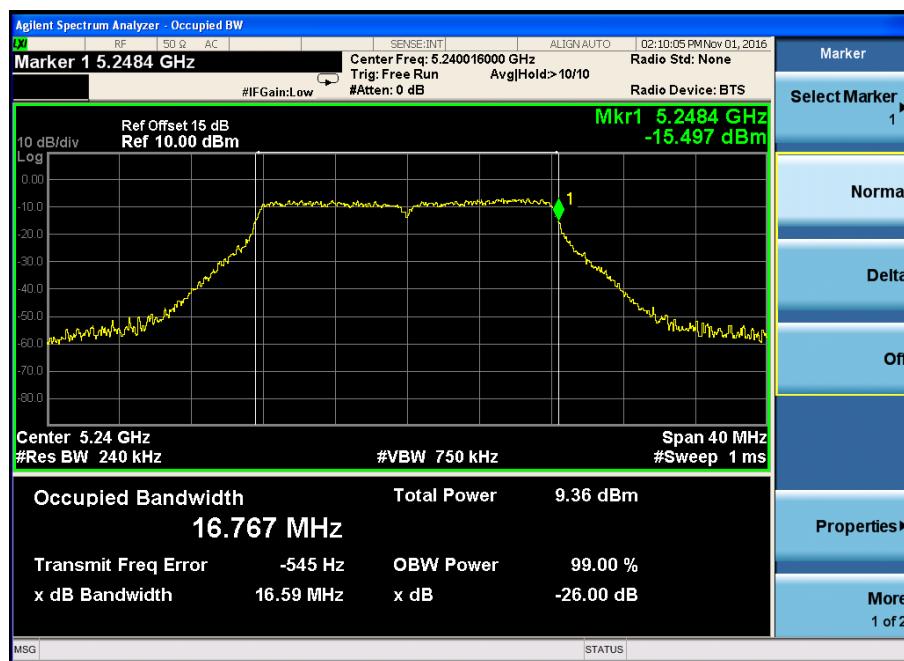
Detailed information please see the following page.

5.2G

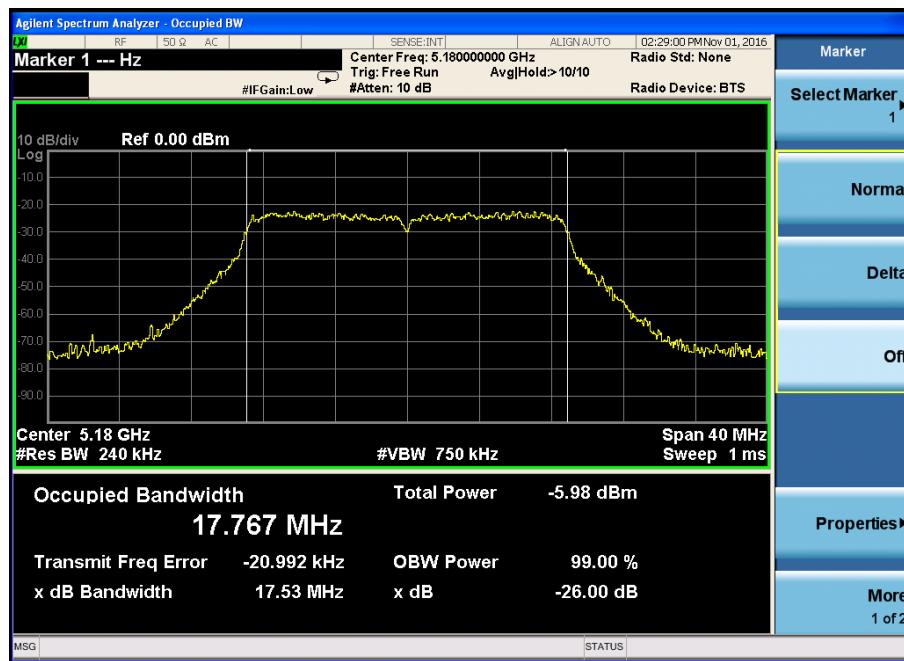
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Limit (MHz)	Result
IEEE 802.11a:					
Low	5180	16.96	16.775	/	PASS
Mid	5200	17.02	16.649	/	PASS
High	5240	16.59	16.767	/	PASS
IEEE 802.11n/HT20:					
Low	5180	17.53	17.767	/	PASS
Mid	5200	17.51	17.820	/	PASS
High	5240	17.59	17.800	/	PASS
IEEE 802.11n/HT40:					
Low	5190	36.27	36.207	/	PASS
High	5230	36.23	36.279	/	PASS
IEEE 802.11ac:					
	5210	78.40	75.706	/	PASS

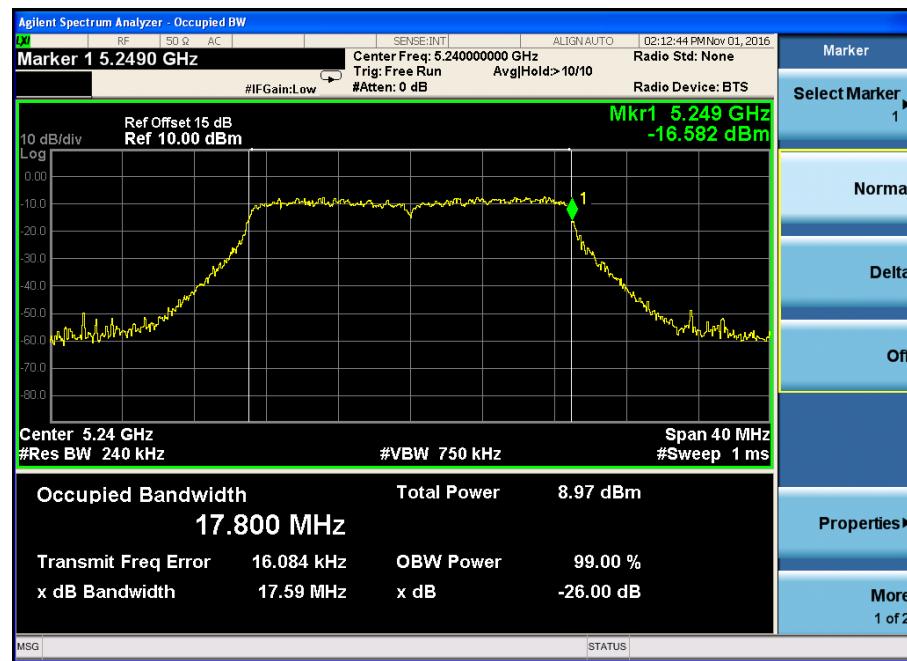
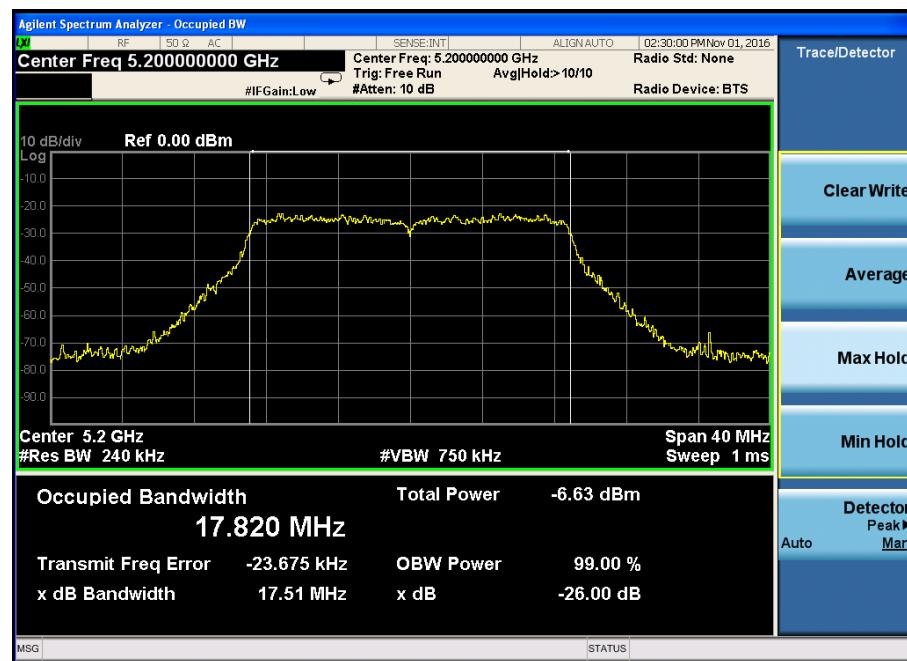
IEEE 802.11a



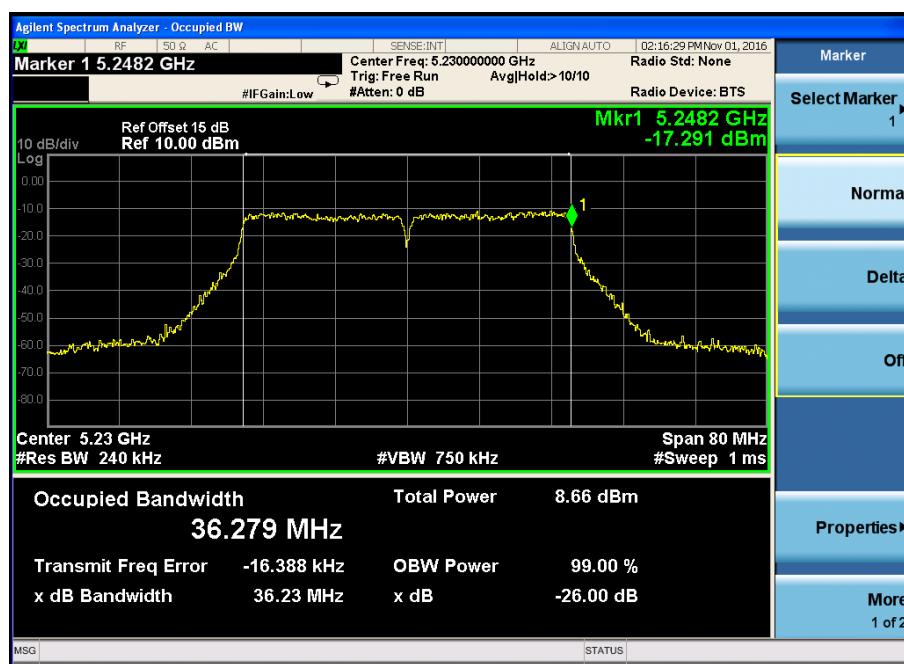
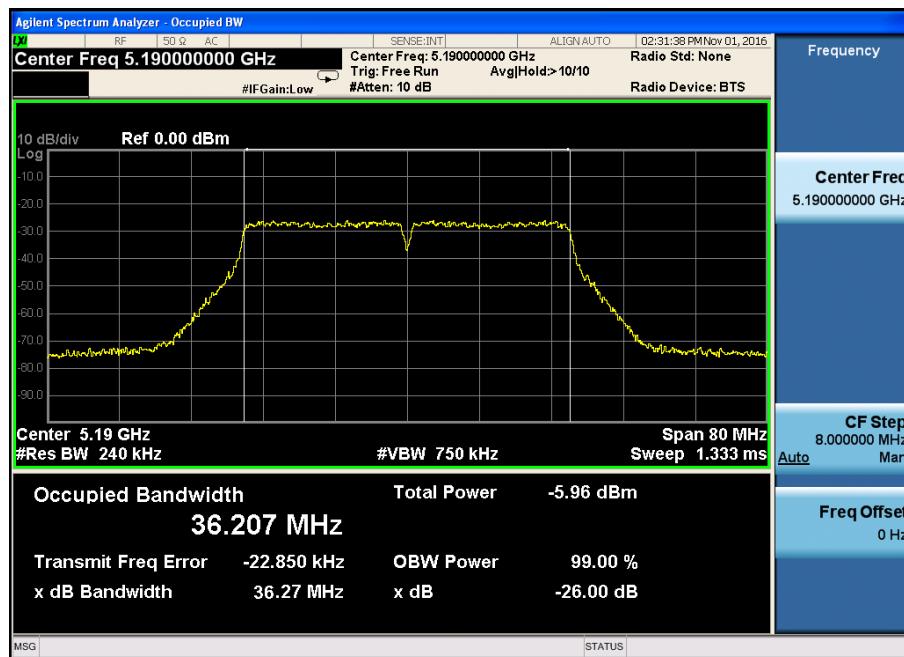


IEEE 802.11n HT20:

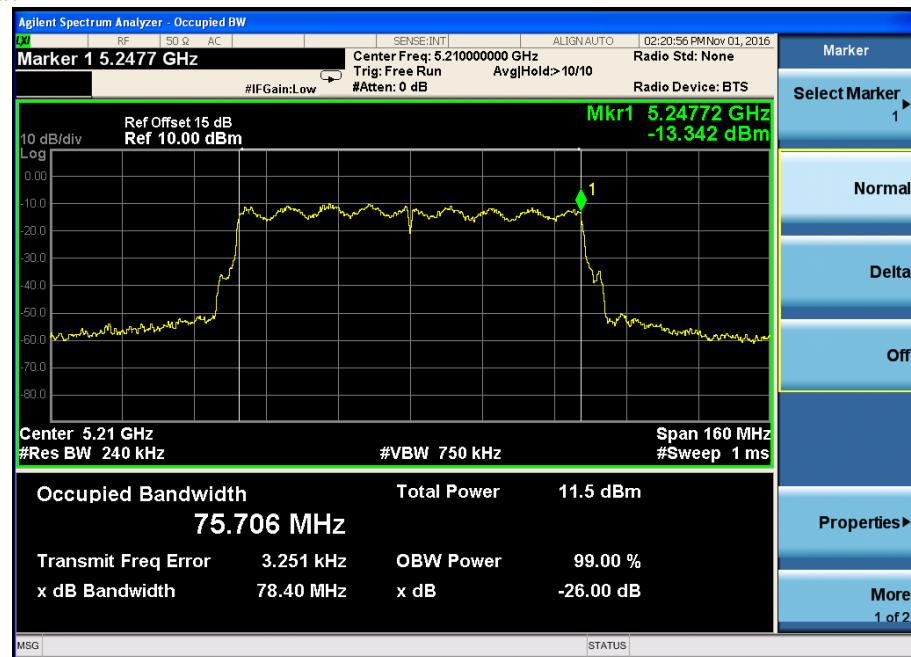




IEEE 802.11n HT40:

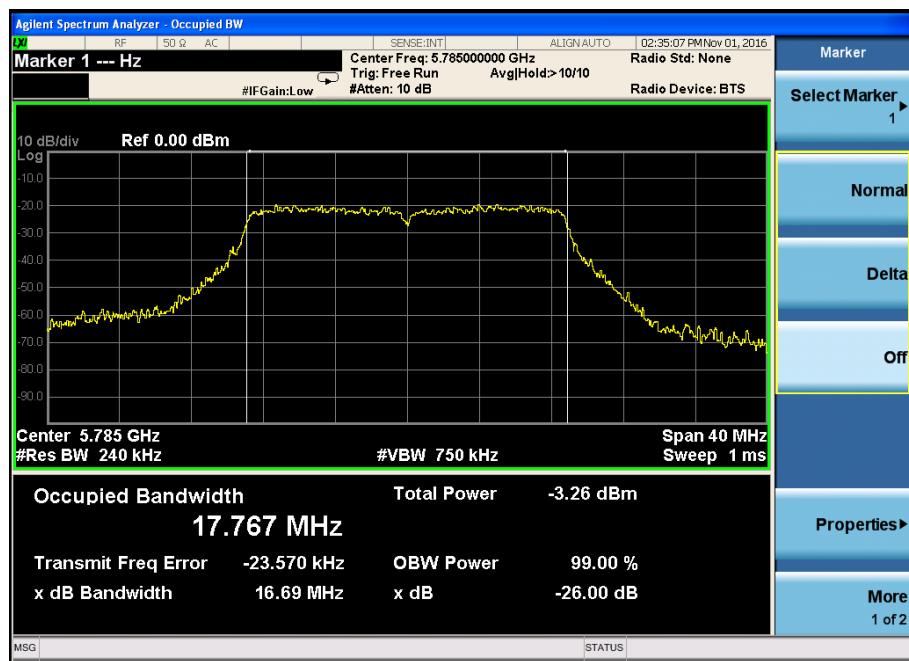
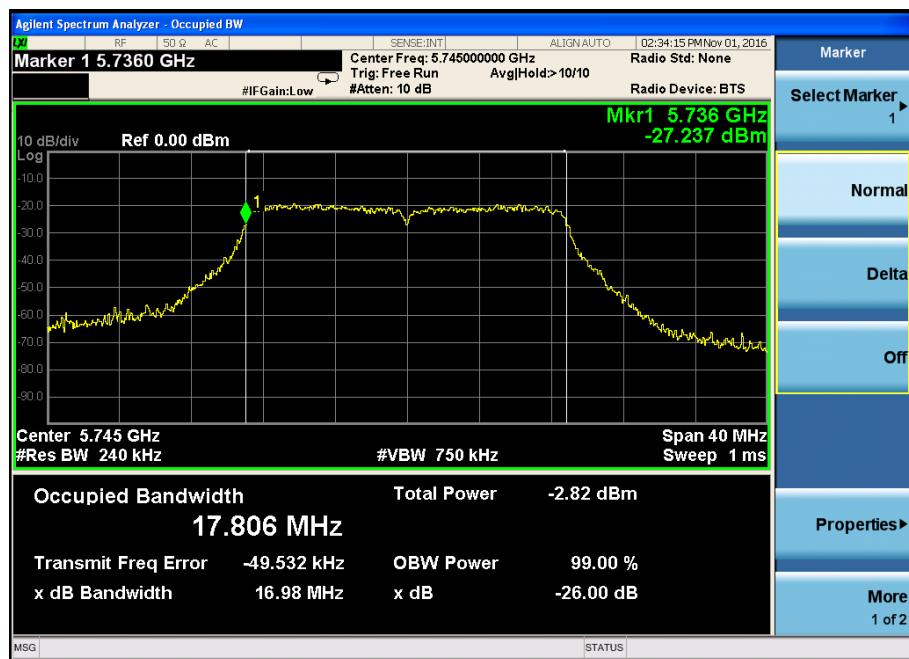


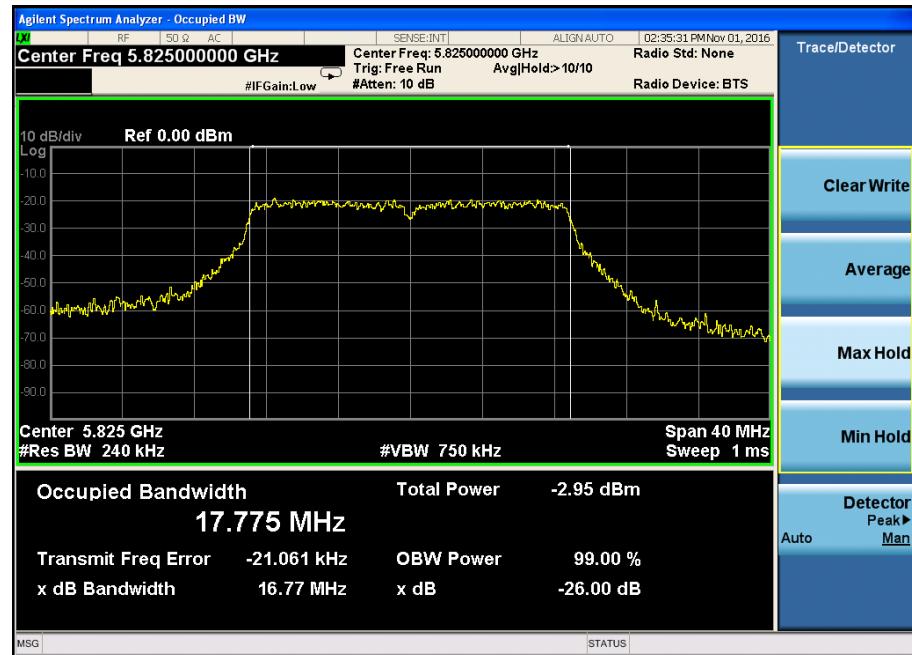
IEEE 802.11ac



Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Limit (MHz)	Result
IEEE 802.11a:					
Low	5745	16.98	17.806	/	PASS
Mid	5785	16.69	17.767	/	PASS
High	5825	16.77	17.775	/	PASS
IEEE 802.11n/HT20:					
Low	5745	17.69	17.802	/	PASS
Mid	5785	17.70	17.775	/	PASS
High	5825	17.97	17.768	/	PASS
IEEE 802.11n/HT40:					
Low	5755	36.66	36.247	/	PASS
High	5795	36.98	36.130	/	PASS
IEEE 802.11ac:					
	5775	78.63	75.662	/	PASS

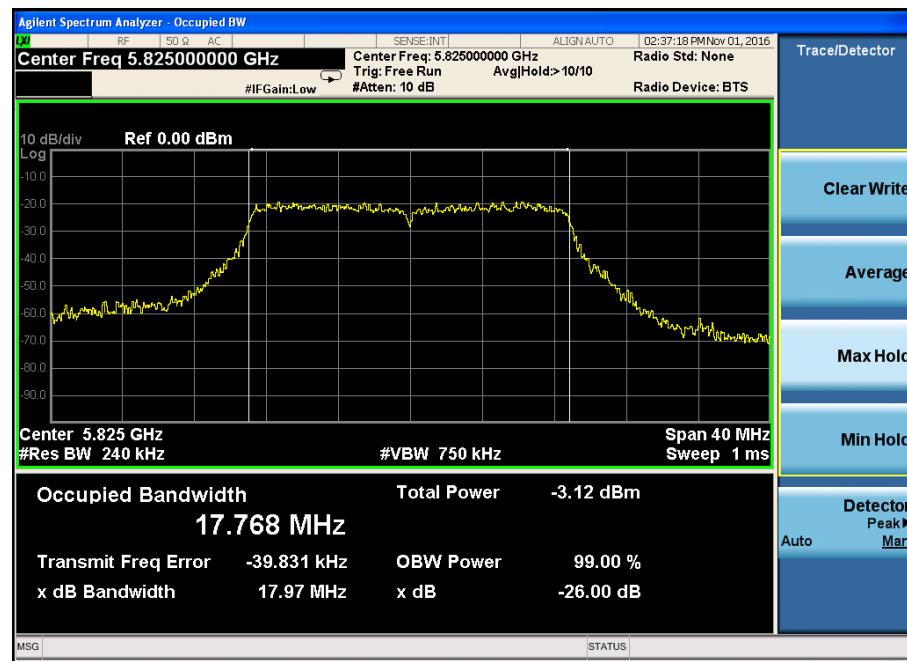
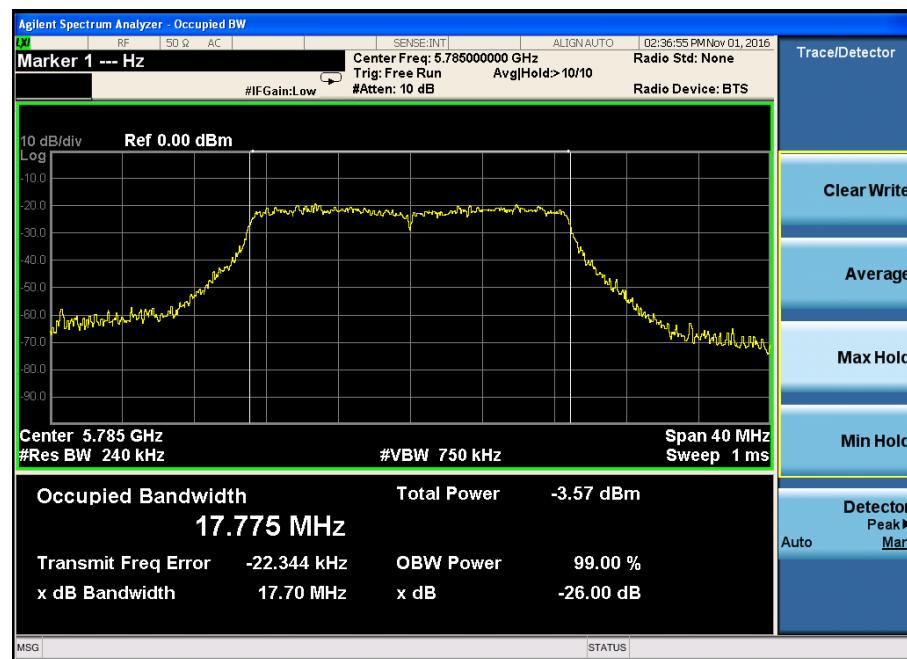
IEEE 802.11a



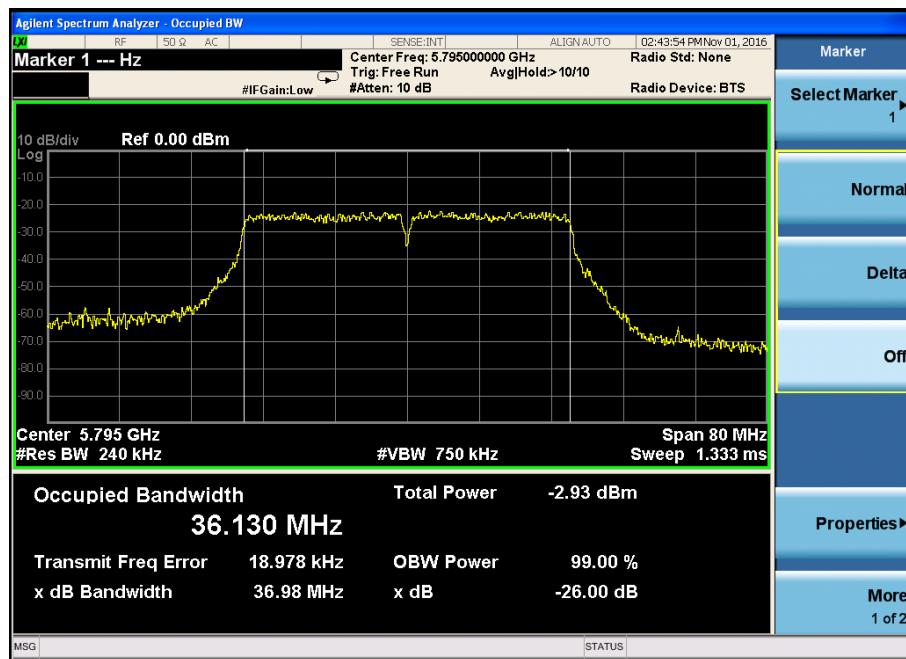


IEEE 802.11n HT20:

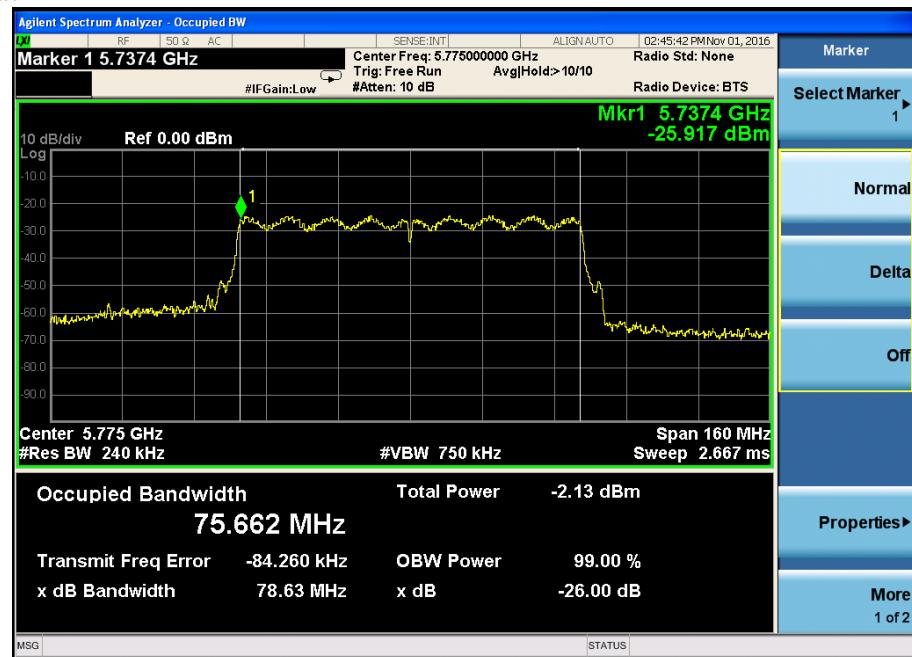




IEEE 802.11n HT40:



IEEE 802.11ac



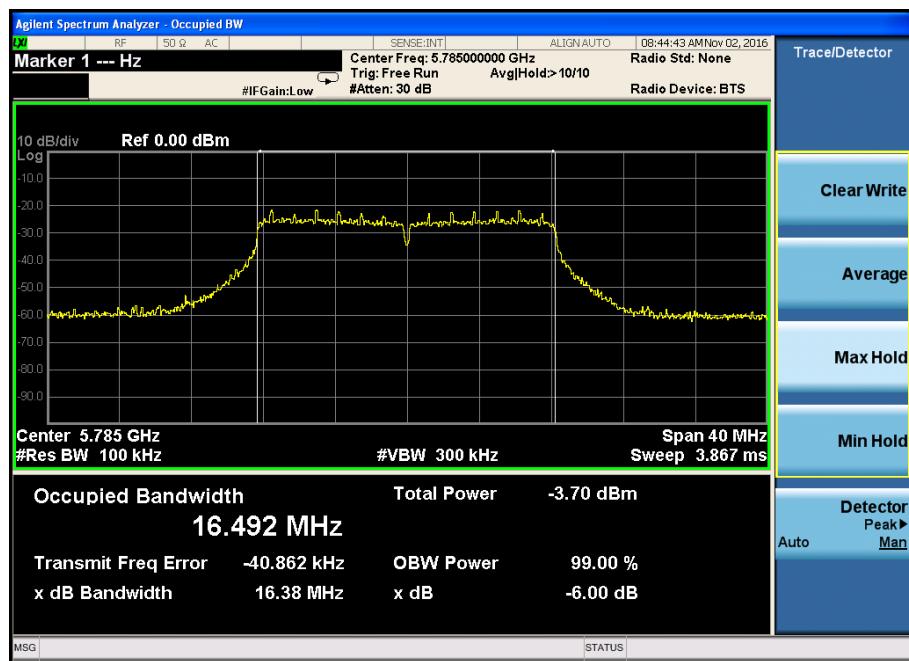
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Limit (MHz)	Result
IEEE 802.11a:					
Low	5745	16.38	16.513	0.5	PASS
Mid	5785	16.38	16.492	0.5	PASS
High	5825	16.33	16.499	0.5	PASS
IEEE 802.11n/HT20:					
Low	5745	17.32	17.658	0.5	PASS
Mid	5785	17.20	17.647	0.5	PASS
High	5825	17.57	17.650	0.5	PASS
IEEE 802.11n/HT40:					
Low	5755	35.98	36.147	0.5	PASS
High	5795	35.78	36.180	0.5	PASS
IEEE 802.11ac:					
	5775	75.41	75.529	0.5	PASS

IEEE 802.11a with 5.8G:

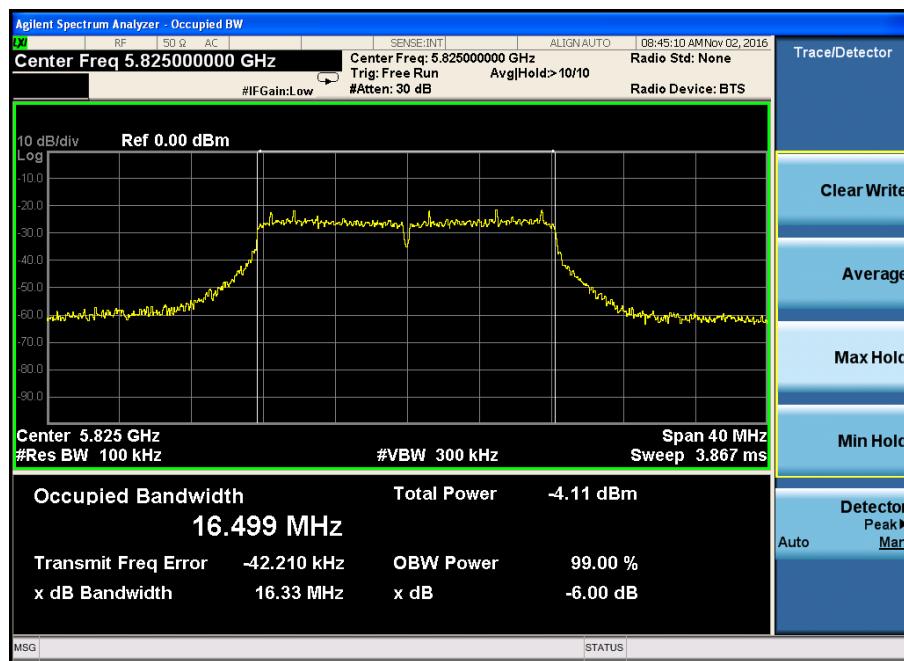
CH Low :



CH Mid :

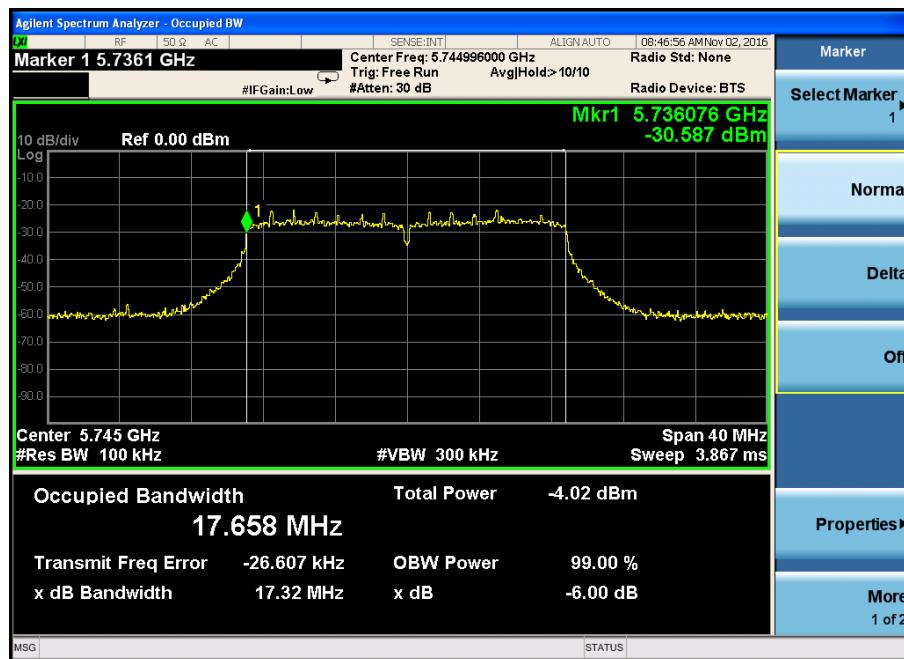


CH High :

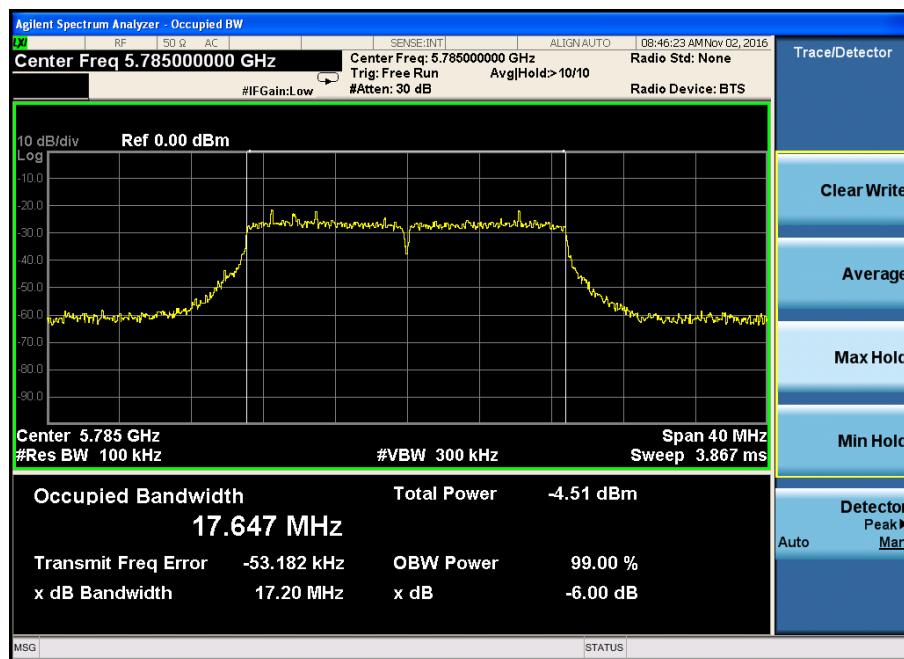


IEEE 802.11n HT20:

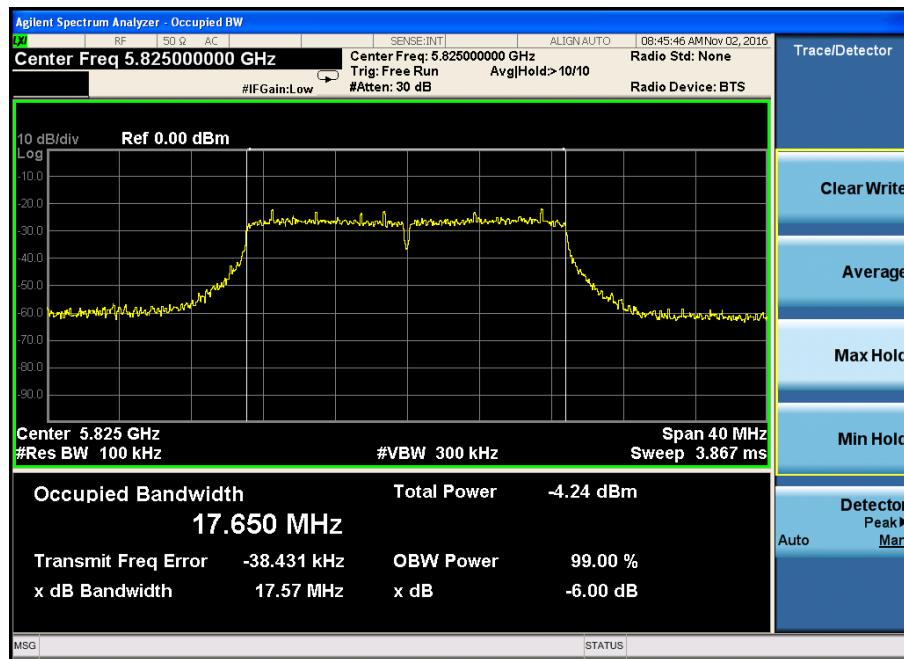
CH Low :



CH Mid :

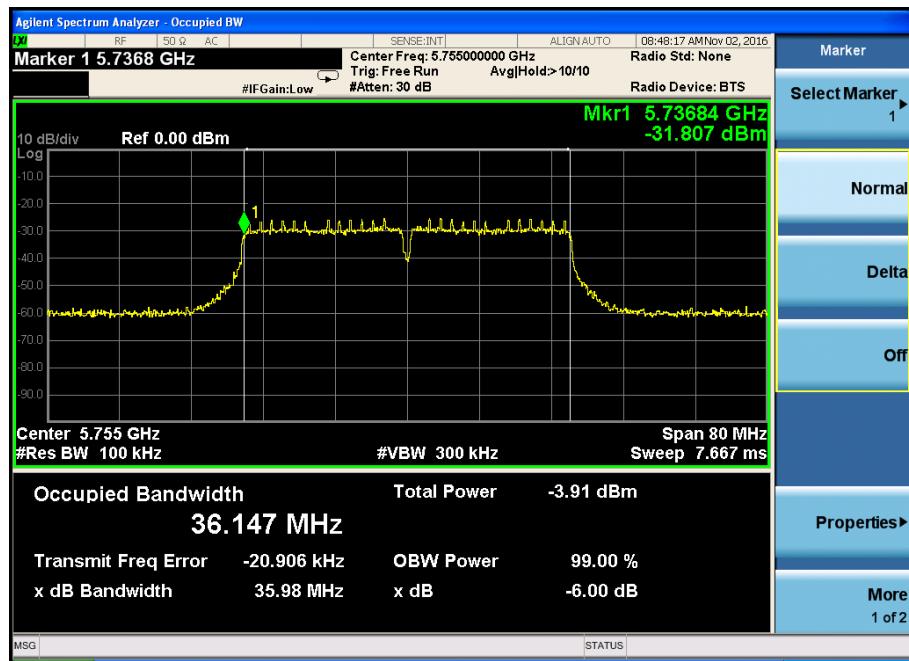


CH High :

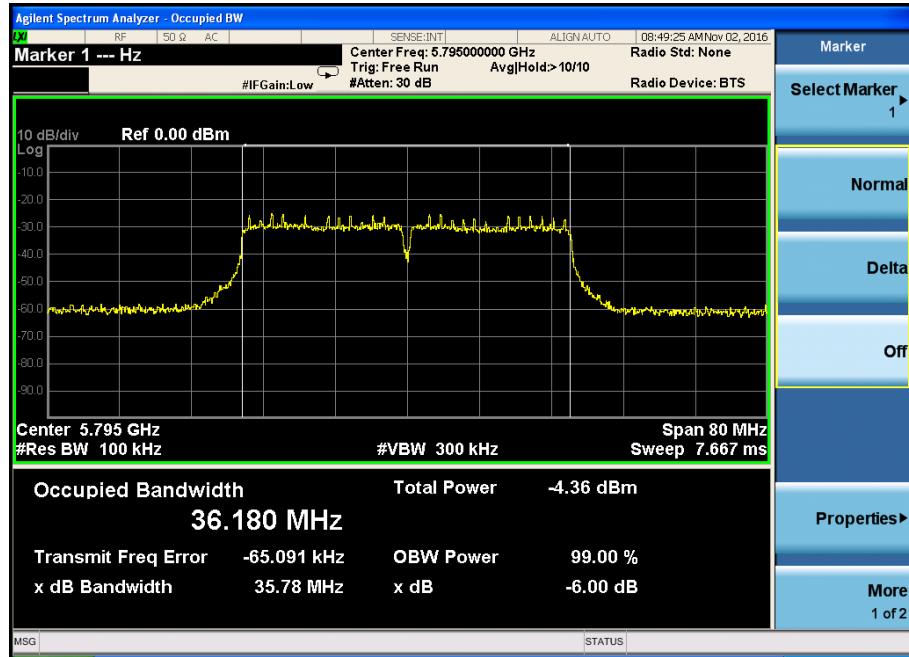


IEEE 802.11n/HT40:

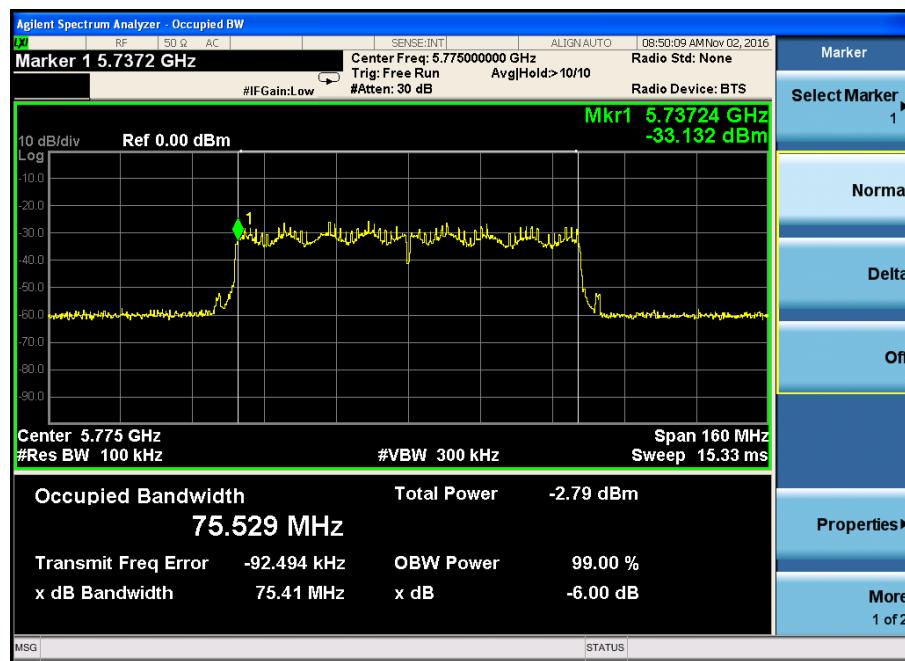
CH Low :



CH High :



IEEE 802.11ac:



10 Undesirable emission

10.1 Test limit

Except as shown in paragraph (7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

- (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 -27 dBm/MHz.
- (2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (4) 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.
- (5) The emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 MHz.
- (6) Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209. Further, any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in §15.207.
- (7) The provisions of §15.205 apply to intentional radiators operating under this section.
- (8) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the upper and lower frequency band edges as the design of the equipment permits

10.2 Test Procedure

- 12.2.1 Put the EUT on a 0.8m high table, power on the EUT. Emissions were scanned and measured rotating the EUT to 360 degrees, Find the maximum Emission
- 12.2.2 Check the spurious emissions out of band.
- 12.2.3 RBW 1MHz ,VBW 3MHz ,peak detector for peak value , RBW 1MHz ,VBW 3MHz , RMS detector for AV value.

10.3 Test Setup

Same as 5.2.2.

10.4 Test Result

PASS.

Detailed information please see the following page.

5.2G Band

Radiated Method:

IEEE 802.11a CH LOW

Band Edge Test result												
EUT: Mini 802.11ac Wireless USB Adapter					M/N: U0631							
Power: DC 5V from USB Port												
Test date: 2016-10-22 Test site: 3m Chamber Tested by: Simple Guan												
Test mode: TX Low												
Antenna polarity: Vertical												
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark				
5150	42.38	31.65	5.92	33.9	46.05	68.2	22.15	PK				
--	--	--	--	--	--	--	--	--				
--	--	--	--	--	--	--	--	--				
--	--	--	--	--	--	--	--	--				
Antenna Polarity: Horizontal												
5150	43.11	31.65	5.92	33.9	46.78	68.2	21.42	PK				
--	--	--	--	--	--	--	--	--				
--	--	--	--	--	--	--	--	--				
--	--	--	--	--	--	--	--	--				
--	--	--	--	--	--	--	--	--				
Note:												
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK												
2, Result = Read level + Antenna factor + cable loss-Amp factor												
3, All the other emissions not reported were too low to read and deemed to comply with FCC limit.												

Note: According to KDB 789033, EIRP **【dBm】** = E **【dBuV/m】** -95.2, thus, limit for 5150MHz band is -27+95.2=68.2 dBuV/m.

IEEE 802.11a CH High

Band Edge Test result

EUT: Mini 802.11ac Wireless USB Adapter M/N: U0631

Power: DC 5V from USB Port

Test date: 2016-10-22 Test site: 3m Chamber Tested by: Simple Guan

Test mode: TX High

Antenna polarity: Vertical

Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(d B)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5350	43.26	31.73	6.05	33.73	47.31	68.2	20.89	PK
--	--	--	--	--	--	--	--	--

Antenna Polarity: Horizontal

5350	42.54	31.73	6.05	33.73	46.59	68.2	21.61	PK
--	--	--	--	--	--	--	--	--

Note:

1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK

2, Result = Read level + Antenna factor + cable loss-Amp factor

3, All the other emissions not reported were too low to read and deemed to comply with FCC limit.

Note: According to KDB 789033, EIRP 【dBm】=E 【dBuV/m】 -95.2, thus, limit for 5150MHz band is -27+95.2=68.2 dBuV/m.

IEEE 802.11n HT20 CH Low

Band Edge Test result												
EUT: Mini 802.11ac Wireless USB Adapter					M/N: U0631							
Power: DC 5V from USB Port												
Test date: 2016-10-22 Test site: 3m Chamber Tested by: Simple Guan												
Test mode: TX Low												
Antenna polarity: Vertical												
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark				
5150	43.12	31.65	5.92	33.9	46.79	68.2	21.41	PK				
--	--	--	--	--	--	--	--	--				
Antenna Polarity: Horizontal												
5150	42.15	31.65	5.92	33.9	45.82	68.2	22.38	PK				
--	--	--	--	--	--	--	--	--				
Note:												
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK												
2, Result = Read level + Antenna factor + cable loss-Amp factor												
3, All the other emissions not reported were too low to read and deemed to comply with FCC limit.												

Note: According to KDB 789033, EIRP $[\text{dBm}] = \text{E} [\text{dBuV/m}] - 95.2$, thus, limit for 5150MHz band is $-27 + 95.2 = 68.2$ dBuV/m.

IEEE 802.11n HT20 CH High

Band Edge Test result													
EUT: Mini 802.11ac Wireless USB Adapter				M/N: U0631									
Power: DC 5V from USB Port													
Test date: 2016-10-22 Test site: 3m Chamber Tested by: Simple Guan													
Test mode: TX High													
Antenna polarity: Vertical													
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark					
5350	43.27	31.73	6.05	33.73	47.32	68.2	20.88	PK					
--	--	--	--	--	--	--	--	--					
Antenna Polarity: Horizontal													
5350	41.26	31.73	6.05	33.73	45.31	68.2	22.89	PK					
--	--	--	--	--	--	--	--	--					
Note:													
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK													
2, Result = Read level + Antenna factor + cable loss-Amp factor													
3, All the other emissions not reported were too low to read and deemed to comply with FCC limit.													

Note: According to KDB 789033, EIRP **【dBm】**=E **【dBuV/m】**-95.2, thus, limit for 5150MHz band is -27+95.2=68.2 dBuV/m.

IEEE 802.11n HT40 CH Low

Band Edge Test result													
EUT: Mini 802.11ac Wireless USB Adapter				M/N: U0631									
Power: DC 5V from USB Port													
Test date: 2016-10-22 Test site: 3m Chamber Tested by: Simple Guan													
Test mode: TX Low													
Antenna polarity: Vertical													
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(d B)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark					
5150	43.24	31.65	5.92	33.9	46.91	68.2	21.29	PK					
--	--	--	--	--	--	--	--	--					
Antenna Polarity: Horizontal													
5150	42.19	31.65	5.92	33.9	45.86	68.2	22.34	PK					
--	--	--	--	--	--	--	--	--					
Note:													
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK													
2, Result = Read level + Antenna factor + cable loss-Amp factor													
3, All the other emissions not reported were too low to read and deemed to comply with FCC limit.													

Note: According to KDB 789033, EIRP **【dBm】**=E **【dBuV/m】**-95.2, thus, limit for 5150MHz band is -27+95.2=68.2 dBuV/m.

IEEE 802.11n HT40 CH High

Band Edge Test result												
EUT: Mini 802.11ac Wireless USB Adapter					M/N: U0631							
Power: DC 5V from USB Port												
Test date: 2016-10-22 Test site: 3m Chamber Tested by: Simple Guan												
Test mode: TX High												
Antenna polarity: Vertical												
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark				
5350	43.79	31.73	6.05	33.73	47.84	68.2	20.36	PK				
--	--	--	--	--	--	--	--	--				
Antenna Polarity: Horizontal												
5350	42.36	31.73	6.05	33.73	46.41	68.2	21.79	PK				
--	--	--	--	--	--	--	--	--				
Note:												
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK												
2, Result = Read level + Antenna factor + cable loss-Amp factor												
3, All the other emissions not reported were too low to read and deemed to comply with FCC limit.												

Note: According to KDB 789033, EIRP $[\text{dBm}] = \text{E} [\text{dBuV/m}] - 95.2$, thus, limit for 5150MHz band is $-27 + 95.2 = 68.2$ dBuV/m.

IEEE 802.11ac

Band Edge Test result													
EUT: Mini 802.11ac Wireless USB Adapter				M/N: U0631									
Power: DC 5V from USB Port													
Test date: 2016-10-22 Test site: 3m Chamber Tested by: Simple Guan													
Test mode: TX Low													
Antenna polarity: Vertical													
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(d B)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark					
5150	43.16	31.65	5.92	33.9	46.83	68.2	21.37	PK					
5350	42.79	31.73	6.05	33.73	46.84	68.2	21.36	PK					
--	--	--	--	--	--	--	--	--					
Antenna Polarity: Horizontal													
5150	42.32	31.65	5.92	33.9	45.99	68.2	22.21	PK					
5350	42.54	31.73	6.05	33.73	46.59	68.2	21.61	PK					
--	--	--	--	--	--	--	--	--					
Note:													
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK													
2, Result = Read level + Antenna factor + cable loss-Amp factor													
3, All the other emissions not reported were too low to read and deemed to comply with FCC limit.													

Note: According to KDB 789033, EIRP **【dBm】** =E **【dBuV/m】** -95.2, thus, limit for 5150MHz band is -27+95.2=68.2 dBuV/m.

5.8G Band

Radiated Method:

IEEE 802.11a CH LOW

Band Edge Test result													
EUT: Mini 802.11ac Wireless USB Adapter				M/N: U0631									
Power: DC 5V from USB Port													
Test date: 2016-10-22 Test site: 3m Chamber Tested by: Simple Guan													
Test mode: TX Low													
Antenna polarity: Vertical													
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark					
5460	43.27	31.81	6.11	33.68	47.51	68.2	20.69	PK					
5725	43.16	32.17	6.26	33.58	48.01	68.2	20.19	PK					
--	--	--	--	--	--	--	--	--					
Antenna Polarity: Horizontal													
5460	41.86	31.81	6.11	33.68	46.1	68.2	22.1	PK					
5725	42.54	32.17	6.26	33.58	47.39	68.2	20.81	PK					
--	--	--	--	--	--	--	--	--					
Note:													
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK													
2, Result = Read level + Antenna factor + cable loss-Amp factor													
3, All the other emissions not reported were too low to read and deemed to comply with FCC limit.													

Note: According to KDB 789033, EIRP **【dBm】** = E **【dBuV/m】** -95.2, thus, limit for 5460MHz is -27+95.2=68.2 dBuV/m. Limit for 5725MHz is -17+95.2=78.2 dBuV/m.

IEEE 802.11a CH High

Band Edge Test result

EUT: Mini 802.11ac Wireless USB Adapter M/N: U0631

Power: DC 5V from USB Port

Test date: 2016-10-22 Test site: 3m Chamber Tested by: Simple Guan

Test mode: TX High

Antenna polarity: Vertical

Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(d B)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5850	42.57	32.5	6.33	33.64	47.76	68.2	20.44	PK
--	--	--	--	--	--	--	--	--

Antenna Polarity: Horizontal

5850	42.68	32.5	6.33	33.64	47.87	68.2	20.33	PK
--	--	--	--	--	--	--	--	--

Note:

1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK

2, Result = Read level + Antenna factor + cable loss-Amp factor

3, All the other emissions not reported were too low to read and deemed to comply with FCC limit.

Note: According to KDB 789033, EIRP 【dBm】 = E 【dBuV/m】 -95.2, thus, limit for 5460MHz is -27+95.2=68.2 dBuV/m. Limit for 5725MHz is -17+95.2=78.2 dBuV/m.

IEEE 802.11n HT20 CH Low

Band Edge Test result												
EUT: Mini 802.11ac Wireless USB Adapter					M/N: U0631							
Power: DC 5V from USB Port												
Test date: 2016-10-22 Test site: 3m Chamber Tested by: Simple Guan												
Test mode: TX Low												
Antenna polarity: Vertical												
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(d B)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark				
5460	41.36	31.81	6.11	33.68	45.6	68.2	22.6	PK				
5725	42.38	32.17	6.26	33.58	47.23	68.2	20.97	PK				
--	--	--	--	--	--	--	--	--				
Antenna Polarity: Horizontal												
5460	41.57	31.81	6.11	33.68	45.81	68.2	22.39	PK				
5725	42.36	32.17	6.26	33.58	47.21	68.2	20.99	PK				
--	--	--	--	--	--	--	--	--				
Note:												
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK												
2, Result = Read level + Antenna factor + cable loss-Amp factor												
3, All the other emissions not reported were too low to read and deemed to comply with FCC limit.												

Note: According to KDB 789033, EIRP 【dBm】 = E 【dBuV/m】 -95.2, thus, limit for 5460MHz is -27+95.2=68.2 dBuV/m. Limit for 5725MHz is -17+95.2=78.2 dBuV/m.

IEEE 802.11n HT20 CH High

Band Edge Test result													
EUT: Mini 802.11ac Wireless USB Adapter				M/N: U0631									
Power: DC 5V from USB Port													
Test date: 2016-10-22 Test site: 3m Chamber Tested by: Simple Guan													
Test mode: TX High													
Antenna polarity: Vertical													
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(d B)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark					
5850	43.06	32.5	6.33	33.64	48.25	68.2	19.95	PK					
--	--	--	--	--	--	--	--	--					
Antenna Polarity: Horizontal													
5850	42.57	32.5	6.33	33.64	47.76	68.2	20.44	PK					
--	--	--	--	--	--	--	--	--					
Note:													
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK													
2, Result = Read level + Antenna factor + cable loss-Amp factor													
3, All the other emissions not reported were too low to read and deemed to comply with FCC limit.													

Note: According to KDB 789033, EIRP **【dBm】** = E **【dBuV/m】** -95.2, thus, limit for 5460MHz is -27+95.2=68.2 dBuV/m. Limit for 5725MHz is -17+95.2=78.2 dBuV/m.

IEEE 802.11n HT40 CH Low

Band Edge Test result													
EUT: Mini 802.11ac Wireless USB Adapter				M/N: U0631									
Power: DC 5V from USB Port													
Test date: 2016-10-22 Test site: 3m Chamber Tested by: Simple Guan													
Test mode: TX Low													
Antenna polarity: Vertical													
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(d B)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark					
5460	41.38	31.81	6.11	33.68	45.62	68.2	22.58	PK					
5725	43.22	32.17	6.26	33.58	48.07	68.2	20.13	PK					
--	--	--	--	--	--	--	--	--					
Antenna Polarity: Horizontal													
5460	41.57	31.81	6.11	33.68	45.81	68.2	22.39	PK					
5725	43.24	32.17	6.26	33.58	48.09	68.2	20.11	PK					
--	--	--	--	--	--	--	--	--					
Note:													
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK													
2, Result = Read level + Antenna factor + cable loss-Amp factor													
3, All the other emissions not reported were too low to read and deemed to comply with FCC limit.													

Note: According to KDB 789033, EIRP **【dBm】** = E **【dBuV/m】** -95.2, thus, limit for 5460MHz is -27+95.2=68.2 dBuV/m. Limit for 5725MHz is -17+95.2=78.2 dBuV/m.

IEEE 802.11n HT40 CH High

Band Edge Test result												
EUT: Mini 802.11ac Wireless USB Adapter					M/N: U0631							
Power: DC 5V from USB Port												
Test date: 2016-10-22 Test site: 3m Chamber Tested by: Simple Guan												
Test mode: TX High												
Antenna polarity: Vertical												
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(d B)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark				
5850	42.53	32.5	6.33	33.64	47.72	68.2	20.48	PK				
--	--	--	--	--	--	--	--	--				
Antenna Polarity: Horizontal												
5850	42.31	32.5	6.33	33.64	47.5	68.2	20.7	PK				
--	--	--	--	--	--	--	--	--				
Note:												
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK												
2, Result = Read level + Antenna factor + cable loss-Amp factor												
3, All the other emissions not reported were too low to read and deemed to comply with FCC limit.												

Note: According to KDB 789033, EIRP 【dBm】 = E 【dBuV/m】 -95.2, thus, limit for 5460MHz is -27+95.2=68.2 dBuV/m. Limit for 5725MHz is -17+95.2=78.2 dBuV/m.

IEEE 802.11ac

Band Edge Test result												
EUT: Mini 802.11ac Wireless USB Adapter				M/N: U0631								
Power: DC 5V from USB Port												
Test date: 2016-10-22				Test site: 3m Chamber				Tested by: Simple Guan				
Test mode: TX Low												
Antenna polarity: Vertical												
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(d B)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark				
5460	42.54	31.81	6.11	33.68	46.78	68.2	21.42	PK				
5725	43.47	32.17	6.26	33.58	48.32	68.2	19.88	PK				
5850	43.24	32.5	6.33	33.64	48.43	68.2	19.77	PK				
--	--	--	--	--	--	--	--	--				
Antenna Polarity: Horizontal												
5460	41.54	31.81	6.11	33.68	45.78	68.2	22.42	PK				
5725	42.39	32.17	6.26	33.58	47.24	68.2	20.96	PK				
5850	43.05	32.5	6.33	33.64	48.24	68.2	19.96	PK				
--	--	--	--	--	--	--	--	--				
Note:												
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK												
2, Result = Read level + Antenna factor + cable loss-Amp factor												
3, All the other emissions not reported were too low to read and deemed to comply with FCC limit.												

Note: According to KDB 789033, EIRP **【dBm】** = E **【dBuV/m】** -95.2, thus, limit for 5460MHz is -27+95.2=68.2 dBuV/m. Limit for 5725MHz is -17+95.2=78.2 dBuV/m.

11 Frequency stability

11.1 Test limit

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the users manual.

11.2 Result

EUT: Mini 802.11ac Wireless USB Adapter M/N: U0631							
Power: DC 5V from USB Port							
Ambient Temperature:23°C	Relative Humidity: 60%						
Test date: 2016-10-22	Test site: RF site		Tested by: Simple Guan				
Conclusion: PASS							
Mode	Voltage (V)	FH _L (5180MHz)	Deviation (KHz)	FH _H (5240MHz)	Deviation (KHz)		
5.2G Band	132 V	5179.980	20	5239.980	20		
	120 V	5179.980	20	5239.980	20		
	108 V	5179.980	20	5239.980	20		
5.8G Band	Voltage (V)	FHL (5745MHz)	Deviation (KHz)	FHH (5825MHz)	Deviation (KHz)		
	132 V	5744.975	25	5824.975	25		
	120 V	5744.975	25	5824.975	25		
	108 V	5744.975	25	5824.975	25		

Mode	Temperature (°C)	FH _L (5180MHz)	Deviation (KHz)	FH _H (5240MHz)	Deviation (KHz)
5.2G Band	-30	5179.935	65	5239.964	36
	-20	5179.941	59	5239.943	57
	-10	5179.956	44	5239.952	48
	0	5179.937	63	5239.966	34
	10	5179.968	32	5239.971	29
	20	5179.954	46	5239.959	41
	30	5179.961	39	5239.946	54
	40	5179.967	33	5239.943	57
	50	5179.968	32	5239.958	42
5.8G Band	Temperature (°C)	FH _L (5745MHz)	Deviation (KHz)	FH _H (5825MHz)	Deviation (KHz)
	-30	5744.961	39	5824.947	53
	-20	5744.957	43	5824.936	64
	-10	5744.949	51	5824.957	43
	0	5744.957	43	5824.949	51
	10	5744.949	51	5824.962	38
	20	5744.961	39	5824.957	43
	30	5744.951	49	5824.968	32
	40	5744.962	38	5824.959	41
	50	5744.958	42	5824.945	55

12 Antenna Requirement

12.1 Standard Requirement

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

12.2 Antenna Connected Construction

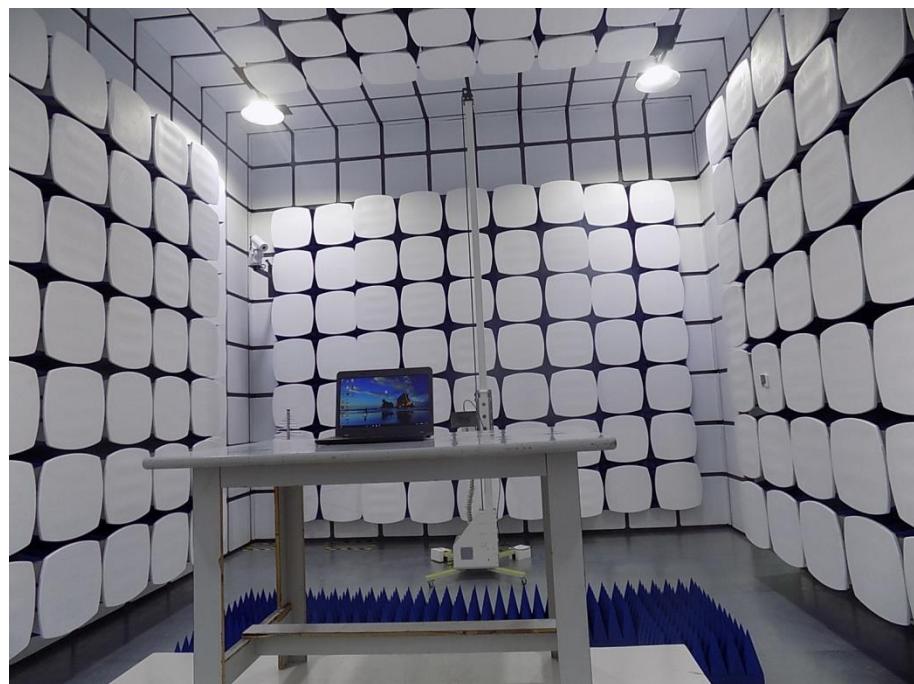
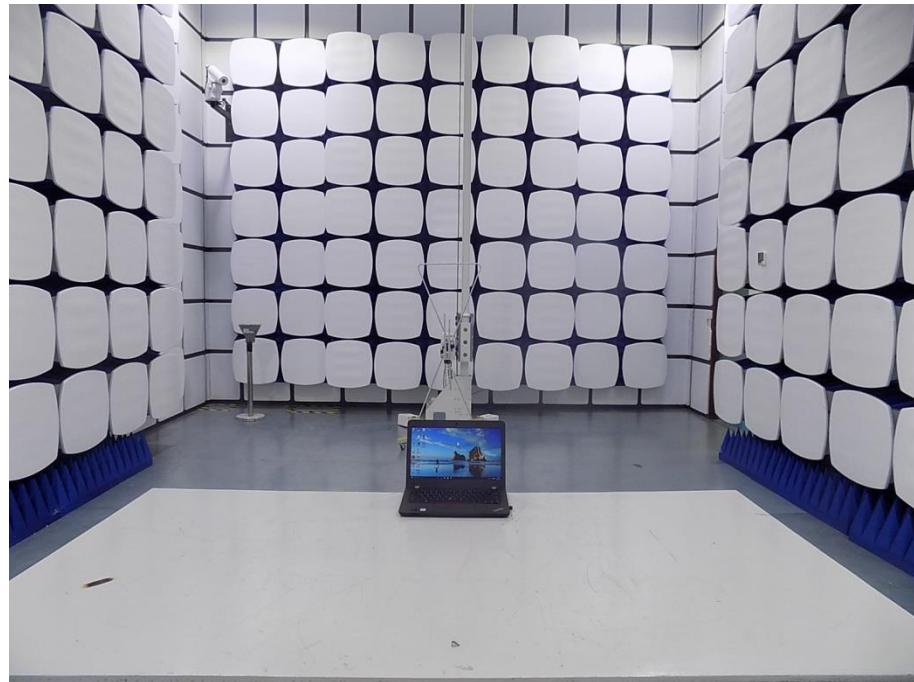
The antenna connector is unique antenna and no consideration of replacement. Please see EUT photo for details.

12.3 Result

The EUT antenna is unique Antenna. It comply with the standard requirement.

13 Test setup photo

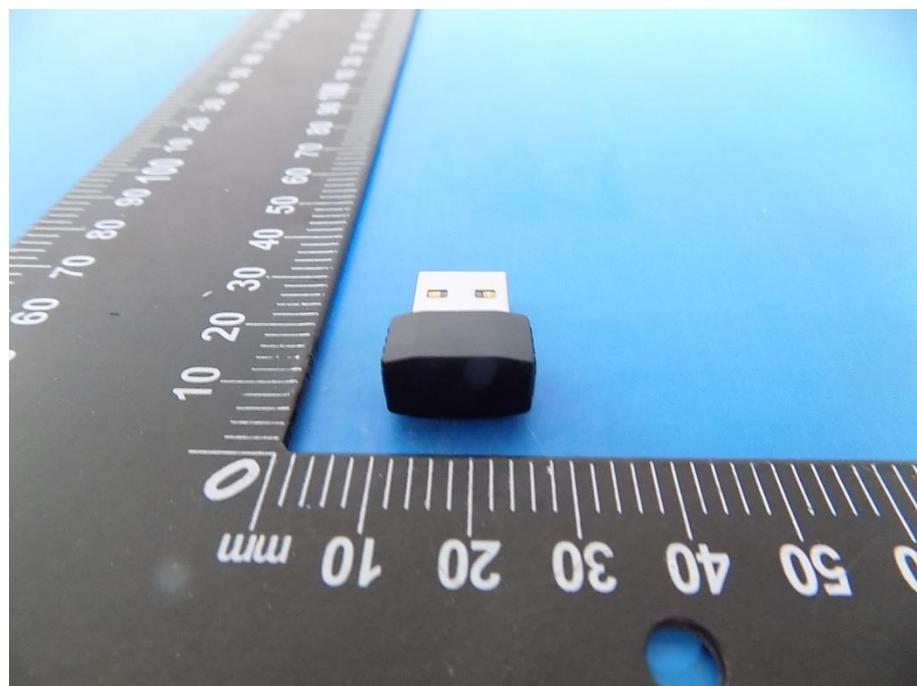
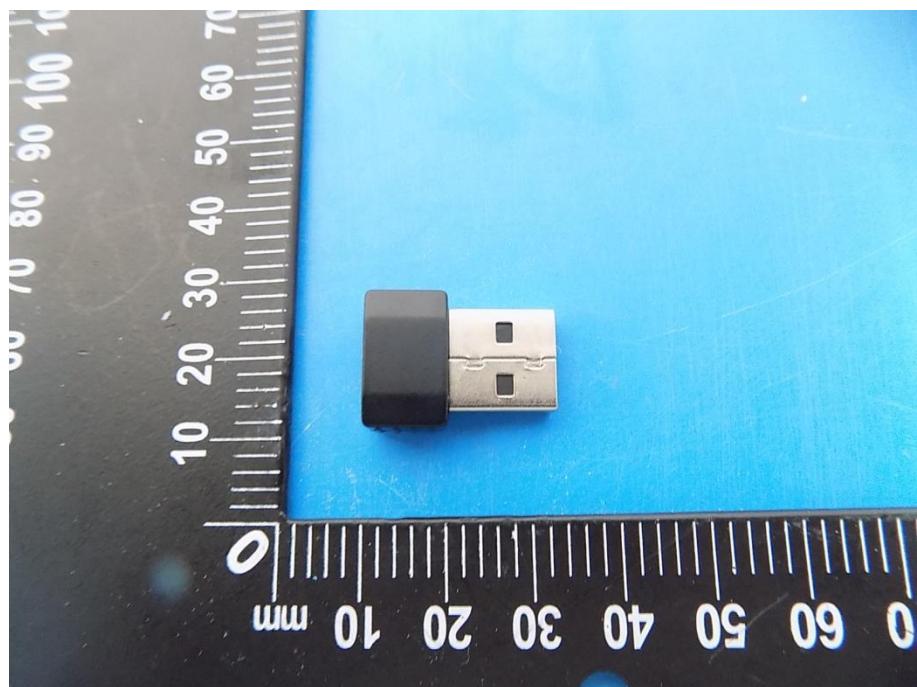
13.1 Photos of Radiated emission

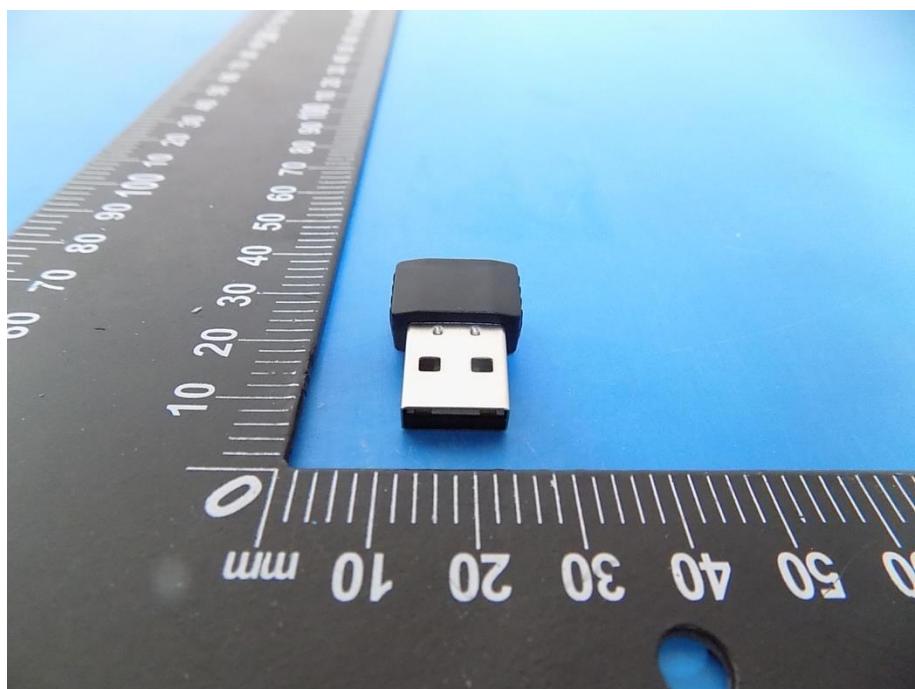
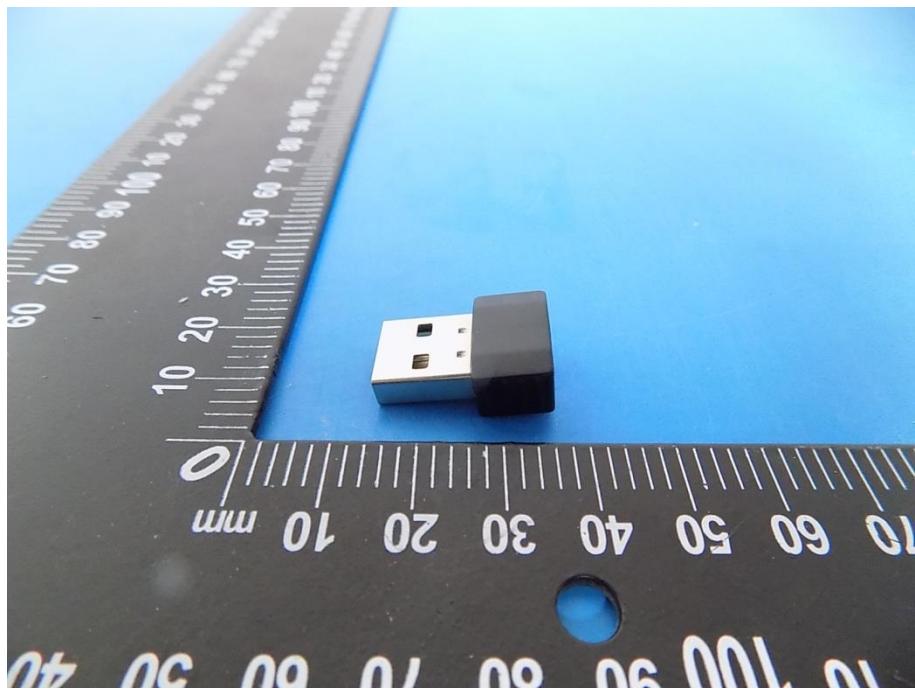


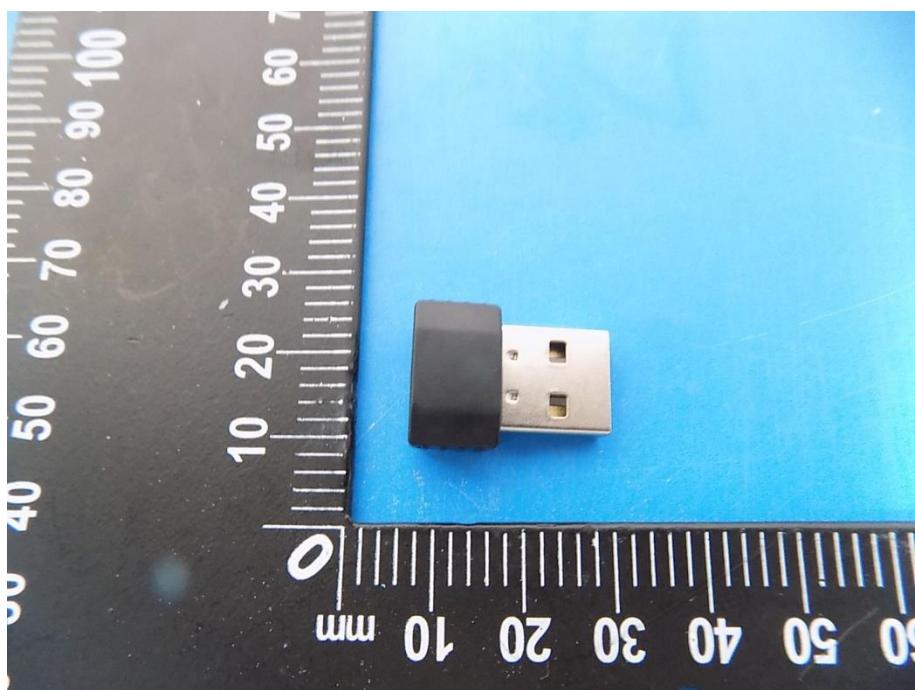
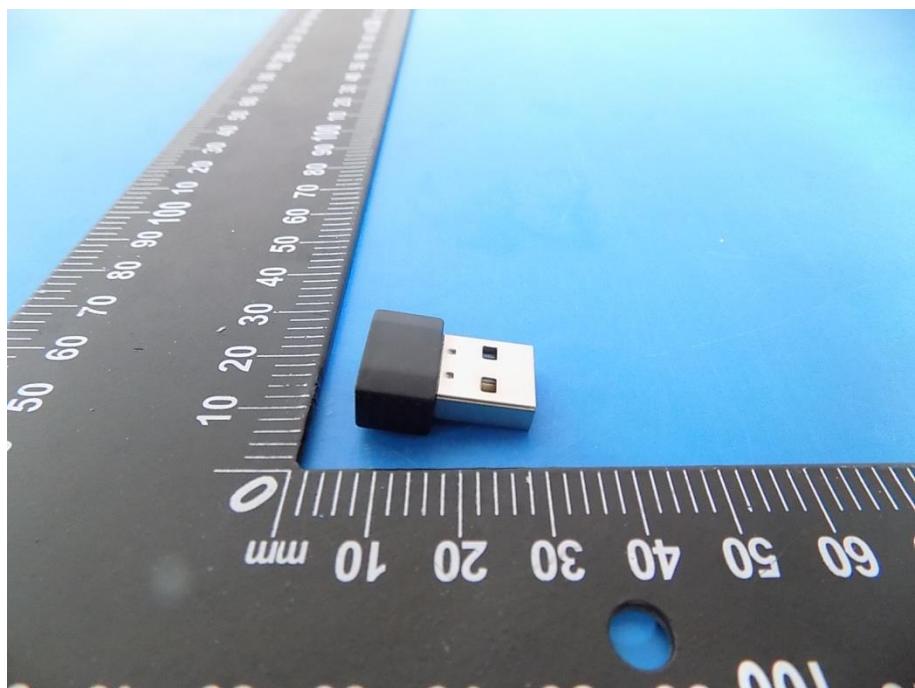
13.2 Photos of Conducted Emission test

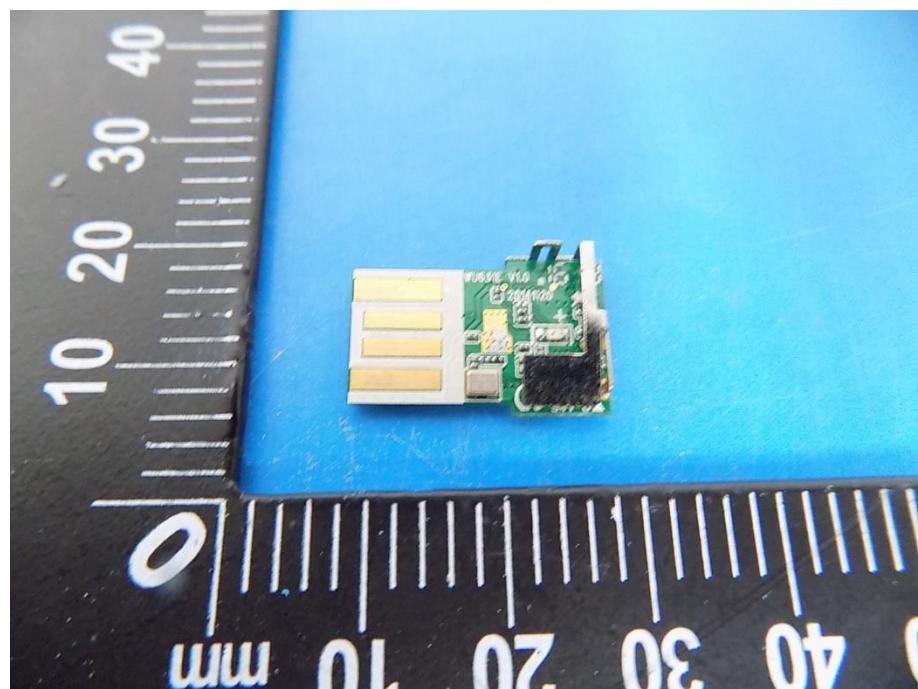
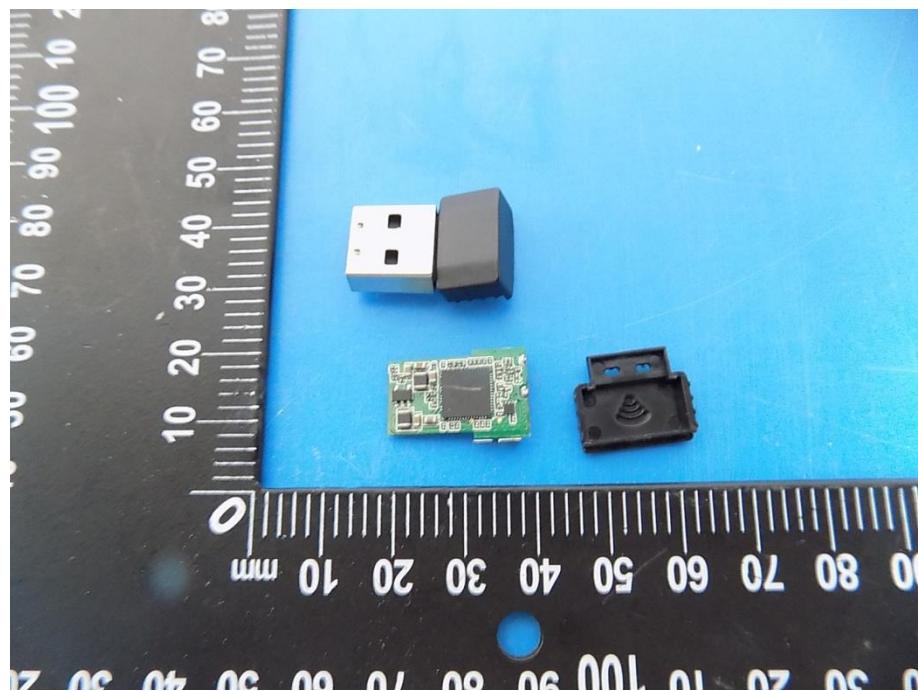


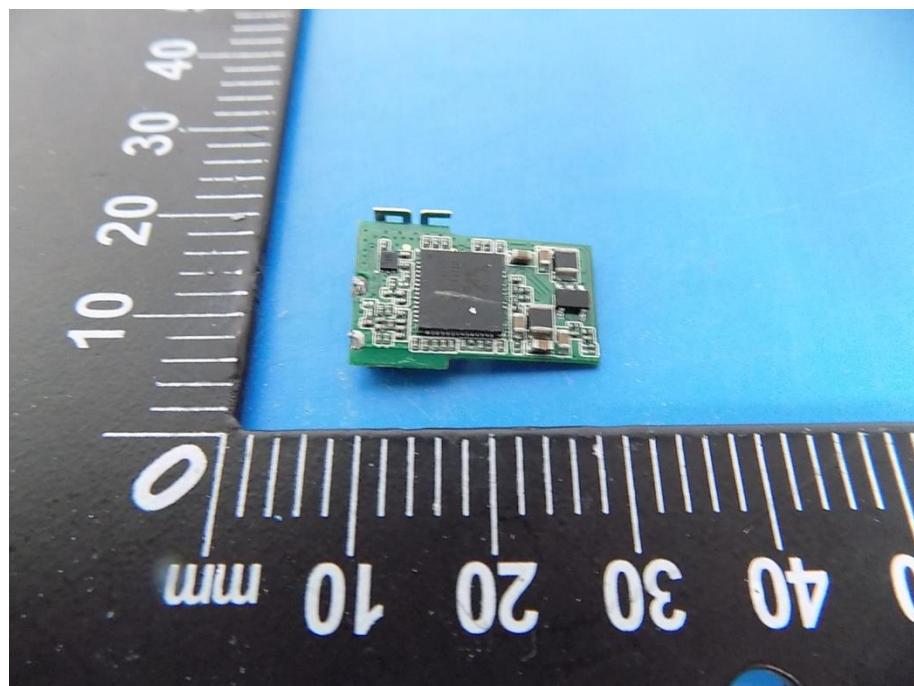
14 Photographs of EUT











-----END OF THE REPORT-----