FCC TEST REPORT

Test report

On Behalf of

Pronto Networks, Inc

For

Pronto Intelligent Access Point

Model No.: PIAP-11N-S5-24O, PPAP-11N-S5-24O,

PIAP-11N-S5-48O, PPAP-11N-S5-48O

FCC ID: TVV-PIAP

Prepared for :	**Pronto Networks, Inc** **1966 Tice Valley Blvd #411 Walnut Creek, CA 94595**
Prepared By :	**Shenzhen WST Testing Technology Co., Ltd.** **1F,No.9 Building,TGK Science & Technology Park,Yangtian Rd., NO.72 Bao'an Dist., Shenzhen,Guangdong,China. 518101**
Date of Test:	**August 05-18, 2015**
Date of Report:	**August 18, 2015**
Report Number:	**WST20150812008**

TEST RESULT CERTIFICATION

Applicant's name.....:	Pronto Networks, Inc
Address .....:	1966 Tice Valley Blvd #411 Walnut Creek, CA 94595
Manufacture's Name.....:	Shenzhen Yunlink Technology Co., Ltd
Address .....:	B2 Building, An'le Industrial Zone, Hangcheng Road, gushu, xixiang town, Baoan, Shenzhen Guangdong Province China

Product description

Trade Mark:	Pronto
Product name .....:	Pronto Intelligent Access Point
Model and/or type reference .....:	PIAP-11N-S5-24O, PPAP-11N-S5-24O, PIAP-11N-S5-48O, PPAP-11N-S5-48O
Standards.....:	FCC CFR47 Part 15 C Section 15.407:2014 ANSI C63.4: 2009

Date of Test.....:	
Date (s) of performance of tests.....:	August 05-18, 2015
Date of Issue .....:	August 18, 2015
Test Result .....:	**Pass**

Testing Engineer : Eric Xie

(Eric Xie)

Technical Manager : Dora Qin

(Dora Qin)

Authorized Signatory : Kait Chen

(Kait Chen)

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1. TEST SUMMARY

Test Items	Test Requirement	Result
Conducted Emissions	15.207(a)	PASS
Radiated Emissions	15.407(a) 15.205(a) 15.209(a)	PASS
Duty Cycle	KDB 789033	--
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	15.407(a)	PASS
Antenna Requirement	15.203	PASS

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Product Name：	Pronto Intelligent Access Point
Model No.：	PIAP-11N-S5-24O, PPAP-11N-S5-24O, PIAP-11N-S5-48O, PPAP-11N-S5-48O
Operation Frequency：	IEEE 802.11a/ n(HT20/40)/ac(HT20/40): 5150MHz to 5250MHz IEEE 802.11a/ n(HT20/40)/ac(HT20/40): 5725MHz to 5850MHz
The Lowest Oscillator：	40MHz
Antenna Gain：	5 dBi
Type of modulation：	IEEE for 802.11a: OFDM(BPSK/QPSK/16QAM/64QAM) IEEE for 802.11n : OFDM(BPSK/QPSK/16QAM/64QAM) IEEE for 802.11ac : OFDM (BPSK/QPSK/16QAM/64QAM/256QAM)
Number of transmitter chains：	1

2.2 Details of E.U.T.

Technical Data：	Input: AC 100-240V,50/60Hz, 0.8A(Adapter) Output: DC 24V, 1A

2.3 Channel List

Band I (5.15-5.25GHz)		Band IV (5.725-5.85GHz)	
channel	Frequency(MHz)	channel	Frequency(MHz)
36	5180	149	5745
38	5190	151	5755
40	5200	153	5765
42	5210	155	5775
44	5220	157	5785
46	5230	159	5795
48	5240	161	5805
		165	5825

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

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

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

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

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

2.4 Test Facility

The test facility has a test site registered with the following organizations:

- **FCC Test – Registration**

Test Firm : Shenzhen WST Testing Technology Co., Ltd.
Certificated by FCC, Registration No.: 939433
Address : 1F, No.9 Building, TGK Science & Technology Park, Yangtian Rd., NO.72 Bao'an Dist., Shenzhen, Guangdong, China. 518101
Tel : (86)755-33916437
Fax : (86)755-2782 2175

3. Equipment Used during Test

3.1 Equipments List

Conducted Emissions						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1.	EMI Test Receiver	R&S	ESCI	101155	Apr.19,2015	Apr.18,2016
2.	LISN	SCHWARZBECK	NSLK 8128	8128-289	Apr.19,2015	Apr.18,2016
3.	Limiter	York	MTS-IMP-136	261115-001-0024	Apr.19,2015	Apr.18,2016
4.	Cable	LARGE	RF300	-	Apr.19,2015	Apr.18,2016
3m Semi-anechoic Chamber for Radiation Emissions						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1	EMC Analyzer	Agilent	E7405A	MY45114943	Apr.19,2015	Apr.18,2016
2	Active Loop Antenna	Beijing Dazhi	ZN30900A	-	Apr.19,2015	Apr.18,2016
3	Trilog Broadband Antenna	SCHWARZBECK	VULB9163	336	Apr.19,2015	Apr.18,2016
4	Coaxial Cable (below 1GHz)	Top	TYPE16(13M)	-	Apr.19,2015	Apr.18,2016
5	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9120 D	667	Apr.19,2015	Apr.18,2016
6	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9170	335	Apr.19,2015	Apr.18,2016
7	Broadband Preamplifier	COMPLIANCE DIRECTION	PAP-1G18	2004	Apr.19,2015	Apr.18,2016
8	Coaxial Cable (above 1GHz)	Top	1GHz-25GHz	EW02014-7	Apr.10,2015	Apr.09,2016
RF Conducted Testing						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration**	**Calibration Due Date**
1.	EMC Analyzer	Agilent	E7405A	MY45114943	Sep.15,2014	Sep.14,2015
2.	Spectrum Analyzer	R&S	FSL6	100959	Sep.15,2014	Sep.14,2015
3.	Signal Analyzer	Agilent	N9010A	MY50520207	Sep.15,2014	Sep.14,2015

3.2 Description of Support Units

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

3.3 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)

3.4 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.

4. CONDUCTED EMISSION

Test Requirement:	FCC CFR 47 Part 15 Section 15.207
Test Method:	ANSI C63.4:2003
Test Result:	PASS
Frequency Range:	150kHz to 30MHz
Class/Severity:	Class B
Limit:	66-56 dBμV between 0.15MHz & 0.5MHz 56 dBμV between 0.5MHz & 5MHz 60 dBμV between 5MHz & 30MHz
Detector:	Peak for pre-scan (9kHz Resolution Bandwidth)

4.1 E.U.T. Operation

Operating Environment **:**

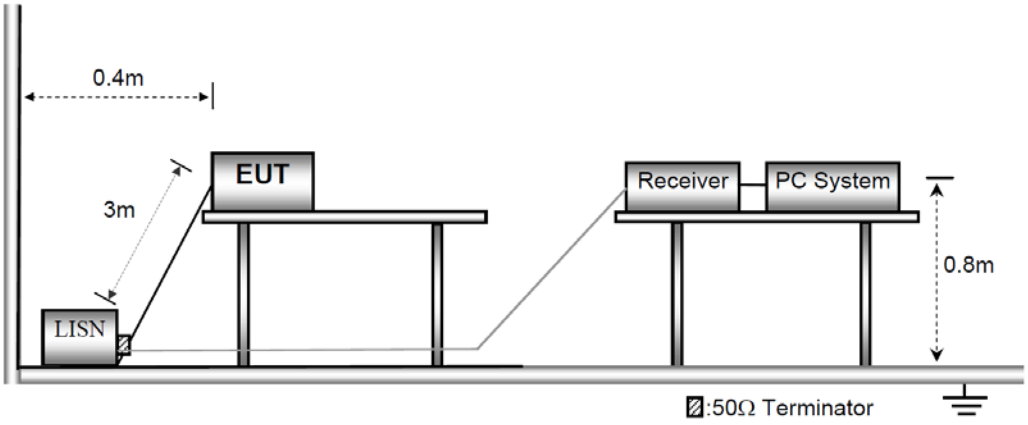
Temperature:	21.5℃
Humidity:	51.9 % RH
Atmospheric Pressure:	101.2kPa

EUT Operation **:**

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

4.2 EUT Setup

The conducted emission tests were performed using the setup accordance with the ANSI C63.4:2003.



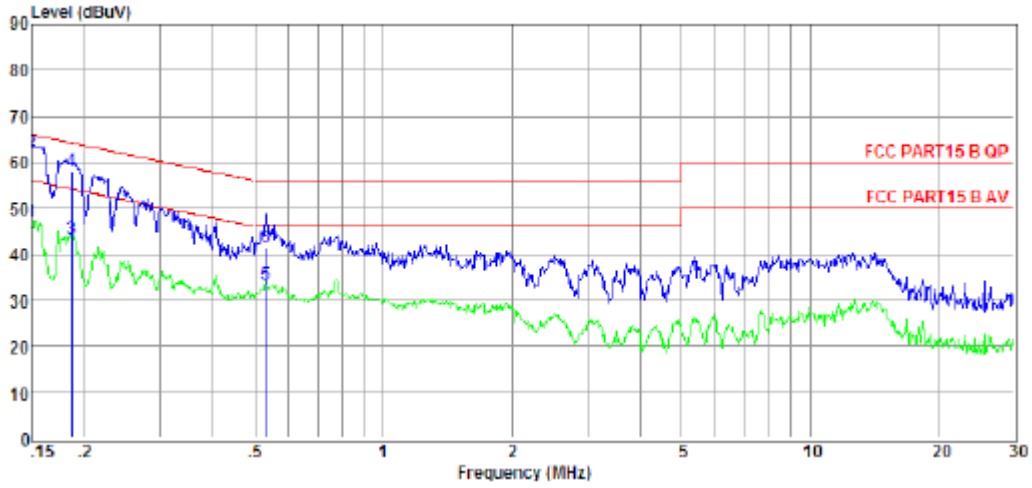
4.3 Measurement Description

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

4.4 Conducted Emission Test Result

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

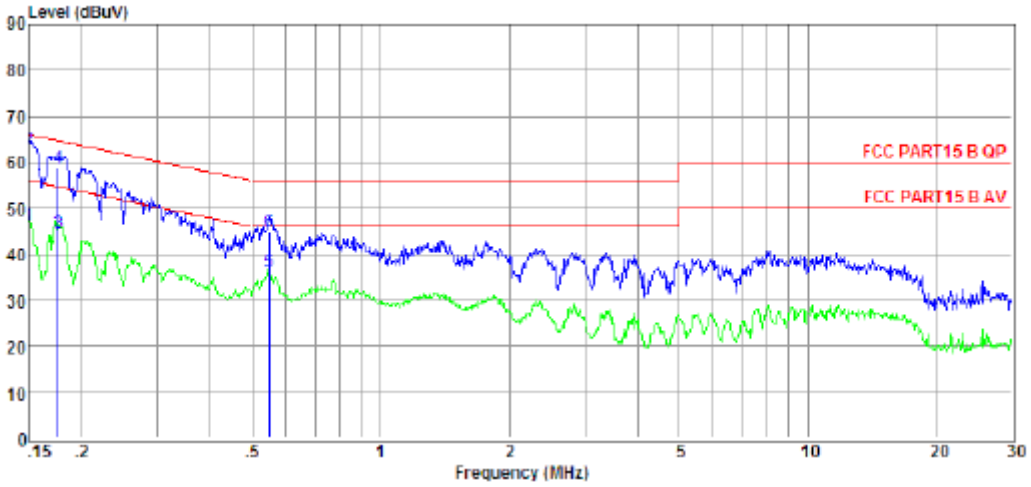
Live line:



Item (Mark)	Freq (MHz)	Read Level (dBµV)	LISN Factor (dB)	Cable Loss (dB)	Pulse Limiter Factor (dB)	Result Level (dBµV)	Limit Line (dBµV)	Over Limit (dB)	Detector	Phase
1	0.15	27.56	9.61	0.01	9.84	47.02	56.00	-8.98	Average	LINE
2	0.15	42.80	9.61	0.01	9.84	62.26	66.00	-3.74	QP	LINE
3	0.19	23.83	9.62	0.02	9.85	43.32	54.20	-10.88	Average	LINE
4	0.19	38.68	9.62	0.02	9.85	58.17	64.20	-6.03	QP	LINE
5	0.53	13.98	9.63	0.04	9.87	33.52	46.00	-12.48	Average	LINE
6	0.53	21.87	9.63	0.04	9.87	41.41	56.00	-14.59	QP	LINE

Note: 1. Result Level = Read Level +LISN Factor + Pulse Limiter Factor + Cable loss.
2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 200 Hz (9 kHz—150 kHz), 9 kHz (150 kHz—30 MHz), Step size: 4 kHz, Scan time: auto.

Neutral line:



Item (Mark)	Freq (MHz)	Read Level (dBμV)	LISN Factor (dB)	Cable Loss (dB)	Pulse Limiter Factor (dB)	Result Level (dBμV)	Limit Line (dBμV)	Over Limit (dB)	Detector	Phase
1	0.15	27.03	9.60	0.01	9.84	46.48	56.00	-9.52	Average	NEUTRAL
2	0.15	43.20	9.60	0.01	9.84	62.65	66.00	-3.35	QP	NEUTRAL
3	0.18	25.08	9.59	0.02	9.85	44.54	54.68	-10.14	Average	NEUTRAL
4	0.18	39.27	9.59	0.02	9.85	58.73	64.68	-5.95	QP	NEUTRAL
5	0.55	16.80	9.61	0.04	9.86	36.31	46.00	-9.69	Average	NEUTRAL
6	0.55	25.27	9.61	0.04	9.86	44.78	56.00	-11.22	QP	NEUTRAL

Note: 1. Result Level = Read Level +LISN Factor + Pulse Limiter Factor + Cable loss.
2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 200 Hz (9 kHz—150 kHz), 9 kHz (150 kHz—30 MHz), Step size: 4 kHz, Scan time: auto.

5. Unwanted Emissions Measurement

Test Requirement: FCC CFR47 Part 15 Section 15.407 & 15.209 & 15.205

Test Method: KDB 789033 D02 v01

Test Result: PASS

Measurement Distance: 3m

Limit:

According to FCC part 15.407(b)Except as shown in paragraph(b)(7)of this section, the maximum emissions Outside of the frequency band of operation shall be attenuated in accordance with the following limit

Frequency (MHz)	EIRP Limit (dBm)	Equivalent Field Strength at 3m (dBμV/m)
5150-5250	-27	68.3
5250-5350	-27	68.3
5470-5725	-27	68.3
5725-5850	-27 (beyond 10MHz of the bandedge)	68.3
	-17 (within 10 MHz of band edge)	78.3

Frequency (MHz)	Distance (Meters)	Radiated (dBμV/m)	Radiated (μV/m)
0.009-0.49	3	20log(2400/F(KHz))+40log(300/3)	2400/F(KHz)
0.49-1.705	3	20log(24000/F(KHz))+ 40log(30/3)	24000/F(KHz)
1.705-30	3	20log(30)+ 40log(30/3)	30
30-88	3	40.0	100
88-216	3	43.5	150
216-960	3	46.0	200
Above 960	3	54.0	500

5.1 EUT Operation

Operating Environment **:**

Temperature: 23.5 °C

Humidity: 52.1 % RH

Atmospheric Pressure: 101.2kPa

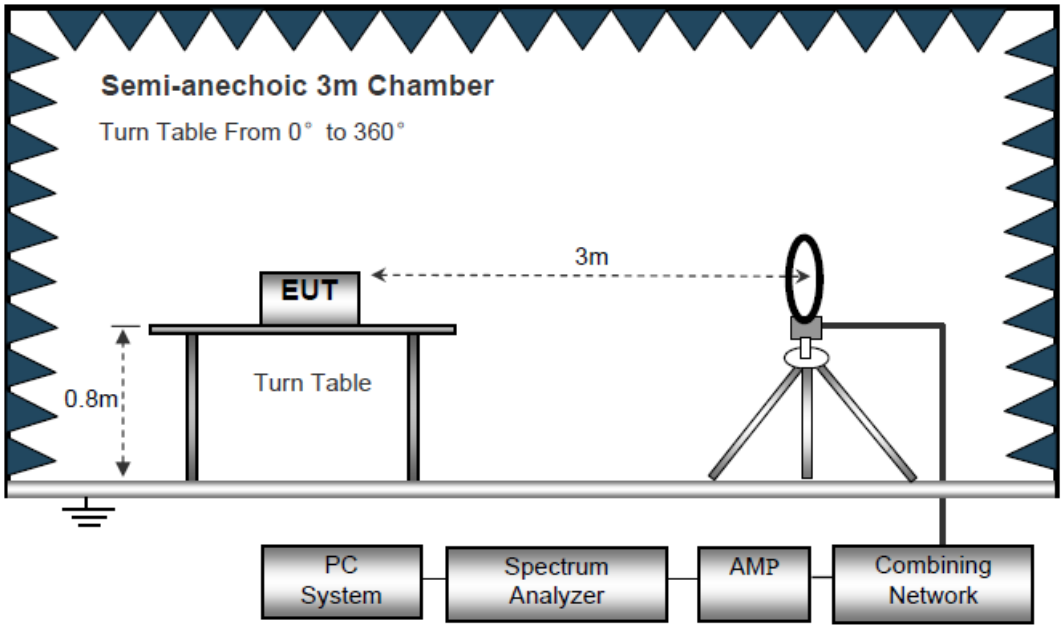
EUT Operation **:**

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

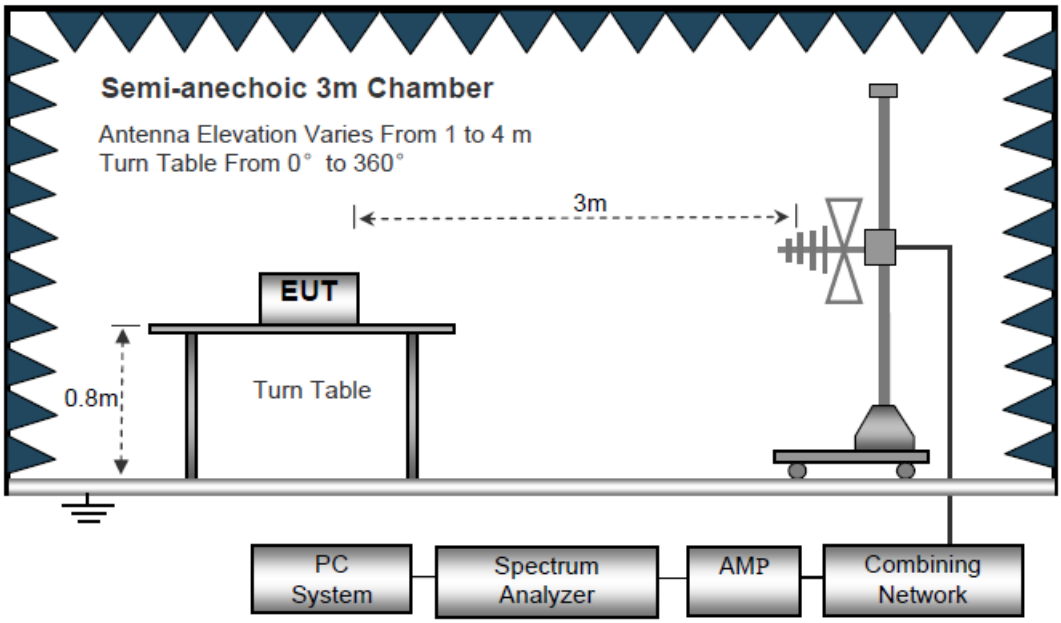
5.2 Test Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the ANSI C63.4: 2003.

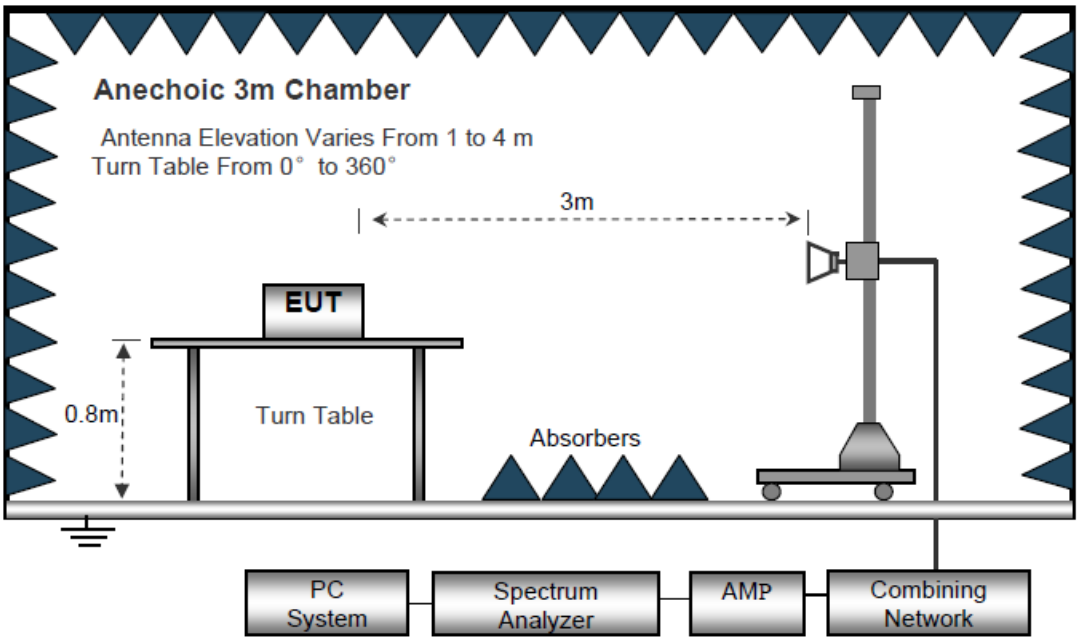
The test setup for emission measurement below 30MHz.



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



The test setup for emission measurement above 1 GHz.



5.3 Test Procedures

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01. Section G) Unwanted emissions measurement.

(1) Procedure for Unwanted Emissions Measurements Below 1000MHz

• RBW = 120 kHz
• VBW = 300 kHz
• Detector = Peak
• Trace mode = max hold

(2) Procedure for Peak Unwanted Emissions Measurements Above 1000 MHz

• RBW = 1 MHz
• VBW ≥ 3 MHz
• Detector = Peak
• Sweep time = auto
• Trace mode = max hold

(3) Procedures for Average Unwanted Emissions Measurements Above 1000MHz

• RBW = 1 MHz
• VBW = 10 Hz, when duty cycle is no less than 98 percent.
• VBW ≥ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum

2. The EUT is placed on a turntable, which is 0.8m above ground plane.

3. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.

4. EUT is set 3m away from the receiving antenna, which is moved from 1m to 4m to find out the maximum emissions.

5. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.

6. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.

7. Repeat above procedures until the measurements for all frequencies are complete.

8. 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.

9. A 5.8GHz high –pass filter is used druing radiated emissions above 1GHz measurement.

5.4 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

5.5 Summary of Test Results

For 30MHz-40GHz

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 band I Low Channel 5180MHz									
200.15	22.75	PK	175	1	H	11.12	33.87	43.5	-9.63
200.15	20.23	PK	139	1	V	11.13	31.36	43.5	-12.14
5086.23	49.33	PK	329	1	V	0.09	49.42	74	-24.58
5086.23	42.15	Ave	329	1	V	0.09	42.24	54	-11.76
10362	45.14	PK	306	1.2	H	4.13	49.27	74	-24.73
10362	44.83	Ave	306	1.2	H	4.13	48.96	54	-5.04
2330.6	45.53	PK	300	1.9	V	-13.19	32.34	74	-41.66
2330.6	37.7	Ave	300	1.9	V	-13.19	24.51	54	-29.49
2357	44.89	PK	131	1.9	H	-13.14	31.75	74	-42.25
2357	37.93	Ave	131	1.9	H	-13.14	24.79	54	-29.21
3373.87	43.64	PK	123	1.6	V	-9.08	34.56	74	-39.44
3373.87	37.34	Ave	123	1.6	V	-9.08	28.26	54	-25.74

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 band I middle channel 5200MHz									
200.12	21.87	PK	72.00	1.90	H	11.13	33.00	43.50	-10.50
200.12	19.23	PK	65.00	1.10	V	11.13	30.36	43.50	-13.14
5103.32	48.34	PK	12.00	1.90	V	-0.62	47.72	74.00	-26.28
5103.56	43.34	Ave	12.00	1.90	V	-0.62	42.72	54.00	-11.28
10400.00	45.41	PK	231.00	1.80	H	4.26	49.67	74.00	-24.33
10400.00	44.65	Ave	231.00	1.80	H	4.26	48.91	54.00	-5.09
2314.23	46.55	PK	12.00	1.40	V	-13.19	33.36	74.00	-40.64
2314.12	38.34	Ave	12.00	1.40	V	-13.19	25.15	54.00	-28.85
2372.23	42.58	PK	203.00	1.90	H	-13.14	29.44	74.00	-44.56
2372.23	36.54	Ave	203.00	1.90	H	-13.14	23.40	54.00	-30.60
3348.53	43.34	PK	300.00	1.70	V	-9.08	34.26	74.00	-39.74
3348.53	36.28	Ave	300.00	1.70	V	-9.08	27.20	54.00	-26.80

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 band I High channel 5240MHz									
201.03	25.23	PK	237.00	1.50	H	11.13	36.36	43.50	-7.14
201.03	18.23	PK	230.00	1.40	V	11.13	29.36	43.50	-14.14
5096.56	49.88	PK	26.00	1.60	V	-0.24	49.64	74.00	-24.36
5096.56	43.00	Ave	26.00	1.60	V	-0.24	42.76	54.00	-11.24
10480.00	46.40	PK	273.00	1.60	H	4.38	50.78	74.00	-23.22
10480.00	44.96	Ave	273.00	1.60	H	4.38	49.34	54.00	-4.66
2340.22	45.81	PK	109.00	1.30	V	-13.19	32.62	74.00	-41.38
2340.23	38.58	Ave	109.00	1.30	V	-13.19	25.39	54.00	-28.61
2383.49	44.32	PK	237.00	1.80	H	-13.14	31.18	74.00	-42.82
2383.49	37.31	Ave	237.00	1.80	H	-13.14	24.17	54.00	-29.83
3367.76	43.15	PK	147.00	1.40	V	-9.08	34.07	74.00	-39.93
3367.76	37.65	Ave	147.00	1.40	V	-9.08	28.57	54.00	-25.43

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 band IV low Channel 5745MHz									
200.03	22.74	PK	348.00	2.00	H	11.13	33.87	43.50	-9.63
200.03	20.28	PK	205.00	1.20	V	11.13	31.41	43.50	-12.09
5085.86	49.33	PK	354.00	1.90	V	0.09	49.42	74.00	-24.58
5085.86	42.15	Ave	354.00	1.90	V	0.09	42.24	54.00	-11.76
11490.00	42.17	PK	308.00	1.40	H	6.02	48.19	74.00	-25.81
11490.00	41.79	Ave	308.00	1.40	H	6.02	47.81	54.00	-6.19
2329.64	46.90	PK	316.00	1.40	V	-13.19	33.71	74.00	-40.29
2329.64	37.13	Ave	316.00	1.40	V	-13.19	23.94	54.00	-30.06
2352.49	44.54	PK	25.00	1.30	H	-13.14	31.40	74.00	-42.60
2352.49	38.40	Ave	25.00	1.30	H	-13.14	25.26	54.00	-28.74
3358.65	43.93	PK	35.00	1.60	V	-9.08	34.85	74.00	-39.15
3358.65	37.73	Ave	35.00	1.60	V	-9.08	28.65	54.00	-25.35

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 band IV middle channel 5785MHz									
200.03	24.10	PK	270.00	1.90	H	11.13	35.23	43.50	-8.27
200.03	21.32	PK	304.00	1.50	V	11.13	32.45	43.50	-11.05
5082.80	50.16	PK	32.00	1.10	V	-0.62	49.54	74.00	-24.46
5082.80	42.63	Ave	32.00	1.10	V	-0.62	42.01	54.00	-11.99
11570.00	43.64	PK	3.00	1.30	H	6.11	49.75	74.00	-24.25
11570.00	42.58	Ave	3.00	1.30	H	6.11	48.69	54.00	-5.31
2333.33	45.34	PK	164.00	1.90	V	-13.19	32.15	74.00	-41.85
2333.33	39.96	Ave	164.00	1.90	V	-13.19	26.77	54.00	-27.23
2373.77	42.72	PK	244.00	1.30	H	-13.14	29.58	74.00	-44.42
2373.77	37.85	Ave	244.00	1.30	H	-13.14	24.71	54.00	-29.29
3373.57	43.01	PK	211.00	1.30	V	-9.08	33.93	74.00	-40.07
3373.57	37.62	Ave	211.00	1.30	V	-9.08	28.54	54.00	-25.46

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 band IV High channel 5825MHz									
200.03	23.62	PK	4.00	1.00	H	11.13	34.75	43.50	-8.75
200.03	19.65	PK	307.00	1.90	V	11.13	30.78	43.50	-12.72
5089.32	48.72	PK	81.00	1.50	V	-0.24	48.48	74.00	-25.52
5089.32	42.43	Ave	81.00	1.50	V	-0.24	42.19	54.00	-11.81
11650.00	40.91	PK	84.00	1.20	H	6.13	47.04	74.00	-26.96
11650.00	39.67	Ave	84.00	1.20	H	6.13	45.80	54.00	-8.20
2317.58	45.84	PK	237.00	1.50	V	-13.19	32.65	74.00	-41.35
2317.58	39.77	Ave	237.00	1.50	V	-13.19	26.58	54.00	-27.42
2386.13	44.88	PK	325.00	1.10	H	-13.14	31.74	74.00	-42.26
2386.13	36.30	Ave	325.00	1.10	H	-13.14	23.16	54.00	-30.84
3355.41	43.25	PK	337.00	1.50	V	-9.08	34.17	74.00	-39.83
3355.41	36.47	Ave	337.00	1.50	V	-9.08	27.39	54.00	-26.61

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) band I low Channel 5180MHz									
200.03	22.23	PK	11.00	1.10	H	11.13	33.36	43.50	-10.14
200.03	21.31	PK	242.00	1.40	V	11.13	32.44	43.50	-11.06
5101.06	49.34	PK	271.00	1.10	V	0.09	49.43	74.00	-24.57
5101.06	42.15	Ave	271.00	1.10	V	0.09	42.24	54.00	-11.76
10360.00	44.18	PK	313.00	1.50	H	4.13	48.31	74.00	-25.69
10360.00	43.65	Ave	313.00	1.50	H	4.13	47.78	54.00	-6.22
2336.21	46.45	PK	182.00	1.70	V	-13.19	33.26	74.00	-40.74
2336.21	38.79	Ave	182.00	1.70	V	-13.19	25.60	54.00	-28.40
2360.69	43.43	PK	255.00	2.00	H	-13.14	30.29	74.00	-43.71
2360.69	36.55	Ave	255.00	2.00	H	-13.14	23.41	54.00	-30.59
3347.69	42.52	PK	304.00	1.50	V	-9.08	33.44	74.00	-40.56
3347.69	37.62	Ave	304.00	1.50	V	-9.08	28.54	54.00	-25.46

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) band I middle channel 5200MHz									
200.03	21.12	PK	75.00	1.30	H	11.13	32.25	43.50	-11.25
200.03	21.32	PK	103.00	1.20	V	11.13	32.45	43.50	-11.05
5106.65	48.36	PK	341.00	1.50	V	-0.62	47.74	74.00	-26.26
5106.65	42.75	Ave	341.00	1.50	V	-0.62	42.13	54.00	-11.87
10400.00	45.26	PK	62.00	1.20	H	4.26	49.52	74.00	-24.48
10400.00	44.34	Ave	62.00	1.20	H	4.26	48.60	54.00	-5.40
2348.81	46.72	PK	40.00	1.90	V	-13.19	33.53	74.00	-40.47
2348.81	39.46	Ave	40.00	1.90	V	-13.19	26.27	54.00	-27.73
2381.32	42.08	PK	327.00	1.10	H	-13.14	28.94	74.00	-45.06
2381.32	38.84	Ave	327.00	1.10	H	-13.14	25.70	54.00	-28.30
3360.64	44.83	PK	200.00	2.00	V	-9.08	35.75	74.00	-38.25
3360.64	37.57	Ave	200.00	2.00	V	-9.08	28.49	54.00	-25.51

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) band I High channel 5240MHz									
200.03	20.42	PK	53.00	1.70	H	11.13	31.55	43.50	-11.95
200.03	20.06	PK	62.00	1.60	V	11.13	31.19	43.50	-12.31
5081.37	47.86	PK	306.00	1.80	V	-0.24	47.62	74.00	-26.38
5081.37	42.85	Ave	306.00	1.80	V	-0.24	42.61	54.00	-11.39
10480.00	45.25	PK	36.00	2.00	H	4.38	49.63	74.00	-24.37
10480.00	44.65	Ave	36.00	2.00	H	4.38	49.03	54.00	-4.97
2347.67	46.20	PK	16.00	1.40	V	-13.19	33.01	74.00	-40.99
2347.67	38.87	Ave	16.00	1.40	V	-13.19	25.68	54.00	-28.32
2389.28	43.72	PK	46.00	1.50	H	-13.14	30.58	74.00	-43.42
2389.28	37.82	Ave	46.00	1.50	H	-13.14	24.68	54.00	-29.32
3344.28	42.95	PK	253.00	1.50	V	-9.08	33.87	74.00	-40.13
3344.28	38.78	Ave	253.00	1.50	V	-9.08	29.70	54.00	-24.30

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) band IV low Channel 5745MHz									
200.03	21.68	PK	178.00	1.50	H	11.13	32.81	43.50	-10.69
200.03	21.45	PK	7.00	1.60	V	11.13	32.58	43.50	-10.92
5102.30	49.52	PK	2.00	1.30	V	0.09	49.61	74.00	-24.39
5102.30	42.17	Ave	2.00	1.30	V	0.09	42.26	54.00	-11.74
11490.00	42.17	PK	150.00	1.10	H	6.02	48.19	74.00	-25.81
11490.00	41.82	Ave	150.00	1.10	H	6.02	47.84	54.00	-6.16
2316.62	46.17	PK	267.00	1.80	V	-13.19	32.98	74.00	-41.02
2316.62	37.75	Ave	267.00	1.80	V	-13.19	24.56	54.00	-29.44
2385.82	43.54	PK	291.00	1.70	H	-13.14	30.40	74.00	-43.60
2385.82	36.21	Ave	291.00	1.70	H	-13.14	23.07	54.00	-30.93
3334.58	44.54	PK	179.00	1.60	V	-9.08	35.46	74.00	-38.54
3334.58	38.32	Ave	179.00	1.60	V	-9.08	29.24	54.00	-24.76

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) band IV middle channel 5785MHz									
200.03	22.43	PK	15.00	1.60	H	11.13	33.56	43.50	-9.94
200.03	22.41	PK	292.00	1.70	V	11.13	33.54	43.50	-9.96
5100.26	49.32	PK	52.00	1.50	V	-0.62	48.70	74.00	-25.30
5100.26	41.65	Ave	52.00	1.50	V	-0.62	41.03	54.00	-12.97
11570.00	42.34	PK	337.00	1.30	H	6.11	48.45	74.00	-25.55
11570.00	41.07	Ave	337.00	1.30	H	6.11	47.18	54.00	-6.82
2320.50	46.62	PK	188.00	1.90	V	-13.19	33.43	74.00	-40.57
2320.50	39.53	Ave	188.00	1.90	V	-13.19	26.34	54.00	-27.66
2376.42	43.83	PK	282.00	1.20	H	-13.14	30.69	74.00	-43.31
2376.42	37.22	Ave	282.00	1.20	H	-13.14	24.08	54.00	-29.92
3347.33	44.78	PK	270.00	1.80	V	-9.08	35.70	74.00	-38.30
3347.33	36.59	Ave	270.00	1.80	V	-9.08	27.51	54.00	-26.49

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) band Ⅳ High channel 5825MHz									
200.03	24.42	PK	148.00	1.80	H	11.13	35.55	43.50	-7.95
200.03	21.75	PK	310.00	1.10	V	11.13	32.88	43.50	-10.62
5081.60	49.17	PK	172.00	1.90	V	-0.24	48.93	74.00	-25.07
5081.60	43.75	Ave	172.00	1.90	V	-0.24	43.51	54.00	-10.49
11650.00	43.81	PK	49.00	1.60	H	6.13	49.94	74.00	-24.06
11650.00	42.30	Ave	49.00	1.60	H	6.13	48.43	54.00	-5.57
2320.43	45.72	PK	283.00	1.30	V	-13.19	32.53	74.00	-41.47
2320.43	37.16	Ave	283.00	1.30	V	-13.19	23.97	54.00	-30.03
2358.43	44.05	PK	33.00	2.00	H	-13.14	30.91	74.00	-43.09
2358.43	37.82	Ave	33.00	2.00	H	-13.14	24.68	54.00	-29.32
3344.26	42.75	PK	255.00	1.90	V	-9.08	33.67	74.00	-40.33
3344.26	36.84	Ave	255.00	1.90	V	-9.08	27.76	54.00	-26.24

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) band I low Channel 5180MHz									
200.03	22.25	PK	21.00	1.10	H	11.13	33.38	43.50	-10.12
200.03	21.78	PK	156.00	1.80	V	11.13	32.91	43.50	-10.59
5089.55	46.22	PK	306.00	1.20	V	0.09	46.31	74.00	-27.69
5089.55	41.75	Ave	306.00	1.20	V	0.09	41.84	54.00	-12.16
10360.00	44.83	PK	280.00	1.40	H	4.13	48.96	74.00	-25.04
10360.00	43.98	Ave	280.00	1.40	H	4.13	48.11	54.00	-5.89
2334.65	46.79	PK	195.00	1.90	V	-13.19	33.60	74.00	-40.40
2334.65	37.82	Ave	195.00	1.90	V	-13.19	24.63	54.00	-29.37
2372.91	44.87	PK	251.00	1.30	H	-13.14	31.73	74.00	-42.27
2372.91	38.82	Ave	251.00	1.30	H	-13.14	25.68	54.00	-28.32
3365.08	43.76	PK	289.00	1.90	V	-9.08	34.68	74.00	-39.32
3365.08	36.82	Ave	289.00	1.90	V	-9.08	27.74	54.00	-26.26

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) band I middle channel 5200MHz									
200.03	22.15	PK	73.00	1.40	H	11.13	33.28	43.50	-10.22
200.03	21.51	PK	217.00	1.80	V	11.13	32.64	43.50	-10.86
5109.61	45.46	PK	311.00	2.00	V	-0.62	44.84	74.00	-29.16
5109.61	42.07	Ave	311.00	2.00	V	-0.62	41.45	54.00	-12.55
1040 0.00	43.38	PK	157.00	1.20	H	4.26	47.64	74.00	-26.36
10400.00	42.25	Ave	157.00	1.20	H	4.26	46.51	54.00	-7.49
2335.62	45.72	PK	26.00	1.10	V	-13.19	32.53	74.00	-41.47
2335.62	39.30	Ave	26.00	1.10	V	-13.19	26.11	54.00	-27.89
2381.28	43.67	PK	162.00	1.60	H	-13.14	30.53	74.00	-43.47
2381.28	36.82	Ave	162.00	1.60	H	-13.14	23.68	54.00	-30.32
3371.72	44.86	PK	185.00	1.00	V	-9.08	35.78	74.00	-38.22
3371.72	36.28	Ave	185.00	1.00	V	-9.08	27.20	54.00	-26.80

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) band I High channel 5240MHz									
200.03	22.56	PK	350.00	1.00	H	11.13	33.69	43.50	-9.81
200.03	21.87	PK	145.00	1.30	V	11.13	33.00	43.50	-10.50
5091.33	46.97	PK	44.00	1.30	V	-0.24	46.73	74.00	-27.27
5091.33	42.22	Ave	44.00	1.30	V	-0.24	41.98	54.00	-12.02
10480.00	41.98	PK	196.00	1.00	H	4.38	46.36	74.00	-27.64
10480.00	40.43	Ave	196.00	1.00	H	4.38	44.81	54.00	-9.19
2342.61	46.69	PK	126.00	1.70	V	-13.19	33.50	74.00	-40.50
2342.61	38.85	Ave	126.00	1.70	V	-13.19	25.66	54.00	-28.34
2362.21	44.24	PK	130.00	1.80	H	-13.14	31.10	74.00	-42.90
2362.21	38.46	Ave	130.00	1.80	H	-13.14	25.32	54.00	-28.68
3331.32	44.33	PK	35.00	1.60	V	-9.08	35.25	74.00	-38.75
3331.32	37.15	Ave	35.00	1.60	V	-9.08	28.07	54.00	-25.93

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) band IV low Channel 5745MHz									
200.03	22.27	PK	224.00	1.10	H	11.13	33.40	43.50	-10.10
200.03	21.79	PK	89.00	1.70	V	11.13	32.92	43.50	-10.58
5102.56	45.26	PK	32.00	1.40	V	0.09	45.35	74.00	-28.65
5102.56	42.07	Ave	32.00	1.40	V	0.09	42.16	54.00	-11.84
11490.00	42.43	PK	33.00	1.70	H	6.02	48.45	74.00	-25.55
11490.00	41.70	Ave	33.00	1.70	H	6.02	47.72	54.00	-6.28
2335.15	46.28	PK	284.00	1.80	V	-13.19	33.09	74.00	-40.91
2335.15	39.92	Ave	284.00	1.80	V	-13.19	26.73	54.00	-27.27
2361.24	43.32	PK	55.00	1.80	H	-13.14	30.18	74.00	-43.82
2361.24	37.21	Ave	55.00	1.80	H	-13.14	24.07	54.00	-29.93
3355.61	43.51	PK	288.00	2.00	V	-9.08	34.43	74.00	-39.57
3355.61	37.72	Ave	288.00	2.00	V	-9.08	28.64	54.00	-25.36

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.407/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
802.11ac(HT20) band IV middle channel 5785MHz									
200.03	22.58	PK	41.00	1.60	H	11.13	33.71	43.50	-9.79
200.03	22.97	PK	340.00	1.60	V	11.13	34.10	43.50	-9.40
5082.43	46.43	PK	256.00	1.00	V	-0.62	45.81	74.00	-28.19
5082.43	43.28	Ave	256.00	1.00	V	-0.62	42.66	54.00	-11.34
11570.00	43.34	PK	125.00	1.70	H	6.11	49.45	74.00	-24.55
11570.00	42.35	Ave	125.00	1.70	H	6.11	48.46	54.00	-5.54
2345.73	45.24	PK	299.00	1.10	V	-13.19	32.05	74.00	-41.95
2345.73	37.86	Ave	299.00	1.10	V	-13.19	24.67	54.00	-29.33
2373.22	42.43	PK	68.00	1.80	H	-13.14	29.29	74.00	-44.71
2373.22	37.25	Ave	68.00	1.80	H	-13.14	24.11	54.00	-29.89
3374.99	43.37	PK	237.00	2.00	V	-9.08	34.29	74.00	-39.71
3374.99	38.24	Ave	237.00	2.00	V	-9.08	29.16	54.00	-24.84

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) band IV High channel 5825MHz									
200.03	20.42	PK	35.00	1.40	H	11.13	31.55	43.50	-11.95
200.03	20.62	PK	143.00	1.70	V	11.13	31.75	43.50	-11.75
5103.95	46.86	PK	332.00	1.00	V	-0.24	46.62	74.00	-27.38
5103.95	41.20	Ave	332.00	1.00	V	-0.24	40.96	54.00	-13.04
11650.00	43.14	PK	104.00	1.10	H	6.13	49.27	74.00	-24.73
11650.00	42.30	Ave	104.00	1.10	H	6.13	48.43	54.00	-5.57
2336.20	45.85	PK	278.00	1.20	V	-13.19	32.66	74.00	-41.34
2336.20	39.59	Ave	278.00	1.20	V	-13.19	26.40	54.00	-27.60
2380.57	44.58	PK	75.00	1.10	H	-13.14	31.44	74.00	-42.56
2380.57	37.21	Ave	75.00	1.10	H	-13.14	24.07	54.00	-29.93
3333.00	42.65	PK	236.00	1.00	V	-9.08	33.57	74.00	-40.43
3333.00	38.14	Ave	236.00	1.00	V	-9.08	29.06	54.00	-24.94

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) band I low Channel 5190MHz									
200.03	22.32	PK	172.00	1.00	H	11.13	33.45	43.50	-10.05
200.03	21.85	PK	230.00	2.00	V	11.13	32.98	43.50	-10.52
5093.50	45.69	PK	340.00	1.70	V	0.09	45.78	74.00	-28.22
5093.50	41.21	Ave	340.00	1.70	V	0.09	41.30	54.00	-12.70
10380.00	44.40	PK	216.00	1.10	H	4.13	48.53	74.00	-25.47
10380.00	44.17	Ave	216.00	1.10	H	4.13	48.30	54.00	-5.70
2312.75	45.63	PK	197.00	1.50	V	-13.19	32.44	74.00	-41.56
2312.75	38.42	Ave	197.00	1.50	V	-13.19	25.23	54.00	-28.77
2350.22	44.83	PK	83.00	1.30	H	-13.14	31.69	74.00	-42.31
2350.22	37.65	Ave	83.00	1.30	H	-13.14	24.51	54.00	-29.49
3359.44	44.83	PK	1.00	1.30	V	-9.08	35.75	74.00	-38.25
3359.44	36.89	Ave	1.00	1.30	V	-9.08	27.81	54.00	-26.19

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)
802.11n(HT40) band I High channel 5230MHz									
200.03	21.58	PK	96.00	1.60	H	11.13	32.71	43.50	-10.79
200.03	21.32	PK	12.00	1.60	V	11.13	32.45	43.50	-11.05
5081.26	45.21	PK	118.00	1.20	V	-0.24	44.97	74.00	-29.03
5081.26	44.25	Ave	118.00	1.20	V	-0.24	44.01	54.00	-9.99
10460.00	44.59	PK	218.00	1.40	H	4.38	48.97	74.00	-25.03
10480.00	43.87	Ave	218.00	1.40	H	4.38	48.25	54.00	-5.75
2340.99	45.64	PK	9.00	2.00	V	-13.19	32.45	74.00	-41.55
2340.99	39.20	Ave	9.00	2.00	V	-13.19	26.01	54.00	-27.99
2381.54	44.43	PK	111.00	1.10	H	-13.14	31.29	74.00	-42.71
2381.54	38.18	Ave	111.00	1.10	H	-13.14	25.04	54.00	-28.96
3370.45	43.19	PK	158.00	1.80	V	-9.08	34.11	74.00	-39.89
3370.45	37.32	Ave	158.00	1.80	V	-9.08	28.24	54.00	-25.76

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) band IV low Channel 5755MHz									
200.03	22.34	PK	263.00	2.00	H	11.13	33.47	43.50	-10.03
200.03	20.94	PK	214.00	1.10	V	11.13	32.07	43.50	-11.43
5101.76	45.45	PK	61.00	1.70	V	0.09	45.54	74.00	-28.46
5101.76	41.46	Ave	61.00	1.70	V	0.09	41.55	54.00	-12.45
11510.00	44.67	PK	29.00	1.30	H	6.05	50.72	74.00	-23.28
11510.00	44.16	Ave	29.00	1.30	H	6.05	50.21	54.00	-3.79
2339.33	45.52	PK	141.00	1.50	V	-13.19	32.33	74.00	-41.67
2339.33	37.74	Ave	141.00	1.50	V	-13.19	24.55	54.00	-29.45
2382.66	44.95	PK	157.00	1.30	H	-13.14	31.81	74.00	-42.19
2382.66	36.20	Ave	157.00	1.30	H	-13.14	23.06	54.00	-30.94
3336.60	43.87	PK	92.00	1.30	V	-9.08	34.79	74.00	-39.21
3336.60	36.44	Ave	92.00	1.30	V	-9.08	27.36	54.00	-26.64

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) band IV High channel 5795MHz									
200.03	23.23	PK	348.00	1.10	H	11.13	34.36	43.50	-9.14
200.03	20.23	PK	222.00	1.90	V	11.13	31.36	43.50	-12.14
5093.01	48.56	PK	142.00	1.20	V	-0.24	48.32	74.00	-25.68
5093.01	43.17	Ave	142.00	1.20	V	-0.24	42.93	54.00	-11.07
11590.00	43.63	PK	117.00	1.10	H	6.15	49.78	74.00	-24.22
11590.00	42.37	Ave	117.00	1.10	H	6.15	48.52	54.00	-5.48
2341.44	45.45	PK	229.00	1.50	V	-13.19	32.26	74.00	-41.74
2341.44	38.23	Ave	229.00	1.50	V	-13.19	25.04	54.00	-28.96
2389.33	44.94	PK	248.00	1.20	H	-13.14	31.80	74.00	-42.20
2389.33	38.49	Ave	248.00	1.20	H	-13.14	25.35	54.00	-28.65
3346.83	44.58	PK	152.00	1.50	V	-9.08	35.50	74.00	-38.50
3346.83	36.77	Ave	152.00	1.50	V	-9.08	27.69	54.00	-26.31

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) band I low Channel 5190MHz									
200.03	21.53	PK	353.00	1.30	H	11.13	32.66	43.50	-10.84
200.03	21.92	PK	331.00	1.30	V	11.13	33.05	43.50	-10.45
5102.30	46.34	PK	216.00	2.00	V	0.09	46.43	74.00	-27.57
5102.30	42.45	Ave	216.00	2.00	V	0.09	42.54	54.00	-11.46
10380.00	44.32	PK	161.00	1.30	H	4.13	48.45	74.00	-25.55
10380.00	43.34	Ave	161.00	1.30	H	4.13	47.47	54.00	-6.53
2332.69	46.33	PK	241.00	1.50	V	-13.19	33.14	74.00	-40.86
2332.69	38.34	Ave	241.00	1.50	V	-13.19	25.15	54.00	-28.85
2366.12	42.37	PK	261.00	1.30	H	-13.14	29.23	74.00	-44.77
2366.12	37.76	Ave	261.00	1.30	H	-13.14	24.62	54.00	-29.38
3379.88	43.69	PK	40.00	1.30	V	-9.08	34.61	74.00	-39.39
3379.88	38.40	Ave	40.00	1.30	V	-9.08	29.32	54.00	-24.68

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)
802.11ac(HT40) band I High channel 5230MHz									
200.03	24.24	PK	217.00	1.80	H	11.13	35.37	43.50	-8.13
200.03	21.13	PK	256.00	1.30	V	11.13	32.26	43.50	-11.24
5095.38	46.44	PK	213.00	1.50	V	-0.24	46.20	74.00	-27.80
5095.38	43.75	Ave	213.00	1.50	V	-0.24	43.51	54.00	-10.49
10460.00	44.23	PK	116.00	1.80	H	4.38	48.61	74.00	-25.39
10480.00	43.52	Ave	116.00	1.80	H	4.38	47.90	54.00	-6.10
2321.58	46.93	PK	93.00	1.20	V	-13.19	33.74	74.00	-40.26
2321.58	39.31	Ave	93.00	1.20	V	-13.19	26.12	54.00	-27.88
2354.30	42.23	PK	13.00	1.00	H	-13.14	29.09	74.00	-44.91
2354.30	36.23	Ave	13.00	1.00	H	-13.14	23.09	54.00	-30.91
3347.76	43.63	PK	220.00	1.50	V	-9.08	34.55	74.00	-39.45
3347.76	36.87	Ave	220.00	1.50	V	-9.08	27.79	54.00	-26.21

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) band IV low Channel 5755MHz									
200.03	21.84	PK	87.00	1.60	H	11.13	32.97	43.50	-10.53
200.03	21.17	PK	200.00	1.10	V	11.13	32.30	43.50	-11.20
5090.60	45.96	PK	52.00	1.90	V	0.09	46.05	74.00	-27.95
5090.60	42.34	Ave	52.00	1.90	V	0.09	42.43	54.00	-11.57
11510.00	44.67	PK	151.00	1.90	H	6.05	50.72	74.00	-23.28
11510.00	43.90	Ave	151.00	1.90	H	6.05	49.95	54.00	-4.05
2344.97	45.28	PK	278.00	1.70	V	-13.19	32.09	74.00	-41.91
2344.97	37.95	Ave	278.00	1.70	V	-13.19	24.76	54.00	-29.24
2351.16	44.90	PK	44.00	1.50	H	-13.14	31.76	74.00	-42.24
2351.16	38.45	Ave	44.00	1.50	H	-13.14	25.31	54.00	-28.69
3351.37	44.13	PK	164.00	1.70	V	-9.08	35.05	74.00	-38.95
3351.37	37.95	Ave	164.00	1.70	V	-9.08	28.87	54.00	-25.13

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) band IV High channel 5795MHz									
200.03	20.85	PK	243.00	1.80	H	11.13	31.98	43.50	-11.52
200.03	23.74	PK	118.00	1.00	V	11.13	34.87	43.50	-8.63
5103.90	47.06	PK	241.00	1.10	V	-0.24	46.82	74.00	-27.18
5103.90	43.48	Ave	241.00	1.10	V	-0.24	43.24	54.00	-10.76
11590.00	47.00	PK	103.00	1.80	H	6.15	53.15	74.00	-20.85
11590.00	46.13	Ave	103.00	1.80	H	6.15	52.28	54.00	-1.72
2331.78	45.74	PK	26.00	1.10	V	-13.19	32.55	74.00	-41.45
2331.78	37.55	Ave	26.00	1.10	V	-13.19	24.36	54.00	-29.64
2354.86	43.54	PK	194.00	1.70	H	-13.14	30.40	74.00	-43.60
2354.86	36.56	Ave	194.00	1.70	H	-13.14	23.42	54.00	-30.58
3339.84	42.34	PK	173.00	1.80	V	-9.08	33.26	74.00	-40.74
3339.84	38.32	Ave	173.00	1.80	V	-9.08	29.24	54.00	-24.76

6. Duty cycle

Test Requirement:	47 CFR Part 15C 15.407 and 789033 D02 General UNII Test Procedures New Rules v01, Section (B)
Test Method:	ANSI C63.10: 2009
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.

6.1 Summary of Test Results

802.11a mode			
channel	On time(ms)	Period(ms)	Duty Cycle(%)
36	100	100	1
149	100	100	1
802.11n(HT20)			
channel	On time(ms)	Period(ms)	Duty Cycle(%)
36	100	100	1
149	100	100	1
802.11n(HT40)			
channel	On time(ms)	Period(ms)	Duty Cycle(%)
38	100	100	1
151	100	100	1
802.11ac(HT20)			
channel	On time(ms)	Period(ms)	Duty Cycle(%)
36	100	100	1
149	100	100	1
802.11ac(HT40)			
channel	On time(ms)	Period(ms)	Duty Cycle(%)
38	100	100	1
151	100	100	1

802.11a band I Low channel

802.11a band IV Low channel

802.11n(HT20) band I Low channel

802.11n(HT20) band IV Low channel

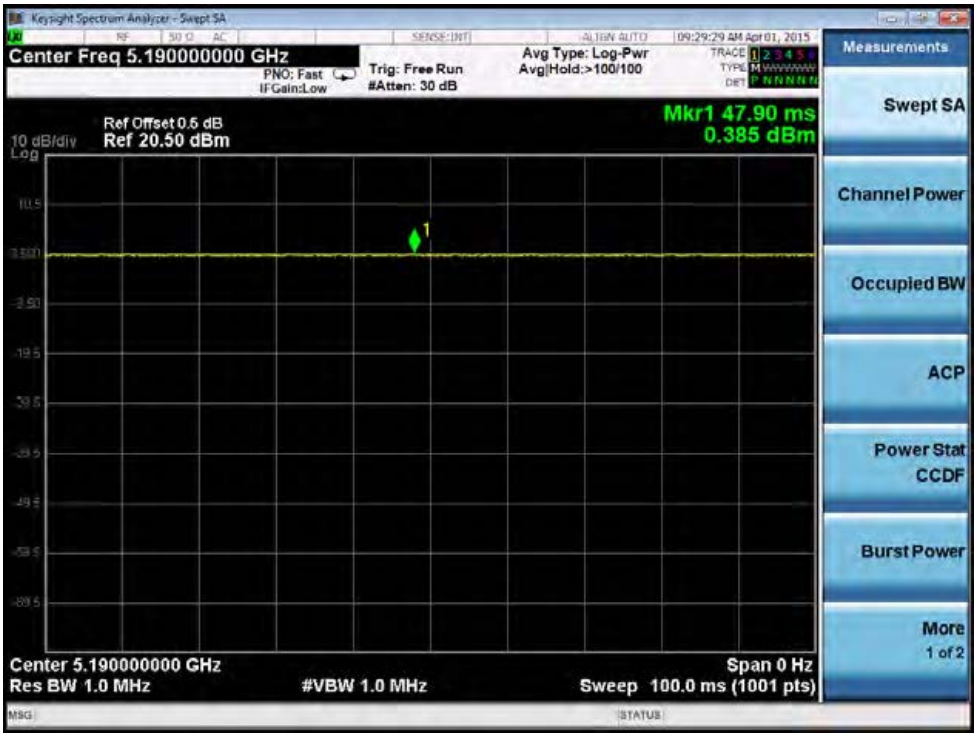
802.11n(HT40) band I Low channel

802.11n(HT40) band IV Low channel

802.11ac(HT20) band I Low channel

802.11ac(HT20) band IV Low channel

802.11ac(HT40) band I Low channel



802.11ac(HT40) band IV Low channel

7. Band Edge

Test Requirement:	FCC CFR47 Part 15 Section 15.407
Test Method:	ANSI C63.10 2009
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

7.1 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.

7.2 Test Result

Test result plots shown as follows:

802.11a band I Band edge-left side

802.11a band I Band edge-right side

802.11a band IV Band edge-left side

802.11a band IV Band edge-right side

802.11n(HT20) band I Band edge-left side

802.11n(HT20) band I Band edge-right side

802.11n(HT20) band IV Band edge-left side

802.11n(HT20) band IV Band edge-right side

802.11n(HT40) band I Band edge-left side

802.11n(HT40) band I Band edge-right side

802.11n(HT40) band IV Band edge-left side

802.11n(HT40) band IV Band edge-right side

802.11ac(HT20) band I Band edge-left side

802.11ac(HT20) band I Band edge-right side

802.11ac(HT20) band IV Band edge-left side

802.11ac(HT20) band IV Band edge-right side

802.11ac(HT40) band I Band edge-left side

802.11ac(HT40) band I Band edge-right side

8. 6dB Bandwidth

Test Requirement:	FCC CFR47 Part 15 Section 15.407(e)
	KDB662911 D01 Multiple Transmitter Output v02r01
Test Method:	KDB789033 D02 General UNII Test Procedures New Rules v01
	Section C
Test Limit:	≥ 500 kHz
Test Result:	PASS

8.1 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

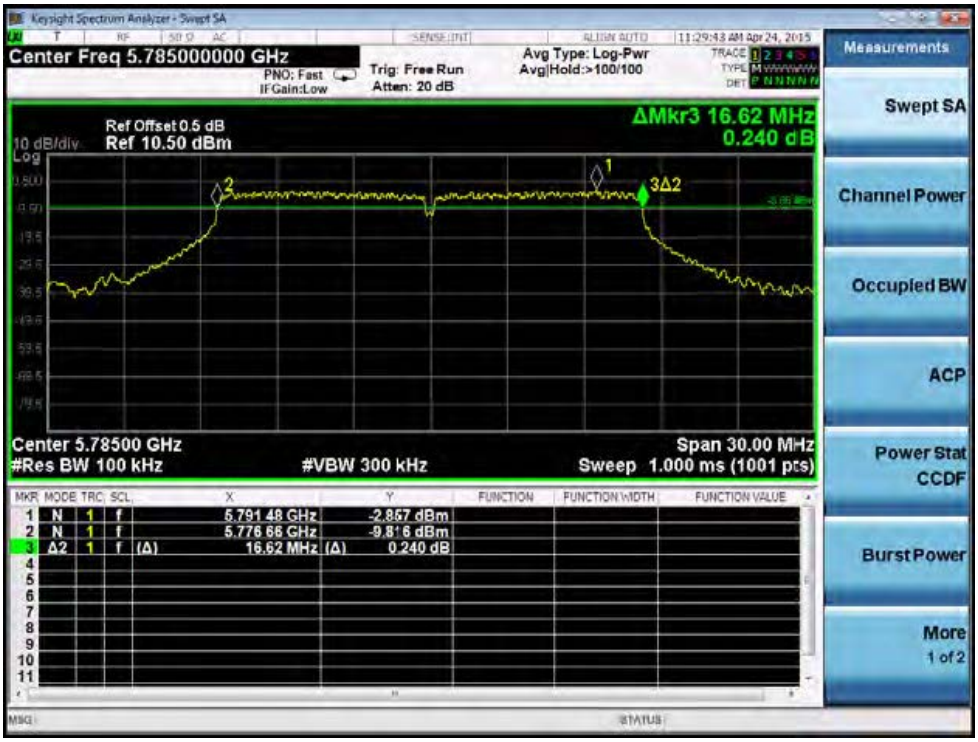
8.2 Test Result

Band	Operation mode	6 dB Bandwidth (MHz)		
		Low	Middle	High
Band IV	802.11a	16.59	16.62	16.62
	802.11n(HT20)	17.73	17.82	17.73
	802.11n(HT40)	36.54	/	36.60
	802.11ac(HT20)	17.82	17.76	17.82
	802.11ac(HT40)	36.54	/	36.60

Test result plots shown as follows:

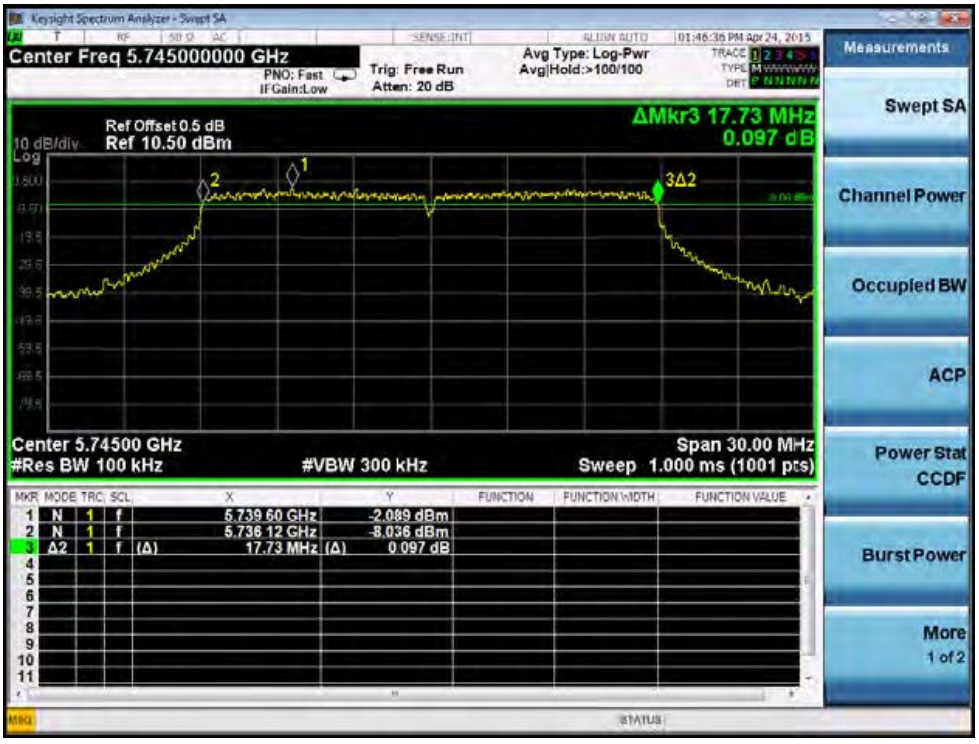
802.11a band IV Low channel

802.11a band IV Middle channel

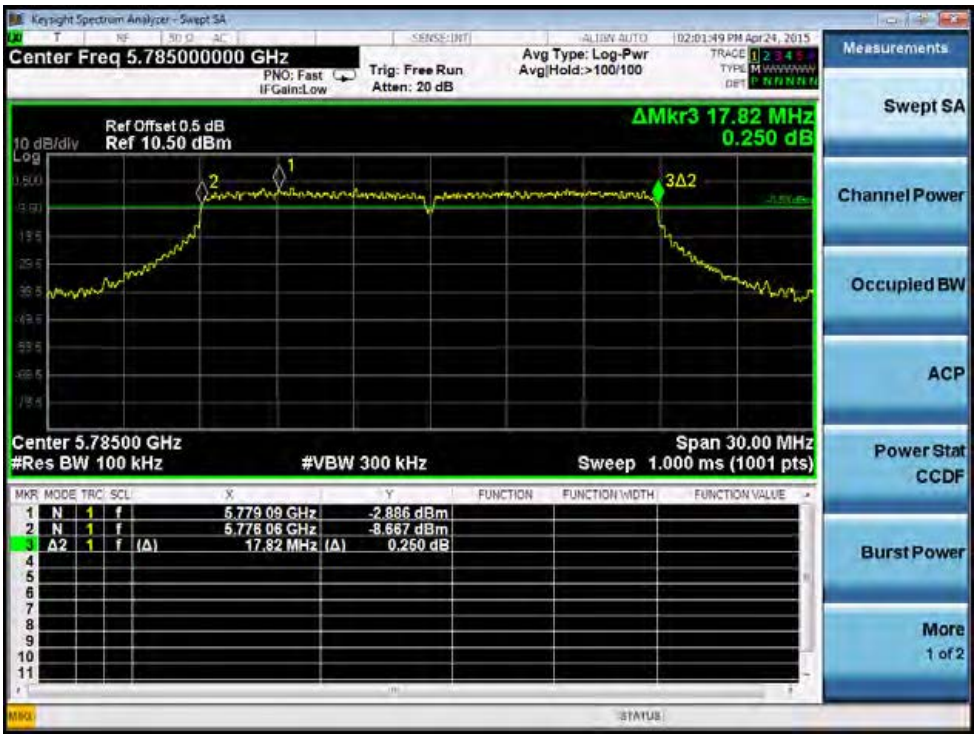


802.11a band IV High channel

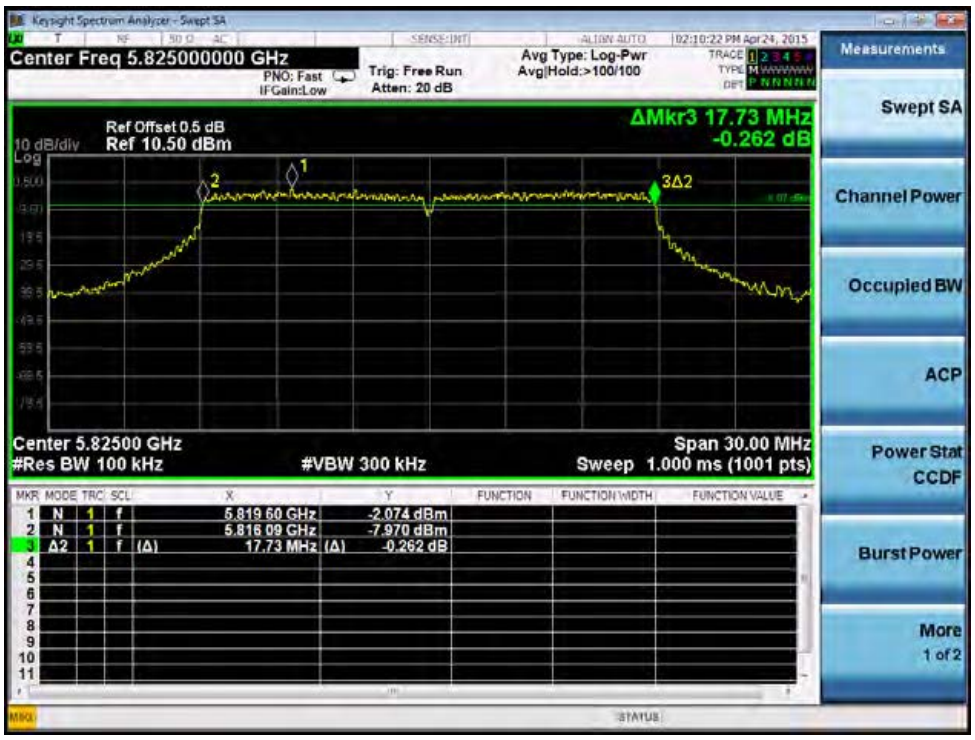
802.11n(HT20) band IV Low channel



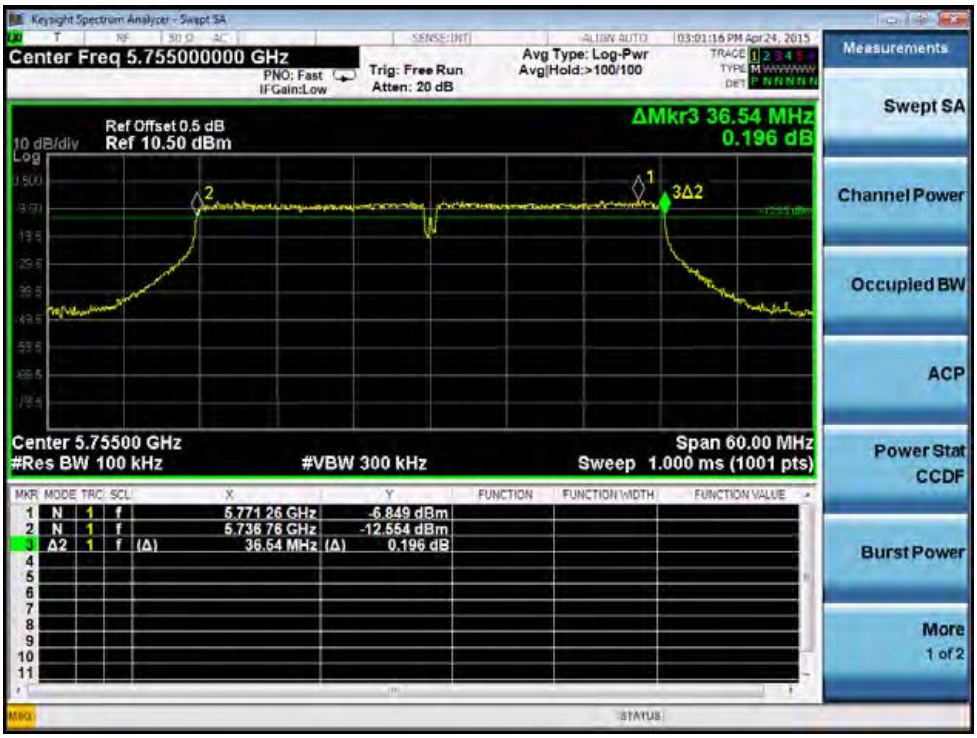
802.11n(HT20) band IV Middle channel



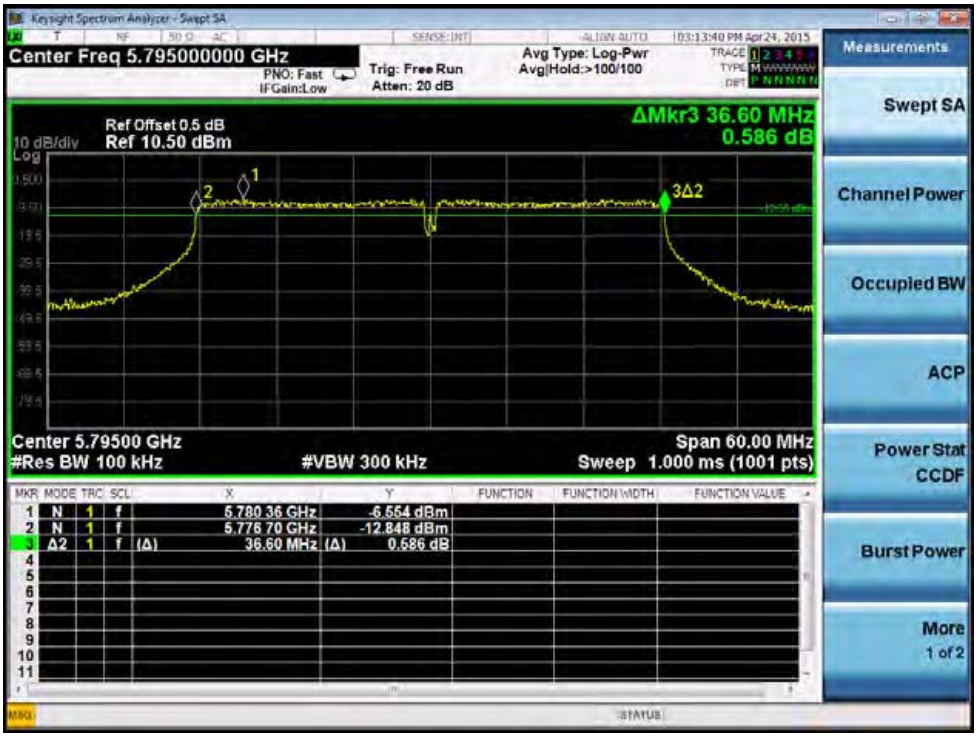
802.11n(HT20) band IV High channel



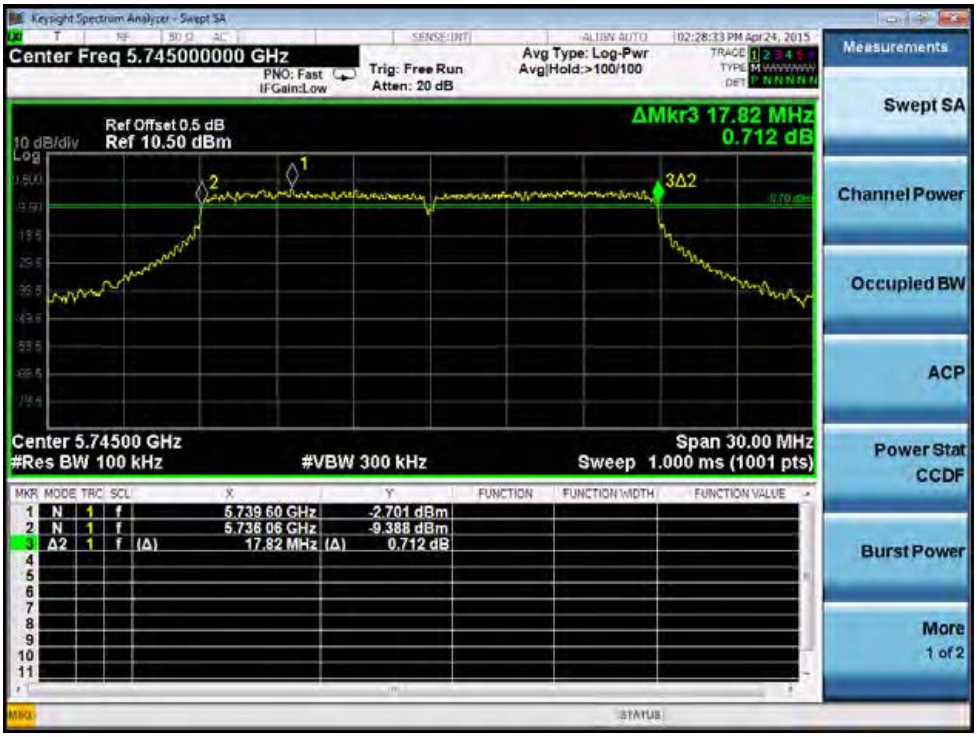
802.11n(HT40) band IV Low channel



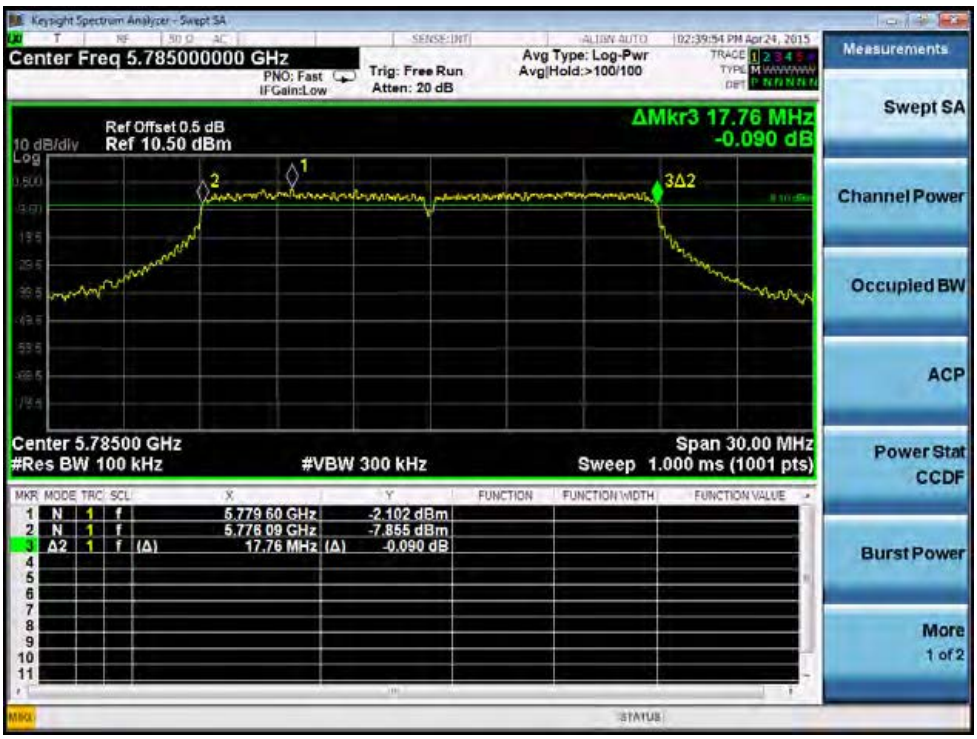
802.11n(HT40) band IV High channel



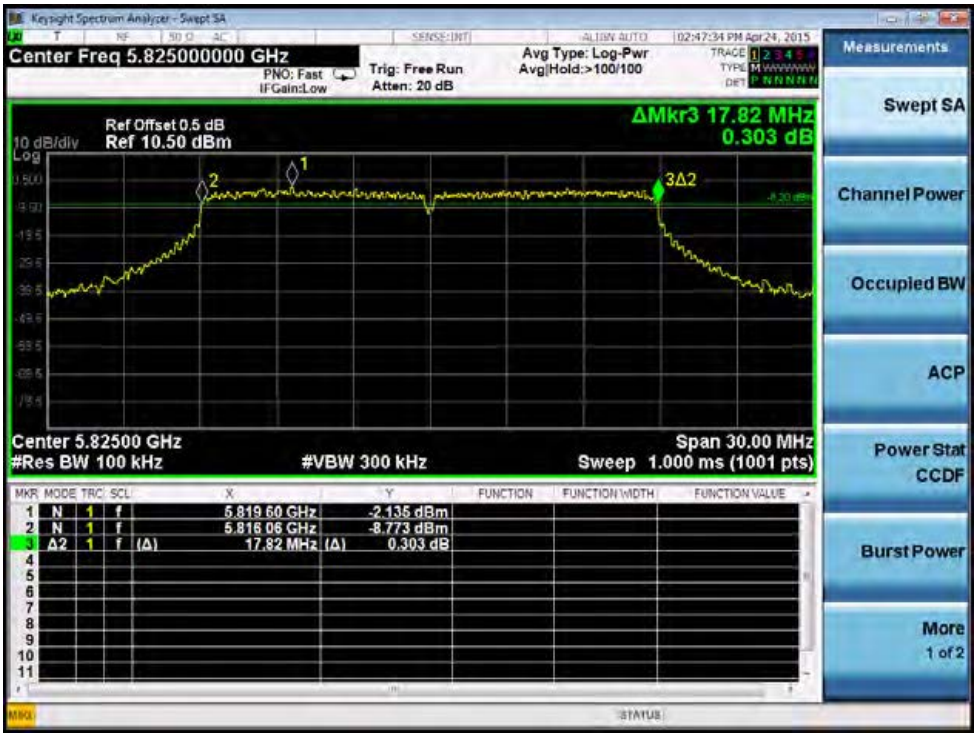
802.11ac(HT20) band IV Low channel



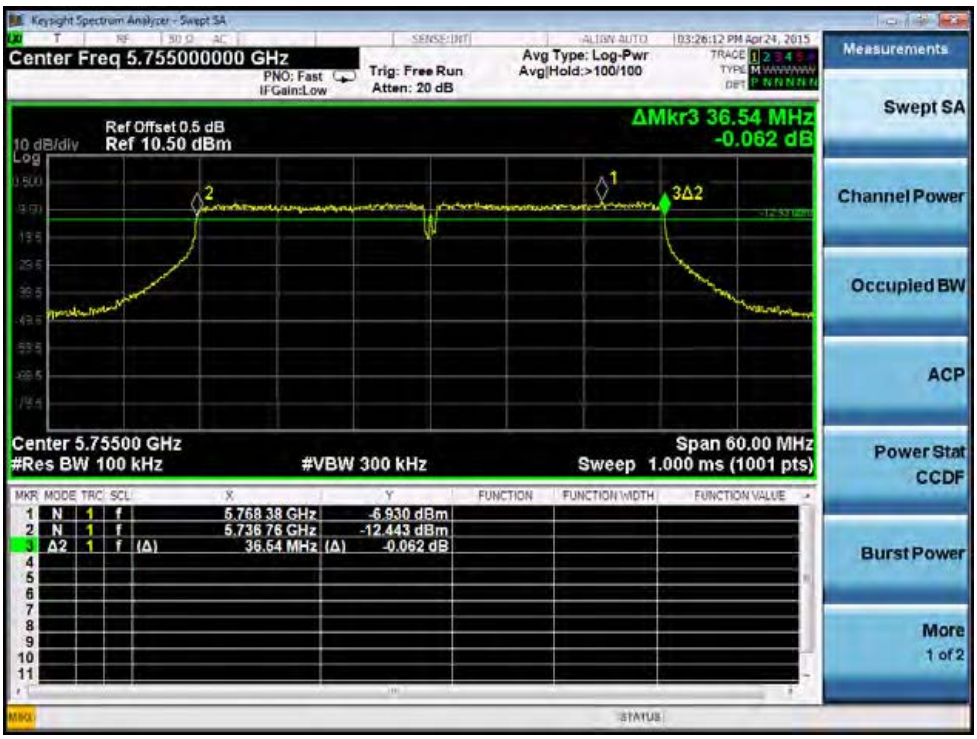
802.11ac(HT20) band IV Middle channel



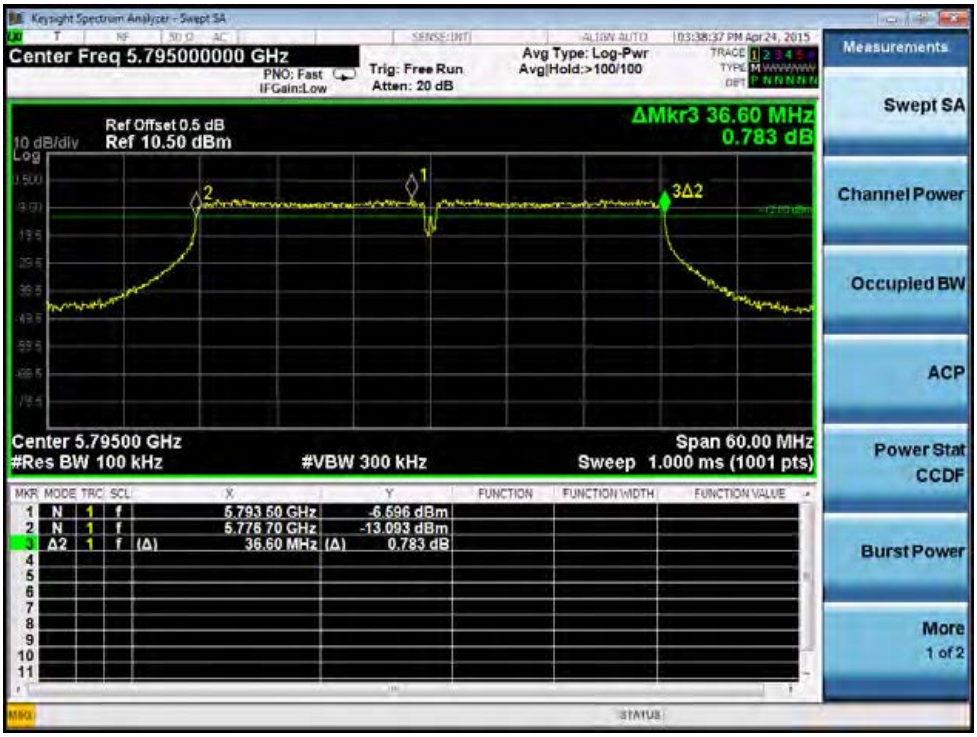
802.11ac(HT20) band IV High channel



802.11ac(HT40) band IV Low channel



802.11n(HT40) band IV High channel



9. 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 UNII Test Procedures New Rules v01 Section D
Test Limit:	No restriction limits
Test Result:	PASS

9.1 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

9.2 Test Result

Band	Operation mode	26 dB Bandwidth (MHz)			99% Bandwidth (MHz)		
		Low	Middle	High	Low	Middle	High
Band I	802.11a	20.92	21.99	21.96	16.64	16.68	16.67
	802.11n(HT20)	21.72	21.96	21.84	17.77	17.80	17.80
	802.11n(HT40)	43.89	/	43.92	36.56	/	36.58
	802.11ac(HT20)	21.80	21.89	22.43	17.80	17.81	17.85
	802.11ac(HT40)	43.83	/	43.63	36.59	/	36.53
Band IV	802.11a	22.99	21.07	21.03	16.68	16.67	16.66
	802.11n(HT20)	22.54	22.02	21.98	17.83	17.80	17.79
	802.11n(HT40)	43.61	/	43.55	36.47	/	36.48
	802.11ac(HT20)	21.88	21.80	21.84	17.81	17.81	17.81
	802.11ac(HT40)	43.50	/	43.37	36.43	/	36.44

Test result plots shown as follows:

802.11a band I Low channel

802.11a band I Middle channel

802.11a band I High channel

802.11n(HT20) band I Low channel

802.11n(HT20) band I Middle channel

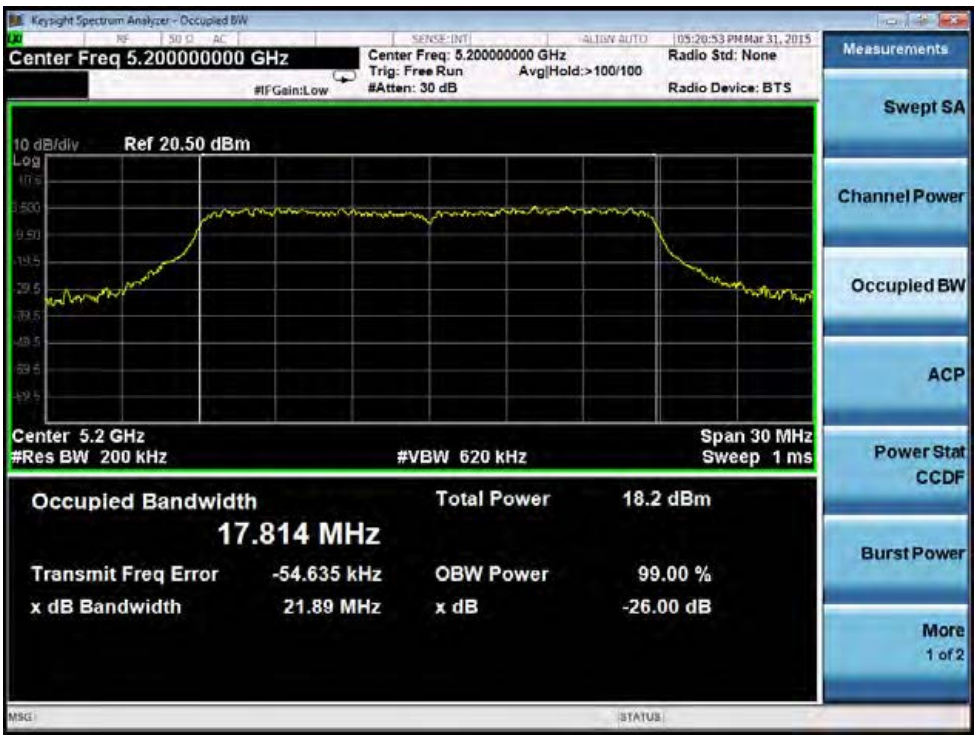
802.11n(HT20) band I High channel

802.11n(HT40) band I Low channel

802.11n(HT40) band I High channel

802.11ac(HT20) band I Low channel

802.11ac(HT20) band I Middle channel



802.11ac(HT20) band I High channel

802.11ac(HT40) band I Low channel

802.11n(HT40) band I High channel

802.11a band IV Low channel

802.11a band IV Middle channel

802.11a band IV High channel

802.11n(HT20) band IV Low channel

802.11n(HT20) band IV Middle channel

802.11n(HT20) band IV High channel