ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT INTENTIONAL RADIATOR CERTIFICATION TO FCC PART 15 SUBPART C REQUIREMENTS

OF

High Performance Wireless Speaker

MODEL No.: W9

FCC ID: IPUW9SPEAKER

Trade Mark: Definitive

REPORT NO.: ES140630334E2

ISSUE DATE: August 8, 2014

Prepared for

DEI Sales Inc. dba Definitive Technology
One Viper Way, Vista, California, United States

Prepared by

SHENZHEN EMTEK CO., LTD

Bldg 69, Majialong Industry Zone, Nanshan District,
Shenzhen, Guangdong, China
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VERIFICATION OF COMPLIANCE

Applicant:	DEI Sales Inc. dba Definitive Technology One Viper Way, Vista, California, United States
Manufacturer:	DEI Sales Inc. dba Definitive Technology One Viper Way, Vista, California, United States
Product Description:	High Performance Wireless Speaker
Model Number:	W9
File Number:	ES140630334E2
Date of Test:	July 15, 2014 to August 8, 2014

We hereby certify that:

The above equipment was tested by SHENZHEN EMTEK CO., LTD. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4 (2009) and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits of FCC Rules Part 15.407 Requirements.

The test results of this report relate only to the tested sample identified in this report.

Date of Test : July 15, 2014 to August 8, 2014

Prepared by : _____
Joe Xia/Editor

Reviewer : _____
Jack Li/Supervisor

Approve & Authorized Signer : _____
Lisa Wang/Manager

Table of Contents

1. General Information

1.1 Product Description

A major technical descriptions of EUT is described as following:

A). Operation Frequency:
2.4G 802.11b/g/n(HT20):2412MHz-2462MHz; 802.11n(HT40): 2422MHz-2452MHz
5G 802.11a/n(HT20):5180-5240 MHz; 802.11n(HT40): 5190-5230 MHz;
B). Modulation: OFDM with BPSK/QPSK/16QAM/64QAM for 802.11a/g/n,
DSSS with DBPSK/DQPSK/CCK for 802.11b;
C). Number of Channel: 2.4G 802.11b/g/n(HT20): 11channels; 802.11n(HT40): 7channels
5G 802.11a/n(HT20): 7channels; 802.11n(HT40): 2 channels;
D).Max Peak Conducted Power: 2.4G wifi 19.16dBm, 5G wifi 15.48dBm
E) Antenna Gain: 2.0dBi for 2.4G WIFI&BT; 2.0dBi for 5G WIFI;
F). Antenna Type: Metal antenna
G). Power Supply: AC 100-240V~50/60Hz

Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	48	5240
38	5190		
40	5200		
42	5210		
44	5220		
46	5230		

Note:
1. This device is included 802.11b, 802.11g, 802.11n 2.4GHz and 802.11a/n 5GHz transceiver function.
2. Test of channel was included the lowest middle and highest frequency in lowest data rate and to perform the test, then record on this report.

1.2 Related Submittal(s) / Grant(s)

This submittal(s) (test report) is intended for FCC ID: IPUW9SPEAKER filing to comply with Section 15.407 of the FCC Part 15, Subpart C Rules.
The composite system is compliance with Subpart B is authorized under a DOC procedure.

1.3 Test Methodology

All the test program has follow FCC new test procedure KDB789033 D01v01r04, Both conducted and radiated testing was performed according to the procedures in ANSI C63.10 (2009). Radiated testing was performed at an antenna to EUT distance 3 meters.

1.4 Special Accessories

Not available for this EUT intended for grant.

1.5 Equipment Modifications

Not available for this EUT intended for grant.

1.6 Test Facility

Site Description

EMC Lab. : Accredited by CNAS, 2013.10.29
The certificate is valid until 2016.10.28
The Laboratory has been assessed and proved to be in compliance with CNAS/CL01: 2006(identical to ISO/IEC17025: 2005)
The Certificate Registration Number is L2291

Accredited by TUV Rheinland Shenzhen 2010.5.25
The Laboratory has been assessed according to the requirements ISO/IEC 17025

Accredited by FCC, October 28, 2010
The Certificate Registration Number is 406365.

Accredited by Industry Canada, March 05, 2010
The Certificate Registration Number is 46405-4480.

Name of Firm : SHENZHEN EMTEK CO., LTD.

Site Location : Bldg 69, Majialong Industry Zone,
Nanshan District, Shenzhen, Guangdong, China

2. System Test Configuration

2.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.2 EUT Exercise

The Transmitter was operated in the normal operating mode. The TX frequency was fixed which was for the purpose of the measurements.

2.3 Test Procedure

2.3.1 Conducted Emissions

The EUT is a placed on as turn table which is 0.8 m above ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.4-2009 Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-Peak and average detector mode.

2.3.2 Radiated Emissions

The EUT is a placed on as turn table which is 0.8 m above ground plane. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. Emission, the relative positions of this hand-held transmitter (EUT) was rotated through three orthogonal axes according to the requirements in Section 13.1.4.1 of ANSI C63.4-2009.

2.4 Configuration of Tested System

Fig. 2-1 Configuration of Tested System

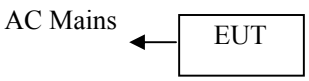


Table 2-1 Equipment Used in Tested System

Item	Equipment	Mfr/Brand	Model/Type No.	FCC ID	Series No.	Note
1.	High Performance Wireless Speaker	Definitive	W9	IPUW9SPEAKER	N/A	EUT

Note:

(1) Unless otherwise denoted as EUT in『Remark』column, device(s) used in tested system is a support equipment.

3. Description of Test Modes

These is Digital Transmission system (DTS) and have modulation OFDM, DSSS, DBPSK, DQPSK, CCK, 16QAM, 64QAM. According exploratory test, EUT will have maximum output power in those data rate (802.11a/n: MCS0), so those data rate were used for all test.
The equipment enables high-speed access without wires to network assets. This adapter uses the IEEE 802.11 protocol to enable wireless communications between the host and Wireless rooter.

For 802.11a/n(HT20):
1. For lowest channel : 5180MHz (Channel 36)
2. For middle channel : 5210MHz (Channel 42)
3. For highest channel : 5240MHz (Channel 48)

For 802.11n(HT40):
4. For lowest channel : 5190MHz (Channel 38)
5. For highest channel : 5230MHz (Channel 46)

4. Summary of Test Results

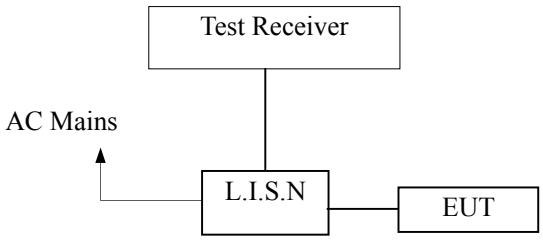
FCC Rules	Description Of Test	Result
§15.207	AC Power Conducted Emission	Pass
§15.407(b), §15.209	Radiated Emission	Pass
§15.407 (a)	26dB bandwidth and 99%dB Bandwidth	Pass
§15.407 (a)	Maximum conducted output Power	Pass
§15.407 (a)	Power density	Pass
§15.407 (b)	Band edge test	Pass
§15.407 (a)	Peak Excursion	Pass

5. Conducted Emissions Test

5.1 Measurement Procedure

1. The EUT was placed on a table which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured were complete.

5.2 Test SET-UP (Block Diagram of Configuration)



5.3 Measurement Equipment Used

Conducted Emission Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Test Receiver	Rohde & Schwarz	ESCS30	828985/018	05/17/2014	05/16/2015
L.I.S.N.	Schwarzbeck	NNLK8129	8129203	05/17/2014	05/16/2015
50Ω Coaxial Switch	Anritsu	MP59B	M20531	N/A	N/A
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100006	05/17/2014	05/16/2015

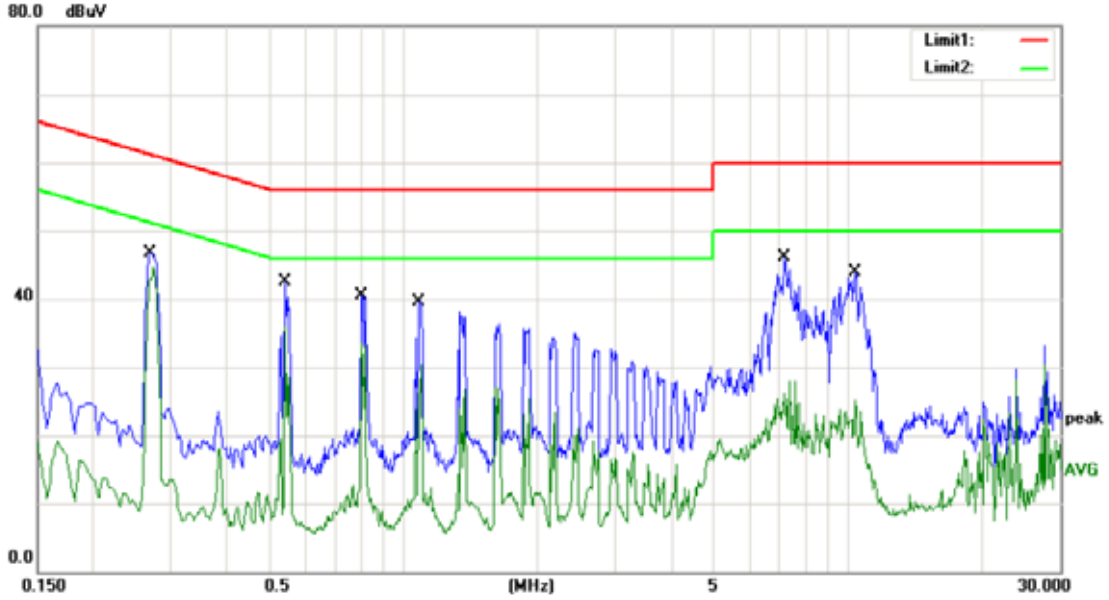
5.4 Conducted Emission Limit

Conducted Emission

Frequency(MHz)	Quasi-peak	Average
0.15-0.5	66-56	56-46
0.5-5.0	56	46
5.0-30.0	60	50

Note: 1. The lower limit shall apply at the transition frequencies
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

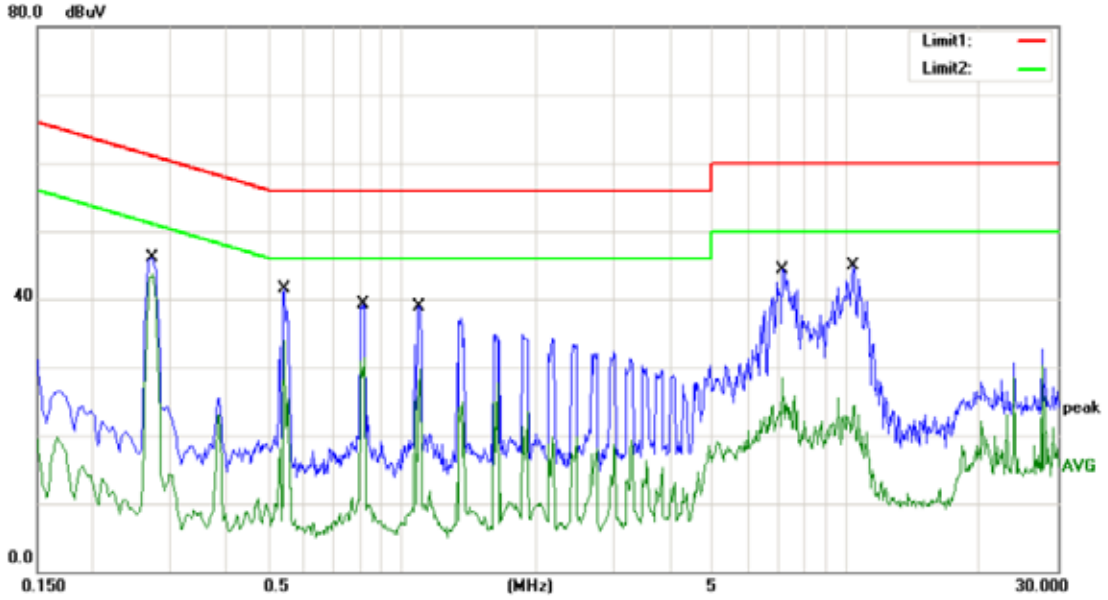
5.5 Measurement Result



Site Conduction #1 Phase: L1 Temperature: 26
Limit: (CE)FCC PART 15 class B_QP Power: AC 120V/60Hz Humidity: 60 %
EUT: High Performance Wireless Speaker
M/N: W9
Mode: WIFI ON
Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.2700	46.73	0.00	46.73	61.12	-14.39	QP	
2	*	0.2700	44.70	0.00	44.70	51.12	-6.42	AVG	
3		0.5420	42.47	0.00	42.47	56.00	-13.53	QP	
4		0.5420	35.86	0.00	35.86	46.00	-10.14	AVG	
5		0.8020	40.42	0.00	40.42	56.00	-15.58	QP	
6		0.8020	33.44	0.00	33.44	46.00	-12.56	AVG	
7		1.0860	39.49	0.00	39.49	56.00	-16.51	QP	
8		1.0860	30.27	0.00	30.27	46.00	-15.73	AVG	
9		7.2060	46.19	0.00	46.19	60.00	-13.81	QP	
10		7.2060	27.95	0.00	27.95	50.00	-22.05	AVG	
11		10.3940	43.97	0.00	43.97	60.00	-16.03	QP	
12		10.3940	25.02	0.00	25.02	50.00	-24.98	AVG	

*:Maximum data x:Over limit I:over margin Comment: Factor build in receiver. Operator: WAP



Site Conduction #1 Phase: N Temperature: 26
Limit: (CE)FCC PART 15 class B_QP Power: AC 120V/60Hz Humidity: 60 %
EUT: High Performance Wireless Speaker
M/N: W9
Mode: WIFI ON
Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.2740	46.09	0.00	46.09	61.00	-14.91	QP	
2	*	0.2740	43.61	0.00	43.61	51.00	-7.39	AVG	
3		0.5420	41.56	0.00	41.56	56.00	-14.44	QP	
4		0.5420	33.85	0.00	33.85	46.00	-12.15	AVG	
5		0.8140	39.23	0.00	39.23	56.00	-16.77	QP	
6		0.8140	31.53	0.00	31.53	46.00	-14.47	AVG	
7		1.0900	38.97	0.00	38.97	56.00	-17.03	QP	
8		1.0900	29.70	0.00	29.70	46.00	-16.30	AVG	
9		7.2100	44.31	0.00	44.31	60.00	-15.69	QP	
10		7.2100	28.58	0.00	28.58	50.00	-21.42	AVG	
11		10.3500	44.95	0.00	44.95	60.00	-15.05	QP	
12		10.3500	25.41	0.00	25.41	50.00	-24.59	AVG	

*:Maximum data x:Over limit I:over margin Comment: Factor build in receiver. Operator: WAP

6. Radiated Emission Test

6.1 Measurement Procedure

1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
4. Repeat above procedures until all frequency measured was complete.

When spectrum scanned from 30 MHz to 1GHz setting resolution bandwidth 120 kHz and video bandwidth 300kHz.

EMI Test Receiver	Setting
Attenuation	Auto
RB	120kHz
VB	300kHz
Detector	QP
Trace	Max hold

When spectrum scanned above 1GHz setting resolution bandwidth 1MHz, video bandwidth 3MHz.

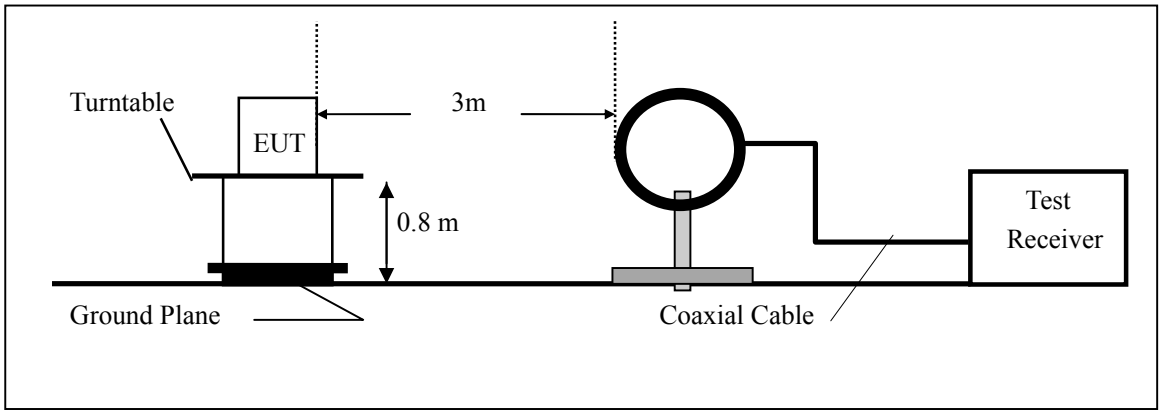
EMI Test Receiver	Setting
Attenuation	Auto
RB	1MHz
VB	3MHz
Detector	Peak
Trace	Max hold

When spectrum scanned above 1GHz setting resolution bandwidth 1MHz, video bandwidth 10Hz.

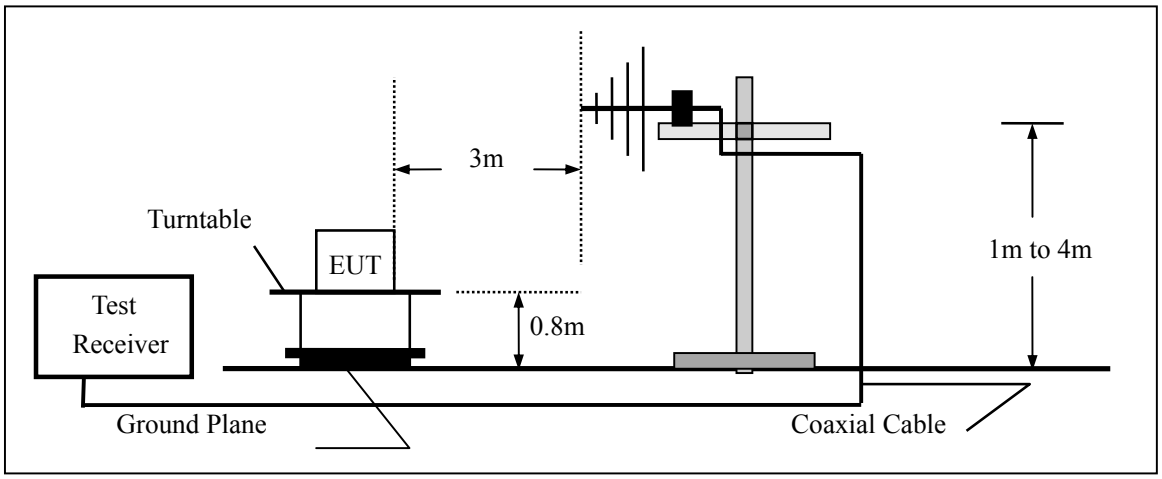
EMI Test Receiver	Setting
Attenuation	Auto
RB	1MHz
VB	10Hz
Detector	AVG
Trace	Max hold

6.2 Test SET-UP (Block Diagram of Configuration)

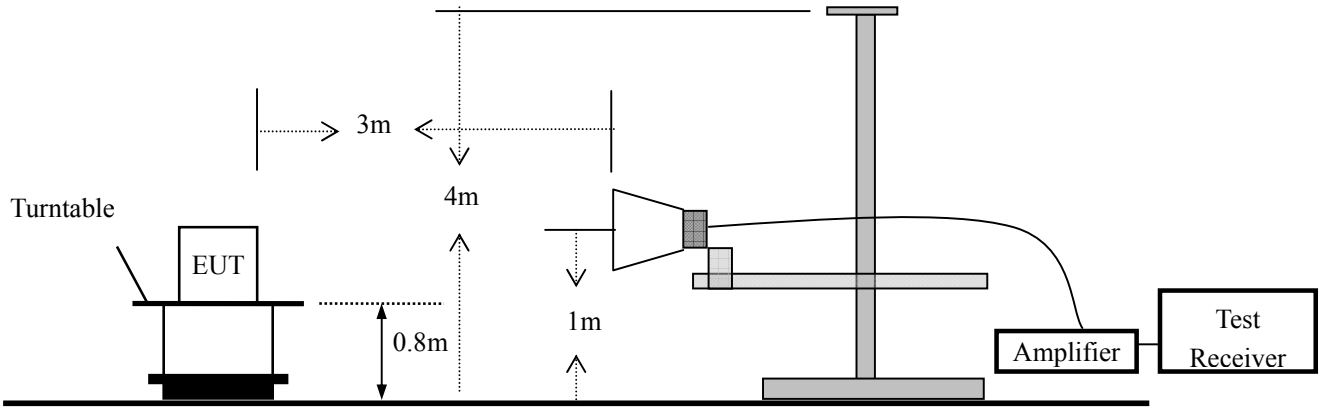
(A) Radiated Emission Test Set-Up, Frequency Below 30MHz



(B) Radiated Emission Test Set-Up, Frequency Below 1000MHz



(C) Radiated Emission Test Set-Up, Frequency above 1000MHz



6.3 Measurement Equipment Used

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Pre-Amplifier	HP	8447D	2944A07999	05/17/2014	05/16/2015
Spectrum Analyzer	Agilent	E4448A	56481557	05/17/2014	05/16/2015
Bilog Antenna	Schwarzbeck	VULB9163	142	05/17/2014	05/16/2015
Loop Antenna	ARA	PLA-1030/B	1029	05/17/2014	05/16/2015
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170399	05/17/2014	05/16/2015
Horn Antenna	Schwarzbeck	BBHA 9120	D143	05/17/2014	05/16/2015
Pre-Amplifier	A.H.	PAM-0126	1415261	05/17/2014	05/16/2015
Cable	Schwarzbeck	AK9513	ACRX1	05/17/2014	05/16/2015
Cable	Rosenberger	N/A	FP2RX2	05/17/2014	05/16/2015
Cable	Schwarzbeck	AK9513	CRPX1	05/17/2014	05/16/2015
Cable	Schwarzbeck	AK9513	CRRX2	05/17/2014	05/16/2015

6.4 Radiated Emission Limit

The emissions from an intentional radiator shall not exceed the field strength levels specified in the following table 15.209(a):

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

15.205 Restricted bands of operation

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1]0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	([2])

Remark: 1. Emission level in dBuV/m=20 log (uV/m)

2. Measurement was performed at an antenna to the closed point of EUT distance of meters.

3. Only spurious frequency is permitted to locate within the Restricted Bands specified in provision of ξ 15.205, and the emissions located in restricted bands also comply with 15.209 limit.

6.5 Measurement Result

All the modes 802.11a/n has been tested and the worst result 802.11a recorded as below:

Operation Mode:	TX Mode	Test Date :	July 25, 2014
Frequency Range:	9KHz~30MHz	Temperature :	28℃
Test Result:	PASS	Humidity :	65 %
Measured Distance:	3m	Test By:	WOLF

Note:

Freq. (MHz)	Ant.Pol. H/V	Emission Level (dBuV/m)	Limit 3m (dBuV/m)	Over (dB)
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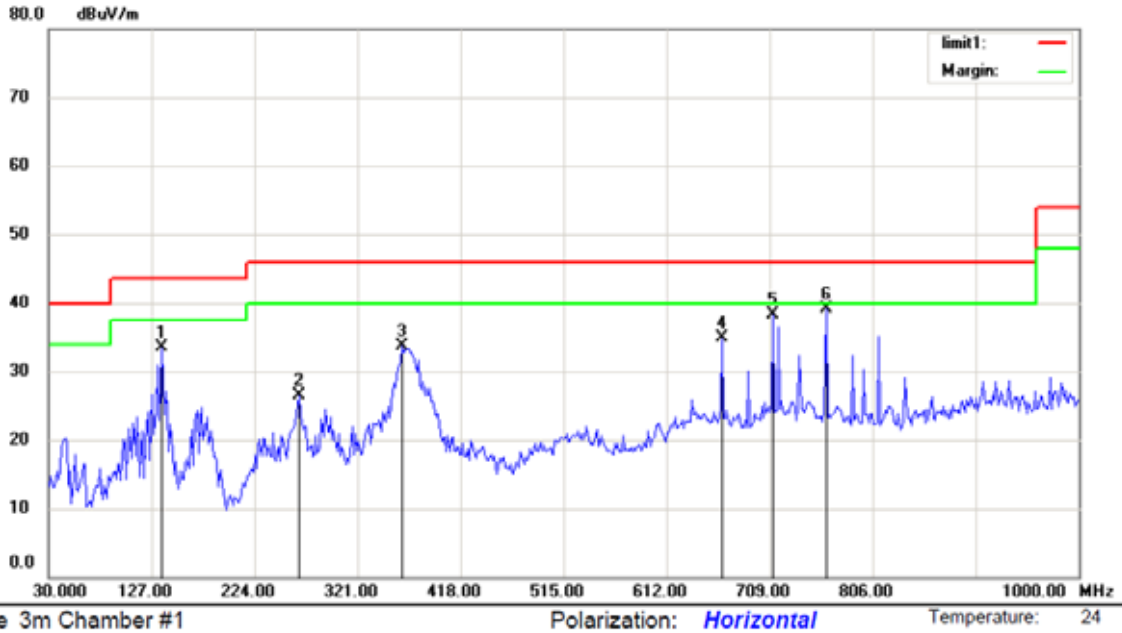
Note: the amplitude of spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported.

Distance extrapolation factor =40log(Specific distance/ test distance)(dB);

Limit line=Specific limits(dBuV) + distance extrapolation factor.



Site 3m Chamber #1 Polarization: *Horizontal* Temperature: 24
Limit: (RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 53 %
EUT: High Performance Wireless Speaker
M/N: W9
Mode:TX5180
Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		137.2596	24.15	9.36	33.51	43.50	-9.99	QP			
2		266.2820	11.86	14.68	26.54	46.00	-19.46	QP			
3		362.6602	16.61	17.03	33.64	46.00	-12.36	QP			
4		664.2307	11.78	23.08	34.86	46.00	-11.14	QP			
5		712.4198	15.92	22.29	38.21	46.00	-7.79	QP			
6	*	762.1634	14.48	24.56	39.04	46.00	-6.96	QP			

*:Maximum data x:Over limit !:over margin Operator: KK

Site 3m Chamber #1
Limit: (RE)FCC PART 15 CLASS B
EUT: High Performance Wireless Speaker
M/N: W9
Mode:TX5180
Note:

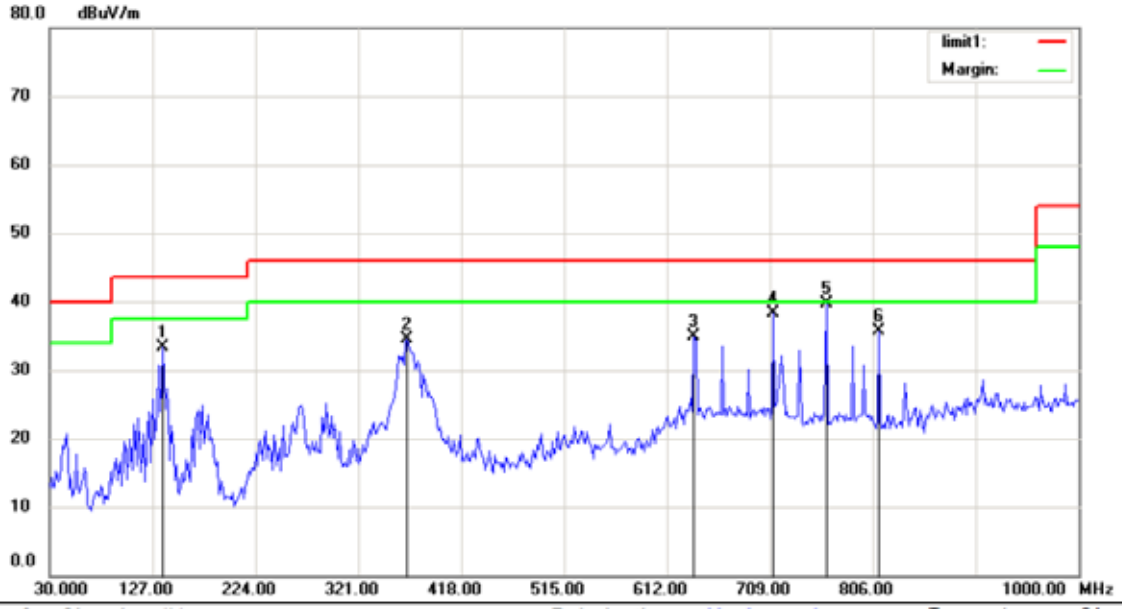
Polarization: *Vertical*
Power: AC 120V/60Hz

Temperature: 24
Humidity: 53 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	45.5448	16.36	17.11	33.47	40.00	-6.53	QP			
2		64.1987	21.30	10.85	32.15	40.00	-7.85	QP			
3		99.9520	21.57	12.78	34.35	43.50	-9.15	QP			
4		137.2596	23.61	9.36	32.97	43.50	-10.53	QP			
5		365.7692	17.48	17.05	34.53	46.00	-11.47	QP			
6		811.9070	10.07	24.64	34.71	46.00	-11.29	QP			

*:Maximum data x:Over limit l:over margin

Operator: KK



Site 3m Chamber #1 Polarization: *Horizontal* Temperature: 24

Limit: (RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 53 %

EUT: High Performance Wireless Speaker

M/N: W9

Mode:TX5210

Note:

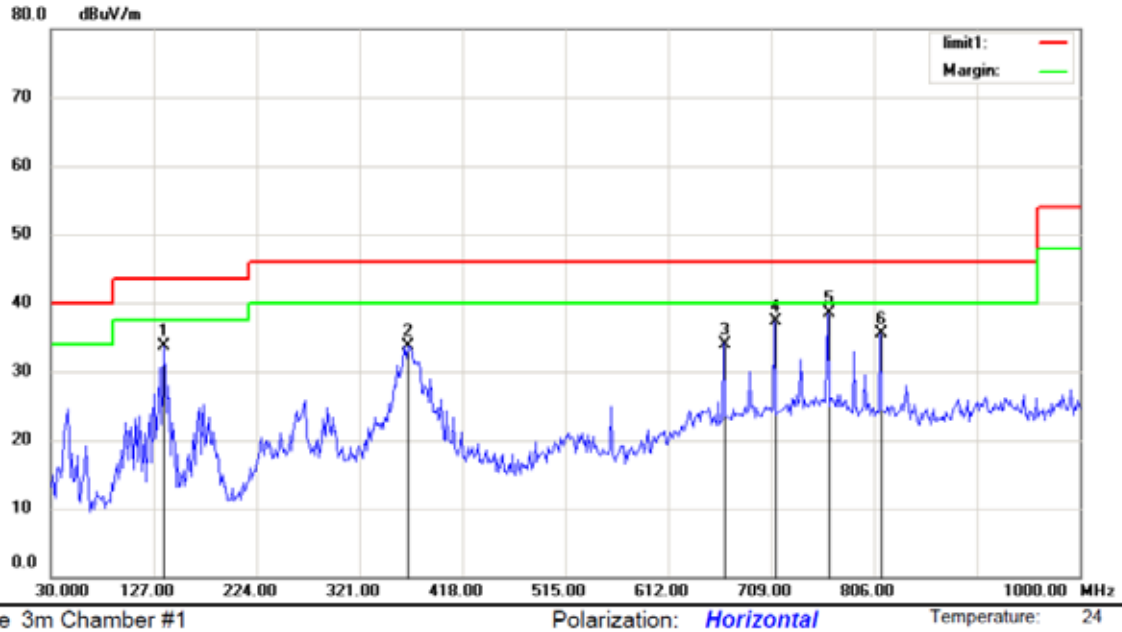
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		137.2596	23.99	9.36	33.35	43.50	-10.15	QP			
2		367.3236	17.41	17.06	34.47	46.00	-11.53	QP			
3		637.8044	12.08	22.75	34.83	46.00	-11.17	QP			
4		712.4198	16.08	22.29	38.37	46.00	-7.63	QP			
5	*	762.1634	15.18	24.56	39.74	46.00	-6.26	QP			
6		811.9070	11.02	24.64	35.66	46.00	-10.34	QP			

*:Maximum data x:Over limit I:over margin Operator: KK

Site 3m Chamber #1 Polarization: *Vertical* Temperature: 24
Limit: (RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 53 %
EUT: High Performance Wireless Speaker
M/N: W9
Mode:TX5210
Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	45.5448	17.75	17.11	34.86	40.00	-5.14	QP			
2		99.9520	23.94	12.78	36.72	43.50	-6.78	QP			
3		137.2596	23.86	9.36	33.22	43.50	-10.28	QP			
4		367.3236	17.92	17.06	34.98	46.00	-11.02	QP			
5		426.3942	10.59	18.31	28.90	46.00	-17.10	QP			
6		811.9070	10.30	24.64	34.94	46.00	-11.06	QP			

*:Maximum data x:Over limit I:over margin Operator: KK



Site 3m Chamber #1
Limit: (RE)FCC PART 15 CLASS B
EUT: High Performance Wireless Speaker
M/N: W9
Mode:TX5240
Note:

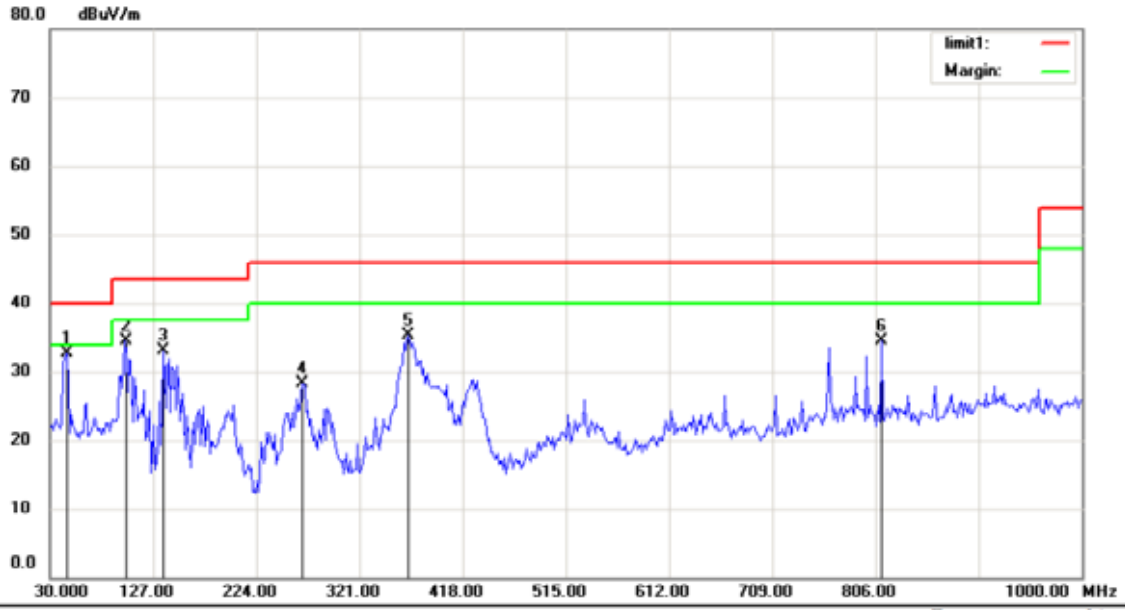
Polarization: *Horizontal*
Power: AC 120V/60Hz

Temperature: 24
Humidity: 53 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		137.2596	24.34	9.36	33.70	43.50	-9.80	QP			
2		367.3236	16.70	17.06	33.76	46.00	-12.24	QP			
3		664.2308	10.92	23.08	34.00	46.00	-12.00	QP			
4		712.4200	14.94	22.29	37.23	46.00	-8.77	QP			
5	*	762.1635	13.99	24.56	38.55	46.00	-7.45	QP			
6		811.9071	10.81	24.64	35.45	46.00	-10.55	QP			

*:Maximum data x:Over limit !:over margin

Operator: KK



Site 3m Chamber #1 Polarization: *Vertical* Temperature: 24
Limit: (RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 53 %
EUT: High Performance Wireless Speaker
M/N: W9
Mode:TX5240
Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	45.5448	15.60	17.11	32.71	40.00	-7.29	QP			
2		99.9520	21.81	12.78	34.59	43.50	-8.91	QP			
3		137.2596	23.68	9.36	33.04	43.50	-10.46	QP			
4		267.8365	13.55	14.78	28.33	46.00	-17.67	QP			
5		367.3236	18.25	17.06	35.31	46.00	-10.69	QP			
6		811.9070	9.80	24.64	34.44	46.00	-11.56	QP			

*:Maximum data x:Over limit !:over margin Operator: KK

Operation Mode:	802.11a TX Channel 36	Test Date :	July 25, 2014
Frequency Range:	1-40GHz	Temperature :	28℃
Test Result:	PASS	Humidity :	65 %
Measured Distance:	3m	Test By:	WOLF

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV/m) PK	Emission Level(dBuV/m) AV	Limit 3m(dBuV/m) PK	Limit 3m(dBuV/m) AV	Over(dB) PK	Over(dB) AV
10354.91	V	56.15	39.35	74.00	54.00	-17.85	-14.65
--	--	--	--	--	--	--	--
10327.66	H	55.89	39.65	74.00	54.00	-18.11	-14.35

All emissions not reported were more than 20dB below the specified limit or in the noise floor.

Note: (1) All Readings are Peak Value and AV.
(2) Emission Level= Reading Level+Probe Factor +Cable Loss.
(3) Data of measurement within this frequency range shown " -- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

Operation Mode:	802.11a TX Channel 42	Test Date :	July 25, 2014
Frequency Range:	1-40GHz	Temperature :	28℃
Test Result:	PASS	Humidity :	65 %
Measured Distance:	3m	Test By:	WOLF

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV/m) PK	Emission Level(dBuV/m) AV	Limit 3m(dBuV/m) PK	Limit 3m(dBuV/m) AV	Over(dB) PK	Over(dB) AV
10455.14	V	55.49	39.51	74.00	54.00	-18.51	-14.49
--	--	--	--	--	--	--	--
10473.20	H	55.18	39.98	74.00	54.00	-18.82	-14.02

All emissions not reported were more than 20dB below the specified limit or in the noise floor.

Note: (1) All Readings are Peak Value and AV.
(2) Emission Level= Reading Level+Probe Factor +Cable Loss.
(3) Data of measurement within this frequency range shown " -- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

Operation Mode:	802.11a TX Channel 48	Test Date :	July 25, 2014
Frequency Range:	1-40GHz	Temperature :	28℃
Test Result:	PASS	Humidity :	65 %
Measured Distance:	3m	Test By:	WOLF

Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
	H/V	PK	AV	PK	AV	PK	AV
10480.57	V	54.47	40.06	74.00	54.00	-19.53	-13.94
--	--	--	--	--	--	--	--
10499.01	H	54.45	40.53	74.00	54.00	-19.55	-13.47

All emissions not reported were more than 20dB below the specified limit or in the noise floor.

Note: (1) All Readings are Peak Value and AV.
(2) Emission Level= Reading Level+Probe Factor +Cable Loss.
(3) Data of measurement within this frequency range shown " -- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

7 26dB and 99% Bandwidth Test

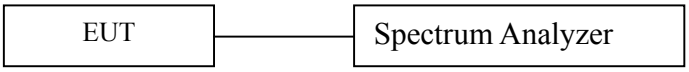
7.1 Measurement Procedure

The bandwidth at 26 dB down from the highest in-band spectral density is measured with a spectrum analyzer connected to the antenna terminal while the EUT is operating at its maximum power control level, as defined in KDB 789033, at the appropriate frequencies. The spectrum analyzer's bandwidth measurement function is configured to measure the 26 dB bandwidth.
The 26 dB bandwidth is used to determine the conducted power limits.

1) Set RBW = approximately 1% of the emission bandwidth.
2) Set the VBW > RBW.
3) Detector = Peak.
4) Trace mode = max hold.
5) Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

The following procedure shall be used for measuring (99 %) power bandwidth.
1) Set center frequency to the nominal EUT channel center frequency.
2) Set span = 1.5 times to 5.0 times the OBW.
3) Set RBW = 1 % to 5 % of the OBW
4) Set VBW ≥ 3 · RBW
5) Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.

7.2 Test SET-UP (Block Diagram of Configuration)



7.3 Measurement Equipment Used

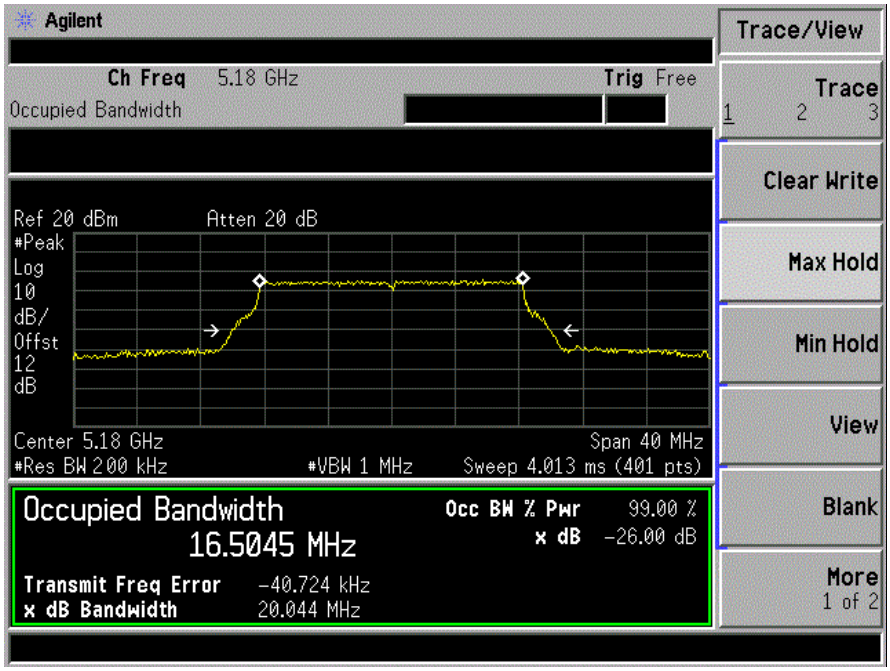
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	Agilent	E4407B	88156318	05/17/2014	05/16/2015

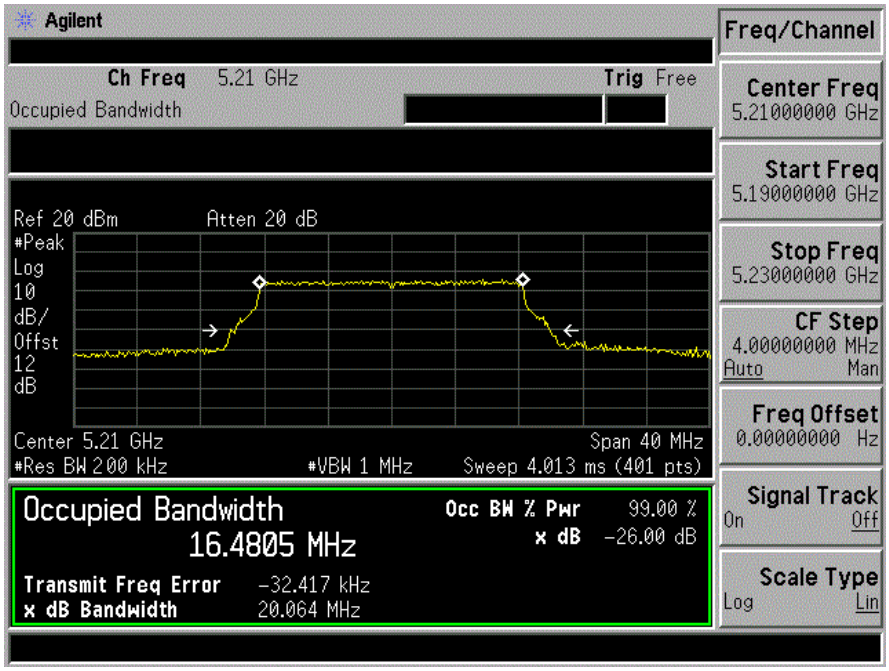
7.4 Measurement Results

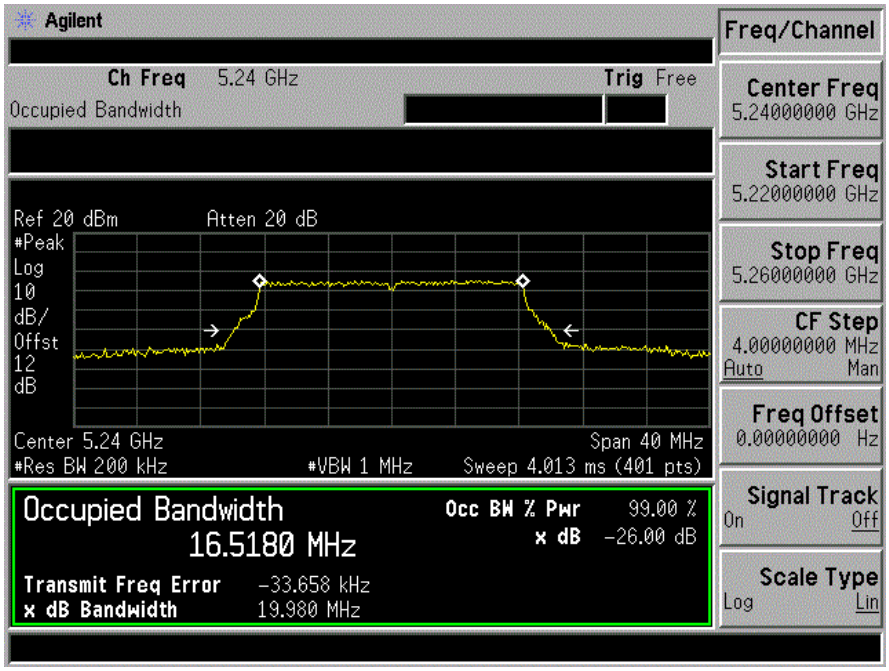
Spectrum Detector:	PK	Test Date :	July 25, 2014
Test By:	Andy	Temperature :	28℃
Test Result:	PASS	Humidity :	65 %

Operation Mode: 802.11a

Channel number	Channel frequency (MHz)	26dB Bandwidth (MHz)
36	5180	20.044
42	5210	20.064
48	5240	19.980



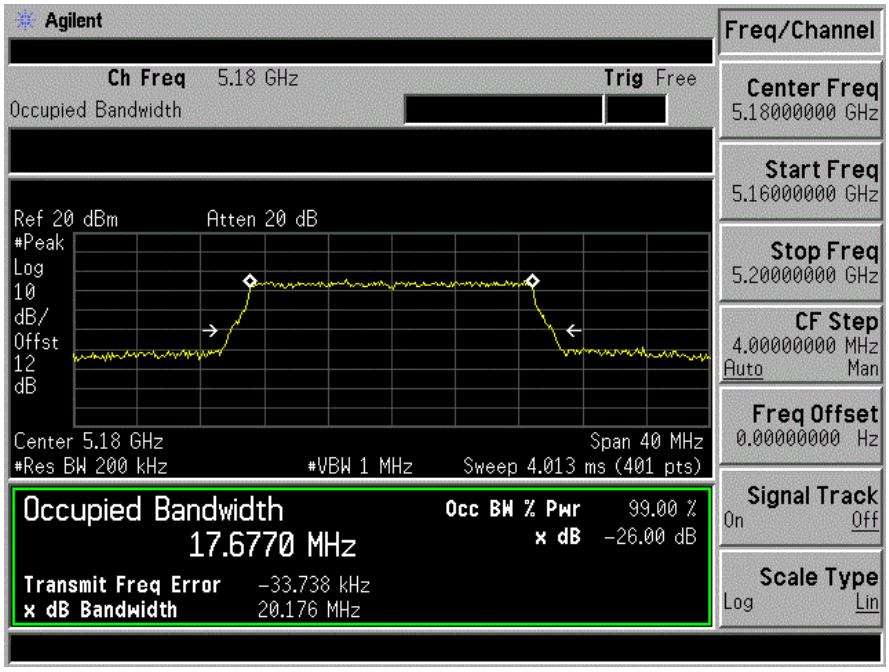

Agilent
Freq/Channel
Ch Freq 5.21 GHz
Trig Free
Occupied Bandwidth
Center Freq
5.21000000 GHz
Start Freq
5.19000000 GHz
Stop Freq
5.23000000 GHz
CF Step
4.00000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Scale Type
Log Lin
Ref 20 dBm
Atten 20 dB
#Peak
Log
10
dB/
Offst
12
dB
Center 5.21 GHz
Span 40 MHz
#Res BW 200 kHz
#VBW 1 MHz
Sweep 4.013 ms (401 pts)
Occupied Bandwidth
16.4805 MHz
Occ BW % Pwr 99.00 %
x dB -26.00 dB
Transmit Freq Error -32.417 kHz
x dB Bandwidth 20.064 MHz

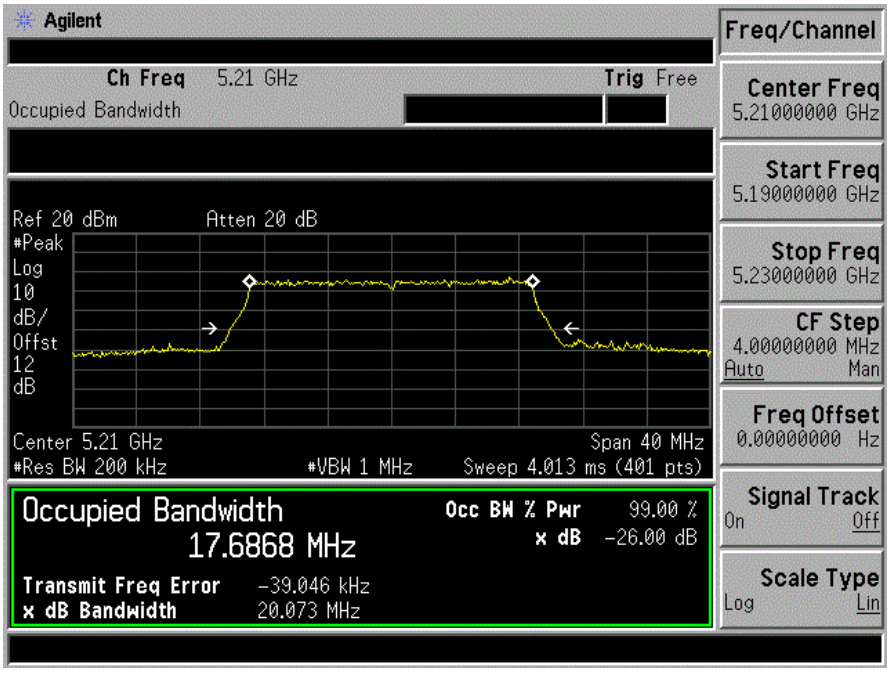

Agilent
Freq/Channel
Ch Freq 5.24 GHz
Trig Free
Occupied Bandwidth
Center Freq
5.24000000 GHz
Start Freq
5.22000000 GHz
Stop Freq
5.26000000 GHz
CF Step
4.00000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Scale Type
Log Lin
Ref 20 dBm
Atten 20 dB
#Peak
Log
10
dB/
Offst
12
dB
Center 5.24 GHz
Span 40 MHz
#Res BW 200 kHz
#VBW 1 MHz
Sweep 4.013 ms (401 pts)
Occupied Bandwidth
16.5180 MHz
Occ BW % Pwr 99.00 %
x dB -26.00 dB
Transmit Freq Error -33.658 kHz
x dB Bandwidth 19.980 MHz

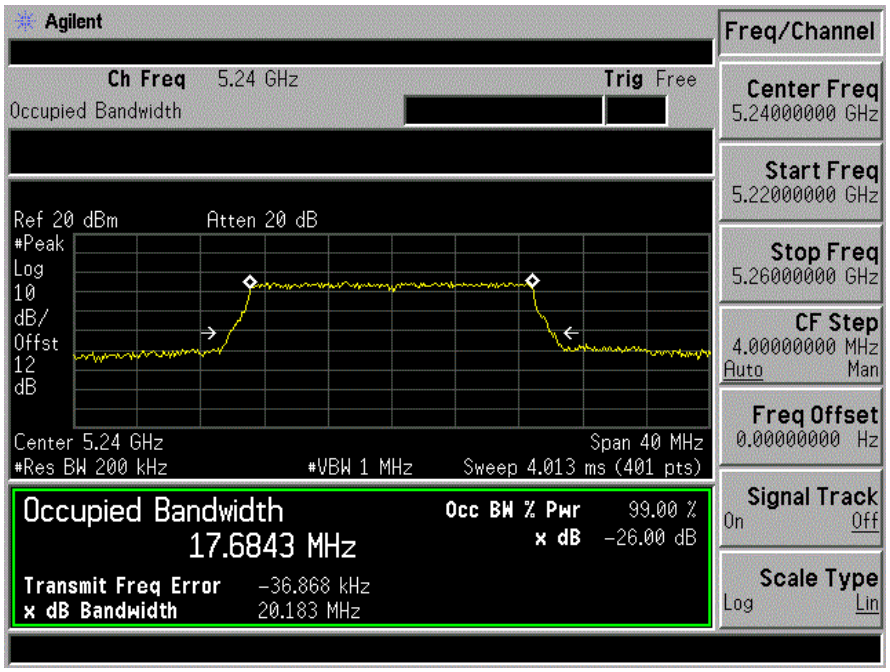
Spectrum Detector:	PK	Test Date :	July 25, 2014
Test By:	Andy	Temperature :	28℃
Test Result:	PASS	Humidity :	65 %

Operation Mode: 802.11n(HT20)

Channel number	Channel frequency (MHz)	26dB Bandwidth (MHz)
36	5180	20.176
42	5210	20.073
48	5240	20.183



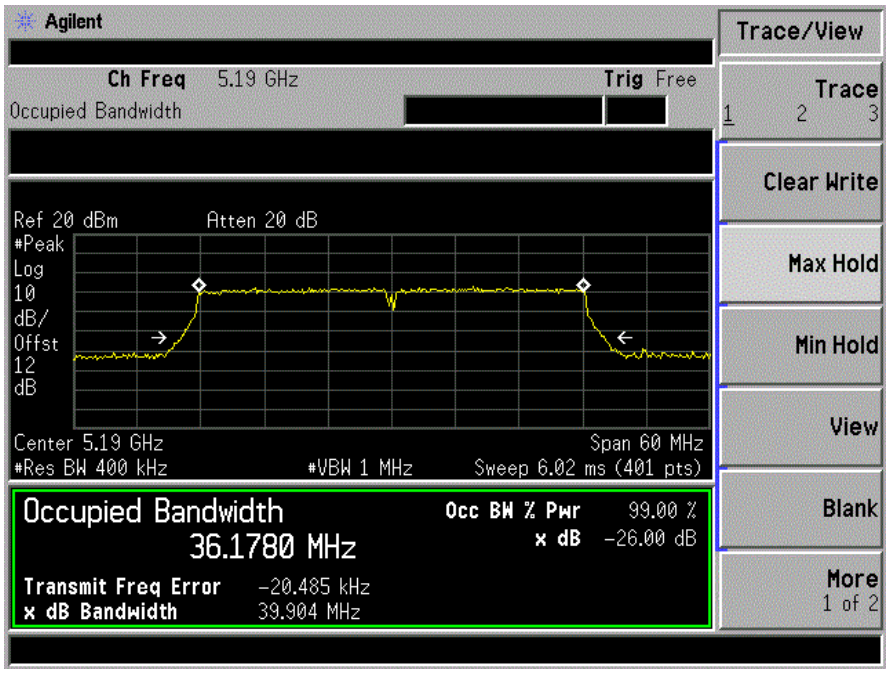

Agilent
Freq/Channel
Ch Freq 5.21 GHz
Trig Free
Occupied Bandwidth
Center Freq
5.21000000 GHz
Start Freq
5.19000000 GHz
Ref 20 dBm
Atten 20 dB
#Peak
Log
10
dB/
Offst
12
dB
Stop Freq
5.23000000 GHz
CF Step
4.00000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Center 5.21 GHz
Span 40 MHz
#Res BW 200 kHz
#VBW 1 MHz
Sweep 4.013 ms (401 pts)
Signal Track
On Off
Occupied Bandwidth
17.6868 MHz
Occ BW % Pwr 99.00 %
x dB -26.00 dB
Transmit Freq Error -39.046 kHz
x dB Bandwidth 20.073 MHz
Scale Type
Log Lin

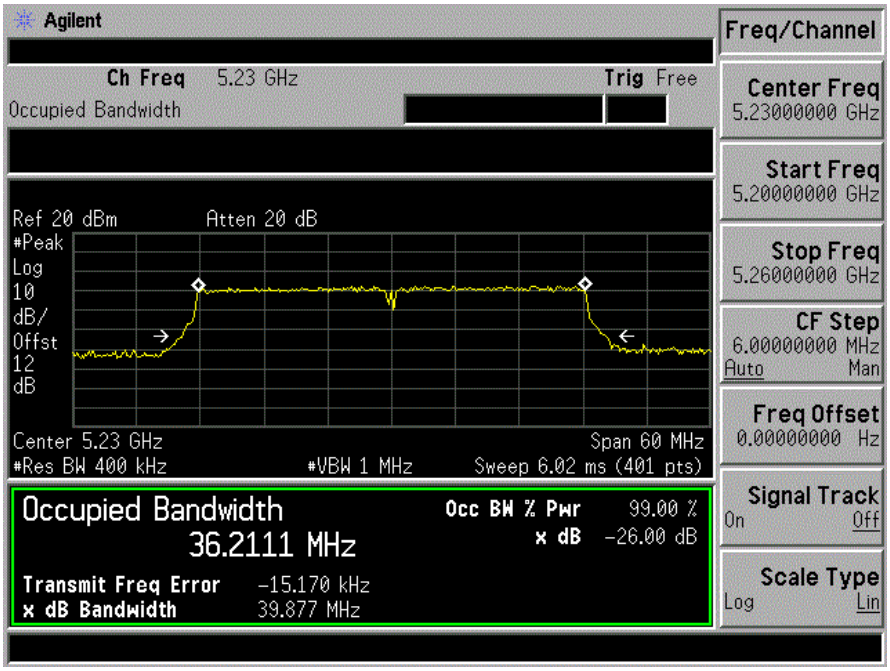

Agilent
Freq/Channel
Ch Freq 5.24 GHz
Trig Free
Occupied Bandwidth
Center Freq
5.24000000 GHz
Start Freq
5.22000000 GHz
Ref 20 dBm
Atten 20 dB
#Peak
Log
10
dB/
Offst
12
dB
Stop Freq
5.26000000 GHz
CF Step
4.00000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Center 5.24 GHz
Span 40 MHz
#Res BW 200 kHz
#VBW 1 MHz
Sweep 4.013 ms (401 pts)
Signal Track
On Off
Occupied Bandwidth
17.6843 MHz
Occ BW % Pwr 99.00 %
x dB -26.00 dB
Transmit Freq Error -36.868 kHz
x dB Bandwidth 20.183 MHz
Scale Type
Log Lin

Spectrum Detector:	PK	Test Date :	July 25, 2014
Test By:	Andy	Temperature :	28℃
Test Result:	PASS	Humidity :	65 %

Operation Mode: 802.11n(HT40)

Channel number	Channel frequency (MHz)	26dB Bandwidth (MHz)
38	5190	39.904
46	5230	39.877

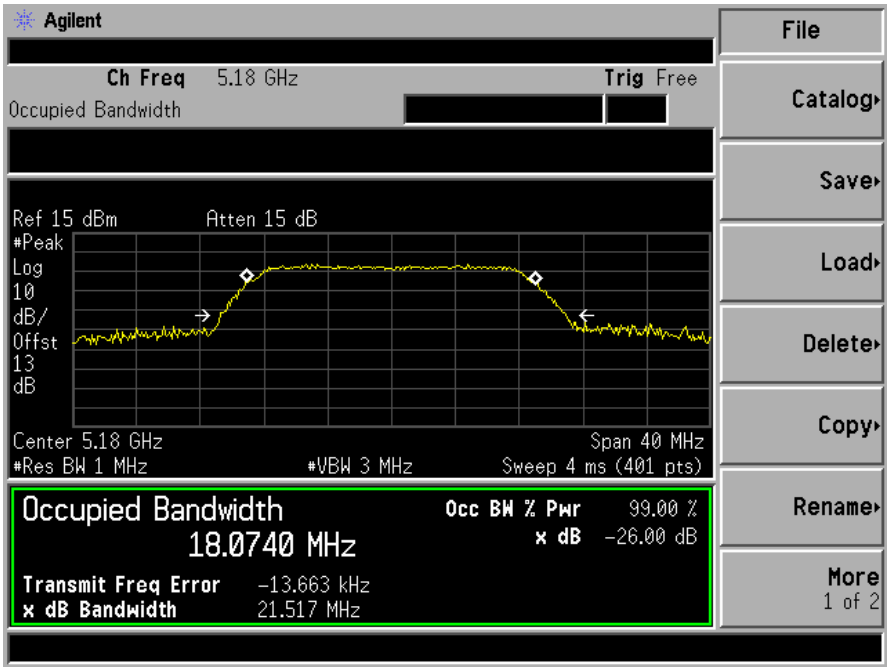


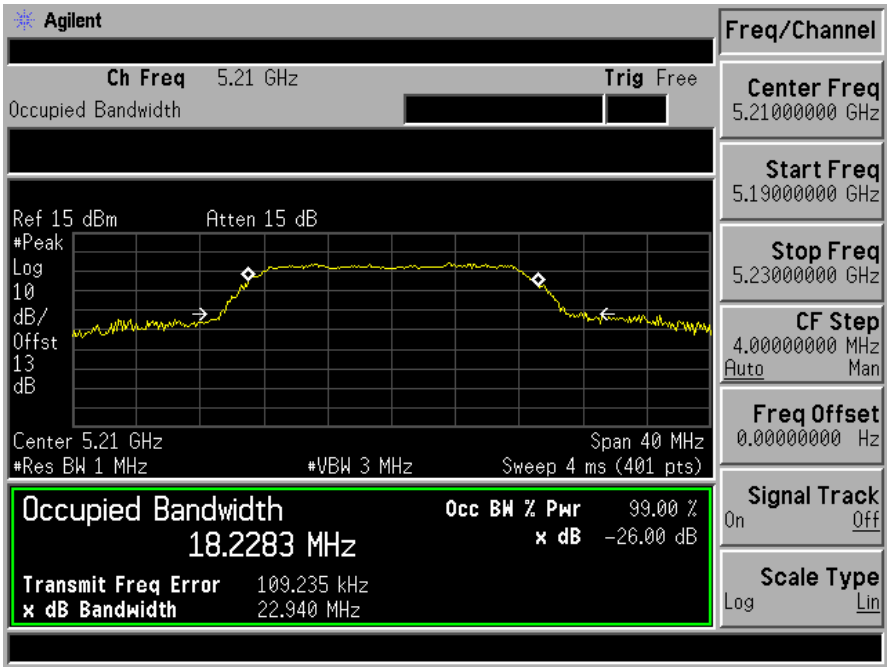

Agilent
Ch Freq 5.23 GHz
Trig Free
Occupied Bandwidth
Ref 20 dBm
Atten 20 dB
#Peak
Log
10
dB/
Offst
12
dB
Center 5.23 GHz
Span 60 MHz
#Res BW 400 kHz
#VBW 1 MHz
Sweep 6.02 ms (401 pts)
Occupied Bandwidth
36.2111 MHz
Occ BW % Pwr 99.00 %
x dB -26.00 dB
Transmit Freq Error -15.170 kHz
x dB Bandwidth 39.877 MHz
Freq/Channel
Center Freq
5.23000000 GHz
Start Freq
5.20000000 GHz
Stop Freq
5.26000000 GHz
CF Step
6.00000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Scale Type
Log Lin

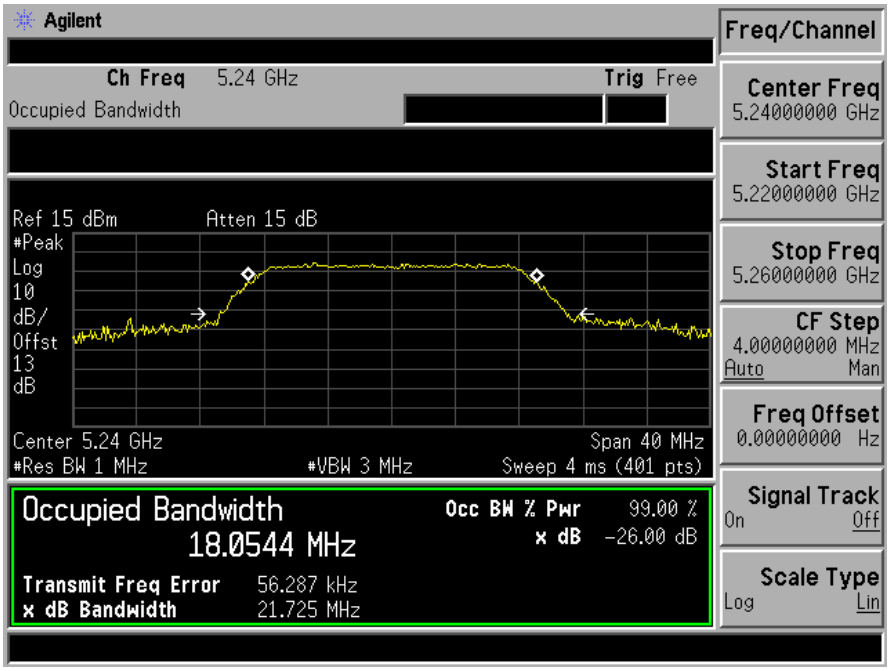
Spectrum Detector:	PK	Test Date :	July 25, 2014
Test By:	Andy	Temperature :	28℃
Test Result:	PASS	Humidity :	65 %

Operation Mode: 802.11a

Channel number	Channel frequency (MHz)	99%dB Bandwidth (MHz)
36	5180	18.0740
42	5210	18.2283
48	5240	18.0544



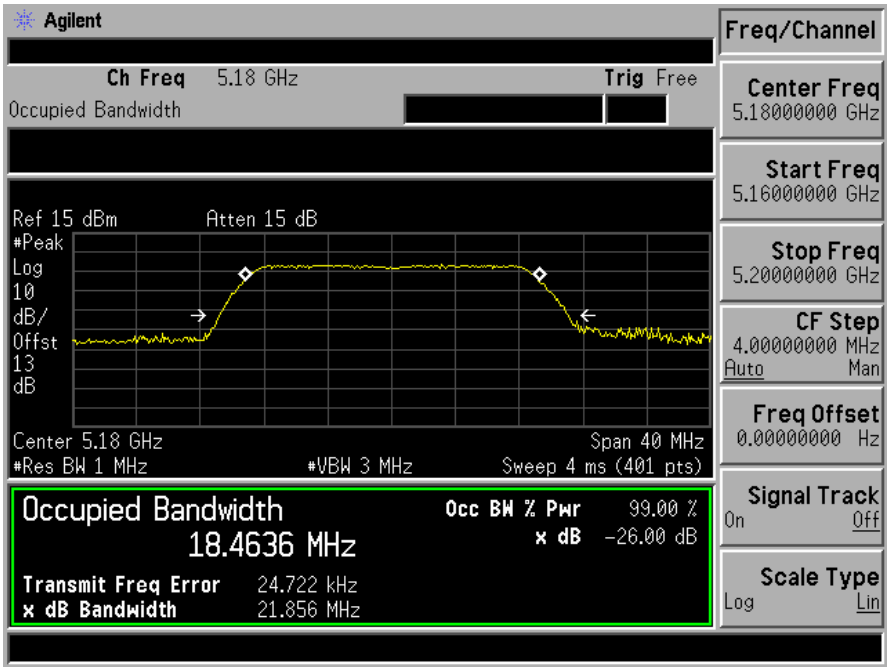

Agilent
Ch Freq 5.21 GHz
Trig Free
Occupied Bandwidth
Ref 15 dBm
Atten 15 dB
#Peak
Log
10
dB/
Offst
13
dB
Center 5.21 GHz
Span 40 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 4 ms (401 pts)
Occupied Bandwidth
18.2283 MHz
Occ BW % Pwr 99.00 %
x dB -26.00 dB
Transmit Freq Error 109.235 kHz
x dB Bandwidth 22.940 MHz
Freq/Channel
Center Freq
5.21000000 GHz
Start Freq
5.19000000 GHz
Stop Freq
5.23000000 GHz
CF Step
4.00000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Scale Type
Log Lin

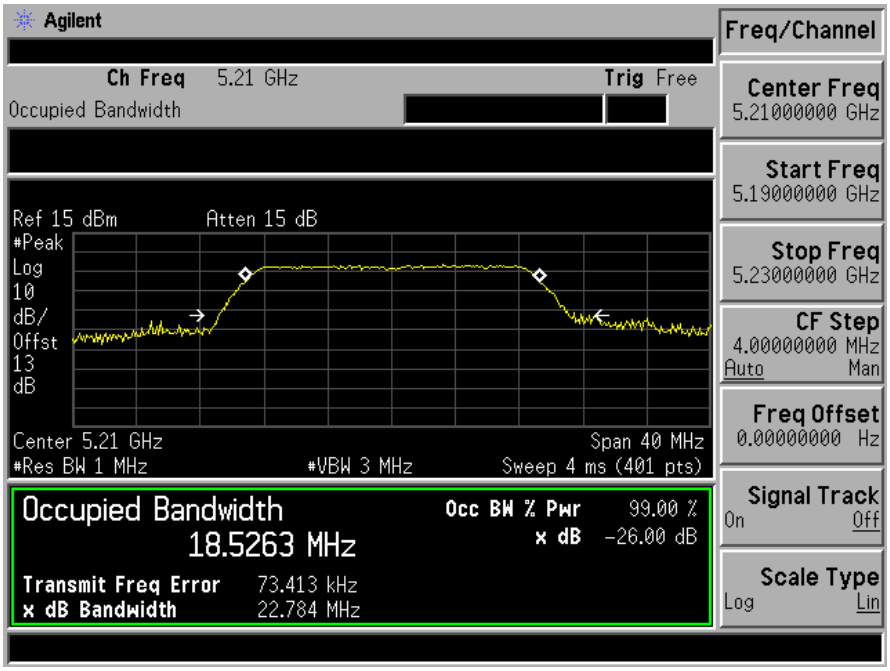

Agilent
Ch Freq 5.24 GHz
Trig Free
Occupied Bandwidth
Ref 15 dBm
Atten 15 dB
#Peak
Log
10
dB/
Offst
13
dB
Center 5.24 GHz
Span 40 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 4 ms (401 pts)
Occupied Bandwidth
18.0544 MHz
Occ BW % Pwr 99.00 %
x dB -26.00 dB
Transmit Freq Error 56.287 kHz
x dB Bandwidth 21.725 MHz
Freq/Channel
Center Freq
5.24000000 GHz
Start Freq
5.22000000 GHz
Stop Freq
5.26000000 GHz
CF Step
4.00000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Scale Type
Log Lin

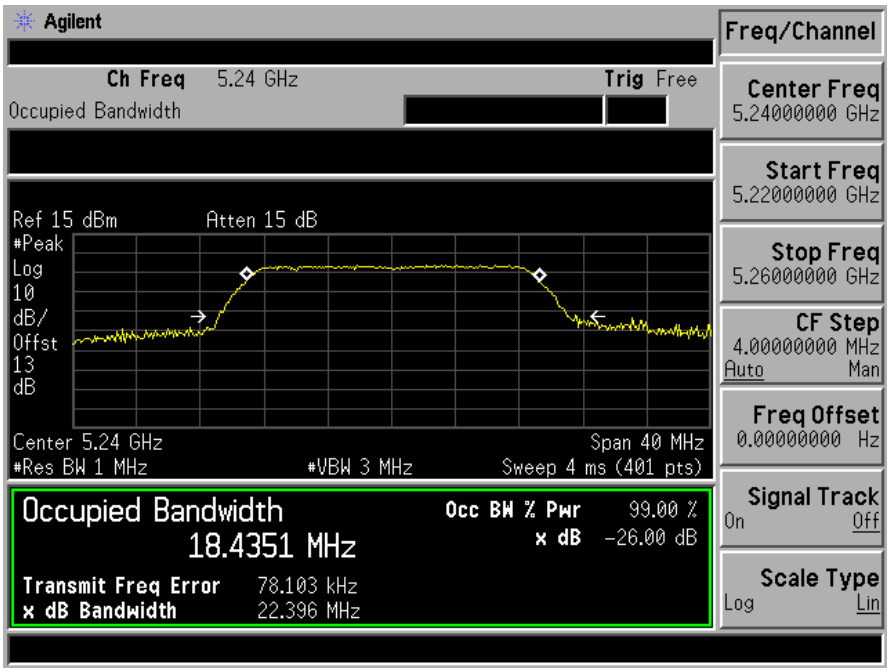
Spectrum Detector:	PK	Test Date :	July 25, 2014
Test By:	Andy	Temperature :	28℃
Test Result:	PASS	Humidity :	65 %

Operation Mode: 802.11n(HT20)

Channel number	Channel frequency (MHz)	99%dB Bandwidth (MHz)
36	5180	18.4636
42	5210	18.5263
48	5240	18.4351



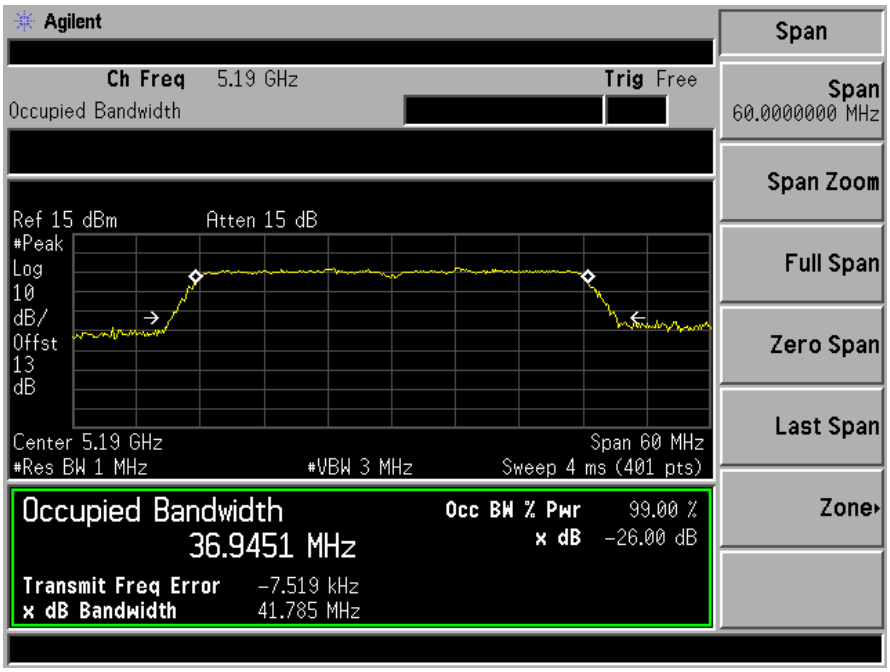

Agilent
Freq/Channel
Ch Freq 5.21 GHz
Trig Free
Occupied Bandwidth
Center Freq
5.21000000 GHz
Start Freq
5.19000000 GHz
Stop Freq
5.23000000 GHz
CF Step
4.00000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Scale Type
Log Lin
Ref 15 dBm
Atten 15 dB
#Peak
Log
10
dB/
Offst
13
dB
Center 5.21 GHz
#Res BW 1 MHz
#VBW 3 MHz
Span 40 MHz
Sweep 4 ms (401 pts)
Occupied Bandwidth
18.5263 MHz
Occ BW % Pwr 99.00 %
x dB -26.00 dB
Transmit Freq Error 73.413 kHz
x dB Bandwidth 22.784 MHz

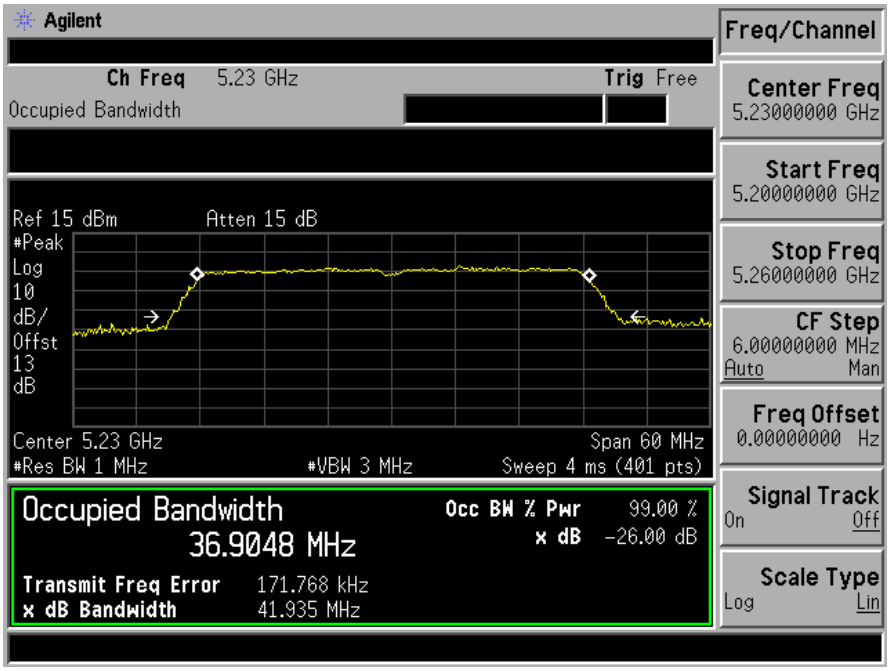

Agilent
Freq/Channel
Ch Freq 5.24 GHz
Trig Free
Occupied Bandwidth
Center Freq
5.24000000 GHz
Start Freq
5.22000000 GHz
Stop Freq
5.26000000 GHz
CF Step
4.00000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Scale Type
Log Lin
Ref 15 dBm
Atten 15 dB
#Peak
Log
10
dB/
Offst
13
dB
Center 5.24 GHz
#Res BW 1 MHz
#VBW 3 MHz
Span 40 MHz
Sweep 4 ms (401 pts)
Occupied Bandwidth
18.4351 MHz
Occ BW % Pwr 99.00 %
x dB -26.00 dB
Transmit Freq Error 78.103 kHz
x dB Bandwidth 22.396 MHz

Spectrum Detector:	PK	Test Date :	July 25, 2014
Test By:	Andy	Temperature :	28℃
Test Result:	PASS	Humidity :	65 %

Operation Mode: 802.11n(HT40)

Channel number	Channel frequency (MHz)	99% Bandwidth (MHz)
38	5190	36.9451
46	5230	36.9048




Agilent
Ch Freq 5.23 GHz
Trig Free
Occupied Bandwidth
Ref 15 dBm
Atten 15 dB
#Peak
Log
10
dB/
Offst
13
dB
Center 5.23 GHz
#Res BW 1 MHz
#VBW 3 MHz
Span 60 MHz
Sweep 4 ms (401 pts)
Occupied Bandwidth
36.9048 MHz
Occ BW % Pwr 99.00 %
x dB -26.00 dB
Transmit Freq Error 171.768 kHz
x dB Bandwidth 41.935 MHz
Freq/Channel
Center Freq
5.23000000 GHz
Start Freq
5.20000000 GHz
Stop Freq
5.26000000 GHz
CF Step
6.00000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Scale Type
Log Lin

8. Maximum Conducted Output Power Test

8.1 Measurement Procedure

The maximum average conducted output power can be measured using Method PM-G (Measurement using a gated RF average power meter):
Measurements may be performed using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

a. The Transmitter output (antenna port) was connected to the power meter.
b. Turn on the EUT and power meter and then record the power value.
c. Repeat above procedures on all channels needed to be tested.

8.2 Test SET-UP (Block Diagram of Configuration)

8.3 Measurement Equipment Used

EQUIPMENT TYPE	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Power meter	ML2495A	0824006	05/17/2014	05/16/2015
Power sensor	MA2411B	0738172	05/17/2014	05/16/2015

8.4 Conducted output limit

Band 5.15-5.25GHz:

The maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm+10log B, where B is the-26dB emission bandwidth in MHz.

.

8.5 Measurement Results

Spectrum Detector:	PK	Test Date :	July 25, 2014
Test By:	Andy	Temperature :	28℃
Test Result:	PASS	Humidity :	65 %
Operation Mode:	802.11a	Antenna:	A

Channel number	Channel Frequency(MHz)	Power output(dBm)	Power Limit(dBm) FCC	Pass/Fail
36	5180	15.23	17	PASS
42	5210	15.48	17	PASS
48	5240	15.19	17	PASS

Spectrum Detector:	PK	Test Date :	July 25, 2014
Test By:	Andy	Temperature :	28℃
Test Result:	PASS	Humidity :	65 %
Operation Mode:	802.11a	Antenna:	B

Channel number	Channel Frequency(MHz)	Power output(dBm)	Power Limit(dBm) FCC	Pass/Fail
36	5180	15.43	17	PASS
42	5210	15.28	17	PASS
48	5240	15.17	17	PASS

Spectrum Detector:	PK	Test Date :	July 25, 2014
Test By:	Andy	Temperature :	28℃
Test Result:	PASS	Humidity :	65 %
Operation Mode:	802.11n(HT20)	Antenna:	A

Channel number	Channel Frequency(MHz)	Power output(dBm)	Power Limit(dBm) FCC	Pass/Fail
36	5180	15.10	17	PASS
42	5210	15.13	17	PASS
48	5240	15.00	17	PASS

Spectrum Detector:	PK	Test Date :	July 25, 2014
Test By:	Andy	Temperature :	28℃
Test Result:	PASS	Humidity :	65 %
Operation Mode:	802.11n(HT20)	Antenna:	B

Channel number	Channel Frequency(MHz)	Power output(dBm)	Power Limit(dBm) FCC	Pass/Fail
36	5180	15.02	17	PASS
42	5210	15.10	17	PASS
48	5240	15.00	17	PASS

Spectrum Detector:	PK	Test Date :	July 25, 2014
Test By:	Andy	Temperature :	28℃
Test Result:	PASS	Humidity :	65 %
Operation Mode:	802.11n(HT40)	Antenna:	A

Channel number	Channel Frequency(MHz)	Power output(dBm)	Power Limit(dBm) FCC	Pass/Fail
38	5190	14.26	17	PASS
46	5230	14.20	17	PASS

Spectrum Detector:	PK	Test Date :	July 25, 2014
Test By:	Andy	Temperature :	28℃
Test Result:	PASS	Humidity :	65 %
Operation Mode:	802.11n(HT40)	Antenna:	B

Channel number	Channel Frequency(MHz)	Power output(dBm)	Power Limit(dBm) FCC	Pass/Fail
38	5190	13.98	17	PASS
46	5230	13.96	17	PASS

9. Peak Power Density

9.1 Test Procedures

Methods refer to FCC KDB 789033

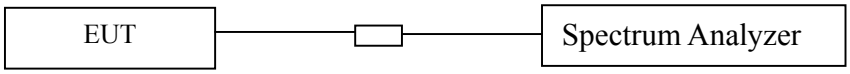
1) Create an average power spectrum for the EUT operating mode being tested by following the instructions in section E)2) for measuring maximum conducted output power using a spectrum analyzer or EMI receiver: select the appropriate test method (SA-3, or alternatives to each) and apply it up to, but not including, the step labeled, “Compute power…”.

2) Use the peak search function on the instrument to find the peak of the spectrum.

3) The result is the PPSD.

4) The above procedures make use of 1 MHz resolution bandwidth to satisfy the 1 MHz measurement bandwidth specified in the 15.407(a)(5). That rule section also permits use of resolution bandwidths less than 1 MHz “provided that the measured power is integrated to show the total power over the measurement bandwidth” (i.e., 1 MHz). If measurements are performed using a reduced resolution bandwidth and integrated over 1 MHz bandwidth

9.2 Block Diagram of Test Setup



9.3 Test Equipment

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	Agilent	E4407B	88156318	05/17/2014	05/16/2015

9.4 Limit

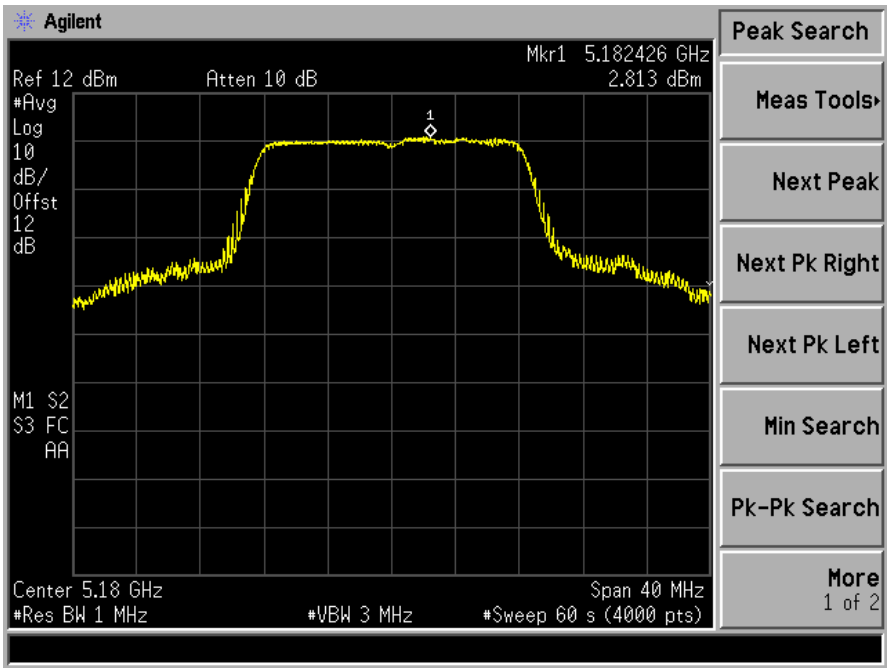
Band 5.15-5.25GHz:

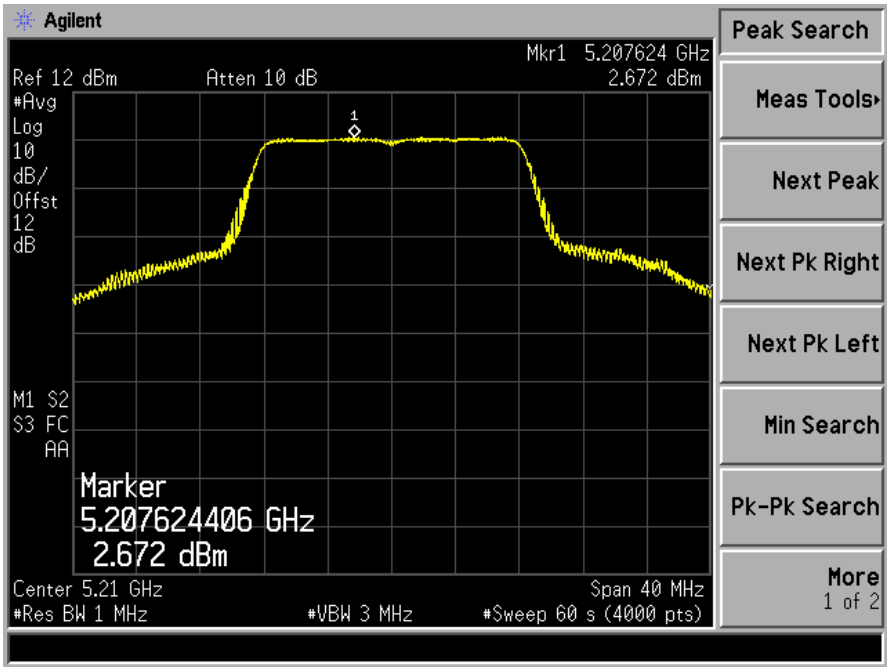
FCC: the peak power spectral density shall not exceed 4 dBm in any 1MHz band.

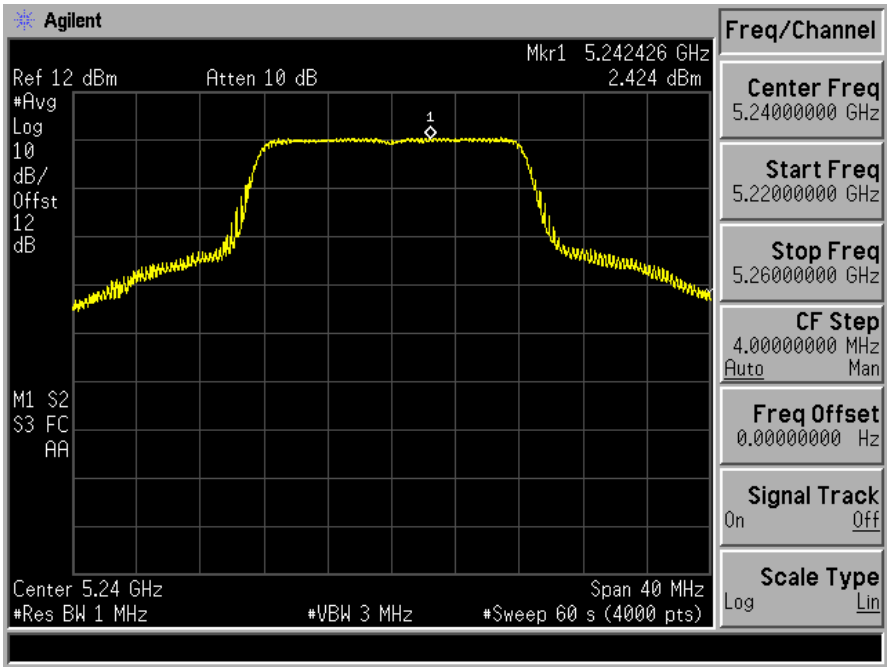
9.5 Test Result

Spectrum Detector:	PK	Test Date :	July 25, 2014
Test By:	Andy	Temperature :	28℃
Test Result:	PASS	Humidity :	65 %
Operation Mode:	802.11a	Antenna:	A

Channel number	Channel Frequency(MHz)	Peak Power output(dBm)	Peak Power Limit(dBm) FCC	Pass/Fail
36	5180	2.813	4	PASS
42	5210	2.672	4	PASS
48	5240	2.434	4	PASS

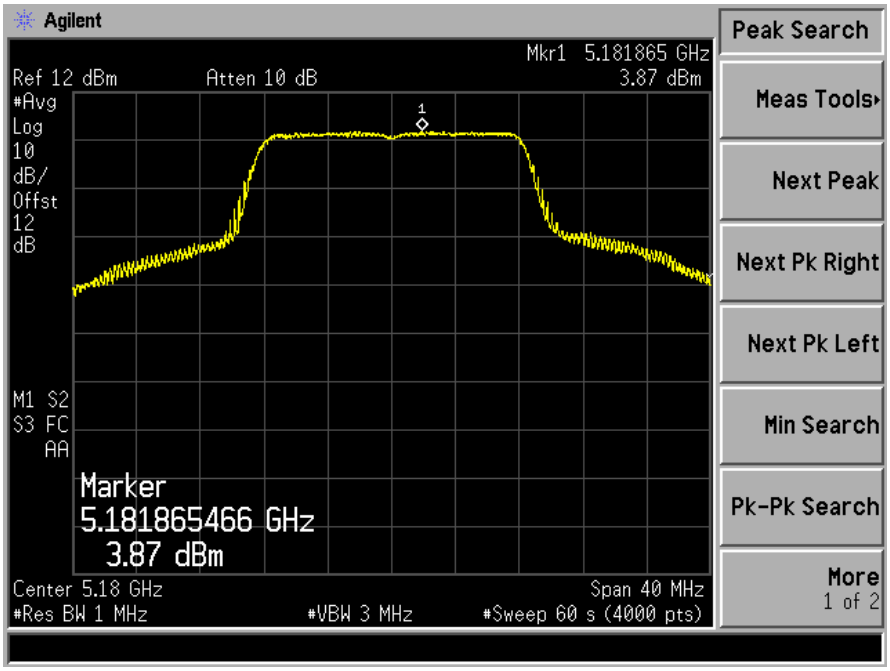


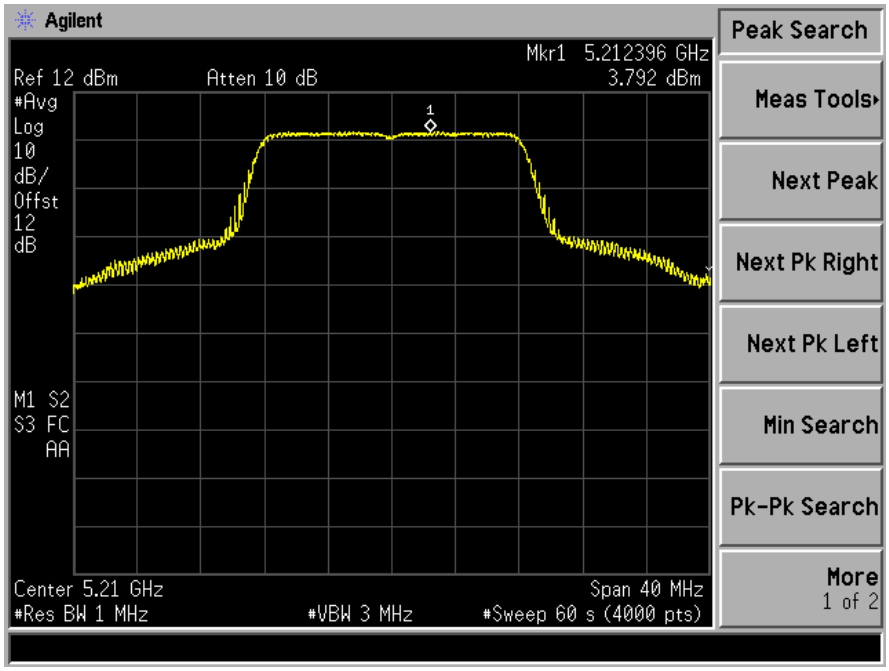

Agilent
Mkr1 5.207624 GHz
Ref 12 dBm
Atten 10 dB
2.672 dBm
#Avg
Log
10
dB/
Offst
12
dB
M1 S2
S3 FC
AA
Marker
5.207624406 GHz
2.672 dBm
Center 5.21 GHz
#Res BW 1 MHz
#VBW 3 MHz
Span 40 MHz
#Sweep 60 s (4000 pts)
Peak Search
Meas Tools
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
More
1 of 2

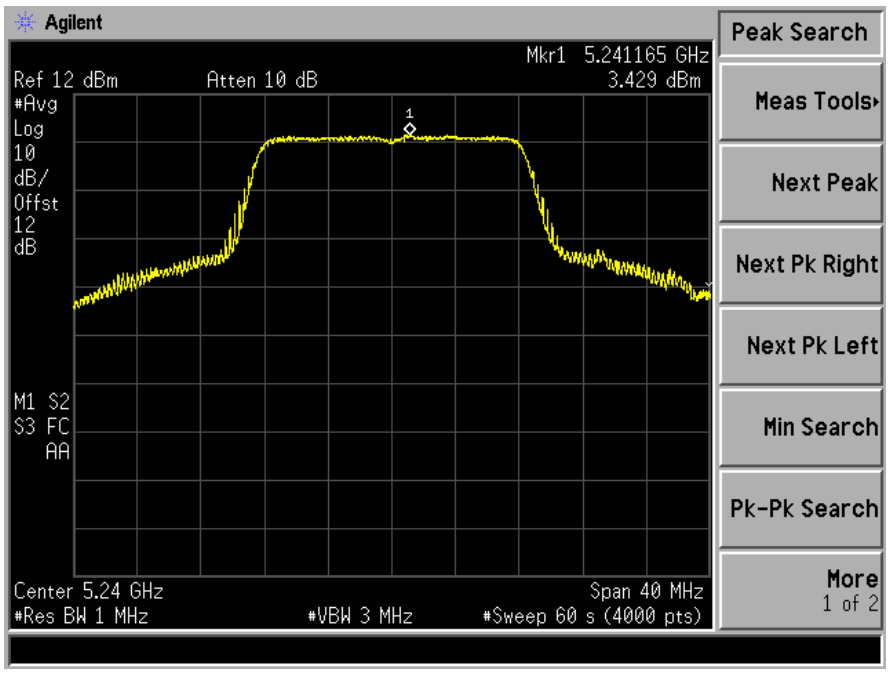

Agilent
Mkr1 5.242426 GHz
Ref 12 dBm
Atten 10 dB
2.424 dBm
#Avg
Log
10
dB/
Offst
12
dB
M1 S2
S3 FC
AA
Center 5.24 GHz
#Res BW 1 MHz
#VBW 3 MHz
Span 40 MHz
#Sweep 60 s (4000 pts)
Freq/Channel
Center Freq
5.24000000 GHz
Start Freq
5.22000000 GHz
Stop Freq
5.26000000 GHz
CF Step
4.00000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Scale Type
Log Lin

Spectrum Detector:	PK	Test Date :	July 25, 2014
Test By:	Andy	Temperature :	28℃
Test Result:	PASS	Humidity :	65 %
Operation Mode:	802.11a	Antenna:	B

Channel number	Channel Frequency(MHz)	Peak Power output(dBm)	Peak Power Limit(dBm) FCC	Pass/Fail
36	5180	3.87	4	PASS
42	5210	3.792	4	PASS
48	5240	3.429	4	PASS

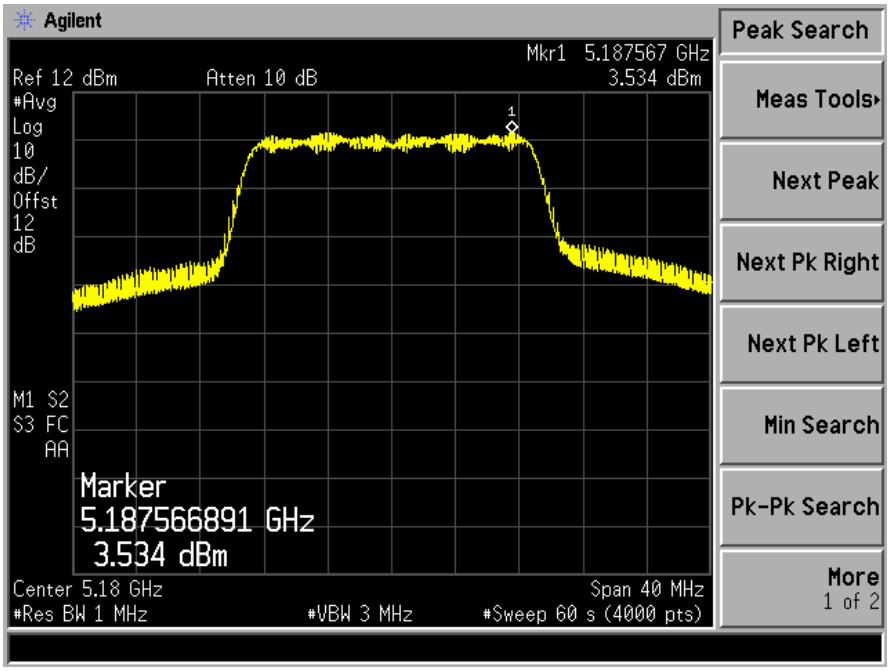


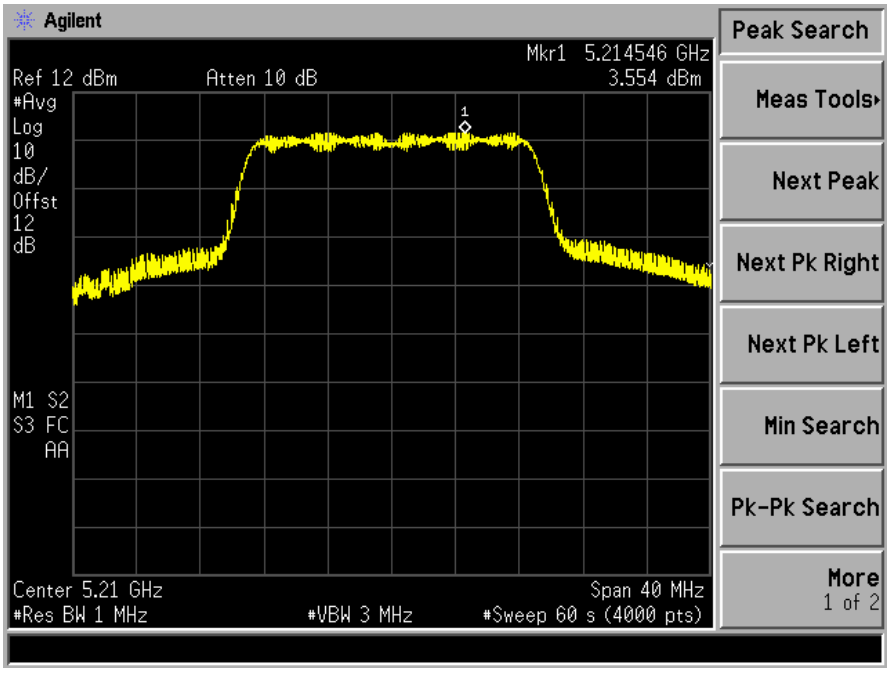

Agilent
Mkr1 5.212396 GHz
Ref 12 dBm
Atten 10 dB
3.792 dBm
#Avg
Log
10
dB/
Offst
12
dB
M1 S2
S3 FC
AA
Center 5.21 GHz
#Res BW 1 MHz
#VBW 3 MHz
Span 40 MHz
#Sweep 60 s (4000 pts)
Peak Search
Meas Tools
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
More
1 of 2

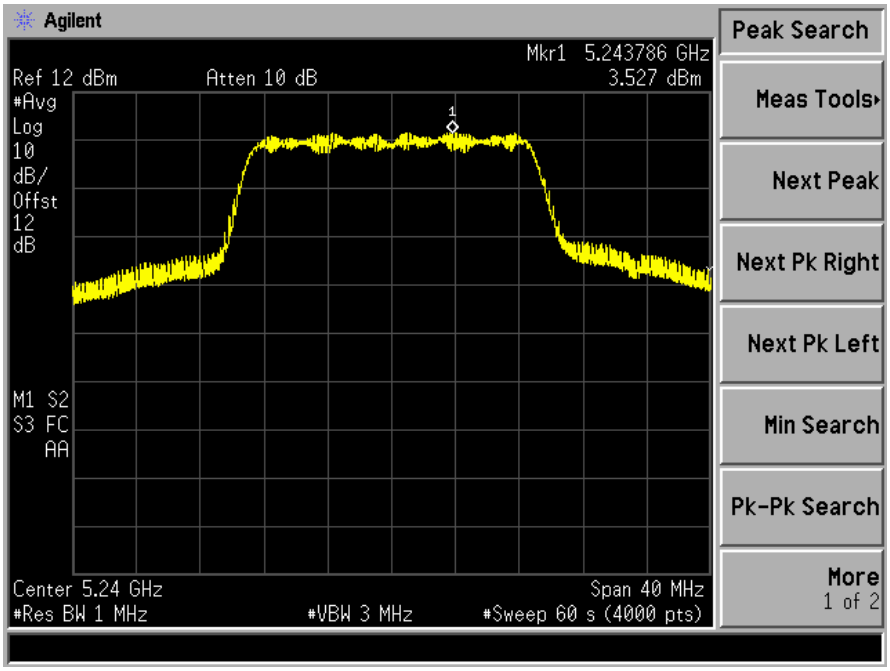

Agilent
Mkr1 5.241165 GHz
Ref 12 dBm
Atten 10 dB
3.429 dBm
#Avg
Log
10
dB/
Offst
12
dB
M1 S2
S3 FC
AA
Center 5.24 GHz
#Res BW 1 MHz
#VBW 3 MHz
Span 40 MHz
#Sweep 60 s (4000 pts)
Peak Search
Meas Tools
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
More
1 of 2

Spectrum Detector:	PK	Test Date :	July 25, 2014
Test By:	Andy	Temperature :	28℃
Test Result:	PASS	Humidity :	65 %
Operation Mode:	802.11n(HT20)	Antenna:	A

Channel number	Channel Frequency(MHz)	Peak Power output(dBm)	Peak Power Limit(dBm) FCC	Pass/Fail
36	5180	3.534	4	PASS
42	5210	3.554	4	PASS
48	5240	3.527	4	PASS

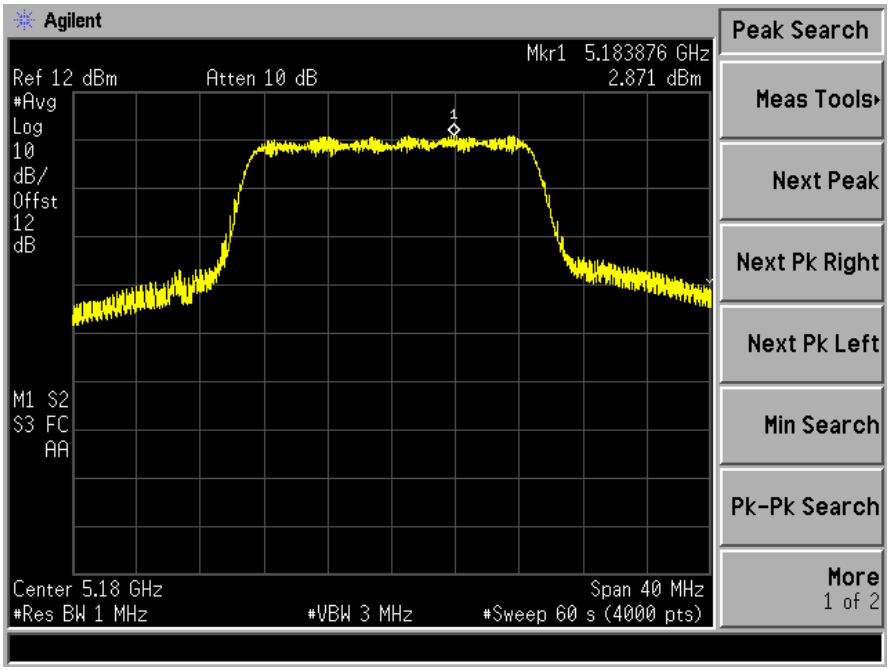


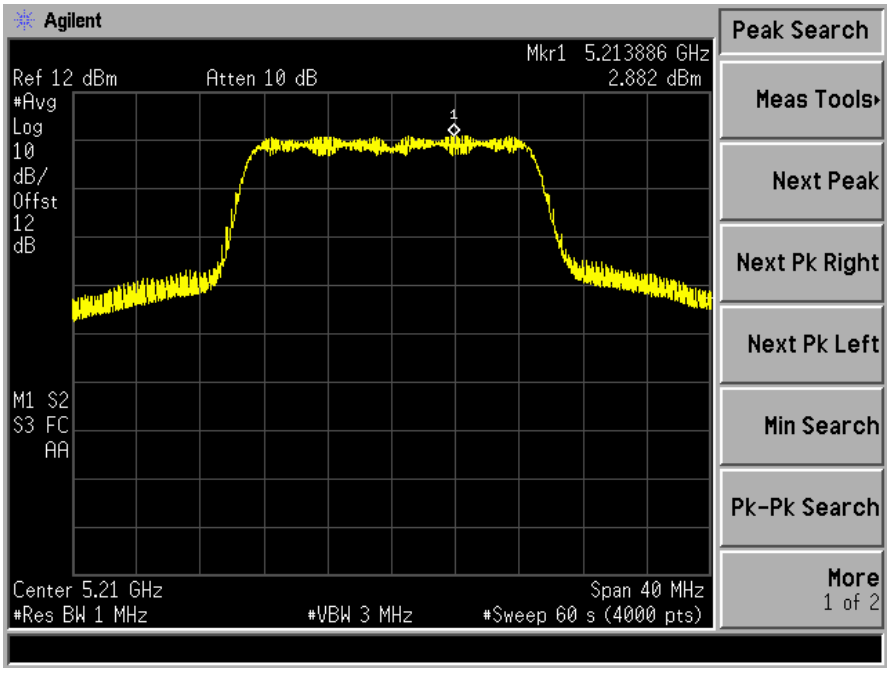

Agilent
Mkr1 5.214546 GHz
Ref 12 dBm
Atten 10 dB
3.554 dBm
#Avg
Log
10
dB/
Offst
12
dB
M1 S2
S3 FC
AA
Center 5.21 GHz
Span 40 MHz
#Res BW 1 MHz
#VBW 3 MHz
#Sweep 60 s (4000 pts)
Peak Search
Meas Tools
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
More
1 of 2

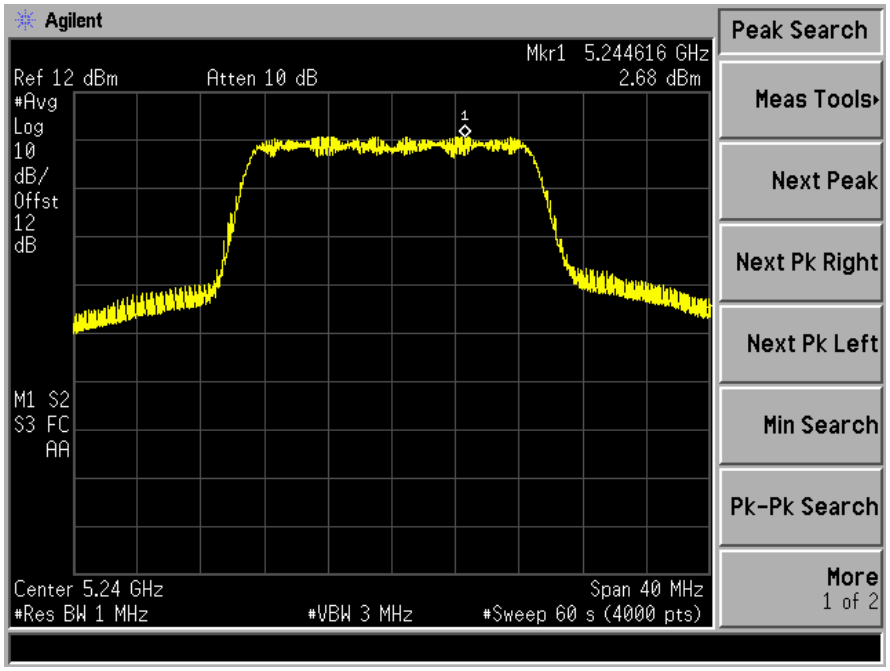

Agilent
Mkr1 5.243786 GHz
Ref 12 dBm
Atten 10 dB
3.527 dBm
#Avg
Log
10
dB/
Offst
12
dB
M1 S2
S3 FC
AA
Center 5.24 GHz
Span 40 MHz
#Res BW 1 MHz
#VBW 3 MHz
#Sweep 60 s (4000 pts)
Peak Search
Meas Tools
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
More
1 of 2

Spectrum Detector:	PK	Test Date :	July 25, 2014
Test By:	Andy	Temperature :	28℃
Test Result:	PASS	Humidity :	65 %
Operation Mode:	802.11n(HT20)	Antenna:	B

Channel number	Channel Frequency(MHz)	Peak Power output(dBm)	Peak Power Limit(dBm) FCC	Pass/Fail
36	5180	2.871	4	PASS
42	5210	2.882	4	PASS
48	5240	2.68	4	PASS

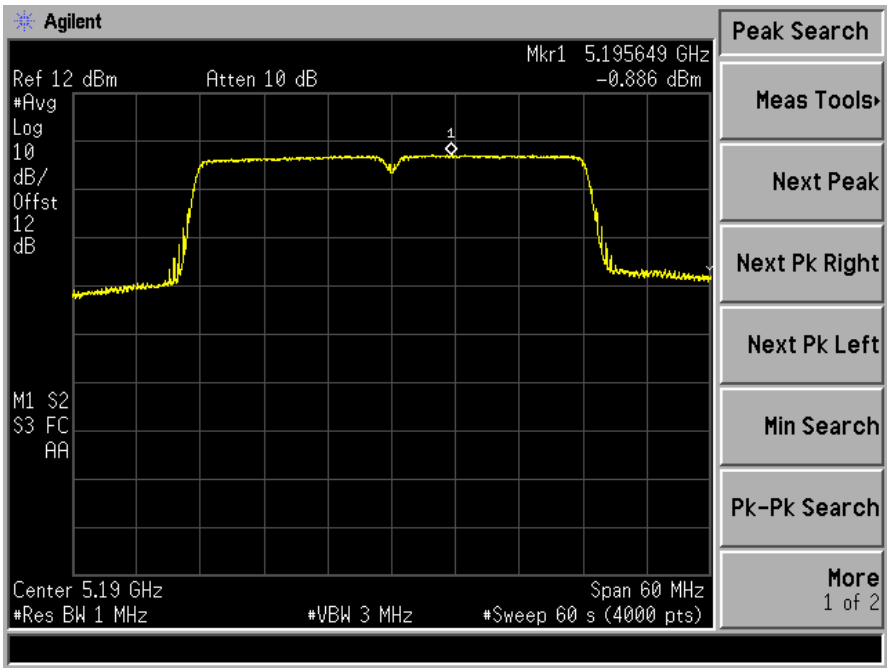


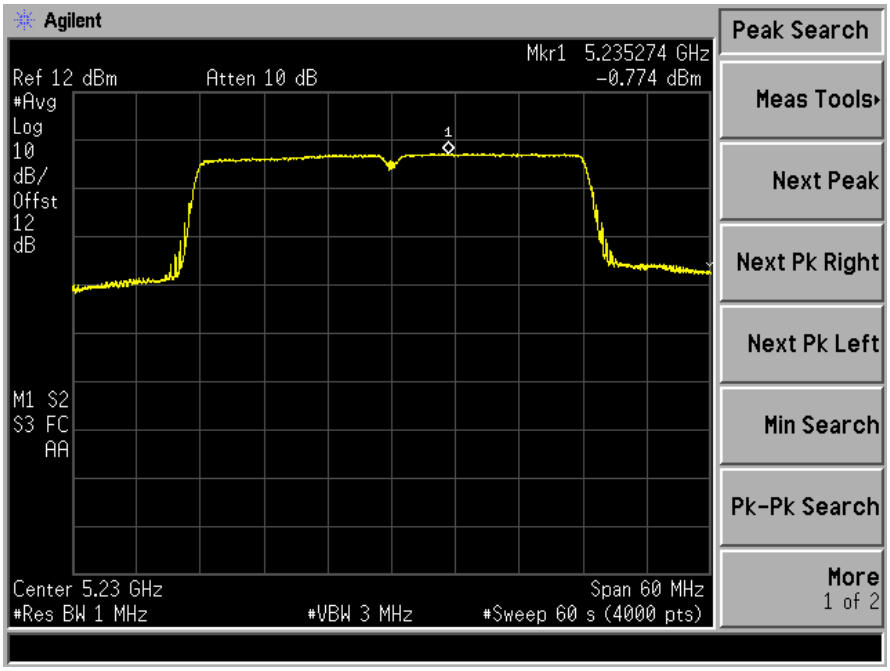

Agilent
Mkr1 5.213886 GHz
Ref 12 dBm
Atten 10 dB
2.882 dBm
#Avg
Log
10
dB/
Offst
12
dB
M1 S2
S3 FC
AA
Center 5.21 GHz
Span 40 MHz
#Res BW 1 MHz
#VBW 3 MHz
#Sweep 60 s (4000 pts)
Peak Search
Meas Tools
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
More
1 of 2


Agilent
Mkr1 5.244616 GHz
Ref 12 dBm
Atten 10 dB
2.68 dBm
#Avg
Log
10
dB/
Offst
12
dB
M1 S2
S3 FC
AA
Center 5.24 GHz
Span 40 MHz
#Res BW 1 MHz
#VBW 3 MHz
#Sweep 60 s (4000 pts)
Peak Search
Meas Tools
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
More
1 of 2

Spectrum Detector:	PK	Test Date :	July 25, 2014
Test By:	Andy	Temperature :	28℃
Test Result:	PASS	Humidity :	65 %
Operation Mode:	802.11n(HT40)	Antenna:	A

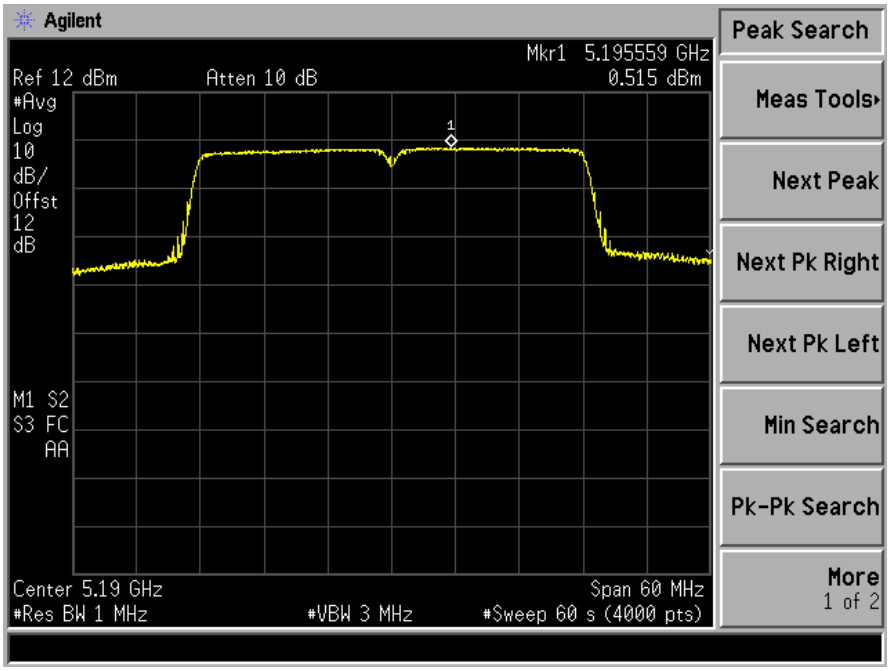
Channel number	Channel Frequency(MHz)	Power output(dBm)	Peak Power Limit(dBm) FCC	Pass/Fail
38	5190	-0.886	4	PASS
46	5230	-0.774	4	PASS

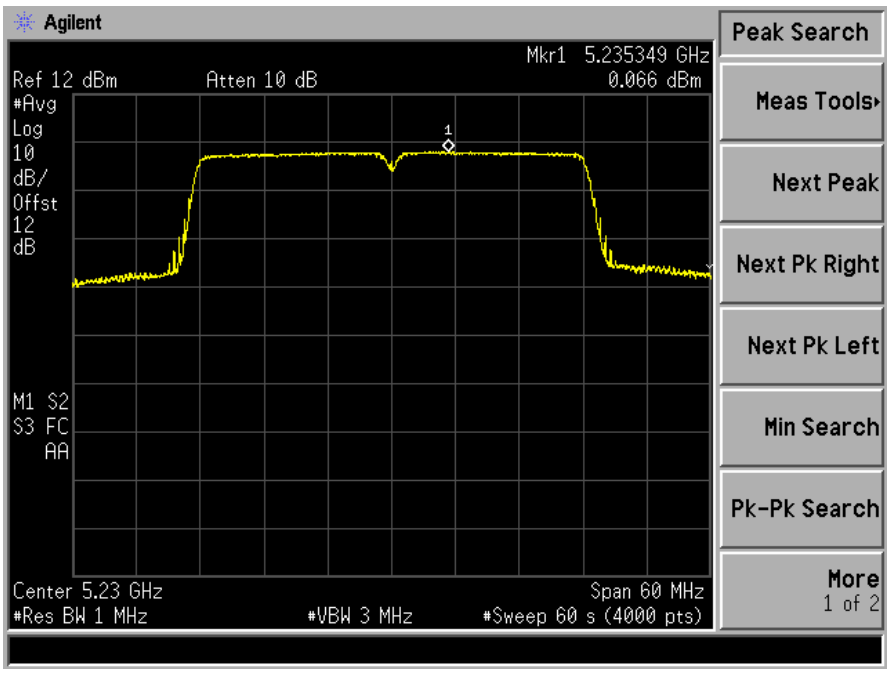




Spectrum Detector:	PK	Test Date :	July 25, 2014
Test By:	Andy	Temperature :	28℃
Test Result:	PASS	Humidity :	65 %
Operation Mode:	802.11n(HT40)	Antenna:	B

Channel number	Channel Frequency(MHz)	Power output(dBm)	Peak Power Limit(dBm) FCC	Pass/Fail
38	5190	0.515	4	PASS
46	5230	0.066	4	PASS


Agilent
Mkr1 5.195559 GHz
Ref 12 dBm
Atten 10 dB
0.515 dBm
#Avg
Log
10
dB/
Offst
12
dB
M1 S2
S3 FC
AA
Center 5.19 GHz
#Res BW 1 MHz
#VBW 3 MHz
Span 60 MHz
#Sweep 60 s (4000 pts)
Peak Search
Meas Tools
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
More
1 of 2


Agilent
Mkr1 5.235349 GHz
Ref 12 dBm
Atten 10 dB
0.066 dBm
#Avg
Log
10
dB/
Offst
12
dB
M1 S2
S3 FC
AA
Center 5.23 GHz
#Res BW 1 MHz
#VBW 3 MHz
Span 60 MHz
#Sweep 60 s (4000 pts)
Peak Search
Meas Tools
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
More
1 of 2

10. Transmitter Peak Excursion

10.1 Test Procedures

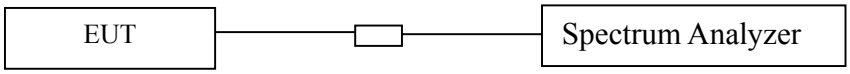
Methods refer to FCC KDB 789033

1) Set the spectrum analyzer or EMI receiver span to view the entire emission bandwidth.
2) Find the maximum of the peak-max-hold spectrum.
a) Set RBW = 1 MHz.
b) VBW ≥ 3 MHz.
c) Detector = peak.
d) Trace mode = max-hold.
e) Allow the sweeps to continue until the trace stabilizes.
f) Use the peak search function to find the peak of the spectrum.
3) Use the procedure found under 4. to measure the PPSD.
4) Compute the ratio of the maximum of the peak-max-hold spectrum to the PPSD.

10.2 Test Equipment

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Signal Analyzer	Agilent	N9010A	My53470879	05/17/2014	05/16/2015
Spectrum Analyzer	Agilent	E4407B	88156318	05/17/2014	05/16/2015

10.3 Block Diagram of Test setup



10.4 Limit

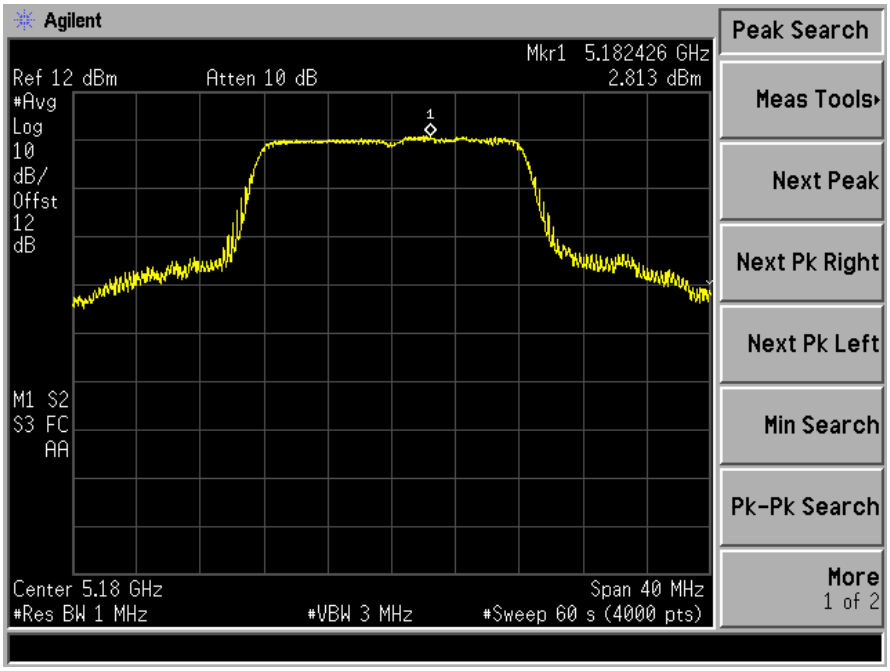
The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the maximum conducted output power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

10.5 Test Result

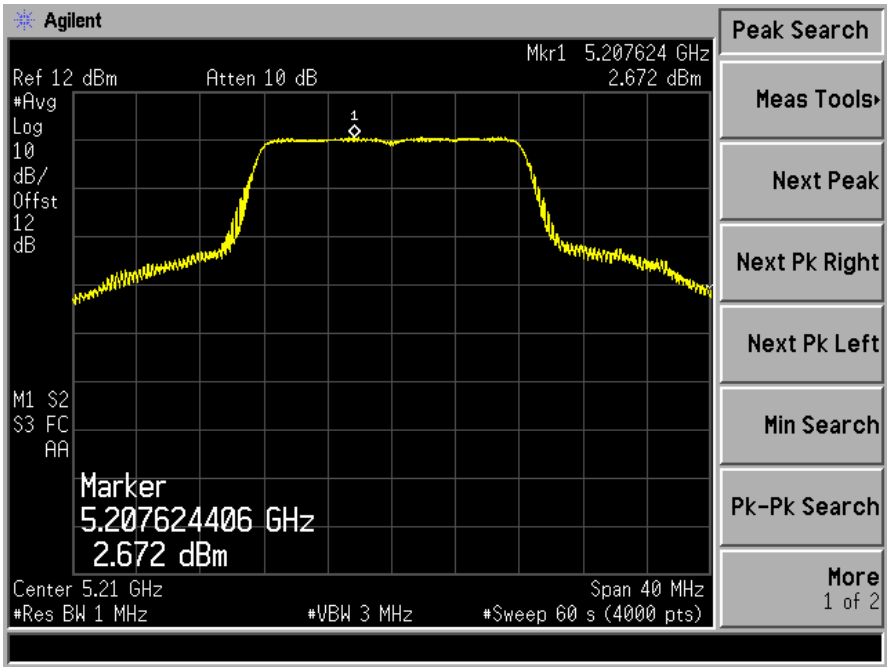
PASS.

Spectrum Detector:	PK	Test Date :	July 25, 2014
Test By:	Andy	Temperature :	28℃
Test Result:	PASS	Humidity :	65 %
Operation Mode:	802.11a	Antenna:	A

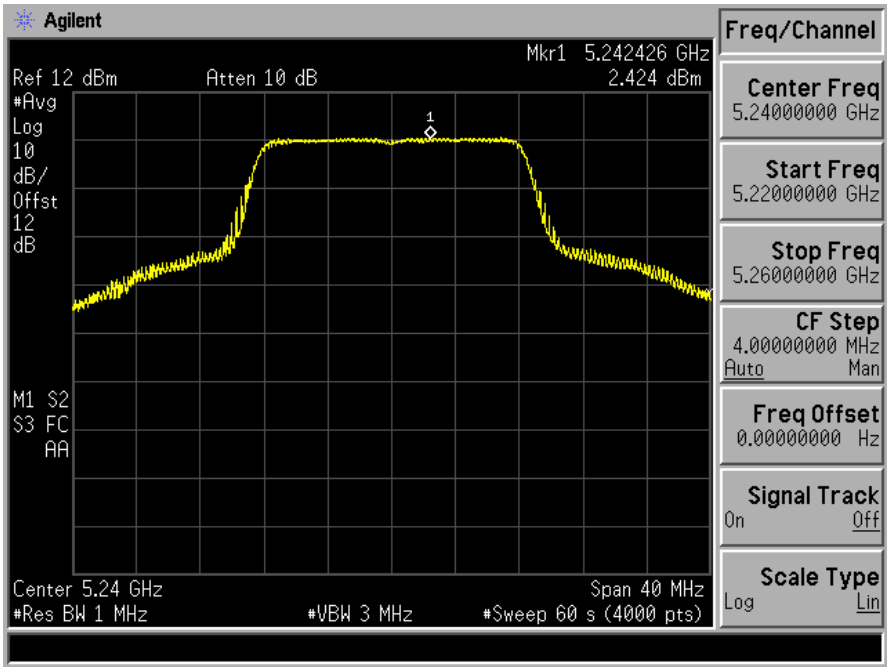
Channel number	Channel Frequency(MHz)	Peak Excursion (dBm)	Peak Excursion Limit(dBm)	Pass/Fail
36	5180	8.472	13	Pass
42	5210	8.765	13	Pass
48	5240	9.264	13	Pass


Agilent
Mkr1 5.182426 GHz
Ref 12 dBm
Atten 10 dB
2.813 dBm
#Avg
Log
10
dB/
Offst
12
dB
M1 S2
S3 FC
AA
Center 5.18 GHz
#Res BW 1 MHz
#VBW 3 MHz
Span 40 MHz
#Sweep 60 s (4000 pts)
Peak Search
Meas Tools
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
More
1 of 2


Marker 1 5.214884976995 GHz
Trig: Free Run
Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ref Offset 12 dB
10 dB/div
Ref 15.00 dBm
Mkr1 5.214 885 GHz
11.437 dBm
Center 5.21000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Span 40.00 MHz
Sweep 1.333 ms (5000 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2


Agilent
Mkr1 5.207624 GHz
Ref 12 dBm
Atten 10 dB
2.672 dBm
#Avg
Log
10
dB/
Offst
12
dB
M1 S2
S3 FC
AA
Marker
5.207624406 GHz
2.672 dBm
Center 5.21 GHz
#Res BW 1 MHz
#VBW 3 MHz
Span 40 MHz
#Sweep 60 s (4000 pts)
Peak Search
Meas Tools
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
More
1 of 2

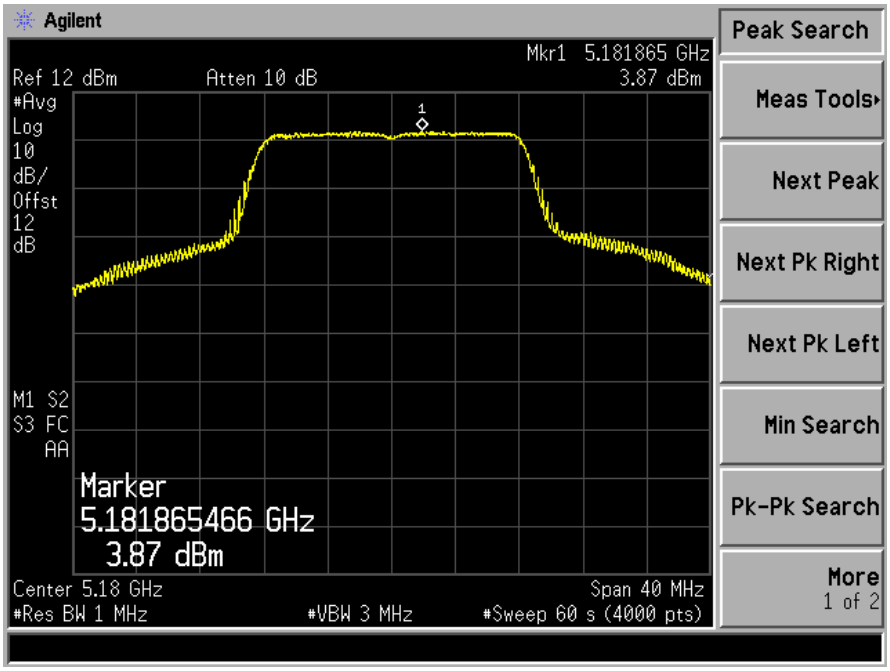

Marker 1 5.244988997800 GHz
Trig: Free Run
Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ref Offset 12 dB
10 dB/div
Ref 15.00 dBm
Mkr1 5.244 989 GHz
11.688 dBm
Center 5.24000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Span 40.00 MHz
Sweep 1.333 ms (5000 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2



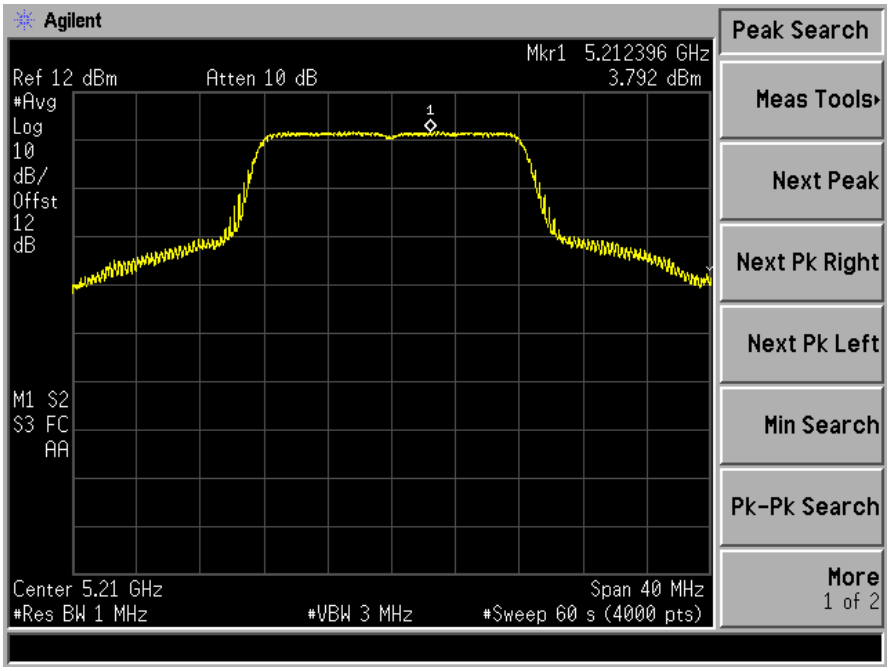
Spectrum Detector:	PK	Test Date :	July 25, 2014
Test By:	Andy	Temperature :	28℃
Test Result:	PASS	Humidity :	65 %
Operation Mode:	802.11a	Antenna:	B

Channel number	Channel Frequency(MHz)	Peak Excursion (dBm)	Peak Excursion Limit(dBm)	Pass/Fail
36	5180	8.502	13	Pass
42	5210	8.914	13	Pass
48	5240	8.389	13	Pass

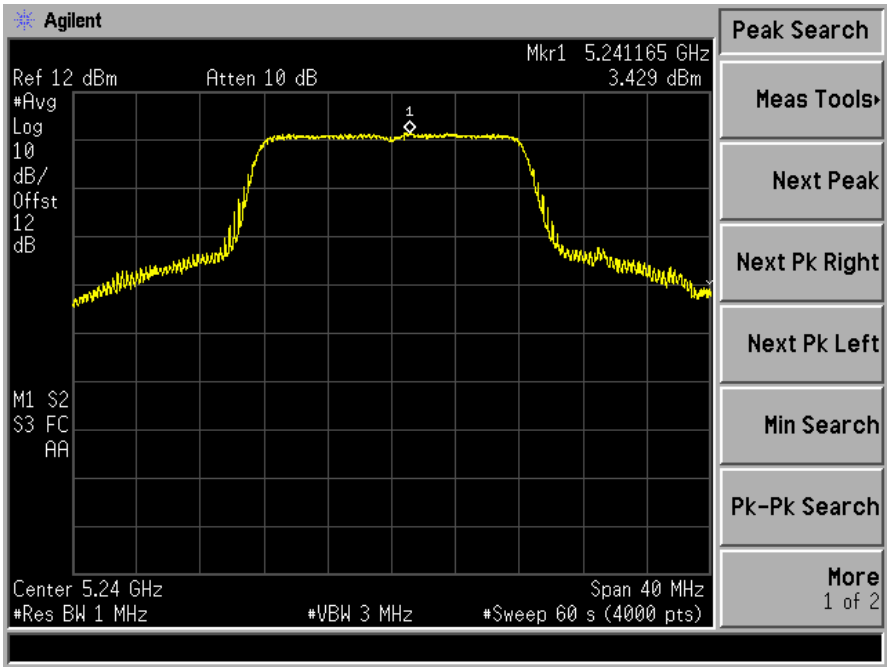

Marker 1 5.184996999400 GHz
Trig: Free Run
Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ref Offset 12 dB
10 dB/div
Ref 15.00 dBm
Mkr1 5.184 997 GHz
12.372 dBm
Center 5.18000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Span 40.00 MHz
Sweep 1.333 ms (5000 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2


Agilent
Ref 12 dBm
Atten 10 dB
Mkr1 5.181865 GHz
3.87 dBm
#Avg
Log
10
dB/
Offst
12
dB
M1 S2
S3 FC
AA
Marker
5.181865466 GHz
3.87 dBm
Center 5.18 GHz
#Res BW 1 MHz
#VBW 3 MHz
Span 40 MHz
#Sweep 60 s (4000 pts)
Peak Search
Meas Tools
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
More
1 of 2


Marker 1 5.214844968994 GHz
Trig: Free Run
Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ref Offset 12 dB
10 dB/div
Ref 15.00 dBm
Mkr1 5.214 845 GHz
12.706 dBm
Center 5.21000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Span 40.00 MHz
Sweep 1.333 ms (5000 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

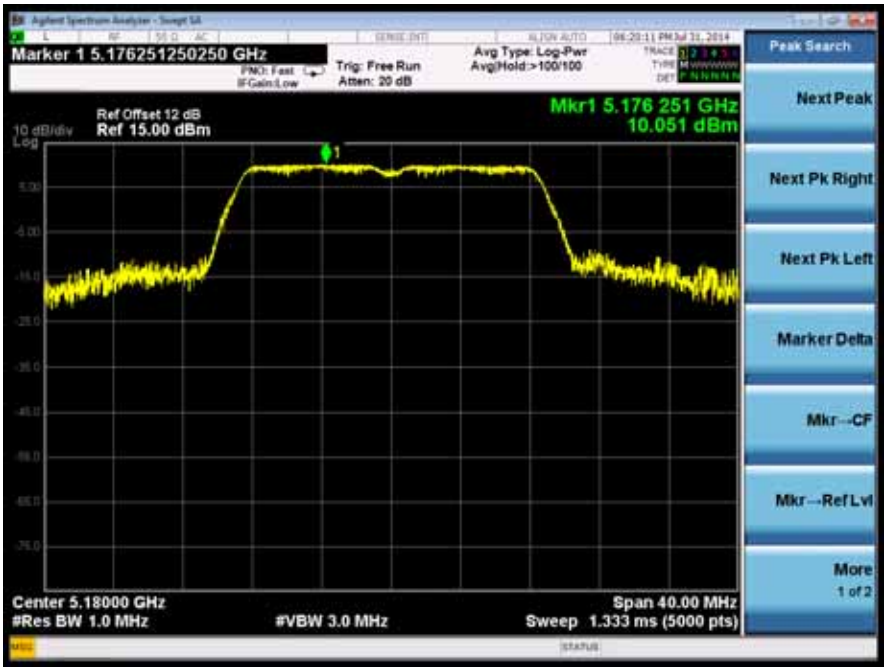

Agilent
Ref 12 dBm
Atten 10 dB
Mkr1 5.212396 GHz
3.792 dBm
#Avg
Log
10
dB/
Offst
12
dB
M1 S2
S3 FC
AA
Center 5.21 GHz
#Res BW 1 MHz
#VBW 3 MHz
Span 40 MHz
#Sweep 60 s (4000 pts)
Peak Search
Meas Tools
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
More
1 of 2

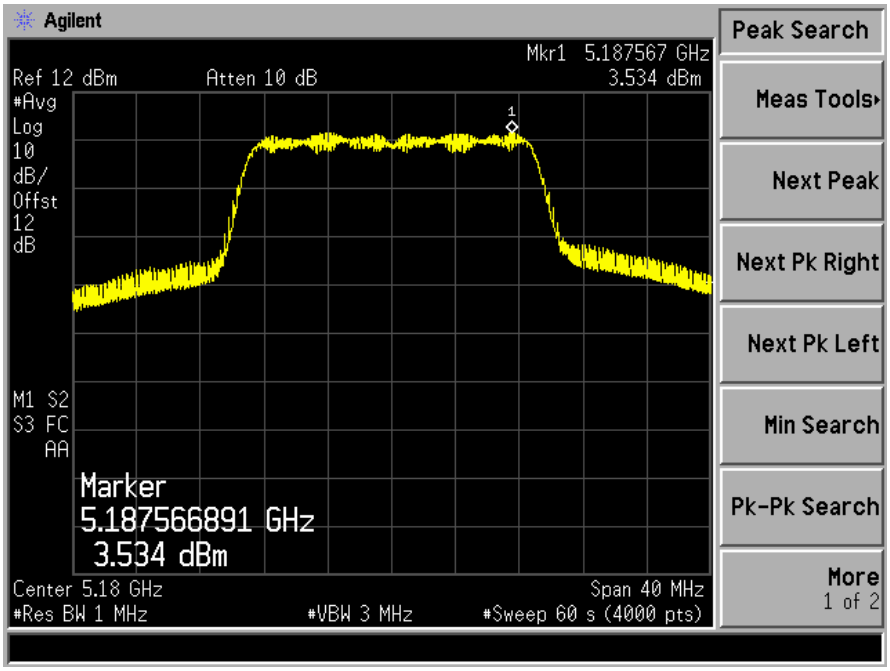

Marker 1 5.244908981796 GHz
Trig: Free Run
Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ref Offset 12 dB
10 dB/div
Ref 15.00 dBm
Mkr1 5.244 909 GHz
11.818 dBm
Center 5.24000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Span 40.00 MHz
Sweep 1.333 ms (5000 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

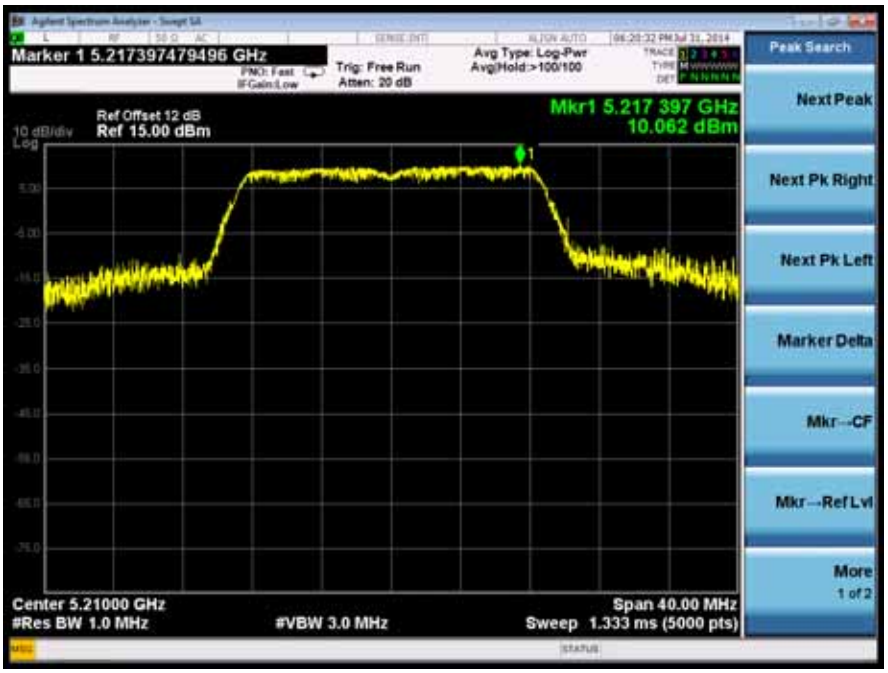

Agilent
Mkr1 5.241165 GHz
3.429 dBm
Ref 12 dBm
Atten 10 dB
#Avg
Log
10
dB/
Offst
12
dB
M1 S2
S3 FC
AA
Center 5.24 GHz
#Res BW 1 MHz
#VBW 3 MHz
Span 40 MHz
#Sweep 60 s (4000 pts)
Peak Search
Meas Tools
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
More
1 of 2

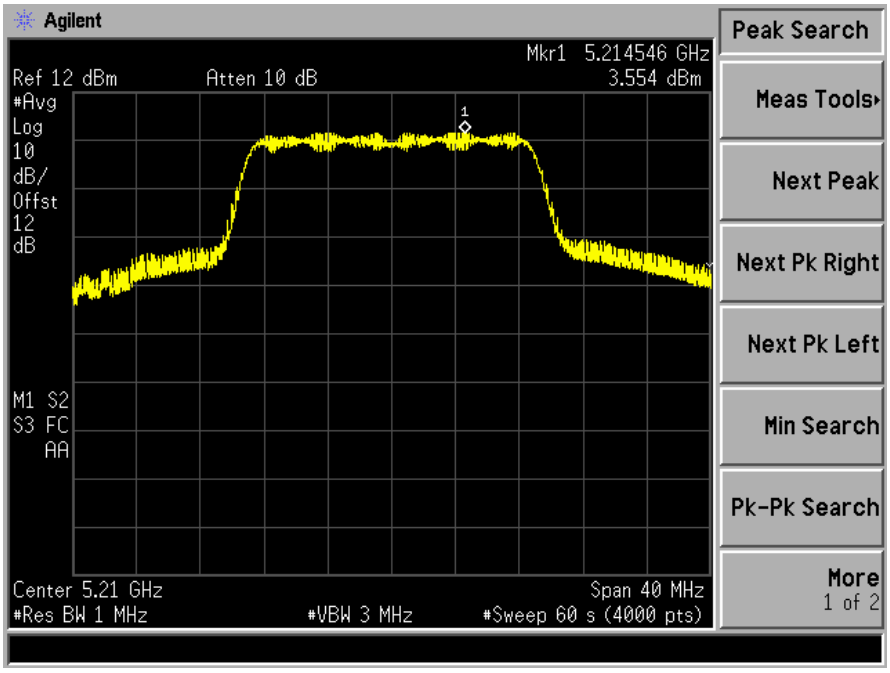
Spectrum Detector:	PK	Test Date :	July 25, 2014
Test By:	Andy	Temperature :	28℃
Test Result:	PASS	Humidity :	65 %
Operation Mode:	802.11n(HT20)	Antenna:	A

Channel number	Channel Frequency(MHz)	Peak Excursion (dBm)	Peak Excursion Limit(dBm)	Pass/Fail
36	5180	6.517	13	Pass
42	5210	6.508	13	Pass
48	5240	6.645	13	Pass

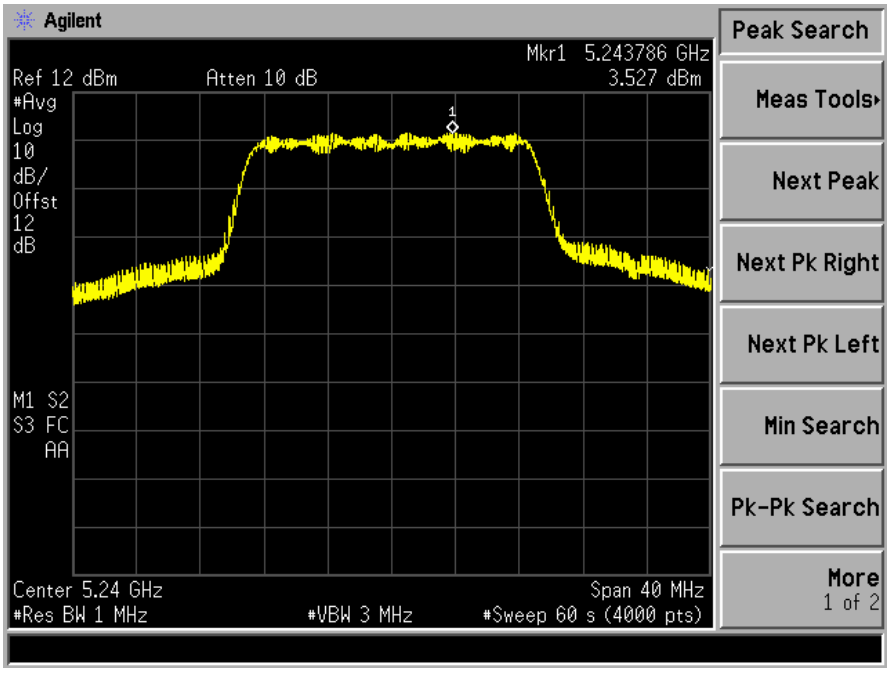



Agilent
Mkr1 5.187567 GHz
Ref 12 dBm
Atten 10 dB
3.534 dBm
#Avg
Log
10
dB/
Offst
12
dB
M1 S2
S3 FC
AA
Marker
5.187566891 GHz
3.534 dBm
Center 5.18 GHz
#Res BW 1 MHz
#VBW 3 MHz
Span 40 MHz
#Sweep 60 s (4000 pts)
Peak Search
Meas Tools
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
More
1 of 2


Marker 1 5.217397479496 GHz
Trig: Free Run
Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ref Offset 12 dB
10 dB/div
Ref 15.00 dBm
Log
Mkr1 5.217 397 GHz
10.062 dBm
Center 5.21000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Span 40.00 MHz
Sweep 1.333 ms (5000 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2


Agilent
Mkr1 5.214546 GHz
Ref 12 dBm
Atten 10 dB
3.554 dBm
#Avg
Log
10
dB/
Offst
12
dB
M1 S2
S3 FC
AA
Center 5.21 GHz
#Res BW 1 MHz
#VBW 3 MHz
Span 40 MHz
#Sweep 60 s (4000 pts)
Peak Search
Meas Tools
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
More
1 of 2

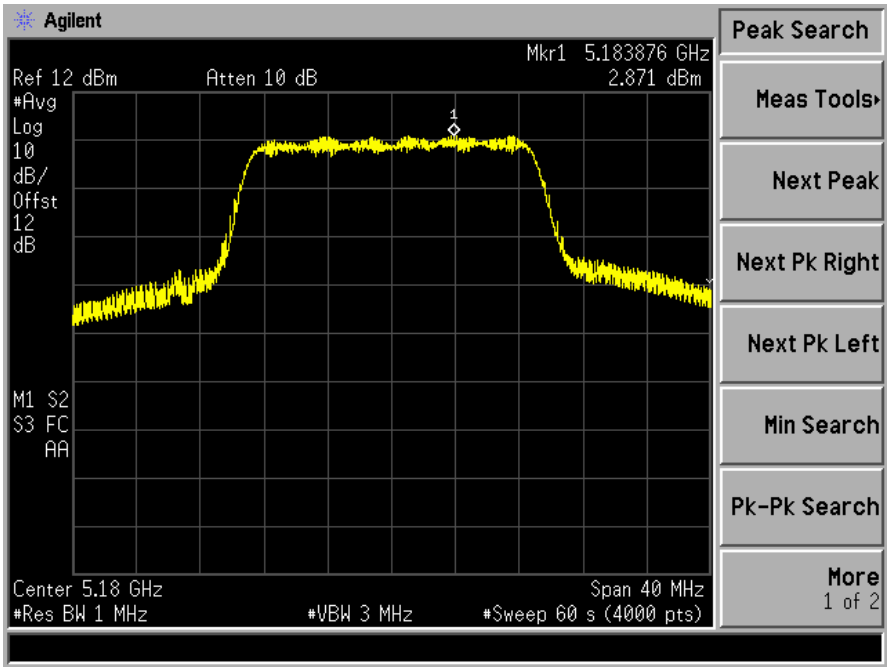

Marker 1 5.242916583317 GHz
Trig: Free Run
Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ref Offset 12 dB
10 dB/div
Ref 15.00 dBm
Mkr1 5.242 917 GHz
10.172 dBm
Center 5.24000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Span 40.00 MHz
Sweep 1.333 ms (5000 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

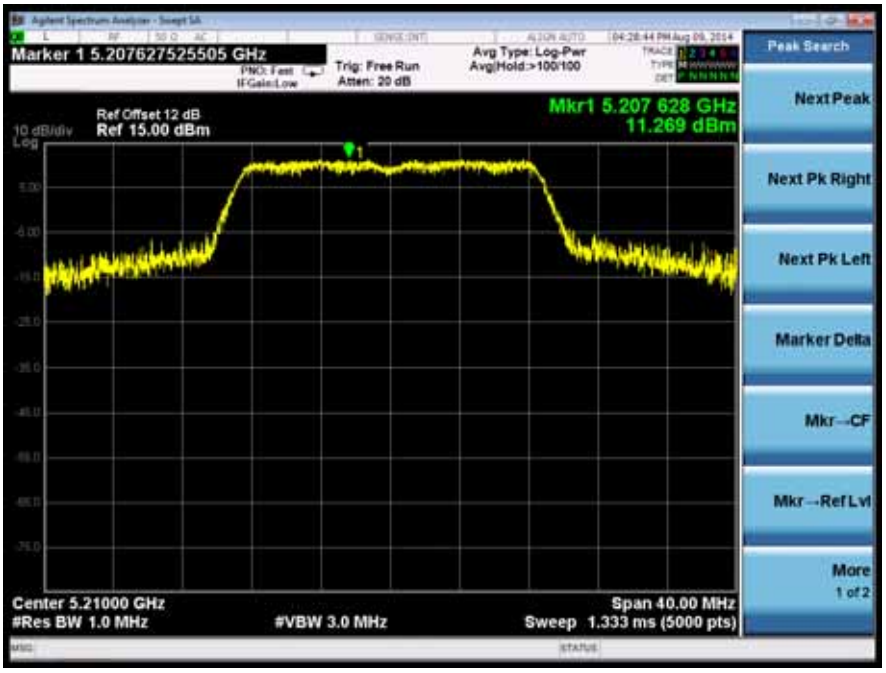


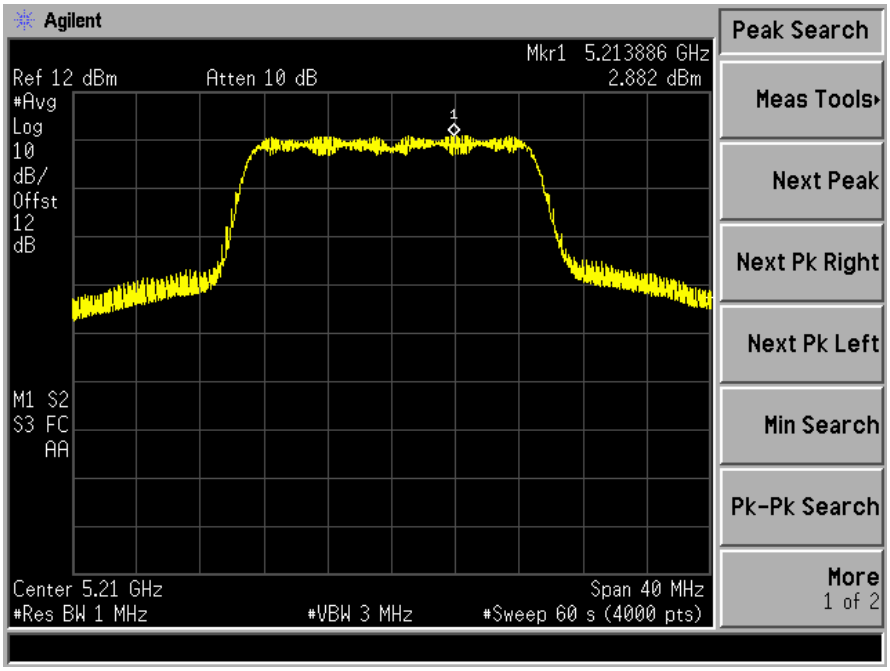
Spectrum Detector:	PK	Test Date :	July 25, 2014
Test By:	Andy	Temperature :	28℃
Test Result:	PASS	Humidity :	65 %
Operation Mode:	802.11n(HT20)	Antenna:	B

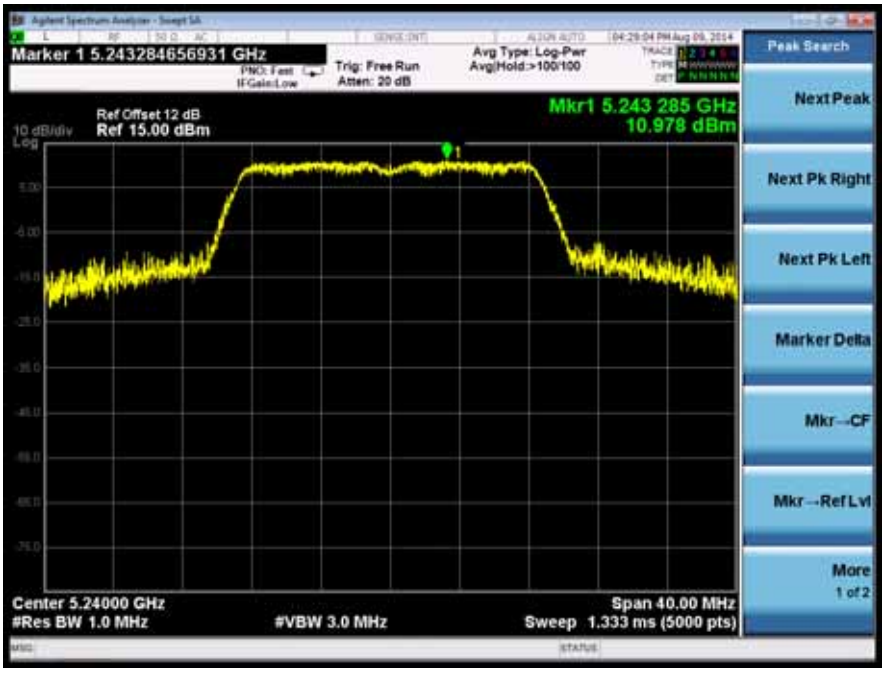
Channel number	Channel Frequency(MHz)	Peak Excursion (dBm)	Peak Excursion Limit(dBm)	Pass/Fail
36	5180	7.934	13	Pass
42	5210	8.387	13	Pass
48	5240	8.298	13	Pass

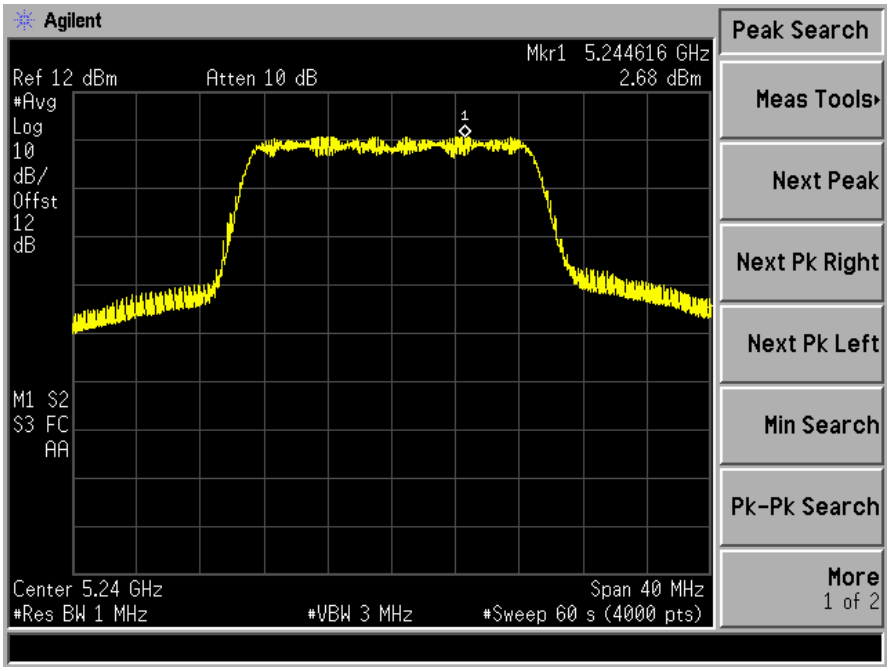

Marker 1 5.187749549910 GHz
Trig: Free Run
Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ref Offset 12 dB
10 dB/div
Ref 15.00 dBm
Mkr1 5.187 750 GHz
10.805 dBm
Center 5.18000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Span 40.00 MHz
Sweep 1.333 ms (5000 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2


Agilent
Ref 12 dBm
Atten 10 dB
Mkr1 5.183876 GHz
2.871 dBm
#Avg
Log
10
dB/
Offst
12
dB
M1 S2
S3 FC
AA
Center 5.18 GHz
#Res BW 1 MHz
#VBW 3 MHz
Span 40 MHz
#Sweep 60 s (4000 pts)
Peak Search
Meas Tools
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
More
1 of 2


Marker 1 5.207627525505 GHz
Trig: Free Run
Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ref Offset 12 dB
10 dB/div
Ref 15.00 dBm
Mkr1 5.207 628 GHz
11.269 dBm
Center 5.21000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Span 40.00 MHz
Sweep 1.333 ms (5000 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

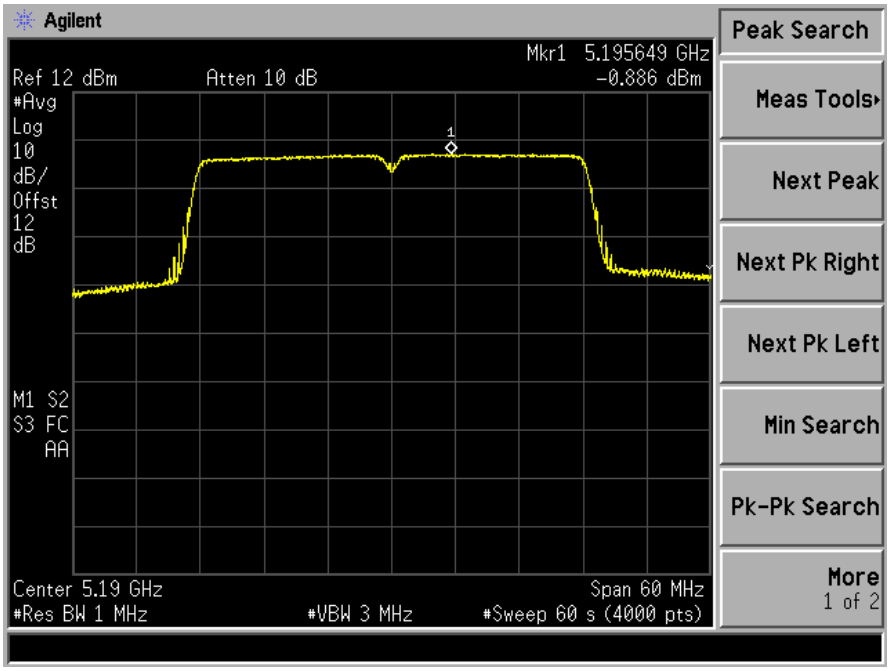

Agilent
Ref 12 dBm
Atten 10 dB
Mkr1 5.213886 GHz
2.882 dBm
#Avg
Log
10
dB/
Offst
12
dB
M1 S2
S3 FC
AA
Center 5.21 GHz
#Res BW 1 MHz
#VBW 3 MHz
Span 40 MHz
#Sweep 60 s (4000 pts)
Peak Search
Meas Tools
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
More
1 of 2


Marker 1 5.243284656931 GHz
Trig: Free Run
Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ref Offset 12 dB
10 dB/div
Ref 15.00 dBm
Mkr1 5.243 285 GHz
10.978 dBm
Center 5.24000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Span 40.00 MHz
Sweep 1.333 ms (5000 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

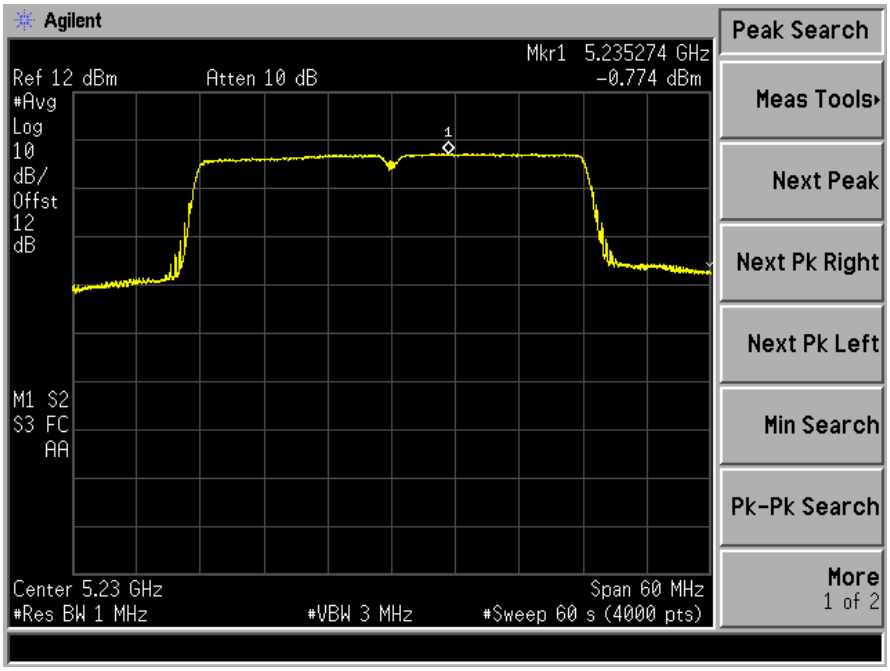

Agilent
Ref 12 dBm
Atten 10 dB
Mkr1 5.244616 GHz
2.68 dBm
#Avg
Log
10
dB/
Offst
12
dB
M1 S2
S3 FC
AA
Center 5.24 GHz
#Res BW 1 MHz
#VBW 3 MHz
Span 40 MHz
#Sweep 60 s (4000 pts)
Peak Search
Meas Tools
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
More
1 of 2

Spectrum Detector:	PK	Test Date :	July 25, 2014
Test By:	Andy	Temperature :	28℃
Test Result:	PASS	Humidity :	65 %
Operation Mode:	802.11n(HT40)	Antenna:	A

Channel number	Channel Frequency(MHz)	Peak Excursion (dBm)	Peak Excursion Limit(dBm)	Pass/Fail
38	5190	8.771	13	Pass
46	5230	10.195	13	Pass


Agilent
Mkr1 5.195649 GHz
Ref 12 dBm
Atten 10 dB
-0.886 dBm
#Avg
Log
10
dB/
Offst
12
dB
M1 S2
S3 FC
AA
Center 5.19 GHz
#Res BW 1 MHz
#VBW 3 MHz
Span 60 MHz
#Sweep 60 s (4000 pts)
Peak Search
Meas Tools
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
More
1 of 2

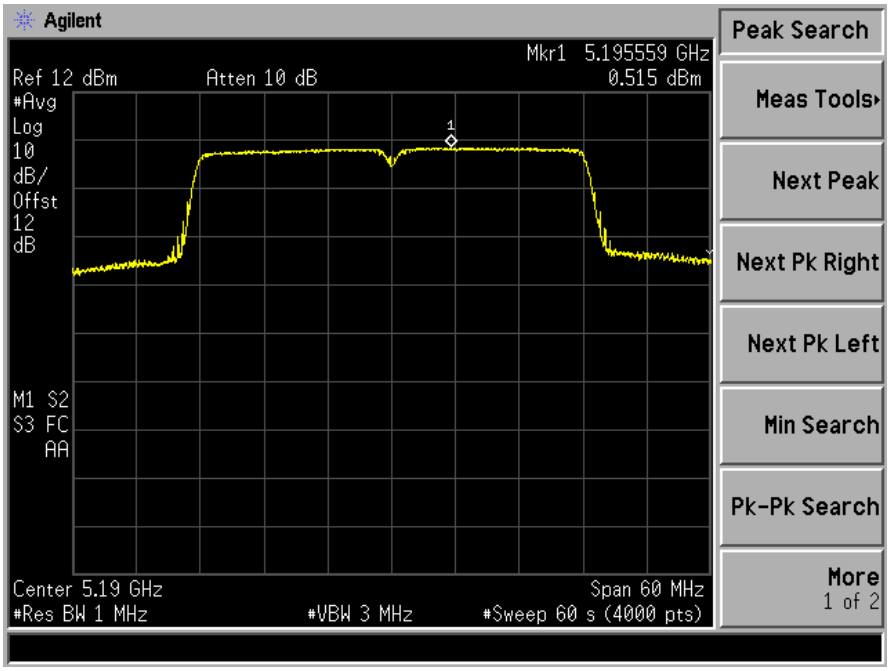

Marker 1 5.236547309462 GHz
Trig: Free Run
Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ref Offset 12 dB
10 dB/div
Ref 15.00 dBm
Mkr1 5.236 547 GHz
9.421 dBm
Center 5.23000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Span 60.00 MHz
Sweep 1.333 ms (5000 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2



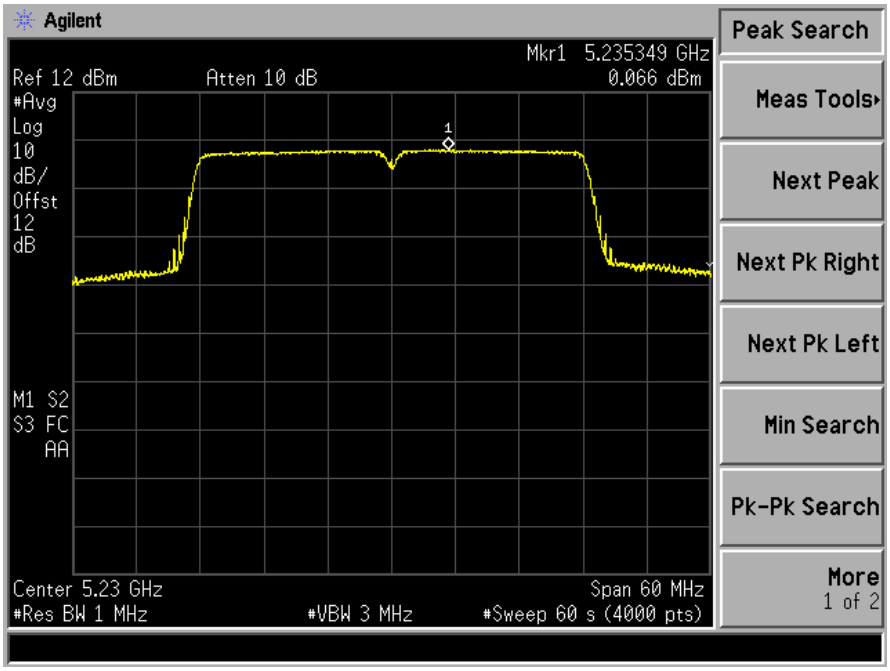
Spectrum Detector:	PK	Test Date :	July 25, 2014
Test By:	Andy	Temperature :	28℃
Test Result:	PASS	Humidity :	65 %
Operation Mode:	802.11n(HT40)	Antenna:	B

Channel number	Channel Frequency(MHz)	Peak Excursion (dBm)	Peak Excursion Limit(dBm)	Pass/Fail
38	5190	6.981	13	Pass
46	5230	7.153	13	Pass


Marker 1 5.196559311862 GHz
Trig: Free Run
Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ref Offset 12 dB
10 dB/div
Ref 15.00 dBm
Mkr1 5.196 559 GHz
7.496 dBm
Center 5.19000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Span 60.00 MHz
Sweep 1.333 ms (5000 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2


Agilent
Ref 12 dBm
Atten 10 dB
Mkr1 5.195559 GHz
0.515 dBm
#Avg
Log
10
dB/
Offst
12
dB
M1 S2
S3 FC
AA
Center 5.19 GHz
#Res BW 1 MHz
#VBW 3 MHz
Span 60 MHz
#Sweep 60 s (4000 pts)
Peak Search
Meas Tools
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
More
1 of 2


Marker 1 5.237063412683 GHz
Trig: Free Run
Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ref Offset 12 dB
10 dB/div
Ref 15.00 dBm
Mkr1 5.237 063 GHz
7.219 dBm
Center 5.23000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Span 60.00 MHz
Sweep 1.333 ms (5000 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2


Agilent
Ref 12 dBm
Atten 10 dB
Mkr1 5.235349 GHz
0.066 dBm
#Avg
Log
10
dB/
Offst
12
dB
M1 S2
S3 FC
AA
Center 5.23 GHz
#Res BW 1 MHz
#VBW 3 MHz
Span 60 MHz
#Sweep 60 s (4000 pts)
Peak Search
Meas Tools
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
More
1 of 2

11. Band Edge Test

11.1 Test Procedures

Test method: FCC KDB 789033 G.6

Method AD (Average Detection): Primary method

1) Set the spectrum analyzer or EMI receiver span to view the entire emission bandwidth.

2) Find the maximum of the peak-max-hold spectrum.

a) RBW = 1 MHz.

b) VBW ≥ 3 MHz.

c) Detector = RMS,

d) Averaging type = power

e) Sweep time = auto.

f) Allow the sweeps to continue until the trace stabilizes.

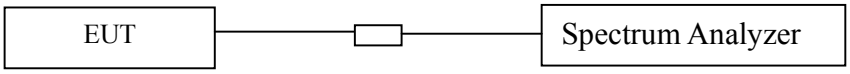
g) Use the peak search function to find the peak of the spectrum.

h) e.i.r.p Peak Level(dBm)= continued Peak Level(dBm) + Antenna Gain

11.2 st Equipment

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Signal Analyzer	Agilent	N9010A	My53470879	05/17/2014	05/16/2015

11.3 Block Diagram of Test setup



11.4 Limit

Band 5.15-5.25GHz:

all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz.

11.5 Test Result

PASS.

Spectrum Detector:	PK	Test Date :	July 25, 2014
Test By:	Andy	Temperature :	28℃
Test Result:	PASS	Humidity :	65 %
Operation Mode:	802.11a	Antenna:	A

Band Edge Frequency (MHz)	continued Peak Level (dBm)	e.i.r.p Peak Level (dBm)	Limit(dBm)	Pass/Fail
5150	-46.366	-44.366	-27	PASS
5350	-55.506	-53.506	-27	PASS

Spectrum Detector:	PK	Test Date :	July 25, 2014
Test By:	Andy	Temperature :	28℃
Test Result:	PASS	Humidity :	65 %
Operation Mode:	802.11a	Antenna:	B

Band Edge Frequency (MHz)	continued Peak Level (dBm)	e.i.r.p Peak Level (dBm)	Limit(dBm)	Pass/Fail
5150	-43.223	-41.223	-27	PASS
5350	-55.694	-53.694	-27	PASS


Marker 1 5.150000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ref Offset 12 dB
10 dB/div
Ref 15.00 dBm
Log
Mkr1 5.150 00 GHz
-43.223 dBm
Center 5.15000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Span 100.0 MHz
Sweep 1.066 ms (1000 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2


Marker 1 5.350000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ref Offset 12 dB
10 dB/div
Ref 15.00 dBm
Log
Mkr1 5.350 00 GHz
-55.694 dBm
Center 5.3200 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Span 200.0 MHz
Sweep 1.066 ms (1000 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

Spectrum Detector:	PK	Test Date :	July 25, 2014
Test By:	Andy	Temperature :	28℃
Test Result:	PASS	Humidity :	65 %
Operation Mode:	802.11n(HT20)	Antenna:	A

Band Edge Frequency (MHz)	continued Peak Level (dBm)	e.i.r.p Peak Level (dBm)	Limit(dBm)	Pass/Fail
5150	-45.834	-43.834	-27	PASS
5350	-56.381	-54.381	-27	PASS

Spectrum Detector:	PK	Test Date :	July 25, 2014
Test By:	Andy	Temperature :	28℃
Test Result:	PASS	Humidity :	65 %
Operation Mode:	802.11n(HT20)	Antenna:	B

Band Edge Frequency (MHz)	continued Peak Level (dBm)	e.i.r.p Peak Level (dBm)	Limit(dBm)	Pass/Fail
5150	-44.705	-42.705	-27	PASS
5350	-56.013	-54.013	-27	PASS


Marker 1 5.150000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ref Offset 12 dB
10 dB/div
Ref 15.00 dBm
Log
Mkr1 5.150 00 GHz
-44.705 dBm
Center 5.15000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Span 100.0 MHz
Sweep 1.066 ms (1000 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2


Marker 1 5.350000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ref Offset 12 dB
10 dB/div
Ref 15.00 dBm
Log
Mkr1 5.350 00 GHz
-56.013 dBm
Center 5.3000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Span 200.0 MHz
Sweep 1.066 ms (1000 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

Spectrum Detector:	PK	Test Date :	July 25, 2014
Test By:	Andy	Temperature :	28℃
Test Result:	PASS	Humidity :	65 %
Operation Mode:	802.11n(HT40)	Antenna:	A

Band Edge Frequency (MHz)	continued Peak Level (dBm)	e.i.r.p Peak Level (dBm)	Limit(dBm)	Pass/Fail
5150	-37.878	-35.878	-27	PASS
5350	-55.414	-53.414	-27	PASS

Spectrum Detector:	PK	Test Date :	July 25, 2014
Test By:	Andy	Temperature :	28℃
Test Result:	PASS	Humidity :	65 %
Operation Mode:	802.11n(HT40)	Antenna:	B

Band Edge Frequency (MHz)	continued Peak Level (dBm)	e.i.r.p Peak Level (dBm)	Limit(dBm)	Pass/Fail
5150	-33.124	-31.124	-27	PASS
5350	-55.734	-53.734	-27	PASS


Marker 1 5.150000000000 GHz
Trig: Free Run
Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Mkr1 5.150 00 GHz
-33.124 dBm
Ref Offset 12 dB
10 dB/div
Ref 15.00 dBm
Center 5.15000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Span 100.0 MHz
Sweep 1.066 ms (1000 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2


Marker 1 5.350000000000 GHz
Trig: Free Run
Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Mkr1 5.350 00 GHz
-55.734 dBm
Ref Offset 12 dB
10 dB/div
Ref 15.00 dBm
Center 5.3000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Span 200.0 MHz
Sweep 1.066 ms (1000 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

12. Uncertainty

Measurement Uncertainty for a level of Confidence of 95%

Parameter	Uncertainty
Radio Frequency	±1x10^-5
Maximum Conducted Output Power Test	±1.0dB
Radiated Emission Test	±2.0dB
Peak Power Density	±2.0dB
Occupied Bandwidth Test	±1.0dB
Band Edge Test	±3dB
All emission, radiated	±3dB
Antenna Port Emission	±3dB
Temperature	±0.5℃
Humidity	±3%