TEST REPORT

APPLICANT	:	Hot Pepper, Inc.
PRODUCT NAME	:	4G Smart Phone
MODEL NAME	:	H5
BRAND NAME	:	Hot Pepper
FCC ID	:	2APD4-P26A
STANDARD(S)	:	47 CFR Part 15 Subpart E
TEST DATE	:	2018-04-12 to 2018-07-17
ISSUE DATE	:	2018-07-18

Tested by: *Tu Ya'nan*

Tu Ya'nan (Test Engineer)

Approved by: *Andy Yeh*

Andy Yeh (Technical Director)

DIRECTORY

Change History		
Issue	**Date**	**Reason for change**
1.0	2018-07-17	First edition

1. Technical Information

Note: Provide by applicant.

1.1. Applicant and Manufacturer Information

Applicant:	Hot Pepper, Inc.
Applicant Address:	5151 California Ave., Suite 100, Irvine 92617, USA
Manufacturer:	Hot Pepper, Inc.
Manufacturer Address:	5151 California Ave., Suite 100, Irvine 92617, USA

1.2. Equipment Under Test (EUT) Description

Product Name:	4G Smart Phone	
Serial No:	(N/A, marked #1 by test site)	
Hardware Version:	T169-LK-V1.2	
Software Version:	HOTPEPPER_SW01_20180320	
Modulation Type:	OFDM	
Modulation Mode:	802.11a, 802.11n(HT20), 802.11n(HT40)	
Operating Frequency Range:	5.180 GHz- 5.240 GHz; 5.260 GHz -5.320 GHz ; 5.500 GHz -5.720 GHz ; 5.745GHz- 5.825GHz	
Channel Number:	Refer to 1.3	
Antenna Type:	PIFA Antenna	
Antenna Gain:	1.39 dBi	
Operating voltage:	Normal(NV):	3.8V
	Lowest(LV):	3.5V
	Highest(HV):	4.4V

Note 1: The U-NII band is applicable to this report, another bands of operation (2.4GHz) is documented in a separate report.

Note 2: WIFI hotspot does not support U-NII band.

Note 3: During test, the duty cycle of the EUT was setting to 100%.

Note 4: For a more detailed description, please refer to Specification or User's Manual supplied by the applicant and/or manufacturer.

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1.3. The channel number and frequency of EUT

Frequency Range: 5180-5240MHz				
Bandwidth	Channel	Frequency (MHz)	Channel	Frequency (MHz)
20MHz	**36**	**5180**	40	5200
	44	**5220**	**48**	**5240**
40MHz	**38**	**5190**	**46**	**5230**

Frequency Range: 5260-5320MHz				
Bandwidth	Channel	Frequency (MHz)	Channel	Frequency (MHz)
20MHz	**52**	**5260**	56	5280
	60	**5300**	**64**	**5320**
40MHz	**54**	**5270**	**62**	**5310**

Frequency Range: 5500-5720MHz				
Bandwidth	Channel	Frequency (MHz)	Channel	Frequency (MHz)
20MHz	**100**	**5500**	105	5520
	108	5540	112	5560
	116	5580	**120**	**5600**
	124	5620	128	5640
	132	5660	136	5680
	140	5700	**144**	**5720**
40MHz	**102**	**5510**	110	5550
	118	5590	**126**	**5630**
	134	5670	**142**	**5710**

Frequency Range: 5745-5805MHz				
Bandwidth	Channel	Frequency (MHz)	Channel	Frequency (MHz)
20MHz	**149**	**5745**	153	5765
	157	**5785**	161	5805
	165	**5825**		
40MHz	**151**	**5775**	**159**	**5795**

Note 1: The black bold channels were selected for test.

1.4. Test Standards and Results

The objective of the report is to perform testing according to 47 CFR Part 15 Subpart E (U-NII band) for the EUT FCC ID Certification:

No	Identity	Document Title
1	47 CFR Part 15 (5-1-14 Edition)	Radio Frequency Devices

Test detailed items/section required by FCC rules and results are as below:

No.	Section	Description	Test Date	Test Engineer	Result
1	15.203	Antenna Requirement	N/A	N/A	PASS
2	15.407(a) (e)	Emission Bandwidth	Apr 12, 2018 Jul 17, 2018	Tu Ya'nan	PASS
3	15.407(a)	Maximum conducted output Power	Apr 12, 2018	Tu Ya'nan	PASS
4	15.407(a)	Peak Power spectral density	Apr 12, 2018 Jul 17, 2018	Tu Ya'nan	PASS
5	15.407(b)	Restricted Frequency Bands	Apr 30, 2018	Wu Junke	PASS
6	15.407(g)	Frequency Stability	Apr 12, 2018	Tu Ya'nan	PASS
7	15.207	Conducted Emission	May 04, 2018	Wu Junke	PASS
8	15.407(b)	Radiated Emission	Apr 07&21, 2018	Wu Junke	PASS
9	15.407(c)	Automatically discontinue transmission requirement	N/A	N/A	PASS

Note1: The DFS test report was documented in a separate report
(Report No.: SZ18030244W05).

Note2: The tests of Conducted Emission and Radiated Emission were performed according to the method of measurements prescribed in ANSI C63.10 2013.

Note3: These RF tests were performed according to the method of measurements prescribed in KDB789033 D02 General UNII Test Procedures New Rules v01r03

1.5. Environmental Conditions

During the measurement, the environmental conditions were within the listed ranges:

Temperature (°C):	15 - 35
Relative Humidity (%):	30 -60
Atmospheric Pressure (kPa):	86-106

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2. 47 CFR Part 15C Requirements

2.1. Antenna requirement

2.1.1. Applicable Standard

According to FCC 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

2.1.2. 2.1.2 Result: Compliant

The EUT has a permanently and irreplaceable attached antenna. Please refer to the EUT internal photos.

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2.2. Emission Bandwidth

2.2.1. Requirement

For purposes of this subpart the emission bandwidth shall be determined by measuring the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, that are 26 dB down relative to the maximum level of the modulated carrier. Determination of the emissions bandwidth is based on the use of measurement instrumentation employing a peak detector function with an instrument resolution bandwidth approximately equal to 1.0 percent of the emission bandwidth of the device under measurement. Within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

2.2.2. Test Description
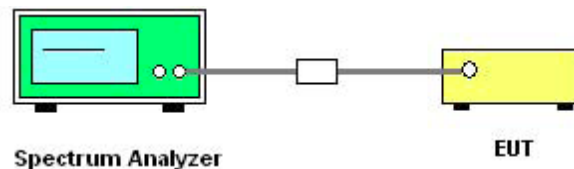
A. Test Set:

The EUT is coupled to the Spectrum Analyzer; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading.

B. Test Procedure

1. KDB 789033 Section C) 1) Emission Bandwidth was used in order to prove compliance

a) Set RBW = approximately 1% of the emission bandwidth.

b) Set the VBW > RBW.

c) Detector = Peak.

d) Trace mode = max hold.

e) 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%.

2. KDB 789033 Section C) 2) minimum emission bandwidth for the band 5.725-5.85GHz was used in order to prove compliance.

Section 15.407(e) specifies the minimum 6 dB emission bandwidth of at least 500 KHz for the band 5.715-5.85 GHz. The following procedure shall be used for measuring this bandwidth:

a) Set RBW = 100 kHz.

b) Set the video bandwidth (VBW) ≥ 3 × RBW.

c) Detector = Peak.

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d) Trace mode = max hold.

e) Sweep = auto couple.

f) Allow the trace to stabilize.

g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.
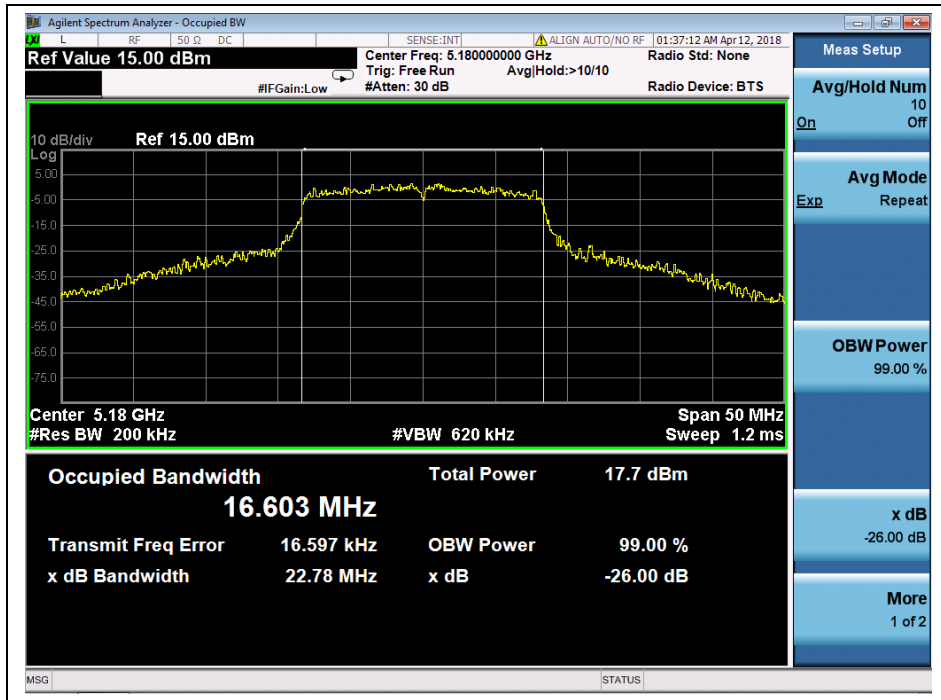
2.2.3. Test Result

802.11a Test mode

A. Test Verdict:

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
36	5180	22.78
44	5220	20.03
48	5240	19.98 Note
52	5260	19.60
60	5300	19.33
64	5320	20.51
100	5500	28.22
120	5600	27.58
144	5720	20.36
Channel	**Frequency (MHz)**	**6dB Bandwidth (MHz)**
144	5720	15.15
149	5745	16.34
157	5785	15.41
165	5825	15.84
Note: The high frequency of the -26dB is 5249.88MHz which is out of the DFS frequency range, so there is no DFS testing requirement.		

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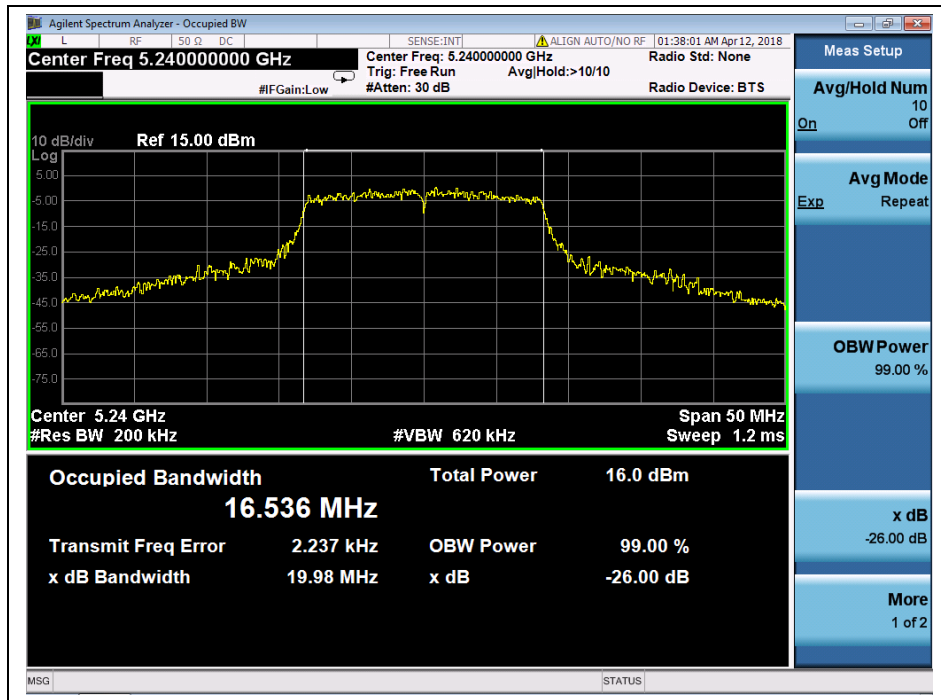
Page **9** 0f **130**
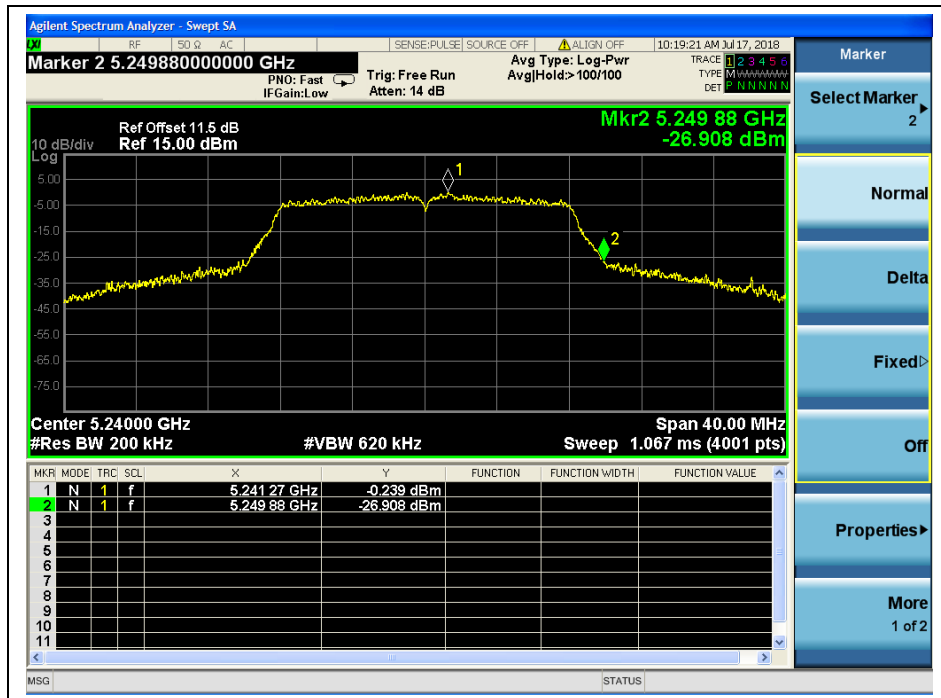
B. Test Plots

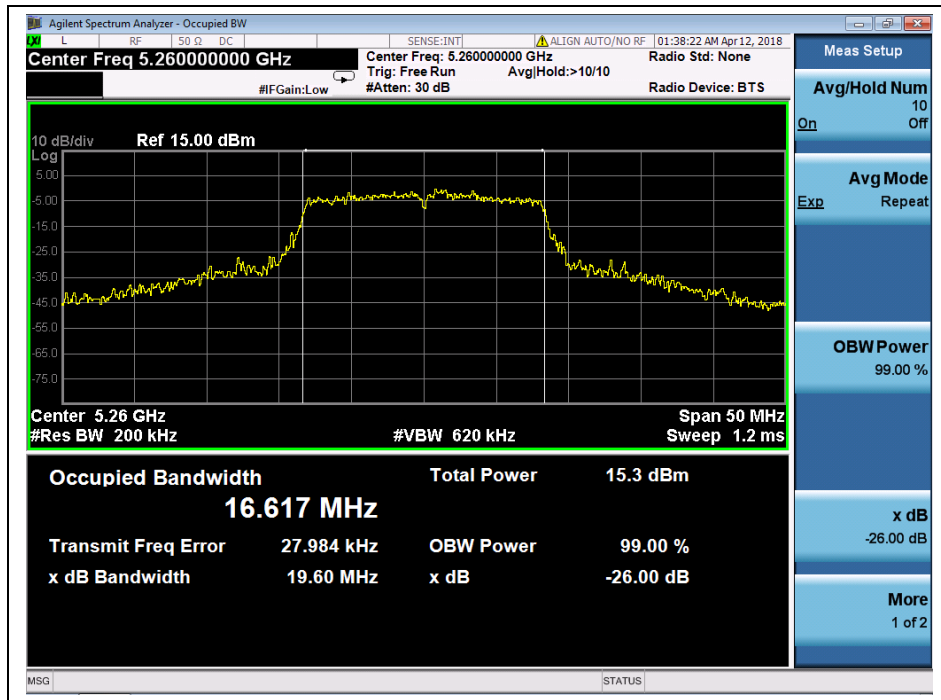(Channel 36, 5180MHz, 802.11a,)
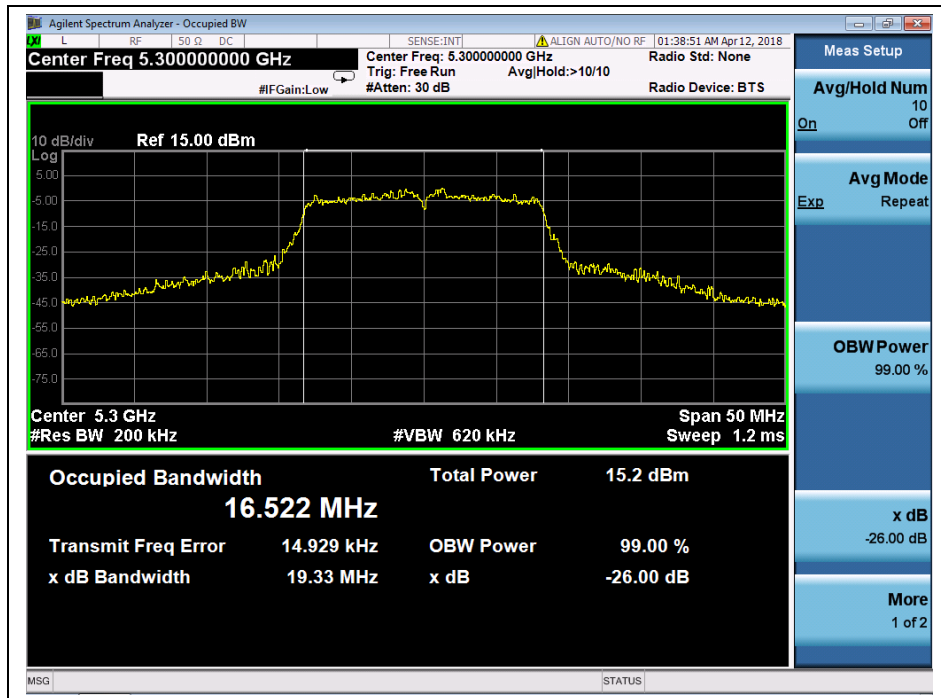

(Channel 44, 5220 MHz, 802.11a,)
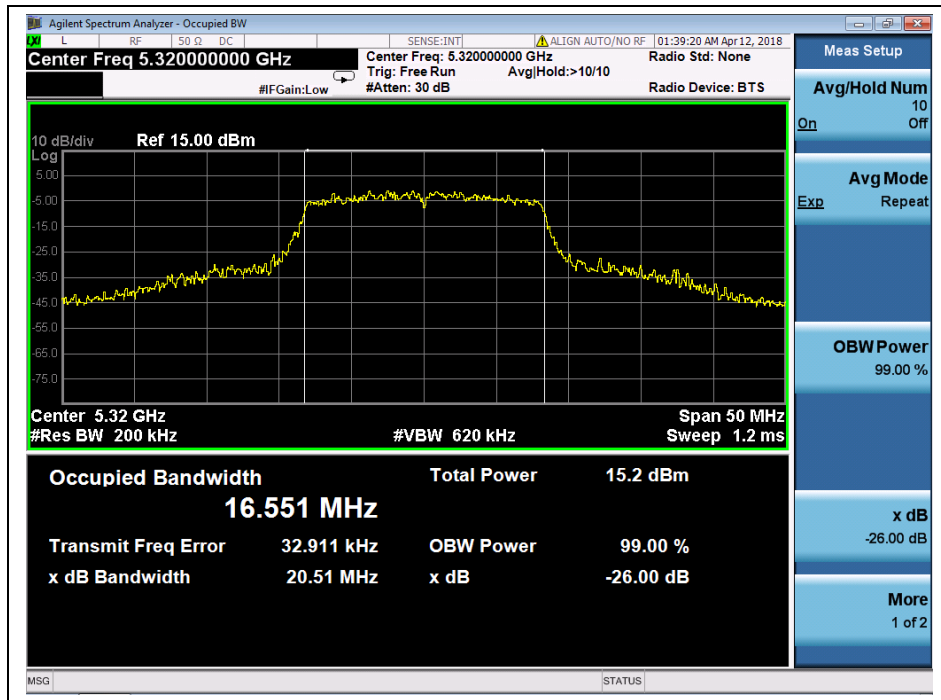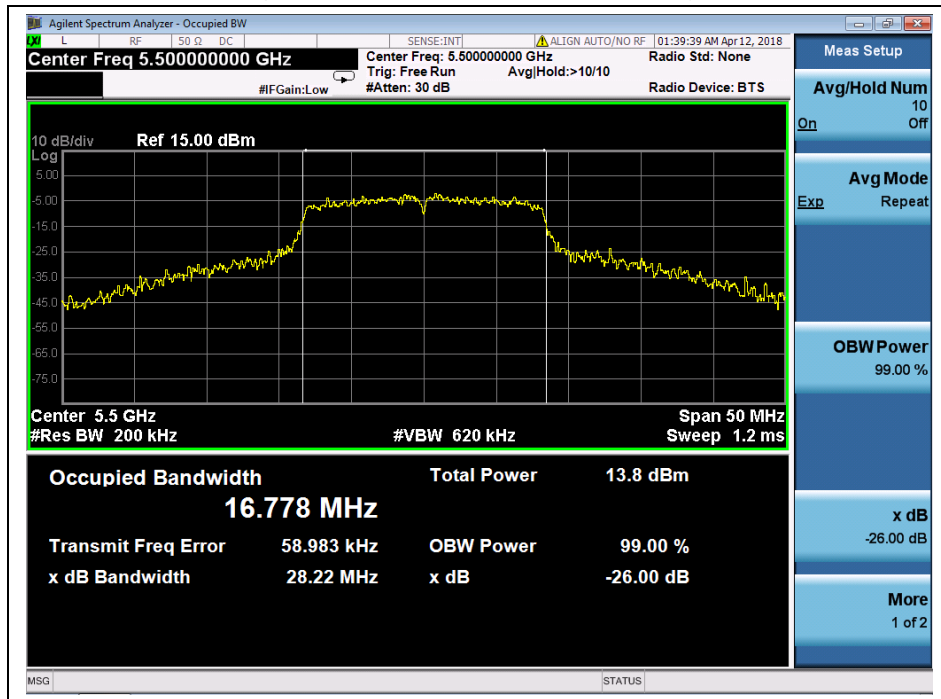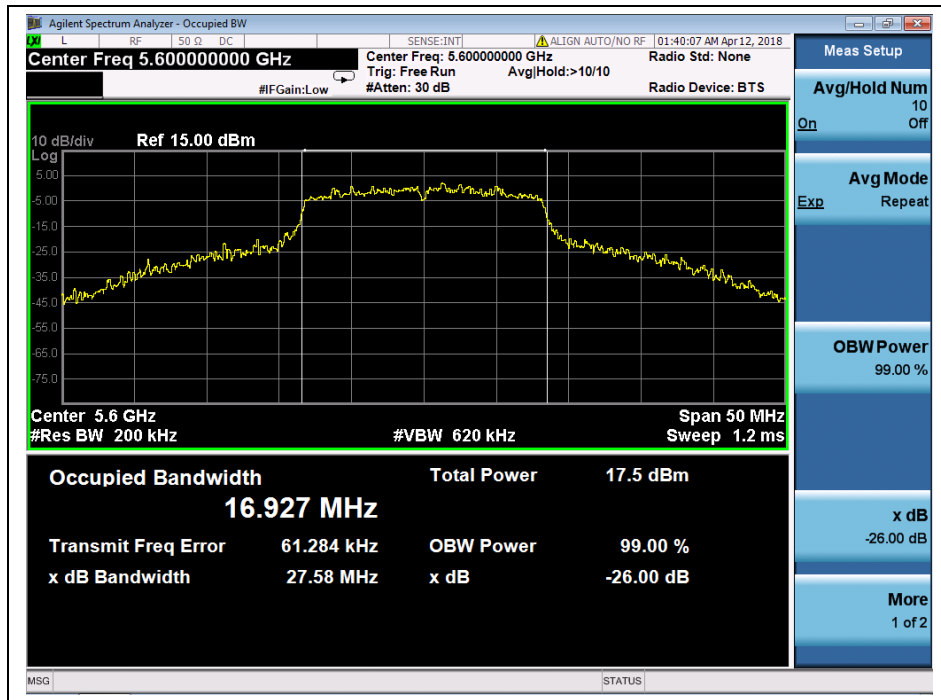
(Channel 48, 5240MHz, 802.11a,)

(Channel 48, 5240MHz, fh of -26dB, 802.11a,)

(Channel 52, 5260MHz, 802.11a,)

(Channel 60, 5300 MHz, 802.11a,)

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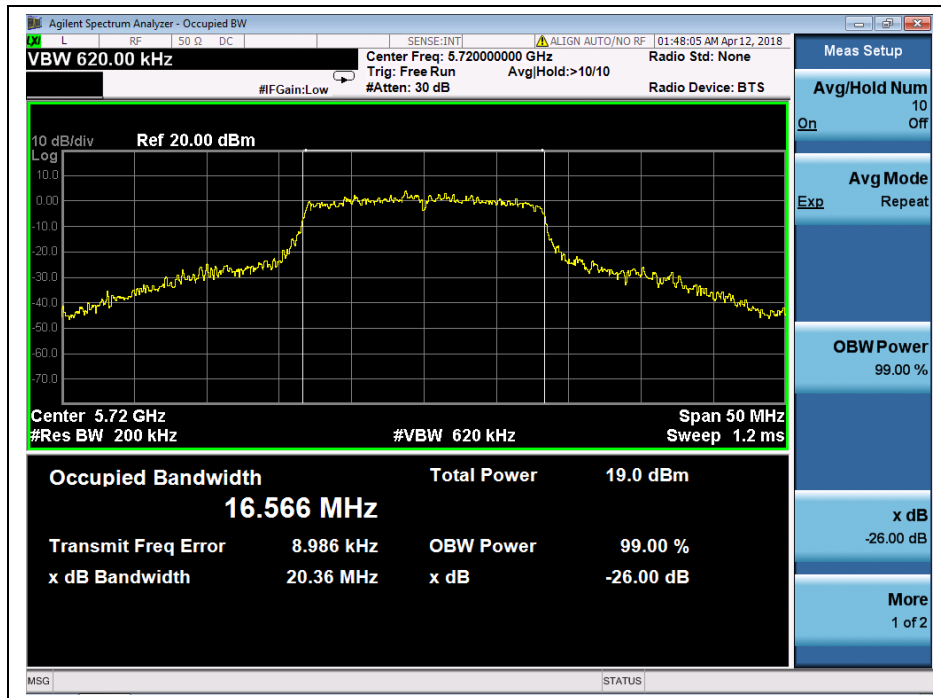Http://www.morlab.cn   E-mail: service@morlab.cn

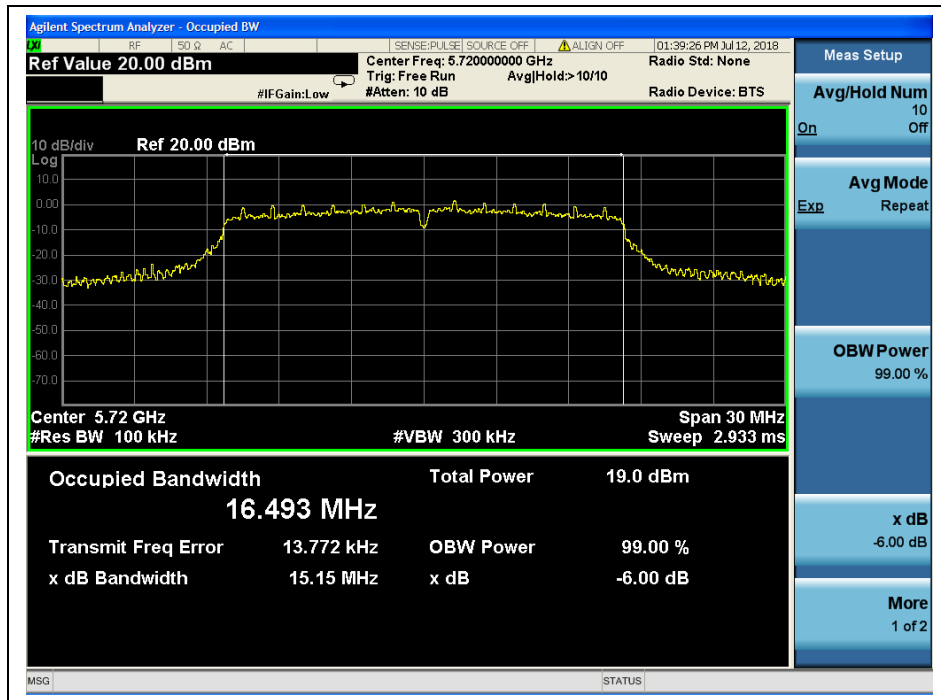Page 12 0f 130

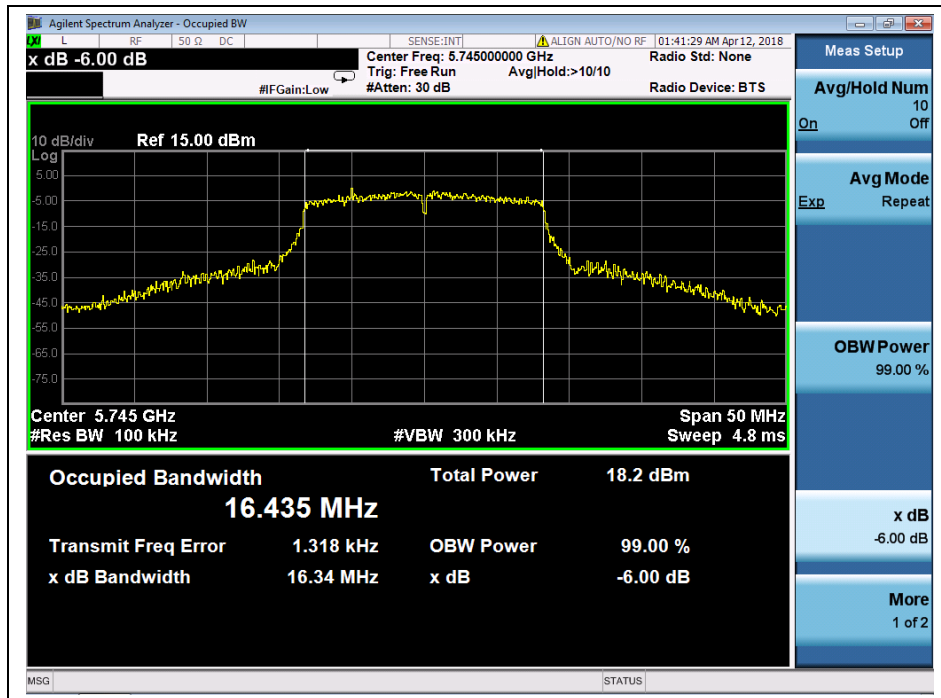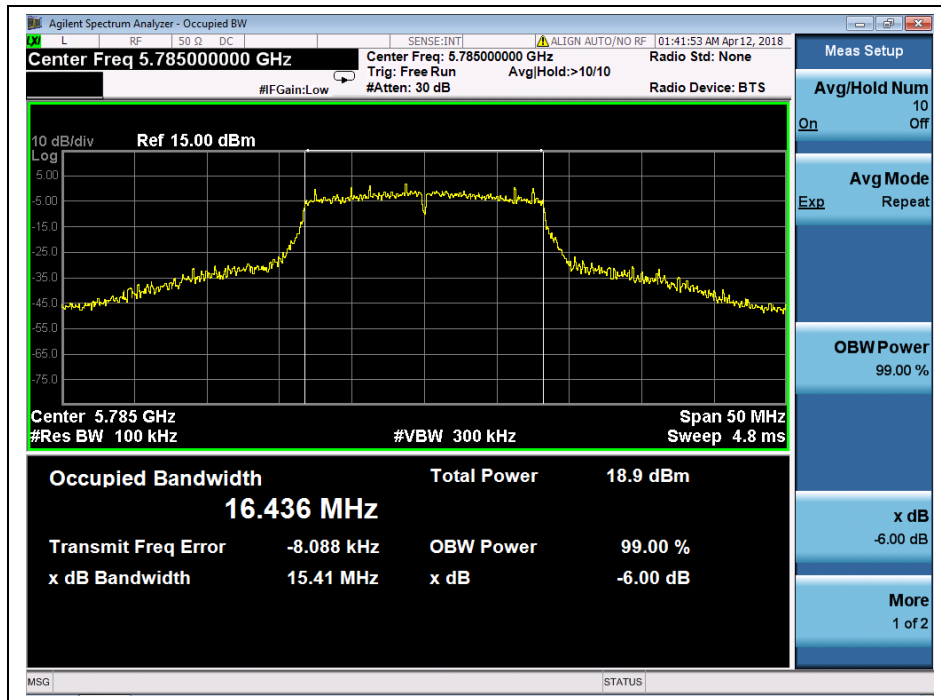(Channel 64, 5320MHz, 802.11a,)

(Channel 100, 5500MHz, 802.11a,)

(Channel 120, 5600 MHz, 802.11a,)

(Channel 144, 5720MHz, 802.11a,)

(Channel 144, 5720MHz, 802.11a,)

(Channel 149, 5745MHz, 802.11a)

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(Channel 157, 5785MHz, 802.11a)
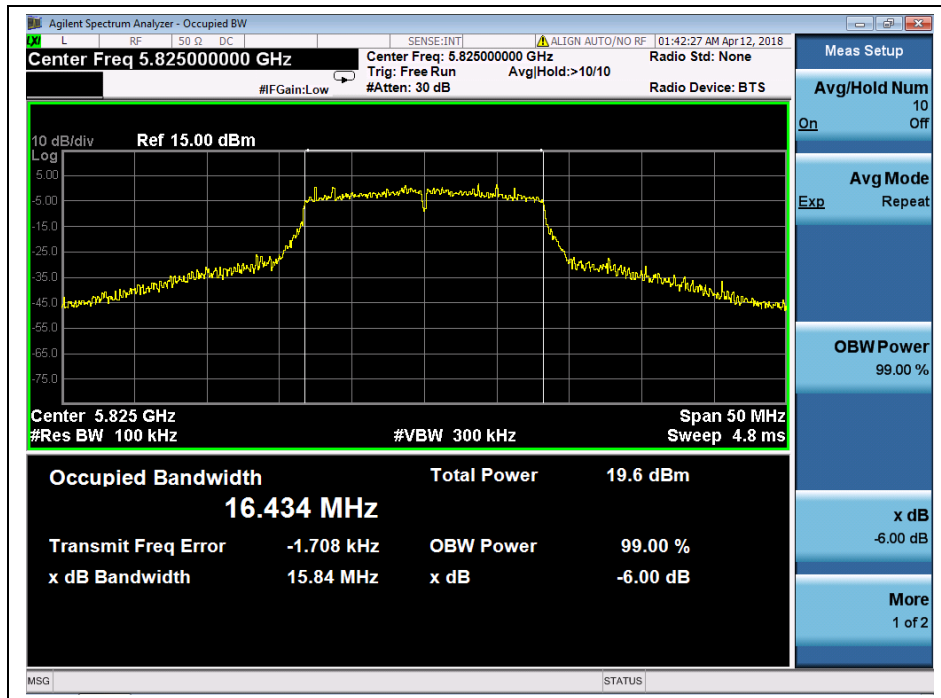
(Channel 165, 5825MHz, 802.11a)

802.11n (HT20) Test mode

A. Test Verdict:

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
36	5180	20.42
44	5220	22.69
48	5240	21.68 Note
52	5260	19.56
60	5300	19.66
64	5320	20.03
100	5500	27.78
120	5600	32.08
144	5720	20.33
Channel	Frequency (MHz)	6dB Bandwidth (MHz)
144	5720	15.16
149	5745	13.15
157	5785	16.86
165	5825	16.48

Note: The high frequency of the -26dB is 5249.98MHz which is out of the DFS frequency range, so there is no DFS testing requirement.
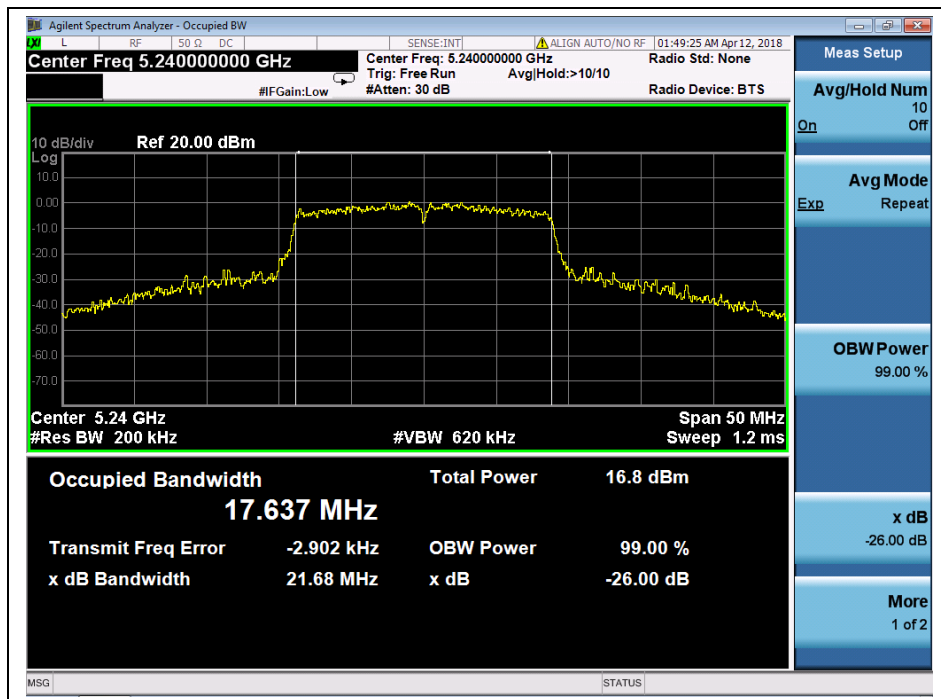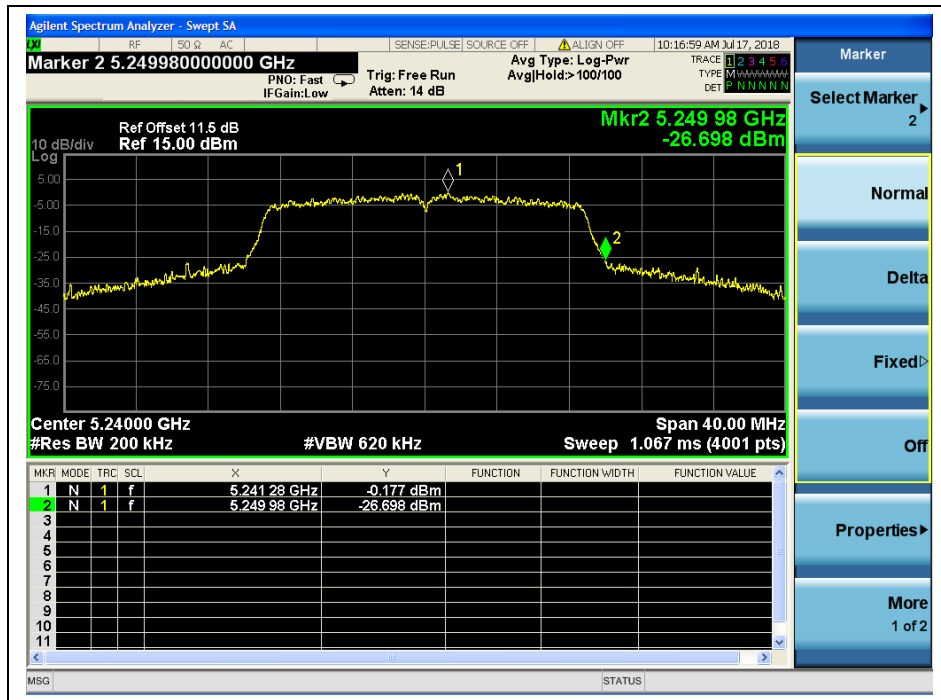
B. Test Plots
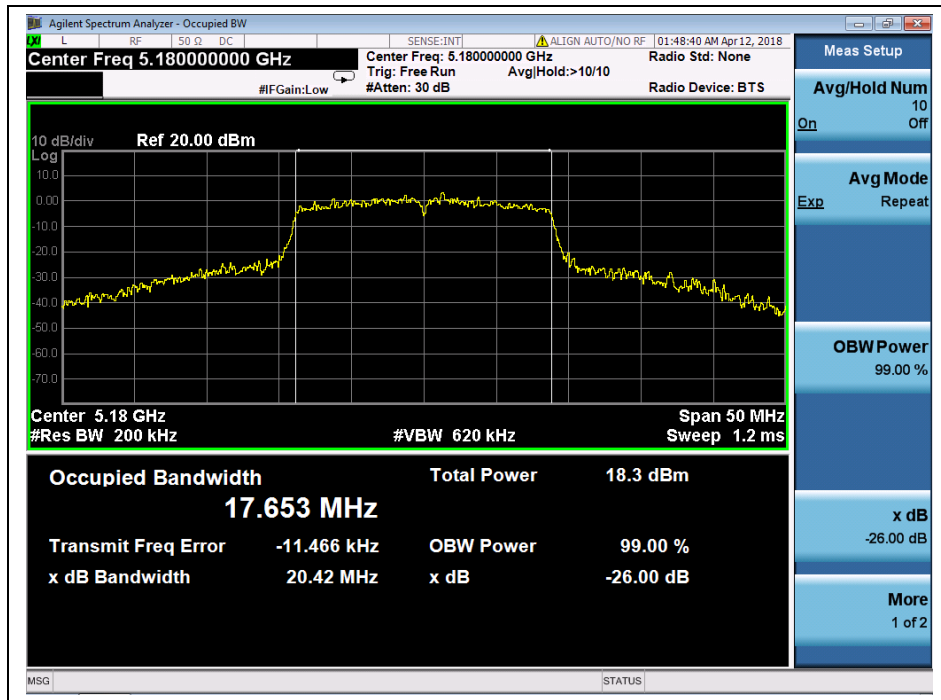
(Channel 36, 5180MHz, 802.11 n (HT20))

(Channel 44, 5220 MHz, 802.11 n (HT20))

(Channel 48, 5240MHz, 802.11 n (HT20))

(Channel 48, 5240MHz, fh of -26dB, 802.11 n (HT20))

(Channel 52, 5260MHz, 802.11 n (HT20))

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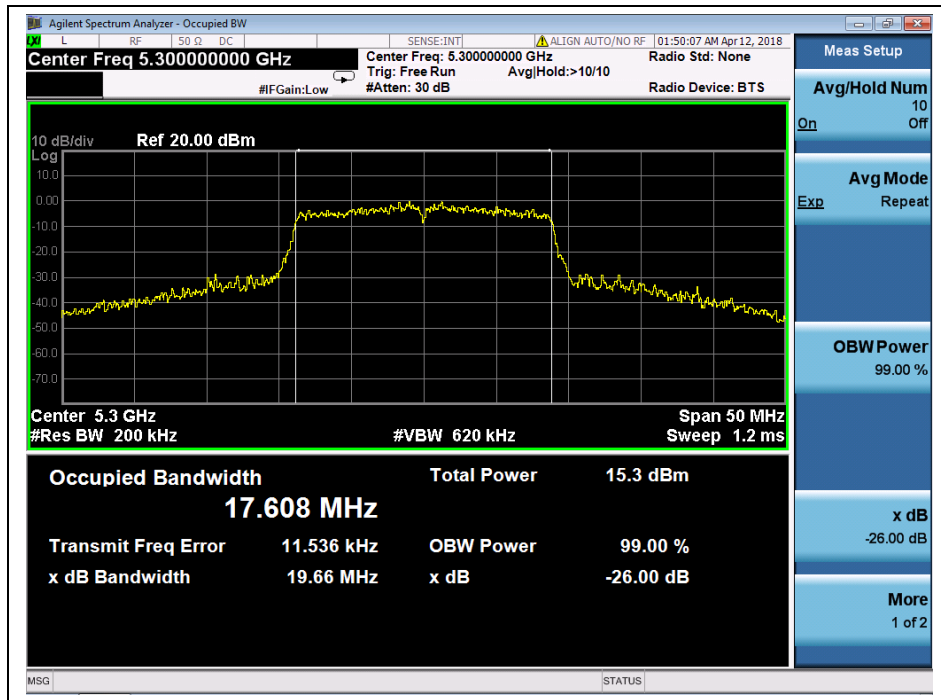
(Channel 60, 5300 MHz, 802.11 n (HT20))
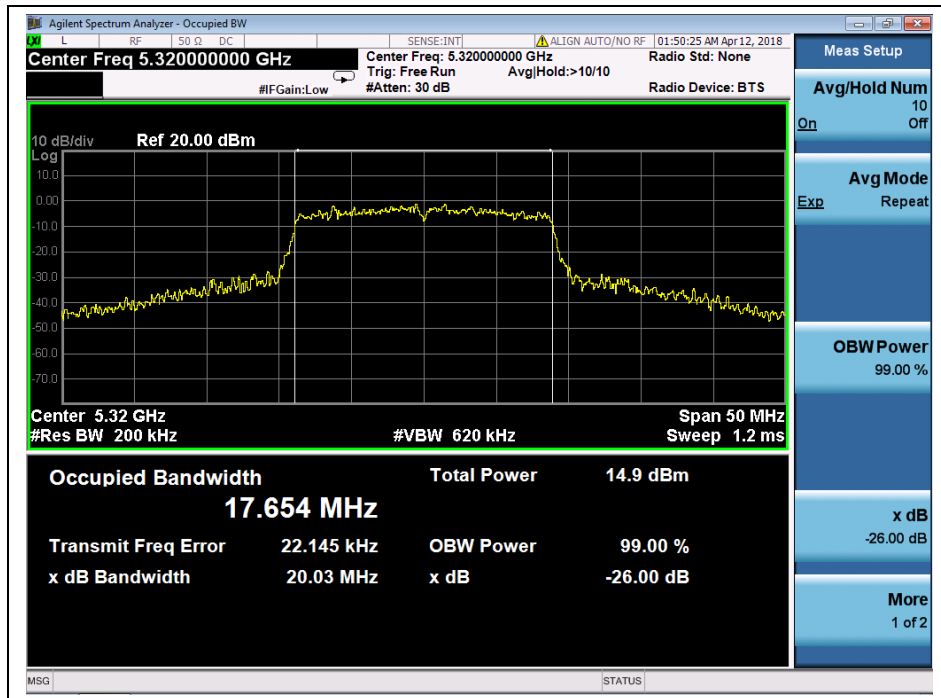
(Channel 64, 5320MHz, 802.11 n (HT20))

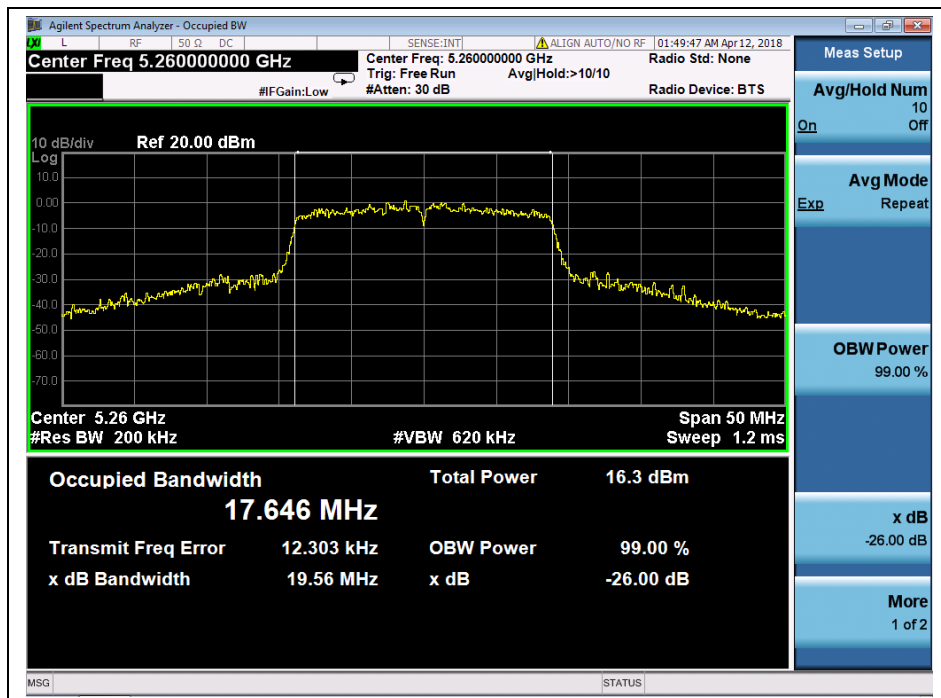(Channel 100, 5500MHz, 802.11 n (HT20))

(Channel 120, 5600 MHz, 802.11 n (HT20))

(Channel 144, 5720MHz, 802.11 n (HT20))
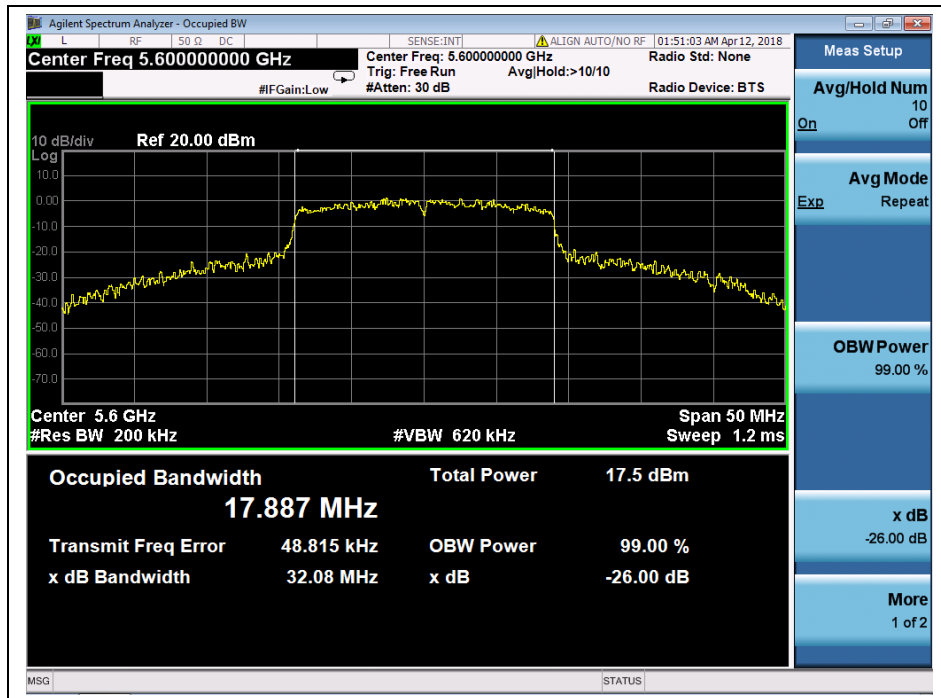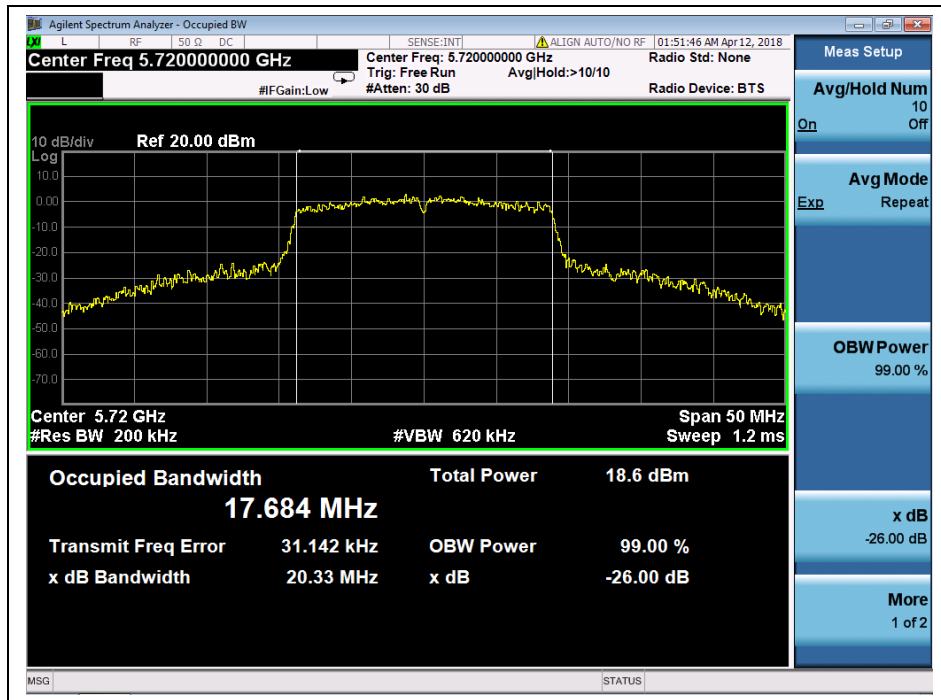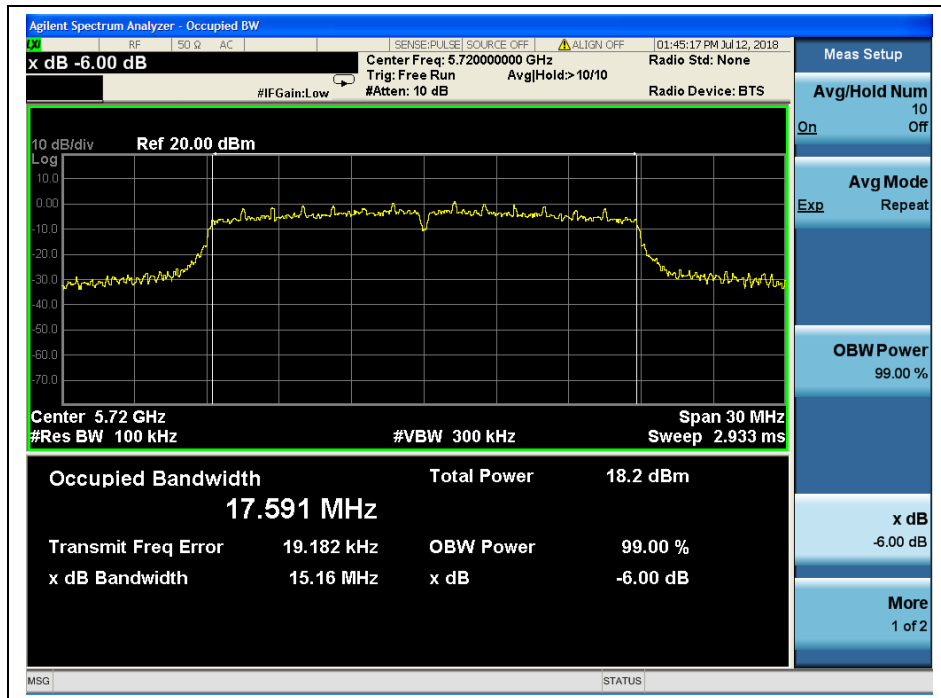

(Channel 144, 5720MHz, 802.11 n (HT20))

(Channel 149, 5745MHz, 802.11 n (HT20))

(Channel 157, 5785MHz, 802.11 n (HT20))

(Channel 165, 5825MHz, 802.11 n (HT20))

802.11n (HT40) Test mode

A. Test Verdict:

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
38	5190	56.67
46	5230	53.04 Note
54	5270	54.83
62	5310	50.3
102	5510	64.54
126	5630	62.27
142	5710	58.11
Channel	**Frequency (MHz)**	**6dB Bandwidth (MHz)**
142	5710	35.24
151	5755	35.46
159	5795	35.17

Note: The high frequency of the -26dB is 5249.92MHz which is out of the DFS frequency range, so there is no DFS testing requirement.

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B. Test Plots

(Channel 38, 5190MHz, 802.11n (HT40))
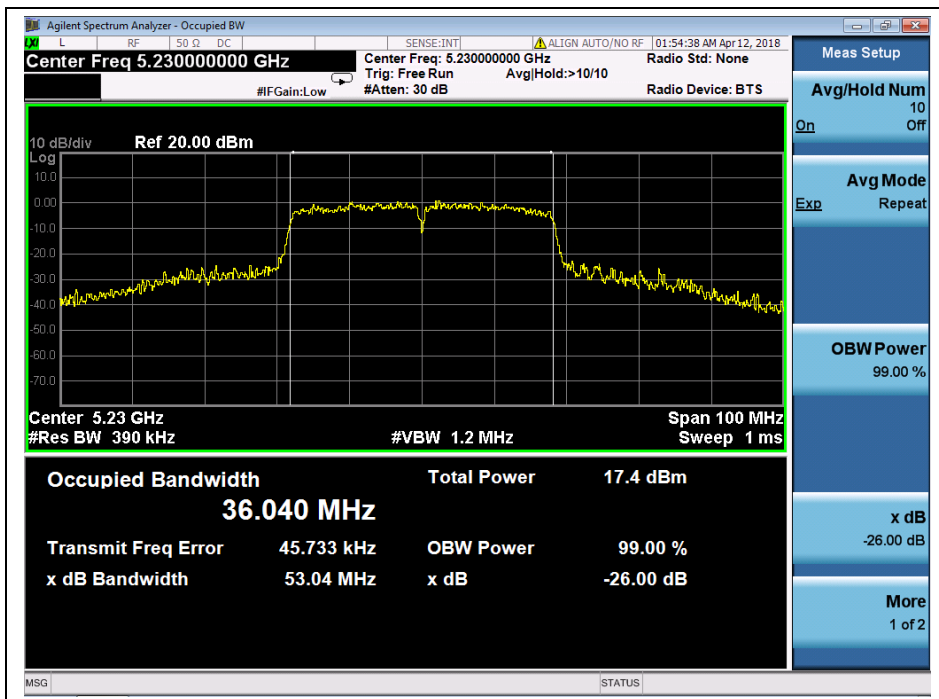
(Channel 46, 5230 MHz, 802.11n (HT40))

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(Channel 46, 5230 MHz, fh of -26dB, 802.11n (HT40))
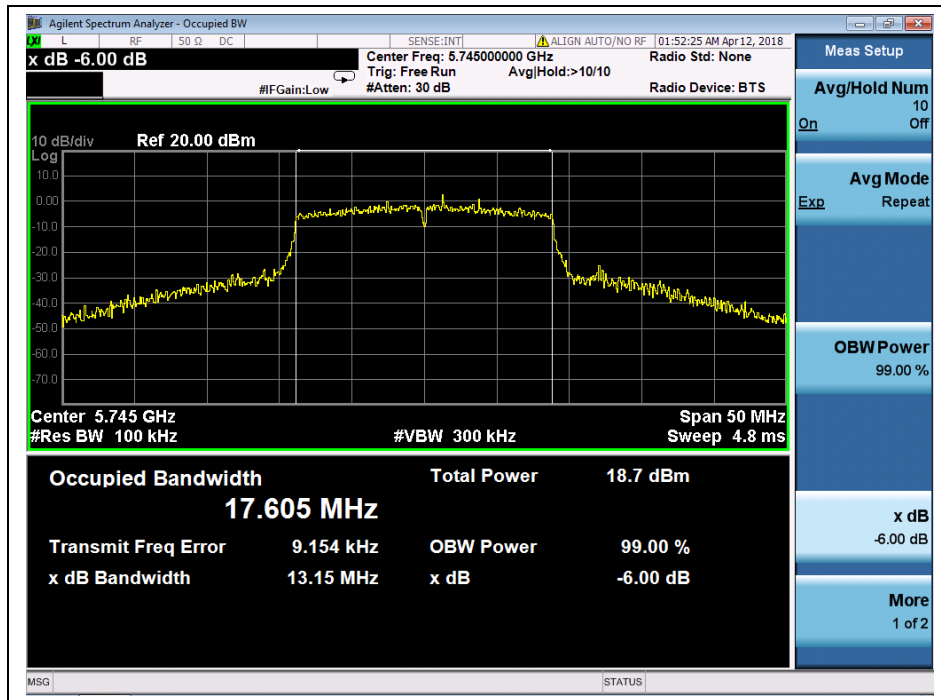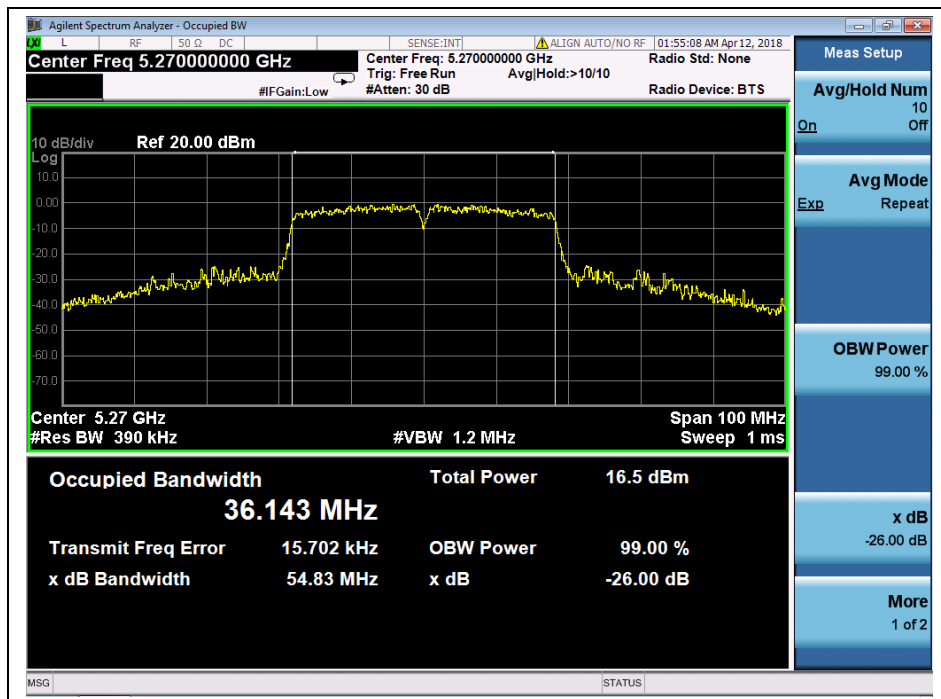

(Channel 54, 5270MHz, 802.11n (HT40))
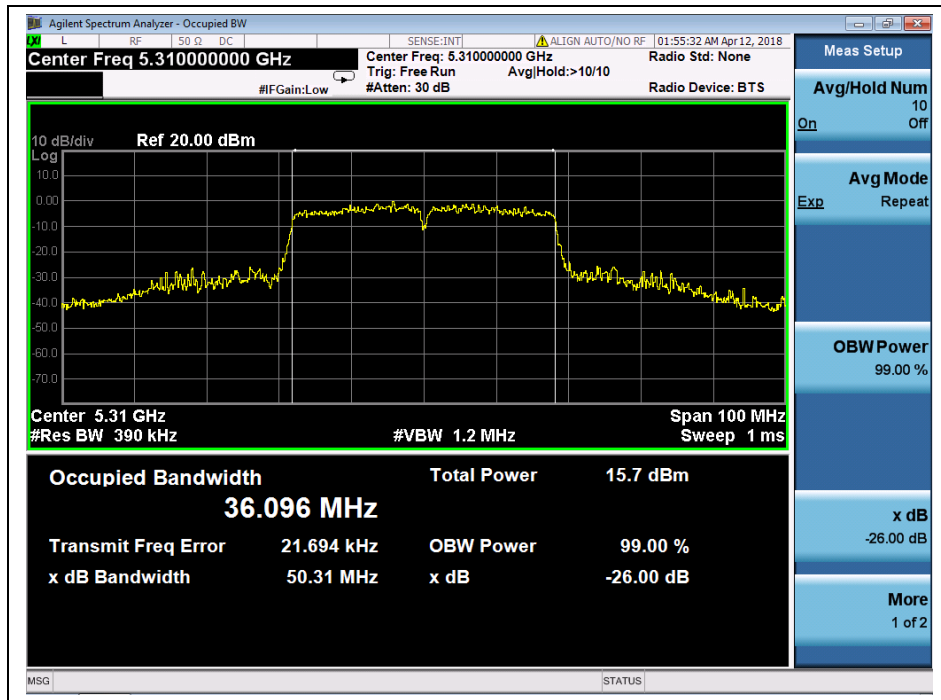
(Channel 62, 5310 MHz, 802.11n (HT40))
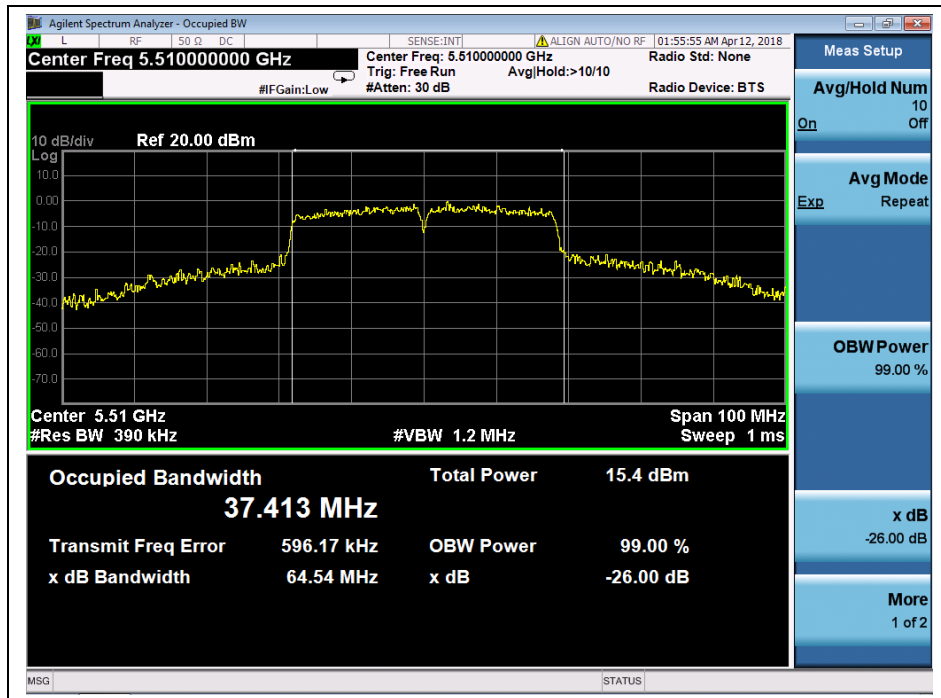
(Channel 102, 5510MHz, 802.11n (HT40))
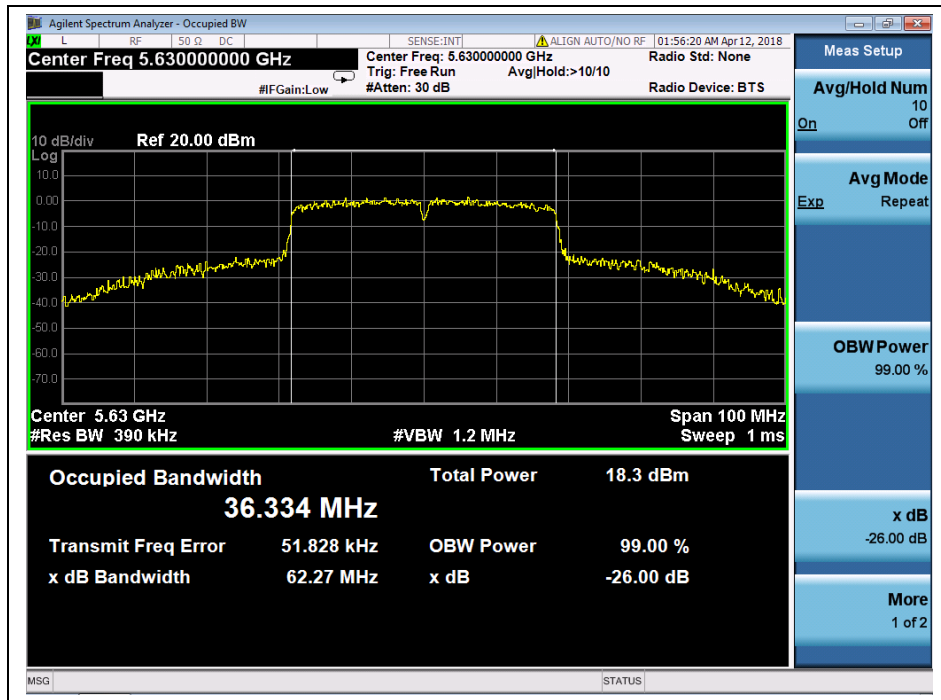
(Channel 126, 5630 MHz, 802.11n (HT40))
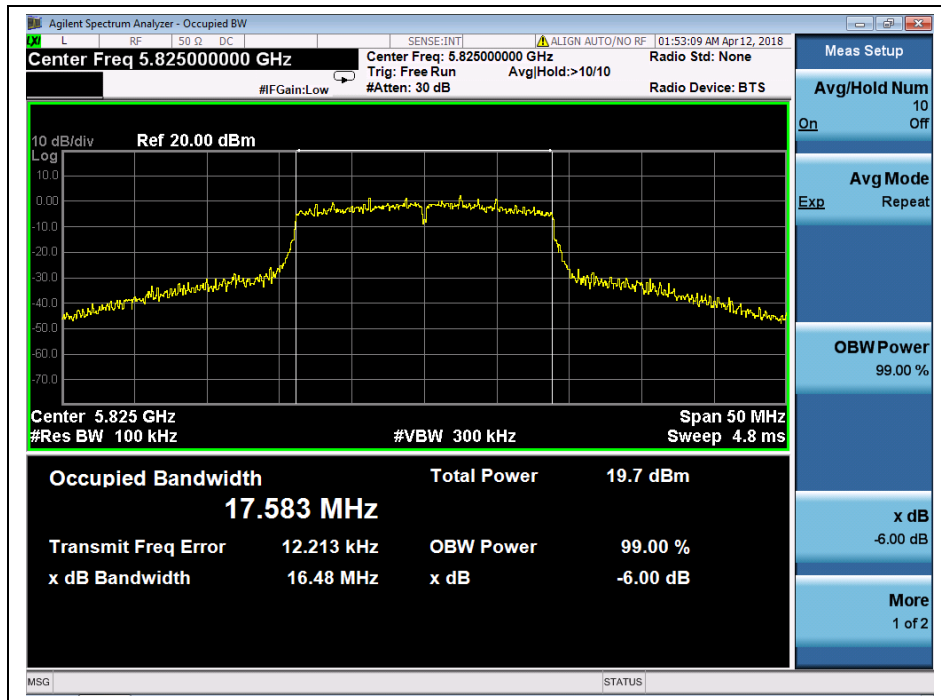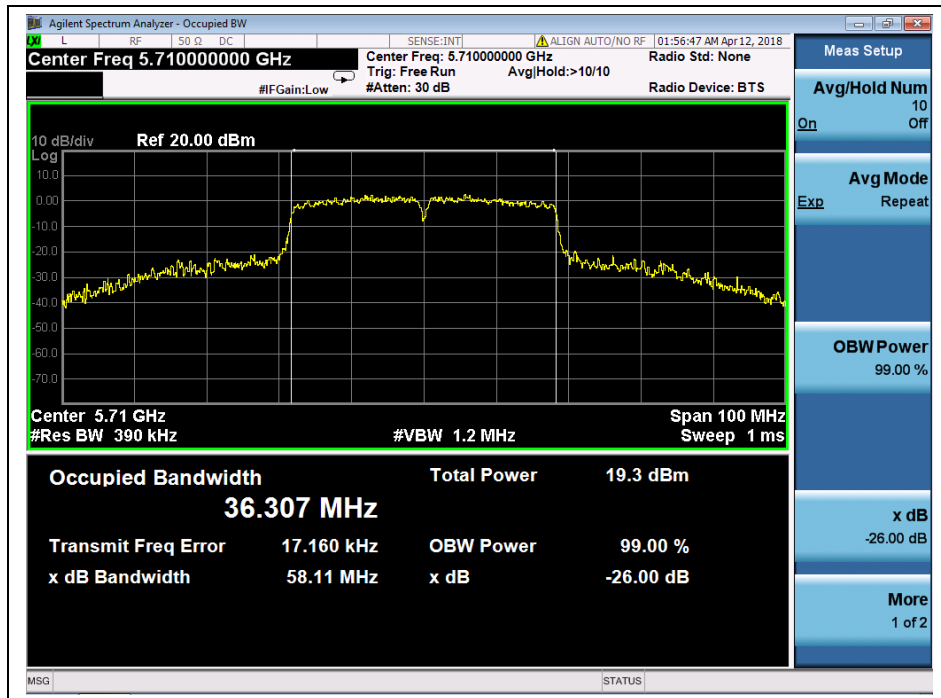

(Channel 142, 5710MHz, 802.11n (HT40))

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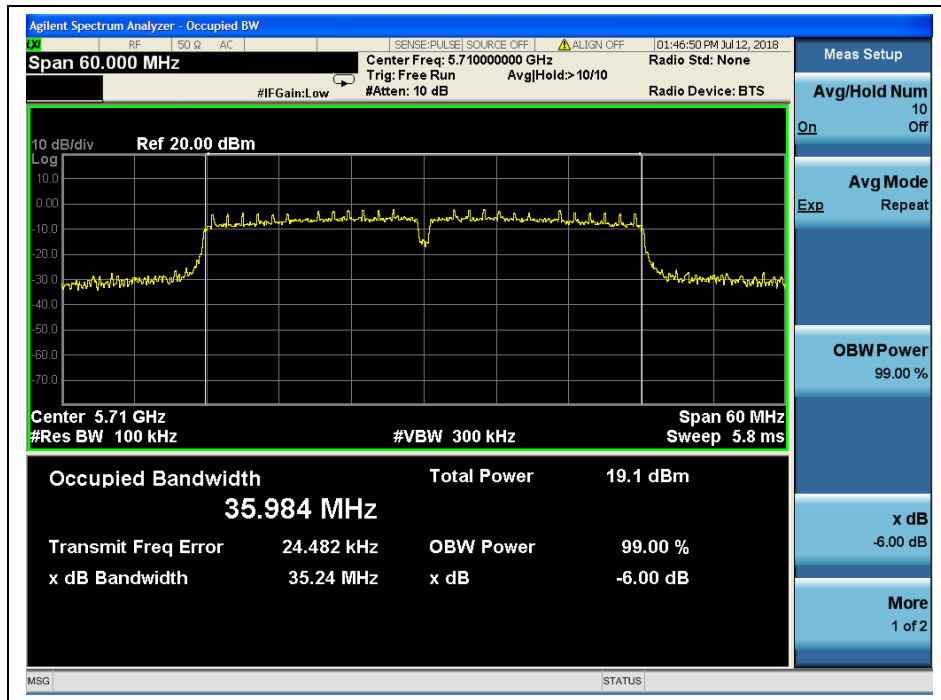
(Channel 142, 5710MHz, 802.11n (HT40))
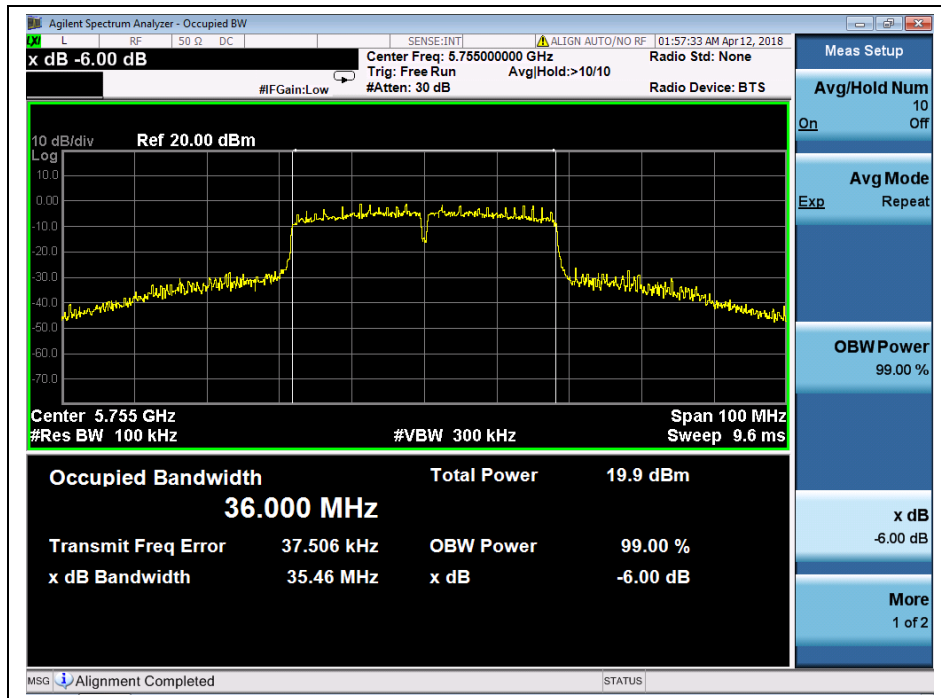
(Channel 151, 5755 MHz, 802.11n (HT40))

Agilent Spectrum Analyzer - Occupied BW

| | | | | | | SENSE:INT | | ⚠ ALIGN AUTO/NO RF | 01:57:56 AM Apr 12, 2018 |

Center Freq 5.795000000 GHz

Center Freq: 5.795000000 GHz   Radio Std: None
Trig: Free Run   Avg|Hold:>10/10
#IFGain:Low   #Atten: 30 dB   Radio Device: BTS

10 dB/div   Ref 20.00 dBm

Center 5.795 GHz   Span 100 MHz
#Res BW 100 kHz   #VBW 300 kHz   Sweep 9.6 ms

Occupied Bandwidth   Total Power   20.1 dBm

35.967 MHz

Transmit Freq Error   -2.731 kHz   OBW Power   99.00 %
x dB Bandwidth   35.17 MHz   x dB   -6.00 dB

Meas Setup

Avg/Hold Num   10
On   Off

Avg Mode
Exp   Repeat

OBW Power
99.00 %

x dB
-6.00 dB

More
1 of 2

(Channel 159, 5795MHz, 802.11n (HT40))

2.3. Maximum conducted output power

2.3.1. Requirement

(1) For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi.

(2) For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz.

(3) For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W.

If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(4) According to KDB662911D01Measure-and-sum technique, the conducted emission level (e.g., transmit power or power in specified bandwidth) is measured at each antenna port. The measured results at the various antenna ports are then summed mathematically to determine the total emission level from the device. Summing is performed in units that are directly proportional to power.

(5) According to KDB 662911 D01, the directional gain = G_{ANT} +10log(N_{ANT}) dBi, where G_{ANT} is the antenna gain in dBi, N_{ANT} is the number of outputs.

2.3.2. Test Description

Section E) 3) of KDB 789033 defines a methodology using a USB Wideband Power Sensor.

A. Test Setup:

(Test Module)
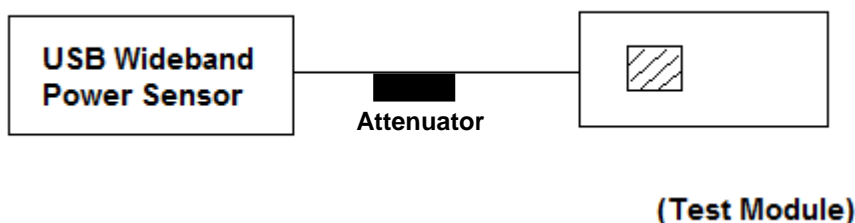
The EUT (Equipment under the test) which is coupled to the USB Wideband Power Sensor; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading, all test result in USB Wideband Power Sensor.

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2.3.3. Test Result

802.11a Test mode

Channel	Frequency (MHz)	Measured Peak Power (dBm)	Limit (dBm)	Verdict
36	5180	18.44	24	PASS
44	5220	18.49		
48	5240	18.69		
52	5260	18.56		
60	5300	18.88		
64	5320	19.02		
100	5500	19.48		
120	5600	19.83		
144	5720	18.98		
149	5745	19.34	30	
157	5785	19.6		
165	5825	19.6		

Channel	Frequency (MHz)	Measured Peak Power (dBm)	Limit 11 dBm + 10 log B (dBm)	Verdict
52	5260	18.56	23.92	PASS
60	5300	18.88	23.86	
64	5320	19.02	24.12	
100	5500	19.48	25.51	
120	5600	19.83	25.41	
144	5720	18.98	24.09	

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Channel	Frequency (MHz)	Measured Average Power (dBm)	Limit (dBm)	Verdict
36	5180	11.59	24	PASS
44	5220	11.29		
48	5240	11.69		
52	5260	11.07		
60	5300	11.68		
64	5320	11.45		
100	5500	12.09		
120	5600	13.00		
144	5720	11.59		
149	5745	11.82	30	
157	5785	11.6		
165	5825	11.94		

Channel	Frequency (MHz)	Measured Average Power (dBm)	Limit 11 dBm + 10 log B (dBm)	Verdict
52	5260	11.07	23.92	PASS
60	5300	11.68	23.86	
64	5320	11.45	24.12	
100	5500	12.09	25.51	
120	5600	13.00	25.41	
144	5720	11.59	24.09	

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802.11n (HT20) Test mode

Channel	Frequency (MHz)	Measured Peak Power (dBm)	Limit (dBm)	Verdict
36	5180	18.07	24	PASS
44	5220	17.77		
48	5240	17.79		
52	5260	17.83		
60	5300	17.81		
64	5320	18.00		
100	5500	18.69		
120	5600	18.81		
144	5720	18.99		
149	5745	19.08	30	
157	5785	19.41		
165	5825	19.66		

Channel	Frequency (MHz)	Measured Peak Power (dBm)	Limit 11 dBm + 10 log B (dBm)	Verdict
52	5260	17.83	23.91	PASS
60	5300	17.81	23.94	
64	5320	18.00	24.02	
100	5500	18.69	25.44	
120	5600	18.81	26.06	
144	5720	18.99	24.08	

Channel	Frequency (MHz)	Measured Average Power (dBm)	Limit (dBm)	Verdict
36	5180	10.73	24	PASS
44	5220	10.61		
48	5240	10.71		
52	5260	10.96		
60	5300	10.41		
64	5320	10.58		
100	5500	11.23		
120	5600	11.52		
144	5720	11.84		
149	5745	11.54	30	
157	5785	11.66		
165	5825	11.82		

Channel	Frequency (MHz)	Measured Average Power (dBm)	Limit 11 dBm + 10 log B (dBm)	Verdict
52	5260	10.96	23.91	PASS
60	5300	10.41	23.94	
64	5320	10.58	24.02	
100	5500	11.23	25.44	
120	5600	11.52	26.06	
144	5720	11.84	24.08	

802.11n (HT40) Test mode

Channel	Frequency (MHz)	Measured Peak Power (dBm)	Limit (dBm)	Verdict
38	5190	17.83		
46	5230	17.85		
54	5270	17.81		
62	5310	18.00	24	
102	5510	18.74		PASS
126	5630	19.03		
142	5710	19.15		
151	5755	19.33	30	
159	5795	19.53		

Channel	Frequency (MHz)	Measured Peak Power (dBm)	Limit 11 dBm + 10 log B (dBm)	Verdict
54	5270	17.81	28.39	
62	5310	18.00	28.02	
102	5510	18.74	29.10	PASS
126	5630	19.03	28.94	
142	5710	19.15	28.64	

Channel	Frequency (MHz)	Measured Average Power (dBm)	Limit (dBm)	Verdict
38	5190	10.78		
46	5230	10.88		
54	5270	10.74		
62	5310	10.75	24	
102	5510	11.46		PASS
126	5630	12.08		
142	5710	12.06		
151	5755	11.89	30	
159	5795	12.02		

Channel	Frequency (MHz)	Measured Average Power (dBm)	Limit 11 dBm + 10 log B (dBm)	Verdict
54	5270	10.74	28.30	
62	5310	10.75	27.58	
102	5510	11.46	27.73	PASS
126	5630	12.08	27.23	
142	5710	12.06	27.68	

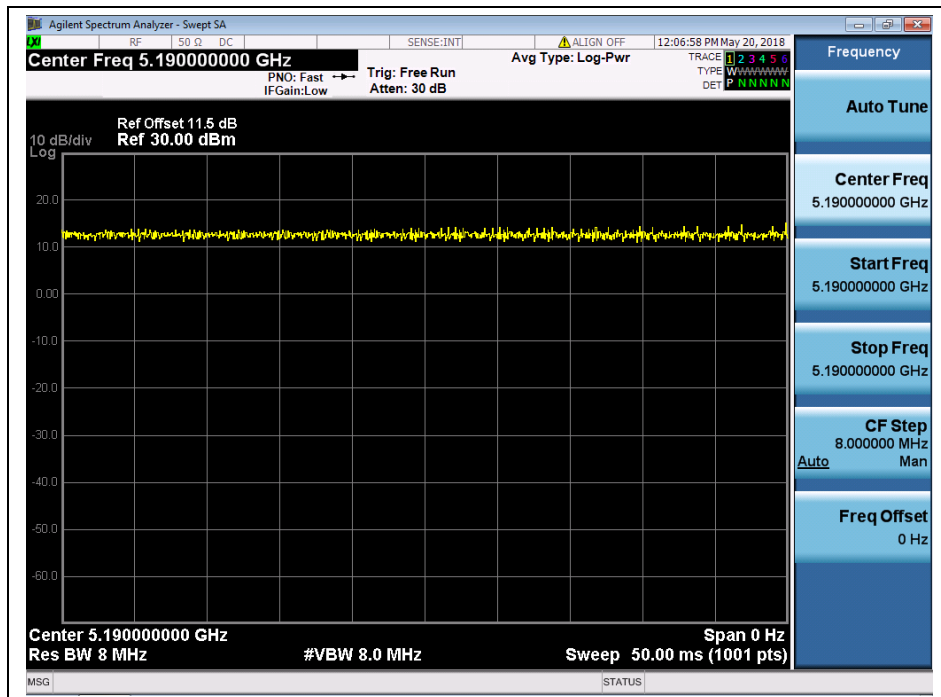**Plot for duty cycle**
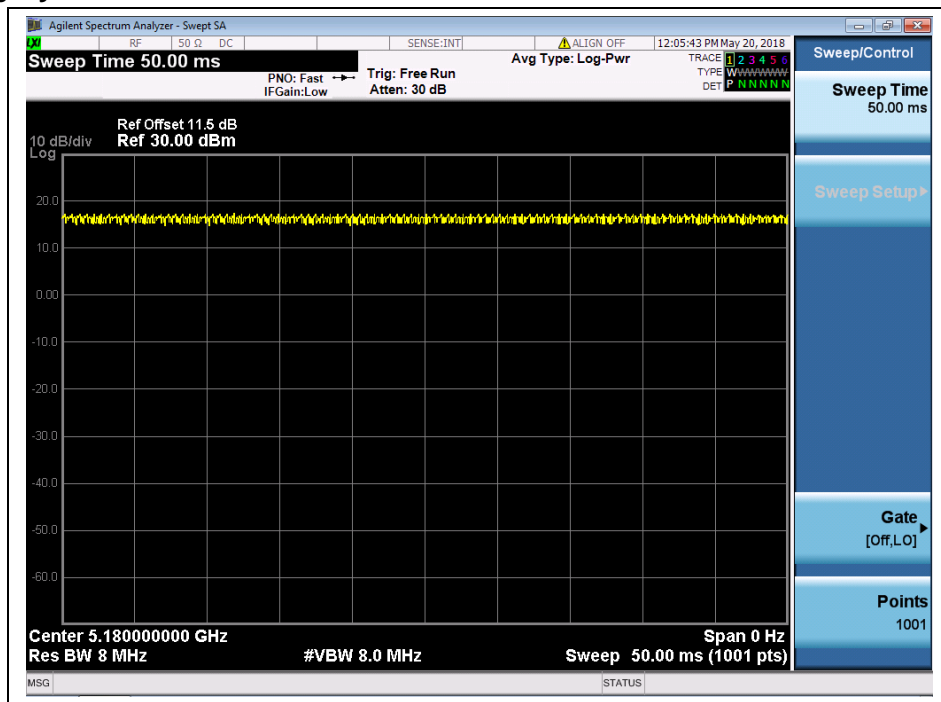
(Duty cycle for 802.11 a)
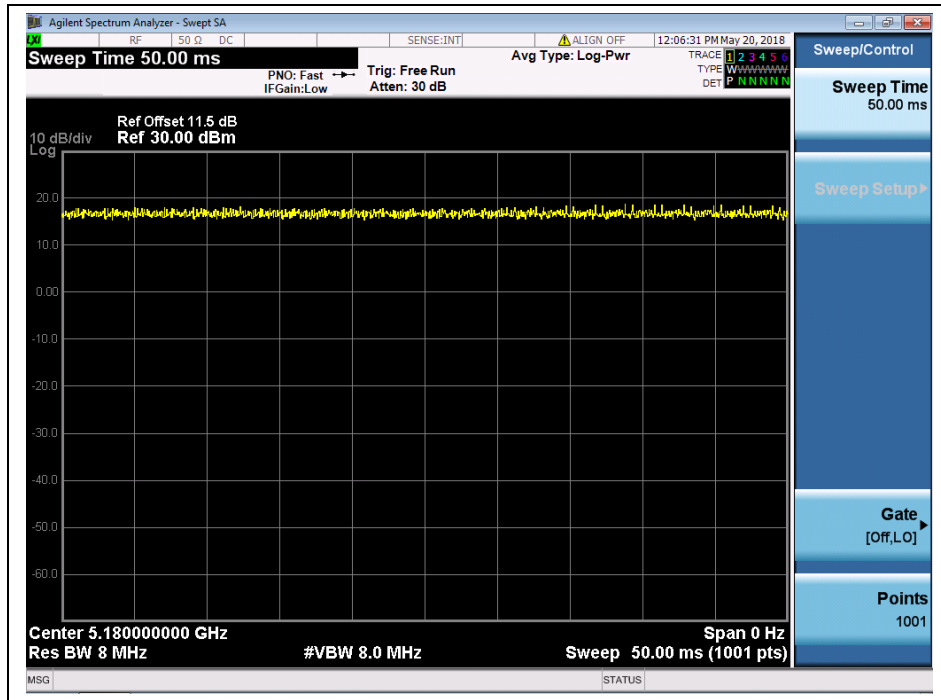
(Duty cycle for 802.11 n(HT20))

(Duty cycle for 802.11 n(HT40))

2.4. Peak Power spectral density

2.4.1. Requirement

(1) For client devices in the 5.15-5.25 GHz band, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band.

(2) For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band.

(3) For the band 5.725-5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500KHz band.

If transmitting antennas of directional gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(4) According to KDB662911D01Measure-and-sum technique, the conducted emission level (e.g., transmit power or power in specified bandwidth) is measured at each antenna port. The measured results at the various antenna ports are then summed mathematically to determine the total emission level from the device. Summing is performed in units that are directly proportional to power.

(5) According to KDB 662911 D01, the directional gain = G_{ANT} +10log(N_{ANT}) dBi, where G_{ANT} is the antenna gain in dBi, N_{ANT} is the number of outputs.

2.4.2. Test Description
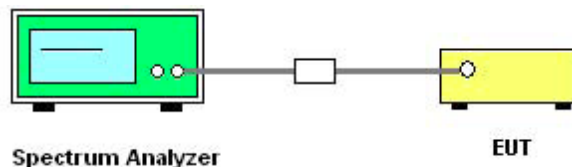
A. Test Set:

Spectrum Analyzer   EUT

The EUT is coupled to the Spectrum Analyzer; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading.

B. Test Procedure

KDB 789033 Section F) Maximum Power Spectral Density (PSD) Method SA-1 was used in order to prove compliance

1) Set span to encompass the entire 26-dB emission bandwidth
2) Set RBW = 1 MHz. Set VBW ≥ 3 MHz.
3) Number of points in sweep ≥ 2 Span / RBW. Sweep time = auto.
4) Detector = RMS (i.e., power averaging)
5) Trace average at least 100 traces in power averaging (i.e., RMS) mode
6) Record the max value

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2.4.3. Test Result

802.11a Test mode

A. Test Verdict:

Channel	Frequency (MHz)	Measured PPSD (dBm/MHz)	Limit (dBm/MHz)	Verdict
36	5180	9.60		
44	5220	8.69		
48	5240	8.65		
52	5260	8.32		
60	5300	8.27	11	PASS
64	5320	8.43		
100	5500	9.19		
120	5600	10.99		
144	5720	10.54		
Channel	Frequency (MHz)	Measured PPSD (dBm/500KHz)	Limit (dBm/500KHz)	Verdict
144	5720	6.74		
149	5745	6.80	30	PASS
157	5785	7.11		
165	5825	7.04		

B. Test Plots

(Channel 36, 5180MHz, 802.11a,)

(Channel 44, 5220 MHz, 802.11a,)

(Channel 48, 5240MHz, 802.11a,)

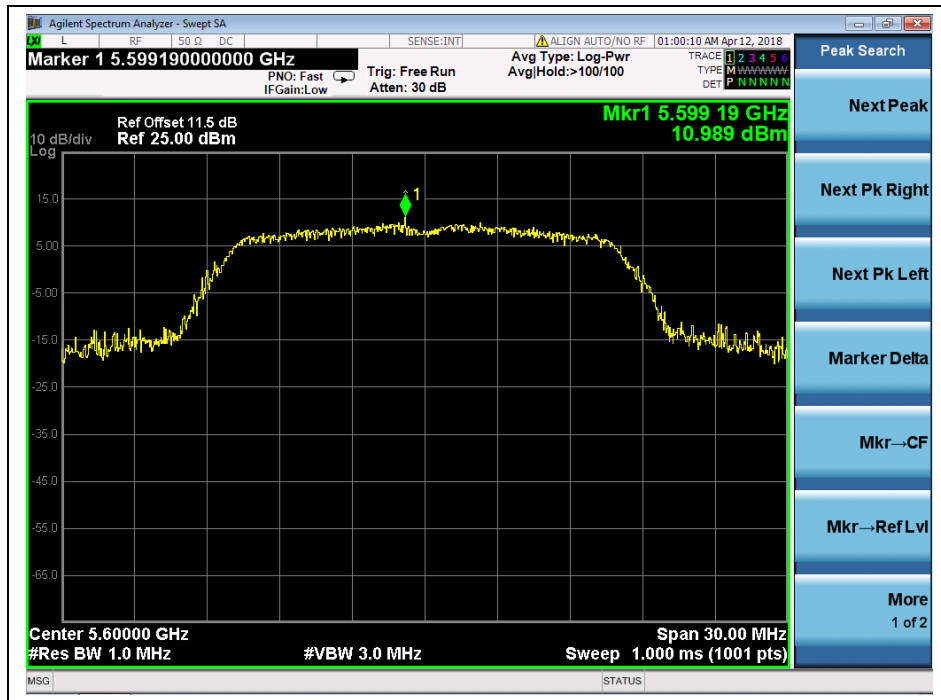(Channel 52, 5260MHz, 802.11a,)
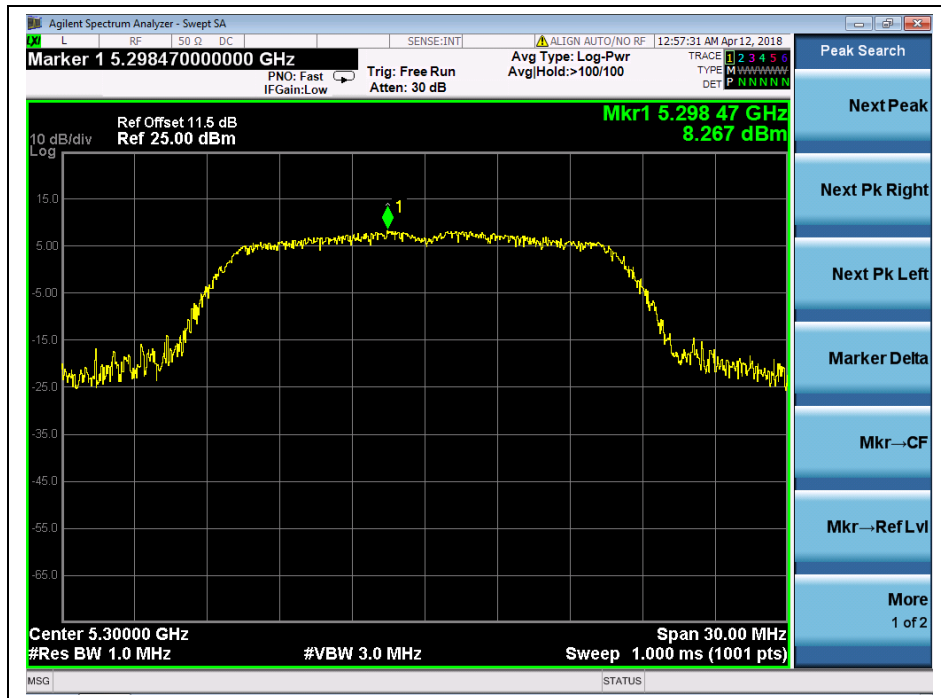
(Channel 60, 5300 MHz, 802.11a,)

(Channel 64, 5320MHz, 802.11a,)
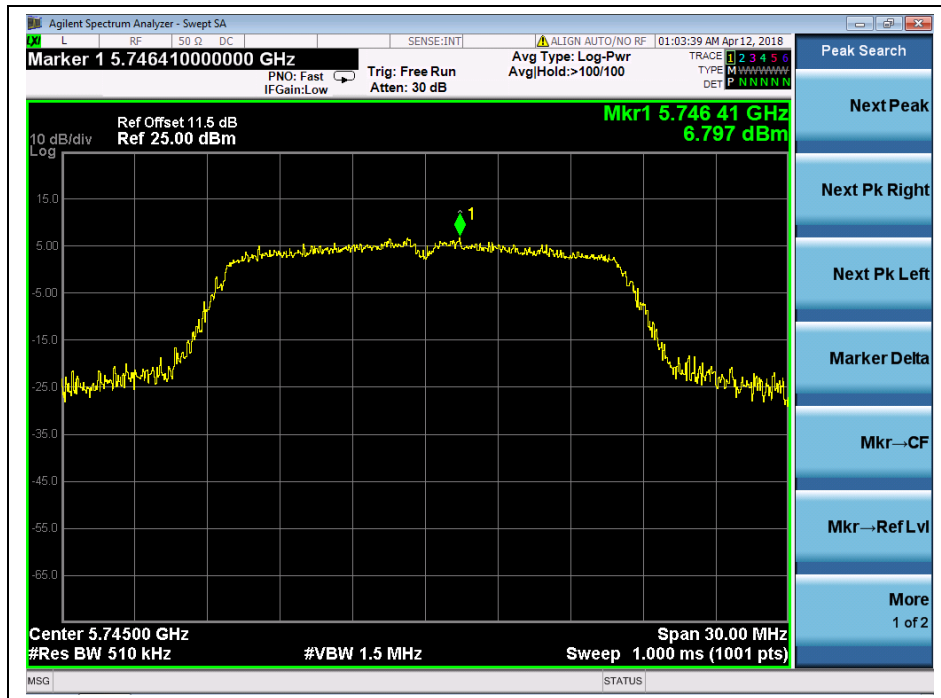

(Channel 100, 5500MHz, 802.11a,)

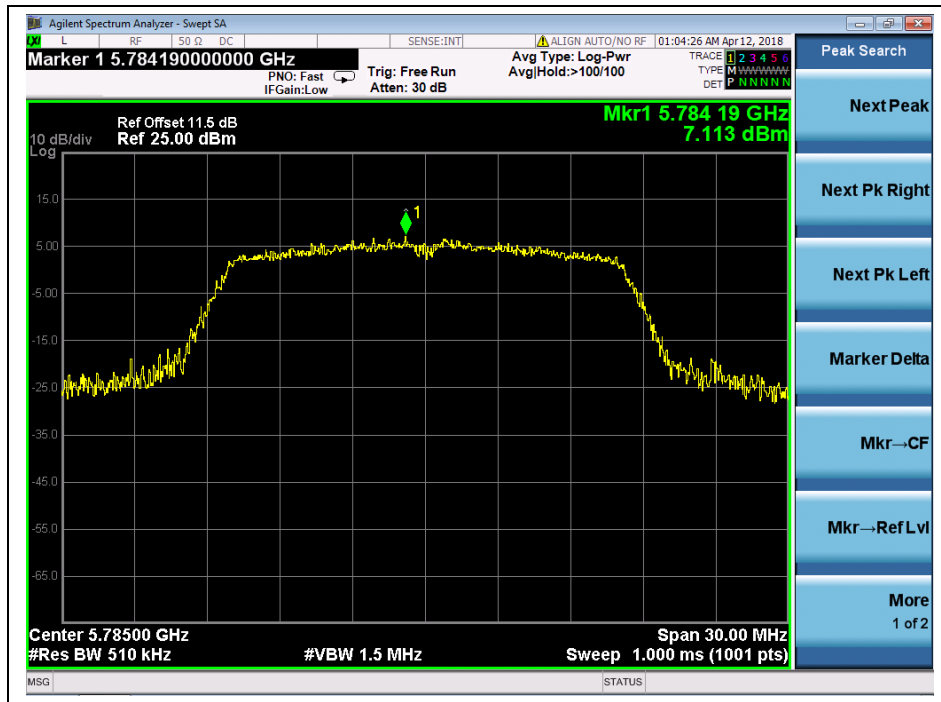(Channel 120, 5600 MHz, 802.11a,)

(Channel 144, 5720MHz, 802.11a,)

(Channel 144, 5720MHz, 802.11a,)

(Channel 149, 5745MHz, 802.11a)

(Channel 157, 5785MHz, 802.11a)

(Channel 165, 5825MHz, 802.11a)

802.11n (HT20) Test mode

A. Test Verdict:

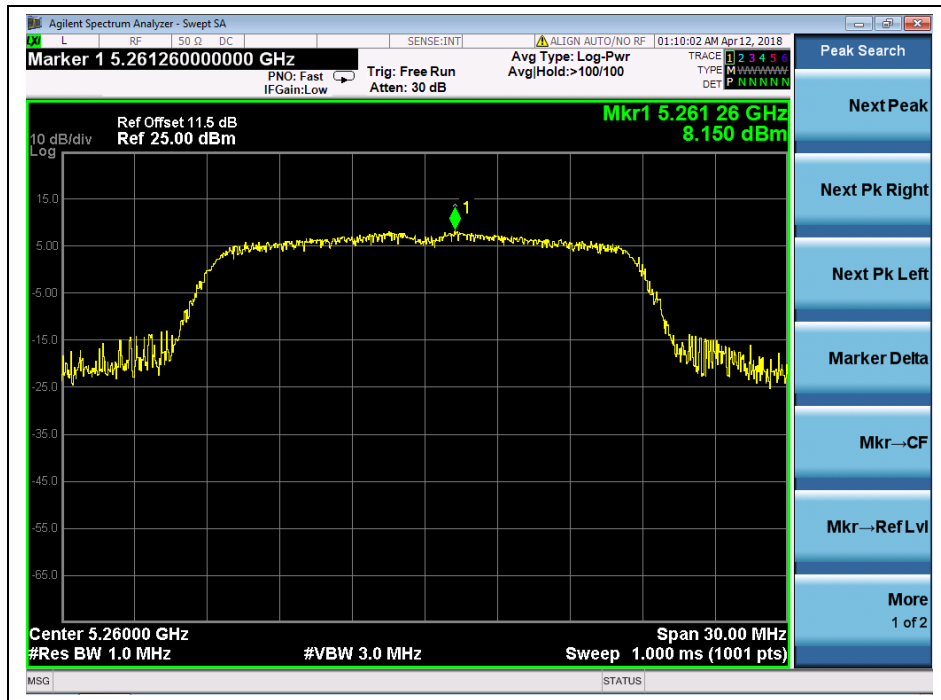| Channel	Frequency (MHz)	Measured PPSD (dBm/MHz)	Limit (dBm/MHz)	Verdict
36	5180	8.69		
44	5220	8.91		
48	5240	8.37		
52	5260	8.15		
60	5300	7.95	11	PASS
64	5320	8.02		
100	5500	9.02		
116	5600	10.00		
144	5720	10.43		
Channel	Frequency (MHz)	Measured PPSD (dBm/500KHz)	Limit (dBm/500KHz)	Verdict
144	5720	5.71		
149	5745	7.29	30	PASS
157	5785	6.46		
165	5825	7.77		

B. Test Plots

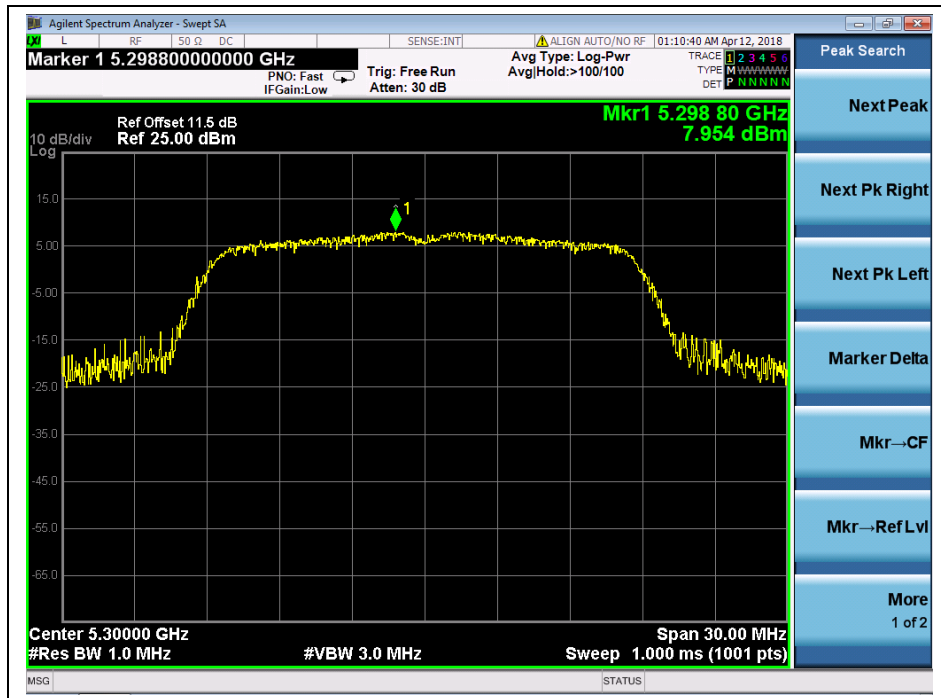(Channel 36, 5180MHz, 802.11 n (HT20))

(Channel 44, 5220 MHz, 802.11 n (HT20))
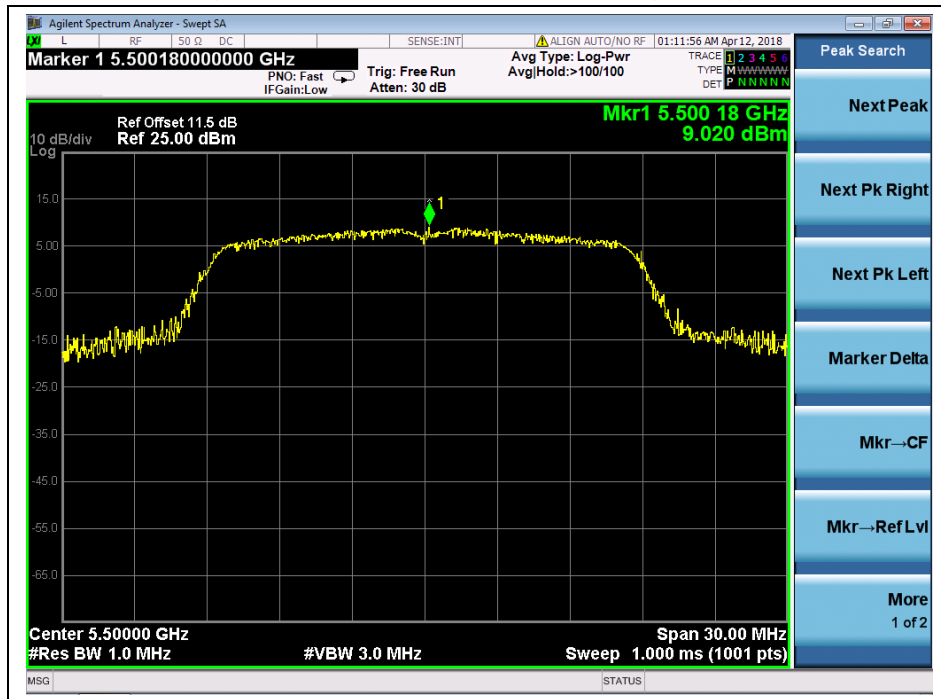

(Channel 48, 5240MHz, 802.11 n (HT20))

(Channel 52, 5260MHz, 802.11 n (HT20))

(Channel 60, 5300 MHz, 802.11 n (HT20))

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(Channel 64, 5320MHz, 802.11 n (HT20))

(Channel 100, 5500MHz, 802.11 n (HT20))