



TEST REPORT

APPLICANT : Grandstream Networks, Inc.

PRODUCT NAME : IP Multimedia Phone

MODEL NAME : GXV3380

BRAND NAME : GRANDSTREAM

FCC ID : YZZGXV3380

STANDARD(S) : 47 CFR Part 15 Subpart E

RECEIPT DATE : 2019-04-12

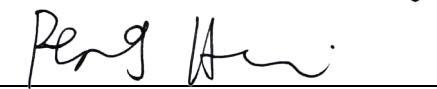
TEST DATE : 2019-05-10 to 2019-06-10

ISSUE DATE : 2019-06-11

Edited by:


Zeng Xiaoying (Rapporteur)

Approved by:


Peng Huarui (Supervisor)

NOTE: This document is issued by MORLAB, the test report shall not be reproduced except in full without prior written permission of the company. The test results apply only to the particular sample(s) tested and to the specific tests carried out which is available on request for validation and information confirmed at our website.





DIRECTORY

1. Technical Information	4
1.1. Applicant and Manufacturer Information	4
1.2. Equipment Under Test (EUT) Description	4
1.3. The channel number and frequency of EUT	6
1.4. Test Standards and Results	7
1.5. Environmental Conditions	7
2. 47 CFR Part 15E Requirements	8
2.1. Antenna requirement	8
2.2. Duty Cycle of the test signal	8
2.3. Maximum conducted output power	14
2.4. Emission Bandwidth	22
2.5. Peak Power spectral density	63
2.6. Frequency Stability	101
2.7. Conducted Emission	104
2.8. Restricted Frequency Bands	108
2.9. Radiated Emission	151
Annex A Test Uncertainty	216
Annex B Testing Laboratory Information	217



REPORT No.: SZ19040167W04

Change History		
Version	Date	Reason for change
1.0	2019-06-11	First edition



1. Technical Information

Note: Provide by applicant.

1.1. Applicant and Manufacturer Information

Applicant:	Grandstream Networks, Inc.
Applicant Address:	126 Brookline Ave., 3rd Floor Boston, MA 02215, USA
Manufacturer:	Grandstream Networks, Inc.
Manufacturer Address:	126 Brookline Ave., 3rd Floor Boston, MA 02215, USA

1.2. Equipment Under Test (EUT) Description

Product Name:	IP Multimedia Phone
Serial No:	(N/A, marked #1 by test site)
Hardware Version:	V1.6
Software Version:	1.0.0.10
Modulation Type:	OFDM
Modulation Mode:	802.11a, 802.11n(HT20), 802.11n(HT40) 802.11ac(VHT20), 802.11ac(VHT40), 802.11ac(VHT80),
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:	PCB Antenna
Antenna Gain:	5.0 dBi



Accessory Information:	AC Adapter1	
	Brand Name:	FRECOM
	Model No.:	F18W8-120150SPAUY
	Serial No.:	(N/A, marked #1 by test site)
	Rated Output:	12V=1.5A
	Rated Input:	100-240V ~ 50/60Hz 0.6A
	AC Adapter2	
	Brand Name:	SUNLIGHT
	Model No.:	H18US1200150A
	Serial No.:	(N/A, marked #1 by test site)
	Rated Output:	12V=1.5A
	Rated Input:	100-240V ~ 50/60Hz 0.8A

Note 1: The product provides two adapters, which are shipped randomly. Both of the two adaptors were tested, only the worst test result(Adapter2) were recorded in the test 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.

1.3.The channel number and frequency of EUT

Frequency Range: 5180MHz-5240MHz				
Bandwidth	Channel	Frequency (MHz)	Channel	Frequency (MHz)
20MHz	36	5180	40	5200
	44	5220	48	5240
40MHz	38	5190	46	5230
80MHz	42	5210		
Frequency Range: 5260MHz-5320MHz				
Bandwidth	Channel	Frequency (MHz)	Channel	Frequency (MHz)
20MHz	52	5260	56	5280
	60	5300	64	5320
40MHz	54	5270	62	5310
80MHz	58	5290		
Frequency Range: 5500MHz-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
80MHz	106	5530	122	5610
	138	5690		
Frequency Range: 5745-5825MHz				
Bandwidth	Channel	Frequency (MHz)	Channel	Frequency (MHz)
20MHz	149	5745	153	5765
	157	5785	161	5805
	165	5825		
40MHz	151	5775	159	5795
80MHz	155	5775		

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	ANSI C63.10	Duty Cycle of the test signal	Jun 02, 2019	Wang Meng	PASS
3	15.407(a)	Maximum conducted output Power	Jun 02, 2019	Wang Meng	PASS
4	15.407(a) (e)	Emission Bandwidth	May 10, 2019	Wang Meng	PASS
5	15.407(a)	Peak Power spectral density	Jun 02, 2019	Wang Meng	PASS
6	15.407(g)	Frequency Stability	Jun 03, 2019	Wang Meng	PASS
7	15.207	Conducted Emission	Jun 06, 2019	Li Zihao	PASS
8	15.407(b)	Restricted Frequency Bands	May 13, 2019	Li Zihao	PASS
9	15.407(b)	Radiated Emission	Jun 10, 2019	Li Zihao	PASS

Note1: The DFS test report was documented in a separate report (Report No.: SZ19040167W05).

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.

Note4: The path loss during the RF test is calibrated to correct the results by the offset setting in the test equipments. The ref offset 11.5dB contains two parts that cable loss 1.5dB and Attenuator 10dB.

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



2. 47 CFR Part 15E 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.

2.2. Duty Cycle of the test signal

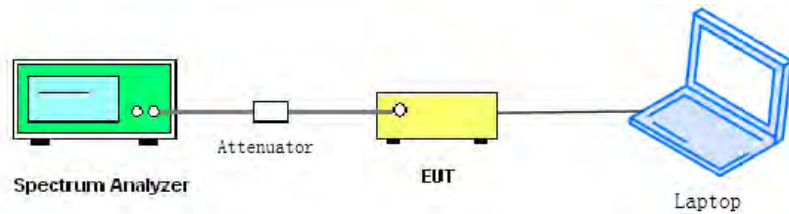
2.2.1. Requirement

Preferably, all measurements of maximum conducted (average) output power will be performed with the EUT transmitting continuously (i.e., with a duty cycle of greater than or equal to 98%). When continuous operation cannot be realized, then the use of sweep triggering/signal gating techniques can be used to ensure that measurements are made only during transmissions at the maximum power control level. Such sweep triggering/signal gating techniques will require knowledge of the minimum transmission duration (T) over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation. Sweep triggering/signal gating techniques can then be used if the measurement/sweep time of the analyzer can be set such that it does not exceed T at any time that data are being acquired (i.e., no transmitter OFF-time is to be considered).

When continuous transmission cannot be achieved and sweep triggering/signal gating cannot be implemented, alternative procedures are provided that can be used to measure the average power; however, they will require an additional measurement of the transmitter duty cycle (D). Within this subclause, the duty cycle refers to the fraction of time over which the transmitter is ON and is transmitting at its maximum power control level. The duty cycle is considered to be constant if variations are less than $\pm 2\%$; otherwise, the duty cycle is considered to be nonconstant.

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

KDB 789033 Section B was used in order to prove compliance.

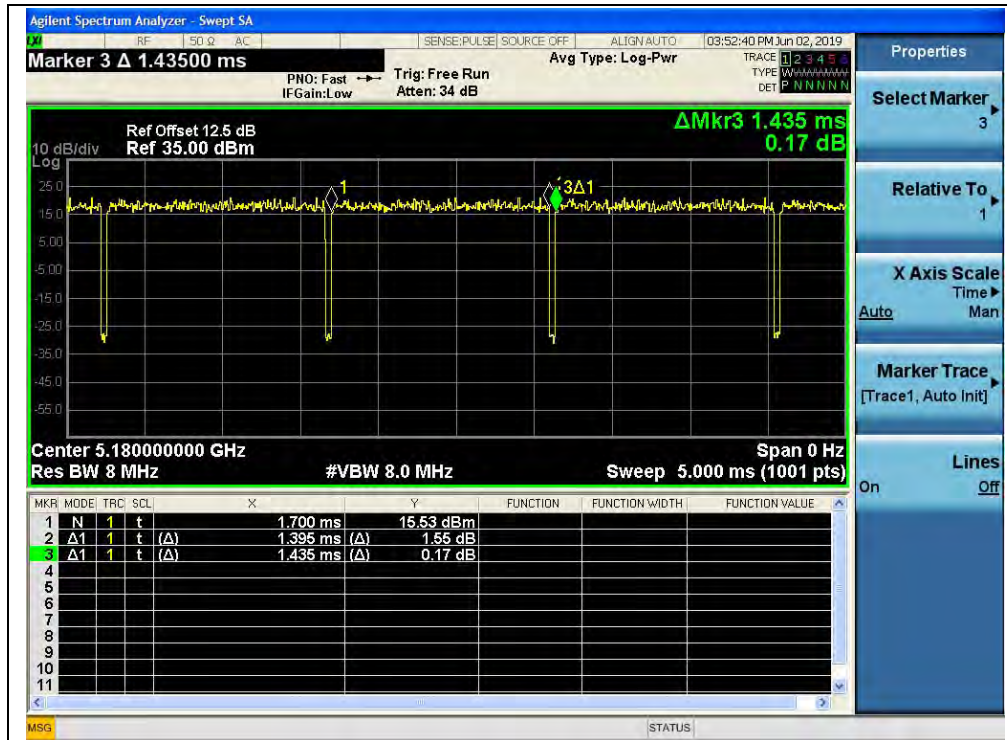


2.2.3. Test Result

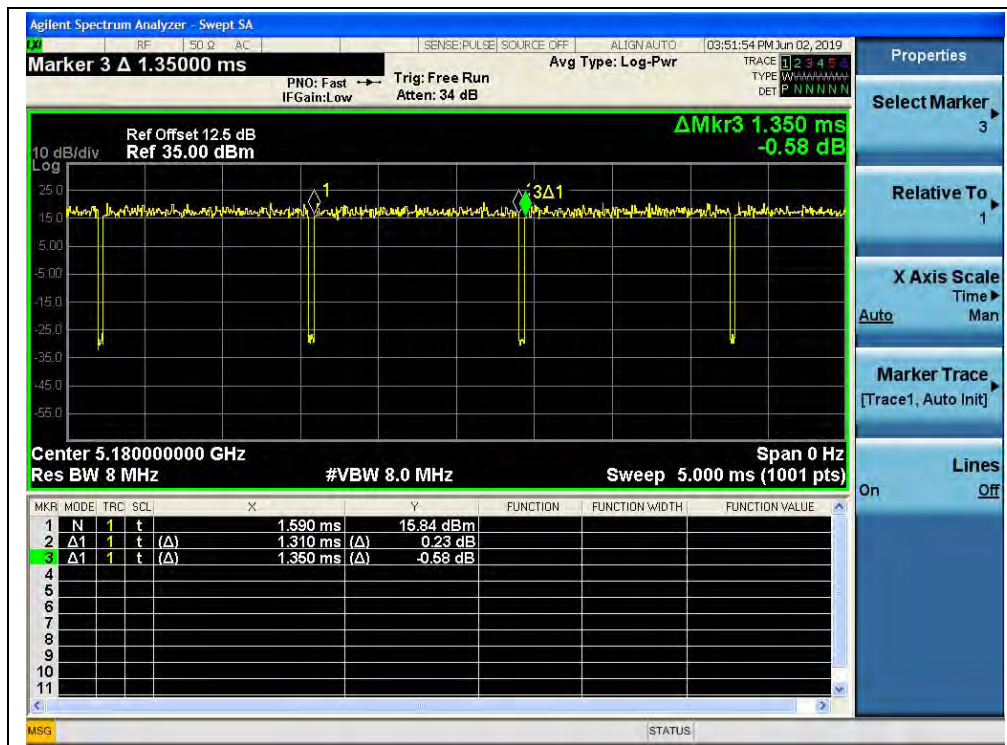
A. Test Verdict:

Test Mode	Duty Cycle (%) (D)	Duty Factor (10*log[1/D])
802.11a	97.21	0.12
802.11n(HT20)	97.04	0.13
802.11n(HT40)	97.05	0.13
802.11ac(VHT20)	93.91	0.27
802.11ac(VHT40)	93.97	0.27
802.11ac(VHT80)	88.52	0.53

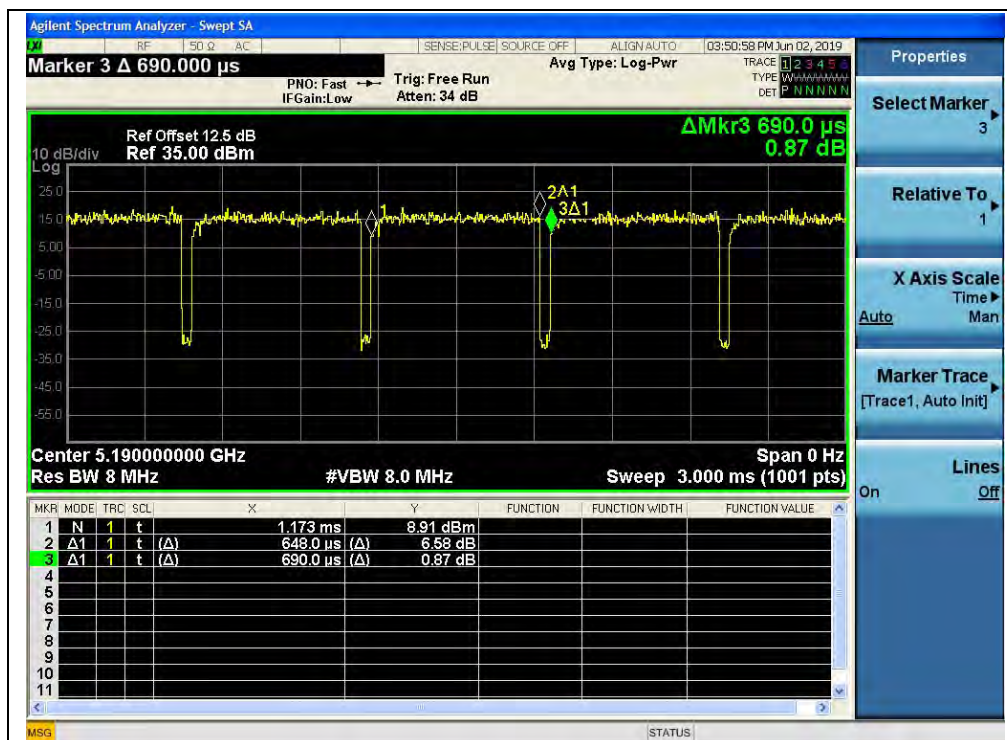
B. Test Plots



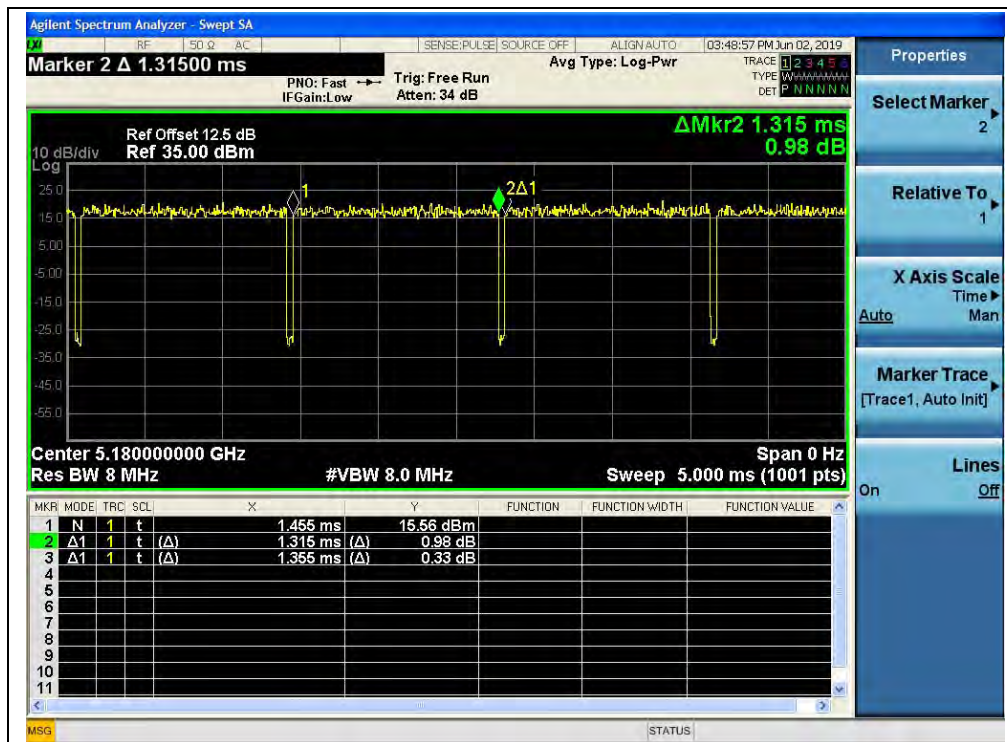
(CH36_5180MHz_802.11a)



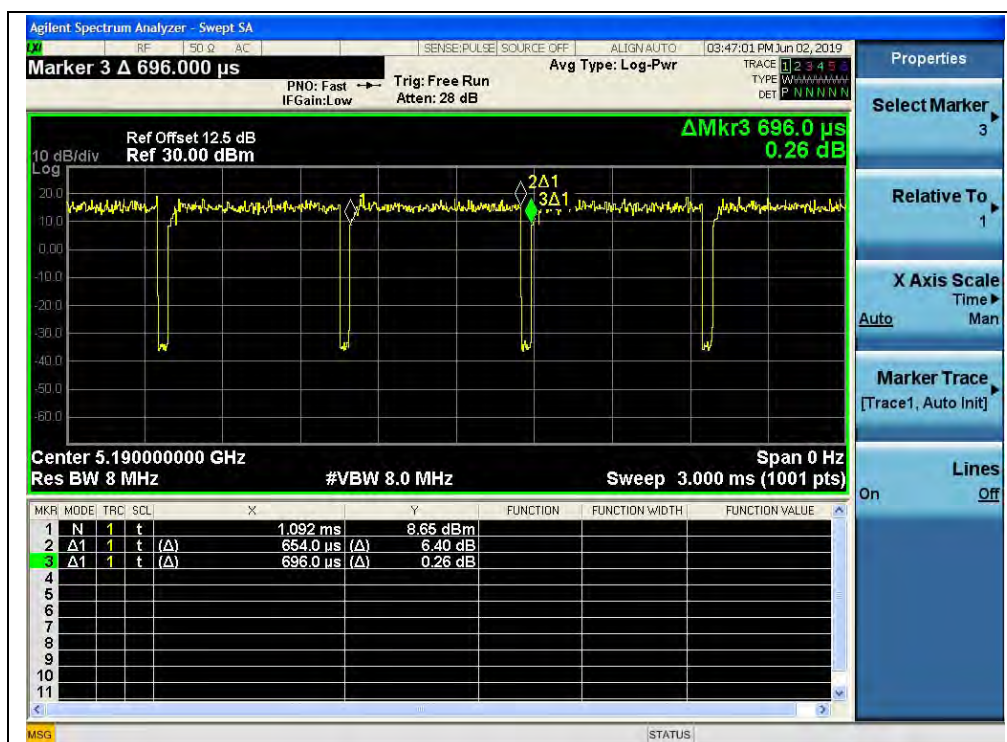
(CH36_5180MHz_802.11n(HT20))



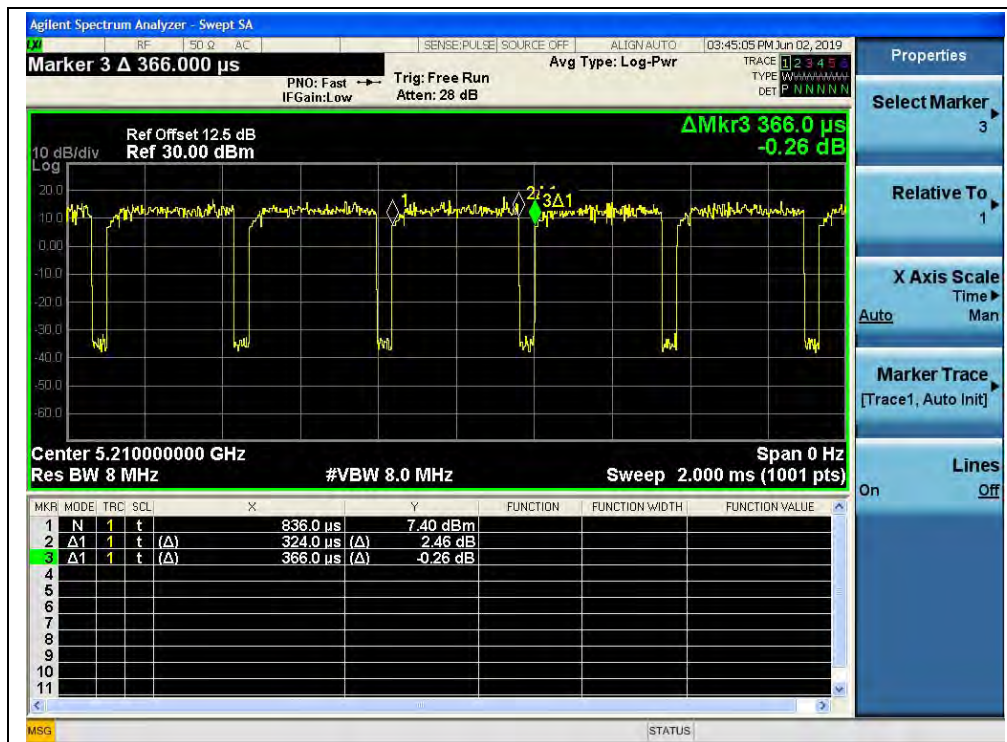
(CH38_5190MHz_802.11n(HT40))



(CH36_5180MHz_802.11ac(VHT20))



(CH38_5190MHz_802.11 ac(VHT40))



(CH42_5210MHz_802.11 ac(VHT80))

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 $11 \text{ dBm} + 10 \log B$, 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.

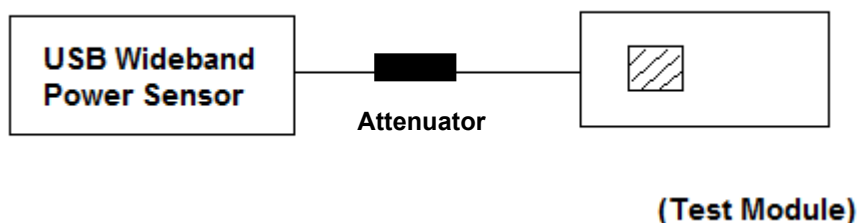
(4) According to KDB662911D01 Measure-and-sum technique, the conducted emission level (e.g., transmit power or power in specified bandwidth) is measured at each antenna port. The measured results at the various antenna ports are then summed mathematically to determine the total emission level from the device. Summing is performed in units that are directly proportional to power.

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

2.3.2. Test Description

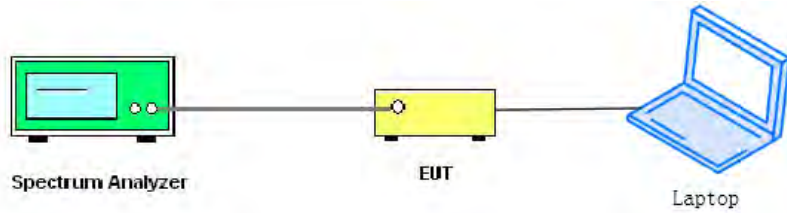
Section E) 3) of KDB 789033 defines a methodology using a USB Wideband Power Sensor.

A. Test Setup:



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.

For ac (VHT80) mode power



The EUT (Equipment under the test) 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, all test result in Spectrum analyzer.

2.3.3. Limits

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 $11 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in megahertz.

Mode	Band	Channel (MHz)	26dB BW (MHz)	$11+10\log(26\text{dB BW})$	Limits (dBm)
a	UNII-2a	5260	21.41	24.31	24.00
		5300	22.16	24.46	24.00
		5320	21.41	24.31	24.00
	UNII-2c	5500	21.52	24.33	24.00
		5600	21.45	24.31	24.00
		5720	21.32	24.29	24.00
n20	UNII-2a	5260	21.52	24.33	24.00
		5300	21.69	24.36	24.00
		5320	21.67	24.36	24.00
	UNII-2c	5500	22.37	24.50	24.00
		5600	21.91	24.41	24.00
		5720	21.52	24.33	24.00
ac20	UNII-2a	5260	22.01	24.43	24.00
		5300	21.78	24.38	24.00
		5320	21.51	24.33	24.00
	UNII-2c	5500	21.51	24.33	24.00
		5600	22.95	24.61	24.00
		5720	21.61	24.35	24.00

**2.3.4. Test Result****802.11a Test mode**

Channel	Frequency (MHz)	Measured Peak Power (dBm)		Limit (dBm)	Verdict
36	5180	22.43		24	PASS
44	5220	22.39			
48	5240	22.65			
52	5260	22.72			
60	5300	22.68			
64	5320	22.62			
100	5500	22.44			
120	5600	22.32			
144	5720	22.07			
149	5745	23.30		30	
157	5785	23.01			
165	5825	22.93			
Channel	Frequency (MHz)	Average Power (dBm)		Limit (dBm)	Verdict
		Measured	Duty factor Calculated		
36	5180	12.38	12.5	24	PASS
44	5220	12.19	12.31		
48	5240	12.26	12.38		
52	5260	12.46	12.58		
60	5300	12.25	12.37		
64	5320	12.21	12.33		
100	5500	12.44	12.56		
120	5600	12.35	12.47		
144	5720	12.18	12.30		
149	5745	14.95	15.07	30	
157	5785	14.83	14.95		
165	5825	14.69	14.81		

**802.11n (HT20) Test mode**

Channel	Frequency (MHz)	Measured Peak Power (dBm)		Limit (dBm)	Verdict
36	5180	22.18		24	PASS
44	5220	22.48			
48	5240	22.32			
52	5260	22.24			
60	5300	22.33			
64	5320	22.40			
100	5500	22.56			
120	5600	22.17			
144	5720	22.21			
149	5745	23.25		30	
157	5785	23.03			
165	5825	22.82			
Channel	Frequency (MHz)	Average Power (dBm)		Limit (dBm)	Verdict
		Measured	Duty factor Calculated		
36	5180	11.92	12.05	24	PASS
44	5220	11.90	12.03		
48	5240	11.92	12.05		
52	5260	12.04	12.17		
60	5300	11.88	12.01		
64	5320	12.03	12.16		
100	5500	12.34	12.47		
120	5600	11.92	12.05		
144	5720	11.65	11.78		
149	5745	14.42	14.55	30	
157	5785	14.24	14.37		
165	5825	14.10	14.23		

**802.11n (HT40) Test mode**

Channel	Frequency (MHz)	Measured Peak Power (dBm)		Limit (dBm)	Verdict
38	5190	22.89		24	PASS
46	5230	22.74			
54	5270	22.90			
62	5310	22.79			
102	5510	22.70			
126	5630	22.77			
142	5710	22.31			
151	5755	23.69		30	
159	5795	23.32			
Channel	Frequency (MHz)	Measured Average Power (dBm)		Limit (dBm)	Verdict
		Measured	Duty factor Calculated		
38	5190	12.79	13.06	24	PASS
46	5230	12.73	13.00		
54	5270	12.91	13.18		
62	5310	12.68	12.95		
102	5510	13.09	13.36		
126	5630	12.95	13.22		
142	5710	12.63	12.90		
151	5755	15.36	15.63	30	
159	5795	15.01	15.28		

**802.11ac (VHT20) Test mode**

Channel	Frequency (MHz)	Measured Peak Power (dBm)		Limit (dBm)	Verdict
36	5180	22.35		24	PASS
44	5220	22.48			
48	5240	22.43			
52	5260	22.52			
60	5300	22.29			
64	5320	22.3			
100	5500	22.26			
120	5600	22.59			
144	5720	22.15			
149	5745	23.31		30	
157	5785	23.08			
165	5825	23.05			
Channel	Frequency (MHz)	Average Power (dBm)		Limit (dBm)	Verdict
		Measured	Duty factor Calculated		
36	5180	11.90	12.03	24	PASS
44	5220	11.90	12.03		
48	5240	11.89	12.02		
52	5260	12.13	12.26		
60	5300	11.94	12.07		
64	5320	11.86	11.99		
100	5500	12.03	12.16		
120	5600	11.98	12.11		
144	5720	11.74	11.87		
149	5745	14.51	14.64	30	
157	5785	14.30	14.43		
165	5825	14.26	14.39		

**802.11ac (VHT40) Test mode**

Channel	Frequency (MHz)	Measured Peak Power (dBm)		Limit (dBm)	Verdict
38	5190	22.88		24	PASS
46	5230	22.85			
54	5270	22.96			
62	5310	22.79			
102	5510	22.61			
126	5630	22.64			
142	5710	22.28			
151	5755	23.51		30	
159	5795	23.30			
Channel	Frequency (MHz)	Measured Average Power (dBm)		Limit (dBm)	Verdict
		Measured	Duty factor Calculated		
38	5190	12.78	13.05	24	PASS
46	5230	12.75	12.75		
54	5270	12.91	13.18		
62	5310	12.60	12.87		
102	5510	12.97	13.24		
126	5630	12.84	13.11		
142	5710	12.58	12.85		
151	5755	15.25	15.52	30	
159	5795	15.06	15.33		

**802.11ac (VHT80) Test mode**

Channel	Frequency (MHz)	Measured Peak Power (dBm)		Limit (dBm)	Verdict
42	5210	23.00		24	PASS
58	5290	22.85			
106	5530	22.81			
138	5690	22.77			
155	5775	23.52		30	
Channel	Frequency (MHz)	Measured Average Power (dBm)		Limit (dBm)	Verdict
		Measured	Duty factor Calculated		
42	5210	12.97	13.50	24	PASS
58	5290	12.99	13.52		
106	5530	13.1	13.63		
138	5690	12.92	13.45		
155	5775	15.26	15.79	30	

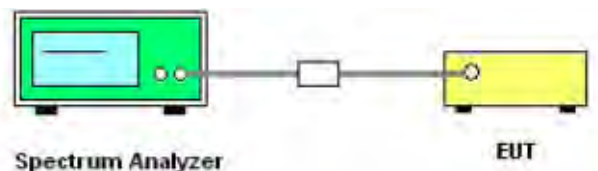
2.4. Emission Bandwidth

2.4.1. 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.

2.4.2. Test Description

A. Test Set:



The EUT is coupled to the Spectrum Analyzer; the RF load attached to the EUT antenna terminal is 50 Ohm; 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) $\geq 3 \times$ RBW.
 - c) Detector = Peak.



- 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.

2.4.3. Test Result

802.11a Test mode

A. Test Verdict:

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
36	5180	21.56
44	5220	21.49
48	5240	21.37 _{Note}
52	5260	21.41
60	5300	22.16
64	5320	21.41
100	5500	21.52
120	5600	21.45
144	5720	21.32
Channel	Frequency (MHz)	6dB Bandwidth (MHz)
144	5720	16.34
149	5745	16.33
157	5785	16.37
165	5825	16.38

Note: The high frequency of the -26dB is 5250.65MHz which is in the DFS frequency range, so DFS testing is required. Please refer to DFS report (Report No.: SZ19040167W05).



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,)



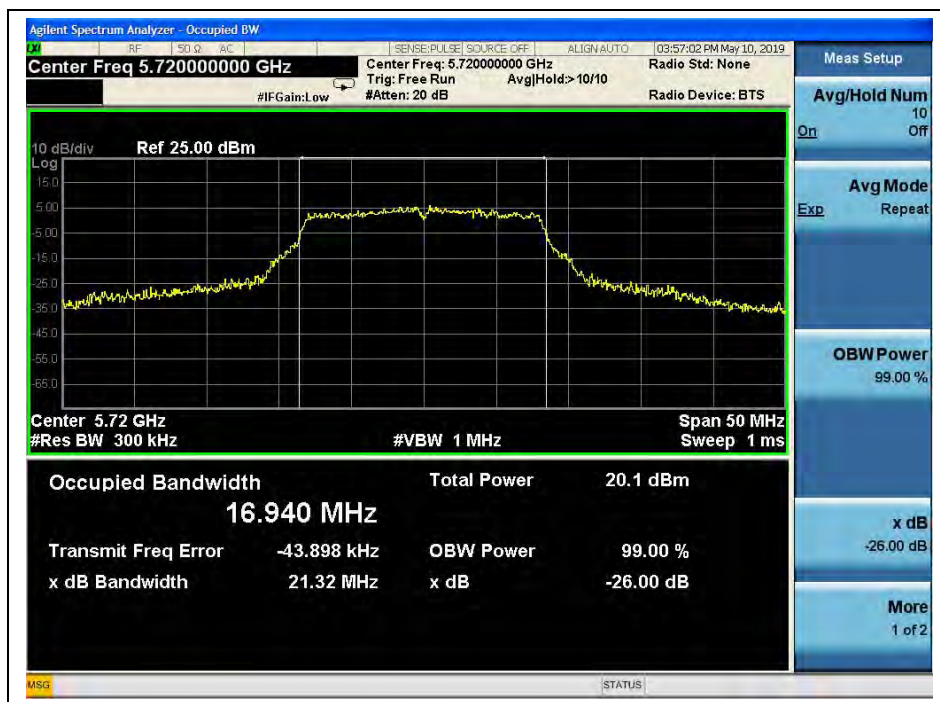
(Channel 64, 5320MHz, 802.11a,)



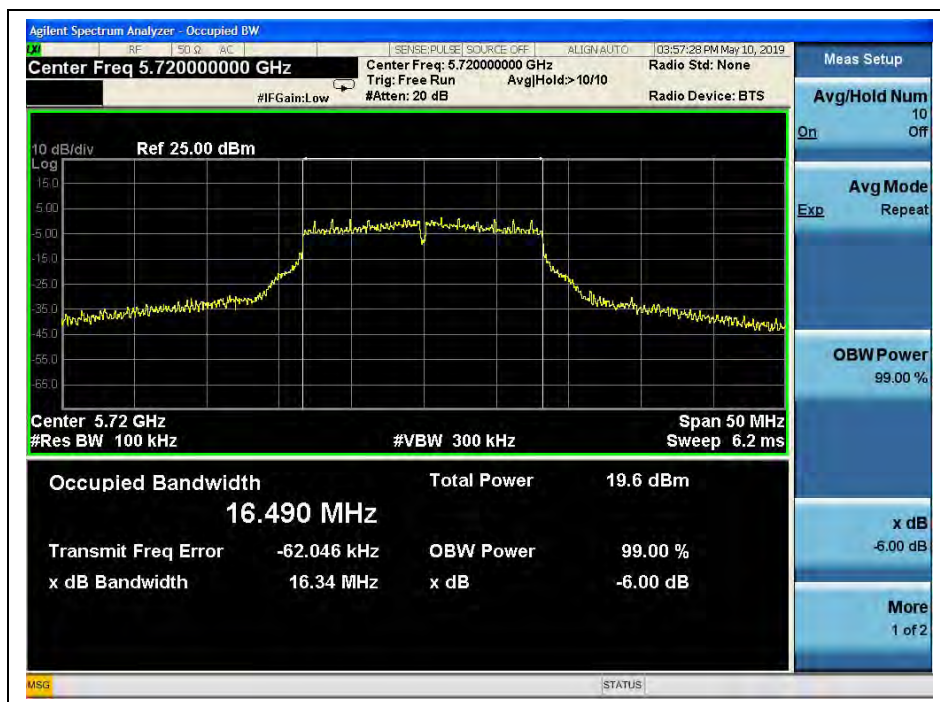
(Channel 100, 5500MHz, 802.11a,)



(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)	26 dB Bandwidth (MHz)
36	5180	25.42
44	5220	21.58
48	5240	22.30 _{Note}
52	5260	21.52
60	5300	21.69
64	5320	21.67
100	5500	22.37
120	5600	21.91
144	5720	21.52
Channel	Frequency (MHz)	6dB Bandwidth (MHz)
144	5720	17.55
149	5745	17.59
157	5785	17.59
165	5825	17.58

Note: The high frequency of the -26dB is 5250.77MHz which is in the DFS frequency range, so DFS testing is required. Please refer to DFS report (Report No.: SZ19040167W05).

B. Test Plots



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



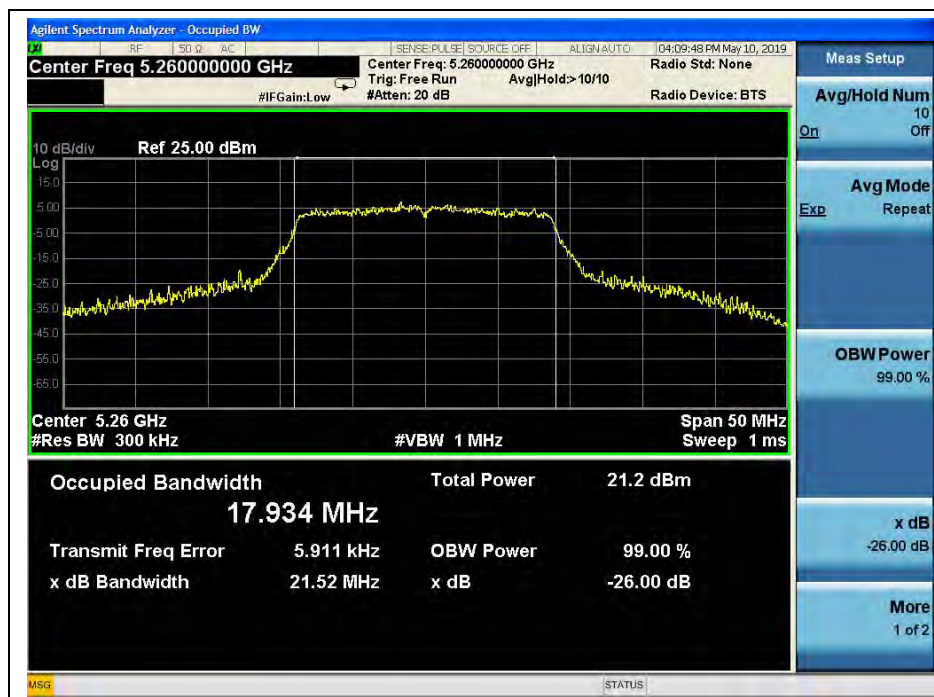
(Channel 44, 5220 MHz, 802.11 n (HT20))



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



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



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



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



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



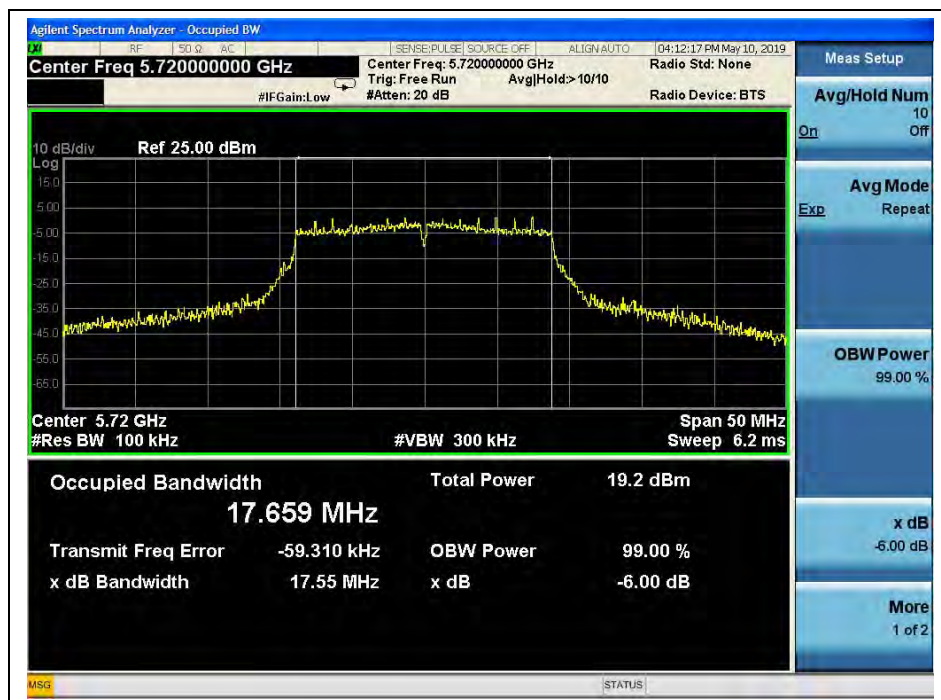
(Channel 100, 5500MHz, 802.11 n (HT20))



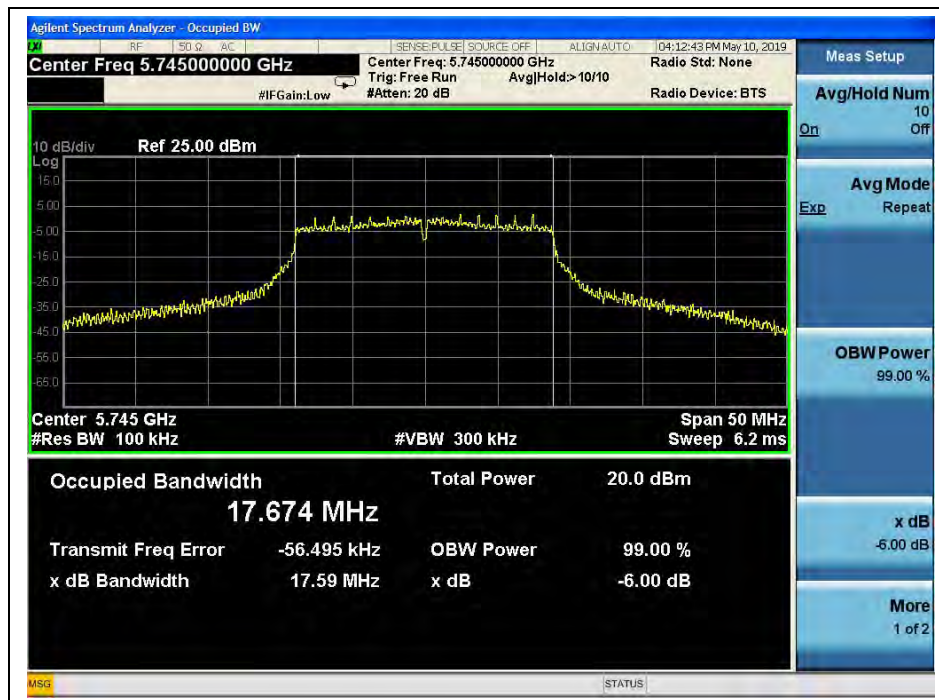
(Channel 120, 5600 MHz, 802.11 n (HT20))



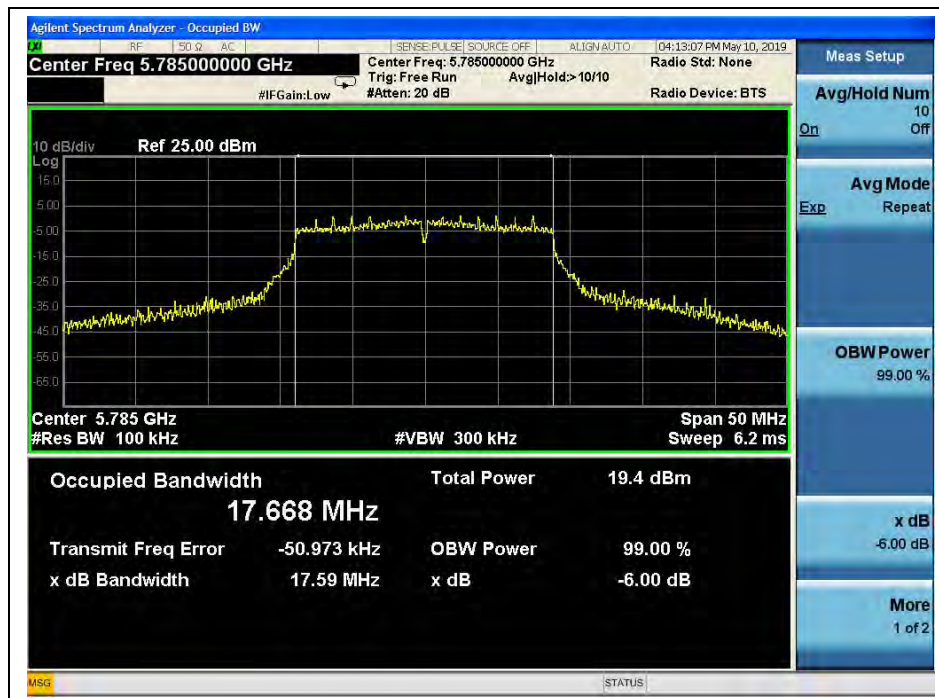
(Channel 144, 5720MHz, 802.11 n (HT20))



(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	48.54
46	5230	45.17 <small>Note</small>
54	5270	49.14
62	5310	48.46
102	5510	47.91
126	5630	43.61
142	5710	45.35
Channel	Frequency (MHz)	6dB Bandwidth (MHz)
142	5710	36.33
151	5755	36.27
159	5795	36.31

Note: The high frequency of the -26dB is 5250.22MHz which is in the DFS frequency range, so DFS testing is required. Please refer to DFS report (Report No.: SZ19040167W05).



B. Test Plots



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



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



(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))



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



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



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

802.11ac (VHT20) Test mode

A. Test Verdict:

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
36	5180	22.08
44	5220	21.59
48	5240	21.78 <small>Note</small>
52	5260	22.01
60	5300	21.78
64	5320	21.51
100	5500	21.51
120	5600	22.95
144	5720	21.61
Channel	Frequency (MHz)	6dB Bandwidth (MHz)
144	5720	17.59
149	5745	17.59
157	5785	17.18
165	5825	17.54

Note: The high frequency of the -26dB is 5250.80MHz which is in the DFS frequency range, so DFS testing is required. Please refer to DFS report (Report No.: SZ19040167W05).



B. Test Plots



(Channel 36, 5180MHz, 802.11 ac (VHT20))



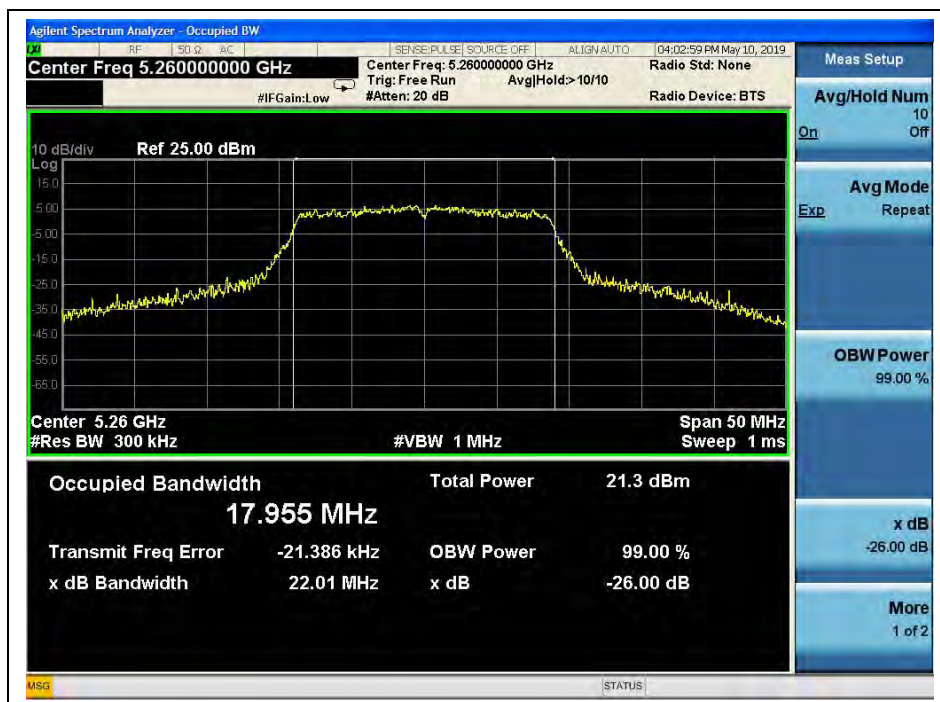
(Channel 44, 5220 MHz, 802.11 ac (VHT20))



(Channel 48, 5240MHz, 802.11 ac (VHT20))



(Channel 48, 5240MHz, fh of -26dB, ac (VHT20))



(Channel 52, 5260MHz, 802.11 ac (VHT20))



(Channel 60, 5300 MHz, 802.11 ac (VHT20))



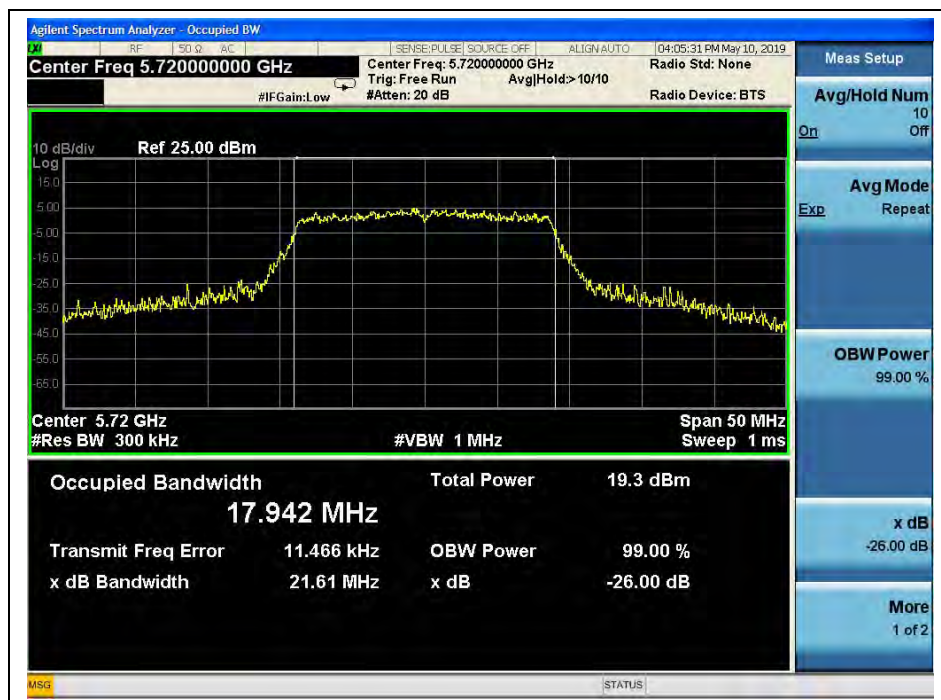
(Channel 64, 5320MHz, 802.11 ac (VHT20))



(Channel 100, 5500MHz, 802.11 ac (VHT20))



(Channel 120, 5600 MHz, 802.11 ac (VHT20))



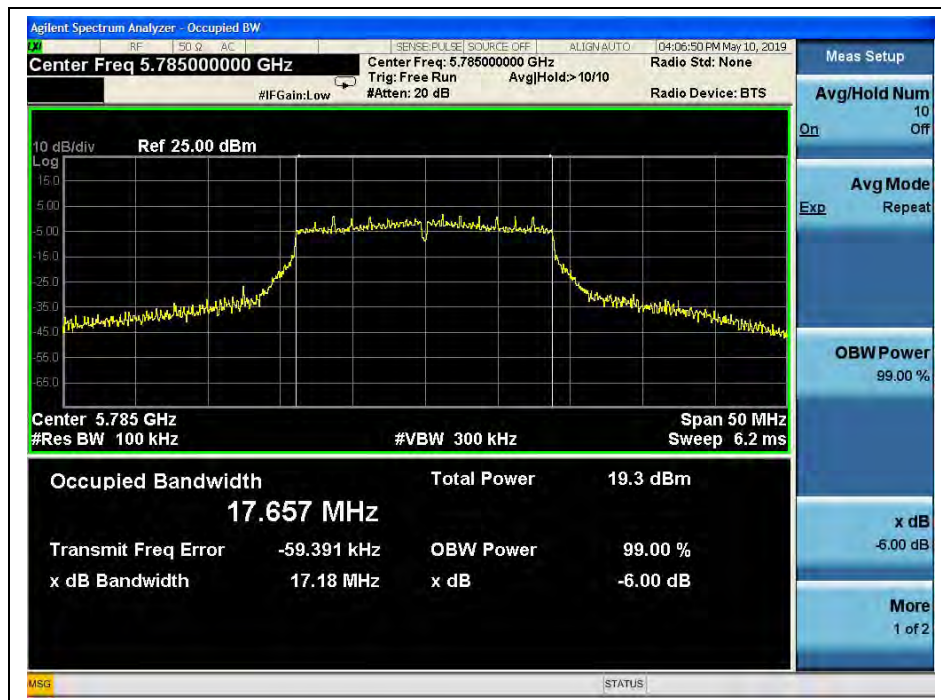
(Channel 144, 5720MHz, 802.11 ac (VHT20))



(Channel 144, 5720MHz, 802.11 ac (VHT20))



(Channel 149, 5745MHz, 802.11 ac (VHT20))



(Channel 157, 5785MHz, 802.11 ac (VHT20))



(Channel 165, 5825MHz, 802.11 ac (VHT20))



802.11ac (VHT40) Test mode

A. Test Verdict:

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
38	5190	46.04
46	5230	46.71 <small>Note</small>
54	5270	46.33
62	5310	46.95
102	5510	45.35
126	5630	42.11
142	5710	42.40
Channel	Frequency (MHz)	6dB Bandwidth (MHz)
142	5710	36.31
151	5755	36.30
159	5795	36.266

Note: The high frequency of the -26dB is 5250.16MHz which is in the DFS frequency range, so DFS testing is required. Please refer to DFS report (Report No.: SZ19040167W05).

B. Test Plots



(Channel 38, 5190MHz, 802.11 ac (VHT40))



(Channel 46, 5230 MHz, 802.11 ac (VHT40))



(Channel 46, 5230 MHz, fh of -26dB, 802. ac (VHT40))



(Channel 54, 5270MHz, 802.11 ac (VHT40))



(Channel 62, 5310 MHz, 802.11 ac (VHT40))



(Channel 102, 5510MHz, 802.11 ac (VHT40))



(Channel 126, 5630 MHz, 802.11 ac (VHT40))