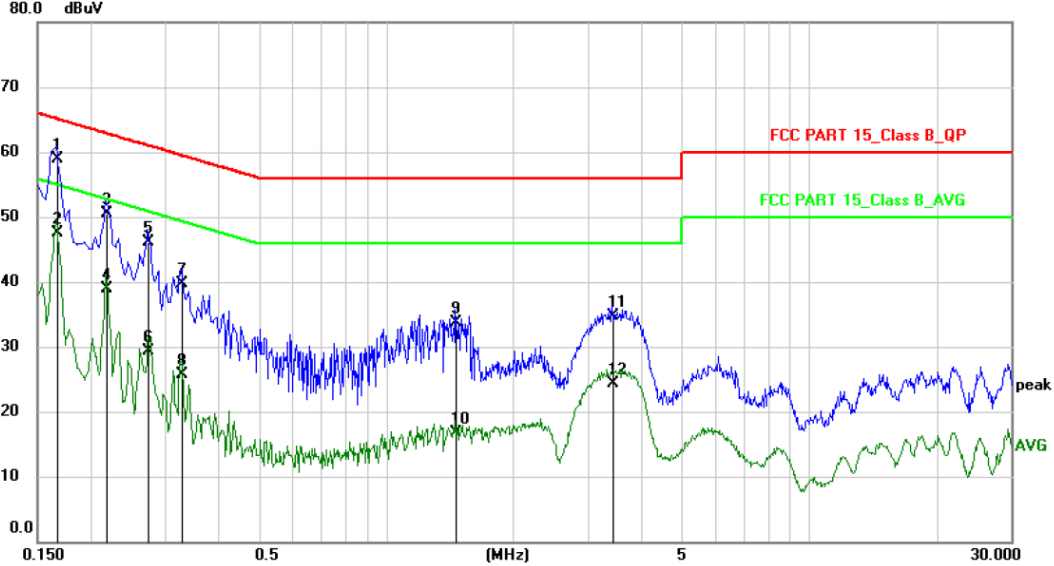




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 Web: [Http://www.ntc-c.com](http://www.ntc-c.com)

Conducted Emission Measurement

File :PB341 Data :#9 Date: 2019/6/17 Time: 10:28:07



Site: _____ Phase: **L1** Temperature: 26
 Limit: FCC PART 15_Class B_QP Power: AC120V/60Hz Humidity: 50 %
 EUT: PHIIMAX3D PANORAMIC CAMERA
 M/N: PB341
 Mode: TX(wifi 5G Band 1)
 Note: FY1206000

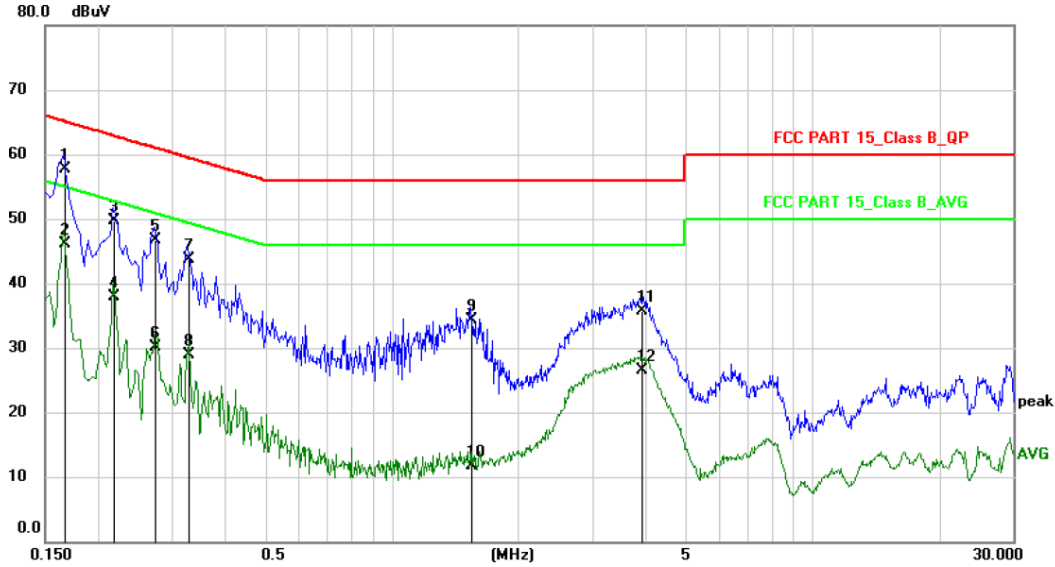
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	*	0.1660	48.29	10.61	58.90	65.16	-6.26	QP	
2		0.1660	36.89	10.61	47.50	55.16	-7.66	AVG	
3		0.2180	39.89	10.61	50.50	62.89	-12.39	QP	
4		0.2180	28.29	10.61	38.90	52.89	-13.99	AVG	
5		0.2740	35.49	10.61	46.10	61.00	-14.90	QP	
6		0.2740	18.79	10.61	29.40	51.00	-21.60	AVG	
7		0.3300	29.19	10.61	39.80	59.45	-19.65	QP	
8		0.3300	15.09	10.61	25.70	49.45	-23.75	AVG	
9		1.4618	23.05	10.65	33.70	56.00	-22.30	QP	
10		1.4618	6.05	10.65	16.70	46.00	-29.30	AVG	
11		3.4340	24.04	10.66	34.70	56.00	-21.30	QP	
12		3.4340	13.74	10.66	24.40	46.00	-21.60	AVG	



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Conducted Emission Measurement

File :PB341 Data :#10 Date: 2019/6/17 Time: 10:35:02



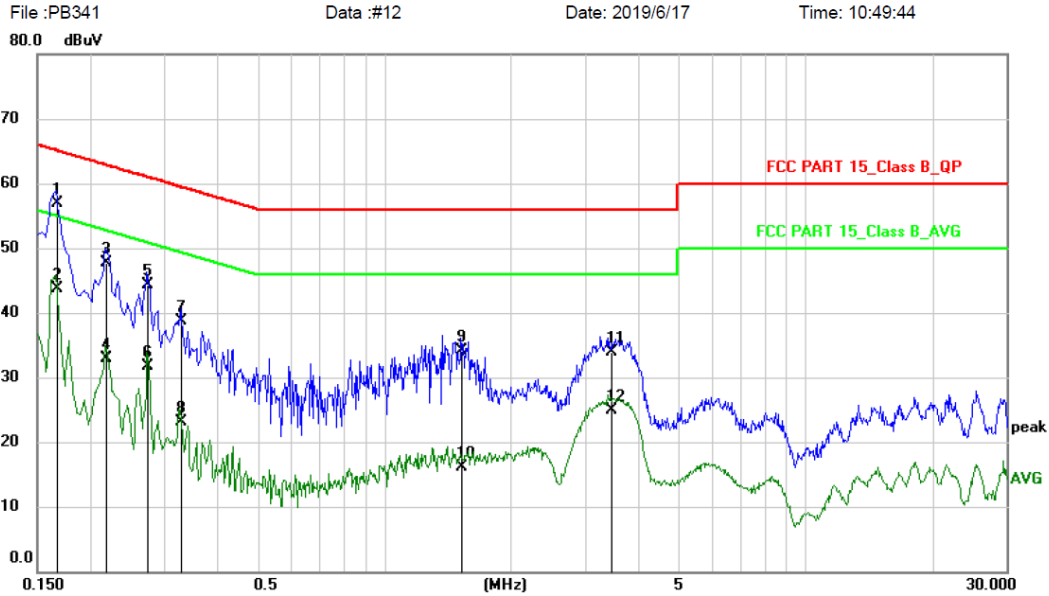
Site: _____ Phase: **N** Temperature: 26
 Limit: FCC PART 15_Class B_QP Power: AC120V/60Hz Humidity: 50 %
 EUT: PHIIMAX3D PANORAMIC CAMERA
 M/N: PB341
 Mode: TX(wifi 5G Band 1)
 Note: FY1206000

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV	Limit dBuV	Over dB	Detector	Comment
1	*	0.1660	47.19	10.61	57.80	65.16	-7.36	QP	
2		0.1660	35.49	10.61	46.10	55.16	-9.06	AVG	
3		0.2180	39.19	10.61	49.80	62.89	-13.09	QP	
4		0.2180	27.29	10.61	37.90	52.89	-14.99	AVG	
5		0.2740	36.09	10.61	46.70	61.00	-14.30	QP	
6		0.2740	19.49	10.61	30.10	51.00	-20.90	AVG	
7		0.3300	33.09	10.61	43.70	59.45	-15.75	QP	
8		0.3300	18.29	10.61	28.90	49.45	-20.55	AVG	
9		1.5420	23.75	10.65	34.40	56.00	-21.60	QP	
10		1.5420	1.15	10.65	11.80	46.00	-34.20	AVG	
11		3.9060	25.14	10.66	35.80	56.00	-20.20	QP	
12		3.9060	15.94	10.66	26.60	46.00	-19.40	AVG	



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Conducted Emission Measurement



Site: Phase: **L1** Temperature: 26
 Limit: FCC PART 15_Class B_QP Power: AC120V/60Hz Humidity: 50 %
 EUT: PHIIMAX3D PANORAMIC CAMERA
 M/N: PB341
 Mode: TX(wifi 5G Band 4)
 Note: FY1206000

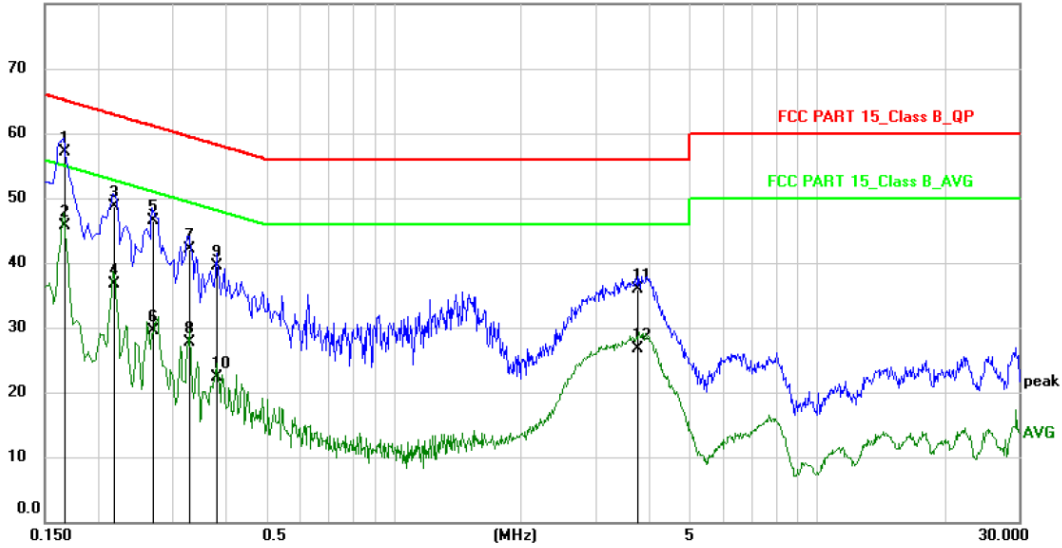
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	*	0.1660	46.29	10.61	56.90	65.16	-8.26	QP	
2		0.1660	33.09	10.61	43.70	55.16	-11.46	AVG	
3		0.2180	37.19	10.61	47.80	62.89	-15.09	QP	
4		0.2180	22.29	10.61	32.90	52.89	-19.99	AVG	
5		0.2740	33.69	10.61	44.30	61.00	-16.70	QP	
6		0.2740	21.19	10.61	31.80	51.00	-19.20	AVG	
7		0.3300	28.19	10.61	38.80	59.45	-20.65	QP	
8		0.3300	12.59	10.61	23.20	49.45	-26.25	AVG	
9		1.5220	23.45	10.65	34.10	56.00	-21.90	QP	
10		1.5220	5.55	10.65	16.20	46.00	-29.80	AVG	
11		3.4460	23.24	10.66	33.90	56.00	-22.10	QP	
12		3.4460	14.24	10.66	24.90	46.00	-21.10	AVG	



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Conducted Emission Measurement

File : PB341 Data : #11 Date: 2019/6/17 Time: 10:42:54



Site: _____ Phase: **N** Temperature: 26
 Limit: FCC PART 15_Class B_QP Power: AC120V/60Hz Humidity: 50 %
 EUT: PHIIMAX3D PANORAMIC CAMERA
 M/N: PB341
 Mode: TX(wifi 5G Band 4)
 Note: FY1206000

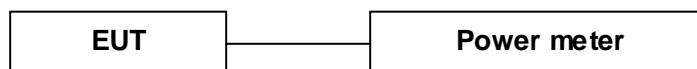
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	*	0.1660	46.59	10.61	57.20	65.16	-7.96	QP	
2		0.1660	35.19	10.61	45.80	55.16	-9.36	AVG	
3		0.2180	38.09	10.61	48.70	62.89	-14.19	QP	
4		0.2180	26.19	10.61	36.80	52.89	-16.09	AVG	
5		0.2700	35.89	10.61	46.50	61.12	-14.62	QP	
6		0.2700	18.99	10.61	29.60	51.12	-21.52	AVG	
7		0.3300	31.59	10.61	42.20	59.45	-17.25	QP	
8		0.3300	17.19	10.61	27.80	49.45	-21.65	AVG	
9		0.3820	28.89	10.61	39.50	58.24	-18.74	QP	
10		0.3820	11.79	10.61	22.40	48.24	-25.84	AVG	
11		3.7700	25.24	10.66	35.90	56.00	-20.10	QP	
12		3.7700	16.14	10.66	26.80	46.00	-19.20	AVG	

4. Max. Conducted Output Power

4.1 Limits

Operation Band	EUT category	Limit
■5180~5240MHz	<input type="checkbox"/> Outdoor Access Point	1 Watt (30dBm) (Max. e.i.r.p ≤ 125mW(21dBm) at any elevation angle above 30 degrees as measured from the horizon)
	<input type="checkbox"/> Fixed point-to-point Access Point	1 Watt (30dBm)
	<input type="checkbox"/> Indoor Access Point	1 Watt (30dBm)
	■Mobile and Portable client device	250mW (24dBm)
■5745~5825MHz	-	1 Watt (30dBm)

4.2 Test SET-UP (Block Diagram of Configuration)



4.3 Test Procedure

1. The transmitter output (antenna port) was connected to the power meter.
2. Test was performed in accordance with KDB789033 v02r01 for compliance testing of Unlicensed National Information Infrastructure (U-NII) Device -section (E) Maximum conducted output power. =3. Measurement using a power meter (PM) =b Method PM-G (Measurement using a gated RF average power meter).

4.4 Measurement Results

Pass

Please refer to following table.

Band 1: 5180~5240MHz

Temperature :	23 °C	Humidity :	52%
Test By:	Lee	Test Date :	June 28, 2019
Test Result:	PASS		
Frequency MHz	Data Rate Mbps	Peak Output Power dBm	Limit dBm
IEEE 802.11a Mode (OFDM, Antenna Gain=3dBi)			
Low Channel: 5180	6	10.39	24
Middle Channel: 5200	6	9.29	24
High Channel: 5240	6	11.22	24

Note: Both of antennas have considered during pre-test, but only the worst case (ANT_0) was recorded.

Frequency MHz	Data Rate Mbps	Peak Output Power dBm			Limit dBm
IEEE 802.11n(HT20)Mode (OFDM, Antenna Gain=6.01dBi)					
Low Channel: 5180	MCS0	ANT_0	ANT_1	Total	24
		10.23	7.37	12.04	
Middle Channel: 5200	MCS0	9.22	8.98	12.11	24
High Channel: 5240	MCS0	11.07	12.61	14.92	24
IEEE 802.11n(HT40) Mode (OFDM, Antenna Gain=6.01Bi)					
Low Channel: 5190	MCS0	9.99	7.37	11.89	24
High Channel: 5230	MCS0	9.76	10.68	13.25	24
IEEE 802.11ac (VHT20) Mode (OFDM, Antenna Gain=6.01dBi)					
Low Channel: 5180	MCS0	10.21	7.31	12.01	24
Middle Channel: 5200	MCS0	9.44	8.63	12.06	24
High Channel: 5240	MCS0	10.97	12.54	14.84	24
IEEE 802.11ac (VHT40) Mode (OFDM, Antenna Gain=6.01dBi)					
Low Channel: 5190	MCS0	10.08	7.40	11.96	24
High Channel: 5230	MCS0	9.76	10.70	13.27	24
IEEE 802.11ac (VHT80) Mode (OFDM, Antenna Gain=6.01dBi)					
Channel: 5210	MCS0	9.31	9.27	12.30	30

Note : The EUT working on MIMO mode.

Band 4: 5745~5825MHz

Temperature :	22 °C	Humidity :	54%
Test By:	Lee	Test Date :	June 28, 2019
Test Result:	PASS		
Frequency MHz	Data Rate Mbps	Peak Output Power dBm	Limit dBm
IEEE 802.11a Mode (OFDM, Antenna Gain=3dBi)			
Low Channel: 5745	6	13.25	30
Middle Channel: 5785	6	13.95	30
High Channel: 5825	6	13.31	30

Note: Both of antennas have considered during pre-test, but only the worst case (ANT_0) was recorded.

Frequency MHz	Data Rate Mbps	Peak Output Power dBm			Limit dBm
IEEE 802.11n(HT20)Mode (OFDM, Antenna Gain=6.01dBi)					
Low Channel: 5745	MCS0	ANT_0	ANT_1	Total	30
		13.27	9.69	14.85	
Middle Channel: 5785	MCS0	13.23	10.23	15.03	30
High Channel: 5825	MCS0	12.91	10.27	14.80	30
IEEE 802.11n(HT40) Mode (OFDM, Antenna Gain=6.01dBi)					
Low Channel: 5755	MCS0	13.19	9.65	14.78	30
High Channel: 5795	MCS0	14.09	10.00	15.52	30
IEEE 802.11ac (VHT20) Mode (OFDM, Antenna Gain=6.01dBi)					
Low Channel: 5745	MCS0	13.25	9.71	14.84	30
Middle Channel: 5785	MCS0	13.27	10.40	15.08	30
High Channel: 5825	MCS0	12.92	10.28	14.81	30
IEEE 802.11ac (VHT40) Mode (OFDM, Antenna Gain=6.01dBi)					
Low Channel: 5755	MCS0	13.18	9.58	14.75	30
High Channel: 5795	MCS0	13.47	9.95	15.07	30
IEEE 802.11ac (VHT80) Mode (OFDM, Antenna Gain=6.01dBi)					
Channel: 5775	MCS0	11.87	11.83	14.86	30

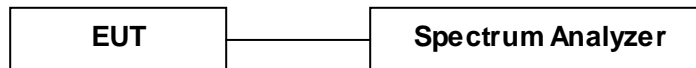
Note : The EUT working on MIMO mode.

5. 6dB Bandwidth

5.1 Limits

For digital modulation systems, the minimum 6dB bandwidth shall be at least 500 kHz.

5.2 Test SET-UP (Block Diagram of Configuration)



5.3 Test Procedure

The antenna port of the EUT was connected to the input of a spectrum analyzer. Analyzer was set as below according to FCC KDB789033(v02r01):

1. For 6dB bandwidth, Set the RBW = 100KHz.
2. Set the VBW $\geq 3 \times$ RBW
3. Detector = peak.
4. Sweep time = auto couple.
5. Trace mode = max hold.
6. Allow trace to fully stabilize.
7. 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.

5.4 Measurement Results

Pass

Please refer to following table and plots.

Band 1: 5180~5240MHz

Temperature :	21 °C	Humidity :	54 %
Test By:	Lee	Test Date :	June 28, 2019
Test Result:	PASS		
Frequency MHz	Data Rate Mbps	6dB Bandwidth MHz	Limit
IEEE 802.11a Mode (OFDM)			
Low Channel: 5180	6	16.33	>500KHz
Middle Channel: 5200	6	16.33	>500KHz
High Channel: 5240	6	16.33	>500KHz
IEEE 802.11n(HT20) Mode (OFDM)			
Low Channel: 5180	MCS0	16.33	>500KHz
Middle Channel: 5200	MCS0	16.34	>500KHz
High Channel: 5240	MCS0	16.34	>500KHz
IEEE 802.11n(HT40) Mode (OFDM)			
Low Channel: 5190	MCS0	36.38	>500KHz
High Channel: 5230	MCS0	36.37	>500KHz
IEEE 802.11ac (VHT20) Mode (OFDM)			
Low Channel: 5180	MCS0	16.32	>500KHz
Middle Channel: 5200	MCS0	16.33	>500KHz
High Channel: 5240	MCS0	16.34	>500KHz
IEEE 802.11ac (VHT40) Mode (OFDM)			
Low Channel: 5190	MCS0	36.38	>500KHz
High Channel: 5230	MCS0	36.37	>500KHz
IEEE 802.11ac (VHT80) Mode (OFDM)			
Channel: 5210	MCS0	75.33	>500KHz

Note: Both of antennas have considered during pre-test, but only the worst case (ANT_0) was recorded.

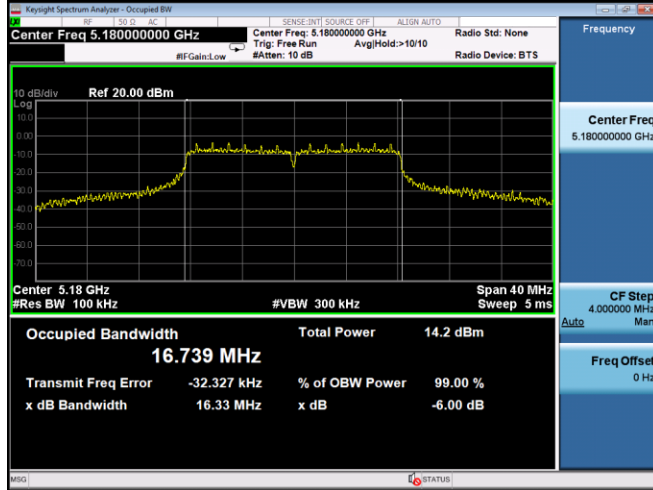
Band 4: 5745~5825MHz

Temperature :	23 °C	Humidity :	53 %
Test By:	Lee	Test Date :	June 28, 2019
Test Result:	PASS		
Frequency MHz	Data Rate Mbps	6dB Bandwidth MHz	Limit
IEEE 802.11a Mode (OFDM)			
Low Channel: 5745	6	16.33	>500KHz
Middle Channel: 5785	6	16.33	>500KHz
High Channel: 5825	6	16.33	>500KHz
IEEE 802.11n(HT20) Mode (OFDM)			
Low Channel: 5745	MCS0	16.33	>500KHz
Middle Channel: 5785	MCS0	16.32	>500KHz
High Channel: 5825	MCS0	16.33	>500KHz
IEEE 802.11n(HT40) Mode (OFDM)			
Low Channel: 5755	MCS0	36.07	>500KHz
High Channel: 5795	MCS0	36.08	>500KHz
IEEE 802.11ac (VHT20) Mode (OFDM)			
Low Channel: 5745	MCS0	16.33	>500KHz
Middle Channel: 5785	MCS0	16.33	>500KHz
High Channel: 5825	MCS0	16.33	>500KHz
IEEE 802.11ac (VHT40) Mode (OFDM)			
Low Channel: 5755	MCS0	36.06	>500KHz
High Channel: 5795	MCS0	36.07	>500KHz
IEEE 802.11ac (VHT80) Mode (OFDM)			
Channel: 5775	MCS0	75.70	>500KHz

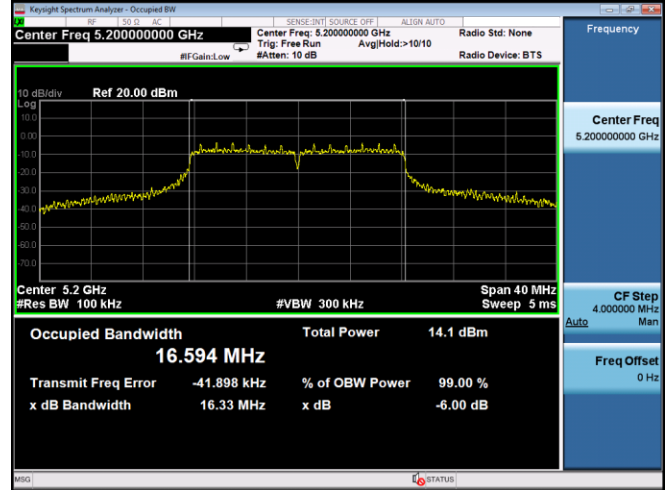
Note: Both of antennas have considered during pre-test, but only the worst case (ANT_0) was recorded.

Band 5150-5250MHz IEEE 802.11a

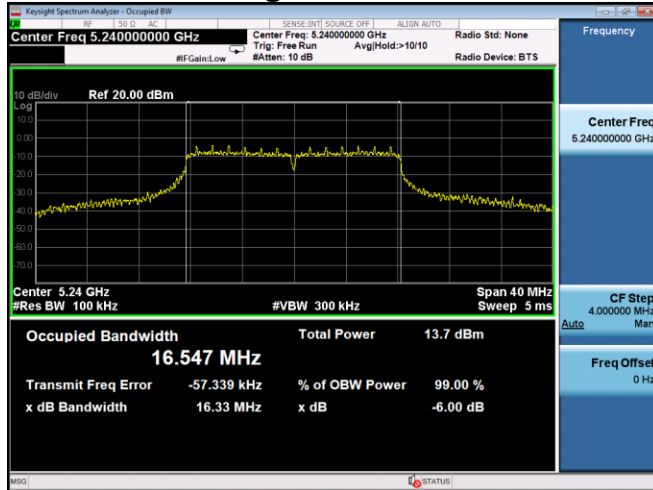
Low Channel



Middle Channel

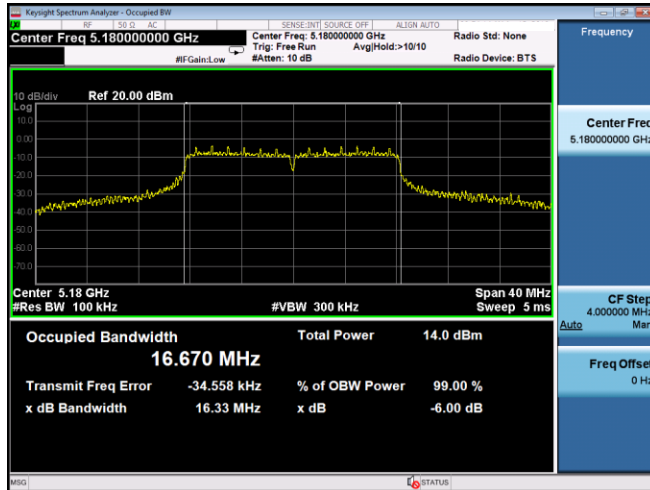


High Channel

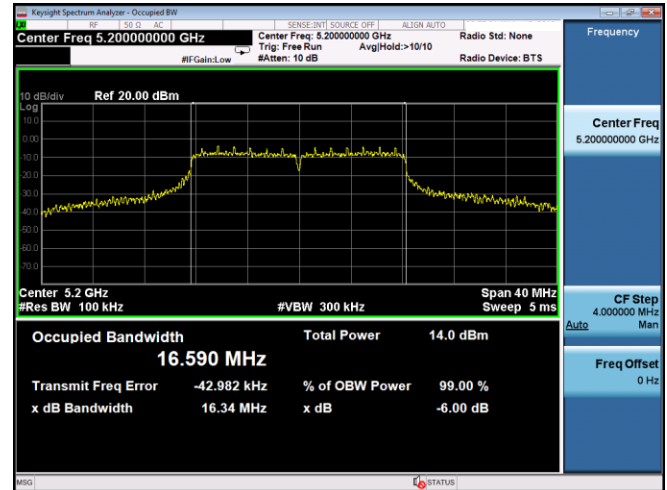


802.11n(HT20)

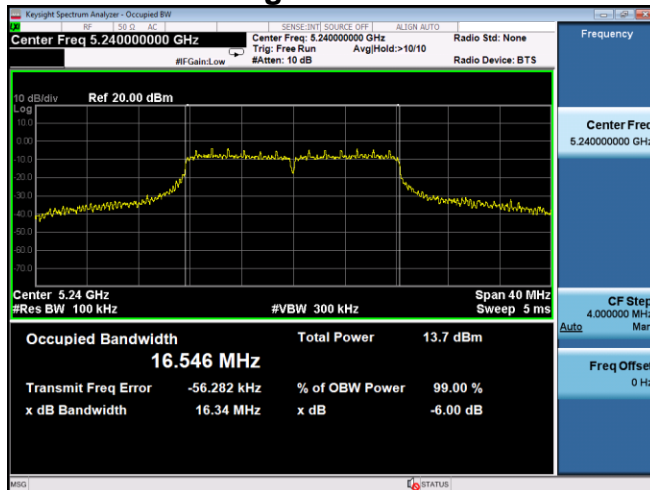
Low Channel



Middle Channel

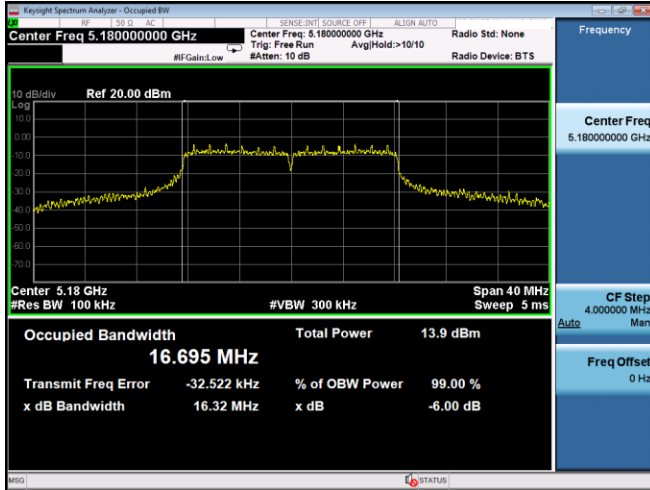


High Channel

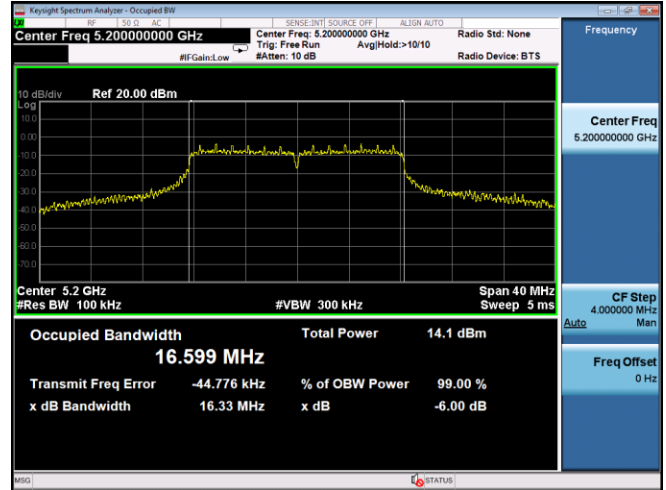


802.11ac(VHT20)

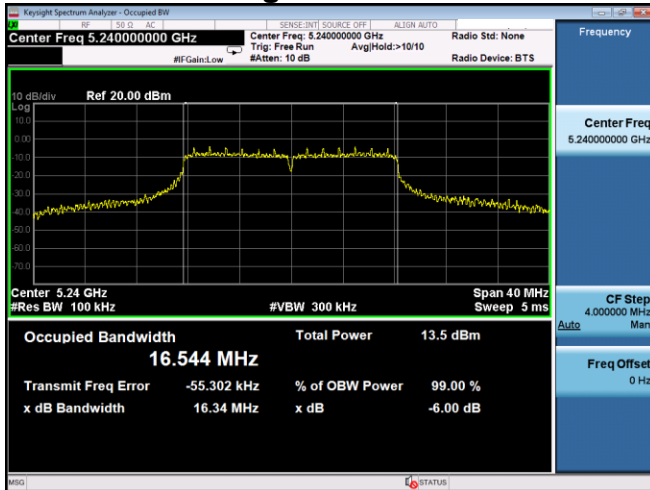
Low Channel



Middle Channel

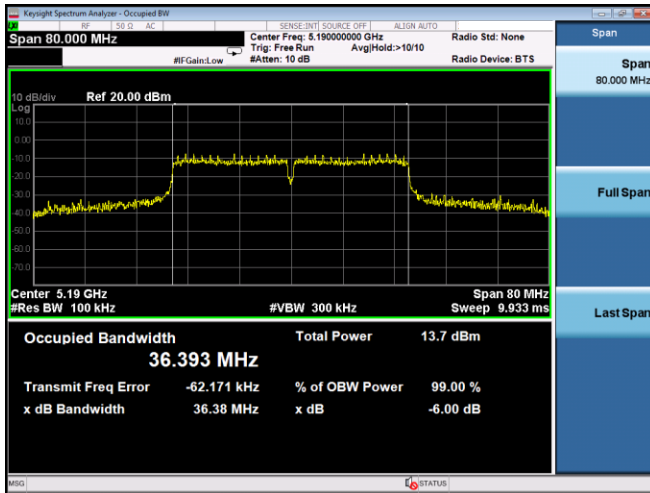


High Channel

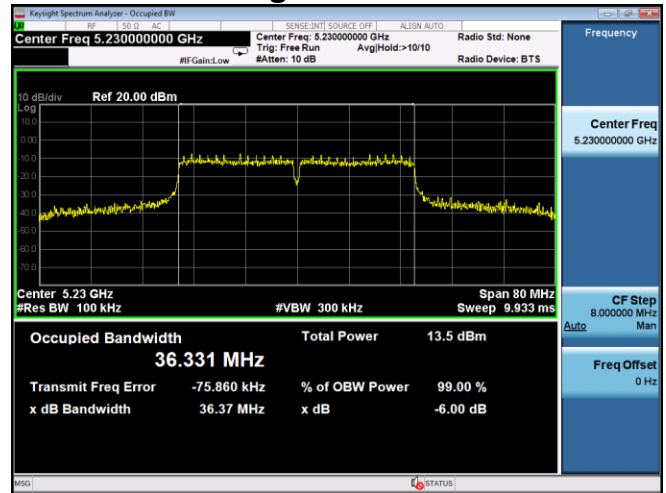


802.11n(HT40)

Low Channel

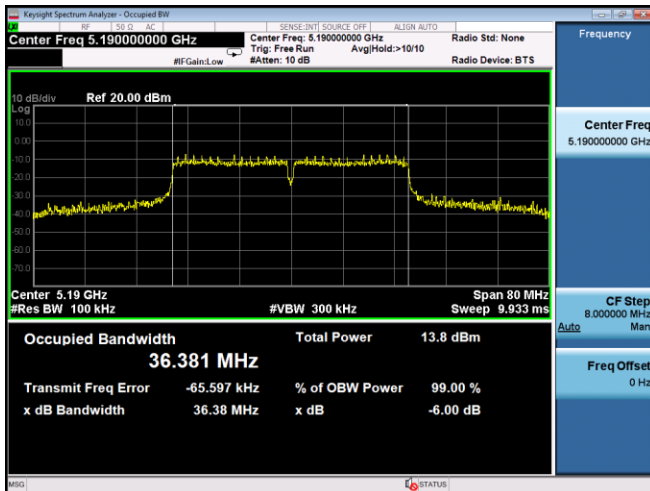


High Channel

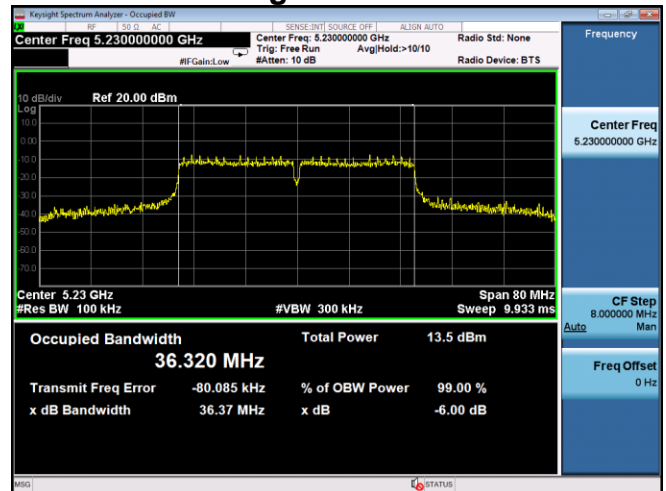


802.11ac(VHT40)

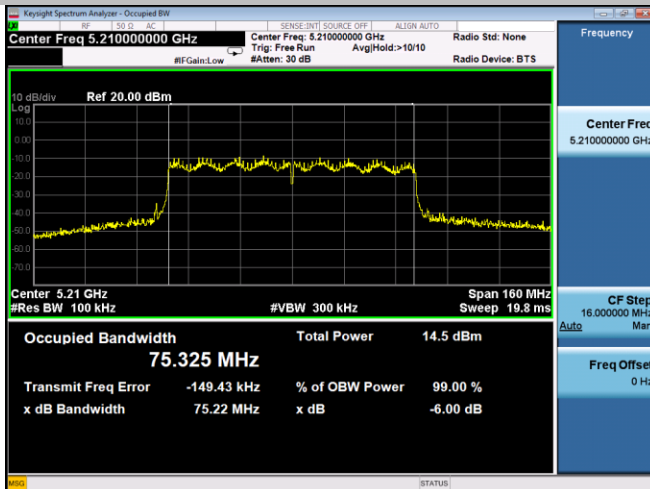
Low Channel



High Channel

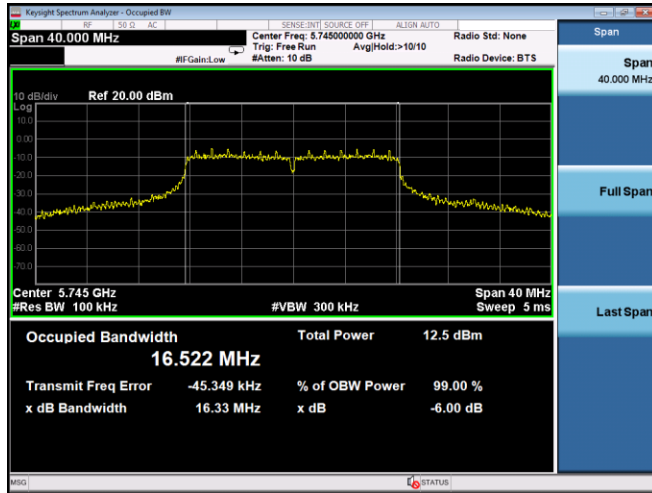


802.11ac(VHT80)

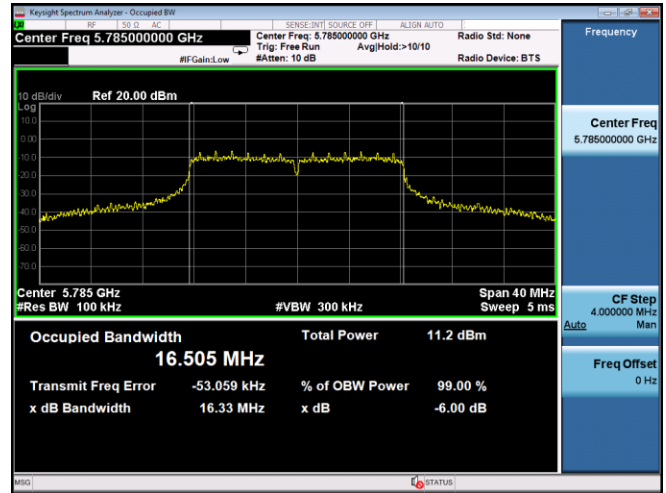


Band 5725-5850MHz IEEE 802.11a

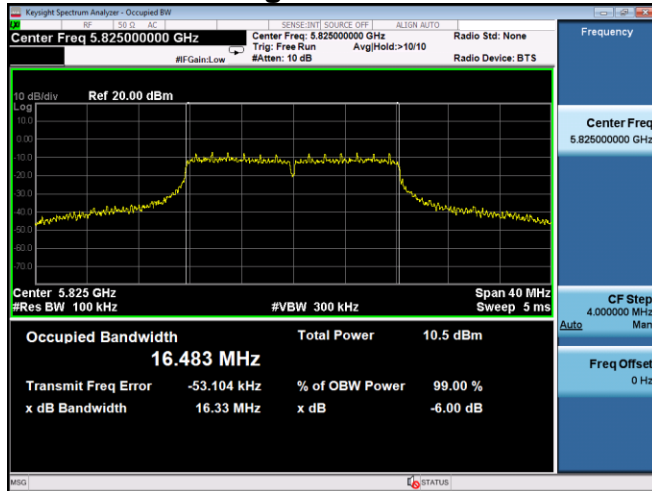
Low Channel



Middle Channel



High Channel

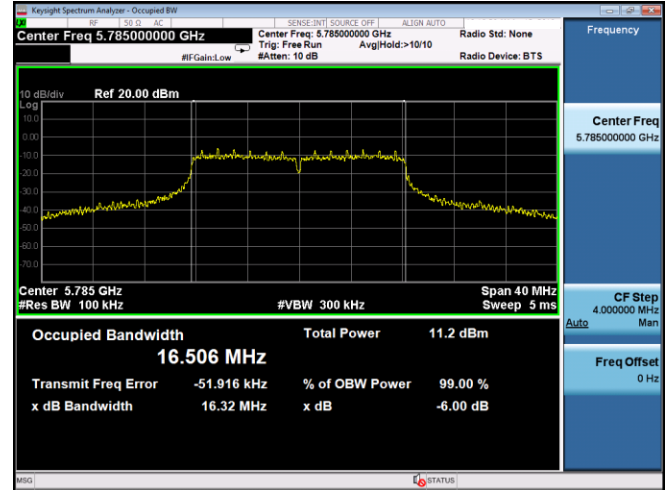


802.11n(HT20)

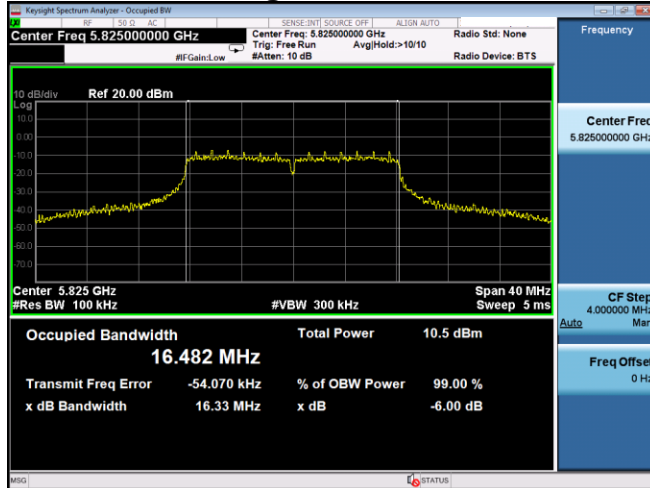
Low Channel



Middle Channel

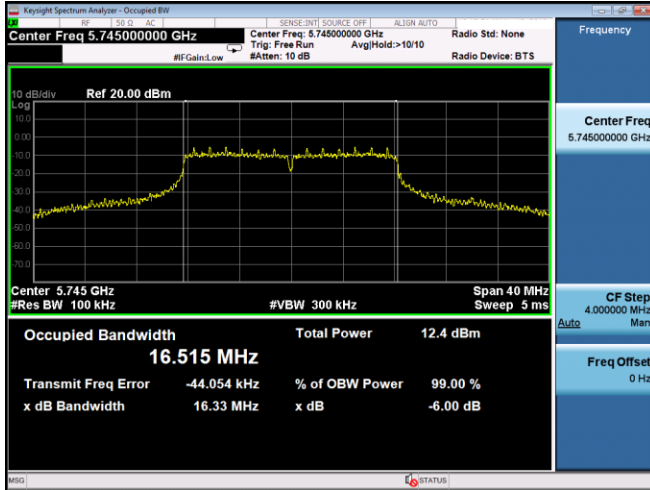


High Channel

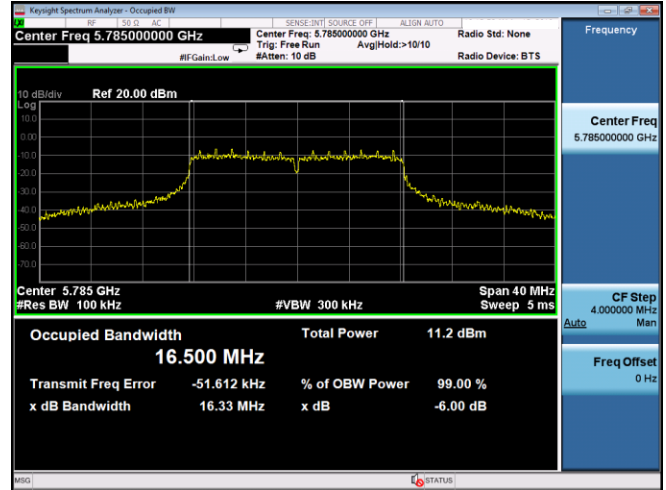


802.11ac(VHT20)

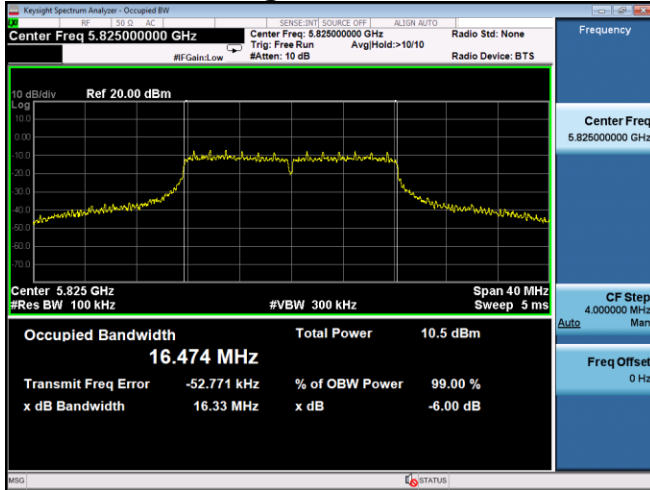
Low Channel



Middle Channel

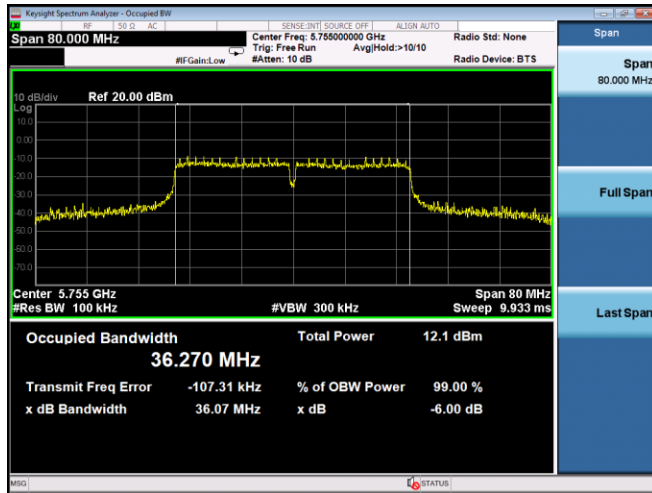


High Channel

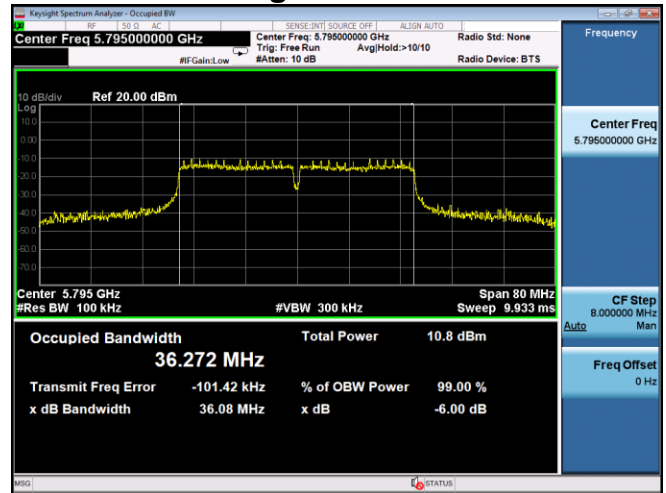


802.11n(HT40)

Low Channel

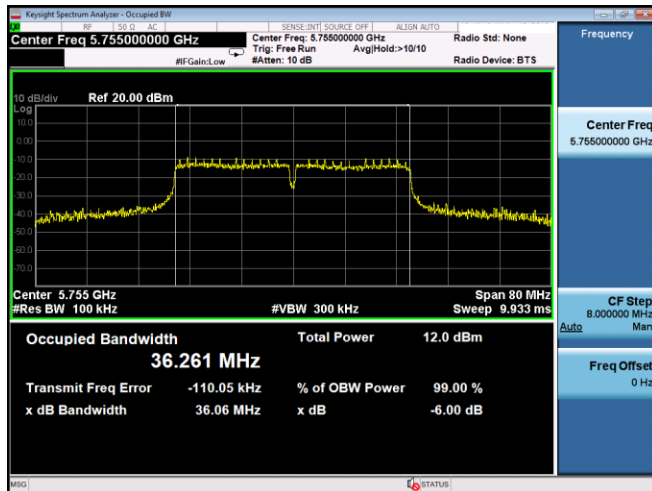


High Channel

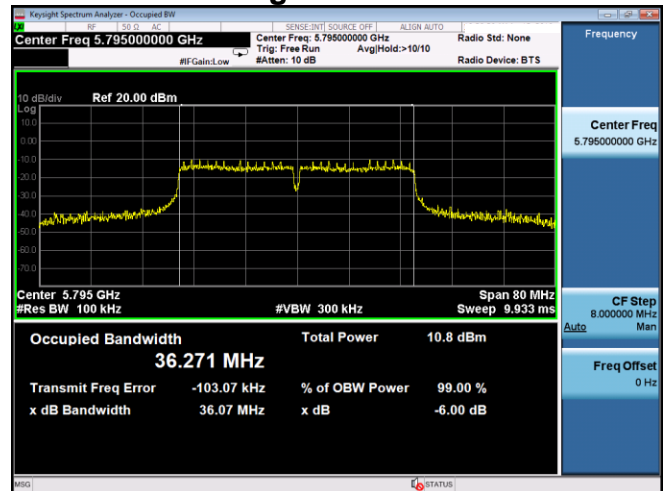


802.11ac(VHT40)

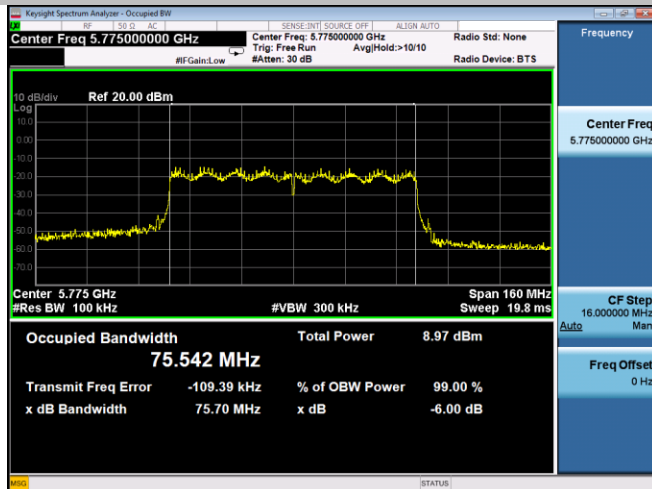
Low Channel



High Channel



802.11ac(VHT80)

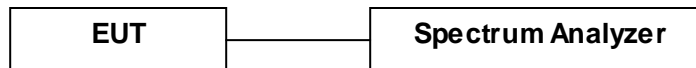


6. 26dB Bandwidth & 99% Occupied Bandwidth

6.1 Limits

No restriction limits.

6.2 Test SET-UP (Block Diagram of Configuration)



6.3 Test Procedure

The antenna port of the EUT was connected to the input of a spectrum analyzer. Analyzer was set as below according to FCC KDB789033(v02r01):

1. For 26dB bandwidth, Set the RBW = Approximately 1% of the emission bandwidth
 2. Set the VBW > RBW
 3. Detector = peak.
 4. Sweep time = auto couple.
 5. Trace mode = max hold.
 6. Allow trace to fully stabilize.
 7. 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 26 dB relative to the maximum level measured in the fundamental emission.
-
1. For 99% occupied bandwidth, Set the RBW = 1% to 5% of the OBW
 2. Set the VBW $\geq 3 \times$ RBW
 3. Detector = peak.
 4. Span = 1.5 times to 5.0 times the OBW
 5. Sweep time = auto couple.
 6. Trace mode = max hold. Allow trace to fully stabilize.
 7. Use the 99% power bandwidth function of the spectrum analyzer measure the occupied bandwidth.

6.4 Measurement Results

Pass

Please refer to following table and plots.

Band 1: 5180~5240MHz

Temperature :	23 °C	Humidity : 53 %	
Test By:	Lee	Test Date : June 28, 2019	
Test Result:	PASS		
Frequency MHz	Data Rate Mbps	26dB Bandwidth MHz	99% Occupied Bandwidth MHz
IEEE 802.11a Mode (OFDM)			
Low Channel: 5180	6	30.26	17.47
Middle Channel: 5200	6	28.49	17.17
High Channel: 5240	6	25.74	17.15
IEEE 802.11n(HT20) Mode (OFDM)			
Low Channel: 5180	MCS0	30.113	17.45
Middle Channel: 5200	MCS0	27.46	17.19
High Channel: 5240	MCS0	25.22	17.02
IEEE 802.11n(HT40) Mode (OFDM)			
Low Channel: 5190	MCS0	79.22	38.12
High Channel: 5230	MCS0	78.35	37.85
IEEE 802.11ac (VHT20) Mode (OFDM)			
Low Channel: 5180	MCS0	31.29	17.16
Middle Channel: 5200	MCS0	29.99	17.21
High Channel: 5240	MCS0	25.12	17.04
IEEE 802.11ac (VHT40) Mode (OFDM)			
Low Channel: 5190	MCS0	79.24	37.95
High Channel: 5230	MCS0	78.04	37.72
IEEE 802.11ac (VHT80) Mode (OFDM)			
Channel: 5210	MCS0	83.00	75.74

Note: Both of antennas have considered during pre-test, but only the worst case (ANT_0) was recorded.

Band 4: 5745~5825MHz

Temperature :	23 °C	Humidity : 53 %	
Test By:	Lee	Test Date : June 28, 2019	
Test Result:	PASS		
Frequency MHz	Data Rate Mbps	26dB Bandwidth MHz	99% Occupied Bandwidth MHz
IEEE 802.11a Mode (OFDM)			
Low Channel: 5745	6	30.53	16.92
Middle Channel: 5785	6	23.70	16.96
High Channel: 5825	6	22.40	16.87
IEEE 802.11n(HT20) Mode (OFDM)			
Low Channel: 5745	MCS0	25.38	16.94
Middle Channel: 5785	MCS0	24.03	16.99
High Channel: 5825	MCS0	22.42	16.86
IEEE 802.11n(HT40) Mode (OFDM)			
Low Channel: 5755	MCS0	59.98	37.22
High Channel: 5795	MCS0	60.03	37.25
IEEE 802.11ac (VHT20) Mode (OFDM)			
Low Channel: 5745	MCS0	24.70	16.97
Middle Channel: 5785	MCS0	30.41	16.97
High Channel: 5825	MCS0	22.31	16.88
IEEE 802.11ac (VHT40) Mode (OFDM)			
Low Channel: 5755	MCS0	62.02	37.21
High Channel: 5795	MCS0	56.00	37.28
IEEE 802.11ac (VHT80) Mode (OFDM)			
Channel: 5775	MCS0	83.10	75.92

Note: Both of antennas have considered during pre-test, but only the worst case (ANT_0) was recorded.

Band 5150-5250MHz IEEE 802.11a

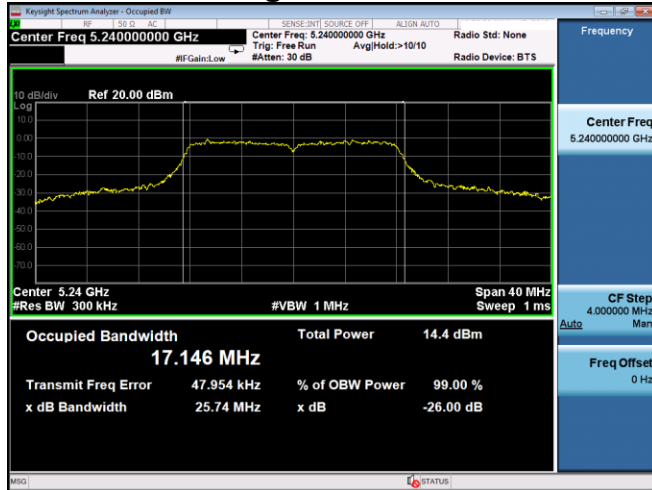
Low Channel



Middle Channel



High Channel

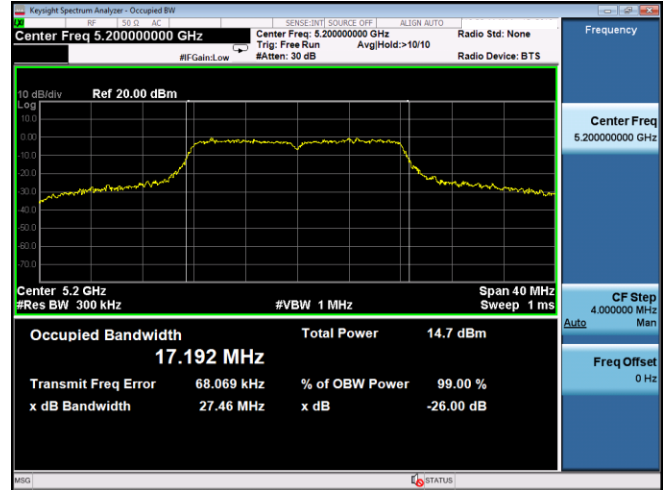


802.11n(HT20)

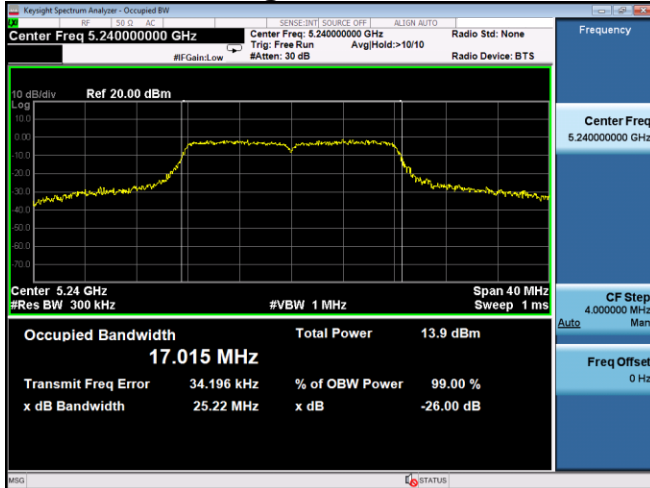
Low Channel



Middle Channel

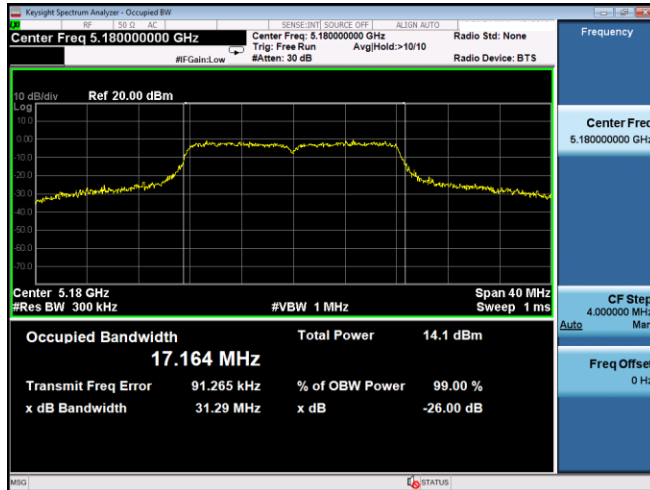


High Channel

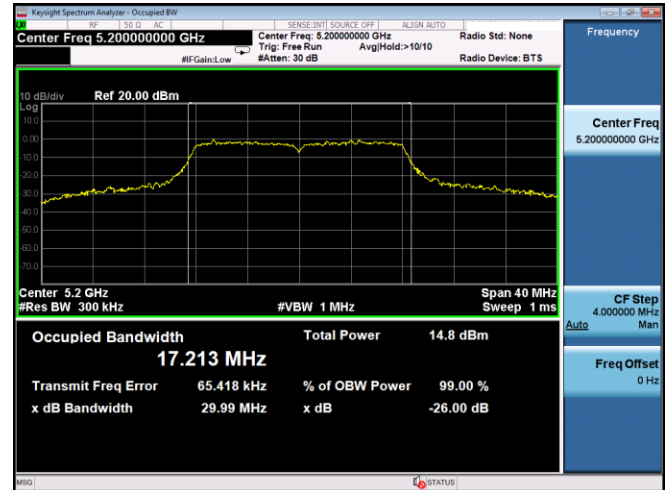


802.11ac(VHT20)

Low Channel



Middle Channel



High Channel

