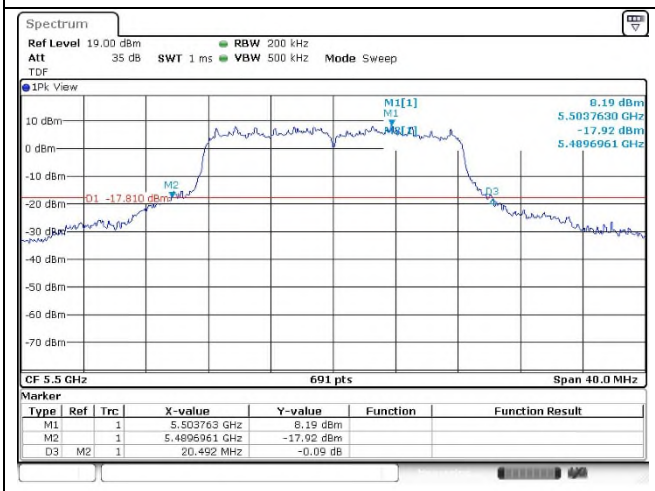
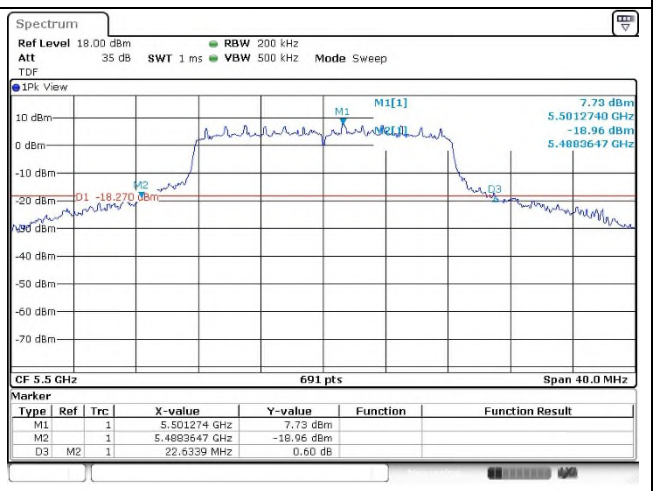
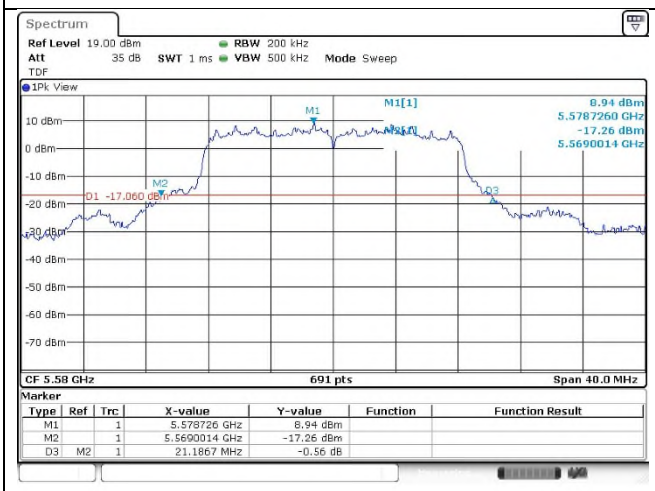
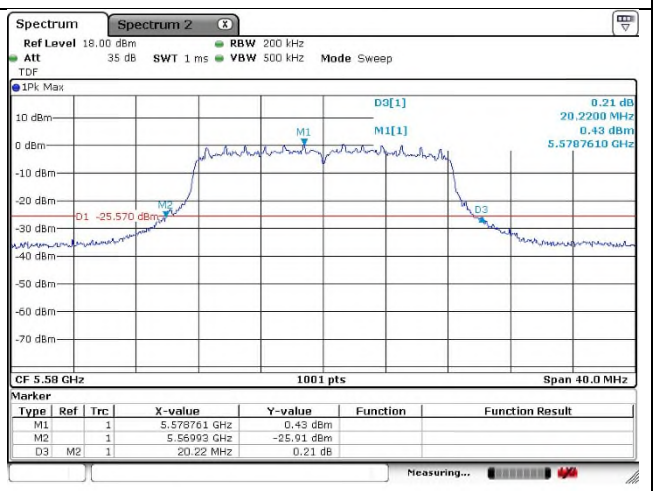
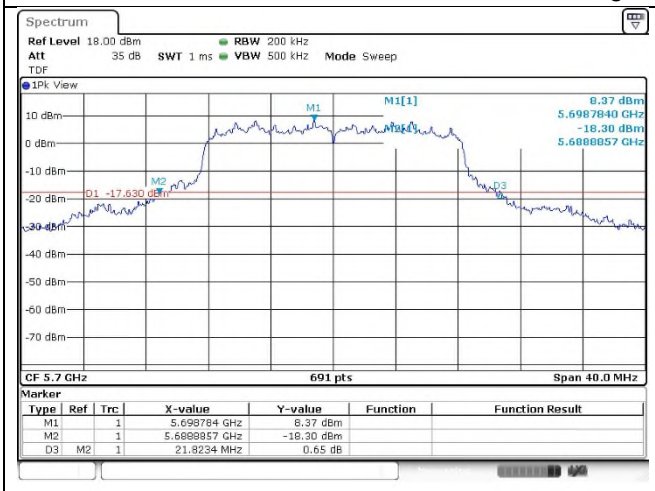
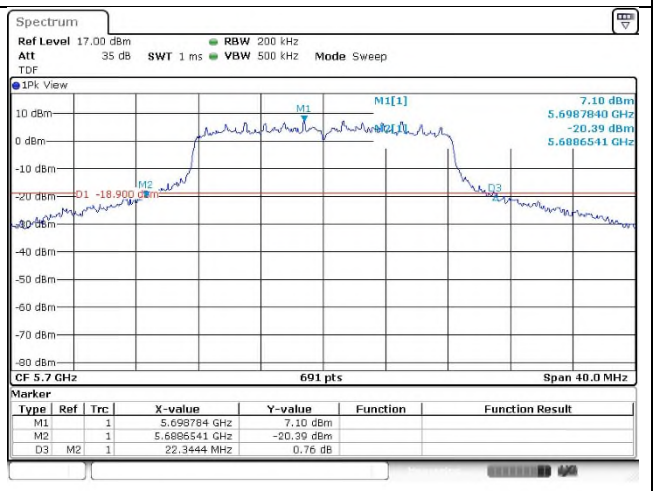
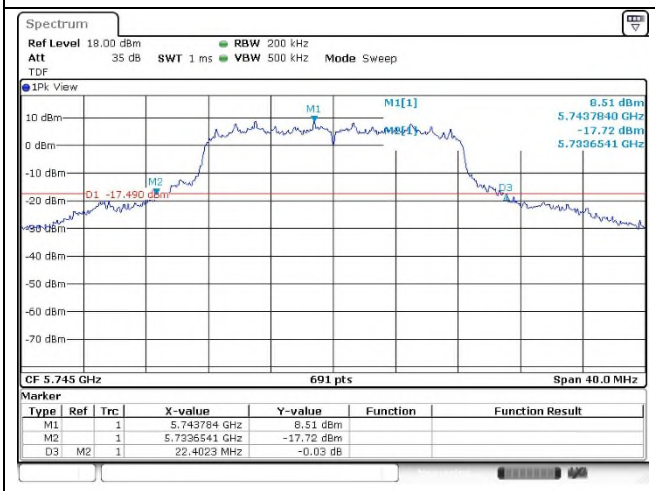
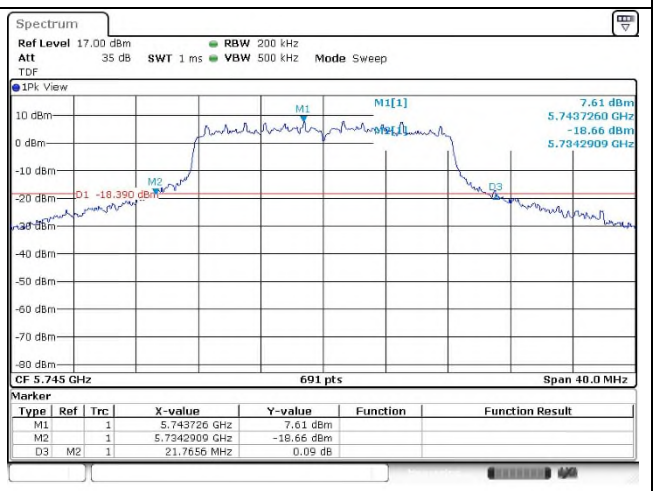
OFDM: 802.11a (Band 2C)

Ant.1	Ant.2
Low channel	
	
Middle channel	
	
High channel	
	

OFDM: 802.11a (Band 3)

Ant.1	Ant.2
Low channel	
	
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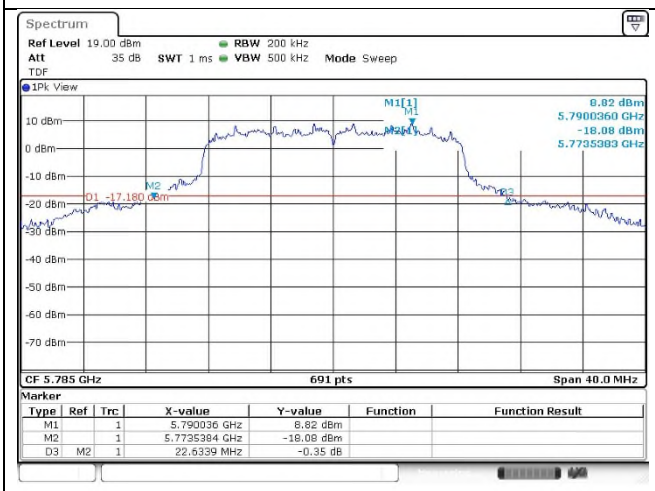
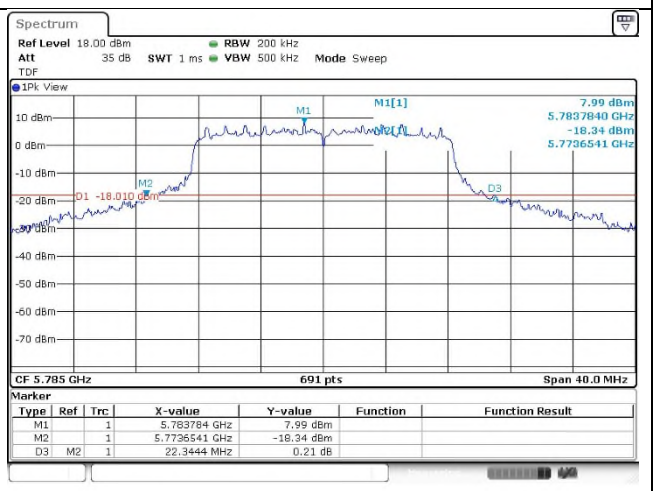
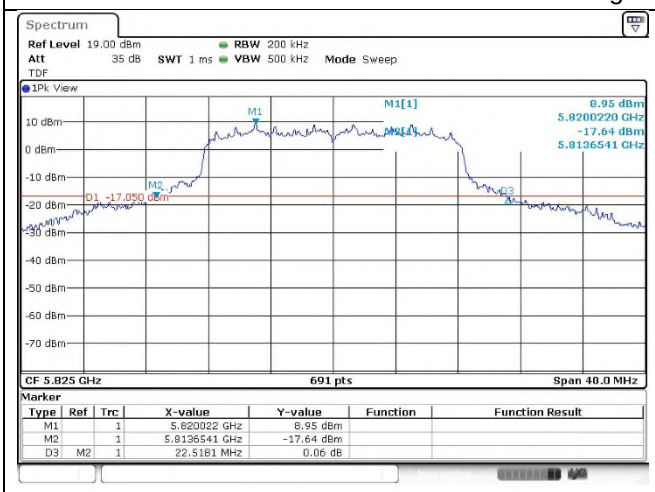
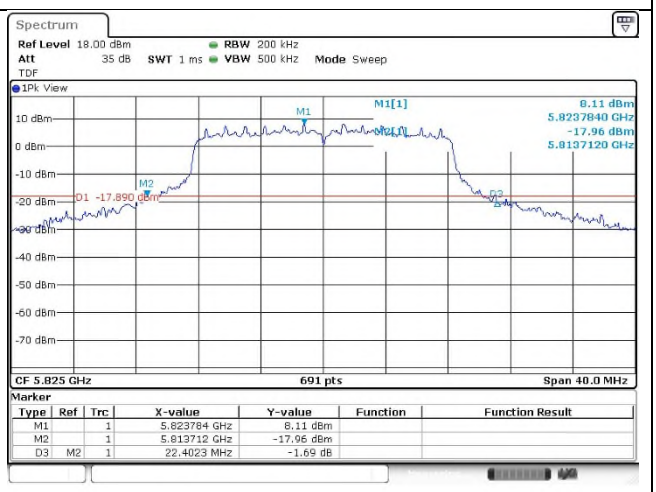
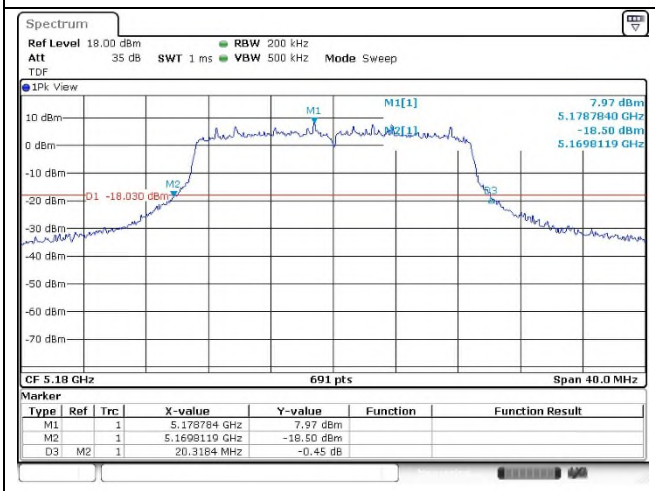
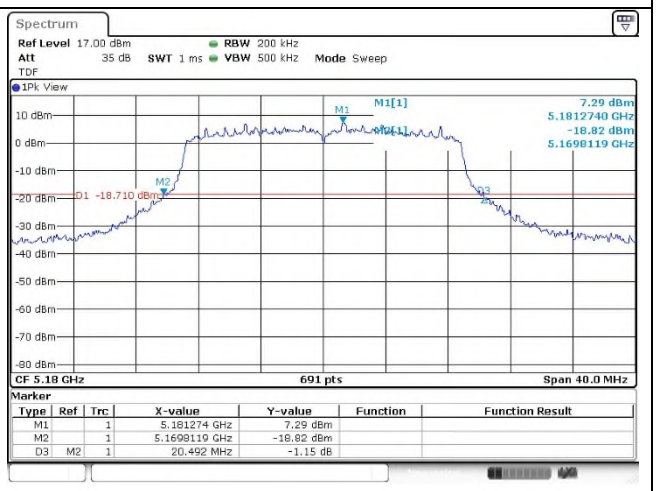
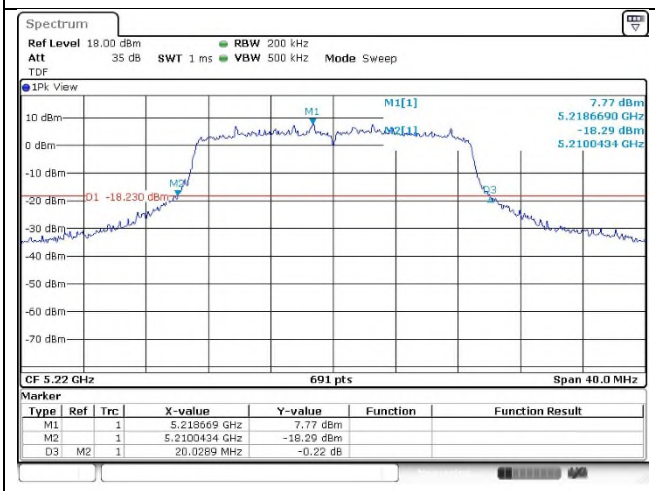
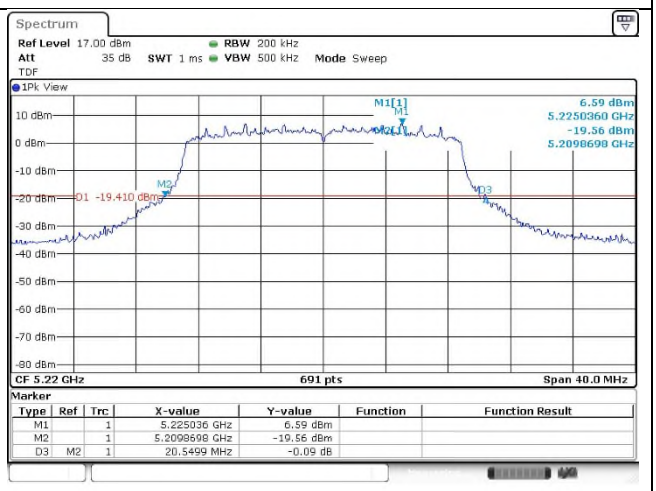
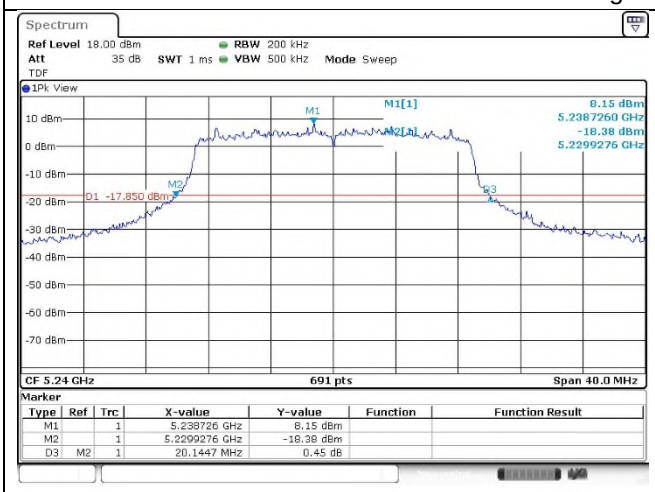
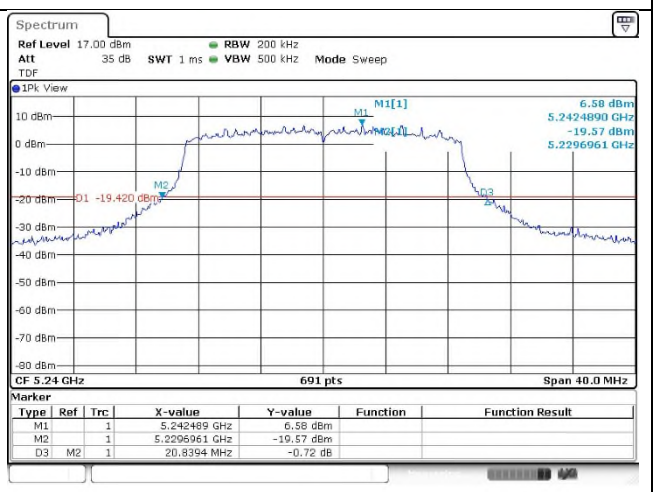
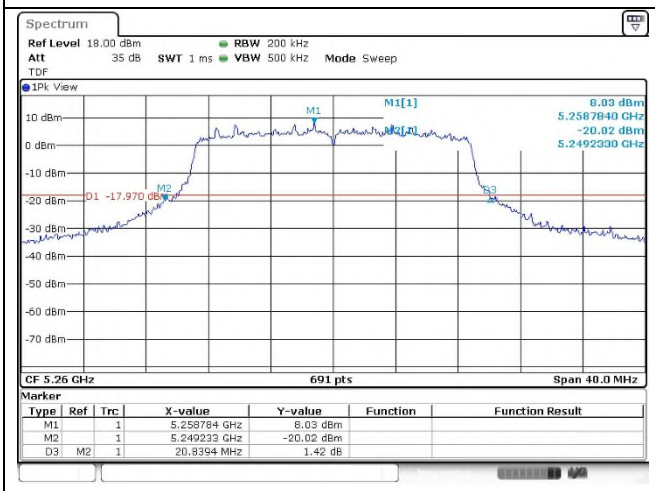
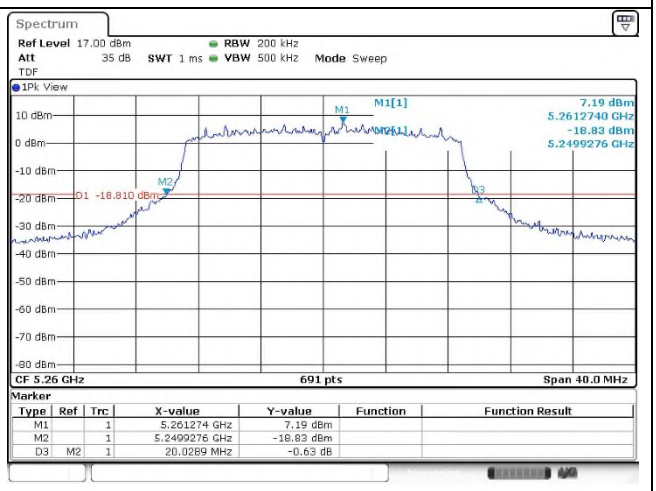
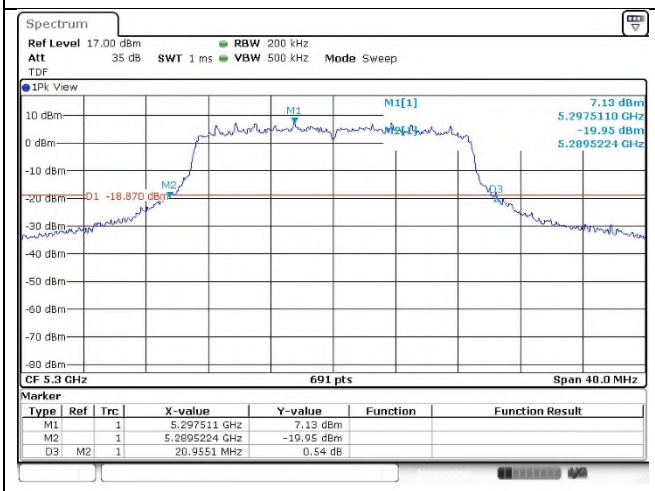
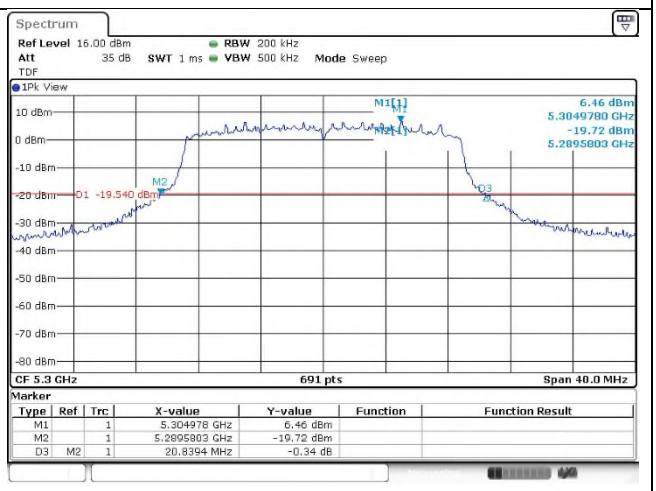
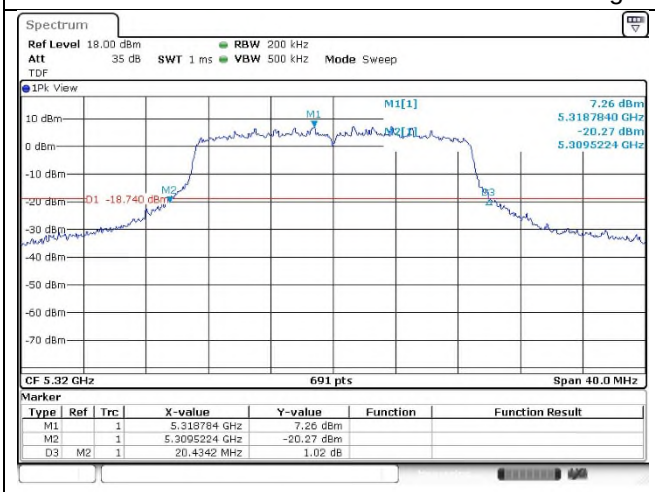
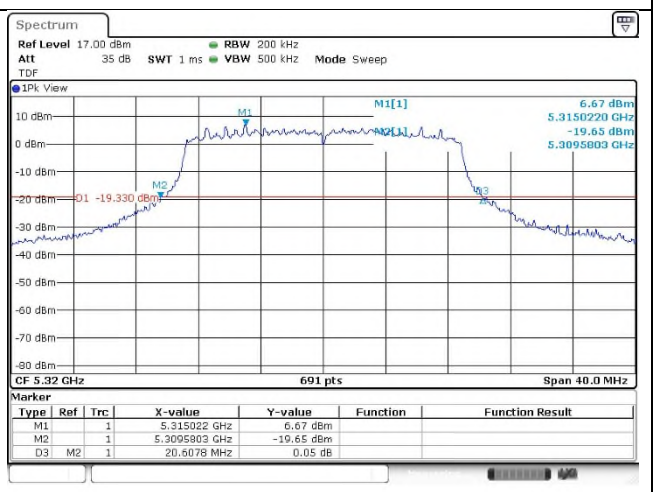
	
High channel	
	

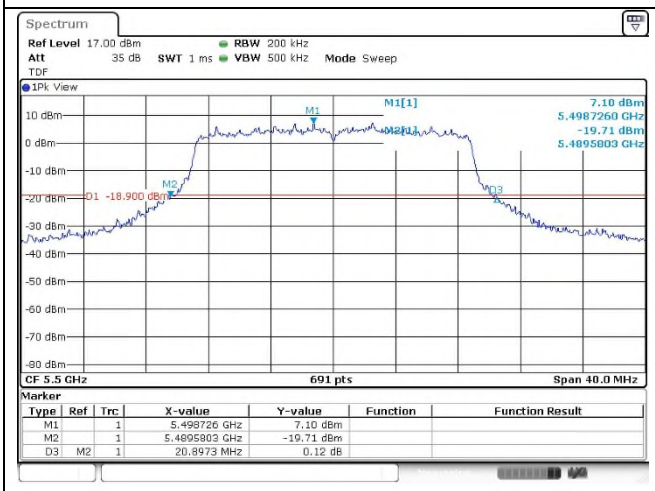
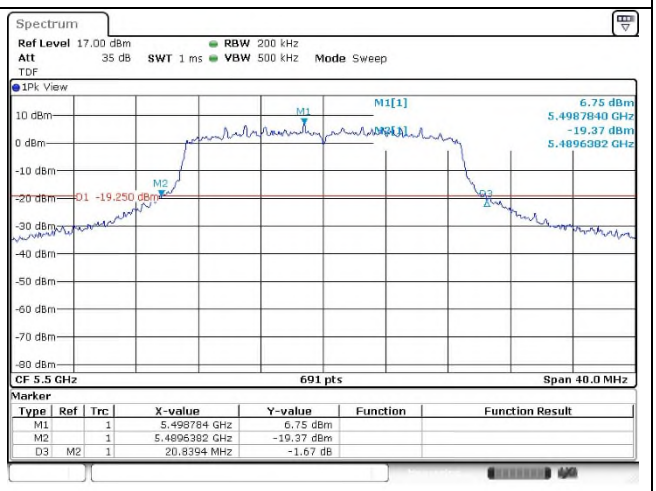
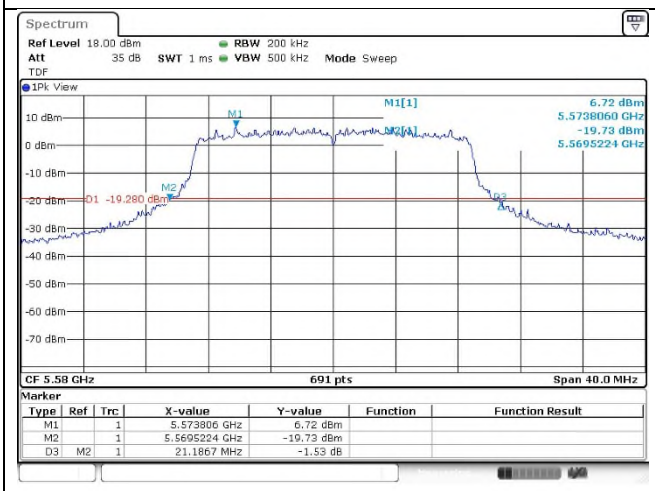
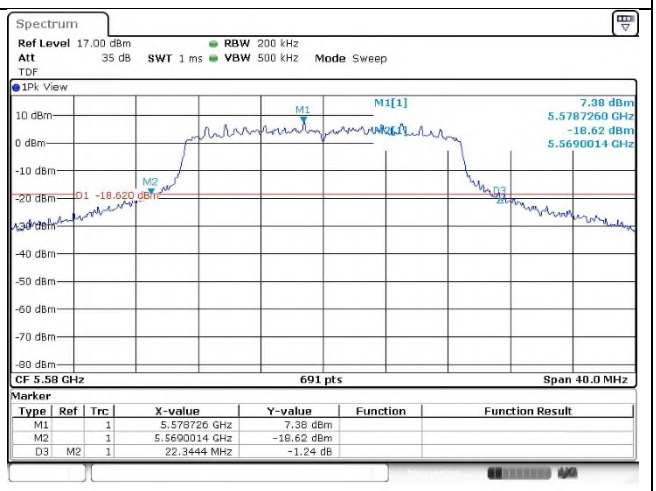
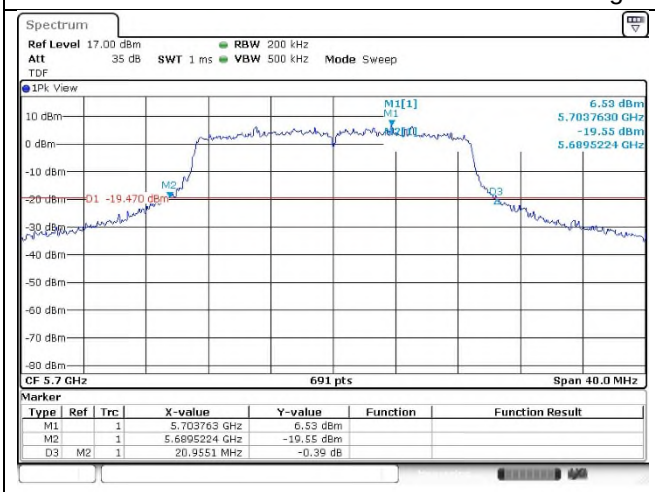
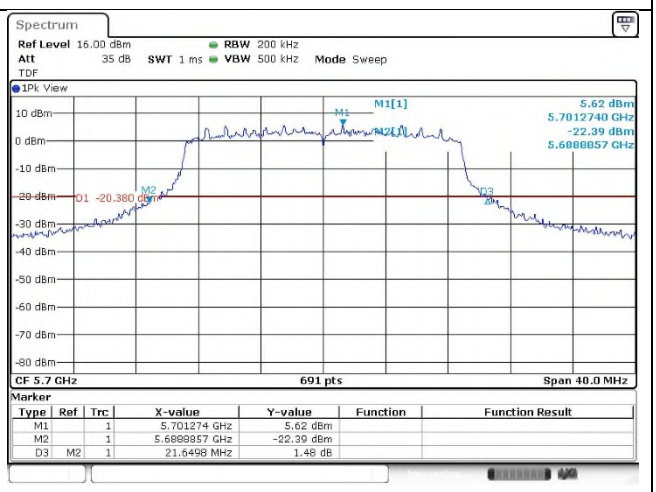
OFDM: 802.11ac_VHT20 (Band 1)

Ant.1	Ant.2
Low channel	
	
Middle channel	
	
High channel	
	

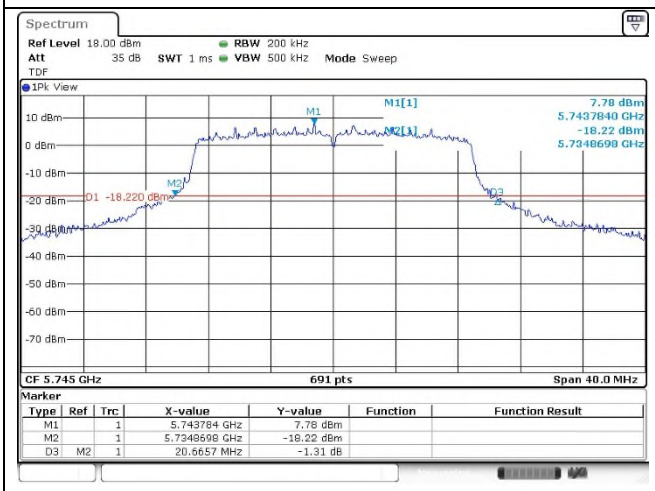
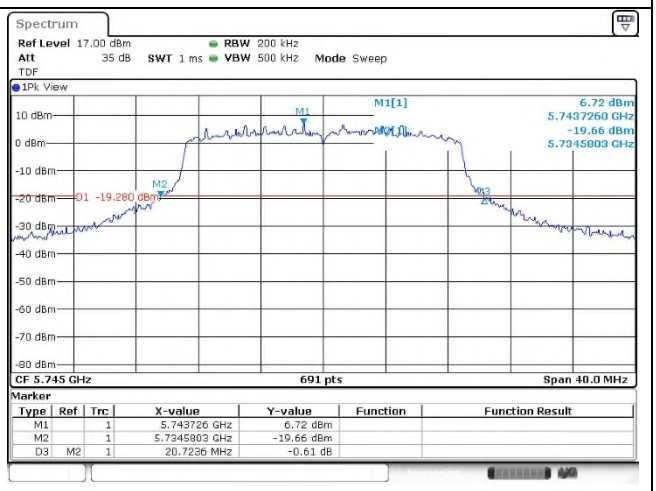
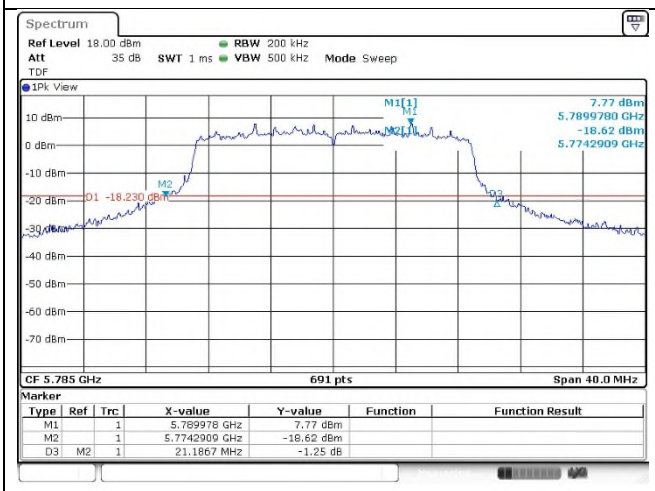
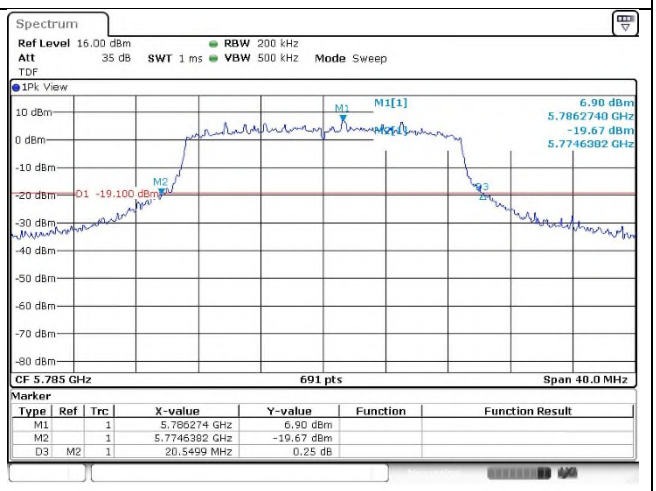
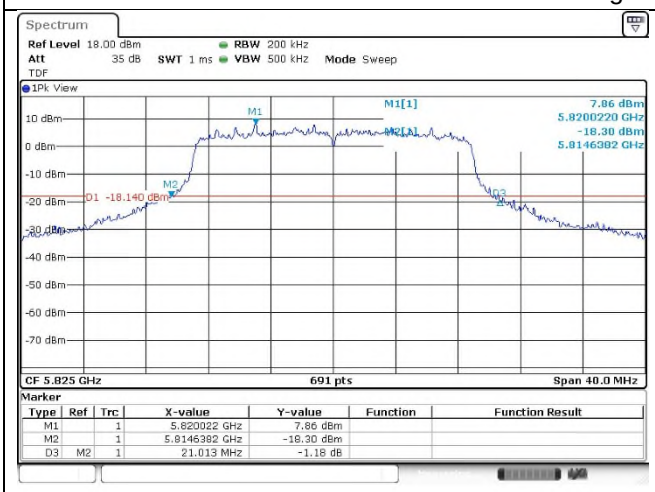
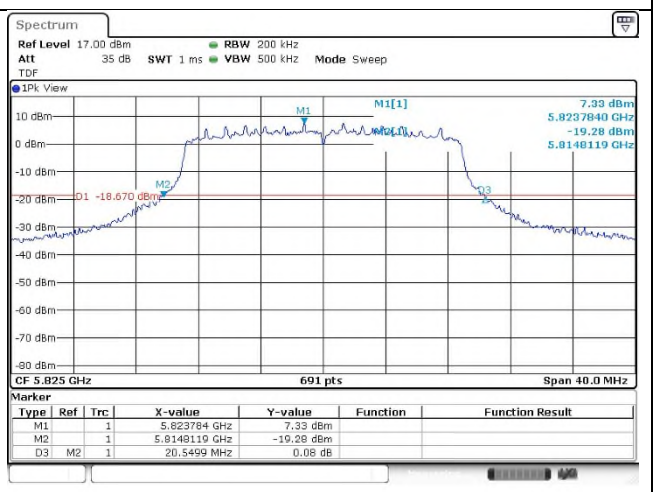
OFDM: 802.11ac_VHT20 (Band 2A)

Ant.1	Ant.2
Low channel	
	
Middle channel	
	
High channel	
	

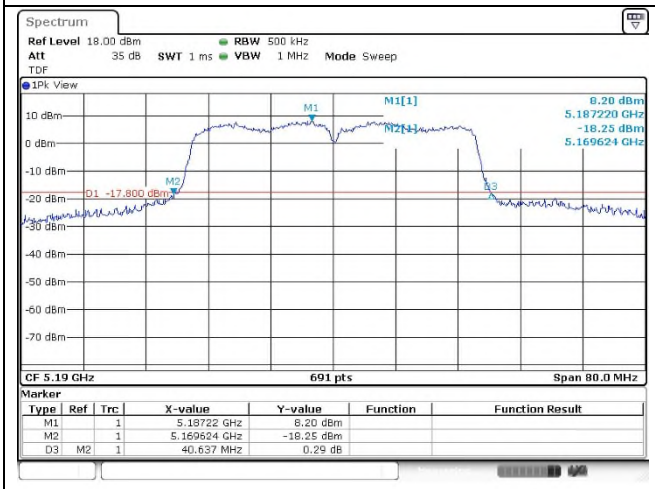
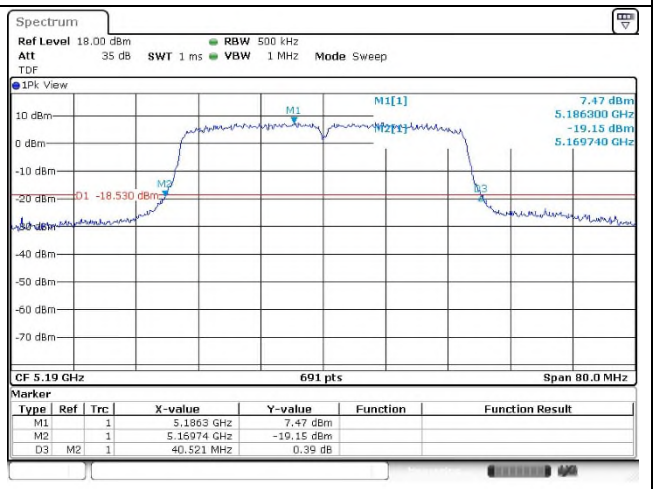
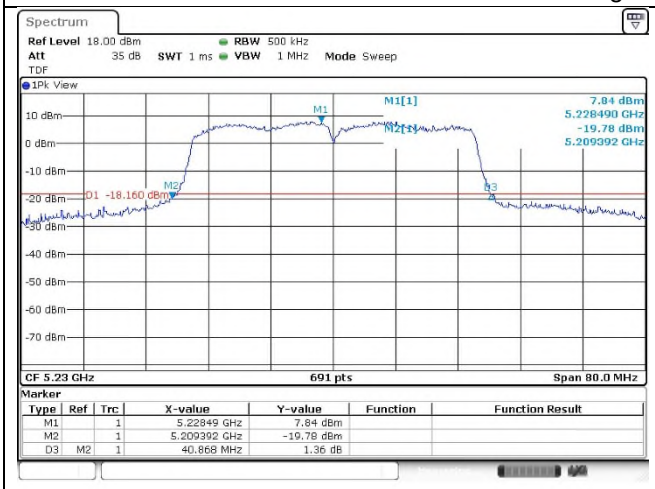
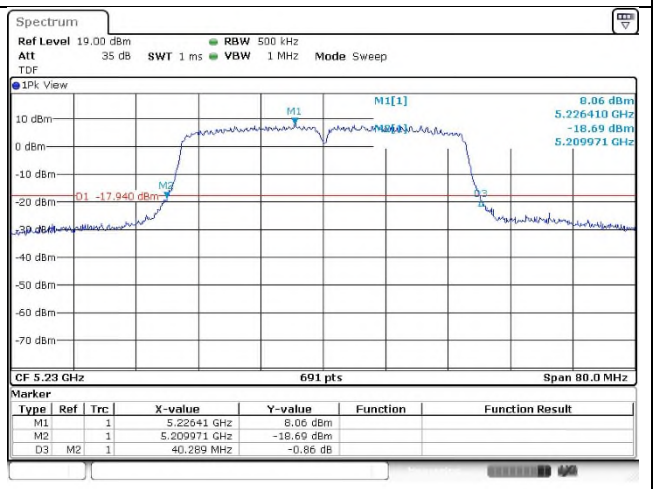
OFDM: 802.11ac_VHT20 (Band 2C)

Ant.1	Ant.2
Low channel	
	
Middle channel	
	
High channel	
	

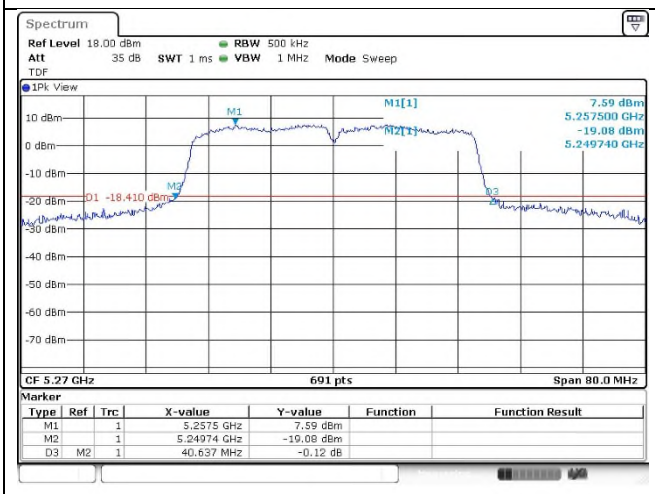
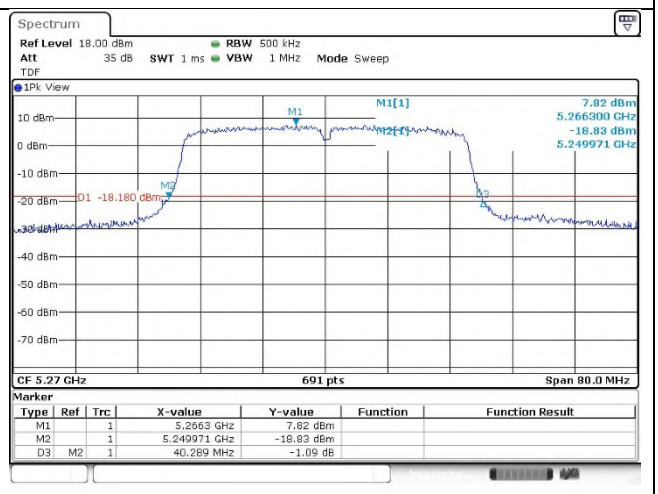
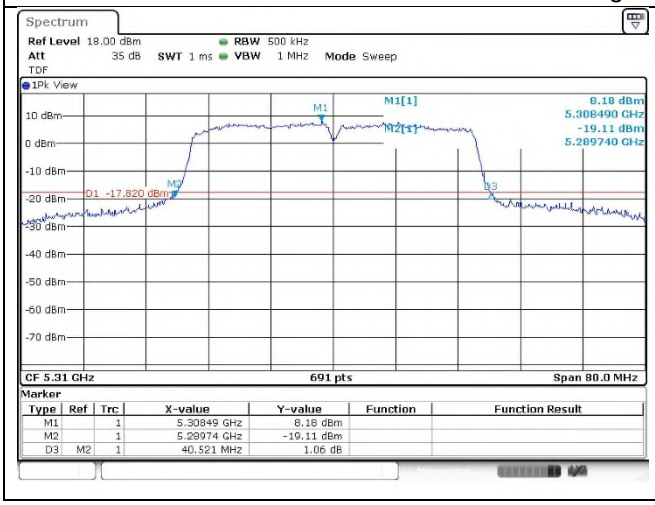
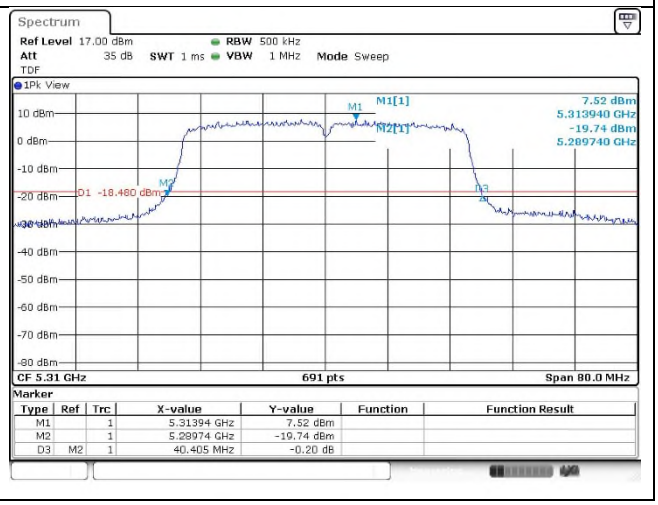
OFDM: 802.11ac_VHT20 (Band 3)

Ant.1	Ant.2
Low channel	
	
Middle channel	
	
High channel	
	

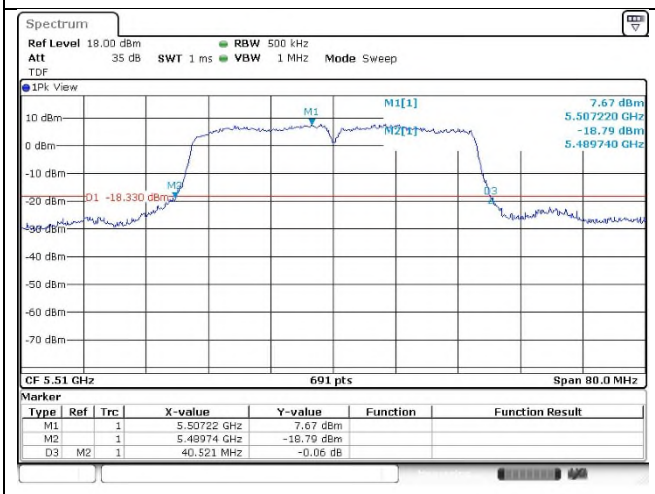
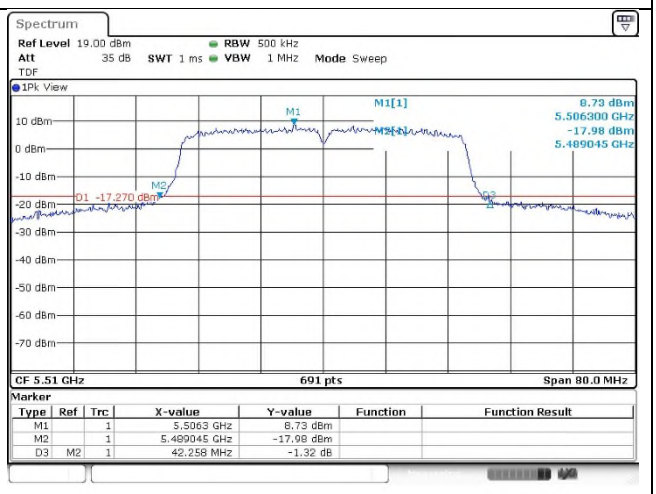
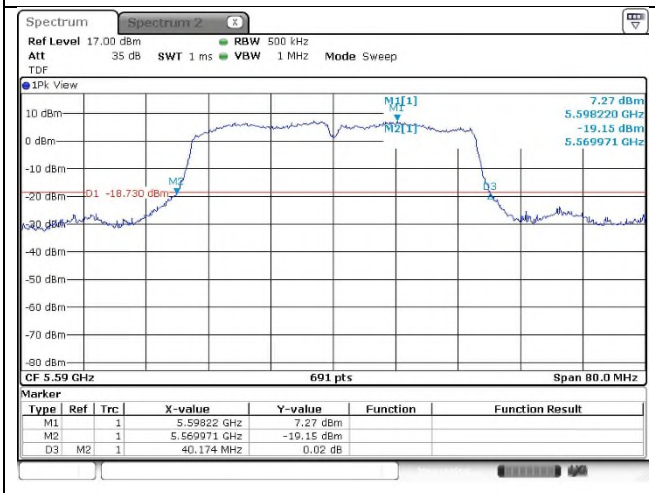
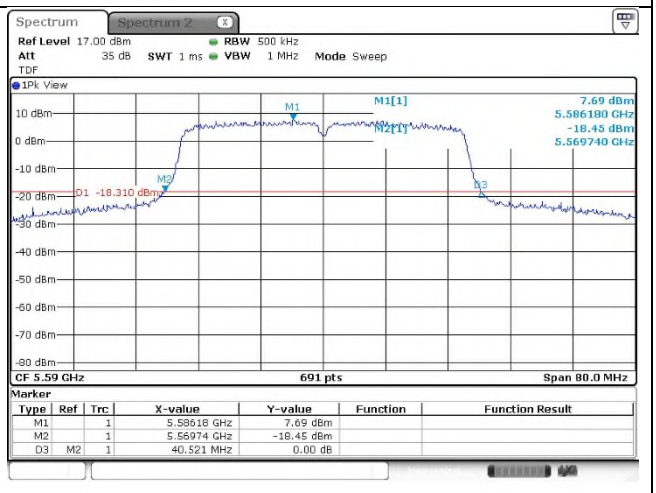
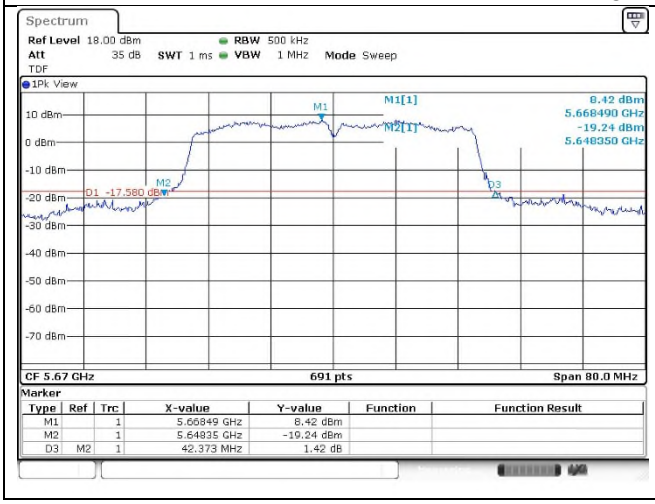
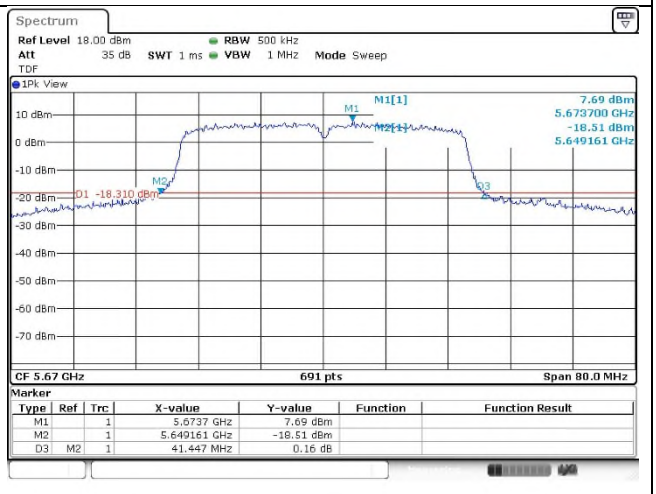
OFDM: 802.11n_HT40 (Band 1)

Ant.1	Ant.2
Low channel	
	
High channel	
	

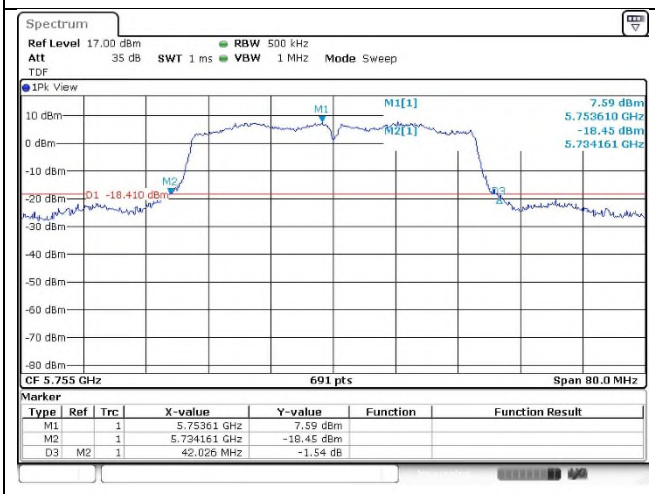
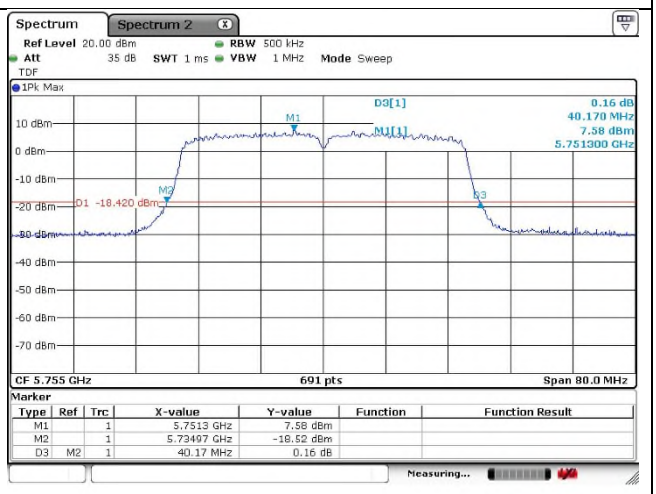
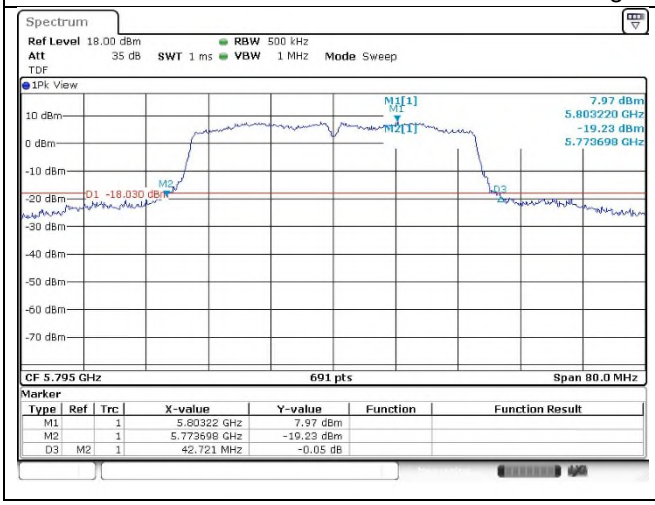
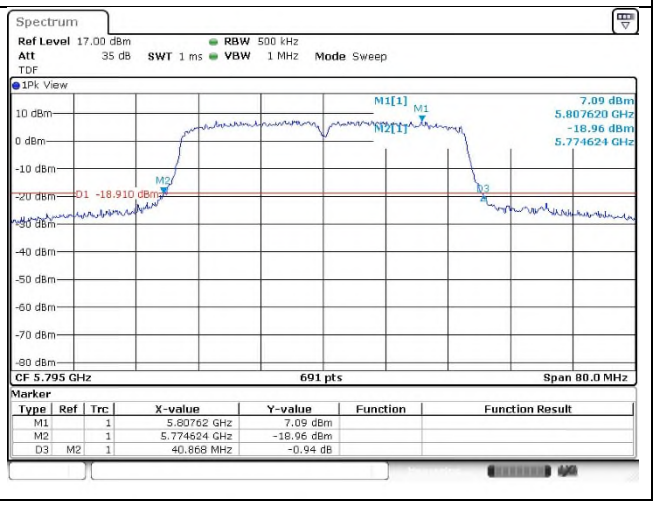
OFDM: 802.11n_HT40 (Band 2A)

Ant.1	Ant.2
Low channel	
	
High channel	
	

OFDM: 802.11n_HT40 (Band 2C)

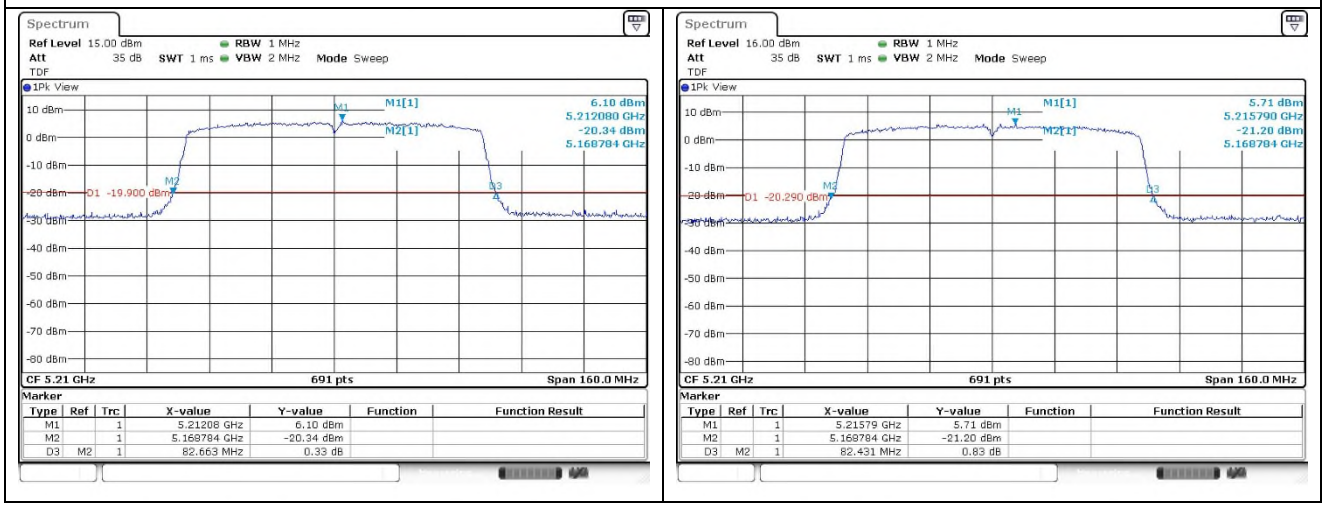
Ant.1	Ant.2
Low channel	
	
Middle channel	
	
High channel	
	

OFDM: 802.11n_HT40 (Band 3)

Ant.1	Ant.2
Low channel	
	
High channel	
	

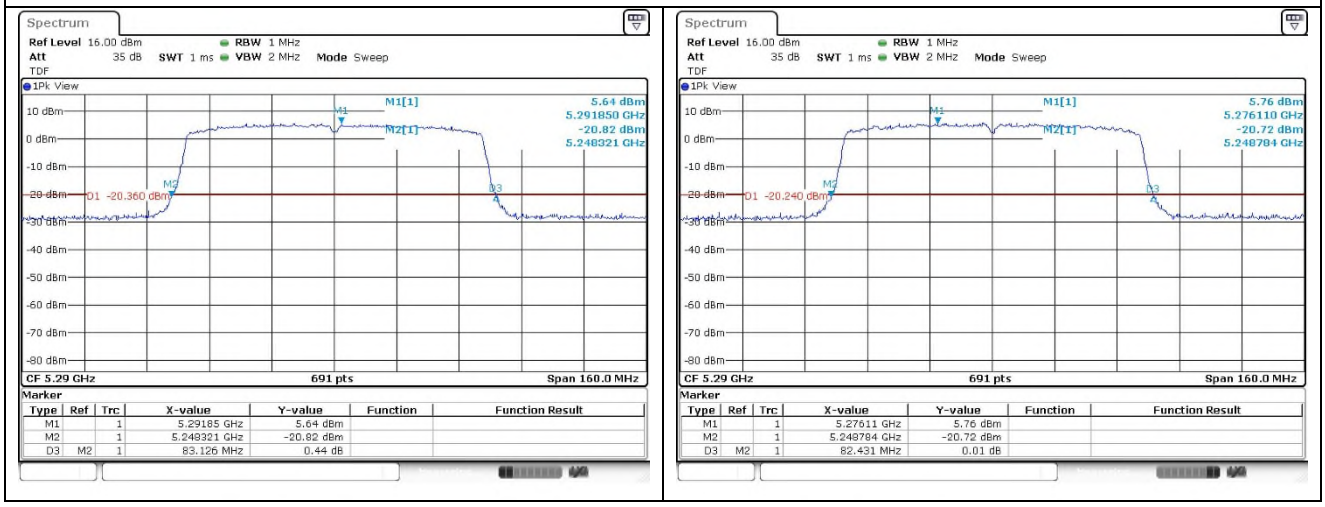
OFDM: 802.11ac_VHT80 (Band 1)

Ant.1	Ant.2
Middle channel	

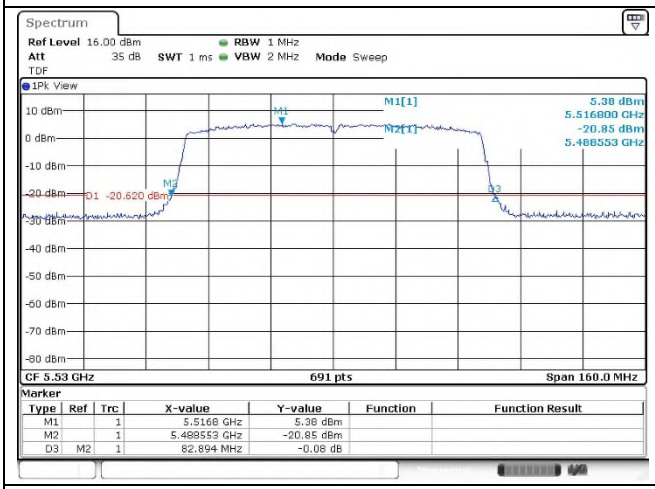
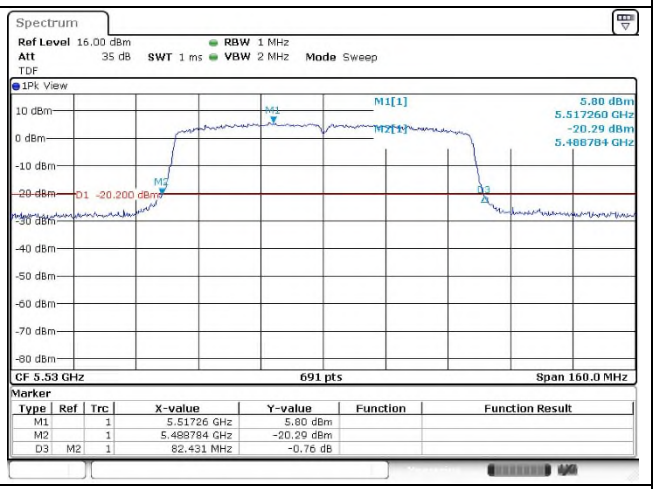
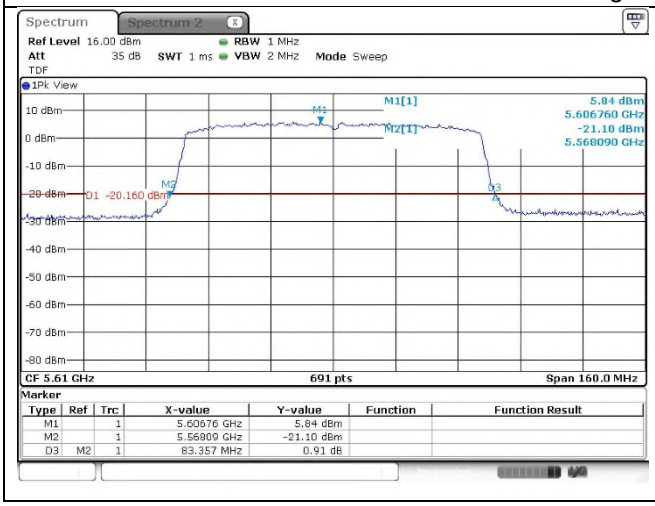
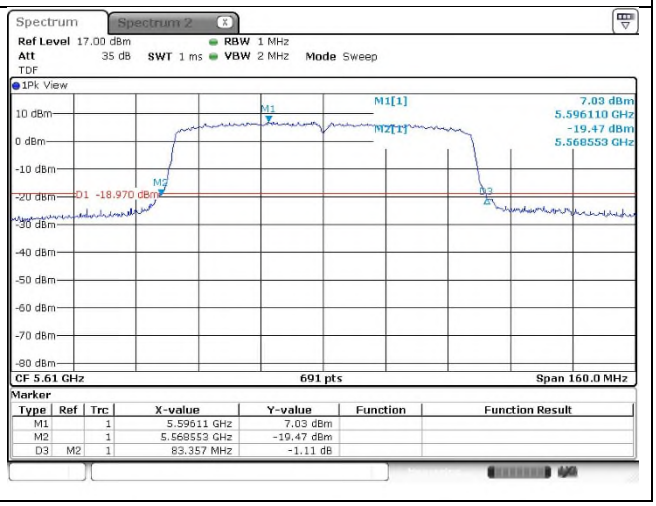


OFDM: 802.11ac_VHT80 (Band 2A)

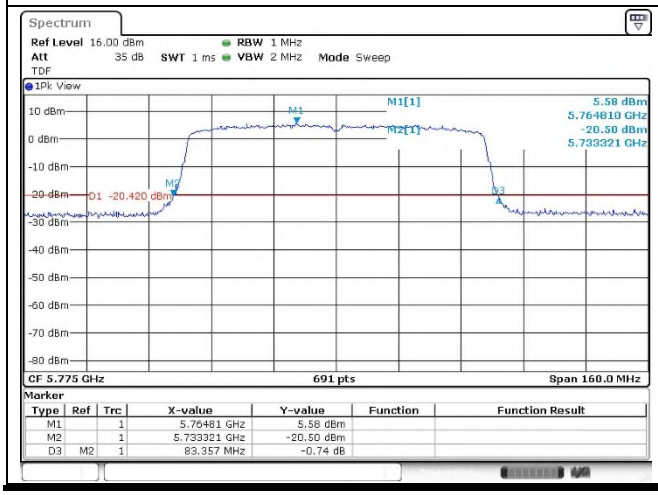
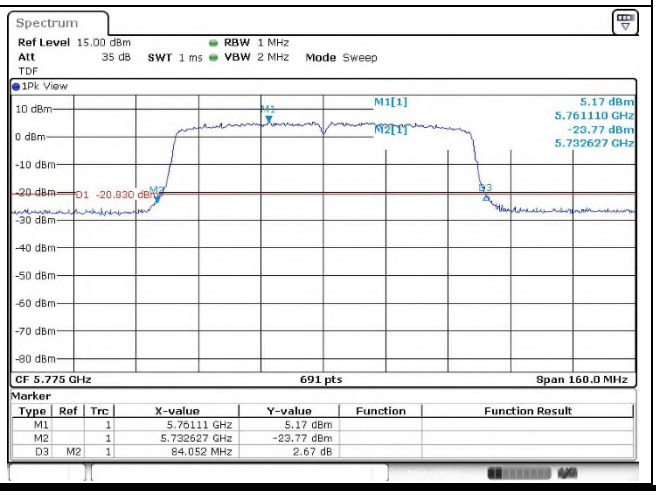
Ant.1	Ant.2
Middle channel	



OFDM: 802.11ac_VHT80 (Band 2C)

Ant.1	Ant.2
Low channel	
	
High channel	
	

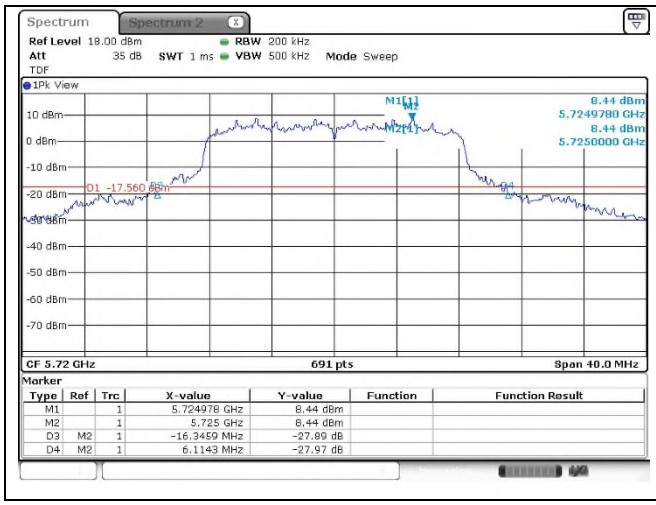
OFDM: 802.11ac_VHT80 (Band 3)

Ant.1	Ant.2
Middle channel	
	

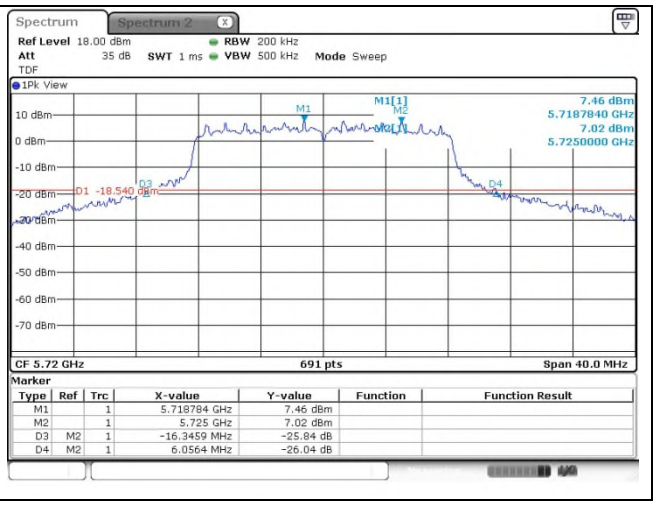
Straddle channels

OFDM: 802.11a

Ant.1

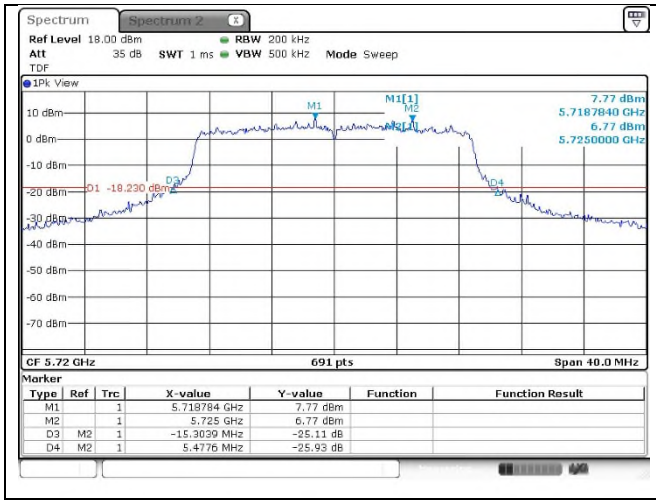


Ant.2

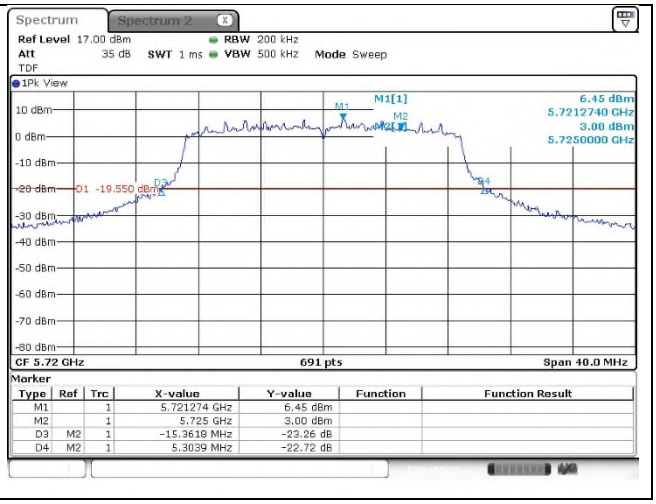


OFDM: 802.11ac_VHT20

Ant.1

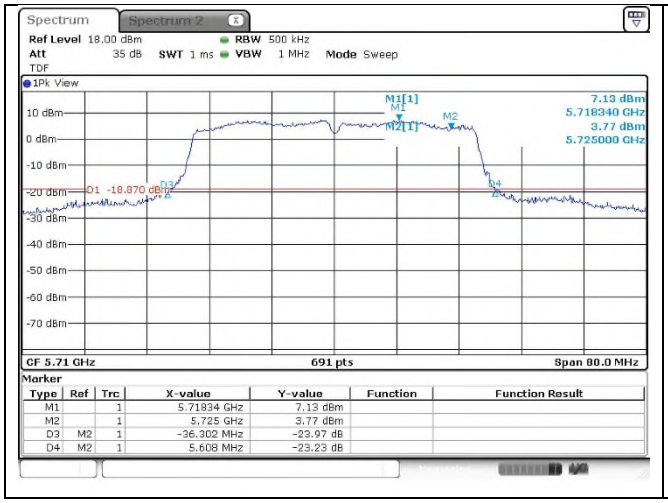


Ant.2

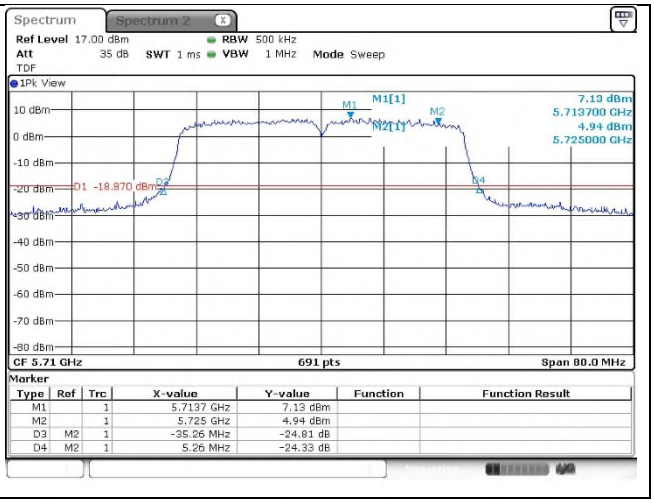


OFDM: 802.11n_HT40

Ant.1

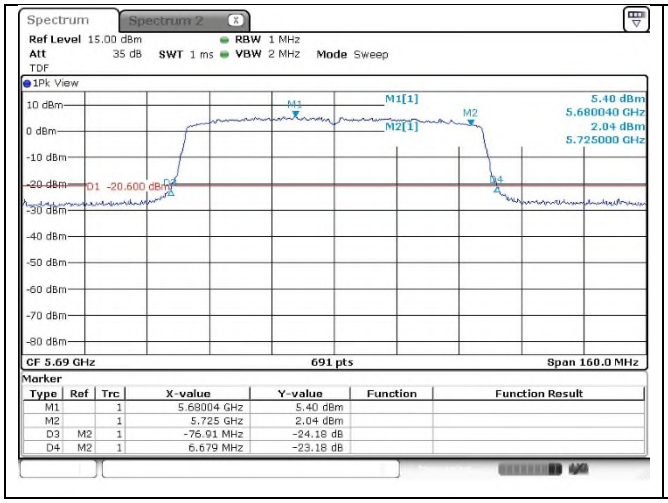


Ant.2

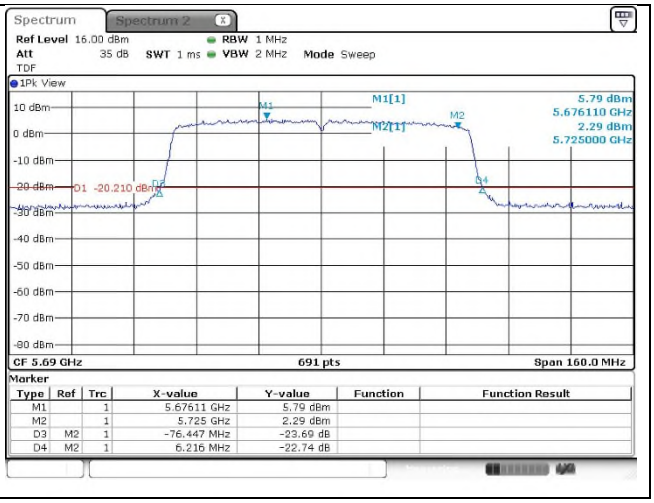


OFDM: 802.11ac_VHT80

Ant.1

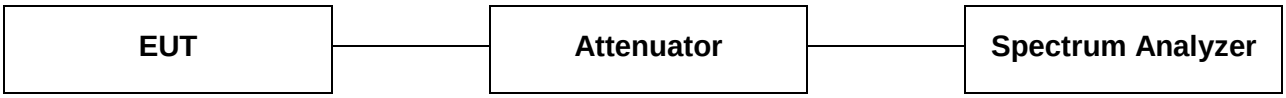


Ant.2



4. 6 dB Bandwidth

4.1. Test Setup



4.2. Limit

According to §15.407(e), within the 5.725-5.85 ㎓ band, the minimum 6 ㏈ bandwidth of U-NII devices shall be at least 500 ㎑.

4.3. Test Procedure

All data rates and modes were investigated for this test. The full data for the worst case data rate are reported in this section.

1. This measurement settings are specified in section Ⅱ.C.2 of KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
2. Set RBW = 100 ㎑.
3. Set the video bandwidth (VBW) ≥ 3 x RBW.
4. Detector = Peak.
5. Trace mode = max hold.
6. Sweep = auto couple.
7. Allow the trace to stabilize.
8. 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 ㏈ relative to the maximum level measured in the fundamental emission.

Remark;

In case of band crossing channels 138, 142 and 144, the measurement is complied with section Ⅲ.A of KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

4.4. Test Result

Ambient temperature : (23 ± 1) ℃
Relative humidity : 47 % R.H.

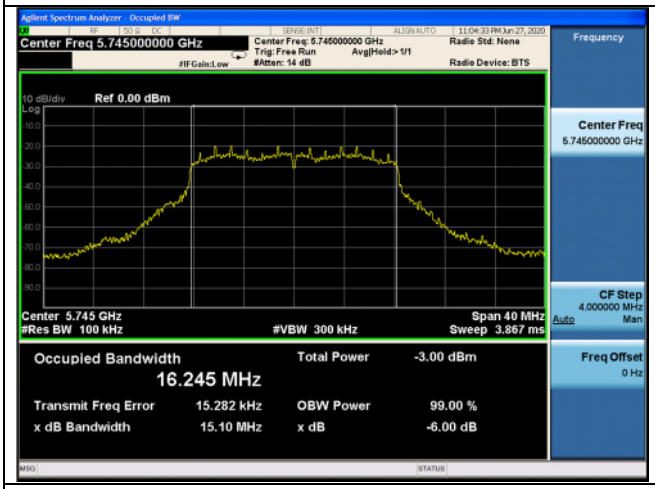
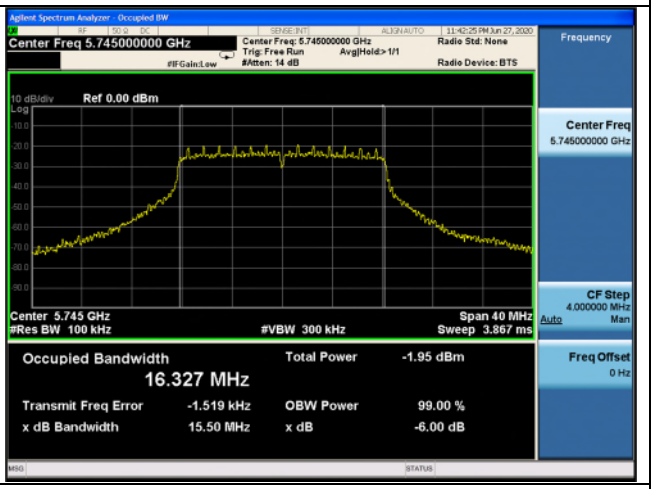
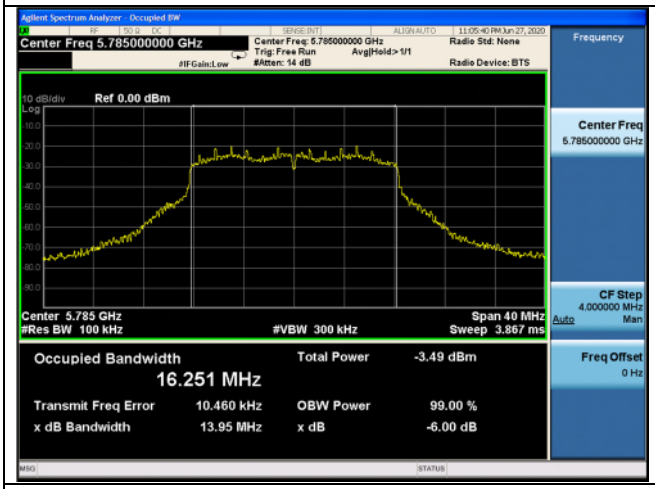
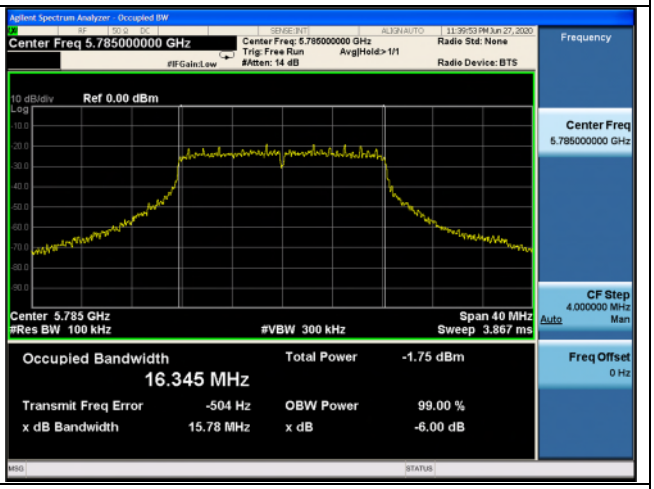
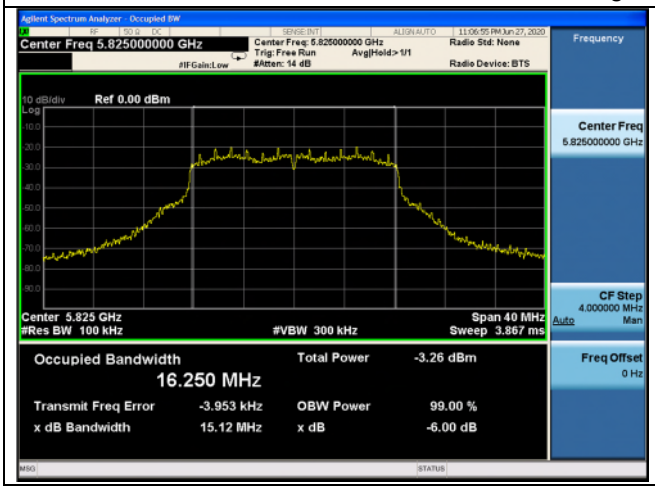
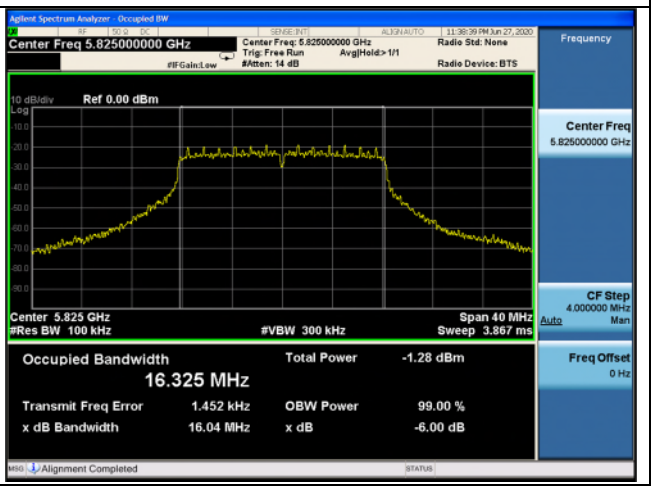
Mode	Band	Data Rate (Mbps)	Channel	Frequency (㎒)	6 ㏈ Bandwidth (㎒)		Minimum Bandwidth (㎑)
					Ant.1	Ant.2	
11a	U-NII 3	6	Low	5 745	15.100	15.500	500
			Middle	5 785	13.950	15.780	
			High	5 825	15.120	16.040	
11ac_VHT20		MCS0	Low	5 745	16.270	16.840	
			Middle	5 785	15.740	16.880	
			High	5 825	14.670	15.760	
11n_HT40		MCS0	Low	5 755	35.090	35.450	
			High	5 795	35.340	35.400	
11ac_VHT80		MCS0	Middle	5 775	71.550	75.120	

- Straddle channels

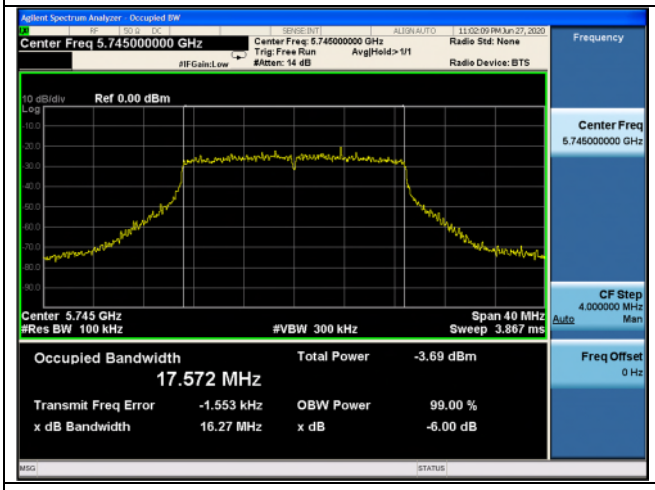
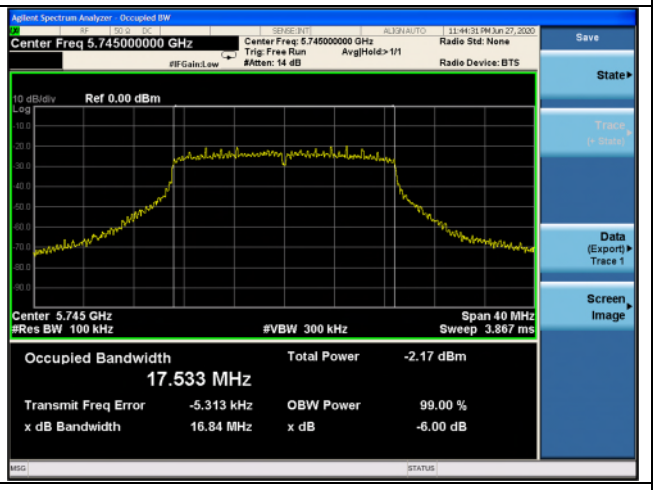
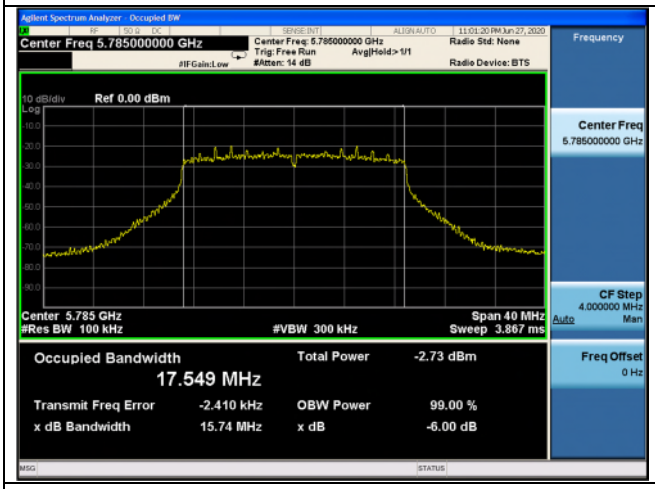
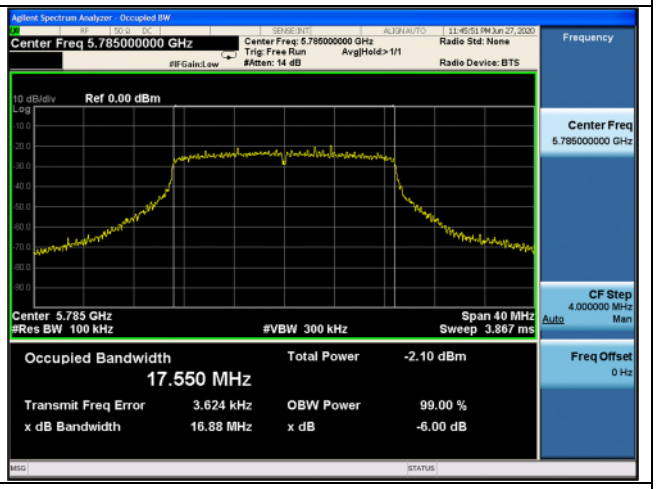
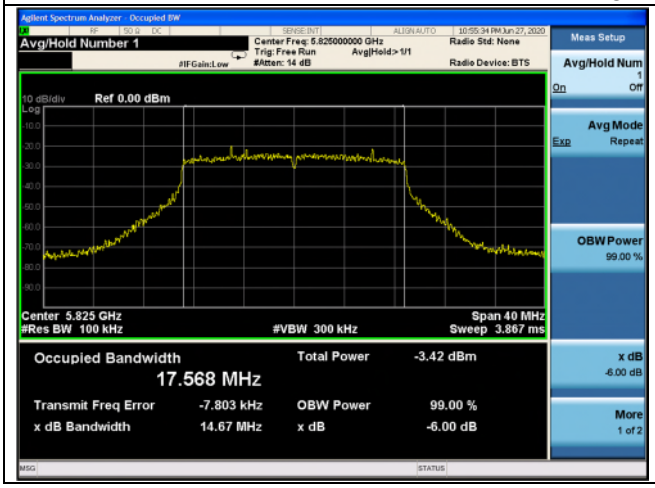
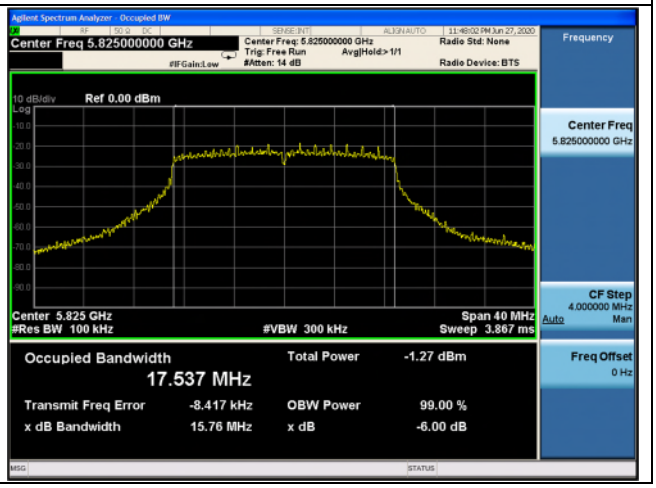
Mode	Band	Data Rate (Mbps)	Channel	Frequency (㎒)	6 ㏈ Bandwidth (㎒)		Minimum Bandwidth (㎑)
					Ant.1	Ant.2	
11a	U-NII 3	6	Straddle	5 720	2.641	3.162	500
11ac_VHT20		MCS0		5 720	2.641	3.220	
11n_HT40		MCS0		5 710	2.713	2.713	
11ac_VHT80		MCS0		5 690	2.742	2.742	

- Test plots

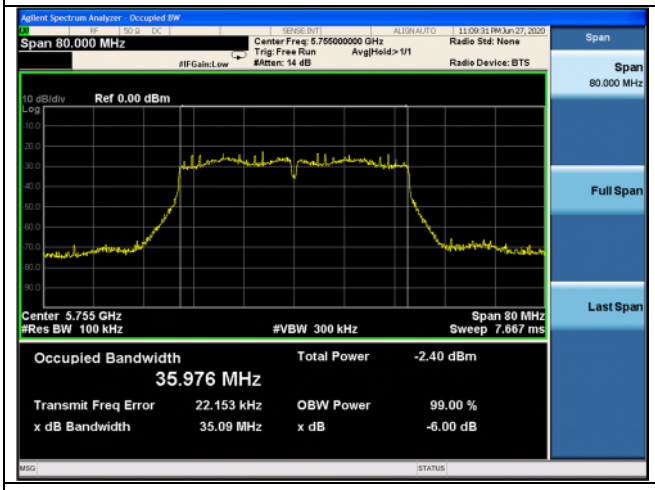
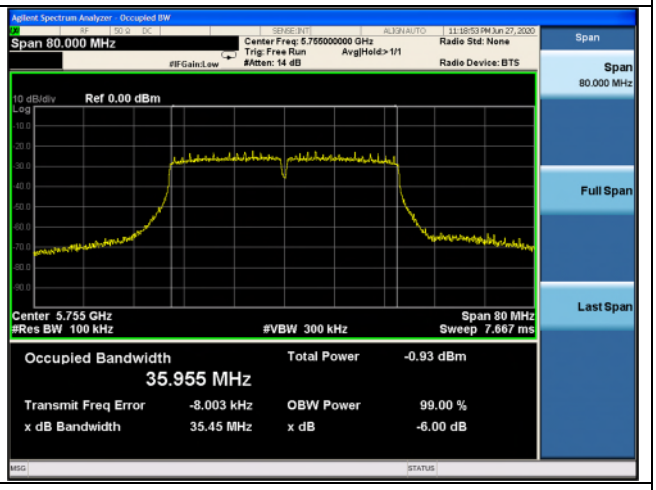
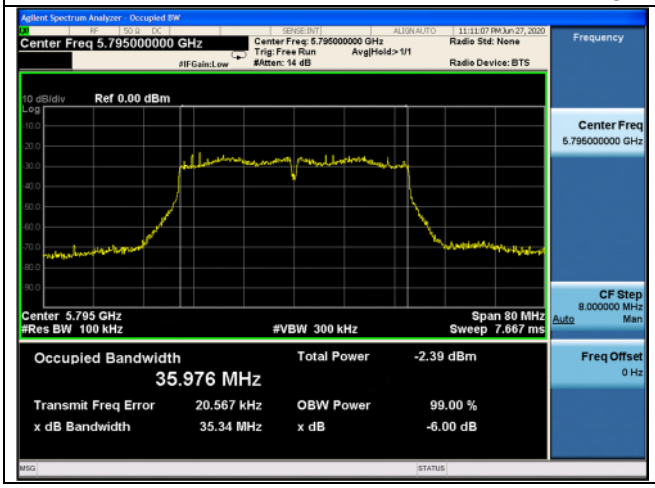
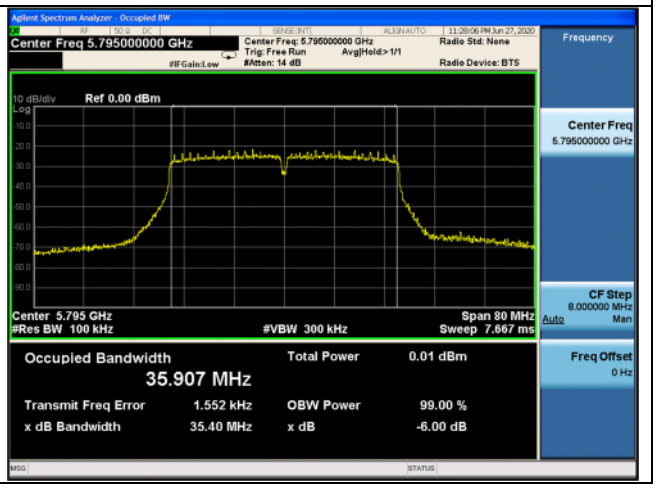
OFDM: 802.11a (Band 3)

Ant.1	Ant.2
Low channel	
	
Middle channel	
	
High channel	
	

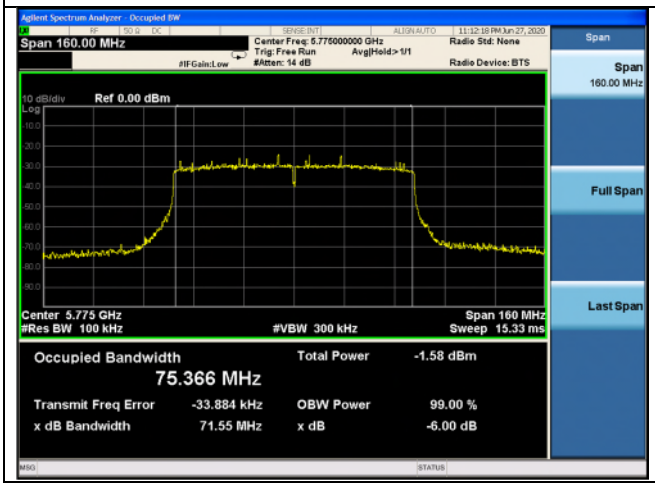
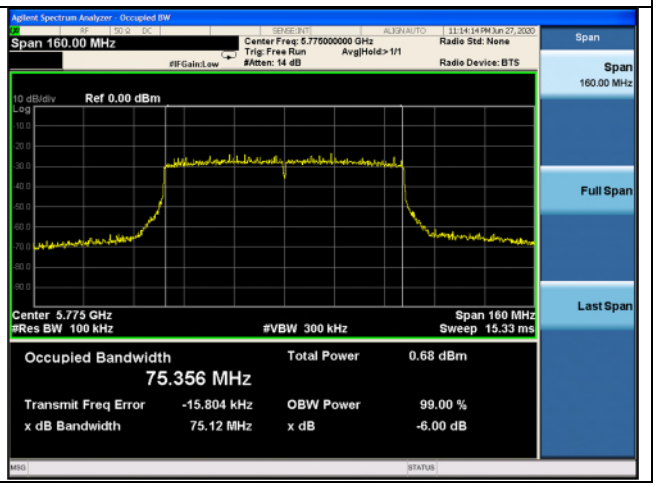
OFDM: 802.11ac_VHT20 (Band 3)

	Ant.1	Ant.2
Low channel		
Middle channel		
High channel		

OFDM: 802.11n_HT40 (Band 3)

Ant.1	Ant.2
Low channel	
	
High channel	
	

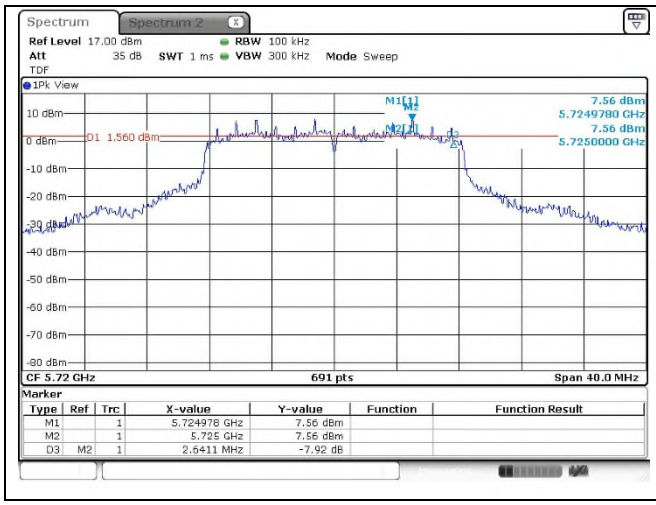
802.11ac_VHT80 (Band 3)

Ant.1	Ant.2
Middle channel	
	

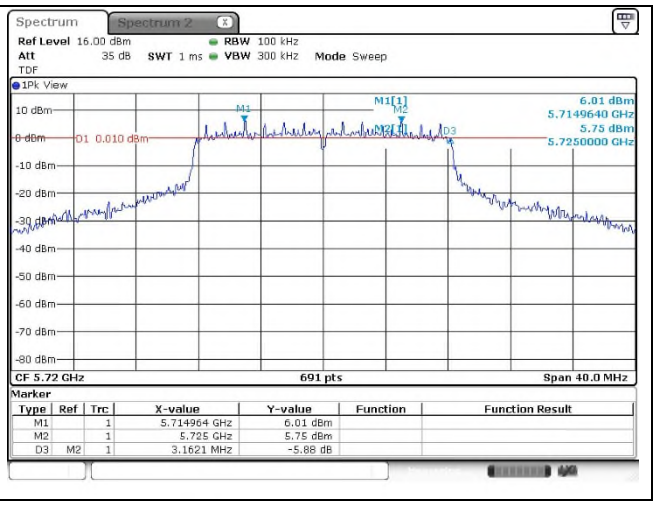
Straddle channels

OFDM: 802.11a

Ant.1

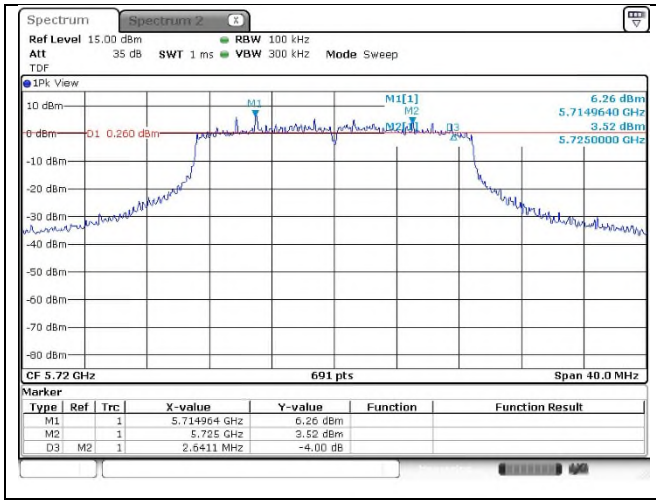


Ant.2

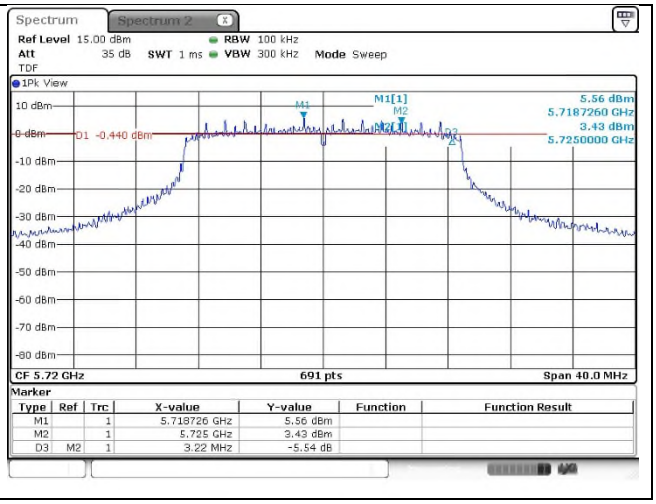


OFDM: 802.11ac_VHT20

Ant.1

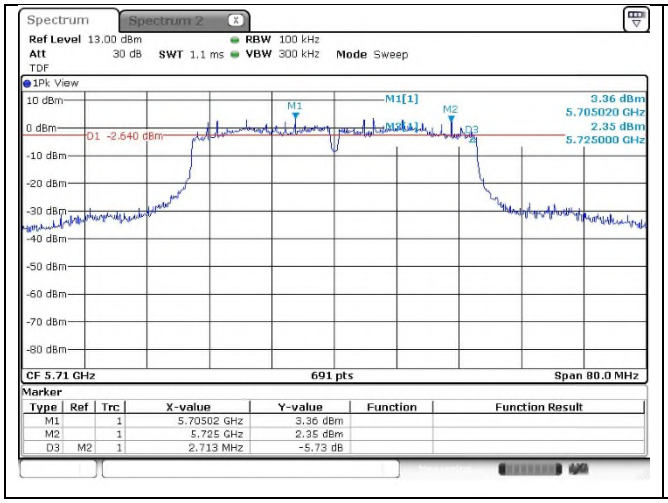


Ant.2

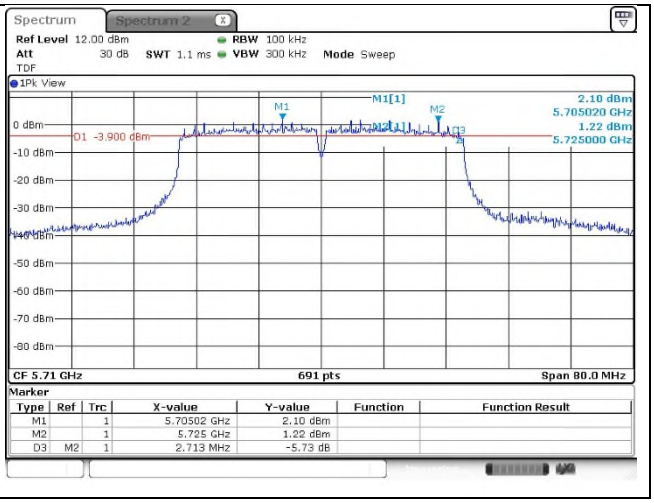


OFDM: 802.11n_HT40

Ant.1

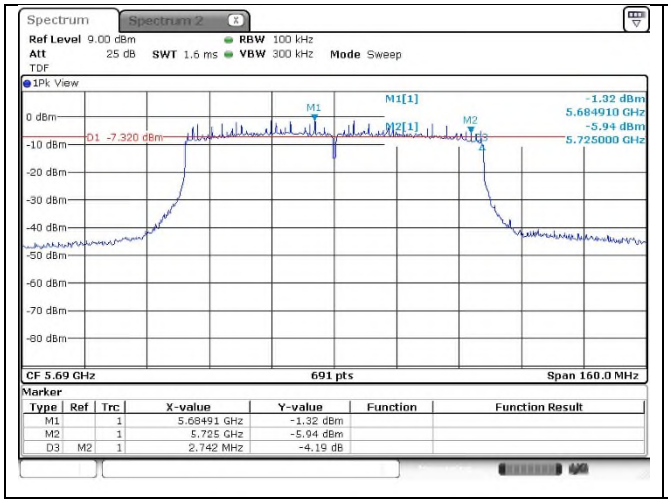


Ant.2

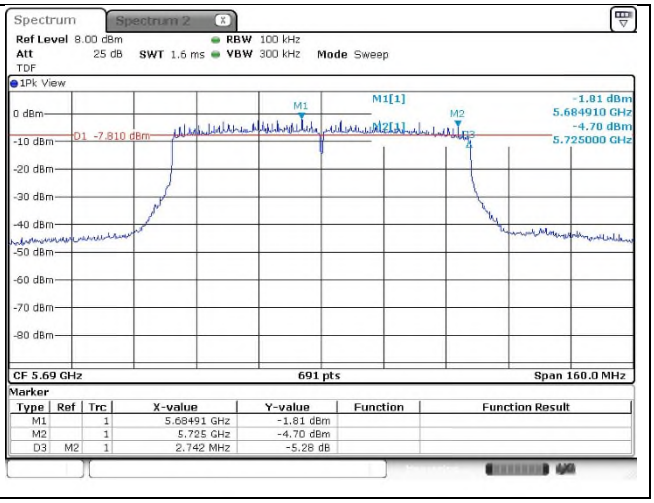


OFDM: 802.11ac_VHT80

Ant.1

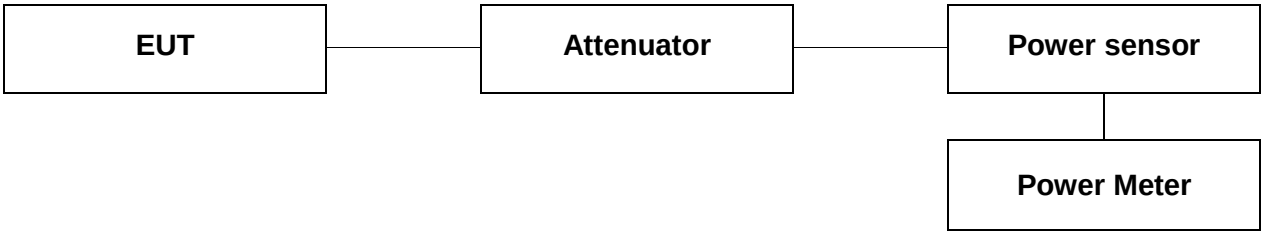


Ant.2



5. Maximum Peak Conducted Output Power

5.1. Test Setup



5.2. Limit

According to 15.407(a)(1)(iv)
For client devices in the 5.15-5.25 ㎓ band, the maximum conducted output power over the frequency band of operation shall not exceed 250 ㎽ provided the maximum antenna gain does not exceed 6 ㏈i. In addition, the maximum power spectral density shall not exceed 11 ㏈m in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 ㏈i are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in ㏈ that the directional gain of the antenna exceeds 6 ㏈i.

According to 15.407(a)(2)
For the 5.25-5.35 ㎓ and 5.47-5.725 ㎓ bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 ㎽ or 11 ㏈m + 10 log B, where B is the 26 ㏈ emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 ㏈m in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 ㏈i are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in ㏈ that the directional gain of the antenna exceeds 6 ㏈i.

According to 15.407(a)(3)
For the band 5.725-5.85 ㎓, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 ㏈m in any 500-㎑ band. If transmitting antennas of directional gain greater than 6 ㏈i are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in ㏈ that the directional gain of the antenna exceeds 6 ㏈i. However, fixed point-to point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 ㏈i without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

5.3. Test Procedure

All data rates and modes were investigated for this test. The full data for the worst case data rate are reported in this section.

1. This measurement settings are specified in section Ⅱ.E.3.a of KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
2. Measurements may be performed using a wideband RF power meter with a thermocouple detector or equivalent if all of the conditions listed below are satisfied:
   - The EUT is configured to transmit continuously or to transmit with a consistent duty cycle.
   - At all times when the EUT is transmitting, it must be transmitting at its maximum power control level.
   - The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a factor of five.
3. If the transmitter does not transmit continuously, measure the duty cycle, x, of the transmitter output signal as described in section II.B.
4. Measure the average power of the transmitter. This measurement is an average over both the on and off periods of the transmitter.
5. Adjust the measurement in dBm by adding 10 log (1/x) where x is the duty cycle (e.g., 10 log (1/0.25) if the duty cycle is 25 %).
6. In case of band crossing channels 138, 142 and 144, the measurement is complied with section Ⅲ.A of KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

5.4. Test Result

Ambient temperature : (23 ± 1) ℃
Relative humidity : 47 % R.H.

Mode	Band	Data Rate (Mbps)	Channel	Frequency (㎒)	Average Power (㏈m)		
					Ant.1	Ant.2	Ant.1 + Ant.2
11a	U-NII 1	6	Low	5 180	17.03	17.45	20.26
			Middle	5 220	17.21	17.37	20.30
			High	5 240	17.19	17.55	20.38
	U-NII 2A		Low	5 260	17.18	17.44	20.32
			Middle	5 300	17.35	17.46	20.42
			High	5 320	17.00	17.57	20.30
	U-NII 2C		Low	5 500	17.25	17.48	20.38
			Middle	5 580	17.14	18.05	20.63
			High	5 700	16.72	17.23	19.99
	U-NII 3		Low	5 745	17.07	17.70	20.41
			Middle	5 785	17.44	17.86	20.67
			High	5 825	17.41	17.78	20.61

Band	FCC Limit					
	Frequency (㎒)	Fixed Limit (dB m)	26 dB BW (㎒)	11+10LogB (dB m)	Antenna Gain (dB i)	Limit (dB m)
U-NII 1	5 180	23.98			-3.68	23.98
	5 220					
	5 240					
U-NII 2A	5 260		20.608	24.14	-3.01	
	5 300		20.550	24.13		
	5 320		20.550	24.13		
U-NII 2C	5 500		20.492	24.12	-2.44	
	5 580		20.220	24.06		
	5 700		21.823	24.39		
U-NII 3	5 745	30			-2.93	30
	5 785					
	5 825					

Remark;

1. According to KDB 662911, Average power of each port and antenna gain was combined by using below calculation.

   - Average power: 10 log {10^(Ant.1 power / 10)+10^(Ant.2 power / 10)}

   - Unequal antenna gains, with equal transmit powers. For antenna gains given by G_1, G_2, …, G_N dB i
   (i) If transmit signals are correlated, then
   Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/N_{ANT}$] dB i [Note the “20”s in the denominator of each exponent and the square of the sum of terms; the object is to combine the signal levels coherently.]

Mode	Band	Data Rate (Mbps)	Channel	Frequency (㎒)	Average Power (㏈m)		
					Ant.1	Ant.2	Ant.1 + Ant.2
11ac_VHT20	U-NII 1	MCS0	Low	5 180	15.80	16.58	19.22
			Middle	5 220	15.82	16.54	19.21
			High	5 240	15.86	16.68	19.30
	U-NII 2A		Low	5 260	15.90	16.60	19.27
			Middle	5 300	16.00	16.72	19.39
			High	5 320	15.75	16.63	19.22
	U-NII 2C		Low	5 500	15.90	16.26	19.09
			Middle	5 580	15.78	16.90	19.39
			High	5 700	15.58	16.13	18.87
	U-NII 3		Low	5 745	16.03	16.56	19.31
			Middle	5 785	16.39	16.58	19.50
			High	5 825	16.33	16.63	19.49

Band	FCC Limit					
	Frequency (㎒)	Fixed Limit (㏈m)	26 ㏈ BW (㎒)	11+10LogB (㏈m)	Antenna Gain (㏈i)	Limit (㏈m)
U-NII 1	5 180	23.98			-3.68	23.98
	5 220					
	5 240					
U-NII 2A	5 260		20.029	24.02	-3.01	
	5 300		20.839	24.19		
	5 320		20.434	24.10		
U-NII 2C	5 500		20.839	24.19	-2.44	
	5 580		21.187	24.26		
	5 700		20.955	24.21		
U-NII 3	5 745	30			-2.93	30
	5 785					
	5 825					

Remark;

1. According to KDB 662911, Average power of each port and antenna gain was combined by using below calculation.

   - Average power: 10 log {10^(Ant.1 power / 10)+10^(Ant.2 power / 10)}

   - Unequal antenna gains, with equal transmit powers. For antenna gains given by G_1, G_2, …, G_N ㏈i
   (i) If transmit signals are correlated, then
   Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/N_{ANT}$] ㏈i [Note the “20”s in the denominator of each exponent and the square of the sum of terms; the object is to combine the signal levels coherently.]

Mode	Band	Data Rate (Mbps)	Channel	Frequency (㎒)	Average Power (㏈m)		
					Ant.1	Ant.2	Ant.1 + Ant.2
11n_HT40	U-NII 1	MCS0	Low	5 190	12.20	13.03	15.65
			High	5 230	16.27	16.71	19.51
	U-NII 2A		Low	5 270	16.27	16.71	19.51
			High	5 310	12.29	12.51	15.41
	U-NII 2C		Low	5 510	16.18	17.01	19.63
			Middle	5 590	16.23	16.89	19.58
			High	5 670	16.40	16.80	19.61
	U-NII 3		Low	5 755	15.85	17.55	19.79
			High	5 795	16.36	16.64	19.51

Band	FCC Limit					
	Frequency (㎒)	Fixed Limit (㏈m)	26 ㏈ BW (㎒)	11+10LogB (㏈m)	Antenna Gain (㏈i)	Limit (㏈m)
U-NII 1	5 190	23.98			-3.68	23.98
	5 230					
U-NII 2A	5 270		40.289	27.05	-3.01	
	5 310		40.405	27.06		
U-NII 2C	5 510		40.521	27.08	-2.44	
	5 590		40.174	27.04		
	5 670		41.447	27.17		
U-NII 3	5 755	30			-2.93	30
	5 795					

Remark;

1. According to KDB 662911, Average power of each port and antenna gain was combined by using below calculation.

   - Average power: 10 log {10^(Ant.1 power / 10)+10^(Ant.2 power / 10)}

   - Unequal antenna gains, with equal transmit powers. For antenna gains given by G_1, G_2, …, G_N ㏈i
   (i) If transmit signals are correlated, then
   Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/N_{ANT}$] ㏈i [Note the “20”s in the denominator of each exponent and the square of the sum of terms; the object is to combine the signal levels coherently.]

Mode	Band	Data Rate (Mbps)	Channel	Frequency (㎒)	Average Power (㏈m)		
					Ant.1	Ant.2	Ant.1 + Ant.2
11ac_VHT80	U-NII 1	MCS0	Middle	5 210	12.24	12.72	15.50
	U-NII 2A		Middle	5 290	11.85	12.42	15.15
	U-NII 2C		Low	5 530	13.08	13.93	16.54
			High	5 610	12.83	13.85	16.38
	U-NII 3		Middle	5 775	13.24	13.79	16.53

Band	FCC Limit					
	Frequency (㎒)	Fixed Limit (㏈m)	26 ㏈ BW (㎒)	11+10LogB (㏈m)	Antenna Gain (㏈i)	Limit (㏈m)
U-NII 1	5 210	23.98			-3.68	23.98
U-NII 2A	5 290		82.431	30.16	-3.01	
U-NII 2C	5 530		82.431	30.16	-2.44	
	5 610		83.357	30.21		
U-NII 3	5 775	30			-2.93	30

Remark;

1. According to KDB 662911, Average power of each port and antenna gain was combined by using below calculation.

   - Average power: 10 log {10^(Ant.1 power / 10)+10^(Ant.2 power / 10)}

   - Unequal antenna gains, with equal transmit powers. For antenna gains given by G_1, G_2, …, G_N ㏈i
   (i) If transmit signals are correlated, then
   Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/N_{ANT}$] ㏈i [Note the “20”s in the denominator of each exponent and the square of the sum of terms; the object is to combine the signal levels coherently.]

- Straddle channels

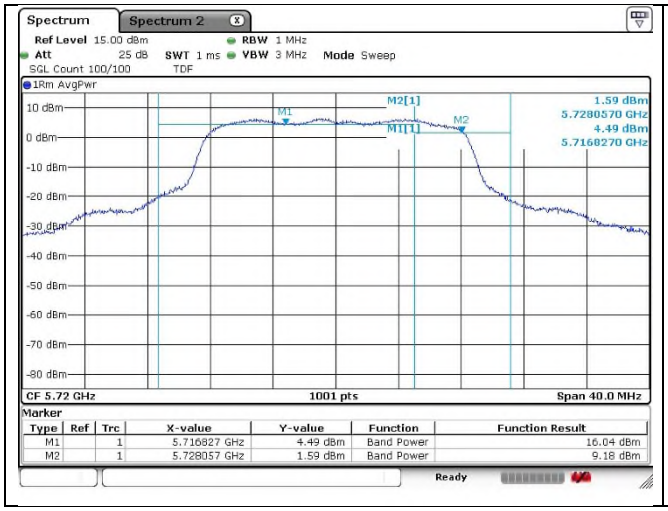
Mode	Band	Frequency (㎒)	Data Rate (Mbps)	Average Power (㏈m)		
				Ant.1	Ant.2	Ant.1 + Ant.2
11a	U-NII 2C	5 720	6	16.04	15.48	18.78
	U-NII 3			9.18	8.83	12.02
11ac_VHT20	U-NII 2C	5 720	MCS0	14.84	14.34	17.61
	U-NII 3			8.59	8.18	11.40
11n_HT40	U-NII 2C	5 710	MCS0	15.54	14.70	18.15
	U-NII 3			4.46	3.60	7.06
11ac_VHT80	U-NII 2C	5 690	MCS0	13.26	13.22	16.25
	U-NII 3			-1.97	-1.89	1.08

Mode	Band	Limit					
		Frequency (㎒)	Fixed Limit (㏈m)	26 ㏈ BW (㎒)	11+10LogB (㏈m)	Antenna Gain (㏈i)	Limit (㏈m)
11a	U-NII 2C	5 720	23.98	16.346	23.13	-2.44	23.13
	U-NII 3		30			-2.93	30
11ac_VHT20	U-NII 2C	5 720	23.98	15.304	22.85	-2.44	22.85
	U-NII 3		30			-2.93	30
11n_HT40	U-NII 2C	5 710	23.98	35.260	26.47	-2.44	23.98
	U-NII 3		30			-2.93	30
11ac_VHT80	U-NII 2C	5 690	23.98	76.447	29.83	-2.44	23.98
	U-NII 3		30			-2.93	30

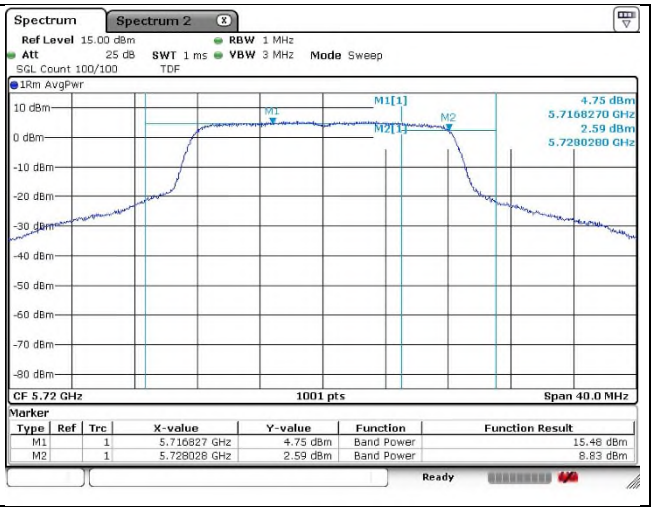
- Test plots (Straddle channels)

OFDM: 802.11a

Ant.1

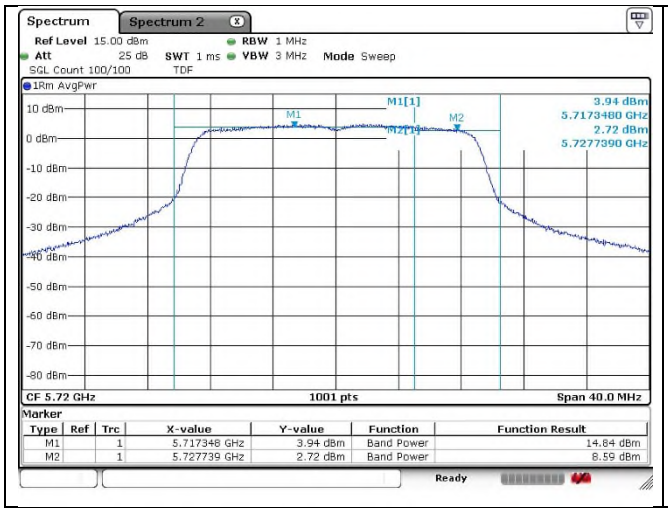


Ant.2

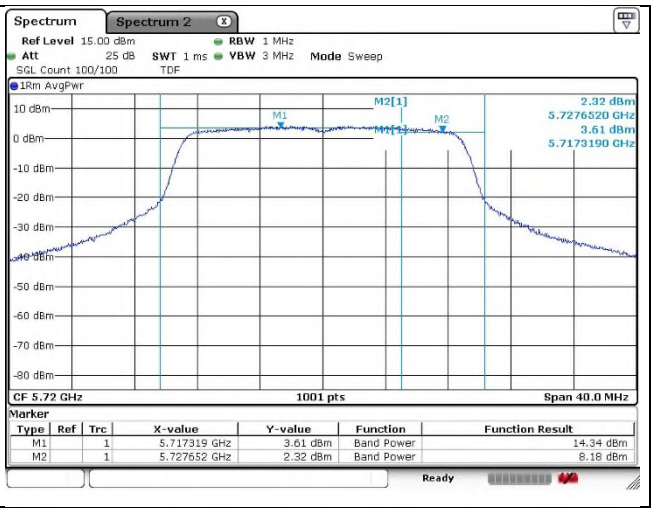


OFDM: 802.11ac_VHT20

Ant.1

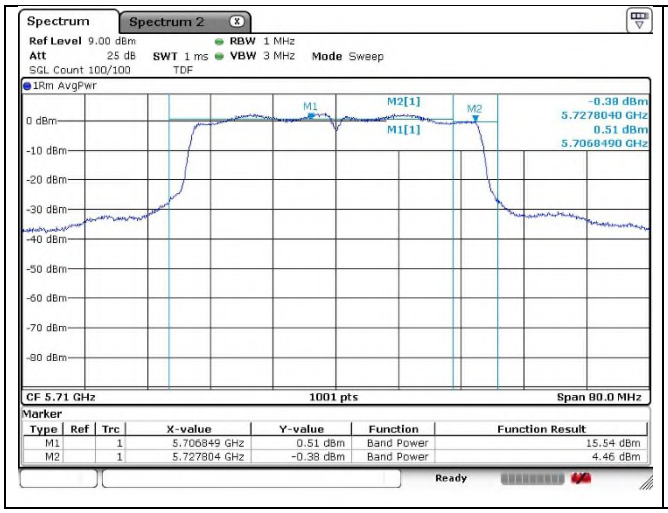


Ant.2

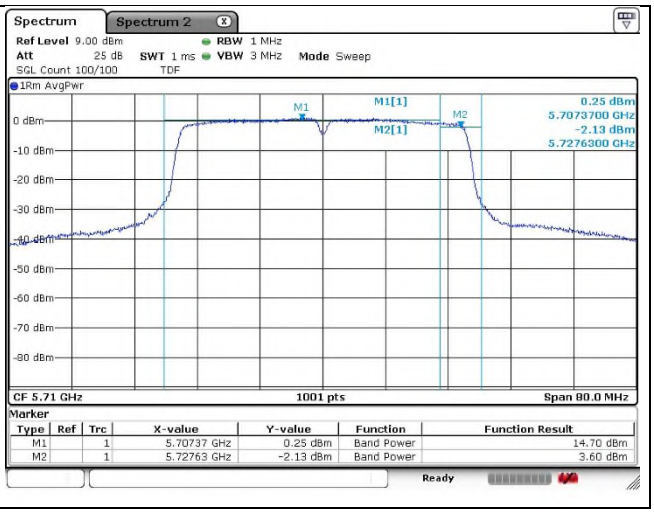


OFDM: 802.11n_HT40

Ant.1

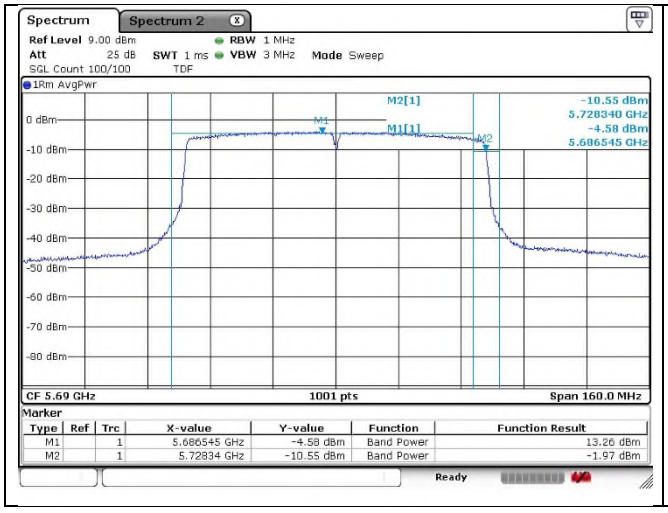


Ant.2

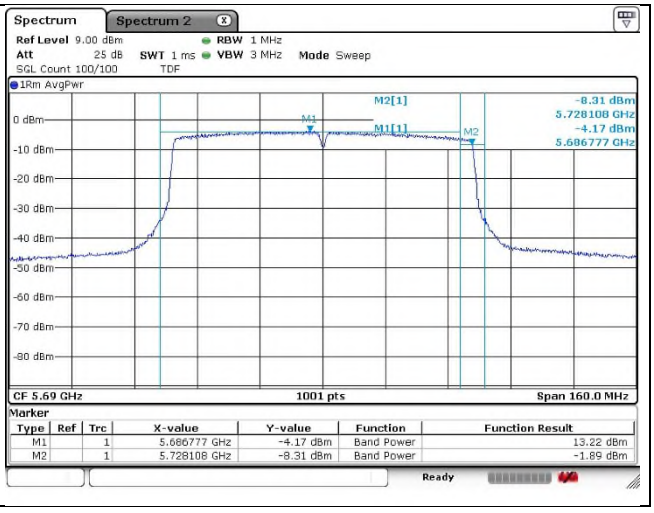


OFDM: 802.11ac_VHT80

Ant.1

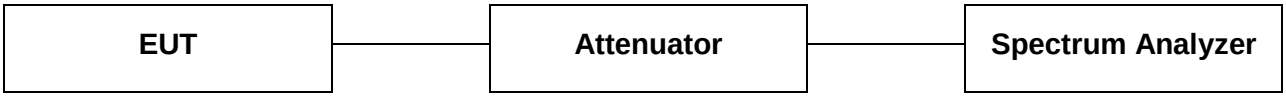


Ant.2



6. Power Spectral Density

6.1. Test Setup



6.2. Limit

According to 15.407(a)(1)(iv)
For client devices in the 5.15-5.25 ㎓ band, the maximum conducted output power over the frequency band of operation shall not exceed 250 ㎽ provided the maximum antenna gain does not exceed 6 ㏈i. In addition, the maximum power spectral density shall not exceed 11 ㏈m in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 ㏈i are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in ㏈ that the directional gain of the antenna exceeds 6 ㏈i.

According to 15.407(a)(2)
For the 5.25-5.35 ㎓ and 5.47-5.725 ㎓ bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 ㎽ or 11 ㏈m + 10 log B, where B is the 26 ㏈ emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 ㏈m in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 ㏈i are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in ㏈ that the directional gain of the antenna exceeds 6 ㏈i.

According to 15.407(a)(3)
For the band 5.725-5.85 ㎓, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 ㏈m in any 500-㎑ band. If transmitting antennas of directional gain greater than 6 ㏈i are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in ㏈ that the directional gain of the antenna exceeds 6 ㏈i. However, fixed point-to point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 ㏈i without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

6.3. Test Procedure

All data rates and modes were investigated for this test. The full data for the worst case data rate are reported in this section.

1. This measurement settings are specified in section Ⅱ.F of KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

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

3. Use the peak search function on the instrument to find the peak of the spectrum and record its value.

4. Make the following adjustments to the peak value of the spectrum, if applicable:

   a) **If Method SA-2 or SA-2 Alternative was used, add 10 log(1/x), where x is the duty cycle, to the peak of the spectrum.**
   b) If Method SA-3 Alternative was used and the linear mode was used in step II.E.2.g)(viii), add 1 ㏈ to the final result to compensate for the difference between linear averaging and power averaging.

5. The result is the Maximum PSD over 1 ㎒ reference bandwidth.

6. For devices operating in the bands 5.15-5.25 ㎓, 5.25-5.35 ㎓, and 5.47-5.725 ㎓, the above procedures make use of 1 ㎒ RBW to satisfy directly the 1 ㎒ reference bandwidth specified in § 15.407(a)(5). For devices operating in the band 5.725-5.85 ㎓, the rules specify a measurement bandwidth of 500 ㎑. Many spectrum analyzers do not have 500 ㎑ RBW, thus a narrower RBW may need to be used. The rules permit the use of a RBWs less than 1 ㎒, or 500 ㎑, “provided that the measured power is integrated over the full reference bandwidth” to show the total power over the specified measurement bandwidth (*i.e.,* 1 ㎒, or 500 ㎑). If measurements are performed using a reduced resolution bandwidth (< 1 ㎒, or < 500 ㎑) and integrated over 1 ㎒, or 500 ㎑ bandwidth, the following adjustments to the procedures apply:

   a) Set RBW ≥ 1/*T*, where *T* is defined in section II.B.1.a).
   b) Set VBW ≥ 3 RBW.
   c) If measurement bandwidth of Maximum PSD is specified in 500 ㎑, add 10 log(500 ㎑/RBW) to the measured result, whereas RBW (< 500 ㎑) is the reduced resolution bandwidth of the spectrum analyzer set during measurement.
   d) If measurement bandwidth of Maximum PSD is specified in 1 ㎒, add 10 log(1 ㎒/RBW) to the measured result, whereas RBW (< 1 ㎒) is the reduced resolution bandwidth of spectrum analyzer set during measurement.
   e) Care must be taken to ensure that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.

7. In case of band crossing channels 138, 142 and 144, the measurement is complied with section Ⅲ.A of KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

6.4. Test Result

Ambient temperature : (23 ± 1) ℃
Relative humidity : 47 % R.H.

11a

Band	Data Rate (Mbps)	Channel	Frequency (㎒)	PSD (㏈m)			Limit (㏈m/1 ㎒)
				Ant.1	Ant.2	Ant.1 + Ant.2	
U-NII 1	6	Low	5 180	6.67	6.12	9.41	11
		Middle	5 220	6.83	6.05	9.47	
		High	5 240	6.60	6.23	9.43	
U-NII 2A		Low	5 260	6.75	6.16	9.48	
		Middle	5 300	6.59	6.12	9.37	
		High	5 320	6.68	6.14	9.43	
U-NII 2C		Low	5 500	6.87	5.63	9.30	
		Middle	5 580	6.82	6.18	9.52	
		High	5 700	6.31	5.18	8.79	
Band	**Data Rate (Mbps)**	**Channel**	**Frequency (㎒)**	**PSD (㏈m)**			**Limit (㏈m/500 ㎑)**
				Ant.1	**Ant.2**	**Ant.1 + Ant.2**	
U-NII 3	6	Low	5 745	4.03	2.91	6.52	30
		Middle	5 785	4.21	3.29	6.78	
		High	5 825	4.36	3.05	6.76	

Remark;

1. According to KDB 662911, PSD of each port was combined by using below calculation.

   - PSD: 10 log {10^(Ant.1 PSD / 10)+10^(Ant.2 PSD / 10)}

11ac_VHT20

Band	Data Rate (Mbps)	Channel	Frequency (㎒)	PSD (㏈m)			Limit (㏈m/1 ㎒)
				Ant.1	Ant.2	Ant.1 + Ant.2	
U-NII 1	MCS0	Low	5 180	4.84	4.92	7.89	11
		Middle	5 220	5.13	4.50	7.84	
		High	5 240	5.08	5.04	8.07	
U-NII 2A		Low	5 260	5.06	4.82	7.95	
		Middle	5 300	5.20	4.77	8.00	
		High	5 320	4.77	4.81	7.80	
U-NII 2C		Low	5 500	5.04	4.13	7.62	
		Middle	5 580	4.94	4.70	7.83	
		High	5 700	4.62	3.83	7.25	
Band	**Data Rate (Mbps)**	**Channel**	**Frequency (㎒)**	**PSD (㏈m)**			**Limit (㏈m/500 ㎑)**
				Ant.1	**Ant.2**	**Ant.1 + Ant.2**	
U-NII 3	MCS0	Low	5 745	2.34	1.66	5.02	30
		Middle	5 785	2.46	1.74	5.13	
		High	5 825	2.43	1.70	5.09	

Remark;

1. According to KDB 662911, PSD of each port was combined by using below calculation.

   - PSD: 10 log {10^(Ant.1 PSD / 10)+10^(Ant.2 PSD / 10)}

11n_HT40

Band	Data Rate (Mbps)	Channel	Frequency (㎒)	PSD (㏈ m)			Limit (㏈ m/1 ㎒)
				Ant.1	Ant.2	Ant.1 + Ant.2	
U-NII 1	MCS0	Low	5 190	-1.35	-1.33	1.67	11
		High	5 230	3.09	1.96	5.57	
U-NII 2A		Low	5 270	2.90	1.83	5.41	
		High	5 310	-1.82	-2.10	1.05	
U-NII 2C		Low	5 510	2.76	2.07	5.44	
		Middle	5 590	2.13	1.79	4.97	
		High	5 670	2.92	1.49	5.27	
Band	**Data Rate (Mbps)**	**Channel**	**Frequency (㎒)**	**PSD (㏈ m)**			**Limit (㏈ m/500 ㎑)**
				Ant.1	**Ant.2**	**Ant.1 + Ant.2**	
U-NII 3	MCS0	Low	5 755	-0.33	-0.34	2.68	30
		High	5 795	-0.22	-1.31	2.28	

Remark;

1. According to KDB 662911, PSD of each port was combined by using below calculation.

   - PSD: 10 log {10^(Ant.1 PSD / 10)+10^(Ant.2 PSD / 10)}

11ac_VHT80

Band	Data Rate (Mbps)	Channel	Frequency (㎒)	PSD (㏈ m)			Limit (㏈ m/1 ㎒)
				Ant.1	Ant.2	Ant.1 + Ant.2	
U-NII 1	MCS0	Middle	5 210	-3.80	-3.26	-0.51	11
U-NII 2A		Middle	5 290	-3.81	-3.10	-0.43	
U-NII 2C		Low	5 530	-4.77	-4.43	-1.59	
		High	5 610	-3.75	-2.53	-0.09	
Band	**Data Rate (Mbps)**	**Channel**	**Frequency (㎒)**	**PSD (㏈ m)**			**Limit (㏈ m/500 ㎑)**
				Ant.1	**Ant.2**	**Ant.1 + Ant.2**	
U-NII 3	MCS0	Middle	5 775	-6.55	-7.31	-3.90	30

Remark;

1. According to KDB 662911, PSD of each port was combined by using below calculation.

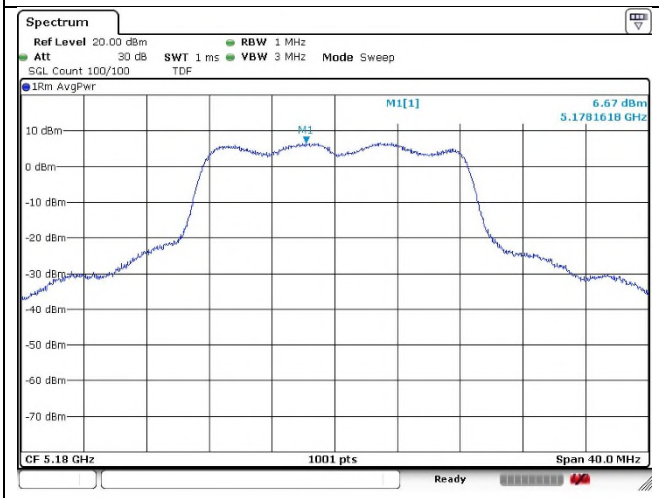
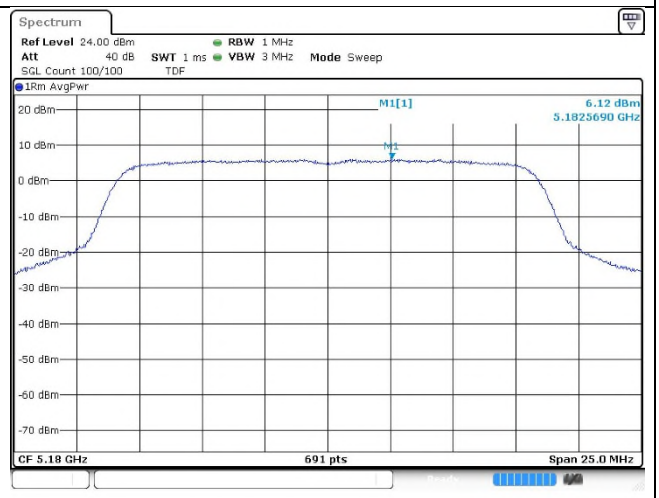
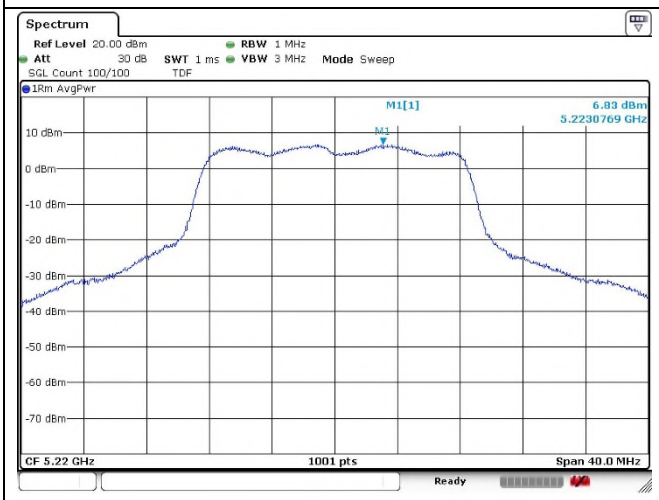
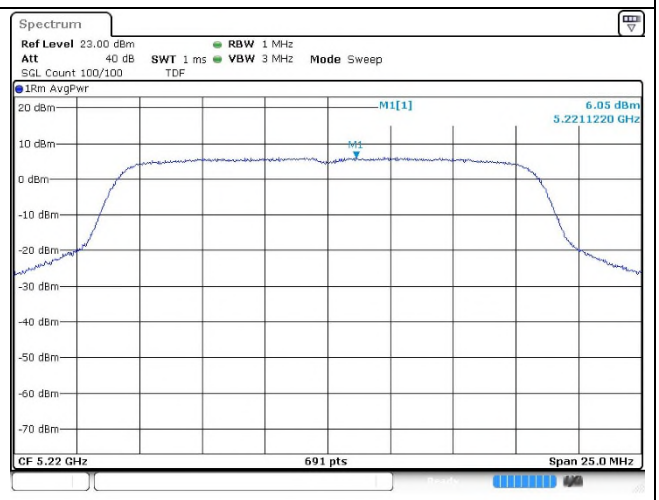
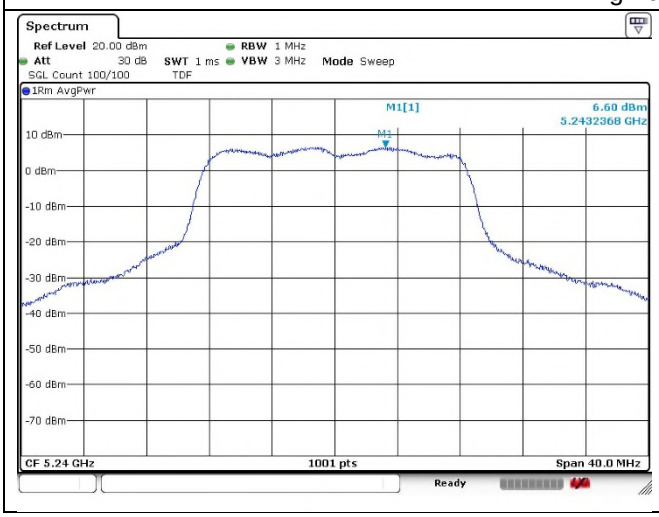
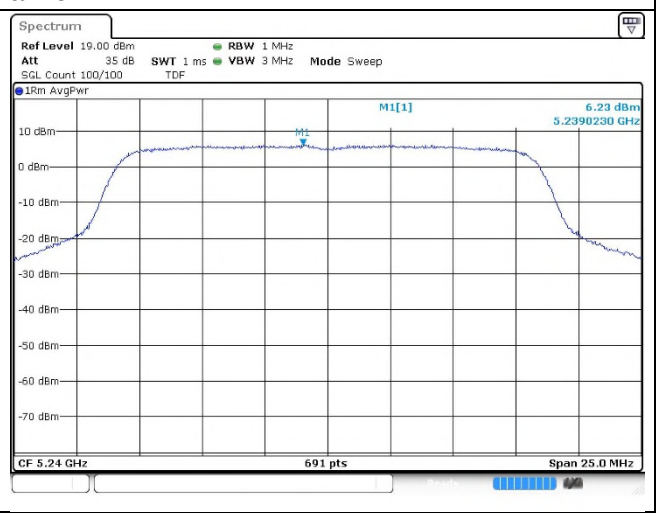
   - PSD: 10 log {10^(Ant.1 PSD / 10)+10^(Ant.2 PSD / 10)}

- Straddle channels

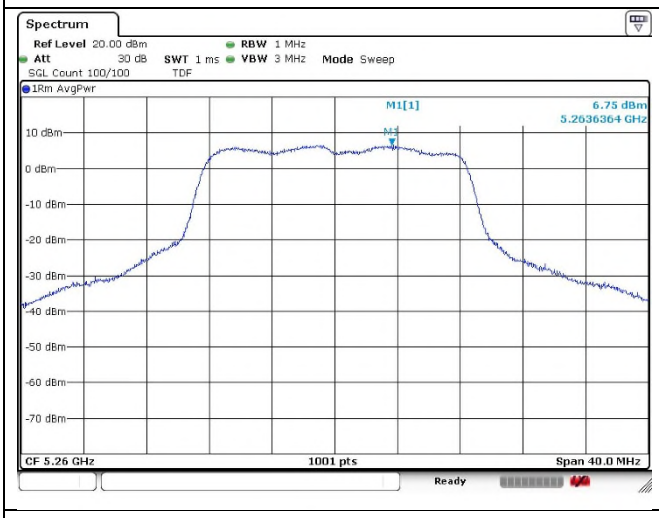
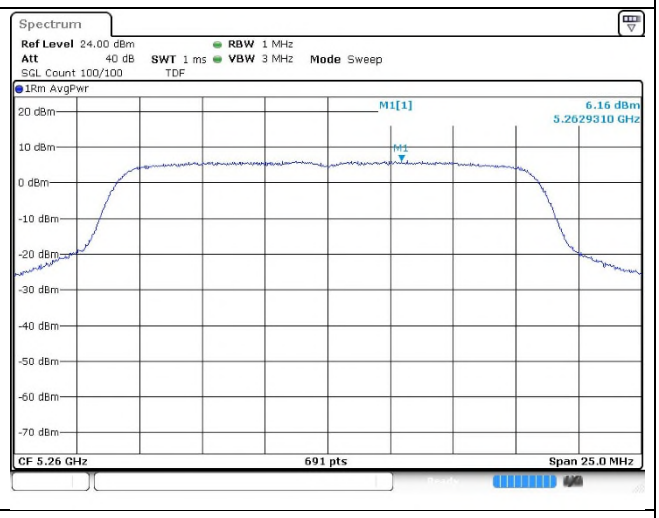
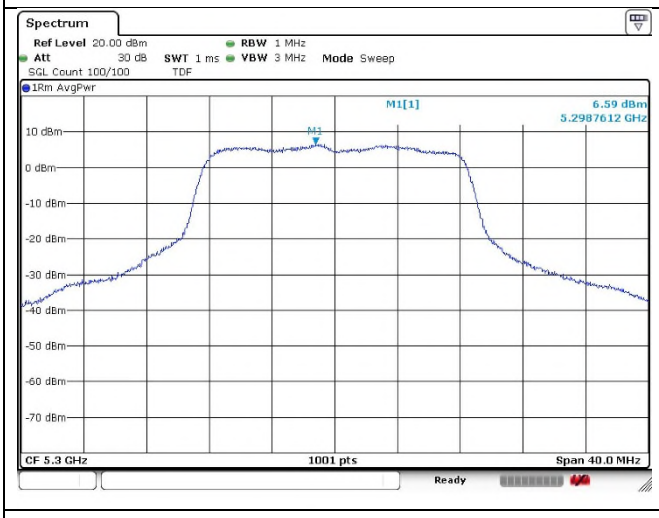
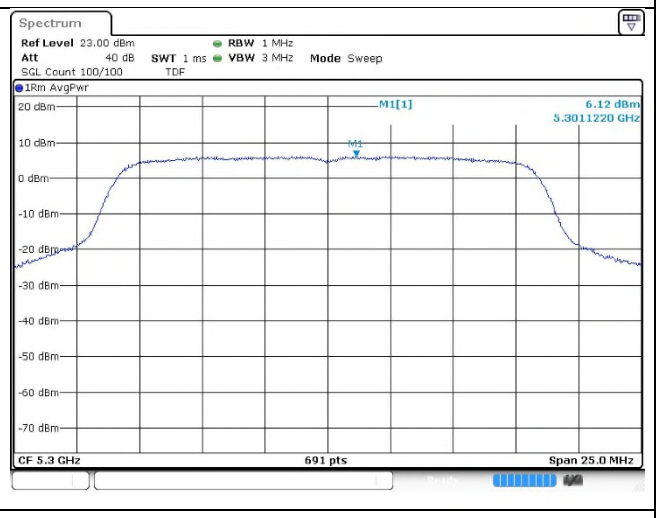
Mode	Band	Frequency (㎒)	Data Rate (Mbps)	PSD (㏈m)			Limit (㏈m/1 ㎒ or ㏈m/500 ㎑)
				Ant.1	Ant.2	Ant.1 + Ant.2	
11a	U-NII 2C	5 720	6	7.01	5.50	9.33	11
	U-NII 3			3.86	2.11	6.08	30
11ac_VHT20	U-NII 2C	5 720	MCS0	5.17	4.66	7.93	11
	U-NII 3			1.30	0.56	3.96	30
11n_HT40	U-NII 2C	5 710	MCS0	2.73	1.07	4.99	11
	U-NII 3			-2.82	-3.33	-0.06	30
11ac_VHT80	U-NII 2C	5 690	MCS0	-3.68	-4.00	-0.83	11
	U-NII 3			-8.72	-9.19	-5.94	30

- Test plots

OFDM: 802.11a (Band 1)

Ant.1	Ant.2
Low channel	
	
Middle channel	
	
High channel	
	

OFDM: 802.11a (Band 2A)

Ant.1	Ant.2
Low channel	
	
Middle channel	
	
High channel