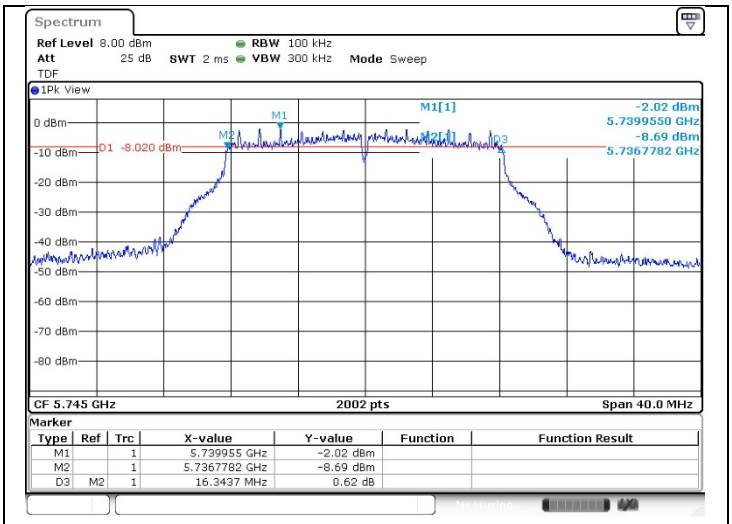
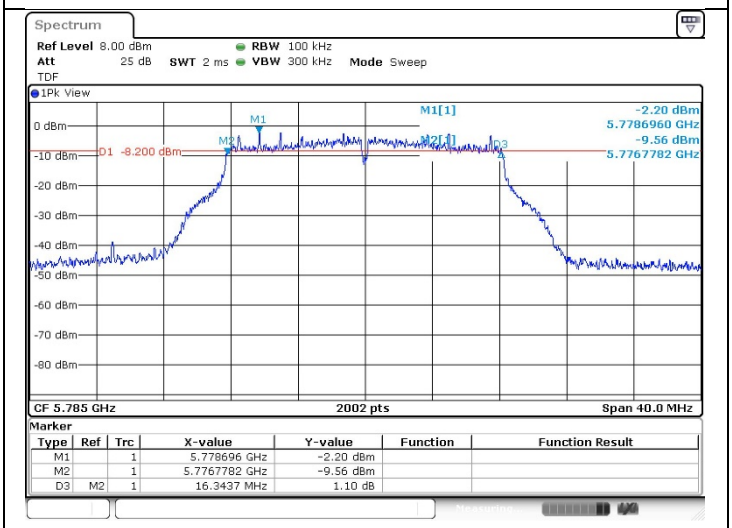
- SISO_Ant.2

802.11a (Band 3)

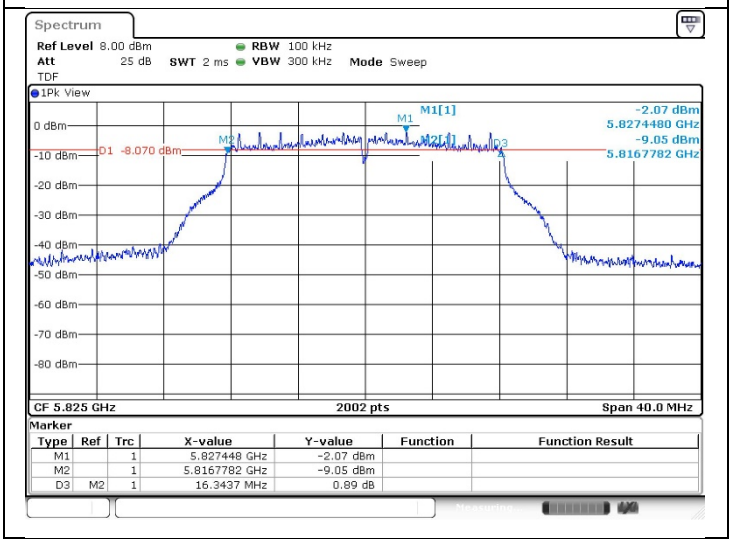
Low Channel
(5 745 ㎒)



Middle Channel
(5 785 ㎒)



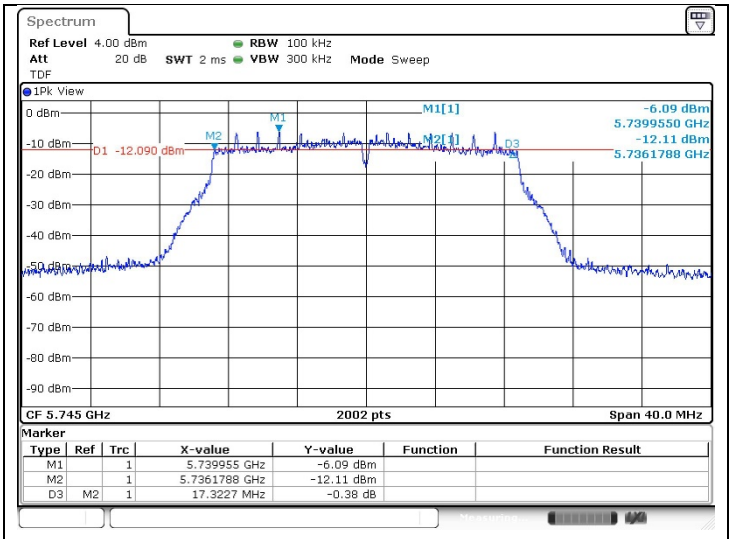
High Channel
(5 825 ㎒)



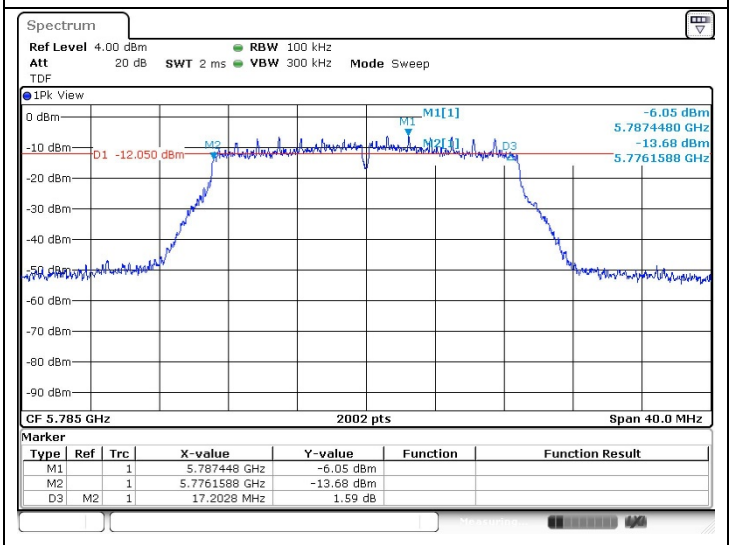
- MIMO_Ant.1

802.11ac_VHT20 (Band 3)

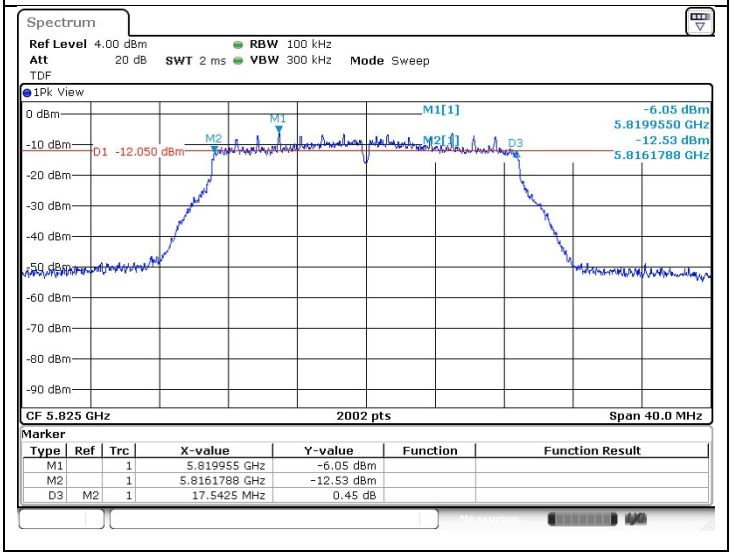
Low Channel
(5 745 ㎒)



Middle Channel
(5 785 ㎒)

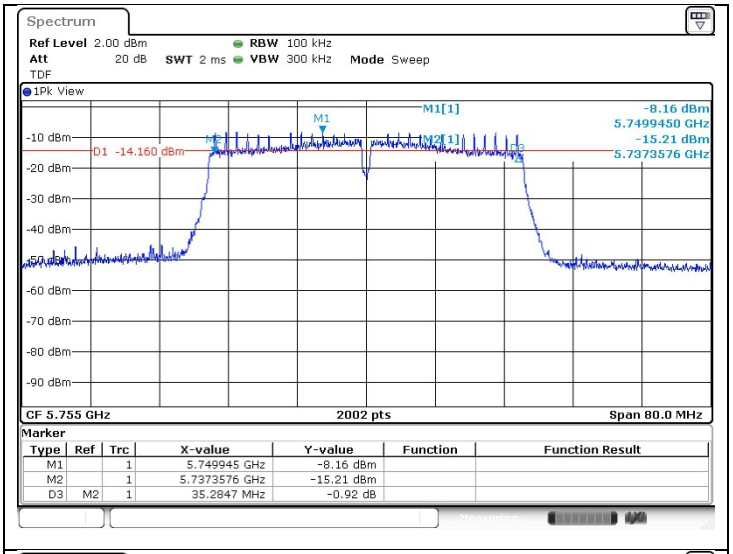


High Channel
(5 825 ㎒)

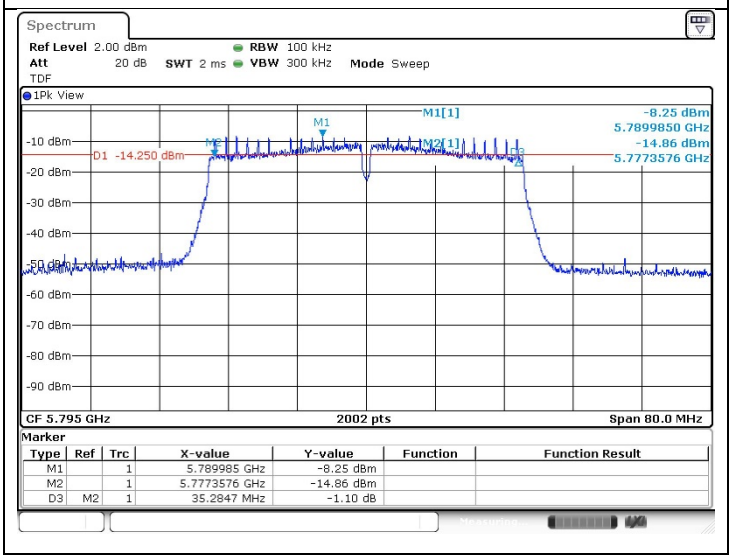


802.11ac_VHT40 (Band 3)

Low Channel
(5 755 ㎒)

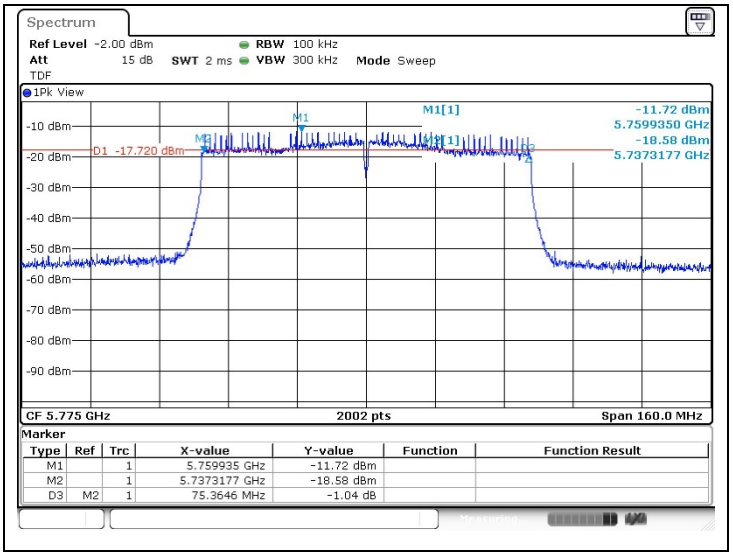


High Channel
(5 795 ㎒)



802.11ac_VHT80 (Band 3)

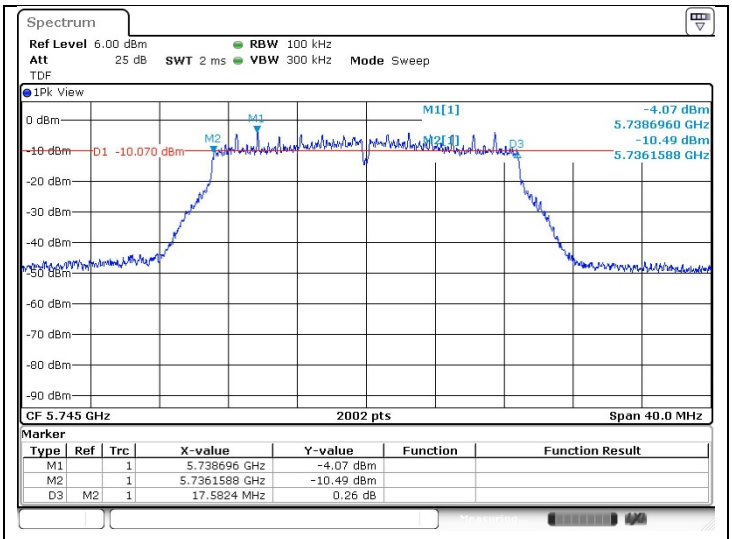
Middle Channel
(5 775 ㎒)



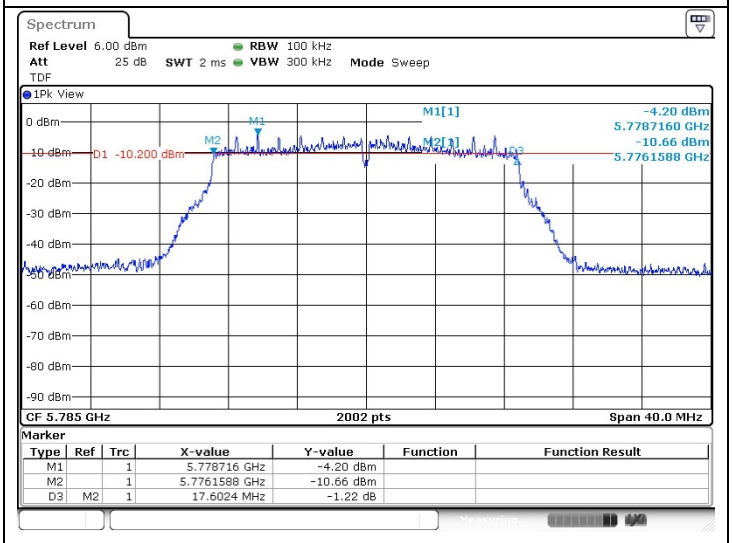
- MIMO_Ant.2

802.11ac_VHT20 (Band 3)

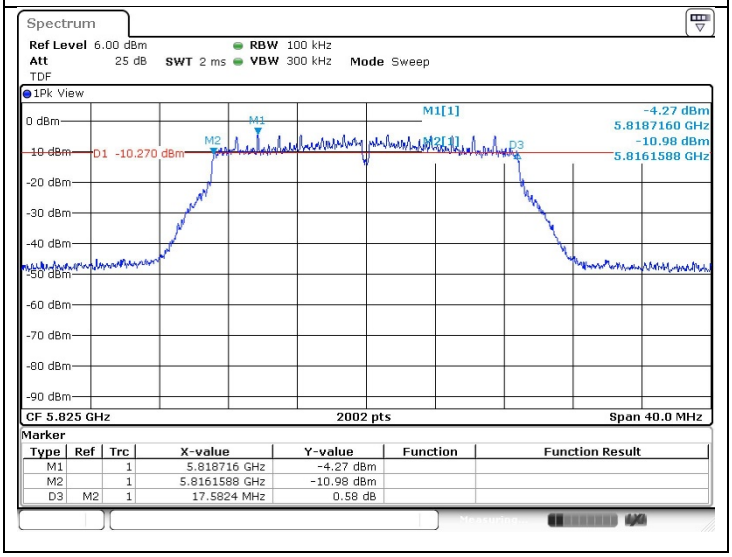
Low Channel
(5 745 ㎒)



Middle Channel
(5 785 ㎒)

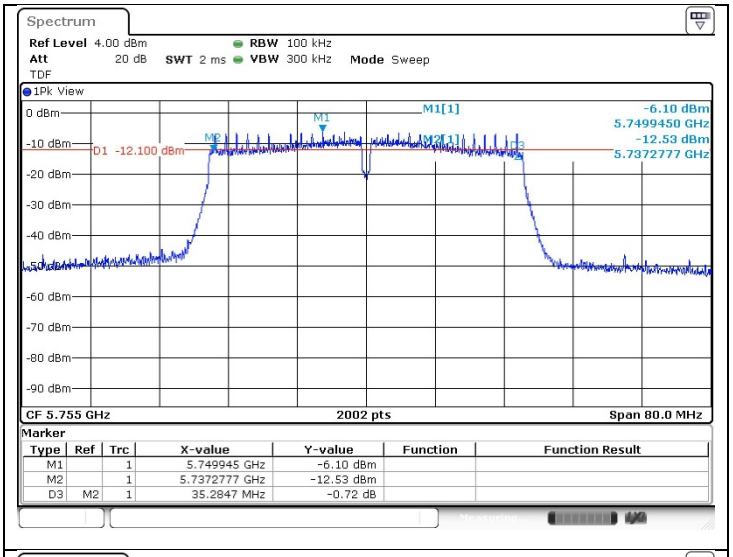


High Channel
(5 825 ㎒)

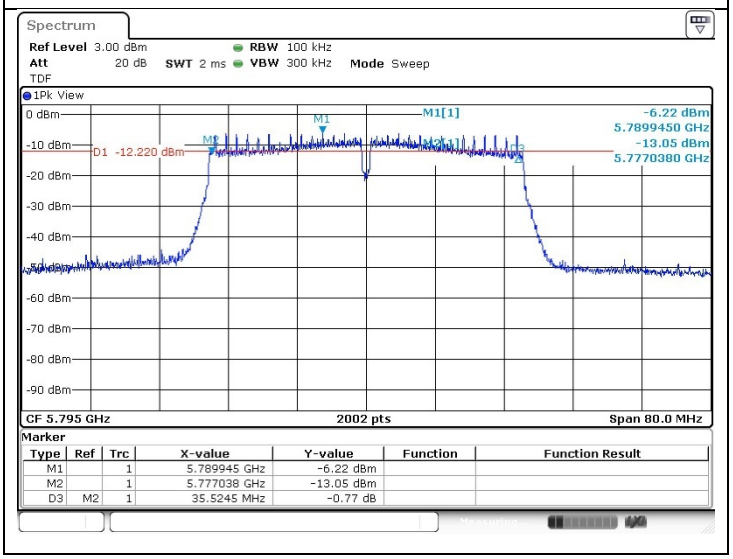


802.11ac_VHT40 (Band 3)

Low Channel
(5 755 ㎒)

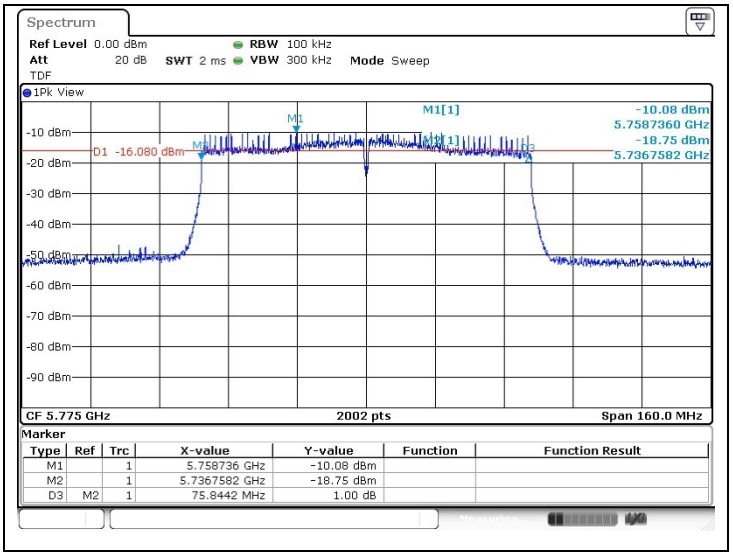


High Channel
(5 795 ㎒)



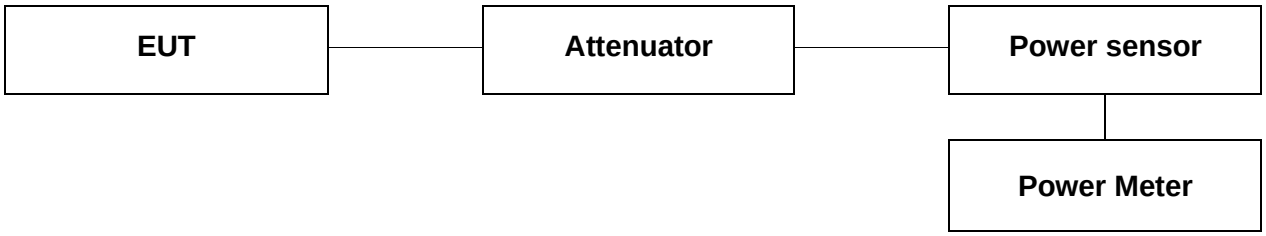
802.11ac_VHT80 (Band 3)

Middle Channel
(5 775 ㎒)



5. Maximum Conducted Output Power

5.1. Test Setup



5.2. Limit

5.2.1. FCC

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)(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.

5.2.2. IC

According to RSS-247 Issue 2,

6.2.1.1 Frequency band 5 150-5 250 ㎒

For OEM devices installed in vehicles, the maximum e.i.r.p. shall not exceed 30 ㎽ or 1.76 + 10 $\log_{10}$B, ㏈m, whichever is less. Devices shall implement transmitter power control (TPC) in order to have the capability to operate at least 3 ㏈ below the maximum permitted e.i.r.p. of 30 ㎽.

For other devices, the maximum e.i.r.p. shall not exceed 200 ㎽ or 10 + 10 $\log_{10}$B, ㏈m, whichever power is less. B is the 99 % emission bandwidth in megahertz. The e.i.r.p. spectral density shall not exceed 10 ㏈m in any 1.0 ㎒ band.

6.2.4.1 Frequency band 5 725-5 850 ㎒

For equipment operating in the band 5 725-5 850 ㎒, the minimum 6 ㏈ bandwidth shall be at least 500 ㎑. The maximum conducted output power shall not exceed 1 W. The output 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 output 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 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[3] systems, omnidirectional applications and multiple collocated transmitters transmitting the same information.

5.3. Test Procedure

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 ㏈m 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 %).

5.4. Test Result

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

- SISO_Ant.1

Test mode: 11a

Band	Frequency (㎒)	Data Rate (Mbps)	Average Power (dB m)	Duty Cycle Correction Factor (dB)	Average Power Result (dB m)
U-NII 1	5 180	6	7.71	0.29	8.00
	5 220		7.54		7.83
	5 240		7.43		7.72
U-NII 3	5 745		7.99		8.28
	5 785		8.35		8.64
	5 825		8.30		8.59

Band	Frequency (㎒)	Data Rate (Mbps)	Average Power Result (dB m)	Antenna Gain (dB i)	E.I.R.P. (dB m)
U-NII 1	5 180	6	8.00	-1.05	6.95
	5 220		7.83		6.78
	5 240		7.72		6.67

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			-1.05	23.98
	5 220					
	5 240					
U-NII 3	5 745	30			-0.78	30
	5 785					
	5 825					

Band	IC Limit					
	Frequency (㎒)	Fixed Limit (dB m)	99 % BW (㎒)	1.76+10LogB (dB m)	Antenna Gain (dB i)	Limit (dB m)
U-NII 1	5 180	14.77	17.019	14.07	-1.05	14.07
	5 220		17.019	14.07		14.07
	5 240		17.019	14.07		14.07

Band	IC Limit					
	Frequency (㎒)	Fixed Limit (dB m)	99 % BW (㎒)	11+10LogB (dB m)	Antenna Gain (dB i)	Limit (dB m)
U-NII 3	5 745	30			-0.78	30
	5 785					
	5 825					

Remark;

1. Average Power Result (㏈m) = Average Power (㏈m) + Duty Cycle Correction Factor (㏈)
2 E.I.R.P. (㏈m) = Average Power Result (㏈m) + Antenna Gain (㏈i)

- SISO_Ant.2

Test mode: 11a

Band	Frequency (㎒)	Data Rate (Mbps)	Average Power (㏈ m)	Duty Cycle Correction Factor (㏈)	Average Power Result (㏈ m)
U-NII 1	5 180	6	8.46	0.29	8.75
	5 220		8.41		8.70
	5 240		8.26		8.55
U-NII 3	5 745		9.80		10.09
	5 785		9.89		10.18
	5 825		9.92		10.21

Band	Frequency (㎒)	Data Rate (Mbps)	Average Power Result (㏈ m)	Antenna Gain (㏈ i)	E.I.R.P. (㏈ m)
U-NII 1	5 180	6	8.75	-0.97	7.78
	5 220		8.70		7.73
	5 240		8.55		7.58

Band	FCC Limit					
	Frequency (㎒)	Fixed Limit (㏈ m)	26 ㏈ BW (㎒)	11+10LogB (㏈ m)	Antenna Gain (㏈ i)	Limit (㏈ m)
U-NII 1	5 180	23.98			-0.97	23.98
	5 220					
	5 240					
U-NII 3	5 745	30			-0.88	30
	5 785					
	5 825					

Band	IC Limit					
	Frequency (㎒)	Fixed Limit (㏈ m)	99 % BW (㎒)	1.76+10LogB (㏈ m)	Antenna Gain (㏈ i)	Limit (㏈ m)
U-NII 1	5 180	14.77	16.961	14.05	-0.97	14.05
	5 220		17.077	14.08		14.08
	5 240		17.077	14.08		14.08

Band	IC Limit					
	Frequency (㎒)	Fixed Limit (㏈ m)	99 % BW (㎒)	11+10LogB (㏈ m)	Antenna Gain (㏈ i)	Limit (㏈ m)
U-NII 3	5 745	30			-0.88	30
	5 785					
	5 825					

Remark;

1. Average Power Result (㏈ m) = Average Power (㏈ m) + Duty Cycle Correction Factor (㏈)
2 E.I.R.P. (㏈ m) = Average Power Result (㏈ m) + Antenna Gain (㏈ i)

- MIMO

Test mode: 11ac_VHT20

Band	Frequency (㎒)	Data Rate (Mbps)	Ant. 1 Average Power (dB m)	Ant. 2 Average Power (dB m)	Ant. 1+Ant. 2 Average Power (dB m)
U-NII 1	5 180	MCS0	3.28	4.29	6.82
	5 220		3.06	4.17	6.66
	5 240		3.03	4.32	6.73
U-NII 3	5 745		5.17	6.61	8.96
	5 785		5.34	6.52	8.98
	5 825		5.18	6.59	8.95

Band	Frequency (㎒)	Data Rate (Mbps)	Ant. 1+Ant. 2 Average Power (dB m)	Duty Cycle Correction Factor (dB)	Ant. 1 + Ant. 2 Average Power Result (dB m)
U-NII 1	5 180	MCS0	6.82	0.58	7.40
	5 220		6.66		7.24
	5 240		6.73		7.31
U-NII 3	5 745		8.96		9.54
	5 785		8.98		9.56
	5 825		8.95		9.53

Band	Frequency (㎒)	Data Rate (Mbps)	Ant. 1 + Ant. 2 Average Power Result (dB m)	Antenna Gain (dB i)	Ant. 1 + Ant. 2 E.I.R.P. (dB m)
U-NII 1	5 180	MCS0	7.40	2	9.40
	5 220		7.24		9.24
	5 240		7.31		9.31

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			2	23.98
	5 220					
	5 240					
U-NII 3	5 745	30			2.18	30
	5 785					
	5 825					

Band	IC Limit					
	Frequency (㎒)	Fixed Limit (dB m)	99 % BW (㎒)	1.76+10LogB (dB m)	Antenna Gain (dB i)	Limit (dB m)
U-NII 1	5 180	14.77	17.829	14.27	2	14.27
	5 220		17.829	14.27		
	5 240		17.829	14.27		

Band	IC Limit					
	Frequency (㎒)	Fixed Limit (dB m)	99 % BW (㎒)	11+10LogB (dB m)	Antenna Gain (dB i)	Limit (dB m)
U-NII 3	5 745	30			2.18	30
	5 785					
	5 825					

Remark;

1. According to KDB 662911 D01 v02r01, average power of each port (Ant. 1+Ant. 2) and antenna gain was combined by using below calculation.

2. Average power: 10 log {10^(Ant. 1 power / 10)+10^(Ant. 2 power / 10)}
   Antenna gain: 10 log [{10^(Ant. 1 gain / 20)+10^(Ant. 2 gain / 20)}^2 / 2]

3. Average Power Result (dB m) = Average Power (dB m) + Duty Cycle Correction Factor (dB)

4. E.I.R.P. (dB m) = Average Power Result (dB m) + Antenna Gain (dB i)

Test mode: 11ac_VHT40

Band	Frequency (㎒)	Data Rate (Mbps)	Ant. 1 Average Power (dB m)	Ant. 2 Average Power (dB m)	Ant. 1+Ant. 2 Average Power (dB m)
U-NII 1	5 190	MCS0	2.14	2.99	5.60
	5 230		2.02	3.03	5.56
U-NII 3	5 755		4.10	6.02	8.18
	5 795		4.27	6.05	8.26

Band	Frequency (㎒)	Data Rate (Mbps)	Ant. 1+Ant. 2 Average Power (dB m)	Duty Cycle Correction Factor (dB)	Ant. 1 + Ant. 2 Average Power Result (dB m)
U-NII 1	5 190	MCS0	5.60	1.08	6.68
	5 230		5.56		6.64
U-NII 3	5 755		8.18		9.26
	5 795		8.26		9.34

Band	Frequency (㎒)	Data Rate (Mbps)	Ant. 1 + Ant. 2 Average Power Result (dB m)	Antenna Gain (dB i)	Ant. 1 + Ant. 2 E.I.R.P. (dB m)
U-NII 1	5 190	MCS0	6.68	2	8.68
	5 230		6.64		8.64

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	5 190	23.98			2	23.98
	5 230					
U-NII 3	5 755	30			2.18	30
	5 795					

Band	IC Limit					
	Frequency (㎒)	Fixed Limit (dB m)	99 % BW (㎒)	1.76+10LogB (dB m)	Antenna Gain (dB i)	Limit (dB m)
U-NII 1	5 190	14.77	36.122	17.34	2	14.77
	5 230		36.122	17.34		

Band	IC Limit					
	Frequency (㎒)	Fixed Limit (dB m)	99 % BW (㎒)	11+10LogB (dB m)	Antenna Gain (dB i)	Limit (dB m)
U-NII 3	5 755	30			2.18	30
	5 795					

Remark;

1. According to KDB 662911 D01 v02r01, average power of each port (Ant. 1+Ant. 2) and antenna gain was combined by using below calculation.

2. Average power: 10 log {10^(Ant. 1 power / 10)+10^(Ant. 2 power / 10)}
   Antenna gain: 10 log [{10^(Ant. 1 gain / 20)+10^(Ant. 2 gain / 20)}^2 / 2]

3. Average Power Result (dB m) = Average Power (dB m) + Duty Cycle Correction Factor (dB)

4. E.I.R.P. (dB m) = Average Power Result (dB m) + Antenna Gain (dB i)

Test mode: 11ac_VHT80

Band	Frequency (㎒)	Data Rate (Mbps)	Ant. 1 Average Power (dB m)	Ant. 2 Average Power (dB m)	Ant. 1+Ant. 2 Average Power (dB m)
U-NII 1	5 210	MCS0	1.15	2.10	4.66
U-NII 3	5 775		3.19	4.84	7.10

Band	Frequency (㎒)	Data Rate (Mbps)	Ant. 1+Ant. 2 Average Power (dB m)	Duty Cycle Correction Factor (dB)	Ant.1 + Ant. 2 Average Power Result (dB m)
U-NII 1	5 210	MCS0	4.66	1.85	6.51
U-NII 3	5 775		7.10		8.95

Band	Frequency (㎒)	Data Rate (Mbps)	Ant. 1 + Ant. 2 Average Power Result (dB m)	Antenna Gain (dB i)	Ant. 1 + Ant. 2 E.I.R.P. (dB m)
U-NII 1	5 210	MCS0	6.51	2	8.51

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	5 210	23.98			2	23.98
U-NII 3	5 775	30			2.18	30

Band	IC Limit					
	Frequency (㎒)	Fixed Limit (dB m)	99 % BW (㎒)	1.76+10LogB (dB m)	Antenna Gain (dB i)	Limit (dB m)
U-NII 1	5 210	14.77	75.485	20.54	2	14.77

Band	IC Limit					
	Frequency (㎒)	Fixed Limit (dB m)	99 % BW (㎒)	11+10LogB (dB m)	Antenna Gain (dB i)	Limit (dB m)
U-NII 3	5 775	30			2.18	30

Remark;

1 According to KDB 662911 D01 v02r01, average power of each port (Ant. 1+Ant. 2) and antenna gain was combined by using below calculation.

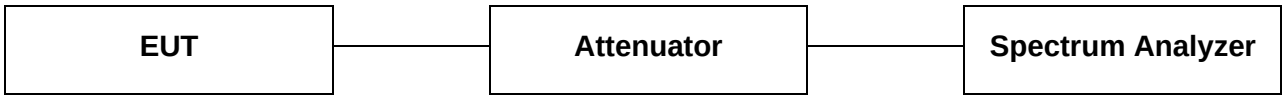
2 Average power: 10 log {10^(Ant. 1 power / 10)+10^(Ant. 2 power / 10)}
Antenna gain: 10 log [{10^(Ant. 1 gain / 20)+10^(Ant. 2 gain / 20)}^2 / 2]

3 Average Power Result (dB m) = Average Power (dB m) + Duty Cycle Correction Factor (dB)

4 E.I.R.P. (dB m) = Average Power Result (dB m) + Antenna Gain (dB i)

6. Peak Power Spectral Density

6.1. Test Setup



6.2. Limit

6.2.1. FCC

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)(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.

6.2.2. IC

According to RSS-247 Issue 2,

6.2.1.1 Frequency band 5 150-5 250 ㎒

For OEM devices installed in vehicles, the maximum e.i.r.p. shall not exceed 30 ㎽ or 1.76 + 10 $\log_{10}$B, ㏈m, whichever is less. Devices shall implement transmitter power control (TPC) in order to have the capability to operate at least 3 ㏈ below the maximum permitted e.i.r.p. of 30 ㎽.

For other devices, the maximum e.i.r.p. shall not exceed 200 ㎽ or 10 + 10 $\log_{10}$B, ㏈m, whichever power is less. B is the 99 % emission bandwidth in megahertz. The e.i.r.p. spectral density shall not exceed 10 ㏈m in any 1.0 ㎒ band.

6.2.4.1 Frequency band 5 725-5 850 ㎒

For equipment operating in the band 5 725-5 850 ㎒, the minimum 6 ㏈ bandwidth shall be at least 500 ㎑. The maximum conducted output power shall not exceed 1 W. The output 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 output 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 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[3] systems, omnidirectional applications and multiple collocated transmitters transmitting the same information.

6.3. Test Procedure

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.

6.4. Test Result

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

- SISO_Ant.1

Test mode: 11a

Band	Frequency (㎒)	Ch.	Data Rate (Mbps)	Measured PPSD (㏈ m)	Duty Cycle Correction Factor (㏈)	Final PPSD (㏈ m)	Limit (㏈ m/1 ㎒)
U-NII 1	5 180	36	6	-2.35	0.29	-2.06	11
	5 220	44		-2.43		-2.14	
	5 240	48		-2.82		-2.53	
Band	**Frequency (㎒)**	**Ch.**	**Data Rate (Mbps)**	**Measured PPSD (㏈ m)**	**Duty Cycle Correction Factor (㏈)**	**Final PPSD (㏈ m)**	**Limit (㏈ m/500 ㎑)**
U-NII 3	5 745	149	6	-5.32	0.29	-5.03	30
	5 785	157		-4.64		-4.35	
	5 825	165		-5.21		-4.92	

Band	Frequency (㎒)	Ch.	Data Rate (Mbps)	Final PPSD (㏈ m)	Antenna Gain (㏈ i)	E.I.R.P. PPSD (㏈ m)	IC Limit (㏈ m/1 ㎒)
U-NII 1	5 180	36	6	-2.06	-1.05	-3.11	10
	5 220	44		-2.14		-3.19	
	5 240	48		-2.53		-3.58	

Remark;

1. Final PPSD (㏈ m) = Measured PPSD (㏈ m) + Duty Cycle Correction Factor (㏈)
2. E.I.R.P. PPSD (㏈ m) = Final PPSD (㏈ m) + Antenna Gain (㏈ i)

- SISO_Ant.2

Test mode: 11a

Band	Frequency (㎒)	Ch.	Data Rate (Mbps)	Measured PPSD (㏈ m)	Duty Cycle Correction Factor (㏈)	Final PPSD (㏈ m)	Limit (㏈ m/1 㒒)
U-NII 1	5 180	36	6	1.94	0.29	2.23	11
	5 220	44		1.41		1.70	
	5 240	48		1.69		1.98	
Band	**Frequency (㎒)**	**Ch.**	**Data Rate (Mbps)**	**Measured PPSD (㏈ m)**	**Duty Cycle Correction Factor (㏈)**	**Final PPSD (㏈ m)**	**Limit (㏈ m/500 ㎑)**
U-NII 3	5 745	149	6	-3.42	0.29	-3.13	30
	5 785	157		-3.29		-3.00	
	5 825	165		-3.11		-2.82	

Band	Frequency (㎒)	Ch.	Data Rate (Mbps)	Final PPSD (㏈ m)	Antenna Gain (㏈ i)	E.I.R.P. PPSD (㏈ m)	IC Limit (㏈ m/1 㒒)
U-NII 1	5 180	36	6	2.23	-0.97	1.26	10
	5 220	44		1.70		0.73	
	5 240	48		1.98		1.01	

Remark;

1. Final PPSD (㏈ m) = Measured PPSD (㏈ m) + Duty Cycle Correction Factor (㏈)
2. E.I.R.P. PPSD (㏈ m) = Final PPSD (㏈ m) + Antenna Gain (㏈ i)

- MIMO

Test mode: 11ac_VHT20

Band	Frequency (㎒)	Ch.	Data Rate (Mbps)	Ant. 1 Measured PPSD (㏈ m)	Ant. 2 Measured PPSD (㏈ m)	Ant. 1+Ant. 2 PPSD (㏈ m)
U-NII 1	5 180	36	MCS0	-7.02	-6.48	-3.73
	5 220	44		-7.34	-6.52	-3.90
	5 240	48		-7.33	-6.12	-3.67
U-NII 3	5 745	149		-9.34	-6.37	-4.60
	5 785	157		-9.21	-6.89	-4.89
	5 825	165		-9.04	-6.82	-4.78

Band	Frequency (㎒)	Ch.	Data Rate (Mbps)	Ant. 1+Ant. 2 PPSD (㏈ m)	Duty Cycle Correction Factor (㏈)	Ant. 1+Ant. 2 Final PPSD (㏈ m)	Limit (㏈ m/1 ㎒)
U-NII 1	5 180	36	MCS0	-3.73	0.58	-3.15	11
	5 220	44		-3.90		-3.32	
	5 240	48		-3.67		-3.09	
Band	**Frequency (㎒)**	**Ch.**	**Data Rate (Mbps)**	**Ant. 1+Ant. 2 PPSD (㏈ m)**	**Duty Cycle Correction Factor (㏈)**	**Ant. 1+Ant. 2 Final PPSD (㏈ m)**	**Limit (㏈ m/500 ㎑)**
U-NII 3	5 745	149	MCS0	-4.60	0.58	-4.02	30
	5 785	157		-4.89		-4.31	
	5 825	165		-4.78		-4.20	

Band	Frequency (㎒)	Ch.	Data Rate (Mbps)	Ant. 1+Ant. 2 Final PPSD (㏈ m)	Antenna Gain (㏈ i)	Ant. 1+Ant. 2 E.I.R.P. PPSD (㏈ m)	IC Limit (㏈ m/1 ㎒)
U-NII 1	5 180	36	MCS0	-3.15	2	-1.15	10
	5 220	44		-3.32		-1.32	
	5 240	48		-3.09		-1.09	

Remark;

1. According to KDB 662911 D01 v02r01, power spectral density of each port (Ant. 1+Ant. 2) was combined by using below calculation.

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

3. Antenna Gain: 10 log [{10^(Ant. 1 gain / 20)+10^(Ant. 2 gain / 20)}^2 / 2]

4. Final PPSD (㏈ m) = PPSD (㏈ m) + Duty Correction Correction Factor (㏈)

5. E.I.R.P. PPSD (㏈ m) = Final PPSD (㏈ m) + Antenna Gain (㏈ i)

Test mode: 11ac_VHT40

Band	Frequency (㎒)	Ch.	Data Rate (Mbps)	Ant. 1 Measured PPSD (dB m)	Ant. 2 Measured PPSD (dB m)	Ant. 1+Ant. 2 PPSD (dB m)
U-NII 1	5 190	38	MCS0	-10.68	-10.02	-7.33
	5 230	46		-10.86	-10.06	-7.43
U-NII 3	5 755	151		-12.74	-9.91	-8.09
	5 795	159		-12.34	-10.55	-8.34

Band	Frequency (㎒)	Ch.	Data Rate (Mbps)	Ant. 1+Ant. 2 PPSD (dB m)	Duty Cycle Correction Factor (dB)	Ant. 1+Ant. 2 Final PPSD (dB m)	Limit (dB m/1 ㎒)
U-NII 1	5 190	38	MCS0	-7.33	1.08	-6.25	11
	5 230	46		-7.43		-6.35	
Band	**Frequency (㎒)**	**Ch.**	**Data Rate (Mbps)**	**Ant. 1+Ant. 2 PPSD (dB m)**	**Duty Cycle Correction Factor (dB)**	**Ant. 1+Ant. 2 Final PPSD (dB m)**	**Limit (dB m/1 ㎒)**
U-NII 3	5 755	151	MCS0	-8.09	1.08	-7.01	30
	5 795	159		-8.34		-7.26	

Band	Frequency (㎒)	Ch.	Data Rate (Mbps)	Ant. 1+Ant. 2 Final PPSD (dB m)	Antenna Gain (dB i)	Ant.1+Ant. 2 E.I.R.P. PPSD (dB m)	IC Limit (dB m/1 ㎒)
U-NII 1	5 190	38	MCS0	-6.25	2	-4.25	10
	5 230	46		-6.35		-4.35	

Remark;

1. According to KDB 662911 D01 v02r01, power spectral density of each port (Ant. 1+Ant. 2) was combined by using below calculation.
2. PPSD: 10 log {10^(Ant. 1 PSD / 10)+10^(Ant. 2 PSD / 10)}
3. Antenna Gain: 10 log [{10^(Ant. 1 gain / 20)+10^(Ant. 2 gain / 20)}^2 / 2]
4. Final PPSD (dB m) = PPSD (dB m) + Duty Correction Correction Factor (dB)
5. E.I.R.P. PPSD (dB m) = Final PPSD (dB m) + Antenna Gain (dB i)

Test mode: 11ac_VHT80

Band	Frequency (㎒)	Ch.	Data Rate (Mbps)	Ant. 1 Measured PPSD (㏈ m)	Ant. 2 Measured PPSD (㏈ m)	Ant. 1+Ant. 2 PPSD (㏈ m)
U-NII 1	5 210	42	MCS0	-14.59	-14.02	-11.29
U-NII 3	5 775	155		-15.99	-14.29	-12.05

Band	Frequency (㎒)	Ch.	Data Rate (Mbps)	Ant. 1+Ant. 2 PPSD (㏈ m)	Duty Cycle Correction Factor (㏈)	Ant. 1+Ant. 2 Final PPSD (㏈ m)	Limit (㏈ m/1 ㎒)
U-NII 1	5 210	42	MCS0	-11.29	1.85	-9.44	11
Band	**Frequency (㎒)**	**Ch.**	**Data Rate (Mbps)**	**Ant. 1+Ant. 2 PPSD (㏈ m)**	**Duty Cycle Correction Factor (㏈)**	**Ant. 1+Ant. 2 Final PPSD (㏈ m)**	**Limit (㏈ m/500 ㎑)**
U-NII 3	5 775	155	MCS0	-12.05	1.85	-10.20	30

Band	Frequency (㎒)	Ch.	Data Rate (Mbps)	Ant. 1+Ant. 2 Final PPSD (㏈ m)	Antenna Gain (㏈ i)	Ant. 1+Ant. 2 E.I.R.P. PPSD (㏈ m)	IC Limit (㏈ m/1 ㎒)
U-NII 1	5 210	42	MCS0	-9.44	2	-7.44	10

Remark;

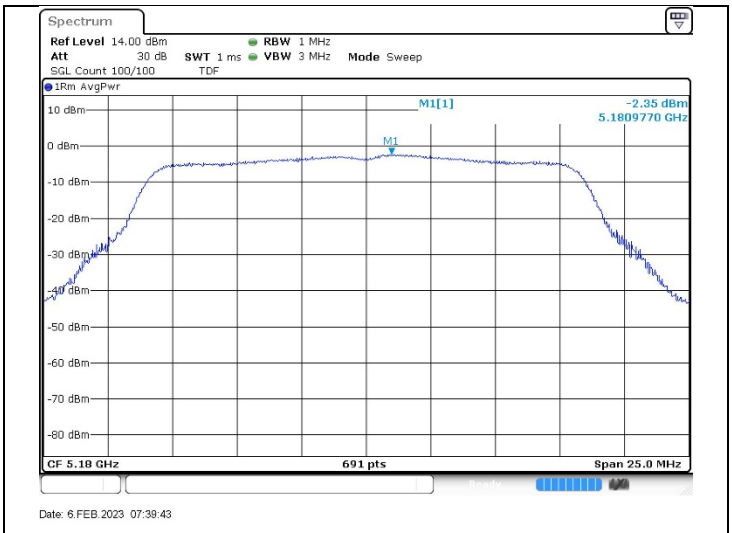
1. According to KDB 662911 D01 v02r01, power spectral density of each port (Ant. 1+Ant. 2) was combined by using below calculation.
2. PPSD: 10 log {10^(Ant. 1 PSD / 10)+10^(Ant. 2 PSD / 10)}
3. Antenna Gain: 10 log [{10^(Ant. 1 gain / 20)+10^(Ant. 2 gain / 20)}^2 / 2]
4. Final PPSD (㏈ m) = PPSD (㏈ m) + Duty Correction Correction Factor (㏈)
5. E.I.R.P. PPSD (㏈ m) = Final PPSD (㏈ m) + Antenna Gain (㏈ i)

- Test plots

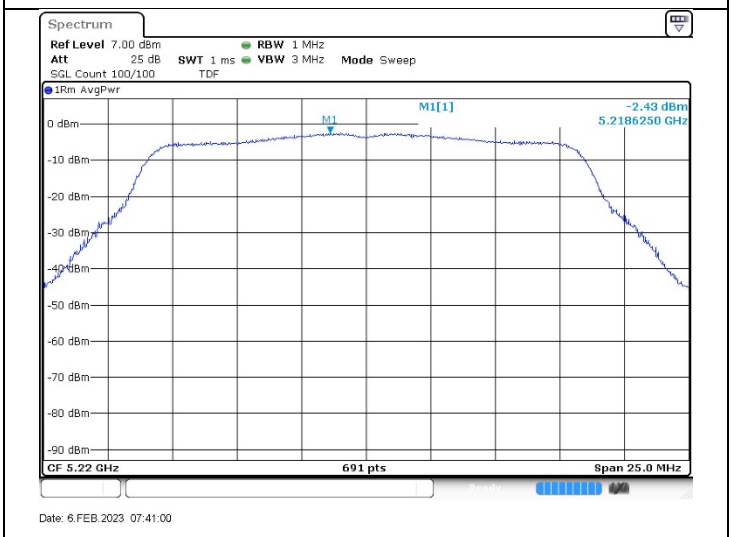
- SISO_Ant.1

802.11a (Band 1)

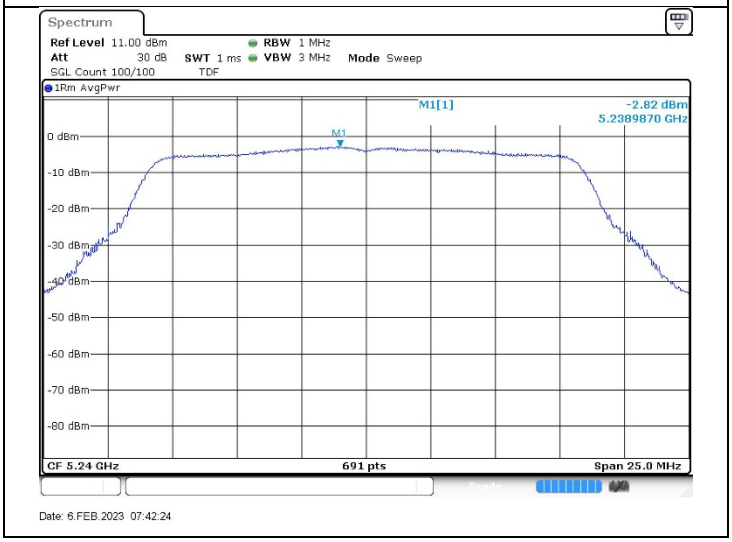
Low Channel
(5 180 ㎒)



Middle Channel
(5 220 ㎒)

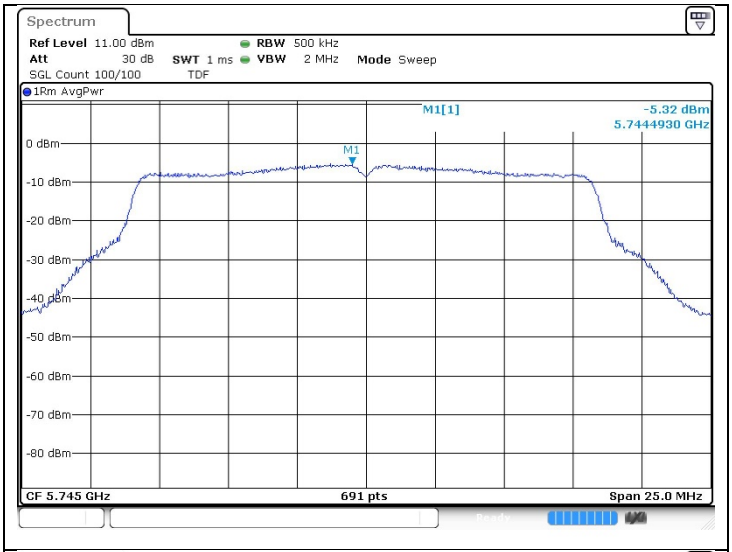


High Channel
(5 240 ㎒)

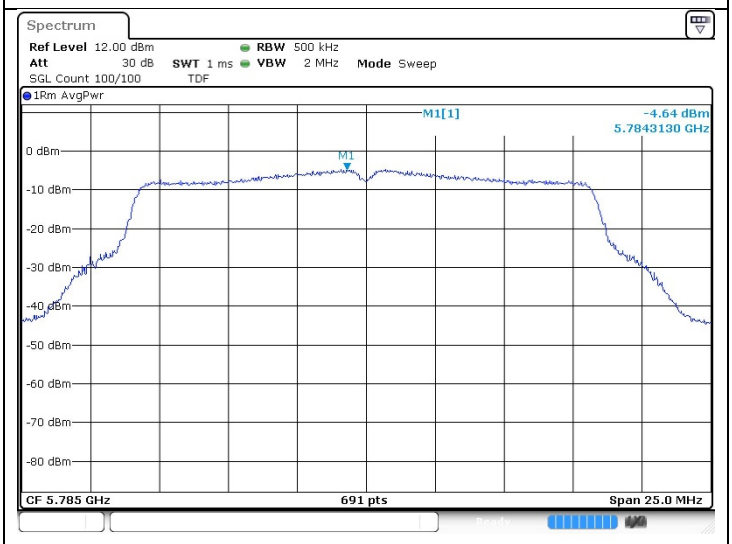


802.11a (Band 3)

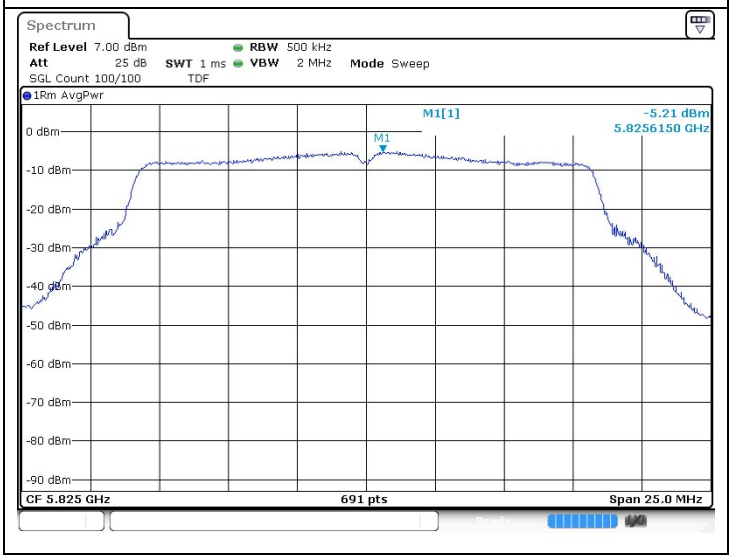
Low Channel
(5 745 ㎒)



Middle Channel
(5 785 ㎒)



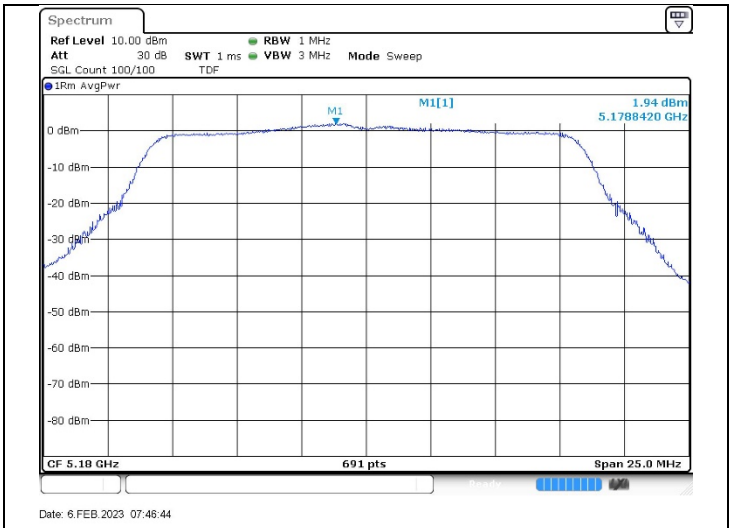
High Channel
(5 825 ㎒)



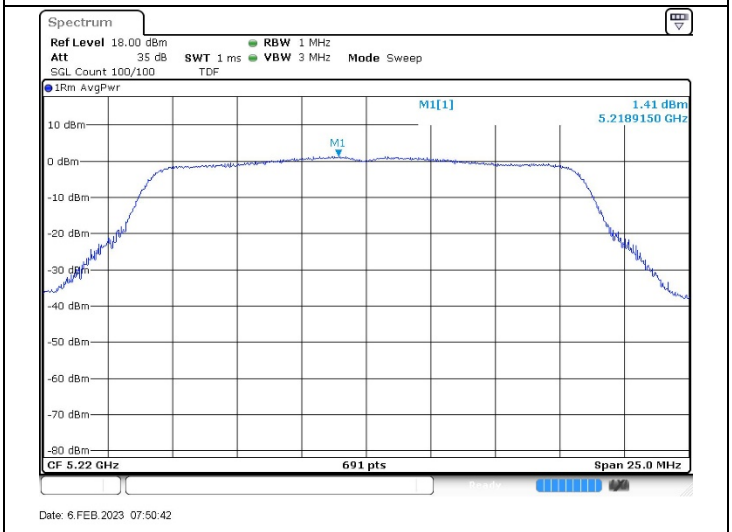
- SISO_Ant.2

802.11a (Band 1)

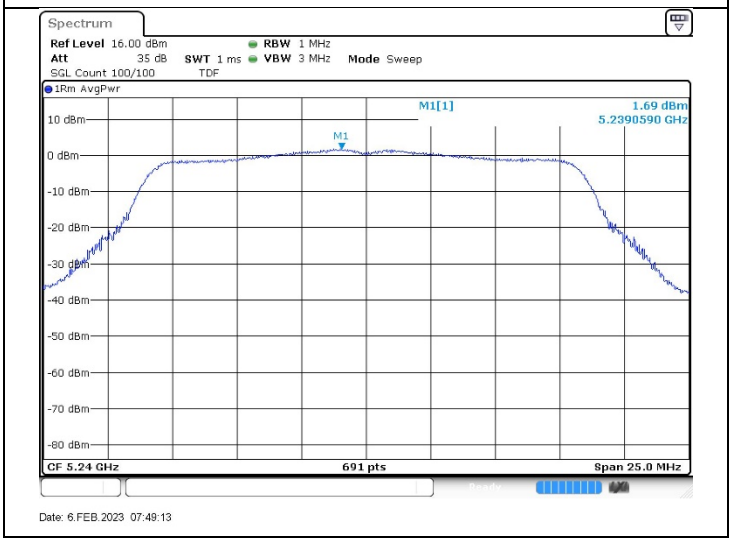
Low Channel
(5 180 ㎒)



Middle Channel
(5 220 ㎒)

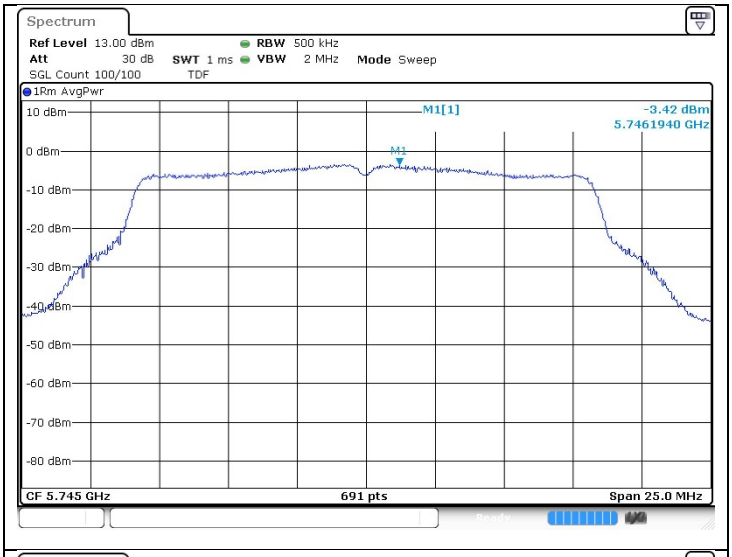


High Channel
(5 240 ㎒)

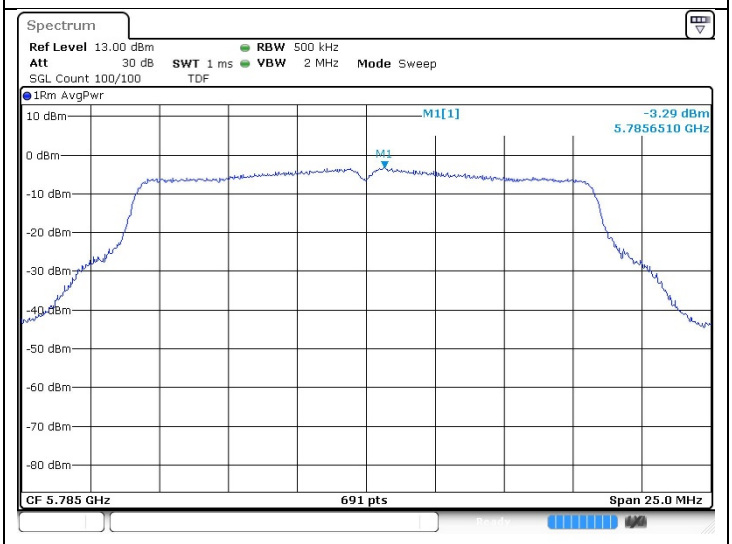


802.11a (Band 3)

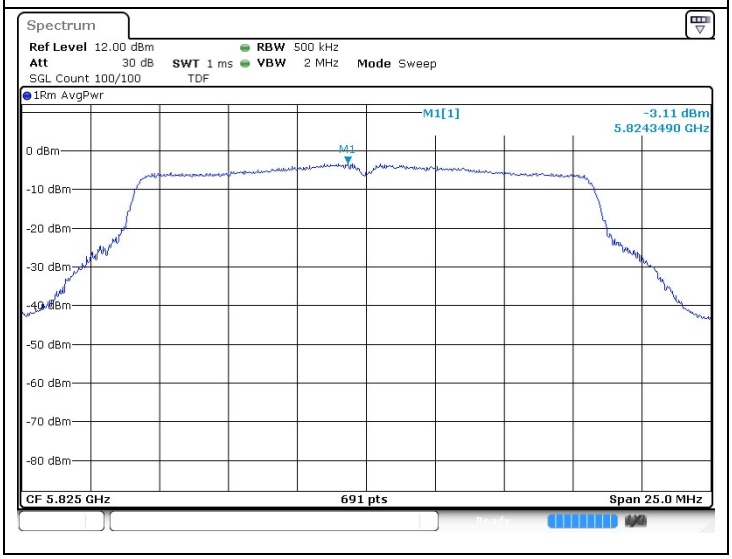
Low Channel
(5 745 ㎒)



Middle Channel
(5 785 ㎒)



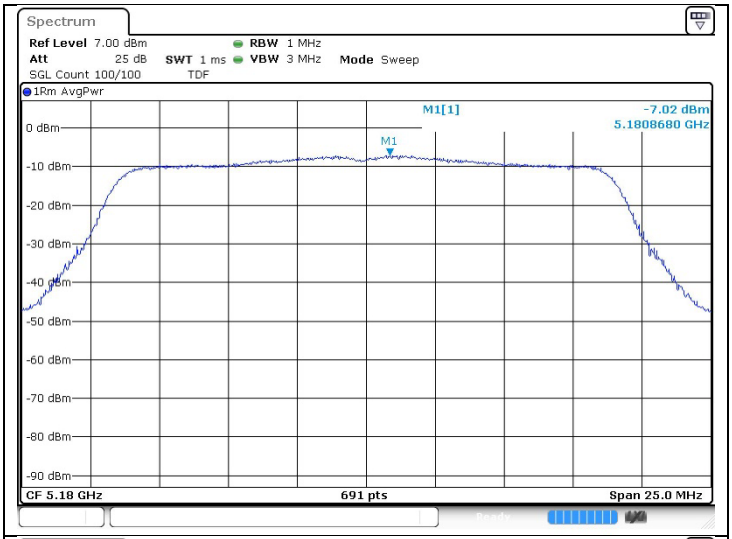
High Channel
(5 825 ㎒)



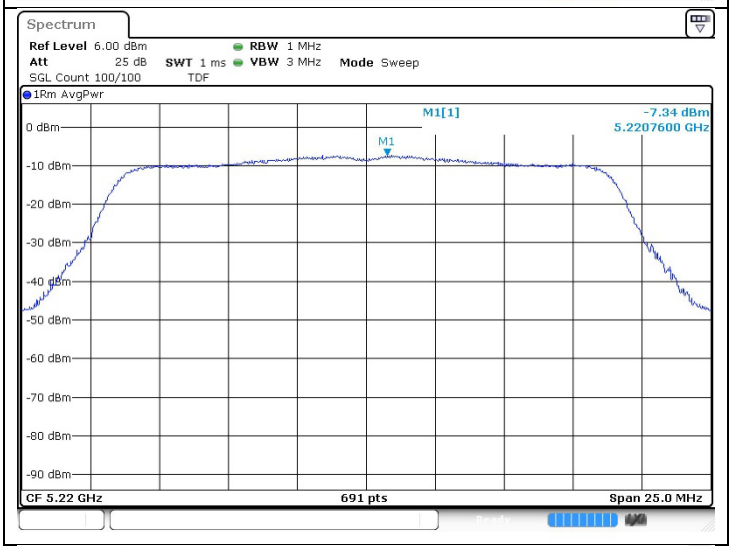
- MIMO_Ant.1

802.11ac_VHT20 (Band 1)

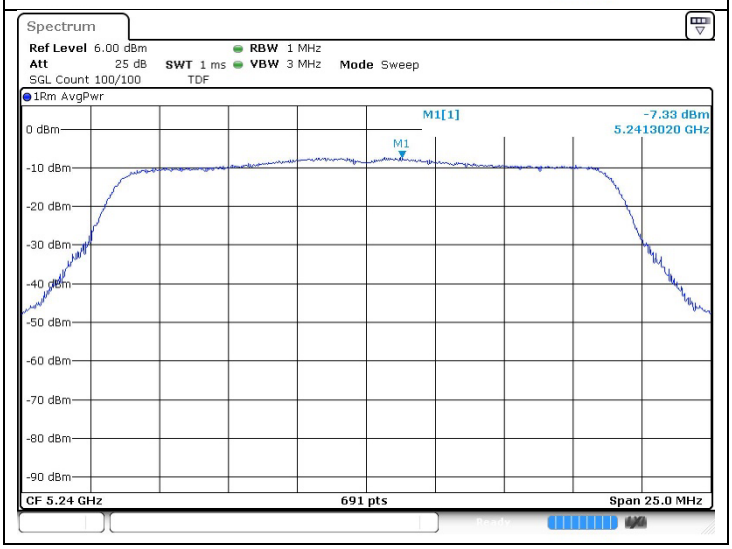
Low Channel
(5 180 ㎒)



Middle Channel
(5 220 ㎒)

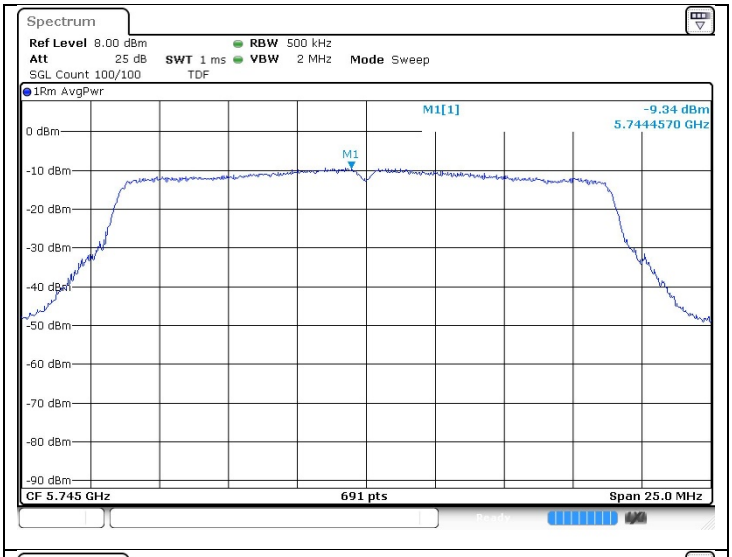


High Channel
(5 240 ㎒)

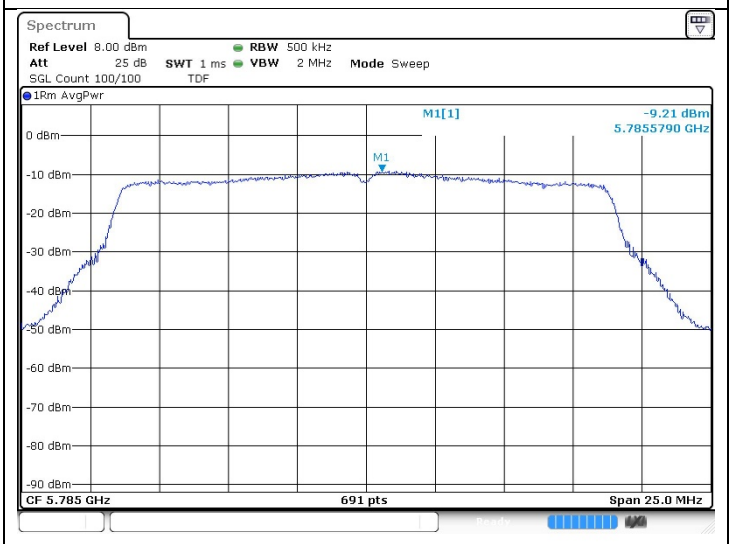


802.11ac_VHT20 (Band 3)

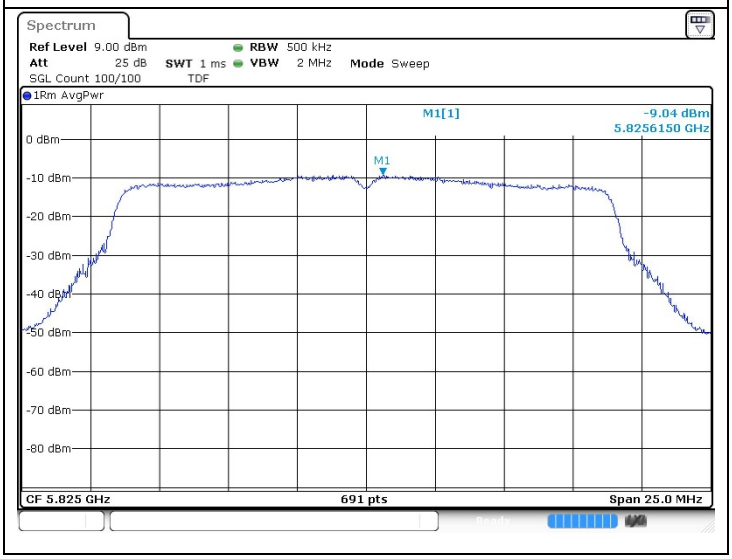
Low Channel
(5 745 ㎒)



Middle Channel
(5 785 ㎒)

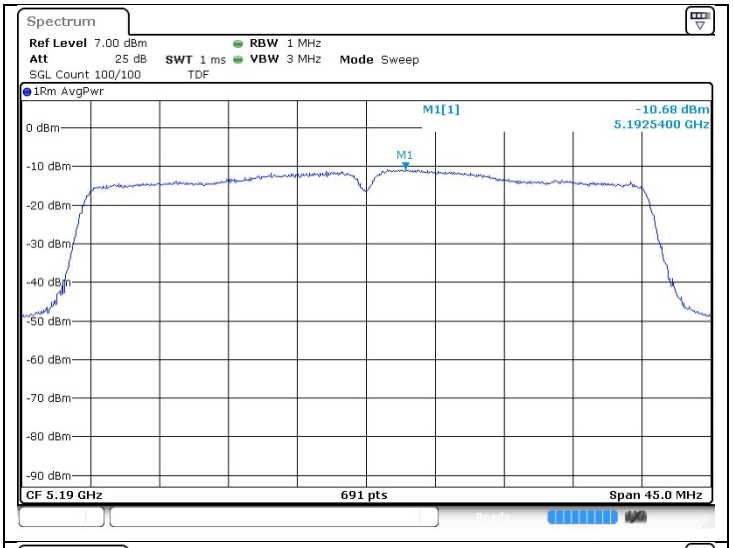


High Channel
(5 825 ㎒)

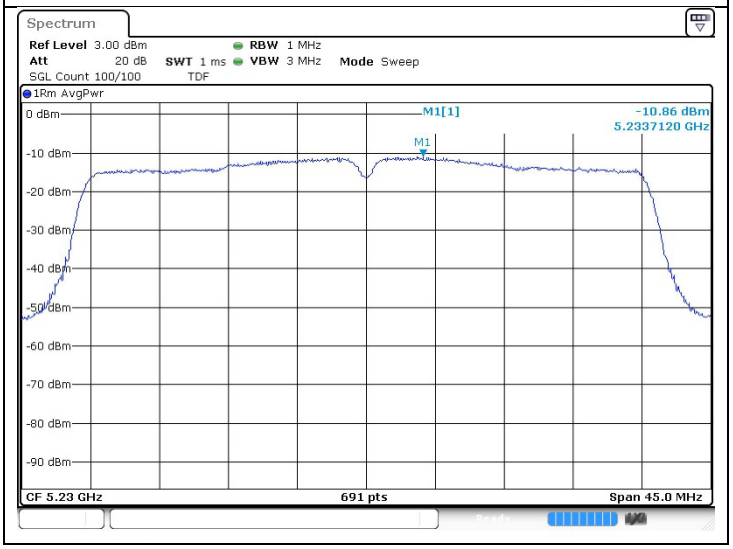


802.11ac_VHT40 (Band 1)

Low Channel
(5 190 ㎒)

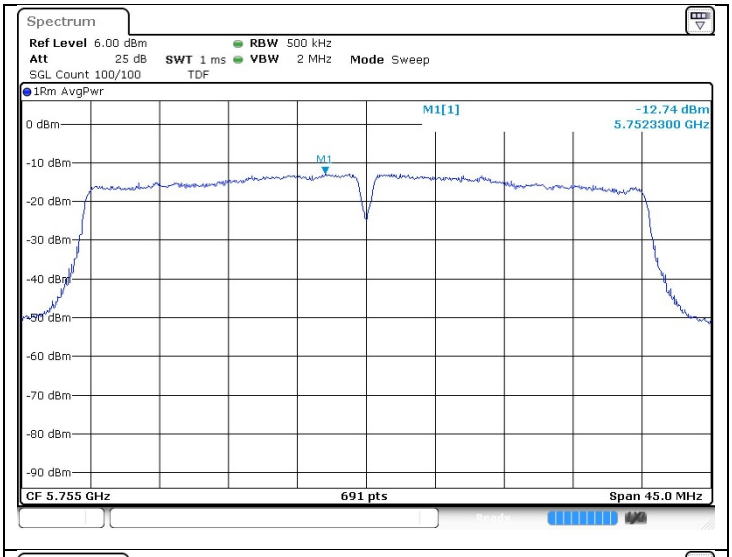


High Channel
(5 230 ㎒)

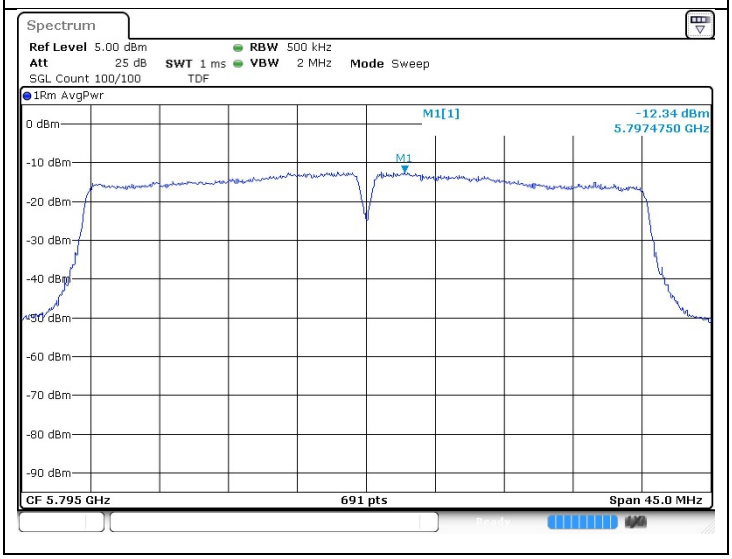


802.11ac_VHT40 (Band 3)

Low Channel
(5 755 ㎒)

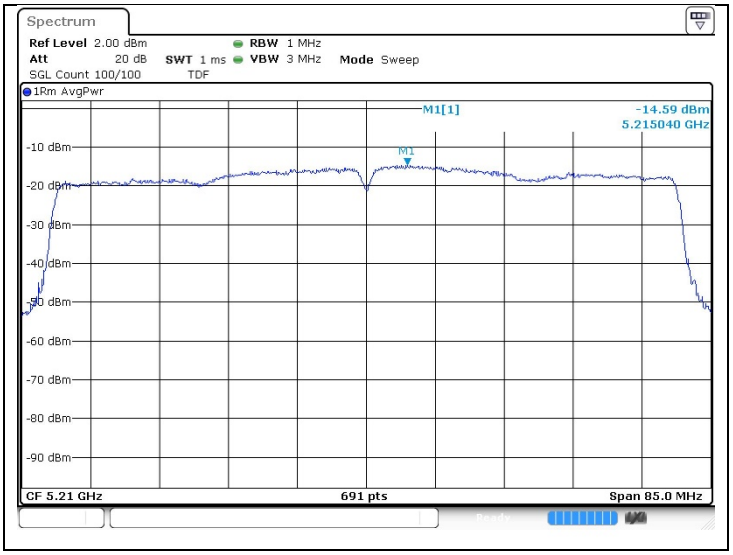


High Channel
(5 795 ㎒)



802.11ac_VHT80 (Band 1)

Middle Channel
(5 210 ㎒)



802.11ac_VHT80 (Band 3)

Middle Channel
(5 775 ㎒)