

FCC power setting

MIMO worst-case:

MIMO 802.11 a20:

U-NII-1 (5150-5250 MHz):

Channels	Low Channel 36 (5180 MHz)	Middle Channel 40 (5200 MHz)	Channel 44 (5220 MHz)	High Channel 48 (5240 MHz)
Maximum Corrected Conducted PSD (dBm)	13.289	15.373	15.933	16.113
Measurement uncertainty (dB)	<±1.3			

MIMO 802.11 n20 (HT20):

U-NII-1 (5150-5250 MHz):

Channels	Low Channel 36 (5180 MHz)	Middle Channel 40 (5200 MHz)	Channel 44 (5220 MHz)	High Channel 48 (5240 MHz)
Maximum Corrected Conducted PSD (dBm)	12.692	14.763	15.467	16.172
Measurement uncertainty (dB)	<±1.3			

MIMO 802.11 ac20 (VHT20):

U-NII-1 (5150-5250 MHz):

Channels	Low Channel 36 (5180 MHz)	Middle Channel 40 (5200 MHz)	Channel 44 (5220 MHz)	High Channel 48 (5240 MHz)
Maximum Corrected Conducted PSD (dBm)	13.255	14.848	15.874	12.952
Measurement uncertainty (dB)	<±1.3			

MIMO 802.11 ax20 (HE20):

U-NII-1 (5150-5250 MHz):

Channels	Low Channel 36 (5180 MHz)	Middle Channel 40 (5200 MHz)	Channel 44 (5220 MHz)	High Channel 48 (5240 MHz)
Maximum Corrected Conducted PSD (dBm)	12.312	14.303	16.057	16.077
Measurement uncertainty (dB)	<±1.3			

MIMO 802.11 n40 (HT40):

U-NII-1 (5150-5250 MHz):

Channels	Low Channel 38 (5190 MHz)	High Channel 46 (5230 MHz)
Maximum Corrected Conducted PSD (dBm)	3.757	11.045
Measurement uncertainty (dB)	<±1.3	

MIMO 802.11 ac40 (VHT40):

U-NII-1 (5150-5250 MHz):

Channels	Low Channel 38 (5190 MHz)	High Channel 46 (5230 MHz)
Maximum Corrected Conducted PSD (dBm)	3.663	11.703
Measurement uncertainty (dB)	<±1.3	

MIMO 802.11 ax40 (HE40):

U-NII-1 (5150-5250 MHz):

Channels	Low Channel 38 (5190 MHz)	High Channel 46 (5230 MHz)
Maximum Corrected Conducted PSD (dBm)	3.325	11.418
Measurement uncertainty (dB)	<±1.3	

MIMO 802.11 ac80 (VHT80):

U-NII-1 (5150-5250 MHz):

Channel	Single Channel 42 (5210 MHz)
Maximum Corrected Conducted PSD (dBm)	0.902
Measurement uncertainty (dB)	<±1.3

MIMO 802.11 ax80 (HE80):

U-NII-1 (5150-5250 MHz):

Channel	Single Channel 42 (5210 MHz)
Maximum Corrected Conducted PSD (dBm)	0.628
Measurement uncertainty (dB)	<±1.3

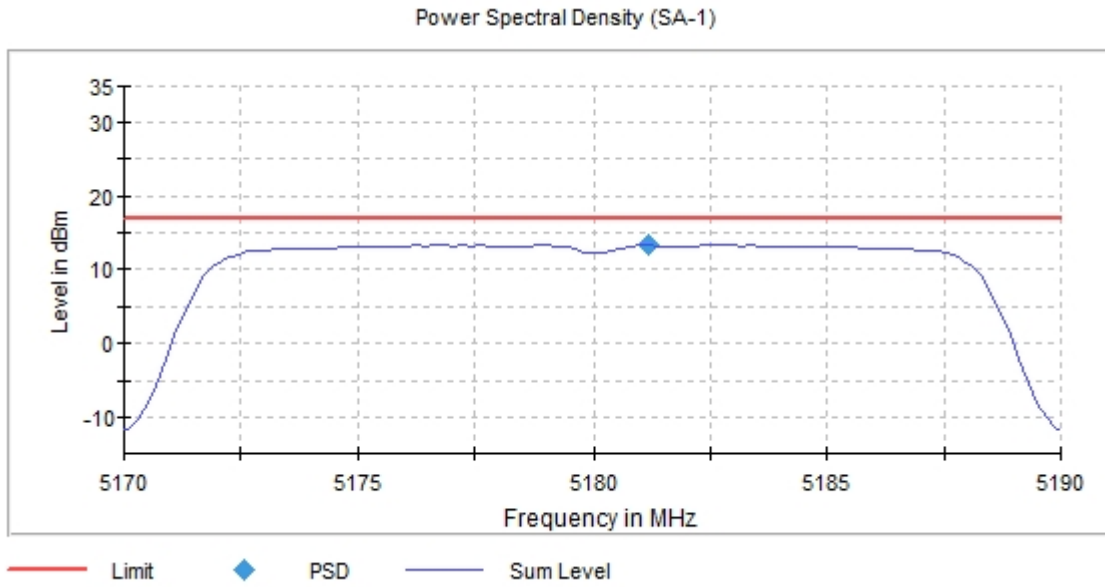
Verdict: PASS

MIMO worst-case:

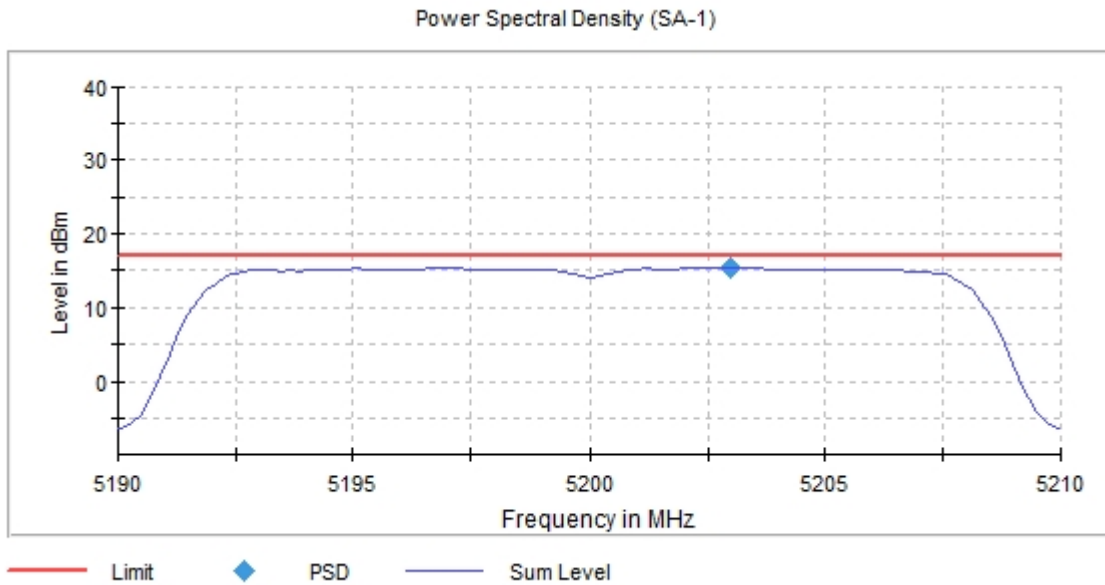
MIMO 802.11 a20:

U-NII-1 (5150-5250 MHz)

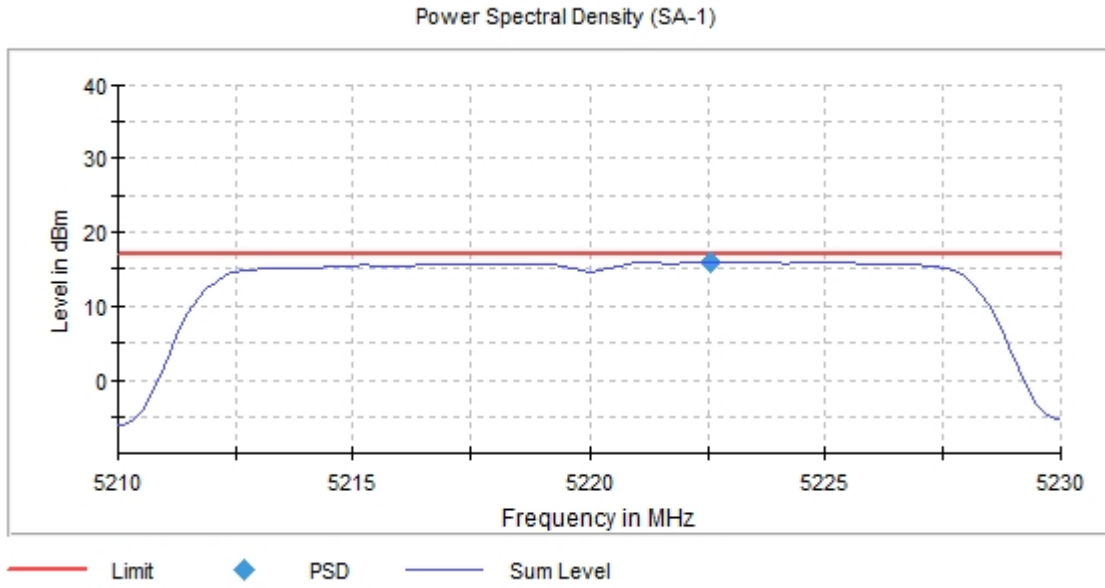
- Low Channel 36 (5180 MHz):



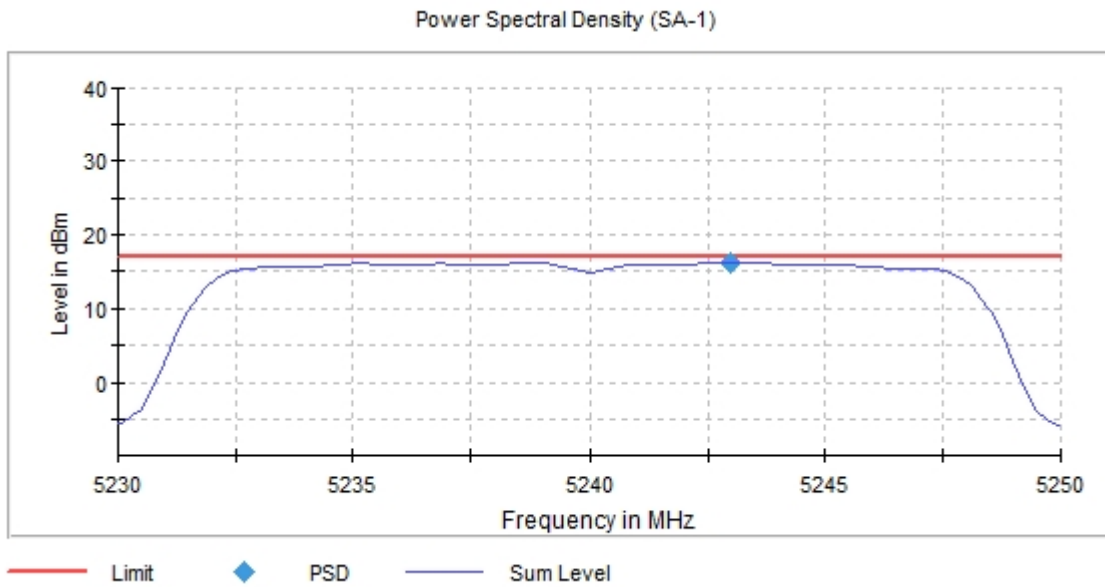
- Middle Channel 40 (5200 MHz):



- Channel 44 (5220 MHz):



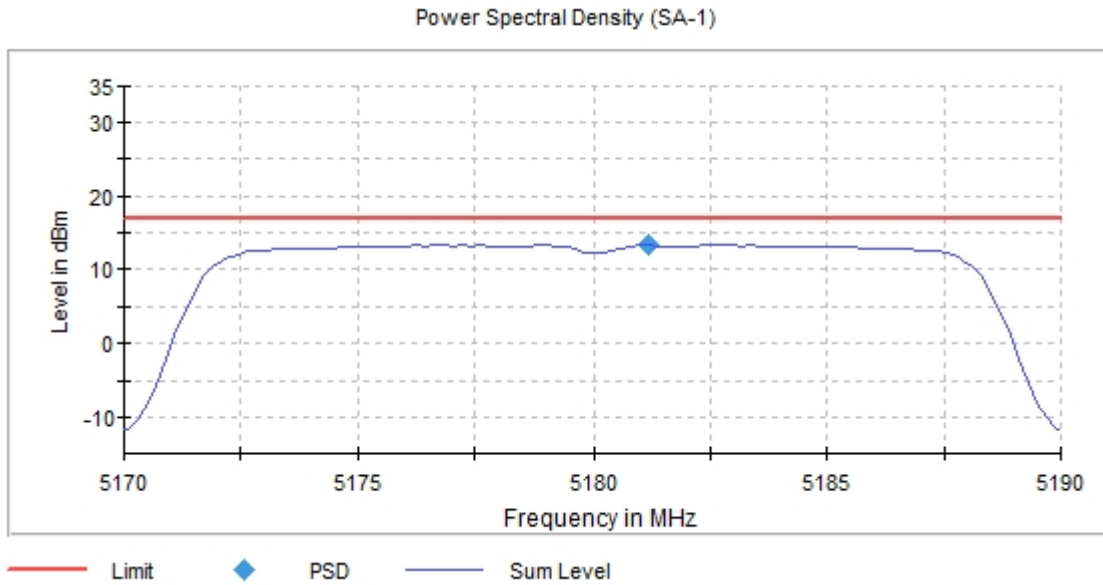
- High Channel 48 (5240 MHz):



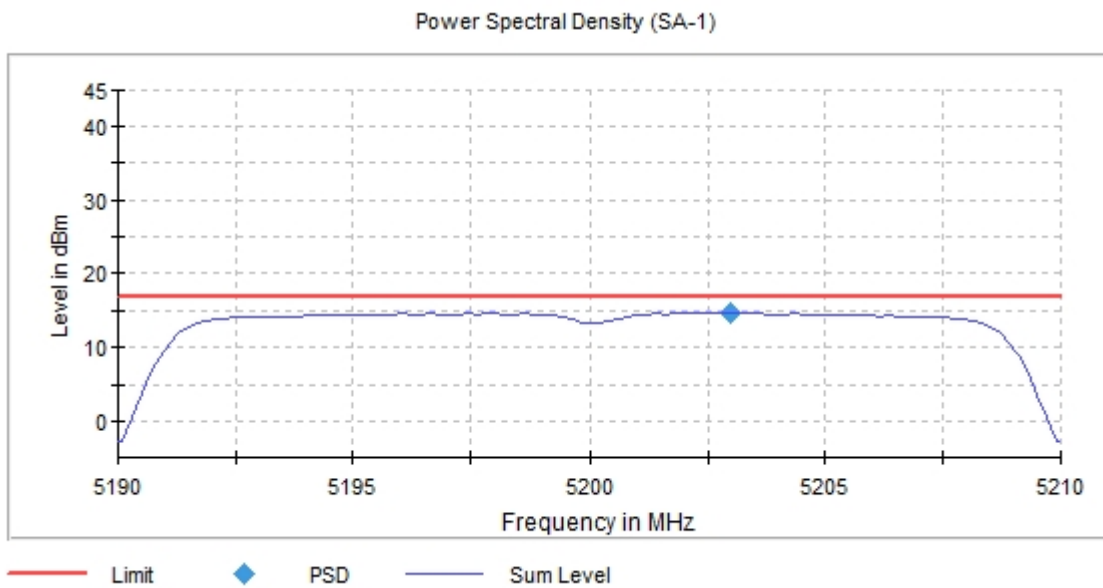
MIMO 802.11 n20 (HT20):

U-NII-1 (5150-5250 MHz)

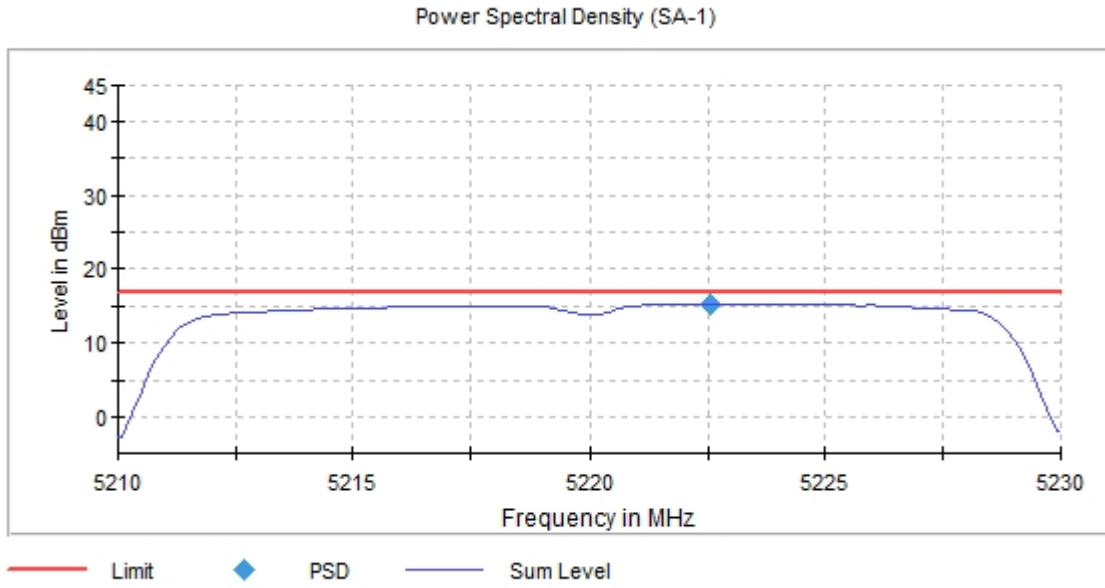
- Low Channel 36 (5180 MHz):



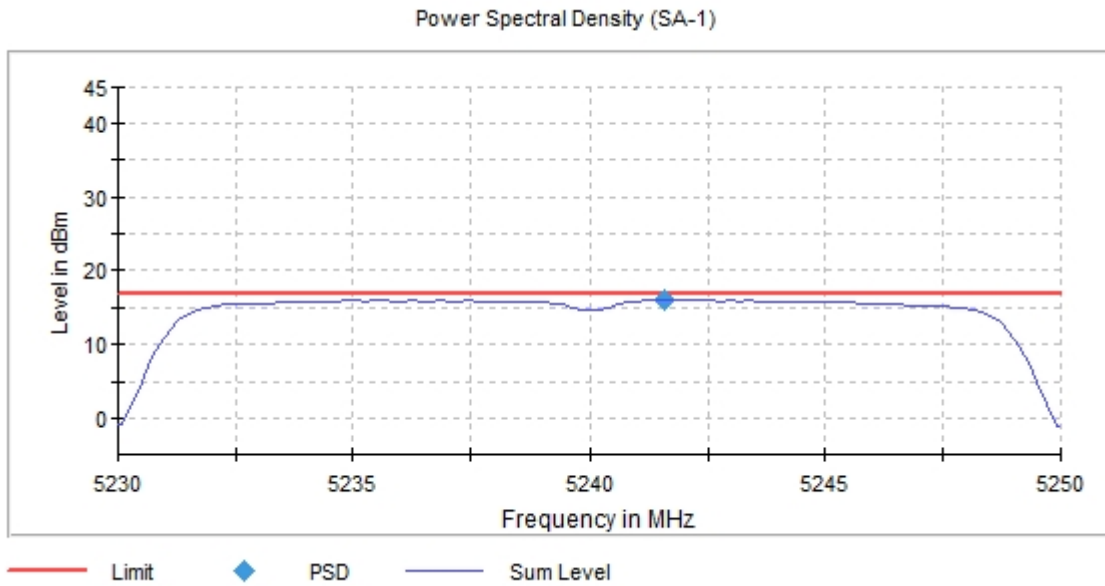
- Middle Channel 40 (5200 MHz):



- Channel 44 (5220 MHz):



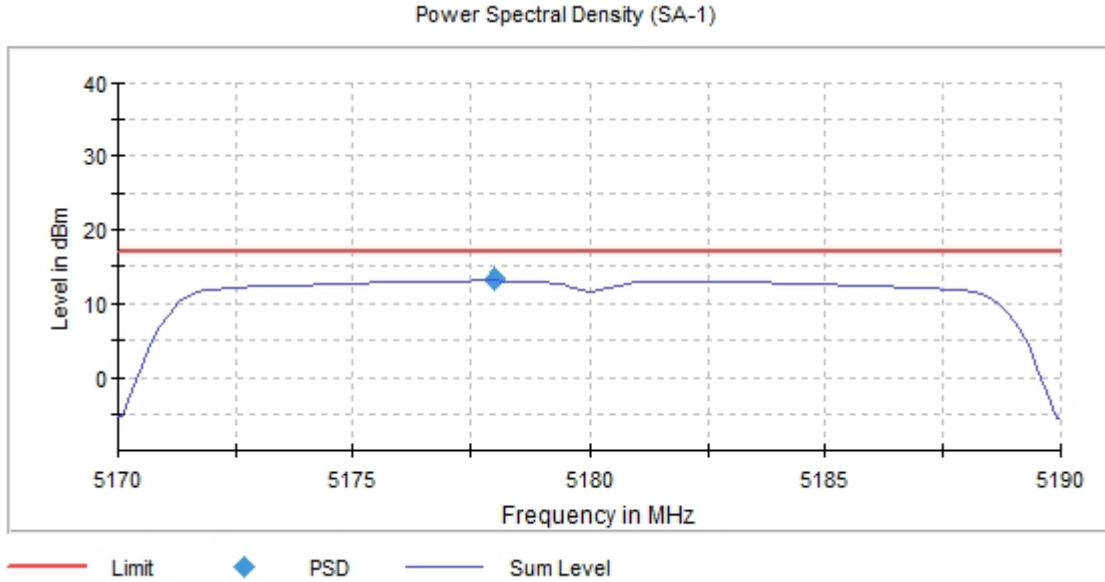
- High Channel 48 (5240 MHz):



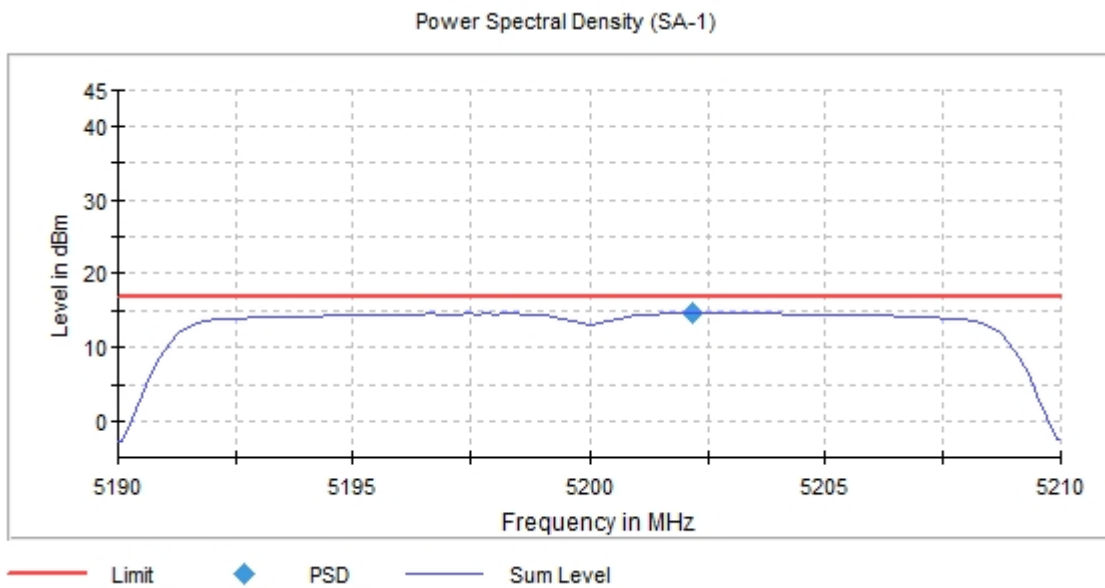
MIMO 802.11 ac20 (VHT20):

U-NII-1 (5150-5250 MHz)

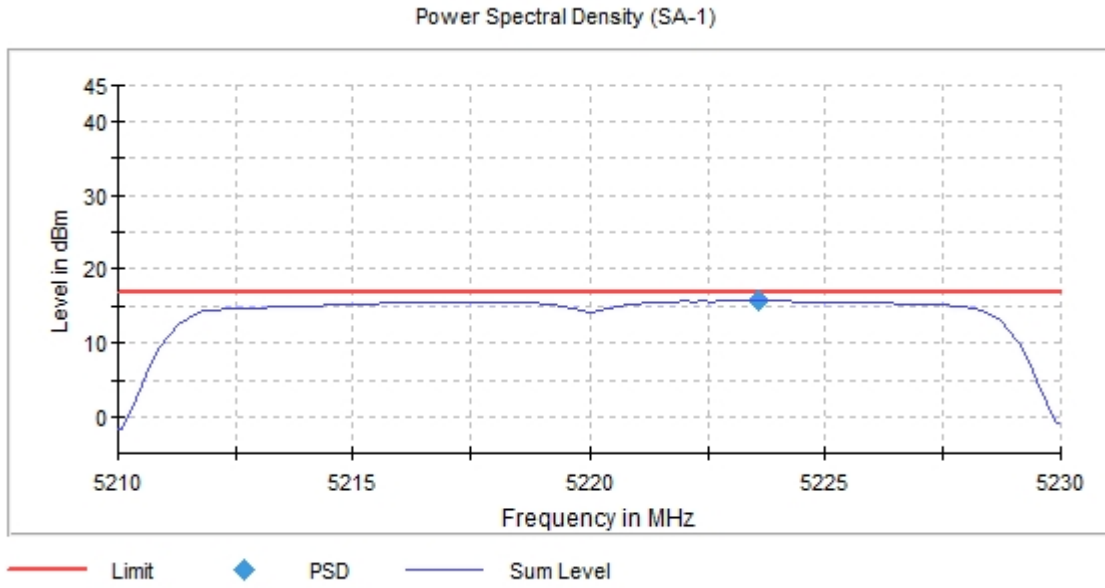
- Low Channel 36 (5180 MHz):



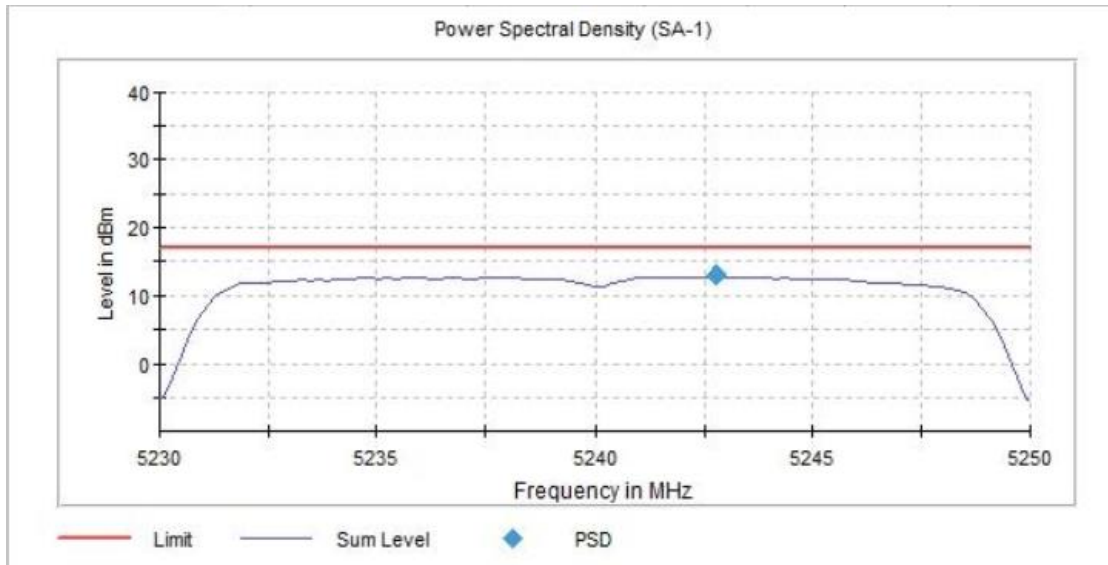
- Middle Channel 40 (5200 MHz):



- Channel 44 (5220 MHz):



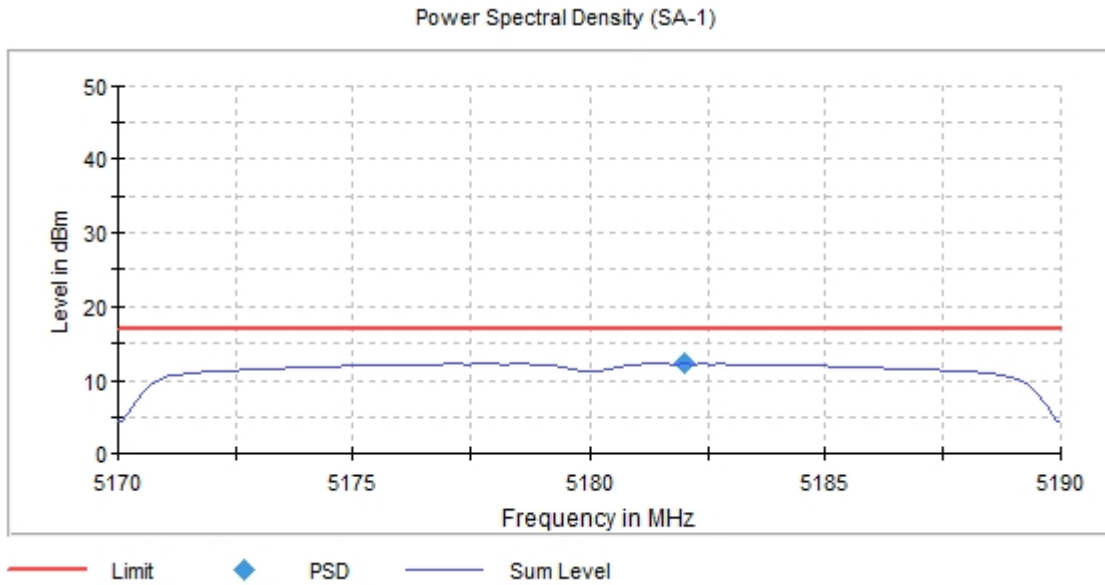
- High Channel 48 (5240 MHz):



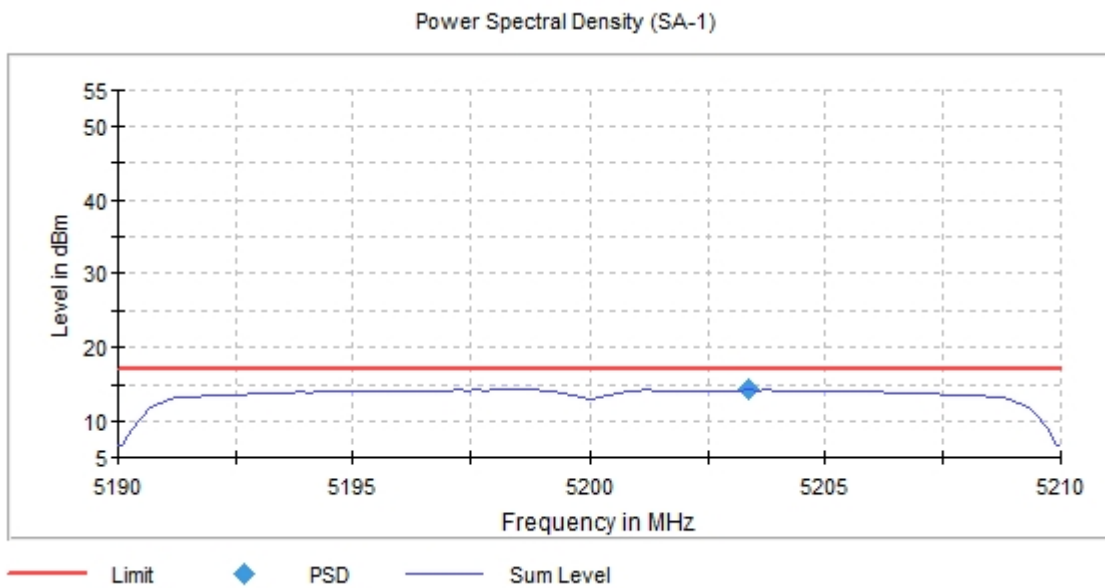
MIMO 802.11 ax20 (HE20):

U-NII-1 (5150-5250 MHz)

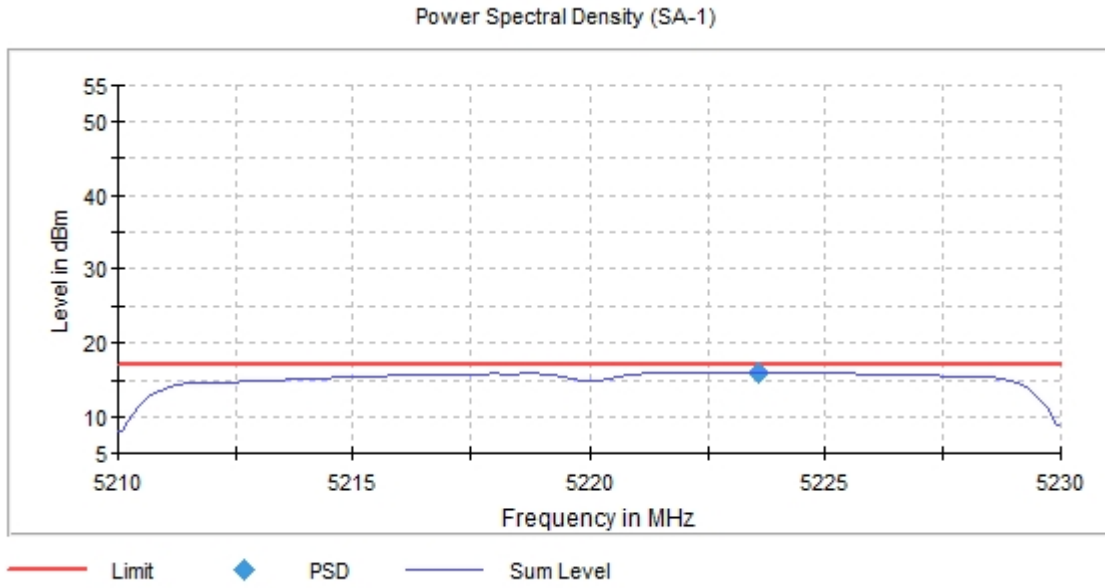
- Low Channel 36 (5180 MHz):



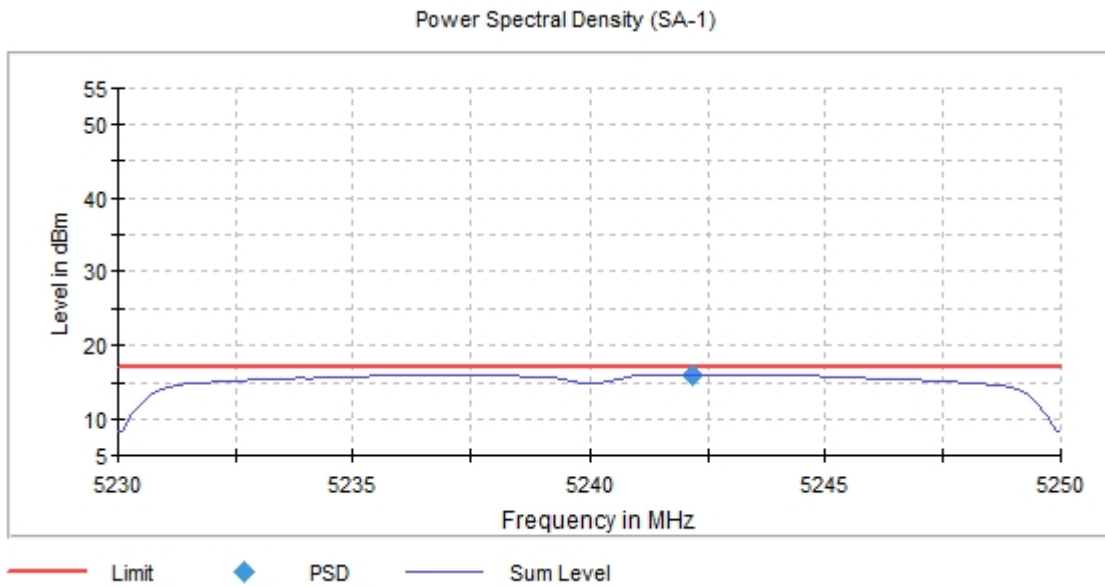
- Middle Channel 40 (5200 MHz):



- Channel 44 (5220 MHz):



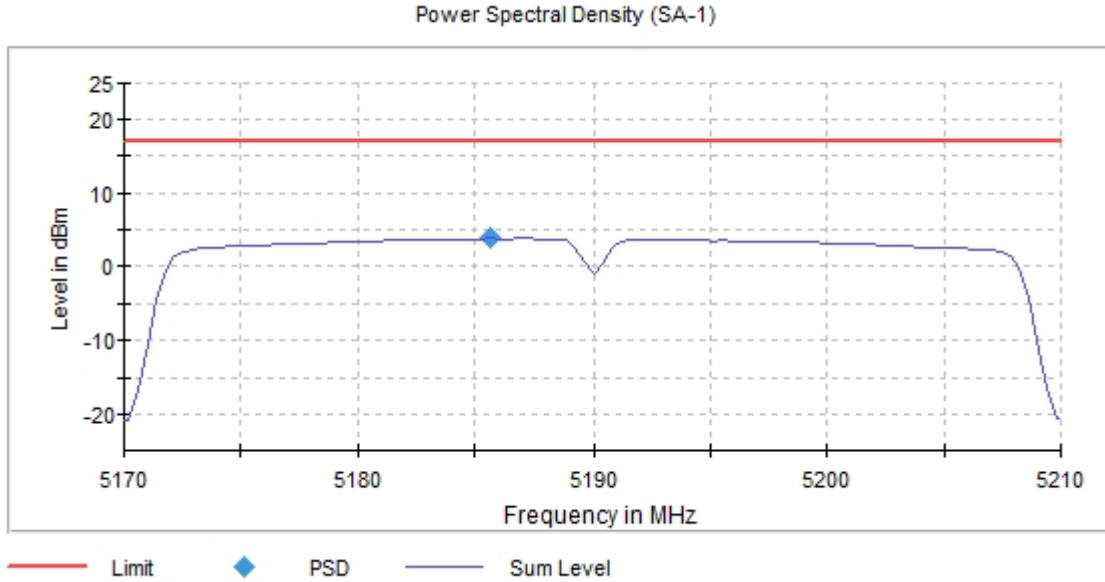
- High Channel 48 (5240 MHz):



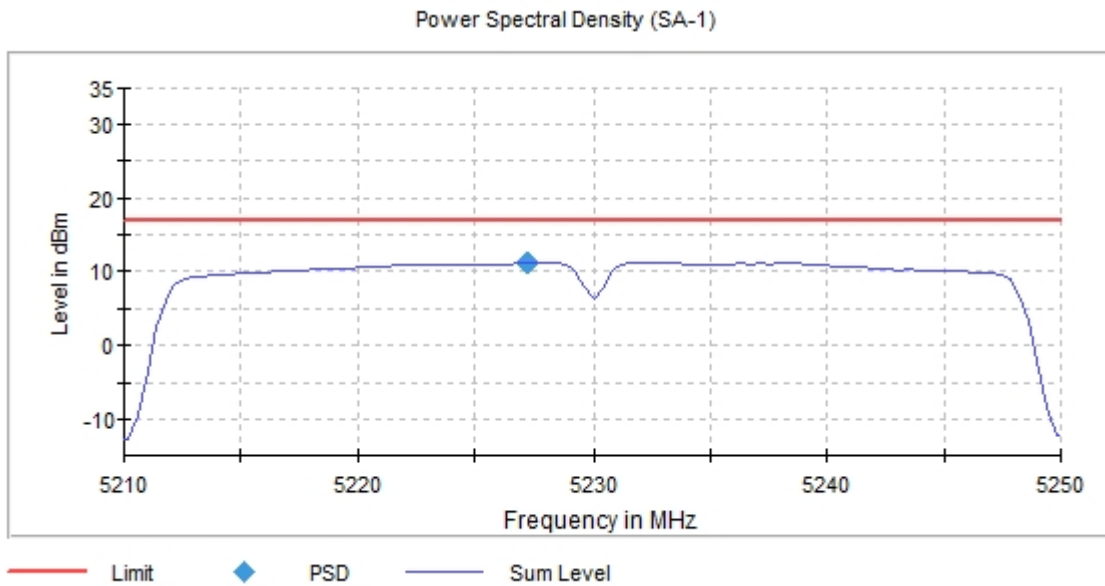
MIMO 802.11 n40 (HT40):

U-NII-1 (5150-5250 MHz)

- Low Channel 38 (5190 MHz):



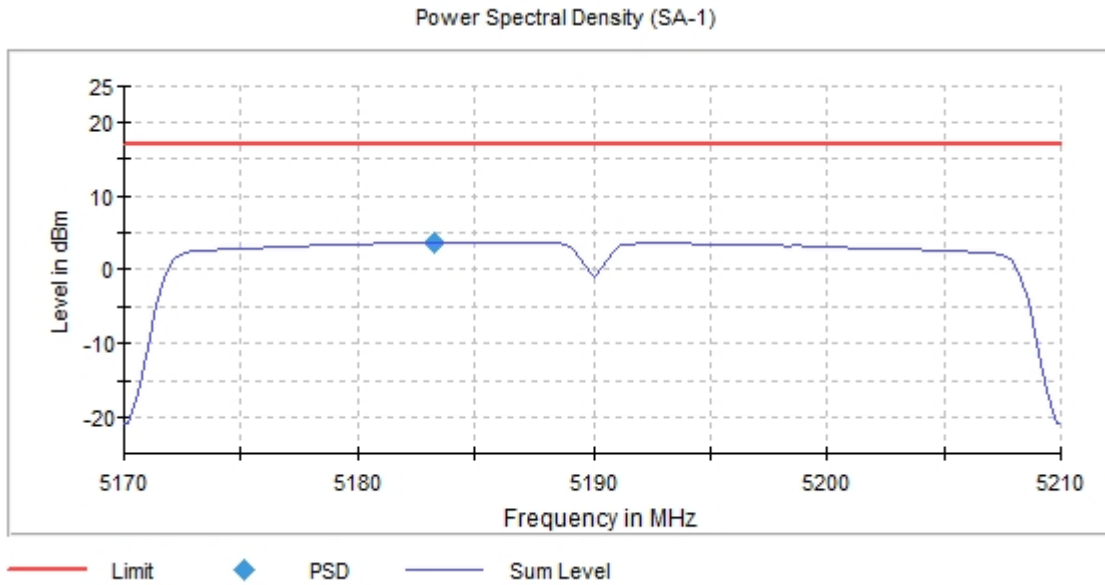
- High Channel 46 (5230 MHz):



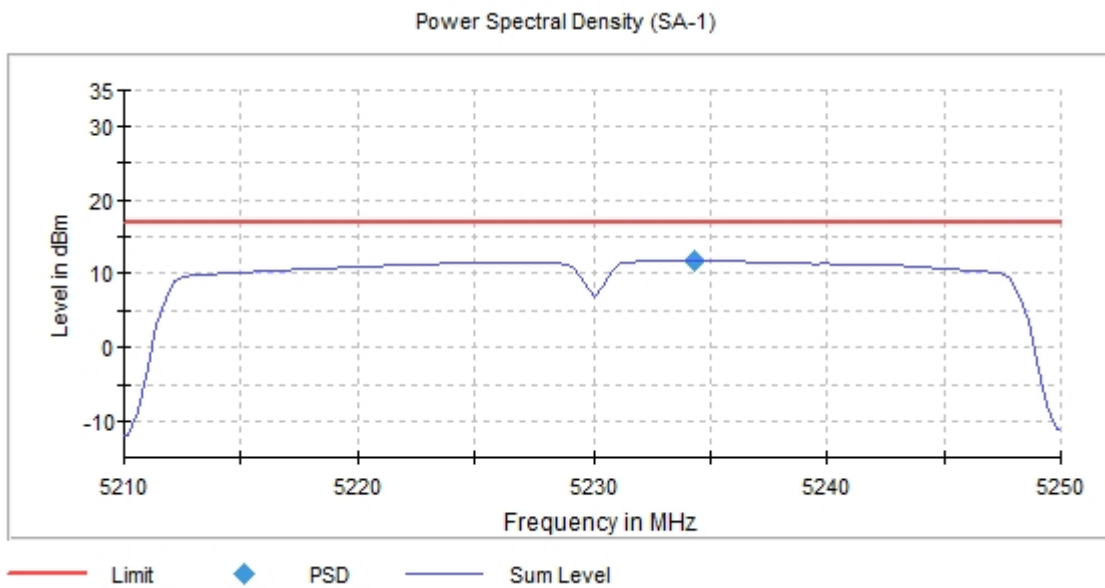
MIMO 802.11 ac40 (VHT40):

U-NII-1 (5150-5250 MHz)

- Low Channel 38 (5190 MHz):



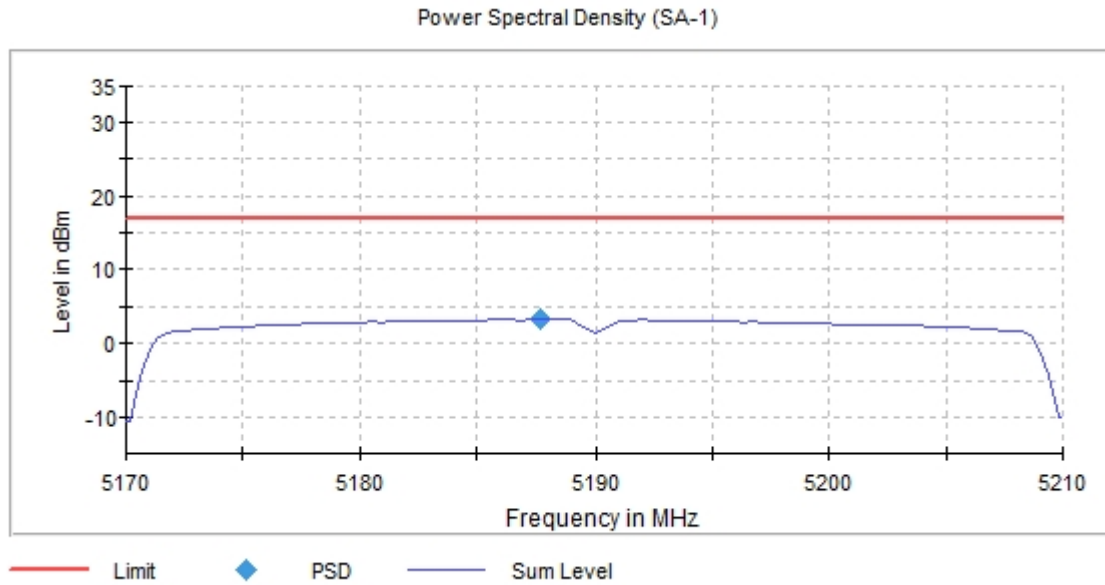
- High Channel 46 (5230 MHz):



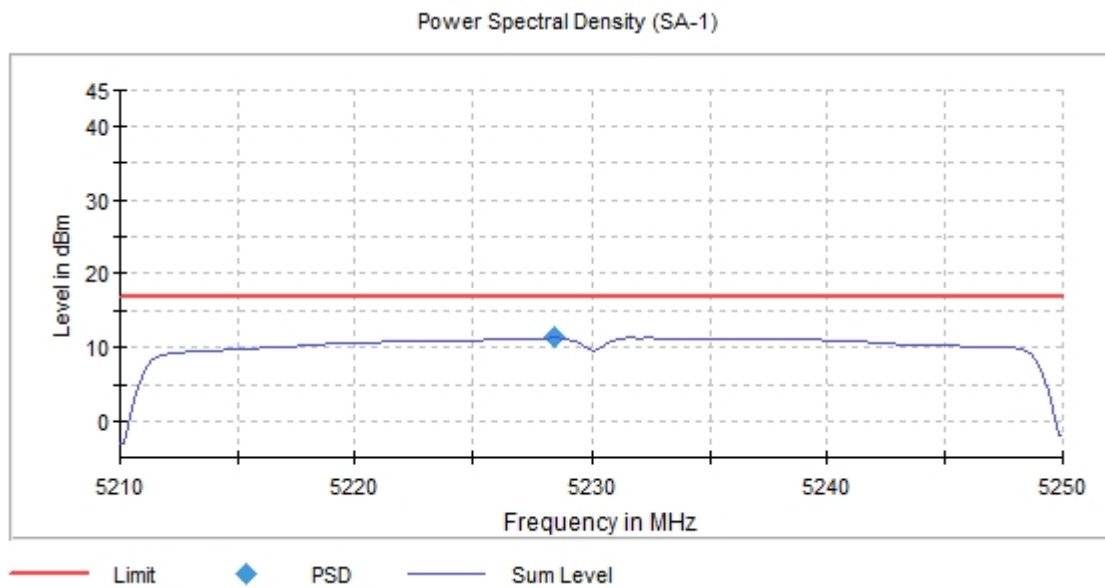
MIMO 802.11 ax40 (HE40):

U-NII-1 (5150-5250 MHz)

- Low Channel 38 (5190 MHz):



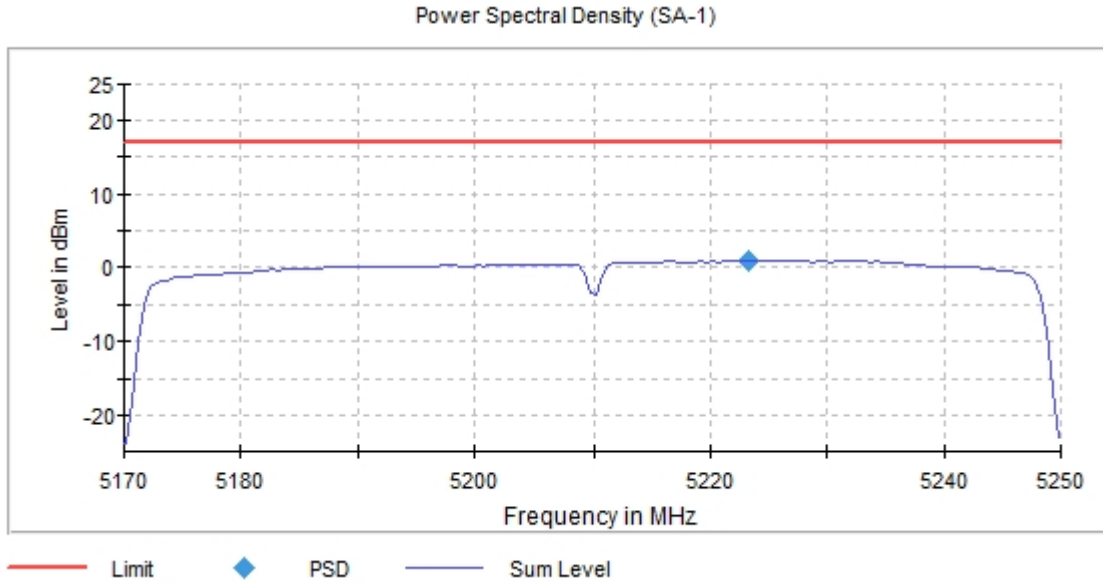
- High Channel 46 (5230 MHz):



MIMO 802.11 ac80 (VHT80):

U-NII-1 (5150-5250 MHz)

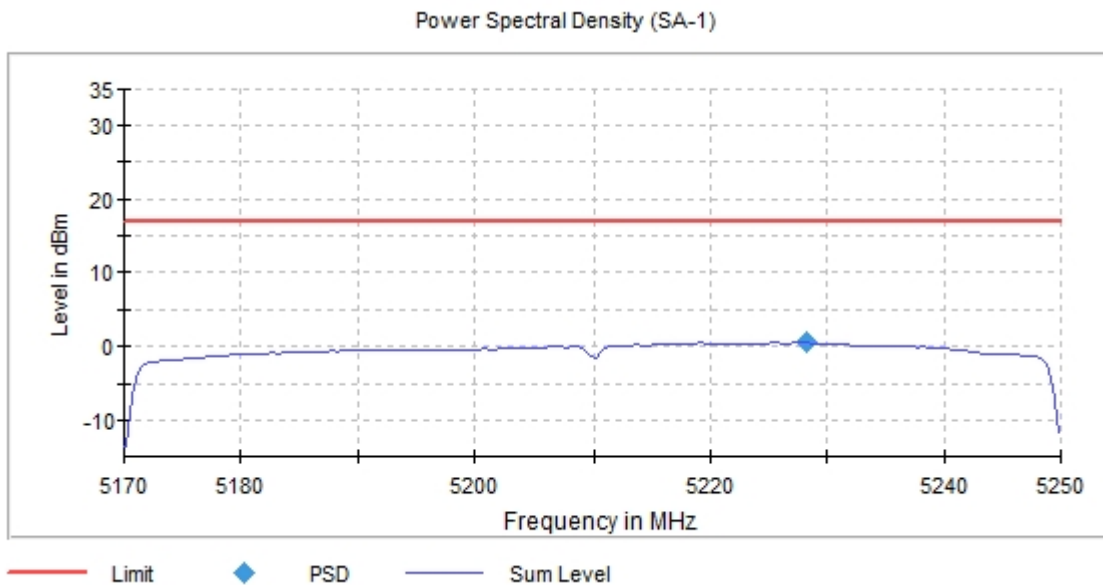
- Single Channel 42 (5210 MHz):



MIMO 802.11 ax80 (HE80):

U-NII-1 (5150-5250 MHz)

- Single Channel 42 (5210 MHz):



Canada power setting

MIMO worst-case:

SISO 802.11 a20:

U-NII-1 (5150-5250 MHz):

Channels	Low Channel 36 (5180 MHz)	Middle Channel 40 (5200 MHz)	Channel 44 (5220 MHz)	High Channel 48 (5240 MHz)
Maximum Corrected Conducted PSD (dBm)	2.468	2.264	2.981	3.260
Maximum EIRP Corrected Conducted PSD (dBm)	8.638	8.434	9.151	9.430
Measurement uncertainty (dB)	<±1.3			

SISO 802.11 n20 (HT20):

U-NII-1 (5150-5250 MHz):

Channels	Low Channel 36 (5180 MHz)	Middle Channel 40 (5200 MHz)	Channel 44 (5220 MHz)	High Channel 48 (5240 MHz)
Maximum Corrected Conducted PSD (dBm)	2.524	2.090	2.640	3.027
Maximum EIRP Corrected Conducted PSD (dBm)	8.694	8.260	8.810	9.197
Measurement uncertainty (dB)	<±1.3			

SISO 802.11 ac20 (VHT20):

U-NII-1 (5150-5250 MHz):

Channels	Low Channel 36 (5180 MHz)	Middle Channel 40 (5200 MHz)	Channel 44 (5220 MHz)	High Channel 48 (5240 MHz)
Maximum Corrected Conducted PSD (dBm)	2.575	2.052	2.778	2.979
Maximum EIRP Corrected Conducted PSD (dBm)	8.745	8.212	8.948	9.149
Measurement uncertainty (dB)	<±1.3			

SISO 802.11 ax20 (HE20):

U-NII-1 (5150-5250 MHz):

Channels	Low Channel 36 (5180 MHz)	Middle Channel 40 (5200 MHz)	Channel 44 (5220 MHz)	High Channel 48 (5240 MHz)
Maximum Corrected Conducted PSD (dBm)	2.107	1.716	2.245	2.615
Maximum EIRP Corrected Conducted PSD (dBm)	8.777	7.886	8.415	8.785
Measurement uncertainty (dB)	<±1.3			

SISO 802.11 n40 (HT40):

U-NII-1 (5150-5250 MHz):

Channels	Low Channel 38 (5190 MHz)	High Channel 46 (5230 MHz)
Maximum Corrected Conducted PSD (dBm)	-1.604	-0.609
Maximum EIRP Corrected Conducted PSD (dBm)	4.566	5.561
Measurement uncertainty (dB)	<±1.3	

SISO 802.11 ac40 (VHT40):

U-NII-1 (5150-5250 MHz):

Channels	Low Channel 38 (5190 MHz)	High Channel 46 (5230 MHz)
Maximum Corrected Conducted PSD (dBm)	-1.006	0.090
Maximum EIRP Corrected Conducted PSD (dBm)	5.164	6.260
Measurement uncertainty (dB)	<±1.3	

SISO 802.11 ax40 (HE40):

U-NII-1 (5150-5250 MHz):

Channels	Low Channel 38 (5190 MHz)	High Channel 46 (5230 MHz)
Maximum Corrected Conducted PSD (dBm)	-0.649	0.134
Maximum EIRP Corrected Conducted PSD (dBm)	5.521	6.304
Measurement uncertainty (dB)	<±1.3	

SISO 802.11 ac80 (VHT80):

U-NII-1 (5150-5250 MHz):

Channel	Single Channel 42 (5210 MHz)
Maximum Corrected Conducted PSD (dBm)	-3.388
Maximum EIRP Corrected Conducted PSD (dBm)	2.782
Measurement uncertainty (dB)	<±1.3

SISO 802.11 ax80 (HE80):

U-NII-1 (5150-5250 MHz):

Channel	Single Channel 42 (5210 MHz)
Maximum Corrected Conducted PSD (dBm)	-3.785
Maximum EIRP Corrected Conducted PSD (dBm)	2.385
Measurement uncertainty (dB)	<±1.3

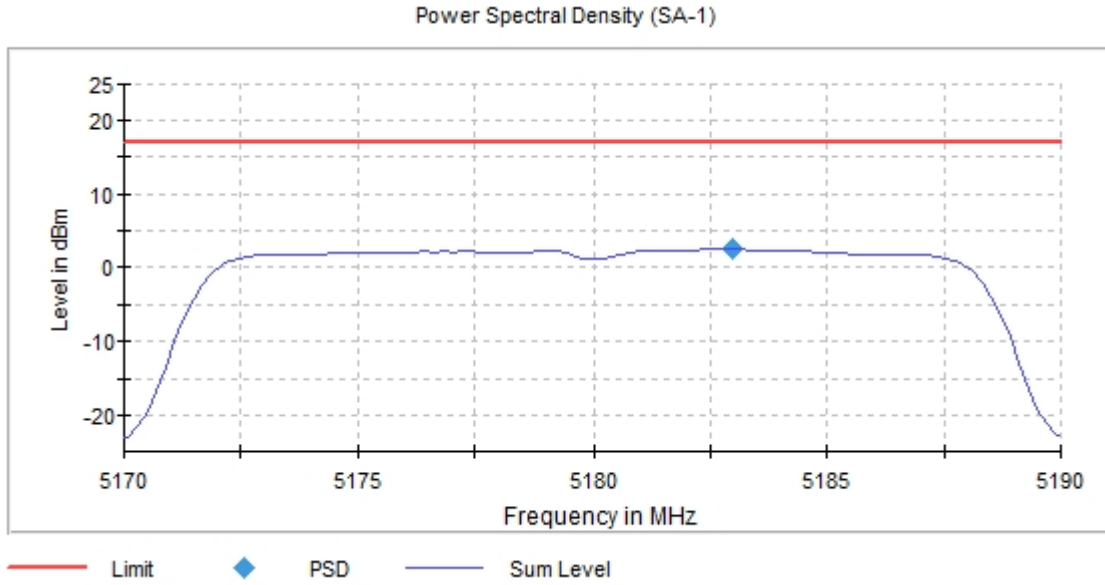
Verdict: PASS

MIMO worst-case:

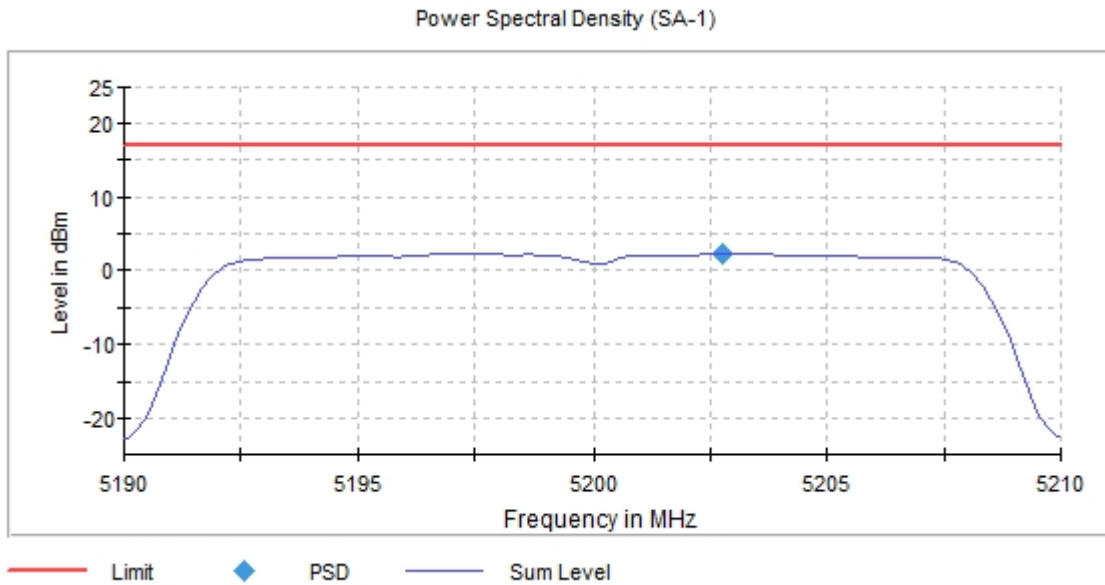
MIMO 802.11 a20:

U-NII-1 (5150-5250 MHz)

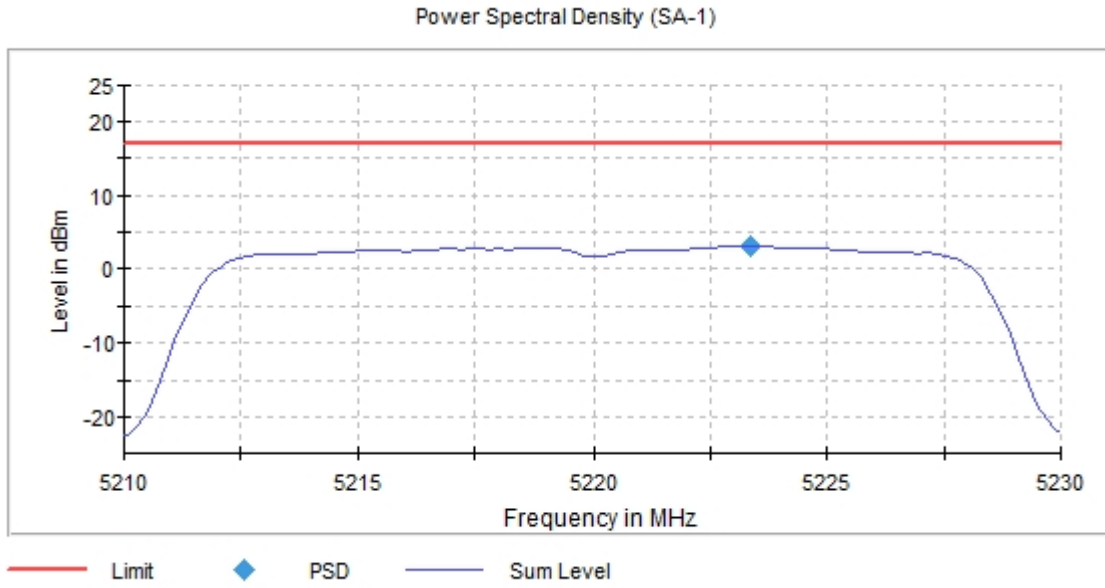
- Low Channel 36 (5180 MHz):



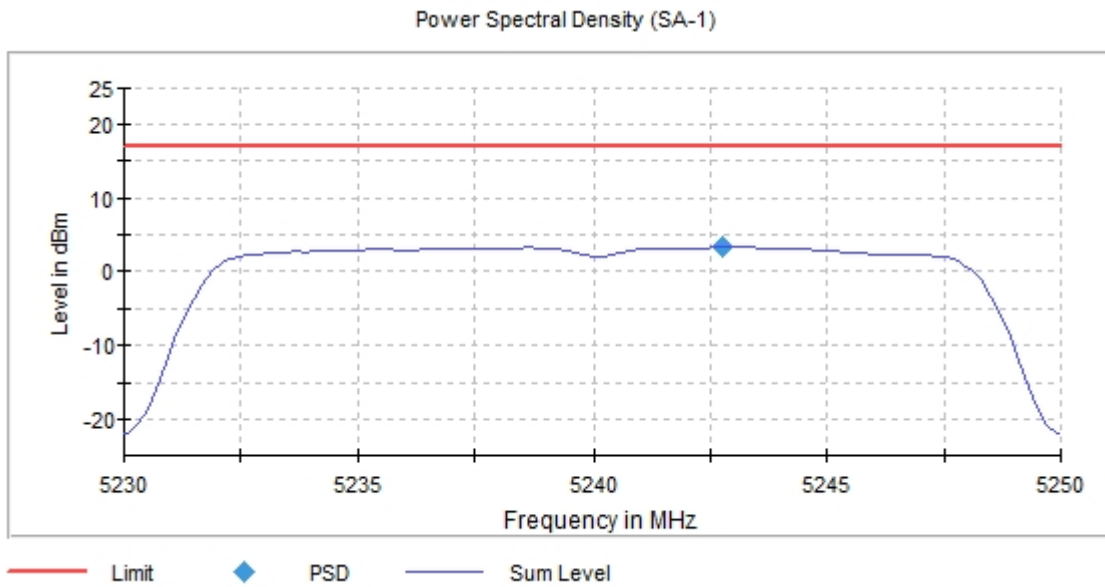
- Middle Channel 40 (5200 MHz):



- Channel 44 (5220 MHz):



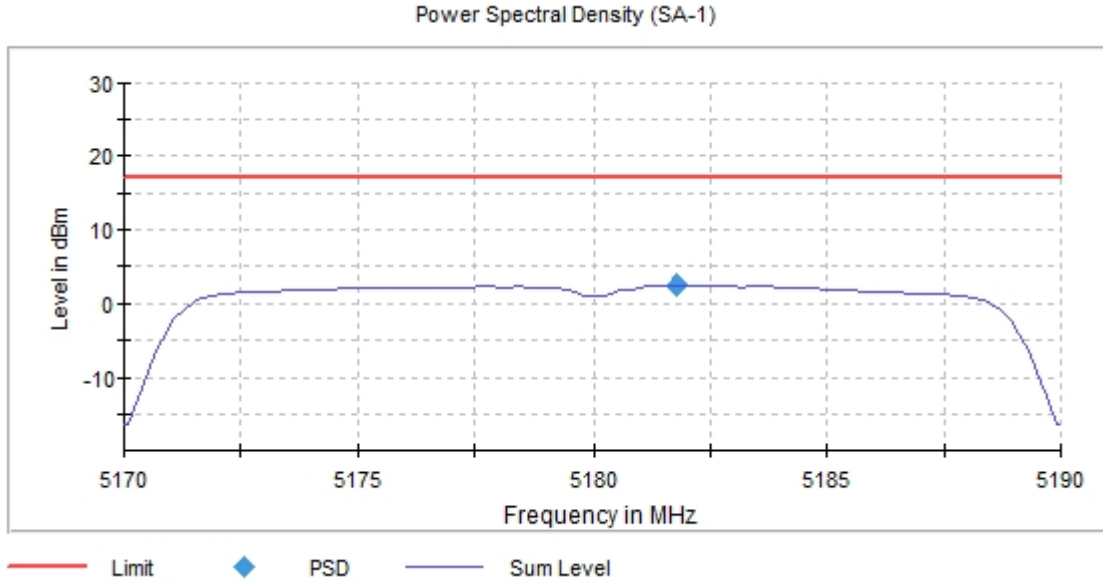
- High Channel 48 (5240 MHz):



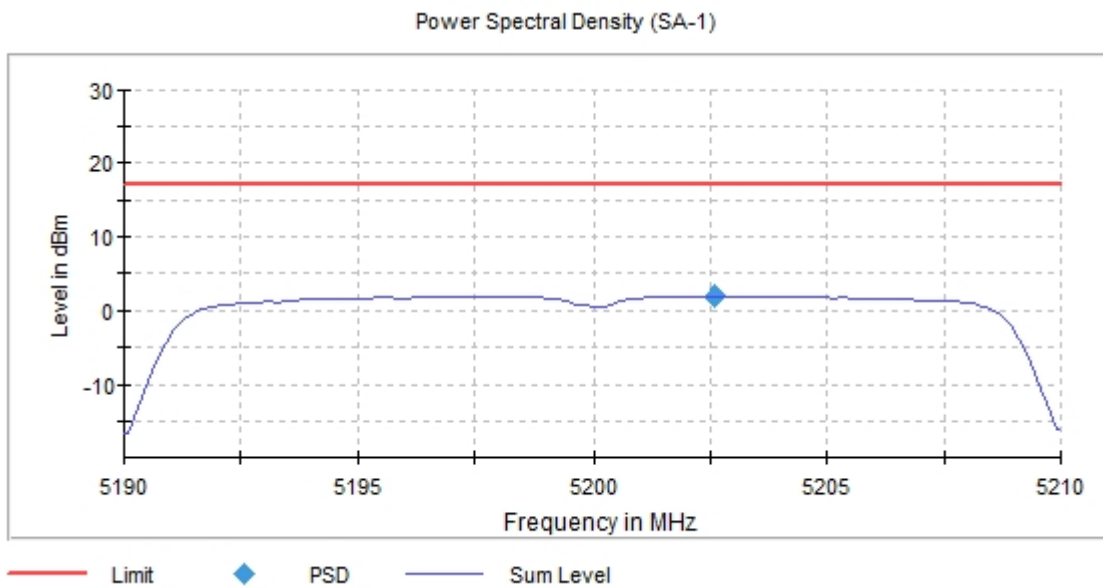
MIMO 802.11 n20 (HT20):

U-NII-1 (5150-5250 MHz)

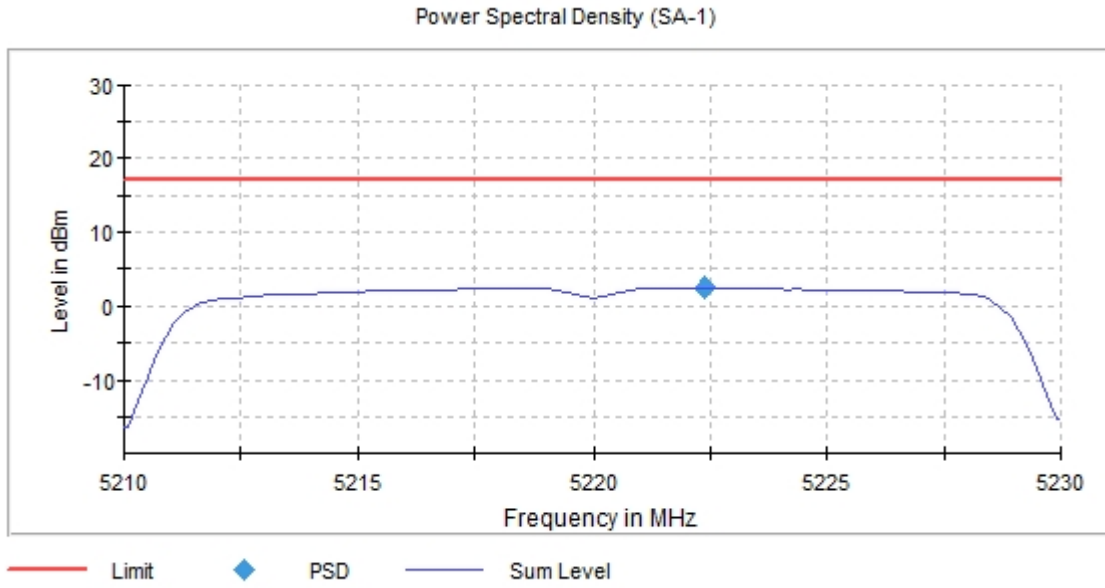
- Low Channel 36 (5180 MHz):



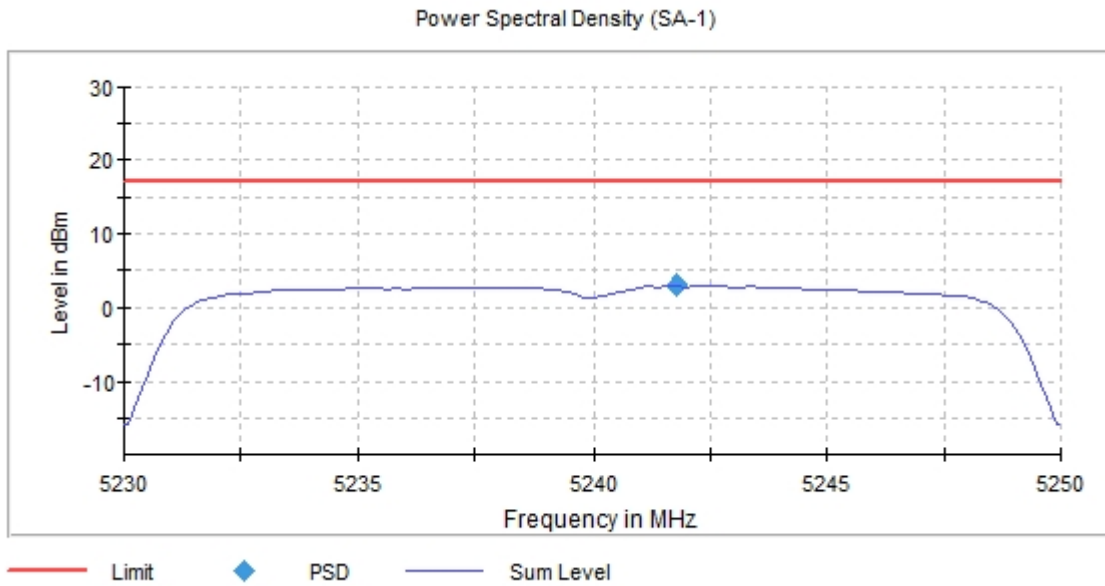
- Middle Channel 40 (5200 MHz):



- Channel 44 (5220 MHz):



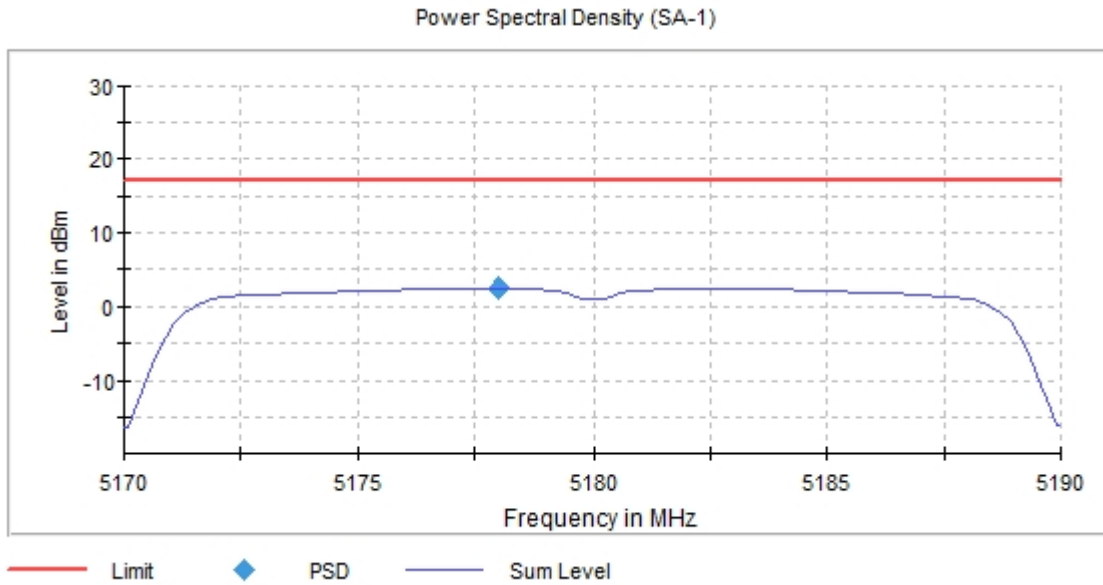
- High Channel 48 (5240 MHz):



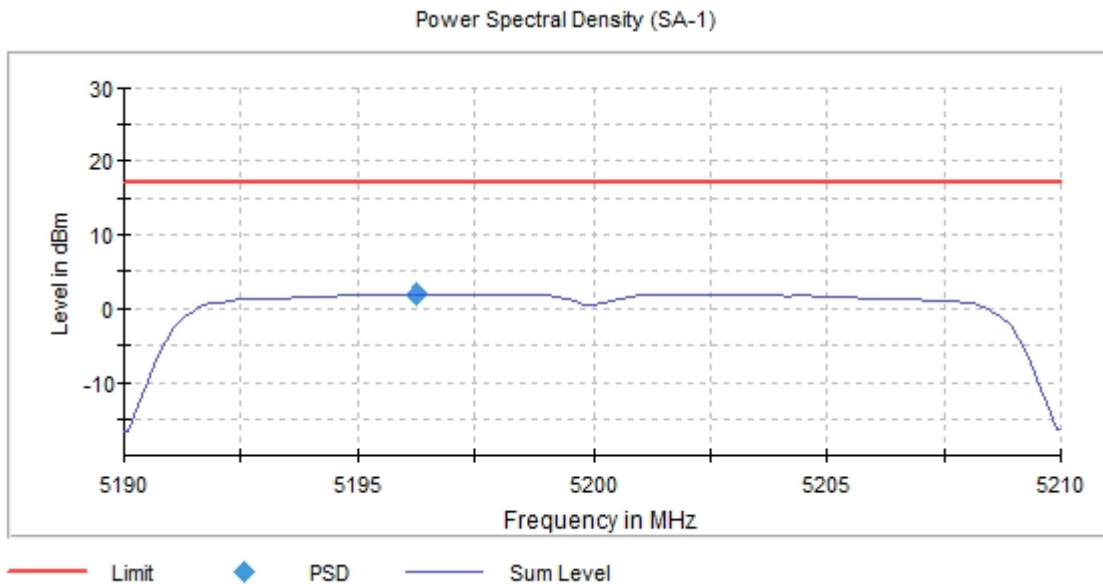
MIMO 802.11 ac20 (VHT20):

U-NII-1 (5150-5250 MHz)

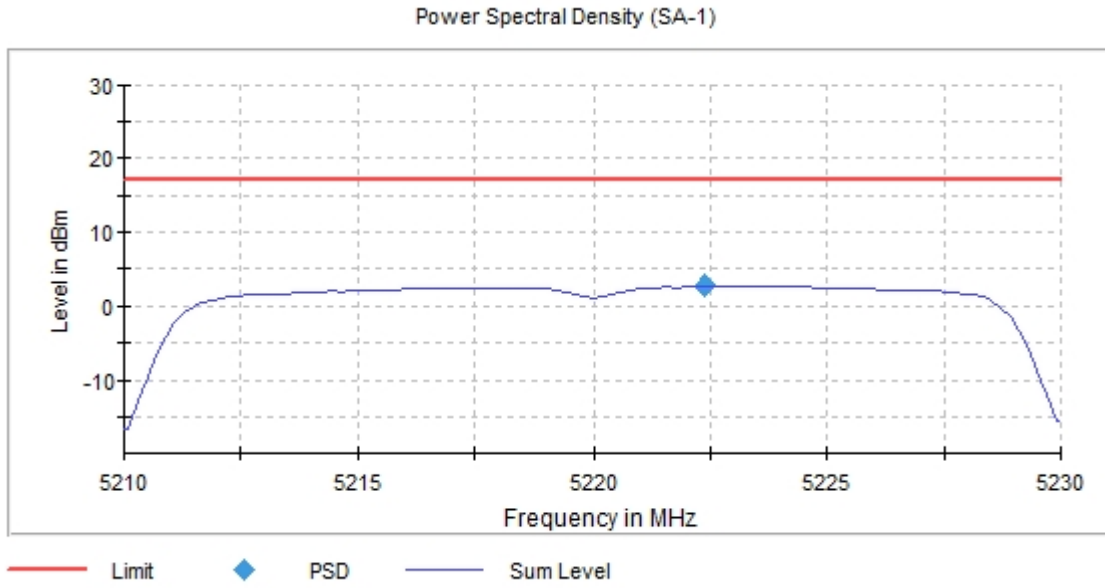
- Low Channel 36 (5180 MHz):



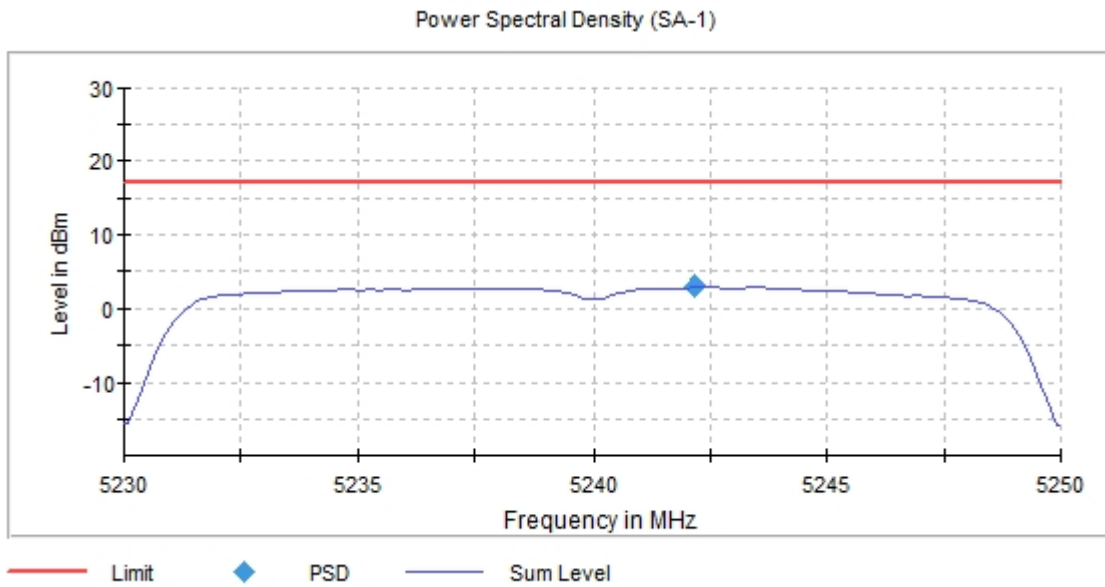
- Middle Channel 40 (5200 MHz):



- Channel 44 (5220 MHz):



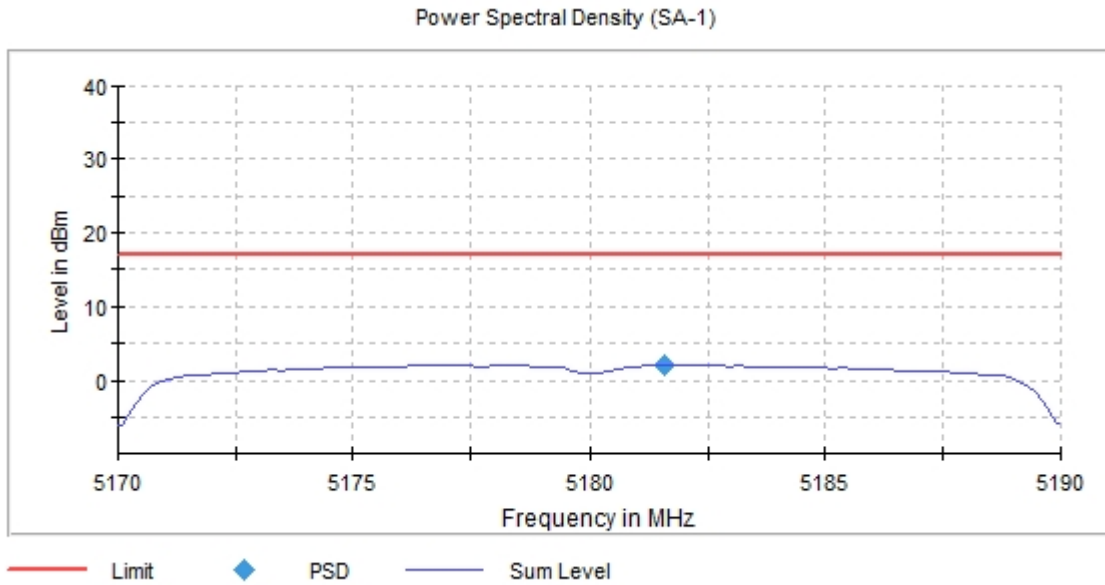
- High Channel 48 (5240 MHz):



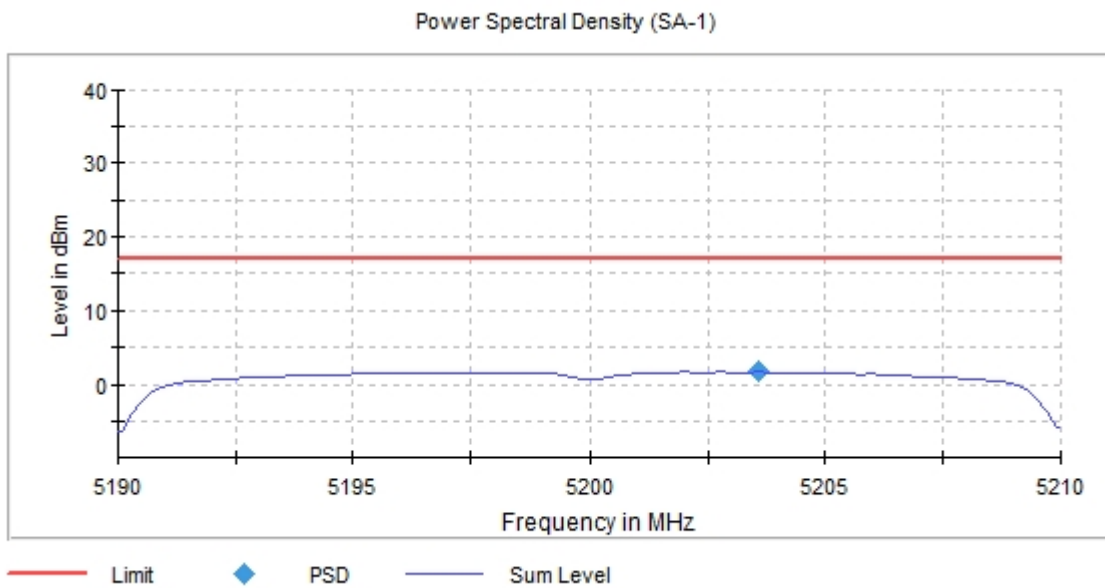
MIMO 802.11 ax20 (HE20):

U-NII-1 (5150-5250 MHz)

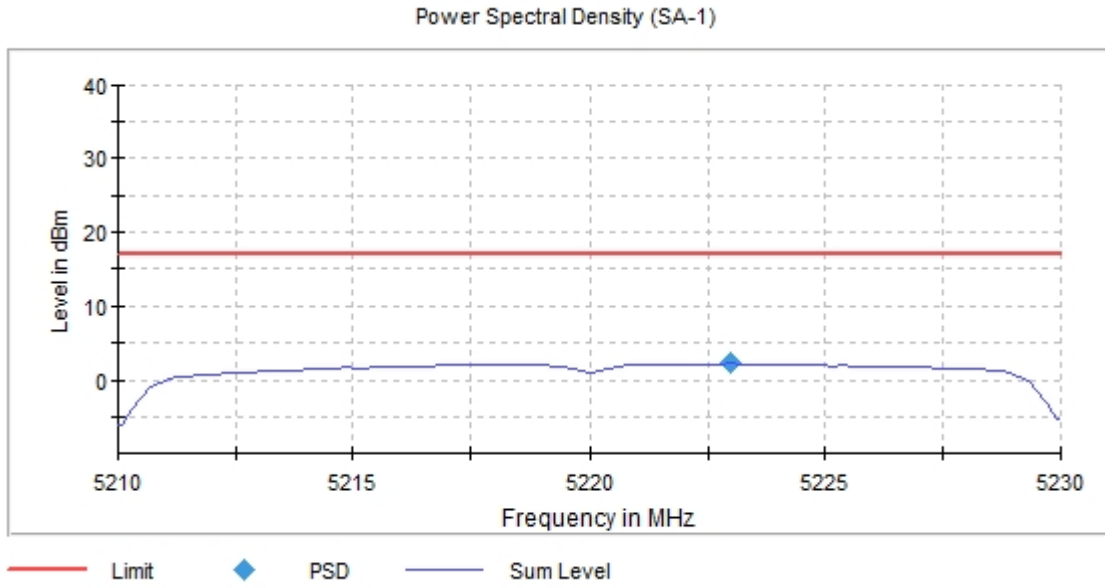
- Low Channel 36 (5180 MHz):



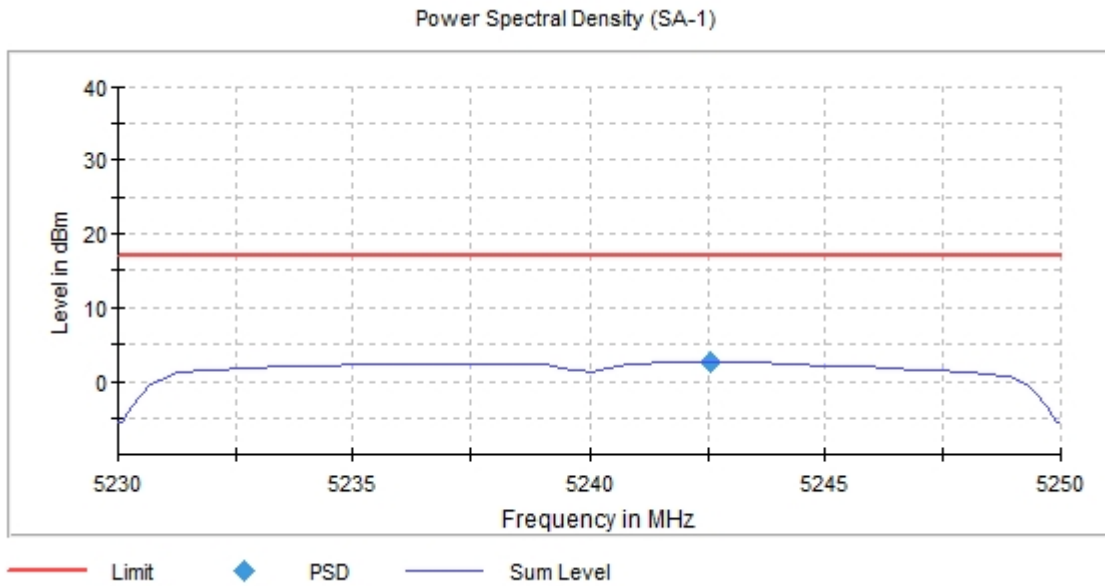
- Middle Channel 40 (5200 MHz):



- Channel 44 (5220 MHz):



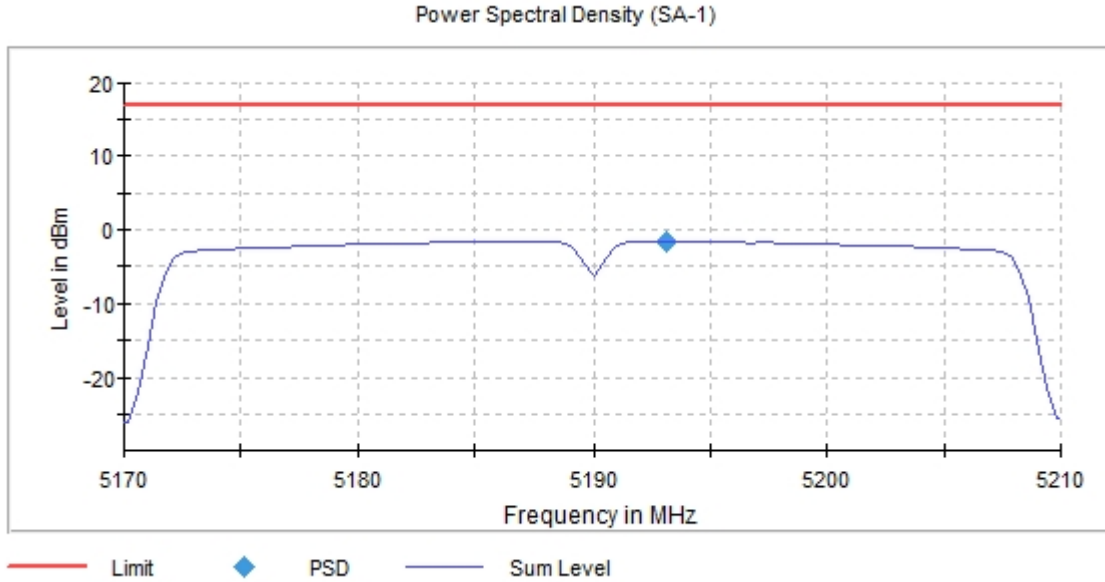
- High Channel 48 (5240 MHz):



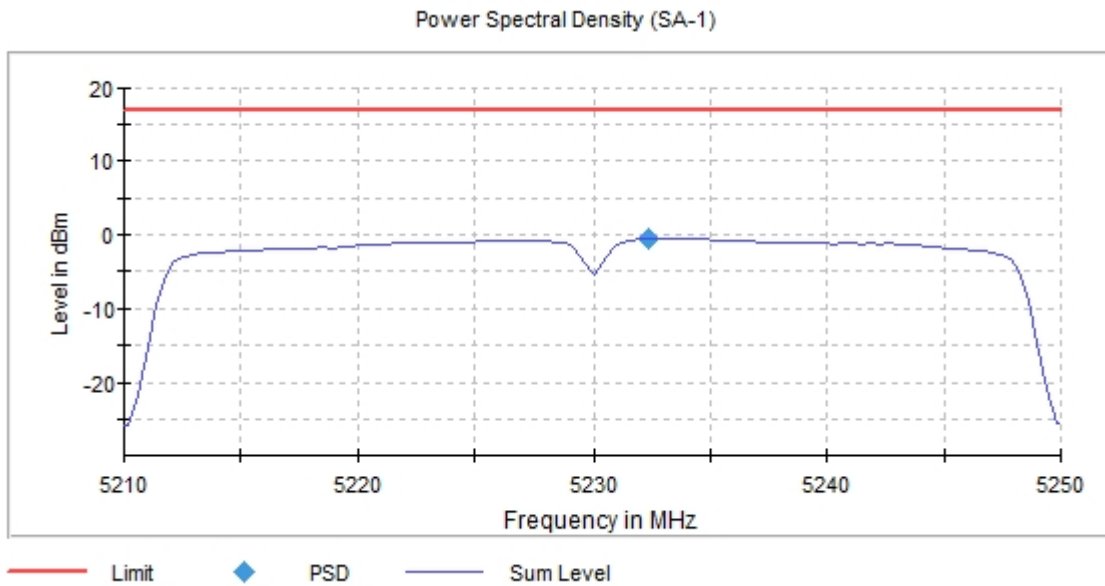
MIMO 802.11 n40 (HT40):

U-NII-1 (5150-5250 MHz)

- Low Channel 38 (5190 MHz):



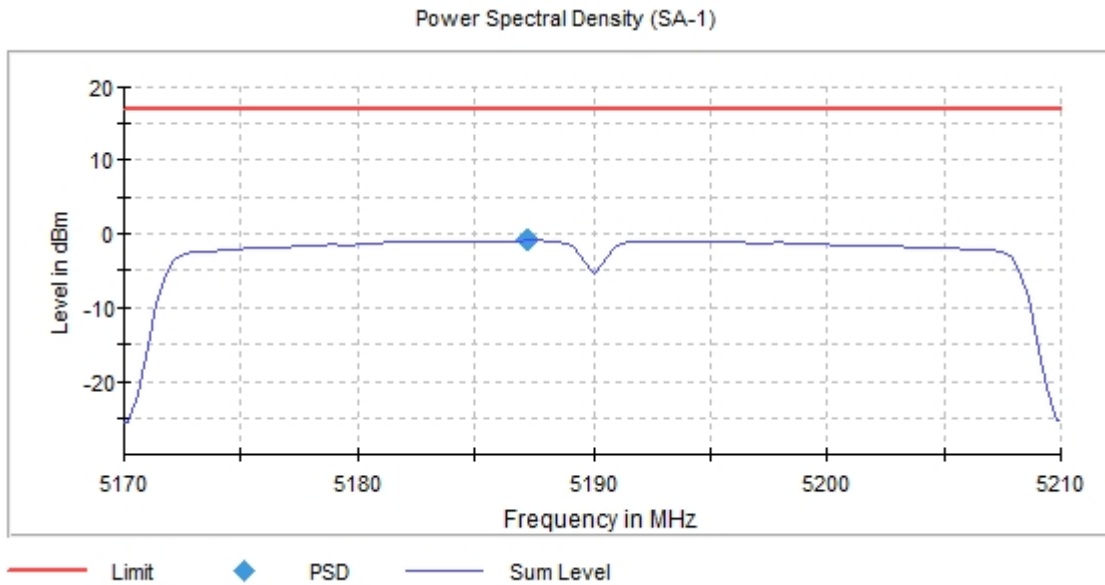
- High Channel 46 (5230 MHz):



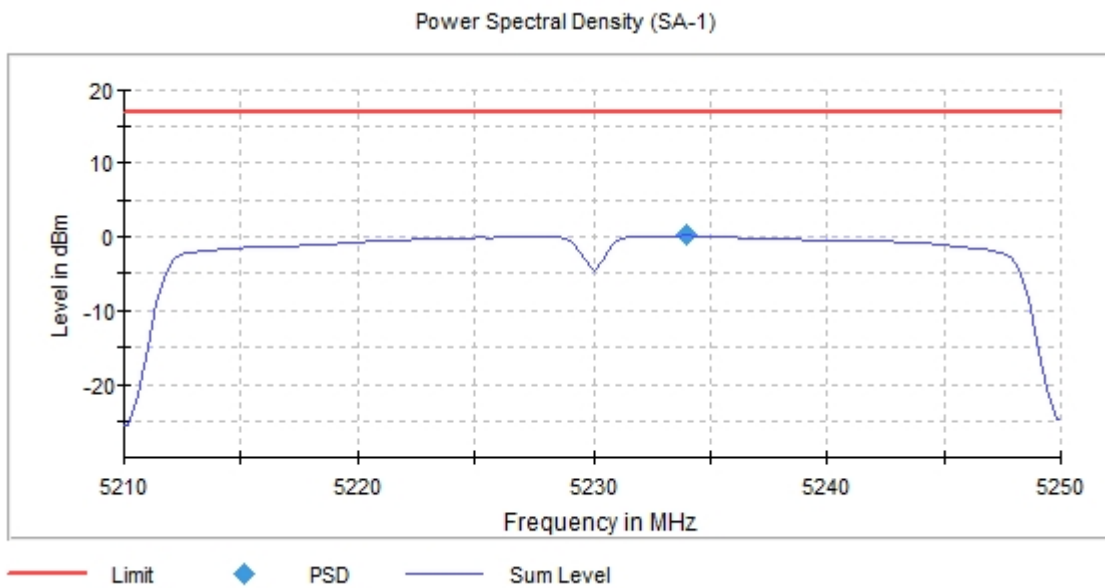
MIMO 802.11 ac40 (VHT40):

U-NII-1 (5150-5250 MHz)

- Low Channel 38 (5190 MHz):



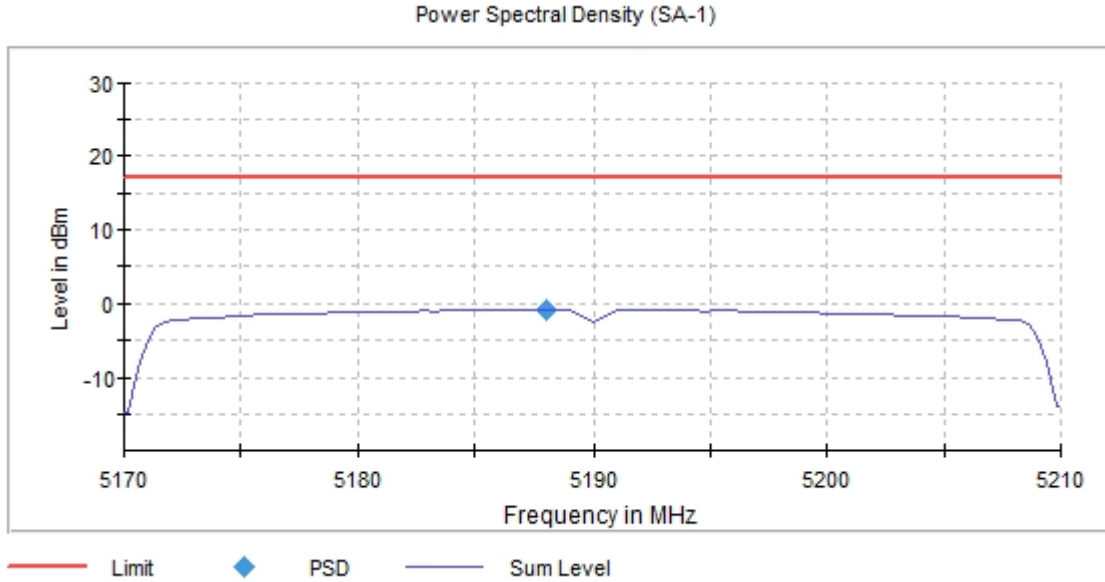
- High Channel 46 (5230 MHz):



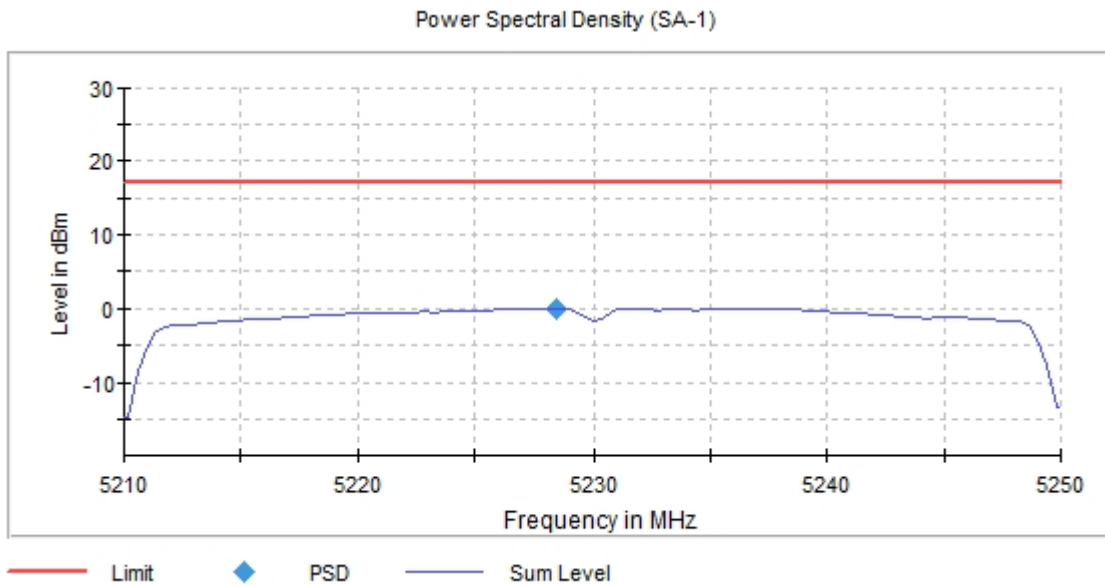
MIMO 802.11 ax40 (HE40):

U-NII-1 (5150-5250 MHz)

- Low Channel 38 (5190 MHz):



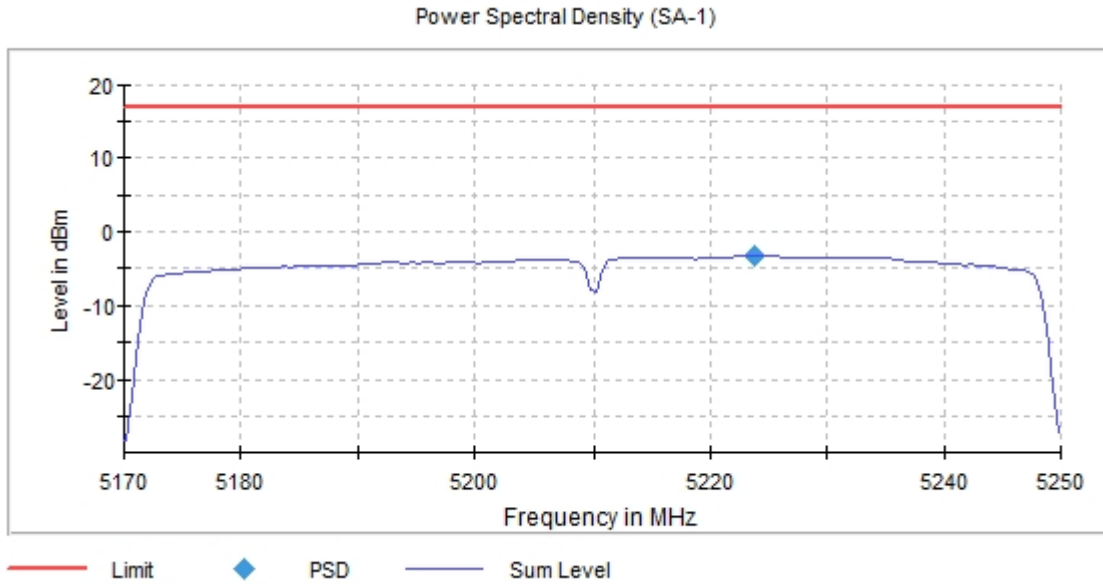
- High Channel 46 (5230 MHz):



MIMO 802.11 ac80 (VHT80):

U-NII-1 (5150-5250 MHz)

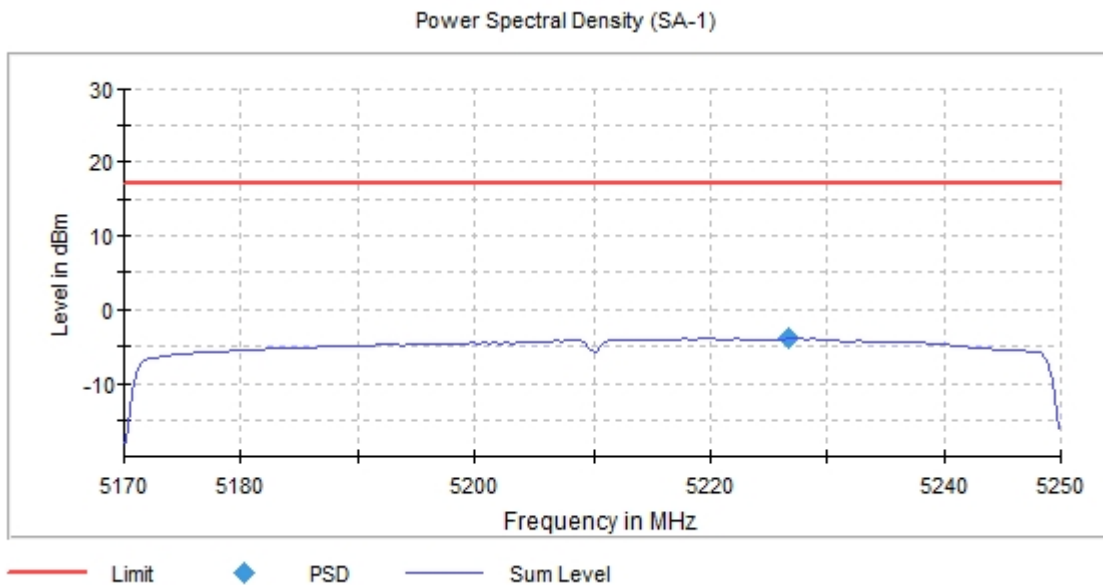
- Single Channel 42 (5210 MHz):



MIMO 802.11 ax80 (HE80):

U-NII-1 (5150-5250 MHz)

- Single Channel 42 (5210 MHz):



FCC 15.407 (b)(1) / RSS-247 6.2.1.2. Transmitter Out of Band Radiated Emissions

SPECIFICATION:

For transmitters operating in the 5.15–5.25 GHz band: all emissions outside of the 5.15–5.35 GHz band shall not exceed an EIRP of –27 dBm/MHz (68.23 dBμV/m at 3 m distance).

Radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)):

Frequency Range (MHz)	Field strength (μV/m)	Field strength (dBμV/m)	Measurement distance (m)
0.009-0.490	2400/F(kHz)	-	300
0.490-1.705	24000/F(kHz)	-	300
1.705 - 30.0	30	-	30
30 - 88	100	40	3
88 - 216	150	43.5	3
216 - 960	200	46	3
960 - 40000	500	54	3

The emission limits shown in the above table are based on measurements employing CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

For average radiated emission measurements above 1000 MHz, there is also a limit corresponding to 20 dB above the indicated values in the table is specified when measuring with peak detector function.

RESULTS:

The situation and orientation was varied to find the maximum radiated emission. It was also rotated 360° and the antenna height was varied from 1 to 4 meters to find the maximum radiated emission.

Measurements were made in both horizontal and vertical planes of polarization.

All tests were performed in a semi-anechoic chamber at a distance of 1m for the frequency range 1 GHz-40 GHz and a distance of 3m for frequency range 30MHz-1GHz.

The field strength is calculated by adding correction factor to the measured level from the spectrum analyzer. This correction factor includes antenna factor, cable loss and pre-amplifiers gain.

The worst-case was determined by measuring the eirp density (radiated). Test performed on the worst-case:

The next results are for the FCC power adjustment. The RSS power adjustment is lower, hence results also comply with the applicable standards.

SISO worst-case:

- Preliminary tests determined the SISO worst-case: WLAN1.

Worst-case: 802.11 a20 (index MCS0)

Frequency range 30 MHz - 1 GHz (SISO worst-case):

The spurious emissions below 1 GHz do not depend on either the operating channel or the modulation mode selected in the EUT.

Spurious frequencies detected at less than 20 dB below the limit:

Spurious frequency (MHz)	Emission Level (dBµV/m)	Polarization	Detector
126.757500	26.87	V	Quasi Peak
150.959000	26.83	V	Quasi Peak

Measurement Uncertainty (dB) ± 5.1

Frequency range 1 - 40 GHz (SISO worst-case):

The results in the next tables show the maximum measured levels in the 1-40 GHz frequency range.

The Low, Middle and High Channels were measured for out-of-band emissions for the worst mode.

Spurious frequencies with peak levels above the average limit (54 dBµV/m at 3 m) are measured with an average detector for checking compliance with the average limit.

- SISO 802.11 a20 (SISO worst-case):**

- LOW CHANNEL. Spurious frequencies detected at less than 20 dB below the limit:

Spurious frequency (MHz)	Corrected Emission Level (dBµV/m)	Polarization	Detector
3750.000000	51.35	H	Peak
5048.500000	60.79	H	Peak
	45.96		Average
5061.000000	71.78	H	Peak
	45.63		Average
5376.500000	55.92	H	Peak
	43.34		Average
8750.000000	50.96	V	Peak
9648.000000	52.14	V	Peak
10360.000000	53.44	H	Peak
14472.000000	51.82	V	Peak

- MIDDLE CHANNEL. Spurious frequencies detected at less than 20 dB below the limit:

Spurious frequency (MHz)	Corrected Emission Level (dBµV/m)	Polarization	Detector
3750.000000	51.47	H	Peak
5007.000000	58.09	H	Peak
	45.28		Average
5080.000000	70.72	H	Peak
	44.58		Average
5384.500000	56.58	H	Peak
	43.53		Average
8750.000000	50.37	V	Peak
9648.000000	52.06	V	Peak
10400.000000	53.05	H	Peak
14472.000000	52.99	V	Peak
35500.74	47.65	V	Peak

- CHANNEL 44. Spurious frequencies detected at less than 20 dB below the limit:

Spurious frequency (MHz)	Corrected Emission Level (dB μ V/m)	Polarization	Detector
3750.000000	50.63	H	Peak
5026.500000	57.93	H	Peak
	45.66		Average
5101.000000	67.06	H	Peak
	43.36		Average
5413.000000	56.82	H	Peak
	44.49		Average
8750.000000	49.16	V	Peak
9647.500000	52.78	V	Peak
10440.000000	52.46	H	Peak
13606.500000	55.45	V	Peak
14472.000000	53.00	V	Peak

- HIGH CHANNEL. Spurious frequencies detected at less than 20 dB below the limit:

Spurious frequency (MHz)	Corrected Emission Level (dB μ V/m)	Polarization	Detector
3750.000000	50.75	H	Peak
5043.000000	60.66	H	Peak
	47.37		Average
5427.000000	56.44	H	Peak
	44.00		Average
5568.000000	57.65	H	Peak
8750.000000	50.54	V	Peak
9647.500000	51.81	V	Peak
10480.000000	52.45	V	Peak
13592.500000	55.00	H	Peak
14472.000000	52.28	V	Peak

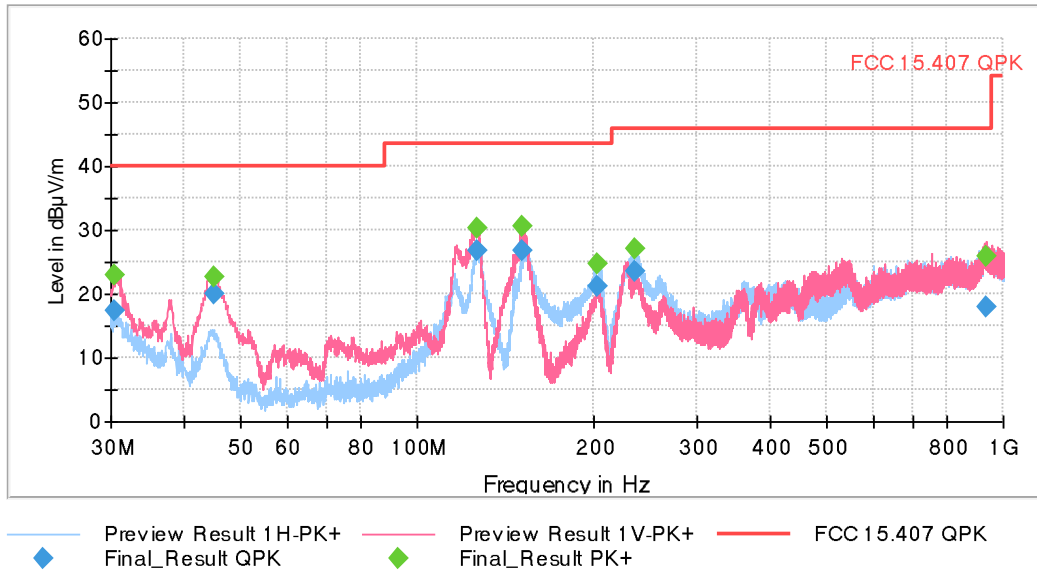
Measurement uncertainty (dB) $\leq \pm 4.6$ for $f \geq 1$ GHz up to 17 GHz
 $\leq \pm 4.89$ for $f \geq 17$ GHz up to 26.5 GHz
 $\leq \pm 5.14$ for $f \geq 26.5$ GHz up to 40 GHz

Verdict: PASS

SISO worst-case:

FREQUENCY RANGE 30 MHz - 1 GHz (SISO worst-case):

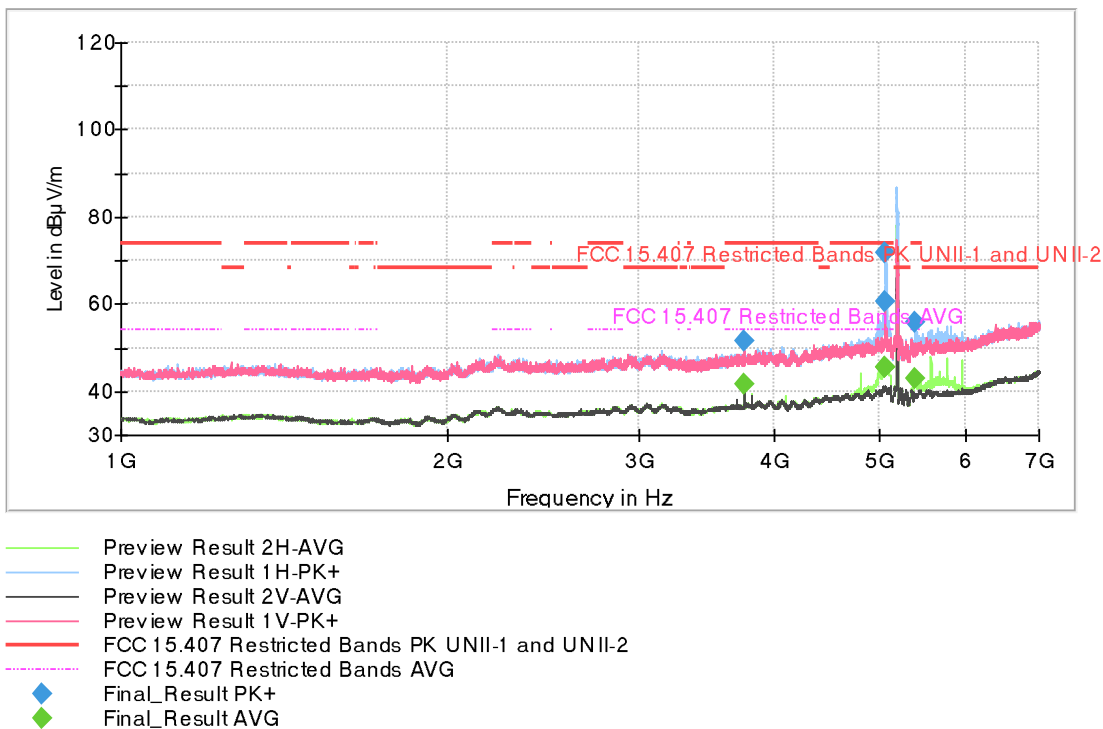
This plot is valid for all the Channels and all the modulation modes and bandwidths.



FREQUENCY RANGE 1 - 7 GHz (SISO worst-case):

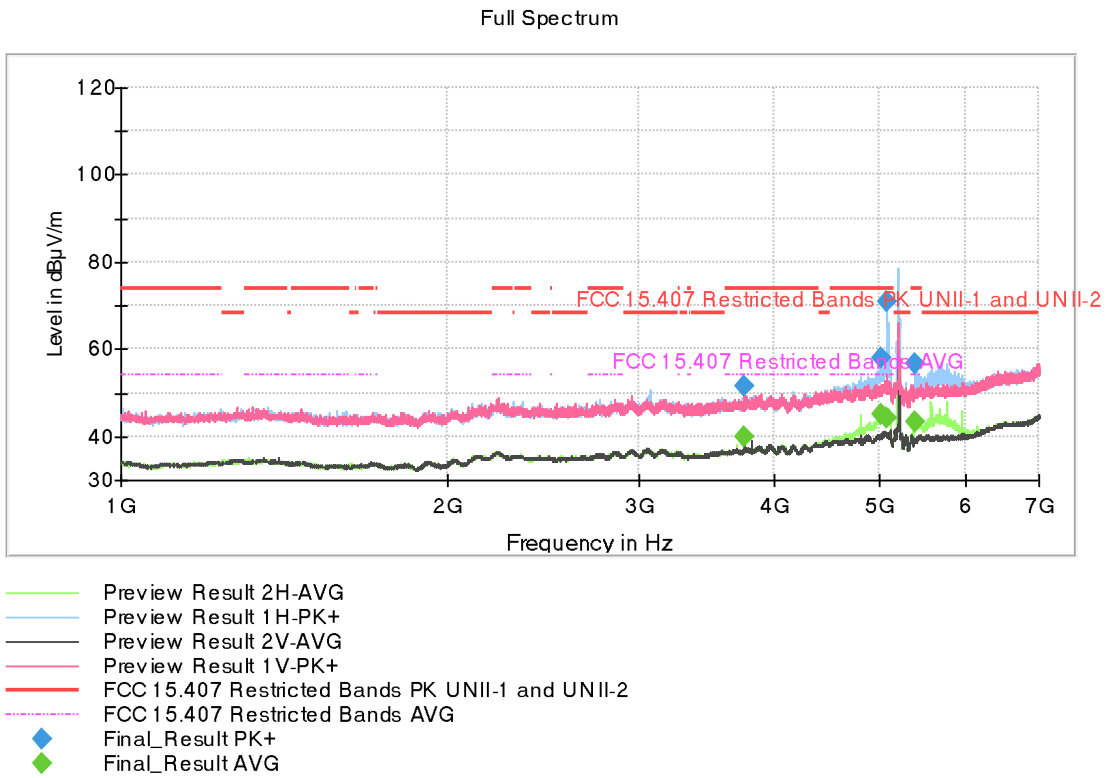
- Low Channel:

Full Spectrum



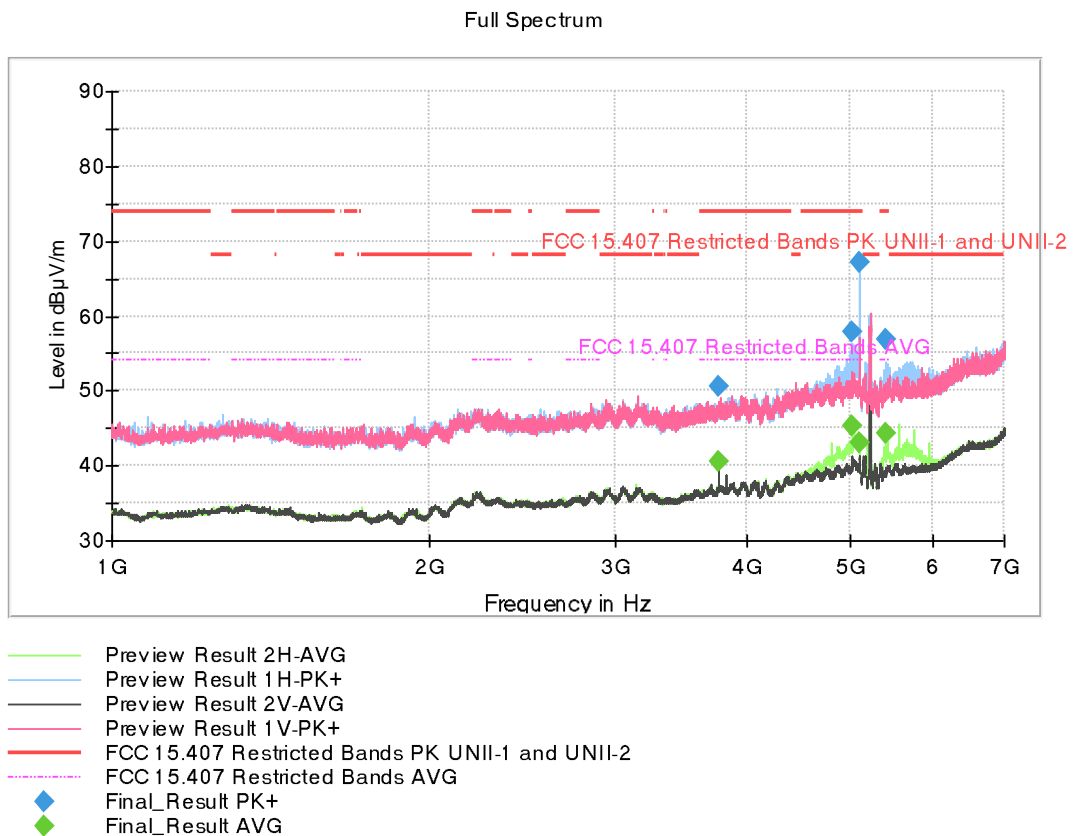
Note: The peak shown in the plot above the limit is the carrier frequency.

- Middle Channel:



Note: The peak shown in the plot above the limit is the carrier frequency.

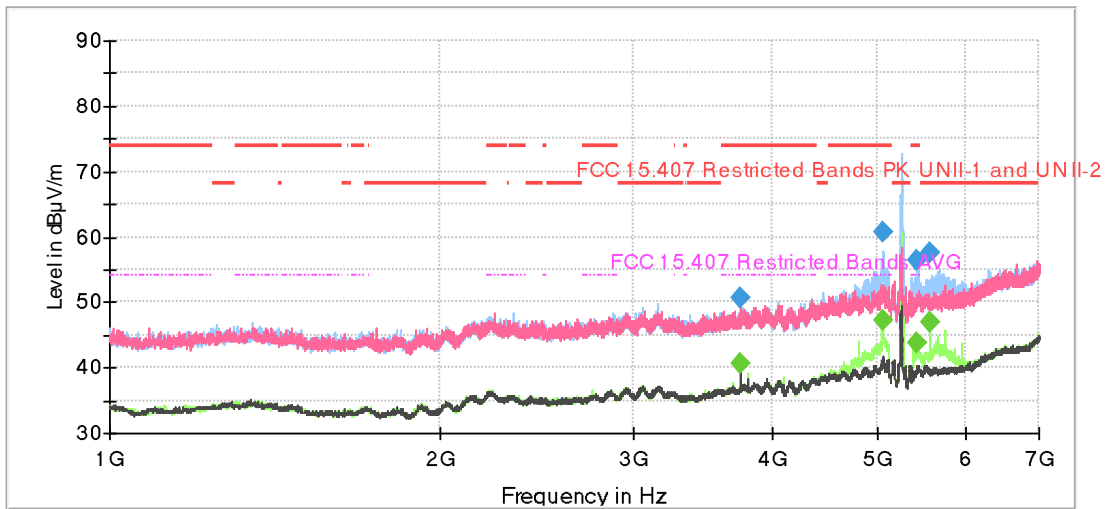
- Channel 44:



Note: The peak shown in the plot above the limit is the carrier frequency.

- High Channel:

Full Spectrum

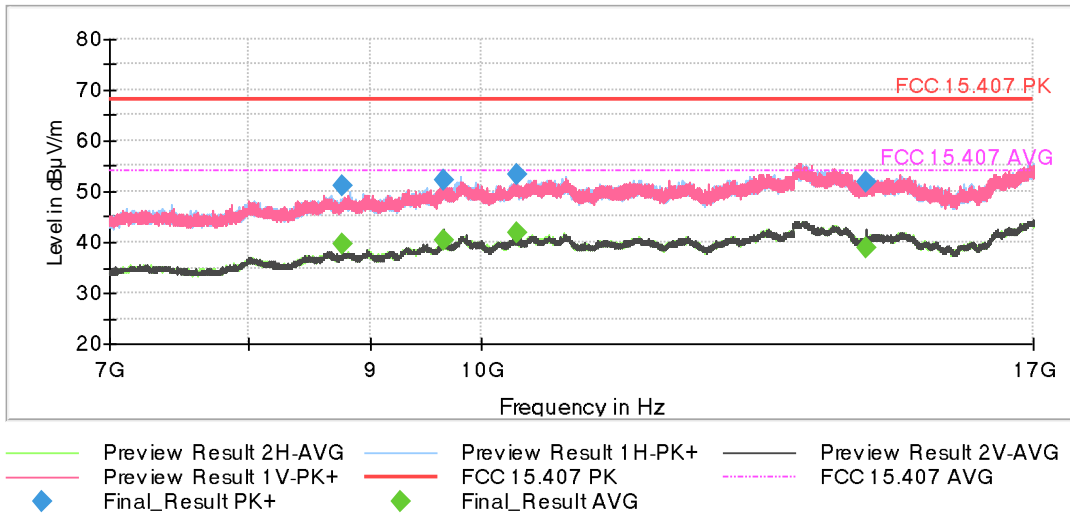


- Preview Result 2H-AVG
- Preview Result 1H-PK+
- Preview Result 2V-AVG
- Preview Result 1V-PK+
- FCC 15.407 Restricted Bands PK UNII-1 and UNII-2
- FCC 15.407 Restricted Bands AVG
- ◆ Final_Result PK+
- ◆ Final_Result AVG

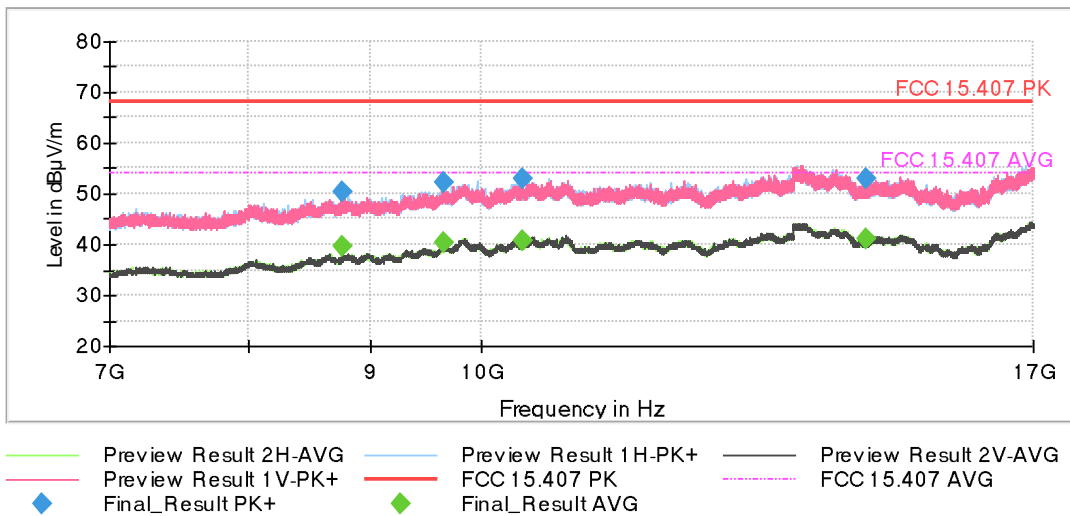
Note: The peak shown in the plot above the limit is the carrier frequency.

FREQUENCY RANGE 7 - 17 GHz (SISO worst-case):

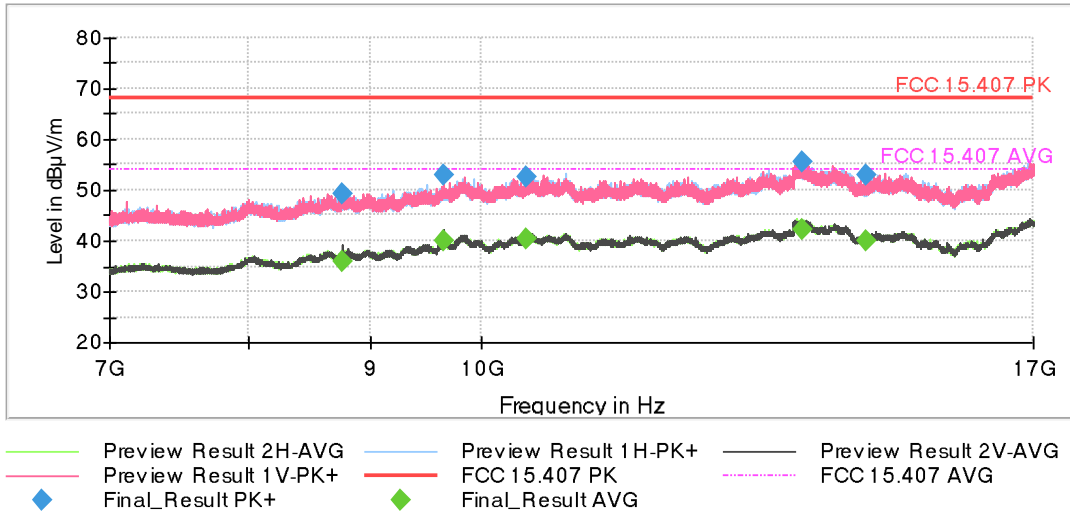
- Low Channel:



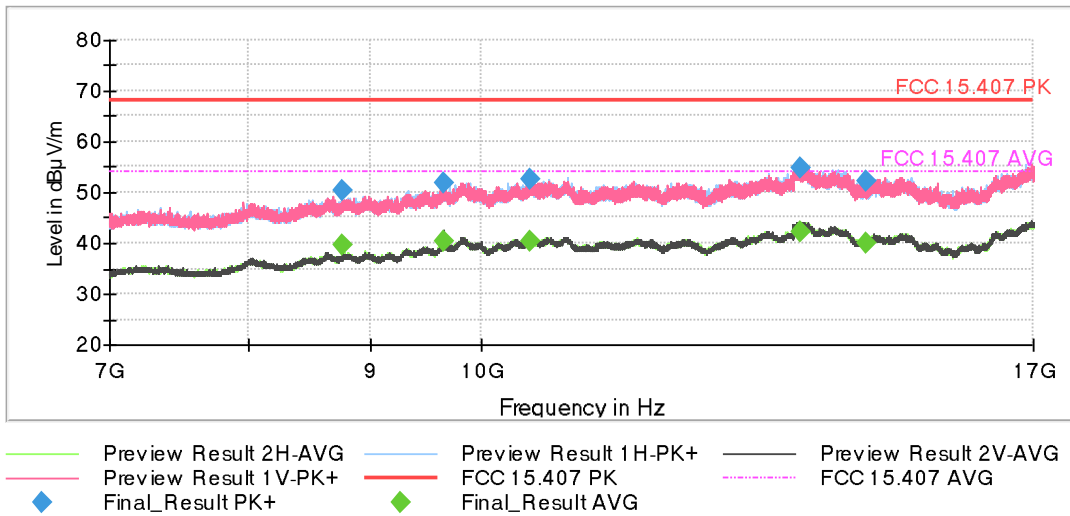
- Middle Channel:



- Channel 44:

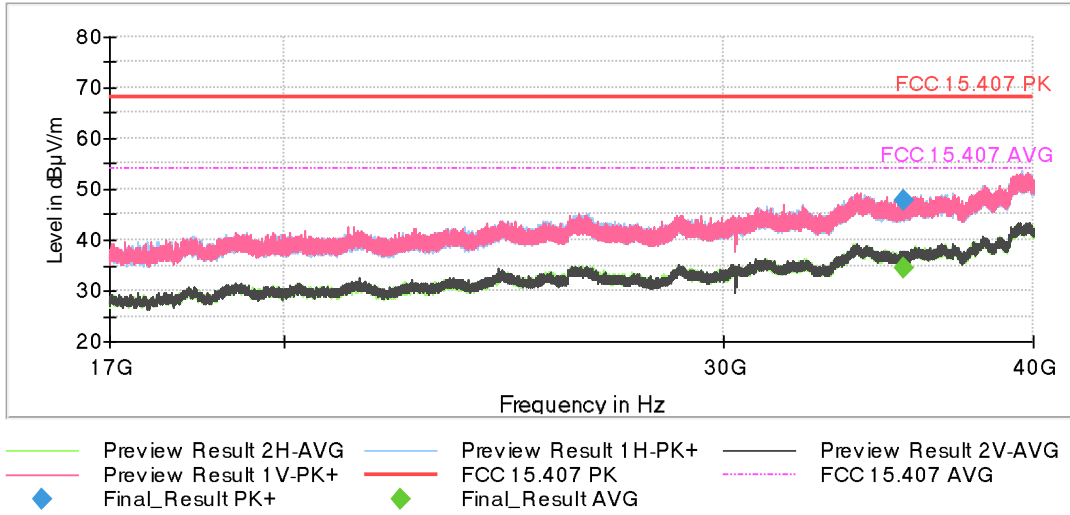


- High Channel:



FREQUENCY RANGE 17 - 40 GHz (SISO worst-case):

This plot is valid for all the Channels and all the modulation modes and bandwidths.



MIMO worst-case:

- Preliminary tests determined as the MIMO worst-case: WLAN12.

Worst-case: 802.11 a20 (bit rate 6 Mbps).

Frequency range 30 MHz - 1 GHz (MIMO worst-case):

The spurious emissions below 1 GHz do not depend on either the operating channel or the modulation mode selected in the EUT.

Spurious frequencies detected at less than 20 dB below the limit:

Spurious frequency (MHz)	Emission Level (dBµV/m)	Polarization	Detector
126.369500	27.10	V	Quasi Peak
152.462500	25.78	V	Quasi Peak

Measurement Uncertainty (dB) <± 5.1

Frequency range 1 - 40 GHz (MIMO worst-case):

The results in the next tables show the maximum measured levels in the 1-40 GHz frequency range.

The Low, Middle and High Channels were measured for out-of-band emissions for the worst mode.

Spurious frequencies with peak levels above the average limit (54 dBµV/m at 3 m) are measured with an average detector for checking compliance with the average limit.

- **MIMO 802.11 a20 (MIMO worst-case):**

- LOW CHANNEL. Spurious frequencies detected at less than 20 dB below the limit:

Spurious frequency (MHz)	Corrected Emission Level (dBµV/m)	Polarization	Detector
3750.000000	50.16	H	Peak
4992.500000	59.69	H	Peak
	47.34		Average
5059.500000	70.93	H	Peak
	47.06		Average
5373.500000	51.16	V	Peak
9648.000000	52.90	V	Peak
10359.500000	52.24	V	Peak

- MIDDLE CHANNEL. Spurious frequencies detected at less than 20 dB below the limit:

Spurious frequency (MHz)	Corrected Emission Level (dBµV/m)	Polarization	Detector
3750.000000	50.84	H	Peak
4800.000000	56.50	H	Peak
	45.05		Average
5080.500000	72.73	H	Peak
	49.08		Average
5394.000000	54.18	V	Peak
	40.69		Average
8750.000000	50.06	V	Peak
9647.500000	52.24	V	Peak
14472.000000	52.86	V	Peak
20799.600000	43.00	V	Peak
39758.500000	52.68	H	Peak

- CHANNEL 44. Spurious frequencies detected at less than 20 dB below the limit:

Spurious frequency (MHz)	Corrected Emission Level (dB μ V/m)	Polarization	Detector
3750.000000	50.59	H	Peak
5034.500000	53.29	V	Peak
5101.000000	68.74	H	Peak
	45.98		Average
5412.000000	54.26	V	Peak
	41.29		Average
8750.000000	49.96	V	Peak
9648.000000	51.16	V	Peak
10440.000000	52.93	V	Peak
14472.000000	52.52	V	Peak

- HIGH CHANNEL. Spurious frequencies detected at less than 20 dB below the limit:

Spurious frequency (MHz)	Corrected Emission Level (dB μ V/m)	Polarization	Detector
3750.000000	51.29	H	Peak
5047.000000	63.02	H	Peak
	50.35		Average
5429.000000	62.10	H	Peak
	50		Average
5614.000000	58.43	H	Peak
8750.000000	50.39	V	Peak
9647.500000	52.29	V	Peak
10479.500000	52.39	V	Peak
14472.000000	51.57	V	Peak

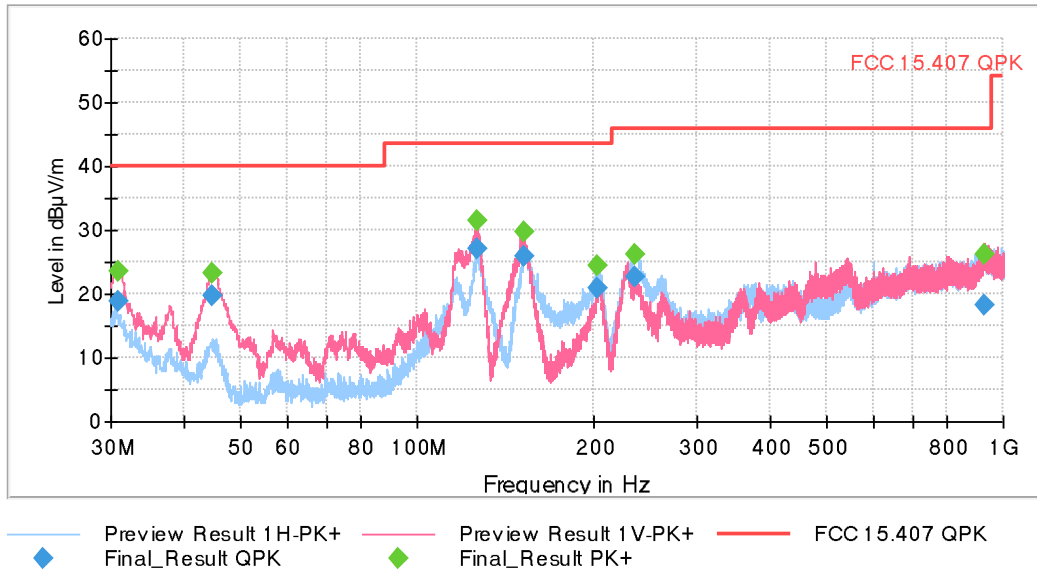
Measurement uncertainty (dB) $\leq \pm 4.6$ for $f \geq 1$ GHz up to 17 GHz
 $\leq \pm 4.89$ for $f \geq 17$ GHz up to 26.5 GHz
 $\leq \pm 5.14$ for $f \geq 26.5$ GHz up to 40 GHz

Verdict: PASS

MIMO worst-case:

FREQUENCY RANGE 30 MHz - 1 GHz (MIMO worst-case):

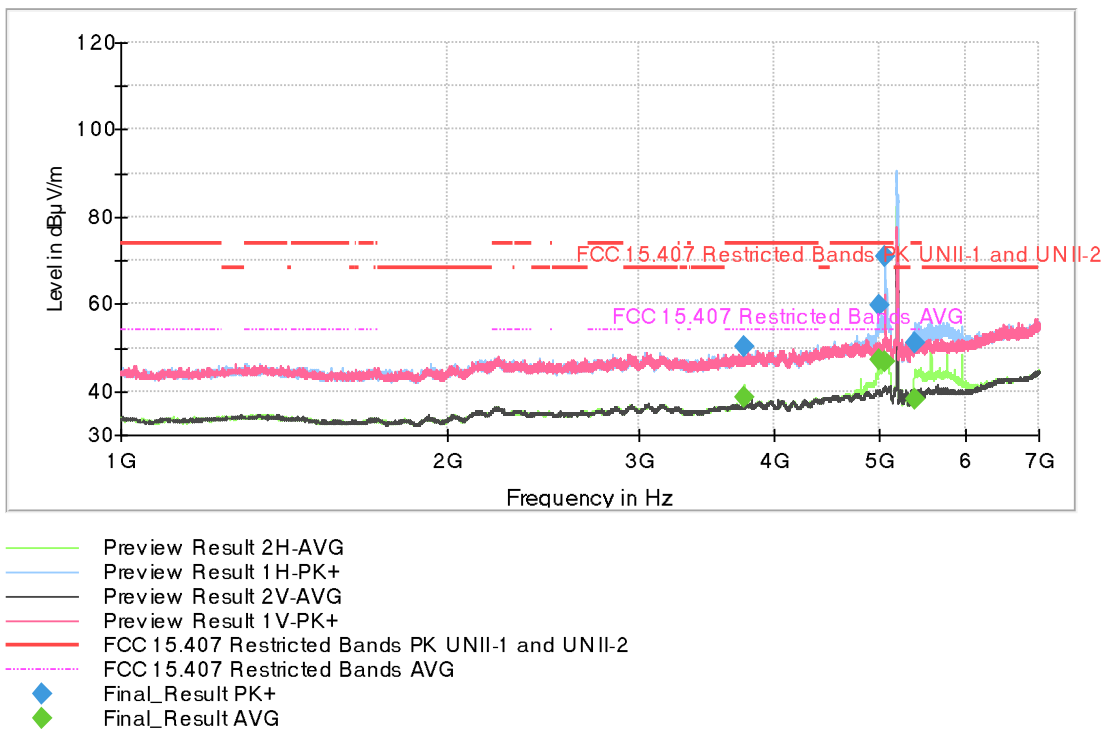
This plot is valid for all the Channels and all the modulation modes and bandwidths.



FREQUENCY RANGE 1 - 7 GHz (MIMO worst-case):

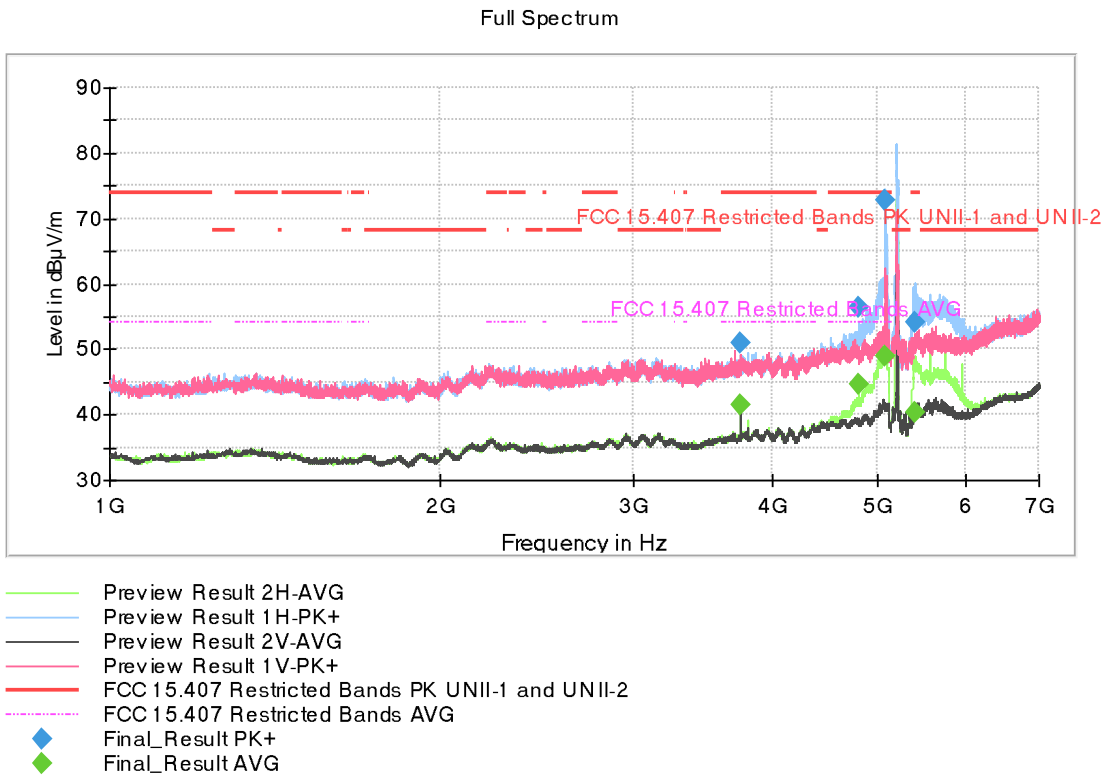
- Low Channel:

Full Spectrum



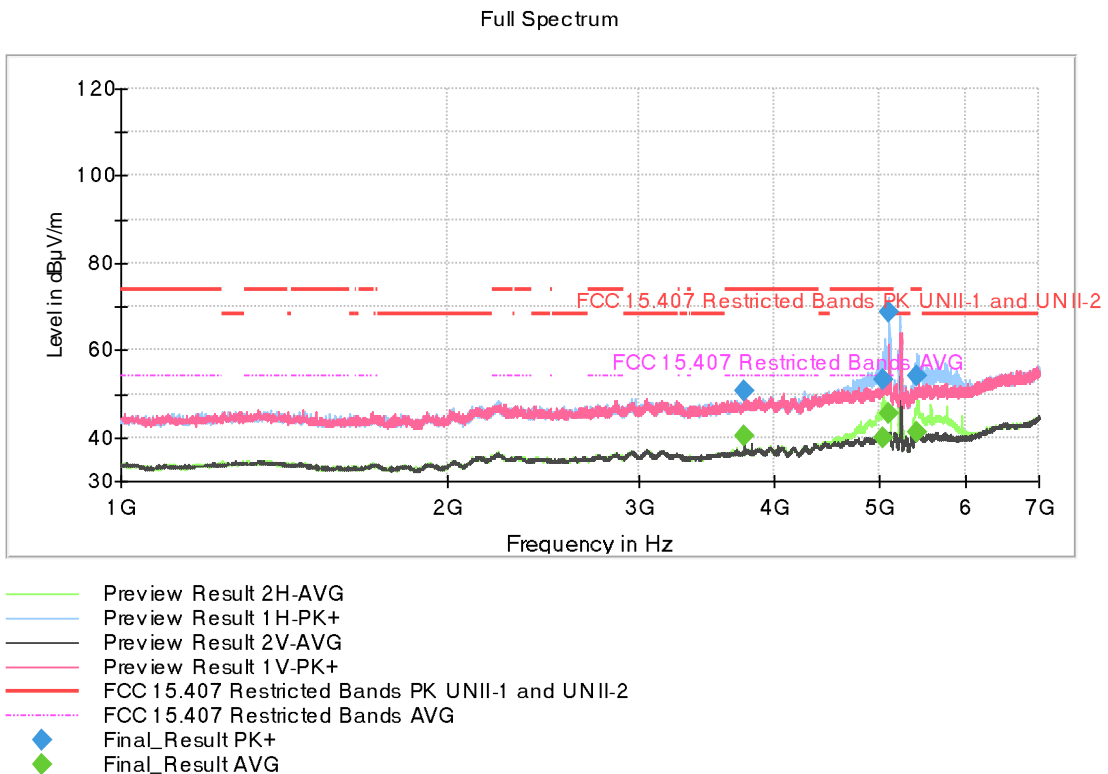
Note: The peak shown in the plot above the limit is the carrier frequency.

- Middle Channel:



Note: The peak shown in the plot above the limit is the carrier frequency.

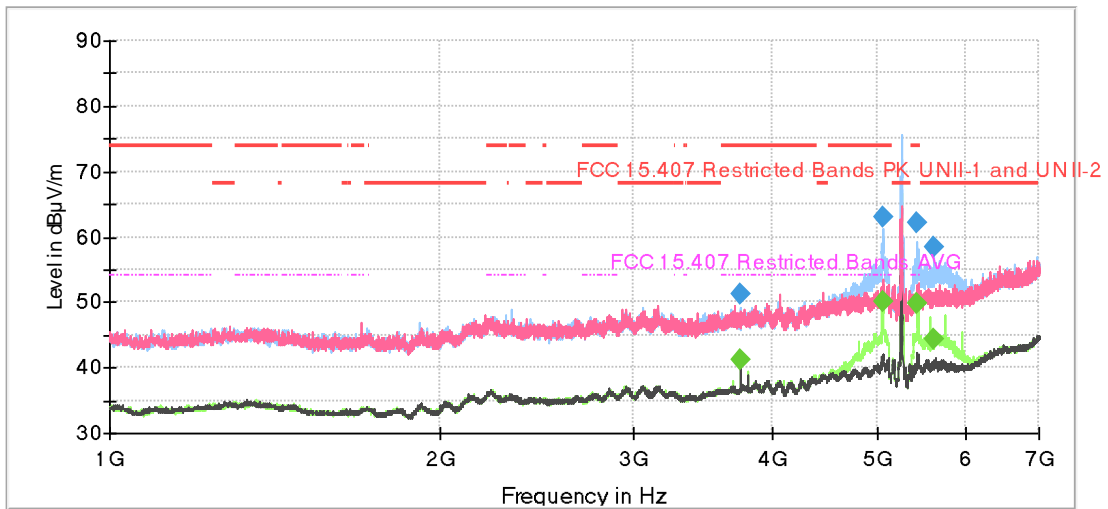
- Channel 44:



Note: The peak shown in the plot above the limit is the carrier frequency.

- High Channel:

Full Spectrum

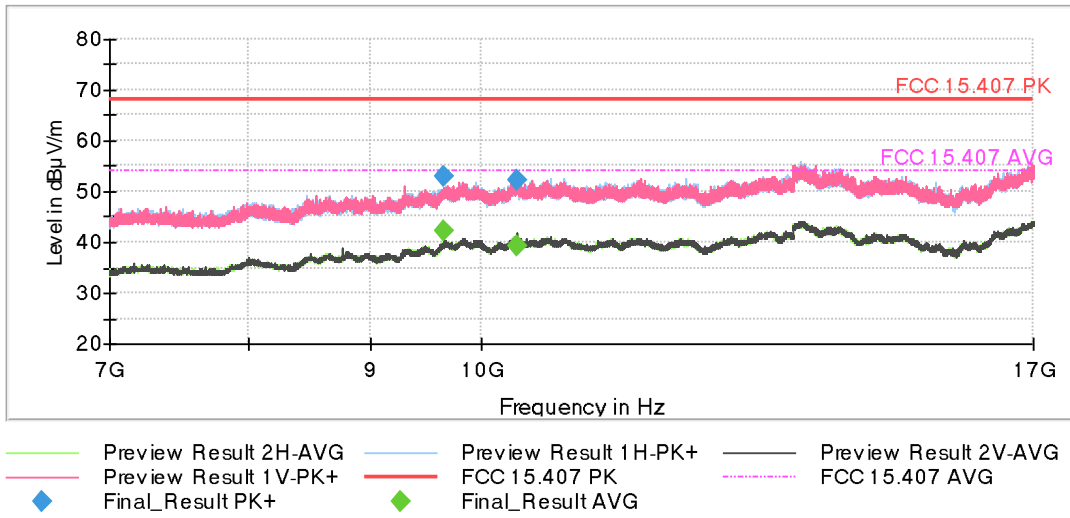


- Preview Result 2H-AVG
- Preview Result 1H-PK+
- Preview Result 2V-AVG
- Preview Result 1V-PK+
- FCC 15.407 Restricted Bands PK UNII-1 and UNII-2
- FCC 15.407 Restricted Bands AVG
- Final_Result PK+
- Final_Result AVG

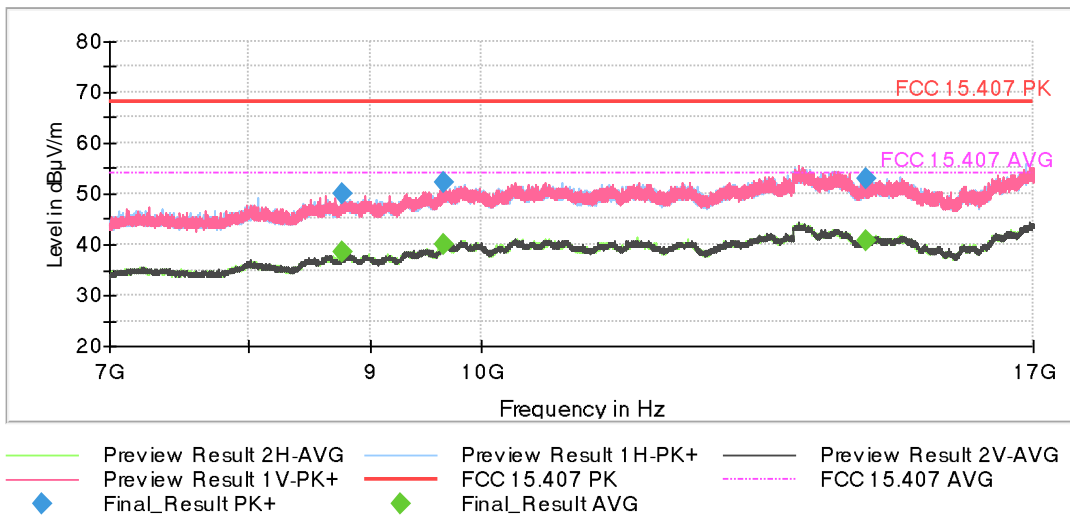
Note: The peak shown in the plot above the limit is the carrier frequency.

FREQUENCY RANGE 7 - 17 GHz (MIMO worst-case):

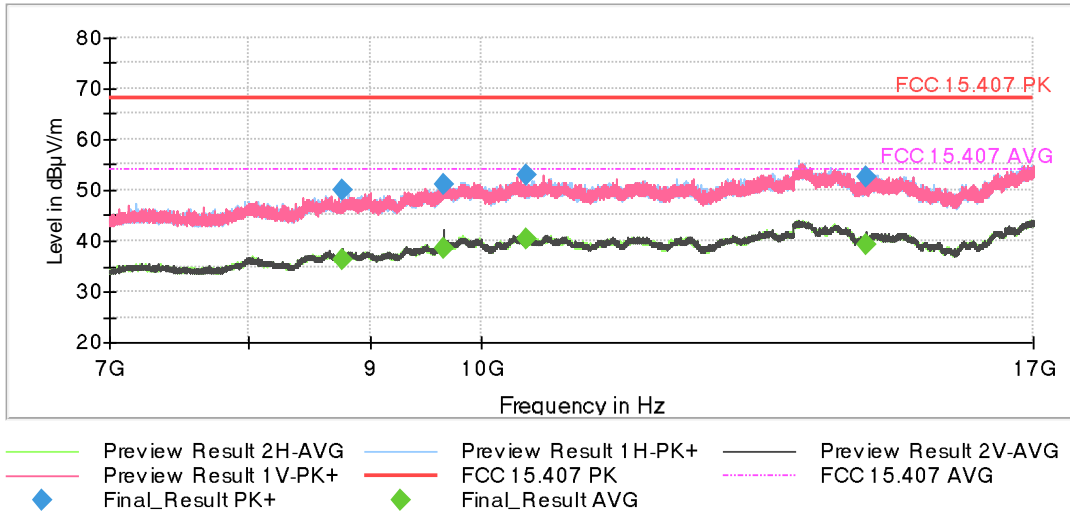
- Low Channel:



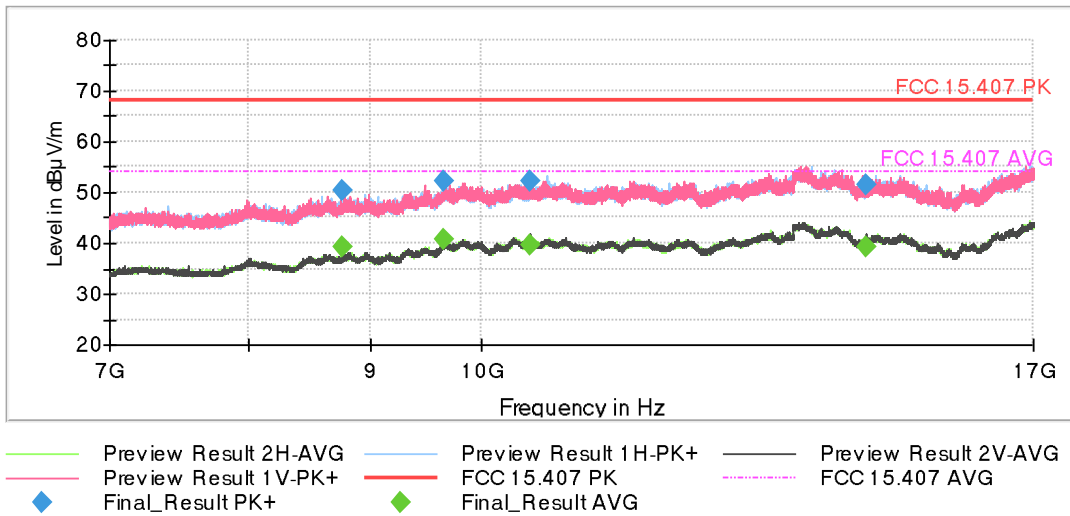
- Middle Channel:



- Channel 44:

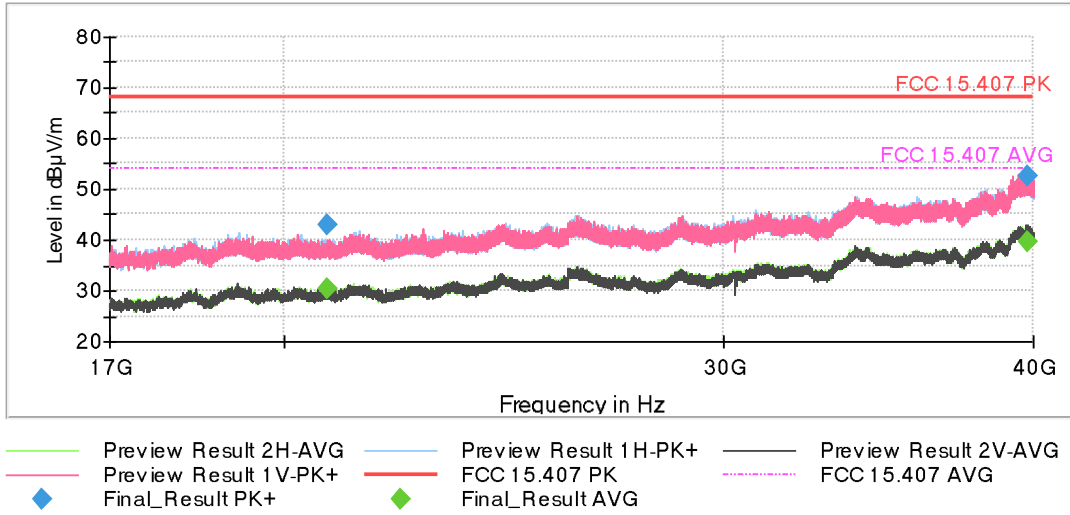


- High Channel:



FREQUENCY RANGE 17 - 40 GHz (MIMO worst-case):

This plot is valid for all the Channels and all the modulation modes and bandwidths.



FCC 15.407 (b)(1) / RSS-247 6.2.1.2. Transmitter Band Edge Radiated Emissions

SPECIFICATION:

For transmitters operating in the 5.15–5.25 GHz band: all emissions outside of the 5.15–5.35 GHz band shall not exceed an EIRP of –27 dBm/MHz (68.23 dBμV/m at 3 m distance).

Radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)):

Frequency Range (MHz)	Field strength (μV/m)	Field strength (dBμV/m)	Measurement distance (m)
0.009-0.490	2400/F(kHz)	-	300
0.490-1.705	24000/F(kHz)	-	300
1.705 - 30.0	30	-	30
30 - 88	100	40	3
88 - 216	150	43.5	3
216 - 960	200	46	3
960 - 40000	500	54	3

The emission limits shown in the above table are based on measurements employing CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

For average radiated emission measurements above 1000 MHz, there is also a limit corresponding to 20 dB above the indicated values in the table is specified when measuring with peak detector function.

RESULTS:

The field strength is calculated by adding correction factor to the measured level from the spectrum analyzer. This correction factor includes antenna factor, cable loss and pre-amplifiers gain.

Measurements were made in both horizontal and vertical planes of polarization.

All emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27dBm/MHz. There are restricted bands of operation below band edge at 4.50-5.15 GHz also above the upper band edge at 5.35-5.46 GHz therefore the provision of FCC Part 15.205 apply.

Field strength measurements using peak and average detector performed in the restricted bands below 5.15 GHz and above 5.35 GHz.

- Preliminary tests determined the SISO worst-case: WLAN1.
- Preliminary tests determined the MIMO worst-case: WLAN12.

BAND EDGE EMISSIONS: For U-NII-1 band edge spurious emissions inside of the Restricted Bands 4.50-5.15 GHz and 5.35-5.46 GHz.

The Lower Band Edge Channel and the Upper Band Edge Channel were tested for all modes.

The next results are for the FCC power adjustment. The RSS power adjustment is lower, hence results also comply with the applicable standards.

SISO worst-case (WLAN1):

- SISO 802.11 a20:**

- LOW CHANNEL:

- Lower Band Edge. Spurious emissions inside the Restricted Band 4.50-5.15 GHz:

Spurious frequency (MHz)	Emission Level (dBµV/m)	Duty Cycle Correction (dB)	Corrected Emission Level (dBµV/m)	Polarization	Detector
5.1491908	61	-	61	H	Peak
	50.58	0.26	50.84		Average

- Upper Band Edge. Spurious emissions inside the Restricted Band 5.35-5.46 GHz:

Spurious frequency (MHz)	Emission Level (dBµV/m)	Duty Cycle Correction (dB)	Corrected Emission Level (dBµV/m)	Polarization	Detector
5.376057	54.95	-	54.95	H	Peak
	46.61	0.26	46.87		Average

- MIDDLE CHANNEL:

- Lower Band Edge. Spurious emissions inside the Restricted Band 4.50-5.15 GHz:

Spurious frequency (MHz)	Emission Level (dBµV/m)	Duty Cycle Correction (dB)	Corrected Emission Level (dBµV/m)	Polarization	Detector
5.1491908	64.87	-	64.87	H	Peak
	51.99	0.26	52.25		Average

- Upper Band Edge. Spurious emissions inside the Restricted Band 5.35-5.46 GHz:

Spurious frequency (MHz)	Emission Level (dBµV/m)	Duty Cycle Correction (dB)	Corrected Emission Level (dBµV/m)	Polarization	Detector
5.376057	56.05	-	56.05	H	Peak
	47.34	0.26	47.60		Average

- CHANNEL 44:

- Lower Band Edge. Spurious emissions inside the Restricted Band 4.50-5.15 GHz:

Spurious frequency (MHz)	Emission Level (dBµV/m)	Duty Cycle Correction (dB)	Corrected Emission Level (dBµV/m)	Polarization	Detector
5.1491908	62.46	-	62.46	H	Peak
	50.20	0.26	50.46		Average

- Upper Band Edge. Spurious emissions inside the Restricted Band 5.35-5.46 GHz:

Spurious frequency (MHz)	Emission Level (dBµV/m)	Duty Cycle Correction (dB)	Corrected Emission Level (dBµV/m)	Polarization	Detector
5.376057	55.60	-	55.60	H	Peak
	45.95	0.26	46.21		Average

- HIGH CHANNEL:

- Lower Band Edge. Spurious emissions inside the Restricted Band 4.50-5.15 GHz:

Spurious frequency (MHz)	Emission Level (dBµV/m)	Duty Cycle Correction (dB)	Corrected Emission Level (dBµV/m)	Polarization	Detector
5.119844	70.25	-	70.25	H	Peak
	45.91	0.26	46.17		Average

- Upper Band Edge. Spurious emissions inside the Restricted Band 5.35-5.46 GHz:

Spurious frequency (MHz)	Emission Level (dBµV/m)	Duty Cycle Correction (dB)	Corrected Emission Level (dBµV/m)	Polarization	Detector
5.360054	71.02	-	71.02	H	Peak
	45.80	0.26	46.06		Average

• **SISO 802.11 n20:**

- LOW CHANNEL:

- Lower Band Edge. Spurious emissions inside the Restricted Band 4.50-5.15 GHz:

Spurious frequency (MHz)	Emission Level (dBµV/m)	Duty Cycle Correction (dB)	Corrected Emission Level (dBµV/m)	Polarization	Detector
5.149138	60.73	-	60.73	H	Peak
	50.19	0.20	50.39		Average

- Upper Band Edge. Spurious emissions inside the Restricted Band 5.35-5.46 GHz:

Spurious frequency (MHz)	Emission Level (dBµV/m)	Duty Cycle Correction (dB)	Corrected Emission Level (dBµV/m)	Polarization	Detector
5.375736	57.08	-	57.08	H	Peak
	46.18	0.20	46.38		Average

- Middle CHANNEL:

- Lower Band Edge. Spurious emissions inside the Restricted Band 4.50-5.15 GHz:

Spurious frequency (MHz)	Emission Level (dBµV/m)	Duty Cycle Correction (dB)	Corrected Emission Level (dBµV/m)	Polarization	Detector
5.079664	72.57	-	72.57	H	Peak
	47.03	0.20	47.23		Average

- Upper Band Edge. Spurious emissions inside the Restricted Band 5.35-5.46 GHz:

Spurious frequency (MHz)	Emission Level (dBµV/m)	Duty Cycle Correction (dB)	Corrected Emission Level (dBµV/m)	Polarization	Detector
5.379901	59.90	-	59.90	H	Peak
	45.80	0.20	46.00		Average

- CHANNEL 44:

- Lower Band Edge. Spurious emissions inside the Restricted Band 4.50-5.15 GHz:

Spurious frequency (MHz)	Emission Level (dBµV/m)	Duty Cycle Correction (dB)	Corrected Emission Level (dBµV/m)	Polarization	Detector
5.100417	67.50	-	67.50	H	Peak
	44.53	0.20	44.73		Average

- Upper Band Edge. Spurious emissions inside the Restricted Band 5.35-5.46 GHz:

Spurious frequency (MHz)	Emission Level (dBµV/m)	Duty Cycle Correction (dB)	Corrected Emission Level (dBµV/m)	Polarization	Detector
5.379381	56.48	-	56.48	H	Peak
	43.98	0.20	44.18		Average

- HIGH CHANNEL:

- Lower Band Edge. Spurious emissions inside the Restricted Band 4.50-5.15 GHz:

Spurious frequency (MHz)	Emission Level (dBµV/m)	Duty Cycle Correction (dB)	Corrected Emission Level (dBµV/m)	Polarization	Detector
5.120289	69.74	-	69.74	H	Peak
	44.95	0.20	45.15		Average

- Upper Band Edge. Spurious emissions inside the Restricted Band 5.35-5.46 GHz:

Spurious frequency (MHz)	Emission Level (dBµV/m)	Duty Cycle Correction (dB)	Corrected Emission Level (dBµV/m)	Polarization	Detector
5.360033	71.06	-	71.06	H	Peak
	45.73	0.20	45.93		Average

- **SISO 802.11 ac20:**

- LOW CHANNEL:

- Lower Band Edge. Spurious emissions inside the Restricted Band 4.50-5.15 GHz:

Spurious frequency (MHz)	Emission Level (dBµV/m)	Duty Cycle Correction (dB)	Corrected Emission Level (dBµV/m)	Polarization	Detector
5.1491908	60.14	-	60.14	H	Peak
	50.03	0.20	50.23		Average

- Upper Band Edge. Spurious emissions inside the Restricted Band 5.35-5.46 GHz:

Spurious frequency (MHz)	Emission Level (dBµV/m)	Duty Cycle Correction (dB)	Corrected Emission Level (dBµV/m)	Polarization	Detector
5.3758832	55.11	-	55.11	H	Peak
	46.61	0.20	46.81		Average

- Middle CHANNEL:

- Lower Band Edge. Spurious emissions inside the Restricted Band 4.50-5.15 GHz:

Spurious frequency (MHz)	Emission Level (dBµV/m)	Duty Cycle Correction (dB)	Corrected Emission Level (dBµV/m)	Polarization	Detector
5.1499234	63.17	-	63.17	H	Peak
	52.82	0.20	53.02		Average

- Upper Band Edge. Spurious emissions inside the Restricted Band 5.35-5.46 GHz:

Spurious frequency (MHz)	Emission Level (dBµV/m)	Duty Cycle Correction (dB)	Corrected Emission Level (dBµV/m)	Polarization	Detector
5.3758832	56.02	-	56.02	H	Peak
	47.12	0.20	47.32		Average

- CHANNEL 44:

- Lower Band Edge. Spurious emissions inside the Restricted Band 4.50-5.15 GHz:

Spurious frequency (MHz)	Emission Level (dBµV/m)	Duty Cycle Correction (dB)	Corrected Emission Level (dBµV/m)	Polarization	Detector
5.099994	72.20	-	72.20	H	Peak
	46.10	0.20	46.30		Average

- Upper Band Edge. Spurious emissions inside the Restricted Band 5.35-5.46 GHz:

Spurious frequency (MHz)	Emission Level (dBµV/m)	Duty Cycle Correction (dB)	Corrected Emission Level (dBµV/m)	Polarization	Detector
5.376083	56.16	-	56.16	H	Peak
	46.63	0.20	46.83		Average

- HIGH CHANNEL:

- Lower Band Edge. Spurious emissions inside the Restricted Band 4.50-5.15 GHz:

Spurious frequency (MHz)	Emission Level (dBµV/m)	Duty Cycle Correction (dB)	Corrected Emission Level (dBµV/m)	Polarization	Detector
5.11963	71.72	-	71.72	H	Peak
	45.96	0.20	46.16		Average

- Upper Band Edge. Spurious emissions inside the Restricted Band 5.35-5.46 GHz:

Spurious frequency (MHz)	Emission Level (dBµV/m)	Duty Cycle Correction (dB)	Corrected Emission Level (dBµV/m)	Polarization	Detector
5.360218	73.05	-	73.05	H	Peak
	46.60	0.20	46.80		Average

- **SISO 802.11 he20:**

- LOW CHANNEL:

- Lower Band Edge. Spurious emissions inside the Restricted Band 4.50-5.15 GHz:

Spurious frequency (MHz)	Emission Level (dBµV/m)	Duty Cycle Correction (dB)	Corrected Emission Level (dBµV/m)	Polarization	Detector
5.1489177	61.91	-	61.91	H	Peak
	51.10	0.31	51.41		Average

- Upper Band Edge. Spurious emissions inside the Restricted Band 5.35-5.46 GHz:

Spurious frequency (MHz)	Emission Level (dBµV/m)	Duty Cycle Correction (dB)	Corrected Emission Level (dBµV/m)	Polarization	Detector
5.375978	55.14	-	55.14	H	Peak
	47.10	0.31	47.41		Average

- Middle CHANNEL:

- Lower Band Edge. Spurious emissions inside the Restricted Band 4.50-5.15 GHz:

Spurious frequency (MHz)	Emission Level (dBµV/m)	Duty Cycle Correction (dB)	Corrected Emission Level (dBµV/m)	Polarization	Detector
5.080078	63.15	-	63.15	H	Peak
	44.22	0.31	44.53		Average

- Upper Band Edge. Spurious emissions inside the Restricted Band 5.35-5.46 GHz:

Spurious frequency (MHz)	Emission Level (dBµV/m)	Duty Cycle Correction (dB)	Corrected Emission Level (dBµV/m)	Polarization	Detector
5.376213	55.96	-	55.96	H	Peak
	45.87	0.31	46.18		Average

- CHANNEL 44:

- Lower Band Edge. Spurious emissions inside the Restricted Band 4.50-5.15 GHz:

Spurious frequency (MHz)	Emission Level (dBµV/m)	Duty Cycle Correction (dB)	Corrected Emission Level (dBµV/m)	Polarization	Detector
5.099791	69.13	-	69.13	H	Peak
	44.78	0.31	45.09		Average

- Upper Band Edge. Spurious emissions inside the Restricted Band 5.35-5.46 GHz:

Spurious frequency (MHz)	Emission Level (dBµV/m)	Duty Cycle Correction (dB)	Corrected Emission Level (dBµV/m)	Polarization	Detector
5.375978	54.80	-	54.80	H	Peak
	46.07	0.31	46.38		Average

- HIGH CHANNEL:

- Lower Band Edge. Spurious emissions inside the Restricted Band 4.50-5.15 GHz:

Spurious frequency (MHz)	Emission Level (dBµV/m)	Duty Cycle Correction (dB)	Corrected Emission Level (dBµV/m)	Polarization	Detector
5.119605	70.40	-	70.40	H	Peak
	45.10	0.31	45.41		Average

- Upper Band Edge. Spurious emissions inside the Restricted Band 5.35-5.46 GHz:

Spurious frequency (MHz)	Emission Level (dBµV/m)	Duty Cycle Correction (dB)	Corrected Emission Level (dBµV/m)	Polarization	Detector
5.360095	71.53	-	71.53	H	Peak
	45.82	0.31	46.13		Average

• **SISO 802.11 n40:**

- LOW CHANNEL:

- Lower Band Edge. Spurious emissions inside the Restricted Band 4.50-5.15 GHz:

Spurious frequency (MHz)	Emission Level (dBµV/m)	Duty Cycle Correction (dB)	Corrected Emission Level (dBµV/m)	Polarization	Detector
5.149219	62.04	-	62.04	H	Peak
	50.65	0.59	51.24		Average

- Upper Band Edge. Spurious emissions inside the Restricted Band 5.35-5.46 GHz:

Spurious frequency (MHz)	Emission Level (dBµV/m)	Duty Cycle Correction (dB)	Corrected Emission Level (dBµV/m)	Polarization	Detector
5.37576	53.85	-	53.85	H	Peak

- HIGH CHANNEL:

- Lower Band Edge. Spurious emissions inside the Restricted Band 4.50-5.15 GHz:

Spurious frequency (MHz)	Emission Level (dBµV/m)	Duty Cycle Correction (dB)	Corrected Emission Level (dBµV/m)	Polarization	Detector
5.109549	71.09	-	71.09	H	Peak
	45.78	0.59	46.37		Average

- Upper Band Edge. Spurious emissions inside the Restricted Band 5.35-5.46 GHz:

Spurious frequency (MHz)	Emission Level (dBµV/m)	Duty Cycle Correction (dB)	Corrected Emission Level (dBµV/m)	Polarization	Detector
5.3507518	71.10	-	71.10	H	Peak
	46.23	0.59	46.82		Average

• **SISO 802.11 ac40:**

- LOW CHANNEL:

- Lower Band Edge. Spurious emissions inside the Restricted Band 4.50-5.15 GHz:

Spurious frequency (MHz)	Emission Level (dBµV/m)	Duty Cycle Correction (dB)	Corrected Emission Level (dBµV/m)	Polarization	Detector
5.059608	66.10	-	66.10	H	Peak
	44.20	0.59	44.79		Average
5.149686	61.60	-	61.60	H	Peak
	50.48	0.59	51.07		Average

- Upper Band Edge. Spurious emissions inside the Restricted Band 5.35-5.46 GHz:

Spurious frequency (MHz)	Emission Level (dBµV/m)	Duty Cycle Correction (dB)	Corrected Emission Level (dBµV/m)	Polarization	Detector
5.376234	53.37	-	53.37	H	Peak

- HIGH CHANNEL:

- Lower Band Edge. Spurious emissions inside the Restricted Band 4.50-5.15 GHz:

Spurious frequency (MHz)	Emission Level (dBµV/m)	Duty Cycle Correction (dB)	Corrected Emission Level (dBµV/m)	Polarization	Detector
5.109865	69.81	-	69.81	H	Peak
	45.81	0.59	46.4		Average

- Upper Band Edge. Spurious emissions inside the Restricted Band 5.35-5.46 GHz:

Spurious frequency (MHz)	Emission Level (dBµV/m)	Duty Cycle Correction (dB)	Corrected Emission Level (dBµV/m)	Polarization	Detector
5.350304	71.88	-	71.88	H	Peak
	48.03	0.59	48.62		Average

• **SISO 802.11 he40:**

- LOW CHANNEL:

- Lower Band Edge. Spurious emissions inside the Restricted Band 4.50-5.15 GHz:

Spurious frequency (MHz)	Emission Level (dBµV/m)	Duty Cycle Correction (dB)	Corrected Emission Level (dBµV/m)	Polarization	Detector
5.059327	65.97	-	65.97	H	Peak
	43.87	0.26	44.13		Average
5.149726	63.41	-	63.41	H	Peak
	51.25	0.26	51.51		Average

- Upper Band Edge. Spurious emissions inside the Restricted Band 5.35-5.46 GHz:

Spurious frequency (MHz)	Emission Level (dBµV/m)	Duty Cycle Correction (dB)	Corrected Emission Level (dBµV/m)	Polarization	Detector
5.375902	53.36	-	53.36	H	Peak

- HIGH CHANNEL:

- Lower Band Edge. Spurious emissions inside the Restricted Band 4.50-5.15 GHz:

Spurious frequency (MHz)	Emission Level (dBµV/m)	Duty Cycle Correction (dB)	Corrected Emission Level (dBµV/m)	Polarization	Detector
5.109872	69.49	-	69.49	H	Peak
	46.69	0.26	46.95		Average
5.149778	58.08	-	58.08	H	Peak
	47.36	0.26	47.62		Average

- Upper Band Edge. Spurious emissions inside the Restricted Band 5.35-5.46 GHz:

Spurious frequency (MHz)	Emission Level (dBµV/m)	Duty Cycle Correction (dB)	Corrected Emission Level (dBµV/m)	Polarization	Detector
5.350042	71.64	-	71.64	H	Peak
	46.85	0.26	47.11		Average

• **SISO 802.11 ac80:**

- SINGLE CHANNEL:

- Lower Band Edge. Spurious emissions inside the Restricted Band 4.50-5.15 GHz:

Spurious frequency (MHz)	Emission Level (dBµV/m)	Duty Cycle Correction (dB)	Corrected Emission Level (dBµV/m)	Polarization	Detector
5.08975	65.71	-	65.71	H	Peak
	44.23	0.18	44.41		Average
5.149907	60.12	-	60.12	H	Peak
	51.35	0.18	51.53		Average

- Upper Band Edge. Spurious emissions inside the Restricted Band 5.35-5.46 GHz:

Spurious frequency (MHz)	Emission Level (dBµV/m)	Duty Cycle Correction (dB)	Corrected Emission Level (dBµV/m)	Polarization	Detector
5.375979	53.09	-	53.09	H	Peak

• **SISO 802.11 he80:**

- SINGLE CHANNEL:

- Lower Band Edge. Spurious emissions inside the Restricted Band 4.50-5.15 GHz:

Spurious frequency (MHz)	Emission Level (dBµV/m)	Duty Cycle Correction (dB)	Corrected Emission Level (dBµV/m)	Polarization	Detector
5.089594	65.72	-	65.72	H	Peak
	44.16	0.24	44.40		Average
5.149907	60.62	-	60.62	H	Peak
	50.99	0.24	51.23		Average

- Upper Band Edge. Spurious emissions inside the Restricted Band 5.35-5.46 GHz:

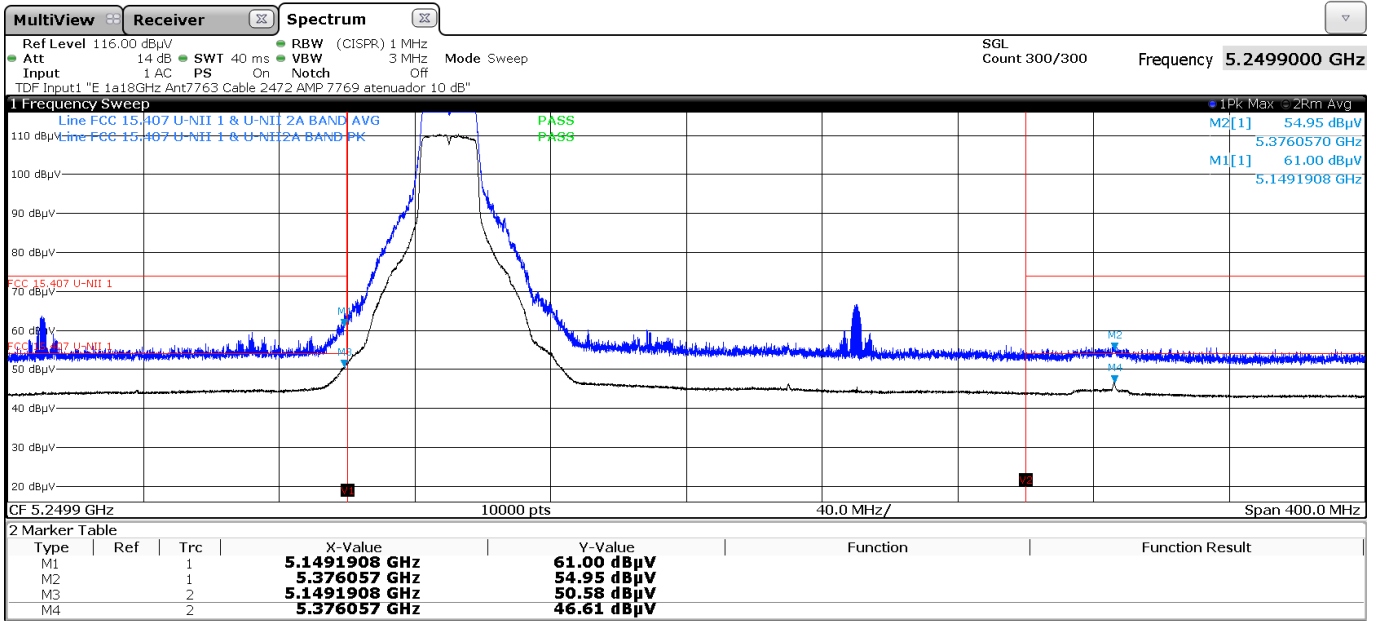
Spurious frequency (MHz)	Emission Level (dBµV/m)	Duty Cycle Correction (dB)	Corrected Emission Level (dBµV/m)	Polarization	Detector
5.375979	53.76	-	53.76	H	Peak

Measurement Uncertainty (dB) <± 4.6

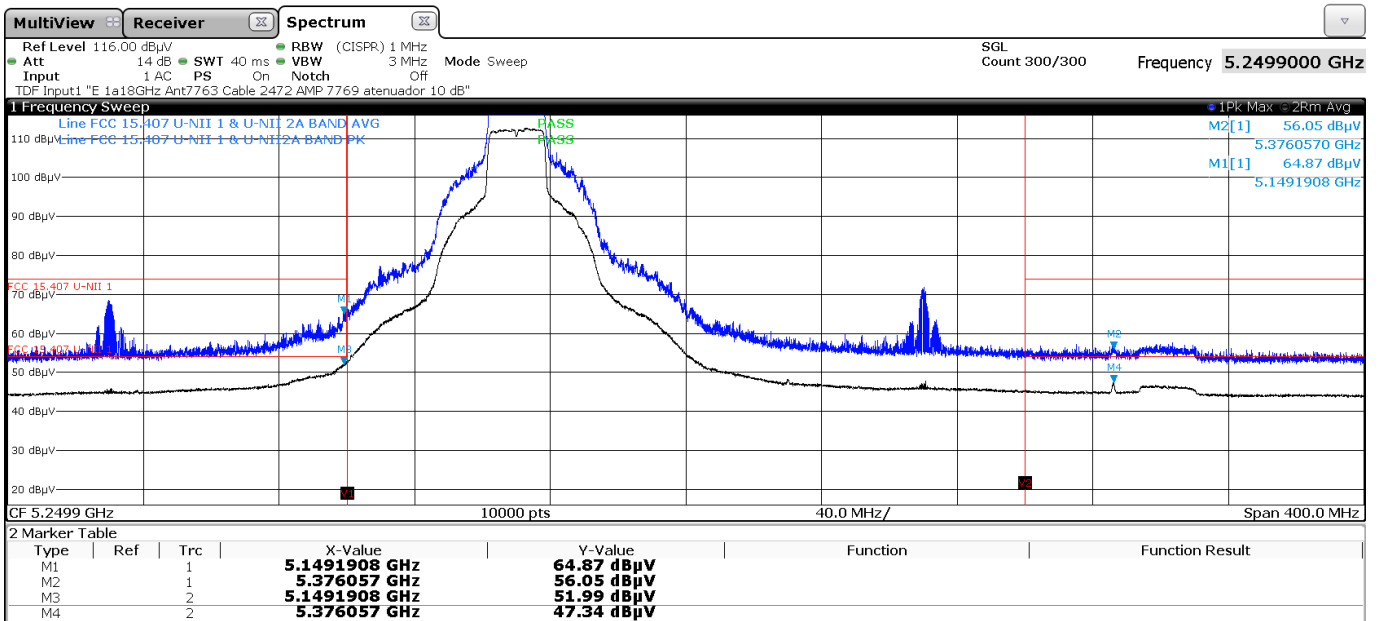
Verdict: PASS

• SISO 802.11 a20 (WLAN1):

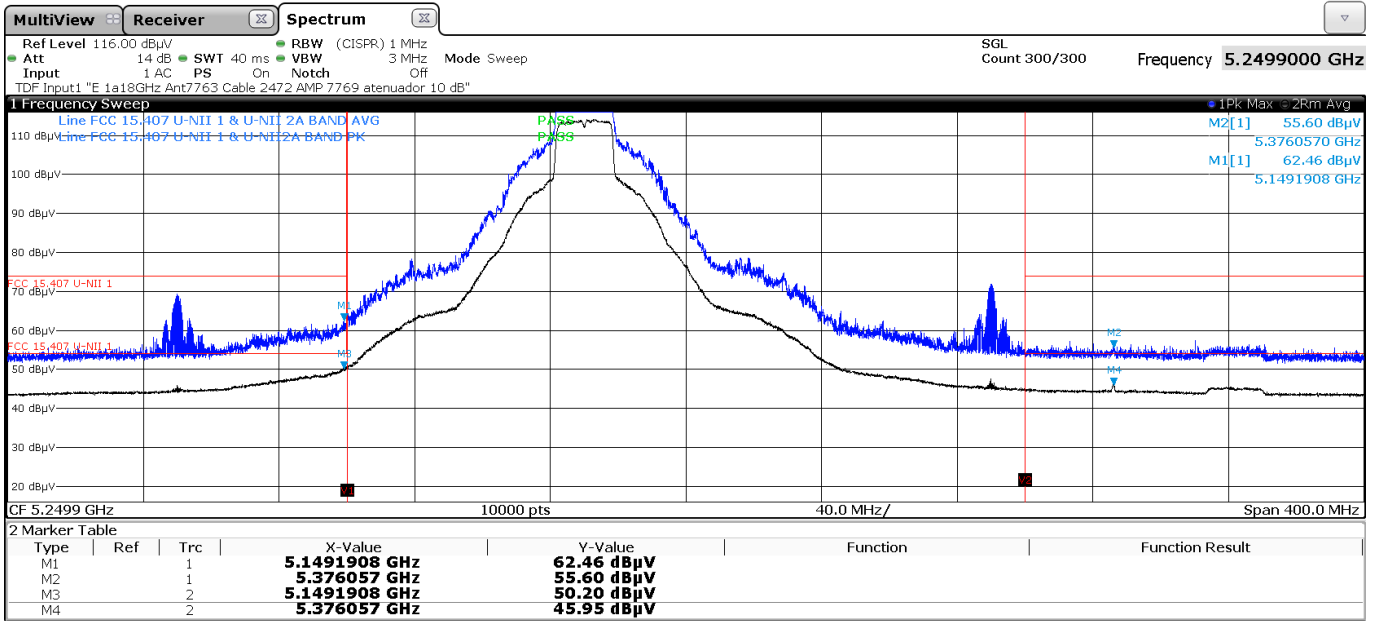
- Lower Band Edge and Upper Band Edge – Low Channel (Restricted Bands)



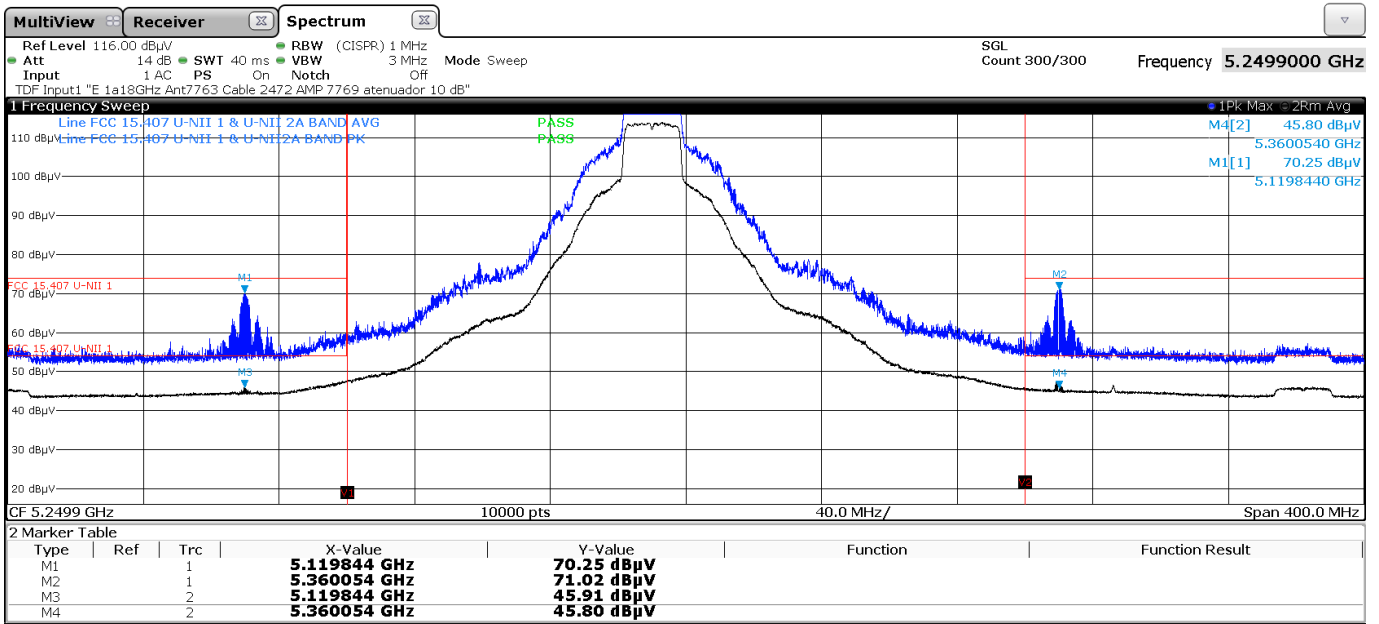
- Lower Band Edge and Upper Band Edge - Middle Channel (Restricted Bands)



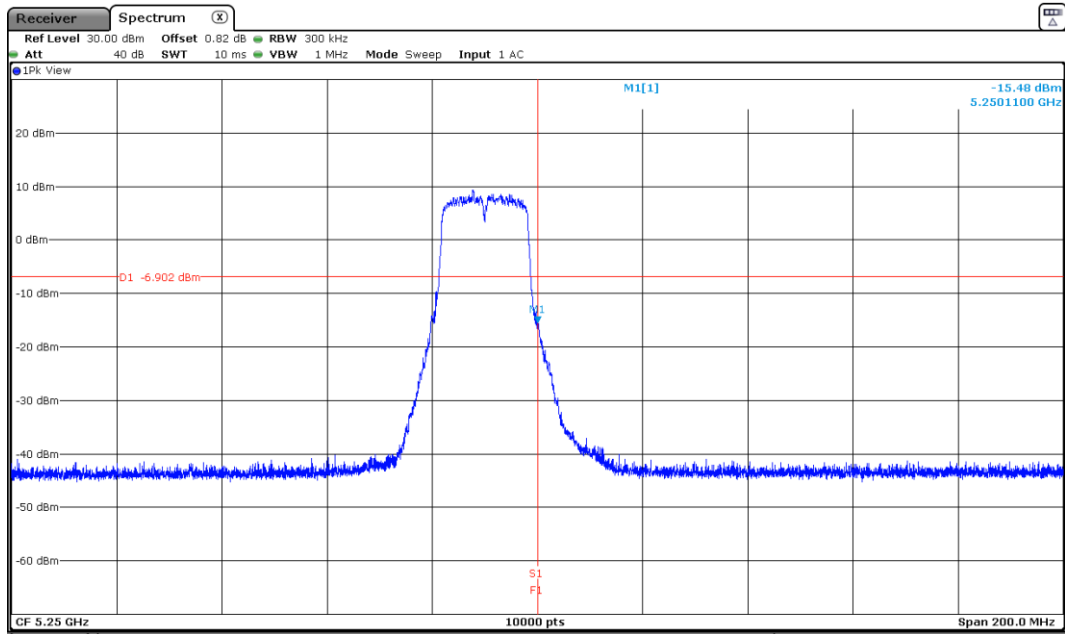
- Lower Band Edge and Upper Band Edge - Channel 44 (Restricted Bands)



- Lower Band Edge and Upper Band Edge - High Channel (Restricted Bands)

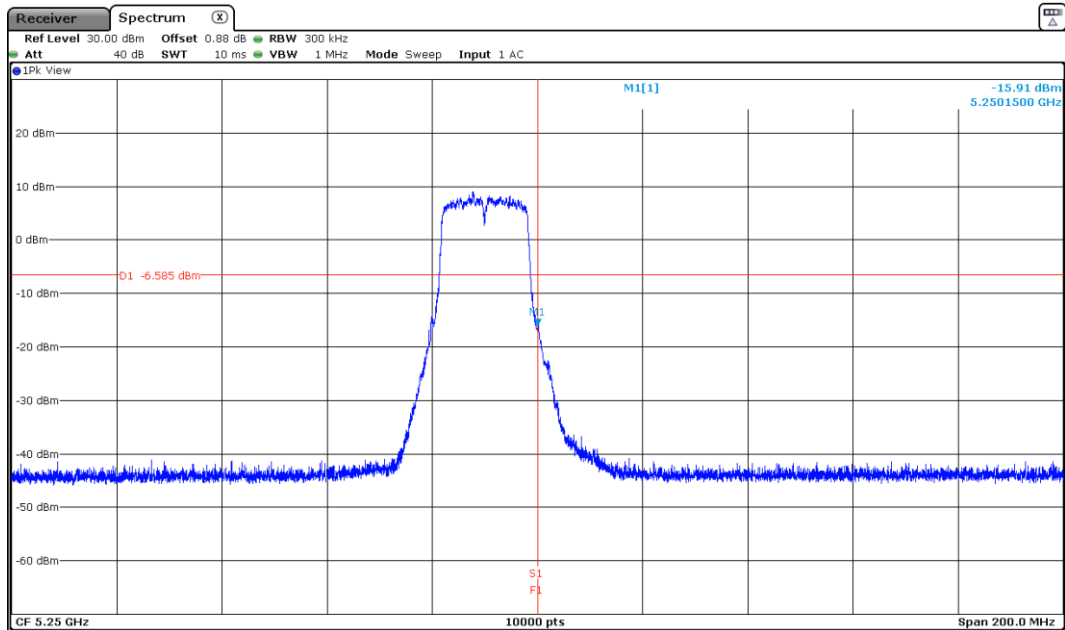


- 5250 MHz to 5350 MHz RSS Band Edge Channel 48 (WLAN1)



NOTE: Conducted Band-Edge measurement.

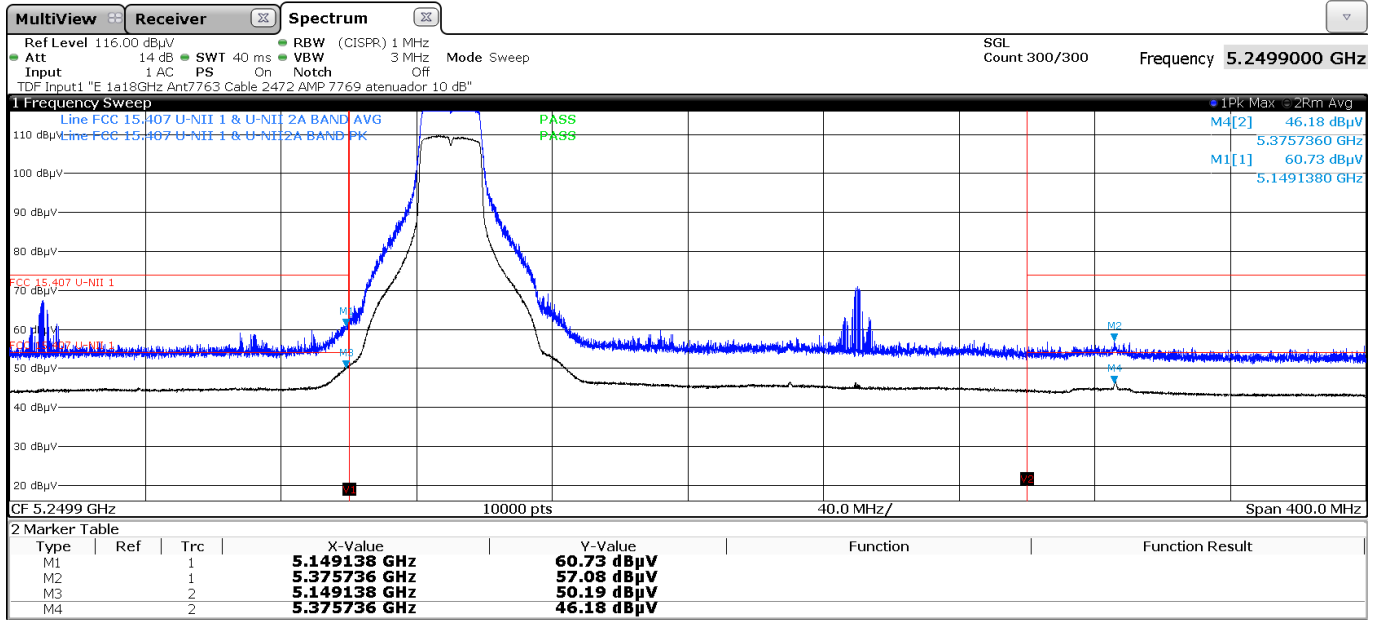
- 5250 MHz to 5350 MHz RSS Band Edge Channel 48 (WLAN2)



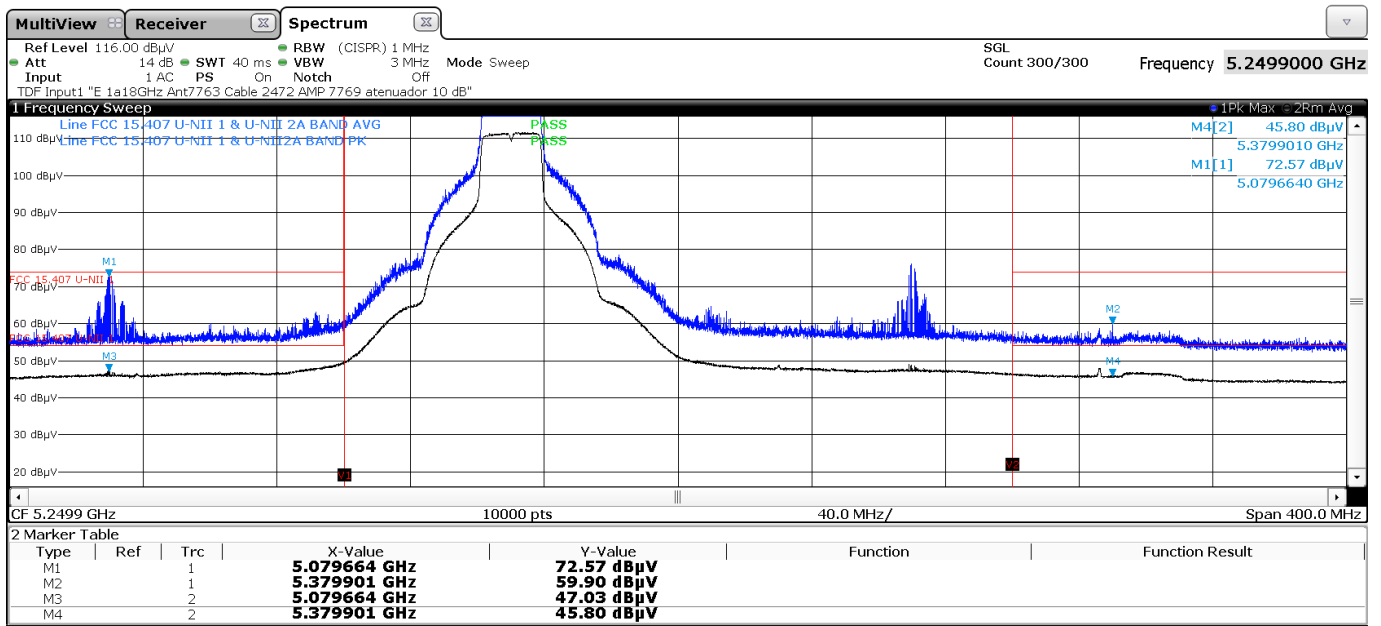
NOTE: Conducted Band-Edge measurement.

• SISO 802.11 n20 (WLAN1):

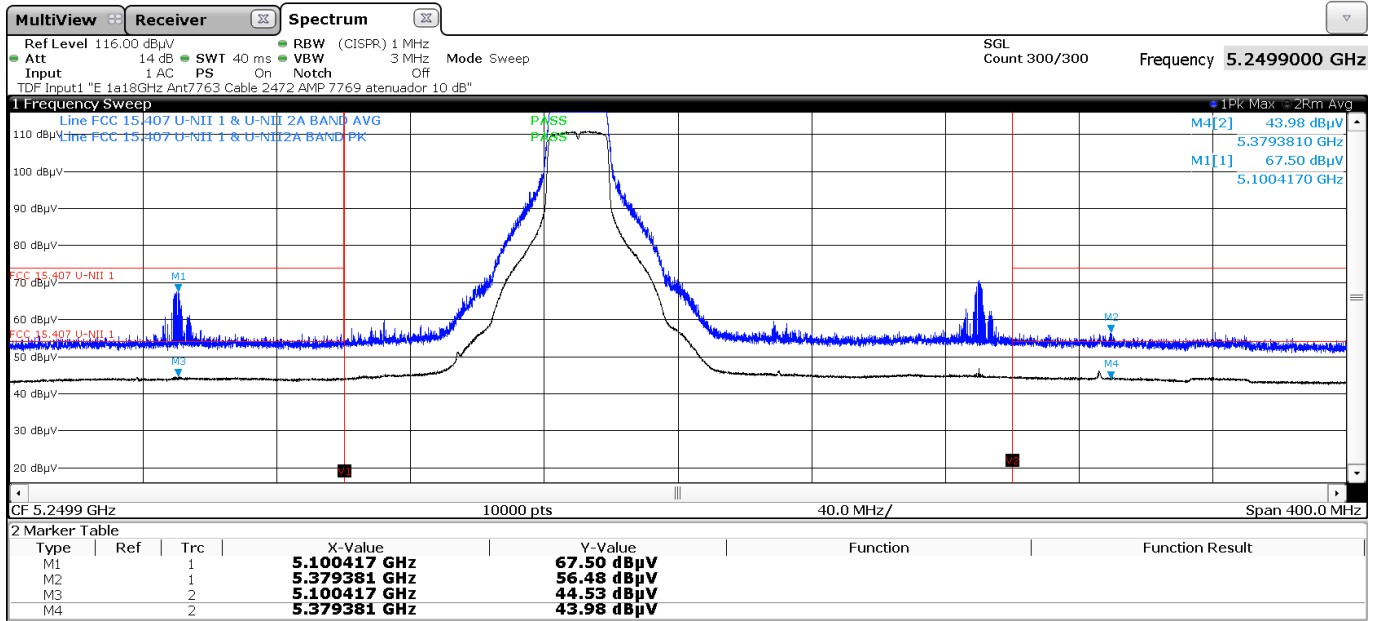
- Lower Band Edge and Upper Band Edge – Low Channel (Restricted Bands)



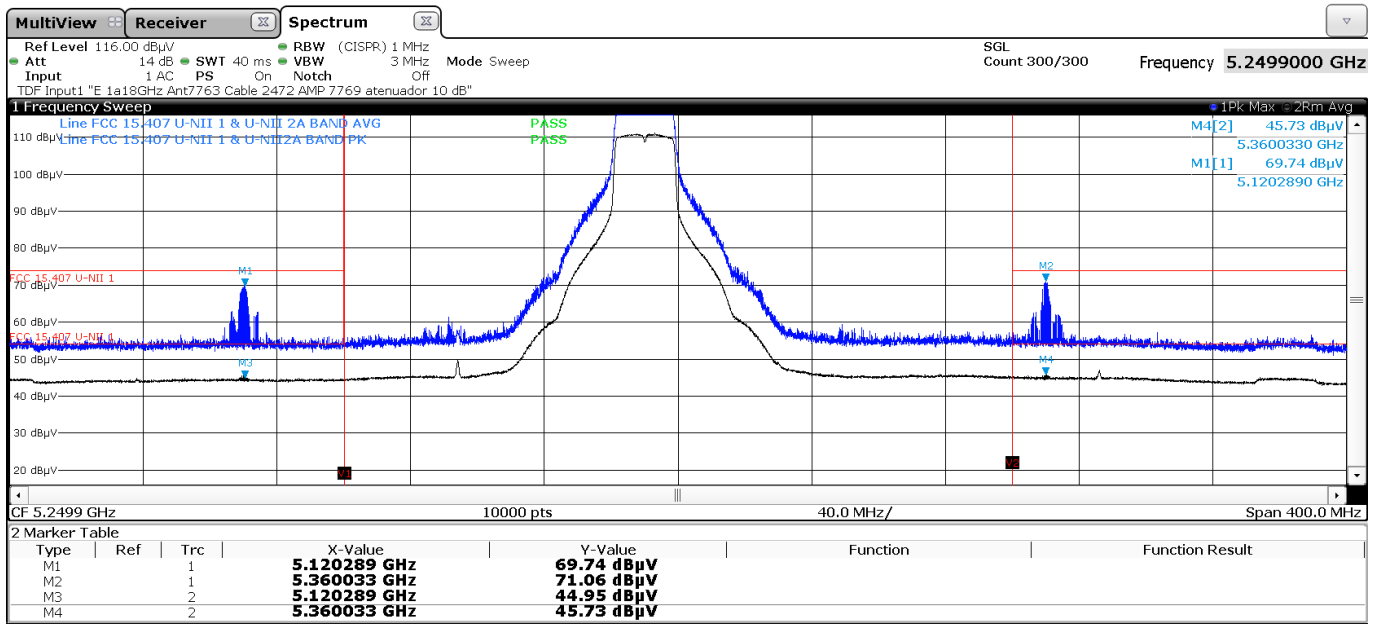
- Lower Band Edge and Upper Band Edge - Middle Channel (Restricted Bands)



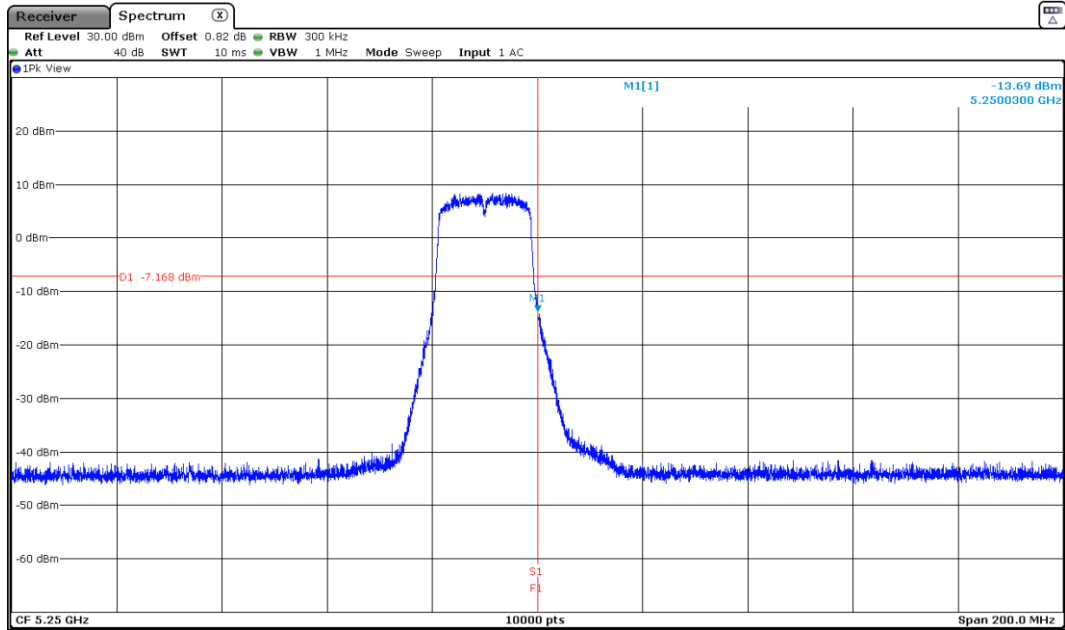
- Lower Band Edge and Upper Band Edge - Channel 44 (Restricted Bands)



- Lower Band Edge and Upper Band Edge - High Channel (Restricted Bands)

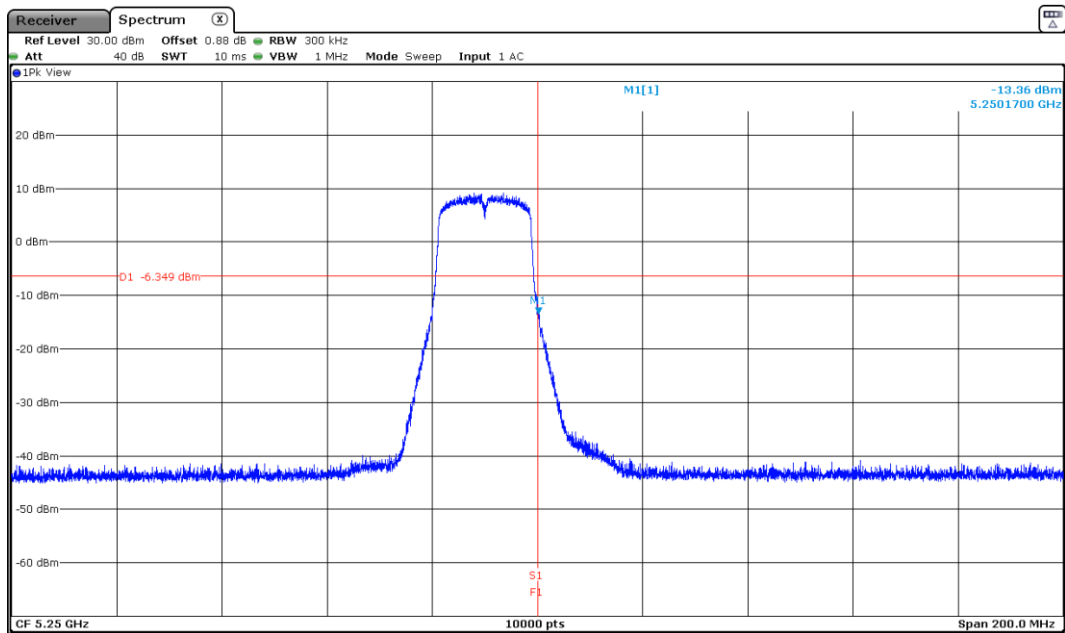


- 5250 MHz to 5350 MHz RSS Band Edge Channel 48 (WLAN1)



NOTE: Conducted Band-Edge measurement.

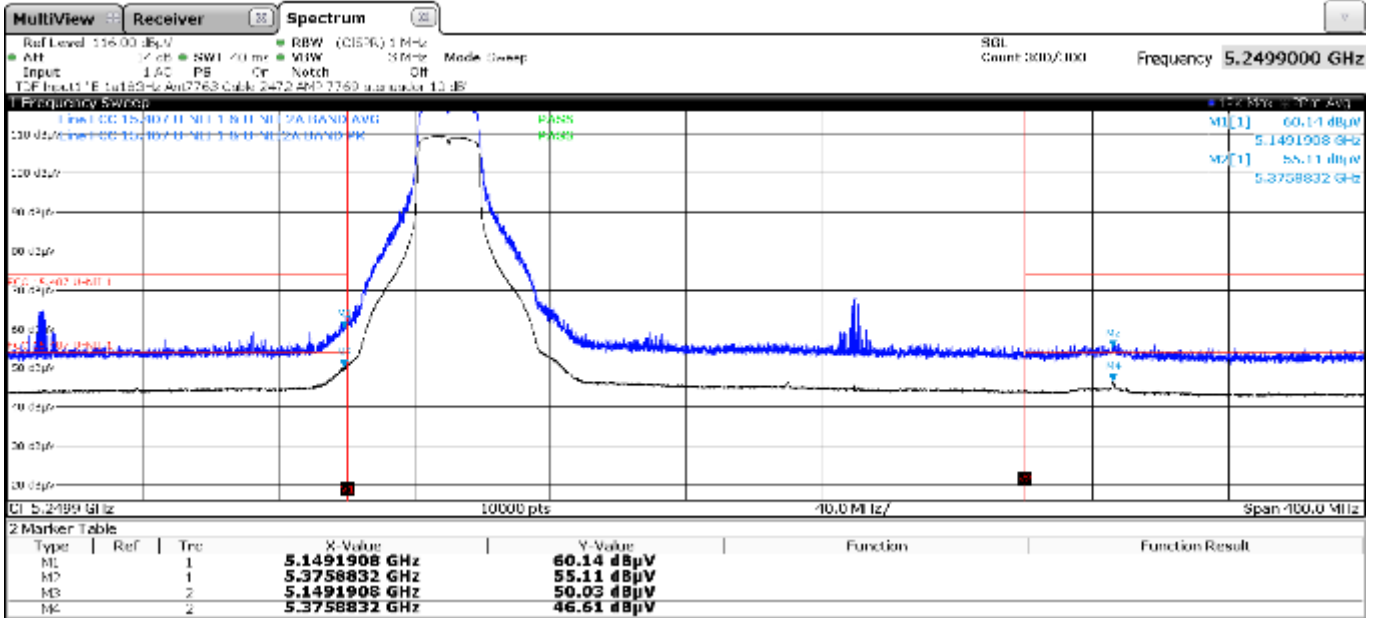
- 5250 MHz to 5350 MHz RSS Band Edge Channel 48 (WLAN2)



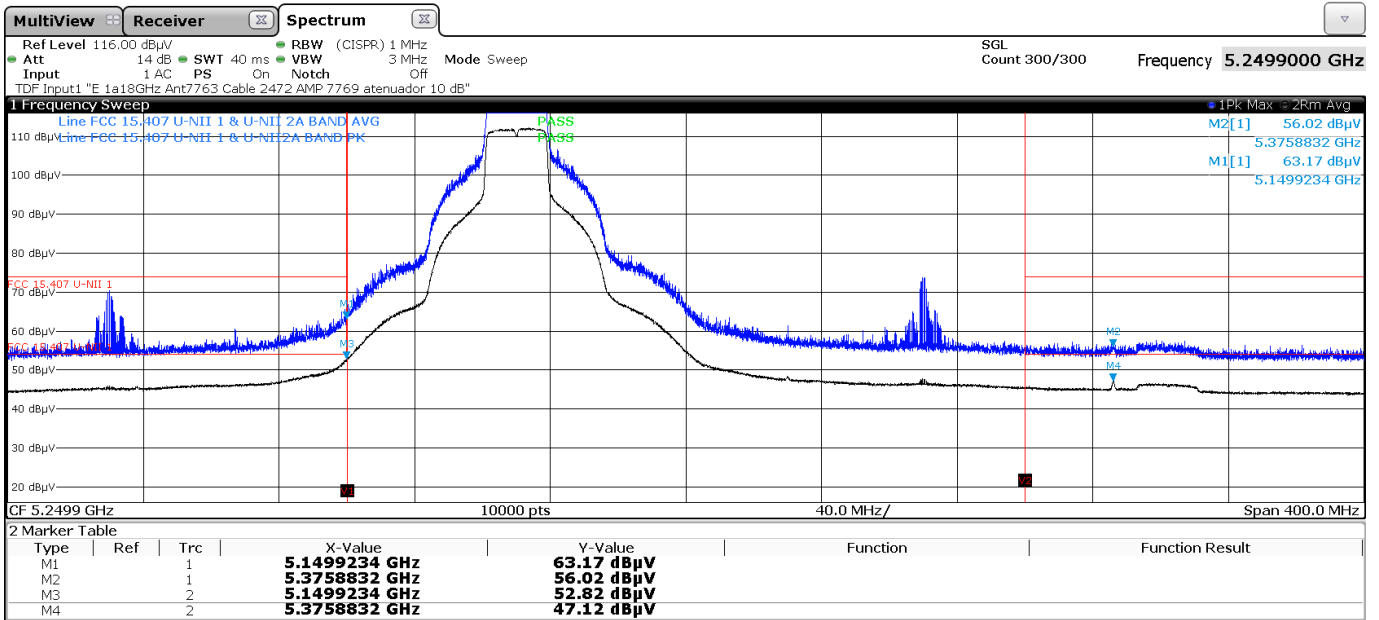
NOTE: Conducted Band-Edge measurement.

• **SISO 802.11 ac20 (WLAN1):**

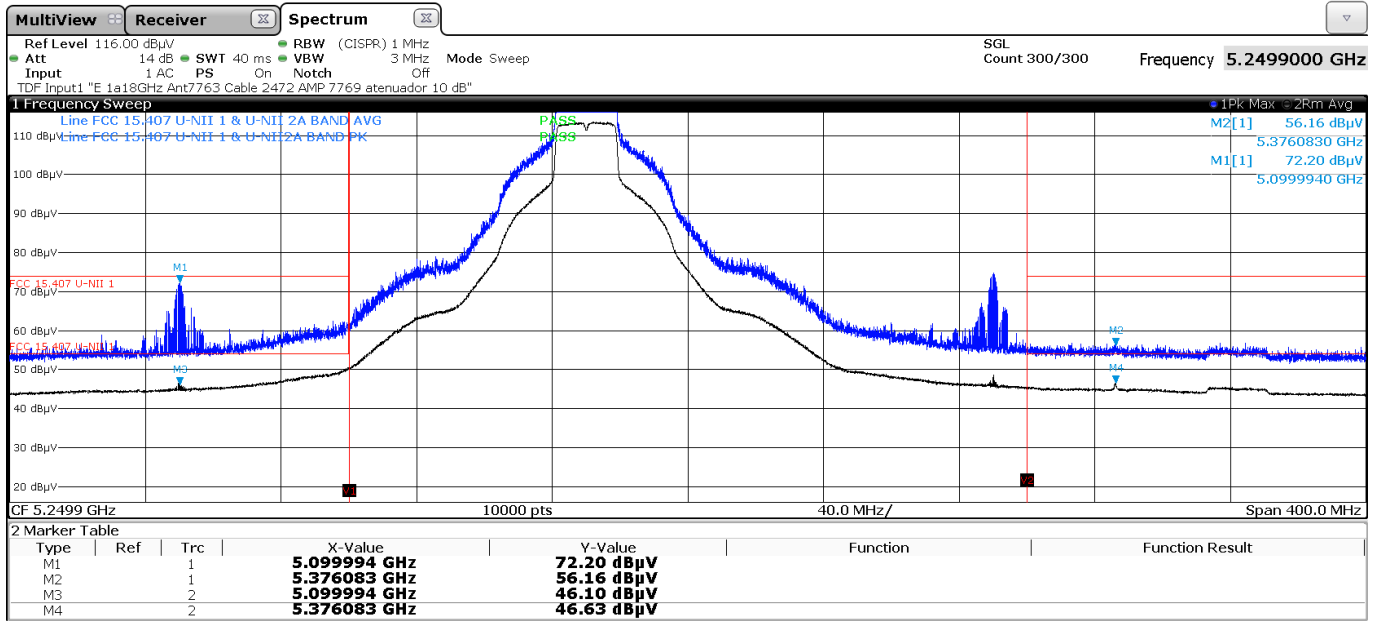
- Lower Band Edge and Upper Band Edge – Low Channel (Restricted Bands)



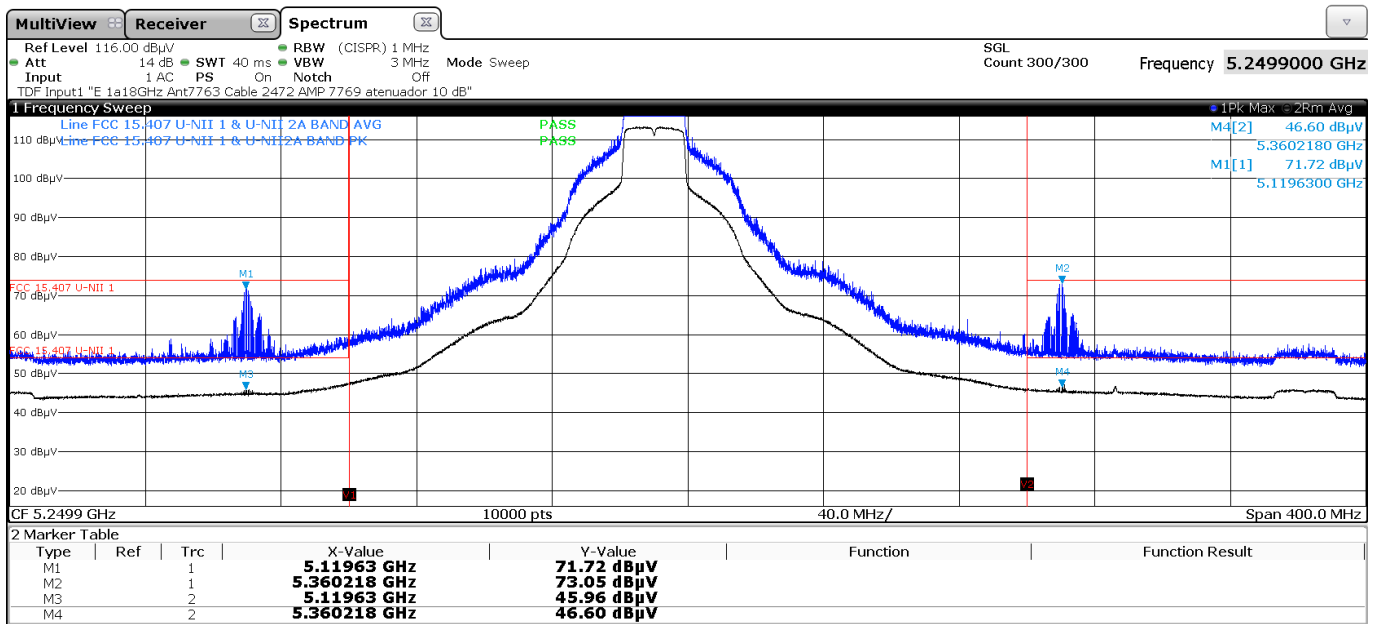
- Lower Band Edge and Upper Band Edge – Middle Channel (Restricted Bands)



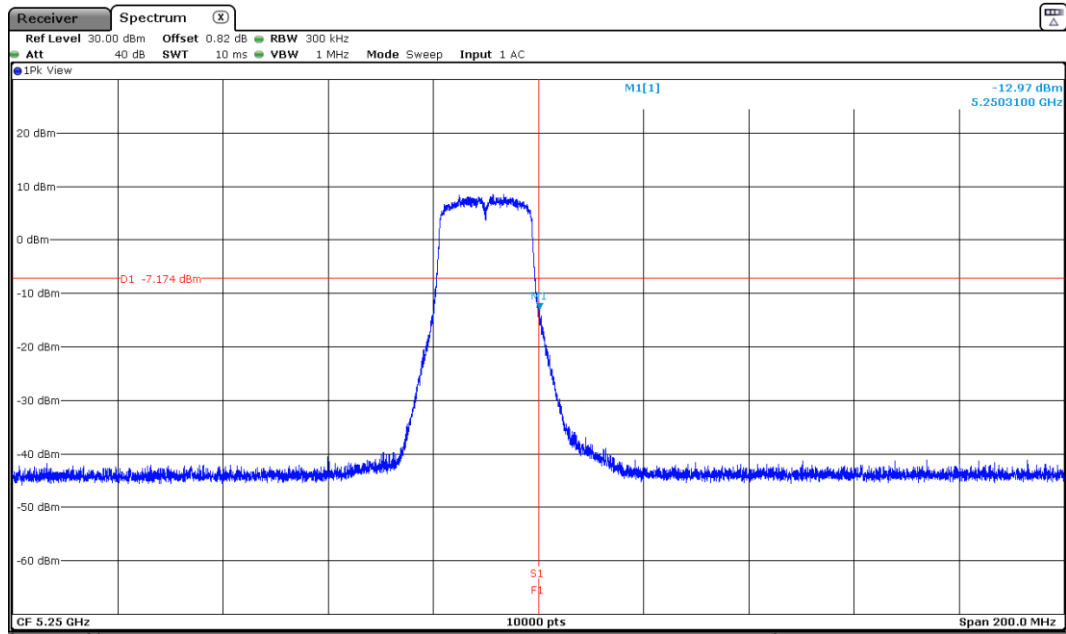
- Lower Band Edge and Upper Band Edge –Channel 44 (Restricted Bands)



- Lower Band Edge and Upper Band Edge – High Channel (Restricted Bands)

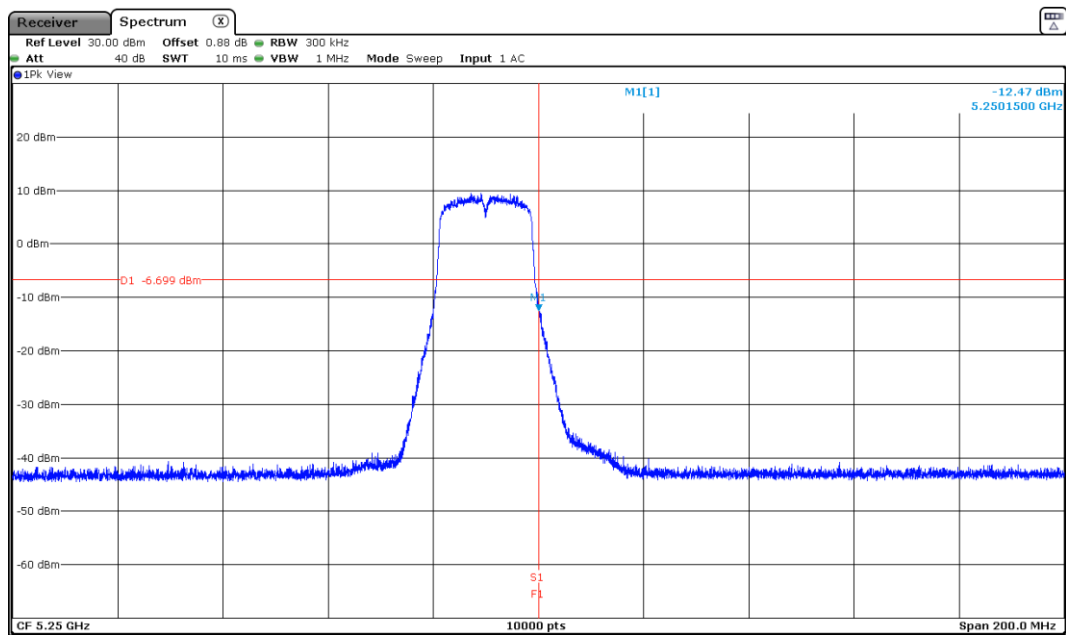


- 5250 MHz to 5350 MHz RSS Band Edge Channel 48 (WLAN1)



NOTE: Conducted Band-Edge measurement.

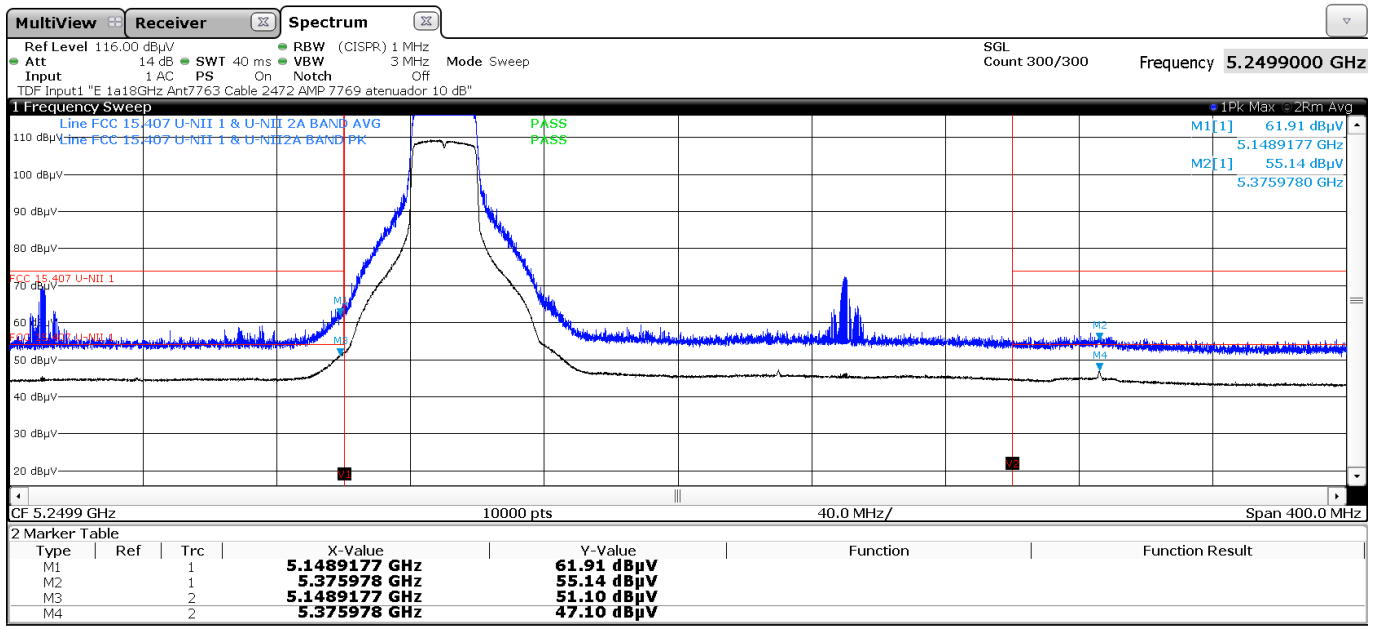
- 5250 MHz to 5350 MHz RSS Band Edge Channel 48 (WLAN2)



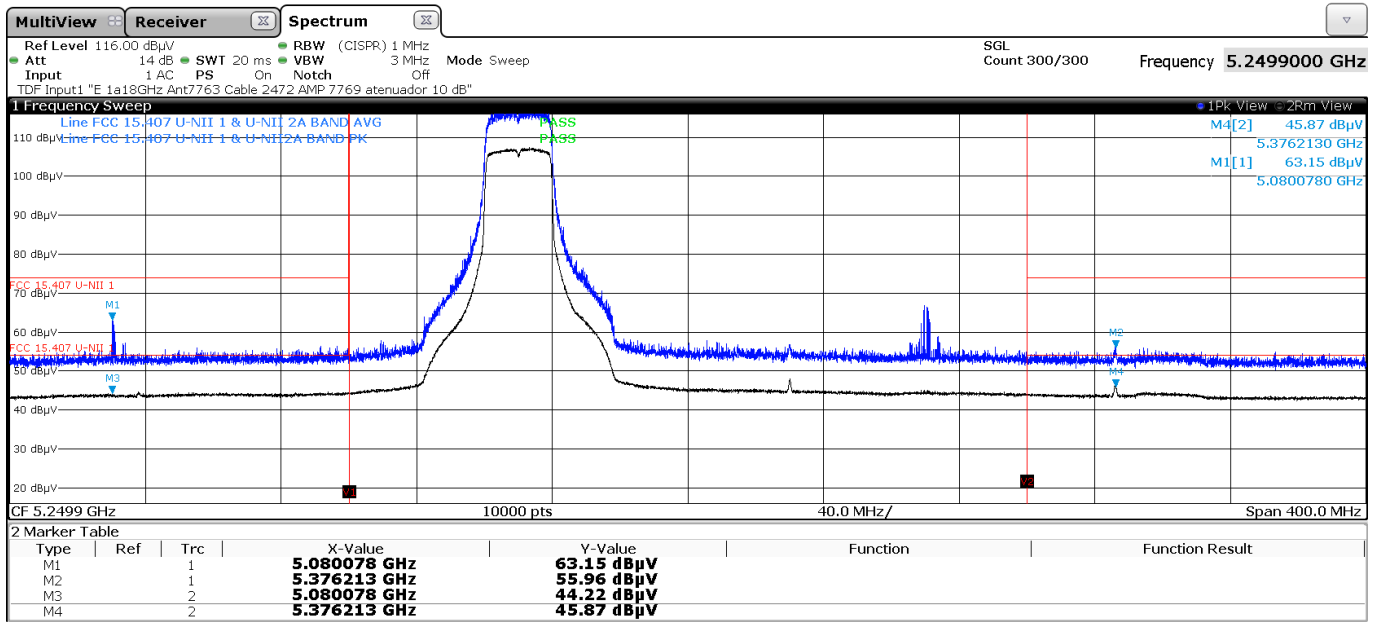
NOTE: Conducted Band-Edge measurement.

• **SISO 802.11 he20 (WLAN1):**

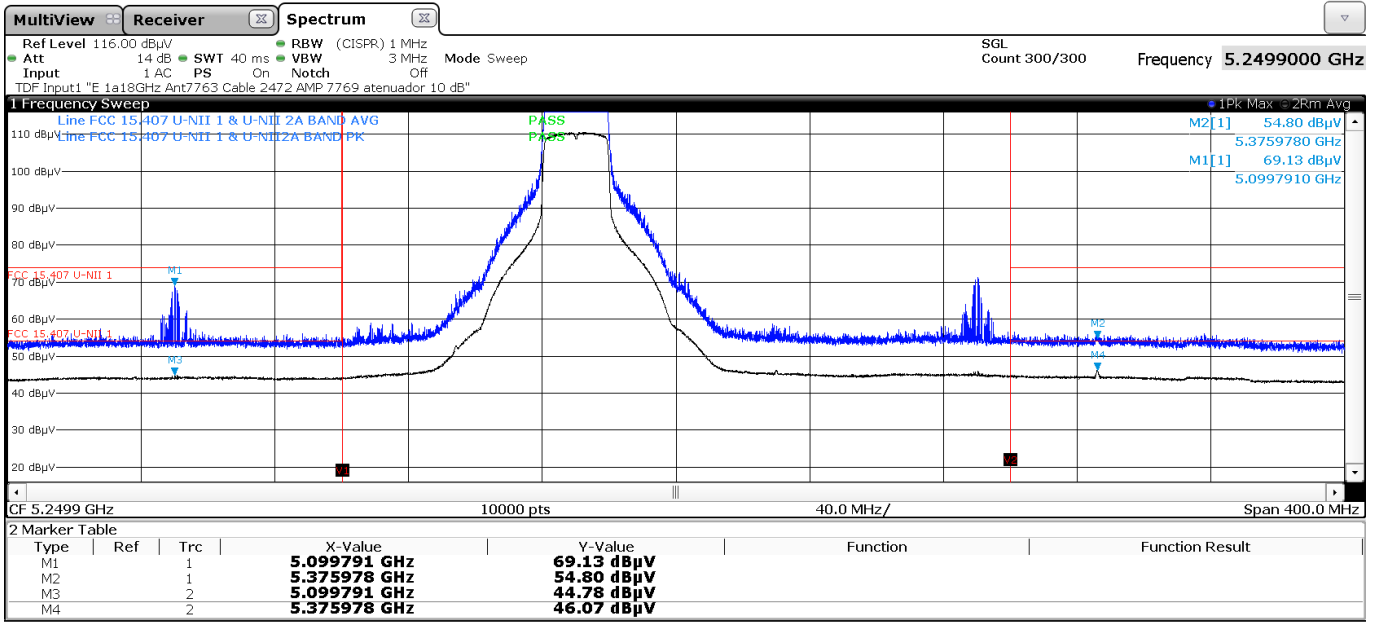
- Lower Band Edge and Upper Band Edge – Low Channel (Restricted Bands)



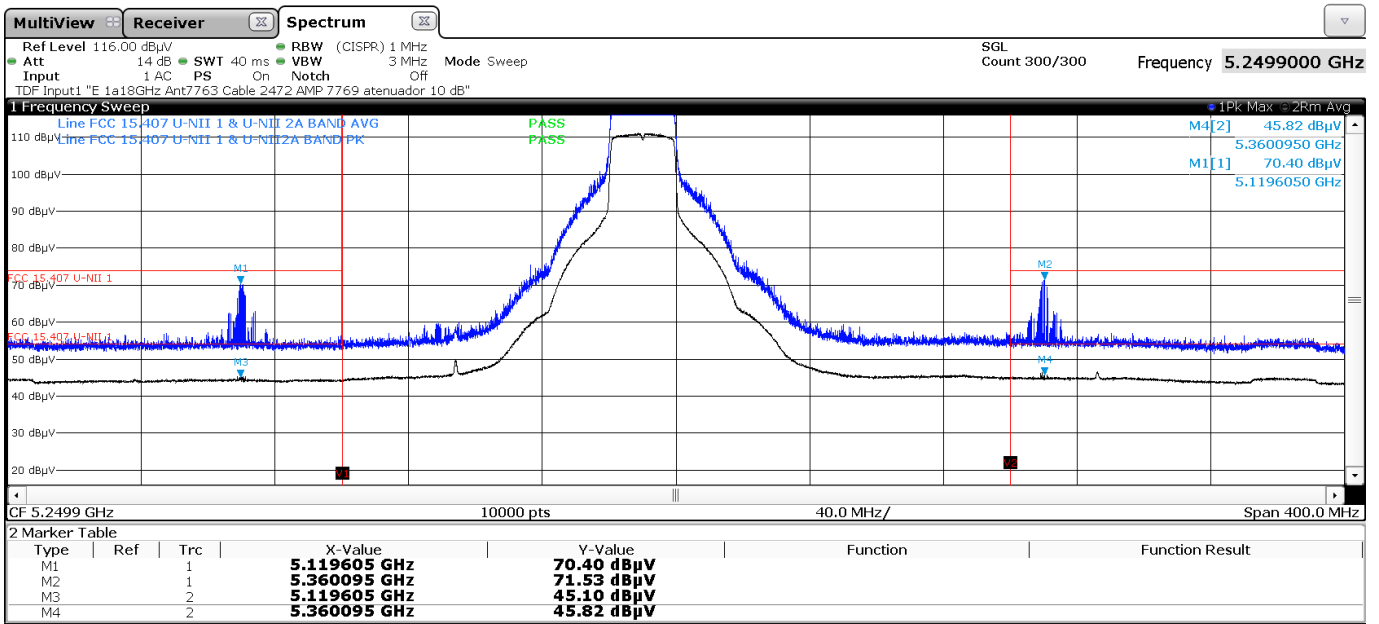
- Lower Band Edge and Upper Band Edge – Middle Channel (Restricted Bands)



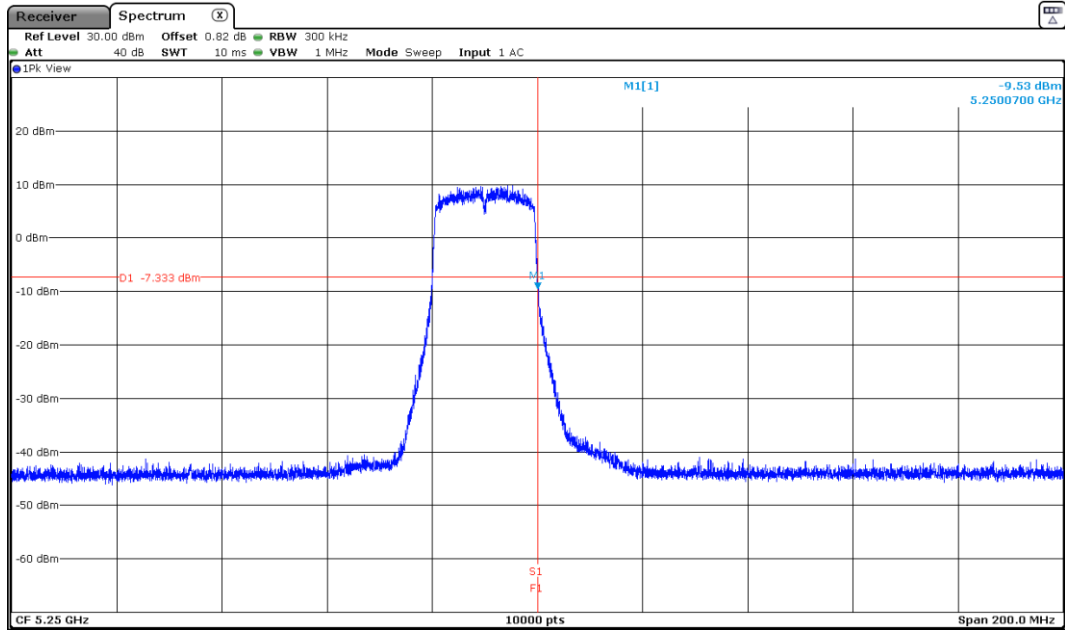
- Lower Band Edge and Upper Band Edge –Channel 44 (Restricted Bands)



- Lower Band Edge and Upper Band Edge – High Channel (Restricted Bands)

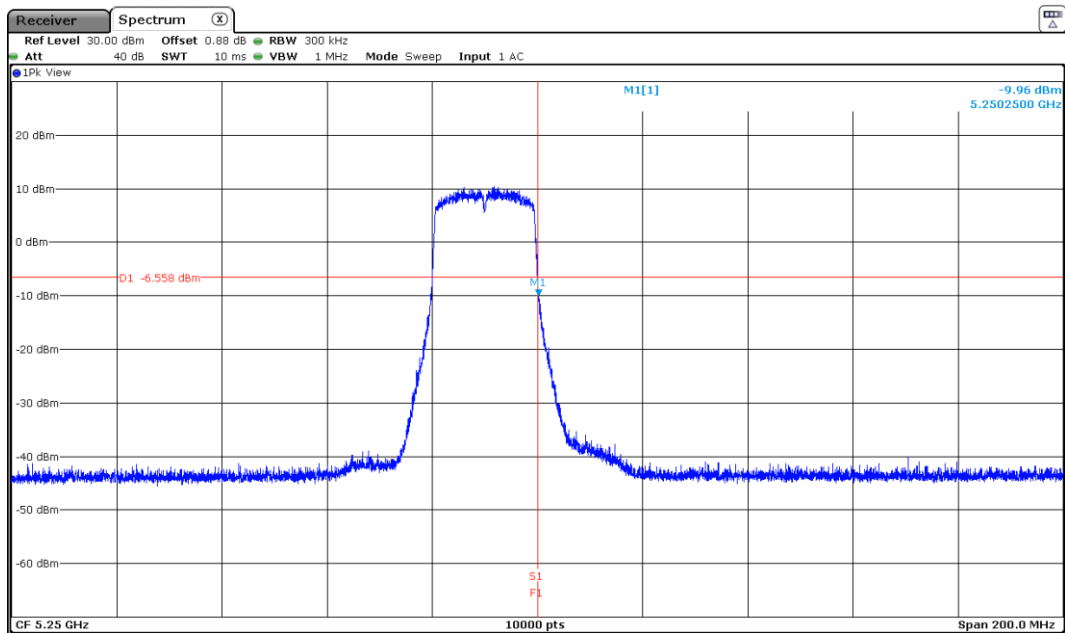


- 5250 MHz to 5350 MHz RSS Band Edge Channel 48 (WLAN1)



NOTE: Conducted Band-Edge measurement.

- 5250 MHz to 5350 MHz RSS Band Edge Channel 48 (WLAN2)



NOTE: Conducted Band-Edge measurement.