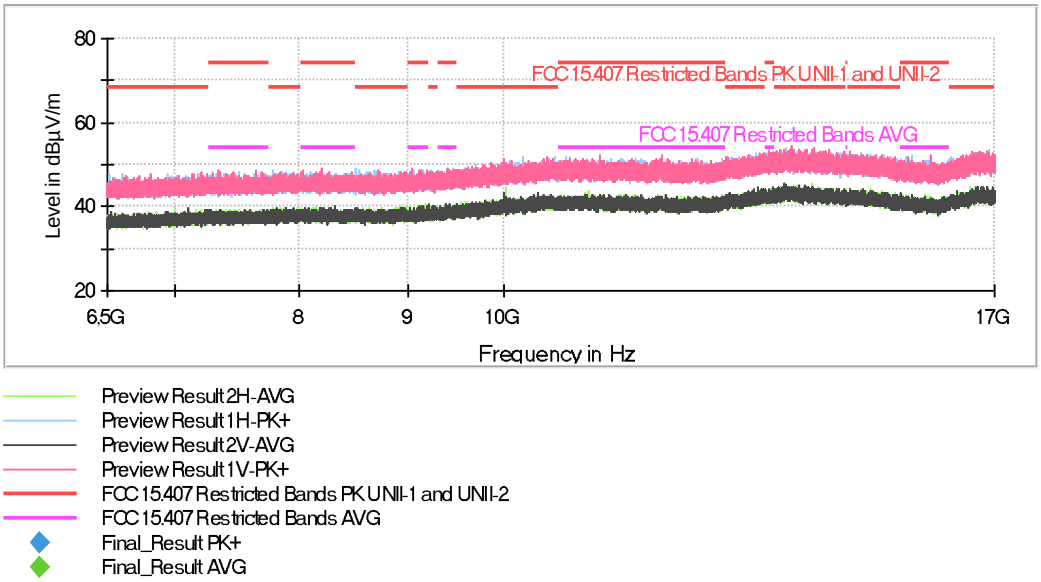
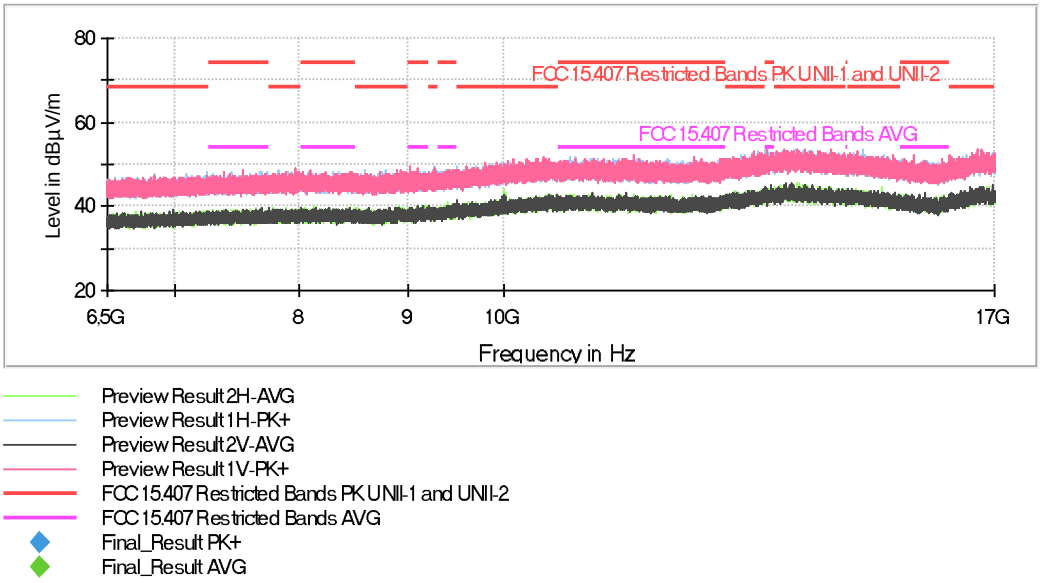
FREQUENCY RANGE 6.5 - 17 GHz:

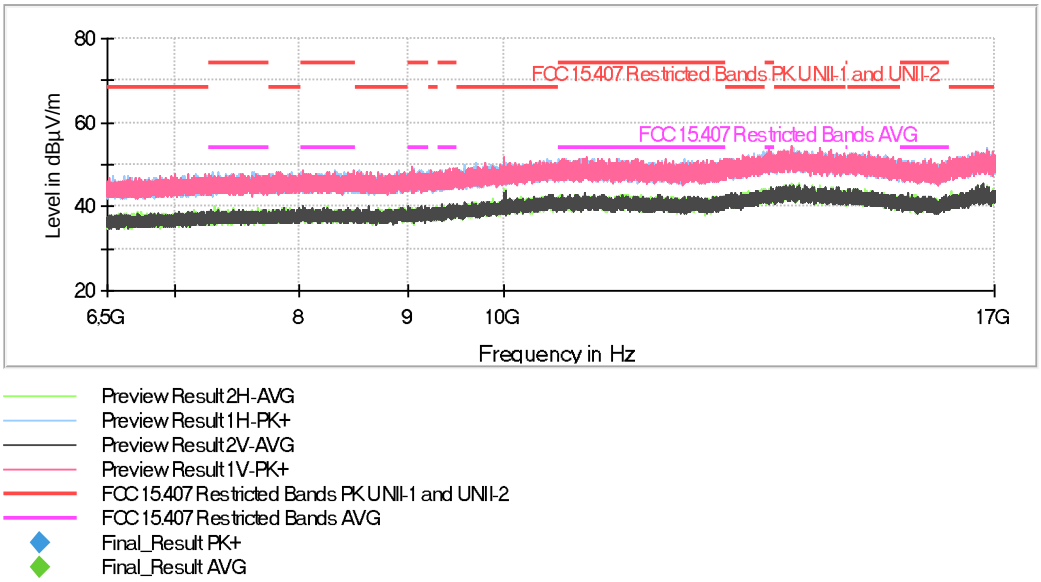
- Low Channel 36 (5180 MHz):



- Middle Channel 40 (5200 MHz):

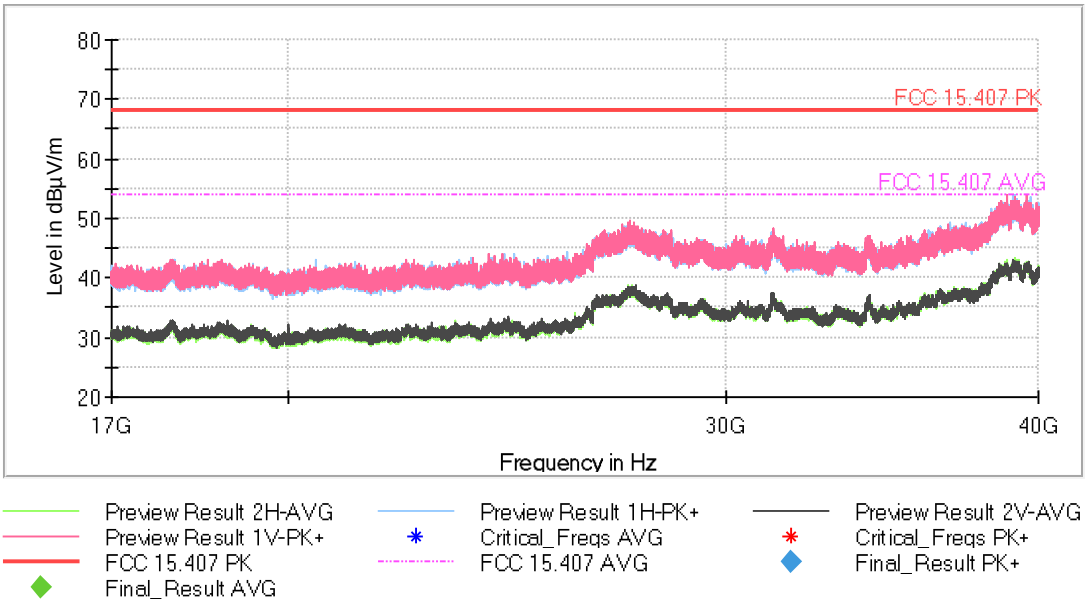


- High Channel 48 (5240 MHz):



FREQUENCY RANGE 17 - 40 GHz:

This plot is valid for Low, Middle and High Channels.



MIMO worst case: **802.11 n20 (index MCS0).**

Frequency range 30 MHz - 1 GHz

The spurious emissions below 1 GHz do not depend either on 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
34.637813	28.48	V	Peak
	21.32		QP
39.487813	32.81	V	Peak
	28.54		QP
45.732188	30.25	V	Peak
	25.70		QP
53.855938	34.25	V	Peak
	30.10		QP
64.768438	27.99	V	Peak
	23.53		QP
86.047813	36.46	V	Peak
	33.62		QP
101.870938	33.65	V	Peak
	29.72		QP
108.812500	33.91	V	Peak
	30.37		QP
143.277813	33.55	V	Peak
	29.80		QP
162.495938	30.58	V	Peak
	23.60		QP
332.852188	38.65	V	Peak
	33.21		QP
841.344375	39.28	V	Peak
	31.08		QP

Frequency range 1 - 40 GHz

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.

- Low Channel. Spurious frequencies detected at less than 20 dB below the limit:

Spurious frequency (GHz)	Emission Level (dBµV/m)	Polarization	Detector
5149.300000	58.27	V	Peak
	45.69		Average

- Middle Channel. Spurious frequencies detected at less than 20 dB below the limit:

Spurious frequency (GHz)	Emission Level (dBµV/m)	Polarization	Detector
5119.700000	57.08	V	Peak
	43.62		Average

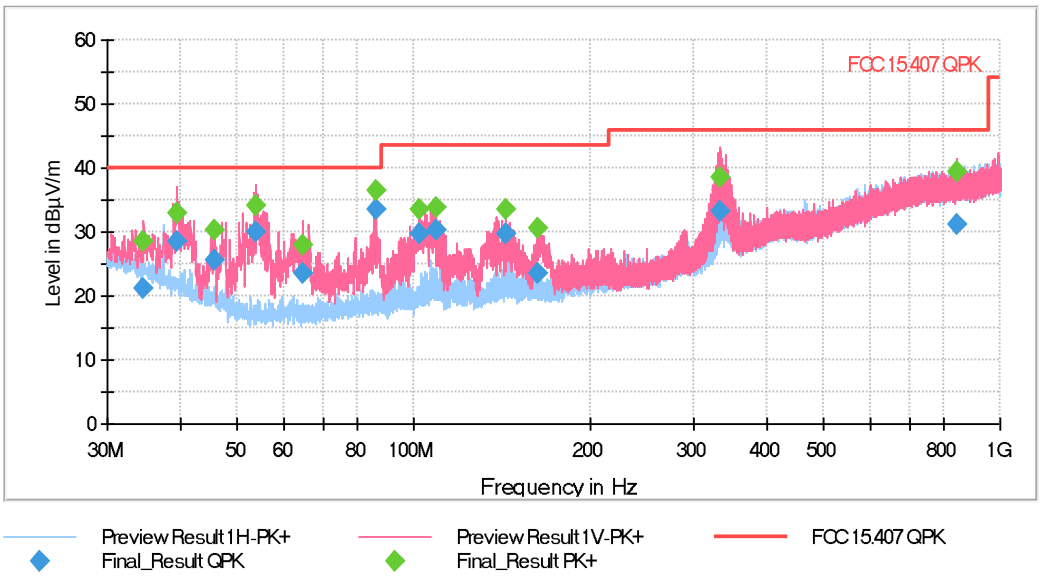
- High Channel. No spurious frequencies detected at less than 20 dB below the limit.

Verdict: PASS

MIMO worst case

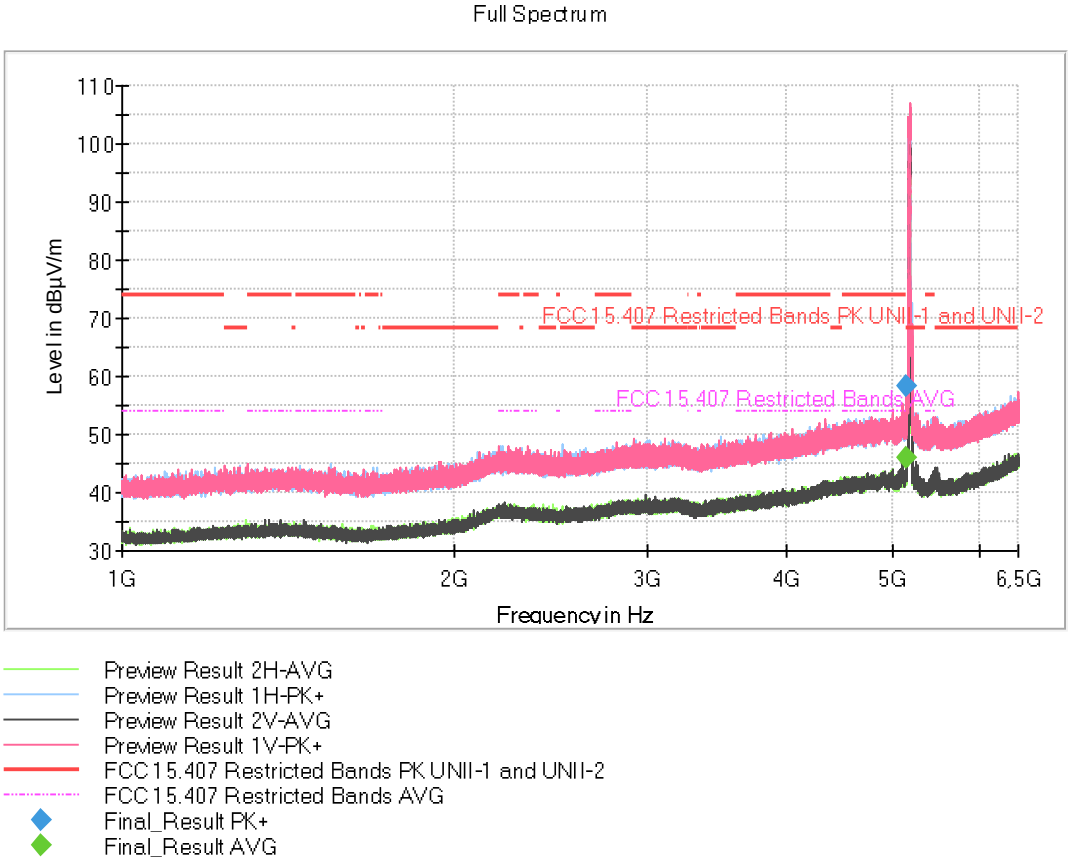
FREQUENCY RANGE 30 MHz - 1 GHz:

This plot is valid for Low, Middle and High Channels.



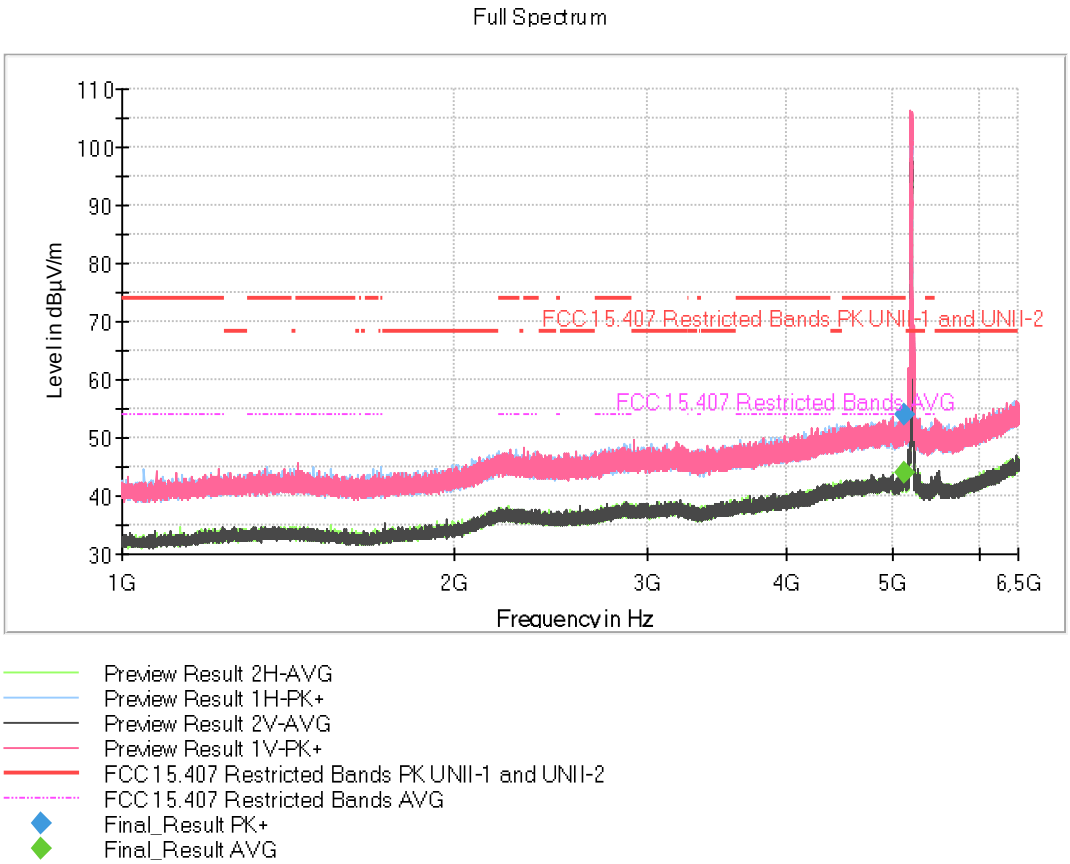
FREQUENCY RANGE 1 - 6.5 GHz:

- Low Channel 36 (5180 MHz):



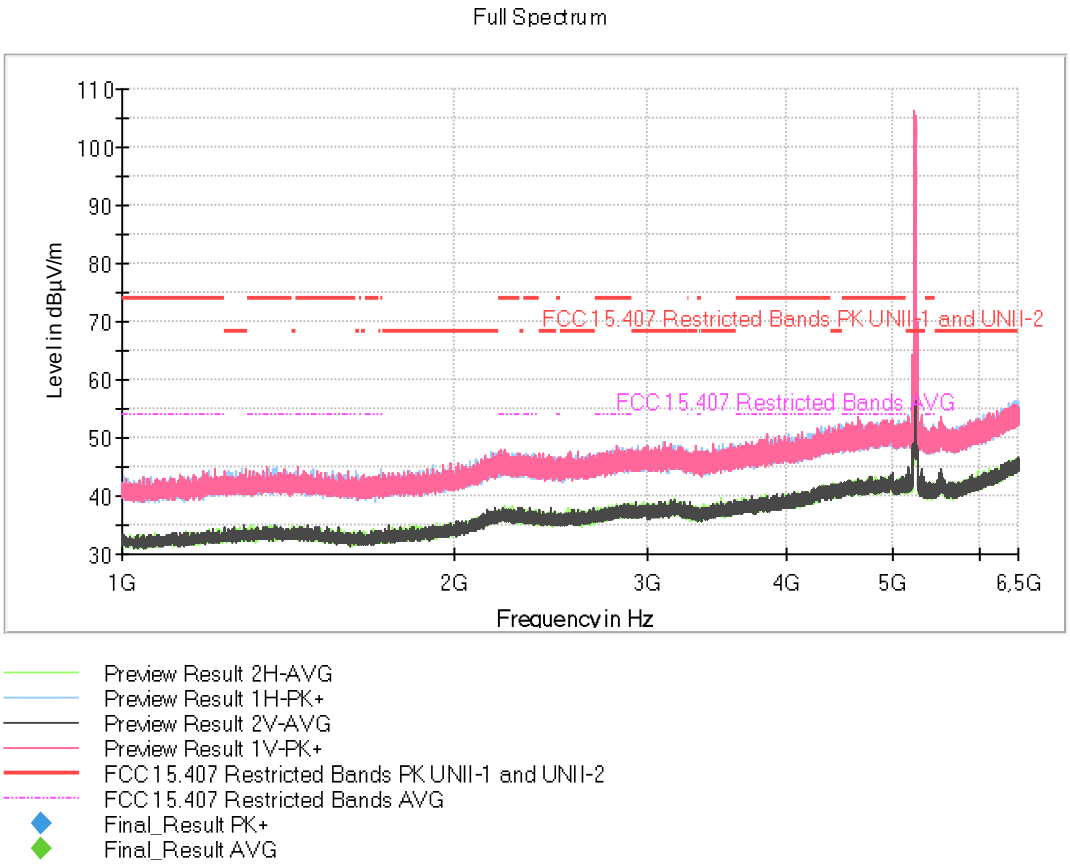
The peak shown in the plot above the limit is the carrier frequency.

- Middle Channel 44 (5220 MHz):



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

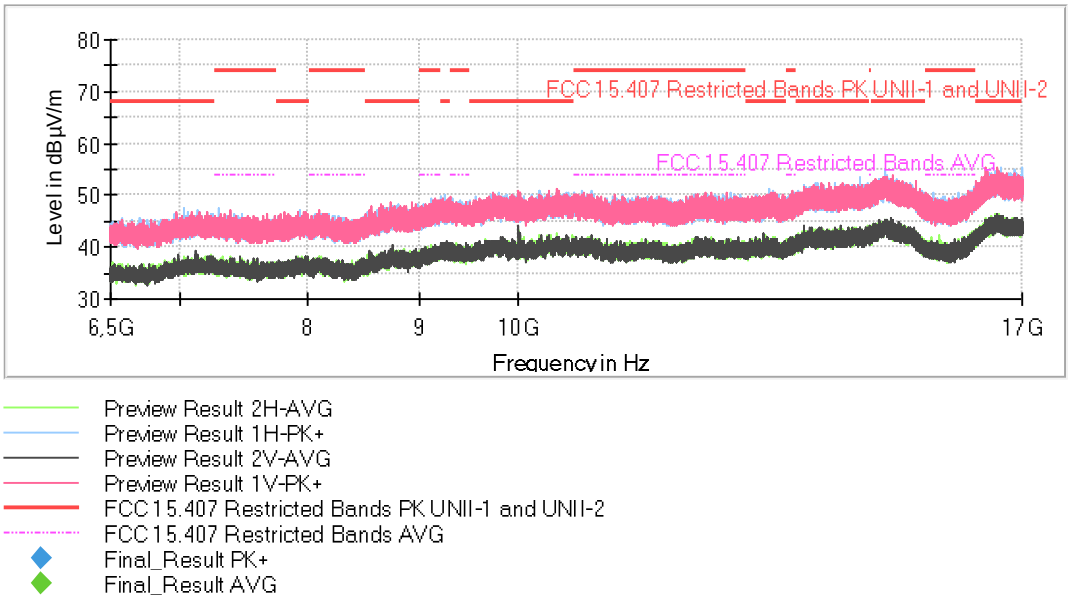
- High Channel 48 (5240 MHz):



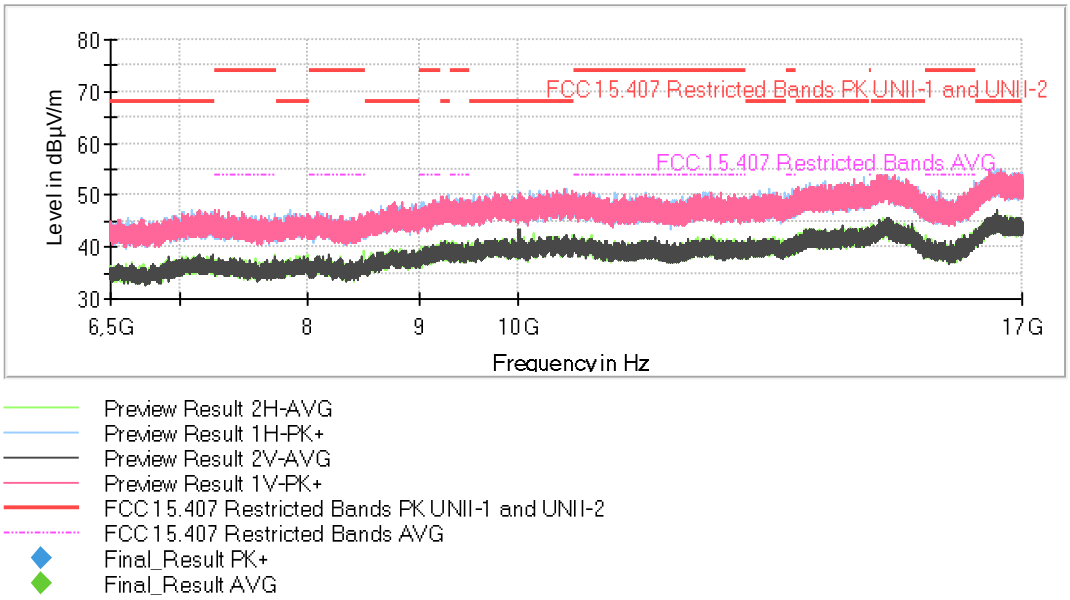
The peak shown in the plot above the limit is the carrier frequency.

FREQUENCY RANGE 6.5 - 17 GHz:

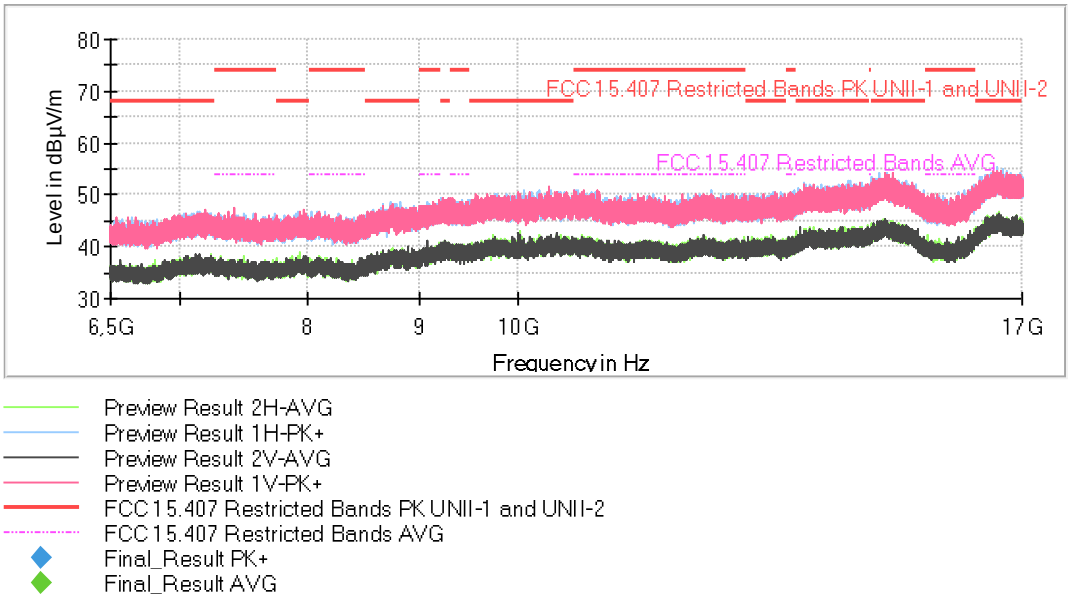
- Low Channel 36 (5180 MHz):



- Middle Channel 40 (5200 MHz):

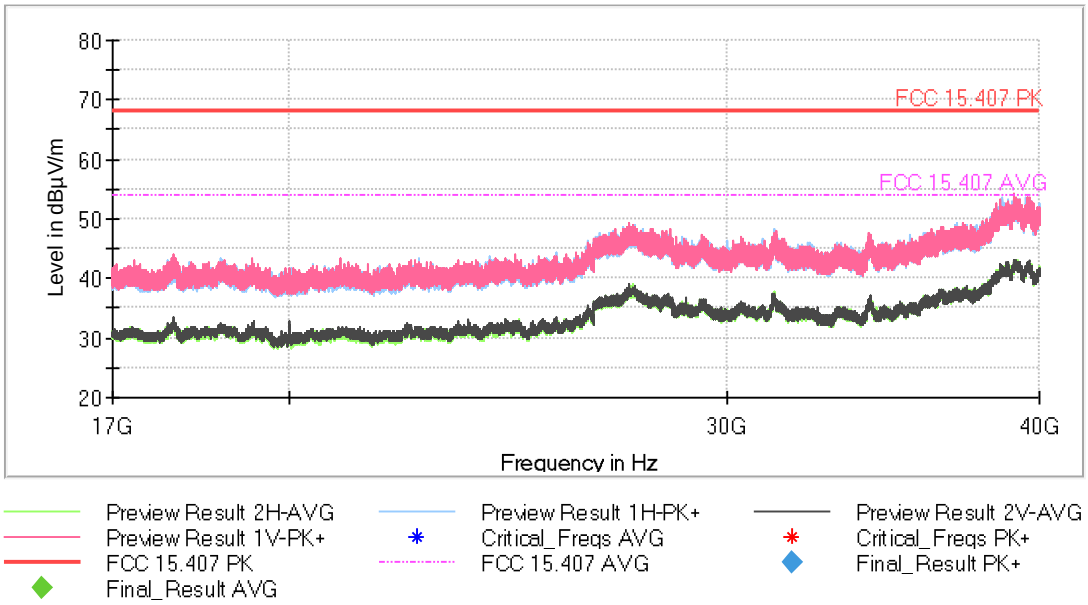


- High Channel 48 (5240 MHz):



FREQUENCY RANGE 17 - 40 GHz:

This plot is valid for Low, Middle and High Channels.



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)	-	30
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, specified when measuring with peak detector function.

RSS 247: Any unwanted emissions that fall into the band 5250-5350 MHz shall be attenuated below the channel power by at least 26 dB, when measured using a resolution bandwidth between 1 and 5% of the occupied bandwidth (i.e. 99% bandwidth), above 5250 MHz.

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 provisions of FCC Part 15.205 apply.

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

Preliminary tests determined the SISO worst case: Chain 0.

Test performed on all the supported modes of the EUT, in the worst data rates after preliminary testing.

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.

SISO worst case (Chain 0)

- **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)	Polarization	Detector
5101.000000	56.01	V	Peak
	44.37		Average

- Upper Band Edge. No spurious emissions found inside the Restricted Band 5.35-5.46 GHz.

- HIGH CHANNEL:

- Lower Band Edge. No spurious emissions found inside the Restricted Band 4.50-5.15 GHz.
- Upper Band Edge. No spurious emissions found inside the Restricted Band 5.35-5.46 GHz.

- **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)	Polarization	Detector
5149.800000	61.17	V	Peak
	45.25		Average

- Upper Band Edge. No spurious emissions found inside the Restricted Band 5.35-5.46 GHz.

- HIGH CHANNEL:

- Lower Band Edge. No spurious emissions found inside the Restricted Band 4.50-5.15 GHz.
- Upper Band Edge. No spurious emissions found inside the Restricted Band 5.35-5.46 GHz.

- **SISO 802.11 ac20:**

- LOW CHANNEL:

- Lower Band Edge. No spurious emissions found inside the Restricted Band 4.50-5.15 GHz.
- Upper Band Edge. No spurious emissions found inside the Restricted Band 5.35-5.46 GHz.

- HIGH CHANNEL:

- Lower Band Edge. No spurious emissions found inside the Restricted Band 4.50-5.15 GHz.
- Upper Band Edge. No spurious emissions found inside the Restricted Band 5.35-5.46 GHz.

- **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)	Polarization	Detector
5145.200000	57.45	V	Peak
	43.56		Average

- Upper Band Edge. No spurious emissions found inside the Restricted Band 5.35-5.46 GHz.

- HIGH CHANNEL:

- Lower Band Edge. No spurious emissions found inside the Restricted Band 4.50-5.15 GHz.
- Upper Band Edge. No spurious emissions found inside the Restricted Band 5.35-5.46 GHz.

- **SISO 802.11 ac40:**

- LOW CHANNEL:

- Lower Band Edge. No spurious emissions found inside the Restricted Band 4.50-5.15 GHz.
- Upper Band Edge. No spurious emissions found inside the Restricted Band 5.35-5.46 GHz.

- HIGH CHANNEL:

- Lower Band Edge. No spurious emissions found inside the Restricted Band 4.50-5.15 GHz.
- Upper Band Edge. No spurious emissions found inside the Restricted Band 5.35-5.46 GHz.

- **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)	Polarization	Detector
5145.400000	57.25	V	Peak
	45.95		Average

- Upper Band Edge. No spurious emissions found inside the Restricted Band 5.35-5.46 GHz.

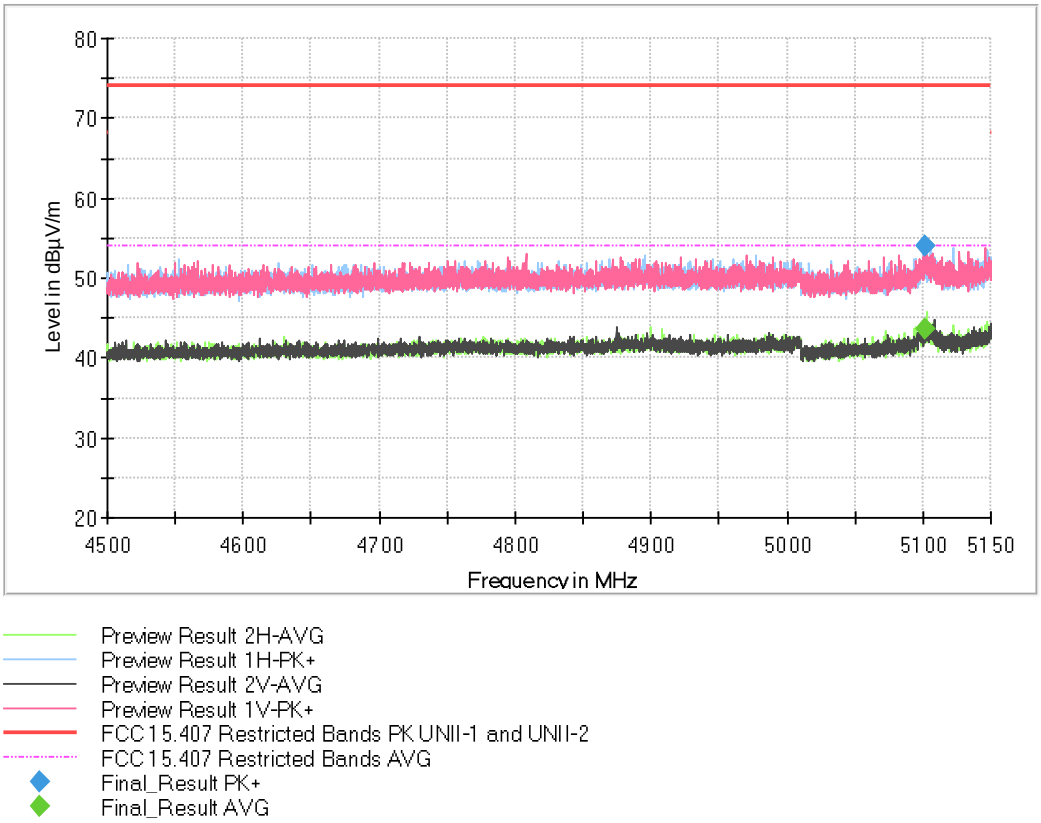
Verdict: PASS

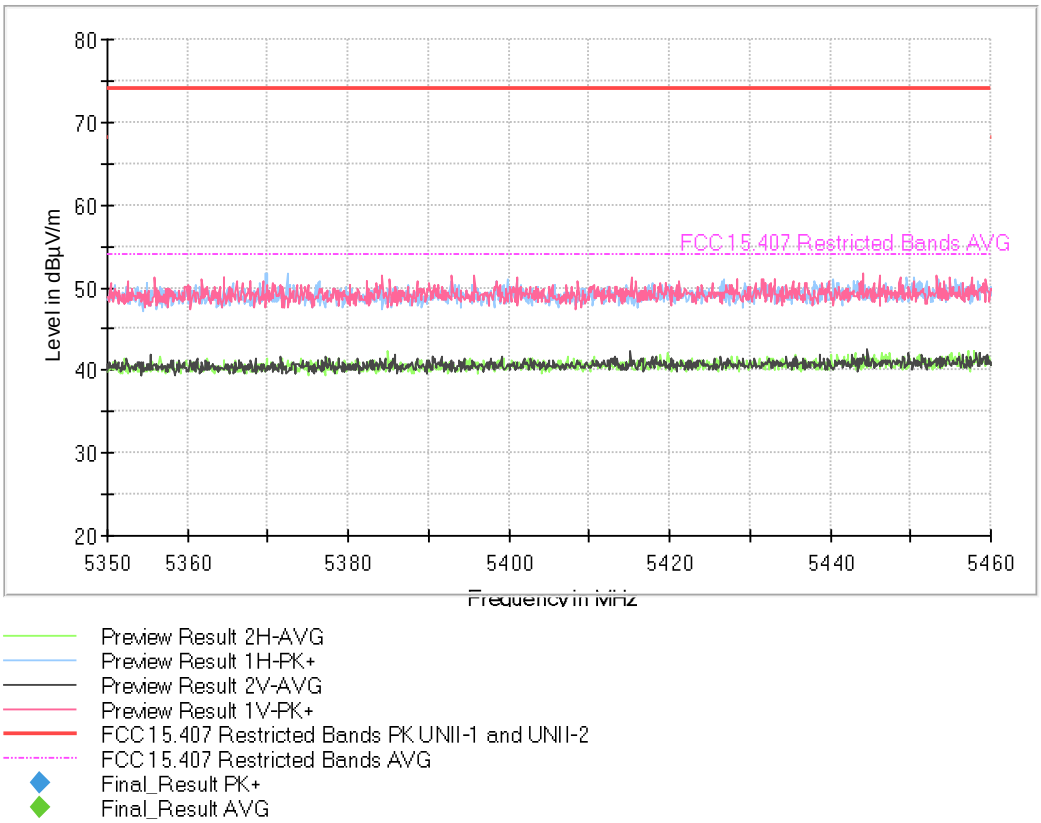
The measurement settings for band edge measurements is as follows:

Subrange	**Step Size**	**Detectors**	**Bandwidth**	**Sweep Time**	**Preamp**
Receiver: [FSW 50]					
1 GHz - 6,5 GHz	100 kHz	PK+ ; AVG	1 MHz	1 s	0 dB

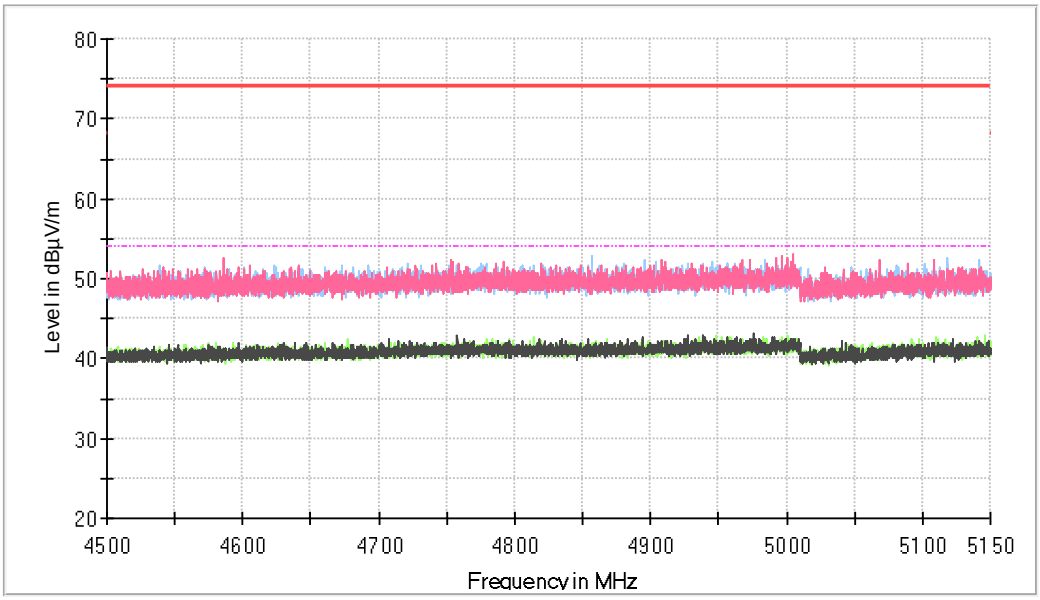
- **SISO 802.11 a20 (Chain 0):**

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

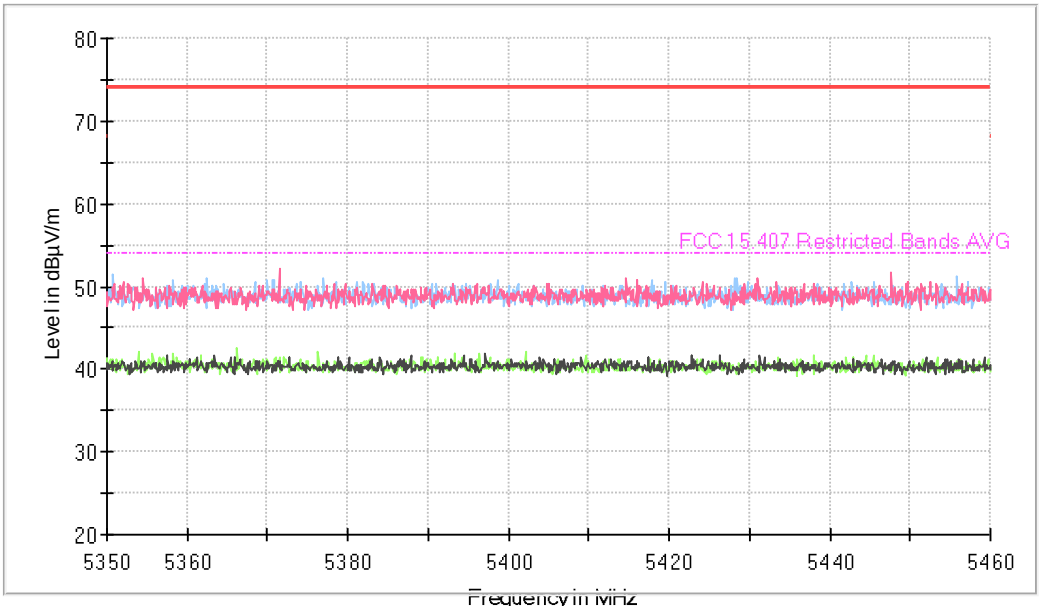




- Lower Band Edge and Upper Band Edge - High Channel (Restricted Bands)



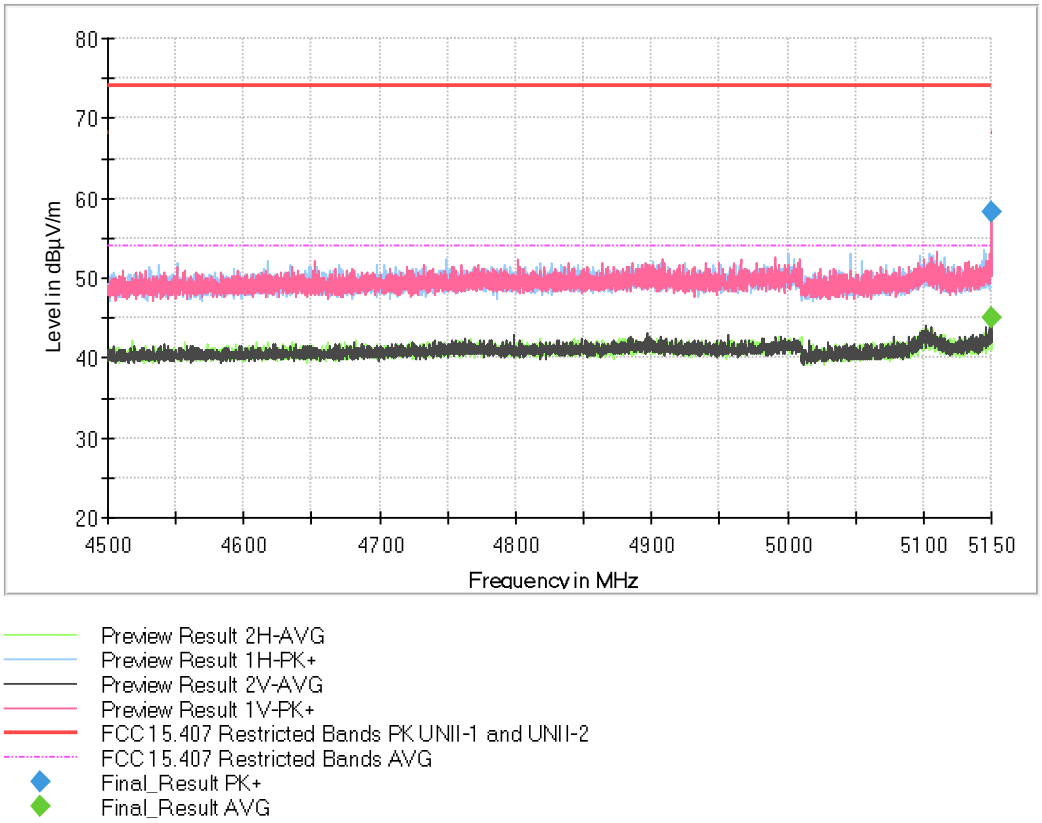
Preview Result 2H-AVG
Preview Result 1H-PK+
Preview Result 2V-AVG
Preview Result 1V-PK+
FCC 15.407 Restricted Bands PK UNII-1 and UNII-2
FCC 15.407 Restricted Bands AVG
Final_Result PK+
Final_Result AVG

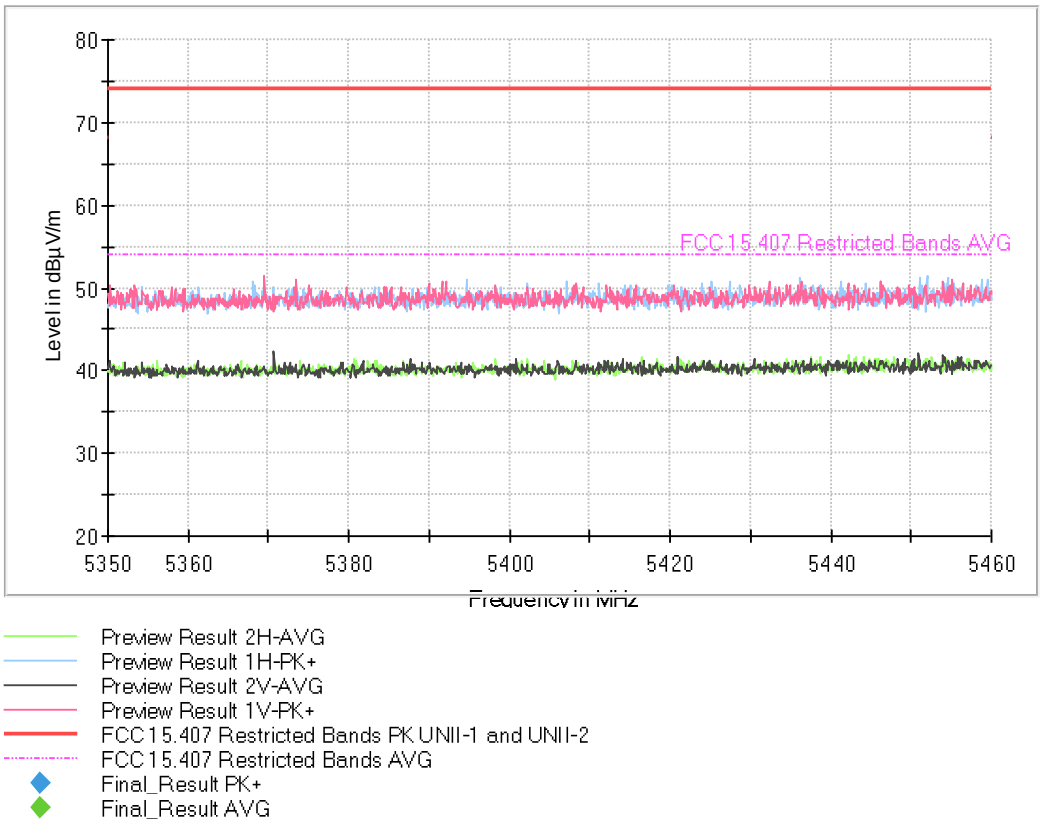


Preview Result 2H-AVG
Preview Result 1H-PK+
Preview Result 2V-AVG
Preview Result 1V-PK+
FCC 15.407 Restricted Bands PK UNII-1 and UNII-2
FCC 15.407 Restricted Bands AVG
Final_Result PK+
Final_Result AVG

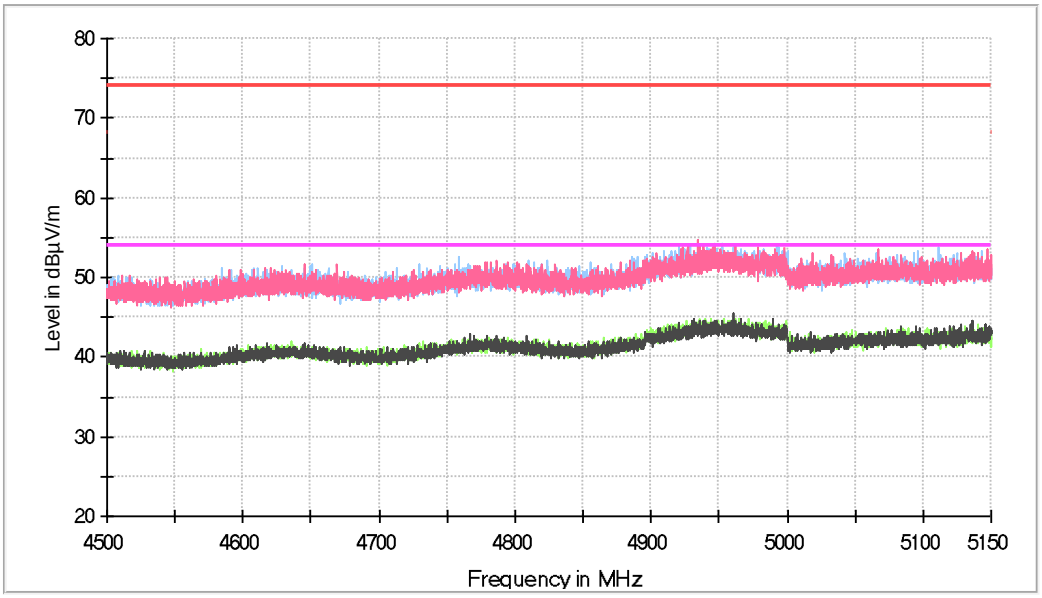
- **SISO 802.11 n20 (Chain 0):**

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

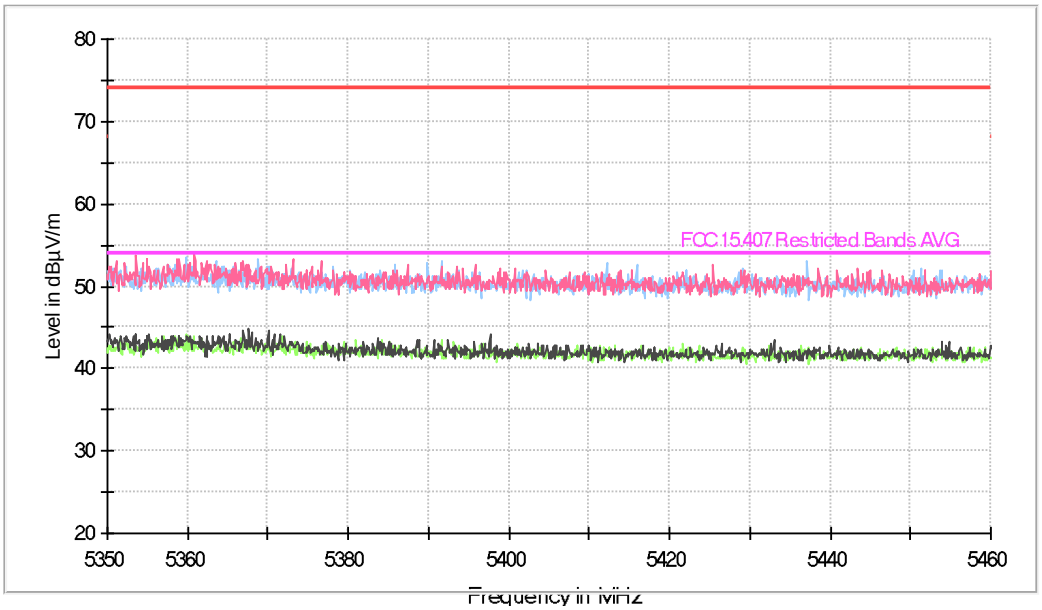




- Lower Band Edge and Upper Band Edge - High Channel (Restricted Bands)



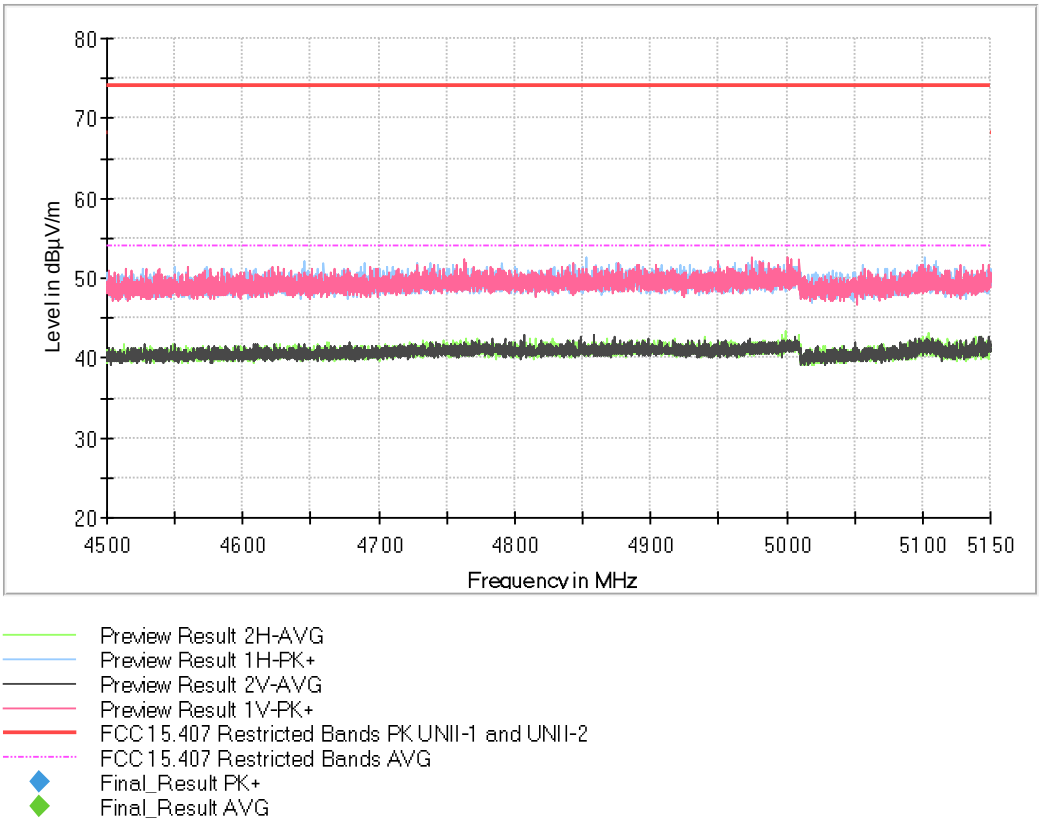
Preview Result 2H-AVG
Preview Result 1H-PK+
Preview Result 2V-AVG
Preview Result 1V-PK+
FCC 15.407 Restricted Bands PK UNII-1 and UNII-2
FCC 15.407 Restricted Bands AVG
Final_Result PK+
Final_Result AVG

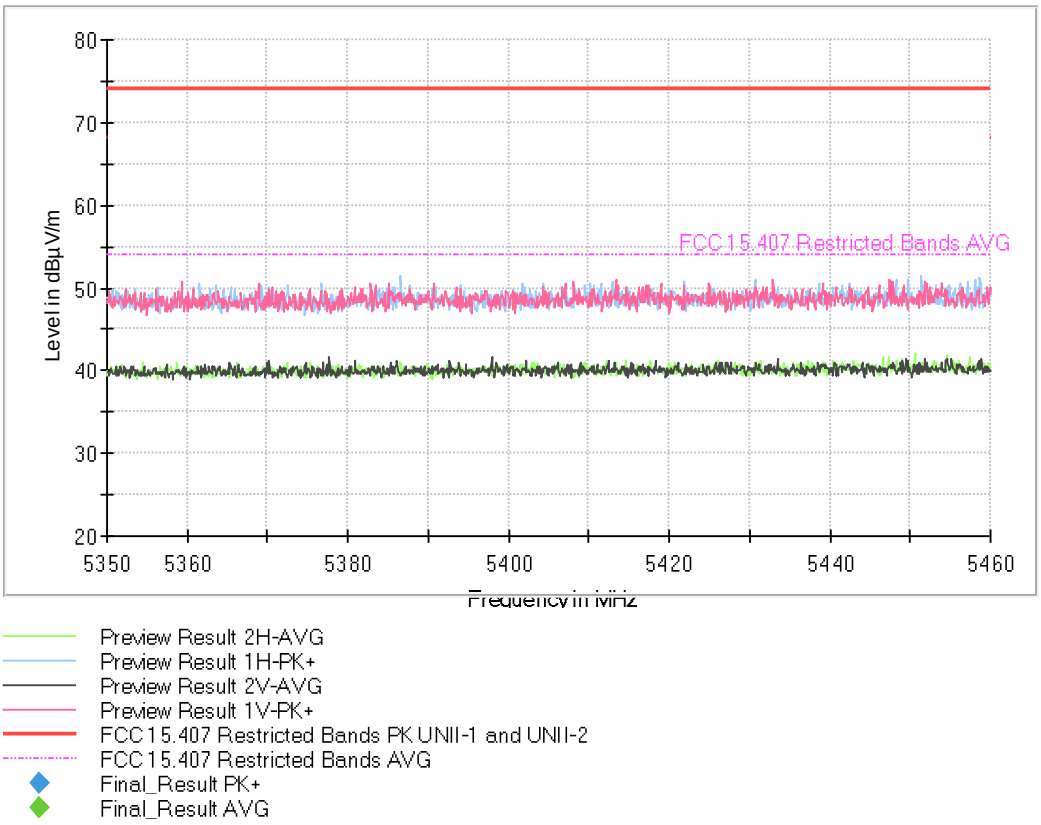


Preview Result 2H-AVG
Preview Result 1H-PK+
Preview Result 2V-AVG
Preview Result 1V-PK+
FCC 15.407 Restricted Bands PK UNII-1 and UNII-2
FCC 15.407 Restricted Bands AVG
Final_Result PK+
Final_Result AVG

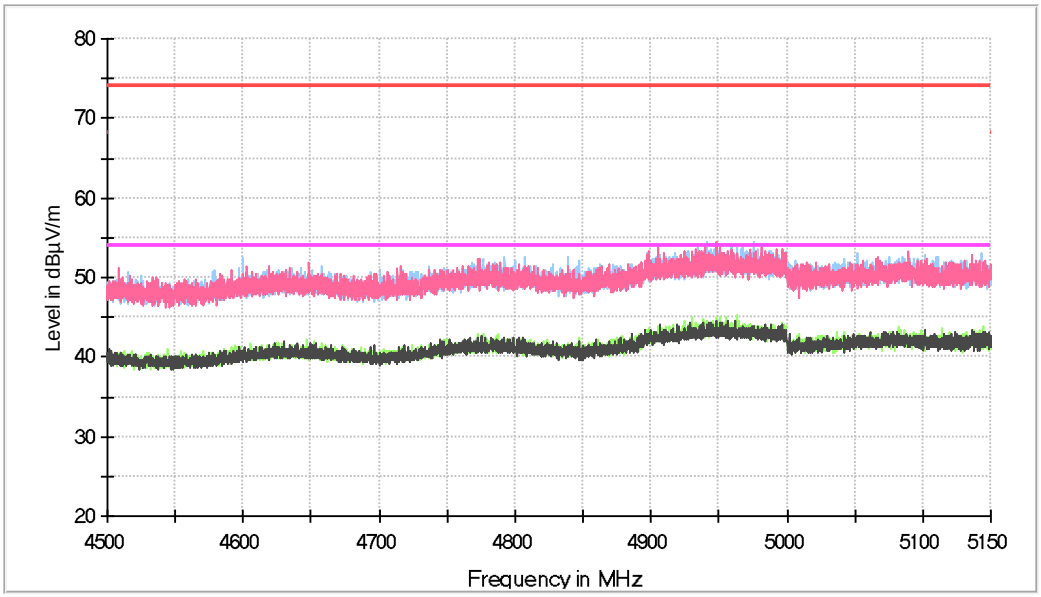
- **SISO 802.11 ac20 (Chain 1):**

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

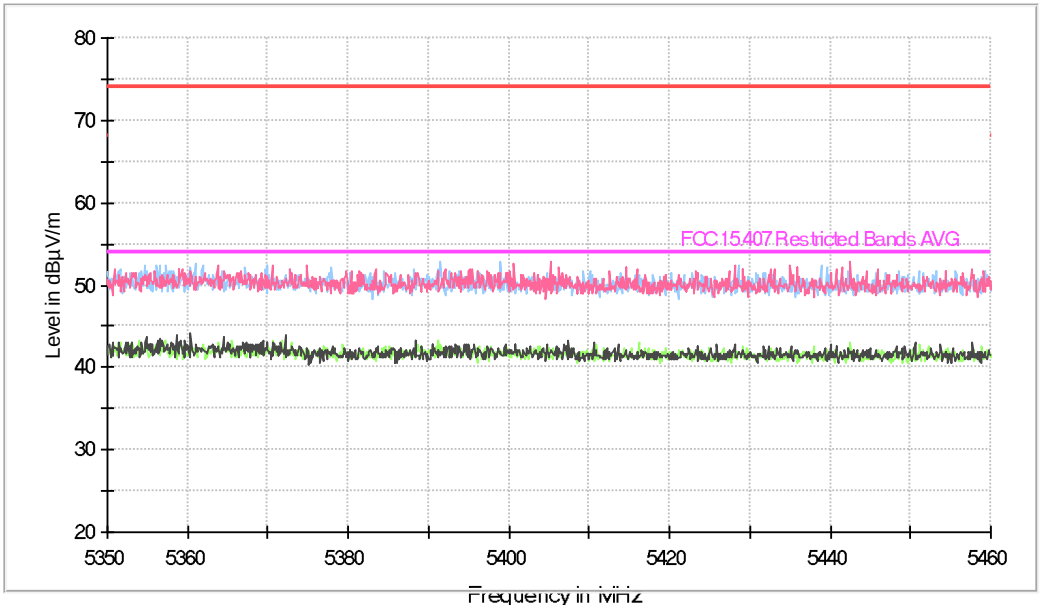




- Lower Band Edge and Upper Band Edge – High Channel (Restricted Bands)



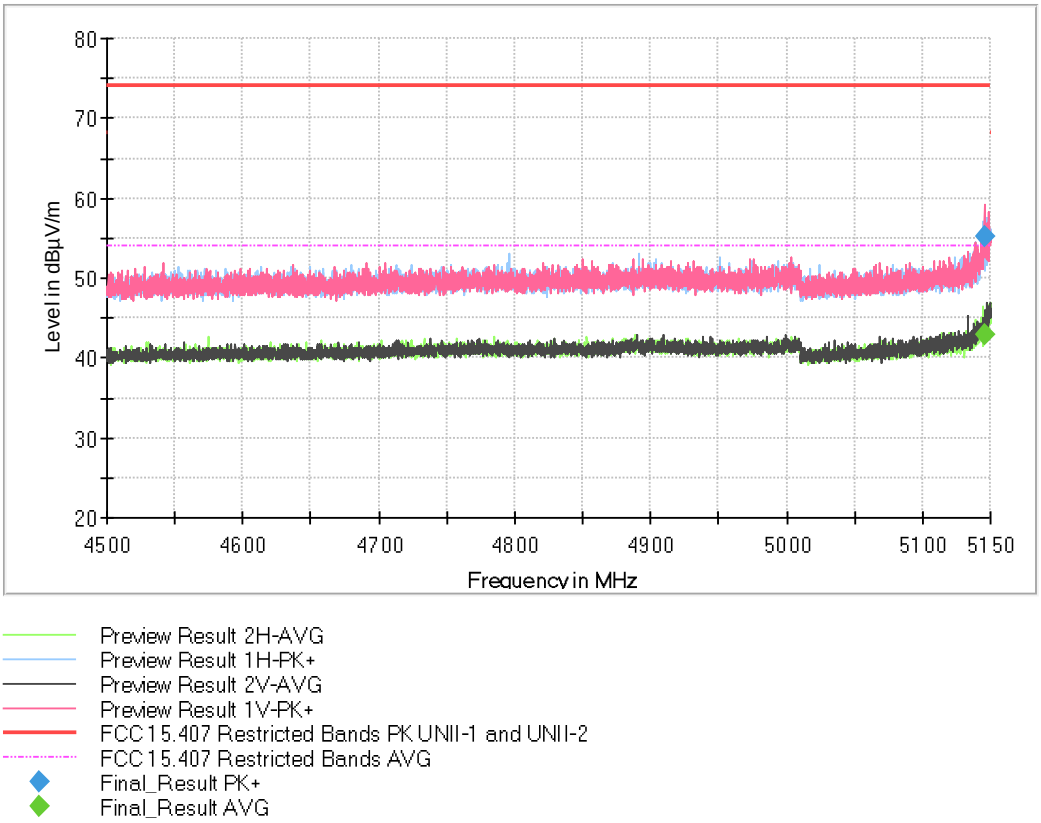
Preview Result 2H-AVG
Preview Result 1H-PK+
Preview Result 2V-AVG
Preview Result 1V-PK+
FCC 15.407 Restricted Bands PK UNII-1 and UNII-2
FCC 15.407 Restricted Bands AVG
Final_Result PK+
Final_Result AVG

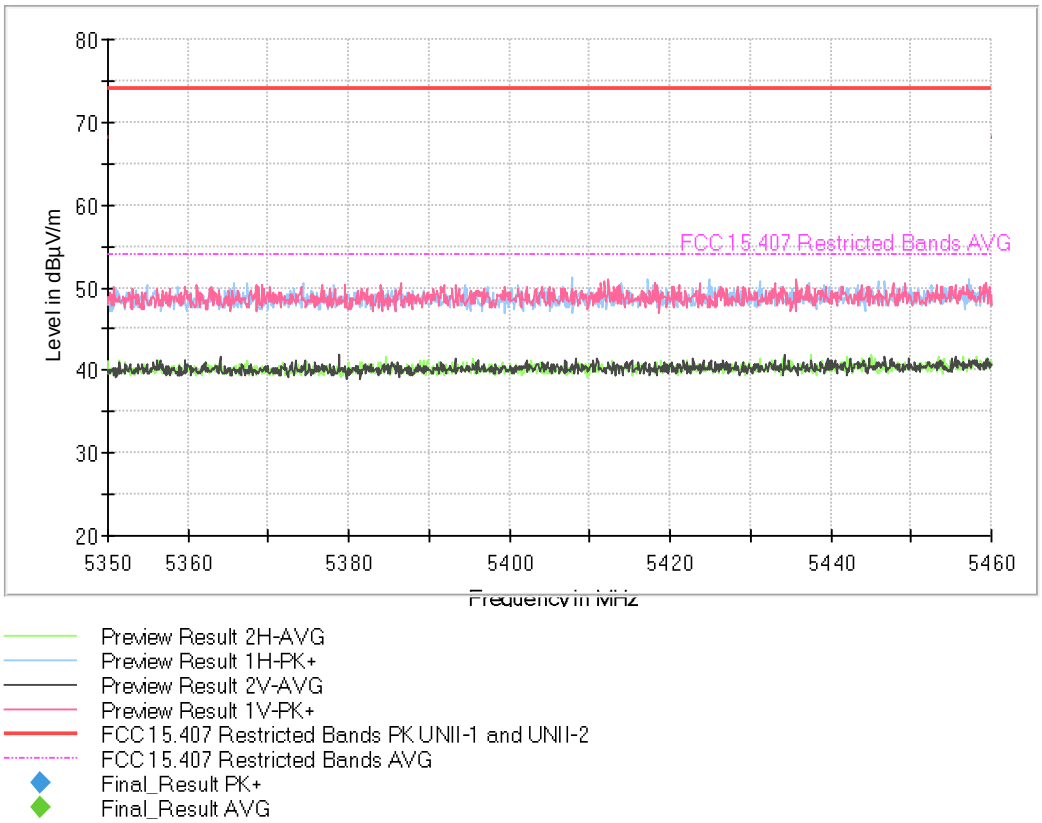


Preview Result 2H-AVG
Preview Result 1H-PK+
Preview Result 2V-AVG
Preview Result 1V-PK+
FCC 15.407 Restricted Bands PK UNII-1 and UNII-2
FCC 15.407 Restricted Bands AVG
Final_Result PK+
Final_Result AVG

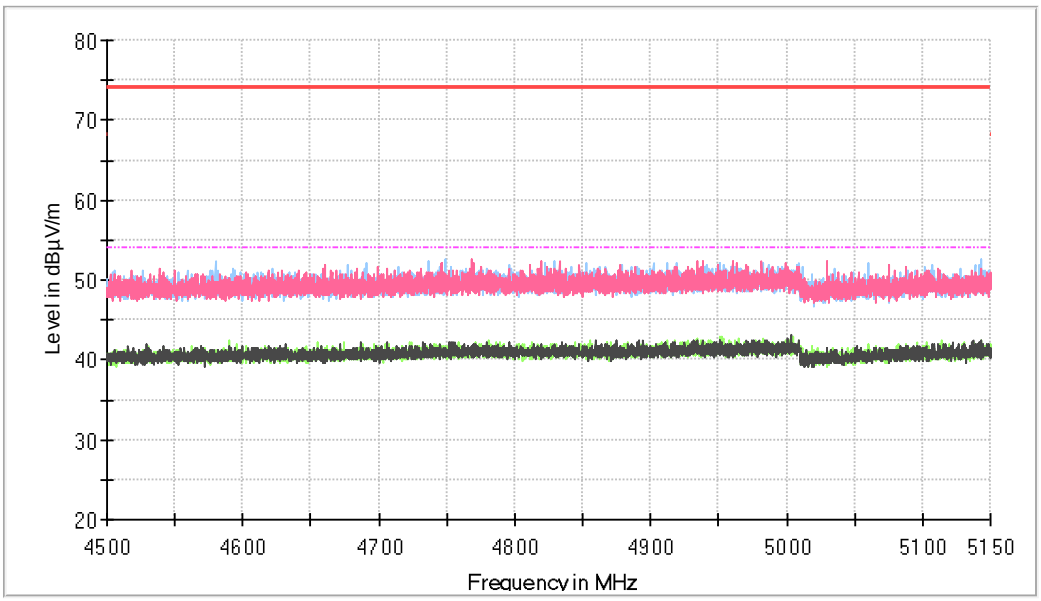
- **SISO 802.11 n40 (Chain 1):**

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

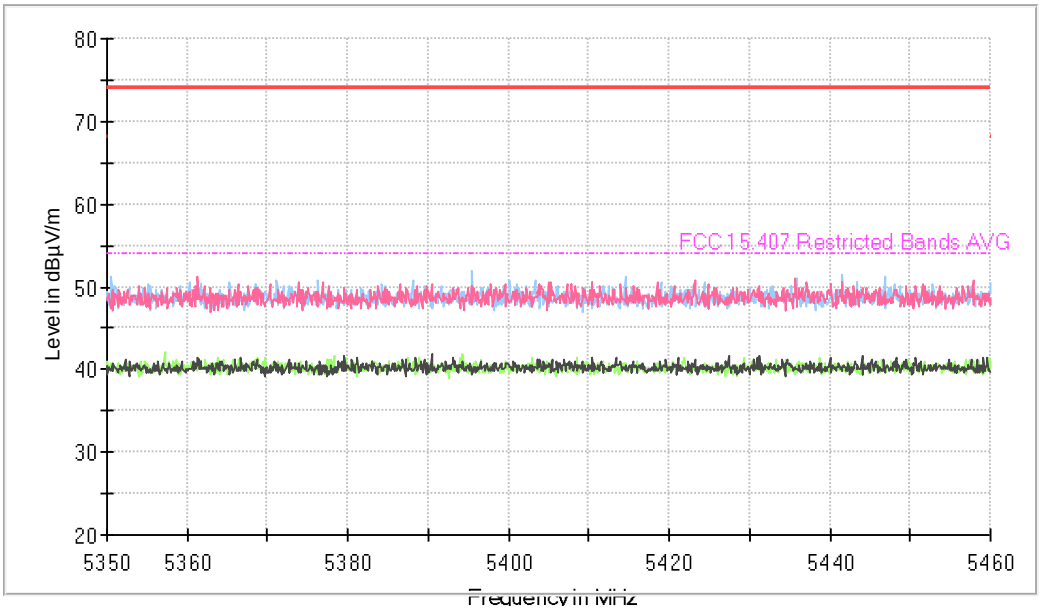




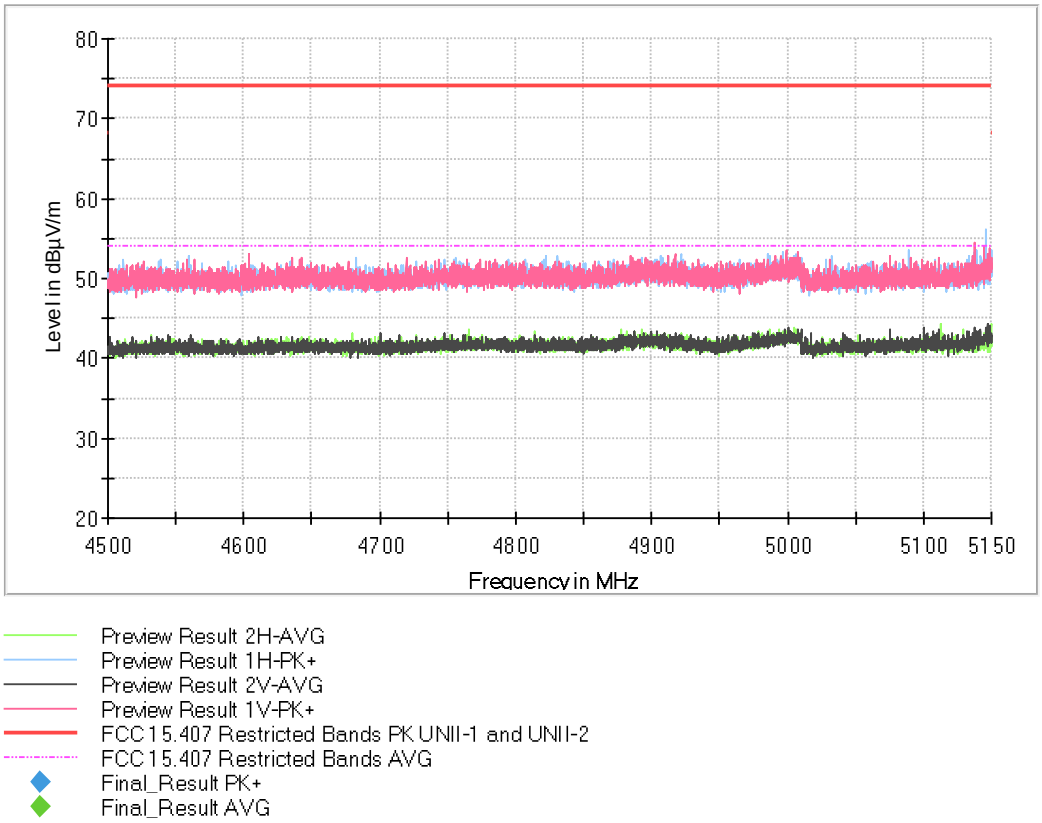
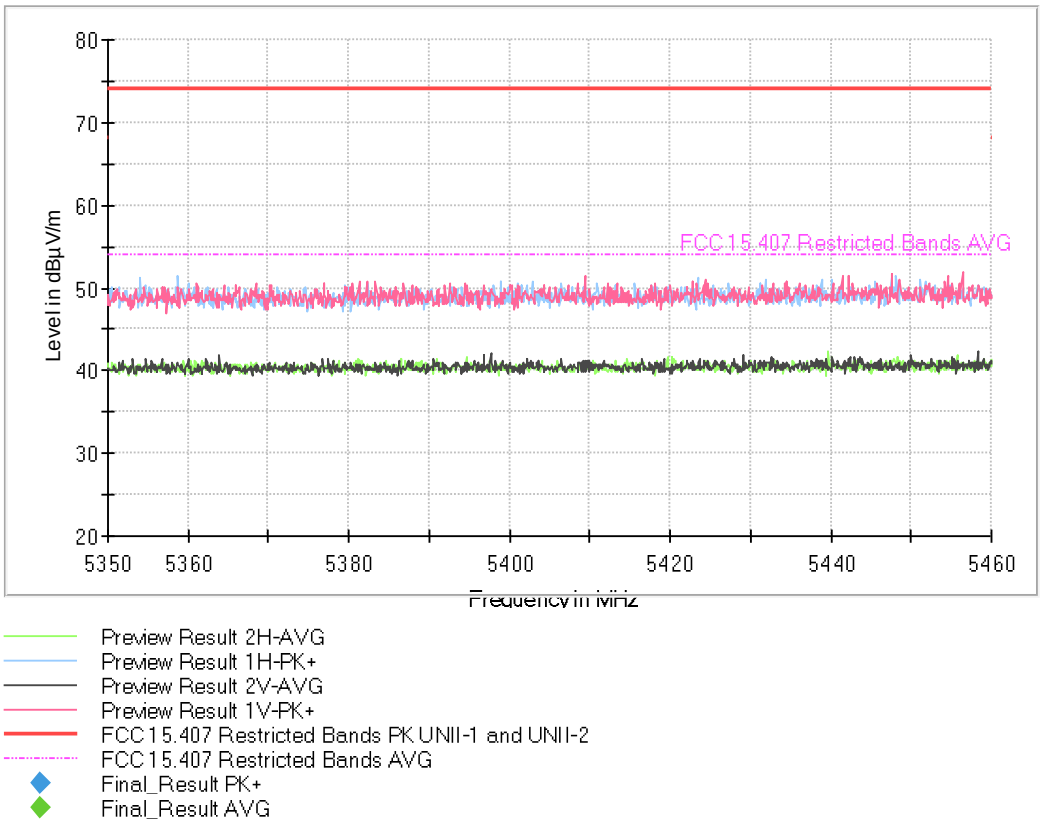
- Lower Band Edge and Upper Band Edge – High Channel (Restricted Bands)



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



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

- **SISO 802.11 ac40 (Chain 1):**

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