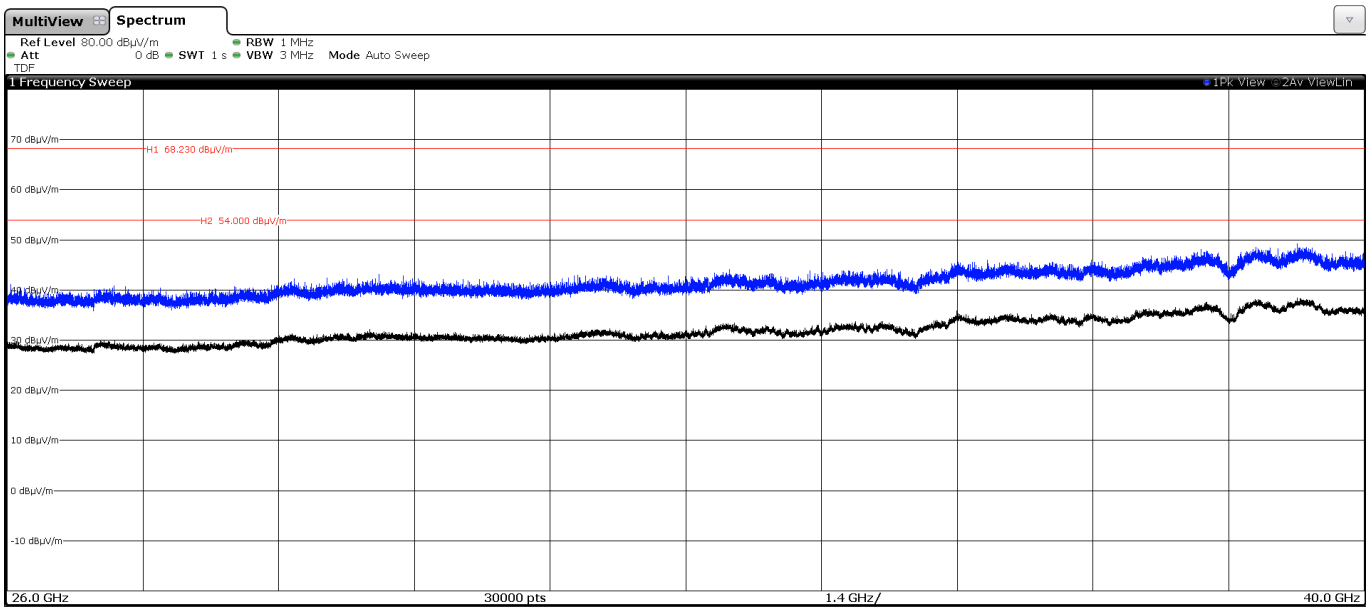
FREQUENCY RANGE 26 - 40 GHz

This plot is valid for the Low, Middle and High Channels and all the modulation modes.



MIMO – CORE-MIMO_Port4 & Port1 Antenna:

Frequency range 30 MHz - 1 GHz

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)	Limit (dBµV/m)	Polarization	Detector	Measurement Uncertainty (dB)
375.013	30.8	46	H	Peak	<±3.04
875.016	26.9	46	H	Peak	<±3.04
946.181	26.4	46	H	Peak	<±3.04
958.468	28.3	46	H	Peak	<±3.04

Frequency range 1 - 40 GHz

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.

- **Mode 802.11 n20** (worst case)

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

Spurious frequency (GHz)	Emission Level (dBµV/m)	Limit (dBµV/m)	Polarization	Detector	Measurement Uncertainty (dB)
2.13199	49.03	68.23	H	Peak	<±2.72
7.50012	40.14	68.23	H	Peak	<±4.72
8.52388	45.51	68.23	V	Peak	<±4.72
10.35858	64.99	68.23	H	Peak	<±4.72
15.54138	53.95	68.23	V	Peak	<±4.72

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

Spurious frequency (GHz)	Emission Level (dBµV/m)	Limit (dBµV/m)	Polarization	Detector	Measurement Uncertainty (dB)
2.13016	53.4	68.23	H	Peak	<±2.72
7.50013	39.49	68.23	H	Peak	<±4.72
8.49833	47.99	68.23	V	Peak	<±4.72
10.40128	62.93	68.23	H	Peak	<±4.72
15.59563	54.64	68.23	V	Peak	<±4.72
	43.53	54		Average	<±4.72

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

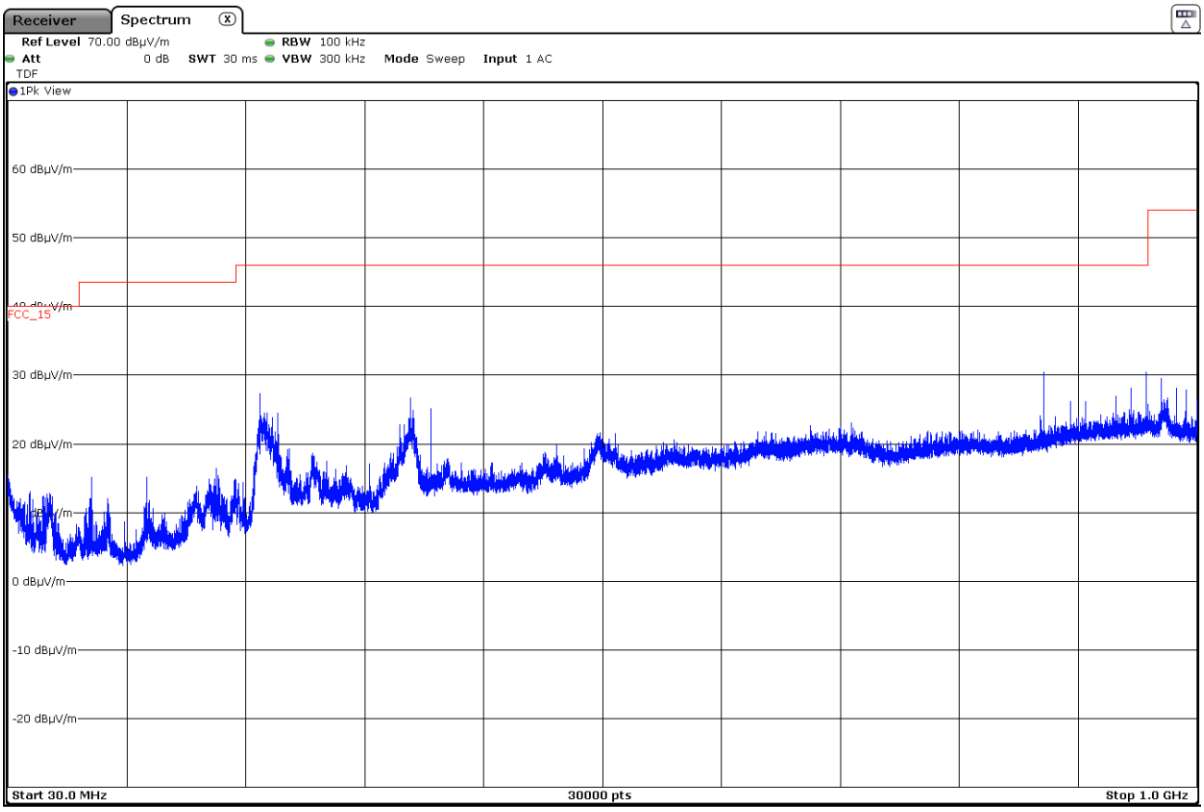
Spurious frequency (GHz)	Emission Level (dBµV/m)	Limit (dBµV/m)	Polarization	Detector	Measurement Uncertainty (dB)
2.13199	50.3	68.23	V	Peak	<±2.72
7.5002	38.91	68.23	H	Peak	<±4.72
8.51443	47.93	68.23	V	Peak	<±4.72
10.47968	65.36	68.23	H	Peak	<±4.72
15.71743	54.09	68.23	V	Peak	<±4.72
	42.65	54		Average	<±4.72

Verdict: PASS

MIMO – CORE-MIMO_Port4 & Port1 Antennas:

FREQUENCY RANGE 30 MHz - 1 GHz

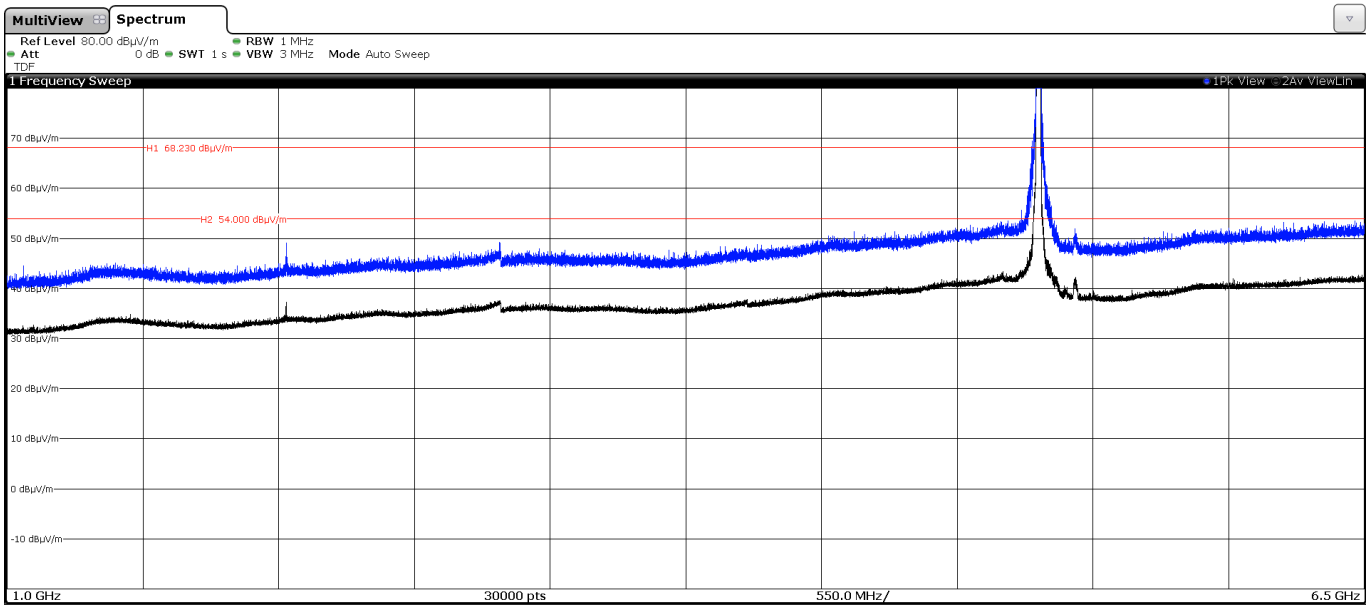
This plot is valid for the Low, Middle and High Channels and all the modulation modes.



- **Mode 802.11 n20** (worst case)

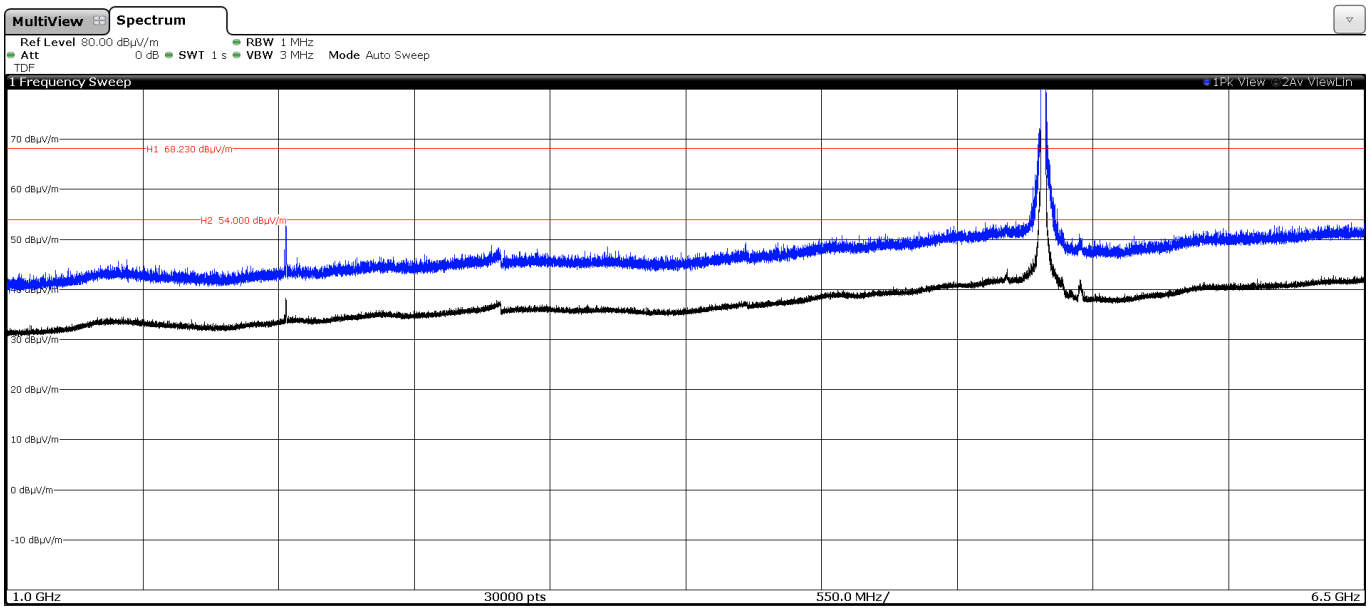
FREQUENCY RANGE 1 – 6.5 GHz (worst mode)

- Low Channel:



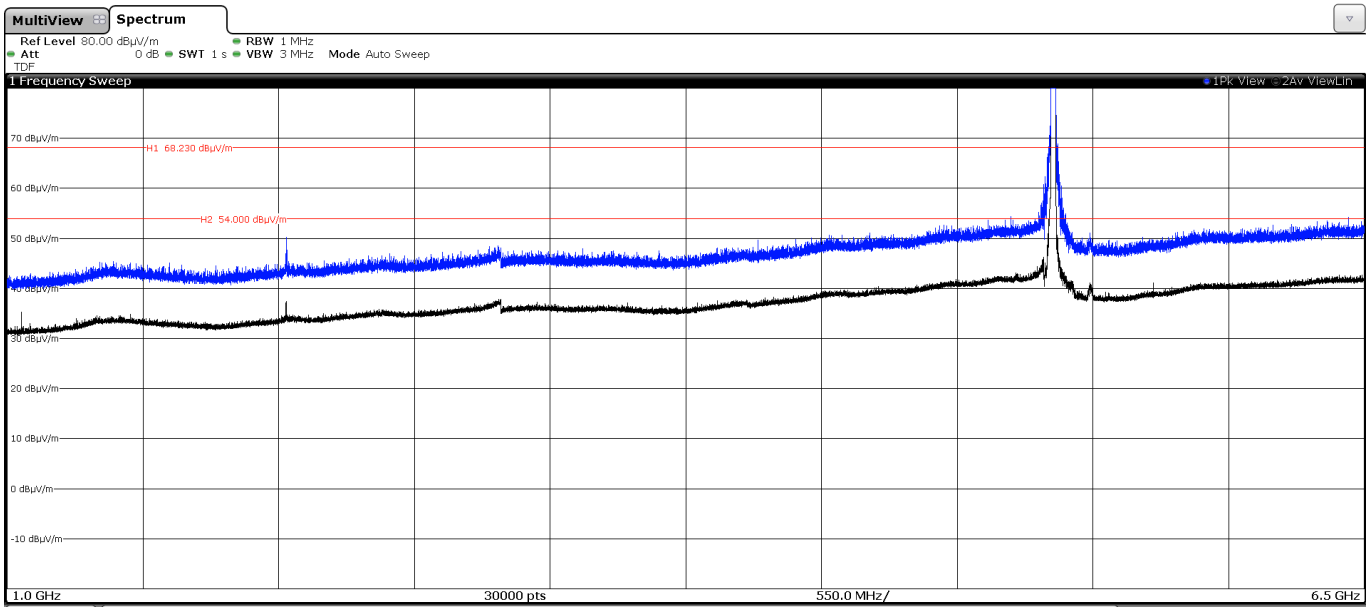
Note: The peak shown in the plot above the limit is the carrier frequency.

- Middle Channel:



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

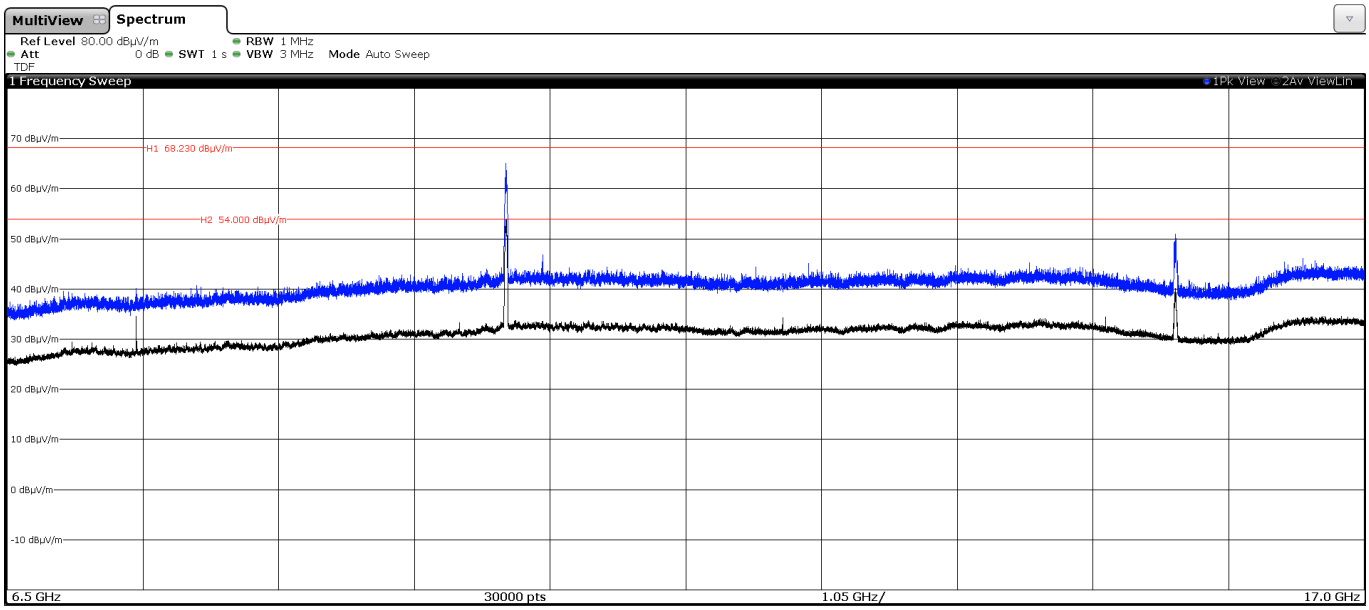
- High Channel:



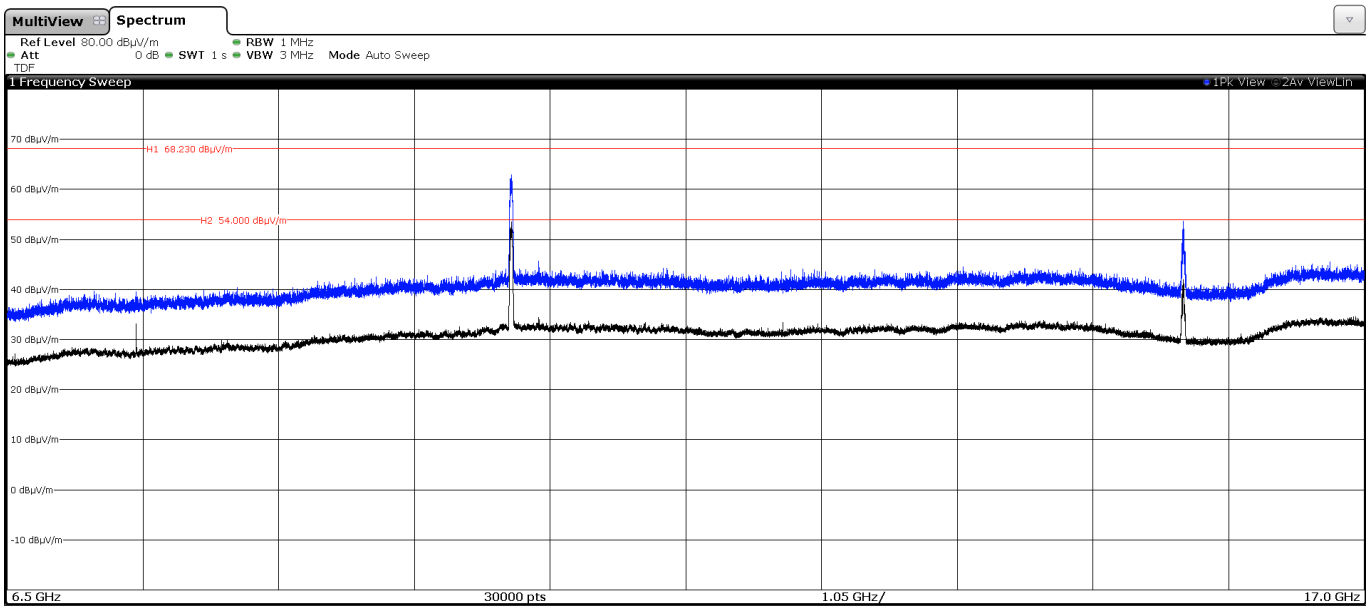
Note: The peak shown in the plot above the limit is the carrier frequency.

FREQUENCY RANGE 6.5 - 17 GHz. (worst mode)

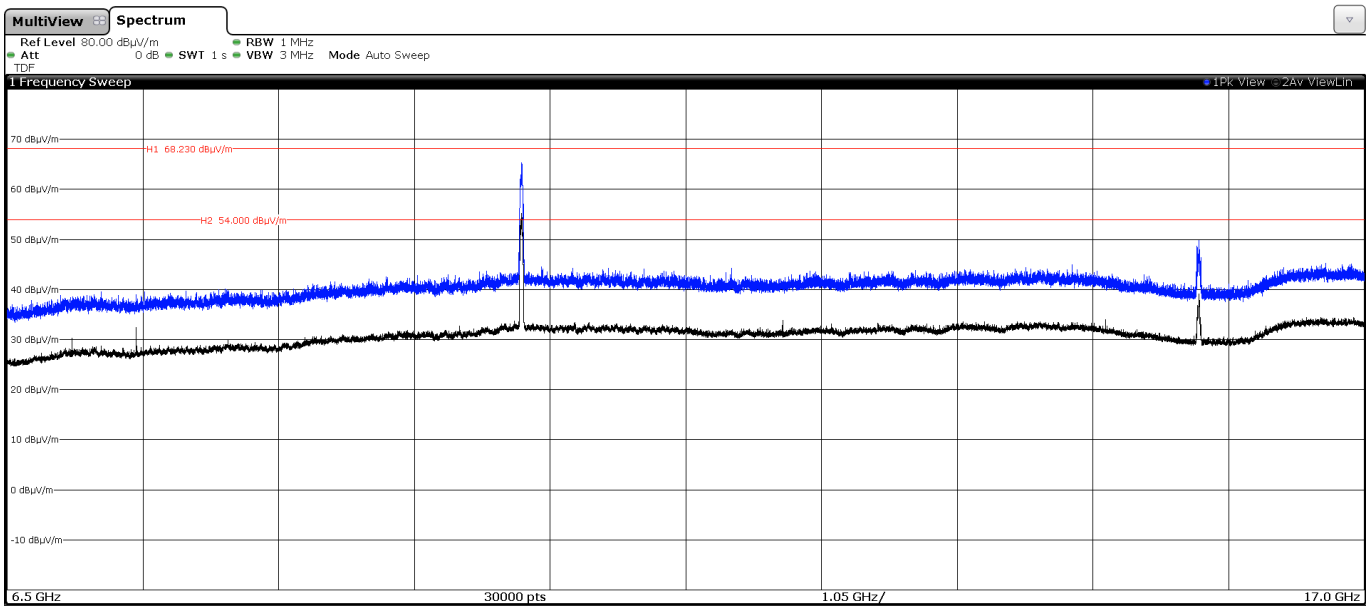
- Low Channel:



- Middle Channel:

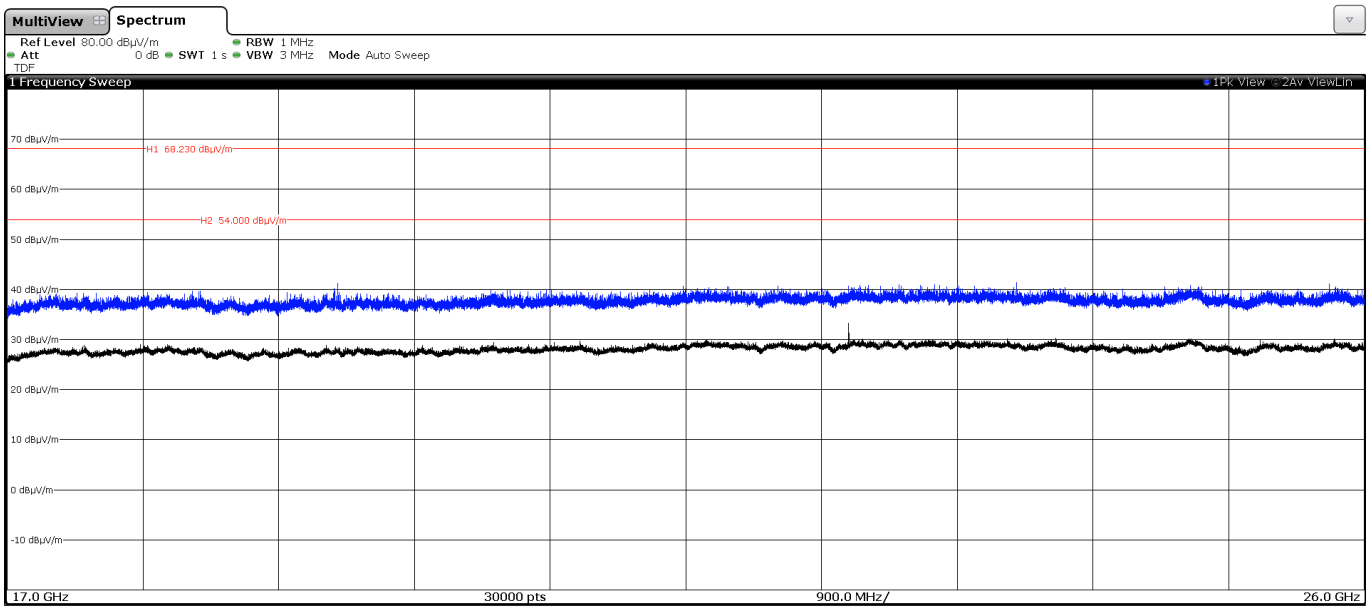


- High Channel:



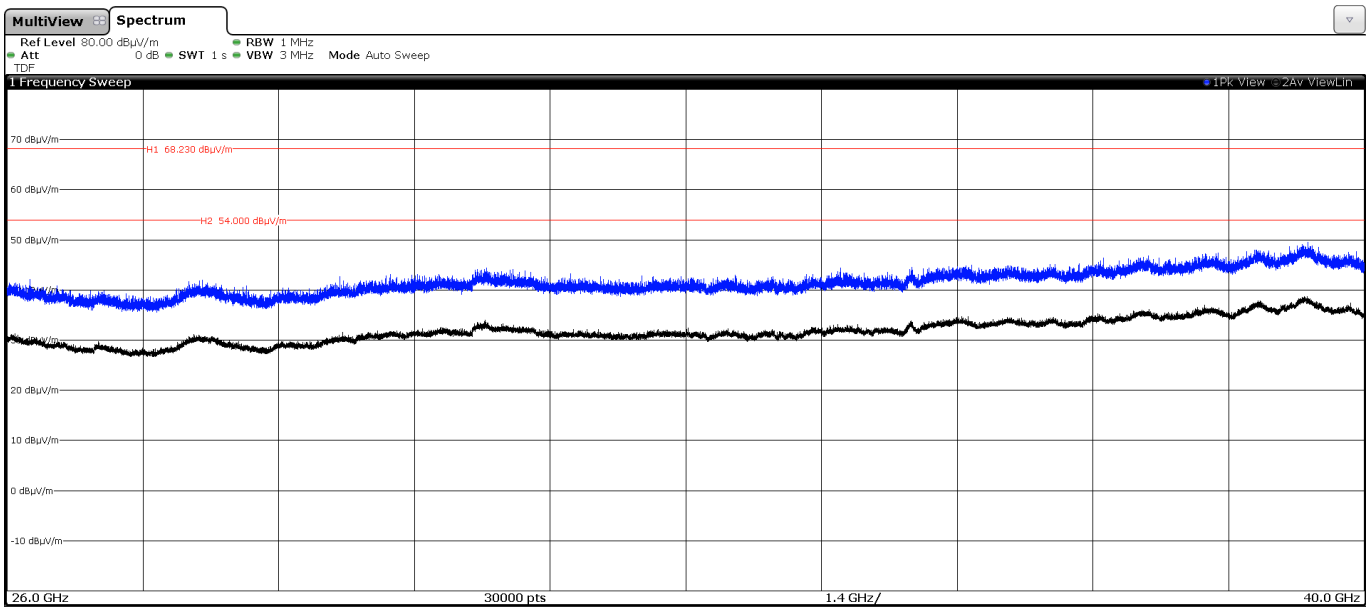
FREQUENCY RANGE 17 - 26 GHz

This plot is valid for the Low, Middle and High Channels and all the modulation modes.



FREQUENCY RANGE 26 - 40 GHz

This plot is valid for the Low, Middle and High Channels and all the modulation modes.



FCC 15.407 (b)(1) / RSS-247 6.2.1.2. 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.

All emissions outside of the 5.15-5.35GHz band shall not exceed an EIRP of -27dBm/MHz. There are restricted bands of operation below band edge at 4.5-5.15 GHz also above the upper band edge at 5.35-5.46GHz therefore the provision of FCC Part 15.205 apply.

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

The worst case SISO between all combinations of interfaces for WLAN0-CORE1 antenna port 4, WLAN0-CORE0 antenna port 2 and WLAN1-CORE0 antenna port 3 was WLAN0-CORE0 antenna port 2.

Test performed on the following worst cases modes in all relevant tests channels:

- 802.11a: 6 Mbit/s / SISO on CORE-0_Port3 Antenna.
- 802.11n HT20: MCS0 / SISO on CORE-0_Port3 Antenna.
- 802.11ac VHT20: MCS0 / SISO on CORE-0_Port3 Antenna.
- 802.11n HT40: MCS0 / SISO on CORE-0_Port3 Antenna.
- 802.11ac VHT40: MCS0 / SISO on CORE-0_Port3 Antenna.
- 802.11ac VHT80: MCS0 / SISO on CORE-0_Port3 Antenna.

- 802.11n HT20: MCS0 / MIMO on CORE-MIMO_Port4 & Port1 Antennas.
- 802.11ac VHT20: MCS0 / MIMO on CORE-MIMO_Port4 & Port1 Antennas.
- 802.11n HT40: MCS0 / MIMO on CORE-MIMO_Port4 & Port1 Antennas.
- 802.11ac VHT40: MCS0 / MIMO on CORE-MIMO_Port4 & Port1 Antennas.
- 802.11ac VHT80: MCS0 / MIMO on CORE-MIMO_Port4 & Port1 Antennas.

SISO CORE-0_Port3 Antenna:

- **Mode 802.11 a20**

- Lower Band Edge Channel 36 (5180 MHz): Inside band 4.50-5.15 GHz.

Radiated spurious frequencies detected at less than 20 dB below the limit:

Spurious frequency (GHz)	Emission Level (dBµV/m)	Limit (dBµV/m)	Polarization	Detector	Measurement Uncertainty (dB)
5.14599	57.84	74	H	Peak	<±3.70
	46.06	54		Average	<±3.70

- Upper Band Edge Channel 48 (5240 MHz): Inside band 5.35-5.46 GHz.

Radiated spurious frequencies detected at less than 20 dB below the limit:

Spurious frequency (GHz)	Emission Level (dBµV/m)	Limit (dBµV/m)	Polarization	Detector	Measurement Uncertainty (dB)
5.39497	54.46	74	V	Peak	<±3.70
	42.62	54		Average	<±3.70

- **Mode 802.11 n20 (HT20)**

- Lower Band Edge Channel 36 (5180 MHz): Inside band 4.50-5.15 GHz.

Radiated spurious frequencies detected at less than 20 dB below the limit:

Spurious frequency (GHz)	Emission Level (dBµV/m)	Limit (dBµV/m)	Polarization	Detector	Measurement Uncertainty (dB)
5.14708	58.85	74	H	Peak	<±3.70
	46.09	54		Average	<±3.70

- Upper Band Edge Channel 48 (5240 MHz): Inside band 5.35-5.46 GHz.

Radiated spurious frequencies detected at less than 20 dB below the limit:

Spurious frequency (GHz)	Emission Level (dBµV/m)	Limit (dBµV/m)	Polarization	Detector	Measurement Uncertainty (dB)
5.353868	53.78	74	H	Peak	<±3.70
	42.84	54		Average	<±3.70

- **Mode 802.11 ac20 (HT20)**

- Lower Band Edge Channel 36 (5180 MHz): Inside band 4.50-5.15 GHz.

Radiated spurious frequencies detected at less than 20 dB below the limit:

Spurious frequency (GHz)	Emission Level (dBµV/m)	Limit (dBµV/m)	Polarization	Detector	Measurement Uncertainty (dB)
5.02921	56.52	74	V	Peak	<±2.72
	45.95	54		Average	<±2.72
5.12801	56.48	74	H	Peak	<±2.72
	45.94	54		Average	<±2.72

- Upper Band Edge Channel 48 (5240 MHz): Inside band 5.35-5.46 GHz.

Radiated spurious frequencies detected at less than 20 dB below the limit:

Spurious frequency (GHz)	Emission Level (dBµV/m)	Limit (dBµV/m)	Polarization	Detector	Measurement Uncertainty (dB)
5.366812	53.8	74	V	Peak	<±2.72
	42.65	54		Average	<±2.72
5.394018	54.03	74	H	Peak	<±2.72
	42.69	54		Average	<±2.72

- **Mode 802.11 n40 (HT40)**

- Lower Band Edge Channel 38 (5190 MHz): Inside band 4.50-5.15 GHz.

Radiated spurious frequencies detected at less than 20 dB below the limit:

Spurious frequency (GHz)	Emission Level (dBµV/m)	Limit (dBµV/m)	Polarization	Detector	Measurement Uncertainty (dB)
5.0501	57.34	74	V	Peak	<±2.72
	45.83	54		Average	<±2.72

- Upper Band Edge Channel 46 (5230 MHz): Inside band 5.35-5.46 GHz.

Radiated spurious frequencies detected at less than 20 dB below the limit:

Spurious frequency (GHz)	Emission Level (dBµV/m)	Limit (dBµV/m)	Polarization	Detector	Measurement Uncertainty (dB)
5.372972	53.55	74	H	Peak	<±2.72
	42.7	54		Average	<±2.72
5.419905	53.86	74	V	Peak	<±2.72
	42.56	54		Average	<±2.72

- **Mode 802.11 ac40 (VHT40)**

- Lower Band Edge Channel 38 (5190 MHz): Inside band 4.50-5.15 GHz.

Radiated spurious frequencies detected at less than 20 dB below the limit:

Spurious frequency (GHz)	Emission Level (dBµV/m)	Limit (dBµV/m)	Polarization	Detector	Measurement Uncertainty (dB)
5.14231	58.67	74	H	Peak	<±2.72
	46.63	54		Average	<±2.72

- Upper Band Edge Channel 46 (5230 MHz): Inside band 5.35-5.46 GHz.

Radiated spurious frequencies detected at less than 20 dB below the limit:

Spurious frequency (GHz)	Emission Level (dBµV/m)	Limit (dBµV/m)	Polarization	Detector	Measurement Uncertainty (dB)
5.366628	54.22	74	V	Peak	<±2.72
	42.6	54		Average	<±2.72
5.443922	53.96	74	H	Peak	<±2.72
	42.6	54		Average	<±2.72

- **Mode 802.11 ac80 (VHT80)**

- Lower Band Edge Channel 42 (5210 MHz): Inside band 4.50-5.15 GHz.

Radiated spurious frequencies detected at less than 20 dB below the limit:

Spurious frequency (GHz)	Emission Level (dBµV/m)	Limit (dBµV/m)	Polarization	Detector	Measurement Uncertainty (dB)
5.13234	59.38	74	V	Peak	<±2.72
	46.21	54		Average	<±2.72

- Upper Band Edge Channel 42 (5210 MHz): Inside band 5.35-5.46 GHz.

Radiated spurious frequencies detected at less than 20 dB below the limit:

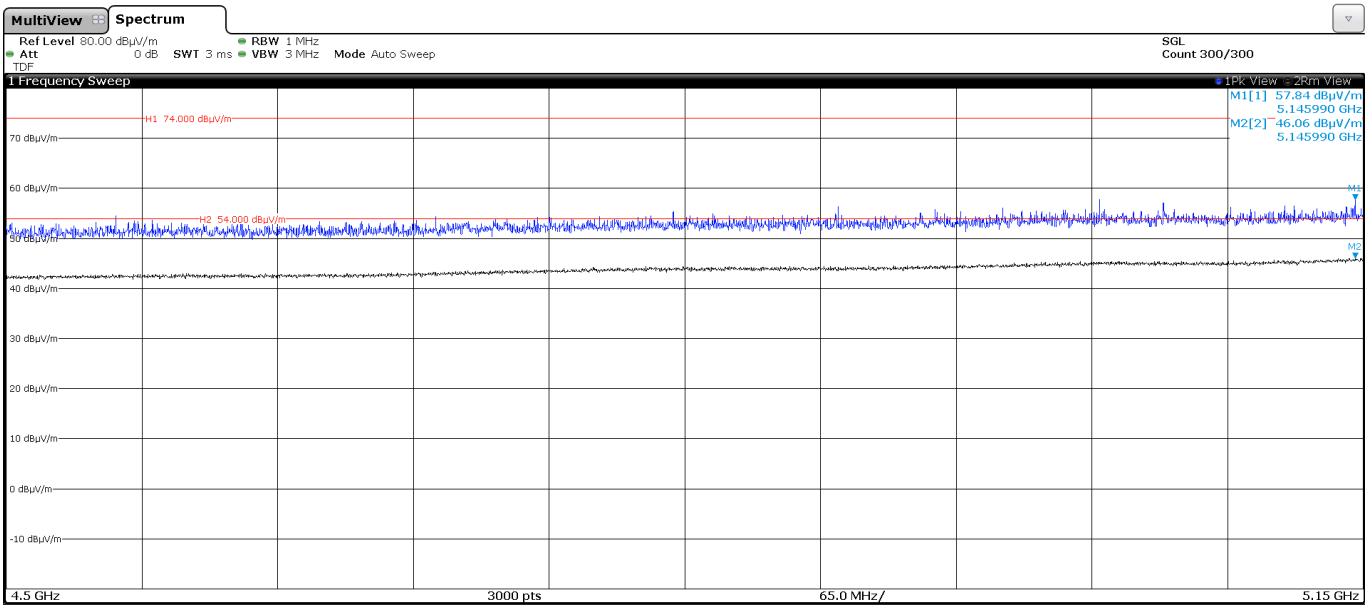
Spurious frequency (GHz)	Emission Level (dBµV/m)	Limit (dBµV/m)	Polarization	Detector	Measurement Uncertainty (dB)
5.436625	54.43	74	H	Peak	<±2.72
	42.8	54		Average	<±2.72

Verdict: PASS

- **Mode 802.11 a20**

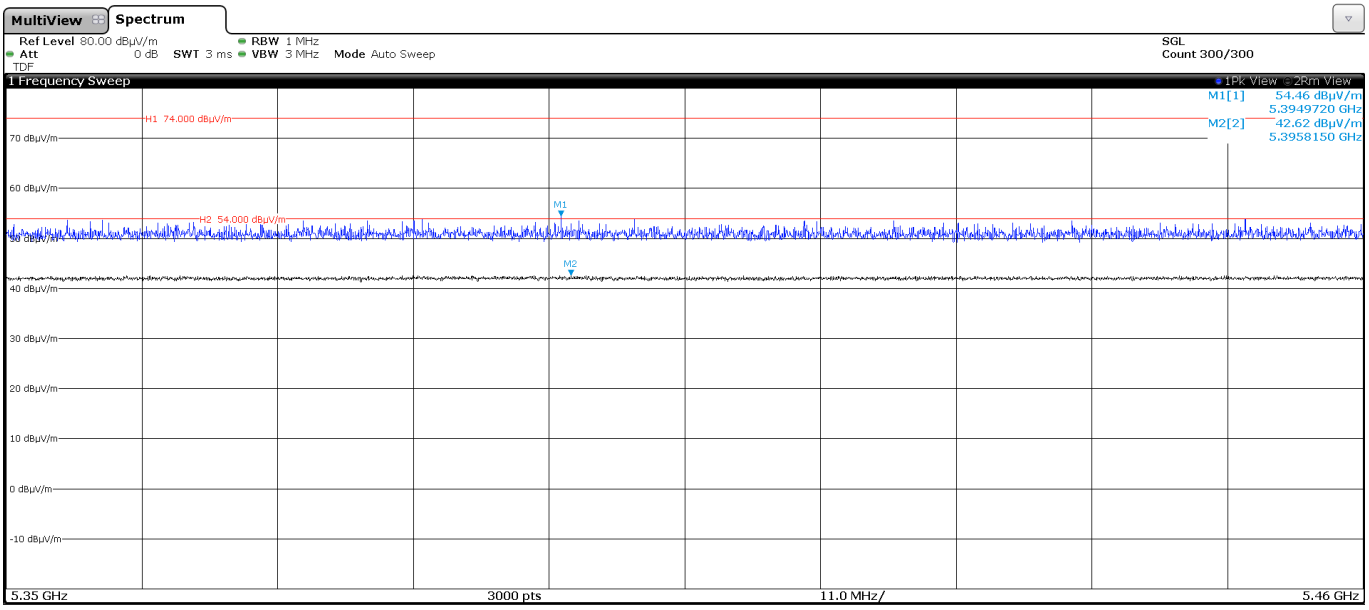
Radiated spurious emissions at band-edges and inside adjacent band 4.50 - 5.15 GHz

- Lower Band Edge Channel 36 (4500 to 5150 MHz)



Radiated spurious emissions at band-edges and inside adjacent band 5.35 - 5.46 GHz

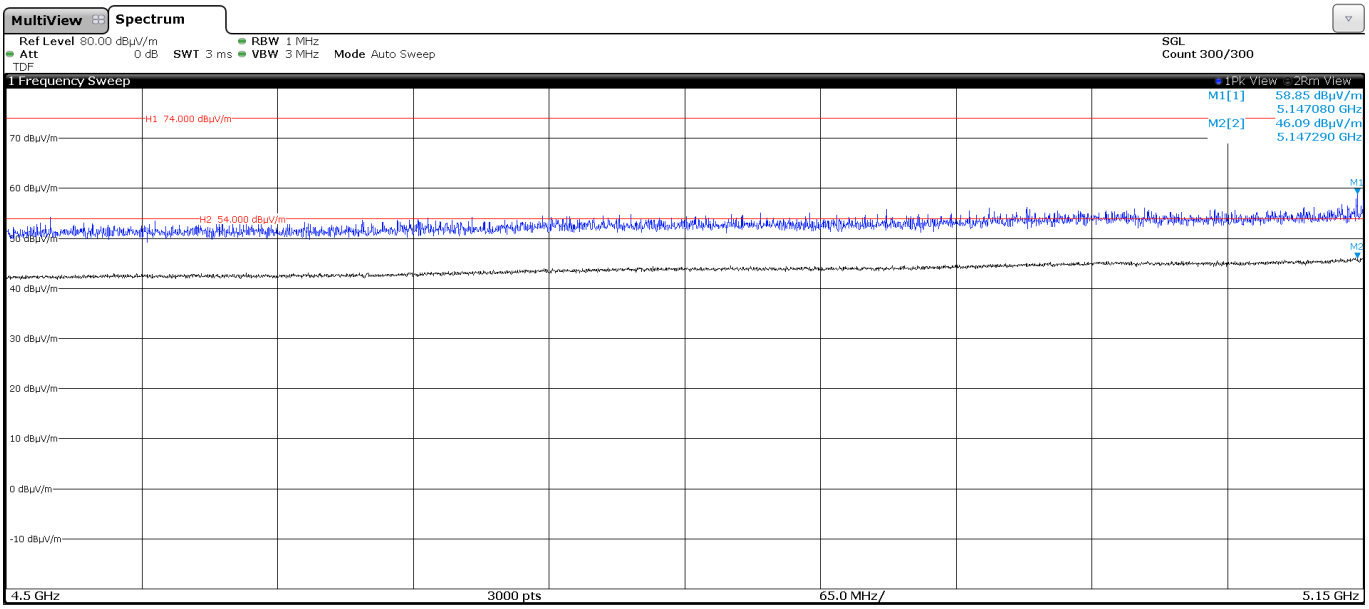
- Upper Band Edge Channel 48 (5350 to 5460 MHz)



- **Mode 802.11 n20 (HT20)**

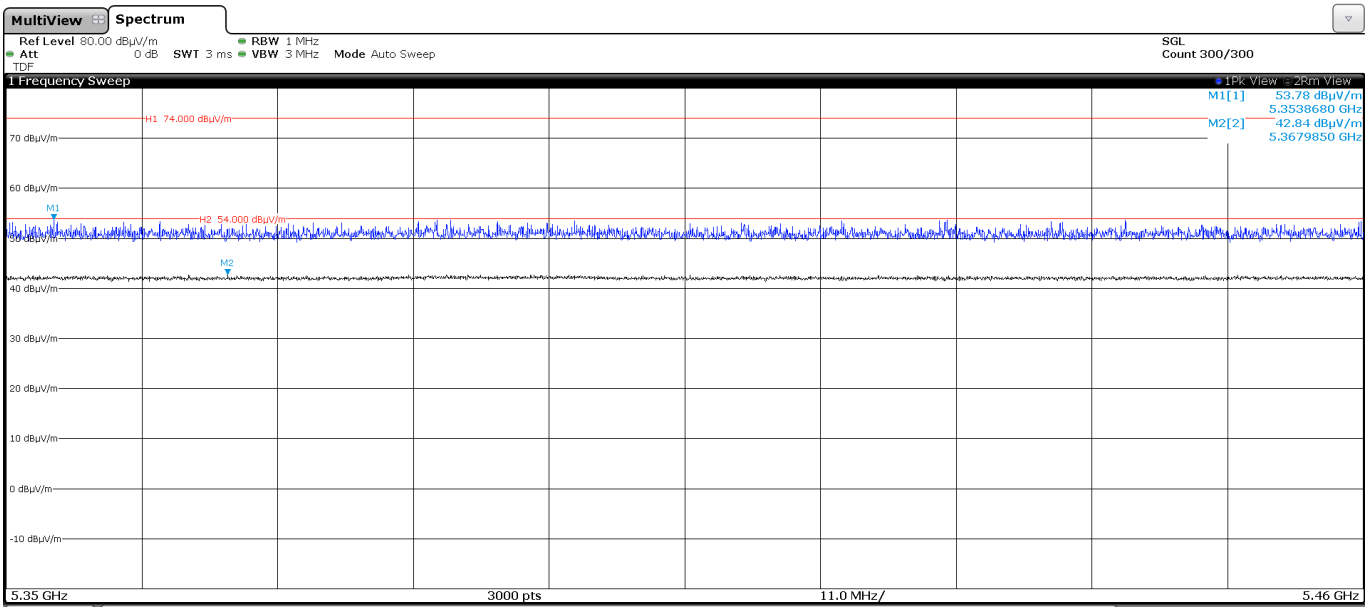
Radiated spurious emissions at band-edges and inside adjacent band 4.50 - 5.15 GHz

- Lower Band Edge Channel 36 (4500 to 5150 MHz)



Radiated spurious emissions at band-edges and inside adjacent band 5.35 - 5.46 GHz

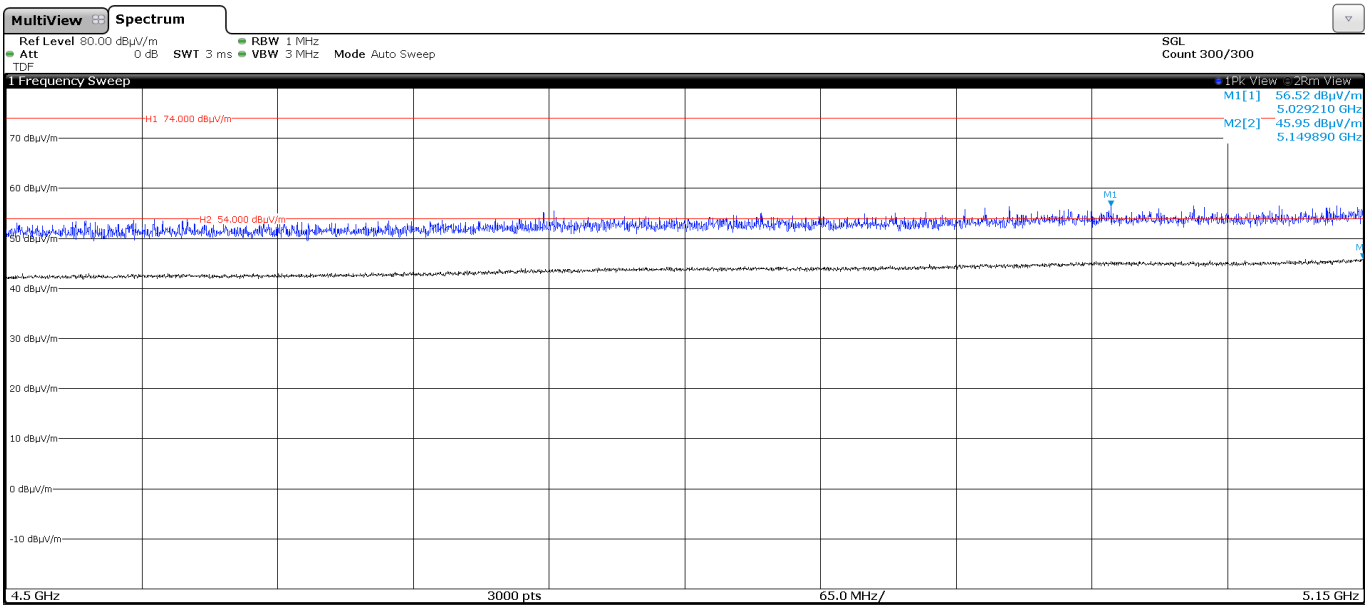
- Upper Band Edge Channel 48 (5350 to 5460 MHz)



- **Mode 802.11 ac20 (VHT20)**

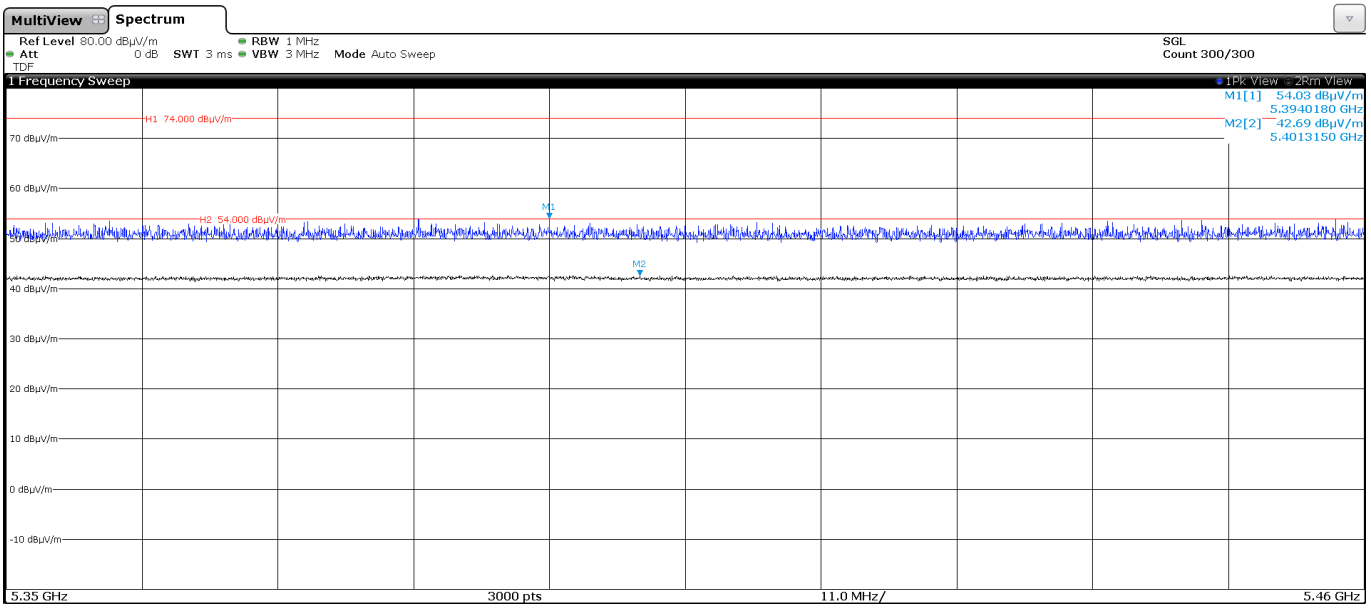
Radiated spurious emissions at band-edges and inside adjacent band 4.50 - 5.15 GHz

- Lower Band Edge Channel 36 (4500 to 5150 MHz)



Radiated spurious emissions at band-edges and inside adjacent band 5.35 - 5.46 GHz

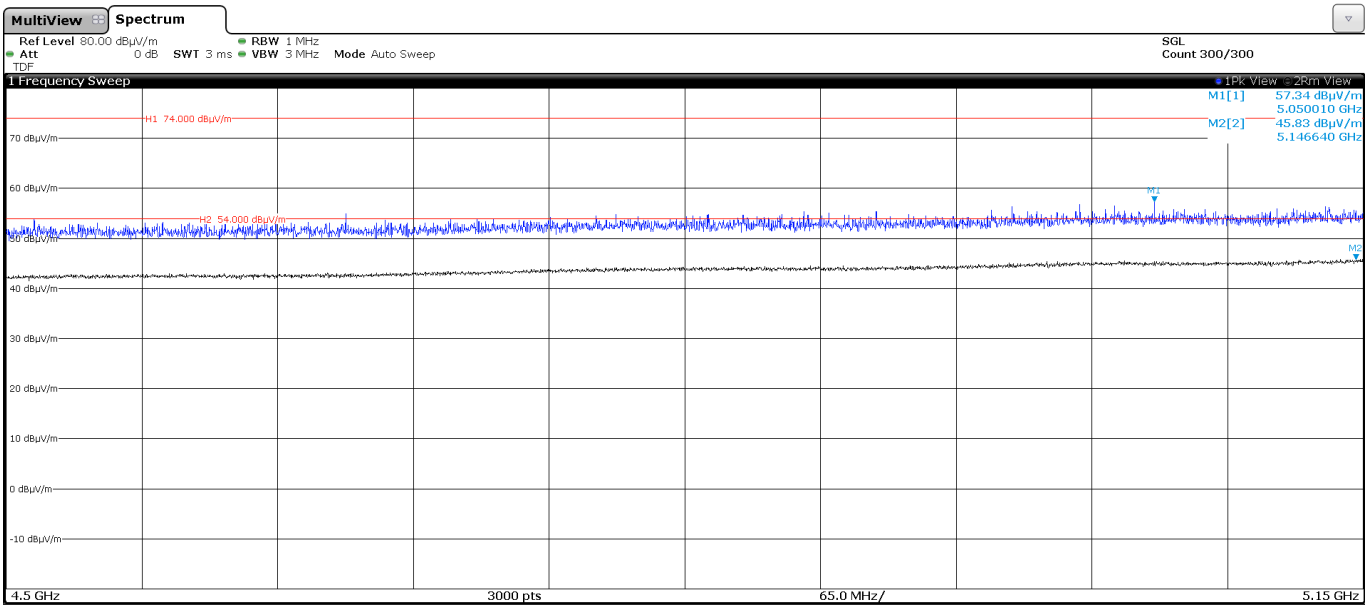
- Upper Band Edge Channel 48 (5350 to 5460 MHz)



- **Mode 802.11 n40 (HT40)**

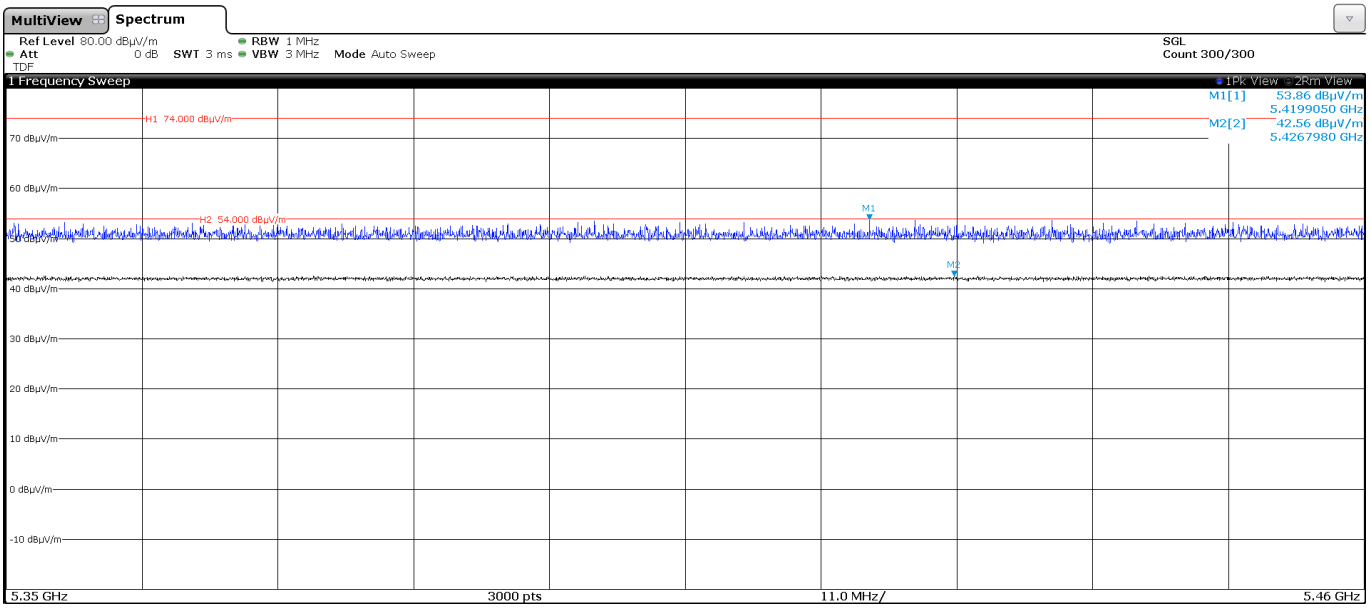
Radiated spurious emissions at band-edges and inside adjacent band 4.50 - 5.15 GHz

- Lower Band Edge Channel 38 (4500 to 5150 MHz)



Radiated spurious emissions at band-edges and inside adjacent band 5.35 - 5.46 GHz

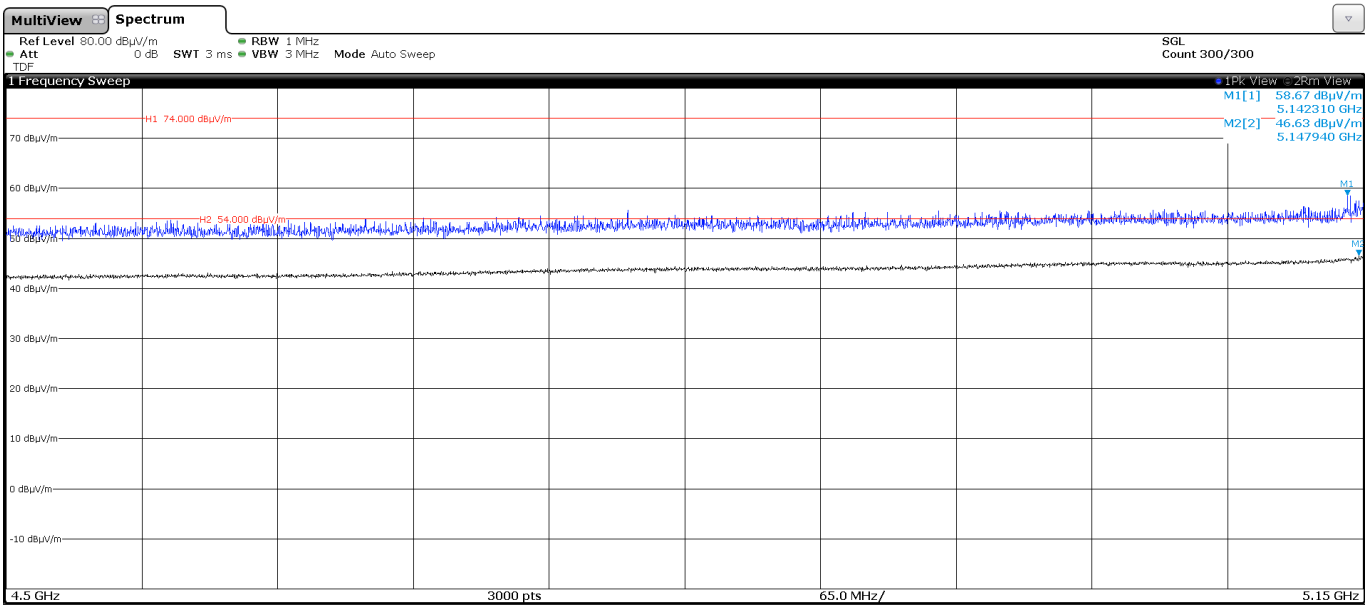
- Upper Band Edge Channel 46 (5350 to 5460 MHz)



- **Mode 802.11 ac40 (VHT40)**

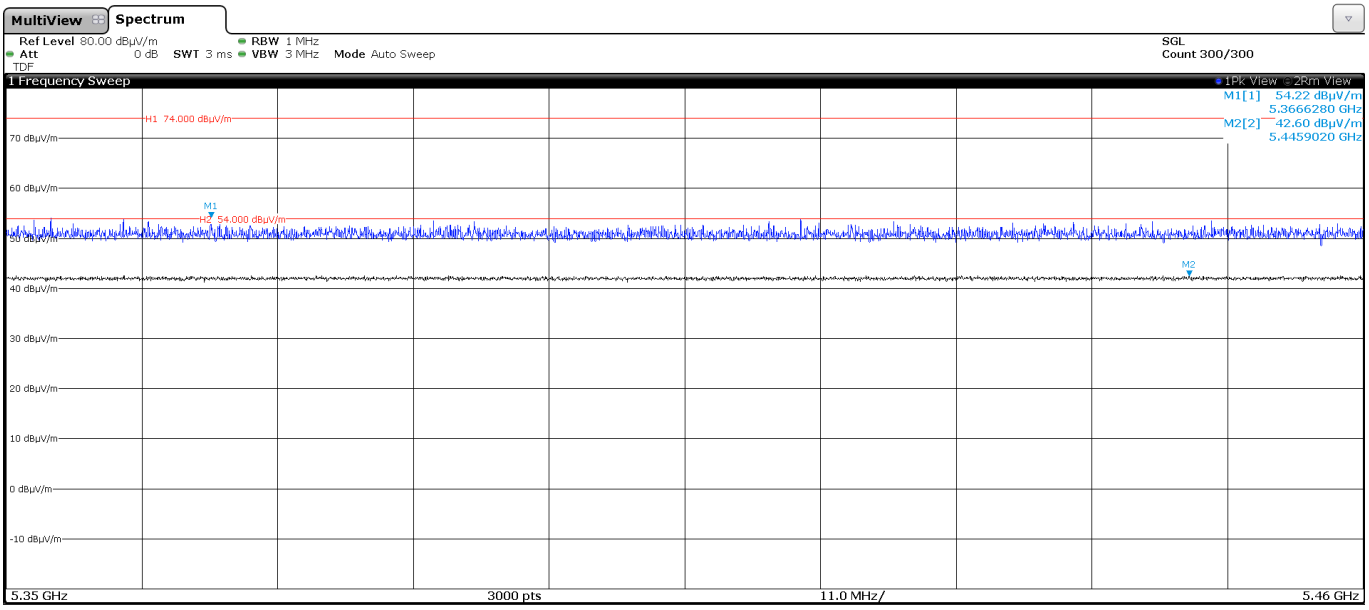
Radiated spurious emissions at band-edges and inside adjacent band 4.50 - 5.15 GHz

- Lower Band Edge Channel 38 (4500 to 5150 MHz)



Radiated spurious emissions at band-edges and inside adjacent band 5.35 - 5.46 GHz

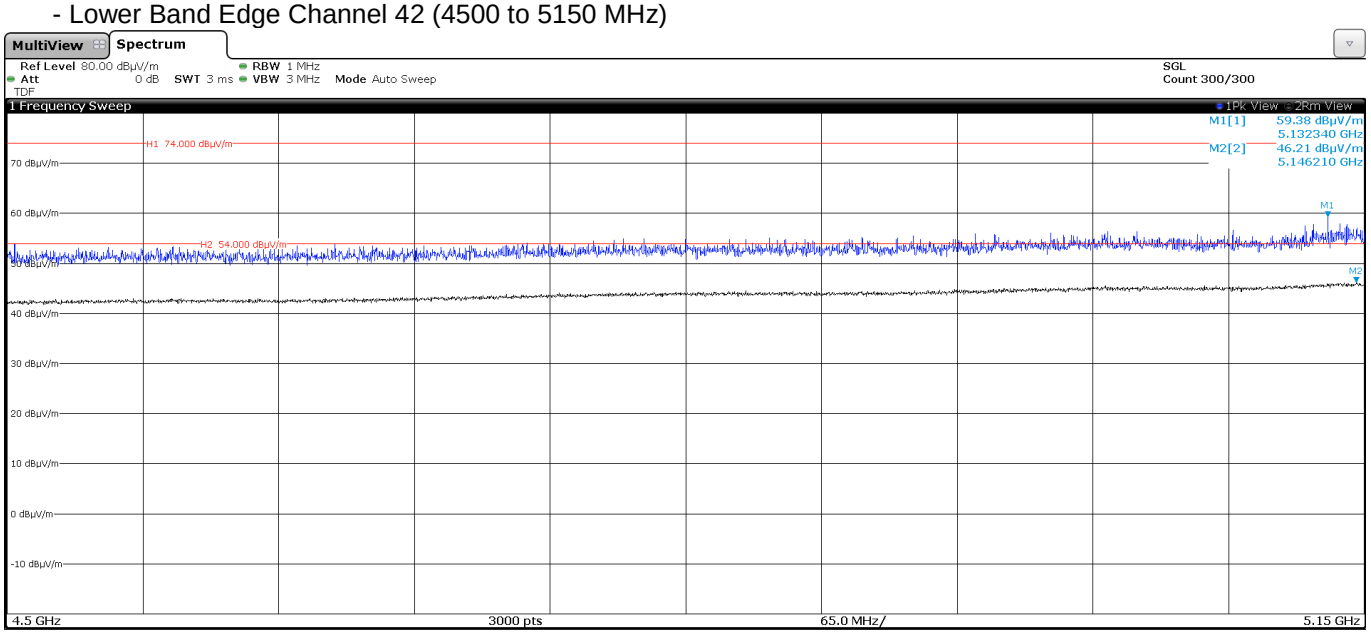
- Upper Band Edge Channel 46 (5350 to 5460 MHz)



- **Mode 802.11 ac80 (VHT80)**

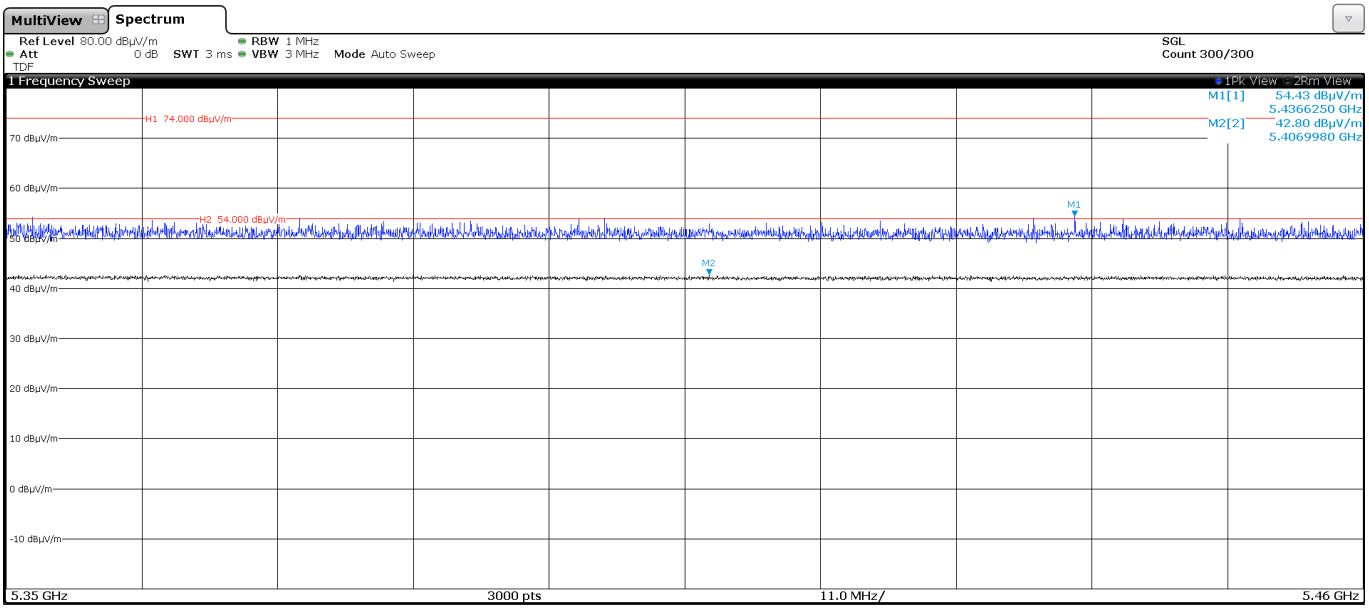
Radiated spurious emissions at band-edges and inside adjacent band 4.50 - 5.15 GHz

- Lower Band Edge Channel 42 (4500 to 5150 MHz)



Radiated spurious emissions at band-edges and inside adjacent band 5.35 - 5.46 GHz

- Upper Band Edge Channel 42 (5350 to 5460 MHz)



MIMO CORE-MIMO_Port4 & Port1 Antennas:

- **Mode 802.11 n20 (HT20)**

- Lower Band Edge Channel 36 (5180 MHz): Inside band 4.50-5.15 GHz.

Radiated spurious frequencies detected at less than 20 dB below the limit:

Spurious frequency (GHz)	Emission Level (dBµV/m)	Limit (dBµV/m)	Polarization	Detector	Measurement Uncertainty (dB)
5.14968	65.49	74	H	Peak	<±3.70
	46.82	54		Average	<±3.70

- Upper Band Edge Channel 48 (5240 MHz): Inside band 5.35-5.46 GHz.

Radiated spurious frequencies detected at less than 20 dB below the limit:

Spurious frequency (GHz)	Emission Level (dBµV/m)	Limit (dBµV/m)	Polarization	Detector	Measurement Uncertainty (dB)
5.390425	52.56	74	H	Peak	<±3.70
	40.7	54		Average	<±3.70

- **Mode 802.11 ac20 (HT20)**

- Lower Band Edge Channel 36 (5180 MHz): Inside band 4.50-5.15 GHz.

Radiated spurious frequencies detected at less than 20 dB below the limit:

Spurious frequency (GHz)	Emission Level (dBµV/m)	Limit (dBµV/m)	Polarization	Detector	Measurement Uncertainty (dB)
5.14729	59.42	74	H	Peak	<±3.70
	42.88	54		Average	<±3.70

- Upper Band Edge Channel 48 (5240 MHz): Inside band 5.35-5.46 GHz.

No radiated spurious frequencies detected at less than 20 dB below the limit.

- **Mode 802.11 n40 (HT40)**

- Lower Band Edge Channel 38 (5190 MHz): Inside band 4.50-5.15 GHz.

Radiated spurious frequencies detected at less than 20 dB below the limit:

Spurious frequency (GHz)	Emission Level (dBµV/m)	Limit (dBµV/m)	Polarization	Detector	Measurement Uncertainty (dB)
5.14989	64.45	74	H	Peak	<±3.70
	49.24	54		Average	<±3.70

- Upper Band Edge Channel 46 (5230 MHz): Inside band 5.35-5.46 GHz.

No radiated spurious frequencies detected at less than 20 dB below the limit.

- **Mode 802.11 ac40 (VHT40)**

- Lower Band Edge Channel 38 (5190 MHz): Inside band 4.50-5.15 GHz.

Radiated spurious frequencies detected at less than 20 dB below the limit:

Spurious frequency (GHz)	Emission Level (dBµV/m)	Limit (dBµV/m)	Polarization	Detector	Measurement Uncertainty (dB)
5.14253	64.51	74	H	Peak	<±3.70
	48.1	54		Average	<±3.70

- Upper Band Edge Channel 46 (5230 MHz): Inside band 5.35-5.46 GHz.

No radiated spurious frequencies detected at less than 20 dB below the limit.

- **Mode 802.11 ac80 (VHT80)**

- Lower Band Edge Channel 42 (5210 MHz): Inside band 4.50-5.15 GHz.

Radiated spurious frequencies detected at less than 20 dB below the limit:

Spurious frequency (GHz)	Emission Level (dBµV/m)	Limit (dBµV/m)	Polarization	Detector	Measurement Uncertainty (dB)
5.14101	63.58	74	H	Peak	<±3.70
	46.21	54		Average	<±3.70

- Upper Band Edge Channel 42 (5210 MHz): Inside band 5.35-5.46 GHz.

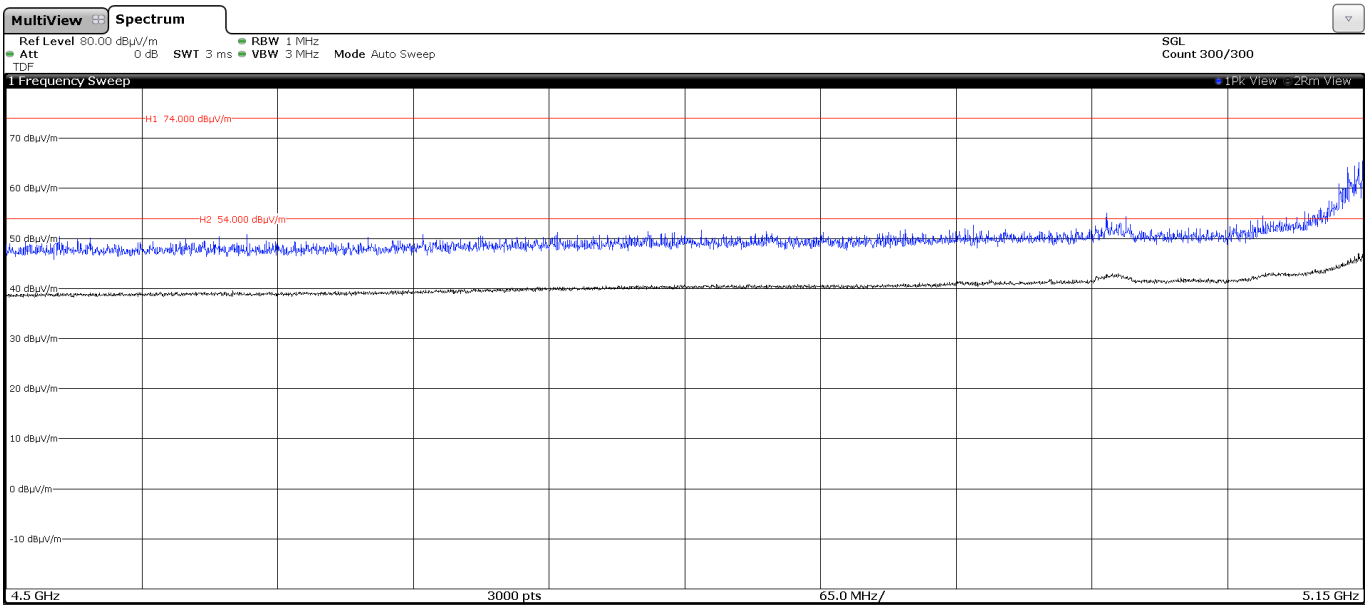
No radiated spurious frequencies detected at less than 20 dB below the limit.

Verdict: PASS

- **Mode 802.11 n20 (HT20)**

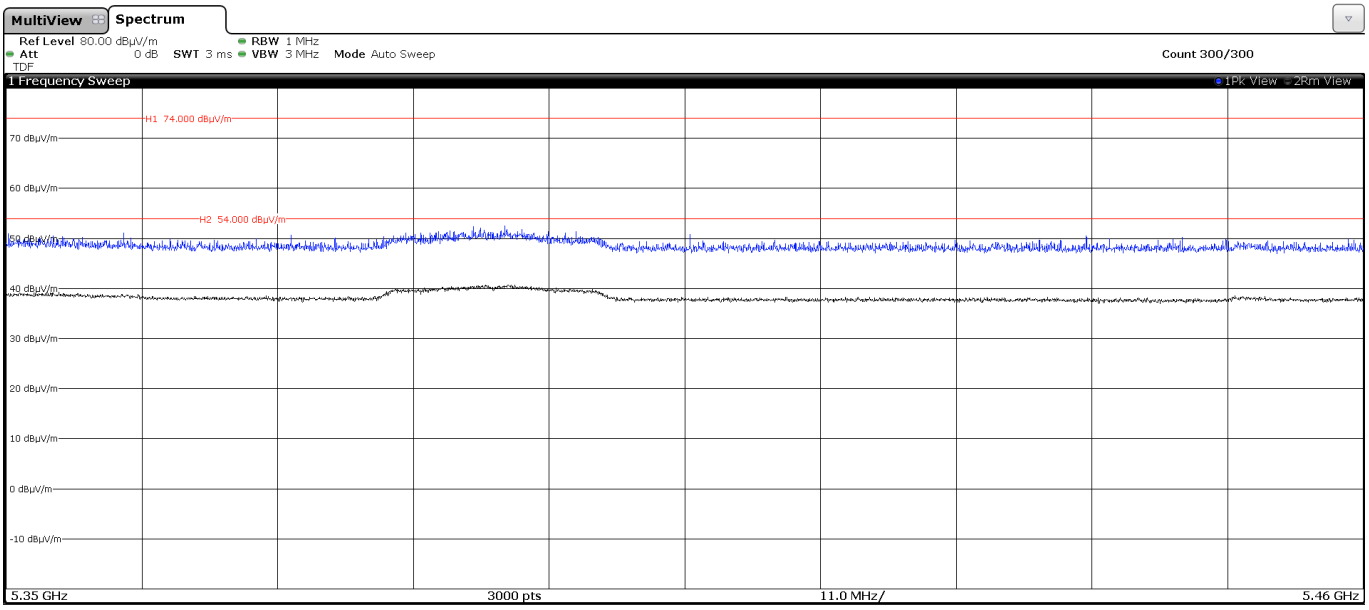
Radiated spurious emissions at band-edges and inside adjacent band 4.50 - 5.15 GHz

- Lower Band Edge Channel 36 (4500 to 5150 MHz)



Radiated spurious emissions at band-edges and inside adjacent band 5.35 - 5.46 GHz

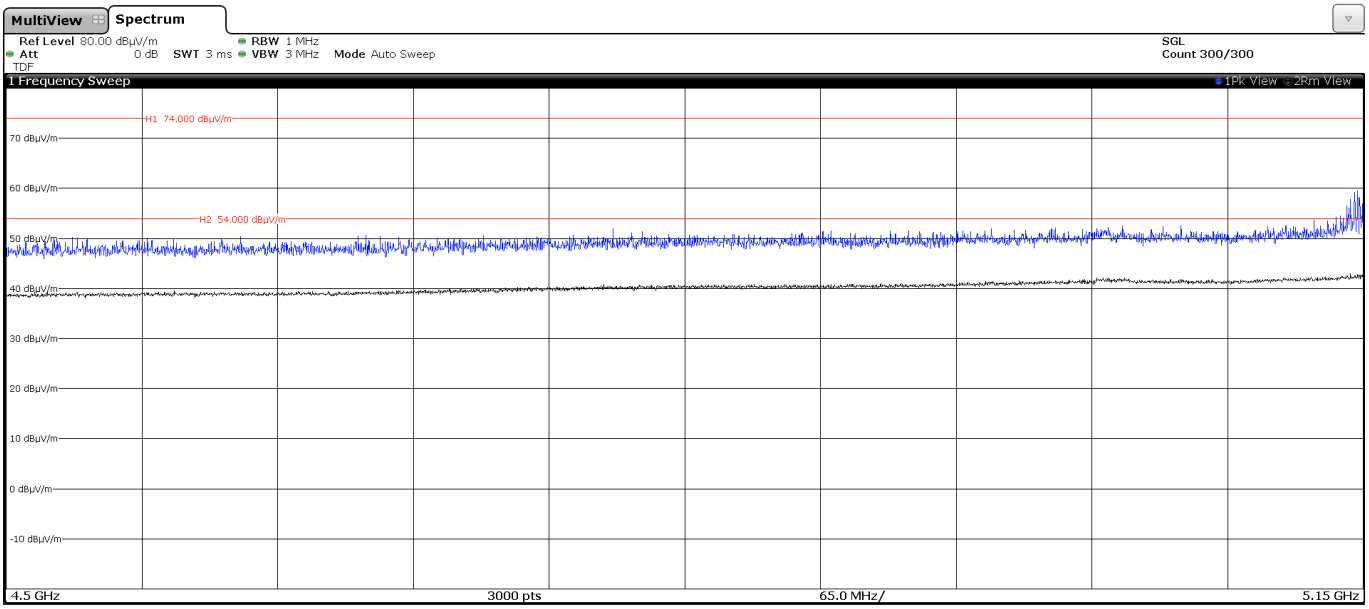
- Upper Band Edge Channel 48 (5350 to 5460 MHz)



- **Mode 802.11 ac20 (VHT20)**

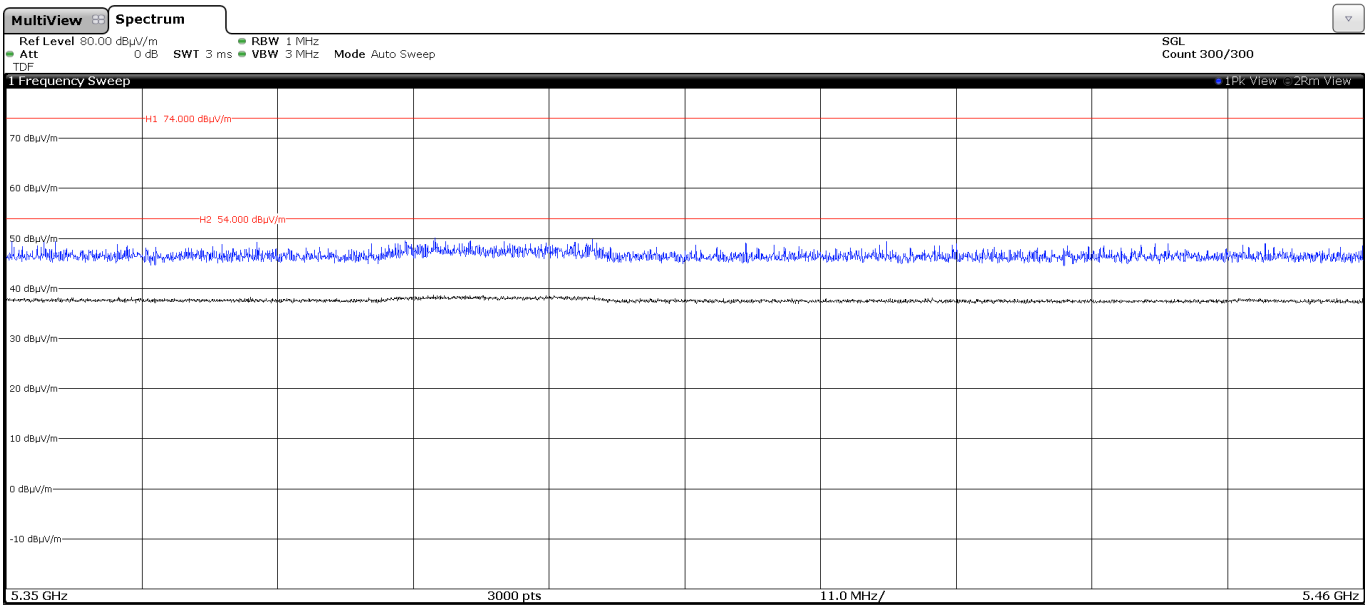
Radiated spurious emissions at band-edges and inside adjacent band 4.50 - 5.15 GHz

- Lower Band Edge Channel 36 (4500 to 5150 MHz)



Radiated spurious emissions at band-edges and inside adjacent band 5.35 - 5.46 GHz

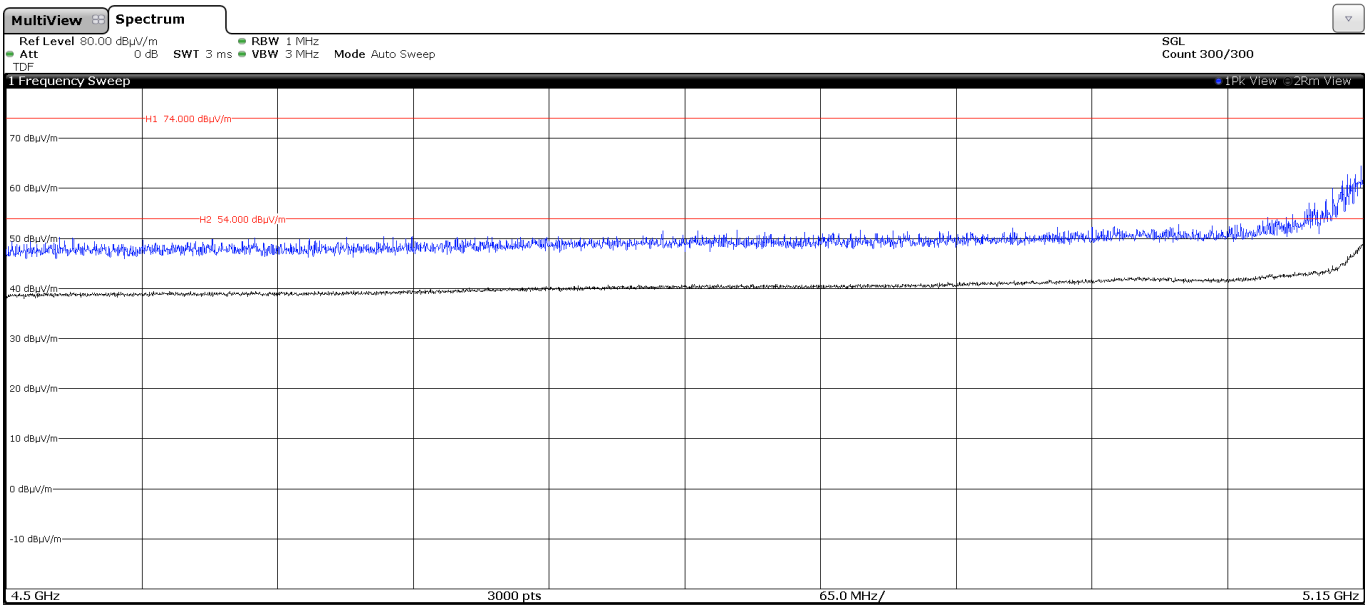
- Upper Band Edge Channel 48 (5350 to 5460 MHz)



- **Mode 802.11 n40 (HT40)**

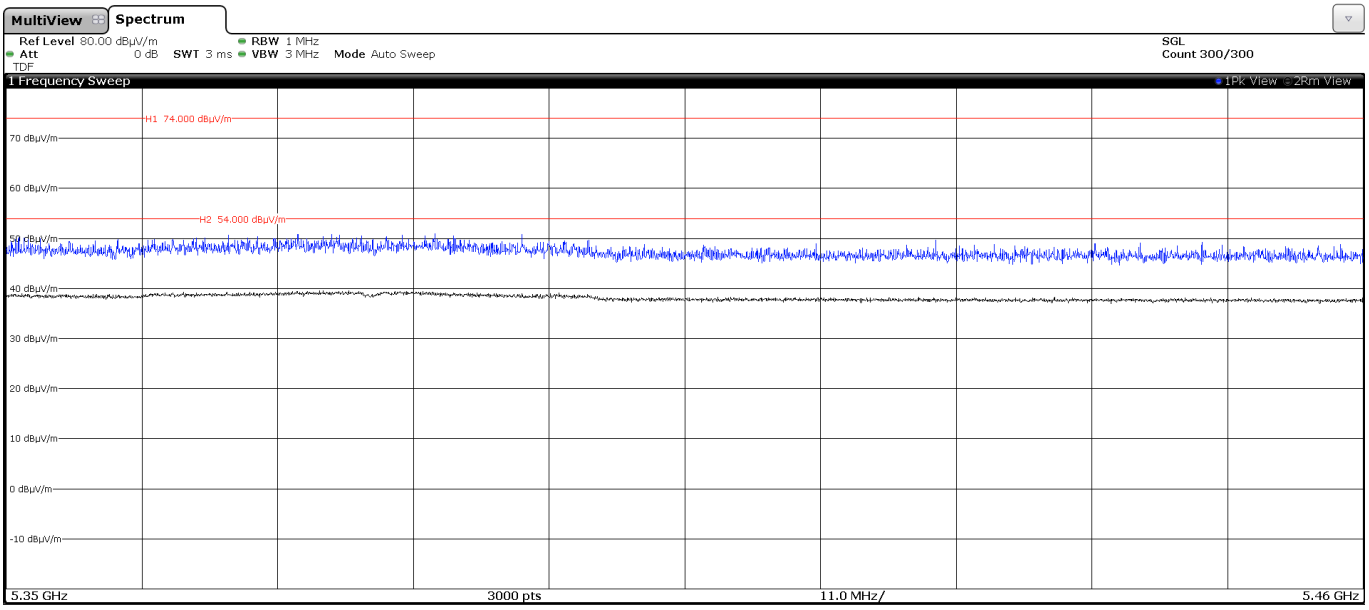
Radiated spurious emissions at band-edges and inside adjacent band 4.50 - 5.15 GHz

- Lower Band Edge Channel 38 (4500 to 5150 MHz)



Radiated spurious emissions at band-edges and inside adjacent band 5.35 - 5.46 GHz

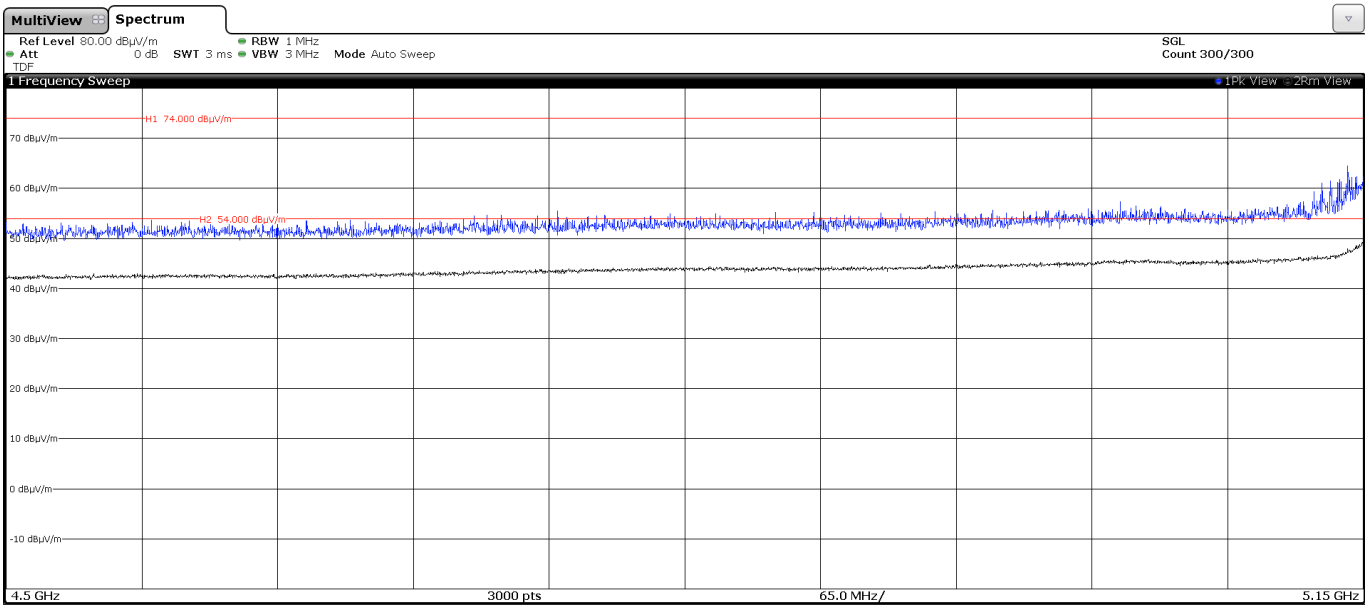
- Upper Band Edge Channel 46 (5350 to 5460 MHz)



- **Mode 802.11 ac40 (VHT40)**

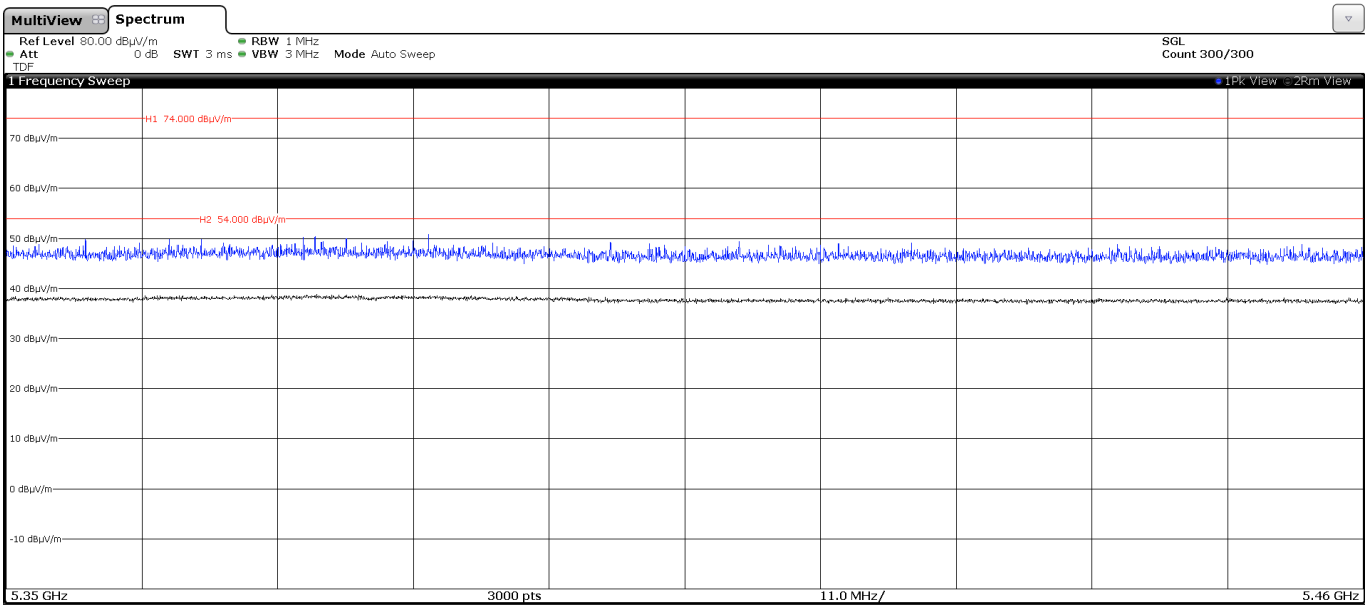
Radiated spurious emissions at band-edges and inside adjacent band 4.50 - 5.15 GHz

- Lower Band Edge Channel 38 (4500 to 5150 MHz)



Radiated spurious emissions at band-edges and inside adjacent band 5.35 - 5.46 GHz

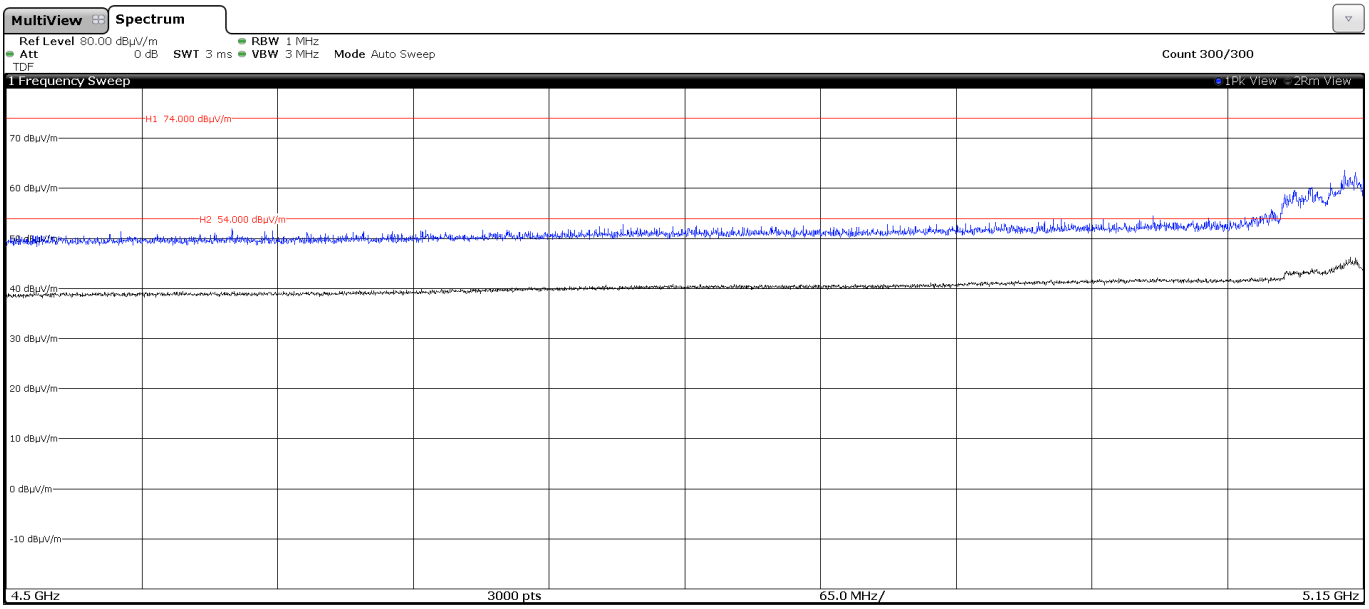
- Upper Band Edge Channel 46 (5350 to 5460 MHz)



- **Mode 802.11 ac80 (VHT80)**

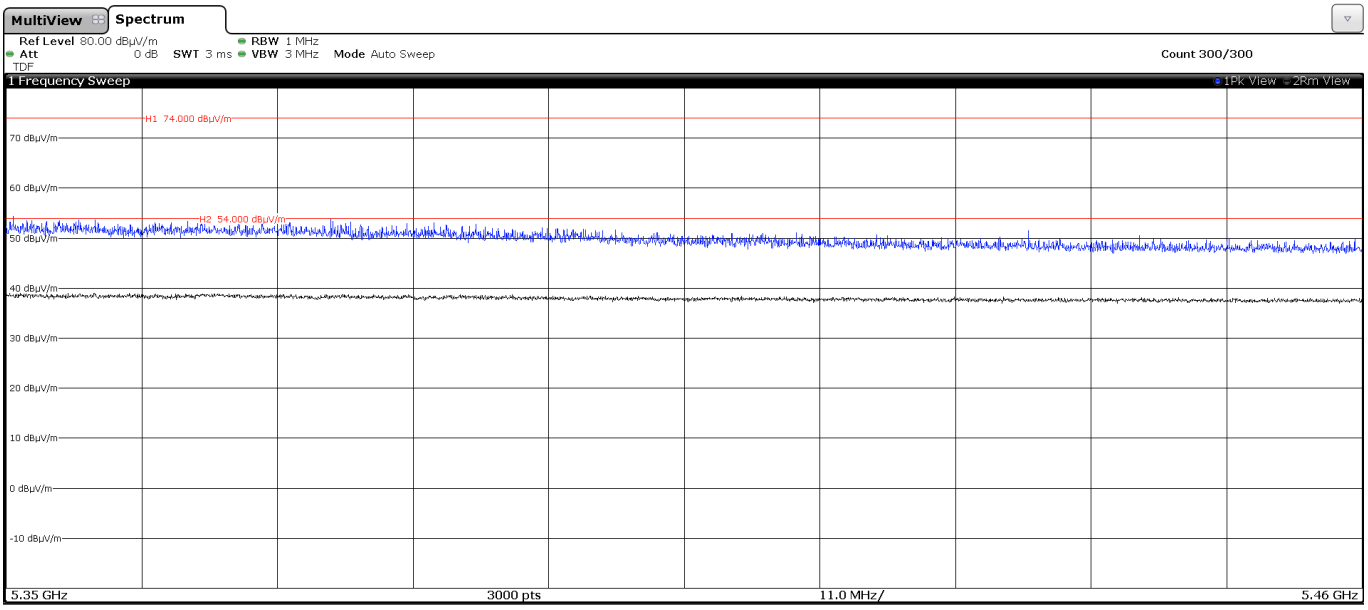
Radiated spurious emissions at band-edges and inside adjacent band 4.50 - 5.15 GHz

- Lower Band Edge Channel 42 (4500 to 5150 MHz)



Radiated spurious emissions at band-edges and inside adjacent band 5.35 - 5.46 GHz

- Upper Band Edge Channel 42 (5350 to 5460 MHz)



Appendix C: Tests results for the U-NII-3 Band 5.725 – 5.85 GHz

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FCC Section 15.407(b)(4)(6) /RSS-247 6.2.4.2. Transmitter Out of Band Radiated Emissions and Transmitter Band Edge Radiated Emissions.....158

TEST CONDITIONS

POWER SUPPLY (V):

V nonimal: 12 Vdc

Type of Power Supply: DC voltage from external power supply (car battery).

ANTENNAS:

Type of Antenna: External.

Antennas Gain:

- SISO – CORE-0_Port3 Antenna – Declared Maximum Antenna Gain: +2.5 dBi
- MIMO – CORE-MIMO_Port1 & Port4 Antennas – Declared Maximum Antenna Gain:
  - Port4 – Declared Maximum Antenna Gain: +4.5 dBi
  - Port1 – Declared Maximum Antenna Gain: +4.5 dBi

Technology Tested:	WLAN (IEEE 802.11 a/n/ac): U-NII-3 band	
Modes:	802.11a: 6, 9, 12, 18, 24, 36, 48 & 54 Mbps	
	802.11n HT20: MCS0 to MCS7	
	802.11n HT40: MCS0 to MCS7	
	802.11ac VHT20: MCS0 to MCS8	
	802.11ac VHT40: MCS0 to MCS9	
	802.11ac VHT80: MCS0 to MCS9	
Setting of cores / ports:	3, 1+4.	
Beamforming:	No	
Frequency Range:	5725 MHz to 5850 MHz	
Channel Spacing:	20 MHz	
Transmit Channels	Channel	Channel Frequency (MHz)
	Lowest: 149	5745
	Middle: 157	5785
	Highest: 165	5825
Channel Spacing:	40 MHz	
Transmit Channels	Channel	Channel Frequency (MHz)
	Lowest: 151	5755
	Highest: 159	5795
Channel Spacing:	80 MHz	
Transmit Channels	Middle: 155	5775

The test set-up was made in accordance to the general provisions of FCC Unlicensed National Information Infrastructure (U-NII) Devices 789033 D02 General U-NII Test Procedures New Rules v02r01 dated Dec 14, 2017.

The EUT was tested in the following operating mode:

- Continuously transmitting with a modulated carrier at maximum power in all required channels using the supported data rates/modulations types.

The field strength at the band edges was evaluated for each mode individually on the lowest and highest channels at the rated power for the channel under test.

For all modes, the EUT was configured in test mode using a software application. The application was used to enable a continuous transmission and to select the test channels as required. The client supplied scripts to configure the EUT. The customer supplied a document containing the setup instructions.

The worst cases for testing were identified for output power and spurious levels at the band edges which were selected based on preliminary testing that correspond to next data rates:

- 802.11a20: 6 Mbits
- 802.11n HT20: MCS0
- 802.11n HT40: MCS0
- 802.11ac VHT20: MCS0
- 802.11ac VHT40: MCS0
- 802.11ac VHT80: MCS0

WIFI FCC:

tx_test.sh -a wlan0 stop

a20 - Core0

tx_test.sh -a wlan0 149 0 -d x -r 6 20 –c US

tx_test.sh -a wlan0 157 0 -d x -r 6 20 -c US

tx_test.sh -a wlan0 165 0 -d x -r 6 20 -c US

n20 - Core0

tx_test.sh -a wlan0 149 0 -d x -h 0 20 -c US

tx_test.sh -a wlan0 157 0 -d x -h 0 20 -c US

tx_test.sh -a wlan0 165 0 -d x -h 0 20 -c US

ac20 - Core0

tx_test.sh -a wlan0 149 0 -d x -v 0 20 -c US

tx_test.sh -a wlan0 157 0 -d x -v 0 20 -c US

tx_test.sh -a wlan0 165 0 -d x -v 0 20 -c US

n40 - Core0

tx_test.sh -a wlan0 153 0 -d x -h 0 40 -c US

tx_test.sh -a wlan0 161 0 -d x -h 0 40 -c US

ac40 - Core0

tx_test.sh -a wlan0 153 0 -d x -v 0 40 -c US

tx_test.sh -a wlan0 161 0 -d x -v 0 40 -c US

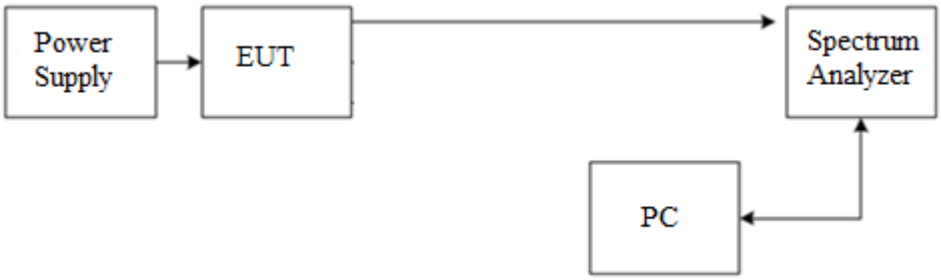
ac80 - Core0

tx_test.sh -a wlan0 161 0 -d x -v 0 80 -c US

CONDUCTED MEASUREMENTS

The equipment under test was set up in a shielded room and connected to the spectrum analyzer using a low loss RF cable. The reading in the spectrum analyzer is corrected taking into account the internal and external RF cable loss.

For all modes:



The DC supply voltage is applied using an external power supply.

RADIATED MEASUREMENTS

All radiated tests were performed in a semi-anechoic chamber. The measurement antenna is situated at a distance of 1 m for the frequency range 1 GHz-40 GHz (1 GHz-18 GHz Double ridge horn antenna and 18 GHz-40 GHz horn antenna).

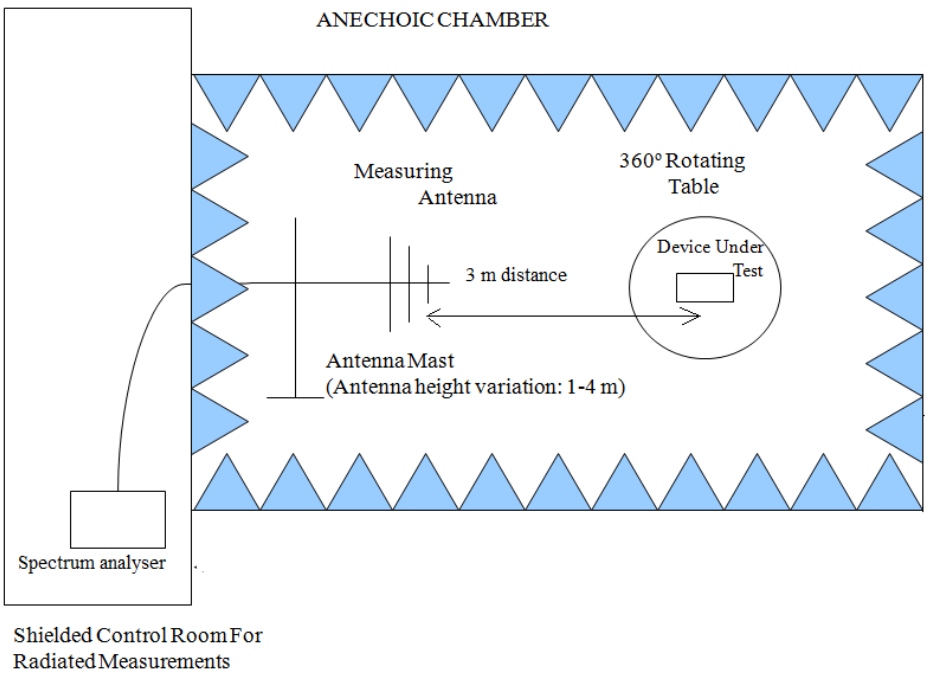
For radiated emissions in the range 1 GHz-40 GHz that is performed at a distance closer than the specified distance, an inverse proportionality factor of 20 dB per decade is used to normalize the measured data for determining compliance.

The EUT was placed at a height of 80 cm above the reference ground plane in the center of the chamber turntable to perform the measurements below 1GHz and the EUT was placed at a height of 1.5 meters above the test chamber floor in the center of the chamber turntable to perform the measurements above 1GHz. It was also rotated 360º and the antenna height was varied from 1 to 4 meters to find the maximum radiated emission.

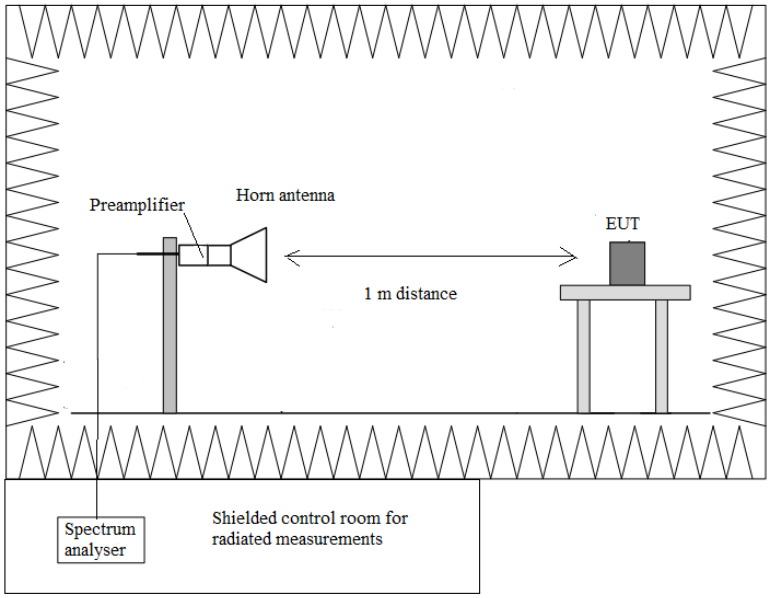
Measurements were made in both horizontal and vertical planes of polarization.

The final measured value, for the given emission, in the tables below incorporates the calibrated antenna factor and cable loss.

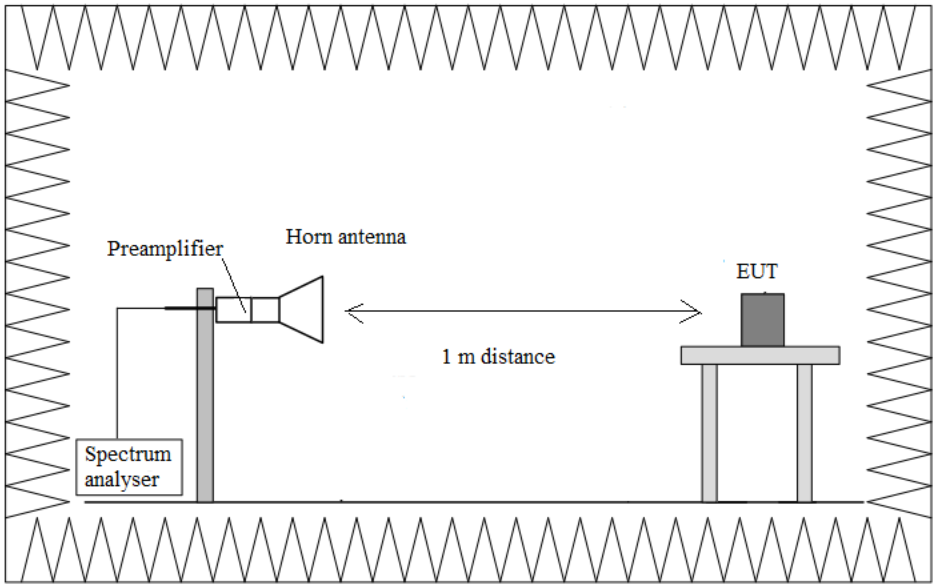
Radiated measurements setup f < 1 GHz



Radiated measurements setup f > 1 GHz up to 18 GHz.



Radiated measurements setup f > 18 GHz up to 40 GHz.



FCC 15.407 (e) / RSS-247 6.2.4.1. 6 dB Bandwidth

SPECIFICATION:

The minimum 6 dB bandwidth shall be at least 500 kHz.

RESULTS:

The following modes and data rates were selected based on preliminary testing that identified those corresponding to the worst cases:

- 802.11a20: 6 Mbits
- 802.11n HT20: MCS0
- 802.11n HT40: MCS0
- 802.11ac VHT80: MCS0

SISO CORE-0_Port3

Mode 802.11 a20

	Low Channel 149 (5745 MHz)	Middle Channel 157 (5785 MHz)	High Channel 165 (5825 MHz)
6 dB Bandwidth (MHz)	16.410	16.410	16.410
Measurement uncertainty (kHz)	<±23.02		

Mode 802.11 n20 (HT20)

	Low Channel 149 (5745 MHz)	Middle Channel 157 (5785 MHz)	High Channel 165 (5825 MHz)
6 dB Bandwidth (MHz)	17.372	17.394	17.372
Measurement uncertainty (kHz)	<±23.02		

Mode 802.11 n40 (HT40)

	Low Channel 151 (5755 MHz)	High Channel 159 (5795 MHz)
6 dB Bandwidth (MHz)	35.541	35.897
Measurement uncertainty (kHz)	<±53.05	

Mode 802.11 ac80 (VHT80)

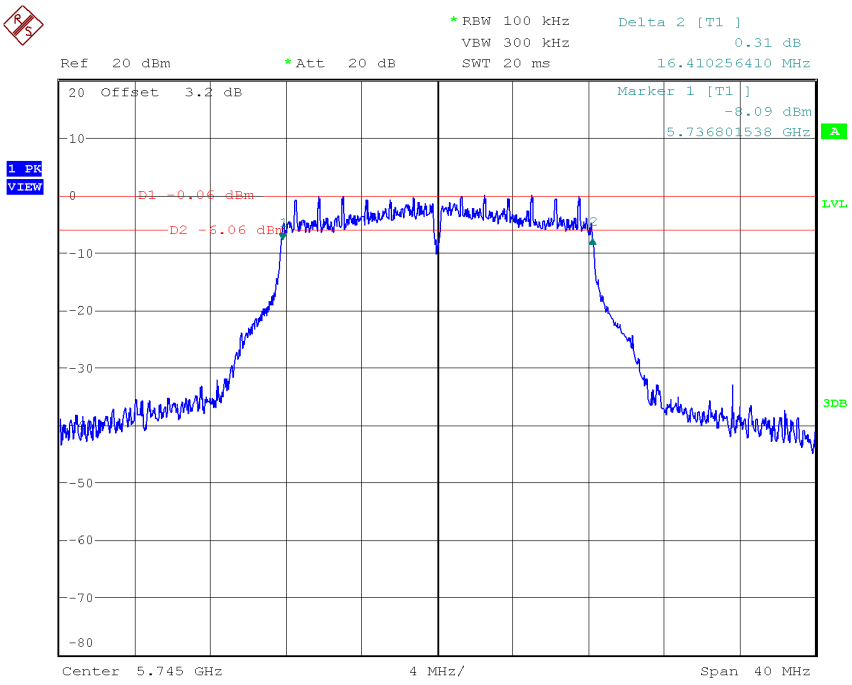
	Single Channel 155 (5775 MHz)
6 dB bandwidth (MHz)	75.059
Measurement uncertainty (kHz)	<±103.10

Verdict: PASS

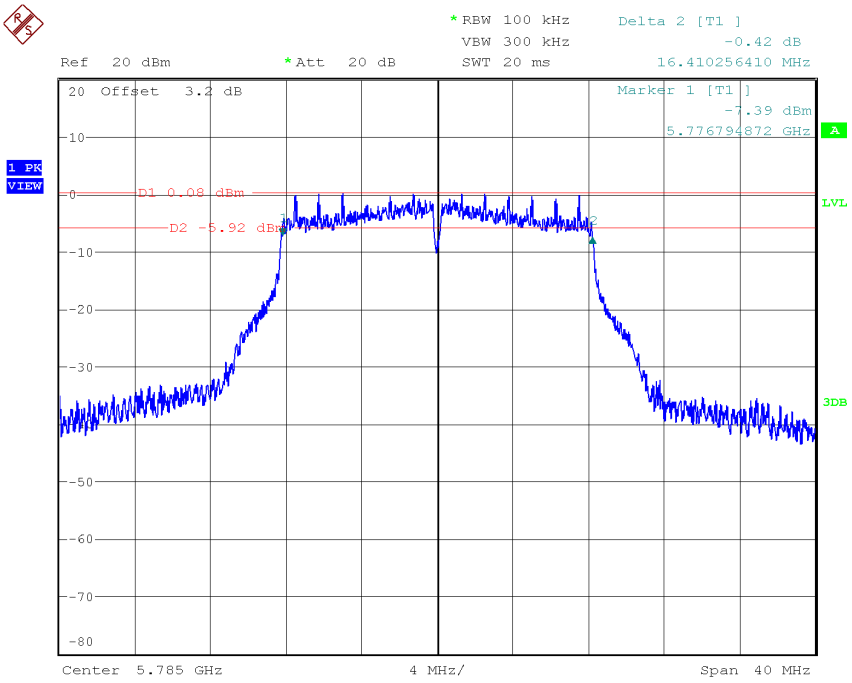
SISO CORE-0_Port3

Mode 802.11 a20

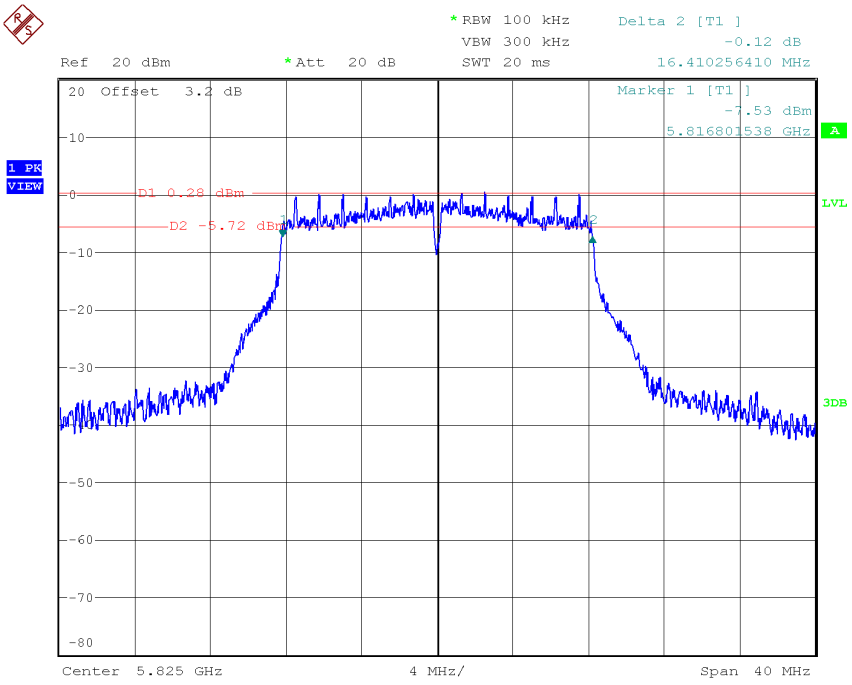
- Low Channel 149:



- Middle Channel 157:

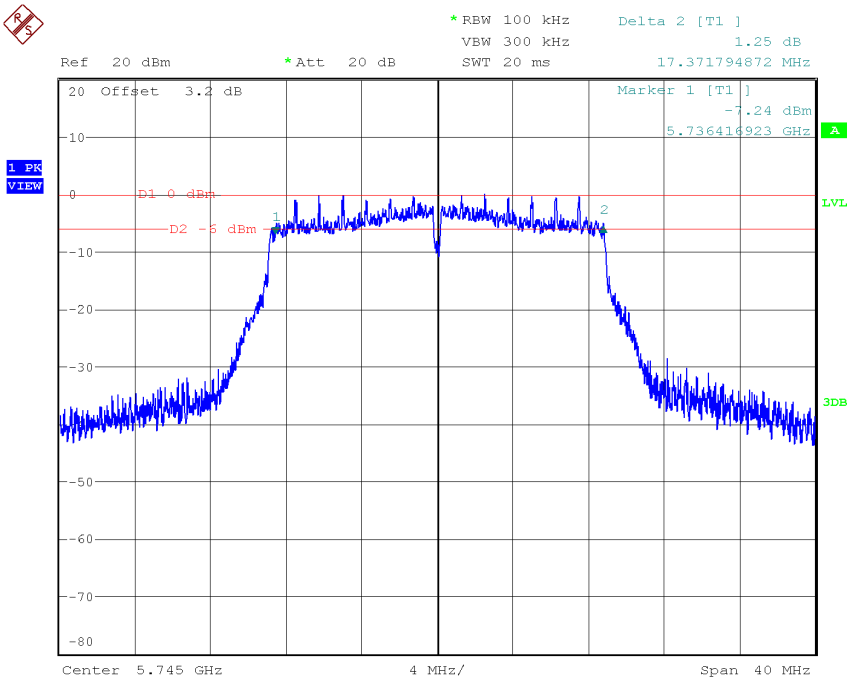


- High Channel 165:

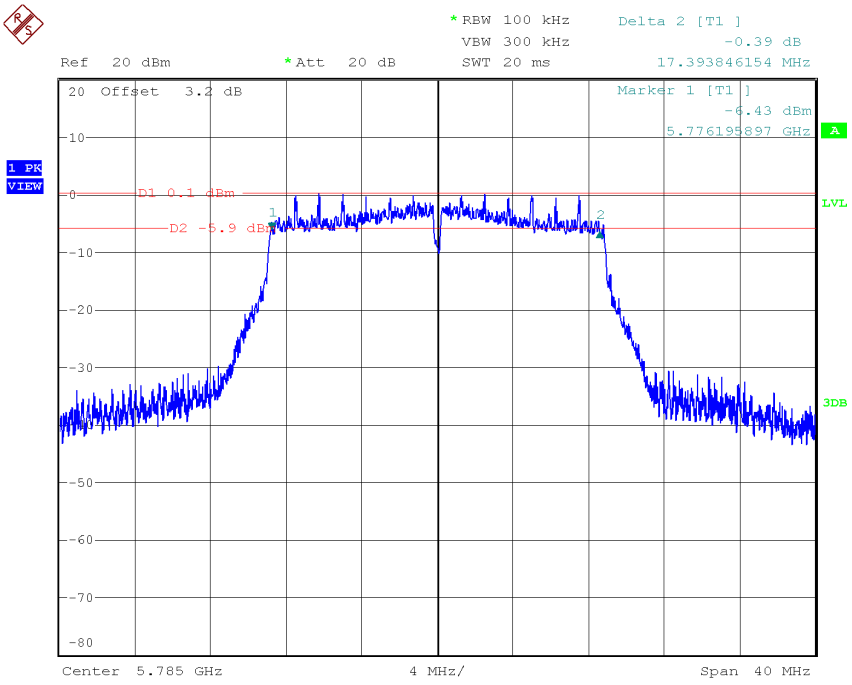


Mode 802.11 n20 (HT20)

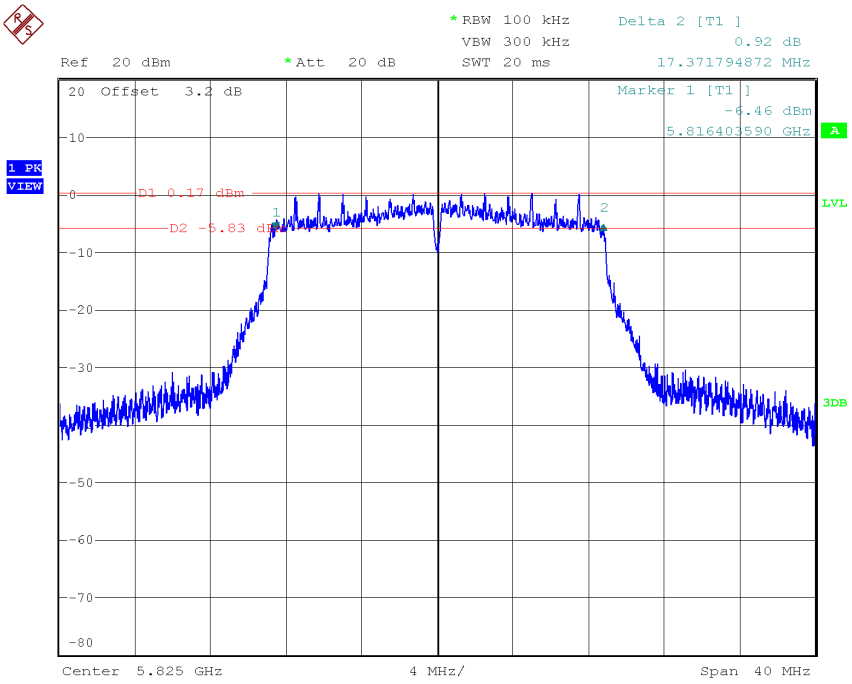
- Low Channel 149:



- Middle Channel 157:

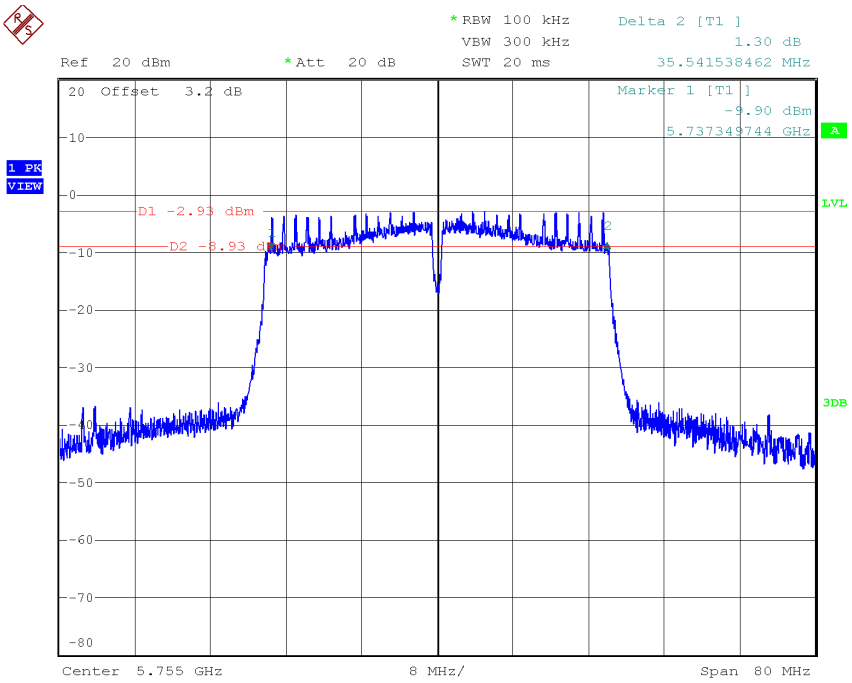


- High Channel 165:

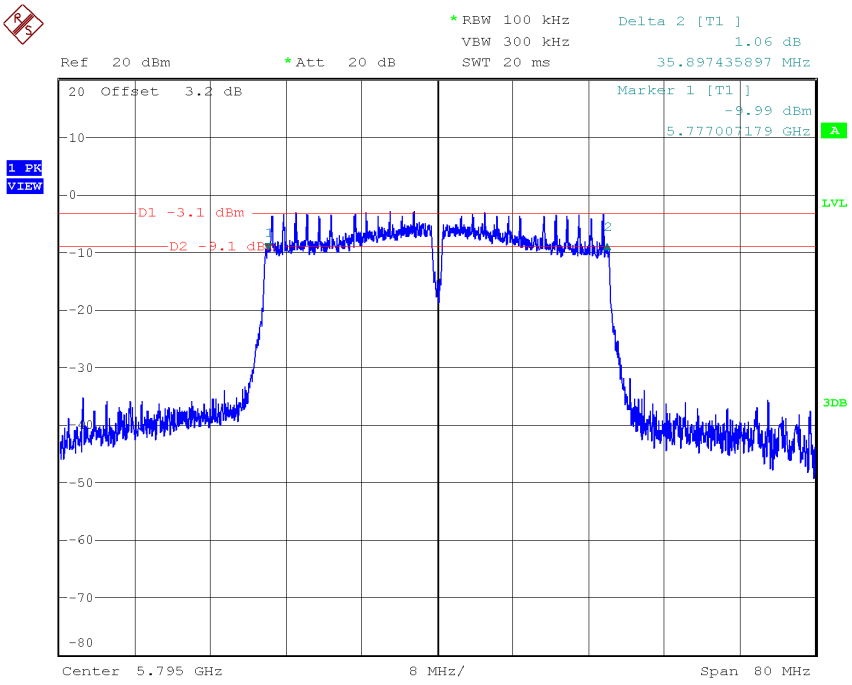


Mode 802.11 n40 (HT40)

- Low Channel 151:

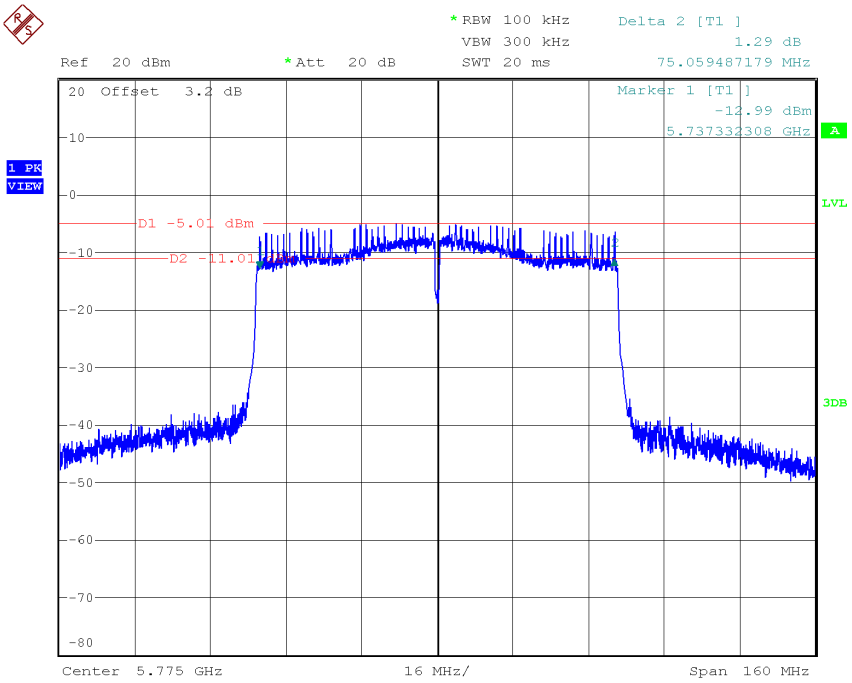


- High Channel 159:



Mode 802.11 ac80 (VHT80)

- Single Channel 155:



MIMO CORE-MIMO_Port1 & Port4 Antennas:

Mode 802.11 n20 (HT20):

Channels	Low Channel 149 (5745 MHz)		Middle Channel 157 (5785 MHz)		High Channel 165 (5825 MHz)	
	CORE-MIMO_ Port 4	CORE-MIMO_ Port 1	CORE-MIMO_ Port 4	CORE-MIMO_ Port 1	CORE-MIMO_ Port 4	CORE-MIMO_ Port 1
6 dB Bandwidth (MHz)	17.64	17.61	17.61	17.58	17.64	17.58
Measurement uncertainty (kHz)	<±23.02					

Mode 802.11 n40 (HT40):

Channels	Low Channel 151 (5755 MHz)		High Channel 159 (5795 MHz)	
	CORE-MIMO_ Port 4	CORE-MIMO_ Port 1	CORE-MIMO_ Port 4	CORE-MIMO_ Port 1
6 dB Bandwidth (MHz)	36.36	35.76	36.385	36.085
Measurement uncertainty (kHz)	<±53.05			

Mode 802.11 ac80 (VHT80):

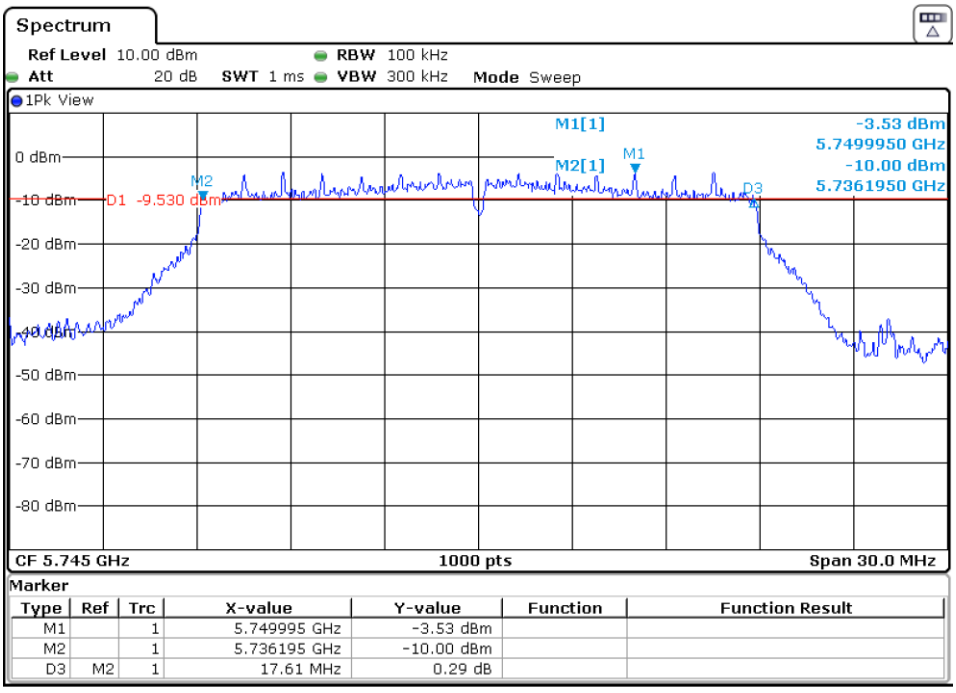
Channel	Single Channel 155 (5775 MHz)	
	CORE-MIMO_ Port 4	CORE-MIMO_ Port 1
6 dB Bandwidth (MHz)	75.96	75.86
Measurement uncertainty (kHz)	<±103.10	

MIMO CORE-MIMO_Port1 & Port4 Antennas:

Mode 802.11 n20 HT20:

- Low Channel 149 (5745 MHz):

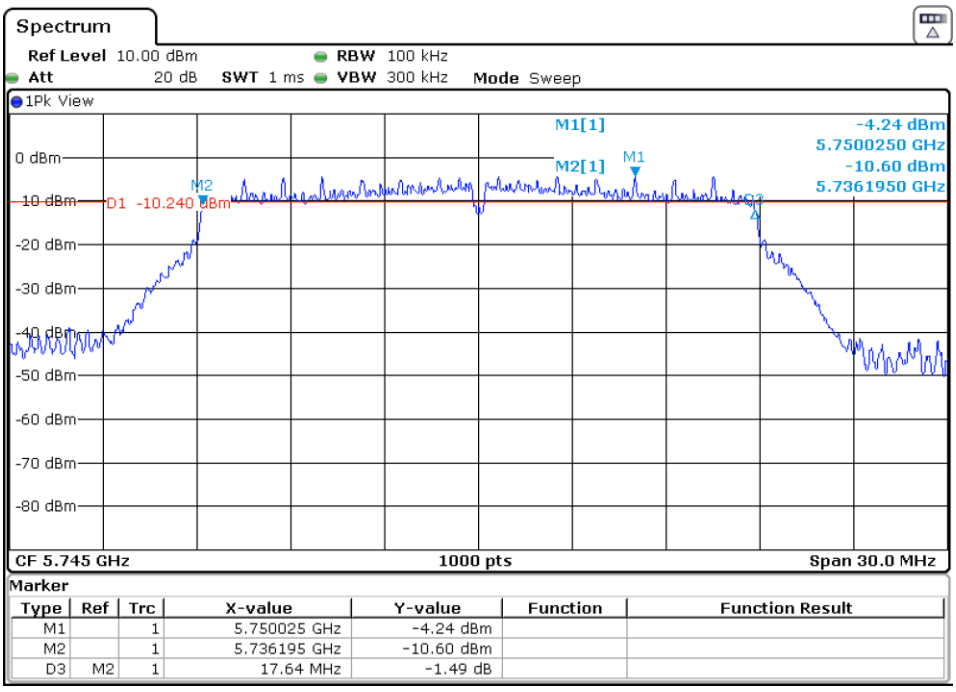
Port 1 Antenna



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	5.749995 GHz	-3.53 dBm		
M2		1	5.736195 GHz	-10.00 dBm		
D3	M2	1	17.61 MHz	0.29 dB		

Port 4 Antenna

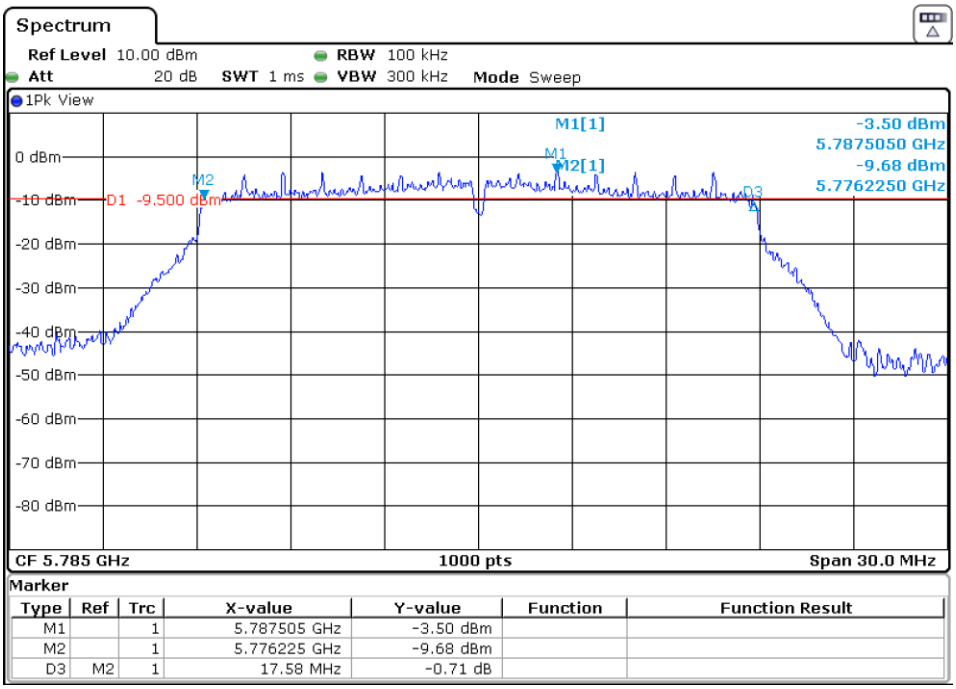


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	5.750025 GHz	-4.24 dBm		
M2		1	5.736195 GHz	-10.60 dBm		
D3	M2	1	17.64 MHz	-1.49 dB		

- Middle Channel 157 (5785 MHz):

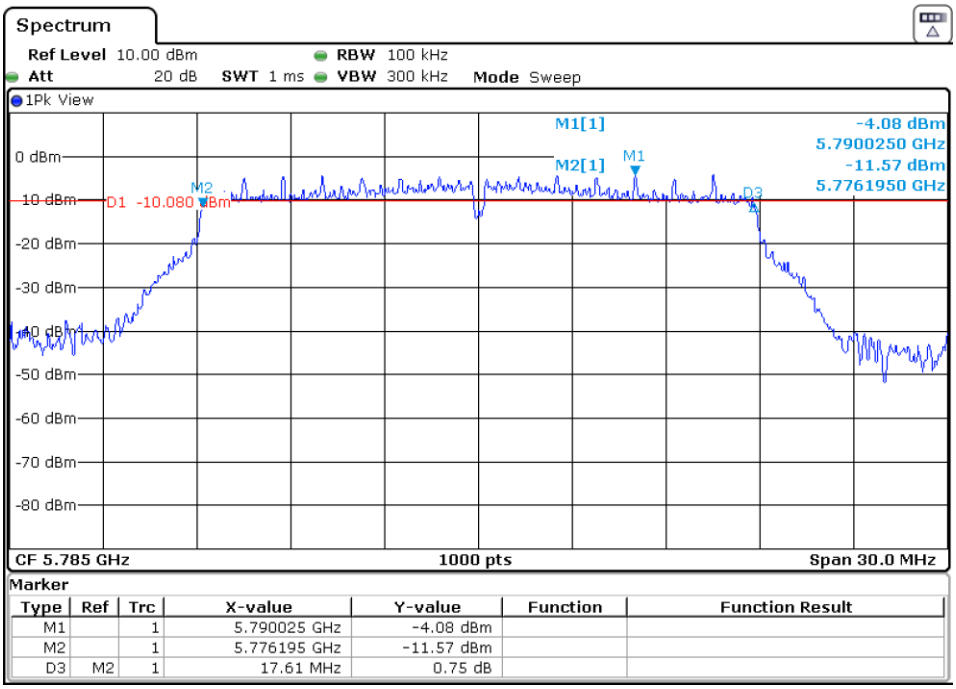
Port 1 Antenna



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	5.787505 GHz	-3.50 dBm		
M2		1	5.776225 GHz	-9.68 dBm		
D3	M2	1	17.58 MHz	-0.71 dB		

Port 4 Antenna

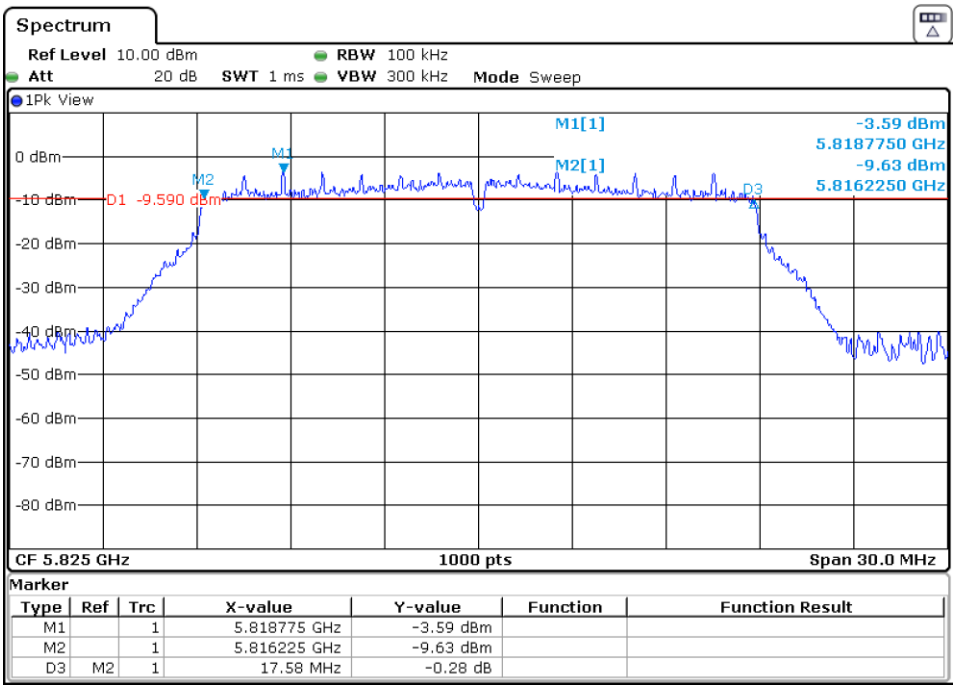


Marker

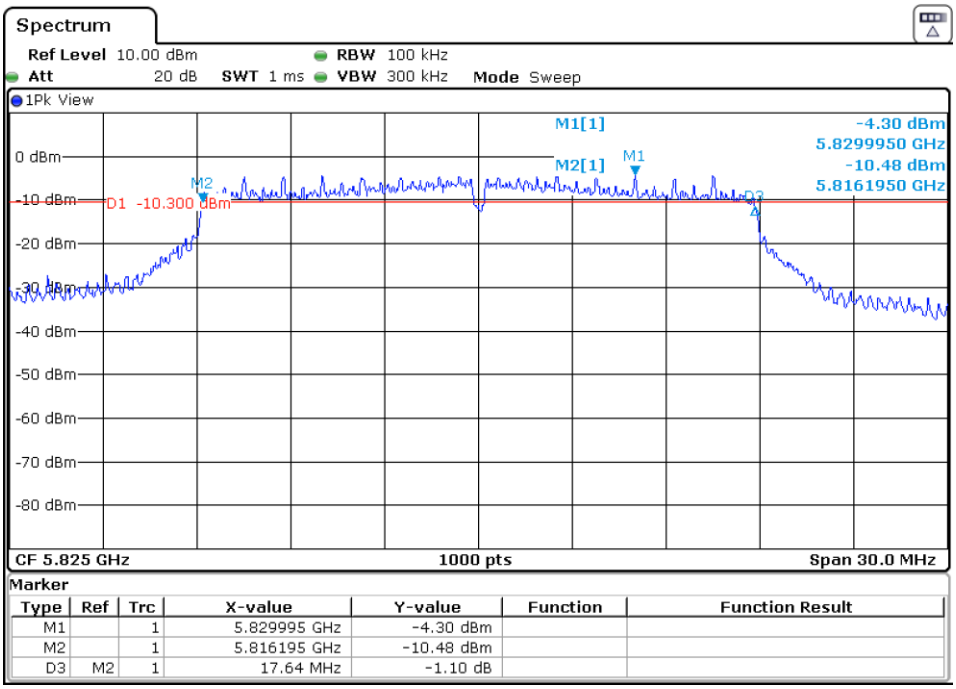
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	5.790025 GHz	-4.08 dBm		
M2		1	5.776195 GHz	-11.57 dBm		
D3	M2	1	17.61 MHz	0.75 dB		

- High Channel 165 (5825 MHz):

Port 1 Antenna



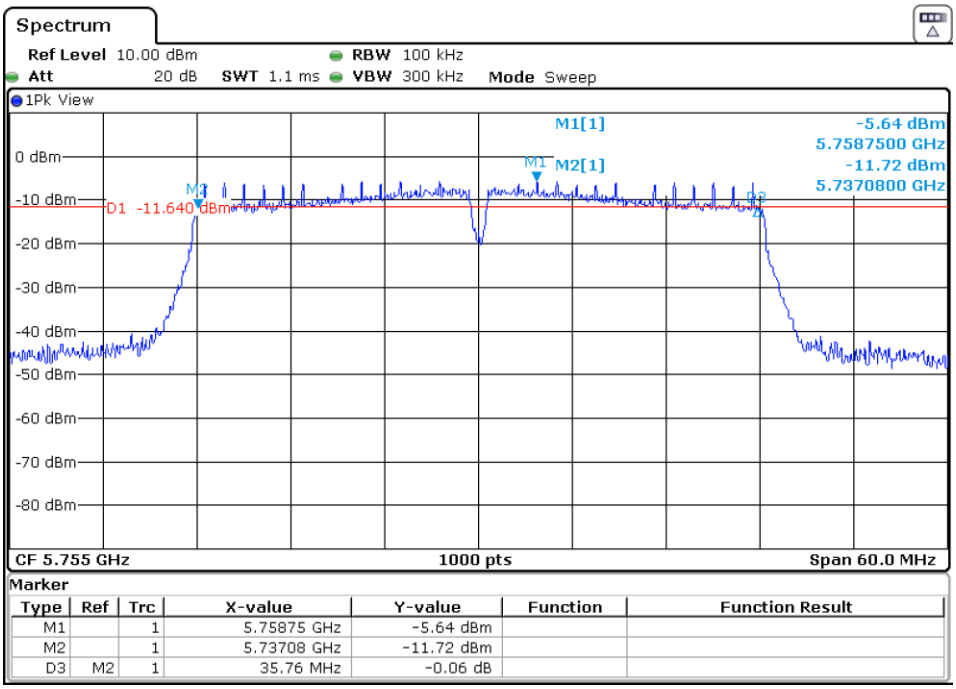
Port 4 Antenna



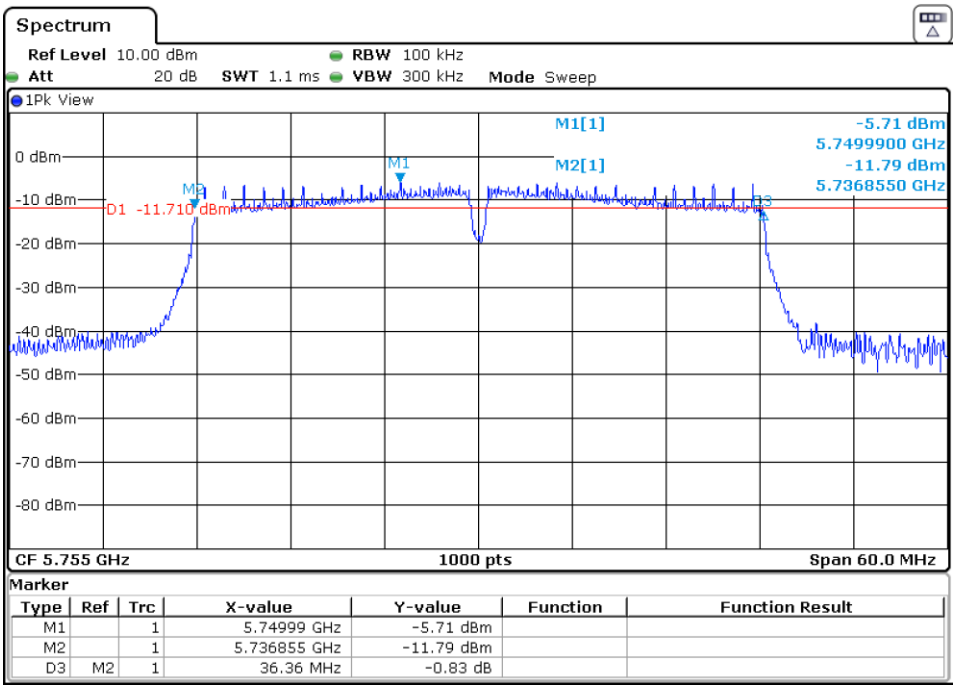
Mode 802.11 n40 (HT40):

- Low Channel 151 (5755 MHz):

Port 1 Antenna

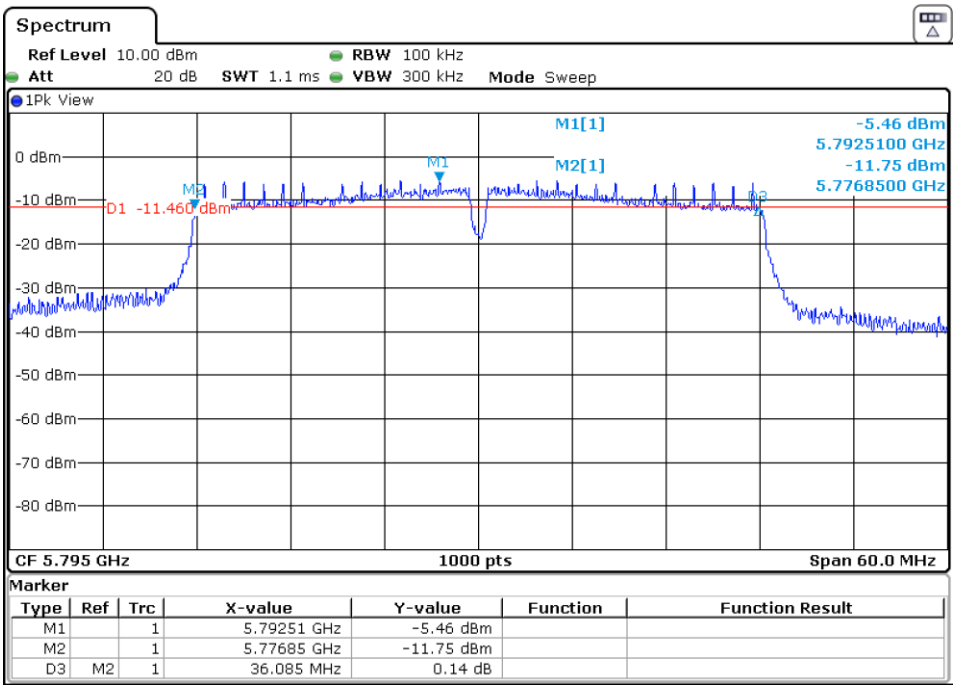


Port 4 Antenna

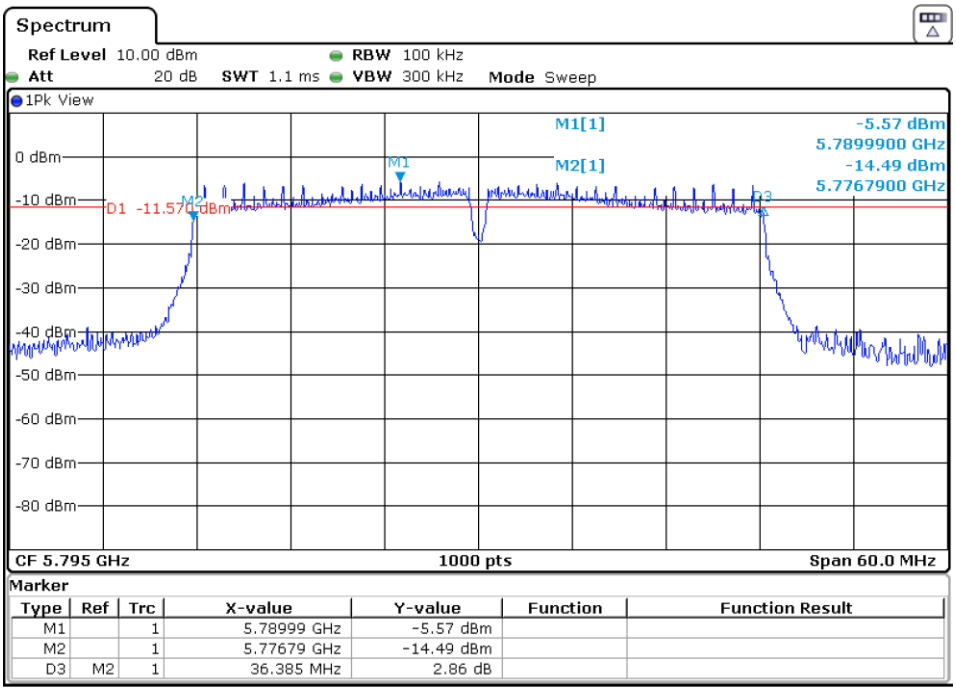


- High Channel 159 (5795 MHz):

Port 1 Antenna



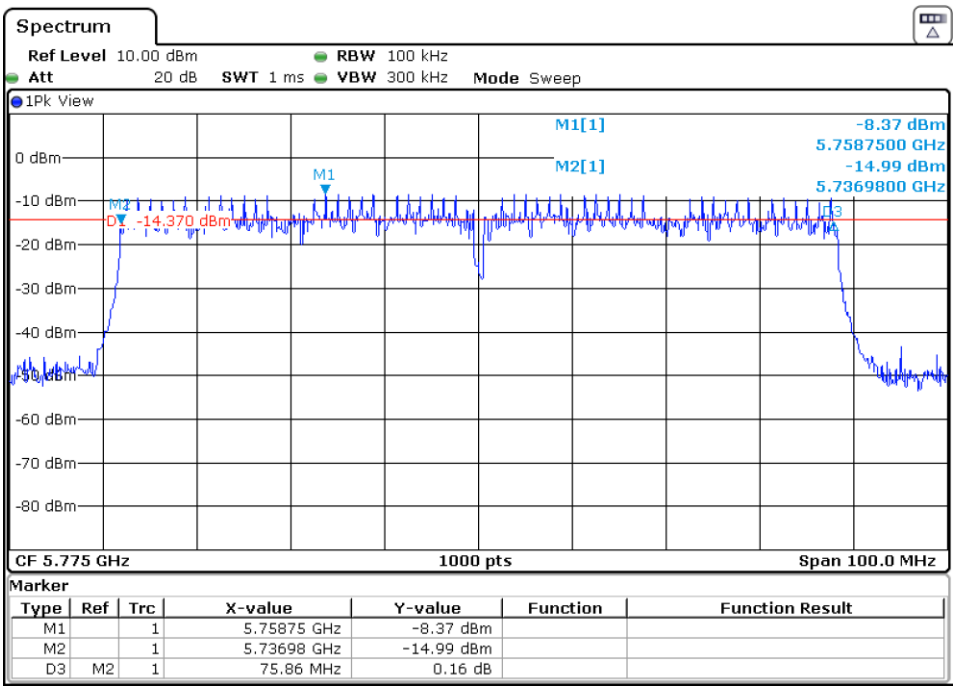
Port 4 Antenna



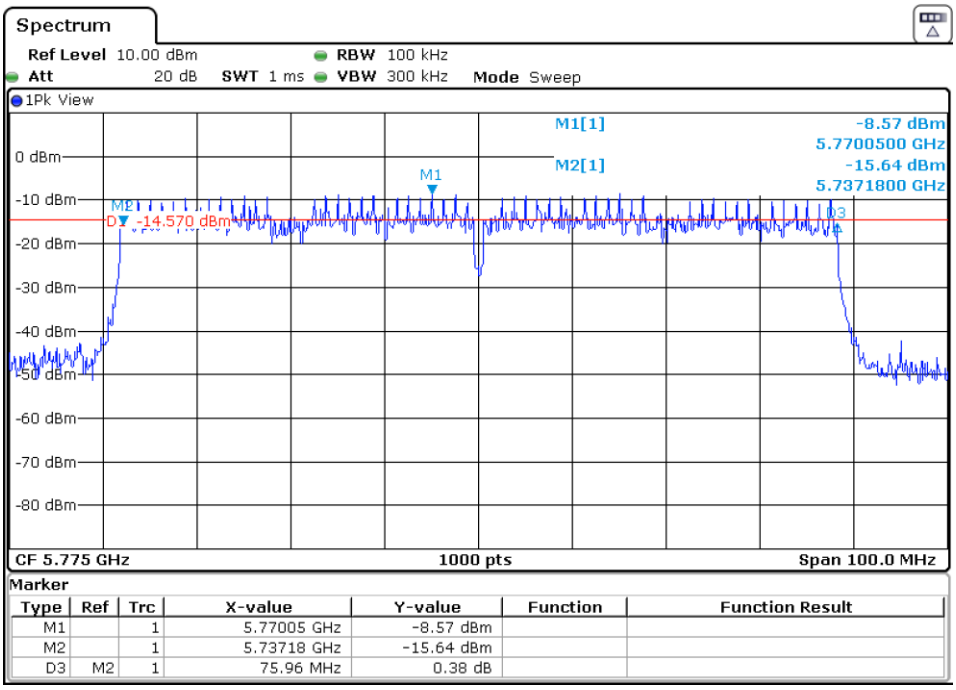
Mode 802.11 ac80 (VHT80):

- Single Channel 155 (5775 MHz):

Port 1 Antenna



Port 4 Antenna



FCC 15.407 (a)(3) / RSS-247 6.2.4.1. Maximum Conducted Output Power

SPECIFICATION:

FCC 15.407 / RSS-247: For the band 5.725-5.850 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W (30 dBm). If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

RESULTS:

The maximum conducted output power was measured using the channel power integration method according to point E) 2) b) (Method SA-1) of 789033 D02 General UNII Test Procedures New Rules v02r01 when the duty cycle is >98% and the channel power integration method according to point E) 2) d) (Method SA-2) of 789033 D02 General UNII Test Procedures New Rules v02r01 when the duty cycle is <98%.

For data rates where the EUT was transmitting at <98% duty cycle, the duty calculated in Appendix A was added to the measured power in order to calculate the total average power during the actual transmission time.

The e.i.r.p. levels are calculated by adding the declared maximum antenna gain (dBi).

Preliminary tests determined the SISO worst case is CORE-0_Port3 Antenna.
Preliminary tests determined the MIMO worst case is CORE-MIMO_Port1 & Port4 Antennas.

- SISO – CORE-0_Port3 Antenna – Declared Maximum Antenna Gain: +2.5 dBi
- MIMO – CORE-MIMO_Port1 & Port4 Antennas – Declared Maximum Antenna Gain:
  - Port4 – Declared Maximum Antenna Gain: +4.5 dBi
  - Port1 – Declared Maximum Antenna Gain: +4.5 dBi

For all SISO and MIMO modes of operation, the antenna gain is less than 6dBi.

SISO – CORE-0_Port3 Antenna:

Mode 802.11 a20

	Low Channel 149 (5745 MHz)	Middle Channel 157 (5785 MHz)	High Channel 165 (5825 MHz)
Max. Conducted Power (dBm)	10.66	10.92	10.71
Maximum EIRP power (dBm)	13.16	13.42	13.21
Duty Cycle Correction Factor (dB)	1.003		
Max. Conducted Power Corrected (dBm)	11.663	11.923	11.713
Maximum EIRP power Corrected (dBm)	14.163	14.423	14.213
Measurement uncertainty (dB)	<±1.20		

Mode 802.11 n20 (HT20)

	Low Channel 149 (5745 MHz)	Middle Channel 157 (5785 MHz)	High Channel 165 (5825 MHz)
Max. Conducted Power (dBm)	10.57	10.42	10.5
Maximum EIRP power (dBm)	13.07	12.92	13
Duty Cycle Correction Factor (dB)	1.135		
Max. Conducted Power Corrected (dBm)	11.705	11.555	11.635
Maximum EIRP power Corrected (dBm)	14.205	14.055	14.135
Measurement uncertainty (dB)	<±1.20		

Mode 802.11 n40 (HT40)

	Low Channel 151 (5755 MHz)	High Channel 159 (5795 MHz)
Max. Conducted Power (dBm)	9.19	9.18
Maximum EIRP power (dBm)	11.69	11.68
Duty Cycle Correction Factor (dB)	2.162	
Max. Conducted Power Corrected (dBm)	11.352	11.342
Maximum EIRP power Corrected (dBm)	13.852	13.842
Measurement uncertainty (dB)	<±1.20	

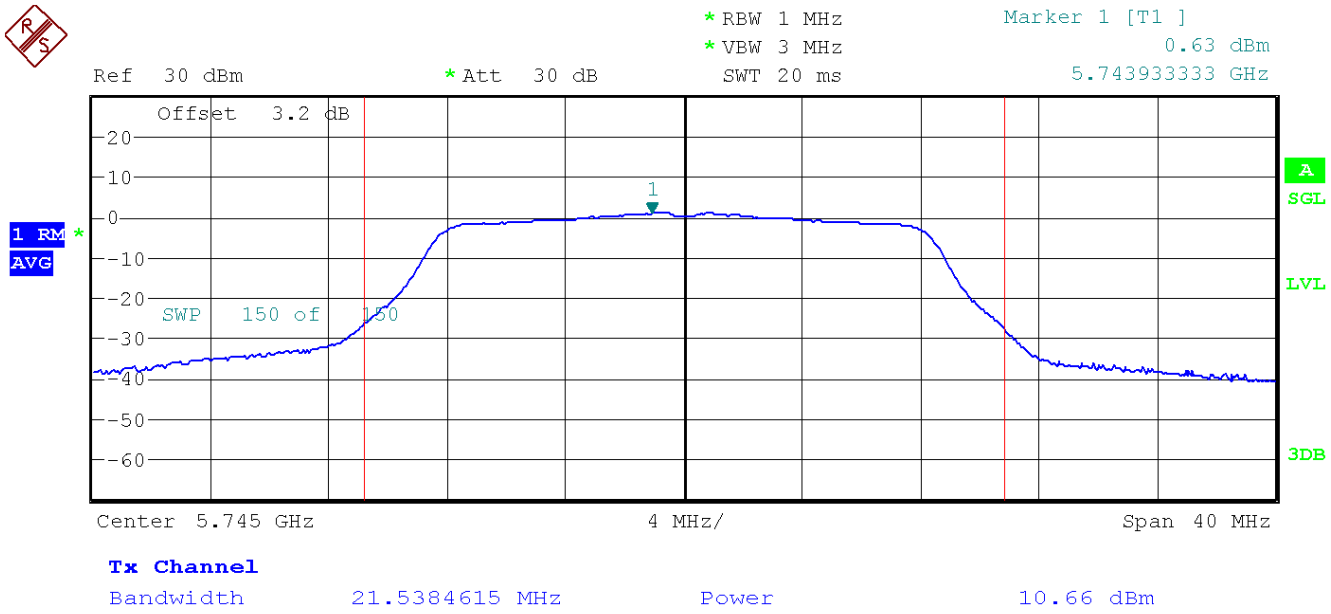
Mode 802.11 ac80 (VHT80)

	Single Channel 155 (5775 MHz)
Max. Conducted Power (dBm)	8.5
Maximum EIRP power (dBm)	11
Duty Cycle Correction Factor (dB)	3.621
Max. Conducted Power Corrected (dBm)	12.121
Maximum EIRP power Corrected (dBm)	14.621
Measurement uncertainty (dB)	<±1.20

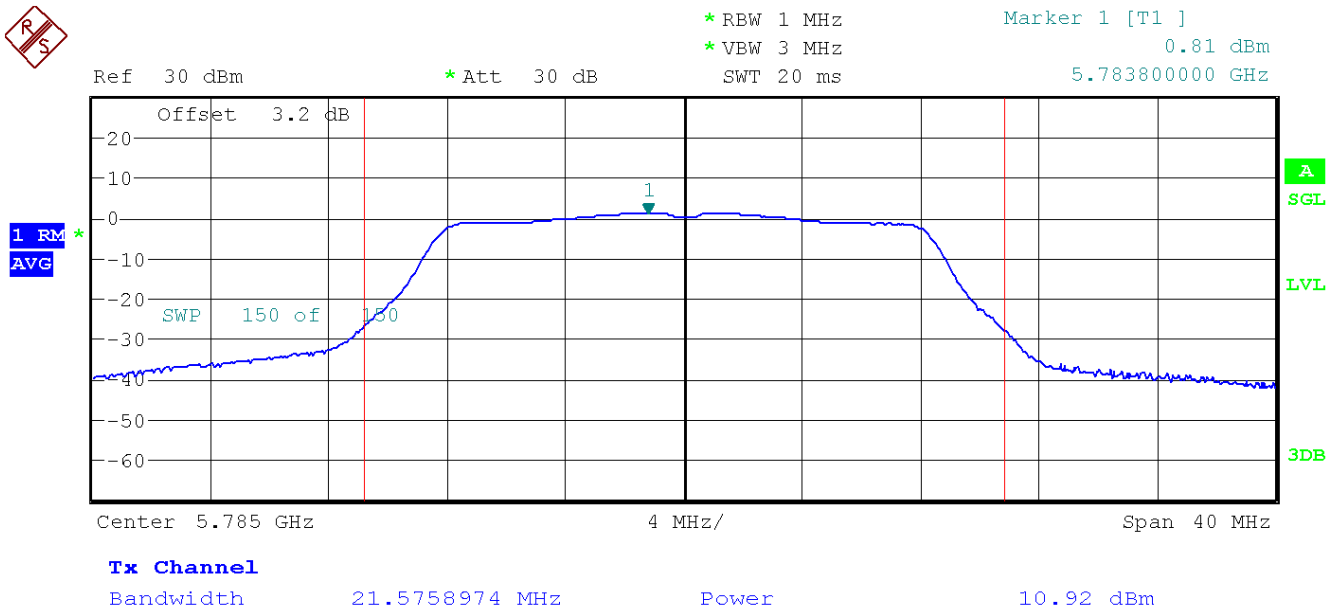
Verdict: PASS

Mode 802.11 a20

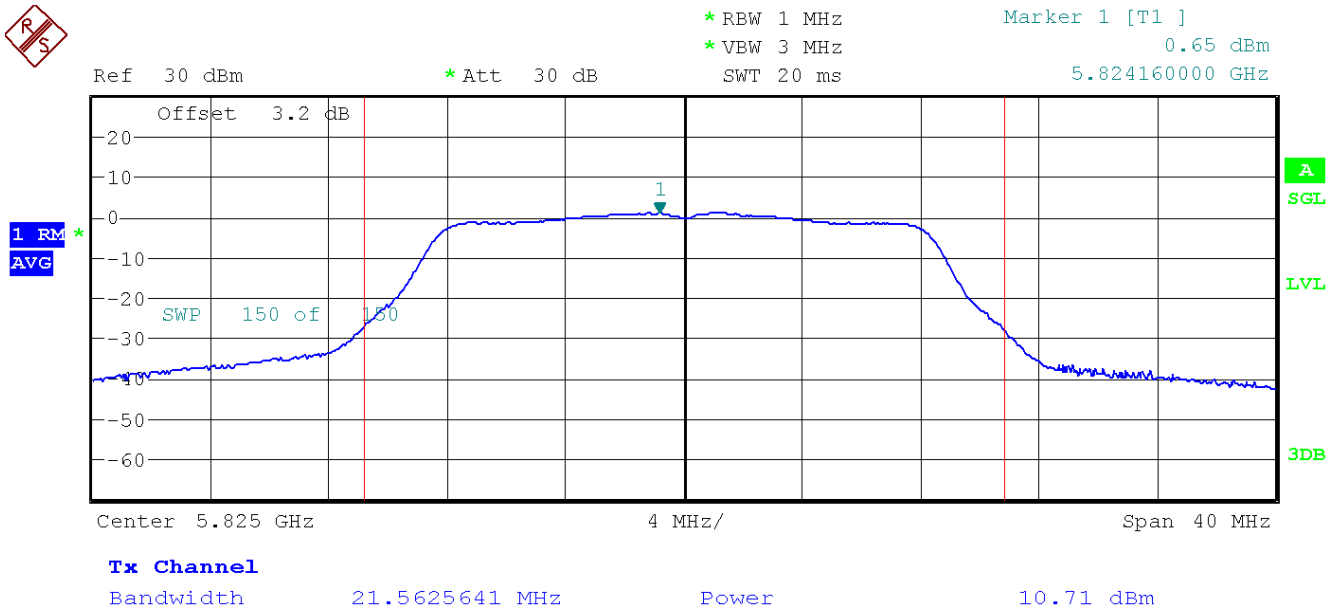
- Low Channel 149:



- Middle Channel 157:

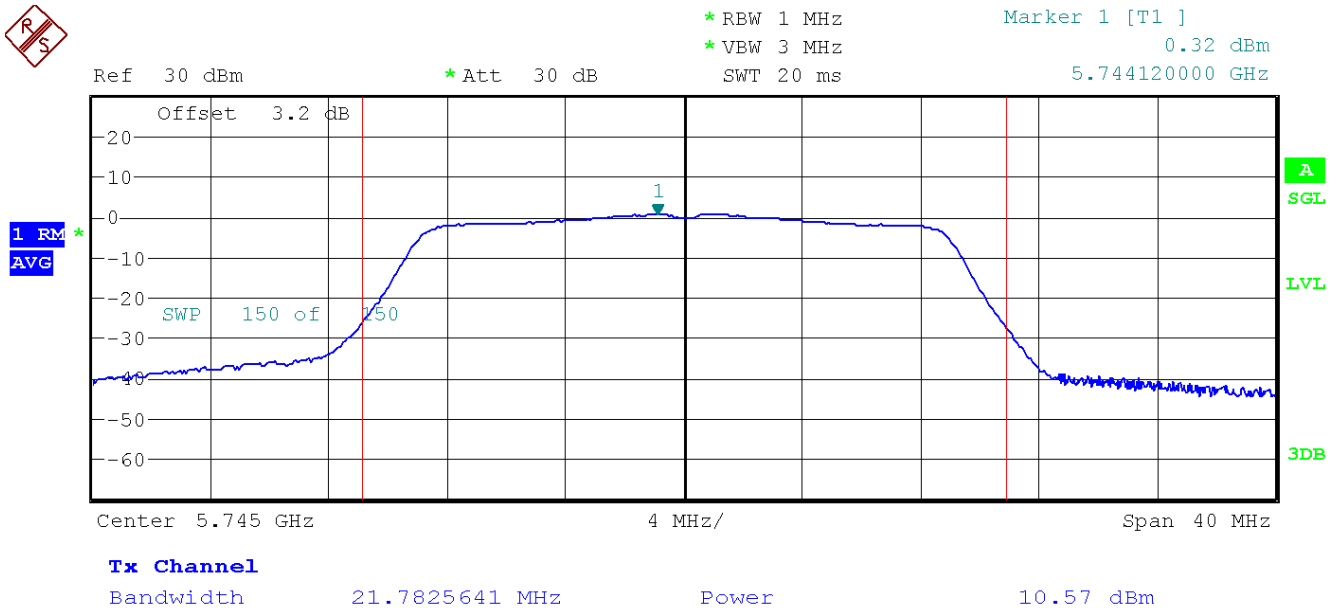


- High Channel 165:

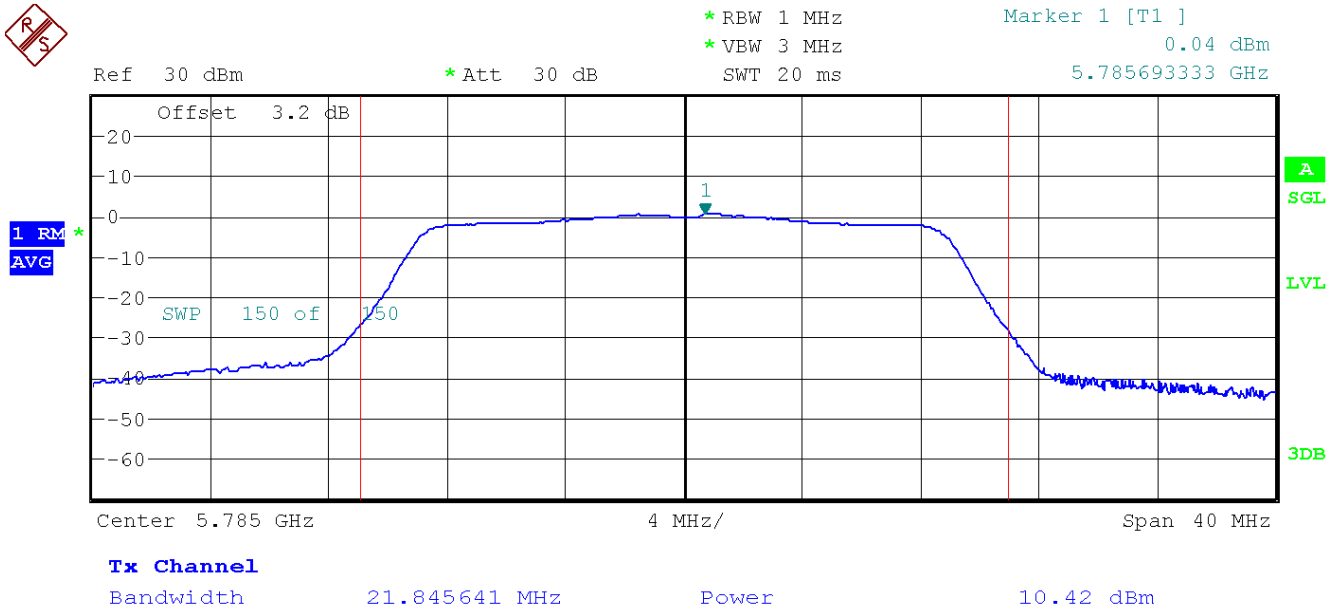


Mode 802.11 n20 (HT20)

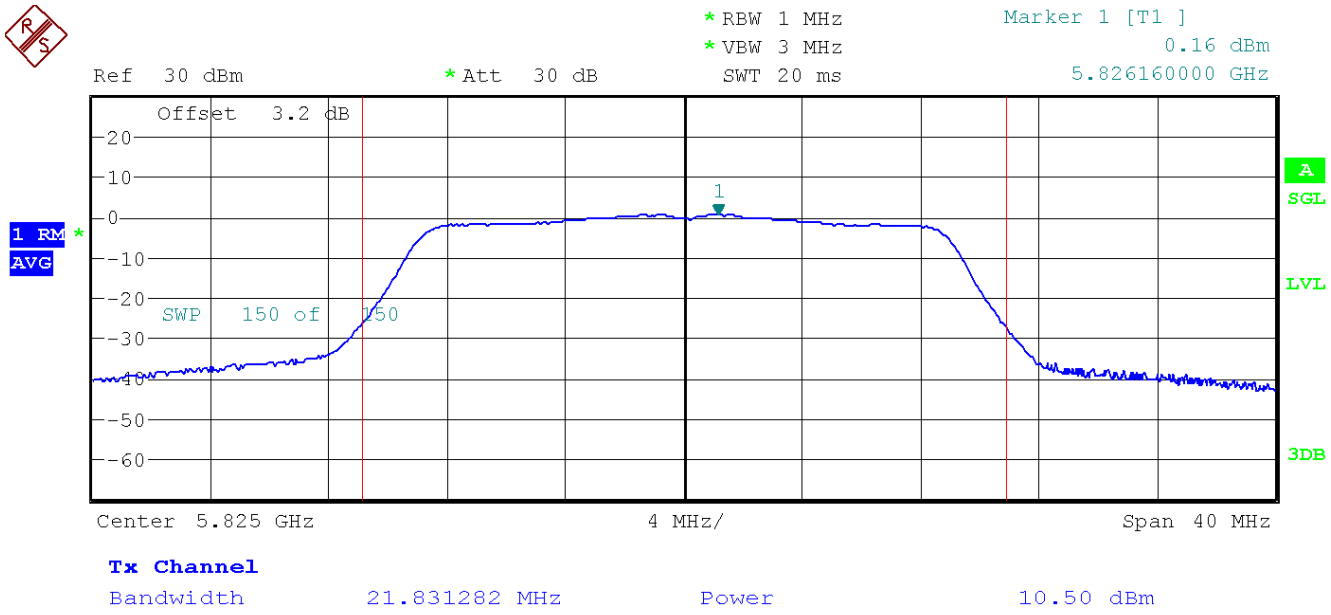
- Low Channel 149:



- Middle Channel 157:

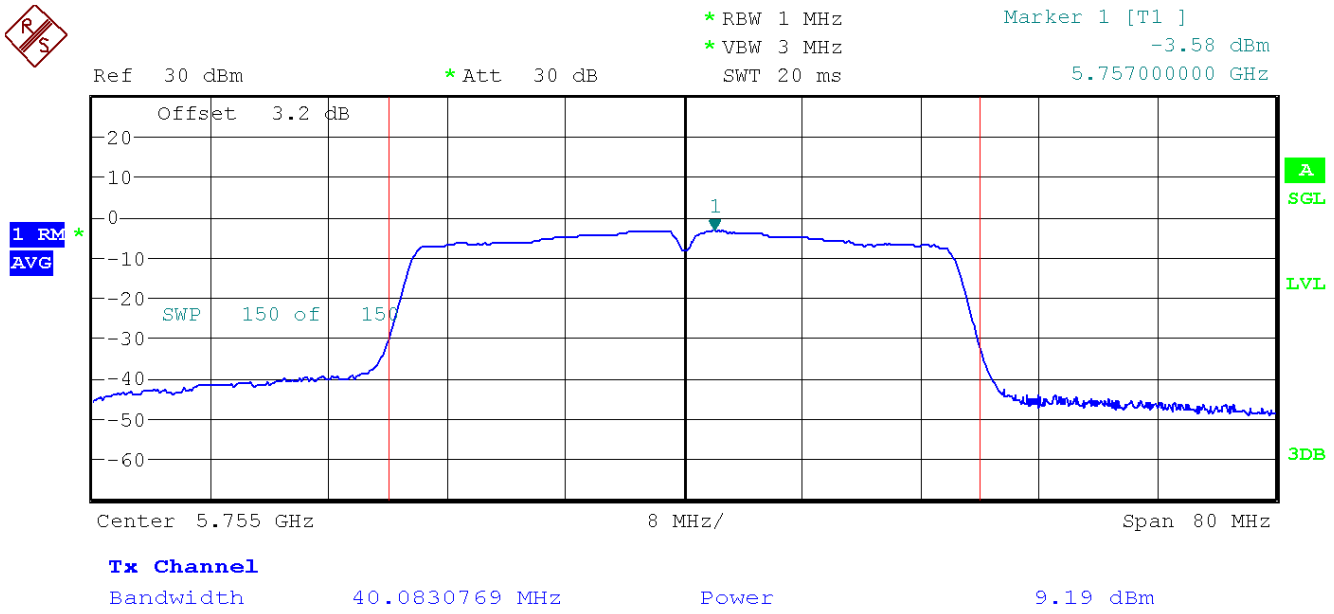


- High Channel 165:

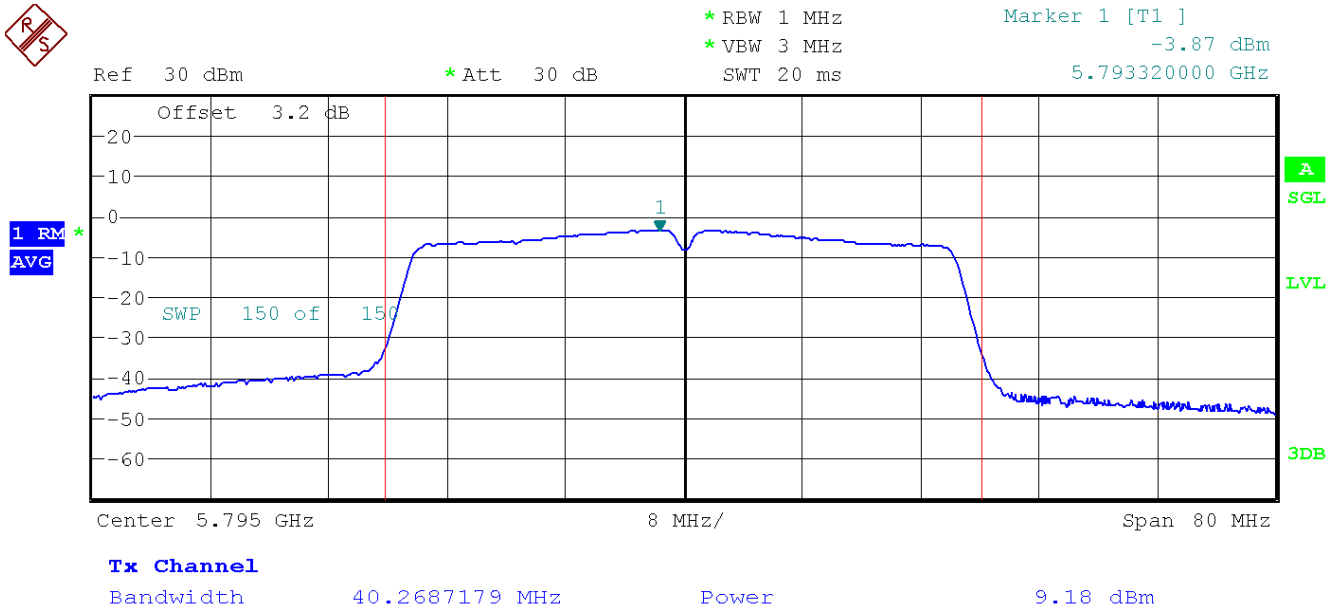


Mode 802.11 n40 (HT40)

- Low Channel 151:

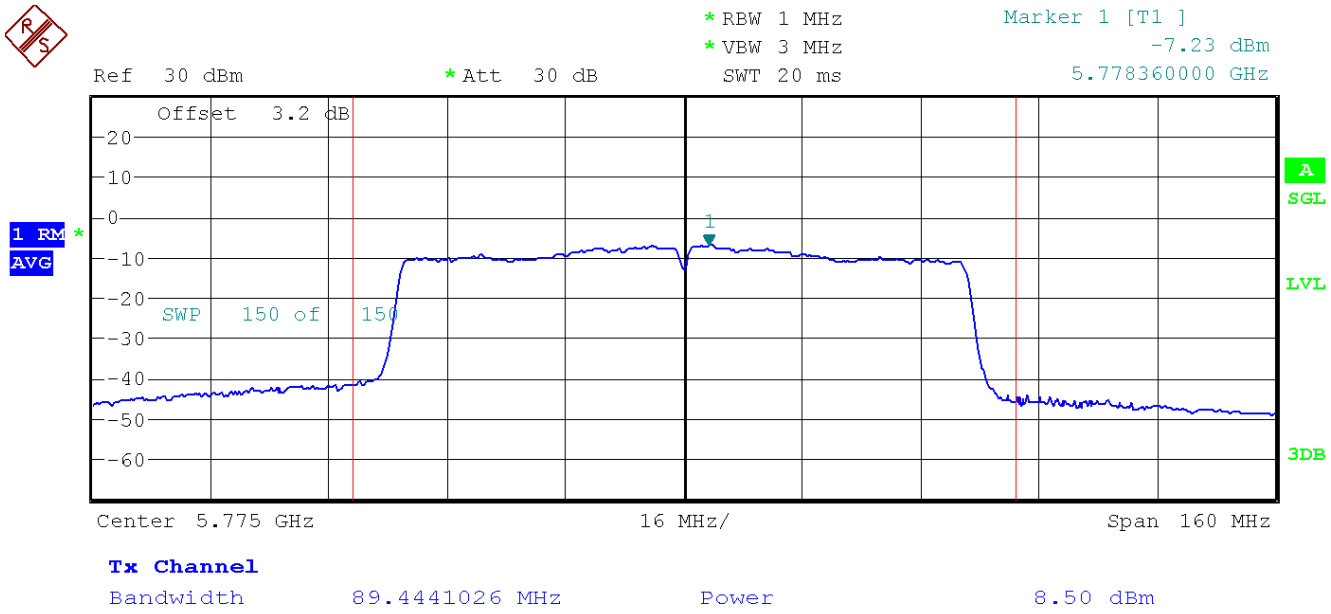


- High Channel 159:



Mode 802.11 ac80 (VHT80)

- Single Channel 155:



MIMO – CORE-MIMO_Port1 & Port4 Antennas:

Mode 802.11 n20 (HT20)

	Low Channel MHz		Middle Channel MHz		High Channel MHz	
	CORE-MIMO_Port 1	CORE-MIMO_Port 4	CORE-MIMO_Port 1	CORE-MIMO_Port 1	CORE-MIMO_Port 1	CORE-MIMO_Port 1
Maximum Average Conducted Power (dBm)	8.00	6.37	7.82	6,58	7.5	6.85
Duty Cycle Correction Factor (dB)	1.84	1.83	1.84	1.83	1.84	1.83
Max. Conducted Power Corrected (dBm)	9.84	8.20	9.66	8.41	9.34	8.68
	CORE-MIMO_Port4 + CORE-MIMO _Port1		CORE-MIMO_Port4 + CORE-MIMO _Port1		CORE-MIMO_Port4 + CORE-MIMO _Port1	
Maximum Combined Average Conducted Power (dBm)	12.11		12.09		12.04	
Maximum Combined EIRP Power (dBm)	16.61		16.59		16.54	
Measurement uncertainty (dB)	<±1.20					

Mode 802.11 n40 (HT40)

	Low Channel MHz		High Channel MHz	
	CORE-MIMO_Port 1	CORE-MIMO_Port 4	CORE-MIMO_Port 1	CORE-MIMO_Port 1
Maximum Average Conducted Power (dBm)	5.58	5.91	5.35	5.95
Duty Cycle Correction Factor (dB)	3.34	3.34	3.34	3.34
Max. Conducted Power Corrected (dBm)	8.92	9.25	8.69	9.29
	CORE-MIMO_Port4 + CORE-MIMO _Port1		CORE-MIMO_Port4 + CORE-MIMO _Port1	
Maximum Combined Average Conducted Power (dBm)	12.09		12.01	
Maximum Combined EIRP Power (dBm)	16.59		16.51	
Measurement uncertainty (dB)	<±1.20			

Mode 802.11 ac80 (VHT80)

	Single Channel MHz	
	CORE-MIMO_Port 1	CORE-MIMO_Port 4
Maximum Average Conducted Power (dBm)	0.46	-0.46
Duty Cycle Correction Factor (dB)	9.44	9.42
Max. Conducted Power Corrected (dBm)	9.90	8.96
	CORE-MIMO_Port4 + CORE-MIMO _Port1	
Maximum Combined Average Conducted Power (dBm)	12.47	
Maximum Combined EIRP Power (dBm)	16.97	
Measurement uncertainty (dB)	<±1.20	

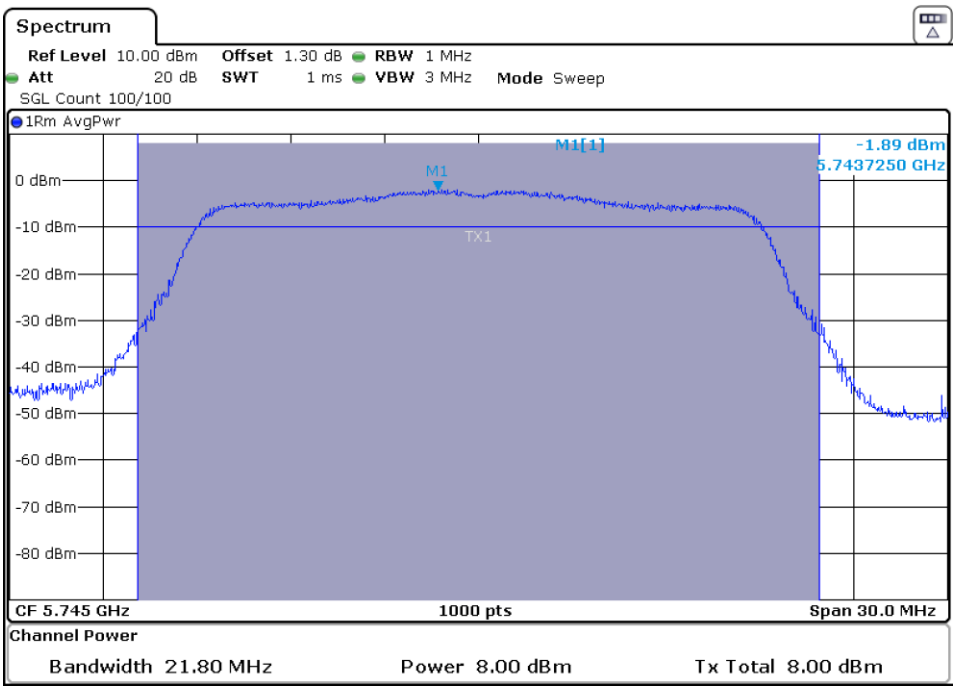
Verdict: PASS

MIMO – CORE-MIMO_Port1 & Port4 Antennas:

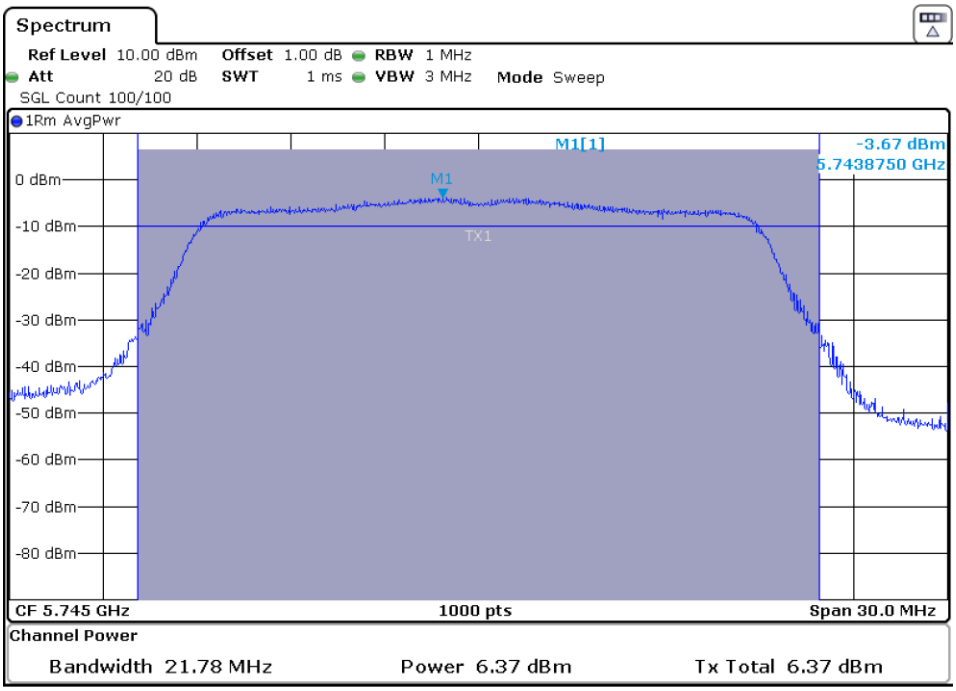
Mode 802.11 n20 (HT20)

- Low Channel 36:

Port 1

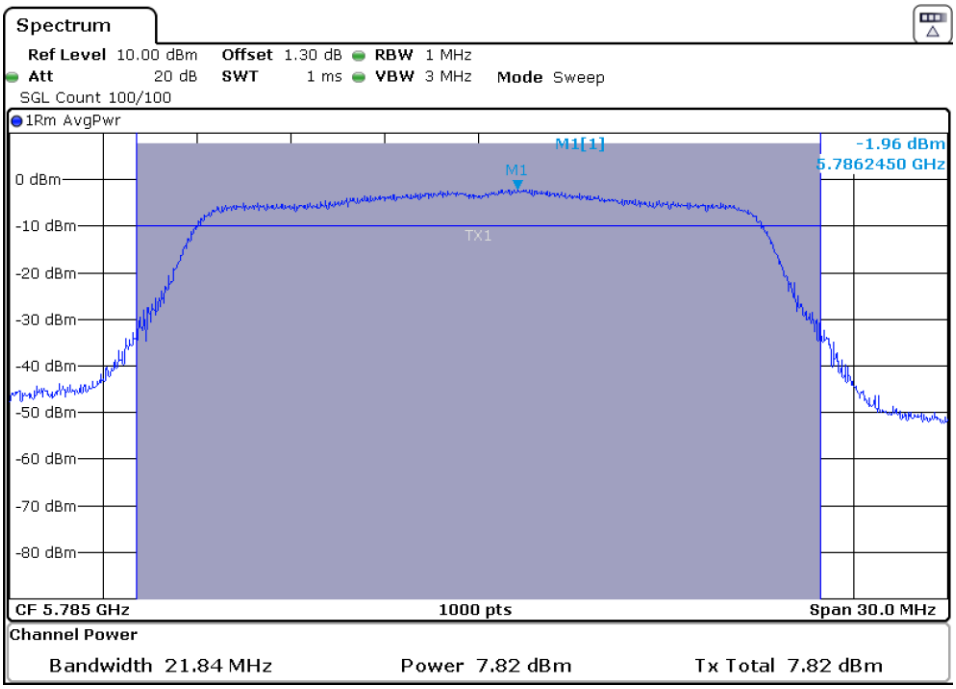


Port 4

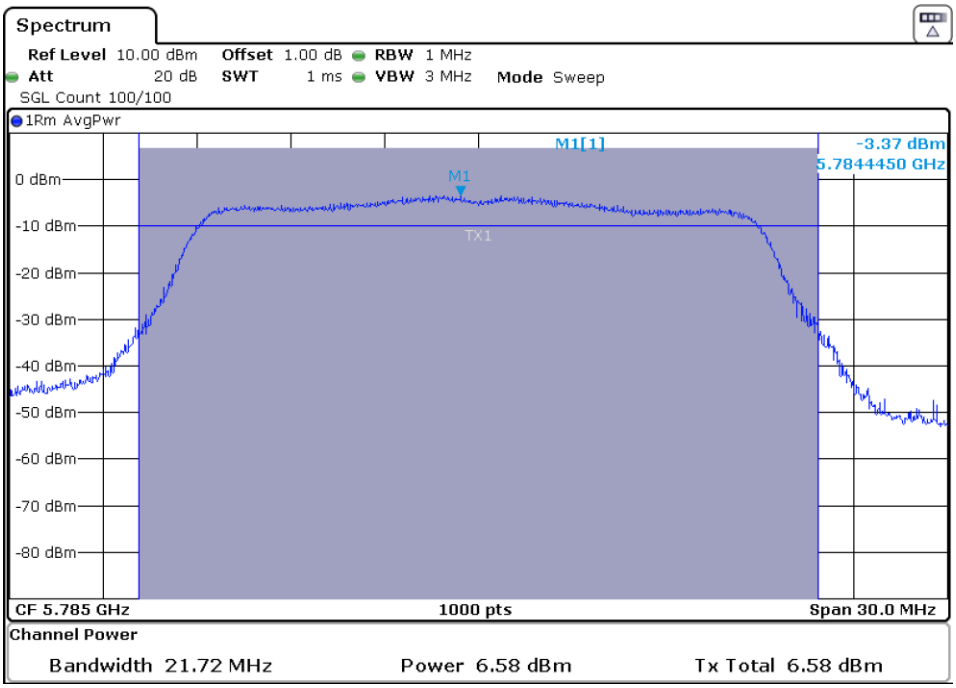


- Middle Channel 40:

Port 1

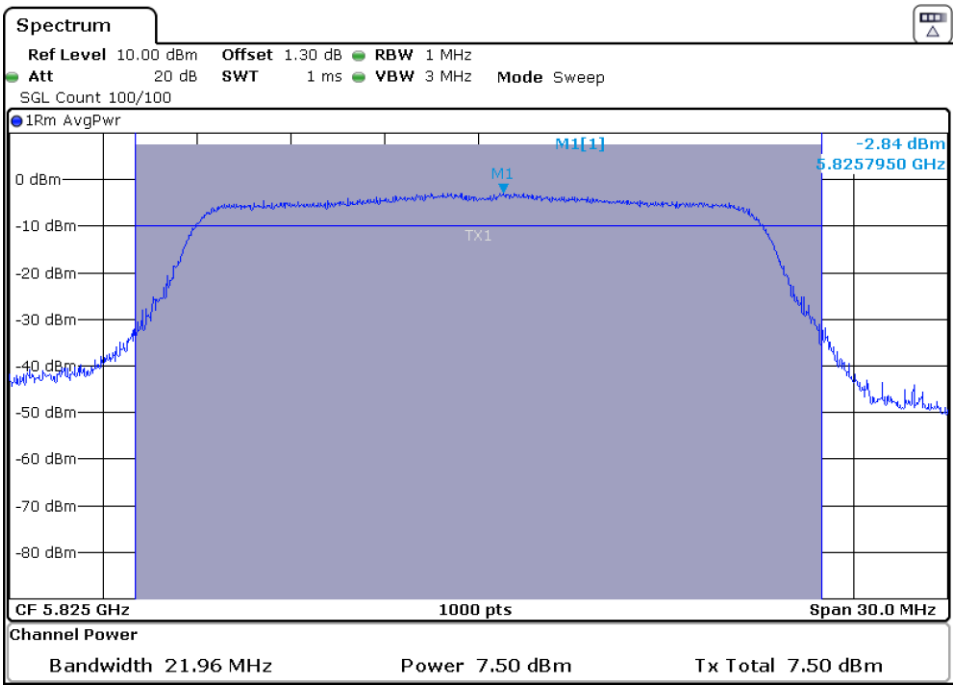


Port 4

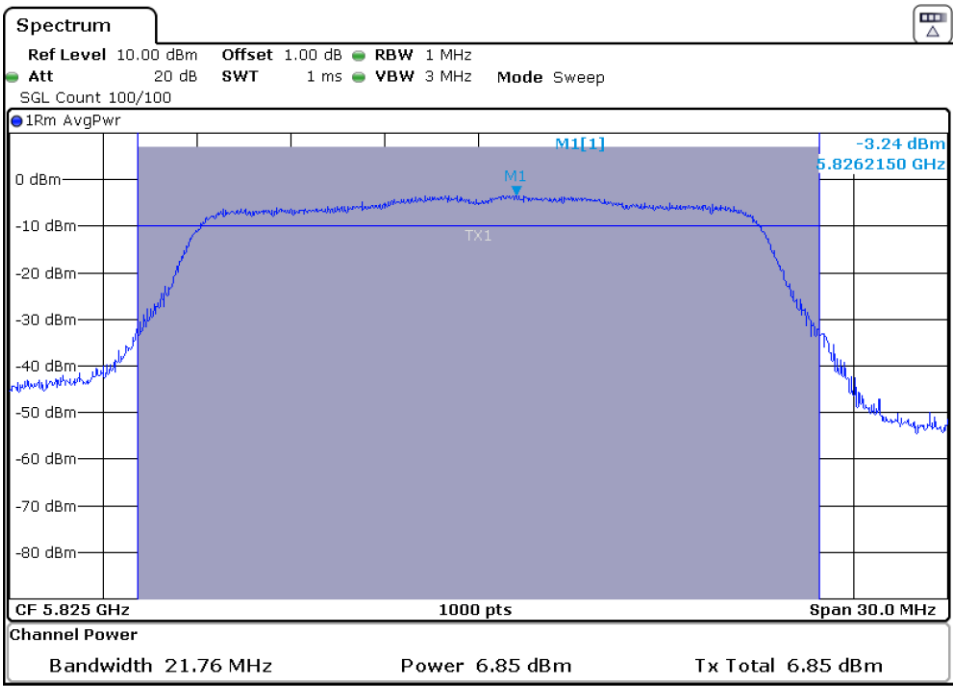


- High Channel 48:

Port 1



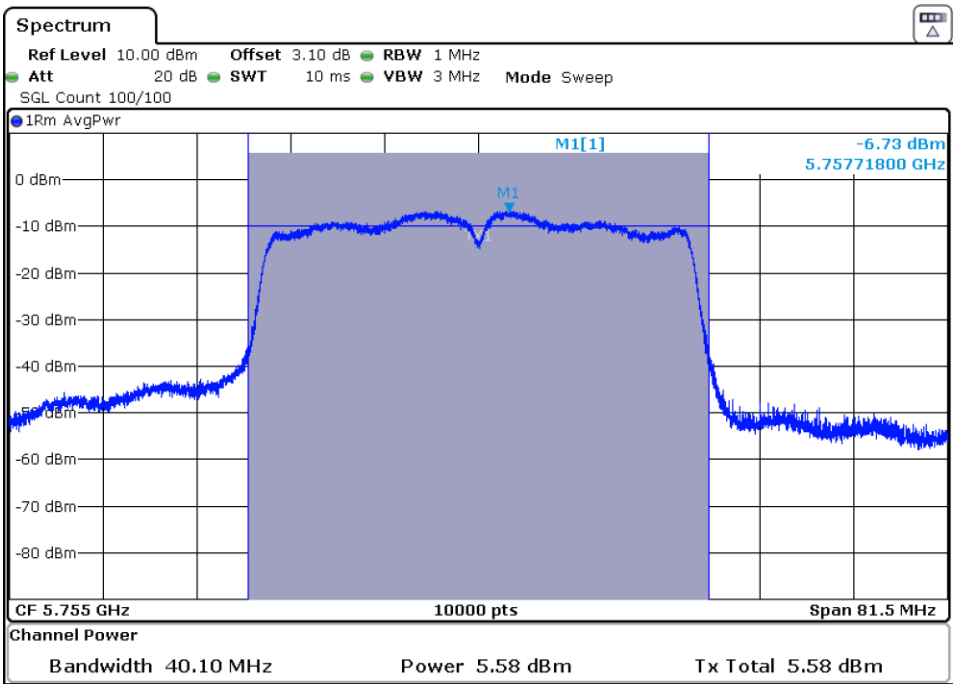
Port 4



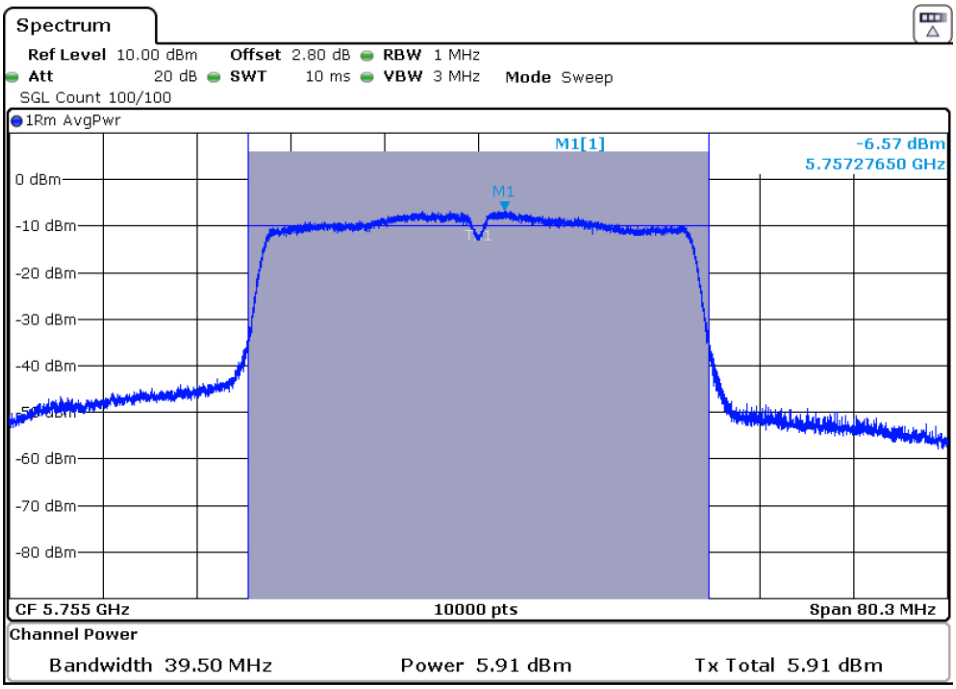
Mode 802.11 n40 (HT40)

- Low Channel 38:

Port 1

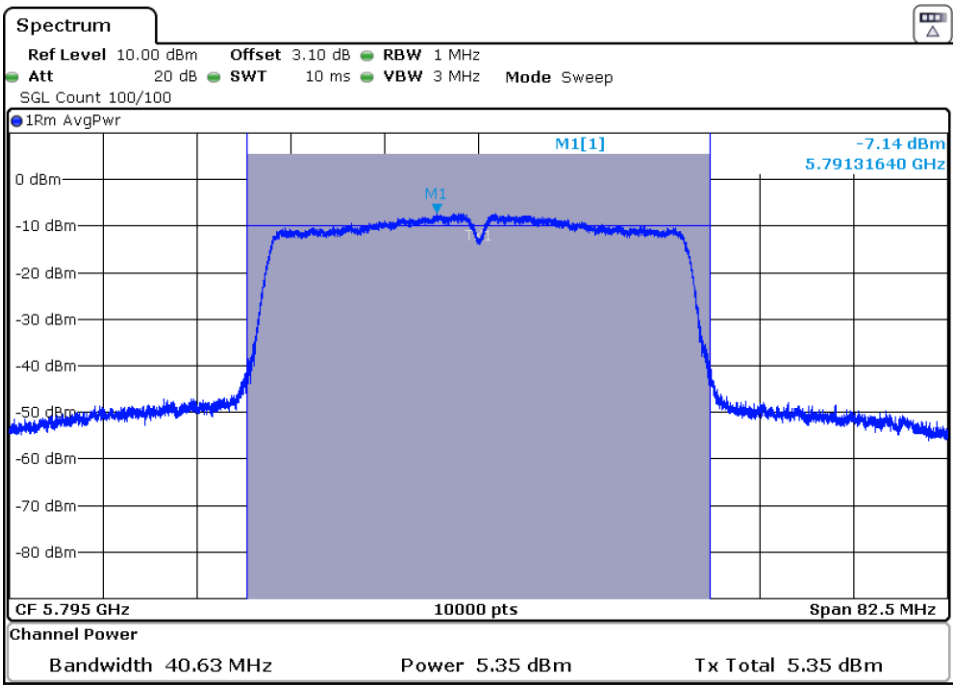


Port 4

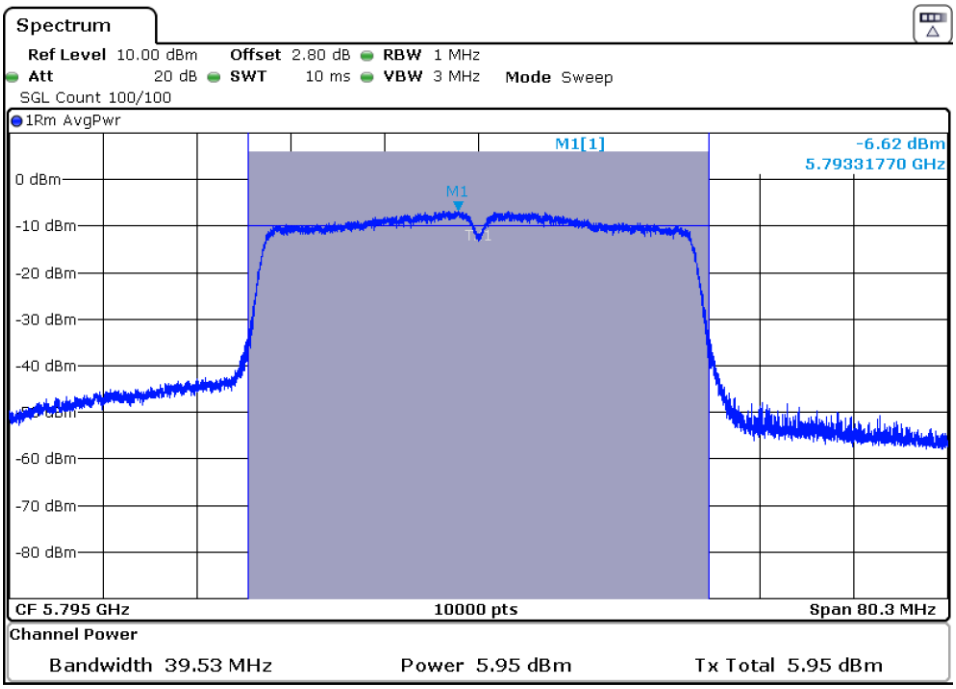


- High Channel 46:

Port 1



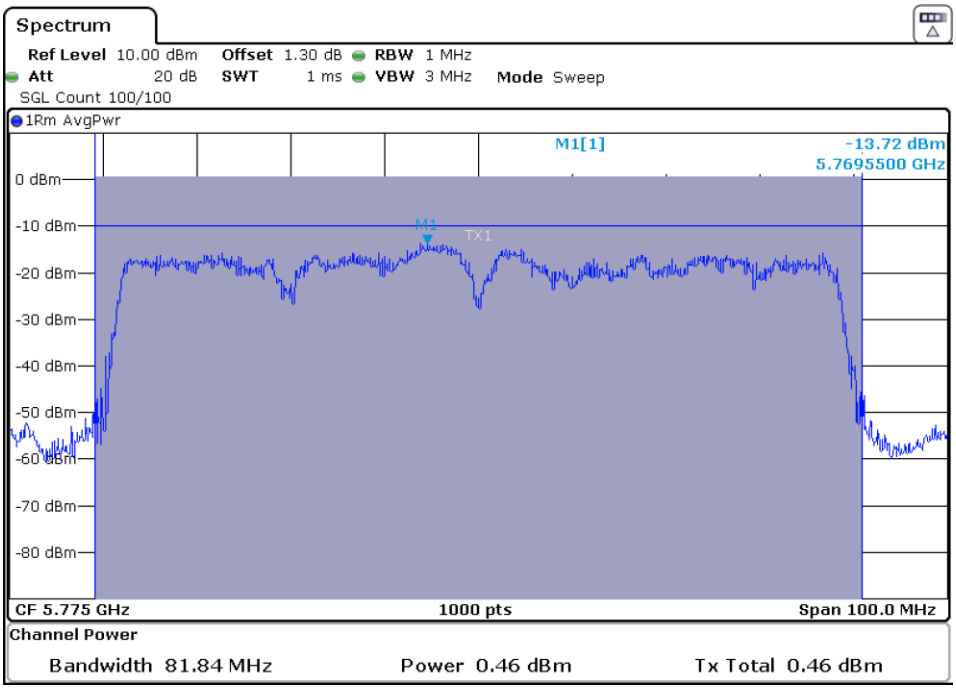
Port 4



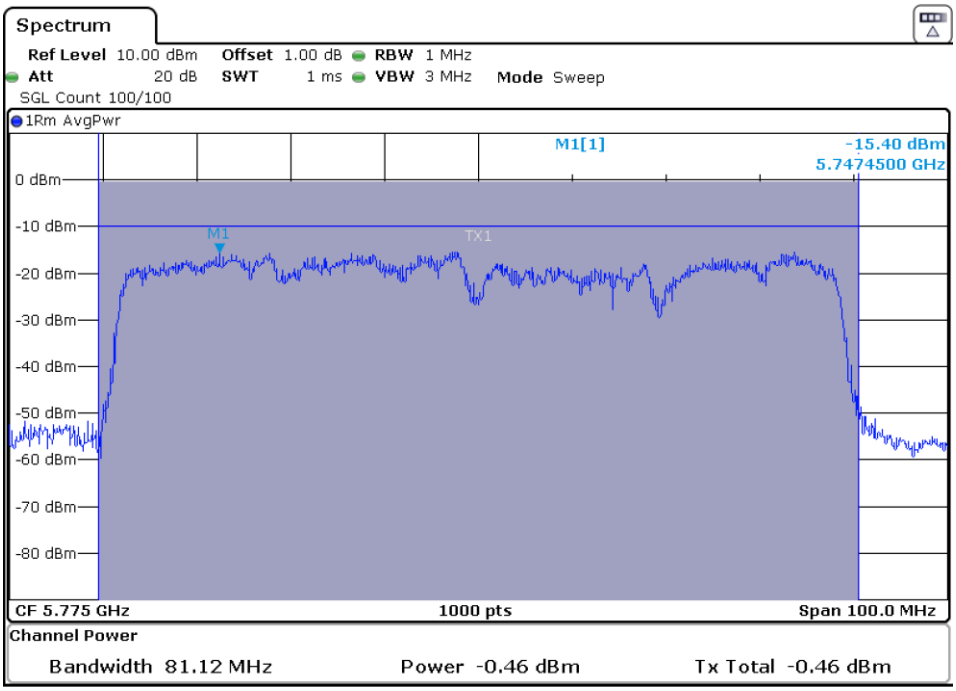
Mode 802.11 ac80 (VHT80)

- Single Channel 42:

Port 1



Port 4



FCC 15.407 (a)(3) / RSS-247 6.2.4.1. Maximum Power Spectral Density

SPECIFICATION:

FCC 15.407 / RSS-247: The maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

RESULTS:

The maximum power spectral density (PSD) was measured using the method according to point F) referencing E.2.b) (Method SA-1) and E.2.b) (Method SA-2) of Guidance 789033 D02 General UNII Test Procedures New Rules v02r01.

In accordance with ANSI C63.10 Section 4.1.4.1, use of bandwidths greater than those specified can produce higher readings. Compliance against the applicable limits is showns using a 1 MHz resolution bandwidth. This was deemed worst case.

The PSD test uses the same setup as the transmitter maximum conducted output power test. The result of the Peak PSD was measured by colocation a maker on the peak of the signal and the results are in the tables below.

SISO – CORE-0_Port3 – Antenna:

Mode 802.11 a20

	Low Channel 149 (5745 MHz)	Middle Channel 157 (5785 MHz)	High Channel 165 (5825 MHz)
Maximum Average PSD (dBm/MHz)	0.63	0.81	0.65
Duty Cycle Correction Factor (dB)	1.00		
Maximum Average PSD Corrected (dBm/MHz)	1.631	1.81	1.65
Measurement uncertainty (dB)	<±1.20		

Mode 802.11 n20 (HT20)

	Low Channel 149 (5745 MHz)	Middle Channel 157 (5785 MHz)	High Channel 165 (5825 MHz)
Maximum Average PSD (dBm/MHz)	0.32	0.04	0.16
Duty Cycle Correction Factor (dB)	1.14		
Maximum Average PSD Corrected (dBm/MHz)	1.46	1.18	1.30
Measurement uncertainty (dB)	<±1.20		

Mode 802.11 n40 (HT40)

	Low Channel 151 (5755 MHz)	High Channel 159 (5795 MHz)
Maximum Average PSD (dBm/MHz)	-3.58	-3.87
Duty Cycle Correction Factor (dB)	2.16	
Maximum Average PSD Corrected (dBm/MHz)	-1.42	-1.71
Measurement uncertainty (dB)	<±1.20	

Mode 802.11 ac80 (VHT80)

	Low Channel 155 (5775 MHz)
Maximum Average PSD (dBm/MHz)	-7.23
Duty Cycle Correction Factor (dB)	3.62
Maximum Average PSD Corrected (dBm/MHz)	-3.61
Measurement uncertainty (dB)	<±1.20

Verdict: PASS

MIMO – CORE-MIMO_Port4 & Port1 Antennas:

Mode 802.11 n20 (HT20)

	Low Channel MHz		Middle Channel MHz		High Channel MHz	
	CORE-MIMO _Port1	CORE-MIMO _Port4	CORE-MIMO _Port1	CORE-MIMO _Port4	CORE-MIMO _Port1	CORE-MIMO _Port4
Maximum Average Conducted Power Spectral Density (dBm/MHz)	-1.89	-3.67	-1.96	-3.37	-2.84	-3.24
Duty Cycle Correction Factor (dB)	1.84	1.83	1.84	1.83	1.84	1.83
Maximum PSD Corrected (dBm/MHz)	-0.05	-1.84	-0.12	-1.54	-1.00	-1.41
Maximum PSD (dBm/MHz)	2.96	1.17	2.89	1.47	2.01	1.60
Measurement uncertainty (dB)	<±1.56					

NOTE: The quantity 10*log 2 (two antennas) is added to the spectrum peak value according to document 662911 D01.

Mode 802.11 n40 (HT40)

	Low Channel MHz		High Channel MHz	
	CORE-MIMO _Port1	CORE-MIMO _Port4	CORE-MIMO _Port1	CORE-MIMO _Port4
Maximum Average Conducted Power Spectral Density (dBm/MHz)	-6.73	-6.57	-7.14	-6.62
Duty Cycle Correction Factor (dB)	3.34	3.34	3.34	3.34
Maximum PSD Corrected (dBm/MHz)	-3.39	-3.23	-3.80	-3.28
Maximum PSD (dBm/MHz)	-0.38	-0.22	-0.79	-0.27
Measurement uncertainty (dB)	<±1.56			

NOTE: The quantity 10*log 2 (two antennas) is added to the spectrum peak value according to document 662911 D01.

Mode 802.11 ac80 (VHT80)

	Low Channel MHz	
	CORE-MIMO _Port1	CORE-MIMO _Port4
Maximum Average Conducted Power Spectral Density (dBm/MHz)	-13.72	-15.4
Duty Cycle Correction Factor (dB)	9.44	9.42
Maximum PSD Corrected (dBm/MHz)	-4.28	-5.98
Maximum PSD (dBm/MHz)	-1.27	-2.97
Measurement uncertainty (dB)	<±1.56	

NOTE: The quantity 10*log 2 (two antennas) is added to the spectrum peak value according to document 662911 D01.

Verdict: PASS

FCC Section 15.407(b)(4)(6) /RSS-247 6.2.4.2. Transmitter Out of Band Radiated Emissions and Transmitter Band Edge Radiated Emissions.

SPECIFICATION:

For transmitters operating in the 5.725–5.85 GHz band: All emissions shall be limited to a level of −27 dBm/MHz (68.23 dBµV/m at 3 m distance) at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

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 360º 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 – 40 GHz and a distance of 3m for frequency range 30 MHz – 1 GHz.

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.

SISO – CORE-0_Port3 Antenna:

Frequency range 30 MHz - 1 GHz

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

Spurious frequencies operating (radiated) detected at less than 20 dB below the limit:

Spurious frequency (MHz)	Emission Level (dBµV/m)	Limit (dBµV/m)	Polarization	Detector	Measurement Uncertainty (dB)
73.052	39.44	40	V	Quasi-Peak	± 3.04
97.27	35	43.5	V	Quasi-Peak	± 3.04
250.012	35.6	46	V	Quasi-Peak	± 3.04
375.013	37.8	46	V	Quasi-Peak	± 3.04
510.328	33.5	46	V	Quasi-Peak	± 3.04
875.016	27.3	46	H	Quasi-Peak	± 3.04

Frequency range 1 - 40 GHz

The results in the next tables show the maximum measured levels in the 1-40 GHz range including the 5.650 - 5.725 GHz and 5.850 - 5.925 GHz adjacent bands (see following plots).

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.

OUT OF BAND EMISSIONS: For outside emissions of the band 5.65 - 5.925 GHz only the OFDM worst mode case determined after preliminary measurements was tested in the Low, Middle and High Channels.

BAND EDGES EMISSIONS: For band edge emissions of the band 5.65 – 5.725 and 5.850 - 5.925 GHz all modes were tested in the Low Middle and High Channels.

- **Mode 802.11 a20** (worst mode case)

OUT OF BAND EMISSIONS. Spurious emissions out of the band 5.65 - 5.925 GHz:

- Low Channel:

Spurious frequency (GHz)	Emission Level (dBµV/m)	Limit (dBµV/m)	Polarization	Detector	Measurement Uncertainty (dB)
8.50183	49.96	68.23	V	Peak	± 4.72
11.48803	56.85	68.23	H	Peak	± 4.72
	48.8	54		Peak	± 4.72

- Middle Channel:

Spurious frequency (GHz)	Emission Level (dBµV/m)	Limit (dBµV/m)	Polarization	Detector	Measurement Uncertainty (dB)
8.51898	48.27	68.23	V	Peak	± 4.72
11.57798	58.18	68.23	H	Peak	± 4.72
	49.36	54		Peak	± 4.72

- High Channel:

Spurious frequency (GHz)	Emission Level (dBµV/m)	Limit (dBµV/m)	Polarization	Detector	Measurement Uncertainty (dB)
8.50498	50.49	68.23	V	Peak	± 4.72
10.65433	52.56	68.23	V	Peak	± 4.72
11.65533	57.75	68.23	H	Peak	± 4.72
	48.09	54		Peak	± 4.72

Verdict: PASS

BAND EDGES EMISSIONS. Spurious band edge emissions within 5.65 – 5.725 and 5.850 - 5.925 GHz:

- Low Channel 149 (5745 MHz): Inside band 5.65-5.68 GHz.

No radiated spurious frequencies detected at less than 20 dB below the limit.

- Middle Channel 157 (5785 MHz): Inside band 5.898-5.925 GHz.

No radiated spurious frequencies detected at less than 20 dB below the limit.

- High Channel 165 (5825 MHz): Inside band 5.898-5.925 GHz.

No radiated spurious frequencies detected at less than 20 dB below the limit.

- **Mode 802.11 n20 (HT20)**

BAND EDGES EMISSIONS. Spurious band edge emissions within 5.65 - 5.925 GHz:

- Low Channel 149 (5745 MHz): Inside band 5.65-5.68 GHz.

No radiated spurious frequencies detected at less than 20 dB below the limit.

- Middle Channel 157 (5785 MHz): Inside band 5.898-5.925 GHz.

No radiated spurious frequencies detected at less than 20 dB below the limit.

- High Channel 165 (5825 MHz): Inside band 5.898-5.925 GHz.

No radiated spurious frequencies detected at less than 20 dB below the limit.

- **Mode 802.11 ac20 (VHT20)**

BAND EDGES EMISSIONS. Spurious band edge emissions within 5.65 - 5.925 GHz:

- Low Channel 149 (5745 MHz): Inside band 5.65-5.68 GHz.

No radiated spurious frequencies detected at less than 20 dB below the limit.

- Middle Channel 157 (5785 MHz): Inside band 5.898-5.925 GHz.

No radiated spurious frequencies detected at less than 20 dB below the limit.

- High Channel 165 (5825 MHz): Inside band 5.898-5.925 GHz.

No radiated spurious frequencies detected at less than 20 dB below the limit.

- **Mode 802.11 n40 (HT40)**

BAND EDGES EMISSIONS. Spurious band edge emissions within 5.65 - 5.925 GHz:

- Low Channel 151 (5755 MHz): Inside band 5.65-5.68 GHz.

No radiated spurious frequencies detected at less than 20 dB below the limit.

- High Channel 159 (5795 MHz): Inside band 5.898-5.925 GHz.

No radiated spurious frequencies detected at less than 20 dB below the limit.

- **Mode 802.11 ac40 (VHT40)**

BAND EDGES EMISSIONS. Spurious band edge emissions within 5.65 - 5.925 GHz:

- Low Channel 151 (5755 MHz): Inside band 5.65-5.68 GHz.

No radiated spurious frequencies detected at less than 20 dB below the limit.

- High Channel 159 (5795 MHz): Inside band 5.898-5.925 GHz.

No radiated spurious frequencies detected at less than 20 dB below the limit.

- **Mode 802.11 ac80 (VHT80)**

BAND EDGES EMISSIONS. Spurious band edge emissions within 5.65 - 5.925 GHz:

- Single Channel 155 (5775 MHz): Inside band 5.65-5.68 GHz and 5.898-5.925 GHz.

No radiated spurious frequencies detected at less than 20 dB below the limit.

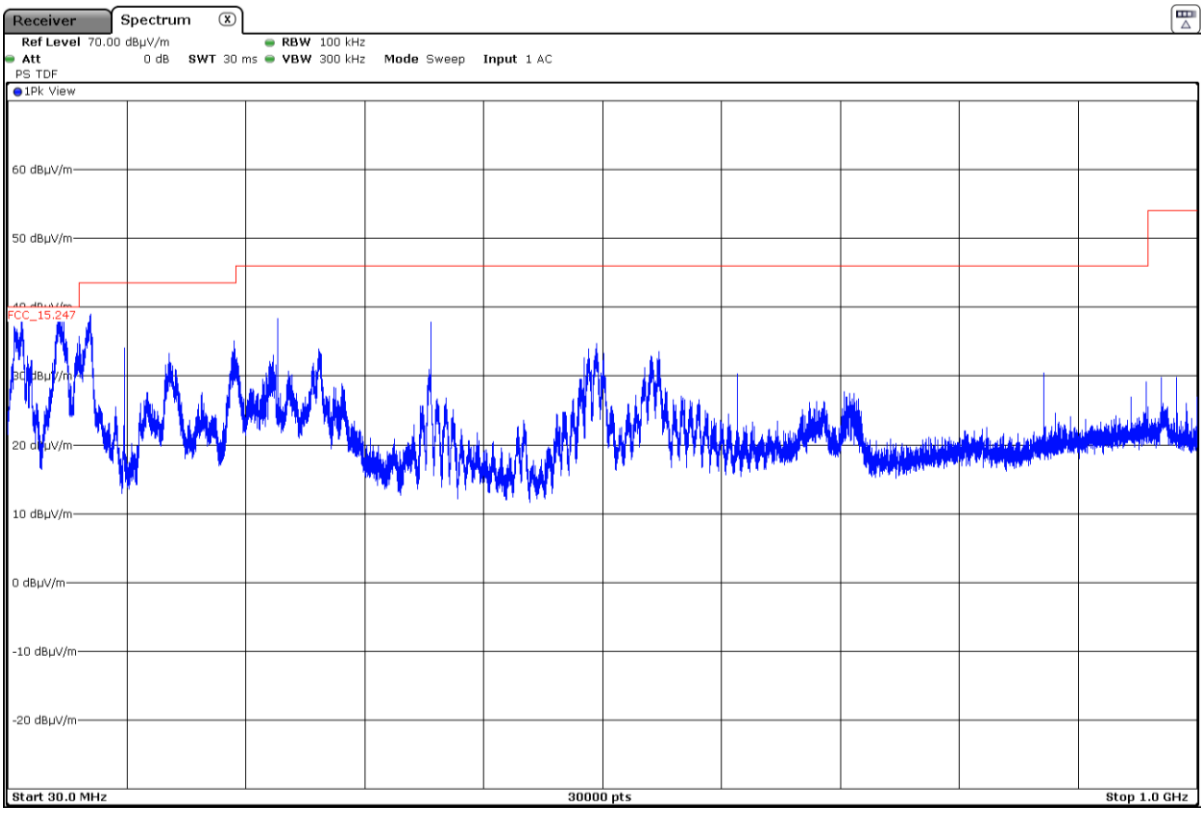
Verdict: PASS

SISO – CORE-0_Port3 Antenna:

OUT OF BAND EMISSIONS

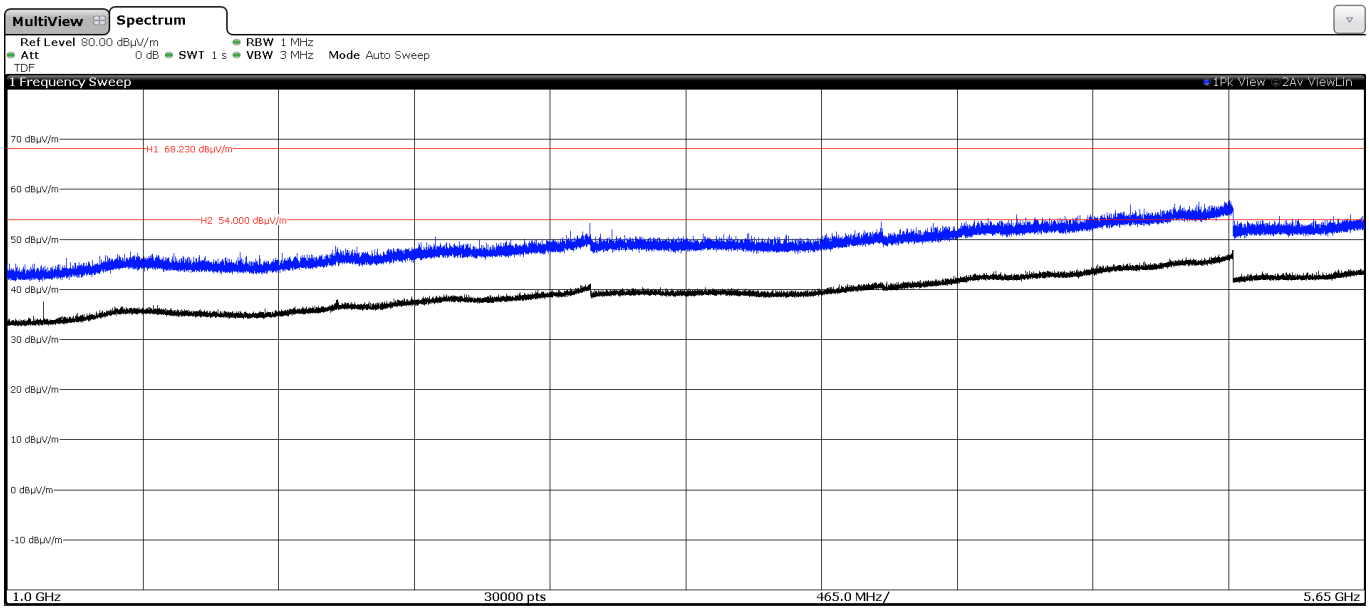
FREQUENCY RANGE 30 MHz - 1 GHz

This plot is valid for the Low, Middle and High Channels and all the modulation modes.

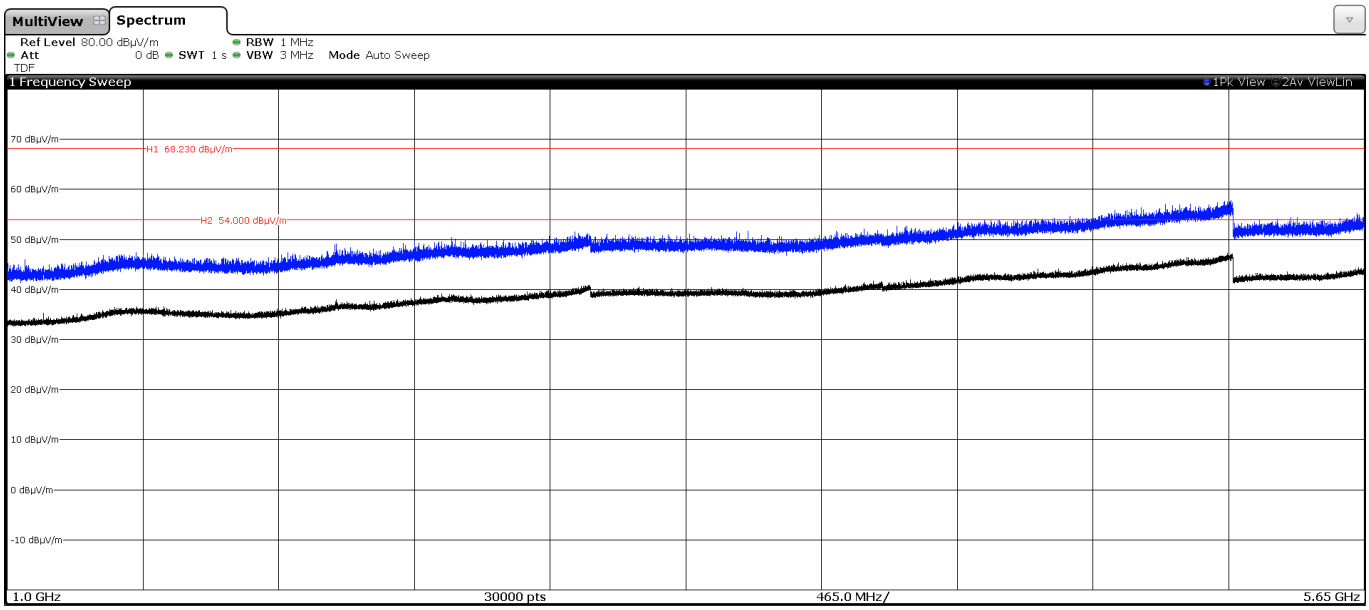


FREQUENCY RANGE 1 – 5.65 GHz (worst mode)

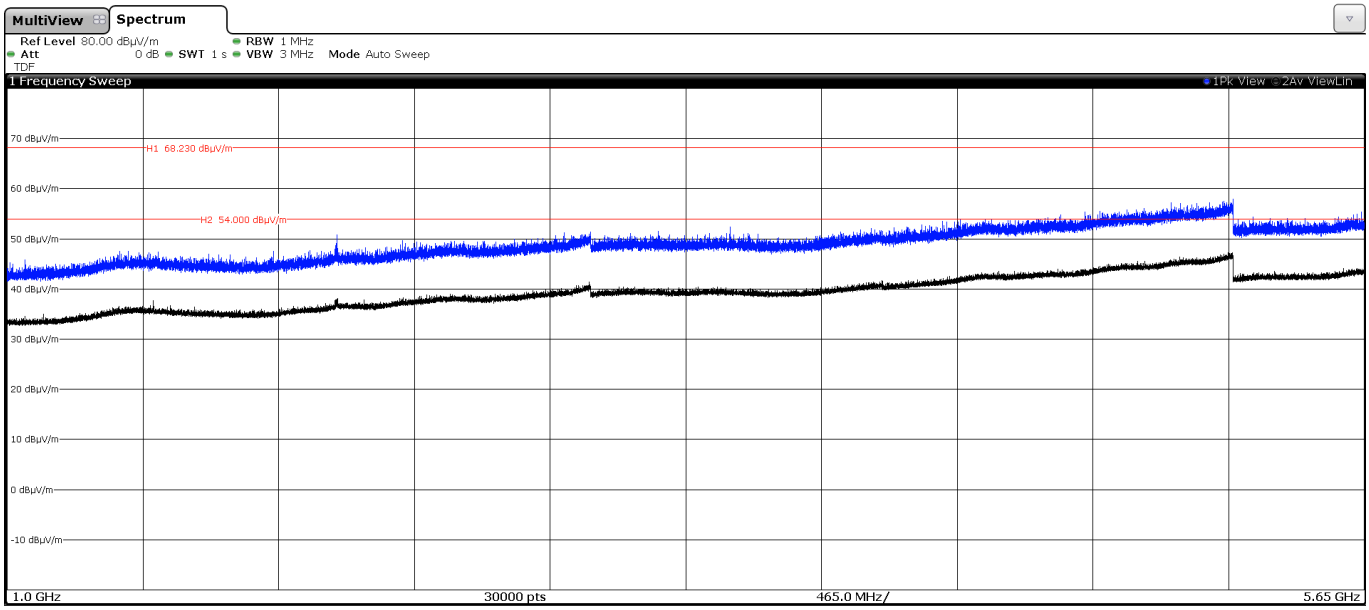
- Low Channel:



- Middle Channel:

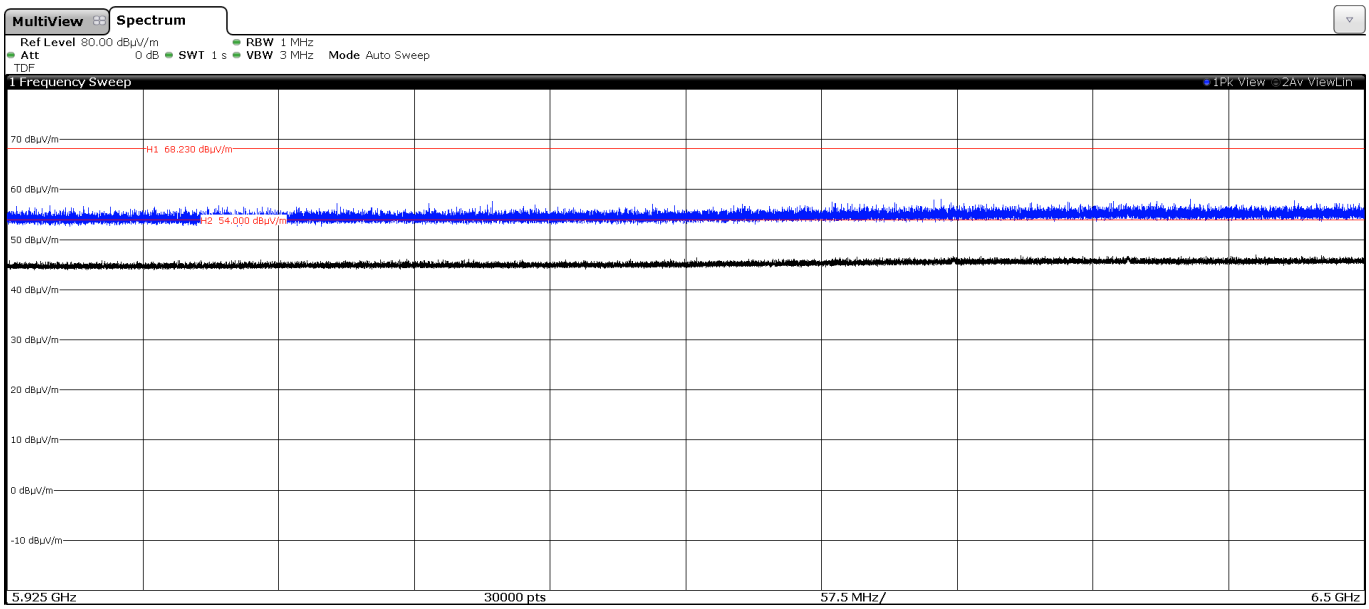


- High Channel:

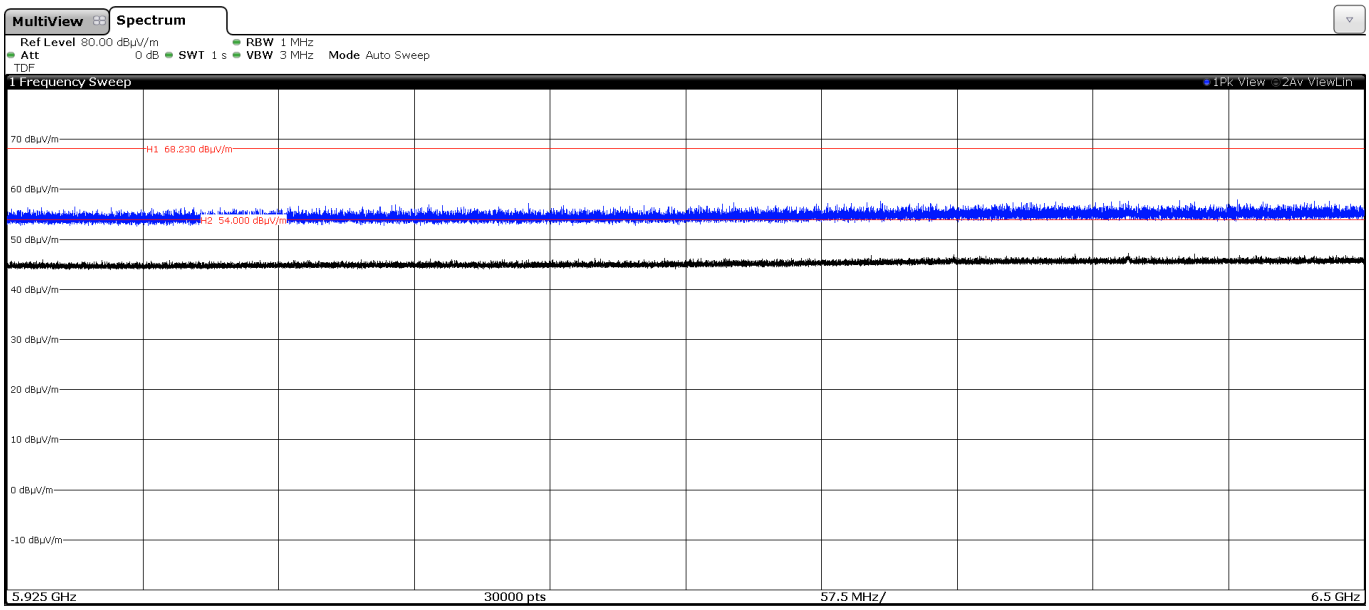


FREQUENCY RANGE 5.925 – 6.5 GHz (worst mode)

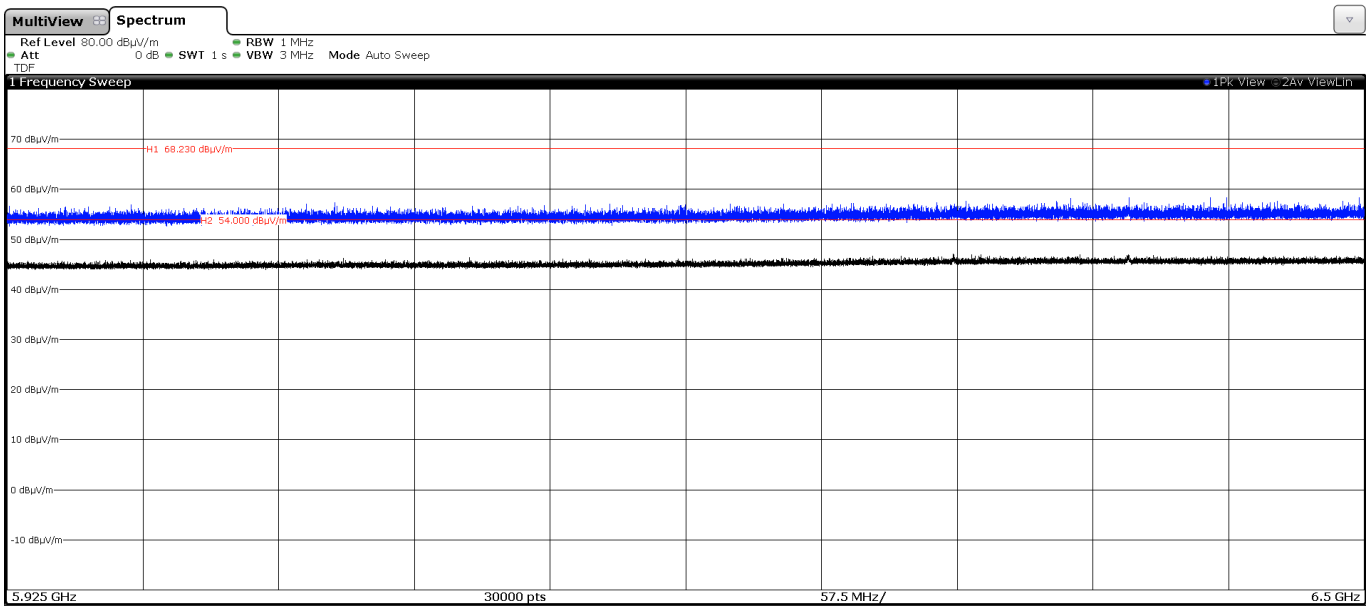
- Low Channel:



- Middle Channel:

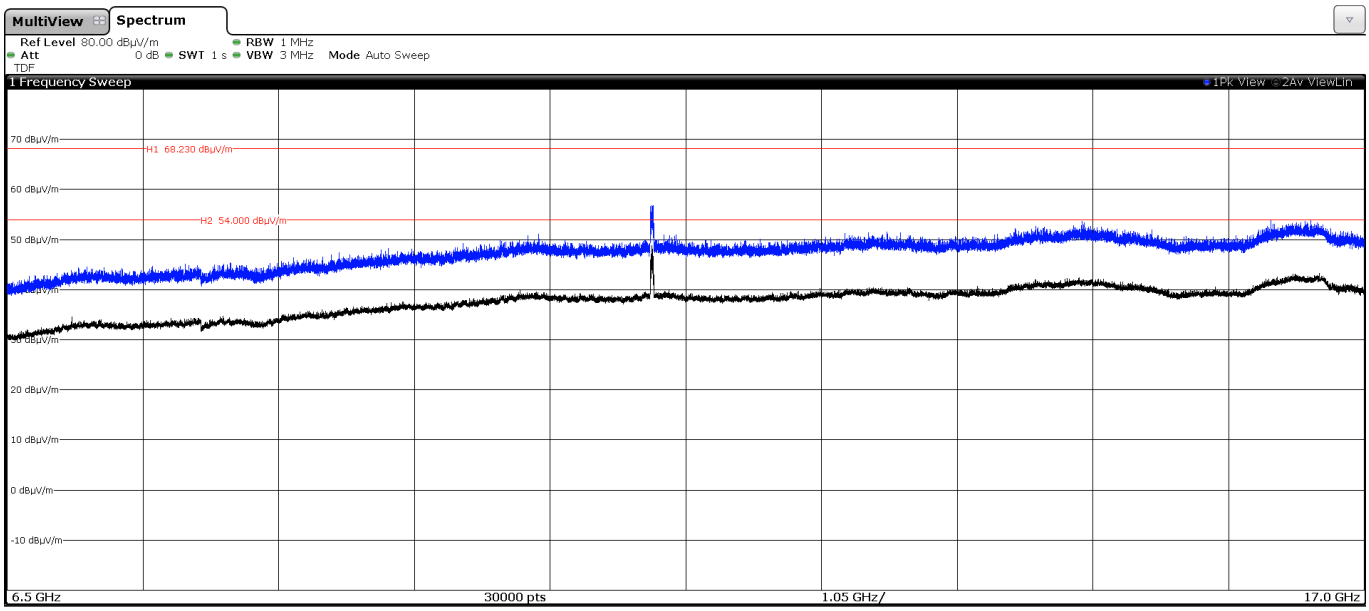


- High Channel:

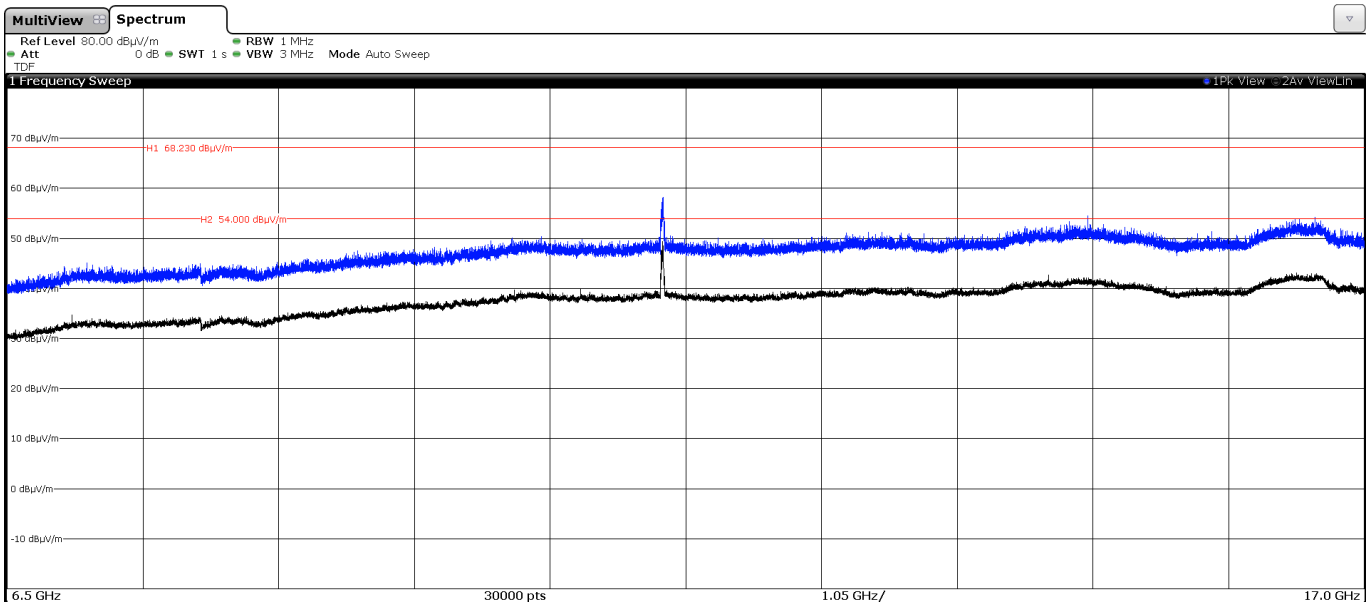


FREQUENCY RANGE 6.5 - 17 GHz. (worst mode)

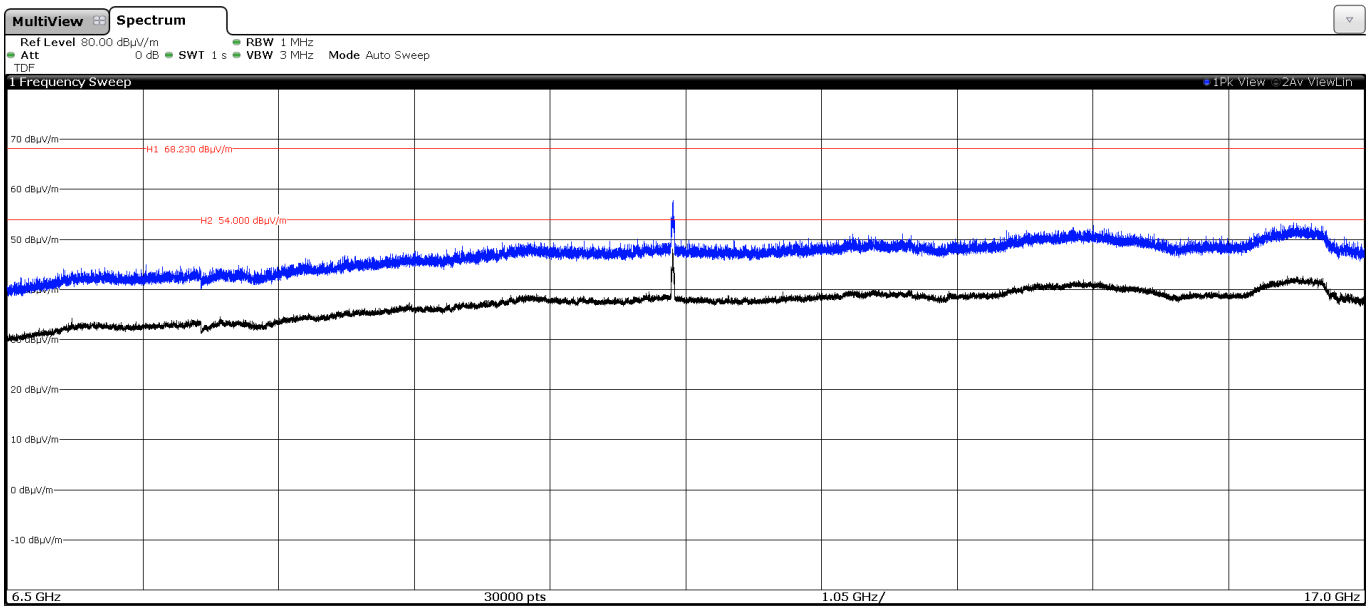
- Low Channel:



- Middle Channel:

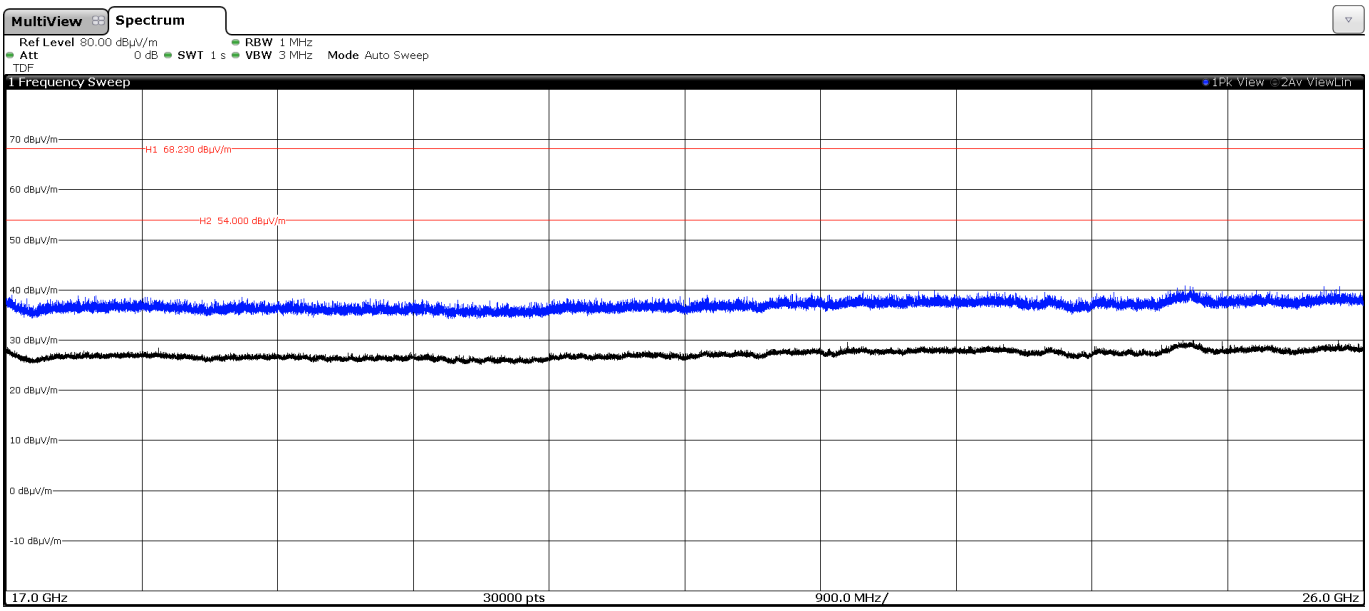


- High Channel:



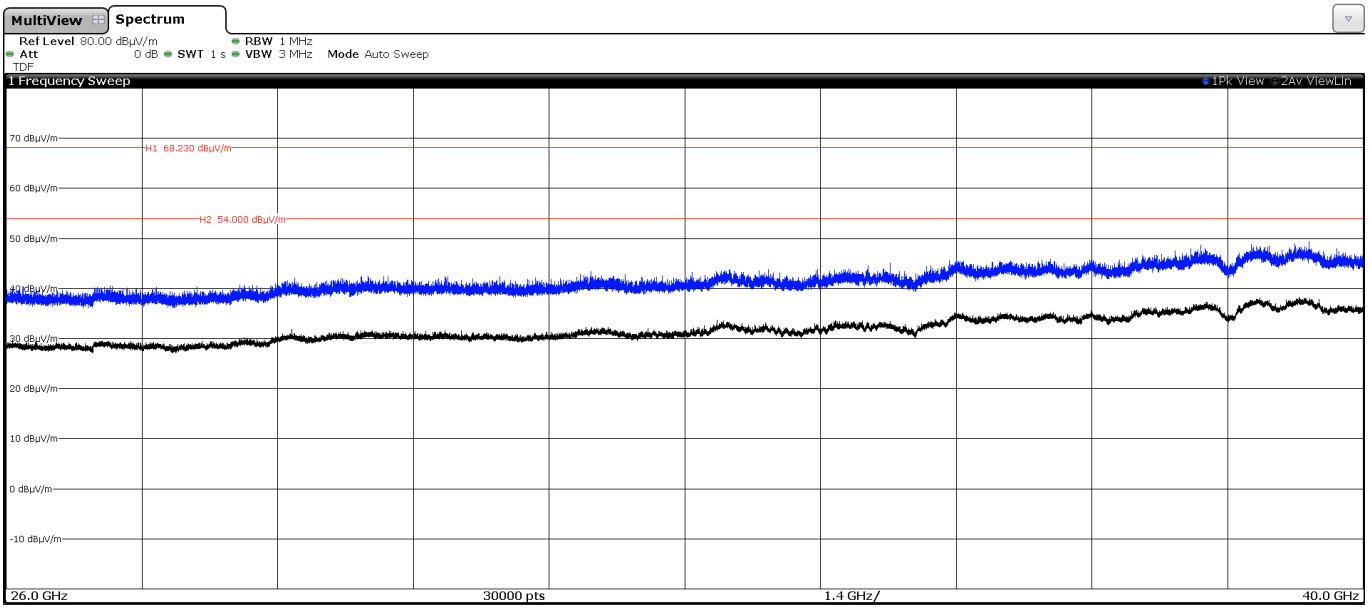
FREQUENCY RANGE 17 - 26 GHz

This plot is valid for the Low, Middle and High Channels and all the modulation modes.



FREQUENCY RANGE 26 - 40 GHz

This plot is valid for the Low, Middle and High Channels and all the modulation modes.



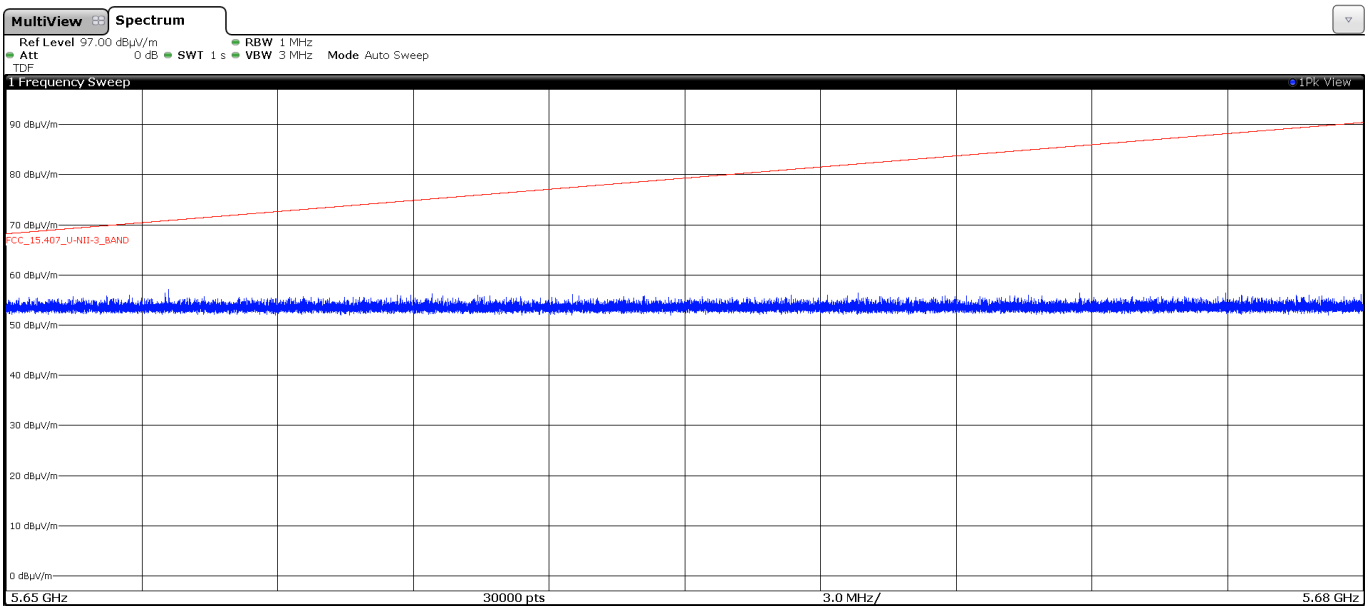
SISO – CORE-0_Port3 Antenna:

BAND EDGES EMISSIONS

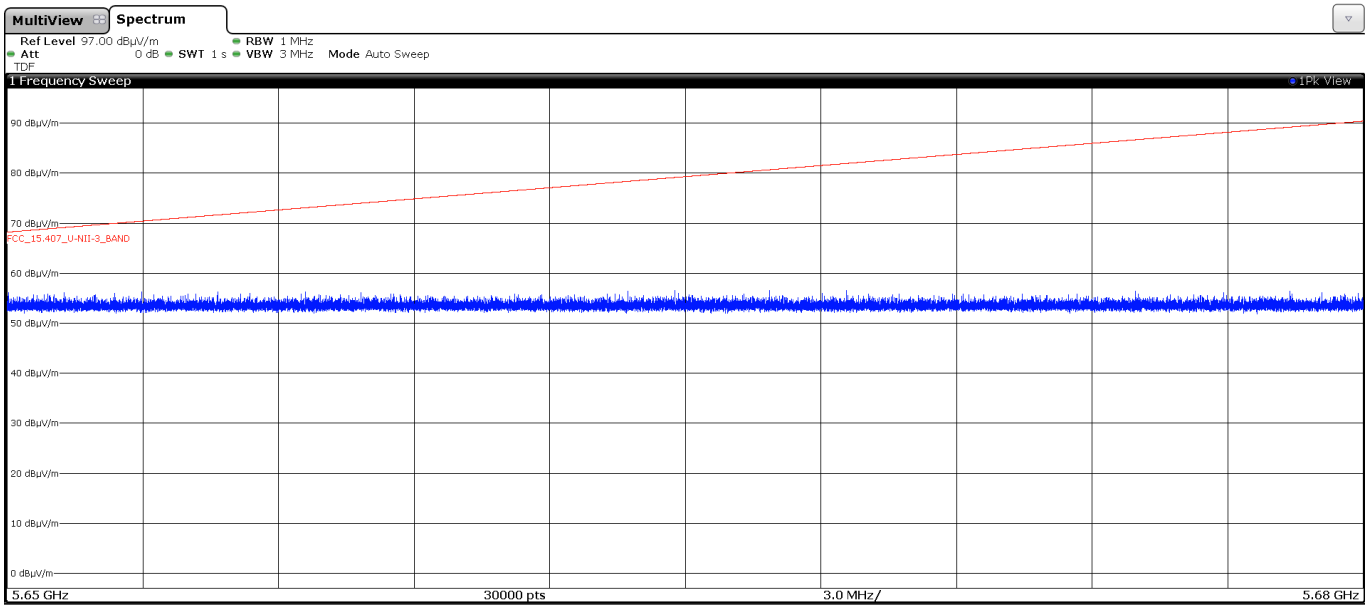
- **Mode 802.11 a20**

Radiated spurious emissions at band edges and inside adjacent band 5.65 – 5.68 GHz

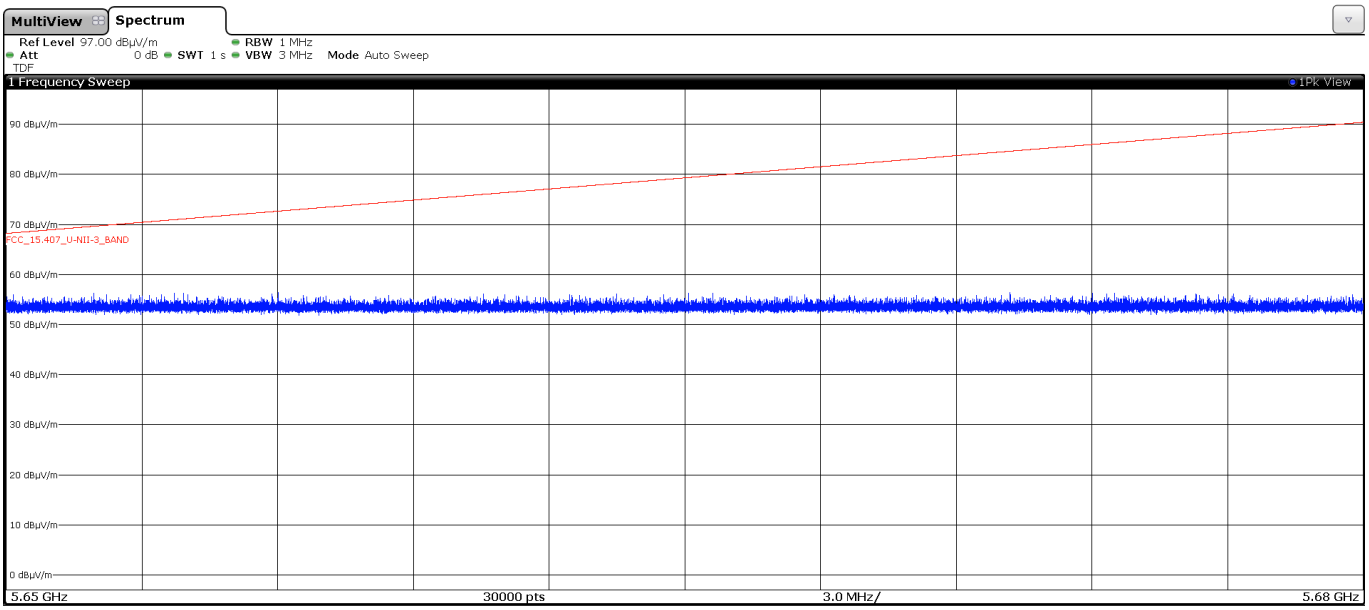
- Low Channel 149 (5745 MHz):



- Middle Channel 157 (5785 MHz):

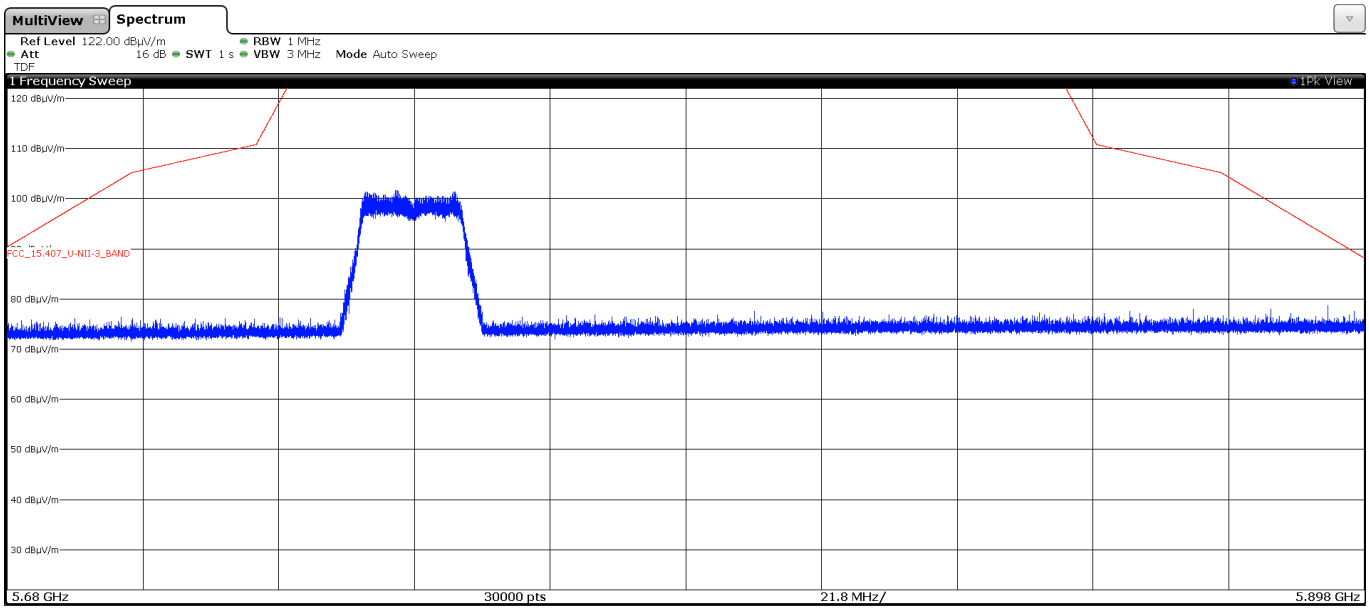


- High Channel 165 (5825 MHz):

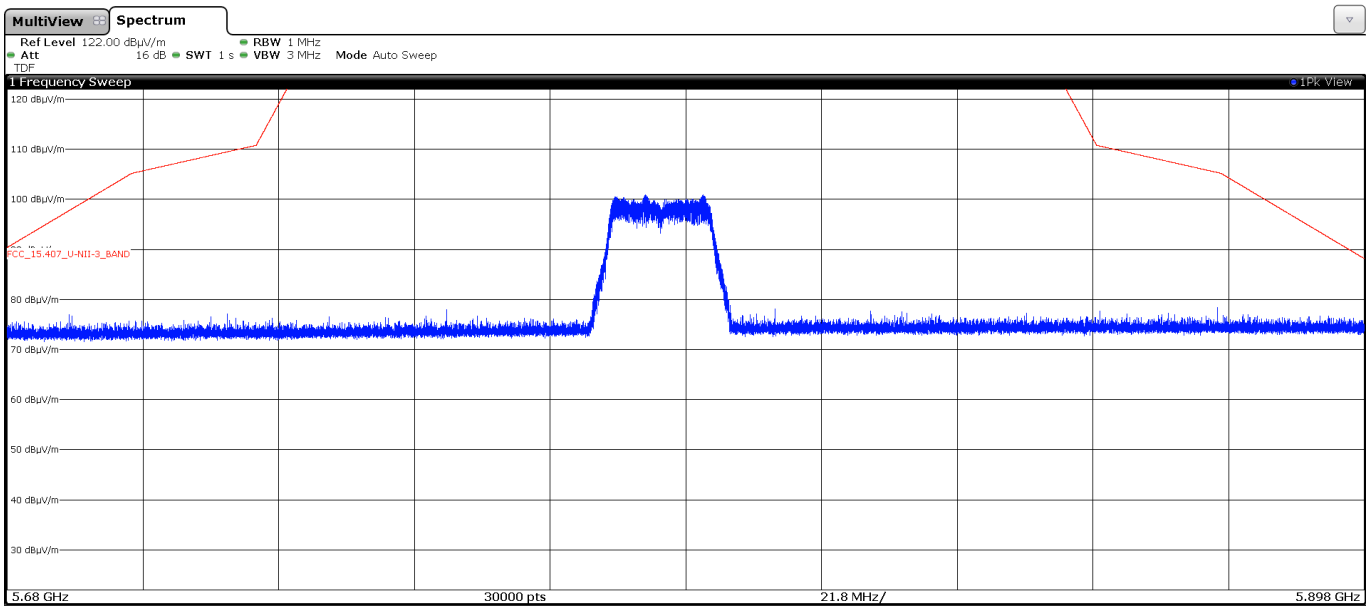


Radiated spurious emissions at band edges and inside adjacent band 5.68 – 5.898 GHz

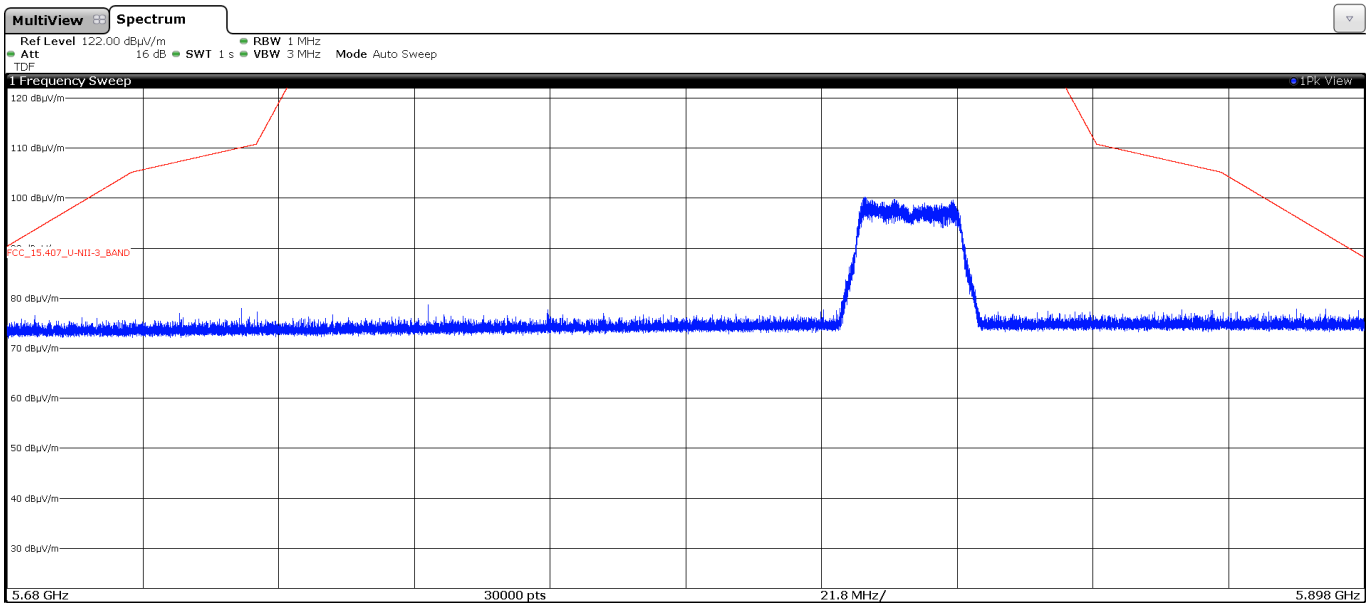
- Low Channel 149 (5745 MHz):



- Middle Channel 157 (5785 MHz):

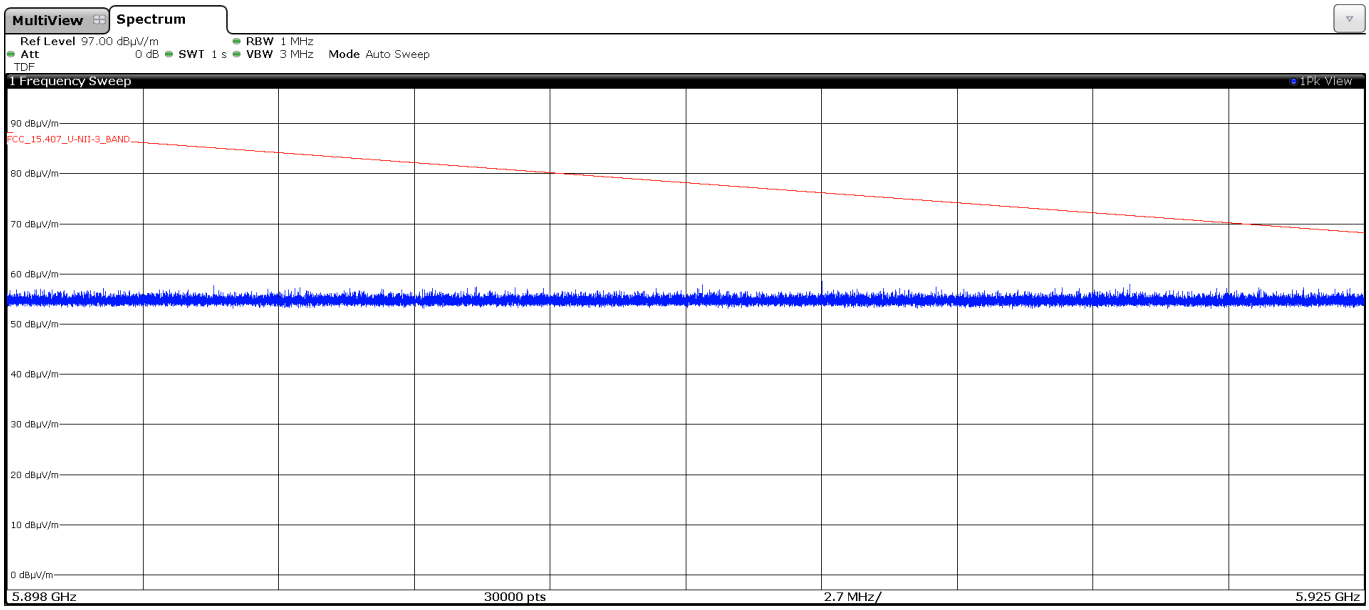


- High Channel 165 (5825 MHz):

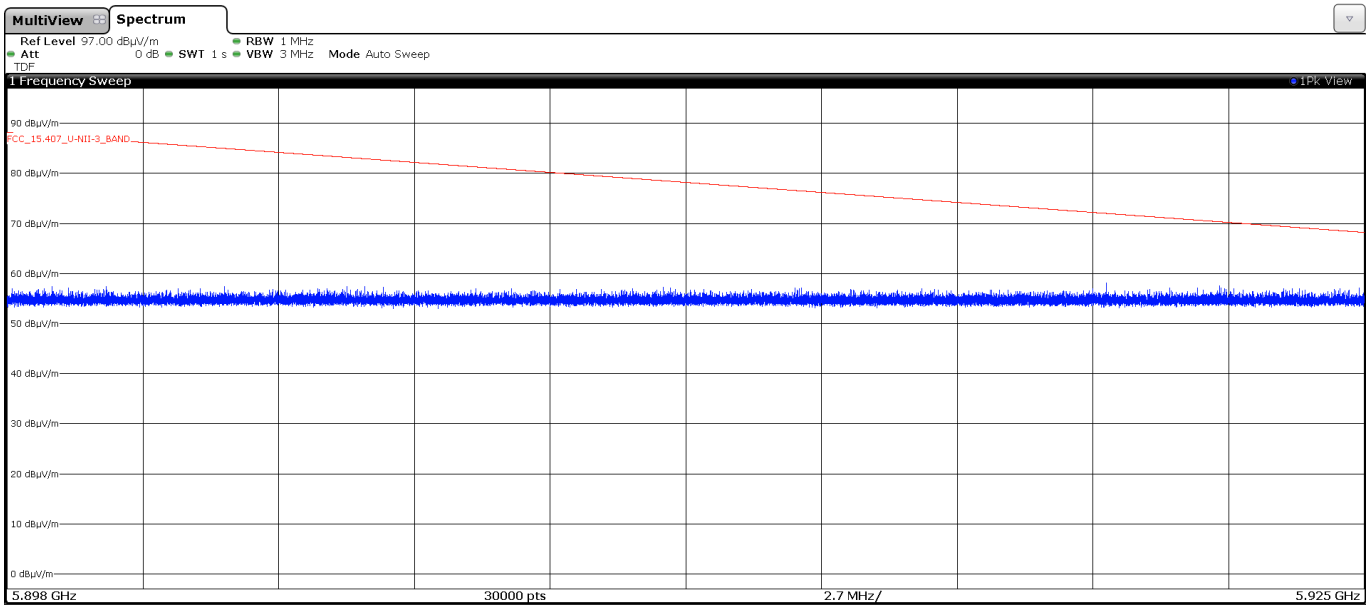


Radiated spurious emissions at band edges and inside adjacent band 5.898 – 5.925 GHz

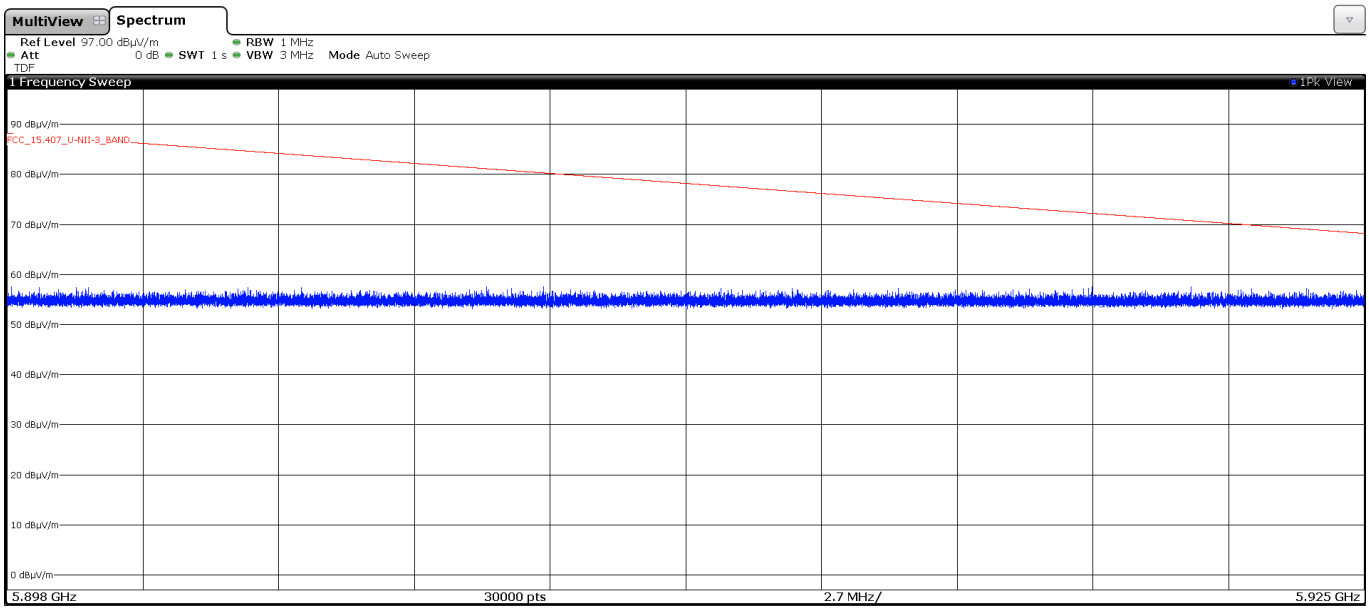
- Low Channel 149 (5745 MHz):



- Middle Channel 157 (5785 MHz):



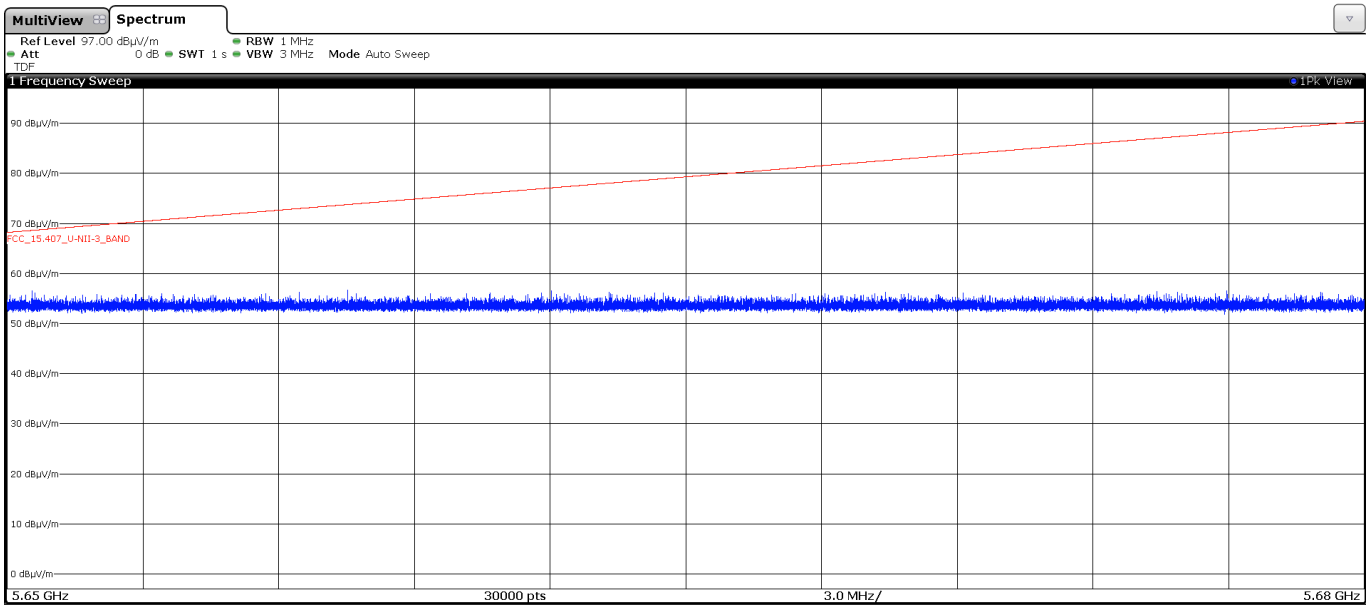
- High Channel 165 (5825 MHz):



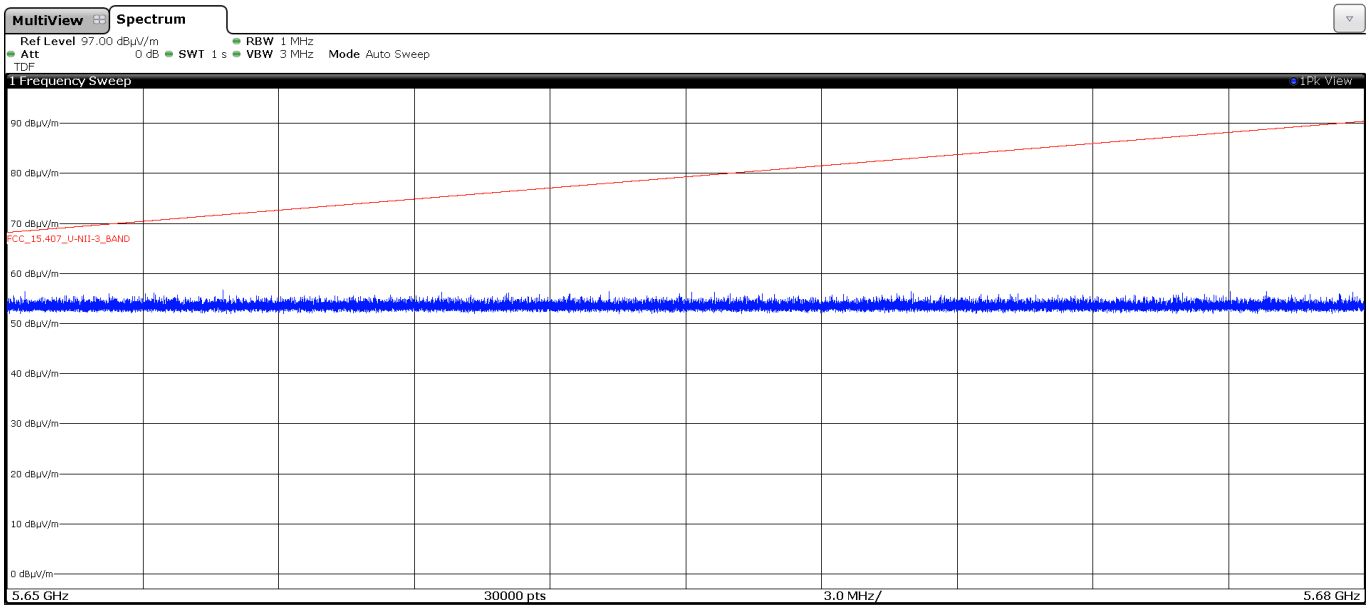
- **Mode 802.11 n20 (HT20)**

Radiated spurious emissions at band edges and inside adjacent band 5.65 – 5.68 GHz

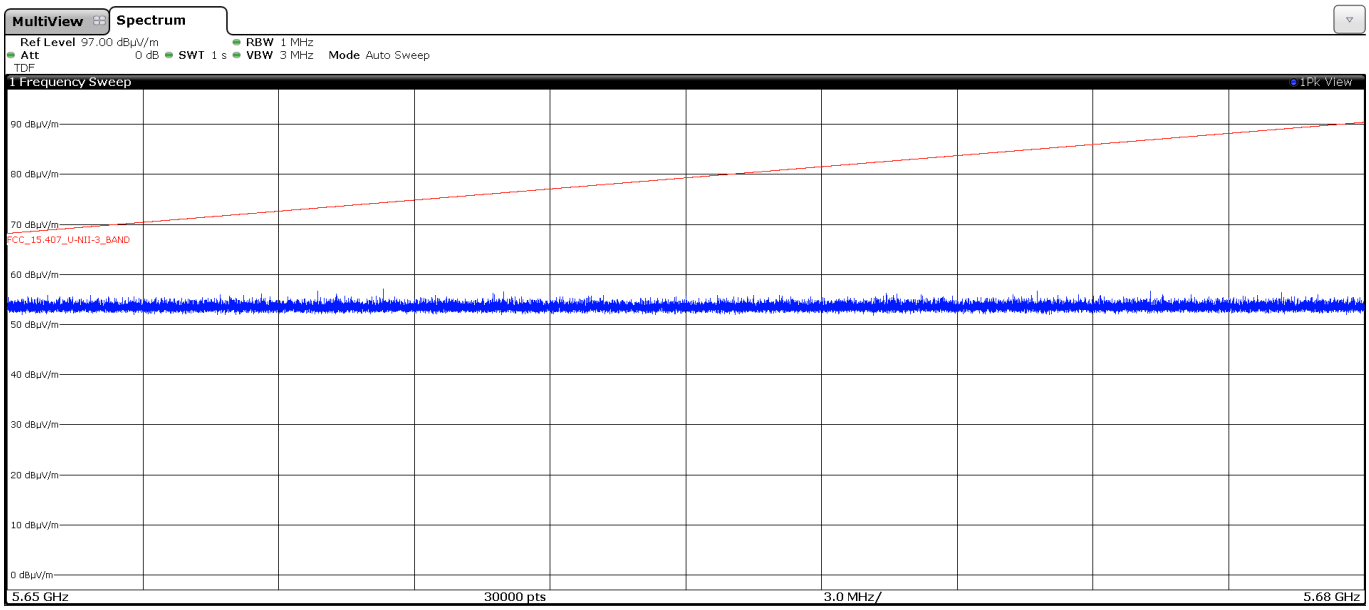
- Low Channel 149 (5745 MHz):



- Middle Channel 157 (5785 MHz):

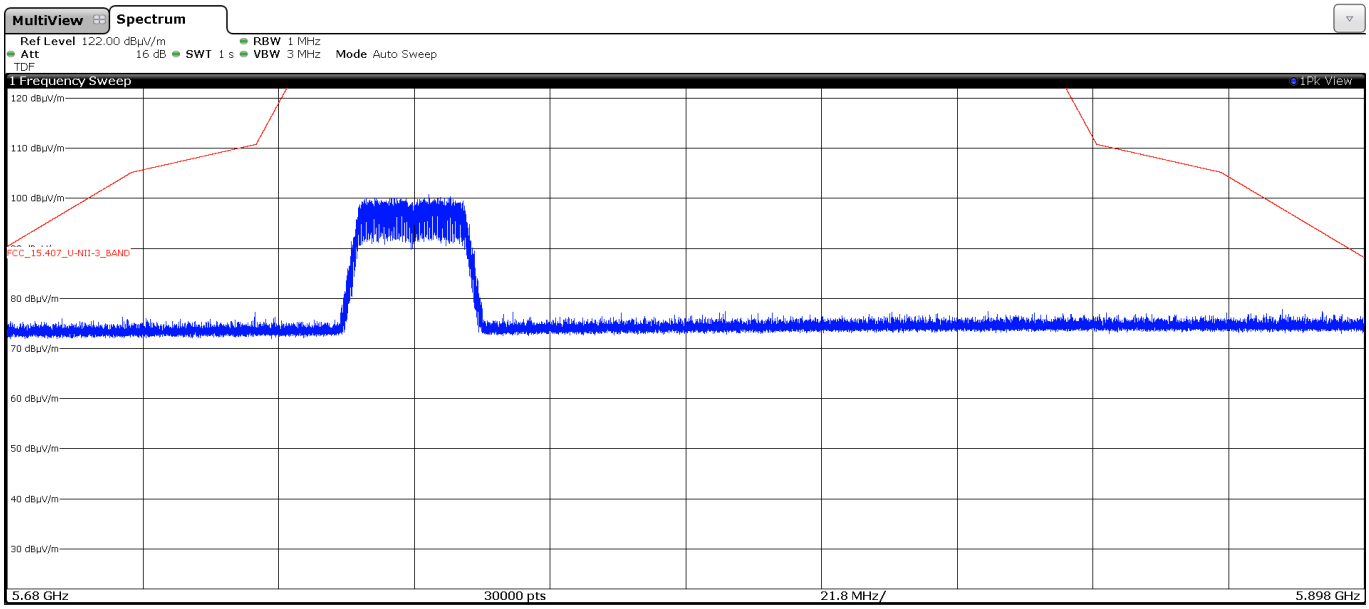


- High Channel 165 (5825 MHz):

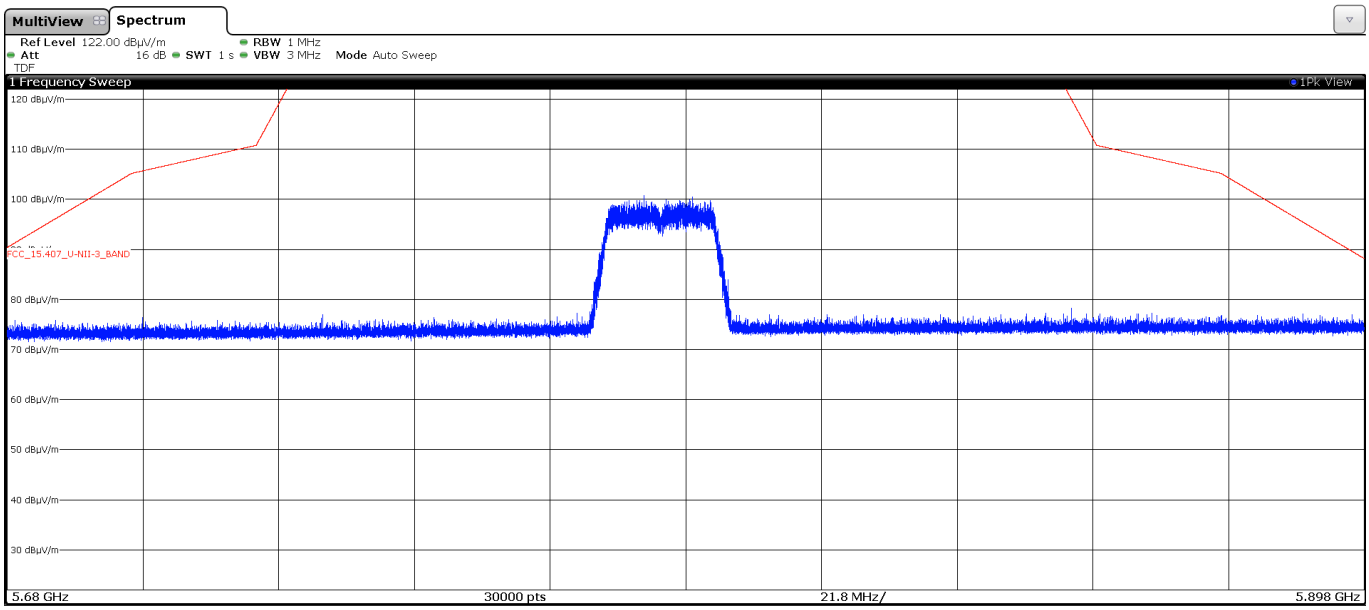


Radiated spurious emissions at band edges and inside adjacent band 5.68 – 5.898 GHz

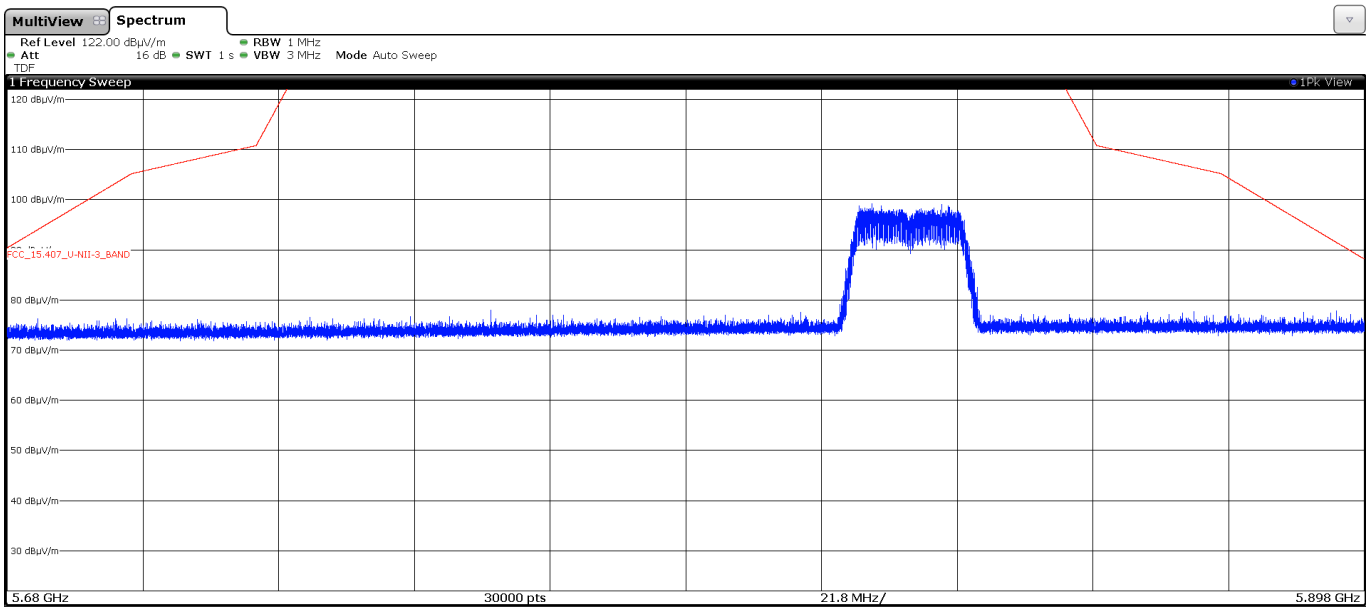
- Low Channel 149 (5745 MHz):



- Middle Channel 157 (5785 MHz):

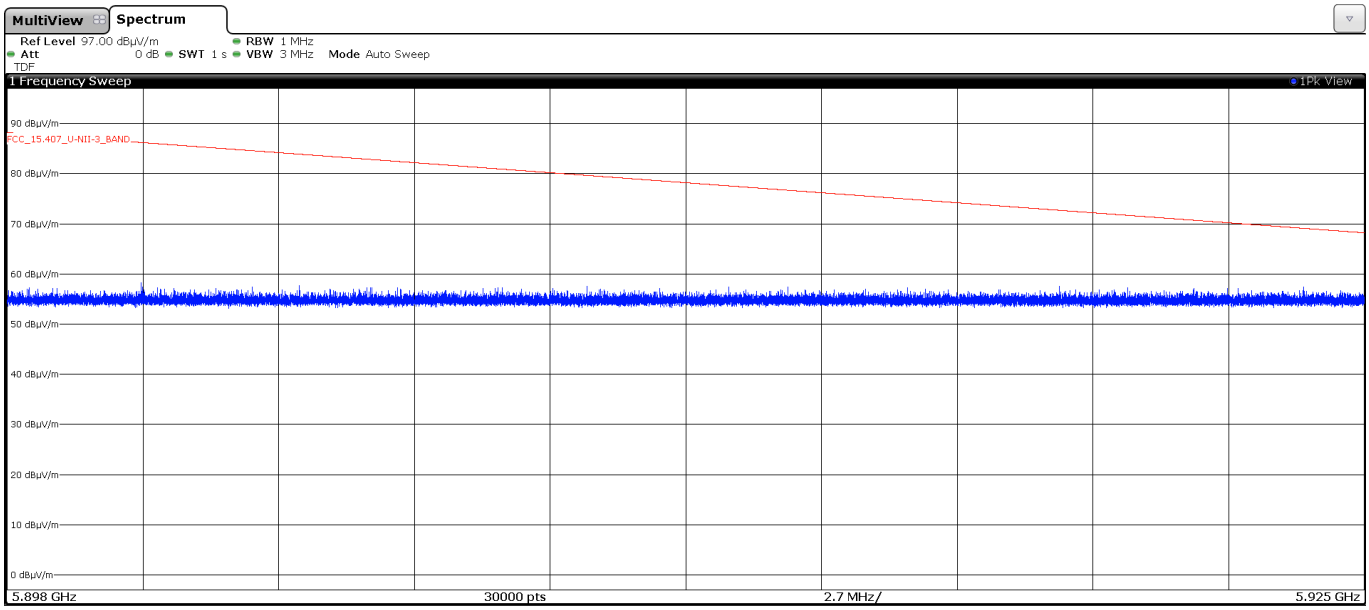


- High Channel 165 (5825 MHz):

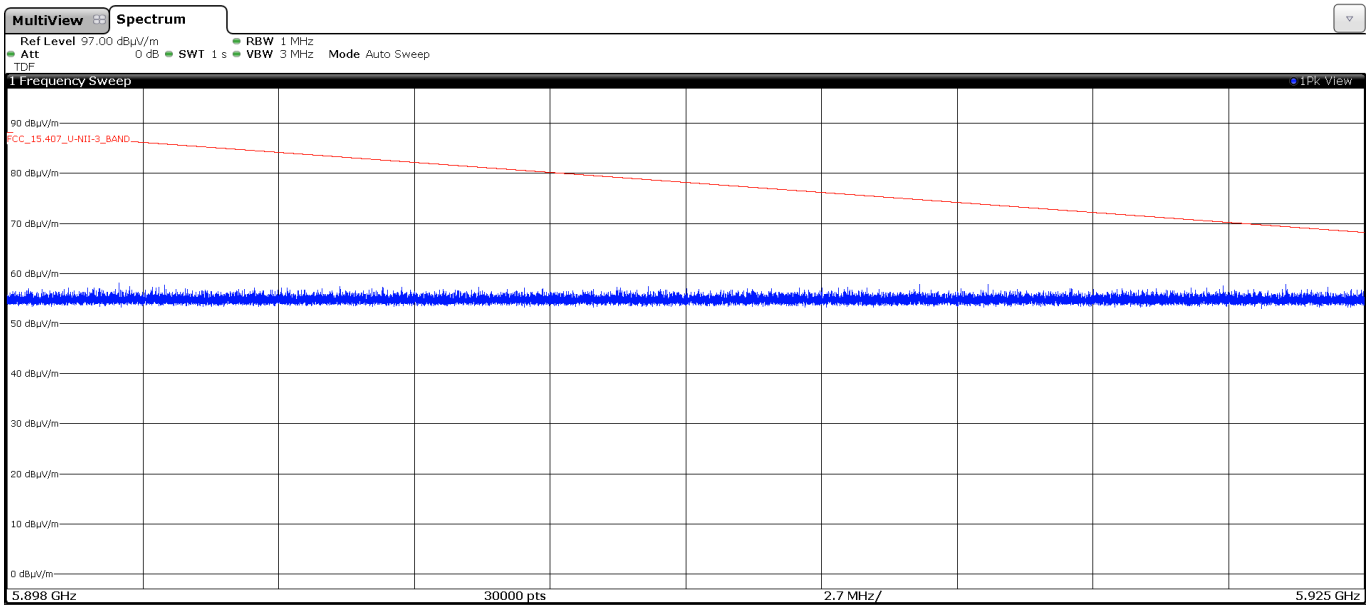


Radiated spurious emissions at band edges and inside adjacent band 5.898 – 5.925 GHz

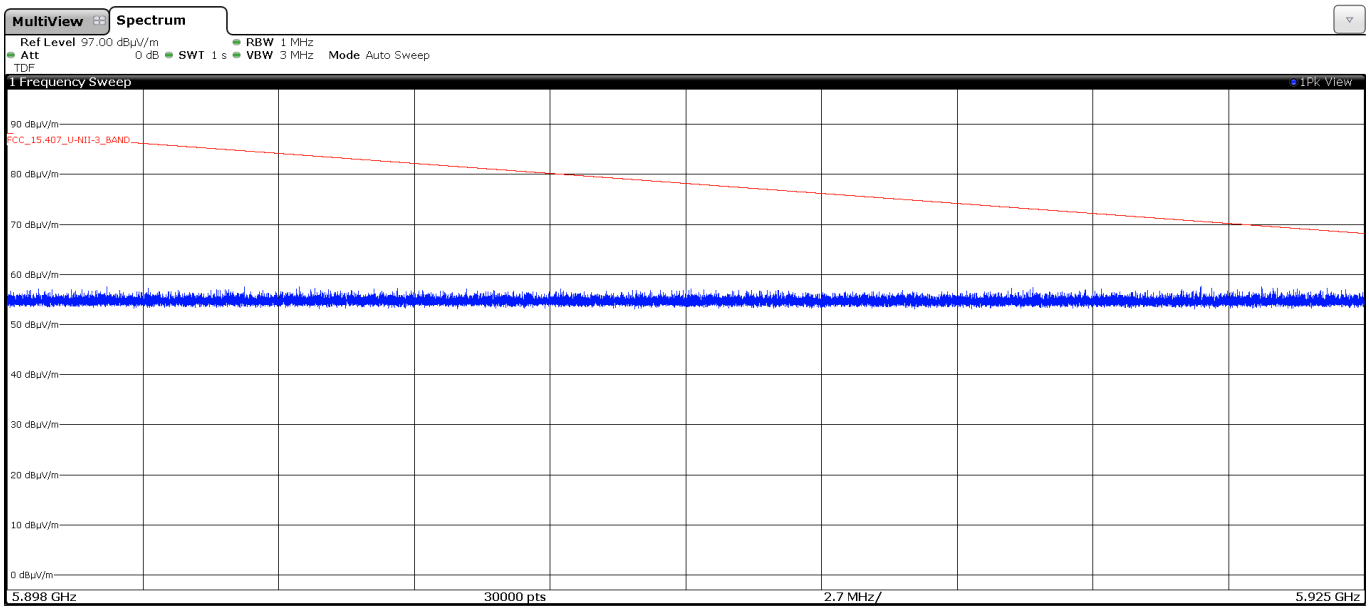
- Low Channel 149 (5745 MHz):



- Middle Channel 157 (5785 MHz):



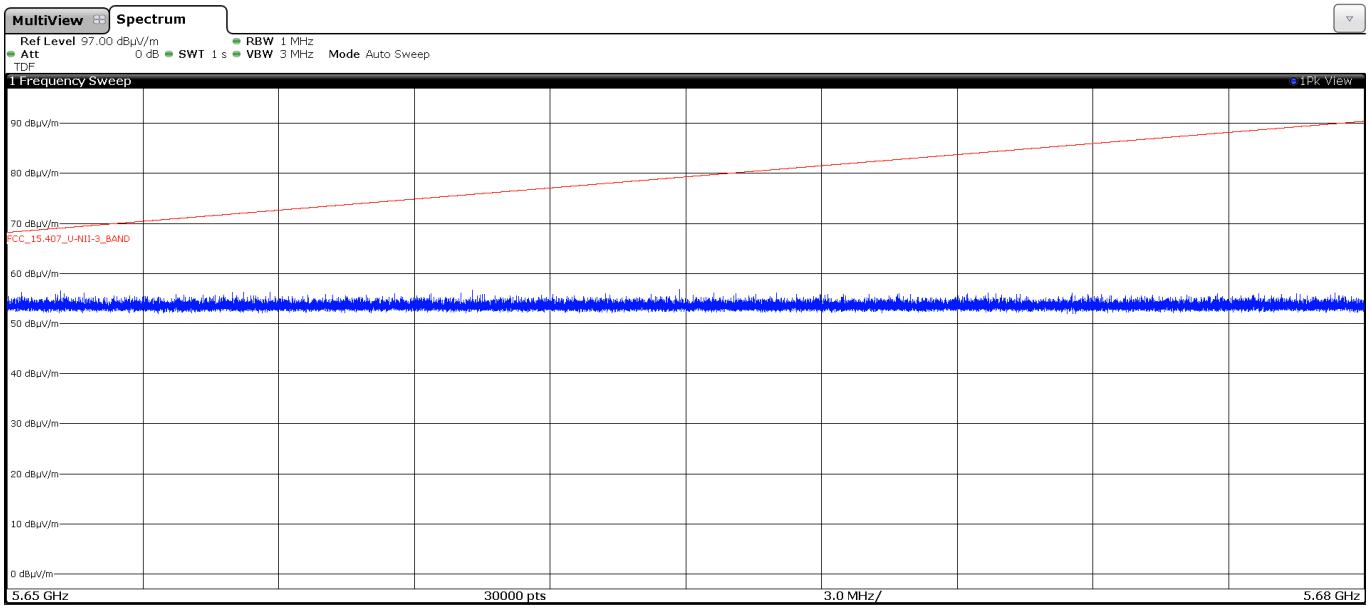
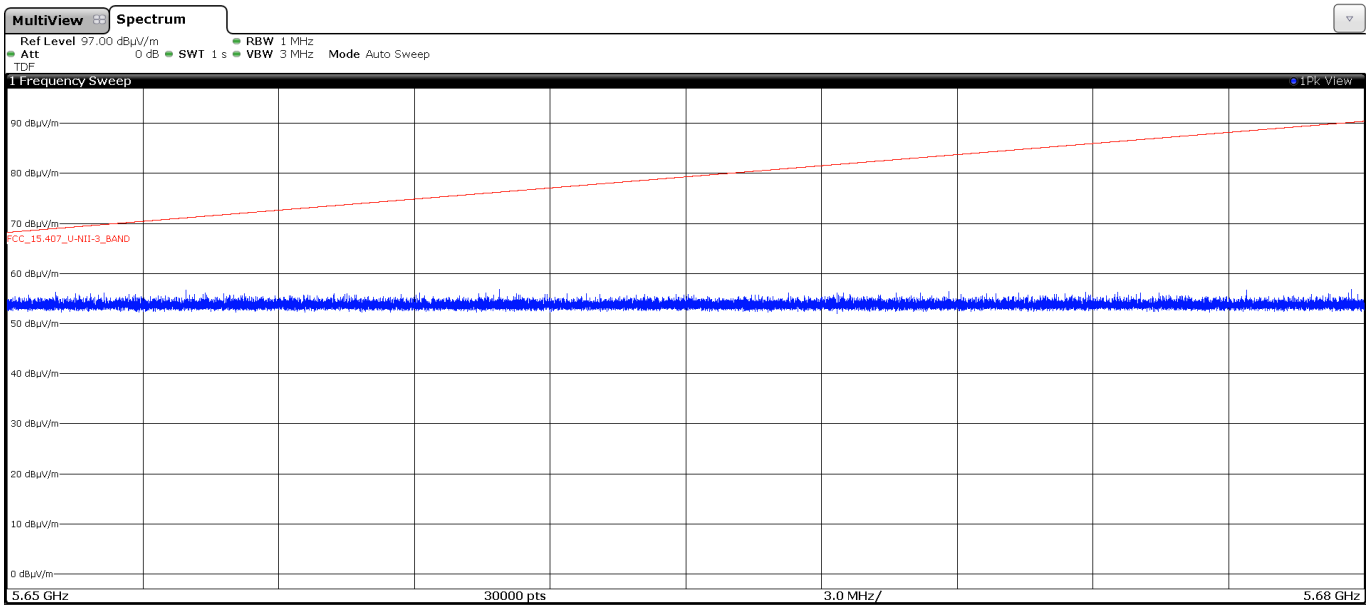
- High Channel 165 (5825 MHz):



- **Mode 802.11 ac20**

Radiated spurious emissions at band edges and inside adjacent band 5.65 – 5.68 GHz

- Low Channel 149 (5745 MHz):



- Middle Channel 157 (5785 MHz):