

Appendix for 5G WiFi (RSE)

1. Appendix G: Unwanted Emissions that fall Outside of the Restricted Bands& Unwanted Emissions in the Restricted Bands (Radiated)

Note:

1. We tested all modes & antennas, the data presented below is the worst case.
2. The simultaneous transmission has been considered
3. The whole testing range is from “9 KHz to 40 GHz (10th harmonics)” is divided into 5 parts according to the test site settings, which are:
 - (Part 1): Test range of “9 KHz to 30 MHz”, RBW =9 kHz, VBW = 30 kHz
 - (Part 2): Test range of “30 GHz to 1 GHz”, RBW = 100 kHz, VBW = 300 kHz.
 - (Part 3): Test range of “1 GHz to 8 GHz”. RBW = 1 MHz, VBW = 3 MHz.
 - (Part 4): Test range of “8 GHz to 18 GHz”, RBW = 1 MHz, VBW = 3 MHz.
 - (Part 5): Test range of “18 GHz to 40 GHz”. RBW = 1 MHz, VBW = 3 MHz.

1.1. Test Results

1.1.1. 11a20 SISO

Test Mode	Antenna Port	Test Channel	Spurious Emissions Result	Spurious Emissions Limit	Verdict
11a20 SISO	Ant1	5180	(see Test Graphs)	(see Test Graphs)	PASS
	Ant1	5200	(see Test Graphs)	(see Test Graphs)	PASS
	Ant1	5300	(see Test Graphs)	(see Test Graphs)	PASS
	Ant1	5320	(see Test Graphs)	(see Test Graphs)	PASS
	Ant1	5500	(see Test Graphs)	(see Test Graphs)	PASS
	Ant1	5520	(see Test Graphs)	(see Test Graphs)	PASS
	Ant1	5680	(see Test Graphs)	(see Test Graphs)	PASS
	Ant1	5700	(see Test Graphs)	(see Test Graphs)	PASS
	Ant1	5745	(see Test Graphs)	(see Test Graphs)	PASS
	Ant1	5825	(see Test Graphs)	(see Test Graphs)	PASS

1.1.2. 11n20 SISO

Test Mode	Antenna Port	Test Channel	Spurious Emissions Result	Spurious Emissions Limit	Verdict
11n20 SISO	Ant1	5180	(see Test Graphs)	(see Test Graphs)	PASS
	Ant1	5200	(see Test Graphs)	(see Test Graphs)	PASS
	Ant1	5300	(see Test Graphs)	(see Test Graphs)	PASS
	Ant1	5320	(see Test Graphs)	(see Test Graphs)	PASS
	Ant1	5500	(see Test Graphs)	(see Test Graphs)	PASS
	Ant1	5520	(see Test Graphs)	(see Test Graphs)	PASS
	Ant1	5680	(see Test Graphs)	(see Test Graphs)	PASS
	Ant1	5700	(see Test Graphs)	(see Test Graphs)	PASS
	Ant1	5745	(see Test Graphs)	(see Test Graphs)	PASS
	Ant1	5825	(see Test Graphs)	(see Test Graphs)	PASS

1.1.3. 11n40 SISO

Test Mode	Antenna Port	Test Channel	Spurious Emissions Result	Spurious Emissions Limit	Verdict
11n40 SISO	Ant1	5190	(see Test Graphs)	(see Test Graphs)	PASS
	Ant1	5230	(see Test Graphs)	(see Test Graphs)	PASS
	Ant1	5270	(see Test Graphs)	(see Test Graphs)	PASS
	Ant1	5310	(see Test Graphs)	(see Test Graphs)	PASS
	Ant1	5510	(see Test Graphs)	(see Test Graphs)	PASS
	Ant1	5550	(see Test Graphs)	(see Test Graphs)	PASS

	Ant1	5630	(see Test Graphs)	(see Test Graphs)	PASS
	Ant1	5670	(see Test Graphs)	(see Test Graphs)	PASS
	Ant1	5755	(see Test Graphs)	(see Test Graphs)	PASS
	Ant1	5795	(see Test Graphs)	(see Test Graphs)	PASS

1.1.4. 11ac20SISO

Test Mode	Antenna Port	Test Channel	Spurious Emissions Result	Spurious Emissions Limit	Verdict
11ac20 SISO	Ant1	5180	(see Test Graphs)	(see Test Graphs)	PASS
	Ant1	5200	(see Test Graphs)	(see Test Graphs)	PASS
	Ant1	5300	(see Test Graphs)	(see Test Graphs)	PASS
	Ant1	5320	(see Test Graphs)	(see Test Graphs)	PASS
	Ant1	5500	(see Test Graphs)	(see Test Graphs)	PASS
	Ant1	5520	(see Test Graphs)	(see Test Graphs)	PASS
	Ant1	5680	(see Test Graphs)	(see Test Graphs)	PASS
	Ant1	5700	(see Test Graphs)	(see Test Graphs)	PASS
	Ant1	5745	(see Test Graphs)	(see Test Graphs)	PASS
	Ant1	5825	(see Test Graphs)	(see Test Graphs)	PASS

1.1.5. 11ac40 SISO

Test Mode	Antenna Port	Test Channel	Spurious Emissions Result	Spurious Emissions Limit	Verdict
11ac40 SISO	Ant1	5190	(see Test Graphs)	(see Test Graphs)	PASS
	Ant1	5230	(see Test Graphs)	(see Test Graphs)	PASS
	Ant1	5270	(see Test Graphs)	(see Test Graphs)	PASS
	Ant1	5310	(see Test Graphs)	(see Test Graphs)	PASS
	Ant1	5510	(see Test Graphs)	(see Test Graphs)	PASS
	Ant1	5550	(see Test Graphs)	(see Test Graphs)	PASS
	Ant1	5630	(see Test Graphs)	(see Test Graphs)	PASS
	Ant1	5670	(see Test Graphs)	(see Test Graphs)	PASS
	Ant1	5755	(see Test Graphs)	(see Test Graphs)	PASS
	Ant1	5795	(see Test Graphs)	(see Test Graphs)	PASS

1.1.6. 11ac80 SISO

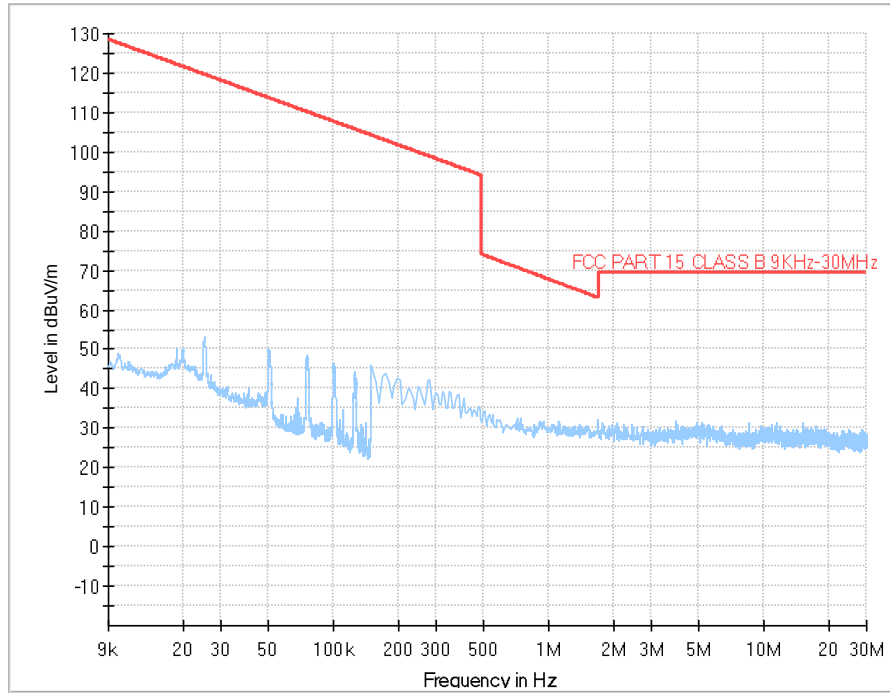
Test Mode	Antenna Port	Test Channel	Spurious Emissions Result	Spurious Emissions Limit	Verdict
11ac80 SISO	Ant1	5210	(see Test Graphs)	(see Test Graphs)	PASS
	Ant1	5290	(see Test Graphs)	(see Test Graphs)	PASS
	Ant1	5530	(see Test Graphs)	(see Test Graphs)	PASS
	Ant1	5610	(see Test Graphs)	(see Test Graphs)	PASS
	Ant1	5775	(see Test Graphs)	(see Test Graphs)	PASS

1.2. Test Graphs

1.2.1. Part 1: Testing Range of “9 kHz to 30MHz”

Note 1: The test results and plot for testing range of “9 kHz to 30MHz” showed as below is the WORST case for all Test Modes and Channels. This range will not be presented for each Test Mode and each Channel.

Worst case-11a-iso20-CH_5680



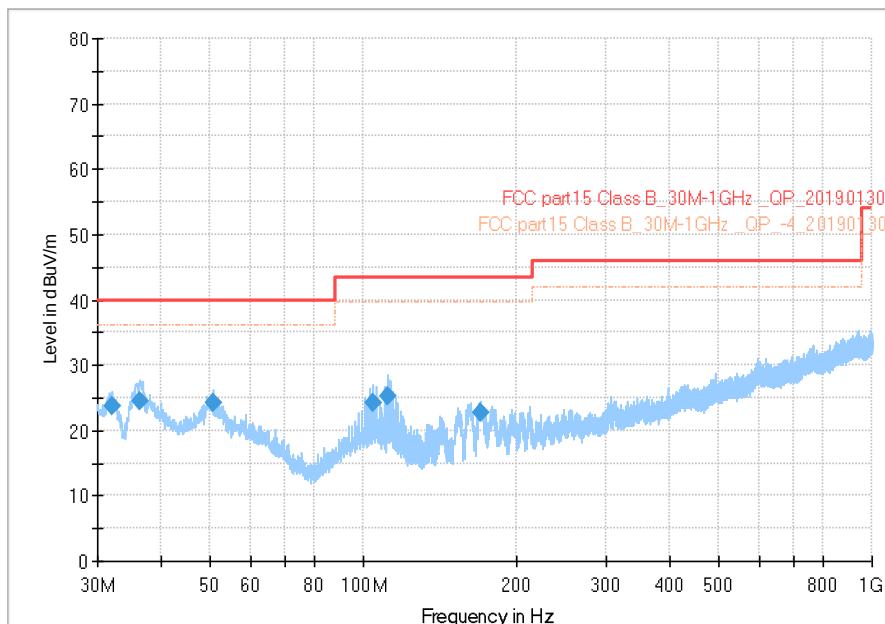
1.2.2. Part 2: Testing Range of “30 MHz to 1 GHz”

Note 1: The test results and plot for testing range of “30 MHz to 1 GHz” showed as below is the WORST case for all Test Modes and Channels. This range will not be presented for each Test Mode and each Channel.

Note 2: The emissions in this range are mainly from the Platform Device (Notepad PC and its ancillary components).

Worst case-11a-iso20-CH_5680

Full Spectrum



Comment

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Polarisation	Azimuth (deg)	Transd (dB)
32.037000	23.62	40.00	16.38	100.0	V	134.0	16.3
36.450500	24.37	40.00	15.63	100.0	V	18.0	17.9
50.709500	24.13	40.00	15.87	100.0	V	249.0	20.5
104.593000	24.32	43.50	19.18	100.0	V	103.0	18.5
111.431500	25.26	43.50	18.24	100.0	V	134.0	17.8
170.165000	22.61	43.50	20.89	100.0	V	178.0	15.7

1.2.3. Part 3: Testing Range of “1 GHz to 8 GHz”

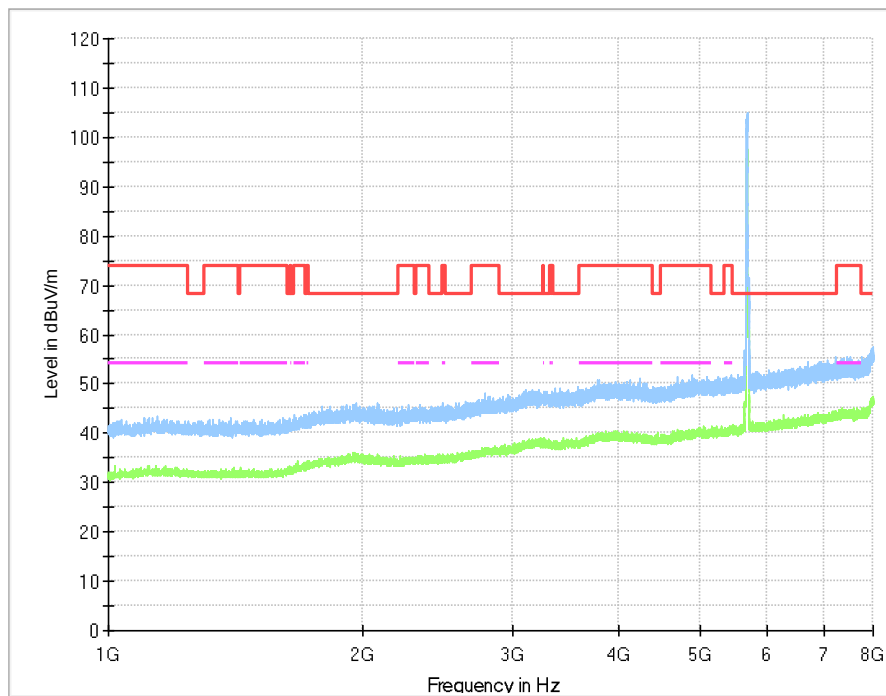
Note 1: The test results and plot for testing range of “1 GHz to 8 GHz” showed as below is the worst case for each Test Modes and Channels. This range will not be presented for each Test Mode and each Channel.

Note 2: The testing range of “1 GHz to 8 GHz” is for checking radiated emissions located in restricted bands near the EUT operating bands.

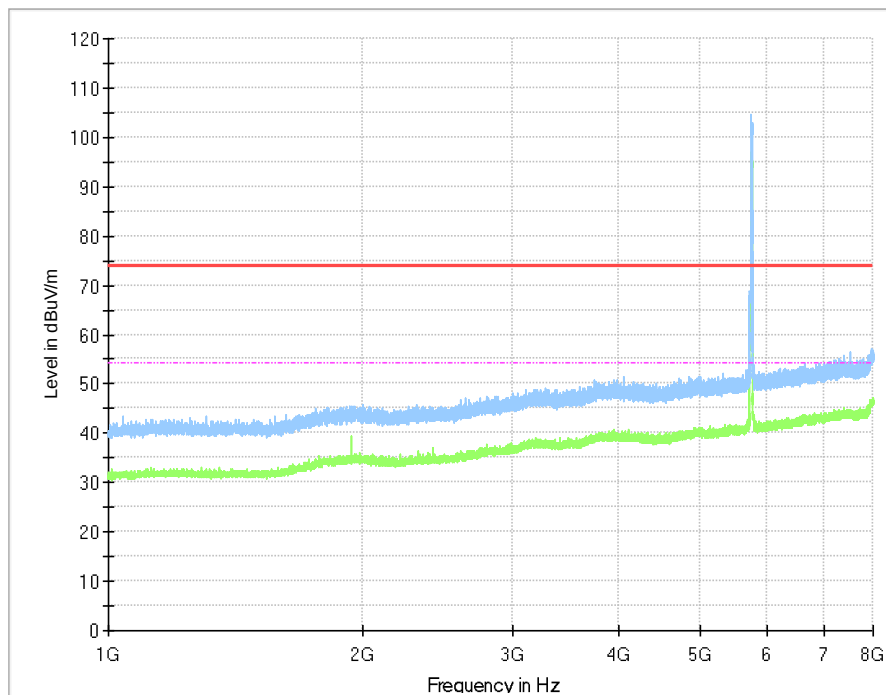
Note 3: The peak spike exceeds the limit line is EUT's operating frequency.

1.2.3.1. 11a20 SISO

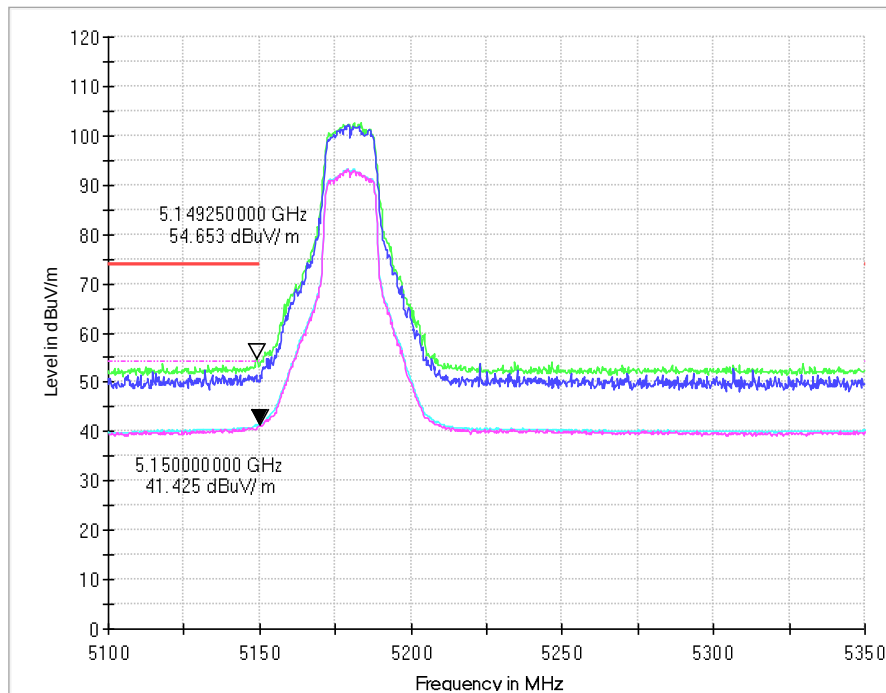
Worst case CH_5680 (1 GHz to 8 GHz)



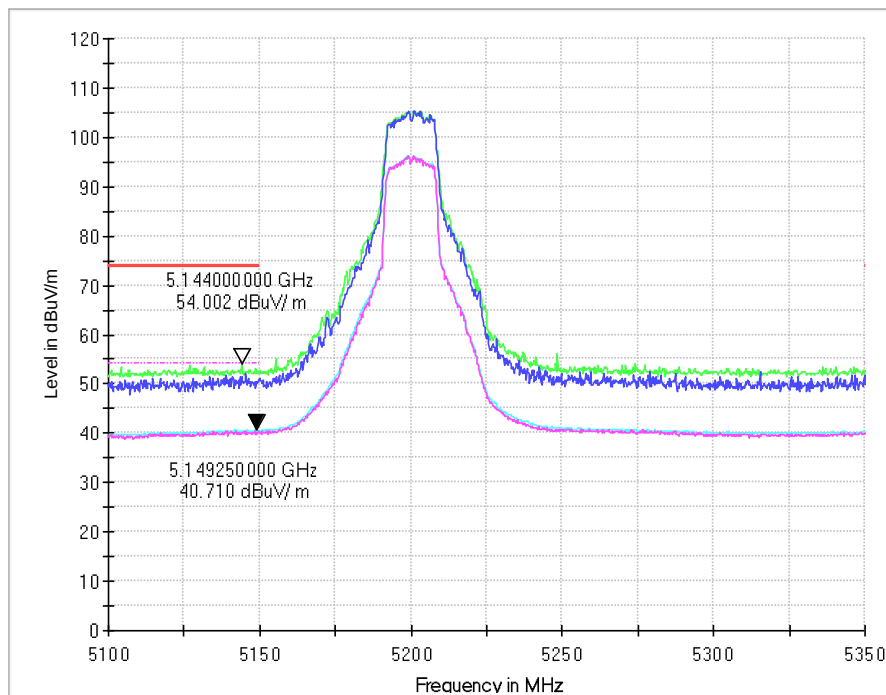
Worst case CH_5745 (1 GHz to 8 GHz)



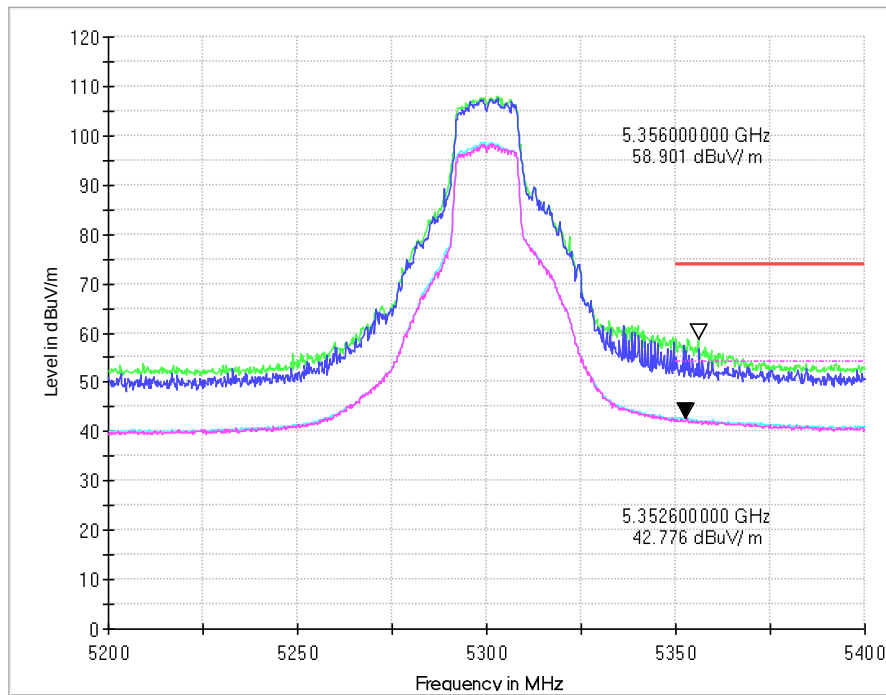
CH_5180 (Band Edge)



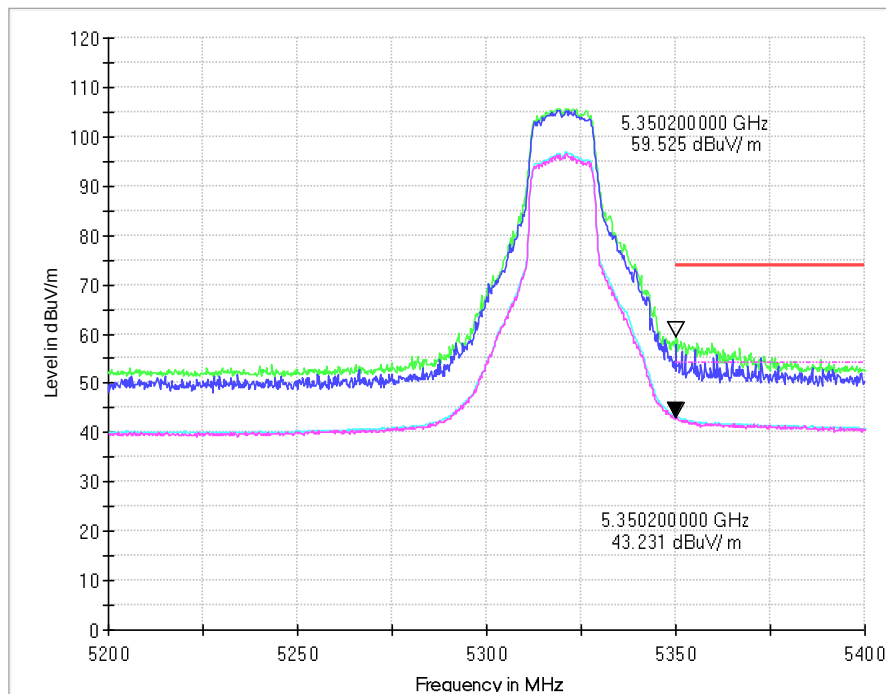
CH_5200 (Band Edge)



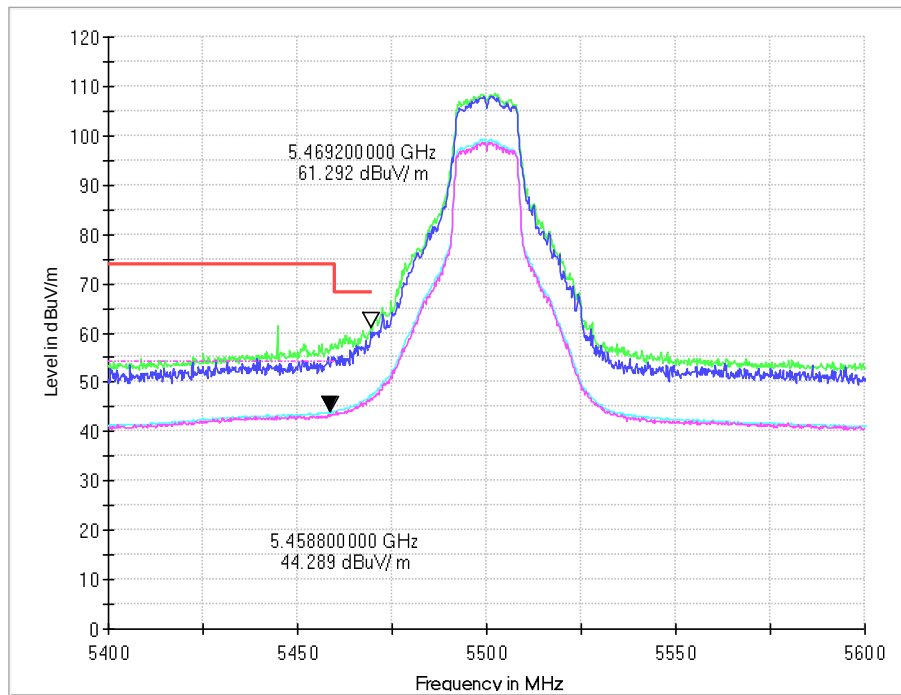
CH_5300(Band Edge)



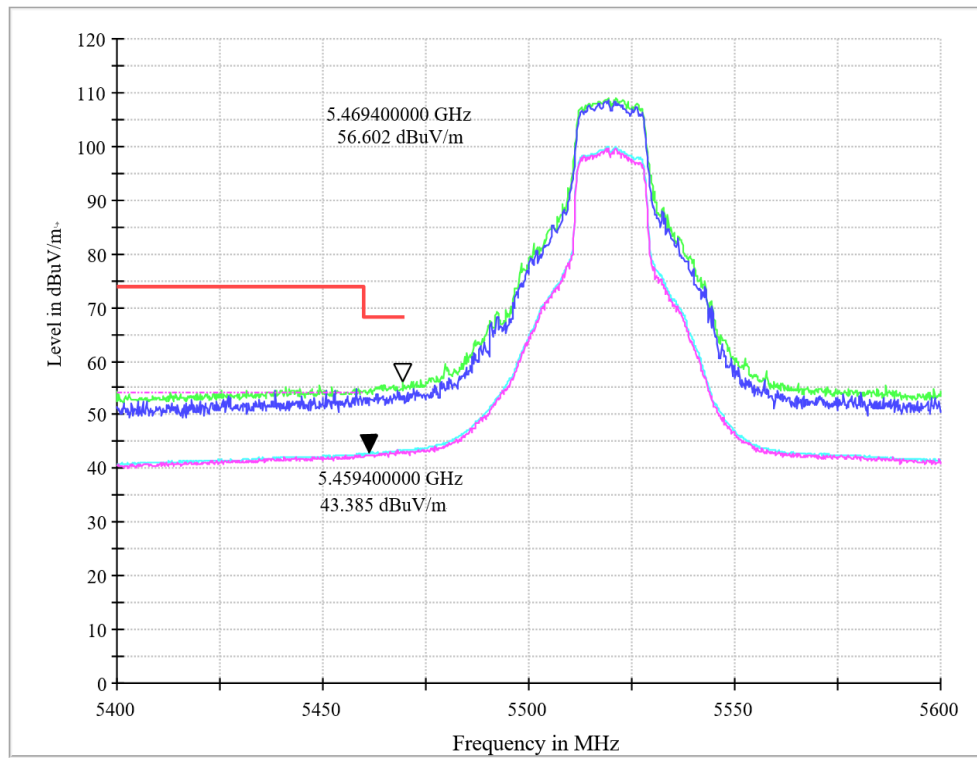
CH_5320(Band Edge)



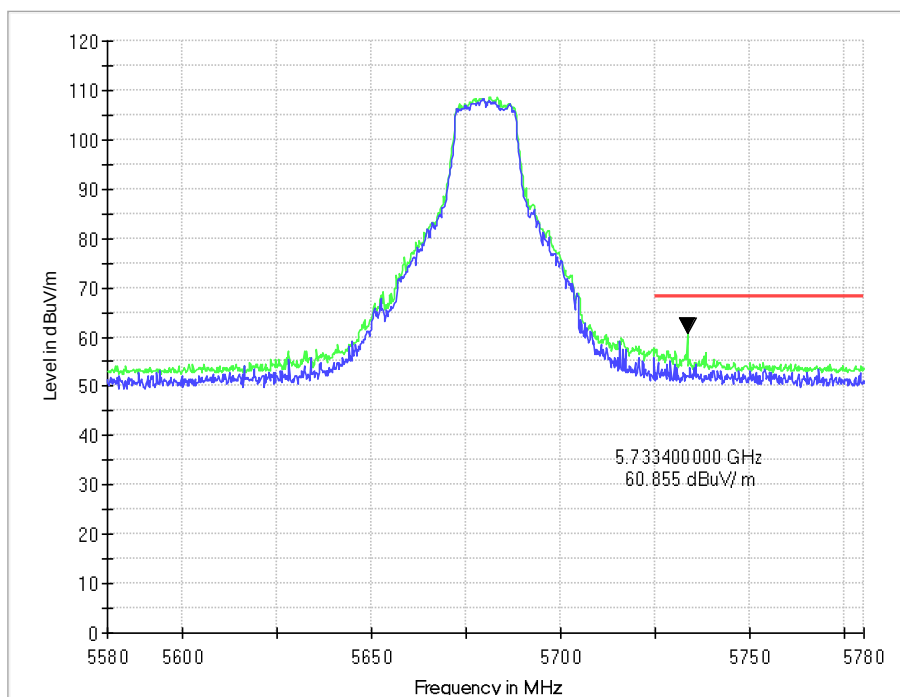
CH_5500(Band Edge)



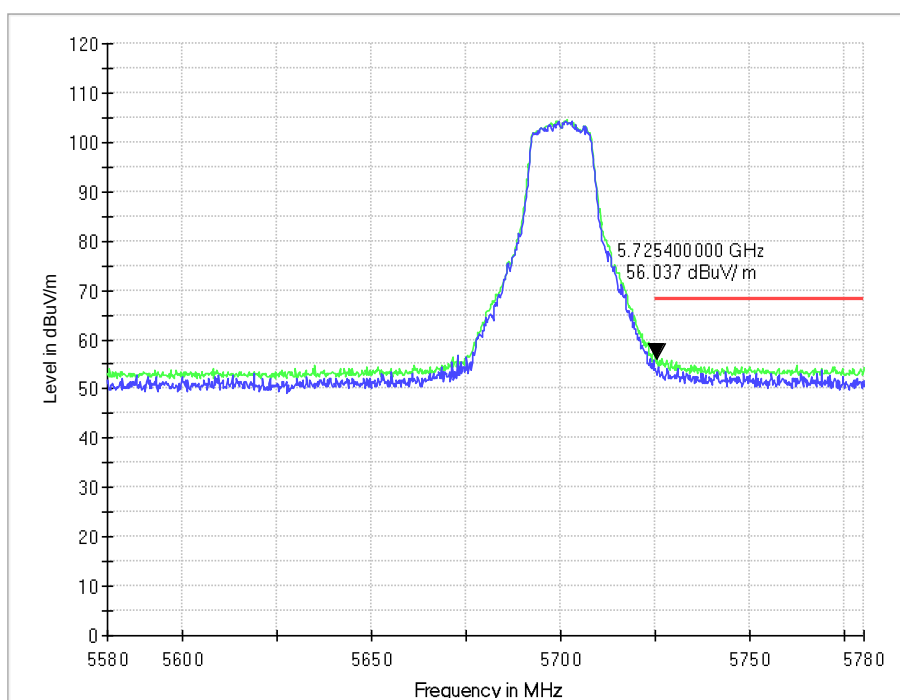
CH_5520(Band Edge)



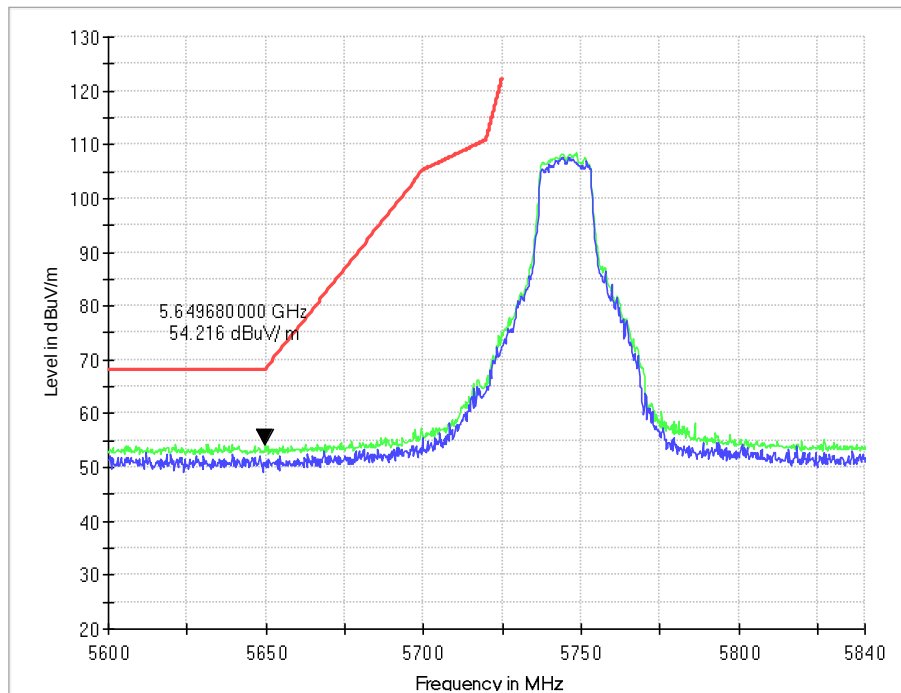
CH_5680(Band Edge)



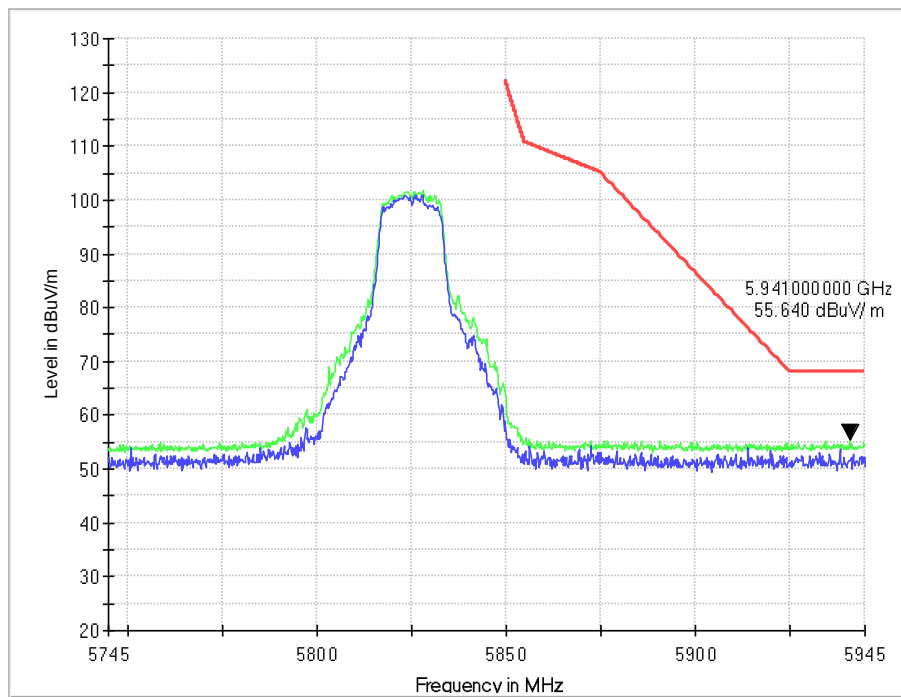
CH_5700(Band Edge)



CH_5745(Band Edge)

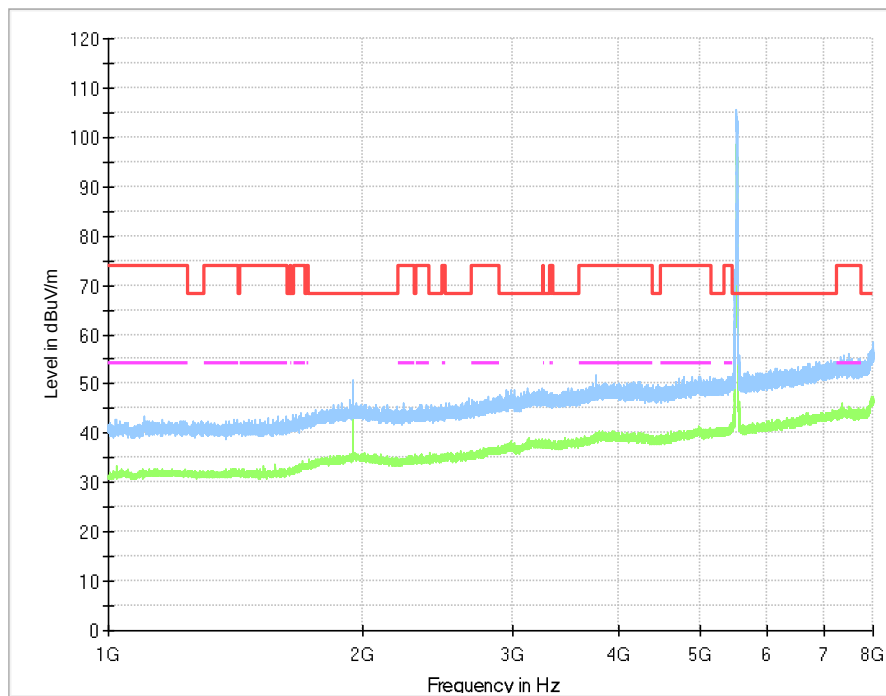


CH_5825(Band Edge)

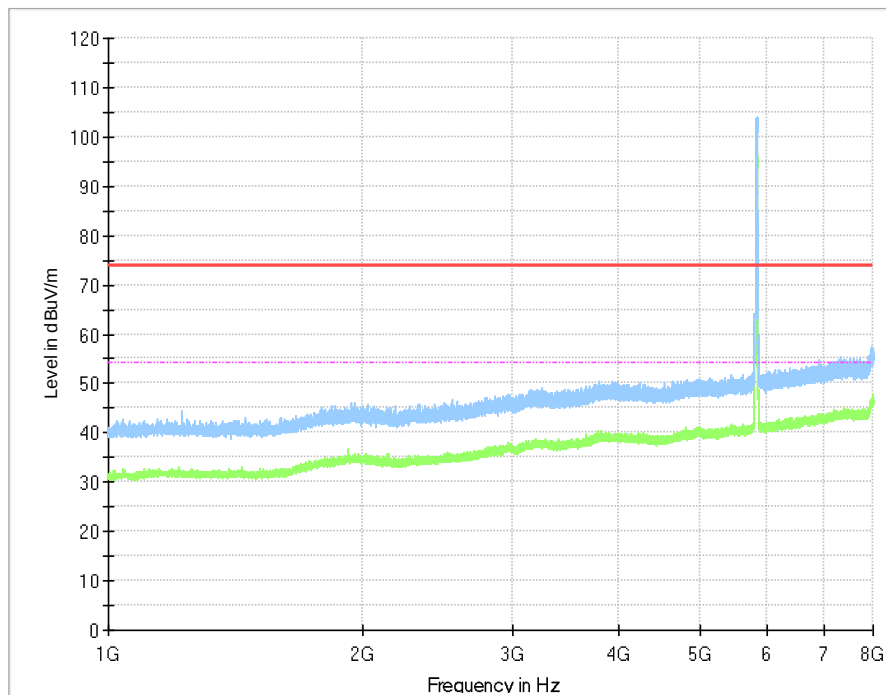


1.2.3.2. 11n20SISO

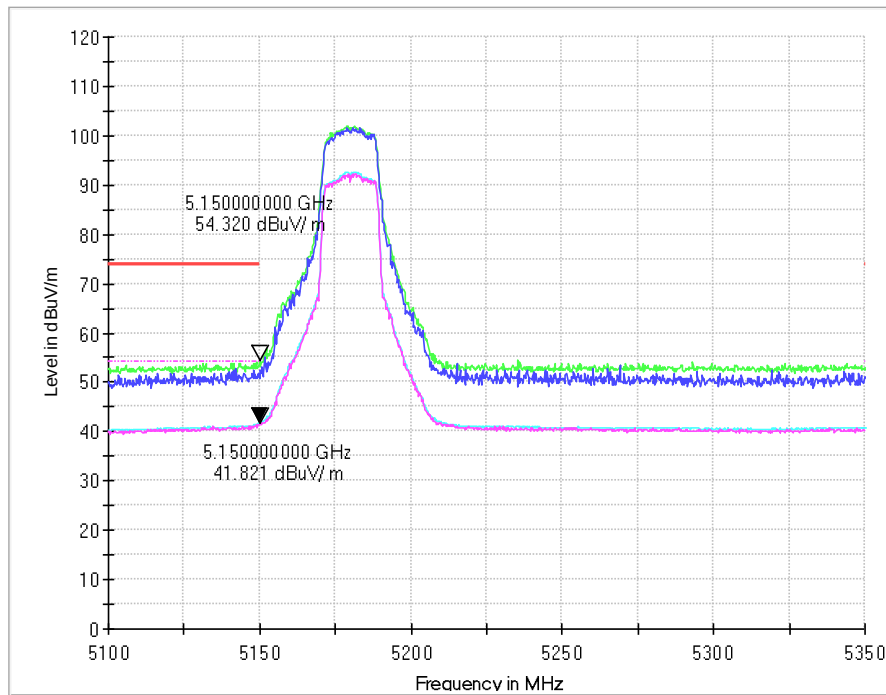
Worst case CH_5520 (1 GHz to 8 GHz)



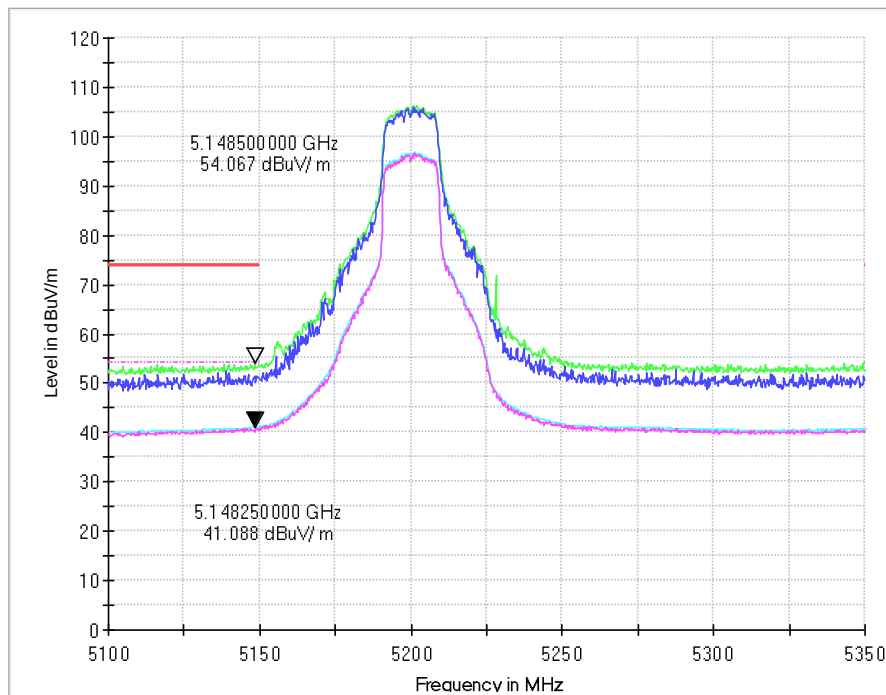
Worst case CH_5825 (1 GHz to 8 GHz)



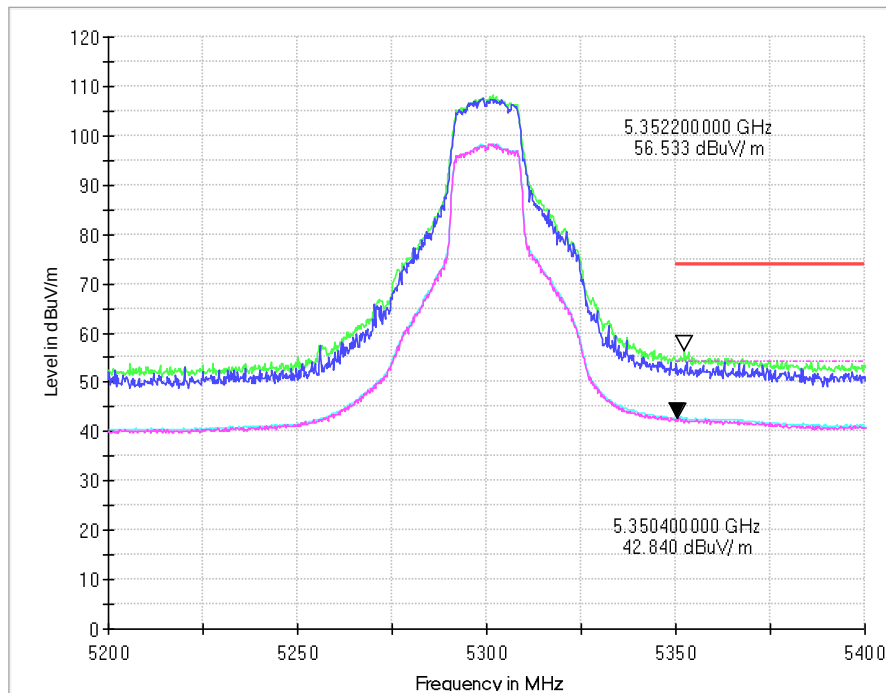
CH_5180 (Band Edge)



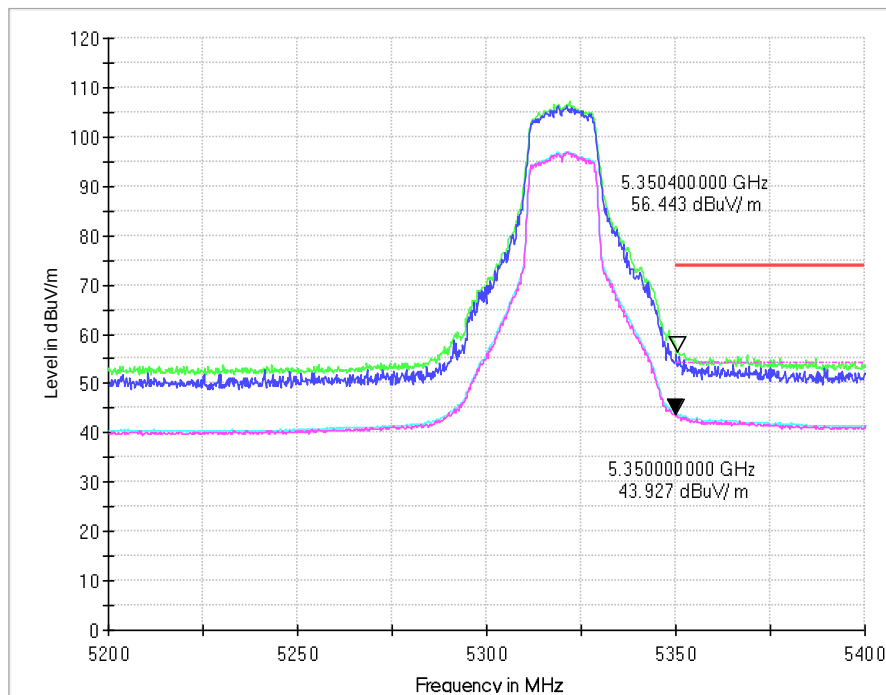
CH_5200 (Band Edge)



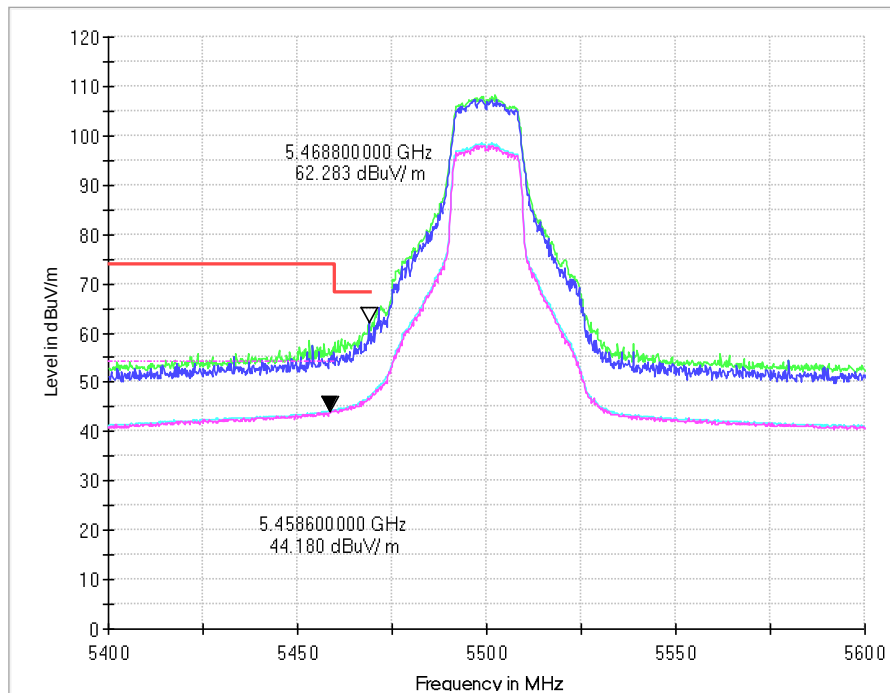
CH_5300(Band Edge)



CH_5320(Band Edge)



CH_5500(Band Edge)



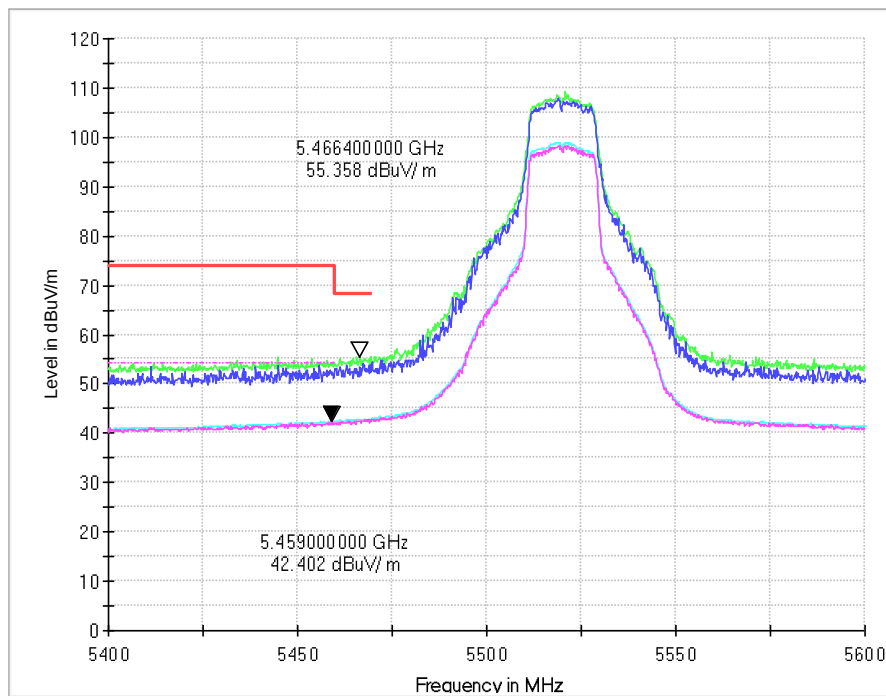
MEASUREMENT RESULT: PK Detector

Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
5468.80	62.28	68.3	6.02	150	H	204

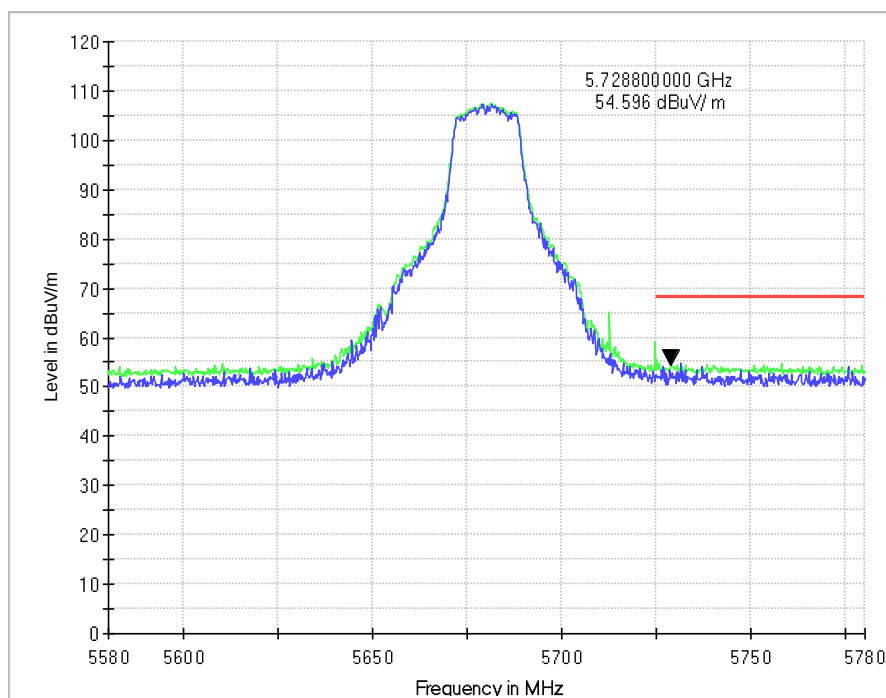
MEASUREMENT RESULT: AV Detector

Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
5458.60	44.18	54.00	9.82	150	H	204

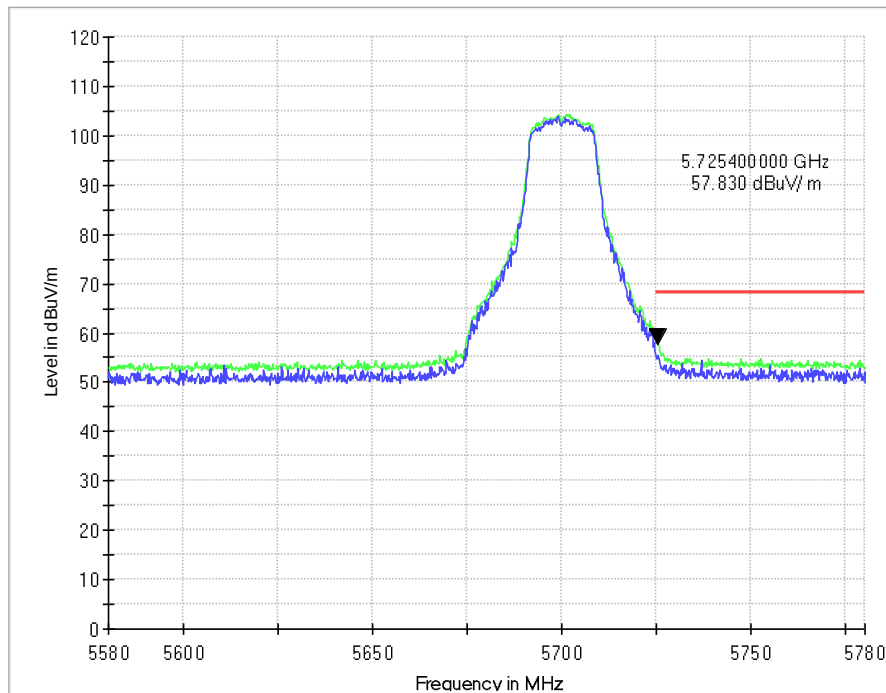
CH_5520(Band Edge)



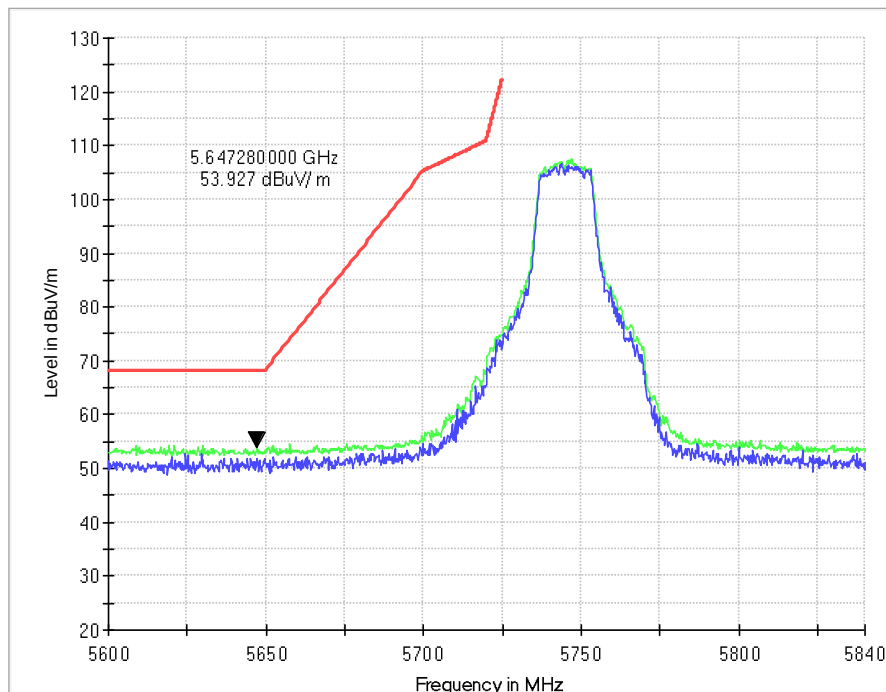
CH_5680(Band Edge)



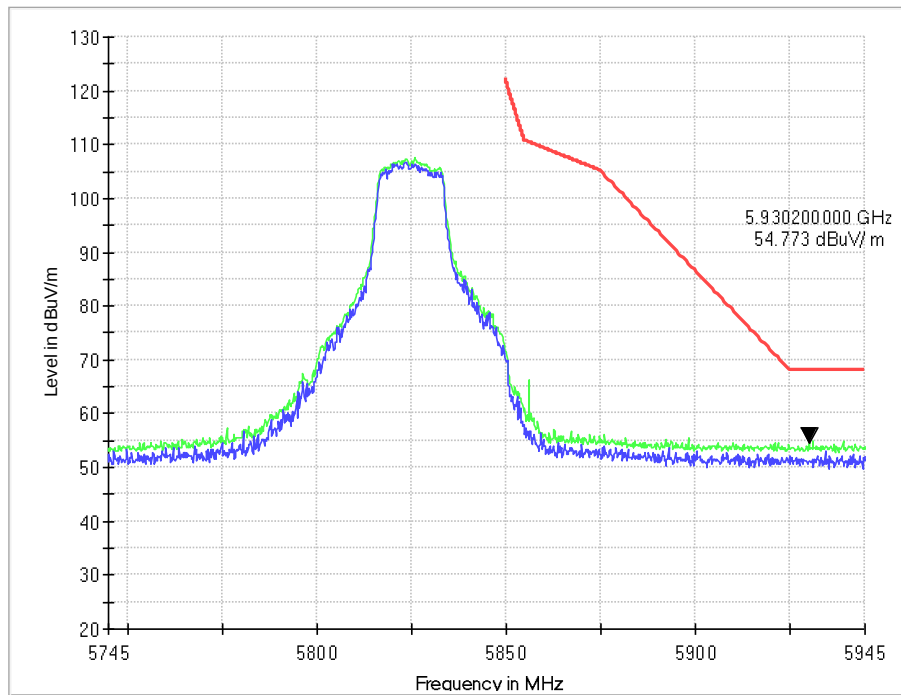
CH_5700(Band Edge)



CH_5745(Band Edge)

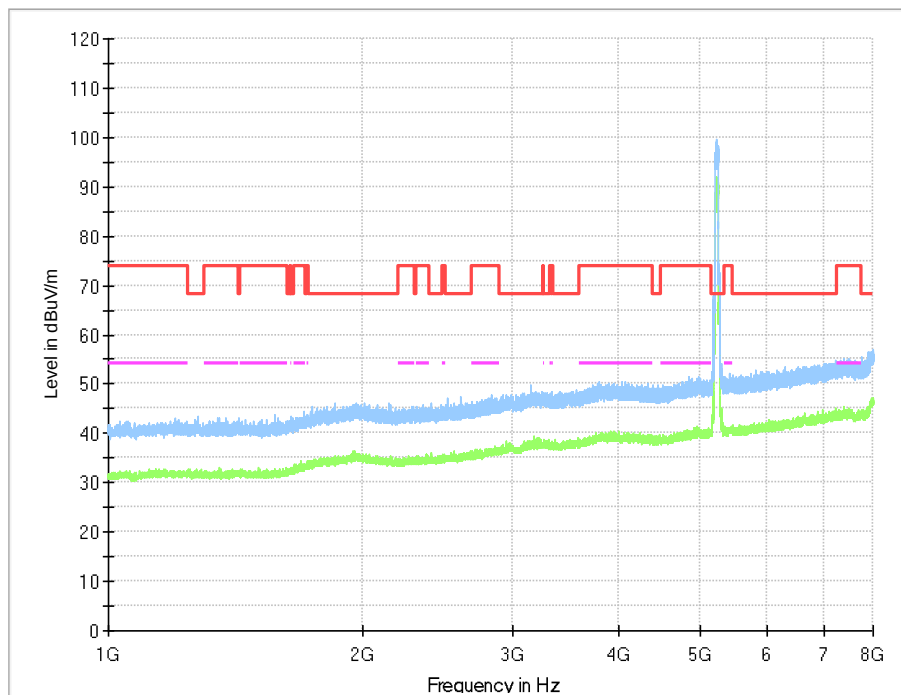


CH_5825(Band Edge)

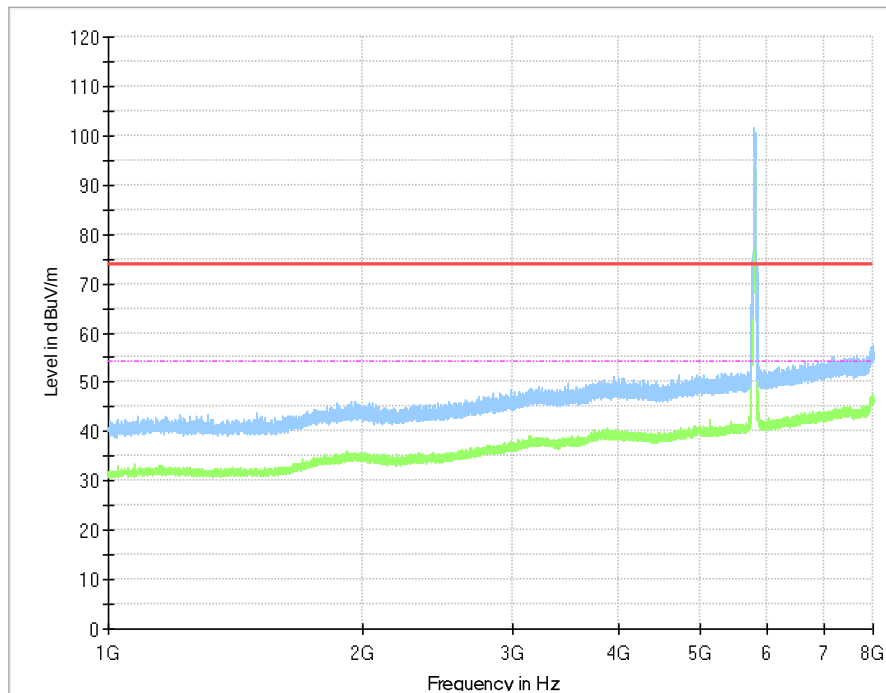


1.2.3.3. 11n40SISO

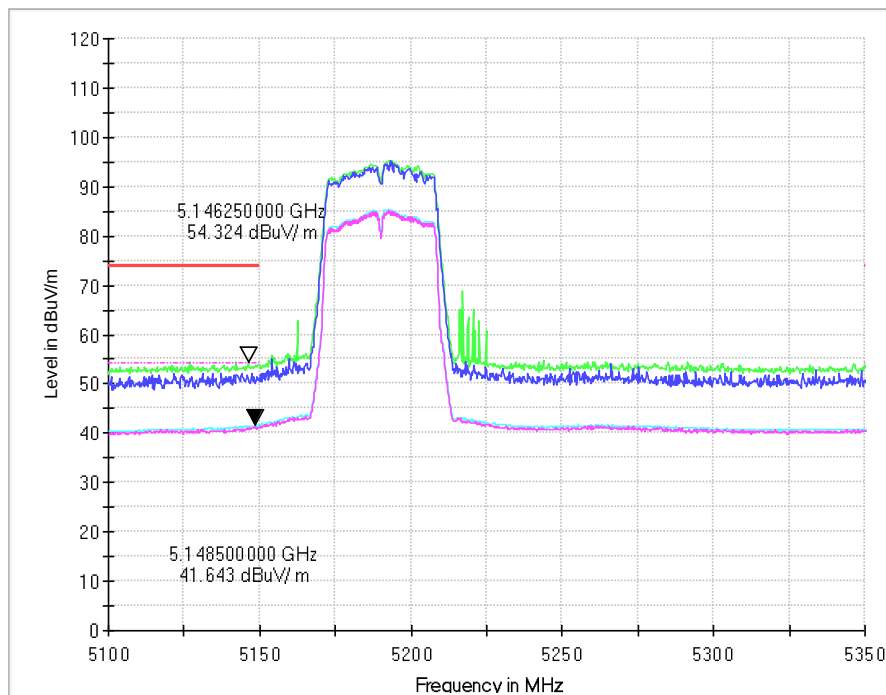
Worst case CH_5230 (1 GHz to 8 GHz)



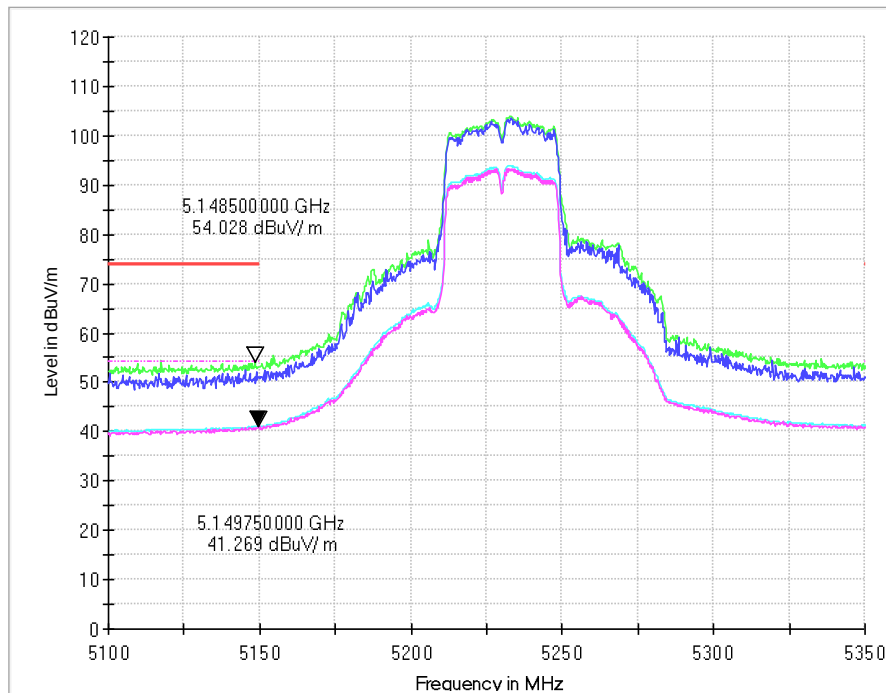
Worst case CH_5795 (1 GHz to 8 GHz)



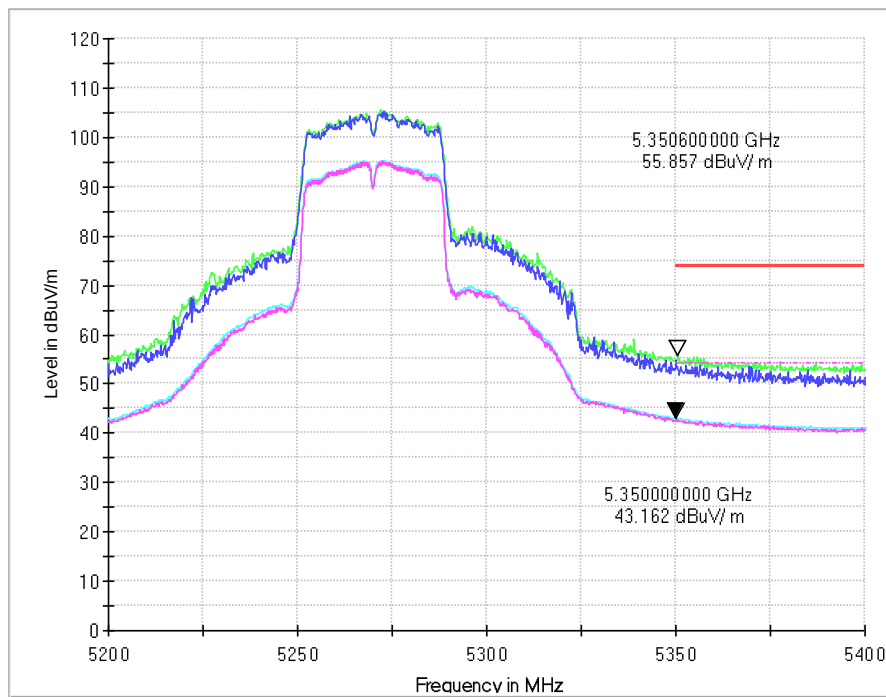
CH_5190 (Band Edge)



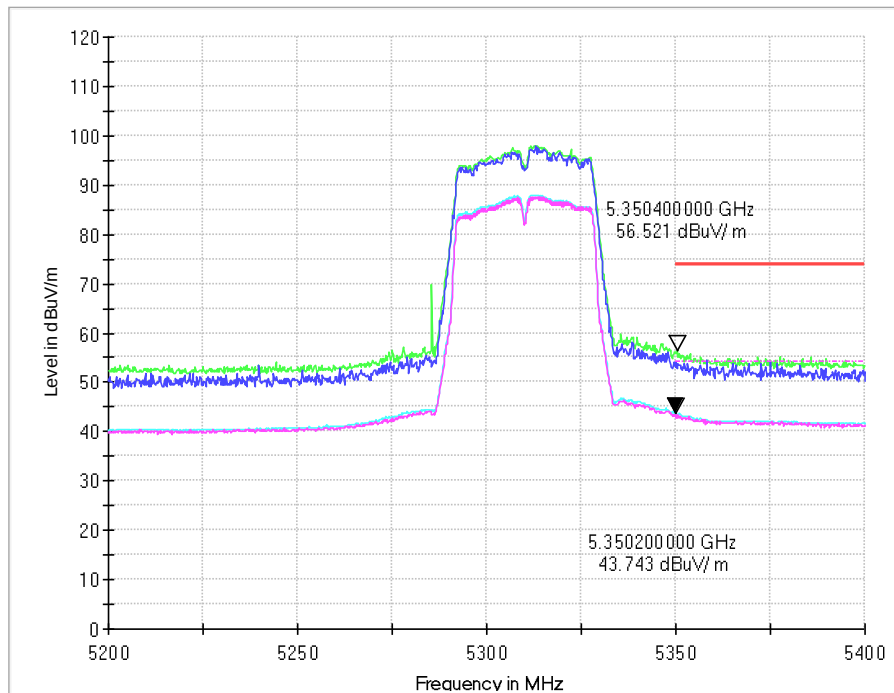
CH_5230 (Band Edge)



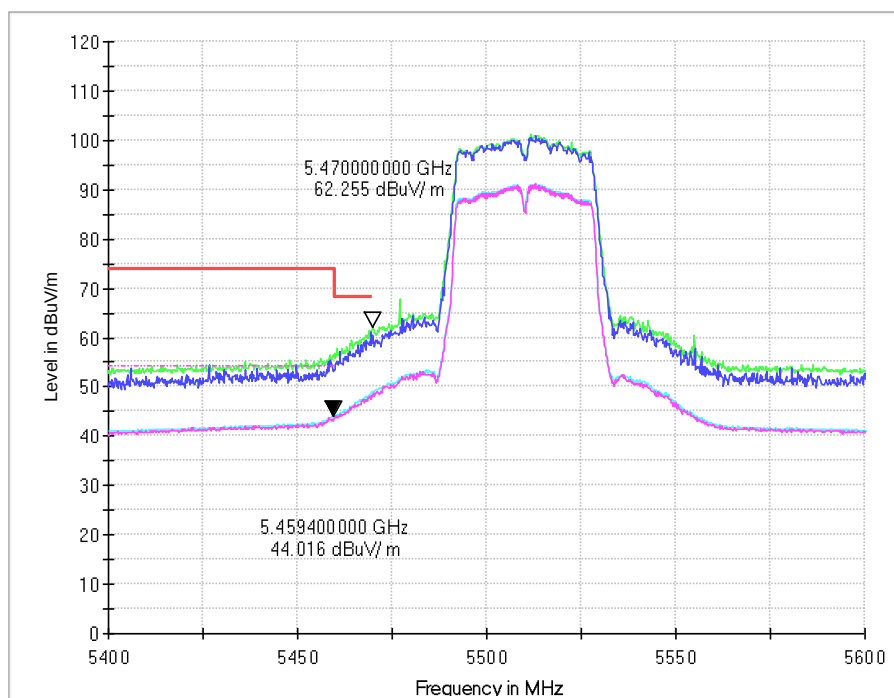
CH_5270 (Band Edge)



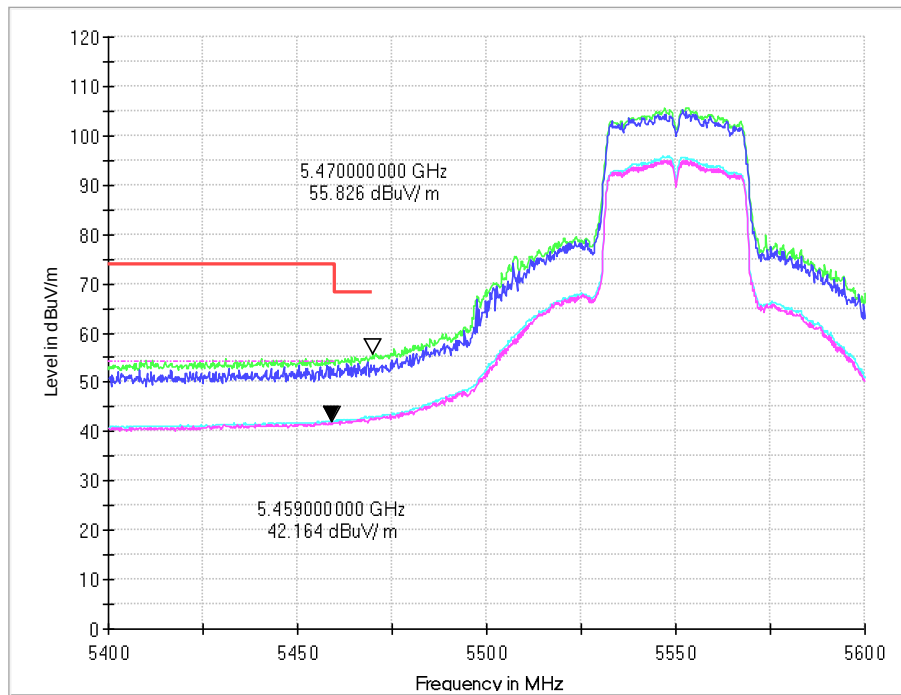
CH_5310(Band Edge)



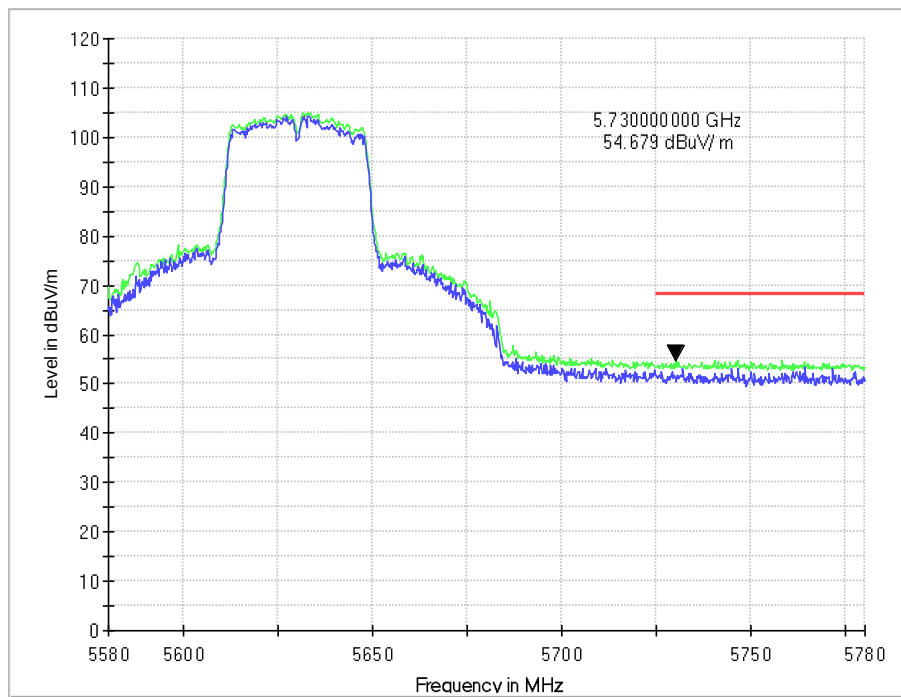
CH_5510(Band Edge)



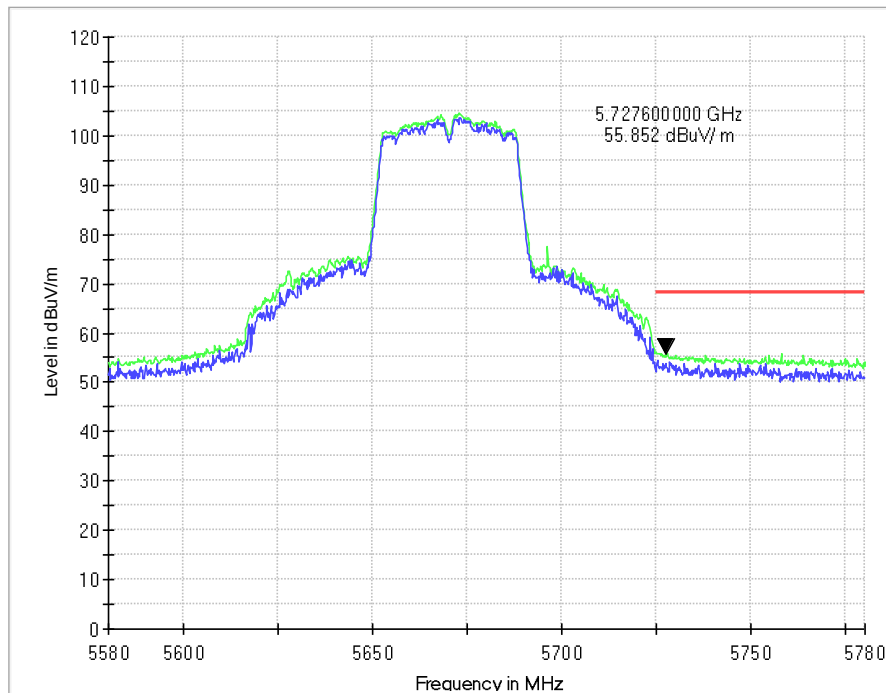
CH_5550(Band Edge)



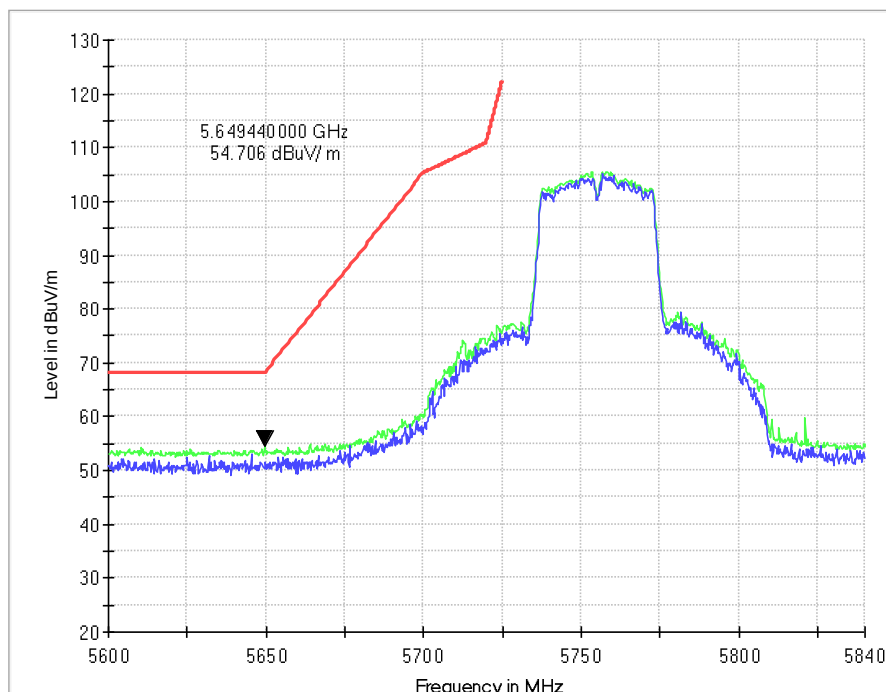
CH_5630(Band Edge)



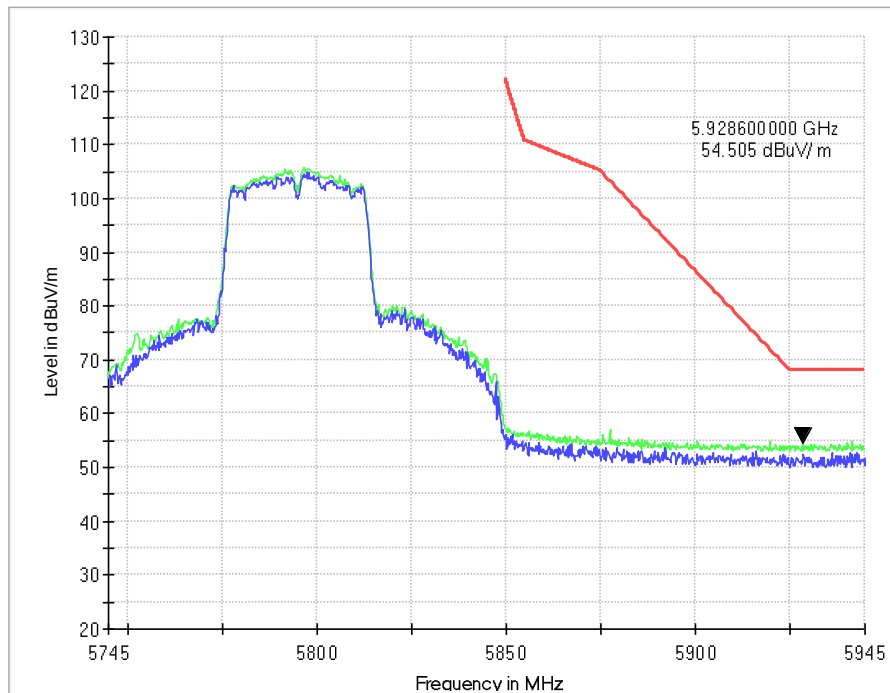
CH_5670(Band Edge)



CH_5755(Band Edge)

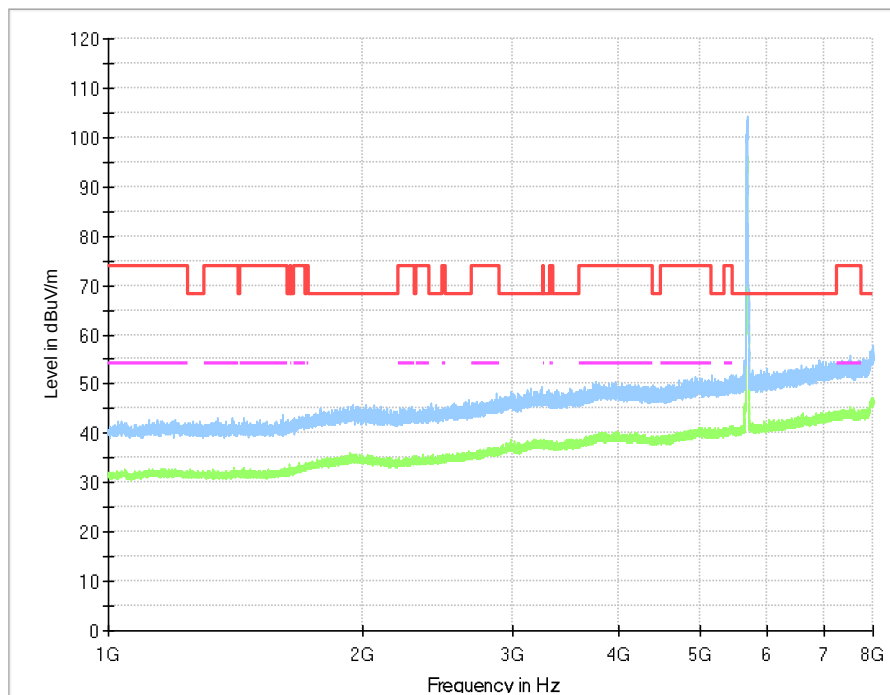


CH_5795(Band Edge)

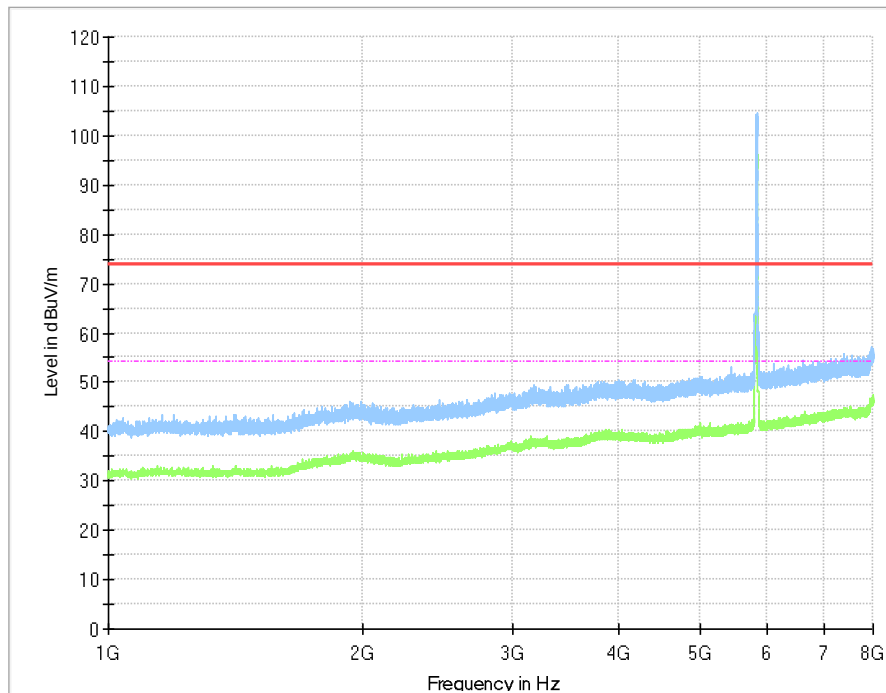


1.2.3.4. 11ac20 SISO

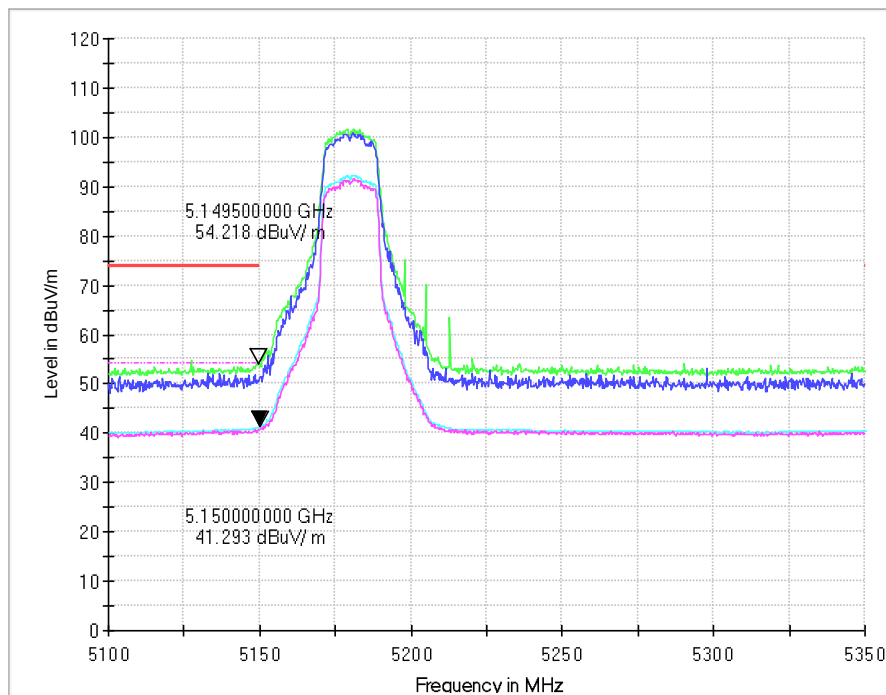
Worst case CH_5680 (1 GHz to 8 GHz)



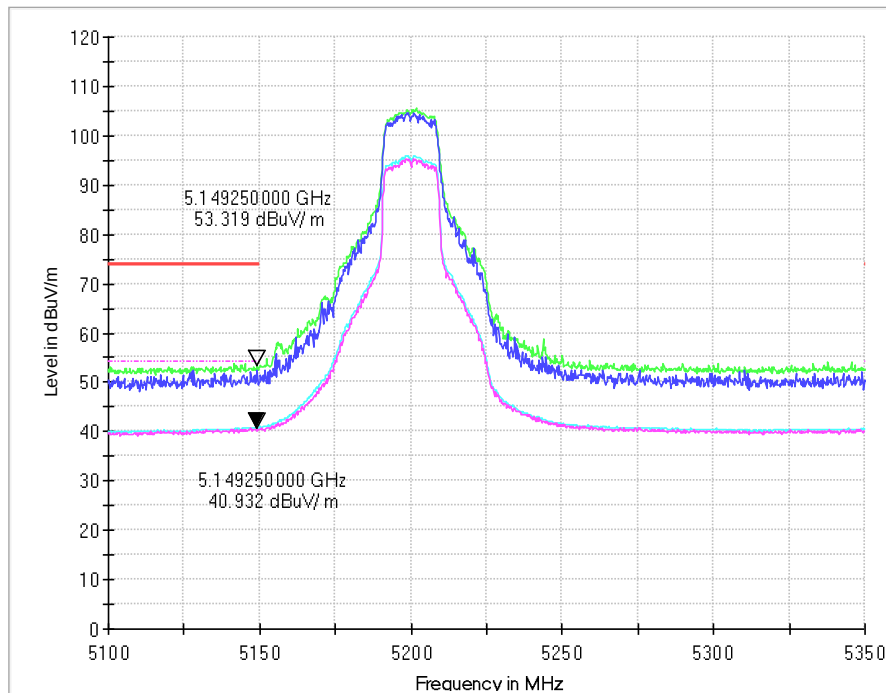
Worst case CH_5825 (1 GHz to 8 GHz)



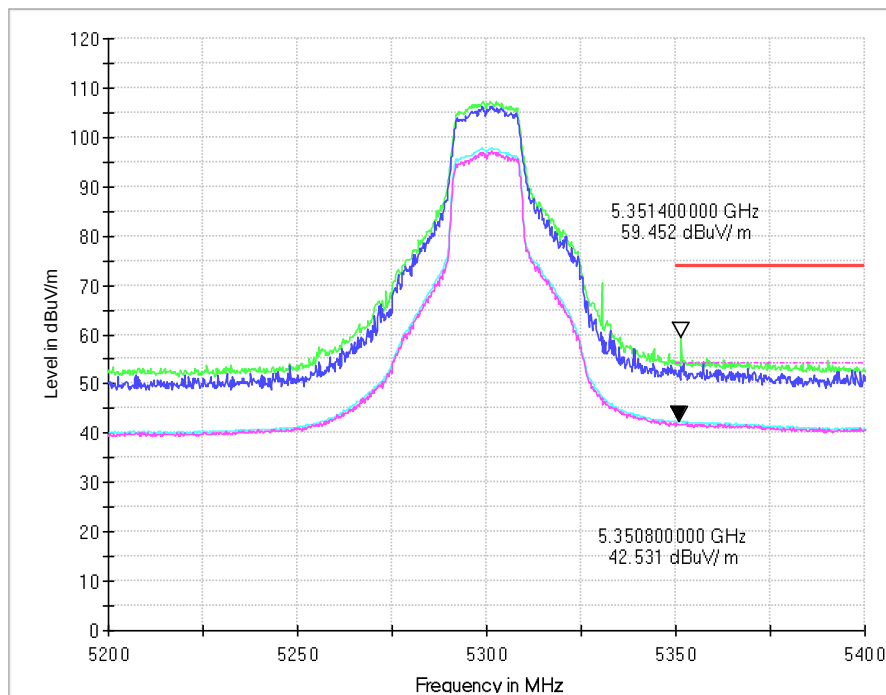
CH_5180 (Band Edge)



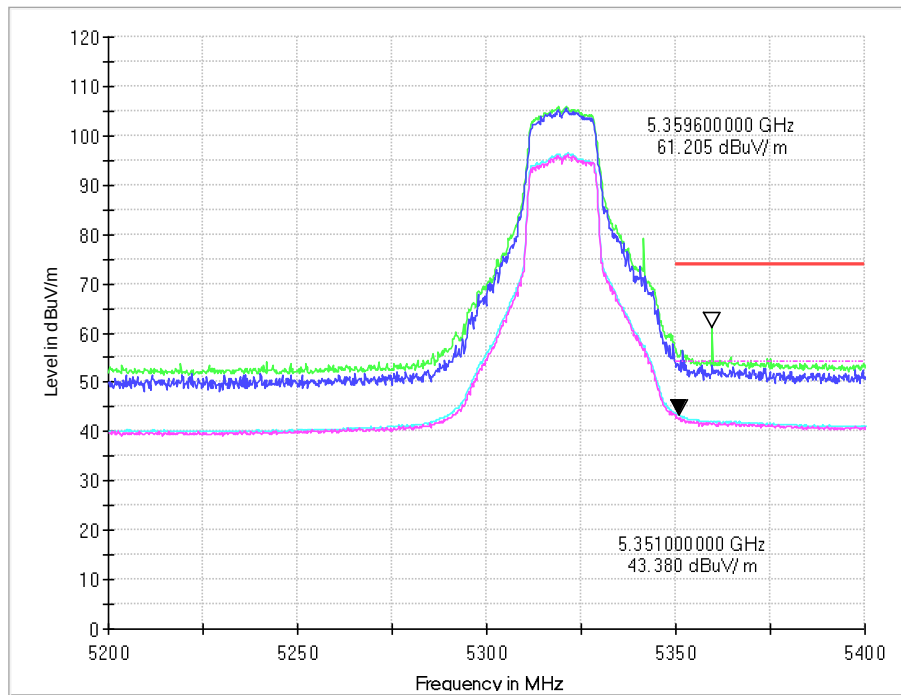
CH_5200 (Band Edge)



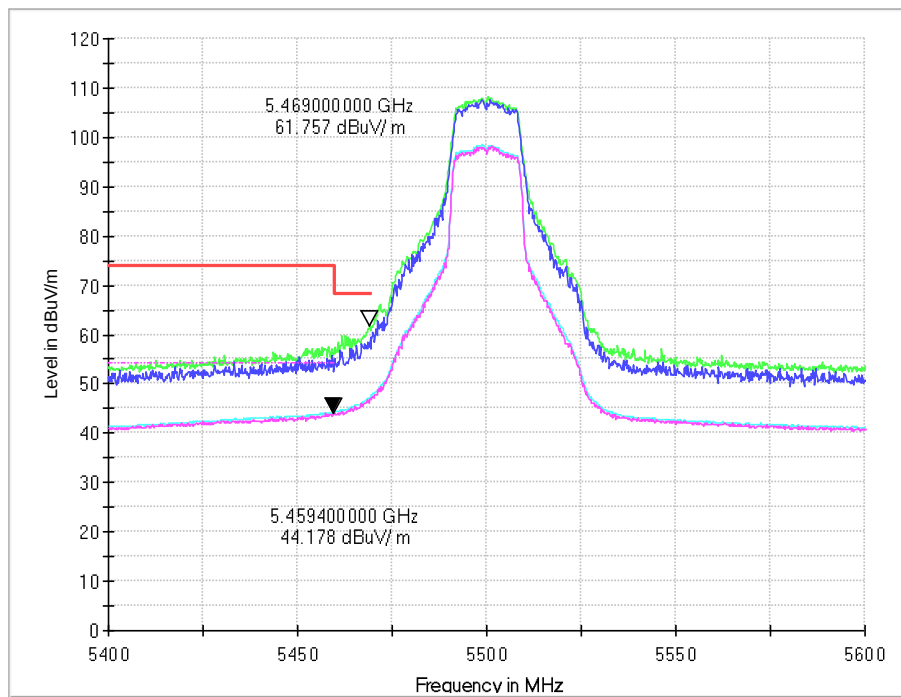
CH_5300 (Band Edge)



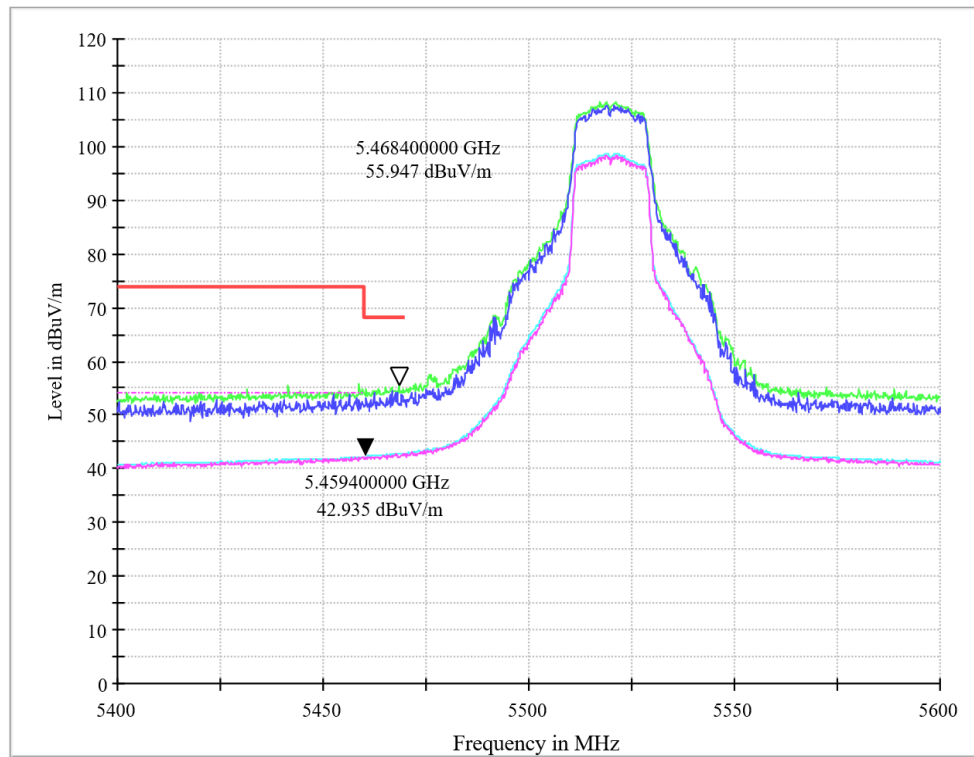
CH_5320(Band Edge)



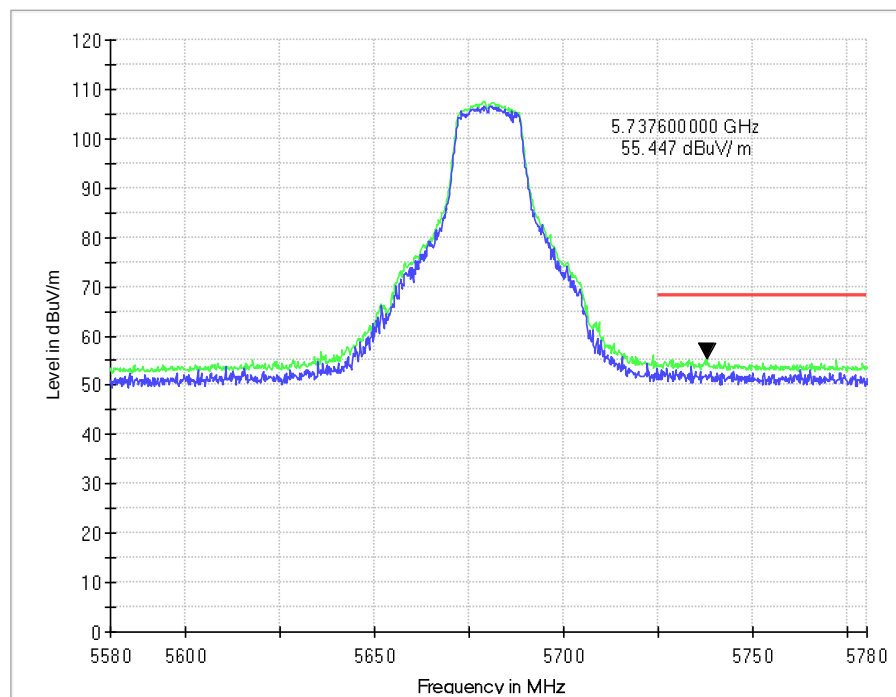
CH_5500(Band Edge)



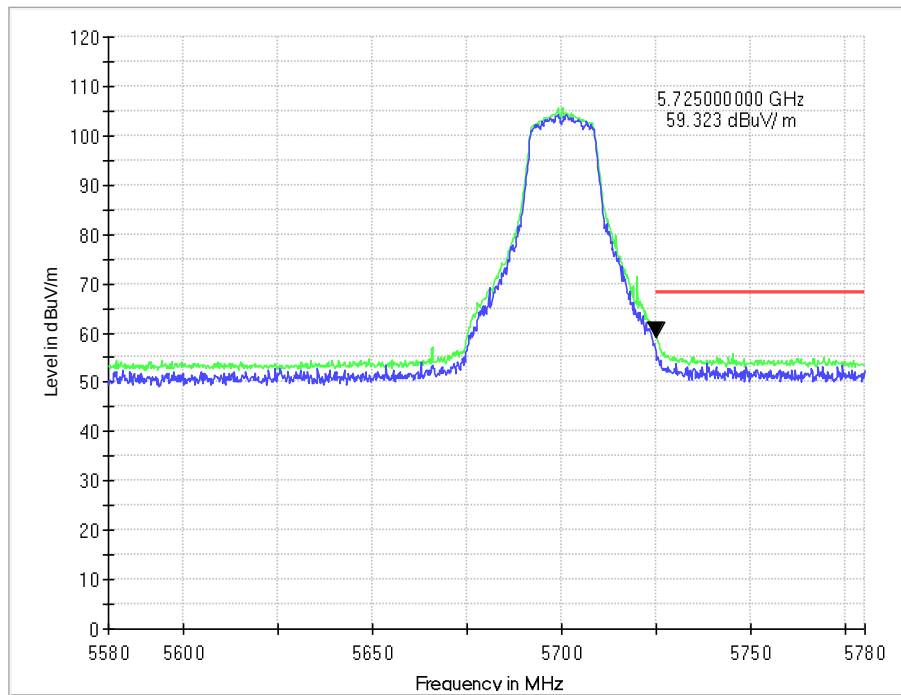
CH_5520(Band Edge)



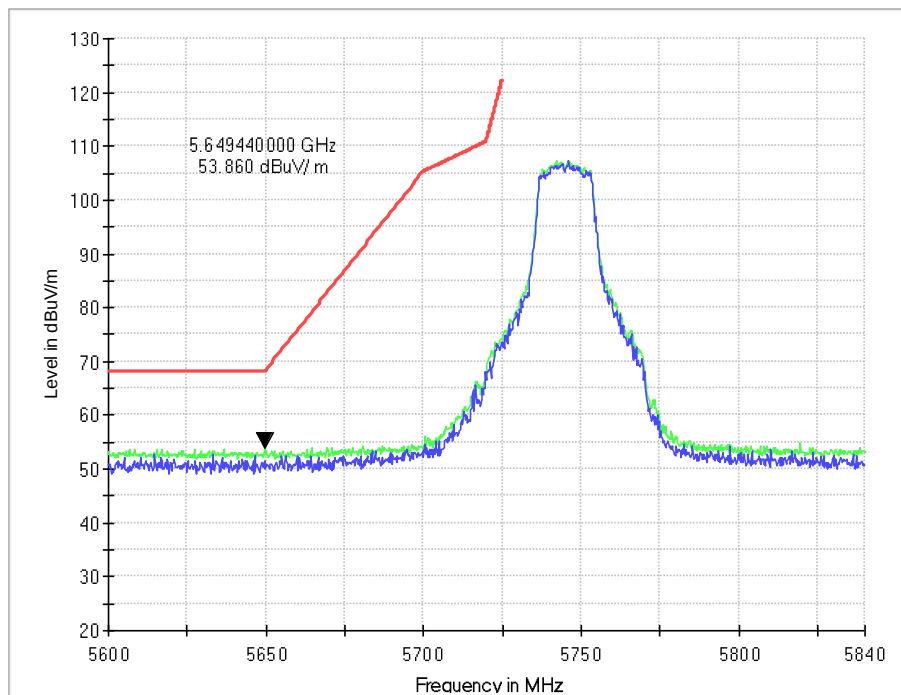
CH_5680(Band Edge)



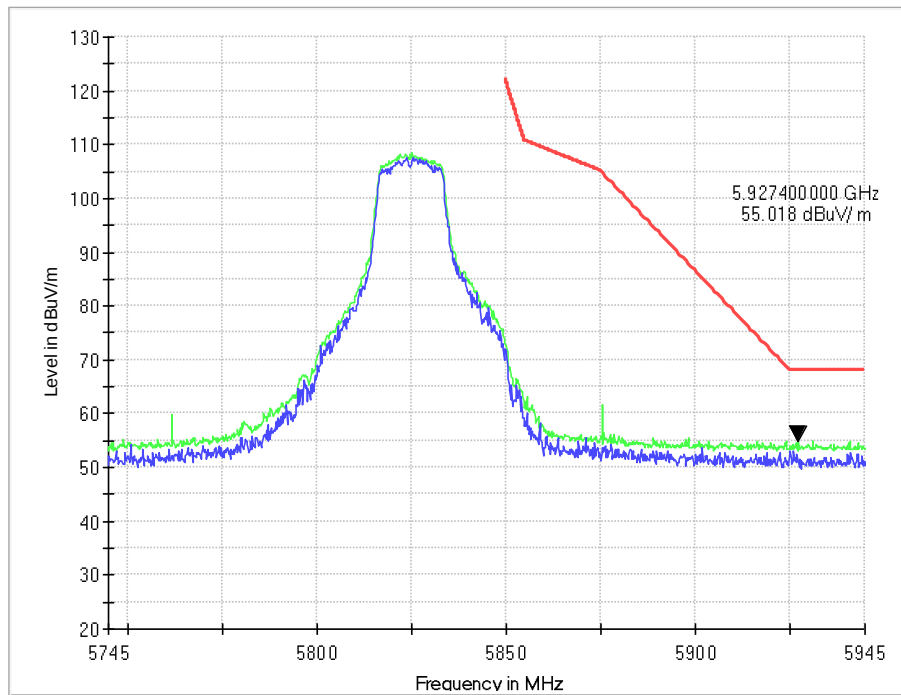
CH_5700(Band Edge)



CH_5745(Band Edge)

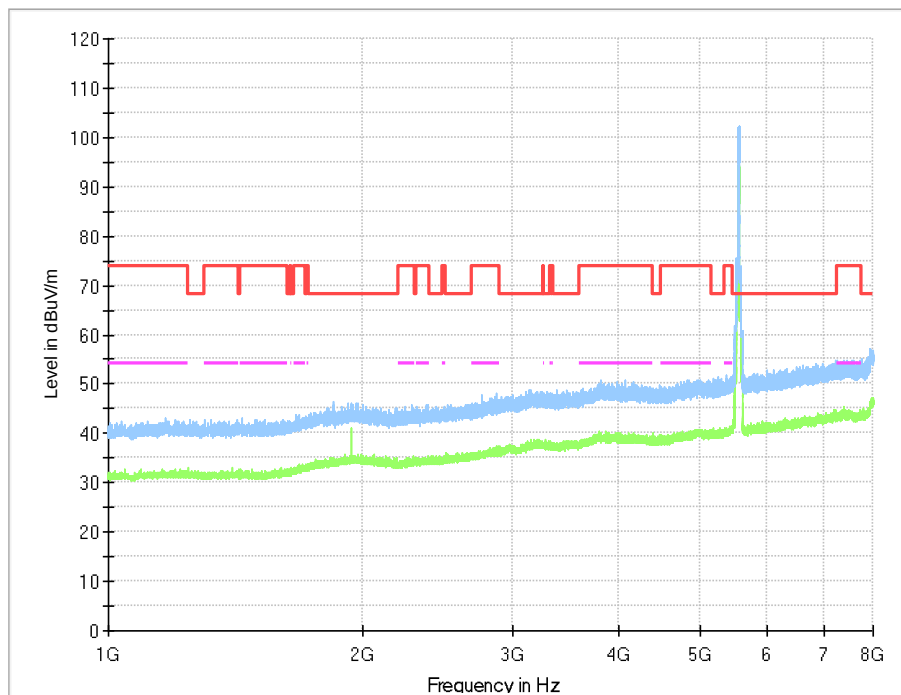


CH_5825(Band Edge)

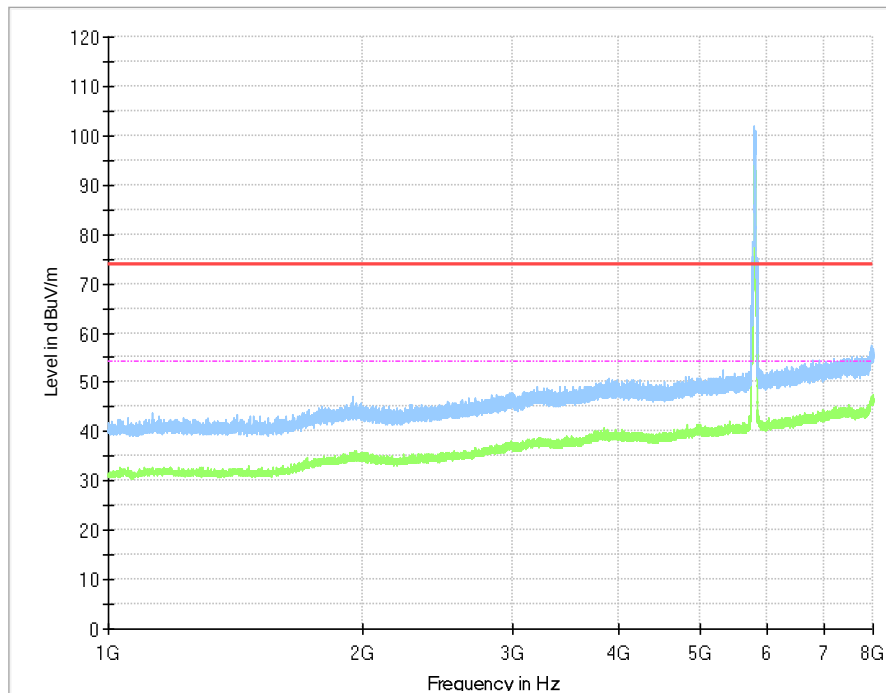


1.2.3.5. 11ac40 SISO

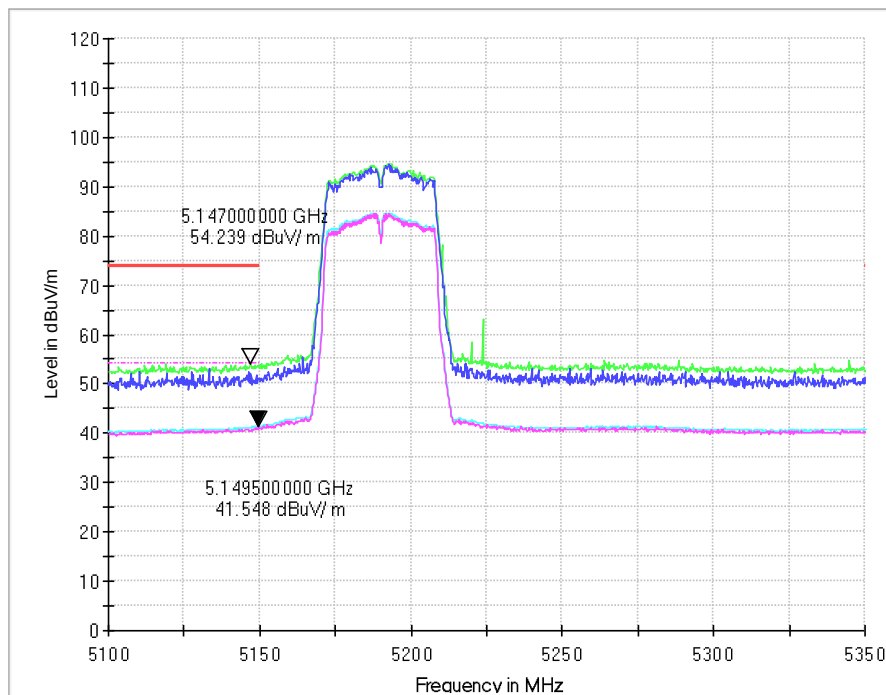
Worst case CH_5550 (1 GHz to 8 GHz)



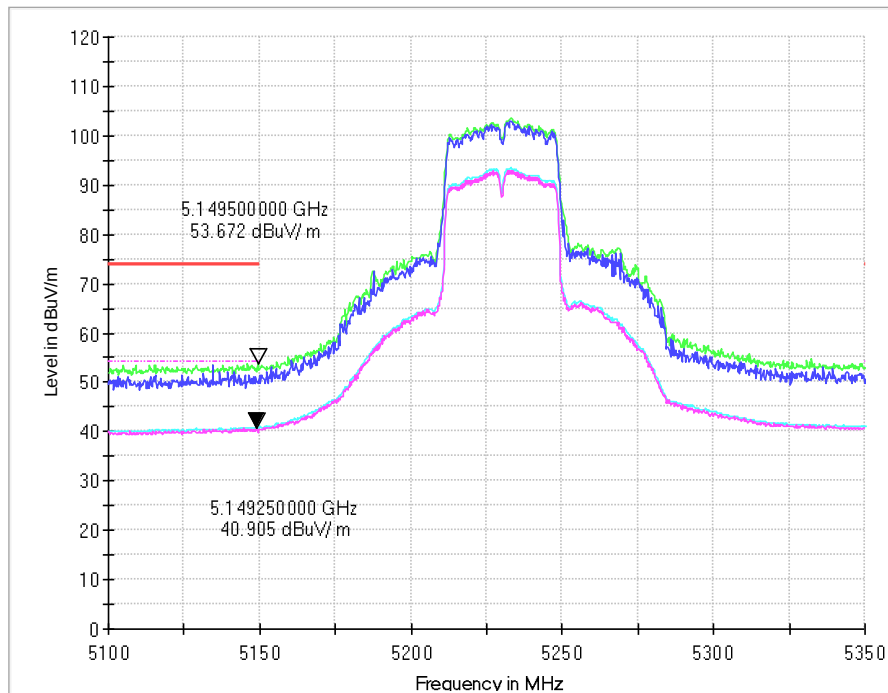
Worst case CH_5795 (1 GHz to 8 GHz)



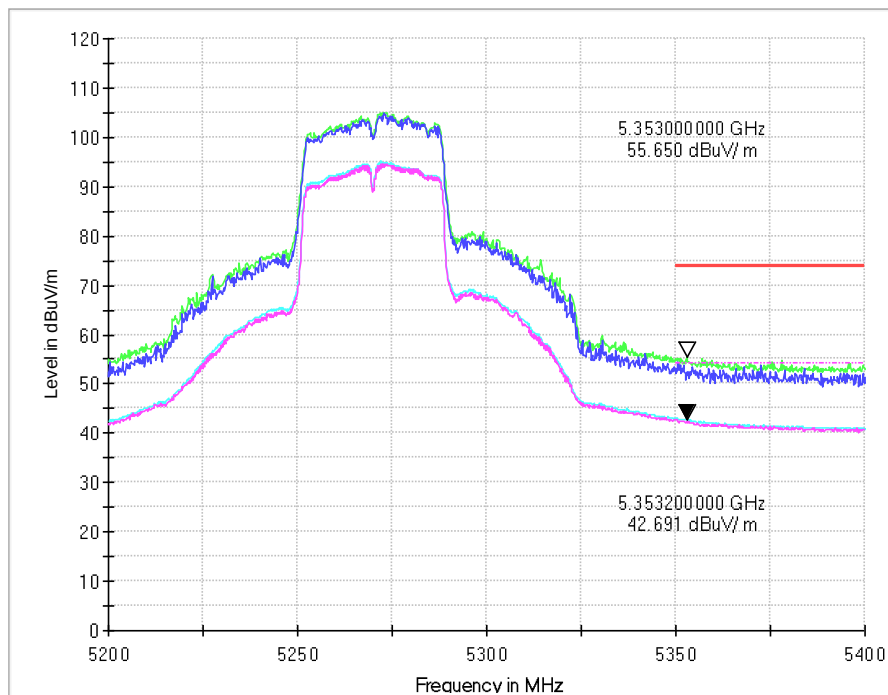
CH_5190 (Band Edge)



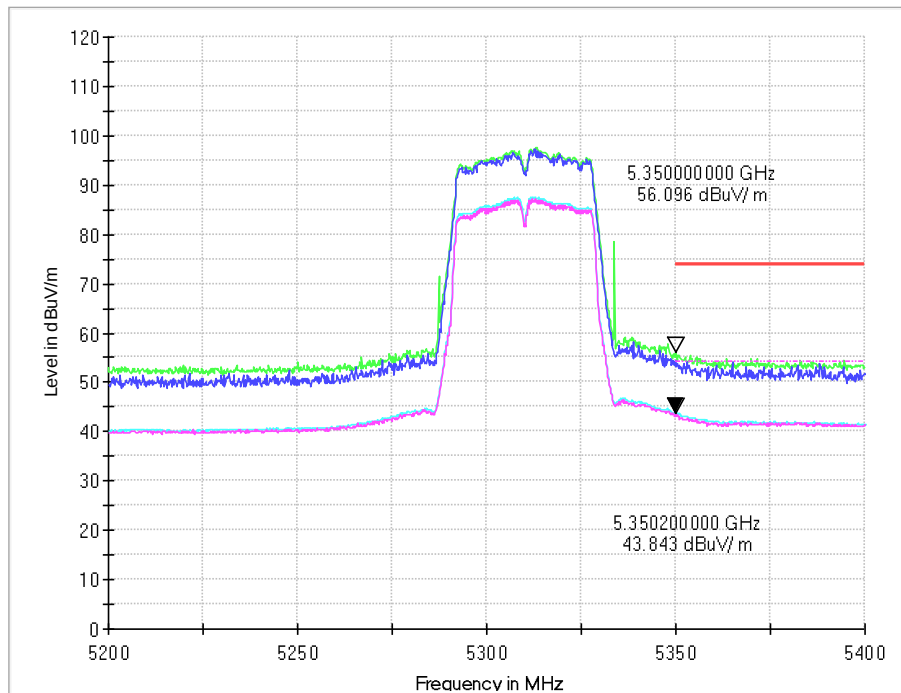
CH_5230 (Band Edge)



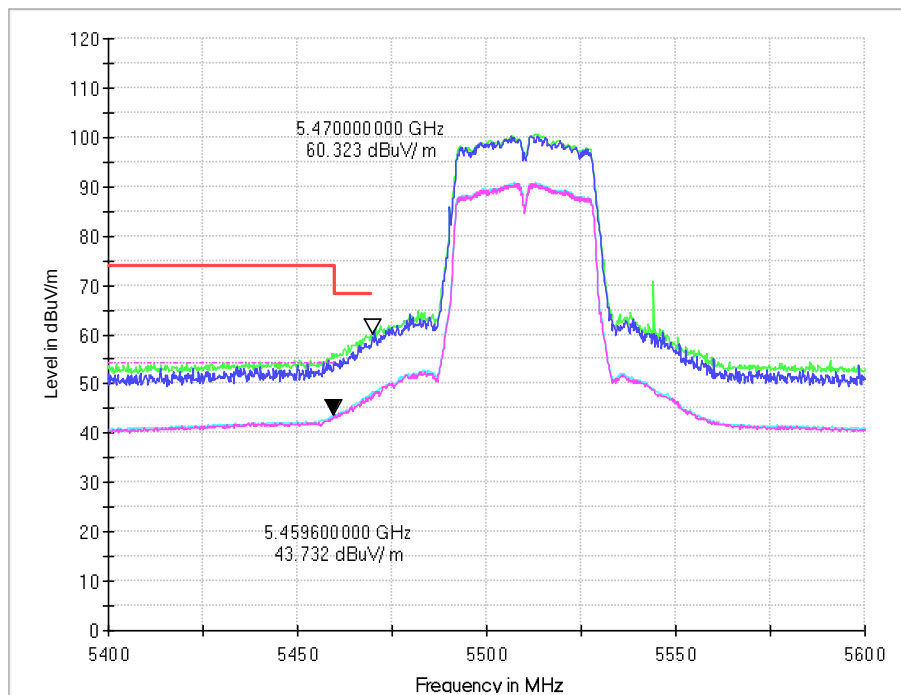
CH_5270 (Band Edge)



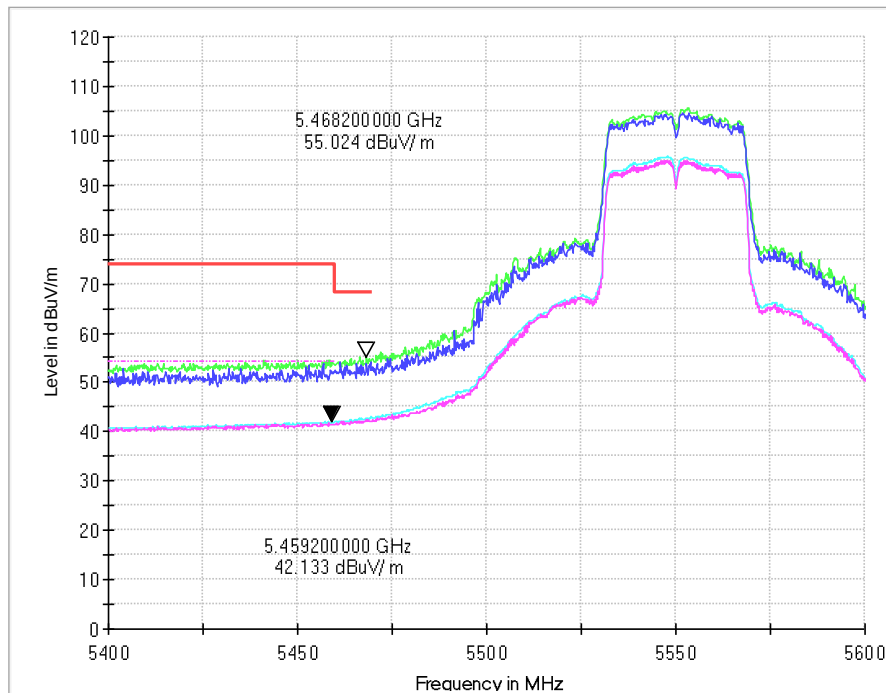
CH_5310(Band Edge)



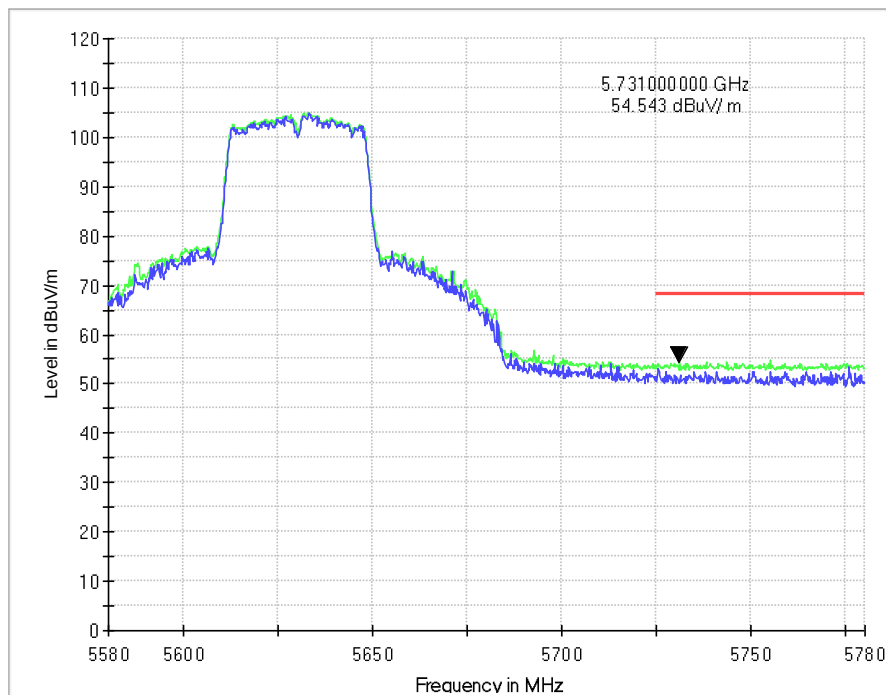
CH_5510(Band Edge)



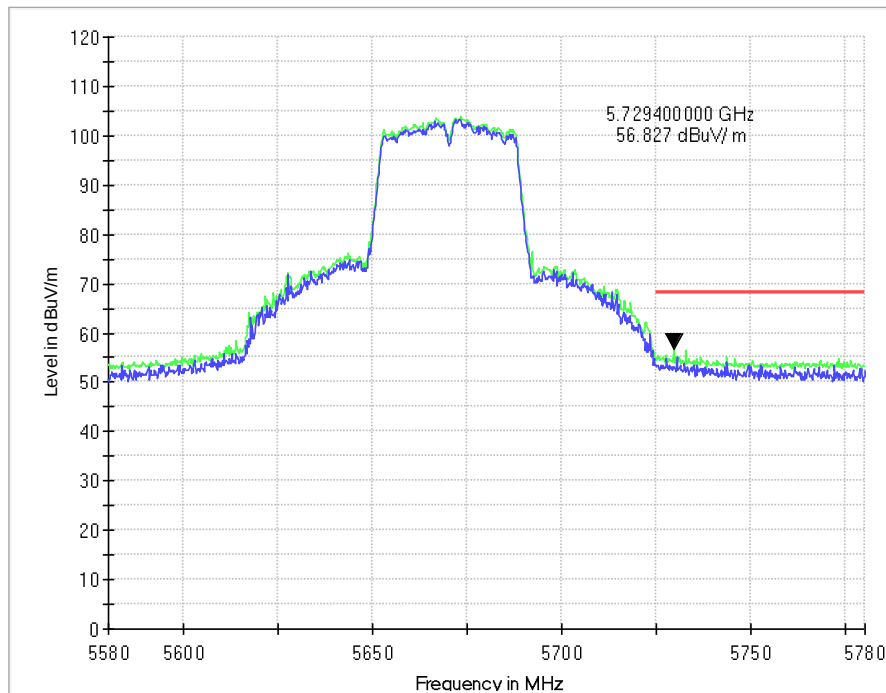
CH_5550(Band Edge)



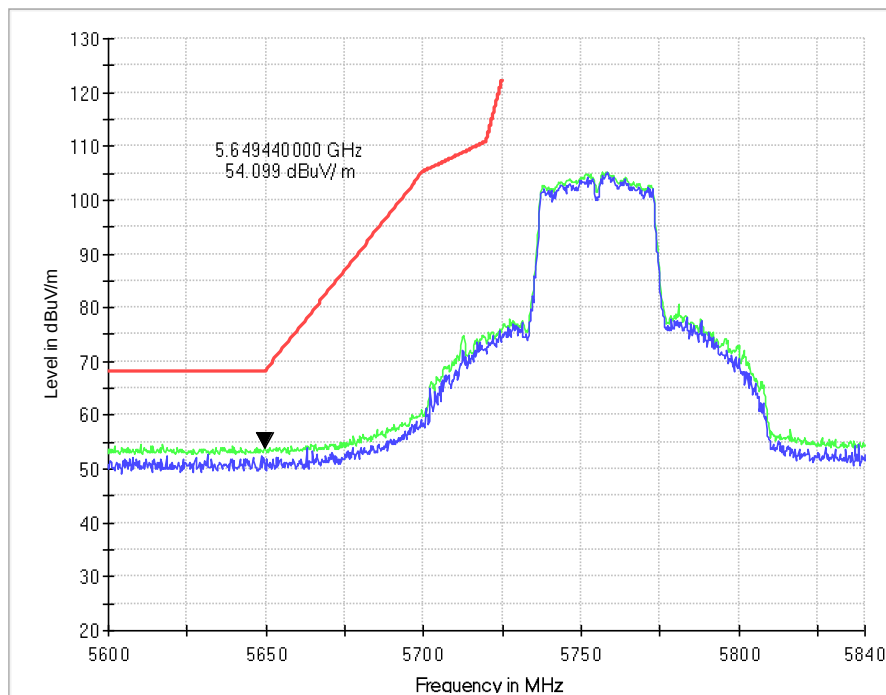
CH_5630(Band Edge)



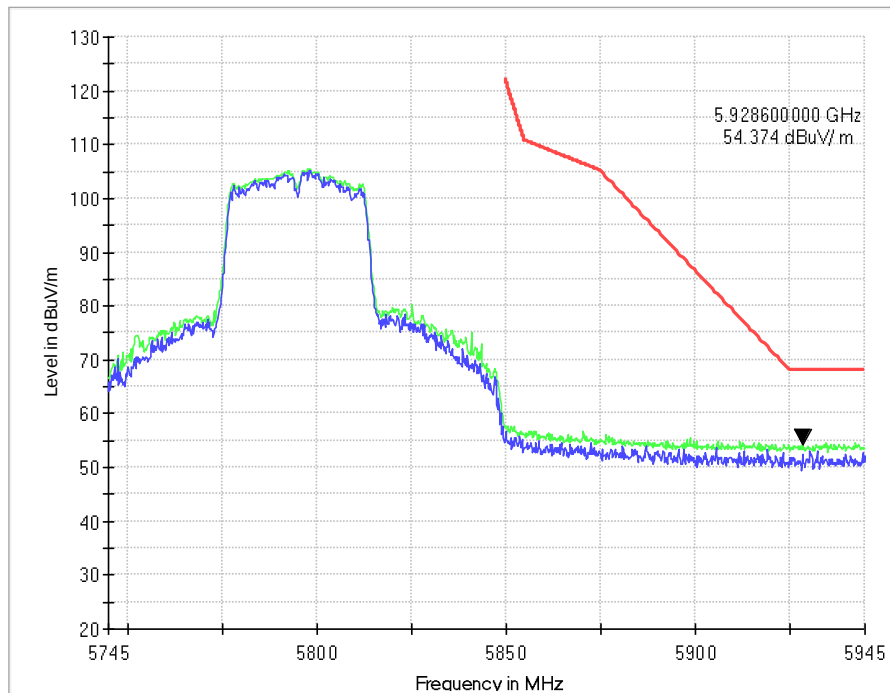
CH_5670(Band Edge)



CH_5755(Band Edge)

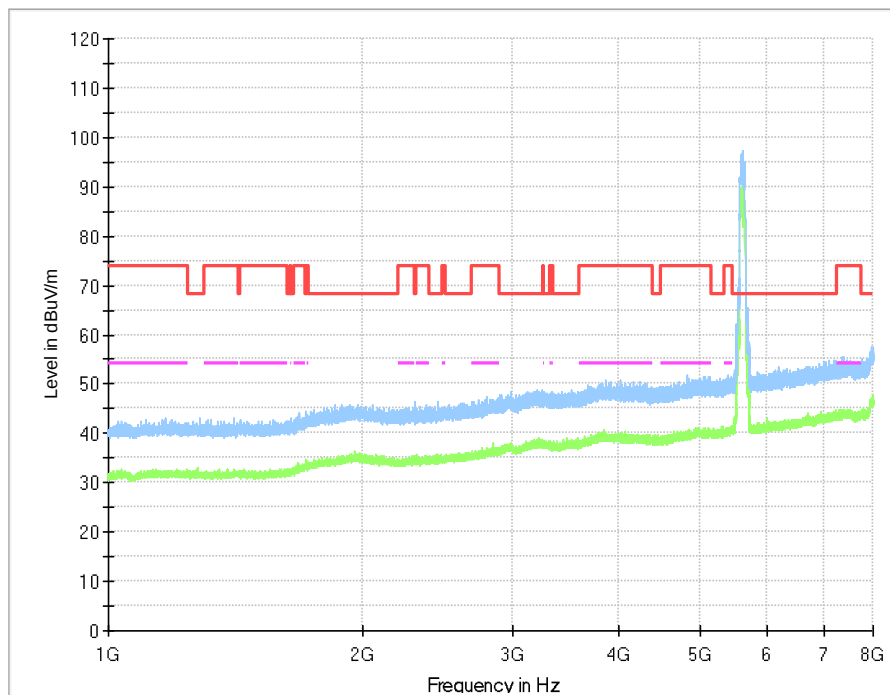


CH_5795(Band Edge)

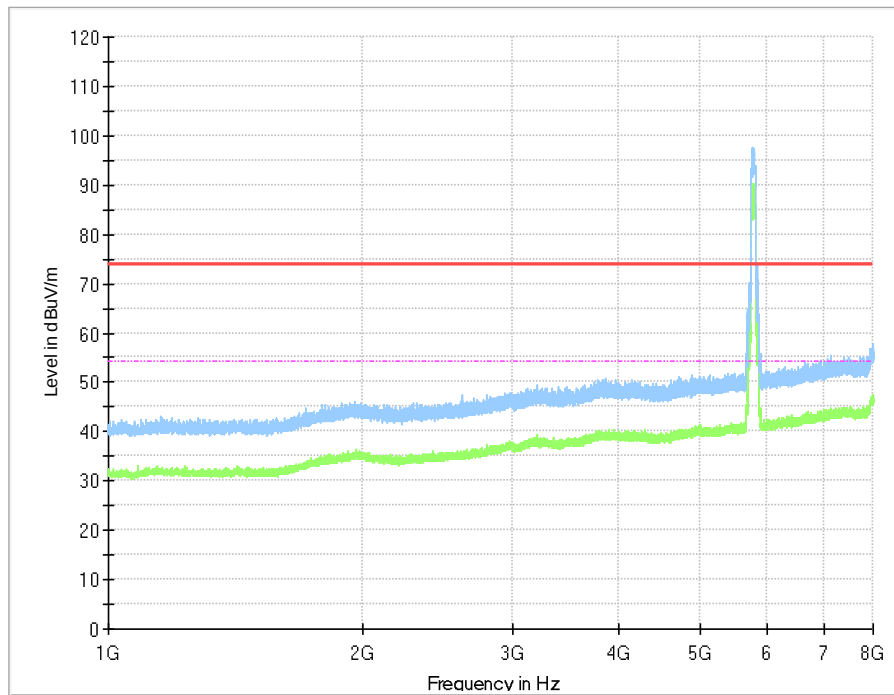


1.2.3.6. 11ac80 SISO

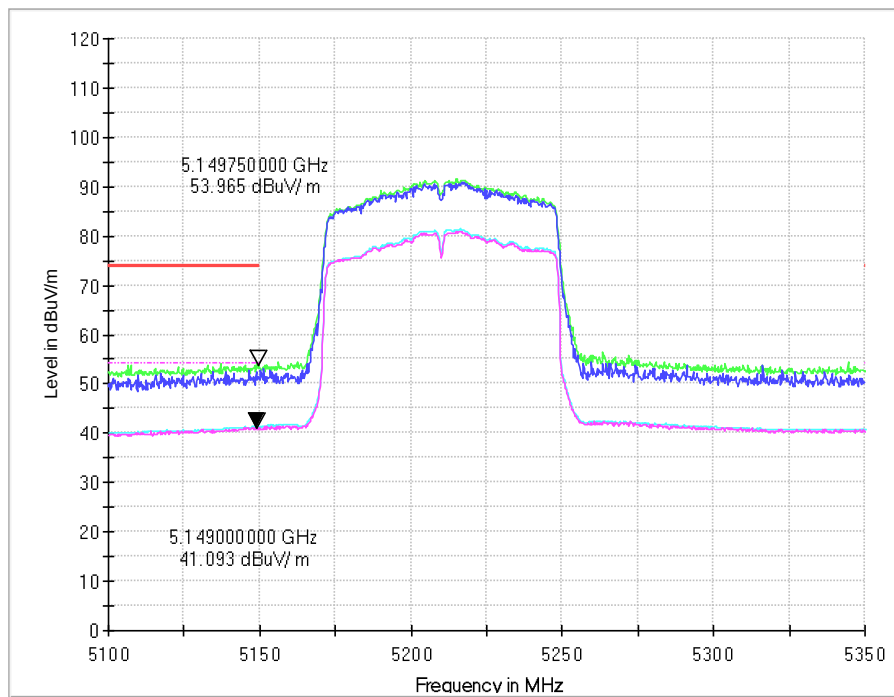
Worst case CH_5610 (1 GHz to 8 GHz)



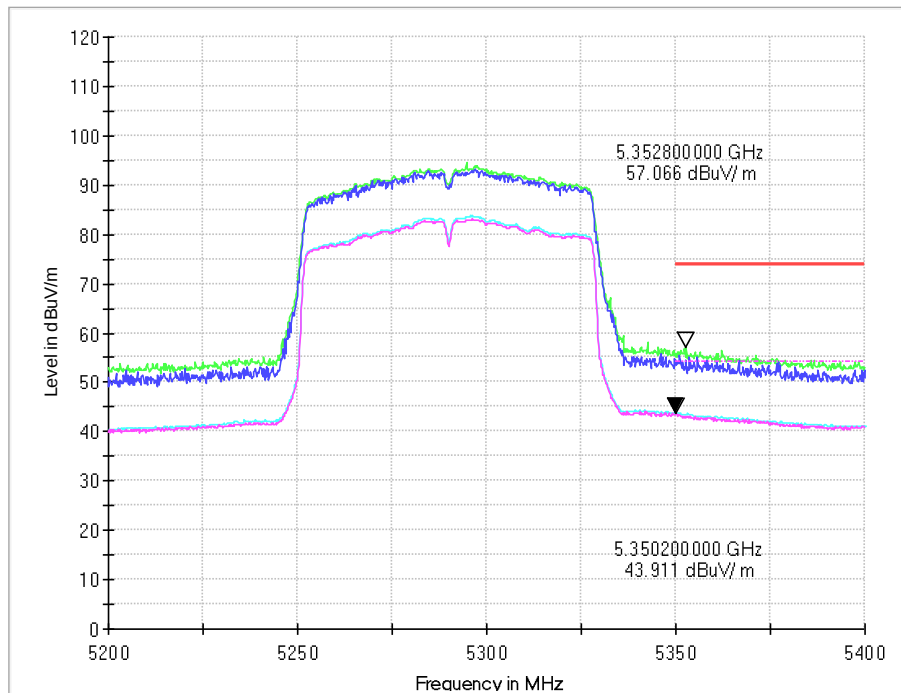
Worst case CH_5775 (1 GHz to 8 GHz)



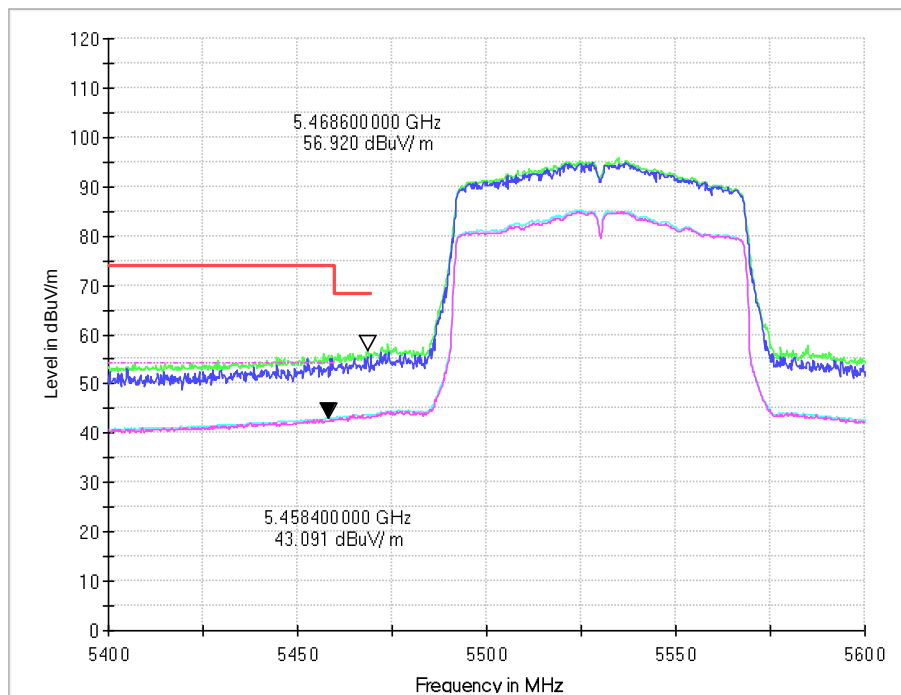
CH_5210 (Band Edge)



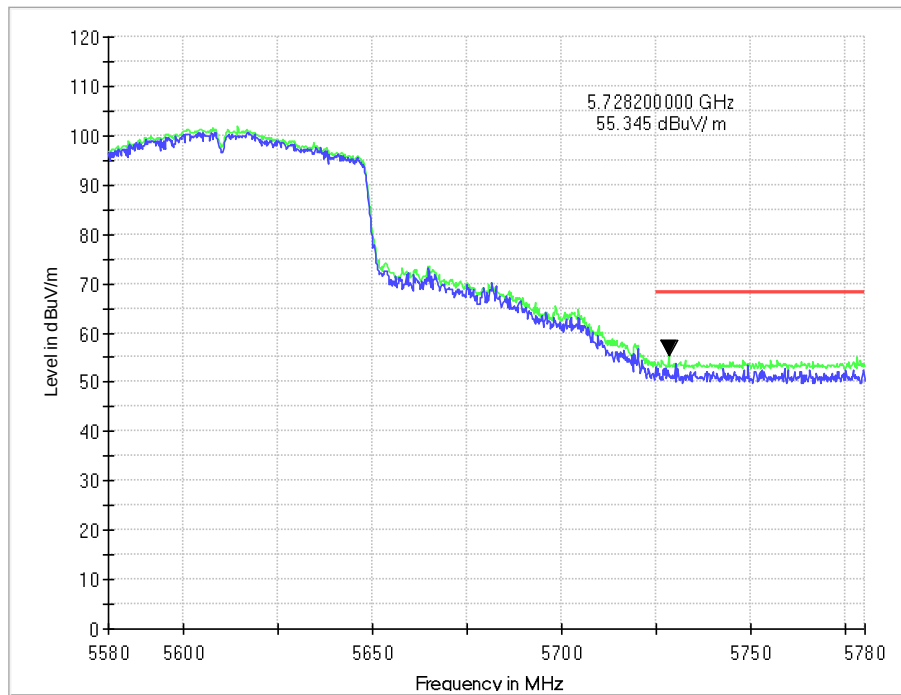
CH_5290(Band Edge)



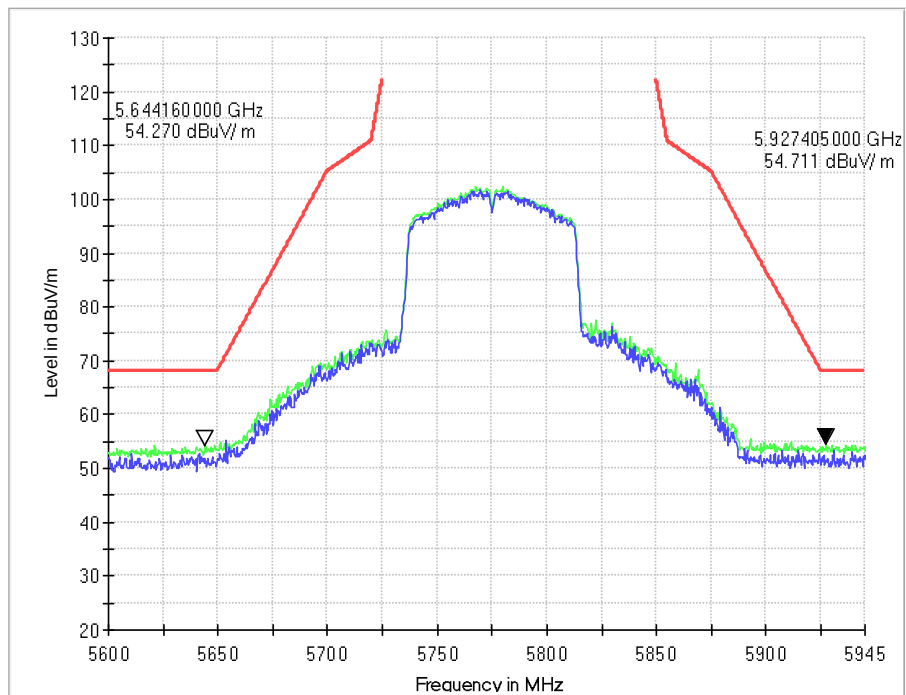
CH_5530(Band Edge)



CH_5610(Band Edge)



CH_5775(Band Edge)

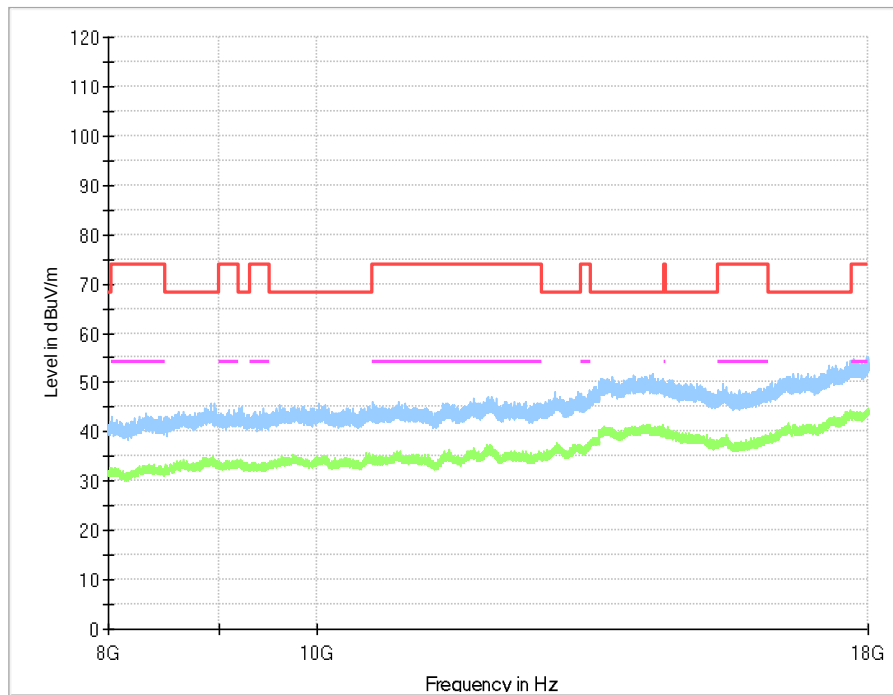


1.2.4. Part 4: Testing Range of “8 GHz to 18 GHz”

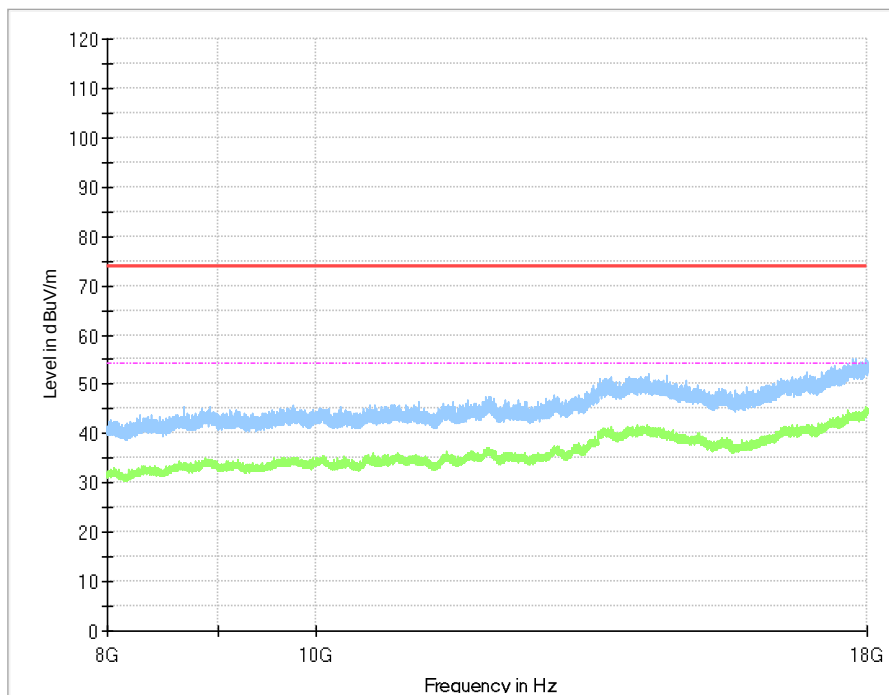
Note 1: The test results and plot for testing range of “8 GHz to 18 GHz” showed as below is the worst case for all Test Modes and Channels. This range will not be presented for each Test Mode and each Channel.

Note 2: The testing range of “8 GHz to 18 GHz” is for checking radiated emissions located in restricted bands faraway from the EUT operating bands.

Worst case-11a20-iso-CH_5680



Worst case-11a20-iso CH_5745

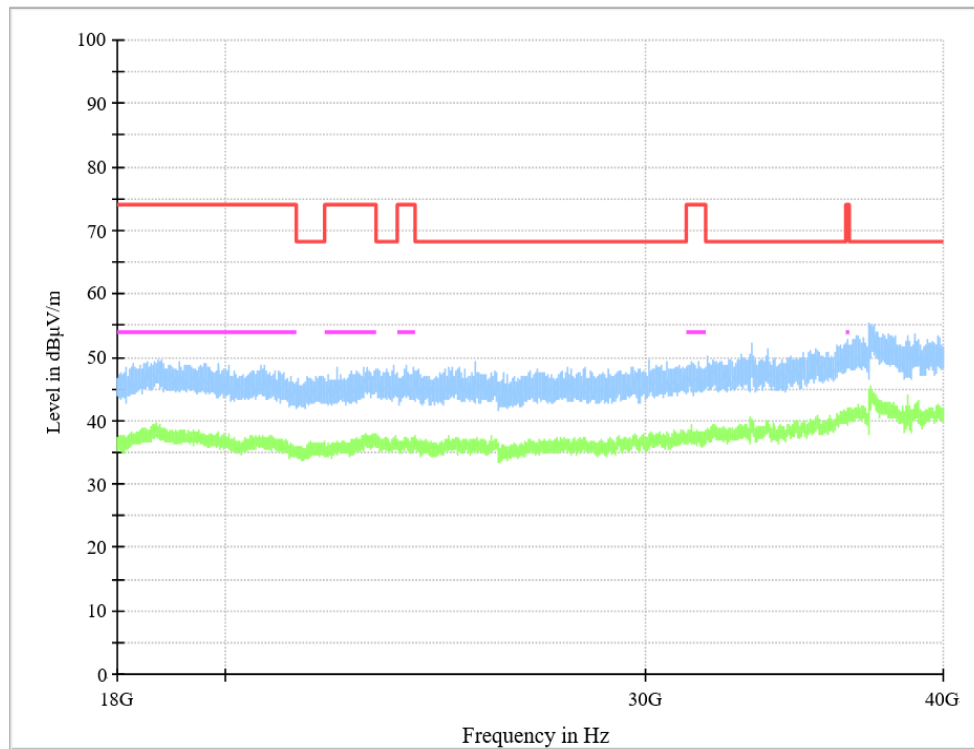


1.2.5. Part 5: Testing Range of “18 GHz to 40 GHz”

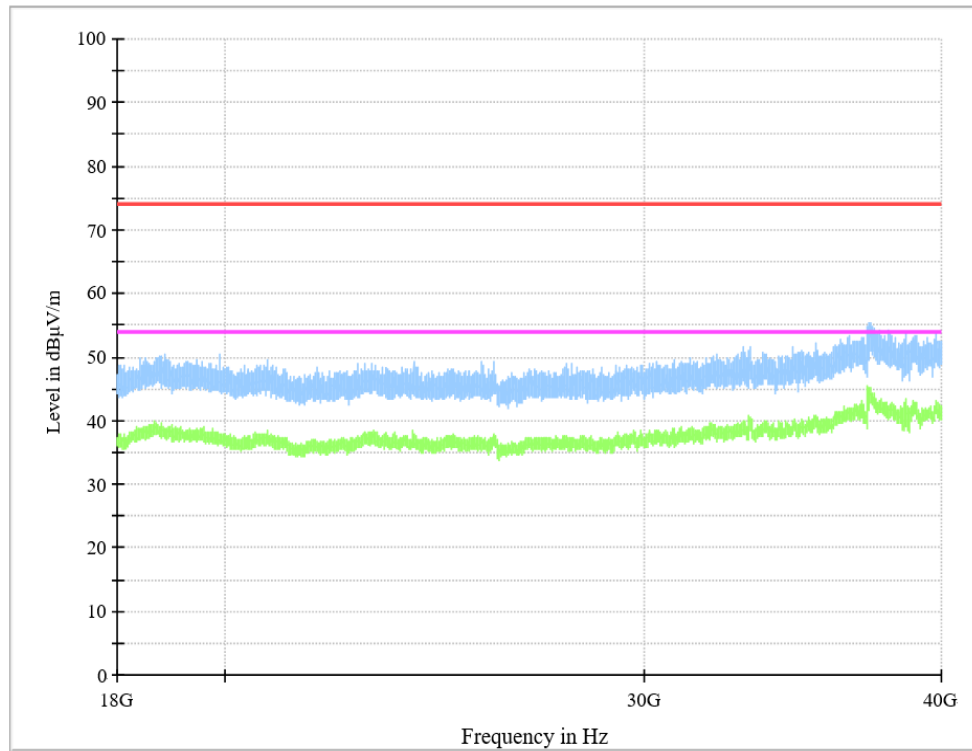
Note 1: The test results and plot for testing range of “18 GHz to 40 GHz” showed as below is the WORST case for all Test Modes and Channels. This range will not be presented for each Test Mode and each Channel.

Note 2: The testing range of “18 GHz to 40 GHz” is for checking radiated emissions located in restricted bands faraway from the EUT operating bands.

Worst case-11a20-iso-CH_5680



Worst case-11a20-iso-CH_5745



2. Appendix H: Conducted Emission at Power Port

Note 1: The test results and plot for testing range of “150 kHz to 30 MHz” showed as below is the WORST case for all Test Modes and Channels. This range will not be presented for each Test Mode and each Channel.

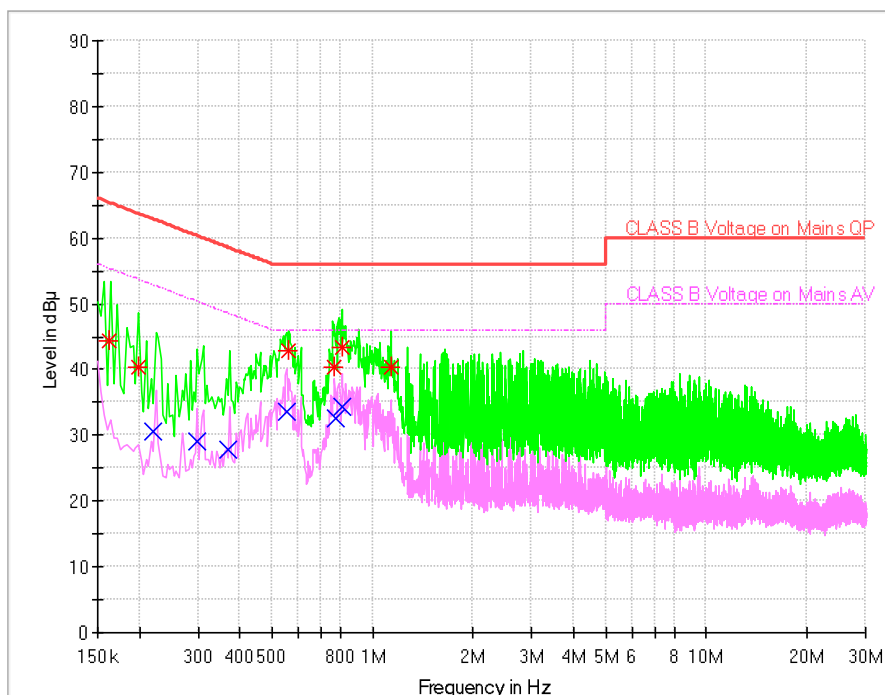
Note 2: RBW = 9 kHz; VBW = 30 kHz

2.1. Test Results

Test Mode	Antenna Port	Test Channel	Maximum Emissions	Limit	Verdict
11a20 SISO	Ant1	5680	(see Test Graphs)	(see Test Graphs)	PASS

2.2. Test Graphs

Worst case



MEASUREMENT RESULT: QP Detector

Frequency (MHz)	Level (dBμV)	Limit (dBμV)	Transd. (dB)	Margin (dB)	Line	PE
0.161571	44.47	65.38	9.7	20.91	N	FLO
0.199708	40.40	63.62	9.7	23.22	L1	FLO
0.557285	42.79	56.00	9.7	13.21	L1	FLO
0.764862	40.44	56.00	9.7	15.56	N	FLO
0.813609	43.38	56.00	9.7	12.62	N	FLO
1.135424	40.36	56.00	9.7	15.64	L1	FLO

MEASUREMENT RESULT: AV Detector

Frequency (MHz)	Level (dBμV)	Limit (dBμV)	Transd. (dB)	Margin (dB)	Line	PE
0.220473	30.64	52.80	9.7	22.16	N	FLO
0.298659	28.98	50.28	9.7	21.30	L1	FLO
0.369426	27.93	48.51	9.7	20.58	L1	FLO
0.551559	33.71	46.00	9.7	12.29	L1	FLO
0.773285	32.50	46.00	9.7	13.50	N	FLO
0.813479	34.36	46.00	9.7	11.64	N	FLO

Note:

1, Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)

The reading level is calculated by software which is not shown in the sheet.

2, Margin=Limit - Level

END