

10. PEAK POWER SPECTRUL DENSITY

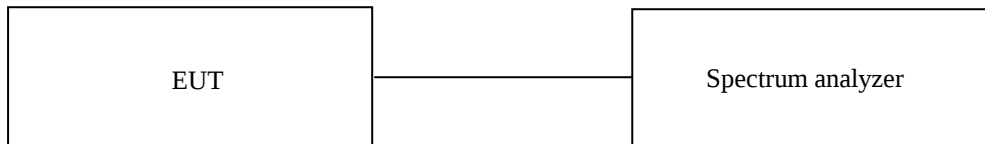
10.1 Operating environment

Temperature : 23 °C
Relative humidity : 45 % R.H.

10.2 Test set-up

The antenna output of the EUT was connected to the spectrum analyzer. The resolution bandwidth is set to 1 MHz, the video bandwidth is set to 3 times the resolution bandwidth.(But, 5.8 GHz Measured : The resolution bandwidth is set to 500 kHz, the video bandwidth is set to 3 times the resolution bandwidth.)

The maximum level form the EUT in 1 MHz(But, 5.8 GHz in 500 kHz) bandwidth was measured with above condition.



10.3 Test Date

August 21, 2020 ~ September 08, 2020

10.4 Test data for 802.11a RLAN Mode

10.4.1 Test data for Antenna 0

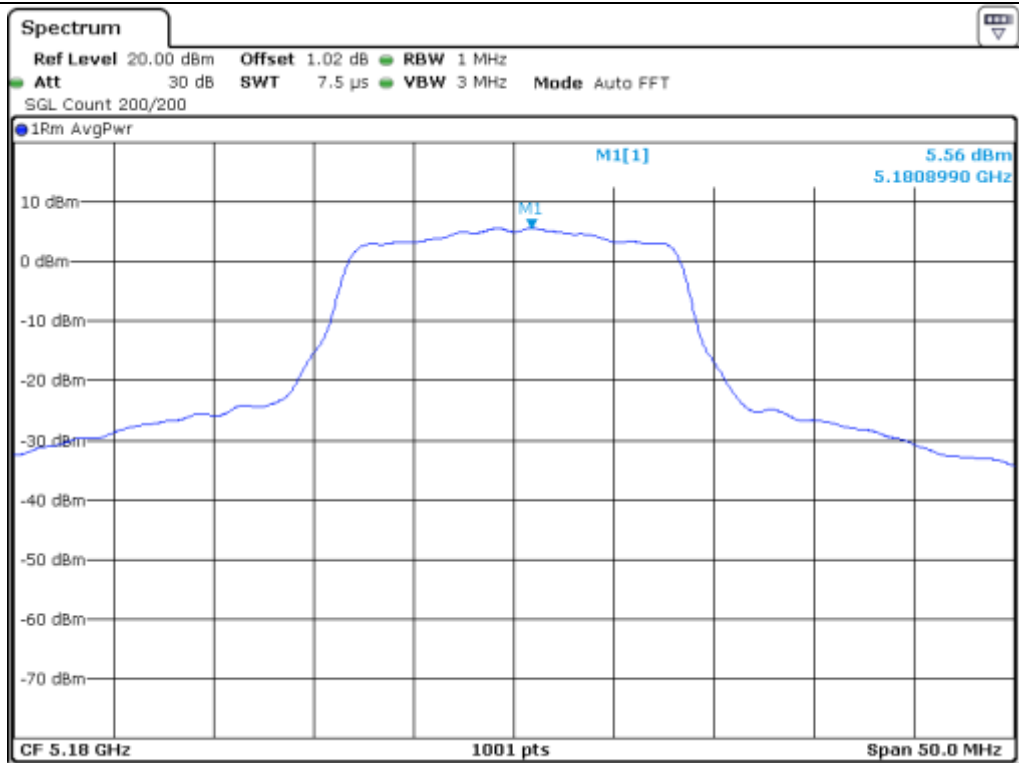
-. Operating condition : Highest Output Power Transmitting Mode

-. Test Result : Pass

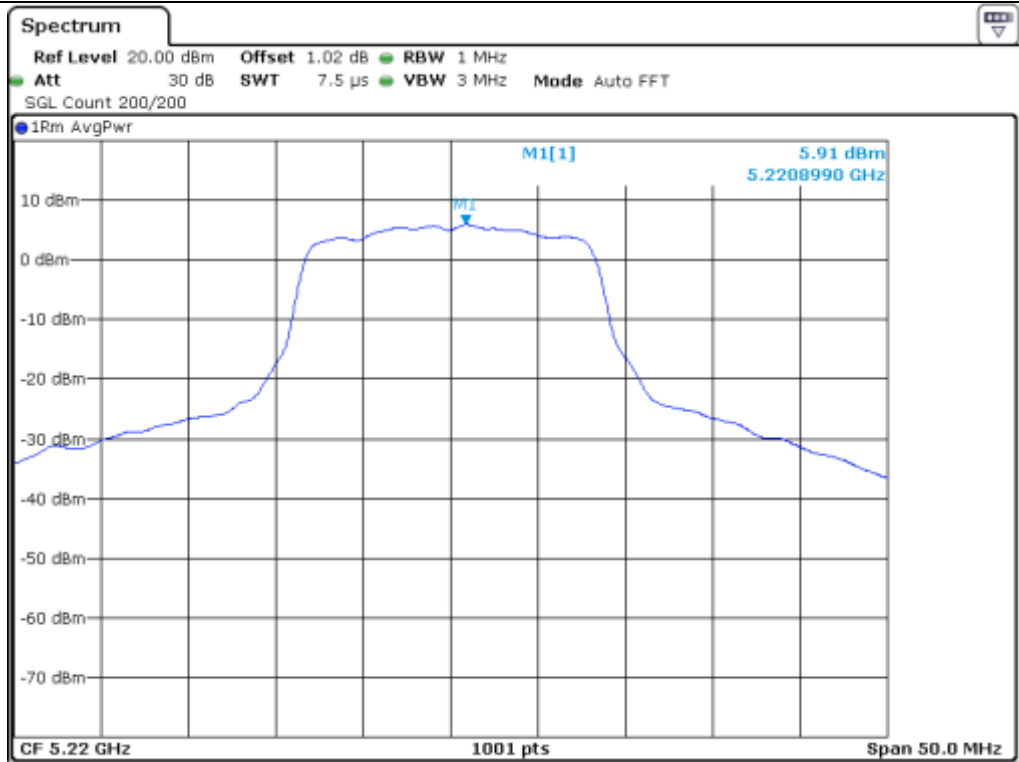
FREQUENCY RANGE (MHz)	CHANNEL	FREQUENCY (MHz)	MEASURED VALUE (dBm)	Correction Factor (dB)	Result (dBm)	LIMIT (dBm)	MARGIN (dB)
5 150 ~ 5 250	Low	5 180.00	5.56	0.32	5.88	11.00	5.12
	Middle	5 220.00	5.91	0.32	6.23	11.00	4.77
	High	5 240.00	5.94	0.32	6.26	11.00	4.74
5 250 ~ 5 350	Low	5 260.00	6.92	0.29	7.21	11.00	3.79
	Middle	5 300.00	7.11	0.29	7.40	11.00	3.60
	High	5 320.00	7.10	0.29	7.39	11.00	3.61
5 470 ~ 5 725	Low	5 500.00	5.03	0.29	5.32	11.00	5.68
	Middle	5 580.00	4.94	0.29	5.23	11.00	5.77
	High	5 700.00	3.98	0.29	4.27	11.00	6.73
5 725 ~ 5 850	Low	5 745.00	2.61	0.29	2.90	30.00	27.10
	Middle	5 785.00	2.29	0.29	2.58	30.00	27.42
	High	5 825.00	1.93	0.29	2.22	30.00	27.78

Remark : Margin = Limit – Result(Measured Value + Correction Factor)

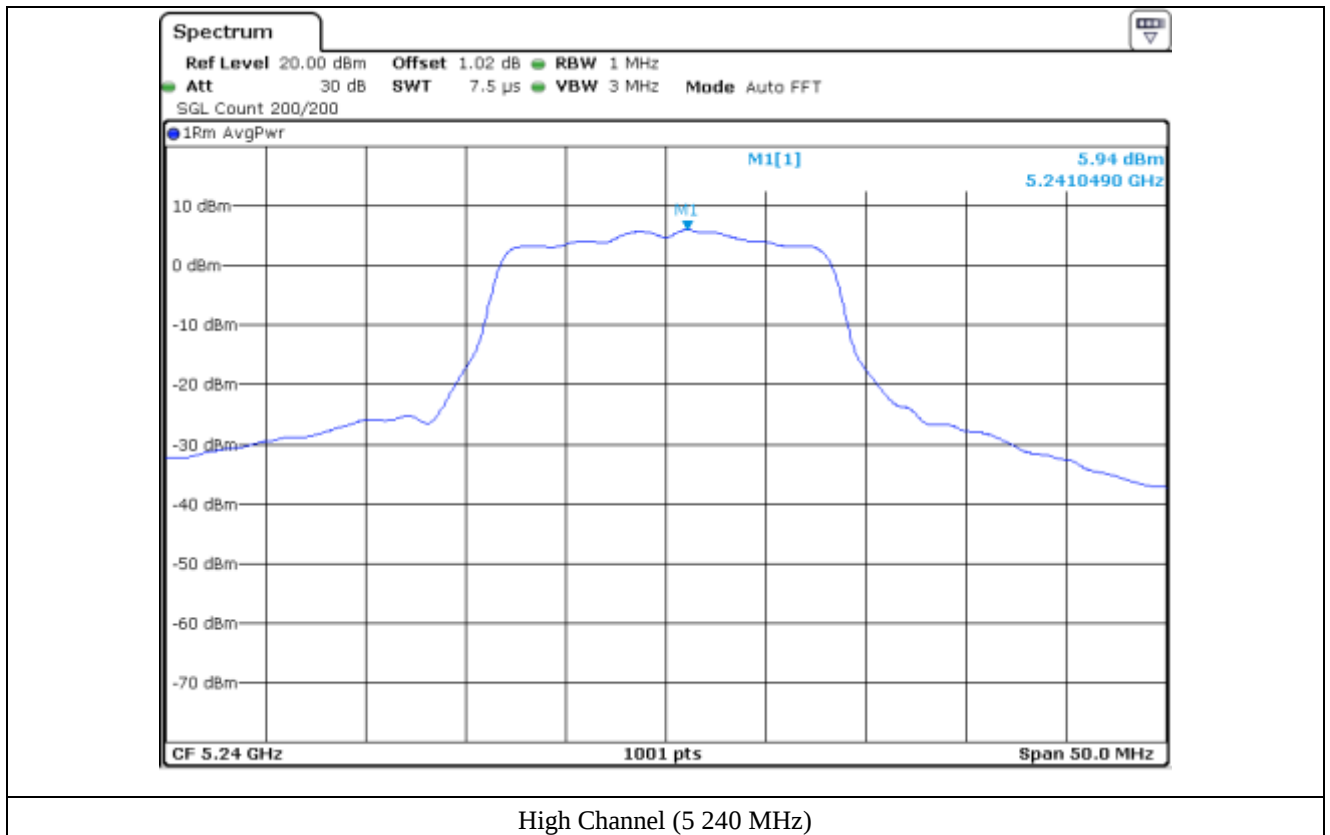
Remark: See next page for measurement data.

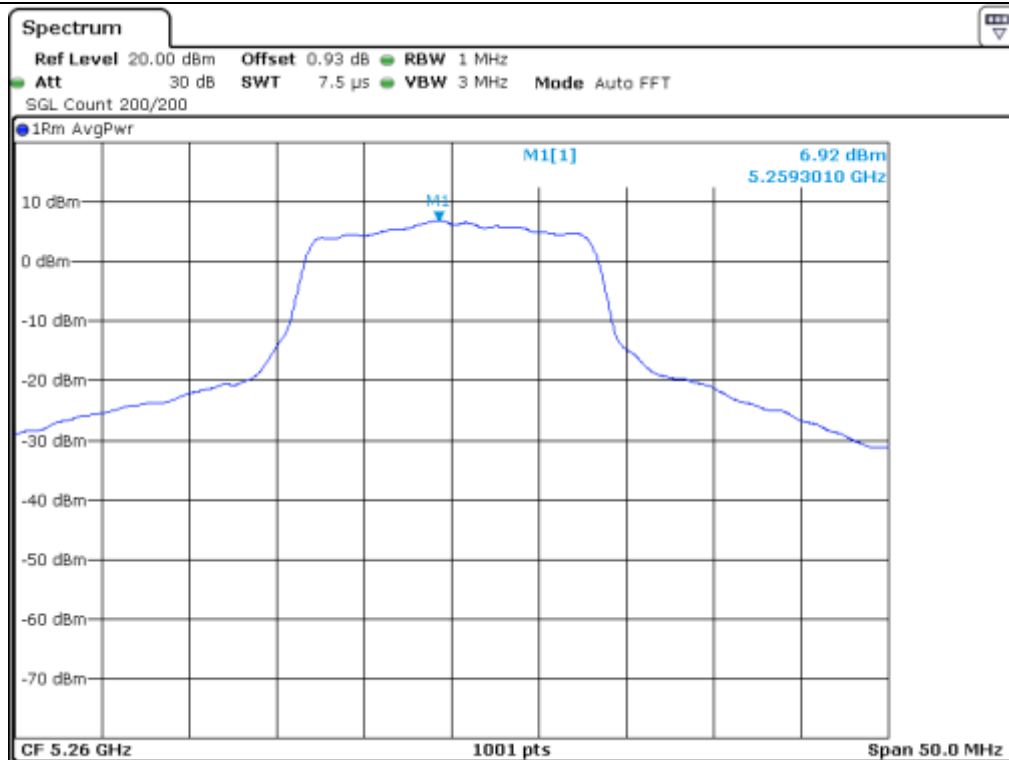


Low Channel (5 180 MHz)

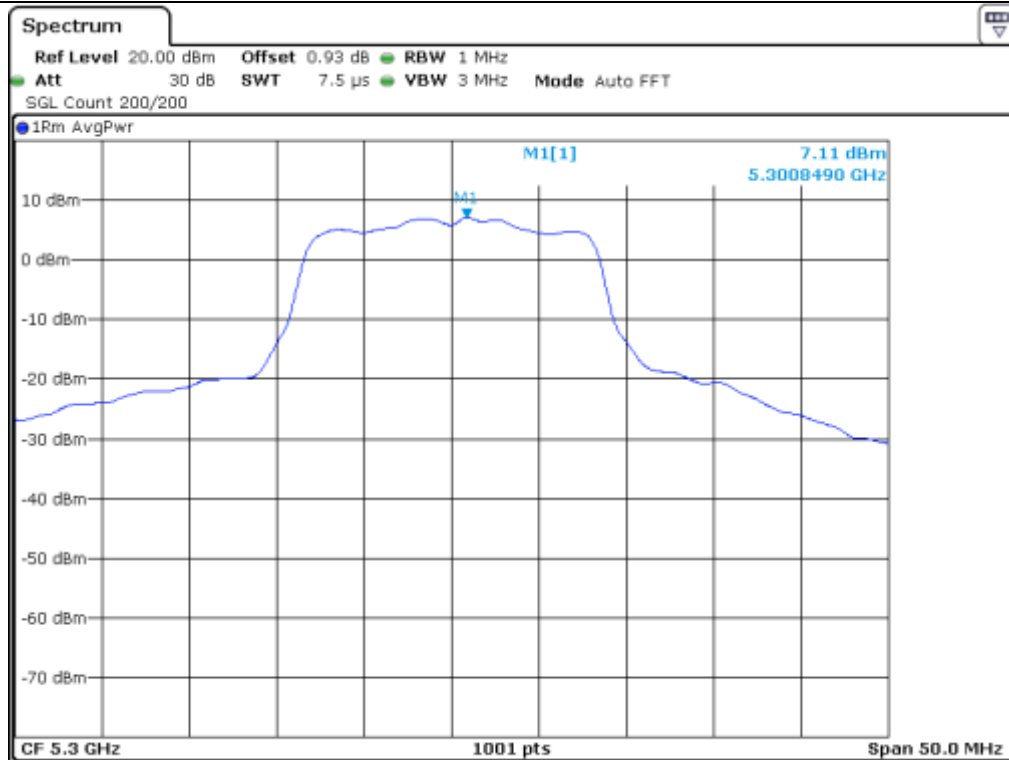


Middle Channel (5 220 MHz)

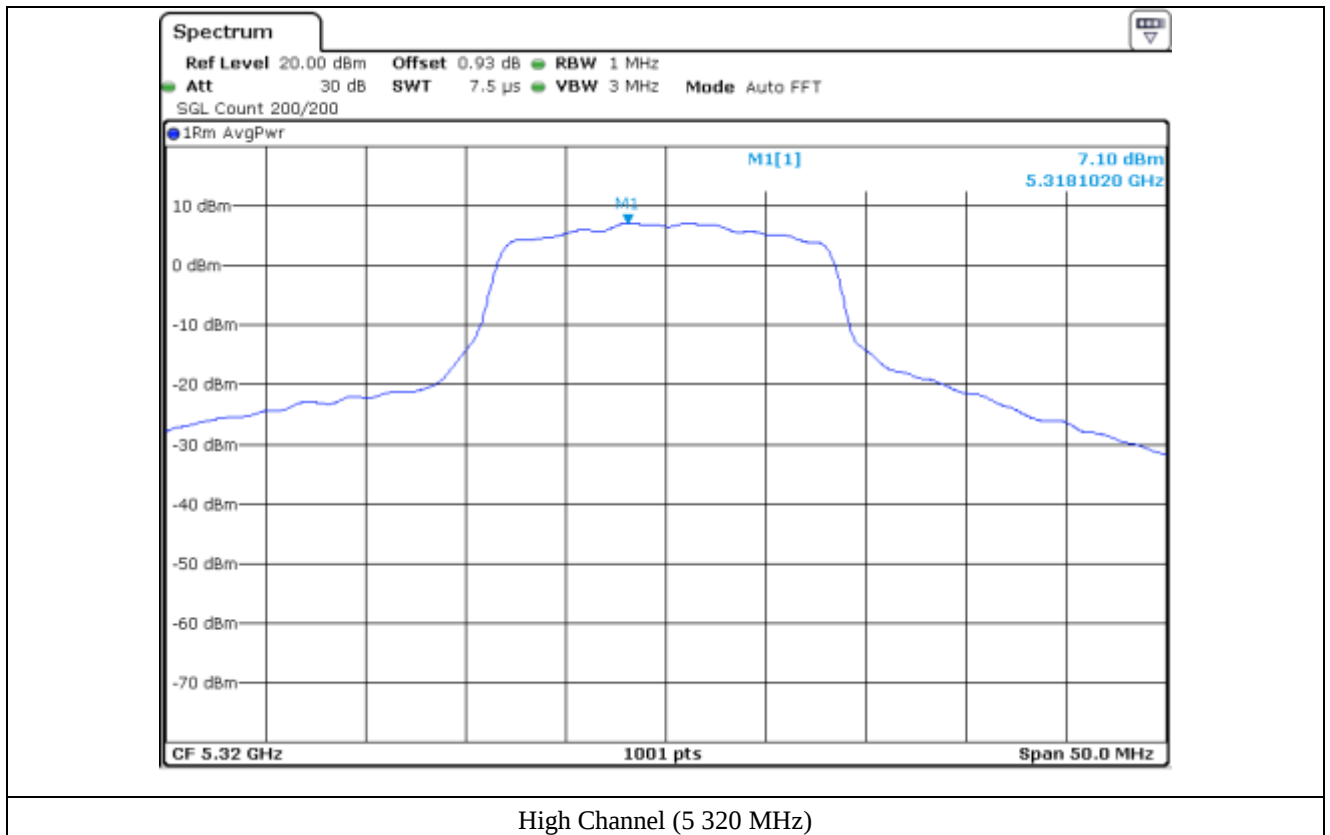


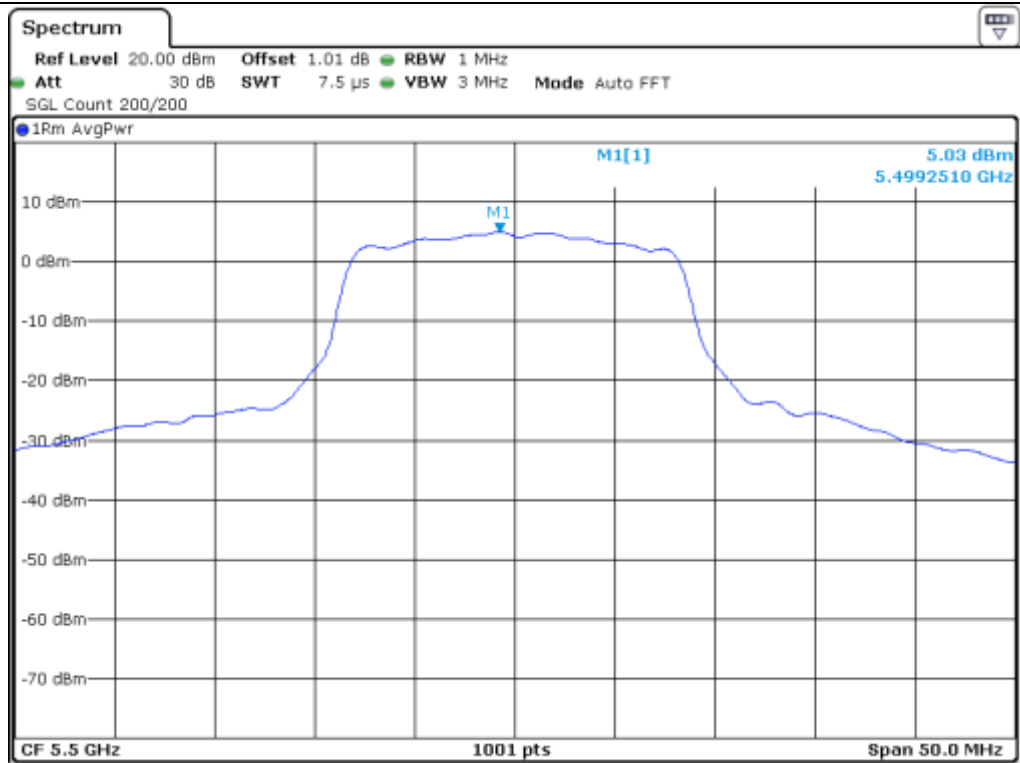


Low Channel (5 260 MHz)

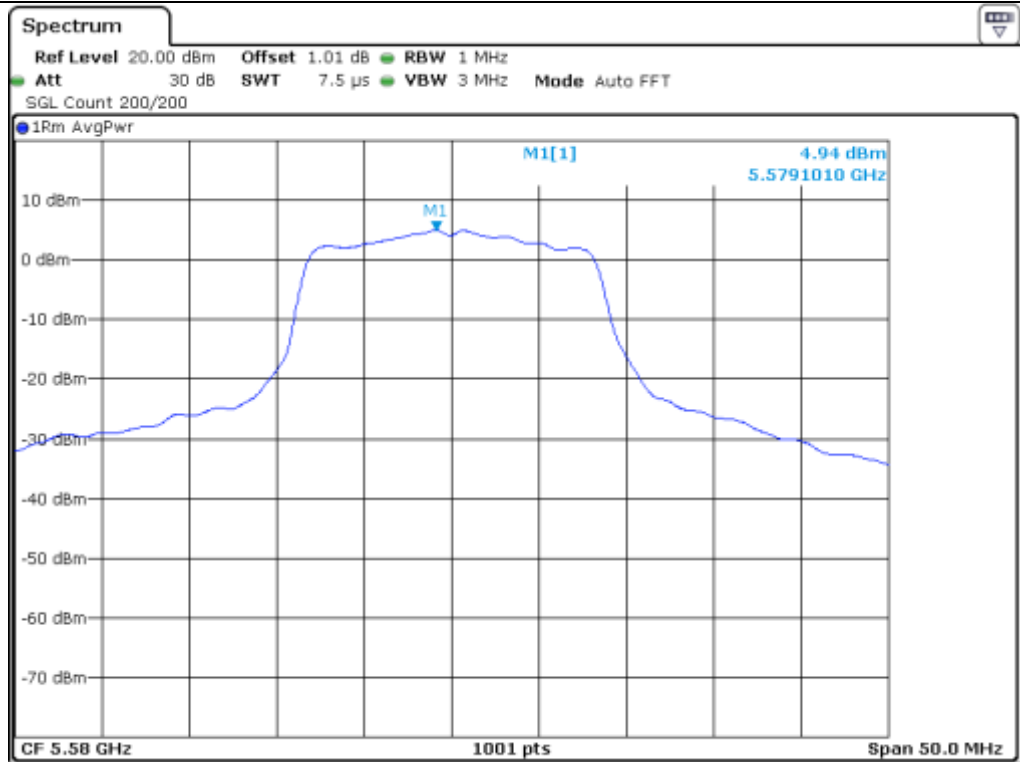


Middle Channel (5 300 MHz)

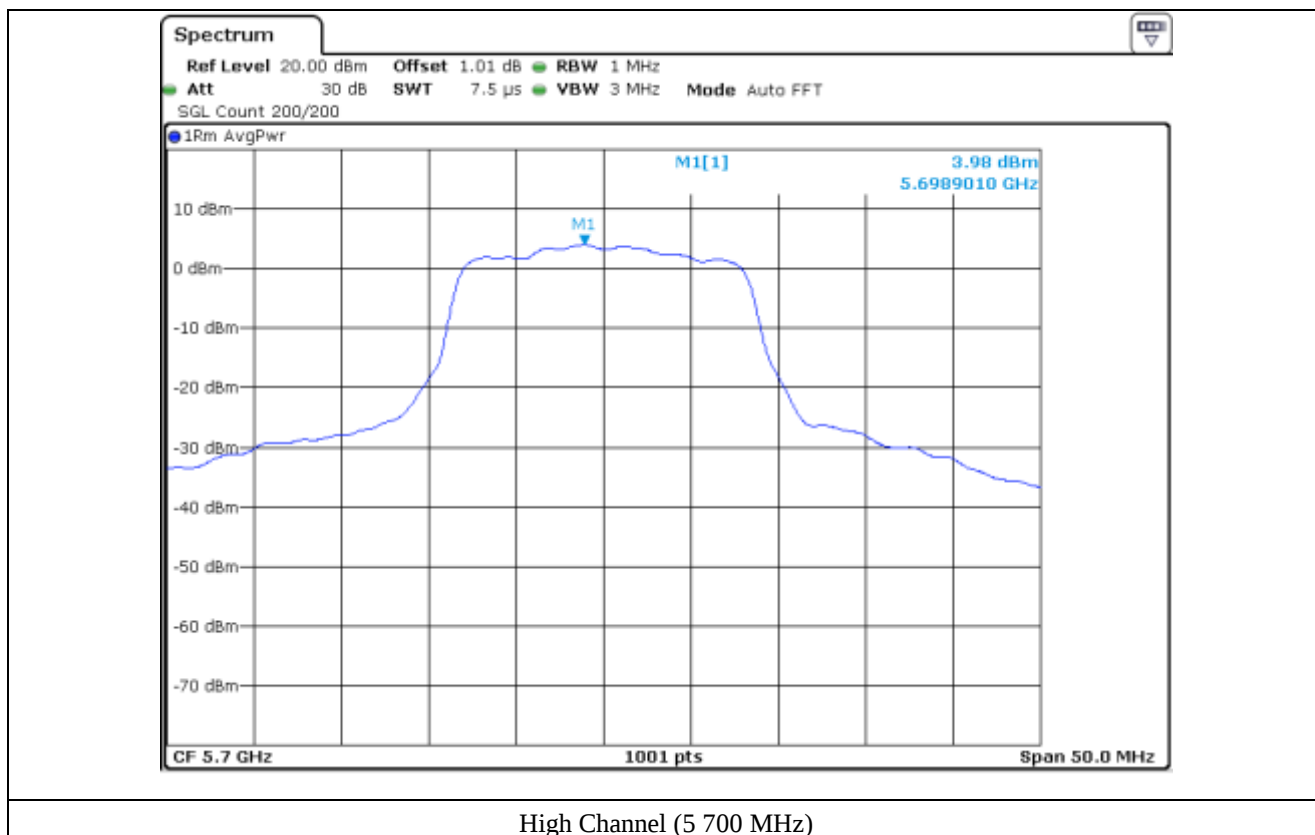


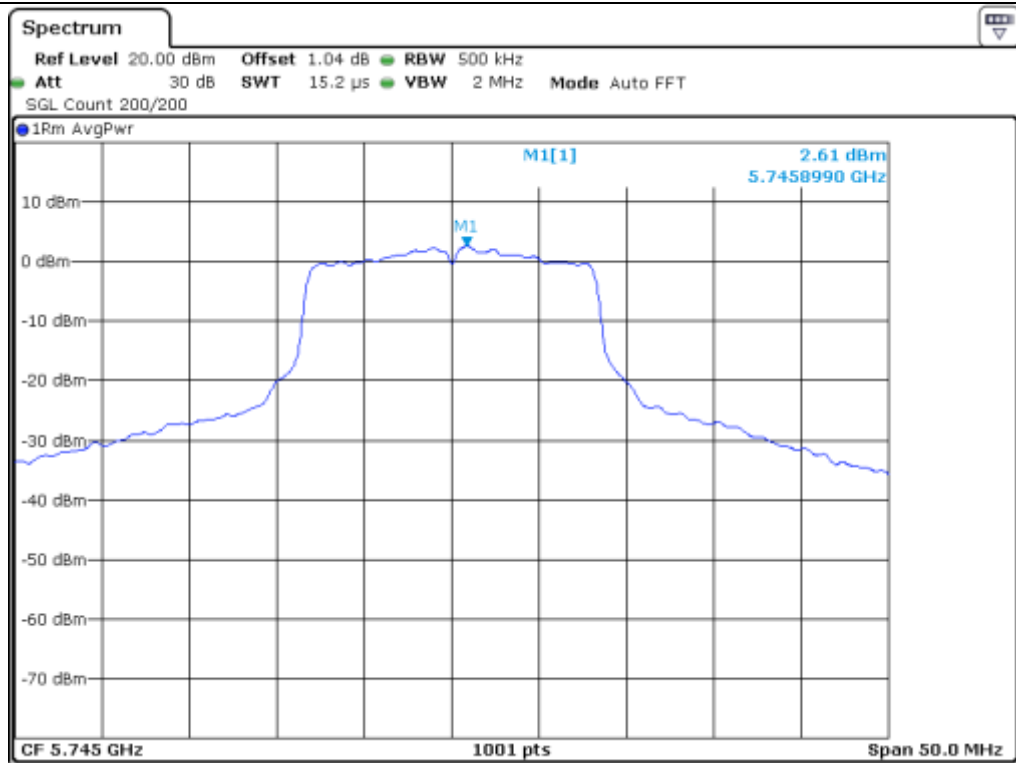


Low Channel (5 500 MHz)

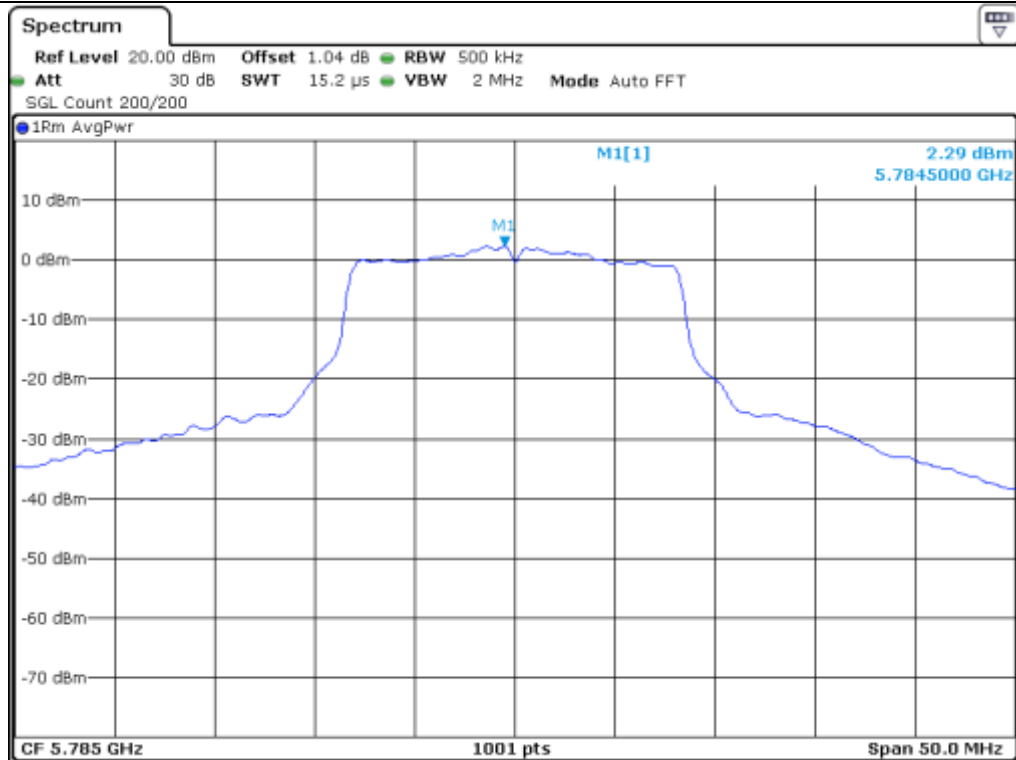


Middle Channel (5 580 MHz)

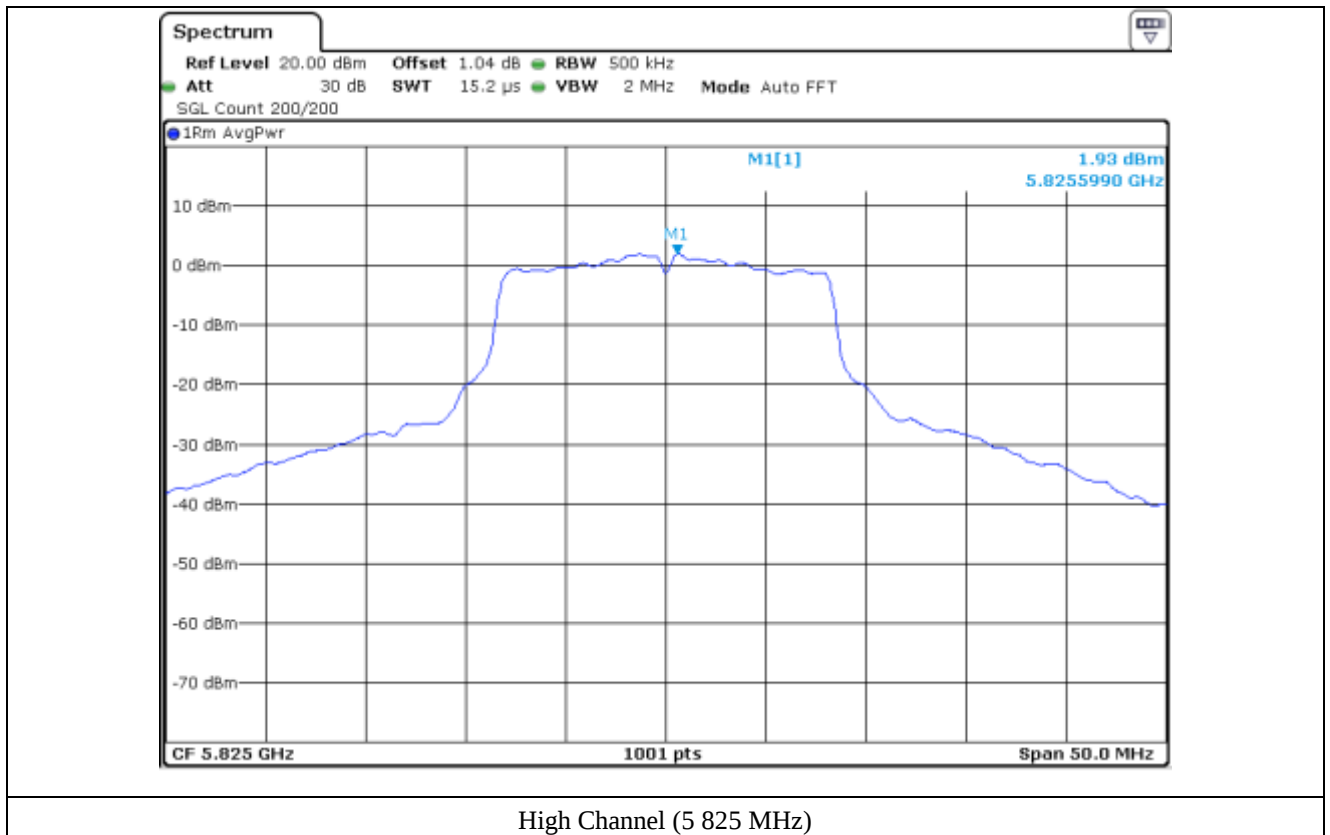




Low Channel (5 745 MHz)



Middle Channel (5 785 MHz)



10.4.2 Test data for Antenna 1

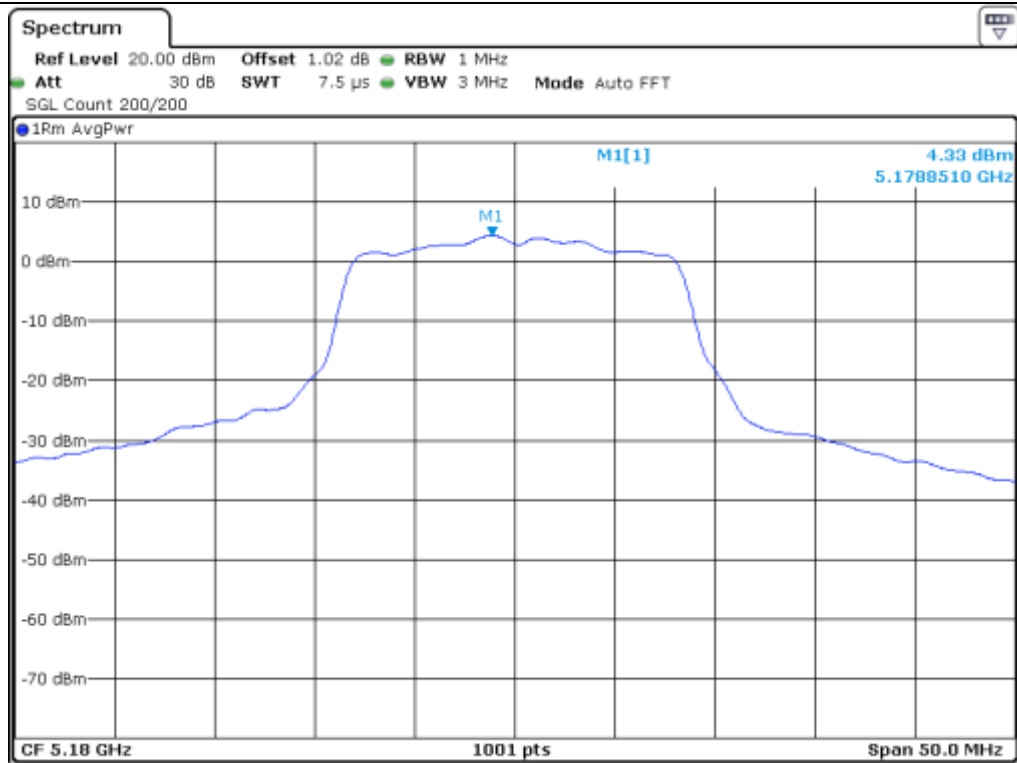
-. Operating condition : Highest Output Power Transmitting Mode

-. Test Result : Pass

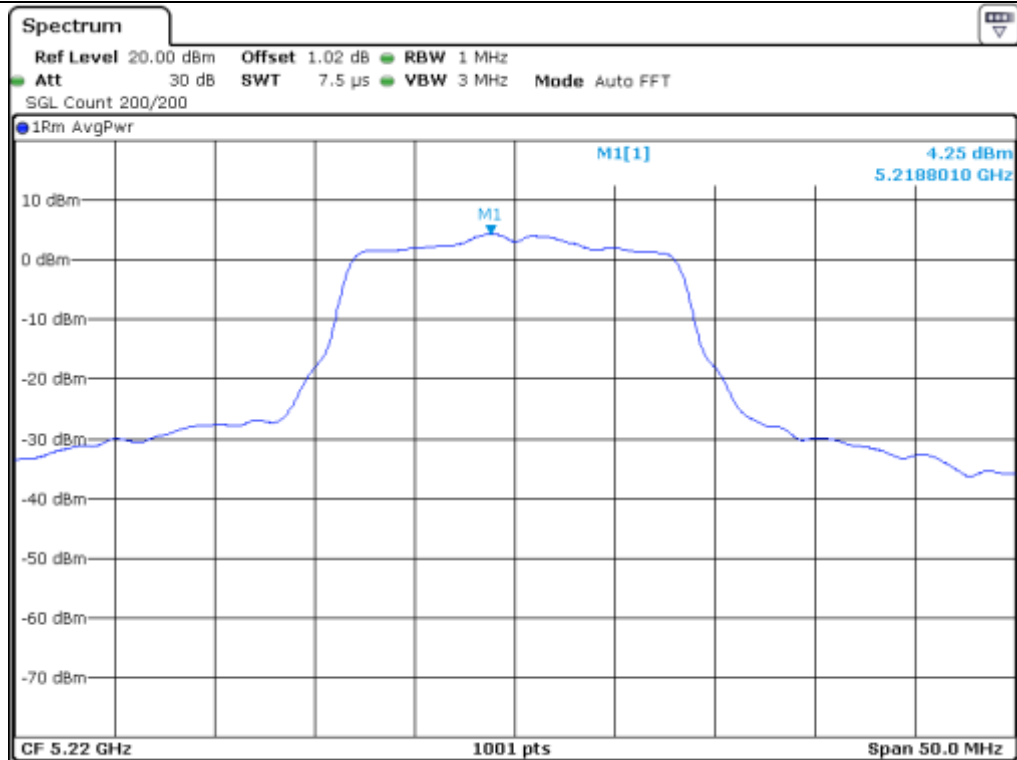
FREQUENCY RANGE (MHz)	CHANNEL	FREQUENCY (MHz)	MEASURED VALUE (dBm)	Correction Factor (dB)	Result (dBm)	LIMIT (dBm)	MARGIN (dB)
5 150 ~ 5 250	Low	5 180.00	4.33	0.35	4.68	11.00	6.32
	Middle	5 220.00	4.25	0.35	4.60	11.00	6.40
	High	5 240.00	4.65	0.35	5.00	11.00	6.00
5 250 ~ 5 350	Low	5 260.00	3.76	0.32	4.08	11.00	6.92
	Middle	5 300.00	4.10	0.32	4.42	11.00	6.58
	High	5 320.00	4.21	0.32	4.53	11.00	6.47
5 470 ~ 5 725	Low	5 500.00	4.97	0.29	5.26	11.00	5.74
	Middle	5 580.00	4.93	0.29	5.22	11.00	5.78
	High	5 700.00	4.61	0.29	4.90	11.00	6.10
5 725 ~ 5 850	Low	5 745.00	2.07	0.31	2.38	30.00	27.62
	Middle	5 785.00	2.69	0.31	3.00	30.00	27.00
	High	5 825.00	2.12	0.31	2.43	30.00	27.57

Remark : Margin = Limit – Result(Measured Value + Correction Factor)

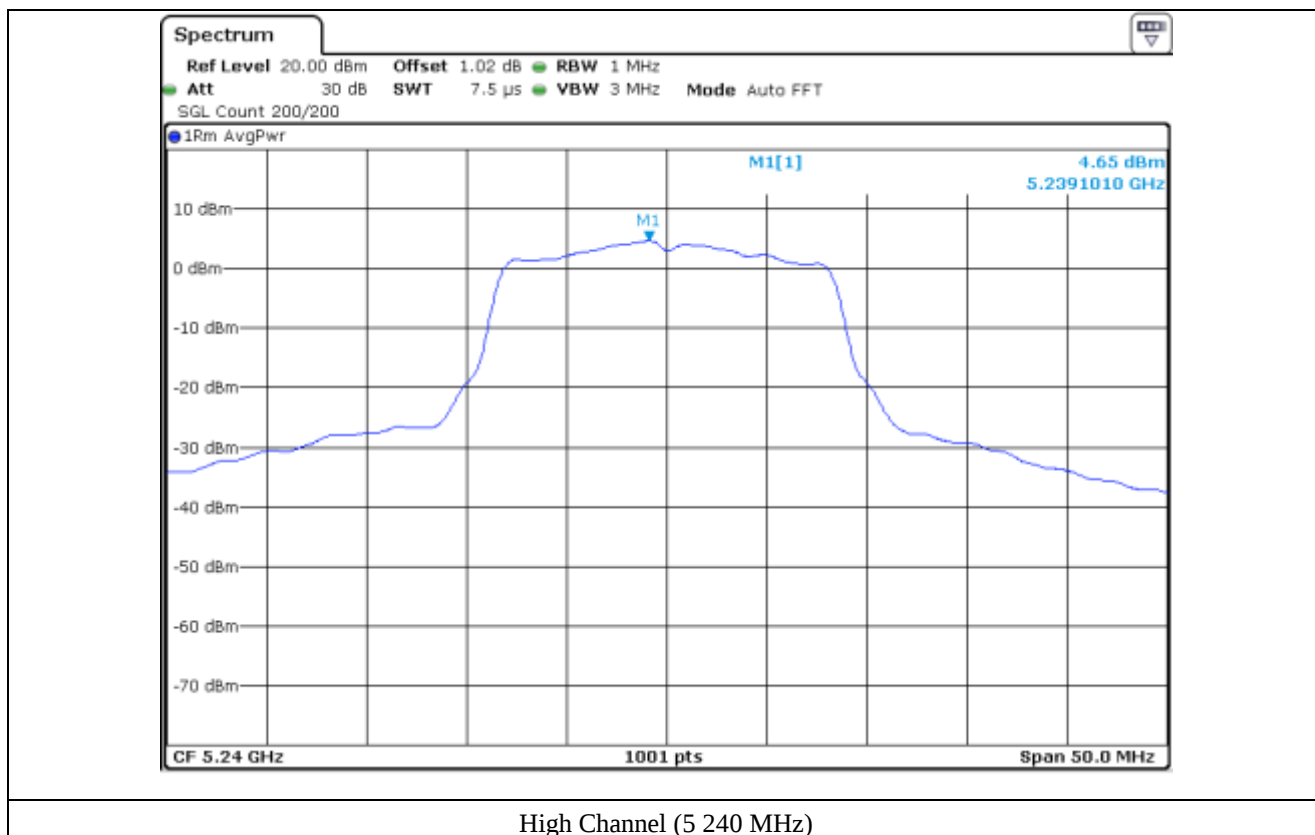
Remark: See next page for measurement data.

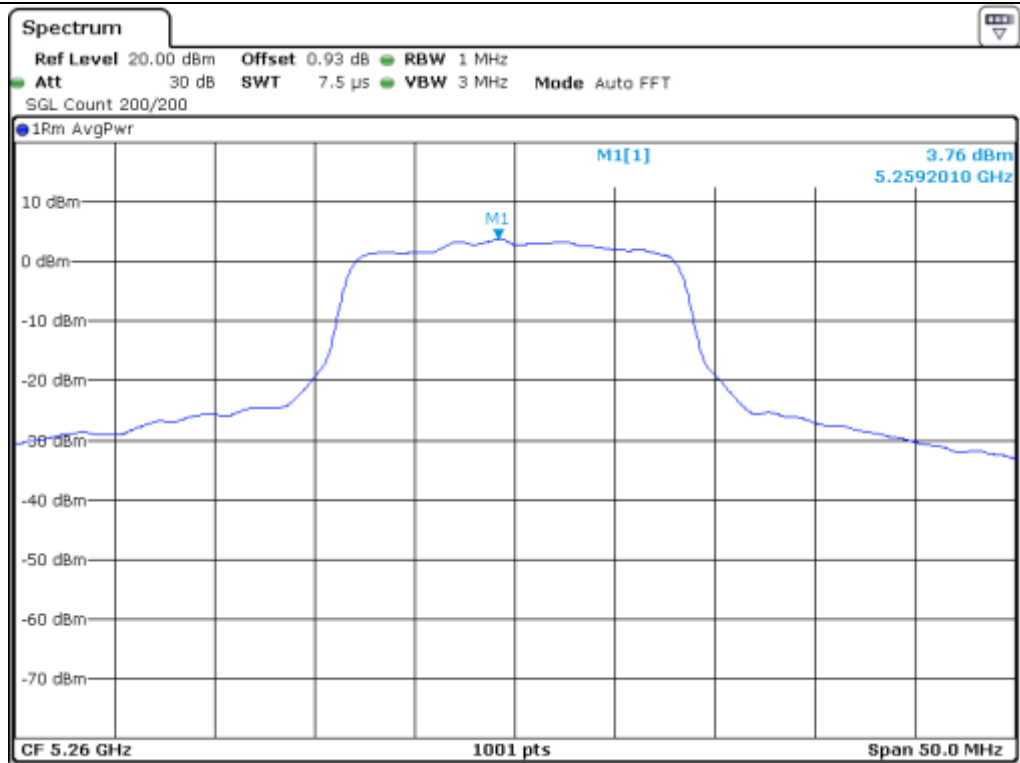


Low Channel (5 180 MHz)

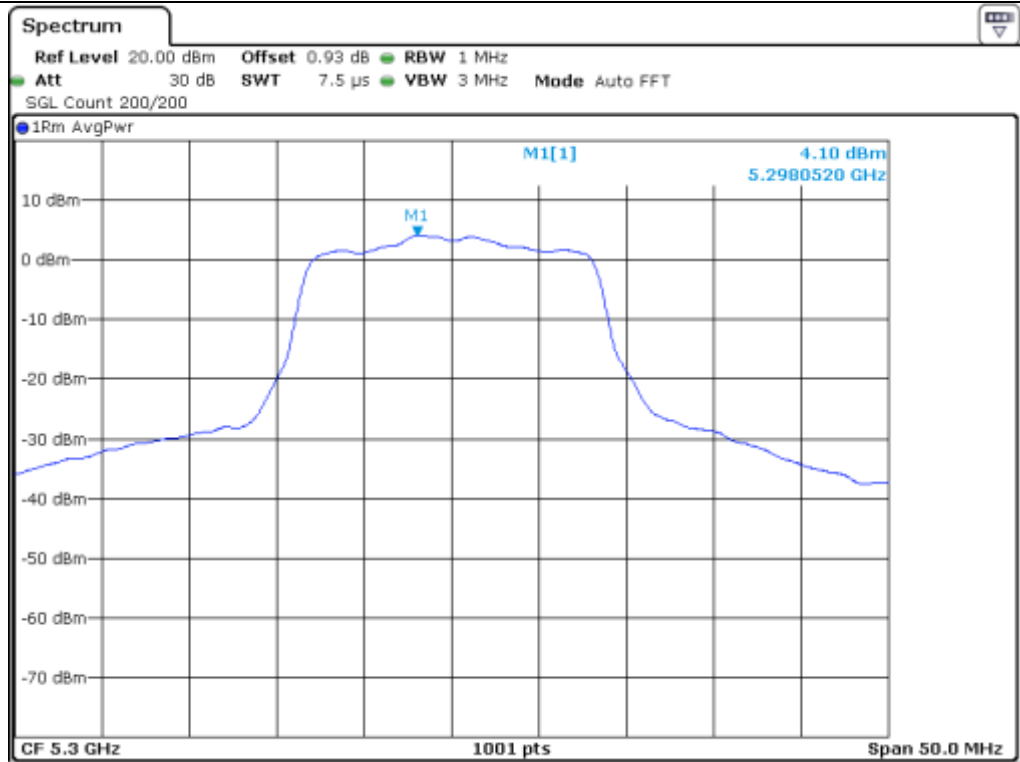


Middle Channel (5 220 MHz)

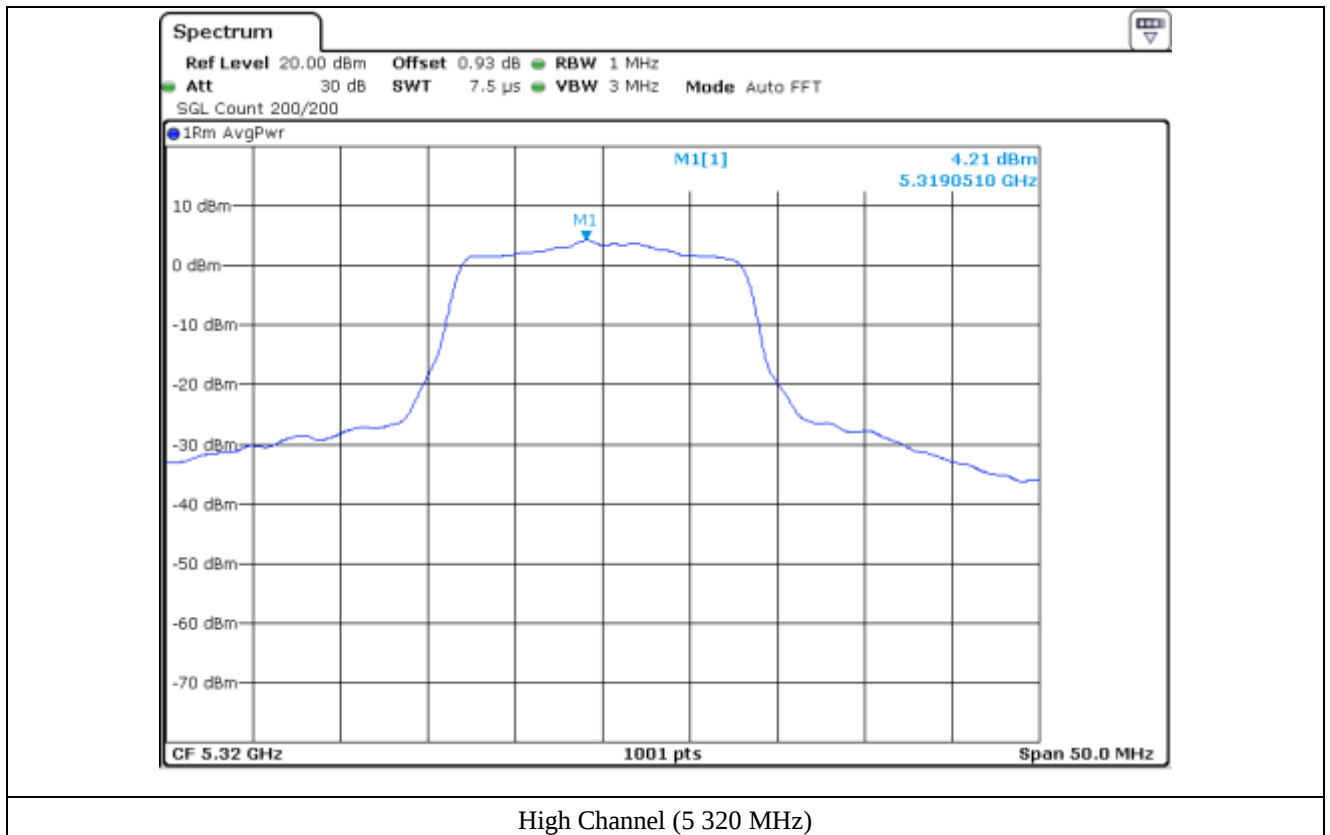


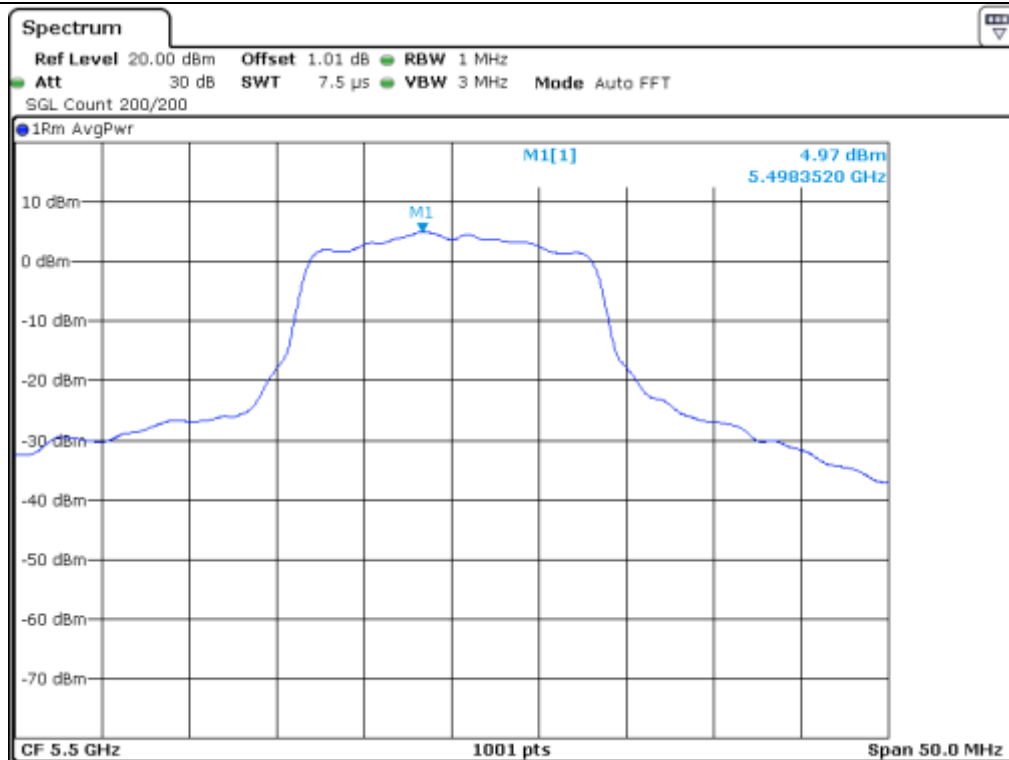


Low Channel (5 260 MHz)

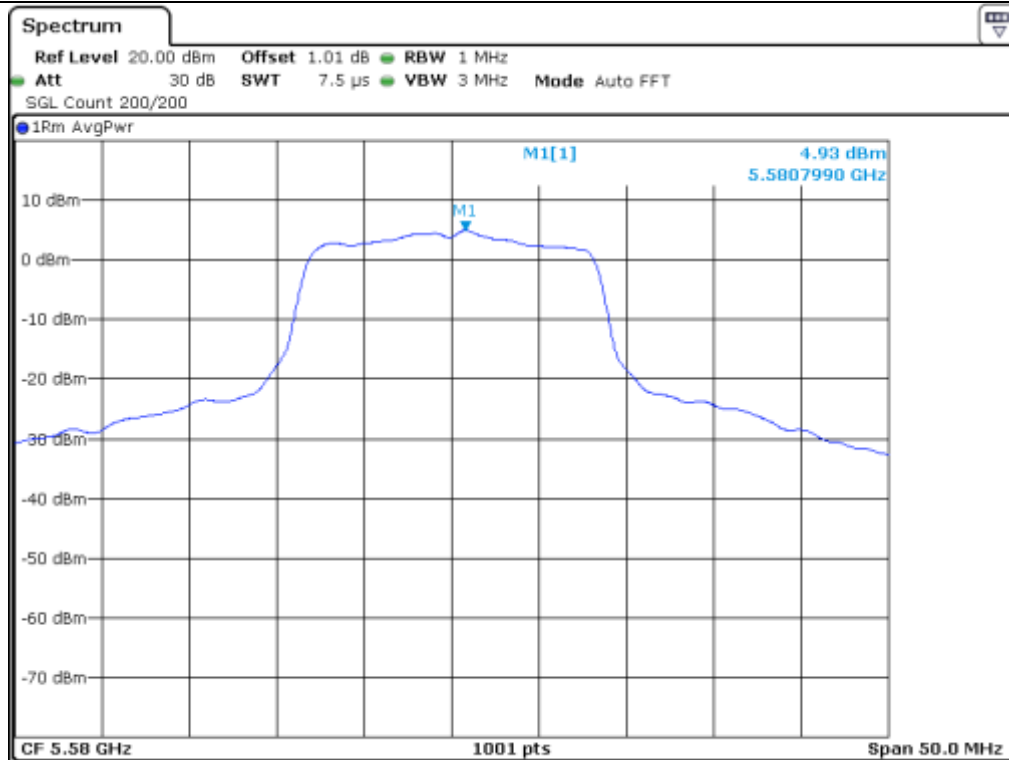


Middle Channel (5 300 MHz)

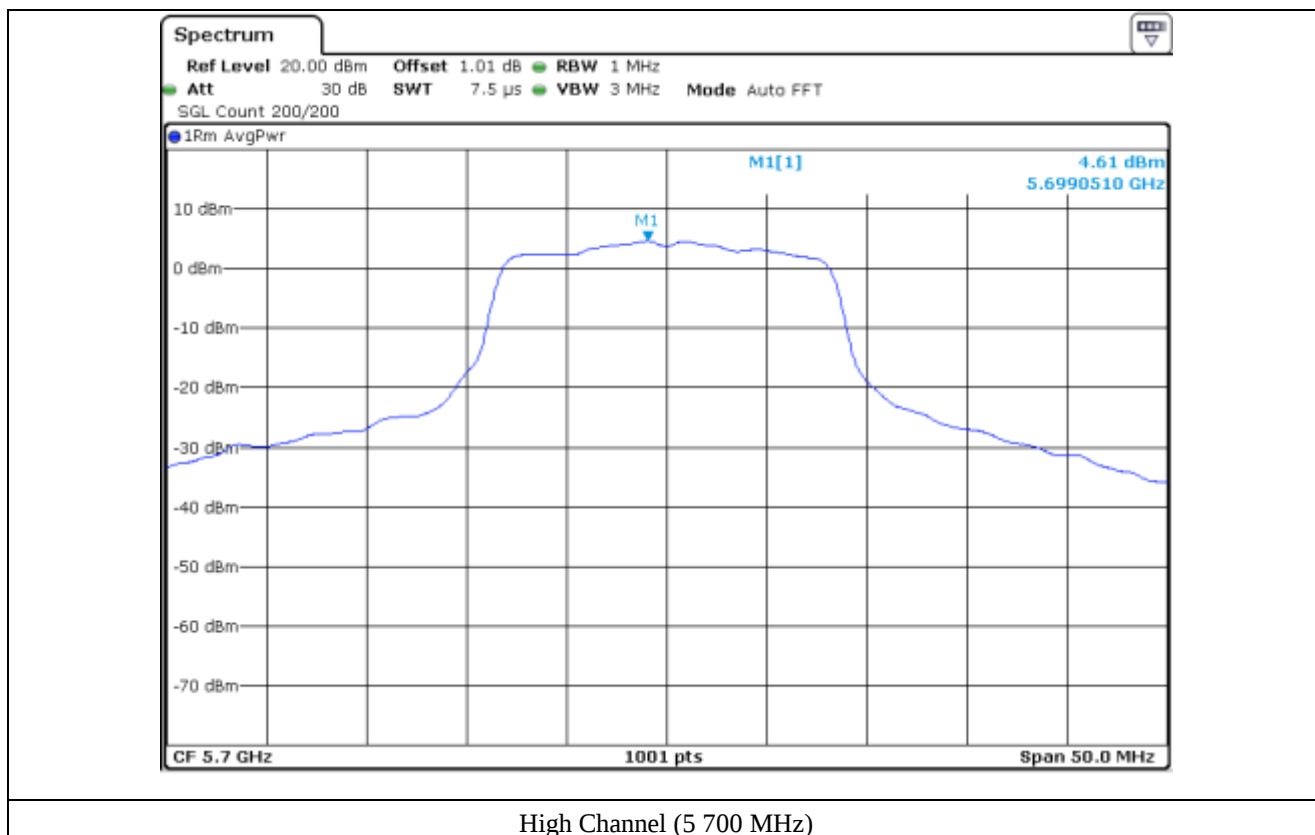


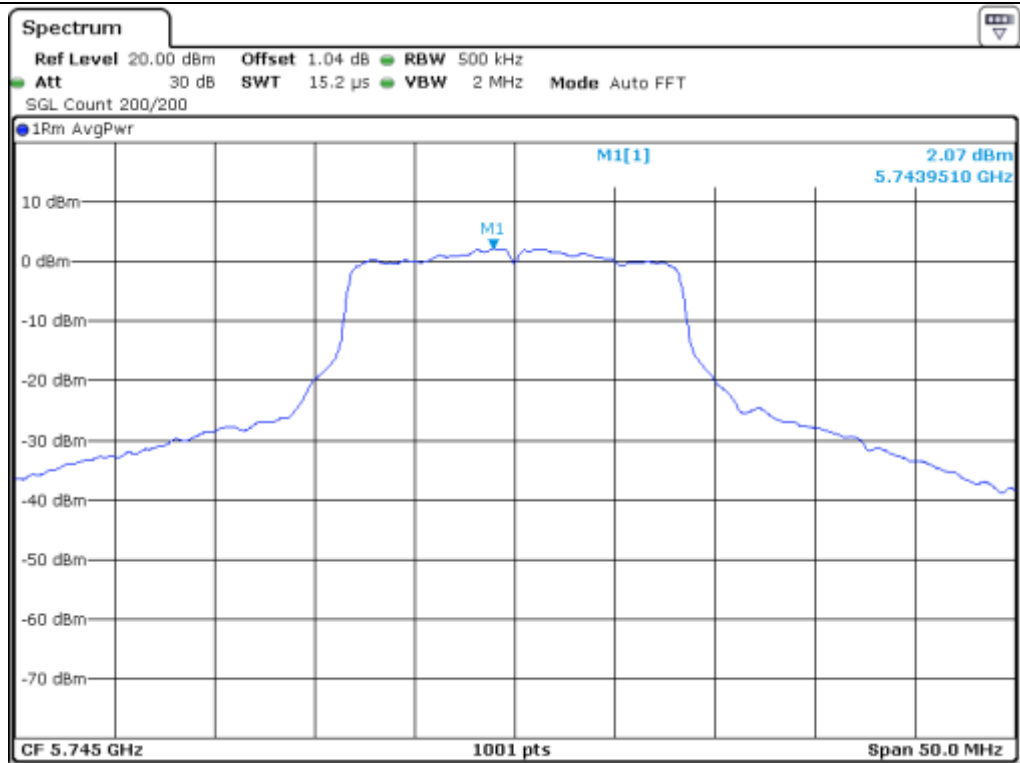


Low Channel (5 500 MHz)

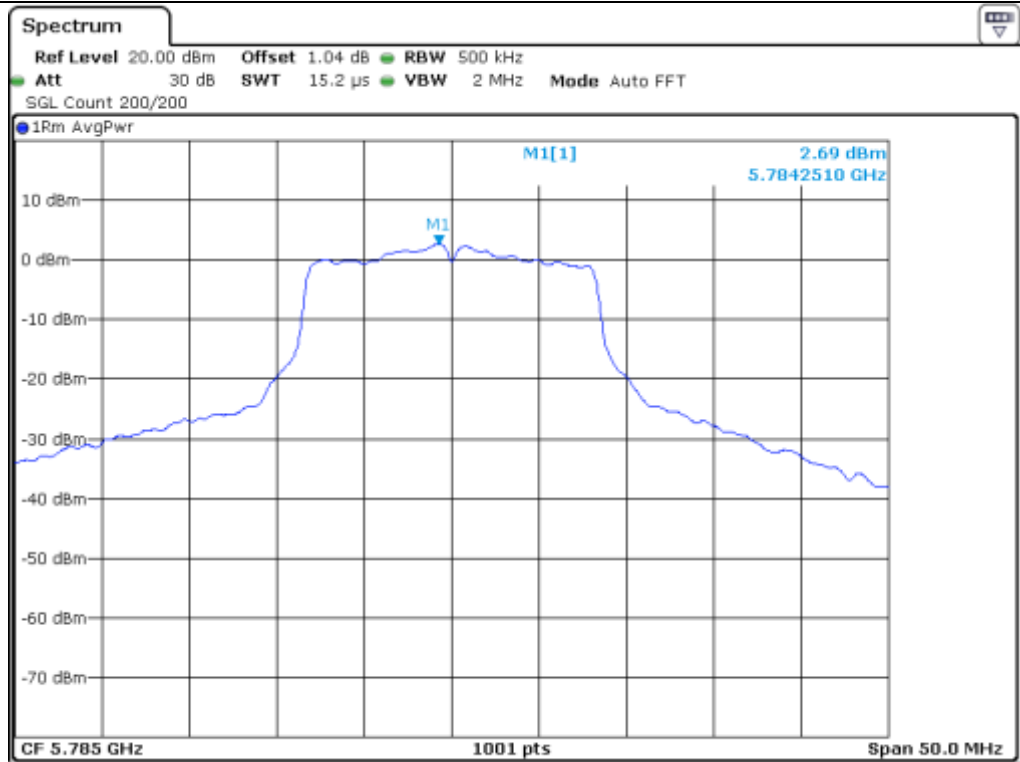


Middle Channel (5 580 MHz)

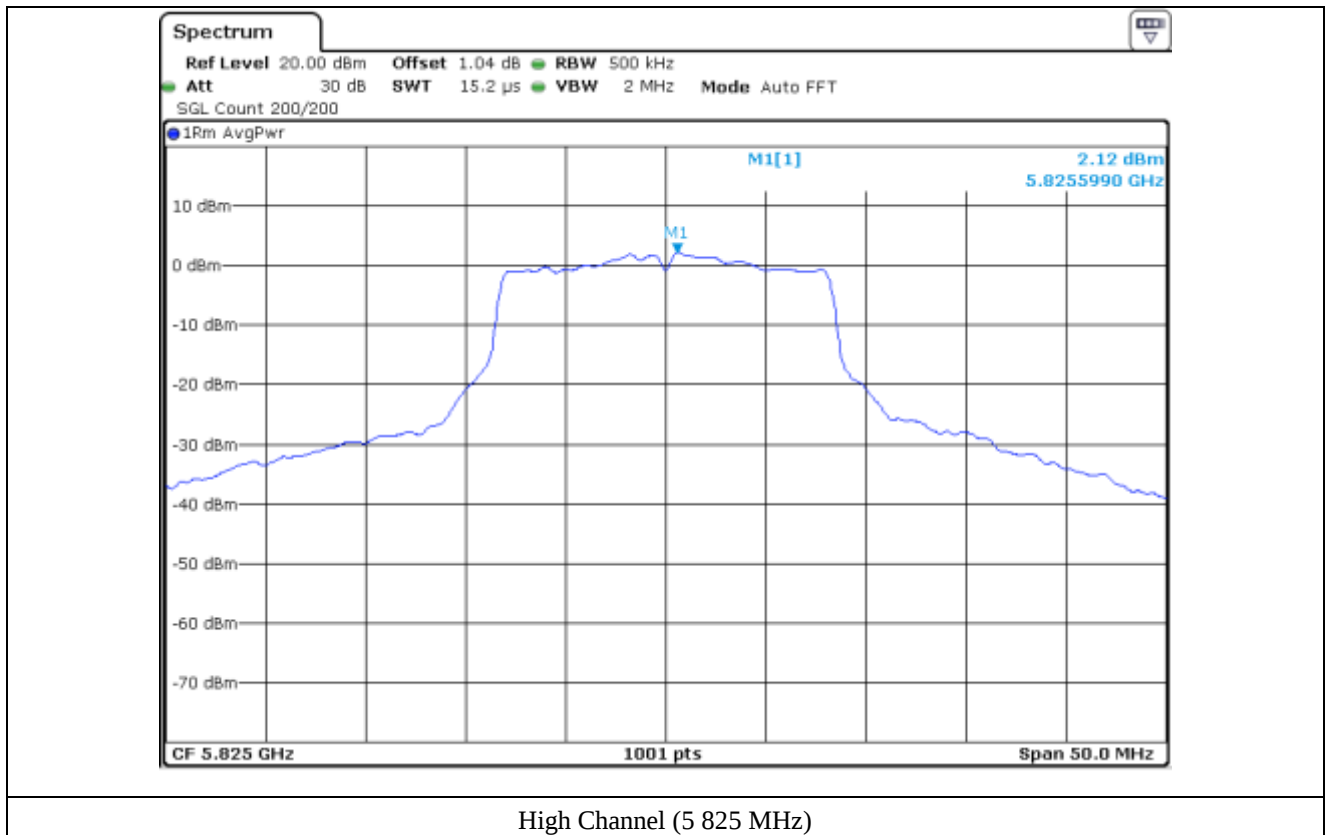




Low Channel (5 745 MHz)



Middle Channel (5 785 MHz)



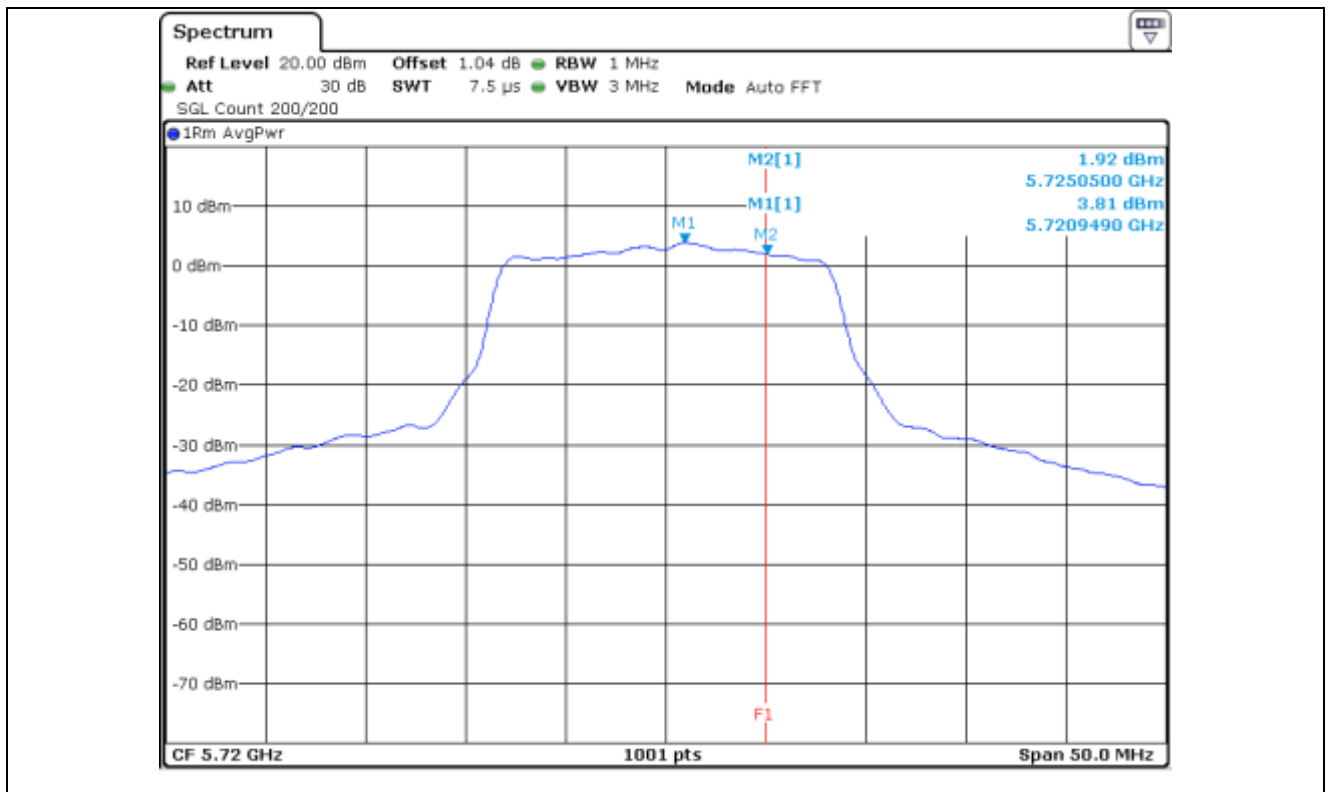
10.4.4 Test data for Straddle Channel_Antenna 0

-. Operating condition : Highest Output Power Transmitting Mode

-. Test Result : Pass

FREQUENCY RANGE (MHz)	FREQUENCY (MHz)	MEASURED VALUE (dBm)	Correction Factor (dB)	Result (dBm)	LIMIT (dBm)	MARGIN (dB)
5 470 ~ 5 725	5 720.00	3.81	0.29	4.10	11.00	6.90
5 725 ~ 5 850	5 720.00	1.92	0.29	2.21	30.00	27.79

Remark : Margin = Limit – Result(Measured Value + Correction Factor)



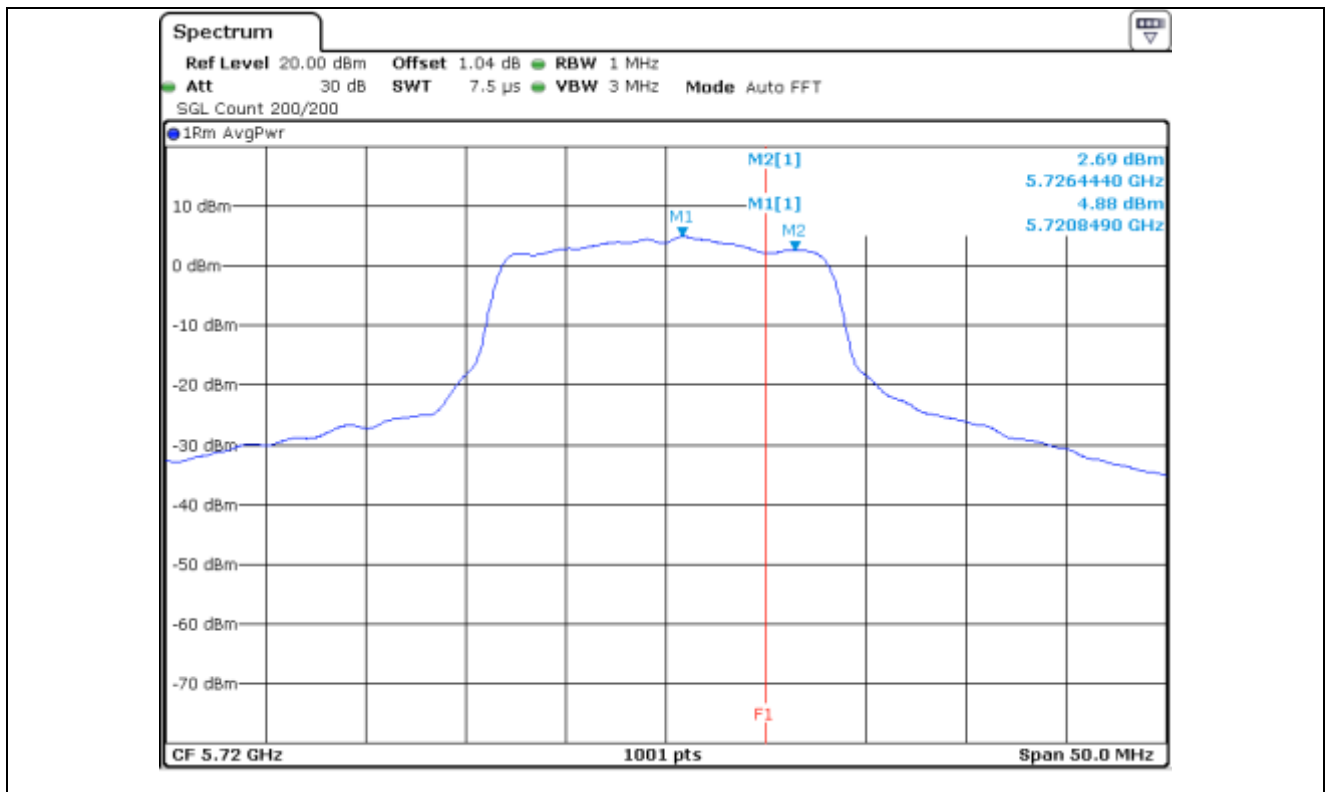
10.4.5 Test data for Straddle Channel_Antenna 1

-. Operating condition : Highest Output Power Transmitting Mode

-. Test Result : Pass

FREQUENCY RANGE (MHz)	FREQUENCY (MHz)	MEASURED VALUE (dBm)	Correction Factor (dB)	Result (dBm)	LIMIT (dBm)	MARGIN (dB)
5 470 ~ 5 725	5 720.00	4.88	0.29	5.17	11.00	5.83
5 725 ~ 5 850	5 720.00	2.69	0.31	3.00	30.00	27.00

Remark : Margin = Limit – Result(Measured Value + Correction Factor)



10.5 Test data for 802.11n_HT20 RLAN Mode

10.5.1 Test data for Antenna 0

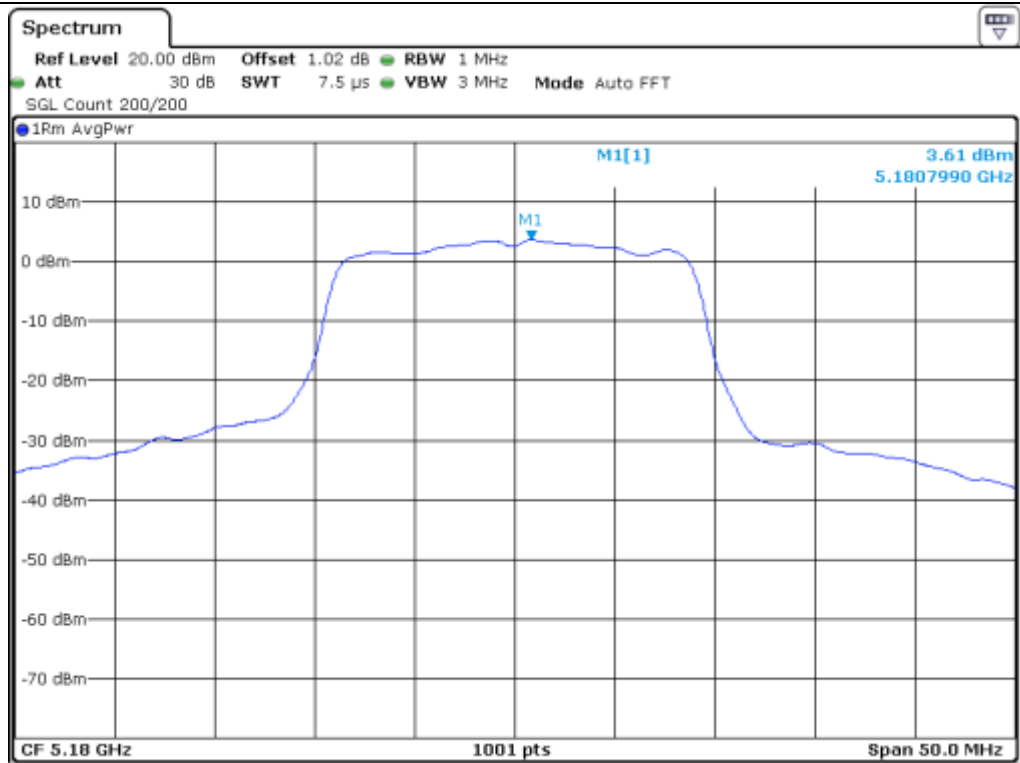
-. Operating condition : Highest Output Power Transmitting Mode

-. Test Result : Pass

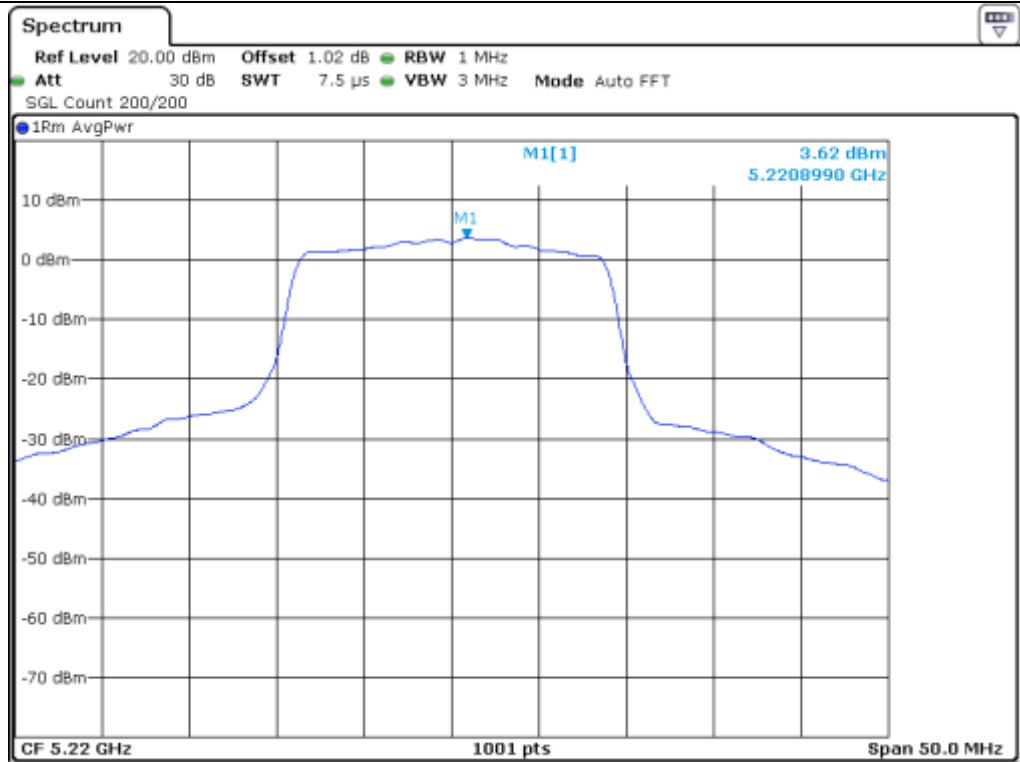
FREQUENCY RANGE (MHz)	CHANNEL	FREQUENCY (MHz)	MEASURED VALUE (dBm)	Correction Factor (dB)	Result (dBm)	LIMIT (dBm)	MARGIN (dB)
5 150 ~ 5 250	Low	5 180.00	3.61	0.59	4.20	11.00	6.80
	Middle	5 220.00	3.62	0.59	4.21	11.00	6.79
	High	5 240.00	4.03	0.59	4.62	11.00	6.38
5 250 ~ 5 350	Low	5 260.00	4.65	0.59	5.24	11.00	5.76
	Middle	5 300.00	5.21	0.59	5.80	11.00	5.20
	High	5 320.00	5.23	0.59	5.82	11.00	5.18
5 470 ~ 5 725	Low	5 500.00	3.41	0.59	4.00	11.00	7.00
	Middle	5 580.00	3.60	0.59	4.19	11.00	6.81
	High	5 700.00	2.52	0.59	3.11	11.00	7.89
5 725 ~ 5 850	Low	5 745.00	0.67	0.65	1.32	30.00	28.68
	Middle	5 785.00	0.28	0.65	0.93	30.00	29.07
	High	5 825.00	0.18	0.65	0.83	30.00	29.17

Remark : Margin = Limit – Result(Measured Value + Correction Factor)

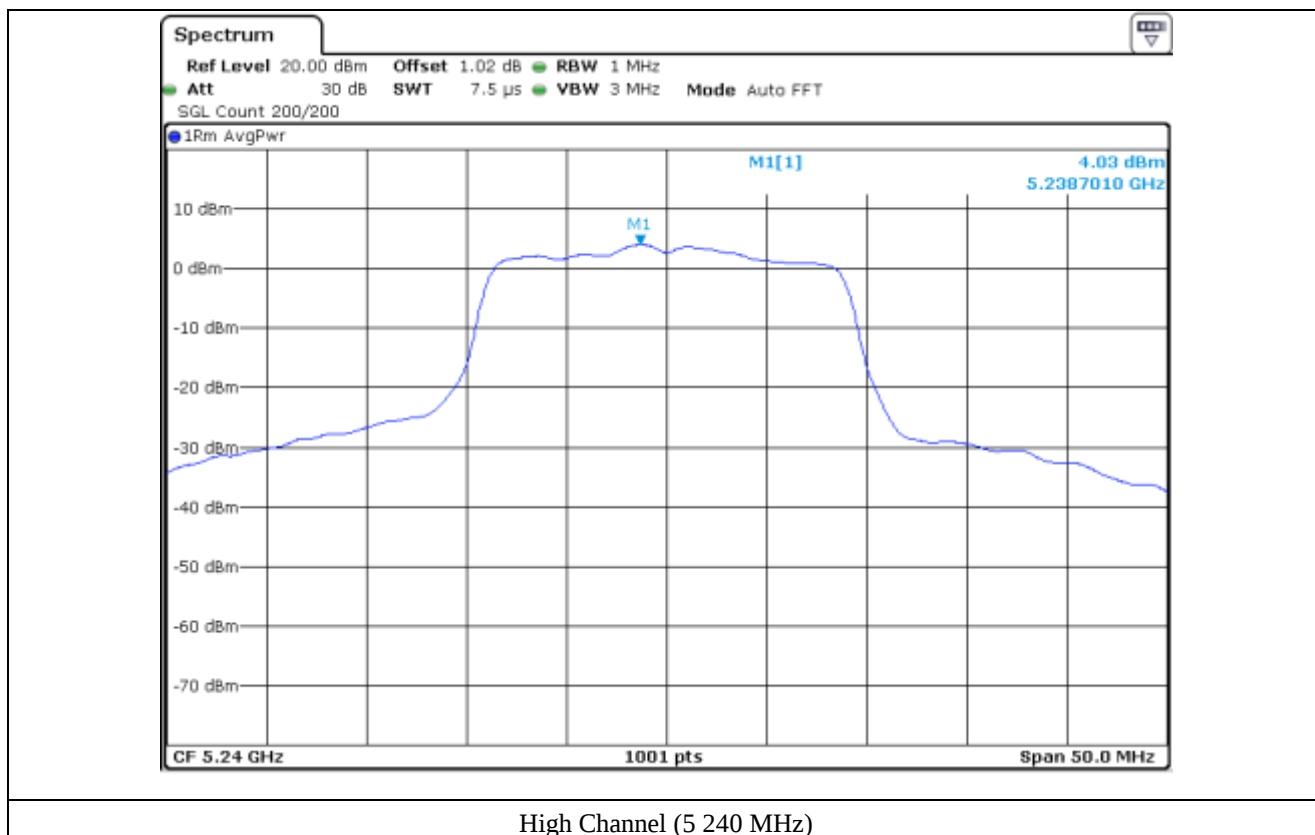
Remark: See next page for measurement data.

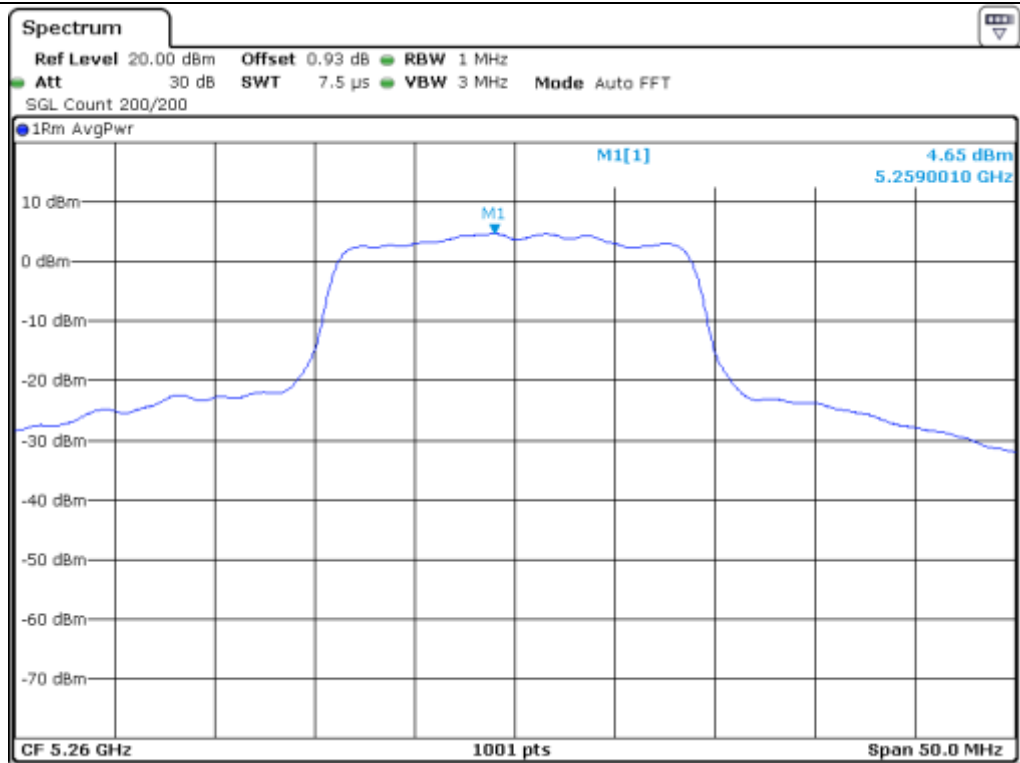


Low Channel (5 180 MHz)

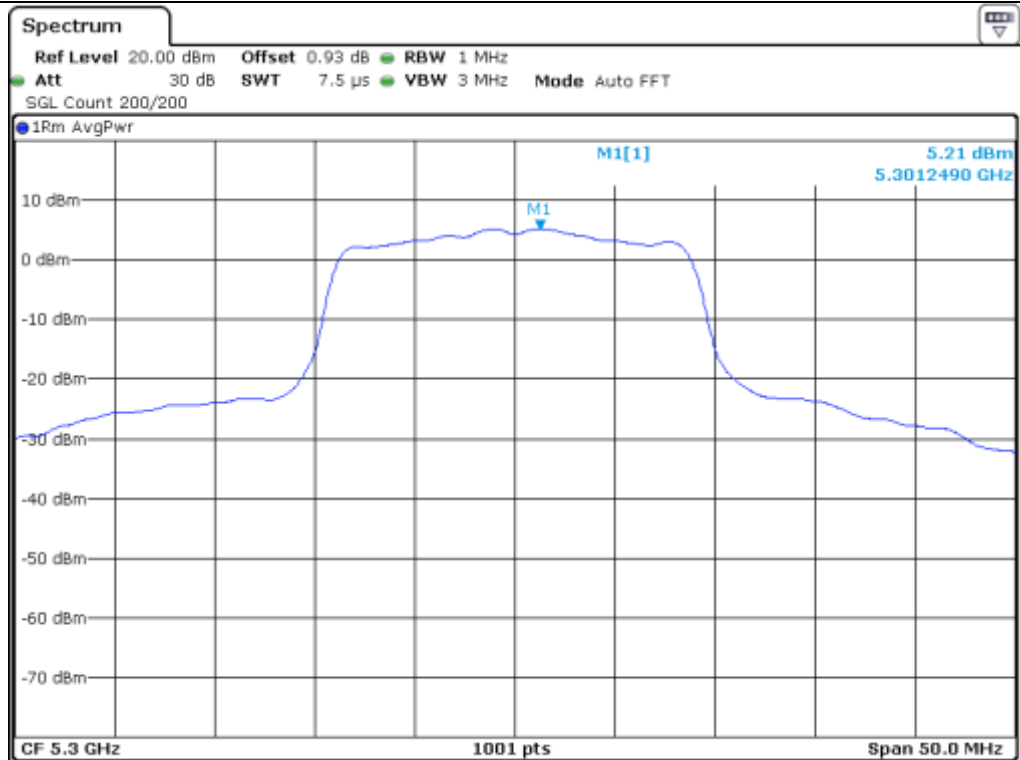


Middle Channel (5 220 MHz)

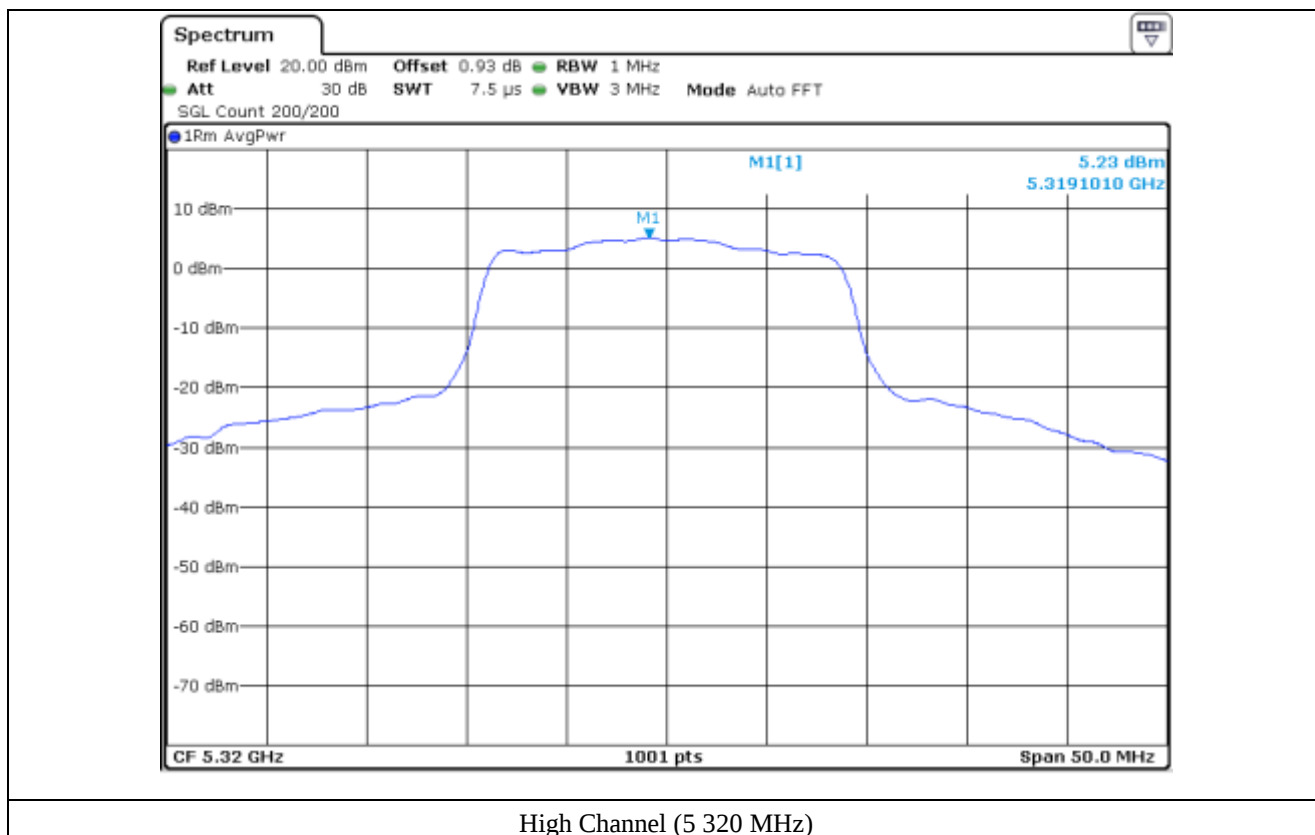


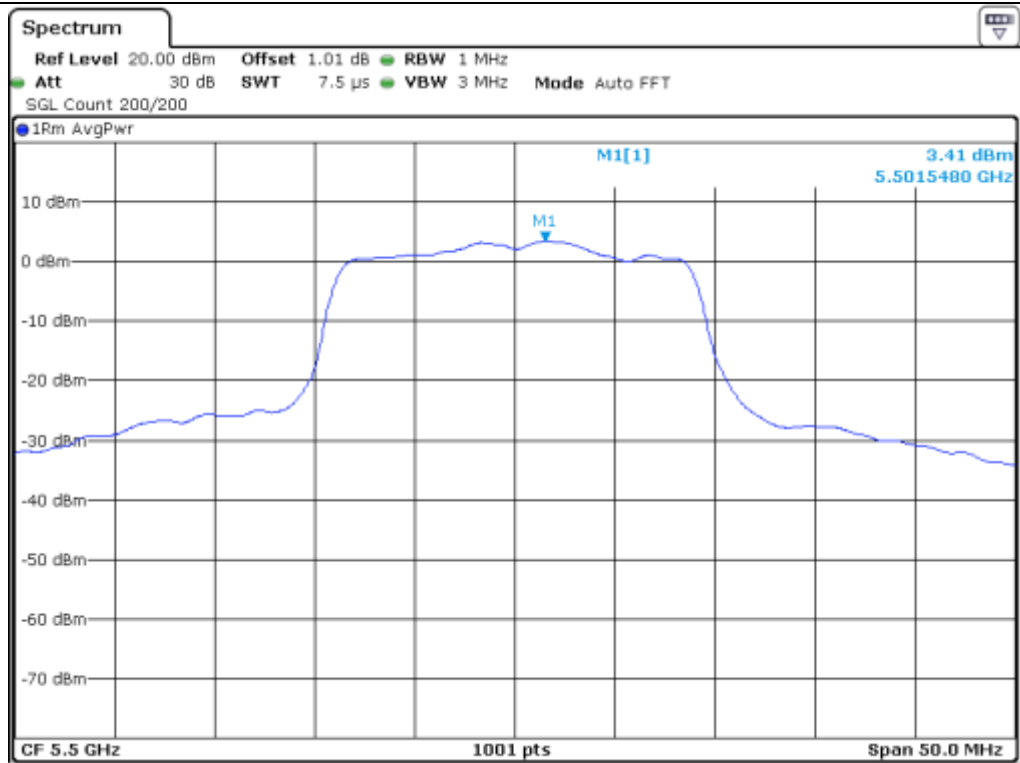


Low Channel (5 260 MHz)

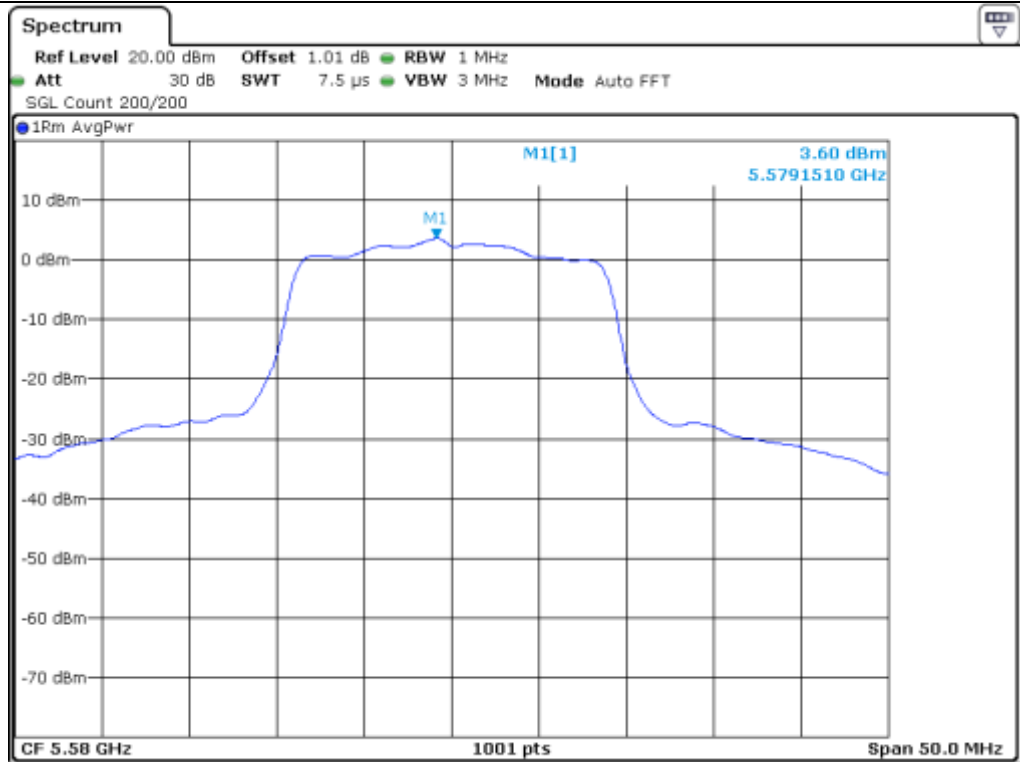


Middle Channel (5 300 MHz)

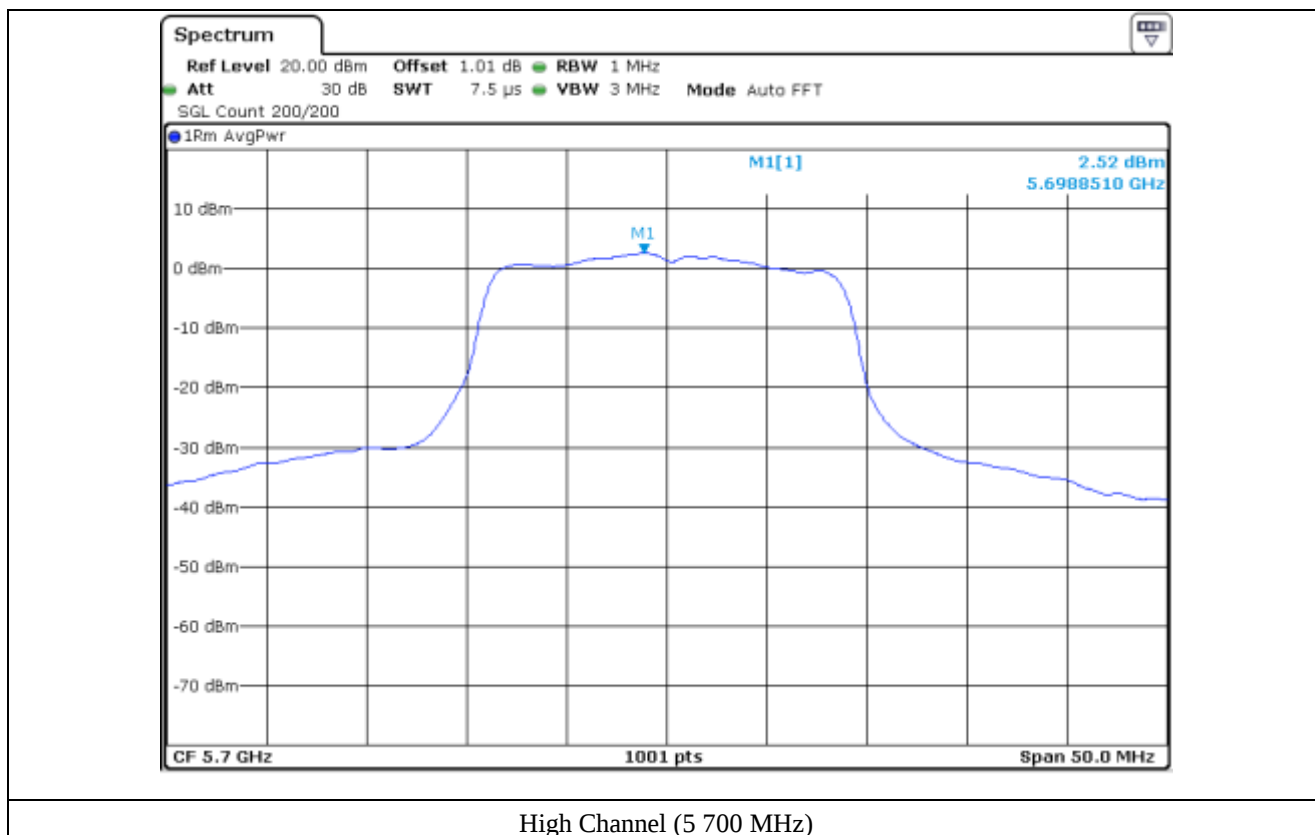


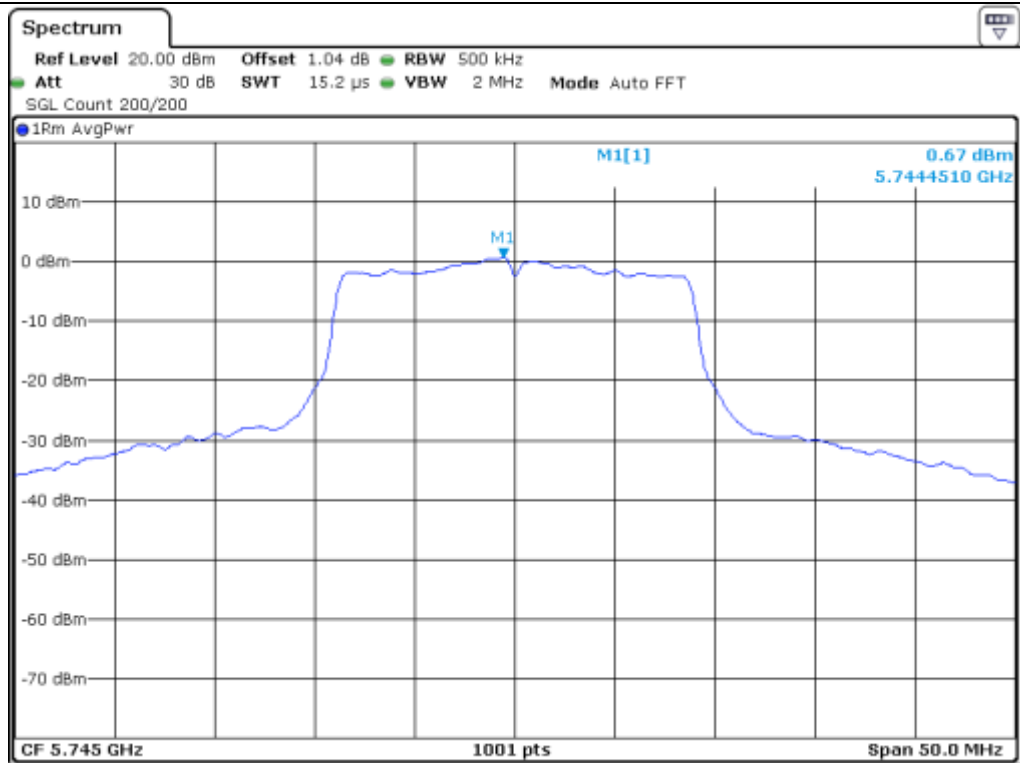


Low Channel (5 500 MHz)

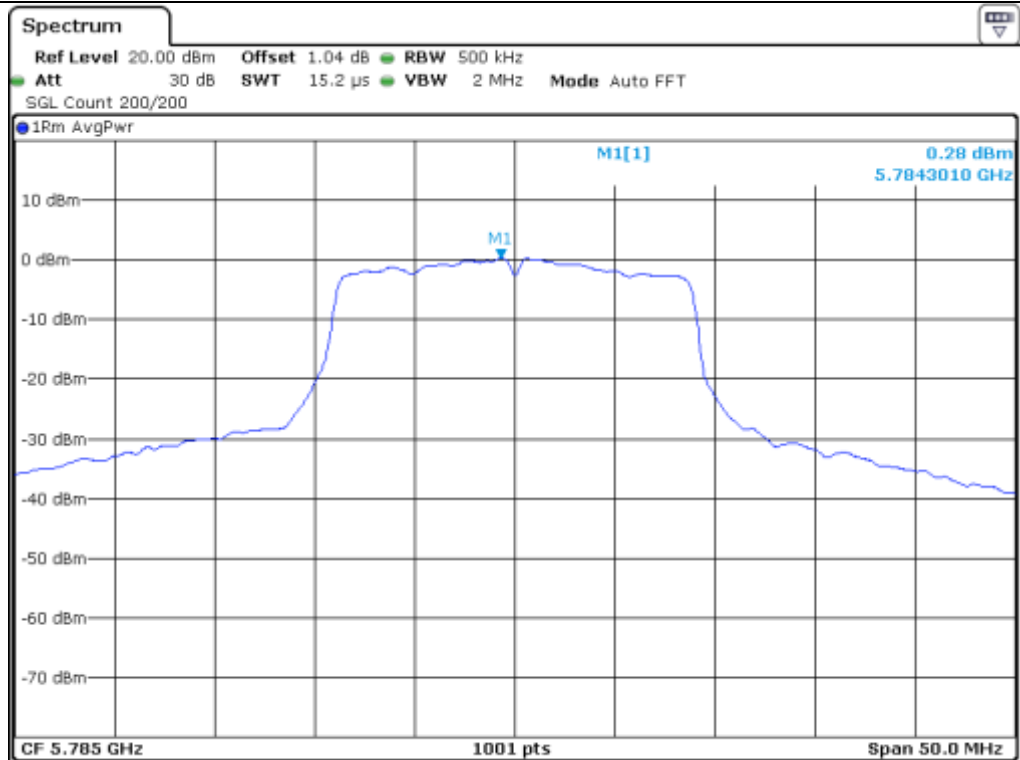


Middle Channel (5 580 MHz)

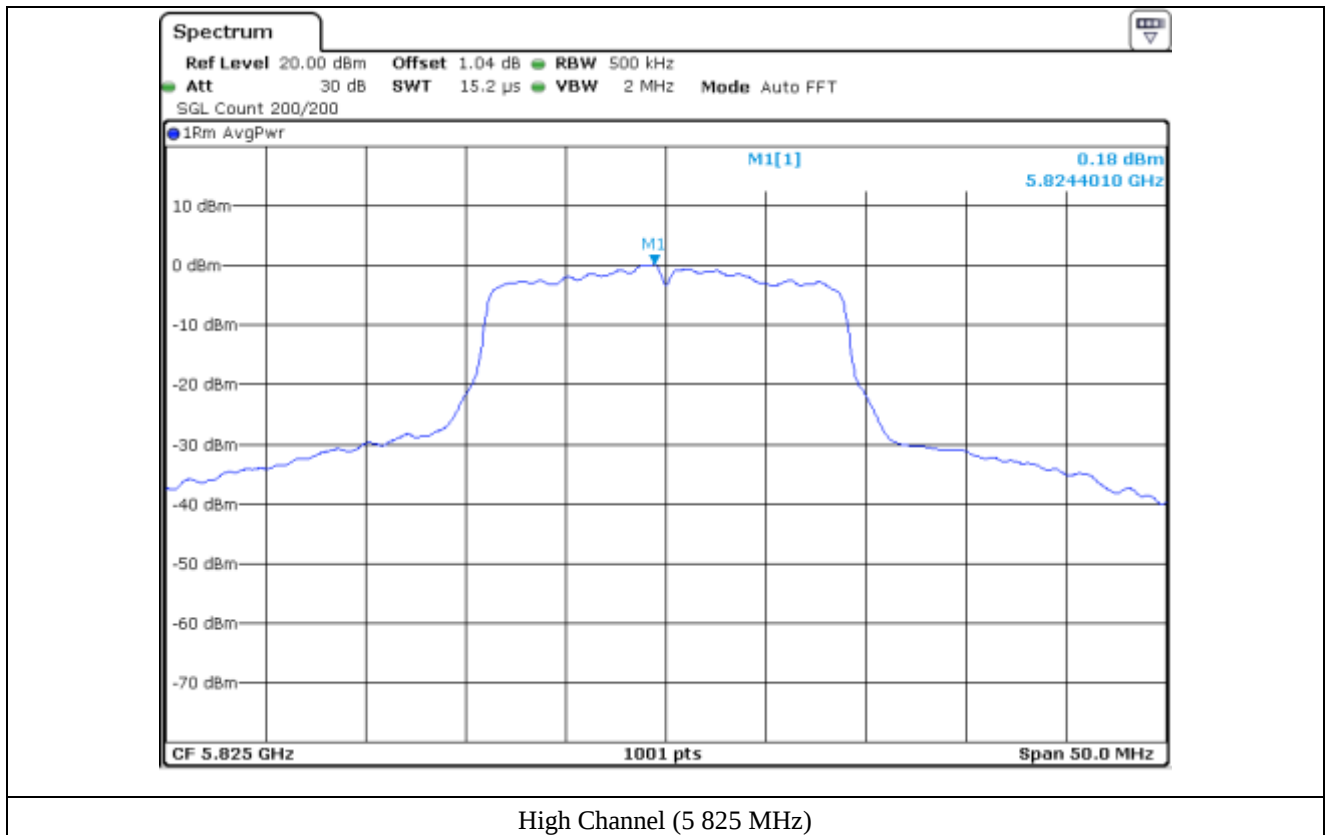




Low Channel (5 745 MHz)



Middle Channel (5 785 MHz)



10.5.2 Test data for Antenna 1

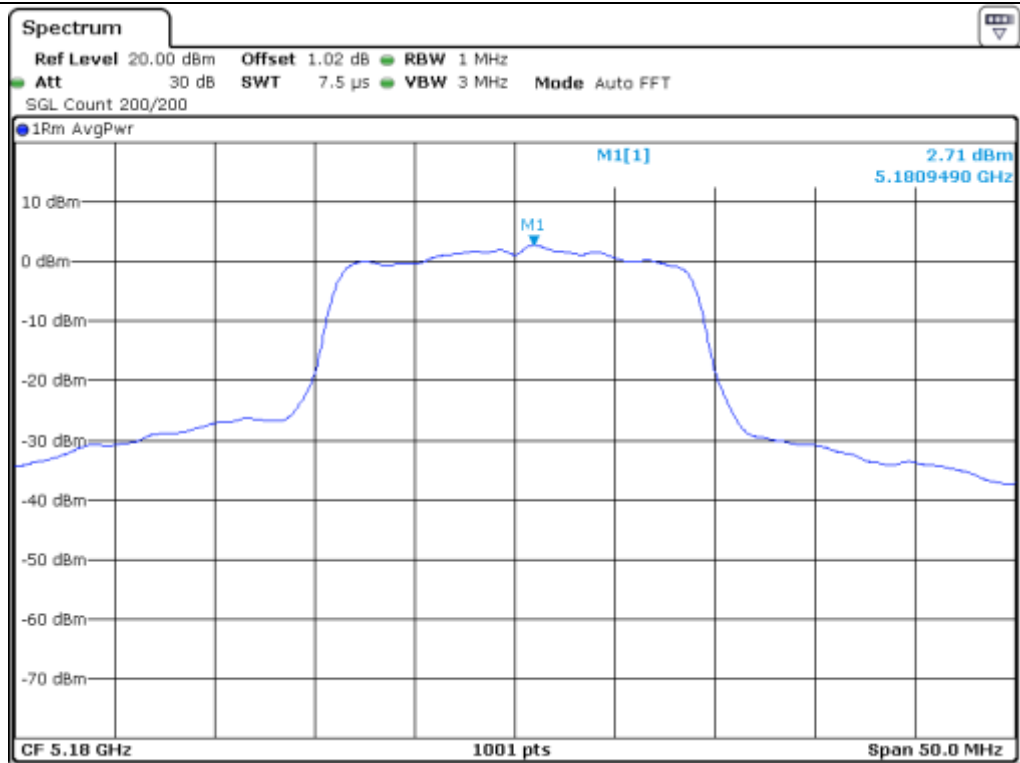
-. Operating condition : Highest Output Power Transmitting Mode

-. Test Result : Pass

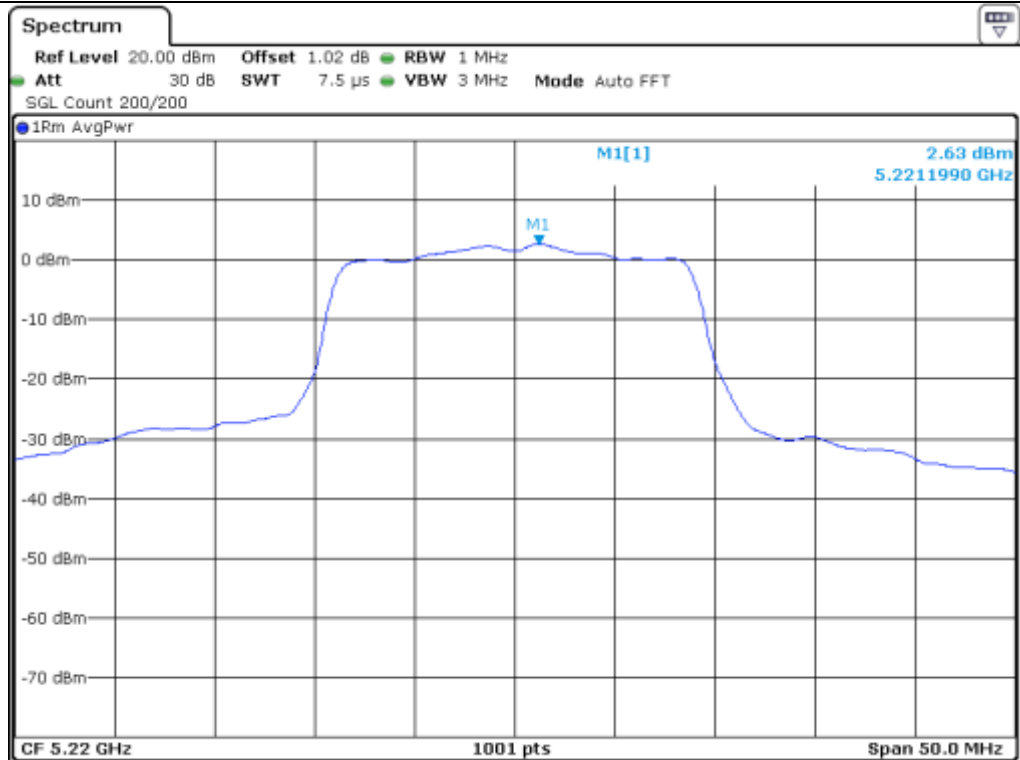
FREQUENCY RANGE (MHz)	CHANNEL	FREQUENCY (MHz)	MEASURED VALUE (dBm)	Correction Factor (dB)	Result (dBm)	LIMIT (dBm)	MARGIN (dB)
5 150 ~ 5 250	Low	5 180.00	2.71	0.72	3.43	11.00	7.57
	Middle	5 220.00	2.63	0.72	3.35	11.00	7.65
	High	5 240.00	2.52	0.72	3.24	11.00	7.76
5 250 ~ 5 350	Low	5 260.00	2.05	0.65	2.70	11.00	8.30
	Middle	5 300.00	2.56	0.65	3.21	11.00	7.79
	High	5 320.00	2.30	0.65	2.95	11.00	8.05
5 470 ~ 5 725	Low	5 500.00	3.28	0.65	3.93	11.00	7.07
	Middle	5 580.00	3.55	0.65	4.20	11.00	6.80
	High	5 700.00	3.35	0.65	4.00	11.00	7.00
5 725 ~ 5 850	Low	5 745.00	0.67	0.60	1.27	30.00	28.73
	Middle	5 785.00	0.65	0.6	1.25	30.00	28.75
	High	5 825.00	0.24	0.6	0.84	30.00	29.16

Remark : Margin = Limit – Result(Measured Value + Correction Factor)

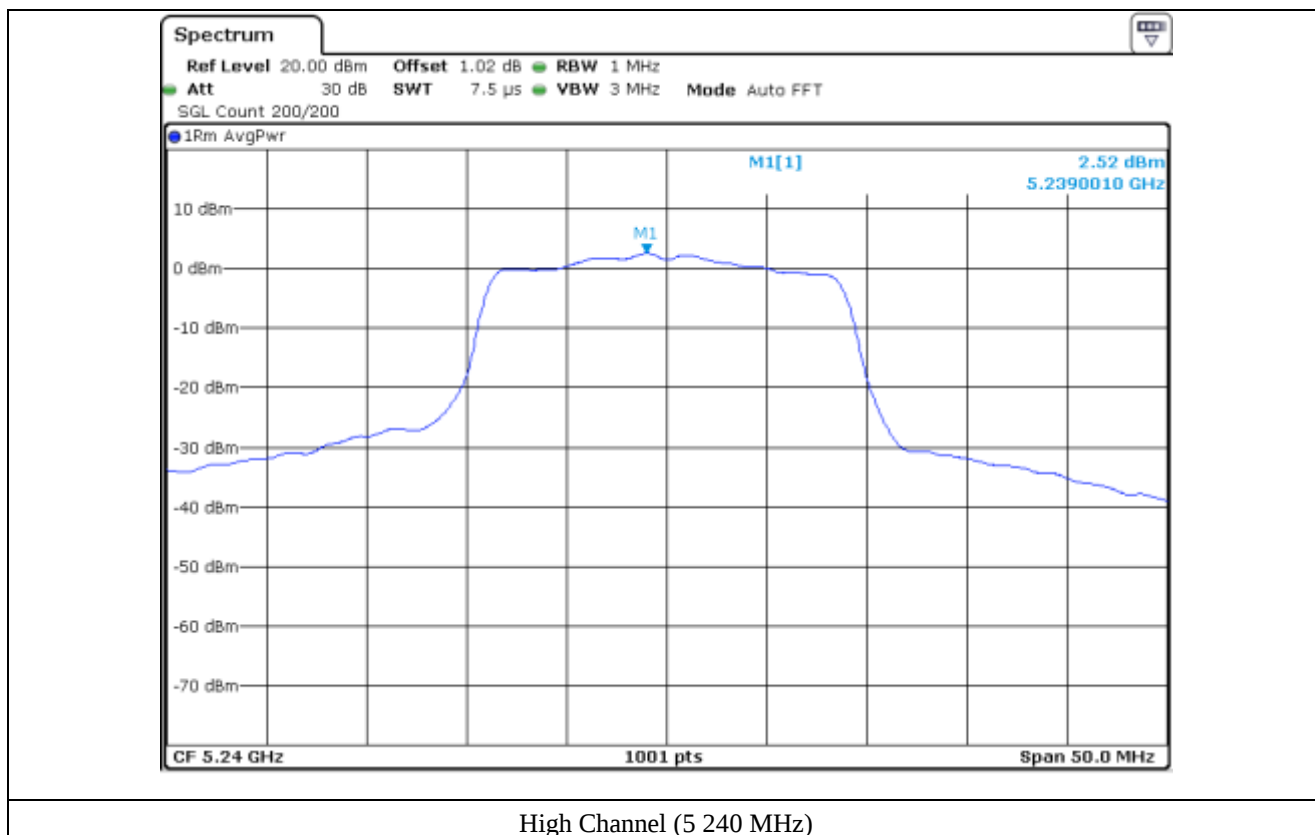
Remark: See next page for measurement data.

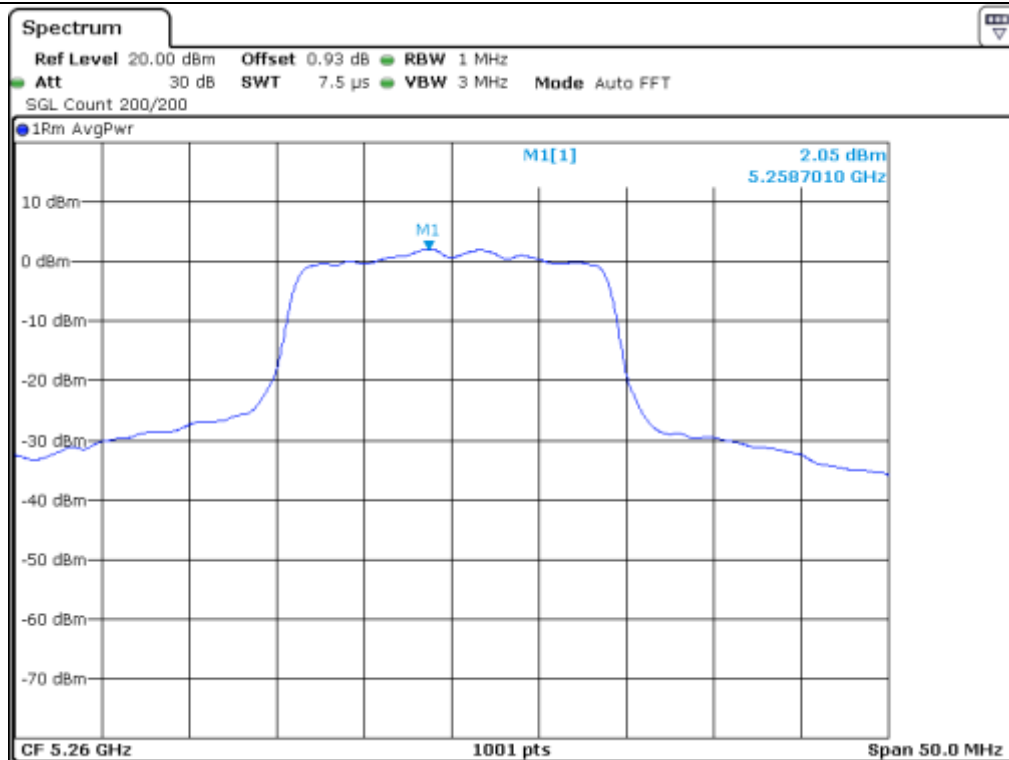


Low Channel (5 180 MHz)

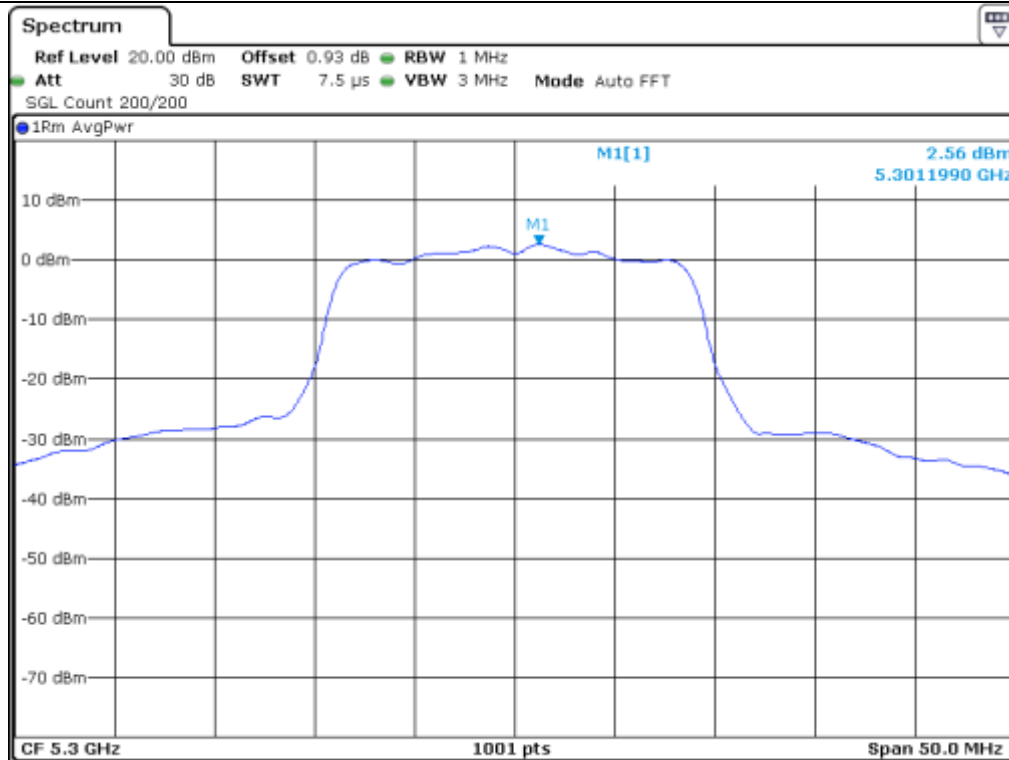


Middle Channel (5 220 MHz)

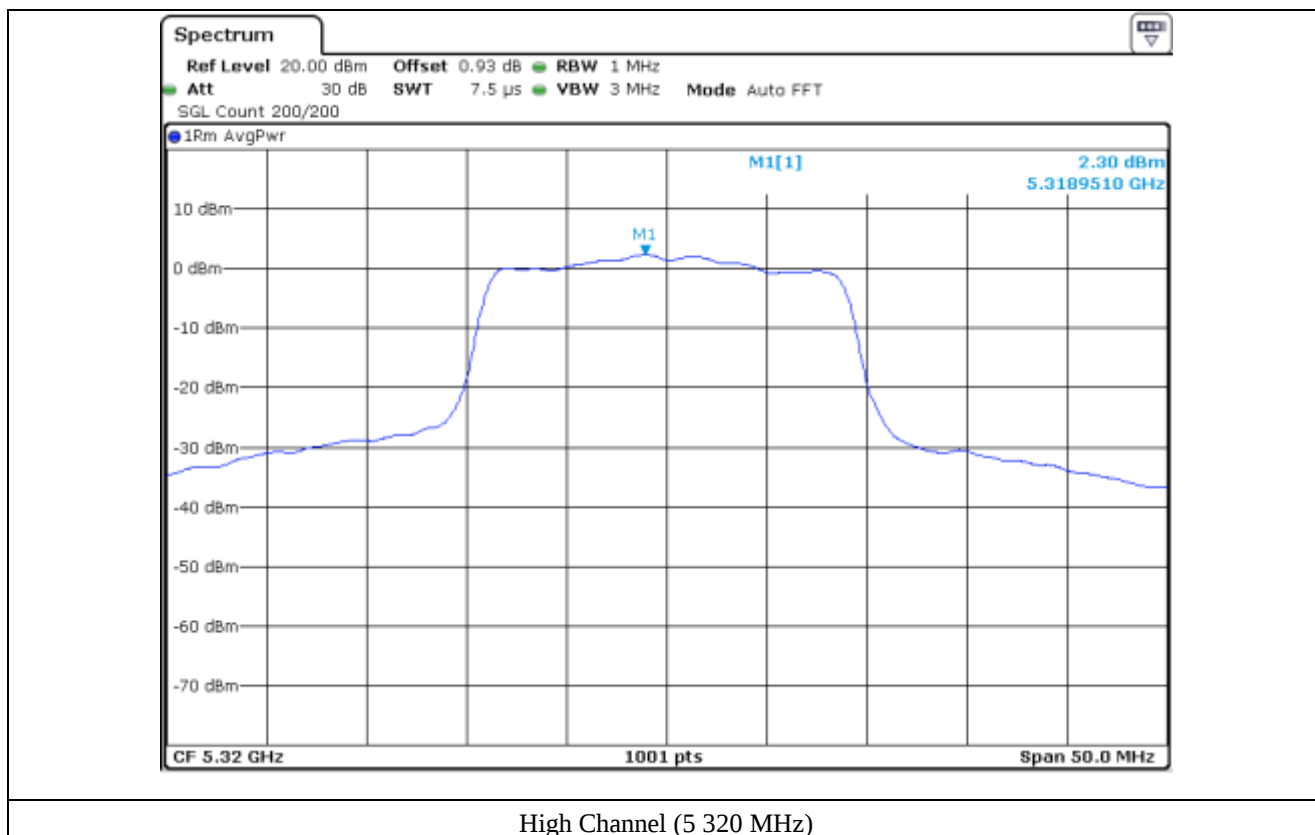


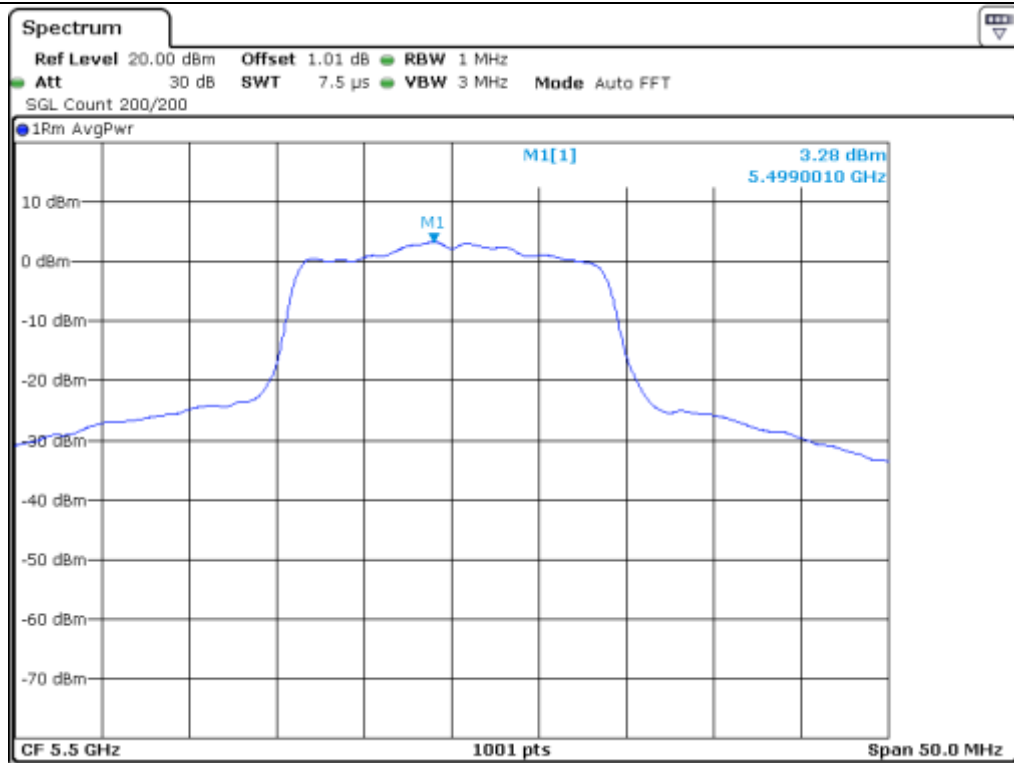


Low Channel (5 260 MHz)

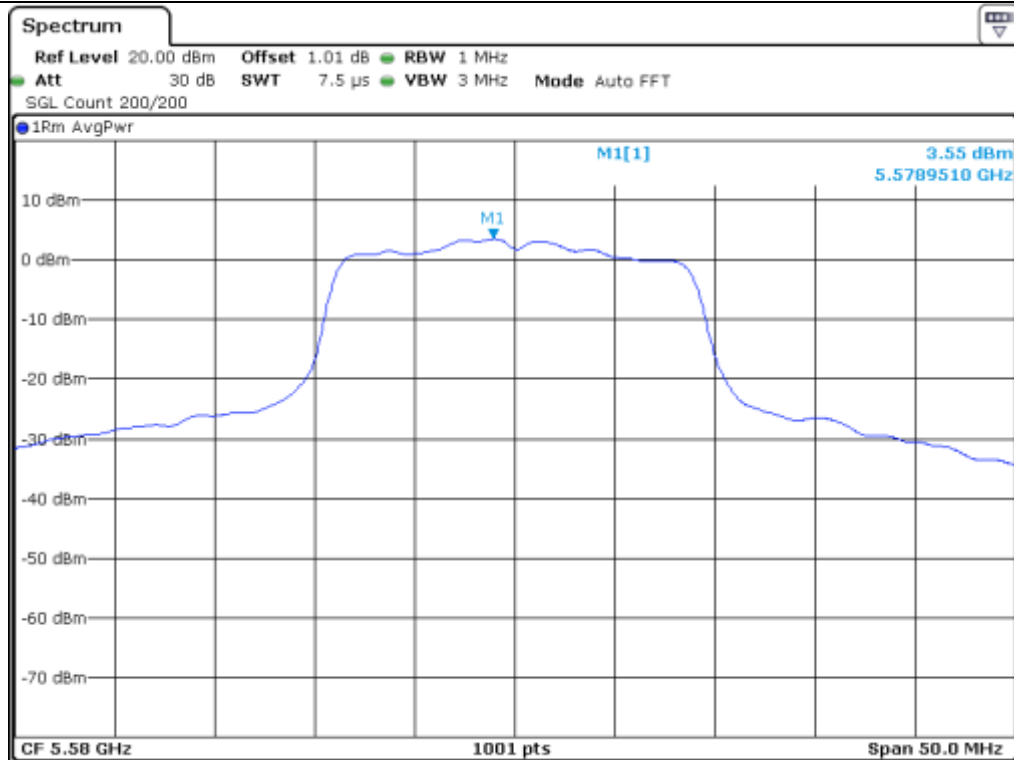


Middle Channel (5 300 MHz)

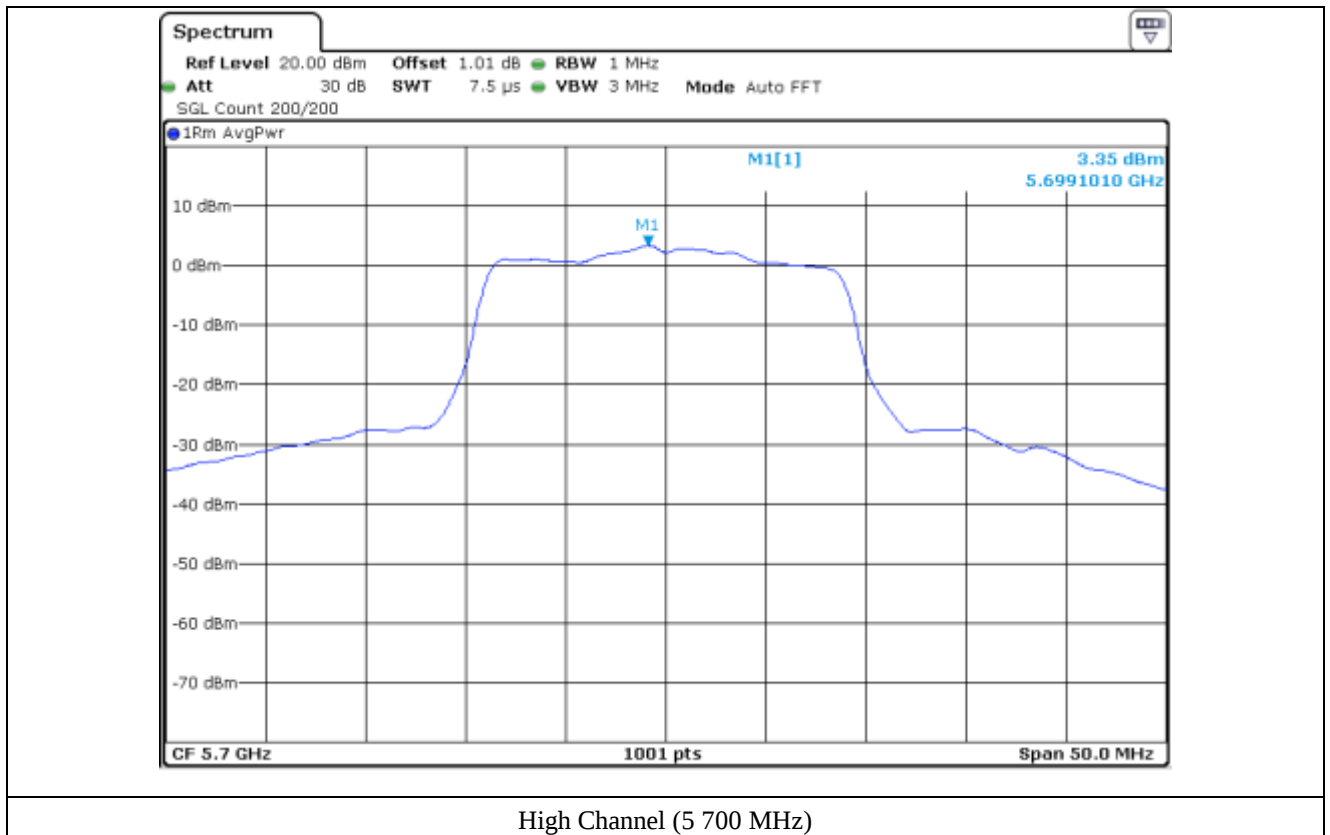


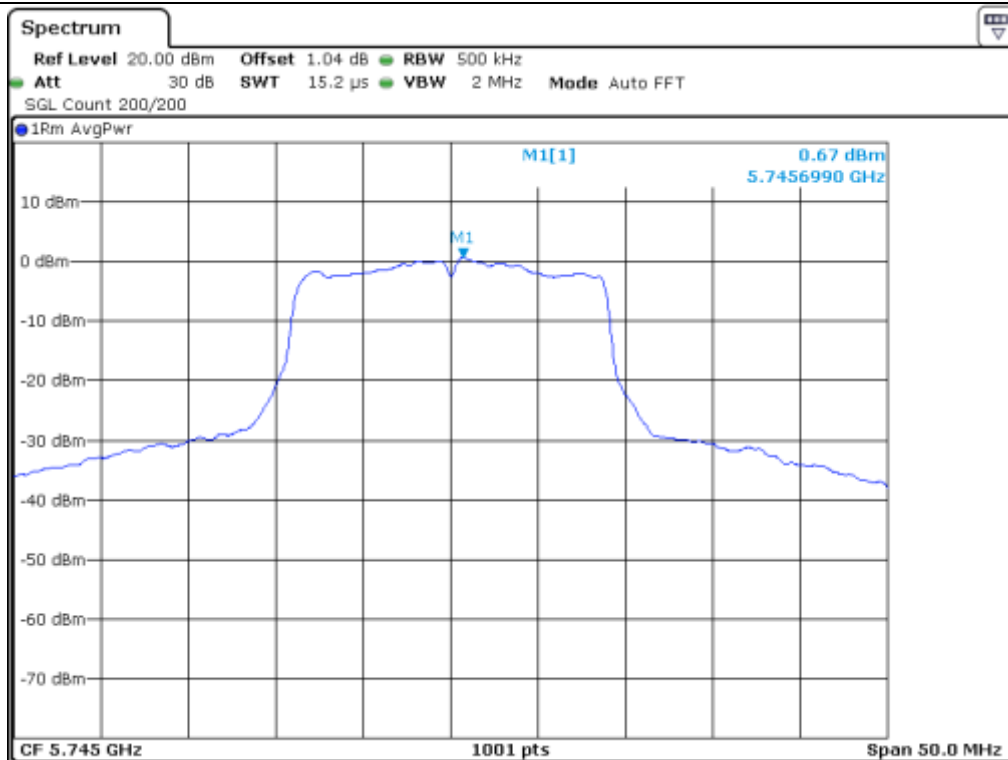


Low Channel (5 500 MHz)

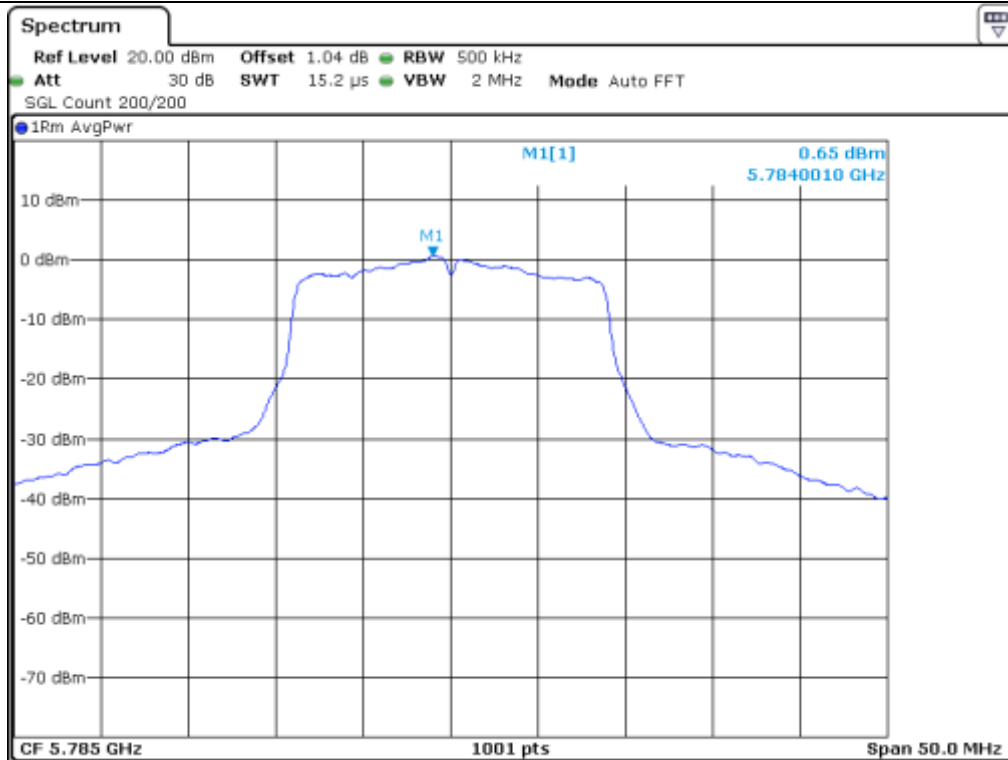


Middle Channel (5 580 MHz)

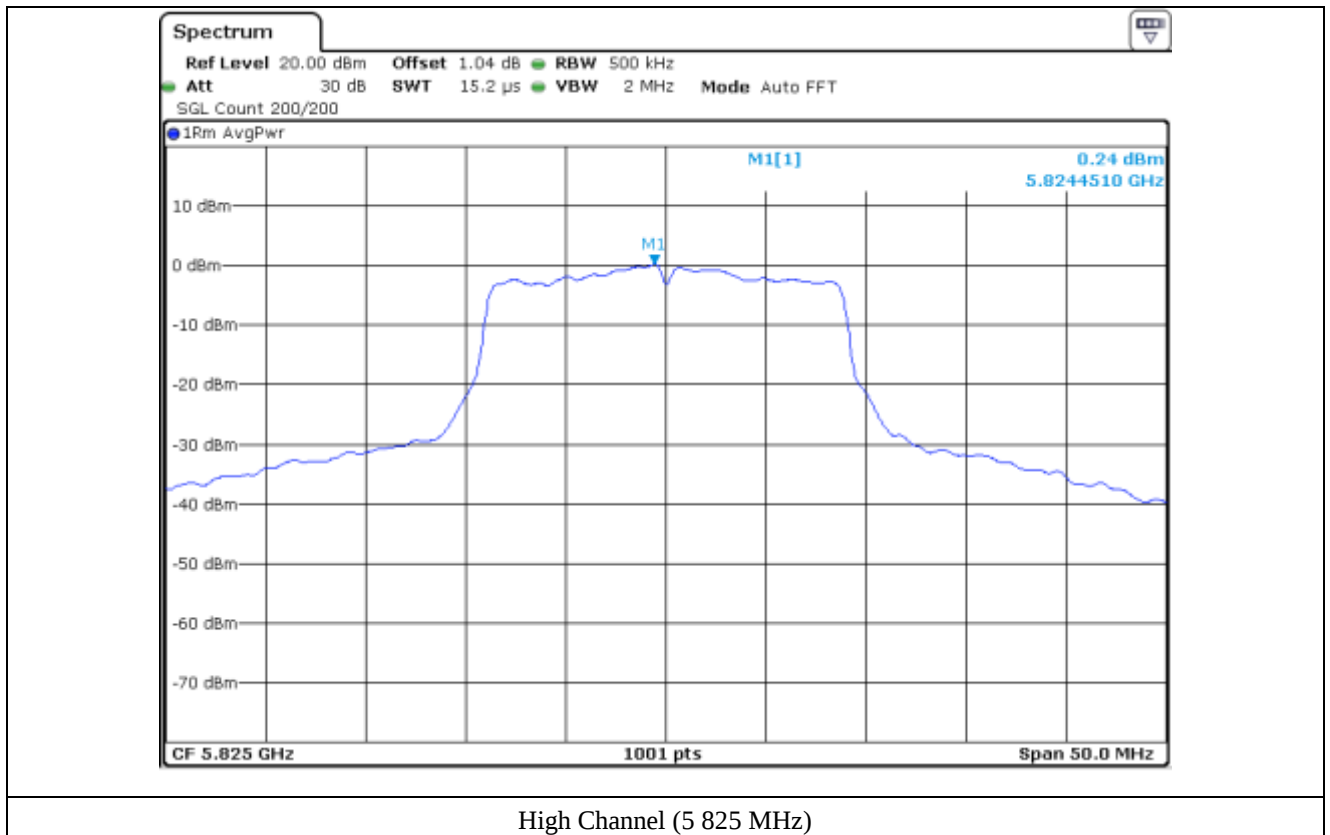




Low Channel (5 745 MHz)



Middle Channel (5 785 MHz)



10.5.3 Test data for Multiple Transmit

-. Operating condition : Highest Output Power Transmitting Mode

-. Test Result : Pass

FREQUENCY RANGE (MHz)	CHANNEL	FREQUENCY (MHz)	MEASURED VALUE (dBm)	Correction Factor (dB)	Result (dBm)	LIMIT (dBm)	MARGIN (dB)
5 150 ~ 5 250	Low	5 180.00	6.19	0.72	6.91	11.00	4.09
	Middle	5 220.00	6.16	0.72	6.88	11.00	4.12
	High	5 240.00	6.35	0.72	7.07	11.00	3.93
5 250 ~ 5 350	Low	5 260.00	6.55	0.65	7.20	11.00	3.80
	Middle	5 300.00	7.09	0.65	7.74	11.00	3.26
	High	5 320.00	7.02	0.65	7.67	11.00	3.33
5 470 ~ 5 725	Low	5 500.00	6.36	0.65	7.01	11.00	3.99
	Middle	5 580.00	6.59	0.65	7.24	11.00	3.76
	High	5 700.00	5.97	0.65	6.62	11.00	4.38
5 725 ~ 5 850	Low	5 745.00	3.68	0.60	4.28	30.00	25.72
	Middle	5 785.00	3.48	0.6	4.08	30.00	25.92
	High	5 825.00	3.22	0.6	3.82	30.00	26.18

Remark 1 : Margin = Limit – Result(Measured Value + Correction Factor)

Remark 2 : Calculated Output Power= $10\log (10^{(\text{Antenna1 Output Power}/10)}+10^{(\text{Antenna2 Output Power}/10)})$

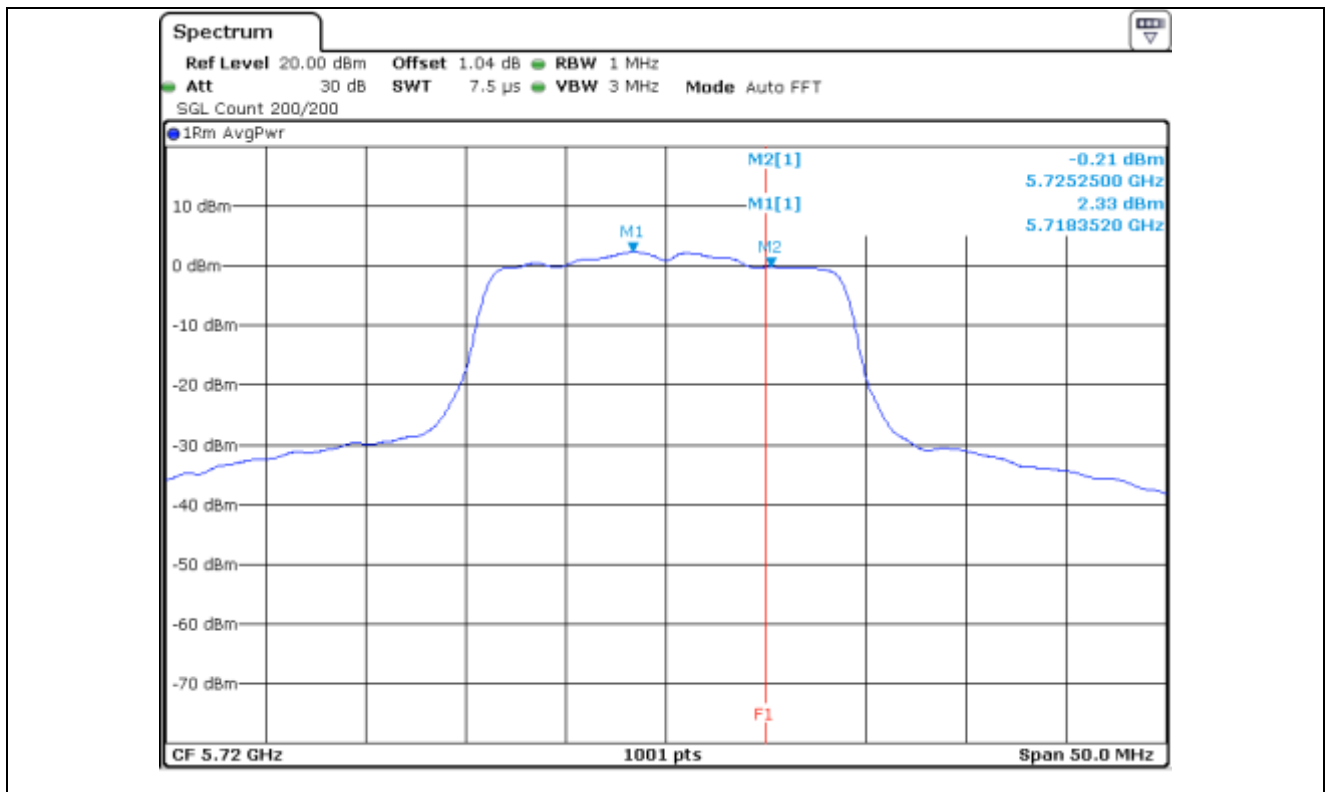
10.5.4 Test data for Straddle Channel_Antenna 0

-. Operating condition : Highest Output Power Transmitting Mode

-. Test Result : Pass

FREQUENCY RANGE (MHz)	FREQUENCY (MHz)	MEASURED VALUE (dBm)	Correction Factor (dB)	Result (dBm)	LIMIT (dBm)	MARGIN (dB)
5 470 ~ 5 725	5 720.00	2.33	0.59	2.92	11.00	8.08
5 725 ~ 5 850	5 720.00	-0.21	0.65	0.44	30.00	29.56

Remark : Margin = Limit – Result(Measured Value + Correction Factor)



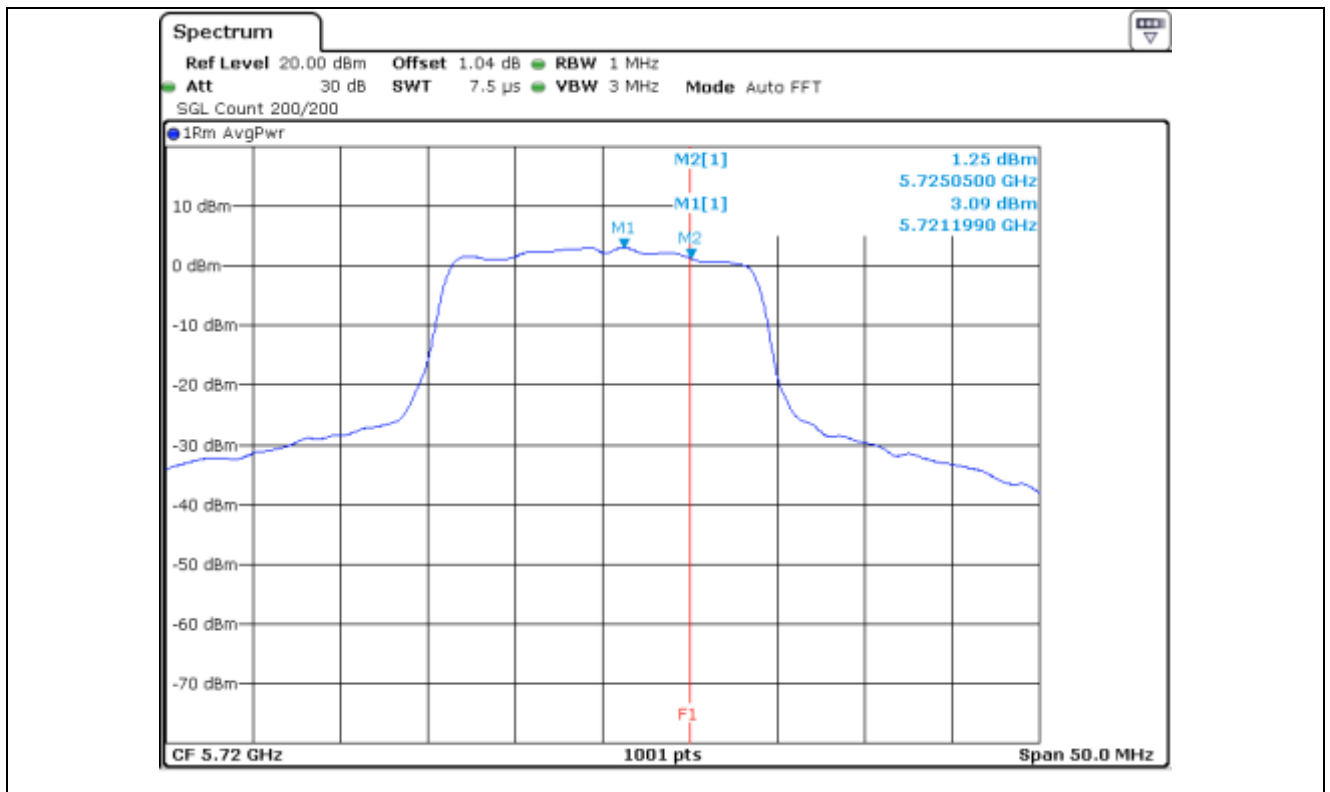
10.5.5 Test data for Straddle Channel_Antenna 1

-. Operating condition : Highest Output Power Transmitting Mode

-. Test Result : Pass

FREQUENCY RANGE (MHz)	FREQUENCY (MHz)	MEASURED VALUE (dBm)	Correction Factor (dB)	Result (dBm)	LIMIT (dBm)	MARGIN (dB)
5 470 ~ 5 725	5 720.00	3.09	0.65	3.74	11.00	7.26
5 725 ~ 5 850	5 720.00	1.25	0.60	1.85	30.00	28.15

Remark : Margin = Limit – Result(Measured Value + Correction Factor)



10.5.6 Test data for Straddle Channel_Multiple Transmit

-. Operating condition : Highest Output Power Transmitting Mode

-. Test Result : Pass

FREQUENCY RANGE (MHz)	FREQUENCY (MHz)	MEASURED VALUE (dBm)	Correction Factor (dB)	Result (dBm)	LIMIT (dBm)	MARGIN (dB)
5 470 ~ 5 725	5 720.00	5.74	0.65	6.39	11.00	4.61
5 725 ~ 5 850	5 720.00	3.59	0.60	4.19	30.00	25.81

Remark 1 : Margin = Limit – Result(Measured Value + Correction Factor)

Remark 2 : Calculated Output Power= $10\log (10^{(\text{Antenna1 Output Power}/10)}+10^{(\text{Antenna2 Output Power}/10)})$

10.6 Test data for 802.11n_HT40 RLAN Mode

10.6.1 Test data for Antenna 0

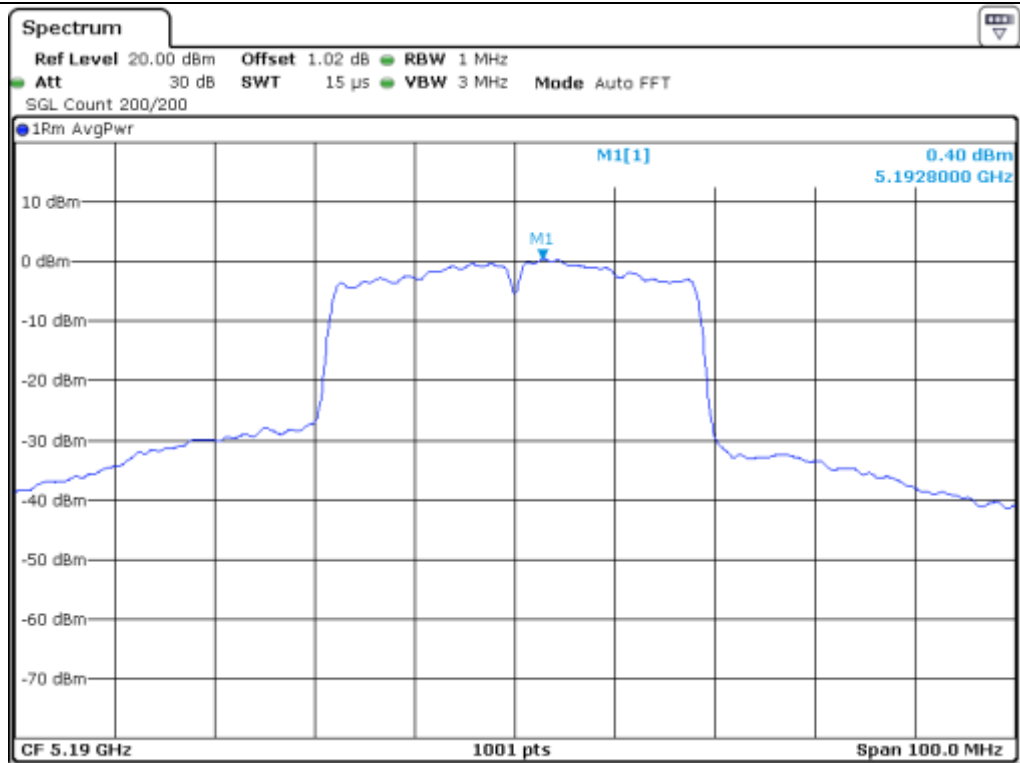
-. Operating condition : Highest Output Power Transmitting Mode

-. Test Result : Pass

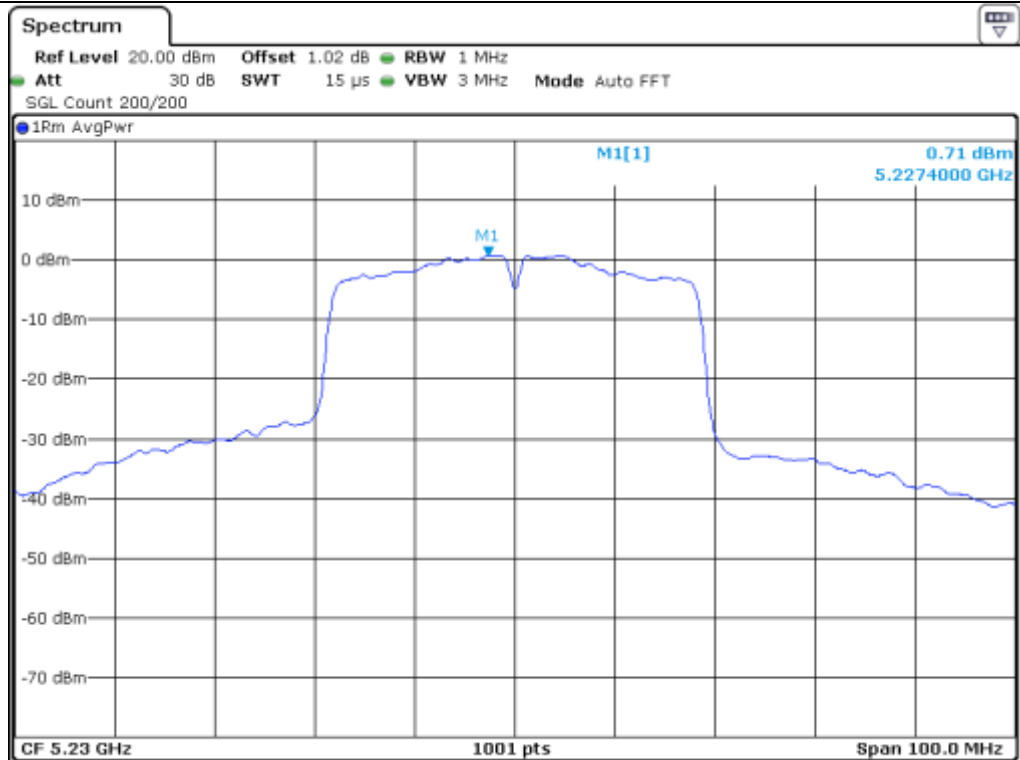
FREQUENCY RANGE (MHz)	CHANNEL	FREQUENCY (MHz)	MEASURED VALUE (dBm)	Correction Factor (dB)	Result (dBm)	LIMIT (dBm)	MARGIN (dB)
5 150 ~ 5 250	Low	5 190.00	0.40	1.11	1.51	11.00	9.49
	High	5 230.00	0.71	1.11	1.82	11.00	9.18
5 250 ~ 5 350	Low	5 270.00	1.53	1.11	2.64	11.00	8.36
	High	5 310.00	1.49	1.11	2.6	11.00	8.40
5 470 ~ 5 725	Low	5 510.00	1.63	1.09	2.72	11.00	8.28
	Middle	5 550.00	1.83	1.09	2.92	11.00	8.08
	High	5 670.00	1.66	1.09	2.75	11.00	8.25
5 725 ~ 5 850	Low	5 755.00	-1.85	1.08	-0.77	30.00	30.77
	High	5 795.00	-2.05	1.08	-0.97	30.00	30.97

Remark : Margin = Limit – Result(Measured Value + Correction Factor)

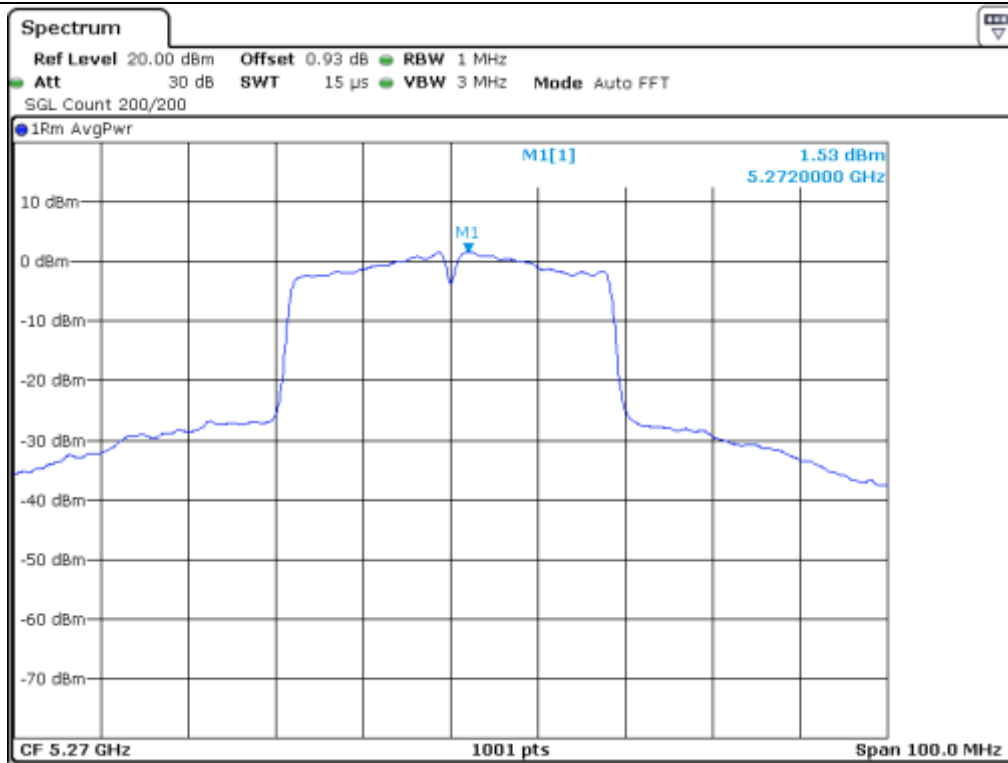
Remark: See next page for measurement data.



Low Channel (5 190 MHz)



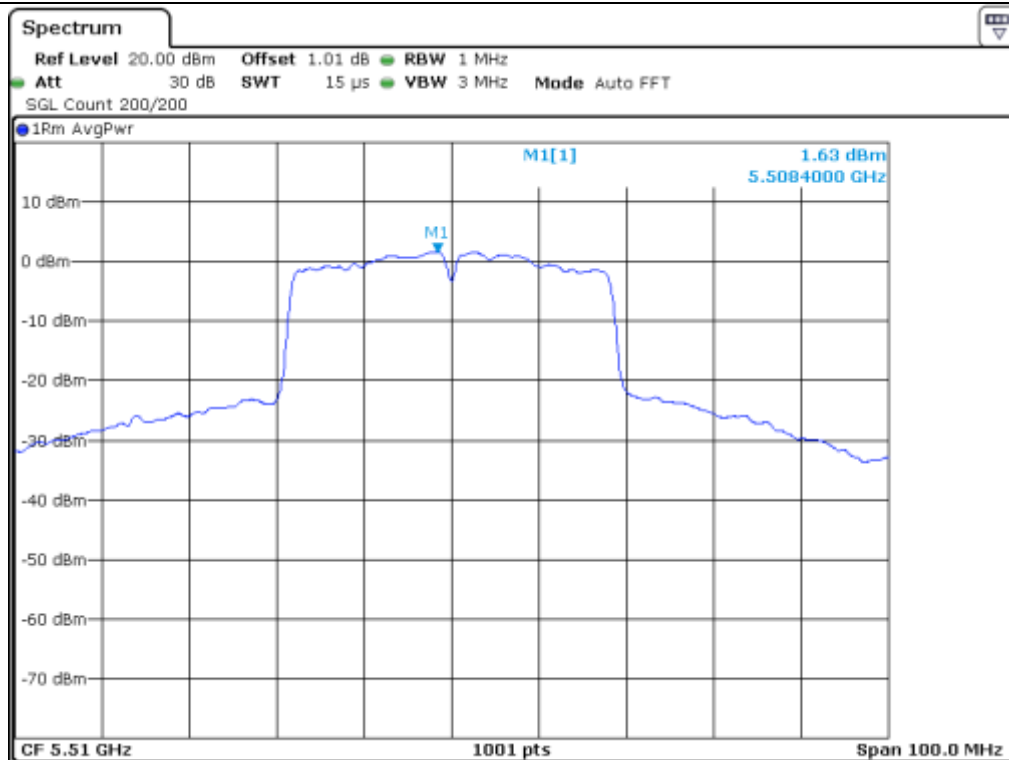
High Channel (5 230 MHz)



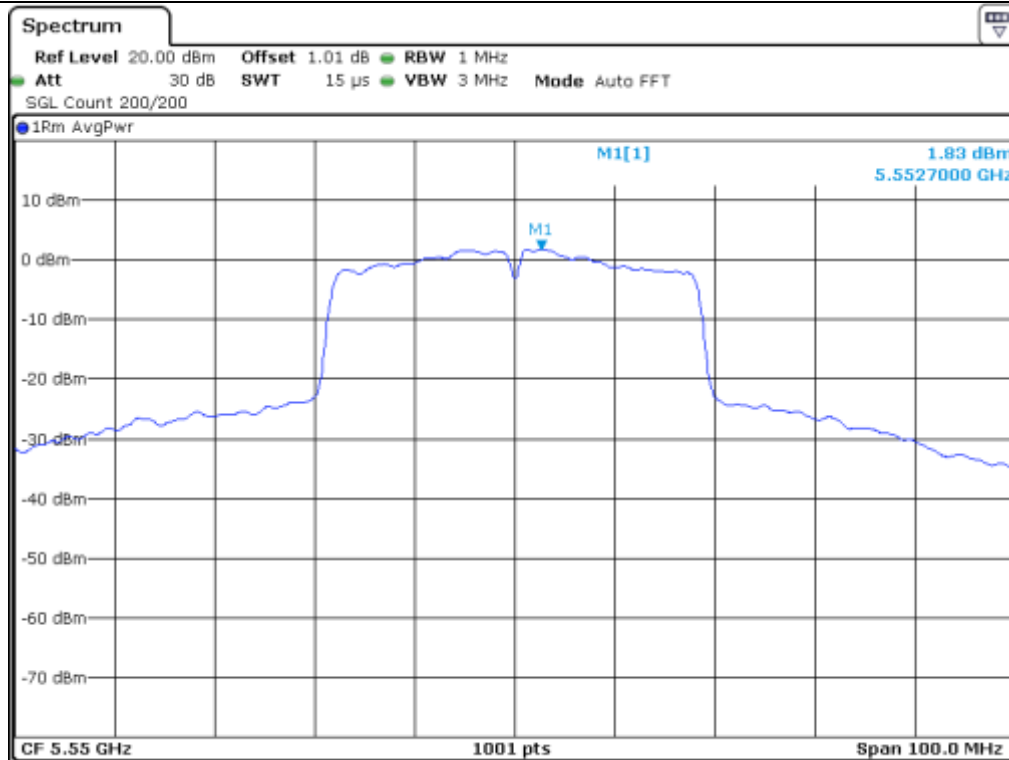
Low Channel (5 270 MHz)



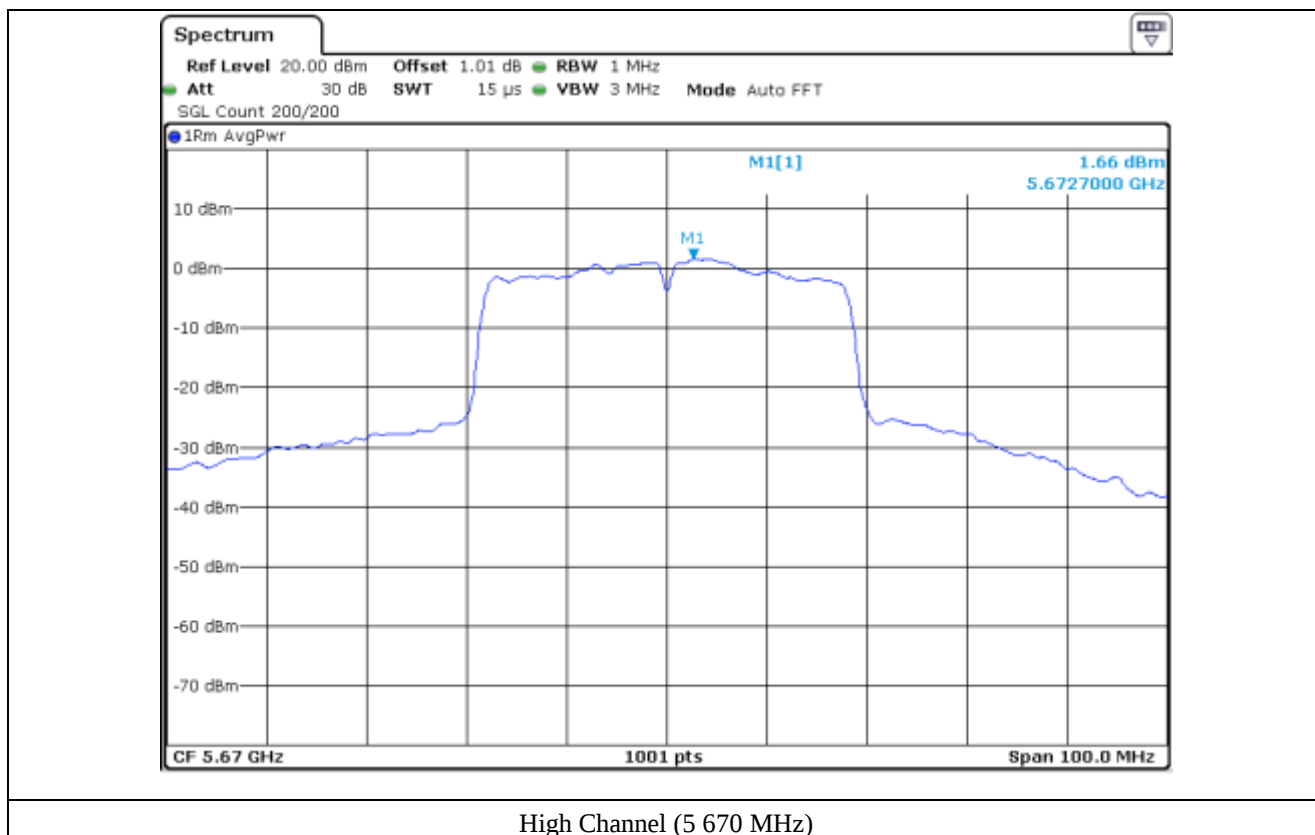
High Channel (5 310 MHz)

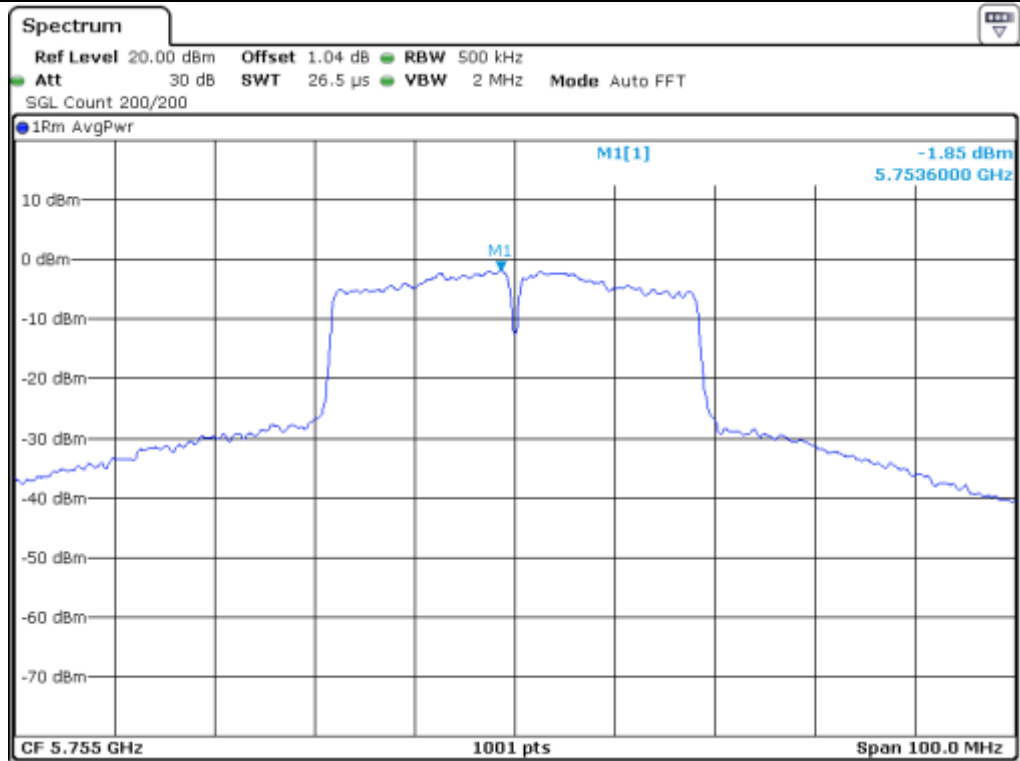


Low Channel (5 510 MHz)

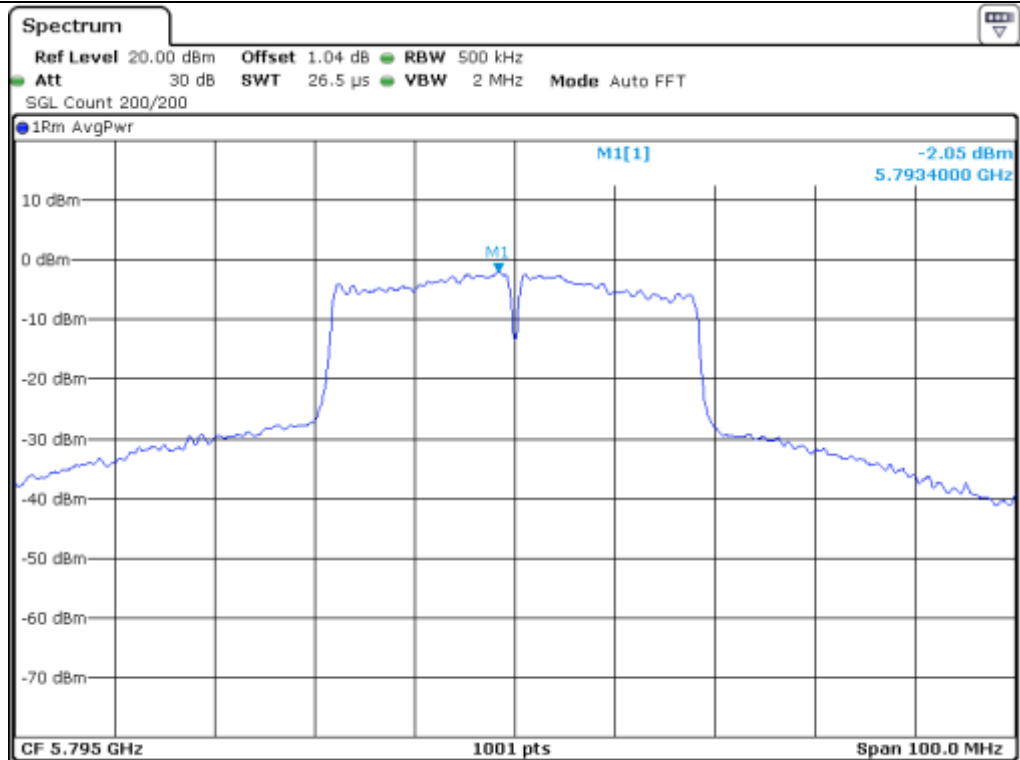


Middle Channel (5 550 MHz)





Low Channel (5 755 MHz)



High Channel (5 795 MHz)

10.6.2 Test data for Antenna 1

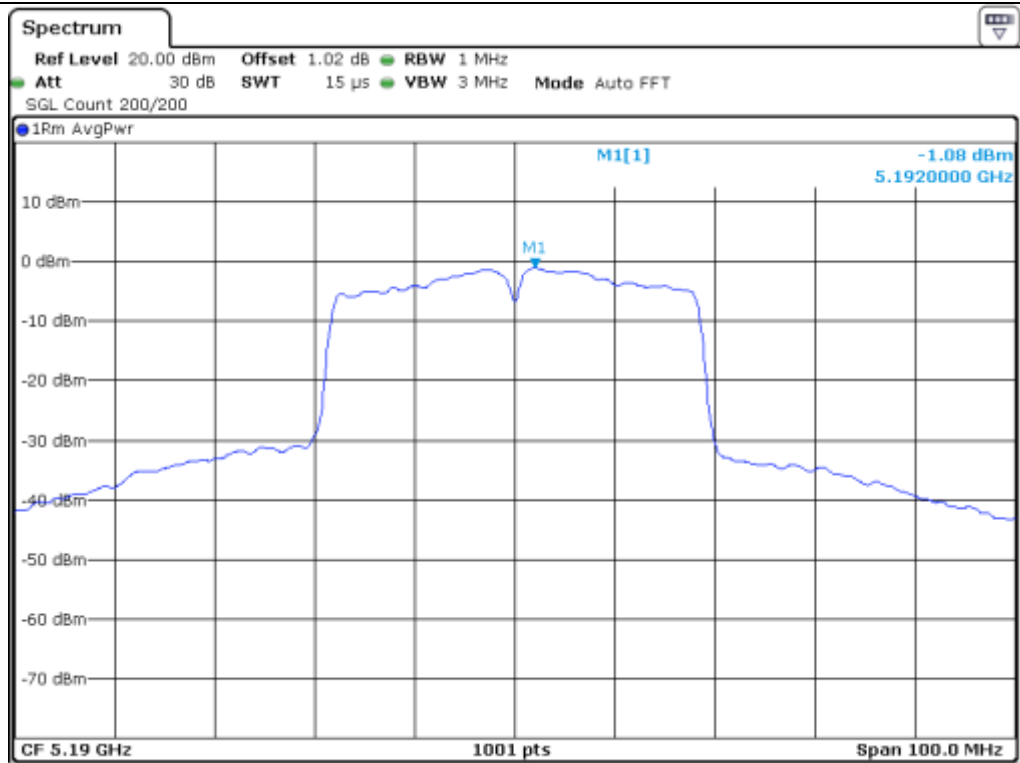
-. Operating condition : Highest Output Power Transmitting Mode

-. Test Result : Pass

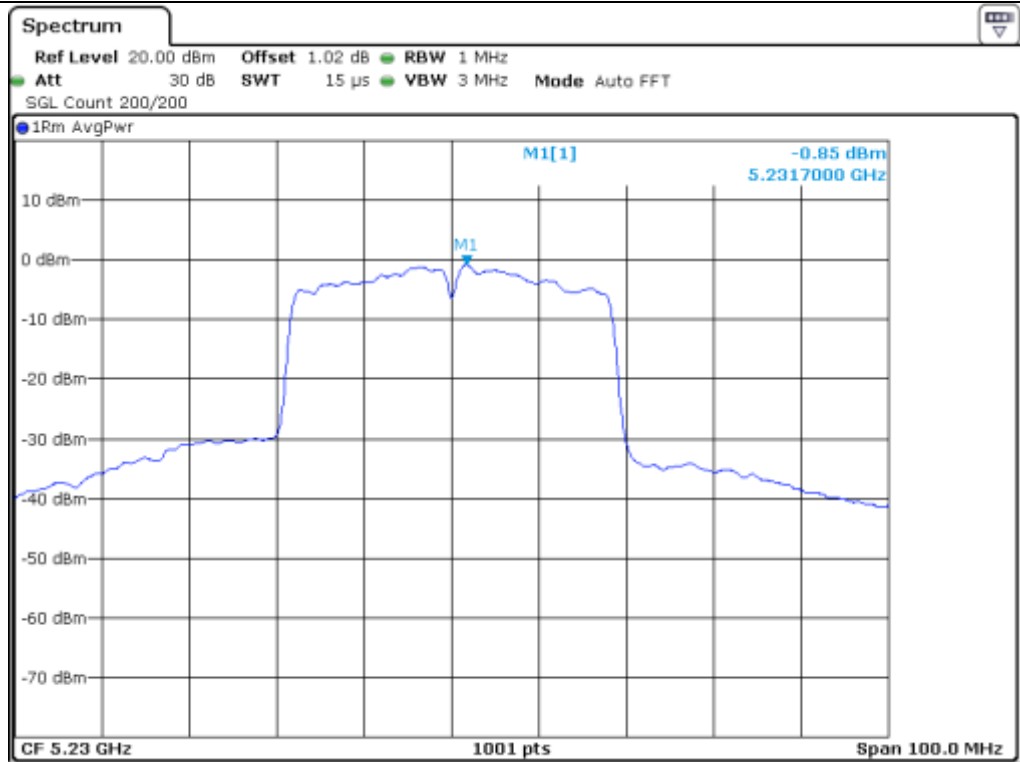
FREQUENCY RANGE (MHz)	CHANNEL	FREQUENCY (MHz)	MEASURED VALUE (dBm)	Correction Factor (dB)	Result (dBm)	LIMIT (dBm)	MARGIN (dB)
5 150 ~ 5 250	Low	5 190.00	-1.08	1.08	0.00	11.00	11.00
	High	5 230.00	-0.85	1.08	0.23	11.00	10.77
5 250 ~ 5 350	Low	5 270.00	-0.47	1.11	0.64	11.00	10.36
	High	5 310.00	-0.63	1.11	0.48	11.00	10.52
5 470 ~ 5 725	Low	5 510.00	-0.44	1.11	0.67	11.00	10.33
	Middle	5 550.00	0.23	1.11	1.34	11.00	9.66
	High	5 670.00	0.99	1.11	2.10	11.00	8.90
5 725 ~ 5 850	Low	5 755.00	-2.89	1.11	-1.78	30.00	31.78
	High	5 795.00	-3.24	1.11	-2.13	30.00	32.13

Remark : Margin = Limit – Result(Measured Value + Correction Factor)

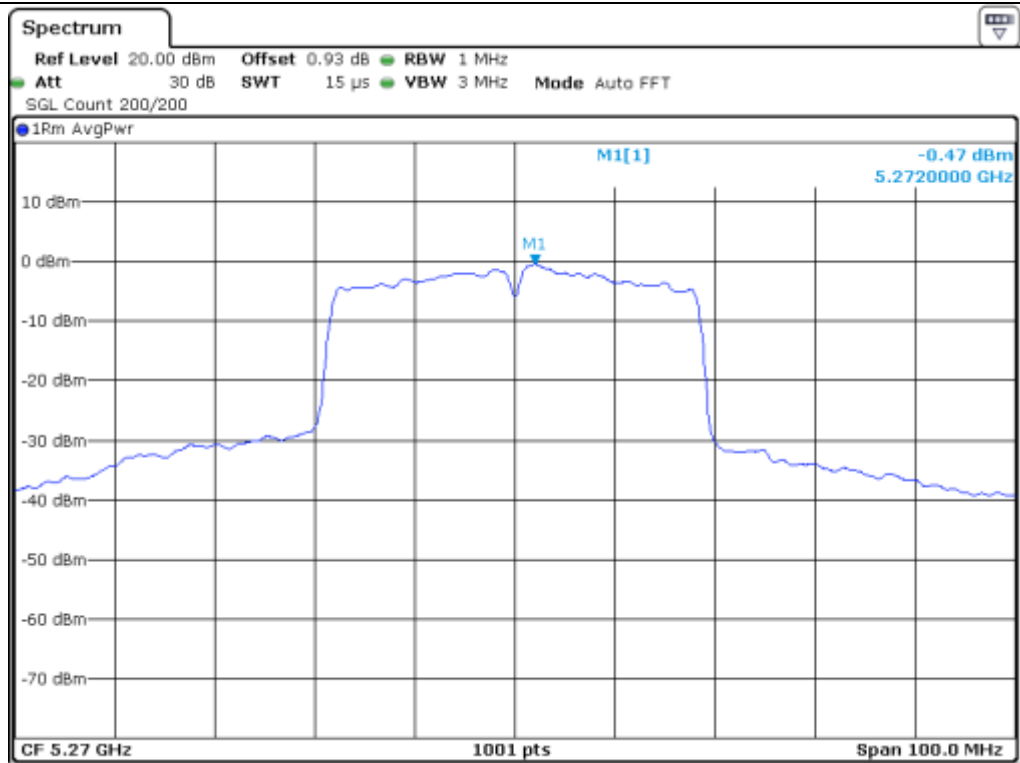
Remark: See next page for measurement data.



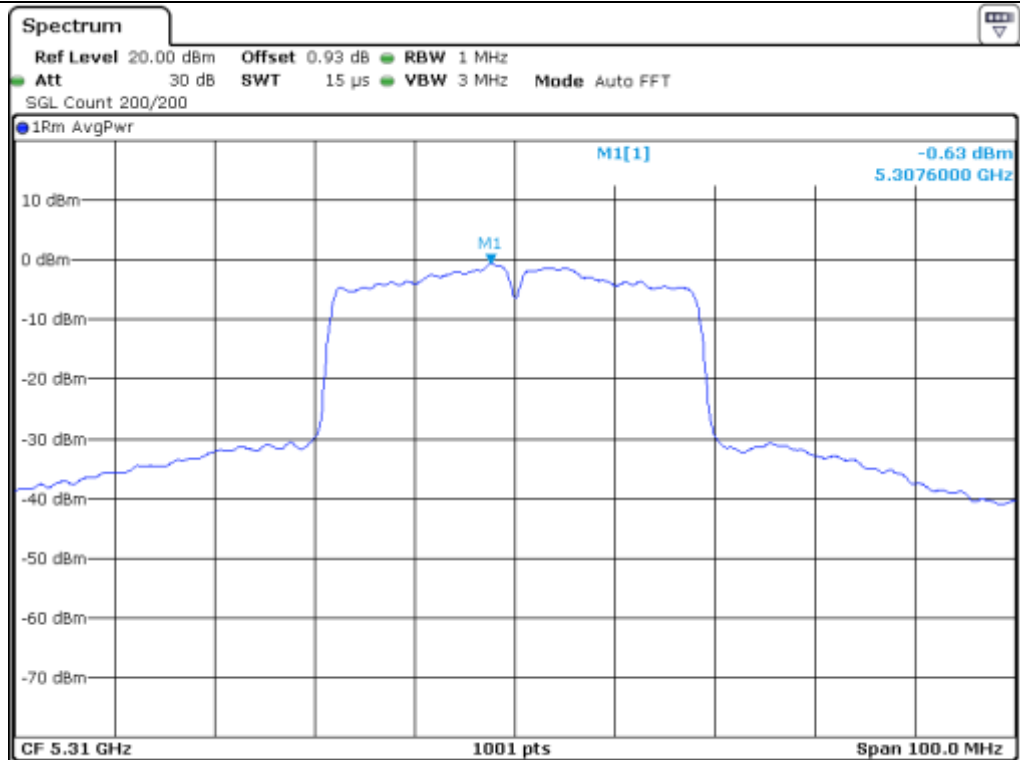
Low Channel (5 190 MHz)



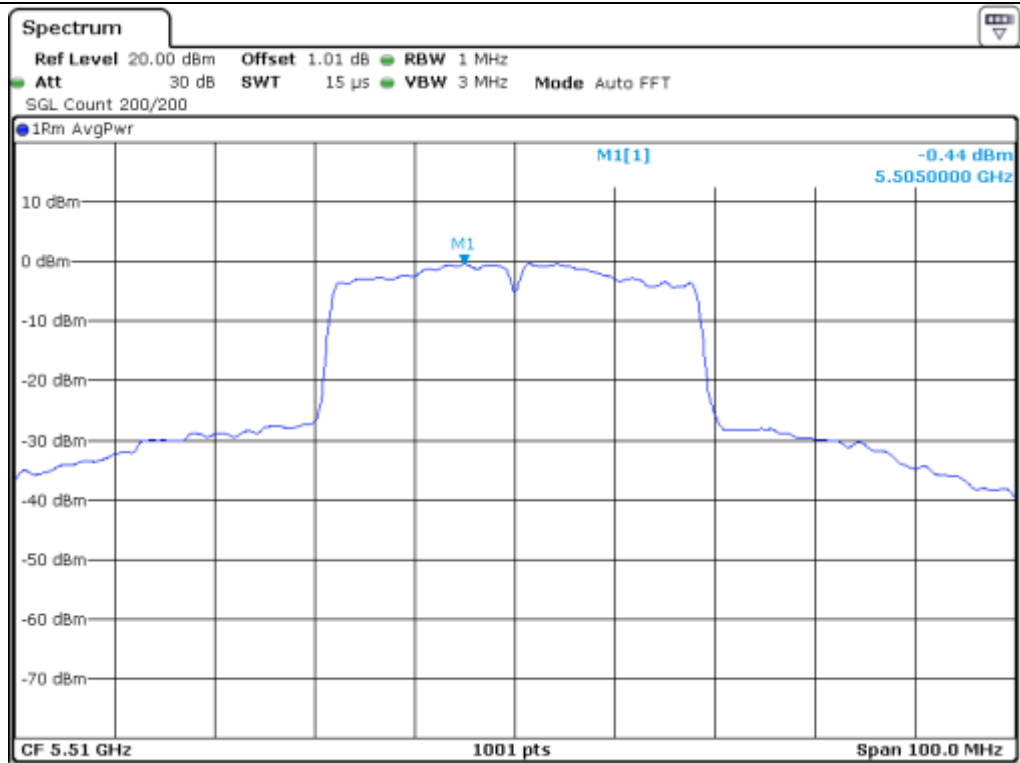
High Channel (5 230 MHz)



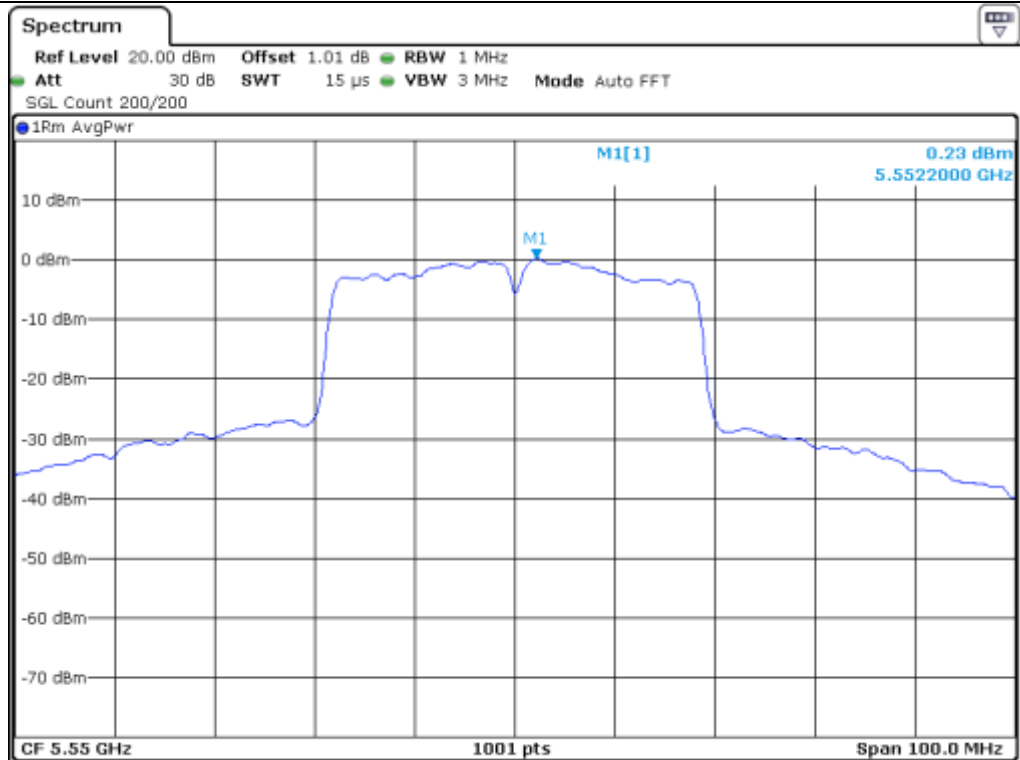
Low Channel (5 270 MHz)



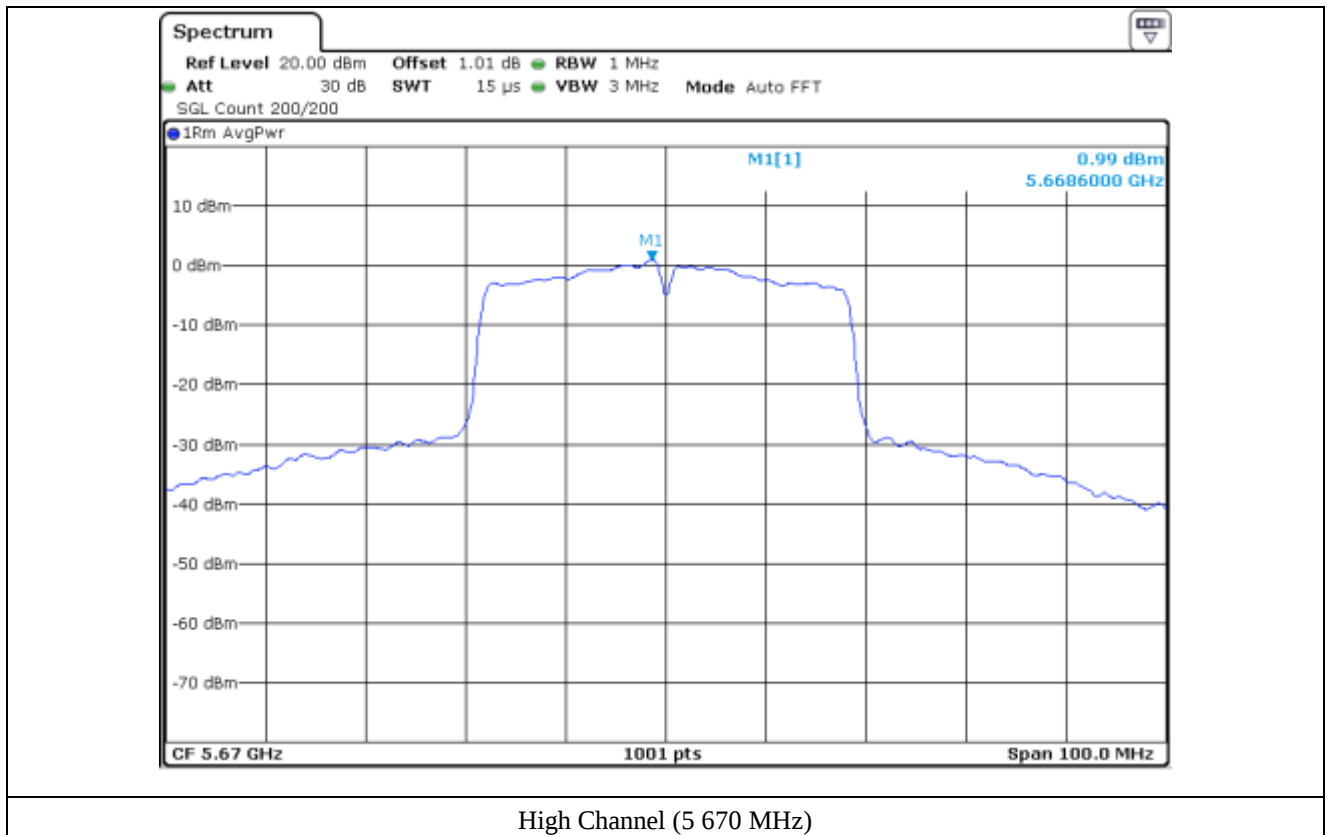
High Channel (5 310 MHz)

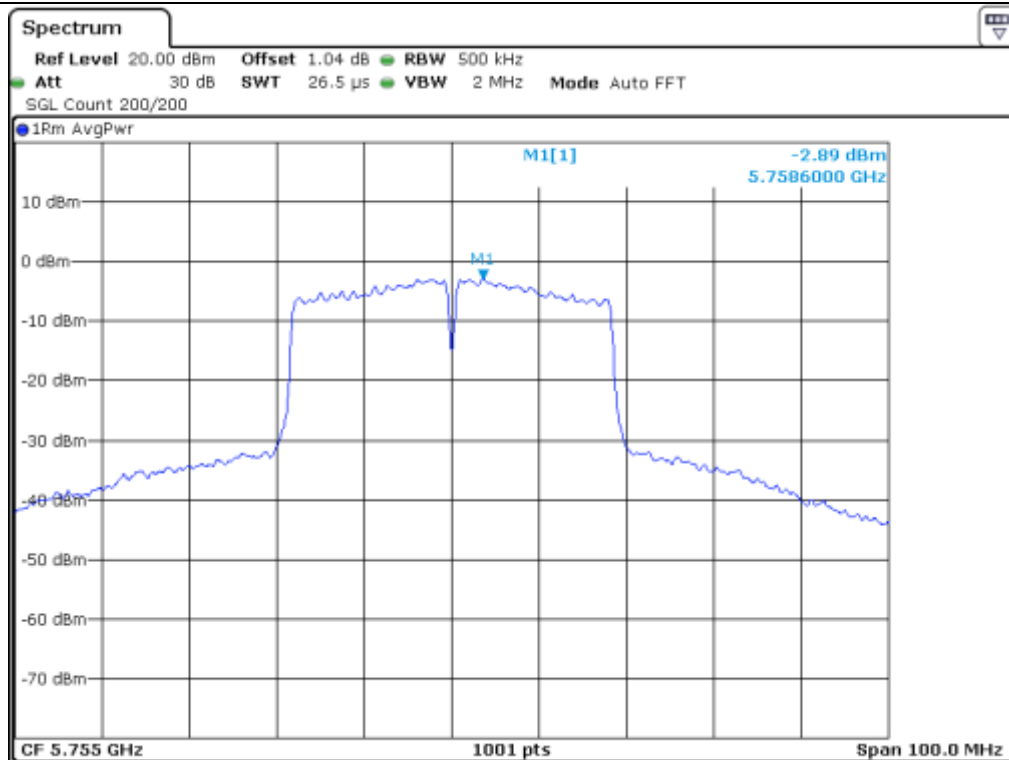


Low Channel (5 510 MHz)

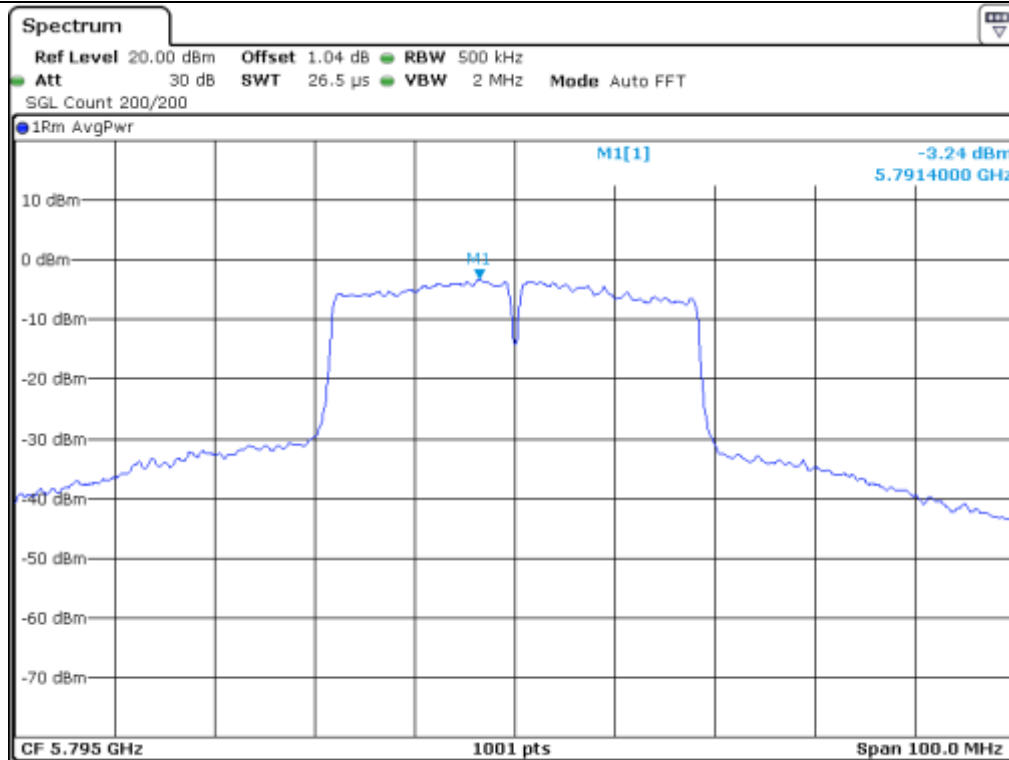


Middle Channel (5 550 MHz)





Low Channel (5 755 MHz)



High Channel (5 795 MHz)

10.6.3 Test data for Multiple Transmit

-. Operating condition : Highest Output Power Transmitting Mode

-. Test Result : Pass

FREQUENCY RANGE (MHz)	CHANNEL	FREQUENCY (MHz)	MEASURED VALUE (dBm)	Correction Factor (dB)	Result (dBm)	LIMIT (dBm)	MARGIN (dB)
5 150 ~ 5 250	Low	5 190.00	2.73	1.08	3.81	11.00	7.19
	High	5 230.00	3.01	1.08	4.09	11.00	6.91
5 250 ~ 5 350	Low	5 270.00	3.65	1.11	4.76	11.00	6.24
	High	5 310.00	3.57	1.11	4.68	11.00	6.32
5 470 ~ 5 725	Low	5 510.00	3.73	1.11	4.84	11.00	6.16
	Middle	5 550.00	4.11	1.11	5.22	11.00	5.78
	High	5 670.00	4.35	1.11	5.46	11.00	5.54
5 725 ~ 5 850	Low	5 755.00	0.67	1.11	1.78	30.00	28.22
	High	5 795.00	0.41	1.11	1.52	30.00	28.48

Remark 1 : Margin = Limit – Result(Measured Value + Correction Factor)

Remark 2 : Calculated Output Power= $10\log (10^{(\text{Antenna1 Output Power}/10)}+10^{(\text{Antenna2 Output Power}/10)})$

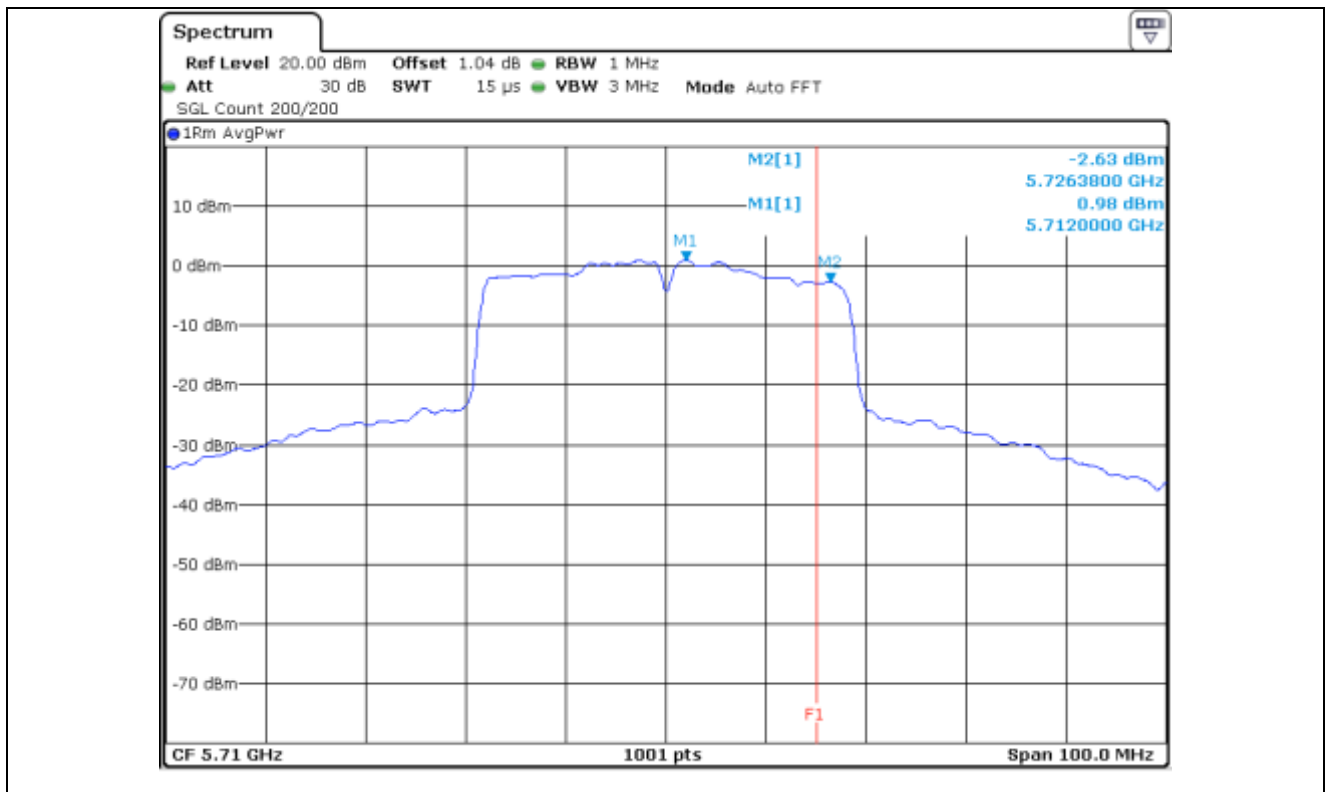
10.6.4 Test data for Straddle Channel_Antenna 0

-. Operating condition : Highest Output Power Transmitting Mode

-. Test Result : Pass

FREQUENCY RANGE (MHz)	FREQUENCY (MHz)	MEASURED VALUE (dBm)	Correction Factor (dB)	Result (dBm)	LIMIT (dBm)	MARGIN (dB)
5 470 ~ 5 725	5 710.00	0.98	1.09	2.07	11.00	8.93
5 725 ~ 5 850	5 710.00	-2.63	1.08	-1.55	30.00	31.55

Remark : Margin = Limit – Result(Measured Value + Correction Factor)



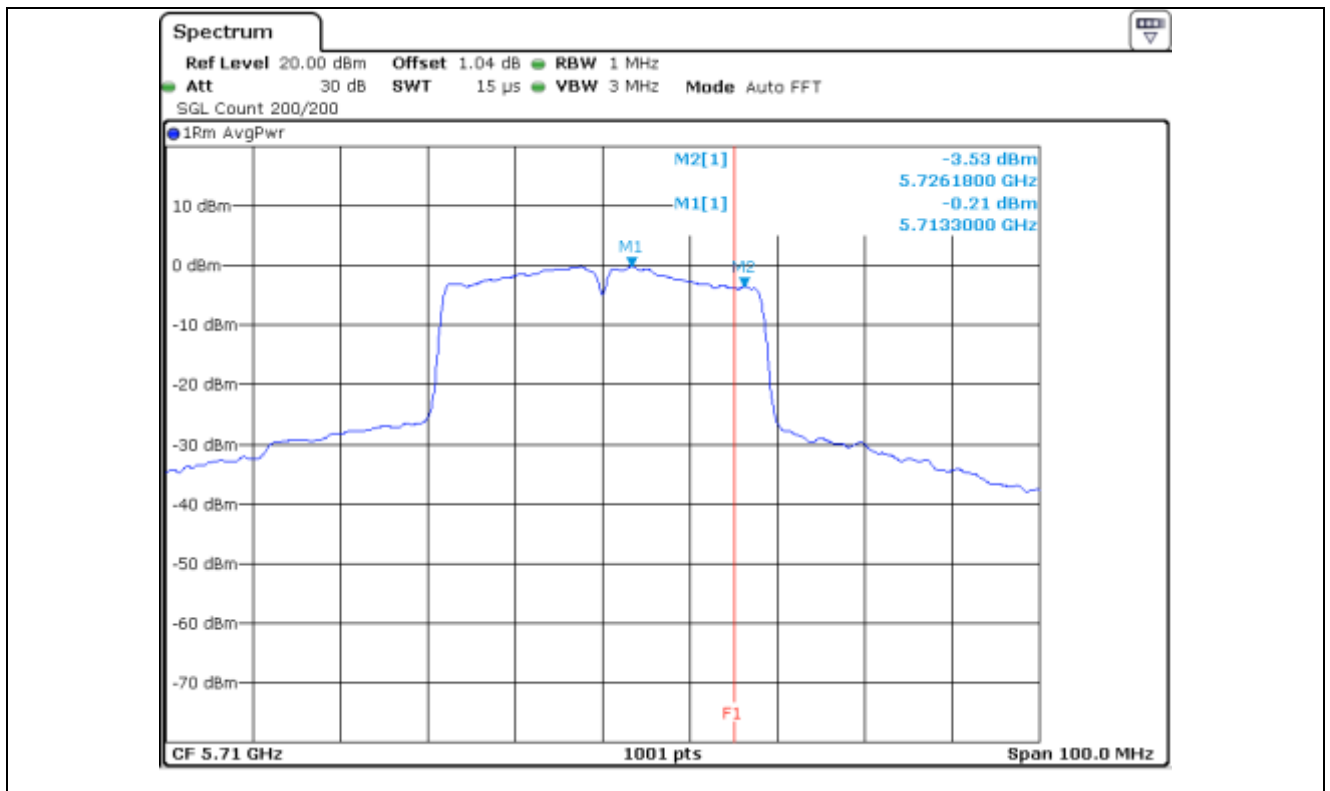
10.6.5 Test data for Straddle Channel_Antenna 1

-. Operating condition : Highest Output Power Transmitting Mode

-. Test Result : Pass

FREQUENCY RANGE (MHz)	FREQUENCY (MHz)	MEASURED VALUE (dBm)	Correction Factor (dB)	Result (dBm)	LIMIT (dBm)	MARGIN (dB)
5 470 ~ 5 725	5 710.00	-0.21	1.11	0.90	11.00	10.10
5 725 ~ 5 850	5 710.00	-3.53	1.11	-2.42	30.00	32.42

Remark : Margin = Limit – Result(Measured Value + Correction Factor)



10.6.6 Test data for Straddle Channel_Multiple Transmit

-. Operating condition : Highest Output Power Transmitting Mode

-. Test Result : Pass

FREQUENCY RANGE (MHz)	FREQUENCY (MHz)	MEASURED VALUE (dBm)	Correction Factor (dB)	Result (dBm)	LIMIT (dBm)	MARGIN (dB)
5 470 ~ 5 725	5 710.00	3.44	1.11	4.55	11.00	6.45
5 725 ~ 5 850	5 710.00	-0.05	1.11	1.06	30.00	28.94

Remark 1 : Margin = Limit – Result(Measured Value + Correction Factor)

Remark 2 : Calculated Output Power= $10\log (10^{(\text{Antenna1 Output Power}/10)} + 10^{(\text{Antenna2 Output Power}/10)})$

10.7 Test data for 802.11ac_HT80 RLAN Mode

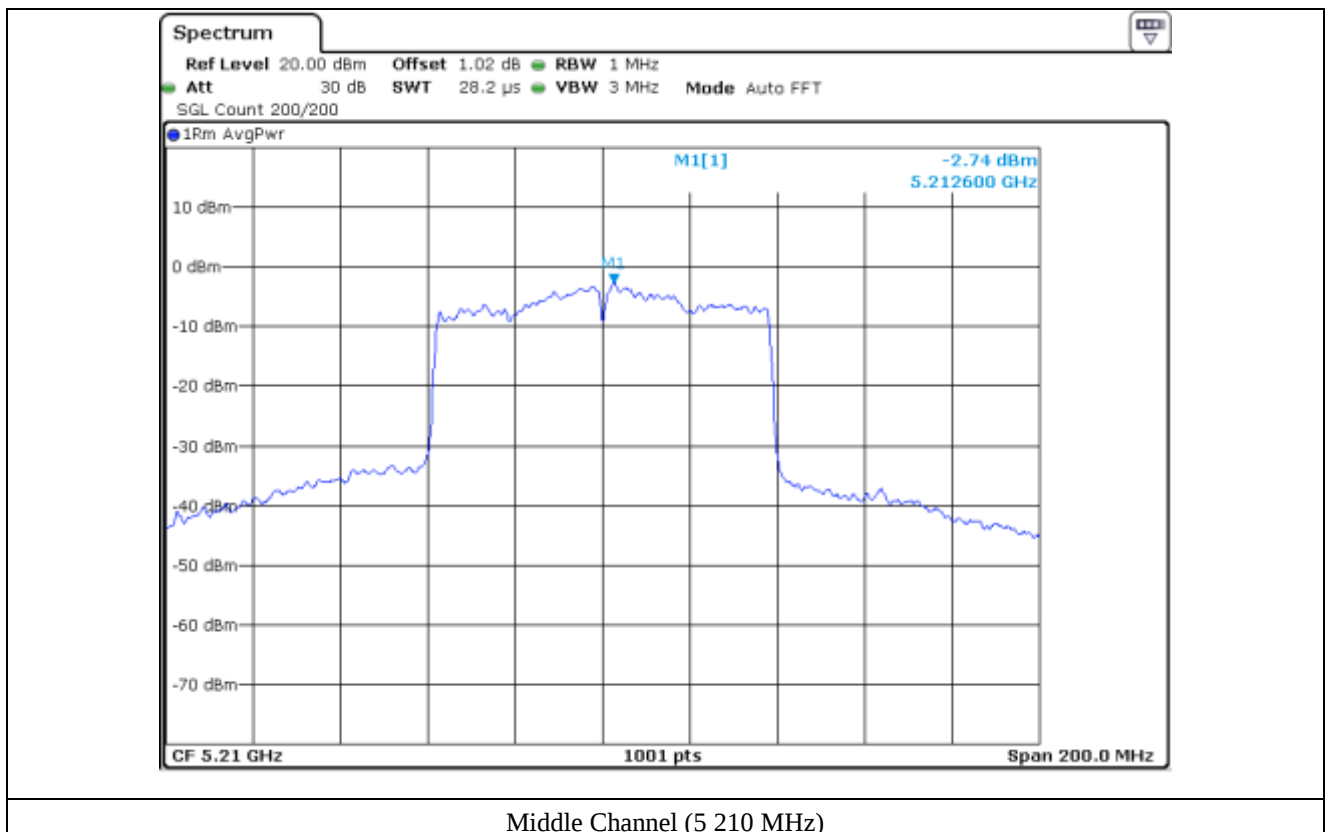
10.7.1 Test data for Antenna 0

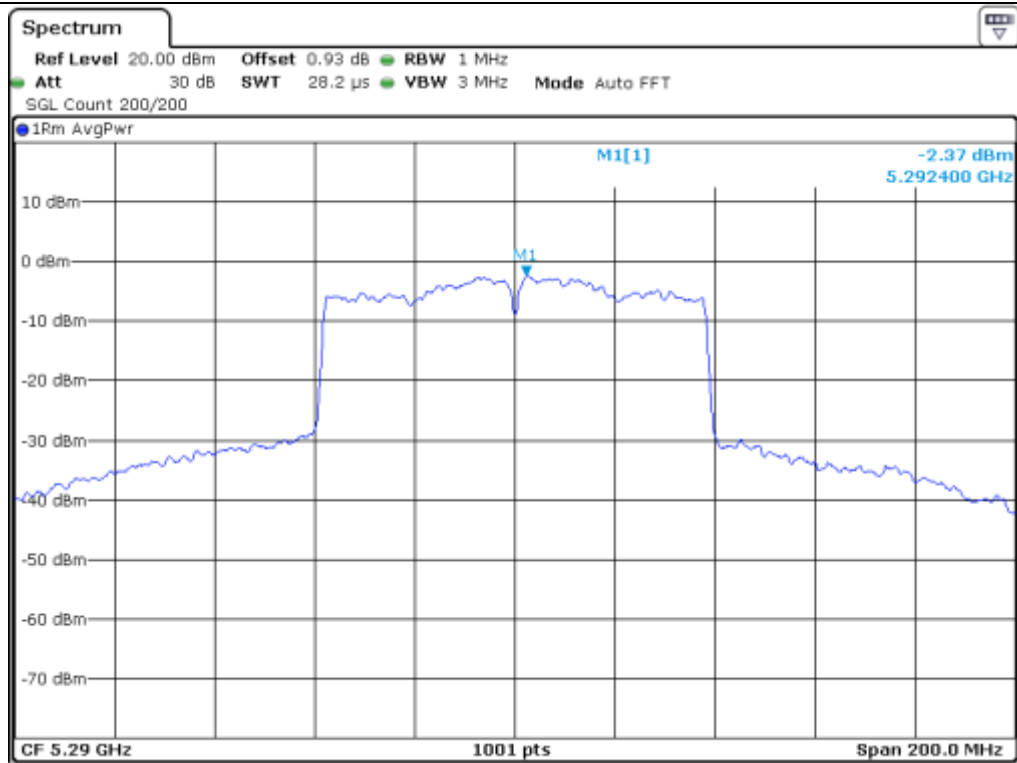
-. Operating condition : Highest Output Power Transmitting Mode

-. Test Result : Pass

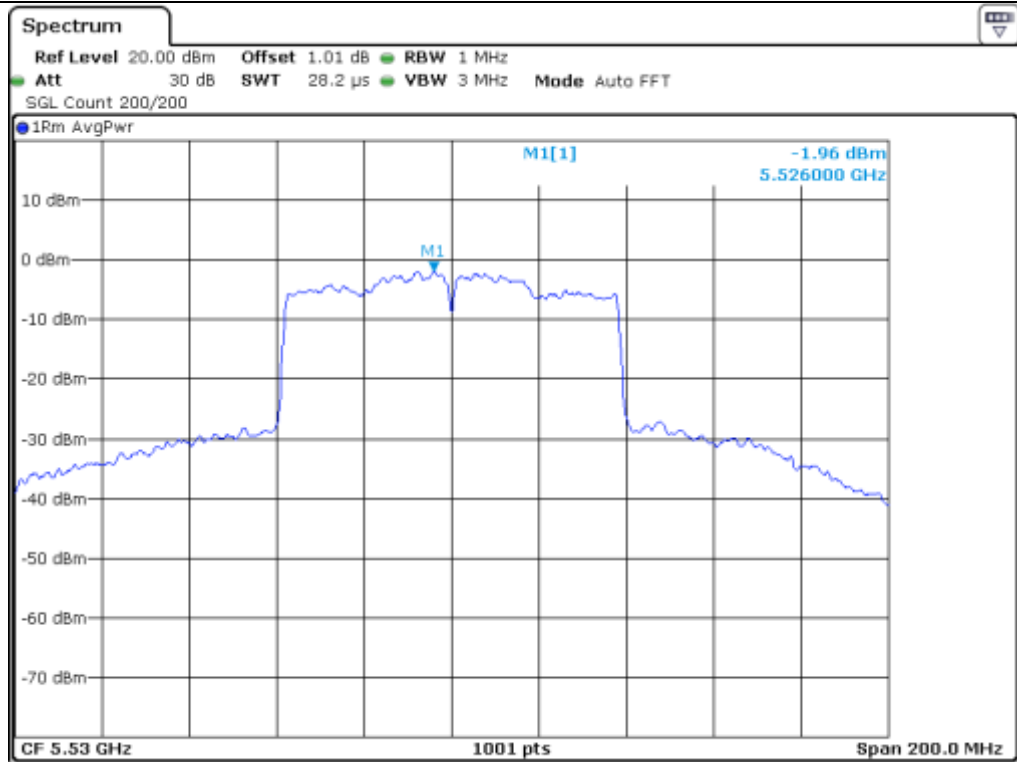
FREQUENCY RANGE (MHz)	CHANNEL	FREQUENCY (MHz)	MEASURED VALUE (dBm)	Correction Factor (dB)	Result (dBm)	LIMIT (dBm)	MARGIN (dB)
5 150 ~ 5 250	Middle	5 210.00	-2.74	1.88	-0.86	11.00	11.86
5 250 ~ 5 350	Middle	5 290.00	-2.37	1.87	-0.5	11.00	11.50
5 470 ~ 5 725	Low	5 530.00	-1.96	1.87	-0.09	11.00	11.09
	High	5 690.00	-2.99	1.87	-1.12	11.00	12.12
5 725 ~ 5 850	Middle	5 775.00	-6.26	1.88	-4.38	30.00	34.38

Remark : Margin = Limit – Result(Measured Value + Correction Factor)

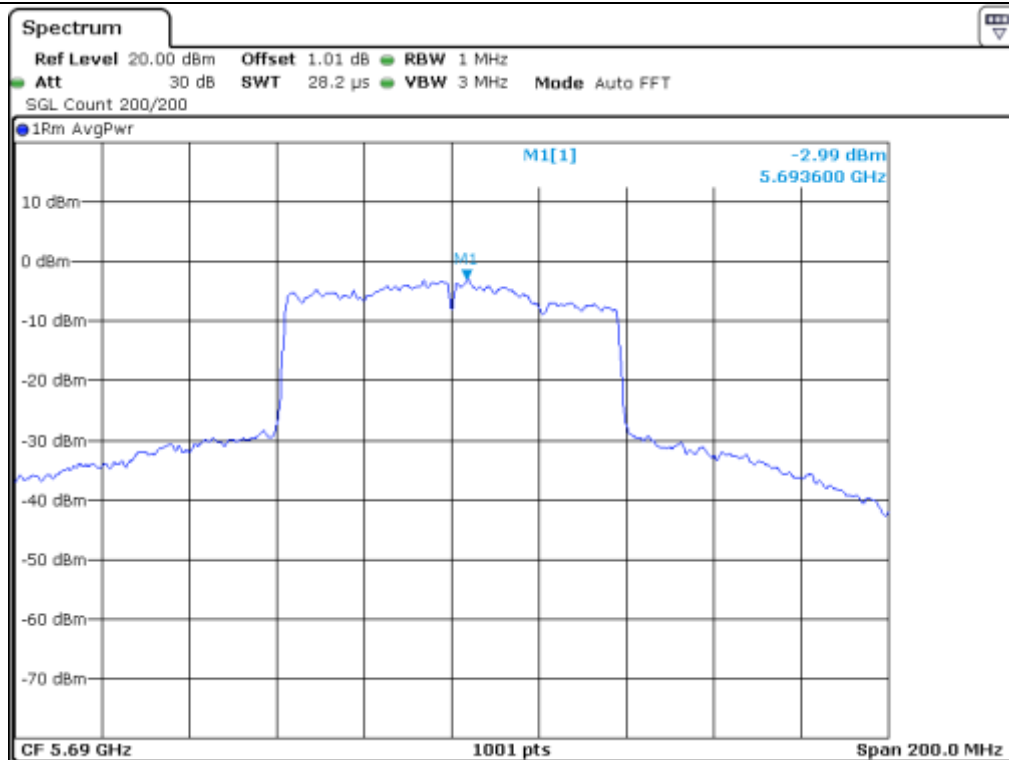




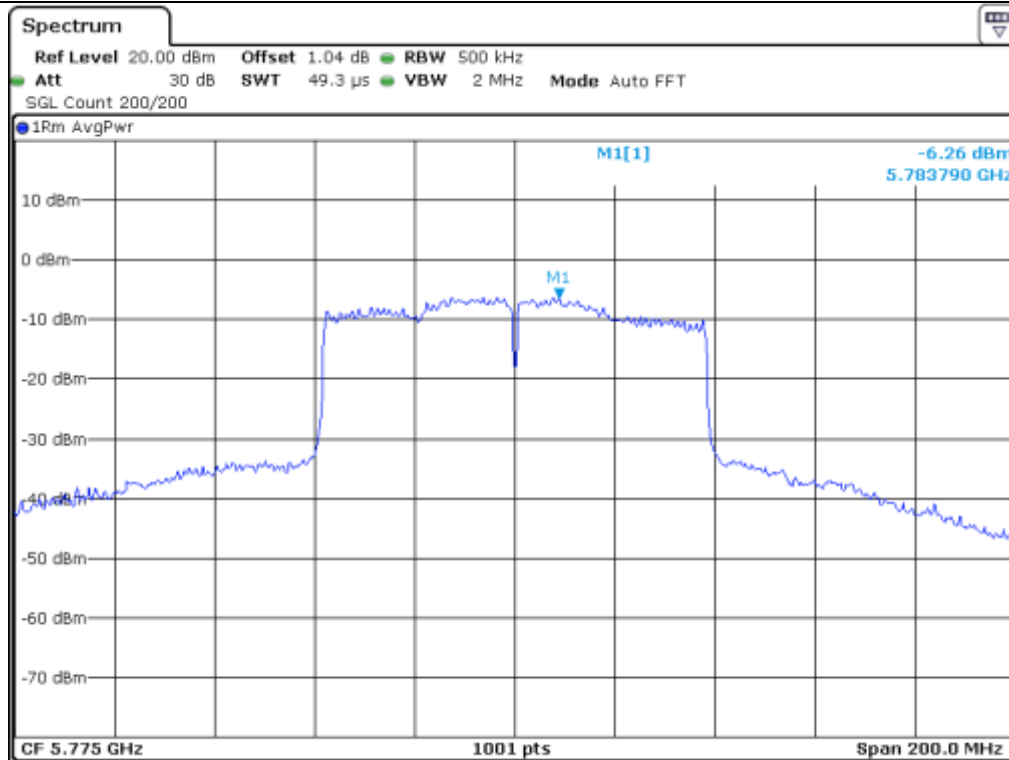
Middle Channel (5 290 MHz)



Low Channel (5 530 MHz)



High Channel (5 690 MHz)



Middle Channel (5 775 MHz)

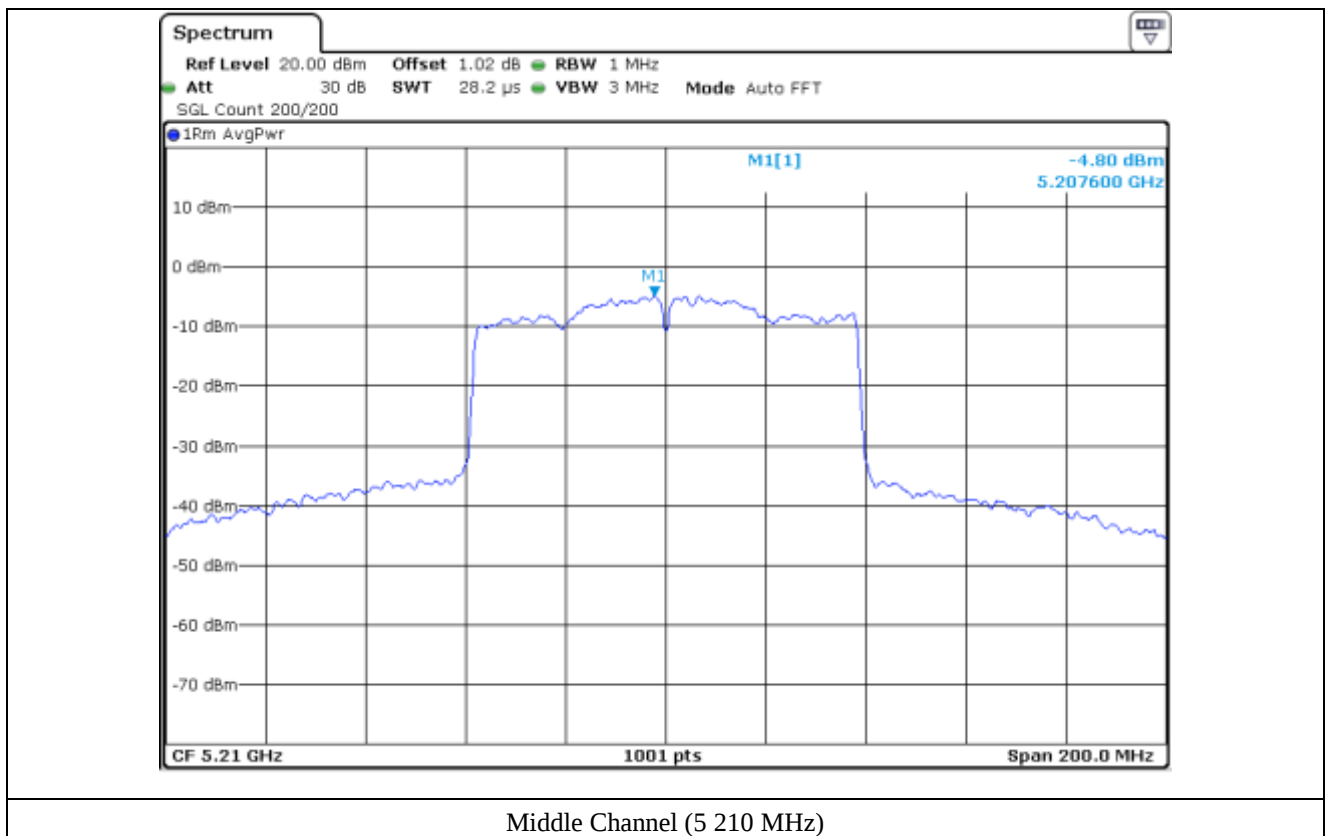
10.7.2 Test data for Antenna 1

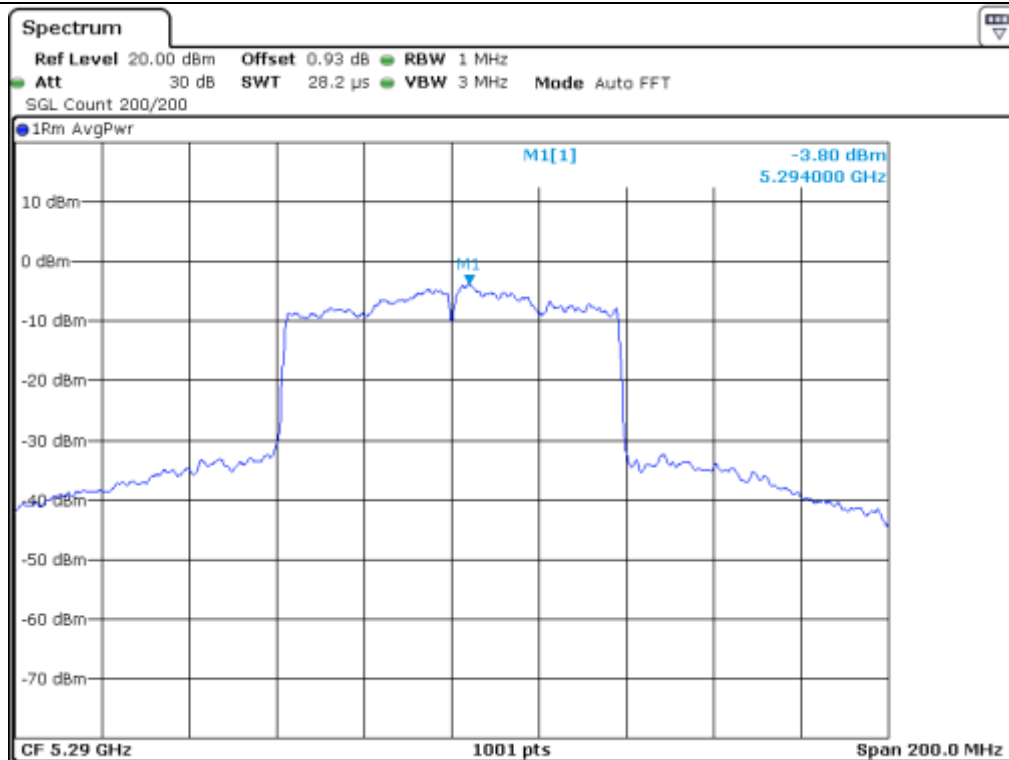
-. Operating condition : Highest Output Power Transmitting Mode

-. Test Result : Pass

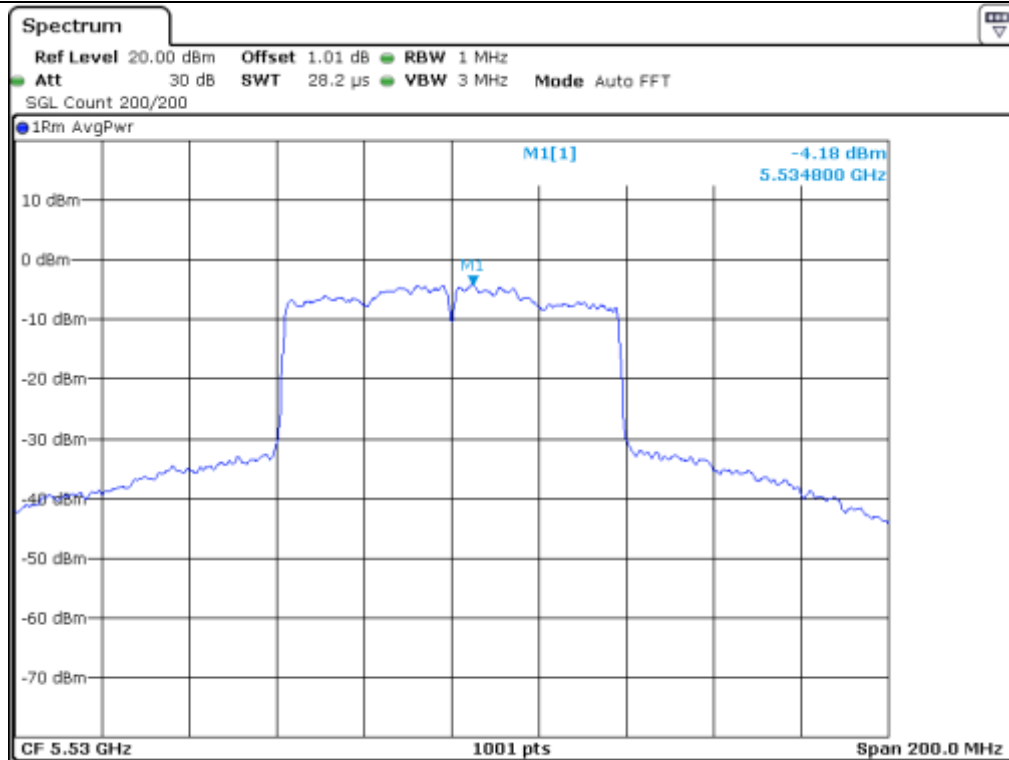
FREQUENCY RANGE (MHz)	CHANNEL	FREQUENCY (MHz)	MEASURED VALUE (dBm)	Correction Factor (dB)	Result (dBm)	LIMIT (dBm)	MARGIN (dB)
5 150 ~ 5 250	Middle	5 210.00	-4.80	1.87	-2.93	11.00	13.93
5 250 ~ 5 350	Middle	5 290.00	-3.80	1.88	-1.92	11.00	12.92
5 470 ~ 5 725	Low	5 530.00	-4.18	1.89	-2.29	11.00	13.29
	High	5 690.00	-4.26	1.89	-2.37	11.00	13.37
5 725 ~ 5 850	Middle	5 775.00	-6.93	1.89	-5.04	30.00	35.04

Remark : Margin = Limit – Result(Measured Value + Correction Factor)

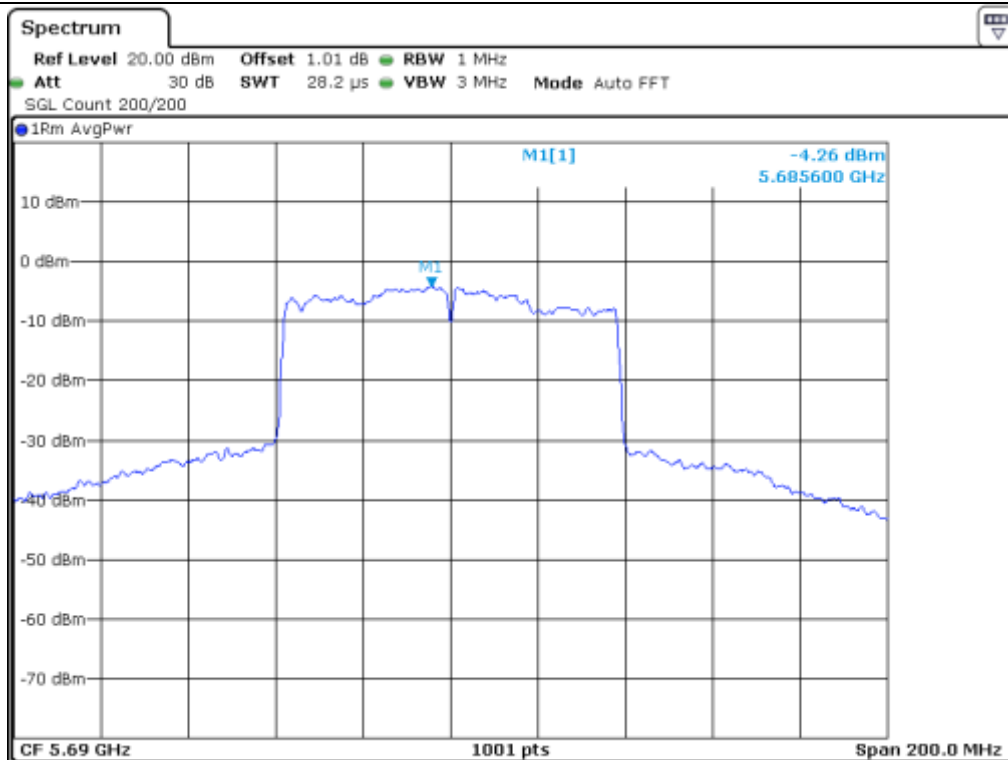




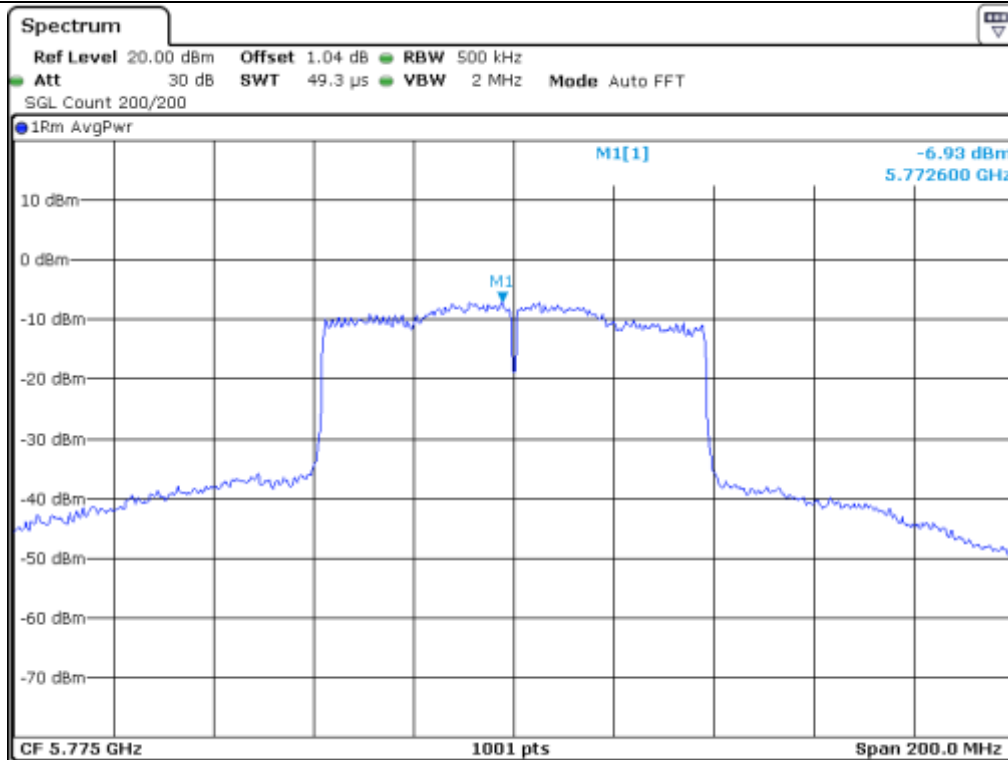
Middle Channel (5 290 MHz)



Low Channel (5 530 MHz)



High Channel (5 690 MHz)



Middle Channel (5 775 MHz)

10.7.3 Test data for Multiple Transmit

-. Operating condition : Highest Output Power Transmitting Mode

-. Test Result : Pass

FREQUENCY RANGE (MHz)	CHANNEL	FREQUENCY (MHz)	MEASURED VALUE (dBm)	Correction Factor (dB)	Result (dBm)	LIMIT (dBm)	MARGIN (dB)
5 150 ~ 5 250	Middle	5 210.00	-0.64	1.87	1.23	11.00	9.77
5 250 ~ 5 350	Middle	5 290.00	-0.02	1.88	1.86	11.00	9.14
5 470 ~ 5 725	Low	5 530.00	0.08	1.89	1.97	11.00	9.03
	High	5 690.00	-0.57	1.89	1.32	11.00	9.68
5 725 ~ 5 850	Middle	5 775.00	-3.57	1.89	-1.68	30.00	31.68

Remark 1 : Margin = Limit – Result(Measured Value + Correction Factor)

Remark 2 : Calculated Output Power= $10\log (10^{(\text{Antenna1 Output Power}/10)}+10^{(\text{Antenna2 Output Power}/10)})$

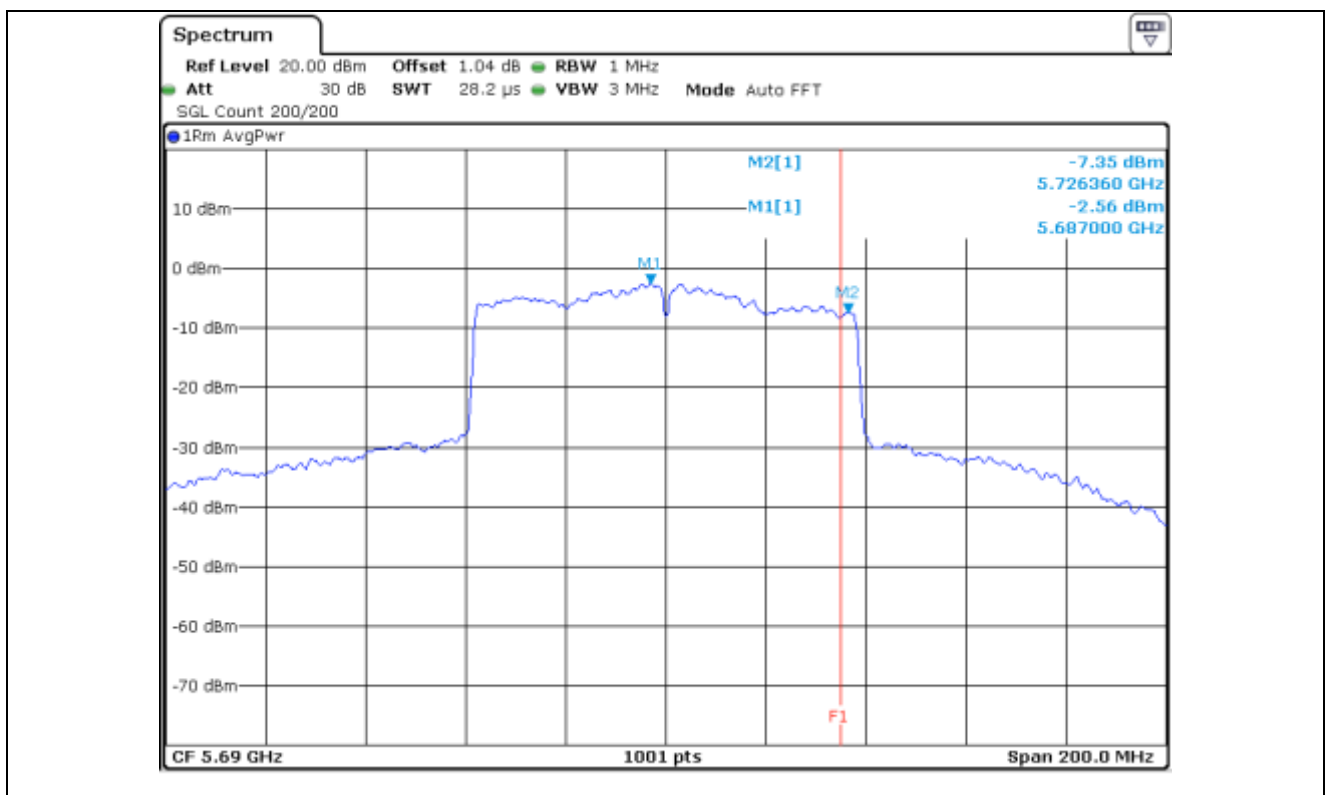
10.7.4 Test data for Straddle Channel_Antenna 0

-. Operating condition : Highest Output Power Transmitting Mode

-. Test Result : Pass

FREQUENCY RANGE (MHz)	FREQUENCY (MHz)	MEASURED VALUE (dBm)	Correction Factor (dB)	Result (dBm)	LIMIT (dBm)	MARGIN (dB)
5 470 ~ 5 725	5 690.00	-2.56	1.87	-0.69	11.00	11.69
5 725 ~ 5 850	5 690.00	-7.35	1.88	-5.47	30.00	35.47

Remark : Margin = Limit – Result(Measured Value + Correction Factor)



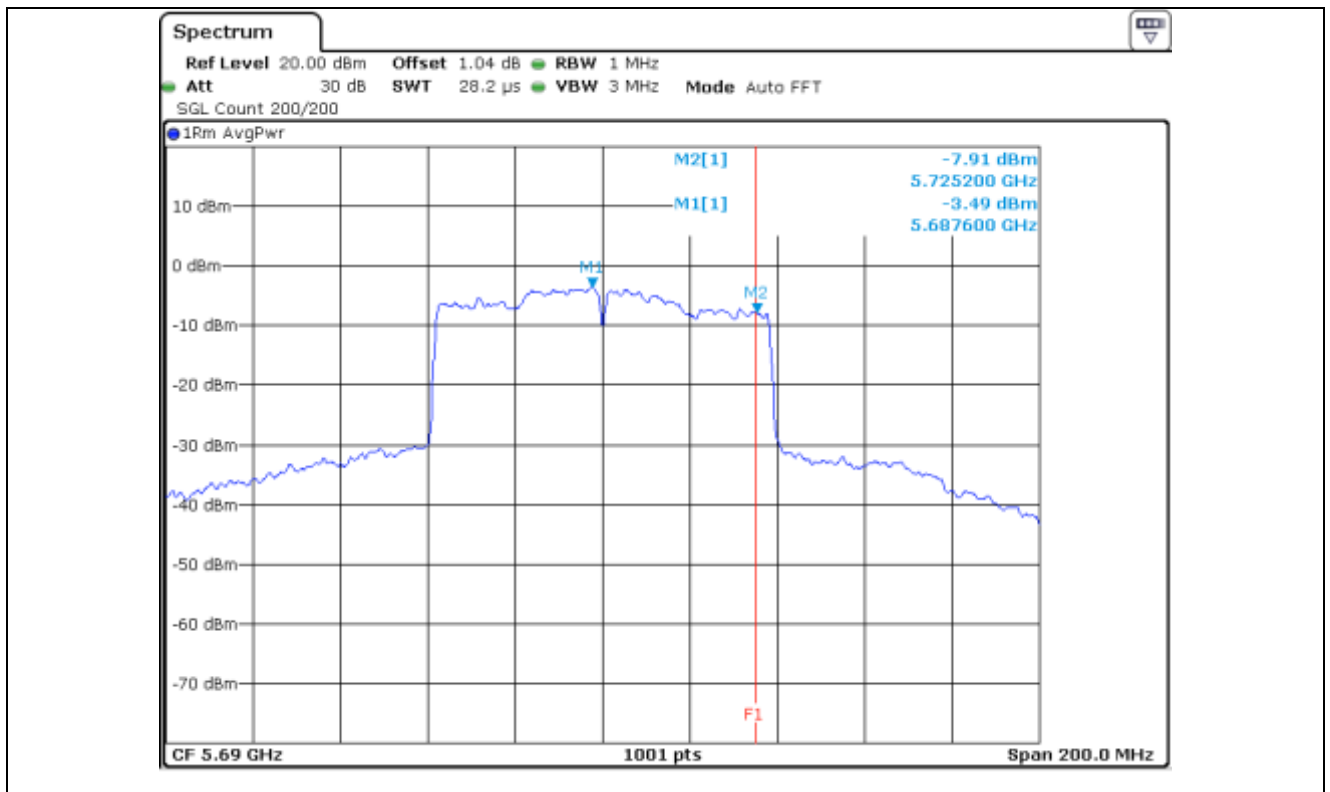
10.7.5 Test data for Straddle Channel_Antenna 1

-. Operating condition : Highest Output Power Transmitting Mode

-. Test Result : Pass

FREQUENCY RANGE (MHz)	FREQUENCY (MHz)	MEASURED VALUE (dBm)	Correction Factor (dB)	Result (dBm)	LIMIT (dBm)	MARGIN (dB)
5 470 ~ 5 725	5 690.00	-3.49	1.89	-1.60	11.00	12.60
5 725 ~ 5 850	5 690.00	-7.91	1.89	-6.02	30.00	36.02

Remark : Margin = Limit – Result(Measured Value + Correction Factor)



10.7.6 Test data for Straddle Channel_Multiple Transmit

-. Operating condition : Highest Output Power Transmitting Mode

-. Test Result : Pass

FREQUENCY RANGE (MHz)	FREQUENCY (MHz)	MEASURED VALUE (dBm)	Correction Factor (dB)	Result (dBm)	LIMIT (dBm)	MARGIN (dB)
5 470 ~ 5 725	5 690.00	0.01	1.89	1.90	11.00	9.10
5 725 ~ 5 850	5 690.00	-4.61	1.89	-2.72	30.00	32.72

Remark 1 : Margin = Limit – Result(Measured Value + Correction Factor)

Remark 2 : Calculated Output Power= $10\log (10^{(\text{Antenna1 Output Power}/10)} + 10^{(\text{Antenna2 Output Power}/10)})$

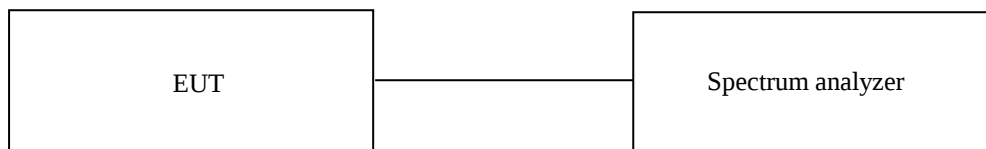
11. FREQUENCY STABILITY WITH TEMPERATURE VARIATION

11.1 Operating environment

Temperature : 23 °C
Relative humidity : 45 % R.H.

11.2 Test set-up

Turn EUT off and set chamber temperature to -40 °C and then allow sufficient time (approximately 20 min to 30 min after chamber reach the assigned temperature) for EUT to stabilize. Turn on the EUT and measure the EUT operating frequency and then turn off the EUT after the measurement. The temperature in the chamber was raised 10 °C step from -40 °C to +85 °C. Repeat above method for frequency measurements every 10 °C step and then record all measured frequencies on each temperature step.



11.3 Test Date

September 07, 2020 ~ September 11, 2020

11.4 Test Data for U-NII-1

-. Result : Pass

Temperature (°C)	Carrier Freq. (Hz)	Measured Freq. (Hz)	Frequency Error (Hz)
-40	5 180 000 000	5 180 003 276	3 276
-30		5 179 998 519	-1 481
-20		5 179 993 733	-6 267
-10		5 179 982 820	-17 180
0		5 179 981 843	-18 157
10		5 179 980 107	-19 893
20		5 179 977 286	-22 714
30		5 179 999 719	-281
40		5 180 021 316	21 316
50		5 180 040 593	40 593
60		5 180 048 863	48 863
70		5 180 051 572	51 572
85		5 180 056 483	56 483
-40	5 220 000 000	5 220 003 340	3 340
-30		5 219 998 559	-1 441
-20		5 219 993 625	-6 375
-10		5 219 982 870	-17 130
0		5 219 981 736	-18 264
10		5 219 980 922	-19 078
20		5 219 978 267	-21 733
30		5 220 000 151	151
40		5 220 020 660	20 660
50		5 220 043 104	43 104
60		5 220 048 426	48 426
70		5 220 050 360	50 360
85		5 220 056 258	56 258

-40	5 240 000 000	5 240 003 537	3 537
-30		5 239 998 570	-1 430
-20		5 239 993 802	-6 198
-10		5 239 981 889	-18 111
0		5 239 981 621	-18 379
10		5 239 980 875	-19 125
20		5 239 977 807	-22 193
30		5 239 999 610	-390
40		5 240 020 796	20 796
50		5 240 041 260	41 260
60		5 240 047 813	47 813
70		5 240 051 778	51 778
85		5 240 056 380	56 380

Note : While maintaining a constant temperature inside the environmental chamber, turn the EUT ON and record the operating frequency at startup, and at 2 minutes, 5 minutes, and 10 minutes after the EUT is energized.

Four measurements in total are made.(ANSI C63.10-2013)

11.5 Test Data for U-NII-2A

-. Result : Pass

Temperature (°C)	Carrier Freq. (Hz)	Measured Freq. (Hz)	Frequency Error (kHz)
-40	5 260 000 000	5 260 003 077	3 077
-30		5 259 998 629	-1 371
-20		5 259 993 754	-6 246
-10		5 259 981 960	-18 040
0		5 259 981 190	-18 810
10		5 259 980 021	-19 979
20		5 259 978 726	-21 274
30		5 260 000 032	32
40		5 260 021 182	21 182
50		5 260 042 535	42 535
60		5 260 048 796	48 796
70		5 260 049 322	49 322
85		5 260 057 783	57 783
-40	5 300 000 000	5 300 003 497	3 497
-30		5 299 998 526	-1 474
-20		5 299 993 731	-6 269
-10		5 299 982 999	-17 001
0		5 299 980 950	-19 050
10		5 299 980 769	-19 231
20		5 299 977 664	-22 336
30		5 299 999 681	-319
40		5 300 022 022	22 022
50		5 300 044 587	44 587
60		5 300 047 269	47 269
70		5 300 053 460	53 460
85		5 300 057 332	57 332

-40	5 320 000 000	5 320 003 318	3 318
-30		5 319 998 609	-1 391
-20		5 319 993 953	-6 047
-10		5 319 982 577	-17 423
0		5 319 981 479	-18 521
10		5 319 980 192	-19 808
20		5 319 979 077	-20 923
30		5 319 999 749	-251
40		5 320 021 036	21 036
50		5 320 042 426	42 426
60		5 320 047 711	47 711
70		5 320 049 583	49 583
85		5 320 056 843	56 843

Note : While maintaining a constant temperature inside the environmental chamber, turn the EUT ON and record the operating frequency at startup, and at 2 minutes, 5 minutes, and 10 minutes after the EUT is energized.

Four measurements in total are made.(ANSI C63.10-2013)

11.6 Test Data for U-NII-2C

-. Result : Pass

Temperature (°C)	Carrier Freq. (Hz)	Measured Freq. (Hz)	Frequency Error (kHz)
-40	5 500 000 000	5 500 003 168	3 168
-30		5 499 998 652	-1 348
-20		5 499 993 935	-6 065
-10		5 499 982 553	-17 447
0		5 499 981 818	-18 182
10		5 499 980 516	-19 484
20		5 499 977 115	-22 885
30		5 499 999 819	-181
40		5 500 022 033	22 033
50		5 500 042 035	42 035
60		5 500 047 542	47 542
70		5 500 050 488	50 488
85		5 500 057 195	57 195
-40	5 580 000 000	5 580 003 323	3 323
-30		5 579 998 666	-1 334
-20		5 579 993 740	-6 260
-10		5 579 982 787	-17 213
0		5 579 981 280	-18 720
10		5 579 980 325	-19 675
20		5 579 978 869	-21 131
30		5 579 999 995	-5
40		5 580 020 658	20 658
50		5 580 041 630	41 630
60		5 580 048 764	48 764
70		5 580 053 041	53 041
85		5 580 057 626	57 626

-40	5 700 000 000	5 700 003 715	3 715
-30		5 699 998 583	-1 417
-20		5 699 993 867	-6 133
-10		5 699 982 507	-17 493
0		5 699 980 683	-19 317
10		5 699 980 909	-19 091
20		5 699 979 658	-20 342
30		5 699 999 954	-46
40		5 700 020 348	20 348
50		5 700 040 445	40 445
60		5 700 047 545	47 545
70		5 700 053 719	53 719
85		5 700 057 939	57 939

Note : While maintaining a constant temperature inside the environmental chamber, turn the EUT ON and record the operating frequency at startup, and at 2 minutes, 5 minutes, and 10 minutes after the EUT is energized.

Four measurements in total are made.(ANSI C63.10-2013)

11.7 Test Data for U-NII-3

-. Result : Pass

Temperature (°C)	Carrier Freq. (Hz)	Measured Freq. (Hz)	Frequency Error (kHz)
-40	5 745 000 000	5 745 003 354	3 354
-30		5 744 998 597	-1 403
-20		5 744 993 787	-6 213
-10		5 744 982 283	-17 717
0		5 744 981 787	-18 213
10		5 744 980 618	-19 382
20		5 744 979 634	-20 366
30		5 745 000 090	90
40		5 745 021 413	21 413
50		5 745 041 682	41 682
60		5 745 048 212	48 212
70		5 745 049 218	49 218
85		5 745 056 128	56 128
-40	5 785 000 000	5 785 003 796	3 796
-30		5 784 998 660	-1 340
-20		5 784 993 938	-6 062
-10		5 784 982 124	-17 876
0		5 784 981 314	-18 686
10		5 784 980 251	-19 749
20		5 784 979 338	-20 662
30		5 785 000 098	98
40		5 785 022 604	22 604
50		5 785 040 241	40 241
60		5 785 048 123	48 123
70		5 785 052 903	52 903
85		5 785 057 250	57 250

-40	5 825 000 000	5 825 003 645	3 645
-30		5 824 998 663	-1 337
-20		5 824 993 716	-6 284
-10		5 824 982 023	-17 977
0		5 824 980 842	-19 158
10		5 824 980 020	-19 980
20		5 824 977 542	-22 458
30		5 824 999 863	-137
40		5 825 020 358	20 358
50		5 825 043 645	43 645
60		5 825 047 886	47 886
70		5 825 052 008	52 008
85		5 825 056 175	56 175

Note : While maintaining a constant temperature inside the environmental chamber, turn the EUT ON and record the operating frequency at startup, and at 2 minutes, 5 minutes, and 10 minutes after the EUT is energized.

Four measurements in total are made.(ANSI C63.10-2013)

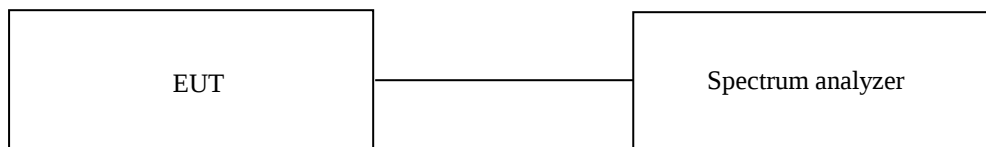
12. FREQUENCY STABILITY WITH VOLTAGE VARIATION

12.1 Operating environment

Temperature : 23 °C
Relative humidity : 45 % R.H.

12.2 Test set-up

An external DC power supply was connected to the input of the EUT. The voltage of EUT set to 109.0 % of the nominal value and then was reduced to 97.0 % of nominal voltage. The output frequency was recorded at each step.



12.3 Test Date

September 07, 2020 ~ September 11, 2020

12.4 Test Data for U-NII-1

-. Result : Pass

Voltage (VDC)	Carrier Freq. (Hz)	Measured Freq. (Hz)	Frequency Error (Hz)
3.6	5 180 000 000	5 180 003 150	3 150
3.3		5 179 978 824	-21 176
3.2		5 180 056 210	56 210
3.6	5 220 000 000	5 220 003 135	3 135
3.3		5 219 978 967	-21 033
3.2		5 220 056 300	56 300
3.6	5 240 000 000	5 240 003 047	3 047
3.3		5 239 977 688	-22 312
3.2		5 240 056 988	56 988

12.5 Test Data for U-NII-2A

-. Result : Pass

Voltage (VDC)	Carrier Freq. (Hz)	Measured Freq. (Hz)	Frequency Error (kHz)
3.6	5 260 000 000	5 260 003 163	3 163
3.3		5 259 978 100	-21 900
3.2		5 260 057 329	57 329
3.6	5 300 000 000	5 300 003 259	3 259
3.3		5 299 978 268	-21 732
3.2		5 300 056 524	56 524
3.6	5 320 000 000	5 320 003 237	3 237
3.3		5 319 979 552	-20 448
3.2		5 320 057 696	57 696

12.6 Test Data for U-NII-2C

-. Result : Pass

Voltage (VDC)	Carrier Freq. (Hz)	Measured Freq. (Hz)	Frequency Error (kHz)
3.6	5 500 000 000	5 500 003 713	3 713
3.3		5 499 979 274	-20 726
3.2		5 500 056 124	56 124
3.6	5 580 000 000	5 580 003 822	3 822
3.3		5 579 979 206	-20 794
3.2		5 580 057 648	57 648
3.6	5 700 000 000	5 700 003 244	3 244
3.3		5 699 979 875	-20 125
3.2		5 700 056 793	56 793

12.7 Test Data for U-NII-3

-. Result : Pass

Voltage (VDC)	Carrier Freq. (Hz)	Measured Freq. (Hz)	Frequency Error (kHz)
3.6	5 745 000 000	5 745 003 608	3 608
3.3		5 744 978 605	-21 395
3.2		5 745 056 954	56 954
3.6	5 785 000 000	5 785 003 401	3 401
3.3		5 784 977 401	-22 599
3.2		5 785 057 997	57 997
3.6	5 825 000 000	5 825 003 240	3 240
3.3		5 824 978 355	-21 645
3.2		5 825 056 845	56 845

13. RADIATED SPURIOUS EMISSIONS

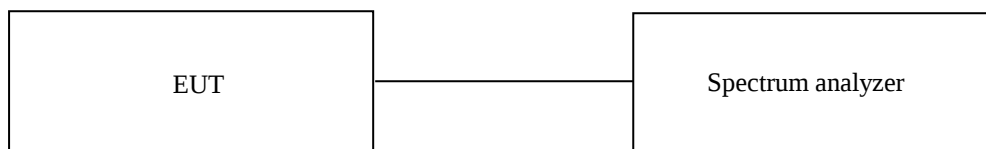
13.1 Operating environment

Temperature : 23 °C
Relative humidity : 45 % R.H.

13.2 Test set-up for conducted measurement

The radiated emissions measurements were on the 3 m semi anechoic chamber. The EUT and other support equipment were placed on a non-conductive turntable above the ground plane. The interconnecting cables from outside test site were inserted into ferrite clamps at the point where the cables reach the turntable.

The frequency spectrum from 30 MHz to 40 GHz was scanned and maximum emission levels at each frequency recorded. The system was rotated 360°, and the antenna was varied in the height between 1.0 m and 4.0 m in order to determine the maximum emission levels. This procedure was performed for horizontal and vertical polarization of the receiving antenna.



13.3 Test Date

September 07, 2020 ~ September 11, 2020

13.4 Test data for Below 30 MHz

-. Resolution bandwidth : 200 Hz (from 9 kHz to 0.15 MHz), 9 kHz (from 0.15 MHz to 30 MHz)
-. Frequency range : 9 kHz ~ 30 MHz
-. Measurement distance : 3 m
-. Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBμV)	Ant. Pol. (H/V)	Ant. Height (m)	Angle (°)	Ant. Factor (dB/m)	Cable Loss	Emission Level(dBμV/m)	Limits (dBμV/m)	Margin (dB)
Emission from the EUT more than 20 dB below the limit in each frequency range.									

13.5 Test data for 30 MHz ~ 1 GHz

13.5.1 Test data for WLAN 5 GHz

Humidity Level : 45 % R.H.

Temperature: 23 °C

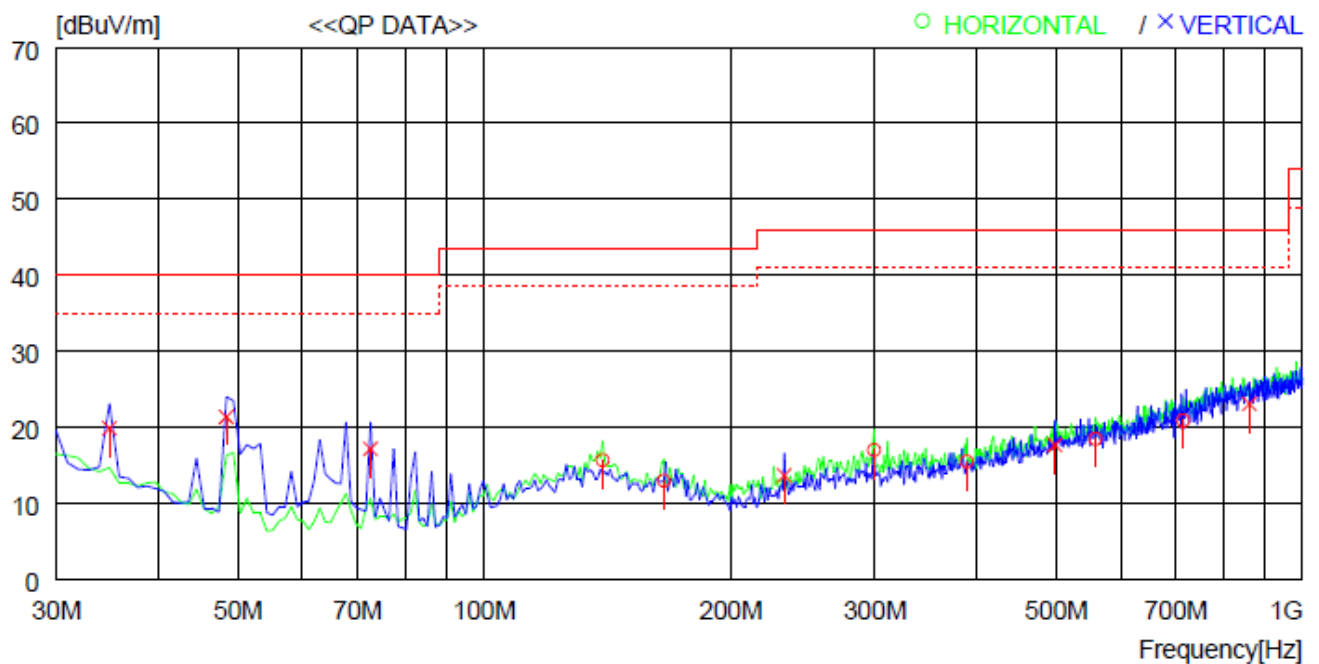
Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.247

Result : PASSED

EUT : RF Module

Detector : CISPR Quasi-Peak (6 dB Bandwidth: 120 kHz)

-.Antenna 0, Antenna 1 and Multiple transmit tested, but the worst data were recorded.



No.	FREQ	READING	ANT	LOSS	GAIN	RESULT	LIMIT	MARGIN	ANTENNA	TABLE
	[MHz]	QP [dBuV]	FACTOR [dB]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	[cm]	[DEG]
----- Horizontal -----										
1	139.610	36.5	10.8	1.1	32.7	15.7	43.5	27.8	400	272
2	165.800	31.6	12.8	1.2	32.6	13.0	43.5	30.5	400	266
3	299.660	34.4	13.6	1.7	32.7	17.0	46.0	29.0	400	272
4	388.900	30.2	16.1	1.9	32.7	15.5	46.0	30.5	400	272
5	558.649	30.2	19.0	2.3	33.0	18.5	46.0	27.5	400	165
6	714.815	30.2	21.1	2.5	32.9	20.9	46.0	25.1	400	165
----- Vertical -----										
7	34.850	40.9	11.1	0.5	32.6	19.9	40.0	20.1	400	270
8	48.430	43.5	10.0	0.6	32.7	21.4	40.0	18.6	400	297
9	72.680	40.5	8.6	0.8	32.7	17.2	40.0	22.8	400	270
10	232.730	33.9	10.9	1.5	32.6	13.7	46.0	32.3	400	270
11	498.511	30.6	17.8	2.2	32.9	17.7	46.0	28.3	400	270
12	861.280	29.9	22.8	2.6	32.2	23.1	46.0	22.9	400	286

13.5.2 Test data for Intermodulation Mode(Bluetooth + WLAN 5 GHz)

Humidity Level : 45 % R.H.

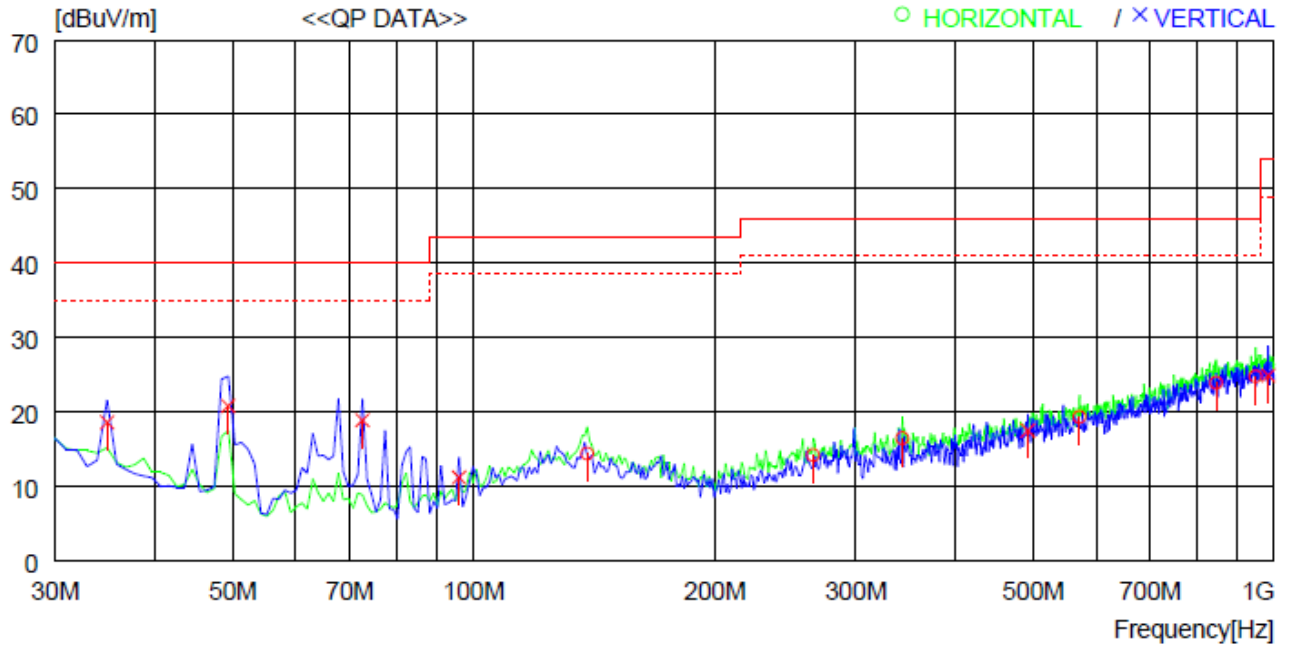
Temperature: 23 °C

Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.247

Result : PASSED

EUT : RF Module

Detector : CISPR Quasi-Peak (6 dB Bandwidth: 120 kHz)



No.	FREQ	READING	ANT	LOSS	GAIN	RESULT	LIMIT	MARGIN	ANTENNA	TABLE
	[MHz]	QP [dBuV]	FACTOR [dB]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	[cm]	[DEG]
----- Horizontal -----										
1	138.640	35.2	10.8	1.1	32.7	14.4	43.5	29.1	400	232
2	265.710	34.1	11.2	1.6	32.7	14.2	46.0	31.8	400	142
3	343.310	32.6	14.8	1.8	32.7	16.5	46.0	29.5	400	158
4	571.259	30.8	19.2	2.3	33.0	19.3	46.0	26.7	400	149
5	846.731	31.2	22.6	2.4	32.3	23.9	46.0	22.1	400	142
6	948.577	30.1	23.5	3.0	31.8	24.8	46.0	21.2	400	158
----- Vertical -----										
7	34.850	39.6	11.1	0.5	32.6	18.6	40.0	21.4	400	121
8	49.400	43.0	9.9	0.6	32.7	20.8	40.0	19.2	400	117
9	72.680	42.2	8.6	0.8	32.7	18.9	40.0	21.1	400	114
10	95.960	34.2	8.8	0.9	32.7	11.2	43.5	32.3	400	121
11	492.691	30.5	17.7	2.2	32.9	17.5	46.0	28.5	400	114
12	983.496	29.8	23.7	3.0	31.6	24.9	54.0	29.1	400	121

13.6 Test data for Above 1 GHz

13.6.1 Test data for Frequency UNII I

13.6.1.1 Test data for 802.11a RLAN Mode

13.6.1.1.1 Test data for Antenna 0

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band
- Video bandwidth : 3 MHz for Peak and Average Mode
- Frequency range : 1 GHz ~ 40 GHz
- Measurement distance : 3 m
- Duty Cycle : 92.86 %
- Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Low Channel								
10 360.00	13.79	Peak	H	36.70	7.84	58.33	68.20	9.87
10 360.00	12.35	Peak	V	36.70	7.84	56.89	68.20	11.31
Middle Channel								
10 440.00	13.99	Peak	H	36.80	7.78	58.57	68.20	9.63
10 440.00	11.55	Peak	V	36.80	7.78	56.13	68.20	12.07
High Channel								
10 480.00	13.80	Peak	H	36.90	7.93	58.63	68.20	9.57
10 480.00	12.60	Peak	V	36.90	7.93	57.43	68.20	10.77

Remark: "H": Horizontal, "V": Vertical

$$\text{Margin (dB)} = \text{Limits (dB}\mu\text{V/m)} - \text{Total Level (dB}\mu\text{V/m)}$$

$$\text{Total Level} = \text{Reading} + \text{Antenna Factor} + \text{Cable Loss}$$

13.6.1.1.2 Test data for Antenna 1

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band
- Video bandwidth : 3 MHz for Peak and Average Mode
- Frequency range : 1 GHz ~ 40 GHz
- Measurement distance : 3 m
- Duty Cycle : 92.16 %
- Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Low Channel								
10 360.00	13.55	Peak	H	36.70	7.84	58.09	68.20	10.11
10 360.00	11.83	Peak	V	36.70	7.84	56.37	68.20	11.83
Middle Channel								
10 440.00	13.68	Peak	H	36.80	7.78	58.26	68.20	9.94
10 440.00	11.45	Peak	V	36.80	7.78	56.03	68.20	12.17
High Channel								
10 480.00	13.87	Peak	H	36.90	7.93	58.70	68.20	9.50
10 480.00	12.12	Peak	V	36.90	7.93	56.95	68.20	11.25

Remark: "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Total Level (dBμV/m)

Total Level = Reading + Antenna Factor + Cable Loss

13.6.1.2 Test data for 802.11n_HT20 RLAN Mode

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band
- Video bandwidth : 3 MHz for Peak and Average Mode
- Frequency range : 1 GHz ~ 40 GHz
- Measurement distance : 3 m
- Duty Cycle : 87.34 %
- Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Low Channel								
10 360.00	13.25	Peak	H	36.70	7.84	57.79	68.20	10.41
10 360.00	12.20	Peak	V	36.70	7.84	56.74	68.20	11.46
Middle Channel								
10 440.00	13.85	Peak	H	36.80	7.78	58.43	68.20	9.77
10 440.00	11.68	Peak	V	36.80	7.78	56.26	68.20	11.94
High Channel								
10 480.00	12.81	Peak	H	36.90	7.93	57.64	68.20	10.56
10 480.00	11.58	Peak	V	36.90	7.93	56.41	68.20	11.79

Remark: "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Total Level (dBμV/m)

Total Level = Reading + Antenna Factor + Cable Loss

13.6.1.3 Test data for 802.11n_HT40 RLAN Mode

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band
- Video bandwidth : 3 MHz for Peak and Average Mode
- Frequency range : 1 GHz ~ 40 GHz
- Measurement distance : 3 m
- Duty Cycle : 77.78 %
- Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Low Channel								
10 380.00	13.94	Peak	H	36.70	7.84	58.48	68.20	9.72
10 380.00	11.79	Peak	V	36.70	7.84	56.33	68.20	11.87
High Channel								
10 460.00	12.81	Peak	H	36.90	7.93	57.64	68.20	10.56
10 460.00	11.43	Peak	V	36.90	7.93	56.26	68.20	11.94

Remark: "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Total Level (dBμV/m)

Total Level = Reading + Antenna Factor + Cable Loss

13.6.1.4 Test data for 802.11ac_HT80 RLAN Mode

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band
- Video bandwidth : 3 MHz for Peak and Average Mode
- Frequency range : 1 GHz ~ 40 GHz
- Measurement distance : 3 m
- Duty Cycle : 65.52 %
- Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Middle Channel								
10 420.00	13.99	Peak	H	36.80	7.87	58.66	68.20	9.54
10 420.00	12.01	Peak	V	36.80	7.87	56.68	68.20	11.52

Remark: "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Total Level (dBμV/m)

Total Level = Reading + Antenna Factor + Cable Loss

13.6.2 Test data for Frequency UNII 2A

13.6.2.1 Test data for 802.11a RLAN Mode

13.6.2.1.1 Test data for Antenna 0

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band
- Video bandwidth : 3 MHz for Peak and Average Mode
- Frequency range : 1 GHz ~ 40 GHz
- Measurement distance : 3 m
- Duty Cycle : 93.46 %
- Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	C.F. (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Low Channel									
10 520.00	14.20	Peak	H	36.90	7.93	-	59.03	68.20	9.17
10 520.00	12.09	Peak	V	36.90	7.93	-	56.92	68.20	11.28
Middle Channel									
10 600.00	14.54	Peak	H	36.90	7.75	-	59.19	74.00	14.81
10 600.00	2.59	Average	H	36.90	7.75	0.29	47.53	54.00	6.47
10 600.00	14.14	Peak	V	36.90	7.75	-	58.79	74.00	15.21
10 600.00	2.99	Average	V	36.90	7.75	0.29	47.93	54.00	6.07
High Channel									
10 640.00	14.84	Peak	H	36.90	7.77	-	59.51	74.00	14.49
10 640.00	2.77	Average	H	36.90	7.77	0.29	47.73	54.00	6.27
10 640.00	13.45	Peak	V	36.90	7.77	-	58.12	74.00	15.88
10 640.00	3.65	Average	V	36.90	7.77	0.29	48.61	54.00	5.39

Remark: "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Total Level (dBμV/m)

Total Level = Reading + Antenna Factor + Cable Loss + C.F.

13.6.2.1.2 Test data for Antenna 1

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band
- Video bandwidth : 3 MHz for Peak and Average Mode
- Frequency range : 1 GHz ~ 40 GHz
- Measurement distance : 3 m
- Duty Cycle : 92.86 %
- Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	C.F. (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Low Channel									
10 520.00	12.86	Peak	H	36.90	7.93	-	57.69	68.20	10.51
10 520.00	11.62	Peak	V	36.90	7.93	-	56.45	68.20	11.75
Middle Channel									
10 600.00	13.51	Peak	H	36.90	7.75	-	58.16	74.00	15.84
10 600.00	2.71	Average	H	36.90	7.75	0.32	47.68	54.00	6.32
10 600.00	13.15	Peak	V	36.90	7.75	-	57.80	74.00	16.20
10 600.00	3.54	Average	V	36.90	7.75	0.32	48.51	54.00	5.49
High Channel									
10 640.00	13.79	Peak	H	36.90	7.77	-	58.46	74.00	15.54
10 640.00	2.49	Average	H	36.90	7.77	0.32	47.48	54.00	6.52
10 640.00	13.42	Peak	V	36.90	7.77	-	58.09	74.00	15.91
10 640.00	3.38	Average	V	36.90	7.77	0.32	48.37	54.00	5.63

Remark: "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Total Level (dBμV/m)

Total Level = Reading + Antenna Factor + Cable Loss + C.F.

13.6.2.2 Test data for 802.11n_HT20 RLAN Mode

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band
- Video bandwidth : 3 MHz for Peak and Average Mode
- Frequency range : 1 GHz ~ 40 GHz
- Measurement distance : 3 m
- Duty Cycle : 87.34 %
- Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	C.F. (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Low Channel									
10 520.00	14.11	Peak	H	36.90	7.93		58.94	68.20	9.26
10 520.00	12.73	Peak	V	36.90	7.93		57.56	68.20	10.64
Middle Channel									
10 600.00	14.74	Peak	H	36.90	7.75		59.39	74.00	14.61
10 600.00	3.50	Average	H	36.90	7.75	0.59	48.74	54.00	5.26
10 600.00	13.40	Peak	V	36.90	7.75		58.05	74.00	15.95
10 600.00	2.58	Average	V	36.90	7.75	0.59	47.82	54.00	6.18
High Channel									
10 640.00	14.32	Peak	H	36.90	7.77		58.99	74.00	15.01
10 640.00	3.65	Average	H	36.90	7.77	0.59	48.91	54.00	5.09
10 640.00	13.40	Peak	V	36.90	7.77		58.07	74.00	15.93
10 640.00	4.10	Average	V	36.90	7.77	0.59	49.36	54.00	4.64

Remark: "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Total Level (dBμV/m)

Total Level = Reading + Antenna Factor + Cable Loss + C.F.

13.6.2.3 Test data for 802.11n_HT40 RLAN Mode

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band
- Video bandwidth : 3 MHz for Peak and Average Mode
- Frequency range : 1 GHz ~ 40 GHz
- Measurement distance : 3 m
- Duty Cycle : 77.78 %
- Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	C.F. (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Low Channel									
10 540.00	14.10	Peak	H	36.90	7.97	-	58.97	68.20	9.23
10 540.00	12.15	Peak	V	36.90	7.97	-	57.02	68.20	11.18
High Channel									
10 620.00	14.00	Peak	H	36.90	7.77	-	58.67	74.00	15.33
10 620.00	3.27	Average	H	36.90	7.77	1.09	49.03	54.00	4.97
10 620.00	13.90	Peak	V	36.90	7.77	-	58.57	74.00	15.43
10 620.00	2.34	Average	V	36.90	7.77	1.09	48.10	54.00	5.90

Remark: "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Total Level (dBμV/m)

Total Level = Reading + Antenna Factor + Cable Loss + C.F.

13.6.2.4 Test data for 802.11ac_HT80 RLAN Mode

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band
- Video bandwidth : 3 MHz for Peak and Average Mode
- Frequency range : 1 GHz ~ 40 GHz
- Measurement distance : 3 m
- Duty Cycle : 65.52 %
- Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Middle Channel								
10 580.00	14.10	Peak	H	36.90	7.84	58.84	68.20	9.36
10 580.00	11.61	Peak	V	36.90	7.84	56.35	68.20	11.85

Remark - "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Emission Level (dBμV/m)

13.6.3 Test data for Frequency UNII 2C

13.6.3.1 Test data for 802.11a RLAN Mode

13.6.3.1.1 Test data for Antenna 0

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band
- Video bandwidth : 3 MHz for Peak and Average Mode
- Frequency range : 1 GHz ~ 40 GHz
- Measurement distance : 3 m
- Duty Cycle : 93.46 %
- Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	C.F. (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Low Channel									
11 000.00	13.23	Peak	H	37.40	7.90	-	58.53	74.00	15.47
11 000.00	2.51	Average	H	37.40	7.90	0.29	48.10	54.00	5.90
11 000.00	14.33	Peak	V	37.40	7.90	-	59.63	74.00	14.37
11 000.00	3.37	Average	V	37.40	7.90	0.29	48.96	54.00	5.04
Middle Channel									
11 160.00	12.93	Peak	H	36.90	8.16	-	57.99	74.00	16.01
11 160.00	2.77	Average	H	36.90	8.16	0.29	48.12	54.00	5.88
11 160.00	15.78	Peak	V	36.90	8.16	-	60.84	74.00	13.16
11 160.00	3.17	Average	V	36.90	8.16	0.29	48.52	54.00	5.48
High Channel									
11 400.00	12.79	Peak	H	37.10	8.14	-	58.03	74.00	15.97
11 400.00	2.56	Average	H	37.10	8.14	0.29	48.09	54.00	5.91
11 400.00	14.00	Peak	V	37.10	8.14	-	59.24	74.00	14.76
11 400.00	3.40	Average	V	37.10	8.14	0.29	48.93	54.00	5.07

Remark: "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Total Level (dBμV/m)

Total Level = Reading + Antenna Factor + Cable Loss + C.F.

13.6.3.1.2 Test data for Antenna 1

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band
- Video bandwidth : 3 MHz for Peak and Average Mode
- Frequency range : 1 GHz ~ 40 GHz
- Measurement distance : 3 m
- Duty Cycle : 93.46 %
- Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	C.F. (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Low Channel									
11 000.00	14.25	Peak	H	37.40	7.90	-	59.55	74.00	14.45
11 000.00	2.54	Average	H	37.40	7.90	0.29	48.13	54.00	5.87
11 000.00	14.01	Peak	V	37.40	7.90	-	59.31	74.00	14.69
11 000.00	3.14	Average	V	37.40	7.90	0.29	48.73	54.00	5.27
Middle Channel									
11 160.00	13.67	Peak	H	36.90	8.16	-	58.73	74.00	15.27
11 160.00	2.26	Average	H	36.90	8.16	0.29	47.61	54.00	6.39
11 160.00	16.30	Peak	V	36.90	8.16	-	61.36	74.00	12.64
11 160.00	3.13	Average	V	36.90	8.16	0.29	48.48	54.00	5.52
High Channel									
11 400.00	13.49	Peak	H	37.10	8.14	-	58.73	74.00	15.27
11 400.00	2.69	Average	H	37.10	8.14	0.29	48.22	54.00	5.78
11 400.00	14.29	Peak	V	37.10	8.14	-	59.53	74.00	14.47
11 400.00	2.34	Average	V	37.10	8.14	0.29	47.87	54.00	6.13

Remark: "H": Horizontal, "V": Vertical

$$\text{Margin (dB)} = \text{Limits (dB}\mu\text{V/m)} - \text{Total Level (dB}\mu\text{V/m)}$$

$$\text{Total Level} = \text{Reading} + \text{Antenna Factor} + \text{Cable Loss} + \text{C.F.}$$

13.6.3.2 Test data for 802.11n_HT20 RLAN Mode

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band
- Video bandwidth : 3 MHz for Peak and Average Mode
- Frequency range : 1 GHz ~ 40 GHz
- Measurement distance : 3 m
- Duty Cycle : 87.34 %
- Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	C.F. (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Low Channel									
11 000.00	13.33	Peak	H	37.40	7.90	-	58.63	74.00	15.37
11 000.00	2.47	Average	H	37.40	7.90	0.59	48.36	54.00	5.64
11 000.00	15.29	Peak	V	37.40	7.90	-	60.59	74.00	13.41
11 000.00	3.65	Average	V	37.40	7.90	0.59	49.54	54.00	4.46
Middle Channel									
11 160.00	12.28	Peak	H	36.90	8.16	-	57.34	74.00	16.66
11 160.00	2.81	Average	H	36.90	8.16	0.59	48.46	54.00	5.54
11 160.00	14.94	Peak	V	36.90	8.16	-	60.00	74.00	14.00
11 160.00	3.67	Average	V	36.90	8.16	0.59	49.32	54.00	4.68
High Channel									
11 400.00	13.00	Peak	H	37.10	8.14	-	58.24	74.00	15.76
11 400.00	2.38	Average	H	37.10	8.14	0.59	48.21	54.00	5.79
11 400.00	14.05	Peak	V	37.10	8.14	-	59.29	74.00	14.71
11 400.00	2.92	Average	V	37.10	8.14	0.59	48.75	54.00	5.25

Remark: "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Total Level (dBμV/m)

Total Level = Reading + Antenna Factor + Cable Loss + C.F.

13.6.3.3 Test data for 802.11n_HT40 RLAN Mode

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band
- Video bandwidth : 3 MHz for Peak and Average Mode
- Frequency range : 1 GHz ~ 40 GHz
- Measurement distance : 3 m
- Duty Cycle : 77.78 %
- Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	C.F. (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Low Channel									
11 020.00	13.77	Peak	H	37.40	7.90	-	59.07	74.00	14.93
11 020.00	3.10	Average	H	37.40	7.90	1.09	49.49	54.00	4.51
11 020.00	15.22	Peak	V	37.40	7.90	-	60.52	74.00	13.48
11 020.00	3.85	Average	V	37.40	7.90	1.09	50.24	54.00	3.76
Middle Channel									
11 100.00	12.61	Peak	H	36.90	8.16	-	57.67	74.00	16.33
11 100.00	2.81	Average	H	36.90	8.16	1.09	48.96	54.00	5.04
11 100.00	15.87	Peak	V	36.90	8.16	-	60.93	74.00	13.07
11 100.00	3.59	Average	V	36.90	8.16	1.09	49.74	54.00	4.26
High Channel									
11 340.00	13.09	Peak	H	37.10	8.14	-	58.33	74.00	15.67
11 340.00	3.02	Average	H	37.10	8.14	1.09	49.35	54.00	4.65
11 340.00	13.81	Peak	V	37.10	8.14	-	59.05	74.00	14.95
11 340.00	3.45	Average	V	37.10	8.14	1.09	49.78	54.00	4.22

Remark: "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Total Level (dBμV/m)

Total Level = Reading + Antenna Factor + Cable Loss + C.F.

13.6.3.4 Test data for 802.11ac_HT80 RLAN Mode

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band
- Video bandwidth : 3 MHz for Peak and Average Mode
- Frequency range : 1 GHz ~ 40 GHz
- Measurement distance : 3 m
- Duty Cycle : 65.52 %
- Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	C.F. (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Low Channel									
11 060.00	13.89	Peak	H	36.90	8.16	-	58.95	74.00	15.05
11 060.00	3.45	Average	H	36.90	8.16	1.84	50.35	54.00	3.65
11 060.00	15.30	Peak	V	36.90	8.16	-	60.36	74.00	13.64
11 060.00	2.60	Average	V	36.90	8.16	1.84	49.50	54.00	4.50
High Channel									
11 380.00	12.82	Peak	H	37.10	8.14	-	58.06	74.00	15.94
11 380.00	2.66	Average	H	37.10	8.14	1.84	49.74	54.00	4.26
11 380.00	15.37	Peak	V	37.10	8.14	-	60.61	74.00	13.39
11 380.00	3.22	Average	V	37.10	8.14	1.84	50.30	54.00	3.70

Remark: "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Total Level (dBμV/m)

Total Level = Reading + Antenna Factor + Cable Loss + C.F.

13.6.4 Test data for Frequency UNII 3

13.6.4.1 Test data for 802.11a RLAN Mode

13.6.4.1.1 Test data for Antenna 0

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band
- Video bandwidth : 3 MHz for Peak and Average Mode
- Frequency range : 1 GHz ~ 40 GHz
- Measurement distance : 3 m
- Duty Cycle : 93.46 %
- Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	C.F. (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Low Channel									
11 490.00	13.85	Peak	H	37.20	8.32	-	59.37	74.00	14.63
11 490.00	3.09	Average	H	37.20	8.32	0.29	48.90	54.00	5.10
11 490.00	12.55	Peak	V	37.20	8.32	-	58.07	74.00	15.93
11 490.00	2.49	Average	V	37.20	8.32	0.29	48.30	54.00	5.70
Middle Channel									
11 570.00	14.75	Peak	H	37.00	8.17	-	59.92	74.00	14.08
11 570.00	5.22	Average	H	37.00	8.17	0.29	50.68	54.00	3.32
11 570.00	13.90	Peak	V	37.00	8.17	-	59.07	74.00	14.93
11 570.00	3.22	Average	V	37.00	8.17	0.29	48.68	54.00	5.32
High Channel									
11 650.00	14.32	Peak	H	36.90	8.20	-	59.42	74.00	14.58
11 650.00	4.07	Average	H	36.90	8.20	0.29	49.46	54.00	4.54
11 650.00	14.89	Peak	V	36.90	8.20	-	59.99	74.00	14.01
11 650.00	2.47	Average	V	36.90	8.20	0.29	47.86	54.00	6.14

Remark: "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Total Level (dBμV/m)

Total Level = Reading + Antenna Factor + Cable Loss + C.F.

13.6.4.1.2 Test data for Antenna 1

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band
- Video bandwidth : 3 MHz for Peak and Average Mode
- Frequency range : 1 GHz ~ 40 GHz
- Measurement distance : 3 m
- Duty Cycle : 93.46 %
- Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	C.F. (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Low Channel									
11 490.00	13.48	Peak	H	37.20	8.32	-	59.00	74.00	15.00
11 490.00	3.30	Average	H	37.20	8.32	0.29	49.11	54.00	4.89
11 490.00	13.83	Peak	V	37.20	8.32	-	59.35	74.00	14.65
11 490.00	1.80	Average	V	37.20	8.32	0.29	47.61	54.00	6.39
Middle Channel									
11 570.00	13.93	Peak	H	37.00	8.17	-	59.10	74.00	14.90
11 570.00	5.23	Average	H	37.00	8.17	0.29	50.69	54.00	3.31
11 570.00	12.64	Peak	V	37.00	8.17	-	57.81	74.00	16.19
11 570.00	2.78	Average	V	37.00	8.17	0.29	48.24	54.00	5.76
High Channel									
11 650.00	13.98	Peak	H	36.90	8.20	-	59.08	74.00	14.92
11 650.00	3.74	Average	H	36.90	8.20	0.29	49.13	54.00	4.87
11 650.00	14.96	Peak	V	36.90	8.20	-	60.06	74.00	13.94
11 650.00	3.20	Average	V	36.90	8.20	0.29	48.59	54.00	5.41

Remark: "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Total Level (dBμV/m)

Total Level = Reading + Antenna Factor + Cable Loss + C.F.

13.6.4.2 Test data for 802.11n_HT20 RLAN Mode

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band
- Video bandwidth : 3 MHz for Peak and Average Mode
- Frequency range : 1 GHz ~ 40 GHz
- Measurement distance : 3 m
- Duty Cycle : 86.08 %
- Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	C.F. (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Low Channel									
11 490.00	13.21	Peak	H	37.20	8.32	-	58.73	74.00	15.27
11 490.00	3.69	Average	H	37.20	8.32	0.65	49.86	54.00	4.14
11 490.00	12.86	Peak	V	37.20	8.32	-	58.38	74.00	15.62
11 490.00	2.29	Average	V	37.20	8.32	0.65	48.46	54.00	5.54
Middle Channel									
11 570.00	14.80	Peak	H	37.00	8.17	-	59.97	74.00	14.03
11 570.00	4.07	Average	H	37.00	8.17	0.65	49.89	54.00	4.11
11 570.00	13.37	Peak	V	37.00	8.17	-	58.54	74.00	15.46
11 570.00	3.32	Average	V	37.00	8.17	0.65	49.14	54.00	4.86
High Channel									
11 650.00	14.80	Peak	H	36.90	8.20	-	59.90	74.00	14.10
11 650.00	2.90	Average	H	36.90	8.20	0.65	48.65	54.00	5.35
11 650.00	14.65	Peak	V	36.90	8.20	-	59.75	74.00	14.25
11 650.00	2.86	Average	V	36.90	8.20	0.65	48.61	54.00	5.39

Remark: "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Total Level (dBμV/m)

Total Level = Reading + Antenna Factor + Cable Loss + C.F.

13.6.4.3 Test data for 802.11n_HT40 RLAN Mode

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band
- Video bandwidth : 3 MHz for Peak and Average Mode
- Frequency range : 1 GHz ~ 40 GHz
- Measurement distance : 3 m
- Duty Cycle : 77.78 %
- Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	C.F. (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Low Channel									
11 510.00	14.00	Peak	H	37.20	8.32	-	59.52	74.00	14.48
11 510.00	4.11	Average	H	37.20	8.32	1.09	50.72	54.00	3.28
11 510.00	13.49	Peak	V	37.20	8.32	-	59.01	74.00	14.99
11 510.00	1.32	Average	V	37.20	8.32	1.09	47.93	54.00	6.07
High Channel									
11 590.00	14.23	Peak	H	36.60	8.20	-	59.03	74.00	14.97
11 590.00	4.51	Average	H	36.60	8.20	1.09	50.40	54.00	3.60
11 590.00	13.87	Peak	V	36.60	8.20	-	58.67	74.00	15.33
11 590.00	2.73	Average	V	36.60	8.20	1.09	48.62	54.00	5.38

Remark: "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Total Level (dBμV/m)

Total Level = Reading + Antenna Factor + Cable Loss + C.F.

13.6.4.4 Test data for 802.11ac_HT80 RLAN Mode

13.6.4.4.1 Test data for Multiple Transmit

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band
- Video bandwidth : 3 MHz for Peak and Average Mode
- Frequency range : 1 GHz ~ 40 GHz
- Measurement distance : 3 m
- Duty Cycle : 65.52 %
- Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	C.F. (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Middle Channel									
11 550.00	14.35	Peak	H	36.80	8.25	-	59.40	74.00	14.60
11 550.00	3.48	Average	H	36.80	8.25	1.84	50.37	54.00	3.63
11 550.00	12.59	Peak	V	36.80	8.25	-	57.64	74.00	16.36
11 550.00	2.00	Average	V	36.80	8.25	1.84	48.89	54.00	5.11

Remark: "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Total Level (dBμV/m)

Total Level = Reading + Antenna Factor + Cable Loss + C.F.

14. RADIATED RESTRICTED BAND EDGE MEASUREMENTS

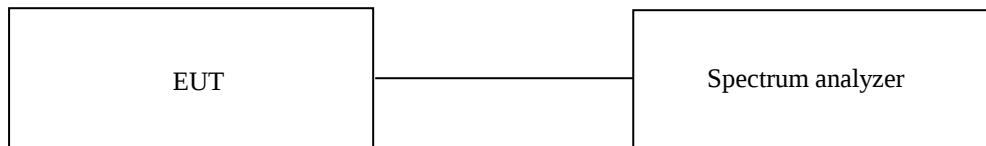
14.1 Operating environment

Temperature : 23 °C
Relative humidity : 45 % R.H.

14.2 Test set-up for conducted measurement

The radiated emissions measurements were performed on the 3 m, open-field test site. The EUT was placed on a non-conductive turntable above the ground plane.

The system was rotated 360°, and the antenna was varied in the height between 1.0 m and 4.0 m in order to determine the maximum emission levels. This procedure was performed for horizontal and vertical polarization of the receiving antenna.



14.3 Test Date

September 07, 2020 ~ September 11, 2020

14.4 Test data for Frequency UNII I

14.4.1 Test data for 802.11a RLAN Mode

14.4.1.1 Test data for Antenna 0

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode
- Video bandwidth : 3 MHz for Peak and Average Mode
- Measurement distance : 3 m
- Duty Cycle : 92.86 %
- Result : Pass

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	C.F (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
4 899.26	18.56	Peak	H	28.90	4.98	-	52.44	74.00	21.56
4 970.76	11.22	Average	H	28.90	4.98	0.32	45.42	54.00	8.58
5 054.44	19.32	Peak	V	28.90	4.98	-	53.20	74.00	20.80
4 743.29	10.48	Average	V	28.90	4.98	0.32	44.68	54.00	9.32

Tabulated test data for Restricted Band

Remark - “H”: Horizontal, “V”: Vertical

$$\text{Margin (dB)} = \text{Limits (dBμV/m)} - \text{Total (dBμV/m)}$$

14.4.1.2 Test data for Antenna 1

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode
- Video bandwidth : 3 MHz for Peak and Average Mode
- Measurement distance : 3 m
- Duty Cycle : 92.16 %
- Result : Pass

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	C.F (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
4 899.92	18.72	Peak	H	28.90	4.98	-	52.60	74.00	21.40
4 970.22	10.21	Average	H	28.90	4.98	0.35	44.44	54.00	9.56
5 053.83	18.85	Peak	V	28.90	4.98	-	52.73	74.00	21.27
4 743.15	10.14	Average	V	28.90	4.98	0.35	44.37	54.00	9.63

Tabulated test data for Restricted Band

Remark - “H”: Horizontal, “V”: Vertical

$$\text{Margin (dB)} = \text{Limits (dBμV/m)} - \text{Total (dBμV/m)}$$

14.4.2 Test data for 802.11n_HT20 RLAN Mode

- . Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode
- . Video bandwidth : 3 MHz for Peak and Average Mode
- . Measurement distance : 3 m
- . Duty Cycle : 87.34 %
- . Result : Pass

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	C.F (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
5 149.83	26.07	Peak	H	28.90	4.98	-	59.95	74.00	14.05
5 149.83	16.85	Average	H	28.90	4.98	0.59	51.32	54.00	2.68
5 149.79	25.61	Peak	V	28.90	4.98	-	59.49	74.00	14.51
5 149.88	15.69	Average	V	28.90	4.98	0.59	50.16	54.00	3.84

Tabulated test data for Restricted Band

Remark - “H”: Horizontal, “V”: Vertical

$$\text{Margin (dB)} = \text{Limits (dBμV/m)} - \text{Total (dBμV/m)}$$

14.4.3 Test data for 802.11n_HT40 RLAN Mode

- . Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode
- . Video bandwidth : 3 MHz for Peak and Average Mode
- . Measurement distance : 3 m
- . Duty Cycle : 77.78 %
- . Result : Pass

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	C.F (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
5 149.43	25.86	Peak	H	28.90	4.98	-	59.74	74.00	14.26
5 149.08	16.26	Average	H	28.90	4.98	1.09	51.23	54.00	2.77
5 149.43	25.03	Peak	V	28.90	4.98	-	58.91	74.00	15.09
5 149.03	15.22	Average	V	28.90	4.98	1.09	50.19	54.00	3.81

Tabulated test data for Restricted Band

Remark - “H”: Horizontal, “V”: Vertical

$$\text{Margin (dB)} = \text{Limits (dBμV/m)} - \text{Total (dBμV/m)}$$

14.4.4 Test data for 802.11ac_HT80 RLAN Mode

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode
- Video bandwidth : 3 MHz for Peak and Average Mode
- Measurement distance : 3 m
- Duty Cycle : 65.52 %
- Result : Pass

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	C.F (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
5 146.43	24.79	Peak	H	28.90	4.98	-	58.67	74.00	15.33
5 147.75	15.69	Average	H	28.90	4.98	1.84	51.41	54.00	2.59
5 146.46	24.86	Peak	V	28.90	4.98	-	58.74	74.00	15.26
5 147.77	14.90	Average	V	28.90	4.98	1.84	50.62	54.00	3.38

Tabulated test data for Restricted Band

Remark - “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBμV/m) - Total (dBμV/m)

14.5 Test data for Frequency UNII 2A

14.5.1 Test data for 802.11a RLAN Mode

14.5.1.1 Test data for Antenna 0

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode
- Video bandwidth : 3 MHz for Peak and Average Mode
- Measurement distance : 3 m
- Duty Cycle : 93.46 %
- Result : Pass

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	C.F (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
5 453.02	23.55	Peak	H	28.40	5.24	-	57.19	74.00	16.81
5 350.05	12.66	Average	H	28.40	5.24	0.29	46.59	54.00	7.41
5 457.53	21.25	Peak	V	28.40	5.24	-	54.89	74.00	19.11
5 453.24	10.03	Average	V	28.40	5.24	0.29	43.96	54.00	10.04

Tabulated test data for Restricted Band

Remark - “H”: Horizontal, “V”: Vertical

$$\text{Margin (dB)} = \text{Limits (dBμV/m)} - \text{Total (dBμV/m)}$$

14.5.1.2 Test data for Antenna 1

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode
- Video bandwidth : 3 MHz for Peak and Average Mode
- Measurement distance : 3 m
- Duty Cycle : 92.86 %
- Result : Pass

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	C.F (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
5 452.93	21.68	Peak	H	28.40	5.24	-	55.32	74.00	18.68
5 349.61	11.40	Average	H	28.40	5.24	0.32	45.36	54.00	8.64
5 457.63	19.72	Peak	V	28.40	5.24	-	53.36	74.00	20.64
5 452.85	9.58	Average	V	28.40	5.24	0.32	43.54	54.00	10.46

Tabulated test data for Restricted Band

Remark - “H”: Horizontal, “V”: Vertical

$$\text{Margin (dB)} = \text{Limits (dBμV/m)} - \text{Total (dBμV/m)}$$

14.5.2 Test data for 802.11n_HT20 RLAN Mode

- . Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode
- . Video bandwidth : 3 MHz for Peak and Average Mode
- . Measurement distance : 3 m
- . Duty Cycle : 87.34 %
- . Result : Pass

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	C.F (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
5 350.05	28.30	Peak	H	28.40	5.24	-	61.94	74.00	12.06
5 350.05	17.46	Average	H	28.40	5.24	0.59	51.69	54.00	2.31
5 351.27	25.54	Peak	V	28.40	5.24	-	59.18	74.00	14.82
5 350.05	14.51	Average	V	28.40	5.24	0.59	48.74	54.00	5.26

Tabulated test data for Restricted Band

Remark - “H”: Horizontal, “V”: Vertical

$$\text{Margin (dB)} = \text{Limits (dBμV/m)} - \text{Total (dBμV/m)}$$

14.5.3 Test data for 802.11n_HT40 RLAN Mode

- . Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode
- . Video bandwidth : 3 MHz for Peak and Average Mode
- . Measurement distance : 3 m
- . Duty Cycle : 77.78 %
- . Result : Pass

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	C.F (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
5 350.18	28.13	Peak	H	28.40	5.24	-	61.77	74.00	12.23
5 350.06	16.98	Average	H	28.40	5.24	1.09	51.71	54.00	2.29
5 350.05	26.15	Peak	V	28.40	5.24	-	59.79	74.00	14.21
5 350.05	14.04	Average	V	28.40	5.24	1.09	48.77	54.00	5.23

Tabulated test data for Restricted Band

Remark - “H”: Horizontal, “V”: Vertical

$$\text{Margin (dB)} = \text{Limits (dBμV/m)} - \text{Total (dBμV/m)}$$

14.5.4 Test data for 802.11ac_HT80 RLAN Mode

- . Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode
- . Video bandwidth : 3 MHz for Peak and Average Mode
- . Measurement distance : 3 m
- . Duty Cycle : 65.52 %
- . Result : Pass

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	C.F (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
5 350.16	27.59	Peak	H	28.40	5.24	-	61.23	74.00	12.77
5 350.16	15.80	Average	H	28.40	5.24	1.84	51.28	54.00	2.72
5 350.06	24.27	Peak	V	28.40	5.24	-	57.91	74.00	16.09
5 350.06	13.10	Average	V	28.40	5.24	1.84	48.58	54.00	5.42

Tabulated test data for Restricted Band

Remark - “H”: Horizontal, “V”: Vertical

$$\text{Margin (dB)} = \text{Limits (dB}\mu\text{V/m)} - \text{Total (dB}\mu\text{V/m)}$$

14.6 Test data for Frequency UNII 2C

14.6.1 Test data for 802.11a RLAN Mode

14.6.1.1 Test data for Antenna 0

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode
- Video bandwidth : 3 MHz for Peak and Average Mode
- Measurement distance : 3 m
- Duty Cycle : 93.46 %
- Result : Pass

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	C.F (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
5 394.13	23.40	Peak	H	28.40	5.24	-	57.04	74.00	16.96
5 452.58	12.12	Average	H	28.40	5.24	0.29	46.05	54.00	7.95
5 358.67	20.91	Peak	V	28.40	5.24	-	54.55	74.00	19.45
5 450.99	9.45	Average	V	28.40	5.24	0.29	43.38	54.00	10.62

Tabulated test data for Restricted Band

Remark - “H”: Horizontal, “V”: Vertical

$$\text{Margin (dB)} = \text{Limits (dBμV/m)} - \text{Total (dBμV/m)}$$

14.6.1.2 Test data for Antenna 1

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode
- Video bandwidth : 3 MHz for Peak and Average Mode
- Measurement distance : 3 m
- Duty Cycle : 93.46 %
- Result : Pass

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	C.F (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
5 393.74	23.20	Peak	H	28.40	5.24	-	56.84	74.00	17.16
5 452.69	12.24	Average	H	28.40	5.24	0.29	46.17	54.00	7.83
5 358.76	21.04	Peak	V	28.40	5.24	-	54.68	74.00	19.32
5 450.14	10.06	Average	V	28.40	5.24	0.29	43.99	54.00	10.01

Tabulated test data for Restricted Band

Remark - “H”: Horizontal, “V”: Vertical

$$\text{Margin (dB)} = \text{Limits (dBμV/m)} - \text{Total (dBμV/m)}$$

14.6.2 Test data for 802.11n_HT20 RLAN Mode

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode
- Video bandwidth : 3 MHz for Peak and Average Mode
- Measurement distance : 3 m
- Duty Cycle : 87.34 %
- Result : Pass

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	C.F (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
5 458.88	27.89	Peak	H	28.40	5.24	-	61.53	74.00	12.47
5 459.02	17.49	Average	H	28.40	5.24	0.59	51.72	54.00	2.28
5 459.56	25.25	Peak	V	28.40	5.24	-	58.89	74.00	15.11
5 459.76	15.80	Average	V	28.40	5.24	0.59	50.03	54.00	3.97

Tabulated test data for Restricted Band

Remark - “H”: Horizontal, “V”: Vertical

$$\text{Margin (dB)} = \text{Limits (dBμV/m)} - \text{Total (dBμV/m)}$$

14.6.3 Test data for 802.11n_HT40 RLAN Mode

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode
- Video bandwidth : 3 MHz for Peak and Average Mode
- Measurement distance : 3 m
- Duty Cycle : 77.78 %
- Result : Pass

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	C.F (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
5 458.57	27.54	Peak	H	28.40	5.24	-	61.18	74.00	12.82
5 458.96	16.77	Average	H	28.40	5.24	1.09	51.50	54.00	2.50
5 459.32	25.77	Peak	V	28.40	5.24	-	59.41	74.00	14.59
5 459.32	15.31	Average	V	28.40	5.24	1.09	50.04	54.00	3.96

Tabulated test data for Restricted Band

Remark - “H”: Horizontal, “V”: Vertical

$$\text{Margin (dB)} = \text{Limits (dBμV/m)} - \text{Total (dBμV/m)}$$

14.6.4 Test data for 802.11ac_HT80 RLAN Mode

- . Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode
- . Video bandwidth : 3 MHz for Peak and Average Mode
- . Measurement distance : 3 m
- . Duty Cycle : 65.52 %
- . Result : Pass

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	C.F (dB)	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
5 458.74	26.58	Peak	H	28.40	5.24	-	60.22	74.00	13.78
5 459.37	16.32	Average	V	28.40	5.24	1.84	51.80	54.00	2.20
5 459.68	24.11	Peak	V	28.40	5.24	-	57.75	74.00	16.25
5 459.59	15.01	Average	V	28.40	5.24	1.84	50.49	54.00	3.51

Tabulated test data for Restricted Band

Remark - “H”: Horizontal, “V”: Vertical

$$\text{Margin (dB)} = \text{Limits (dB}\mu\text{V/m)} - \text{Total (dB}\mu\text{V/m)}$$

14.7 Test data for Frequency U-NII-3

14.7.1 Test data for 802.11a RLAN Mode

14.7.1.1 Test data for Antenna 0

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode
- Video bandwidth : 3 MHz for Peak and Average Mode
- Measurement distance : 3 m
- Duty Cycle : 93.46 %
- Result : Pass

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Low Channel								
5 650.00	30.18	Peak	H	28.80	5.39	64.37	80.00	15.63
5 710.00	29.52	Peak	H	28.80	5.39	63.71	119.80	56.09
5 715.00	33.87	Peak	H	28.80	5.39	68.06	121.20	53.14
5 725.00	31.50	Peak	H	28.80	5.39	65.69	134.00	68.31
5 724.65	31.37	Peak	H	28.80	5.39	65.56	133.20	67.64
5 650.00	27.56	Peak	V	28.80	5.39	61.75	80.00	18.25
5 710.00	33.77	Peak	V	28.80	5.39	67.96	119.80	51.84
5 715.00	29.95	Peak	V	28.80	5.39	64.14	121.20	57.06
5 725.00	29.89	Peak	V	28.80	5.39	64.08	134.00	69.92
5 724.71	31.75	Peak	V	28.80	5.39	65.94	133.34	67.40

High Channel								
5 850.00	30.07	Peak	H	29.30	5.55	64.92	134.00	69.08
5 855.00	32.86	Peak	H	29.30	5.55	67.71	122.60	54.89
5 875.00	33.12	Peak	H	29.30	5.55	67.97	117.00	49.03
5 925.00	31.18	Peak	H	29.30	5.55	66.03	80.00	13.97
5 889.24	31.75	Peak	H	29.30	5.55	66.60	106.46	39.86
5 850.00	33.95	Peak	V	29.30	5.55	68.80	134.00	65.20
5 855.00	29.87	Peak	V	29.30	5.55	64.72	122.60	57.88
5 875.00	30.27	Peak	V	29.30	5.55	65.12	117.00	51.88
5 925.00	29.81	Peak	V	29.30	5.55	64.66	80.00	15.34
5 921.29	33.71	Peak	V	29.30	5.55	68.56	82.75	14.19

Tabulated test data for Restricted Band

Remark - "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Total (dBμV/m)

14.7.1.2 Test data for Antenna 1

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode
- Video bandwidth : 3 MHz for Peak and Average Mode
- Measurement distance : 3 m
- Duty Cycle : 93.46 %
- Result : Pass

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Low Channel								
5 650.00	33.02	Peak	H	28.80	5.39	67.21	80.00	12.79
5 710.00	29.96	Peak	H	28.80	5.39	64.15	119.80	55.65
5 715.00	32.84	Peak	H	28.80	5.39	67.03	121.20	54.17
5 725.00	30.50	Peak	H	28.80	5.39	64.69	134.00	69.31
5 724.57	32.05	Peak	H	28.80	5.39	66.24	133.02	66.78
5 650.00	27.06	Peak	V	28.80	5.39	61.25	80.00	18.75
5 710.00	33.78	Peak	V	28.80	5.39	67.97	119.80	51.83
5 715.00	31.61	Peak	V	28.80	5.39	65.80	121.20	55.40
5 725.00	31.46	Peak	V	28.80	5.39	65.65	134.00	68.35
5 720.00	33.10	Peak	V	28.80	5.39	67.29	122.60	55.31
High Channel								
5 850.00	31.97	Peak	H	29.30	5.55	66.82	134.00	67.18
5 855.00	31.27	Peak	H	29.30	5.55	66.12	122.60	56.48
5 875.00	32.76	Peak	H	29.30	5.55	67.61	117.00	49.39
5 925.00	33.18	Peak	H	29.30	5.55	68.03	80.00	11.97
5 889.25	31.89	Peak	H	29.30	5.55	66.74	106.45	39.71
5 850.00	32.88	Peak	V	29.30	5.55	67.73	134.00	66.27
5 855.00	28.64	Peak	V	29.30	5.55	63.49	122.60	59.11
5 875.00	29.33	Peak	V	29.30	5.55	64.18	117.00	52.82
5 925.00	29.44	Peak	V	29.30	5.55	64.29	80.00	15.71
5 917.71	33.22	Peak	V	29.30	5.55	68.07	85.39	17.32

Tabulated test data for Restricted Band

Remark - "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Total (dBμV/m)

14.7.2 Test data for 802.11n_HT20 RLAN Mode

- . Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode
- . Video bandwidth : 3 MHz for Peak and Average Mode
- . Measurement distance : 3 m
- . Duty Cycle : 86.08 %
- . Result : Pass

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Low Channel								
5 650.00	32.06	Peak	H	28.80	5.39	66.25	80.00	13.75
5 710.00	31.80	Peak	H	28.80	5.39	65.99	119.80	53.81
5 715.00	33.86	Peak	H	28.80	5.39	68.05	121.20	53.15
5 725.00	28.24	Peak	H	28.80	5.39	62.43	134.00	71.57
5 723.09	33.87	Peak	H	28.80	5.39	68.06	129.65	61.59
5 650.00	27.94	Peak	V	28.80	5.39	62.13	80.00	17.87
5 710.00	33.64	Peak	V	28.80	5.39	67.83	119.80	51.97
5 715.00	33.09	Peak	V	28.80	5.39	67.28	121.20	53.92
5 725.00	30.53	Peak	V	28.80	5.39	64.72	134.00	69.28
5 724.53	35.20	Peak	V	28.80	5.39	69.39	132.93	63.54
High Channel								
5 850.00	30.28	Peak	H	29.30	5.55	65.13	134.00	68.87
5 855.00	31.85	Peak	H	29.30	5.55	66.70	122.60	55.90
5 875.00	31.14	Peak	H	29.30	5.55	65.99	117.00	51.01
5 925.00	33.89	Peak	H	29.30	5.55	68.74	80.00	11.26
5 889.59	33.00	Peak	H	29.30	5.55	67.85	106.20	38.35
5 850.00	33.20	Peak	V	29.30	5.55	68.05	134.00	65.95
5 855.00	29.76	Peak	V	29.30	5.55	64.61	122.60	57.99
5 875.00	30.19	Peak	V	29.30	5.55	65.04	117.00	51.96
5 925.00	31.04	Peak	V	29.30	5.55	65.89	80.00	14.11
5 903.10	31.52	Peak	V	29.30	5.55	66.37	96.21	29.84

Tabulated test data for Restricted Band

Remark - "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Total (dBμV/m)

14.7.3 Test data for 802.11n_HT40 RLAN Mode

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode
- Video bandwidth : 3 MHz for Peak and Average Mode
- Measurement distance : 3 m
- Duty Cycle : 77.78 %
- Result : Pass

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Low Channel								
5 650.00	32.35	Peak	H	28.80	5.39	66.54	80.00	13.46
5 710.00	30.51	Peak	H	28.80	5.39	64.70	119.80	55.10
5 715.00	31.00	Peak	H	28.80	5.39	65.19	121.20	56.01
5 725.00	27.93	Peak	H	28.80	5.39	62.12	134.00	71.88
5 724.73	32.92	Peak	H	28.80	5.39	67.11	133.38	66.27
5 650.00	28.69	Peak	V	28.80	5.39	62.88	80.00	17.12
5 710.00	33.48	Peak	V	28.80	5.39	67.67	119.80	52.13
5 715.00	31.27	Peak	V	28.80	5.39	65.46	121.20	55.74
5 725.00	31.01	Peak	V	28.80	5.39	65.20	134.00	68.80
5 723.11	33.21	Peak	V	28.80	5.39	67.40	129.69	62.29
High Channel								
5 850.00	30.89	Peak	H	29.30	5.55	65.74	134.00	68.26
5 855.00	33.53	Peak	H	29.30	5.55	68.38	122.60	54.22
5 875.00	31.15	Peak	H	29.30	5.55	66.00	117.00	51.00
5 925.00	31.05	Peak	H	29.30	5.55	65.90	80.00	14.10
5 889.21	33.04	Peak	H	29.30	5.55	67.89	106.48	38.59
5 850.00	33.59	Peak	V	29.30	5.55	68.44	134.00	65.56
5 855.00	30.66	Peak	V	29.30	5.55	65.51	122.60	57.09
5 875.00	31.86	Peak	V	29.30	5.55	66.71	117.00	50.29
5 925.00	29.55	Peak	V	29.30	5.55	64.40	80.00	15.60
5 923.48	30.42	Peak	V	29.30	5.55	65.27	81.12	15.85

Tabulated test data for Restricted Band

Remark - "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Total (dBμV/m)

14.7.4 Test data for 802.11ac_HT80 RLAN Mode

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode
- Video bandwidth : 3 MHz for Peak and Average Mode
- Measurement distance : 3 m
- Duty Cycle : 65.52 %
- Result : Pass

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Middle Channel								
5 650.00	32.77	Peak	H	28.80	5.39	66.96	80.00	13.04
5 710.00	28.32	Peak	H	28.80	5.39	62.51	119.80	57.29
5 715.00	33.60	Peak	H	28.80	5.39	67.79	121.20	53.41
5 725.00	31.13	Peak	H	28.80	5.39	65.32	134.00	68.68
5 724.53	33.38	Peak	H	28.80	5.39	67.57	132.93	65.36
5 650.00	28.82	Peak	V	28.80	5.39	63.01	80.00	16.99
5 710.00	30.52	Peak	V	28.80	5.39	64.71	119.80	55.09
5 715.00	29.93	Peak	V	28.80	5.39	64.12	121.20	57.08
5 725.00	31.83	Peak	V	28.80	5.39	66.02	134.00	67.98
5 724.76	33.11	Peak	V	28.80	5.39	67.30	133.45	66.15
Middle Channel								
5 850.00	30.69	Peak	H	29.30	5.55	65.54	134.00	68.46
5 855.00	32.20	Peak	H	29.30	5.55	67.05	122.60	55.55
5 875.00	32.43	Peak	H	29.30	5.55	67.28	117.00	49.72
5 925.00	34.29	Peak	H	29.30	5.55	69.14	80.00	10.86
5 889.39	32.00	Peak	H	29.30	5.55	66.85	106.35	39.50
5 850.00	30.55	Peak	V	29.30	5.55	65.40	134.00	68.60
5 855.00	30.74	Peak	V	29.30	5.55	65.59	122.60	57.01
5 875.00	30.94	Peak	V	29.30	5.55	65.79	117.00	51.21
5 925.00	31.76	Peak	V	29.30	5.55	66.61	80.00	13.39
5 890.97	33.03	Peak	V	29.30	5.55	67.88	105.18	37.30

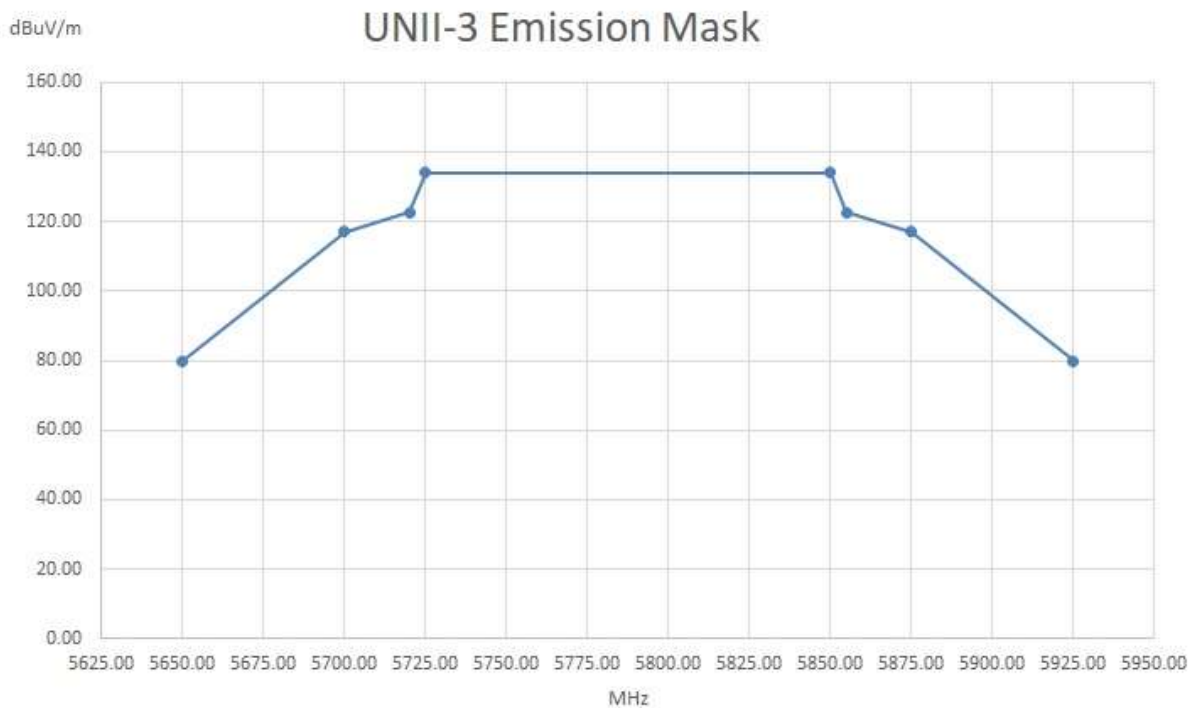
Tabulated test data for Restricted Band

Remark - "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Total (dBμV/m)

14.7.5 U-NII-3 Emission Limits

14.7.5.1 Emission Mask Plots



Remark.

-. Title 47 → Part 15 → Subpart E—UNLICENSED NATIONAL INFORMATION INFRASTRUCTURE DEVICES

§ 15.407 General technical requirements.

(4) For transmitters operating in the 5.725-5.85 GHz band:

(i) All emissions shall be limited to a level of -27 dBm/MHz 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.

15. DYNAMIC FREQUENCY SELECTION (DFS)

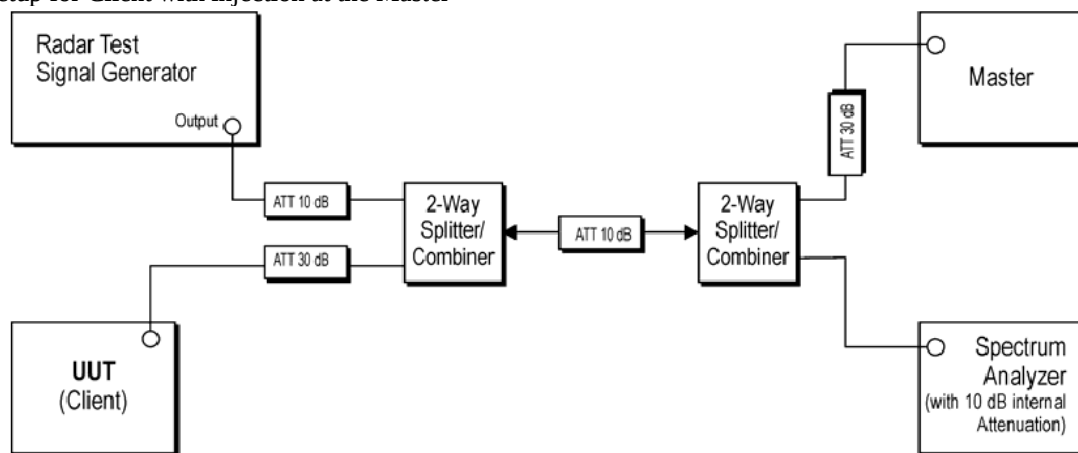
15.1 Operating environment

Temperature : 23 °C
Relative humidity : 45 % R.H.

15.2 Test set-ups

The FCC 06-96 and RSS-210 A9.3 describes a conducted test setup. A conducted test setup was user this testing. Figure 1 shows the typical test setup. Each one channel selected between 5 250 MHz and 5 350 MHz, 5 470 MHz and 5 725 MHz is chosen for the testing.

Figure 1. Setup for Client with injection at the Master



The operational behavior and individual DFS requirements that are associated with these modes are as follows:

<Master Devices>

- The Master Device will use DFS in order to detect Radar Waveforms with received signal strength above the DFS Detection Threshold in the 5 250 – 5 350 MHz and 5 470 – 5 725 MHz bands. DFS is not required in the 5 150 – 5 250 MHz or 5 725 – 5 825 MHz bands.
- Before initiating a network on a Channel, the Master Device will perform a Channel Availability Check for a specified time duration (Channel Availability Check Time) to ensure that there is no radar system operating on the Channel, using DFS described under subsection a) above.
- The Master Device initiates a U-NII network by transmitting control signals that will enable other U-NII devices to Associate with the Master Device.
- During normal operation, the Master Device will monitor the Channel (In-Service Monitoring) to ensure that there is no radar system operating on the Channel, using DFS described under a).
- If the Master Device has detected a Radar Waveform during In-Service Monitoring as described under d), the Operating Channel of the U-NII network is no longer an Available Channel. The Master Device will instruct all associated Client Device(s) to stop transmitting on this Channel within the Channel Move Time. The transmissions during the Channel Move Time will be limited to the Channel Closing Transmission Time.

f) Once the Master Device has detected a Radar Waveform it will not utilize the Channel for the duration of the Non-Occupancy Period. 3

g) If the Master Device delegates the In-Service Monitoring to a Client Device, then the combination will be tested to the requirements described under d) through f) above.

<Client Devices>

a) A Client Device will not transmit before having received appropriate control signals from a Master Device.

b) A Client Device will stop all its transmissions whenever instructed by a Master Device to which it is associated and will meet the Channel Move Time and Channel Closing Transmission Time requirements. The Client Device will not resume any transmissions until it has again received control signals from a Master Device.

c) If a Client Device is performing In-Service Monitoring and detects a Radar Waveform above the DFS Detection Threshold, it will inform the Master Device. This is equivalent to the Master Device detecting the Radar Waveform and d) through f) of section 5.1.1 apply.

d) Irrespective of Client Device or Master Device detection the Channel Move Time and Channel Closing Transmission Time requirements remain the same.

e) The client test frequency must be monitored to ensure no transmission of any type has occurred for 30 minutes. Note: If the client moves with the master, the device is considered compliant if nothing appears in the client non-occupancy period test. For devices that shut down (rather than moving channels), no beacons should appear.

<Channel Connection Information>

a) Master Devices : RF-AX88U

b) Client(=EUT) Devices : WCT731

c) Connect to test channel : See next page for measurement data.

15.3 DFS Test Signals

Table 5 – Short Pulse Radar Test Waveforms

Radar Type	Pulse Width (μsec)	PRI (μsec)	Number of Pulses	Minimum Percentage of Successful Detection	Minimum Number of Trials
0	1	1428	18	See Note 1	See Note 1
1	1	Test A: 15 unique PRI values randomly selected from the list of 23 PRI values in Table 5a	Roundup $\left\{ \left(\frac{1}{360} \right) \cdot \left(\frac{19 \cdot 10^6}{\text{PRI}_{\mu\text{sec}}} \right) \right\}$	60%	30
		Test B: 15 unique PRI values randomly selected within the range of 518-3066 μsec, with a minimum increment of 1 μsec, excluding PRI values selected in Test A			
2	1-5	150-230	23-29	60%	30
3	6-10	200-500	16-18	60%	30
4	11-20	200-500	12-16	60%	30
Aggregate (Radar Types 1-4)				80%	120

Table 6 – Long Pulse Radar Test Waveform

Radar Type	Pulse Width (μsec)	Chirp Width (MHz)	PRI (μsec)	Number of Pulses per Burst	Number of Bursts	Minimum Percentage of Successful Detection	Minimum Number of Trials
5	50-100	5-20	1000-2000	1-3	8-20	80%	30

15.4 Technical Requirement Specification

Table 1: Applicability of DFS Requirements Prior to Use of a Channel

Requirement	Operational Mode		
	Master	Client (without DFS)	Client (with DFS)
<i>Non-Occupancy Period</i>	Yes	Not required	Yes
<i>DFS Detection Threshold</i>	Yes	Not required	Yes
<i>Channel Availability Check Time</i>	Yes	Not required	Not required
<i>Uniform Spreading</i>	Yes	Not required	Not required
<i>U-NII Detection Bandwidth</i>	Yes	Not required	Yes

Table 2: Applicability of DFS requirements during normal operation

Requirement	Operational Mode		
	Master	Client (without DFS)	Client (with DFS)
<i>DFS Detection Threshold</i>	Yes	Not required	Yes
<i>Channel Closing Transmission Time</i>	Yes	Yes	Yes
<i>Channel Move Time</i>	Yes	Yes	Yes
<i>U-NII Detection Bandwidth</i>	Yes	Not required	Yes

15.5 Test Date

September 07, 2020 ~ September 11, 2020

15.6 Test data

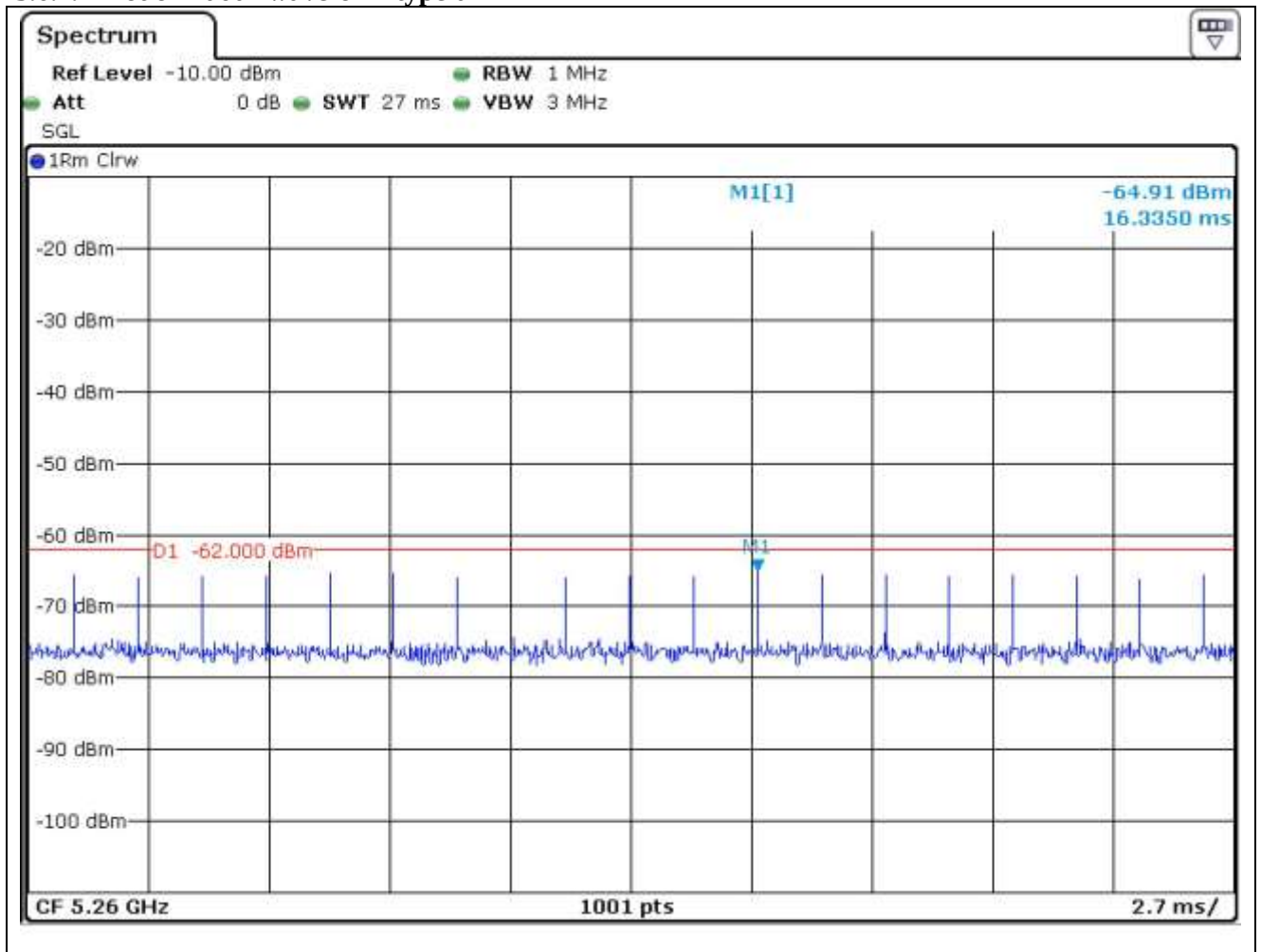
Band	Frequency (MHz)	Channel move time(s)		Channel closing transmission time(ms)	
		Measured	Limit	Measured	Limit
UNII 2A	5 260.00	0.070	10.00	0.40	200 milliseconds + an aggregate of 60 milliseconds over remaining 10 second period.
UNII 2C	5 500.00	0.140		0.60	

Note. Channel closing transmission time: 2 * 0.2 ms = 0.40 ms, 3 * 0.2 ms = 0.60 ms

Note. This device is not Support TPC.

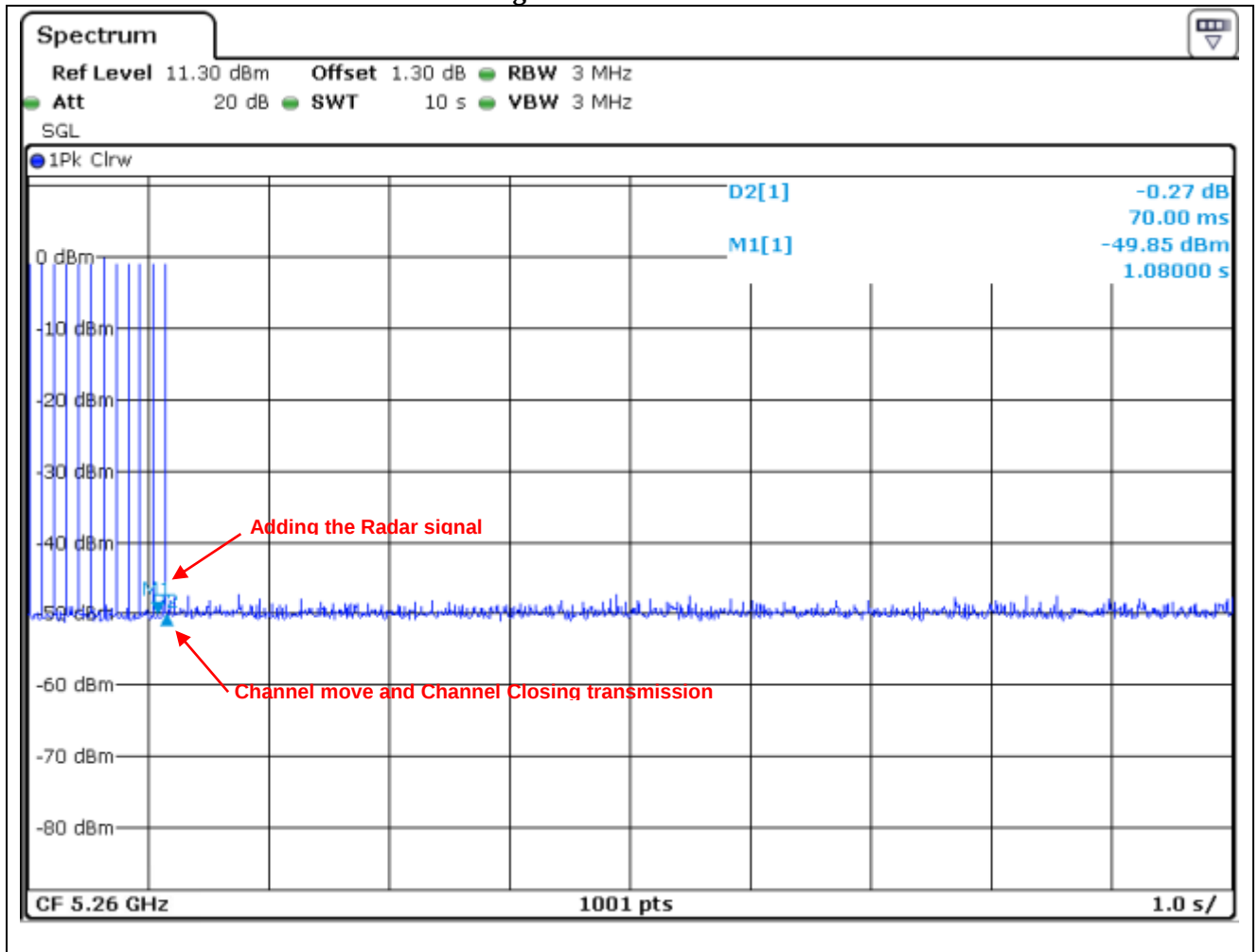
15.6.1 UNII 2A

15.6.1.1 Plot of Radar waveform type 0



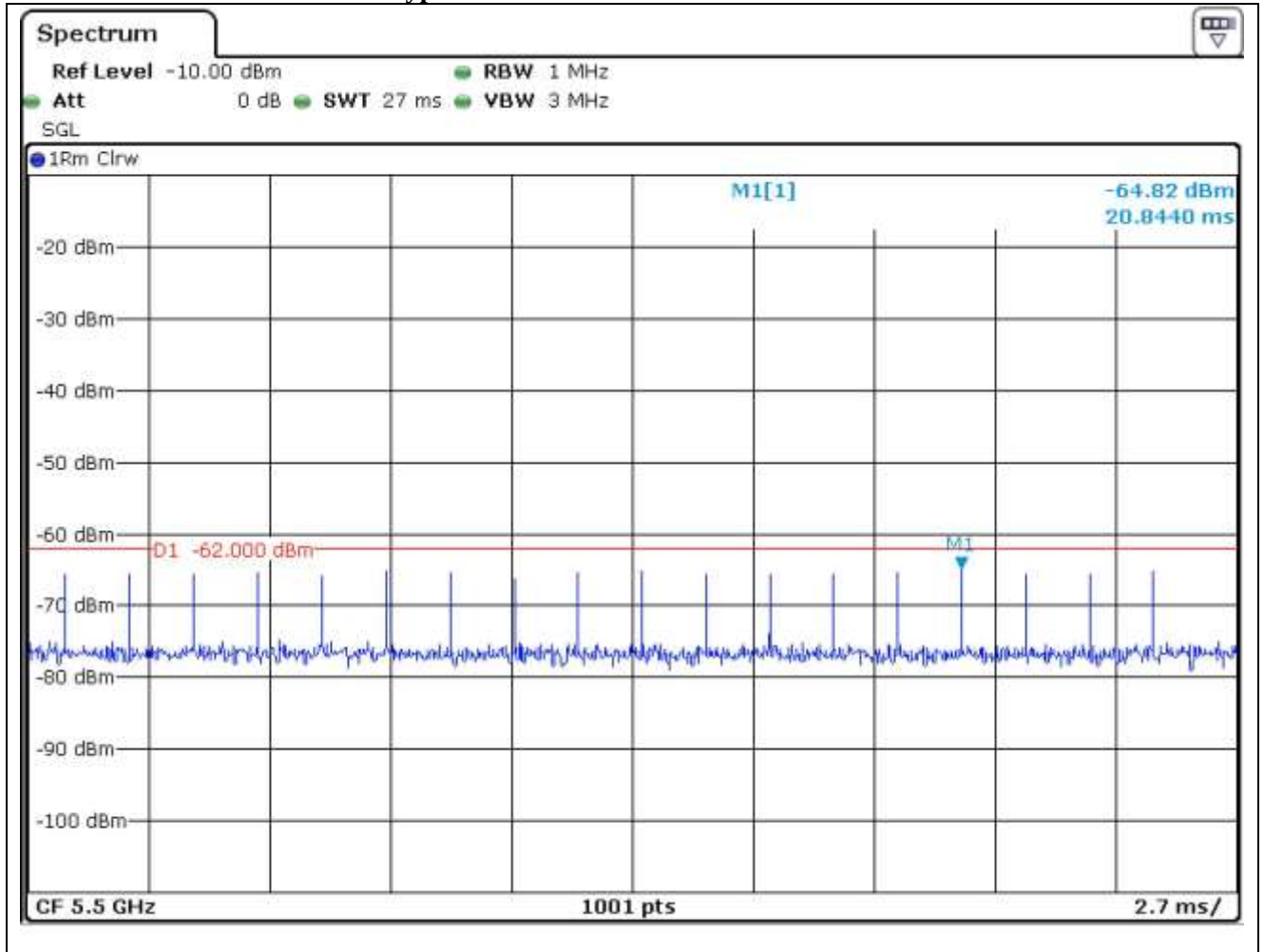
Note: The calibrated conducted DFS detection threshold level is set to -64.91 dBm ($-62+1-2.10=-63.10$ dBm)

15.6.1.2 Channel move and Channel Closing transmission time



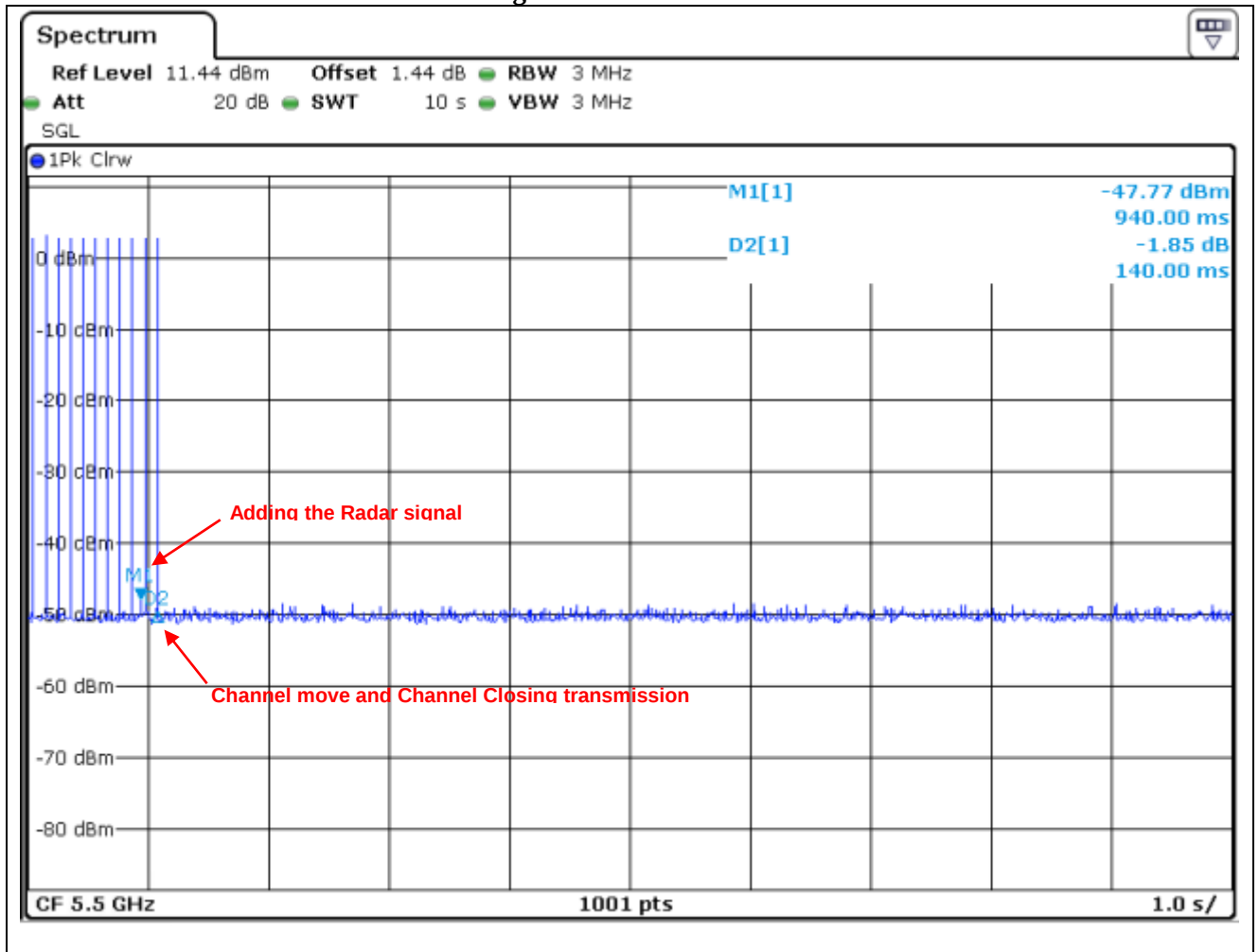
15.6.2 UNII 3

15.6.2.1 Plot of Radar waveform type 1



Note: The calibrated conducted DFS detection threshold level is set to -64.82 dBm ($-62+1-2.64=-63.64$ dBm)

15.6.2.2 Channel move and Channel Closing transmission time



16. LIST OF TEST EQUIPMENT

Model Number	Manufacturer	Description	Serial Number	Last Cal.(Interval)
FSV40-N	Rohde & Schwarz	Signal Analyzer	102177	Apr. 20, 2020 (1Y)
NRP-Z81	Rohde & Schwarz	Wide band Sensor	101975	Feb. 19, 2020 (1Y)
SSE-43CI-A	Samkun Tech	Humidity Chamber	60712	Feb. 21, 2020 (1Y)
E3632A	FinePower	DC Power supply	MY50370016	Feb. 19, 2020 (1Y)
ESW	Rohde & Schwarz	EMI Test Receiver	101851	Mar. 27, 2020 (1Y)
310N	Sonoma Instrument	Pre-Amplifier	312544	Mar. 16, 2020 (1Y)
BBV 9718 B	Schwarzbeck	Broadband Preamplifier	00009	Mar. 16, 2020 (1Y)
SCU40A	Rohde & Schwarz	Signal Conditioning unit	100436	Feb. 20, 2020 (1Y)
SCU18	Rohde & Schwarz	Signal Conditioning unit	102266	Jul. 15, 2020 (1Y)
DT3000-3t	Innco System	Turn Table	DT3000/093	N/A
MA-4000XPET	Innco System	Antenna Master	MA4000/509	N/A
VULB9163	Schwarzbeck	TRILOG Broadband Antenna	777	Apr. 08, 2020 (2Y)
BBHA 9120D	Schwarzbeck	Horn Antenna	9120D-1366	Jul. 23, 2020 (1Y)
BBHA9170	Schwarzbeck	Horn Antenna	BBHA9170178	Jan. 07, 2020(1Y)
ESCI	Rohde & Schwarz	Test Receiver	101012	Oct. 22, 2019 (1Y)
NSLK8126	Schwarzbeck	AMN	8126-404	Mar. 16, 2020 (1Y)
3825/2	EMCO	AMN	9109-1869	Mar. 16, 2020 (1Y)
D-05180-2	RLC Electronis Inc.	Combiner	0813	N/A
11636B	Hewlett Packard	Combiner	12268	N/A
SMBV100A	R/S	Signal Generator	260423	Feb. 21, 2020 (1Y)
RF-AX88U	ASUS	Dual Band Gigabit Router	NA	N/A

Note. Dual Band Gigabit Router(Model : RF-AX88U) Information.

; FCC ID : MSQ-RTAXHP00, IC ID : 3568A-RTAXHP00

Note. This Device not support TPC Function.

All test equipment used is calibrated on a regular basis.