

## 5.4 Peak Power Spectral Density

### 5.4.1 Regulation

According to §15.407 (a)(1)(ii) the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band.

According to §15.407(a)(3) the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band.

If transmitting antennas of directional gain greater than 6 dBi are used, the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

### 5.4.2 Measurement Procedure

These test measurement settings are specified in section F of 789033 D02 General UNII Test Procedures New Rules v01.

#### 5.4.2.1 Maximum power spectral density (PSD)

1. Create an average power spectrum for the EUT operating mode being tested by following the instructions in section II.E.2. for measuring maximum conducted output power using a spectrum analyzer or EMI receiver: select the appropriate test method (SA-1, SA-2, SA-3, or alternatives to each) and apply it up to, but not including, the step labeled, "Compute power...". (This procedure is required even if the maximum conducted output power measurement was performed using a power meter, method PM.)
2. Use the peak search function on the instrument to find the peak of the spectrum and record its value.
3. Make the following adjustments to the peak value of the spectrum, if applicable:
  - a) If Method SA-2 or SA-2 Alternative was used, add  $10 \log(1/x)$ , where  $x$  is the duty cycle, to the peak of the spectrum.
  - b) If Method SA-3 Alternative was used and the linear mode was used in step II.E.2.g)(viii), add 1 dB to the final result to compensate for the difference between linear averaging and power averaging.
4. The result is the Maximum PSD over 1 MHz reference bandwidth.
5. For devices operating in the bands 5.15-5.25 GHz, 5.25-5.35 GHz, and 5.47-5.725 GHz, the above procedures make use of 1 MHz RBW to satisfy directly the 1 MHz reference bandwidth specified in § 15.407(a)(5). For devices operating in the band 5.725-5.85 GHz, the rules specify a measurement bandwidth of 500 kHz. Many spectrum analyzers do not have 500 kHz RBW, thus a narrower RBW may need to be used. The rules permit the use of a RBWs less than 1 MHz, or 500 kHz, "provided that the measured power is integrated over the full reference bandwidth" to show the total power over the specified measurement bandwidth (i.e., 1 MHz, or 500 kHz). If measurements are performed using a reduced resolution bandwidth ( $< 1$  MHz, or  $< 500$  kHz) and integrated over 1 MHz, or 500 kHz bandwidth, the following adjustments to the procedures apply: a) Set  $RBW \geq 1/T$ , where  $T$  is defined in section II.B.1.a).

- b) Set  $VBW \geq 3$  RBW.
- c) If measurement bandwidth of Maximum PSD is specified in 500 kHz, add  $10\log(500\text{kHz}/\text{RBW})$  to the measured result, whereas RBW ( $< 500$  kHz) is the reduced resolution bandwidth of the spectrum analyzer set during measurement.
- d) If measurement bandwidth of Maximum PSD is specified in 1 MHz, add  $10\log(1\text{MHz}/\text{RBW})$  to the measured result, whereas RBW ( $< 1$  MHz) is the reduced resolution bandwidth of spectrum analyzer set during measurement.
- e) Care must be taken to ensure that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.

Note: As a practical matter, it is recommended to use reduced RBW of 100 kHz for the sections 5.c) and 5.d) above, since RBW=100 kHz is available on nearly all spectrum analyzers.

### 5.4.3 Test Result

-Complied

5 150 Band

\*802.11a\_Ant1

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 180	-0.79	-	-	1.50	0.19	0.90	30.00	29.10
5 200	-0.60	-	-	1.50	0.19	1.09	30.00	28.91
5 240	-1.87	-	-	1.50	0.19	-0.18	30.00	30.18

\*802.11a\_Ant 2

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 180	-	-1.85	-	1.50	0.19	-0.16	30.00	30.16
5 200	-	-2.07	-	1.50	0.19	-0.38	30.00	30.38
5 240	-	-1.90	-	1.50	0.19	-0.21	30.00	30.21

\*802.11a\_Ant 3

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 180	-	-	-0.78	1.50	0.19	0.91	30.00	29.09
5 200	-	-	-1.41	1.50	0.19	0.28	30.00	29.72
5 240	-	-	-2.04	1.50	0.19	-0.35	30.00	30.35

\*802.11an20\_Ant 1

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 180	-0.15	-	-	1.50	0.19	1.54	30.00	28.46
5 200	0.42	-	-	1.50	0.19	2.11	30.00	27.89
5 240	-0.33	-	-	1.50	0.19	1.36	30.00	28.64

\*802.11an20\_Ant 2

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 180	-	-0.57	-	1.50	0.19	1.12	30.00	28.88
5 200	-	0.96	-	1.50	0.19	2.65	30.00	27.35
5 240	-	-0.54	-	1.50	0.19	1.15	30.00	28.85

\*802.11an20\_Ant 3

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5180	-	-	-0.33	1.50	0.19	1.36	30.00	28.64
5200	-	-	-0.16	1.50	0.19	1.53	30.00	28.47
5240	-	-	0.15	1.50	0.19	1.84	30.00	28.16

\*802.11an20\_Ant 1+2

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 180	-4.13	-5.36	-	1.50	0.54	4.34	28.3 4	24.0 0
5 200	-6.21	-5.71	-	1.50	0.54	4.06	28.3 4	24.2 8
5 240	-5.68	-6.87	-	1.50	0.54	4.00	28.3 4	24.3 4

\*802.11an20\_Ant 2+3

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 180	-	-5.18	-5.11	1.50	0.54	4.23	28.3 4	24.1 1
5 200	-	-6.82	-6.66	1.50	0.54	3.91	28.3 4	24.4 3
5 240	-	-6.39	-6.81	1.50	0.54	3.93	28.3 4	24.4 1

\*802.11an20\_Ant 1+3

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 180	-5.48	-	-5.24	1.50	0.54	4.18	28.3 4	24.1 6
5 200	-5.81	-	-5.88	1.50	0.54	4.08	28.3 4	24.2 6
5 240	-6.04	-	-5.91	1.50	0.54	4.05	28.3 4	24.2 9

\*802.11an20\_Ant 1+2+3

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 180	-5.51	-4.68	-4.58	1.50	0.55	4.80	26.5 8	21.7 8
5 200	-5.73	-5.00	-4.47	1.50	0.55	5.71	26.5 8	20.8 7
5 240	-5.33	-5.06	-5.88	1.50	0.55	5.63	26.5 8	20.9 5

\*802.11an40\_Ant 1

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 190	-4.66	-	-	1.50	0.38	-2.78	30.00	32.78
5 320	-4.83	-	-	1.50	0.38	-2.95	30.00	32.95

\*802.11an40\_Ant 2

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 190	-	-5.78	-	1.50	0.38	-3.90	30.00	33.90
5 320	-	-4.09	-	1.50	0.38	-2.21	30.00	32.21

\*802.11an40\_Ant 3

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 190	-	-	-4.61	1.50	0.38	-2.73	30.00	32.73
5 320	-	-	-4.79	1.50	0.38	-2.91	30.00	32.91

\*802.11an40\_Ant1+2

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 190	-11.77	-136.90	-	1.50	0.99	4.07	28.34	24.27
5 320	-13.80	-12.60	-	1.50	0.99	4.12	28.34	24.22

\*802.11an40\_Ant2+3

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 190	-	-13.45	-13.38	1.50	0.99	4.12	28.34	24.22
5 320	-	-12.23	-13.95	1.50	0.99	4.13	28.34	24.21

\*802.11an40\_Ant1+3

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 190	-12.84	-	-13.27	1.50	0.99	4.13	28.34	24.21
5 320	-14.92	-	-14.04	1.50	0.99	4.08	28.34	24.26

\*802.11an40\_Ant1+2+3

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 190	-11.24	-11.91	-12.67	1.50	1.02	4.33	26.58	22.25
5 320	-12.52	-13.29	-12.47	1.50	1.02	4.28	26.58	22.30

\*802.11ac20\_Ant1

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 180	1.02	-	-	1.50	0.03	2.55	30.00	27.45
5 200	0.85	-	-	1.50	0.03	2.38	30.00	27.62
5 240	0.77	-	-	1.50	0.03	2.30	30.00	27.70

\*802.11ac20\_Ant 2

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 180	-	0.98	-	1.50	0.03	2.51	30.00	27.49
5 200	-	1.05	-	1.50	0.03	2.58	30.00	27.42
5 240	-	0.67	-	1.50	0.03	2.20	30.00	27.80

\*802.11ac20\_Ant 3

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 180	-	-	0.55	1.50	0.03	2.08	30.00	27.92
5 200	-	-	0.80	1.50	0.03	2.33	30.00	27.67
5 240	-	-	0.66	1.50	0.03	2.19	30.00	27.81



\*802.11ac20\_Ant 1+2

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 180	-6.49	-6.01	-	1.50	0.51	3.96	28.34	24.38
5 200	-6.77	-6.54	-	1.50	0.51	3.88	28.34	24.46
5 240	-6.39	-6.72	-	1.50	0.51	3.90	28.34	24.44

\*802.11ac20\_Ant 2+3

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 180	-	-6.95	-6.41	1.50	0.51	3.88	28.34	24.46
5 200	-	-6.37	-6.97	1.50	0.51	3.88	28.34	24.46
5 240	-	-6.79	-7.34	1.50	0.51	3.81	28.34	24.53

\*802.11ac20\_Ant 1+3

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 180	-5.51	-	-5.75	1.50	0.51	4.08	28.34	24.26
5 200	-7.03	-	-5.09	1.50	0.51	4.02	28.34	24.32
5 240	-5.97	-	-6.75	1.50	0.51	3.94	28.34	24.40

\*802.11ac20\_Ant 1+2+3

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 180	-2.35	-2.00	-2.35	1.50	0.12	5.34	26.58	21.24
5 200	-2.58	-2.21	-2.70	1.50	0.12	5.22	26.58	21.36
5 240	-2.58	-2.88	-2.59	1.50	0.12	5.11	26.58	21.47

\*802.11ac40\_Ant 1

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 190	-1.31	-	-	1.50	0.09	0.28	30.00	29.72
5 320	-1.27	-	-	1.50	0.09	0.32	30.00	29.68

\*802.11ac40\_Ant 2

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 190	-	-1.51	-	1.50	0.09	0.08	30.00	29.92
5 320	-	-1.46	-	1.50	0.09	0.13	30.00	29.87

\*802.11ac40\_Ant 3

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 190	-	-	-1.18	1.50	0.09	0.41	30.00	29.59
5 320	-	-	-1.71	1.50	0.09	-0.12	30.00	30.12

\*802.11ac40\_Ant1+2

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 190	-13.70	-13.96	-	1.50	0.97	4.08	28.34	24.26
5 320	-13.25	-13.28	-	1.50	0.97	4.10	28.34	24.24

\*802.11ac40\_Ant2+3

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 190	-	-13.73	-13.86	1.50	0.97	4.08	28.34	24.26
5 320	-	-13.76	-12.75	1.50	0.97	4.10	28.34	24.24

\*802.11ac40\_Ant1+3

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 190	-13.74	-	-13.83	1.50	0.97	4.08	28.34	24.26
5 320	-14.53	-	-14.36	1.50	0.97	4.06	28.34	24.28

\*802.11ac40\_Ant1+2+3

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 190	-6.85	-6.73	-6.37	1.50	0.30	3.90	26.58	22.68
5 320	-6.65	-7.17	-7.09	1.50	0.30	3.82	26.58	22.76

\*802.11ac80\_Ant1

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 210	8.55	-	-	1.50	0.20	10.25	30.00	19.75

\*802.11ac80\_Ant2

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 210	-	-8.48	-	1.50	0.20	-6.78	30.00	36.78

\*802.11ac80\_Ant3

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 210	-	-	-8.25	1.50	0.20	-6.55	30.00	36.55

\*802.11ac80\_Ant1+2

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 210	-21.08	-20.76	-	1.50	1.72	5.11	28.34	23.23

\*802.11ac80\_Ant2+3

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 210	-	-21.06	-20.83	1.50	1.72	5.11	28.34	23.23

\*802.11ac80\_Ant1+3

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 210	-19.20	-	-20.56	1.50	1.72	5.11	28.34	23.23

\*802.11ac80\_Ant1+2+3

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 210	-11.35	-12.94	-12.10	1.50	0.55	3.51	26.58	23.07

**-5 725 Band**

\*802.11a\_Ant 1

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 745	0.90	-	-	1.50	0.18	2.58	30.00	27.42
5 785	1.27	-	-	1.50	0.18	2.95	30.00	27.05
5 825	1.56	-	-	1.50	0.18	3.24	30.00	26.76

\*802.11a\_Ant 2

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 745	-	1.43	-	1.50	0.18	3.11	30.00	26.89
5 785	-	1.51	-	1.50	0.18	3.19	30.00	26.81
5 825	-	1.27	-	1.50	0.18	2.95	30.00	27.05

\*802.11a\_Ant 3

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 745	-	-	1.83	1.50	0.18	3.51	30.00	26.49
5 785	-	-	0.43	1.50	0.18	2.11	30.00	27.89
5 825	-	-	1.91	1.50	0.18	3.59	30.00	26.41

\*802.11an20\_Ant 1

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 745	0.52	-	-	1.50	0.17	2.19	30.00	27.81
5 785	0.22	-	-	1.50	0.17	1.89	30.00	28.11
5 825	0.43	-	-	1.50	0.17	2.10	30.00	27.90

\*802.11an20\_Ant 2

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 745	-	0.01	-	1.50	0.17	1.68	30.00	28.32
5 785	-	0.91	-	1.50	0.17	2.58	30.00	27.42
5 825	-	-0.51	-	1.50	0.17	1.16	30.00	28.84

\*802.11an20\_Ant 3

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 745	-	-	0.47	1.50	0.17	2.14	30.00	27.86
5 785	-	-	0.64	1.50	0.17	2.31	30.00	27.69
5 825	-	-	0.73	1.50	0.17	2.40	30.00	27.60

\*802.11an20\_Ant 1+2

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 745	-4.32	-5.80	-	1.50	0.53	4.25	28.35	24.10
5 785	-6.75	-5.73	-	1.50	0.53	3.99	28.35	24.36
5 825	-5.74	-5.62	-	1.50	0.53	4.10	28.35	24.25

\*802.11an20\_Ant 2+3

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 745	-	-6.78	-5.97	1.50	0.53	3.96	28.35	24.39
5 785	-	-5.94	-5.61	1.50	0.53	4.08	28.35	24.27
5 825	-	-3.58	-5.47	1.50	0.53	4.39	28.35	23.96

\*802.11an20\_Ant 1+3

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 745	-6.36	-	-5.82	1.50	0.53	4.02	28.35	24.33
5 785	-6.09	-	-7.10	1.50	0.53	3.93	28.35	24.42
5 825	-6.77	-	-5.47	1.50	0.53	4.02	28.35	24.33

\*802.11an20\_Ant 1+2+3

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 745	-4.91	-5.70	-5.14	1.50	0.54	4.69	26.59	21.90
5 785	-5.21	-4.14	-5.73	1.50	0.54	4.77	26.59	21.82
5 825	-5.08	-5.77	-5.73	1.50	0.54	4.60	26.59	21.99

\*802.11an40\_Ant 1

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 755	-5.42	-	-	1.50	0.39	-3.53	30.00	33.53
5 795	-4.93	-	-	1.50	0.39	-3.04	30.00	33.04

\*802.11an40\_Ant 2

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 755	-	-5.50	-	1.50	0.39	-3.61	30.00	33.61
5 795	-	-5.82	-	1.50	0.39	-3.93	30.00	33.93

\*802.11an40\_Ant 3

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 755	-	-	-4.39	1.50	0.39	-2.50	30.00	32.50
5 795	-	-	-5.70	1.50	0.39	-3.81	30.00	33.81

\*802.11an40\_Ant 1+2

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 755	-15.32	-14.92	-	1.50	0.99	4.07	28.35	24.28
5 795	-13.26	-13.33	-	1.50	0.99	4.12	28.35	24.23

\*802.11an40\_Ant 2+3

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 755	-	-14.31	-13.93	1.50	0.99	4.09	28.35	24.26
5 795	-	-14.11	-11.48	1.50	0.99	4.15	28.35	24.20

\*802.11an40\_Ant 1+3

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 755	-13.25	-	-13.90	1.50	0.99	4.11	28.35	24.24
5 795	-13.70	-	-12.44	1.50	0.99	4.13	28.35	24.22



\*802.11an40\_Ant 1+2+3

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 755	-11.82	-11.81	-13.38	1.50	1.04	4.34	26.59	22.25
5 795	-12.35	-13.00	-12.89	1.50	1.04	4.31	26.59	22.28

\*802.11ac20\_Ant 1

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 745	0.35	-	-	1.50	0.02	1.87	30.00	28.13
5 785	1.04	-	-	1.50	0.02	2.56	30.00	27.44
5 825	1.17	-	-	1.50	0.02	2.69	30.00	27.31

\*802.11ac20\_Ant 2

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 745	-	0.50	-	1.50	0.02	2.02	30.00	27.98
5 785	-	0.64	-	1.50	0.02	2.16	30.00	27.84
5 825	-	1.08	-	1.50	0.02	2.60	30.00	27.40

\*802.11ac20\_Ant 3

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 745	-	-	0.39	1.50	0.02	1.91	30.00	28.09
5 785	-	-	1.04	1.50	0.02	2.56	30.00	27.44
5 825	-	-	1.02	1.50	0.02	2.54	30.00	27.46

\*802.11ac20\_Ant 1+2

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 745	-7.53	-8.03	-	1.50	0.50	3.68	28.35	24.67
5 785	-5.95	-6.13	-	1.50	0.50	3.98	28.35	24.37
5 825	-6.50	-7.03	-	1.50	0.50	3.84	28.35	24.51

\*802.11ac20\_Ant 2+3

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 745	-	-6.41	-7.39	1.50	0.50	3.82	28.35	24.53
5 785	-	-7.01	-6.63	1.50	0.50	3.83	28.35	24.52
5 825	-	-6.54	-6.43	1.50	0.50	3.89	28.35	24.46

\*802.11ac20\_Ant 1+3

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5745	-6.26	-	-7.17	1.50	0.50	3.86	28.35	24.49
5785	-6.63	-	-6.89	1.50	0.50	3.84	28.35	24.51
5825	-6.68	-	-6.31	1.50	0.50	3.89	28.35	24.46

\*802.11ac20\_Ant 1+2+3

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5745	-2.43	-2.89	-2.99	1.50	0.12	5.16	26.59	21.43
5785	-2.41	-2.86	-2.48	1.50	0.12	5.17	26.59	21.42
5825	-2.32	-2.53	-2.47	1.50	0.12	5.26	26.59	21.33

\*802.11ac40\_Ant 1

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 755	-2.54	-	-	1.50	0.07	-0.97	30.00	30.97
5 795	-1.53	-	-	1.50	0.07	0.04	30.00	29.96

\*802.11ac40\_Ant 2

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 755	-	-2.44	-	1.50	0.07	-0.87	30.00	30.87
5 795	-	-1.41	-	1.50	0.07	0.16	30.00	29.84

\*802.11ac40\_Ant 3

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5755	-	-	-1.65	1.50	0.07	-0.08	30.00	30.08
5795	-	-	-1.38	1.50	0.07	0.19	30.00	29.81

\*802.11ac40\_Ant 1+2

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 755	-12.71	-13.19	-	1.50	0.99	4.14	28.35	24.21
5 795	-12.72	-14.24	-	1.50	0.99	4.12	28.35	24.23

\*802.11ac40\_Ant 2+3

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 755	-	-13.35	-13.45	1.50	0.99	4.12	28.35	24.23
5 795	-	-12.79	-12.84	1.50	0.99	4.14	28.35	24.21

\*802.11ac40\_Ant 1+3

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 755	-13.74	-	-13.87	1.50	0.99	4.11	28.35	24.24
5 795	-13.31	-	-12.10	1.50	0.99	4.15	28.35	24.20

\*802.11ac40\_Ant 1+2+3

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 755	-7.44	-7.45	-7.82	1.50	0.26	4.02	26.59	22.57
5 795	-6.98	-7.15	-6.51	1.50	0.26	4.94	26.59	21.65

\*802.11ac80\_Ant 1

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 765	-7.63	-	-	1.50	0.22	-5.91	30.00	35.91

\*802.11ac80\_Ant 2

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 765	-	-8.00	-	1.50	0.22	-6.28	30.00	36.28

\*802.11ac80\_Ant 3

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 765	-	-	-7.73	1.50	0.22	-6.01	30.00	36.01

\*802.11ac80\_Ant 1+2

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 210	-22.14	-21.27	-	1.50	1.69	5.06	28.35	23.29

\*802.11ac80\_Ant 2+3

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 210	-20.27	-20.57	-	1.50	1.69	5.07	28.35	23.28

\*802.11ac80\_Ant 1+3

Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 210	-21.67	-21.96	-	1.50	1.69	5.06	28.35	23.29

\*802.11ac80\_Ant 1+2+3

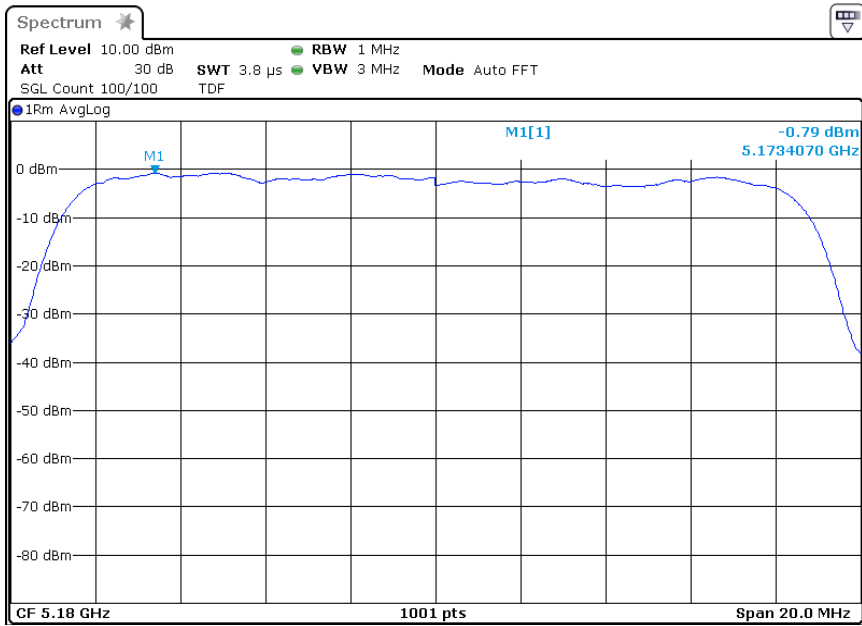
Freq [MHz]	Result [dBm] Ant1	Result [dBm] Ant2	Result [dBm] Ant3	CL	Duty Factor	Result	Limit [dBm]	Margin [dBm]
5 210	-12.66	-11.47	-12.46	1.50	0.48	3.35	26.59	23.24

### 5.4.4 Test Plot

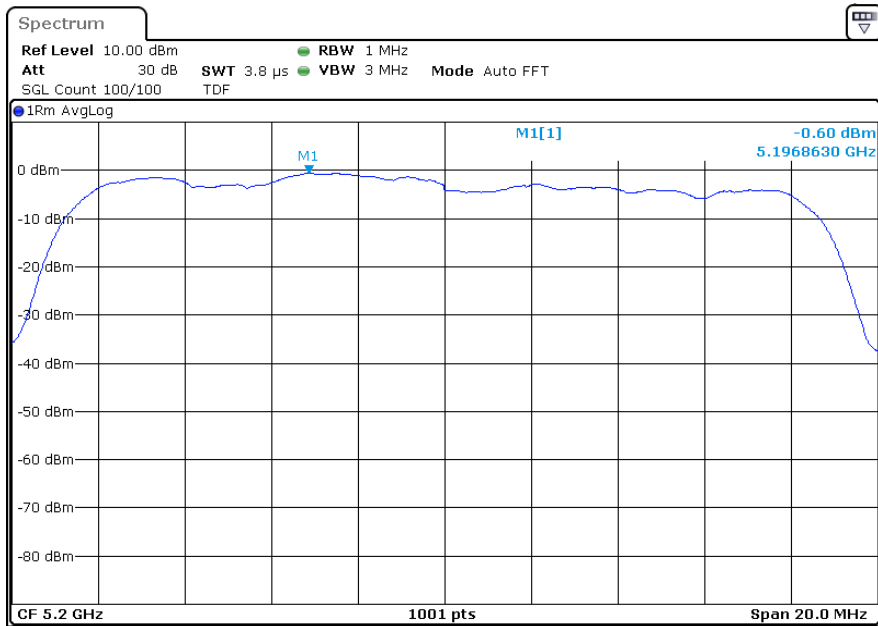
Figure 2. Plot of the Power Spectral Density

\* 5 150 Band

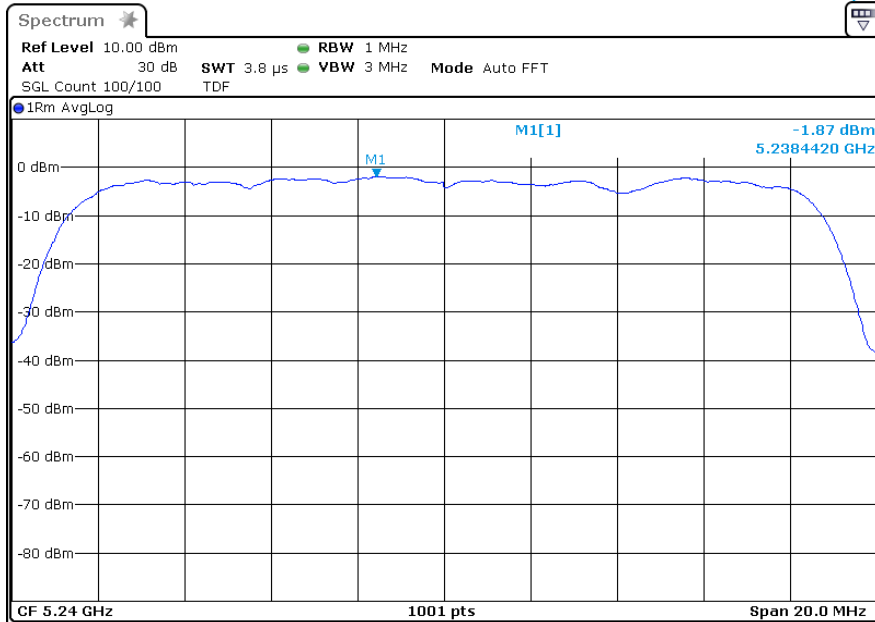
-802.11a\_ANT1  
 5 180 Mhz



5 200 Mhz

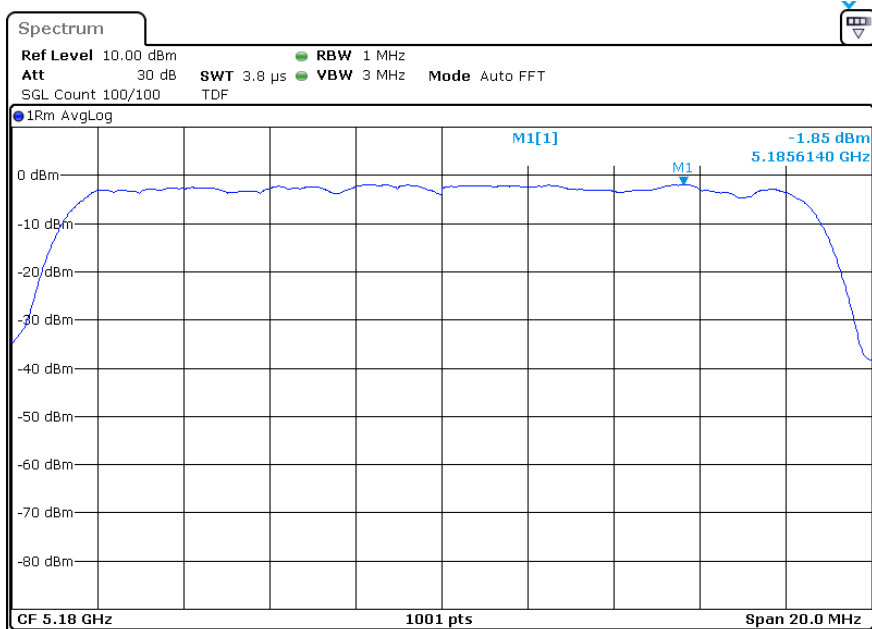


5 240 MHz

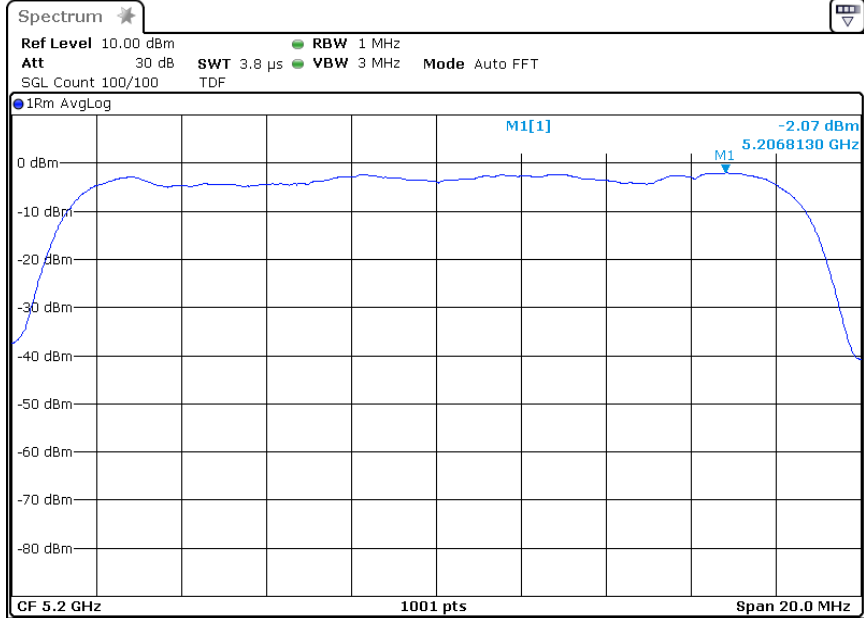


-802.11a\_ANT2

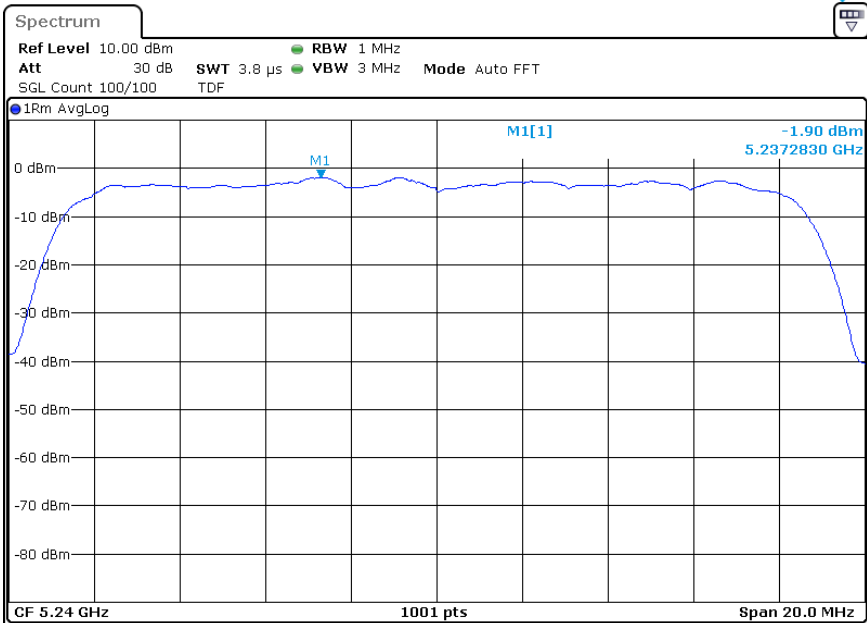
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5 200 MHz



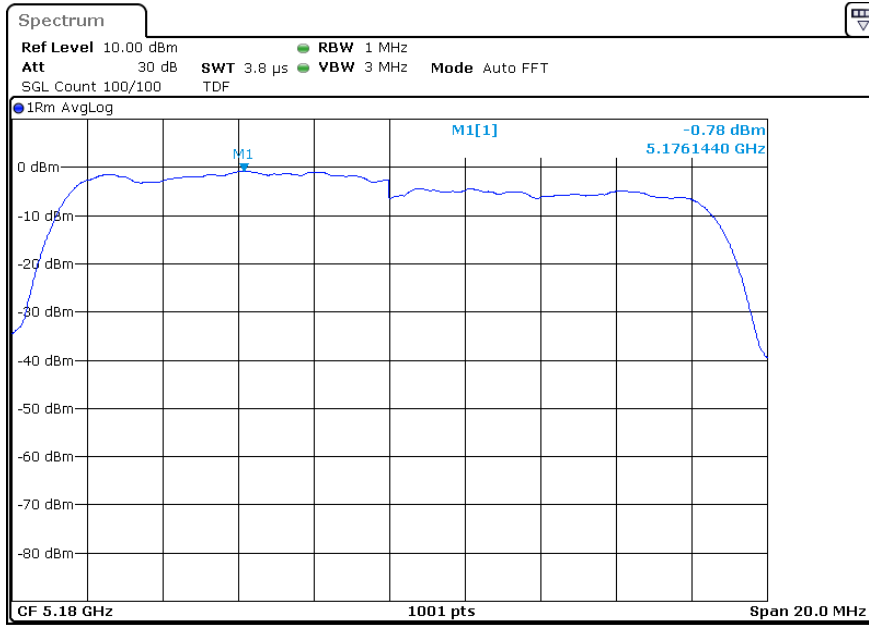
5 240 MHz



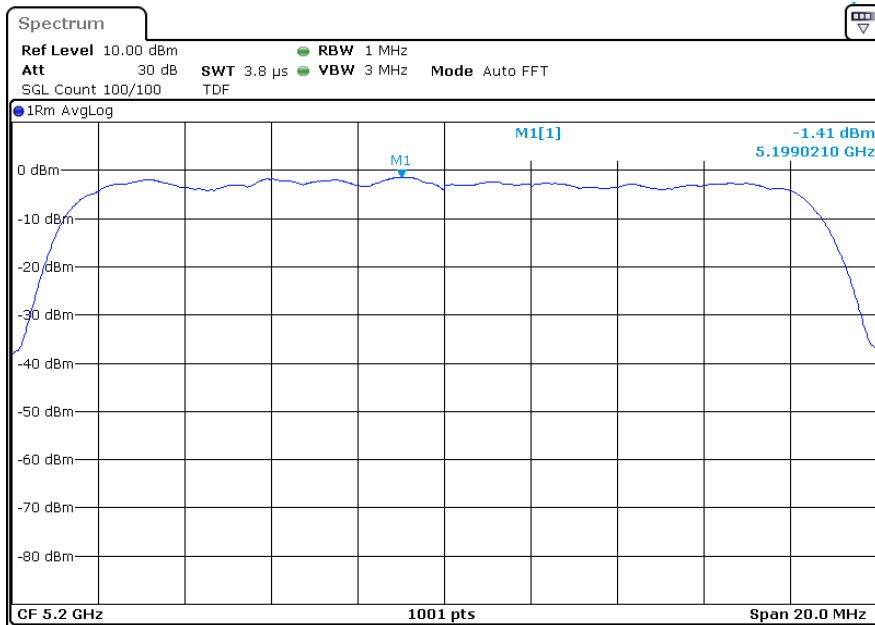


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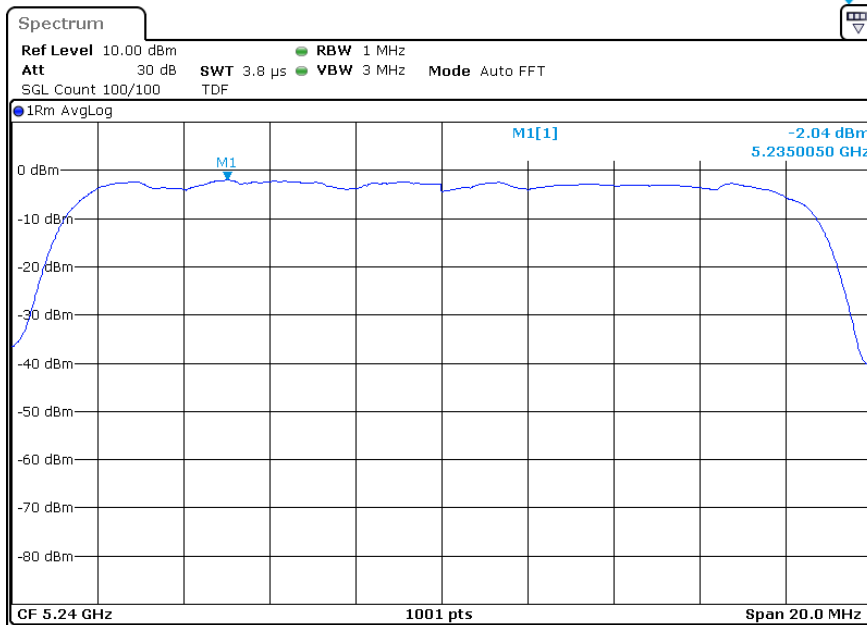
5 180 MHz



5 200 MHz

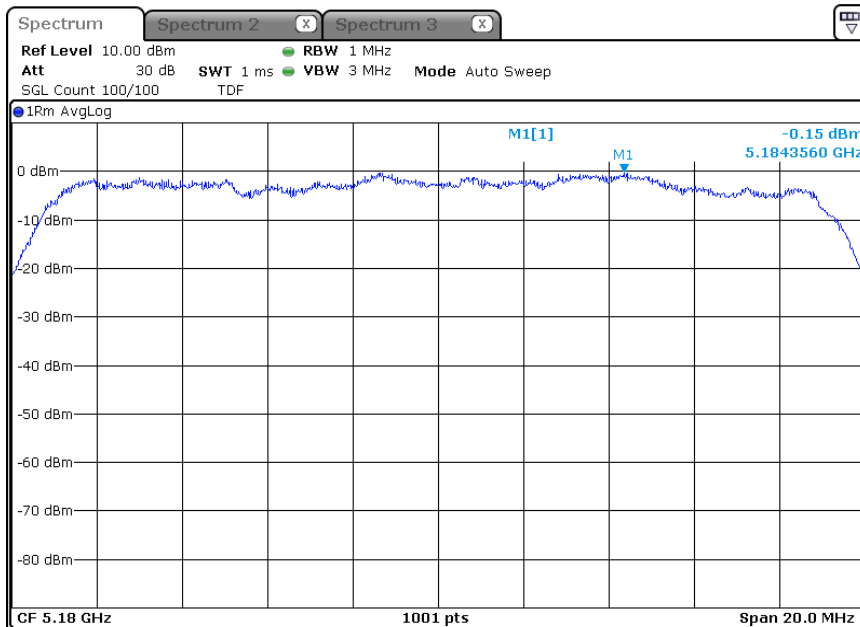


5 240 MHz

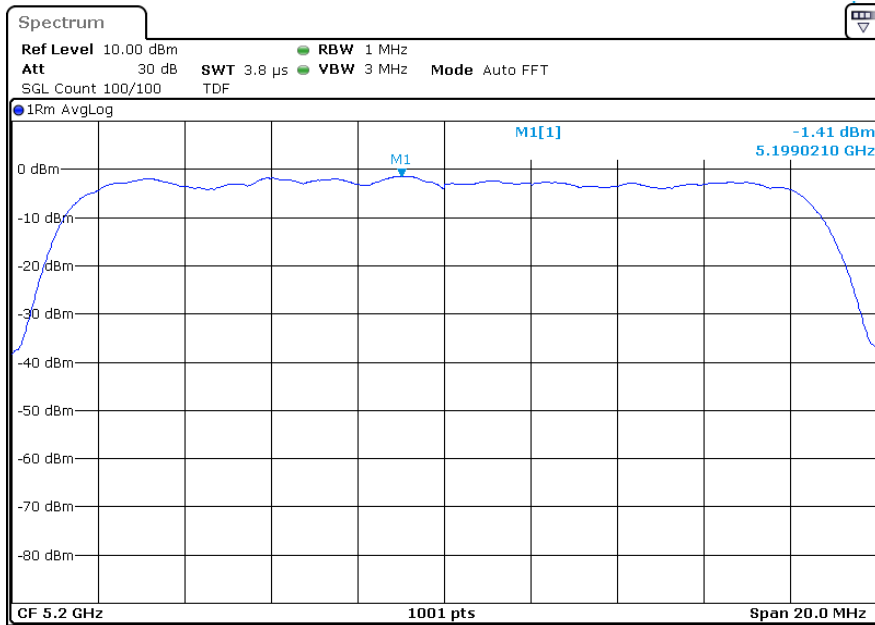


-802.11an20\_ANT1

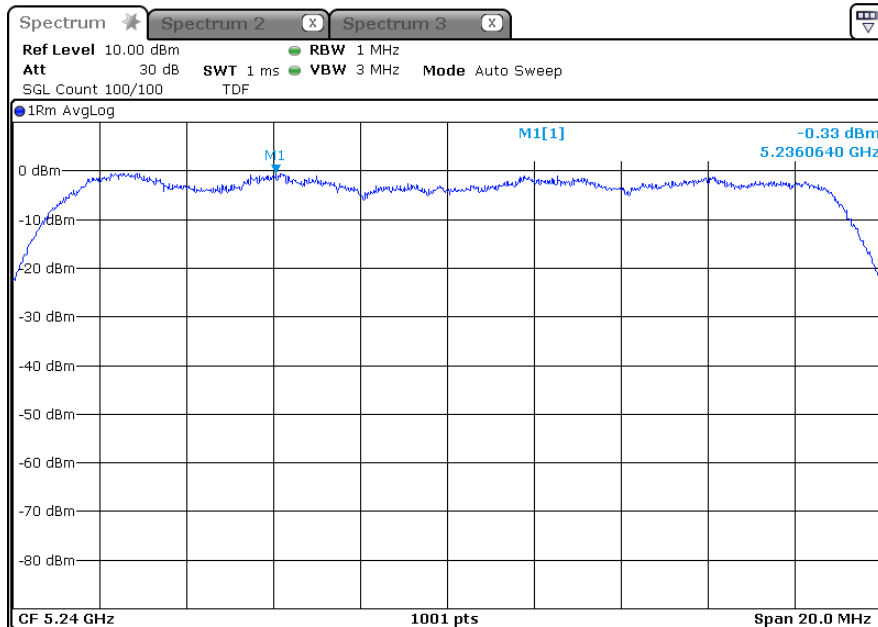
5 180 MHz



5 200

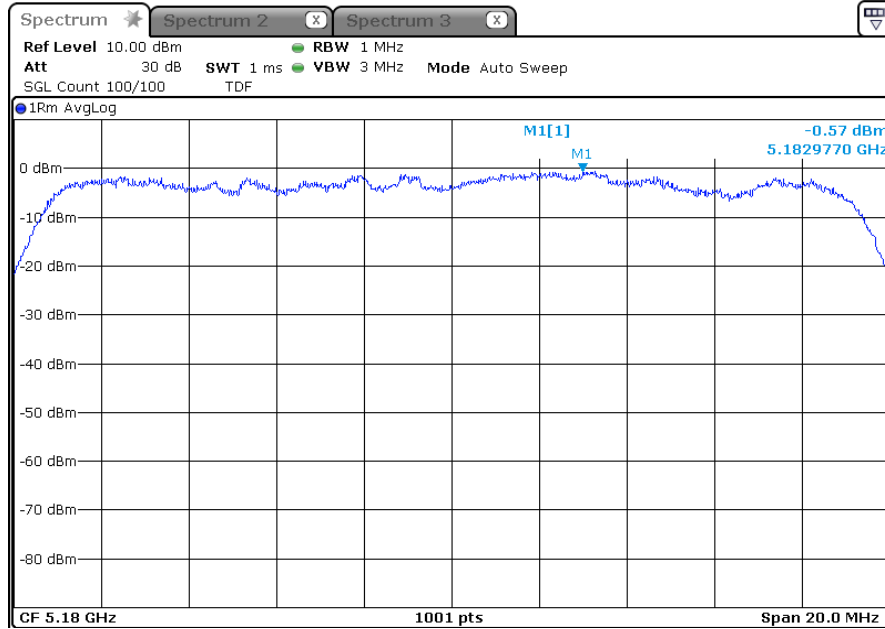


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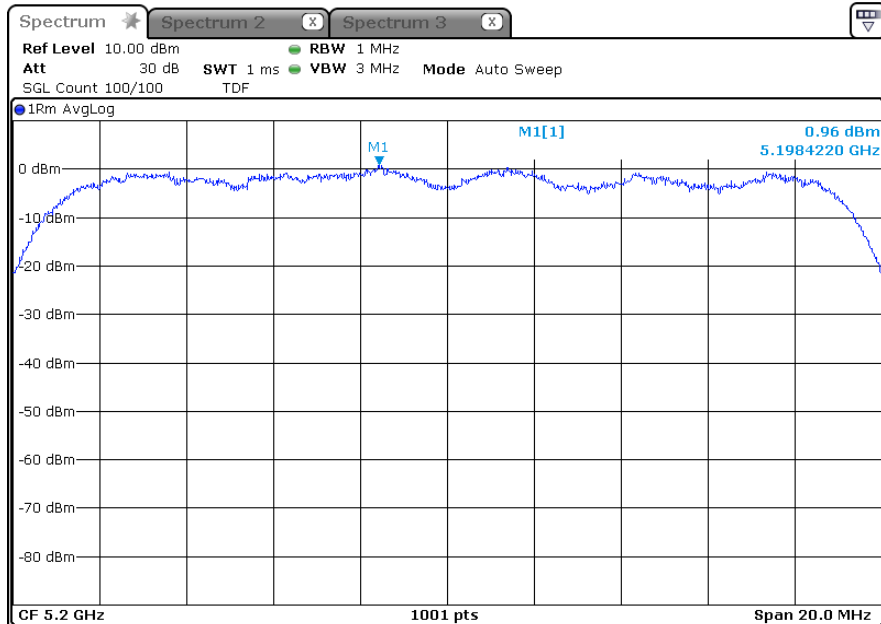


-802.11an20\_ANT2

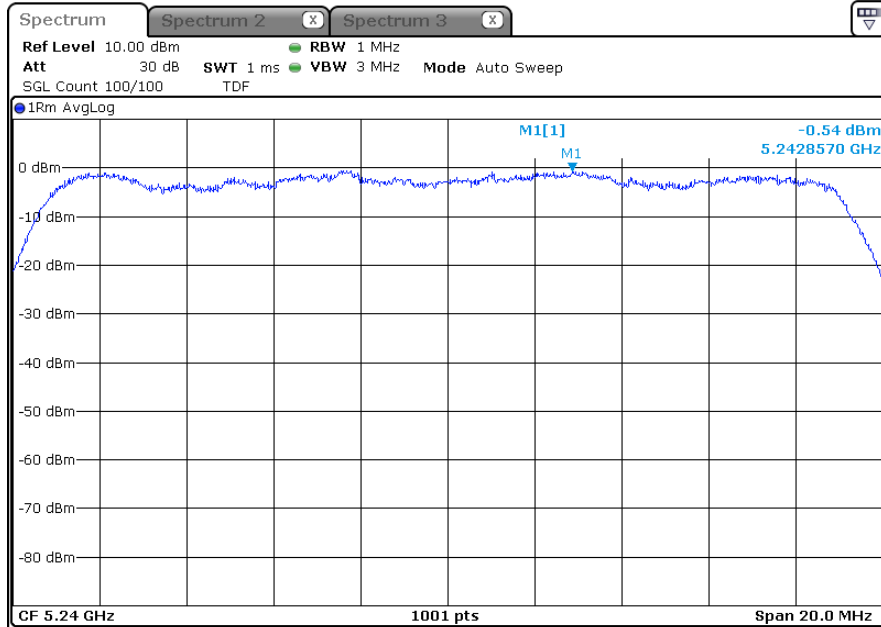
5 180



5 200

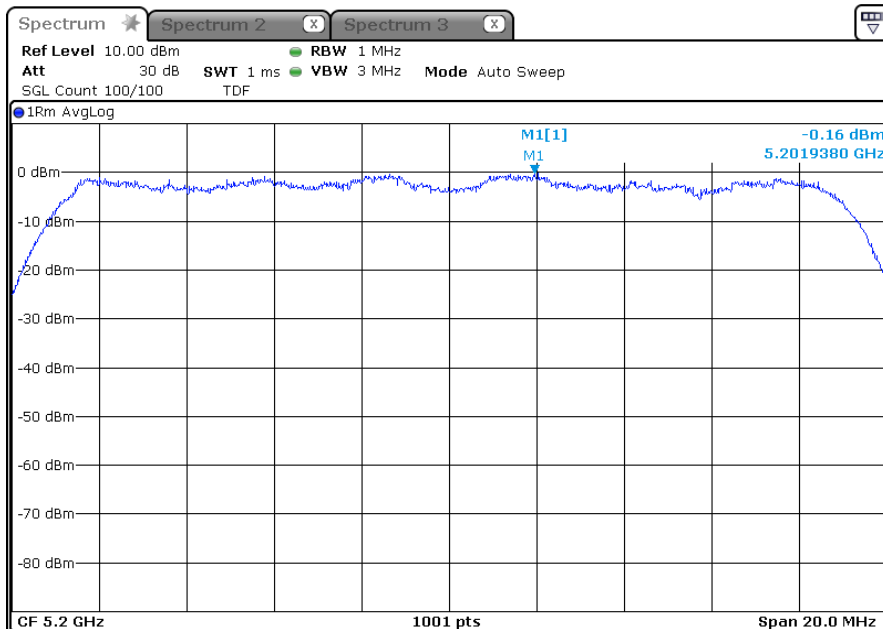


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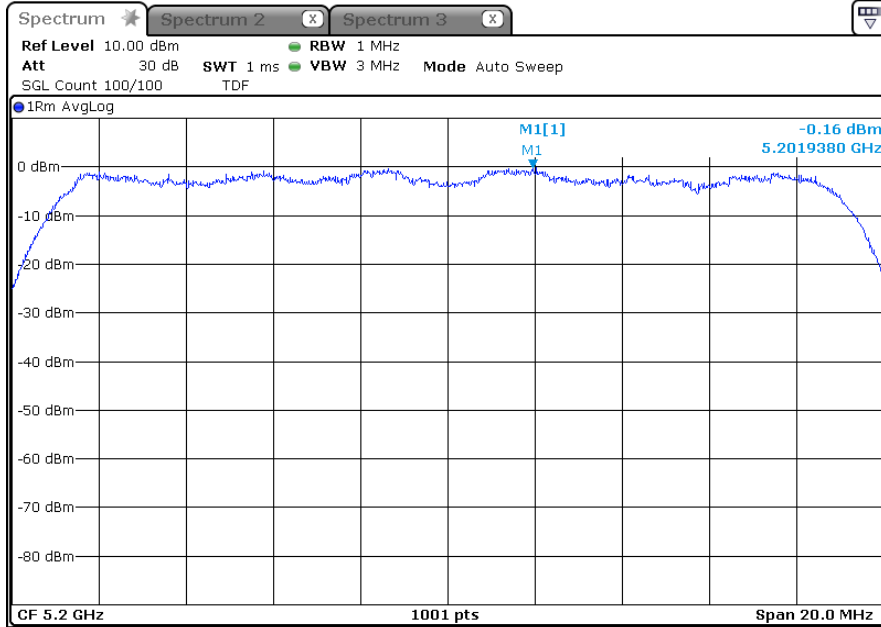


-802.11an20\_ANT3

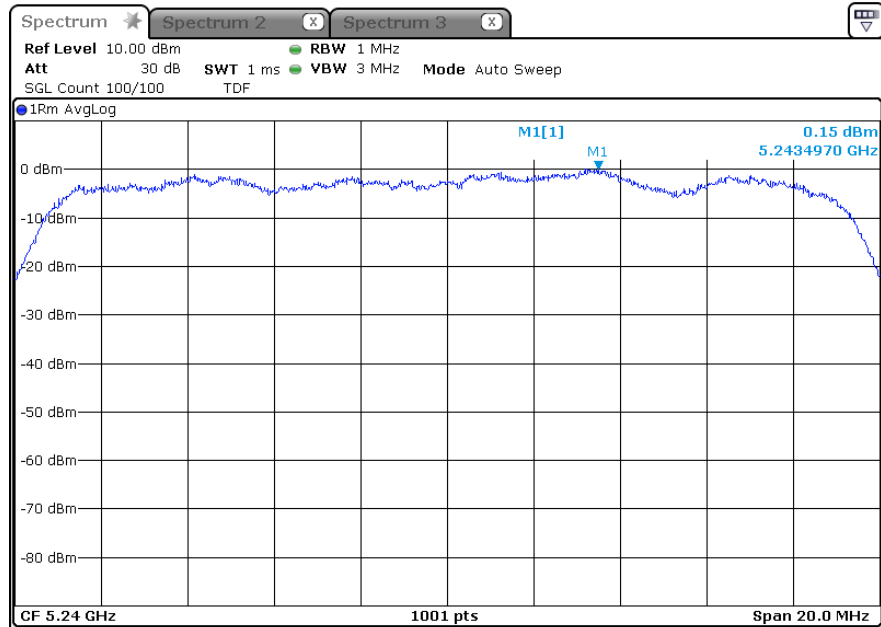
5 180



5 200



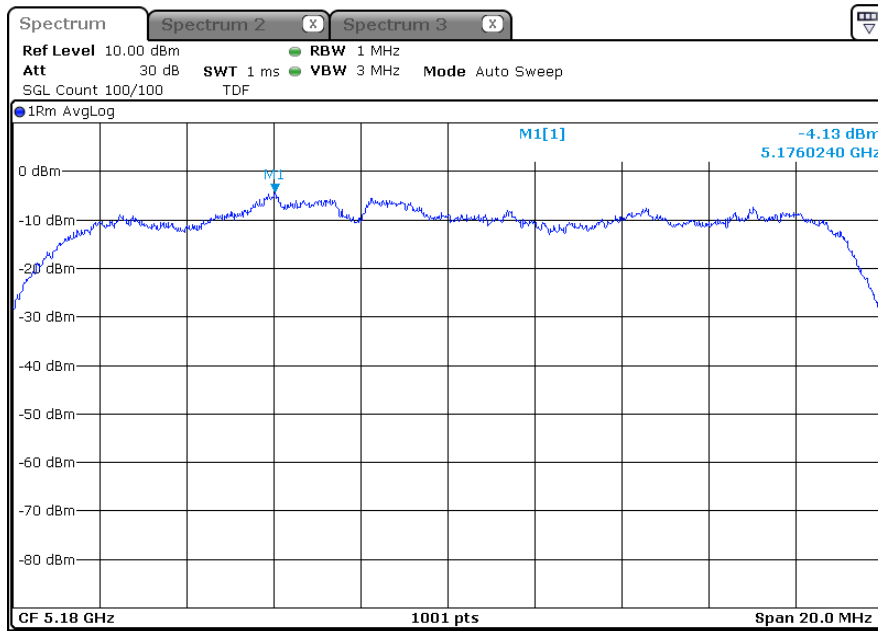
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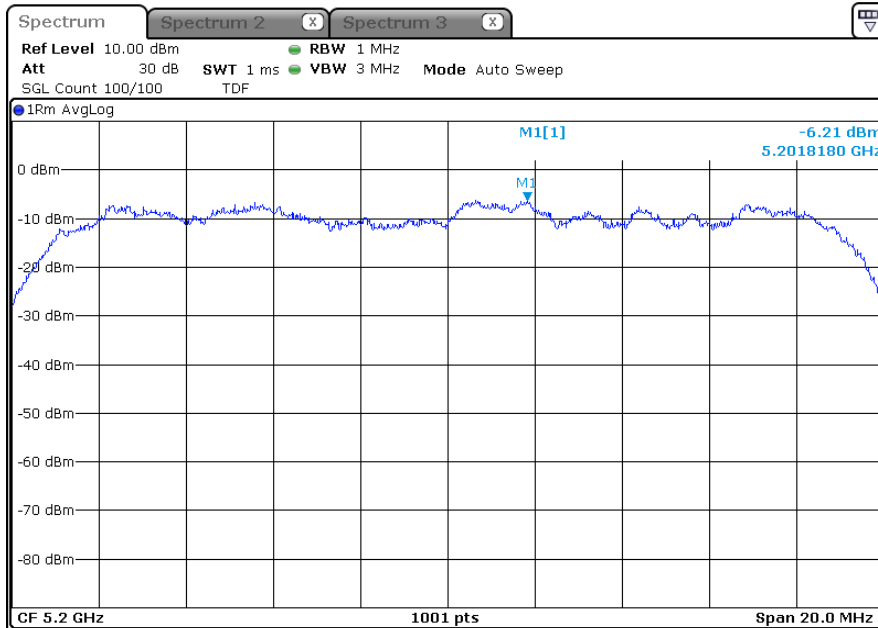
-802.11an20MIMO\_ANT1+2

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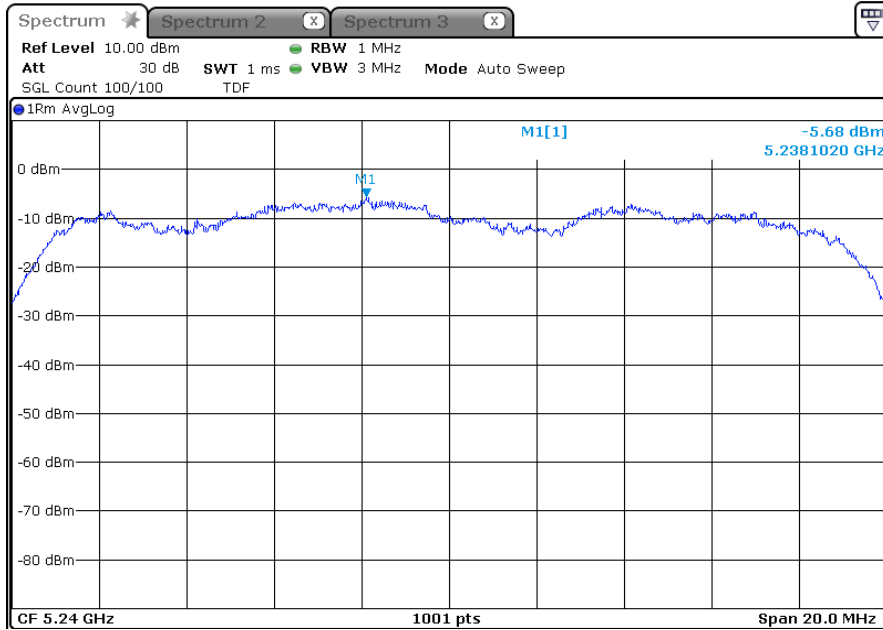
5 180



5 200

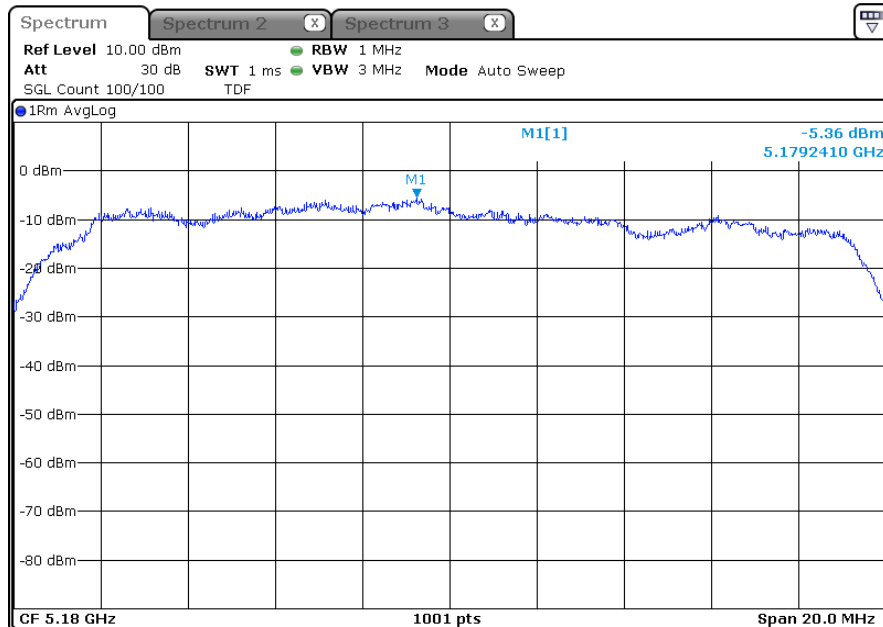


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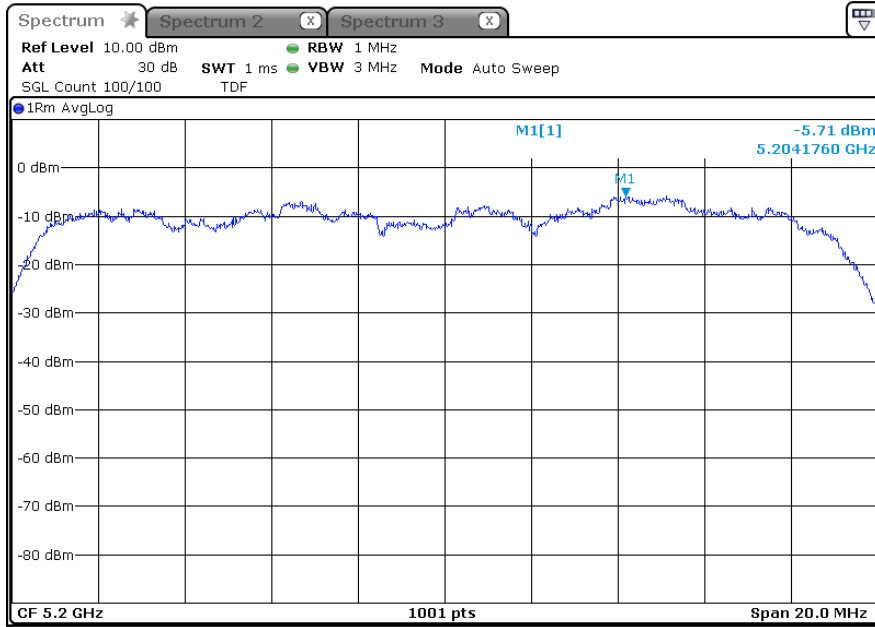
-ANT 2

5 180

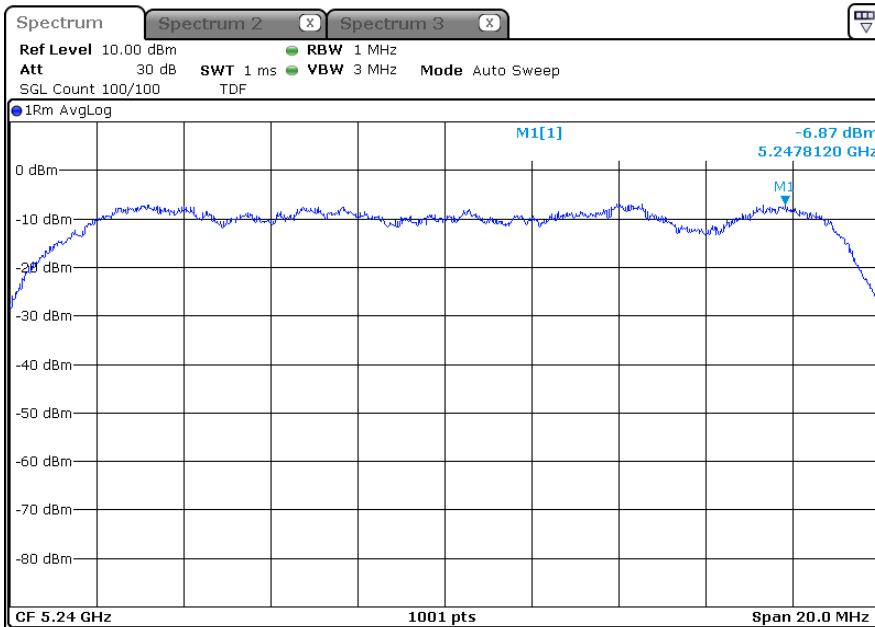




5 200



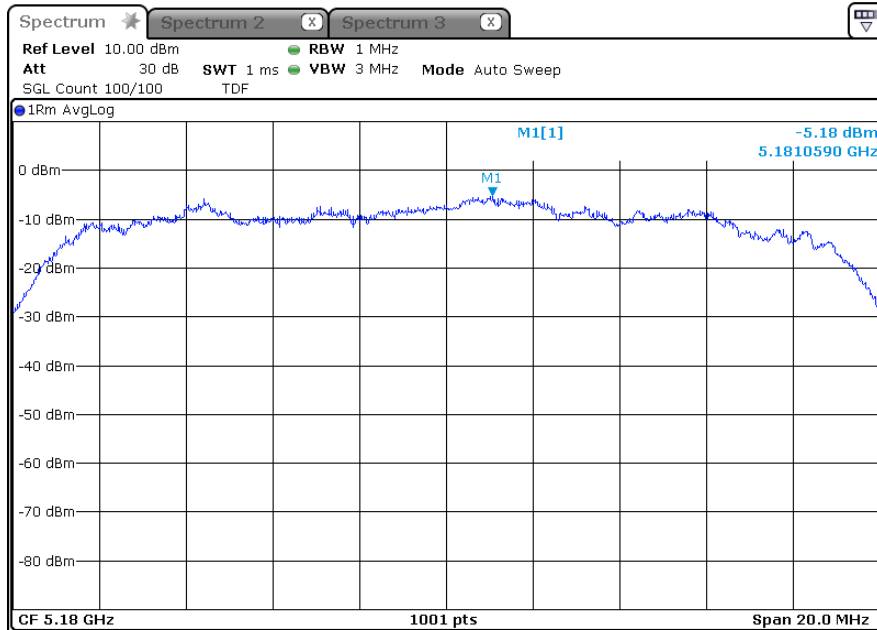
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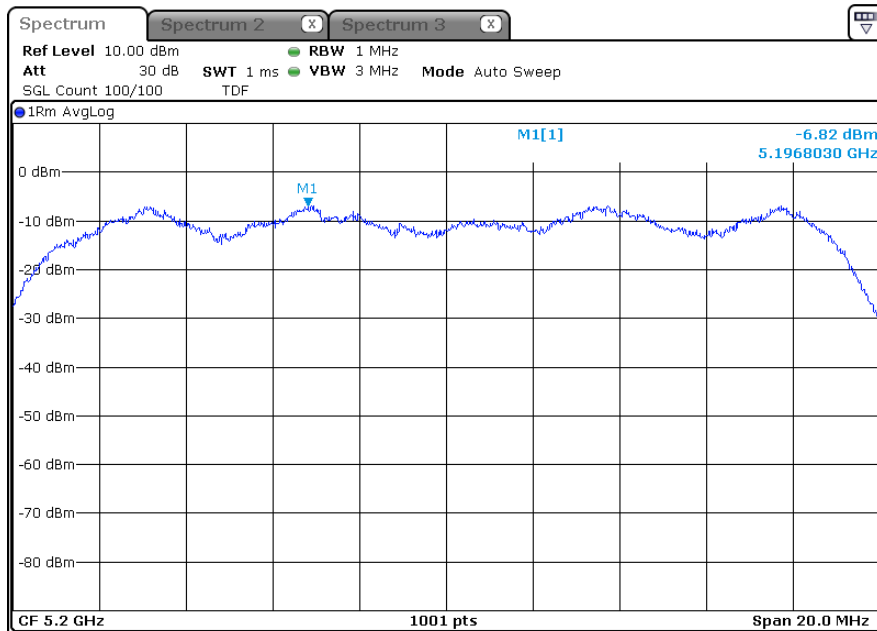
-802.11an20MIMO\_ANT2+3

-ANT 1

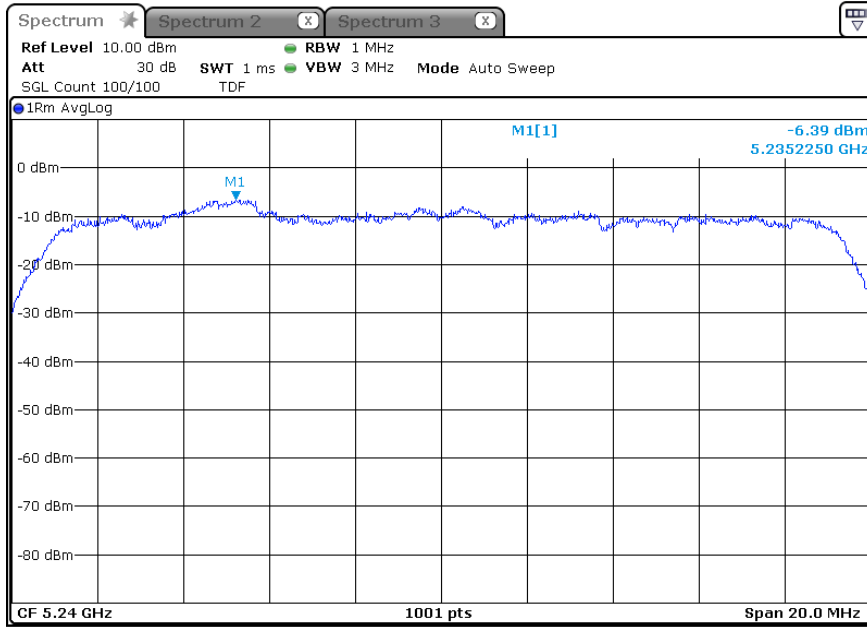
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5 200

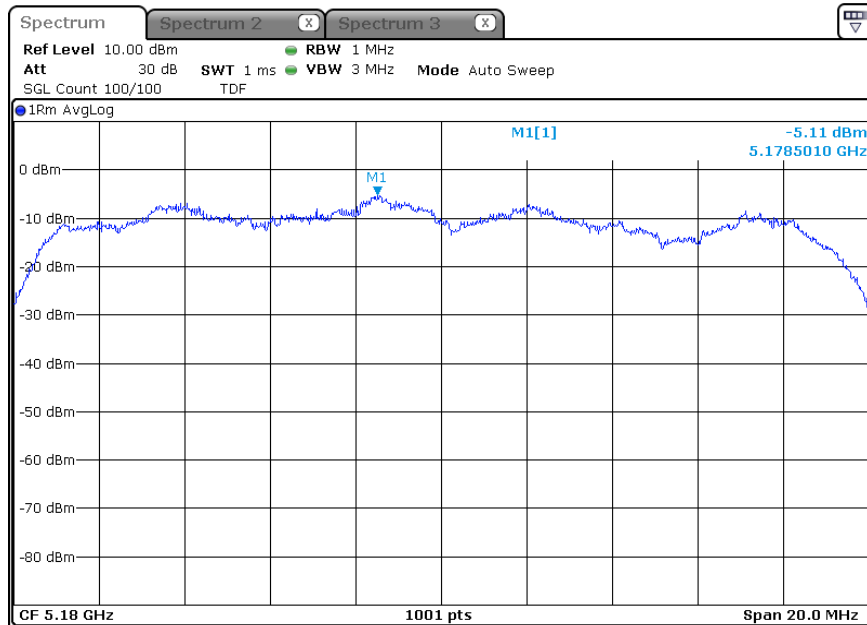


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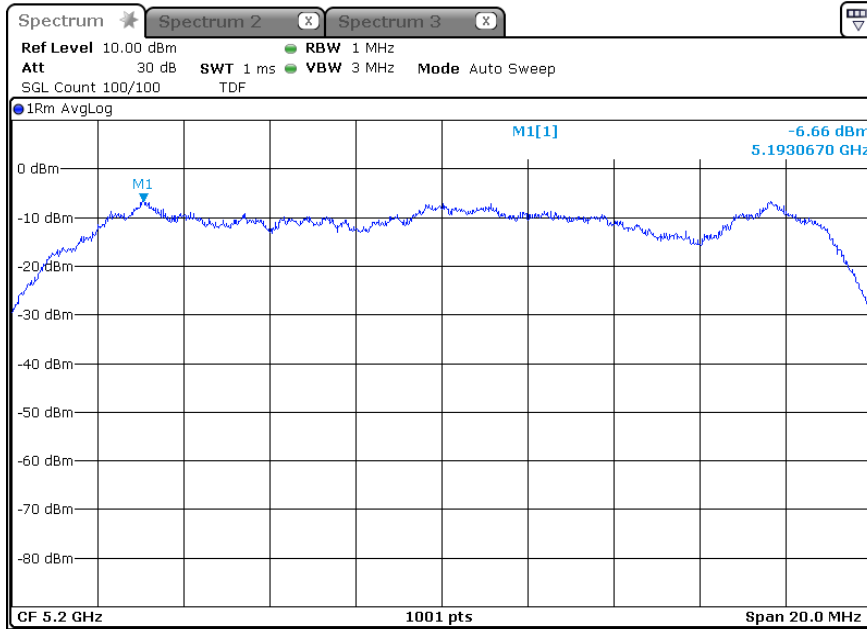


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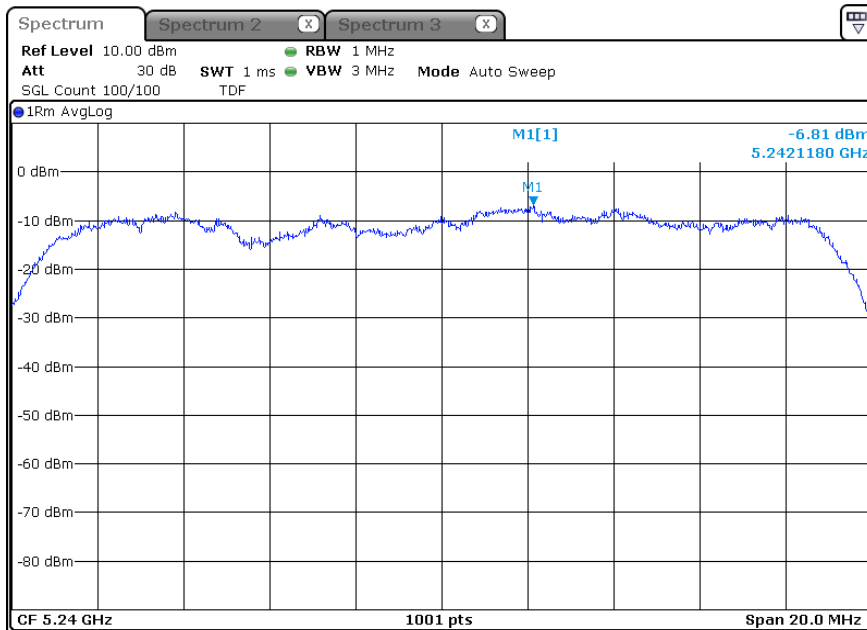
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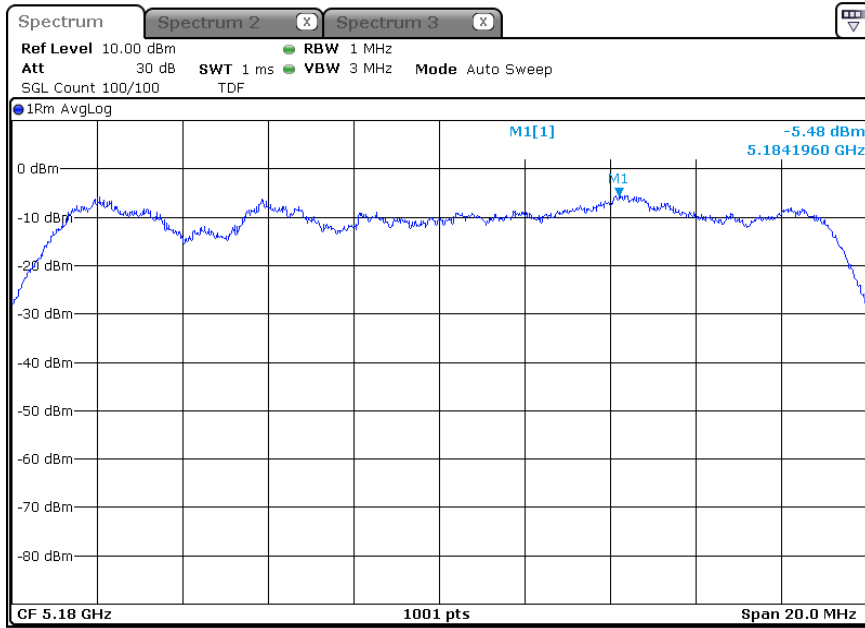
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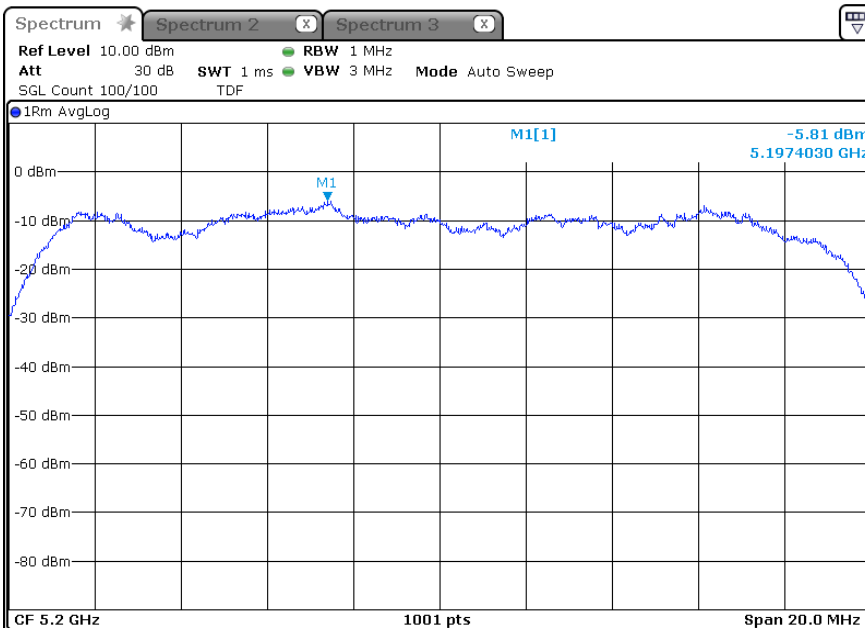
-802.11an20MIMO\_ANT1+3

-ANT 1

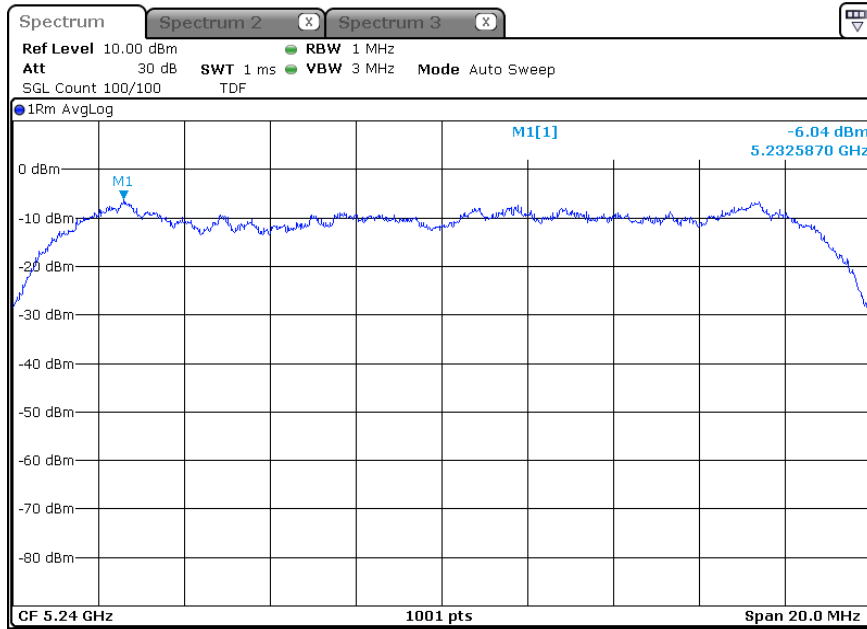
5 180



5 200

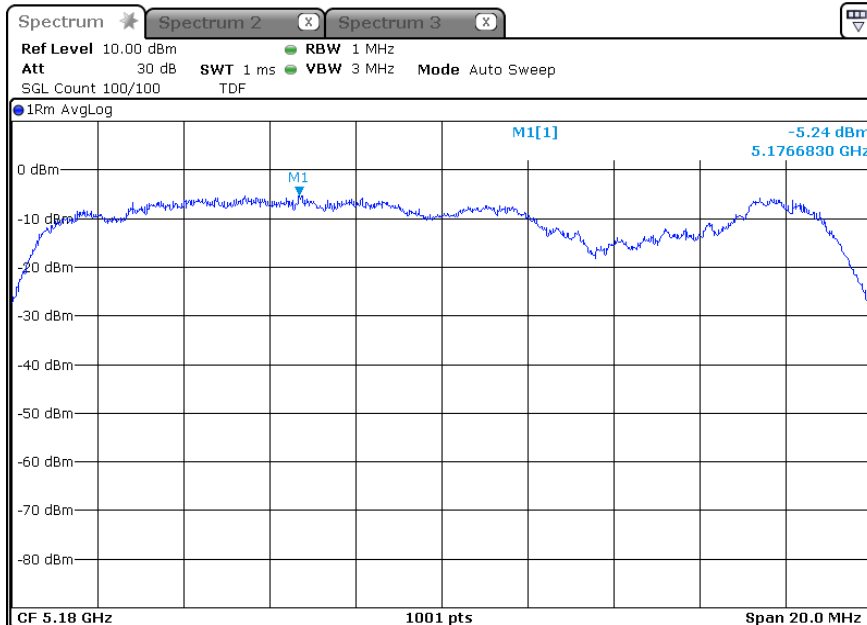


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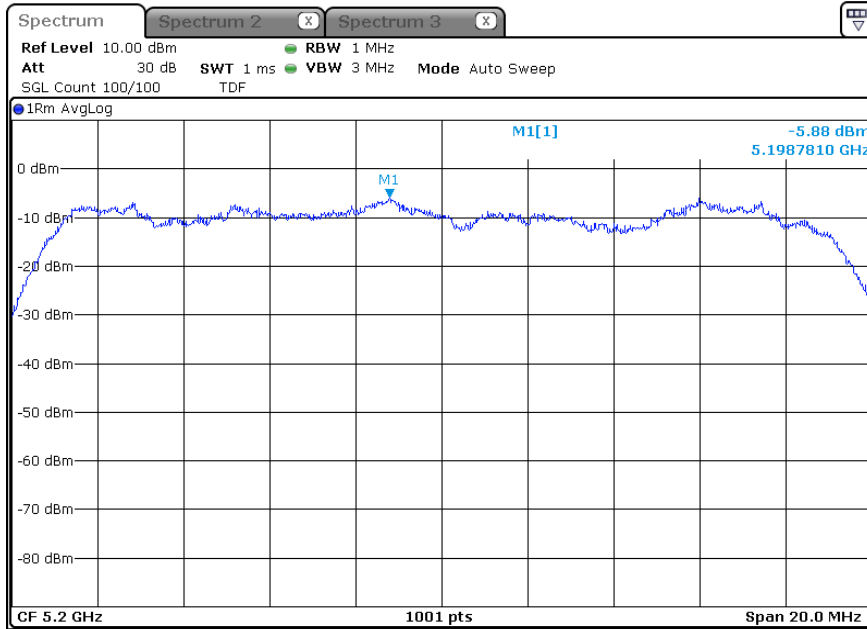


-ANT 2

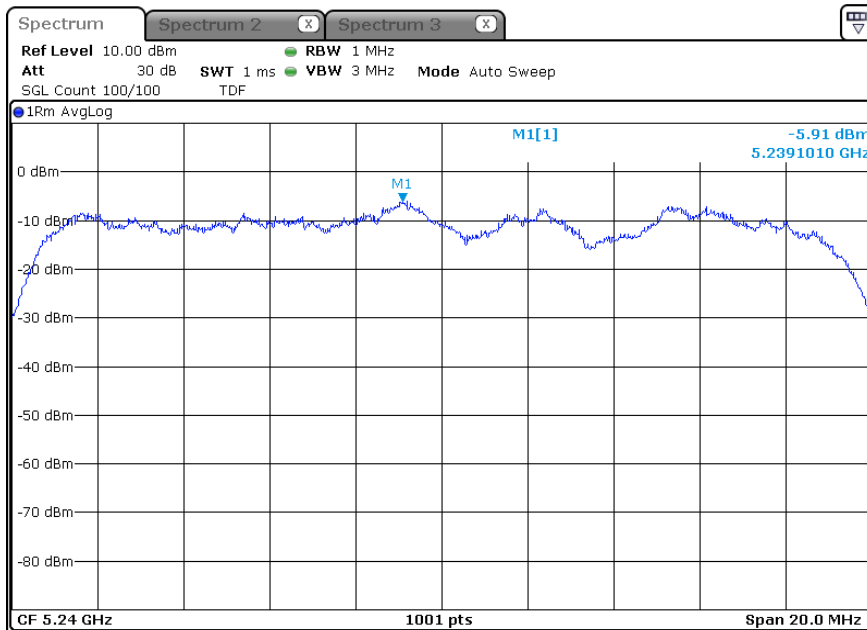
5 180



5 200



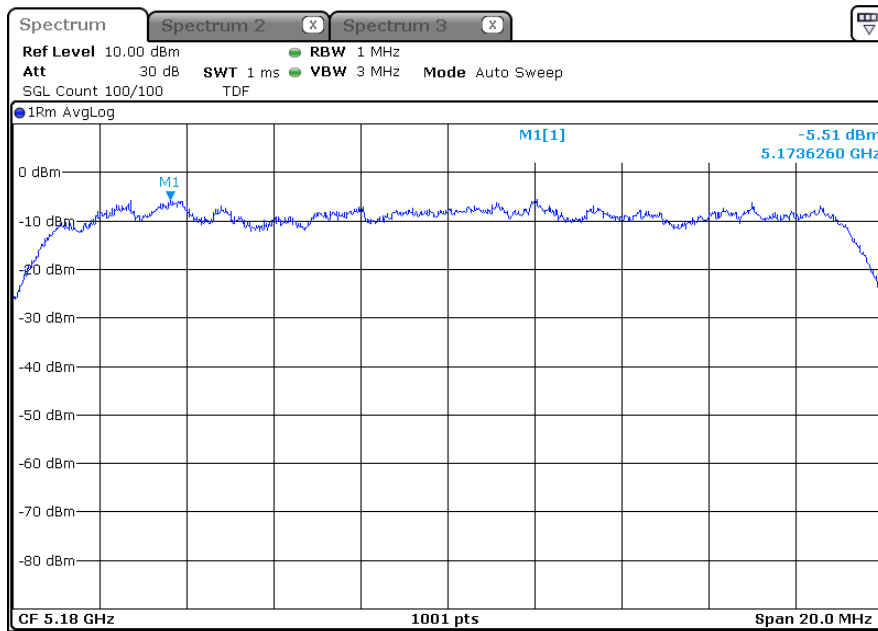
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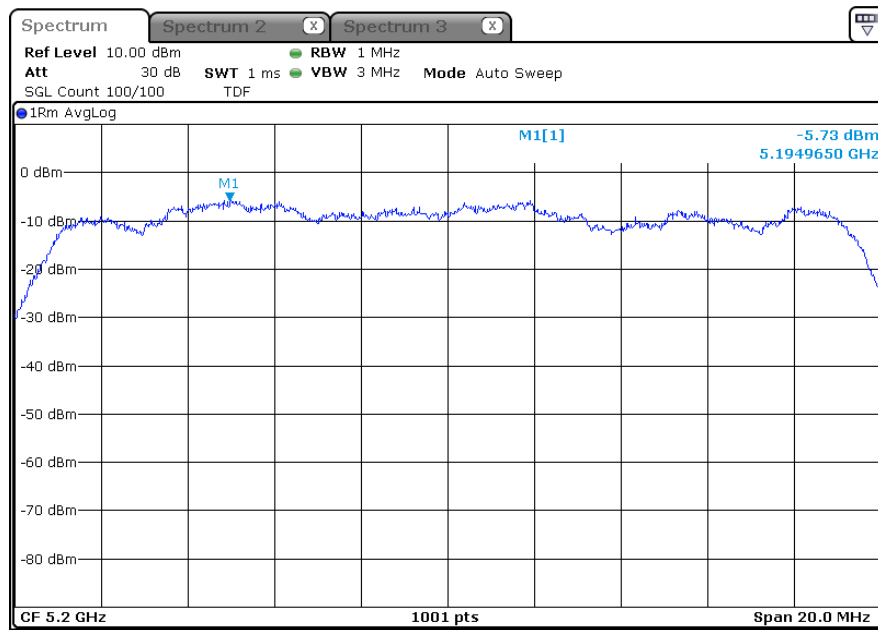
-802.11an20MIMO\_ANT1+2+3

-ANT 1

5 180

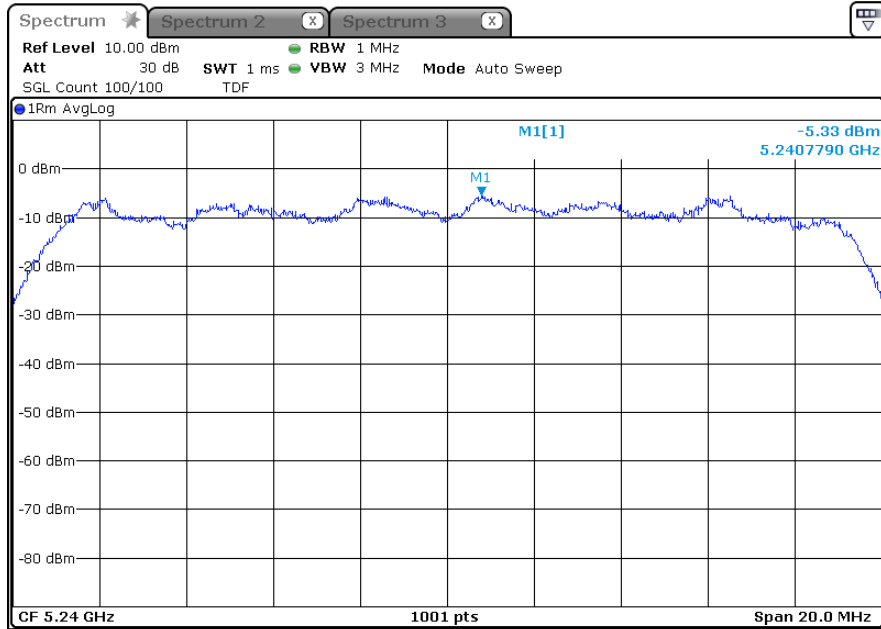


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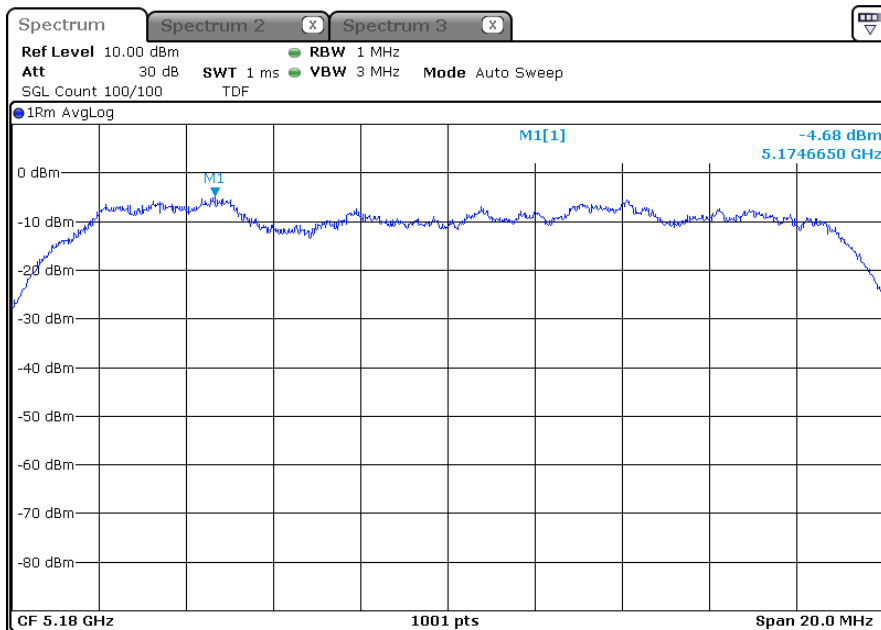


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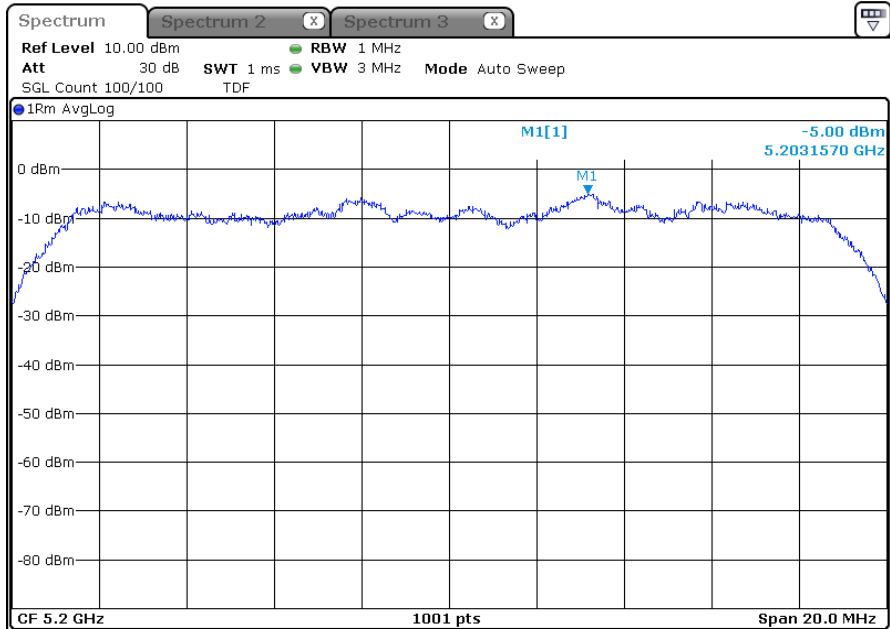


-ANT 2

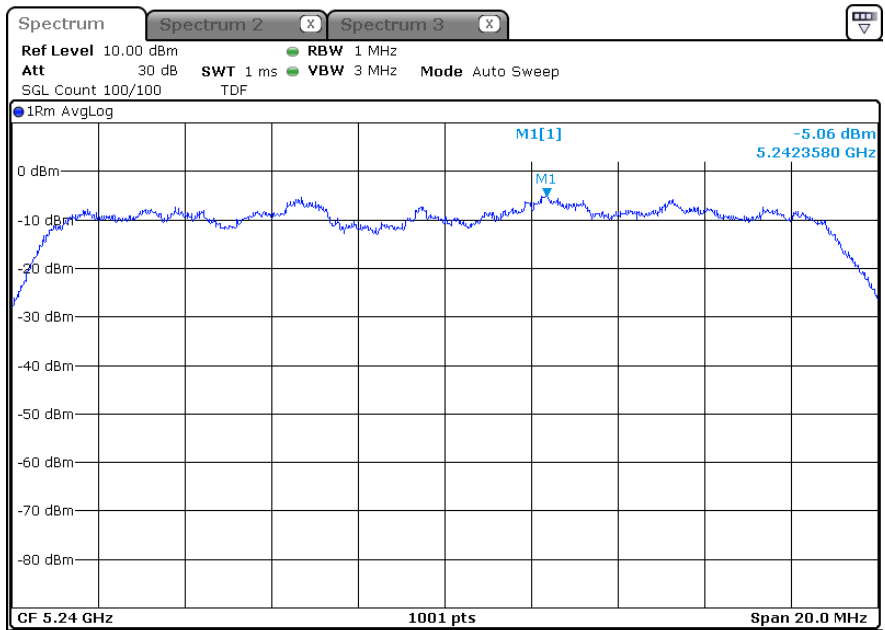
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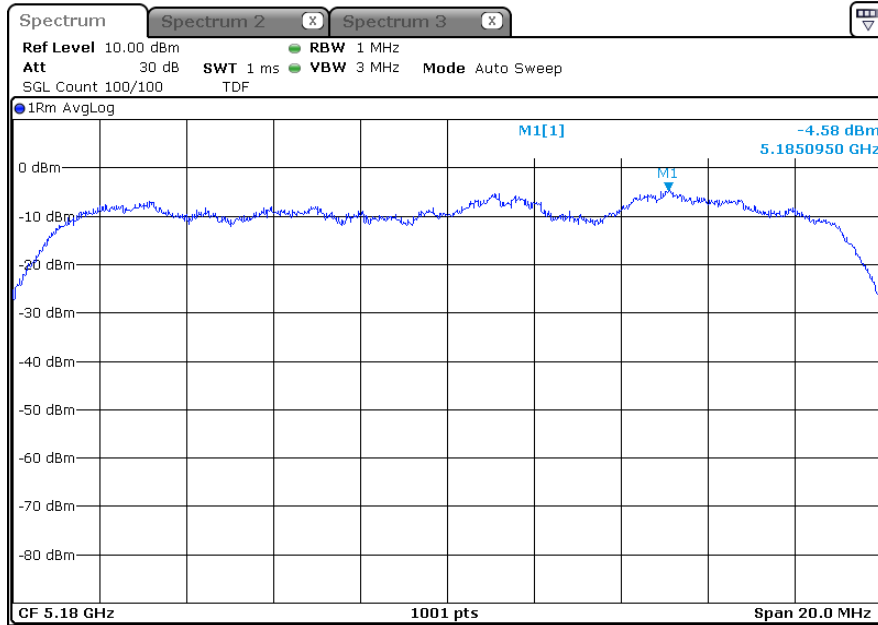


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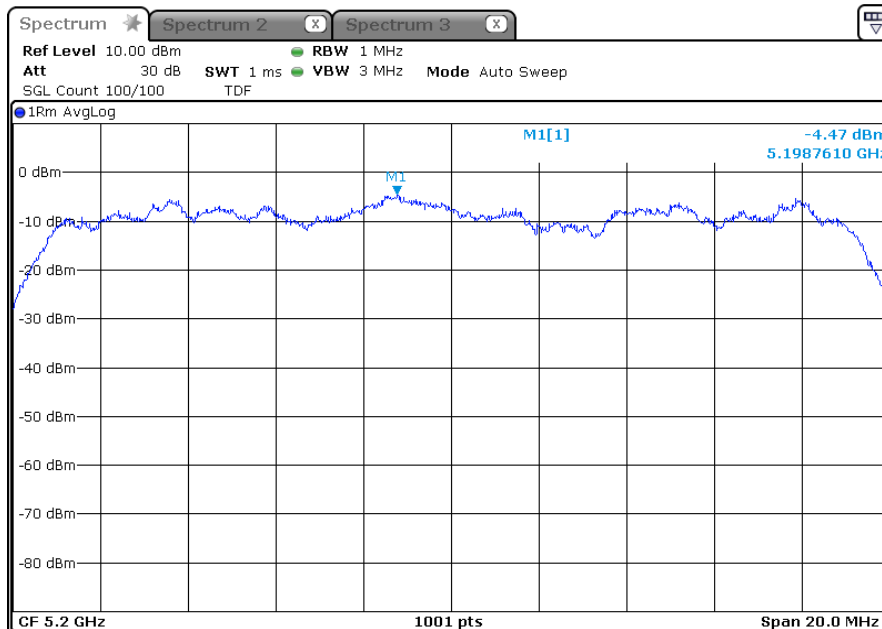


-ANT 3

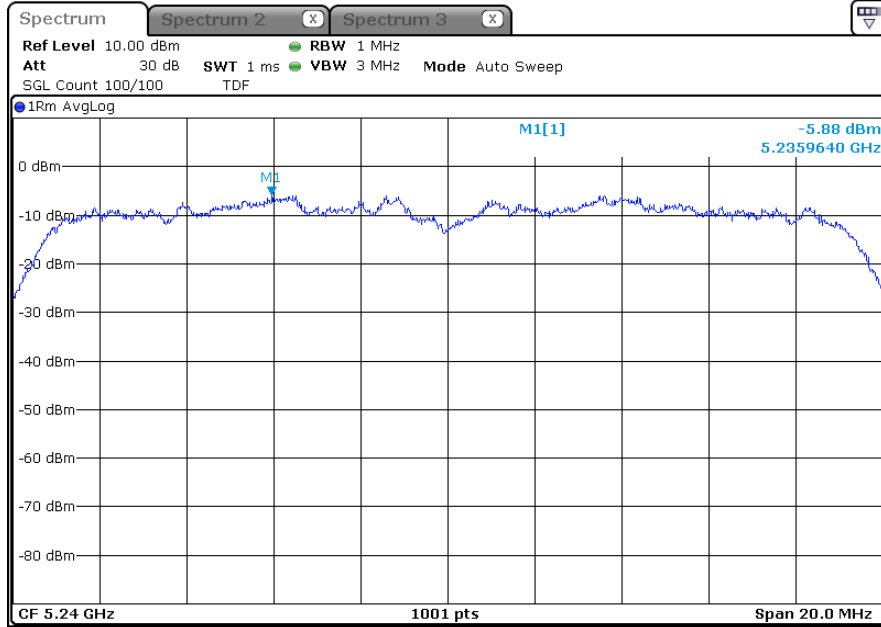
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5 200



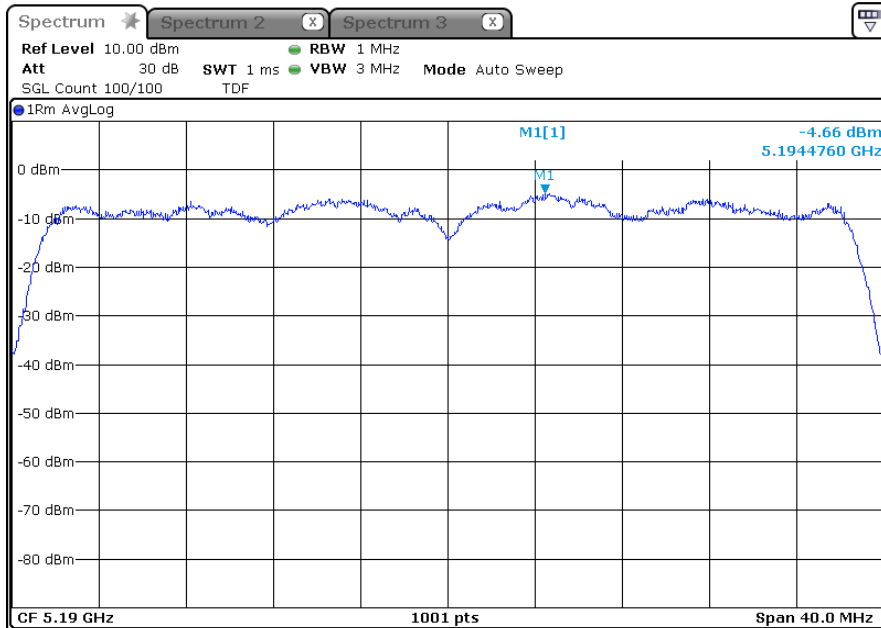
5 240



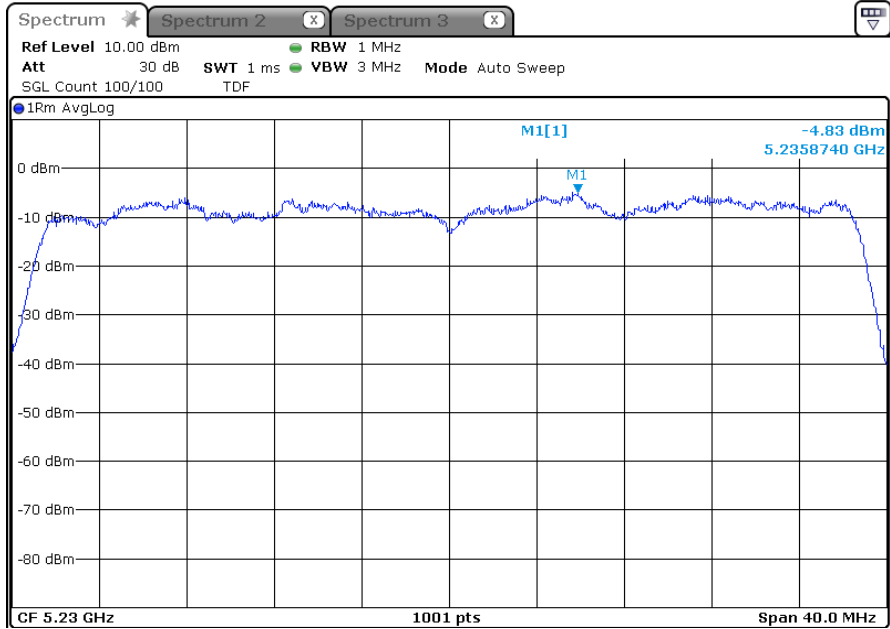
-802.11an40\_ANT1

-ANT 1

5 190

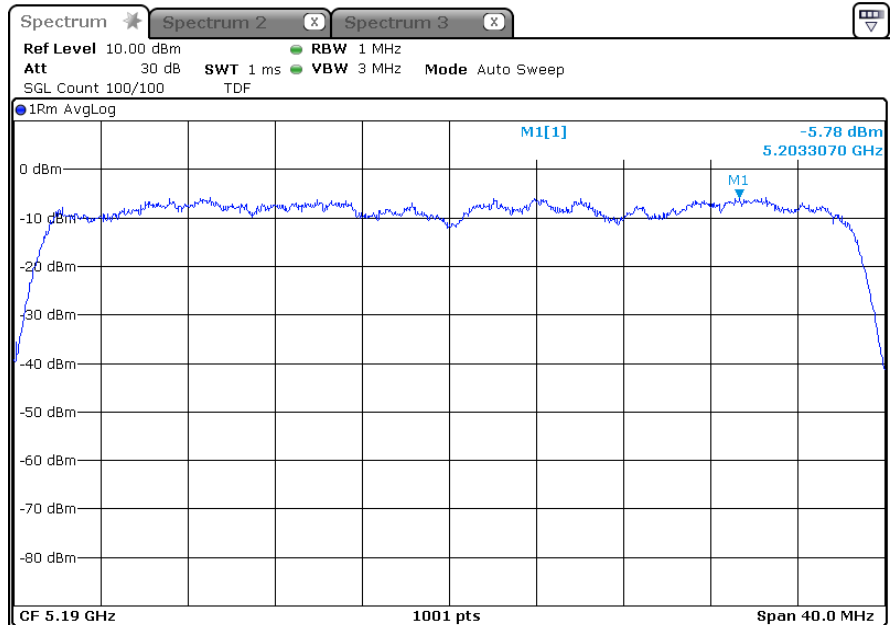


Middle Frequency (5 785 MHz)

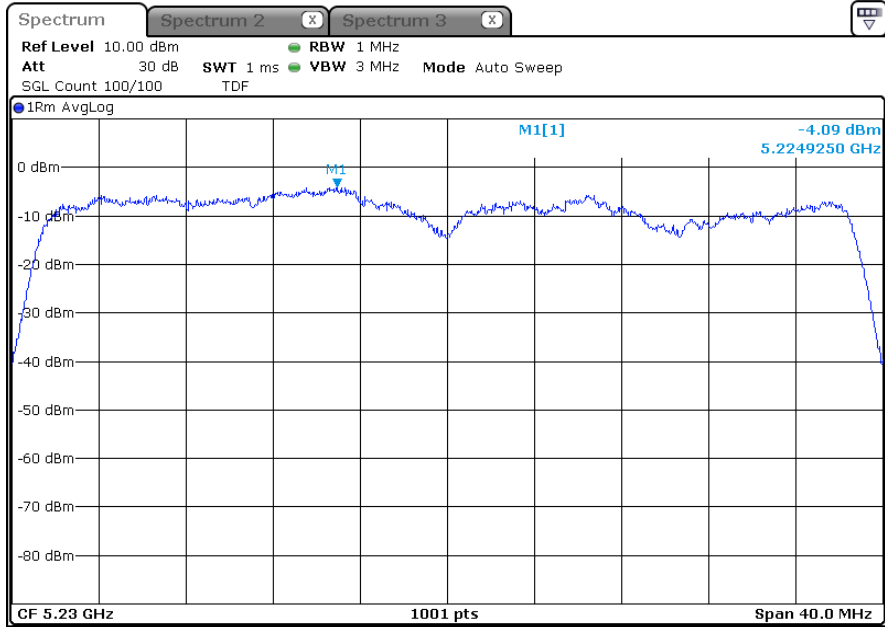


-ANT 2

Low Frequency (5 745 MHz)

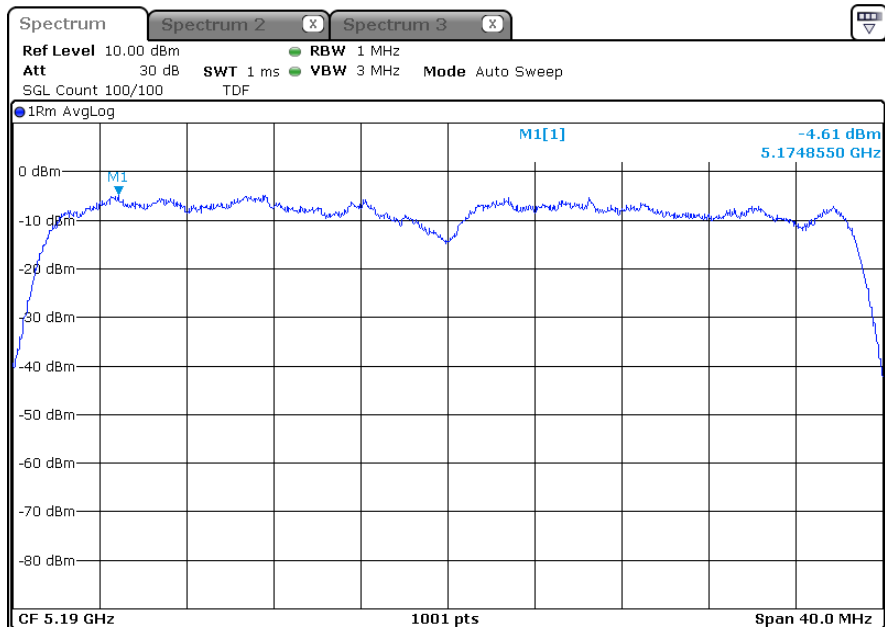


Middle Frequency (5 785 MHz)

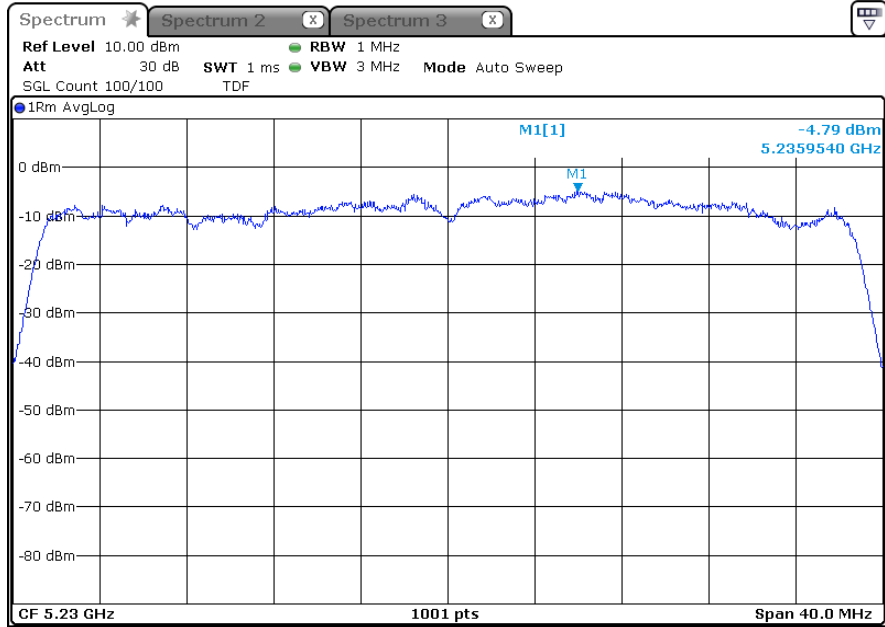


-ANT 3

Low Frequency (5 745 MHz)



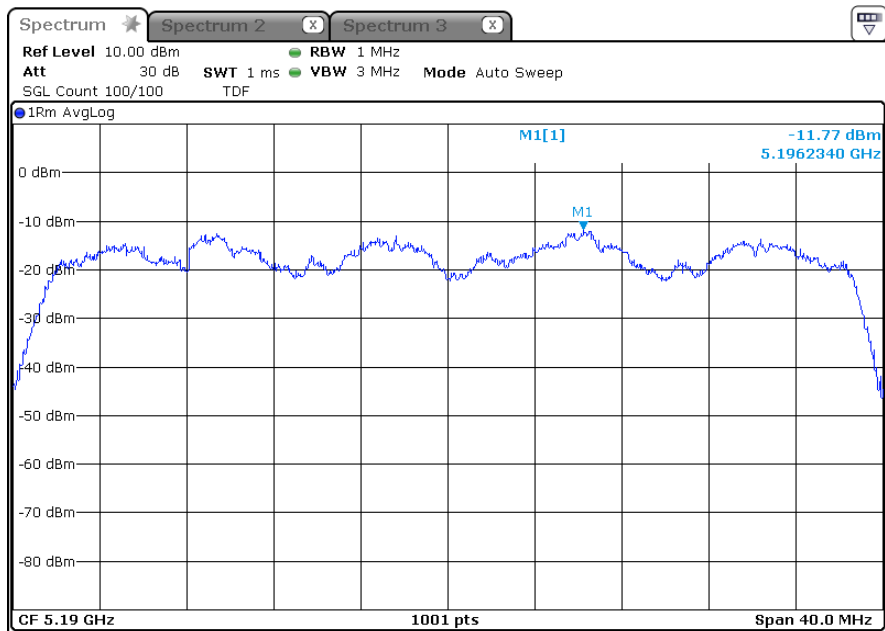
Middle Frequency (5 785 MHz)



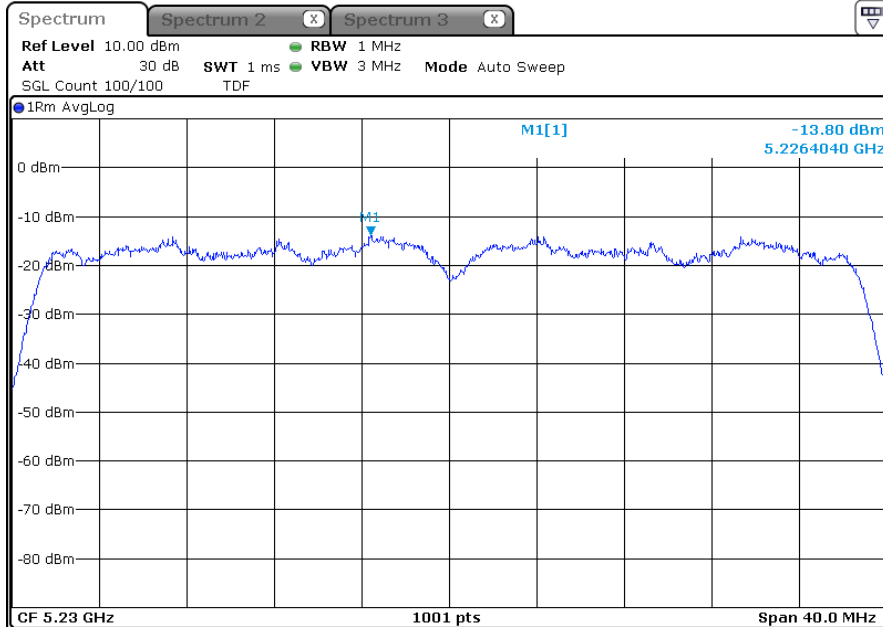
-802.11an40\_ANT1+2

-ANT 1

5 190 MHz

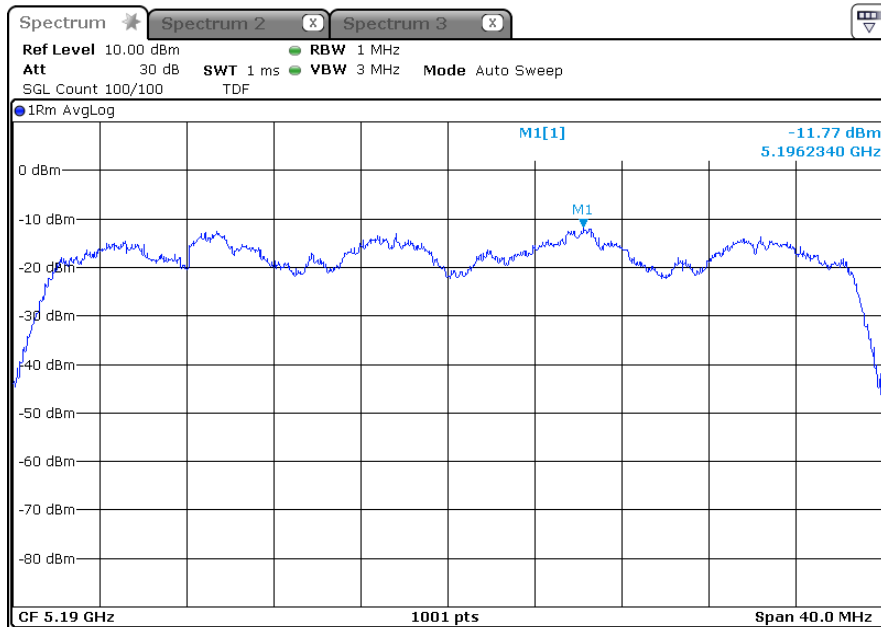


5 230 MHz



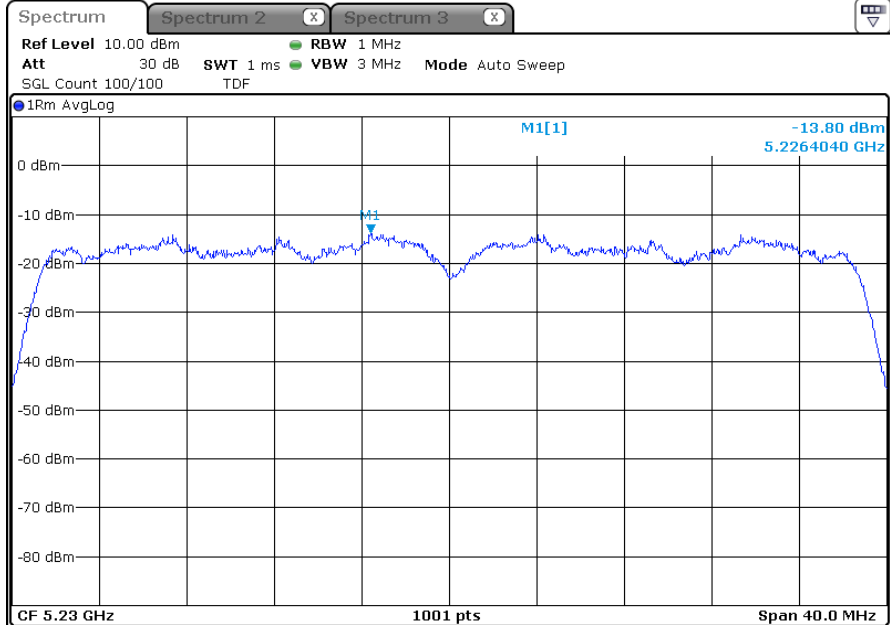
-ANT 2

5 190 MHz



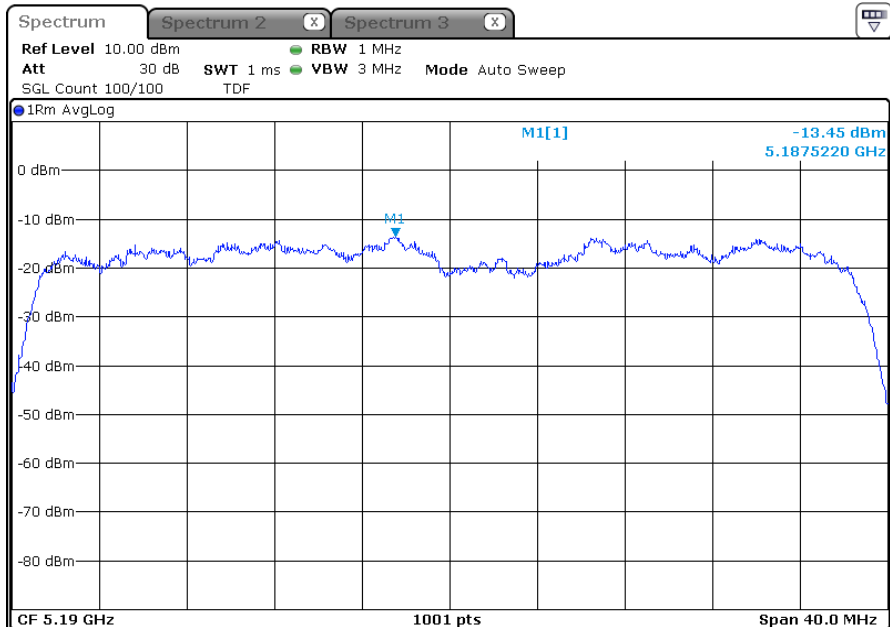


5 230 MHz

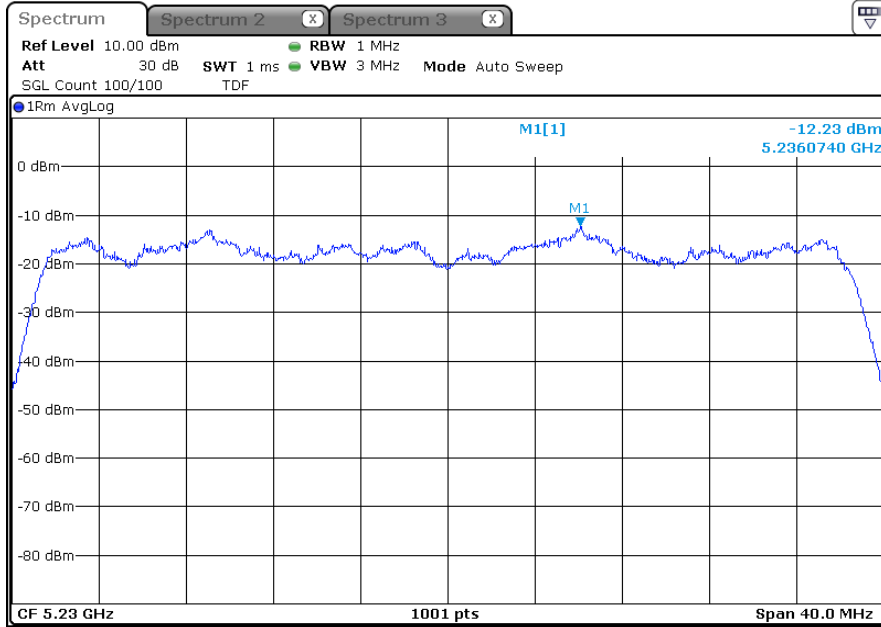


-802.11an40\_ANT 2+3  
 -ANT 1

5 190 MHz

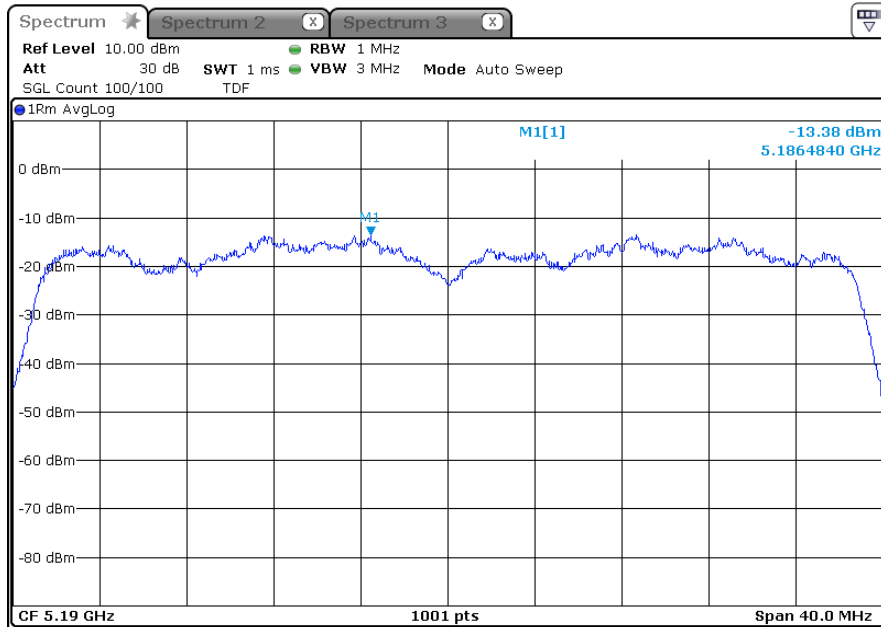


5 230 MHz

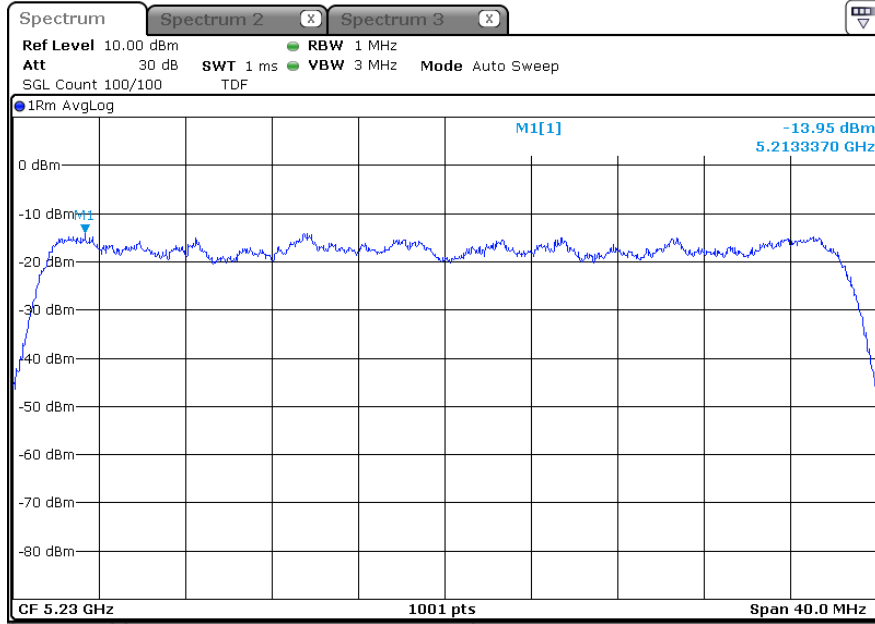


-ANT 2

5 190 MHz

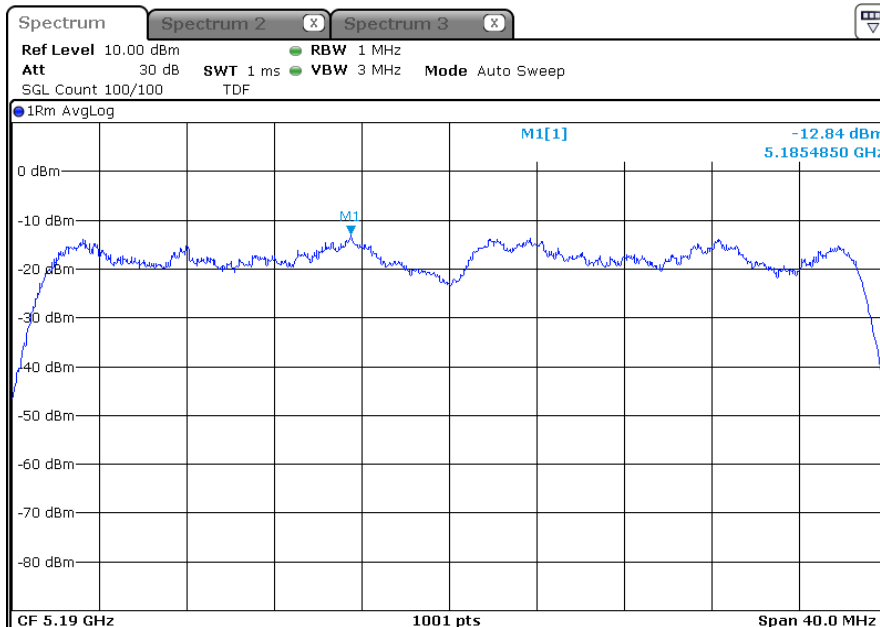


5 230 MHz

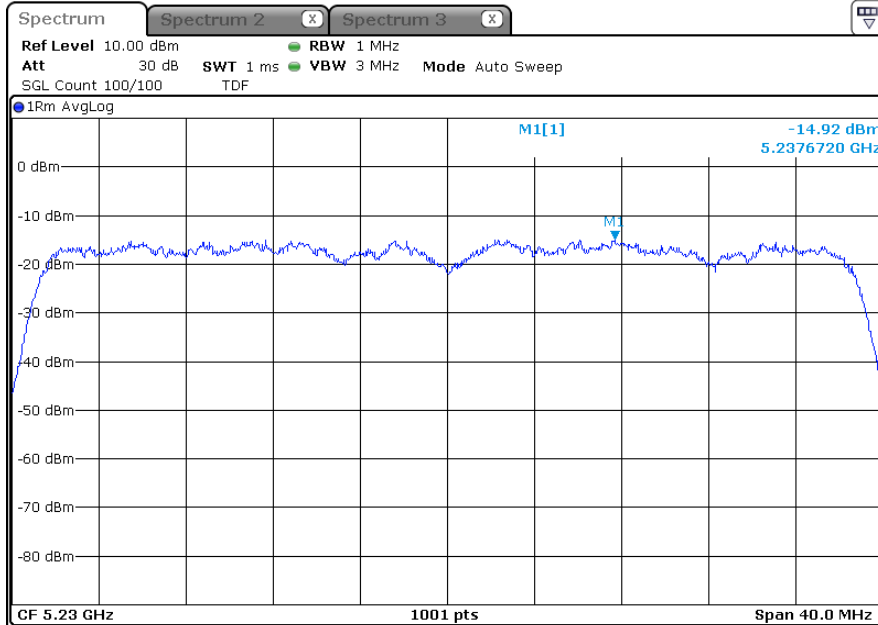


-802.11an40\_ANT 1+3  
 -ANT 1

5 190 MHz

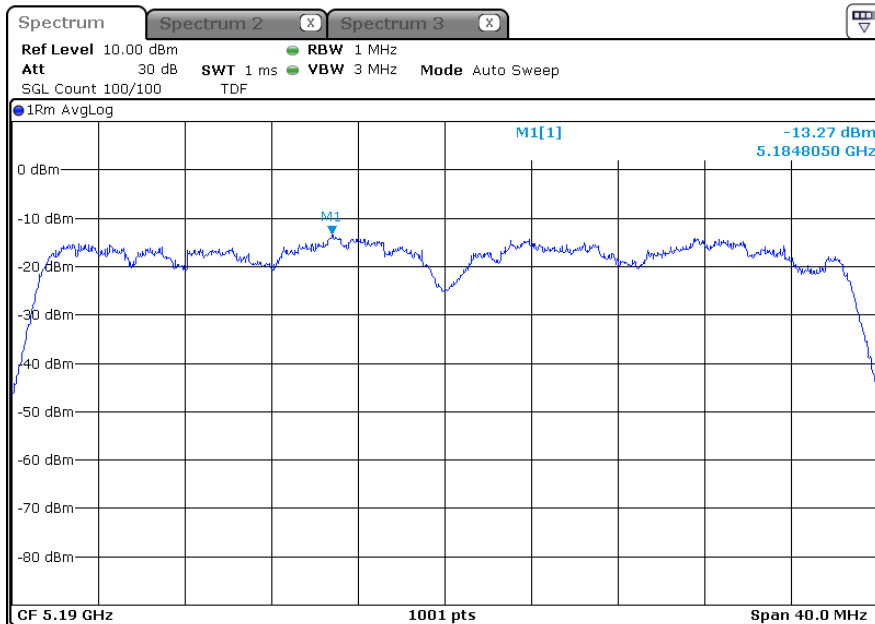


5 230 MHz

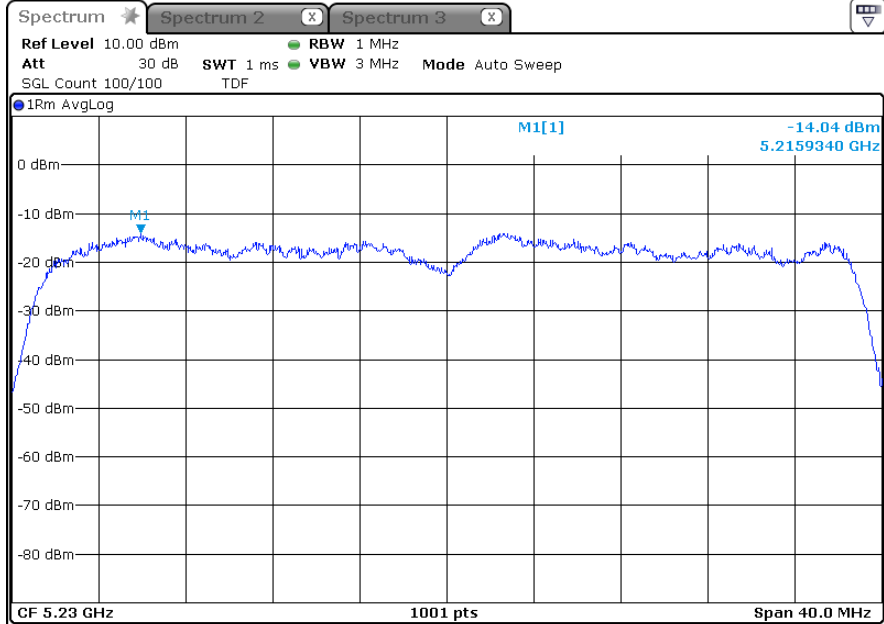


-ANT 2

5 190 MHz

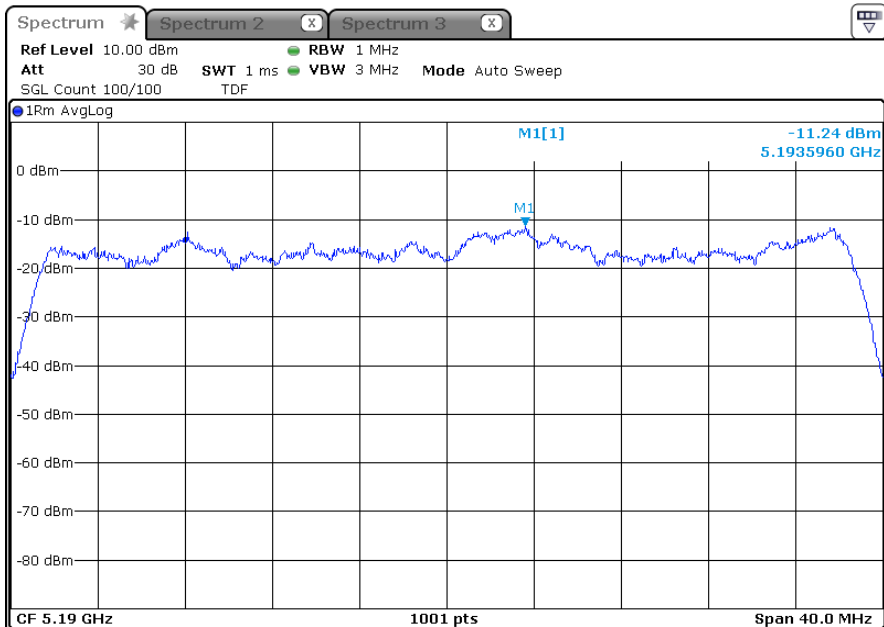


5 230 MHz

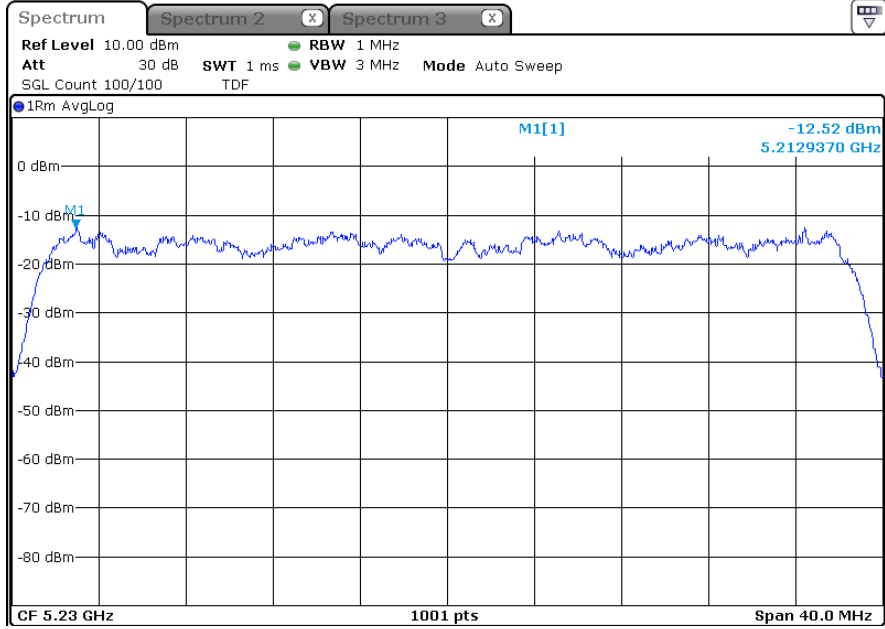


-802.11an40\_ANT 1+2+3  
-ANT 1

5 190 MHz

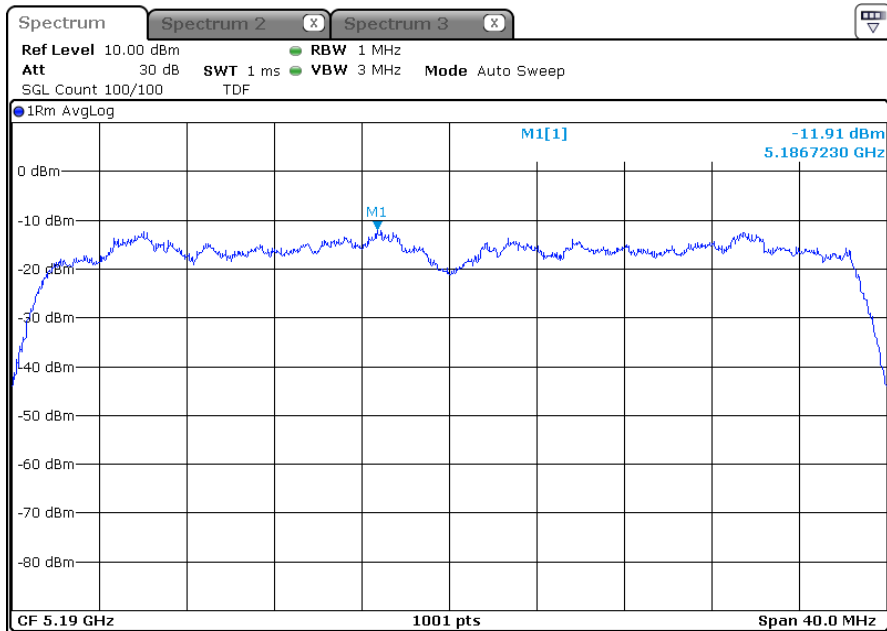


5 230 MHz

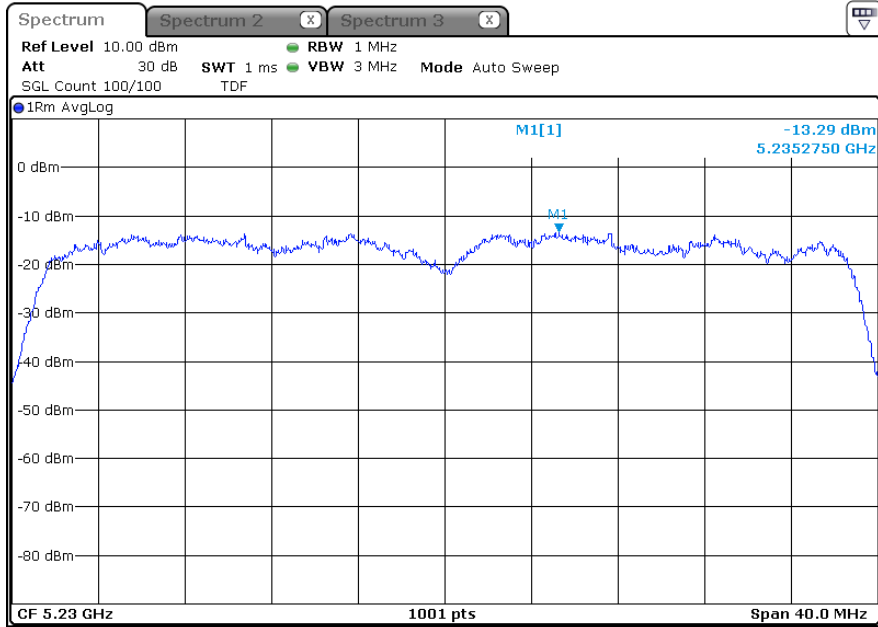


-ANT 2

5 190 MHz

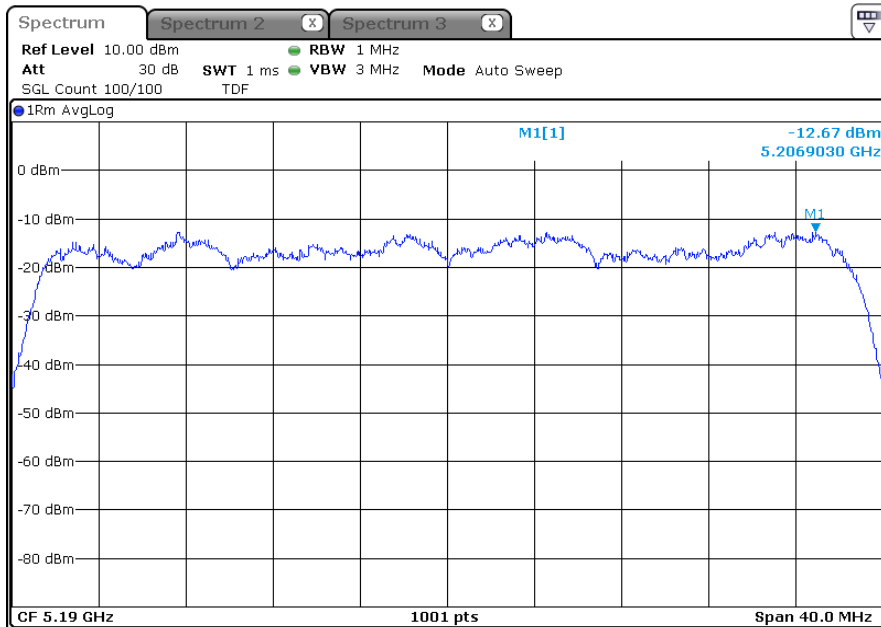


5 230 MHz

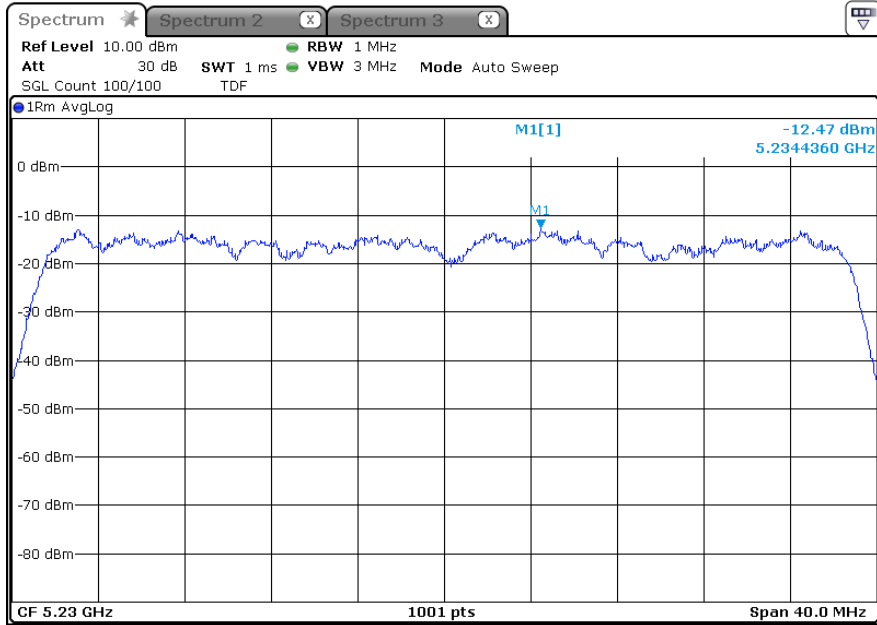


-ANT 3

5 190 MHz

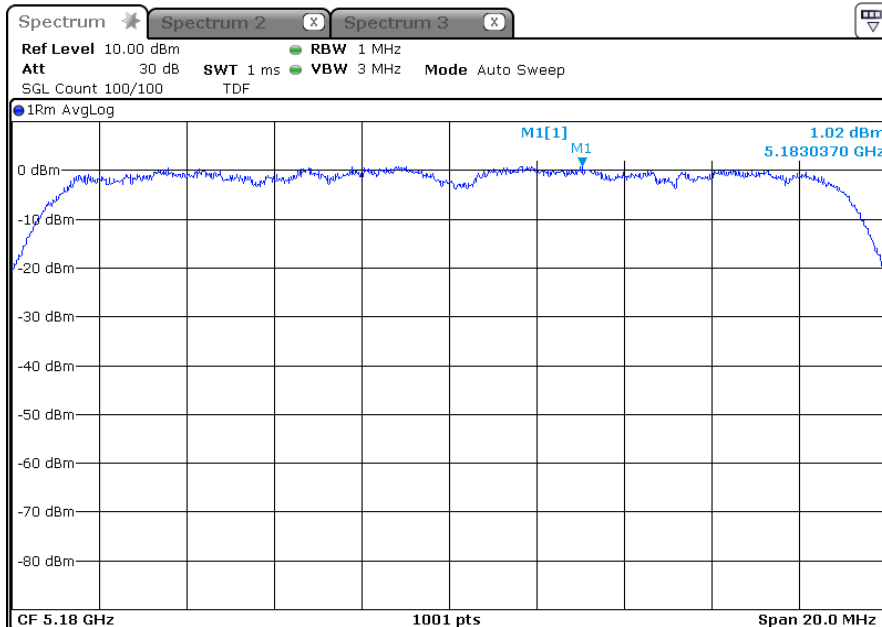


5 230 MHz



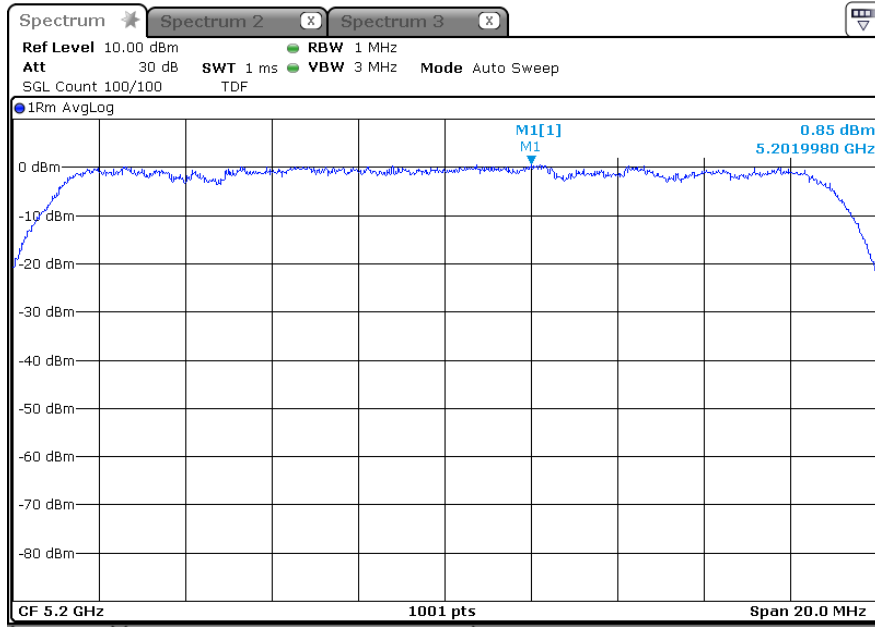
-802.11ac20\_ANT 1

5 180 MHz

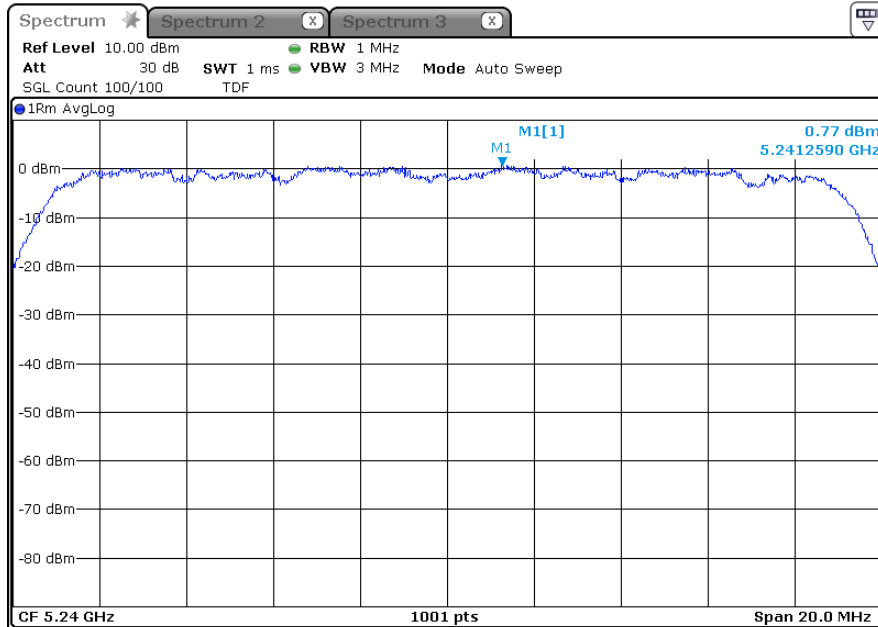




5 200 MHz

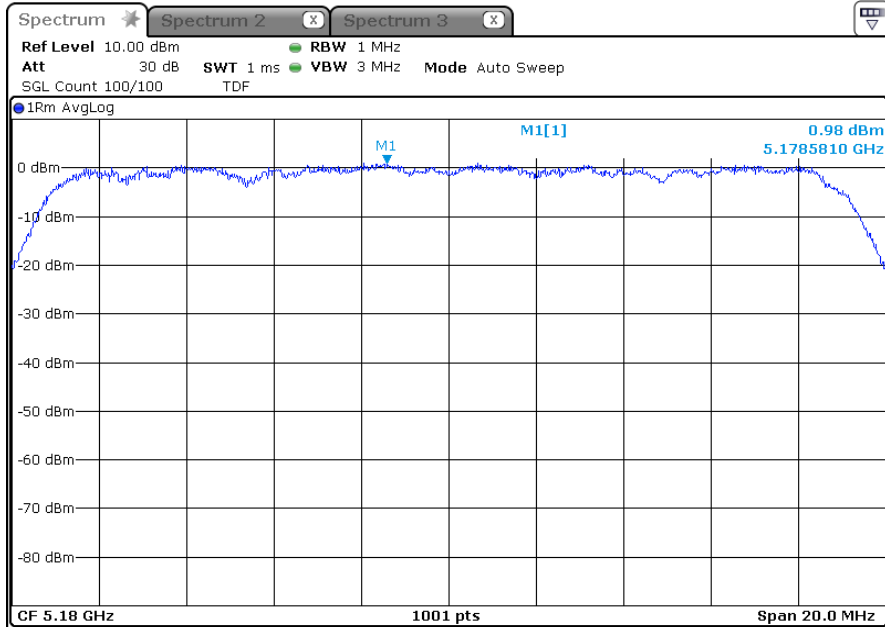


5 240 MHz

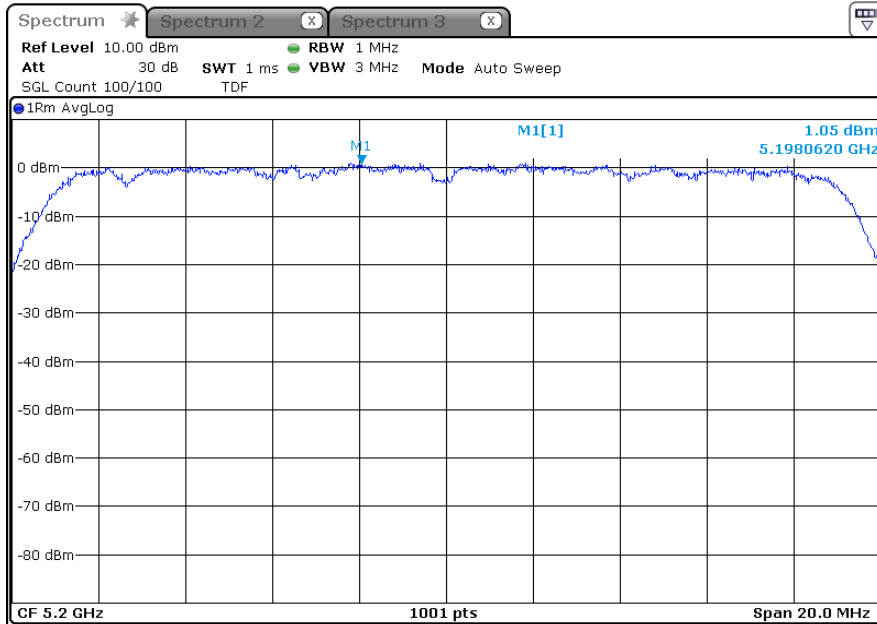


-802.11ac20\_ANT 2

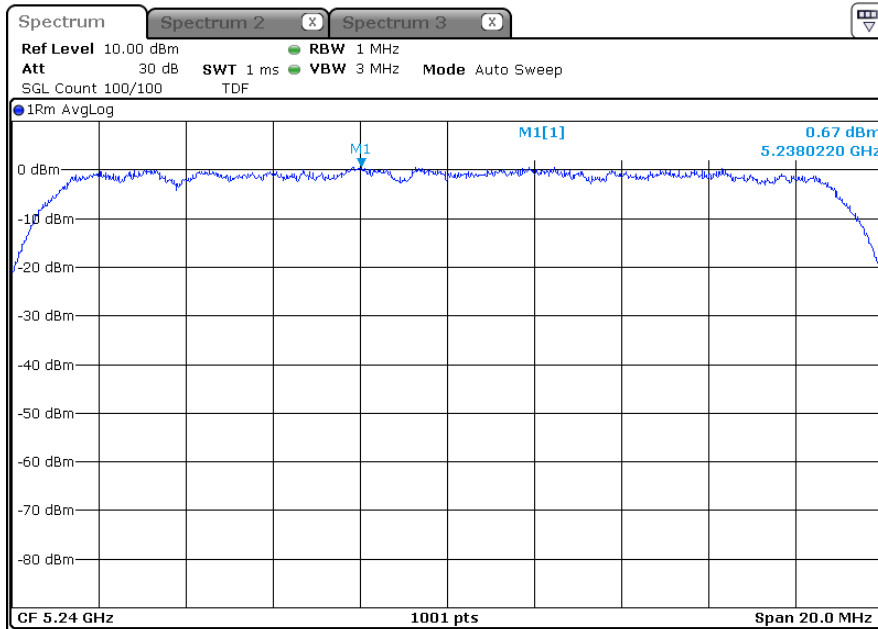
5 180 MHz



5 200 MHz

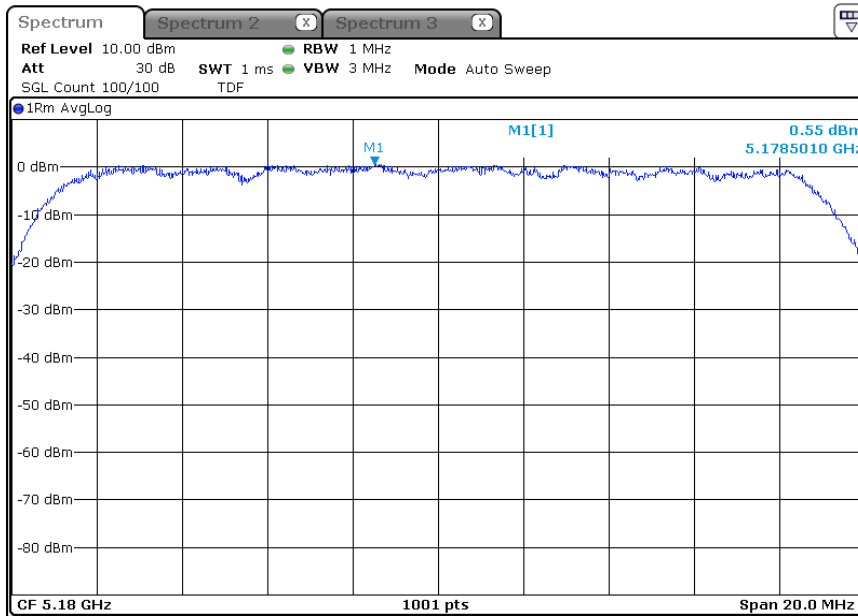


5 240 MHz

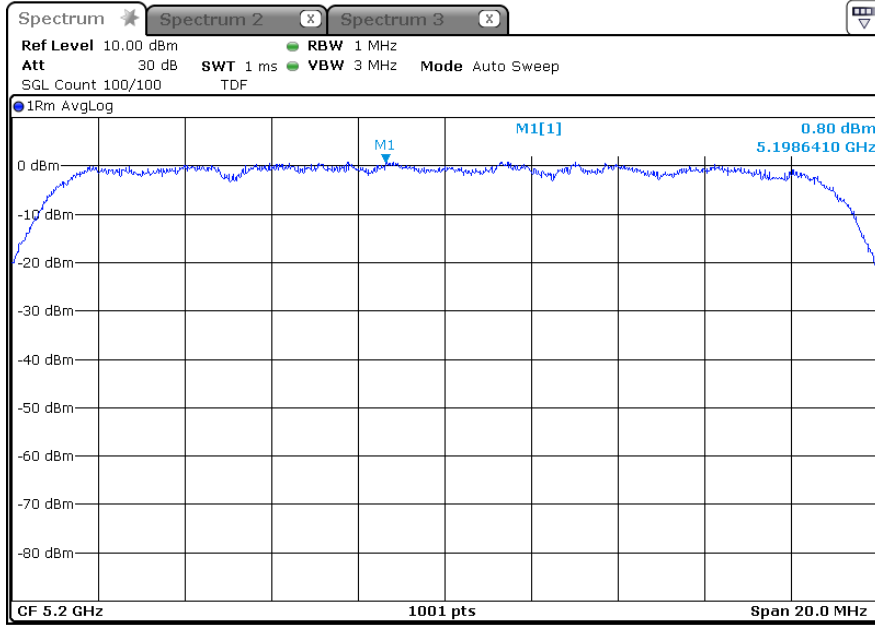


-802.11ac20\_ANT 3

5 180 MHz



5 200 MHz



5 240 MHz

