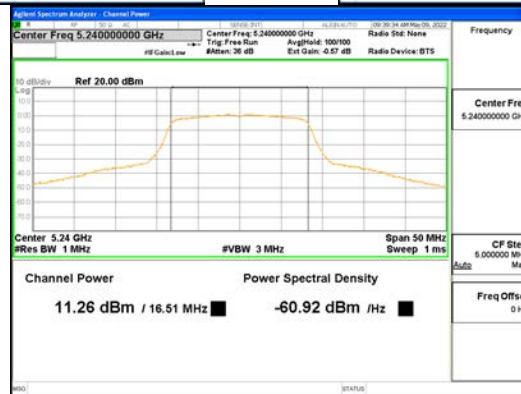
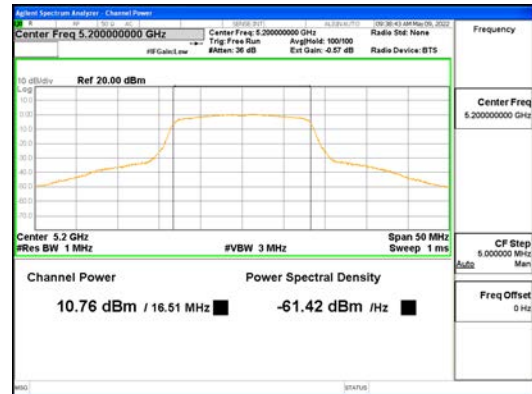
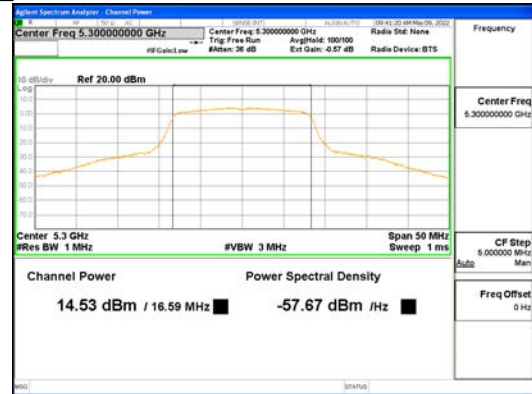
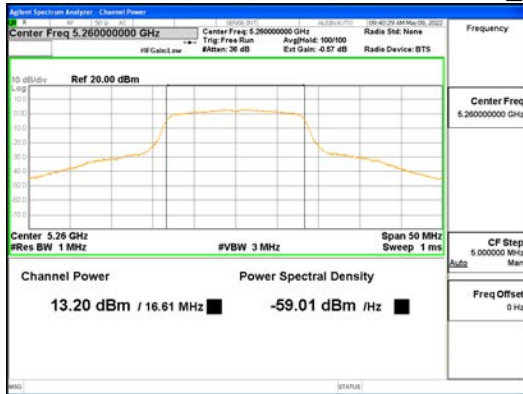
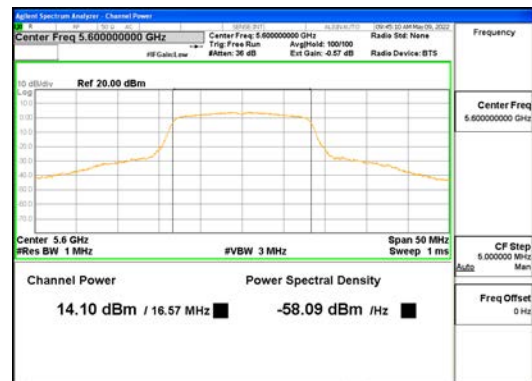
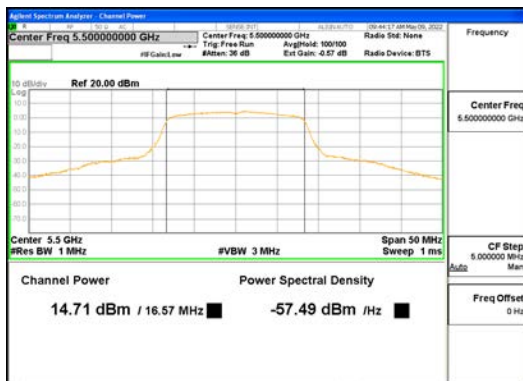




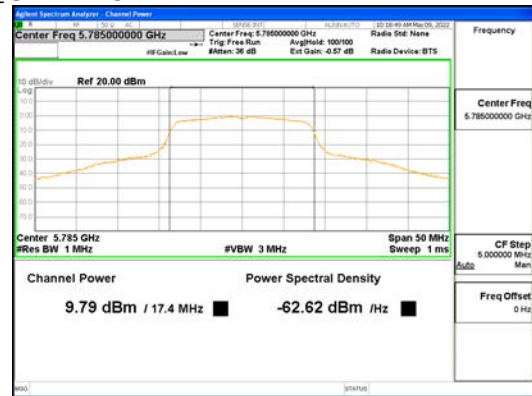
ANT2_802.11a_UNII 1



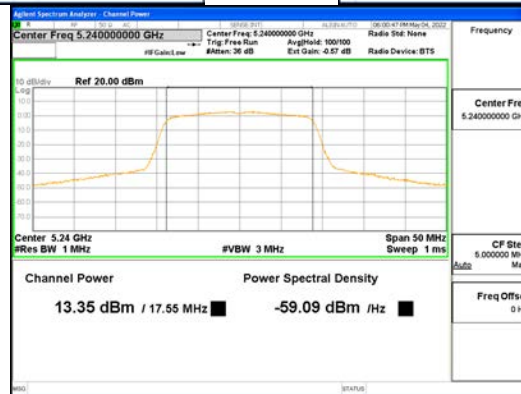
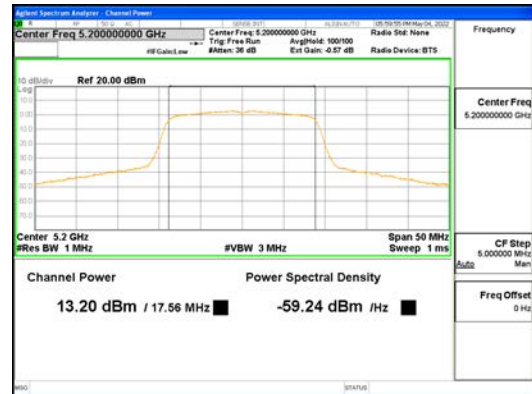
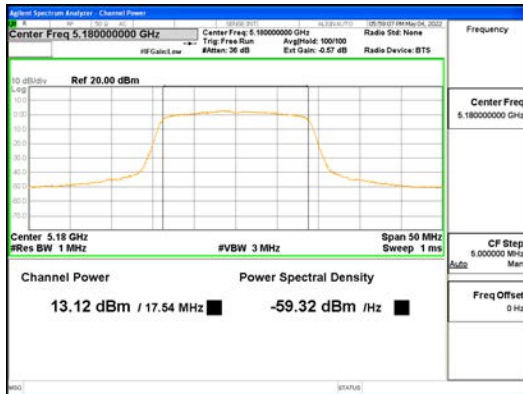
ANT2_802.11a_UNII 2A



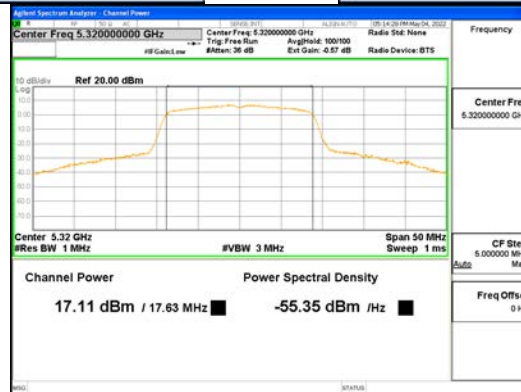
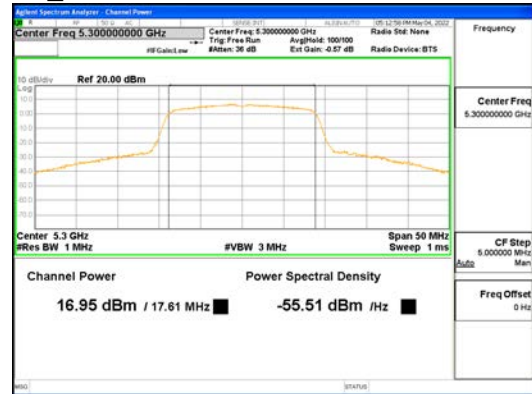
ANT2_802.11a_UNII 2C



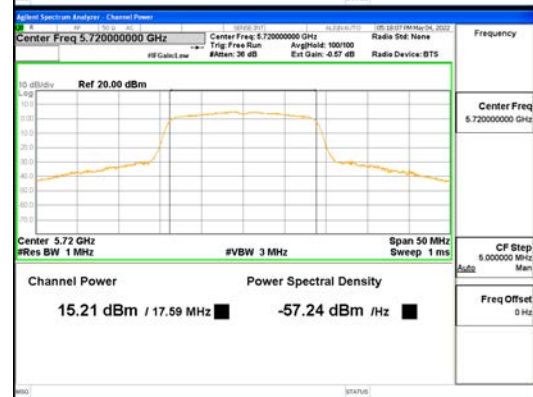
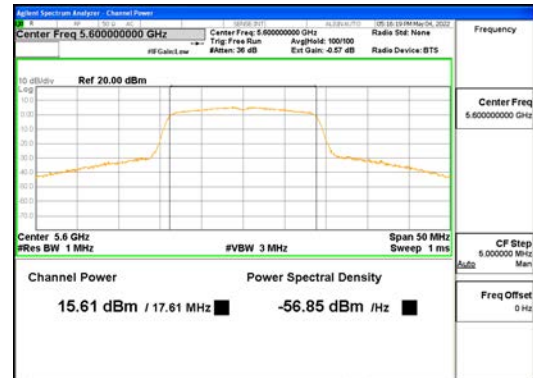
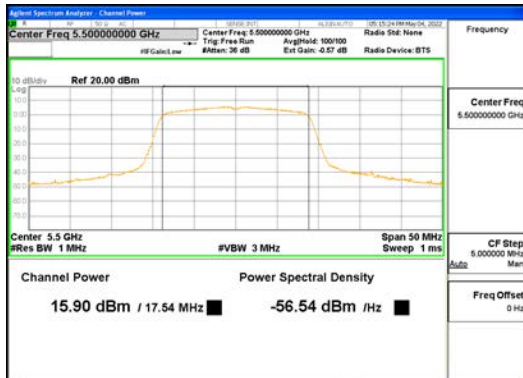
ANT2_802.11a_UNII 3



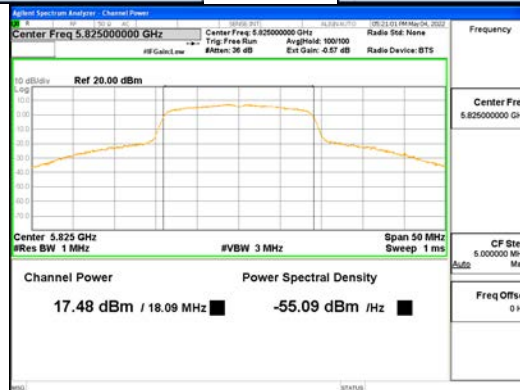
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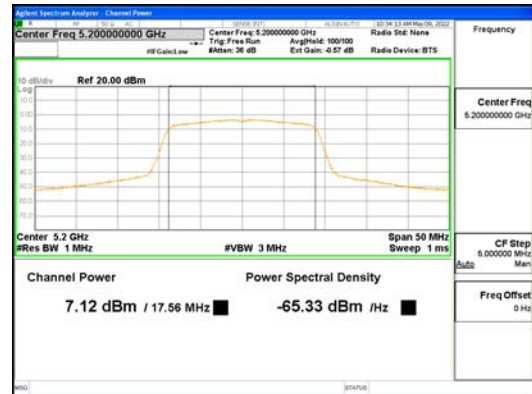
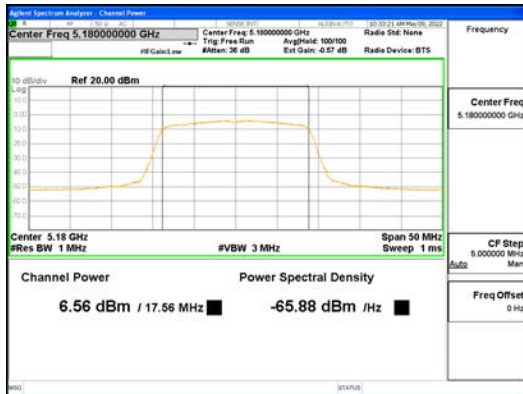
ANT1_802.11n_HT20_UNII 2A



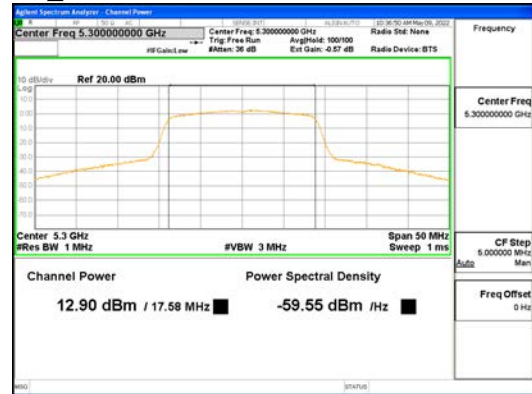
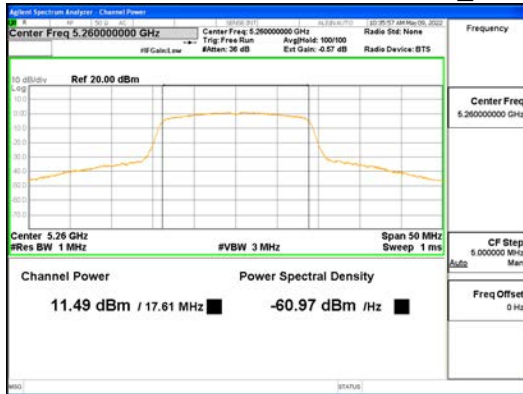
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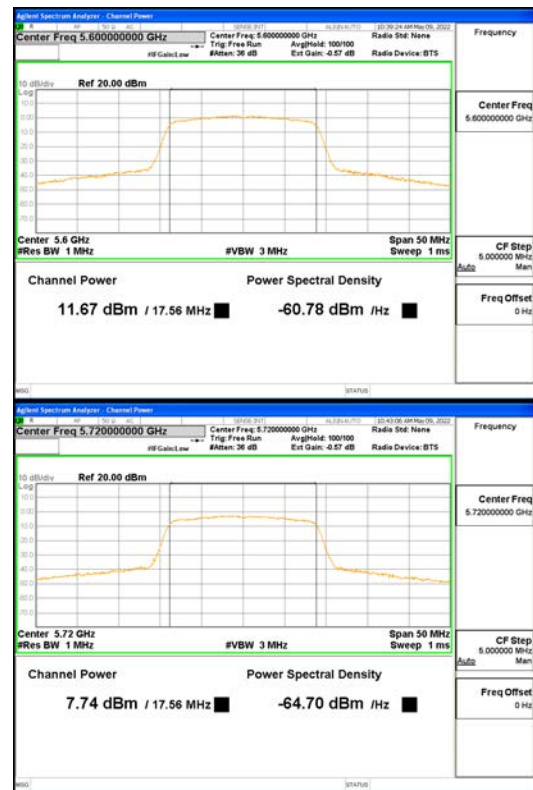
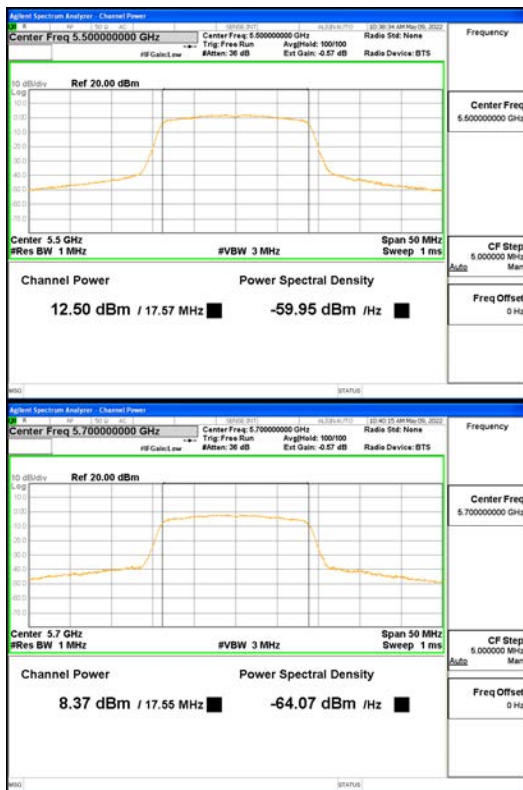
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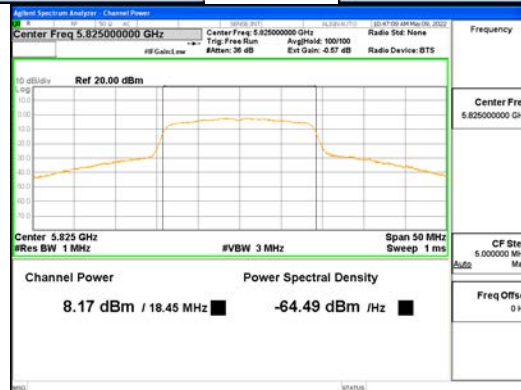
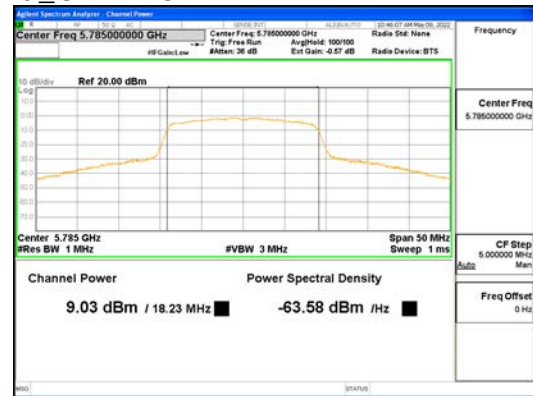
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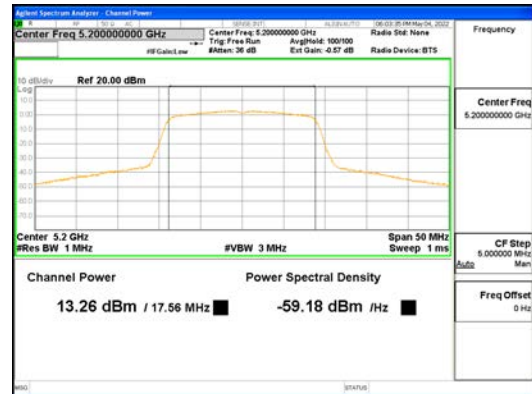
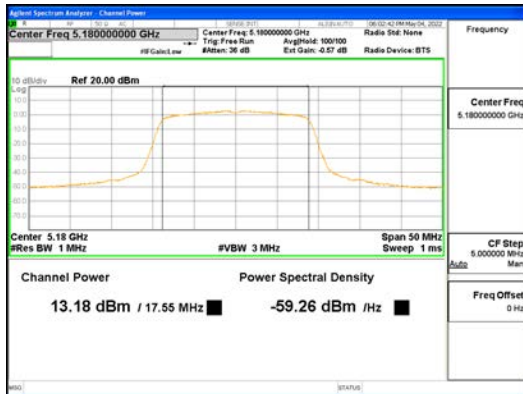
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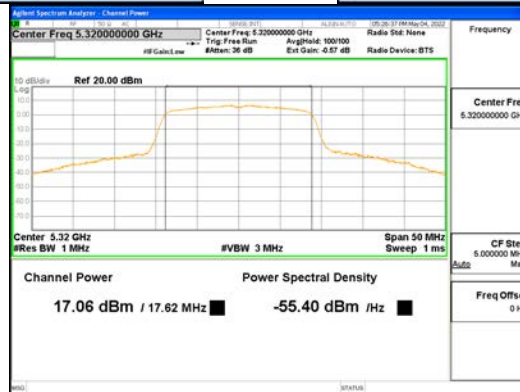
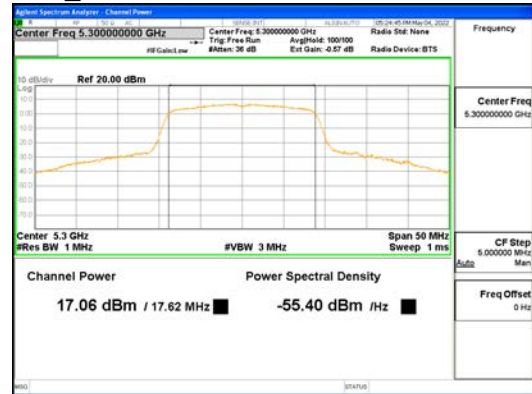
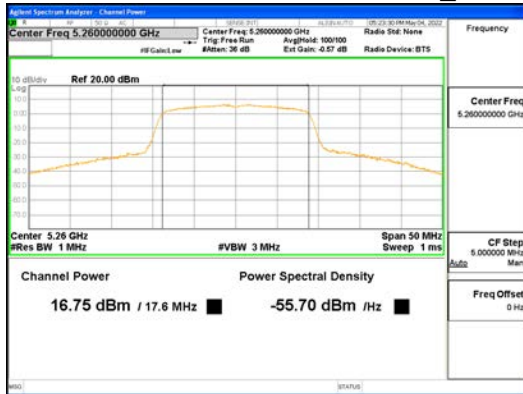
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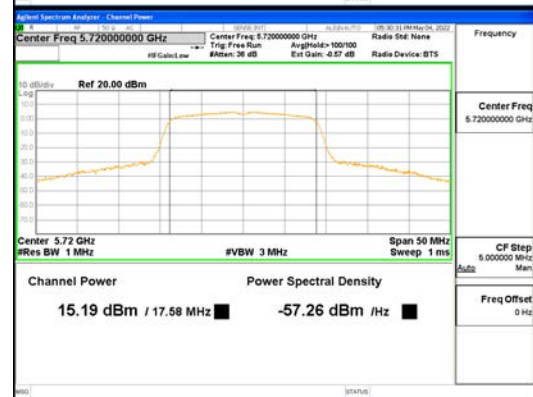
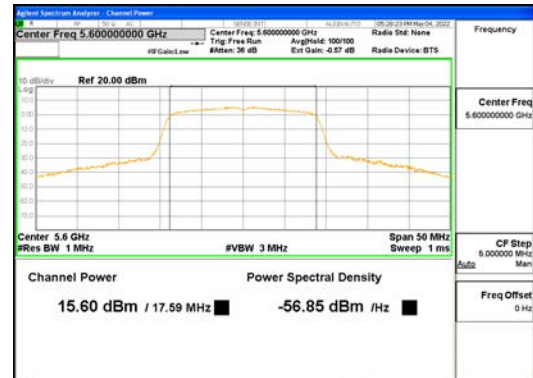
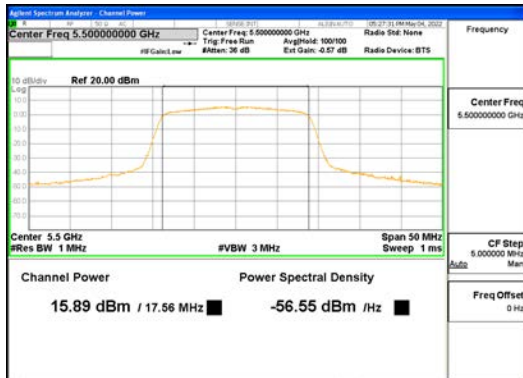
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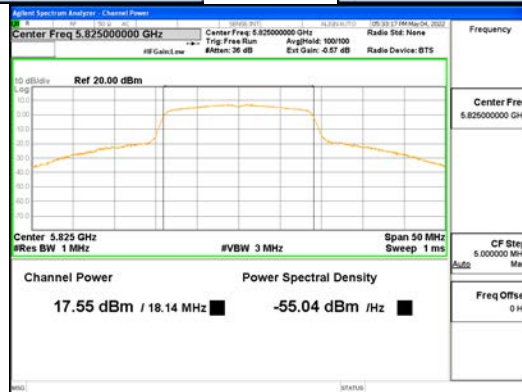
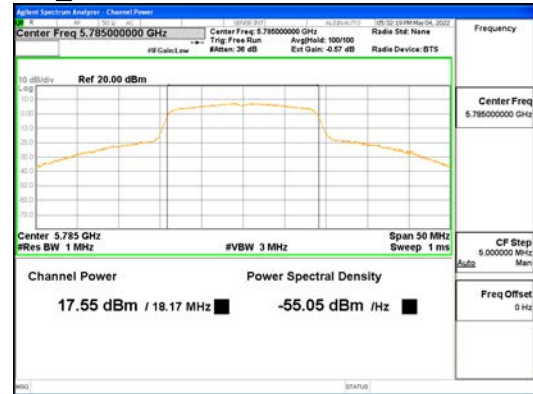
ANT1_802.11ac_VHT20_UNII 1



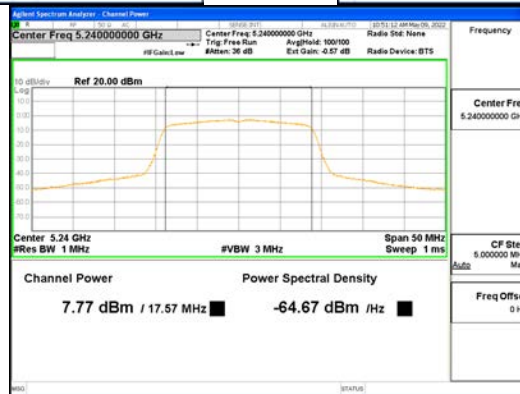
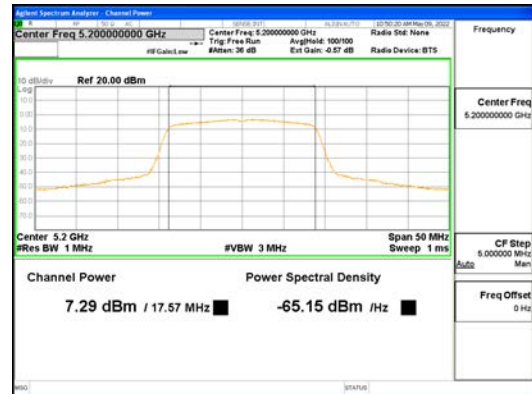
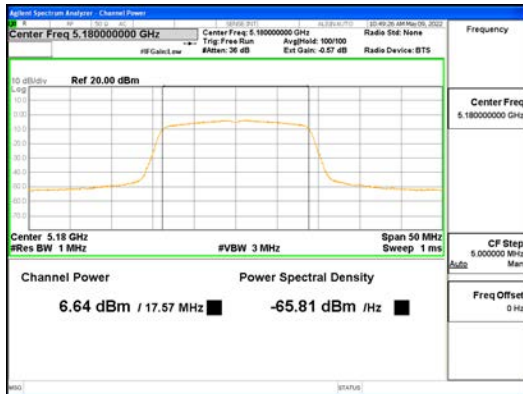
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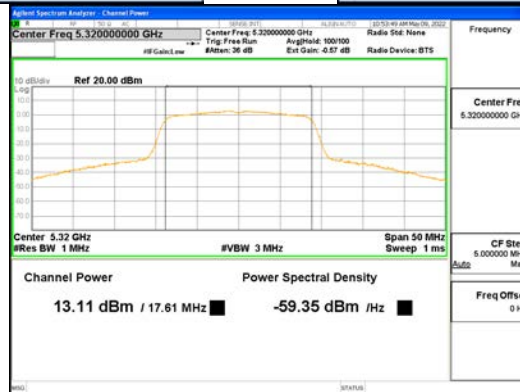
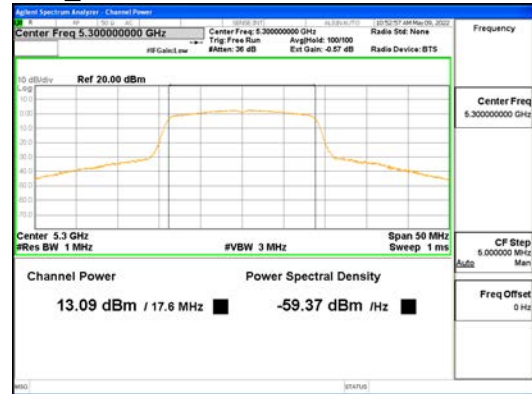
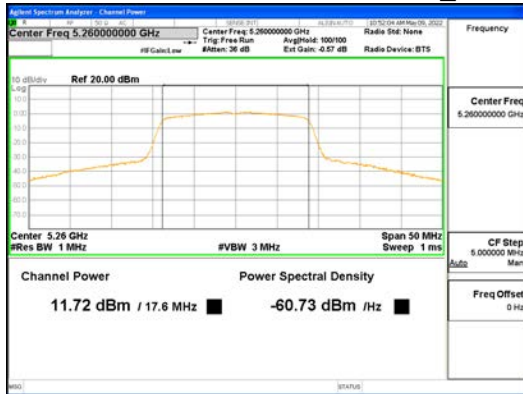
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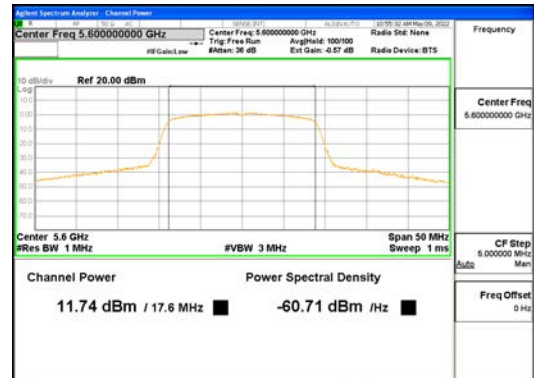
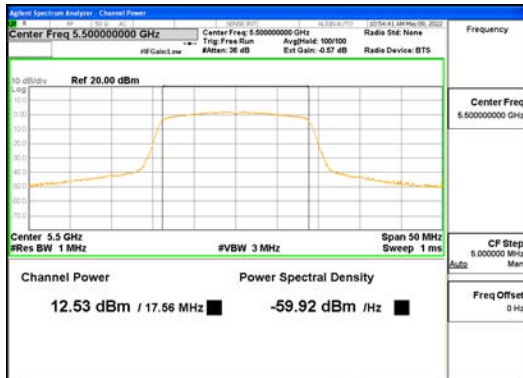
ANT1_802.11ac_VHT20_UNII 3



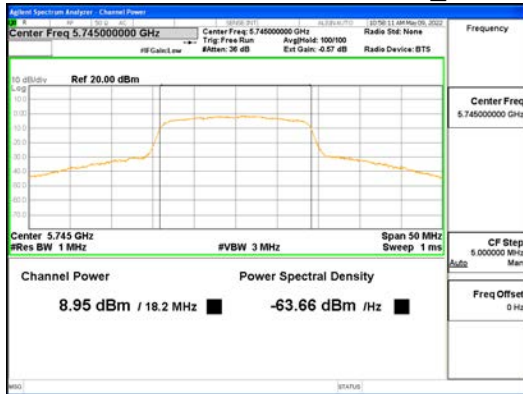
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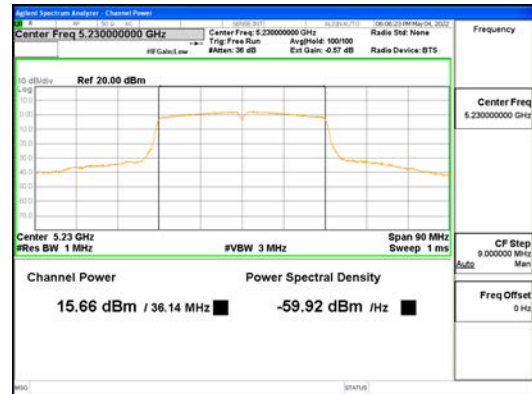
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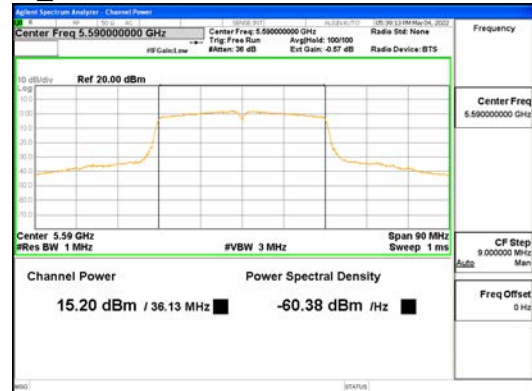
ANT2_802.11ac_VHT20_UNII 3



ANT1_802.11n_HT40_UNII 1



ANT1_802.11n_HT40_UNII 2A



ANT1_802.11n_HT40_UNII 2C



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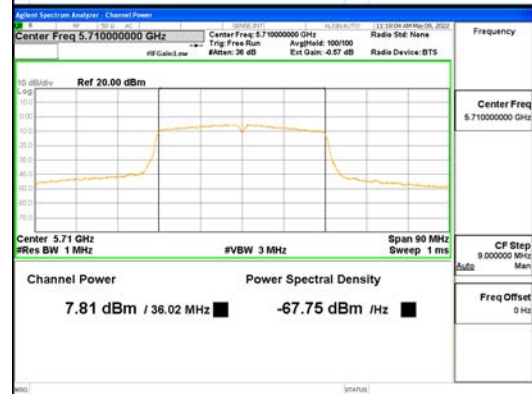
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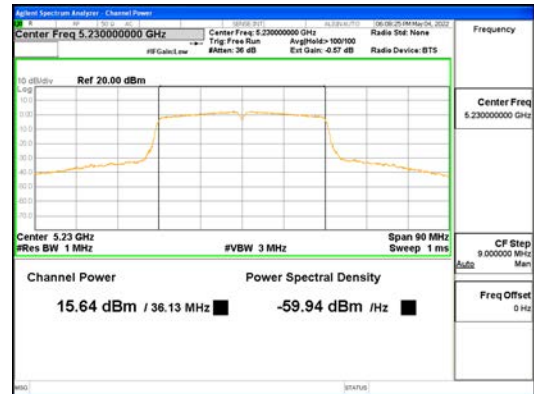
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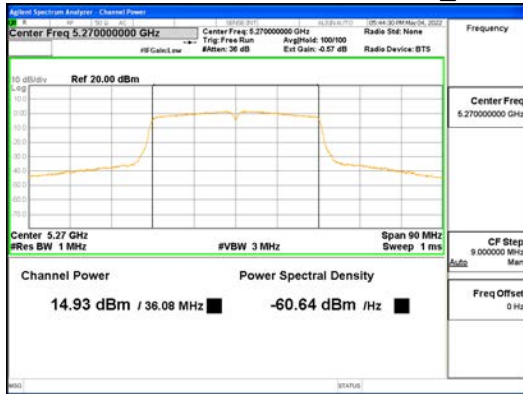
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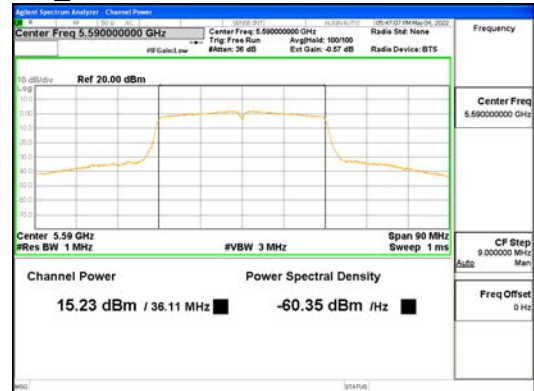
ANT2_802.11n_HT40_UNI1 3



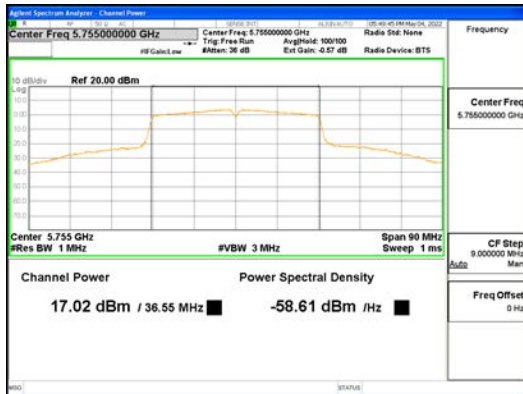
ANT1_802.11ac_VHT40_UNII 1



ANT1_802.11ac_VHT40_UNII 2A



ANT1_802.11ac_VHT40_UNII 2C



ANT1_802.11ac_VHT40_UNIT 3



ANT2_802.11ac_VHT40_UNII 1



ANT2_802.11ac_VHT40_UNII 2A



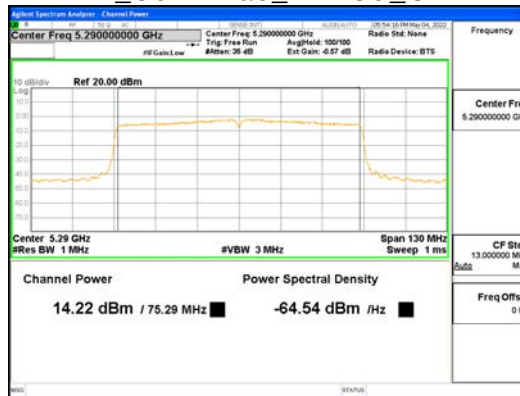
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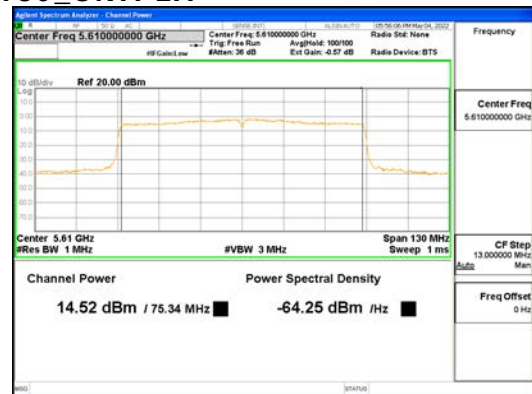
ANT2_802.11ac_VHT40_UNIT 3



ANT1_802.11ac_VHT80_UNII 1



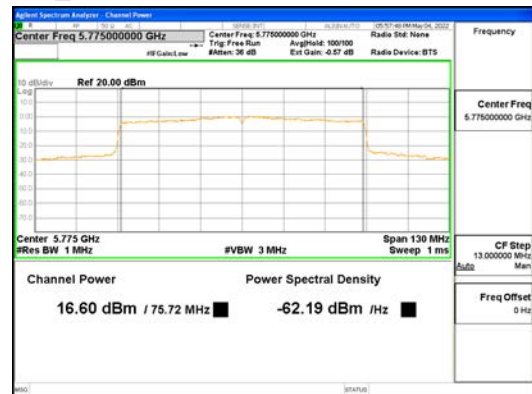
ANT1_802.11ac_VHT80_UNII 2A



ANT1_802.11ac_VHT80_UNII 2C



ANT1_802.11ac_VHT80_UNII 2C



ANT1_802.11ac_VHT80_UNII 3



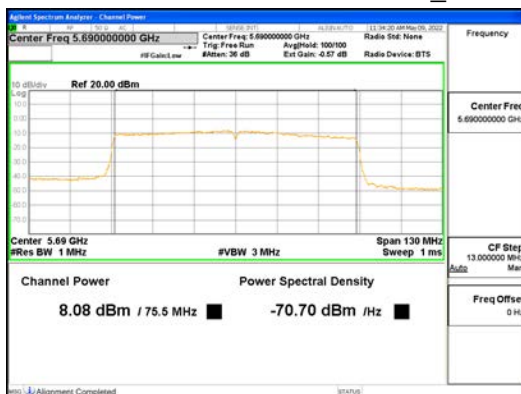
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ANT2_802.11ac_VHT80_UNII 2A



ANT2_802.11ac_VHT80_UNII 2C



ANT2_802.11ac_VHT80_UNII 2C



ANT2_802.11ac_VHT80_UNII 3

4.4 Power Spectral Density

Test Procedures

KDB 789033 – Section F (Method SA-2, Maximum Power Spectral Density)
KDB 662911 D01, D02 (Multiple Transmitter Output)
ANSI C63.10-2013 – Section 12.5

The peak power density is measured with a spectrum analyzer connected to the antenna terminal while the EUT is operating in transmission mode at the appropriate frequencies.

Test Settings :

Center frequency = the highest, middle and the lowest channels

- a) RBW = 1 MHz, 500 KHz (UNII 3)
- b) VBW = 3 MHz, 1.5 MHz (UNII 3)
- c) Sweep time = auto
- d) Detector = power averaging (rms)
- e) Trace mode = Average at least 100
- f) Duty cycle factor = $10\log(1/x)$

Test mode	Duty Cycle Factor
802.11a	0.15 dB
802.11n_HT20	0.16 dB
802.11n_HT40	0.30 dB
802.11ac_VHT20	0.16 dB
802.11ac_VHT40	0.32 dB
802.11ac_VHT80	0.62 dB

Limit

Operating Mode	ANT Configuration	ANT Gain (dBi)	Mode	Band	Limit (dBm)
SISO	ANT1, ANT2	2.69, 2.74	802.11a/n/ac	UNII 1	11.00
				UNII 2A	11.00
				UNII 2C	11.00
				UNII 3	30.00
MIMO (2Tx)	ANT1 + ANT2	5.73	802.11/n/ac/	UNII 1	11.00
				UNII 2A	11.00
				UNII 2C	11.00
				UNII 3	30.00

Test Data

ANT1

Test Mode	Frequency (MHz)	Measured Power Density (dBm)	Duty cycle Factor (dB)	Result Power Density (dBm)	Limit (dBm)	Margin (dB)
802.11a	5 180	6.88	0.15	7.03	11.00	3.97
	5 200	6.77	0.15	6.92	11.00	4.08
	5 240	6.95	0.15	7.10	11.00	3.90
	5 260	8.67	0.15	8.82	11.00	2.18
	5 300	8.41	0.15	8.56	11.00	2.44
	5 320	8.78	0.15	8.93	11.00	2.07
	5 500	8.20	0.15	8.35	11.00	2.65
	5 600	7.52	0.15	7.67	11.00	3.33
	5 700	7.20	0.15	7.35	11.00	3.65
	5 720	7.25	0.15	7.40	11.00	3.60
	5 745	5.40	0.15	5.55	30.00	24.45
	5 785	5.39	0.15	5.54	30.00	24.46
	5 825	5.56	0.15	5.71	30.00	24.29
802.11n _HT20	5 180	1.94	0.16	2.10	11.00	8.90
	5 200	2.09	0.16	2.25	11.00	8.75
	5 240	2.17	0.16	2.33	11.00	8.67
	5 260	6.64	0.16	6.80	11.00	4.20
	5 300	6.70	0.16	6.86	11.00	4.14
	5 320	7.15	0.16	7.31	11.00	3.69
	5 500	5.92	0.16	6.08	11.00	4.92
	5 600	5.56	0.16	5.72	11.00	5.28
	5 700	4.96	0.16	5.12	11.00	5.88
	5 720	5.15	0.16	5.31	11.00	5.69
	5 745	4.38	0.16	4.54	30.00	25.46
	5 785	4.42	0.16	4.58	30.00	25.42
	5 825	4.49	0.16	4.65	30.00	25.35
802.11ac _VHT20	5 180	1.95	0.16	2.11	11.00	8.89
	5 200	2.13	0.16	2.29	11.00	8.71
	5 240	2.50	0.16	2.66	11.00	8.34
	5 260	6.61	0.16	6.77	11.00	4.23
	5 300	6.76	0.16	6.92	11.00	4.08
	5 320	7.09	0.16	7.25	11.00	3.75
	5 500	5.77	0.16	5.93	11.00	5.07

	5 600	5.50	0.16	5.66	11.00	5.34
	5 700	5.00	0.16	5.16	11.00	5.84
	5 720	4.98	0.16	5.14	11.00	5.86
	5 745	4.44	0.16	4.60	30.00	25.40
	5 785	4.75	0.16	4.91	30.00	25.09
	5 825	4.43	0.16	4.59	30.00	25.41
802.11n _HT40	5 190	2.68	0.30	2.98	11.00	8.02
	5 230	2.67	0.30	2.97	11.00	8.03
	5 270	2.24	0.30	2.54	11.00	8.46
	5 310	2.29	0.30	2.59	11.00	8.41
	5 510	2.45	0.30	2.75	11.00	8.25
	5 590	2.53	0.30	2.83	11.00	8.17
	5 670	2.16	0.30	2.46	11.00	8.54
	5 710	1.62	0.30	1.92	11.00	9.08
	5 755	1.25	0.30	1.55	30.00	28.45
	5 795	1.66	0.30	1.96	30.00	28.04
802.11ac _VHT40	5 190	2.76	0.32	3.08	11.00	7.92
	5 230	2.68	0.32	3.00	11.00	8.00
	5 270	2.03	0.32	2.35	11.00	8.65
	5 310	2.28	0.32	2.60	11.00	8.40
	5 510	2.31	0.32	2.63	11.00	8.37
	5 590	2.23	0.32	2.55	11.00	8.45
	5 670	1.95	0.32	2.27	11.00	8.73
	5 710	1.75	0.32	2.07	11.00	8.93
	5 755	0.85	0.32	1.17	30.00	28.83
	5 795	1.60	0.32	1.92	30.00	28.08
802.11ac _VHT80	5 210	-1.69	0.62	-1.07	11.00	12.07
	5 290	-1.46	0.62	-0.84	11.00	11.84
	5 530	-1.20	0.62	-0.58	11.00	11.58
	5 610	-1.28	0.62	-0.66	11.00	11.66
	5 690	-2.15	0.62	-1.53	11.00	12.53
	5 775	-2.33	0.62	-1.71	30.00	31.71
Measurement uncertainty		± 1.5 dB				

ANT2

Test Mode	Frequency (MHz)	Measured Power Density (dBm)	Duty cycle Factor (dB)	Result Power Density (dBm)	Limit (dBm)	Margin (dB)
802.11a	5 180	0.09	0.15	0.24	11.00	10.76
	5 200	0.72	0.15	0.87	11.00	10.13
	5 240	1.34	0.15	1.49	11.00	9.51
	5 260	3.20	0.15	3.35	11.00	7.65
	5 300	4.47	0.15	4.62	11.00	6.38
	5 320	4.50	0.15	4.65	11.00	6.35
	5 500	4.70	0.15	4.85	11.00	6.15
	5 600	4.16	0.15	4.31	11.00	6.69
	5 700	0.94	0.15	1.09	11.00	9.91
	5 720	-0.01	0.15	0.14	11.00	10.86
	5 745	-2.87	0.15	-2.72	30.00	32.72
	5 785	-2.93	0.15	-2.78	30.00	32.78
	5 825	-4.15	0.15	-4.00	30.00	34.00
802.11n _HT20	5 180	-3.56	0.16	-3.40	11.00	14.40
	5 200	-2.99	0.16	-2.83	11.00	13.83
	5 240	-2.42	0.16	-2.26	11.00	13.26
	5 260	1.28	0.16	1.44	11.00	9.56
	5 300	2.91	0.16	3.07	11.00	7.93
	5 320	2.88	0.16	3.04	11.00	7.96
	5 500	2.30	0.16	2.46	11.00	8.54
	5 600	1.49	0.16	1.65	11.00	9.35
	5 700	-1.86	0.16	-1.70	11.00	12.70
	5 720	-2.58	0.16	-2.42	11.00	13.42
	5 745	-3.82	0.16	-3.66	30.00	33.66
	5 785	-3.42	0.16	-3.26	30.00	33.26
	5 825	-4.85	0.16	-4.69	30.00	34.69
802.11ac _VHT20	5 180	-3.53	0.16	-3.37	11.00	14.37
	5 200	-2.82	0.16	-2.66	11.00	13.66
	5 240	-2.43	0.16	-2.27	11.00	13.27
	5 260	1.63	0.16	1.79	11.00	9.21
	5 300	3.05	0.16	3.21	11.00	7.79
	5 320	2.84	0.16	3.00	11.00	8.00
	5 500	2.45	0.16	2.61	11.00	8.39
	5 600	1.69	0.16	1.85	11.00	9.15

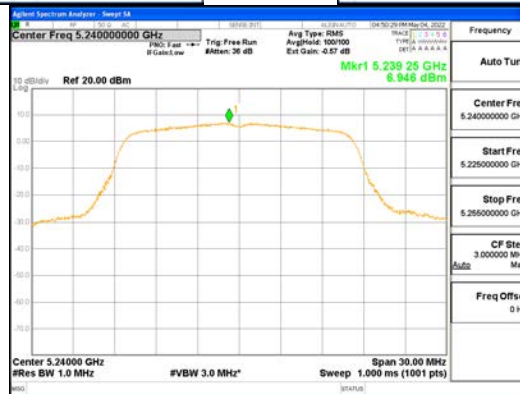
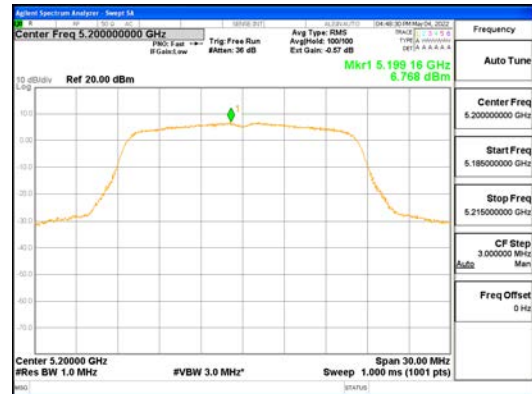
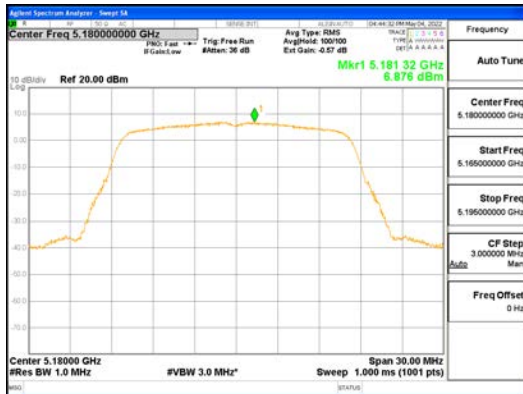
	5 700	-1.35	0.16	-1.19	11.00	12.19
	5 720	-2.70	0.16	-2.54	11.00	13.54
	5 745	-3.96	0.16	-3.80	30.00	33.80
	5 785	-3.98	0.16	-3.82	30.00	33.82
	5 825	-4.87	0.16	-4.71	30.00	34.71
802.11n _HT40	5 190	-3.29	0.30	-2.99	11.00	13.99
	5 230	-2.47	0.30	-2.17	11.00	13.17
	5 270	-2.65	0.30	-2.35	11.00	13.35
	5 310	-1.42	0.30	-1.12	11.00	12.12
	5 510	-0.76	0.30	-0.46	11.00	11.46
	5 590	-1.31	0.30	-1.01	11.00	12.01
	5 670	-3.61	0.30	-3.31	11.00	14.31
	5 710	-5.16	0.30	-4.86	11.00	15.86
	5 755	-6.64	0.30	-6.34	30.00	36.34
	5 795	-7.12	0.30	-6.82	30.00	36.82
802.11ac _VHT40	5 190	-3.19	0.32	-2.87	11.00	13.87
	5 230	-2.54	0.32	-2.22	11.00	13.22
	5 270	-2.67	0.32	-2.35	11.00	13.35
	5 310	-1.63	0.32	-1.31	11.00	12.31
	5 510	-0.76	0.32	-0.44	11.00	11.44
	5 590	-1.01	0.32	-0.69	11.00	11.69
	5 670	-3.66	0.32	-3.34	11.00	14.34
	5 710	-5.30	0.32	-4.98	11.00	15.98
	5 755	-6.82	0.32	-6.50	30.00	36.50
	5 795	-7.25	0.32	-6.93	30.00	36.93
802.11ac _VHT80	5 210	-7.10	0.62	-6.48	11.00	17.48
	5 290	-5.65	0.62	-5.03	11.00	16.03
	5 530	-4.70	0.62	-4.08	11.00	15.08
	5 610	-5.37	0.62	-4.75	11.00	15.75
	5 690	-7.99	0.62	-7.37	11.00	18.37
	5 775	-10.47	0.62	-9.85	30.00	39.85
Measurement uncertainty		± 1.5 dB				

ANT1 + ANT2

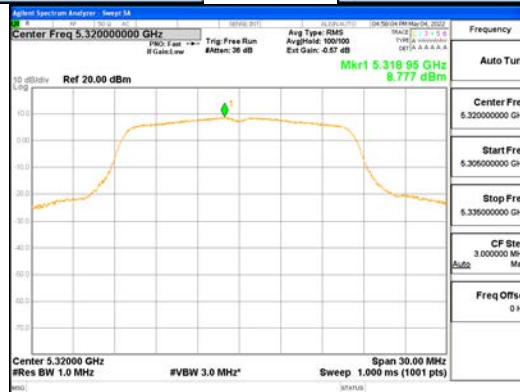
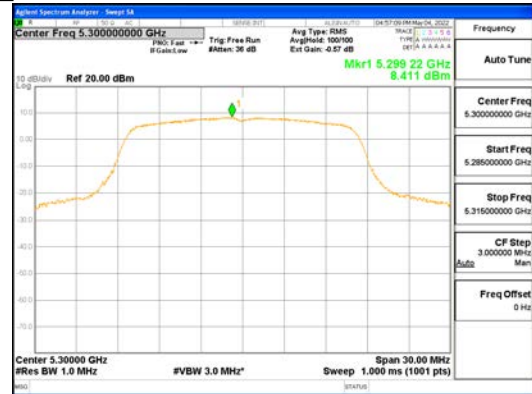
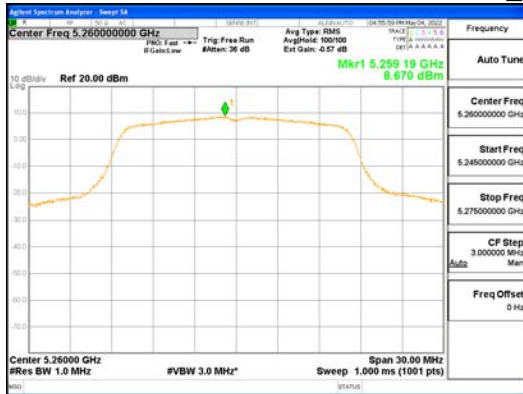
Test Mode	Frequency (MHz)	Measured Power Density (dBm)	Duty cycle Factor (dB)	Result Power Density (dBm)	Limit (dBm)	Margin (dB)
802.11n _HT20	5 180	3.02	0.16	3.18	11.00	7.82
	5 200	3.26	0.16	3.42	11.00	7.58
	5 240	3.47	0.16	3.63	11.00	7.37
	5 260	7.75	0.16	7.91	11.00	3.09
	5 300	8.22	0.16	8.38	11.00	2.62
	5 320	8.53	0.16	8.69	11.00	2.31
	5 500	7.49	0.16	7.65	11.00	3.35
	5 600	7.00	0.16	7.16	11.00	3.84
	5 700	5.78	0.16	5.94	11.00	5.06
	5 720	5.83	0.16	5.99	11.00	5.01
	5 745	4.99	0.16	5.15	30.00	24.85
	5 785	5.08	0.16	5.24	30.00	24.76
	5 825	4.97	0.16	5.13	30.00	24.87
802.11ac _VHT20	5 180	3.03	0.16	3.19	11.00	7.81
	5 200	3.34	0.16	3.50	11.00	7.50
	5 240	3.71	0.16	3.87	11.00	7.13
	5 260	7.81	0.16	7.97	11.00	3.03
	5 300	8.30	0.16	8.46	11.00	2.54
	5 320	8.48	0.16	8.64	11.00	2.36
	5 500	7.43	0.16	7.59	11.00	3.41
	5 600	7.01	0.16	7.17	11.00	3.83
	5 700	5.91	0.16	6.07	11.00	4.93
	5 720	5.66	0.16	5.82	11.00	5.18
	5 745	5.03	0.16	5.19	30.00	24.81
	5 785	5.30	0.16	5.46	30.00	24.54
	5 825	4.91	0.16	5.07	30.00	24.93
802.11n _HT40	5 190	3.66	0.30	3.96	11.00	7.04
	5 230	3.83	0.30	4.13	11.00	6.87
	5 270	3.46	0.30	3.76	11.00	7.24
	5 310	3.83	0.30	4.13	11.00	6.87
	5 510	4.15	0.30	4.45	11.00	6.55
	5 590	4.03	0.30	4.33	11.00	6.67
	5 670	3.18	0.30	3.48	11.00	7.52
	5 710	2.45	0.30	2.75	11.00	8.25

	5 755	1.90	0.30	2.20	30.00	27.80
	5 795	2.20	0.30	2.50	30.00	27.50
802.11ac _VHT40	5 190	3.74	0.32	4.06	11.00	6.94
	5 230	3.82	0.32	4.14	11.00	6.86
	5 270	3.30	0.32	3.62	11.00	7.38
	5 310	3.76	0.32	4.08	11.00	6.92
	5 510	4.05	0.32	4.37	11.00	6.63
	5 590	3.92	0.32	4.24	11.00	6.76
	5 670	3.00	0.32	3.32	11.00	7.68
	5 710	2.53	0.32	2.85	11.00	8.15
	5 755	1.54	0.32	1.86	30.00	28.14
	5 795	2.13	0.32	2.45	30.00	27.55
802.11ac _VHT80	5 210	-0.59	0.62	0.03	11.00	10.97
	5 290	-0.06	0.62	0.56	11.00	10.44
	5 530	0.40	0.62	1.02	11.00	9.98
	5 610	0.15	0.62	0.77	11.00	10.23
	5 690	-1.14	0.62	-0.52	11.00	11.52
	5 775	-1.71	0.62	-1.09	30.00	31.09
Measurement uncertainty		± 1.5 dB				

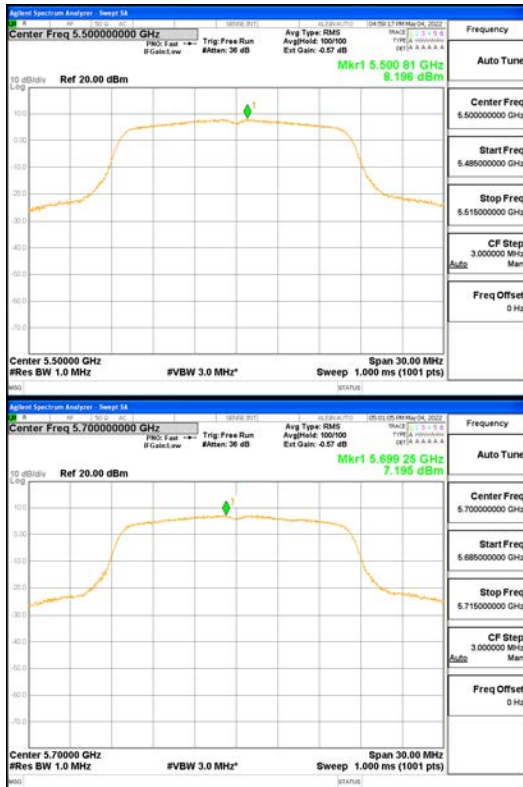
See next pages for actual measured spectrum plots.



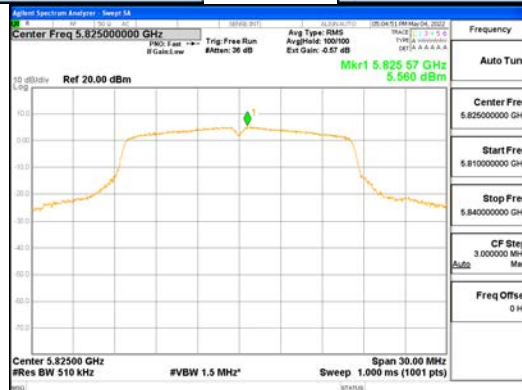
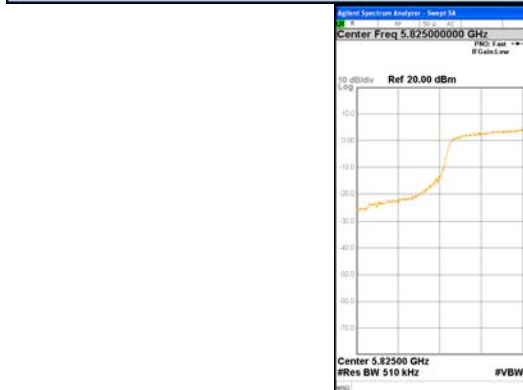
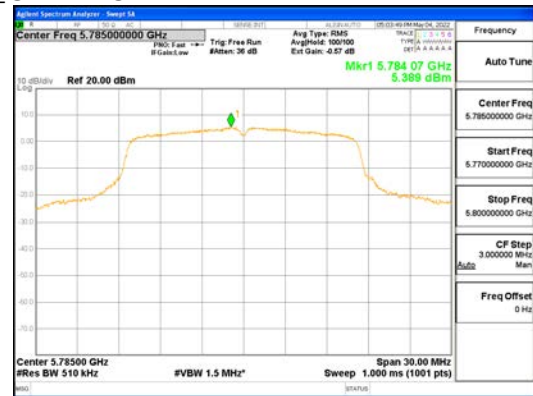
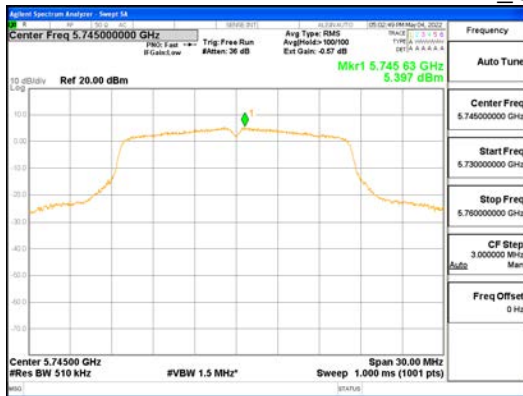
ANT1_802.11a_UNII 1



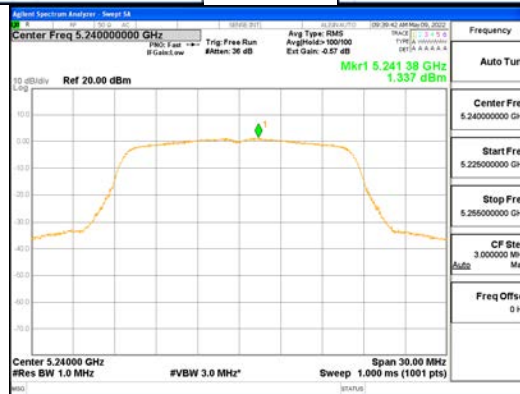
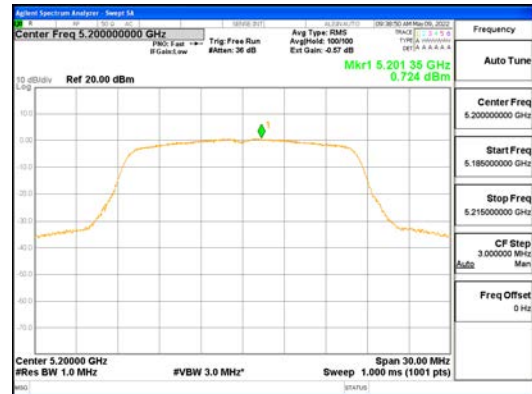
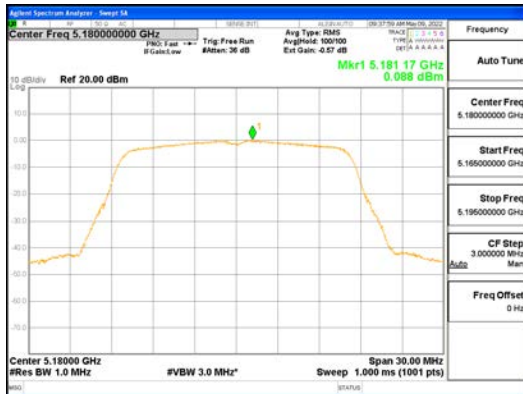
ANT1_802.11a_UNII 2A



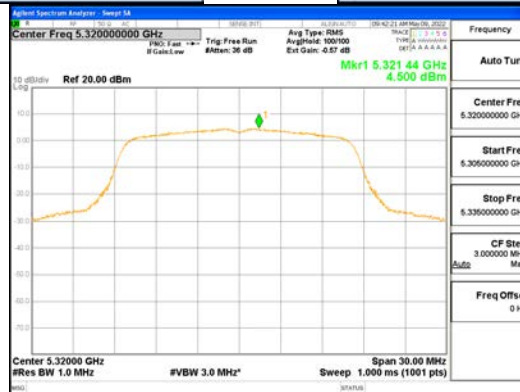
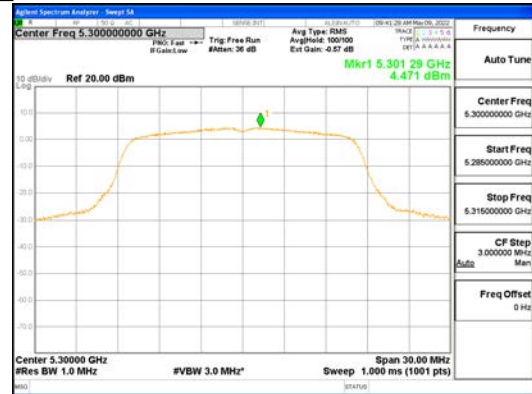
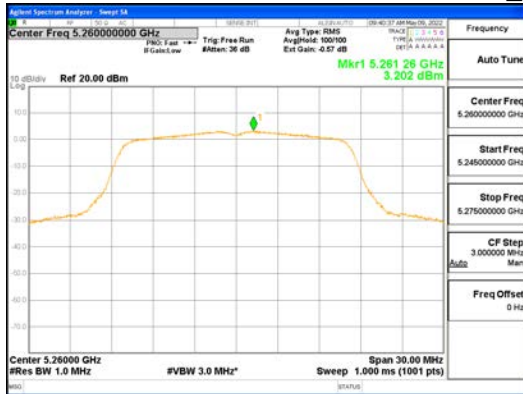
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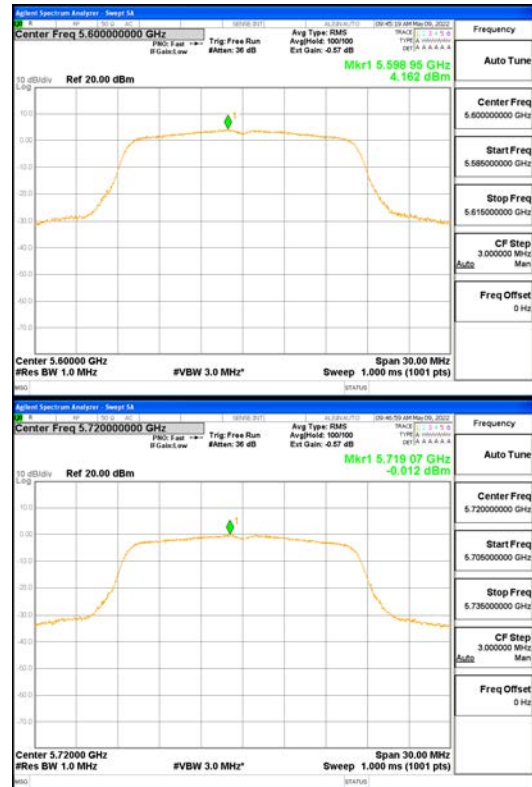
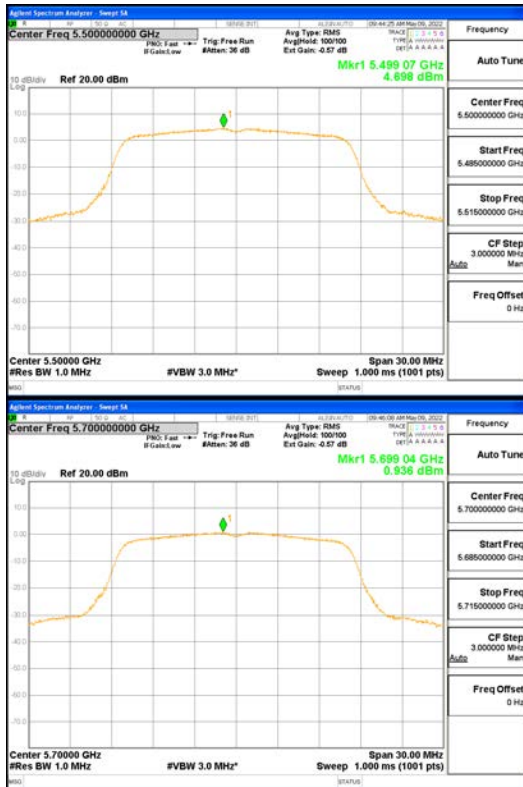
ANT1_802.11a_UNII 3



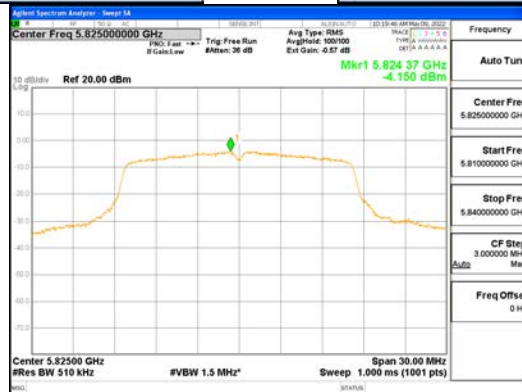
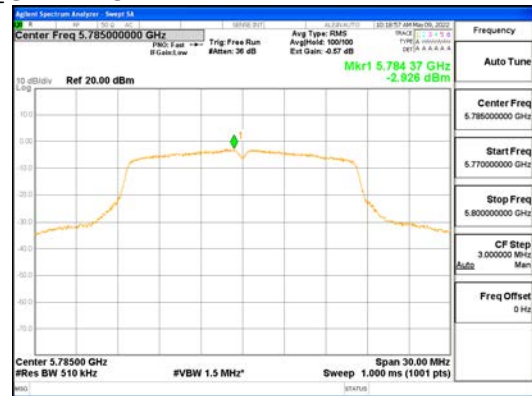
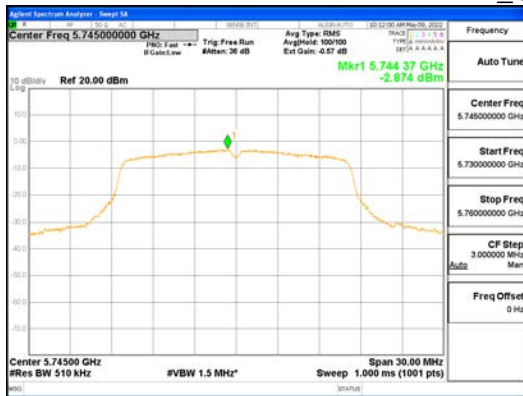
ANT2_802.11a_UNII 1



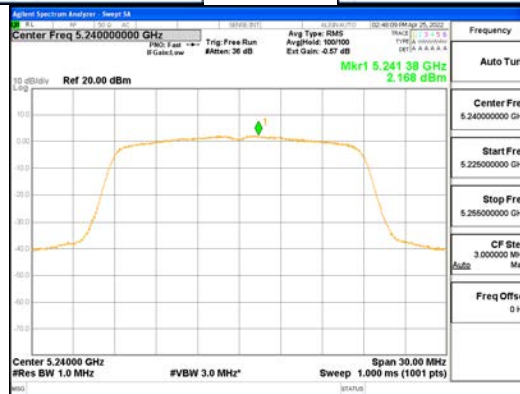
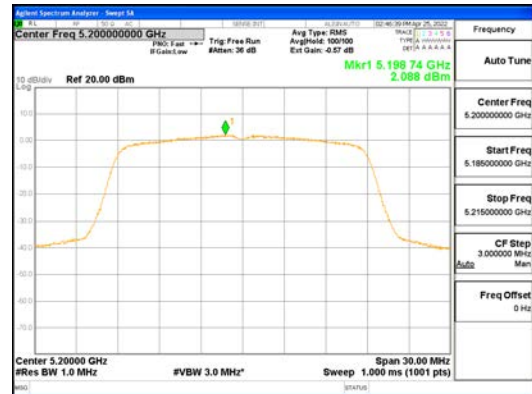
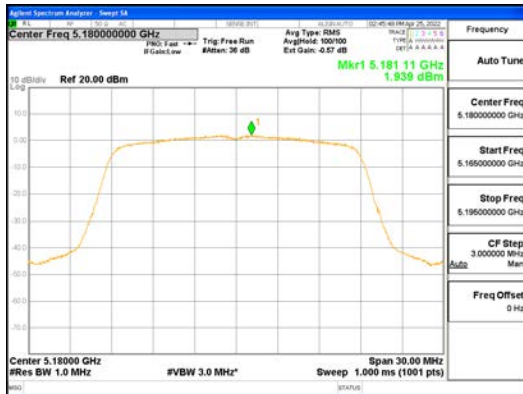
ANT2_802.11a_UNII 2A



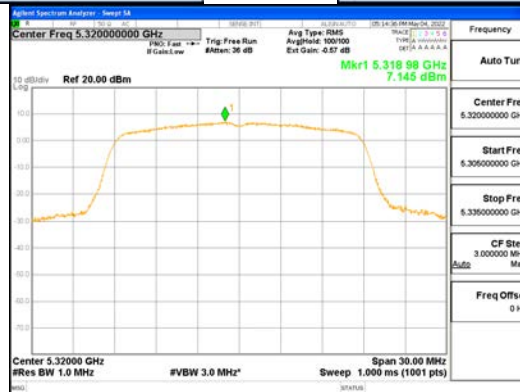
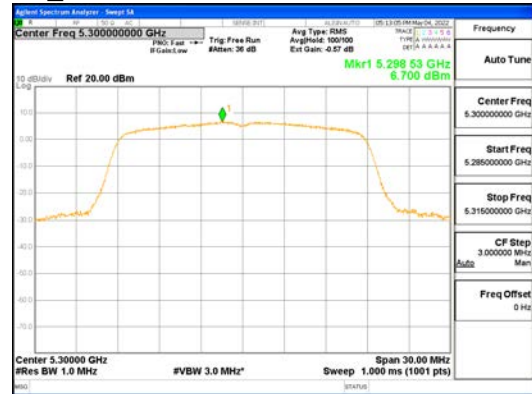
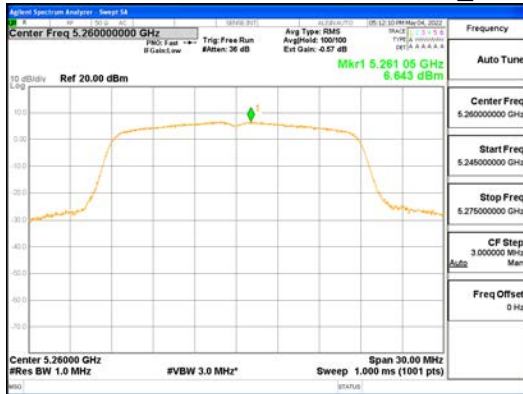
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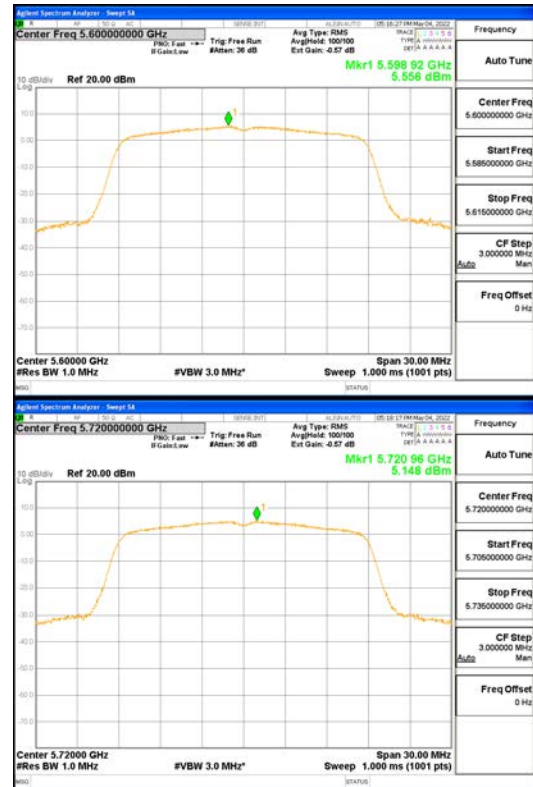
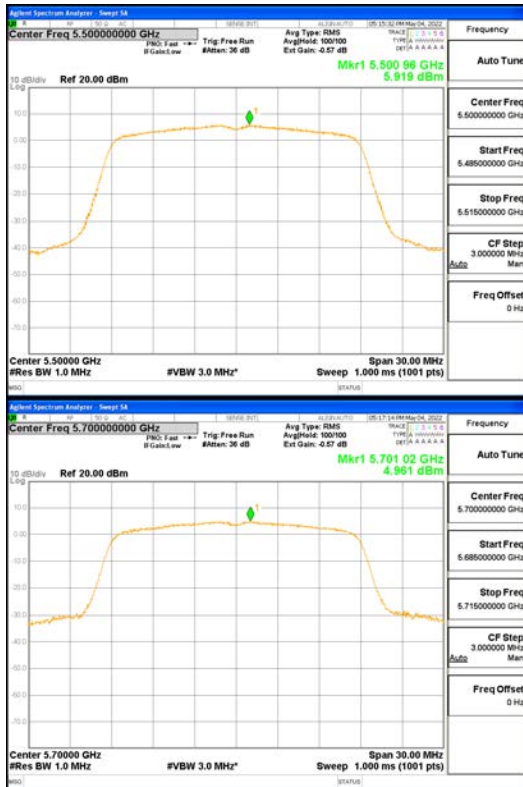
ANT2_802.11a_UNII 3



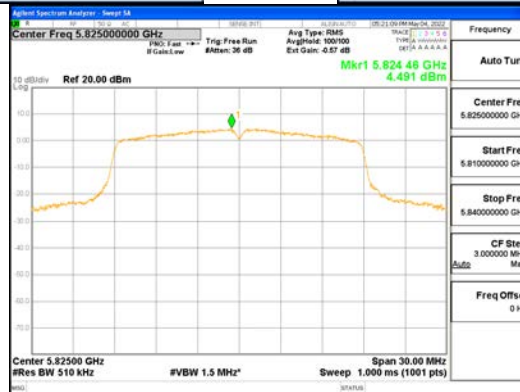
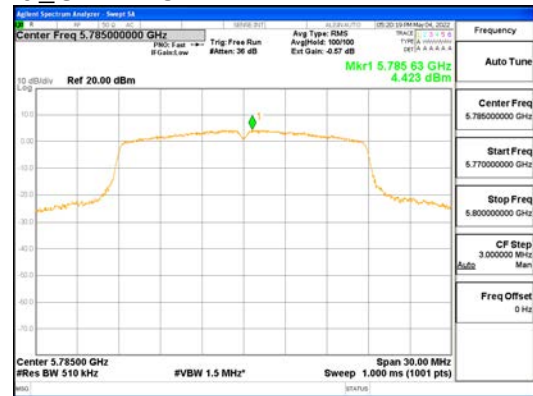
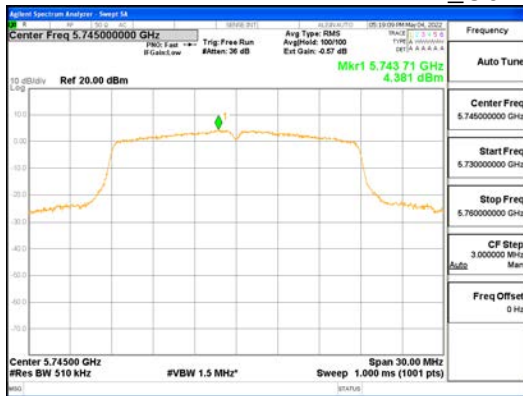
ANT1_802.11n_HT20_UNII 1



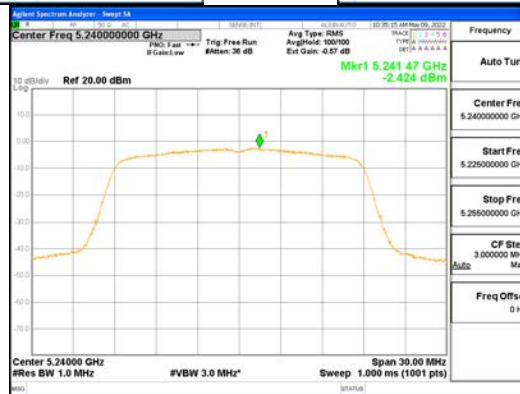
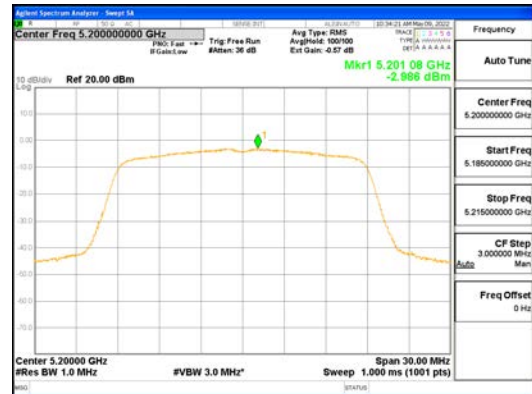
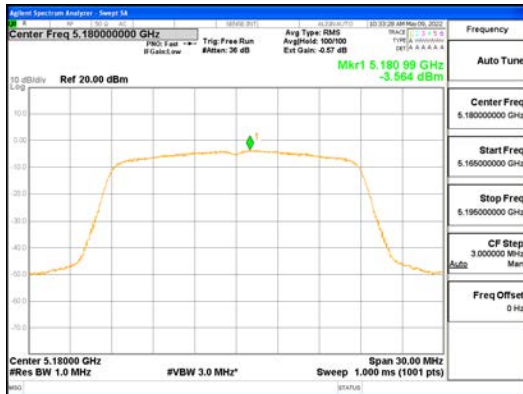
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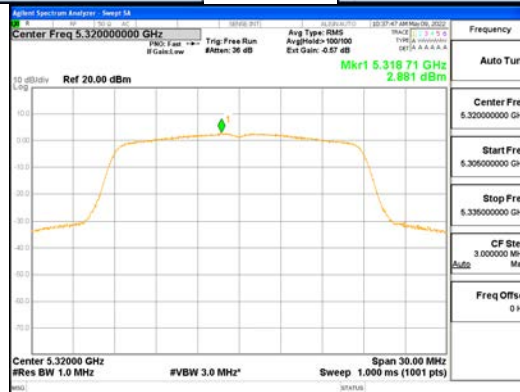
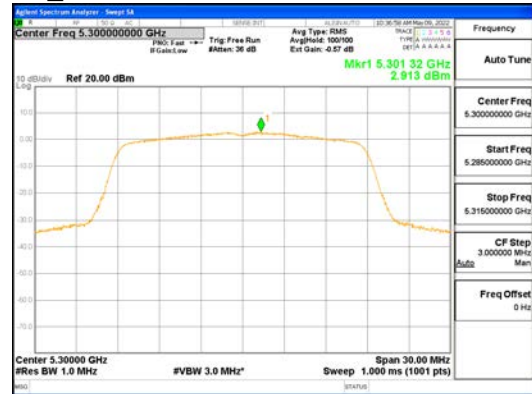
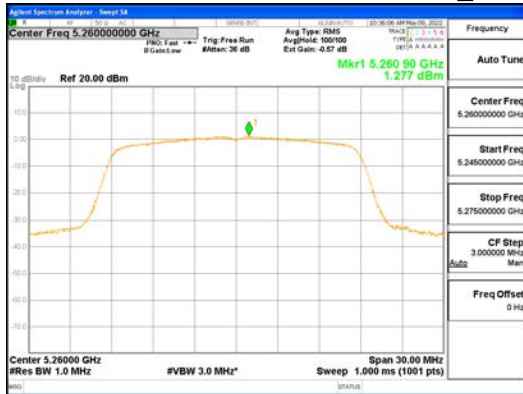
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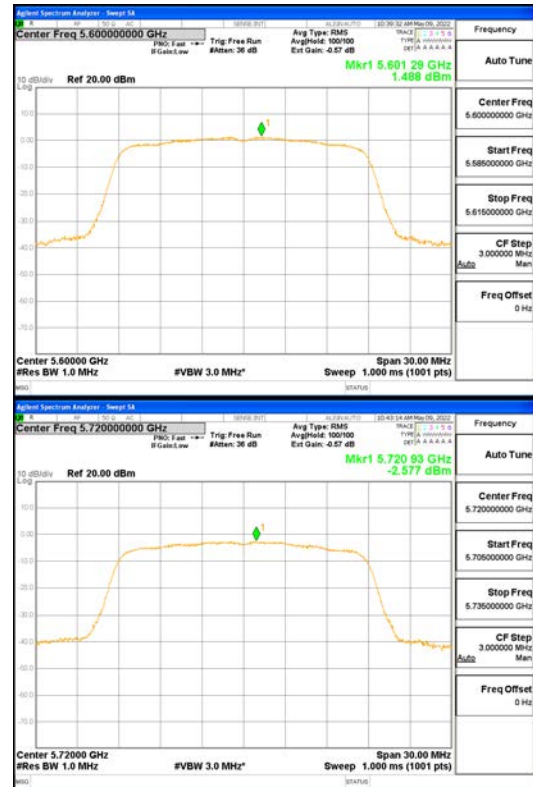
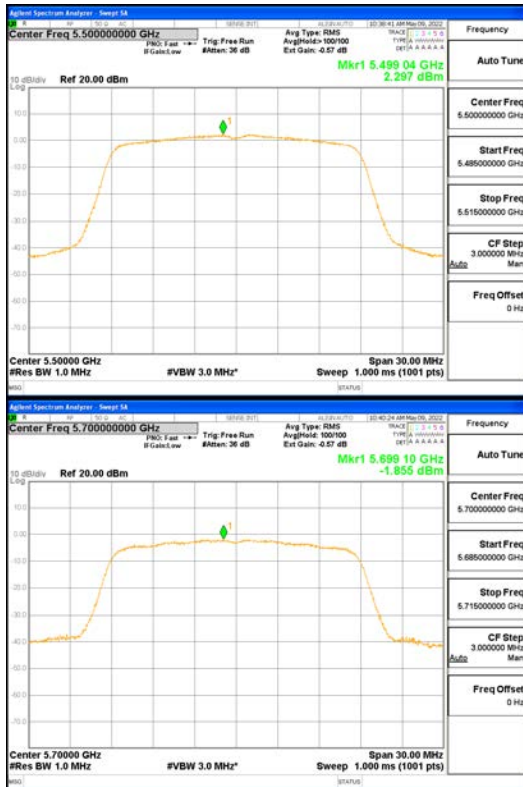
ANT1_802.11n_HT20_UNII 3



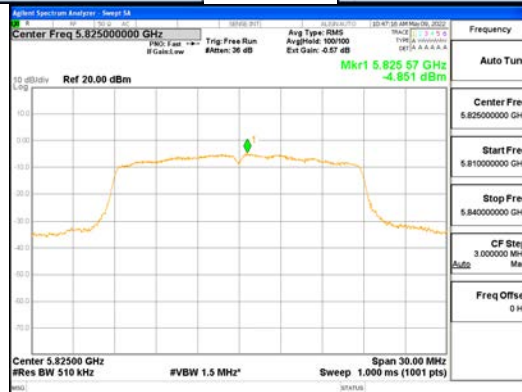
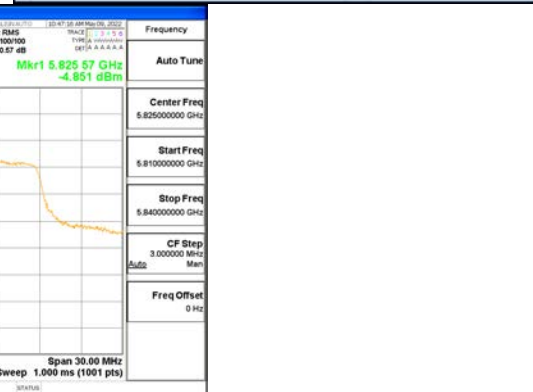
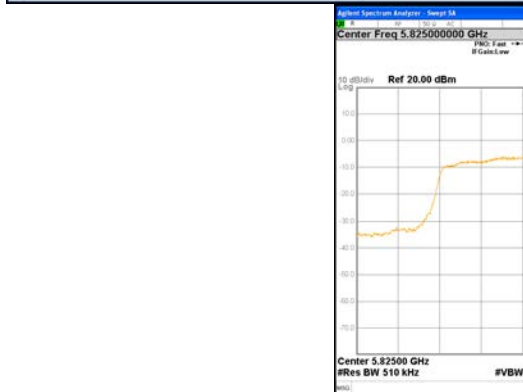
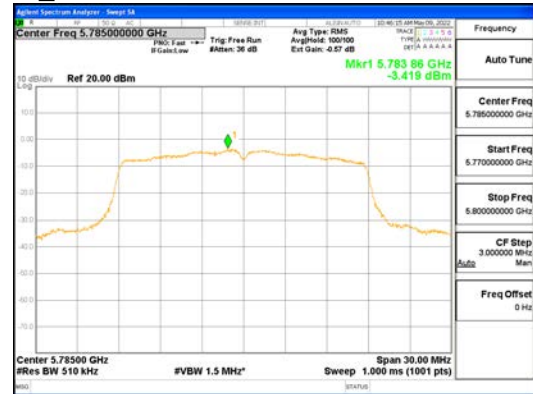
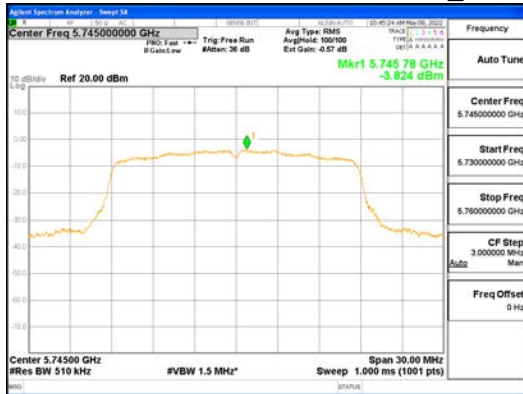
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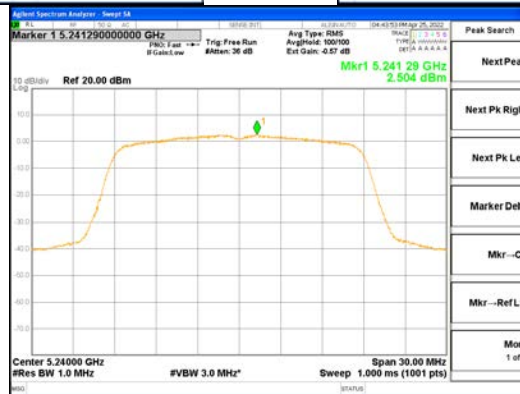
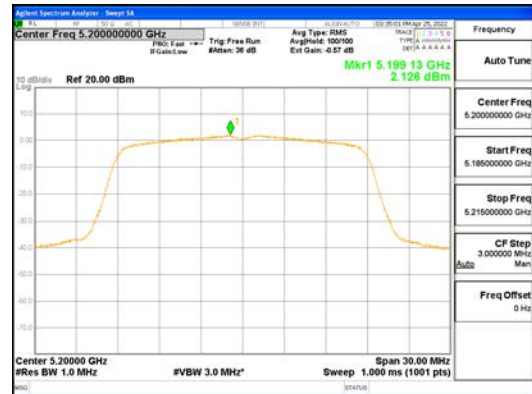
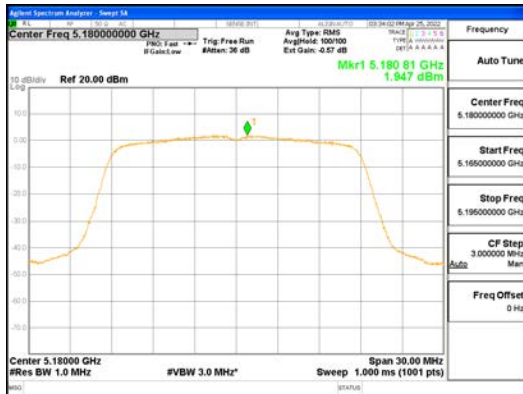
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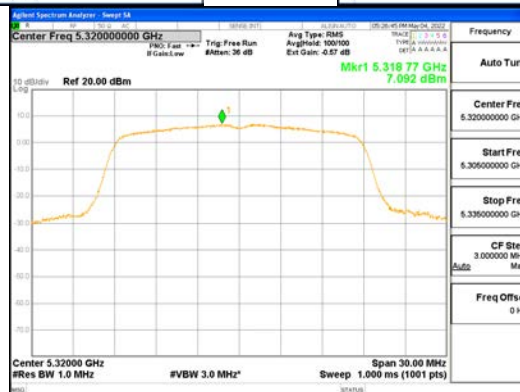
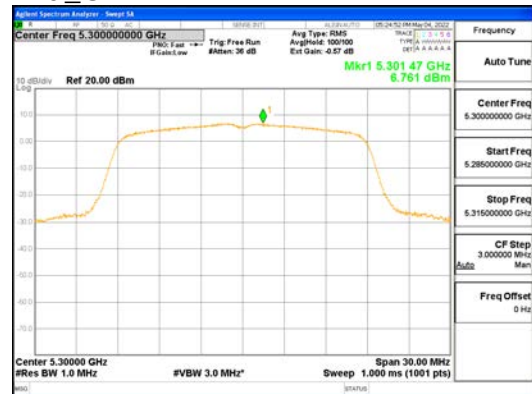
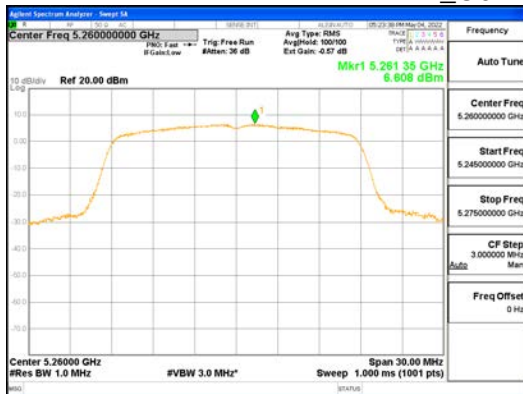
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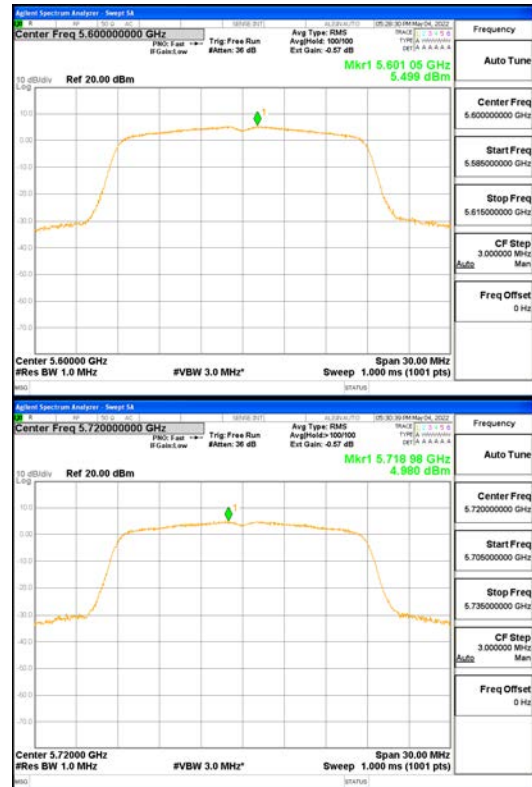
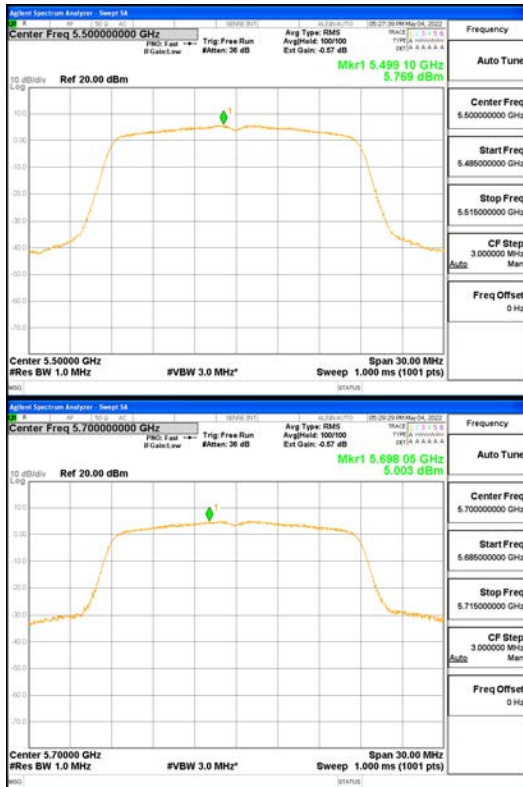
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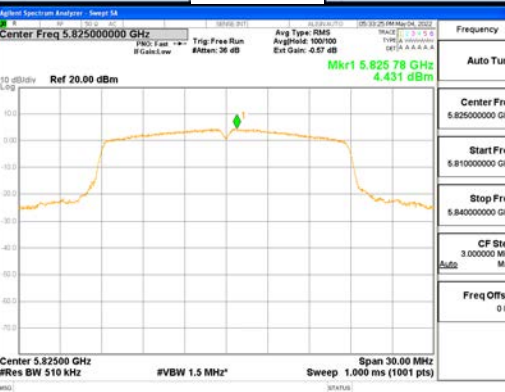
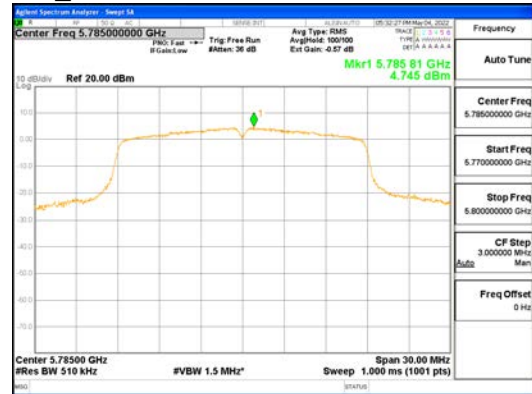
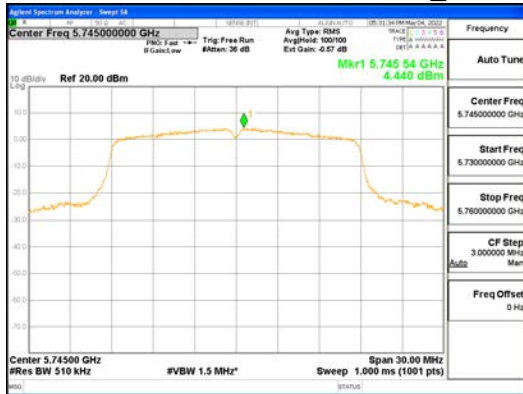
ANT1_802.11ac_VHT20_UNII 1



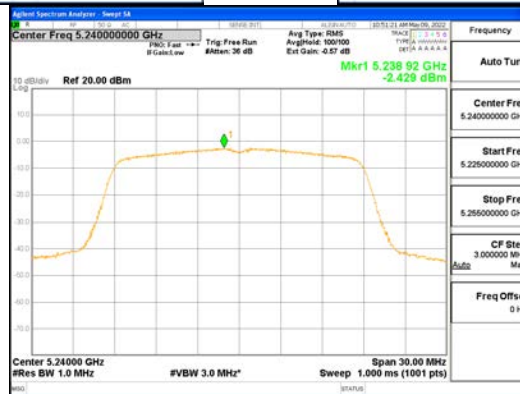
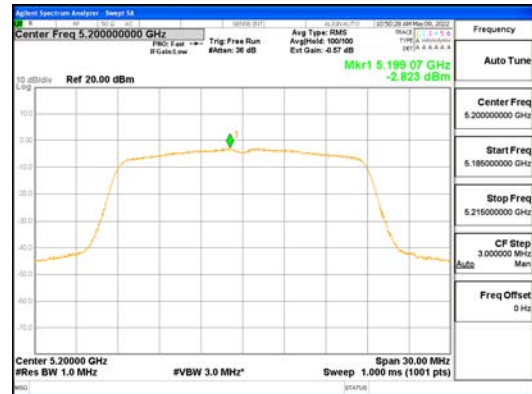
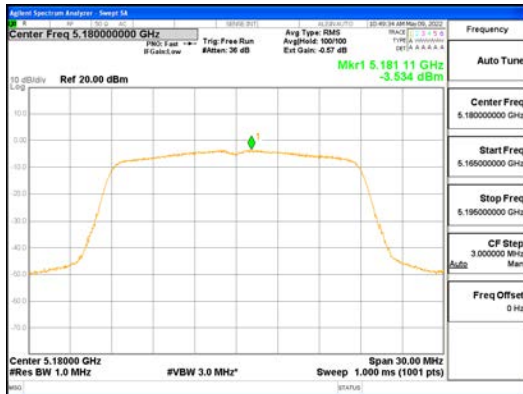
ANT1_802.11ac_VHT20_UNII 2A



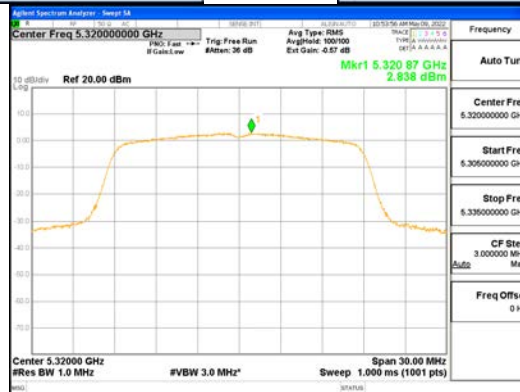
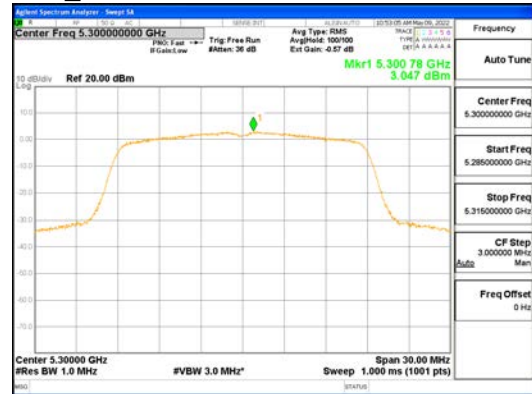
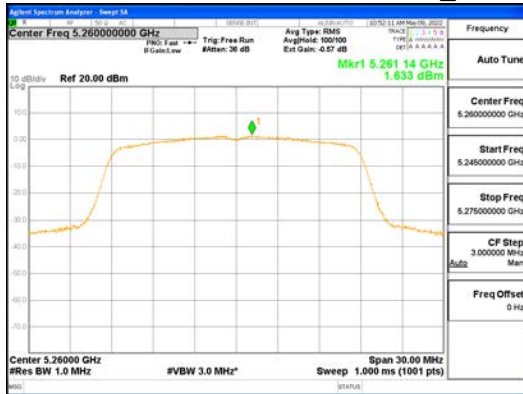
ANT1_802.11ac_VHT20_UNII 2C



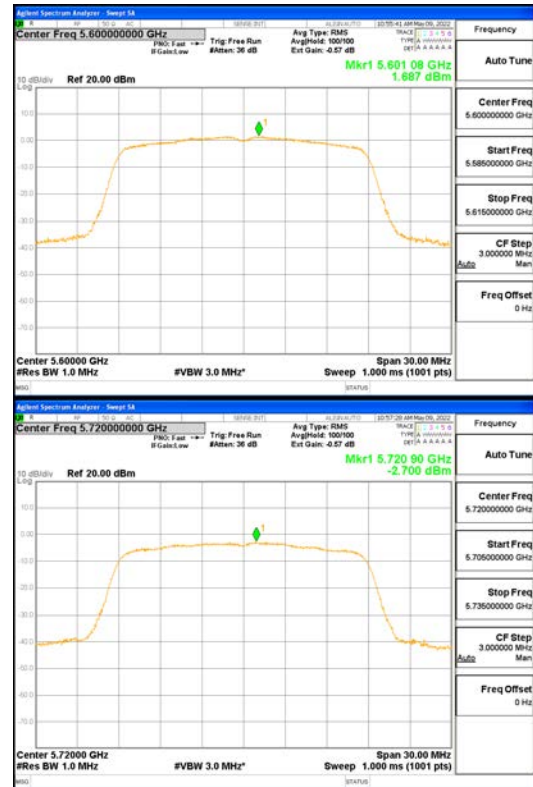
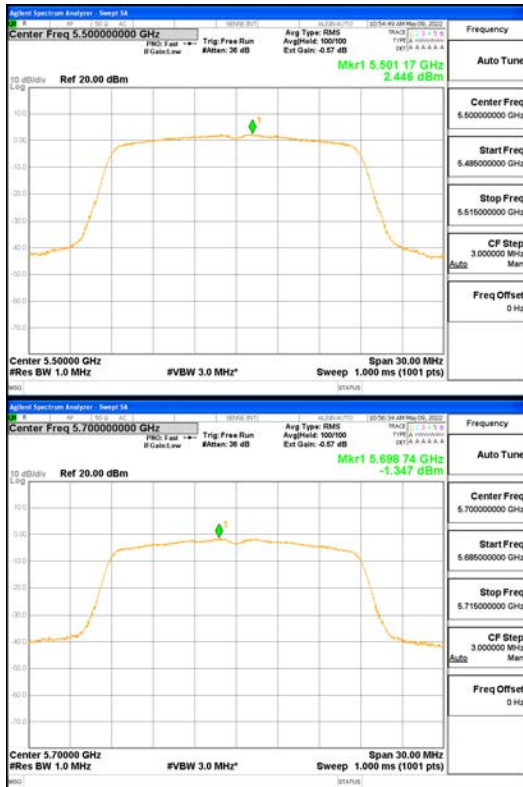
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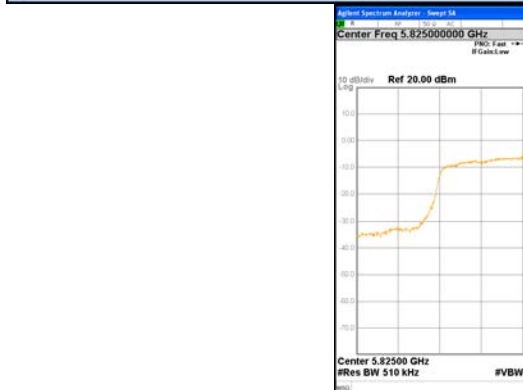
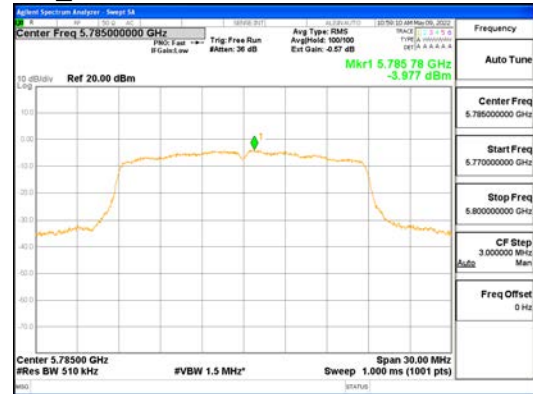
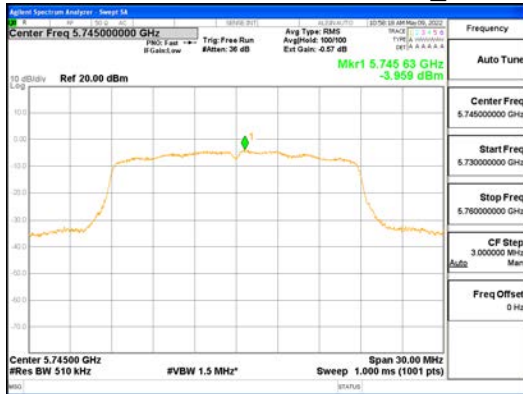
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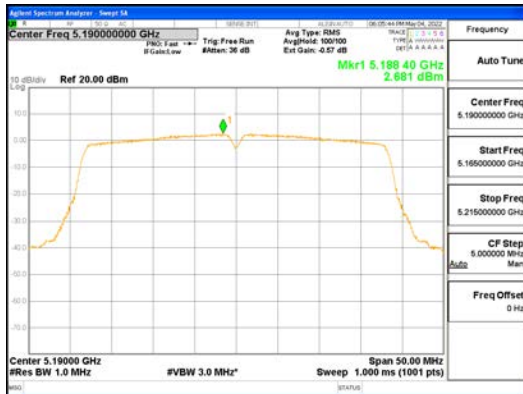
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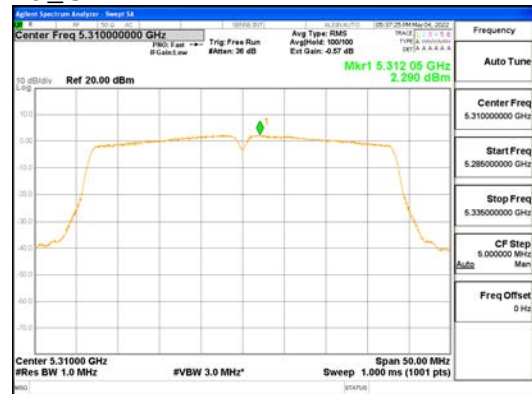
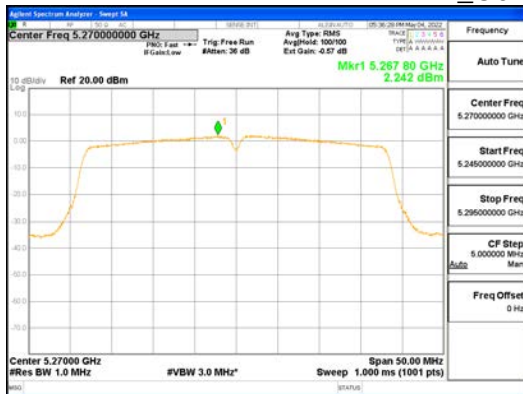
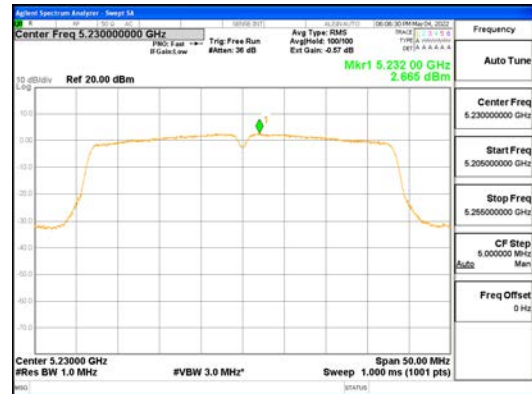
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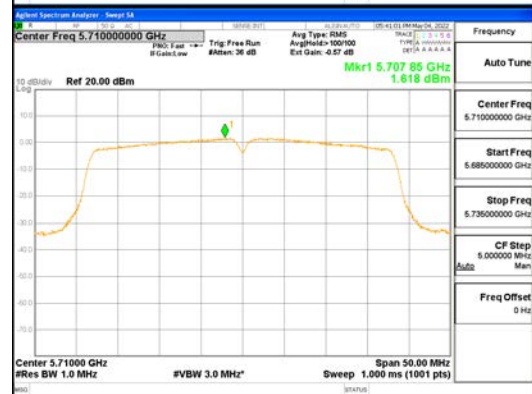
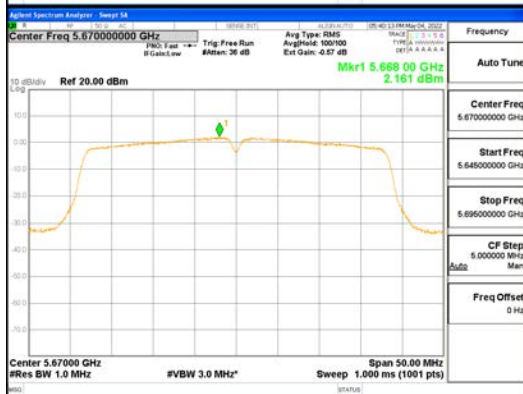
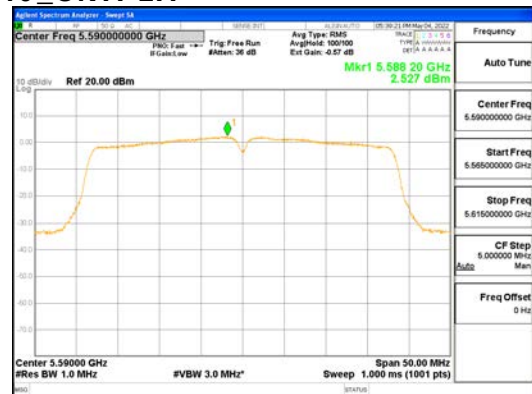
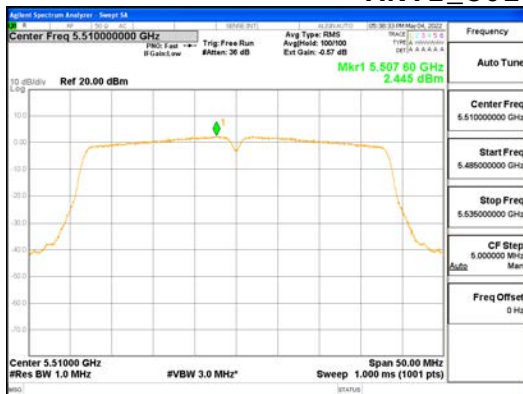
ANT2_802.11ac_VHT20_UNII 3



ANT1_802.11n_HT40_UNII 1



ANT1_802.11n_HT40_UNII 2A

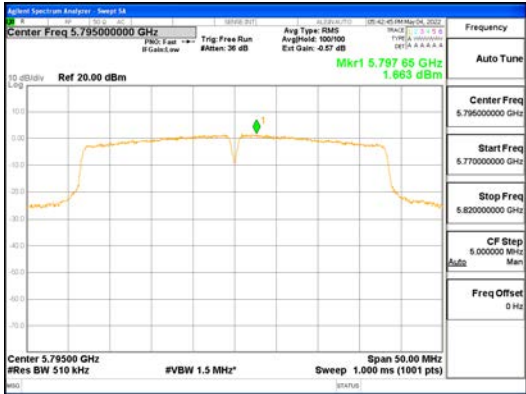
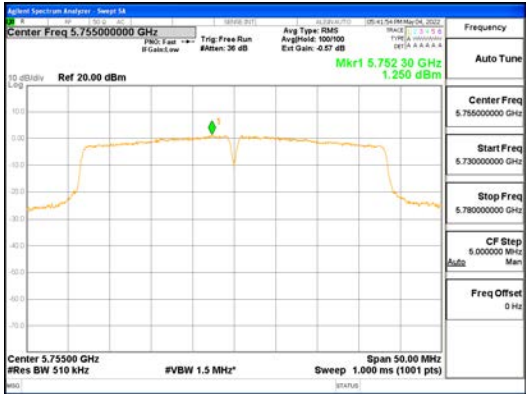


ANT1_802.11n_HT40_UNII 2C



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