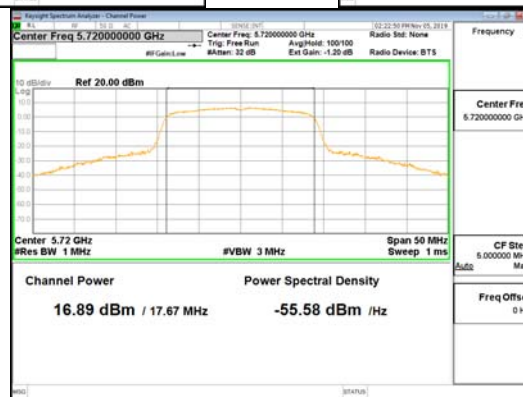
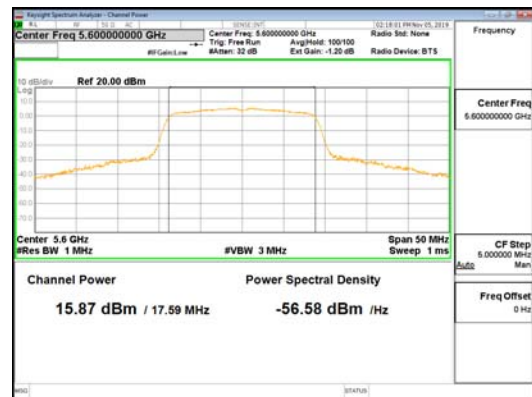
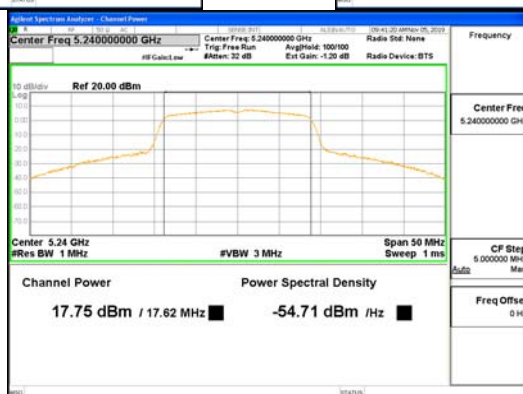
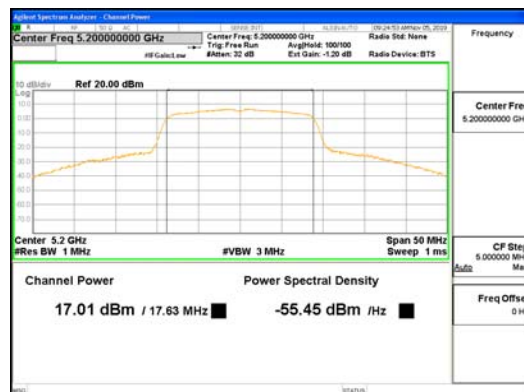
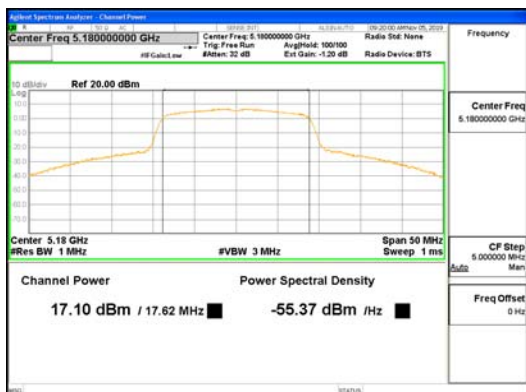




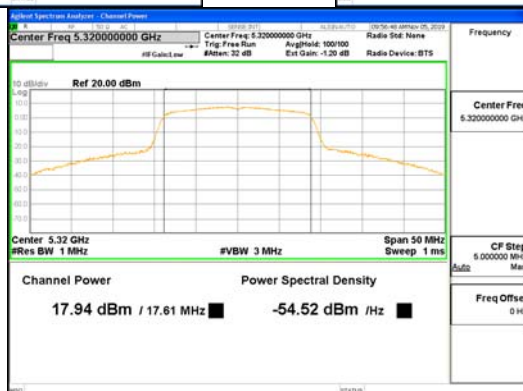
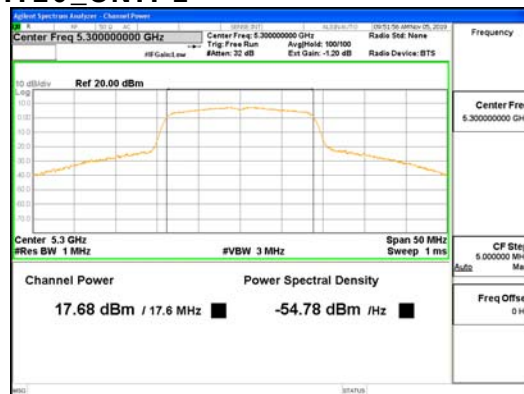
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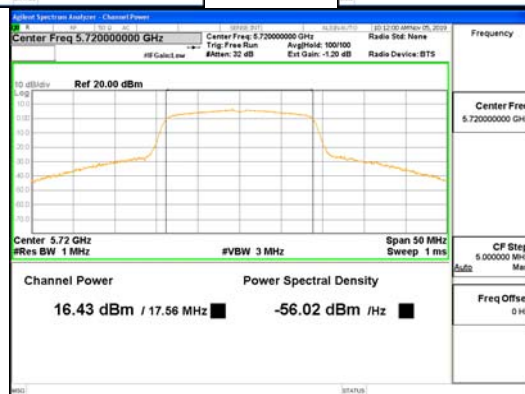
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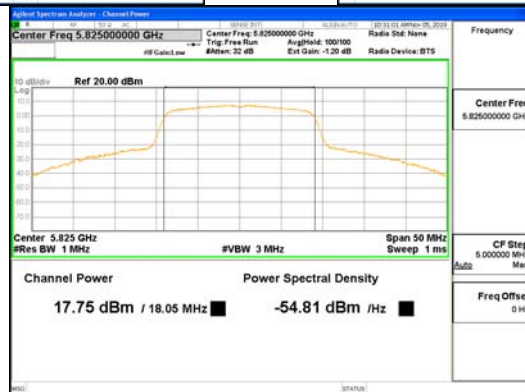
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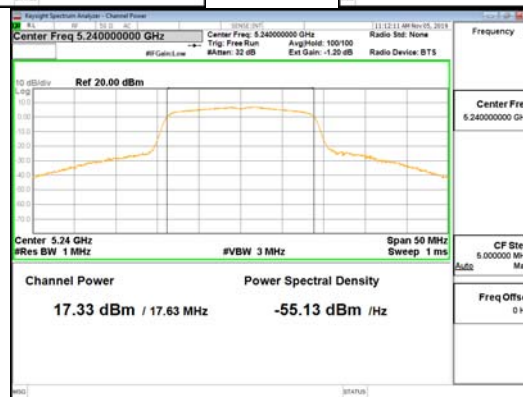
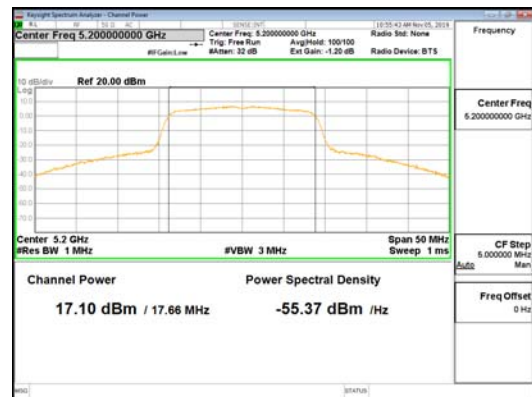
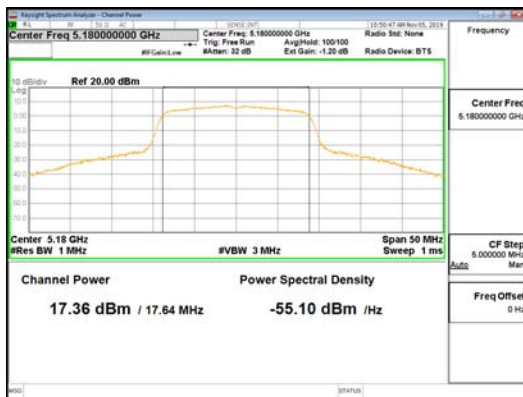
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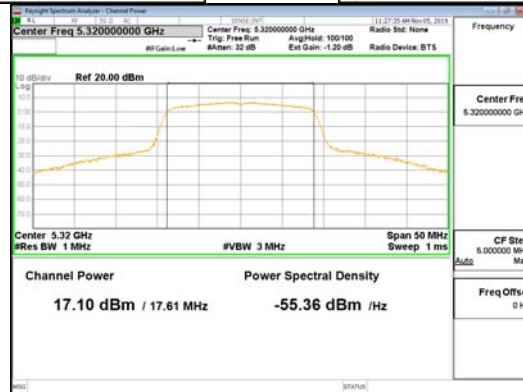
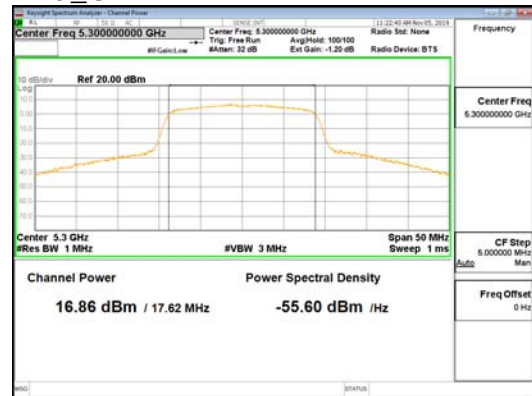
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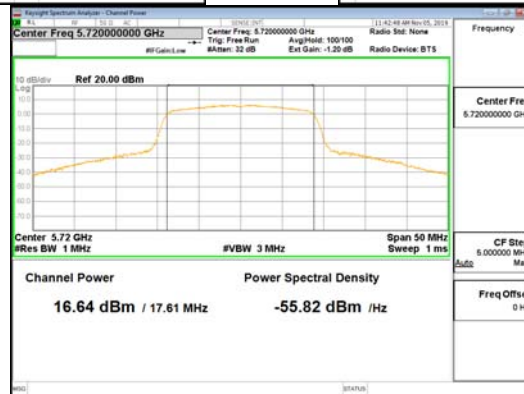
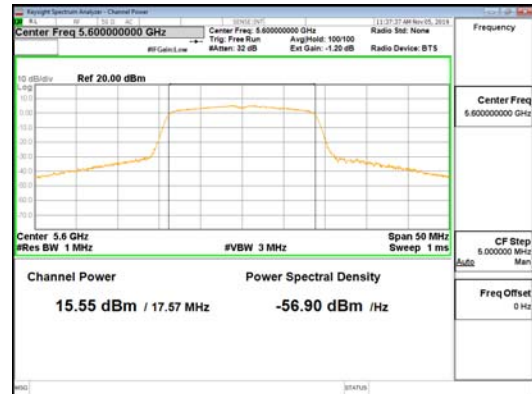
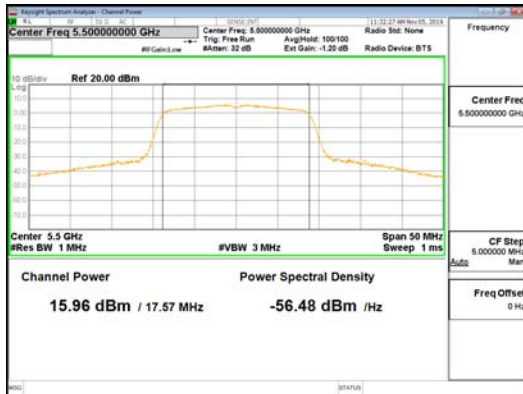
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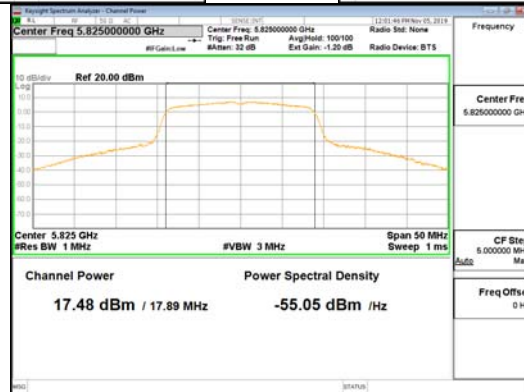
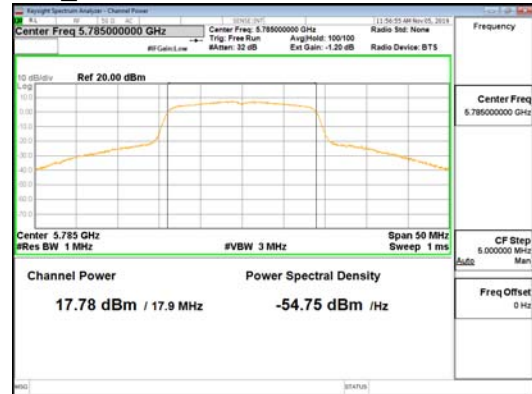
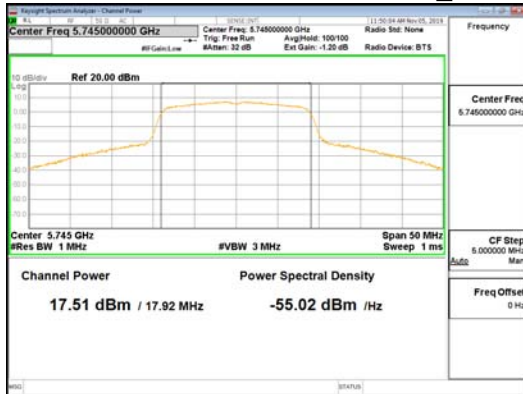
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ANT-L_802.11ac_VHT20_UNII 2A



ANT-L_802.11ac_VHT20_UNII 2C



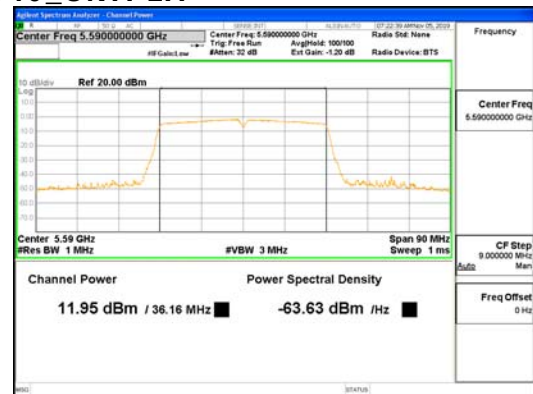
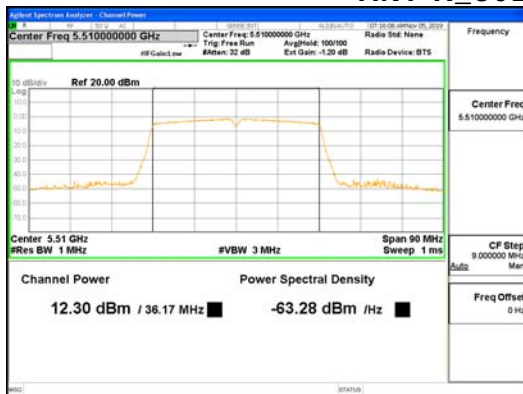
ANT-L_802.11ac_VHT20_UNII 3



ANT-R_802.11n_HT40_UNII 1



ANT-R_802.11n_HT40_UNII 2A



ANT-R_802.11n_HT40_UNII 2C



ANT-R_802.11n_HT40_UNII 3



ANT-L_802.11n_HT40_UNII 1



ANT-L_802.11n_HT40_UNII 2A

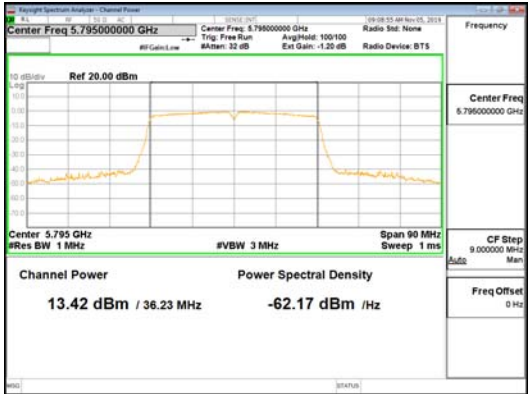
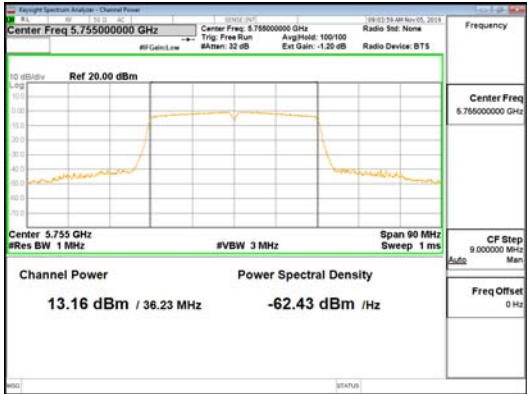


ANT-L_802.11n_HT40_UNII 2C



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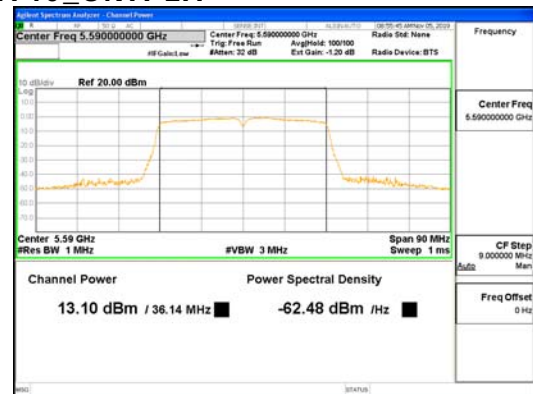
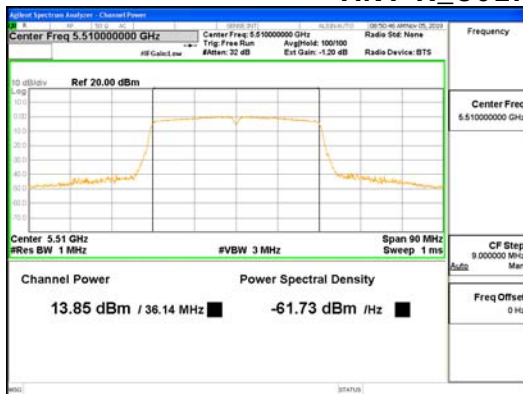
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ANT-R_802.11ac_VHT40_UNII 1



ANT-R_802.11ac_VHT40_UNII 2A



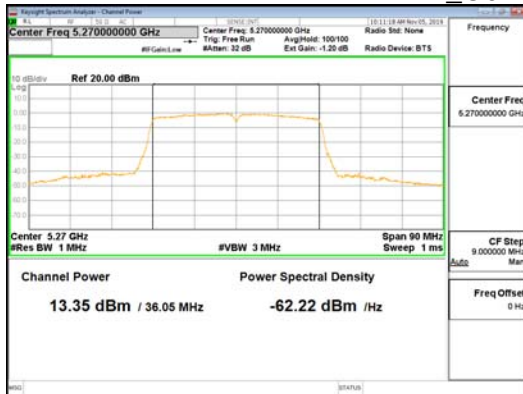
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ANT-R_802.11ac_VHT40_UNII 3



ANT-L_802.11ac_VHT40_UNII 1



ANT-L_802.11ac_VHT40_UNII 2A



ANT-L_802.11ac_VHT40_UNII 2C



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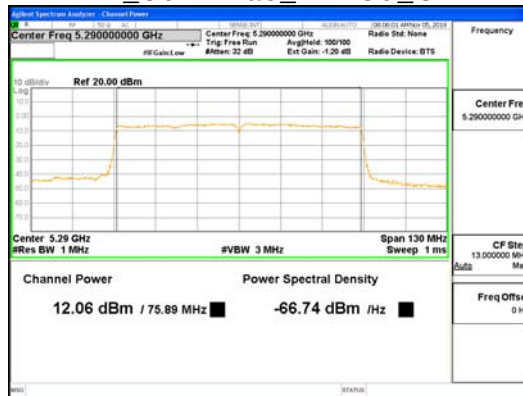
Report No.:
CTK-2019-04461
Page (71) / (159) Pages



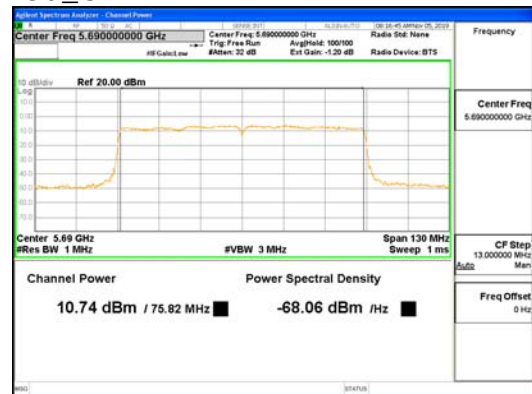
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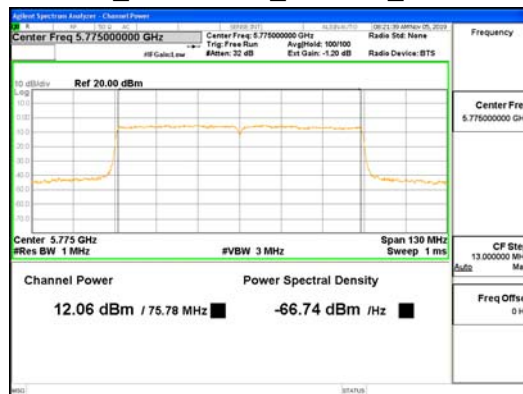
ANT-R_802.11ac_VHT80_UNII 1



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ANT-R_802.11ac_VHT80_UNII 2C



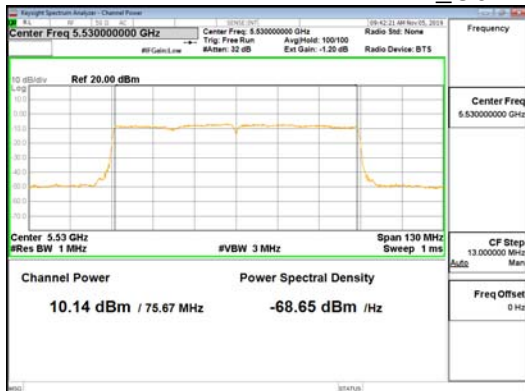
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ANT-L_802.11ac_VHT80_UNII 2A



ANT-L_802.11ac_VHT80_UNII 2C



ANT-L_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)

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 (dB)
802.11a	0.11
802.11n_HT20	0.11
802.11n_HT40	0.24
802.11ac_VHT20	0.11
802.11ac_VHT40	0.24
802.11ac_VHT80	0.78

Limit

Operating Mode	ANT Configuration	ANT Gain (dBi)	Mode	Band	Limit (dBm)
SISO	ANT-R, ANT-L	3.0, 0.87	802.11a/n/ac	UNII 1	10.00
				UNII 2A	11.00
				UNII 2C	11.00
				UNII 3	30.00
MIMO (2Tx)	ANT-R + ANT-L	5.01	802.11a/n/ac	UNII 1	10.00
				UNII 2A	11.00
				UNII 2C	11.00
				UNII 3	30.00

Test Data

ANT-R

Test Mode	Frequency (MHz)	Measured Power Density (dBm)	Duty cycle Factor (dB)	Result Output Power (dBm)	Limit (dBm)	Margin (dB)
802.11a	5 180	6.60	0.11	6.71	10.00	3.29
	5 200	6.56	0.11	6.67	10.00	3.33
	5 240	6.59	0.11	6.70	10.00	3.30
	5 260	7.30	0.11	7.41	11.00	3.59
	5 300	7.41	0.11	7.52	11.00	3.48
	5 320	7.30	0.11	7.41	11.00	3.59
	5 500	7.45	0.11	7.56	11.00	3.44
	5 600	6.97	0.11	7.08	11.00	3.92
	5 720	7.38	0.11	7.49	11.00	3.51
	5 745	5.34	0.11	5.45	30.00	24.55
	5 785	5.76	0.11	5.87	30.00	24.13
	5 825	5.52	0.11	5.63	30.00	24.37
802.11n _HT20	5 180	6.14	0.11	6.25	10.00	3.75
	5 200	6.08	0.11	6.19	10.00	3.81
	5 240	6.41	0.11	6.52	10.00	3.48
	5 260	6.72	0.11	6.83	11.00	4.17
	5 300	6.86	0.11	6.97	11.00	4.03
	5 320	6.81	0.11	6.92	11.00	4.08
	5 500	5.92	0.11	6.03	11.00	4.97
	5 600	5.69	0.11	5.80	11.00	5.20
	5 720	6.61	0.11	6.72	11.00	4.28
	5 745	4.50	0.11	4.61	30.00	25.39
	5 785	5.02	0.11	5.13	30.00	24.87
	5 825	4.75	0.11	4.86	30.00	25.14
802.11ac _VHT20	5 180	6.06	0.11	6.17	10.00	3.83
	5 200	6.24	0.11	6.35	10.00	3.65
	5 240	5.98	0.11	6.09	10.00	3.91
	5 260	6.46	0.11	6.57	11.00	4.43
	5 300	6.89	0.11	7.00	11.00	4.00
	5 320	6.64	0.11	6.75	11.00	4.25
	5 500	6.20	0.11	6.31	11.00	4.69
	5 600	5.75	0.11	5.86	11.00	5.14
	5 720	6.39	0.11	6.50	11.00	4.50

	5 745	4.44	0.11	4.55	30.00	25.45
	5 785	4.92	0.11	5.03	30.00	24.97
	5 825	4.73	0.11	4.84	30.00	25.16
802.11n _HT40	5 190	-0.85	0.24	-0.61	10.00	10.61
	5 230	-0.69	0.24	-0.45	10.00	10.45
	5 270	-0.64	0.24	-0.40	11.00	11.40
	5 310	-0.08	0.24	0.16	11.00	10.84
	5 510	-1.21	0.24	-0.97	11.00	11.97
	5 590	-1.62	0.24	-1.38	11.00	12.38
	5 710	-0.53	0.24	-0.29	11.00	11.29
	5 755	-3.24	0.24	-3.00	30.00	33.00
	5 795	-2.76	0.24	-2.52	30.00	32.52
802.11ac _VHT40	5 190	-0.07	0.24	0.17	10.00	9.83
	5 230	0.59	0.24	0.83	10.00	9.17
	5 270	0.21	0.24	0.45	11.00	10.55
	5 310	0.72	0.24	0.96	11.00	10.04
	5 510	0.12	0.24	0.36	11.00	10.64
	5 590	-0.36	0.24	-0.12	11.00	11.12
	5 710	0.22	0.24	0.46	11.00	10.54
	5 755	-2.20	0.24	-1.96	30.00	31.96
	5 795	-1.75	0.24	-1.51	30.00	31.51
802.11ac _VHT80	5 210	-5.81	0.78	-5.03	10.00	15.03
	5 290	-4.02	0.78	-3.24	11.00	14.24
	5 530	-5.35	0.78	-4.57	11.00	15.57
	5 690	-5.76	0.78	-4.98	11.00	15.98
	5 775	-7.70	0.78	-6.92	30.00	36.92
Measurement uncertainty		± 1.5 dB				

ANT-L

Test Mode	Frequency (MHz)	Measured Power Density (dBm)	Duty cycle Factor (dB)	Result Output Power (dBm)	Limit (dBm)	Margin (dB)
802.11a	5 180	6.86	0.11	6.97	10.00	3.03
	5 200	6.69	0.11	6.80	10.00	3.20
	5 240	6.43	0.11	6.54	10.00	3.46
	5 260	6.84	0.11	6.95	11.00	4.05
	5 300	6.56	0.11	6.67	11.00	4.33
	5 320	6.98	0.11	7.09	11.00	3.91
	5 500	7.05	0.11	7.16	11.00	3.84
	5 600	6.91	0.11	7.02	11.00	3.98
	5 720	7.66	0.11	7.77	11.00	3.23
	5 745	5.61	0.11	5.72	30.00	24.28
	5 785	5.73	0.11	5.84	30.00	24.16
	5 825	5.14	0.11	5.25	30.00	24.75
802.11n _HT20	5 180	6.03	0.11	6.14	10.00	3.86
	5 200	6.03	0.11	6.14	10.00	3.86
	5 240	6.20	0.11	6.31	10.00	3.69
	5 260	6.02	0.11	6.13	11.00	4.87
	5 300	6.39	0.11	6.50	11.00	4.50
	5 320	6.31	0.11	6.42	11.00	4.58
	5 500	5.78	0.11	5.89	11.00	5.11
	5 600	5.64	0.11	5.75	11.00	5.25
	5 720	6.91	0.11	7.02	11.00	3.98
	5 745	5.02	0.11	5.13	30.00	24.87
	5 785	4.98	0.11	5.09	30.00	24.91
	5 825	4.67	0.11	4.78	30.00	25.22
802.11ac _VHT20	5 180	5.98	0.11	6.09	10.00	3.91
	5 200	5.76	0.11	5.87	10.00	4.13
	5 240	5.87	0.11	5.98	10.00	4.02
	5 260	5.66	0.11	5.77	11.00	5.23
	5 300	6.00	0.11	6.11	11.00	4.89
	5 320	5.98	0.11	6.09	11.00	4.91
	5 500	5.89	0.11	6.00	11.00	5.00
	5 600	5.21	0.11	5.32	11.00	5.68
	5 720	6.35	0.11	6.46	11.00	4.54

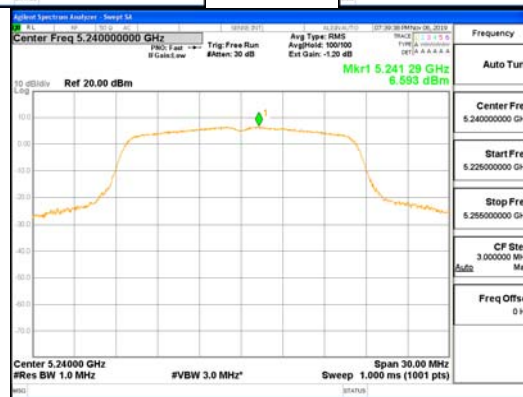
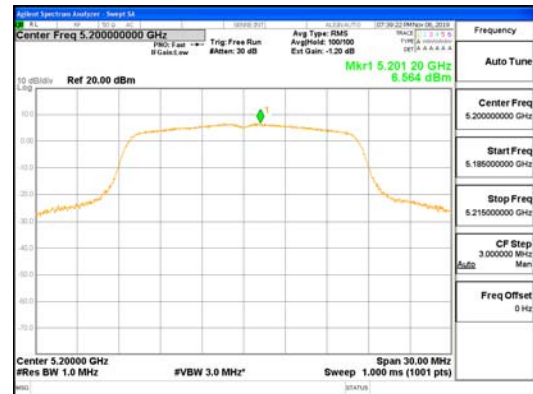
	5 745	4.38	0.11	4.49	30.00	25.51
	5 785	4.59	0.11	4.70	30.00	25.30
	5 825	4.64	0.11	4.75	30.00	25.25
802.11n _HT40	5 190	-0.54	0.24	-0.30	10.00	10.30
	5 230	-1.05	0.24	-0.81	10.00	10.81
	5 270	-0.88	0.24	-0.64	11.00	11.64
	5 310	-1.10	0.24	-0.86	11.00	11.86
	5 510	-1.81	0.24	-1.57	11.00	12.57
	5 590	-1.45	0.24	-1.21	11.00	12.21
	5 710	-0.27	0.24	-0.03	11.00	11.03
	5 755	-3.18	0.24	-2.94	30.00	32.94
	5 795	-3.00	0.24	-2.76	30.00	32.76
802.11ac _VHT40	5 190	0.04	0.24	0.28	10.00	9.72
	5 230	0.34	0.24	0.58	10.00	9.42
	5 270	-0.11	0.24	0.13	11.00	10.87
	5 310	-0.41	0.24	-0.17	11.00	11.17
	5 510	-0.55	0.24	-0.31	11.00	11.31
	5 590	-0.49	0.24	-0.25	11.00	11.25
	5 710	0.73	0.24	0.97	11.00	10.03
	5 755	-2.40	0.24	-2.16	30.00	32.16
	5 795	-1.80	0.24	-1.56	30.00	31.56
802.11ac _VHT80	5 210	-6.16	0.78	-5.38	10.00	15.38
	5 290	-4.99	0.78	-4.21	11.00	15.21
	5 530	-6.23	0.78	-5.45	11.00	16.45
	5 690	-6.23	0.78	-5.45	11.00	16.45
	5 775	-6.75	0.78	-5.97	30.00	35.97
Measurement uncertainty		± 1.5 dB				

ANT-R + ANT-L

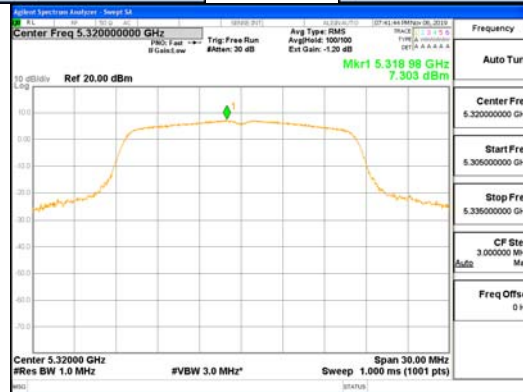
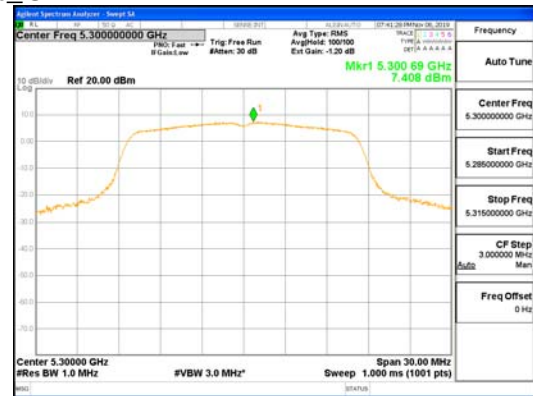
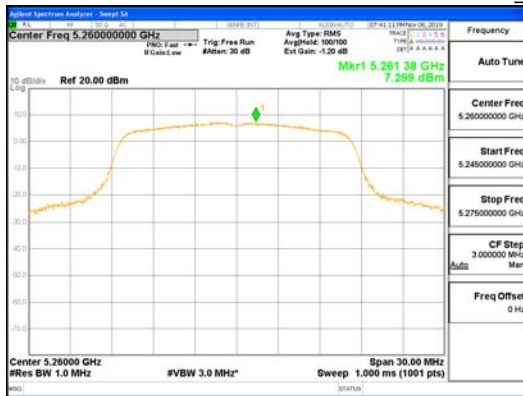
Test Mode	Frequency (MHz)	Measured Power Density (dBm)	Duty cycle Factor (dB)	Result Output Power (dBm)	Limit (dBm)	Margin (dB)
802.11a	5 180	9.74	0.11	9.85	10.00	0.15
	5 200	9.64	0.11	9.75	10.00	0.25
	5 240	9.52	0.11	9.63	10.00	0.37
	5 260	10.08	0.11	10.19	11.00	0.81
	5 300	10.01	0.11	10.12	11.00	0.88
	5 320	10.15	0.11	10.26	11.00	0.74
	5 500	10.26	0.11	10.37	11.00	0.63
	5 600	9.95	0.11	10.06	11.00	0.94
	5 720	10.53	0.11	10.64	11.00	0.36
	5 745	8.49	0.11	8.60	30.00	21.40
	5 785	8.76	0.11	8.87	30.00	21.13
	5 825	8.34	0.11	8.45	30.00	21.55
802.11n _HT20	5 180	9.10	0.11	9.21	10.00	0.79
	5 200	9.07	0.11	9.18	10.00	0.82
	5 240	9.32	0.11	9.43	10.00	0.57
	5 260	9.39	0.11	9.50	11.00	1.50
	5 300	9.64	0.11	9.75	11.00	1.25
	5 320	9.57	0.11	9.68	11.00	1.32
	5 500	8.86	0.11	8.97	11.00	2.03
	5 600	8.68	0.11	8.79	11.00	2.21
	5 720	9.77	0.11	9.88	11.00	1.12
	5 745	7.77	0.11	7.88	30.00	22.12
	5 785	8.01	0.11	8.12	30.00	21.88
	5 825	7.72	0.11	7.83	30.00	22.17
802.11ac _VHT20	5 180	9.03	0.11	9.14	10.00	0.86
	5 200	9.01	0.11	9.12	10.00	0.88
	5 240	8.94	0.11	9.05	10.00	0.95
	5 260	9.08	0.11	9.19	11.00	1.81
	5 300	9.47	0.11	9.58	11.00	1.42
	5 320	9.33	0.11	9.44	11.00	1.56
	5 500	9.06	0.11	9.17	11.00	1.83
	5 600	8.49	0.11	8.60	11.00	2.40
	5 720	9.38	0.11	9.49	11.00	1.51

	5 745	7.42	0.11	7.53	30.00	22.47
	5 785	7.77	0.11	7.88	30.00	22.12
	5 825	7.70	0.11	7.81	30.00	22.19
802.11n _HT40	5 190	2.32	0.24	2.56	10.00	7.44
	5 230	2.14	0.24	2.38	10.00	7.62
	5 270	2.25	0.24	2.49	11.00	8.51
	5 310	2.44	0.24	2.68	11.00	8.32
	5 510	1.51	0.24	1.75	11.00	9.25
	5 590	1.48	0.24	1.72	11.00	9.28
	5 710	2.61	0.24	2.85	11.00	8.15
	5 755	-0.20	0.24	0.04	30.00	29.96
	5 795	0.13	0.24	0.37	30.00	29.63
802.11ac _VHT40	5 190	3.00	0.24	3.24	10.00	6.76
	5 230	3.48	0.24	3.72	10.00	6.28
	5 270	3.06	0.24	3.30	11.00	7.70
	5 310	3.18	0.24	3.42	11.00	7.58
	5 510	2.80	0.24	3.04	11.00	7.96
	5 590	2.59	0.24	2.83	11.00	8.17
	5 710	3.49	0.24	3.73	11.00	7.27
	5 755	0.71	0.24	0.95	30.00	29.05
	5 795	1.24	0.24	1.48	30.00	28.52
802.11ac _VHT80	5 210	-2.97	0.78	-2.19	10.00	12.19
	5 290	-1.48	0.78	-0.70	11.00	11.70
	5 530	-2.77	0.78	-1.99	11.00	12.99
	5 690	-2.98	0.78	-2.20	11.00	13.20
	5 775	-4.20	0.78	-3.42	30.00	33.42
Measurement uncertainty		± 1.5 dB				

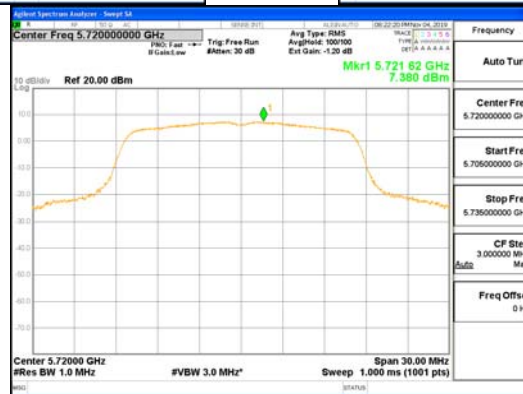
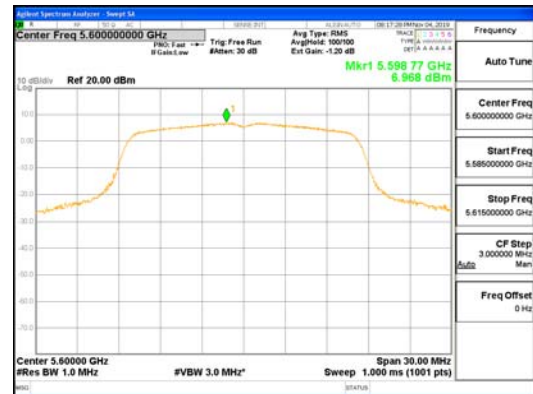
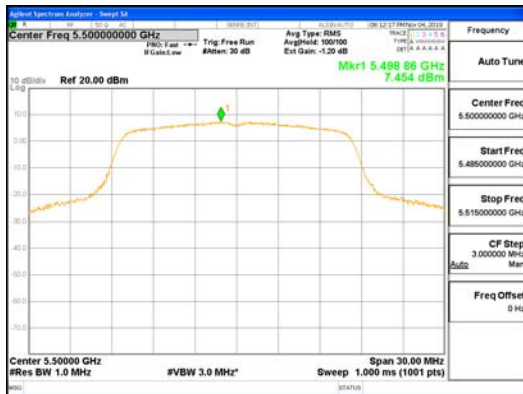
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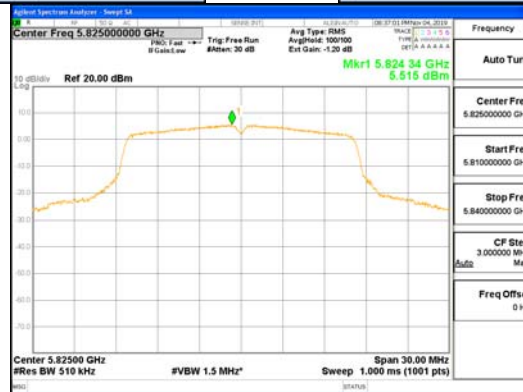
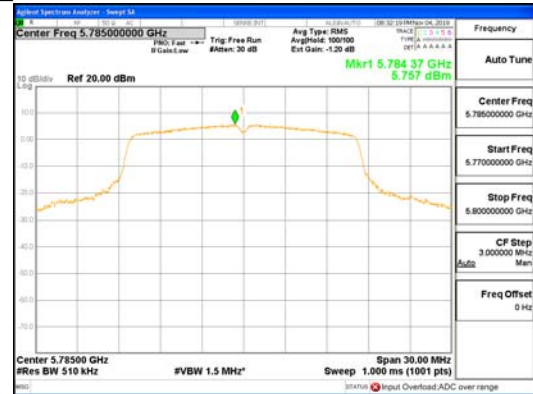
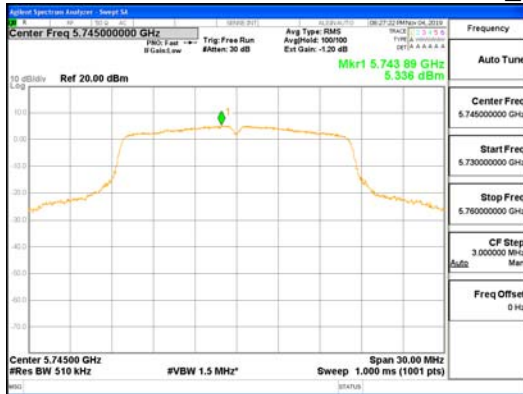
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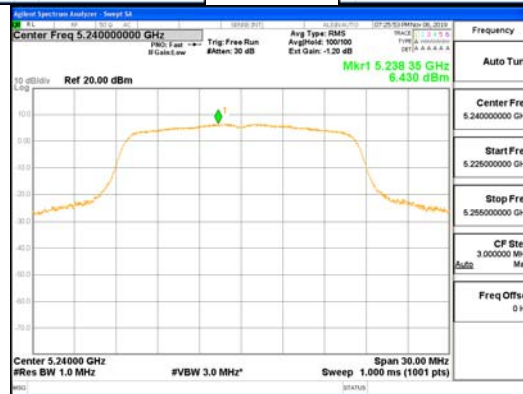
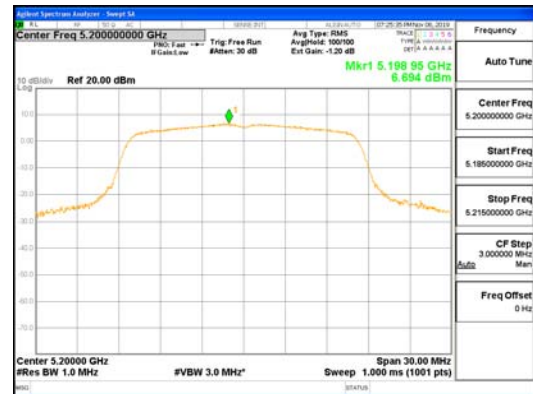
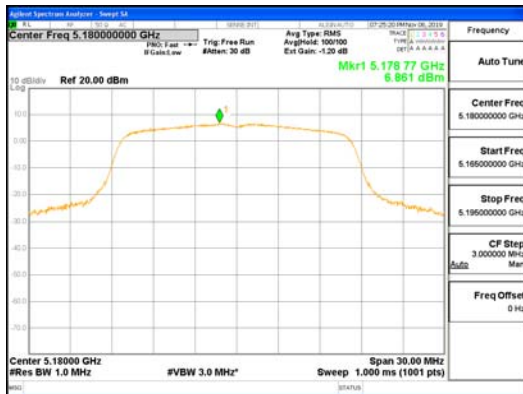
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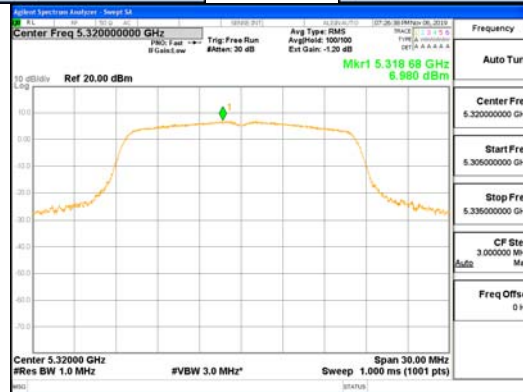
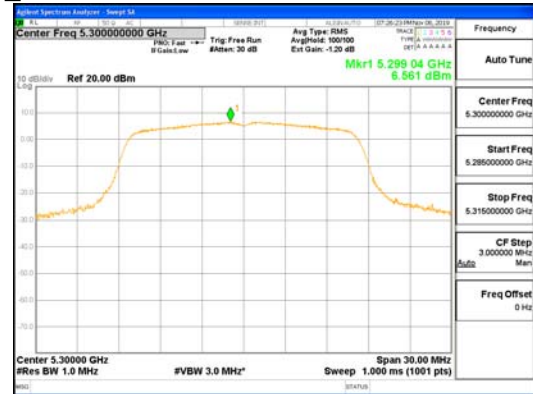
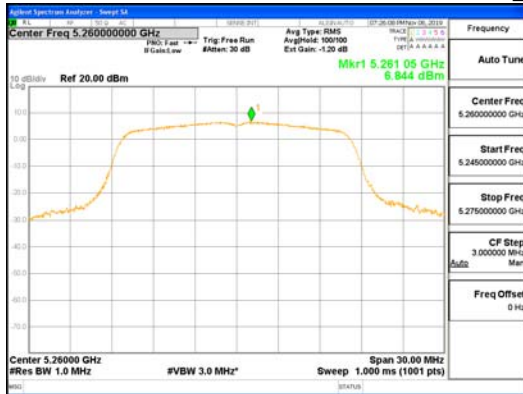
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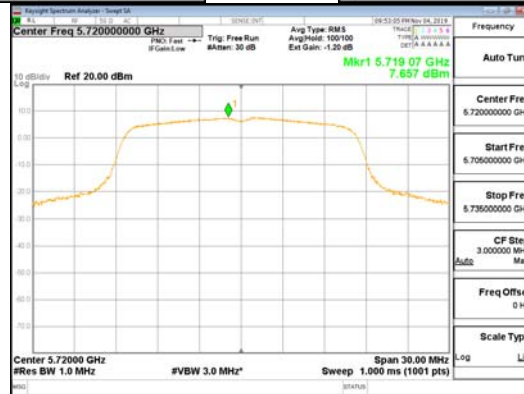
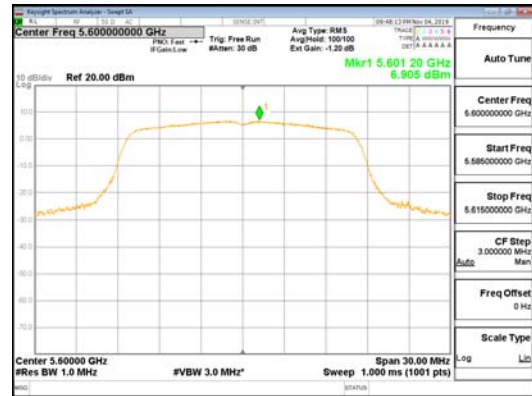
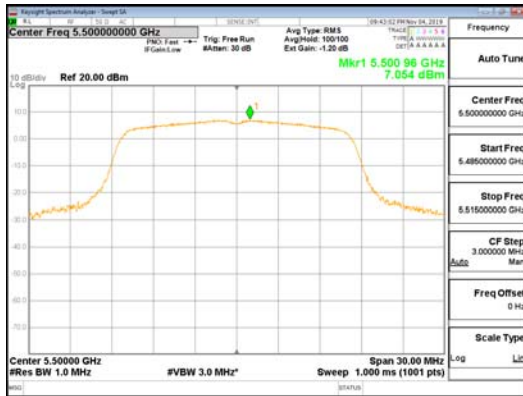
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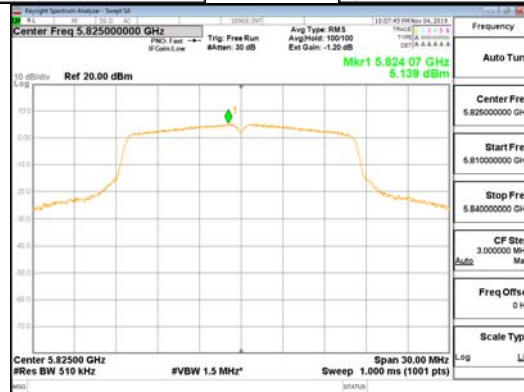
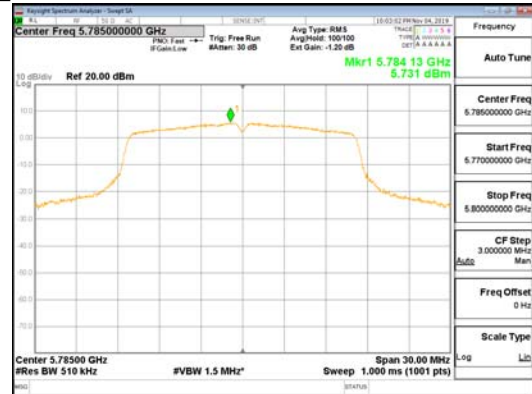
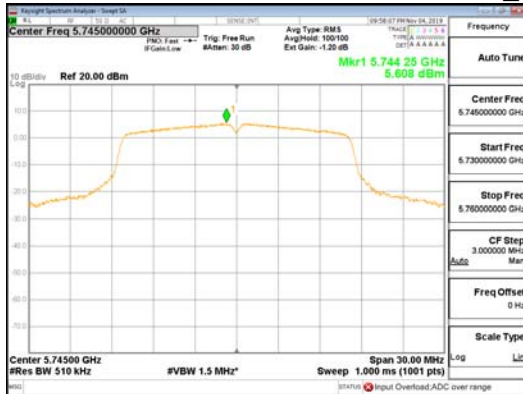
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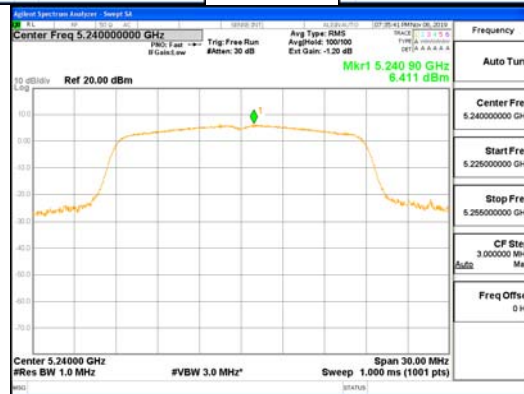
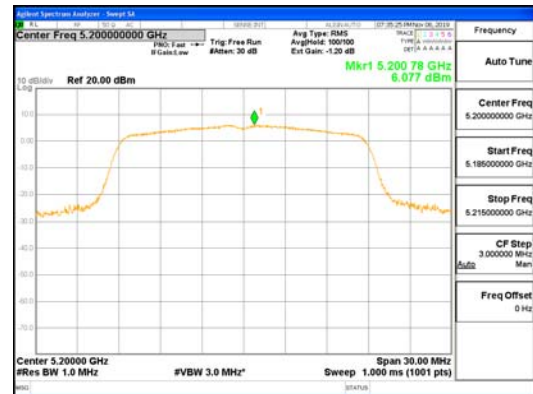
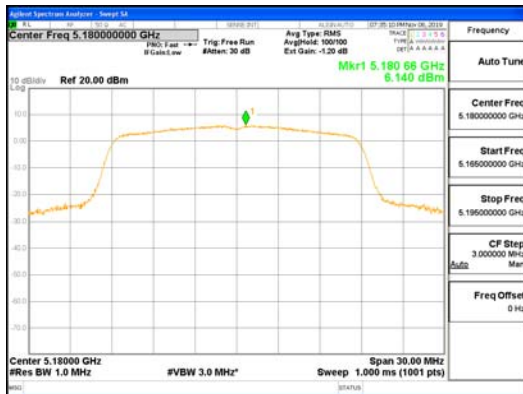
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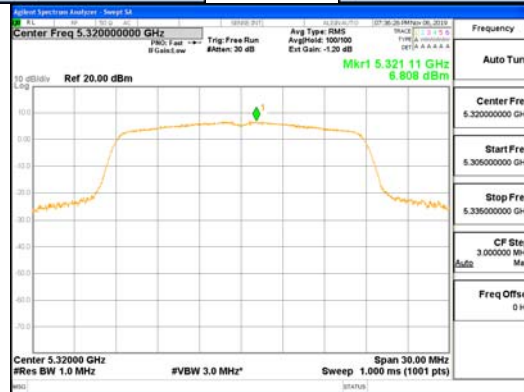
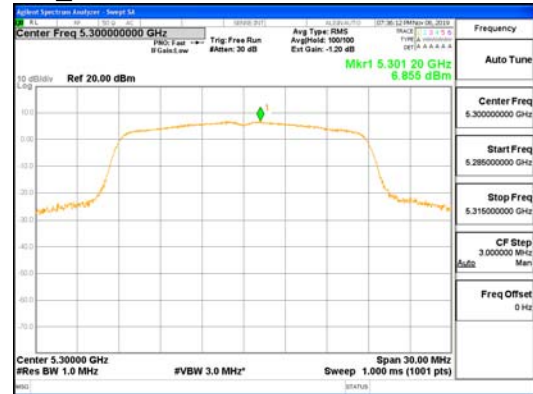
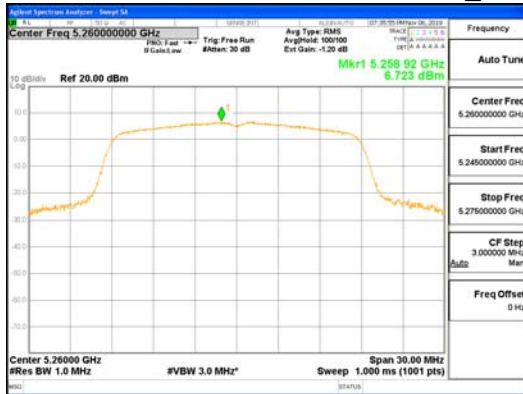
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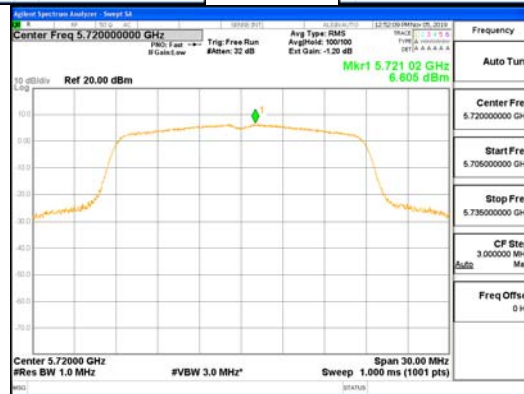
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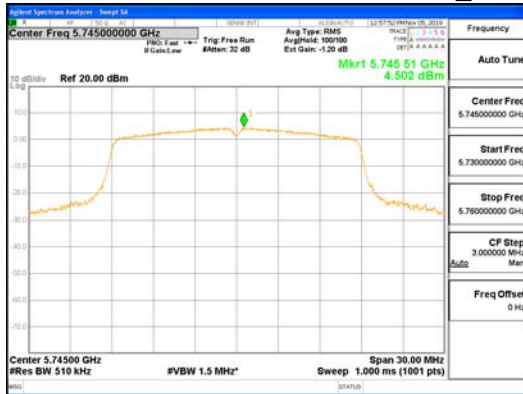
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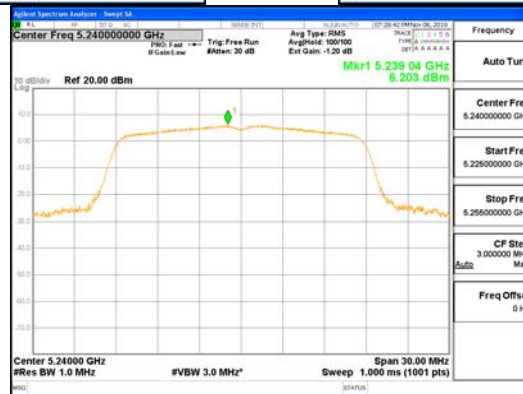
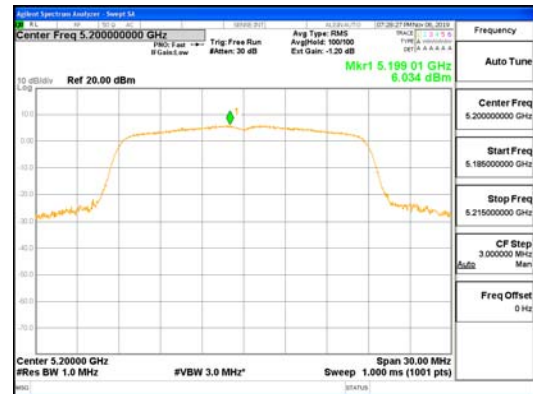
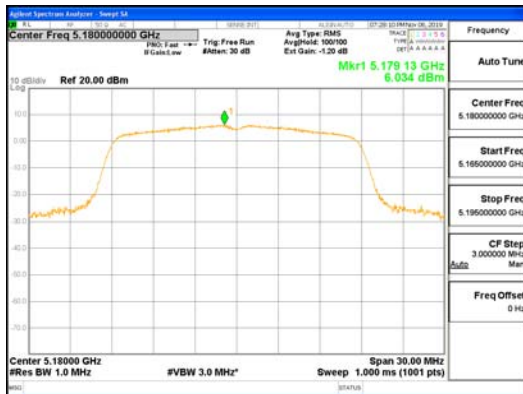
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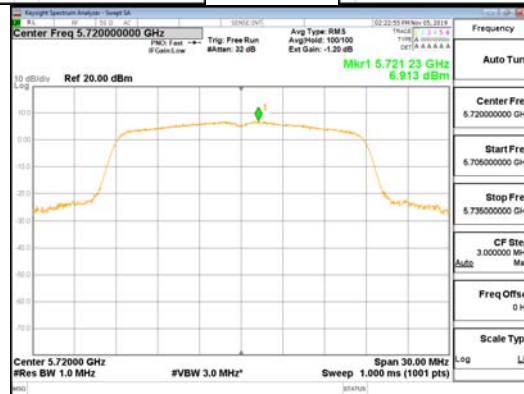
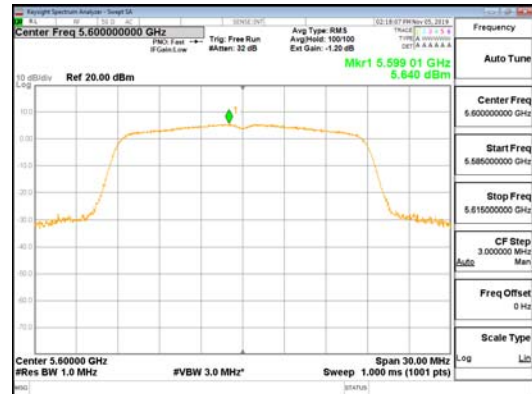
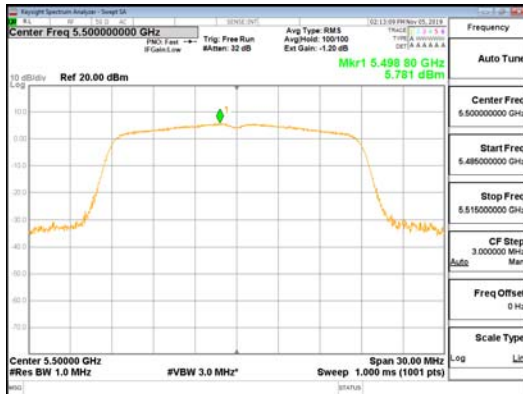
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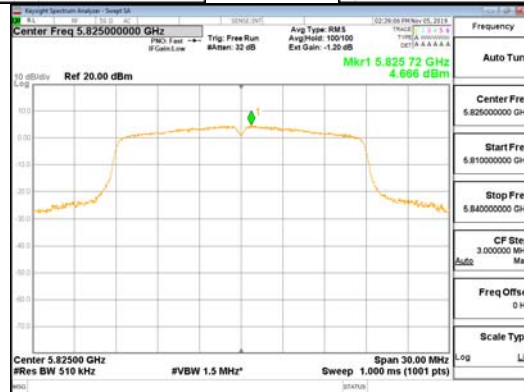
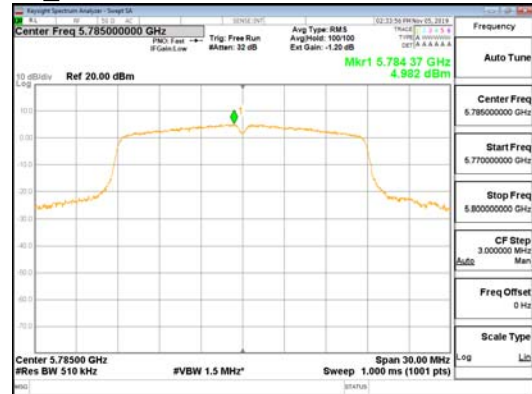
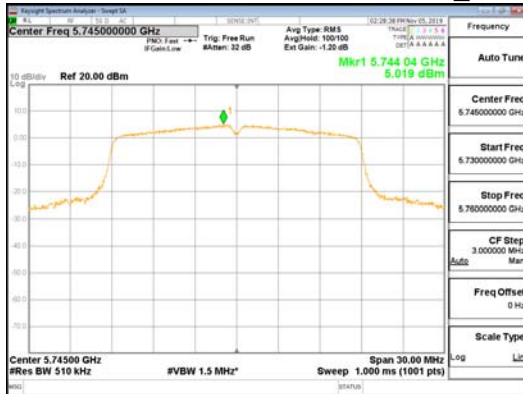
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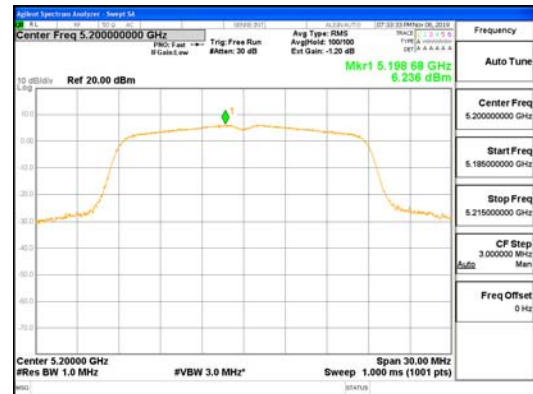
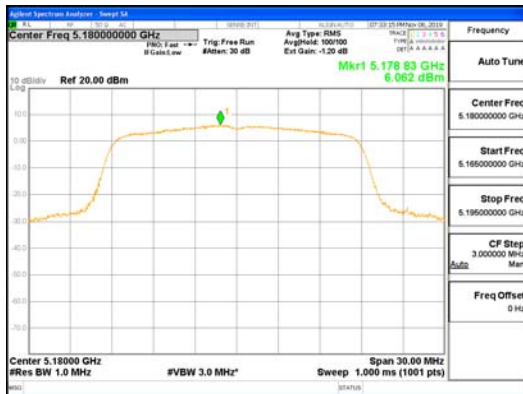
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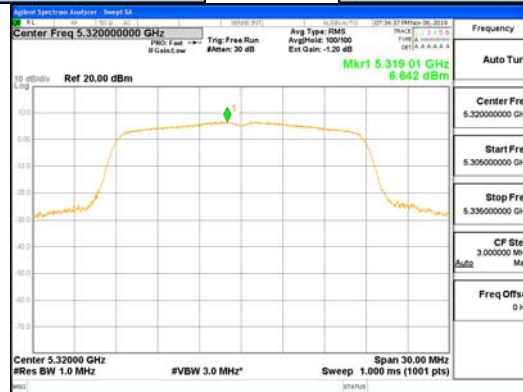
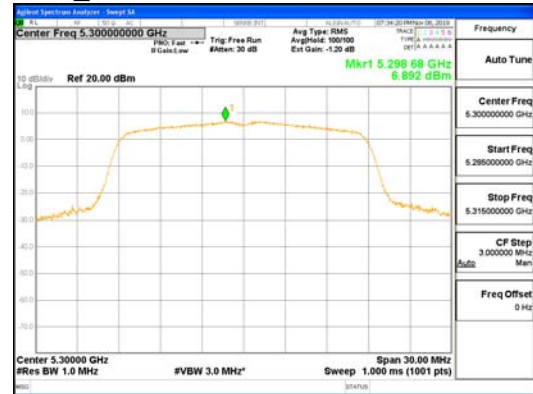
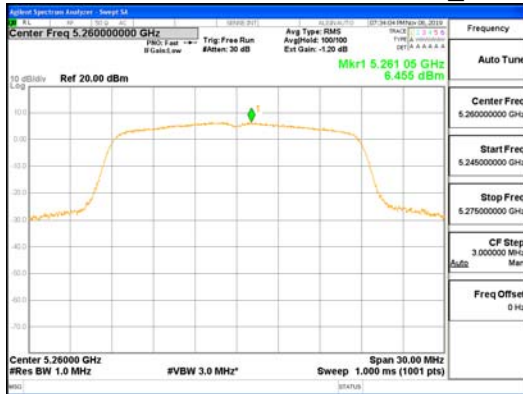
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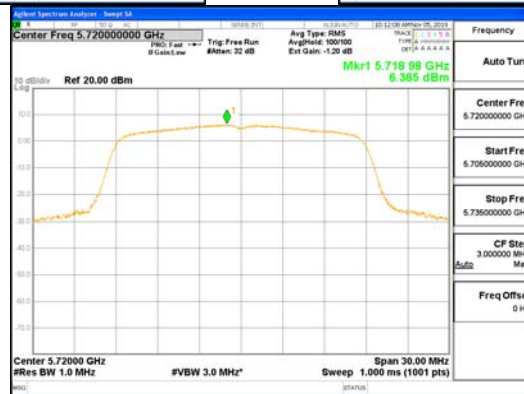
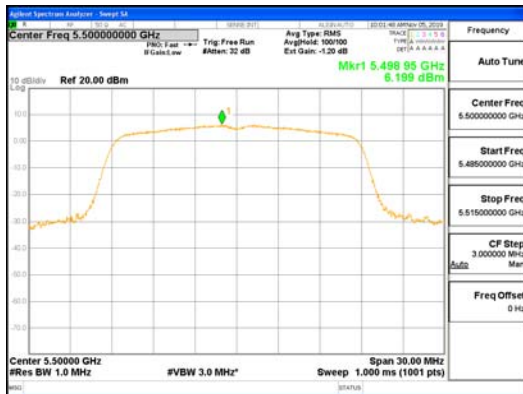
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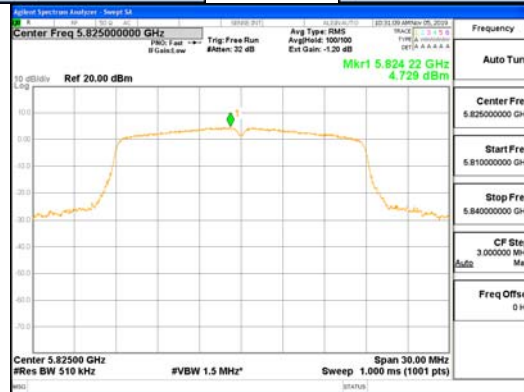
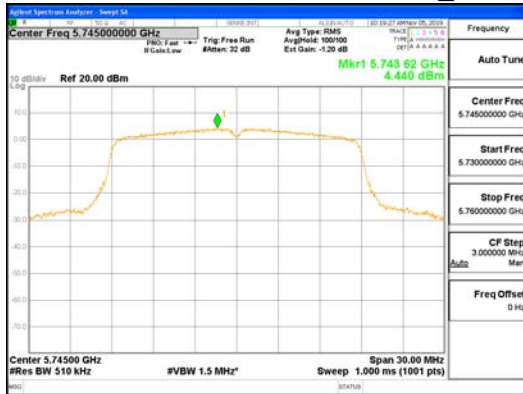
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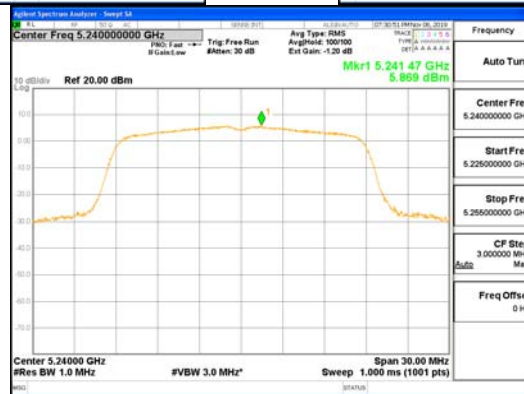
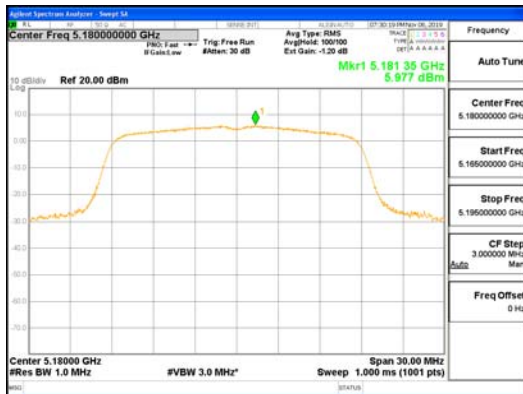
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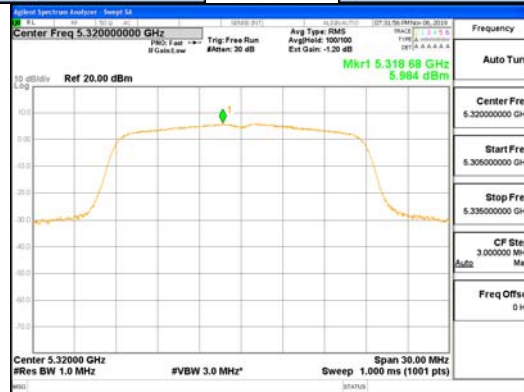
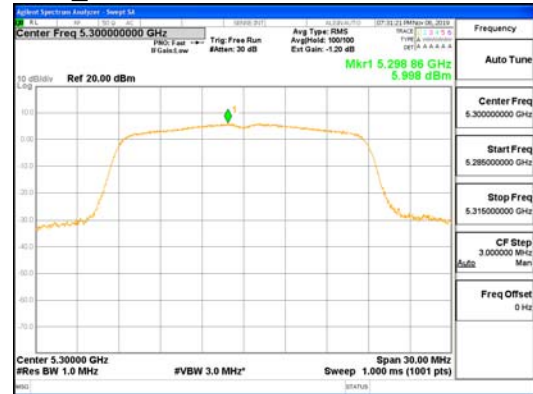
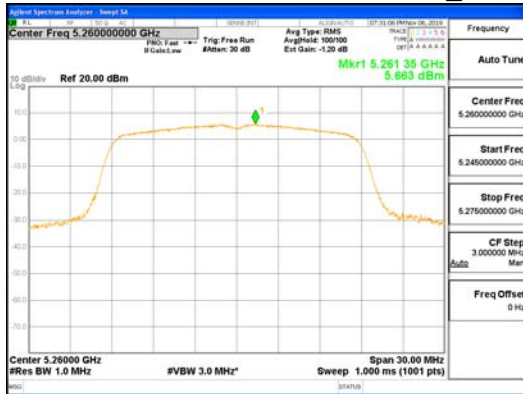
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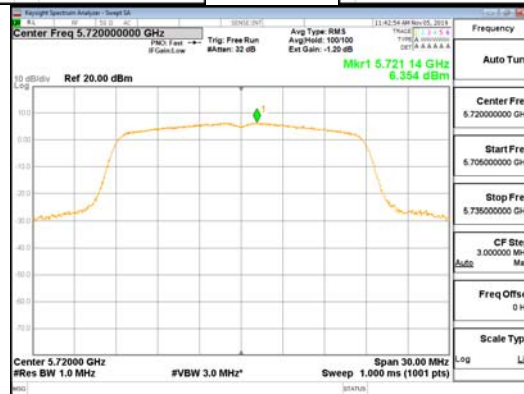
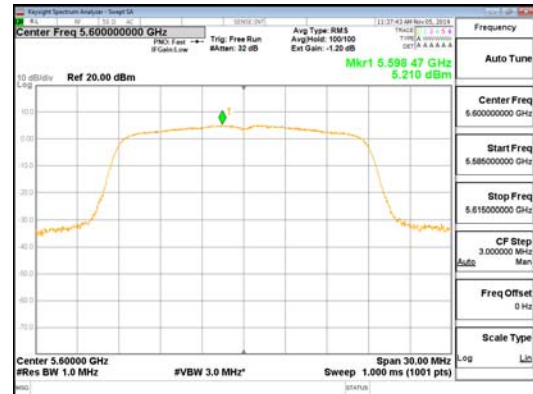
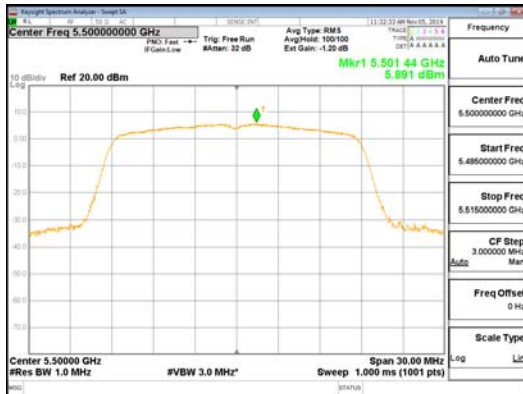
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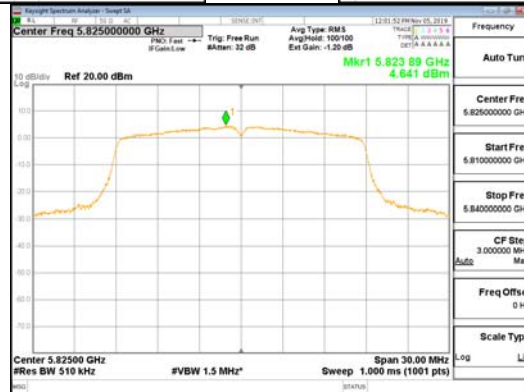
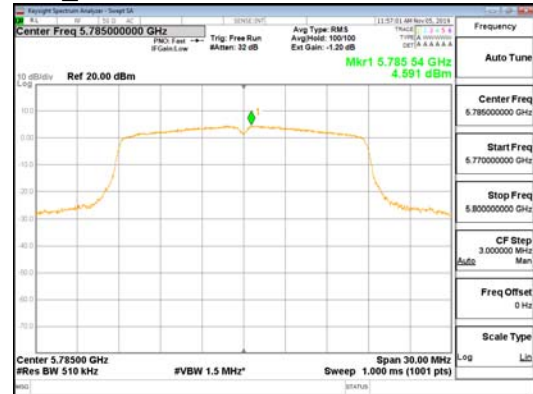
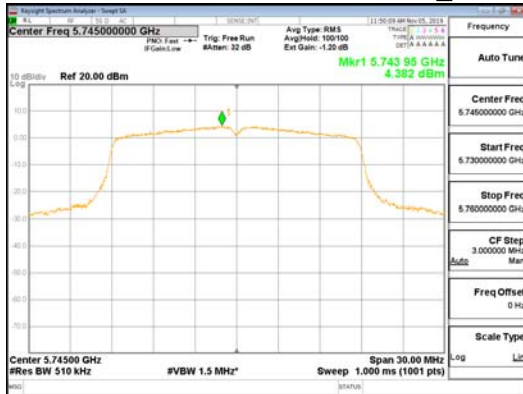
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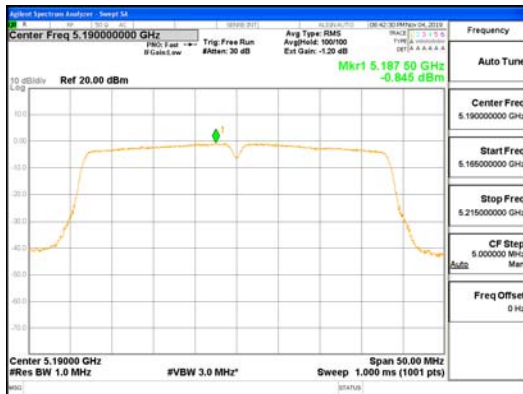
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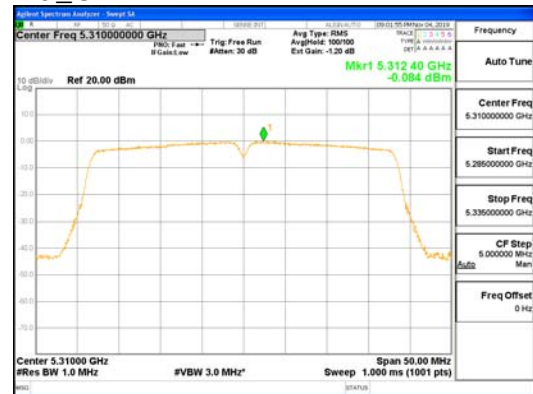
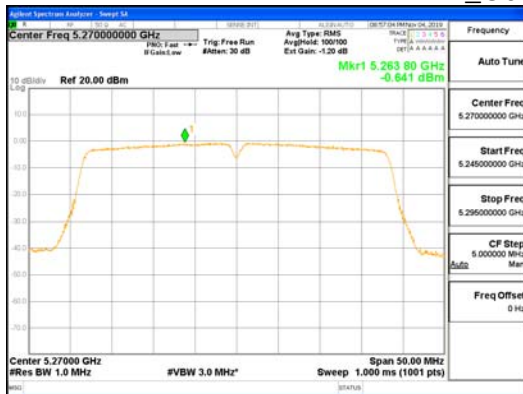
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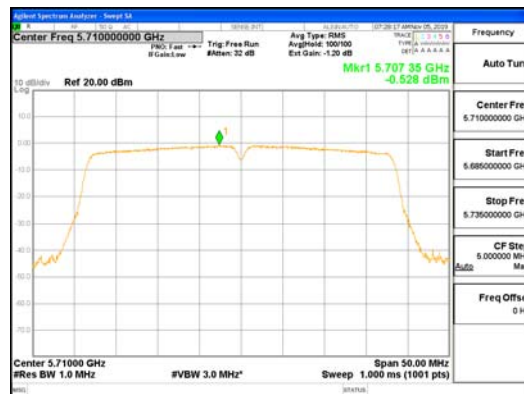
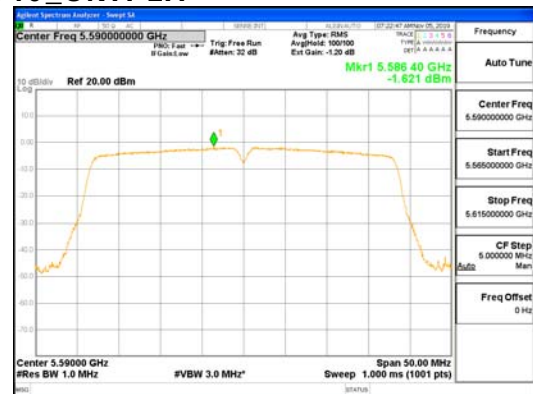
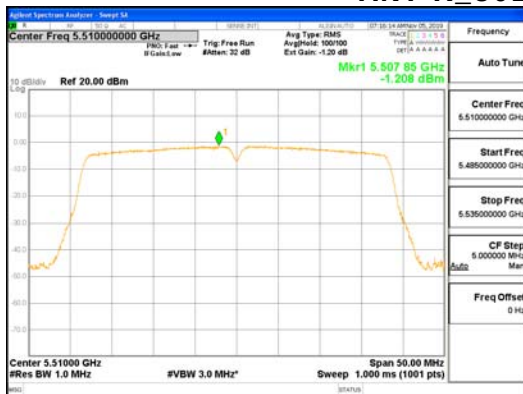
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ANT-R_802.11n_HT40_UNII 2A

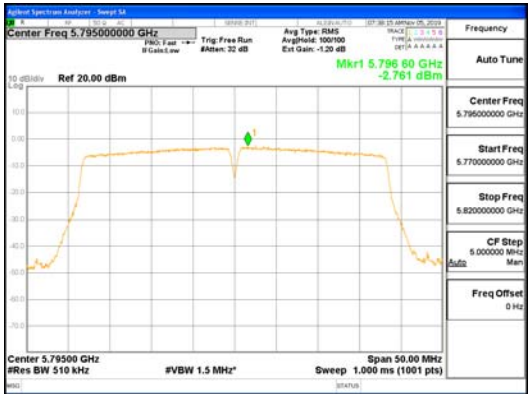
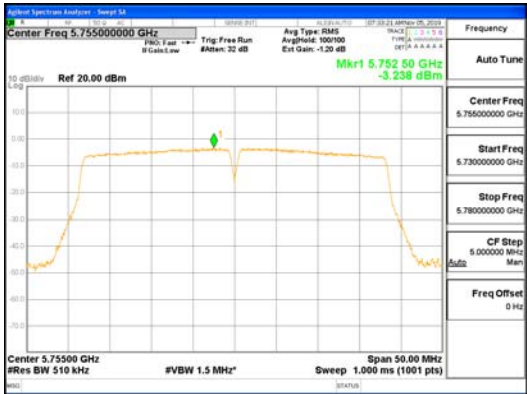


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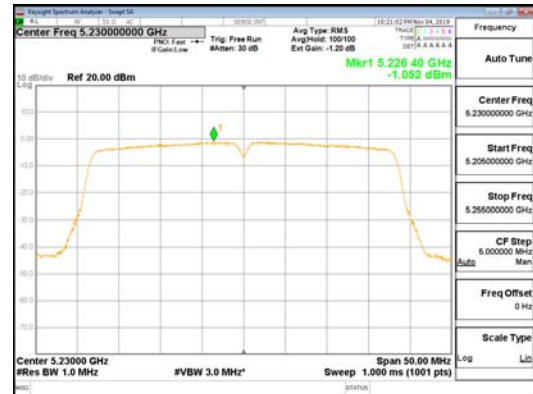
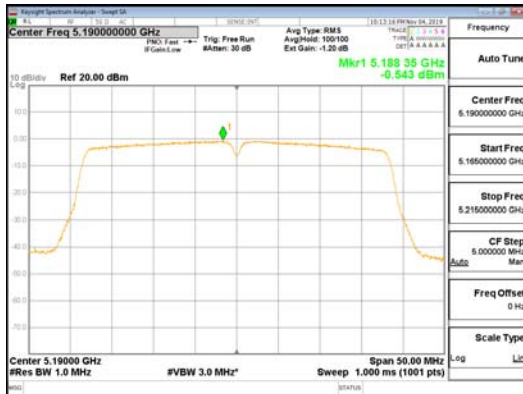


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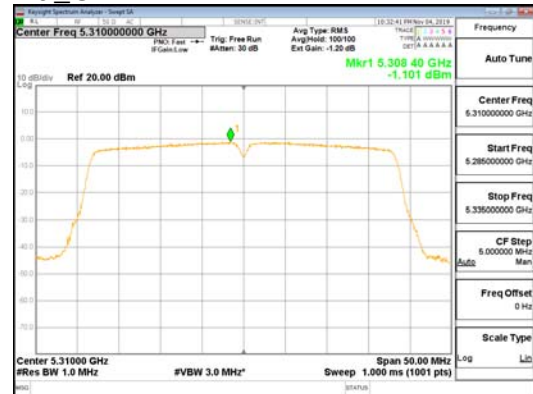
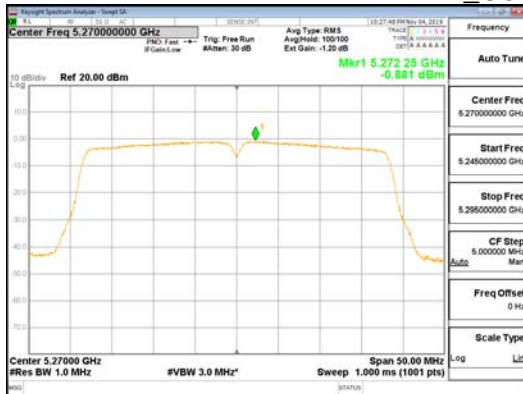
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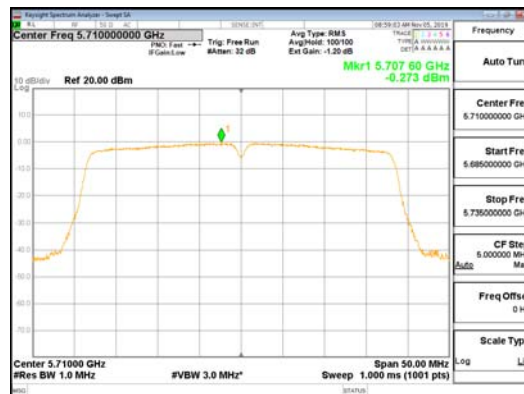
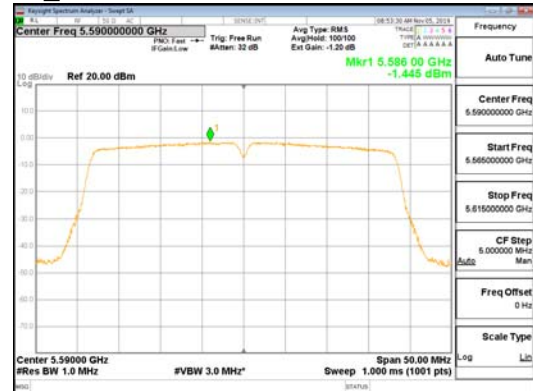
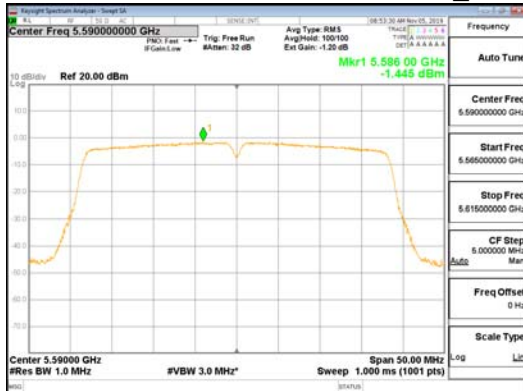
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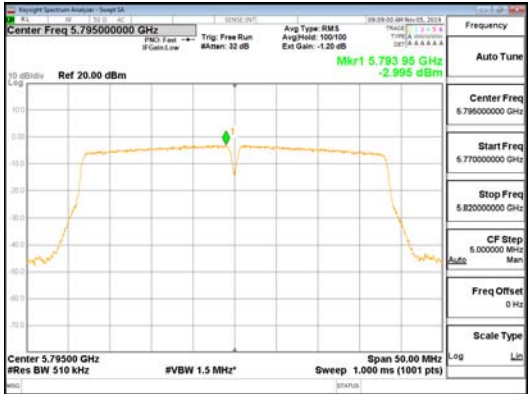
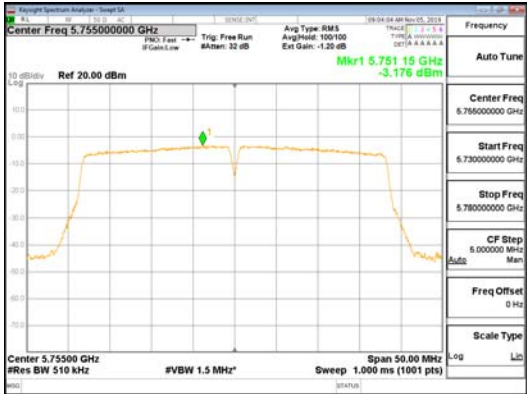


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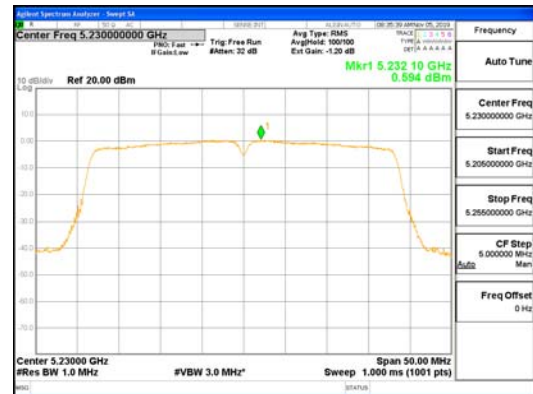
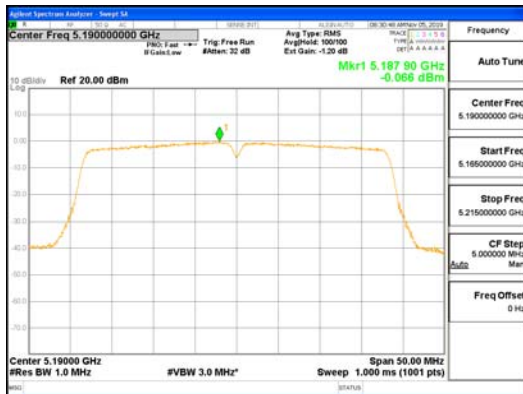


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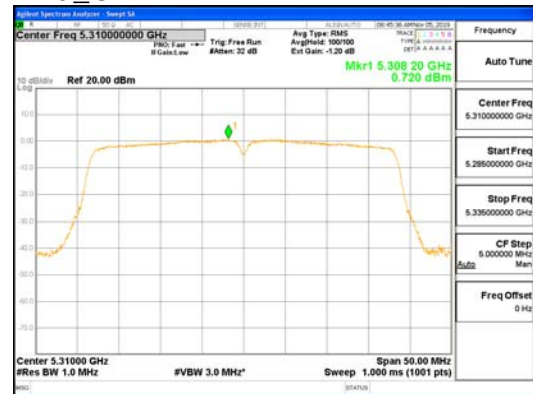
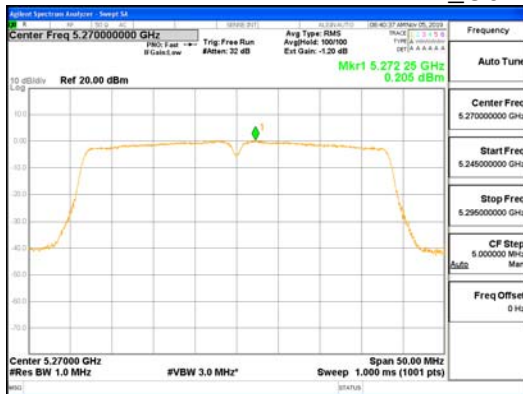
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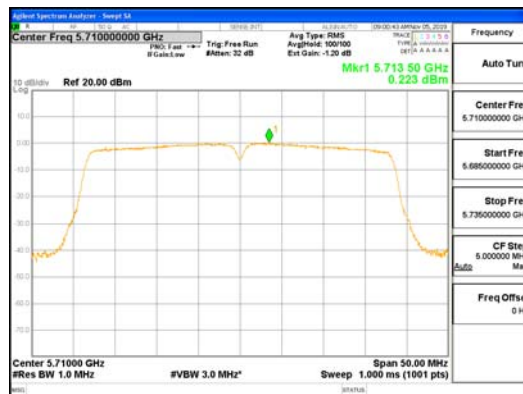
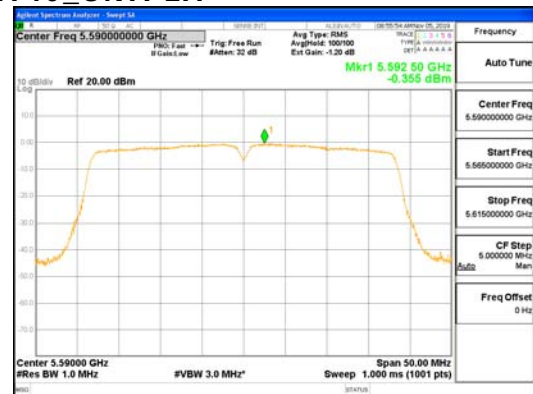
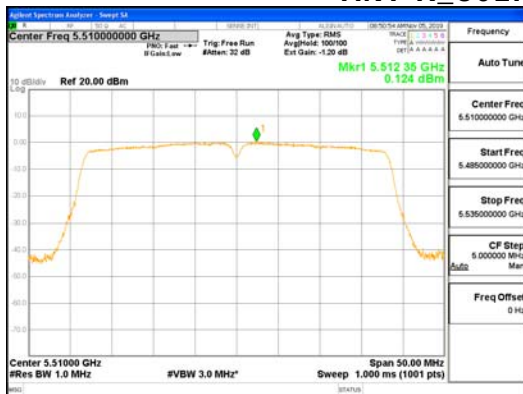
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ANT-R_802.11ac_VHT40_UNII 1



ANT-R_802.11ac_VHT40_UNII 2A

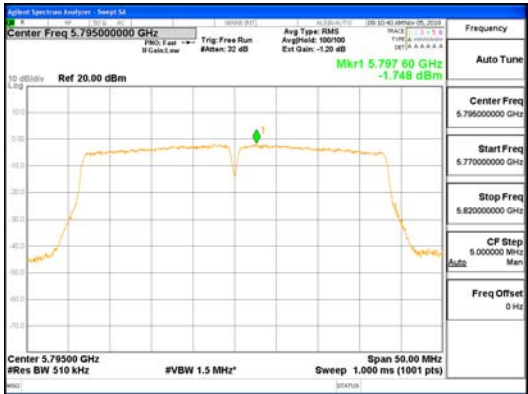
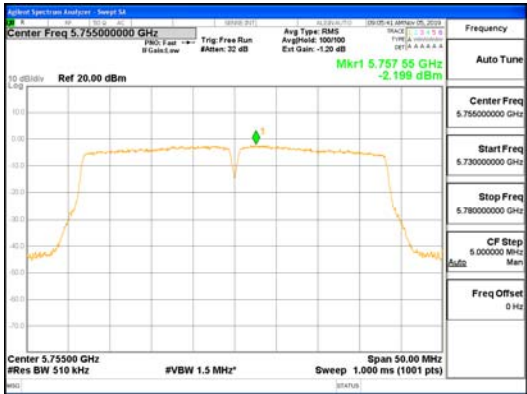


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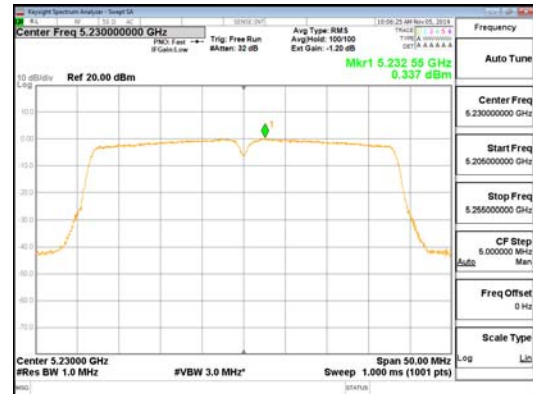
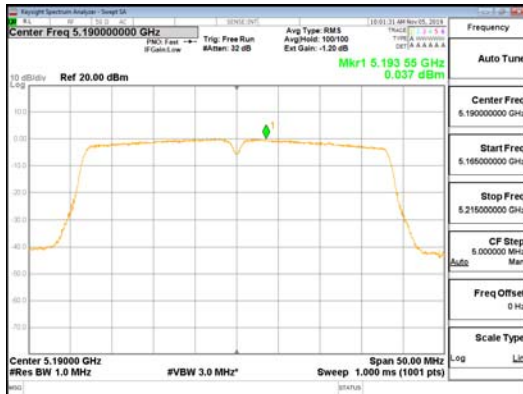


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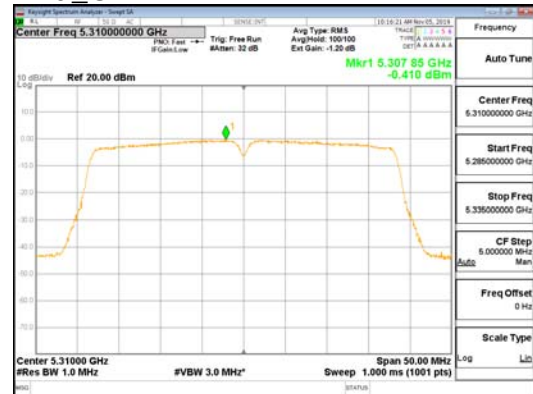
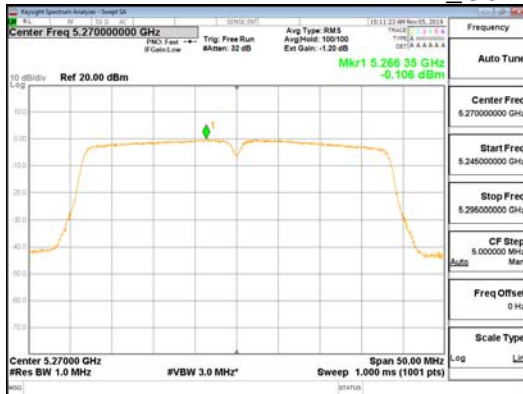
Report No.:
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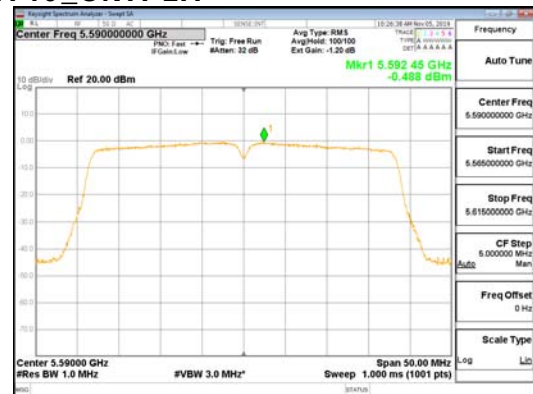
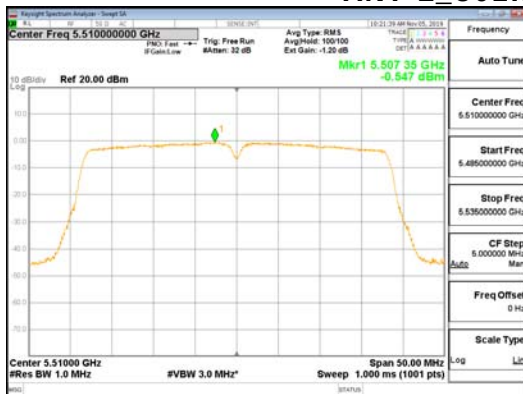
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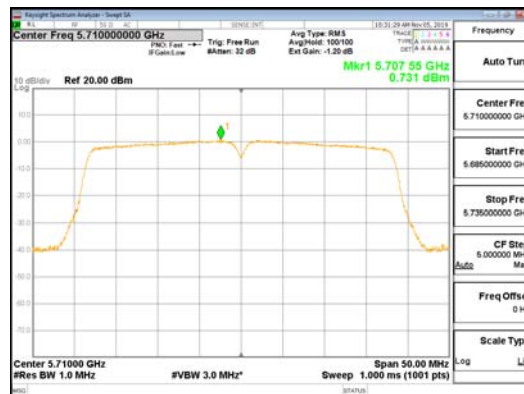
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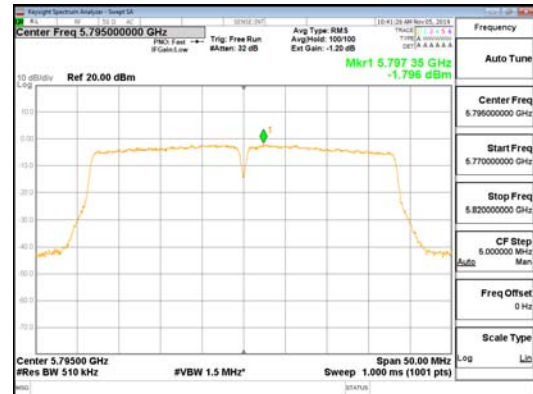
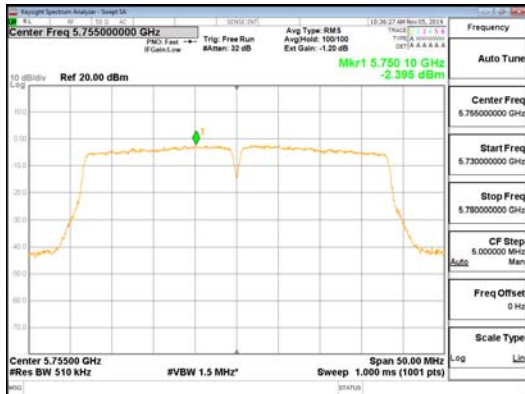
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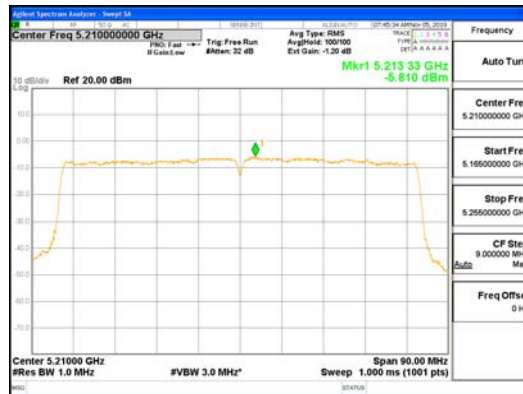
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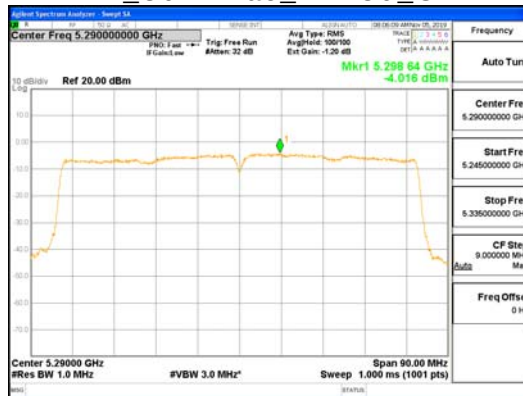
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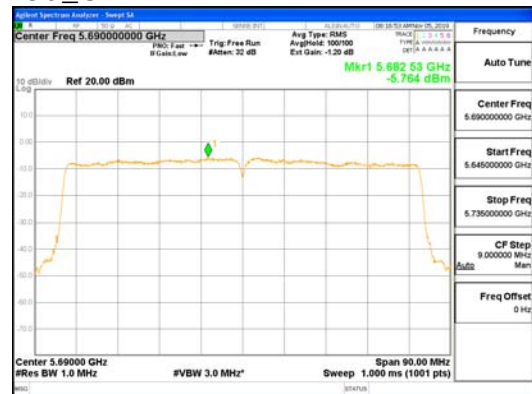
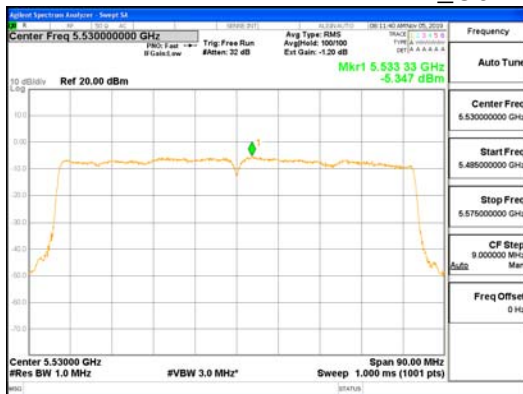
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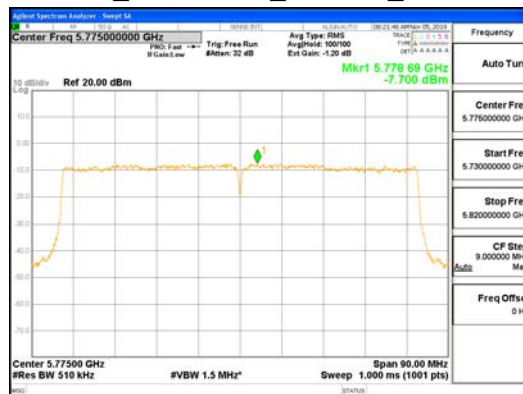
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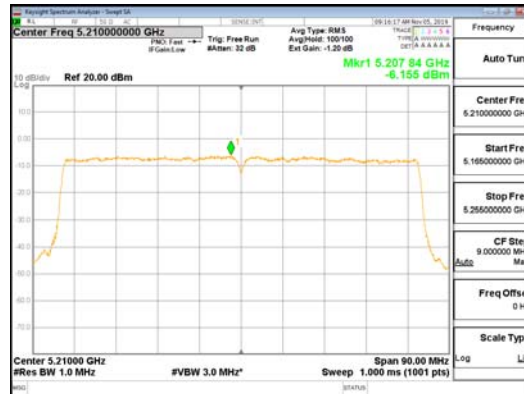
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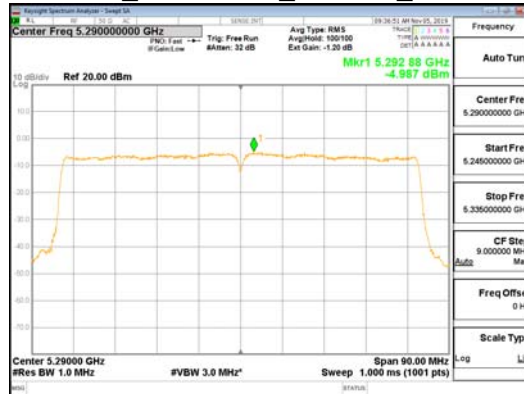
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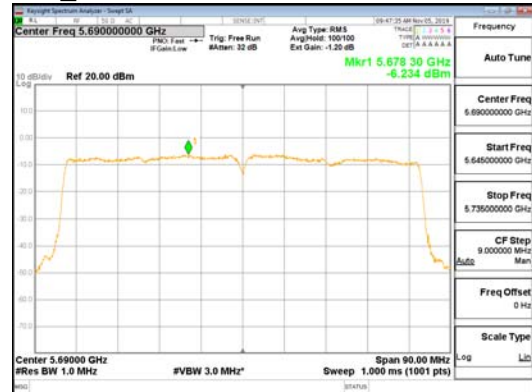
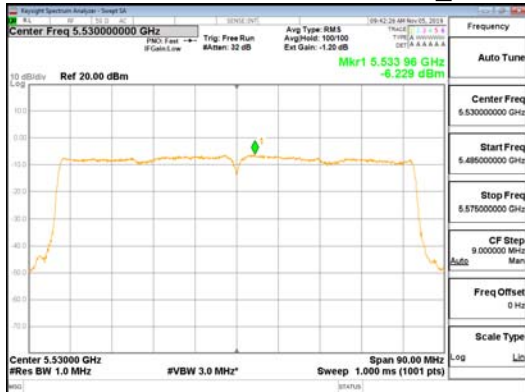
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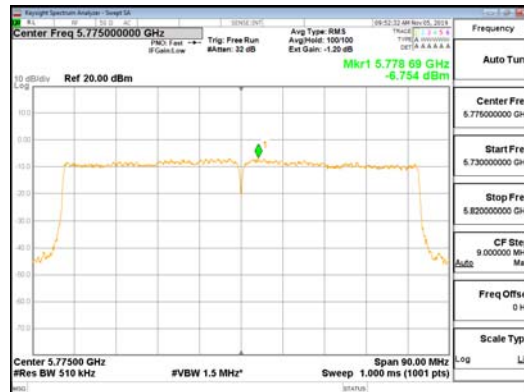
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ANT-L_802.11ac_VHT80_UNII 2A



ANT-L_802.11ac_VHT80_UNII 2C



ANT-L_802.11ac_VHT80_UNII 3

4.5 Frequency Stability

Test Procedures

KDB 789033 – Section A.3

The EUT was placed inside of an environmental chamber as the temperature in the chamber was varied between -20 °C and +50 °C (Declaration by the Manufacturer). The temperature was incremented by 10 °C intervals and the unit was allowed to stabilize at each temperature before each measurement. The center frequency of the transmitting channel was evaluated at each temperature and the frequency deviation from the channel's center frequency was recorded.

Data for the worst case channel is shown below.

Temperature (°C)	-20	-10	0	10	20	30	40	50
Frequency	Measured Frequency Error (kHz)							
5 180 MHz	45.90	58.64	28.63	41.16	19.57	8.75	-7.61	-21.21
5 200 MHz	26.64	47.93	9.60	22.60	16.44	-2.89	-16.27	-24.49
5 240 MHz	39.77	48.00	17.85	35.41	14.78	11.59	-18.12	-26.17
5 260 MHz	8.54	34.77	-3.37	23.98	-2.10	-18.60	-24.12	-41.49
5 300 MHz	-0.93	40.60	-9.77	33.98	0.14	-28.38	-29.01	-39.95
5 320 MHz	60.64	53.37	40.99	38.27	27.37	16.32	-7.16	-25.02
5 500 MHz	19.35	48.45	20.29	28.31	13.58	-10.73	-18.93	-30.70
5 600 MHz	24.18	57.20	18.60	31.02	23.00	-4.28	-21.19	-30.75
5 720 MHz	45.22	60.92	25.01	40.64	24.98	-4.20	-25.18	-20.04
5 745 MHz	-22.85	19.18	-21.56	19.04	-10.09	-25.40	-45.65	-40.84
5 785 MHz	35.85	25.56	-9.47	-3.20	-2.08	-17.79	-26.70	-44.92
5 825 MHz	10.88	25.08	-8.08	15.50	-3.32	-28.35	-36.15	-58.83

Note :

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature range as tested.

4.6 Unwanted Emissions

Test Location

- ☒ 10 m SAC (test distance : ☐ 10 m, ☒ 3 m)
☒ 3 m SAC (test distance : 3 m)

Test Procedures

KDB 789033 - Section G

- 1) In the frequency range of 9 kHz to 30 MHz, magnetic field is measured with Loop Antenna. The Test Antenna is positioned with its plane vertical at 1m distance from the EUT. The center of the Loop Test Antenna is 1m above the ground. During the measurement the Loop Test Antenna rotates about its vertical axis for maximum response at each azimuth about the EUT.
- 2) In the frequency range above 30 MHz, Bi-Log Test Antenna(30 MHz to 1 GHz) and Horn Test Antenna(above 1 GHz) are used. Test Antenna is 3m away from the EUT. Test Antenna height is carried from 1m to 4m above the ground to determine the maximum value of the field strength. The emissions levels at both horizontal and vertical polarizations should be tested.

Test Settings:

Frequency Range = 9 kHz ~ 1 GHz

- a) RBW = 100 kHz for $f < 1$ GHz, 9 kHz for $f < 30$ MHz
b) VBW $\geq$ RBW
c) Detector = CISPR Quasi-peak
d) Sweep time = auto couple

- Peak

Frequency Range = 1 GHz ~ 40 GHz

- a) RBW = 1 MHz
b) VBW $\geq 3 \times$ RBW
d) Sweep time = auto
c) Detector = Peak
e) Trace mode = max hold

- Average (duty cycle $\geq 98\%$)

Frequency Range = 1 GHz ~ 40 GHz

- a) RBW = 1 MHz
b) VBW $\geq 3 \times$ RBW
d) Sweep time = auto
f) Trace mode = average (at least 100 traces)
c) Detector = RMS
e) Averaging type = power (i.e., RMS)

- Average (duty cycle < 98%)

Frequency Range = 1 GHz ~ 40 GHz

a) RBW = 1 MHz

b) VBW $\geq 3 \times$ RBW

c) Detector = RMS

d) Sweep time = auto

e) Averaging type = power (i.e., RMS)

f) Trace mode = average (at least 100 traces)

If power averaging (RMS) mode, then the applicable correction factor is $10 \log(1/x)$, where x is the duty cycle.

Test mode	Duty Cycle Factor (dB)
802.11a	0.11
802.11n_HT20	0.11
802.11n_HT40	0.24
802.11ac_VHT20	0.11
802.11ac_VHT40	0.24
802.11ac_VHT80	0.78

Limit

- 15.209(a)

Frequency(MHz)	Field Strength uV/m@3m	Field Strength dBuV/m@3m	Deasurement Distance (meters)
0.009-0.490	2400/F(kHz)	-	300
0.490-1.705	24000/F(kHz)	-	30
1.705-30	30	-	30
30-88	100**	40	3
88-216	150**	43.5	3
216-960	200**	46	3
Above 960	500	54	3

** Except as provided in 15.209(g).fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72MHz, 76-88MHz, 174-216MHz, 470-806MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g.15.231 and 15.241.

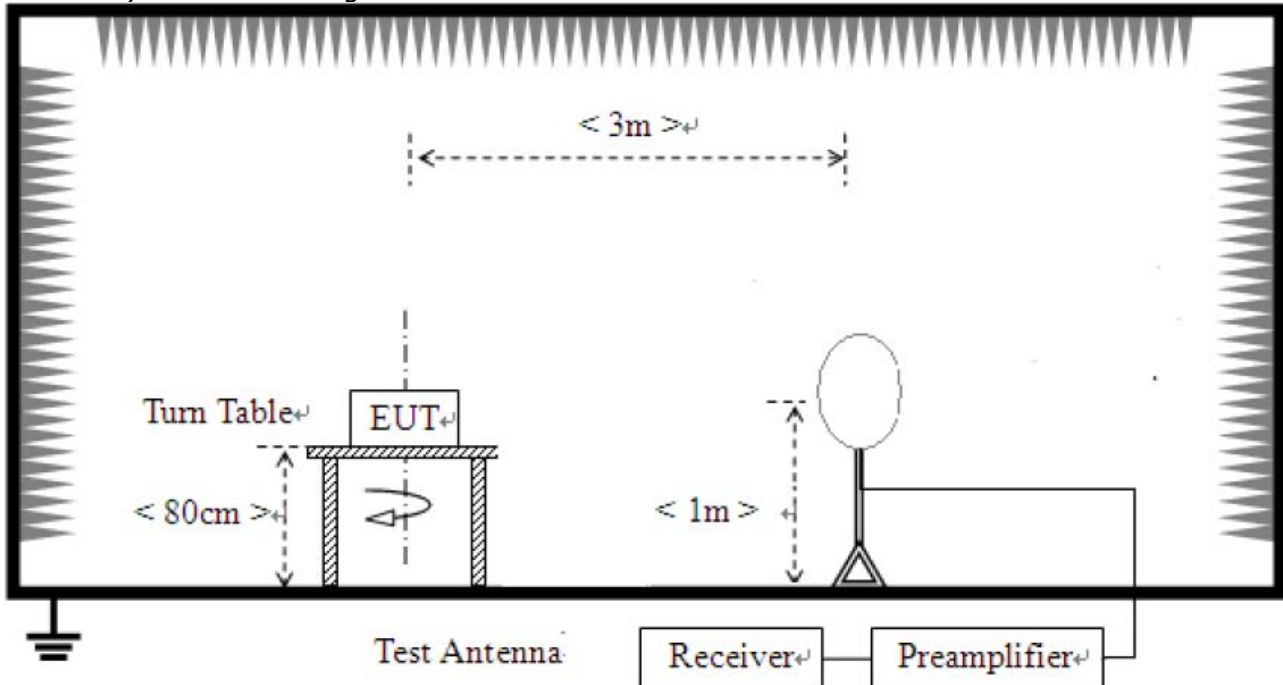
- 15.407, KDB 789033

E.I.R.P -27 dBm/MHz

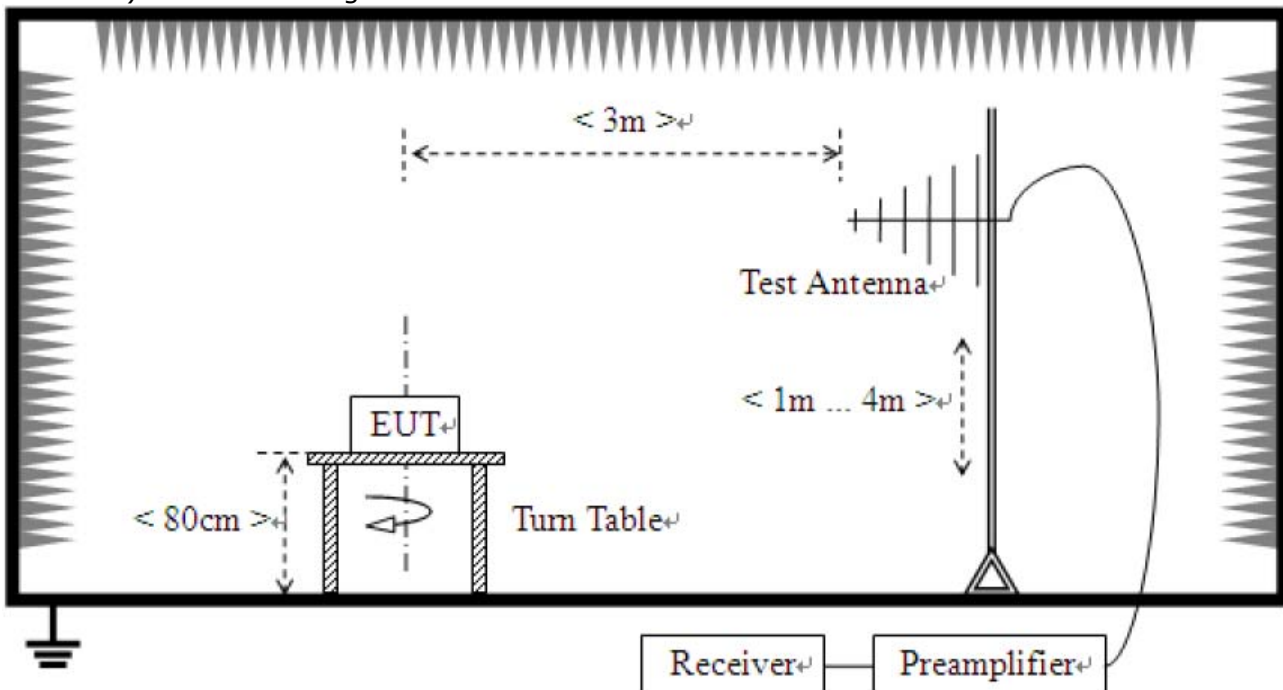
$E[\text{dBuV/m}] = \text{EIRP}[\text{dBm}] + 95.2$, for $d = 3\text{m}$

Test Setup:

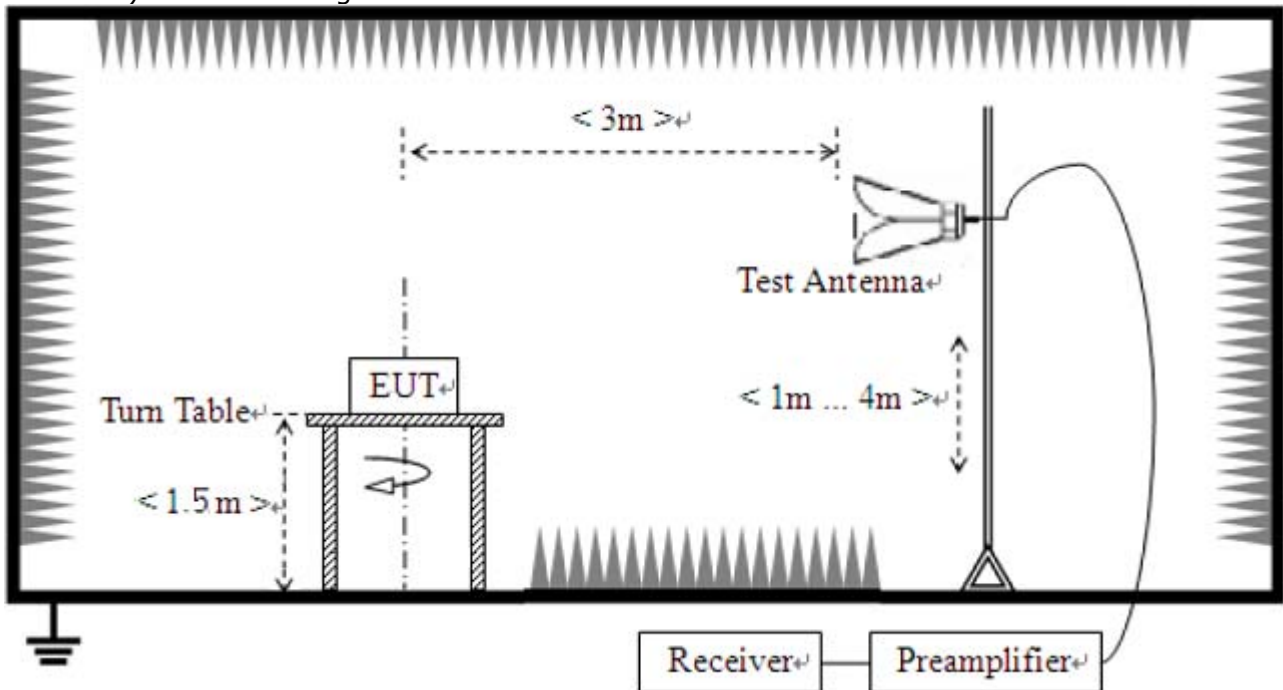
- 1) For field strength of emissions from 9 kHz to 30 MHz



- 2) For field strength of emissions from 30 MHz to 1 GHz



3) For field strength of emissions above 1 GHz



Test Mode

We have done all test mode.

The worst case antenna configuration and Test mode are determined to be as follows.

802.11a : ANT-R + ANT-L (MIMO)
802.11n : ANT-R + ANT-L (MIMO)
802.11ac : ANT-R + ANT-L (MIMO)

So the results are only attached worst cases.

Test Results

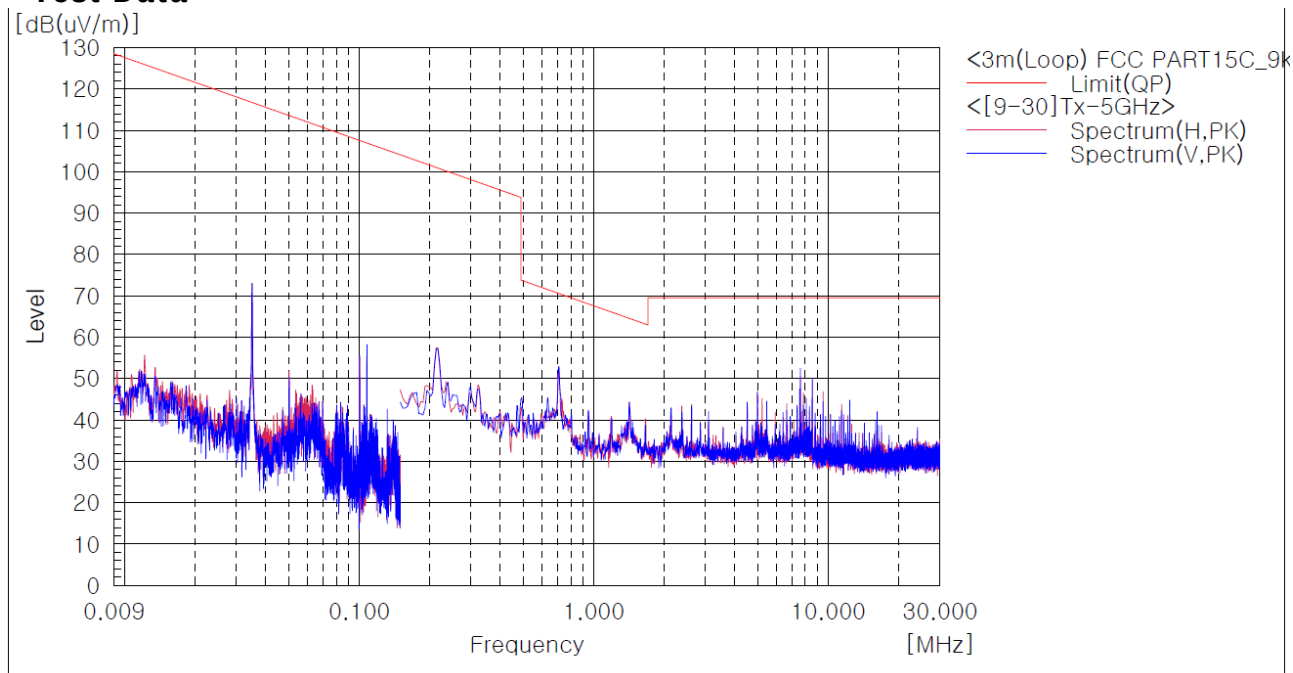
1) 9 kHz to 30 MHz

Test mode : Transmitter (Worst Case)

The requirements are:

☒ Complies

Test Data



Frequency (MHz)	Measured Data (dBuV/m)	Margin (dB)	Remark
The emissions 9 kHz to 30 MHz were 20 dB lower than the limit.			

Remark :

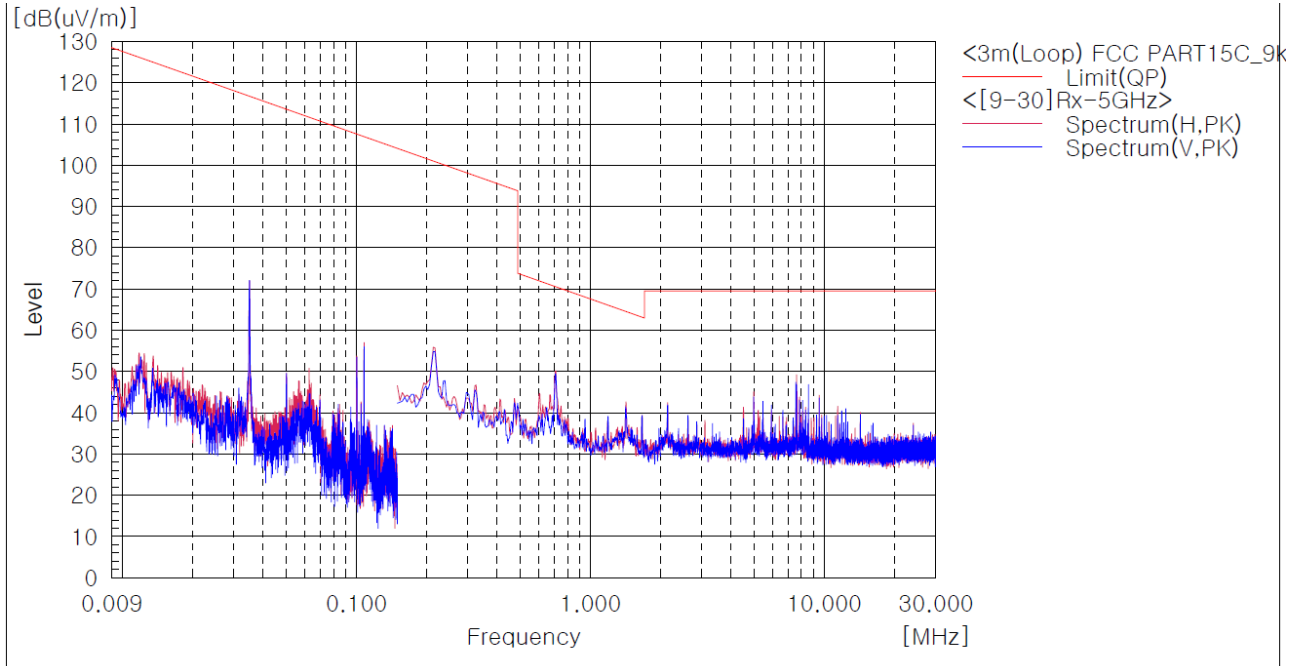
1. The unwanted emission was measured in the following position: EUT stand-up position(Z axis), lie-down position(X,Y axis). The worst emission was found in stand-up position(Z axis) and the worst case was recorded.
2. Result = Reading + c.f(Correction factor)
3. Correction factor = Antenna factor + Cable loss + 6 dB attenuator - Amp Gain
4. This data is the Peak(PK) value.

Test mode : Receiver (Worst Case)

The requirements are:

☒ Complies

Test Data



Frequency (MHz)	Measured Data (dBuV/m)	Margin (dB)	Remark
The emissions 9 kHz to 30 MHz were 20 dB lower than the limit.			

Remark :

1. The unwanted emission was measured in the following position: EUT stand-up position(Z axis), lie-down position(X,Y axis). The worst emission was found in stand-up position(Z axis) and the worst case was recorded.
2. Result = Reading + c.f(Correction factor)
3. Correction factor = Antenna factor + Cable loss + 6 dB attenuator - Amp Gain
4. This data is the Peak(PK) value.

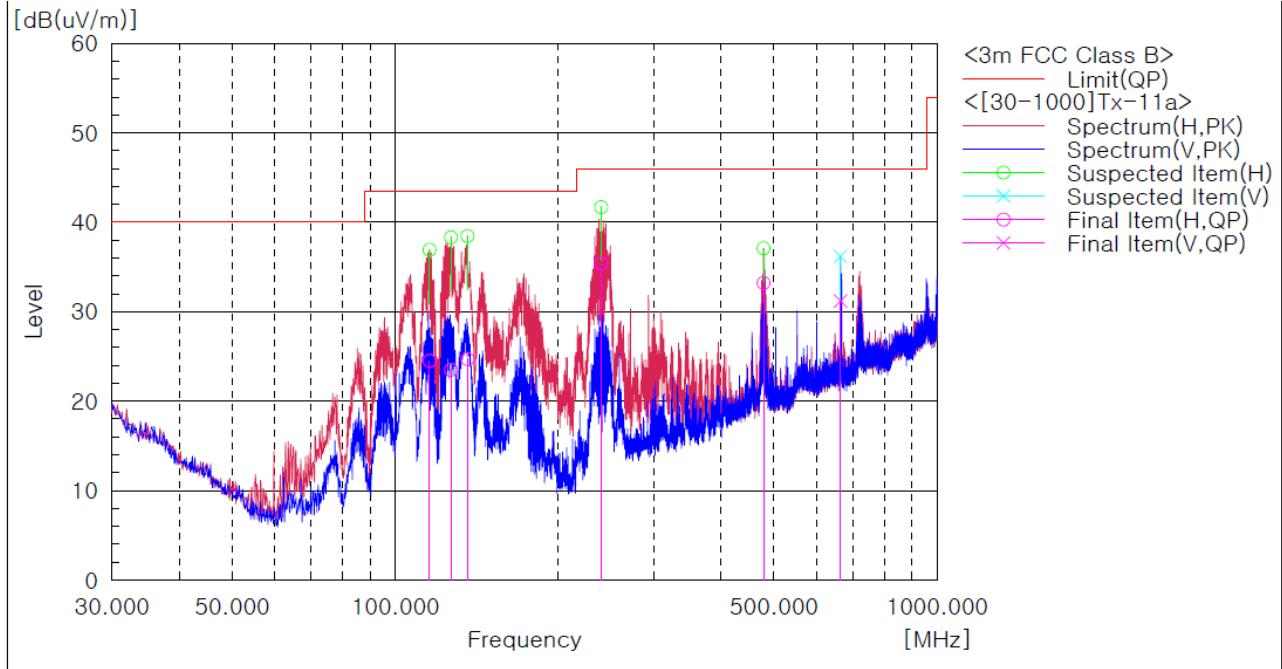
2) 30 MHz to 1 GHz

Test mode : Transmitter (Worst Case)

The requirements are:

☒ Complies

Test Data



Final Result

No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]
1	115.724	H	36.4	-11.9	24.5	43.5	19.0	291.0	18.0
2	126.758	H	34.9	-11.4	23.5	43.5	20.0	100.0	323.0
3	135.973	H	36.1	-11.4	24.7	43.5	18.8	191.0	352.0
4	240.005	H	46.2	-10.8	35.4	46.0	10.6	100.0	229.0
5	478.625	H	36.1	-2.9	33.2	46.0	12.8	191.0	259.0
6	663.774	V	30.6	0.6	31.2	46.0	14.8	100.0	111.0

Remark :

1. The unwanted emission was measured in the following position: EUT stand-up position(Z axis), lie-down position(X,Y axis). The worst emission was found in stand-up position(Z axis) and the worst case was recorded.
2. Result = Reading + c.f(Correction factor)
3. Correction factor = Antenna factor + Cable loss + 6 dB attenuator - Amp Gain