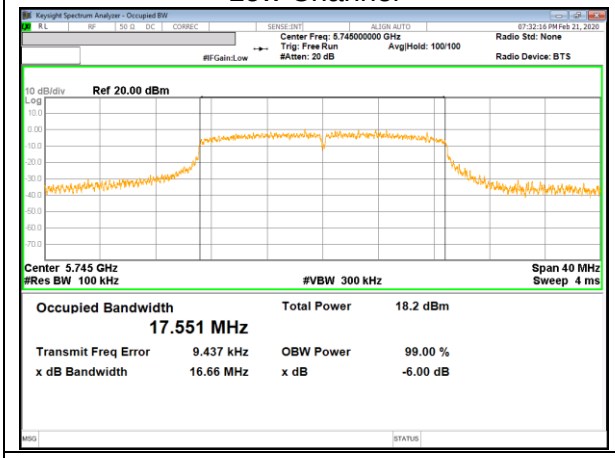
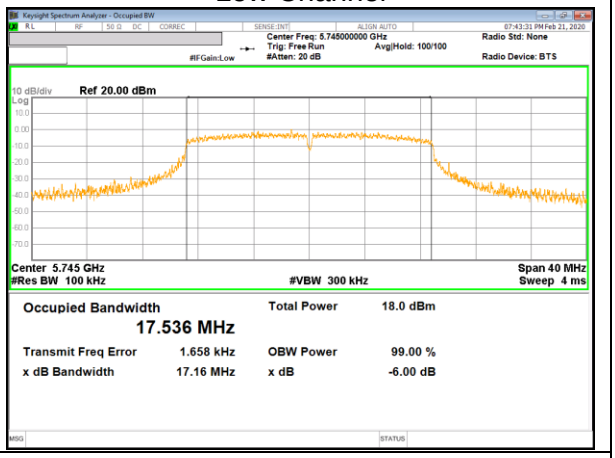
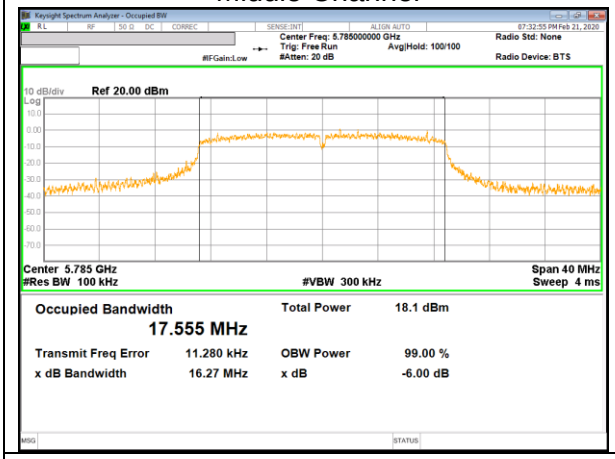
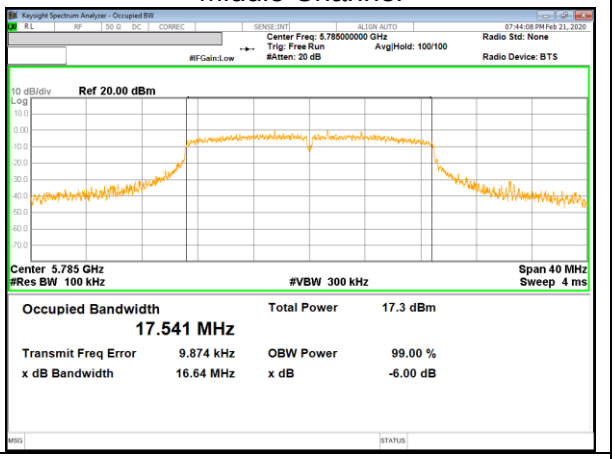
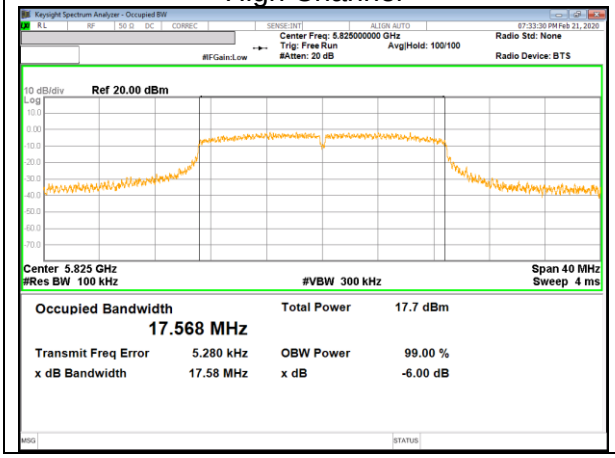
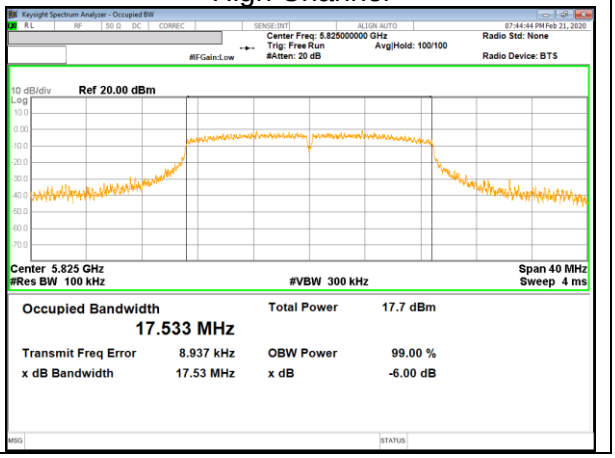
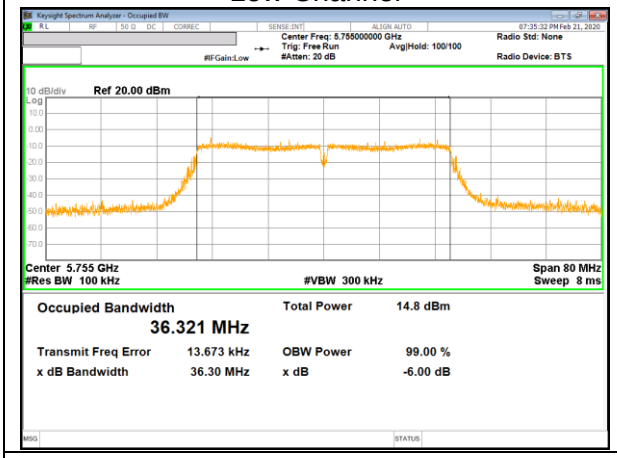
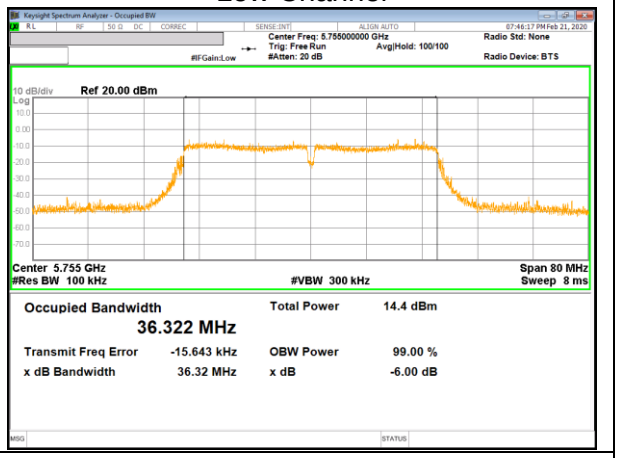
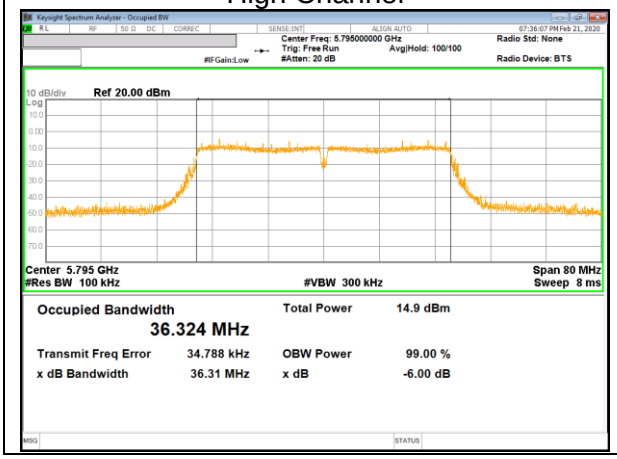
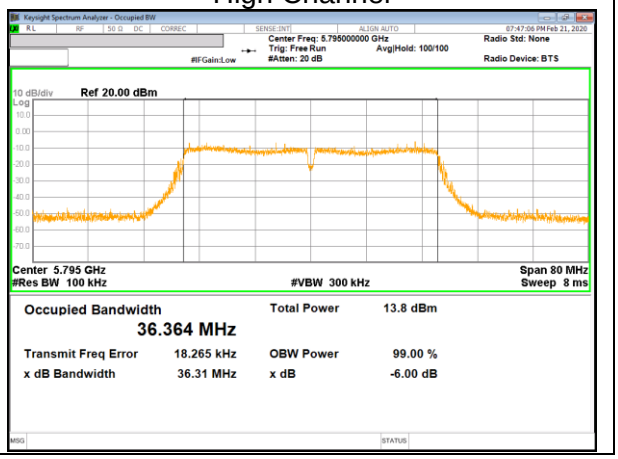
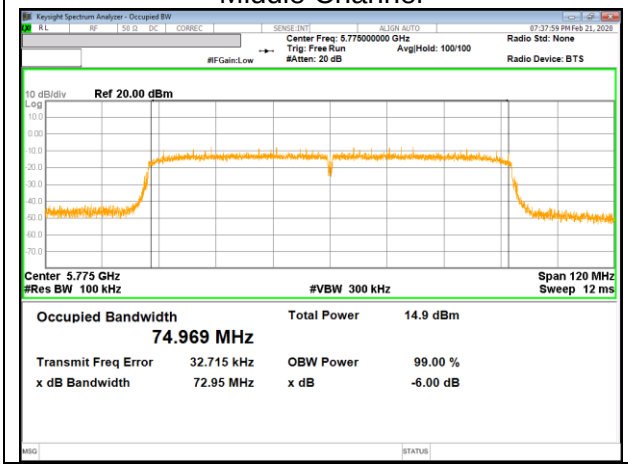
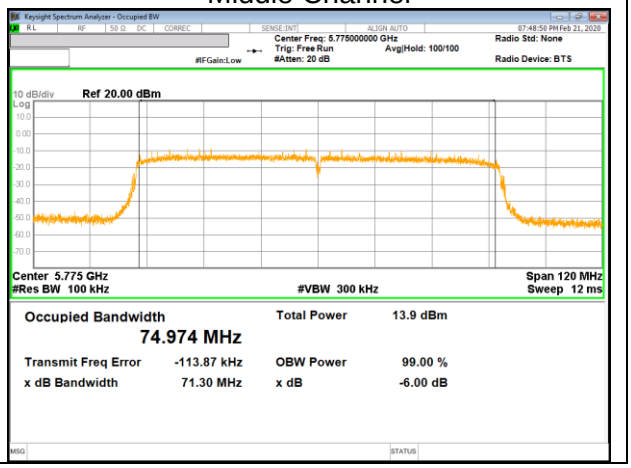
IEEE 802.11n HT20 mode

ANT1	ANT2
Low Channel	Low Channel
	
Middle Channel	Middle Channel
	
High Channel	High Channel
	

IEEE 802.11n HT40 mode

ANT1	ANT2
Low Channel	Low Channel
	
High Channel	High Channel
	

IEEE 802.11ac VHT80 mode

ANT1	ANT2
Middle Channel	Middle Channel
	

10.2. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1) (2) (3)

FCC

For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 11 dBm in any 1 MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band.

TEST PROCEDURE

KDB 789033 Method PM is used for output power.

KDB 789033 Method SA-2 is used for only power of straddle Ch. and PPSD. RBW set to 1MHz(500kHz for the band 5.725-5.85 GHz, the VBW >= 3 x RBW, RMS detector and trace averaging). Band power function used for power and peak marker value of the spectrum is used for PSD.

DIRECTIONAL ANTENNA GAIN

For OUTPUT POWER and PSD: The TX chains are correlated and the antenna gains are unequal among the chains. The directional gain is:

Frequency Band [MHz]	ANT1 Gain [dBi]	ANT2 Gain [dBi]	Correlated Chains Directional Gain [dBi]
UNII 1 5150 - 5250	-5.80	-8.80	-4.16
UNII 2A 5250 - 5350	-6.00	-8.40	-4.11
UNII 2C 5470 - 5725	-6.30	-8.10	-4.14
UNII 3 5725 - 5850	-6.80	-7.00	-3.89

RESULTS

10.2.1. 1Tx MODE IN THE 5.2 GHz BAND

Bandwidth and Antenna Gain, Limits

Band	Mode	Channel	Center Freq. [MHz]	Min 26 dB BW [MHz]	Directional Gain [dBi]	Power Limit [dBm]	PPSD Limit [dBm/MHz]
UNII-1	802.11a	Low	5180	20.42	-4.16	24.00	11.00
		Mid	5200	20.21			
		High	5240	20.60			
	802.11n HT20	Low	5180	23.11			
		Mid	5200	23.48			
		High	5240	23.16			
	802.11n HT40	Low	5190	41.82			
		High	5230	41.50			
	802.11ac VHT80	Mid	5210	82.12			

Included in Calculations of Corr'd Power & PPSD			
Duty Cycle CF [dB]	802.11a	0.17	dB
	802.11n20	0.10	dB
	802.11n40	0.19	dB
	802.11ac VHT80	0.34	dB

Output Power Results

Band	Mode	Channel	Center Freq. [MHz]	Meas Power [dBm]		Corr'd Power [dBm]		Power Limit [dBm]
				ANT1	ANT2	ANT1	ANT2	
UNII-1	802.11a	Low	5180	13.86	11.88	14.03	12.05	24.00
		Mid	5200	14.09	11.69	14.26	11.86	
		High	5240	13.99	12.15	14.16	12.32	
	802.11n HT20	Low	5180	13.91	11.85	14.01	11.95	
		Mid	5200	14.08	11.63	14.18	11.73	
		High	5240	13.86	12.14	13.96	12.24	
	802.11n HT40	Low	5190	9.83	7.44	10.02	7.63	
		High	5230	10.06	7.58	10.25	7.77	
	802.11ac VHT80	Mid	5210	9.98	7.07	10.32	7.41	

* Calculation of Output Power : Corr'd Power = Meas Power + Duty CF [dB]

PPSD Results

Band	Mode	Channel	Center Freq. [MHz]	Meas PPSD [dBm/MHz]		Corr'd PPSD [dBm/MHz]		PPSD Limit [dBm/1MHz]
				ANT1	ANT2	ANT1	ANT2	
UNII-1	802.11a	Low	5180	3.53	2.47	3.70	2.64	11.00
		Mid	5200	3.97	2.10	4.14	2.27	
		High	5240	3.51	2.43	3.68	2.60	
	802.11n HT20	Low	5180	3.50	2.36	3.60	2.46	
		Mid	5200	3.58	1.63	3.68	1.73	
		High	5240	3.56	1.88	3.66	1.98	
	802.11n HT40	Low	5190	-3.01	-4.90	-2.82	-4.71	
		High	5230	-3.48	-5.05	-3.29	-4.86	
	802.11ac VHT80	Mid	5210	-6.90	-9.10	-6.56	-8.76	

* Calculation of PPSD result : Corr'd PPSD = Meas PPSD + Duty CF + Corr'd factor [dB]

10.2.2. 1Tx MODE IN THE 5.3 GHz BAND

Bandwidth and Antenna Gain, Limits

Band	Mode	Channel	Center Freq. [MHz]	Min 26 dB BW [MHz]	Directional Gain [dBi]	Power Limit [dBm]	PPSD Limit [dBm/MHz]
UNII-2A	802.11a	Low	5260	20.81	-4.11	24.00	11.00
		Mid	5300	19.94			
		High	5320	20.43			
	802.11n HT20	Low	5260	21.28			
		Mid	5300	21.72			
		High	5320	20.67			
	802.11n HT40	Low	5270	41.36			
		High	5310	41.97			
	802.11ac VHT80	Mid	5290	80.64			

Included in Calculations of Corr'd Power & PPSD			
Duty Cycle CF [dB]	802.11a	0.17	dB
	802.11n20	0.10	dB
	802.11n40	0.19	dB
	802.11ac VHT80	0.34	dB

Output Power Results

Band	Mode	Channel	Center Freq. [MHz]	Meas Power [dBm]		Corr'd Power [dBm]		Power Limit [dBm]
				ANT1	ANT2	ANT1	ANT2	
UNII-2A	802.11a	Low	5260	13.88	12.24	14.05	12.41	24.00
		Mid	5300	13.91	12.37	14.08	12.54	
		High	5320	13.69	12.54	13.86	12.71	
	802.11n HT20	Low	5260	12.05	12.06	12.15	12.16	
		Mid	5300	12.24	11.99	12.34	12.09	
		High	5320	12.21	12.38	12.31	12.48	
	802.11n HT40	Low	5270	9.77	8.22	9.96	8.41	
		High	5310	10.06	8.29	10.25	8.48	
	802.11ac VHT80	Mid	5290	9.84	7.96	10.18	8.30	

* Calculation of Output Power : Corr'd Power = Meas Power + Duty CF [dB]

PPSD Results

Band	Mode	Channel	Center Freq. [MHz]	Meas PPSD [dBm/MHz]		Corr'd PPSD [dBm/MHz]		PPSD Limit [dBm/1MHz]
				ANT1	ANT2	ANT1	ANT2	
UNII-2A	802.11a	Low	5260	3.34	2.29	3.51	2.46	11.00
		Mid	5300	3.40	2.33	3.57	2.50	
		High	5320	3.42	2.41	3.59	2.58	
	802.11n HT20	Low	5260	1.86	2.19	1.96	2.29	
		Mid	5300	2.21	2.20	2.31	2.30	
		High	5320	2.10	2.07	2.20	2.17	
	802.11n HT40	Low	5270	-3.46	-4.80	-3.27	-4.61	
		High	5310	-3.37	-4.83	-3.18	-4.64	
	802.11ac VHT80	Mid	5290	-7.68	-8.55	-7.34	-8.21	

* Calculation of PPSD result : Corr'd PPSD = Meas PPSD + Duty CF + Corr'd factor [dB]

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E(03)
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16675, Korea TEL: (031) 337-9902 FAX: (031) 213-5433

10.2.3. 1Tx MODE IN THE 5.5 GHz BAND

Bandwidth and Antenna Gain, Limits

Band	Mode	Channel	Center Freq. [MHz]	Min 26 dB BW [MHz]	Directional Gain [dBi]	Power Limit [dBm]	PPSD Limit [dBm/MHz]
UNII-2C	802.11a	Low	5500	20.23	-4.14	24.00	11.00
		Mid	5580	20.36	-4.14	24.00	11.00
		High	5700	19.56	-4.14	23.91	11.00
	802.11n HT20	Low	5500	20.85	-4.14	24.00	11.00
		Mid	5580	21.28	-4.14		
		High	5700	20.72	-4.14		
	802.11n HT40	Low	5510	41.07	-4.14	24.00	11.00
		Mid	5590	41.47	-4.14		
		High	5670	41.69	-4.14		
	802.11ac VHT80	Low	5530	80.78	-4.14	24.00	11.00
		High	5610	80.72	-4.14		

Included in Calculations of Corr'd Power & PPSD			
Duty Cycle CF [dB]	802.11a	0.17	dB
	802.11n20	0.10	dB
	802.11n40	0.19	dB
	802.11ac VHT80	0.34	dB

Output Power Results

Band	Mode	Channel	Center Freq. [MHz]	Meas Power [dBm]		Corr'd Power [dBm]		Power Limit [dBm]
				ANT1	ANT2	ANT1	ANT2	
UNII-2C	802.11a	Low	5500	12.75	12.39	12.92	12.56	24.00
		Mid	5580	12.41	12.54	12.58	12.71	24.00
		High	5700	12.32	12.38	12.49	12.55	23.91
	802.11n HT20	Low	5500	10.43	12.24	10.53	12.34	24.00
		Mid	5580	10.24	12.54	10.34	12.64	
		High	5700	10.17	12.61	10.27	12.71	
	802.11n HT40	Low	5510	9.23	8.73	9.42	8.92	24.00
		Mid	5590	8.82	9.09	9.01	9.28	
		High	5670	8.97	9.30	9.16	9.49	
	802.11ac VHT80	Low	5530	8.92	8.23	9.26	9.28	24.00
		High	5610	8.37	8.61	8.71	8.95	

* Calculation of Output Power : Corr'd Power = Meas Power + Duty CF [dB]

PPSD Results

Band	Mode	Channel	Center Freq. [MHz]	Meas PPSD [dBm/MHz]		Corr'd PPSD [dBm/MHz]		PPSD Limit [dBm/1MHz]
				ANT1	ANT2	ANT1	ANT2	
UNII-2C	802.11a	Low	5500	2.80	2.13	2.97	2.30	11.00
		Mid	5580	2.61	2.50	2.78	2.67	
		High	5700	2.29	2.80	2.46	2.97	
	802.11n HT20	Low	5500	0.12	2.12	0.22	2.22	
		Mid	5580	0.04	2.56	0.14	2.66	
		High	5700	0.08	2.42	0.18	2.52	
	802.11n HT40	Low	5510	-4.12	-4.58	-3.92	-4.39	
		Mid	5590	-4.01	-4.56	-3.82	-4.37	
		High	5670	-3.50	-3.42	-3.31	-3.23	
	802.11ac VHT80	Low	5530	-8.00	-8.46	-7.66	-8.12	
		High	5610	-7.76	-8.17	-7.42	-7.83	

* Calculation of PPSD result : Corr'd PPSD = Meas PPSD + Duty CF + Corr'd factor [dB]

10.2.4. 1Tx MODE IN THE 5.8 GHz BAND

Bandwidth and Antenna Gain, Limits

Included in Calculations of Corr'd Power & PPSD			
Duty Cycle CF [dB]	802.11a	0.17	dB
	802.11n20	0.10	dB
	802.11n40	0.19	dB
	802.11ac VHT80	0.34	dB

Output Power Results

Band	Mode	Channel	Center Freq. [MHz]	Meas Power [dBm]		Corr'd Power [dBm]		Power Limit [dBm]
				ANT1	ANT2	ANT1	ANT2	
UNII-3	802.11a	Mid	5745	13.08	12.51	13.25	12.68	30.00
		High	5785	13.16	12.26	13.33	12.43	
		High	5825	13.14	12.70	13.31	12.87	
	802.11n HT20	Low	5745	12.97	12.85	13.07	12.95	
		Mid	5785	13.18	12.30	13.28	12.40	
		High	5825	13.01	12.63	13.11	12.43	
	802.11n HT40	Low	5755	9.38	9.01	9.57	9.20	
		High	5795	9.76	9.08	9.95	9.27	
	802.11ac VHT80	Middle	5775	9.58	9.01	9.92	9.35	

* Calculation of Output Power : Corr'd Power = Meas Power + Duty CF [dB]

PPSD Results

Band	Mode	Channel	Center Freq. [MHz]	Meas PPSD [dBm/MHz]		Corr'd PPSD [dBm/MHz]		PPSD Limit [dBm/500kHz]
				ANT1	ANT2	ANT1	ANT2	
UNII-3	802.11a	Low	5745	-0.11	-0.24	0.06	-0.07	30.00
		Mid	5785	-0.07	-0.48	0.10	-0.31	
		High	5825	-0.09	-0.23	0.08	-0.06	
	802.11n HT20	Low	5745	-0.32	-0.36	-0.22	-0.26	
		Mid	5785	-0.36	-0.74	-0.26	-0.64	
		High	5825	-0.42	-0.32	-0.32	-0.22	
	802.11n HT40	Low	5755	-6.31	-6.08	-6.12	-5.89	
		High	5795	-6.36	-6.52	-6.17	-6.33	
	802.11ac VHT80	Middle	5775	-9.97	-10.04	-9.63	-9.70	

* Calculation of PPSD result : Corr'd PPSD = Meas PPSD + Duty CF + Corr'd factor [dB]

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E(03)
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16675, Korea TEL: (031) 337-9902 FAX: (031) 213-5433

10.2.5. 1Tx Mode Straddle channel IN THE 5.5 GHz BAND

Bandwidth and Antenna Gain, Limits

Band	Mode	Channel	Center Freq. [MHz]	Min 26 dB BW [MHz]	Directional Gain [dBi]	Power Limit [dBm]	PPSD Limit [dBm/MHz]
UNII-2C	802.11a	Straddle	5720	15.02	-4.14	22.77	11.00
	802.11n HT20	Straddle	5720	15.54	-4.14	22.92	11.00
	802.11n HT40	Straddle	5710	35.66	-4.14	24.00	11.00
	802.11ac VHT80	Straddle	5690	75.79	-4.14	24.00	11.00
Included in Calculations of Corr'd Power & PPSD							
Duty Cycle CF [dB]			802.11a			0.17	dB
			802.11n20			0.10	dB
			802.11n40			0.19	dB
			802.11ac VHT80			0.34	dB

Output Power Results

Band	Mode	Channel	Center Freq. [MHz]	Meas Power [dBm]		Corr'd Power [dBm]		Power Limit [dBm]
				ANT1	ANT2	ANT1	ANT2	
UNII-2C	802.11a	Straddle	5720	11.76	11.60	11.93	11.77	22.78
	802.11n HT20	Straddle	5720	9.21	11.64	9.31	11.74	23.01
	802.11n HT40	Straddle	5710	8.53	8.32	8.72	8.51	24.00
	802.11ac VHT80	Straddle	5690	8.46	8.44	8.80	8.78	24.00

* Calculation of Output Power : Corr'd Power = Meas Power + Duty CF [dB]

PPSD Results

Band	Mode	Channel	Center Freq. [MHz]	Meas PPSD [dBm/MHz]		Corr'd PPSD [dBm/MHz]		PPSD Limit [dBm/1MHz]
				ANT1	ANT2	ANT1	ANT2	
UNII-2C	802.11a	Straddle	5720	2.62	1.04	2.79	1.21	11.00
	802.11n HT20	Straddle	5720	0.19	2.36	0.29	2.46	
	802.11n HT40	Straddle	5710	-3.77	-4.01	-3.58	-3.82	
	802.11ac VHT80	Straddle	5690	-7.33	-7.64	-6.99	-7.30	

* Calculation of PPSD result : Corr'd PPSD = Meas PPSD + Duty CF + Corr'd factor [dB]

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E(03)
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16675, Korea TEL: (031) 337-9902 FAX: (031) 213-5433

10.2.6. 1Tx Mode Straddle channel IN THE 5.8 GHz BAND

Bandwidth and Antenna Gain, Limits

Band	Mode	Channel	Center Freq. [MHz]	Min 26 dB BW [MHz]	Directional Gain [dBi]	Power Limit [dBm]	PPSD Limit [dBm/500kHz]
UNII-3	802.11a	Straddle	5720	5.11	-3.89	30.00	30.00
	802.11n HT20	Straddle	5720	5.54			
	802.11n HT40	Straddle	5710	5.57			
	802.11ac VHT80	Straddle	5690	5.33			

Included in Calculations of Corr'd Power & PPSD			
Duty Cycle CF [dB]	802.11a	0.17	dB
	802.11n20	0.10	dB
	802.11n40	0.19	dB
	802.11ac VHT80	0.34	dB

Output Power Results

Band	Mode	Channel	Center Freq. [MHz]	Meas Power [dBm]		Corr'd Power [dBm]		Power Limit [dBm]
				ANT1	ANT2	ANT1	ANT2	
UNII-3	802.11a	Straddle	5720	4.54	4.31	4.71	4.48	30.00
	802.11n HT20	Straddle	5720	2.63	4.73	2.73	4.83	
	802.11n HT40	Straddle	5710	-0.85	-1.60	-0.66	-1.41	
	802.11ac VHT80	Straddle	5690	-7.11	-8.60	-6.77	-8.26	

* Calculation of Output Power : Corr'd Power = Meas Power + Duty CF [dB]

PPSD Results

Band	Mode	Channel	Center Freq. [MHz]	Meas PPSD [dBm/MHz]		Corr'd PPSD [dBm/MHz]		PPSD Limit [dBm/500kHz]
				ANT1	ANT2	ANT1	ANT2	
UNII-3	802.11a	Straddle	5720	-1.06	-3.02	-0.89	-2.85	30.00
	802.11n HT20	Straddle	5720	-3.50	-1.58	-3.40	-1.48	
	802.11n HT40	Straddle	5710	-6.81	-7.91	-6.62	-7.72	
	802.11ac VHT80	Straddle	5690	-12.81	-14.25	-12.47	-13.91	

* Calculation of PPSD result : Corr'd PPSD = Meas PPSD + Duty CF + Corr'd factor [dB]

10.2.7. 2Tx MODE IN THE 5.2 GHz BAND

Bandwidth and Antenna Gain, Limits

Band	Mode	Channel	Center Freq. [MHz]	Min 26 dB BW [MHz]	Directional Gain [dBi]	Power Limit [dBm]	PPSD Limit [dBm/MHz]
UNII-1	802.11a	Low	5180	20.42	-4.16	24.00	11.00
		Mid	5200	20.21			
		High	5240	20.60			
	802.11n HT20	Low	5180	23.11			
		Mid	5200	23.48			
		High	5240	23.16			
	802.11n HT40	Low	5190	41.82			
		High	5230	41.50			
	802.11ac VHT80	Mid	5210	82.12			

Included in Calculations of Corr'd Power & PPSD			
Duty Cycle CF [dB]	802.11a	0.17	dB
	802.11n20	0.09	dB
	802.11n40	0.19	dB
	802.11ac VHT80	0.49	dB

Output Power Results

Band	Mode	Channel	Center Freq. [MHz]	Meas Power [dBm]		Total Corr'd Power [dBm]	Power Limit [dBm]
				ANT1	ANT2		
UNII-1	802.11a	Low	5180	11.46	9.75	13.87	24.00
		Mid	5200	11.76	9.37	13.91	
		High	5240	11.70	9.80	14.03	
	802.11n HT20	Low	5180	11.80	10.06	14.12	
		Mid	5200	11.90	9.82	14.08	
		High	5240	11.84	10.45	14.30	
	802.11n HT40	Low	5190	7.48	5.37	9.75	
		High	5230	7.51	5.44	9.80	
	802.11ac VHT80	Mid	5210	5.91	3.31	8.30	

* Calculation of Output Power : Corr'd Power = Ant1 Power + Ant2 Power + Duty CF [dB]

PPSD Results

Band	Mode	Channel	Center Freq. [MHz]	Meas PPSD [dBm/MHz]		Total Corr'd PPSD [dBm/MHz]	PPSD Limit [dBm/MHz]
				ANT1	ANT2		
UNII-1	802.11a	Low	5180	3.53	2.47	6.21	11.00
		Mid	5200	3.97	2.10	6.32	
		High	5240	3.51	2.43	6.18	
	802.11n HT20	Low	5180	3.50	2.36	6.06	
		Mid	5200	3.58	1.63	5.81	
		High	5240	3.56	1.88	5.90	
	802.11n HT40	Low	5190	-3.01	-4.90	-0.65	
		High	5230	-3.48	-5.05	-1.00	
	802.11ac VHT80	Mid	5210	-6.90	-9.10	-4.36	

* Calculation of PPSD result : Corr'd PPSD = Ant1 PPSD + Ant2 PPSD + Duty CF [dB] + Corr'd factor [dB]

10.2.8. 2Tx MODE IN THE 5.3 GHz BAND

Bandwidth and Antenna Gain, Limits

Band	Mode	Channel	Center Freq. [MHz]	Min 26 dB BW [MHz]	Directional Gain [dBi]	Power Limit [dBm]	PPSD Limit [dBm/MHz]
UNII-2A	802.11a	Low	5260	20.81	-4.11	24.00	11.00
		Mid	5300	19.94			
		High	5320	20.43			
	802.11n HT20	Low	5260	21.28			
		Mid	5300	21.72			
		High	5320	20.67			
	802.11n HT40	Low	5270	41.36			
		High	5310	41.97			
	802.11ac VHT80	Mid	5290	80.64			
Included in Calculations of Corr'd Power & PPSD							
Duty Cycle CF [dB]			802.11a			0.17	dB
			802.11n20			0.09	dB
			802.11n40			0.19	dB
			802.11ac VHT80			0.49	dB

Output Power Results

Band	Mode	Channel	Center Freq. [MHz]	Meas Power [dBm]		Total Corr'd Power [dBm]	Power Limit [dBm]
				ANT1	ANT2		
UNII-2A	802.11a	Low	5260	11.74	10.52	14.35	24.00
		Mid	5300	11.54	10.28	14.14	
		High	5320	11.31	10.05	13.91	
	802.11n HT20	Low	5260	11.65	10.38	14.16	
		Mid	5300	11.78	10.46	14.27	
		High	5320	11.59	10.60	14.22	
	802.11n HT40	Low	5270	7.42	5.79	9.88	
		High	5310	7.59	5.65	9.93	
	802.11ac VHT80	Mid	5290	6.09	4.15	8.73	

* Calculation of Output Power : Corr'd Power = Ant1 Power + Ant2 Power + Duty CF [dB]

PPSD Results

Band	Mode	Channel	Center Freq. [MHz]	Meas PPSD [dBm/MHz]		Total Corr'd PPSD [dBm/MHz]	PPSD Limit [dBm/MHz]
				ANT1	ANT2		
UNII-2A	802.11a	Low	5260	3.34	2.29	6.02	11.00
		Mid	5300	3.40	2.33	6.08	
		High	5320	3.42	2.41	6.13	
	802.11n HT20	Low	5260	1.86	2.19	5.13	
		Mid	5300	2.21	2.20	5.31	
		High	5320	2.10	2.07	5.18	
	802.11n HT40	Low	5270	-3.46	-4.80	-0.87	
		High	5310	-3.37	-4.83	-0.84	
	802.11ac VHT80	Mid	5290	-7.68	-8.55	-4.59	

* Calculation of PPSD result : Corr'd PPSD = = Ant1 PPSD + Ant2 PPSD + Duty CF [dB] + Corr'd factor [dB]

10.2.9. 2Tx MODE IN THE 5.5 GHz BAND

Bandwidth and Antenna Gain, Limits

Band	Mode	Channel	Center Freq. [MHz]	Min 26 dB BW [MHz]	Directional Gain [dBi]	Power Limit [dBm]	PPSD Limit [dBm/MHz]
UNII-2C	802.11a	Low	5500	20.23	-4.14	24.00	11.00
		Mid	5580	20.36	-4.14	24.00	11.00
		High	5700	19.56	-4.14	23.91	11.00
	802.11n HT20	Low	5500	20.85	-4.14	24.00	11.00
		Mid	5580	21.28	-4.14		
		High	5700	20.72	-4.14		
	802.11n HT40	Low	5510	41.07	-4.14	24.00	11.00
		Mid	5590	41.47	-4.14		
		High	5670	41.69	-4.14		
	802.11ac VHT80	Low	5530	80.78	-4.14	24.00	11.00
		High	5610	80.72	-4.14		
Included in Calculations of Corr'd Power & PPSD							
Duty Cycle CF [dB]			802.11a			0.17	dB
			802.11n20			0.09	dB
			802.11n40			0.19	dB
			802.11ac VHT80			0.49	dB

Output Power Results

Band	Mode	Channel	Center Freq. [MHz]	Meas Power [dBm]		Total Corr'd Power [dBm]	Power Limit [dBm]
				ANT1	ANT2		
UNII-2C	802.11a	Low	5500	11.32	9.88	13.84	24.00
		Mid	5580	11.42	10.42	14.13	24.00
		High	5700	11.10	10.88	14.17	23.91
	802.11n HT20	Low	5500	11.52	9.71	13.81	24.00
		Mid	5580	11.36	10.49	14.05	
		High	5700	11.00	10.86	14.03	
	802.11n HT40	Low	5510	7.62	6.10	10.13	24.00
		Mid	5590	7.29	6.81	10.26	
		High	5670	7.27	6.70	10.19	
	802.11ac VHT80	Low	5530	5.56	4.90	8.74	24.00
		High	5610	5.58	5.30	8.94	

* Calculation of Output Power : Corr'd Power = Ant1 Power + Ant2 Power + Duty CF [dB]

PPSD Results

Band	Mode	Channel	Center Freq. [MHz]	Meas PPSD [dBm/MHz]		Total Corr'd PPSD [dBm/MHz]	PPSD Limit [dBm/MHz]
				ANT1	ANT2		
UNII-2C	802.11a	Low	5500	2.80	2.13	5.66	11.00
		Mid	5580	2.61	2.50	5.74	
		High	5700	2.29	2.80	5.73	
	802.11n HT20	Low	5500	0.12	2.12	4.34	
		Mid	5580	0.04	2.56	4.58	
		High	5700	0.08	2.42	4.51	
	802.11n HT40	Low	5510	-4.12	-4.58	-1.14	
		Mid	5590	-4.01	-4.56	-1.08	
		High	5670	-3.50	-3.42	-0.26	
	802.11ac VHT80	Low	5530	-8.00	-8.46	-4.73	
		High	5610	-7.76	-8.17	-4.46	

* Calculation of PPSD result : Corr'd PPSD = Ant1 PPSD + Ant2 PPSD + Duty CF [dB] + Corr'd factor [dB]

10.2.10. 2Tx MODE IN THE 5.8 GHz BAND

Bandwidth and Antenna Gain, Limits

Included in Calculations of Corr'd Power & PPSD			
Duty Cycle CF [dB]	802.11a	0.17	dB
	802.11n20	0.09	dB
	802.11n40	0.19	dB
	802.11ac VHT80	0.49	dB

Output Power Results

Band	Mode	Channel	Center Freq. [MHz]	Meas Power [dBm]		Total Corr'd Power [dBm]	Power Limit [dBm]
				ANT1	ANT2		
UNII-3	802.11a	Low	5745	10.93	11.67	14.50	30.00
		Mid	5785	11.01	11.23	14.30	
		High	5825	10.93	11.63	14.47	
	802.11n HT20	Low	5745	10.86	11.67	14.38	
		Mid	5785	11.08	11.66	14.48	
		High	5825	10.71	11.68	14.32	
	802.11n HT40	Low	5755	7.43	7.25	10.54	
		High	5795	7.72	7.18	10.66	
	802.11ac VHT80	Middle	5775	5.66	5.12	8.90	

* Calculation of Output Power : Corr'd Power = Ant1 Power + Ant2 Power + Duty CF [dB]

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E(03)
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16675, Korea TEL: (031) 337-9902 FAX: (031) 213-5433

PPSD Results

Band	Mode	Channel	Center Freq. [MHz]	Meas PPSD [dBm/500kHz]		Total Corr'd PPSD [dBm/500kHz]	PPSD Limit [dBm/500kHz]
				ANT1	ANT2		
UNII-3	802.11a	Low	5745	-0.11	-0.24	3.01	30.00
		Mid	5785	-0.07	-0.48	2.91	
		High	5825	-0.09	-0.23	3.02	
	802.11n HT20	Low	5745	-0.32	-0.36	3.13	
		Mid	5785	-0.36	-0.74	2.55	
		High	5825	-0.42	-0.32	2.73	
	802.11n HT40	Low	5755	-6.31	-6.08	-2.99	
		High	5795	-6.36	-6.52	-3.24	
	802.11ac VHT80	Middle	5775	-9.97	-10.04	-6.50	

* Calculation of PPSD result : Corr'd PPSD = = Ant1 PPSD + Ant2 PPSD + Duty CF [dB] + Corr'd factor [dB]

10.2.11. 2Tx Mode Straddle channel IN THE 5.5 GHz BAND

Bandwidth and Antenna Gain, Limits

Band	Mode	Channel	Center Freq. [MHz]	Min 26 dB BW [MHz]	Directional Gain [dBi]	Power Limit [dBm]	PPSD Limit [dBm/MHz]
UNII-2C	802.11a	Straddle	5720	15.02	-4.14	22.77	11.00
	802.11n HT20	Straddle	5720	15.54	-4.14	22.92	11.00
	802.11n HT40	Straddle	5710	35.66	-4.14	24.00	11.00
	802.11ac VHT80	Straddle	5690	75.79	-4.14	24.00	11.00
Included in Calculations of Corr'd Power & PPSD							
Duty Cycle CF [dB]			802.11a			0.17	dB
			802.11n20			0.09	dB
			802.11n40			0.19	dB
			802.11ac VHT80			0.49	dB

Output Power Results

Band	Mode	Channel	Center Freq. [MHz]	Meas Power [dBm]		Total Corr'd Power [dBm]	Power Limit [dBm]
				ANT1	ANT2		
UNII-2C	802.11a	Straddle	5720	11.76	11.60	14.86	22.78
	802.11n HT20	Straddle	5720	9.21	11.64	13.69	22.92
	802.11n HT40	Straddle	5710	8.53	8.32	11.63	24.00
	802.11ac VHT80	Straddle	5690	8.46	8.44	11.95	24.00

* Calculation of Output Power : Corr'd Power = Meas Power + Duty CF [dB]

PPSD Results

Band	Mode	Channel	Center Freq. [MHz]	Meas PPSD [dBm/MHz]		Total Corr'd PPSD [dBm/MHz]	PPSD Limit [dBm/MHz]
				ANT1	ANT2		
UNII-2C	802.11a	Straddle	5720	2.62	1.04	5.08	11.00
	802.11n HT20	Straddle	5720	0.19	2.34	4.51	
	802.11n HT40	Straddle	5710	-3.77	-4.01	-0.69	
	802.11ac VHT80	Straddle	5690	-7.33	-7.64	-3.98	

* Calculation of PPSD result : Corr'd PPSD = Meas PPSD + Duty CF + Corr'd factor [dB]

10.2.12. 2Tx Mode Straddle channel IN THE 5.8 GHz BAND

Bandwidth and Antenna Gain, Limits

Band	Mode	Channel	Center Freq. [MHz]	Min 26 dB BW [MHz]	Directional Gain [dBi]	Power Limit [dBm]	PPSD Limit [dBm/500kHz]
UNII-3	802.11a	Straddle	5720	5.11	-3.89	30.00	30.00
	802.11n HT20	Straddle	5720	5.54			
	802.11n HT40	Straddle	5710	5.57			
	802.11ac VHT80	Straddle	5690	5.33			
Included in Calculations of Corr'd Power & PPSD							
Duty Cycle CF [dB]			802.11a			0.17	dB
			802.11n20			0.09	dB
			802.11n40			0.19	dB
			802.11ac VHT80			0.49	dB

Output Power Results

Band	Mode	Channel	Center Freq. [MHz]	Meas Power [dBm]		Total Corr'd Power [dBm]	Power Limit [dBm]
				ANT1	ANT2		
UNII-3	802.11a	Straddle	5720	4.56	4.31	7.62	30.00
	802.11n HT20	Straddle	5720	2.63	4.73	6.90	
	802.11n HT40	Straddle	5710	-0.85	-1.60	1.99	
	802.11ac VHT80	Straddle	5690	-7.11	-8.60	-4.29	

* Calculation of Output Power : Corr'd Power = Meas Power + Duty CF [dB]

PPSD Results

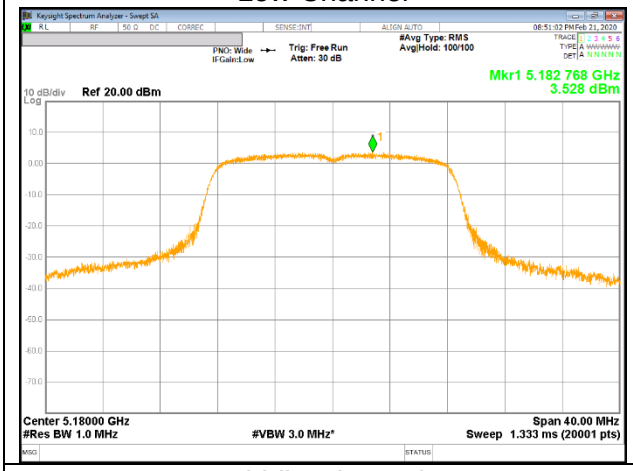
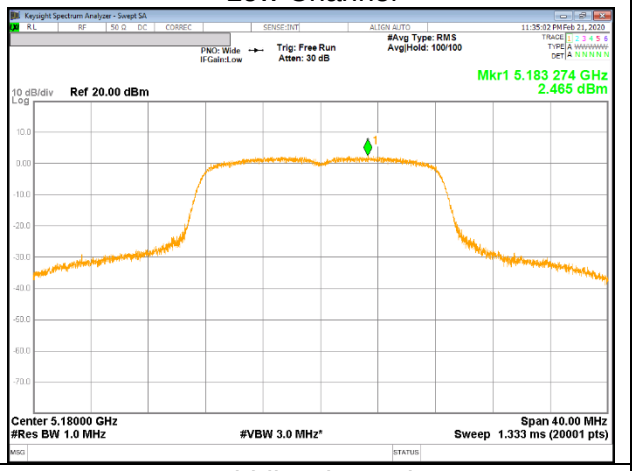
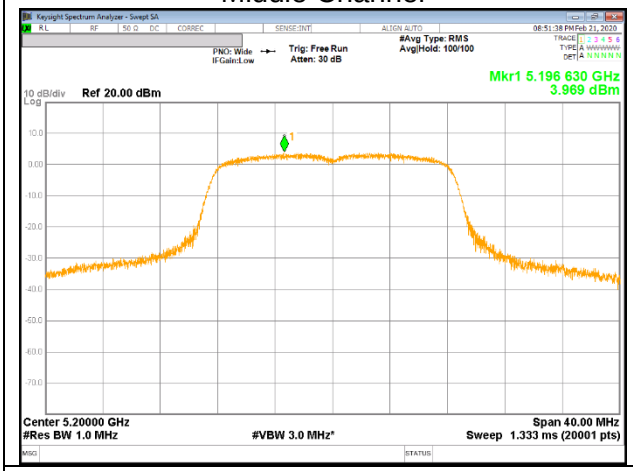
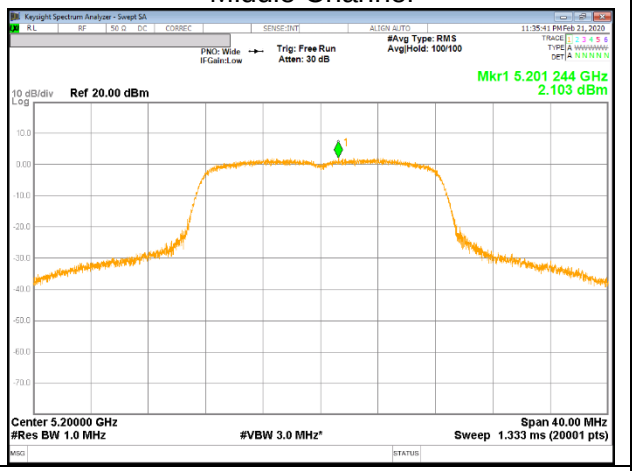
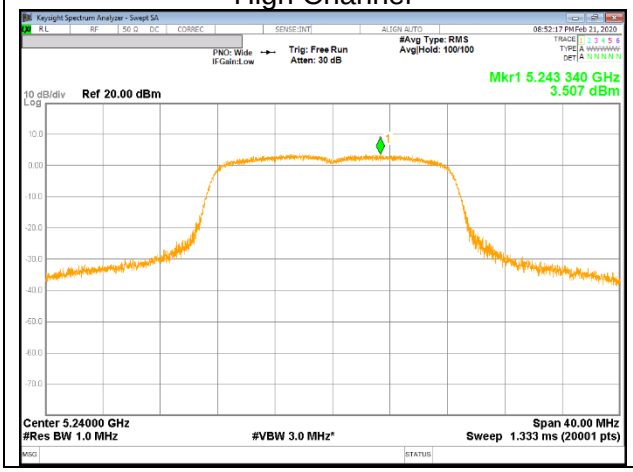
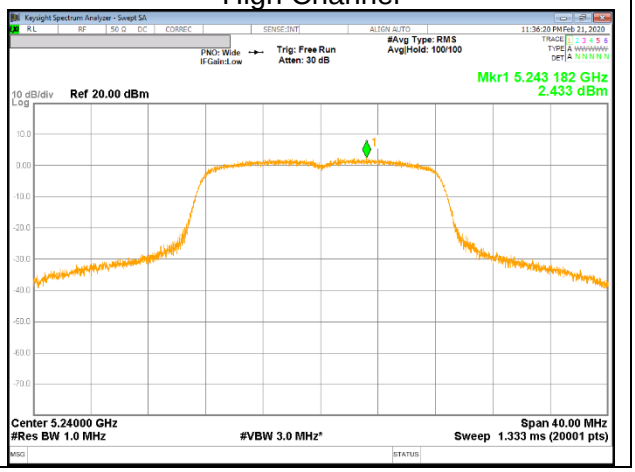
Band	Mode	Channel	Center Freq. [MHz]	Meas PPSD [dBm/500kHz]		Total Corr'd PPSD [dBm/500kHz]	PPSD Limit [dBm/500kHz]
				ANT1	ANT2		
UNII-3	802.11a	Straddle	5720	-1.06	-3.02	1.25	30.00
	802.11n HT20	Straddle	5720	-3.50	-1.58	0.66	
	802.11n HT40	Straddle	5710	-6.81	-7.91	-4.12	
	802.11ac VHT80	Straddle	5690	-12.81	-14.25	-9.97	

* Calculation of PPSD result : Corr'd PPSD = Meas PPSD + Duty CF + Corr'd factor [dB]

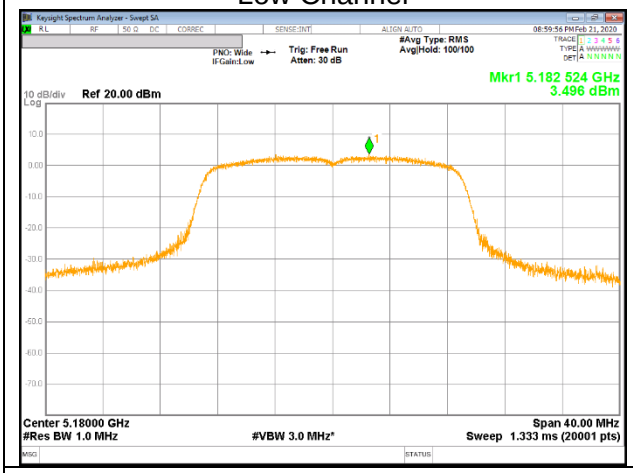
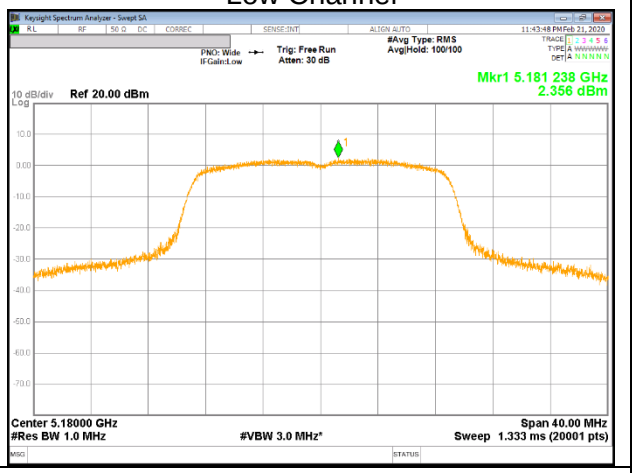
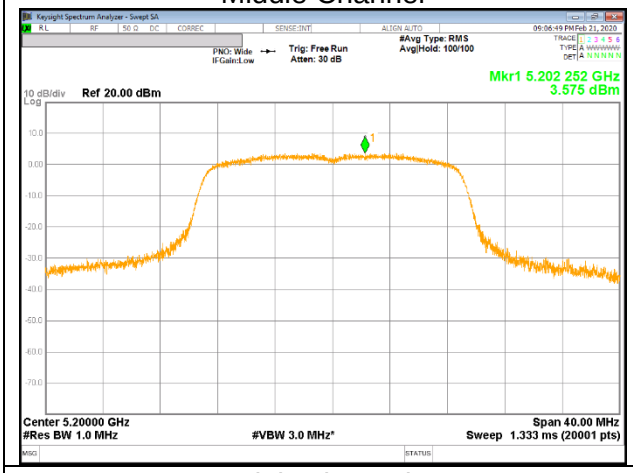
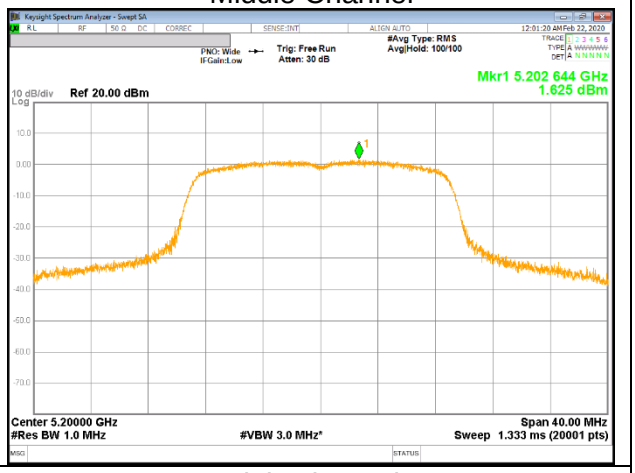
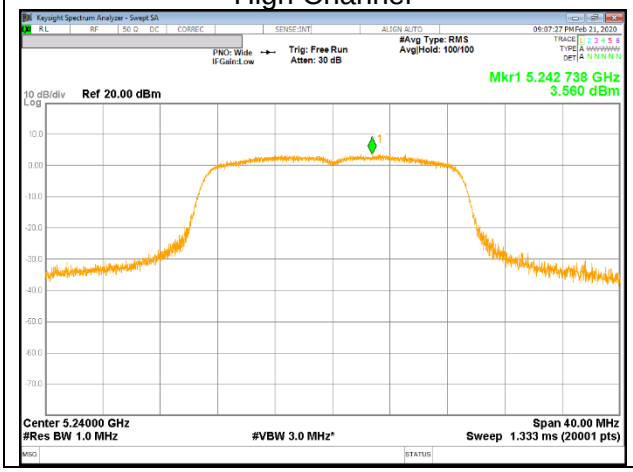
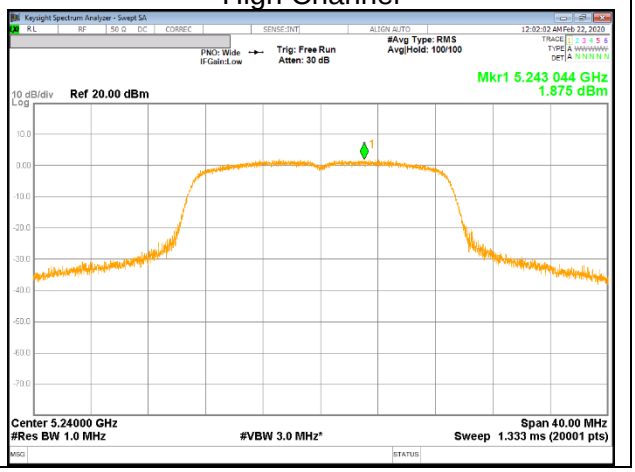
UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E(03)
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16675, Korea TEL: (031) 337-9902 FAX: (031) 213-5433

10.2.13. OUTPUT POWER AND PPSD PLOTS

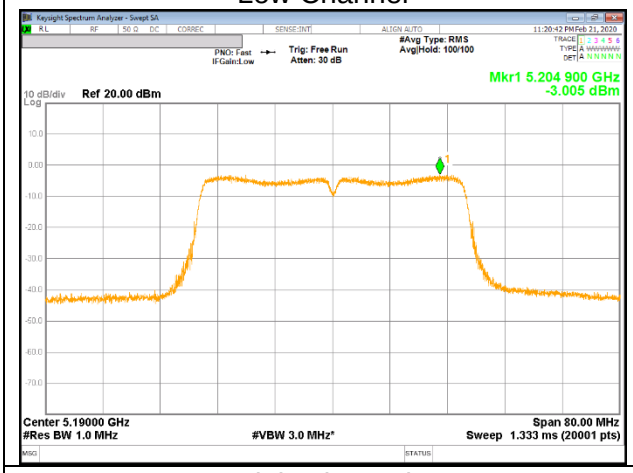
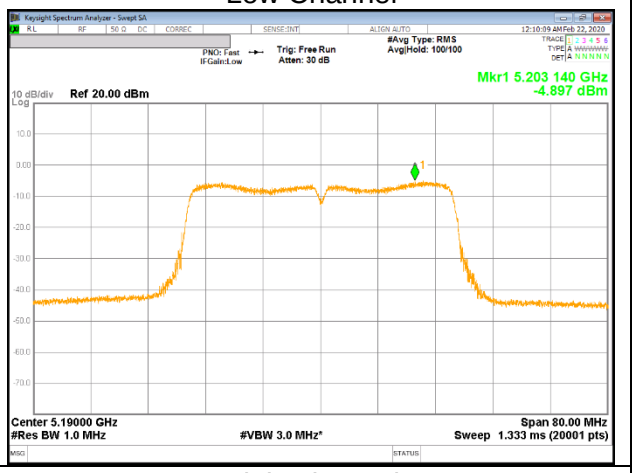
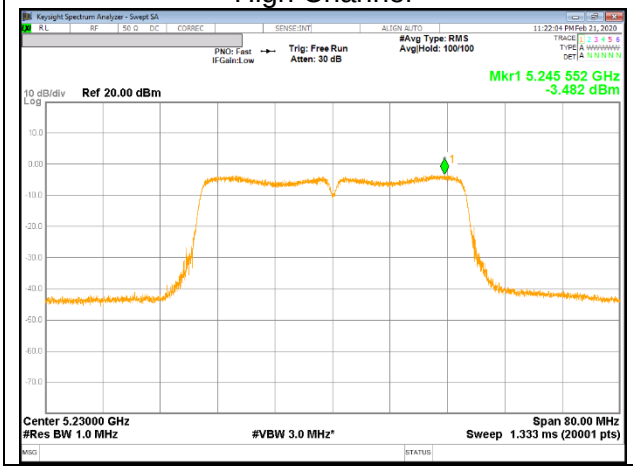
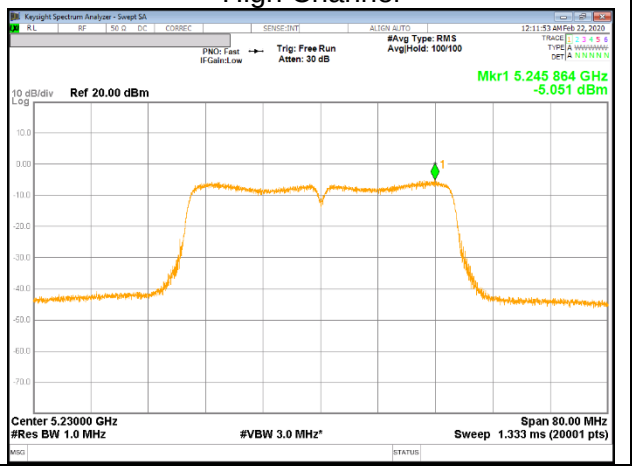
UNII 5.2 GHz IEEE 802.11a mode PSD

ANT1	ANT2
Low Channel	Low Channel
	
Middle Channel	Middle Channel
	
High Channel	High Channel
	

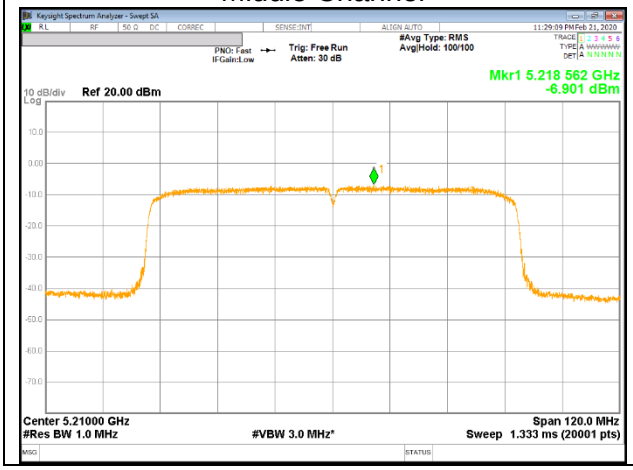
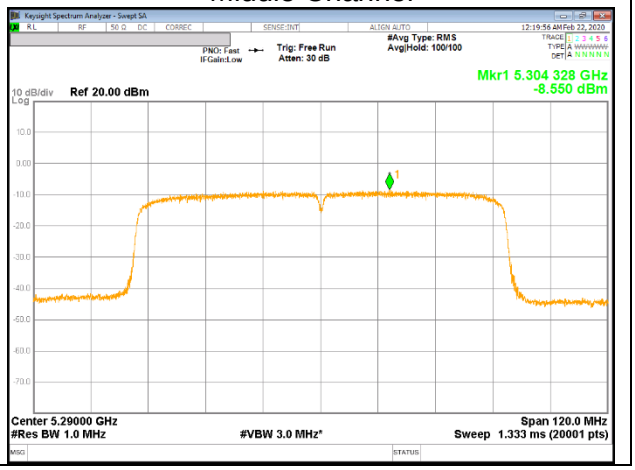
UNII 5.2 GHz IEEE 802.11n HT20 mode PSD

ANT1	ANT2
Low Channel	Low Channel
	
Middle Channel	Middle Channel
	
High Channel	High Channel
	

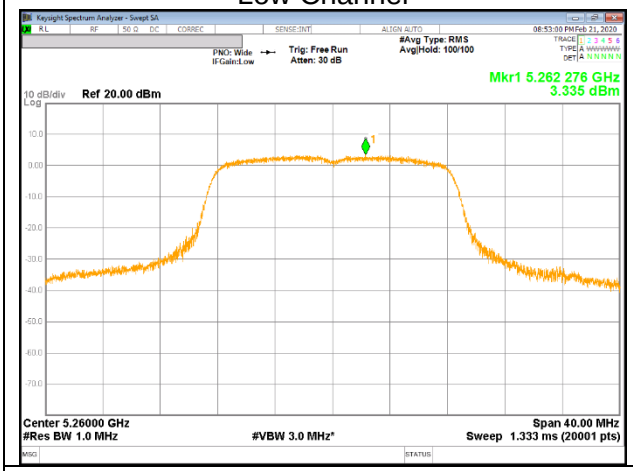
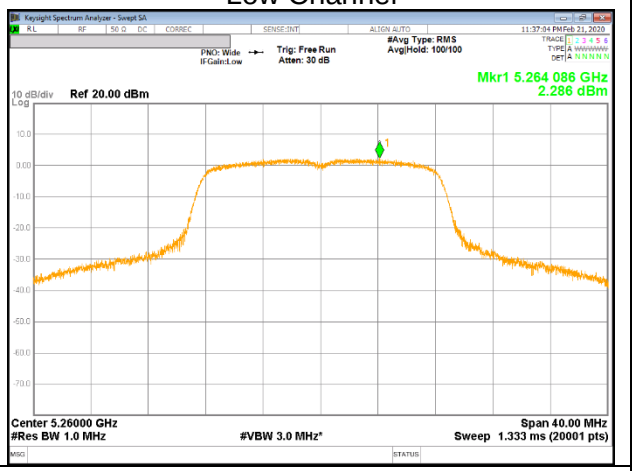
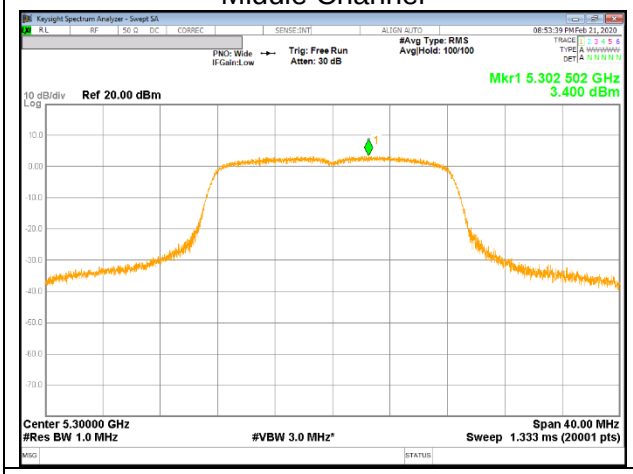
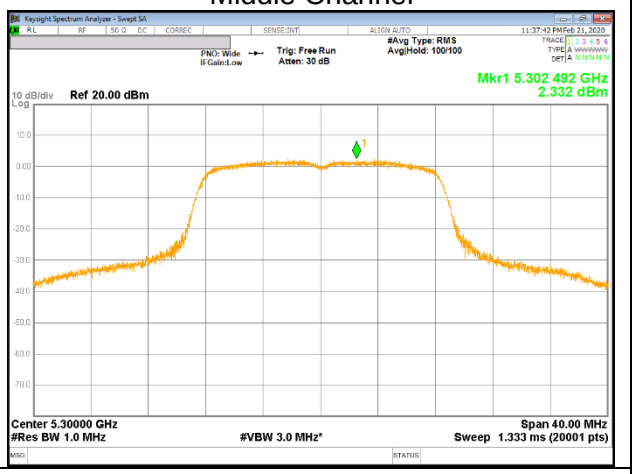
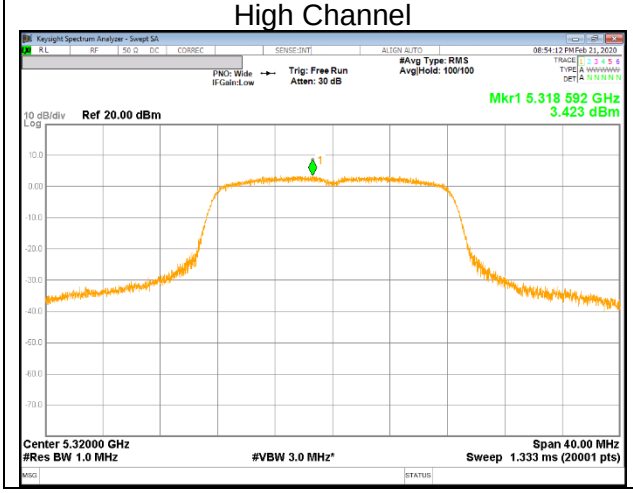
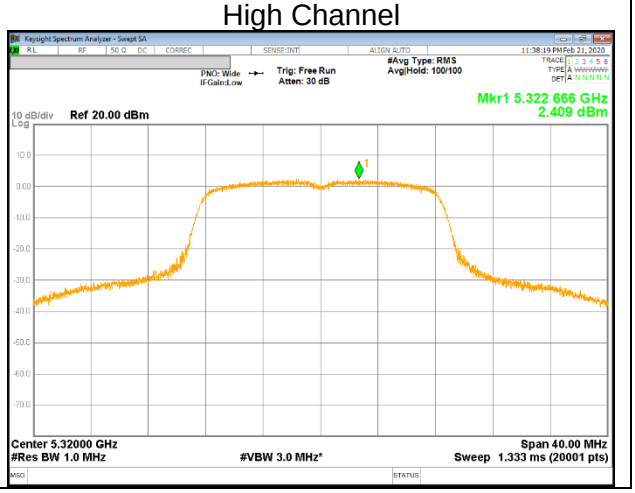
UNII 5.2 GHz IEEE 802.11n HT40 mode PSD

ANT1	ANT2
Low Channel	Low Channel
	
High Channel	High Channel
	

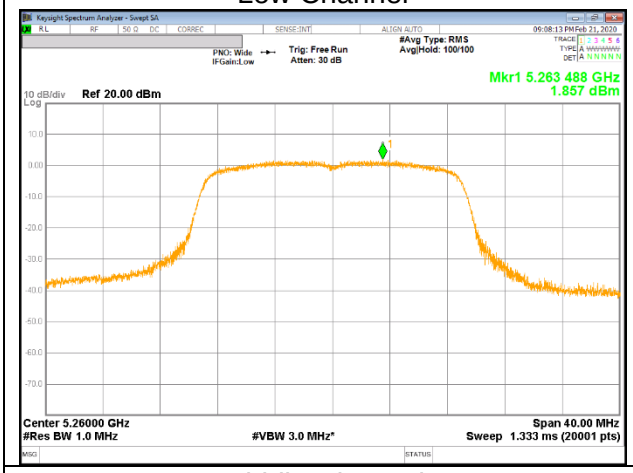
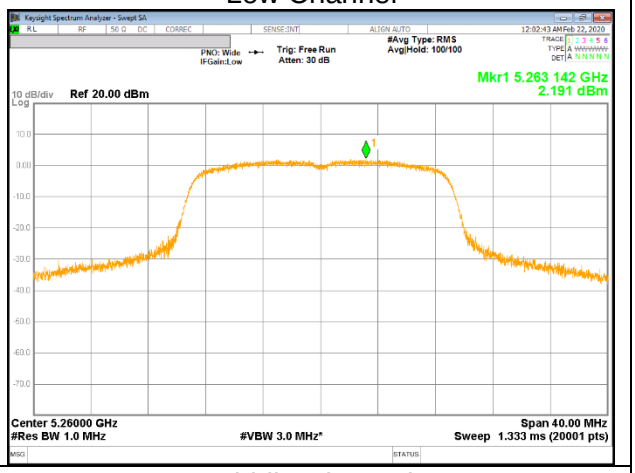
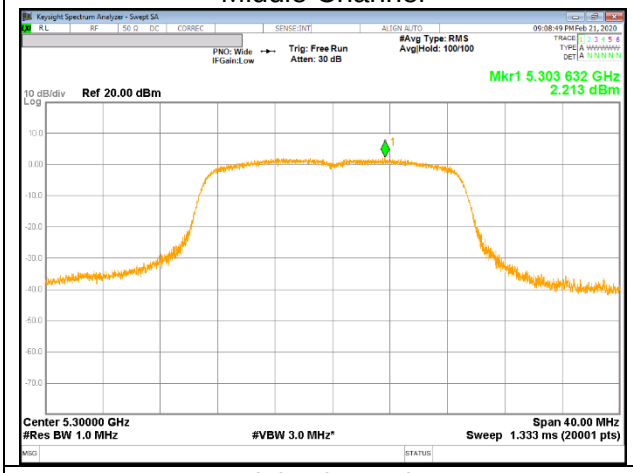
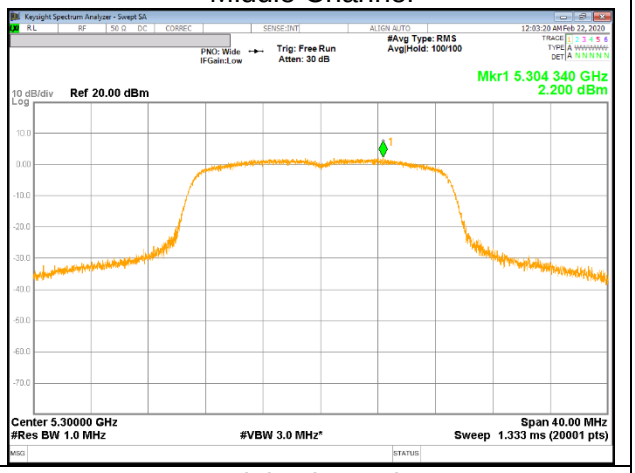
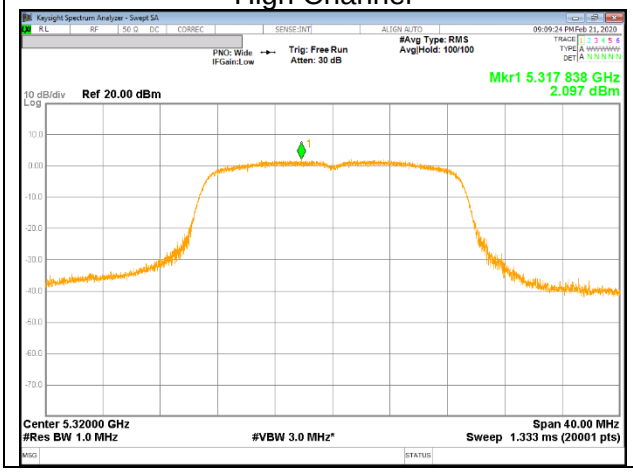
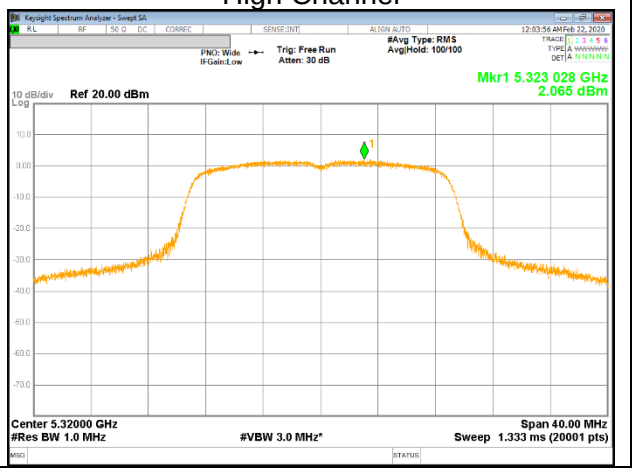
UNII 5.2 GHz IEEE 802.11ac VHT80 mode PSD

ANT1	ANT2
Middle Channel	Middle Channel
	

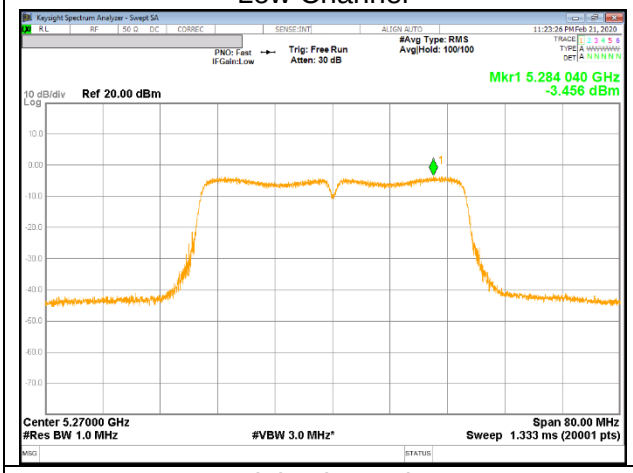
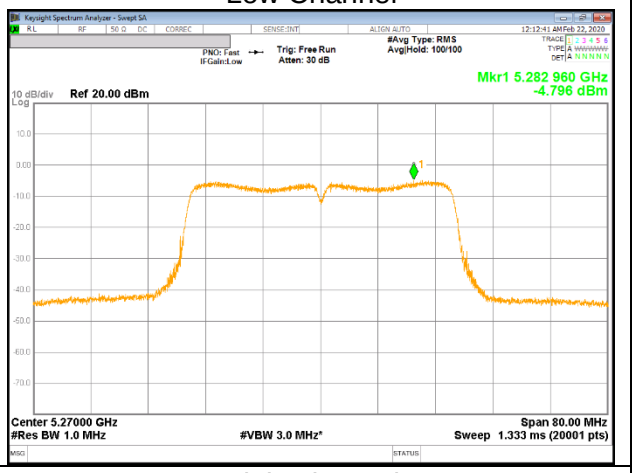
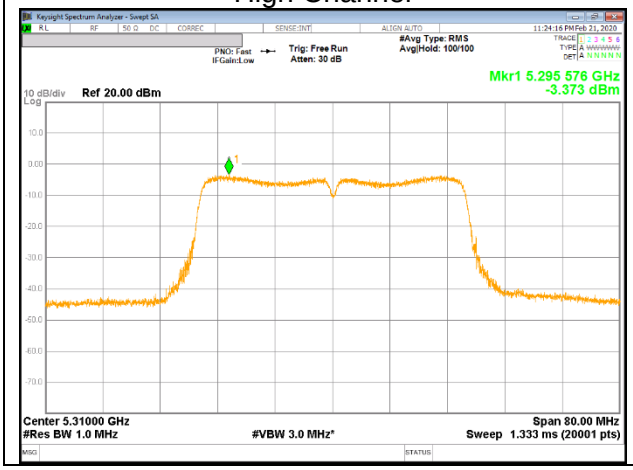
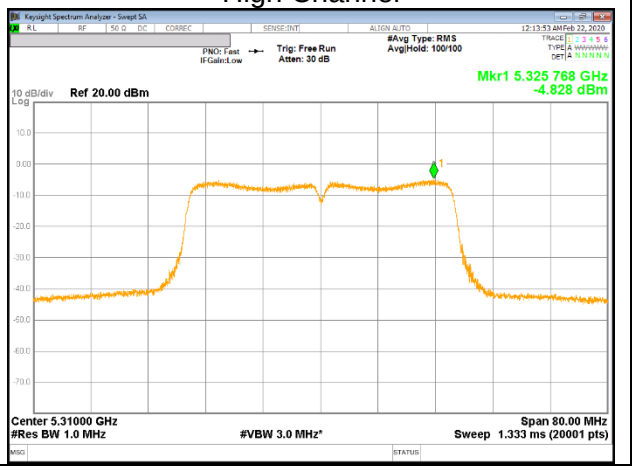
UNII 5.3 GHz IEEE 802.11a mode PSD

ANT1	ANT2
Low Channel	Low Channel
	
Middle Channel	Middle Channel
	
High Channel	High Channel
	

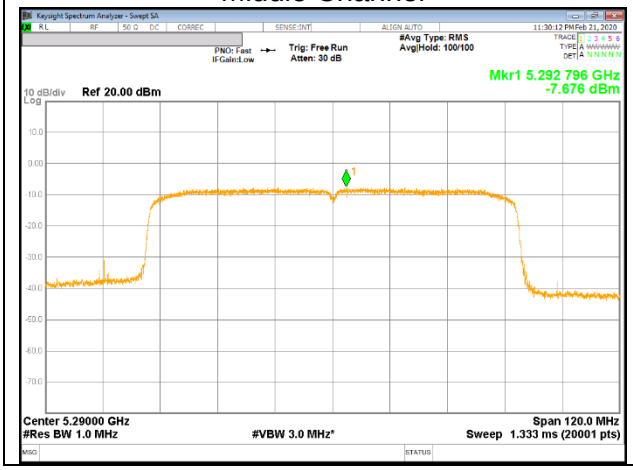
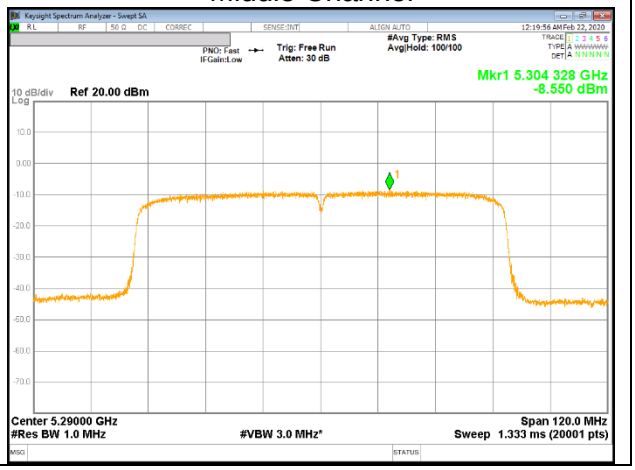
UNII 5.3 GHz IEEE 802.11n HT20 mode PSD

ANT1	ANT2
Low Channel	Low Channel
	
Middle Channel	Middle Channel
	
High Channel	High Channel
	

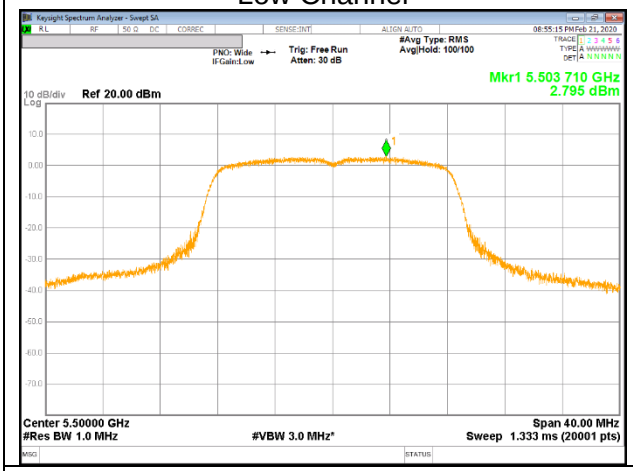
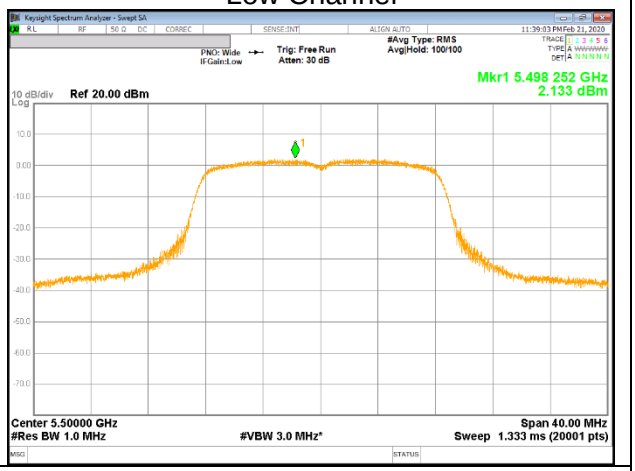
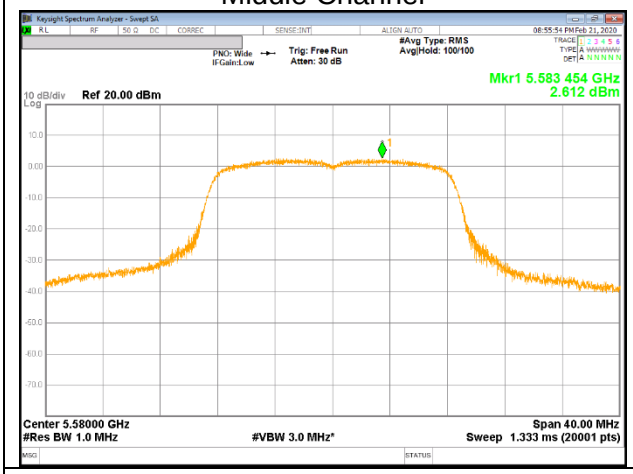
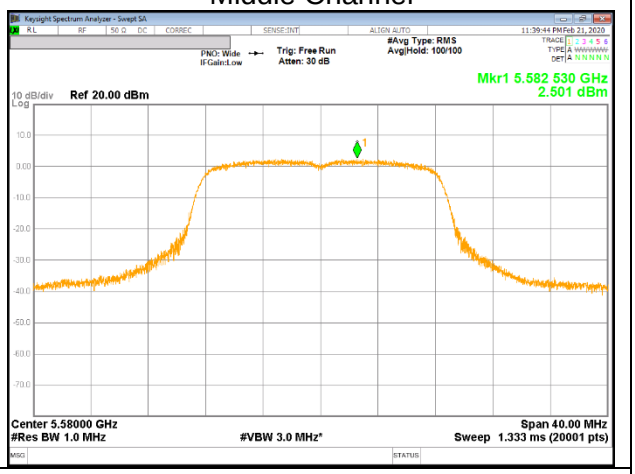
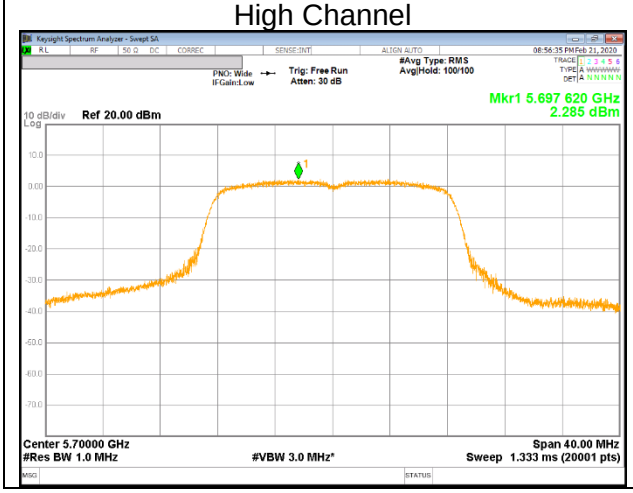
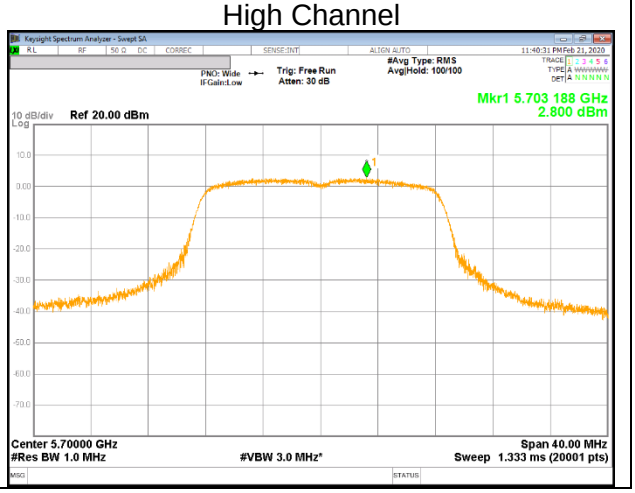
UNII 5.3 GHz IEEE 802.11n HT40 mode PSD

ANT1	ANT2
Low Channel	Low Channel
	
High Channel	High Channel
	

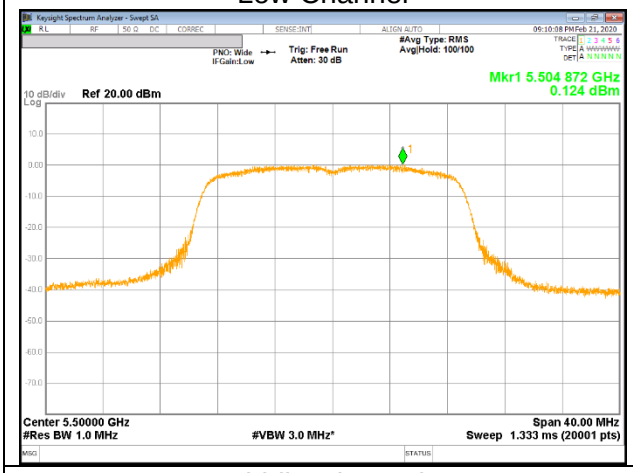
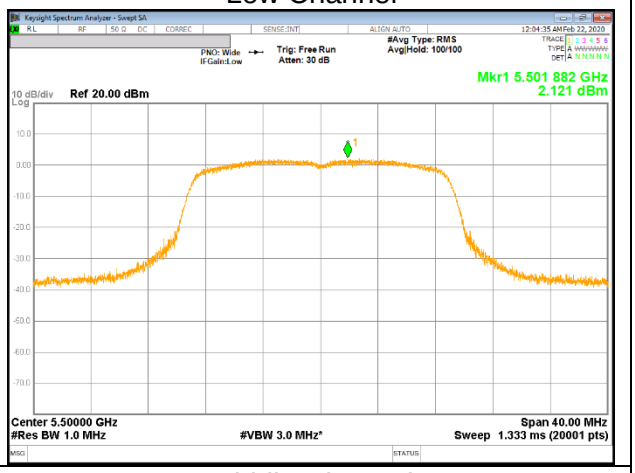
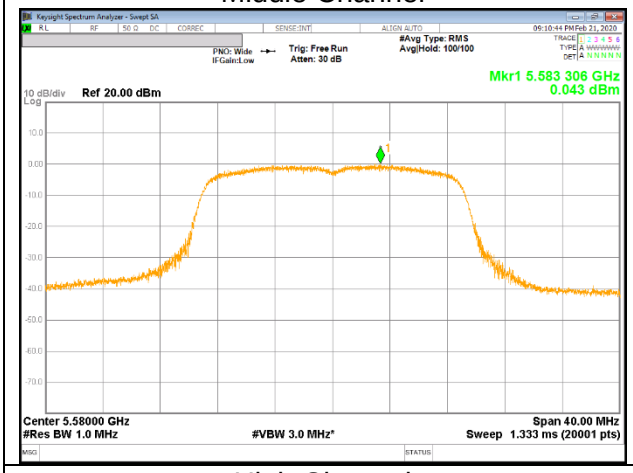
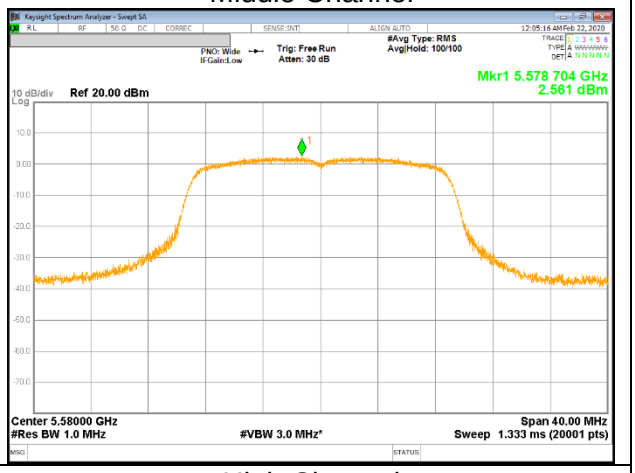
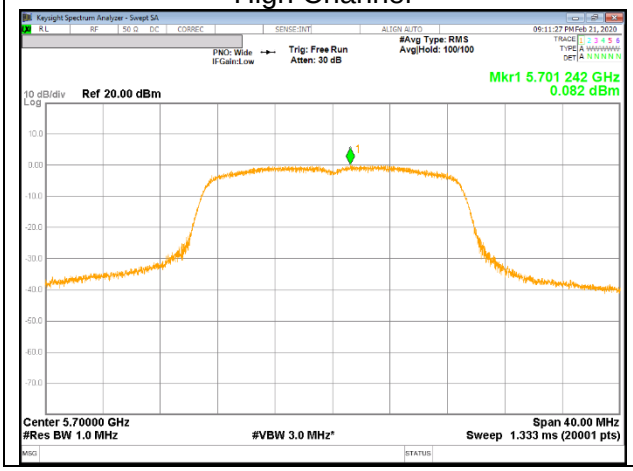
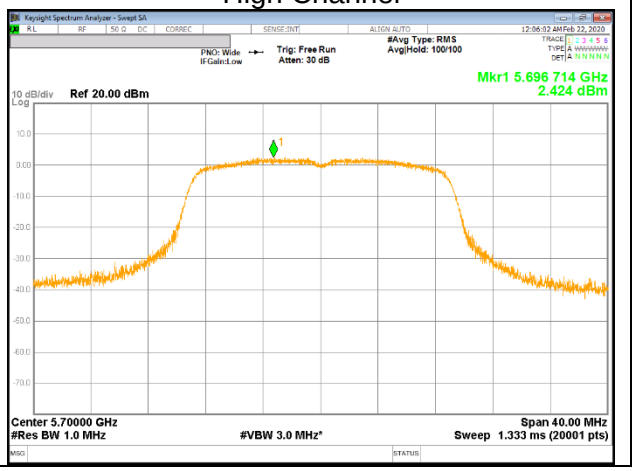
UNII 5.3 GHz IEEE 802.11ac VHT80 mode PSD

ANT1	ANT2
Middle Channel	Middle Channel
	

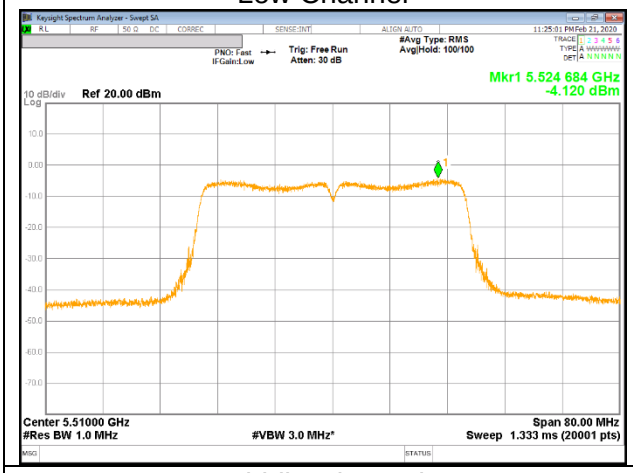
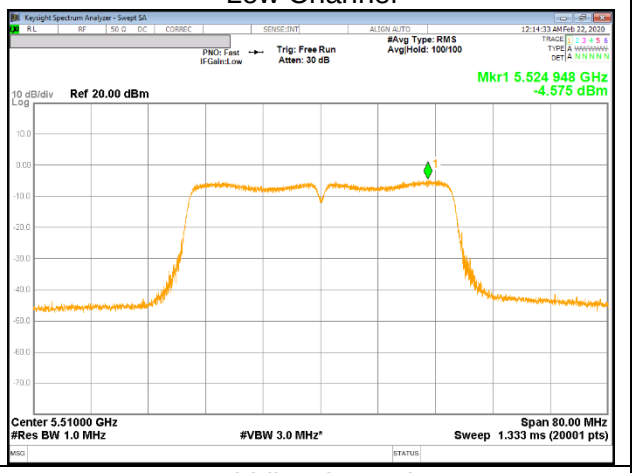
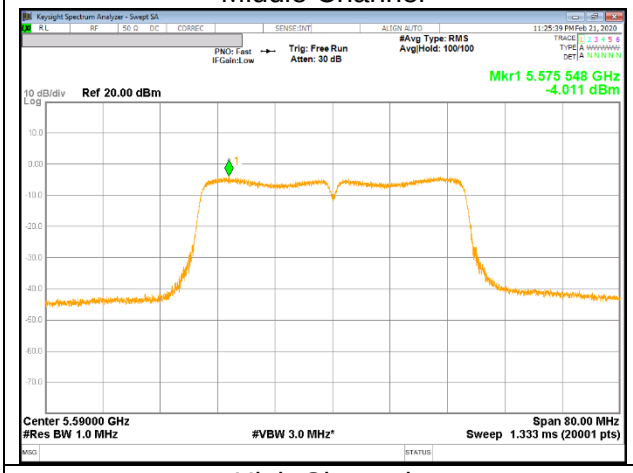
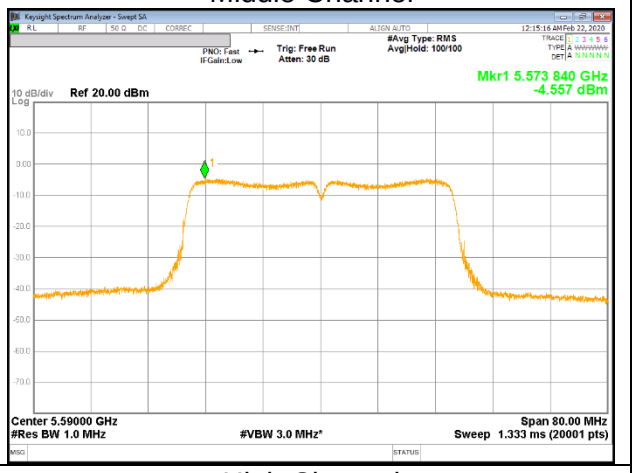
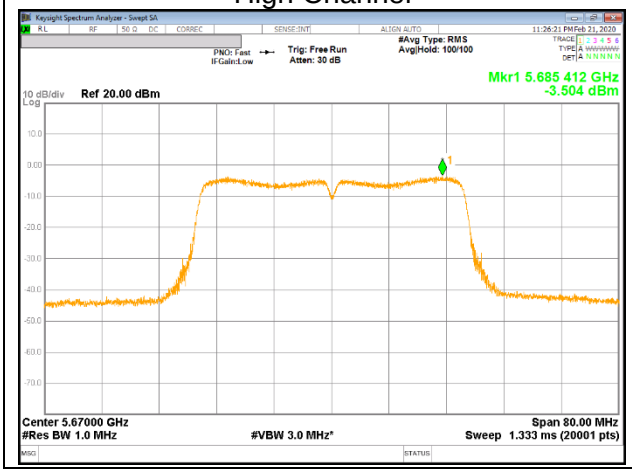
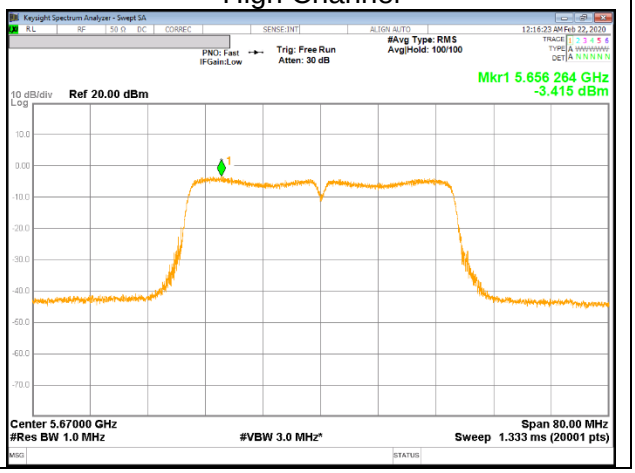
UNII 5.5 GHz IEEE 802.11a mode PSD

ANT1	ANT2
Low Channel	Low Channel
	
Middle Channel	Middle Channel
	
High Channel	High Channel
	

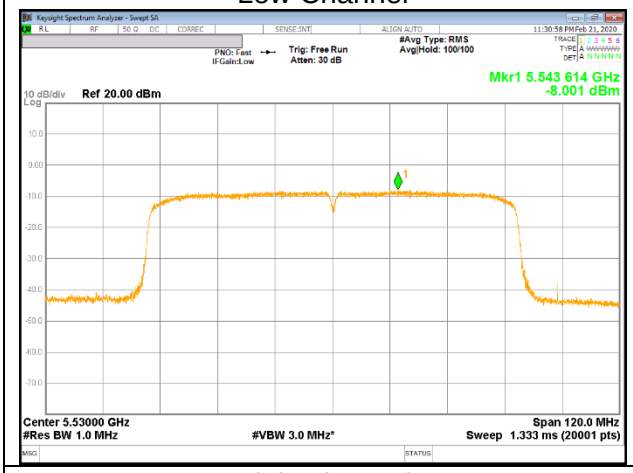
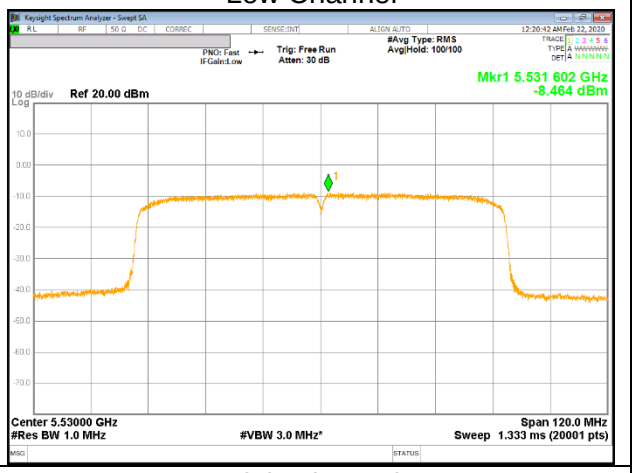
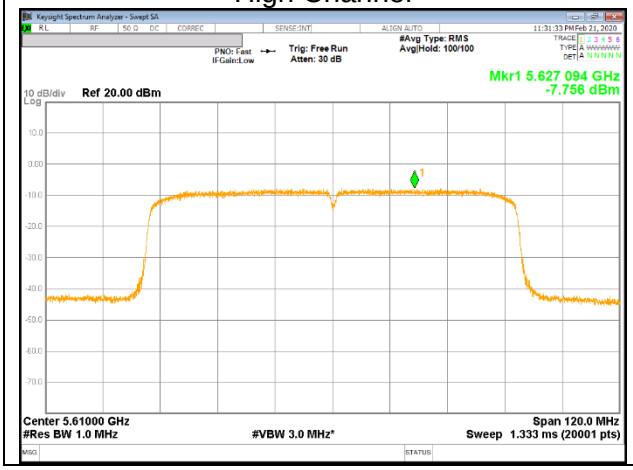
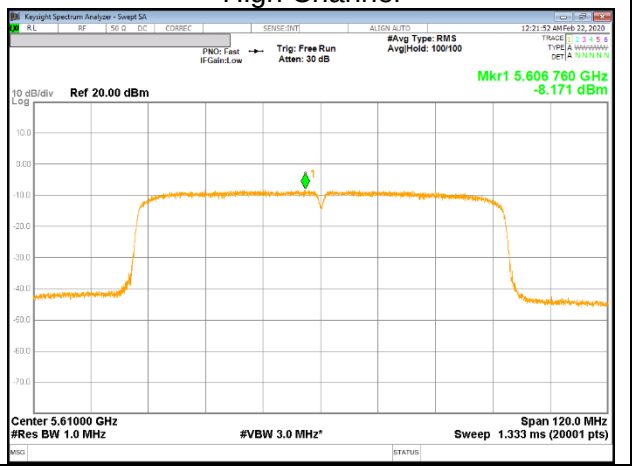
UNII 5.5 GHz IEEE 802.11n HT20 mode PSD

ANT1	ANT2
Low Channel	Low Channel
	
Middle Channel	Middle Channel
	
High Channel	High Channel
	

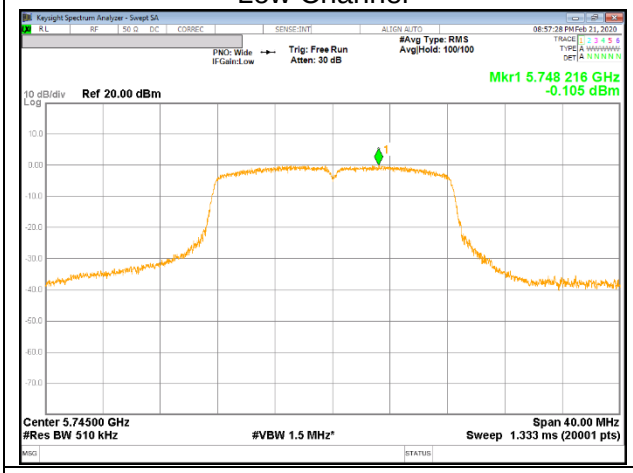
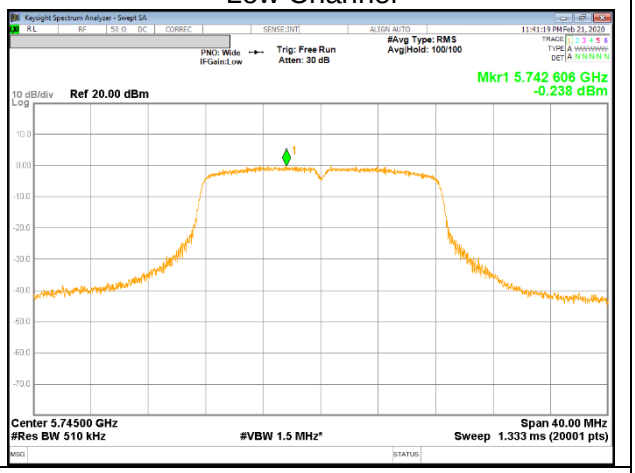
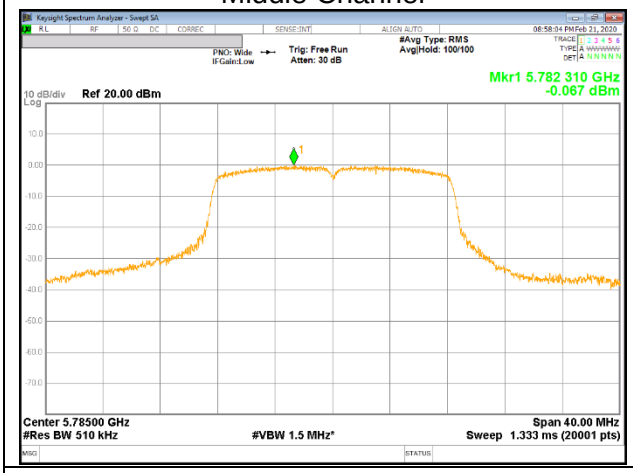
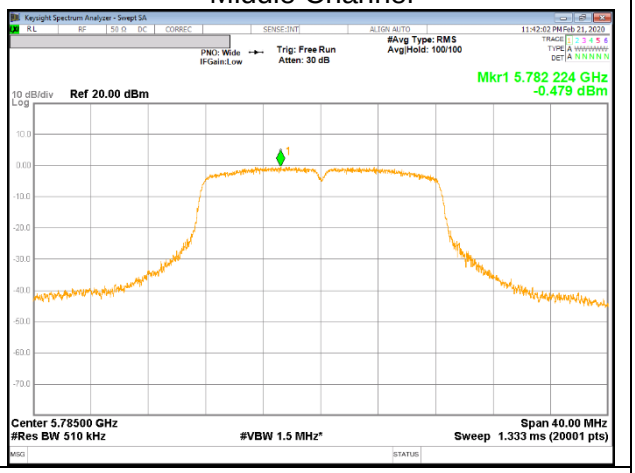
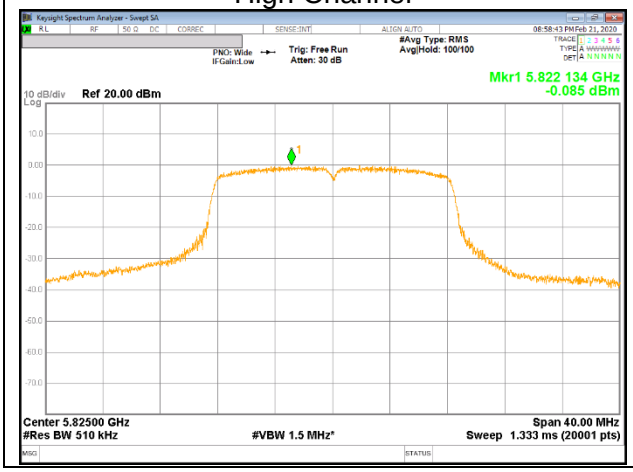
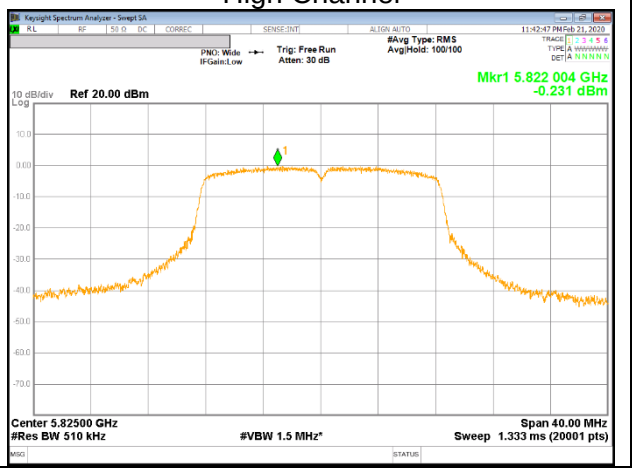
UNII 5.5 GHz IEEE 802.11n HT40 mode PSD

ANT1	ANT2
Low Channel	Low Channel
	
Middle Channel	Middle Channel
	
High Channel	High Channel
	

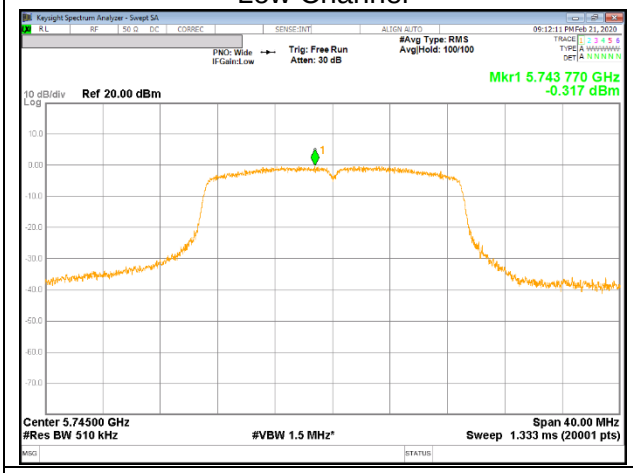
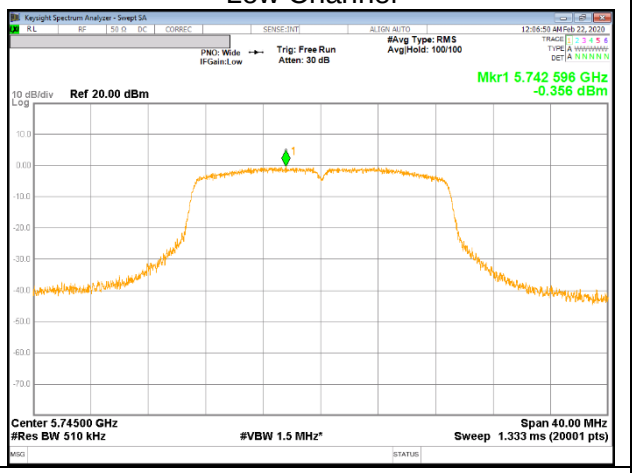
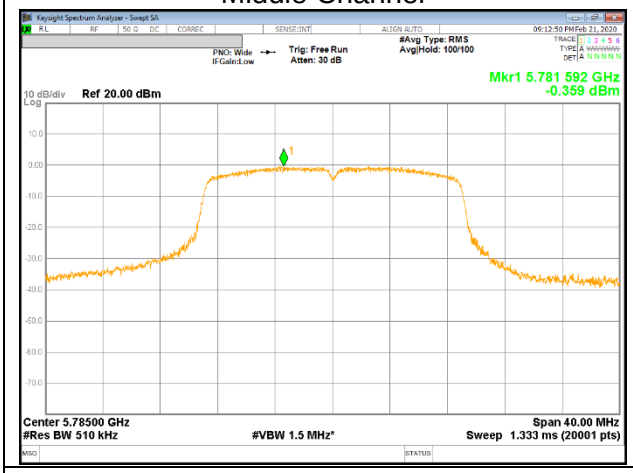
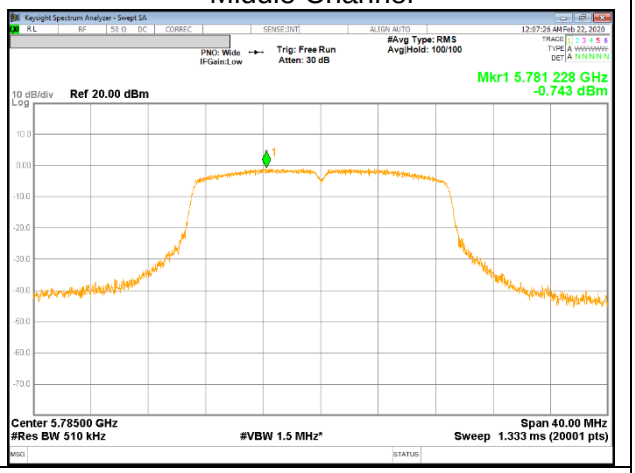
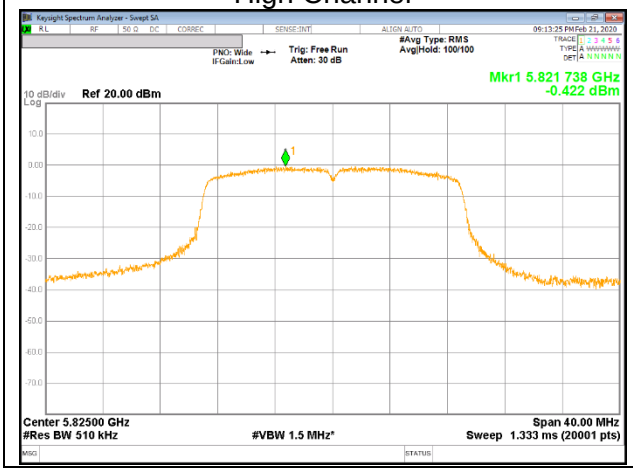
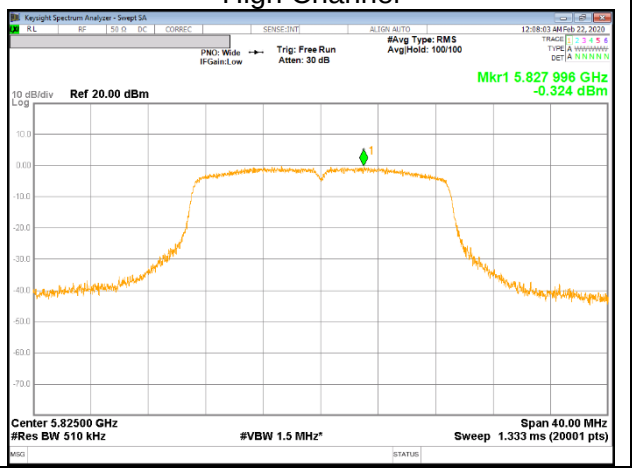
UNII 5.5 GHz IEEE 802.11ac VHT80 mode PSD

ANT1	ANT2
Low Channel	Low Channel
	
High Channel	High Channel
	

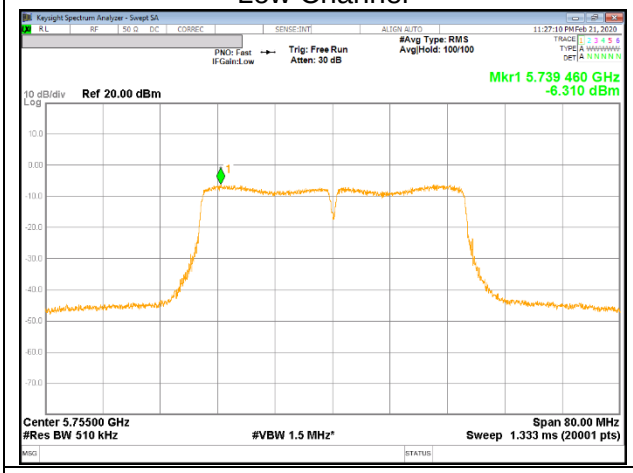
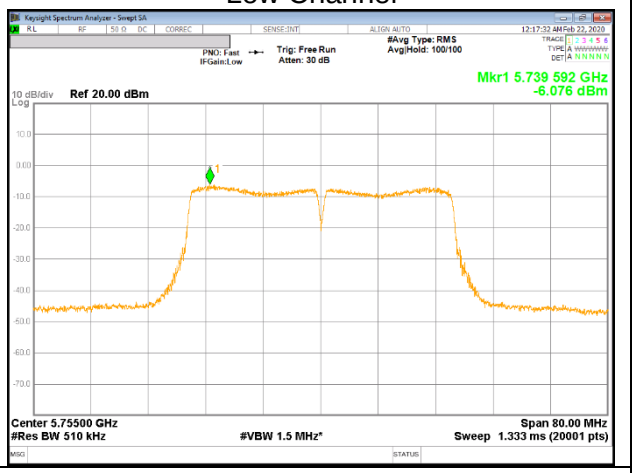
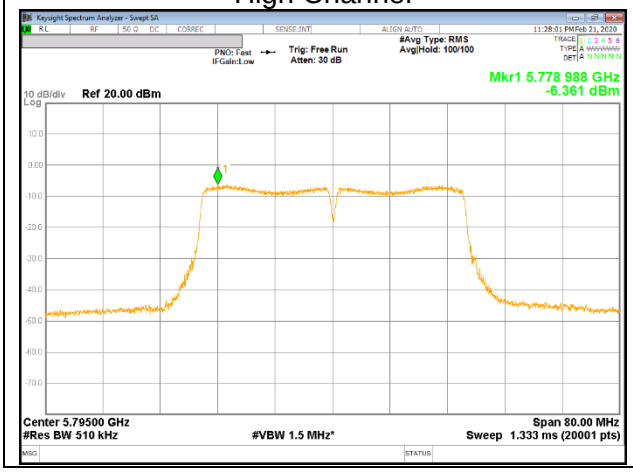
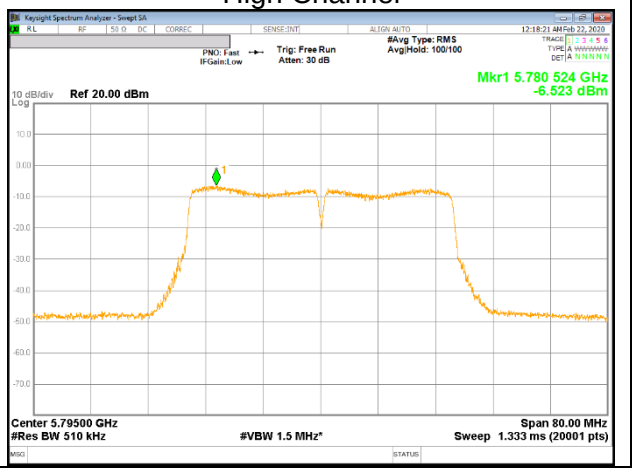
UNII 5.8 GHz IEEE 802.11a mode PSD

ANT1	ANT2
Low Channel	Low Channel
	
Middle Channel	Middle Channel
	
High Channel	High Channel
	

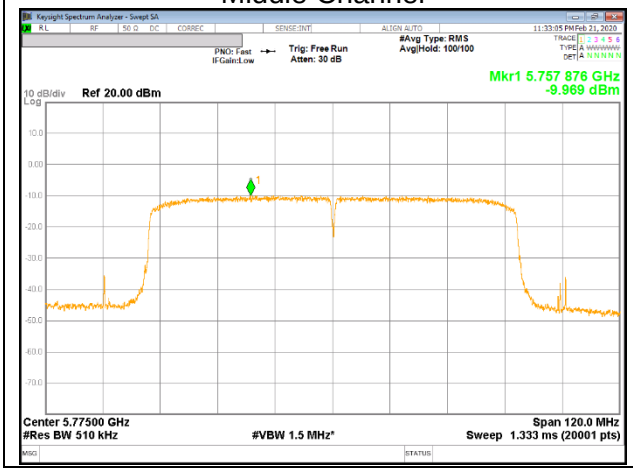
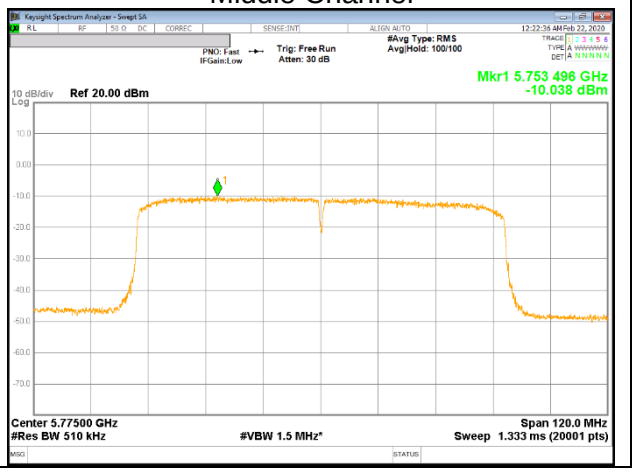
UNII 5.8 GHz IEEE 802.11n HT20 mode mode PSD

ANT1	ANT2
Low Channel	Low Channel
	
Middle Channel	Middle Channel
	
High Channel	High Channel
	

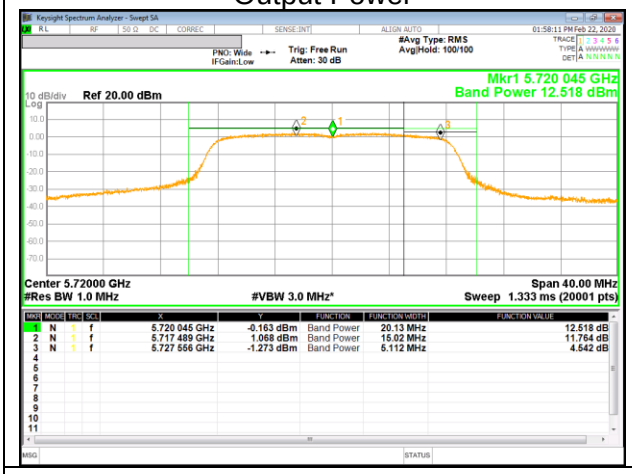
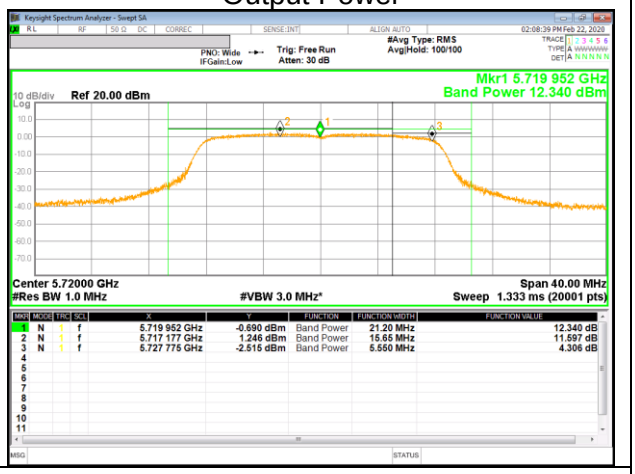
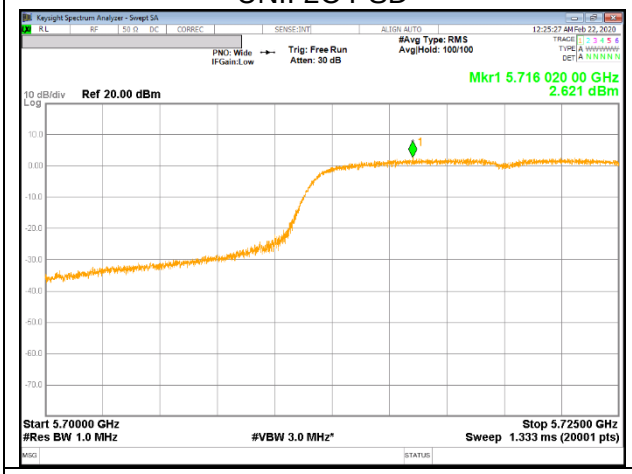
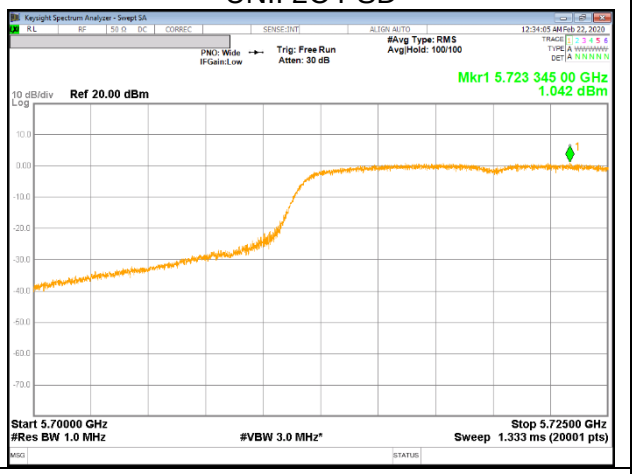
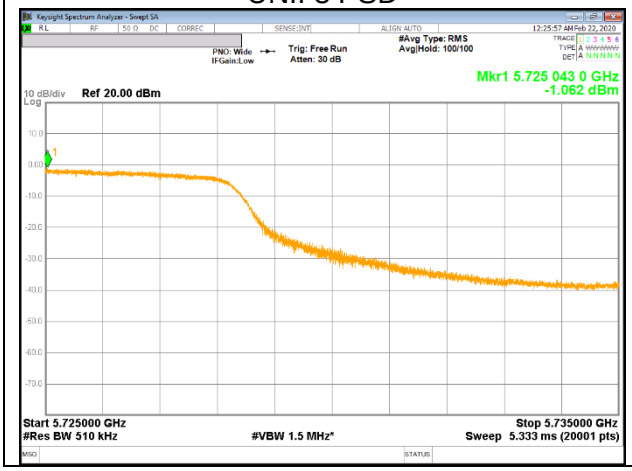
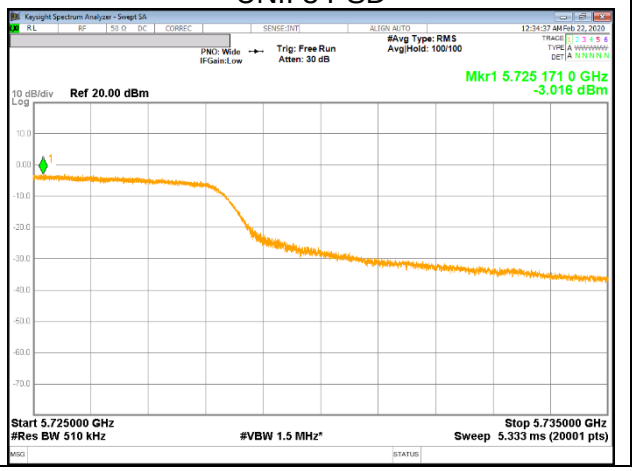
UNII 5.8 GHz IEEE 802.11n HT40 mode mode PSD

ANT1	ANT2
Low Channel	Low Channel
	
High Channel	High Channel
	

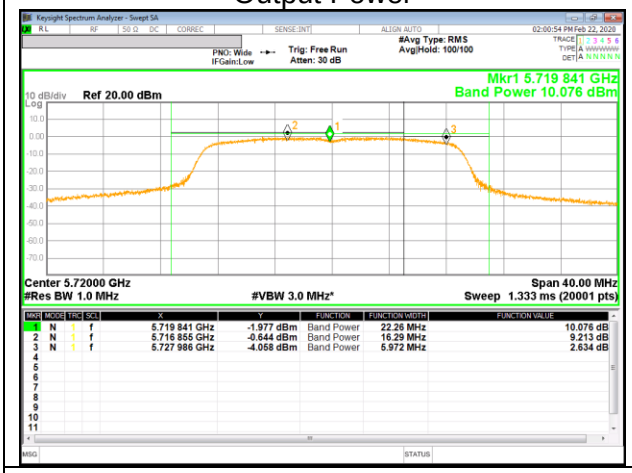
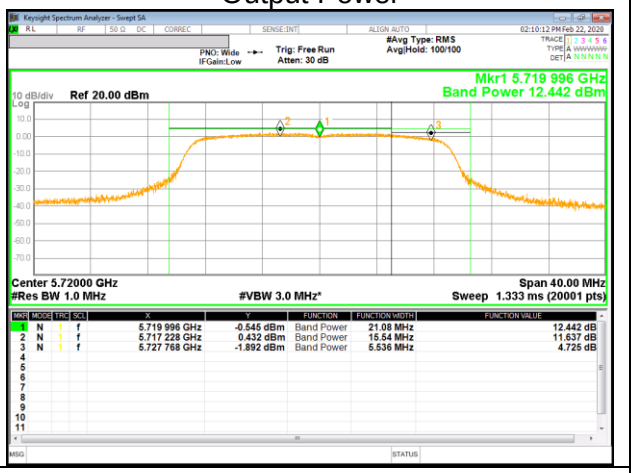
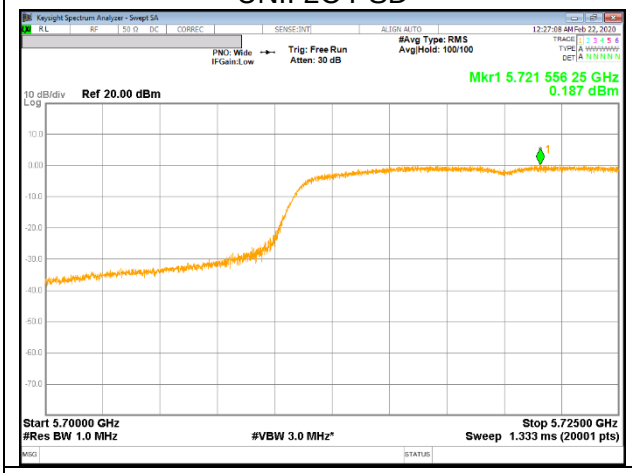
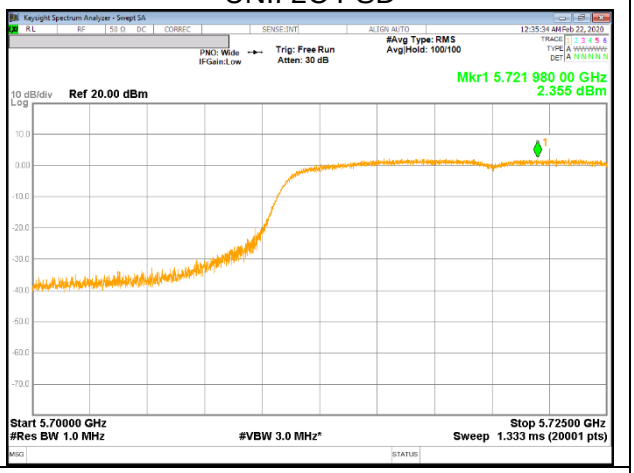
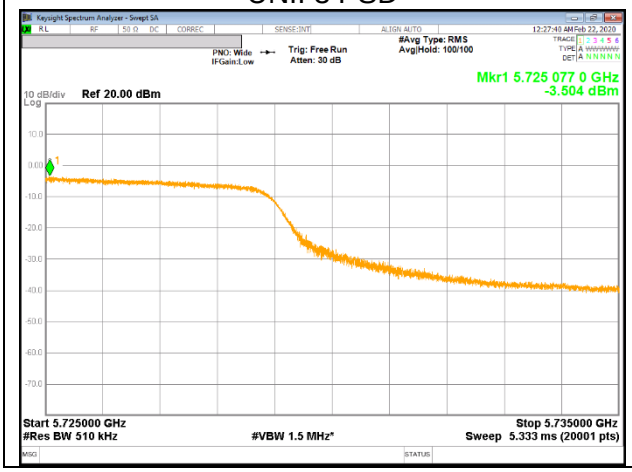
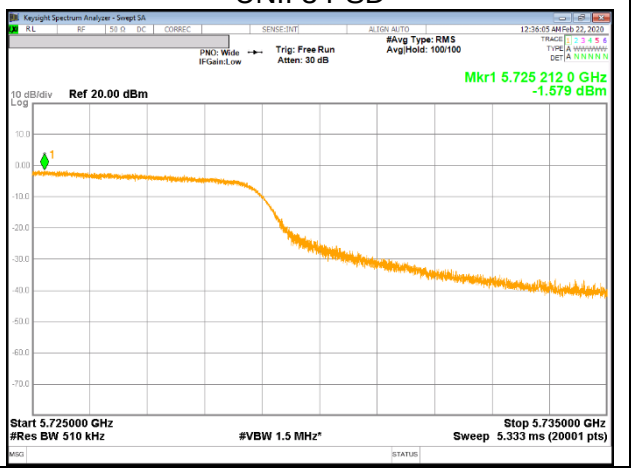
UNII 5.8 GHz IEEE 802.11ac VHT80 mode mode PSD

ANT1	ANT2
Middle Channel	Middle Channel
	

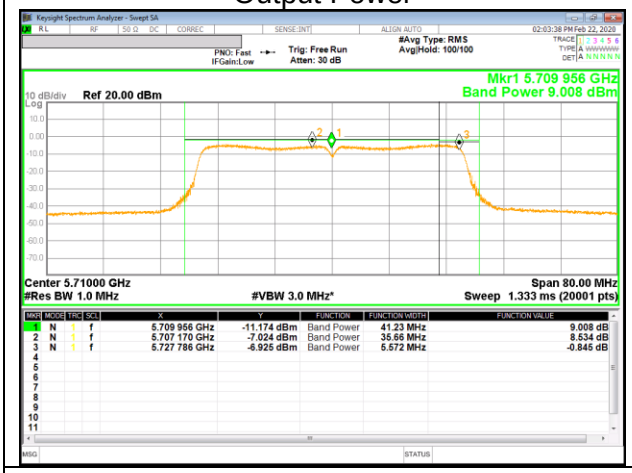
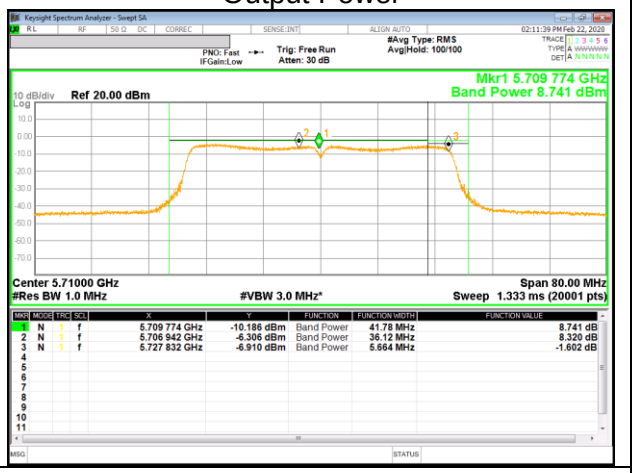
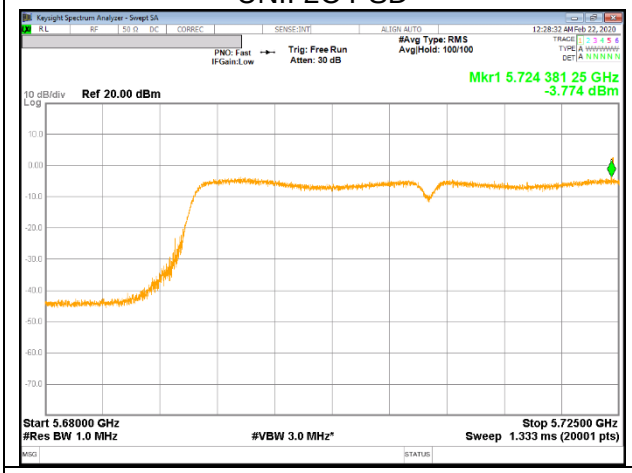
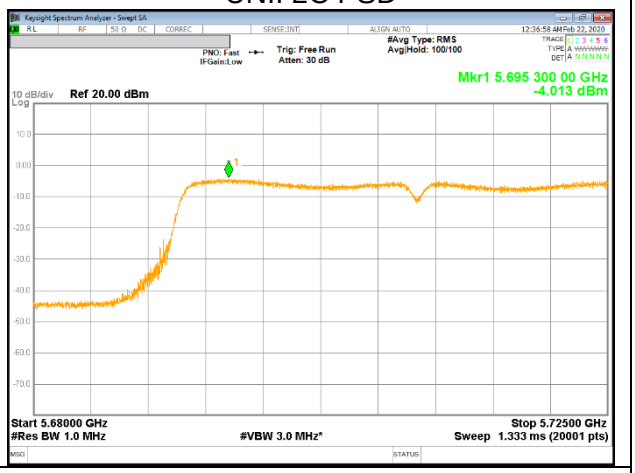
UNII Straddle Ch. IEEE 802.11a mode Ourput Power and PSD

ANT1	ANT2
Output Power	Output Power
	
UNII 2C PSD	UNII 2C PSD
	
UNII 3 PSD	UNII 3 PSD
	

UNII Straddle Ch. IEEE 802.11n HT20 mode Ourput Power and PSD

ANT1	ANT2
Output Power	Output Power
	
UNII 2C PSD	UNII 2C PSD
	
UNII 3 PSD	UNII 3 PSD
	

UNII Straddle Ch. IEEE 802.11n HT40 mode Ourput Power and PSD

ANT1	ANT2
Output Power	Output Power
	
UNII 2C PSD	UNII 2C PSD
	
UNII 3 PSD	UNII 3 PSD