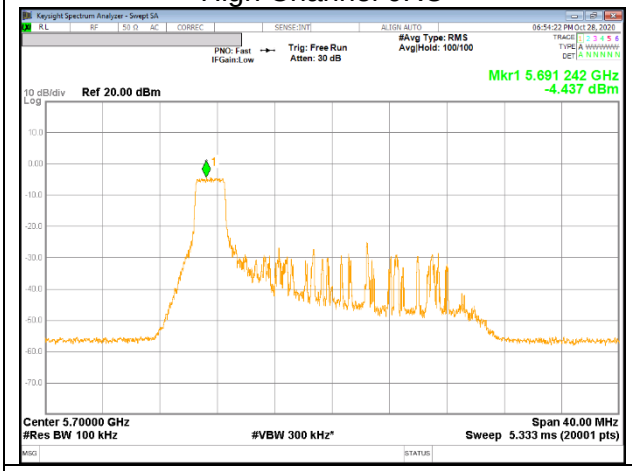
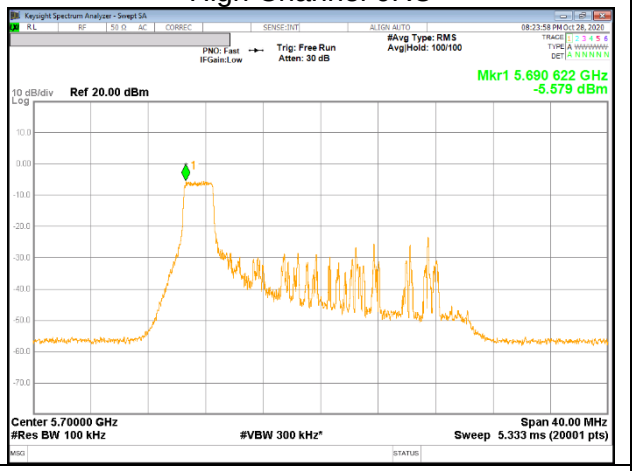
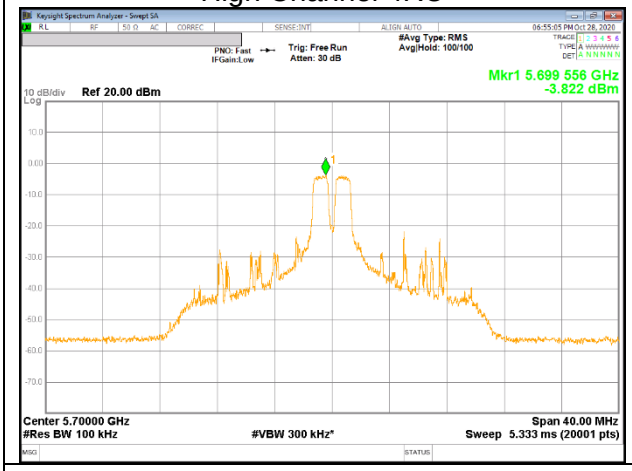
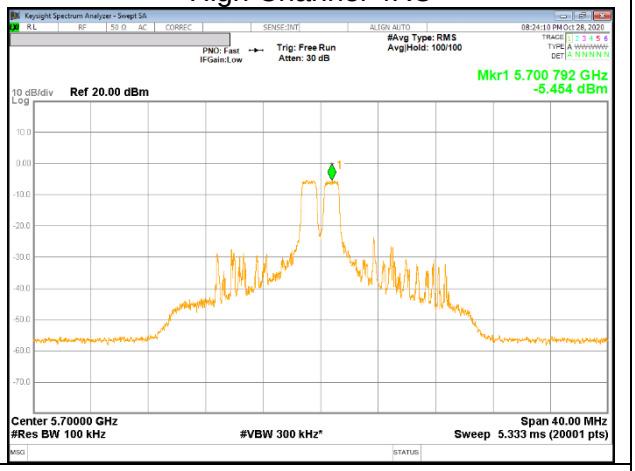
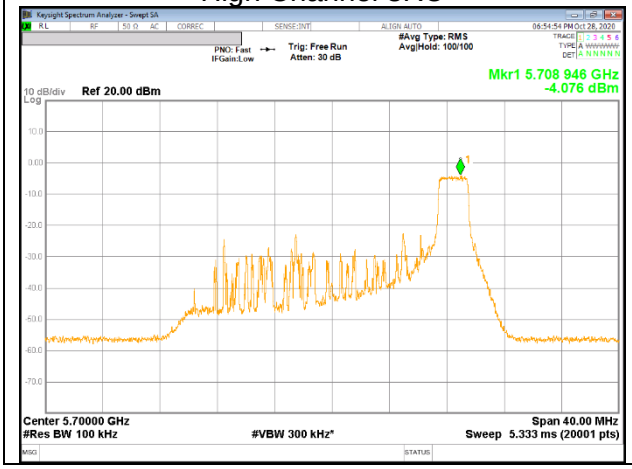
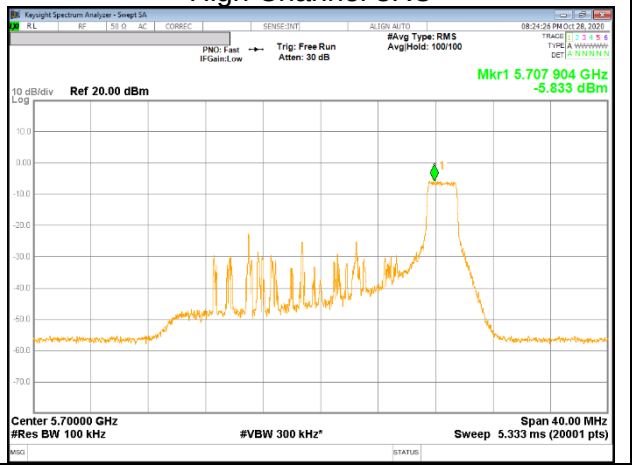
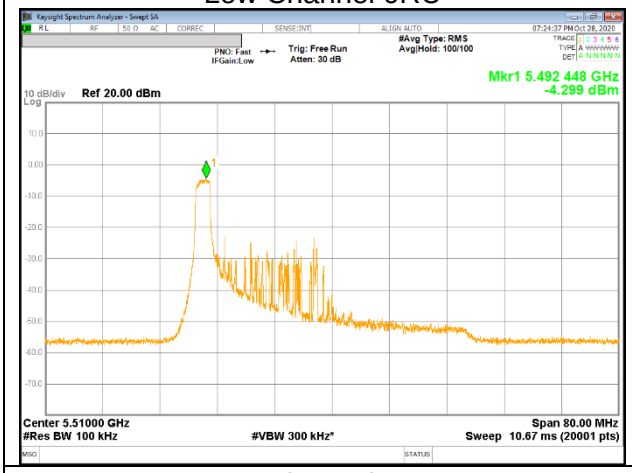
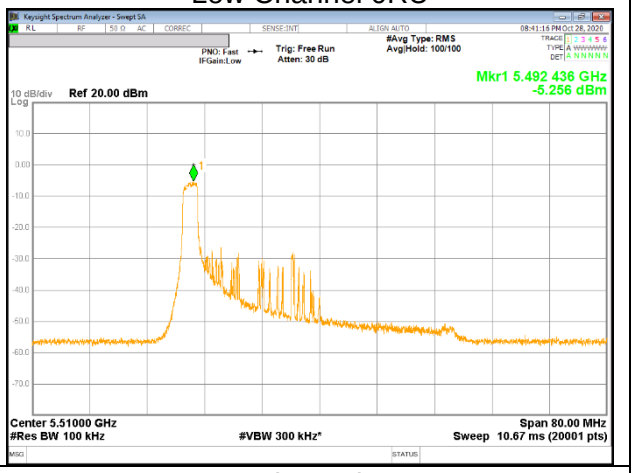
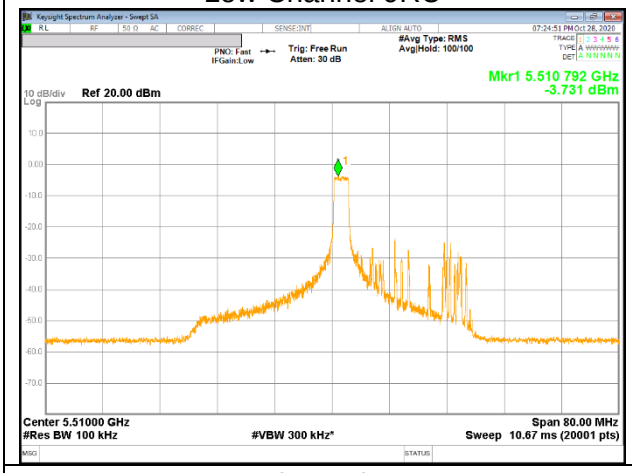
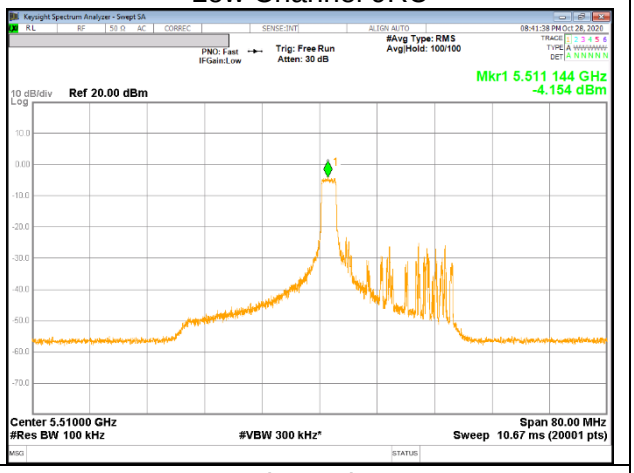
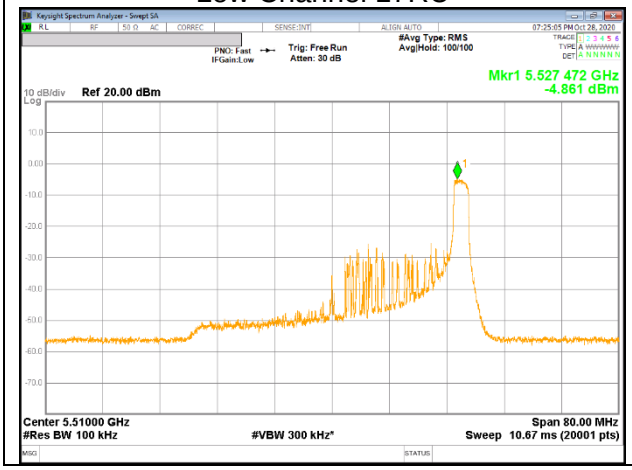
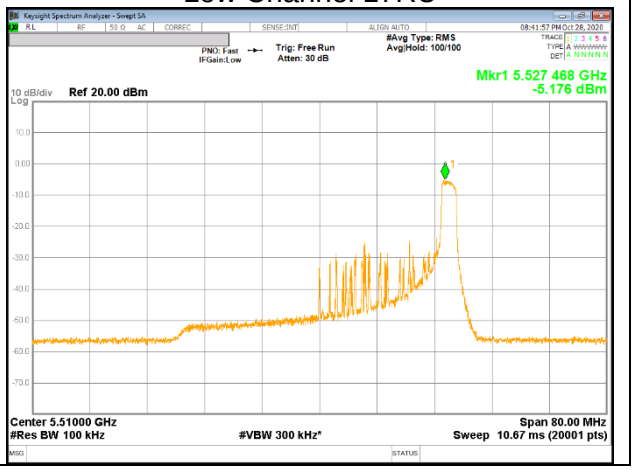
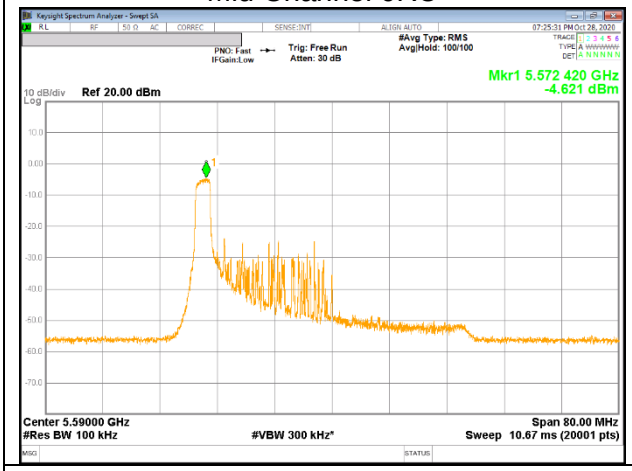
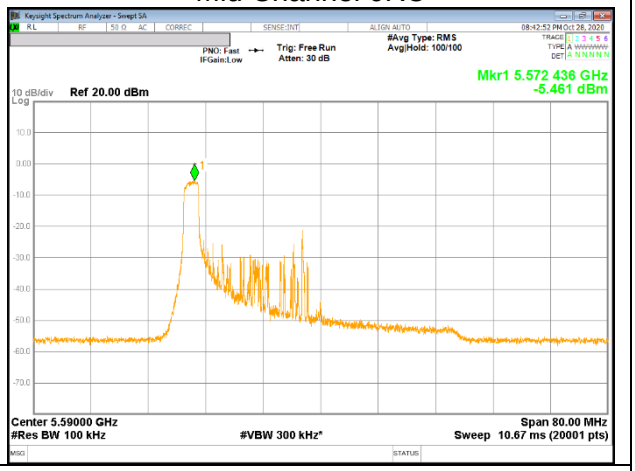
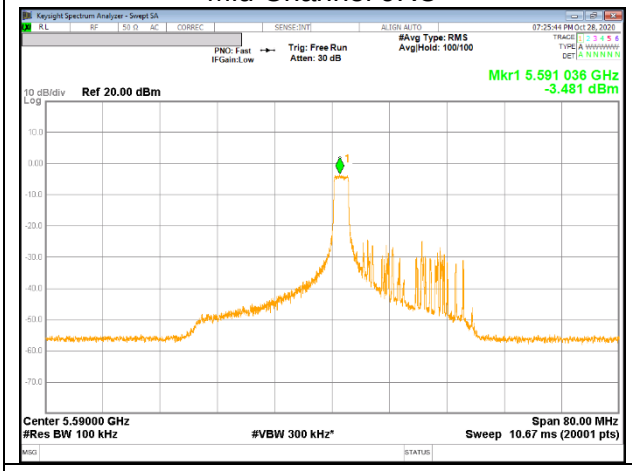
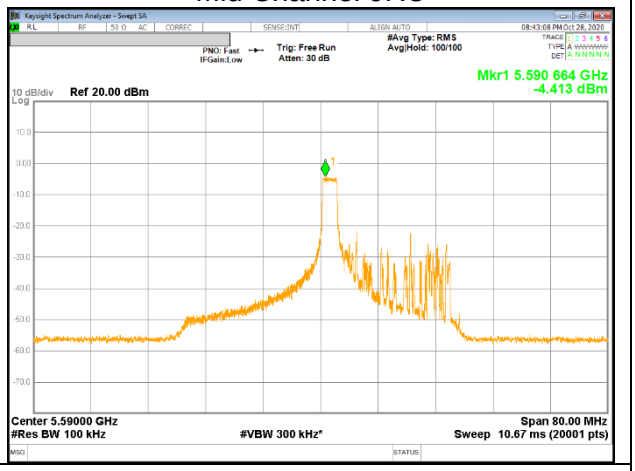
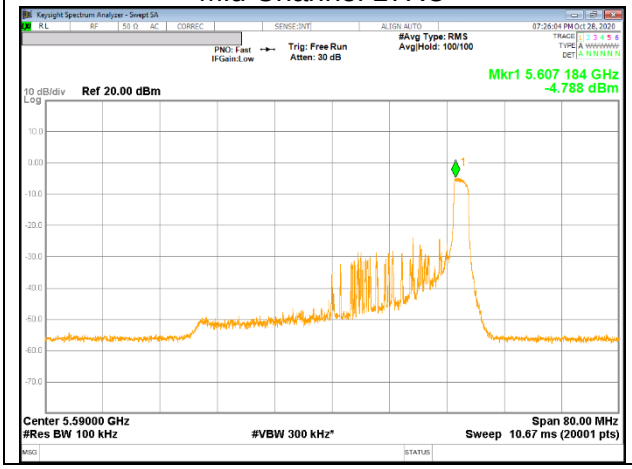
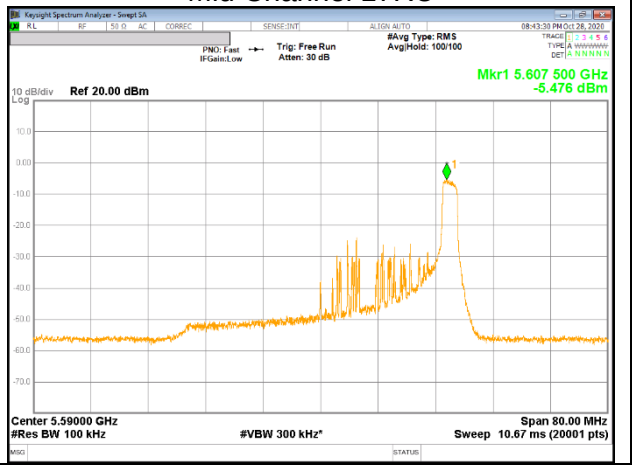
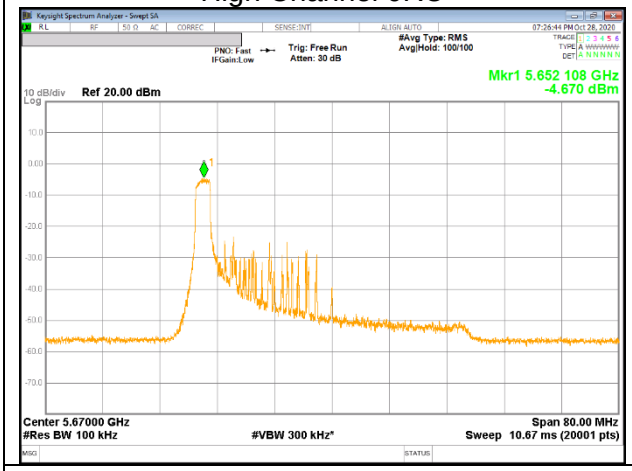
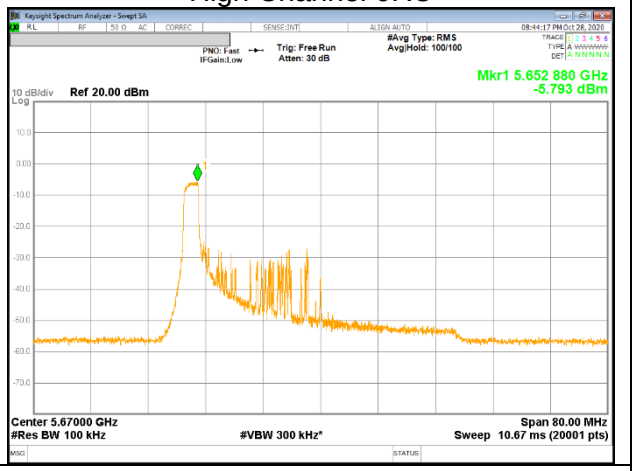
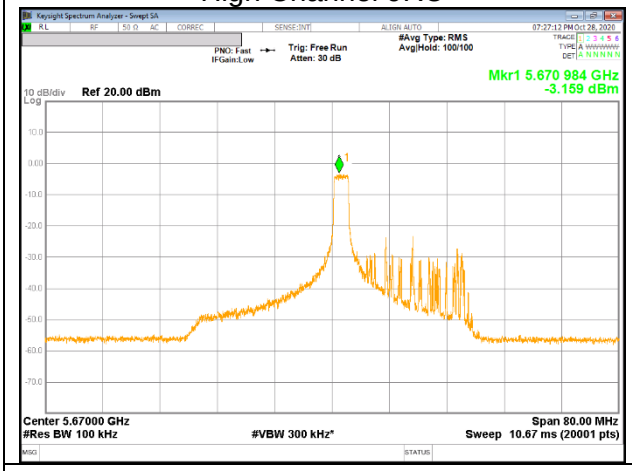
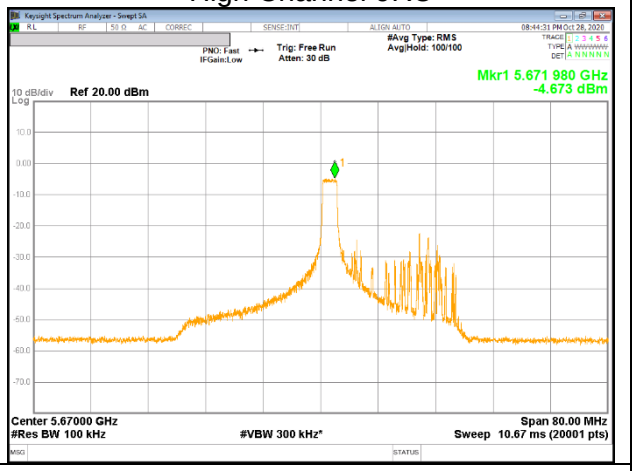
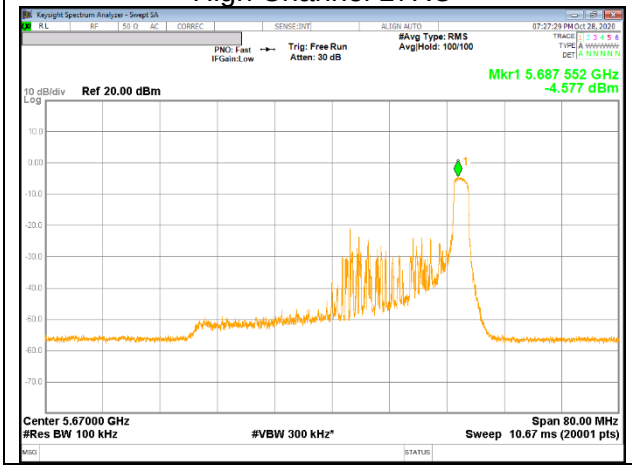
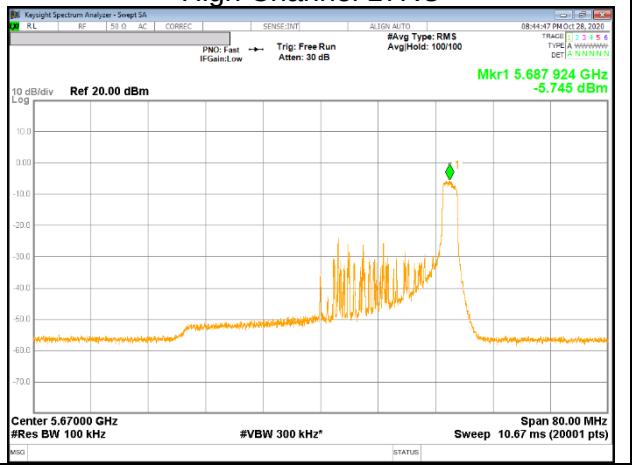
ANT1	ANT2
High Channel 0RU	High Channel 0RU
	
High Channel 4RU	High Channel 4RU
	
High Channel 8RU	High Channel 8RU
	

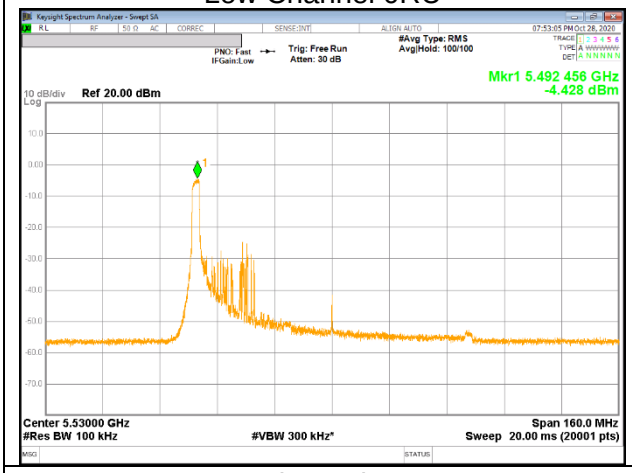
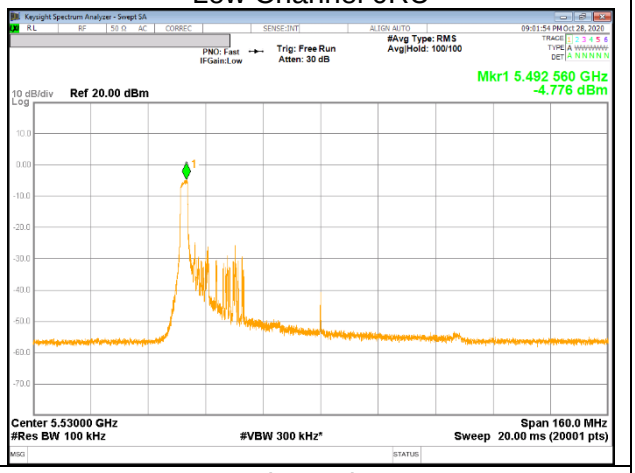
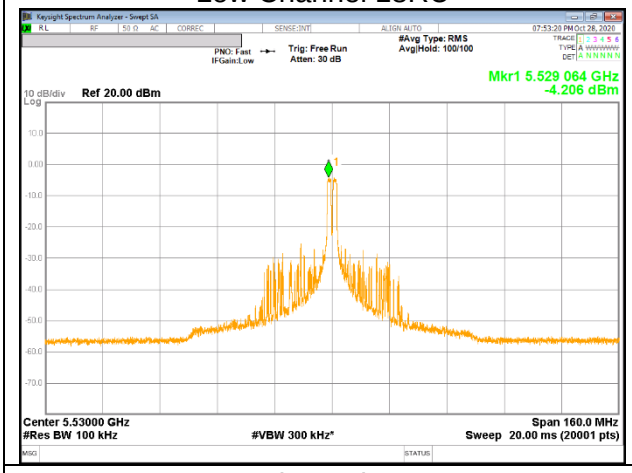
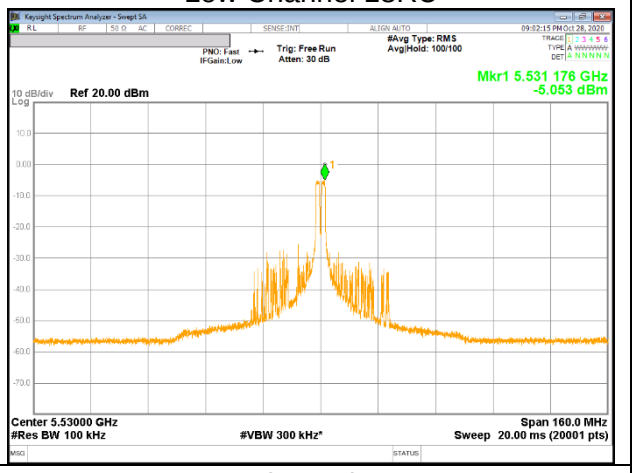
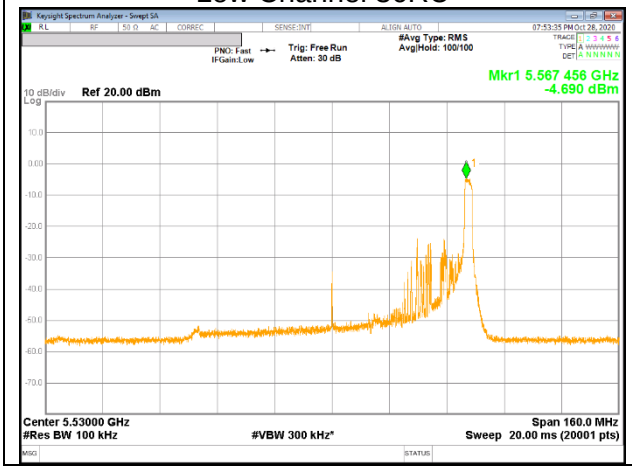
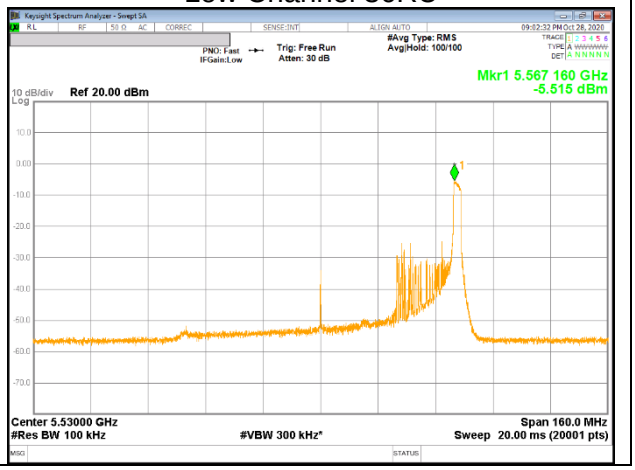
UNII 5.5 GHz IEEE 802.11ax HE40(RU) mode PSD

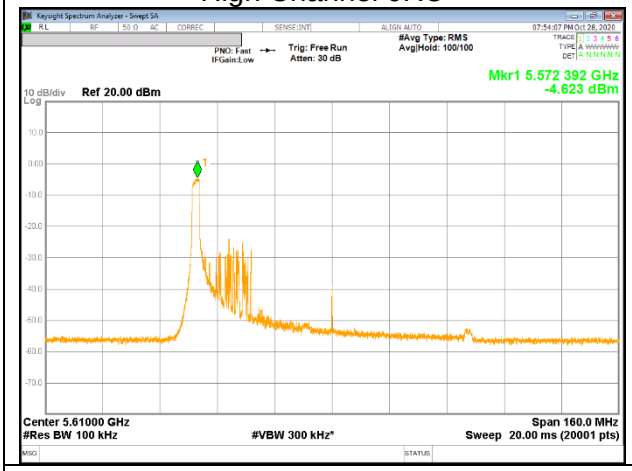
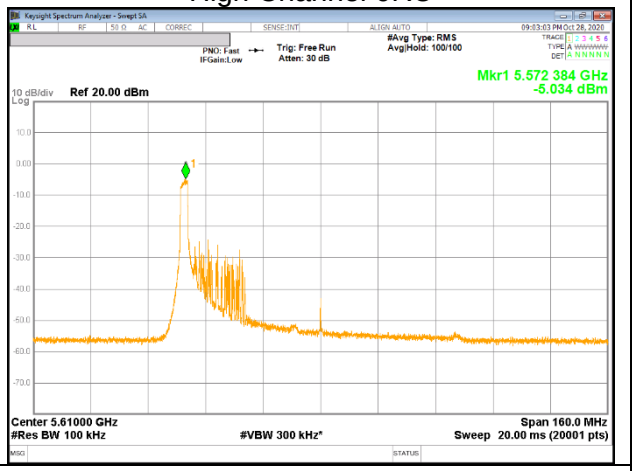
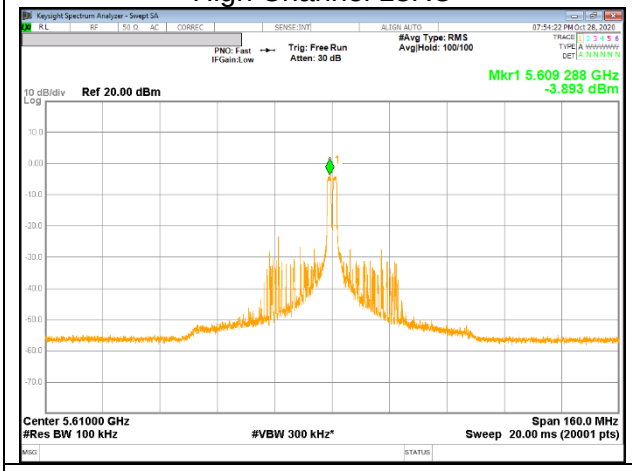
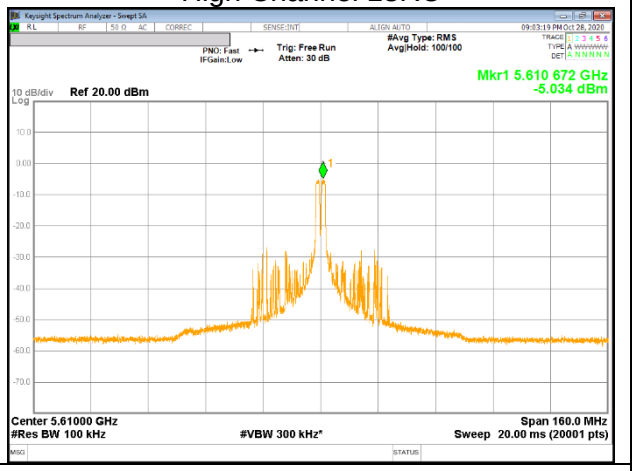
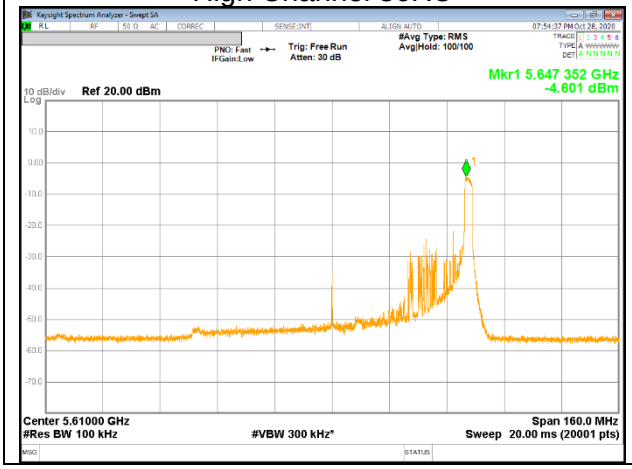
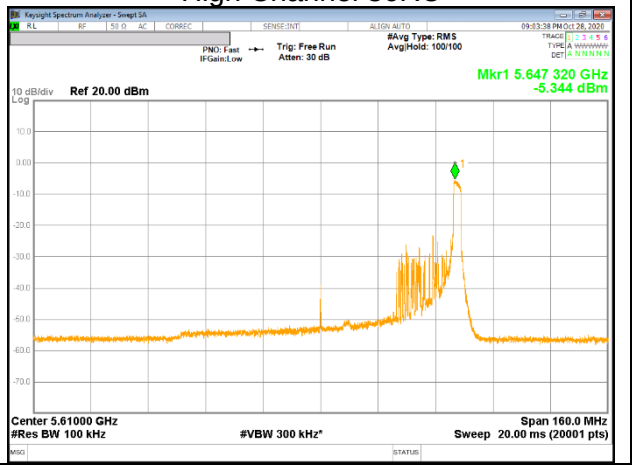
ANT1	ANT2
Low Channel 0RU	Low Channel 0RU
	
Low Channel 9RU	Low Channel 9RU
	
Low Channel 17RU	Low Channel 17RU
	

ANT1	ANT2
Mid Channel 0RU	Mid Channel 0RU
	
Mid Channel 9RU	Mid Channel 9RU
	
Mid Channel 17RU	Mid Channel 17RU
	

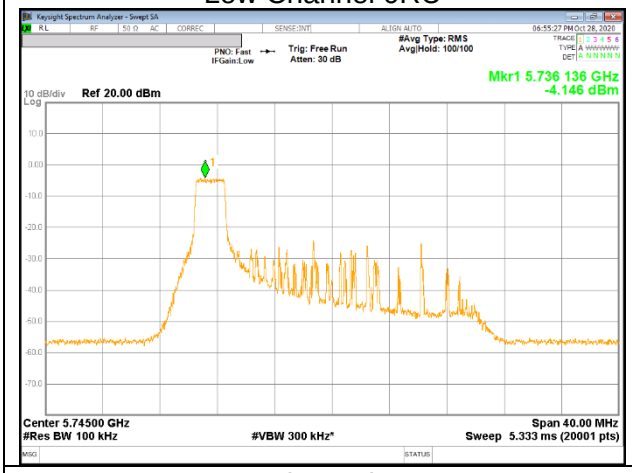
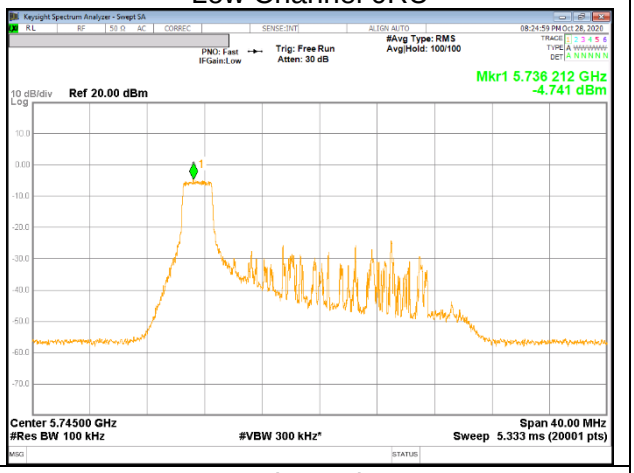
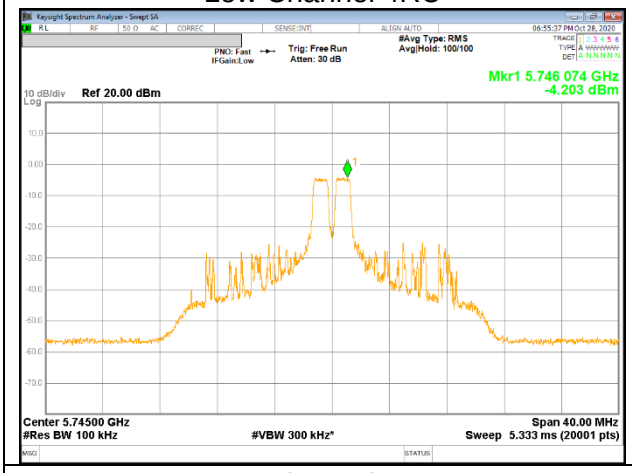
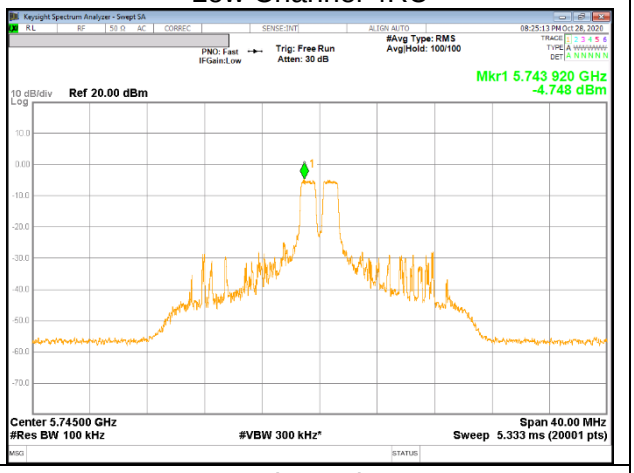
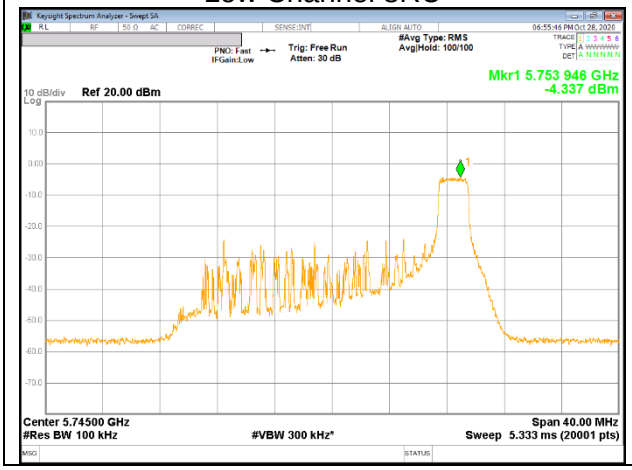
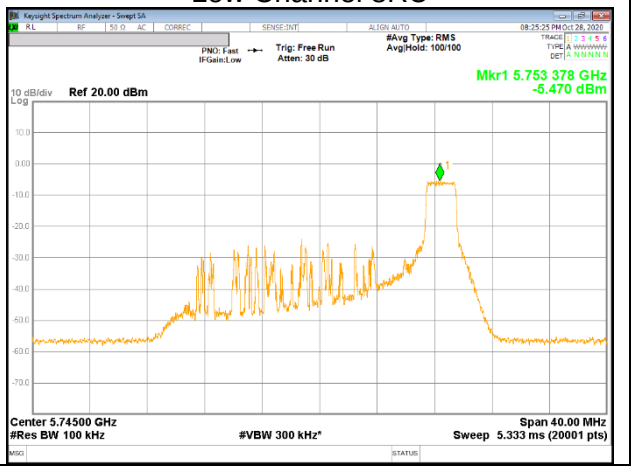
ANT1	ANT2
High Channel 0RU	High Channel 0RU
	
High Channel 9RU	High Channel 9RU
	
High Channel 17RU	High Channel 17RU
	

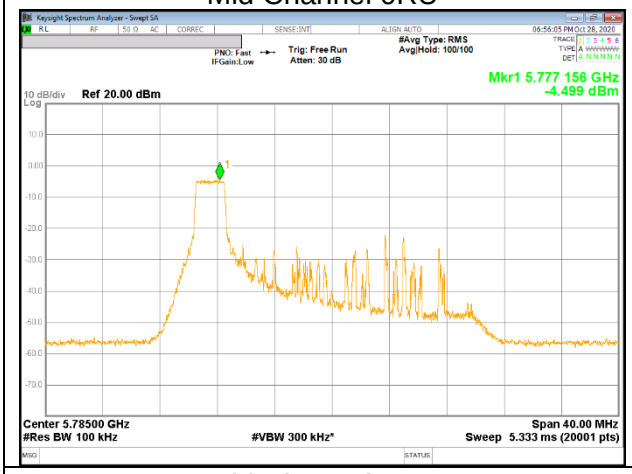
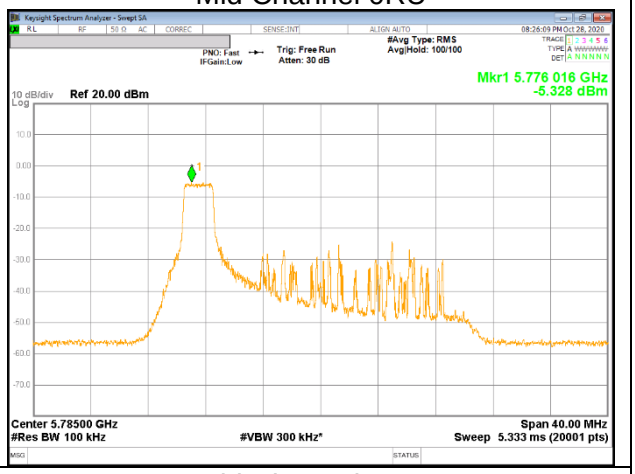
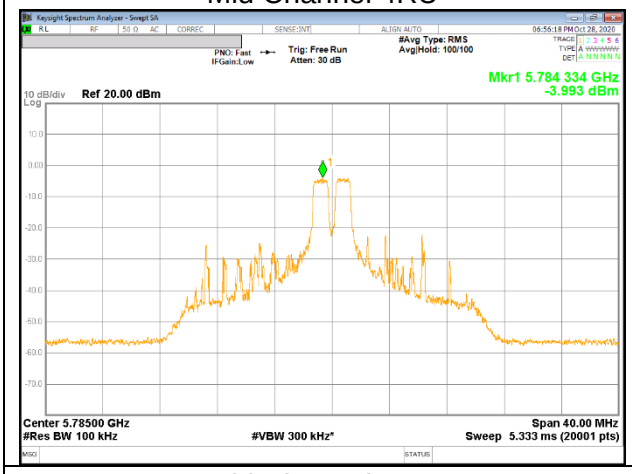
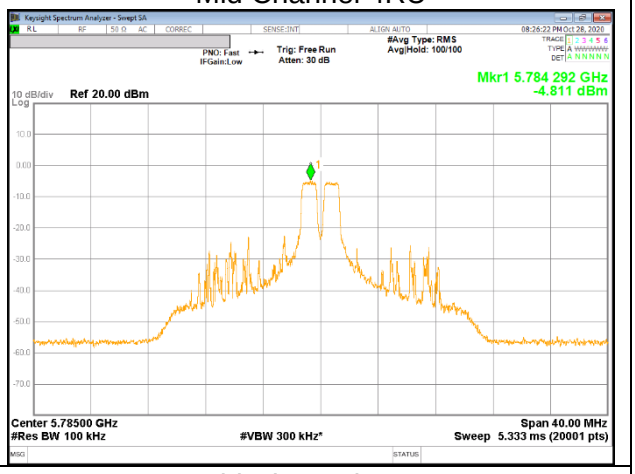
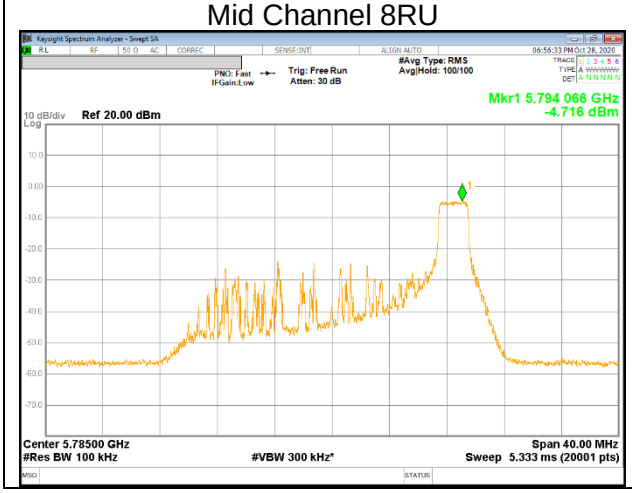
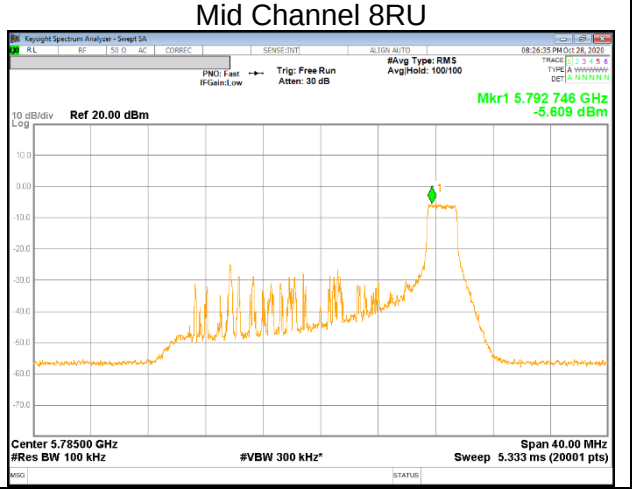
UNII 5.5 GHz IEEE 802.11ax HE80(RU) mode PSD

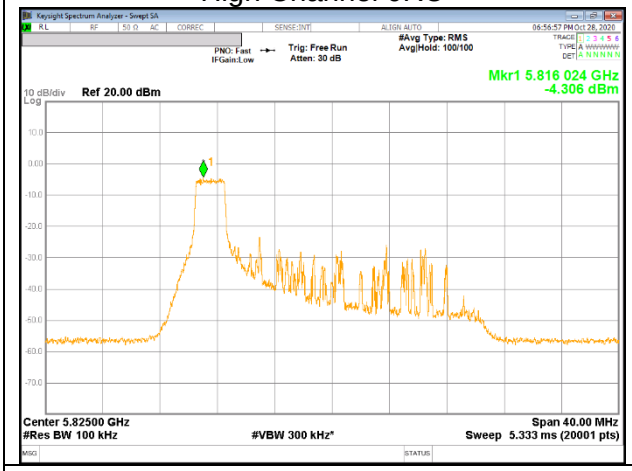
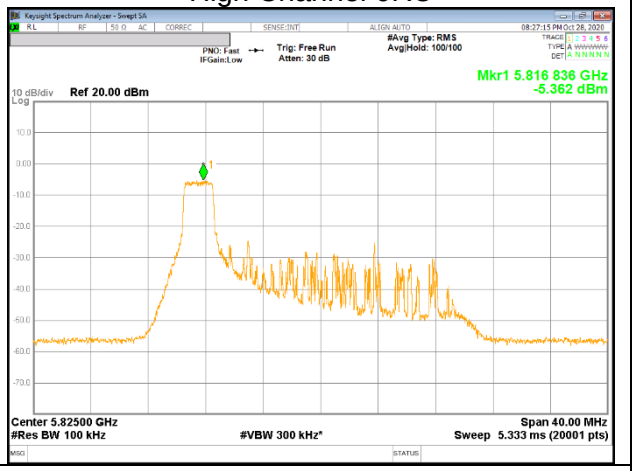
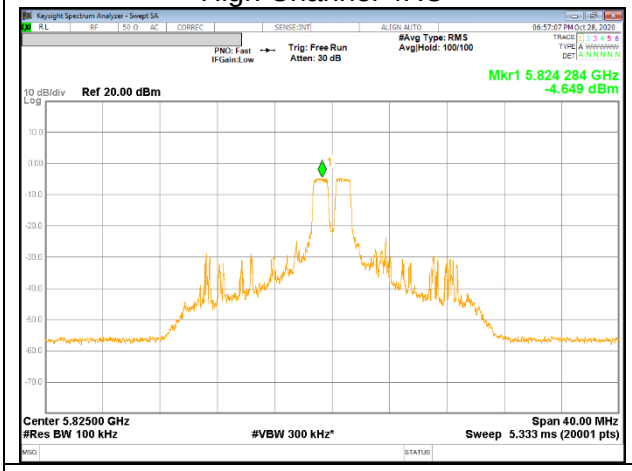
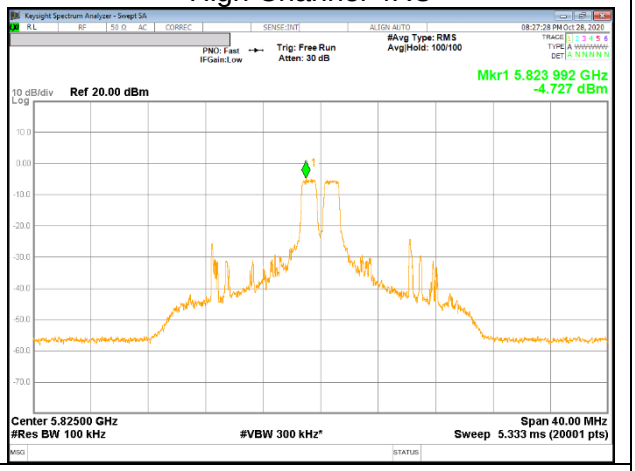
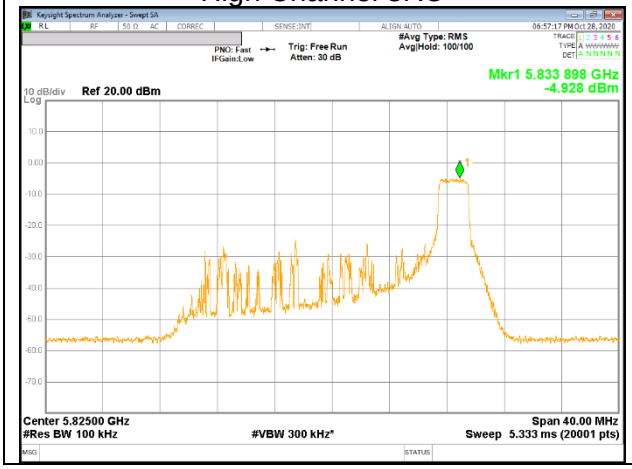
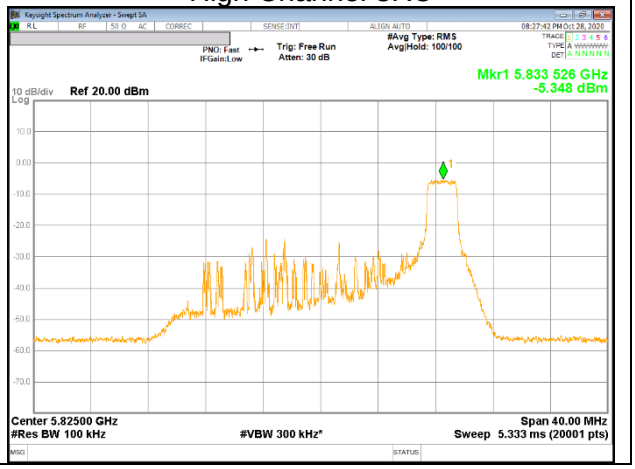
ANT1	ANT2
Low Channel 0RU	Low Channel 0RU
	
Low Channel 18RU	Low Channel 18RU
	
Low Channel 36RU	Low Channel 36RU
	

ANT1	ANT2
High Channel 0RU	High Channel 0RU
	
High Channel 18RU	High Channel 18RU
	
High Channel 36RU	High Channel 36RU
	

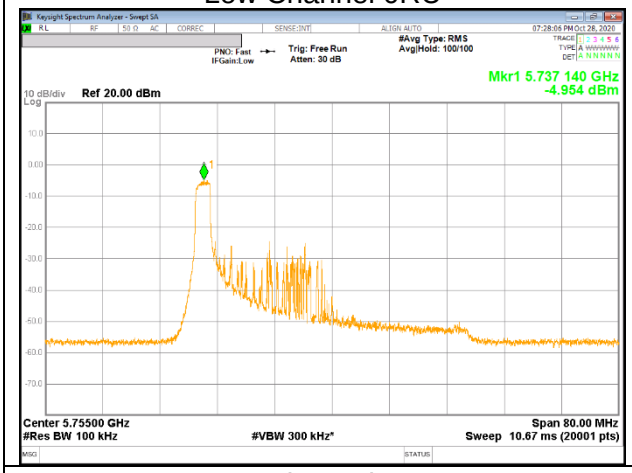
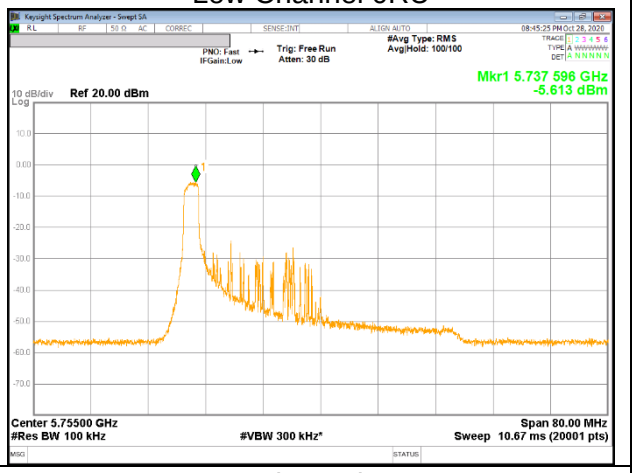
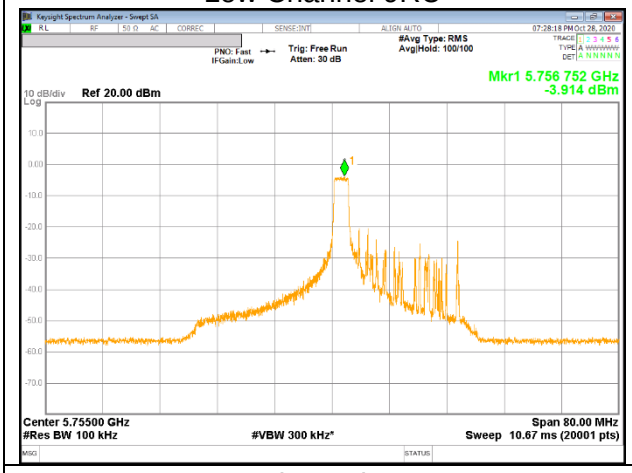
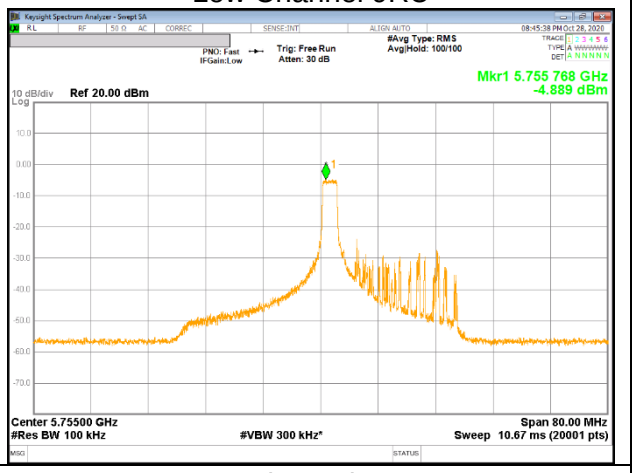
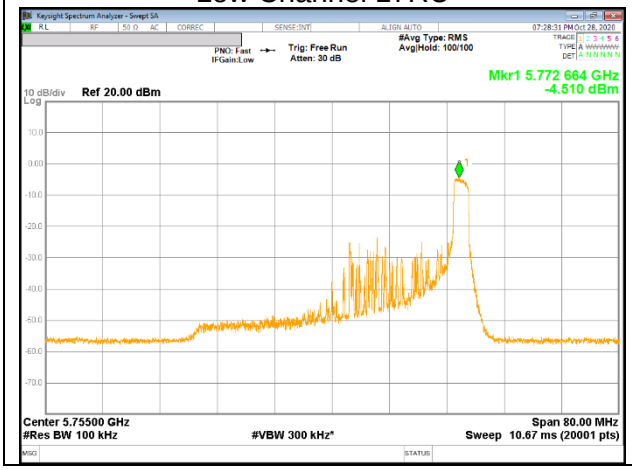
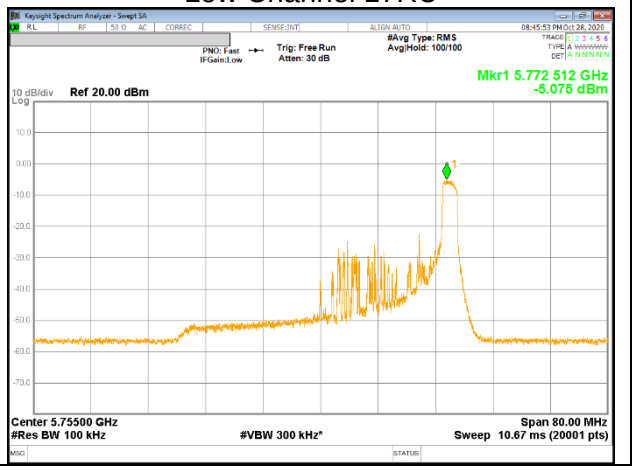
UNII 5.8 GHz IEEE 802.11ax HE20(RU) mode PSD

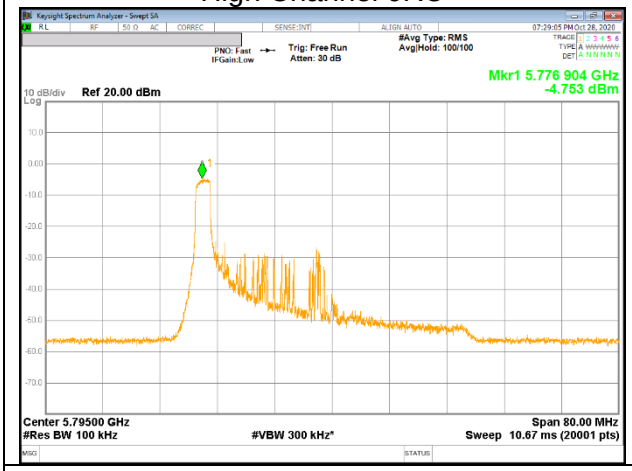
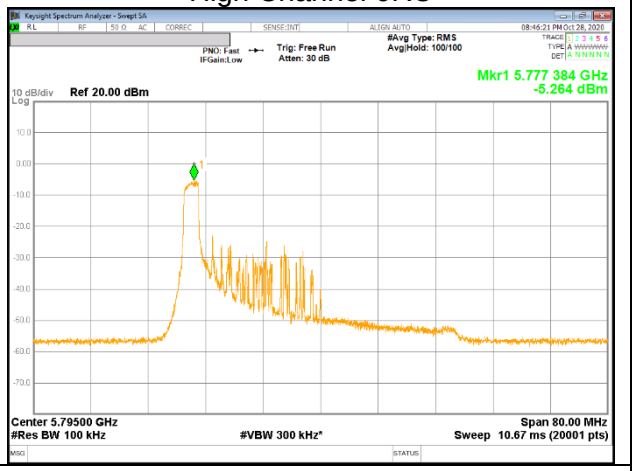
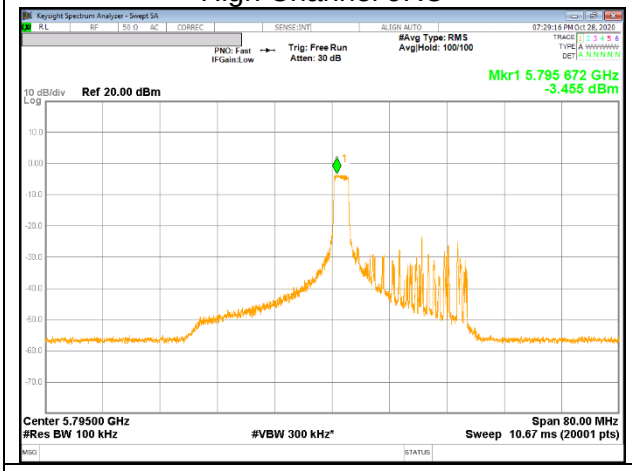
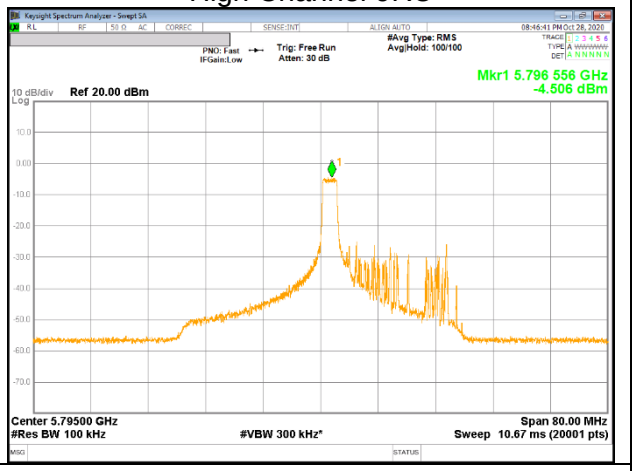
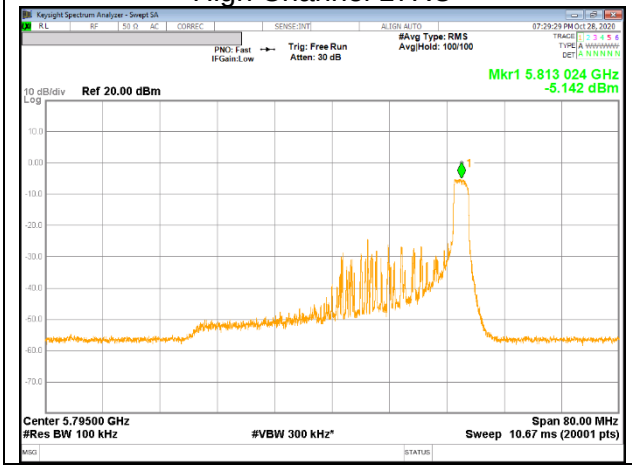
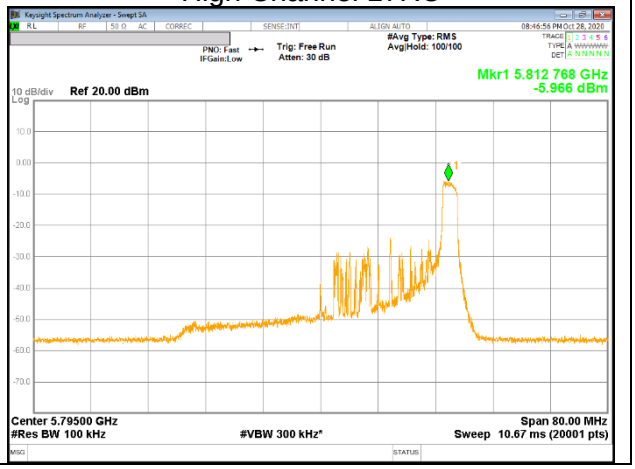
ANT1	ANT2
Low Channel 0RU	Low Channel 0RU
	
Low Channel 4RU	Low Channel 4RU
	
Low Channel 8RU	Low Channel 8RU
	

ANT1	ANT2
Mid Channel 0RU	Mid Channel 0RU
	
Mid Channel 4RU	Mid Channel 4RU
	
Mid Channel 8RU	Mid Channel 8RU
	

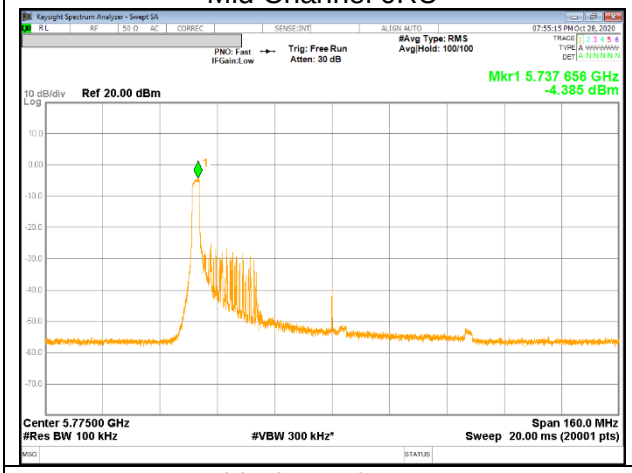
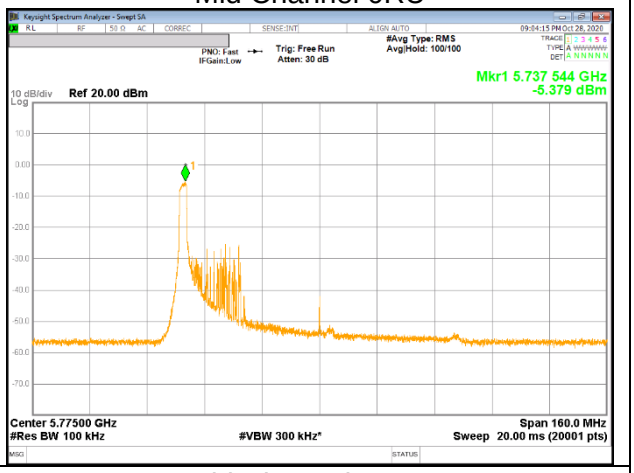
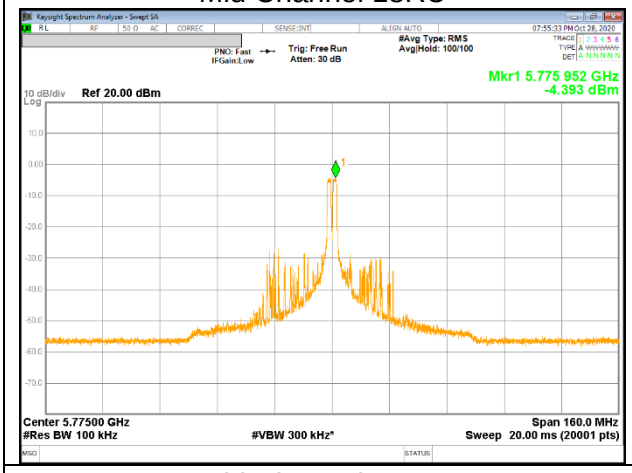
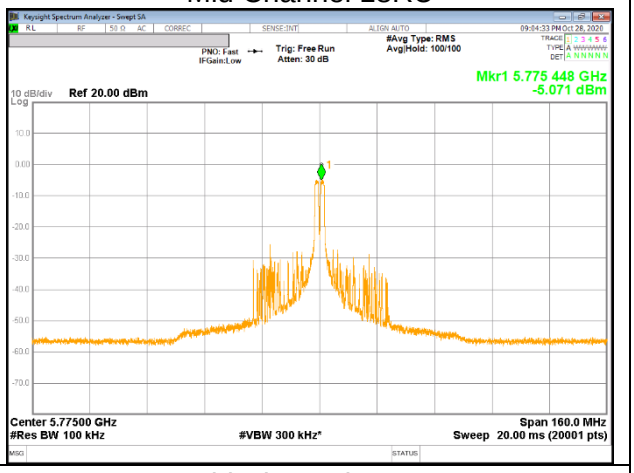
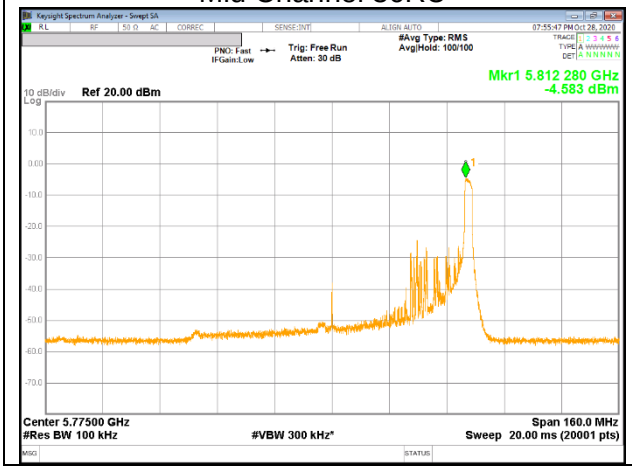
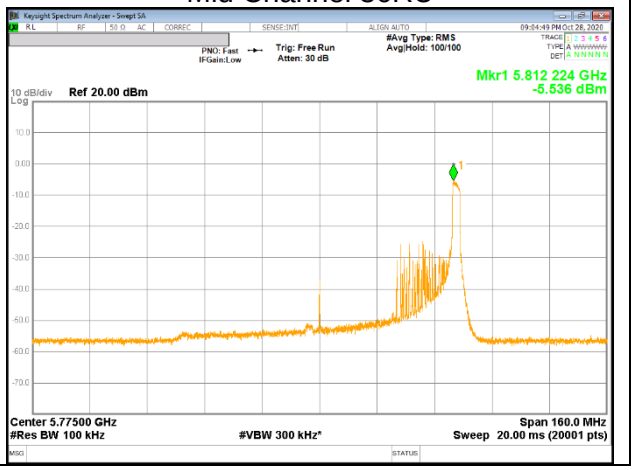
ANT1	ANT2
High Channel 0RU	High Channel 0RU
	
High Channel 4RU	High Channel 4RU
	
High Channel 8RU	High Channel 8RU
	

UNII 5.8 GHz IEEE 802.11ax HE40(RU) mode PSD

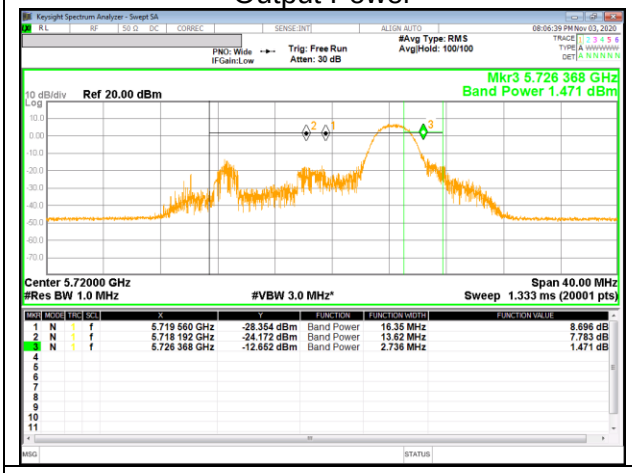
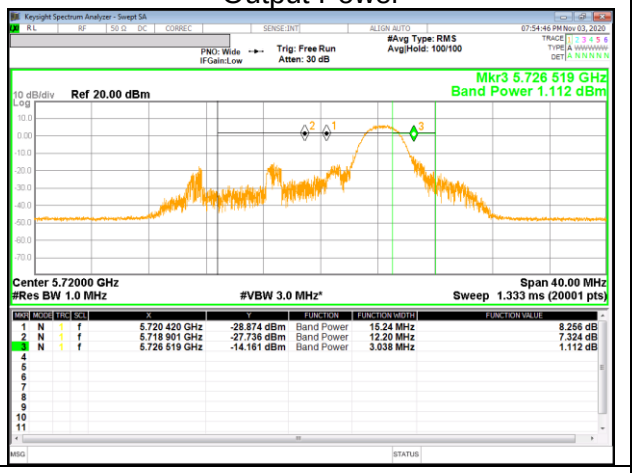
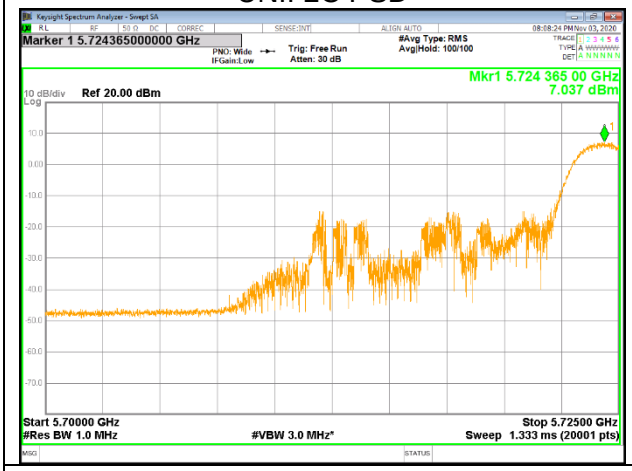
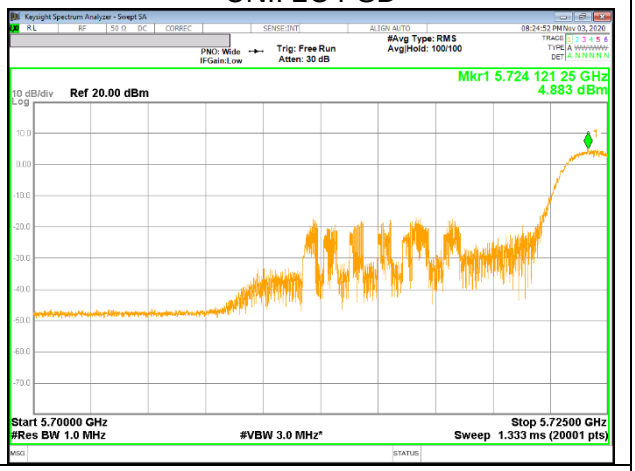
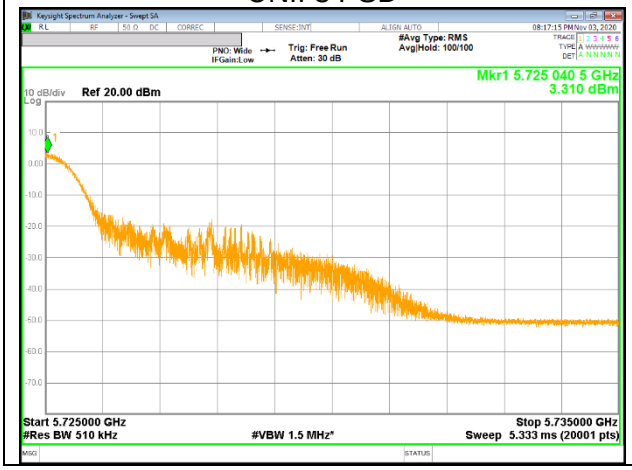
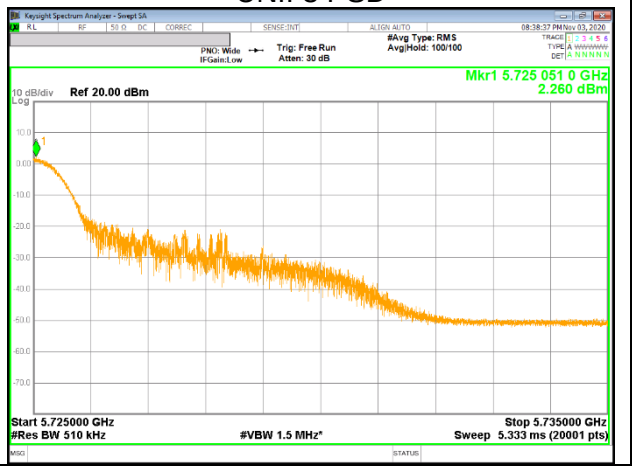
ANT1	ANT2
Low Channel 0RU	Low Channel 0RU
	
Low Channel 9RU	Low Channel 9RU
	
Low Channel 17RU	Low Channel 17RU
	

ANT1	ANT2
High Channel 0RU	High Channel 0RU
	
High Channel 9RU	High Channel 9RU
	
High Channel 17RU	High Channel 17RU
	

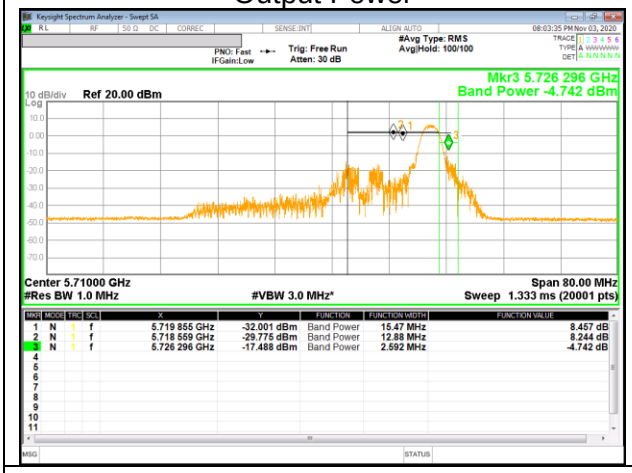
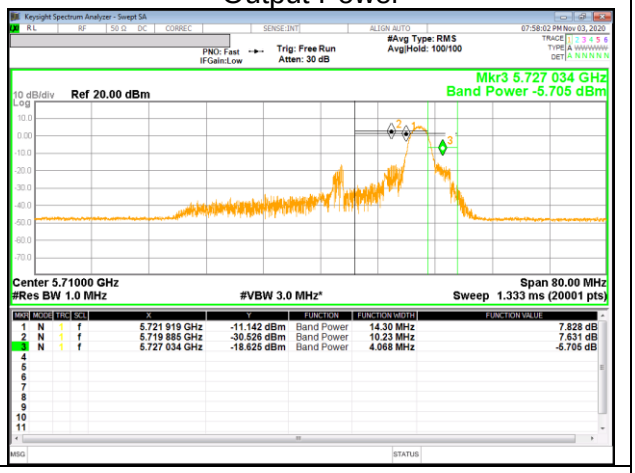
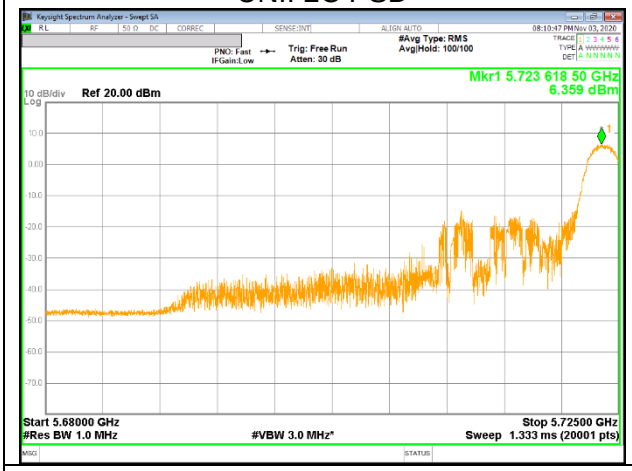
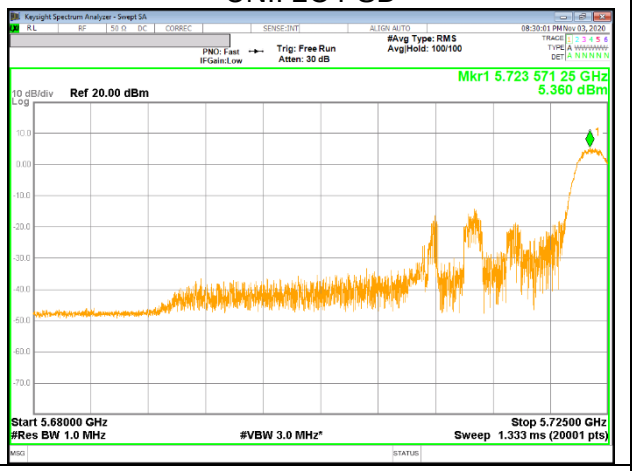
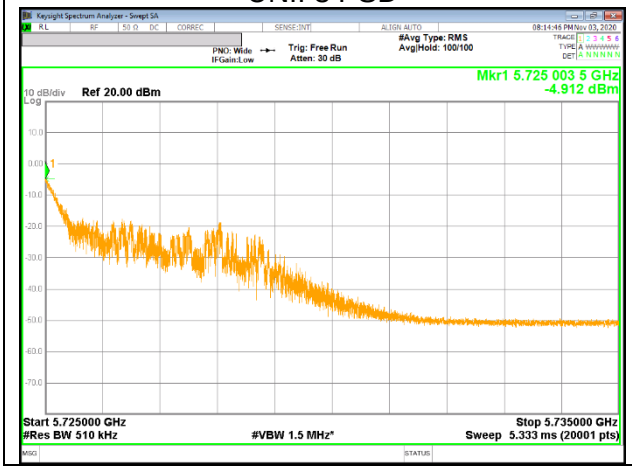
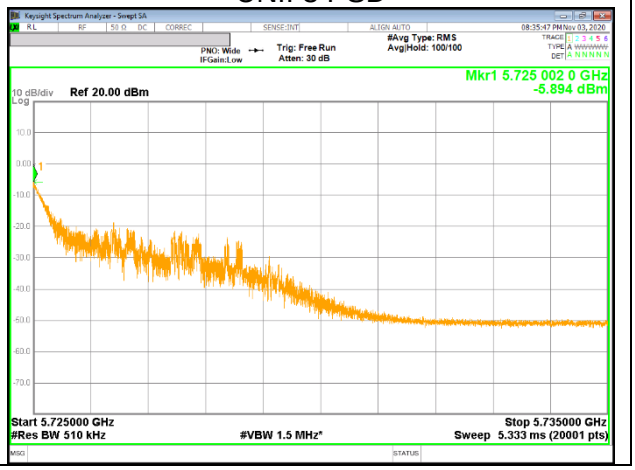
UNII 5.8 GHz IEEE 802.11ax HE80(RU) mode PSD

ANT1	ANT2
Mid Channel 0RU	Mid Channel 0RU
	
Mid Channel 18RU	Mid Channel 18RU
	
Mid Channel 36RU	Mid Channel 36RU
	

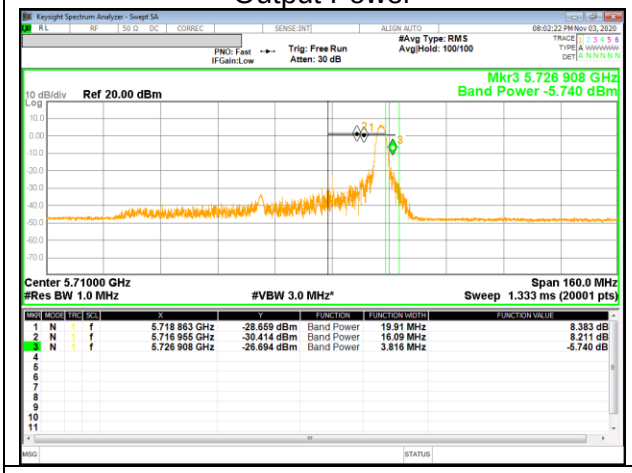
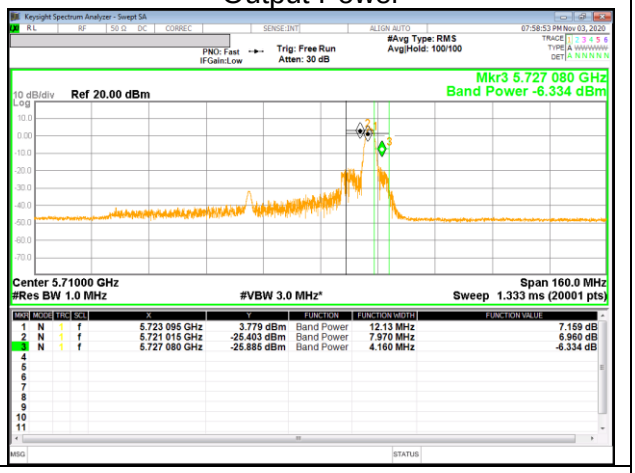
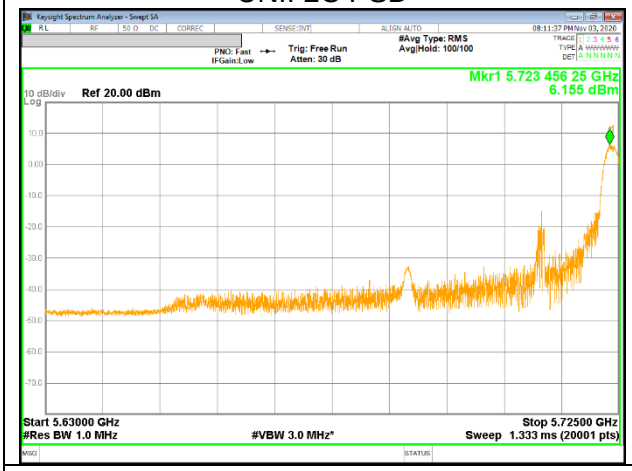
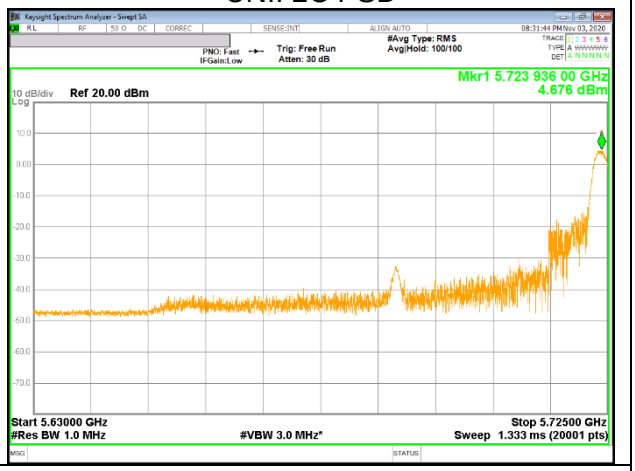
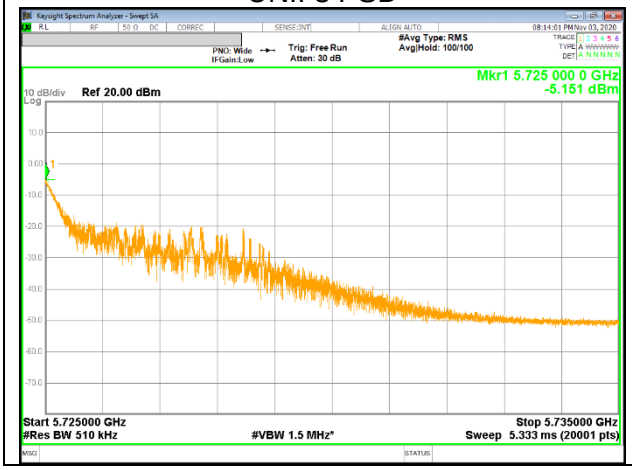
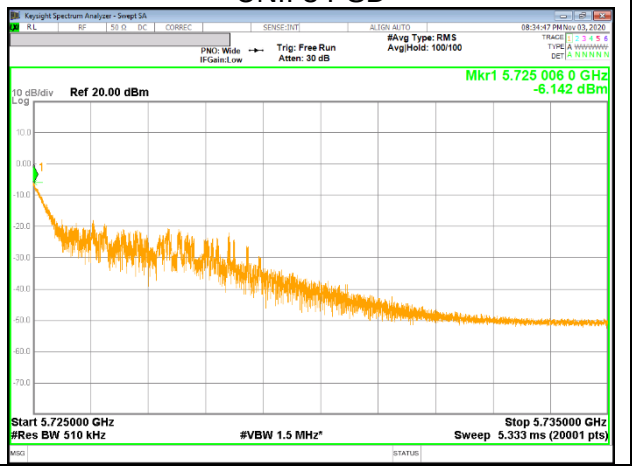
UNII Straddle Ch. IEEE 802.11ax HE20(6RU) mode Output Power and PSD

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

UNII Straddle Ch. IEEE 802.11ax HE40(15RU) mode Output 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 802.11ax HE80(34RU) mode Output Power and PSD

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

11. TRANSMITTER ABOVE 1 GHz

LIMITS

FCC §15.205 and §15.209

Limits for radiated disturbance of an intentional radiator		
Frequency range (MHz)	Limits (μV/m)	Measurement Distance (m)
0.009 – 0.490	2400 / F (kHz)	300
0.490 – 1.705	24000 / F (kHz)	30
1.705 – 30.0	30	30
30 – 88	100**	3
88 - 216	150**	3
216 – 960	200**	3
Above 960	500	3

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

FCC Part 15.205 (a) : Only spurious emissions are permitted in any of the frequency bands listed below :

MHz	MHz	MHz	MHz	GHz	GHz
0.009 ~ 0.110	8.41425 ~ 8.41475	108 ~ 121.94	1300 ~ 1427	4.5 ~ 5.15	14.47 ~ 14.5
0.495 ~ 0.505	12.29 ~ 12.293	123 ~ 138	1435 ~ 1626.5	5.35 ~ 5.46	15.35 ~ 16.2
2.1735 ~ 2.1905	12.51975 ~ 12.52025	149.9 ~ 150.05	1645.5 ~ 1646.5	7.25 ~ 7.75	17.7 ~ 21.4
4.125 ~ 4.128	12.57675 ~ 12.57725	156.52475 ~ 156.52525	1660 ~ 1710	8.025 ~ 8.5	22.01 ~ 23.12
4.17725 ~ 4.17775	13.36 ~ 13.41	156.7 ~ 156.9	1718.8 ~ 1722.2	9.0 ~ 9.2	23.6 ~ 24.0
4.20725 ~ 4.20775	16.42 ~ 16.423	162.0125 ~ 167.17	2200 ~ 2300	9.3 ~ 9.5	31.2 ~ 31.8
6.215 ~ 6.218	16.69475 ~ 16.69525	167.72 ~ 173.2	2310 ~ 2390	10.6 ~ 12.7	36.43 ~ 36.5
6.26775 ~ 6.26825	16.80425 ~ 16.80475	240 ~ 285	2483.5 ~ 2500	13.25 ~ 13.4	Above 38.6
6.31175 ~ 6.31225	25.5 ~ 25.67	322 ~ 335.4	2655 ~ 2900		
8.291 ~ 8.294	37.5 ~ 38.25	399.90 ~ 410	3260 ~ 3267		
8.362 ~ 8.366	73 ~ 74.6	608 ~ 614	3332 ~ 3339		
8.37625 ~ 8.38675	74.8 ~ 75.2	960 ~ 1240	3345.8 ~ 3358		
			3600 ~ 4400		

▪ FCC Part 15.205(b) : The field strength of emissions appearing within these frequency bands shall not exceed the limits shown in §15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in §15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in §15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in §15.35 apply to these measurements.

FCC §15.407 (b)

(b) Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

(1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.
(2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.
(3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.
(4) For transmitters operating in the 5.725-5.85 GHz band:

(i) All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

(5) The emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary,
provided the measured energy is integrated to show the total power over 1 MHz.
(6) Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209. Further, any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in §15.207.
(7) The provisions of §15.205 apply to intentional radiators operating under this section.
(8) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the upper and lower frequency band edges as the design of the equipment permits.

Note

- Limit translation to field strength level (FCC §15.407)

E[dBuV/m] = EIRP[dBm] + 95.2 = -27dBm + 95.2 = 68.2dBuV/m

E[dBuV/m] = EIRP[dBm] + 95.2 = -17dBm + 95.2 = 78.2dBuV/m

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane for below 1GHz and 100 cm for above 1GHz. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.10. The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

Reference to KDB 789033 D02 v02r01 UNII part G) 6) c) Method AD:
For measurements above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 3 MHz for peak measurements and add duty cycle factor to the reading offset for average measurements.

Pre-scans to detect harmonic and spurious emissions, the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 30 kHz for peak measurements.

The spectrum from 1GHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band.
(From 30MHz to 1GHz, test was performed with the EUT set to transmit at the channel with highest output power)

The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

Note : Emission was pre-scanned from 9KHz to 30MHz; No emissions were detected which was at least 20dB below the specification limit (consider distance correction factor).
Per FCC part 15.31(o), test results were not reported.

Although these tests were performed other than open field test site, adequate comparison measurements were confirmed against 30 m open are test site.
Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the one of tests made in an open field based on KDB 414788.

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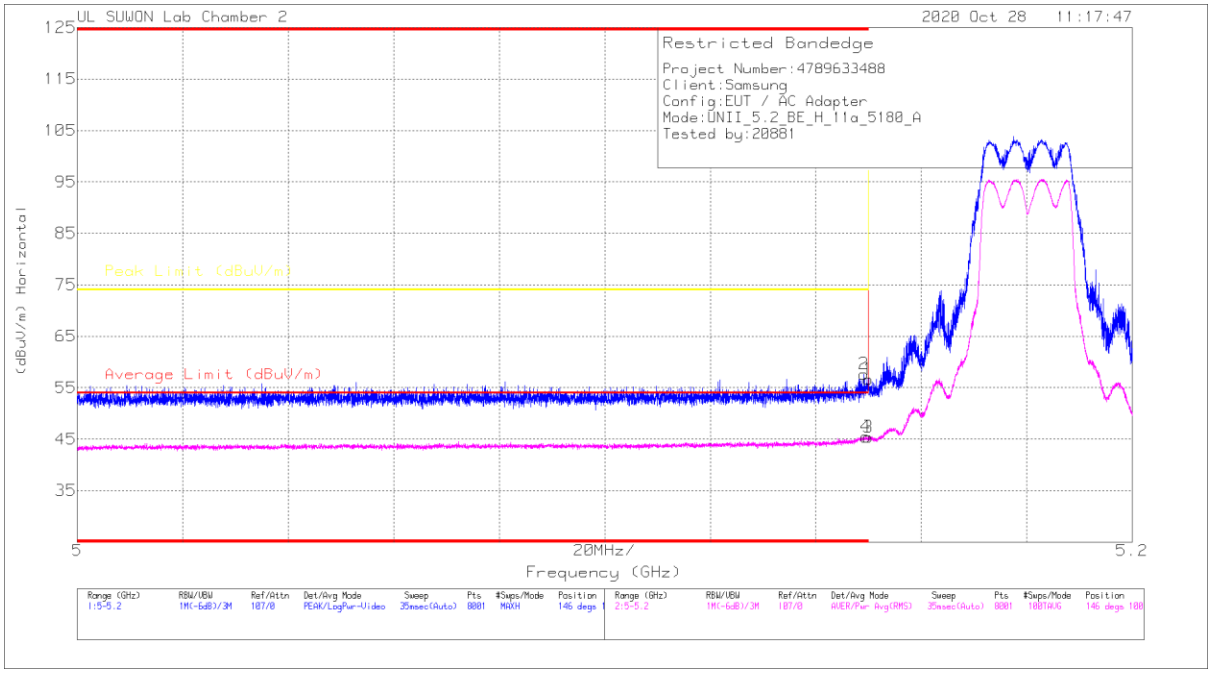
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16675, Korea TEL: (031) 337-9902 FAX: (031) 213-5433

11.1. 5.2 GHz

11.1.1. TX ABOVE 1GHz 802.11a 2Tx MODE IN THE 5.2GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL PEAK AND AVERAGE DATA

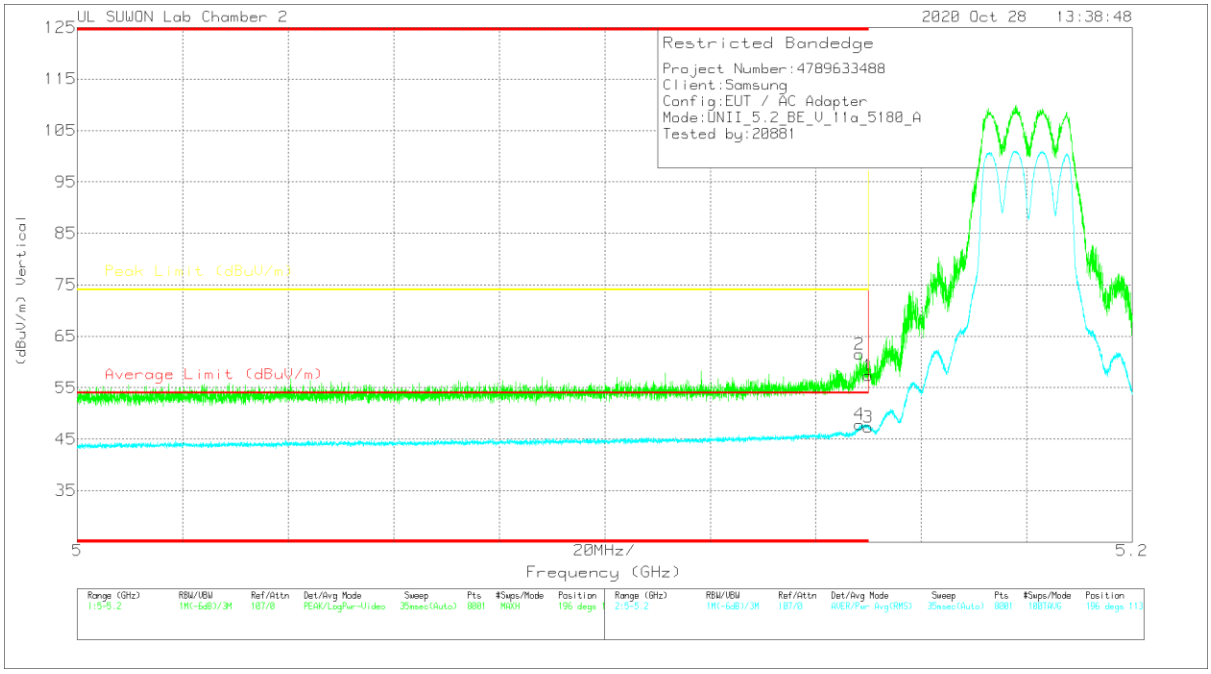


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	10dB_ATT[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.15	39.98	Pk	34.4	-17.7	0	56.68	-	-	74	-17.32	146	100	H
2	* 5.14915	40.98	Pk	34.4	-17.7	0	57.68	-	-	74	-16.32	146	100	H
3	5.15	28.55	RMS	34.4	-17.7	.15	45.4	54	-8.6	-	-	146	100	H
4	* 5.14953	28.63	RMS	34.4	-17.7	.15	45.48	54	-8.52	-	-	146	100	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

VERTICAL PEAK AND AVERAGE DATA



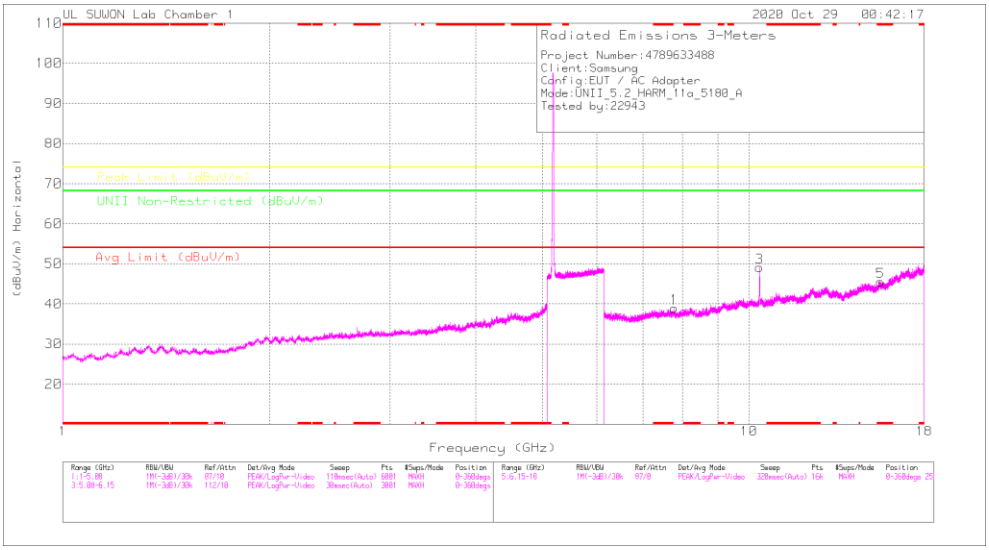
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	10dB_ATT[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.15	40.67	Pk	34.4	-17.7	0	57.37	-	-	74	-16.63	196	113	V
2	* 5.14833	44.82	Pk	34.4	-17.7	0	61.52	-	-	74	-12.48	196	113	V
3	5.15	30.5	RMS	34.4	-17.7	.15	47.35	54	-6.65	-	-	196	113	V
4	* 5.14825	31.03	RMS	34.4	-17.7	.15	47.88	54	-6.12	-	-	196	113	V

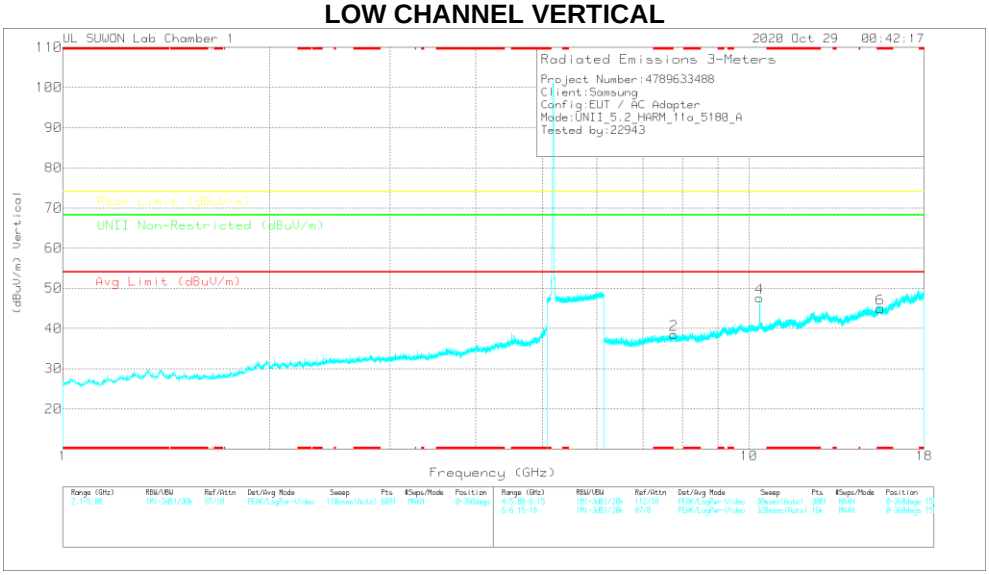
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL



LOW CHANNEL VERTICAL



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

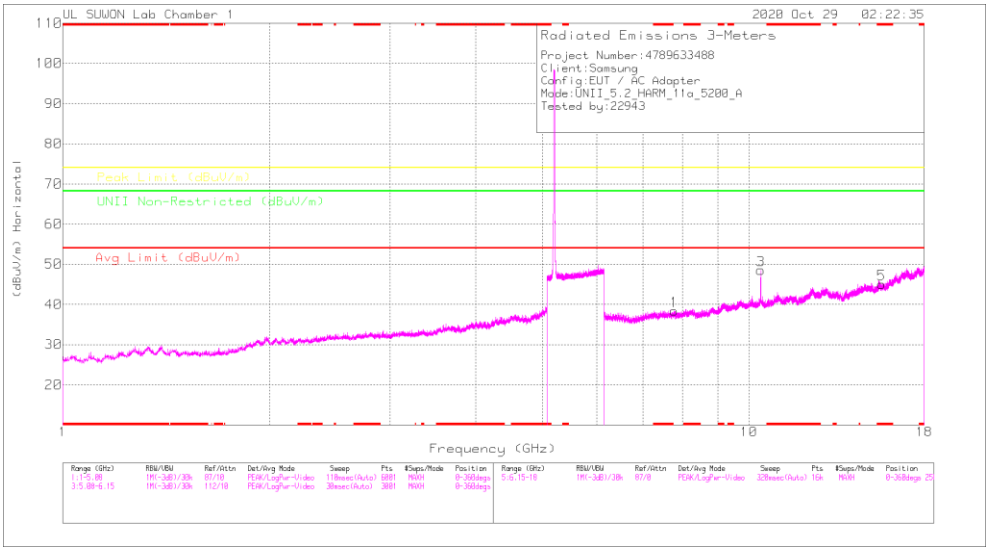
LOW CHANNEL DATA

Radiated Emissions

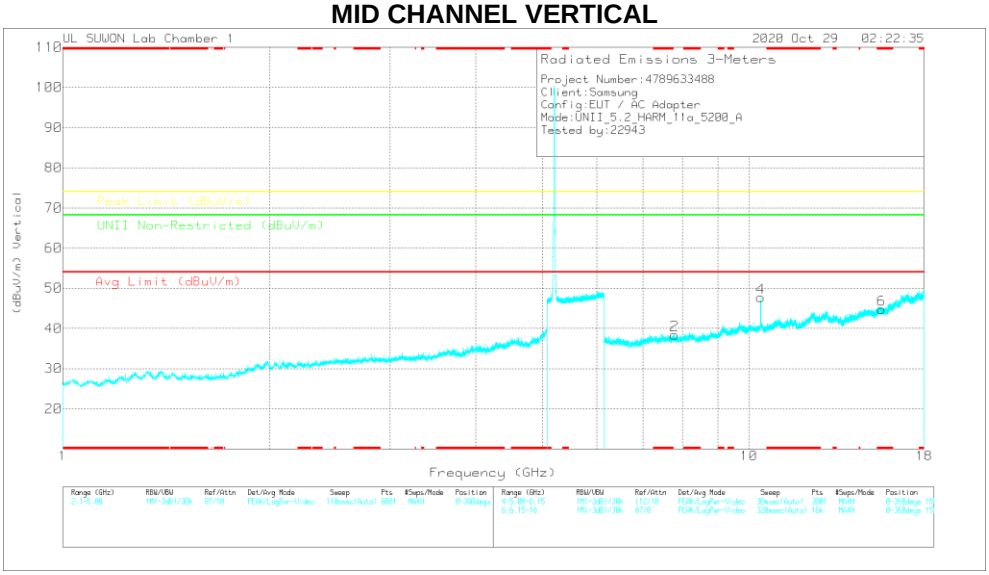
Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	6GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
7.78626	38.38	PK-U	35.8	-26.3	0	47.88	-	-	-	-	68.2	-20.32	0	100	H
7.78765	38.95	PK-U	35.8	-26.4	0	48.35	-	-	-	-	68.2	-19.85	0	100	V
10.36084	42.01	PK-U	37.8	-21.9	0	57.91	-	-	-	-	68.2	-10.29	136	142	H
10.36231	42.58	PK-U	37.8	-21.9	0	58.48	-	-	-	-	68.2	-9.72	209	145	V
* 15.54569	36.06	PK-U	40.1	-20.9	0	55.26	-	-	74	-18.74	-	-	0	100	H
* 15.54251	35.86	PK-U	40.1	-20.9	0	55.06	-	-	74	-18.94	-	-	0	100	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK-U - U-NII: Maximum Peak

MID CHANNEL HORIZONTAL



MID CHANNEL VERTICAL



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

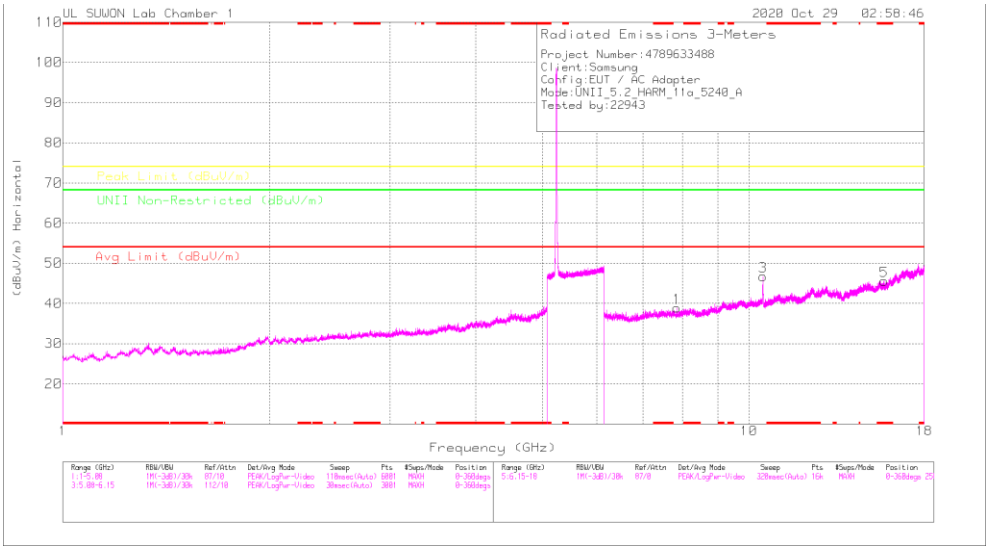
MID CHANNEL DATA

Radiated Emissions

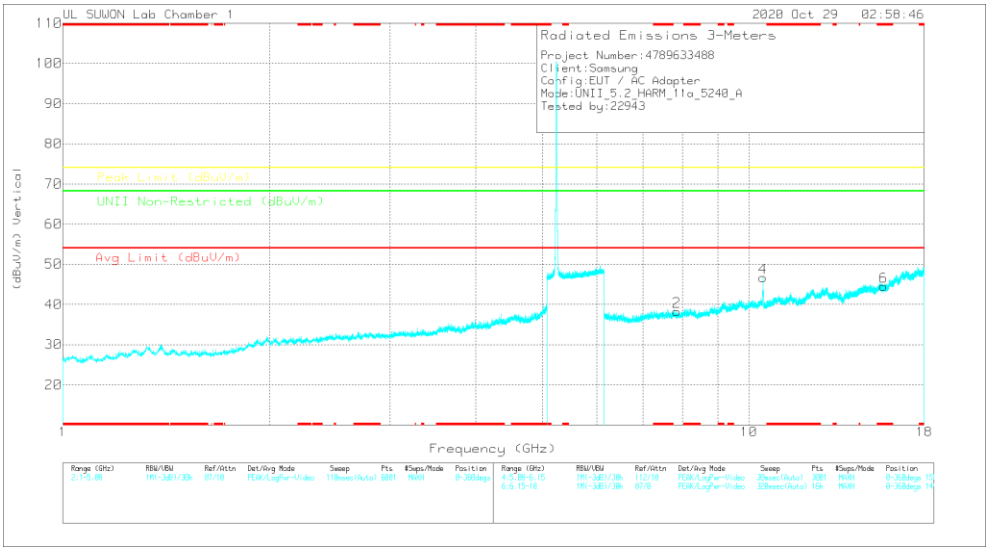
Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	6GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
7.78287	39.27	PK-U	35.8	-26.4	0	48.67	-	-	-	-	68.2	-19.53	0	100	H
7.78599	38.84	PK-U	35.8	-26.3	0	48.34	-	-	-	-	68.2	-19.86	0	100	V
10.39638	43.03	PK-U	37.8	-21.6	0	59.23	-	-	-	-	68.2	-8.97	208	138	H
10.39623	41.99	PK-U	37.8	-21.6	0	58.19	-	-	-	-	68.2	-10.01	204	106	V
* 15.60834	36.69	PK-U	40.1	-21.3	0	55.49	-	-	74	-18.51	-	-	360	100	H
* 15.60777	36.82	PK-U	40.1	-21.3	0	55.62	-	-	74	-18.38	-	-	360	100	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK-U - U-NII: Maximum Peak

HIGH CHANNEL HORIZONTAL



HIGH CHANNEL VERTICAL



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

HIGH CHANNEL DATA

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	6GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
7.85033	39.24	PK-U	35.9	-26.3	0	48.84	-	-	-	-	68.2	-19.36	0	100	H
7.8497	39.16	PK-U	35.9	-26.4	0	48.66	-	-	-	-	68.2	-19.54	0	100	V
10.48275	42.99	PK-U	37.9	-22.2	0	58.69	-	-	-	-	68.2	-9.51	201	124	H
10.48053	43.27	PK-U	37.9	-22.3	0	58.87	-	-	-	-	68.2	-9.33	208	147	V
* 15.72425	36.52	PK-U	40.1	-21	0	55.62	-	-	74	-18.38	-	-	360	100	H
* 15.72369	36.24	PK-U	40.1	-21	0	55.34	-	-	74	-18.66	-	-	360	100	V

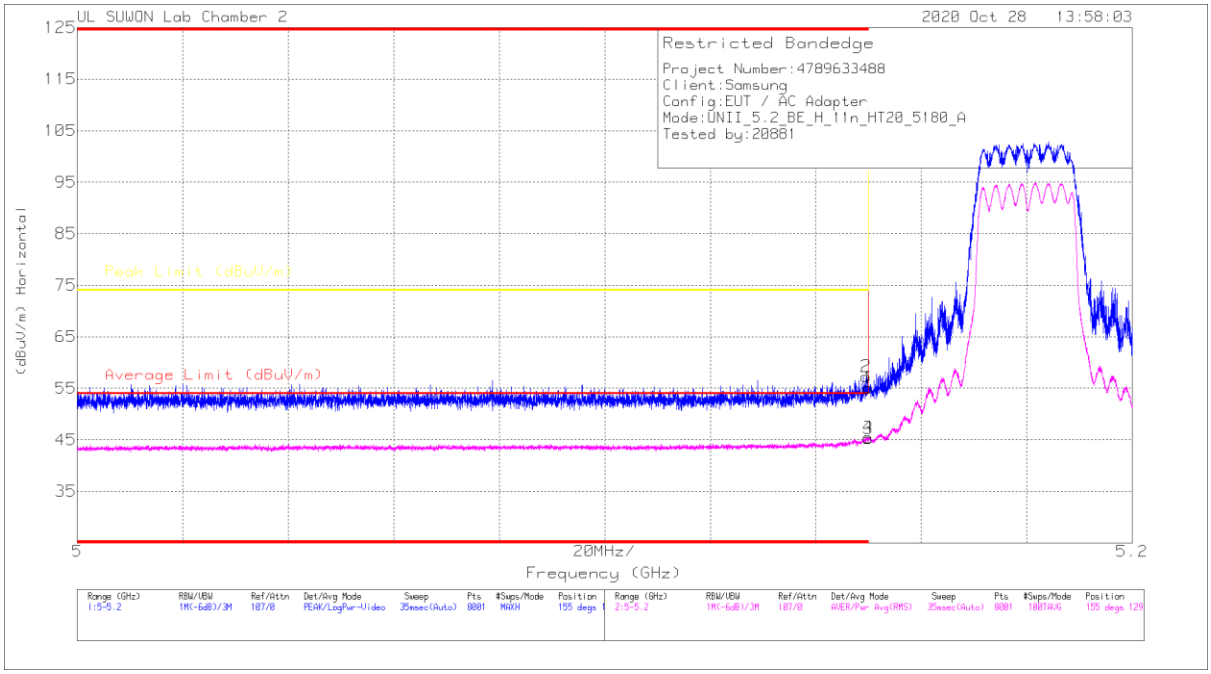
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK-U - U-NII: Maximum Peak

11.1.2. TX ABOVE 1GHz 802.11n HT20 2Tx MODE IN THE 5.2GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL PEAK AND AVERAGE DATA



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	10dB_ATT[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.15	38.39	Pk	34.4	-17.7	0	55.09	-	-	74	-18.91	155	129	H
2	* 5.14955	40.59	Pk	34.4	-17.7	0	57.29	-	-	74	-16.71	155	129	H
3	5.15	28.59	RMS	34.4	-17.7	0	45.29	54	-8.71	-	-	155	129	H
4	* 5.14995	28.77	RMS	34.4	-17.7	0	45.47	54	-8.53	-	-	155	129	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection