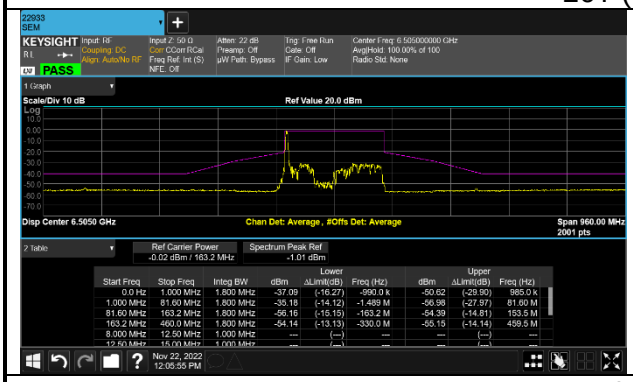
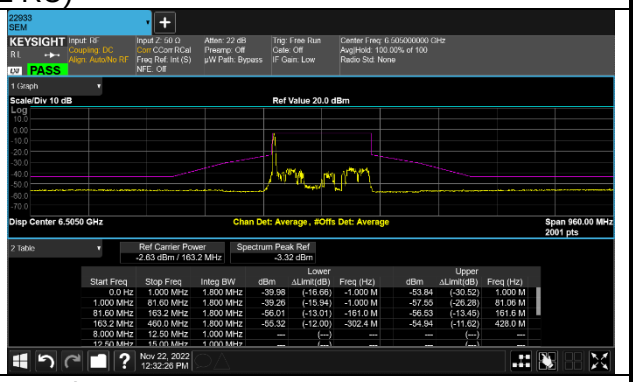
- 6XD

802.11 ax HE160 / UNII-6 / CH111 6505 MHz	
ANT1	ANT2
26T (0L RU)	
	
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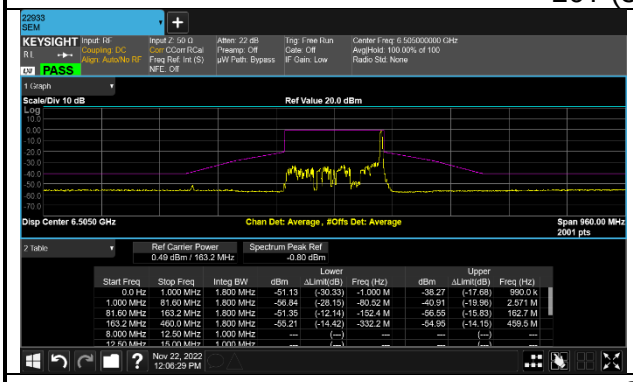	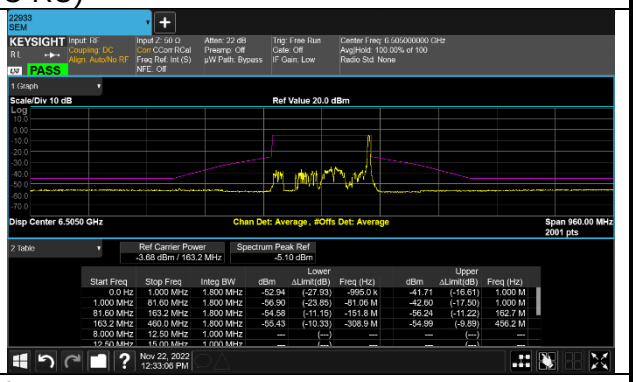
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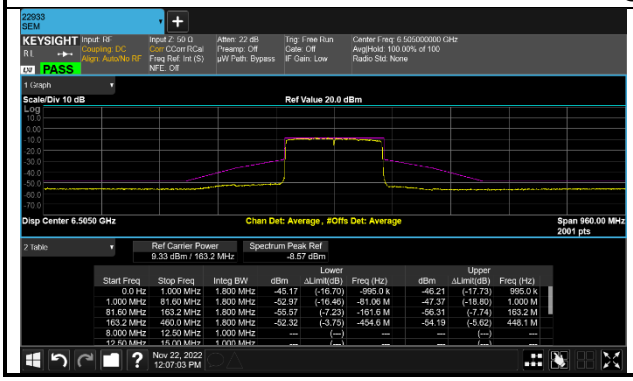	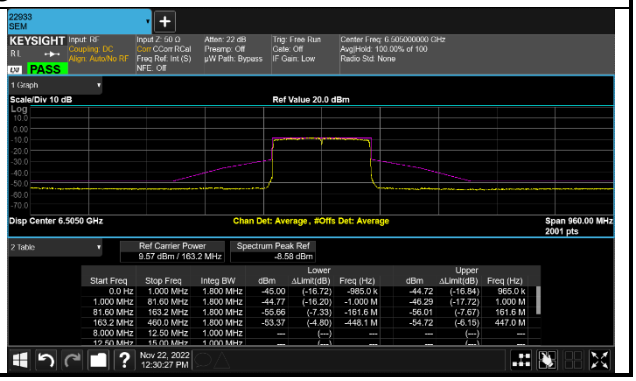

- 6CD

802.11 ax HE160 / UNII-7 / CH143 6665 MHz	
ANT1	ANT2
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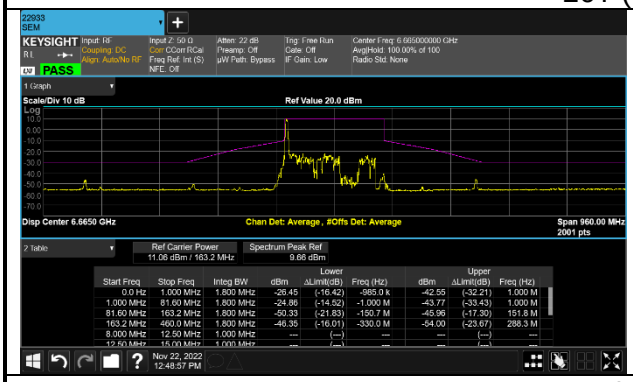	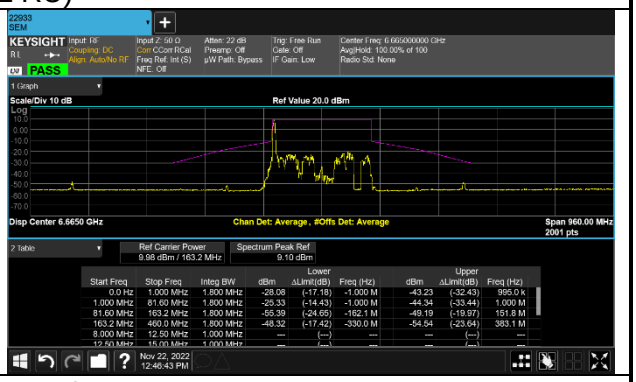
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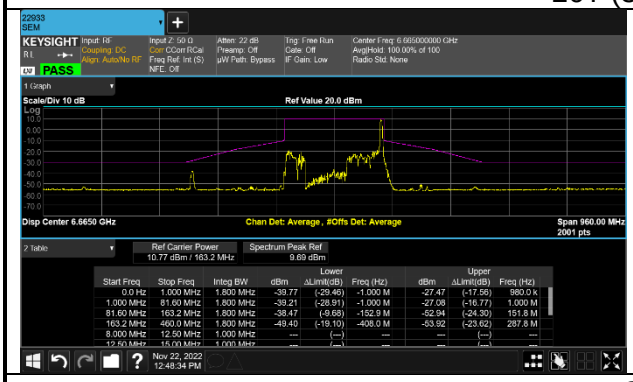	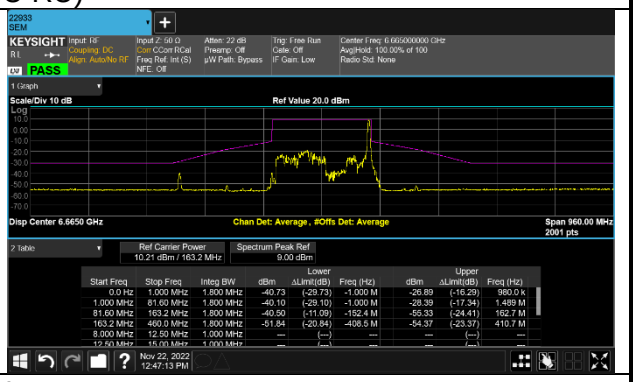
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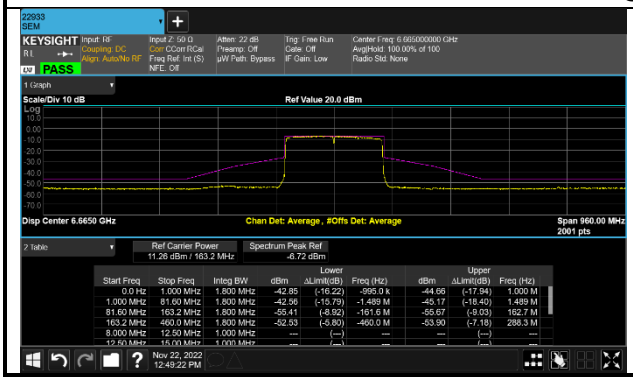
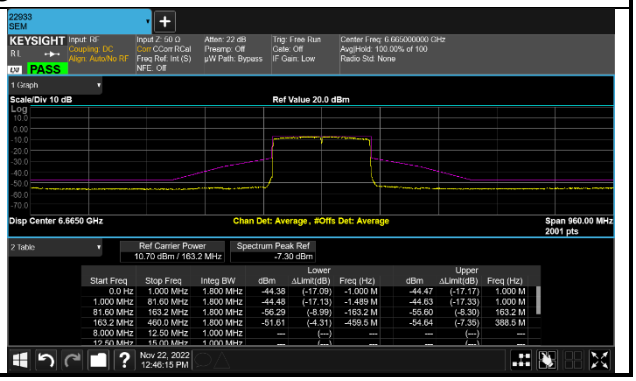
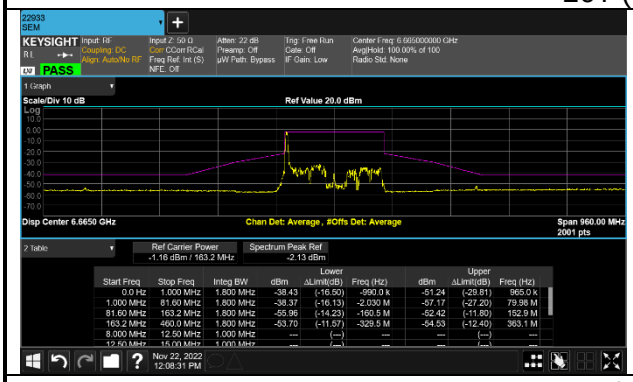
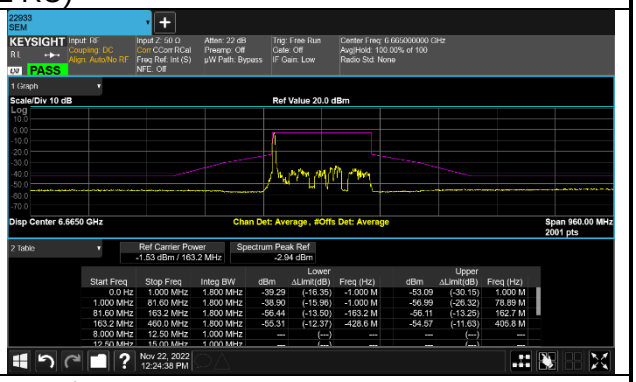
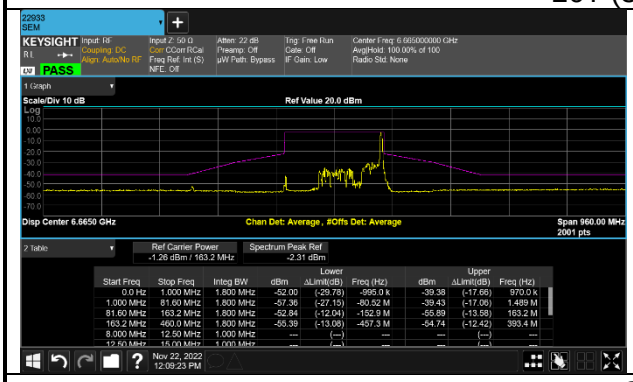
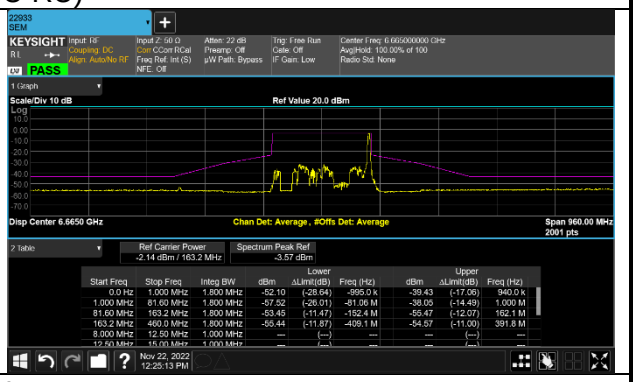
	

- 6XD

802.11 ax HE160 / UNII-7 / CH143 6665 MHz	
ANT1	ANT2
26T (0L RU)	
	
26T (36U RU)	
	
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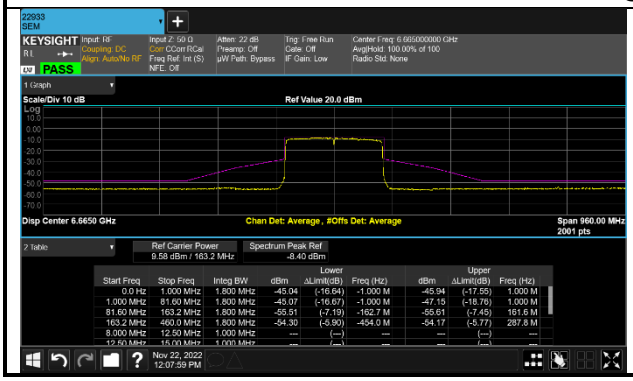
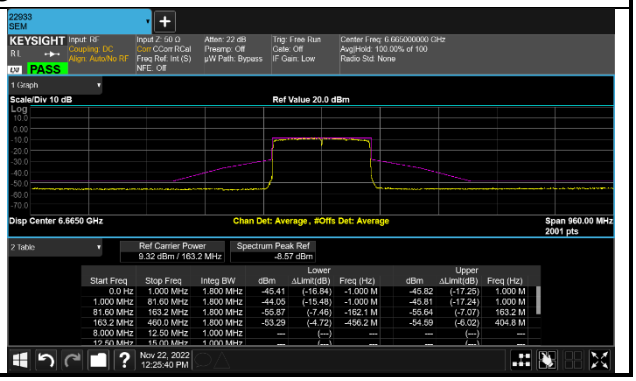
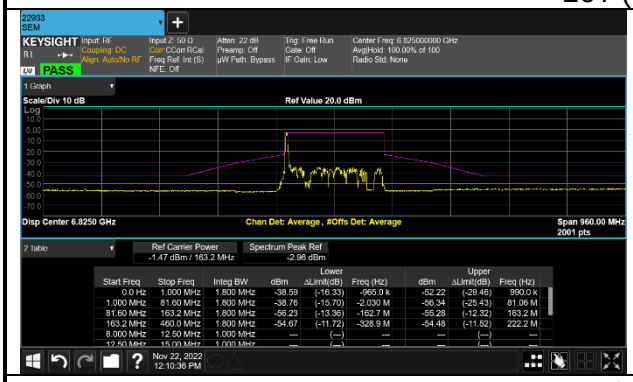
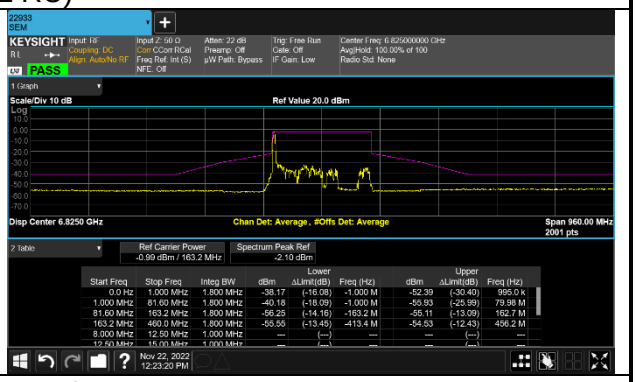
	

- 6XD

802.11 ax HE160 / UNII-7 / CH175 6825 MHz	
ANT1	ANT2
26T (0L RU)	
	
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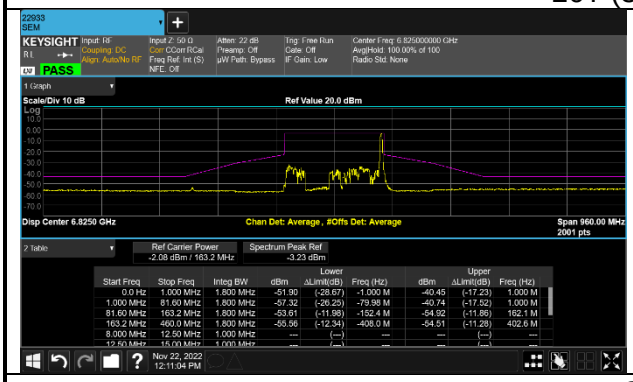	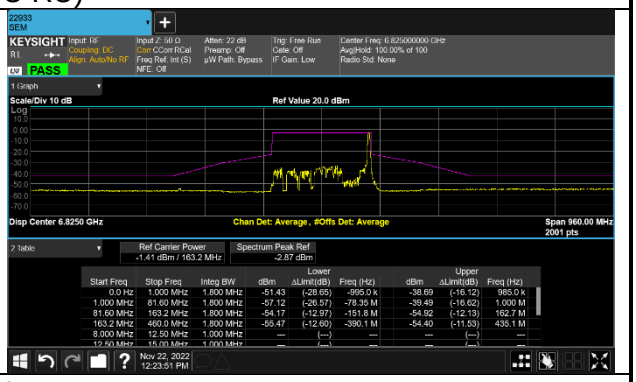
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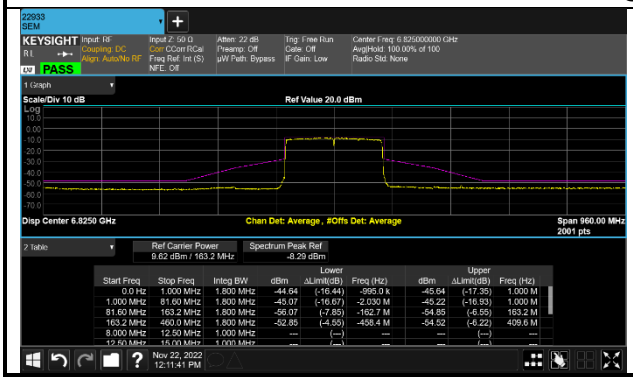
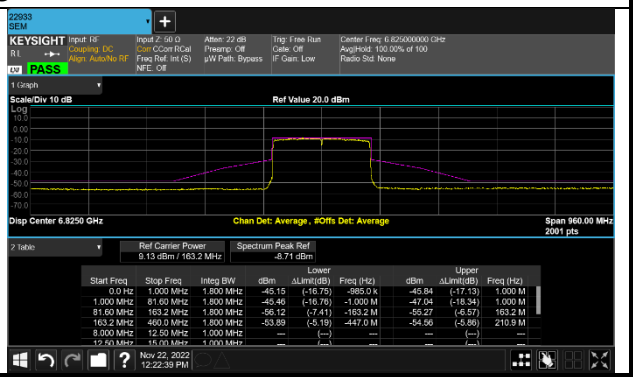
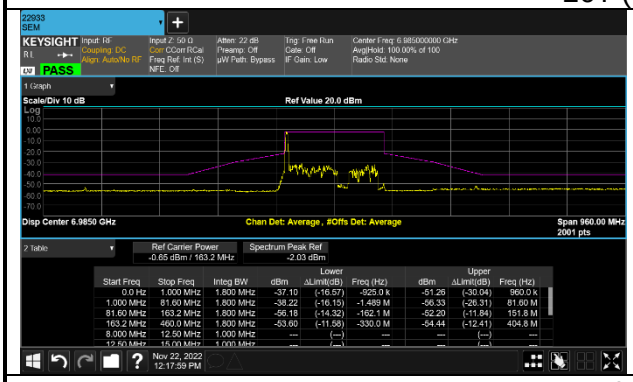
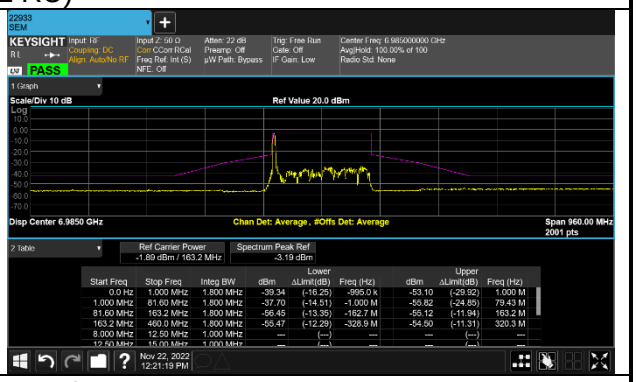
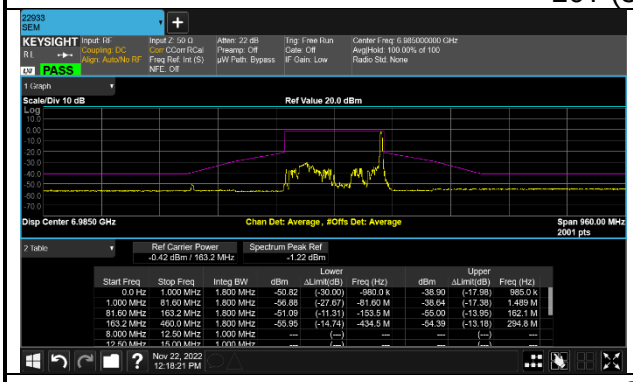
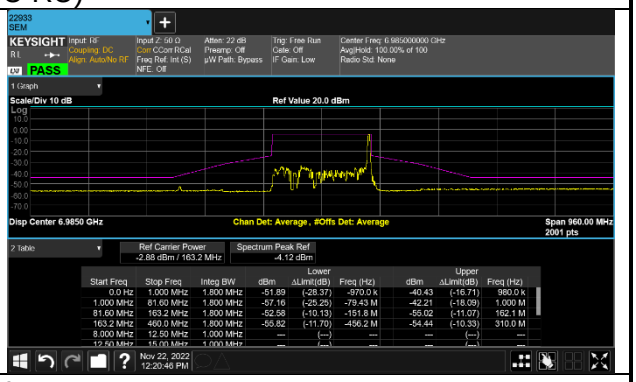
	

- 6XD

802.11 ax HE160 / UNII-8 / CH207 6985 MHz	
ANT1	ANT2
26T (0L RU)	
	
26T (36U RU)	
	
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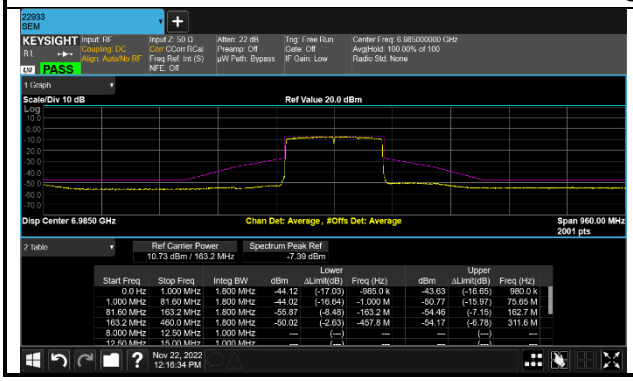	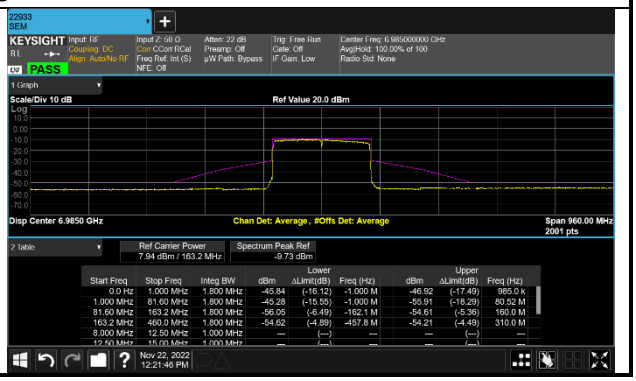

11. TRANSMITTER ABOVE 1 GHz

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)

(6) For transmitters operating within the 5.925-7.125 GHz band: Any emissions outside of the 5.925-7.125 GHz band must not exceed an e.i.r.p. of −27 dBm/MHz.

(8) 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.

(9) 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.

(10) The provisions of §15.205 apply to intentional radiators operating under this section.

(11) 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

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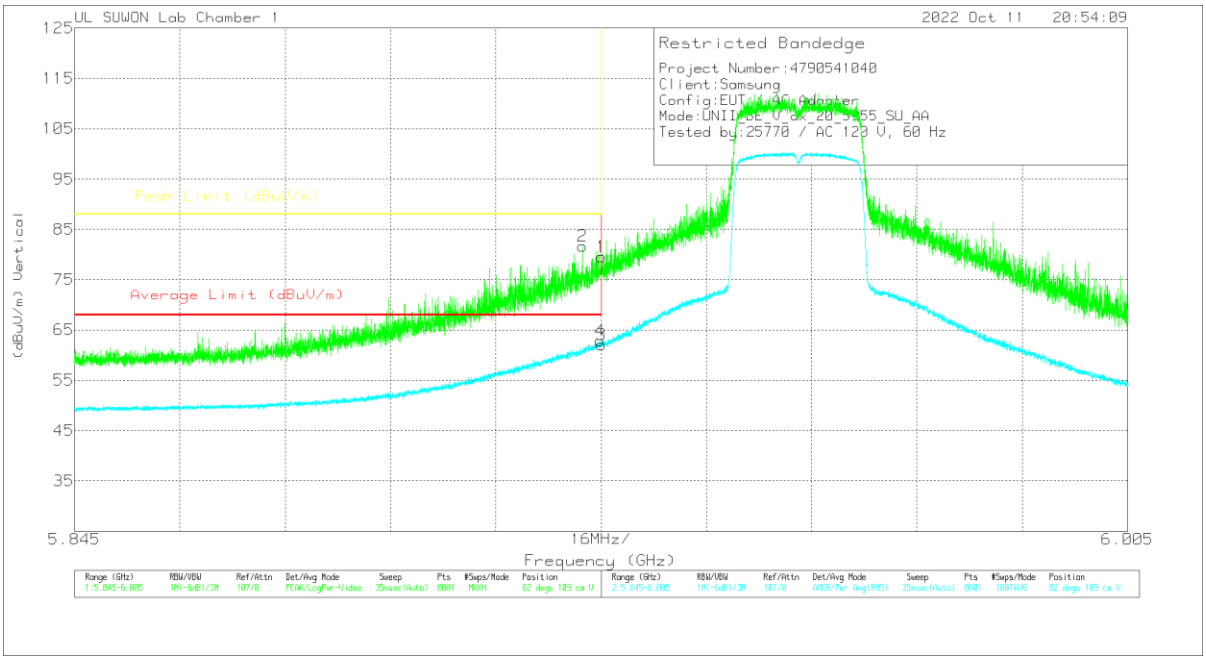
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16675, Korea TEL: (031) 337-9902 FAX: (031) 213-5433

11.1. TX ABOVE 1GHz 2Tx MODE IN U-NII-5 BAND

BANDEDGE (WORST CASE: 802.11ax HE20 / 5955 MHz / SU Mode)

VERTICAL PEAK AND AVERAGE DATA



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	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	5.925	61.42	Pk	35	-16.9	0	79.52	-	-	88	-8.48	82	109	V
2	5.92216	63.53	Pk	35	-16.9	0	81.63	-	-	88	-6.37	82	109	V
3	5.925	43.98	RMS	35	-16.9	0	62.08	68	-5.92	-	-	82	109	V
4	5.92486	44.83	RMS	35	-17	0	62.83	68	-5.17	-	-	82	109	V

Pk - Peak detector
RMS - RMS detection

BANDEDGE TEST DATA

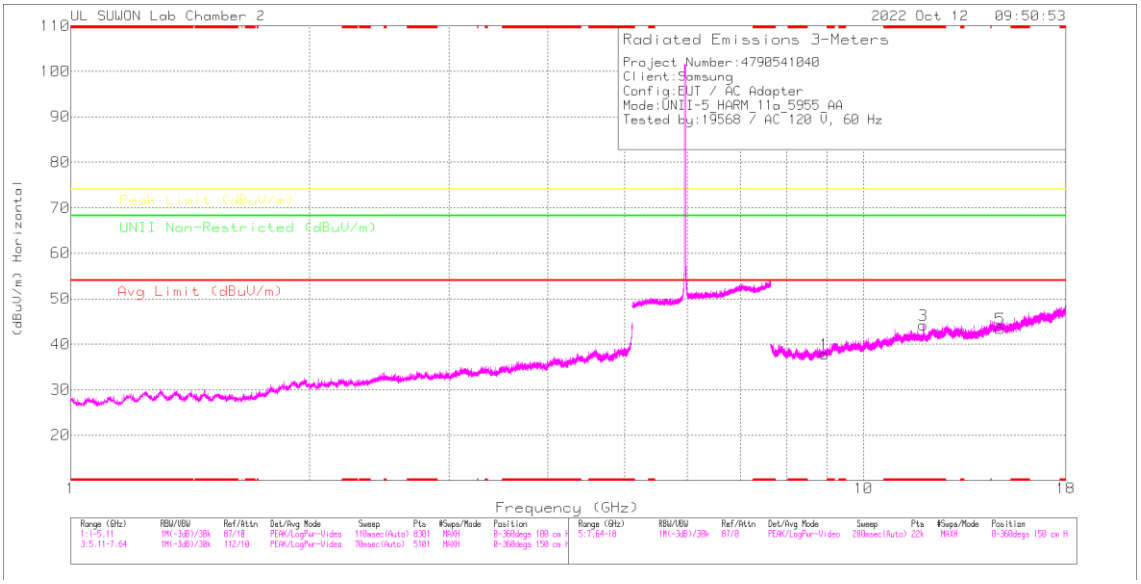
Mode	Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBuV]	Detector Mode	ANT Factor	Loss [dB]	DC Corr [dB]	Result [dBuV/m]	AV Limit [dBuV/m]	AV Margin [dB]	PK Limit [dBuV/m]	PK Margin [dB]	Azimuth [Degs]	Height [cm]	Polarity
802.11a	5955	MIMO	5.92500	38.40	Pk	34.90	-16.50	0.00	56.80	-	-	88.00	-31.20	111	255	H
			5.92460	41.63	Pk	34.90	-16.50	0.00	60.03	-	-	88.00	-27.97	111	255	H
			5.92500	28.85	RMS	34.90	-16.50	0.16	47.41	68.00	-20.59	-	-	111	255	H
			5.92498	29.40	RMS	34.90	-16.50	0.16	47.96	68.00	-20.04	-	-	111	255	H
			5.92500	42.26	Pk	34.90	-16.50	0.00	60.66	-	-	88.00	-27.34	95	104	V
			5.92362	43.65	Pk	34.90	-16.50	0.00	62.05	-	-	88.00	-25.95	95	104	V
			5.92500	28.80	RMS	34.90	-16.50	0.16	47.36	68.00	-20.64	-	-	95	104	V
			5.92288	28.97	RMS	34.90	-16.40	0.16	47.63	68.00	-20.37	-	-	95	104	V
802.11ax (HE20) SU	5955	MIMO	5.92500	60.01	Pk	35.00	-20.80	0.00	74.21	-	-	88.00	-13.79	115	262	H
			5.92450	64.06	Pk	35.00	-20.80	0.00	78.26	-	-	88.00	-9.74	115	262	H
			5.92500	44.00	RMS	35.00	-20.80	0.00	58.20	68.00	-9.80	-	-	115	262	H
			5.92496	44.55	RMS	35.00	-20.80	0.00	58.75	68.00	-9.25	-	-	115	262	H
			5.92500	61.42	Pk	35.00	-16.90	0.00	79.52	-	-	88.00	-8.48	82	109	V
			5.92216	63.53	Pk	35.00	-16.90	0.00	81.63	-	-	88.00	**-6.37**	82	109	V
			5.92500	43.98	RMS	35.00	-16.90	0.00	62.08	68.00	-5.92	-	-	82	109	V
			5.92486	44.83	RMS	35.00	-17.00	0.00	62.83	68.00	**-5.17**	-	-	82	109	V
802.11ax (HE40) SU	5965	MIMO	5.92500	55.80	Pk	35.00	-20.80	0.00	70.00	-	-	88.00	-18.00	109	227	H
			5.92170	56.18	Pk	35.00	-20.80	0.00	70.38	-	-	88.00	-17.62	109	227	H
			5.92500	37.31	RMS	35.00	-20.80	0.00	51.51	68.00	-16.49	-	-	109	227	H
			5.92450	38.02	RMS	35.00	-20.80	0.00	52.22	68.00	-15.78	-	-	109	227	H
			5.92500	51.30	Pk	35.00	-16.90	0.00	69.40	-	-	88.00	-18.60	81	134	V
			5.92472	56.46	Pk	35.00	-17.00	0.00	74.46	-	-	88.00	-13.54	81	134	V
			5.92500	36.69	RMS	35.00	-16.90	0.00	54.79	68.00	-13.21	-	-	81	134	V
			5.92488	37.36	RMS	35.00	-17.00	0.00	55.36	68.00	-12.64	-	-	81	134	V
802.11ax (HE80) SU	5985	MIMO	5.92499	54.89	Pk	36.00	-19.30	0.00	71.59	-	-	88.00	-16.41	110	242	H
			5.91507	58.31	Pk	36.00	-19.30	0.00	75.01	-	-	88.00	-12.99	110	242	H
			5.92499	44.14	RMS	36.00	-19.30	0.00	60.84	68.00	-7.16	-	-	110	242	H
			5.92277	44.98	RMS	36.00	-19.30	0.00	61.68	68.00	-6.32	-	-	110	242	H
			5.92499	56.24	Pk	36.00	-19.30	0.00	72.94	-	-	88.00	-15.06	91	115	V
			5.91425	59.49	Pk	36.00	-19.30	0.00	76.19	-	-	88.00	-11.81	91	115	V
			5.92499	45.70	RMS	36.00	-19.30	0.00	62.40	68.00	-5.60	-	-	91	115	V
			5.92047	45.99	RMS	36.00	-19.30	0.00	62.69	68.00	-5.31	-	-	91	115	V
802.11ax (HE160) SU	6025	MIMO	5.92499	40.39	Pk	36.00	-19.30	0.00	57.09	-	-	88.00	-30.91	110	244	H
			5.89951	44.05	Pk	36.00	-19.30	0.00	60.75	-	-	88.00	-27.25	110	244	H
			5.92499	30.73	RMS	36.00	-19.30	0.00	47.43	68.00	-20.57	-	-	110	244	H
			5.91311	31.79	RMS	36.00	-19.30	0.00	48.49	68.00	-19.51	-	-	110	244	H
			5.92499	39.96	Pk	36.00	-19.30	0.00	56.66	-	-	88.00	-31.34	87	115	V
			5.91193	43.26	Pk	36.00	-19.30	0.00	59.96	-	-	88.00	-28.04	87	115	V
			5.92499	30.12	RMS	36.00	-19.30	0.00	46.82	68.00	-21.18	-	-	87	115	V
			5.90979	31.62	RMS	36.00	-19.30	0.00	48.32	68.00	-19.68	-	-	87	115	V

Note1. Pk - Peak detector, RMS - RMS detectior
Note2. * - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

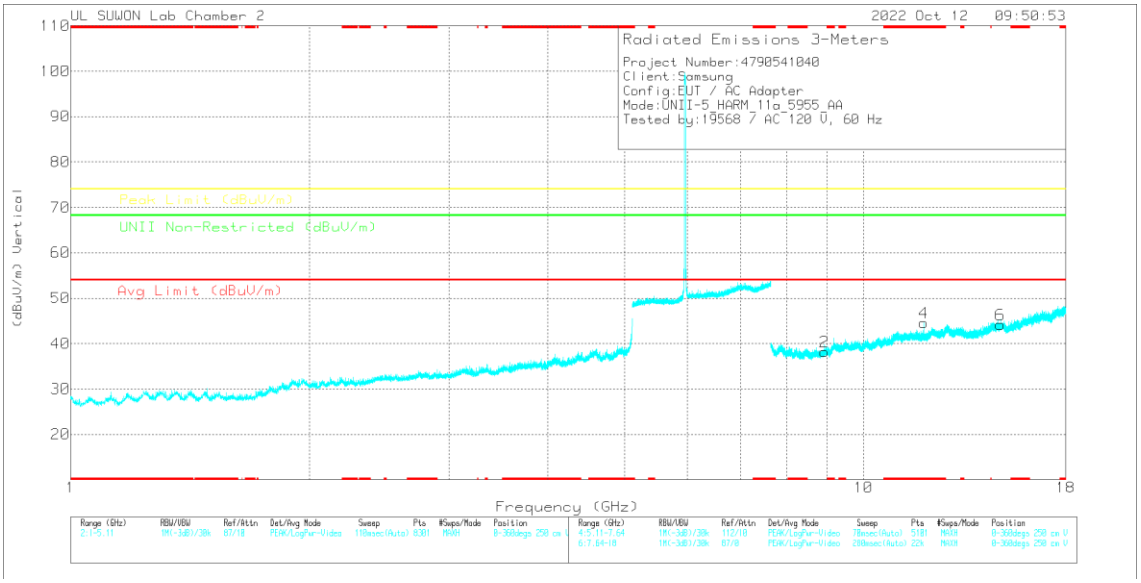
UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15E(04)
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16675, Korea TEL: (031) 337-9902 FAX: (031) 213-5433

HARMONICS AND SPURIOUS EMISSIONS(WORST CASE: 802.11a / 5955 MHz)

HORIZONTAL



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.

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	8GHz 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
8.93363	35.05	PK-U	36.3	-22.3	0	49.05	-	-	-	-	68.2	-19.15	0	100	H
8.93059	35.29	PK-U	36.3	-22.3	0	49.29	-	-	-	-	68.2	-18.91	0	100	V
* 11.90699	41	PK-U	38.5	-19.8	0	59.7	-	-	74	-14.3	-	-	100	125	H
* 11.90799	25.43	ADR	38.5	-19.9	.16	44.19	54	-9.81	-	-	-	-	100	125	H
* 11.90896	36.36	PK-U	38.5	-19.9	0	54.96	-	-	74	-19.04	-	-	92	104	V
* 11.90791	23	ADR	38.5	-19.9	.16	41.76	54	-12.24	-	-	-	-	92	104	V
14.88532	35.3	PK-U	39.7	-19.9	0	55.1	-	-	-	-	68.2	-13.1	0	100	H
14.87749	35.56	PK-U	39.7	-19.9	0	55.36	-	-	-	-	68.2	-12.84	0	100	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK-U - U-NII: Maximum Peak
ADR - U-NII AD primary method, RMS average

HARMONICS AND SPURIOUS EMISSIONS TEST DATA

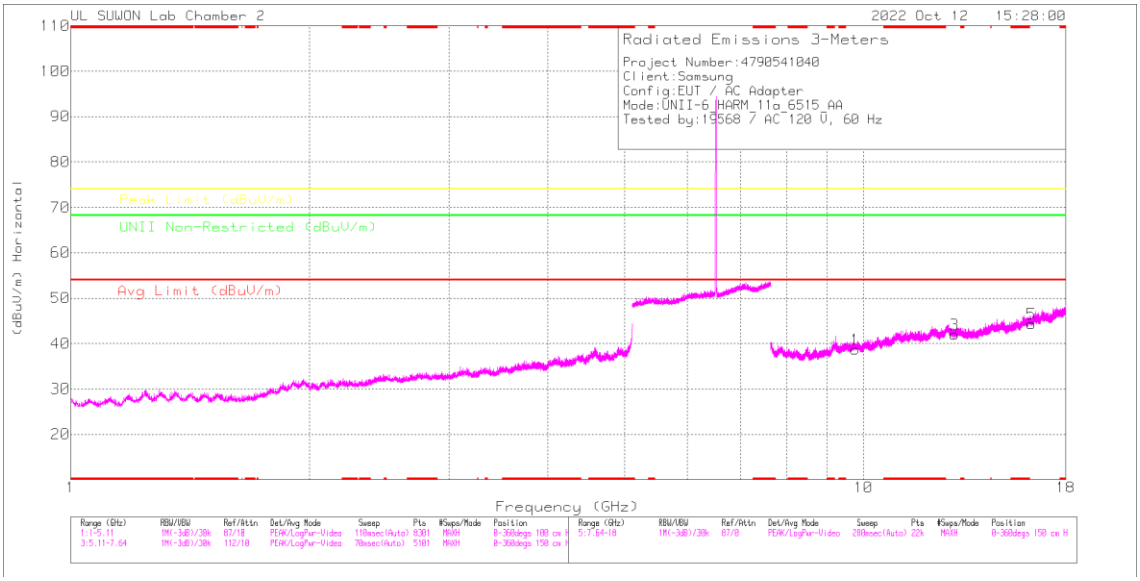
Mode	Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBuV]	Detector Mode	ANT Factor	Loss [dB]	DC Corr [dB]	Result [dBuV/m]	AV Limit [dBuV/m]	AV Margin [dB]	PK Limit [dBuV/m]	PK Margin [dB]	Non-Restricted [dBuV/m]	Margin [dB]	Azimuth [Degs]	Height [cm]	Polarity
802.11a	5955	MIMO	8.93363	35.05	PK-U	36.30	-22.30	0.00	49.05	-	-	-	-	68.20	-19.15	0	100	H
			8.93059	35.29	PK-U	36.30	-22.30	0.00	49.29	-	-	-	-	68.20	-18.91	0	100	V
			* 11.90699	41.00	PK-U	38.50	-19.80	0.00	59.70	-	-	74.00	**-14.30**	-	-	100	125	H
			* 11.90799	25.43	ADR	38.50	-19.90	0.16	44.19	54.00	**-9.81**	-	-	-	-	100	125	H
			* 11.90896	36.36	PK-U	38.50	-19.90	0.00	54.96	-	-	74.00	-19.04	-	-	92	104	V
			* 11.90791	23.00	ADR	38.50	-19.90	0.16	41.76	54.00	-12.24	-	-	-	-	92	104	V
			14.88532	35.30	PK-U	39.70	-19.90	0.00	55.10	-	-	-	-	68.20	-13.10	0	100	H
			14.87749	35.56	PK-U	39.70	-19.90	0.00	55.36	-	-	-	-	68.20	**-12.84**	0	100	V
	6175	MIMO	9.26034	35.29	PK-U	36.60	-21.80	0.00	50.09	-	-	-	-	68.20	-18.11	0	100	H
			9.26123	35.27	PK-U	36.60	-21.80	0.00	50.07	-	-	-	-	68.20	-18.13	0	100	V
			* 12.35239	35.84	PK-U	38.80	-19.40	0.00	55.24	-	-	74.00	-18.76	-	-	100	104	H
			* 12.34909	22.60	ADR	38.80	-19.40	0.16	42.16	54.00	-11.84	-	-	-	-	100	104	H
			* 12.35812	33.98	PK-U	38.80	-19.30	0.00	53.48	-	-	74.00	-20.52	-	-	162	102	V
			* 12.35037	21.86	ADR	38.80	-19.40	0.16	41.42	54.00	-12.58	-	-	-	-	162	102	V
			* 15.43975	34.02	PK-U	39.90	-19.20	0.00	54.72	-	-	74.00	-19.28	-	-	0	100	H
			* 15.43431	33.94	PK-U	39.90	-19.20	0.00	54.64	-	-	74.00	-19.36	-	-	0	100	V
	6415	MIMO	9.62652	34.95	PK-U	37.00	-21.60	0.00	50.35	-	-	-	-	68.20	-17.85	0	100	H
			9.61300	34.81	PK-U	36.90	-21.60	0.00	50.11	-	-	-	-	68.20	-18.09	0	100	V
			12.83620	34.11	PK-U	39.10	-19.90	0.00	53.31	-	-	-	-	68.20	-14.89	0	100	H
			12.84232	34.70	PK-U	39.10	-19.90	0.00	53.90	-	-	-	-	68.20	-14.30	0	100	V
			* 16.02641	34.24	PK-U	40.50	-19.30	0.00	55.44	-	-	74.00	-18.56	-	-	0	100	H
			* 16.03024	34.23	PK-U	40.50	-19.20	0.00	55.53	-	-	74.00	-18.47	-	-	0	100	V
802.11ax (HE20) 8RU Spot-Check	6415	MIMO	* 8.33938	35.66	PK-U	36.20	-23.00	0.00	48.86	-	-	74.00	-25.14	-	-	360	100	H
			* 8.33937	36.00	PK-U	36.20	-23.00	0.00	49.20	-	-	74.00	-24.80	-	-	360	100	V
			9.65274	34.18	PK-U	37.40	-21.60	0.00	49.98	-	-	-	-	68.20	-18.22	360	100	H
			9.65252	34.43	PK-U	37.40	-21.60	0.00	50.23	-	-	-	-	68.20	-17.97	360	100	V
			12.87082	34.81	PK-U	39.50	-22.30	0.00	52.01	-	-	-	-	68.20	-16.19	360	100	H
			12.87063	35.36	PK-U	39.50	-22.30	0.00	52.56	-	-	-	-	68.20	-15.64	360	100	V
802.11ax (HE80) 0RU Spot-Check	6385	MIMO	9.58623	33.79	PK-U	37.30	-21.50	0.00	49.59	-	-	-	-	68.20	-18.61	0	100	H
			9.57580	34.27	PK-U	37.30	-21.40	0.00	50.17	-	-	-	-	68.20	-18.03	0	100	V
			12.78075	34.05	PK-U	39.50	-22.70	0.00	50.85	-	-	-	-	68.20	-17.35	0	100	H
			12.76175	34.60	PK-U	39.50	-22.70	0.00	51.40	-	-	-	-	68.20	-16.80	0	100	V
			* 15.96507	33.55	PK-U	40.90	-20.20	0.00	54.25	-	-	74.00	-19.75	-	-	0	100	H
			* 15.96401	33.95	PK-U	40.90	-20.20	0.00	54.65	-	-	74.00	-19.35	-	-	0	100	V
802.11ax (HE160) 0RU Spot-Check	6185	MIMO	9.28238	33.38	PK-U	37.10	-21.20	0.00	49.28	-	-	-	-	68.20	-18.92	0	100	H
			9.28451	33.20	PK-U	37.10	-21.20	0.00	49.10	-	-	-	-	68.20	-19.10	0	100	V
			* 12.37107	34.35	PK-U	39.30	-22.10	0.00	51.55	-	-	74.00	-22.45	-	-	0	100	H
			* 12.37728	34.91	PK-U	39.30	-22.10	0.00	52.11	-	-	74.00	-21.89	-	-	0	100	V
			* 15.46452	34.07	PK-U	40.20	-21.40	0.00	52.87	-	-	74.00	-21.13	-	-	0	100	H
			* 15.46172	33.93	PK-U	40.20	-21.40	0.00	52.73	-	-	74.00	-21.27	-	-	0	100	V

Note1. PK-U - U-NII: Maximum Peak
Note2. * - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

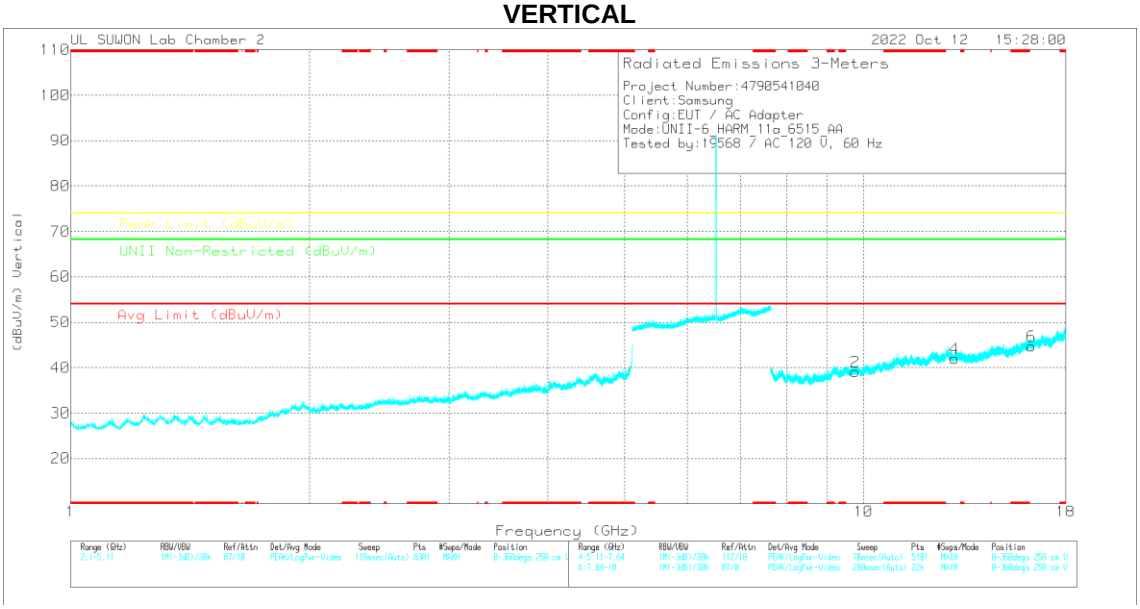
11.2. TX ABOVE 1GHz 2Tx MODE IN U-NII-6 BAND

HARMONICS AND SPURIOUS EMISSIONS(WORST CASE: 802.11a / 6515 MHz)

HORIZONTAL



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.

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	8GHz 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
9.76277	33.98	PK-U	37.1	-21.2	0	49.88	-	-	-	-	68.2	-18.32	0	100	H
9.77372	34.72	PK-U	37.1	-21.2	0	50.62	-	-	-	-	68.2	-17.58	0	100	V
13.03844	34.7	PK-U	39	-20.1	0	53.6	-	-	-	-	68.2	-14.6	0	100	H
13.03095	34.3	PK-U	39	-20.1	0	53.2	-	-	-	-	68.2	-15	0	100	V
16.27844	34.49	PK-U	40.6	-19.4	0	55.69	-	-	-	-	68.2	-12.51	0	100	H
16.29406	34.87	PK-U	40.6	-19.5	0	55.97	-	-	-	-	68.2	-12.23	0	100	V

PK-U - U-NII: Maximum Peak

HARMONICS AND SPURIOUS EMISSIONS TEST DATA

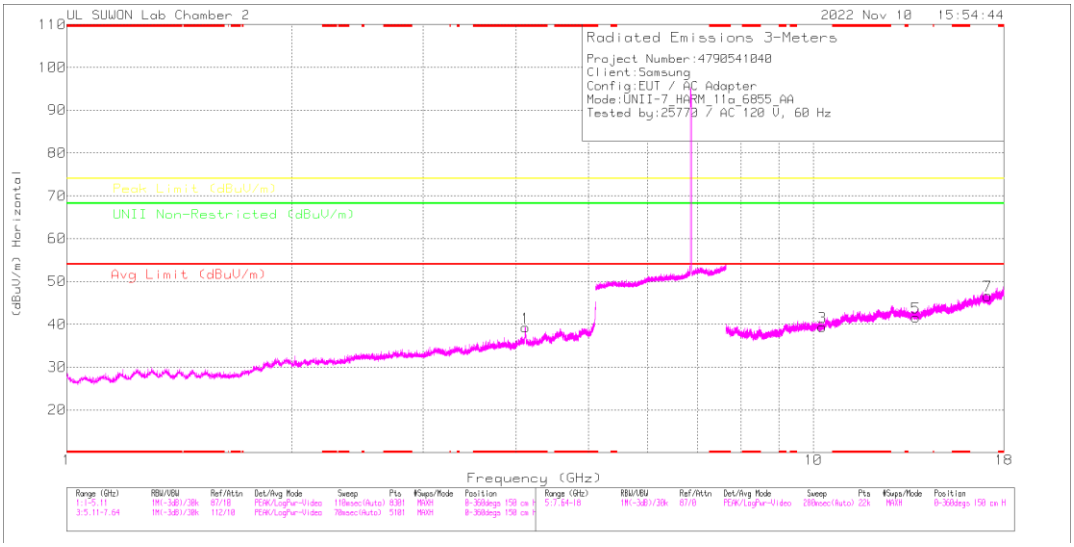
Mode	Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBuV]	Detector Mode	ANT Factor	Loss [dB]	DC Corr [dB]	Result [dBuV/m]	AV Limit [dBuV/m]	AV Margin [dB]	PK Limit [dBuV/m]	PK Margin [dB]	Non-Restricted [dBuV/m]	Margin [dB]	Azimuth [Degs]	Height [cm]	Polarity
802.11a	6435	MIMO	9.65361	34.65	PK-U	37.00	-21.60	0.00	50.05	-	-	-	-	68.20	-18.15	0	100	H
			9.64451	34.54	PK-U	37.00	-21.60	0.00	49.94	-	-	-	-	68.20	-18.26	0	100	V
			12.86869	35.25	PK-U	39.10	-20.00	0.00	54.35	-	-	-	-	68.20	-13.85	0	100	H
			12.87095	34.68	PK-U	39.10	-20.00	0.00	53.78	-	-	-	-	68.20	-14.42	0	100	V
			* 16.08162	34.26	PK-U	40.60	-19.30	0.00	55.56	-	-	74.00	-18.44	-	-	0	100	H
			* 16.08059	34.92	PK-U	40.60	-19.30	0.00	56.22	-	-	74.00	**-17.78**	-	-	0	100	V
	6475	MIMO	9.70938	34.03	PK-U	37.10	-21.10	0.00	50.03	-	-	-	-	68.20	-18.17	0	100	H
			9.71902	33.97	PK-U	37.10	-21.20	0.00	49.87	-	-	-	-	68.20	-18.33	0	100	V
			12.95271	34.22	PK-U	39.10	-20.20	0.00	53.12	-	-	-	-	68.20	-15.08	0	100	H
			12.94863	34.39	PK-U	39.10	-20.20	0.00	53.29	-	-	-	-	68.20	-14.91	0	100	V
			* 16.18601	34.97	PK-U	40.60	-19.60	0.00	55.97	-	-	74.00	-18.03	-	-	0	100	H
			* 16.18542	34.38	PK-U	40.60	-19.60	0.00	55.38	-	-	74.00	-18.62	-	-	0	100	V
	6515	MIMO	9.76277	33.98	PK-U	37.10	-21.20	0.00	49.88	-	-	-	-	68.20	-18.32	0	100	H
			9.77372	34.72	PK-U	37.10	-21.20	0.00	50.62	-	-	-	-	68.20	-17.58	0	100	V
			13.03844	34.70	PK-U	39.00	-20.10	0.00	53.60	-	-	-	-	68.20	-14.60	0	100	H
			13.03095	34.30	PK-U	39.00	-20.10	0.00	53.20	-	-	-	-	68.20	-15.00	0	100	V
			16.27844	34.49	PK-U	40.60	-19.40	0.00	55.69	-	-	-	-	68.20	-12.51	0	100	H
			16.29406	34.87	PK-U	40.60	-19.50	0.00	55.97	-	-	-	-	68.20	**-12.23**	0	100	V
802.11ax (HE20) 8RU Spot-Check	6435	MIMO	* 7.72248	37.14	PK-U	36.20	-23.50	0.00	49.84	-	-	74.00	-24.16	-	-	360	100	H
			* 7.72248	36.48	PK-U	36.20	-23.50	0.00	49.18	-	-	74.00	-24.82	-	-	360	100	V
			9.65280	34.16	PK-U	37.40	-21.60	0.00	49.96	-	-	-	-	68.20	-18.24	360	100	H
			9.65259	34.69	PK-U	37.40	-21.60	0.00	50.49	-	-	-	-	68.20	-17.71	360	100	V
			12.87073	35.01	PK-U	39.50	-22.30	0.00	52.21	-	-	-	-	68.20	-15.99	360	100	H
			12.87071	34.83	PK-U	39.50	-22.30	0.00	52.03	-	-	-	-	68.20	-16.17	360	100	V

Note1. PK-U - U-NII: Maximum Peak / ADR - U-NII AD primary method, RMS average
Note2. * - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

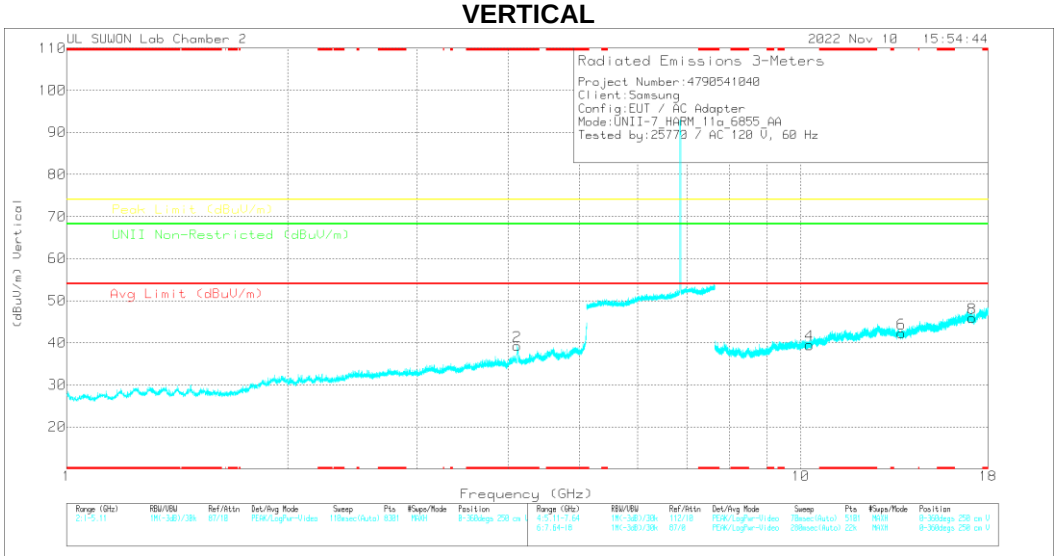
11.3. TX ABOVE 1GHz 2Tx MODE IN U-NII-7 BAND

HARMONICS AND SPURIOUS EMISSIONS(WORST CASE: 802.11a / 6855 MHz)

HORIZONTAL



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.

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	5GHz_LP[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
* 4.11696	43.58	PK-U	33.2	-27.2	0	49.58	-	-	74	-24.42	-	-	112	177	H
* 4.11772	32.65	ADR	33.2	-27.2	.16	38.81	54	-15.19	-	-	-	-	112	177	H
* 4.12023	44.87	PK-U	33.2	-27.3	0	50.77	-	-	74	-23.23	-	-	140	388	V
* 4.11769	33.51	ADR	33.2	-27.2	.16	39.67	54	-14.33	-	-	-	-	140	388	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK-U - U-NII: Maximum Peak
ADR - U-NII AD primary method, RMS average

Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	8GHz 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
10.29169	33.68	PK-U	37.6	-20.8	0	50.48	-	-	-	-	68.2	-17.72	0	100	H
10.27692	33.44	PK-U	37.6	-20.7	0	50.34	-	-	-	-	68.2	-17.86	0	100	V
13.71047	33.9	PK-U	38.6	-19.7	0	52.8	-	-	-	-	68.2	-15.4	0	100	H
13.70234	33.9	PK-U	38.6	-19.7	0	52.8	-	-	-	-	68.2	-15.4	0	100	V
17.1369	34.85	PK-U	41.2	-18.7	0	57.35	-	-	-	-	68.2	-10.85	0	100	H
17.13034	33.9	PK-U	41.2	-18.8	0	56.3	-	-	-	-	68.2	-11.9	0	100	V

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

HARMONICS AND SPURIOUS EMISSIONS TEST DATA

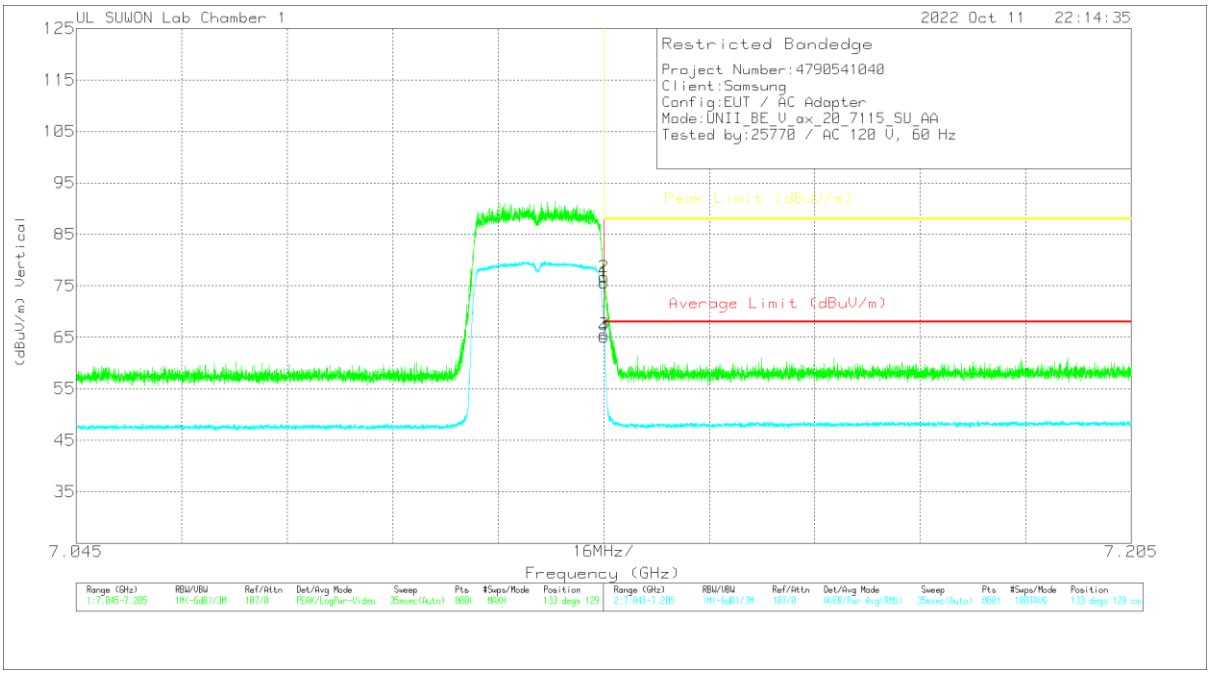
Note1. PK-U - U-NII: Maximum Peak / ADR - U-NII AD primary method, RMS average
Note2. * - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Mode	Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBuV]	Detector Mode	ANT Factor	Loss [dB]	DC Corr [dB]	Result [dBuV/m]	AV Limit [dBuV/m]	AV Margin [dB]	PK Limit [dBuV/m]	PK Margin [dB]	Non-Restricted [dBuV/m]	Margin [dB]	Azimuth [Degs]	Height [cm]	Polarity
802.11a	6535	MIMO	9.79517	34.42	PK-U	37.20	-21.30	0.00	50.32	-	-	-	-	68.20	-17.88	0	100	H
			9.79688	34.52	PK-U	37.20	-21.30	0.00	50.42	-	-	-	-	68.20	-17.78	0	100	V
			13.06839	34.24	PK-U	38.90	-19.90	0.00	53.24	-	-	-	-	68.20	-14.96	0	100	H
			13.06699	34.19	PK-U	38.90	-19.90	0.00	53.19	-	-	-	-	68.20	-15.01	0	100	V
			16.33236	34.23	PK-U	40.70	-19.40	0.00	55.53	-	-	-	-	68.20	-12.67	0	100	H
			16.34212	34.52	PK-U	40.70	-19.50	0.00	55.72	-	-	-	-	68.20	-12.48	0	100	V
	6695	MIMO	10.03785	33.35	PK-U	37.40	-20.80	0.00	49.95	-	-	-	-	68.20	-18.25	0	100	H
			10.04231	34.26	PK-U	37.40	-20.80	0.00	50.86	-	-	-	-	68.20	-17.34	0	100	V
			* 13.39716	34.16	PK-U	38.80	-20.40	0.00	52.56	-	-	74.00	-21.44	-	-	0	100	H
			* 13.38319	34.32	PK-U	38.90	-20.30	0.00	52.92	-	-	74.00	**-21.08**	-	-	0	100	V
			16.74213	34.09	PK-U	41.20	-18.90	0.00	56.39	-	-	-	-	68.20	-11.81	0	100	H
			16.74183	34.23	PK-U	41.20	-18.90	0.00	56.53	-	-	-	-	68.20	-11.67	0	100	V
	6855	MIMO	* 4.11696	43.58	PK-U	33.20	-27.20	0.00	49.58	-	-	74.00	-24.42	-	-	112	177	H
			* 4.11772	32.65	ADR	33.20	-27.20	0.16	38.81	54.00	-15.19	-	-	-	-	112	177	H
			* 4.12023	44.87	PK-U	33.20	-27.30	0.00	50.77	-	-	74.00	-23.23	-	-	140	388	V
			* 4.11769	33.51	ADR	33.20	-27.20	0.16	39.67	54.00	**-14.33**	-	-	-	-	140	388	V
			10.29169	33.68	PK-U	37.60	-20.80	0.00	50.48	-	-	-	-	68.20	-17.72	0	100	H
			10.27692	33.44	PK-U	37.60	-20.70	0.00	50.34	-	-	-	-	68.20	-17.86	0	100	V
			13.71047	33.90	PK-U	38.60	-19.70	0.00	52.80	-	-	-	-	68.20	-15.40	0	100	H
			13.70234	33.90	PK-U	38.60	-19.70	0.00	52.80	-	-	-	-	68.20	-15.40	0	100	V
			17.13690	34.85	PK-U	41.20	-18.70	0.00	57.35	-	-	-	-	68.20	**-10.85**	0	100	H
			17.13034	33.90	PK-U	41.20	-18.80	0.00	56.30	-	-	-	-	68.20	-11.90	0	100	V
802.11ax (HE20) 4RU Spot-Check	6535	MIMO	7.84132	35.77	PK-U	36.30	-23.00	0.00	49.07	-	-	-	-	68.20	-19.13	360	100	H
			7.84260	35.77	PK-U	36.30	-23.00	0.00	49.07	-	-	-	-	68.20	-19.13	360	100	V
			9.79995	33.51	PK-U	37.60	-21.40	0.00	49.71	-	-	-	-	68.20	-18.49	360	100	H
			9.80023	33.41	PK-U	37.60	-21.40	0.00	49.61	-	-	-	-	68.20	-18.59	360	100	V
			13.06943	35.82	PK-U	39.30	-22.10	0.00	53.02	-	-	-	-	68.20	-15.18	360	100	H
			13.07308	35.30	PK-U	39.30	-22.00	0.00	52.60	-	-	-	-	68.20	-15.60	360	100	V
802.11ax (HE40) 0RU Spot-Check	6565	MIMO	9.84184	33.05	PK-U	37.70	-21.50	0.00	49.25	-	-	-	-	68.20	-18.95	0	100	H
			9.83917	33.00	PK-U	37.70	-21.40	0.00	49.30	-	-	-	-	68.20	-18.90	0	100	V
			13.12345	34.29	PK-U	39.30	-21.80	0.00	51.79	-	-	-	-	68.20	-16.41	0	100	H
			13.12752	34.74	PK-U	39.30	-21.70	0.00	52.34	-	-	-	-	68.20	-15.86	0	100	V
			16.41589	32.49	PK-U	41.70	-19.80	0.00	54.39	-	-	-	-	68.20	-13.81	0	100	H
			16.41961	32.21	PK-U	41.80	-19.80	0.00	54.21	-	-	-	-	68.20	-13.99	0	100	V

11.4. TX ABOVE 1GHz 2Tx MODE IN U-NII-8 BAND

BANDEDGE (WORST CASE: 802.11ax HE20 / 7115 MHz)

VERTICAL PEAK DATA



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	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	7.12502	58.11	Pk	35.7	-18.2	0	75.61	-	-	88	-12.39	133	129	V
2	7.12506	59.19	Pk	35.7	-18.2	0	76.69	-	-	88	-11.31	133	129	V
3	7.12502	48.13	RMS	35.7	-18.2	0	65.63	68	-2.37	-	-	133	129	V
4	7.12506	47.61	RMS	35.7	-18.2	0	65.11	68	-2.89	-	-	133	129	V

Pk - Peak detector
RMS - RMS detection

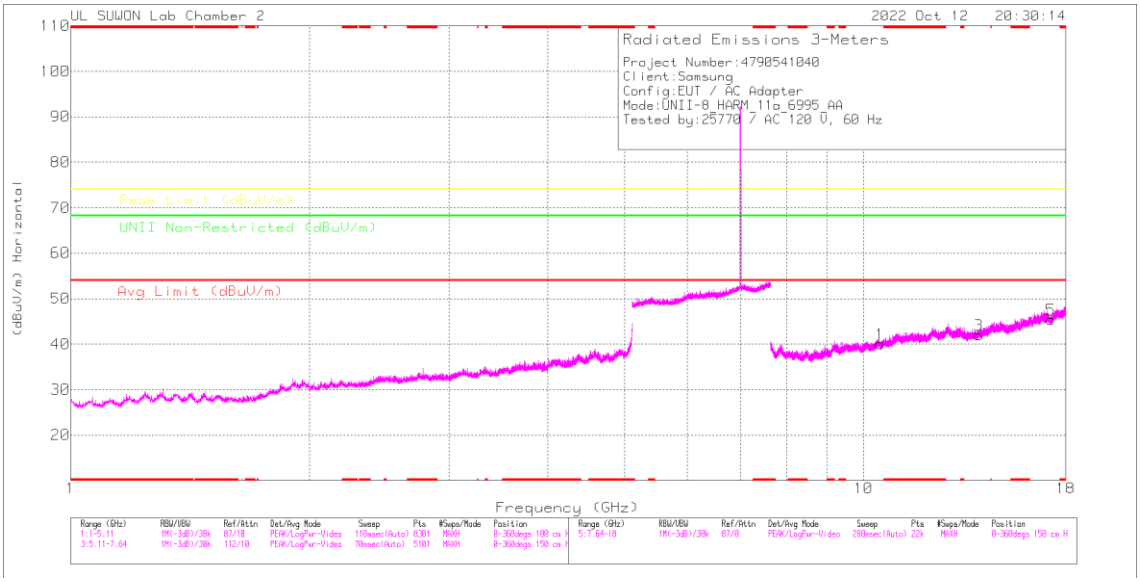
BANDEDGE TEST DATA

Mode	Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBuV]	Detector Mode	ANT Factor	Loss [dB]	DC Corr [dB]	Result [dBuV/m]	AV Limit [dBuV/m]	AV Margin [dB]	PK Limit [dBuV/m]	PK Margin [dB]	Azimuth [Degs]	Height [cm]	Polarity
802.11a	7115	MIMO	7.12502	50.98	Pk	35.60	-14.60	0.00	71.98	-	-	88.00	-16.02	68	109	H
			7.12506	54.27	Pk	35.60	-14.60	0.00	75.27	-	-	88.00	-12.73	68	109	H
			7.12502	35.90	RMS	35.60	-14.60	0.16	57.06	68.00	-10.94	-	-	68	109	H
			7.12512	34.93	RMS	35.60	-14.60	0.16	56.09	68.00	-11.91	-	-	68	109	H
			7.12502	50.52	Pk	35.60	-14.60	0.00	71.52	-	-	88.00	-16.48	92	171	V
			7.12510	49.87	Pk	35.60	-14.60	0.00	70.87	-	-	88.00	-17.13	92	171	V
			7.12502	34.14	RMS	35.60	-14.60	0.16	55.30	68.00	-12.70	-	-	92	171	V
			7.12508	33.41	RMS	35.60	-14.60	0.16	54.57	68.00	-13.43	-	-	92	171	V
802.11ax (HE20)	7115	MIMO	7.12551	58.26	Pk	36.10	-16.40	0.00	77.96	-	-	88.00	-10.04	66	108	H
			7.12555	58.69	Pk	36.10	-16.40	0.00	78.39	-	-	88.00	**-9.61**	66	108	H
			7.12551	41.54	RMS	36.10	-16.40	0.00	61.24	68.00	-6.76	-	-	66	108	H
			7.12561	38.65	RMS	36.10	-16.40	0.00	58.35	68.00	-9.65	-	-	66	108	H
			7.12502	58.11	Pk	35.70	-18.20	0.00	75.61	-	-	88.00	-12.39	133	129	V
			7.12506	59.19	Pk	35.70	-18.20	0.00	76.69	-	-	88.00	-11.31	133	129	V
			7.12502	48.13	RMS	35.70	-18.20	0.00	65.63	68.00	**-2.37**	-	-	133	129	V
			7.12506	47.61	RMS	35.70	-18.20	0.00	65.11	68.00	-2.89	-	-	133	129	V
802.11ax (HE40)	7085	MIMO	7.12502	40.55	Pk	35.70	-18.20	0.00	58.05	-	-	88.00	-29.95	66	251	H
			7.18580	43.25	Pk	35.70	-18.20	0.00	60.75	-	-	88.00	-27.25	66	251	H
			7.12502	30.27	RMS	35.70	-18.20	0.00	47.77	68.00	-20.23	-	-	66	251	H
			7.18284	31.39	RMS	35.70	-18.20	0.00	48.89	68.00	-19.11	-	-	66	251	H
			7.12502	40.24	Pk	35.70	-18.20	0.00	57.74	-	-	88.00	-30.26	129	158	V
			7.19658	44.60	Pk	35.80	-18.10	0.00	62.30	-	-	88.00	-25.70	129	158	V
			7.12502	30.27	RMS	35.70	-18.20	0.00	47.77	68.00	-20.23	-	-	129	158	V
			7.18674	31.27	RMS	35.70	-18.10	0.00	48.87	68.00	-19.13	-	-	129	158	V
802.11ax (HE80)	7025	MIMO	7.12501	36.14	Pk	36.10	-16.40	0.00	55.84	-	-	88.00	-32.16	114	228	H
			7.17414	38.96	Pk	36.10	-16.10	0.00	58.96	-	-	88.00	-29.04	114	228	H
			7.12501	26.58	RMS	36.10	-16.40	0.00	46.28	68.00	-21.72	-	-	114	228	H
			7.18068	27.40	RMS	36.10	-16.10	0.00	47.40	68.00	-20.60	-	-	114	228	H
			7.12501	36.09	Pk	36.10	-16.40	0.00	55.79	-	-	88.00	-32.21	276	100	V
			7.18924	39.20	Pk	36.10	-16.10	0.00	59.20	-	-	88.00	-28.80	276	100	V
			7.12501	26.05	RMS	36.10	-16.40	0.00	45.75	68.00	-22.25	-	-	276	100	V
			7.17552	27.27	RMS	36.10	-16.10	0.00	47.27	68.00	-20.73	-	-	276	100	V
802.11ax (HE160)	6985	MIMO	7.12501	36.46	Pk	36.10	-16.40	0.00	56.16	-	-	88.00	-31.84	109	241	H
			7.18358	38.72	Pk	36.10	-16.10	0.00	58.72	-	-	88.00	-29.28	109	241	H
			7.12501	26.62	RMS	36.10	-16.40	0.00	46.32	68.00	-21.68	-	-	109	241	H
			7.17968	27.33	RMS	36.10	-16.10	0.00	47.33	68.00	-20.67	-	-	109	241	H
			7.12501	35.34	Pk	36.10	-16.40	0.00	55.04	-	-	88.00	-32.96	279	105	V
			7.12983	39.25	Pk	36.10	-16.40	0.00	58.95	-	-	88.00	-29.05	279	105	V
			7.12501	26.23	RMS	36.10	-16.40	0.00	45.93	68.00	-22.07	-	-	279	105	V
			7.19222	27.25	RMS	36.10	-16.00	0.00	47.35	68.00	-20.65	-	-	279	105	V

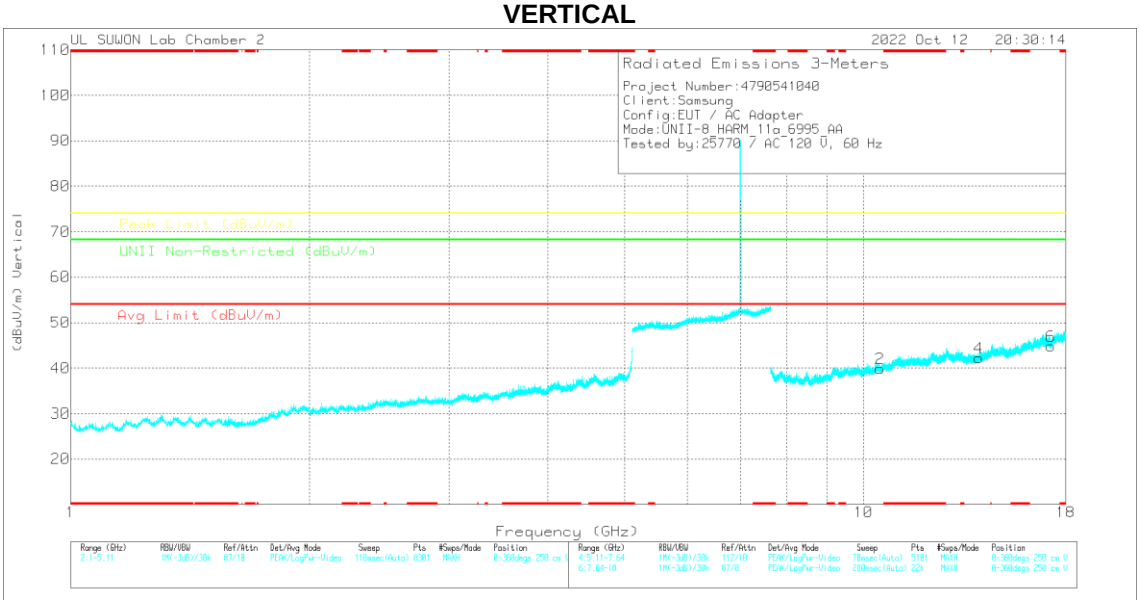
Note1. PK-U - U-NII: Maximum Peak / ADR - U-NII AD primary method, RMS average

HARMONICS AND SPURIOUS EMISSIONS(WORST CASE: 802.11a / 6895 MHz)

HORIZONTAL



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.

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	8GHz 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
10.4911	32.92	PK-U	37.7	-20.2	0	50.42	-	-	-	-	68.2	-17.78	0	100	H
10.49134	33.12	PK-U	37.7	-20.2	0	50.62	-	-	-	-	68.2	-17.58	0	100	V
13.9923	33.61	PK-U	39	-19.5	0	53.11	-	-	-	-	68.2	-15.09	0	100	H
13.98885	34.12	PK-U	39	-19.6	0	53.52	-	-	-	-	68.2	-14.68	0	100	V
17.23616	33.63	PK-U	41.2	-18.8	0	56.03	-	-	-	-	68.2	-12.17	0	100	H
17.23697	34.36	PK-U	41.2	-18.8	0	56.76	-	-	-	-	68.2	-11.44	0	100	V

PK-U - U-NII: Maximum Peak

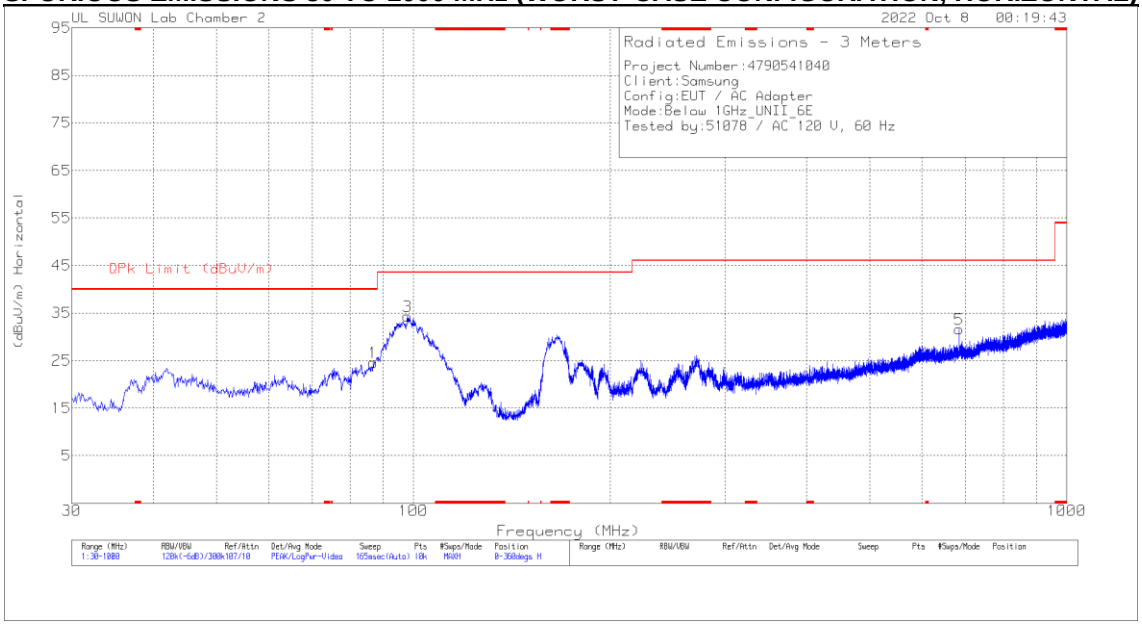
HARMONICS AND SPURIOUS EMISSIONS TEST DATA

Mode	Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBuV]	Detector Mode	ANT Factor	Loss [dB]	DC Corr [dB]	Result [dBuV/m]	AV Limit [dBuV/m]	AV Margin [dB]	PK Limit [dBuV/m]	PK Margin [dB]	Non-Restricted [dBuV/m]	Margin [dB]	Azimuth [Degs]	Height [cm]	Polarity
802.11a	6895	MIMO	10.34059	33.65	PK-U	37.60	-20.70	0.00	50.55	-	-	-	-	68.20	-17.65	0	100	H
			10.34021	33.44	PK-U	37.60	-20.70	0.00	50.34	-	-	-	-	68.20	-17.86	0	100	V
			13.78940	33.84	PK-U	38.70	-19.40	0.00	53.14	-	-	-	-	68.20	-15.06	0	100	H
			13.79116	34.50	PK-U	38.70	-19.40	0.00	53.80	-	-	-	-	68.20	-14.40	0	100	V
			17.24001	34.01	PK-U	41.20	-18.80	0.00	56.41	-	-	-	-	68.20	-11.79	0	100	H
			17.23641	34.18	PK-U	41.20	-18.80	0.00	56.58	-	-	-	-	68.20	-11.62	0	100	V
	6995	MIMO	10.49110	32.92	PK-U	37.70	-20.20	0.00	50.42	-	-	-	-	68.20	-17.78	0	100	H
			10.49134	33.12	PK-U	37.70	-20.20	0.00	50.62	-	-	-	-	68.20	-17.58	0	100	V
			13.99230	33.61	PK-U	39.00	-19.50	0.00	53.11	-	-	-	-	68.20	-15.09	0	100	H
			13.98885	34.12	PK-U	39.00	-19.60	0.00	53.52	-	-	-	-	68.20	-14.68	0	100	V
			17.23616	33.63	PK-U	41.20	-18.80	0.00	56.03	-	-	-	-	68.20	-12.17	0	100	H
			17.23697	34.36	PK-U	41.20	-18.80	0.00	56.76	-	-	-	-	68.20	**-11.44**	0	100	V
	7115	MIMO	* 10.67537	34.50	PK-U	37.80	-19.90	0.00	52.40	-	-	74.00	-21.60	-	-	0	100	H
			* 10.67257	33.28	PK-U	37.80	-19.90	0.00	51.18	-	-	74.00	-22.82	-	-	0	100	V
			14.22812	34.18	PK-U	39.30	-20.10	0.00	53.38	-	-	-	-	68.20	-14.82	0	100	H
			14.23118	33.95	PK-U	39.30	-19.90	0.00	53.35	-	-	-	-	68.20	-14.85	0	100	V
			* 17.78535	34.26	PK-U	41.60	-17.60	0.00	58.26	-	-	74.00	**-15.74**	-	-	0	100	H
			* 17.78557	33.71	PK-U	41.60	-17.60	0.00	57.71	-	-	74.00	-16.29	-	-	0	100	V
802.11ax (HE20) 0RU Spot-check	6995	MIMO	* 8.38856	36.22	PK-U	36.30	-23.60	0.00	48.92	-	-	74.00	-25.08	-	-	360	100	H
			* 8.3955	35.68	PK-U	36.30	-23.60	0.00	48.38	-	-	74.00	-25.62	-	-	360	100	V
			10.49361	33.37	PK-U	38.20	-20.90	0.00	50.67	-	-	-	-	68.20	-17.53	360	100	H
			10.49083	33.57	PK-U	38.20	-20.90	0.00	50.87	-	-	-	-	68.20	-17.33	360	100	V
			13.98189	35.62	PK-U	39.10	-22.90	0.00	51.82	-	-	-	-	68.20	-16.38	360	100	H
			13.98052	35.77	PK-U	39.10	-22.90	0.00	51.97	-	-	-	-	68.20	-16.23	360	100	V

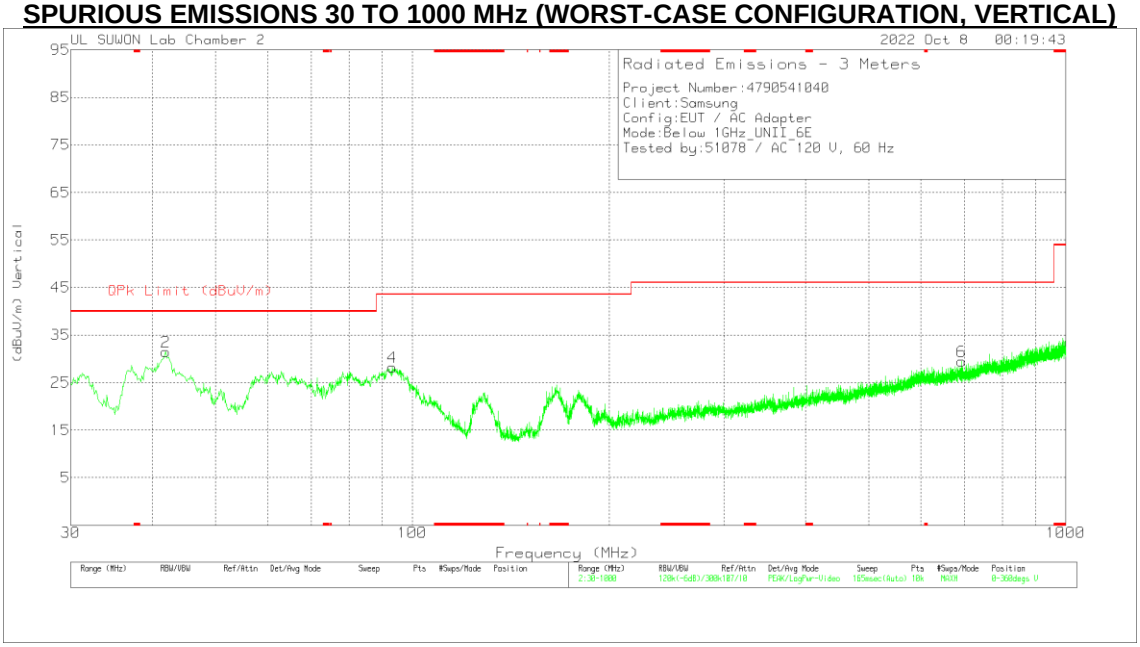
Note1. PK-U - U-NII: Maximum Peak / ADR - U-NII AD primary method, RMS average
Note2. * - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

12. WORST-CASE BELOW 1 GHz

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)



SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, VERTICAL)



Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	VULB9163_749	Below 1G[dB]	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	86.745	40.56	Pk	14.8	-30.8	24.56	40	-15.44	0-360	100	H
3	97.997	47.76	Pk	17.2	-30.6	34.36	43.52	-9.16	0-360	200	H
5	684.071	33.71	Pk	25.3	-27.4	31.61	46.02	-14.41	0-360	100	H
2	41.931	43.53	Pk	19.3	-31.4	31.43	40	-8.57	0-360	100	V
4	93.244	42.49	Pk	16.3	-30.6	28.19	43.52	-15.33	0-360	100	V
6	692.995	31.4	Pk	25.4	-27.3	29.5	46.02	-16.52	0-360	100	V

Pk - Peak detector

13. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)
IC RSS-GEN Clause 8.8

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56 *	56 to 46 *
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency.

TEST PROCEDURE

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.10.

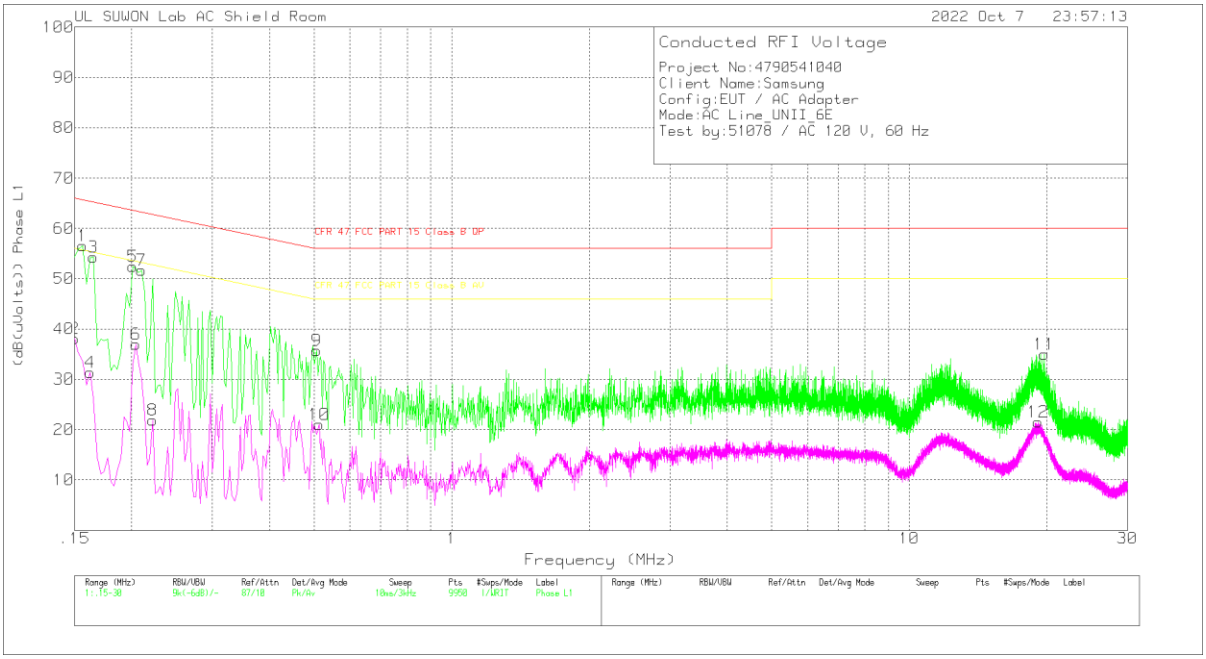
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

Line conducted data is recorded for both NEUTRAL and HOT lines.

RESULTS

WORST EMISSIONS

LINE 1 DATA



Trace Markers

Range 1: Phase L1 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	101836_With EX_L1[dB]	CABLELOSS(dB)	Corrected Reading (dB(uVolts))	CFR 47 FCC PART 15 Class B QP	Margin (dB)	CFR 47 FCC PART 15 Class B AV	Margin (dB)
1	.156	46.62	Pk	9.8	.1	56.52	65.67	-9.15	-	-
2	.15	28.25	Av	9.7	.1	38.05	-	-	56	-17.95
3	.165	44.33	Pk	9.9	.1	54.33	65.21	-10.88	-	-
4	.162	21.37	Av	9.9	.1	31.37	-	-	55.36	-23.99
5	.201	42.37	Pk	9.8	.2	52.37	63.57	-11.2	-	-
6	.204	26.96	Av	9.8	.2	36.96	-	-	53.45	-16.49
7	.21	41.73	Pk	9.8	.2	51.73	63.21	-11.48	-	-
8	.222	12.03	Av	9.7	.2	21.93	-	-	52.74	-30.81
9	.507	25.57	Pk	9.9	.2	35.67	56	-20.33	-	-
10	.513	10.93	Av	9.9	.2	21.03	-	-	46	-24.97
11	19.719	24.41	Pk	10.2	.4	35.01	60	-24.99	-	-
12	19.107	10.98	Av	10.1	.4	21.48	-	-	50	-28.52

Pk - Peak detector
Av - Average detection

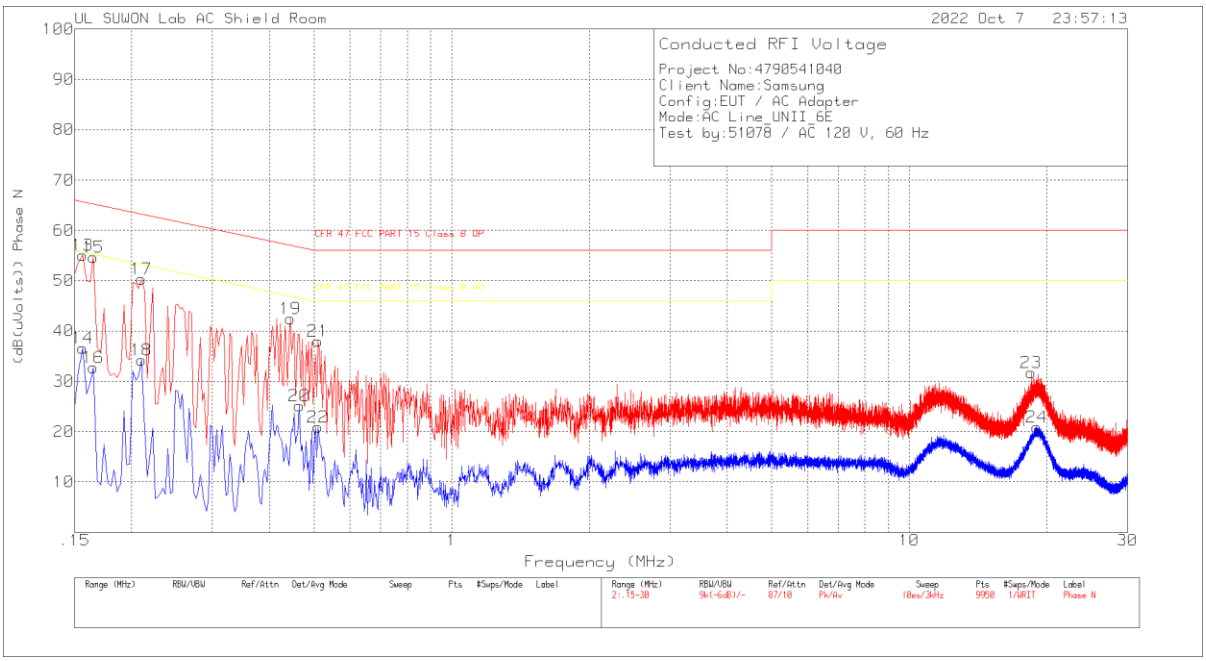
Quasi-Peak Emissions

Range 1: Phase L1 .15 - 30MHz

Frequency (MHz)	Meter Reading (dBuV)	Det	101836_With EX_L1[dB]	CABLELOSS(dB)	Corrected Reading (dB(uVolts))	CFR 47 FCC PART 15 Class B QP	Margin (dB)	CFR 47 FCC PART 15 Class B AV	Margin (dB)
.15525	41.7	Qp	9.8	.1	51.6	65.71	-14.11	-	-

Qp - Quasi-Peak detector

LINE 2 DATA



Trace Markers

Range 2: Phase N .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	101836_With EX_N[dB]	CABLELOSS(dB)	Corrected Reading (dB(uVolts))	CFR 47 FCC PART 15 Class B QP	Margin (dB)	CFR 47 FCC PART 15 Class B AV	Margin (dB)
13	.156	45.17	Pk	9.8	.1	55.07	65.67	-10.6	-	-
14	.156	26.67	Av	9.8	.1	36.57	-	-	55.67	-19.1
15	.165	44.62	Pk	9.9	.1	54.62	65.21	-10.59	-	-
16	.165	22.7	Av	9.9	.1	32.7	-	-	55.21	-22.51
17	.21	40.34	Pk	9.8	.2	50.34	63.21	-12.87	-	-
18	.21	24.22	Av	9.8	.2	34.22	-	-	53.21	-18.99
19	.444	32.33	Pk	9.9	.2	42.43	56.99	-14.56	-	-
20	.465	15.06	Av	9.9	.2	25.16	-	-	46.6	-21.44
21	.51	27.91	Pk	9.9	.2	38.01	56	-17.99	-	-
22	.51	10.84	Av	9.9	.2	20.94	-	-	46	-25.06
23	18.486	21.09	Pk	10.2	.4	31.69	60	-28.31	-	-
24	19.014	10.29	Av	10.2	.4	20.89	-	-	50	-29.11

Pk - Peak detector
Av - Average detection

14. Contention Based Protocol

14.1. OVERVIEW

14.1.1. LIMITS

FCC

§15.407 (d) (6)
KDB 987594 D02

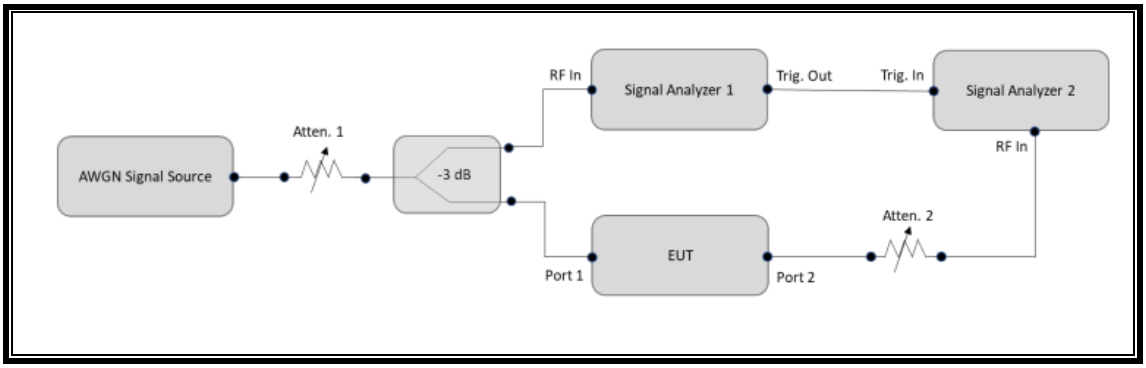
Indoor access points, subordinate devices and client devices operating in the 5.925-7.125 GHz band (herein referred to as unlicensed devices) are required to use technologies that include a contention-based protocol to avoid co-channel interference with incumbent devices sharing the band. To ensure incumbent co-channel operations are detected in a technology-agnostic manner, unlicensed devices are required to detect co-channel radio frequency energy (energy detect) and avoid simultaneous transmission.

Unlicensed low-power indoor devices must detect co-channel radio frequency power that is at least -62 dBm or lower. Upon detection of energy in the band, unlicensed low power indoor devices must vacate the channel (in which incumbent signal is transmitted) and stay off the incumbent channel as long as detected radio frequency power is equal to or greater than the threshold (-62 dBm)1 . The -62 dBm (or lower) threshold is referenced to a 0 dBi antenna gain.

To ensure incumbent operations are reliably detected in the band, low power indoor devices must detect RF energy throughout their intended operating channel. For example, an 802.11 device that plans to transmit a 40 MHz- wide signal (on a primary 20 MHz channel and a secondary 20 MHz channel) must detect energy throughout the entire 40 MHz channel. Additionally, low-power indoor devices must detect co-channel energy with 90% or greater certainty.

14.1.2. TEST AND MEASUREMENT SYSTEM

CONDUCTED METHOD SYSTEM BLOCK DIAGRAM



TEST SETTING

1) Configure the EUT to transmit with a constant duty cycle.
2) Set the operating parameters of the EUT including power level, operating frequency, modulation and bandwidth.
3) Set the signal analyzer center frequency to the nominal EEUT channel center frequency. The span range of the signal analyzer shall be between two times and five times the OBW of the EUT. Connect the output port of the EUT to the signal analyzer 2, as shown in Figure 2. Ensure that the attenuator 2 provides enough attenuation to not overload the signal analyzer 2 receiver.
4) Monitoring the signal analyzer 2, verify the EUT is operating and transmitting with the parameters set at step two.
5) Using an AWGN signal source, generate (but do not transmit, i.e., RF OFF) a 10 MHz-wide AWGN signal. Use Table 1 to determine the center frequency of the 10 MHz AWGN signal relative to the EUT's channel bandwidth and center frequency.
6) Set the AWGN signal power to an extremely low level (more than 20 dB below the -62 dBm threshold). Connect the AWGN signal source, via a 3-dB splitter, to the signal analyzer 1 and the EUT as shown in Figure 2.
7) Transmit the AWGN signal (RF ON) and verify its characteristics on the signal analyzer 1.
8) Monitor the signal analyzer 2 to verify if the AWGN signal has been detected and the EUT has ceased transmission. If the EUT continues to transmit, then incrementally increase the AWGN signal power level until the EUT stops transmitting.
9) (Including all losses in the RF paths) Determine and record the AWGN signal power level (at the EUT's antenna port) at which the EUT ceased transmission. Repeat the procedure at least 10 times to verify the EUT can detect an AWGN signal with 90% (or better) level of certainty.
10) Refer to Table 1 to determine number of times the detection threshold testing needs to be repeated. If testing is required more than once, then go back to step 5, choose a different center frequency for the AWGN signal and repeat the process.

TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

TEST EQUIPMENT LIST				
Description	**Manufacturer**	**Model**	**S/N**	**Next Cal Due**
Spectrum Analyzer	Keysight	N9030B	MY60070693	2023-01-18
Spectrum Analyzer	Agilent	N9030A	MY54170614	2023-08-03
Vector Signal Generator	R&S	SMW200A	107161	2023-08-04
Combiner	WEINSCHEL	WA1534	UL001	2023-01-20
Attenuator	WEINSCHEL	WA76-30-21	A015	2023-08-03
Attenuator	PASTERNACK	PE7087-10	A001	2023-08-03
Attenuator	PASTERNACK	PE7087-10	A008	2023-08-03

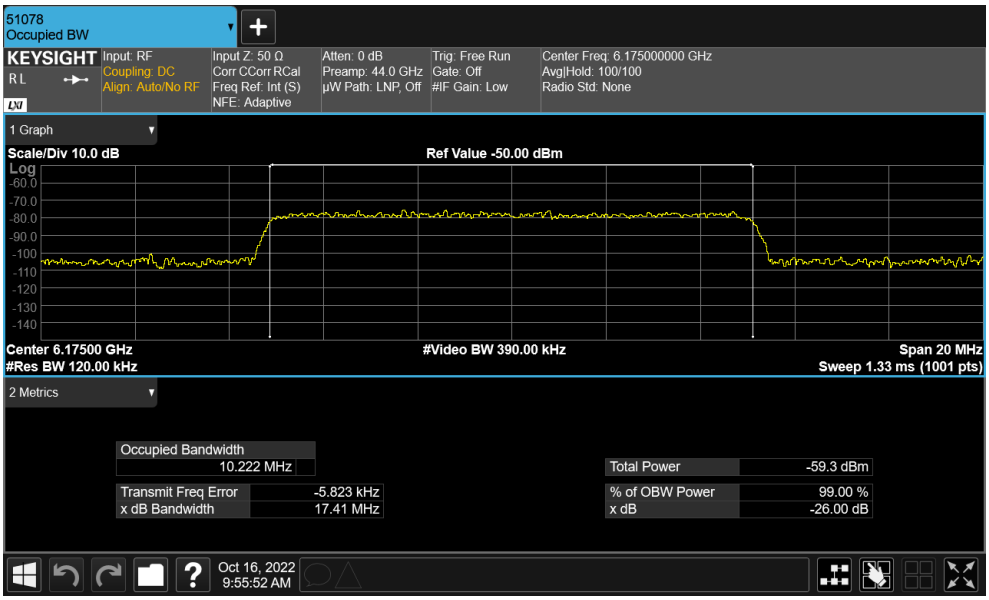
SUPPORT EQUIPMENT

The following support equipment was utilized for the DFS tests documented in this report:

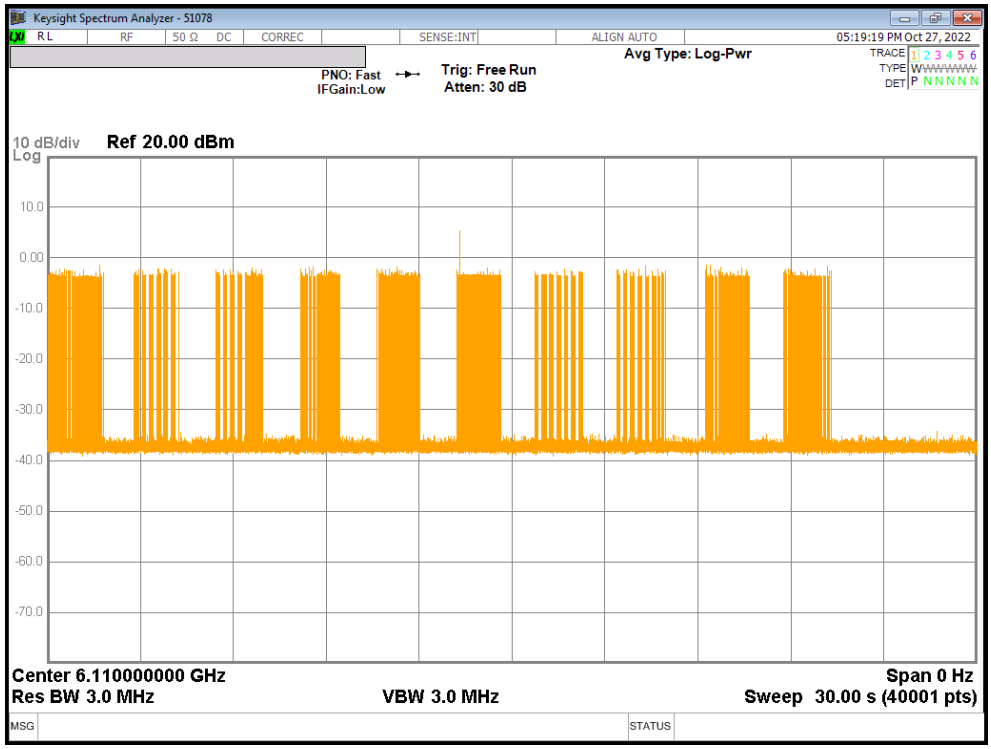
PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
Wireless Access Point	ASUS	GT-AXE11000	M3IAJF200742	MSQ-RTAXJF00
Notebook PC (Controller/Server)	HP	HP EliteDesk 800 G1 TWR	CZC4125J25	DoC

14.2. TEST RESULTS

14.2.1. AWGN Sample signal



14.2.2. Contention Based Protocol Timing Plot



14.2.3. Contention Based Protocol – Incumbent Detection & Trial Results

Band	Channel	Freq	BW	Inc. Freq	Detection power level	Detection limit	Gain	Detection limit (include Gain)	Margin
5	37	6135	20	6135	-78.09	-62	-9.42	-71.42	-6.67
	47	6185	160	6110	-75.64	-62	-9.42	-71.42	-4.22
				6200	-76.42	-62	-9.42	-71.42	-5.00
				6260	-75.61	-62	-9.42	-71.42	-4.19
6	101	6455	20	6455	-79.34	-62	-11.46	-73.46	-5.88
	111	6505	160	6430	-75.42	-62	-11.46	-73.46	-1.96
				6500	-75.54	-62	-11.46	-73.46	-2.08
				6580	-74.69	-62	-11.46	-73.46	-1.23
7	149	6695	20	6695	-78.56	-62	-14.69	-76.69	-1.87
	143	6665	160	6590	-78.55	-62	-14.69	-76.69	-1.86
				6675	-78.53	-62	-14.69	-76.69	-1.84
				6740	-78.52	-62	-14.69	-76.69	-1.83
8	213	7015	20	7015	-78.78	-62	-13.40	-75.4	-3.38
	207	6985	160	6910	-77.62	-62	-13.40	-75.4	-2.22
				6990	-76.82	-62	-13.40	-75.4	-1.42
				7060	-77.76	-62	-13.40	-75.4	-2.36

Note: Required Detection Level = Injected AWGN Power (dBm) – Antenna Gain (dBi) + Path Loss (dB)
Injected level is measured with same path loss from coupler to analyser as the path loss from coupler to EUT and so path loss = 0.

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Band	Channel	Freq	BW	Inc. Freq	Detection power level	1	2	3	4	5	6	7	8	9	10	Detection Rate
5	37	6135	20	6135	-78.09	O	O	O	O	O	O	O	O	O	O	100 %
					-81.11	X	X	X	X	X	O	O	O	O	O	50 %
					-83.50	X	X	X	X	X	X	X	X	X	X	0 %
	47	6185	160	6110	-75.64	O	O	O	O	O	O	O	O	O	O	100 %
					-79.15	X	X	X	X	X	X	O	O	O	O	40 %
					-82.90	X	X	X	X	X	X	X	X	X	X	0 %
				6200	-76.42	O	O	O	O	O	O	O	O	O	O	100 %
					-79.12	X	X	X	X	X	O	O	O	O	X	40 %
					-82.64	X	X	X	X	X	X	X	X	X	X	0 %
				6260	-75.61	O	O	O	O	O	O	O	O	O	O	100 %
					-79.52	O	O	O	X	X	X	X	X	X	O	40 %
					-82.75	X	X	X	X	X	X	X	X	X	X	0 %
6	101	6455	20	6455	-79.34	O	O	O	O	O	O	O	O	O	O	100 %
					-80.04	X	X	O	O	O	O	O	X	X	X	50 %
					-82.99	X	X	X	X	X	X	X	X	X	X	0 %
	111	6505	160	6430	-75.42	O	O	O	O	O	O	O	O	O	O	100 %
					-80.69	O	O	O	O	O	O	O	X	X	X	60 %
					-83.24	X	X	X	X	X	X	X	X	X	X	0 %
				6500	-75.54	O	O	O	O	O	O	O	O	O	O	100 %
					-79.11	O	O	O	O	O	X	X	X	X	X	50 %
					-82.55	X	X	X	X	X	X	X	X	X	X	0 %
				6580	-74.69	O	O	O	O	O	O	O	O	O	O	100 %
					-78.45	O	O	O	O	X	X	X	X	X	X	40 %
					-82.68	X	X	X	X	X	X	X	X	X	X	0 %
7	149	6695	20	6695	-78.56	X	O	O	O	O	O	O	O	O	O	90 %
					-80.64	X	X	X	X	X	X	O	O	O	O	40 %
					-82.78	X	X	X	X	X	X	XX	X	X	X	0 %
	143	6665	160	6590	-78.55	O	O	O	O	O	O	O	O	O	O	100 %
					-80.11	X	X	X	X	X	O	O	O	O	O	50 %
					-83.11	X	X	X	X	X	X	X	X	X	X	0 %
				6675	-78.53	O	O	O	O	O	O	O	O	O	O	100 %
					-81.56	X	X	X	X	X	O	O	O	O	O	50 %
					-83.25	X	X	X	X	X	X	X	X	X	X	0 %
				6740	-78.52	O	O	O	O	O	O	O	O	O	O	100 %
					-80.33	O	O	O	O	X	X	X	X	X	X	40 %
					-82.97	X	X	X	X	X	X	X	X	X	X	0 %
8	213	7015	20	7015	-78.78	O	O	O	O	O	O	O	O	O	O	100 %
					-80.15	X	X	X	X	X	X	O	O	O	O	40 %
					-82.78	X	X	X	X	X	X	X	X	X	X	0 %
	207	6985	160	6910	-77.62	O	O	O	O	O	O	O	O	O	O	100 %
					-80.01	X	X	X	X	X	O	O	O	O	O	50 %
					-82.78	X	X	X	X	X	X	X	X	X	X	0 %
				6990	-76.82	O	O	O	O	O	O	O	O	O	O	100 %
					-78.93	O	O	O	X	X	X	X	X	O	O	50 %
					-82.51	X	X	X	X	X	X	X	X	X	X	0 %
				7060	-77.76	O	O	O	O	O	O	O	O	O	O	100 %
					-81.15	O	O	O	O	X	X	X	X	X	X	40 %
					-83.98	X	X	X	X	X	X	X	X	X	X	0 %

END OF TEST REPORT