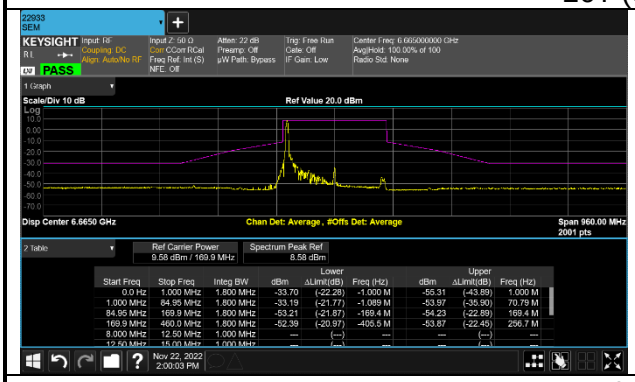
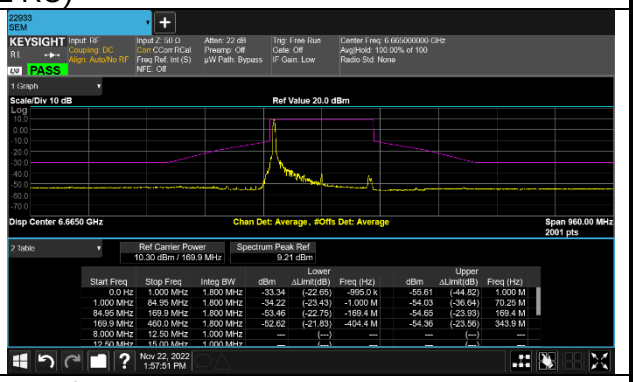
- 6CD

802.11 ax HE160 / UNII-7 / CH143 6665 MHz

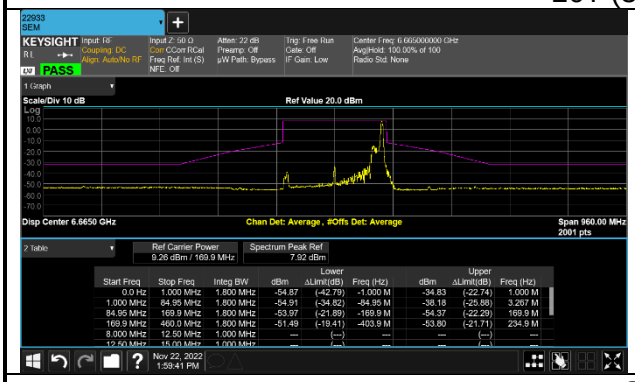
ANT1	ANT2

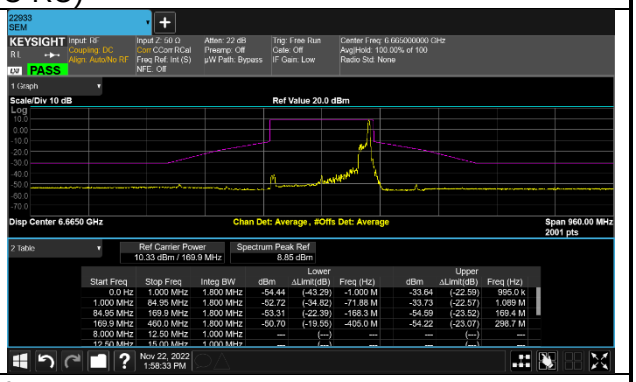
26T (0L RU)





26T (36U RU)





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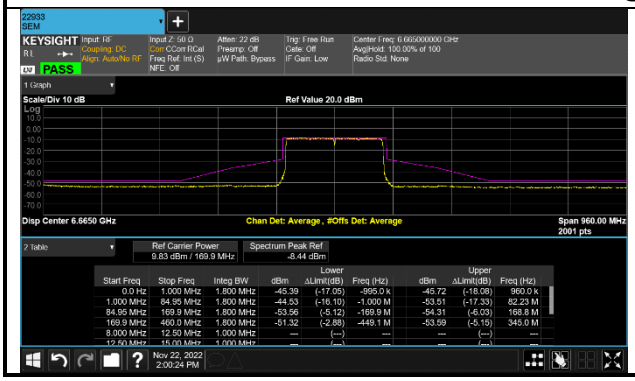

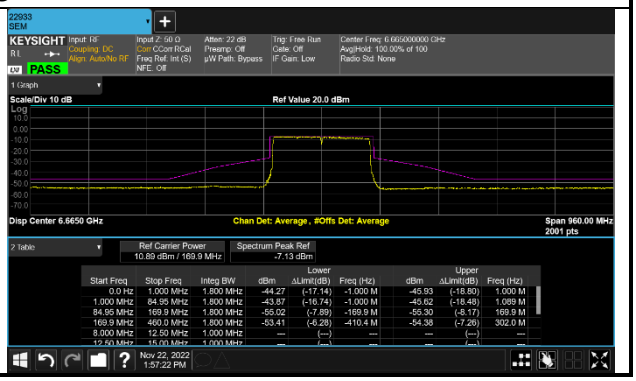

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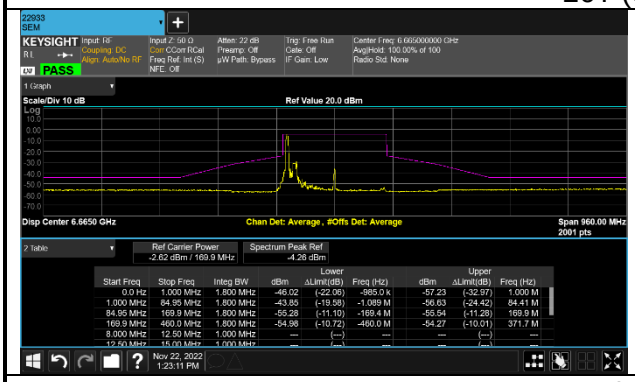
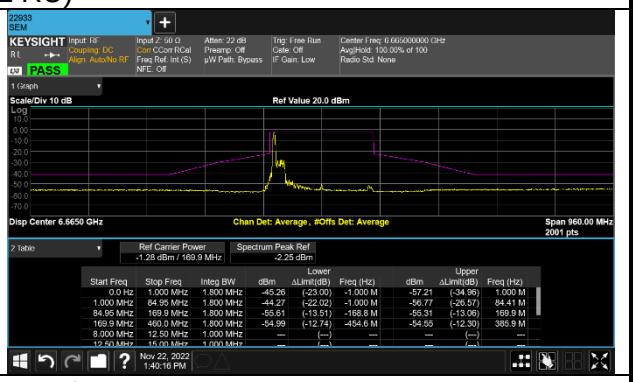
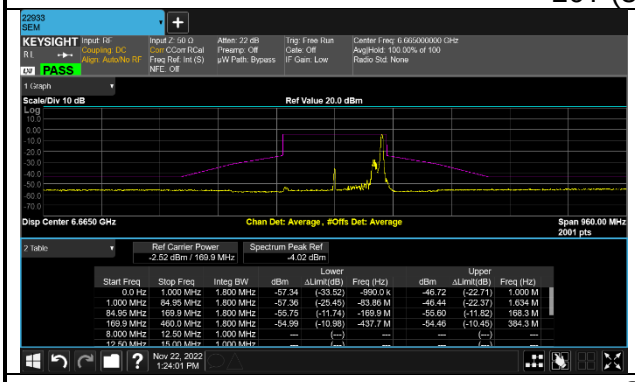
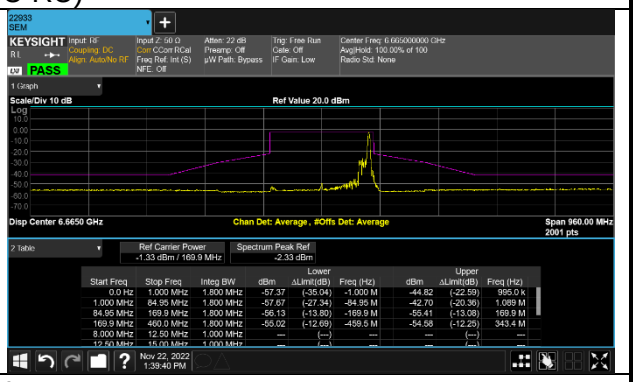
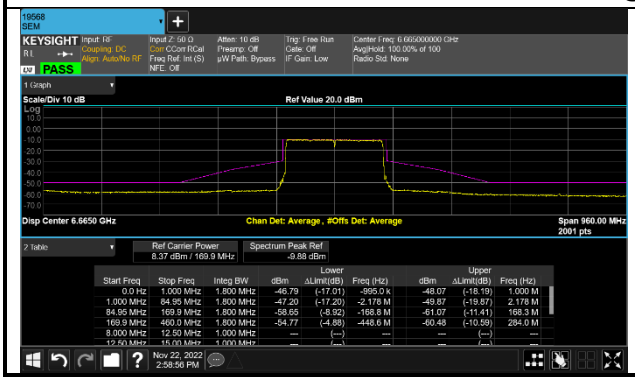
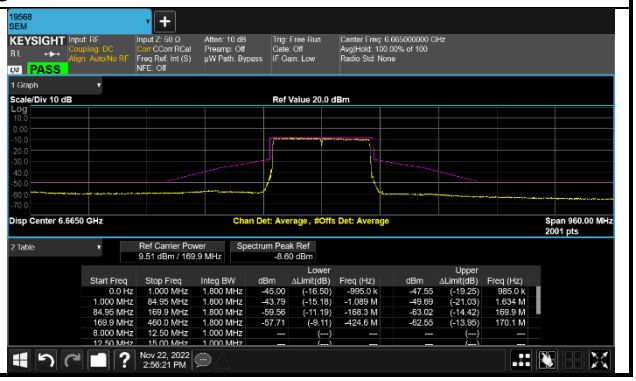
- 6XD

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

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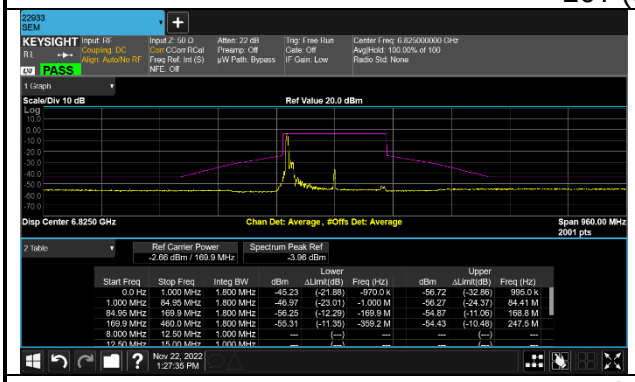
- 6XD

802.11 ax HE160 / UNII-7 / CH175 6825 MHz

ANT1

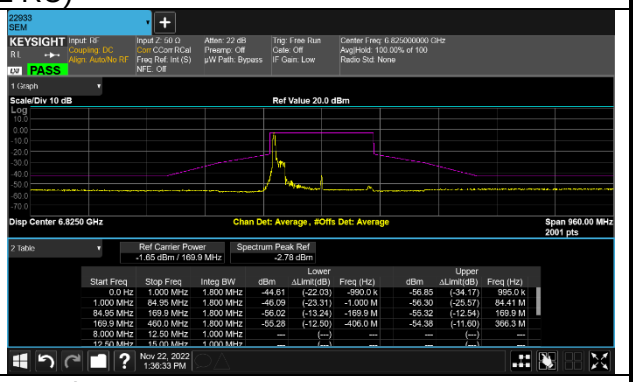
26T (0L RU)



Start Freq	Stop Freq	Integ BW	dBm	Lower ΔLimit(dB)	Lower Freq (Hz)	dBm	Upper ΔLimit(dB)	Upper Freq (Hz)
0.0 Hz	1.000 MHz	1.800 MHz	-45.23	(-21.88)	-970.0 k	-56.72	(-32.86)	995.0 k
1.000 MHz	84.95 MHz	1.800 MHz	-46.97	(-23.01)	-1.000 M	-56.27	(-24.37)	84.41 M
84.95 MHz	169.9 MHz	1.800 MHz	-56.25	(-12.29)	-169.9 M	-54.87	(-11.06)	168.8 M
169.9 MHz	460.0 MHz	1.800 MHz	-55.31	(-11.35)	-359.2 M	-54.43	(-10.48)	247.5 M
8.000 MHz	12.50 MHz	1.000 MHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---

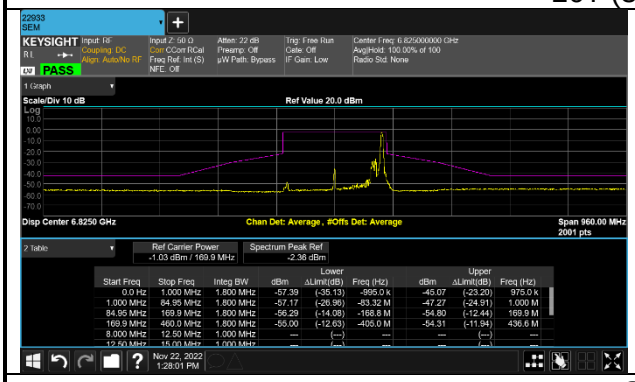
ANT2

26T (0L RU)



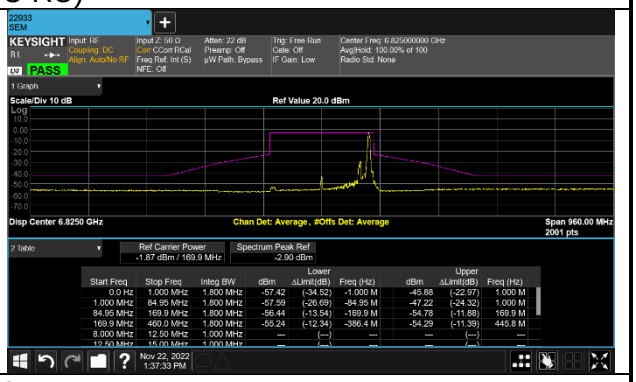
Start Freq	Stop Freq	Integ BW	dBm	Lower ΔLimit(dB)	Lower Freq (Hz)	dBm	Upper ΔLimit(dB)	Upper Freq (Hz)
0.0 Hz	1.000 MHz	1.800 MHz	-44.61	(-22.03)	-990.0 k	-56.85	(-34.17)	995.0 k
1.000 MHz	84.95 MHz	1.800 MHz	-46.09	(-23.31)	-1.000 M	-56.30	(-25.57)	84.41 M
84.95 MHz	169.9 MHz	1.800 MHz	-56.02	(-13.24)	-169.9 M	-55.32	(-12.54)	169.9 M
169.9 MHz	460.0 MHz	1.800 MHz	-55.28	(-12.50)	-406.0 M	-54.38	(-11.60)	366.3 M
8.000 MHz	12.50 MHz	1.000 MHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---

26T (36U RU)



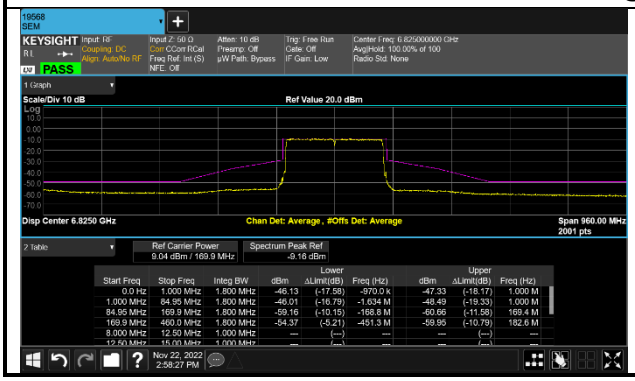
Start Freq	Stop Freq	Integ BW	dBm	Lower ΔLimit(dB)	Lower Freq (Hz)	dBm	Upper ΔLimit(dB)	Upper Freq (Hz)
0.0 Hz	1.000 MHz	1.800 MHz	-57.39	(-35.13)	-995.0 k	-45.07	(-23.20)	975.0 k
1.000 MHz	84.95 MHz	1.800 MHz	-57.17	(-26.96)	-53.32 M	-47.27	(-24.91)	1.000 M
84.95 MHz	169.9 MHz	1.800 MHz	-56.29	(-14.08)	-168.8 M	-54.80	(-12.44)	169.9 M
169.9 MHz	460.0 MHz	1.800 MHz	-55.00	(-12.63)	-406.0 M	-54.31	(-11.94)	436.6 M
8.000 MHz	12.50 MHz	1.000 MHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---

26T (36U RU)



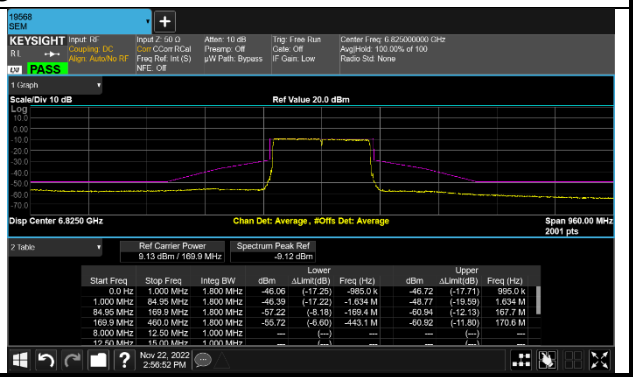
Start Freq	Stop Freq	Integ BW	dBm	Lower ΔLimit(dB)	Lower Freq (Hz)	dBm	Upper ΔLimit(dB)	Upper Freq (Hz)
0.0 Hz	1.000 MHz	1.800 MHz	-57.42	(-34.52)	-1.000 M	-45.88	(-22.97)	1.000 M
1.000 MHz	84.95 MHz	1.800 MHz	-57.59	(-26.69)	-84.95 M	-47.22	(-24.32)	1.000 M
84.95 MHz	169.9 MHz	1.800 MHz	-56.44	(-13.54)	-169.9 M	-54.78	(-11.88)	169.9 M
169.9 MHz	460.0 MHz	1.800 MHz	-55.24	(-12.34)	-386.4 M	-54.29	(-11.39)	445.8 M
8.000 MHz	12.50 MHz	1.000 MHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---

SU



Start Freq	Stop Freq	Integ BW	dBm	Lower ΔLimit(dB)	Lower Freq (Hz)	dBm	Upper ΔLimit(dB)	Upper Freq (Hz)
0.0 Hz	1.000 MHz	1.800 MHz	-46.13	(-17.58)	-970.0 k	-47.33	(-18.17)	1.000 M
1.000 MHz	84.95 MHz	1.800 MHz	-46.01	(-16.79)	-1.634 M	-48.49	(-19.33)	1.000 M
84.95 MHz	169.9 MHz	1.800 MHz	-59.16	(-10.15)	-168.8 M	-60.66	(-11.58)	169.4 M
169.9 MHz	460.0 MHz	1.800 MHz	-54.37	(-5.21)	-451.3 M	-59.95	(-10.79)	182.6 M
8.000 MHz	12.50 MHz	1.000 MHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---

SU



Start Freq	Stop Freq	Integ BW	dBm	Lower ΔLimit(dB)	Lower Freq (Hz)	dBm	Upper ΔLimit(dB)	Upper Freq (Hz)
0.0 Hz	1.000 MHz	1.800 MHz	-46.06	(-17.25)	-985.0 k	-46.72	(-17.71)	995.0 k
1.000 MHz	84.95 MHz	1.800 MHz	-46.39	(-17.22)	-1.634 M	-48.77	(-19.59)	1.634 M
84.95 MHz	169.9 MHz	1.800 MHz	-57.22	(-8.18)	-169.4 M	-60.94	(-12.13)	167.7 M
169.9 MHz	460.0 MHz	1.800 MHz	-55.72	(-6.60)	-443.1 M	-60.92	(-11.80)	170.6 M
8.000 MHz	12.50 MHz	1.000 MHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---

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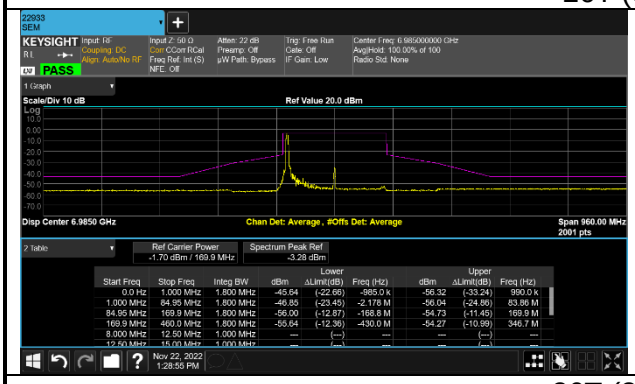
- 6XD

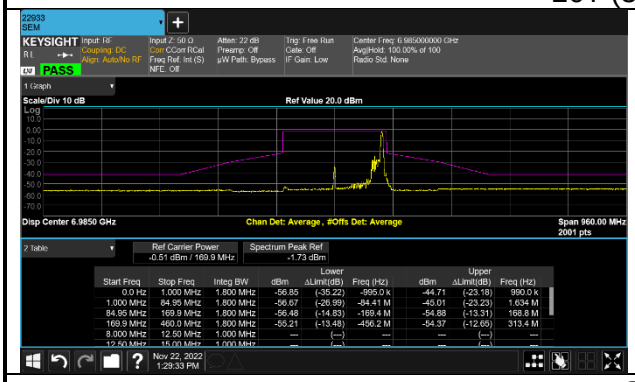
802.11 ax HE160 / UNII-8 / CH207 6985 MHz

ANT1

26T (0L RU)



26T (36U RU)



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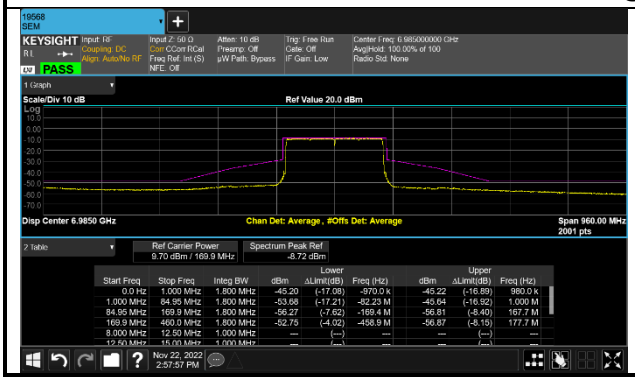
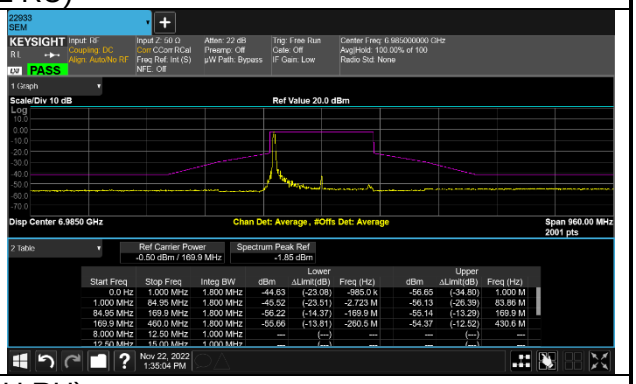


ANT2

26T (0L RU)



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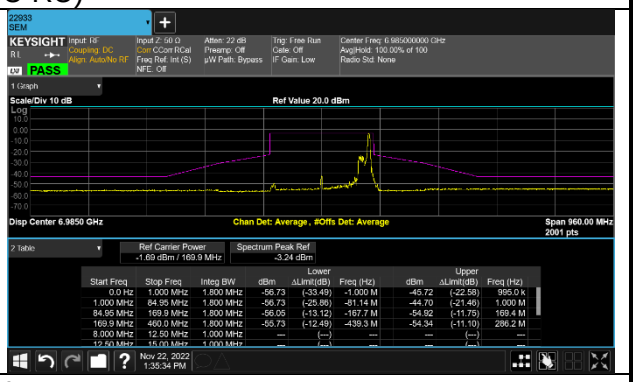
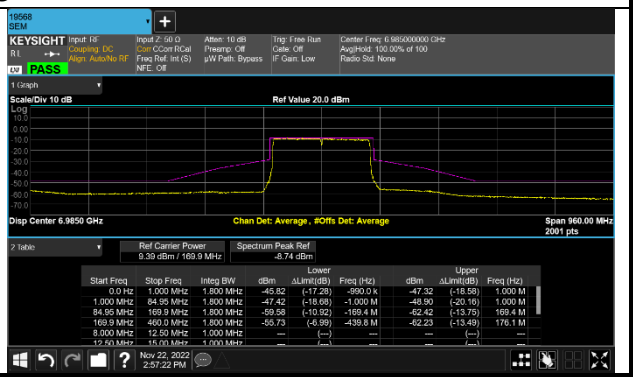


SU



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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.

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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

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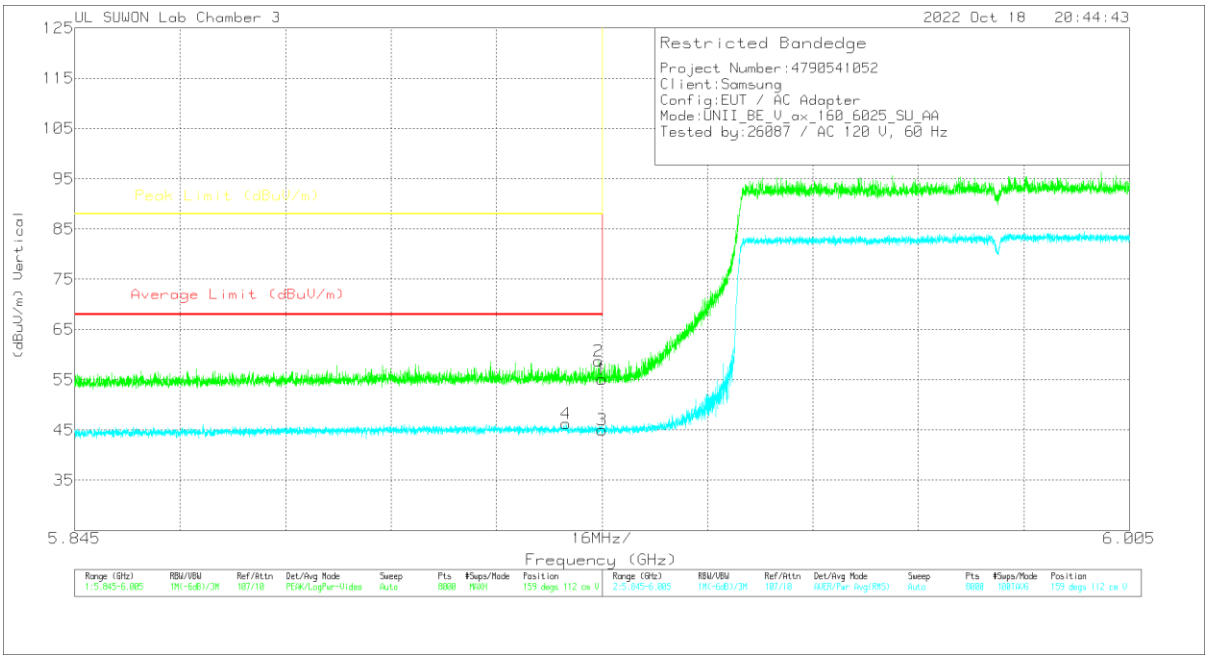
11.1. TX ABOVE 1GHz 2Tx MODE IN U-NII-5 BAND

BANDEDGE (WORST CASE: 802.11ax HE160 / 6025 MHz / SU Mode)

VERTICAL PEAK AND AVERAGE DATA



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00218957	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	5.92499	38.36	Pk	36	-19.3	0	55.06	-	-	88	-32.94	159	112	V
2	5.92445	41.98	Pk	36	-19.3	0	58.68	-	-	88	-29.32	159	112	V
3	5.92499	28.28	RMS	36	-19.3	0	44.98	68	-23.02	-	-	159	112	V
4	5.91957	29.54	RMS	36	-19.3	0	46.24	68	-21.76	-	-	159	112	V

Pk - Peak detector
RMS - RMS detection

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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	37.11	Pk	34.90	-16.50	0.00	55.51	-	-	88.00	-32.49	113	139	H
			5.88892	40.34	Pk	34.80	-16.50	0.00	58.64	-	-	88.00	-29.36	113	139	H
			5.92500	27.12	RMS	34.90	-16.50	0.15	45.67	68.00	-22.33	-	-	113	139	H
			5.91104	27.52	RMS	34.90	-16.50	0.15	46.07	68.00	-21.93	-	-	113	139	H
			5.92500	37.27	Pk	34.90	-16.50	0.00	55.67	-	-	88.00	-32.33	86	100	V
			5.88312	39.81	Pk	34.80	-16.50	0.00	58.11	-	-	88.00	-29.89	86	100	V
			5.92500	26.81	RMS	34.90	-16.50	0.15	45.36	68.00	-22.64	-	-	86	100	V
			5.90808	27.56	RMS	34.90	-16.50	0.15	46.11	68.00	-21.89	-	-	86	100	V
802.11ax (HE20) SU	5955	MIMO	5.92499	37.34	Pk	36.00	-19.30	0.00	54.04	-	-	88.00	-33.96	230	101	H
			5.91827	39.70	Pk	36.00	-19.30	0.00	56.40	-	-	88.00	-31.60	230	101	H
			5.92499	27.72	RMS	36.00	-19.30	0.00	44.42	68.00	-23.58	-	-	230	100	H
			5.92339	28.70	RMS	36.00	-19.30	0.00	45.40	68.00	-22.60	-	-	230	100	H
			5.92499	37.95	Pk	36.00	-19.30	0.00	54.65	-	-	88.00	-33.35	162	121	V
			5.87901	39.97	Pk	36.00	-19.30	0.00	56.67	-	-	88.00	-31.33	162	121	V
			5.92499	27.84	RMS	36.00	-19.30	0.00	44.54	68.00	-23.46	-	-	162	121	V
			5.92353	28.75	RMS	36.00	-19.30	0.00	45.45	68.00	-22.55	-	-	162	121	V
802.11ax (HE40) SU	5965	MIMO	5.92499	36.79	Pk	36.00	-19.30	0.00	53.49	-	-	88.00	-34.51	249	100	H
			5.87220	39.73	Pk	35.90	-19.30	0.00	56.33	-	-	88.00	-31.67	249	100	H
			5.92499	27.46	RMS	36.00	-19.30	0.00	44.16	68.00	-23.84	-	-	249	100	H
			5.91913	28.24	RMS	36.00	-19.30	0.00	44.94	68.00	-23.06	-	-	249	100	H
			5.92499	37.92	Pk	36.00	-19.30	0.00	54.62	-	-	88.00	-33.38	158	123	V
			5.91303	39.90	Pk	36.00	-19.30	0.00	56.60	-	-	88.00	-31.40	158	123	V
			5.92499	27.16	RMS	36.00	-19.30	0.00	43.86	68.00	-24.14	-	-	158	123	V
			5.91003	28.70	RMS	36.00	-19.30	0.00	45.40	68.00	-22.60	-	-	158	123	V
802.11ax (HE80) SU	5985	MIMO	5.92499	37.21	Pk	36.00	-19.30	0.00	53.91	-	-	88.00	-34.09	252	103	H
			5.87644	39.72	Pk	36.00	-19.30	0.00	56.42	-	-	88.00	-31.58	252	103	H
			5.92499	27.25	RMS	36.00	-19.30	0.00	43.95	68.00	-24.05	-	-	252	103	H
			5.92083	28.51	RMS	36.00	-19.30	0.00	45.21	68.00	-22.79	-	-	252	103	H
			5.92499	38.44	Pk	36.00	-19.30	0.00	55.14	-	-	88.00	-32.86	158	112	V
			5.92415	40.18	Pk	36.00	-19.30	0.00	56.88	-	-	88.00	-31.12	158	112	V
			5.92499	27.52	RMS	36.00	-19.30	0.00	44.22	68.00	-23.78	-	-	158	112	V
			5.92139	29.21	RMS	36.00	-19.30	0.00	45.91	68.00	-22.09	-	-	158	112	V
802.11ax (HE160) SU	6025	MIMO	5.92499	38.40	Pk	36.00	-19.30	0.00	55.10	-	-	88.00	-32.90	248	262	H
			5.92491	41.46	Pk	36.00	-19.30	0.00	58.16	-	-	88.00	-29.84	248	262	H
			5.92499	27.32	RMS	36.00	-19.30	0.00	44.02	68.00	-23.98	-	-	248	262	H
			5.88593	29.06	RMS	36.00	-19.30	0.00	45.76	68.00	-22.24	-	-	248	262	H
			5.92499	38.36	Pk	36.00	-19.30	0.00	55.06	-	-	88.00	-32.94	159	112	V
			5.92445	41.98	Pk	36.00	-19.30	0.00	58.68	-	-	88.00	**-29.32**	159	112	V
			5.92499	28.28	RMS	36.00	-19.30	0.00	44.98	68.00	-23.02	-	-	159	112	V
			5.91957	29.54	RMS	36.00	-19.30	0.00	46.24	68.00	**-21.76**	-	-	159	112	V

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

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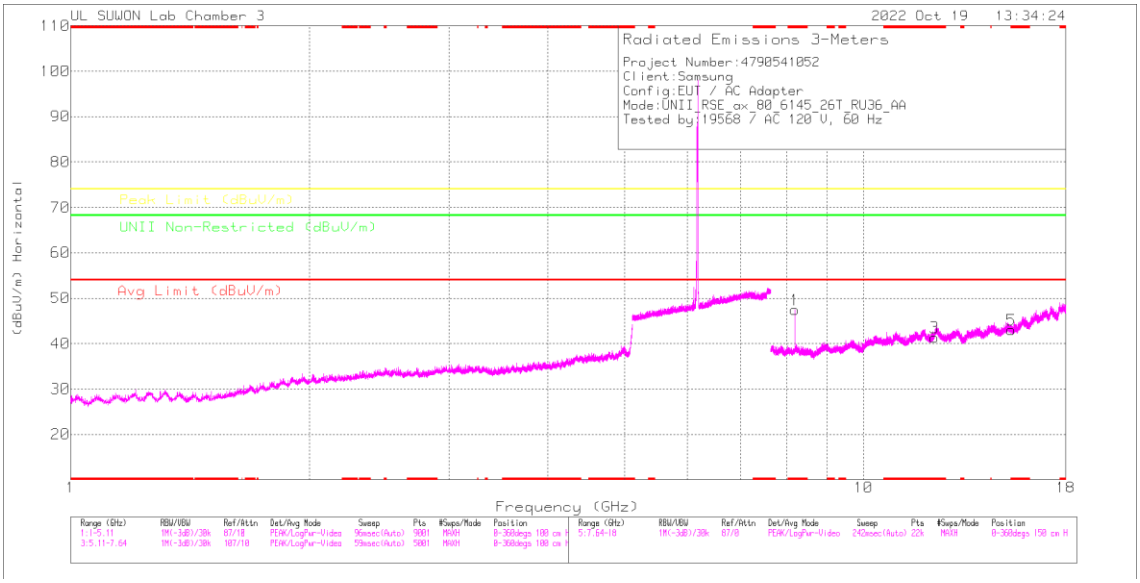
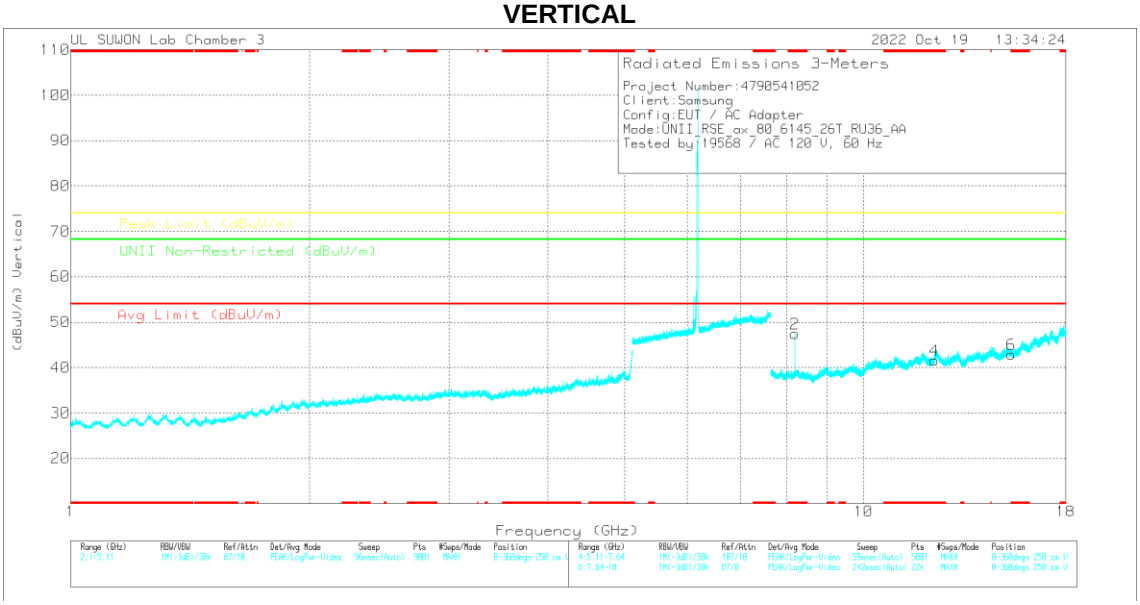
HARMONICS AND SPURIOUS EMISSIONS(WORST CASE: 802.11ax HE80 / 6145 MHz 36RU)

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_00218957	8GHz_HPF(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
* 8.19353	38.01	PK-U	36.2	-23	0	51.21	-	-	74	-22.79	-	-	131	215	H
* 8.19333	31.44	ADR	36.2	-23	0	44.64	54	-9.36	-	-	-	-	131	215	H
* 8.19325	39.87	PK-U	36.2	-23	0	53.07	-	-	74	-20.93	-	-	162	101	V
* 8.19331	34.99	ADR	36.2	-23	0	48.19	54	-5.81	-	-	-	-	162	101	V
* 12.29544	34.2	PK-U	39.3	-21.5	0	52	-	-	74	-22	-	-	0	100	H
* 12.29749	34.18	PK-U	39.3	-21.5	0	51.98	-	-	74	-22.02	-	-	0	100	V
* 15.35564	33.76	PK-U	40.1	-21	0	52.86	-	-	74	-21.14	-	-	0	100	H
* 15.36721	34.09	PK-U	40.1	-21.1	0	53.09	-	-	74	-20.91	-	-	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

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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	7.94008	42.41	PK-U	35.90	-22.70	0.00	55.61	-	-	-	-	68.20	-12.59	103	106	H
			7.93966	38.27	PK-U	35.90	-22.70	0.00	51.47	-	-	-	-	68.20	-16.73	80	100	V
			* 11.9102	34.57	PK-U	38.60	-19.90	0.00	53.27	-	-	74.00	-20.73	-	-	360	100	H
			* 11.90524	33.82	PK-U	38.50	-19.80	0.00	52.52	-	-	74.00	-21.48	-	-	0	100	V
			* 17.86408	34.29	PK-U	41.60	-17.60	0.00	58.29	-	-	74.00	-15.71	-	-	360	100	H
			* 17.85624	34.24	PK-U	41.60	-17.60	0.00	58.24	-	-	74.00	-15.76	-	-	0	100	V
	6175	MIMO	* 8.23321	39.47	PK-U	35.90	-22.40	0.00	52.97	-	-	74.00	-21.03	-	-	126	100	H
			* 8.23325	32.84	ADR	35.90	-22.40	0.15	46.49	54.00	-7.51	-	-	-	-	126	100	H
			* 8.23299	36.98	PK-U	35.90	-22.40	0.00	50.48	-	-	74.00	-23.52	-	-	73	111	V
			* 8.23325	27.50	ADR	35.90	-22.40	0.15	41.15	54.00	-12.85	-	-	-	-	73	111	V
			* 12.34942	33.84	PK-U	38.80	-19.40	0.00	53.24	-	-	74.00	-20.76	-	-	0	100	H
			* 12.35258	34.06	PK-U	38.80	-19.30	0.00	53.56	-	-	74.00	-20.44	-	-	0	100	V
			* 15.43664	33.95	PK-U	39.90	-19.20	0.00	54.65	-	-	74.00	-19.35	-	-	0	100	H
			* 15.43912	34.35	PK-U	39.90	-19.20	0.00	55.05	-	-	74.00	-18.95	-	-	0	100	V
	6415	MIMO	8.55314	36.68	PK-U	36.00	-22.30	0.00	50.38	-	-	-	-	68.20	-17.82	128	100	H
			8.55330	35.88	PK-U	36.00	-22.30	0.00	49.58	-	-	-	-	68.20	-18.62	199	111	V
			12.83472	34.52	PK-U	39.10	-19.90	0.00	53.72	-	-	-	-	68.20	-14.48	0	100	H
			12.83072	34.13	PK-U	39.10	-19.90	0.00	53.33	-	-	-	-	68.20	-14.87	0	100	V
			* 16.02873	34.13	PK-U	40.50	-19.30	0.00	55.33	-	-	74.00	-18.67	-	-	0	100	H
			* 16.03937	34.02	PK-U	40.50	-19.30	0.00	55.22	-	-	74.00	-18.78	-	-	0	100	V
802.11ax (HE20) 4RU Spot-Check	6175	MIMO	* 8.23318	37.16	PK-U	36.20	-22.20	0.00	51.16	-	-	74.00	-22.84	-	-	128	213	H
			* 8.2333	30.12	ADR	36.20	-22.20	0.00	44.12	54.00	-9.88	-	-	-	-	128	213	H
			* 8.23328	38.35	PK-U	36.20	-22.20	0.00	52.35	-	-	74.00	-21.65	-	-	156	101	V
			* 8.23326	32.71	ADR	36.20	-22.20	0.00	46.71	54.00	-7.29	-	-	-	-	156	101	V
			* 12.35663	34.49	PK-U	39.30	-21.90	0.00	51.89	-	-	74.00	-22.11	-	-	0	100	H
			* 12.35613	34.36	PK-U	39.30	-21.90	0.00	51.76	-	-	74.00	-22.24	-	-	0	100	V
802.11ax (HE40) 17RU Spot-Check	6165	MIMO	* 8.21958	37.25	PK-U	36.20	-22.30	0.00	51.15	-	-	74.00	-22.85	-	-	123	206	H
			* 8.22004	29.51	ADR	36.20	-22.30	0.00	43.41	54.00	-10.59	-	-	-	-	123	206	H
			* 8.22024	39.12	PK-U	36.20	-22.30	0.00	53.02	-	-	74.00	-20.98	-	-	162	101	V
			* 8.21992	34.08	ADR	36.20	-22.30	0.00	47.98	54.00	-6.02	-	-	-	-	162	101	V
			* 12.32504	34.63	PK-U	39.30	-21.50	0.00	52.43	-	-	74.00	-21.57	-	-	0	100	H
			* 12.34411	34.34	PK-U	39.30	-21.70	0.00	51.94	-	-	74.00	-22.06	-	-	0	100	V
802.11ax (HE80) 36RU Spot-Check	6145	MIMO	* 8.19353	38.01	PK-U	36.20	-23.00	0.00	51.21	-	-	74.00	-22.79	-	-	131	215	H
			* 8.19333	31.44	ADR	36.20	-23.00	0.00	44.64	54.00	-9.36	-	-	-	-	131	215	H
			* 8.19325	39.87	PK-U	36.20	-23.00	0.00	53.07	-	-	74.00	-20.93	-	-	162	101	V
			* 8.19331	34.99	ADR	36.20	-23.00	0.00	48.19	54.00	-5.81	-	-	-	-	162	101	V
			* 12.29544	34.20	PK-U	39.30	-21.50	0.00	52.00	-	-	74.00	-22.00	-	-	0	100	H
			* 12.29749	34.18	PK-U	39.30	-21.50	0.00	51.98	-	-	74.00	-22.02	-	-	0	100	V
			* 15.35564	33.76	PK-U	40.10	-21.00	0.00	52.86	-	-	74.00	-21.14	-	-	0	100	H
			* 15.36721	34.09	PK-U	40.10	-21.10	0.00	53.09	-	-	74.00	-20.91	-	-	0	100	V
802.11ax (HE160) 0RU Spot-Check	6185	MIMO	* 8.24637	37.09	PK-U	36.20	-22.20	0.00	51.09	-	-	74.00	-22.91	-	-	128	103	H
			* 8.24669	29.49	ADR	36.20	-22.20	0.00	43.49	54.00	-10.51	-	-	-	-	128	103	H
			* 8.24664	38.60	PK-U	36.20	-22.20	0.00	52.60	-	-	74.00	-21.40	-	-	159	103	V
			* 8.24674	32.09	ADR	36.20	-22.20	0.00	46.09	54.00	-7.91	-	-	-	-	159	103	V
			* 12.37697	34.42	PK-U	39.30	-22.10	0.00	51.62	-	-	74.00	-22.38	-	-	0	100	H
			* 12.37721	34.92	PK-U	39.30	-22.10	0.00	52.12	-	-	74.00	-21.88	-	-	0	100	V
			* 15.46388	34.29	PK-U	40.20	-21.40	0.00	53.09	-	-	74.00	-20.91	-	-	0	100	H
			* 15.44663	35.23	PK-U	40.10	-21.40	0.00	53.93	-	-	74.00	-20.07	-	-	0	100	V

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

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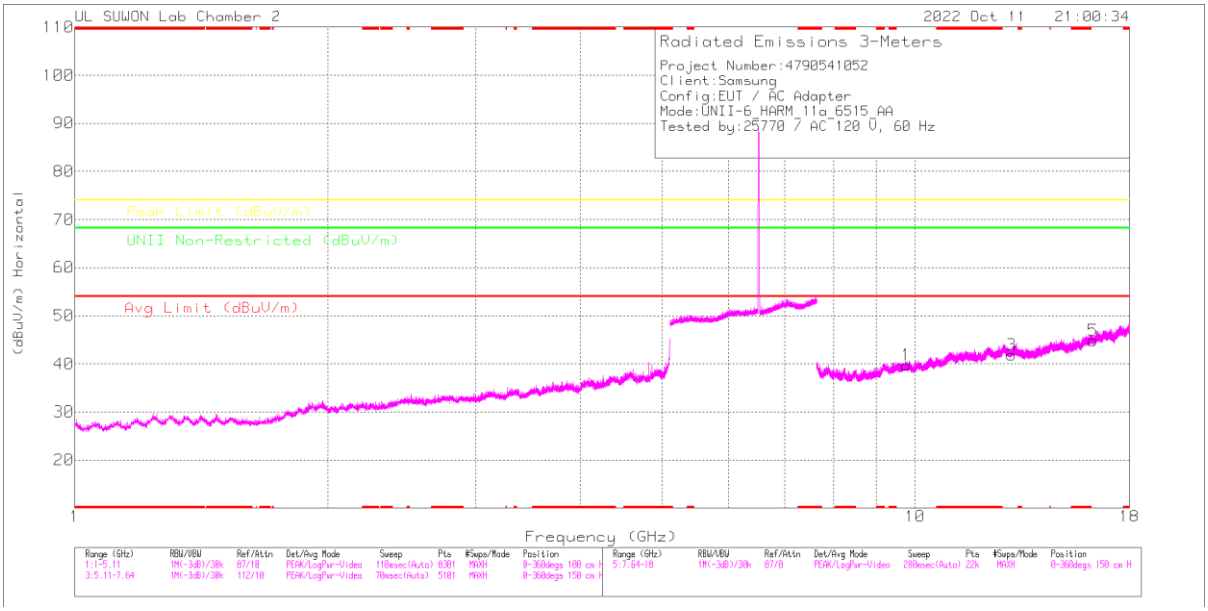
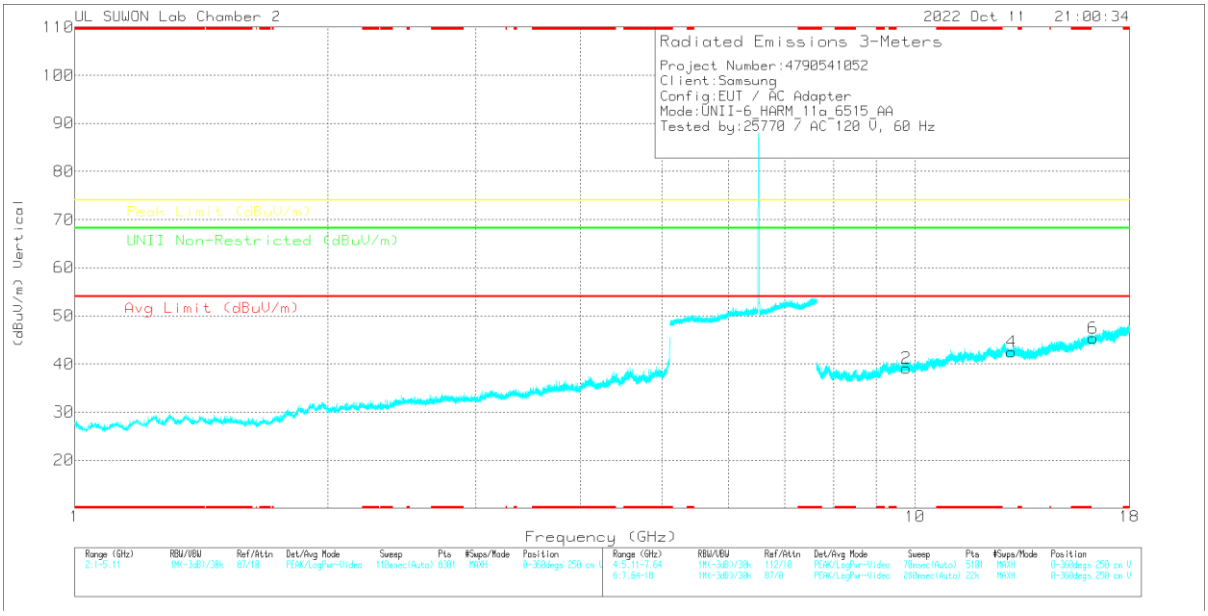
11.2. TX ABOVE 1GHz 2Tx MODE IN U-NII-6 BAND

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
9.76539	34.54	PK-U	37.1	-21.2	0	50.44	-	-	-	-	68.2	-17.76	0	100	H
9.78162	34.4	PK-U	37.1	-21.3	0	50.2	-	-	-	-	68.2	-18	0	100	V
13.0318	34.1	PK-U	39	-20.1	0	53	-	-	-	-	68.2	-15.2	0	100	H
13.02848	34.12	PK-U	39	-20.1	0	53.02	-	-	-	-	68.2	-15.18	0	100	V
16.2802	34.93	PK-U	40.6	-19.4	0	56.13	-	-	-	-	68.2	-12.07	0	100	H
16.29281	34.38	PK-U	40.6	-19.5	0	55.48	-	-	-	-	68.2	-12.72	0	100	V

PK-U - U-NII: Maximum Peak

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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	8.57989	36.16	PK-U	36.00	-22.80	0.00	49.36	-	-	-	-	68.20	-18.84	98	104	H
			8.57998	35.56	PK-U	36.00	-22.80	0.00	48.76	-	-	-	-	68.20	-19.44	195	102	V
			12.86611	34.75	PK-U	39.10	-20.00	0.00	53.85	-	-	-	-	68.20	-14.35	0	100	H
			12.87012	34.21	PK-U	39.10	-20.00	0.00	53.31	-	-	-	-	68.20	-14.89	0	100	V
			* 16.09679	34.22	PK-U	40.60	-19.40	0.00	55.42	-	-	74.00	-18.58	-	-	0	100	H
			* 16.08871	34.21	PK-U	40.60	-19.40	0.00	55.41	-	-	74.00	-18.59	-	-	0	100	V
	6475	MIMO	9.70563	34.67	PK-U	37.10	-21.10	0.00	50.67	-	-	-	-	68.20	-17.53	0	100	H
			9.71920	34.18	PK-U	37.10	-21.10	0.00	50.18	-	-	-	-	68.20	-18.02	0	100	V
			12.95336	34.16	PK-U	39.10	-20.20	0.00	53.06	-	-	-	-	68.20	-15.14	0	100	H
			12.94513	34.01	PK-U	39.10	-20.20	0.00	52.91	-	-	-	-	68.20	-15.29	0	100	V
			* 16.17946	34.91	PK-U	40.60	-19.50	0.00	56.01	-	-	74.00	-17.99	-	-	0	100	H
			* 16.19066	34.71	PK-U	40.60	-19.50	0.00	55.81	-	-	74.00	-18.19	-	-	0	100	V
	6515	MIMO	9.76539	34.54	PK-U	37.10	-21.20	0.00	50.44	-	-	-	-	68.20	-17.76	0	100	H
			9.78162	34.40	PK-U	37.10	-21.30	0.00	50.20	-	-	-	-	68.20	-18.00	0	100	V
			13.03180	34.10	PK-U	39.00	-20.10	0.00	53.00	-	-	-	-	68.20	-15.20	0	100	H
			13.02848	34.12	PK-U	39.00	-20.10	0.00	53.02	-	-	-	-	68.20	-15.18	0	100	V
			16.28020	34.93	PK-U	40.60	-19.40	0.00	56.13	-	-	-	-	68.20	-12.07	0	100	H
			16.29281	34.38	PK-U	40.60	-19.50	0.00	55.48	-	-	-	-	68.20	-12.72	0	100	V
802.11ax (HE20) 8RU Spot-Check	6435	MIMO	8.58001	35.94	PK-U	36.50	-22.50	0.00	49.94	-	-	-	-	68.20	-18.26	260	279	H
			8.58009	36.06	PK-U	36.50	-22.50	0.00	50.06	-	-	-	-	68.20	-18.14	159	102	V
			12.87282	34.71	PK-U	39.50	-22.30	0.00	51.91	-	-	-	-	68.20	-16.29	0	100	H
			12.86639	34.22	PK-U	39.50	-22.40	0.00	51.32	-	-	-	-	68.20	-16.88	0	100	V
			* 16.08585	32.94	PK-U	41.20	-20.10	0.00	54.04	-	-	74.00	-19.96	-	-	0	100	H
			* 16.09558	32.99	PK-U	41.20	-20.00	0.00	54.19	-	-	74.00	-19.81	-	-	0	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

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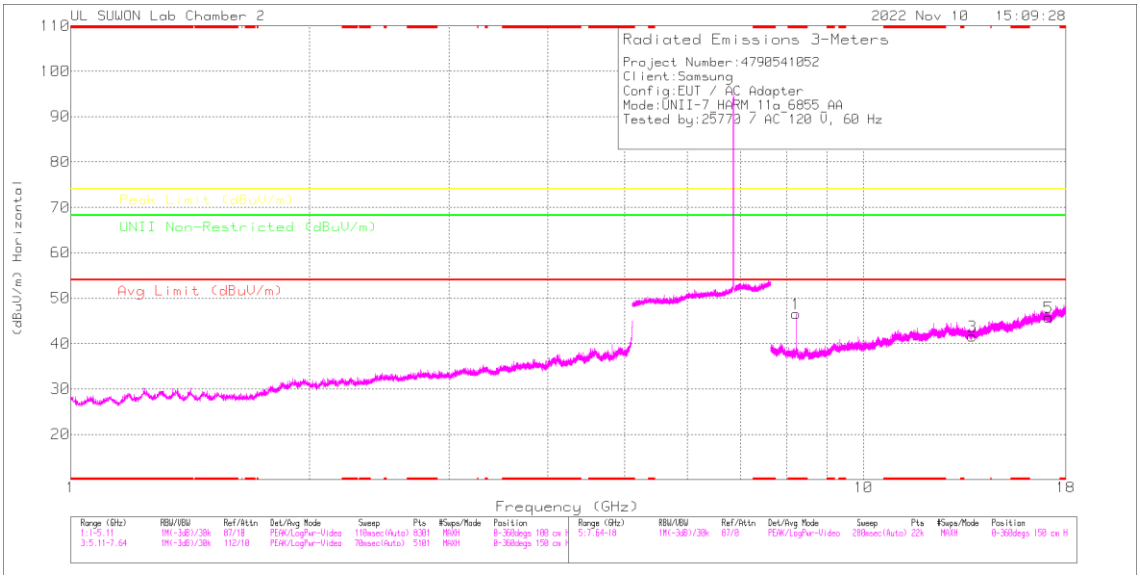
11.3. TX ABOVE 1GHz 2Tx MODE IN U-NII-7 BAND

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

HORIZONTAL



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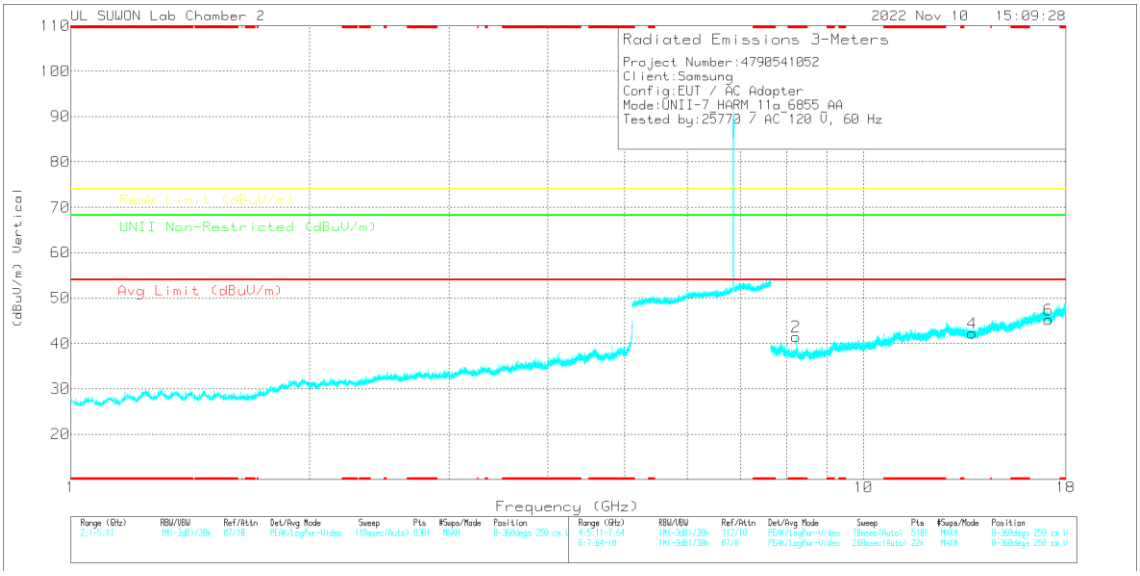

Note. Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

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
* 8.22623	39.02	PK-U	35.9	-22.5	0	52.42	-	-	74	-21.58	-	-	146	100	H
* 8.22591	33	ADR	35.9	-22.5	.15	46.55	54	-7.45	-	-	-	-	146	100	H
* 8.22547	36.05	PK-U	35.9	-22.5	0	49.45	-	-	74	-24.55	-	-	39	250	V
* 8.22593	25.17	ADR	35.9	-22.5	.15	38.72	54	-15.28	-	-	-	-	39	250	V
13.71955	33.9	PK-U	38.6	-19.6	0	52.9	-	-	-	-	68.2	-15.3	0	100	H
13.70592	34.47	PK-U	38.6	-19.7	0	53.37	-	-	-	-	68.2	-14.83	0	100	V
17.14082	34.28	PK-U	41.2	-18.6	0	56.88	-	-	-	-	68.2	-11.32	0	100	H
17.14388	34.3	PK-U	41.2	-18.7	0	56.8	-	-	-	-	68.2	-11.4	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

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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	9.79436	34.59	PK-U	37.20	-21.30	0.00	50.49	-	-	-	-	68.20	-17.71	0	100	H
			9.79557	34.04	PK-U	37.20	-21.30	0.00	49.94	-	-	-	-	68.20	-18.26	0	100	V
			13.07785	34.13	PK-U	38.90	-19.80	0.00	53.23	-	-	-	-	68.20	-14.97	0	100	H
			13.07800	34.74	PK-U	38.90	-19.80	0.00	53.84	-	-	-	-	68.20	-14.36	0	100	V
			16.34517	34.52	PK-U	40.70	-19.40	0.00	55.82	-	-	-	-	68.20	-12.38	0	100	H
			16.34470	34.67	PK-U	40.70	-19.40	0.00	55.97	-	-	-	-	68.20	-12.23	0	100	V
	6695	MIMO	10.04869	34.20	PK-U	37.40	-20.70	0.00	50.90	-	-	-	-	68.20	-17.30	0	100	H
			10.04271	34.01	PK-U	37.40	-20.80	0.00	50.61	-	-	-	-	68.20	-17.59	0	100	V
			* 13.39053	33.85	PK-U	38.80	-20.40	0.00	52.25	-	-	74.00	-21.75	-	-	0	100	H
			* 13.39115	34.16	PK-U	38.80	-20.40	0.00	52.56	-	-	74.00	**-21.44**	-	-	0	100	V
			16.73667	34.18	PK-U	41.20	-18.90	0.00	56.48	-	-	-	-	68.20	-11.72	0	100	H
			16.73760	34.42	PK-U	41.20	-18.90	0.00	56.72	-	-	-	-	68.20	-11.48	0	100	V
	6855	MIMO	* 8.22623	39.02	PK-U	35.90	-22.50	0.00	52.42	-	-	74.00	-21.58	-	-	146	100	H
			* 8.22591	33.00	ADR	35.90	-22.50	0.15	46.55	54.00	**-7.45**	-	-	-	-	146	100	H
			* 8.22547	36.05	PK-U	35.90	-22.50	0.00	49.45	-	-	74.00	-24.55	-	-	39	250	V
			* 8.22593	25.17	ADR	35.90	-22.50	0.15	38.72	54.00	-15.28	-	-	-	-	39	250	V
			13.71955	33.90	PK-U	38.60	-19.60	0.00	52.90	-	-	-	-	68.20	-15.30	0	100	H
			13.70592	34.47	PK-U	38.60	-19.70	0.00	53.37	-	-	-	-	68.20	-14.83	0	100	V
802.11ax (HE20) 4RU Spot-Check	6695	MIMO	10.04270	33.00	PK-U	37.90	-20.90	0.00	50.00	-	-	-	-	68.20	-18.20	0	100	H
			10.04250	33.51	PK-U	37.90	-20.90	0.00	50.51	-	-	-	-	68.20	-17.69	0	100	V
			* 13.39069	33.78	PK-U	39.20	-22.40	0.00	50.58	-	-	74.00	-23.42	-	-	0	100	H
			* 13.39067	33.79	PK-U	39.20	-22.40	0.00	50.59	-	-	74.00	-23.41	-	-	0	100	V
			16.73735	32.01	PK-U	42.30	-18.80	0.00	55.51	-	-	-	-	68.20	-12.69	0	100	H
			16.73777	32.30	PK-U	42.30	-18.80	0.00	55.80	-	-	-	-	68.20	-12.40	0	100	V

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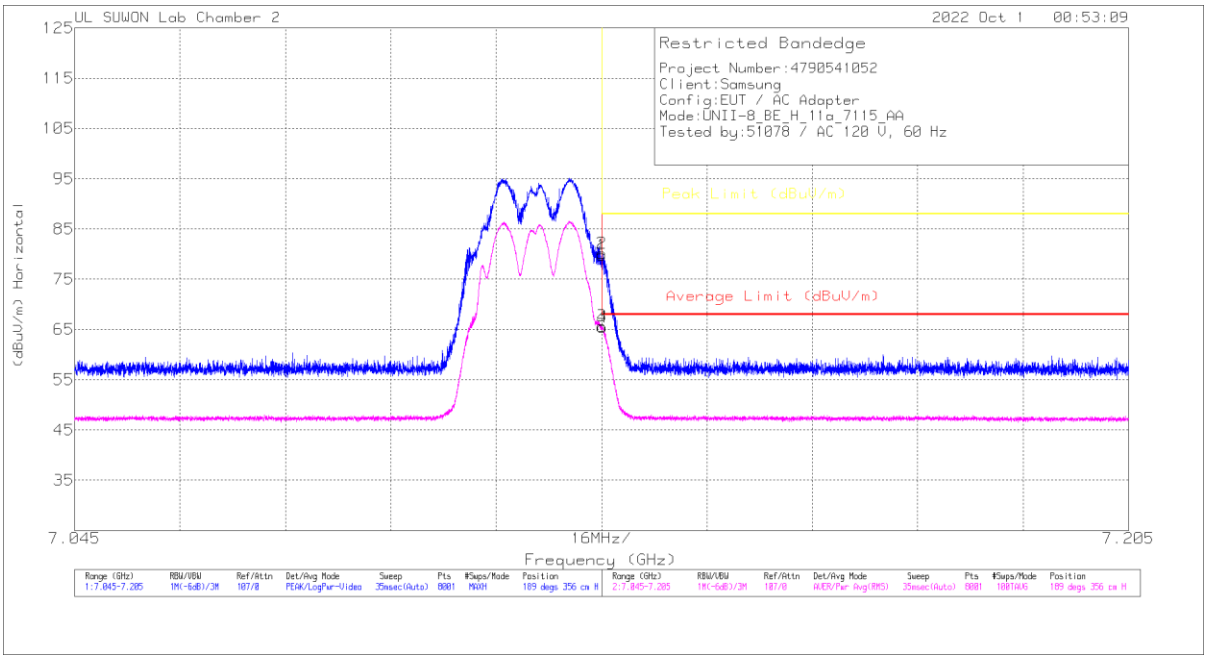
11.4. TX ABOVE 1GHz 2Tx MODE IN U-NII-8 BAND

BANDEDGE (WORST CASE: 802.11a / 7115 MHz)

HORIZONTAL PEAK 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	7.12502	58.85	Pk	35.6	-14.6	0	79.85	-	-	88	-8.15	189	356	H
2	7.12508	59.11	Pk	35.6	-14.6	0	80.11	-	-	88	-7.89	189	356	H
3	7.12502	44.5	RMS	35.6	-14.6	.15	65.65	68	-2.35	-	-	189	356	H
4	7.1251	44.35	RMS	35.6	-14.6	.15	65.5	68	-2.5	-	-	189	356	H

Pk - Peak detector
RMS - RMS detection

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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	58.85	Pk	35.60	-14.60	0.00	79.85	-	-	88.00	-8.15	189	356	H
			7.12508	59.11	Pk	35.60	-14.60	0.00	80.11	-	-	88.00	-7.89	189	356	H
			7.12502	44.50	RMS	35.60	-14.60	0.15	65.65	68.00	**-2.35**	-	-	189	356	H
			7.12510	44.35	RMS	35.60	-14.60	0.15	65.50	68.00	-2.50	-	-	189	356	H
			7.12502	50.27	Pk	35.60	-14.60	0.00	71.27	-	-	88.00	-16.73	174	104	V
			7.12518	51.96	Pk	35.60	-14.60	0.00	72.96	-	-	88.00	-15.04	174	104	V
			7.12502	36.02	RMS	35.60	-14.60	0.15	57.17	68.00	-10.83	-	-	174	104	V
			7.12504	36.08	RMS	35.60	-14.60	0.15	57.23	68.00	-10.77	-	-	174	104	V
802.11ax (HE20)	7115	MIMO	7.12549	62.27	Pk	36.10	-16.40	0.00	81.97	-	-	88.00	-6.03	244	313	H
			7.12549	43.84	RMS	36.10	-16.40	0.00	63.54	68.00	-4.46	-	-	244	313	H
			7.12549	64.55	Pk	36.10	-16.40	0.00	84.25	-	-	88.00	**-3.75**	183	110	V
			7.12549	45.84	RMS	36.10	-16.40	0.00	65.54	68.00	-2.46	-	-	183	110	V
802.11ax (HE40)	7085	MIMO	7.12501	36.93	Pk	36.10	-16.40	0.00	56.63	-	-	88.00	-31.37	248	373	H
			7.18656	39.70	Pk	36.10	-16.10	0.00	59.70	-	-	88.00	-28.30	248	373	H
			7.12501	26.14	RMS	36.10	-16.40	0.00	45.84	68.00	-22.16	-	-	248	373	H
			7.18786	27.74	RMS	36.10	-16.10	0.00	47.74	68.00	-20.26	-	-	248	373	H
			7.12501	37.09	Pk	36.10	-16.40	0.00	56.79	-	-	88.00	-31.21	188	100	V
			7.15720	39.34	Pk	36.10	-16.20	0.00	59.24	-	-	88.00	-28.76	188	100	V
			7.12501	26.56	RMS	36.10	-16.40	0.00	46.26	68.00	-21.74	-	-	188	100	V
			7.13063	27.89	RMS	36.10	-16.30	0.00	47.69	68.00	-20.31	-	-	188	100	V
802.11ax (HE80)	7025	MIMO	7.12501	37.06	Pk	36.10	-16.40	0.00	56.76	-	-	88.00	-31.24	239	320	H
			7.18916	38.65	Pk	36.10	-16.10	0.00	58.65	-	-	88.00	-29.35	239	320	H
			7.12501	26.52	RMS	36.10	-16.40	0.00	46.22	68.00	-21.78	-	-	239	320	H
			7.15574	27.68	RMS	36.10	-16.20	0.00	47.58	68.00	-20.42	-	-	239	320	H
			7.12501	37.09	Pk	36.10	-16.40	0.00	56.79	-	-	88.00	-31.21	188	100	V
			7.15720	39.34	Pk	36.10	-16.20	0.00	59.24	-	-	88.00	-28.76	188	100	V
			7.12501	26.56	RMS	36.10	-16.40	0.00	46.26	68.00	-21.74	-	-	188	100	V
			7.13063	27.89	RMS	36.10	-16.30	0.00	47.69	68.00	-20.31	-	-	188	100	V
802.11ax (HE160)	6985	MIMO	7.12501	37.17	Pk	36.10	-16.40	0.00	56.87	-	-	88.00	-31.13	242	318	H
			7.18960	39.24	Pk	36.10	-16.00	0.00	59.34	-	-	88.00	-28.66	242	318	H
			7.12501	26.79	RMS	36.10	-16.40	0.00	46.49	68.00	-21.51	-	-	242	318	H
			7.15868	27.88	RMS	36.10	-16.20	0.00	47.78	68.00	-20.22	-	-	242	318	H
			7.12501	37.20	Pk	36.10	-16.40	0.00	56.90	-	-	88.00	-31.10	180	114	V
			7.14237	39.65	Pk	36.10	-16.30	0.00	59.45	-	-	88.00	-28.55	180	114	V
			7.12501	26.93	RMS	36.10	-16.40	0.00	46.63	68.00	-21.37	-	-	180	114	V
			7.13965	28.02	RMS	36.10	-16.30	0.00	47.82	68.00	-20.18	-	-	180	114	V

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

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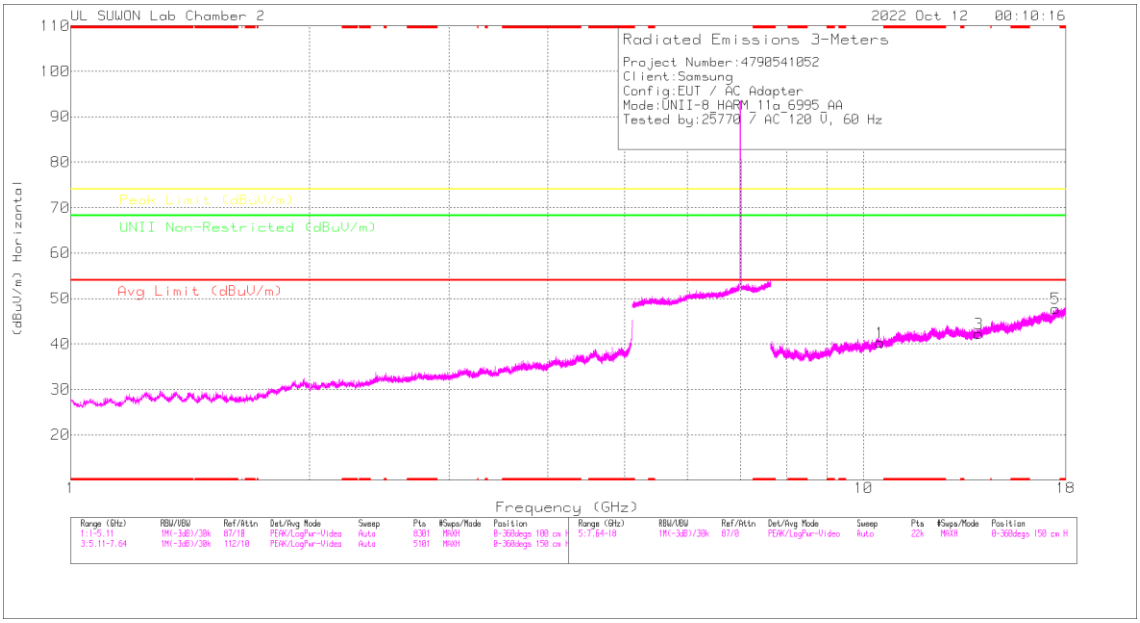
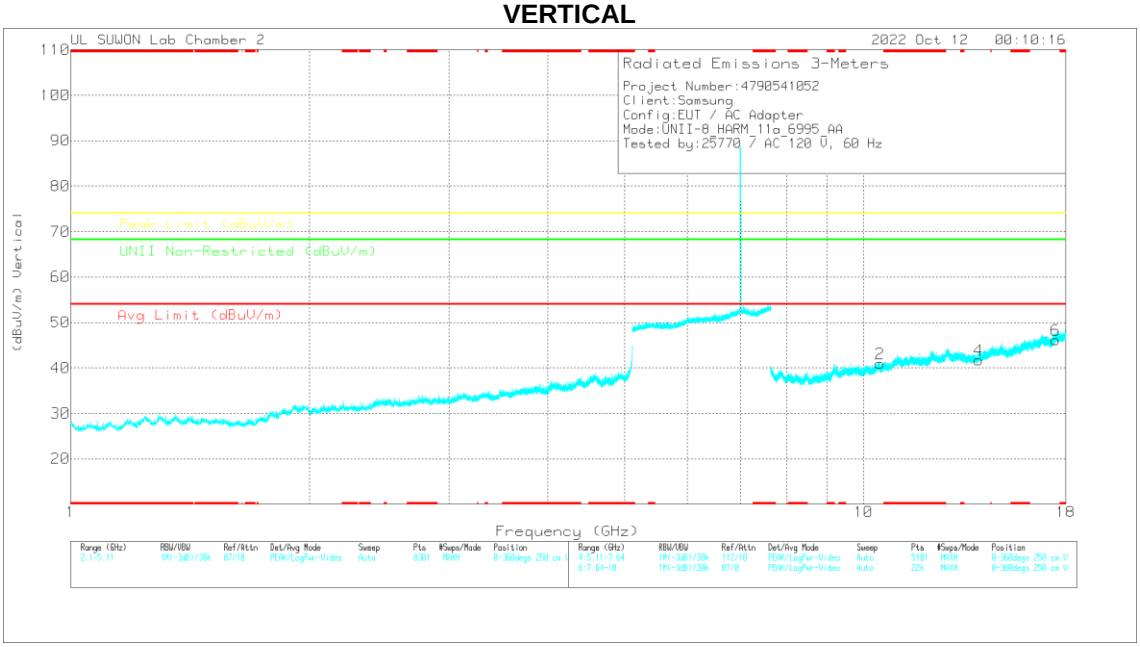
HARMONICS AND SPURIOUS EMISSIONS(WORST CASE: 802.11a / 6995 MHz)

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
10.49101	33	PK-U	37.7	-20.2	0	50.5	-	-	-	-	68.2	-17.7	0	100	H
10.49162	33.07	PK-U	37.7	-20.2	0	50.57	-	-	-	-	68.2	-17.63	0	100	V
13.98949	33.84	PK-U	39	-19.6	0	53.24	-	-	-	-	68.2	-14.96	0	100	H
13.99051	33.69	PK-U	39	-19.6	0	53.09	-	-	-	-	68.2	-15.11	0	100	V
17.48636	34.04	PK-U	41.5	-18.1	0	57.44	-	-	-	-	68.2	-10.76	0	100	H
17.48806	34.5	PK-U	41.5	-18.2	0	57.8	-	-	-	-	68.2	-10.4	0	100	V

PK-U - U-NII: Maximum Peak

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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	10.34346	34.08	PK-U	37.60	-20.60	0.00	51.08	-	-	-	-	68.20	-17.12	0	100	H
			10.34457	33.87	PK-U	37.60	-20.60	0.00	50.87	-	-	-	-	68.20	-17.33	0	100	V
			13.78976	33.53	PK-U	38.70	-19.40	0.00	52.83	-	-	-	-	68.20	-15.37	0	100	H
			13.79273	33.89	PK-U	38.70	-19.40	0.00	53.19	-	-	-	-	68.20	-15.01	0	100	V
			17.23821	35.38	PK-U	41.20	-18.80	0.00	57.78	-	-	-	-	68.20	-10.42	0	100	H
			17.23720	33.85	PK-U	41.20	-18.80	0.00	56.25	-	-	-	-	68.20	-11.95	0	100	V
	6995	MIMO	10.49101	33.00	PK-U	37.70	-20.20	0.00	50.50	-	-	-	-	68.20	-17.70	0	100	H
			10.49162	33.07	PK-U	37.70	-20.20	0.00	50.57	-	-	-	-	68.20	-17.63	0	100	V
			13.98949	33.84	PK-U	39.00	-19.60	0.00	53.24	-	-	-	-	68.20	-14.96	0	100	H
			13.99051	33.69	PK-U	39.00	-19.60	0.00	53.09	-	-	-	-	68.20	-15.11	0	100	V
			17.48636	34.04	PK-U	41.50	-18.10	0.00	57.44	-	-	-	-	68.20	-10.76	0	100	H
			17.48806	34.50	PK-U	41.50	-18.20	0.00	57.80	-	-	-	-	68.20	**-10.40**	0	100	V
	7115	MIMO	* 10.67111	33.30	PK-U	37.80	-19.90	0.00	51.20	-	-	74.00	-22.80	-	-	0	100	H
			* 10.67326	34.00	PK-U	37.80	-19.90	0.00	51.90	-	-	74.00	-22.10	-	-	0	100	V
			14.23220	34.43	PK-U	39.30	-19.90	0.00	53.83	-	-	-	-	68.20	-14.37	0	100	H
			14.23104	34.46	PK-U	39.30	-19.90	0.00	53.86	-	-	-	-	68.20	-14.34	0	100	V
			* 17.78827	34.36	PK-U	41.60	-17.60	0.00	58.36	-	-	74.00	**-15.64**	-	-	0	100	H
			* 17.78771	33.56	PK-U	41.60	-17.60	0.00	57.56	-	-	74.00	-16.44	-	-	0	100	V
802.11ax (HE20) 8RU Spot-check	7115	MIMO	* 10.67593	33.51	PK-U	38.40	-20.70	0.00	51.21	-	-	74.00	-22.79	-	-	0	100	H
			* 10.66377	32.89	PK-U	38.40	-20.90	0.00	50.39	-	-	74.00	-23.61	-	-	0	100	V
			14.22197	35.50	PK-U	39.40	-22.70	0.00	52.20	-	-	-	-	68.20	-16.00	0	100	H
			14.22429	34.95	PK-U	39.40	-22.70	0.00	51.65	-	-	-	-	68.20	-16.55	0	100	V
			* 17.7886	31.78	PK-U	41.90	-16.30	0.00	57.38	-	-	74.00	-16.62	-	-	0	100	H
			* 17.78523	31.32	PK-U	41.90	-16.40	0.00	56.82	-	-	74.00	-17.18	-	-	0	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

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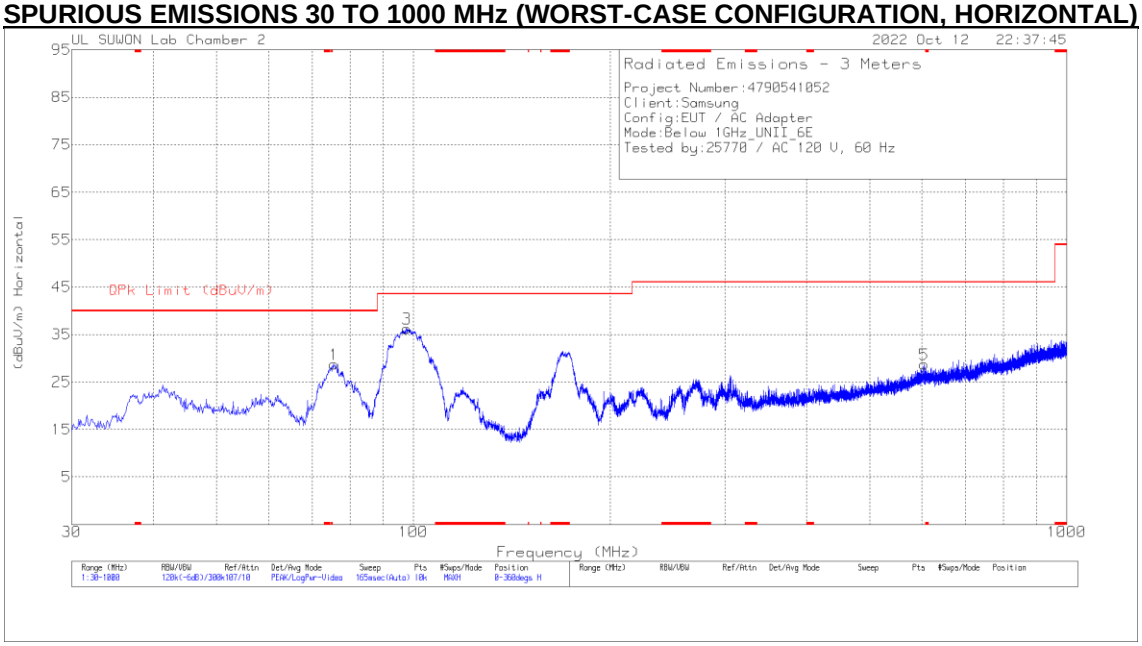
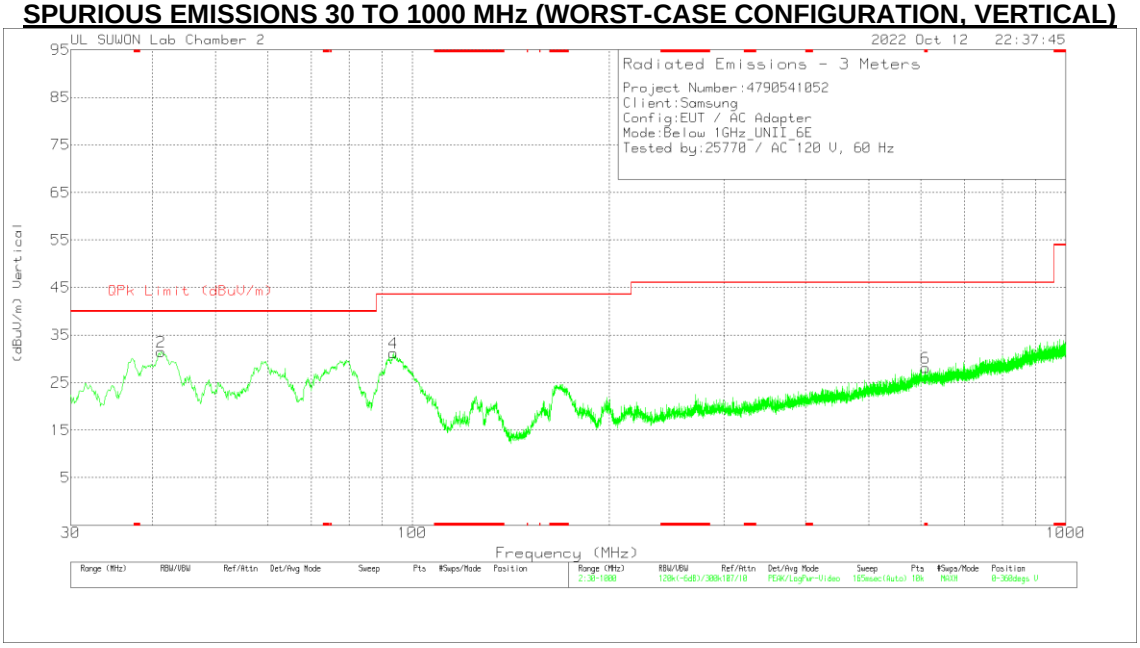
12. WORST-CASE BELOW 1 GHz

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]	DC Corr (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	75.687	46.14	Pk	13.4	-30.8	0	28.74	40	-11.26	0-360	100	H
2	41.252	43.72	Pk	19.1	-31.3	0	31.52	40	-8.48	0-360	100	V
3	97.803	49.77	Pk	17.1	-30.6	0	36.27	43.52	-7.25	0-360	200	H
4	93.535	45.39	Pk	16.4	-30.6	0	31.19	43.52	-12.33	0-360	100	V
5	605.307	31.49	Pk	24.9	-27.7	0	28.69	46.02	-17.33	0-360	100	H
6	* 610.351	30.87	Pk	24.9	-27.7	0	28.07	46.02	-17.95	0-360	200	V

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

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13. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

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

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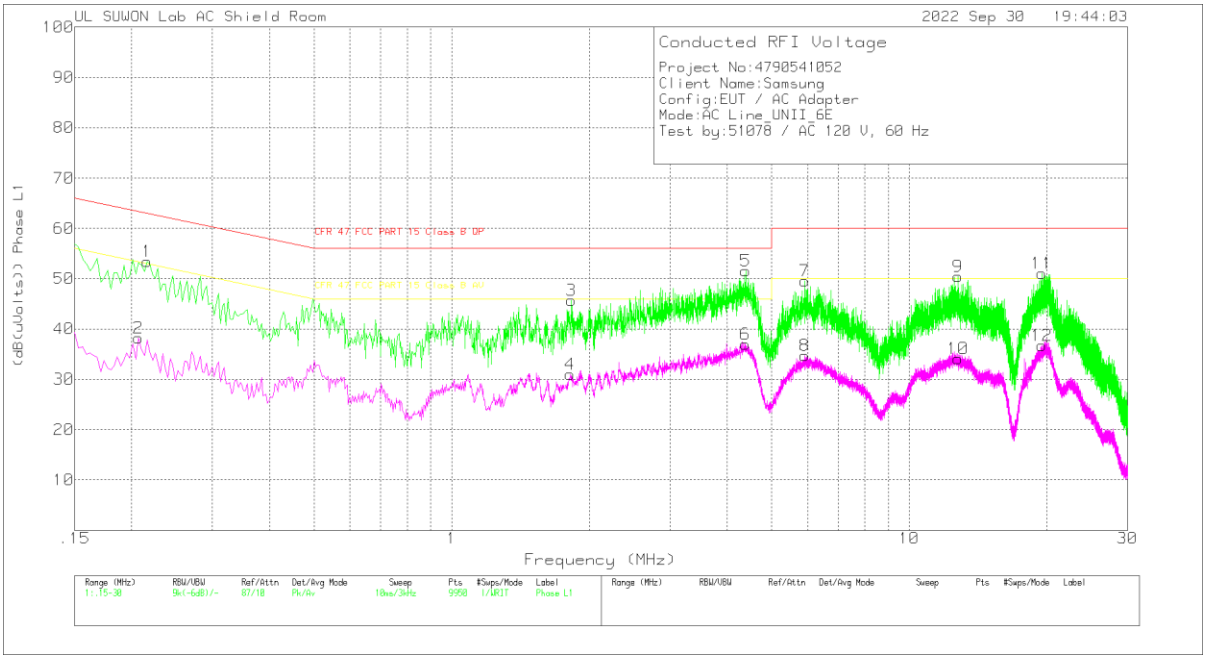
WORST EMISSIONS

LINE 1 DATA



Trace Markers

Range 1: Phase L1 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	101836_With EX_L1[dB]	CABLELOS S(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	.216	43.45	Pk	9.8	.2	53.45	62.97	-9.52	-	-
2	.207	28.22	Av	9.8	.2	38.22	-	-	53.32	-15.1
3	1.824	35.71	Pk	9.7	.3	45.71	56	-10.29	-	-
4	1.815	21.01	Av	9.7	.3	31.01	-	-	46	-14.99
5	4.389	41.57	Pk	9.7	.3	51.57	56	-4.43	-	-
6	4.38	26.93	Av	9.7	.3	36.93	-	-	46	-9.07
7	5.916	39.54	Pk	9.7	.3	49.54	60	-10.46	-	-
8	5.916	24.69	Av	9.7	.3	34.69	-	-	50	-15.31
9	12.771	40.22	Pk	9.9	.3	50.42	60	-9.58	-	-
10	12.783	23.91	Av	9.9	.3	34.11	-	-	50	-15.89
11	19.47	40.58	Pk	10.1	.4	51.08	60	-8.92	-	-
12	19.476	26.23	Av	10.1	.4	36.73	-	-	50	-13.27

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]	CABLELOS S(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)
.21525	33.6	Qp	9.8	.2	43.6	63	-19.4	-	-
4.38825	30.56	Qp	9.7	.3	40.56	56	-15.44	-	-
12.7703	25.1	Qp	9.9	.3	35.3	60	-24.7	-	-
19.4702	31.76	Qp	10.1	.4	42.26	60	-17.74	-	-

Qp - Quasi-Peak detector

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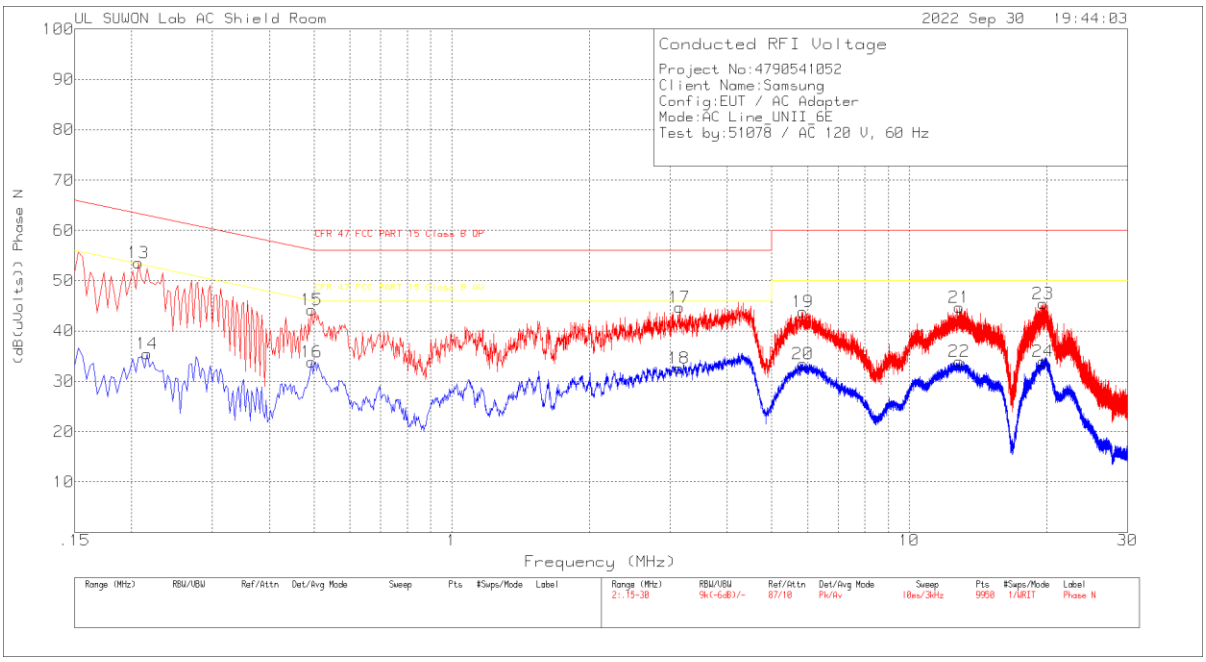
LINE 2 DATA



Trace Markers

Range 2: Phase N .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	101836_With EX_N[dB]	CABLELOS S(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	.207	43.6	Pk	9.8	.2	53.6	63.32	-9.72	-	-
14	.216	25.49	Av	9.8	.2	35.49	-	-	52.97	-17.48
15	.495	34.13	Pk	9.9	.2	44.23	56.08	-11.85	-	-
16	.495	23.8	Av	9.9	.2	33.9	-	-	46.08	-12.18
17	3.147	34.72	Pk	9.7	.3	44.72	56	-11.28	-	-
18	3.138	22.66	Av	9.7	.3	32.66	-	-	46	-13.34
19	5.85	33.7	Pk	9.8	.3	43.8	60	-16.2	-	-
20	5.856	23.41	Av	9.8	.3	33.51	-	-	50	-16.49
21	12.873	34.31	Pk	10	.4	44.71	60	-15.29	-	-
22	12.876	23.55	Av	10	.4	33.95	-	-	50	-16.05
23	19.635	34.85	Pk	10.2	.4	45.45	60	-14.55	-	-
24	19.629	23.34	Av	10.2	.4	33.94	-	-	50	-16.06

Pk - Peak detector
Av - Average detection

Quasi-Peak Emissions

Range 2: Phase N .15 - 30MHz

Frequency (MHz)	Meter Reading (dBuV)	Det	101836_With EX_N[dB]	CABLELOS S(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)
.20775	36.29	Qp	9.8	.2	46.29	63.29	-17	-	-

Qp - Quasi-Peak detector

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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.

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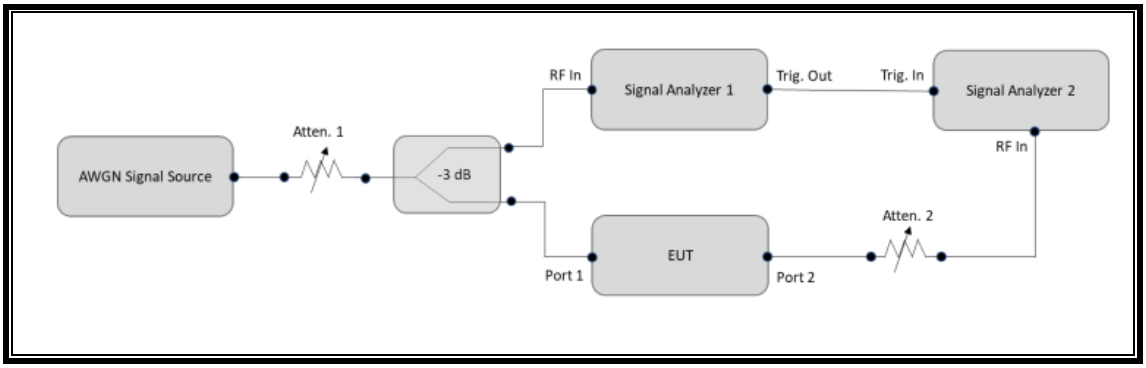
14.1.2. TEST AND MEASUREMENT SYSTEM

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.

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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

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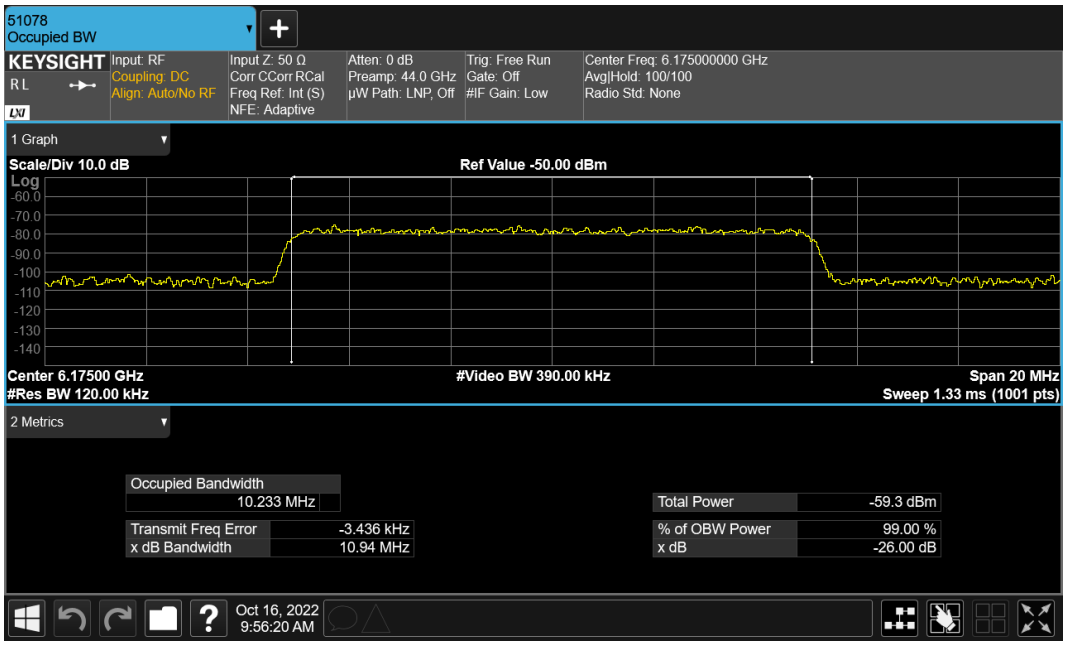
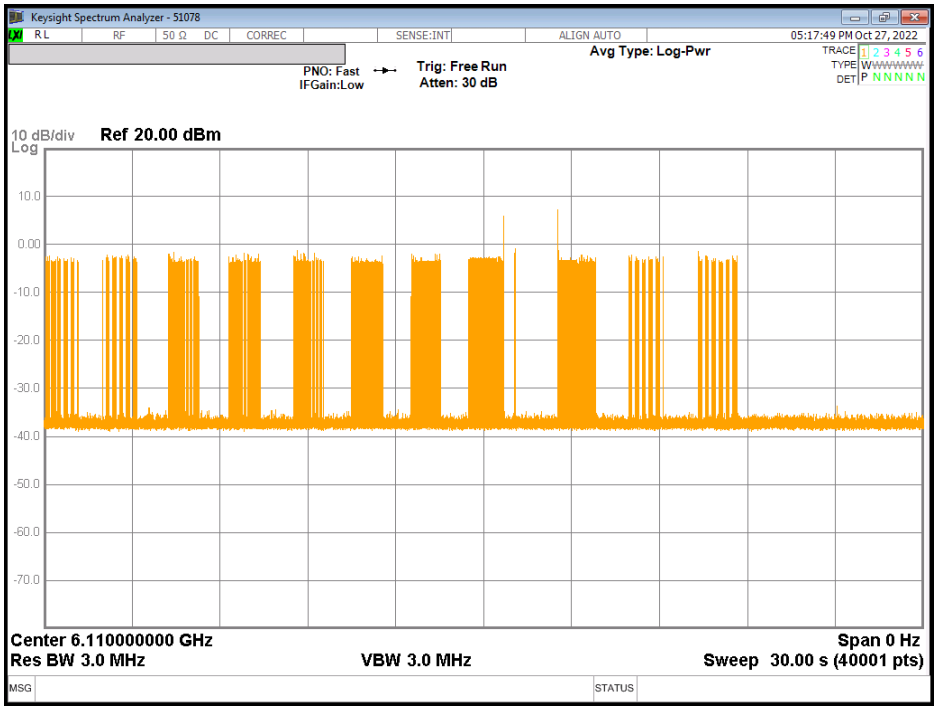
14.2. TEST RESULTS

14.2.1. AWGN Sample signal



14.2.2. Contention Based Protocol Timing Plot



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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	-84.27	-62	-14.90	-76.90	-7.37
	47	6185	160	6110	-83.30	-62	-14.90	-76.90	-6.40
				6180	-84.50	-62	-14.90	-76.90	-7.60
				6260	-84.46	-62	-14.90	-76.90	-7.56
6	105	6475	20	6475	-84.43	-62	-15.34	-77.34	-7.09
	111	6505	160	6430	-82.50	-62	-15.34	-77.34	-5.16
				6500	-82.30	-62	-15.34	-77.34	-4.96
				6580	-81.22	-62	-15.34	-77.34	-3.88
7	149	6695	20	6695	-79.80	-62	-16.23	-78.23	-1.57
	143	6665	160	6590	-80.63	-62	-16.23	-78.23	-2.40
				6660	-81.66	-62	-16.23	-78.23	-3.43
				6740	-81.14	-62	-16.23	-78.23	-2.91
8	213	7015	20	7015	-81.93	-62	-14.26	-76.26	-5.67
	207	6985	160	6910	-80.79	-62	-14.26	-76.26	-4.53
				6980	-78.74	-62	-14.26	-76.26	-2.48
				7060	-78.96	-62	-14.26	-76.26	-2.70

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	-84.27	O	O	O	O	O	O	O	O	O	O	100 %
					-87.35	O	O	O	X	O	O	X	X	X	X	50 %
					-90.19	X	X	X	X	X	X	X	X	X	X	0 %
	47	6185	160	6110	-83.30	O	O	O	O	O	O	O	O	O	O	100 %
					-87.13	X	X	X	O	O	O	X	O	O	X	50 %
					-90.21	X	X	X	X	X	X	X	X	X	X	0 %
				6180	-84.50	O	O	O	O	O	O	O	O	O	O	100 %
					-88.11	O	X	X	X	O	O	O	X	O	X	50 %
					-90.42	X	X	X	X	X	X	X	X	X	X	0 %
				6260	-84.46	O	O	O	O	O	O	O	O	O	O	100 %
					-87.05	O	O	X	X	X	X	O	O	O	X	50 %
					-90.17	X	X	X	X	X	X	X	X	X	X	0 %
6	105	6475	20	6475	-84.43	O	O	O	O	O	O	O	O	O	O	100 %
					-86.11	X	X	X	X	O	O	O	O	O	X	50 %
					-88.66	X	X	X	X	X	X	X	X	X	X	0 %
	111	6505	160	6430	-82.50	O	O	O	O	O	O	O	O	O	O	100 %
					-84.15	X	X	X	O	O	O	O	X	O	X	50 %
					-90.88	X	X	X	X	X	X	X	X	X	X	0 %
				6500	-82.30	O	O	O	O	O	O	O	O	O	O	100 %
					-85.06	X	X	X	O	O	X	O	O	X	X	40 %
					-90.01	X	X	X	X	X	X	X	X	X	X	0 %
				6580	-81.22	O	O	O	O	O	O	O	O	O	O	100 %
					-84.12	X	X	X	X	X	O	O	O	O	X	40 %
					-89.79	X	X	X	X	X	X	X	X	X	X	0 %
7	149	6695	20	6695	-79.80	X	O	O	O	O	O	O	O	O	O	90 %
					-86.44	X	X	X	X	X	O	O	O	O	X	40 %
					-90.50	X	X	X	X	X	X	XX	X	X	X	0 %
	143	6665	160	6590	-80.63	O	O	O	O	O	O	O	O	O	O	100 %
					-84.11	X	X	X	X	X	X	O	O	O	O	40 %
					-90.25	X	X	X	X	X	X	X	X	X	X	0 %
				6660	-81.66	O	O	O	O	O	O	O	O	O	O	100 %
					-85.33	X	X	X	O	O	O	O	O	O	X	60 %
					-90.52	X	X	X	X	X	X	X	X	X	X	0 %
				6740	-81.14	O	O	O	O	O	O	O	O	O	O	100 %
					-86.11	X	X	X	X	O	O	O	O	O	X	50 %
					-91.01	X	X	X	X	X	X	X	X	X	X	0 %
8	213	7015	20	7015	-81.93	O	O	O	O	O	O	O	O	O	O	100 %
					-87.55	X	X	X	X	X	X	O	O	O	O	40 %
					-91.26	X	X	X	X	X	X	X	X	X	X	0 %
	207	6985	160	6910	-80.79	O	O	O	O	O	O	O	O	O	O	100 %
					-86.15	X	X	X	X	O	O	O	O	O	X	50 %
					-90.70	X	X	X	X	X	X	X	X	X	X	0 %
				6980	-78.74	O	O	O	O	O	O	O	O	O	O	100 %
					-85.75	X	X	X	X	X	X	X	O	O	O	30 %
					-90.80	X	X	X	X	X	X	X	X	X	X	0 %
				7060	-78.96	O	O	O	O	O	O	O	O	O	O	100 %
					-86.88	X	X	O	O	O	O	O	X	X	X	50 %
					-90.90	X	X	X	X	X	X	X	X	X	X	0 %

END OF TEST REPORT

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