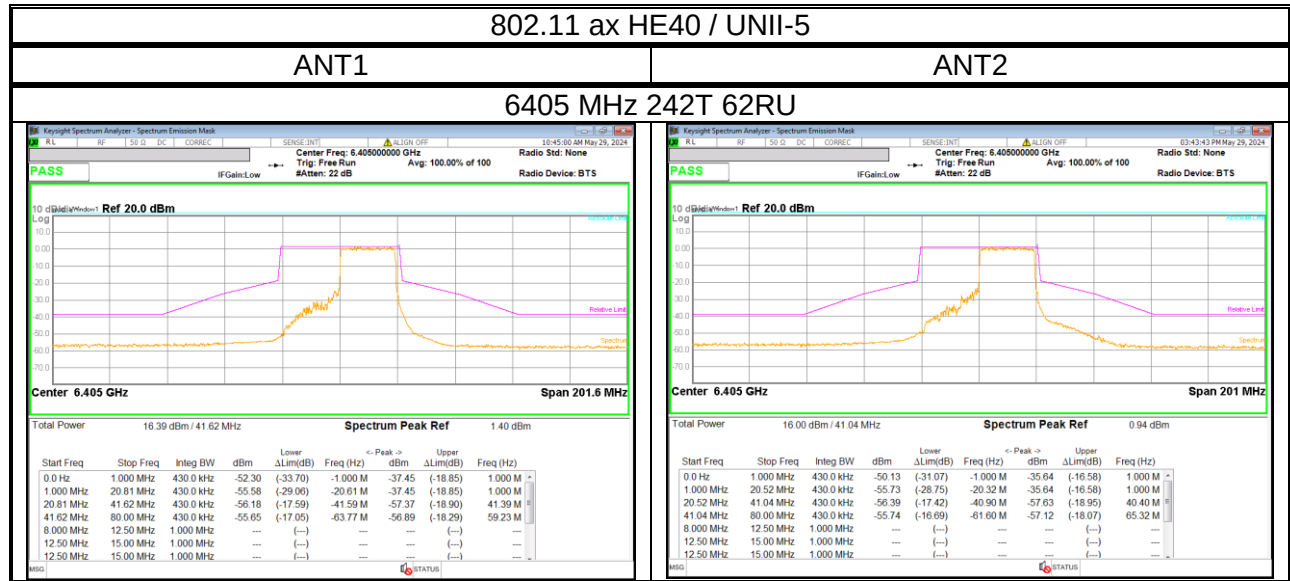
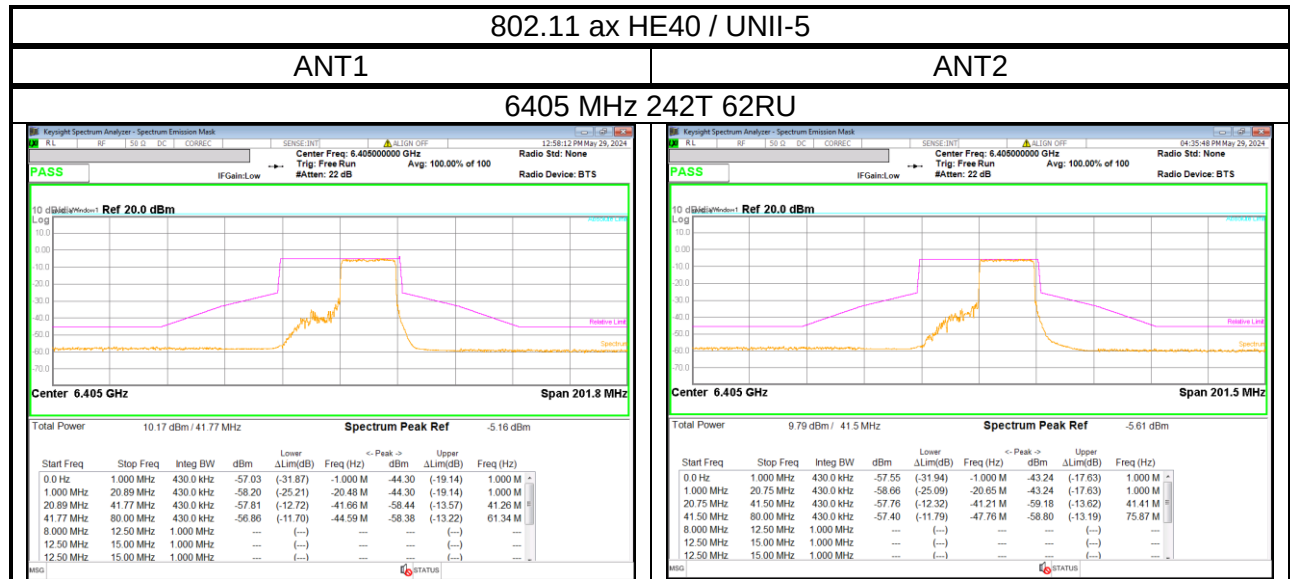


10.2.7. 802.11 ax HE40 RU MODE (WORST CASE)

- SP

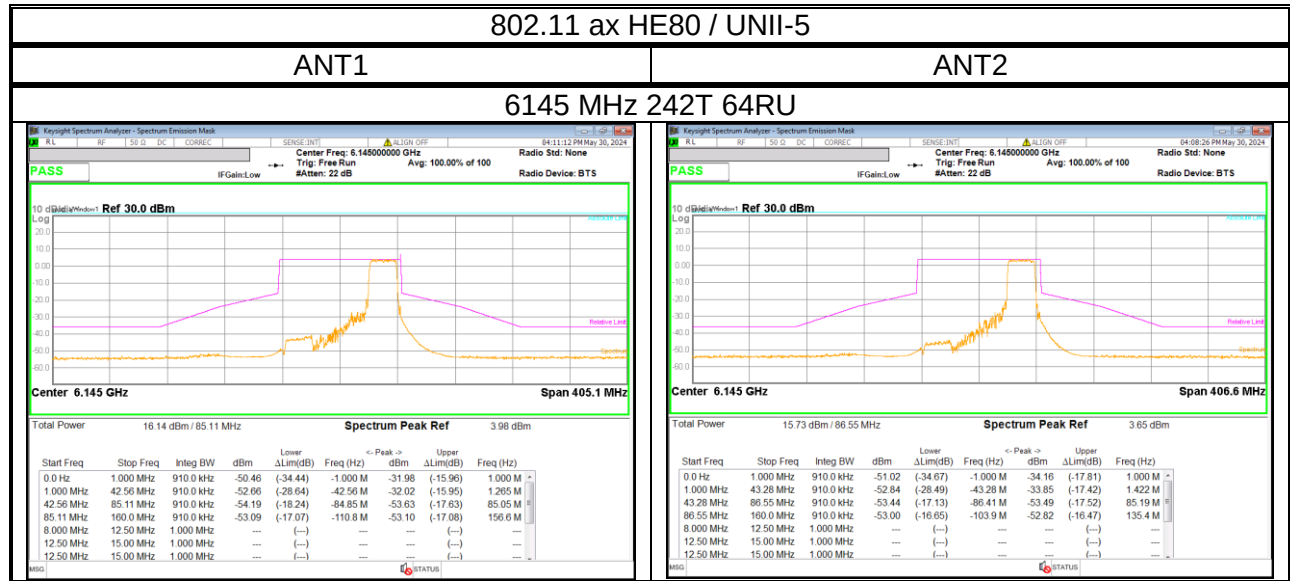


- LPI

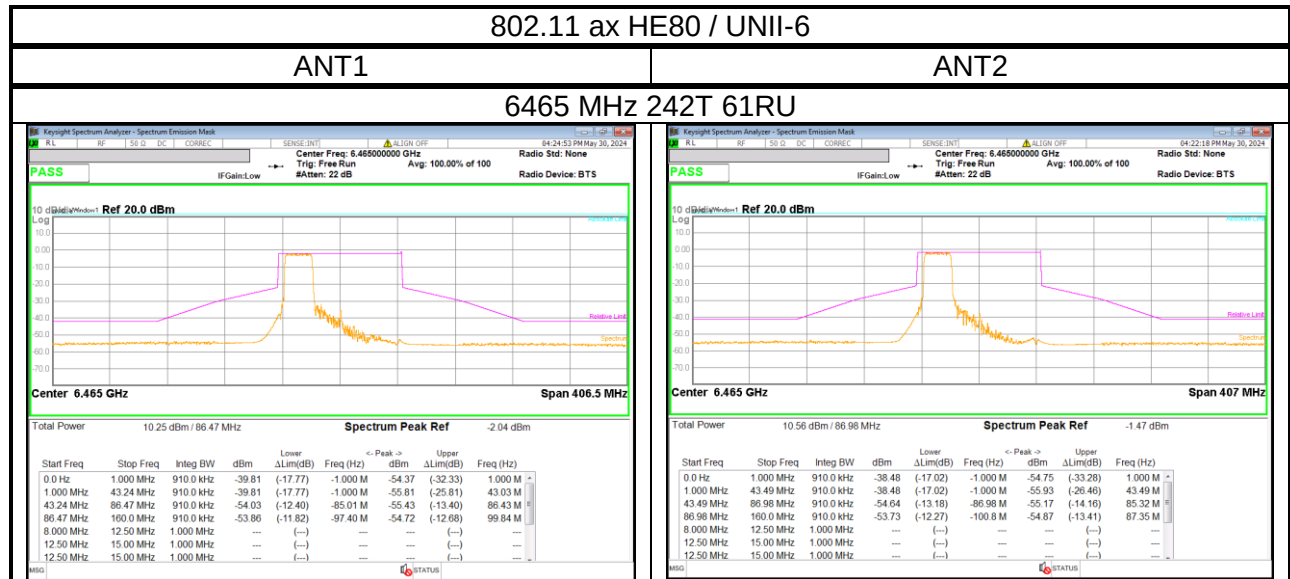


10.2.8. 802.11 ax HE80 RU MODE (WORST CASE)

- SP

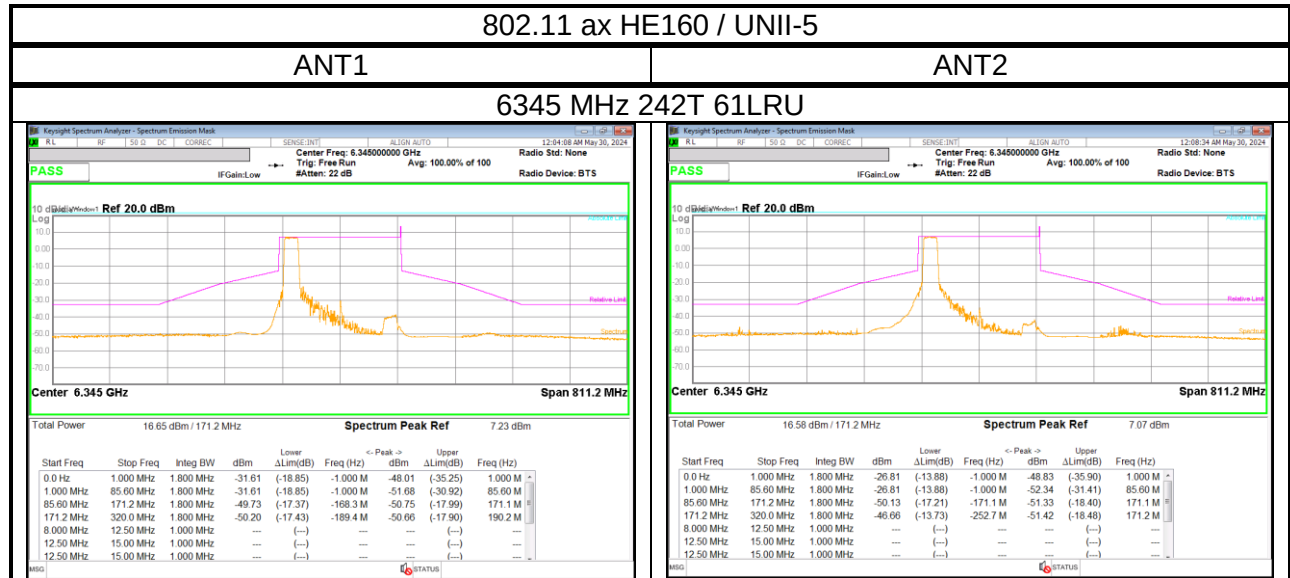


- LPI

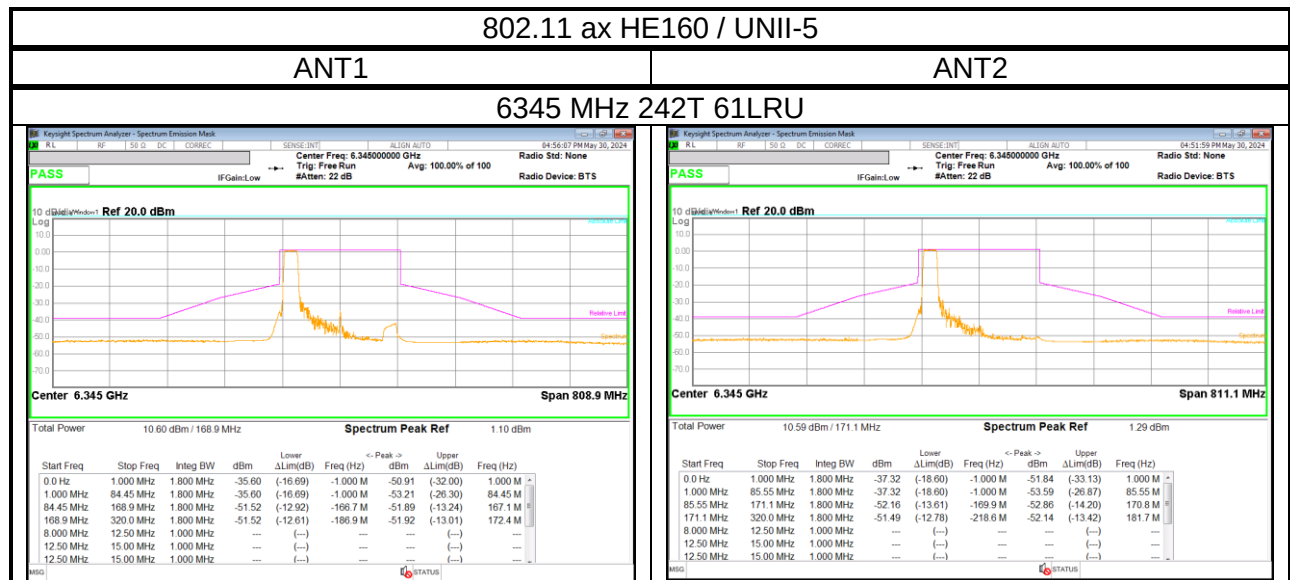


10.2.9. 802.11 ax HE160 RU MODE (WORST CASE)

- SP



- LPI



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)

$$E[\text{dBuV/m}] = \text{EIRP}[\text{dBm}] + 95.2 = -27\text{dBm} + 95.2 = 68.2\text{dBuV/m}$$

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. EUT is set 3 meters away from the receiving antenna and scan from 1m to 4m to find out the highest emission.

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.

Radiated harmonics spurious 1~18 GHz Low/Mid/High channels,18-40GHz were performed with the EUT set at the 2TX MIMO mode.

(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.

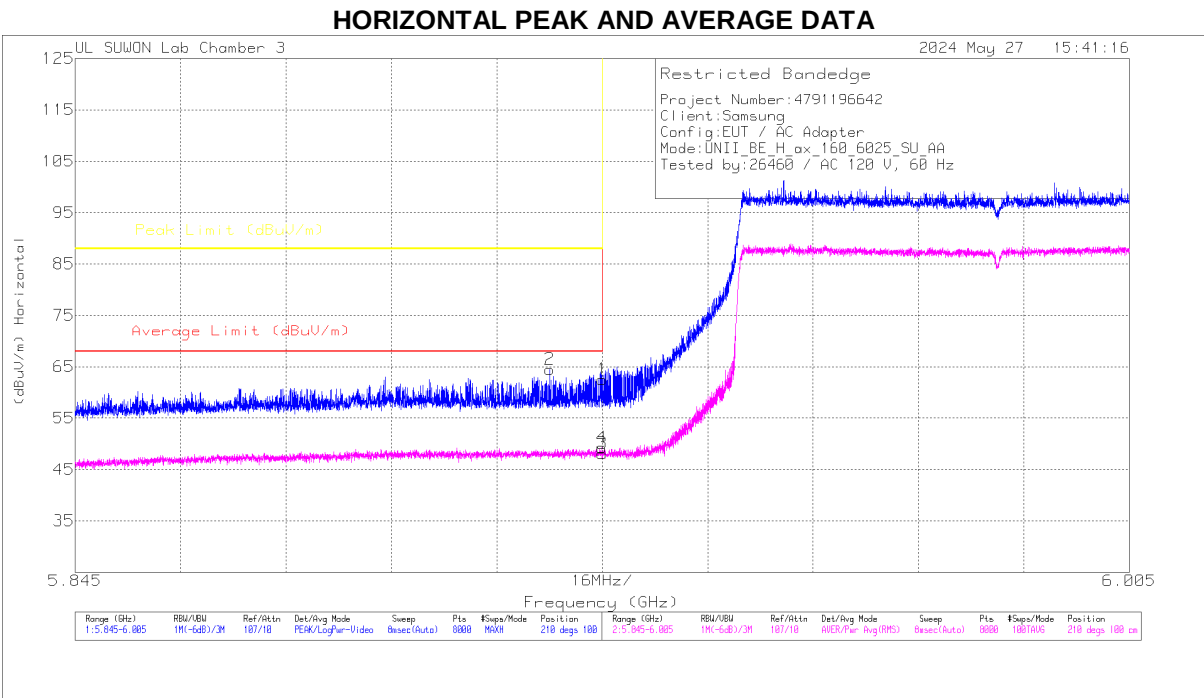
Note : Emission was pre-scanned from 9kHz to 30MHz; No emissions were detected which was at least 20dB below the specification limit (consider distance correction factor).
Per FCC part 15.31(o), test results were not reported.

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.

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

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



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	Antenna_567_Factor(dB)	10dB_Path Loss(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	46.47	PK	35.5	-19.4	0	62.57	-	-	88	-25.43	210	100	H
2	5.91701	48.41	PK	35.5	-19.4	0	64.51	-	-	88	-23.49	210	100	H
3	5.92499	32.03	RMS	35.5	-19.4	0	48.13	68	-19.87	-	-	210	100	H
4	5.92491	33.16	RMS	35.5	-19.4	0	49.26	68	-18.74	-	-	210	100	H

Pk - Peak detector
RMS - RMS detection

BANDEDGE TEST DATA

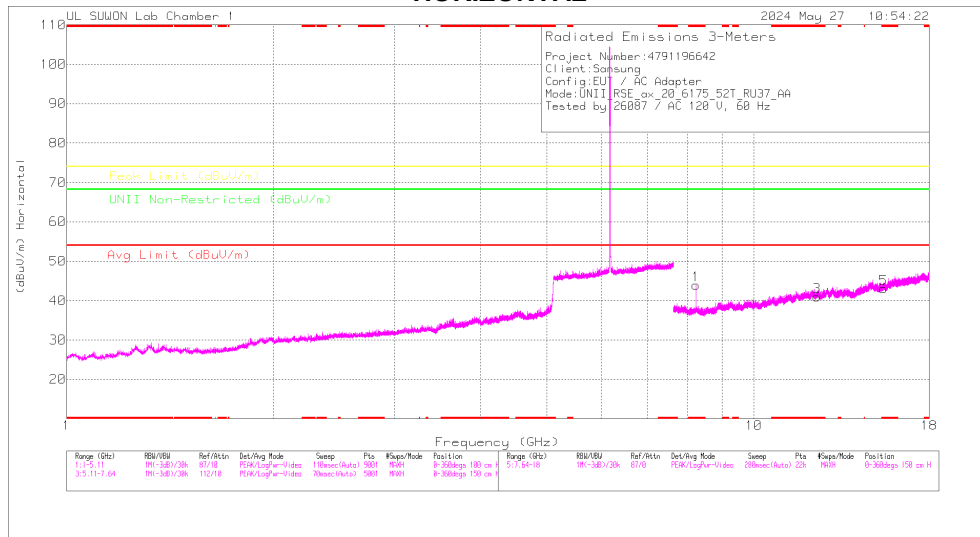
Mode	Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBuV]	Detector Mode	ANT Factor [dB/m]	Loss [dB]	DC Corr [dB]	Result [dBuV/m]	AV Limit [dBuV/m]	AV Margin [dB]	PK Limit [dBuV/m]	PK Margin [dB]	Azimuth [Degs]	Height [cm]	Polarity
802.11a	5955	MIMO	5.92500	37.02	Pk	34.90	-16.10	0.00	55.82	-	-	88.00	-32.18	329	109	H
			5.92038	39.23	Pk	34.90	-16.10	0.00	58.03	-	-	88.00	-29.97	329	109	H
			5.92500	27.05	RMS	34.90	-16.10	0.15	46.00	68.00	-22.00	-	-	329	109	H
			5.92452	27.56	RMS	34.90	-16.10	0.15	46.51	68.00	-21.49	-	-	329	109	H
			5.92500	37.05	Pk	34.90	-16.10	0.00	55.85	-	-	88.00	-32.15	30	100	V
			5.92422	39.20	Pk	34.90	-16.00	0.00	58.10	-	-	88.00	-29.90	30	100	V
			5.92500	26.31	RMS	34.90	-16.10	0.15	45.26	68.00	-22.74	-	-	30	100	V
			5.92380	27.04	RMS	34.90	-16.00	0.15	46.09	68.00	-21.91	-	-	30	100	V
802.11ax HE20 SU mode	5955	MIMO	5.92499	38.99	Pk	35.50	-19.40	0.00	55.09	-	-	88.00	-32.91	300	101	H
			5.92333	41.34	Pk	35.50	-19.40	0.00	57.44	-	-	88.00	-30.56	300	101	H
			5.92499	28.45	RMS	35.50	-19.40	0.00	44.55	68.00	-23.45	-	-	300	100	H
			5.92365	29.33	RMS	35.50	-19.40	0.00	45.43	68.00	-22.57	-	-	300	100	H
			5.92499	38.20	Pk	35.50	-19.40	0.00	54.30	-	-	88.00	-33.70	262	376	V
			5.92381	39.93	Pk	35.50	-19.40	0.00	56.03	-	-	88.00	-31.97	262	376	V
			5.92499	27.27	RMS	35.50	-19.40	0.00	43.37	68.00	-24.63	-	-	262	376	V
			5.92445	28.29	RMS	35.50	-19.40	0.00	44.39	68.00	-23.61	-	-	262	376	V
			5.92499	39.77	Pk	35.50	-19.40	0.00	55.87	-	-	88.00	-32.13	341	100	H
			5.92427	42.34	Pk	35.50	-19.40	0.00	58.44	-	-	88.00	-29.56	341	100	H
802.11ax HE40 SU mode	5965	MIMO	5.92499	30.22	RMS	35.50	-19.40	0.00	46.32	68.00	-21.68	-	-	341	100	H
			5.92297	31.27	RMS	35.50	-19.40	0.00	47.37	68.00	-20.63	-	-	341	100	H
			5.92499	39.50	Pk	35.50	-19.40	0.00	55.60	-	-	88.00	-32.40	213	105	V
			5.92343	41.47	Pk	35.50	-19.40	0.00	57.57	-	-	88.00	-30.43	213	105	V
			5.92499	28.79	RMS	35.50	-19.40	0.00	44.89	68.00	-23.11	-	-	213	105	V
			5.92399	29.95	RMS	35.50	-19.40	0.00	46.05	68.00	-21.95	-	-	213	105	V
			5.92499	39.30	Pk	35.50	-19.40	0.00	55.40	-	-	88.00	-32.60	213	105	H
			5.90709	41.65	Pk	35.40	-19.40	0.00	57.65	-	-	88.00	-30.35	213	105	H
802.11ax HE80 SU mode	5985	MIMO	5.92499	29.17	RMS	35.50	-19.40	0.00	45.27	68.00	-22.73	-	-	213	105	H
			5.92311	30.22	RMS	35.50	-19.40	0.00	46.32	68.00	-21.68	-	-	213	105	H
			5.92499	39.94	Pk	35.50	-19.40	0.00	56.04	-	-	88.00	-31.96	182	334	V
			5.91477	41.90	Pk	35.50	-19.40	0.00	58.00	-	-	88.00	-30.00	182	334	V
			5.92499	30.62	RMS	35.50	-19.40	0.00	46.72	68.00	-21.28	-	-	182	334	V
			5.92117	30.87	RMS	35.50	-19.40	0.00	46.97	68.00	-21.03	-	-	182	334	V
			5.92499	46.47	Pk	35.50	-19.40	0.00	62.57	-	-	88.00	-25.43	210	100	H
			5.91701	48.41	Pk	35.50	-19.40	0.00	64.51	-	-	88.00	-23.49	210	100	H
802.11ax HE160 SU mode	6025	MIMO	5.92499	32.03	RMS	35.50	-19.40	0.00	48.13	68.00	-19.87	-	-	210	100	H
			5.92491	33.16	RMS	35.50	-19.40	0.00	49.26	68.00	-18.74	-	-	210	100	H
			5.92499	43.68	Pk	35.50	-19.40	0.00	59.78	-	-	88.00	-28.22	182	334	V
			5.92495	44.74	Pk	35.50	-19.40	0.00	60.84	-	-	88.00	-27.16	182	334	V
			5.92499	30.80	RMS	35.50	-19.40	0.00	46.90	68.00	-21.10	-	-	182	334	V
			5.92153	31.38	RMS	35.50	-19.30	0.00	47.58	68.00	-20.42	-	-	182	334	V
			5.92499	30.80	RMS	35.50	-19.30	0.00	47.58	68.00	-20.42	-	-	182	334	V

Note1. Pk - Peak detector, RMS - RMS detector

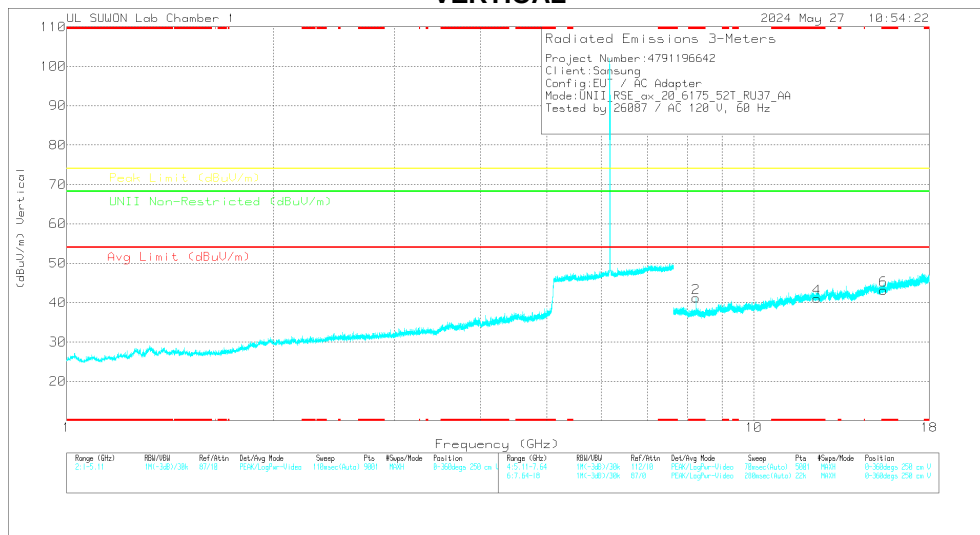
Note2. * - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

HARMONICS AND SPURIOUS EMISSIONS(WORST CASE: 802.11ax HE20 6175 MHz / 52T / 37RU)

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)	Mode Reading (dBuV)	Det	317_00368717	802.11ax HE20	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)	Altitude (m)	Height (m)	Polarity
* 8.23338	43.46	PK-U	36.3	-28.3	0	51.46	-	-10.12	74	-22.54	-	-	200	101	H
* 8.23336	35.88	ADR	36.3	-28.3	0	43.88	54	-	-	-	-	-	200	101	H
* 8.23318	42.07	PK-U	36.3	-28.3	0	50.07	-	-	74	-23.93	-	-	195	100	V
* 8.23329	32.17	ADR	36.3	-28.3	0	40.17	54	-13.83	-	-	-	-	195	100	V
* 12.34565	37.54	PK-U	38.9	-24.8	0	51.54	-	-	74	-22.36	-	-	0	100	H
* 12.34957	37.58	PK-U	38.9	-24.8	0	51.68	-	-	74	-22.32	-	-	0	100	V
* 15.43579	37.3	PK-U	40.1	-23	0	54.4	-	-	74	-19.6	-	-	0	100	H
* 15.43617	25.45	ADR	40.1	-23	0	42.55	54	-11.45	-	-	-	-	0	100	H
* 15.43019	37.69	PK-U	40.1	-23	0	54.79	-	-	74	-19.21	-	-	0	100	V
* 15.43791	25.48	ADR	40.1	-23	0	42.58	54	-11.42	-	-	-	-	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

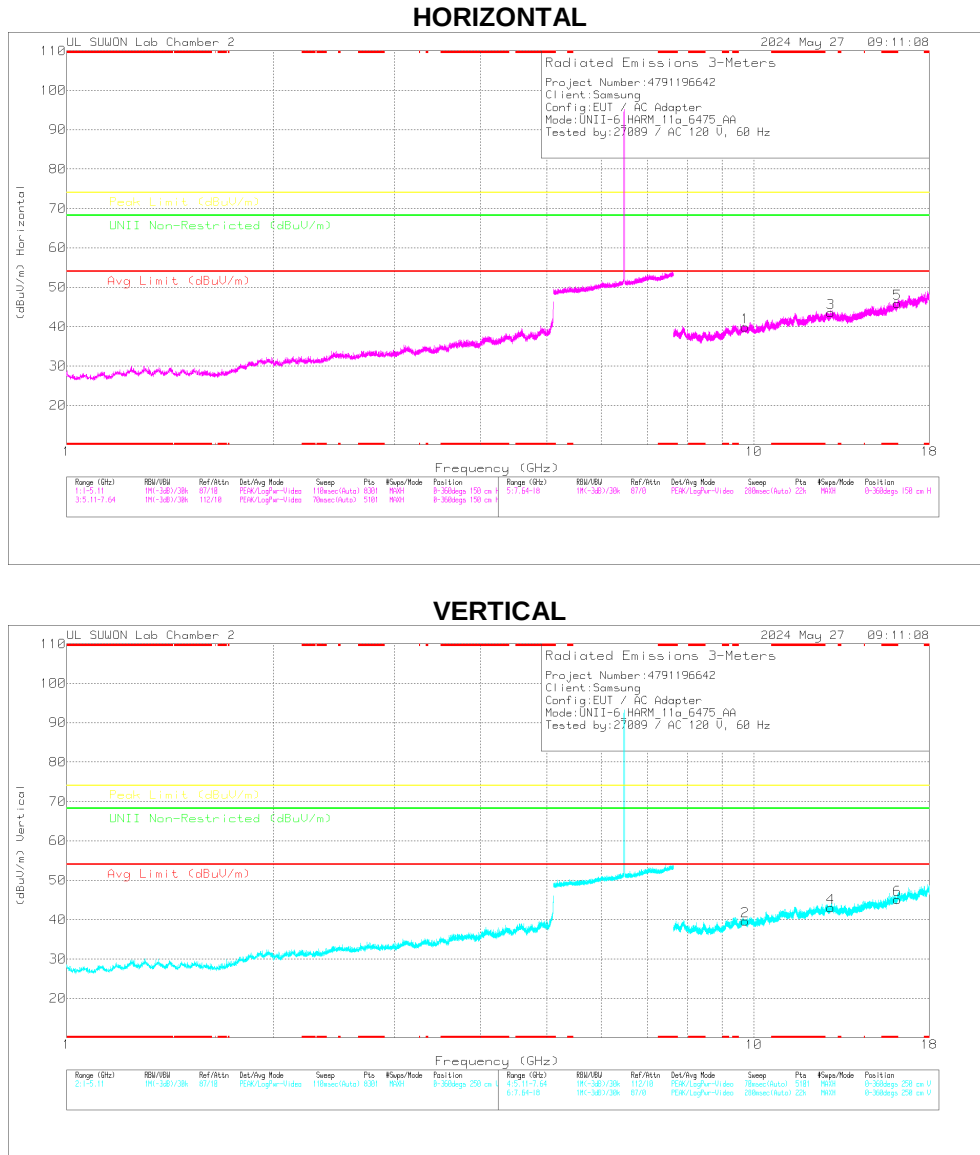
Mode	Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBuV]	Detector Mode	ANT Factor [dB/m]	Loss [dB]	DC Corr [dB]	Result [dBuV/m]	AV Limit [dBuV/m]	AV Margin [dB]	PK Limit [dBuV/m]	PK Margin [dB]	Non-Restricted [dBuV/m]	Margin [dB]	Azimuth [Degs]	Height [cm]	Polarity
802.11a	5955	MIMO	7.94009	46.18	PK-U	36.00	-28.50	0.00	53.68	-	-	-	-	68.20	-14.52	204	115	H
			7.94015	44.73	PK-U	36.00	-28.50	0.00	52.23	-	-	-	-	68.20	-15.97	190	279	V
			*11.91121	38.50	PK-U	38.90	-24.20	0.00	53.20	-	-	74.00	-20.80	-	-	0	100	H
			*11.91241	38.82	PK-U	38.90	-24.20	0.00	53.52	-	-	74.00	-20.48	-	-	0	100	V
			14.89636	39.06	PK-U	40.10	-23.70	0.00	55.46	-	-	-	-	68.20	-12.74	0	100	H
			14.89532	38.66	PK-U	40.10	-23.80	0.00	54.96	-	-	-	-	68.20	-13.24	0	100	V
			*8.23274	42.98	PK-U	36.30	-28.30	0.00	50.98	-	-	74.00	-23.02	-	-	203	127	H
			*8.2333	33.95	ADR	36.30	-28.30	0.15	42.10	54.00	-11.90	-	-	-	-	203	127	H
	6175	MIMO	*8.2408	41.30	PK-U	36.30	-28.20	0.00	49.40	-	-	74.00	-24.60	-	-	336	104	V
			8.2333	30.29	ADR	36.30	-28.30	0.15	38.44	54.00	-15.56	-	-	-	-	336	104	V
			*12.34903	37.83	PK-U	38.90	-24.80	0.00	51.93	-	-	74.00	-22.07	-	-	0	100	H
			*12.35021	38.18	PK-U	38.90	-24.80	0.00	52.28	-	-	74.00	-21.72	-	-	0	100	V
			*15.43608	37.46	PK-U	40.10	-23.00	0.00	54.56	-	-	74.00	-19.44	-	-	0	100	H
			*15.4360	25.34	ADR	40.10	-23.00	0.15	42.59	54.00	-11.41	-	-	-	-	0	100	H
			*15.43781	37.52	PK-U	40.10	-23.00	0.00	54.62	-	-	74.00	-19.38	-	-	0	100	V
			*15.43778	25.42	ADR	40.10	-23.00	0.15	42.67	54.00	-11.33	-	-	-	-	0	100	V
	6415	MIMO	9.62413	38.73	PK-U	37.10	-26.90	0.00	48.93	-	-	-	-	68.20	-19.27	0	100	H
			9.62159	39.14	PK-U	37.10	-26.80	0.00	49.44	-	-	-	-	68.20	-18.76	0	100	V
			12.83174	37.45	PK-U	39.10	-23.80	0.00	52.75	-	-	-	-	68.20	-15.45	0	100	H
			12.82917	38.33	PK-U	39.10	-23.80	0.00	53.63	-	-	-	-	68.20	-14.57	0	100	V
			*16.03543	37.96	PK-U	40.70	-23.30	0.00	55.36	-	-	74.00	-18.64	-	-	0	100	H
			*16.03538	25.88	ADR	40.70	-23.30	0.15	43.43	54.00	-10.57	-	-	-	-	0	100	H
			*16.0363	37.91	PK-U	40.70	-23.30	0.00	55.31	-	-	74.00	-18.69	-	-	0	100	V
			*16.0359	25.79	ADR	40.70	-23.30	0.15	43.34	54.00	-10.66	-	-	-	-	0	100	V
802.11ax HE20 RU mode 52 Tone offset 37 Spot-check	6175	MIMO	*8.23338	43.46	PK-U	36.30	-28.30	0.00	51.46	-	-	74.00	-22.54	-	-	200	101	H
			*8.23336	35.88	ADR	36.30	-28.30	0.00	43.88	54.00	-10.12	-	-	-	-	200	101	H
			*8.23318	42.07	PK-U	36.30	-28.30	0.00	50.07	-	-	74.00	-23.93	-	-	195	100	V
			*8.23329	32.17	ADR	36.30	-28.30	0.00	40.17	54.00	-13.83	-	-	-	-	195	100	V
			*12.34953	37.54	PK-U	38.90	-24.80	0.00	51.64	-	-	74.00	-22.36	-	-	0	100	H
			*12.34957	37.58	PK-U	38.90	-24.80	0.00	51.68	-	-	74.00	-22.32	-	-	0	100	V
			*15.43579	37.30	ADR	40.10	-23.00	0.00	54.40	-	-	74.00	-19.60	-	-	0	100	H
			*15.43617	25.45	ADR	40.10	-23.00	0.00	42.55	54.00	-11.45	-	-	-	-	0	100	H
			*15.43019	37.69	PK-U	40.10	-23.00	0.00	54.79	-	-	74.00	-19.21	-	-	0	100	V
			*15.43791	25.48	ADR	40.10	-23.00	0.00	42.58	54.00	-11.42	-	-	-	-	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

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

HARMONICS AND SPURIOUS EMISSIONS(WORST CASE: 802.11a / 6475 MHz)



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)	Meas Reading (dBuV)	Det	Antenna_7d4_Factor(dB)	RCSz_HF_Path Loss(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)	Antenna (dBi)	Height (cm)	Polarity
9.71431	33.58	PK-U	37.1	-20.9	0	49.78	-	-	-	-	68.2	-18.42	0	100	H
9.70778	34.14	PK-U	37.1	-20.9	0	50.34	-	-	-	-	68.2	-17.86	0	100	V
12.94544	35.44	PK-U	39.1	-19.6	0	54.94	-	-	-	-	68.2	-13.26	0	100	H
12.95385	33.81	PK-U	39.1	-19.6	0	53.31	-	-	-	-	68.2	-14.89	0	100	V
* 10.18323	34.12	PK-U	40.6	-18.8	0	55.92	-	-	74	-18.08	-	-	0	100	H
* 10.18985	22.49	ADR	40.6	-18.8	.15	44.44	54	-9.56	-	-	-	-	0	100	H
* 10.19105	34.77	PK-U	40.6	-18.8	0	55.57	-	-	74	-17.43	-	-	0	100	V
* 10.18625	22.66	ADR	40.6	-18.8	.15	44.61	54	-9.39	-	-	-	-	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 [dB/m]	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	9.65681	34.97	PK-U	37.00	-21.20	0.00	50.77	-	-	-	-	68.20	-17.43	0	100	H
			9.65753	33.89	PK-U	37.00	-21.10	0.00	49.79	-	-	-	-	68.20	-18.41	0	100	V
			12.87388	34.08	PK-U	39.10	-19.80	0.00	53.38	-	-	-	-	68.20	-14.82	0	100	H
			12.86628	34.47	PK-U	39.10	-19.80	0.00	53.77	-	-	-	-	68.20	-14.43	0	100	V
			*16.08754	34.95	PK-U	40.60	-18.80	0.00	56.75	-	-	74.00	-17.25	-	-	0	100	H
			*16.0873	21.99	ADR	40.60	-18.80	0.15	43.94	54.00	-10.06	-	-	-	-	0	100	H
			*16.09032	34.26	PK-U	40.60	-18.80	0.00	56.06	-	-	74.00	-17.94	-	-	0	100	V
			*16.08286	22.11	ADR	40.60	-18.80	0.15	44.06	54.00	-9.94	-	-	-	-	0	100	V
	6475	MIMO	9.71431	33.58	PK-U	37.10	-20.90	0.00	49.78	-	-	-	-	68.20	-18.42	0	100	H
			9.70778	34.14	PK-U	37.10	-20.90	0.00	50.34	-	-	-	-	68.20	-17.86	0	100	V
			12.94544	35.44	PK-U	39.10	-19.60	0.00	54.94	-	-	-	-	68.20	-13.26	0	100	H
			12.95385	33.81	PK-U	39.10	-19.60	0.00	53.31	-	-	-	-	68.20	-14.89	0	100	V
			*16.18323	34.12	PK-U	40.60	-18.80	0.00	55.92	-	-	74.00	-18.08	-	-	0	100	H
			*16.18985	22.49	ADR	40.60	-18.80	0.15	44.44	54.00	-9.56	-	-	-	-	0	100	H
			*16.19185	34.77	PK-U	40.60	-18.80	0.00	56.57	-	-	74.00	-17.43	-	-	0	100	V
			*16.18625	22.66	ADR	40.60	-18.80	0.15	44.61	54.00	-9.39	-	-	-	-	0	100	V
	6515	MIMO	9.77355	34.05	PK-U	37.10	-21.20	0.00	49.95	-	-	-	-	68.20	-18.25	0	100	H
			9.77534	33.61	PK-U	37.10	-21.20	0.00	49.51	-	-	-	-	68.20	-18.69	0	100	V
			13.03250	34.13	PK-U	39.00	-19.50	0.00	53.63	-	-	-	-	68.20	-14.57	0	100	H
			13.03414	34.04	PK-U	39.00	-19.40	0.00	53.64	-	-	-	-	68.20	-14.56	0	100	V
			16.28756	34.45	PK-U	40.60	-18.30	0.00	56.75	-	-	-	-	68.20	-11.45	0	100	H
			16.28792	34.44	PK-U	40.60	-18.30	0.00	56.74	-	-	-	-	68.20	-11.46	0	100	V
	802.11ax HE20 RU mode 52 Tone offset 40 Spot-check	MIMO	9.71412	39.58	PK-U	37.30	-26.60	0.00	50.28	-	-	-	-	68.20	-17.92	0	100	H
			9.71341	39.27	PK-U	37.30	-26.60	0.00	49.97	-	-	-	-	68.20	-18.23	0	100	V
			12.95284	38.11	PK-U	39.00	-24.10	0.00	53.01	-	-	-	-	68.20	-15.19	0	100	H
			12.94935	38.44	PK-U	39.00	-24.00	0.00	53.44	-	-	-	-	68.20	-14.76	0	100	V
			*16.18766	37.87	PK-U	40.60	-23.20	0.00	55.27	-	-	74.00	-18.73	-	-	0	100	H
			*16.18911	25.63	ADR	40.60	-23.20	0.00	43.03	54.00	-10.97	-	-	-	-	0	100	H
			*16.18607	37.35	PK-U	40.60	-23.20	0.00	54.75	-	-	74.00	-19.25	-	-	0	100	V
			*16.18579	25.75	ADR	40.60	-23.20	0.00	43.15	54.00	-10.85	-	-	-	-	0	100	V

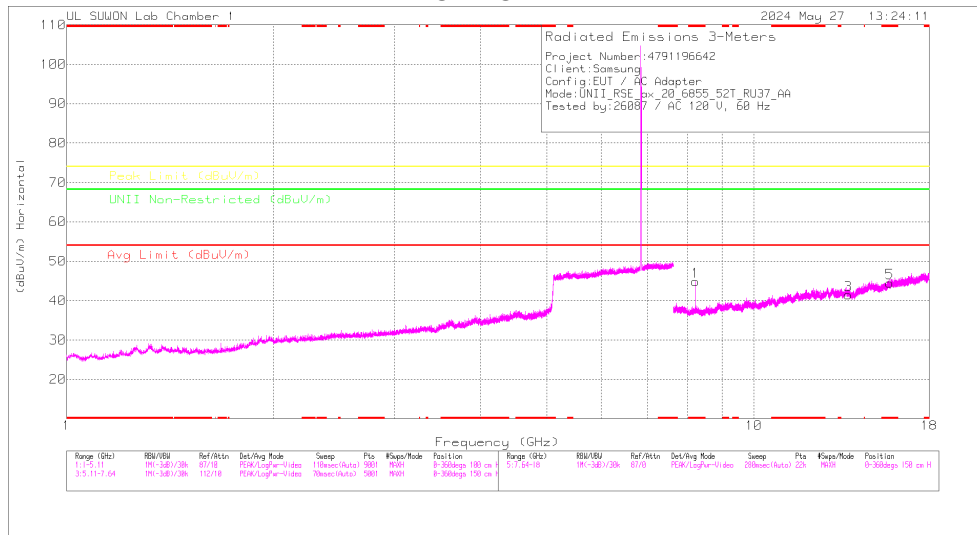
Note1. PK-U - U-NII: Maximum Peak / ADR - U-NII AD primary method, RMS average

Note2. * - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

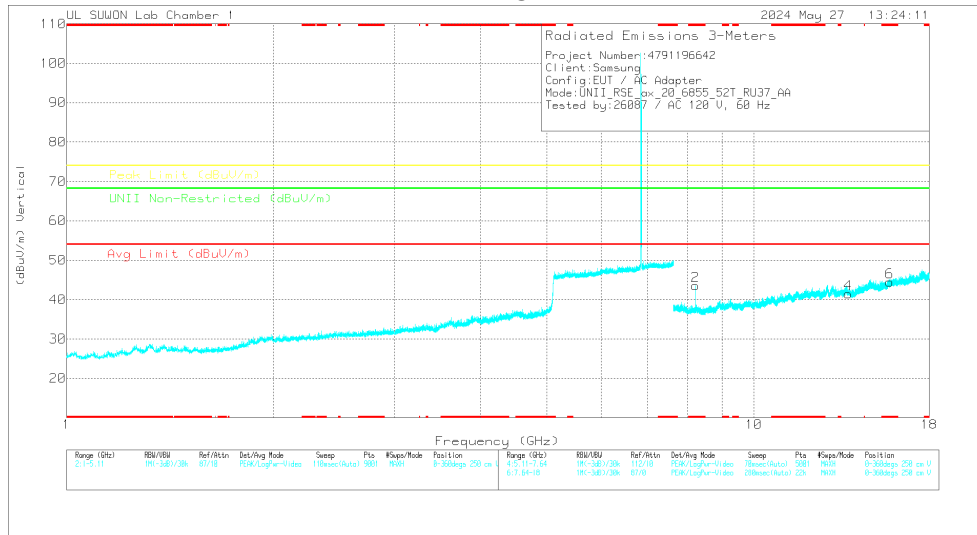
11.3. TX ABOVE 1GHz 2Tx MODE IN U-NII-7 BAND

HARMONICS AND SPURIOUS EMISSIONS(WORST CASE: 802. 11ax HE20 6855 MHz / 52T / 37RU)

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)	Meas Reading (dBuV)	Det	317_20168717	802.11ax (dB)	DC Corr (dB)	Corrected Reading (dBuV)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Antenna (dBi)	Height (cm)	Polarity
* 8.22678	43.65	PK-U	36.3	-26.4	0	51.55	-	-	74	-22.45	-	-	203	131	H
* 8.22688	37.24	ADR	36.3	-26.4	0	45.14	54	-8.86	-	-	-	-	203	131	H
* 8.22618	42.44	PK-U	36.3	-26.4	0	50.34	-	-	74	-23.66	-	-	196	104	V
* 8.22594	32.49	ADR	36.3	-26.4	0	40.39	54	-13.61	-	-	-	-	196	104	V
13.70744	37.79	PK-U	38.5	-23.5	0	52.79	-	-	-	-	68.2	-15.41	0	100	H
13.71106	37.49	PK-U	38.5	-23.5	0	52.49	-	-	-	-	68.2	-15.71	0	100	V
* 15.76862	37.67	PK-U	40.4	-23.1	0	54.97	-	-	74	-19.03	-	-	0	100	H
* 15.76306	25.01	ADR	40.4	-23.1	0	42.31	54	-11.69	-	-	-	-	0	100	H
* 15.76805	37.25	PK-U	40.4	-23.1	0	54.55	-	-	74	-19.45	-	-	0	100	V
* 15.76279	25.07	ADR	40.4	-23.1	0	42.37	54	-11.63	-	-	-	-	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

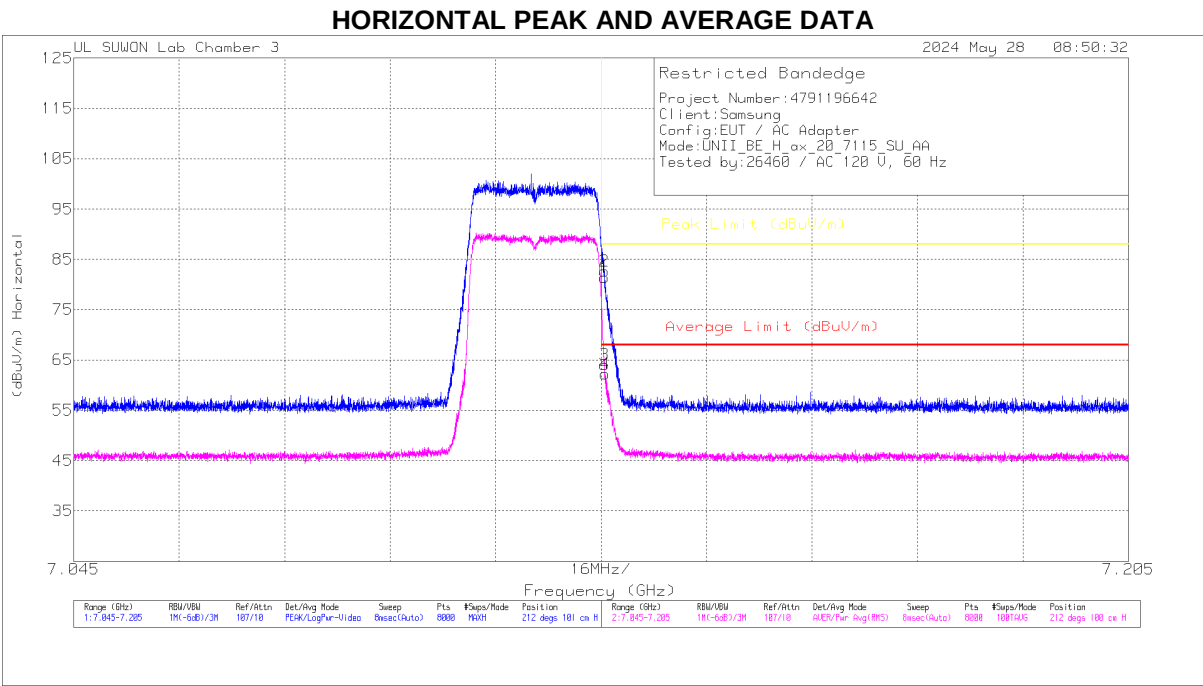
Mode	Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBuV]	Detector Mode	ANT Factor [dB/m]	Loss [dB]	DC Corr [dB]	Result [dBuV/m]	AV Limit [dBuV/m]	AV Margin [dB]	PK Limit [dBuV/m]	PK Margin [dB]	Non-Restricted [dBuV/m]	Margin [dB]	Azimuth [Degs]	Height [cm]	Polarity
802.11a	6535	MIMO	9.80140	33.61	PK-U	37.20	-21.20	0.00	49.61	-	-	-	-	68.20	-18.59	0	100	H
			9.79495	33.46	PK-U	37.20	-21.20	0.00	49.46	-	-	-	-	68.20	-18.74	0	100	V
			13.06662	33.97	PK-U	38.90	-19.30	0.00	53.57	-	-	-	-	68.20	-14.63	0	100	H
			13.06315	34.41	PK-U	38.90	-19.50	0.00	53.81	-	-	-	-	68.20	-14.39	0	100	V
			16.34149	34.20	PK-U	40.70	-18.50	0.00	56.40	-	-	-	-	68.20	-11.80	0	100	H
			16.32969	34.12	PK-U	40.70	-18.50	0.00	56.32	-	-	-	-	68.20	-11.88	0	100	V
	6695	MIMO	10.03885	33.12	PK-U	37.40	-20.80	0.00	49.72	-	-	-	-	68.20	-18.48	0	100	H
			10.04246	33.27	PK-U	37.40	-20.80	0.00	49.87	-	-	-	-	68.20	-18.33	0	100	V
			* 13.38812	33.84	PK-U	38.80	-20.00	0.00	52.64	-	-	74.00	-21.36	-	-	0	100	H
			* 13.38729	34.10	PK-U	38.80	-20.00	0.00	52.90	-	-	74.00	-21.10	-	-	0	100	V
			16.73517	33.82	PK-U	41.20	-18.10	0.00	56.92	-	-	-	-	68.20	-11.28	0	100	H
			16.74010	34.25	PK-U	41.20	-18.10	0.00	57.35	-	-	-	-	68.20	-10.85	0	100	V
	6855	MIMO	* 8.22614	37.00	PK-U	35.90	-21.90	0.00	51.00	-	-	74.00	-23.00	-	-	198	109	H
			* 8.22594	28.58	ADR	35.90	-21.90	0.15	42.73	54.00	-11.27	-	-	-	-	198	109	H
			* 8.22563	35.55	PK-U	35.90	-21.90	0.00	49.95	-	-	74.00	-24.45	-	-	331	114	V
			* 8.22587	24.76	ADR	35.90	-21.90	0.15	38.91	54.00	-15.09	-	-	-	-	331	114	V
			13.70800	34.01	PK-U	38.60	-19.50	0.00	53.11	-	-	-	-	68.20	-15.09	0	100	H
			13.71167	33.68	PK-U	38.60	-19.40	0.00	52.88	-	-	-	-	68.20	-15.32	0	100	V
			17.13324	34.06	PK-U	41.20	-17.80	0.00	57.46	-	-	-	-	68.20	-10.74	0	100	H
			17.13834	33.81	PK-U	41.20	-17.80	0.00	57.21	-	-	-	-	68.20	-10.99	0	100	V
			* 8.22578	43.65	PK-U	36.30	-28.40	0.00	51.55	-	-	74.00	-22.45	-	-	203	131	H
			* 8.22596	37.24	ADR	36.30	-28.40	0.00	45.14	54.00	-8.86	-	-	-	-	203	131	H
			* 8.22618	42.44	PK-U	36.30	-28.40	0.00	50.34	-	-	74.00	-23.66	-	-	196	104	V
			* 8.22594	32.49	ADR	36.30	-28.40	0.00	40.39	54.00	-13.61	-	-	-	-	196	104	V
			13.70744	37.79	PK-U	38.50	-23.50	0.00	52.79	-	-	-	-	68.20	-15.41	0	100	H
802.11ax HE20 RU mode 52 Tone offset 37 Spot-check	6855	MIMO	13.71106	37.49	PK-U	38.50	-23.50	0.00	52.49	-	-	-	-	68.20	-15.71	0	100	V
			* 15.76682	37.67	PK-U	40.40	-23.10	0.00	54.97	-	-	74.00	-19.03	-	-	0	100	H
			* 15.76306	25.01	ADR	40.40	-23.10	0.00	42.31	54.00	-11.69	-	-	-	-	0	100	H
			* 15.76805	37.25	PK-U	40.40	-23.10	0.00	54.55	-	-	74.00	-19.45	-	-	0	100	V
			* 15.76279	25.07	ADR	40.40	-23.10	0.00	42.37	54.00	-11.63	-	-	-	-	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

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

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



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	Antenna_957_Factor(dB)	10dB_Path Loss(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Altitude (m)	Height (m)	Polarity
1	7.12549	62.17	PK	35.9	-16.7	0	81.37	-	-	88	-6.63	212	101	H
2	7.12553	63.5	PK	35.9	-16.7	0	82.7	-	-	88	-5.3	212	101	H
3	7.12549	44.9	RMS	35.9	-16.7	0	64.1	68	-3.9	-	-	212	100	H
4	7.12561	42.97	RMS	35.9	-16.7	0	62.17	68	-5.83	-	-	212	100	H

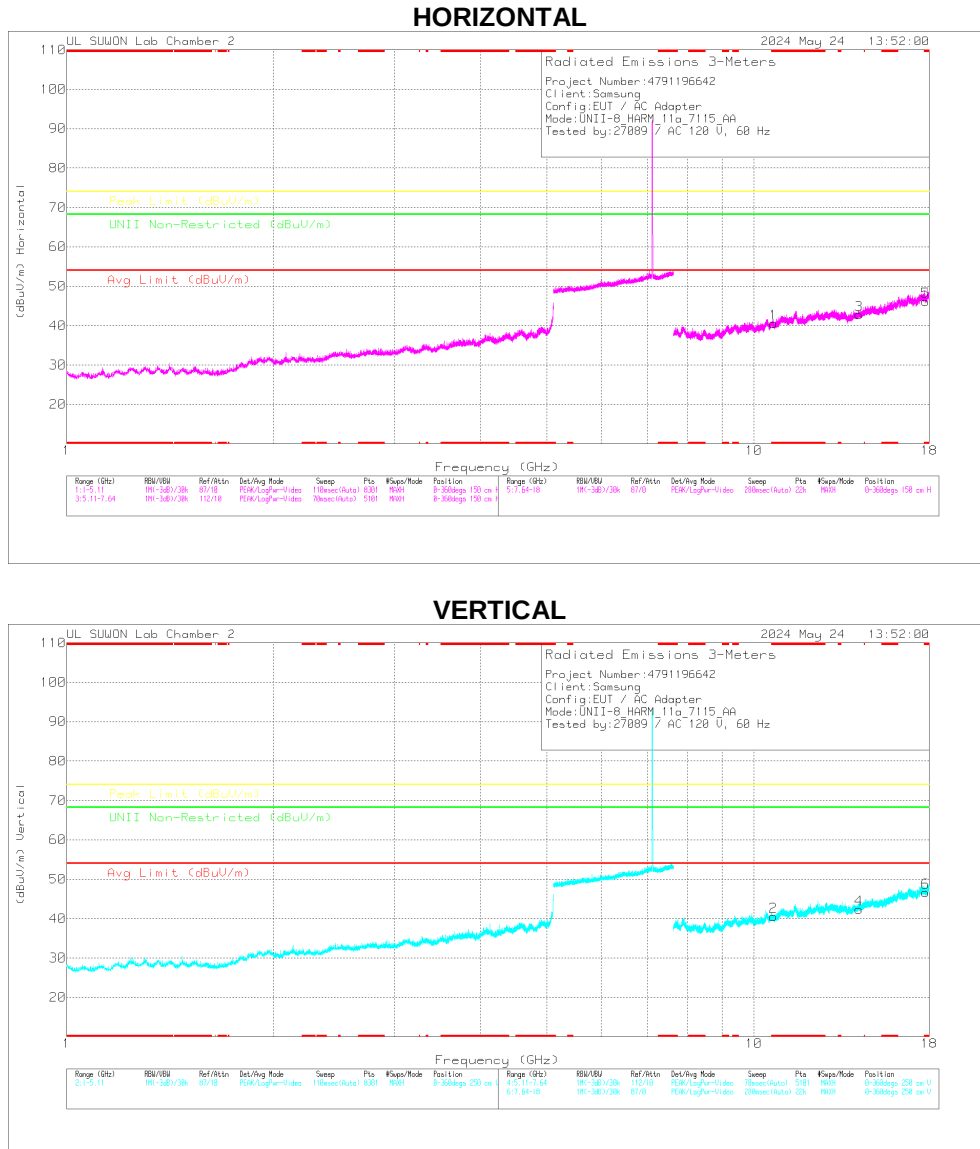
PK - Peak detector
RMS - RMS detection

BANDEDGE TEST DATA

Mode	Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBuV]	Detector Mode	ANT Factor [dB/m]	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	53.40	Pk	35.60	-14.50	0.00	74.50	-	-	88.00	-13.50	198	100	H
			7.12516	55.12	Pk	35.60	-14.50	0.00	76.22	-	-	88.00	-11.78	198	100	H
			7.12502	40.24	RMS	35.60	-14.50	0.15	61.49	68.00	-6.51	-	-	198	100	H
			7.12508	40.00	RMS	35.60	-14.50	0.15	61.25	68.00	-6.75	-	-	198	100	H
			7.12502	53.92	Pk	35.60	-14.50	0.00	75.02	-	-	88.00	-12.98	173	103	V
			7.12512	55.55	Pk	35.60	-14.50	0.00	76.65	-	-	88.00	-11.35	173	103	V
			7.12502	38.33	RMS	35.60	-14.50	0.15	59.58	68.00	-8.42	-	-	173	103	V
			7.12506	38.55	RMS	35.60	-14.50	0.15	59.80	68.00	-8.20	-	-	173	103	V
802.11ax HE20 SU mode	7115	MIMO	7.12549	62.17	Pk	35.90	-16.70	0.00	81.37	-	-	88.00	-6.63	212	101	H
			7.12553	63.50	Pk	35.90	-16.70	0.00	82.70	-	-	88.00	-5.30	212	101	H
			7.12549	44.90	RMS	35.90	-16.70	0.00	64.10	68.00	-3.90	-	-	212	100	H
			7.12561	42.97	RMS	35.90	-16.70	0.00	62.17	68.00	-5.83	-	-	212	100	H
			7.12549	61.62	Pk	35.90	-16.70	0.00	80.82	-	-	88.00	-7.18	183	267	V
			7.12555	62.73	Pk	35.90	-16.70	0.00	81.93	-	-	88.00	-6.07	183	267	V
			7.12549	43.53	RMS	35.90	-16.70	0.00	62.73	68.00	-5.27	-	-	183	267	V
			7.12561	42.97	RMS	35.90	-16.70	0.00	62.17	68.00	-5.83	-	-	183	267	V
802.11ax HE40 SU mode	7085	MIMO	7.12501	35.97	Pk	35.90	-16.60	0.00	55.27	-	-	88.00	-32.73	202	105	H
			7.15018	38.74	Pk	35.90	-16.60	0.00	58.04	-	-	88.00	-29.96	202	105	H
			7.12501	27.06	RMS	35.90	-16.60	0.00	46.36	68.00	-21.64	-	-	202	105	H
			7.12537	27.93	RMS	35.90	-16.70	0.00	47.13	68.00	-20.87	-	-	202	105	H
			7.12501	37.37	Pk	35.90	-16.60	0.00	56.67	-	-	88.00	-31.33	184	270	V
			7.17264	39.13	Pk	35.90	-16.60	0.00	58.43	-	-	88.00	-29.57	184	270	V
			7.12501	27.55	RMS	35.90	-16.60	0.00	46.85	68.00	-21.15	-	-	184	270	V
			7.12683	27.94	RMS	35.90	-16.70	0.00	47.14	68.00	-20.86	-	-	184	270	V
802.11ax HE80 SU mode	7025	MIMO	7.12501	37.86	Pk	35.90	-16.60	0.00	57.16	-	-	88.00	-30.84	204	107	H
			7.12525	39.48	Pk	35.90	-16.70	0.00	58.68	-	-	88.00	-29.32	204	107	H
			7.12501	27.80	RMS	35.90	-16.60	0.00	47.10	68.00	-20.90	-	-	204	107	H
			7.12779	28.27	RMS	35.90	-16.70	0.00	47.47	68.00	-20.53	-	-	204	107	H
			7.12501	36.36	Pk	35.90	-16.60	0.00	55.66	-	-	88.00	-32.34	86	283	V
			7.17304	39.37	Pk	35.90	-16.60	0.00	58.67	-	-	88.00	-29.33	86	283	V
			7.12501	26.51	RMS	35.90	-16.60	0.00	45.81	68.00	-22.19	-	-	86	283	V
			7.12703	27.82	RMS	35.90	-16.70	0.00	47.02	68.00	-20.98	-	-	86	283	V
802.11ax SU mode	6985	MIMO	7.12501	38.00	Pk	35.90	-16.60	0.00	57.30	-	-	88.00	-30.70	203	103	H
			7.13503	40.80	Pk	35.90	-16.70	0.00	60.00	-	-	88.00	-28.00	203	103	H
			7.12501	28.42	RMS	35.90	-16.60	0.00	47.72	68.00	-20.28	-	-	203	103	H
			7.12877	29.73	RMS	35.90	-16.70	0.00	48.93	68.00	-19.07	-	-	203	103	H
			7.12501	36.41	Pk	35.90	-16.60	0.00	55.71	-	-	88.00	-32.29	87	283	V
			7.14470	39.68	Pk	35.90	-16.60	0.00	58.98	-	-	88.00	-29.02	87	283	V
			7.12501	27.01	RMS	35.90	-16.60	0.00	46.31	68.00	-21.69	-	-	87	283	V
			7.13685	28.57	RMS	35.90	-16.70	0.00	47.77	68.00	-20.23	-	-	87	283	V

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

HARMONICS AND SPURIOUS EMISSIONS(WORST CASE: 802.11a / 7115 MHz)



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)	Meas. Reading (dBm)	Det	Antenna_F24_Factor(dB)	RFC_HF_Path Loss(dB)	DC Corr (dB)	Corrected Reading (dBm)	Avg Limit (dBm)	Margin (dB)	Peak Limit (dBm)	Margin (dB)	UNII Non-Restricted (dBm)	Margin (dB)	Altitude (m)	Height (m)	Polarity
* 10.67363	32.81	PK-U	37.8	-19.7	0	50.91	-	-	74	-23.09	-	-	0	100	H
* 10.66296	32.95	PK-U	37.8	-19.6	0	51.15	-	-	74	-22.85	-	-	0	100	V
14.2303	34.37	PK-U	39.3	-19.6	0	54.07	-	-	-	-	68.2	-14.13	0	100	H
14.2305	34.03	PK-U	39.3	-19.5	0	53.83	-	-	-	-	68.2	-14.37	0	100	V
* 17.78086	33.12	PK-U	41.7	-17.1	0	57.72	-	-	74	-16.28	-	-	0	100	H
* 17.78317	21.5	ADR	41.7	-17.1	-15	46.25	54	-7.75	-	-	-	-	0	100	H
* 17.79642	33.88	PK-U	41.6	-17.1	0	58.38	-	-	74	-15.62	-	-	0	100	V
* 17.79737	21.45	ADR	41.6	-17.1	-15	46.3	54	-7.9	-	-	-	-	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

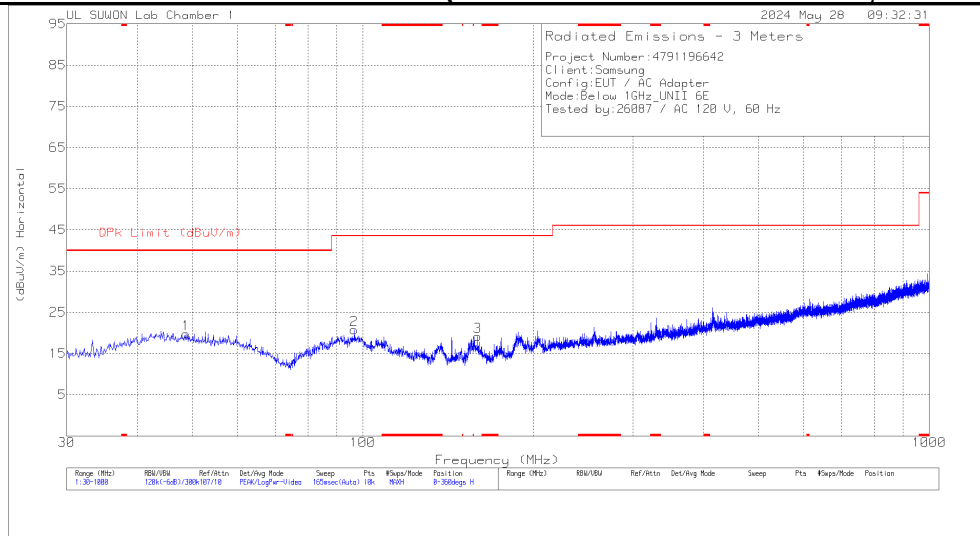
Mode	Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBuV]	Detector Mode	ANT Factor [dB/m]	Loss [dB]	DC Corr [dB]	Result [dBuV/m]	AV Limit [dBuV/m]	AV Margin [dB]	PK Limit [dBuV/m]	PK Margin [dB]	Non-Restricted [dBuV/m]	Margin [dB]	Azimuth [Degs]	Height [cm]	Polarity
802.11a	6895	MIMO	10.34443	33.76	PK-U	37.60	-20.50	0.00	50.86	-	-	-	-	68.20	-17.34	0	100	H
			10.34425	33.29	PK-U	37.60	-20.50	0.00	50.39	-	-	-	-	68.20	-17.81	0	100	V
			13.79123	33.40	PK-U	38.70	-19.30	0.00	52.80	-	-	-	-	68.20	-15.40	0	100	H
			13.78315	34.06	PK-U	38.70	-19.20	0.00	53.56	-	-	-	-	68.20	-14.64	0	100	V
			17.23272	33.24	PK-U	41.20	-17.90	0.00	56.54	-	-	-	-	68.20	-11.66	0	100	H
			17.23462	34.40	PK-U	41.20	-17.90	0.00	57.70	-	-	-	-	68.20	-10.50	0	100	V
	6995	MIMO	10.49739	33.25	PK-U	37.70	-19.90	0.00	51.05	-	-	-	-	68.20	-17.15	0	100	H
			10.50165	32.74	PK-U	37.70	-20.00	0.00	50.44	-	-	-	-	68.20	-17.76	0	100	V
			13.99215	33.39	PK-U	39.00	-19.20	0.00	53.19	-	-	-	-	68.20	-15.01	0	100	H
			13.99275	33.59	PK-U	39.00	-19.20	0.00	53.39	-	-	-	-	68.20	-14.81	0	100	V
			17.48653	33.59	PK-U	41.50	-17.30	0.00	57.79	-	-	-	-	68.20	-10.41	0	100	H
			17.49012	33.78	PK-U	41.50	-17.30	0.00	57.98	-	-	-	-	68.20	-10.22	0	100	V
	7115	MIMO	*10.67363	32.81	PK-U	37.80	-19.70	0.00	50.91	-	-	74.00	-23.09	-	-	0	100	H
			*10.86296	32.95	PK-U	37.80	-19.60	0.00	51.15	-	-	74.00	-22.85	-	-	0	100	V
			14.23030	34.37	PK-U	39.30	-19.60	0.00	54.07	-	-	-	-	68.20	-14.13	0	100	H
			14.23835	34.03	PK-U	39.30	-19.50	0.00	53.83	-	-	-	-	68.20	-14.37	0	100	V
			*17.78086	33.12	PK-U	41.70	-17.10	0.00	57.72	-	-	74.00	-16.28	-	-	0	100	H
			*17.78317	21.50	ADR	41.70	-17.10	0.15	46.25	54.00	-7.75	-	-	-	-	0	100	H
			*17.79642	33.88	PK-U	41.60	-17.10	0.00	58.38	-	-	74.00	-15.62	-	-	0	100	V
			*17.79737	21.45	ADR	41.60	-17.10	0.15	46.10	54.00	-7.90	-	-	-	-	0	100	V
	802.11ax HE20 RU mode 52 Tone offset 37 Spot-check	MIMO	10.43138	38.52	PK-U	37.70	-25.90	0.00	50.32	-	-	-	-	68.20	-17.88	0	100	H
			10.43260	38.41	PK-U	37.70	-25.90	0.00	50.21	-	-	-	-	68.20	-17.99	0	100	V
			13.90931	37.78	PK-U	38.80	-24.00	0.00	52.58	-	-	-	-	68.20	-15.62	0	100	H
			13.91086	37.72	PK-U	38.80	-24.00	0.00	52.52	-	-	-	-	68.20	-15.68	0	100	V
			*15.9983	37.67	PK-U	40.70	-23.20	0.00	55.17	-	-	74.00	-18.83	-	-	0	100	H
			*15.99562	25.66	ADR	40.70	-23.10	0.00	43.26	54.00	-10.74	-	-	-	-	0	100	H
			*15.99577	37.72	PK-U	40.70	-23.10	0.00	55.32	-	-	74.00	-18.68	-	-	0	100	V
			*15.99575	25.70	ADR	40.70	-23.10	0.00	43.30	54.00	-10.70	-	-	-	-	0	100	V

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

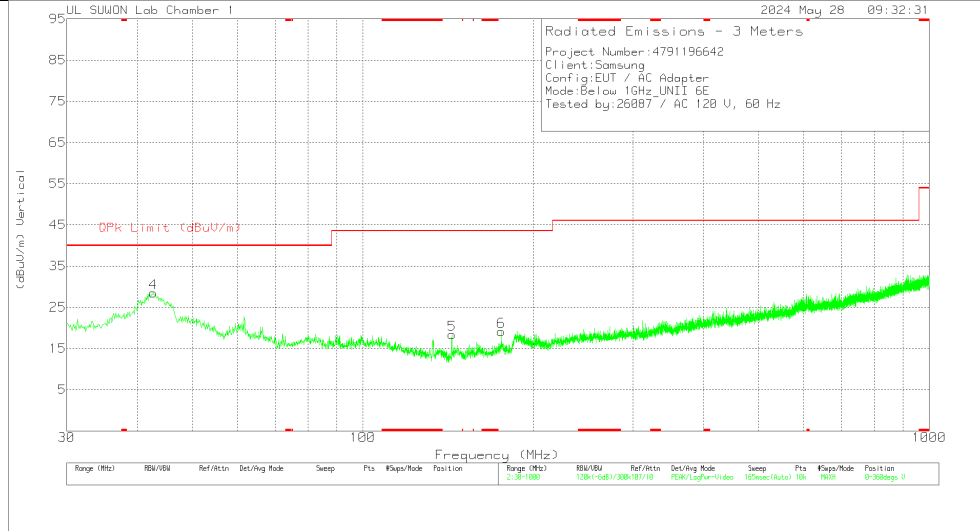
Note2. * - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

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_750	Below_1G(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	48.721	31.08	Pk	19.6	-30.9	0	19.78	40	-20.22	0-360	100	H
2	96.542	34.02	Pk	16.9	-30.2	0	20.72	43.52	-22.8	0-360	100	H
3	159.495	34.51	Pk	14.2	-29.6	0	19.11	43.52	-24.41	0-360	100	H
4	42.61	40.38	Pk	19.1	-31	0	28.48	40	-11.52	0-360	200	V
5	143.587	34.53	Pk	13.6	-29.7	0	18.43	43.52	-25.09	0-360	200	V
6	175.5	33.82	Pk	14.8	-29.5	0	19.12	43.52	-24.4	0-360	200	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.

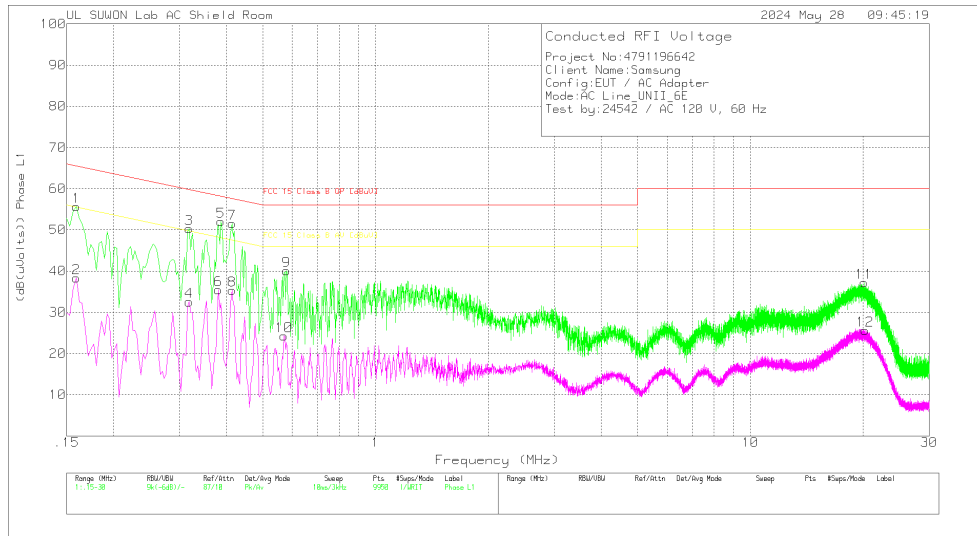
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

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]	Cable Loss [dB]	Corrected Reading (dB(uVolts))	FCC 15 Class B QP [dBuV]	Margin (dB)	FCC 15 Class B AV [dBuV]	Margin (dB)
1	.159	45.72	Pk	9.8	.1	55.62	65.52	-9.9	-	-
2	.159	28.44	Av	9.8	.1	38.34	-	-	55.52	-17.18
3	.318	40.55	Pk	9.7	.1	50.35	59.76	-9.41	-	-
4	.318	22.75	Av	9.7	.1	32.55	-	-	49.76	-17.21
5	.387	42.2	Pk	9.8	.1	52.1	58.13	-6.03	-	-
6	.381	25.53	Av	9.8	.1	35.43	-	-	48.26	-12.83
7	.414	41.65	Pk	9.8	.1	51.55	57.57	-6.02	-	-
8	.414	25.4	Av	9.8	.1	35.3	-	-	47.57	-12.27
9	.579	30.24	Pk	9.8	.1	40.14	56	-15.86	-	-
10	.57	14.36	Av	9.8	.1	24.26	-	-	46	-21.74
11	20.097	26.76	Pk	10.2	.3	37.26	60	-22.74	-	-
12	20.232	15.17	Av	10.2	.3	25.67	-	-	50	-24.33

Pk - Peak detector

Av - Average detection

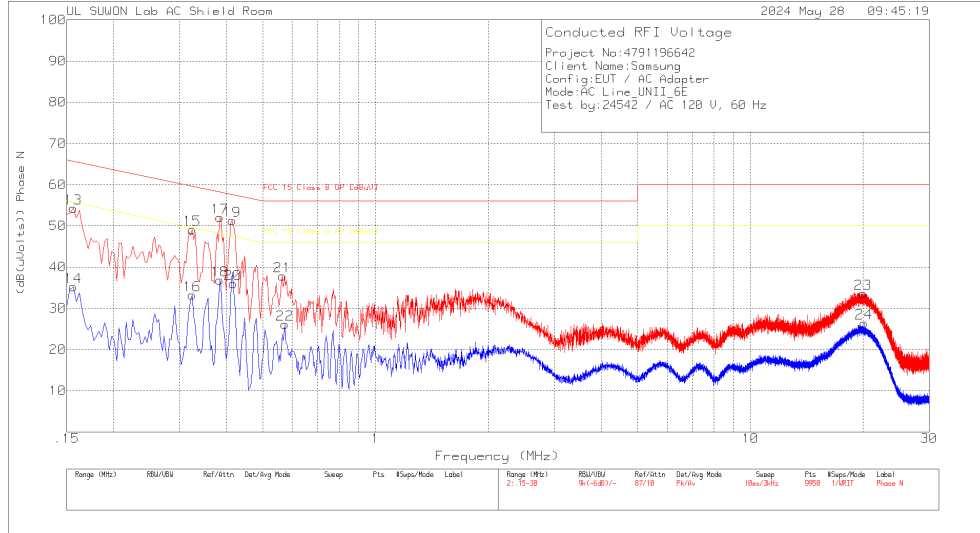
Quasi-Peak Emissions

Range 1: Phase L1 .15 - 30MHz

Frequency (MHz)	Meter Reading (dBuV)	Det	101836_With EX_L1 [dB]	Cable Loss [dB]	Corrected Reading (dB(uVolts))	FCC 15 Class B QP [dBuV]	Margin (dB)	FCC 15 Class B AV [dBuV]	Margin (dB)
.15975	42.51	Qp	9.8	.1	52.41	65.48	-13.07	-	-
.31875	37.23	Qp	9.7	.1	47.03	59.74	-12.71	-	-
.38625	40.32	Qp	9.8	.1	50.22	58.14	-7.92	-	-
.41415	39.48	Qp	9.8	.1	49.38	57.56	-8.18	-	-

Qp - Quasi-Peak detector

LINE 2 DATA



Trace Markers

Range 2: Phase N .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	101836_Wit h EX_N [dB]	Cable Loss [dB]	Corrected Reading (dB(uVolts))	FCC 15 Class B QP [dBuV]	Margin (dB)	FCC 15 Class B AV [dBuV]	Margin (dB)
13	.156	44.45	Pk	9.8	.1	54.35	65.67	-11.32	-	-
14	.156	25.27	Av	9.8	.1	35.17	-	-	55.67	-20.5
15	.324	39.32	Pk	9.7	.1	49.12	59.6	-10.48	-	-
16	.324	23.4	Av	9.7	.1	33.2	-	-	49.6	-16.4
17	.384	42.14	Pk	9.8	.1	52.04	58.19	-6.15	-	-
18	.384	26.89	Av	9.8	.1	36.79	-	-	48.19	-11.4
19	.414	41.4	Pk	9.8	.1	51.3	57.57	-6.27	-	-
20	.417	26.09	Av	9.8	.1	35.99	-	-	47.51	-11.52
21	.564	27.99	Pk	9.8	.1	37.89	56	-18.11	-	-
22	.573	16.18	Av	9.8	.1	26.08	-	-	46	-19.92
23	19.971	23	Pk	10.3	.3	33.6	60	-26.4	-	-
24	20.139	15.84	Av	10.3	.3	26.44	-	-	50	-23.56

Pk - Peak detector

Av - Average detection

Quasi-Peak Emissions

Range 2: Phase N .15 - 30MHz

Frequency (MHz)	Meter Reading (dBuV)	Det	101836_Wit h EX_N [dB]	Cable Loss [dB]	Corrected Reading (dB(uVolts))	FCC 15 Class B QP [dBuV]	Margin (dB)	FCC 15 Class B AV [dBuV]	Margin (dB)
.38475	39.82	Qp	9.8	.1	49.72	58.18	-8.46	-	-
.41475	39.56	Qp	9.8	.1	49.46	57.55	-8.09	-	-

Qp - Quasi-Peak detector

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.

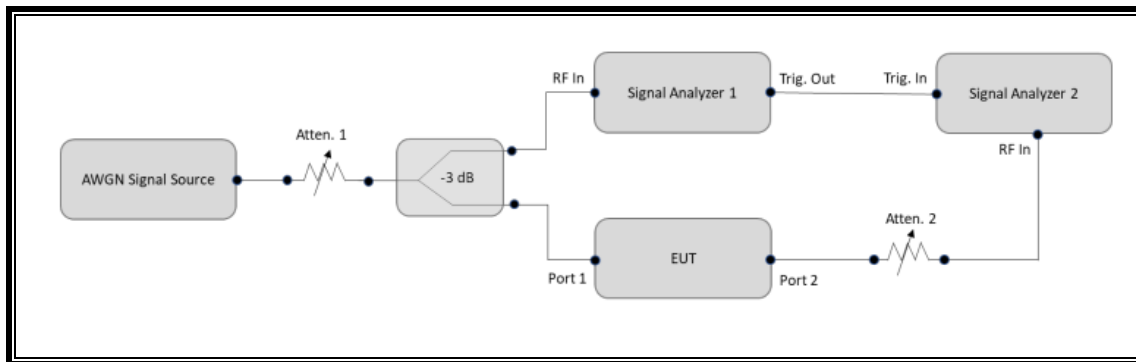
To ensure incumbent operations are reliably detected in the band, low power indoor devices must detect RF energy throughout their intended operating channel. For example, an 802.11 device that plans to transmit a 40 MHz- wide signal (on a primary 20 MHz channel and a secondary 20 MHz channel) must detect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

CHANNEL PUNCTURING AND BANDWIDTH REDUCTION (802.11ax)

This EUT does not support channel puncturing and bandwidth reduction.

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 EUT 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	2025-01-03
Spectrum Analyzer	Agilent	N9030A	MY54170614	2024-07-24
Vector Signal Generator	R&S	SMW200A	110251	2024-07-27
Combiner	WEINSCHTEL	WA1534	UL001	2025-01-16
Combiner	WEINSCHTEL	WA1534	UL003	2025-01-02
Combiner	WEINSCHTEL	WA1534	UL004	2025-01-02
Attenuator	WEINSCHTEL	WA76-30-21	A015	2024-07-24
Attenuator	PASTERNAK	PE7087-10	A001	2024-07-23
Attenuator	PASTERNAK	PE7087-10	A008	2024-07-27

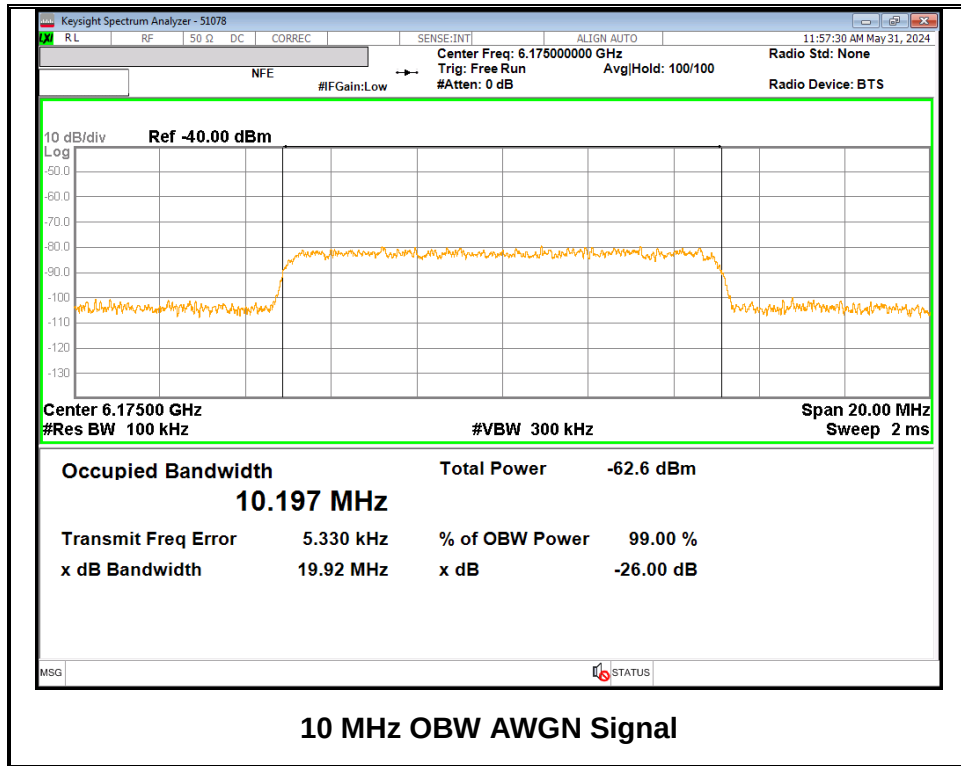
SUPPORT EQUIPMENT

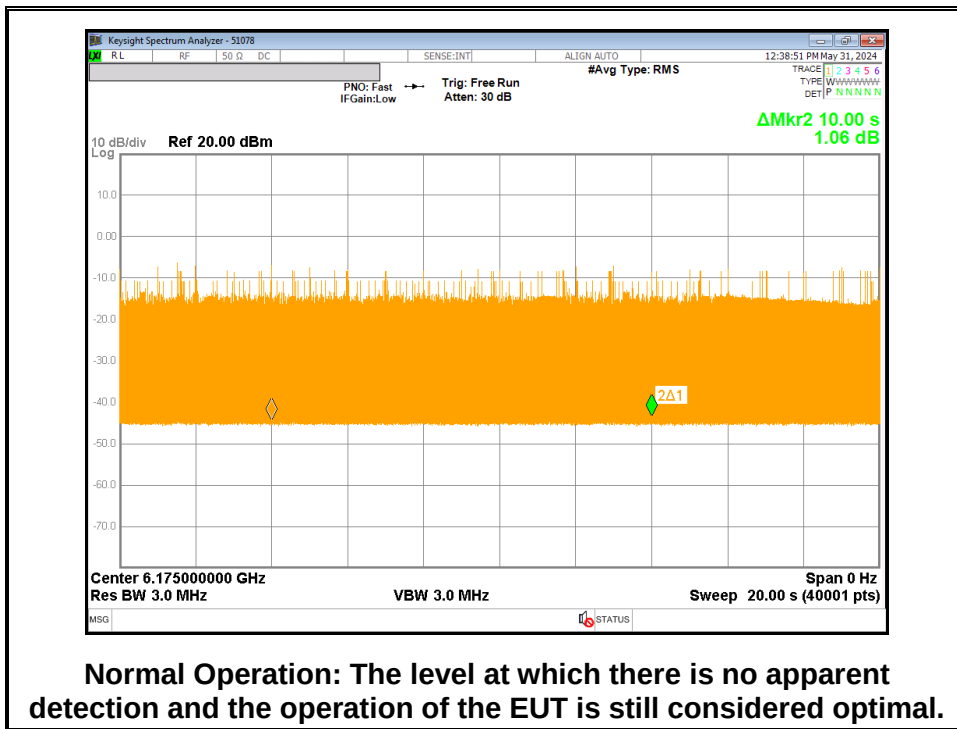
The following support equipment was utilized for the CBP tests documented in this report:

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





14.2.3. Contention Based Protocol – Incumbent Detection & Trial Results

Band	Channel	Freq	BW	Inc. Freq	Detection power level (Prior)	Detection limit	Gain	Detection limit (include Gain)	Margin	Condition
5	45	6175	20	6175	-73.64	-62.00	-9.29	-71.29	-2.35	Ceased
					-77.64	-62.00	-9.29	-71.29	-6.35	Minimal
					-81.67	-62.00	-9.29	-71.29	-10.38	Normal
	47	6185	160	6110	-71.58	-62.00	-9.29	-71.29	-0.29	Ceased
					-77.60	-62.00	-9.29	-71.29	-6.31	Minimal
					-79.60	-62.00	-9.29	-71.29	-8.31	Normal
				6175	-73.65	-62.00	-9.29	-71.29	-2.36	Ceased
					-76.70	-62.00	-9.29	-71.29	-5.41	Minimal
					-80.63	-62.00	-9.29	-71.29	-9.34	Normal
				6260	-71.76	-62.00	-9.29	-71.29	-0.47	Ceased
					-74.74	-62.00	-9.29	-71.29	-3.45	Minimal
					-78.73	-62.00	-9.29	-71.29	-7.44	Normal
6	105	6475	20	6475	-72.73	-62.00	-8.52	-70.52	-2.21	Ceased
					-78.73	-62.00	-8.52	-70.52	-8.21	Minimal
					-80.71	-62.00	-8.52	-70.52	-10.19	Normal
	111	6505	160	6435	-71.20	-62.00	-8.52	-70.52	-0.68	Ceased
					-75.71	-62.00	-8.52	-70.52	-5.19	Minimal
					-80.72	-62.00	-8.52	-70.52	-10.20	Normal
				6495	-72.76	-62.00	-8.52	-70.52	-2.24	Ceased
					-78.77	-62.00	-8.52	-70.52	-8.25	Minimal
					-80.74	-62.00	-8.52	-70.52	-10.22	Normal
				6575	-71.55	-62.00	-8.52	-70.52	-1.03	Ceased
					-78.63	-62.00	-8.52	-70.52	-8.11	Minimal
					-82.67	-62.00	-8.52	-70.52	-12.15	Normal
7	149	6695	20	6695	-74.69	-62.00	-9.73	-71.73	-2.96	Ceased
					-81.71	-62.00	-9.73	-71.73	-9.98	Minimal
					-84.67	-62.00	-9.73	-71.73	-12.94	Normal
	143	6665	160	6595	-72.66	-62.00	-9.73	-71.73	-0.93	Ceased
					-77.60	-62.00	-9.73	-71.73	-5.87	Minimal
					-81.71	-62.00	-9.73	-71.73	-9.98	Normal
				6655	-74.66	-62.00	-9.73	-71.73	-2.93	Ceased
					-80.69	-62.00	-9.73	-71.73	-8.96	Minimal
					-82.73	-62.00	-9.73	-71.73	-11.00	Normal
				6735	-73.72	-62.00	-9.73	-71.73	-1.99	Ceased
					-79.75	-62.00	-9.73	-71.73	-8.02	Minimal
					-82.79	-62.00	-9.73	-71.73	-11.06	Normal
8	205	6975	20	6975	-73.77	-62.00	-8.77	-70.77	-3.00	Ceased
					-82.86	-62.00	-8.77	-70.77	-12.09	Minimal
					-85.87	-62.00	-8.77	-70.77	-15.10	Normal
	207	6985	160	6915	-71.75	-62.00	-8.77	-70.77	-0.98	Ceased
					-79.80	-62.00	-8.77	-70.77	-9.03	Minimal
					-83.85	-62.00	-8.77	-70.77	-13.08	Normal
				6975	-71.79	-62.00	-8.77	-70.77	-1.02	Ceased
					-80.81	-62.00	-8.77	-70.77	-10.04	Minimal
					-82.86	-62.00	-8.77	-70.77	-12.09	Normal
				7055	-71.80	-62.00	-8.77	-70.77	-1.03	Ceased
					-79.80	-62.00	-8.77	-70.77	-9.03	Minimal
					-84.91	-62.00	-8.77	-70.77	-14.14	Normal

Note. Detection limit (include gain) = Detection limit (-62 dBm) + Antenna Gain (dBi). Detection power threshold is the level of the incumbent at the antenna port and includes all losses between the signal generator and the EUT antenna port.

Band	Channel	Freq	BW	Inc. Freq	1	2	3	4	5	6	7	8	9	10	Detection Rate (%)
5	45	6175	20	6175	O	O	O	X	O	O	O	O	O	O	90
				6110	O	X	O	O	O	O	O	O	O	O	90
	47	6185	160	6175	O	O	O	O	O	O	O	O	O	O	100
				6260	O	O	O	O	O	O	O	O	O	X	90
6	105	6475	20	6475	O	O	O	O	O	O	O	O	O	O	100
				6435	O	O	O	O	O	O	O	O	O	O	100
	111	6505	160	6495	O	O	O	O	O	O	O	O	O	O	100
				6575	O	O	O	O	O	X	O	O	O	O	90
7	149	6695	20	6695	O	O	O	O	O	O	O	O	O	O	100
				6595	O	O	O	O	O	O	O	O	O	O	100
	143	6665	160	6655	O	O	O	O	X	O	O	O	O	O	90
				6735	O	O	O	O	O	O	O	O	O	O	100
8	209	6995	20	6995	O	O	O	O	O	O	O	X	O	O	90
				6915	O	O	O	O	O	X	O	O	O	O	90
	207	6985	160	6975	O	O	O	O	O	O	O	O	O	O	100
				7055	O	O	O	O	O	O	O	O	O	O	100

END OF TEST REPORT