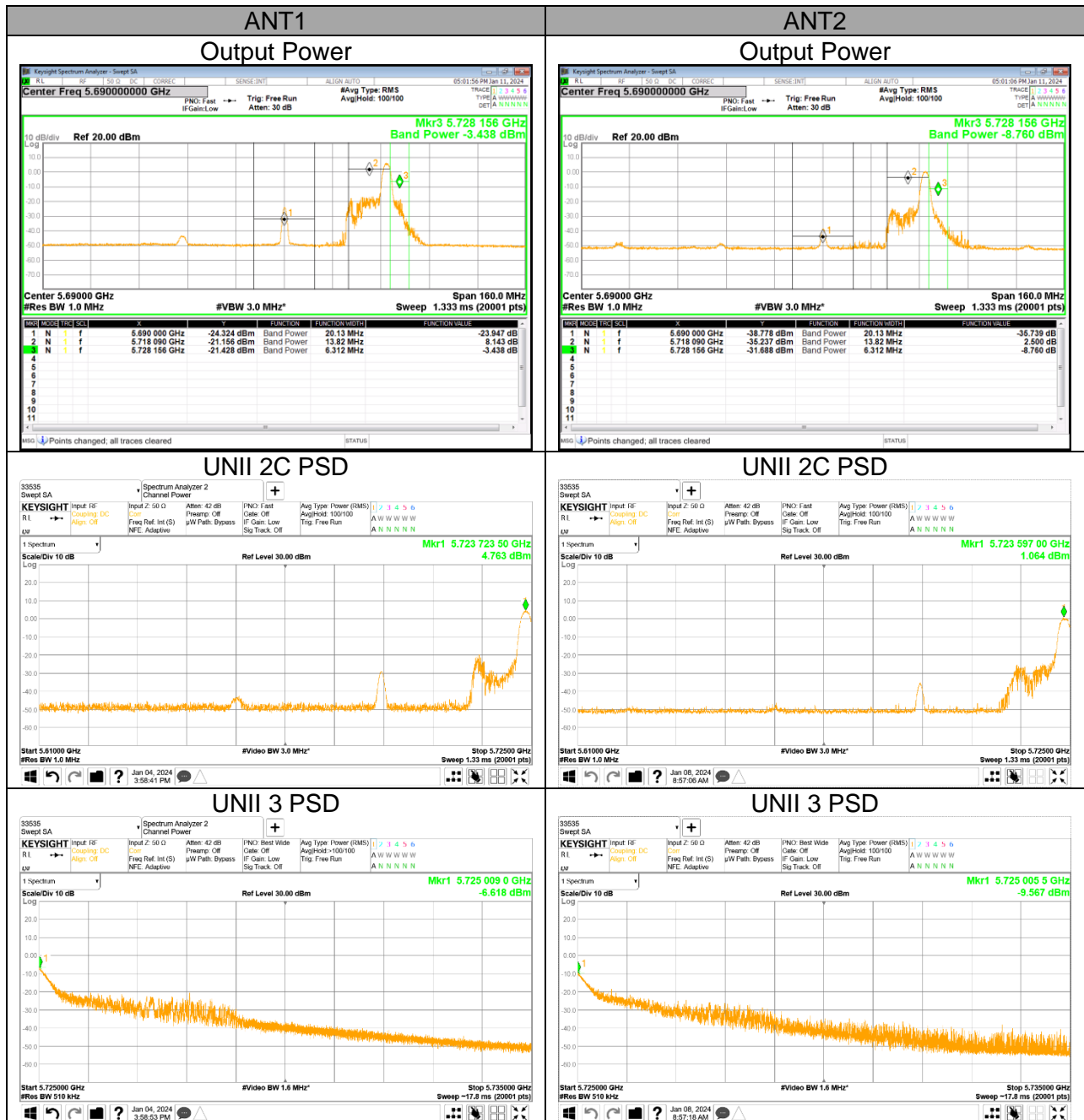


UNII Straddle Ch. IEEE 802.11ax HE80(34RU) mode Output Power and PSD



11. TRANSMITTER ABOVE 1 GHz

LIMITS

FCC §15.205 and §15.209

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

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

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

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

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

FCC §15.407 (b)

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

- (1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (4) For transmitters operating solely in the 5.725–5.850 GHz band:
 - (i) All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.
- (5) The emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary,
provided the measured energy is integrated to show the total power over 1 MHz.
- (6) Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209. Further, any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in §15.207.
- (7) The provisions of §15.205 apply to intentional radiators operating under this section.
- (8) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the upper and lower frequency band edges as the design of the equipment permits.

Note

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

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

$$E[\text{dBuV/m}] = \text{EIRP}[\text{dBm}] + 95.2 = -17\text{dBm} + 95.2 = 78.2\text{dBuV/m}$$

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.

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.

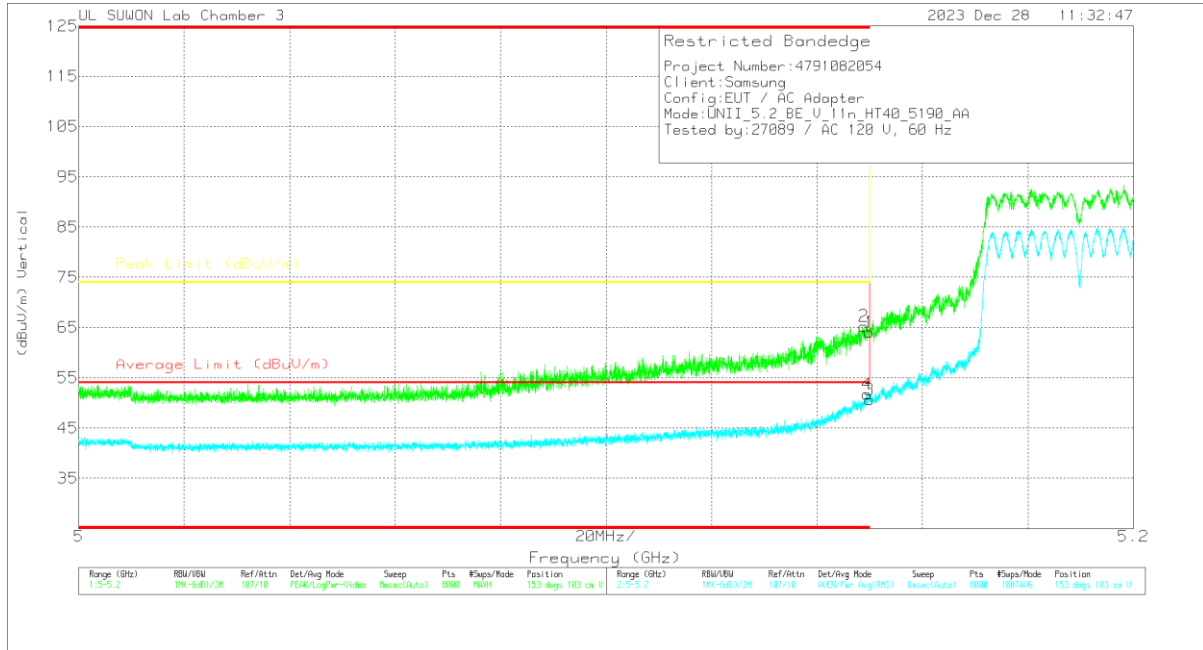
Although these tests were performed other than open field test site, adequate comparison measurements were confirmed against 30 m open are test site.

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.

11.1. TX ABOVE 1GHz 2Tx MODE IN THE 5.2GHz BAND

BANDEDGE (WORST CASE: 802.11n HT40 / 5190 MHz)

VERTICAL PEAK AND AVERAGE DATA



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	Antenna Correction Factor (dB/m)	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	* 5.14999	50.28	Pk	34.4	-20.6	0	64.08	-	-	74	-9.92	153	103	V
2	* 5.14892	51.57	Pk	34.4	-20.7	0	65.27	-	-	74	-8.73	153	103	V
3	* 5.14999	36.65	RMS	34.4	-20.6	.14	50.99	54	-3.41	-	-	153	103	V
4	* 5.14854	37.9	RMS	34.4	-20.7	.14	51.74	54	-2.26	-	-	153	103	V

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

Pk - Peak detector

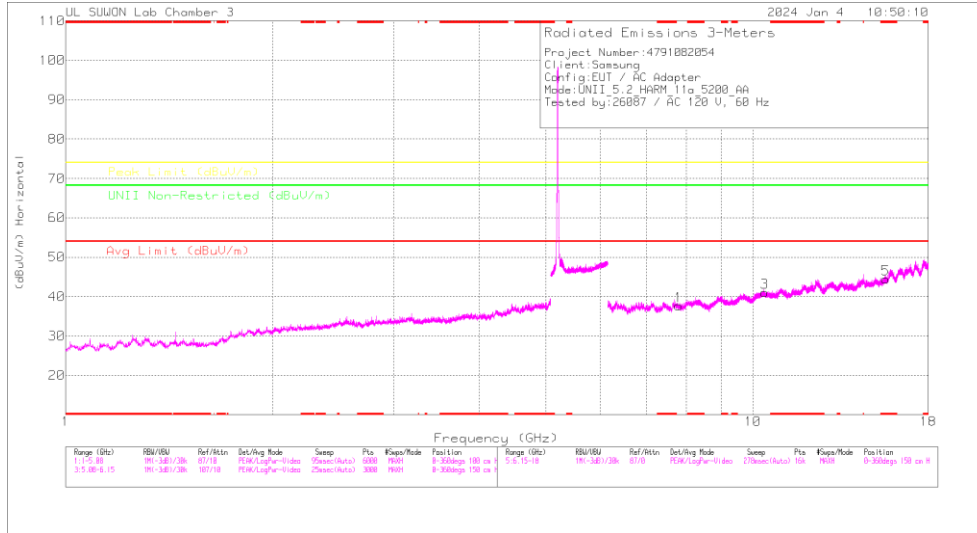
RMS - RMS detection

BANDEDGE TEST DATA

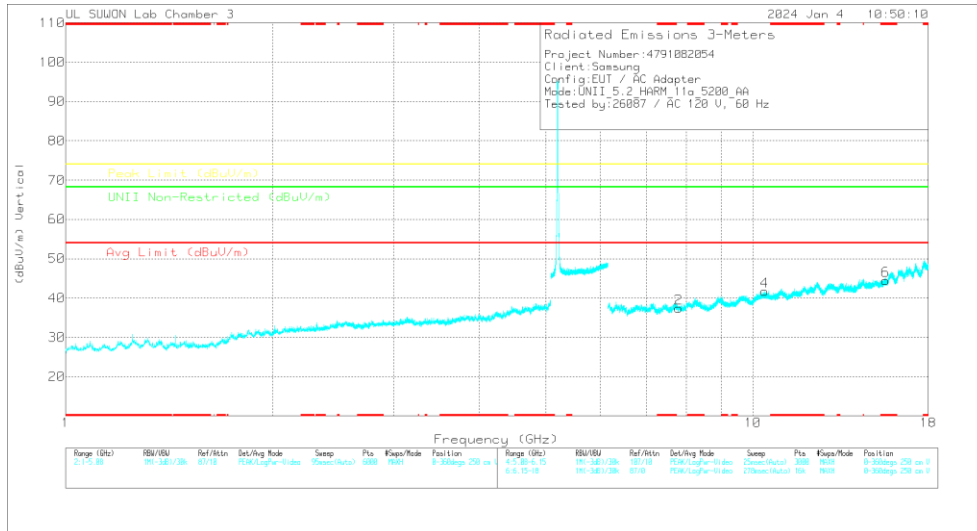
Mode	Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBuV]	Detector Mode	ANT Factor [dB(1/m)]	Loss [dB]	DC Corr [dB]	Result [dBuV/m]	AV Limit [dBuV/m]	AV Margin [dB]	PK Limit [dBuV/m]	PK Margin [dB]	Azimuth [Degs]	Height [cm]	Polarity
802.11a	5180	MIMO	* 5.14999	44.33	Pk	34.40	-20.60	0.00	58.13	-	-	74.00	-15.87	155	110	H
			* 5.14662	48.07	Pk	34.40	-20.80	0.00	61.67	-	-	74.00	-12.33	155	110	H
			* 5.14999	32.17	RMS	34.40	-20.60	0.17	46.14	54.00	-7.86	-	-	155	110	H
			* 5.14759	33.49	RMS	34.40	-20.80	0.17	47.26	54.00	-6.74	-	-	155	110	H
			* 5.14999	44.51	Pk	34.40	-20.60	0.00	58.31	-	-	74.00	-15.69	154	100	V
			* 5.14977	49.98	Pk	34.40	-20.60	0.00	63.78	-	-	74.00	-10.22	154	100	V
802.11n (HT20)	5180	MIMO	* 5.14999	31.47	RMS	34.40	-20.60	0.17	45.44	54.00	-8.56	-	-	154	100	V
			* 5.14954	32.85	RMS	34.40	-20.70	0.17	46.72	54.00	-7.28	-	-	154	100	V
			* 5.14999	47.00	Pk	34.40	-20.60	0.00	60.80	-	-	74.00	-13.20	151	128	H
			* 5.14954	49.48	Pk	34.40	-20.70	0.00	63.18	-	-	74.00	-10.82	151	128	H
			* 5.14999	32.16	RMS	34.40	-20.60	0.09	46.05	54.00	-7.95	-	-	151	128	H
			* 5.14882	34.01	RMS	34.40	-20.70	0.09	47.80	54.00	-6.20	-	-	151	128	H
802.11n (HT40)	5190	MIMO	* 5.14999	47.13	Pk	34.40	-20.60	0.00	60.93	-	-	74.00	-13.07	158	100	V
			* 5.14992	50.50	Pk	34.40	-20.60	0.00	64.30	-	-	74.00	-9.70	158	100	V
			* 5.14999	31.75	RMS	34.40	-20.60	0.09	45.64	54.00	-8.36	-	-	158	100	V
			* 5.14922	33.50	RMS	34.40	-20.70	0.09	47.29	54.00	-6.71	-	-	158	100	V
			* 5.14999	50.00	Pk	34.40	-20.60	0.00	63.80	-	-	74.00	-10.20	156	100	H
			* 5.14984	50.74	Pk	34.40	-20.60	0.00	64.54	-	-	74.00	-9.46	156	100	H
802.11n (HT40)	5190	MIMO	* 5.14999	36.18	RMS	34.40	-20.60	0.14	50.12	54.00	-3.88	-	-	156	100	H
			* 5.14977	37.26	RMS	34.40	-20.60	0.14	51.20	54.00	-2.80	-	-	156	100	H
			* 5.14999	50.28	Pk	34.40	-20.60	0.00	64.08	-	-	74.00	-9.92	153	103	V
			* 5.14892	51.57	Pk	34.40	-20.70	0.00	65.27	-	-	74.00	-8.73	153	103	V
			* 5.14999	36.65	RMS	34.40	-20.60	0.14	50.59	54.00	-3.41	-	-	153	103	V
			* 5.14954	37.90	RMS	34.40	-20.70	0.14	51.74	54.00	-2.26	-	-	153	103	V
802.11ac (VHT80)	5210	MIMO	* 5.14999	47.14	Pk	34.40	-20.60	0.00	60.94	-	-	74.00	-13.06	156	104	H
			* 5.14812	49.97	Pk	34.40	-20.80	0.00	63.57	-	-	74.00	-10.43	156	104	H
			* 5.14999	35.11	RMS	34.40	-20.60	0.45	49.36	54.00	-4.64	-	-	156	104	H
			* 5.14857	36.35	RMS	34.40	-20.70	0.45	50.50	54.00	-3.50	-	-	156	104	H
			* 5.14999	48.43	Pk	34.40	-20.60	0.00	62.23	-	-	74.00	-11.77	156	104	V
			* 5.14822	50.08	Pk	34.40	-20.80	0.00	63.68	-	-	74.00	-10.32	156	104	V
802.11ax (HE20) SU mode	5180	MIMO	* 5.14999	34.68	RMS	34.40	-20.60	0.45	48.93	54.00	-5.07	-	-	156	104	V
			* 5.14407	36.51	RMS	34.40	-20.80	0.45	50.56	54.00	-3.44	-	-	156	104	V
			* 5.14999	43.12	Pk	34.40	-20.60	0.00	56.92	-	-	74.00	-17.08	148	127	H
			* 5.14767	47.87	Pk	34.40	-20.80	0.00	61.47	-	-	74.00	-12.53	148	127	H
			* 5.14999	32.02	RMS	34.40	-20.60	0.20	46.02	54.00	-7.98	-	-	148	127	H
			* 5.14934	32.26	RMS	34.40	-20.70	0.20	46.16	54.00	-7.84	-	-	148	127	H
802.11ax (HE40) SU mode	5190	MIMO	* 5.14999	46.27	Pk	34.40	-20.60	0.00	60.07	-	-	74.00	-13.93	152	103	V
			* 5.14837	50.19	Pk	34.40	-20.80	0.00	63.79	-	-	74.00	-10.21	152	103	V
			* 5.14999	32.98	RMS	34.40	-20.60	0.20	46.98	54.00	-7.02	-	-	152	103	V
			* 5.14912	35.29	RMS	34.40	-20.70	0.20	49.19	54.00	-4.81	-	-	152	103	V
			* 5.14999	50.96	Pk	34.40	-20.60	0.00	64.76	-	-	74.00	-9.24	153	100	H
			* 5.14997	51.59	Pk	34.40	-20.60	0.00	65.39	-	-	74.00	-8.61	153	100	H
802.11ax (HE80) SU mode	5210	MIMO	* 5.14999	36.93	RMS	34.40	-20.60	0.20	50.93	54.00	-3.07	-	-	153	100	H
			* 5.14932	37.69	RMS	34.40	-20.70	0.20	51.59	54.00	-2.41	-	-	153	100	H
			* 5.14999	49.17	Pk	34.40	-20.60	0.00	62.97	-	-	74.00	-11.03	153	100	V
			* 5.14944	50.64	Pk	34.40	-20.70	0.00	64.34	-	-	74.00	-9.66	153	100	V
			* 5.14999	35.81	RMS	34.40	-20.60	0.20	49.81	54.00	-4.19	-	-	153	100	V
			* 5.14954	36.54	RMS	34.40	-20.70	0.20	50.44	54.00	-3.56	-	-	153	100	V
802.11ax (HE80) SU mode	5210	MIMO	* 5.14999	48.97	Pk	34.40	-20.60	0.00	62.77	-	-	74.00	-11.23	151	128	H
			* 5.14929	50.51	Pk	34.40	-20.70	0.00	64.21	-	-	74.00	-9.79	151	128	H
			* 5.14999	37.03	RMS	34.40	-20.60	0.27	51.10	54.00	-2.90	-	-	151	128	H
			* 5.14959	37.72	RMS	34.40	-20.70	0.27	51.69	54.00	-2.31	-	-	151	128	H
			* 5.14999	49.77	Pk	34.40	-20.60	0.00	63.57	-	-	74.00	-10.43	157	103	V
			* 5.14447	52.55	Pk	34.40	-20.80	0.00	66.15	-	-	74.00	-7.85	157	103	V
802.11ax (HE80) SU mode	5210	MIMO	* 5.14999	37.47	RMS	34.40	-20.60	0.27	51.54	54.00	-2.46	-	-	157	103	V
			* 5.14924	37.73	RMS	34.40	-20.70	0.27	51.70	54.00	-2.30	-	-	157	103	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: 802.11a / 5200 MHz)
5200 MHz HORIZONTAL



5200 MHz 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.

5200 MHz DATA

Radiated Emissions

Frequency (GHz)	Meter Reading (dBm)	Det	Antenna Correction Factor(dB)	Loss(dB)	DC Corr (dB)	Corrected Reading (dBm)	Avg Limit (dBm)	Margin (dB)	Peak Limit (dBm)	Margin (dB)	UNII Non-Restricted (dBm)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
7.79769	36.65	PK-U	35.9	-24.6	0	47.95	-	-	-	-	68.2	-20.25	0	100	H
7.80089	36.74	PK-U	35.9	-24.6	0	48.04	-	-	-	-	68.2	-20.16	0	100	V
10.40553	35.24	PK-U	37.5	-20.9	0	51.84	-	-	-	-	68.2	-16.36	161	106	H
10.39999	35.37	PK-U	37.5	-20.8	0	52.07	-	-	-	-	68.2	-16.13	113	106	V
* 15.60045	34.93	PK-U	40.2	-20.8	0	54.33	-	-	74	-19.67	-	-	0	100	H
* 15.60079	34.55	PK-U	40.2	-20.8	0	53.95	-	-	74	-20.05	-	-	0	100	V
* 15.60045	22.55	ADR	40.2	-20.8	-17	42.12	54	-11.88	-	-	-	-	0	100	H
* 15.60079	21.92	ADR	40.2	-20.8	-17	41.49	54	-12.51	-	-	-	-	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

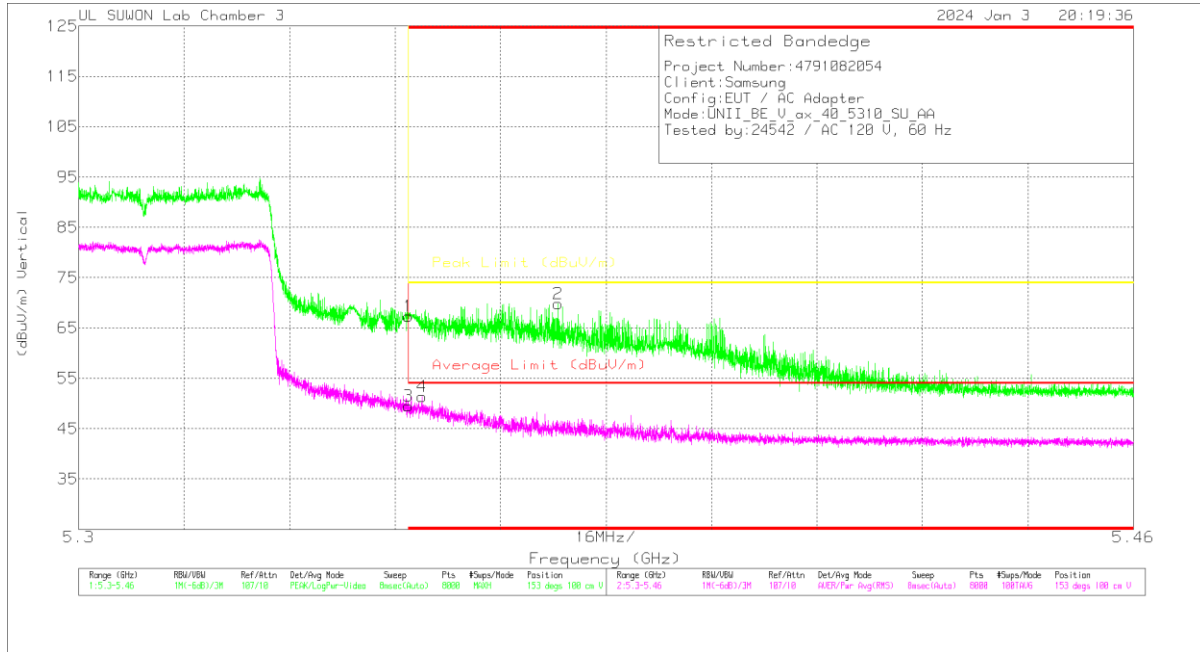
Mode	Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBuV]	Detector Mode	ANT Factor [dB(1/m)]	Loss [dB]	DC Corr [dB]	Result [dBuV/m]	AV Limit [dBuV/m]	AV Margin [dB]	PK Limit [dBuV/m]	PK Margin [dB]	Non-Restricted [dBuV/m]	Margin [dB]	Azimuth [Degs]	Height [cm]	Polarity	
802.11a	5180	MIMO	7.772	36.78	PK-U	35.90	-24.70	0.00	47.98	-	-	-	-	68.20	-20.22	0	100	H	
			7.767	36.66	PK-U	35.90	-24.70	0.00	47.86	-	-	-	-	-	68.20	-20.34	0	100	V
			10.359	34.95	PK-U	37.50	-21.00	0.00	51.45	-	-	-	-	-	68.20	-16.75	0	100	H
			10.361	35.09	PK-U	37.50	-21.00	0.00	51.59	-	-	-	-	-	68.20	-16.61	118	104	V
			*15.54374	35.19	PK-U	40.10	-21.10	0.00	54.19	-	-	74.00	-19.81	-	-	-	0	100	H
			*15.54351	35.15	PK-U	40.10	-21.10	0.00	54.15	-	-	74.00	-19.85	-	-	-	0	100	V
	*15.54374	22.10	ADR	40.10	-21.10	0.17	41.27	-	-	54.00	-12.73	-	-	-	0	100	H		
	*15.54351	21.18	ADR	40.10	-21.10	0.17	40.35	-	-	54.00	-13.65	-	-	-	0	100	V		
	5200	MIMO	7.798	36.65	PK-U	35.90	-24.60	0.00	47.95	-	-	-	-	-	68.20	-20.25	0	100	H
			7.801	36.74	PK-U	35.90	-24.60	0.00	48.04	-	-	-	-	-	68.20	-20.16	0	100	V
			10.406	35.24	PK-U	37.50	-20.90	0.00	51.84	-	-	-	-	-	68.20	-16.36	161	106	H
			10.400	35.37	PK-U	37.50	-20.80	0.00	52.07	-	-	-	-	-	68.20	-16.13	113	108	V
			*15.60045	34.93	PK-U	40.20	-20.80	0.00	54.33	-	-	74.00	-19.67	-	-	-	0	100	H
			*15.60079	34.55	PK-U	40.20	-20.80	0.00	53.95	-	-	74.00	-20.05	-	-	-	0	100	V
	*15.60045	22.55	ADR	40.20	-20.80	0.17	42.12	-	-	54.00	-11.88	-	-	-	0	100	H		
	*15.60079	21.92	ADR	40.20	-20.80	0.17	41.49	-	-	54.00	-12.51	-	-	-	0	100	V		
	5240	MIMO	7.860	36.93	PK-U	35.90	-24.50	0.00	48.33	-	-	-	-	-	68.20	-19.87	0	100	H
			7.860	36.14	PK-U	35.90	-24.50	0.00	47.54	-	-	-	-	-	68.20	-20.66	0	100	V
10.485			34.49	PK-U	37.60	-21.20	0.00	50.89	-	-	-	-	-	68.20	-17.31	164	103	H	
10.479			34.84	PK-U	37.60	-21.20	0.00	51.24	-	-	-	-	-	68.20	-16.96	129	109	V	
*15.72098			34.53	PK-U	40.40	-20.50	0.00	54.43	-	-	74.00	-19.57	-	-	-	0	100	H	
*15.72125			34.83	PK-U	40.40	-20.60	0.00	54.63	-	-	74.00	-19.37	-	-	-	0	100	V	
*15.72098	21.33	ADR	40.40	-20.50	0.17	41.40	-	-	54.00	-12.60	-	-	-	0	100	H			
*15.72125	21.35	ADR	40.40	-20.60	0.17	41.32	-	-	54.00	-12.68	-	-	-	0	100	V			
802.11ax (HE20) RU mode 26 Tone offset 8	5240	MIMO	7.860	36.87	PK-U	35.90	-24.50	0.00	48.27	-	-	-	-	-	68.20	-19.93	0	100	H
			7.861	36.02	PK-U	35.90	-24.50	0.00	47.42	-	-	-	-	-	68.20	-20.78	0	100	V
			10.480	34.17	PK-U	37.60	-21.20	0.00	50.57	-	-	-	-	-	68.20	-17.63	161	108	H
			10.480	34.69	PK-U	37.60	-21.20	0.00	51.09	-	-	-	-	-	68.20	-17.11	128	110	V
			*15.72114	34.74	PK-U	40.40	-20.60	0.00	54.54	-	-	74.00	-19.46	-	-	-	0	100	H
			*15.72221	34.77	PK-U	40.40	-20.60	0.00	54.57	-	-	74.00	-19.43	-	-	-	0	100	V
*15.72114	21.42	ADR	40.40	-20.60	0.10	41.32	-	-	54.00	-12.68	-	-	-	0	100	H			
*15.72221	21.40	ADR	40.40	-20.60	0.10	41.30	-	-	54.00	-12.70	-	-	-	0	100	V			

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

11.2. TX ABOVE 1GHz 2Tx MODE IN THE 5.3GHz BAND

BANDEDGE (WORST CASE: 802.11ax HE40 / 5310 MHz)

VERTICAL PEAK AND AVERAGE DATA



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	Antenna Correction Factor (dBm)	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	* 5.35001	53.01	Pk	34.7	-20.4	0	67.31	-	-	74	-6.69	153	100	V
2	* 5.37273	55.44	Pk	34.7	-20.3	0	69.84	-	-	74	-4.16	153	100	V
3	* 5.35001	35.02	RMS	34.7	-20.4	-2	49.52	54	-4.48	-	-	153	100	V
4	* 5.35211	36.83	RMS	34.7	-20.3	-2	51.43	54	-2.57	-	-	153	100	V

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

Pk - Peak detector

RMS - RMS detection

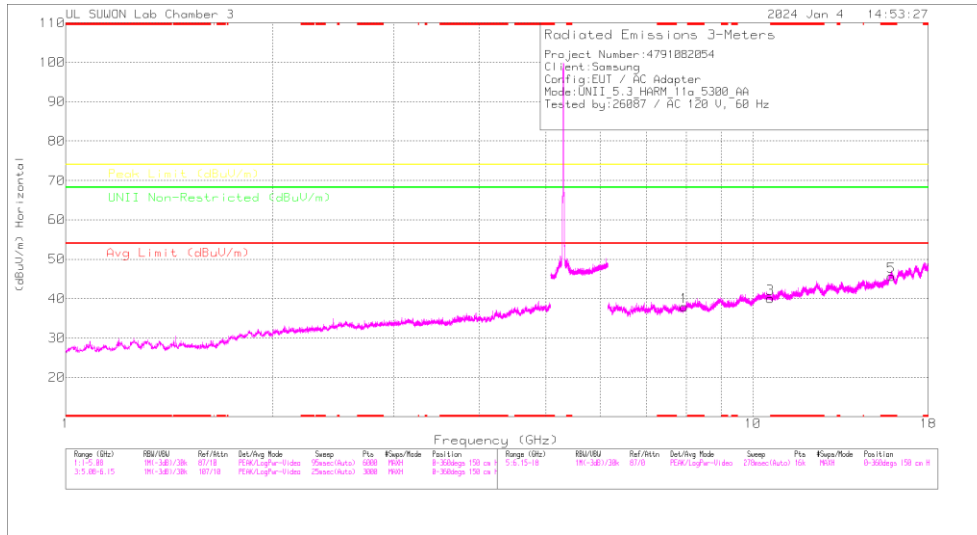
BANDEDGE TEST DATA

Mode	Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBuV]	Detector Mode	ANT Factor [dB(1/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	5320	MIMO	* 5.35001	49.94	Pk	34.70	-20.40	0.00	64.24	-	-	74.00	-9.76	211	104	H
			* 5.35777	52.14	Pk	34.70	-20.30	0.00	66.54	-	-	74.00	-7.46	211	104	H
			* 5.35001	33.03	RMS	34.70	-20.40	0.17	47.50	54.00	-6.50	-	-	211	104	H
			* 5.35041	33.91	RMS	34.70	-20.40	0.17	48.38	54.00	-5.62	-	-	211	104	H
			* 5.35001	51.08	Pk	34.70	-20.40	0.00	65.38	-	-	74.00	-8.62	200	340	V
			* 5.35011	51.60	Pk	34.70	-20.40	0.00	65.90	-	-	74.00	-8.10	200	340	V
			* 5.35001	33.52	RMS	34.70	-20.40	0.17	47.99	54.00	-6.01	-	-	200	340	V
802.11n (HT20)	5320	MIMO	* 5.35295	35.27	RMS	34.70	-20.30	0.17	49.84	54.00	-4.16	-	-	200	340	V
			* 5.35001	52.96	Pk	34.70	-20.40	0.00	67.26	-	-	74.00	-6.74	204	108	H
			* 5.35047	53.53	Pk	34.70	-20.40	0.00	67.83	-	-	74.00	-6.17	204	108	H
			* 5.35001	29.70	RMS	34.70	-20.40	0.09	44.09	54.00	-9.91	-	-	204	108	H
			* 5.35207	33.42	RMS	34.70	-20.30	0.09	47.91	54.00	-6.09	-	-	204	108	H
			* 5.35001	47.42	Pk	34.70	-20.40	0.00	61.72	-	-	74.00	-12.28	202	341	V
			* 5.35059	55.72	Pk	34.70	-20.40	0.00	70.02	-	-	74.00	-3.98	202	341	V
802.11n (HT40)	5310	MIMO	* 5.35001	32.23	RMS	34.70	-20.40	0.09	46.62	54.00	-7.38	-	-	202	341	V
			* 5.35057	35.19	RMS	34.70	-20.40	0.09	49.58	54.00	-4.42	-	-	202	341	V
			* 5.35001	49.14	Pk	34.70	-20.40	0.00	63.44	-	-	74.00	-10.56	204	106	H
			* 5.36223	53.65	Pk	34.70	-20.30	0.00	68.05	-	-	74.00	-5.95	204	106	H
			* 5.35001	33.15	RMS	34.70	-20.40	0.14	47.59	54.00	-6.41	-	-	204	106	H
			* 5.35225	35.11	RMS	34.70	-20.30	0.14	49.65	54.00	-4.35	-	-	204	106	H
			* 5.35001	52.72	Pk	34.70	-20.40	0.00	67.02	-	-	74.00	-6.98	177	105	V
802.11ac (VHT80)	5290	MIMO	* 5.36213	56.12	Pk	34.70	-20.30	0.00	70.52	-	-	74.00	-3.48	177	105	V
			* 5.35001	36.09	RMS	34.70	-20.40	0.14	50.53	54.00	-3.47	-	-	177	105	V
			* 5.35437	36.55	RMS	34.70	-20.30	0.14	51.09	54.00	-2.91	-	-	177	105	V
			* 5.35001	46.44	Pk	34.70	-20.40	0.00	60.74	-	-	74.00	-13.26	204	108	H
			* 5.38175	52.58	Pk	34.80	-20.20	0.00	67.18	-	-	74.00	-6.82	204	108	H
			* 5.35001	31.93	RMS	34.70	-20.40	0.45	46.68	54.00	-7.32	-	-	204	108	H
			* 5.36285	35.00	RMS	34.70	-20.30	0.45	49.85	54.00	-4.15	-	-	204	108	H
802.11ax (HE20) SU mode	5320	MIMO	* 5.35001	50.32	Pk	34.70	-20.40	0.00	64.62	-	-	74.00	-9.38	192	360	V
			* 5.35565	54.53	Pk	34.70	-20.30	0.00	68.93	-	-	74.00	-5.07	192	360	V
			* 5.35001	35.36	RMS	34.70	-20.40	0.45	50.11	54.00	-3.89	-	-	192	360	V
			* 5.35357	36.30	RMS	34.70	-20.30	0.45	51.15	54.00	-2.85	-	-	192	360	V
			* 5.35001	42.81	Pk	34.70	-20.40	0.00	57.11	-	-	74.00	-16.89	150	115	H
			* 5.35849	48.23	Pk	34.70	-20.30	0.00	62.63	-	-	74.00	-11.37	150	115	H
			* 5.35001	29.55	RMS	34.70	-20.40	0.20	44.05	54.00	-9.95	-	-	150	115	H
802.11ax (HE40) SU mode	5310	MIMO	* 5.35691	30.12	RMS	34.70	-20.30	0.20	44.72	54.00	-9.28	-	-	150	115	H
			* 5.35001	51.31	Pk	34.70	-20.40	0.00	65.61	-	-	74.00	-8.39	151	100	V
			* 5.35323	56.33	Pk	34.70	-20.30	0.00	70.73	-	-	74.00	-3.27	151	100	V
			* 5.35001	30.42	RMS	34.70	-20.40	0.20	44.92	54.00	-9.08	-	-	151	100	V
			* 5.35221	35.61	RMS	34.70	-20.30	0.20	50.21	54.00	-3.79	-	-	151	100	V
			* 5.35001	46.63	Pk	34.70	-20.40	0.00	60.93	-	-	74.00	-13.07	153	111	H
			* 5.36323	48.76	Pk	34.70	-20.30	0.00	63.16	-	-	74.00	-10.84	153	111	H
802.11ax (HE80) SU mode	5290	MIMO	* 5.35001	32.20	RMS	34.70	-20.40	0.20	46.70	54.00	-7.30	-	-	153	111	H
			* 5.35229	32.47	RMS	34.70	-20.30	0.20	47.07	54.00	-6.93	-	-	153	111	H
			* 5.35001	53.01	Pk	34.70	-20.40	0.00	67.31	-	-	74.00	-6.69	153	100	V
			* 5.37273	55.44	Pk	34.70	-20.30	0.00	69.84	-	-	74.00	-4.16	153	100	V
			* 5.35001	35.02	RMS	34.70	-20.40	0.20	49.52	54.00	-4.48	-	-	153	100	V
			* 5.35211	36.83	RMS	34.70	-20.30	0.20	51.43	54.00	-2.57	-	-	153	100	V
			* 5.35001	41.92	Pk	34.70	-20.40	0.00	56.22	-	-	74.00	-17.78	153	115	H
802.11ax (HE80) SU mode	5290	MIMO	* 5.37623	49.53	Pk	34.80	-20.20	0.00	64.13	-	-	74.00	-9.87	153	115	H
			* 5.35001	29.40	RMS	34.70	-20.40	0.27	43.97	54.00	-10.03	-	-	153	115	H
			* 5.38047	30.99	RMS	34.80	-20.20	0.27	45.86	54.00	-8.14	-	-	153	115	H
			* 5.35001	44.67	Pk	34.70	-20.40	0.00	58.97	-	-	74.00	-15.03	151	106	V
			* 5.37615	54.17	Pk	34.80	-20.20	0.00	68.77	-	-	74.00	-5.23	151	106	V
			* 5.35001	30.84	RMS	34.70	-20.40	0.27	45.41	54.00	-8.59	-	-	151	106	V
			* 5.37133	35.19	RMS	34.70	-20.30	0.27	49.86	54.00	-4.14	-	-	151	106	V

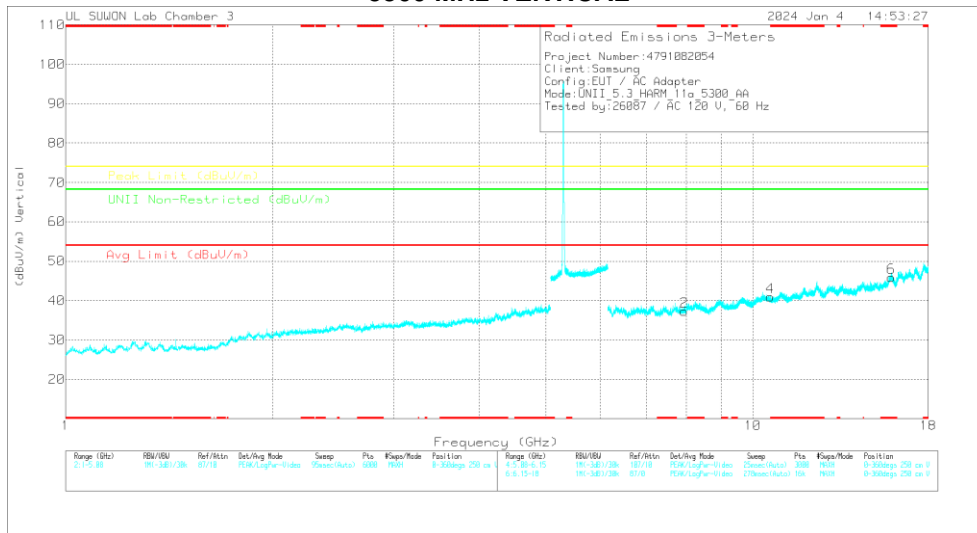
Note1. Pk - Peak detector, RMS - RMS detector
 Note2. * - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

HARMONICS AND SPURIOUS EMISSIONS(WORST CASE: 802.11a / 5300 MHz)

5300 MHz HORIZONTAL



5300 MHz 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.

5300 MHz DATA

Radiated Emissions

Frequency (GHz)	Meas. Reading (dBuV)	Det.	Antenna Correction Factor(dBm)	Loss(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margn (dB)	Peak Limit (dBuV/m)	Margn (dB)	UNII Non-Restricted (dBuV/m)	Margn (dB)	Azimuth (Degs)	Height (cm)	Polarity
7.94803	36.54	PK-U	35.9	-24.4	0	48.04	-	-	-	-	68.2	-20.16	0	100	H
7.96271	36.62	PK-U	35.9	-24.4	0	48.12	-	-	-	-	68.2	-20.08	0	100	V
10.59991	35.58	PK-U	37.7	-21.2	0	52.08	-	-	-	-	68.2	-16.12	164	108	H
10.59988	23.11	ADR	37.7	-21.2	-17	39.78	-	-	-	-	-	-	164	108	H
* 10.6019	34.73	PK-U	37.7	-21.2	0	51.23	-	-	74	-22.77	-	-	20	101	V
10.5999	23.66	ADR	37.7	-21.2	-17	40.33	-	-	-	-	-	-	20	101	V
* 15.9044	34.93	PK-U	40.8	-19.9	0	55.83	-	-	74	-18.17	-	-	0	100	H
* 15.90092	35.96	PK-U	40.8	-19.9	0	56.96	-	-	74	-17.14	-	-	0	100	V
* 15.9044	22.12	ADR	40.8	-19.9	-17	43.19	54	-10.81	-	-	-	-	0	100	H
* 15.90092	22.92	ADR	40.8	-19.9	-17	43.99	54	-10.01	-	-	-	-	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

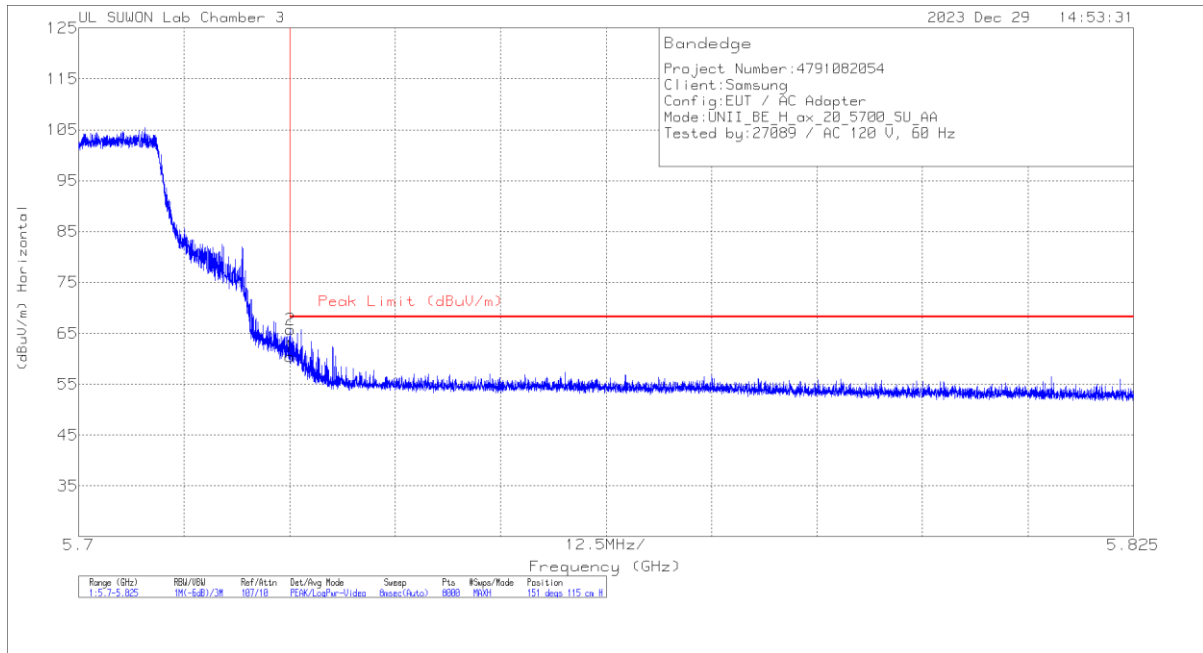
Mode	Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBuV]	Detector Mode	ANT Factor [dB(1/m)]	Loss [dB]	DC Corr [dB]	Result [dBuV/m]	AV Limit [dBuV/m]	AV Margin [dB]	PK Limit [dBuV/m]	PK Margin [dB]	Non-Restricted [dBuV/m]	Margin [dB]	Azimuth [Degs]	Height [cm]	Polarity			
802.11a	5260	MIMO	7.891	36.87	PK-U	35.90	-24.40	0.00	48.37	-	-	-	-	68.20	-19.83	0	100	H			
			7.892	36.53	PK-U	35.90	-24.50	0.00	47.93	-	-	-	-	-	68.20	-20.27	0	100	V		
			10.520	35.04	PK-U	37.60	-21.10	0.00	51.54	-	-	-	-	-	68.20	-16.66	169	103	H		
			10.520	34.48	PK-U	37.60	-21.10	0.00	50.98	-	-	-	-	-	68.20	-17.22	130	110	V		
			*15.78021	35.03	PK-U	40.60	-20.50	0.00	55.13	-	-	74.00	-18.87	-	-	-	0	100	H		
			*15.78234	35.20	PK-U	40.60	-20.50	0.00	55.30	-	-	74.00	-18.70	-	-	-	0	100	V		
			*15.78021	23.02	ADR	40.60	-20.50	0.17	43.29	54.00	-10.71	-	-	-	-	-	0	100	H		
			*15.78234	22.90	ADR	40.60	-20.50	0.17	43.17	54.00	-10.83	-	-	-	-	-	0	100	V		
	5300	MIMO	7.948	36.54	PK-U	35.90	-24.40	0.00	48.04	-	-	-	-	-	68.20	-20.16	0	100	H		
			7.953	36.62	PK-U	35.90	-24.40	0.00	48.12	-	-	-	-	-	68.20	-20.08	0	100	V		
			10.600	35.58	PK-U	37.70	-21.20	0.00	52.08	-	-	-	-	-	68.20	-16.12	164	108	H		
			10.600	23.11	ADR	37.70	-21.20	0.17	39.78	-	-	-	-	-	-	-	164	108	H		
			*10.6019	34.73	PK-U	37.70	-21.20	0.00	51.23	-	-	74.00	-22.77	-	-	-	20	101	V		
			10.600	23.66	ADR	37.70	-21.20	0.17	40.33	-	-	-	-	-	-	-	20	101	V		
			*15.9044	34.93	PK-U	40.80	-19.90	0.00	55.83	-	-	74.00	-18.17	-	-	-	0	100	H		
			*15.90092	35.96	PK-U	40.80	-19.90	0.00	56.86	-	-	74.00	-17.14	-	-	-	0	100	V		
			*15.9044	22.12	ADR	40.80	-19.90	0.17	43.19	54.00	-10.81	-	-	-	-	-	0	100	H		
			*15.90092	22.92	ADR	40.80	-19.90	0.17	43.99	54.00	-10.01	-	-	-	-	-	0	100	V		
			5320	MIMO	7.982	36.21	PK-U	35.90	-24.40	0.00	47.71	-	-	-	-	-	68.20	-20.49	0	100	H
					7.985	36.31	PK-U	35.90	-24.40	0.00	47.81	-	-	-	-	-	68.20	-20.39	0	100	V
	*10.64233	33.79			PK-U	37.70	-21.10	0.00	50.39	-	-	74.00	-23.61	-	-	-	0	100	H		
	*10.64033	34.74			PK-U	37.70	-21.10	0.00	51.34	-	-	74.00	-22.66	-	-	-	115	105	V		
	*10.63987	23.53			ADR	37.70	-21.10	0.17	40.30	54.00	-13.70	-	-	-	-	-	115	105	V		
	*15.96186	34.67			PK-U	40.90	-19.80	0.00	55.77	-	-	74.00	-18.23	-	-	-	0	100	H		
*15.95964	35.62	PK-U			40.90	-19.80	0.00	56.72	-	-	74.00	-17.28	-	-	-	0	100	V			
*15.96186	21.44	ADR			40.90	-19.80	0.17	42.71	54.00	-11.29	-	-	-	-	-	0	100	H			
*15.95964	21.46	ADR	40.90	-19.80	0.17	42.73	54.00	-11.27	-	-	-	-	-	0	100	V					
802.11ax (HE20) RU mode 26 Tone offset 8 Spot-Check	5260	MIMO	7.891	36.51	PK-U	35.90	-24.50	0.00	47.91	-	-	-	-	68.20	-20.29	0	100	H			
			7.890	37.16	PK-U	35.90	-24.40	0.00	48.66	-	-	-	-	-	68.20	-19.54	0	100	V		
			10.521	34.21	PK-U	37.60	-21.10	0.00	50.71	-	-	-	-	-	68.20	-17.49	166	101	H		
			10.520	34.35	PK-U	37.60	-21.10	0.00	50.85	-	-	-	-	-	68.20	-17.35	129	113	V		
			*15.77906	34.98	PK-U	40.60	-20.50	0.00	55.08	-	-	74.00	-18.92	-	-	-	0	100	H		
			*15.77963	34.93	PK-U	40.60	-20.50	0.00	55.03	-	-	74.00	-18.97	-	-	-	0	100	V		
			*15.77906	21.48	ADR	40.60	-20.50	0.10	41.68	54.00	-12.32	-	-	-	-	-	0	100	H		
			*15.77963	21.53	ADR	40.60	-20.50	0.10	41.73	54.00	-12.27	-	-	-	-	-	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 THE 5.5 GHz BAND

BANDEDGE (WORST CASE: 802.11ax HE20 / 5700 MHz)

HORIZONTAL PEAK AND AVERAGE DATA



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	Antenna Correction Factor (dB/m)	Loss (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.725	45.27	Pk	35	-19.8	0	60.47	68.2	-7.73	151	115	H
2	5.72513	50.57	Pk	35	-19.8	0	65.77	68.2	-2.43	151	115	H

Pk - Peak detector

BANDEDGE TEST DATA

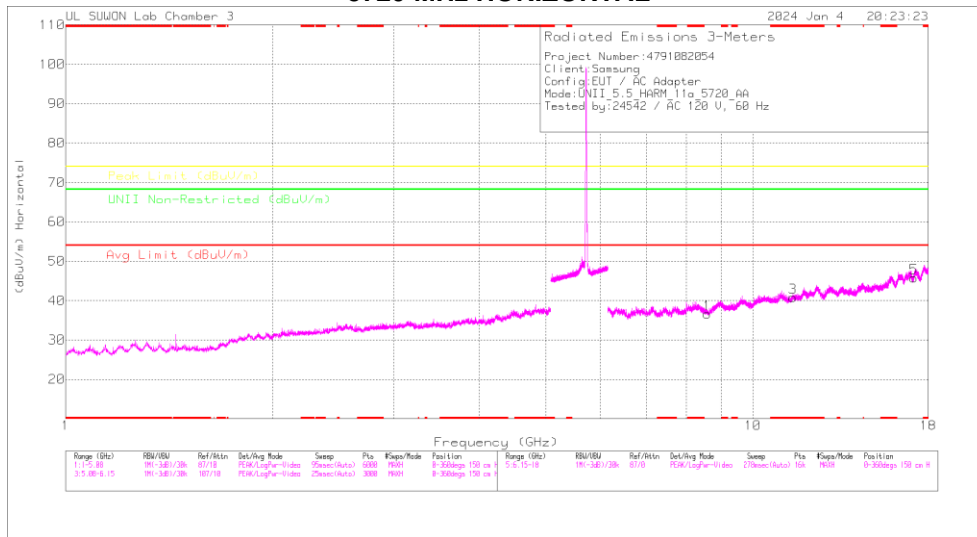
Mode	Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBuV]	Detector Mode	ANT Factor [dB(1/m)]	Loss [dB]	DC Corr [dB]	Result dBuV/m	AV Limit dBuV/m	AV Margin [dB]	PK Limit dBuV/m	PK Margin [dB]	Azimuth [Degs]	Height [cm]	Polarity		
802.11a	5500	MIMO	* 5.45998	42.90	Pk	34.90	-20.10	0.00	57.70	-	-	74.00	-16.30	156	117	H		
			* 5.45716	45.12	Pk	34.90	-20.10	0.00	59.92	-	-	74.00	-14.08	156	117	H		
			5.46998	44.12	Pk	34.90	-20.20	0.00	58.82	-	-	68.20	-9.38	156	117	H		
			5.46904	46.98	Pk	34.90	-20.20	0.00	61.68	-	-	68.20	-6.52	156	117	H		
			* 5.45998	32.35	RMS	34.90	-20.10	0.17	47.32	54.00	-6.68	-	-	-	-	156	117	H
			* 5.42605	33.79	RMS	34.90	-20.20	0.17	48.66	54.00	-5.34	-	-	-	-	156	117	H
			5.46998	33.24	RMS	34.90	-20.20	0.17	48.11	-	-	-	-	-	-	156	117	H
			5.46889	33.56	RMS	34.90	-20.20	0.17	48.43	-	-	-	-	-	-	156	117	H
			* 5.45998	44.24	Pk	34.90	-20.10	0.00	59.04	-	-	74.00	-14.96	188	354	V		
			* 5.45972	45.88	Pk	34.90	-20.10	0.00	60.68	-	-	74.00	-13.32	188	354	V		
	5.46998	46.88	Pk	34.90	-20.20	0.00	61.58	-	-	68.20	-6.62	188	354	V				
	5.46287	49.54	Pk	34.90	-20.20	0.00	64.24	-	-	68.20	-3.96	188	354	V				
	* 5.45998	31.12	RMS	34.90	-20.10	0.17	46.09	54.00	-7.91	-	-	-	-	188	354	V		
	* 5.45957	31.90	RMS	34.90	-20.10	0.17	46.87	54.00	-7.13	-	-	-	-	188	354	V		
	5.46998	33.57	RMS	34.90	-20.20	0.17	48.44	-	-	-	-	-	-	188	354	V		
	5.46991	33.91	RMS	34.90	-20.20	0.17	48.78	-	-	-	-	-	-	188	354	V		
	5.72500	47.26	Pk	35.00	-19.80	0.00	62.46	-	-	68.20	-5.74	156	100	H				
	5.72539	48.27	Pk	35.00	-19.80	0.00	63.47	-	-	68.20	-4.73	156	100	H				
	5.72500	46.69	Pk	35.00	-19.80	0.00	61.89	-	-	68.20	-6.31	155	100	V				
	5.72502	48.10	Pk	35.00	-19.80	0.00	63.30	-	-	68.20	-4.90	155	100	V				
802.11n (HT20)	5500	MIMO	5.45998	42.56	Pk	34.90	-20.10	0.00	57.36	-	-	74.00	-16.64	155	100	H		
			* 5.45364	44.69	Pk	34.90	-20.10	0.00	59.49	-	-	74.00	-14.51	155	100	H		
			5.46998	43.90	Pk	34.90	-20.20	0.00	58.60	-	-	68.20	-9.60	155	100	H		
			5.46899	47.47	Pk	34.90	-20.20	0.00	62.17	-	-	68.20	-6.03	155	100	H		
			* 5.45998	31.51	RMS	34.90	-20.10	0.09	46.40	54.00	-7.60	-	-	-	155	100	H	
			* 5.42325	33.05	RMS	34.90	-20.20	0.09	47.74	54.00	-6.26	-	-	-	155	100	H	
			5.46998	31.99	RMS	34.90	-20.20	0.09	46.78	-	-	-	-	-	155	100	H	
			5.46996	32.65	RMS	34.90	-20.20	0.09	47.44	-	-	-	-	-	155	100	H	
			* 5.45998	44.86	Pk	34.90	-20.10	0.00	59.66	-	-	74.00	-14.34	153	100	V		
			* 5.45631	48.67	Pk	34.90	-20.20	0.00	63.37	-	-	74.00	-10.63	153	100	V		
	5.46998	48.68	Pk	34.90	-20.20	0.00	63.38	-	-	68.20	-4.82	153	100	V				
	5.46934	50.94	Pk	34.90	-20.20	0.00	65.64	-	-	68.20	-2.56	153	100	V				
	* 5.45998	28.72	RMS	34.90	-20.10	0.09	43.61	54.00	-10.39	-	-	-	153	100	V			
	* 5.45648	30.38	RMS	34.90	-20.20	0.09	45.17	54.00	-8.83	-	-	-	153	100	V			
	5.46998	32.21	RMS	34.90	-20.20	0.09	47.00	-	-	-	-	-	153	100	V			
	5.46967	33.66	RMS	34.90	-20.20	0.09	48.45	-	-	-	-	-	153	100	V			
	5.72500	39.73	Pk	35.00	-19.80	0.00	54.93	-	-	68.20	-13.27	155	115	H				
	5.72588	41.32	Pk	35.00	-19.80	0.00	56.52	-	-	68.20	-11.68	155	115	H				
	5.72500	49.27	Pk	35.00	-19.80	0.00	64.47	-	-	68.20	-3.73	160	100	V				
	5.72607	50.12	Pk	35.00	-19.80	0.00	65.32	-	-	68.20	-2.88	160	100	V				
802.11n (HT40)	5510	MIMO	* 5.45998	42.20	Pk	34.90	-20.10	0.00	57.00	-	-	74.00	-17.00	153	117	H		
			* 5.42484	44.22	Pk	34.80	-20.20	0.00	58.82	-	-	74.00	-15.18	153	117	H		
			5.46998	41.50	Pk	34.90	-20.20	0.00	56.20	-	-	68.20	-12.00	153	117	H		
			5.46937	45.48	Pk	34.90	-20.20	0.00	60.18	-	-	68.20	-8.02	153	117	H		
			* 5.45998	31.48	RMS	34.90	-20.10	0.14	46.42	54.00	-7.58	-	-	153	117	H		
			* 5.44434	32.99	RMS	34.90	-20.10	0.14	47.93	54.00	-6.07	-	-	153	117	H		
			5.46998	31.42	RMS	34.90	-20.20	0.14	46.26	-	-	-	-	153	117	H		
			5.46945	32.54	RMS	34.90	-20.20	0.14	47.38	-	-	-	-	153	117	H		
			* 5.45998	43.96	Pk	34.90	-20.10	0.00	58.76	-	-	74.00	-15.24	157	100	V		
			* 5.45615	47.53	Pk	34.90	-20.20	0.00	62.23	-	-	74.00	-11.77	157	100	V		
	5.46998	48.25	Pk	34.90	-20.20	0.00	62.95	-	-	68.20	-5.25	157	100	V				
	5.46908	50.01	Pk	34.90	-20.20	0.00	64.71	-	-	68.20	-3.49	157	100	V				
	* 5.45998	27.84	RMS	34.90	-20.10	0.14	42.78	54.00	-11.22	-	-	157	100	V				
	* 5.45545	29.96	RMS	34.90	-20.20	0.14	44.80	54.00	-9.20	-	-	157	100	V				
	5.46998	31.38	RMS	34.90	-20.20	0.14	46.22	-	-	-	-	157	100	V				
	5.46928	33.00	RMS	34.90	-20.20	0.14	47.84	-	-	-	-	157	100	V				
	5.72500	42.46	Pk	35.00	-19.80	0.00	57.66	-	-	68.20	-10.54	159	118	H				
	5.72955	43.66	Pk	35.00	-19.80	0.00	58.86	-	-	68.20	-9.34	159	118	H				
	5.72500	45.52	Pk	35.00	-19.80	0.00	60.72	-	-	68.20	-7.48	195	327	V				
	5.72544	48.96	Pk	35.00	-19.80	0.00	64.16	-	-	68.20	-4.04	195	327	V				
802.11ac (VHT80)	5530	MIMO	* 5.45998	44.56	Pk	34.90	-20.10	0.00	59.36	-	-	74.00	-14.64	162	117	H		
			* 5.45799	46.31	Pk	34.90	-20.10	0.00	61.11	-	-	74.00	-12.89	162	117	H		
			5.46998	45.14	Pk	34.90	-20.20	0.00	59.84	-	-	68.20	-8.36	162	117	H		
			5.46821	48.08	Pk	34.90	-20.20	0.00	62.78	-	-	68.20	-5.42	162	117	H		
			* 5.45998	32.82	RMS	34.90	-20.10	0.45	48.07	54.00	-5.93	-	-	162	117	H		
			* 5.45992	32.92	RMS	34.90	-20.10	0.45	48.17	54.00	-5.83	-	-	162	117	H		
			5.46998	31.77	RMS	34.90	-20.20	0.45	46.92	-	-	-	-	162	117	H		
			5.46578	33.88	RMS	34.90	-20.10	0.45	49.13	-	-	-	-	162	117	H		
			* 5.45998	46.41	Pk	34.90	-20.10	0.00	61.21	-	-	74.00	-12.79	203	298	V		
			* 5.44607	49.97	Pk	34.90	-20.10	0.00	64.77	-	-	74.00	-9.23	203	298	V		
	5.46998	46.80	Pk	34.90	-20.20	0.00	61.50	-	-	68.20	-6.70	203	298	V				
	5.46521	50.23	Pk	34.90	-20.20	0.00	64.93	-	-	68.20	-3.27	203	298	V				
	* 5.45998	34.23	RMS	34.90	-20.10	0.45	49.48	54.00	-4.52	-	-	203	298	V				
	* 5.45766	35.63	RMS	34.90	-20.10	0.45	50.88	54.00	-3.12	-	-	203	298	V				
	5.46998	34.37	RMS	34.90	-20.20	0.45	49.52	-	-	-	-	203	298	V				
	5.46497	35.24	RMS	34.90	-20.20	0.45	50.39	-	-	-	-	203	298	V				
	5.72500	39.07	Pk	35.00	-19.80	0.00	54.27	-	-	68.20	-13.93	157	108	H				
	5.80967	42.81	Pk	35.10	-19.70	0.00	58.21	-	-	68.20	-9.99	157	108	H				
	5.72500	38.06	Pk	35.00	-19.80	0.00	53.26	-	-	68.20	-14.94	189	332	V				
	5.80787	41.36	Pk	35.10	-19.70	0.00	56.76	-	-	68.20	-11.44	189	332	V				

Mode	Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBuV]	Detector Mode	ANT Factor [dB(1/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		
802.11ax (HE20) SU mode	5500	MIMO	* 5.45998	39.62	Pk	34.90	-20.10	0.00	54.42	-	-	74.00	-19.58	152	117	H		
			* 5.43762	43.17	Pk	34.90	-20.10	0.00	57.97	-	-	74.00	-16.03	152	117	H		
			5.46998	40.74	Pk	34.90	-20.20	0.00	55.44	-	-	68.20	-12.76	152	117	H		
			5.46950	44.26	Pk	34.90	-20.20	0.00	58.96	-	-	68.20	-9.24	152	117	H		
			* 5.45998	28.73	RMS	34.90	-20.10	0.20	43.73	54.00	-10.27	-	-	-	-	152	117	H
			* 5.44117	29.98	RMS	34.90	-20.10	0.20	44.98	54.00	-9.02	-	-	-	-	152	117	H
			5.46998	29.22	RMS	34.90	-20.20	0.20	44.12	-	-	-	-	-	-	152	117	H
			5.46928	29.75	RMS	34.90	-20.20	0.20	44.65	-	-	-	-	-	-	152	117	H
			* 5.45998	41.11	Pk	34.90	-20.10	0.00	55.91	-	-	74.00	-18.09	191	374	V		
			* 5.45814	45.46	Pk	34.90	-20.10	0.00	60.26	-	-	74.00	-13.74	191	374	V		
			5.46998	43.40	Pk	34.90	-20.20	0.00	58.10	-	-	68.20	-10.10	191	374	V		
			5.46991	50.56	Pk	34.90	-20.20	0.00	65.26	-	-	68.20	-2.94	191	374	V		
	* 5.45998	28.13	RMS	34.90	-20.10	0.20	43.13	54.00	-10.87	-	-	-	-	191	374	V		
	* 5.38833	29.22	RMS	34.80	-20.30	0.20	43.92	54.00	-10.08	-	-	-	-	191	374	V		
	5.46998	30.40	RMS	34.90	-20.20	0.20	45.30	-	-	-	-	-	-	191	374	V		
	5.46994	31.12	RMS	34.90	-20.20	0.20	46.02	-	-	-	-	-	-	191	374	V		
	5700	MIMO	5.72500	45.27	Pk	35.00	-19.80	0.00	60.47	-	-	68.20	-7.73	151	115	H		
			5.72513	50.57	Pk	35.00	-19.80	0.00	65.77	-	-	68.20	-2.43	151	115	H		
			5.72500	44.99	Pk	35.00	-19.80	0.00	60.19	-	-	68.20	-8.01	194	326	V		
			5.72524	49.24	Pk	35.00	-19.80	0.00	64.44	-	-	68.20	-3.76	194	326	V		
			* 5.45998	39.73	Pk	34.90	-20.10	0.00	54.53	-	-	74.00	-19.47	155	117	H		
	* 5.45027	43.02	Pk	34.90	-20.10	0.00	57.82	-	-	74.00	-16.18	155	117	H				
	5.46998	39.76	Pk	34.90	-20.20	0.00	54.46	-	-	68.20	-13.74	155	117	H				
	5.46878	41.98	Pk	34.90	-20.20	0.00	56.68	-	-	68.20	-11.52	155	117	H				
* 5.45998	29.45	RMS	34.90	-20.10	0.20	44.45	54.00	-9.55	-	-	-	-	155	117	H			
* 5.44933	29.79	RMS	34.90	-20.20	0.20	44.69	54.00	-9.31	-	-	-	-	155	117	H			
5.46998	28.57	RMS	34.90	-20.20	0.20	43.47	-	-	-	-	-	-	155	117	H			
5.46904	29.84	RMS	34.90	-20.20	0.20	44.74	-	-	-	-	-	-	155	117	H			
* 5.45998	41.15	Pk	34.90	-20.10	0.00	55.95	-	-	74.00	-18.05	193	376	V					
* 5.4588	44.65	Pk	34.90	-20.10	0.00	59.45	-	-	74.00	-14.55	193	376	V					
5.46998	48.54	Pk	34.90	-20.20	0.00	63.24	-	-	68.20	-4.96	193	376	V					
5.46963	49.18	Pk	34.90	-20.20	0.00	63.88	-	-	68.20	-4.32	193	376	V					
* 5.45998	28.52	RMS	34.90	-20.10	0.20	43.52	54.00	-10.48	-	-	-	-	193	376	V			
* 5.45528	29.09	RMS	34.90	-20.20	0.20	43.99	54.00	-10.01	-	-	-	-	193	376	V			
5.46998	29.04	RMS	34.90	-20.20	0.20	43.94	-	-	-	-	-	-	193	376	V			
5.46829	30.69	RMS	34.90	-20.20	0.20	45.59	-	-	-	-	-	-	193	376	V			
5670	MIMO	5.72500	41.26	Pk	35.00	-19.80	0.00	56.46	-	-	68.20	-11.74	151	115	H			
		5.72830	43.67	Pk	35.00	-19.80	0.00	58.87	-	-	68.20	-9.33	151	115	H			
		5.72500	49.80	Pk	35.00	-19.80	0.00	65.00	-	-	68.20	-3.20	194	328	V			
		5.72533	50.07	Pk	35.00	-19.80	0.00	65.27	-	-	68.20	-2.93	194	328	V			
		* 5.45998	40.33	Pk	34.90	-20.10	0.00	55.13	-	-	74.00	-18.87	153	117	H			
* 5.43697	43.82	Pk	34.90	-20.10	0.00	58.62	-	-	74.00	-15.38	153	117	H					
5.46998	42.68	Pk	34.90	-20.20	0.00	57.38	-	-	68.20	-10.82	153	117	H					
5.46985	44.62	Pk	34.90	-20.20	0.00	59.32	-	-	68.20	-8.88	153	117	H					
* 5.45998	29.51	RMS	34.90	-20.10	0.27	44.58	54.00	-9.42	-	-	-	-	153	117	H			
* 5.45814	30.65	RMS	34.90	-20.10	0.27	45.72	54.00	-8.28	-	-	-	-	153	117	H			
5.46998	29.79	RMS	34.90	-20.20	0.27	44.76	-	-	-	-	-	-	153	117	H			
5.46864	31.42	RMS	34.90	-20.20	0.27	46.39	-	-	-	-	-	-	153	117	H			
* 5.45998	47.49	Pk	34.90	-20.10	0.00	62.29	-	-	74.00	-11.71	196	317	V					
* 5.44777	49.34	Pk	34.90	-20.10	0.00	64.14	-	-	74.00	-9.86	196	317	V					
5.46998	49.83	Pk	34.90	-20.20	0.00	64.53	-	-	68.20	-3.67	196	317	V					
5.46512	50.46	Pk	34.90	-20.20	0.00	65.16	-	-	68.20	-3.04	196	317	V					
* 5.45998	31.79	RMS	34.90	-20.10	0.27	46.86	54.00	-7.14	-	-	-	-	196	317	V			
* 5.45705	32.84	RMS	34.90	-20.10	0.27	47.91	54.00	-6.09	-	-	-	-	196	317	V			
5.46998	32.26	RMS	34.90	-20.20	0.27	47.23	-	-	-	-	-	-	196	317	V			
5.46904	34.00	RMS	34.90	-20.20	0.27	48.97	-	-	-	-	-	-	196	317	V			
5610	MIMO	5.72500	36.76	Pk	35.00	-19.80	0.00	51.96	-	-	68.20	-16.24	159	105	H			
		5.72528	39.86	Pk	35.00	-19.80	0.00	55.06	-	-	68.20	-13.14	159	105	H			
		5.72500	37.41	Pk	35.00	-19.80	0.00	52.61	-	-	68.20	-15.59	195	333	V			
		5.77376	39.94	Pk	35.00	-19.70	0.00	55.24	-	-	68.20	-12.96	195	333	V			

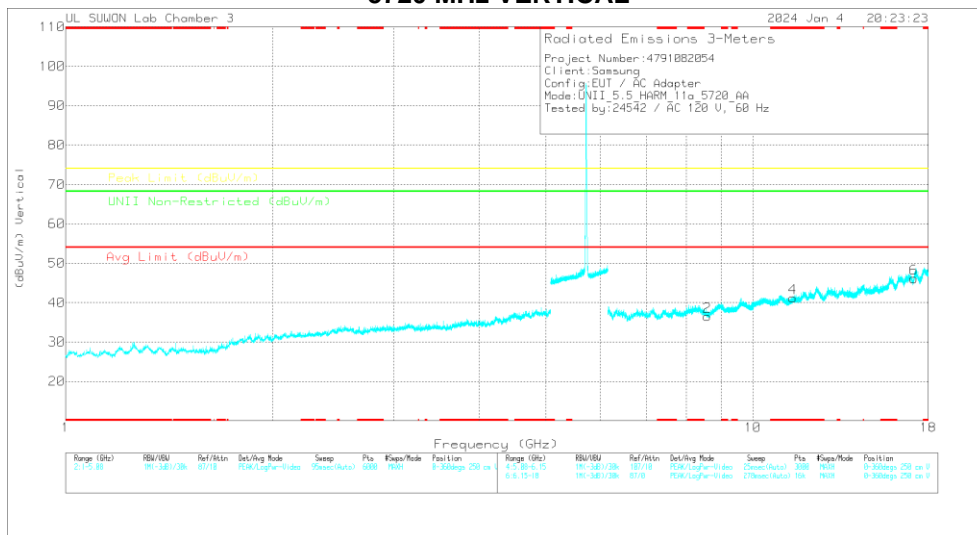
Note1. Pk - Peak detector, RMS - RMS detector
 Note2. * - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

HARMONICS AND SPURIOUS EMISSIONS(WORST CASE: 802.11a / 5720 MHz)

5720 MHz HORIZONTAL



5720 MHz 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.

5720 MHz DATA

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	Antenna Correction Factor (dBm)	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)	Altitude (Meters)	Height (m)	Polarity
8.57767	35.13	PK-U	36	-23.4	0	47.73	-	-	-	-	68.2	-20.47	0	100	H
8.57676	34.73	PK-U	36	-23.4	0	47.33	-	-	-	-	68.2	-20.87	0	100	V
*11.43883	33.4	PK-U	38.2	-21.3	0	50.3	-	-	74	-23.7	-	-	0	100	H
*11.43863	35.69	PK-U	38.2	-21.3	0	52.99	-	-	74	-21.41	-	-	128	100	V
*11.43944	23.39	ADR	38.2	-21.3	17	40.46	54	-13.54	-	-	-	-	128	100	V
17.16433	32.96	PK-U	41.3	-17	0	57.26	-	-	-	-	68.2	-10.94	0	100	H
17.1579	32.89	PK-U	41.3	-17.1	0	57.09	-	-	-	-	68.2	-11.11	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

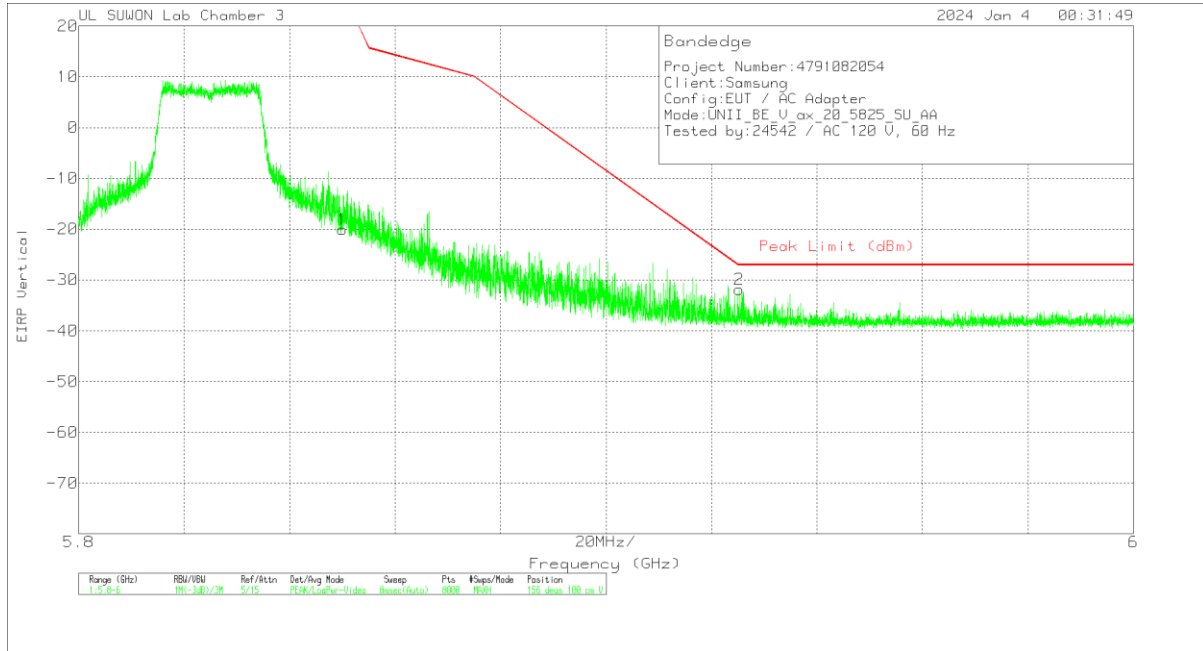
HARMONICS AND SPURIOUS EMISSIONS TEST DATA

Mode	Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBuV]	Detector Mode	ANT Factor [dB(1/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	5500	MIMO	* 8.25495	37.65	PK-U	36.00	-23.90	0.00	49.75	-	-	74.00	-24.25	-	-	0	100	H	
			* 8.24954	36.74	PK-U	36.00	-23.80	0.00	48.94	-	-	74.00	-25.06	-	-	-	0	100	V
			* 10.99816	35.43	PK-U	38.00	-21.10	0.00	52.33	-	-	74.00	-21.67	-	-	-	164	108	H
			* 10.9983	23.58	ADR	38.00	-21.10	0.17	40.65	54.00	-13.35	-	-	-	-	-	164	108	H
			* 11.00103	34.77	PK-U	38.00	-21.00	0.00	51.77	-	-	74.00	-22.23	-	-	-	225	113	V
			* 10.99979	23.48	ADR	38.00	-21.10	0.17	40.55	54.00	-13.45	-	-	-	-	-	225	113	V
			16.502	33.14	PK-U	41.60	-18.80	0.00	55.94	-	-	-	-	-	68.20	-12.26	0	100	H
			16.499	34.22	PK-U	41.60	-18.80	0.00	57.02	-	-	-	-	-	68.20	-11.18	0	100	V
			* 8.37283	36.24	PK-U	36.00	-23.70	0.00	48.54	-	-	74.00	-25.46	-	-	-	0	100	H
			* 8.37083	36.16	PK-U	36.00	-23.70	0.00	48.46	-	-	74.00	-25.54	-	-	-	0	100	V
			* 11.15822	35.62	PK-U	38.10	-21.50	0.00	52.22	-	-	74.00	-21.78	-	-	-	166	113	H
			* 11.1598	24.12	ADR	38.10	-21.50	0.17	40.89	54.00	-13.11	-	-	-	-	-	166	113	H
			* 11.16375	35.33	PK-U	38.10	-21.40	0.00	52.03	-	-	74.00	-21.97	-	-	-	224	115	V
			* 11.15973	24.05	ADR	38.10	-21.50	0.17	40.82	54.00	-13.18	-	-	-	-	-	224	115	V
			16.744	32.11	PK-U	41.80	-18.30	0.00	55.61	-	-	-	-	-	68.20	-12.59	0	100	H
	16.736	32.26	PK-U	41.80	-18.30	0.00	55.76	-	-	-	-	-	68.20	-12.44	0	100	V		
	5580	MIMO	8.550	35.30	PK-U	36.00	-23.50	0.00	47.80	-	-	-	-	68.20	-20.40	0	100	H	
			8.550	34.82	PK-U	36.00	-23.50	0.00	47.32	-	-	-	-	68.20	-20.88	0	100	V	
			* 11.39701	33.78	PK-U	38.10	-21.40	0.00	50.48	-	-	74.00	-23.52	-	-	166	108	H	
			* 11.40426	21.84	ADR	38.10	-21.30	0.17	38.81	54.00	-15.19	-	-	-	-	166	108	H	
			* 11.40006	33.71	PK-U	38.10	-21.30	0.00	50.51	-	-	74.00	-23.49	-	-	126	105	V	
			* 11.4002	22.08	ADR	38.10	-21.30	0.17	39.05	54.00	-14.95	-	-	-	-	126	105	V	
			* 17.104	32.41	PK-U	41.40	-17.30	0.00	56.51	-	-	-	-	-	68.20	-11.69	0	100	H
			17.100	31.92	PK-U	41.40	-17.30	0.00	56.02	-	-	-	-	-	68.20	-12.18	0	100	V
			8.578	35.13	PK-U	36.00	-23.40	0.00	47.73	-	-	-	-	-	68.20	-20.47	0	100	H
			8.577	34.73	PK-U	36.00	-23.40	0.00	47.33	-	-	-	-	-	68.20	-20.87	0	100	V
			* 11.43983	33.40	PK-U	38.20	-21.30	0.00	50.30	-	-	74.00	-23.70	-	-	100	100	H	
			* 11.43863	35.69	PK-U	38.20	-21.30	0.00	52.59	-	-	74.00	-21.41	-	-	128	100	V	
			* 11.43944	23.39	ADR	38.20	-21.30	0.17	40.46	54.00	-13.54	-	-	-	-	128	100	V	
			17.164	32.96	PK-U	41.30	-17.00	0.00	57.25	-	-	-	-	-	68.20	-10.94	0	100	H
			17.158	32.89	PK-U	41.30	-17.10	0.00	57.09	-	-	-	-	-	68.20	-11.11	0	100	V
	802.11n (HT20) Spot-Check	5580	MIMO	* 8.37215	38.02	PK-U	36.00	-23.70	0.00	50.32	-	-	74.00	-23.68	-	-	0	100	H
				* 8.37301	36.94	PK-U	36.00	-23.70	0.00	49.24	-	-	74.00	-24.76	-	-	0	100	V
				* 11.15935	34.93	PK-U	38.10	-21.50	0.00	51.53	-	-	74.00	-22.47	-	-	0	100	H
				* 11.15971	36.54	PK-U	38.10	-21.50	0.00	53.14	-	-	74.00	-20.86	-	-	224	115	V
				* 11.15998	23.94	ADR	38.10	-21.50	0.09	40.63	54.00	-13.37	-	-	-	-	224	115	V
				16.738	32.35	PK-U	41.80	-18.20	0.00	55.95	-	-	-	-	-	68.20	-12.25	0	100
	16.736	32.48	PK-U	41.80	-18.30	0.00	55.98	-	-	-	-	-	68.20	-12.22	0	100	V		
	802.11n (HT40) Spot-Check	5590	MIMO	* 8.38421	36.10	PK-U	36.00	-23.70	0.00	48.40	-	-	74.00	-25.60	-	-	0	100	H
				* 8.381	35.95	PK-U	36.00	-23.60	0.00	48.35	-	-	74.00	-25.65	-	-	0	100	V
				* 11.18111	34.53	PK-U	38.10	-21.40	0.00	51.23	-	-	74.00	-22.77	-	-	0	100	H
				* 11.18038	34.57	PK-U	38.10	-21.40	0.00	51.27	-	-	74.00	-22.73	-	-	229	101	V
				* 11.1799	23.24	ADR	38.10	-21.40	0.14	40.08	54.00	-13.92	-	-	-	-	229	101	V
				16.771	32.58	PK-U	41.80	-18.20	0.00	56.18	-	-	-	-	-	68.20	-12.02	0	100
	16.770	32.81	PK-U	41.80	-18.30	0.00	56.31	-	-	-	-	-	68.20	-11.89	0	100	V		
802.11ac (VHT80) Spot-Check	5610	MIMO	* 8.41372	36.81	PK-U	36.00	-23.70	0.00	49.11	-	-	74.00	-24.89	-	-	0	100	H	
			* 8.41414	36.41	PK-U	36.00	-23.70	0.00	48.71	-	-	74.00	-25.29	-	-	0	100	V	
			* 11.22043	35.26	PK-U	38.10	-21.40	0.00	51.96	-	-	74.00	-22.04	-	-	162	100	H	
			* 11.22078	23.35	ADR	38.10	-21.40	0.45	40.50	54.00	-13.50	-	-	-	-	162	100	H	
			* 11.21862	34.75	PK-U	38.10	-21.40	0.00	51.45	-	-	74.00	-22.55	-	-	138	106	V	
			* 11.2201	23.71	ADR	38.10	-21.40	0.45	40.86	54.00	-13.14	-	-	-	-	138	106	V	
16.832	33.10	PK-U	41.80	-17.90	0.00	57.00	-	-	-	-	-	68.20	-11.20	0	100	H			
16.832	32.82	PK-U	41.80	-17.90	0.00	56.72	-	-	-	-	-	68.20	-11.48	0	100	V			
802.11ax (HE20) RU mode 26 Tone offset 0	5500	MIMO	* 8.25004	36.41	PK-U	36.00	-23.80	0.00	48.61	-	-	74.00	-25.39	-	-	0	100	H	
			* 8.25028	36.73	PK-U	36.00	-23.80	0.00	48.93	-	-	74.00	-25.07	-	-	0	100	V	
			* 11.0016	35.14	PK-U	38.00	-21.00	0.00	52.14	-	-	74.00	-21.86	-	-	0	100	H	
			* 11.00029	34.77	PK-U	38.00	-21.10	0.00	51.67	-	-	74.00	-22.33	-	-	155	100	V	
			* 11.00017	23.65	ADR	38.00	-21.10	0.10	40.65	54.00	-13.35	-	-	-	-	155	100	V	
			16.503	33.65	PK-U	41.60	-18.80	0.00	56.45	-	-	-	-	-	68.20	-11.75	0	100	H
16.500	34.24	PK-U	41.60	-18.70	0.00	57.14	-	-	-	-	-	68.20	-11.06	0	100	V			
802.11ax (HE20) RU mode 26 Tone offset 0	5580	MIMO	* 8.38989	36.61	PK-U	36.00	-23.70	0.00	48.91	-	-	74.00	-25.09	-	-	0	100	H	
			* 8.37051	36.07	PK-U	36.00	-23.70	0.00	48.37	-	-	74.00	-25.63	-	-	0	100	V	
			* 11.14196	39.60	PK-U	38.10	-21.30	0.00	56.40	-	-	74.00	-17.60	-	-	163	110	H	
			* 11.14344	25.49	ADR	38.10	-21.30	0.10	42.39	54.00	-11.61	-	-	-	-	163	110	H	
			* 11.14349	37.82	PK-U	38.10	-21.30	0.00	54.62	-	-	74.00	-19.38	-	-	227	115	V	
			* 11.14303	24.42	ADR	38.10	-21.30	0.10	41.32	54.00	-12.68	-	-	-	-	227	115	V	
16.742	32.40	PK-U	41.80	-18.20	0.00	56.00	-	-	-	-	-	68.20	-12.20	0	100	H			
16.741	32.87	PK-U	41.80	-18.20	0.00	56.47	-	-	-	-	-	68.20	-11.73	0	100	V			
802.11ax (HE20) RU mode 26 Tone offset 0	5700	MIMO	8.551	35.32	PK-U	36.00	-23.50	0.00	47.76	-	-	-	-	68.20	-20.44	0	100	H	
			8.551	35.32	PK-U	36.00	-23.40	0.00	47.92	-	-	-	-	68.20	-20.28	0	100	V	
			* 11.39605	33.17	PK-U	38.10	-21.40	0.00	49.87	-	-	74.00	-24.13	-	-	0	100	H	
			* 11.39603	33.58	PK-U	38.10	-21.40	0.00	50.28	-	-	74.00	-23.72	-	-	153	104	V	
			* 11.39944	22.19	ADR	38.10	-21.30	0.10	39.09	54.00	-14.91	-	-	-	-	153	104	V	
			17.101	32.62	PK-U	41.40	-17.30	0.00	56.72	-	-	-	-	-	68.20	-11.48	0	100	H
17.095	32.84	PK-U	41.40	-17.40	0.00	56.84	-	-	-	-	-	68.20	-11.36	0	100	V			
802.11ax (HE40) RU mode 26 Tone offset 0 Spot-Check	5590																		

11.4. TX ABOVE 1GHz 2Tx MODE IN THE 5.8 GHz BAND

BANDEDGE (WORST CASE: 802.11ax HE20 SU / 5825 MHz)

VERTICAL PEAK DATA



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	Antenna Correction Factor(dB/m)	Loss(dB)	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85001	-47.42	Pk	35.2	-19.6	11.8	0	-20.02	26.99	-47.01	156	100	V
2	5.92527	-59.71	Pk	35.5	-19.4	11.8	0	-31.81	-27	-4.81	156	100	V

Pk - Peak detector

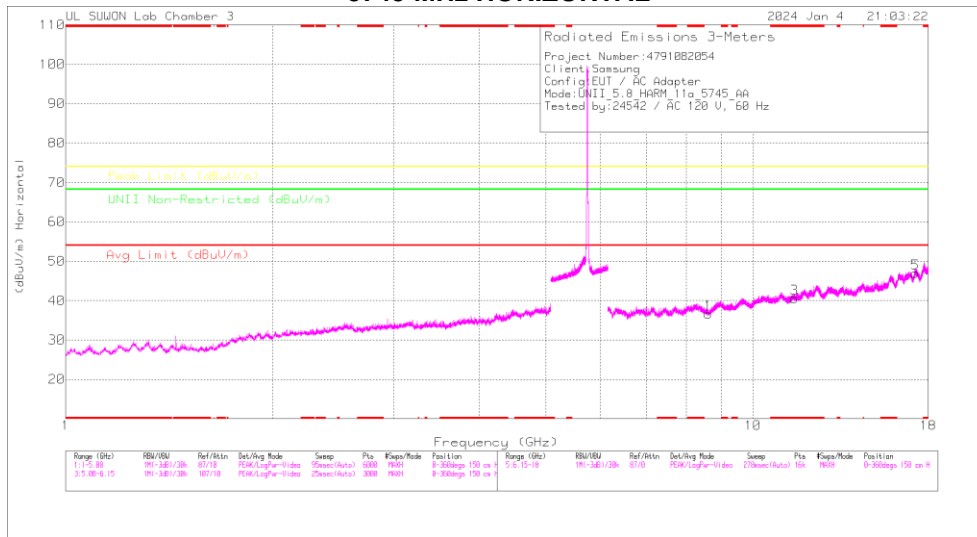
BANDEDGE TEST DATA

Mode	Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBm]	Detector Mode	ANT Factor [dB(1/m)]	Loss [dB]	Conv. F [dB]	DC Corr [dB]	Result [dBm]	PK Limit [dBm]	PK Margin [dB]	Azimuth [Degs]	Height [cm]	Polarity
802.11a	5745	MIMO	5.72500	-50.55	Pk	34.90	-19.80	11.80	0.00	-23.65	27.00	-50.65	156	100	H
			5.63768	-60.39	Pk	34.90	-20.00	11.80	0.00	-33.69	-27.00	-6.89	156	100	H
			5.72500	-44.41	Pk	34.90	-19.80	11.80	0.00	-17.51	27.00	-44.51	152	101	V
			5.64678	-63.22	Pk	34.90	-20.00	11.80	0.00	-36.52	-27.00	-9.52	152	101	V
	5825	MIMO	5.85001	-53.44	Pk	35.20	-19.60	11.80	0.00	-26.04	26.99	-53.03	161	108	H
			5.99907	-63.36	Pk	35.70	-19.20	11.80	0.00	-35.06	-27.00	-8.06	161	108	H
			5.85001	-50.79	Pk	35.20	-19.60	11.80	0.00	-23.39	26.99	-50.38	154	103	V
			5.99182	-63.52	Pk	35.70	-19.20	11.80	0.00	-35.22	-27.00	-8.22	154	103	V
802.11n (HT20)	5745	MIMO	5.72500	-45.55	Pk	34.90	-19.80	11.80	0.00	-18.65	27.00	-45.65	156	102	H
			5.64779	-61.37	Pk	34.90	-20.00	11.80	0.00	-34.87	-27.00	-7.87	156	102	H
			5.72500	-45.64	Pk	34.90	-19.80	11.80	0.00	-18.74	27.00	-45.74	161	100	V
			5.64460	-59.32	Pk	34.90	-20.00	11.80	0.00	-32.62	-27.00	-5.62	161	100	V
	5825	MIMO	5.85001	-53.02	Pk	35.20	-19.60	11.80	0.00	-25.62	26.99	-52.61	156	107	H
			5.94259	-63.29	Pk	35.60	-19.30	11.80	0.00	-35.19	-27.00	-8.19	156	107	H
			5.85001	-43.98	Pk	35.20	-19.60	11.80	0.00	-16.58	26.99	-43.57	160	100	V
			5.93367	-60.40	Pk	35.50	-19.40	11.80	0.00	-32.50	-27.00	-5.50	160	100	V
802.11n (HT40)	5755	MIMO	5.72500	-49.71	Pk	34.90	-19.80	11.80	0.00	-22.81	27.00	-49.81	153	115	H
			5.62723	-60.78	Pk	34.90	-20.00	11.80	0.00	-34.08	-27.00	-7.08	153	115	H
			5.72500	-53.04	Pk	34.90	-19.80	11.80	0.00	-26.14	27.00	-53.14	159	100	V
			5.64829	-62.42	Pk	34.90	-20.00	11.80	0.00	-35.72	-27.00	-8.72	159	100	V
	5795	MIMO	5.85001	-58.73	Pk	35.20	-19.60	11.80	0.00	-31.33	26.99	-58.32	156	100	H
			5.98940	-63.53	Pk	35.70	-19.30	11.80	0.00	-35.33	-27.00	-8.33	156	100	H
			5.85001	-54.59	Pk	35.20	-19.60	11.80	0.00	-27.19	26.99	-54.18	160	100	V
			5.96174	-63.53	Pk	35.60	-19.40	11.80	0.00	-35.53	-27.00	-8.53	160	100	V
802.11ac (VHT80)	5775 (Lower Side)	MIMO	5.72500	-54.35	Pk	34.90	-19.80	11.80	0.00	-27.45	27.00	-54.45	156	112	H
			5.64956	-62.14	Pk	34.90	-19.90	11.80	0.00	-35.34	-27.00	-8.34	156	112	H
			5.72500	-56.63	Pk	34.90	-19.80	11.80	0.00	-29.73	27.00	-56.73	152	101	V
			5.62611	-62.70	Pk	34.90	-20.00	11.80	0.00	-36.00	-27.00	-9.00	152	101	V
	5775 (Upper Side)	MIMO	5.85001	-62.53	Pk	35.20	-19.60	11.80	0.00	-35.13	26.99	-62.12	155	117	H
			5.93694	-63.35	Pk	35.50	-19.40	11.80	0.00	-35.45	-27.00	-8.45	155	117	H
			5.85001	-60.58	Pk	35.20	-19.60	11.80	0.00	-33.18	26.99	-60.17	152	101	V
			5.93134	-62.84	Pk	35.50	-19.30	11.80	0.00	-34.84	-27.00	-7.84	152	101	V
802.11ax (HE20) SU mode	5745	MIMO	5.72500	-45.16	Pk	34.90	-19.80	11.80	0.00	-18.26	27.00	-45.26	155	110	H
			5.63946	-60.04	Pk	34.90	-20.00	11.80	0.00	-33.34	-27.00	-6.34	155	110	H
			5.72500	-48.24	Pk	34.90	-19.80	11.80	0.00	-21.34	27.00	-48.34	196	307	V
			5.64939	-59.73	Pk	34.90	-19.90	11.80	0.00	-32.93	-27.00	-5.93	196	307	V
	5825	MIMO	5.85001	-51.33	Pk	35.20	-19.60	11.80	0.00	-23.93	26.99	-50.92	155	107	H
			5.99272	-63.16	Pk	35.70	-19.20	11.80	0.00	-34.86	-27.00	-7.86	155	107	H
			5.85001	-47.42	Pk	35.20	-19.60	11.80	0.00	-20.02	26.99	-47.01	156	100	V
			5.92527	-59.71	Pk	35.50	-19.40	11.80	0.00	-31.81	-27.00	-4.81	156	100	V
802.11ax (HE40) SU mode	5755	MIMO	5.72500	-50.21	Pk	34.90	-19.80	11.80	0.00	-23.31	27.00	-50.31	153	112	H
			5.64936	-59.61	Pk	34.90	-19.90	11.80	0.00	-32.81	-27.00	-5.81	153	112	H
			5.72500	-51.97	Pk	34.90	-19.80	11.80	0.00	-25.07	27.00	-52.07	196	307	V
			5.63643	-60.67	Pk	34.90	-20.00	11.80	0.00	-33.97	-27.00	-6.97	196	307	V
	5795	MIMO	5.85001	-56.69	Pk	35.20	-19.60	11.80	0.00	-29.29	26.99	-56.28	156	105	H
			5.98662	-62.43	Pk	35.70	-19.30	11.80	0.00	-34.23	-27.00	-7.23	156	105	H
			5.85001	-57.55	Pk	35.20	-19.60	11.80	0.00	-30.15	26.99	-57.14	196	300	V
			5.98815	-63.15	Pk	35.70	-19.30	11.80	0.00	-34.95	-27.00	-7.95	196	300	V
802.11ax (HE80) SU mode	5775 (Lower Side)	MIMO	5.72500	-55.25	Pk	34.90	-19.80	11.80	0.00	-28.35	27.00	-55.35	151	118	H
			5.62708	-61.36	Pk	34.90	-20.00	11.80	0.00	-34.66	-27.00	-7.66	151	118	H
			5.72500	-54.96	Pk	34.90	-19.80	11.80	0.00	-28.06	27.00	-55.06	197	322	V
			5.63582	-62.42	Pk	34.90	-19.90	11.80	0.00	-35.62	-27.00	-8.62	197	322	V
	5775 (Upper Side)	MIMO	5.85001	-62.05	Pk	35.20	-19.60	11.80	0.00	-34.65	26.99	-61.64	156	114	H
			5.93092	-63.24	Pk	35.50	-19.40	11.80	0.00	-35.34	-27.00	-8.34	156	114	H
			5.85001	-62.85	Pk	35.20	-19.60	11.80	0.00	-35.45	26.99	-62.44	204	298	V
			5.94864	-62.30	Pk	35.60	-19.40	11.80	0.00	-34.30	-27.00	-7.30	204	298	V

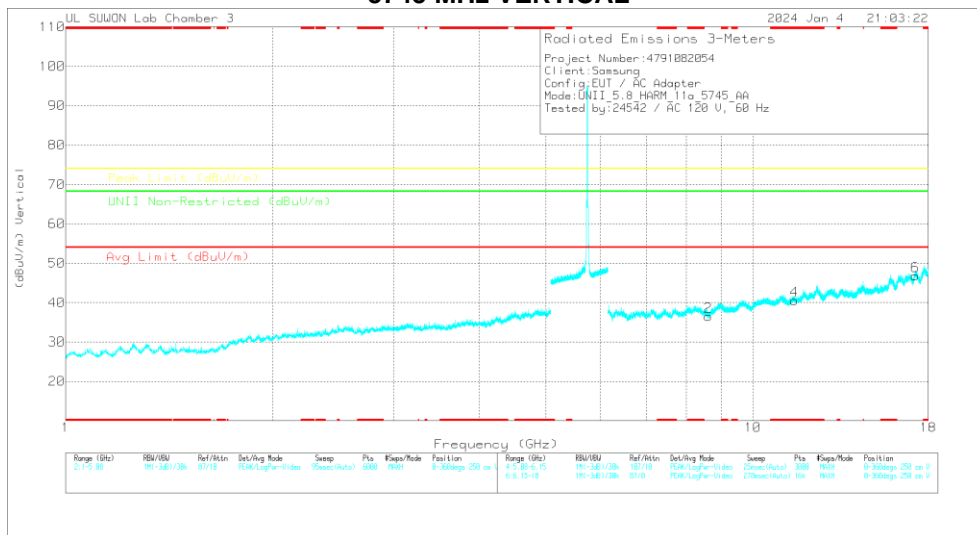
Note. Pk - Peak detector

HARMONICS AND SPURIOUS EMISSIONS(WORST CASE: 802.11a / 5745 MHz)

5745 MHz HORIZONTAL



5745 MHz 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.

5745 MHz DATA

Radiated Emissions

Frequency (GHz)	Meas. Reading (dBuV)	Det.	Antenna Correction Factor(dBm)	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)	Azimuth (Degs)	Height (cm)	Polarity
8.61309	34.6	PK-U	36	-23.5	0	47.1	-	-	-	-	68.2	-21.1	0	100	H
8.616	35.26	PK-U	36	-23.4	0	47.86	-	-	-	-	68.2	-20.34	0	100	V
*11.49805	33.95	PK-U	38.2	-21.4	0	50.75	-	-	74	-23.25	-	-	0	100	H
*11.49043	35.71	PK-U	38.2	-21.4	0	52.51	-	-	74	-21.49	-	-	128	100	V
*11.48994	23.46	ADR	38.2	-21.4	.17	40.43	54	-13.57	-	-	-	-	128	100	V
17.23562	33.42	PK-U	41.1	-16.5	0	58.02	-	-	-	-	68.2	-10.18	0	100	H
17.24058	32.48	PK-U	41.1	-16.5	0	57.08	-	-	-	-	68.2	-11.12	0	100	V

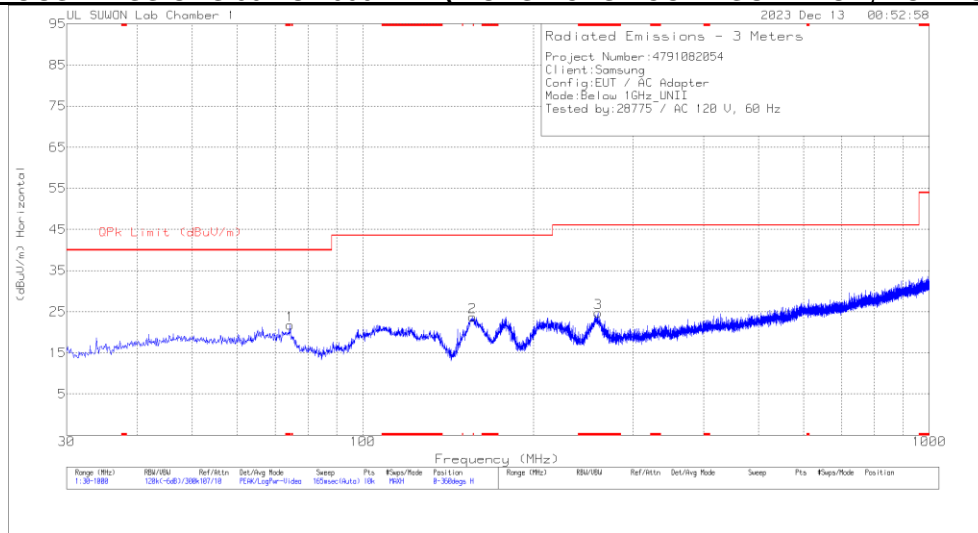
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 PK-U - U-NII: Maximum Peak
 ADR - U-NII AD primary method, RMS average

HARMONICS AND SPURIOUS EMISSIONS TEST DATA

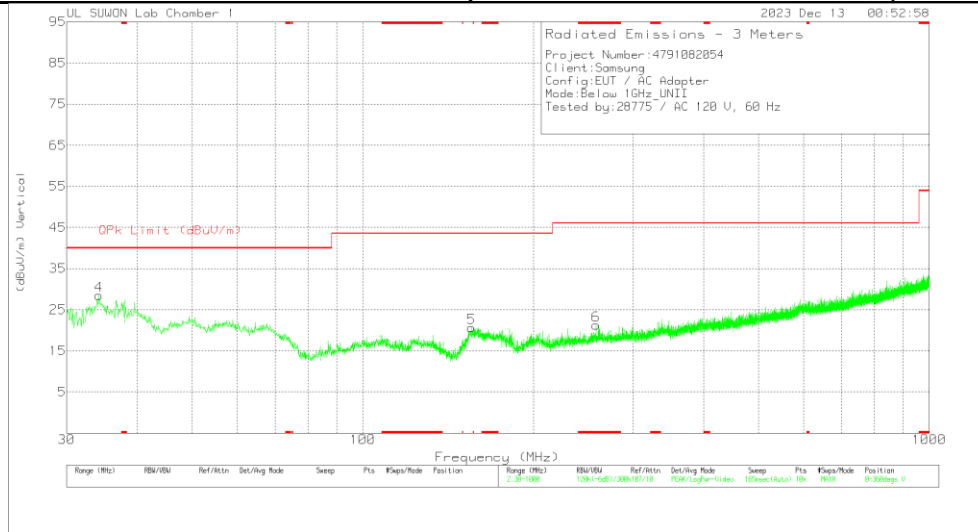
Mode	Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBuV]	Detector Mode	ANT Factor [dB(1/m)]	Loss [dB]	DC Corr [dB]	Result [dBuV/m]	AV Limit [dBuV/m]	AV Margin [dB]	PK Limit [dBuV/m]	PK Margin [dB]	Non-Restricted [dBuV/m]	Margin [dB]	Azimuth [Degs]	Height [cm]	Polarity		
802.11a	5745	MIMO	8.613	34.60	PK-U	36.00	-23.50	0.00	47.10	-	-	-	-	68.20	-21.10	0	100	H		
			8.616	35.26	PK-U	36.00	-23.40	0.00	47.86	-	-	-	-	-	68.20	-20.34	0	100	V	
			*11.49505	33.95	PK-U	38.20	-21.40	0.00	50.75	-	-	74.00	-23.25	-	-	-	-	0	100	H
			*11.49043	35.71	PK-U	38.20	-21.40	0.00	52.51	-	-	74.00	-21.49	-	-	-	-	128	100	V
			*11.48994	23.46	ADR	38.20	-21.40	0.17	40.43	54.00	-13.57	-	-	-	-	-	-	128	100	V
			17.236	33.42	PK-U	41.10	-16.50	0.00	58.02	-	-	-	-	-	-	68.20	-10.18	0	100	H
			17.241	32.48	PK-U	41.10	-16.50	0.00	57.08	-	-	-	-	-	-	68.20	-11.12	0	100	V
			8.680	34.98	PK-U	36.10	-23.20	0.00	47.88	-	-	-	-	-	-	68.20	-20.32	0	100	H
			8.682	35.39	PK-U	36.10	-23.30	0.00	48.19	-	-	-	-	-	-	68.20	-20.01	0	100	V
	*11.56606	35.24	PK-U	38.20	-21.60	0.00	51.84	-	-	74.00	-22.16	-	-	-	-	0	100	H		
	*11.56689	35.37	PK-U	38.20	-21.60	0.00	51.97	-	-	74.00	-22.03	-	-	-	-	268	100	V		
	*11.56838	23.94	ADR	38.20	-21.60	0.17	40.71	54.00	-13.29	-	-	-	-	-	-	268	100	V		
	17.356	33.10	PK-U	41.10	-16.70	0.00	57.50	-	-	-	-	-	-	68.20	-10.70	0	100	H		
	17.357	32.75	PK-U	41.10	-16.60	0.00	57.25	-	-	-	-	-	-	68.20	-10.95	0	100	V		
	8.738	35.16	PK-U	36.10	-23.10	0.00	48.16	-	-	-	-	-	-	68.20	-20.04	0	100	H		
	8.740	34.59	PK-U	36.10	-23.10	0.00	47.59	-	-	-	-	-	-	68.20	-20.61	0	100	V		
	*11.64511	35.36	PK-U	38.30	-21.60	0.00	52.06	-	-	74.00	-21.94	-	-	-	-	0	100	H		
	*11.65186	36.41	PK-U	38.30	-21.60	0.00	53.11	-	-	74.00	-20.89	-	-	-	-	265	103	V		
	*11.64832	24.55	ADR	38.30	-21.60	0.17	41.42	54.00	-12.58	-	-	-	-	-	-	265	103	V		
	17.477	32.14	PK-U	41.20	-16.40	0.00	56.94	-	-	-	-	-	-	68.20	-11.26	0	100	H		
	17.478	30.93	PK-U	41.20	-16.40	0.00	55.73	-	-	-	-	-	-	68.20	-12.47	0	100	V		
	8.615	35.38	PK-U	36.00	-23.40	0.00	47.98	-	-	-	-	-	-	68.20	-20.22	0	100	H		
	8.616	35.29	PK-U	36.00	-23.40	0.00	47.89	-	-	-	-	-	-	68.20	-20.31	0	101	V		
	*11.47227	37.48	PK-U	38.20	-21.40	0.00	54.28	-	-	74.00	-19.72	-	-	-	-	166	101	H		
	*11.47264	23.74	ADR	38.20	-21.40	0.10	40.64	54.00	-13.36	-	-	-	-	-	-	166	101	H		
	*11.47265	37.89	PK-U	38.20	-21.40	0.00	54.69	-	-	74.00	-19.31	-	-	-	-	263	102	V		
	*11.4728	23.89	ADR	38.20	-21.40	0.10	40.79	54.00	-13.21	-	-	-	-	-	-	263	102	V		
14.358	35.71	PK-U	39.50	-22.70	0.00	52.51	-	-	-	-	-	-	68.20	-15.69	0	101	H			
14.363	35.70	PK-U	39.50	-22.60	0.00	52.60	-	-	-	-	-	-	68.20	-15.60	0	101	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	Antenna Correction Factor(dB/m)	Loss(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	OPK Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 74.426	39.11	Pk	13.2	-30.6	0	21.71	40	-18.29	0-360	200	H
2	156.1	39.2	Pk	14.1	-29.6	0	23.7	43.52	-19.82	0-360	100	H
3	* 260.278	35.49	Pk	18.1	-28.8	0	24.79	46.02	-21.23	0-360	100	H
4	34.171	43.54	Pk	16.2	-31.3	0	28.44	40	-11.56	0-360	200	V
5	155.421	36.25	Pk	14	-29.6	0	20.65	43.52	-22.87	0-360	200	V
6	* 258.241	31.91	Pk	18.1	-28.8	0	21.21	46.02	-24.81	0-360	200	V

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

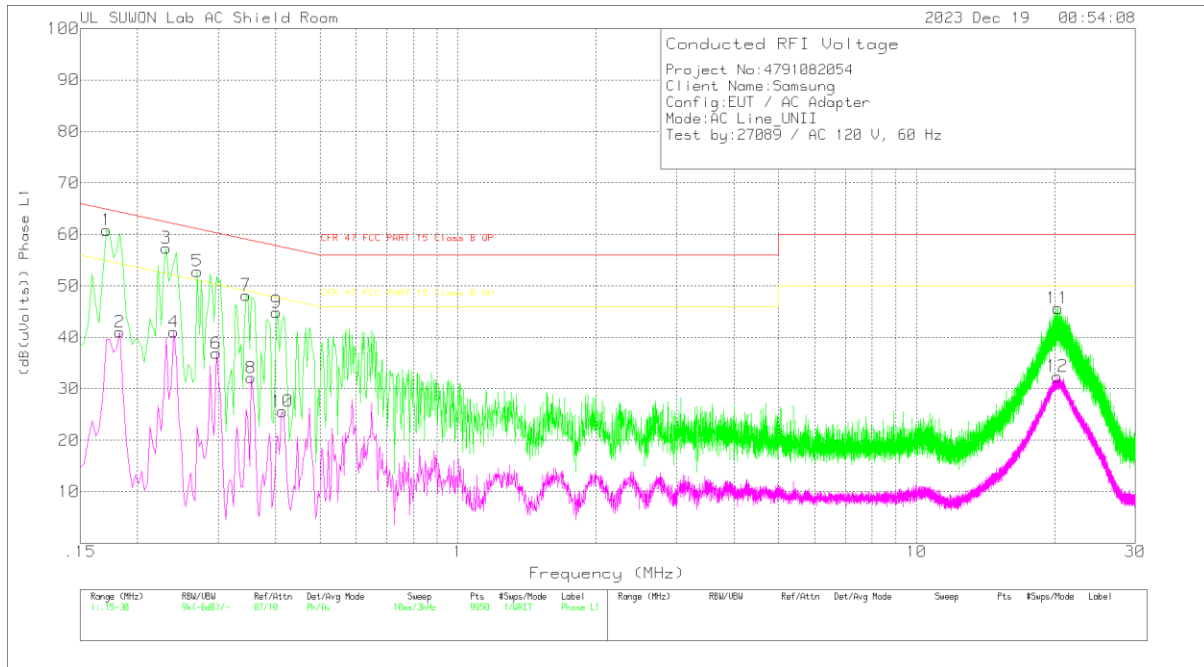
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

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_AU TO_With EX_L1[dB]	CABLELOS S[dB]	Corrected Reading (dB(uVolts))	CFR 47 FCC PART 15 Class B QP (dB(uVolts))	Margin (dB)	CFR 47 FCC PART 15 Class B AV (dB(uVolts))	Margin (dB)
1	.171	51.13	Pk	9.5	.2	60.83	64.91	-4.08	-	-
2	.183	31.34	Av	9.5	.2	41.04	-	-	54.35	-13.31
3	.231	47.65	Pk	9.5	.2	57.35	62.41	-5.06	-	-
4	.24	31.35	Av	9.5	.2	41.05	-	-	52.1	-11.05
5	.27	43.15	Pk	9.5	.2	52.85	61.12	-8.27	-	-
6	.297	27.19	Av	9.5	.2	36.89	-	-	50.33	-13.44
7	.345	38.48	Pk	9.5	.2	48.18	59.08	-10.9	-	-
8	.354	22.41	Av	9.5	.2	32.11	-	-	48.87	-16.76
9	.402	35.19	Pk	9.5	.2	44.89	57.81	-12.92	-	-
10	.414	15.91	Av	9.5	.2	25.61	-	-	47.57	-21.96
11	20.322	35.66	Pk	9.6	.4	45.66	60	-14.34	-	-
12	20.274	22.42	Av	9.6	.4	32.42	-	-	50	-17.58

Pk - Peak detector

Av - Average detection

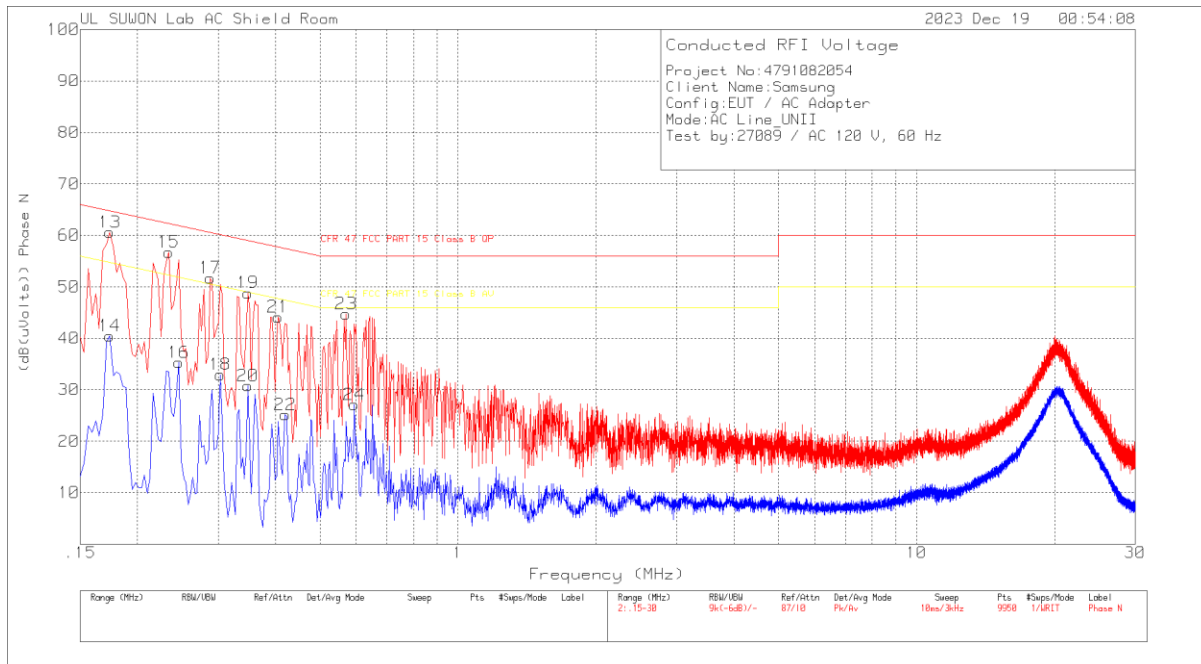
Quasi-Peak Emissions

Range 1: Phase L1 .15 - 30MHz

Frequency (MHz)	Meter Reading (dBuV)	Det	101836_AU TO_With EX_L1[dB]	CABLELOS S[dB]	Corrected Reading (dB(uVolts))	CFR 47 FCC PART 15 Class B QP (dB(uVolts))	Margin (dB)	CFR 47 FCC PART 15 Class B AV (dB(uVolts))	Margin (dB)
.17175	48.24	Qp	9.5	.2	57.94	64.88	-6.94	-	-
.23115	44.37	Qp	9.5	.2	54.07	62.41	-8.34	-	-
.27075	26.69	Qp	9.5	.2	36.39	61.09	-24.7	-	-

Qp - Quasi-Peak detector

LINE 2 DATA



Trace Markers

Range 2: Phase N .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	101836_AU TO_With EX_N[dB]	CABLELOS S[dB]	Corrected Reading (dB(uVolts))	CFR 47 FCC PART 15 Class B QP (dB(uVolts))	Margin (dB)	CFR 47 FCC PART 15 Class B AV (dB(uVolts))	Margin (dB)
13	.174	50.89	Pk	9.5	.2	60.59	64.77	-4.18	-	-
14	.174	30.75	Av	9.5	.2	40.45	-	-	54.77	-14.32
15	.234	47.05	Pk	9.5	.2	56.75	62.31	-5.56	-	-
16	.246	25.58	Av	9.5	.2	35.28	-	-	51.89	-16.61
17	.288	42.01	Pk	9.5	.2	51.71	60.58	-8.87	-	-
18	.303	23.23	Av	9.5	.2	32.93	-	-	50.16	-17.23
19	.348	39.12	Pk	9.5	.2	48.82	59.01	-10.19	-	-
20	.348	21.07	Av	9.5	.2	30.77	-	-	49.01	-18.24
21	.405	34.44	Pk	9.5	.2	44.14	57.75	-13.61	-	-
22	.42	15.46	Av	9.5	.2	25.16	-	-	47.45	-22.29
23	.57	34.94	Pk	9.6	.2	44.74	56	-11.26	-	-
24	.594	17.29	Av	9.6	.2	27.09	-	-	46	-18.91

Pk - Peak detector

Av - Average detection

Quasi-Peak Emissions

Range 2: Phase N .15 - 30MHz

Frequency (MHz)	Meter Reading (dBuV)	Det	101836_AU TO_With EX_N[dB]	CABLELOS S[dB]	Corrected Reading (dB(uVolts))	CFR 47 FCC PART 15 Class B QP (dB(uVolts))	Margin (dB)	CFR 47 FCC PART 15 Class B AV (dB(uVolts))	Margin (dB)
.17475	48.49	Qp	9.5	.2	58.19	64.73	-6.54	-	-
.23325	44.38	Qp	9.5	.2	54.08	62.33	-8.25	-	-
.28815	39.28	Qp	9.5	.2	48.98	60.58	-11.6	-	-

Qp - Quasi-Peak detector

14. DYNAMIC FREQUENCY SELECTION

14.1. OVERVIEW

14.1.1. LIMITS

FCC

§15.407 (h), FCC KDB 905462 D02 “COMPLIANCE MEASUREMENT PROCEDURES FOR UNLICENSED-NATIONAL INFORMATION INFRASTRUCTURE DEVICES OPERATING IN THE 5250-5350 MHz AND 5470-5725 MHz BANDS INCORPORATING DYNAMIC FREQUENCY SELECTION” and KDB 905462 D03 “U-NII CLIENT DEVICES WITHOUT RADAR DETECTION CAPABILITY”.

Table 1: Applicability of DFS requirements prior to use of a channel

Requirement	Operational Mode		
	Master	Client (without radar detection)	Client (with radar detection)
Non-Occupancy Period	Yes	Not required	Yes
DFS Detection Threshold	Yes	Not required	Yes
Channel Availability Check Time	Yes	Not required	Not required
U-NII Detection Bandwidth	Yes	Not required	Yes

Table 2: Applicability of DFS requirements during normal operation

Requirement	Operational Mode		
	Master	Client (without DFS)	Client (with DFS)
DFS Detection Threshold	Yes	Not required	Yes
Channel Closing Transmission Time	Yes	Yes	Yes
Channel Move Time	Yes	Yes	Yes
U-NII Detection Bandwidth	Yes	Not required	Yes

Additional requirements for devices with multiple bandwidth modes	Master Device or Client with Radar DFS	Client (without DFS)
U-NII Detection Bandwidth and Statistical Performance Check	All BW modes must be tested	Not required
Channel Move Time and Channel Closing Transmission Time	Test using widest BW mode available	Test using the widest BW mode available for the link
All other tests	Any single BW mode	Not required

Note: Frequencies selected for statistical performance check (Section 7.8.4) should include several frequencies within the radar detection bandwidth and frequencies near the edge of the radar detection bandwidth. For 802.11 devices it is suggested to select frequencies in all 20 MHz channel blocks and a null frequency between the bonded 20 MHz channel blocks.

Table 3: Interference Threshold values, Master or Client incorporating In-Service Monitoring

Maximum Transmit Power	Value (see notes)
E.I.R.P. \geq 200 mill watt	-64 dBm
E.I.R.P. < 200 mill watt and power spectral density < 10 dBm/MHz	-62 dBm
E.I.R.P. < 200 mill watt that do not meet power spectral density requirement	-64 dBm
<p>Note 1: This is the level at the input of the receiver assuming a 0 dBi receive antenna Note 2: Throughout these test procedures an additional 1 dB has been added to the amplitude of the test transmission waveforms to account for variations in measurement equipment. This will ensure that the test signal is at or above the detection threshold level to trigger a DFS response. Note 3: E.I.R.P. is based on the highest antenna gain. For MIMO devices refer to KDB publication 662911 D01.</p>	

Table 4: DFS Response requirement values

Parameter	Value
<i>Non-occupancy period</i>	30 minutes
<i>Channel Availability Check Time</i>	60 seconds
<i>Channel Move Time</i>	10 seconds (See Note 1)
<i>Channel Closing Transmission Time</i>	200 milliseconds + approx. 60 milliseconds over remaining 10 second period. (See Notes 1 and 2)
<i>U-NII Detection Bandwidth</i>	Minimum 100% of the U-NII 99% transmission power bandwidth. (See Note 3)
<p>Note 1: <i>Channel Move Time</i> and the <i>Channel Closing Transmission Time</i> should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst. Note 2: The <i>Channel Closing Transmission Time</i> is comprised of 200 milliseconds starting at the beginning of the <i>Channel Move Time</i> plus any additional intermittent control signals required to facilitate a <i>Channel</i> move (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions. Note 3: During the <i>U-NII Detection Bandwidth</i> detection test, radar type 0 should be used. For each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.</p>	

Table 5 – Short Pulse Radar Test Waveforms

Radar Type	Pulse Width (usec)	PRI (usec)	Pulses	Minimum Percentage of Successful Detection	Minimum Trials
0	1	1428	18	See Note 1	See Note 1
1	1	Test A: 15 unique PRI values randomly selected from the list of 23 PRI values in table 5a	Roundup: $\{(1/360) \times (19 \times 10^6 \text{ PRI}_{\text{usec}})\}$	60%	30
		Test B: 15 unique PRI values randomly selected within the range of 518-3066 usec. With a minimum increment of 1 usec, excluding PRI values selected in Test A			
2	1-5	150-230	23-29	60%	30
3	6-10	200-500	16-18	60%	30
4	11-20	200-500	12-16	60%	30
Aggregate (Radar Types 1-4)				80%	120
Note 1: Short Pulse Radar Type 0 should be used for the <i>Detection Bandwidth</i> test, <i>Channel Move Time</i> , and <i>Channel Closing Time</i> tests.					

Table 6 – Long Pulse Radar Test Signal

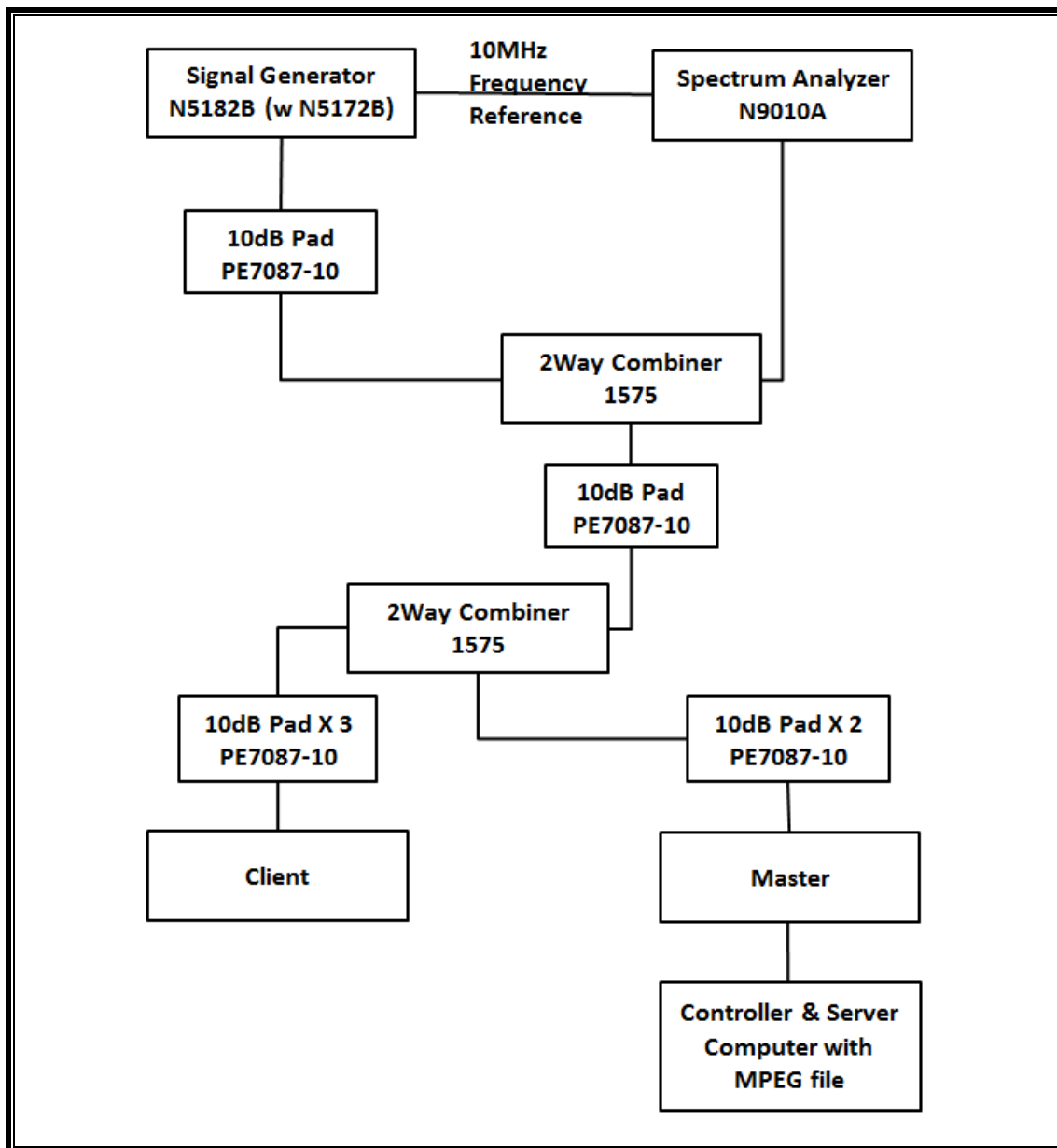
Radar Waveform Type	Pulse Width (μsec)	Chirp Width (MHz)	PRI (μsec)	Pulses per Burst	Number of Bursts	Minimum Percentage of Successful Detection	Minimum Trials
5	50-100	5-20	1000-2000	1-3	8-20	80%	30

Table 7 – Frequency Hopping Radar Test Signal

Radar Waveform Type	Pulse Width (μsec)	PRI (μsec)	Pulses per Hop	Hopping Rate (kHz)	Hopping Sequence Length (msec)	Minimum Percentage of Successful Detection	Minimum Trials
6	1	333	9	0.333	300	70%	30

14.1.2. TEST AND MEASUREMENT SYSTEM

CONDUCTED METHOD SYSTEM BLOCK DIAGRAM



SYSTEM OVERVIEW

The short pulse and long pulse signal generating system utilizes the Keysite Signal Studio for Pulse Building as N5172B. The Vector Signal Generator has been validated by the NTIA. The hopping signal generating system utilizes the CCS simulated hopping method and system, which has been validated by the DoD, FCC and NTIA. The software selects waveform parameters from within the bounds of the signal type on a random basis using uniform distribution.

The short pulse types 1, 2, 3 and 4, and the long pulse type 5 parameters are randomized at run-time.

The hopping type 6 pulse parameters are fixed while the hopping sequence is based on the August 2005 NTIA Hopping Frequency List. The initial starting point randomized at run-time and each subsequent starting point is incremented by 475. Each frequency in the 100-length segment is compared to the boundaries of the EUT Detection Bandwidth and the software creates a hopping burst pattern in accordance with Section 7.4.1.3 Method #2 Simulated Frequency Hopping Radar Waveform Generating Subsystem of KDB 905462 D02. The frequency of the signal generator is incremented in 1 MHz steps from F_L to F_H for each successive trial. This incremental sequence is repeated as required to generate a minimum of 30 total trials and to maintain a uniform frequency distribution over the entire Detection Bandwidth.

The signal monitoring equipment consists of a spectrum analyzer. The aggregate ON time is calculated by multiplying the number of bins above a threshold during a particular observation period by the dwell time per bin, with the analyzer set to peak detection and max hold.

SYSTEM CALIBRATION

A 50-ohm load is connected in place of the spectrum analyzer, and the spectrum analyzer is connected to a horn antenna via a coaxial cable, with the reference level offset set to (horn antenna gain – coaxial cable loss). The signal generator is set to CW mode. The amplitude of the signal generator is adjusted to yield a level of –64 dBm as measured on the spectrum analyzer.

Without changing any of the instrument settings, the spectrum analyzer is reconnected to the Common port of the Spectrum Analyzer Combiner/Divider. The Reference Level Offset of the spectrum analyzer is adjusted so that the displayed amplitude of the signal is –64 dBm.

The spectrum analyzer displays the level of the signal generator as received at the antenna ports of the Master Device. The interference detection threshold may be varied from the calibrated value of –64 dBm and the spectrum analyzer will still indicate the level as received by the Master Device.

ADJUSTMENT OF DISPLAYED TRAFFIC LEVEL

A link is established between the Master and Slave and the distance between the units is adjusted as needed to provide a suitable received level at the Master and Slave devices. The video test file is streamed to generate WLAN traffic. The monitoring antenna is adjusted so that the WLAN traffic level, as displayed on the spectrum analyzer, is at lower amplitude than the radar detection threshold.

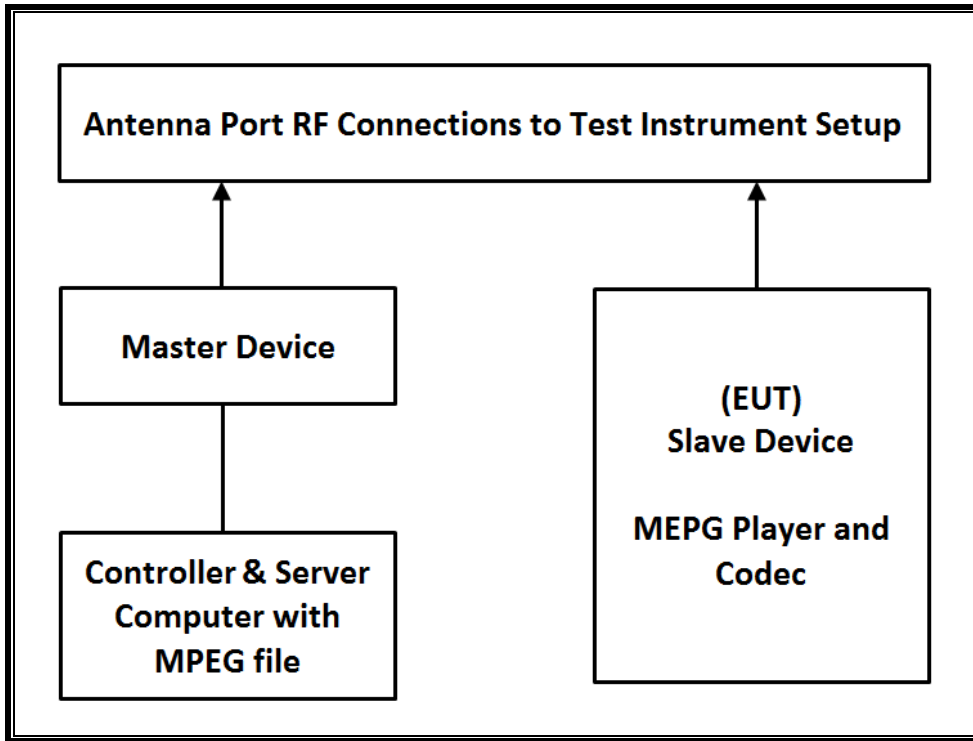
TEST AND MEASUREMENT EQUIPMENT

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

TEST EQUIPMENT LIST				
Description	Manufacturer	Model	S/N	Next Cal Due
Spectrum Analyzer, 7 GHz	Agilent / HP	N9010A	MY54200580	07-23-24
Vector Signal Generator, 6GHz	Agilent / HP	N5182B	MY53051241	07-23-24
Combiner	WEINSCHTEL	WA1534	UL003	01-03-25
Combiner	WEINSCHTEL	WA1534	UL004	01-03-25

14.1.3. SETUP OF EUT

CONDUCTED METHOD EUT TEST SETUP



SUPPORT EQUIPMENT

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

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

14.1.4. DESCRIPTION OF EUT

The EUT operates over the 5250-5350 MHz and 5470-5725 MHz ranges.

The EUT is a Slave Device without Radar Detection.

The highest power level of the widest bandwidth (802.11ac VHT80) within these bands is 5.18 dBm in the 5250-5350 MHz band and 11.07 dBm in the 5470-5725 MHz band.

The antenna assembly utilized two antenna.

Gain of ANT1 : -6.99 dBi for UNII 2A and -7.43 dBi for UNII 2C.

Gain of ANT2 : -7.12 dBi for UNII 2A and -7.29 dBi for UNII 2C.

The rated output power of the Master unit is > 23dBm (EIRP). Therefore the required interference threshold level is -64 dBm. After correction for procedural adjustments, the required conducted threshold at the antenna port is $-64 + 1 = -63$ dBm.

The calibrated radiated DFS Detection Threshold level is set to -64 dBm. The tested level is lower than the required level hence it provides a margin to the limit.

The EUT uses one transmitter/receiver chain connected to an antenna to perform radiated tests. WLAN traffic that meets or exceeds the minimum required loading was generated by transferring a data stream from the controller/server PC to the EUT using iPerf version 2.0.5 software package.

TPC is not required since the maximum EIRP is less than 500 mW (27 dBm).

The EUT utilizes the 802.11 architecture. 4 nominal channel bandwidth are implemented: 20 MHz, 40 MHz, 80 MHz and 160 MHz.

The software installed in the access point is 12.4(25d)JA1.

UNIFORM CHANNEL SPREADING

This requirement is not applicable to Slave radio devices.

CHANNEL PUNCTURING(802.11ax)

This EUT does not support channel puncturing.

OVERVIEW OF MASTER DEVICE WITH RESPECT TO §15.407 (h) REQUIREMENTS

The Master Device is a ASUS Access Point, FCC ID: MSQ-RTAXJF00. The minimum antenna gain for the Master Device is 6 dBi.

The rated output power of the Master unit is > 23dBm (EIRP). Therefore the required interference threshold level is -64 dBm. After correction for procedural adjustments, the required radiated threshold at the antenna port is $-64 + 1 = -63$ dBm.

The calibrated radiated DFS Detection Threshold level is set to -64 dBm. The tested level is lower than the required level hence it provides a margin to the limit.

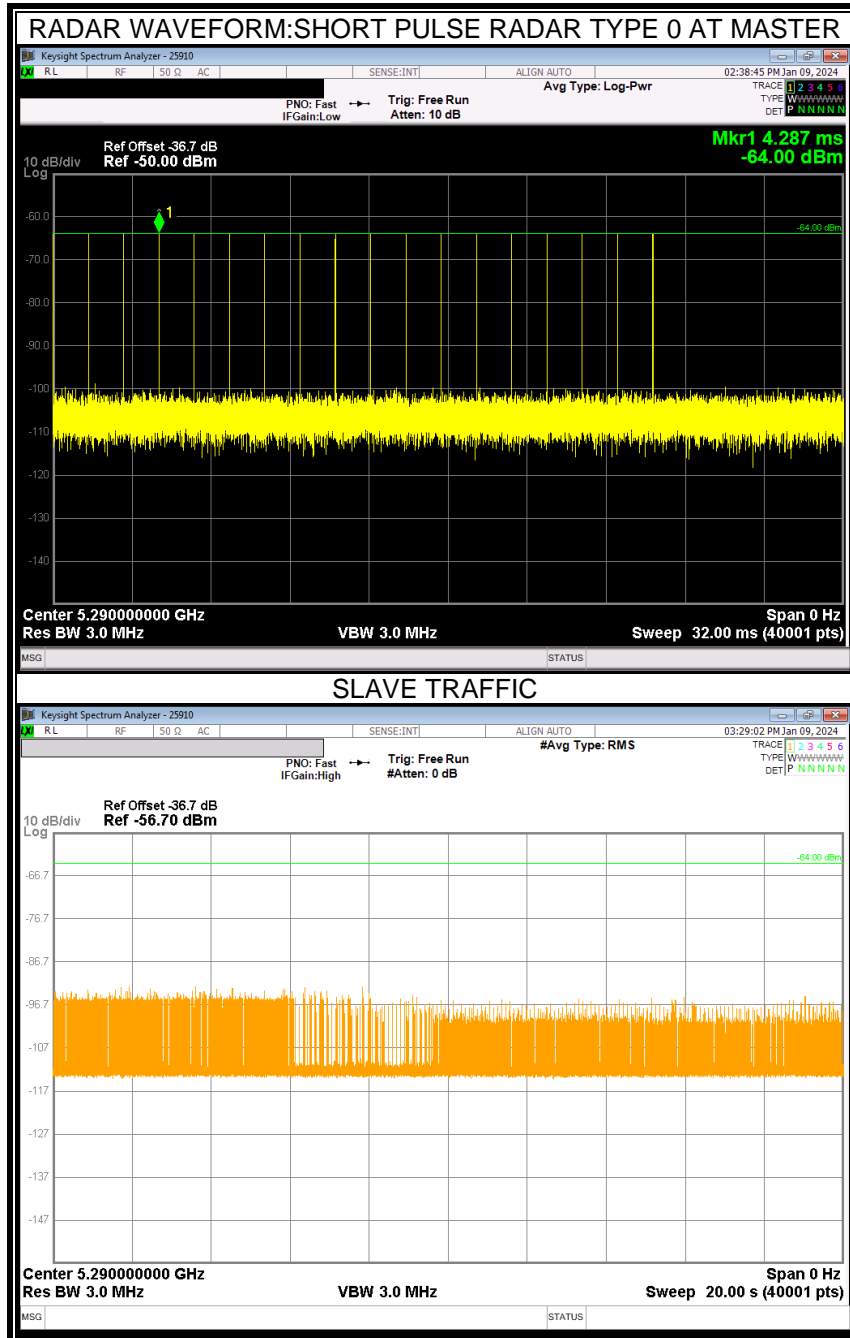
14.2. RESULTS FOR 80 MHz BANDWIDTH (UNII-2A BAND)

14.2.1. TEST CHANNEL

All tests were performed at a channel center frequency of 5290 MHz.

14.2.2. RADAR WAVEFORM AND TRAFFIC

RADAR WAVEFORM



14.2.3. OVERLAPPING CHANNEL TESTS

RESULTS

These tests are not applicable.

14.2.4. MOVE AND CLOSING TIME

REPORTING NOTES

The reference marker is set at the end of last radar pulse.

The delta marker is set at the end of the last WLAN transmission following the radar pulse. This delta is the channel move time.

The aggregate channel closing transmission time is calculated as follows:

Aggregate Transmission Time =
(Number of analyzer bins showing transmission) * (dwell time per bin)

The observation period over which the aggregate time is calculated begins at (Reference Marker + 200 msec) and ends no earlier than (Reference Marker + 10 sec).

RESULTS

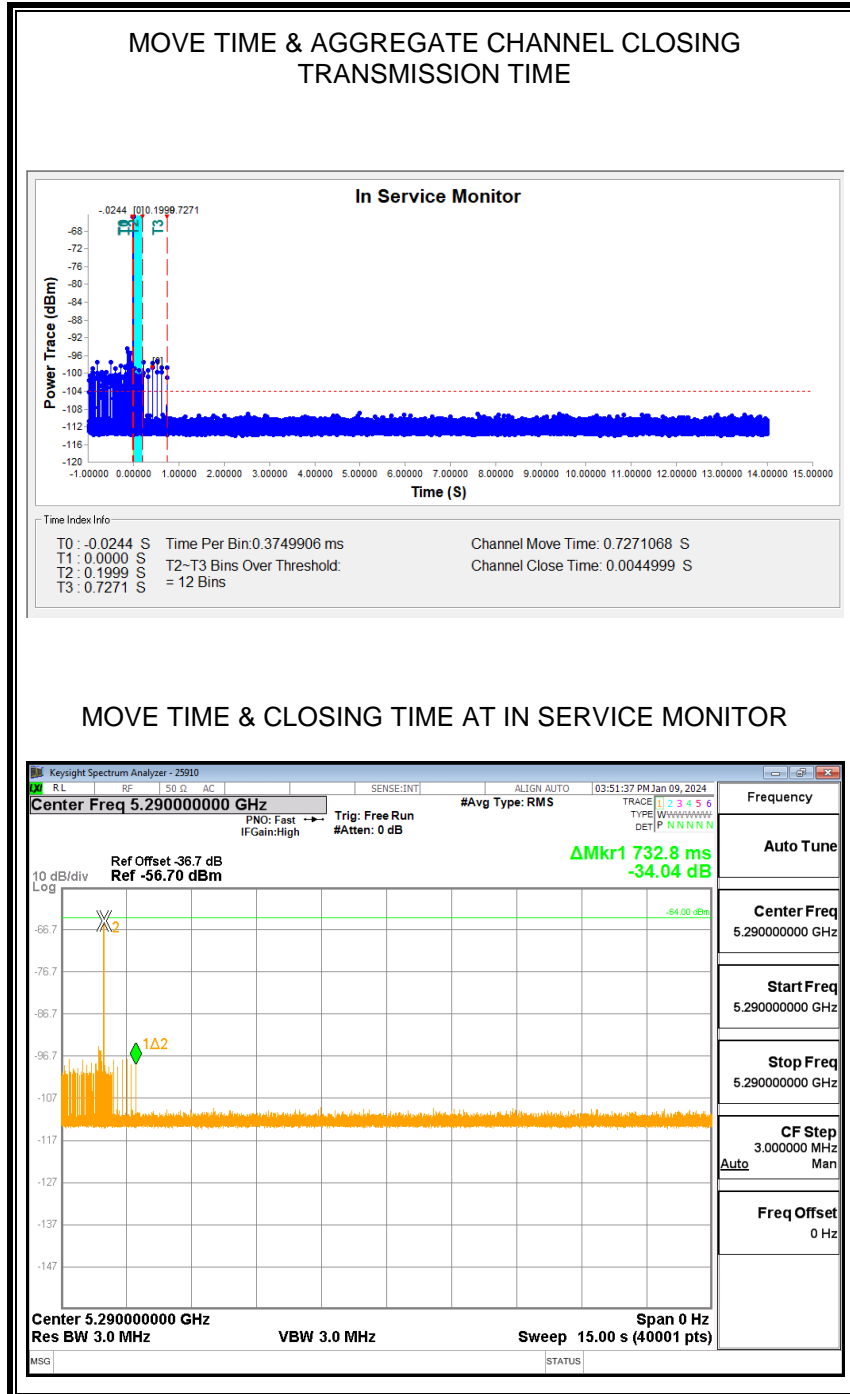
Channel Move Time (sec)	Limit (sec)
0.727	10

Aggregate Channel Closing Transmission Time (msec)	Limit (msec)
0.004	60

MOVE TIME & CHANNEL CLOSING TIME

AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

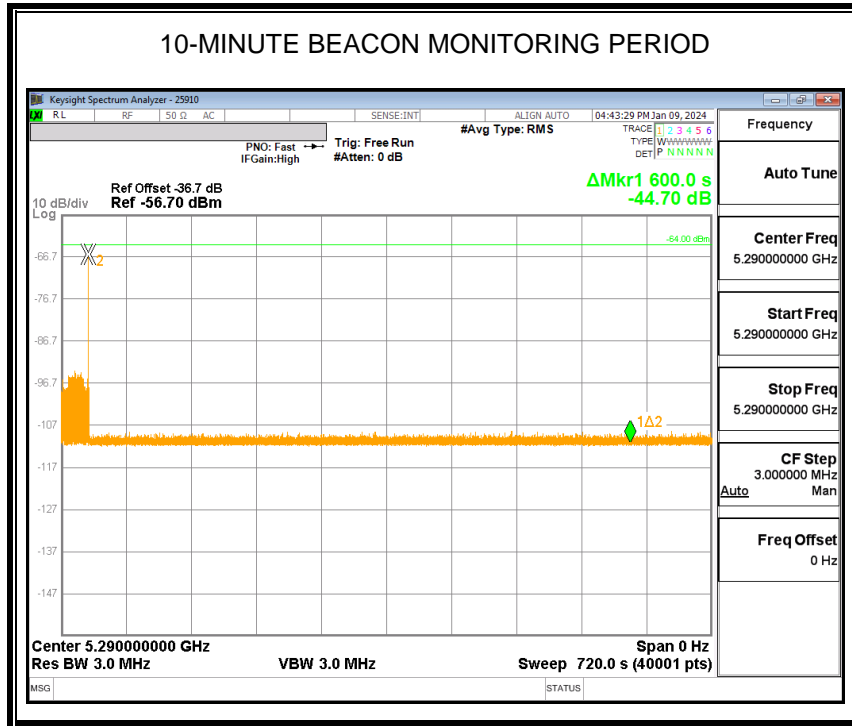
No transmissions are observed during the aggregate monitoring period.



NON-OCCUPANCY PERIOD

RESULTS

No EUT transmissions were observed on the test channel during the 10-minute observation time.



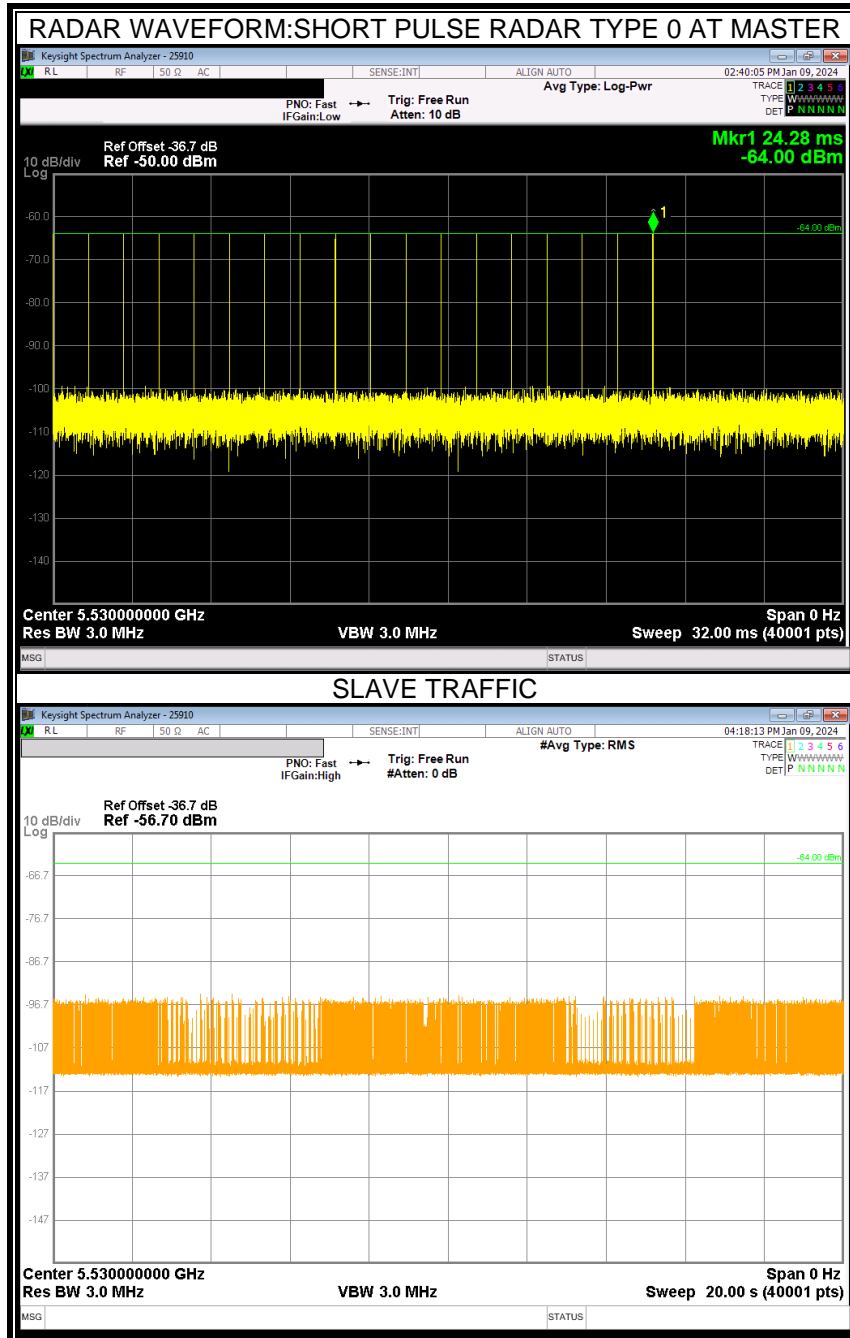
14.1. RESULTS FOR 80 MHz BANDWIDTH (UNII-2C BAND)

14.1.1. TEST CHANNEL

All tests were performed at a channel center frequency of 5530 MHz.

14.1.2. RADAR WAVEFORM AND TRAFFIC

RADAR WAVEFORM



14.1.3. OVERLAPPING CHANNEL TESTS

RESULTS

These tests are not applicable.

14.1.4. MOVE AND CLOSING TIME

REPORTING NOTES

The reference marker is set at the end of last radar pulse.

The delta marker is set at the end of the last WLAN transmission following the radar pulse. This delta is the channel move time.

The aggregate channel closing transmission time is calculated as follows:

Aggregate Transmission Time =
(Number of analyzer bins showing transmission) * (dwell time per bin)

The observation period over which the aggregate time is calculated begins at (Reference Marker + 200 msec) and ends no earlier than (Reference Marker + 10 sec).

RESULTS

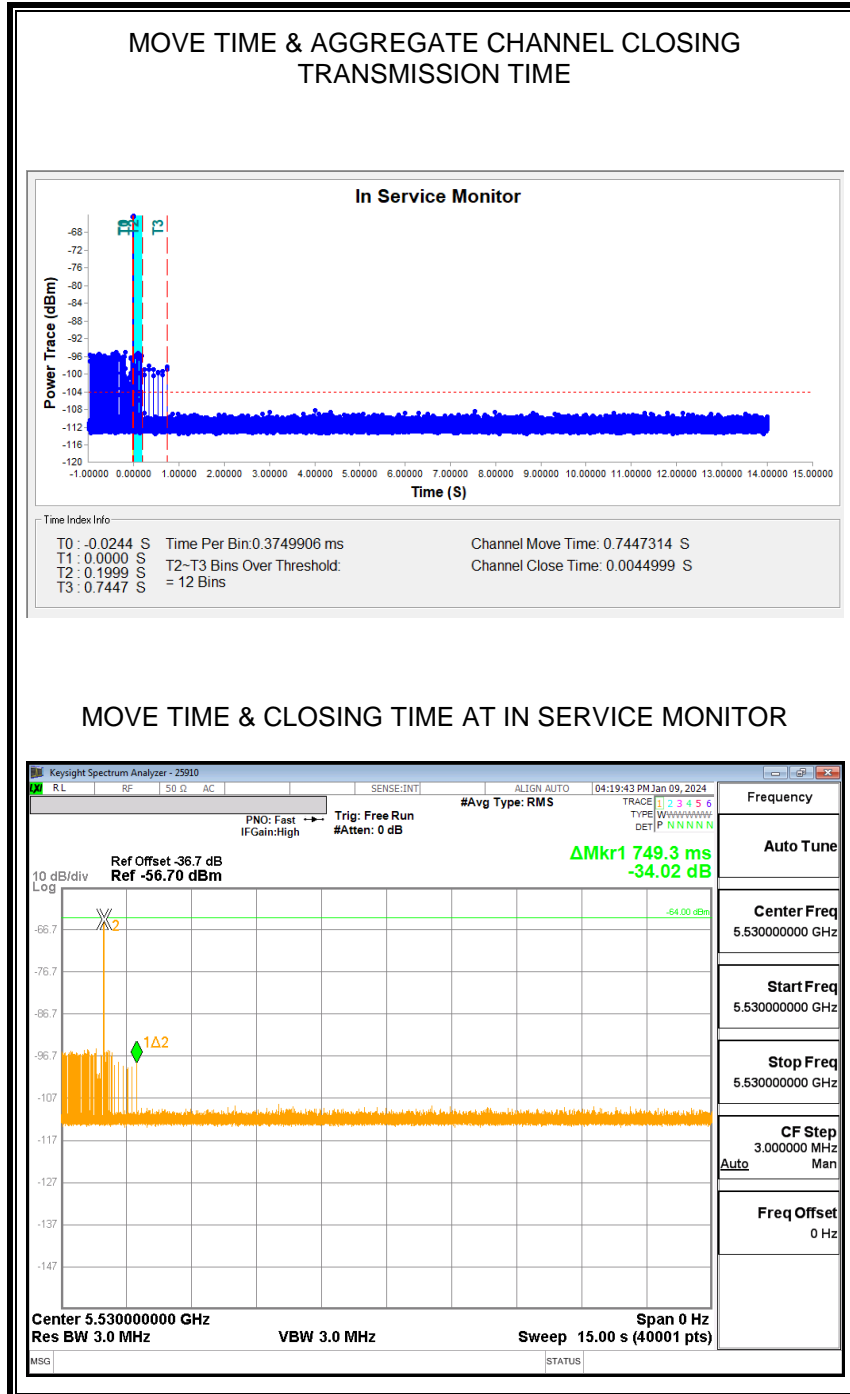
Channel Move Time (sec)	Limit (sec)
0.745	10

Aggregate Channel Closing Transmission Time (msec)	Limit (msec)
0.004	60

MOVE TIME & CHANNEL CLOSING TIME

AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

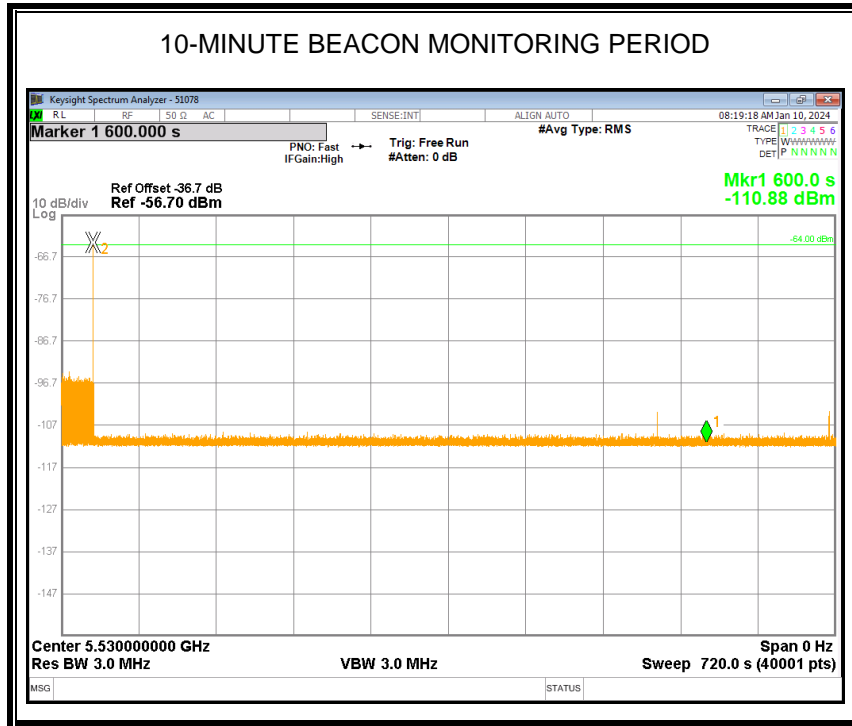
No transmissions are observed during the aggregate monitoring period.



NON-OCCUPANCY PERIOD

RESULTS

No EUT transmissions were observed on the test channel during the 10-minute observation time.



END OF TEST REPORT