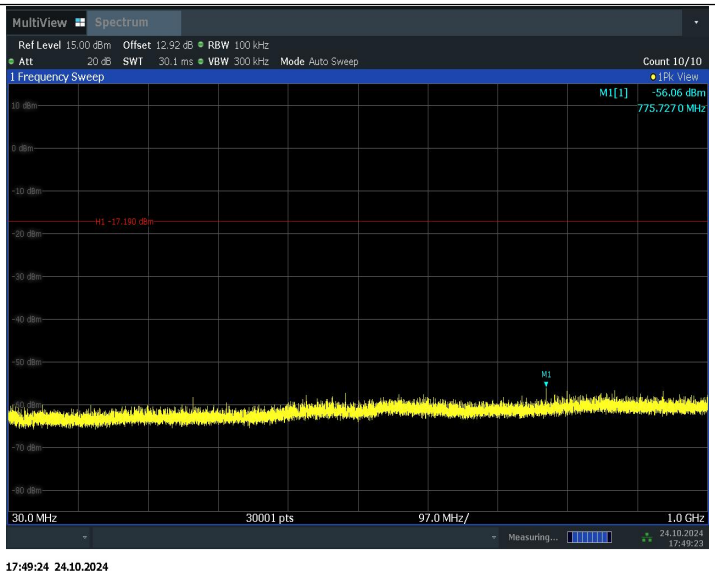
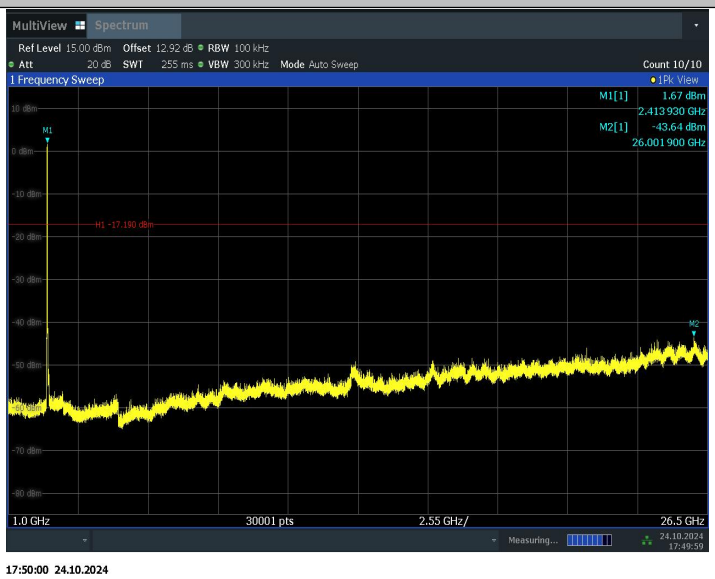
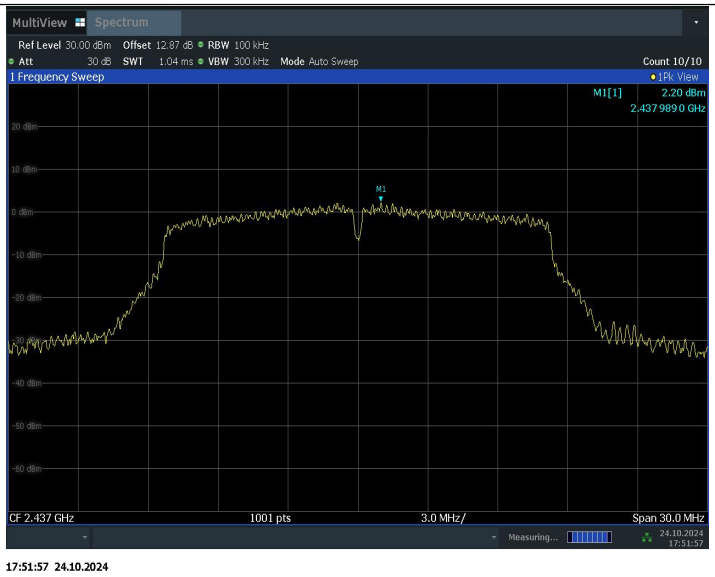


11G_2412_1000~26500



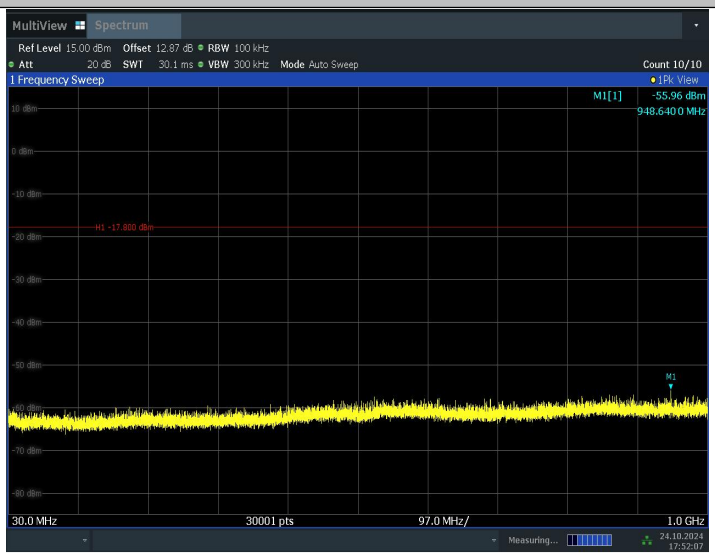
11G_2437_0~Reference

©Copyright. All rights reserved by CTTL.



17:51:57 24.10.2024

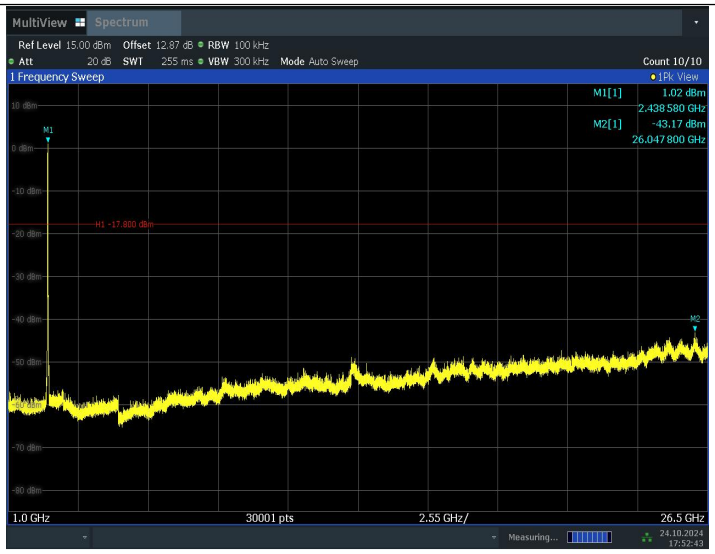
11G_2437_30~1000



17:52:08 24.10.2024

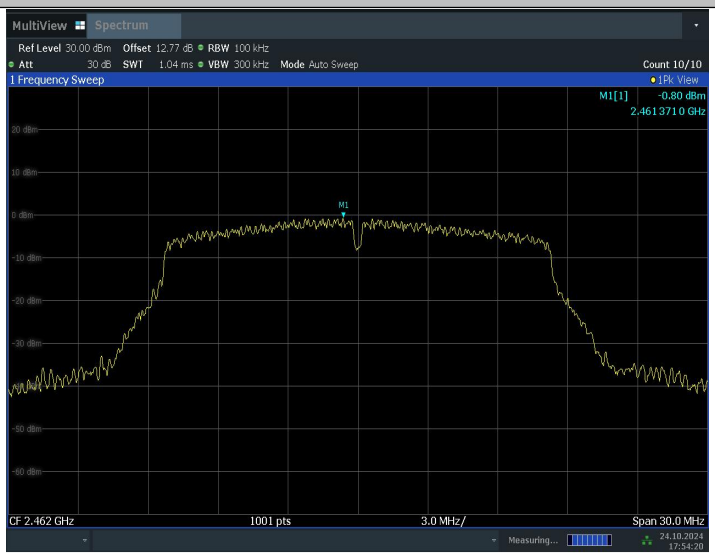
11G_2437_1000~26500

©Copyright. All rights reserved by CTTL.



17:52:44 24.10.2024

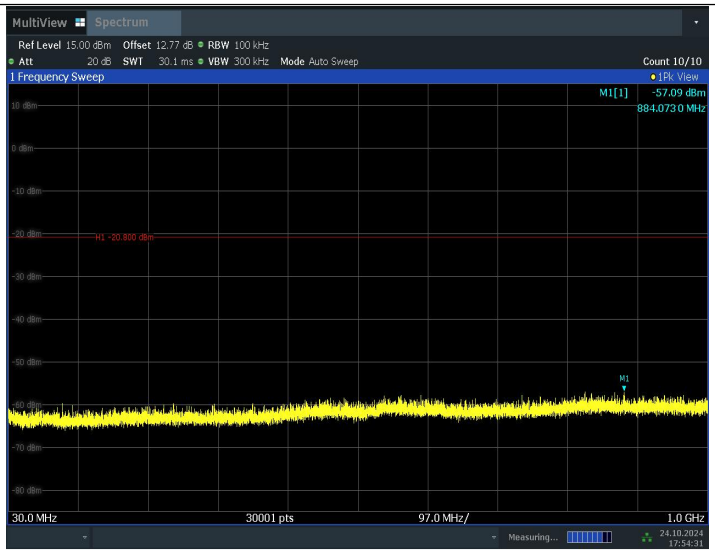
11G_2462_0~Reference



17:54:20 24.10.2024

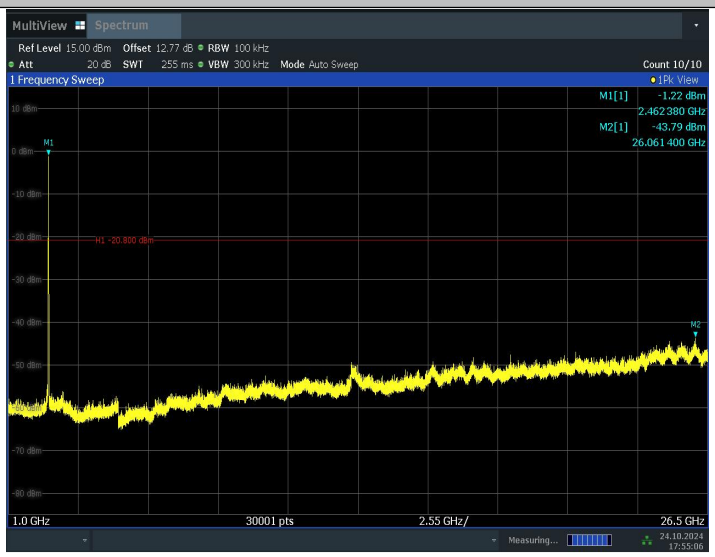
11G_2462_30~1000

©Copyright. All rights reserved by CTTL.



17:54:31 24.10.2024

11G_2462_1000~26500



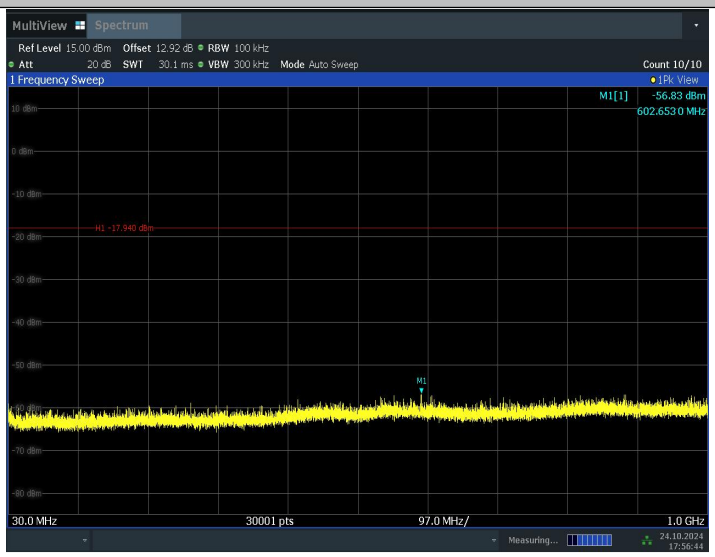
17:55:07 24.10.2024

11N20SISO_2412_0~Reference

©Copyright. All rights reserved by CTTL.

17:56:33 24.10.2024

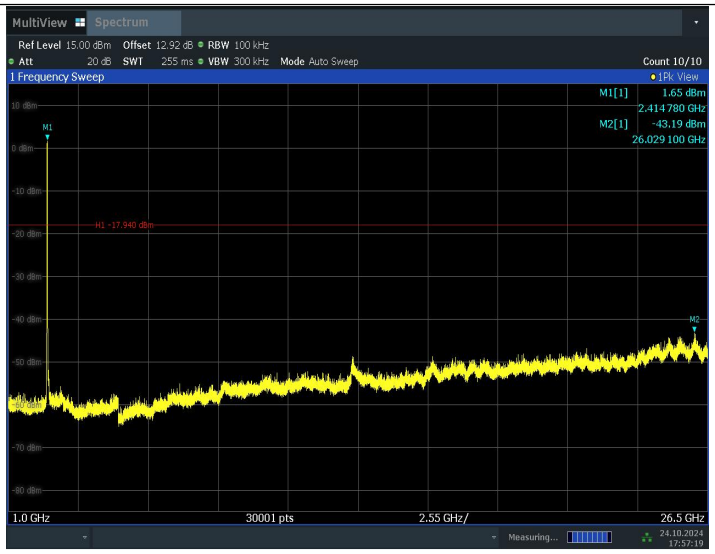
11N20SISO_2412_30~1000



17:56:44 24.10.2024

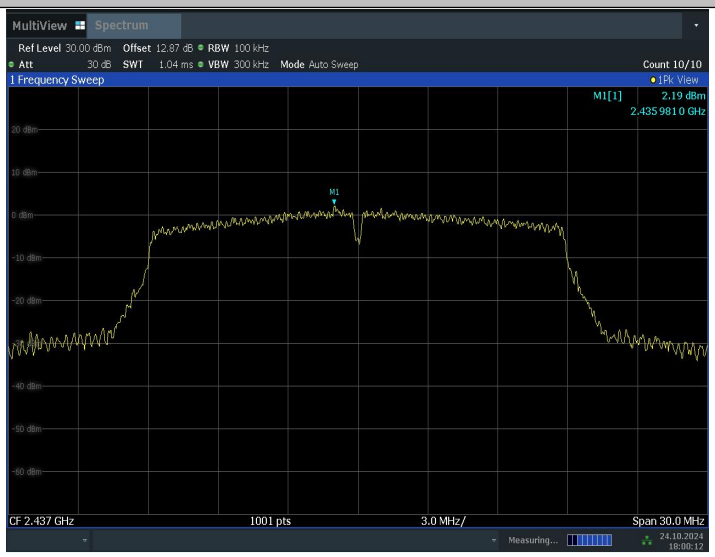
11N20SISO_2412_1000~26500

©Copyright. All rights reserved by CTTL.



17:57:20 24.10.2024

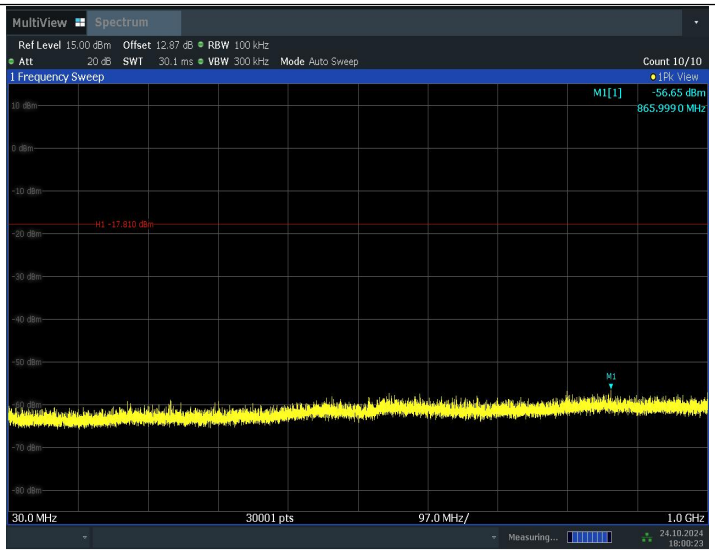
11N20SISO_2437_0~Reference



18:00:12 24.10.2024

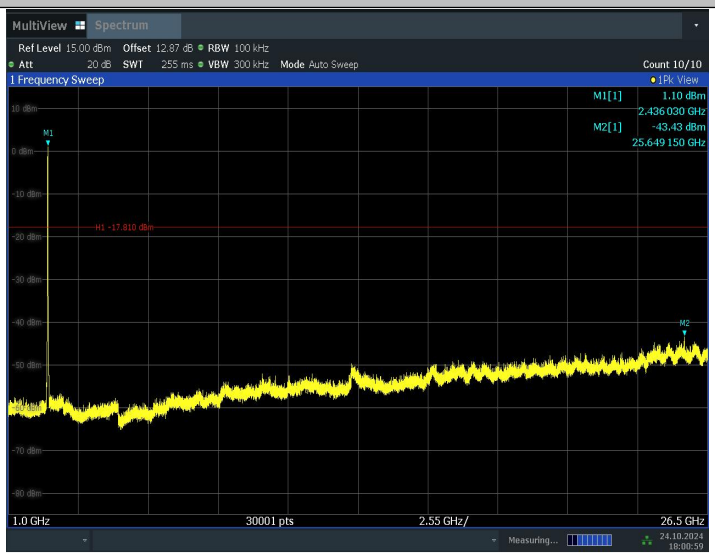
11N20SISO_2437_30~1000

©Copyright. All rights reserved by CTTL.



18:00:23 24.10.2024

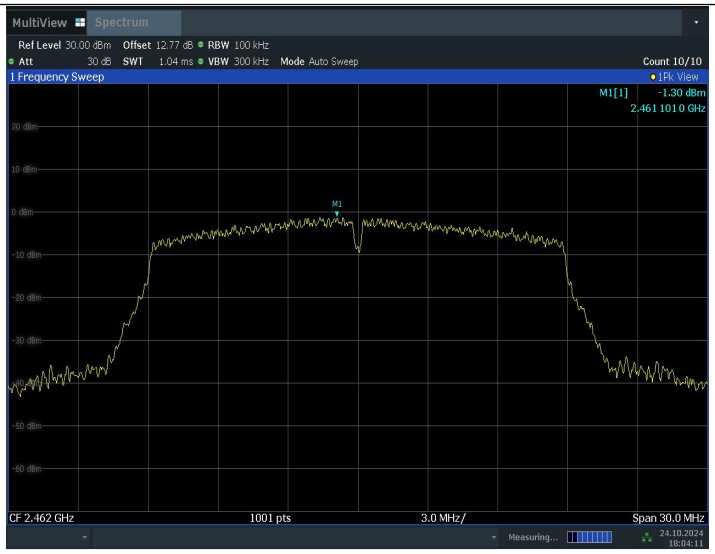
11N20SISO_2437_1000~26500



18:00:59 24.10.2024

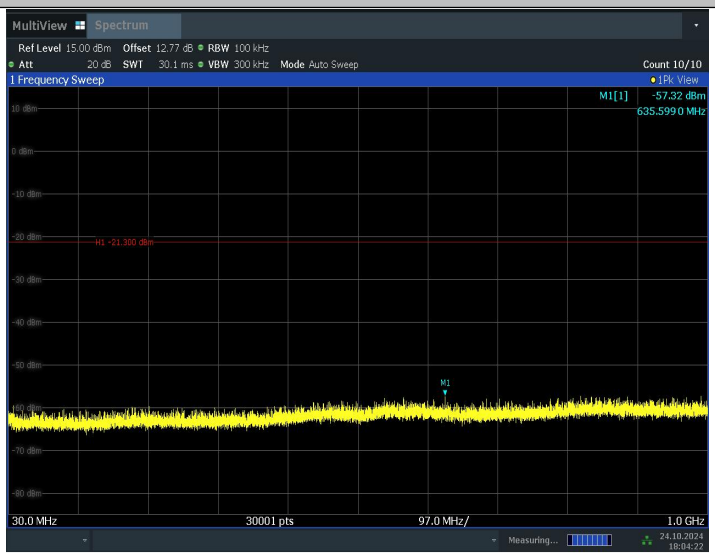
11N20SISO_2462_0~Reference

©Copyright. All rights reserved by CTTL.



18:04:11 24.10.2024

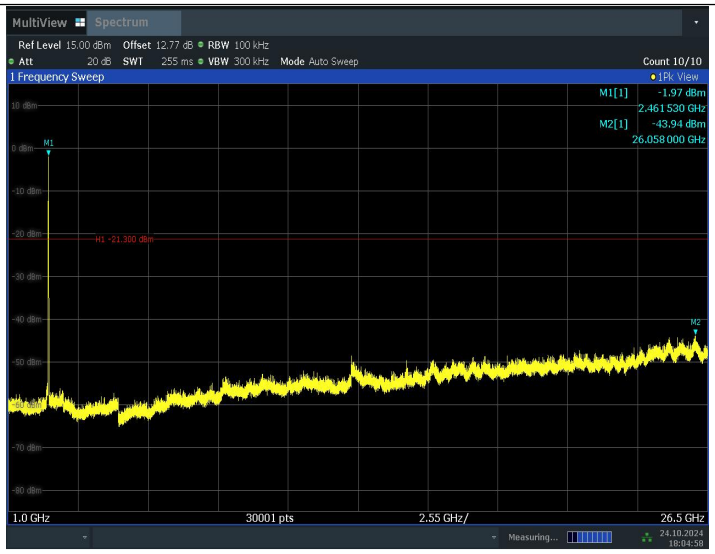
11N20SISO_2462_30~1000



18:04:22 24.10.2024

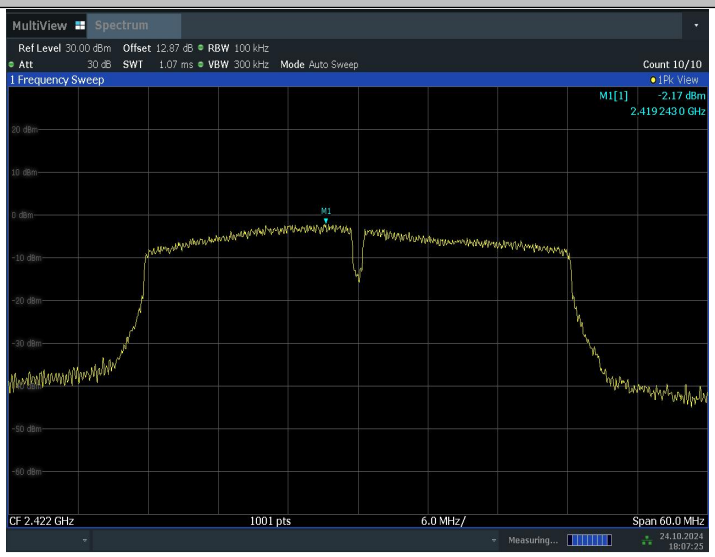
11N20SISO_2462_1000~26500

©Copyright. All rights reserved by CTTL.



18:04:58 24.10.2024

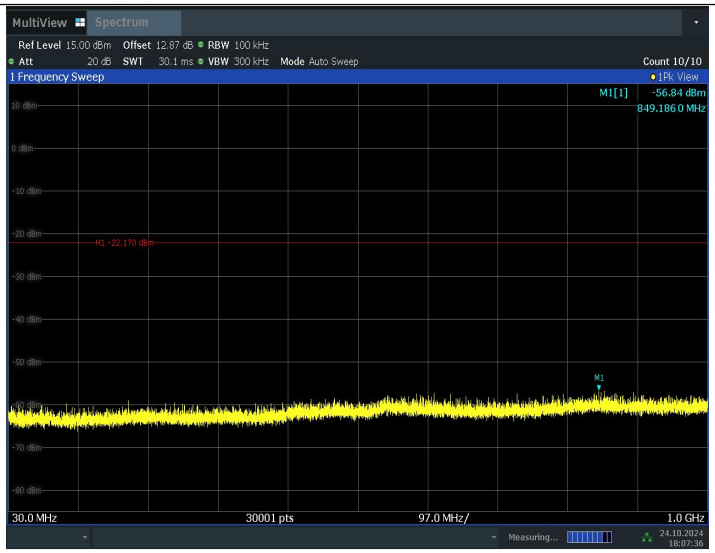
11N40SISO_2422_0~Reference



18:07:25 24.10.2024

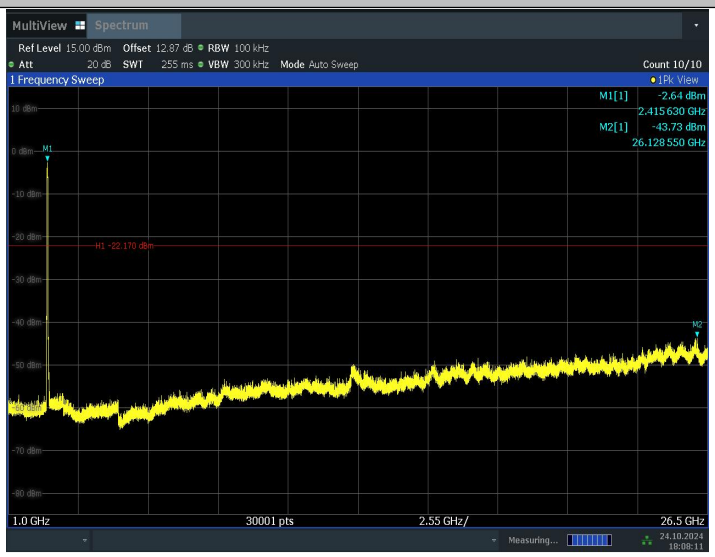
11N40SISO_2422_30~1000

©Copyright. All rights reserved by CTTL.



18:07:36 24.10.2024

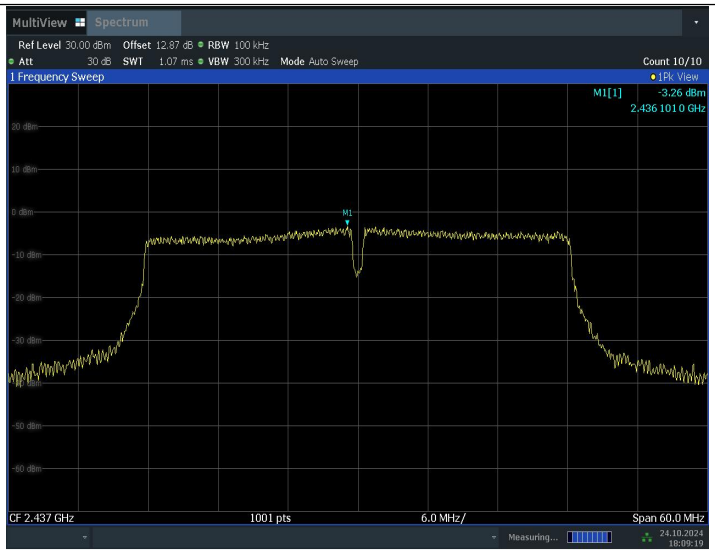
11N40SISO_2422_1000~26500



18:08:12 24.10.2024

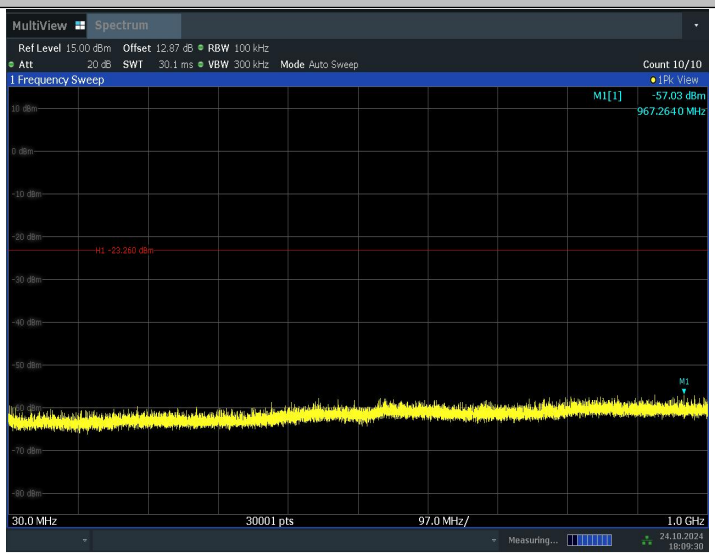
11N40SISO_2437_0~Reference

©Copyright. All rights reserved by CTTL.



18:09:20 24.10.2024

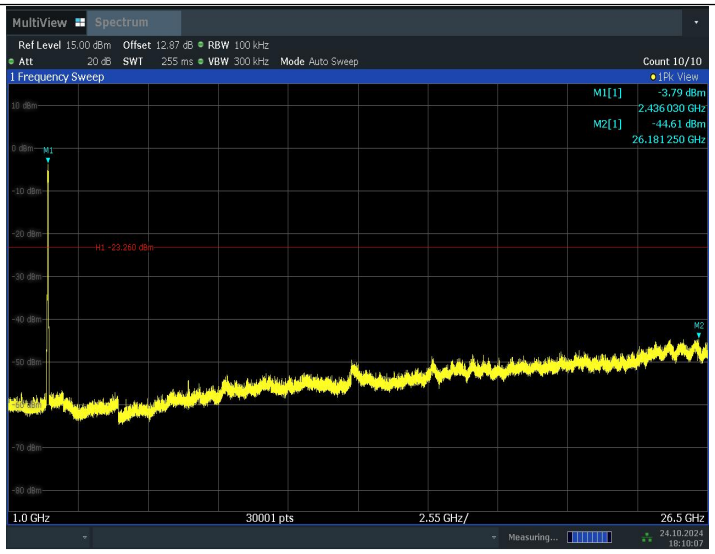
11N40SISO_2437_30~1000



18:09:31 24.10.2024

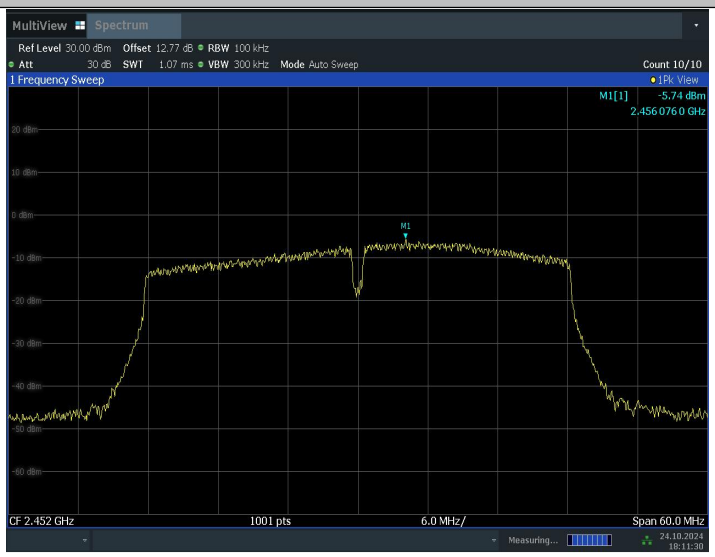
11N40SISO_2437_1000~26500

©Copyright. All rights reserved by CTTL.



18:10:07 24.10.2024

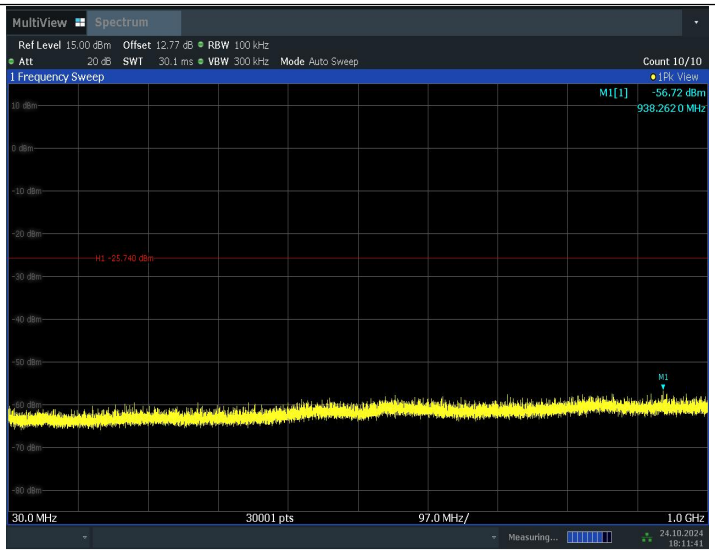
11N40SISO_2452_0~Reference



18:11:30 24.10.2024

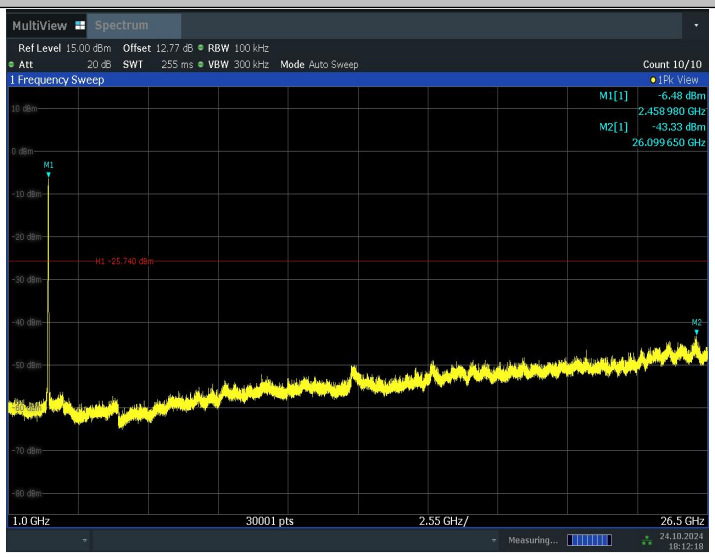
11N40SISO_2452_30~1000

©Copyright. All rights reserved by CTTL.



18:11:42 24.10.2024

11N40SISO_2452_1000~26500



18:12:18 24.10.2024

Conclusion: Pass

©Copyright. All rights reserved by CTTL.

A.7. Radiated Unwanted Emission

Limits

Measurement Limit

Standard	Limit
FCC 47 CFR Part 15.247, 15.205, 15.209	20dB below peak output power

In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c)).

Limit in restricted band

Frequency (MHz)	Field strength(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

Frequency of emission (MHz)	Field strength (uV/m)	Field strength (dBuV/m)	Measurement distance (m)
30-88	100	40	3
88-216	150	43.5	3
216-960	200	46	3
Above 960	500	54	3

Note: When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor.

Test setup

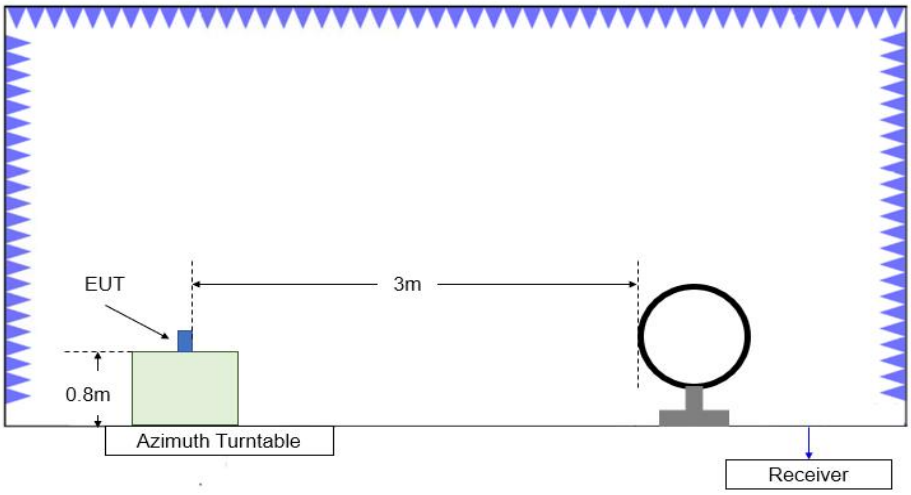


Figure A.2.1. Test Site Diagram (9kHz-30MHz)

©Copyright. All rights reserved by CTTL.

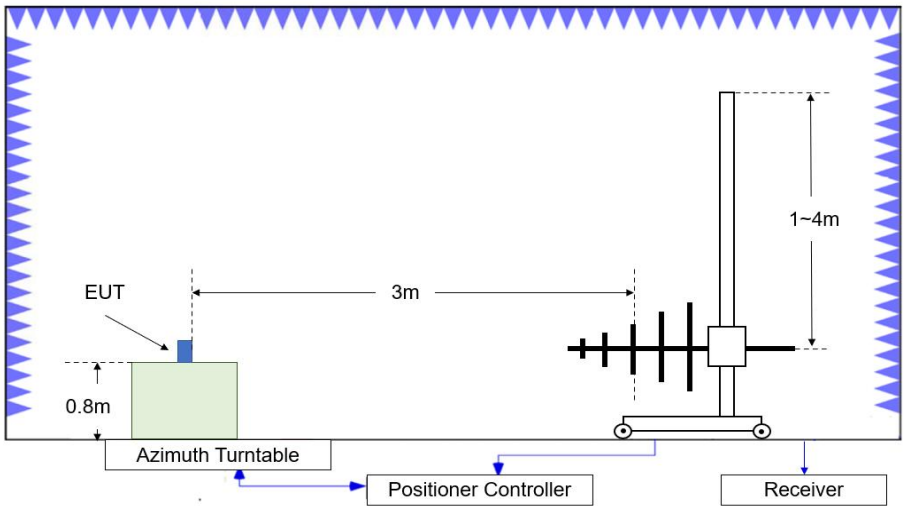


Figure A.2.2. Test Site Diagram (30MHz-1GHz)

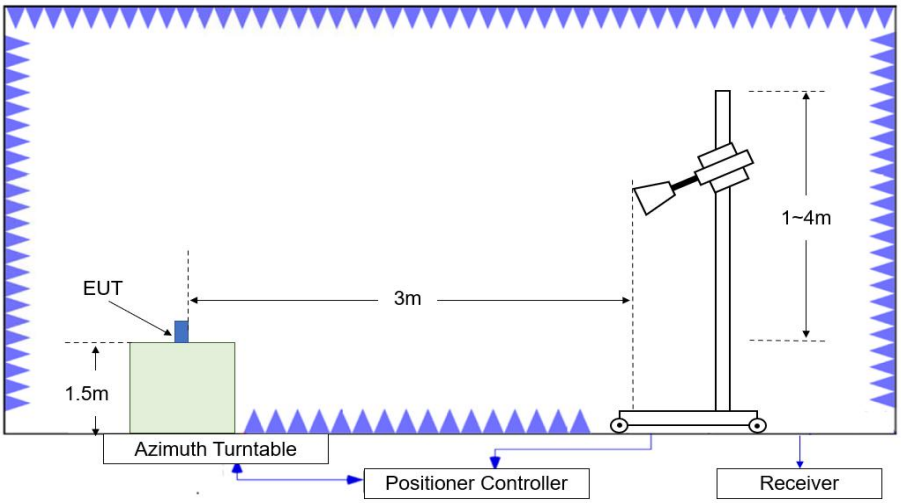


Figure A.2.3. Test Site Diagram (1GHz-40GHz)

Test Procedures

Radiated unwanted emissions from the EUT were measured according to ANSI C63.10.

Test setting

Frequency of emission (MHz)	RBW/VBW	Sweep Time(s)
30-1000	100kHz/300kHz	5
1000-3000	1MHz/3MHz	15
3000-18000	1MHz/3MHz	40
18000-26500	1MHz/3MHz	20

Sample Calculation

A "reference path loss" is established and the A_{Rpl} is the attenuation of “reference path loss”, and including the gain of receive antenna, the gain of the preamplifier, the cable loss.

P_{Mea} is the field strength recorded from the instrument.

©Copyright. All rights reserved by CTTL.

The measurement results are obtained as described below:

Result=P_{Mea}+$A_{Rpl=}$ P_{Mea}+Cable Loss+Antenna Factor

Test note

1. The EUT is operating at its maximum duty cycle and its maximum power control level.
2. Investigation has been done on all modes and modulations/data rates. Only the radiated emissions of the configuration that produced the worst case emissions are reported in this section.
3. Spurious emissions for all channels were investigated and almost the same below 1GHz. According to FCC 47 CFR §15.31, emission levels are not report much lower than the limit by over 20dB
4. Measurement frequencies were performed from 9 kHz to the 10th harmonic of highest fundamental frequency or 40GHz, whichever is lower.

©Copyright. All rights reserved by CTTL.

Test Result

Peak

802.11b

Ch1

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17940.000	55.91	-25.90	46.00	35.81	74.00	18.09	H
4824.000	53.93	-36.90	33.00	57.83	74.00	20.07	H
13748.500	51.40	-29.10	41.10	39.40	74.00	22.60	H
11853.500	48.98	-31.10	39.10	40.98	74.00	25.02	V
9559.500	46.79	-33.00	37.50	42.29	74.00	27.21	H
2377.800	56.55	-19.20	28.20	47.55	74.00	17.45	H

Ch6

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17924.000	56.46	-25.90	46.00	36.36	74.00	17.54	V
4874.000	53.90	-36.90	33.40	57.40	74.00	20.10	H
14079.500	51.97	-29.10	41.70	39.37	74.00	22.03	V
12740.500	48.89	-30.50	39.60	39.79	74.00	25.11	V
9805.500	47.45	-33.10	37.90	42.65	74.00	26.55	H
7507.500	46.16	-34.70	36.40	44.46	74.00	27.84	H

Ch11

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17895.500	56.07	-25.90	46.00	35.97	74.00	17.93	V
4923.500	54.06	-36.70	33.30	57.46	74.00	19.94	H
13749.500	51.80	-29.10	41.10	39.80	74.00	22.20	V
12343.500	49.02	-30.10	39.00	40.22	74.00	24.98	H
9146.000	47.14	-33.70	37.70	43.14	74.00	26.86	H
2486.000	57.07	-19.00	28.20	47.87	74.00	16.93	V

©Copyright. All rights reserved by CTTL.

802.11g

Ch1

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17935.500	56.42	-25.90	46.00	36.32	74.00	17.58	H
14112.500	52.74	-29.40	41.70	40.44	74.00	21.26	V
4821.000	51.86	-36.90	33.00	55.76	74.00	22.14	H
12320.000	49.74	-30.10	39.00	40.84	74.00	24.26	V
9174.500	47.15	-33.80	37.70	43.25	74.00	26.85	V
2389.500	63.37	-19.20	28.20	54.37	74.00	10.63	H

Ch6

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17910.500	56.49	-25.90	46.00	36.39	74.00	17.51	H
4873.000	52.71	-36.90	33.40	56.21	74.00	21.29	H
14057.500	52.41	-28.90	41.60	39.71	74.00	21.59	H
12814.000	49.84	-30.60	39.80	40.64	74.00	24.16	V
9069.500	48.22	-33.60	37.70	44.12	74.00	25.78	H
7508.500	46.49	-34.70	36.40	44.79	74.00	27.51	V

Ch11

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17946.000	56.34	-25.90	46.00	36.24	74.00	17.66	H
4919.000	53.85	-36.70	33.30	57.25	74.00	20.15	H
14062.500	51.75	-29.10	41.70	39.15	74.00	22.25	H
12858.000	49.52	-30.30	39.90	39.92	74.00	24.48	H
9022.500	47.08	-33.50	37.80	42.78	74.00	26.92	H
2495.900	56.94	-19.00	28.20	47.74	74.00	17.06	H

©Copyright. All rights reserved by CTTL.

802.11n-HT20

Ch1

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17941.500	56.66	-25.90	46.00	36.56	74.00	17.34	V
13810.000	52.00	-29.00	41.20	39.80	74.00	22.00	V
4830.000	51.88	-36.90	33.00	55.78	74.00	22.12	H
12397.500	48.96	-30.10	38.90	40.16	74.00	25.04	V
9982.500	47.45	-33.40	38.00	42.85	74.00	26.55	V
2389.900	67.21	-19.20	28.20	58.21	74.00	6.79	H

Ch6

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17921.500	56.53	-25.90	46.00	36.43	74.00	17.47	H
4879.000	53.30	-36.90	33.40	56.80	74.00	20.70	H
14058.500	52.12	-28.90	41.60	39.42	74.00	21.88	H
12596.000	49.30	-30.40	39.30	40.40	74.00	24.70	V
9029.000	47.04	-33.50	37.80	42.74	74.00	26.96	V
7513.000	46.60	-34.70	36.40	44.90	74.00	27.40	H

Ch11

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17934.000	56.49	-25.90	46.00	36.39	74.00	17.51	V
13703.500	51.85	-29.30	41.00	40.15	74.00	22.15	V
12814.000	49.20	-30.60	39.80	40.00	74.00	24.80	V
4924.000	48.49	-36.70	33.30	51.89	74.00	25.51	H
9008.000	47.07	-33.60	37.70	42.97	74.00	26.93	V
2489.200	57.12	-19.00	28.20	47.92	74.00	16.88	H

©Copyright. All rights reserved by CTTL.

802.11n-HT40

Ch3

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17937.000	56.01	-25.90	46.00	35.91	74.00	17.99	H
13995.500	51.98	-28.70	41.50	39.18	74.00	22.02	H
12808.500	49.32	-30.60	39.80	40.12	74.00	24.68	V
4846.000	49.25	-36.90	33.00	53.15	74.00	24.75	H
7238.500	47.40	-34.90	36.40	45.90	74.00	26.60	V
2389.400	68.97	-19.20	28.20	59.97	74.00	5.03	H

Ch6

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17933.500	57.03	-25.90	46.00	36.93	74.00	16.97	H
14110.500	52.04	-29.40	41.70	39.74	74.00	21.96	V
12397.500	49.26	-30.10	38.90	40.46	74.00	24.74	V
9164.500	47.65	-33.80	37.70	43.75	74.00	26.35	V
4878.000	47.52	-36.90	33.40	51.02	74.00	26.48	H
7447.000	47.22	-34.50	36.50	45.22	74.00	26.78	V

Ch9

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17935.000	56.56	-25.90	46.00	36.46	74.00	17.44	H
14007.500	53.14	-28.70	41.50	40.34	74.00	20.86	H
12757.000	49.51	-30.50	39.60	40.41	74.00	24.49	H
9714.500	46.95	-33.10	37.80	42.25	74.00	27.05	V
7737.500	46.46	-34.70	36.40	44.76	74.00	27.54	V
2485.000	57.33	-19.00	28.20	48.13	74.00	16.67	H

©Copyright. All rights reserved by CTTL.

Average

802.11b

Ch1

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
4824.000	51.73	-36.90	33.00	55.63	54.00	2.27	H
17934.500	46.80	-25.90	46.00	26.70	54.00	7.20	H
14081.500	42.14	-29.10	41.70	29.54	54.00	11.86	V
12799.500	39.39	-30.60	39.80	30.19	54.00	14.61	V
9691.000	37.13	-33.10	37.70	32.53	54.00	16.87	H
2385.800	45.39	-19.20	28.20	36.39	54.00	8.61	H

Ch6

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
4874.000	51.34	-36.90	33.40	54.84	54.00	2.66	H
17950.000	46.56	-25.90	46.00	26.46	54.00	7.44	H
13743.000	41.80	-29.10	41.10	29.80	54.00	12.20	H
12347.000	39.30	-30.10	39.00	30.50	54.00	14.70	V
9218.500	37.27	-33.90	37.60	33.57	54.00	16.73	V
7533.500	36.89	-34.80	36.30	35.39	54.00	17.11	H

Ch11

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
4924.000	51.75	-36.70	33.30	55.15	54.00	2.25	H
17921.500	46.96	-25.90	46.00	26.86	54.00	7.04	H
14096.500	42.13	-29.10	41.70	29.53	54.00	11.87	V
12859.500	39.44	-30.30	39.90	29.84	54.00	14.56	V
9606.500	37.37	-33.00	37.60	32.77	54.00	16.63	V
2495.500	45.24	-19.00	28.20	36.04	54.00	8.76	H

©Copyright. All rights reserved by CTTL.

802.11g

Ch1

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17890.500	46.81	-25.90	46.00	26.71	54.00	7.19	H
14112.000	42.38	-29.40	41.70	30.08	54.00	11.62	V
4823.500	41.87	-36.90	33.00	45.77	54.00	12.13	H
12998.000	39.39	-29.40	40.10	28.69	54.00	14.61	H
8922.500	37.51	-33.60	37.70	33.41	54.00	16.49	H
2389.700	47.23	-19.20	28.20	38.23	54.00	6.77	H

Ch6

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17969.000	46.60	-25.90	46.00	26.50	54.00	7.40	H
4873.000	43.28	-36.90	33.40	46.78	54.00	10.72	H
14171.500	42.37	-29.20	41.70	29.87	54.00	11.63	V
12997.000	39.46	-29.40	40.10	28.76	54.00	14.54	H
9624.000	37.58	-33.00	37.60	32.98	54.00	16.42	H
7239.500	36.55	-34.90	36.40	35.05	54.00	17.45	V

Ch11

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17941.500	46.62	-25.90	46.00	26.52	54.00	7.38	H
4919.500	43.80	-36.70	33.30	47.20	54.00	10.20	H
14085.000	42.35	-29.10	41.70	29.75	54.00	11.65	H
12842.500	39.57	-30.30	39.90	29.97	54.00	14.43	V
9538.500	37.35	-33.10	37.60	32.85	54.00	16.65	V
2498.100	45.29	-19.00	28.20	36.09	54.00	8.71	V

©Copyright. All rights reserved by CTTL.

802.11n-HT20

Ch1

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17918.000	46.90	-25.90	46.00	26.80	54.00	7.10	H
4822.000	42.47	-36.90	33.00	46.37	54.00	11.53	H
14083.000	42.35	-29.10	41.70	29.75	54.00	11.65	H
11894.000	39.50	-31.30	39.10	31.70	54.00	14.50	V
8975.000	37.66	-33.60	37.70	33.56	54.00	16.34	H
2389.900	48.40	-19.20	28.20	39.40	54.00	5.60	H

Ch6

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17919.500	46.91	-25.90	46.00	26.81	54.00	7.09	V
4874.500	43.03	-36.90	33.40	46.53	54.00	10.97	H
13755.000	42.13	-29.10	41.10	30.13	54.00	11.87	H
12400.000	40.13	-30.10	38.90	31.33	54.00	13.87	V
9734.500	37.94	-33.10	37.80	33.24	54.00	16.06	H
7519.500	36.73	-34.70	36.40	35.03	54.00	17.27	H

Ch11

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17918.500	47.06	-25.90	46.00	26.96	54.00	6.94	H
13714.000	42.87	-29.10	41.10	30.87	54.00	11.13	V
12871.000	40.07	-30.30	39.90	30.47	54.00	13.93	V
4920.000	37.71	-36.70	33.30	41.11	54.00	16.29	H
8895.000	37.57	-33.60	37.80	33.37	54.00	16.43	H
2498.700	45.29	-19.00	28.20	36.09	54.00	8.71	H

©Copyright. All rights reserved by CTTL.

802.11n-HT40

Ch3

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17928.000	46.73	-25.90	46.00	26.63	54.00	7.27	H
14089.500	42.20	-29.10	41.70	29.60	54.00	11.80	V
12842.000	39.66	-30.30	39.90	30.06	54.00	14.34	H
4839.500	38.11	-36.90	33.00	42.01	54.00	15.89	H
8976.000	37.68	-33.60	37.70	33.58	54.00	16.32	H
2389.400	51.34	-19.20	28.20	42.34	54.00	2.66	H

Ch6

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17911.500	46.99	-25.90	46.00	26.89	54.00	7.01	V
13728.500	42.72	-29.10	41.10	30.72	54.00	11.28	V
12990.000	40.20	-29.40	40.10	29.50	54.00	13.80	H
4872.500	38.72	-36.90	33.40	42.22	54.00	15.28	H
9535.000	37.61	-33.10	37.60	33.11	54.00	16.39	V
7416.000	37.07	-34.40	36.60	34.87	54.00	16.93	V

Ch9

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17932.500	46.70	-25.90	46.00	26.60	54.00	7.30	V
13738.000	42.32	-29.10	41.10	30.32	54.00	11.68	H
11844.000	39.83	-31.10	39.10	31.83	54.00	14.17	H
9740.500	37.46	-33.10	37.80	32.76	54.00	16.54	H
7522.000	36.67	-34.70	36.40	34.97	54.00	17.33	V
2493.600	45.29	-19.00	28.20	36.09	54.00	8.71	H

©Copyright. All rights reserved by CTTL.

Band edge compliance

802.11b mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11b	1	2.31GHz~2.43GHz---L	Fig.1	**P**
	11	2.45GHz~2.50GHz---H	Fig.2	**P**

802.11g mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11g	1	2.31GHz~2.43GHz---L	Fig.3	**P**
	11	2.45GHz~2.50GHz---H	Fig.4	**P**

802.11n-HT20 mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11n (HT20)	1	2.31GHz~2.43GHz---L	Fig.5	**P**
	11	2.45GHz~2.50GHz---H	Fig.6	**P**

802.11n-HT40 mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11n (HT40)	3	2.31GHz~2.43GHz---L	Fig.7	**P**
	9	2.45GHz~2.50GHz---H	Fig.8	**P**

Test graphs as below:

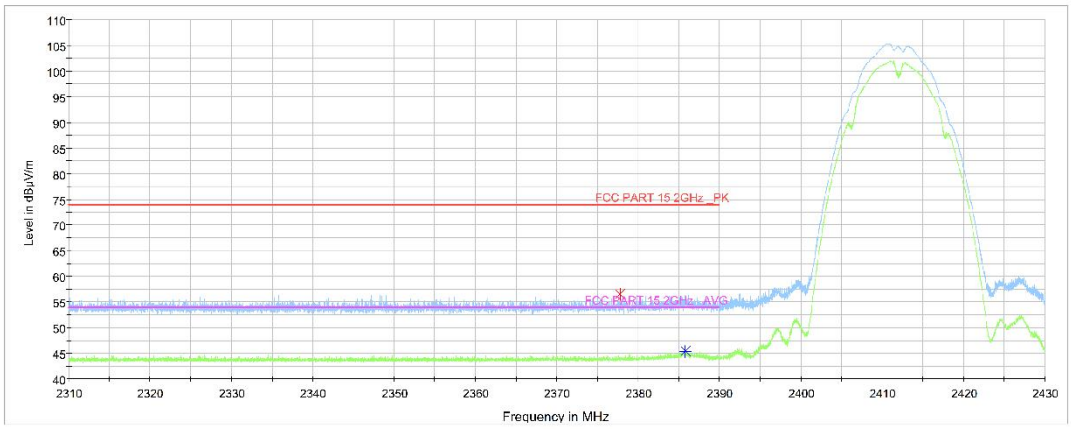


Fig.1 Transmitter Spurious Emission - Radiated (Power): 802.11b, ch1, 2.31 GHz – 2.43GHz

©Copyright. All rights reserved by CTTL.

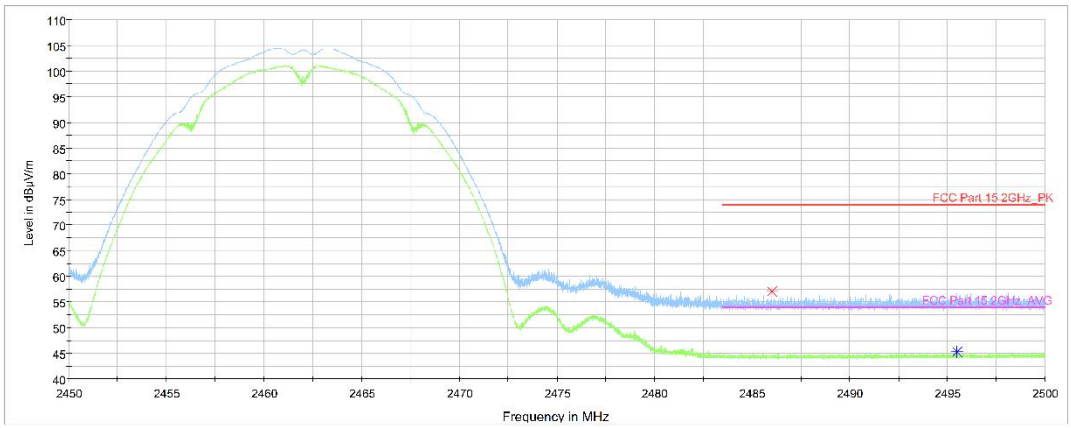


Fig.2 Transmitter Spurious Emission - Radiated (Power): 802.11b, ch11, 2.45 GHz - 2.50GHz

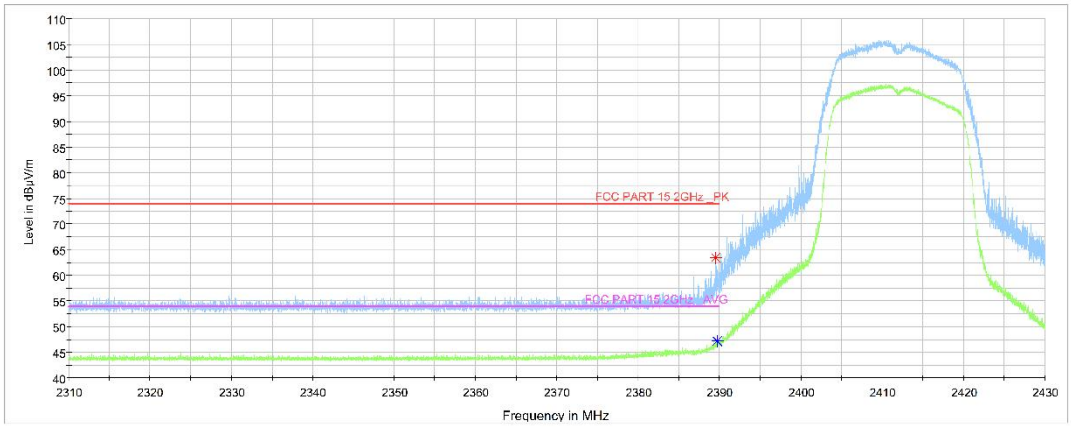


Fig.3 Transmitter Spurious Emission - Radiated (Power): 802.11g, ch1, 2.31 GHz - 2.43GHz

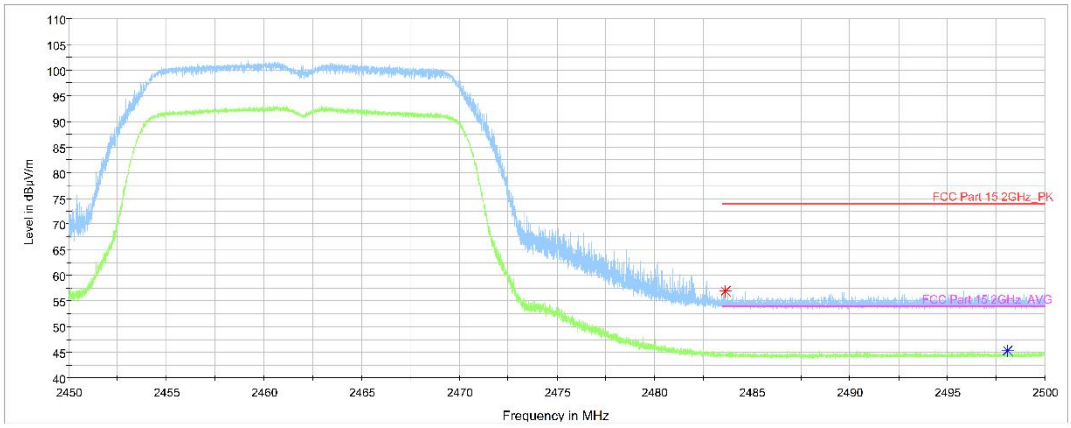


Fig.4 Transmitter Spurious Emission - Radiated (Power): 802.11g, ch11, 2.45 GHz - 2.50GHz

©Copyright. All rights reserved by CTTL.

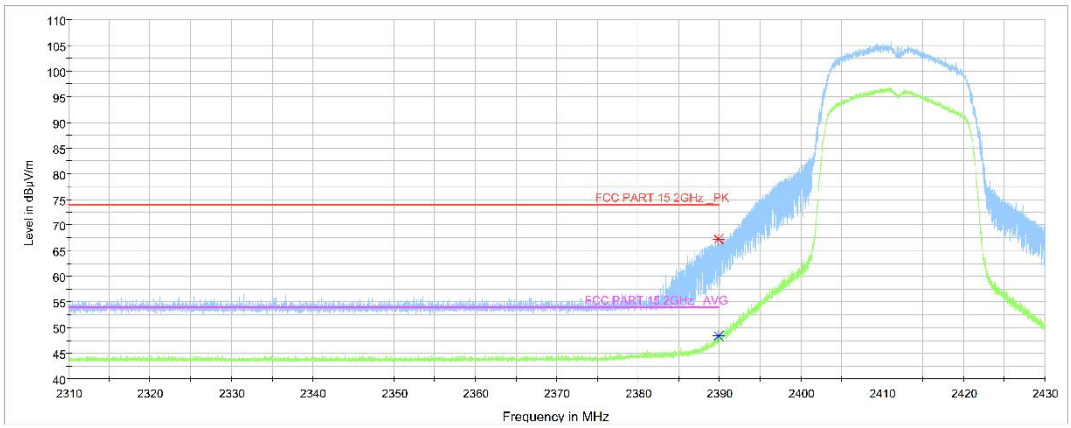


Fig.5 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT20, ch1, 2.31 GHz - 2.43GHz

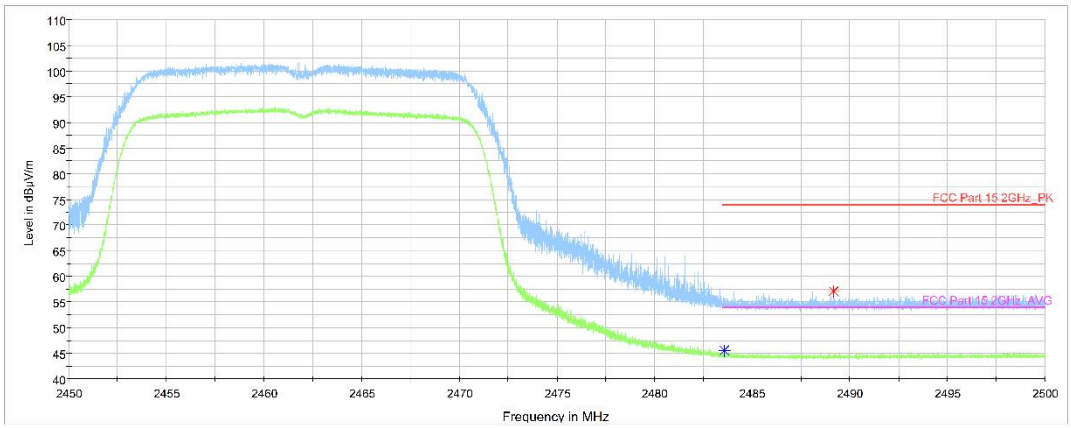


Fig.6 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT20, ch11, 2.45 GHz - 2.50GHz

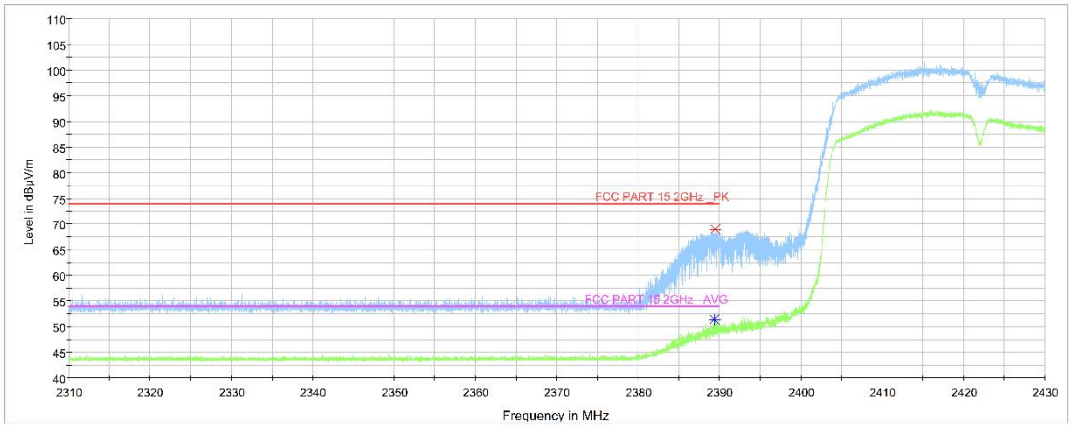


Fig.7 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT40, ch3, 2.31 GHz - 2.43GHz

©Copyright. All rights reserved by CTTL.

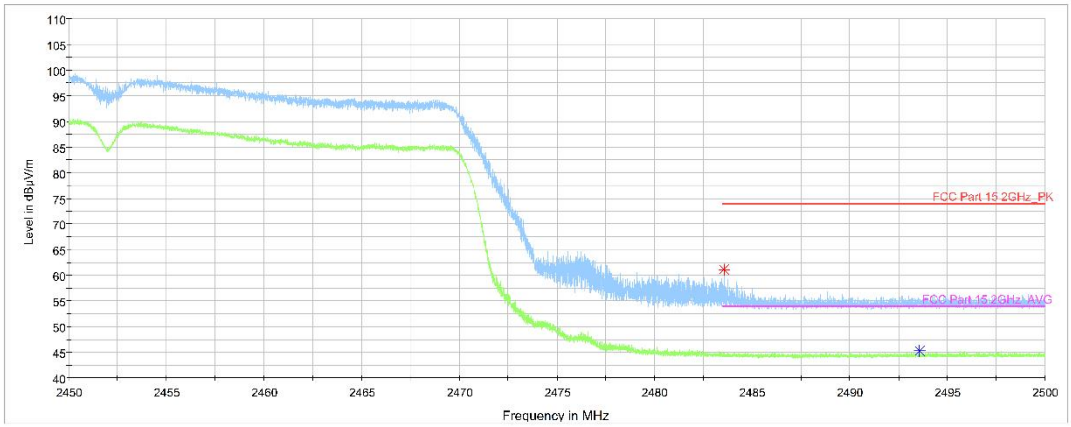


Fig.8 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT40, ch9, 2.45 GHz - 2.50GHz

©Copyright. All rights reserved by CTTL.

A.8. AC Power-line Conducted Emission

Summary

All AC line conducted spurious emissions are measured with a receiver connected to a grounded LISN while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates and modes were investigated for conducted spurious emissions. Only the conducted emissions of the configuration that produced the worst case emissions are reported in this section

Method of Measurement:

See Clause 6.2 of ANSI C63.10 specifically.

See Clause 4 and Clause 5 of ANSI C63.10 generally.

The conducted emissions from the AC port of the EUT are measured in a shielding room. The EUT is connected to a Line Impedance Stabilization Network (LISN). An overview sweep with peak detection was performed. The measurements were performed with a quasi-peak detector and if required, an average detector.

The conducted emission measurements were made with the following detector of the test receiver: Quasi-Peak / Average Detector.

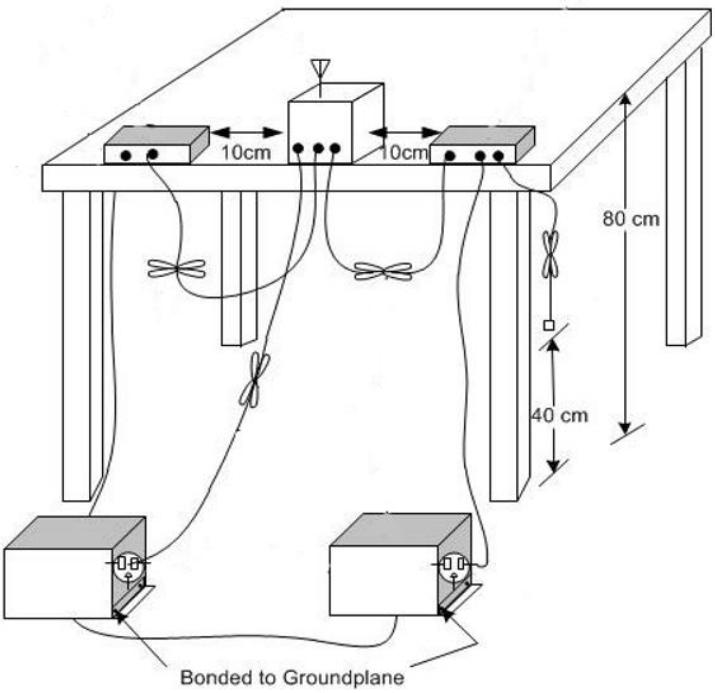
The measurement bandwidth is:

Frequency of Emission (MHz)	RBW/IF bandwidth
0.15-30	9kHz

Test Condition:

Voltage（V）	Frequency（Hz）
120	60

Test setup



©Copyright. All rights reserved by CTTL.

Measurement Result and limit:

WLAN (Quasi-peak Limit)

Frequency range (MHz)	Quasi-peak Limit (dBμV)	Result (dBμV)		Conclusion
		With charger		
		802.11b	Idle	
0.15 to 0.5	66 to 56	Fig.A.8.1	Fig.A.8.2	**P**
0.5 to 5	56			
5 to 30	60			
NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.				

WLAN (Average Limit)

Frequency range (MHz)	Average Limit (dBμV)	Result (dBμV)		Conclusion
		With charger		
		802.11b	Idle	
0.15 to 0.5	56 to 46	Fig.A.8.1	Fig.A.8.2	**P**
0.5 to 5	46			
5 to 30	50			
NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.				

Conclusion: Pass

Test graphs as below:

©Copyright. All rights reserved by CTTL.

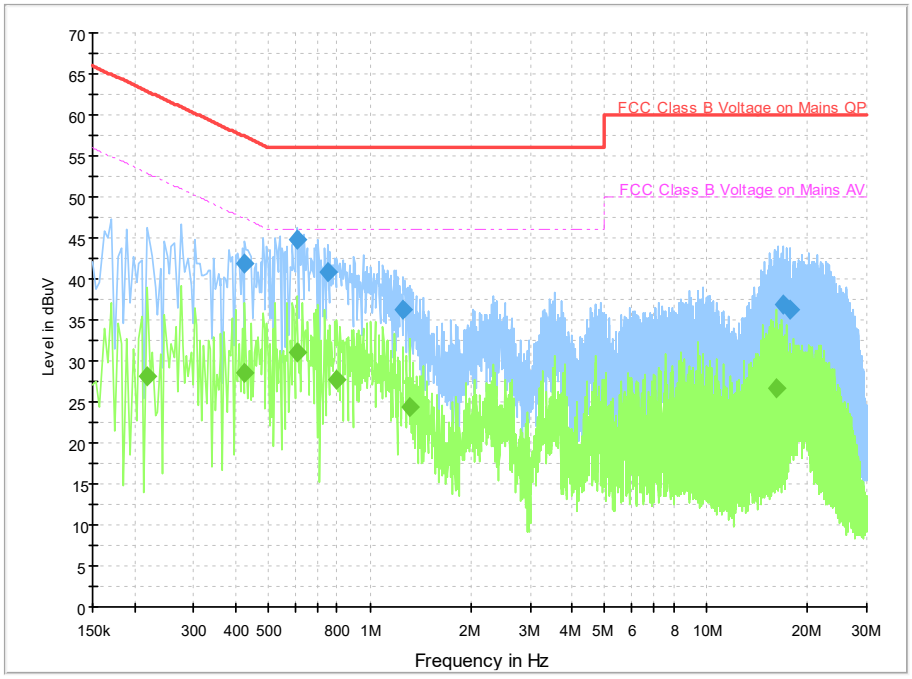


Fig.A.8.1 AC Powerline Conducted Emission-802.11b

Note: The graphic result above is the maximum of the measurements for both phase line and neutral line.

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.426000	**41.8**	**2000.0**	**9.000**	**On**	**L1**	**20.0**	**15.5**	**57.3**	
0.606000	**44.7**	**2000.0**	**9.000**	**On**	**L1**	**20.0**	**11.3**	**56.0**	
0.750000	**40.8**	**2000.0**	**9.000**	**On**	**N**	**19.8**	**15.2**	**56.0**	
1.258000	**36.3**	**2000.0**	**9.000**	**On**	**N**	**19.7**	**19.7**	**56.0**	
16.958000	**36.8**	**2000.0**	**9.000**	**On**	**L1**	**20.0**	**23.2**	**60.0**	
17.834000	**36.2**	**2000.0**	**9.000**	**On**	**L1**	**20.0**	**23.8**	**60.0**	

Final Result 2

Frequency (MHz)	CAverage (dBμV)	Meas. Time	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.218000	**28.1**	**2000.0**	**9.000**	**On**	**L1**	**19.8**	**24.8**	**52.9**	
0.426000	**28.5**	**2000.0**	**9.000**	**On**	**L1**	**20.0**	**18.9**	**47.3**	
0.606000	**30.9**	**2000.0**	**9.000**	**On**	**L1**	**20.0**	**15.1**	**46.0**	
0.798000	**27.7**	**2000.0**	**9.000**	**On**	**L1**	**19.9**	**18.3**	**46.0**	
1.314000	**24.3**	**2000.0**	**9.000**	**On**	**N**	**19.7**	**21.7**	**46.0**	
16.162000	**26.6**	**2000.0**	**9.000**	**On**	**L1**	**20.0**	**23.4**	**50.0**	

©Copyright. All rights reserved by CTTL.

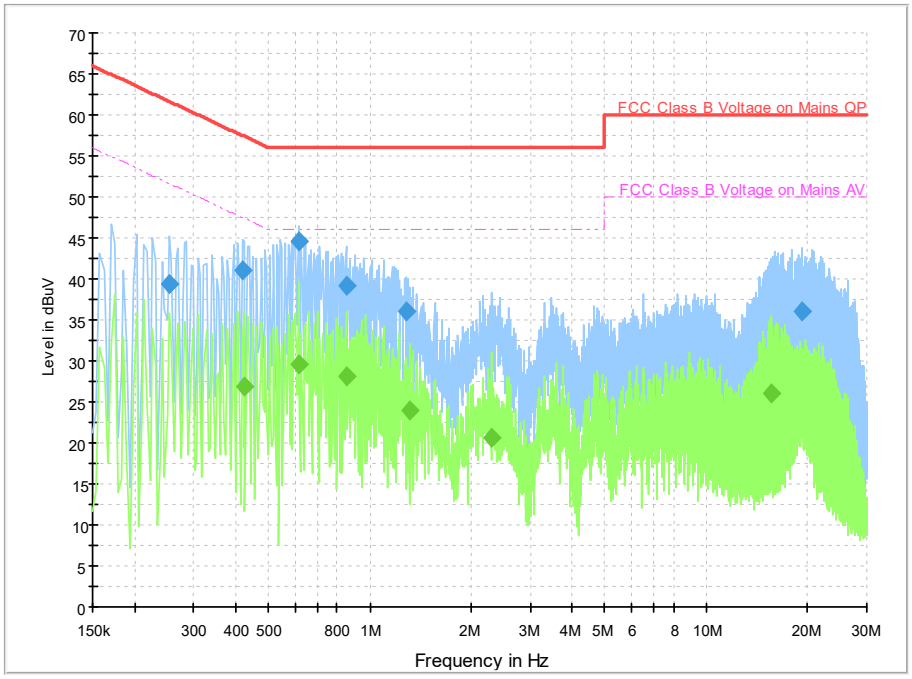


Fig.A.8.2 AC Powerline Conducted Emission-Idle

Note: The graphic result above is the maximum of the measurements for both phase line and neutral line.

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.254000	39.4	2000.0	9.000	On	N	19.8	22.2	61.6	
0.418000	41.1	2000.0	9.000	On	L1	20.0	16.4	57.5	
0.614000	44.5	2000.0	9.000	On	L1	20.0	11.5	56.0	
0.850000	39.1	2000.0	9.000	On	N	19.8	16.9	56.0	
1.278000	36.1	2000.0	9.000	On	N	19.7	19.9	56.0	
19.338000	36.1	2000.0	9.000	On	L1	20.0	23.9	60.0	

Final Result 2

Frequency (MHz)	CAverage (dBμV)	Meas. Time	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.422000	26.9	2000.0	9.000	On	N	19.9	20.5	47.4	
0.614000	29.5	2000.0	9.000	On	L1	20.0	16.5	46.0	
0.850000	28.1	2000.0	9.000	On	N	19.8	17.9	46.0	
1.318000	24.0	2000.0	9.000	On	N	19.7	22.0	46.0	
2.298000	20.6	2000.0	9.000	On	L1	19.8	25.4	46.0	
15.646000	26.0	2000.0	9.000	On	L1	20.0	24.0	50.0	

©Copyright. All rights reserved by CTTL.

A.9. Antenna Requirement

The antenna of the device is permanently attached. There are no provisions for connection to an external antenna.

The unit complies with the requirement of FCC Part 15.203.

ANNEX B: EUT parameters

Disclaimer: The antenna gain and worse case provided by the client may affect the validity of the measurement results in this report, and the client shall bear the impact and consequences arising therefrom.

ANNEX C: Accreditation Certificate

Accredited Laboratory

A2LA has accredited

TELECOMMUNICATION TECHNOLOGY LABS, CAICT

Beijing, People's Republic of China

for technical competence in the field of

Electrical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 *General requirements for the competence of testing and calibration laboratories*. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (*refer to joint ISO-ILAC-IAF Communiqué dated April 2017*).

Presented this 23rd day of July 2024.

Mr. Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 7049.01
Valid to July 31, 2026

For the tests to which this accreditation applies, please refer to the laboratory's Electrical Scope of Accreditation.

*****END OF REPORT*****

©Copyright. All rights reserved by CTTL.