

802.11b-Peak
Ch1

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2376.528	59.76	2.9	32.0	24.95	74.0	14.2	H	155	132
2375.254	60.03	2.9	32.0	25.22	74.0	14.0	H	155	154
4823.500	45.76	-35.2	34.1	46.90	74.0	28.2	H	155	88
7236.000	43.56	-32.4	35.8	40.20	74.0	30.4	V	155	110
9648.000	48.87	-30.1	36.8	42.23	74.0	25.1	V	155	44
12060.000	45.70	-31.0	38.9	37.81	74.0	28.3	H	155	0

Ch6

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2370.000	47.64	-27.0	32.0	42.69	74.0	26.4	H	155	22
2515.600	48.19	-26.6	32.0	42.79	74.0	25.8	H	155	44
4874.000	47.28	-35.5	34.1	48.70	74.0	26.7	H	155	88
7311.000	44.28	-31.6	35.8	40.07	74.0	29.7	V	155	110
9748.000	44.91	-31.3	36.9	39.29	74.0	29.1	V	155	110
12185.000	47.21	-29.1	39.0	37.36	74.0	26.8	H	155	88

Ch11

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2483.712	60.65	2.9	32.0	25.73	74.0	13.3	H	155	0
2483.880	60.06	2.9	32.0	25.13	74.0	13.9	H	155	22
4923.500	46.87	-35.2	34.1	47.95	74.0	27.1	V	155	352
7386.000	45.36	-31.2	35.8	40.79	74.0	28.6	V	155	352
9848.000	46.78	-30.5	37.0	40.30	74.0	27.2	V	155	176
12310.000	46.08	-31.6	39.0	38.65	74.0	27.9	V	155	176

802.11g - Average

Ch1

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2388.800	48.55	2.9	32.0	13.72	54.0	5.5	H	155	8
2389.410	49.18	2.9	32.0	14.35	54.0	4.8	H	155	46
4824.000	33.60	-35.2	34.1	34.75	54.0	20.4	H	155	20
7236.000	37.53	-32.4	35.8	34.17	54.0	16.5	H	155	118
9648.000	41.34	-30.1	36.8	34.70	54.0	12.7	H	155	82
12060.000	41.72	-31.0	38.9	33.83	54.0	12.3	H	155	46

Ch6

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2379.680	46.58	2.9	32.0	11.77	54.0	7.4	H	155	20
2485.960	46.64	2.9	32.0	11.71	54.0	7.4	H	155	18
4874.000	33.59	-35.5	34.1	35.01	54.0	20.4	H	155	90
7311.000	38.48	-31.6	35.8	34.28	54.0	15.5	H	155	114
9748.000	40.16	-31.3	36.9	34.54	54.0	13.8	H	155	36
12185.000	43.82	-29.1	39.0	33.97	54.0	10.2	H	155	2

Ch11

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2483.920	46.64	2.9	32.0	11.71	54.0	7.4	H	155	92
2484.350	46.56	2.9	32.0	11.64	54.0	7.4	H	155	68
4924.000	33.93	-35.2	34.1	35.01	54.0	20.1	H	155	118
7386.000	38.93	-31.2	35.8	34.35	54.0	15.1	H	155	354
9848.000	40.97	-30.5	37.0	34.49	54.0	13.0	H	155	18
12310.000	41.74	-31.6	39.0	34.32	54.0	12.3	H	155	38

802.11g - Peak
Ch1

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2389.646	67.62	2.9	32.0	32.80	74.0	6.4	H	155	0
2389.926	66.78	2.9	32.0	31.96	74.0	7.2	H	155	44
4824.000	42.51	-35.2	34.1	43.66	74.0	31.5	V	155	22
7236.000	43.47	-32.4	35.8	40.11	74.0	30.5	H	155	110
9648.000	47.74	-30.1	36.8	41.10	74.0	26.3	H	155	88
12060.000	46.87	-31.0	38.9	38.98	74.0	27.1	H	155	44

Ch6

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2370.000	48.02	-27.0	32.0	43.06	74.0	26.0	H	155	132
2500.400	49.35	-26.3	32.0	43.62	74.0	24.7	H	155	154
4874.000	43.96	-35.5	34.1	45.38	74.0	30.0	H	155	88
7311.000	43.98	-31.6	35.8	39.78	74.0	30.0	V	155	110
9748.000	46.44	-31.3	36.9	40.82	74.0	27.6	V	155	44
12185.000	47.71	-29.1	39.0	37.86	74.0	26.3	H	155	0

Ch11

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2483.525	63.03	2.9	32.0	28.10	74.0	11.0	H	155	88
2483.387	62.48	2.9	32.0	27.55	74.0	11.5	H	155	66
4924.000	43.12	-35.2	34.1	44.19	74.0	30.9	H	155	110
7986.000	44.09	-32.6	35.8	40.91	74.0	29.9	V	155	0
9848.000	45.91	-30.5	37.0	39.43	74.0	28.1	H	155	22
12310.000	46.31	-31.6	39.0	38.88	74.0	27.7	H	155	44

802.11n-HT20-Average
Ch1

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2387.960	48.56	2.9	32.0	13.74	54.0	5.4	H	155	4
2389.670	49.10	2.9	32.0	14.28	54.0	4.9	H	155	26
4824.000	33.39	-35.2	34.1	34.54	54.0	20.6	H	155	6
7236.000	37.48	-32.4	35.8	34.12	54.0	16.5	H	155	274
9648.000	41.33	-30.1	36.8	34.69	54.0	12.7	H	155	272
12060.000	41.79	-31.0	38.9	33.90	54.0	12.2	H	155	245

Ch6

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2391.250	48.49	2.9	32.0	13.66	54.0	5.5	H	155	142
2483.760	46.85	2.9	32.0	11.92	54.0	7.2	H	155	168
4874.000	33.48	-35.5	34.1	34.89	54.0	20.5	H	155	90
7311.000	38.56	-31.6	35.8	34.36	54.0	15.4	H	155	102
9748.000	40.15	-31.3	36.9	34.52	54.0	13.9	H	155	118
12185.000	43.86	-29.1	39.0	34.01	54.0	10.1	H	155	94

Ch11

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2483.700	46.34	2.9	32.0	11.41	54.0	7.7	H	155	98
2484.730	46.32	2.9	32.0	11.39	54.0	7.7	H	155	135
4924.000	33.80	-35.2	34.1	34.87	54.0	20.2	H	155	4
7386.000	38.93	-31.2	35.8	34.36	54.0	15.1	H	155	74
9848.000	41.00	-30.5	37.0	34.52	54.0	13.0	H	155	48
12310.000	41.68	-31.6	39.0	34.25	54.0	12.3	H	155	246

802.11n-HT20-Peak
Ch1

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2389.800	66.70	2.9	32.0	31.87	74.0	7.3	H	155	0
2389.758	66.52	2.9	32.0	31.69	74.0	7.5	H	155	22
4824.000	42.04	-35.2	34.1	43.19	74.0	32.0	H	155	0
7236.000	44.26	-32.4	35.8	40.91	74.0	29.7	V	155	264
9648.000	47.73	-30.1	36.8	41.09	74.0	26.3	H	155	264
12060.000	45.62	-31.0	38.9	37.73	74.0	28.4	H	155	242

Ch6

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2367.000	48.08	-27.2	32.0	43.31	74.0	25.9	H	155	22
2498.200	48.15	-25.9	32.0	42.05	74.0	25.8	H	155	44
4874.000	42.51	-35.5	34.1	43.92	74.0	31.5	H	155	88
7311.000	44.08	-31.6	35.8	39.87	74.0	29.9	V	155	110
9748.000	45.27	-31.3	36.9	39.64	74.0	28.7	V	155	110
12185.000	47.59	-29.1	39.0	37.74	74.0	26.4	V	155	88

Ch11

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2484.605	60.66	2.9	32.0	25.73	74.0	13.3	H	155	88
2484.655	60.12	2.9	32.0	25.19	74.0	13.9	H	155	132
4924.000	44.32	-35.2	34.1	45.40	74.0	29.7	H	155	0
7386.000	45.49	-31.2	35.8	40.92	74.0	28.5	V	155	66
9848.000	46.99	-30.5	37.0	40.52	74.0	27.0	V	155	44
12310.000	45.78	-31.6	39.0	38.35	74.0	28.2	H	155	242

Test graphs as below:

RE - Power-2.31GHz-2.45GHz

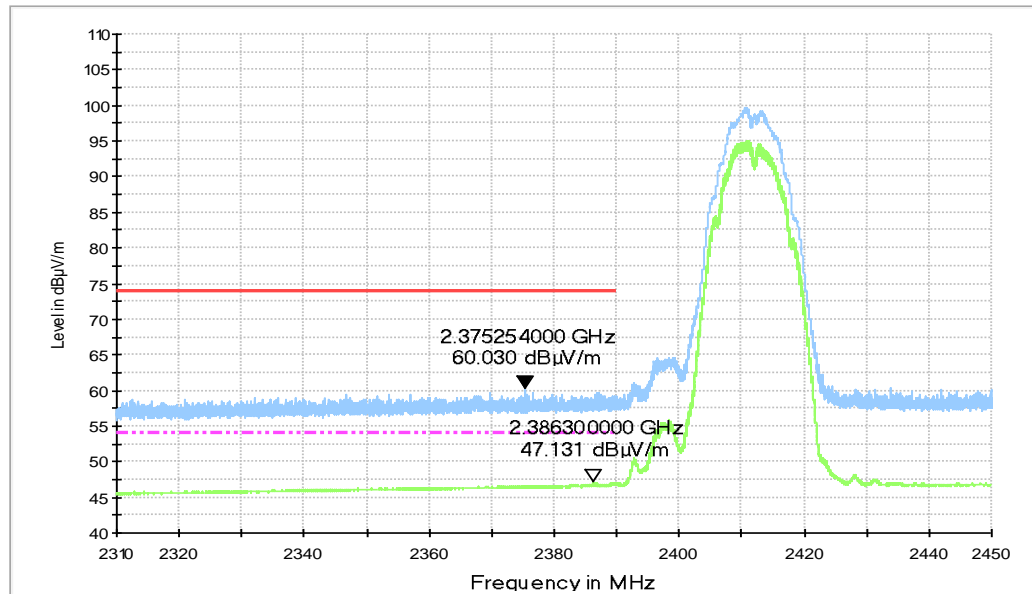


Fig.A.6.2.1 Transmitter Spurious Emission - Radiated (Power): 802.11b, ch1, 2.31 GHz – 2.43GHz

RE - Power-2.45GHz-2.5GHz

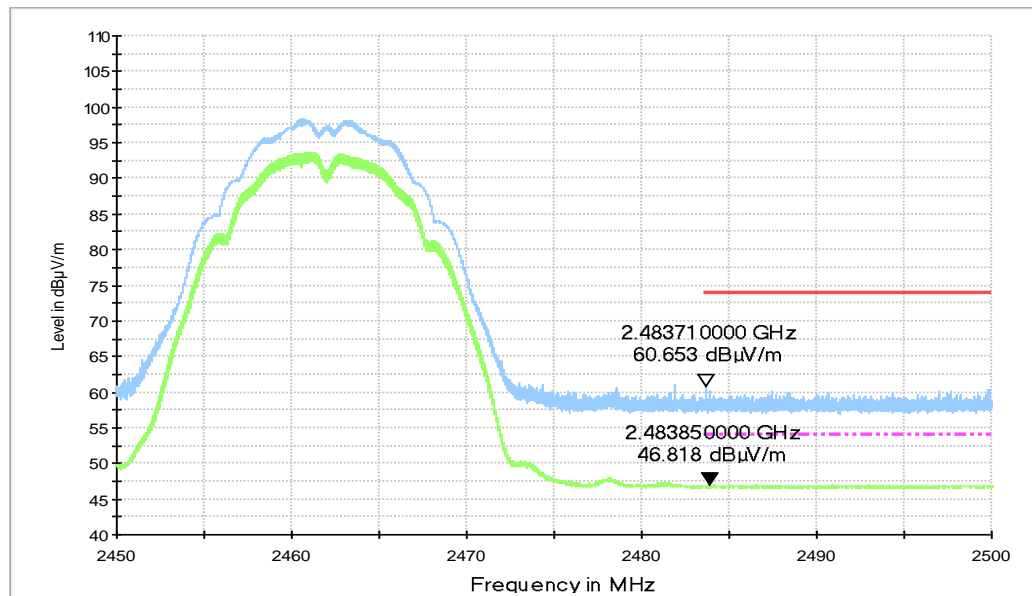


Fig.A.6.2.2 Transmitter Spurious Emission - Radiated (Power): 802.11b, ch11, 2.45 GHz - 2.50GHz

RE - Power-2.31GHz-2.45GHz

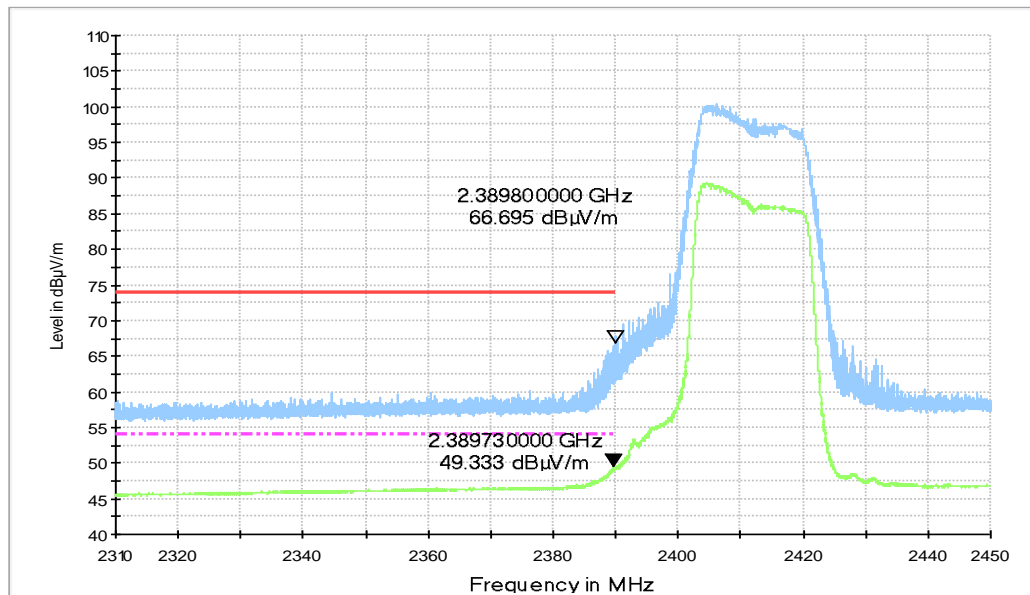


Fig.A.6.2.3 Transmitter Spurious Emission - Radiated (Power): 802.11g, ch1, 2.31 GHz - 2.43GHz

RE - Power-2.45GHz-2.5GHz

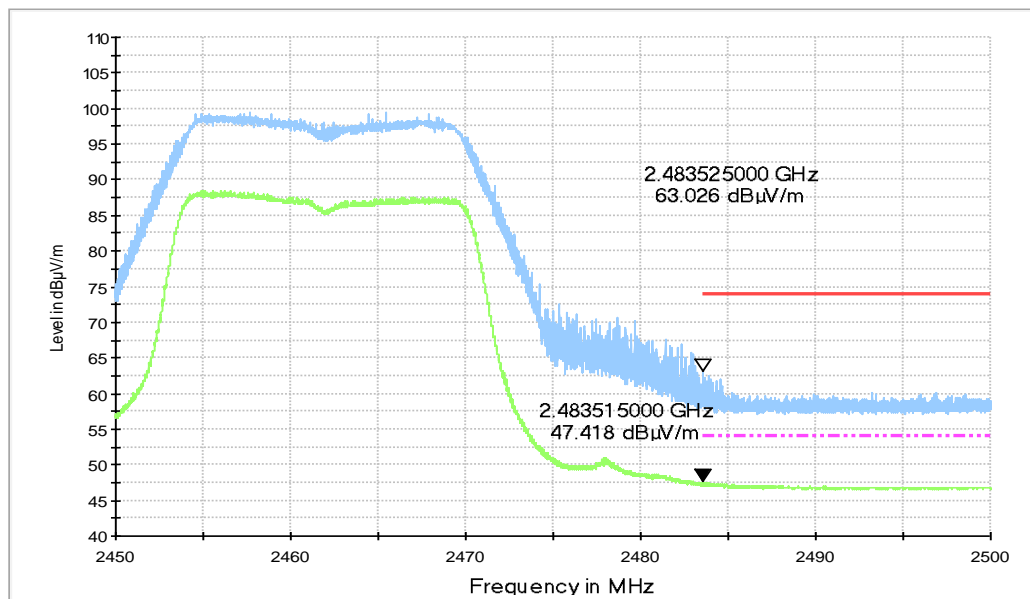


Fig.A.6.2.4 Transmitter Spurious Emission - Radiated (Power): 802.11g, ch11, 2.45 GHz - 2.50GHz

RE - Power-2.31GHz-2.45GHz

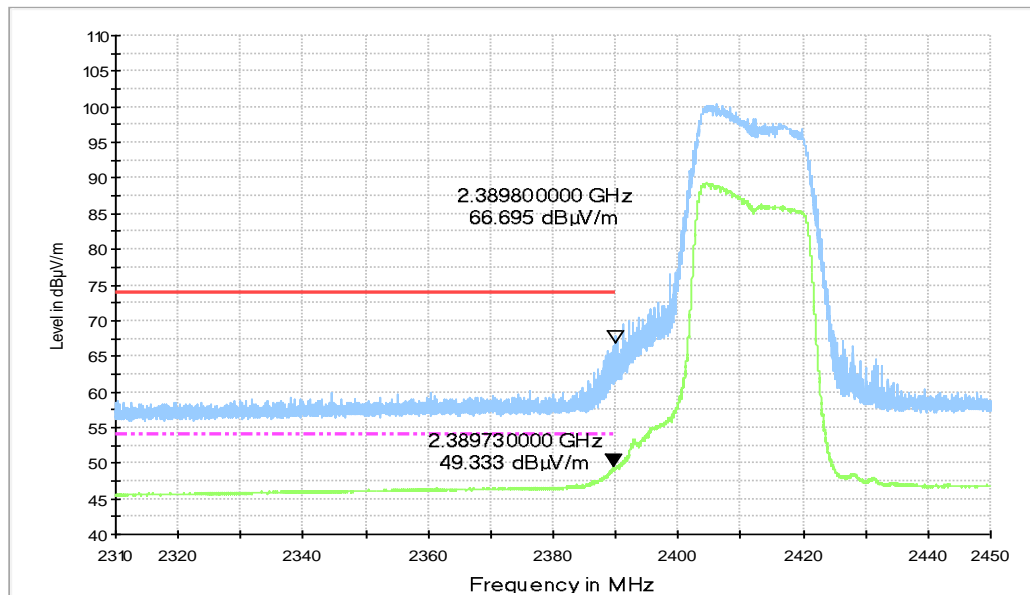


Fig.A.6.2.5 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT20, ch1, 2.31GHz - 2.45GHz

RE - Power-2.45GHz-2.5GHz

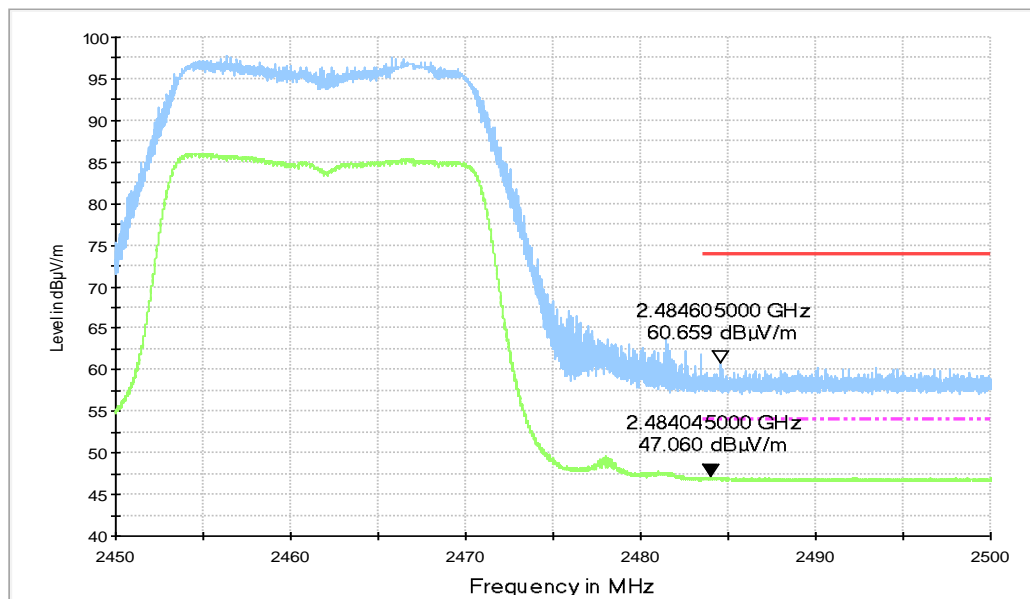


Fig.A.6.2.6 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT20, ch11, 2.45 GHz - 2.50GHz

A.7. AC Power-line Conducted Emission

Method of Measurement: See ANSI C63.10-2013-clause 6.2

- 1 The one EUT cable configuration and arrangement and mode of operation that produced the emission with the highest amplitude relative to the limit is selected for the final measurement, while applying the appropriate modulating signal to the EUT.
- 2 If the EUT is relocated from an exploratory test site to a final test site, the highest emissions shall be remaximized at the final test location before final ac power-line conducted emission measurements are performed.
- 3 The final test on all current-carrying conductors of all of the power cords to the equipment that comprises the EUT (but not the cords associated with other non-EUT equipment in the system) is then performed for the full frequency range for which the EUT is being tested for compliance without further variation of the EUT arrangement, cable positions, or EUT mode of operation.
- 4 If the EUT is comprised of equipment units that have their own separate ac power connections, e.g., floor-standing equipment with independent power cords for each shelf that are able to connect directly to the ac power network, each current-carrying conductor of one unit is measured while the other units are connected to a second (or more) LISN(s). All units shall be separately measured. If a power strip is provided by the manufacturer, to supply all of the units making up the EUT, only the conductors in the power cord of the power strip shall be measured.
- 5 If the EUT uses a detachable antenna, these measurements shall be made with a suitable dummy load connected to the antenna output terminals; otherwise, the tests shall be made with the antenna connected and, if adjustable, fully extended. When measuring the ac conducted emissions from a device that operates between 150 kHz and 30 MHz a non-detachable antenna may be replaced with a dummy load for the measurements within the fundamental emission band of the transmitter, but only for those measurements.³⁶ Record the six highest EUT emissions relative to the limit of each of the current-carrying conductors of the power cords of the equipment that comprises the EUT over the frequency range specified by the procuring or regulatory agency. Diagram or photograph the test setup that was used. See Clause 8 for full reporting requirements.

Test Condition:

Voltage (V)	Frequency (Hz)
120	60

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.7.1 Fig.A.7.3	Fig.A.7.2	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.7.1 Fig.A.7.3	Fig.A.7.2	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:

Traffic with AE3:

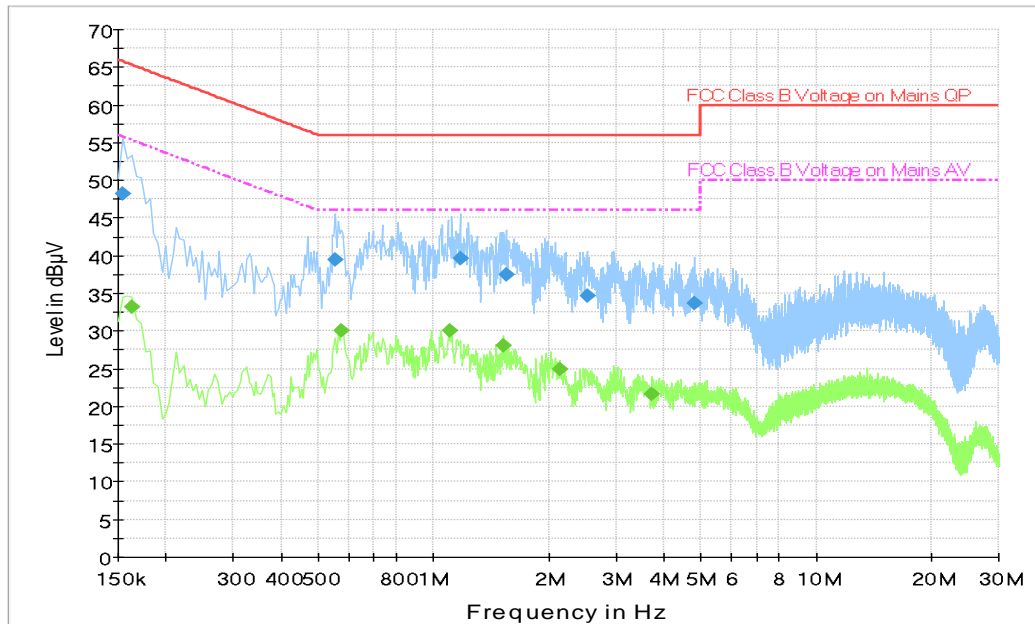


Fig.A.7.1 AC Powerline Conducted Emission-802.11b

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 (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.154500	48.2	1000.	9.000	On	L1	29.7	17.6	65.8
0.555000	39.5	1000.	9.000	On	L1	19.8	16.5	56.0
1.176000	39.7	1000.	9.000	On	L1	19.7	16.3	56.0
1.545000	37.5	1000.	9.000	On	L1	19.6	18.5	56.0
2.517000	34.7	1000.	9.000	On	L1	19.6	21.3	56.0
4.821000	33.6	1000.	9.000	On	L1	19.6	22.4	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.163500	33.2	1000.0	9.000	On	L1	27.7	22.1	55.3
0.573000	30.1	1000.0	9.000	On	L1	19.8	15.9	46.0
1.099500	30.1	1000.0	9.000	On	L1	19.7	15.9	46.0
1.518000	28.1	1000.0	9.000	On	L1	19.6	17.9	46.0
2.139000	25.0	1000.0	9.000	On	N	19.6	21.0	46.0
3.709500	21.7	1000.0	9.000	On	L1	19.6	24.3	46.0

Note: The measurement results showed here are worst cases of the combinations of different USB cables.

Idle with AE3:

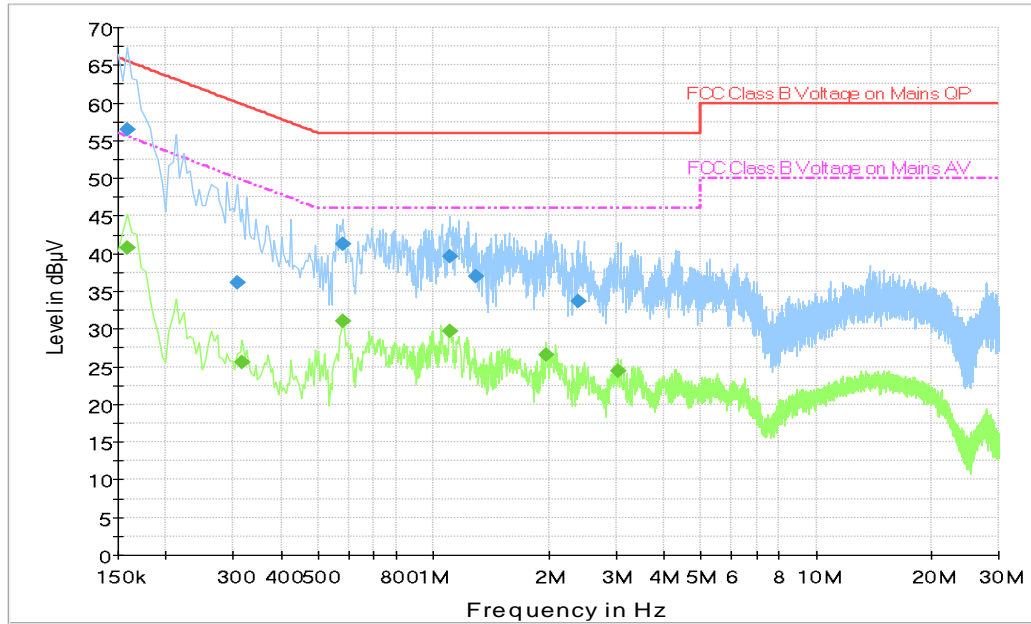


Fig.A.7.2 AC Powerline Conducted Emission-Idle

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 (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.159000	56.4	1000.	9.000	On	L1	28.7	9.1	65.5
0.307500	36.1	1000.	9.000	On	L1	19.8	23.9	60.0
0.577500	41.3	1000.	9.000	On	L1	19.8	14.7	56.0
1.104000	39.6	1000.	9.000	On	L1	19.7	16.4	56.0
1.293000	37.0	1000.	9.000	On	L1	19.6	19.0	56.0
2.382000	33.7	1000.	9.000	On	L1	19.6	22.3	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.159000	40.7	1000.0	9.000	On	L1	28.7	14.8	55.5
0.316500	25.6	1000.0	9.000	On	L1	19.8	24.2	49.8
0.577500	31.0	1000.0	9.000	On	L1	19.8	15.0	46.0
1.104000	29.8	1000.0	9.000	On	L1	19.7	16.2	46.0
1.972500	26.6	1000.0	9.000	On	L1	19.6	19.4	46.0
3.030000	24.4	1000.0	9.000	On	L1	19.6	21.6	46.0

Note: The measurement results showed here are worst cases of the combinations of different USB cables.

Traffic with AE4:

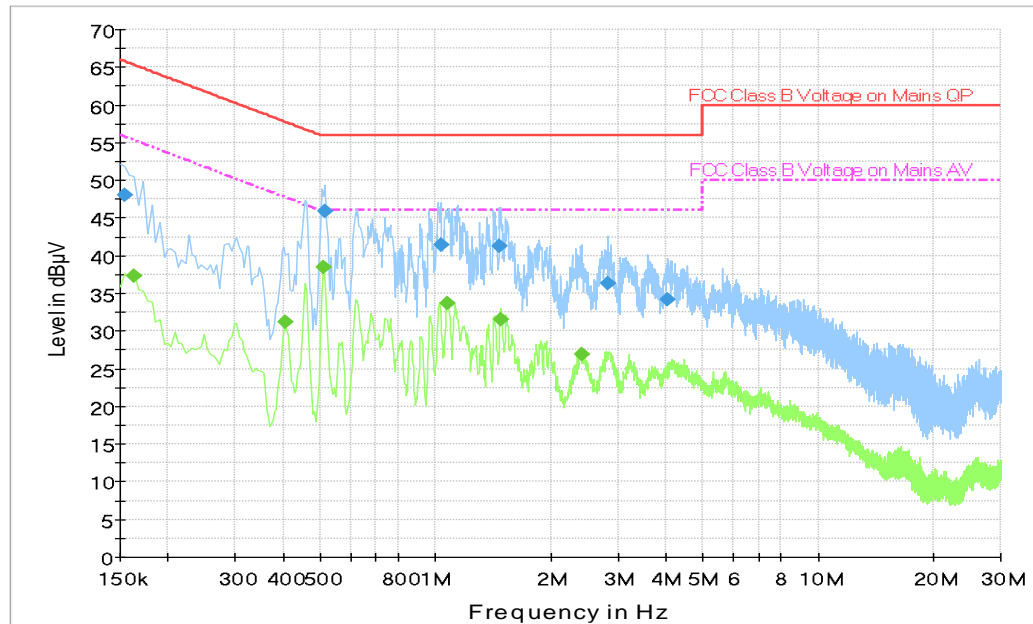


Fig.A.7.3 AC Powerline Conducted Emission-802.11b

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 (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.154500	48.0	1000.	9.000	On	N	29.6	17.7	65.8
0.514500	45.9	1000.	9.000	On	L1	19.8	10.1	56.0
1.032000	41.4	1000.	9.000	On	L1	19.7	14.6	56.0
1.468500	41.3	1000.	9.000	On	L1	19.6	14.7	56.0
2.818500	36.3	1000.	9.000	On	L1	19.6	19.7	56.0
4.056000	34.1	1000.	9.000	On	L1	19.6	21.9	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.163500	37.2	1000.0	9.000	On	N	27.7	18.0	55.3
0.406500	31.2	1000.0	9.000	On	N	19.8	16.5	47.7
0.510000	38.5	1000.0	9.000	On	N	19.8	7.5	46.0
1.072500	33.7	1000.0	9.000	On	N	19.7	12.3	46.0
1.477500	31.6	1000.0	9.000	On	L1	19.6	14.4	46.0
2.404500	26.9	1000.0	9.000	On	N	19.6	19.1	46.0

Note: The measurement results showed here are worst cases of the combinations of different USB cables.

ANNEX B: Accreditation Certificate

<p>United States Department of Commerce National Institute of Standards and Technology</p> <p>NVLAP[®]</p> <hr/> <p>Certificate of Accreditation to ISO/IEC 17025:2005</p> <hr/> <p>NVLAP LAB CODE: 600118-0</p> <p>Telecommunication Technology Labs, CAICT Beijing China</p> <p><i>is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:</i></p> <p>Electromagnetic Compatibility & Telecommunications</p> <p><i>This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).</i></p> <table><tr><td><hr/><p>2019-09-26 through 2020-09-30 Effective Dates</p></td><td></td><td> <hr/><p>For the National Voluntary Laboratory Accreditation Program</p></td></tr></table>		<hr/> <p>2019-09-26 through 2020-09-30 Effective Dates</p>		 <hr/> <p>For the National Voluntary Laboratory Accreditation Program</p>
<hr/> <p>2019-09-26 through 2020-09-30 Effective Dates</p>		 <hr/> <p>For the National Voluntary Laboratory Accreditation Program</p>		

END OF REPORT