802.11n-HT20

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)
2388.736	69.99	2.9	32.0	35.2	74.0	4.0	H	155	22
2389.688	68.46	2.9	32.0	33.6	74.0	5.5	H	155	242
4824.000	40.55	-35.2	34.1	41.7	74.0	33.5	H	155	44
7236.000	42.81	-32.4	35.8	39.5	74.0	31.2	V	155	88
9648.000	44.57	-30.1	36.8	37.9	74.0	29.4	H	155	176
12060.000	45.95	-31.0	38.9	38.1	74.0	28.1	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)
2373.600	48.55	-26.7	32.0	43.35	74.0	25.4	H	155	176
2511.400	48.89	-26.5	32.0	43.40	74.0	25.1	H	155	0
4874.000	38.41	-35.5	34.1	39.8	74.0	35.6	V	155	22
7311.000	42.60	-31.6	35.8	38.4	74.0	31.4	V	155	352
9748.000	43.61	-31.3	36.9	38.0	74.0	30.4	V	155	0
12185.000	46.65	-29.1	39.0	36.8	74.0	27.4	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)
2483.825	70.98	2.9	32.0	36.1	74.0	3.0	H	155	0
2484.450	70.81	2.9	32.0	35.9	74.0	3.2	H	155	22
4924.000	39.76	-35.2	34.1	40.8	74.0	34.2	V	155	352
7386.000	43.87	-31.2	35.8	39.3	74.0	30.1	V	155	352
9848.000	44.86	-30.5	37.0	38.4	74.0	29.1	V	155	176
12310.000	44.42	-31.6	39.0	37.0	74.0	29.6	H	155	132

Average

802.11b

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)
2389.046	46.85	2.9	32.0	12.03	54.0	7.2	H	155	20
2383.965	46.78	2.9	32.0	11.96	54.0	7.2	H	155	40
4824.000	33.09	-35.2	34.1	34.24	54.0	20.9	H	155	245
7236.000	37.21	-32.4	35.8	33.86	54.0	16.8	H	155	185
9648.000	40.31	-30.1	36.8	33.66	54.0	13.7	H	155	94
12060.000	41.60	-31.0	38.9	33.71	54.0	12.4	H	155	26

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)
2376.389	46.93	2.9	32.0	12.11	54.0	7.1	H	155	4
2481.285	47.39	2.9	32.0	12.46	54.0	6.6	H	155	6
4873.500	32.81	-35.5	34.1	34.23	54.0	21.2	H	155	26
7311.000	38.02	-31.6	35.8	33.82	54.0	16.0	H	155	356
9748.500	39.24	-31.3	36.9	33.62	54.0	14.8	H	155	94
12184.500	43.71	-29.1	39.0	33.86	54.0	10.3	H	155	92

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)
2483.532	47.73	2.9	32.0	12.80	54.0	6.3	H	155	24
2484.826	47.42	2.9	32.0	12.49	54.0	6.6	H	155	246
4924.500	33.28	-35.2	34.1	34.35	54.0	20.7	H	155	46
7386.000	38.36	-31.2	35.8	33.79	54.0	15.6	H	155	92
9847.500	40.17	-30.6	37.0	33.71	54.0	13.8	H	155	182
12310.500	41.44	-31.6	39.0	34.03	54.0	12.6	H	155	6

802.11g

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)
2385.589	46.92	2.9	32.0	12.10	54.0	7.1	H	155	184
2389.048	47.23	2.9	32.0	12.40	54.0	6.8	H	155	6
4824.000	33.08	-35.2	34.1	34.23	54.0	20.9	H	155	26
7236.000	37.23	-32.4	35.8	33.87	54.0	16.8	H	155	246
9648.000	40.34	-30.1	36.8	33.69	54.0	13.7	H	155	8
12060.000	41.67	-31.0	38.9	33.78	54.0	12.3	H	155	2

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)
2386.378	46.94	2.9	32.0	12.11	54.0	7.1	H	155	8
2480.745	47.48	2.9	32.0	12.56	54.0	6.5	H	155	28
4873.500	32.87	-35.5	34.1	34.29	54.0	21.1	H	155	246
7311.000	37.98	-31.6	35.8	33.78	54.0	16.0	H	155	249
9748.500	39.34	-31.3	36.9	33.72	54.0	14.7	H	155	186
12184.500	43.72	-29.1	39.0	33.88	54.0	10.3	H	155	128

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)
2483.589	47.74	2.9	32.0	12.82	54.0	6.3	H	155	92
2484.568	47.58	2.9	32.0	12.65	54.0	6.4	H	155	26
4924.500	33.31	-35.2	34.1	34.38	54.0	20.7	H	155	222
7386.000	38.40	-31.2	35.8	33.83	54.0	15.6	H	155	248
9847.500	40.23	-30.6	37.0	33.77	54.0	13.8	H	155	46
12310.500	41.58	-31.6	39.0	34.17	54.0	12.4	H	155	68

802.11n-HT20

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)
2388.503	48.59	2.9	32.0	13.77	54.0	5.4	H	155	6
2389.642	48.97	2.9	32.0	14.14	54.0	5.0	H	155	48
4824.000	33.12	-35.2	34.1	34.26	54.0	20.9	H	155	92
7236.000	37.21	-32.4	35.8	33.85	54.0	16.8	H	155	48
9648.000	40.35	-30.1	36.8	33.71	54.0	13.7	H	155	68
12060.000	41.66	-31.0	38.9	33.77	54.0	12.3	H	155	92

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)
2386.978	48.32	2.9	32.0	13.50	54.0	5.7	H	155	24
2483.984	48.29	2.9	32.0	13.36	54.0	5.7	H	155	336
4873.500	32.81	-35.5	34.1	34.23	54.0	21.2	H	155	248
7311.000	37.94	-31.6	35.8	33.74	54.0	16.1	H	155	268
9748.500	39.36	-31.3	36.9	33.74	54.0	14.6	H	155	290
12184.500	43.65	-29.1	39.0	33.80	54.0	10.4	H	155	300

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)
2483.568	48.48	2.9	32.0	13.55	54.0	5.5	H	155	4
2488.956	48.38	2.9	32.0	13.45	54.0	5.6	H	155	26
4924.500	33.26	-35.2	34.1	34.33	54.0	20.7	H	155	6
7386.000	38.44	-31.2	35.8	33.86	54.0	15.6	H	155	274
9847.500	40.26	-30.6	37.0	33.81	54.0	13.7	H	155	272
12310.500	41.53	-31.6	39.0	34.11	54.0	12.5	H	155	245

Test graphs as below:

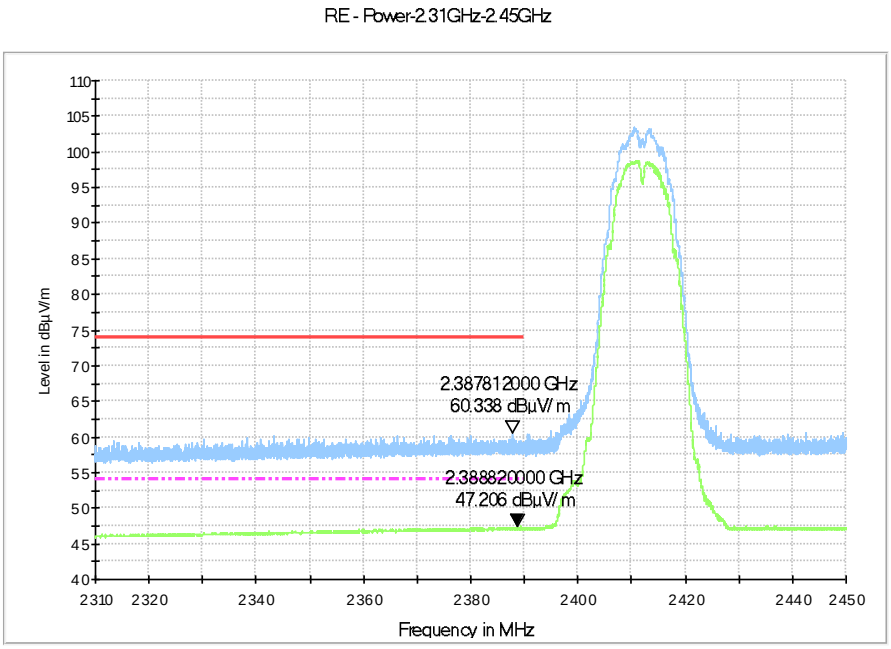

Fig.A.6.2.1 Transmitter Spurious Emission - Radiated (Power): 802.11b, ch1, 2.31 GHz – 2.45GHz

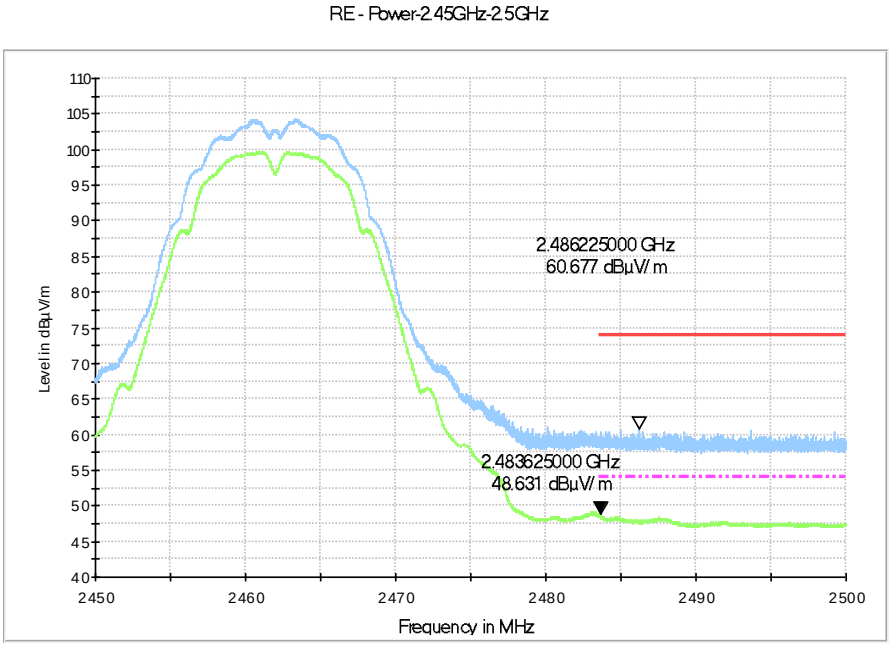

Fig.A.6.2.2 Transmitter Spurious Emission - Radiated (Power): 802.11b, ch11, 2.45 GHz - 2.50GHz

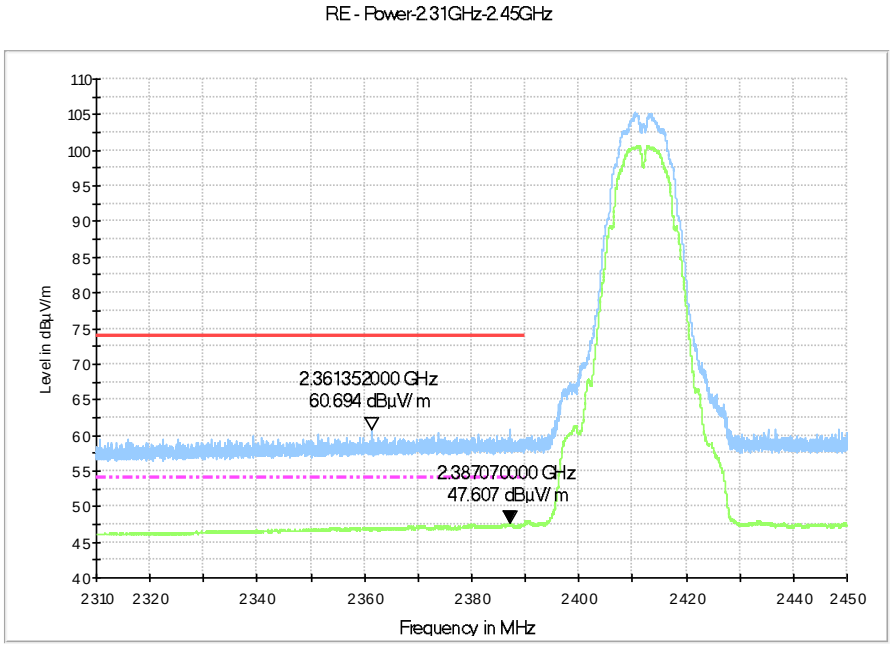

Fig.A.6.2.3 Transmitter Spurious Emission - Radiated (Power): 802.11g, ch1, 2.31 GHz - 2.45GHz

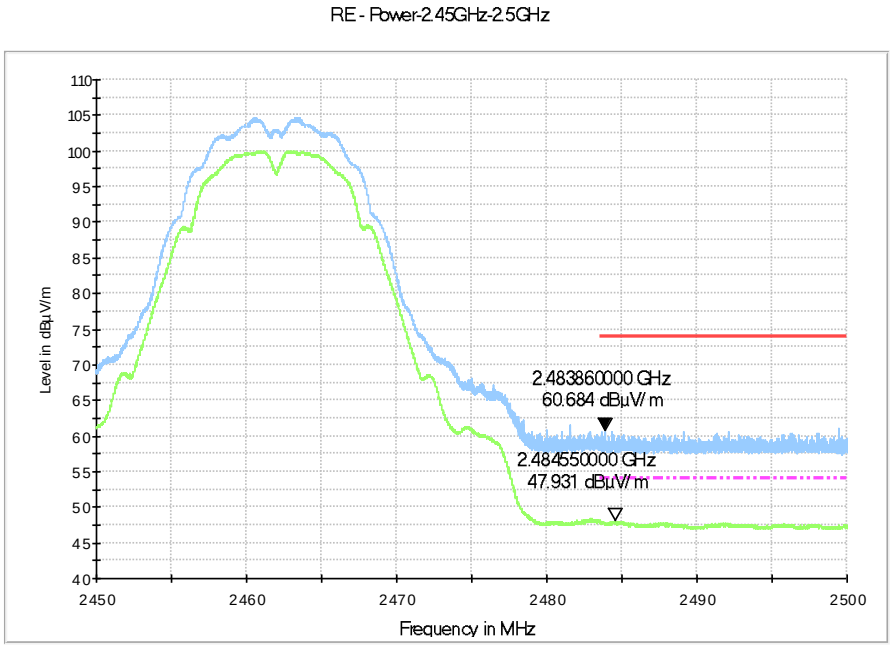

Fig.A.6.2.4 Transmitter Spurious Emission - Radiated (Power): 802.11g, ch11, 2.45 GHz - 2.50GHz

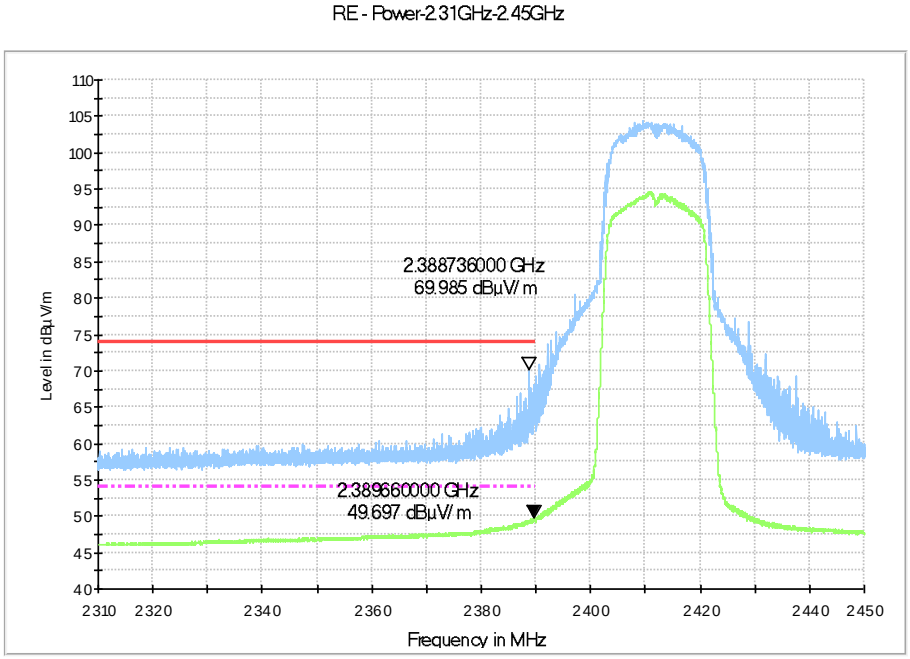

Fig.A.6.2.5 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT20, ch1, 2.31 GHz - 2.45GHz

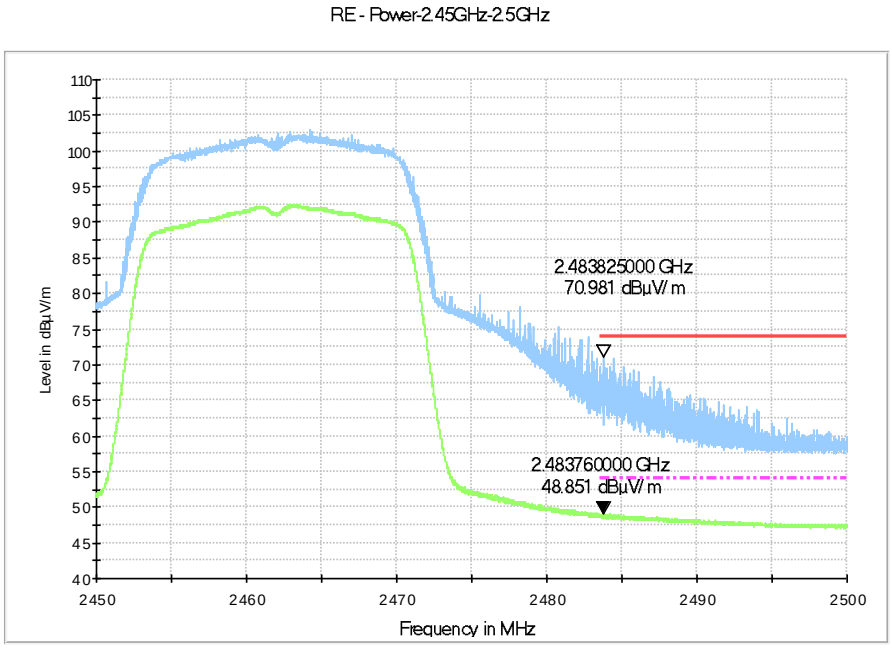

Fig.A.6.2.6 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT20, ch11, 2.45 GHz - 2.50GHz

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:

Set.5,Traffic：

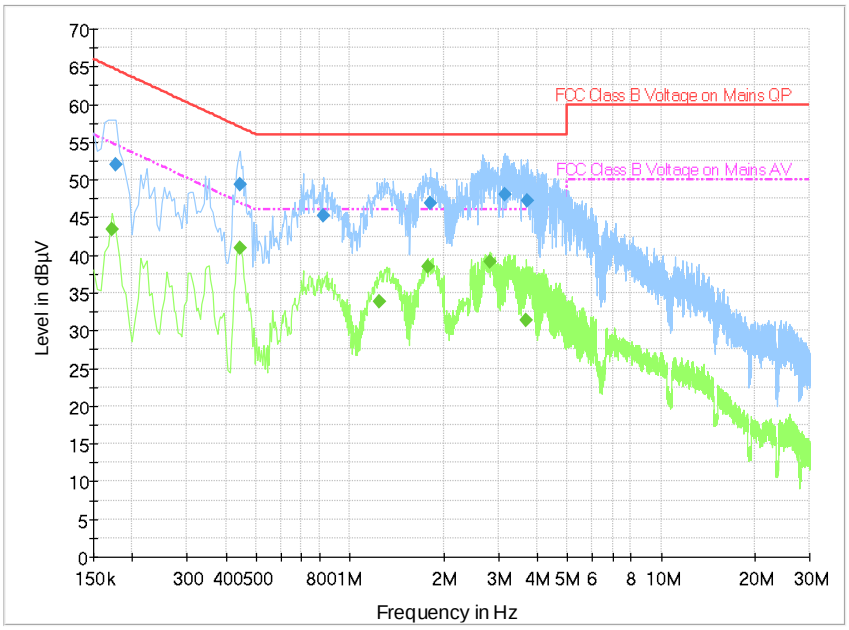

Fig.A.7.1 AC Powerline Conducted Emission-802.11b

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)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.177000	52.0	2000.0	9.000	On	L1	24.8	12.6	64.6	
0.442500	49.3	2000.0	9.000	On	L1	19.8	7.7	57.0	
0.825000	45.2	2000.0	9.000	On	L1	19.7	10.8	56.0	
1.810500	46.8	2000.0	9.000	On	L1	19.6	9.2	56.0	
3.151500	48.1	2000.0	9.000	On	L1	19.6	7.9	56.0	
3.723000	47.2	2000.0	9.000	On	L1	19.6	8.8	56.0	

Final Result 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.172500	43.5	2000.0	9.000	On	L1	25.8	11.4	54.8	
0.442500	40.9	2000.0	9.000	On	L1	19.8	6.1	47.0	
1.248000	33.8	2000.0	9.000	On	L1	19.6	12.2	46.0	
1.788000	38.5	2000.0	9.000	On	L1	19.6	7.5	46.0	
2.809500	39.1	2000.0	9.000	On	L1	19.6	6.9	46.0	
3.700500	31.4	2000.0	9.000	On	L1	19.6	14.6	46.0	

Set.5, Idle:

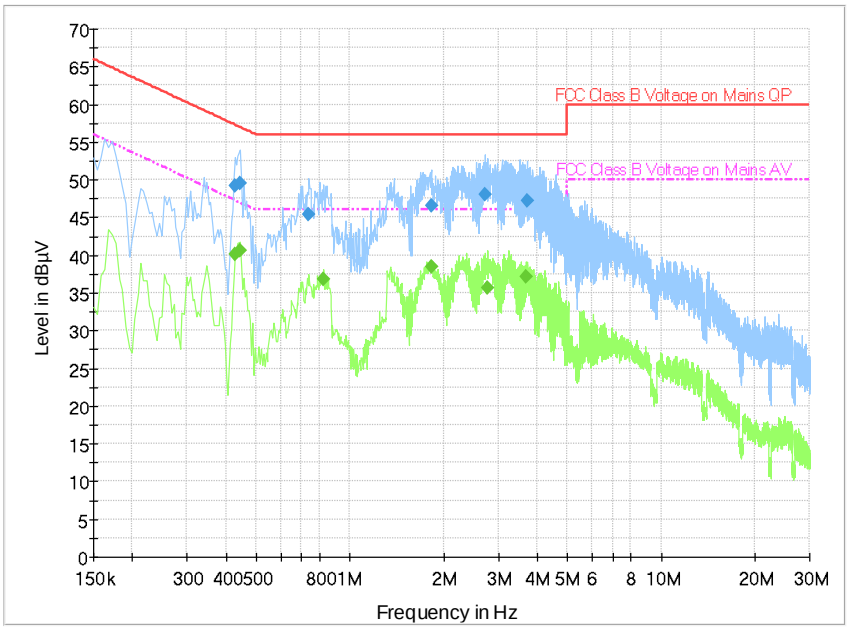

Fig.A.7.2 AC Powerline Conducted Emission-Idle

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)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.429000	49.3	2000.0	9.000	On	L1	19.8	8.0	57.3	
0.442500	49.6	2000.0	9.000	On	L1	19.8	7.5	57.0	
0.739500	45.5	2000.0	9.000	On	L1	19.8	10.5	56.0	
1.824000	46.6	2000.0	9.000	On	L1	19.6	9.4	56.0	
2.724000	48.0	2000.0	9.000	On	L1	19.6	8.0	56.0	
3.705000	47.2	2000.0	9.000	On	L1	19.6	8.8	56.0	

Final Result 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.429000	40.1	2000.0	9.000	On	L1	19.8	7.2	47.3	
0.442500	40.6	2000.0	9.000	On	L1	19.8	6.4	47.0	
0.825000	36.9	2000.0	9.000	On	L1	19.7	9.1	46.0	
1.833000	38.4	2000.0	9.000	On	L1	19.6	7.6	46.0	
2.773500	35.6	2000.0	9.000	On	L1	19.6	10.4	46.0	
3.696000	37.1	2000.0	9.000	On	L1	19.6	8.9	46.0	

Set.6,Traffic：

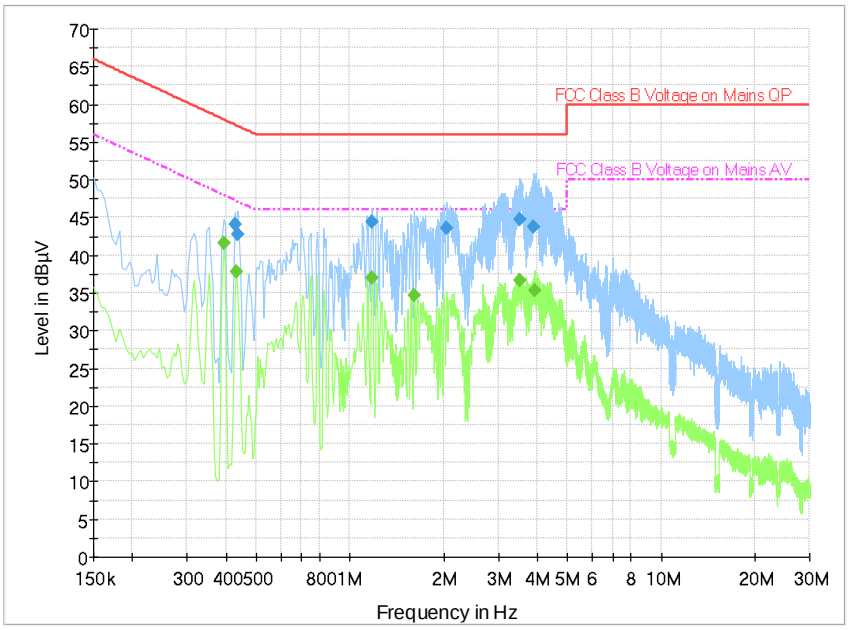

Fig.A.7.3 AC Powerline Conducted Emission-802.11b

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)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.429000	44.0	2000.0	9.000	On	L1	19.8	13.2	57.3	
0.438000	42.7	2000.0	9.000	On	L1	19.8	14.4	57.1	
1.180500	44.4	2000.0	9.000	On	L1	19.7	11.6	56.0	
2.053500	43.6	2000.0	9.000	On	L1	19.6	12.4	56.0	
3.529500	44.8	2000.0	9.000	On	L1	19.6	11.2	56.0	
3.903000	43.8	2000.0	9.000	On	L1	19.6	12.2	56.0	

Final Result 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.393000	41.6	2000.0	9.000	On	N	19.8	6.4	48.0	
0.433500	37.8	2000.0	9.000	On	N	19.8	9.4	47.2	
1.180500	37.0	2000.0	9.000	On	N	19.7	9.0	46.0	
1.608000	34.7	2000.0	9.000	On	N	19.6	11.3	46.0	
3.529500	36.7	2000.0	9.000	On	L1	19.6	9.3	46.0	
3.930000	35.3	2000.0	9.000	On	L1	19.6	10.7	46.0	

ANNEX B: Accreditation Certificate

United States Department of Commerce
National Institute of Standards and Technology

NVLAP®

Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 600118-0

Telecommunication Technology Labs, CAICT
Beijing
China

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Electromagnetic Compatibility & Telecommunications

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).

2018-09-28 through 2019-09-30
Effective Dates

For the National Voluntary Laboratory Accreditation Program

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