Conclusion: Pass

Note:

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.

The measurement results are obtained as described below:

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

802.11b-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)
2387.000	46.55	2.9	32.0	11.68	54.0	7.5	H	155	40
2387.800	46.54	2.9	32.0	11.68	54.0	7.5	H	155	65
4824.000	43.35	-32.8	34.5	41.60	54.0	10.6	H	155	84
7236.000	37.98	-31.7	36.1	33.62	54.0	16.0	H	155	107
9648.000	37.36	-30.4	37.0	30.67	54.0	16.6	H	155	135
12060.000	42.83	-29.6	39.3	33.16	54.0	11.2	H	155	151

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)
2388.200	46.42	2.9	32.0	11.56	54.0	7.6	H	155	170
2483.500	46.47	2.9	32.8	10.78	54.0	7.5	H	155	150
4873.500	35.79	-32.7	34.5	34.00	54.0	18.2	H	155	20
7310.500	37.89	-31.9	36.1	33.72	54.0	16.1	H	155	180
9750.000	37.87	-30.7	37.2	31.33	54.0	16.1	H	155	202
12184.500	43.34	-29.4	39.2	33.54	54.0	10.7	H	155	8

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)
2486.200	46.60	2.9	32.7	10.98	54.0	7.4	H	155	5
2488.700	46.67	2.9	32.6	11.12	54.0	7.3	H	155	25
4923.500	36.92	-33.1	34.5	35.50	54.0	17.1	H	155	356
7385.000	37.72	-31.8	36.0	33.52	54.0	16.3	H	155	350
9847.500	37.91	-30.1	37.3	30.66	54.0	16.1	H	155	185
12309.500	43.46	-29.7	39.2	33.99	54.0	10.5	H	155	187

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)
2387.252	59.81	2.9	32.0	24.95	74.0	14.2	V	155	44
2389.716	59.45	2.9	32.0	24.61	74.0	14.5	H	155	66
4824.000	46.06	-32.8	34.5	44.31	74.0	27.9	H	155	88
7236.000	42.73	-31.7	36.1	38.37	74.0	31.3	V	155	110
9647.750	42.71	-30.4	37.0	36.03	74.0	31.3	V	155	132
12060.250	45.66	-29.6	39.3	35.98	74.0	28.3	H	155	154

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)
2372.600	34.91	-26.8	32.1	29.67	74.0	39.1	H	155	176
2501.200	35.26	-26.3	32.3	29.24	74.0	38.7	H	155	154
4874.250	47.77	-32.7	34.5	45.98	74.0	26.2	V	155	22
7311.250	41.66	-31.9	36.1	37.49	74.0	32.3	V	155	176
9748.000	41.29	-30.7	37.2	34.76	74.0	32.7	H	155	198
12184.500	46.21	-29.4	39.2	36.42	74.0	27.8	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)
2487.700	60.52	2.9	32.6	24.94	74.0	13.5	H	155	0
2488.100	60.33	2.9	32.6	24.76	74.0	13.7	H	155	22
4924.375	43.85	-33.1	34.5	42.43	74.0	30.2	H	155	352
7385.750	42.13	-31.8	36.0	37.92	74.0	31.9	V	155	352
9847.750	42.78	-30.1	37.3	35.53	74.0	31.2	V	155	176
12309.500	46.53	-29.7	39.2	37.05	74.0	27.5	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)
2388.400	46.44	2.9	32.0	11.59	54.0	7.6	H	155	4
2388.900	46.40	2.9	32.0	11.54	54.0	7.6	H	155	2
4824.000	35.25	-32.8	34.5	33.51	54.0	18.7	H	155	25
7236.000	37.99	-31.7	36.1	33.63	54.0	16.0	H	155	350
9648.000	37.40	-30.4	37.0	30.72	54.0	16.6	H	155	92
12060.000	42.83	-29.6	39.3	33.15	54.0	11.2	H	155	85

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)
2389.400	46.39	2.9	32.0	11.54	54.0	7.6	H	155	175
2487.300	46.66	2.9	32.7	11.07	54.0	7.3	H	155	194
4873.500	35.41	-32.7	34.5	33.62	54.0	18.6	H	155	215
7311.000	37.69	-31.9	36.1	33.52	54.0	16.3	H	155	196
9748.500	37.92	-30.7	37.2	31.39	54.0	16.1	H	155	241
12184.500	43.38	-29.4	39.2	33.59	54.0	10.6	H	155	259

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)
2483.800	46.97	2.9	32.8	11.28	54.0	7.0	H	155	6
2484.300	46.83	2.9	32.7	11.15	54.0	7.2	H	155	48
4924.500	35.23	-33.1	34.5	33.82	54.0	18.8	H	155	92
7386.000	37.90	-31.8	36.0	33.69	54.0	16.1	H	155	48
9847.500	39.63	-30.1	37.3	32.38	54.0	14.4	H	155	68
12309.500	43.76	-29.7	39.2	34.29	54.0	10.2	H	155	92

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)
2389.548	68.55	2.9	32.0	33.70	74.0	5.4	H	155	0
2389.954	70.20	2.9	32.0	35.35	74.0	3.8	H	155	0
4824.000	41.32	-32.8	34.5	39.57	74.0	32.7	V	155	22
7236.250	41.90	-31.7	36.1	37.54	74.0	32.1	V	155	352
9648.250	41.15	-30.4	37.0	34.47	74.0	32.9	V	155	88
12060.250	46.24	-29.6	39.3	36.57	74.0	27.8	V	155	88

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)
2371.000	34.88	-26.9	32.0	29.78	74.0	39.1	V	155	176
2500.200	35.25	-26.3	32.3	29.21	74.0	38.8	H	155	198
4873.750	42.25	-32.7	34.5	40.46	74.0	31.7	V	155	220
7311.250	41.12	-31.9	36.1	36.95	74.0	32.9	H	155	198
9748.250	40.67	-30.7	37.2	34.14	74.0	33.3	H	155	242
12185.250	46.18	-29.4	39.2	36.39	74.0	27.8	V	155	264

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)
2483.580	70.99	2.9	32.8	35.30	74.0	3.0	H	155	0
2483.810	71.43	2.9	32.8	35.75	74.0	2.6	H	155	44
4923.750	39.81	-33.1	34.5	38.39	74.0	34.2	V	155	88
7386.000	41.32	-31.8	36.0	37.12	74.0	32.7	V	155	44
9847.750	42.73	-30.1	37.3	35.48	74.0	31.3	V	155	66
12309.750	45.56	-29.7	39.2	36.08	74.0	28.4	H	155	88

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)
2386.800	46.50	2.9	32.0	11.63	54.0	7.5	H	155	25
2389.000	46.54	2.9	32.0	11.68	54.0	7.5	H	155	49
4824.500	35.09	-32.7	34.5	33.33	54.0	18.9	H	155	4
7236.000	38.04	-31.7	36.1	33.68	54.0	16.0	H	155	6
9648.000	37.50	-30.4	37.0	30.82	54.0	16.5	H	155	25
12060.000	42.96	-29.6	39.3	33.29	54.0	11.0	H	155	186

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)
2389.400	46.30	2.9	32.0	11.45	54.0	7.7	H	155	86
2481.200	46.62	2.9	32.8	10.86	54.0	7.4	H	155	107
4874.000	34.97	-32.7	34.5	33.18	54.0	19.0	H	155	130
7311.000	37.74	-31.9	36.1	33.58	54.0	16.3	H	155	152
9747.500	37.93	-30.7	37.2	31.41	54.0	16.1	H	155	174
12184.500	43.37	-29.4	39.2	33.57	54.0	10.6	H	155	195

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)
2483.500	46.52	2.9	32.8	10.82	54.0	7.5	H	155	24
2483.900	46.48	2.9	32.7	10.80	54.0	7.5	H	155	336
4924.500	35.27	-33.1	34.5	33.86	54.0	18.7	H	155	248
7386.000	37.88	-31.8	36.0	33.68	54.0	16.1	H	155	268
9847.500	39.69	-30.1	37.3	32.44	54.0	14.3	H	155	290
12310.500	43.76	-29.7	39.2	34.28	54.0	10.2	H	155	300

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)
2389.128	71.63	2.9	32.0	36.77	74.0	2.4	H	155	22
2389.534	71.64	2.9	32.0	36.79	74.0	2.4	V	155	44
4824.750	40.27	-32.7	34.5	38.52	74.0	33.7	H	155	0
7236.000	43.00	-31.7	36.1	38.64	74.0	31.0	H	155	0
9648.000	41.93	-30.4	37.0	35.25	74.0	32.1	H	155	22
12060.000	46.79	-29.6	39.3	37.12	74.0	27.2	H	155	176

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)
2373.000	48.11	-26.8	32.1	42.83	74.0	25.9	V	155	88
2503.400	49.47	-26.3	32.4	43.46	74.0	24.5	H	155	110
4874.000	40.65	-32.7	34.5	38.86	74.0	33.3	V	155	132
7311.750	42.34	-31.9	36.1	38.17	74.0	31.7	H	155	154
9747.750	41.20	-30.7	37.2	34.68	74.0	32.8	V	155	176
12185.250	46.75	-29.4	39.2	36.96	74.0	27.3	V	155	198

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)
2483.530	71.19	2.9	32.8	35.50	74.0	2.8	H	155	22
2483.740	71.56	2.9	32.8	35.87	74.0	2.4	H	155	330
4923.750	41.00	-33.1	34.5	39.58	74.0	33.0	H	155	242
7386.000	42.05	-31.8	36.0	37.84	74.0	32.0	V	155	264
9847.500	44.18	-30.1	37.3	36.93	74.0	29.8	V	155	286
12311.250	47.13	-29.7	39.2	37.66	74.0	26.9	V	155	308

Test graphs as below:

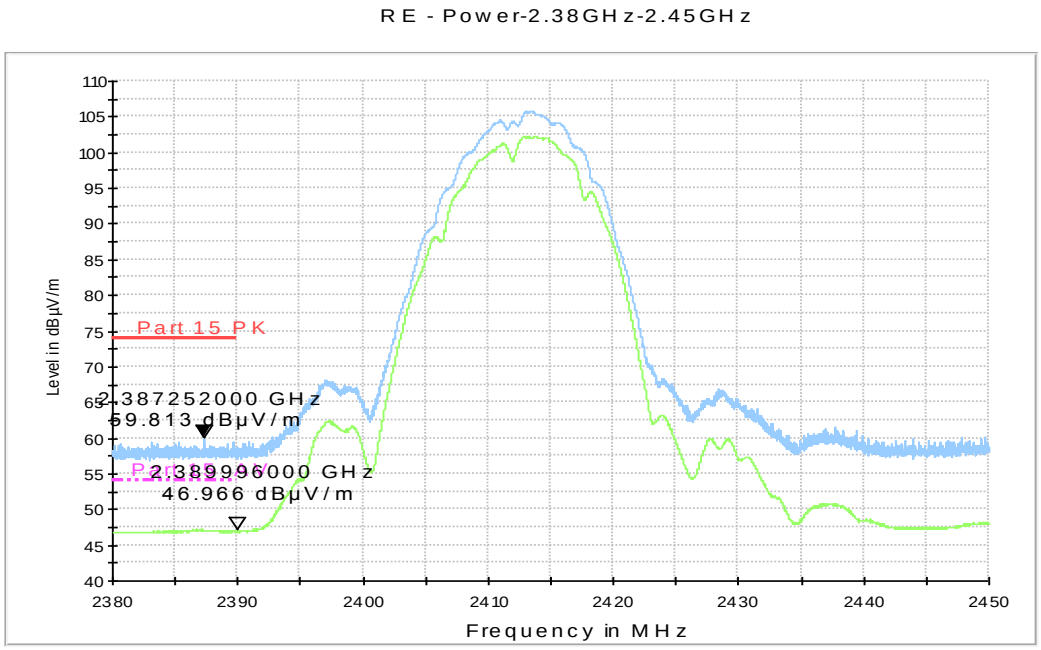


Fig.A.6.2.1 Transmitter Spurious Emission - Radiated (Power): 802.11b, ch1, 2.38 GHz – 2.43GHz

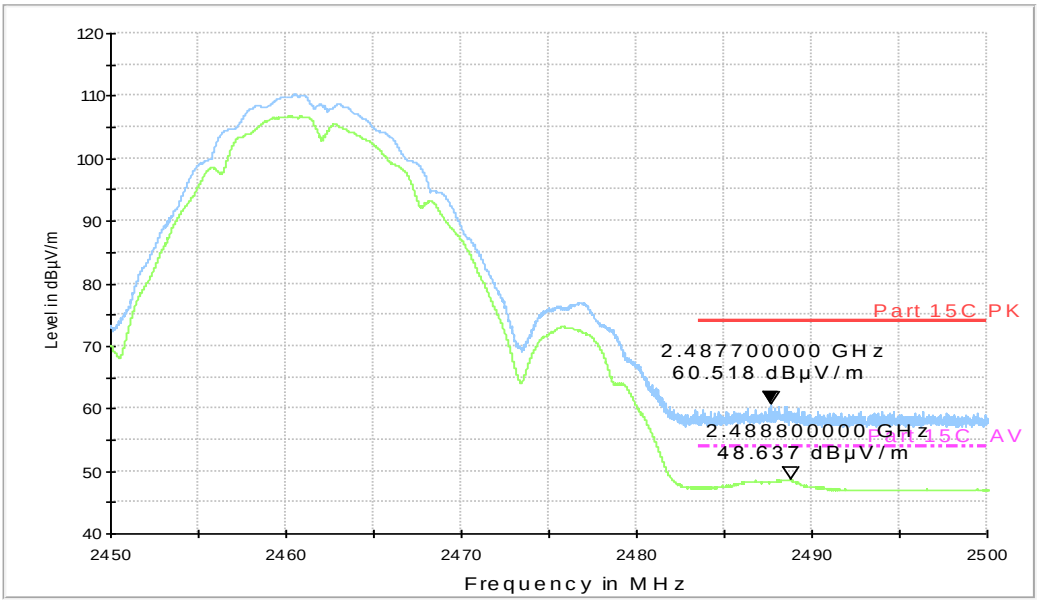


Fig.A.6.2.2 Transmitter Spurious Emission - Radiated (Power): 802.11b, ch11, 2.45 GHz - 2.50GHz

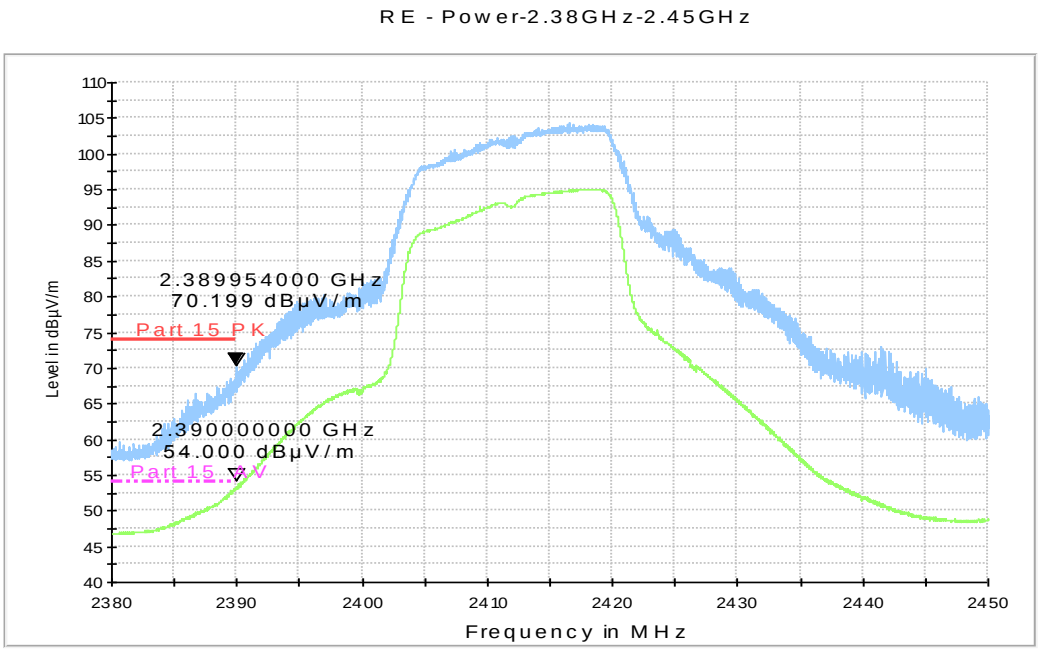


Fig.A.6.2.3 Transmitter Spurious Emission - Radiated (Power): 802.11g, ch1, 2.38 GHz - 2.43GHz

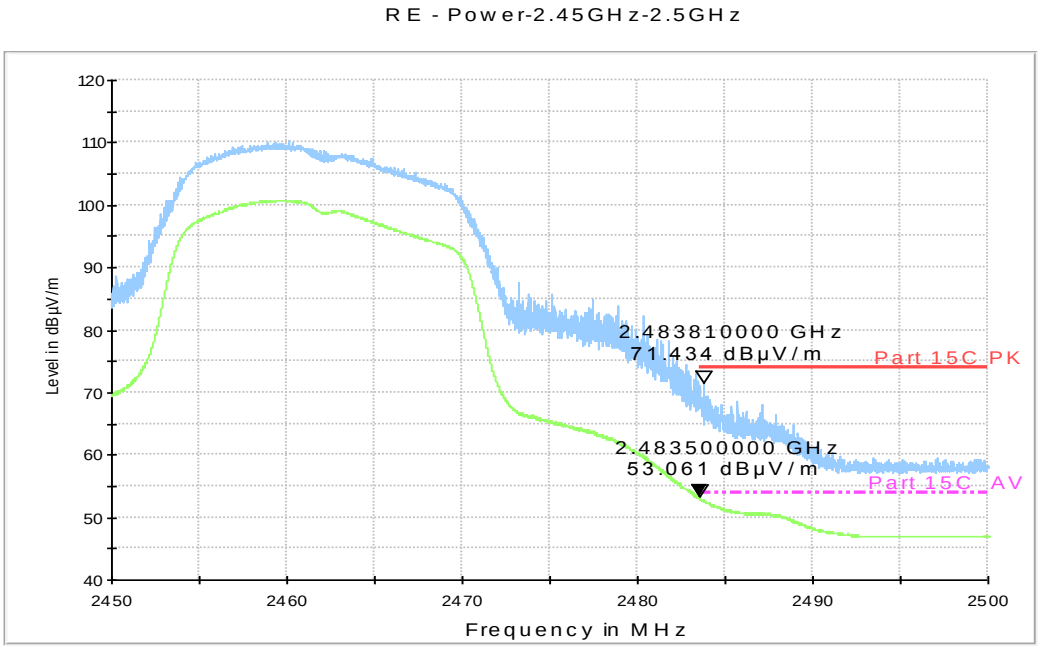


Fig.A.6.2.4 Transmitter Spurious Emission - Radiated (Power): 802.11g, ch11, 2.45 GHz - 2.50GHz

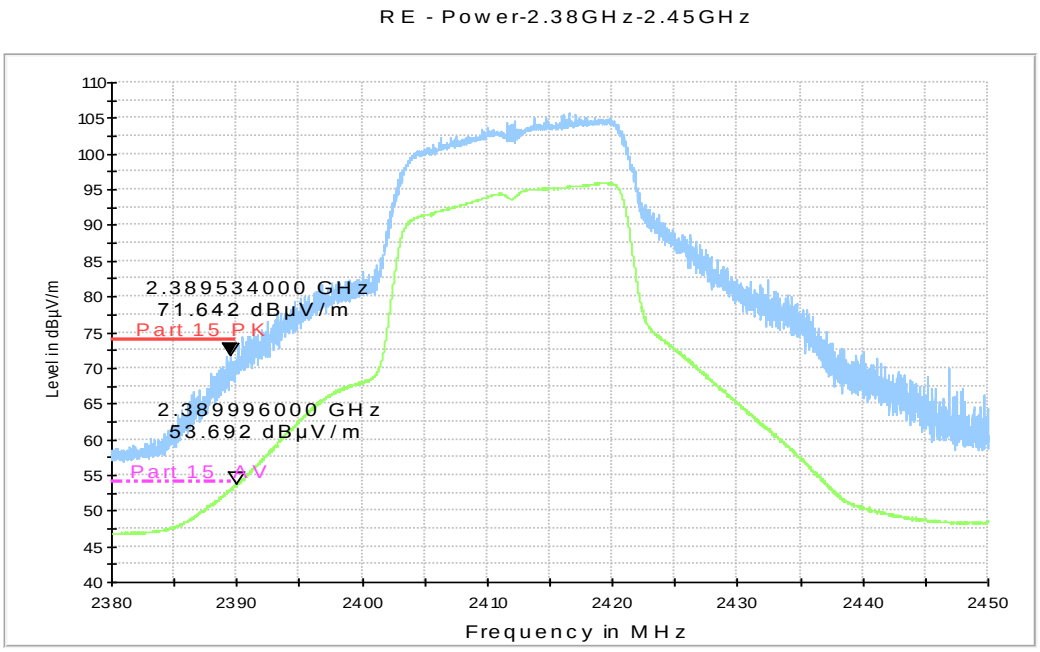


Fig.A.6.2.5 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT20, ch1, 2.38 GHz - 2.45GHz

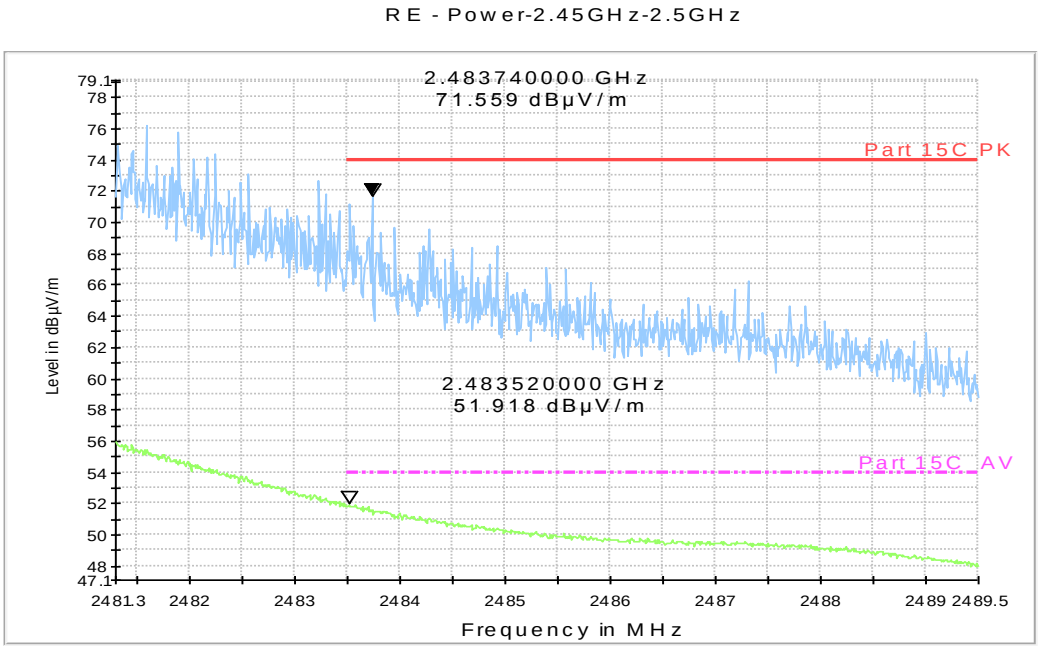


Fig.A.6.2.6 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT20, ch11, 2.45 GHz - 2.50GHz

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.7.2	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.7.2	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: Set.11

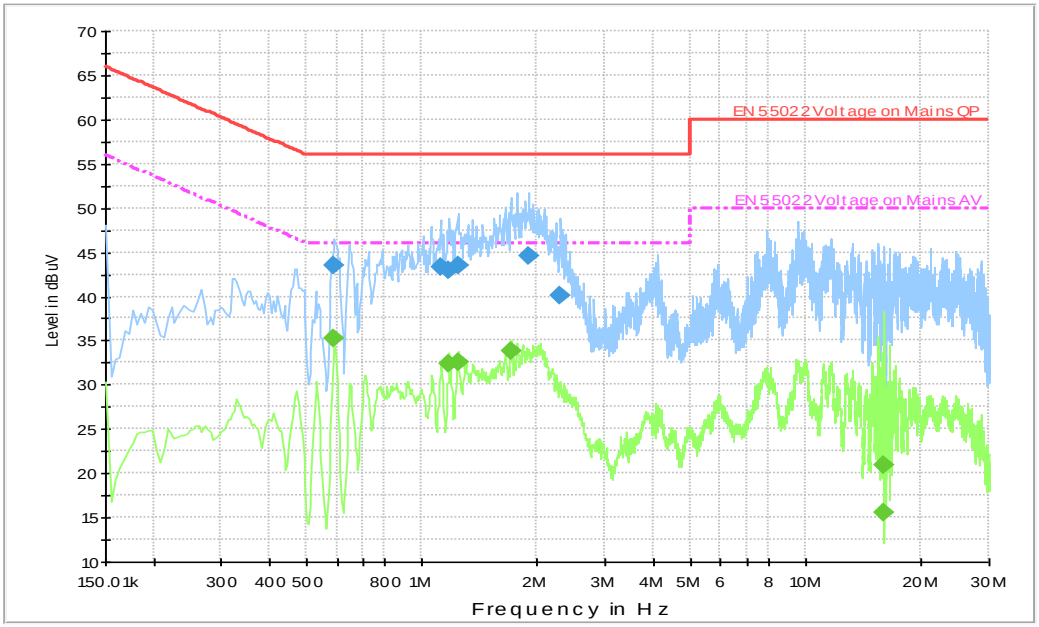


Fig.A.7.1 AC Powerline Conducted Emission-802.11b

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)
0.591000	43.5	2000.	9.000	GND	L1	10.1	12.5	56.0
1.117500	43.3	2000.	9.000	GND	L1	10.2	12.7	56.0
1.180500	43.0	2000.	9.000	GND	L1	10.2	13.0	56.0
1.239000	43.6	2000.	9.000	GND	L1	10.1	12.4	56.0
1.900500	44.6	2000.	9.000	GND	L1	10.2	11.4	56.0
2.301000	40.0	2000.	9.000	GND	L1	9.1	16.0	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.591000	35.3	2000.0	9.000	GND	L1	10.1	10.7	46.0
1.180500	32.4	2000.0	9.000	GND	L1	10.2	13.6	46.0
1.239000	32.7	2000.0	9.000	GND	N	10.1	13.3	46.0
1.711500	33.8	2000.0	9.000	GND	L1	10.2	12.2	46.0
15.918000	21.0	2000.0	9.000	GND	N	10.7	29.0	50.0
15.976500	15.6	2000.0	9.000	GND	N	10.7	34.4	50.0

Idle: Set.11

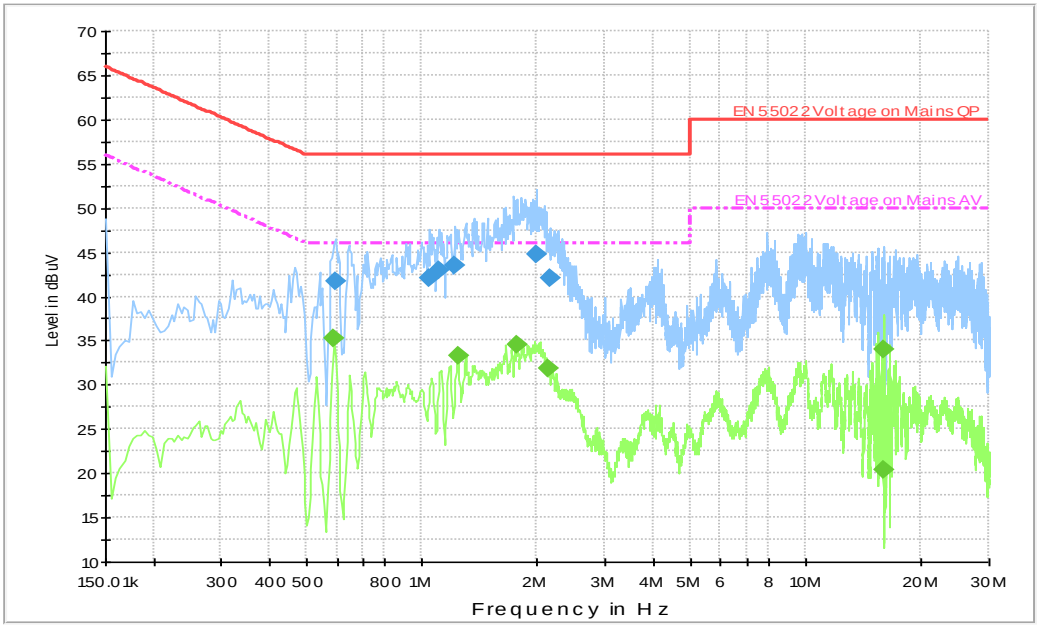


Fig.A.7.2 AC Powerline Conducted Emission-Idle

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

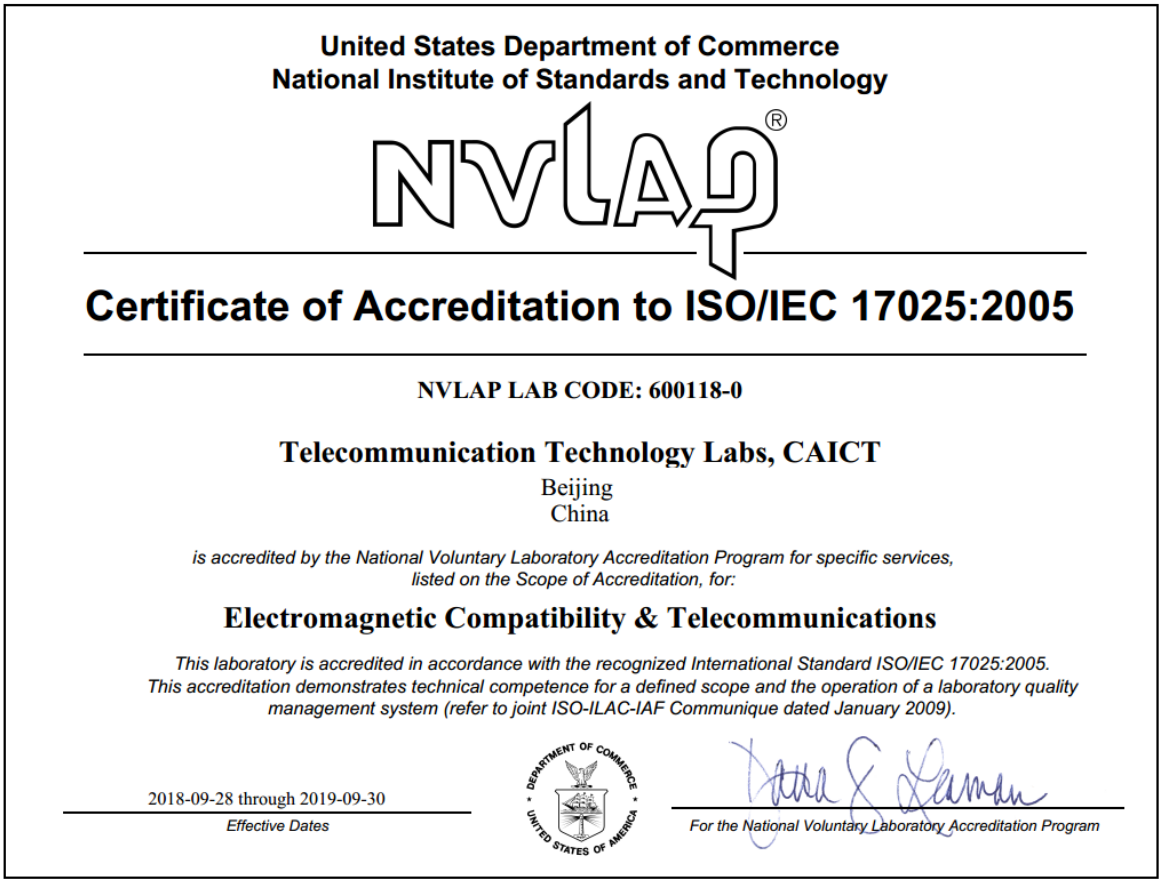
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.595500	41.8	2000.	9.000	GND	L1	10.1	14.2	56.0
1.045500	42.1	2000.	9.000	GND	L1	10.1	13.9	56.0
1.108500	43.0	2000.	9.000	GND	L1	10.2	13.0	56.0
1.221000	43.4	2000.	9.000	GND	L1	10.2	12.6	56.0
1.995000	44.8	2000.	9.000	GND	L1	10.2	11.2	56.0
2.148000	42.1	2000.	9.000	GND	L1	8.4	13.9	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.591000	35.2	2000.0	9.000	GND	L1	10.1	10.8	46.0
1.239000	33.3	2000.0	9.000	GND	N	10.1	12.7	46.0
1.765500	34.6	2000.0	9.000	GND	L1	10.2	11.4	46.0
2.125500	31.9	2000.0	9.000	GND	L1	8.5	14.1	46.0
15.895500	34.1	2000.0	9.000	GND	L1	10.8	15.9	50.0
15.958500	20.4	2000.0	9.000	GND	L1	10.8	29.6	50.0

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

DEPARTMENT OF COMMERCE * UNITED STATES OF AMERICA *

For the National Voluntary Laboratory Accreditation Program

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