802.11n-HT40

Ch3

Frequency (MHz)	Measurement Result (dBµV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBµV)	Antenna Pol. (H/V)
17886.0	50.0	-25.5	43.4	32.1	H
17988.0	49.6	-25.5	43.4	31.7	H
17790.0	49.5	-25.5	43.4	31.6	V
17113.5	49.3	-26.6	40.1	35.8	V
17775.0	49.3	-25.5	43.4	31.4	V
2388.9	58.7	-14.2	27.2	45.7	H

Ch6

Frequency (MHz)	Measurement Result (dBµV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBµV)	Antenna Pol. (H/V)
17583.0	49.5	-25.7	43.4	31.8	V
17944.5	49.2	-25.5	43.4	31.3	H
17481.0	48.9	-26.9	43.4	32.4	V
17533.5	48.9	-26.9	43.4	32.4	V
17592.0	48.9	-25.7	43.4	31.2	V
17445.0	48.8	-26.9	43.4	32.3	H

Ch9

Frequency (MHz)	Measurement Result (dBµV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBµV)	Antenna Pol. (H/V)
17887.5	49.1	-25.5	43.4	31.2	V
17772.0	49.0	-25.5	43.4	31.1	V
17815.5	49.0	-25.5	43.4	31.1	V
17509.5	48.9	-26.9	43.4	32.4	V
17929.5	48.9	-25.5	43.4	31.0	V
2485.9	66.9	-14.2	27.2	53.9	H

©Copyright. All rights reserved by CTTL.

Average

802.11b

Ch1

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
17976.0	36.7	-25.5	43.4	18.8	V
17985.0	36.7	-25.5	43.4	18.8	V
17940.0	36.6	-25.5	43.4	18.7	V
17959.5	36.6	-25.5	43.4	18.7	V
17994.0	36.6	-25.5	43.4	18.7	V
2386.8	39.9	-14.2	27.2	26.9	H

Ch6

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
17977.5	35.6	-25.5	43.4	17.7	H
17994.0	35.6	-25.5	43.4	17.7	V
17980.5	35.5	-25.5	43.4	17.6	V
17787.0	35.4	-25.5	43.4	17.5	V
17890.5	35.4	-25.5	43.4	17.5	H
17904.0	35.4	-25.5	43.4	17.5	V

Ch11

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
17977.5	36.7	-25.5	43.4	18.8	V
17985.0	36.7	-25.5	43.4	18.8	V
17986.5	36.7	-25.5	43.4	18.8	V
17992.5	36.7	-25.5	43.4	18.8	V
17787.0	36.6	-25.5	43.4	18.7	V
2490.4	40.2	-14.2	27.2	27.2	H

©Copyright. All rights reserved by CTTL.

802.11g

Ch1

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
17983.5	37.1	-25.5	43.4	19.2	V
17988.0	37.1	-25.5	43.4	19.2	V
17997.0	37.1	-25.5	43.4	19.2	V
17895.0	37.0	-25.5	43.4	19.1	V
17971.5	37.0	-25.5	43.4	19.1	V
2389.9	43.0	-14.2	27.2	30.0	H

Ch6

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
17982.0	37.1	-25.5	43.4	19.2	V
17991.0	37.0	-25.5	43.4	19.1	V
17886.0	36.9	-25.5	43.4	19.0	V
17892.0	36.9	-25.5	43.4	19.0	V
17977.5	36.9	-25.5	43.4	19.0	V
17983.5	36.9	-25.5	43.4	19.0	V

Ch11

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
17896.5	36.8	-25.5	43.4	18.9	V
17974.5	36.8	-25.5	43.4	18.9	V
17989.5	36.8	-25.5	43.4	18.9	V
17994.0	36.8	-25.5	43.4	18.9	V
17794.5	36.7	-25.5	43.4	18.8	V
2485.0	46.5	-14.2	27.2	33.5	H

©Copyright. All rights reserved by CTTL.

802.11n-HT20

Ch1

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
17983.5	37.0	-25.5	43.4	19.1	V
17899.5	36.8	-25.5	43.4	18.9	H
17977.5	36.8	-25.5	43.4	18.9	V
17979.0	36.8	-25.5	43.4	18.9	V
17992.5	36.8	-25.5	43.4	18.9	V
2389.8	44.6	-14.2	27.2	31.6	H

Ch6

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
17896.5	37.0	-25.5	43.4	19.1	H
17962.5	37.0	-25.5	43.4	19.1	V
17983.5	37.0	-25.5	43.4	19.1	H
17902.5	36.9	-25.5	43.4	19.0	V
17791.5	36.8	-25.5	43.4	18.9	V
17875.5	36.8	-25.5	43.4	18.9	H

Ch11

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
17974.5	36.9	-25.5	43.4	19.0	H
17982.0	36.9	-25.5	43.4	19.0	V
17817.0	36.8	-25.5	43.4	18.9	V
17893.5	36.8	-25.5	43.4	18.9	H
17979.0	36.8	-25.5	43.4	18.9	H
2485.0	49.5	-14.2	27.2	36.5	H

©Copyright. All rights reserved by CTTL.

802.11n-HT40

Ch3

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
17982.0	37.1	-25.5	43.4	19.2	V
17991.0	36.9	-25.5	43.4	19.0	V
17994.0	36.9	-25.5	43.4	19.0	V
17796.0	36.8	-25.5	43.4	18.9	H
17818.5	36.8	-25.5	43.4	18.9	V
2389.6	42.9	-14.2	27.2	29.9	H

Ch6

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
17991.0	37.1	-25.5	43.4	19.2	H
17977.5	37.0	-25.5	43.4	19.1	H
17967.0	36.9	-25.5	43.4	19.0	V
17890.5	36.8	-25.5	43.4	18.9	V
17892.0	36.8	-25.5	43.4	18.9	V
17896.5	36.8	-25.5	43.4	18.9	H

Ch9

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Antenna Pol. (H/V)
17994.0	36.9	-25.5	43.4	19.0	V
17997.0	36.9	-25.5	43.4	19.0	V
17880.0	36.8	-25.5	43.4	18.9	H
17889.0	36.8	-25.5	43.4	18.9	V
17916.0	36.8	-25.5	43.4	18.9	H
2485.3	49.5	-14.2	27.2	36.5	H

©Copyright. All rights reserved by CTTL.

Test graphs as below:

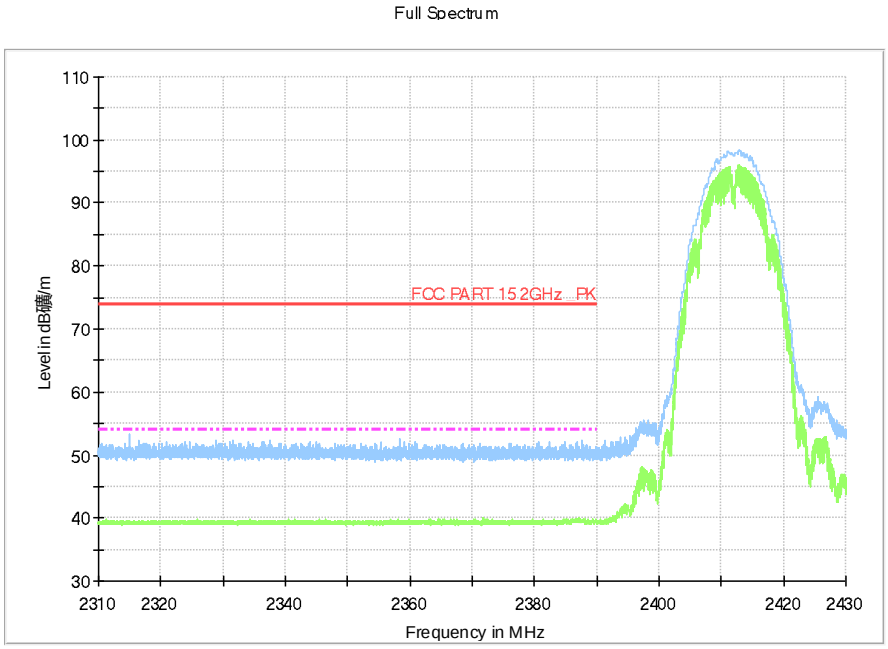

Fig.A.6.2.1 Transmitter Spurious Emission - Radiated (Power): 802.11b, ch1, 2.31 GHz – 2.43GHz

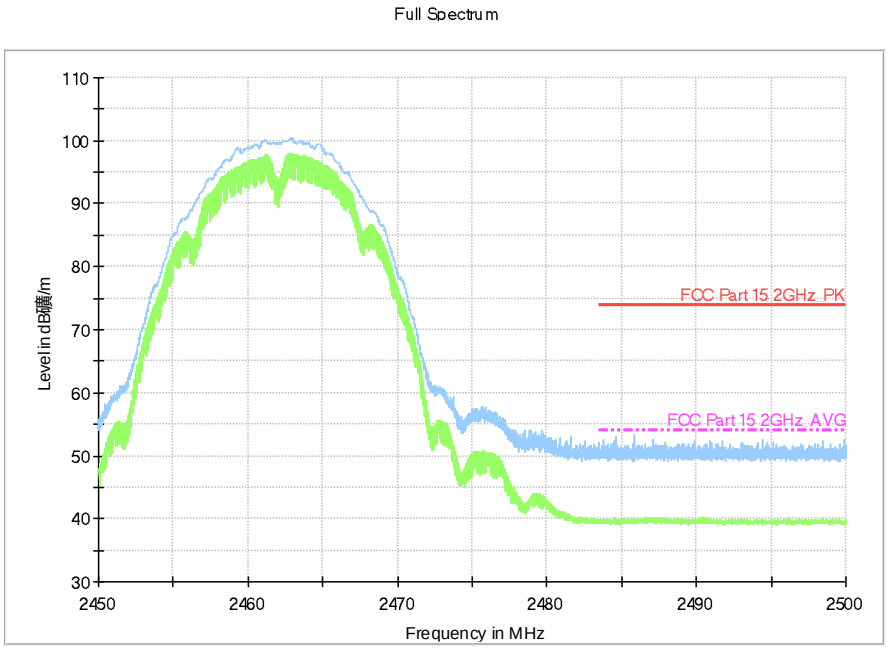

Fig.A.6.2.2 Transmitter Spurious Emission - Radiated (Power): 802.11b, ch11, 2.45 GHz - 2.50GHz

©Copyright. All rights reserved by CTTL.

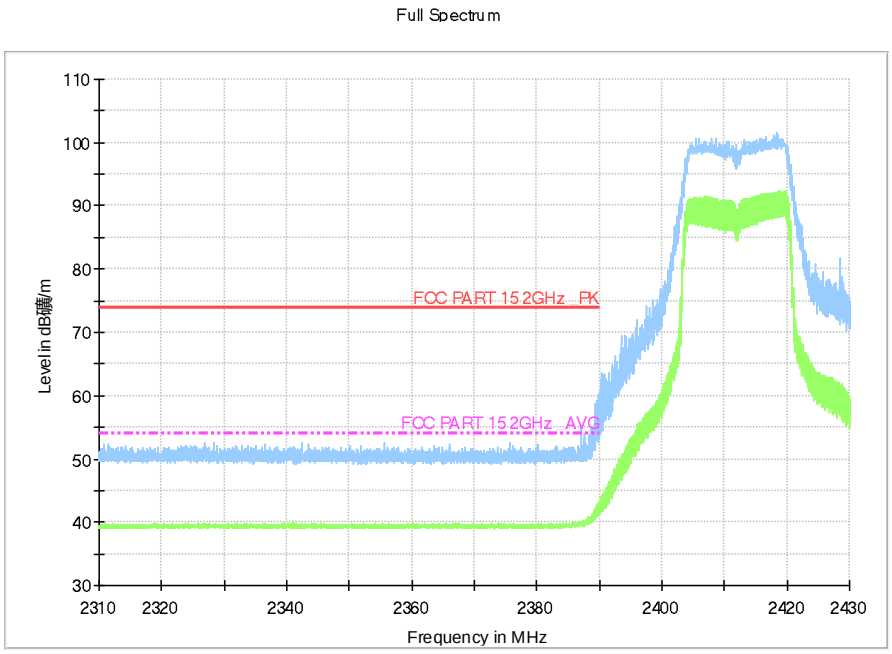

Fig.A.6.2.3 Transmitter Spurious Emission - Radiated (Power): 802.11g, ch1, 2.31 GHz - 2.43GHz

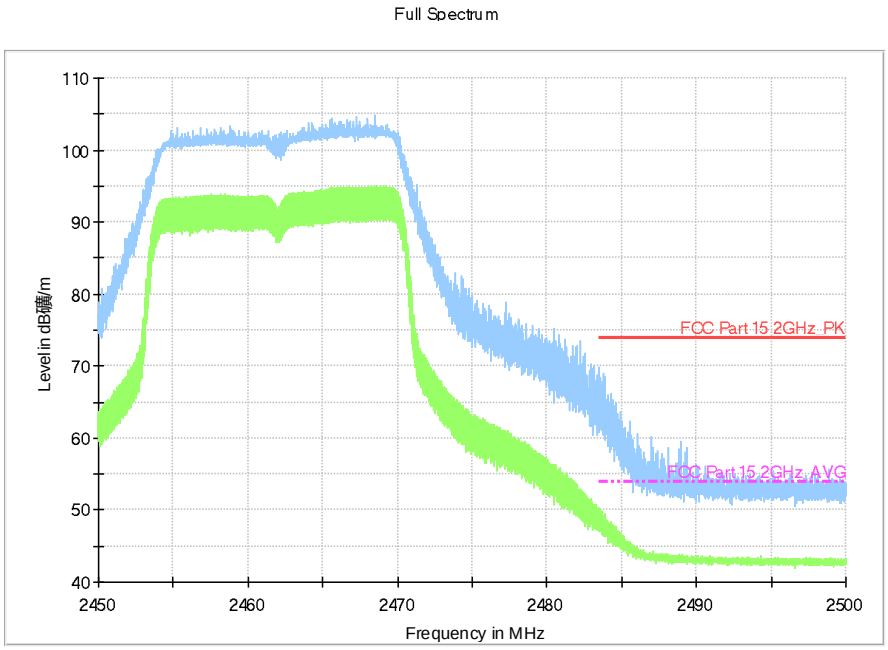

Fig.A.6.2.4 Transmitter Spurious Emission - Radiated (Power): 802.11g, ch11, 2.45 GHz - 2.50GHz

©Copyright. All rights reserved by CTTL.

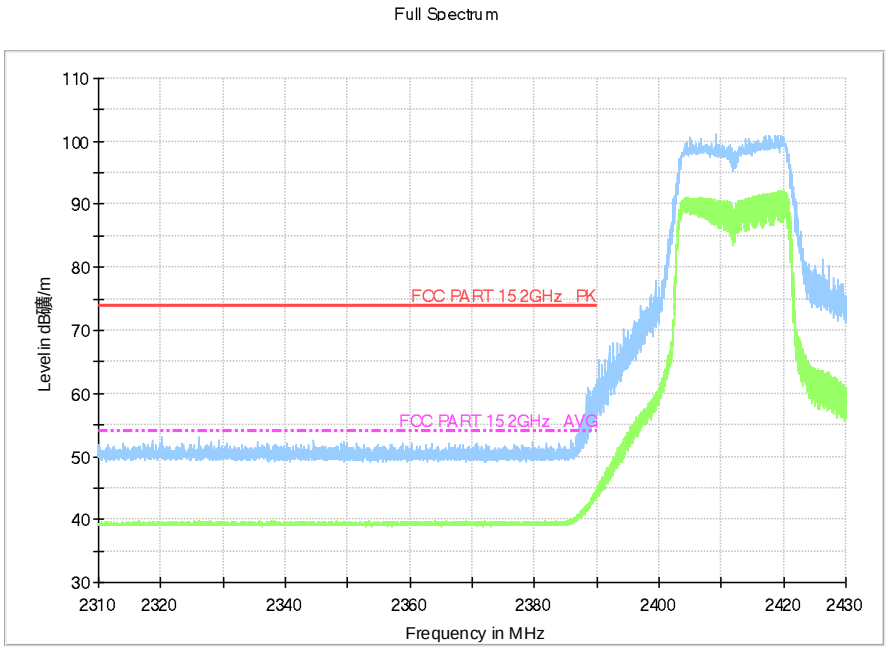

Fig.A.6.2.5 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT20, ch1, 2.31 GHz - 2.43GHz

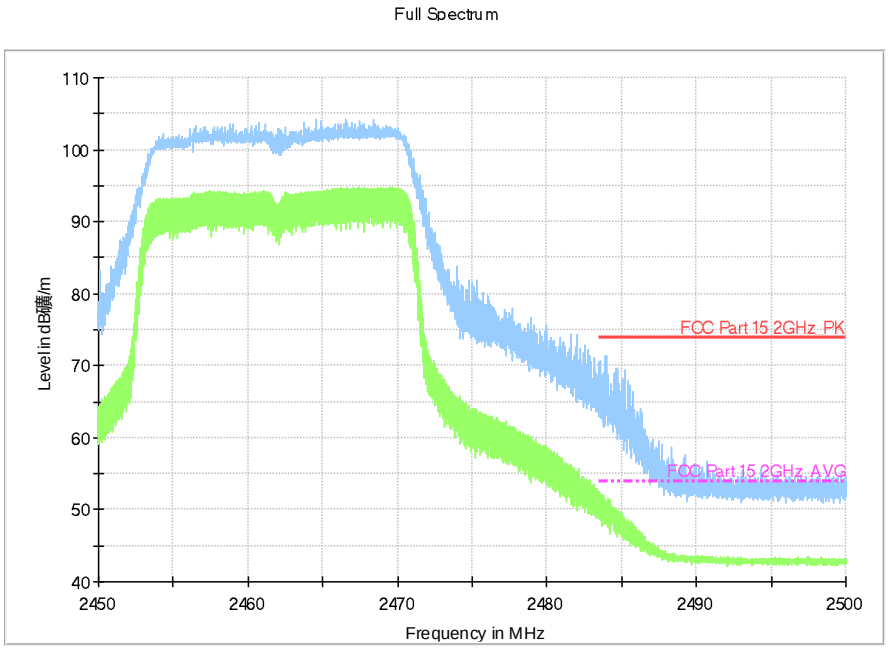

Fig.A.6.2.6 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT20, ch11, 2.45 GHz - 2.50GHz

©Copyright. All rights reserved by CTTL.

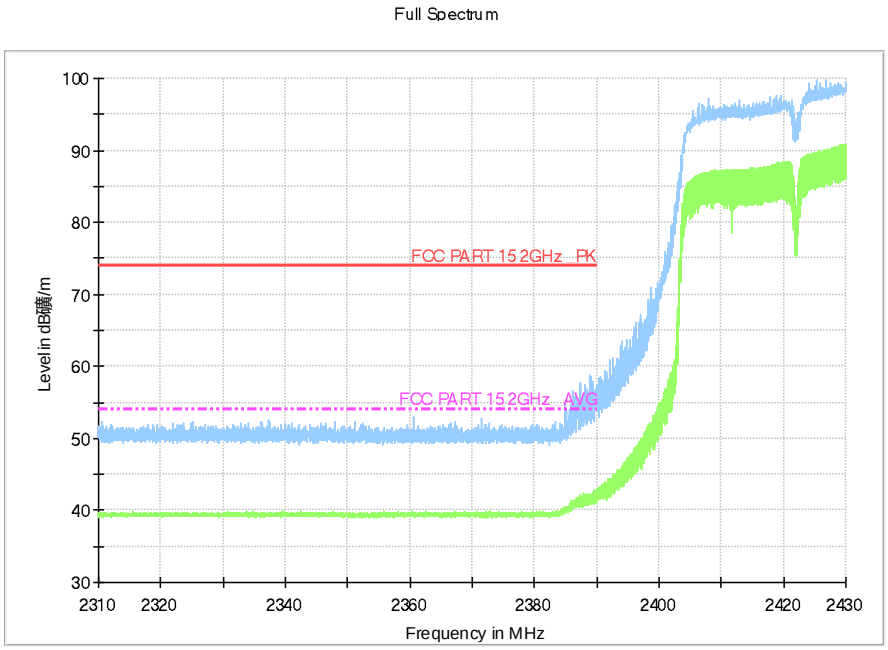

Fig.A.6.2.7 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT40, ch3, 2.31 GHz - 2.43GHz

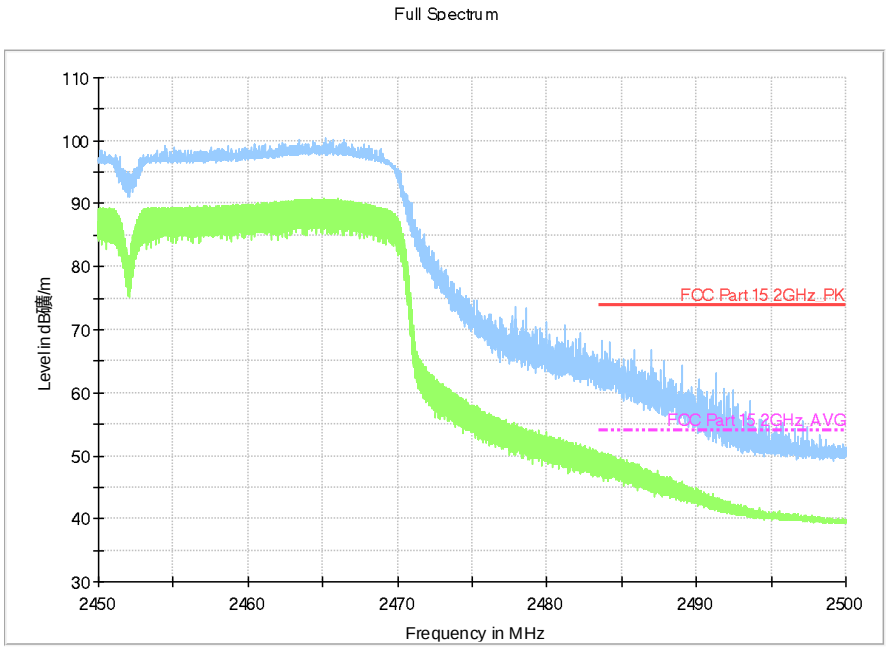

Fig.A.6.2.8 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT740, ch9, 2.45 GHz - 2.50GHz

©Copyright. All rights reserved by CTTL.

A.7. AC Power-line Conducted Emission

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

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.

If the EUT is relocated from an exploratory test site to a final test site, the highest emissions shall be re-maximized at the final test location before final ac power-line conducted emission measurements are performed.

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.

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.

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

©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.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:

©Copyright. All rights reserved by CTTL.

Result for Traffic:

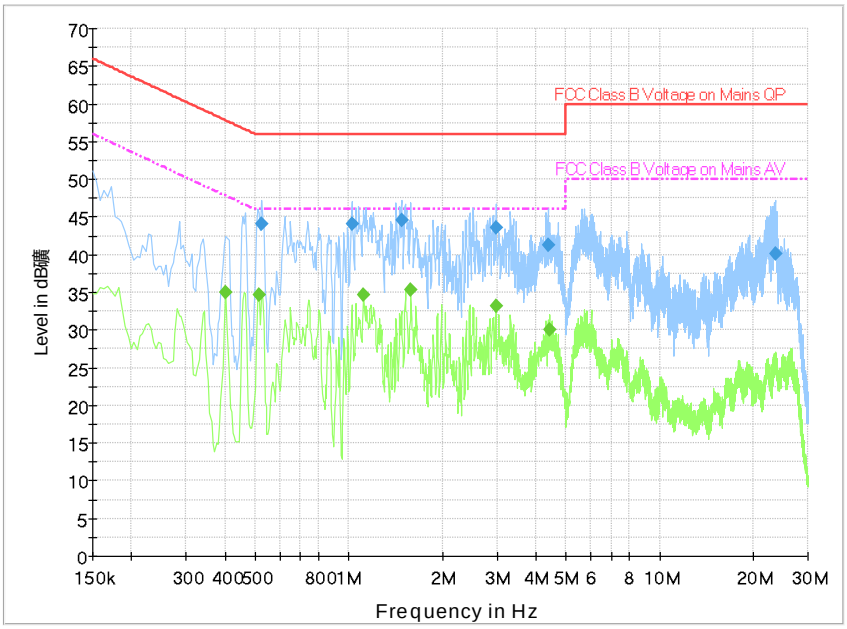

Fig.A.7.1 AC Powerline Conducted Emission-802.11b

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
0.523500	44.1	2000.0	9.000	On	L1	19.8	11.9	56.0	
1.023000	44.0	2000.0	9.000	On	L1	19.7	12.0	56.0	
1.477500	44.5	2000.0	9.000	On	L1	19.6	11.5	56.0	
2.976000	43.5	2000.0	9.000	On	L1	19.6	12.5	56.0	
4.375500	41.4	2000.0	9.000	On	L1	19.6	14.6	56.0	
23.514000	40.1	2000.0	9.000	On	N	20.0	19.9	60.0	

Final Result 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.402000	35.0	2000.0	9.000	On	L1	19.8	12.8	47.8	
0.514500	34.7	2000.0	9.000	On	L1	19.8	11.3	46.0	
1.117500	34.7	2000.0	9.000	On	L1	19.7	11.3	46.0	
1.581000	35.3	2000.0	9.000	On	L1	19.6	10.7	46.0	
2.976000	33.1	2000.0	9.000	On	L1	19.6	12.9	46.0	
4.438500	30.1	2000.0	9.000	On	L1	19.6	15.9	46.0	

©Copyright. All rights reserved by CTTL.

Result for Idle:

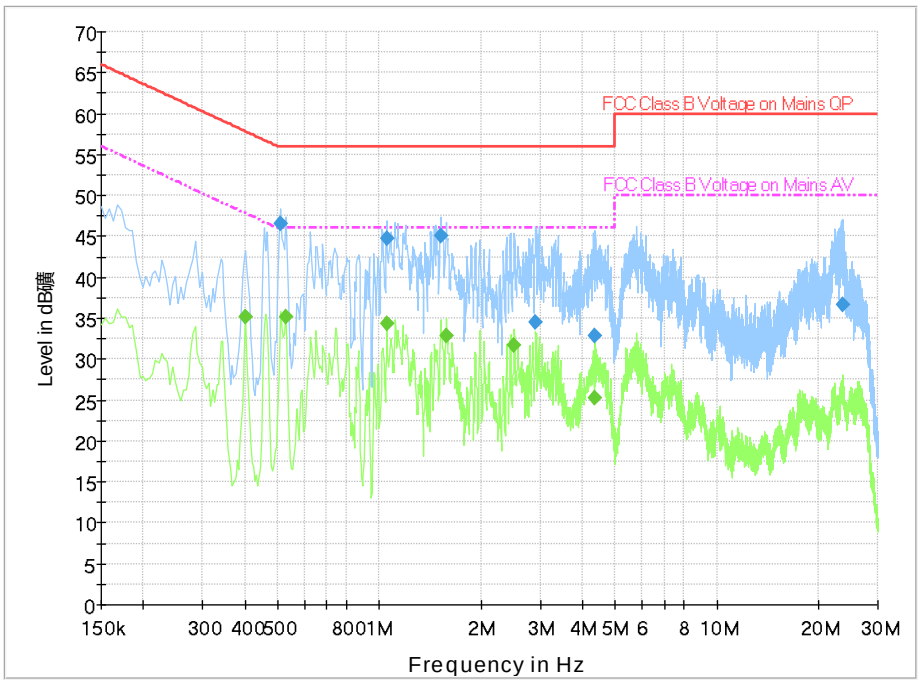

Fig.A.7.2 AC Powerline Conducted Emission-Idle

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
0.510000	46.6	2000.0	9.000	On	L1	19.8	9.4	56.0	
1.054500	44.8	2000.0	9.000	On	L1	19.7	11.2	56.0	
1.518000	45.1	2000.0	9.000	On	L1	19.6	10.9	56.0	
2.908500	34.5	2000.0	9.000	On	L1	19.6	21.5	56.0	
4.366500	32.9	2000.0	9.000	On	L1	19.6	23.1	56.0	
23.626500	36.7	2000.0	9.000	On	N	20.0	23.3	60.0	

Final Result 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.402000	35.2	2000.0	9.000	On	L1	19.8	12.6	47.8	
0.528000	35.2	2000.0	9.000	On	L1	19.8	10.8	46.0	
1.054500	34.3	2000.0	9.000	On	L1	19.7	11.7	46.0	
1.581000	32.9	2000.0	9.000	On	L1	19.6	13.1	46.0	
2.512500	31.7	2000.0	9.000	On	L1	19.6	14.3	46.0	
4.366500	25.3	2000.0	9.000	On	L1	19.6	20.7	46.0	

©Copyright. All rights reserved by CTTL.

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).

2019-09-26 through 2020-09-30
Effective Dates

DEPARTMENT OF COMMERCE · UNITED STATES OF AMERICA

For the National Voluntary Laboratory Accreditation Program

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

©Copyright. All rights reserved by CTTL.