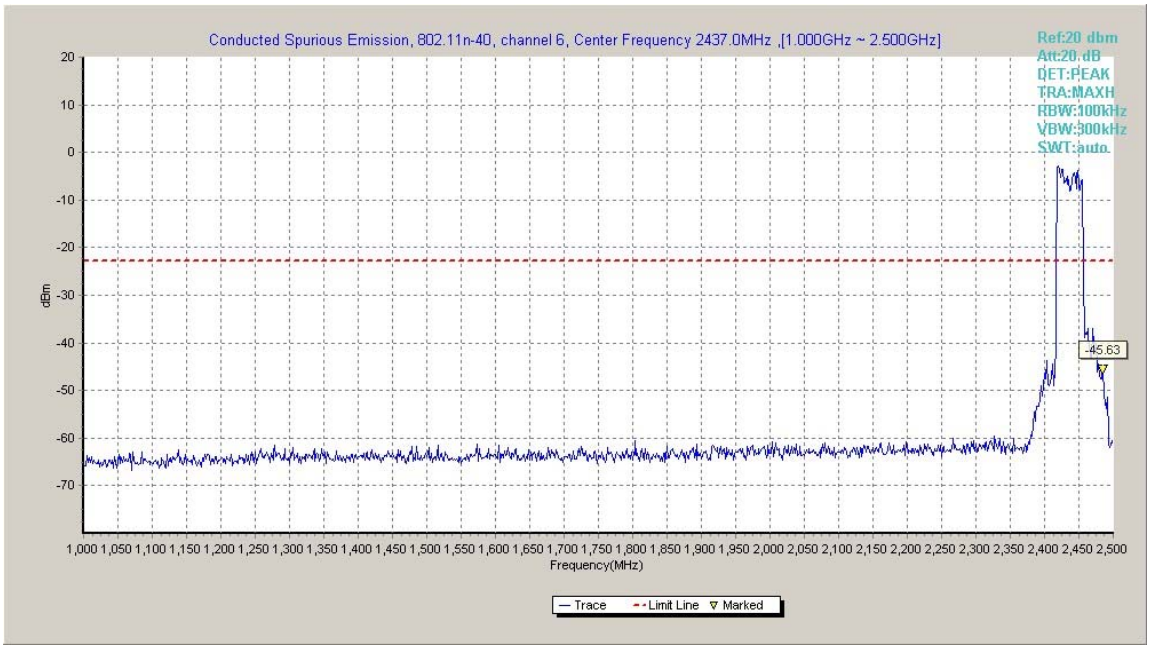


Fig.A.6.1.83 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch6, 1 GHz-2.5 GHz)

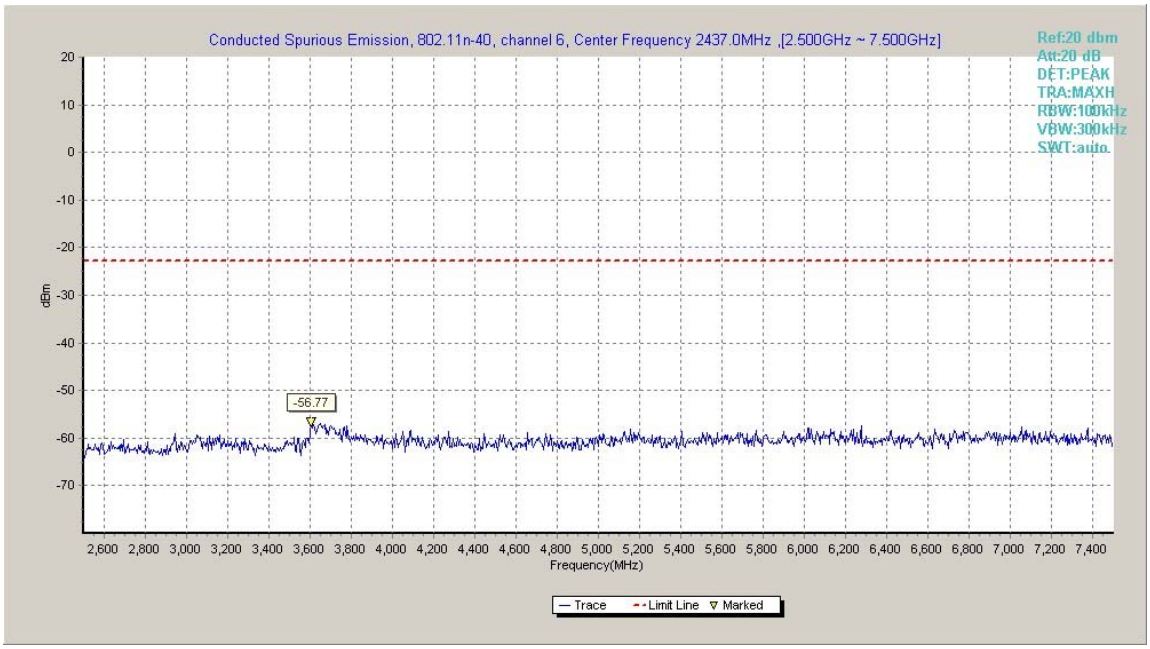


Fig.A.6.1.84 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch6, 2.5 GHz-7.5 GHz)

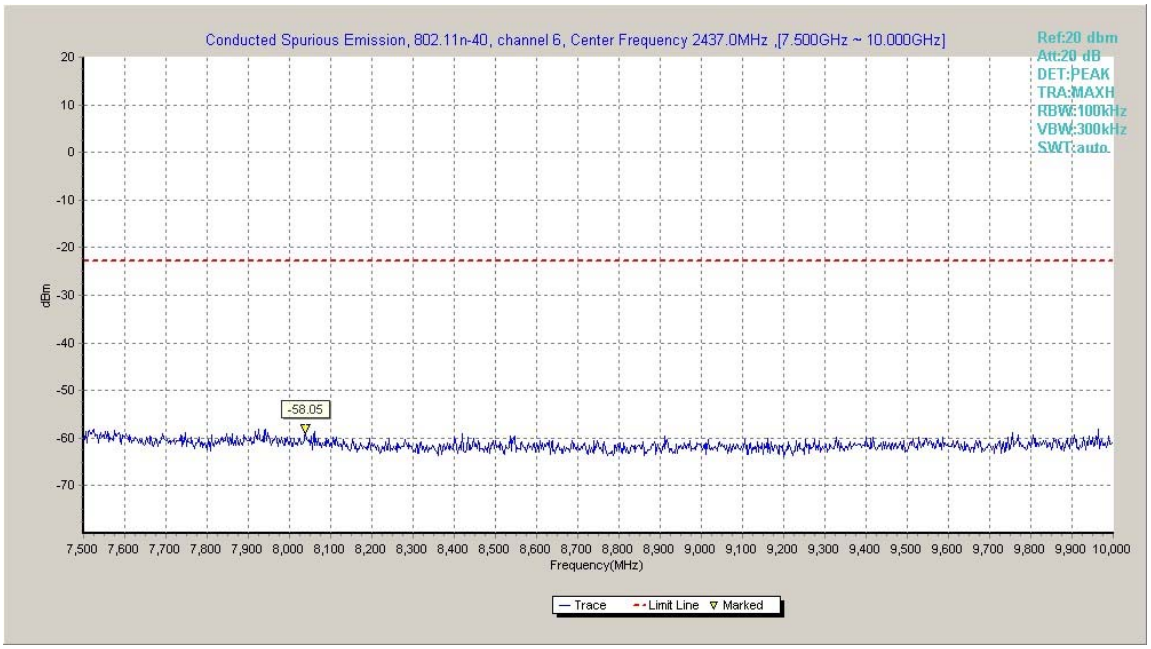


Fig.A.6.1.85 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch6, 7.5 GHz-10 GHz)

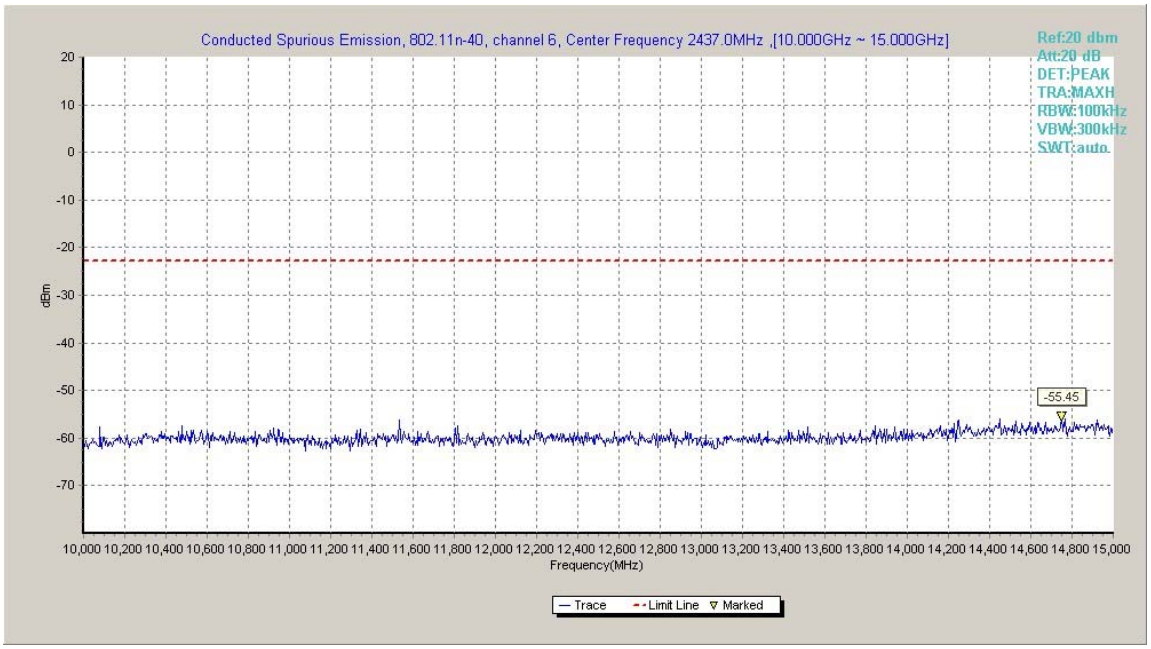


Fig.A.6.1.86 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch6, 10 GHz-15 GHz)

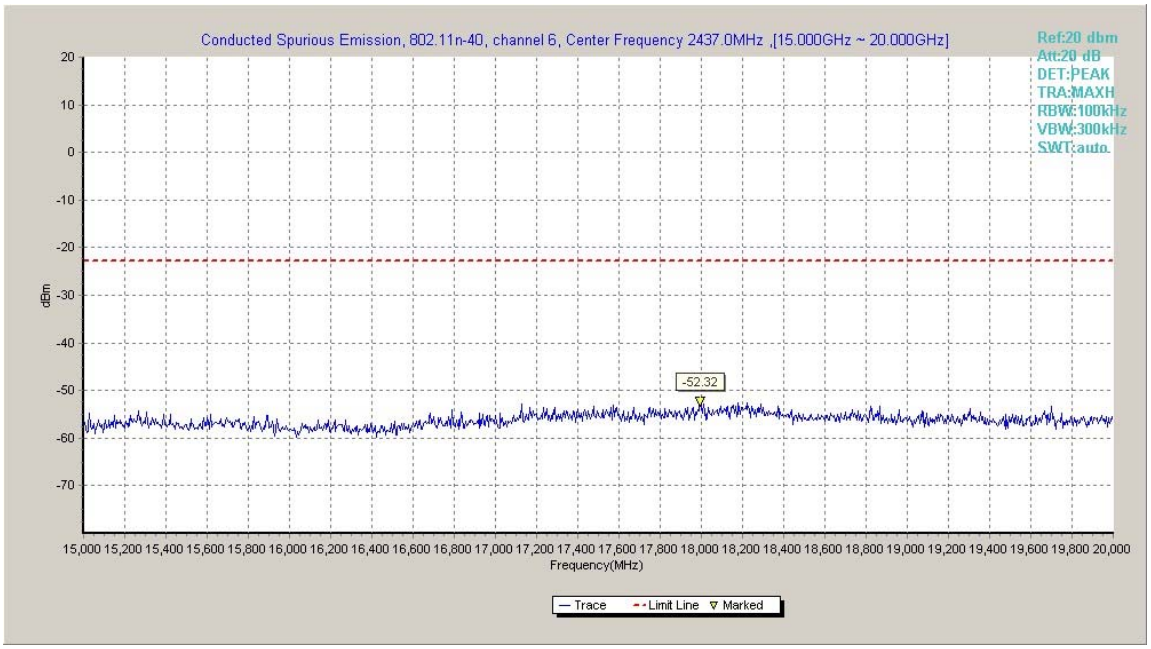


Fig.A.6.1.87 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch6, 15 GHz-20 GHz)

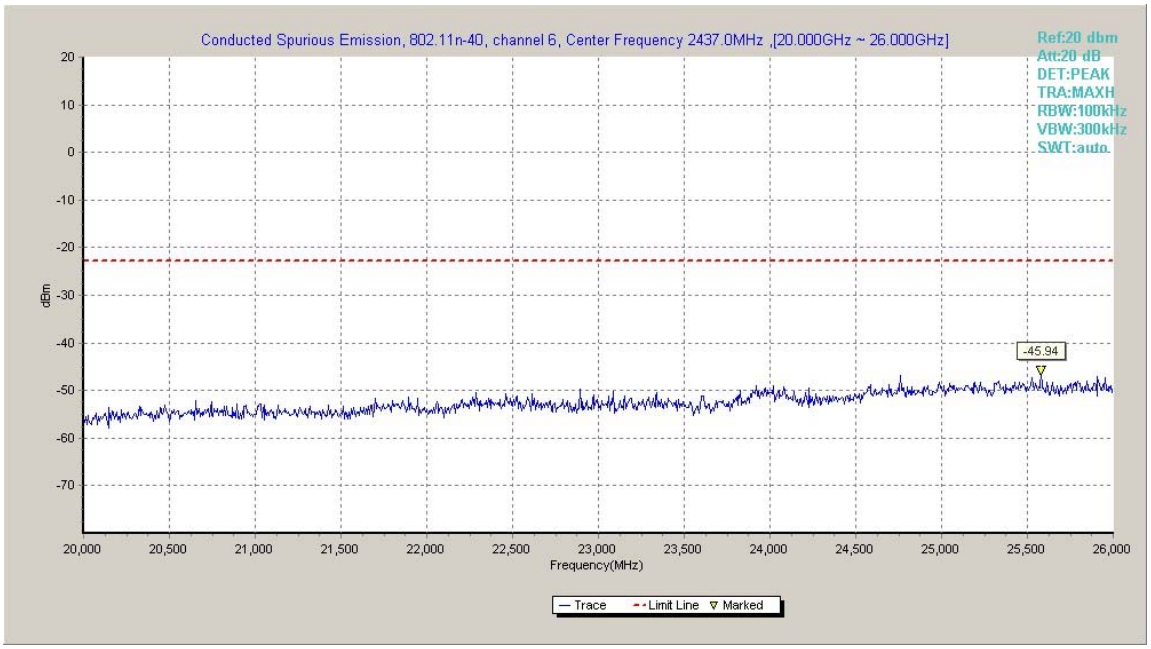


Fig.A.6.1.88 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch6, 20 GHz-26 GHz)

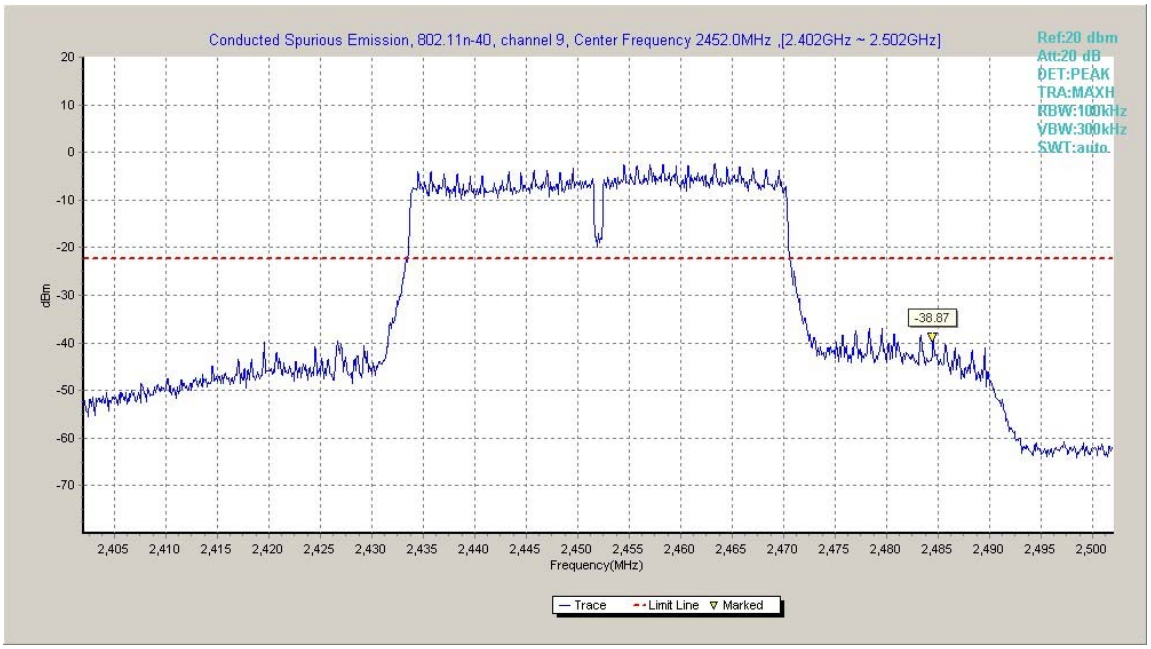


Fig.A.6.1.89 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch9, Center Frequency)

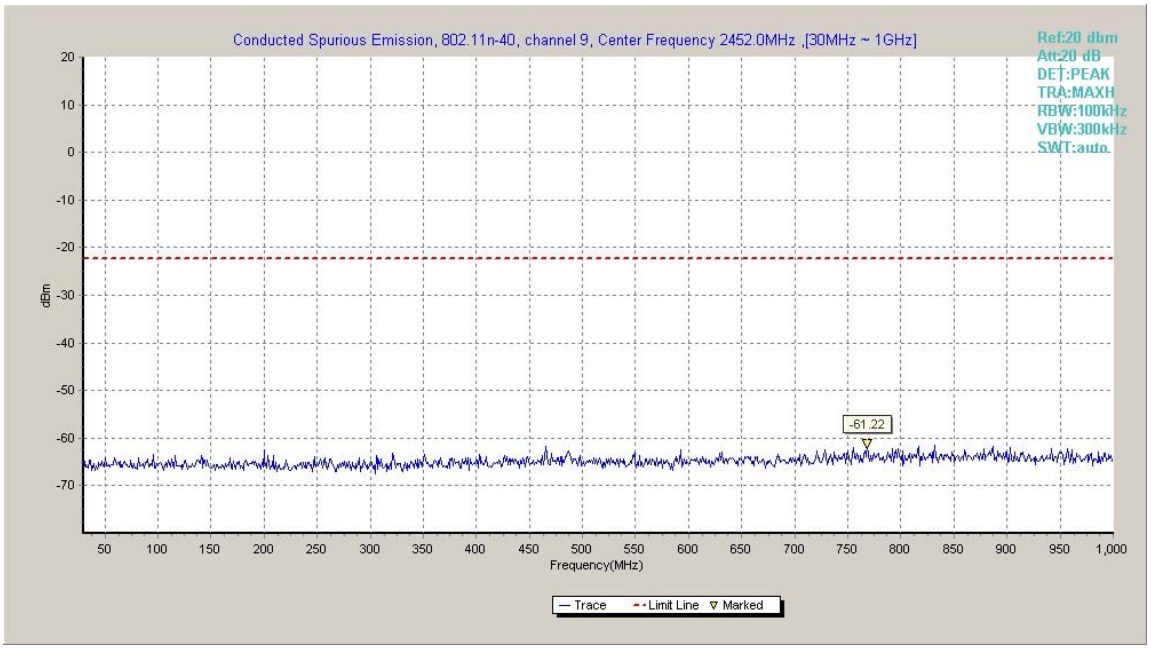


Fig.A.6.1.90 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch9, 30 MHz-1 GHz)

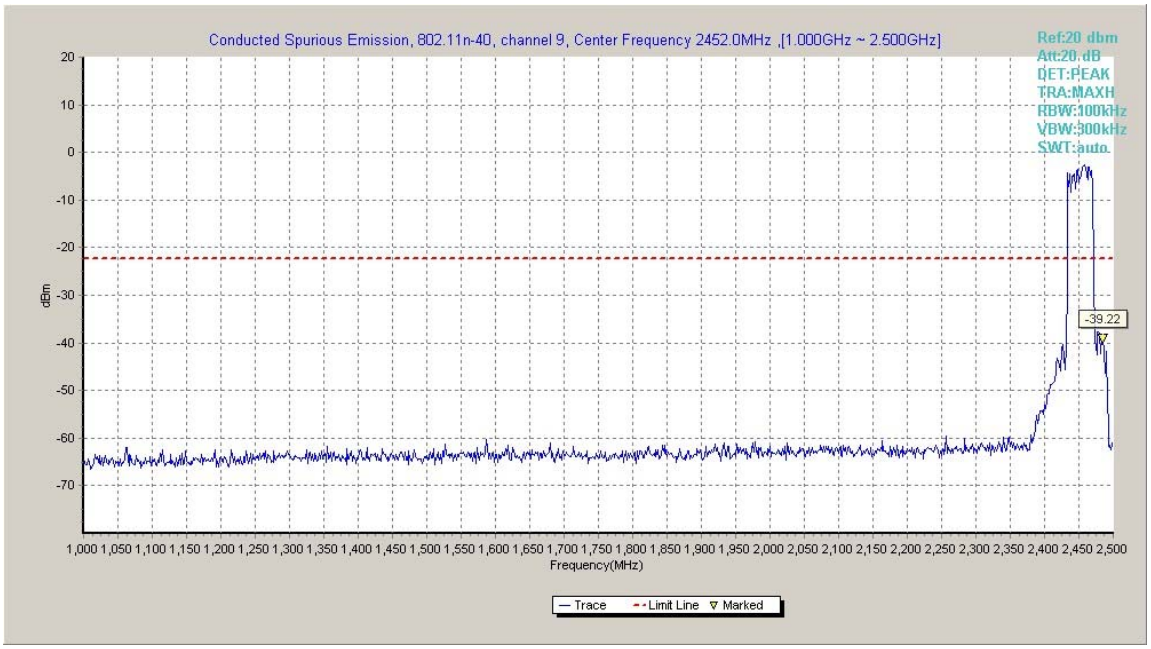


Fig.A.6.1.91 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch9, 1 GHz-2.5 GHz)

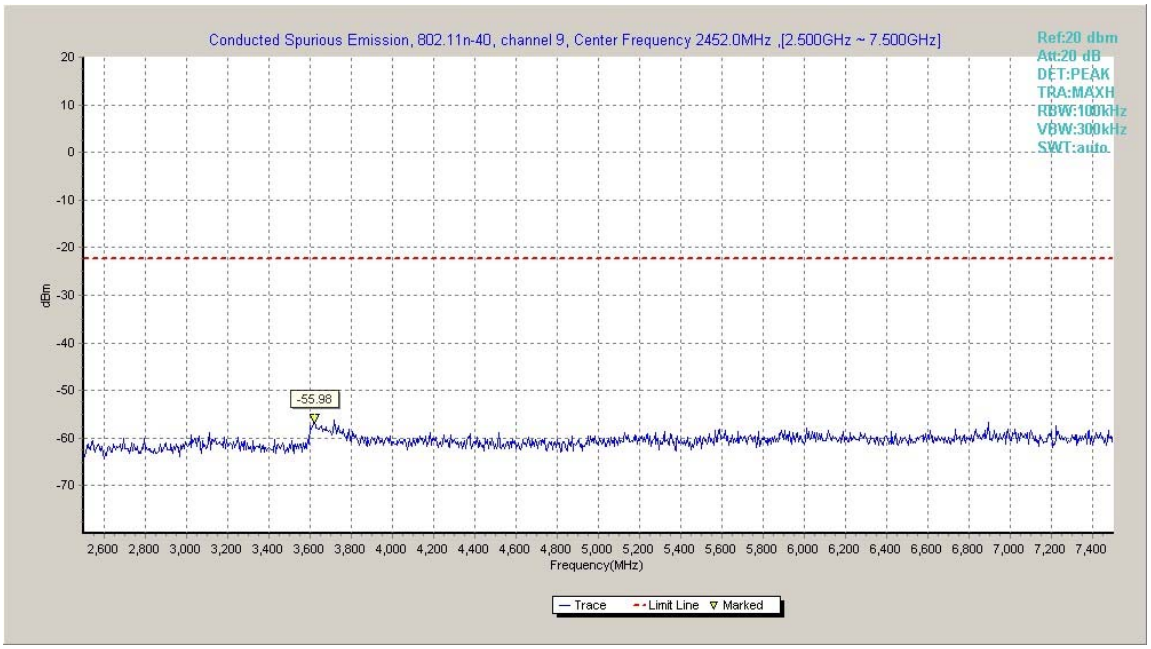


Fig.A.6.1.92 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch9, 2.5 GHz-7.5 GHz)

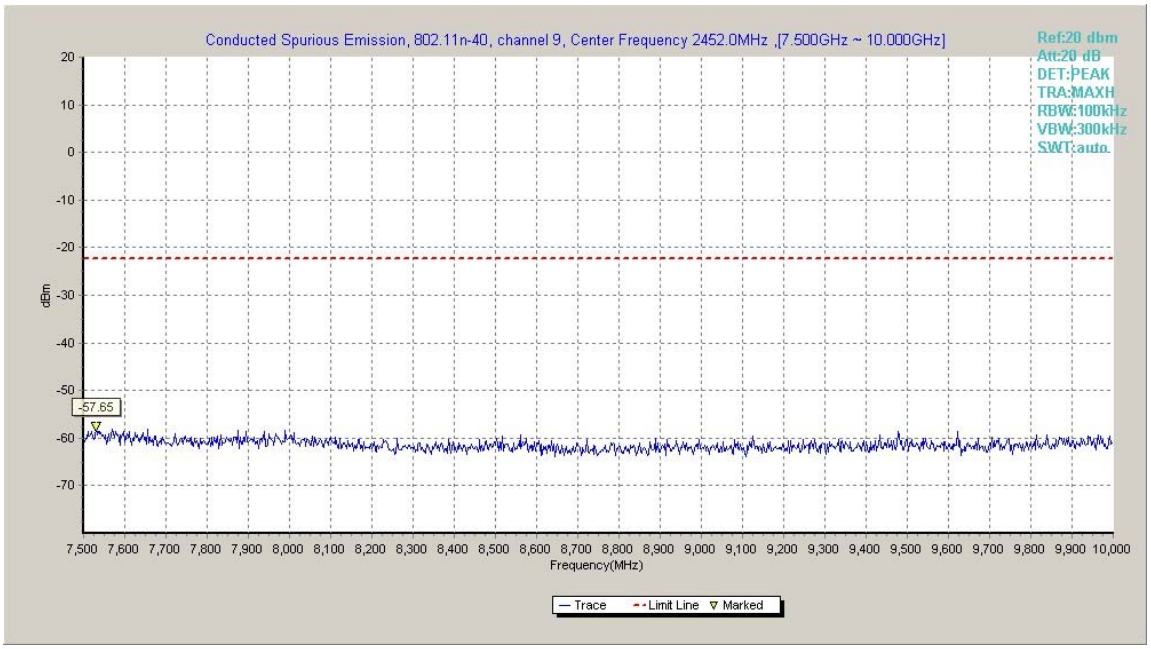


Fig.A.6.1.93 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch9, 7.5 GHz-10 GHz)

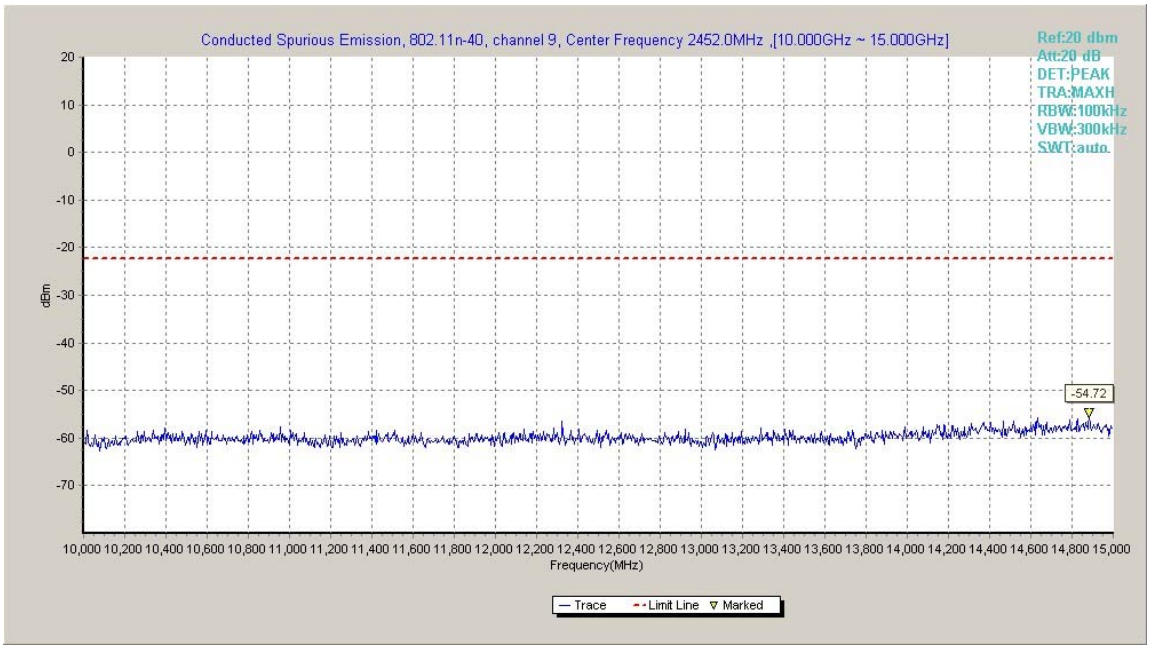


Fig.A.6.1.94 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch9, 10 GHz-15 GHz)

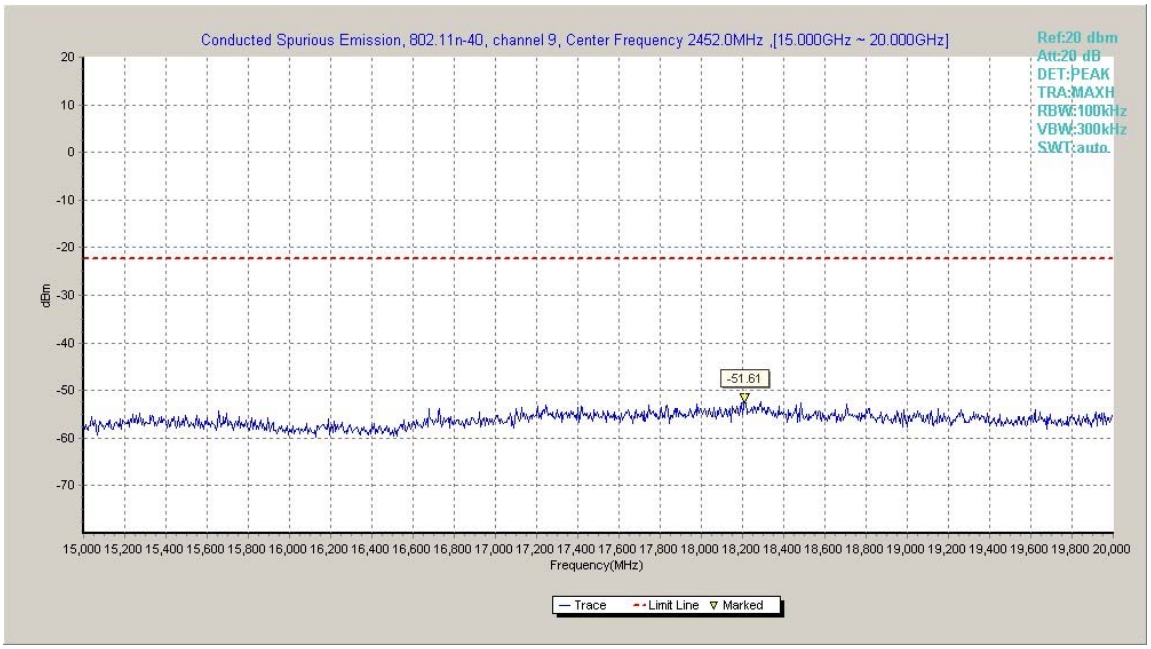


Fig.A.6.1.95 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch9, 15 GHz-20 GHz)

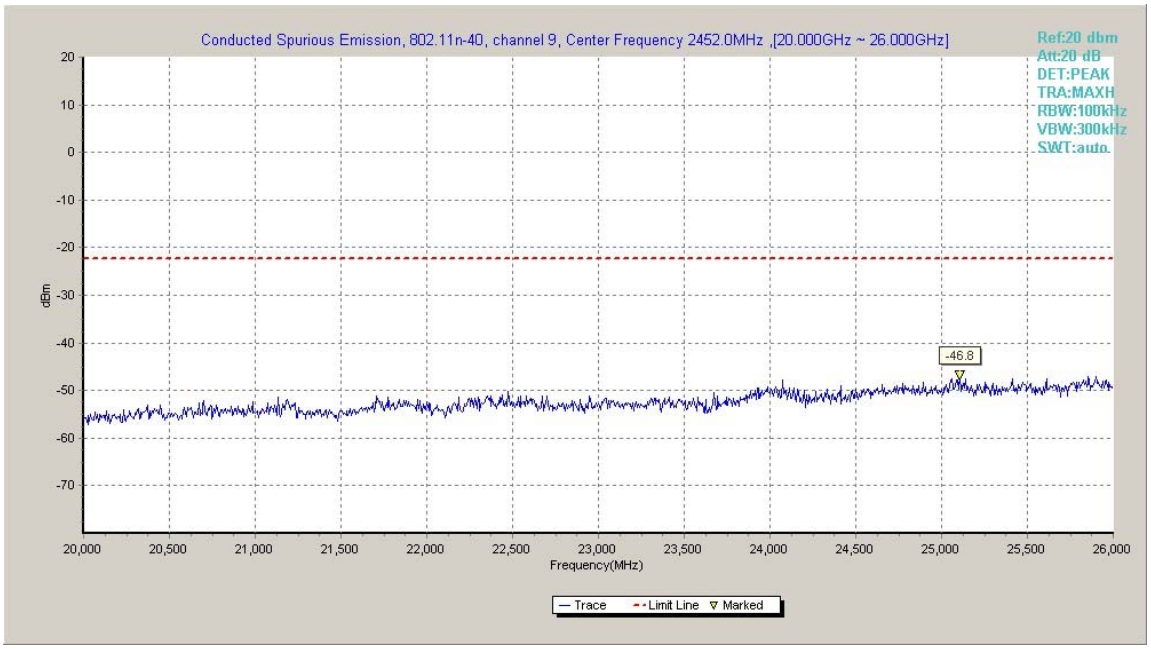


Fig.A.6.1.96 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch9, 20 GHz-26 GHz)

A.6.2 Transmitter Spurious Emission - Radiated

Method of Measurement: See ANSI C63.10-2013-clause 6.4 &6.5 & 6.6

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

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

Test Condition

The EUT was placed on a non-conductive table. The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

Frequency of emission (MHz)	RBW/VBW	Sweep Time(s)
30-1000	100KHz/300KHz	5
1000-4000	1MHz/1MHz	15
4000-18000	1MHz/1MHz	40
18000-26500	1MHz/1MHz	20

EUT ID: EUT1

Measurement Results:

802.11b mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11b	Power	2.38GHz ~2.43GHz	Fig.A.6.2.1	**P**
	Power	2.45GHz ~2.5GHz	Fig.A.6.2.2	**P**

802.11g mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11g	Power	2.38GHz ~2.43GHz	Fig.A.6.2.3	**P**
	Power	2.45GHz ~2.5GHz	Fig.A.6.2.4	**P**

802.11n mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11n (20MHz)	Power	2.38GHz ~2.43GHz	Fig.A.6.2.5	**P**
	Power	2.45GHz ~2.5GHz	Fig.A.6.2.6	**P**
802.11n (40MHz)	Power	2.38GHz ~2.43GHz	Fig.A.6.2.7	**P**
	Power	2.45GHz ~2.5GHz	Fig.A.6.2.8	**P**

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

PEAK

802.11b

Ch1

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
2380.686	60.83	2.9	32.1	25.92	H
2386.944	60.86	2.9	32.0	25.99	H
4824.000	54.46	-32.8	34.5	52.71	V
7236.000	41.80	-31.7	36.1	37.43	V
9648.000	40.68	-30.4	37.0	34.00	V
12060.000	47.57	-29.6	39.3	37.89	V

Ch6

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
2383.800	53.07	-24.7	32.0	45.71	V
2494.800	50.78	-23.8	32.4	42.15	V
4873.500	58.05	-32.7	34.5	56.26	V
7311.000	42.07	-31.9	36.1	37.90	H
9747.750	41.94	-30.7	37.2	35.41	H
12185.250	46.22	-29.4	39.2	36.42	V

Ch11

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
2483.520	60.76	2.9	32.8	25.07	H
2489.040	61.34	2.9	32.6	25.80	H
4923.750	58.12	-33.1	34.5	56.70	H
7386.000	42.06	-31.8	36.0	37.85	H
9848.250	43.03	-30.1	37.3	35.77	H
12309.750	44.68	-29.7	39.2	35.20	V

802.11g

Ch1

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
2381.428	60.35	2.9	32.0	25.44	H
2389.702	60.42	2.9	32.0	25.57	H
4825.500	43.89	-32.7	34.5	42.13	V
7236.000	41.29	-31.7	36.1	36.93	H
9648.000	43.12	-30.4	37.0	36.44	H
12060.000	44.86	-29.6	39.3	35.18	H

Ch6

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
2382.800	51.67	-25.1	32.0	44.74	H
2498.600	49.76	-26.0	32.3	43.43	H
4866.750	59.42	-32.7	34.5	57.63	V
7311.000	41.62	-31.9	36.1	37.46	H
9747.750	40.58	-30.7	37.2	34.05	H
12185.250	45.95	-29.4	39.2	36.16	H

Ch11

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
2484.940	60.98	2.9	32.7	25.33	H
2497.840	60.98	2.9	32.4	25.67	H
4823.000	54.50	-32.8	34.5	52.76	V
7386.000	41.04	-31.8	36.0	36.83	H
9848.250	42.57	-30.1	37.3	35.32	H
12309.750	45.03	-29.7	39.2	35.55	H

802.11n-HT20

Ch1

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
2383.948	60.42	2.9	32.0	25.53	H
2386.776	60.24	2.9	32.0	25.37	H
4823.250	51.19	-32.8	34.5	49.45	V
7236.000	40.64	-31.7	36.1	36.28	H
9648.000	39.90	-30.4	37.0	33.22	H
12060.000	45.93	-29.6	39.3	36.25	H

Ch6

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
2382.400	52.26	-25.3	32.0	45.49	H
2496.000	49.78	-24.8	32.4	42.19	H
4876.500	56.94	-32.7	34.5	55.15	V
7311.000	39.76	-31.9	36.1	35.59	H
9747.750	41.49	-30.7	37.2	34.96	V
12185.250	45.21	-29.4	39.2	35.42	H

Ch11

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
2483.650	61.16	2.9	32.8	25.47	H
2484.210	60.99	2.9	32.7	25.32	V
4915.500	49.95	-33.0	34.5	48.45	H
7386.000	41.27	-31.8	36.0	37.06	H
9848.250	43.14	-30.1	37.3	35.88	V
12309.750	46.58	-29.7	39.2	37.10	H

802.11n-HT40

Ch3

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
2387.910	62.91	2.9	32.0	28.0	H
2389.604	63.17	2.9	32.0	28.3	H
4842.000	50.38	-32.7	34.5	48.6	V
7266.000	42.33	-31.9	36.1	38.1	V
9687.750	42.15	-30.7	37.1	35.8	H
12110.250	45.14	-29.5	39.3	35.4	H

Ch6

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
2381.200	50.20	-25.8	32.0	43.94	H
2497.200	49.97	-25.5	32.4	43.13	V
4872.000	51.24	-32.7	34.5	49.45	V
7311.000	40.06	-31.9	36.1	35.89	V
9747.750	41.28	-30.7	37.2	34.76	H
12185.250	46.62	-29.4	39.2	36.82	H

Ch9

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
2483.910	63.56	2.9	32.7	27.88	H
2484.730	63.75	2.9	32.7	28.09	H
4905.750	51.81	-32.9	34.5	50.22	H
7356.000	41.74	-31.9	36.1	37.58	H
9807.750	42.08	-30.4	37.3	35.16	H
12260.250	46.21	-29.6	39.2	36.58	V

AVERAGE

802.11b

Ch1

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
2386.200	47.10	2.9	32.0	12.23	H
2389.100	47.13	2.9	32.0	12.28	V
4824.000	52.78	-32.8	34.5	51.03	V
7236.000	38.40	-31.7	36.1	34.04	H
9648.000	37.85	-30.4	37.0	31.16	V
12060.000	43.38	-29.6	39.3	33.71	H

Ch6

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
2388.700	47.06	2.9	32.0	12.21	V
2486.800	47.61	2.9	32.7	12.00	V
4874.000	52.86	-32.7	34.5	51.07	V
7311.000	38.38	-31.9	36.1	34.21	V
9748.000	38.34	-30.7	37.2	31.81	V
12185.000	43.74	-29.4	39.2	33.95	V

Ch11

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
2485.600	47.66	2.9	32.7	12.03	H
2488.400	47.63	2.9	32.6	12.07	H
4924.000	52.47	-33.1	34.5	51.05	V
7386.000	38.41	-31.8	36.0	34.20	H
9848.000	40.00	-30.1	37.3	32.75	H
12310.000	44.07	-29.7	39.2	34.60	H

802.11g

Ch1

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
2387.200	47.15	2.9	32.0	12.28	H
2389.500	47.18	2.9	32.0	12.33	V
4824.000	38.70	-32.8	34.5	36.96	V
7236.000	38.33	-31.7	36.1	33.97	H
9648.000	37.83	-30.4	37.0	31.15	V
12060.000	43.34	-29.6	39.3	33.67	V

Ch6

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
2398.400	47.28	2.9	31.9	12.49	H
2499.500	47.64	2.9	32.3	12.39	H
4872.000	41.76	-32.7	34.5	39.97	V
7311.000	38.13	-31.9	36.1	33.96	H
9748.000	38.31	-30.7	37.2	31.78	H
12185.000	43.76	-29.4	39.2	33.96	H

Ch11

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
2491.700	47.70	2.9	32.5	12.23	H
2494.600	47.65	2.9	32.5	12.26	V
4924.000	39.19	-33.1	34.5	37.77	V
7386.000	38.15	-31.8	36.0	33.94	V
9848.000	40.03	-30.1	37.3	32.78	V
12310.000	44.06	-29.7	39.2	34.59	V

802.11n-HT20

Ch1

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
2386.000	47.13	2.9	32.0	12.25	H
2388.500	47.21	2.9	32.0	12.35	V
4823.000	37.49	-32.8	34.5	35.75	V
7236.000	38.32	-31.7	36.1	33.96	H
9648.000	37.83	-30.4	37.0	31.14	H
12060.000	43.35	-29.6	39.3	33.68	V

Ch6

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
2385.400	47.05	2.9	32.0	12.17	H
2494.300	47.66	2.9	32.5	12.26	H
4872.000	40.54	-32.7	34.5	38.75	H
7311.000	38.18	-31.9	36.1	34.01	V
9748.000	38.26	-30.7	37.2	31.73	H
12185.000	43.76	-29.4	39.2	33.97	V

Ch11

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
2485.700	47.67	2.9	32.7	12.04	H
2490.200	47.71	2.9	32.6	12.20	H
4922.000	37.20	-33.1	34.5	35.76	V
7386.000	38.16	-31.8	36.0	33.95	H
9848.000	40.11	-30.1	37.3	32.86	H
12310.000	44.10	-29.7	39.2	34.62	H

802.11n-HT40

Ch3

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
2383.600	47.09	2.9	32.0	12.19	H
2386.300	47.22	2.9	32.0	12.34	V
4844.000	36.18	-32.7	34.5	34.37	V
7266.000	38.39	-31.9	36.1	34.16	H
9688.000	37.68	-30.7	37.1	31.29	H
12110.000	43.48	-29.5	39.3	33.71	H

Ch6

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
2388.700	47.13	2.9	32.0	12.28	H
2499.000	47.67	2.9	32.3	12.40	V
4874.000	36.20	-32.7	34.5	34.41	H
7311.000	38.03	-31.9	36.1	33.86	V
9748.000	38.19	-30.7	37.2	31.67	V
12185.000	43.74	-29.4	39.2	33.95	H

Ch9

Frequency(MHz)	Result (dBuV/m)	Cable Loss(dB)	Antenna Factor	P_{Mea} (dBuV/m)	Polarization
2484.400	47.68	2.9	32.7	12.01	H
2486.800	47.70	2.9	32.7	12.09	V
4904.000	36.77	-32.9	34.5	35.17	V
7356.000	38.18	-31.9	36.1	34.03	H
9808.000	39.27	-30.4	37.3	32.35	V
12260.000	43.93	-29.6	39.2	34.30	H

Test graphs as below:

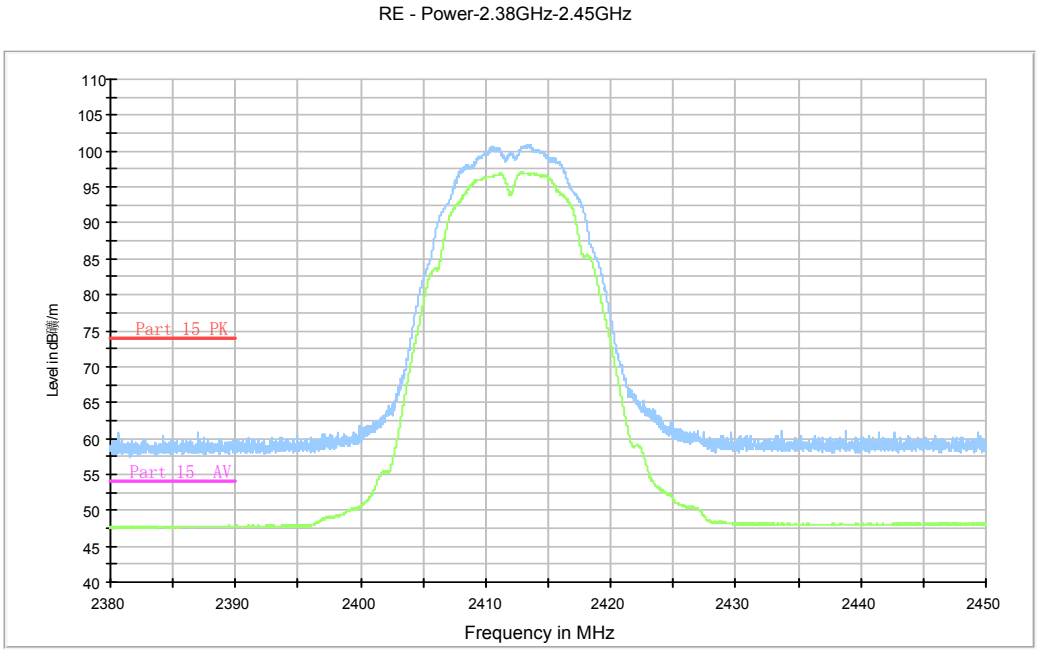


Fig.A.6.2.1 Transmitter Spurious Emission - Radiated (Power): 802.11b, ch1, 2.38 GHz – 2.43GHz

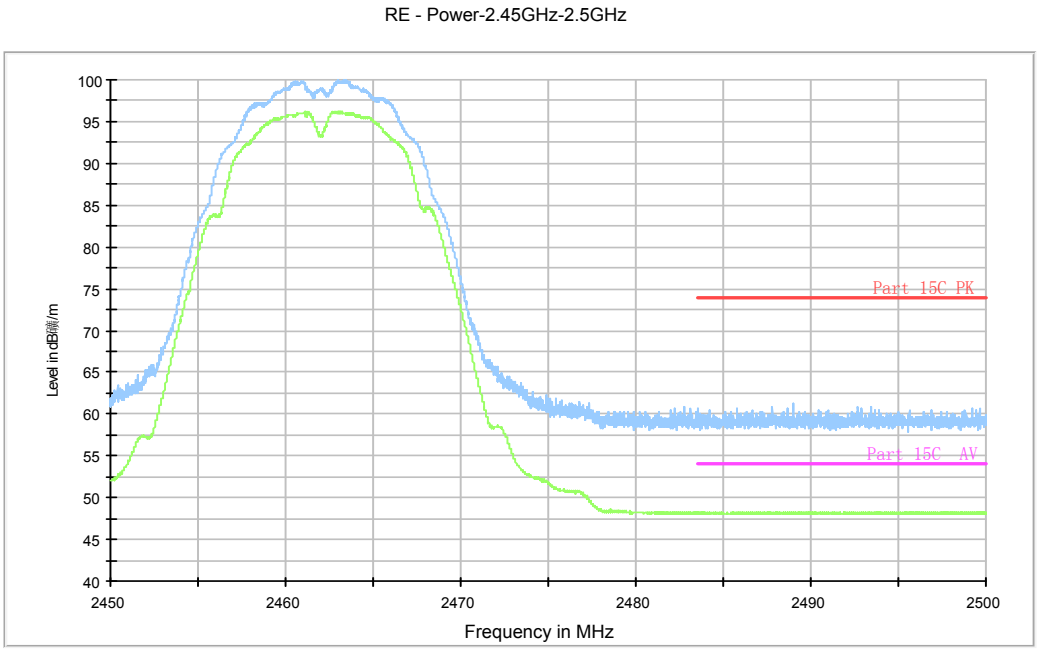


Fig.A.6.2.2 Transmitter Spurious Emission - Radiated (Power): 802.11b, ch11, 2.45 GHz - 2.50GHz

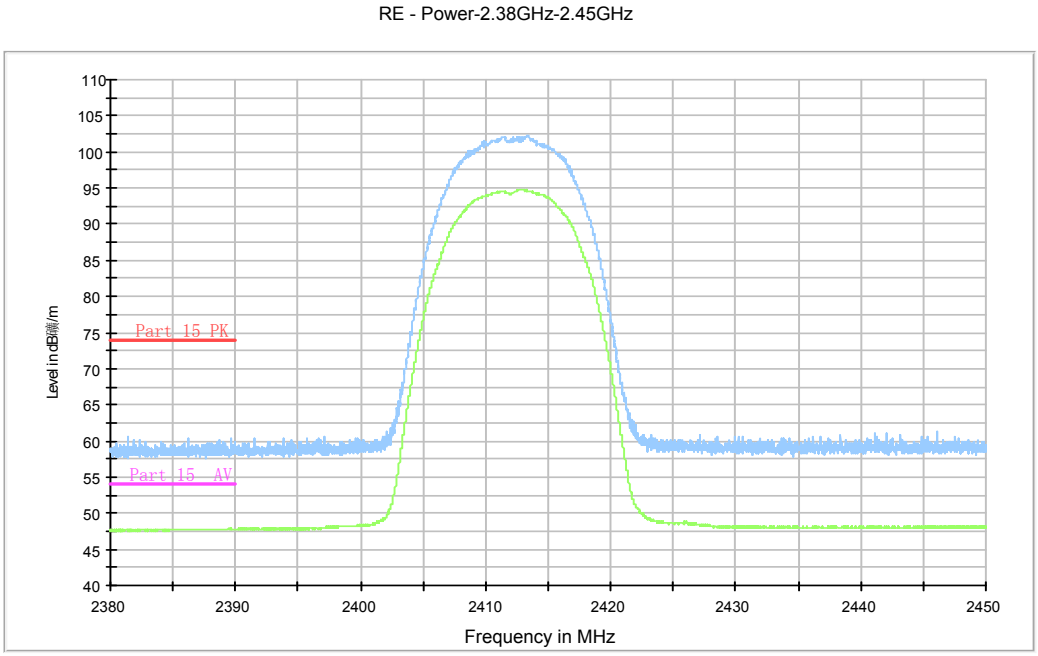
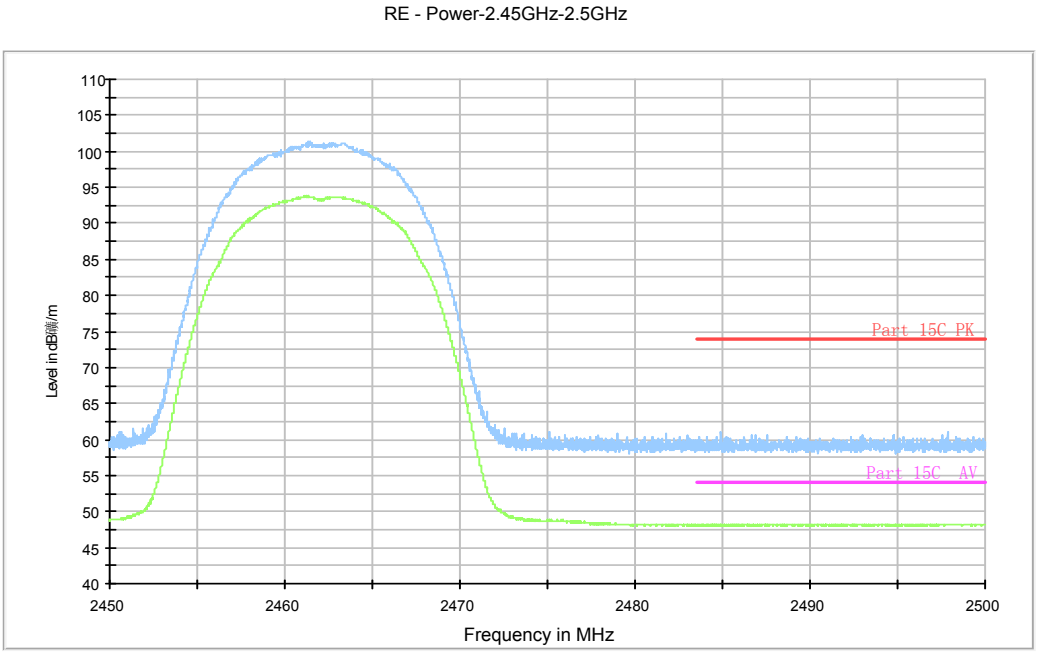


Fig.A.6.2.3 Transmitter Spurious Emission - Radiated (Power): 802.11g, ch1, 2.38 GHz - 2.43GHz



3

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

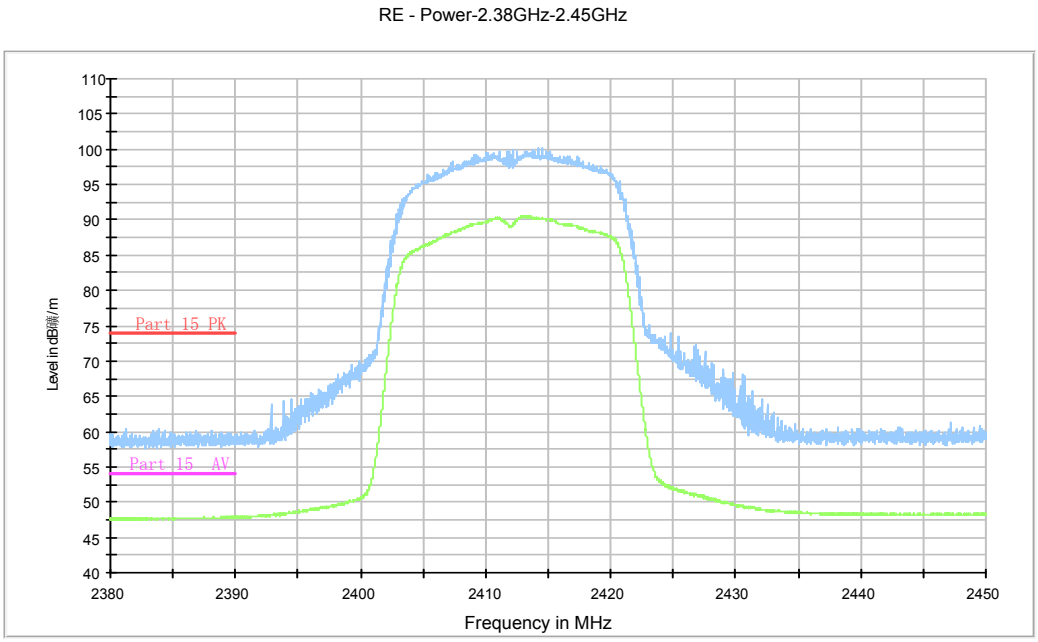


Fig.A.6.2.5 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT20, ch1, 2.38 GHz - 2.45GHz

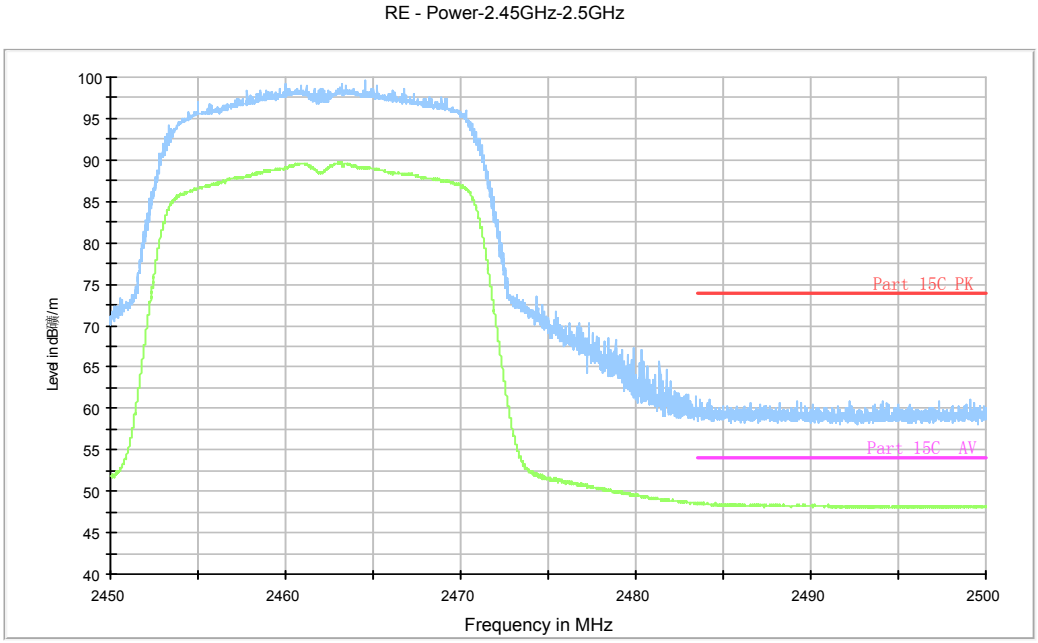


Fig.A.6.2.6 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT20, ch11, 2.45 GHz - 2.50GHz

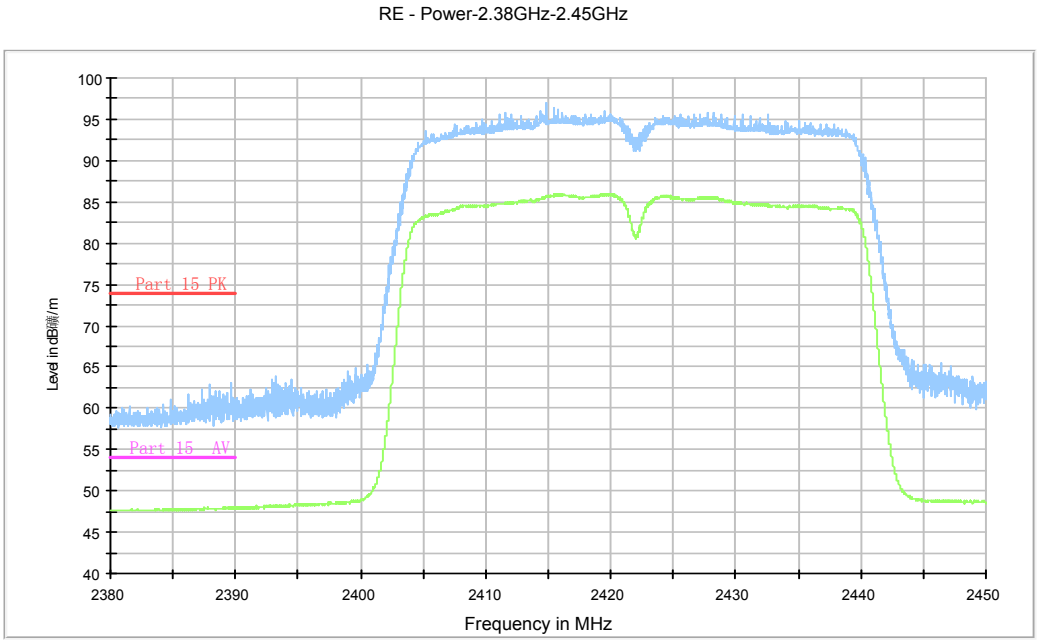


Fig.A.6.2.7 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT40, ch3, 2.38 GHz - 2.43GHz

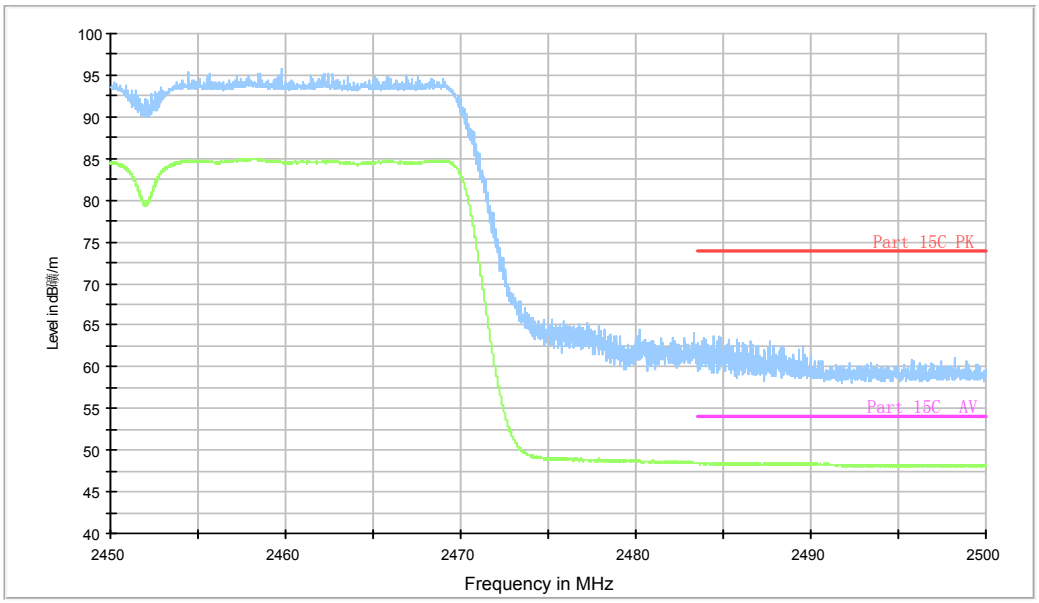


Fig.A.6.2.8 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT40, ch9, 2.45 GHz - 2.50GHz

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	
0.15 to 0.5	66 to 56	Fig.A.7.1	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	
0.15 to 0.5	56 to 46	Fig.A.7.1	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:

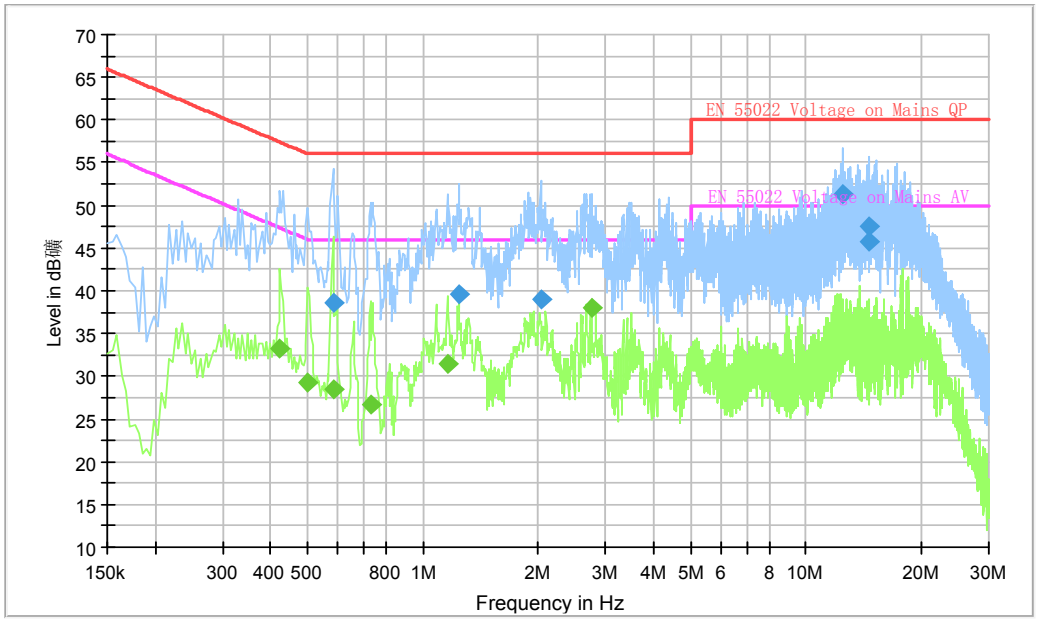


Fig.A.7.1 AC Powerline Conducted Emission-802.11b

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

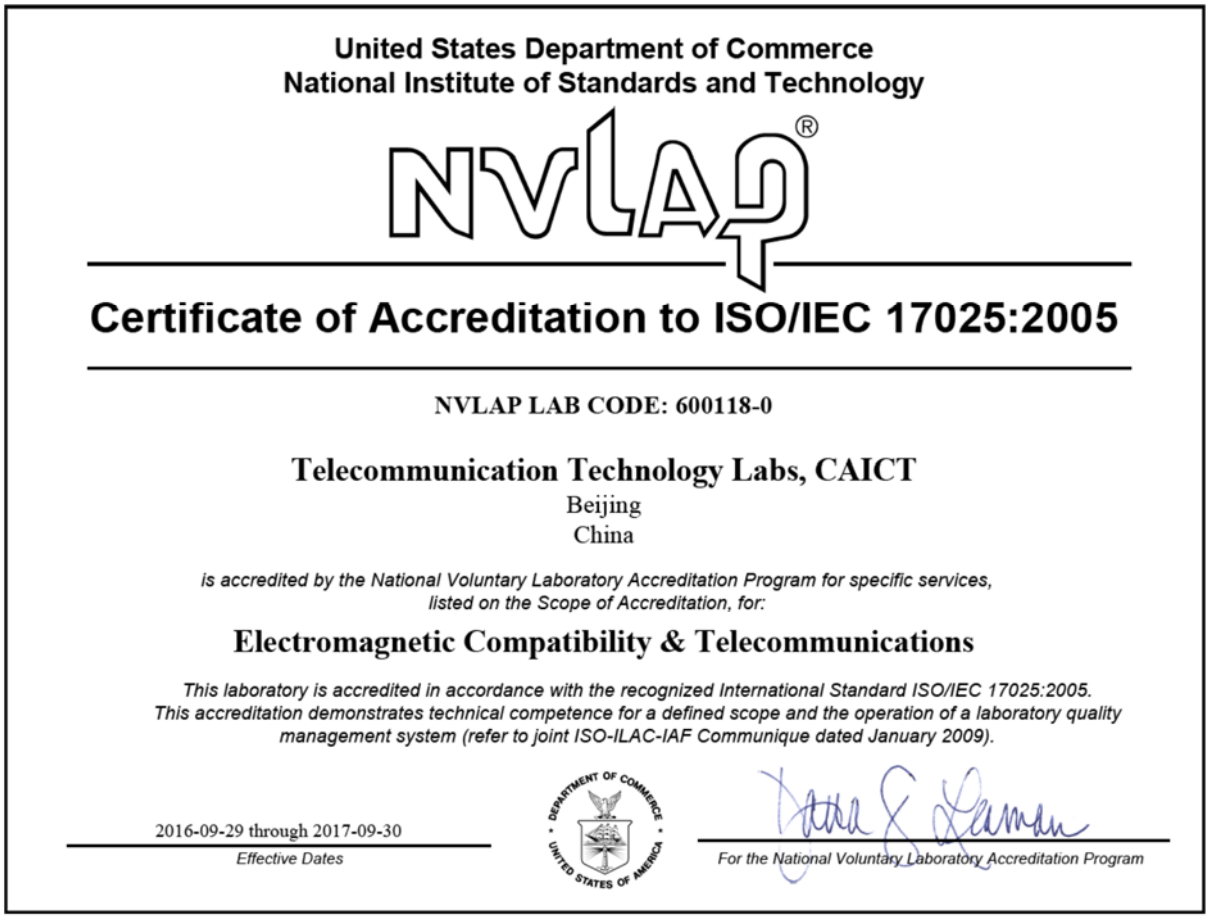
Final Result 1

Frequency	QuasiPeak	PE	Line	Corr.	Margin	Limit
0.582000	38.6	GND	L1	10.2	17.4	56.0
1.243500	39.5	GND	L1	10.2	16.5	56.0
2.031000	39.0	GND	L1	10.2	17.0	56.0
12.538500	51.2	GND	L1	10.7	8.8	60.0
14.572500	47.6	GND	N	10.8	12.4	60.0
14.586000	45.8	GND	L1	10.8	14.2	60.0

Final Result 2

Frequency	QuasiPeak	PE	Line	Corr.	Margin	Limit
0.424500	33.3	GND	L1	10.2	14.0	47.4
0.501000	29.3	GND	L1	10.2	16.7	46.0
0.582000	28.4	GND	L1	10.2	17.6	46.0
0.730500	26.6	GND	L1	10.2	19.4	46.0
1.158000	31.4	GND	L1	10.2	14.6	46.0
2.755500	38.1	GND	L1	10.2	7.9	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).

2016-09-29 through 2017-09-30
Effective Dates

DEPARTMENT OF COMMERCE · UNITED STATES OF AMERICA

For the National Voluntary Laboratory Accreditation Program

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