

Fig.A.6.1.69 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch11, 7.5 GHz-10 GHz)

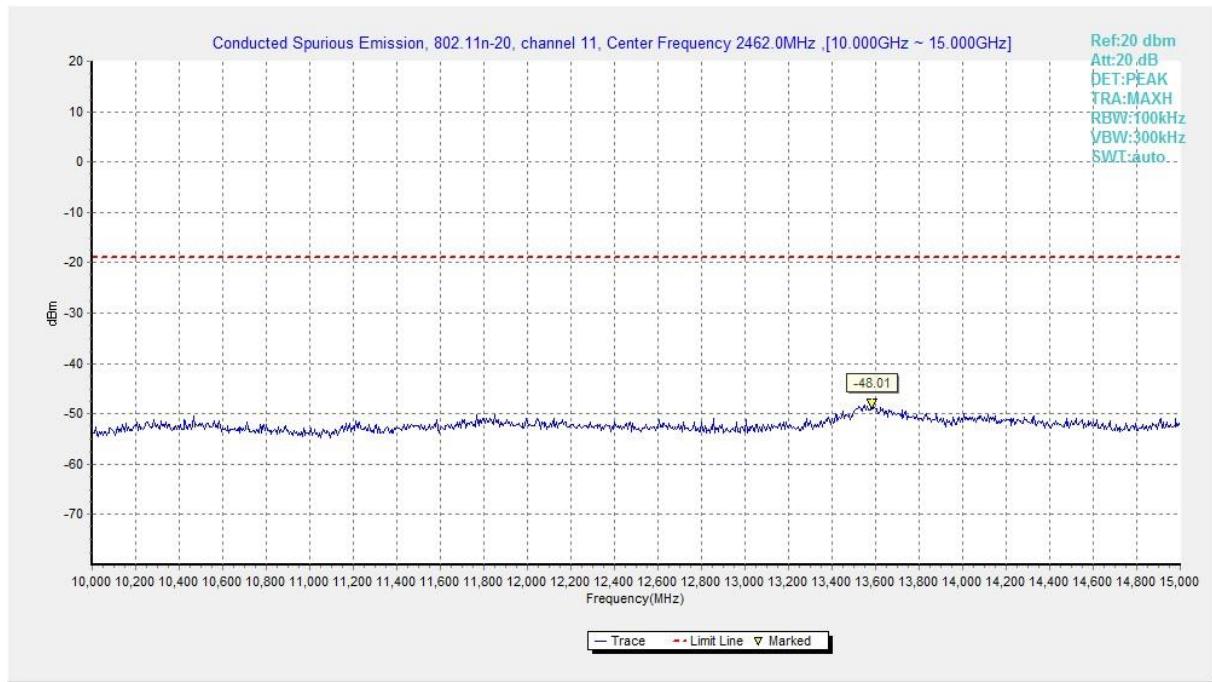


Fig.A.6.1.70 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch11, 10 GHz-15 GHz)

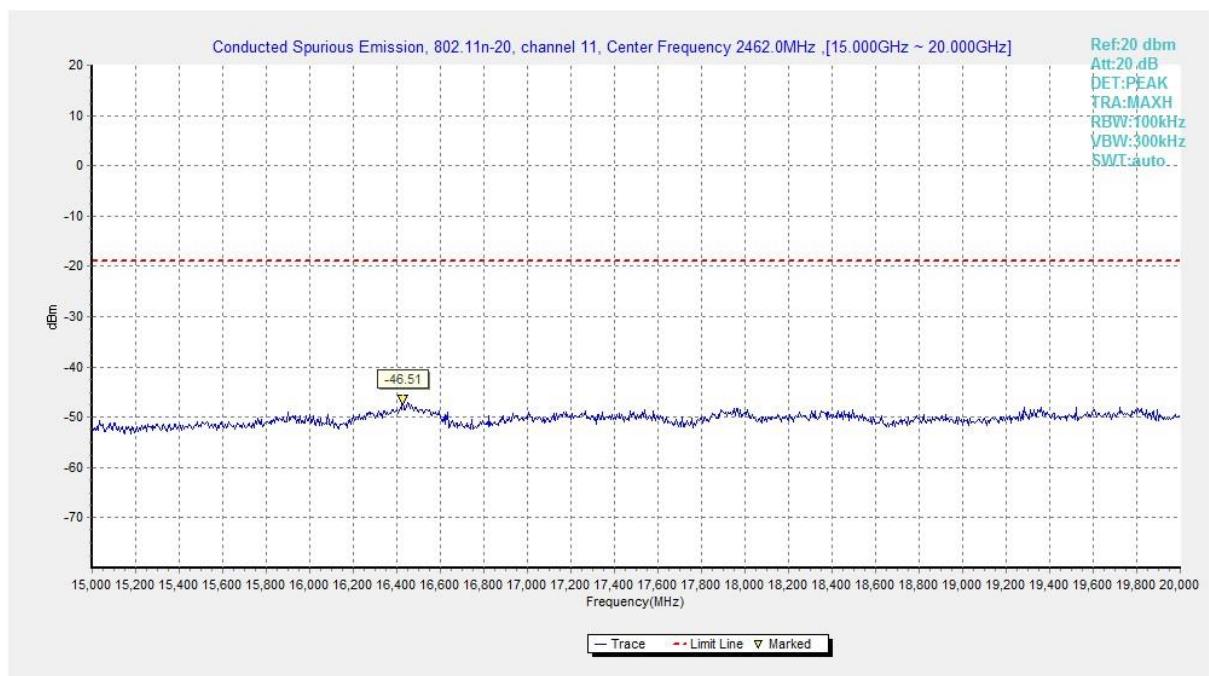


Fig.A.6.1.71 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch11, 15 GHz-20 GHz)

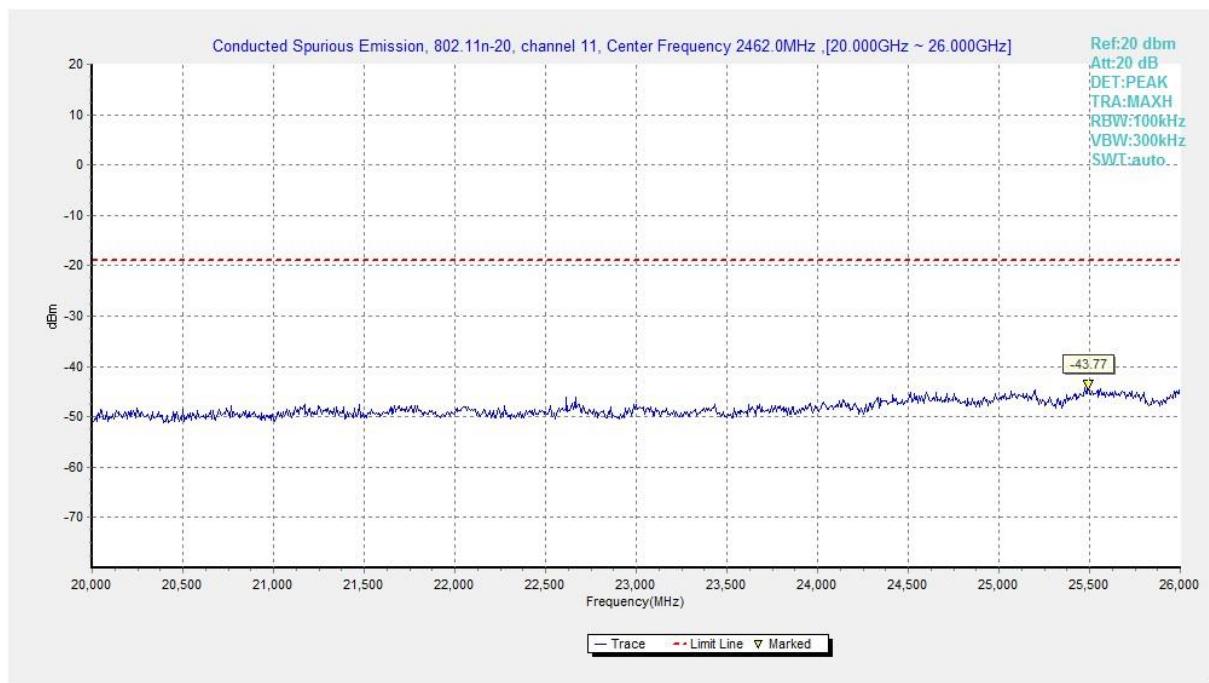


Fig.A.6.1.72 Transmitter Spurious Emission - Conducted (802.11n-HT20, Ch11, 20 GHz-26 GHz)

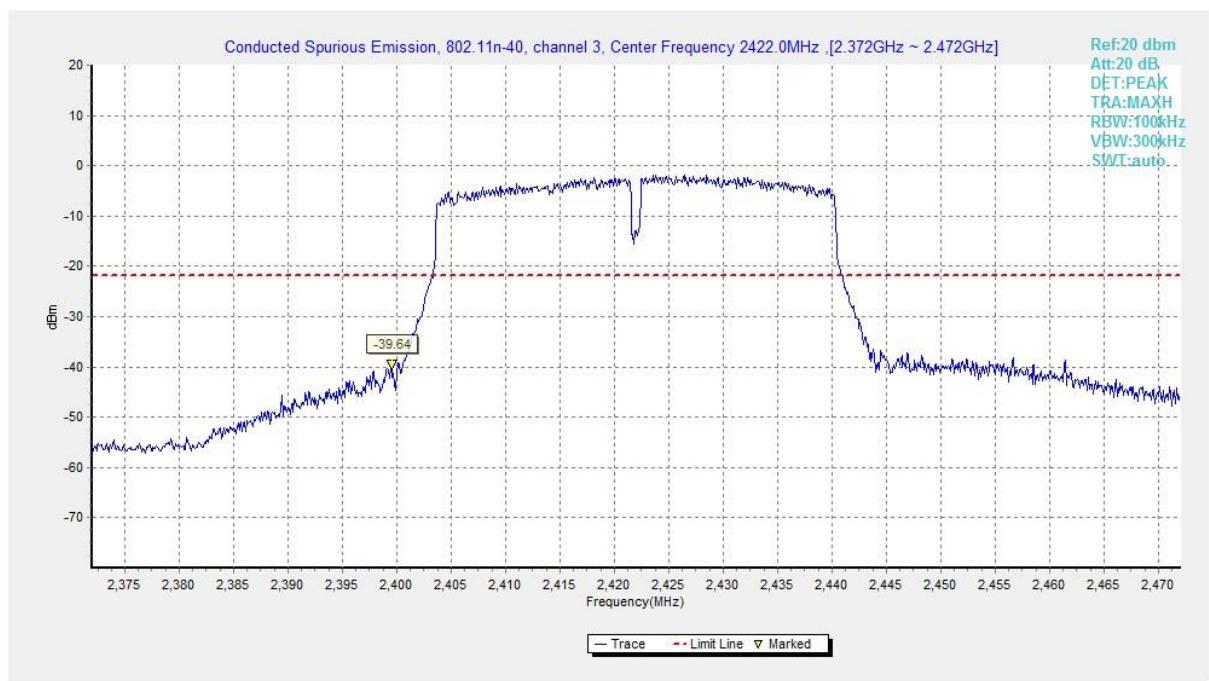


Fig.A.6.1.73 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch3, Center Frequency)

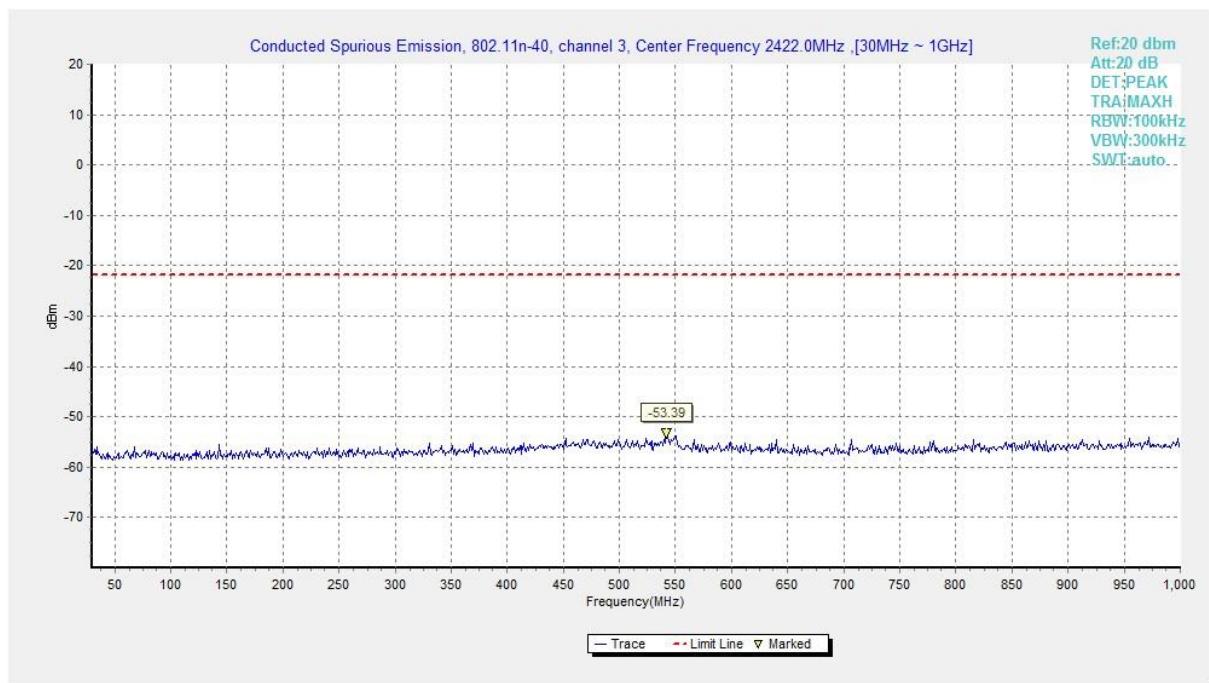


Fig.A.6.1.74 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch3, 30 MHz-1 GHz)

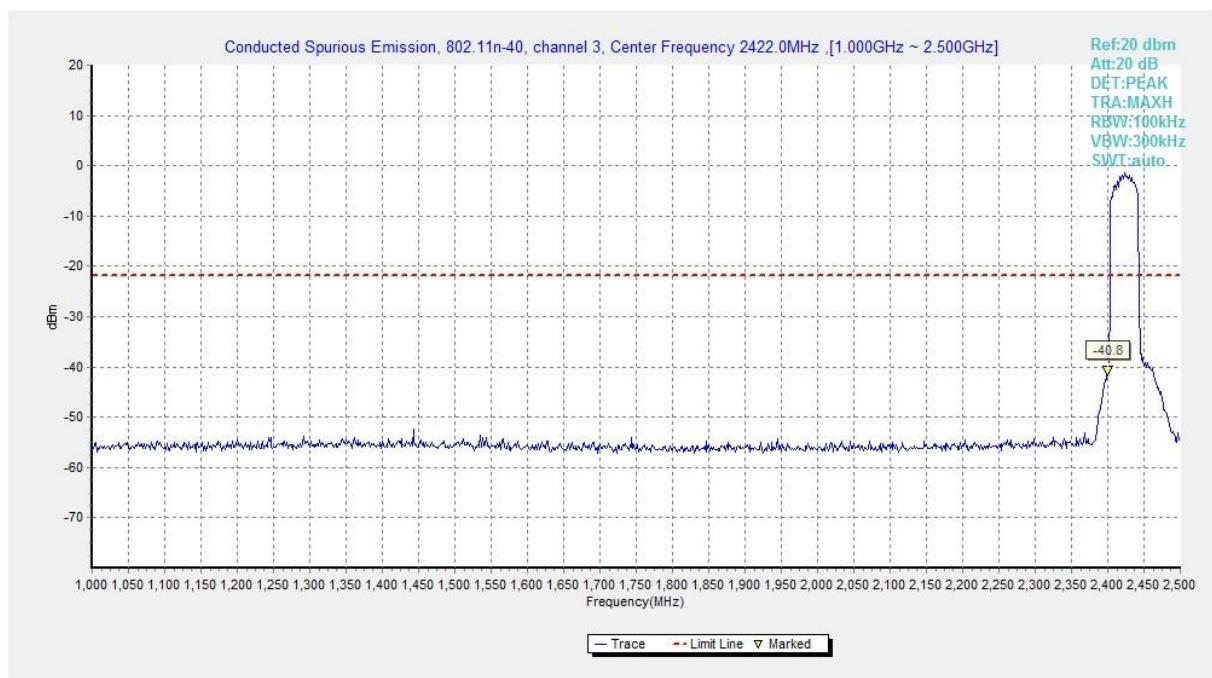


Fig.A.6.1.75 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch3, 1 GHz-2.5 GHz)

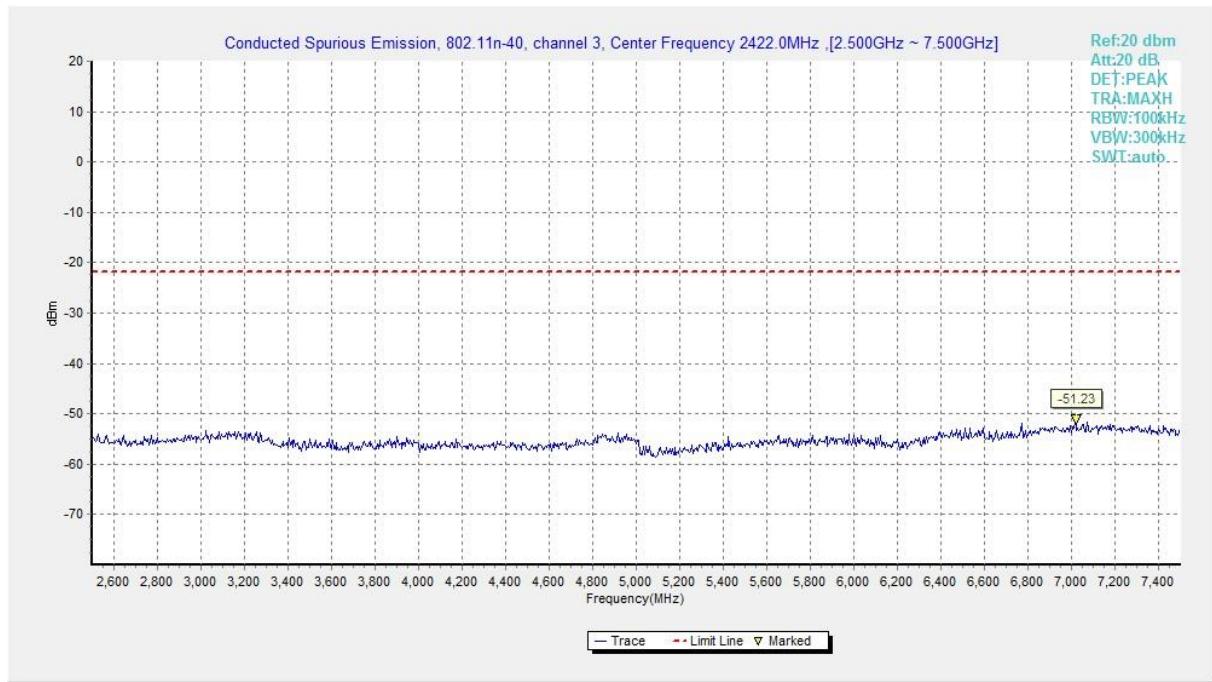


Fig.A.6.1.76 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch3, 2.5 GHz-7.5 GHz)

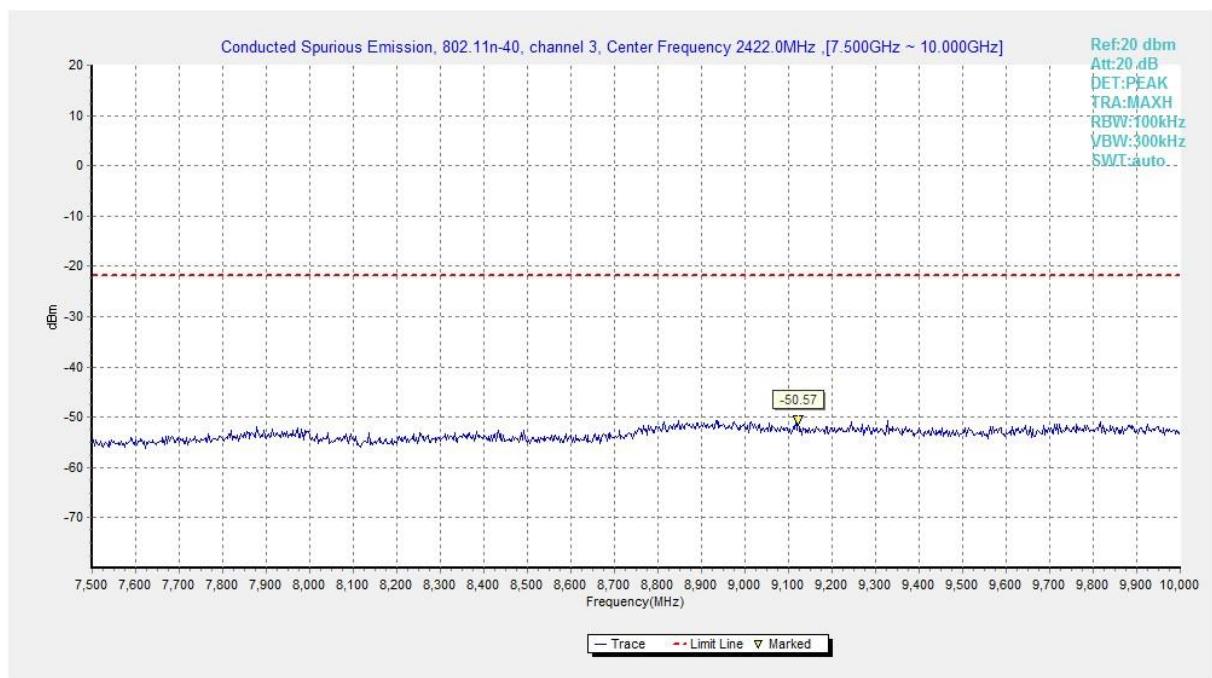


Fig.A.6.1.77 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch3, 7.5 GHz-10 GHz)

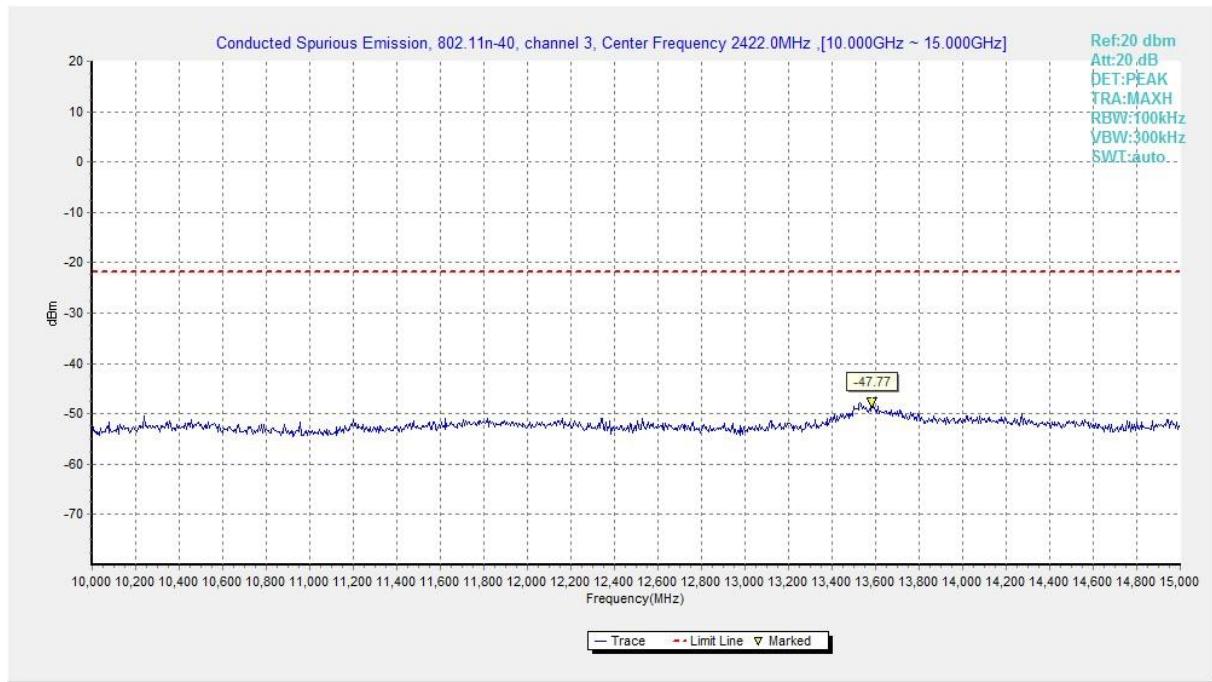


Fig.A.6.1.78 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch3, 10 GHz-15 GHz)

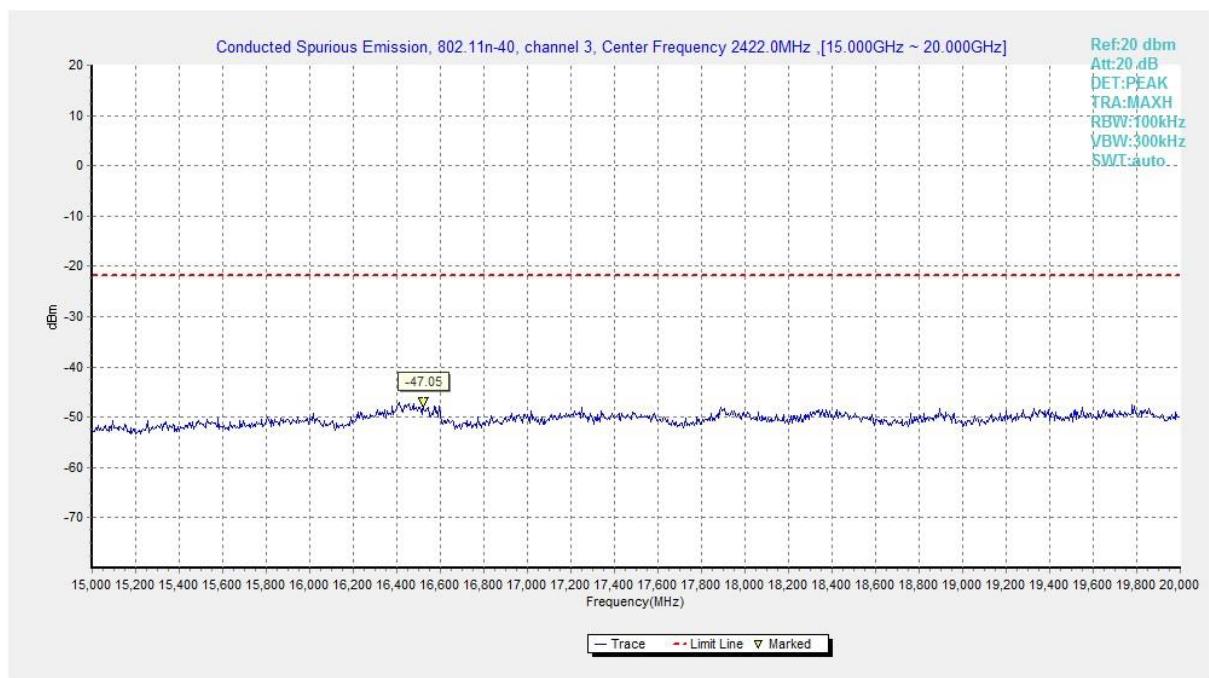


Fig.A.6.1.79 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch3, 15 GHz-20 GHz)

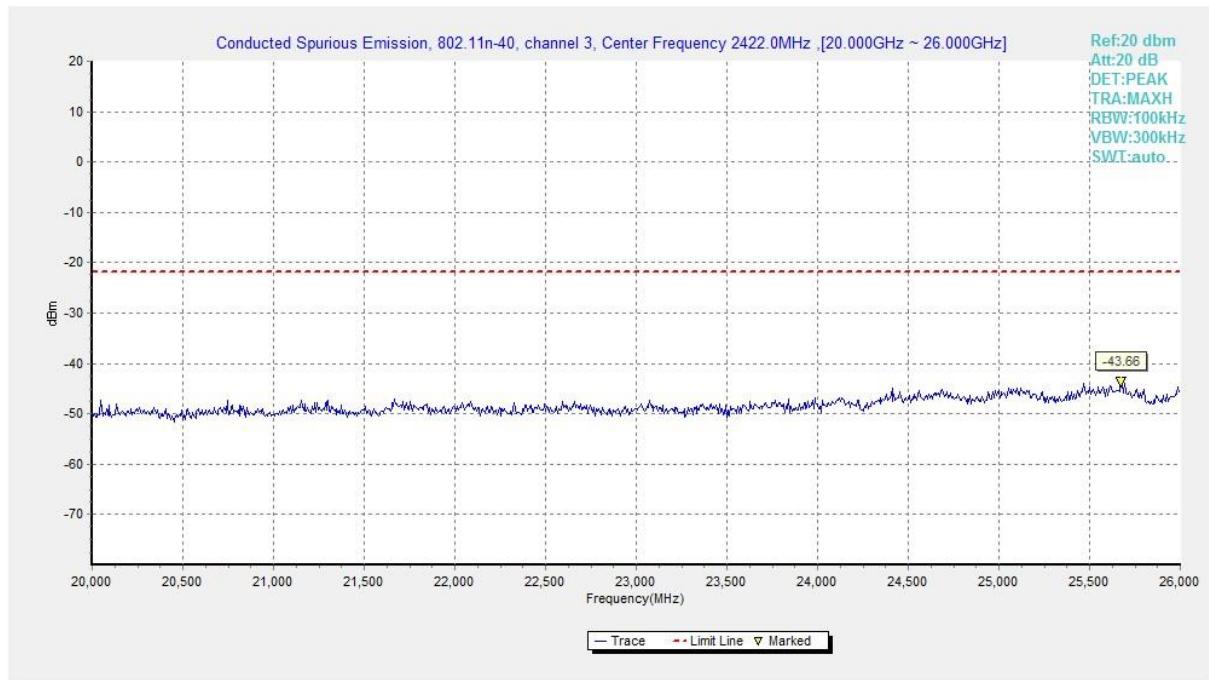


Fig.A.6.1.80 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch3, 20 GHz-26 GHz)

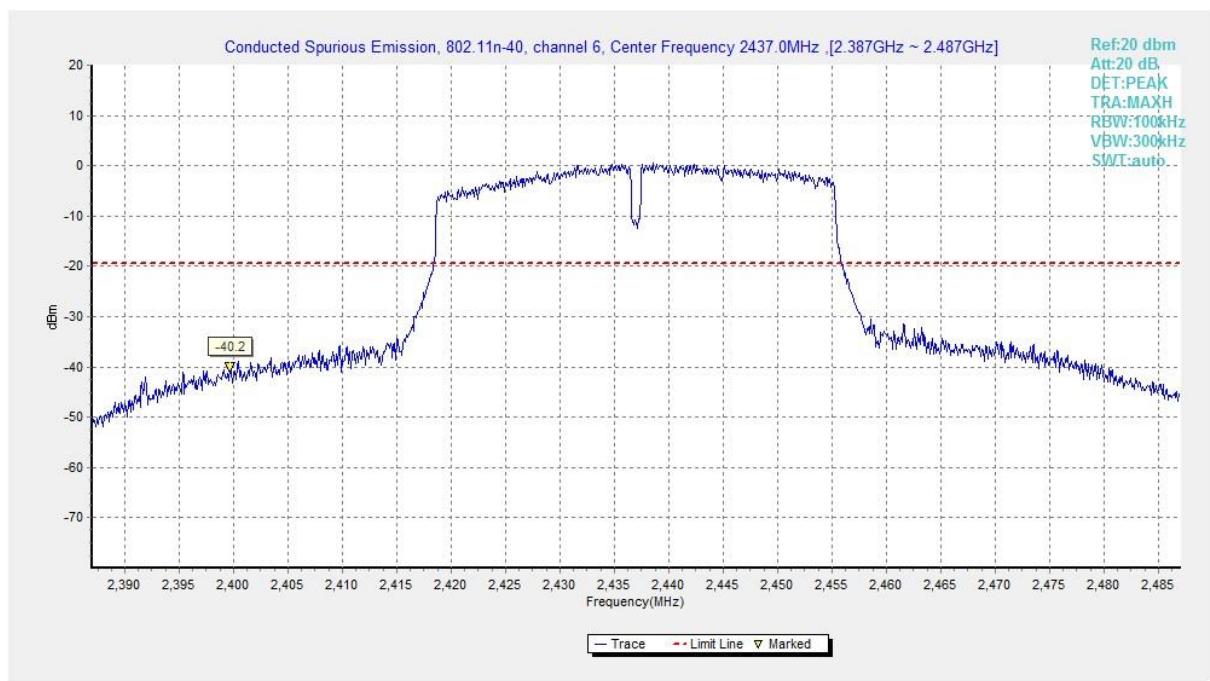


Fig.A.6.1.81 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch6, Center Frequency)

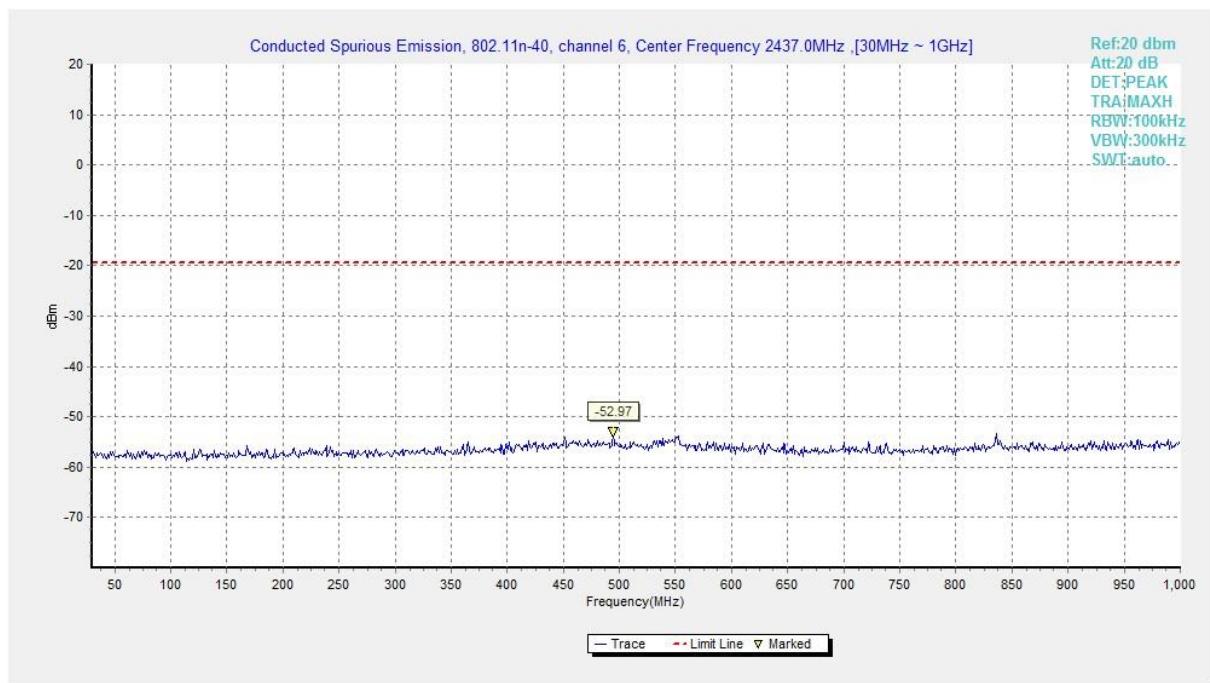


Fig.A.6.1.82 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch6, 30 MHz-1 GHz)

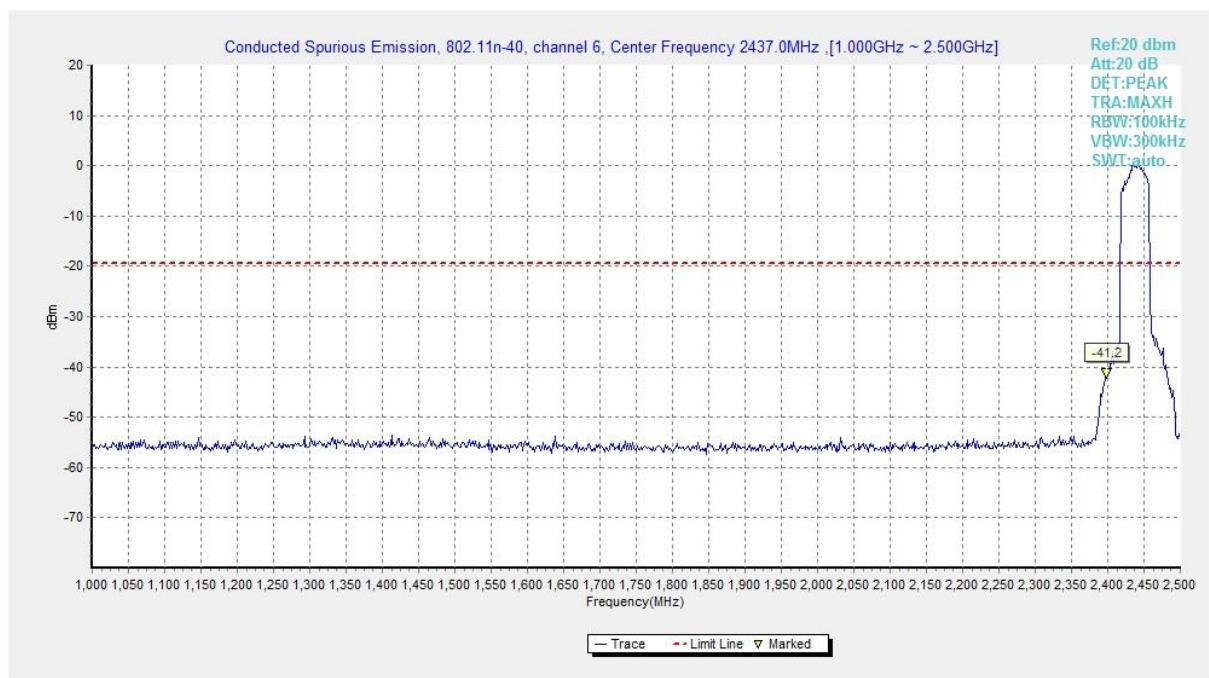


Fig.A.6.1.83 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch6, 1 GHz-2.5 GHz)

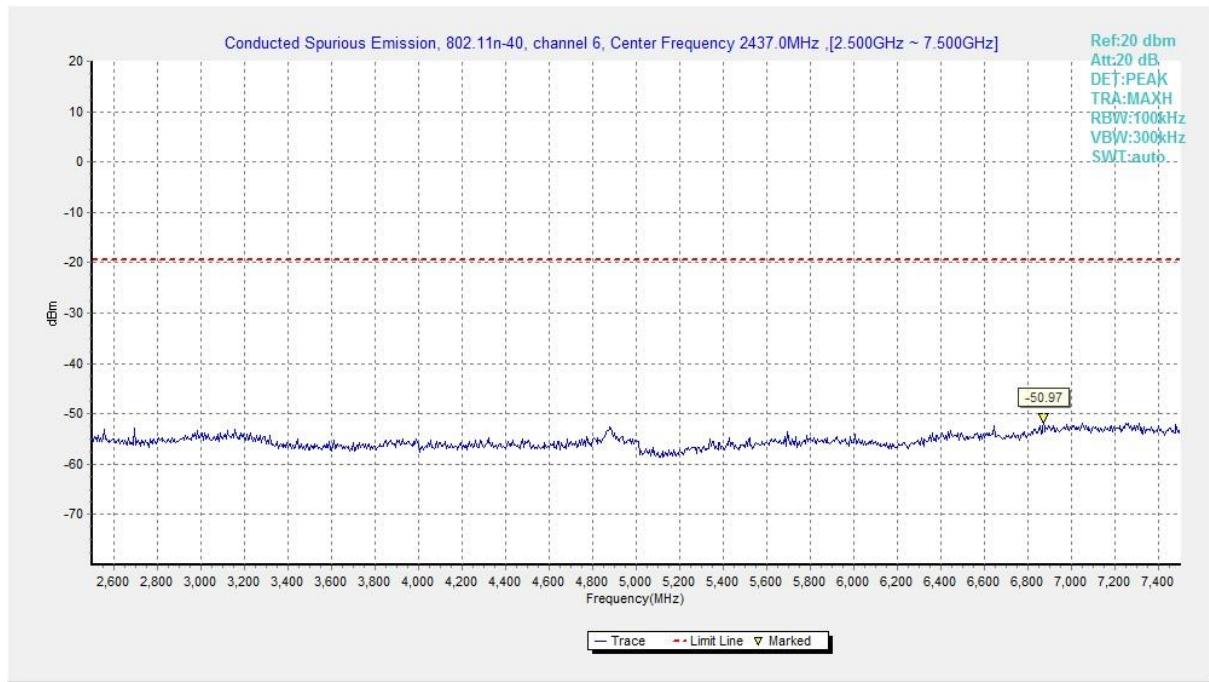


Fig.A.6.1.84 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch6, 2.5 GHz-7.5 GHz)

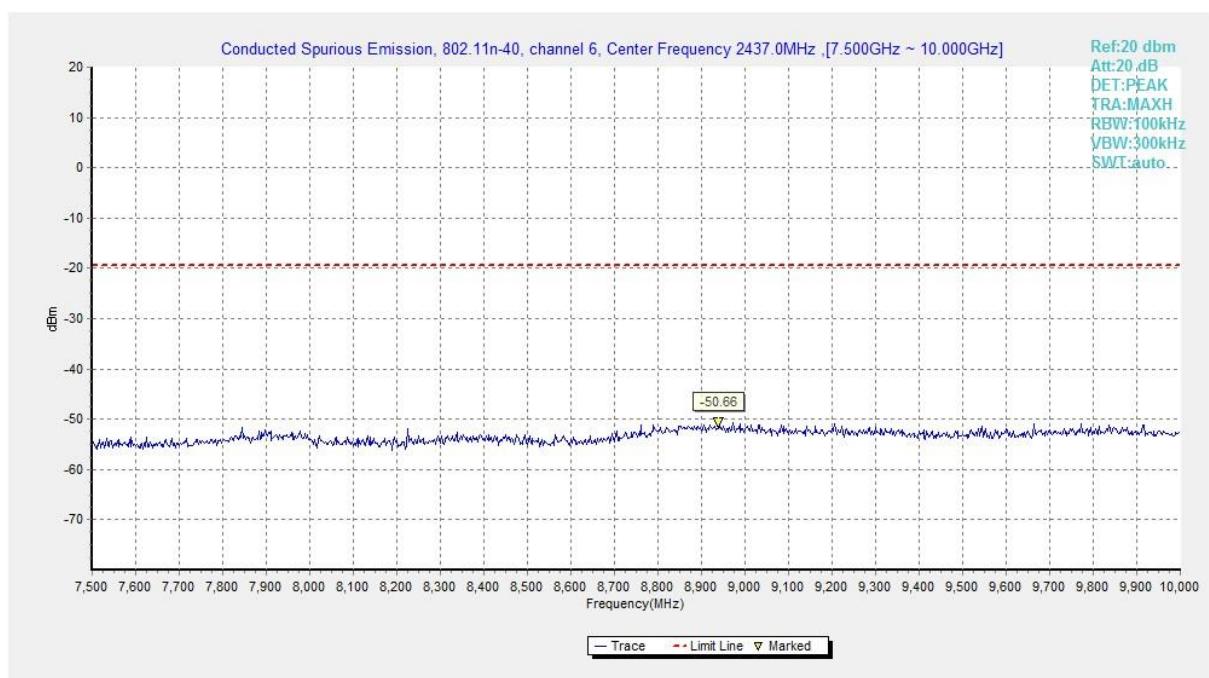


Fig.A.6.1.85 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch6, 7.5 GHz-10 GHz)

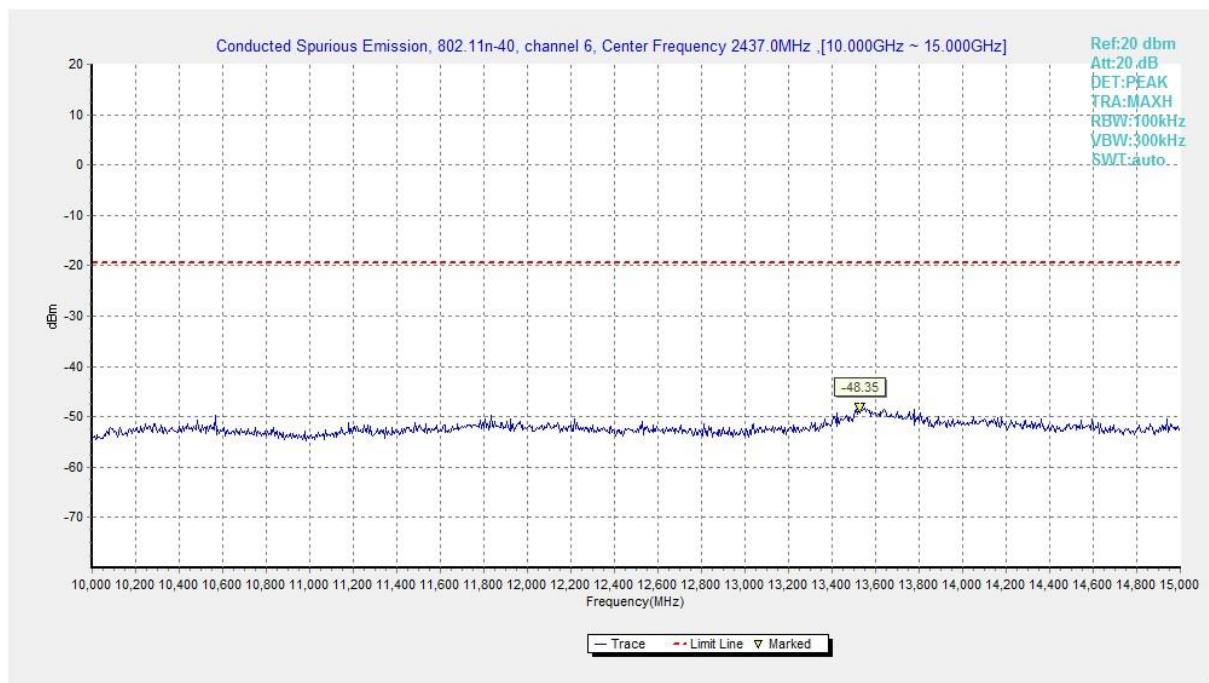


Fig.A.6.1.86 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch6, 10 GHz-15 GHz)

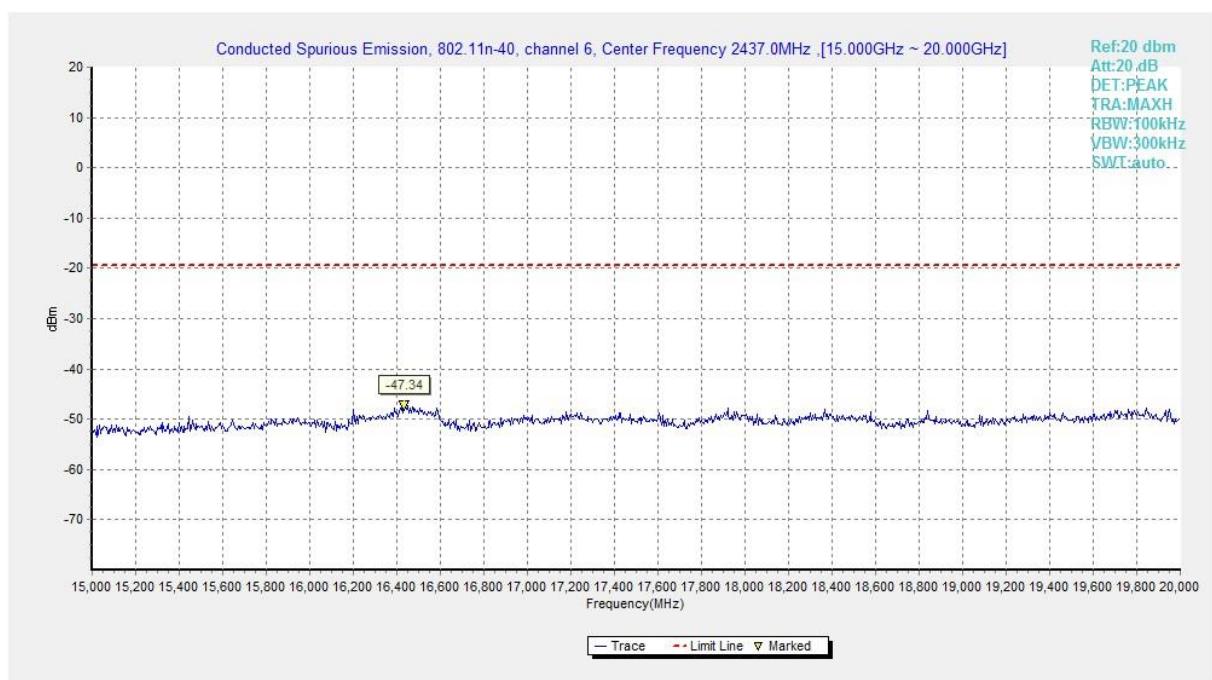


Fig.A.6.1.87 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch6, 15 GHz-20 GHz)

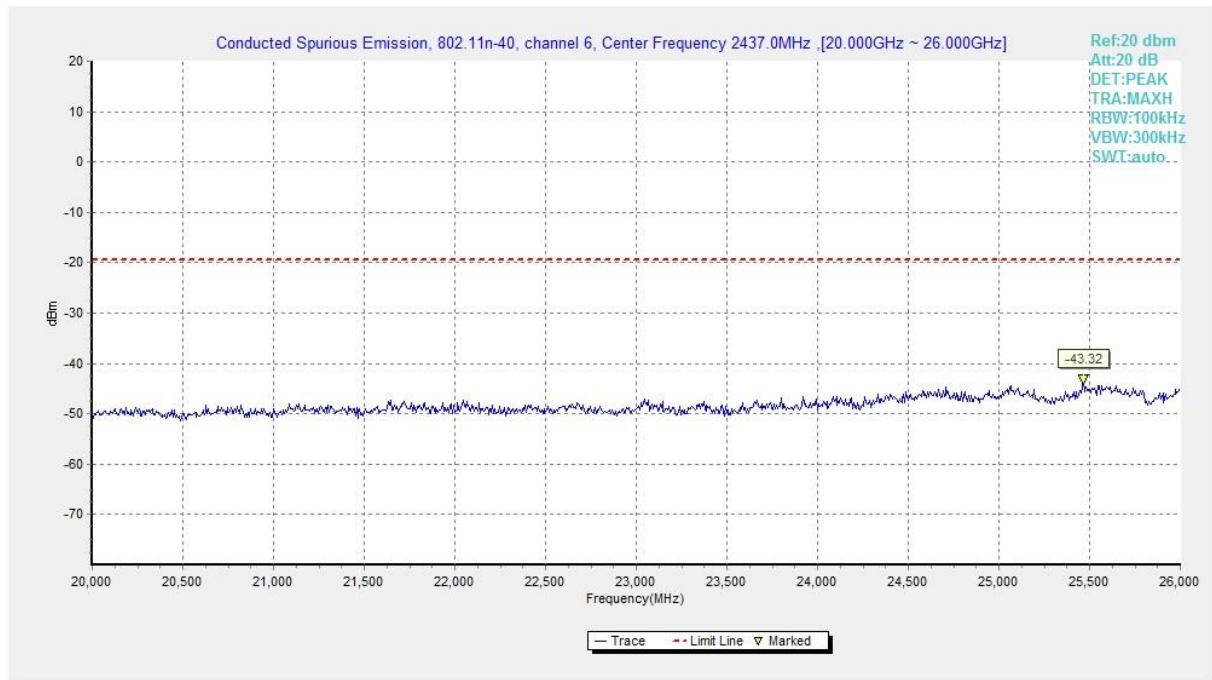


Fig.A.6.1.88 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch6, 20 GHz-26 GHz)

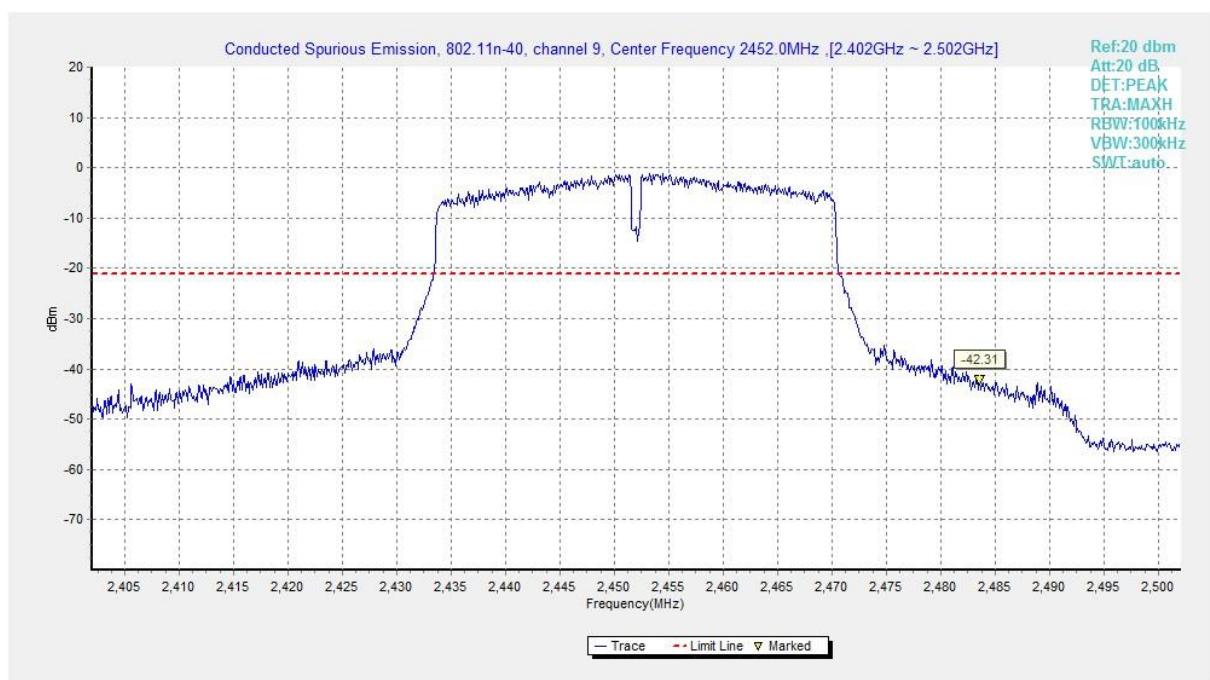


Fig.A.6.1.89 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch9, Center Frequency)

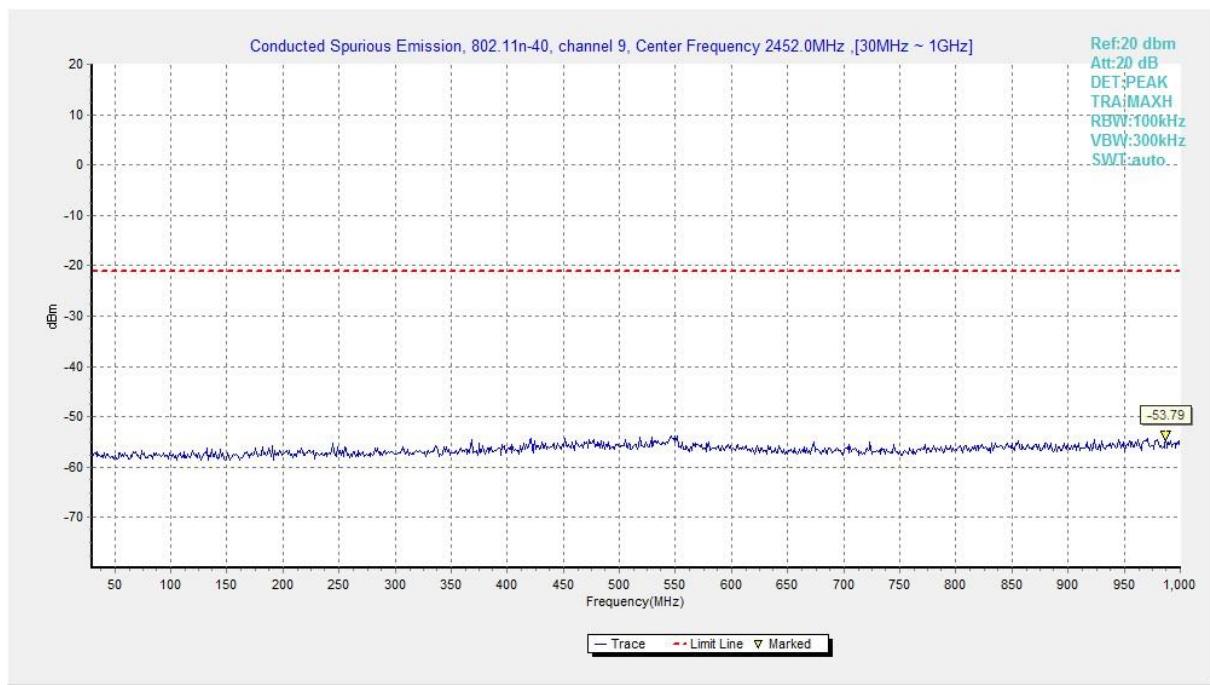


Fig.A.6.1.90 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch9, 30 MHz-1 GHz)

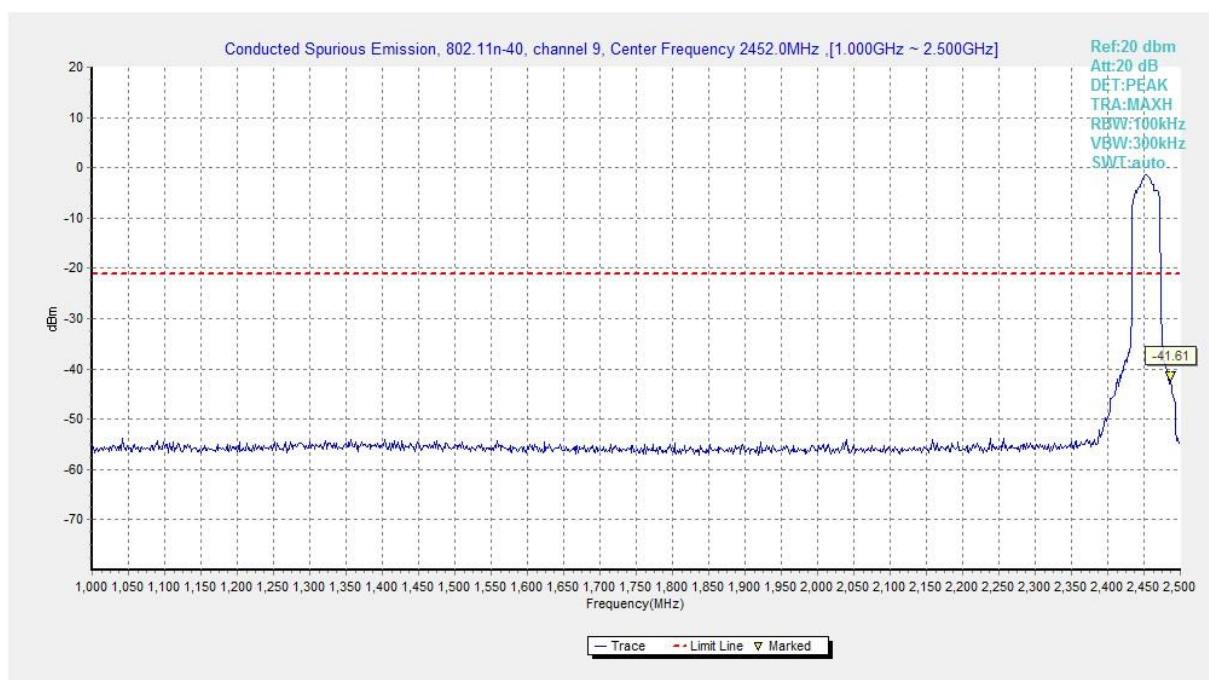


Fig.A.6.1.91 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch9, 1 GHz-2.5 GHz)

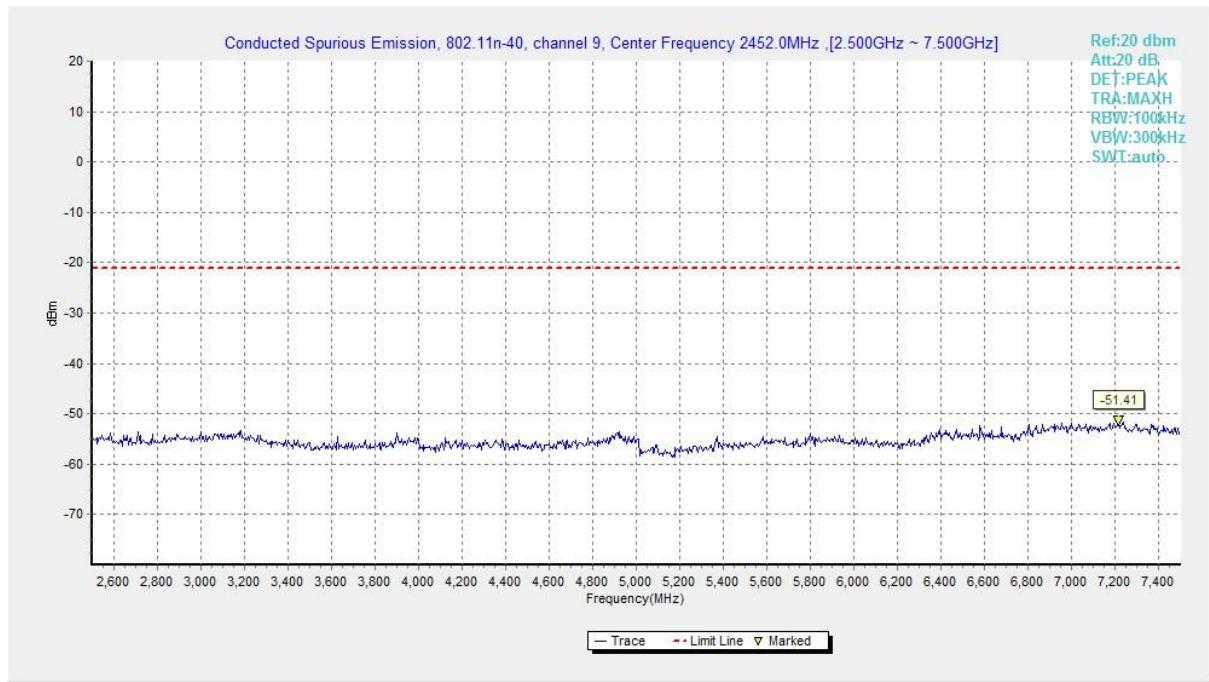


Fig.A.6.1.92 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch9, 2.5 GHz-7.5 GHz)

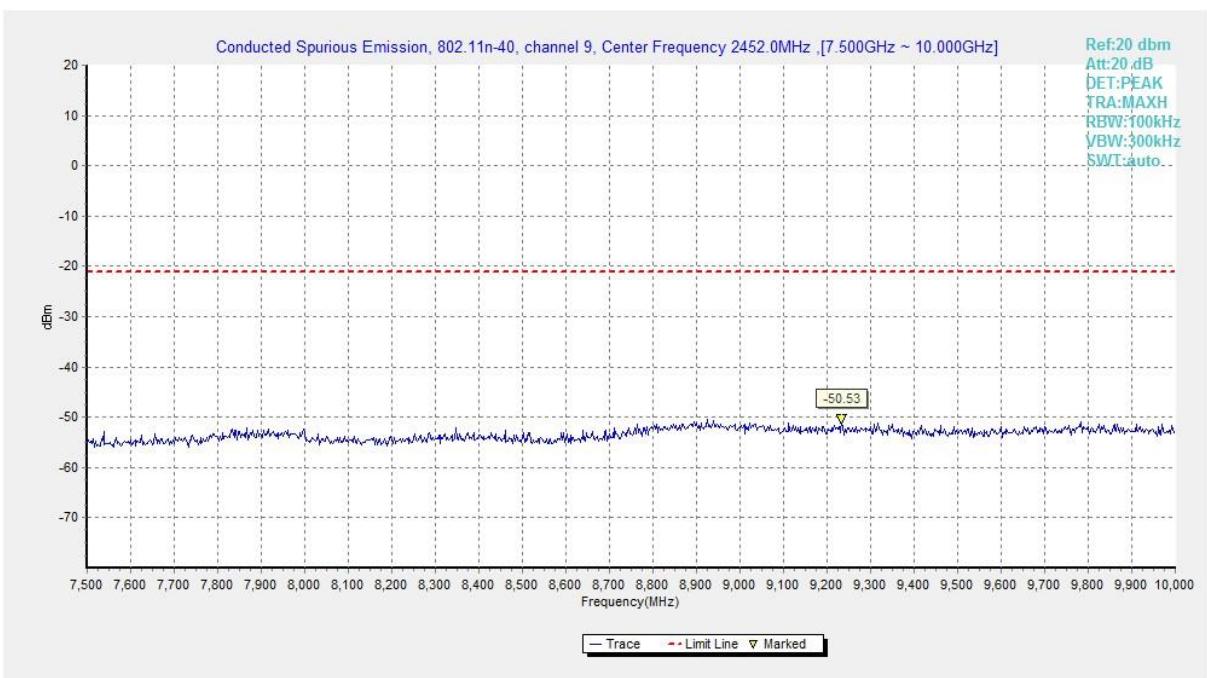


Fig.A.6.1.93 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch9, 7.5 GHz-10 GHz)

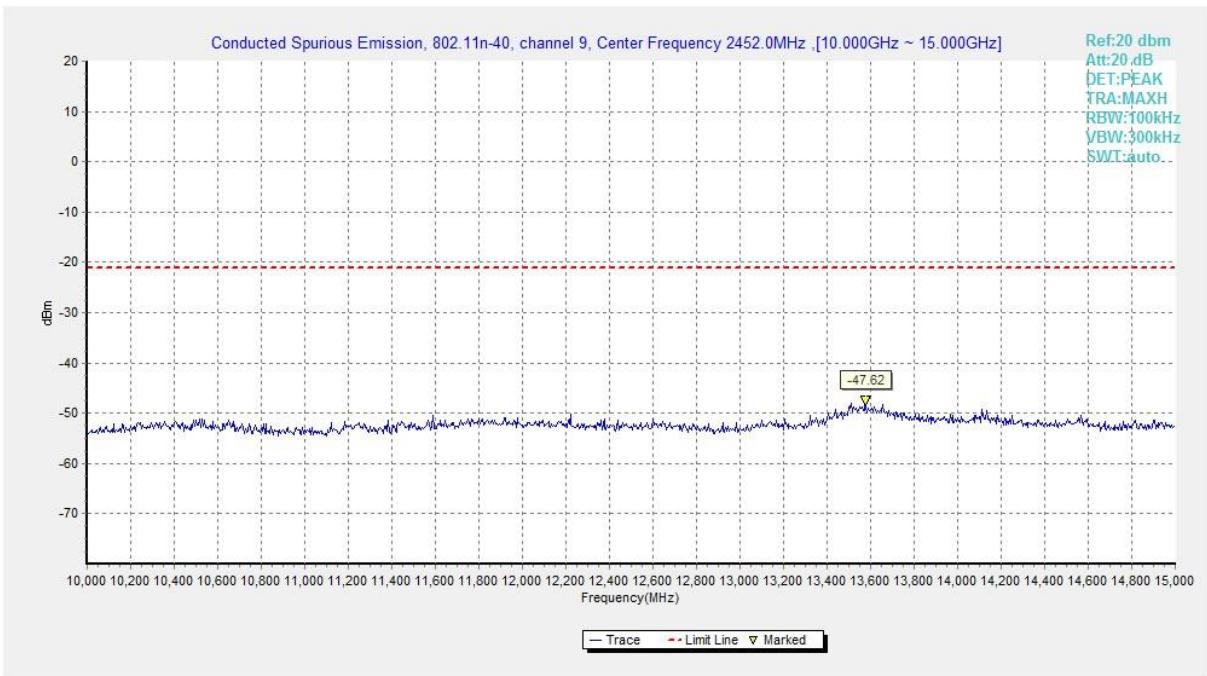


Fig.A.6.1.94 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch9, 10 GHz-15 GHz)

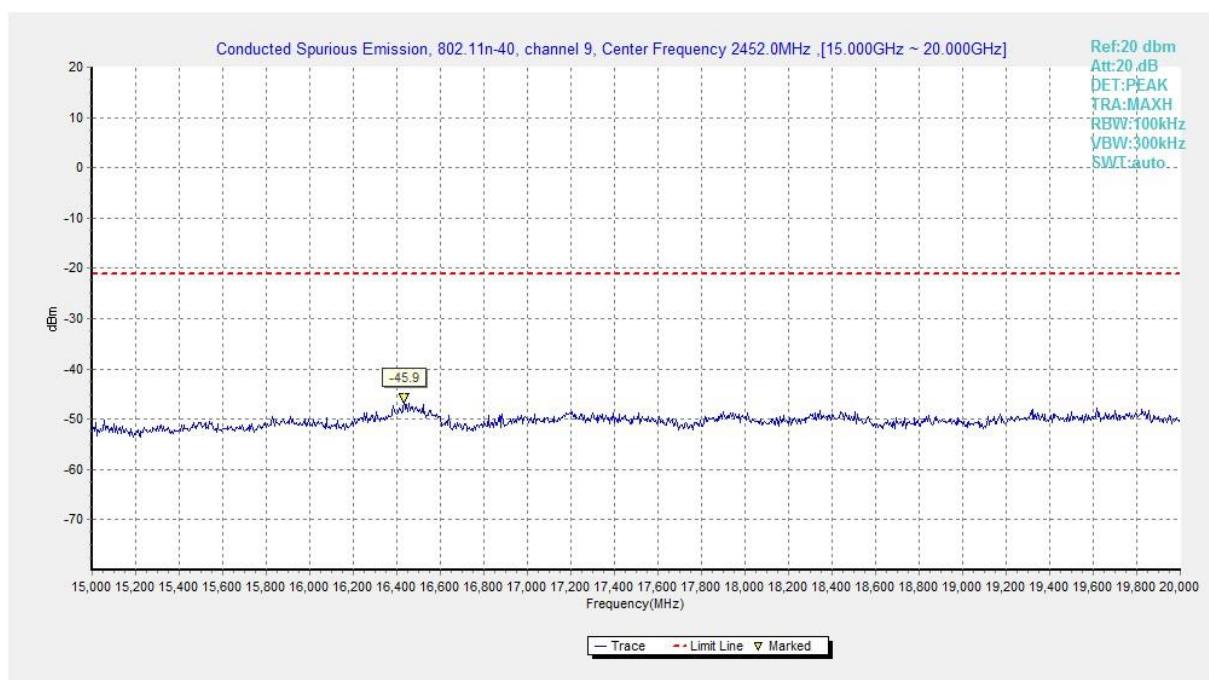


Fig.A.6.1.95 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch9, 15 GHz-20 GHz)

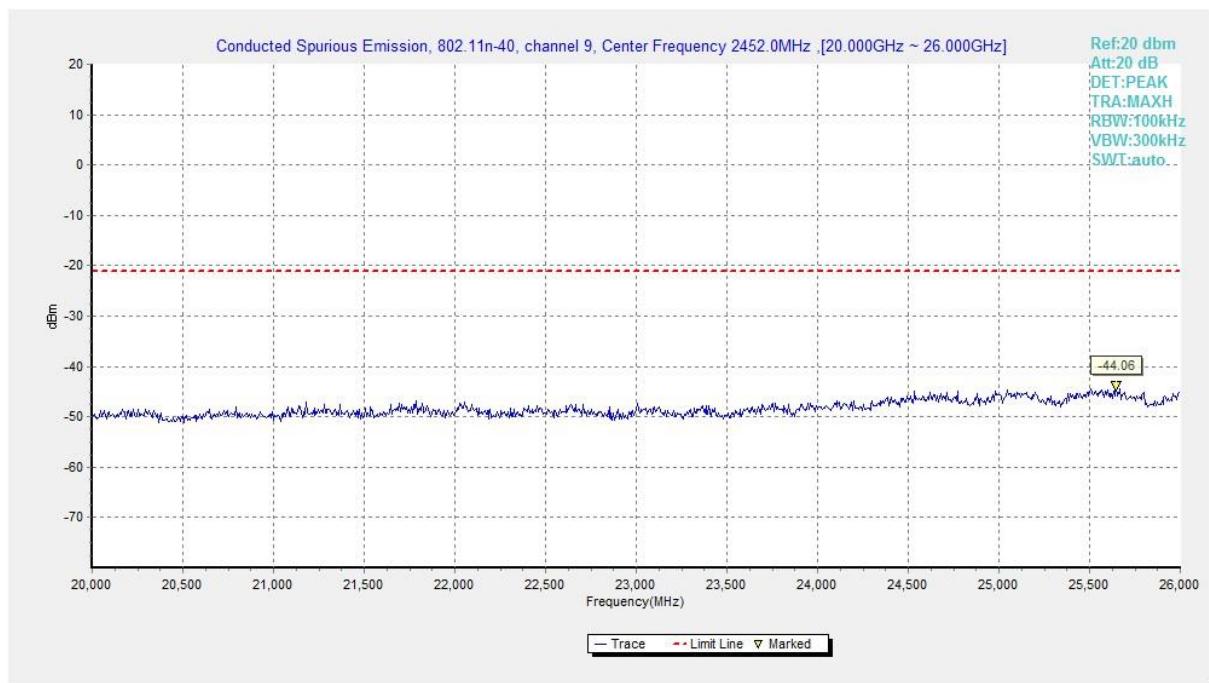


Fig.A.6.1.96 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch9, 20 GHz-26 GHz)

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(μ V/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 for Set.11:
802.11b mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11b	Power(ch1)	2.38GHz ~2.43GHz	Fig.A.6.2.1	P
	Power(ch11)	2.45GHz ~2.5GHz	Fig.A.6.2.2	P

802.11g mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11g	Power(ch1)	2.38GHz ~2.43GHz	Fig.A.6.2.3	P
	Power(ch11)	2.45GHz ~2.5GHz	Fig.A.6.2.4	P

802.11n-HT20 mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11n(HT20)	Power(ch1)	2.38GHz ~2.43GHz	Fig.A.6.2.5	P
	Power(ch11)	2.45GHz ~2.5GHz	Fig.A.6.2.6	P

802.11n-HT40 mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11n(HT40)	Power(ch3)	2.38GHz ~2.43GHz	Fig.A.6.2.7	P
	Power(ch9)	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:

$$\text{Result} = P_{Mea} + A_{RPL} = P_{Mea} + \text{Cable Loss} + \text{Antenna Factor}$$

802.11b-Average

Ch1

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2384.000	46.33	2.9	32.0	11.51	54.0	7.7	H	155	175
2387.300	46.36	2.9	32.0	11.54	54.0	7.6	H	155	194
4824.000	43.50	-35.2	34.1	44.65	54.0	10.5	H	155	215
7236.000	37.17	-32.4	35.8	33.81	54.0	16.8	H	155	196
9648.000	40.44	-30.1	36.8	33.80	54.0	13.6	H	155	241
12060.000	41.78	-31.0	38.9	33.89	54.0	12.2	H	155	259

Ch6

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2420.100	46.42	2.9	32.0	11.56	54.0	7.6	H	155	16
2456.600	46.37	2.9	32.0	11.47	54.0	7.6	H	155	48
4873.500	41.93	-35.5	34.1	43.34	54.0	12.1	H	155	80
7311.000	37.99	-31.6	35.8	33.79	54.0	16.0	H	155	8
9748.500	39.38	-31.3	36.9	33.77	54.0	14.6	H	155	102
12184.500	43.80	-29.1	39.0	33.96	54.0	10.2	H	155	118

Ch11

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2484.000	46.37	2.9	32.0	11.45	54.0	7.6	H	155	28
2496.600	46.37	2.9	32.0	11.43	54.0	7.6	H	155	248
4923.000	45.85	-35.2	34.1	46.94	54.0	8.1	H	155	38
7386.000	38.51	-31.2	35.8	33.94	54.0	15.5	H	155	98
9847.500	40.18	-30.6	37.0	33.73	54.0	13.8	H	155	183
12310.500	41.60	-31.6	39.0	34.18	54.0	12.4	H	155	356

802.11b-Peak

Ch1

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2368.170	60.18	2.9	32.0	25.38	74.0	13.8	V	155	176
2381.302	60.90	2.9	32.0	26.08	74.0	13.1	H	155	198
4824.000	47.90	-35.2	34.1	49.05	74.0	26.1	V	155	220
7236.000	42.94	-32.4	35.8	39.58	74.0	31.1	H	155	198
9648.000	45.56	-30.1	36.8	38.92	74.0	28.4	H	155	242
12060.000	46.19	-31.0	38.9	38.30	74.0	27.8	V	155	264

Ch6

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2363.800	48.30	-27.4	31.9	43.71	74.0	25.7	H	155	22
2514.400	48.03	-26.6	32.0	42.60	74.0	26.0	H	155	44
4873.500	46.08	-35.5	34.1	47.50	74.0	27.9	V	155	88
7311.000	42.38	-31.6	35.8	38.18	74.0	31.6	V	155	0
9748.000	43.85	-31.3	36.9	38.23	74.0	30.2	H	155	110
12185.000	46.77	-29.1	39.0	36.92	74.0	27.2	H	155	132

Ch11

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2483.950	60.60	2.9	32.0	25.67	74.0	13.4	H	155	22
2488.885	60.43	2.9	32.0	25.50	74.0	13.6	H	155	242
4924.000	49.08	-35.2	34.1	50.15	74.0	24.9	V	155	44
7386.000	43.78	-31.2	35.8	39.21	74.0	30.2	H	155	88
9848.000	44.97	-30.5	37.0	38.50	74.0	29.0	V	155	176
12310.000	43.96	-31.6	39.0	36.53	74.0	30.0	H	155	0

802.11g - Average

Ch1

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2387.700	46.29	2.9	32.0	11.47	54.0	7.7	H	155	18
2389.600	46.31	2.9	32.0	11.49	54.0	7.7	H	155	56
4824.000	37.99	-35.2	34.1	39.13	54.0	16.0	H	155	139
7236.000	37.23	-32.4	35.8	33.87	54.0	16.8	H	155	108
9648.000	40.29	-30.1	36.8	33.65	54.0	13.7	H	155	78
12060.000	41.63	-31.0	38.9	33.74	54.0	12.4	H	155	36

Ch6

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2424.000	46.78	2.9	32.0	11.92	54.0	7.2	H	155	5
2456.900	46.75	2.9	32.0	11.86	54.0	7.2	H	155	25
4875.000	37.33	-35.5	34.1	38.75	54.0	16.7	H	155	356
7311.000	38.02	-31.6	35.8	33.81	54.0	16.0	H	155	350
9748.500	39.11	-31.3	36.9	33.49	54.0	14.9	H	155	185
12184.500	43.67	-29.1	39.0	33.83	54.0	10.3	H	155	187

Ch11

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2483.500	46.49	2.9	32.0	11.56	54.0	7.5	H	155	86
2484.300	46.47	2.9	32.0	11.54	54.0	7.5	H	155	107
4924.500	41.03	-35.2	34.1	42.11	54.0	13.0	H	155	130
7386.000	38.45	-31.2	35.8	33.87	54.0	15.6	H	155	152
9847.750	39.99	-30.6	37.0	33.52	54.0	14.0	H	155	174
12310.500	41.43	-31.6	39.0	34.02	54.0	12.6	H	155	195

802.11g - Peak

Ch1

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2386.608	60.52	2.9	32.0	25.69	74.0	13.5	H	155	22
2389.254	65.28	2.9	32.0	30.45	74.0	8.7	H	155	44
4824.000	43.68	-35.2	34.1	44.83	74.0	30.3	H	155	132
7236.000	43.38	-32.4	35.8	40.02	74.0	30.6	V	155	110
9648.000	45.90	-30.1	36.8	39.26	74.0	28.1	H	155	88
12060.000	46.41	-31.0	38.9	38.52	74.0	27.6	H	155	44

Ch6

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2348.400	47.95	-27.7	31.9	43.72	74.0	26.0	H	155	0
2622.600	48.92	-26.8	32.2	43.56	74.0	25.1	H	155	22
4877.500	51.71	-35.5	34.1	53.14	74.0	22.3	H	155	352
7311.000	43.23	-31.6	35.8	39.02	74.0	30.8	V	155	352
9748.000	43.01	-31.3	36.9	37.39	74.0	31.0	V	155	176
12185.000	46.33	-29.1	39.0	36.48	74.0	27.7	V	155	176

Ch11

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2485.290	65.57	2.9	32.0	30.65	74.0	8.4	V	155	88
2486.345	65.87	2.9	32.0	30.94	74.0	8.1	H	155	110
4924.000	56.03	-35.2	34.1	57.11	74.0	18.0	V	155	132
7386.000	43.66	-31.2	35.8	39.09	74.0	30.3	H	155	154
9848.000	43.66	-30.5	37.0	37.19	74.0	30.3	V	155	176
12310.000	44.17	-31.6	39.0	36.75	74.0	29.8	V	155	198

802.11n-HT20-Average

Ch1

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2386.700	46.33	2.9	32.0	11.50	54.0	7.7	H	155	8
2389.400	46.30	2.9	32.0	11.48	54.0	7.7	H	155	52
4824.000	33.42	-35.2	34.1	34.57	54.0	20.6	H	155	18
7236.000	37.20	-32.4	35.8	33.84	54.0	16.8	H	155	6
9648.000	40.51	-30.1	36.8	33.87	54.0	13.5	H	155	48
12060.000	41.76	-31.0	38.9	33.87	54.0	12.2	H	155	128

Ch6

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2417.500	46.52	2.9	32.0	11.67	54.0	7.5	H	155	40
2465.100	46.32	2.9	32.0	11.41	54.0	7.7	H	155	65
4873.500	32.77	-35.5	34.1	34.18	54.0	21.2	H	155	84
7311.000	38.08	-31.6	35.8	33.88	54.0	15.9	H	155	107
9748.500	39.35	-31.3	36.9	33.73	54.0	14.6	H	155	135
12184.500	43.78	-29.1	39.0	33.94	54.0	10.2	H	155	151

Ch11

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2483.500	46.43	2.9	32.0	11.51	54.0	7.6	H	155	135
2487.700	46.43	2.9	32.0	11.50	54.0	7.6	H	155	160
4924.500	33.77	-35.2	34.1	34.84	54.0	20.2	H	155	92
7386.000	38.61	-31.2	35.8	34.04	54.0	15.4	H	155	115
9847.500	40.25	-30.6	37.0	33.79	54.0	13.8	H	155	112
12310.500	41.47	-31.6	39.0	34.06	54.0	12.5	H	155	85

802.11n-HT20-Peak

Ch1

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2388.106	61.77	2.9	32.0	26.95	74.0	12.2	V	155	0
2388.582	62.50	2.9	32.0	27.68	74.0	11.5	H	155	44
4824.000	41.59	-35.2	34.1	42.74	74.0	32.4	V	155	22
7236.000	43.09	-32.4	35.8	39.73	74.0	30.9	H	155	0
9648.000	45.89	-30.1	36.8	39.25	74.0	28.1	H	155	44
12060.000	47.74	-31.0	38.9	39.86	74.0	26.3	V	155	132

Ch6

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2333.800	47.66	-27.7	31.9	43.42	74.0	26.3	V	155	44
2547.800	48.17	-26.8	32.1	42.91	74.0	25.8	H	155	66
4874.000	38.99	-35.5	34.1	40.41	74.0	35.0	H	155	88
7311.000	43.38	-31.6	35.8	39.18	74.0	30.6	V	155	110
9748.000	44.95	-31.3	36.9	39.32	74.0	29.1	V	155	132
12185.000	47.49	-29.1	39.0	37.64	74.0	26.5	H	155	154

Ch11

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2484.625	63.02	2.9	32.0	28.09	74.0	11.0	H	155	132
2483.880	62.26	2.9	32.0	27.33	74.0	11.7	H	155	154
4922.500	43.27	-35.2	34.1	44.36	74.0	30.7	V	155	88
7386.000	44.20	-31.2	35.8	39.62	74.0	29.8	H	155	110
9848.000	45.32	-30.5	37.0	38.85	74.0	28.7	V	155	110
12310.000	43.90	-31.6	39.0	36.48	74.0	30.1	V	155	88

802.11n-HT40-Average

Ch3

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2389.500	46.71	2.9	32.0	11.89	54.0	7.3	H	155	20
2390.000	46.78	2.9	32.0	11.95	54.0	7.2	H	155	18
4843.500	32.91	-35.4	34.1	34.21	54.0	21.1	H	155	90
7266.000	37.10	-32.5	35.8	33.80	54.0	16.9	H	155	114
9688.500	39.94	-30.7	36.8	33.81	54.0	14.1	H	155	36
12109.500	42.12	-30.7	38.9	33.86	54.0	11.9	H	155	2

Ch6

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2412.800	46.42	2.9	32.0	11.57	54.0	7.6	H	155	28
2465.100	46.73	2.9	32.0	11.82	54.0	7.3	H	155	46
4873.500	32.64	-35.5	34.1	34.05	54.0	21.4	H	155	8
7311.000	37.97	-31.6	35.8	33.77	54.0	16.0	H	155	6
9748.500	39.48	-31.3	36.9	33.86	54.0	14.5	H	155	24
12184.500	43.72	-29.1	39.0	33.88	54.0	10.3	H	155	185

Ch9

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2483.500	46.34	2.9	32.0	11.42	54.0	7.7	H	155	6
2484.200	46.43	2.9	32.0	11.50	54.0	7.6	H	155	48
4903.500	33.19	-35.4	34.1	34.47	54.0	20.8	H	155	92
7356.000	38.85	-30.9	35.8	33.93	54.0	15.2	H	155	48
9808.500	39.04	-31.6	37.0	33.64	54.0	15.0	H	155	68
12259.500	42.73	-30.3	39.0	34.00	54.0	11.3	H	155	92

802.11n-HT40-Peak

Ch3

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2389.072	66.88	2.9	32.0	32.05	74.0	7.1	H	155	22
2389.660	67.64	2.9	32.0	32.81	74.0	6.4	H	155	22
4844.000	38.26	-35.4	34.1	39.56	74.0	35.7	H	155	88
7266.000	43.86	-32.5	35.8	40.55	74.0	30.1	V	155	110
9688.000	44.07	-30.7	36.8	37.94	74.0	29.9	V	155	44
12110.000	45.78	-30.7	38.9	37.51	74.0	28.2	H	155	0

Ch6

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2342.200	47.18	-27.7	31.9	42.91	74.0	26.8	H	155	22
2560.000	47.65	-26.8	32.1	42.38	74.0	26.3	H	155	44
4874.000	39.13	-35.5	34.1	40.55	74.0	34.9	V	155	0
7311.000	43.39	-31.6	35.8	39.19	74.0	30.6	H	155	0
9748.000	44.48	-31.3	36.9	38.86	74.0	29.5	V	155	22
12185.000	46.38	-29.1	39.0	36.53	74.0	27.6	H	155	176

Ch9

Frequency (MHz)	Measurement Result (dB μ V/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dB μ V)	Limit (dB μ V/m)	Margin (dB)	Antenna Pol. (H/V)	Antenna Height (cm)	Turntable angle (deg)
2484.900	62.49	2.9	32.0	27.56	74.0	11.5	H	155	0
2485.360	62.08	2.9	32.0	27.16	74.0	11.9	H	155	44
4904.000	39.20	-35.4	34.1	40.47	74.0	34.8	V	155	88
7356.000	43.96	-30.9	35.8	39.04	74.0	30.0	V	155	44
9808.000	44.71	-31.6	37.0	39.32	74.0	29.3	V	155	66
12260.000	46.00	-30.3	39.0	37.28	74.0	28.0	H	155	88

Test graphs as below:

RE - Power-2.31GHz-2.45GHz

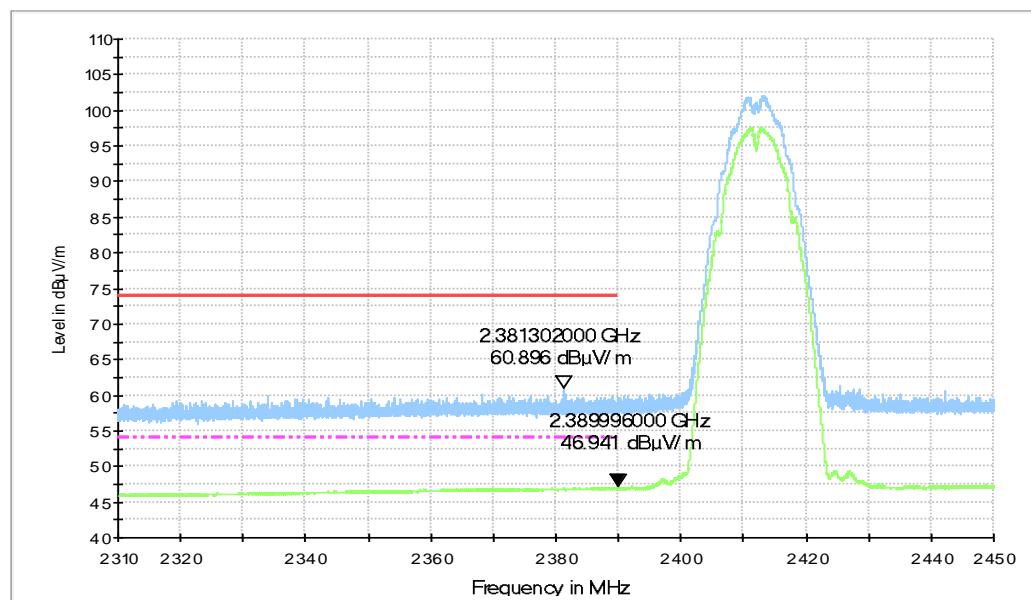


Fig.A.6.2.1 Transmitter Spurious Emission - Radiated (Power): 802.11b, ch1, 2.31 GHz – 2.43GHz

RE - Power-2.45GHz-2.5GHz

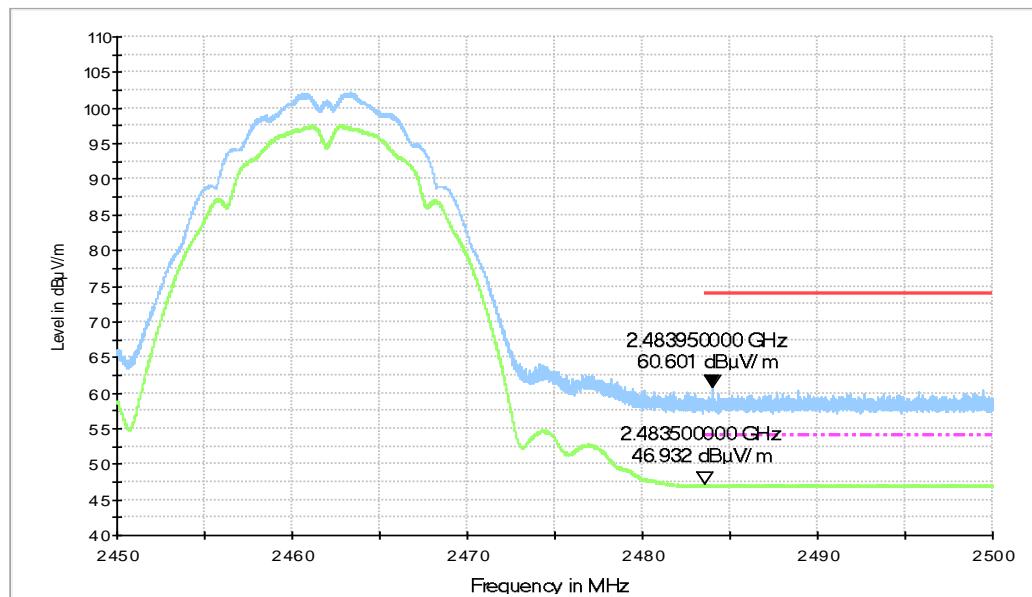


Fig.A.6.2.2 Transmitter Spurious Emission - Radiated (Power): 802.11b, ch11, 2.45 GHz – 2.50GHz

RE - Power-2.31GHz-2.45GHz

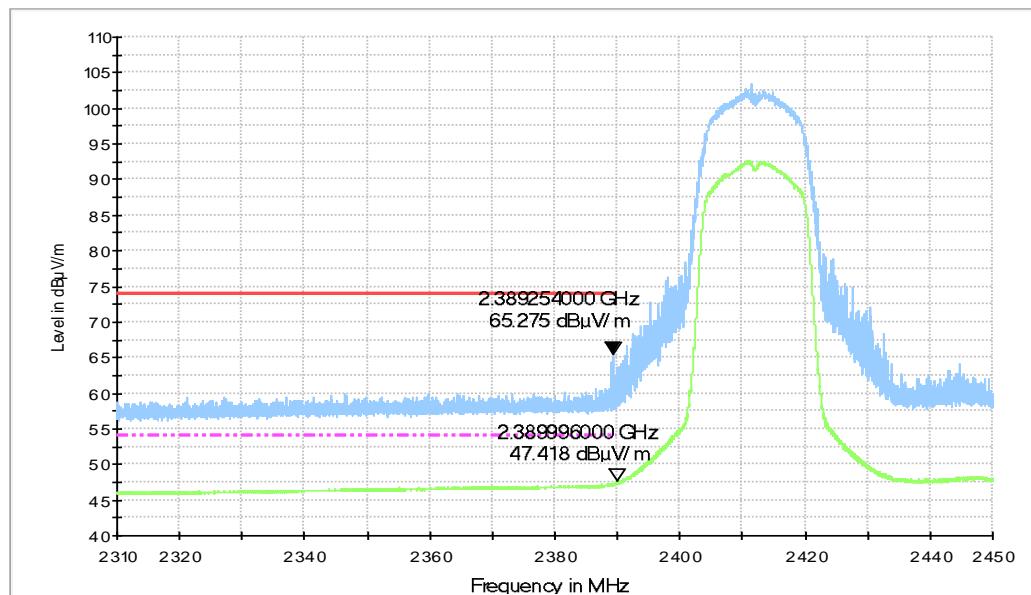


Fig.A.6.2.3 Transmitter Spurious Emission - Radiated (Power): 802.11g, ch1, 2.31 GHz - 2.43GHz

RE - Power-2.45GHz-2.5GHz

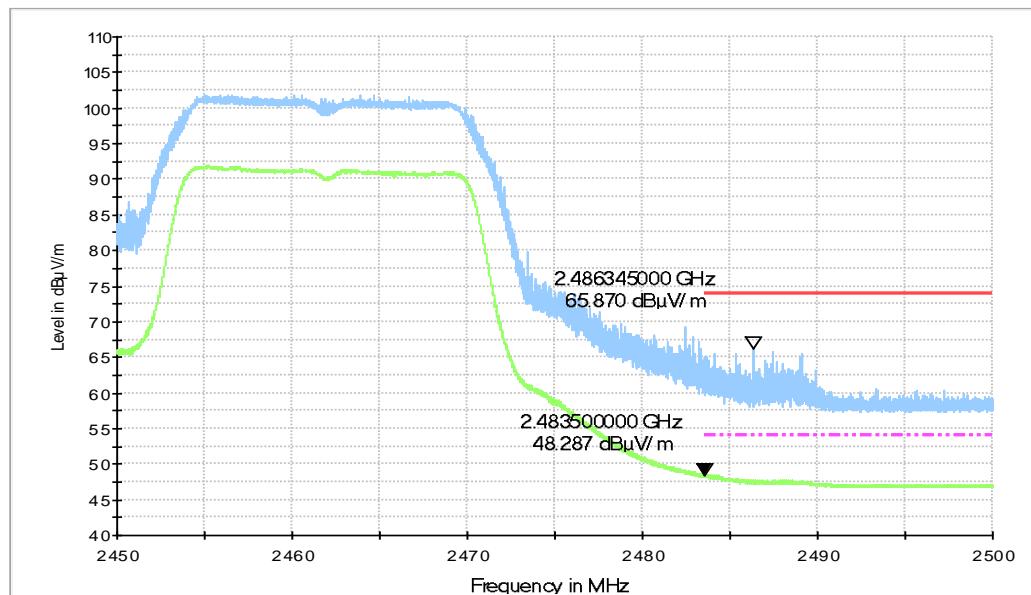


Fig.A.6.2.4 Transmitter Spurious Emission - Radiated (Power): 802.11g, ch11, 2.45 GHz - 2.50GHz

RE - Power-2.31GHz-2.45GHz

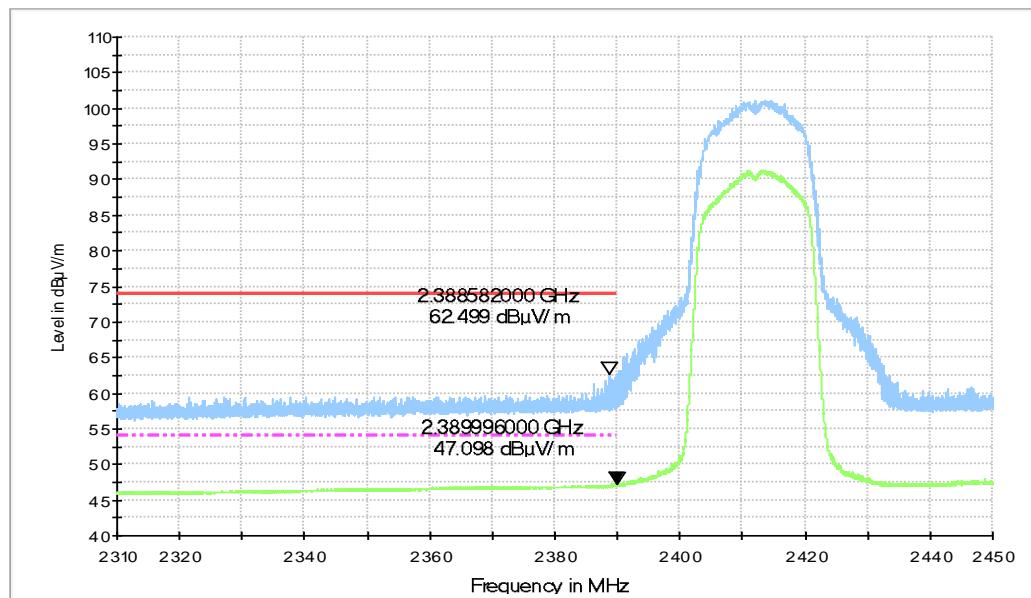


Fig.A.6.2.5 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT20, ch1, 2.31GHz - 2.45GHz

RE - Power-2.45GHz-2.5GHz

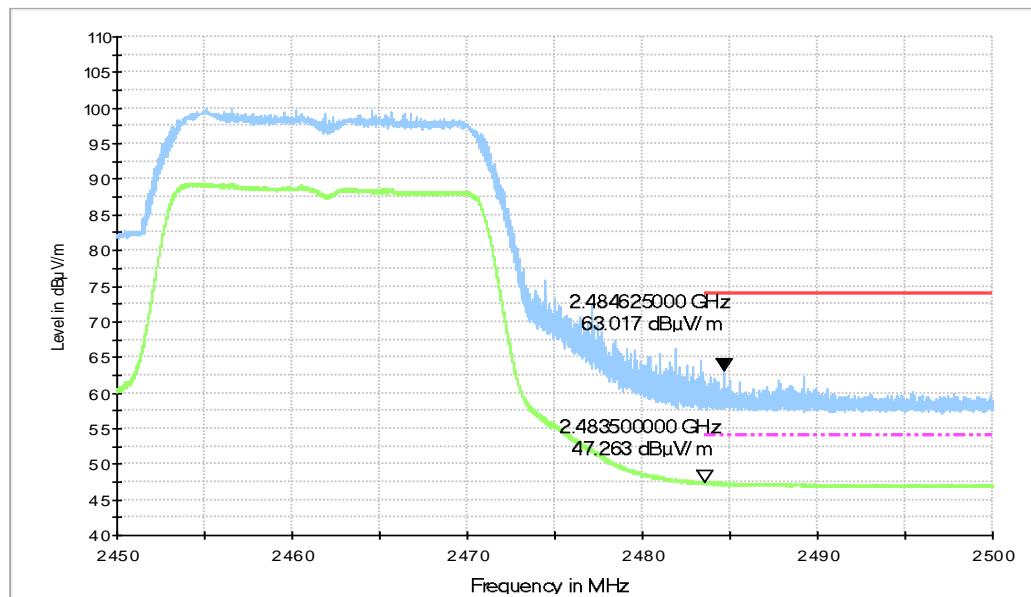


Fig.A.6.2.6 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT20, ch11, 2.45 GHz - 2.50GHz

RE - Power-2.31GHz-2.45GHz

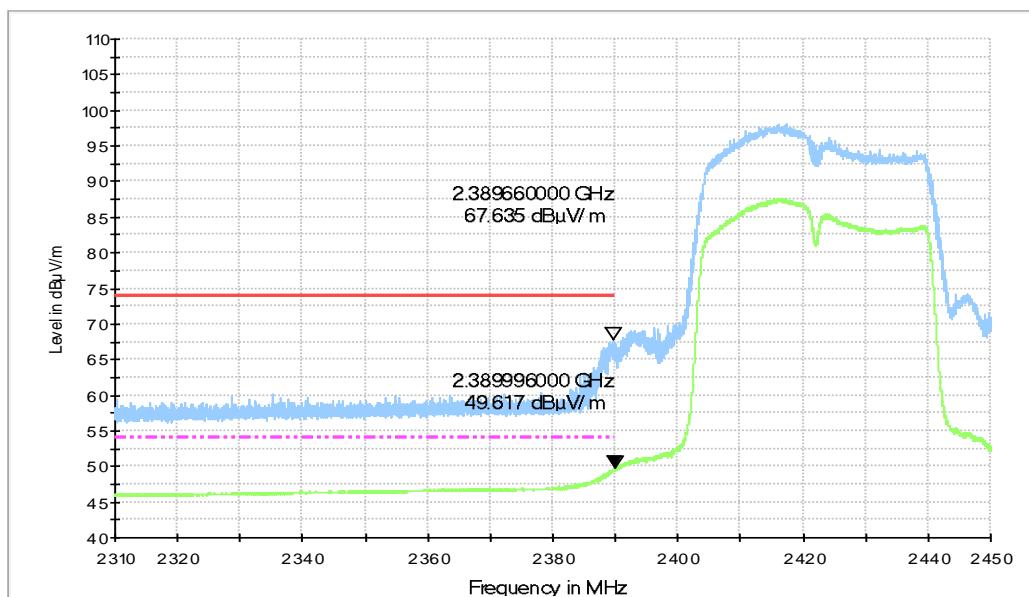


Fig.A.6.2.7 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT40, ch3, 2.31 GHz - 2.45GHz

RE - Power-2.45GHz-2.5GHz

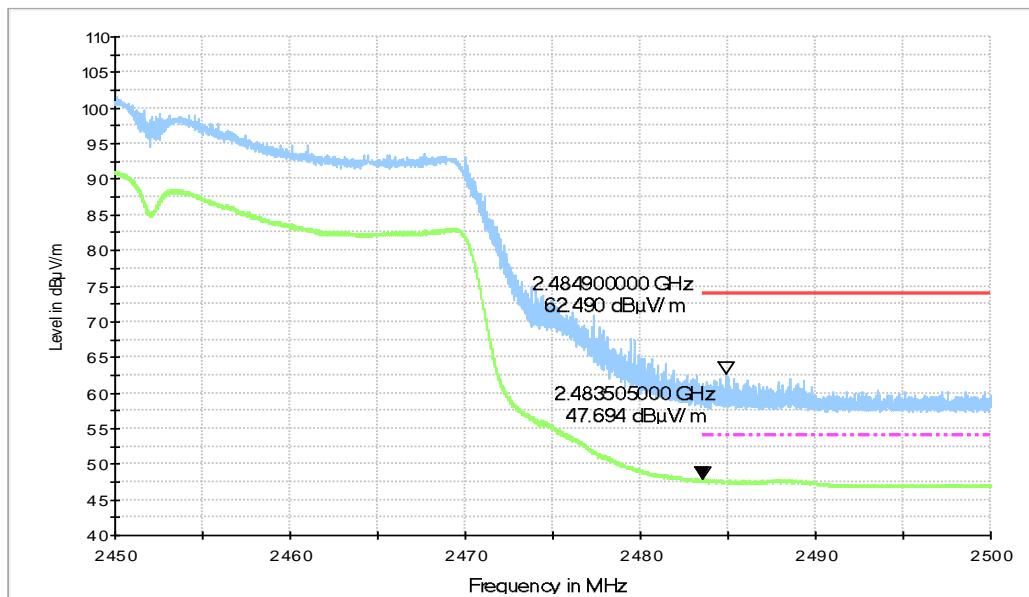


Fig.A.6.2.8 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT40, ch9, 2.45 GHz - 2.50GHz

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.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 (dB μ V)	Result (dB μ V)		Conclusion	
		With charger			
		802.11b	Idle		
0.15 to 0.5	66 to 56	Fig.A.7.1 Fig.A.7.3 Fig.A.7.4 Fig.A.7.5	Fig.A.7.2	P	
0.5 to 5	56				
5 to 30	60				

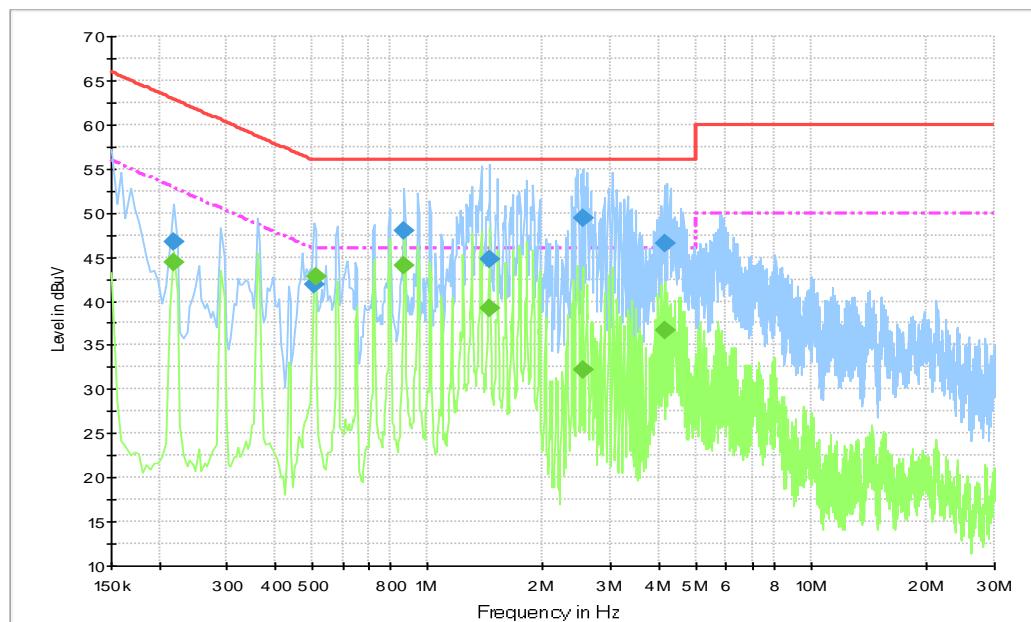
NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

WLAN (Average Limit)

Frequency range (MHz)	Average Limit (dB μ V)	Result (dB μ V)		Conclusion	
		With charger			
		802.11b	Idle		
0.15 to 0.5	56 to 46	Fig.A.7.1 Fig.A.7.3 Fig.A.7.4 Fig.A.7.5	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.

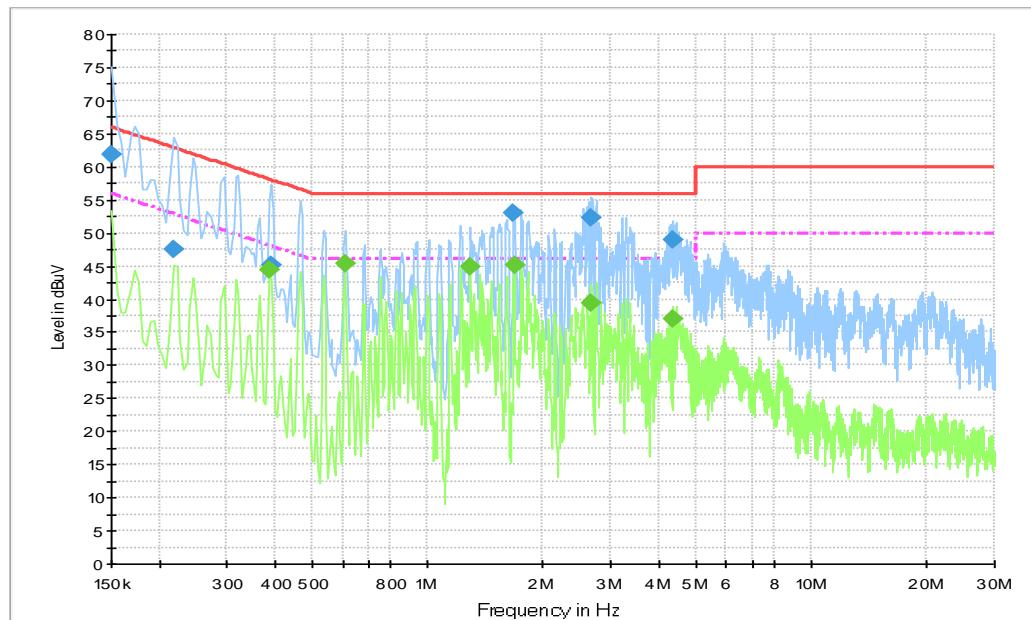
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.217500	46.7	10000	9.000	On	L1	20.0	16.2	62.9
0.505500	41.8	10000	9.000	On	L1	20.0	14.2	56.0
0.870000	47.9	10000	9.000	On	L1	19.9	8.1	56.0
1.450500	44.8	10000	9.000	On	N	19.8	11.2	56.0
2.535000	49.4	10000	9.000	On	L1	19.8	6.6	56.0
4.132500	46.5	10000	9.000	On	L1	19.8	9.5	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.217500	44.3	10000.	9.000	On	N	19.9	8.6	52.9
0.510000	42.8	10000.	9.000	On	N	20.0	3.2	46.0
0.870000	44.0	10000.	9.000	On	N	19.9	2.0	46.0
1.450500	39.1	10000.	9.000	On	N	19.8	6.9	46.0
2.539500	32.2	10000.	9.000	On	L1	19.8	13.8	46.0
4.132500	36.7	10000.	9.000	On	N	19.8	9.3	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.

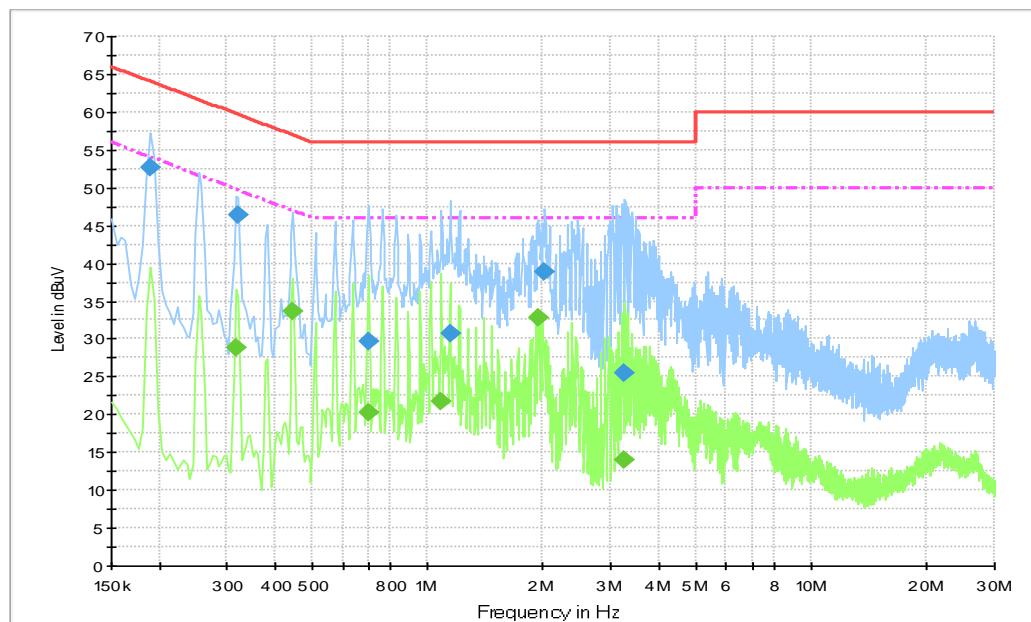
Final Result 1

Frequency (MHz)	QuasiPeak (dB μ V)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.150000	61.8	10000	9.000	On	L1	28.9	4.2	66.0
0.217500	47.5	10000	9.000	On	L1	20.0	15.4	62.9
0.393000	45.3	10000	9.000	On	N	20.0	12.8	58.0
1.675500	53.0	10000	9.000	On	L1	19.8	3.0	56.0
2.674500	52.2	10000	9.000	On	L1	19.8	3.8	56.0
4.357500	49.0	10000	9.000	On	N	19.8	7.0	56.0

Final Result 2

Frequency (MHz)	Average (dB μ V)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.388500	44.5	10000.	9.000	On	N	20.0	3.6	48.1
0.609000	45.4	10000.	9.000	On	N	20.0	0.6	46.0
1.293000	44.9	10000.	9.000	On	N	19.8	1.1	46.0
1.680000	45.1	10000.	9.000	On	N	19.8	0.9	46.0
2.679000	39.4	10000.	9.000	On	N	19.8	6.6	46.0
4.362000	36.9	10000.	9.000	On	N	19.8	9.1	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 (dB μ V)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.190500	52.6	10000	9.000	On	L1	21.5	11.4	64.0
0.321000	46.3	10000	9.000	On	N	20.0	13.4	59.7
0.699000	29.6	10000	9.000	On	L1	20.0	26.4	56.0
1.149000	30.7	10000	9.000	On	L1	19.8	25.3	56.0
2.022000	38.8	10000	9.000	On	L1	19.8	17.2	56.0
3.268500	25.5	10000	9.000	On	L1	19.8	30.5	56.0

Final Result 2

Frequency (MHz)	Average (dB μ V)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.316500	28.8	10000.	9.000	On	L1	20.0	21.0	49.8
0.447000	33.7	10000.	9.000	On	L1	20.0	13.2	46.9
0.699000	20.2	10000.	9.000	On	L1	20.0	25.8	46.0
1.081500	21.7	10000.	9.000	On	L1	19.9	24.3	46.0
1.932000	32.7	10000.	9.000	On	L1	19.8	13.3	46.0
3.268500	14.0	10000.	9.000	On	L1	19.8	32.0	46.0

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

Traffic with AE5:

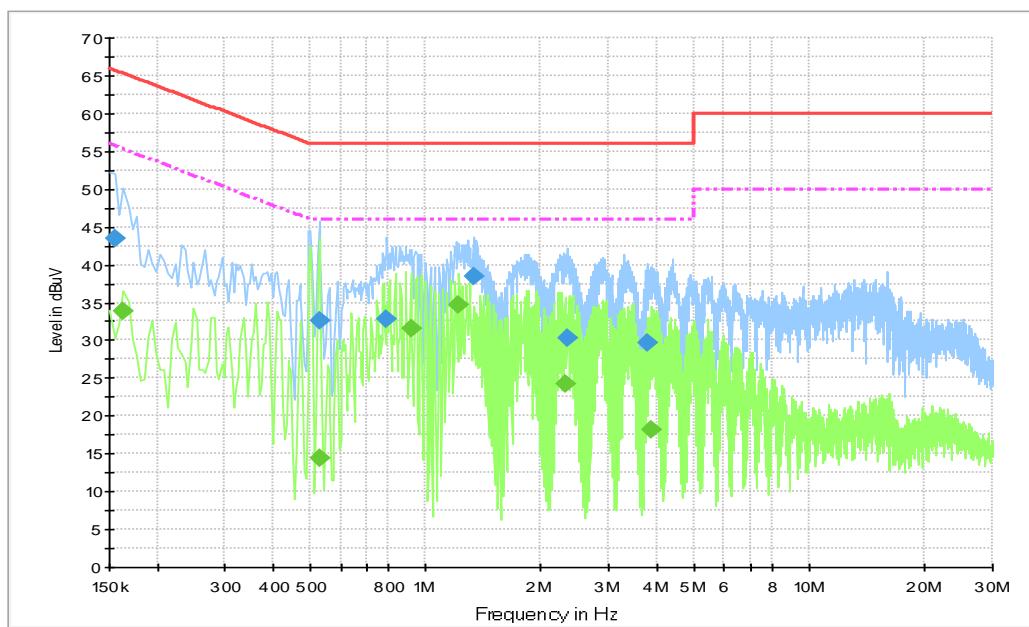


Fig.A.7.4 AC Powerline Conducted Emission-802.11b

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

Final Result 1

Frequency (MHz)	QuasiPeak (dB μ V)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.154500	43.5	10000	9.000	On	L1	28.0	22.2	65.8
0.528000	32.5	10000	9.000	On	L1	20.0	23.5	56.0
0.793500	32.8	10000	9.000	On	L1	19.9	23.2	56.0
1.329000	38.5	10000	9.000	On	N	19.8	17.5	56.0
2.332500	30.2	10000	9.000	On	N	19.8	25.8	56.0
3.772500	29.7	10000	9.000	On	N	19.8	26.3	56.0

Final Result 2

Frequency (MHz)	Average (dB μ V)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.163500	33.9	10000.	9.000	On	N	26.3	21.4	55.3
0.528000	14.4	10000.	9.000	On	N	20.0	31.6	46.0
0.915000	31.5	10000.	9.000	On	N	19.9	14.5	46.0
1.221000	34.6	10000.	9.000	On	N	19.9	11.4	46.0
2.305500	24.3	10000.	9.000	On	N	19.8	21.7	46.0
3.858000	18.2	10000.	9.000	On	N	19.8	27.8	46.0

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

Traffic with AE6:

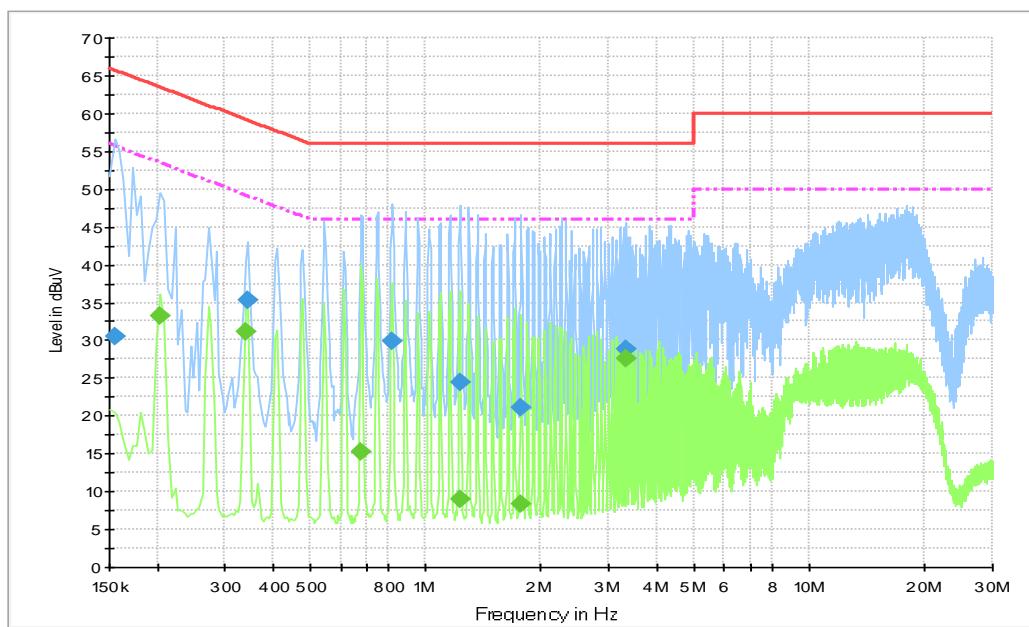


Fig.A.7.5 AC Powerline Conducted Emission-802.11b

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	30.4	10000	9.000	On	L1	28.0	35.3	65.8
0.343500	35.2	10000	9.000	On	L1	20.0	23.9	59.1
0.820500	29.8	10000	9.000	On	N	19.9	26.2	56.0
1.230000	24.4	10000	9.000	On	L1	19.9	31.6	56.0
1.774500	21.2	10000	9.000	On	N	19.8	34.8	56.0
3.340500	28.7	10000	9.000	On	N	19.8	27.3	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.204000	33.2	10000.	9.000	On	L1	20.0	20.3	53.4
0.339000	31.2	10000.	9.000	On	L1	20.0	18.0	49.2
0.681000	15.2	10000.	9.000	On	L1	19.9	30.8	46.0
1.225500	8.9	10000.	9.000	On	L1	19.9	37.1	46.0
1.770000	8.3	10000.	9.000	On	L1	19.8	37.7	46.0
3.345000	27.6	10000.	9.000	On	L1	19.8	18.4	46.0

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

ANNEX B: Accreditation Certificate

United States Department of Commerce
National Institute of Standards and Technology



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



For the National Voluntary Laboratory Accreditation Program



END OF REPORT