

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

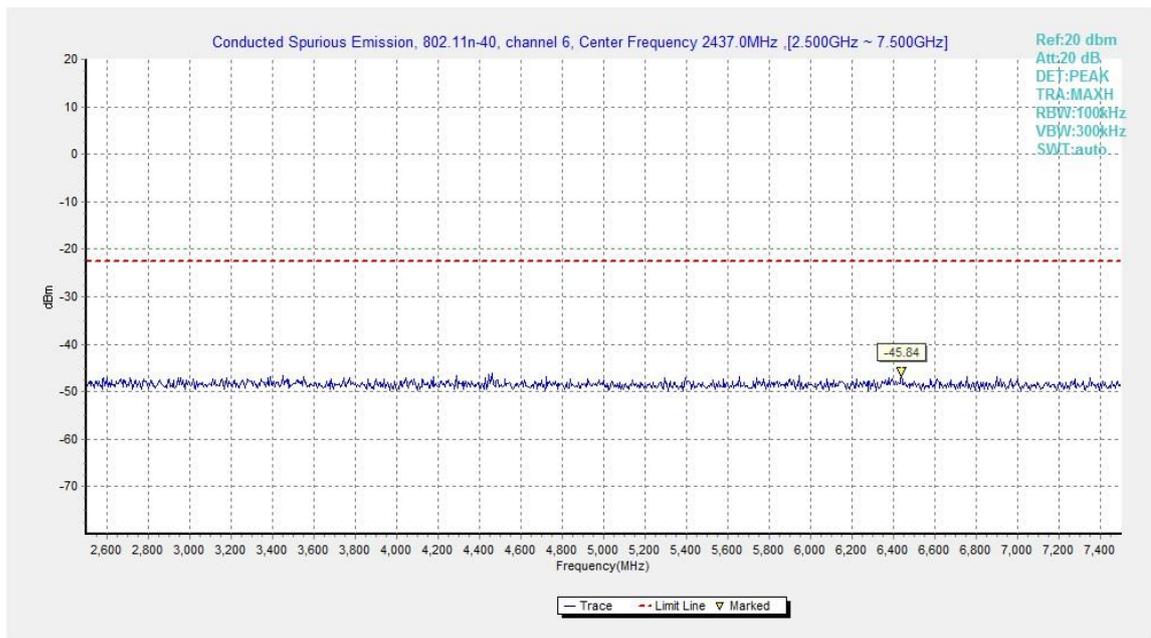


Fig.A.6.1.84 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch6, 2.5 GHz-7.5 GHz)

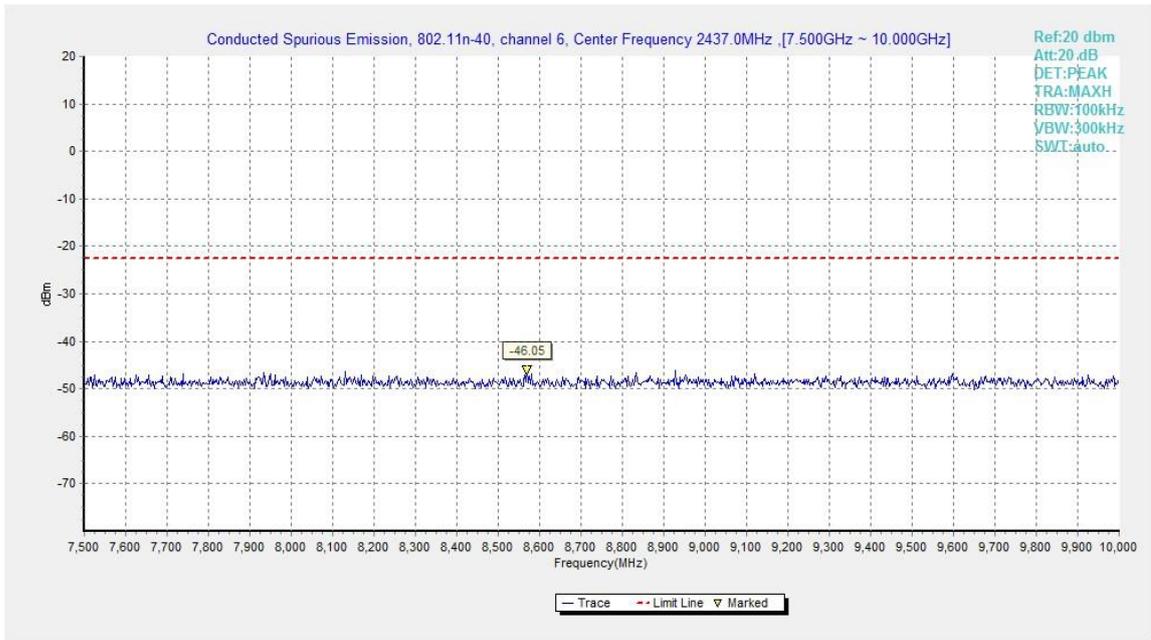


Fig.A.6.1.85 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch6, 7.5 GHz-10 GHz)

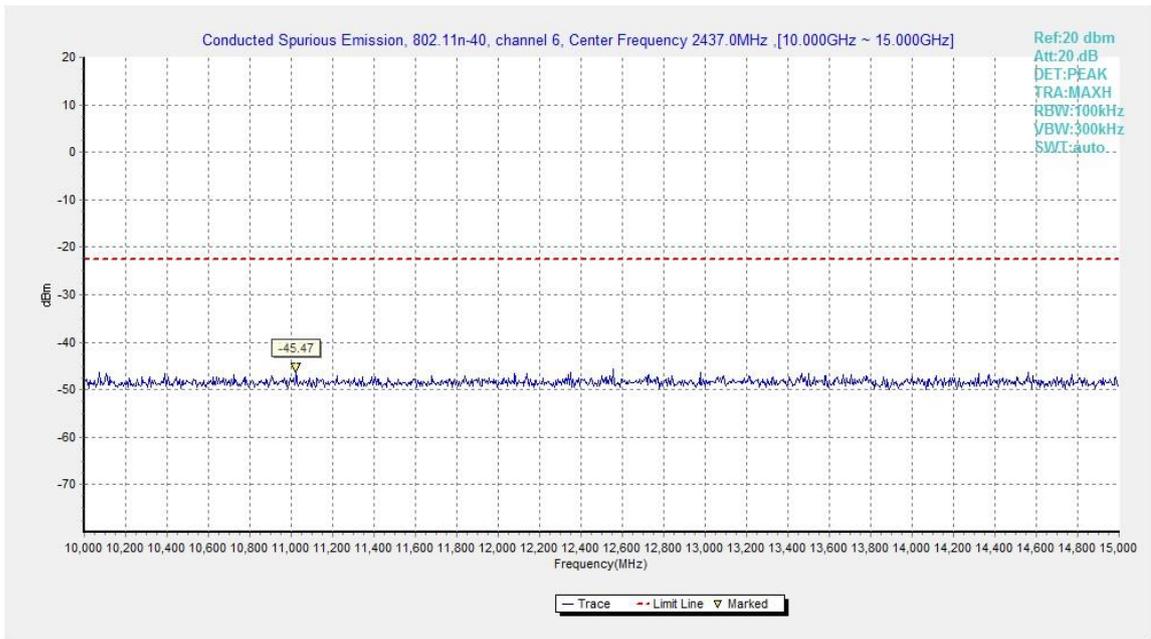


Fig.A.6.1.86 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch6, 10 GHz-15 GHz)

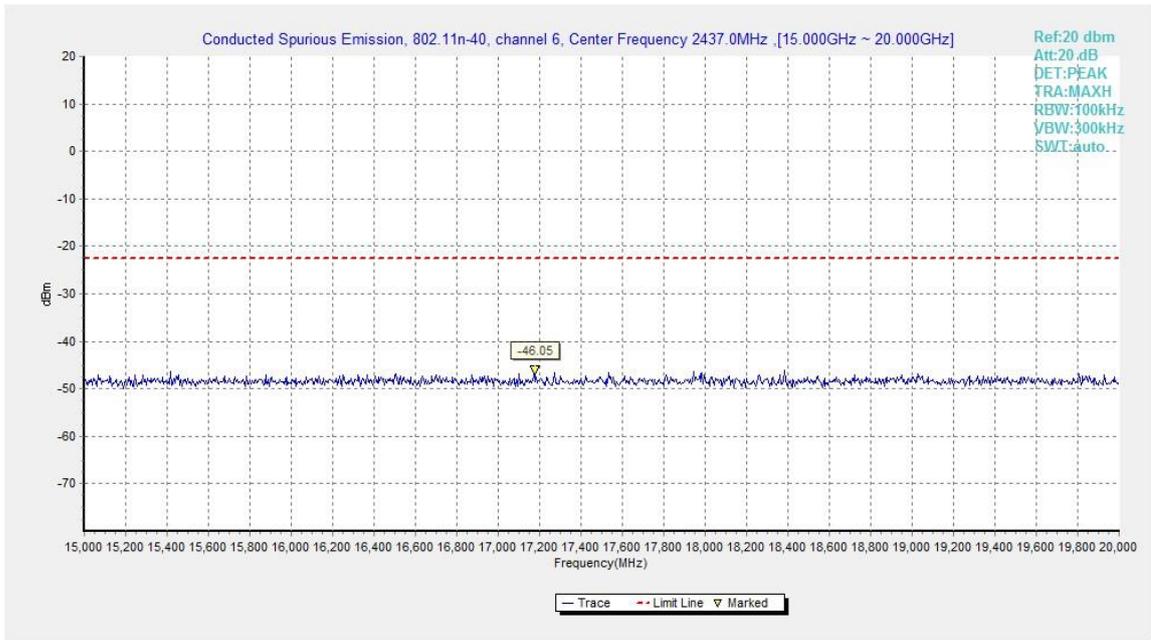


Fig.A.6.1.87 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch6, 15 GHz-20 GHz)

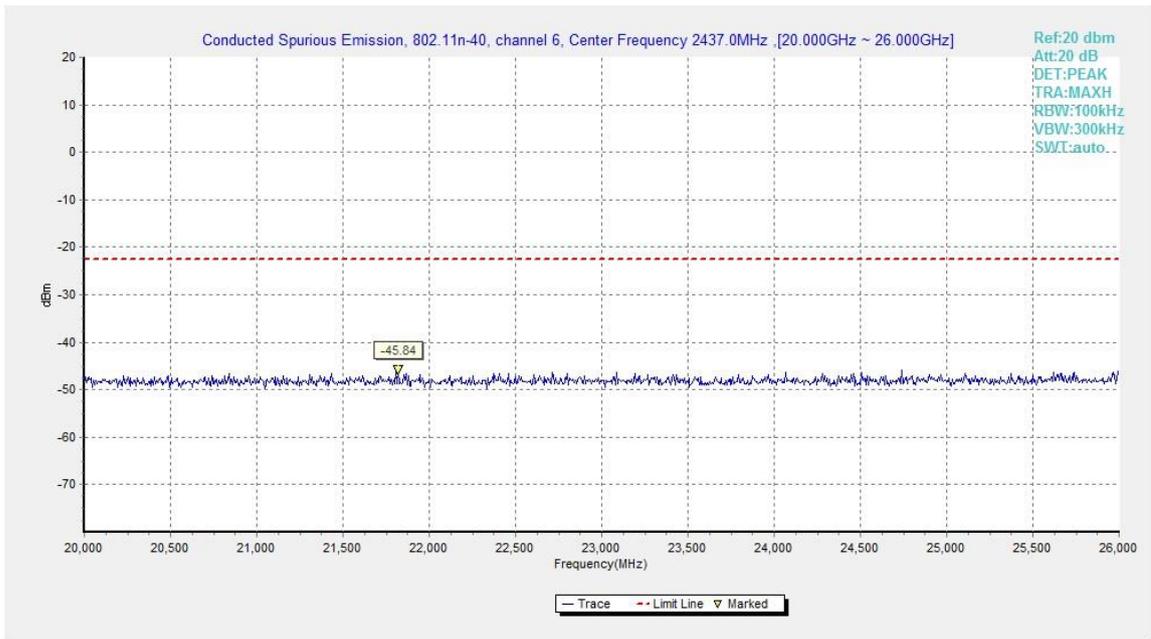


Fig.A.6.1.88 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch6, 20 GHz-26 GHz)

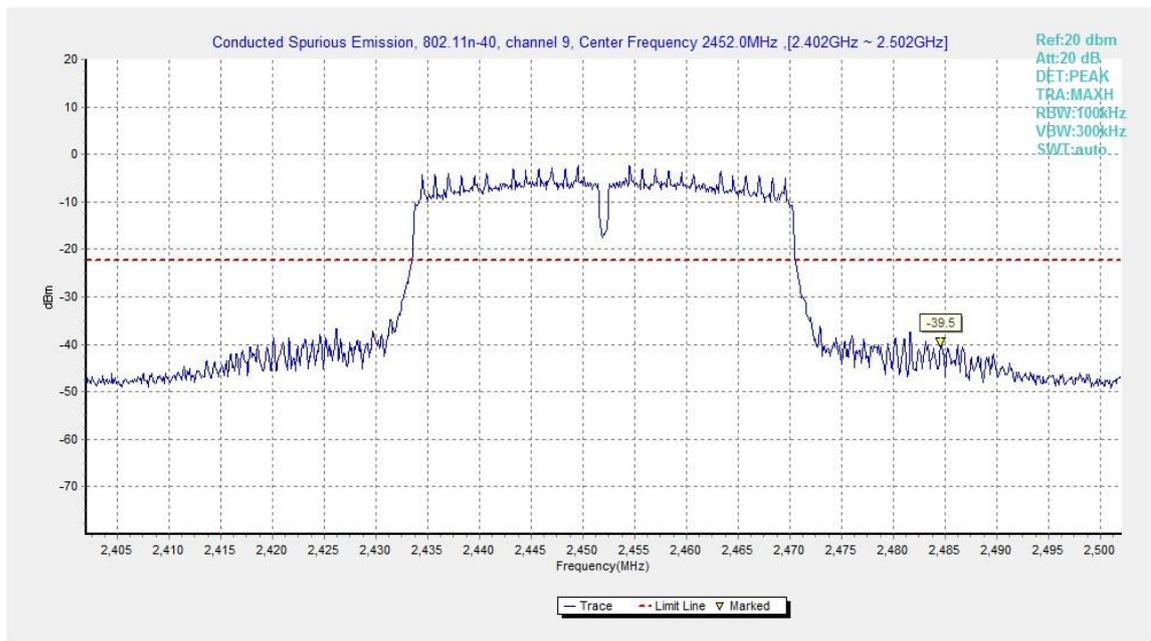


Fig.A.6.1.89 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch9, Center Frequency)

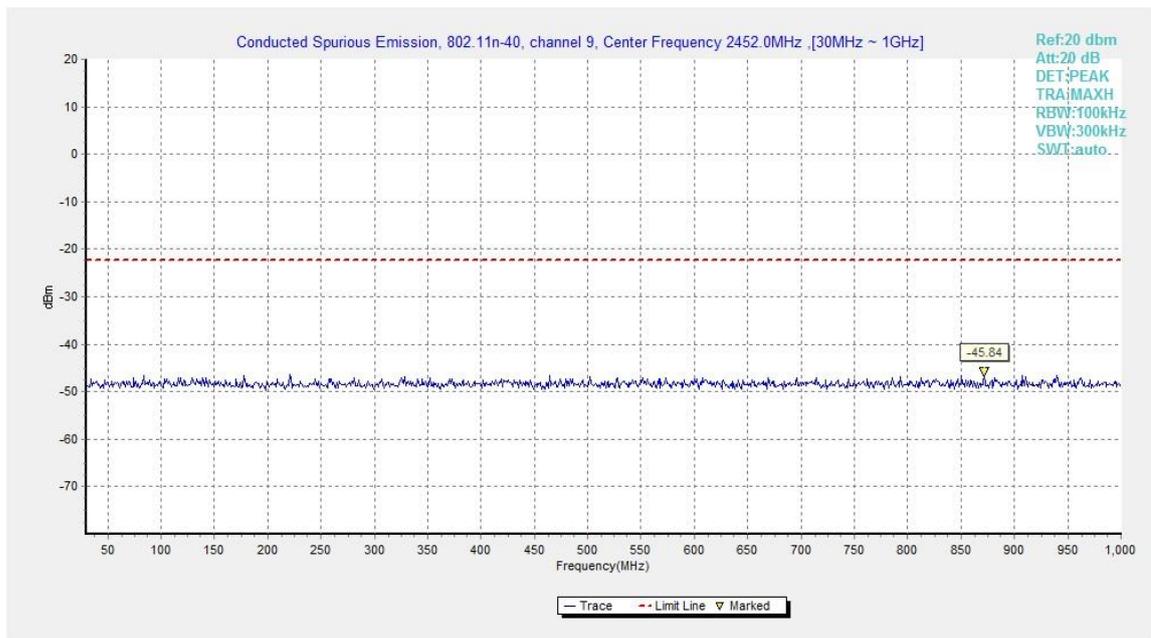


Fig.A.6.1.90 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch9, 30 MHz-1 GHz)

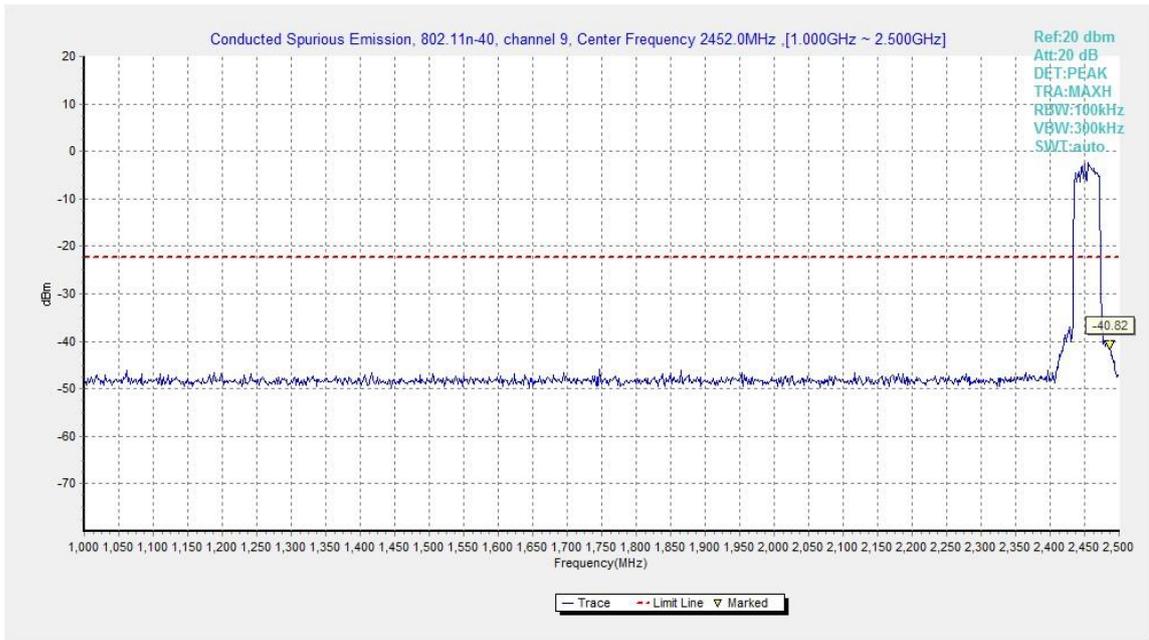


Fig.A.6.1.91 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch9, 1 GHz-2.5 GHz)

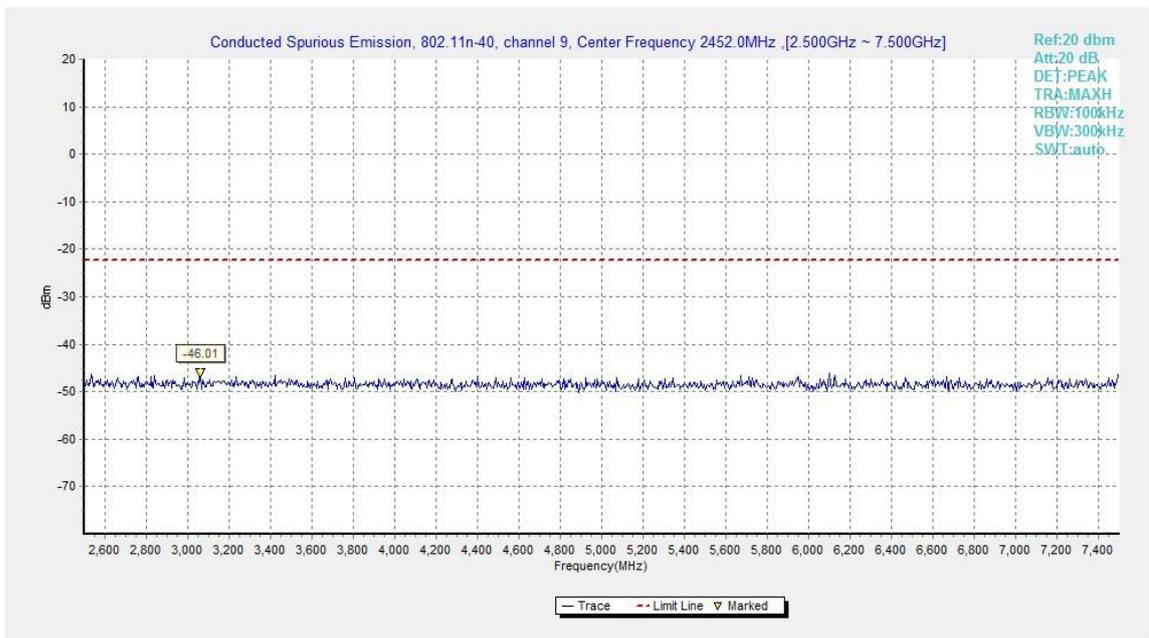


Fig.A.6.1.92 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch9, 2.5 GHz-7.5 GHz)

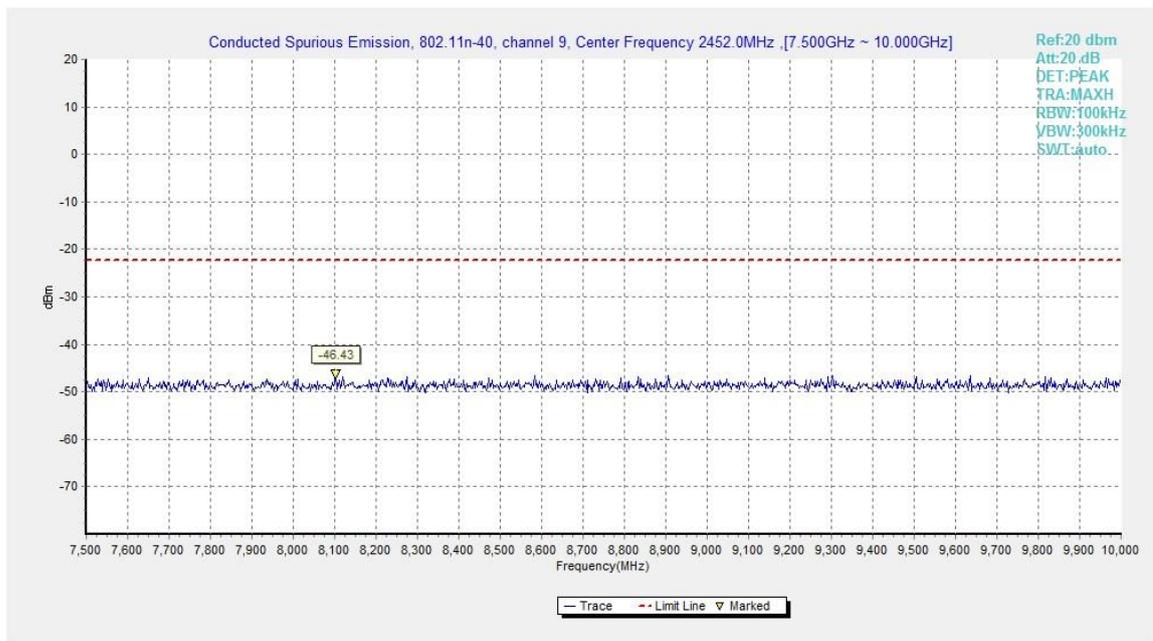


Fig.A.6.1.93 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch9, 7.5 GHz-10 GHz)

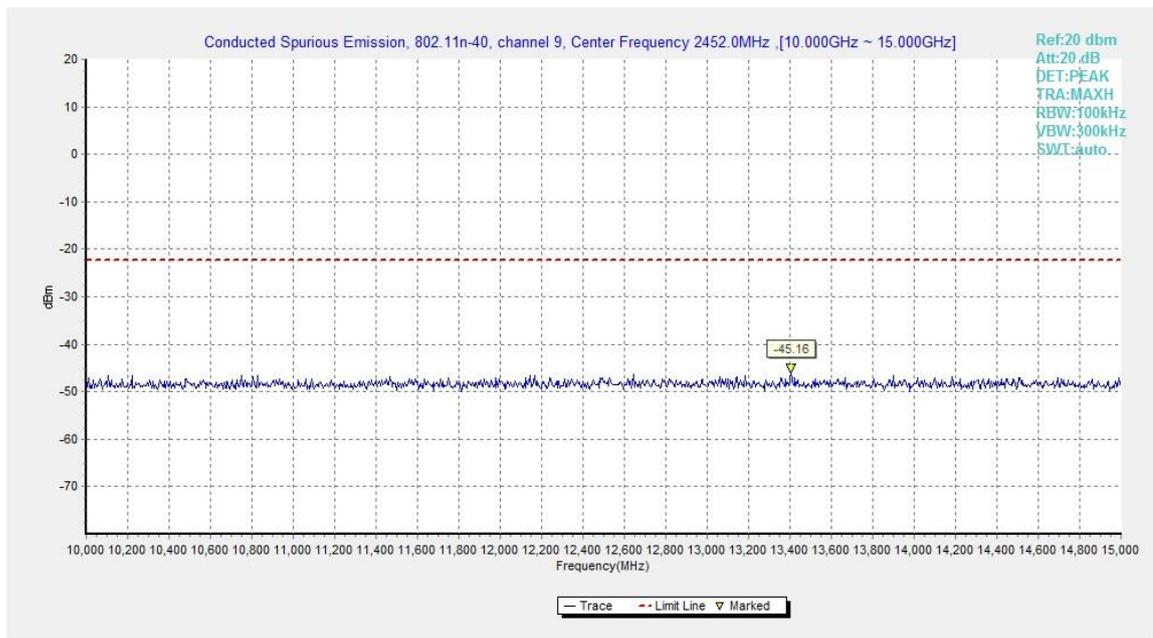


Fig.A.6.1.94 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch9, 10 GHz-15 GHz)

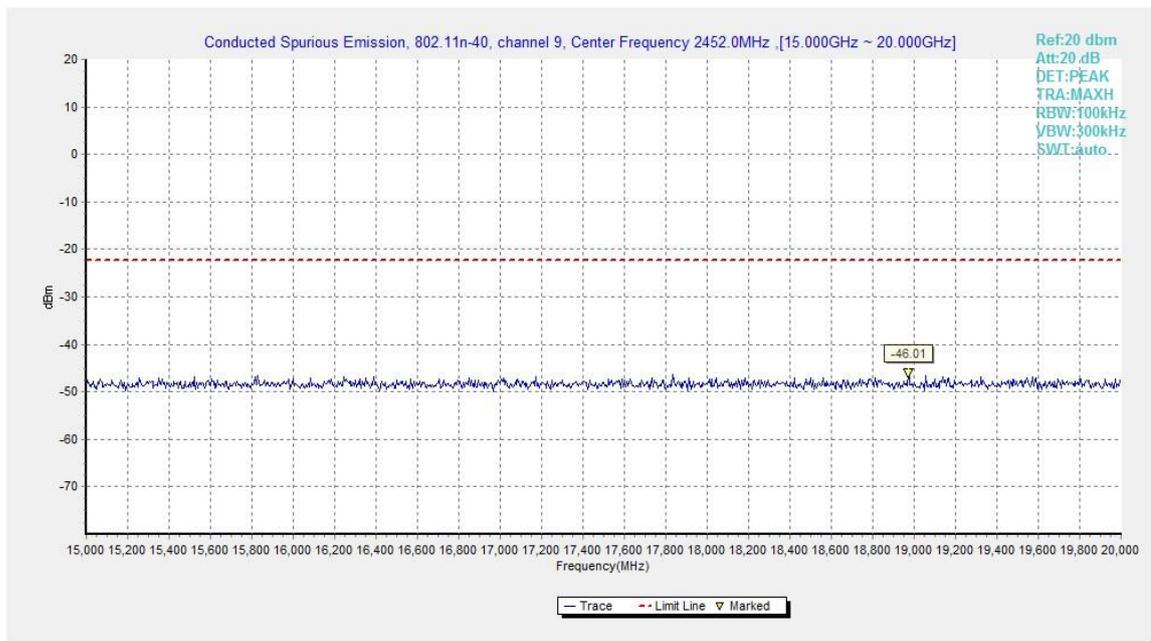


Fig.A.6.1.95 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch9, 15 GHz-20 GHz)

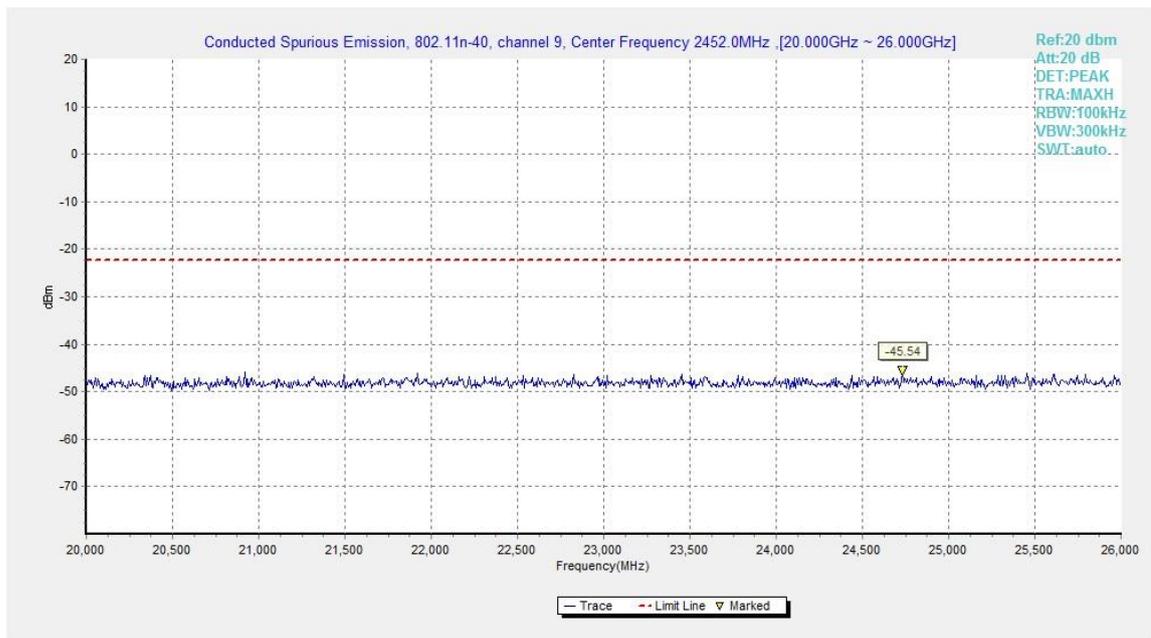


Fig.A.6.1.96 Transmitter Spurious Emission - Conducted (802.11n-HT40, Ch9, 20 GHz-26 GHz)

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(μ V/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:

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:

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

PEAK

802.11b

Ch1

Frequency(MHz)	Result(dBuV/m)	Cable loss(dB)	Antenna Factor (dB/m)	PMea(dBuV/m)	Polarity
2380.728	59.60	2.9	32.1	24.69	H
2385.824	59.30	2.9	32.0	24.42	H
4824.000	52.98	-32.8	34.5	51.23	V
7236.000	44.07	-31.7	36.1	39.70	H
9648.000	47.06	-30.4	37.0	40.38	H
12060.000	48.12	-29.6	39.3	38.44	H

Ch6

Frequency(MHz)	Result(dBuV/m)	Cable loss(dB)	Antenna Factor (dB/m)	PMea(dBuV/m)	Polarity
2382.000	51.10	-25.4	32.0	44.51	H
2500.400	50.80	-26.3	32.3	44.77	H
4874.000	53.72	-32.7	34.5	51.93	V
7311.000	42.40	-31.9	36.1	38.23	H
9748.000	45.52	-30.7	37.2	38.99	H
12185.000	48.66	-29.4	39.2	38.86	H

Ch11

Frequency(MHz)	Result(dBuV/m)	Cable loss(dB)	Antenna Factor (dB/m)	PMea(dBuV/m)	Polarity
2483.880	60.60	2.9	32.8	24.92	H
2487.940	60.10	2.9	32.6	24.53	H
4924.000	49.48	-33.1	34.5	48.06	V
7386.000	42.70	-31.8	36.0	38.49	H
9848.000	45.80	-30.1	37.3	38.54	H
12310.000	47.58	-29.7	39.2	38.10	H

802.11g

Ch1

Frequency(MHz)	Result(dBuV/m)	Cable loss(dB)	Antenna Factor (dB/m)	PMea(dBuV/m)	Polarity
2383.976	60.00	2.9	32.0	25.11	H
2389.912	59.70	2.9	32.0	24.85	H
4824.000	53.90	-32.8	34.5	52.15	V
7236.000	43.29	-31.7	36.1	38.92	H
9648.000	46.94	-30.4	37.0	40.25	H
12060.000	47.50	-29.6	39.3	37.83	H

Ch6

Frequency(MHz)	Result(dBuV/m)	Cable loss(dB)	Antenna Factor (dB/m)	PMea(dBuV/m)	Polarity
2362.600	50.20	-27.4	31.9	45.75	H
2497.200	51.10	-25.5	32.4	44.26	H
4874.000	51.53	-32.7	34.5	49.74	V
7311.000	42.35	-31.9	36.1	38.18	H
9748.000	45.51	-30.7	37.2	38.98	H
12185.000	48.63	-29.4	39.2	38.84	H

Ch11

Frequency(MHz)	Result(dBuV/m)	Cable loss(dB)	Antenna Factor (dB/m)	PMea(dBuV/m)	Polarity
2483.670	60.20	2.9	32.8	24.51	H
2486.580	59.80	2.9	32.7	24.19	H
4924.000	49.20	-33.1	34.5	47.79	V
7386.000	43.97	-31.8	36.0	39.77	H
9848.000	45.39	-30.1	37.3	38.14	H
12310.000	48.41	-29.7	39.2	38.94	H

802.11n-HT20

Ch1

Frequency(MHz)	Result(dBuV/m)	Cable loss(dB)	Antenna Factor (dB/m)	PMea(dBuV/m)	Polarity
2388.568	59.30	2.9	32.0	24.44	H
2389.884	60.50	2.9	32.0	25.65	H
4824.000	48.46	-32.8	34.5	46.71	V
7236.000	42.91	-31.7	36.1	38.55	H
9648.000	46.41	-30.4	37.0	39.72	H
12060.000	47.49	-29.6	39.3	37.82	H

Ch6

Frequency(MHz)	Result(dBuV/m)	Cable loss(dB)	Antenna Factor (dB/m)	PMea(dBuV/m)	Polarity
2383.400	51.10	-24.8	32.0	43.92	H
2495.000	52.40	-24.0	32.4	43.98	H
4874.000	48.15	-32.7	34.5	46.36	V
7311.000	43.28	-31.9	36.1	39.12	H
9748.000	45.64	-30.7	37.2	39.11	H
12185.000	48.68	-29.4	39.2	38.88	H

Ch11

Frequency(MHz)	Result(dBuV/m)	Cable loss(dB)	Antenna Factor (dB/m)	PMea(dBuV/m)	Polarity
2483.740	62.30	2.9	32.8	26.61	H
2484.030	60.60	2.9	32.7	24.92	H
4924.000	46.41	-33.1	34.5	44.99	V
7386.000	42.36	-31.8	36.0	38.15	H
9848.000	46.43	-30.1	37.3	39.18	H
12310.000	47.04	-29.7	39.2	37.57	H



802.11n-HT40

Ch3

Frequency(MHz)	Result(dBuV/m)	Cable loss(dB)	Antenna Factor (dB/m)	PMea(dBuV/m)	Polarity
2381.900	46.35	2.9	32.0	11.44	H
2385.500	46.33	2.9	32.0	11.45	H
4804.500	35.23	-32.8	34.5	33.58	V
7206.000	37.94	-31.6	36.1	33.47	H
9607.500	40.55	-30.0	37.0	33.60	H
12010.500	43.17	-29.8	39.3	33.69	H

Ch6

Frequency(MHz)	Result(dBuV/m)	Cable loss(dB)	Antenna Factor (dB/m)	PMea(dBuV/m)	Polarity
2383.800	51.40	-24.7	32.0	44.05	H
2506.600	51.10	-26.4	32.4	45.11	H
4874.250	40.37	-32.7	34.5	38.57	V
7311.000	40.54	-31.9	36.1	36.37	H
9747.750	44.57	-30.7	37.2	38.04	H
12185.250	45.89	-29.4	39.2	36.10	H

Ch9

Frequency(MHz)	Result(dBuV/m)	Cable loss(dB)	Antenna Factor (dB/m)	PMea(dBuV/m)	Polarity
2484.200	66.20	2.9	32.7	66.20	H
2484.750	66.30	2.9	32.7	66.30	H
4905.000	43.26	-32.9	34.5	43.26	V
7356.000	43.06	-31.9	36.1	43.06	H
9807.750	43.63	-30.4	37.3	43.63	H
12260.250	45.51	-29.6	39.2	45.51	H

AVERAGE

802.11b

Ch1

Frequency(MHz)	Result(dBuV/m)	Cable loss(dB)	Antenna Factor (dB/m)	PMea(dBuV/m)	Polarity
2385.900	46.40	2.9	32.0	11.52	H
2389.000	46.50	2.9	32.0	11.65	H
4824.000	50.86	-32.8	34.5	49.12	V
7236.000	37.82	-31.7	36.1	33.46	H
9648.000	40.28	-30.4	37.0	33.60	H
12060.000	43.26	-29.6	39.3	33.58	H

Ch6

Frequency(MHz)	Result(dBuV/m)	Cable loss(dB)	Antenna Factor (dB/m)	PMea(dBuV/m)	Polarity
2380.550	47.10	2.9	32.0	12.22	H
2489.200	47.40	2.9	32.0	12.49	H
4874.000	52.70	-32.7	34.5	50.91	V
7311.000	38.84	-31.9	36.1	34.67	H
9748.000	40.02	-30.7	37.2	33.49	H
12185.000	43.63	-29.4	39.2	33.83	H

Ch11

Frequency(MHz)	Result(dBuV/m)	Cable loss(dB)	Antenna Factor (dB/m)	PMea(dBuV/m)	Polarity
2484.000	47.00	2.9	32.7	11.32	H
2488.200	46.90	2.9	32.6	11.34	H
4924.000	46.19	-33.1	34.5	44.77	V
7386.000	38.88	-31.8	36.0	34.67	H
9848.000	40.22	-30.1	37.3	32.97	H
12310.000	43.54	-29.7	39.2	34.06	H

802.11g

Ch1

Frequency(MHz)	Result(dBuV/m)	Cable loss(dB)	Antenna Factor (dB/m)	PMea(dBuV/m)	Polarity
2388.000	46.50	2.9	32.0	11.64	H
2389.500	46.70	2.9	32.0	11.85	H
4824.000	40.43	-32.8	34.5	38.68	V
7236.000	37.85	-31.7	36.1	33.49	H
9648.000	40.28	-30.4	37.0	33.60	H
12060.000	43.36	-29.6	39.3	33.68	H

Ch6

Frequency(MHz)	Result(dBuV/m)	Cable loss(dB)	Antenna Factor (dB/m)	PMea(dBuV/m)	Polarity
2389.800	47.00	2.9	32.0	12.15	H
2483.800	47.10	2.9	32.8	11.42	H
4874.000	38.70	-32.7	34.5	36.91	V
7311.000	37.60	-31.9	36.1	33.43	H
9748.000	40.05	-30.7	37.2	33.52	H
12185.000	43.58	-29.4	39.2	33.78	H

Ch11

Frequency(MHz)	Result(dBuV/m)	Cable loss(dB)	Antenna Factor (dB/m)	PMea(dBuV/m)	Polarity
2483.600	47.40	2.9	32.8	11.71	H
2485.100	47.30	2.9	32.7	11.65	H
4924.000	37.42	-33.1	34.5	36.00	V
7386.000	37.77	-31.8	36.0	33.56	H
9848.000	40.64	-30.1	37.3	33.38	H
12310.000	43.51	-29.7	39.2	34.04	H

802.11n-HT20

Ch1

Frequency(MHz)	Result(dBuV/m)	Cable loss(dB)	Antenna Factor (dB/m)	PMea(dBuV/m)	Polarity
2388.200	46.50	2.9	32.0	11.64	H
2390.000	46.70	2.9	32.0	11.86	H
4824.000	38.88	-32.8	34.5	37.14	V
7236.000	38.81	-31.7	36.1	34.45	H
9648.000	40.42	-30.4	37.0	33.73	H
12060.000	43.28	-29.6	39.3	33.60	H

Ch6

Frequency(MHz)	Result(dBuV/m)	Cable loss(dB)	Antenna Factor (dB/m)	PMea(dBuV/m)	Polarity
2389.800	47.00	2.9	32.0	12.15	H
2483.700	47.20	2.9	32.8	11.51	H
4874.000	38.87	-32.7	34.5	37.08	V
7311.000	37.97	-31.9	36.1	33.80	H
9748.000	40.64	-30.7	37.2	34.12	H
12185.000	43.42	-29.4	39.2	33.63	H

Ch11

Frequency(MHz)	Result(dBuV/m)	Cable loss(dB)	Antenna Factor (dB/m)	PMea(dBuV/m)	Polarity
2483.800	47.50	2.9	32.8	11.82	H
2489.100	47.00	2.9	32.6	11.46	H
4924.000	37.91	-33.1	34.5	36.49	V
7386.000	37.99	-31.8	36.0	33.78	H
9848.000	40.75	-30.1	37.3	33.49	H
12310.000	43.52	-29.7	39.2	34.04	H



802.11n-HT40

Ch3

Frequency(MHz)	Result(dBuV/m)	Cable loss(dB)	Antenna Factor (dB/m)	PMea(dBuV/m)	Polarity
2388.200	47.40	2.9	32.0	12.54	H
2390.000	48.20	2.9	32.0	13.36	H
4826.500	36.38	-32.7	34.5	34.62	V
7236.000	37.75	-31.7	36.1	33.39	H
9648.000	40.19	-30.4	37.0	33.51	H
12060.000	43.35	-29.6	39.3	33.68	H

Ch6

Frequency(MHz)	Result(dBuV/m)	Cable loss(dB)	Antenna Factor (dB/m)	PMea(dBuV/m)	Polarity
2384.180	47.90	2.9	32.0	13.05	H
2484.700	47.20	2.9	32.7	11.54	H
4873.500	35.49	-32.7	34.5	33.70	V
7311.000	37.54	-31.9	36.1	33.37	H
9748.500	40.03	-30.7	37.2	33.50	H
12184.500	43.65	-29.4	39.2	33.86	H

Ch9

Frequency(MHz)	Result(dBuV/m)	Cable loss(dB)	Antenna Factor (dB/m)	PMea(dBuV/m)	Polarity
2483.900	48.20	2.9	32.7	12.52	H
2486.300	47.70	2.9	32.7	12.08	H
4903.500	35.78	-32.9	34.5	34.17	V
7356.000	37.80	-31.9	36.1	33.65	H
9808.500	40.23	-30.3	37.3	33.31	H
12259.500	43.46	-29.6	39.2	33.84	H

Test graphs as below:

RE - Power-2.38GHz-2.45GHz

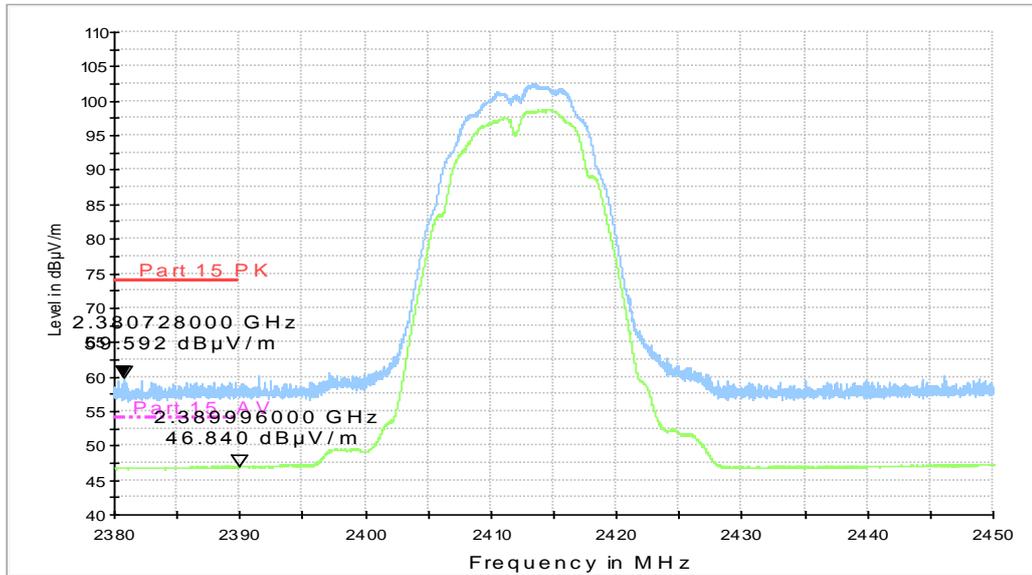


Fig.A.6.2.1 Transmitter Spurious Emission - Radiated (Power): 802.11b, ch1, 2.38 GHz – 2.43GHz

RE - Power-2.45GHz-2.5GHz

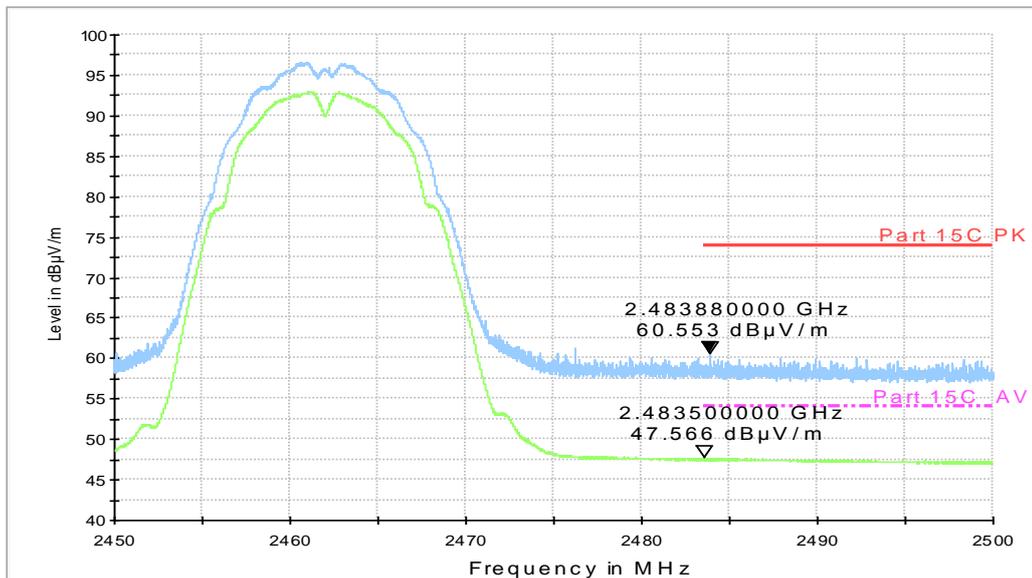


Fig.A.6.2.2 Transmitter Spurious Emission - Radiated (Power): 802.11b, ch11, 2.45 GHz - 2.50GHz

RE - Power-2.38GHz-2.45GHz

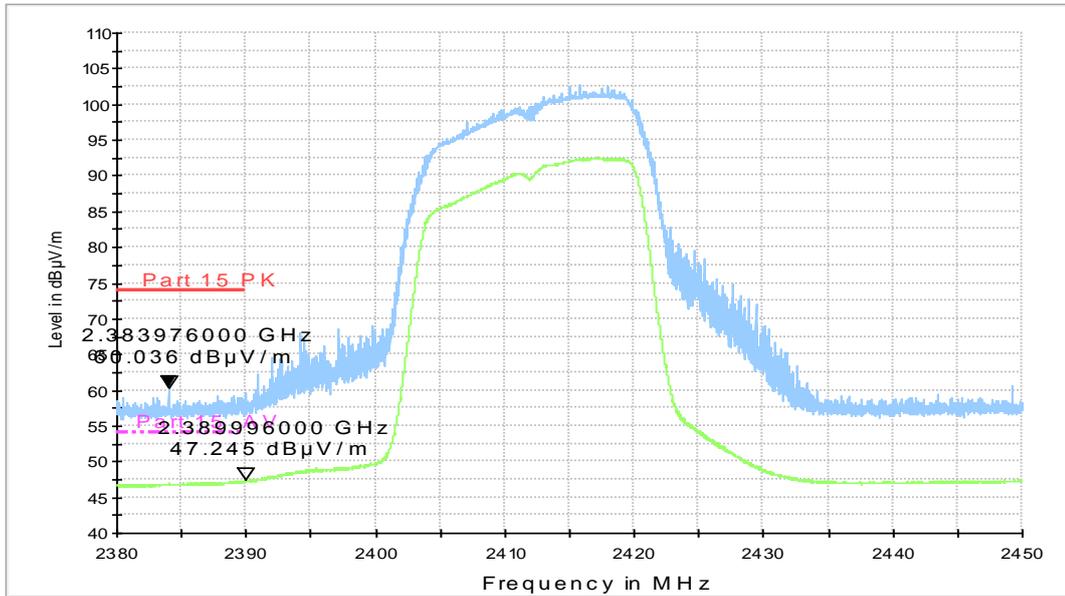
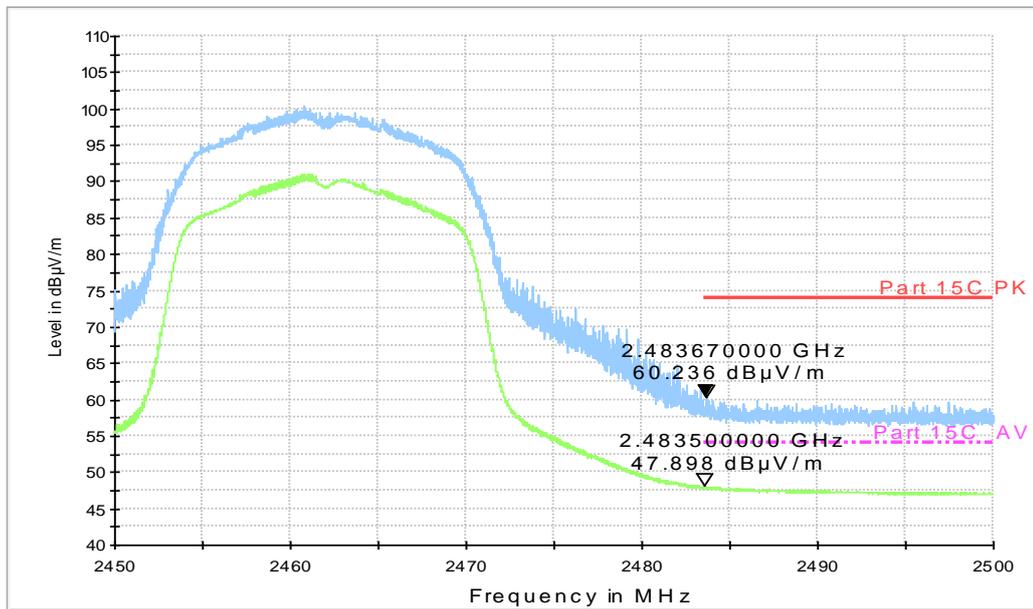


Fig.A.6.2.3 Transmitter Spurious Emission - Radiated (Power): 802.11g, ch1, 2.38 GHz - 2.43GHz

RE - Power-2.45GHz-2.5GHz



3

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

RE - Power-2.38GHz-2.45GHz

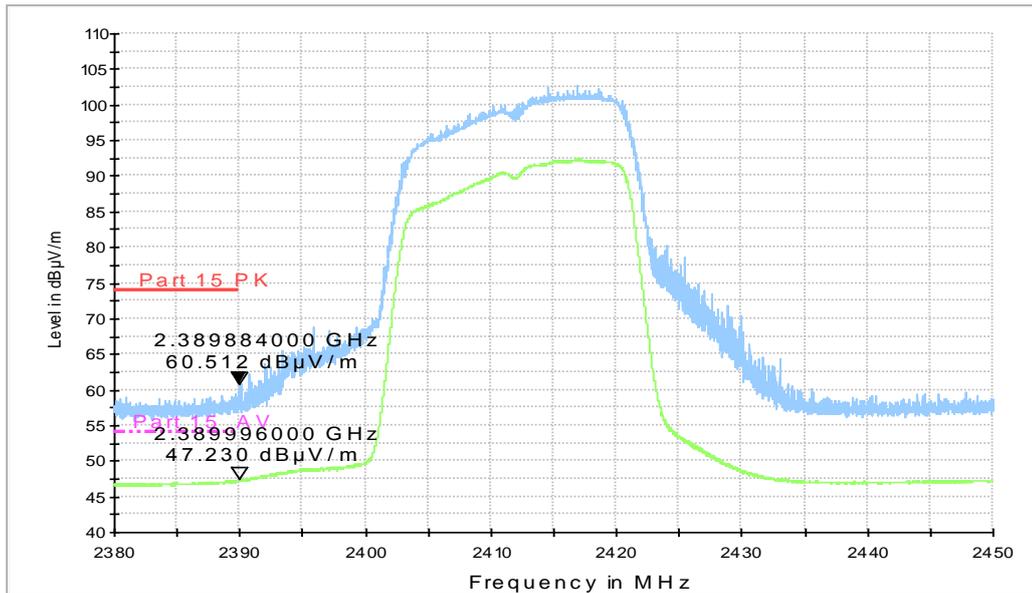


Fig.A.6.2.5 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT20, ch1, 2.38 GHz - 2.45GHz

RE - Power-2.45GHz-2.5GHz

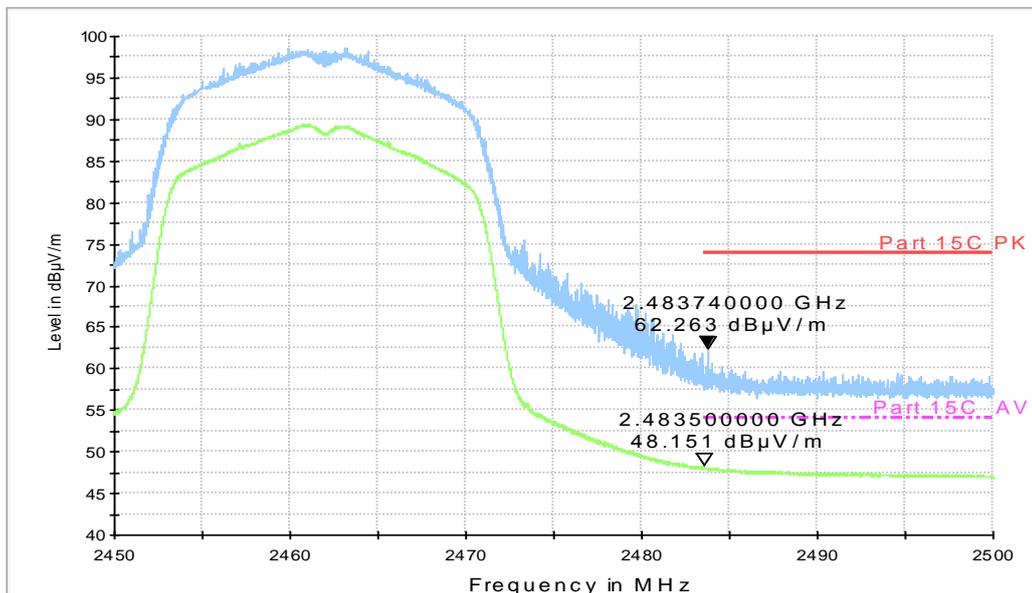


Fig.A.6.2.6 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT20, ch11, 2.45 GHz - 2.50GHz

RE - Power-2.38GHz-2.45GHz

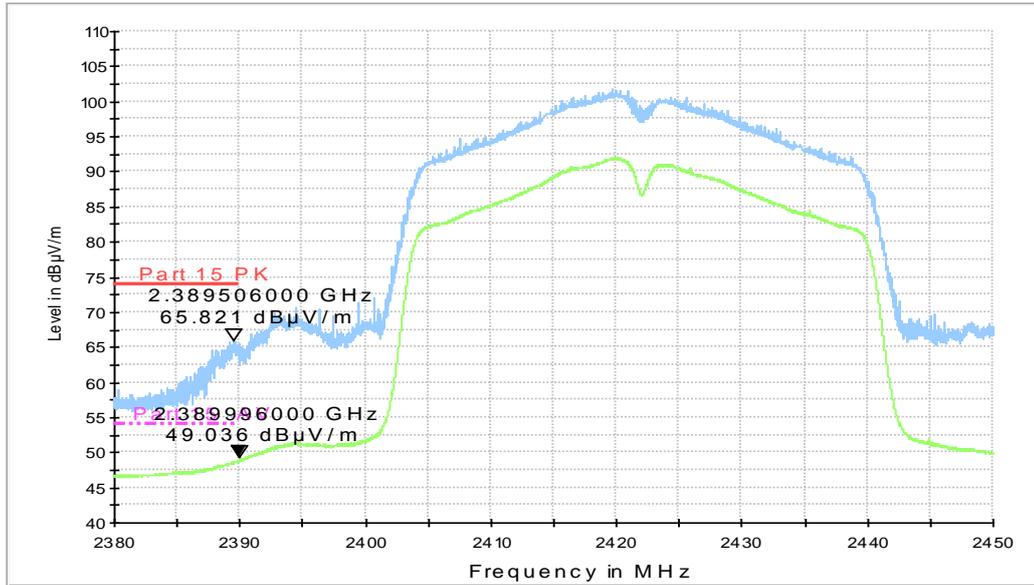


Fig.A.6.2.7 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT40, ch3, 2.38 GHz - 2.43GHz

RE - Power-2.45GHz-2.5GHz

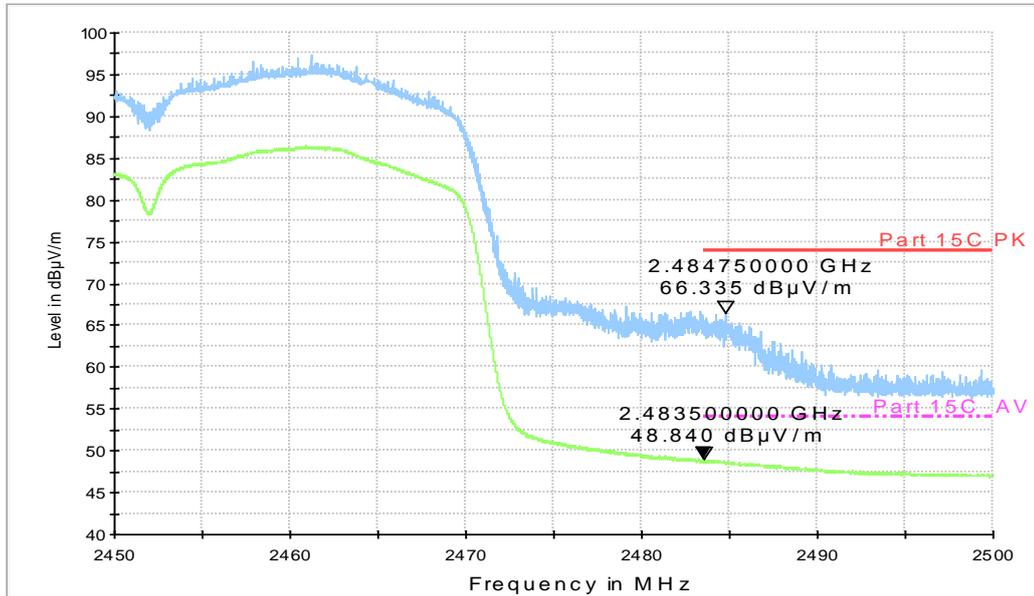


Fig.A.6.2.8 Transmitter Spurious Emission - Radiated (Power): 802.11n-HT40, ch9, 2.45 GHz - 2.50GHz

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 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