

Fig.58 Conducted Spurious Emission (30MHz -1GHz, 802.11n-HT20, CH11)

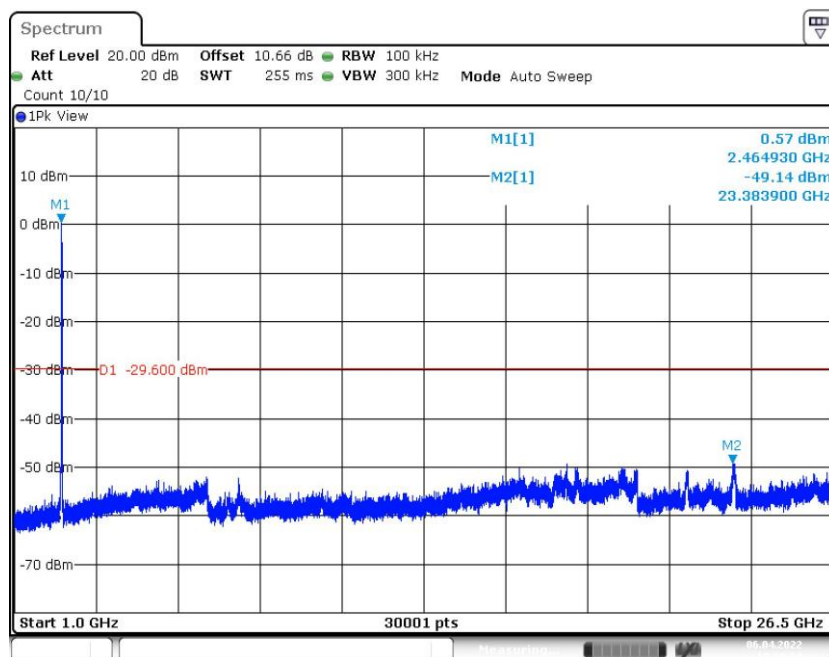


Fig.59 Conducted Spurious Emission (1GHz-26.5GHz, 802.11n-HT20, CH11)

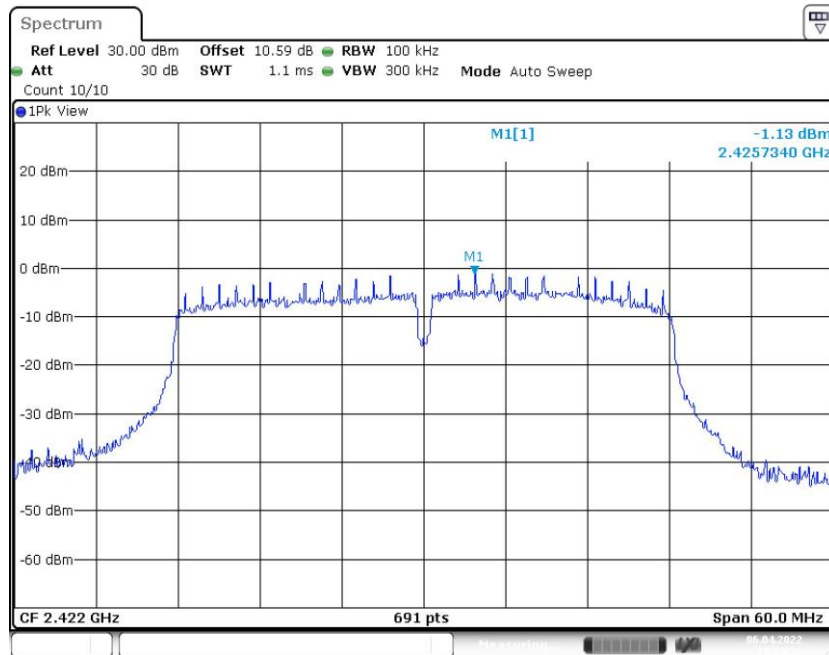


Fig.60 Conducted Spurious Emission (Center Frequency, 802.11n-HT40, CH3)

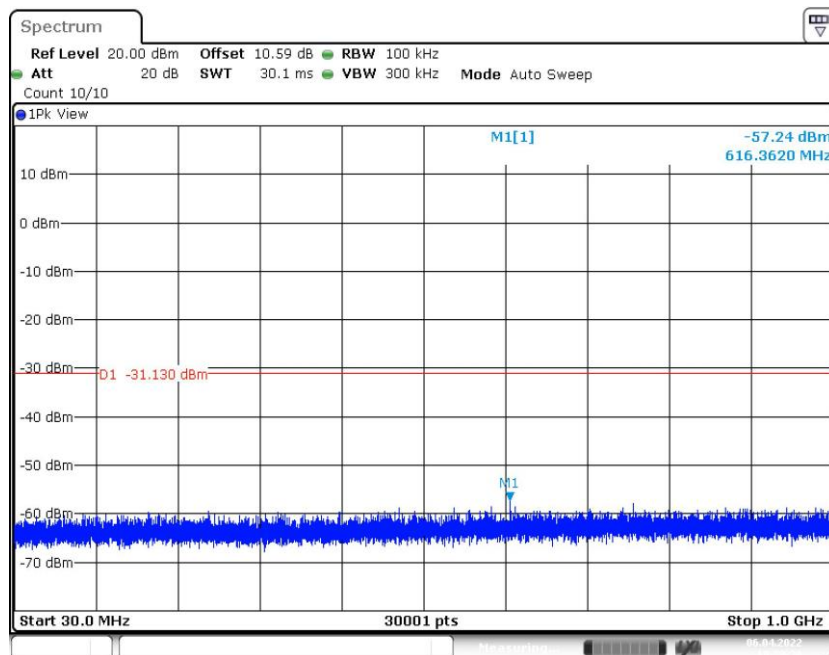


Fig.61 Conducted Spurious Emission (30MHz -1GHz, 802.11n-HT40, CH3)

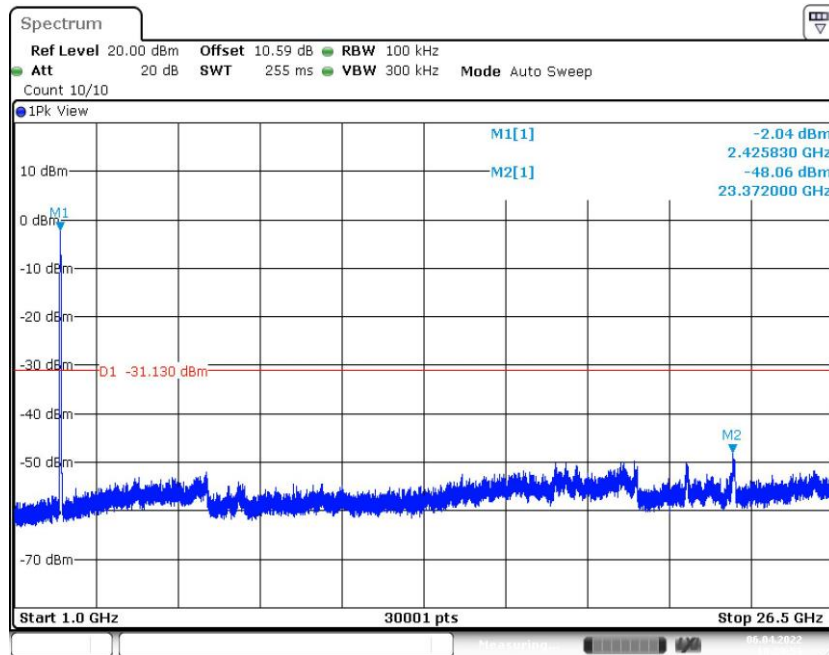


Fig.62 Conducted Spurious Emission (1GHz-26.5GHz, 802.11n-HT40, CH3)

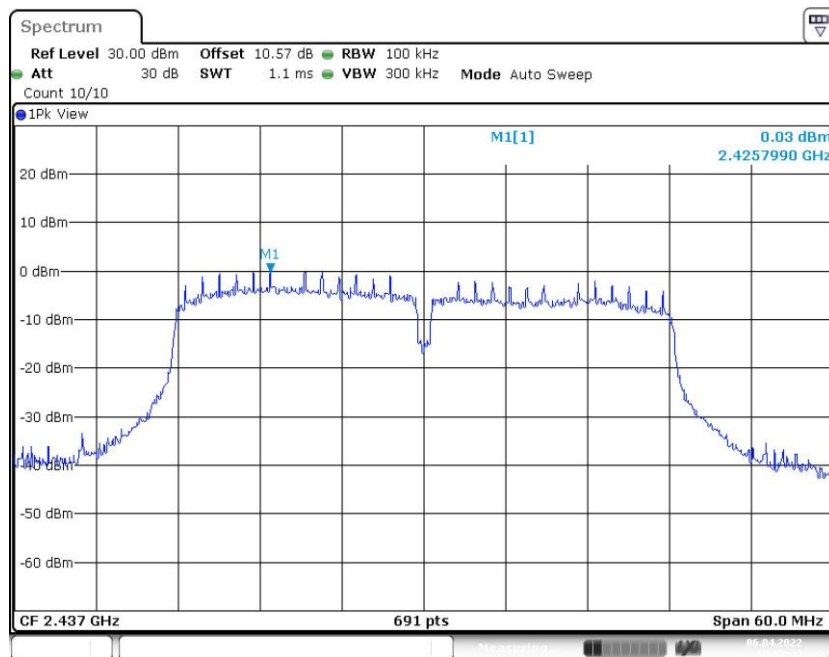


Fig.63 Conducted Spurious Emission (Center Frequency, 802.11n-HT40, CH6)

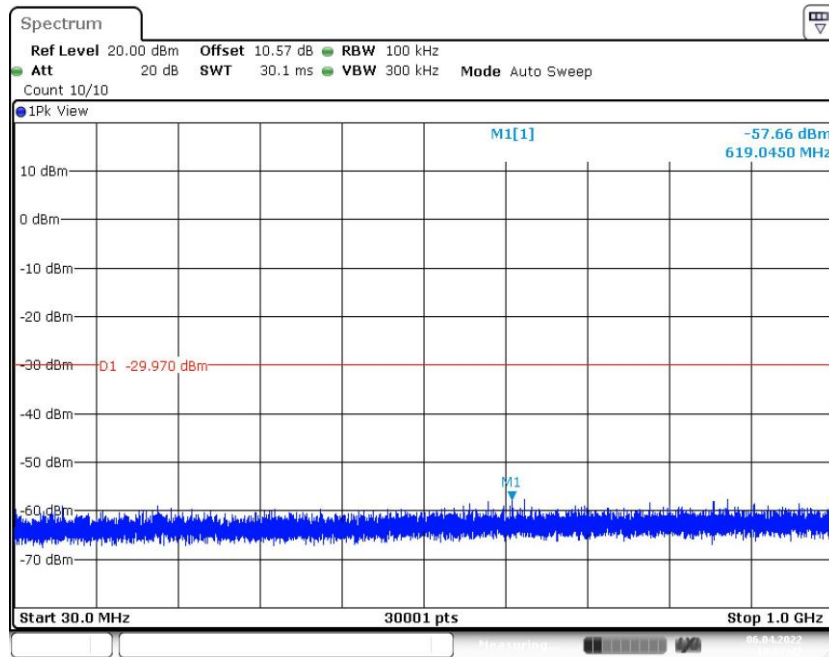


Fig.64 Conducted Spurious Emission (30MHz -1GHz, 802.11n-HT40, CH6)

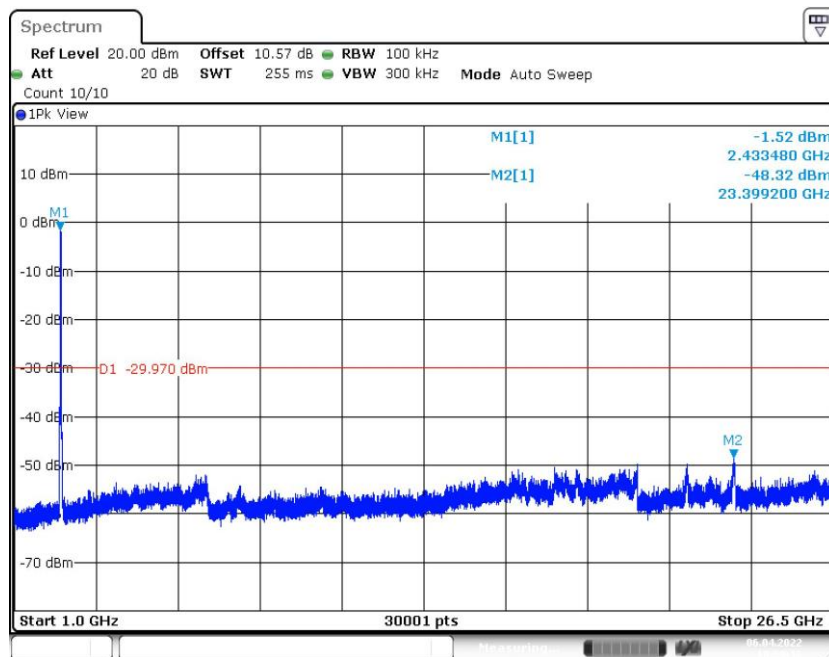


Fig.65 Conducted Spurious Emission (1GHz-26.5GHz, 802.11n-HT40, CH6)

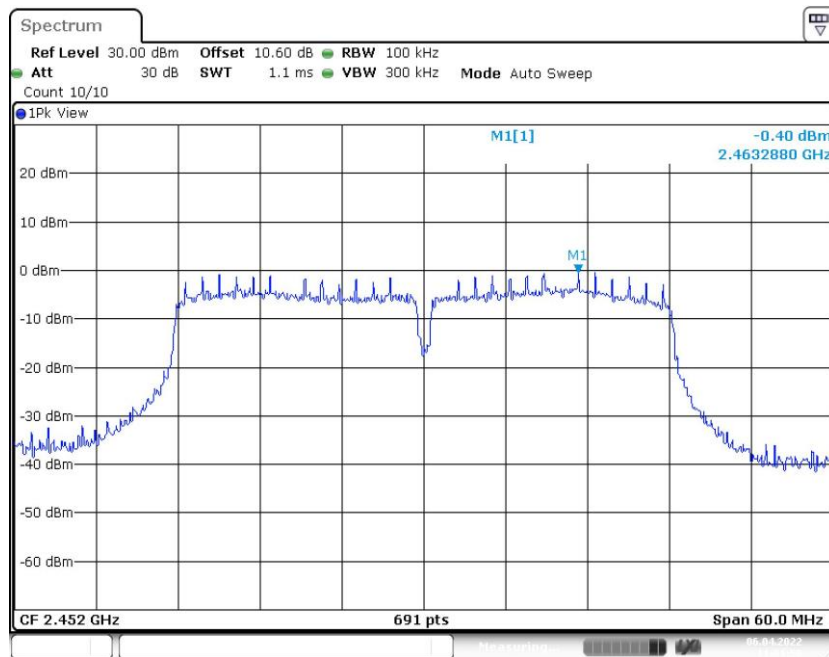


Fig.66 Conducted Spurious Emission (Center Frequency, 802.11n-HT40, CH9)

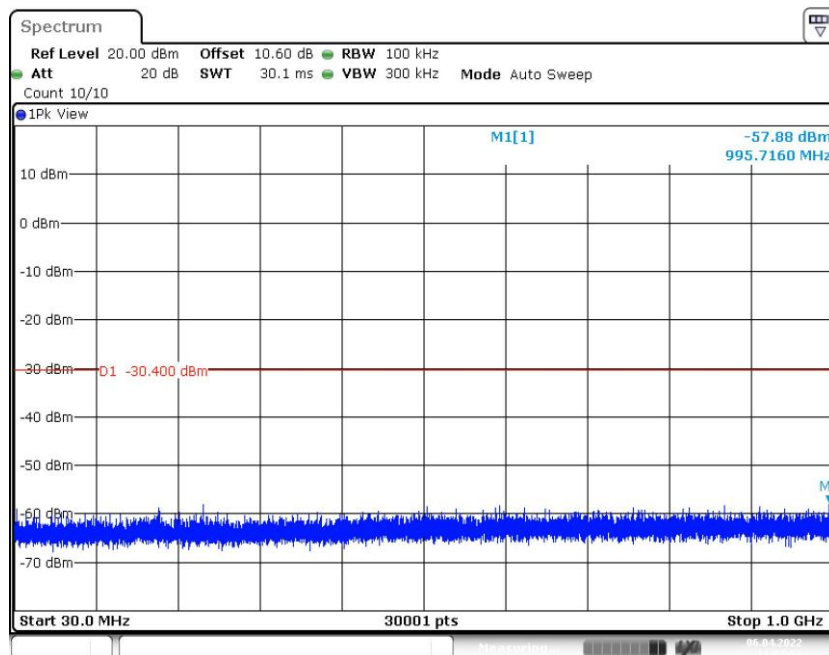


Fig.67 Conducted Spurious Emission (30MHz -1GHz, 802.11n-HT40, CH9)

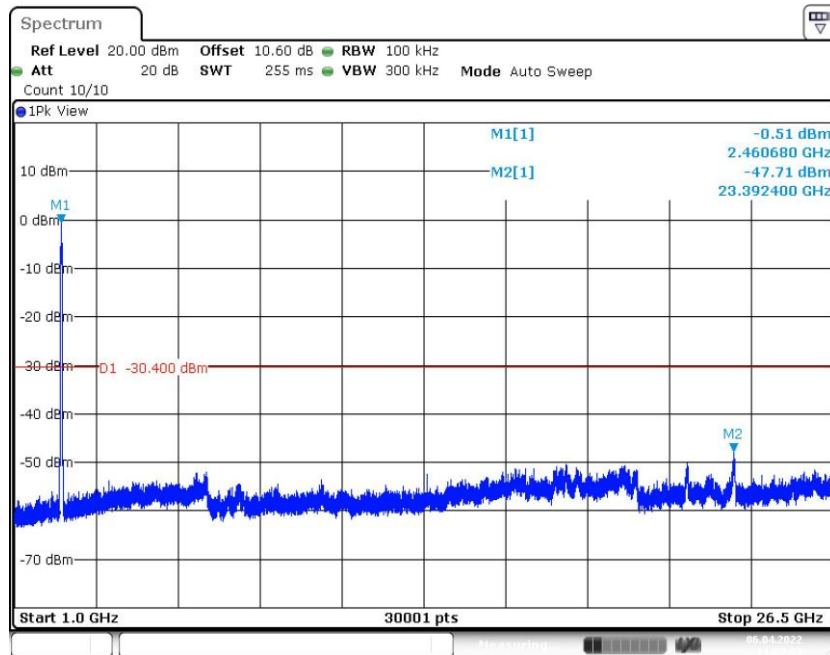


Fig.68 Conducted Spurious Emission (1GHz-26.5GHz, 802.11n-HT40, CH9)

A.6 Radiated Emission

Measurement Limit:

Standard	Limit (dBm)
FCC 47 CFR Part 15.247, 15.205, 15.209 & RSS-247 section 5.5/RSS-Gen section 6.13	20dBm 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($\mu\text{V}/\text{m}$)	Measurement distance(meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

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	120kHz/300kHz	5
1000-4000	1MHz/3MHz	15
4000-18000	1MHz/3MHz	40
18000-26500	1MHz/3MHz	20

Note:

According to the performance evaluation, the radiated emission margin of EUT is over 20dB in the band below 30MHz. Therefore, the measurement starts from 30MHz to tenth harmonic.

The measurement results include the horizontal polarization and vertical polarization measurements.

Measurement Results:

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11b	CH 1	1 GHz ~18 GHz	Fig.69	P
	CH 6	1 GHz ~18 GHz	Fig.70	P
	CH 11	1 GHz ~18 GHz	Fig.71	P
	Restricted Band (CH1)	2.38 GHz ~ 2.45 GHz	Fig.72	P
	Restricted Band (CH11)	2.45 GHz ~ 2.5 GHz	Fig.73	P
802.11g	CH 1	1 GHz ~18 GHz	Fig.74	P
	CH 6	1 GHz ~18 GHz	Fig.75	P
	CH 11	1 GHz ~18 GHz	Fig.76	P
	Restricted Band (CH1)	2.38 GHz ~ 2.45 GHz	Fig.77	P
	Restricted Band (CH11)	2.45 GHz ~ 2.5 GHz	Fig.78	P
802.11n -HT20	CH 1	1 GHz ~18 GHz	Fig.79	P
	CH 6	1 GHz ~18 GHz	Fig.80	P
	CH 11	1 GHz ~18 GHz	Fig.81	P
	Restricted Band (CH1)	2.38 GHz ~ 2.45 GHz	Fig.82	P
	Restricted Band (CH11)	2.45 GHz ~ 2.5 GHz	Fig.83	P
802.11n -HT40	CH 3	1 GHz ~18 GHz	Fig.84	P
	CH 6	1 GHz ~18 GHz	Fig.85	P
	CH 9	1 GHz ~18 GHz	Fig.86	P
	Restricted Band (CH3)	2.38 GHz ~ 2.45 GHz	Fig.87	P
	Restricted Band (CH9)	2.45 GHz ~ 2.5 GHz	Fig.88	P
/	All Channels	9 kHz ~30 MHz	Fig.89	P
		30 MHz ~1 GHz	Fig.90	P
		18 GHz ~26.5 GHz	Fig.91	P

Worst-Case Result:
802.11b CH1 (1-18GHz)

Frequency (MHz)	MaxPeak (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
5444.700000	49.05	74.00	24.95	V	3.8
7494.428572	45.63	74.00	28.37	H	5.7
10401.000000	47.83	74.00	26.17	H	9.1
12417.000000	48.83	74.00	25.17	H	11.4
16564.714286	53.63	74.00	20.37	H	16.7
17877.857143	54.05	74.00	19.95	V	18.8

Frequency (MHz)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
5444.700000	37.27	54.00	16.73	V	3.8
7494.428572	34.92	54.00	19.08	H	5.7
10401.000000	37.99	54.00	16.01	H	9.1
12417.000000	38.99	54.00	15.01	H	11.4
16564.714286	43.53	54.00	10.47	H	16.7
17877.857143	44.59	54.00	9.41	V	18.8

802.11g CH1 (1GHz-18GHz)

Frequency (MHz)	MaxPeak (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
5580.600000	49.03	74.00	24.97	H	3.8
8247.428572	46.10	74.00	27.90	H	5.9
10461.428572	47.76	74.00	26.24	H	9.0
12218.571429	48.02	74.00	25.98	V	10.9
14828.571429	51.25	74.00	22.75	H	12.9
17603.571429	54.36	74.00	19.64	V	18.2

Frequency (MHz)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
5580.600000	37.32	54.00	16.68	H	3.8
8247.428572	36.01	54.00	17.99	H	5.9
10461.428572	38.25	54.00	15.75	H	9.0
12218.571429	38.79	54.00	15.21	V	10.9
14828.571429	40.65	54.00	13.35	H	12.9
17603.571429	44.14	54.00	9.86	V	18.2

802.11n-HT20 CH1 (1GHz-18GHz)

Frequency (MHz)	MaxPeak (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
7602.428572	45.27	74.00	28.73	V	5.7
11206.285714	48.81	74.00	25.19	H	9.7
13524.000000	48.55	74.00	25.45	V	11.1
15187.285714	50.45	74.00	23.55	H	12.5
16837.714286	54.04	74.00	19.96	V	17.9
17932.285714	54.44	74.00	19.56	V	18.9

Frequency (MHz)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
7602.428572	35.71	54.00	18.29	V	5.7
11206.285714	37.95	54.00	16.05	H	9.7
13524.000000	37.91	54.00	16.09	V	11.1
15187.285714	40.25	54.00	13.75	H	12.5
16837.714286	43.91	54.00	10.09	V	17.9
17932.285714	44.44	54.00	9.56	V	18.9

802.11n-HT40 CH3 (1GHz-18GHz)

Frequency (MHz)	MaxPeak (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2985.714286	51.86	74.00	22.14	H	6.7
5961.000000	48.80	74.00	25.20	V	4.7
12312.000000	47.82	74.00	26.18	V	11.1
15024.857143	49.54	74.00	24.46	V	12.8
15861.428571	50.74	74.00	23.26	H	14.0
16941.000000	54.18	74.00	19.82	H	18.2

Frequency (MHz)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2985.714286	40.62	54.00	15.38	H	6.7
5961.000000	36.71	54.00	17.29	V	4.7
12312.000000	39.12	54.00	14.88	V	11.1
15024.857143	39.17	54.00	14.83	V	12.8
15861.428571	42.25	54.00	11.75	H	14.0
16941.000000	43.98	54.00	10.02	H	18.2

Note:

A "reference path loss" is established and the A_{Rpl} is the attenuation of "reference path loss", and Antenna Factor, the gain of the preamplifier, the cable loss. P_{Mea} is the field strength recorded from

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the instrument. The measurement results are obtained as described below:

Result= $P_{Mea} + \text{Cable Loss} + \text{Antenna Factor} - \text{Gain of the preamplifier}$.

See below for test graphs.

Conclusion: PASS

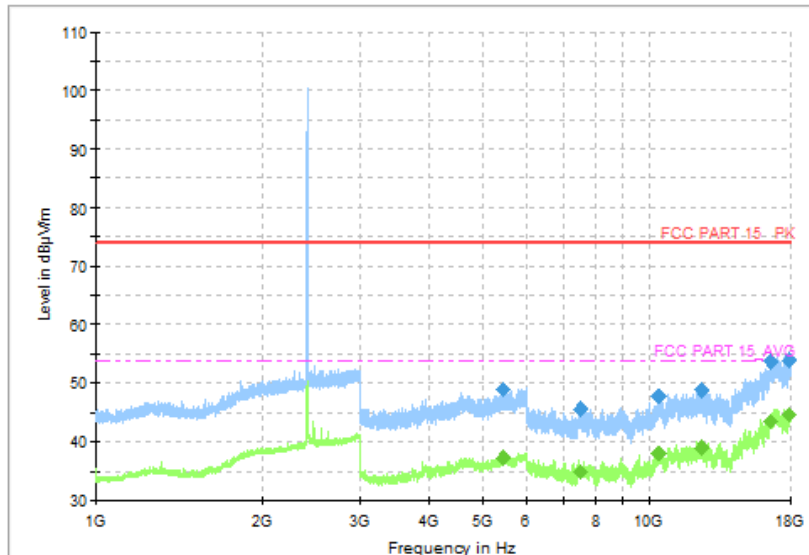


Fig.69 Radiated Spurious Emission (802.11b, CH1, 1 GHz-18GHz)

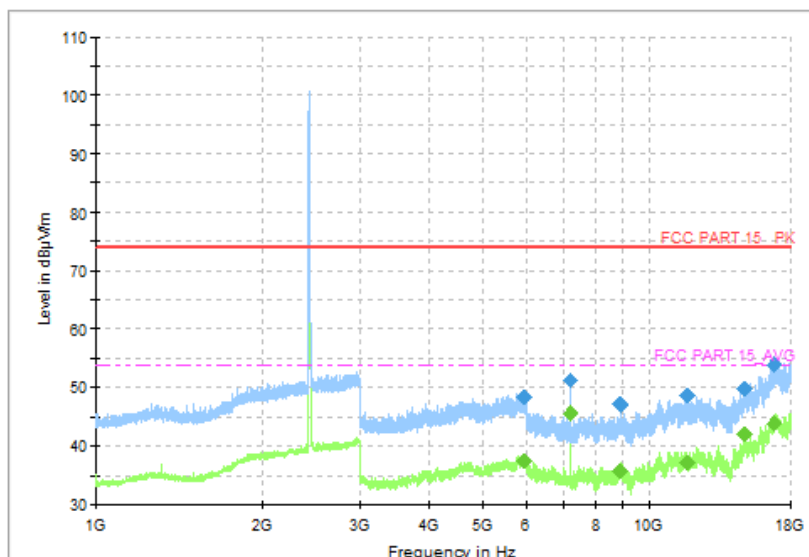


Fig.70 Radiated Spurious Emission (802.11b, CH6, 1 GHz-18GHz)

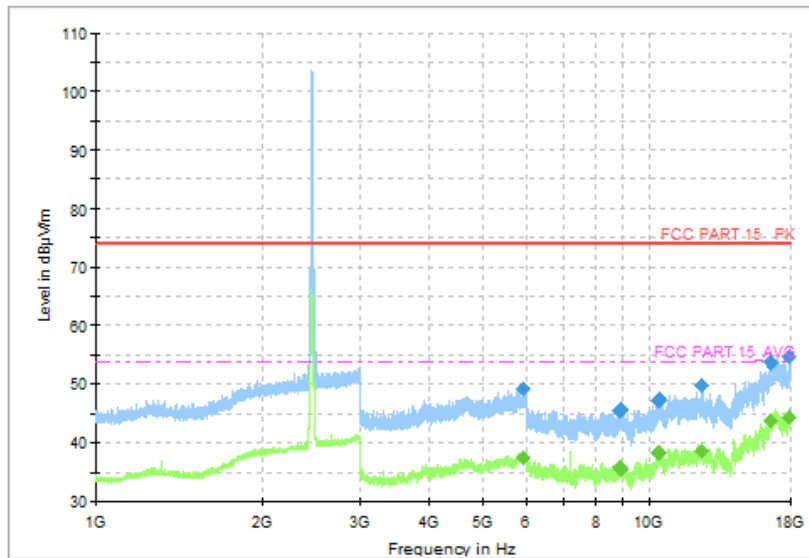


Fig.71 Radiated Spurious Emission (802.11b, CH11, 1 GHz-18GHz)

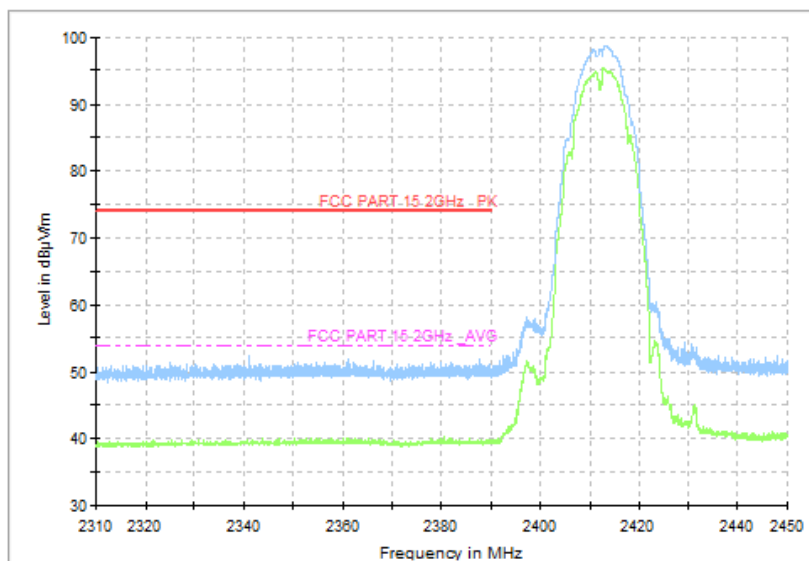


Fig.72 Radiated Restricted Band (802.11b, CH1, 2.38GHz~2.45GHz)

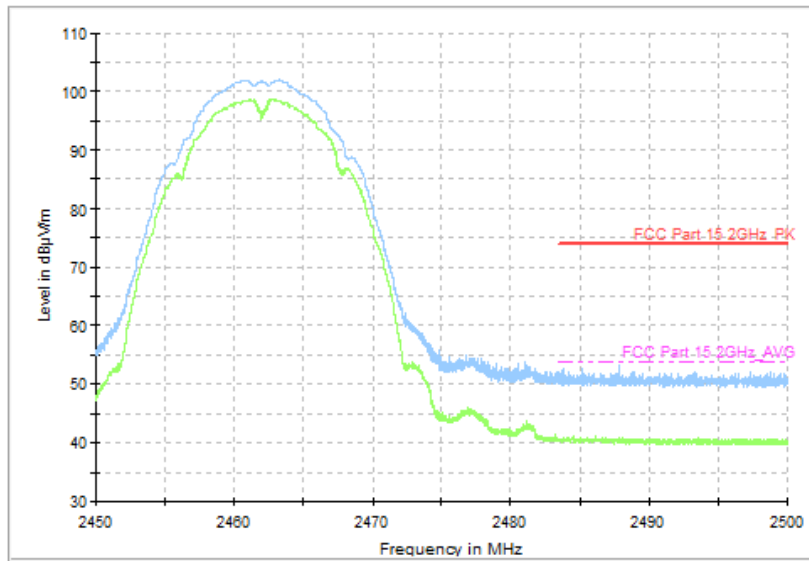


Fig.73 Radiated Restricted Band (802.11b, CH11, 2.45GHz~2.5GHz)

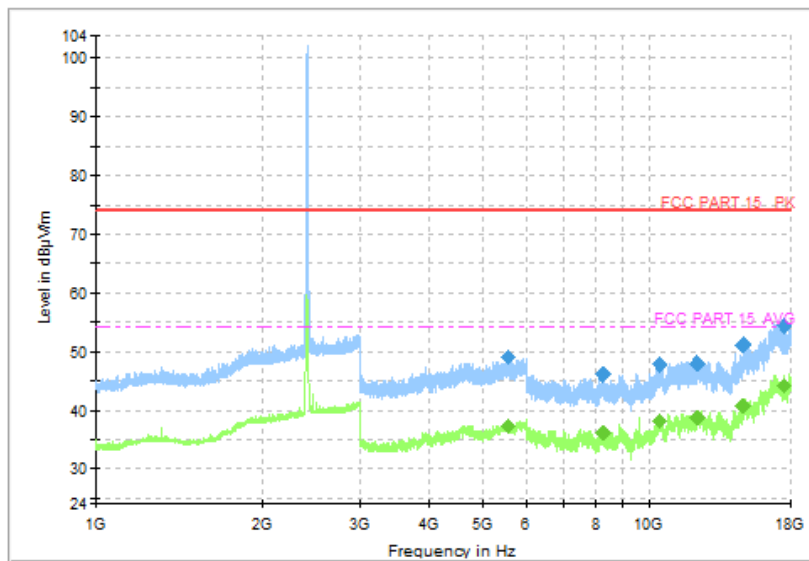


Fig.74 Radiated Spurious Emission (802.11g, CH1, 1 GHz-18 GHz)

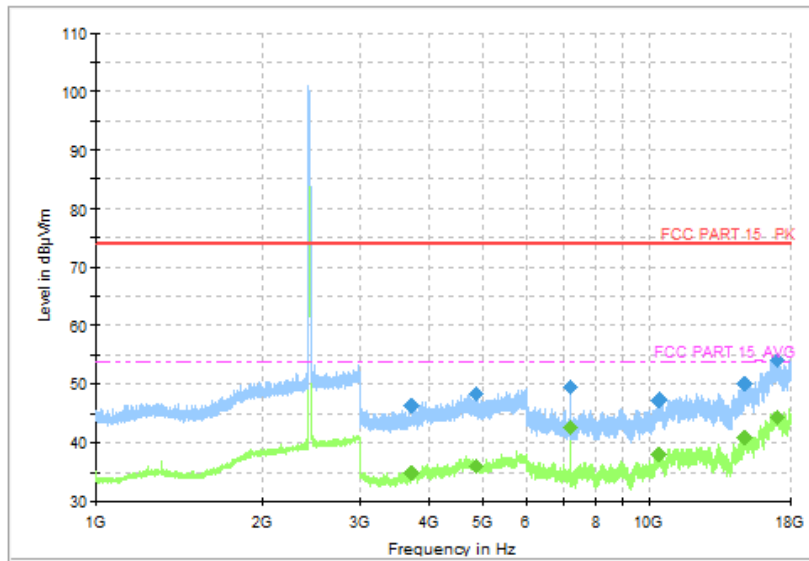


Fig.75 Radiated Spurious Emission (802.11g, CH6, 1 GHz-18 GHz)

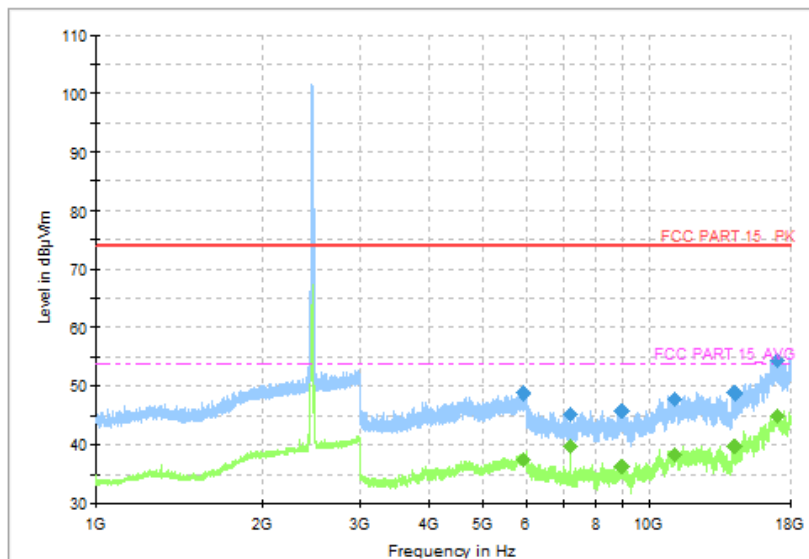


Fig.76 Radiated Spurious Emission (802.11g, CH11, 1 GHz-18 GHz)

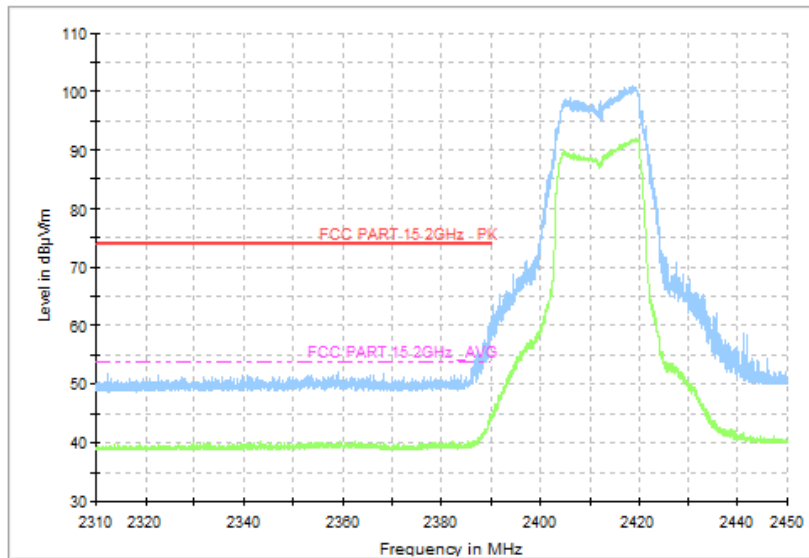


Fig.77 Radiated Restricted Band (802.11g, CH1, 2.38GHz~2.45GHz)

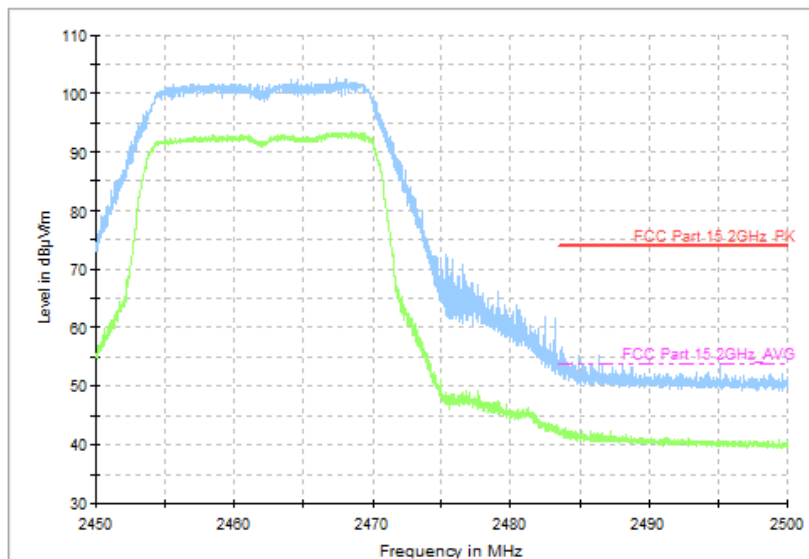


Fig.78 Radiated Restricted Band (802.11g, CH11, 2.45GHz~2.5GHz)

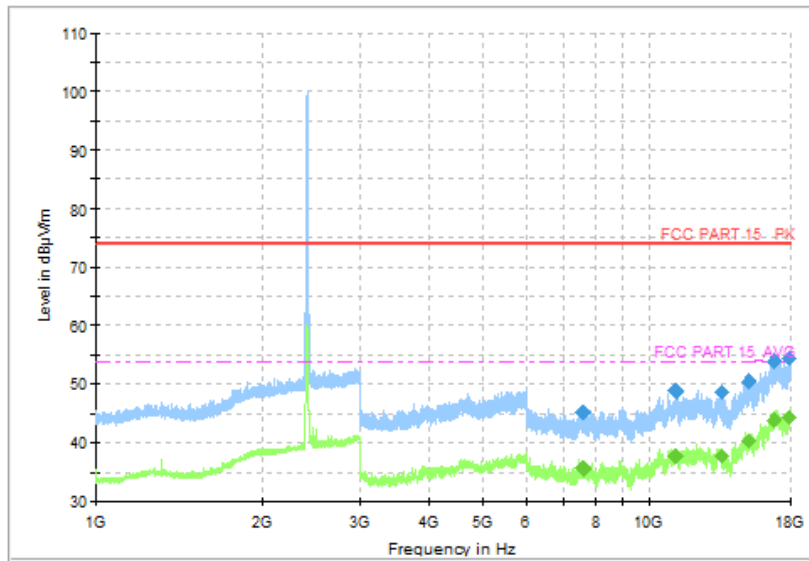


Fig.79 Radiated Spurious Emission (802.11n-HT20, CH1, 1 GHz-18 GHz)

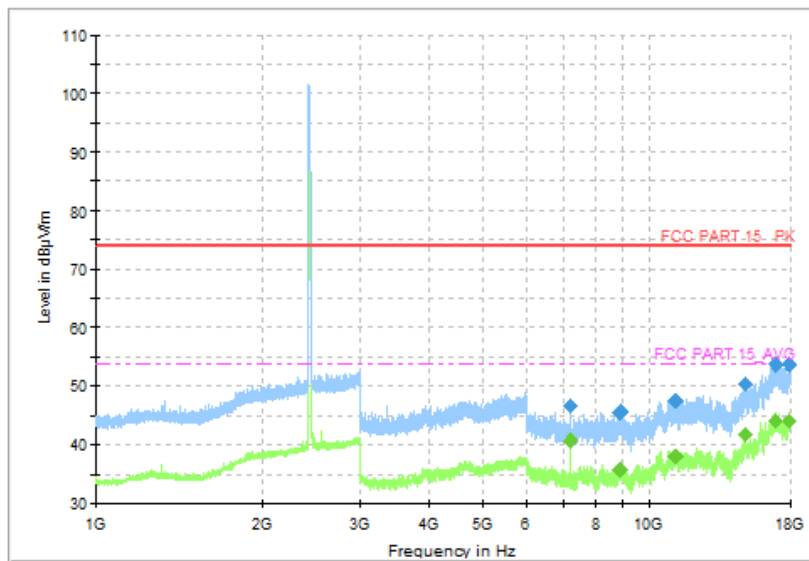


Fig.80 Radiated Spurious Emission (802.11n-HT20, CH6, 1 GHz-18 GHz)

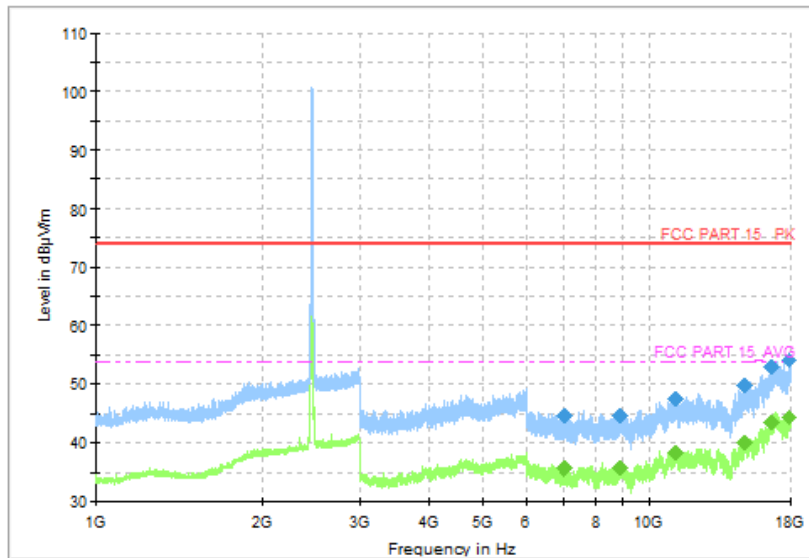


Fig.81 Radiated Spurious Emission (802.11n-HT20, CH11, 1 GHz-18 GHz)

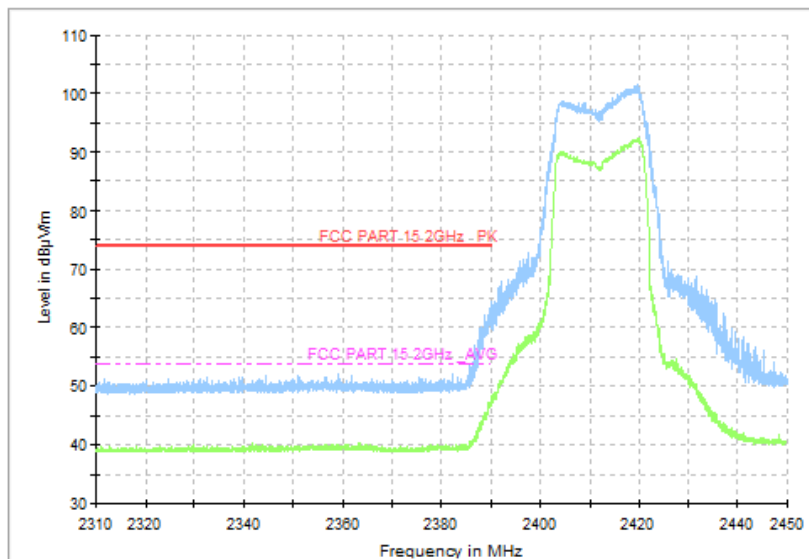


Fig.82 Radiated Restricted Band (802.11n-HT20, CH1, 2.38GHz~2.45GHz)

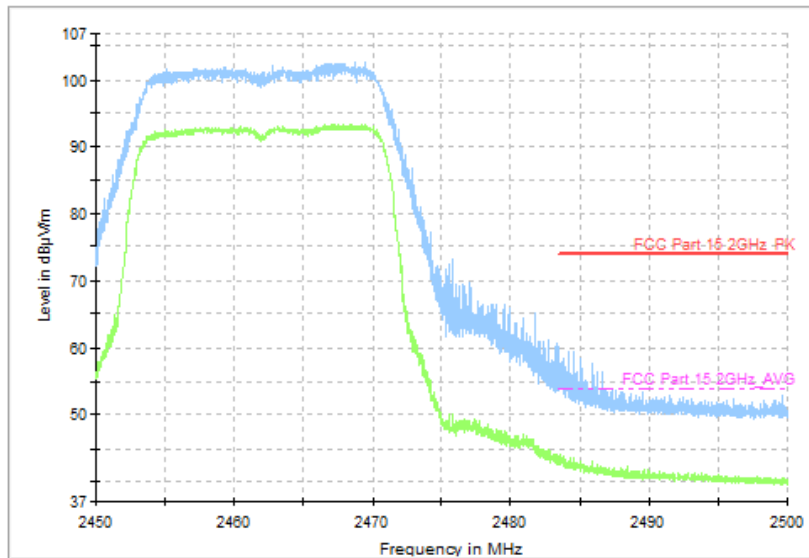


Fig.83 Radiated Restricted Band (802.11n-HT20, CH11, 2.45GHz~2.5GHz)

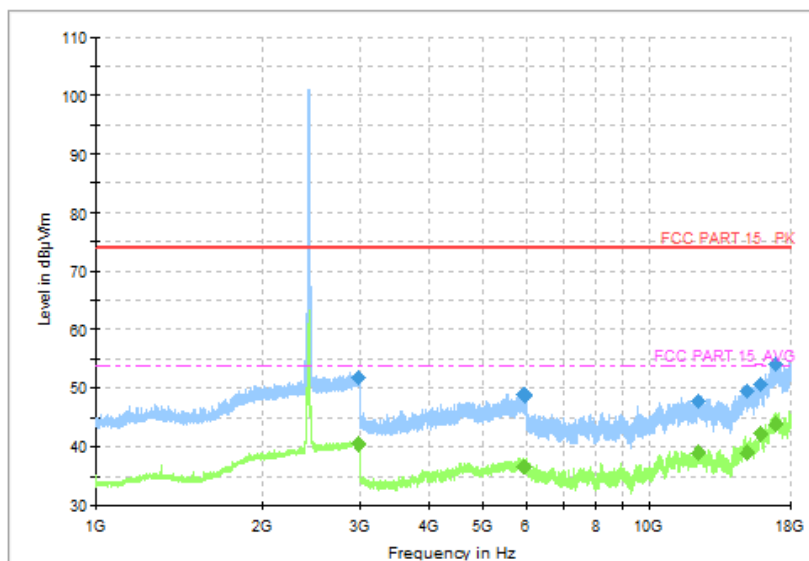


Fig.84 Radiated Spurious Emission (802.11n-HT40, CH3, 1 GHz-18 GHz)

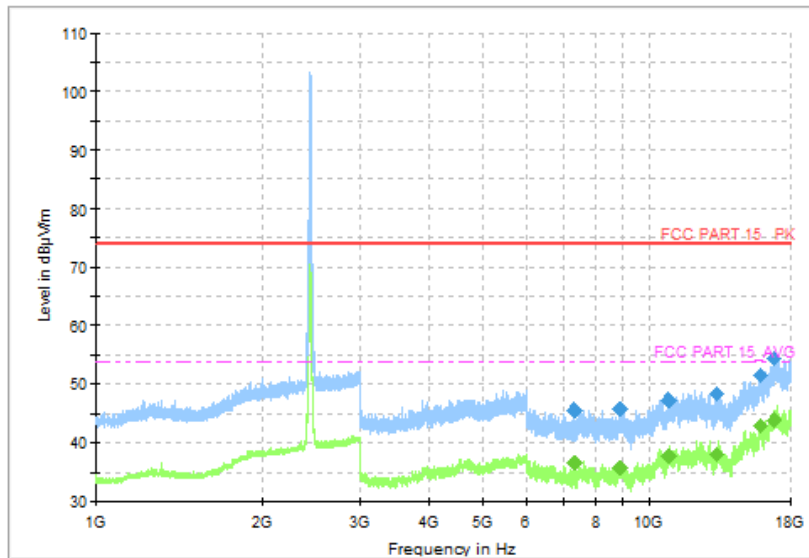


Fig.85 Radiated Spurious Emission (802.11n-HT40, CH6, 1 GHz-18 GHz)

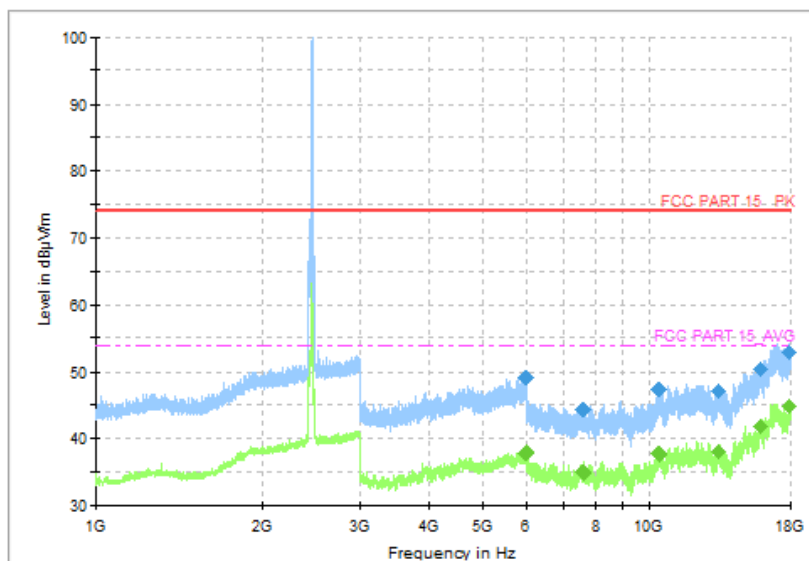


Fig.86 Radiated Spurious Emission (802.11n-HT40, CH9, 1 GHz-18 GHz)

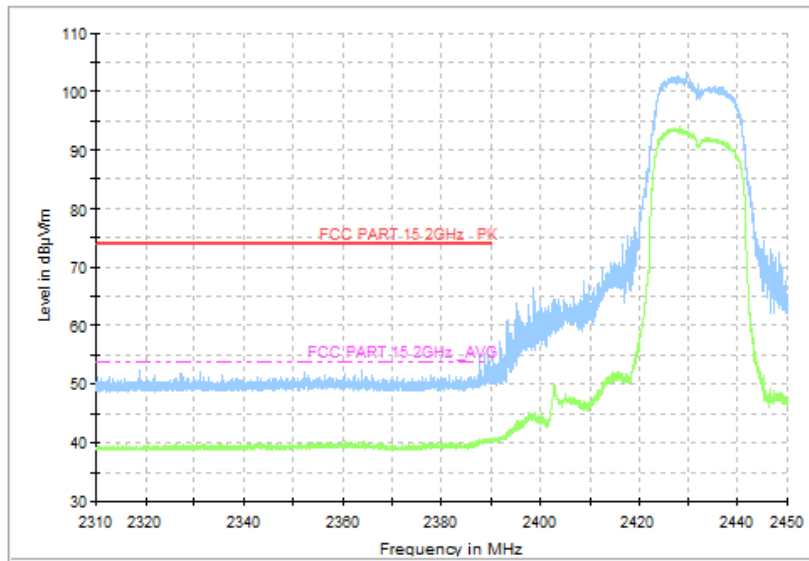


Fig.87 Radiated Restricted Band (802.11n-HT40, CH3, 2.38GHz~2.45GHz)

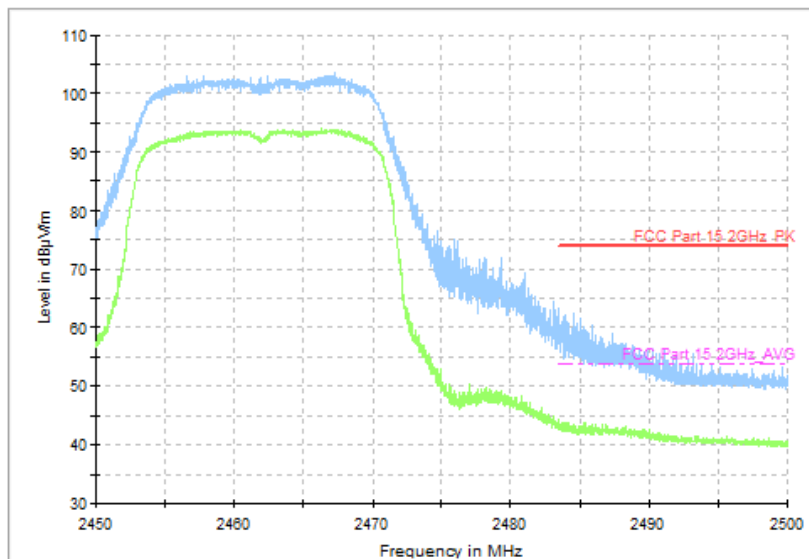


Fig.88 Radiated Restricted Band (802.11n-HT40, CH9, 2.45GHz~2.5GHz)

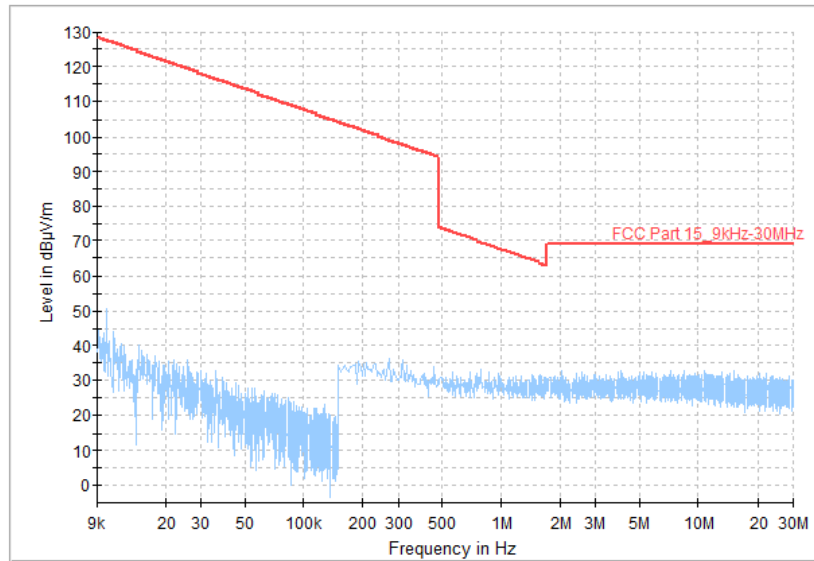


Fig.89 Radiated Spurious Emission (All Channels, 9 kHz-30 MHz)

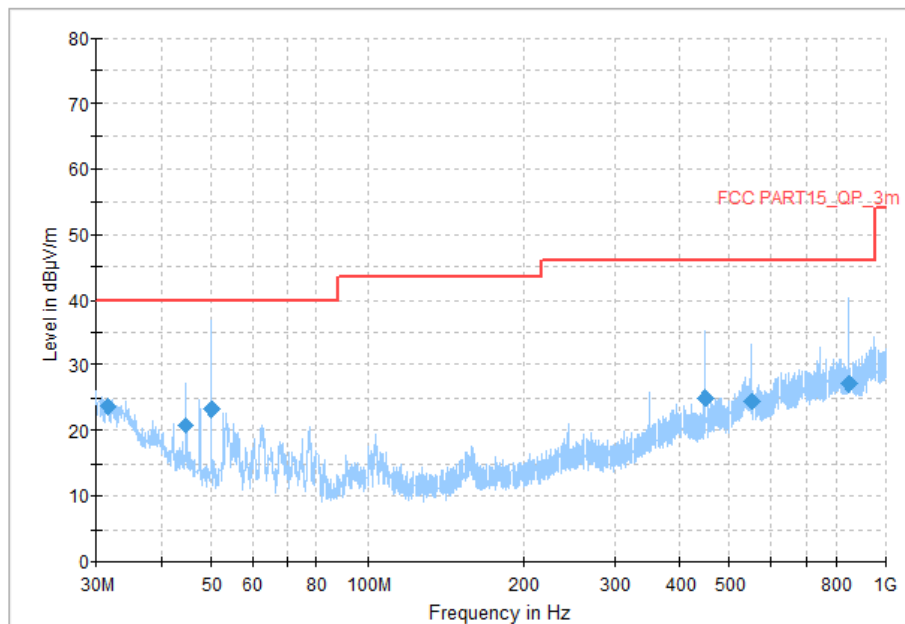


Fig.90 Radiated Spurious Emission (All Channels, 30MHz-1 GHz)

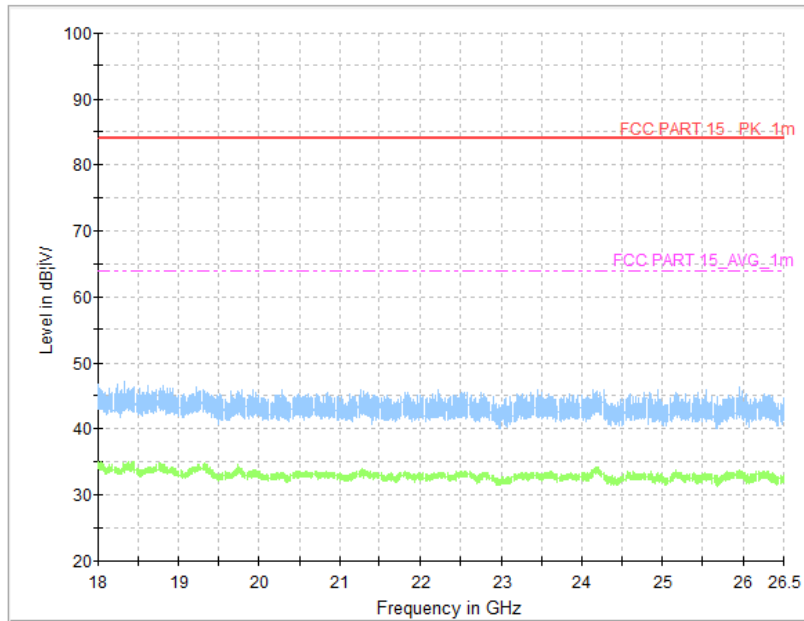


Fig.91 Radiated Spurious Emission (All Channels, 18 GHz-26.5 GHz)

A.7 99% Occupied Bandwidth

Measurement Limit:

Standard	Limit
RSS-Gen section 6.7	/

Measurement Result:

Mode	Channel	Frequency (MHz)	Test Results (MHz)		Conclusion
			Fig.	Value	
802.11b	CH1	2412	Fig.92	13.31	/
	CH6	2437	Fig.93	13.31	/
	CH11	2462	Fig.94	13.11	/
802.11g	CH1	2412	Fig.95	18.14	/
	CH6	2437	Fig.96	17.94	/
	CH11	2462	Fig.97	17.66	/
802.11n- HT20	CH1	2412	Fig.98	18.86	/
	CH6	2437	Fig.99	18.62	/
	CH11	2462	Fig.100	18.54	/
802.11n- HT40	CH 3	2422	Fig.101	36.60	/
	CH 6	2437	Fig.102	36.84	/
	CH 9	2452	Fig.103	37.08	/

See below for test graphs.

Conclusion: PASS

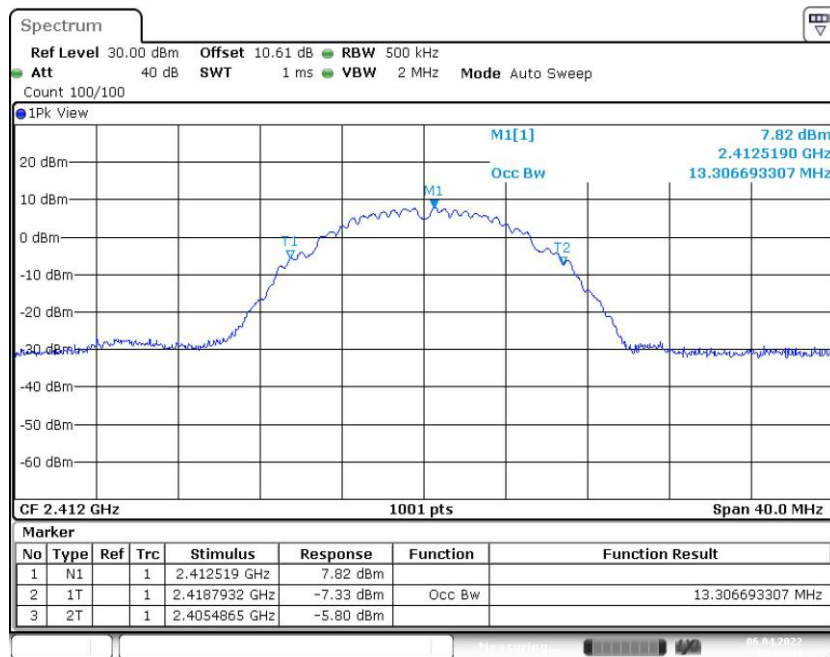


Fig.92 99% Occupied Bandwidth (802.11b, CH 1)

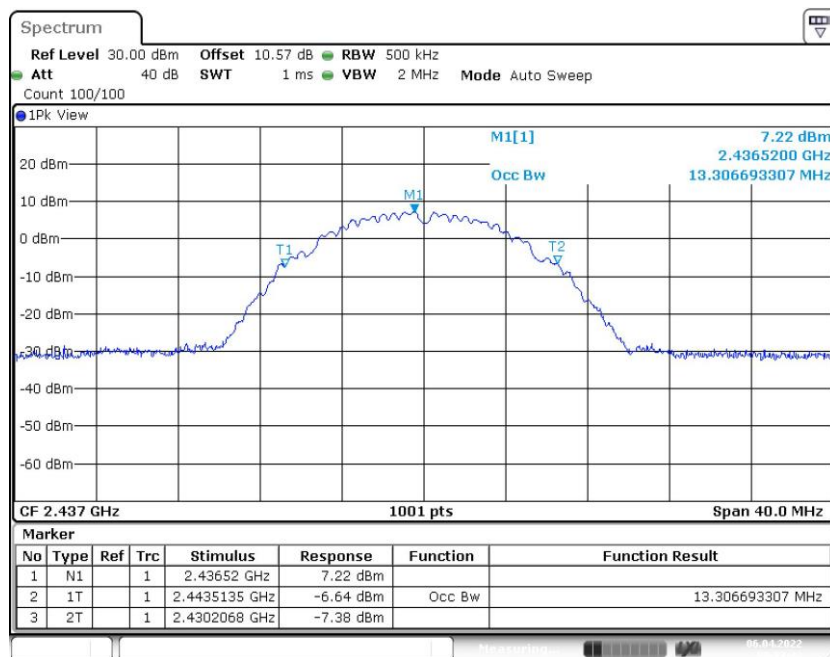


Fig.93 99% Occupied Bandwidth (802.11b, CH 6)

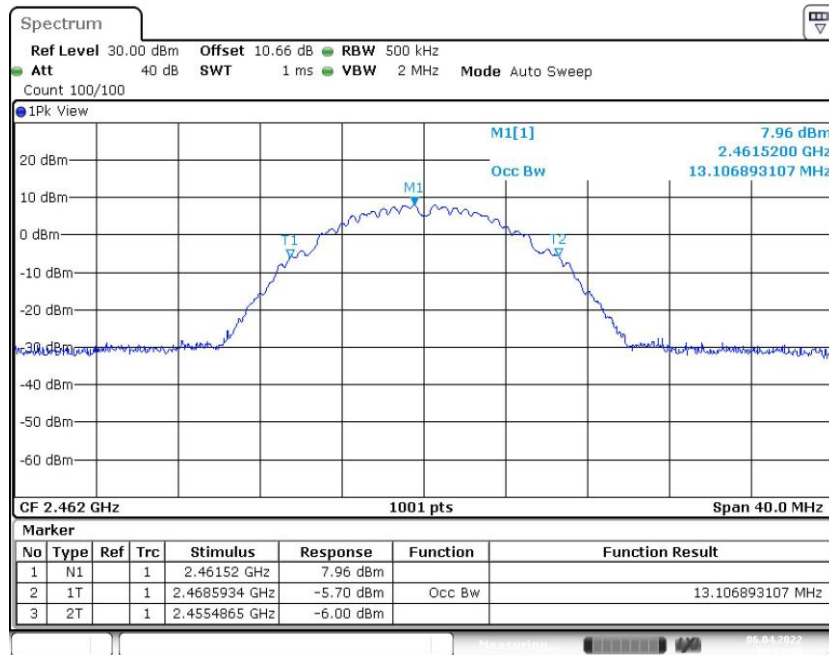


Fig.94 99% Occupied Bandwidth (802.11b, CH 11)

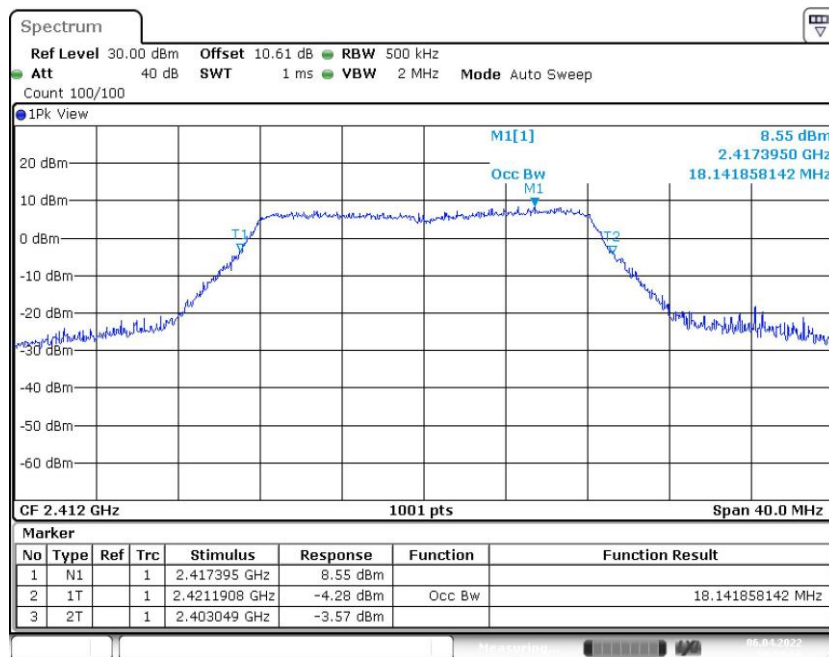


Fig.95 99% Occupied Bandwidth (802.11g, CH 1)

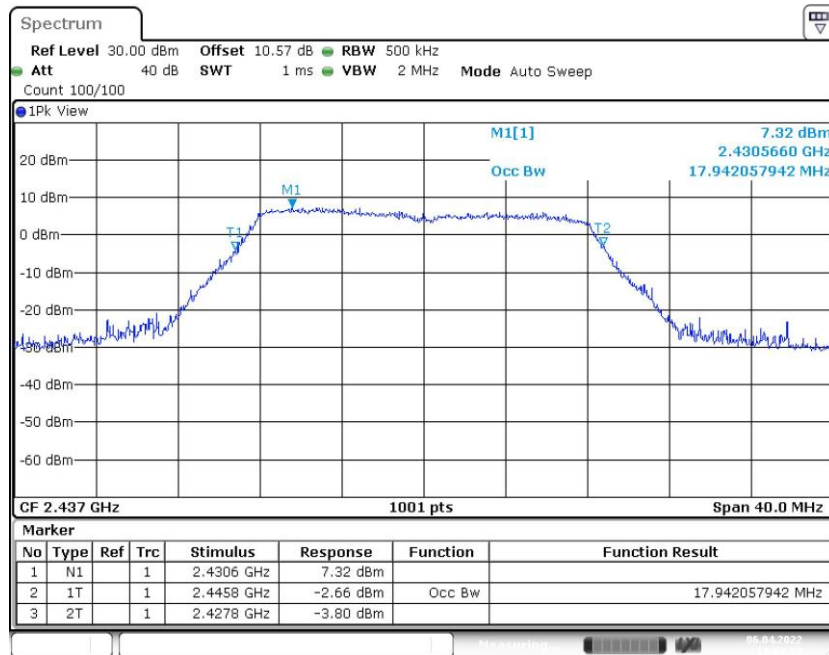


Fig.96 99% Occupied Bandwidth (802.11g, CH 6)

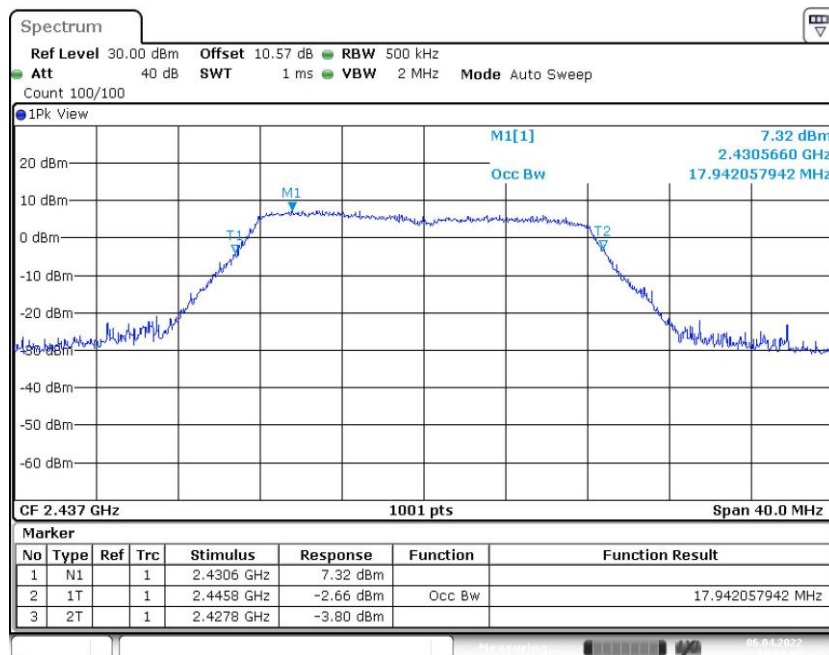


Fig.97 99% Occupied Bandwidth (802.11g, CH 11)

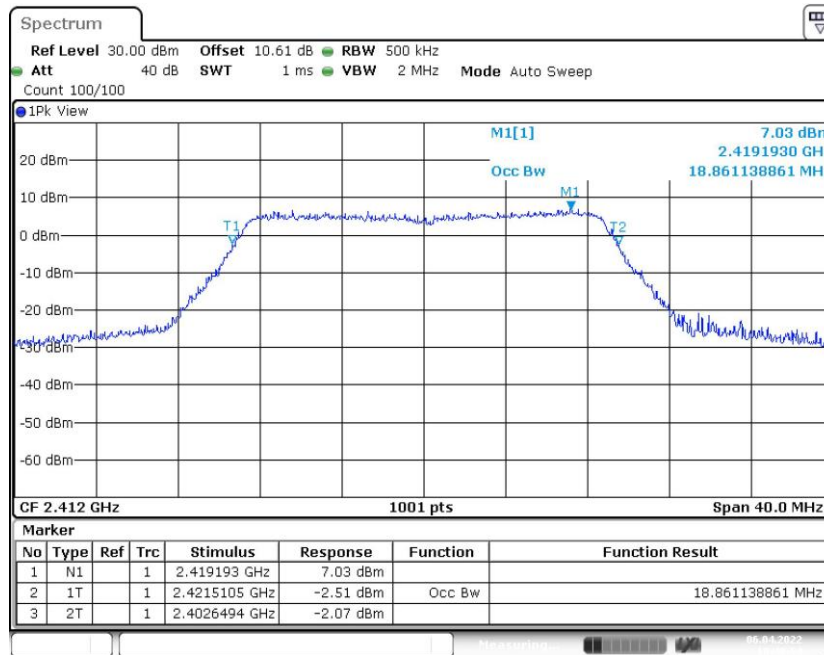


Fig.98 99% Occupied Bandwidth (802.11n-HT20, CH 1)

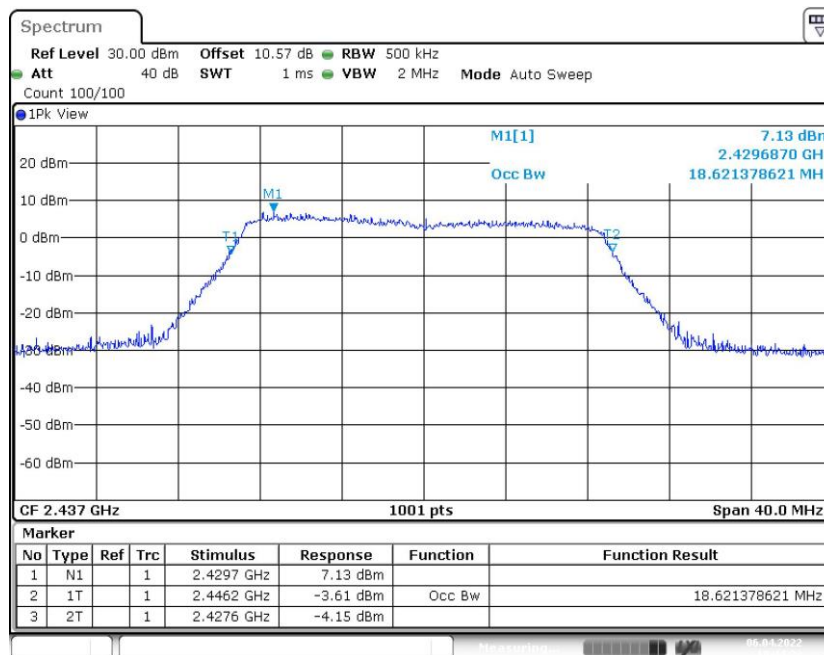


Fig.99 99% Occupied Bandwidth (802.11n-HT20, CH 6)

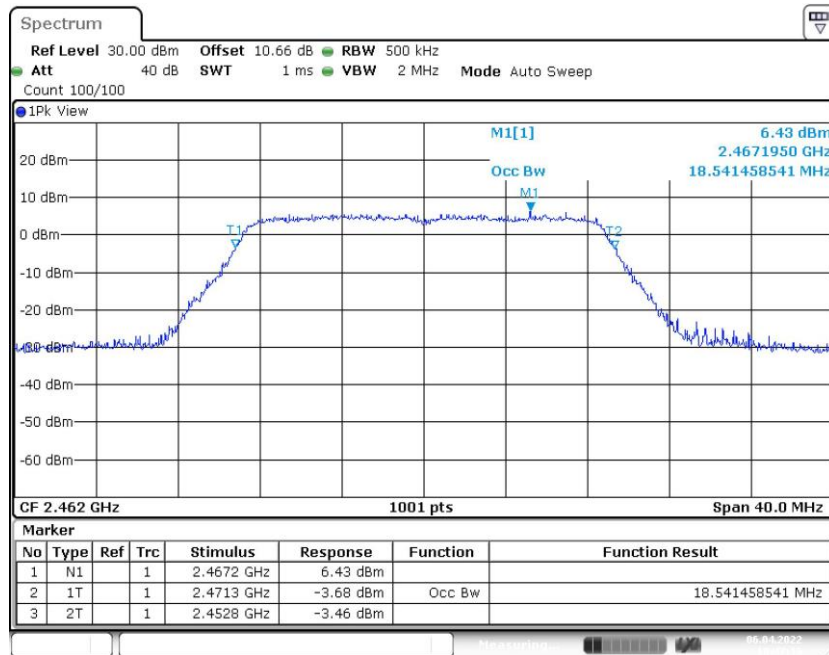


Fig.100 99% Occupied Bandwidth (802.11n-HT20, CH 11)

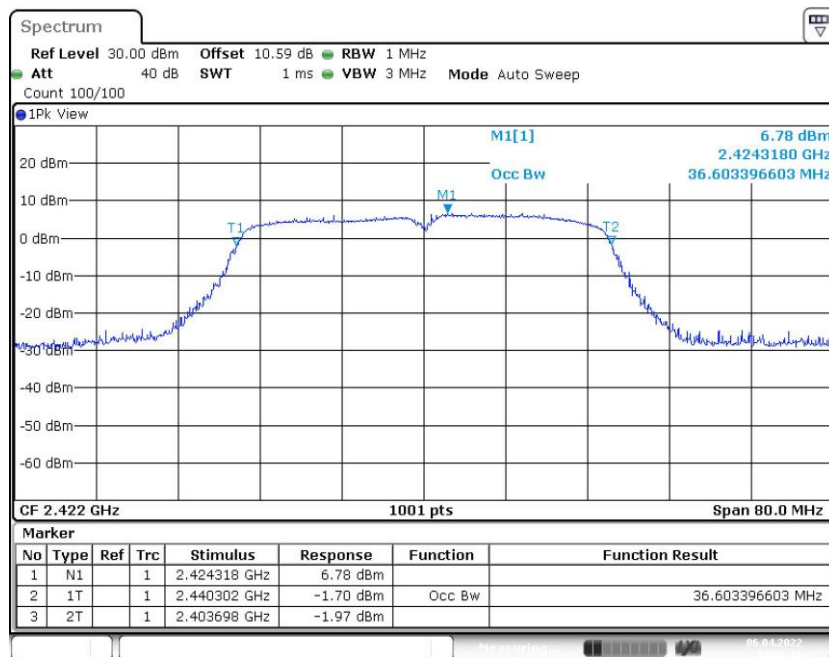


Fig.101 99% Occupied Bandwidth (802.11n-HT40, CH 3)

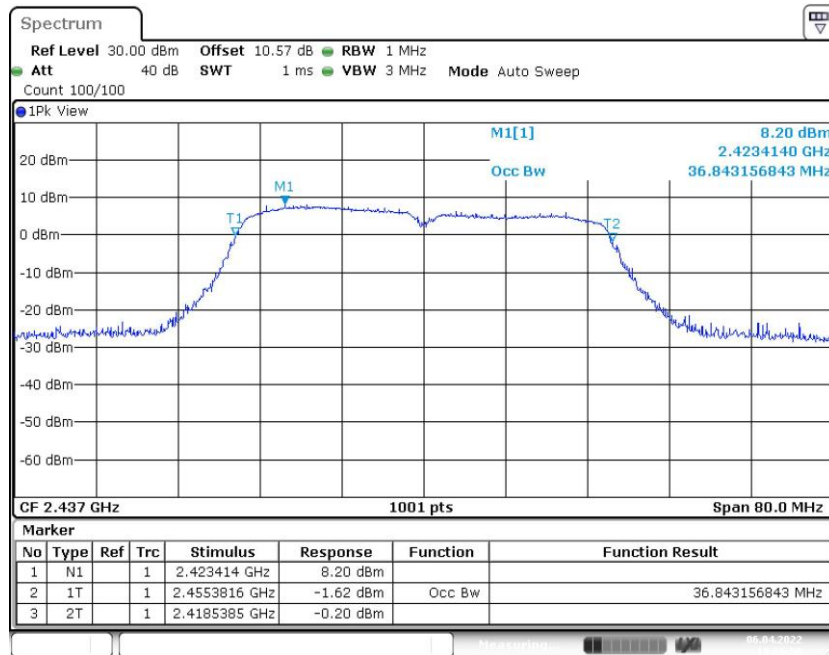


Fig.102 99% Occupied Bandwidth (802.11n-HT40, CH 6)

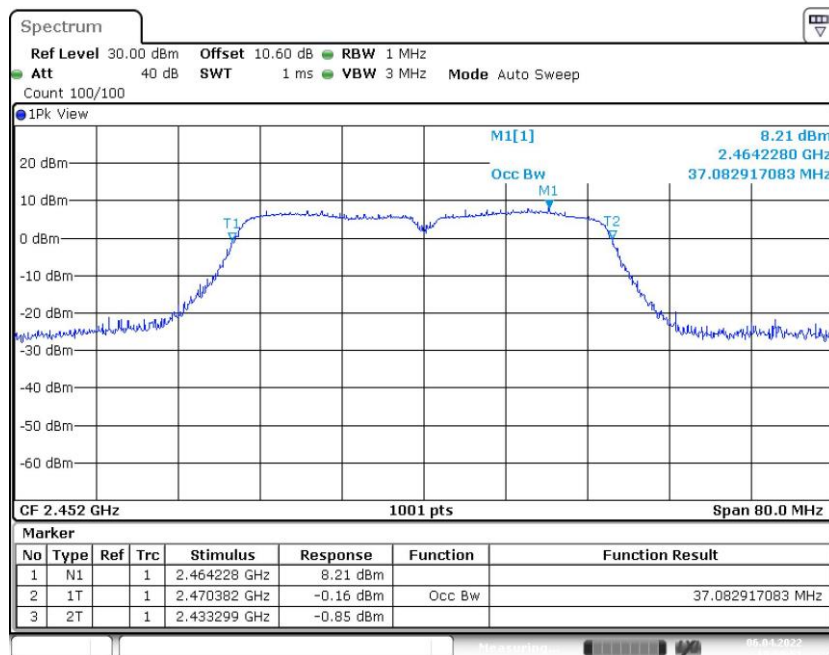


Fig.103 99% Occupied Bandwidth (802.11n-HT40, CH 9)

ANNEX B: Accreditation Certificate

<p>United States Department of Commerce National Institute of Standards and Technology</p> <div style="display: flex; justify-content: space-around; align-items: center;"><div style="font-size: 2em; font-weight: bold; letter-spacing: 0.5em;">NVLAP[®]</div><div style="text-align: center;"> ilac-MRA</div></div> <hr/> <p style="text-align: center;">Certificate of Accreditation to ISO/IEC 17025:2017</p> <hr/> <p style="text-align: center;">NVLAP LAB CODE: 600118-0</p> <p style="text-align: center;">Telecommunication Technology Labs, CAICT Beijing China</p> <p style="text-align: center;"><i>is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:</i></p> <p style="text-align: center;">Electromagnetic Compatibility & Telecommunications</p> <p style="text-align: center;"><i>This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017. 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).</i></p> <div style="display: flex; justify-content: space-between; align-items: center;"><div style="text-align: center;"><hr/><p>2021-09-29 through 2022-09-30 Effective Dates</p></div><div style="text-align: center;"></div><div style="text-align: center;"> For the National Voluntary Laboratory Accreditation Program</div></div>	
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