

9.4 TEST RESULTS

802.11b Mode:

Channel No.	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
1	2412	-6.13	8.00	Pass
6	2437	-5.68	8.00	Pass
11	2462	-5.88	8.00	Pass

802.11g Mode:

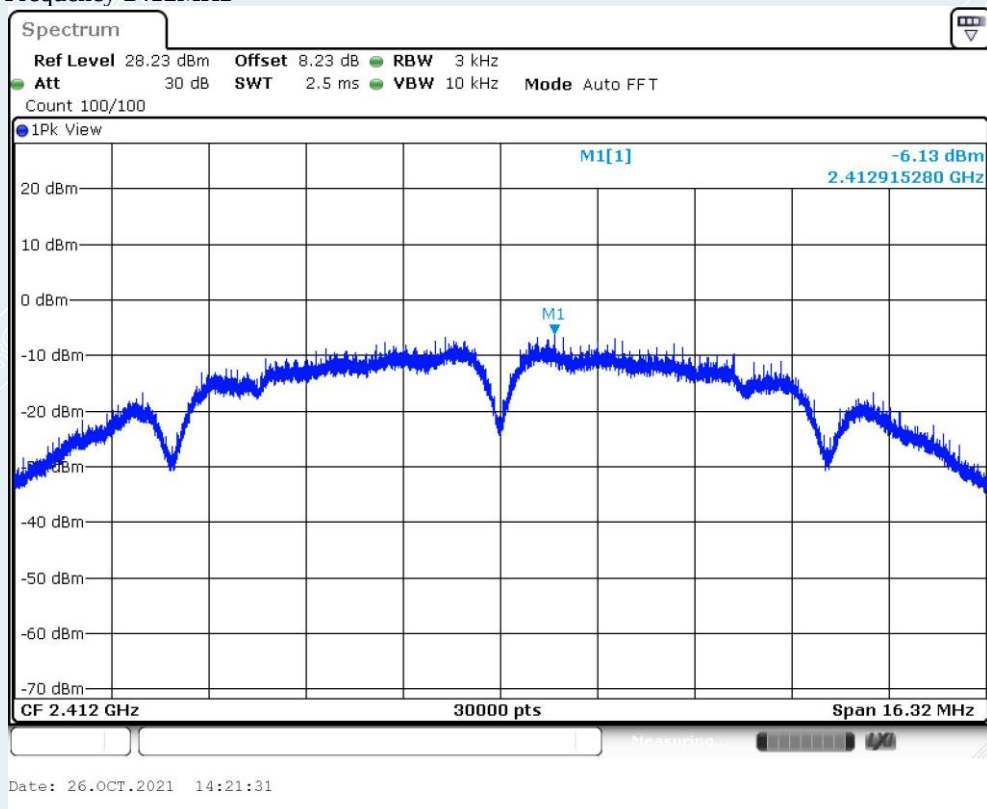
Channel No.	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
1	2412	-7.68	8.00	Pass
6	2437	-9.73	8.00	Pass
11	2462	-8.74	8.00	Pass

802.11n HT20 Mode:

Channel No.	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
1	2412	-9.58	8.00	Pass
6	2437	-7.74	8.00	Pass
11	2462	-9.07	8.00	Pass

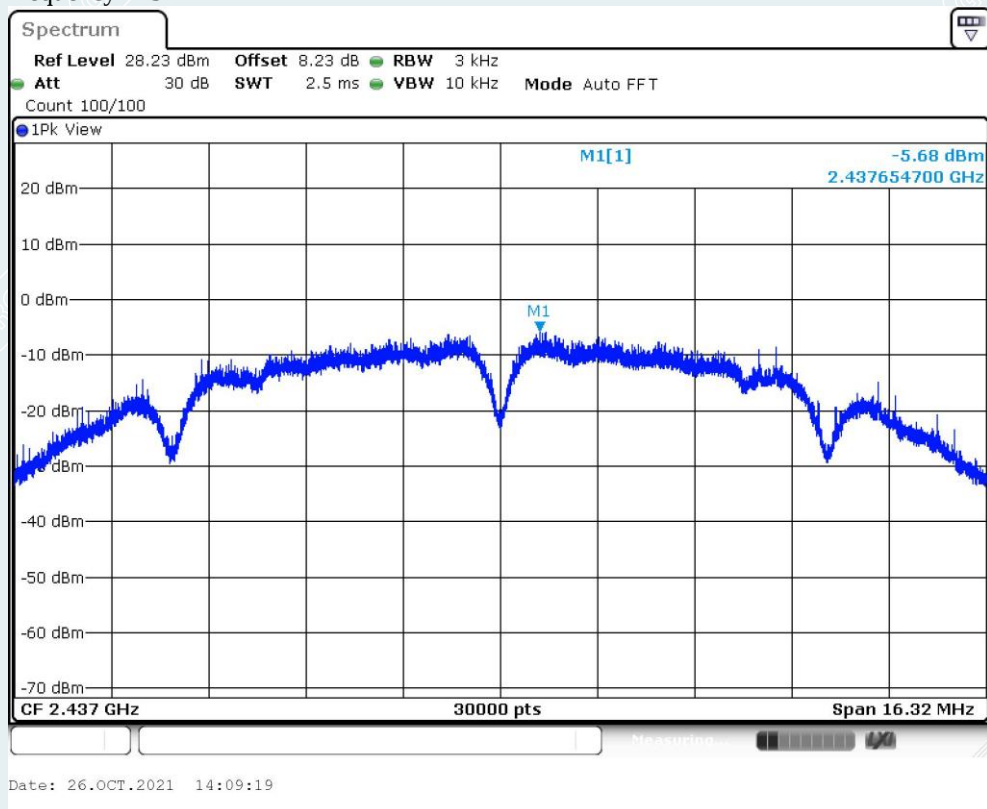
802.11b mode:

Frequency 2412MHz

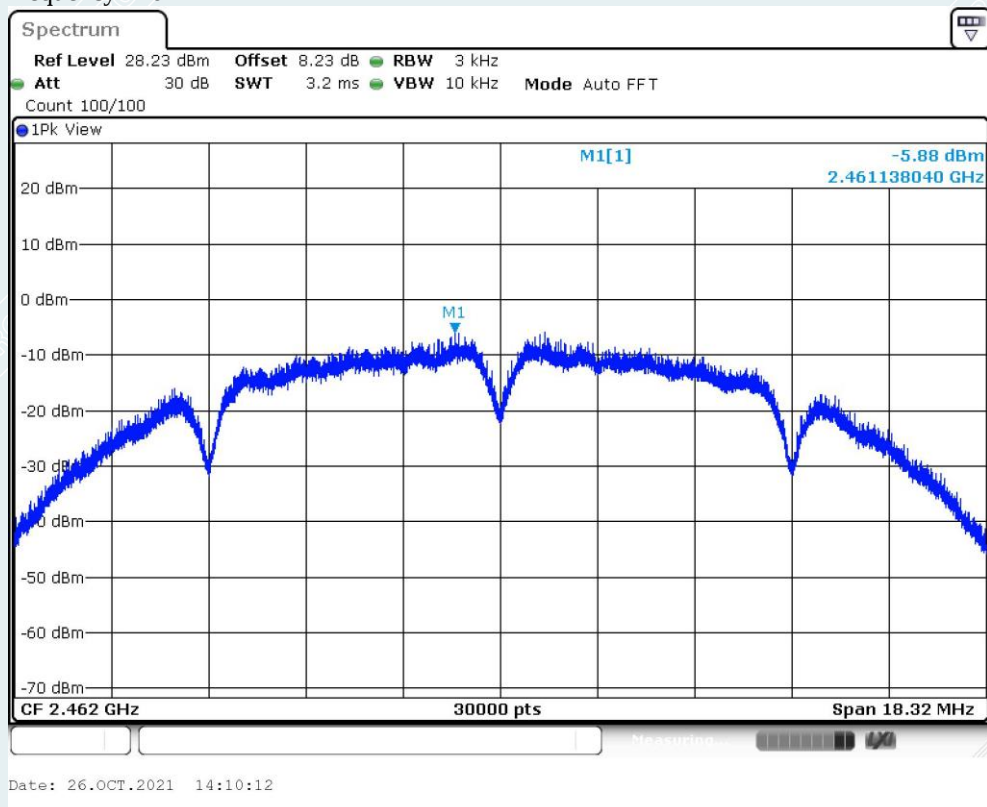


802.11b mode:

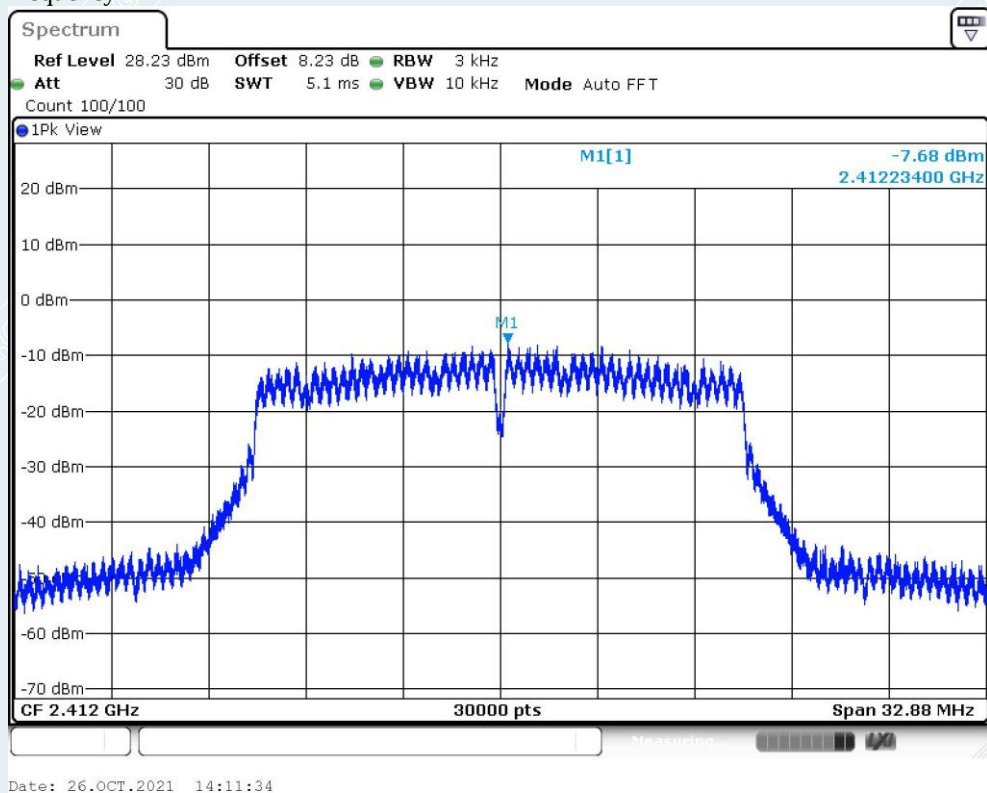
Frequency 2437MHz



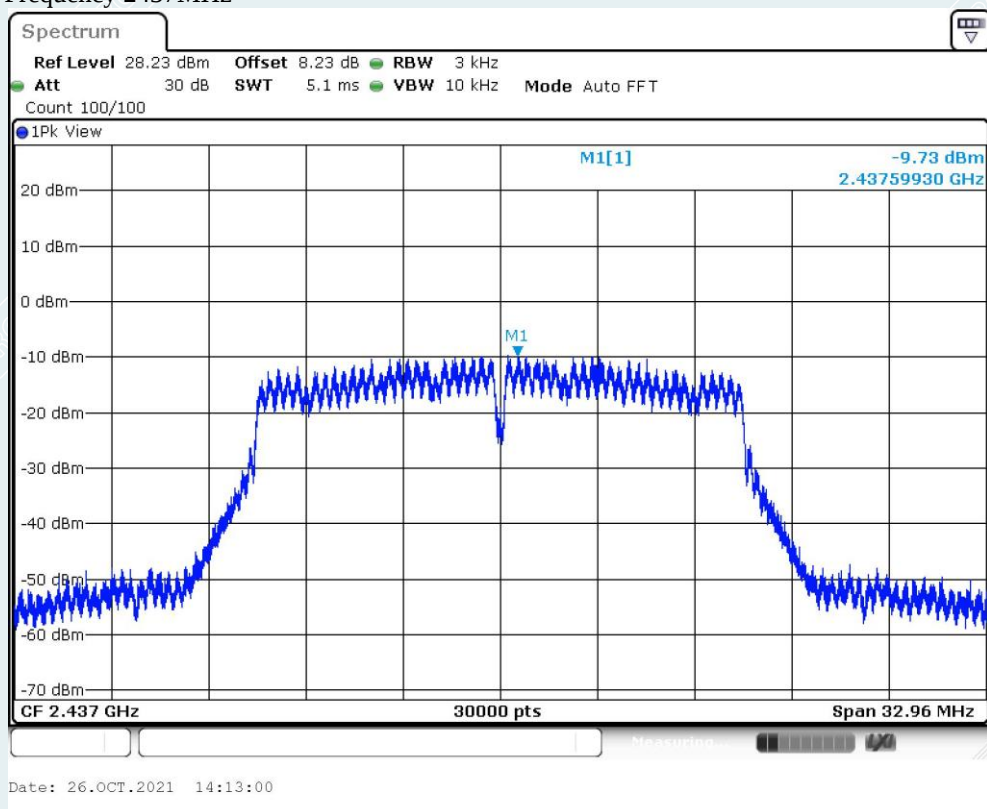
802.11b mode:
Frequency 2462MHz



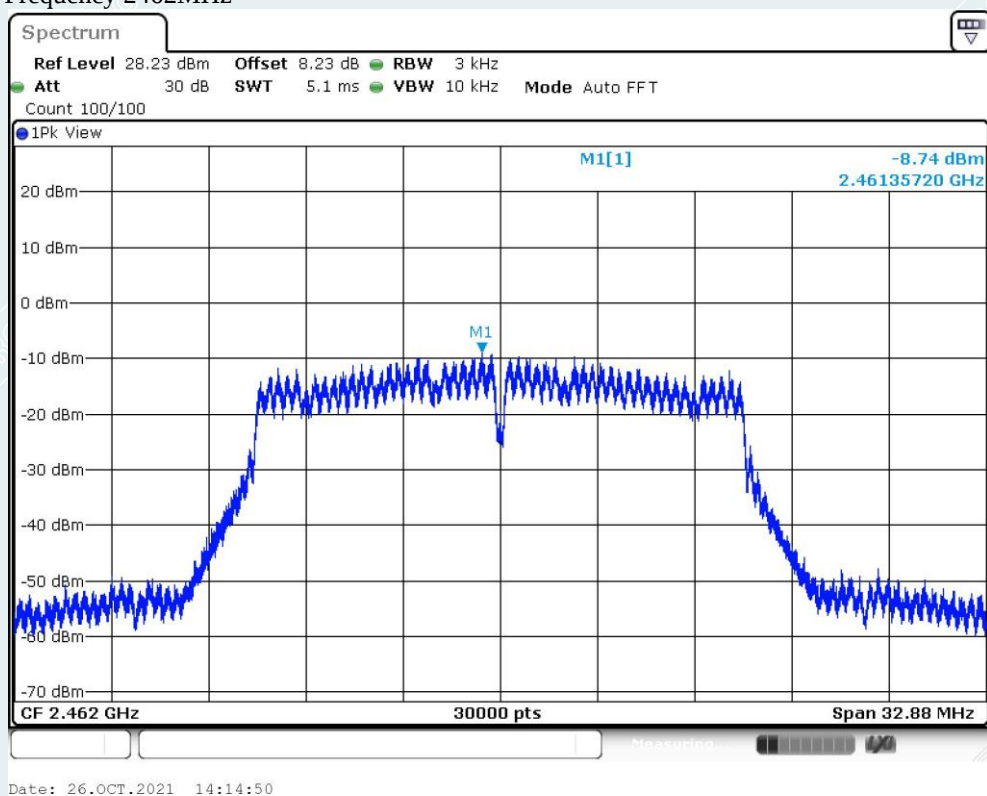
802.11g mode:
Frequency 2412MHz



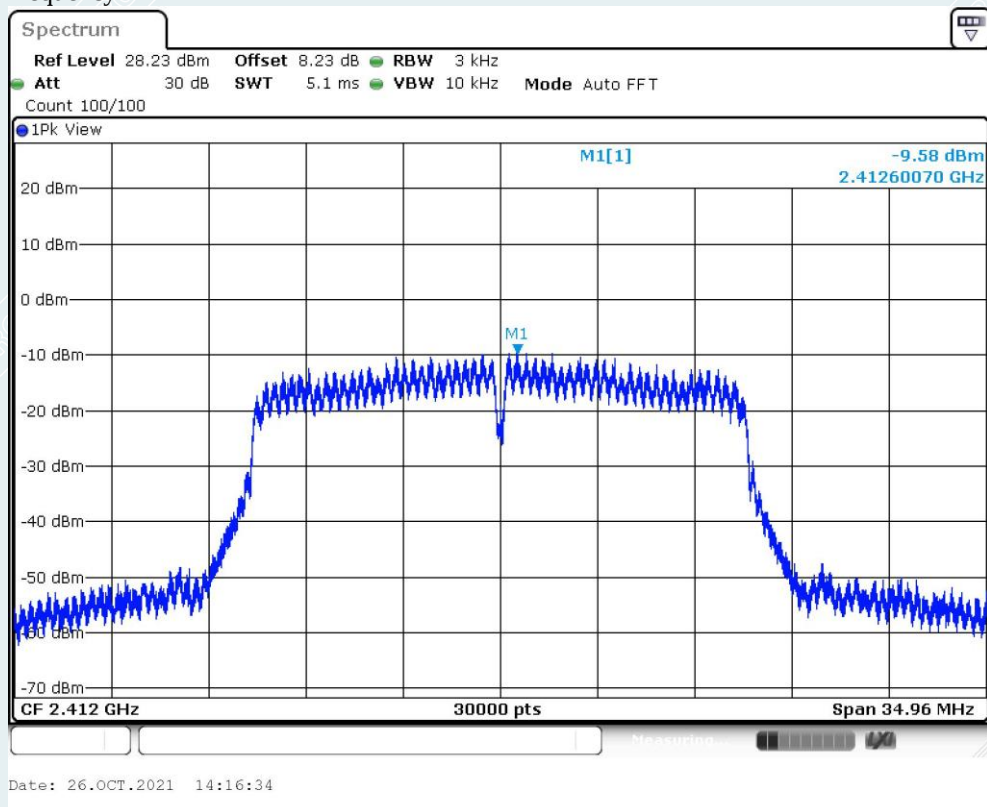
802.11g mode:
Frequency 2437MHz



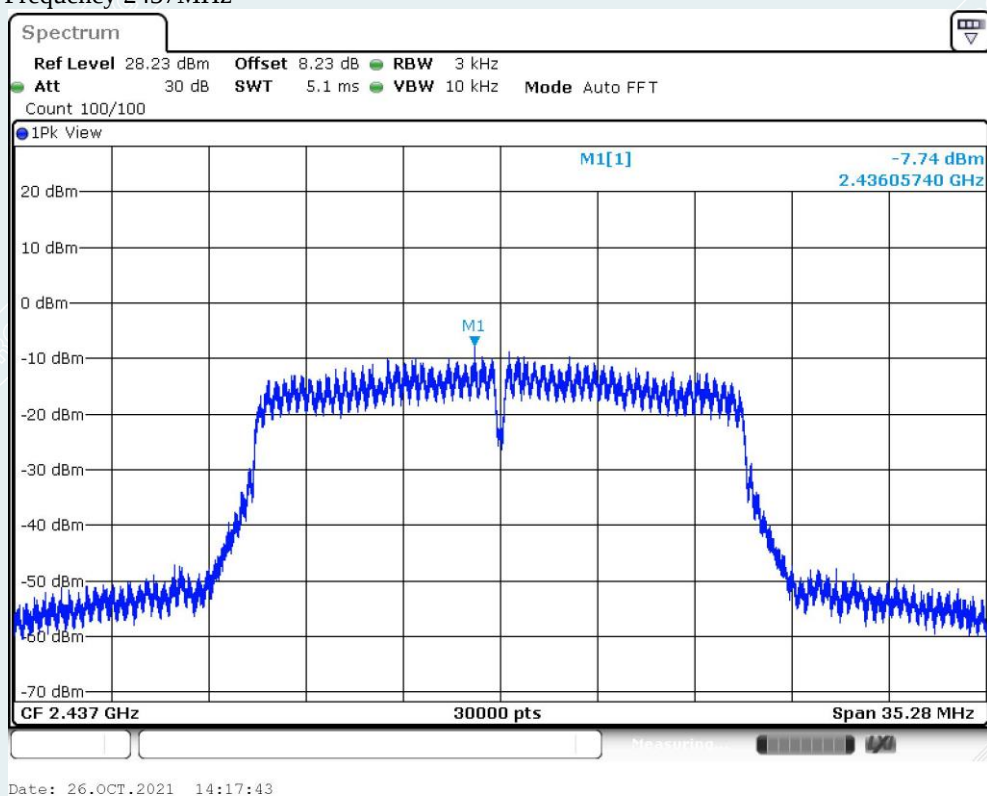
802.11g mode:
Frequency 2462MHz



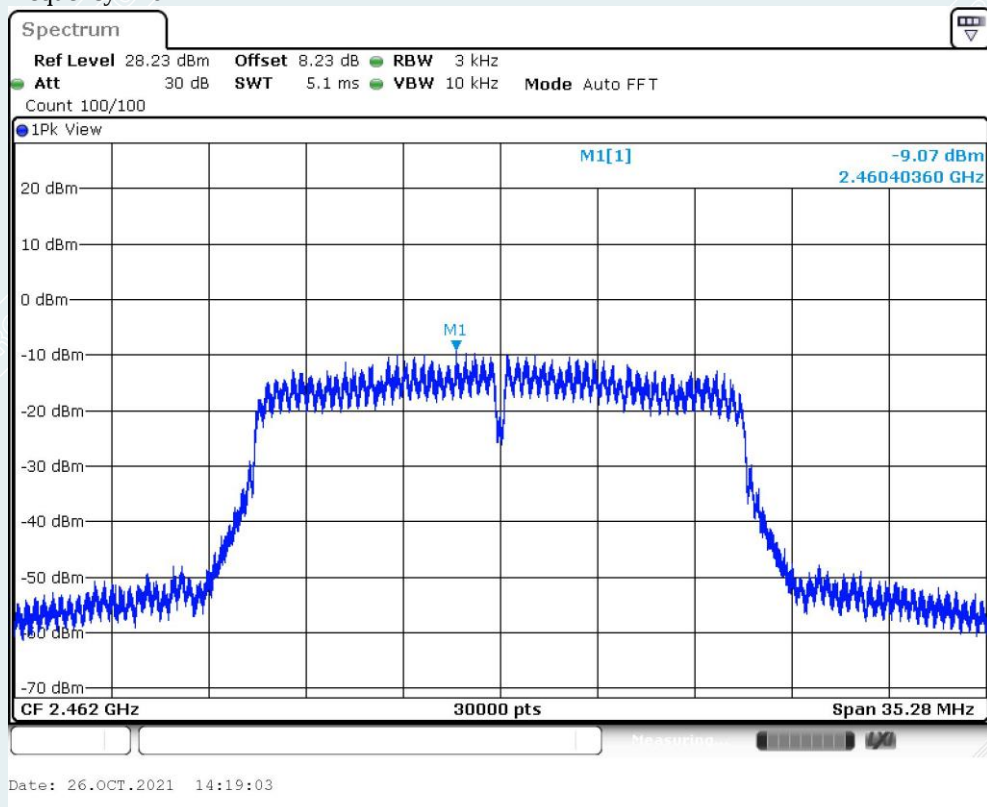
802.11n HT20 mode:
Frequency 2412MHz



802.11n HT20 mode:
Frequency 2437MHz



802.11n HT20 mode:
Frequency 2462MHz



10. CONDUCTED BAND EDGES AND SPURIOUS EMISSIONS

10.1 LIMITS

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

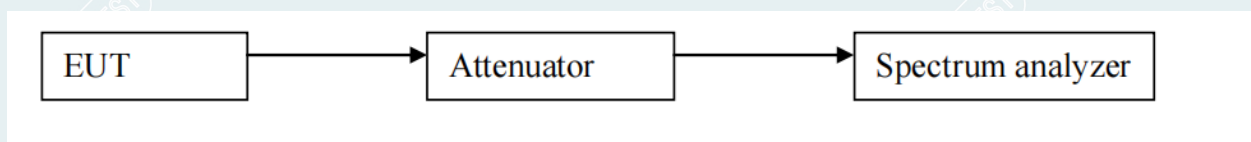
10.2 TEST PROCEDURES

Test procedures follow KDB 558074 D01 DTS Measurement Guidance.

Remove the antenna from the EUT and then connect a low attenuation cable from the antenna port to the spectrum.

- 1) Remove the antenna from the EUT and then connect a low attenuation cable from the antenna port to the spectrum.
- 2) Set the spectrum analyzer: RBW = 100 KHz; VBW = 300 KHz, Frequency range = 30 MHz to 26.5 GHz; Sweep = auto; Detector Function = Peak; Trace = Max hold.
- 3) Measure and record the results in the test report.
- 4) The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

10.3 TEST SETUP



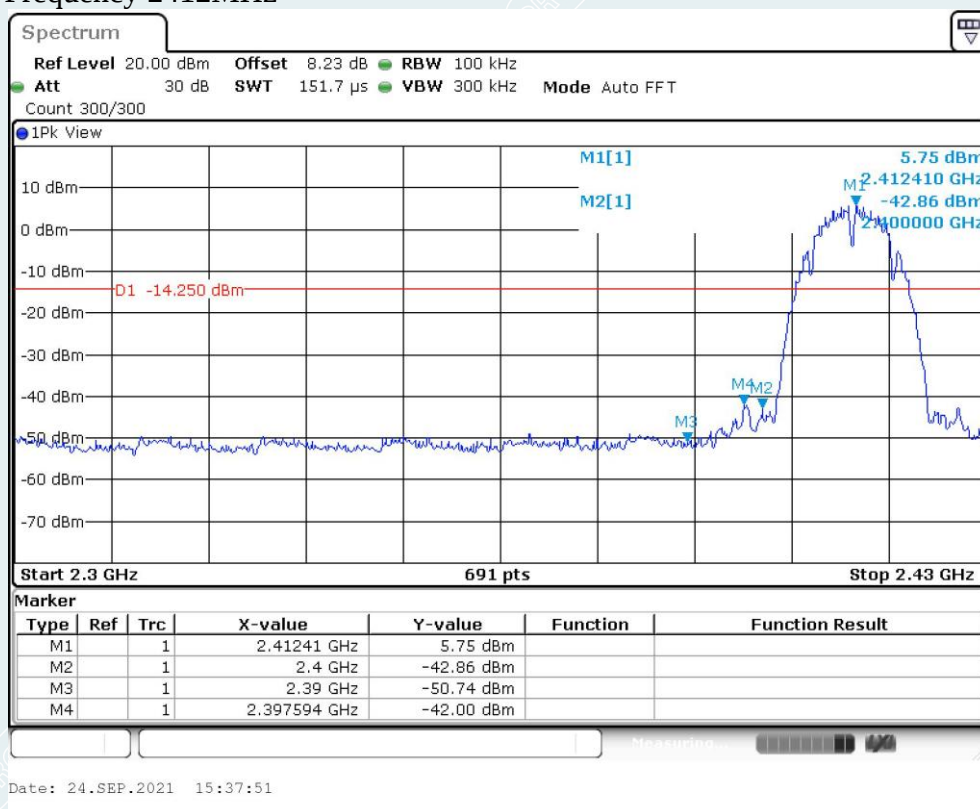
10.4 TEST RESULTS

Band edge

TestMode	Antenna	ChName	Frequency(MHz)	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
802.11b	Ant1	Low	2412	5.75	-42.00	≤-14.25	PASS
		High	2462	7.14	-48.28	≤-12.86	PASS
802.11g	Ant1	Low	2412	2.39	-30.93	≤-17.61	PASS
		High	2462	2.99	-41.18	≤-17.01	PASS
802.11n HT20	Ant1	Low	2412	3.00	-34.82	≤-17.00	PASS
		High	2462	3.18	-40.06	≤-16.82	PASS

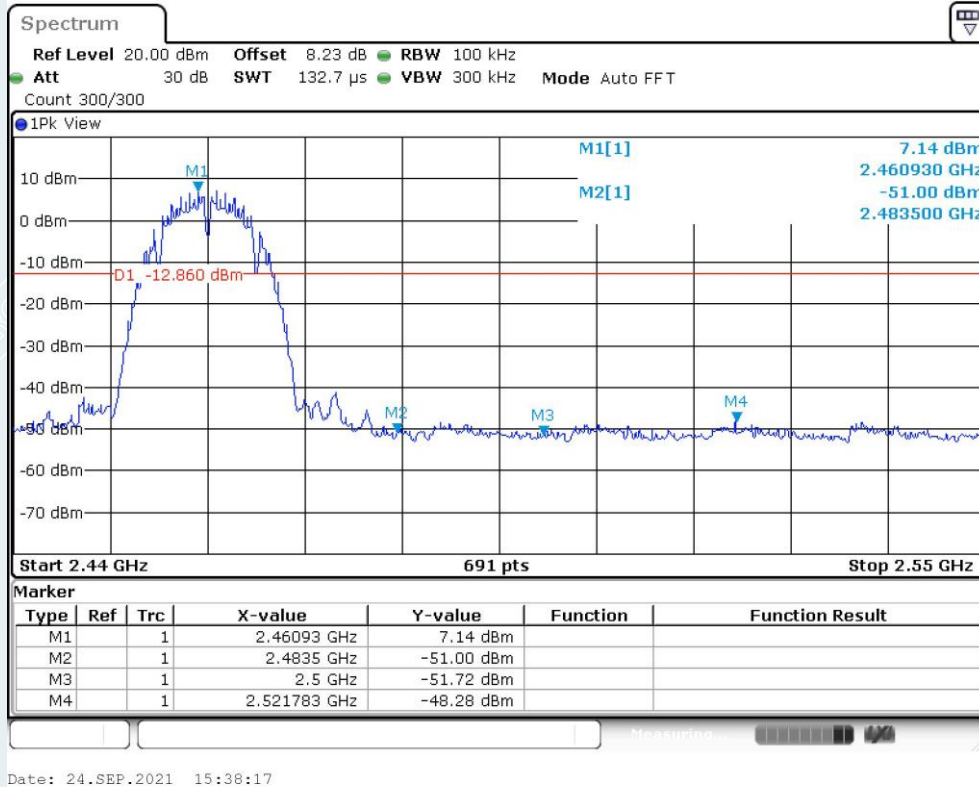
802.11b mode:

Frequency 2412MHz



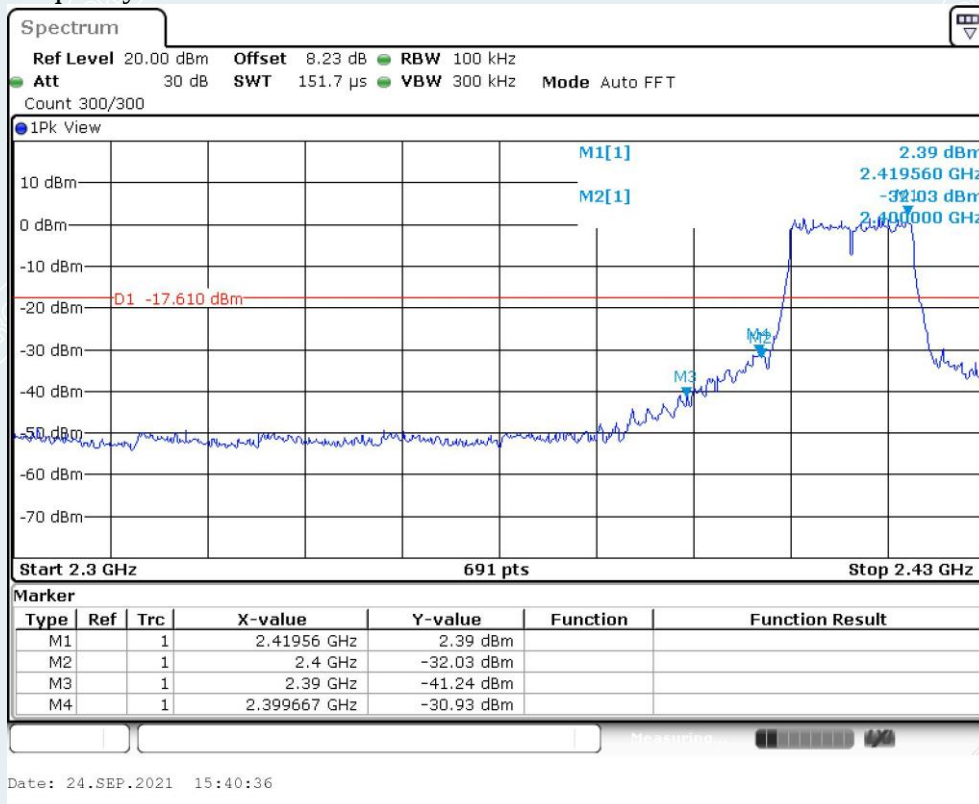
802.11b mode:

Frequency 2462MHz

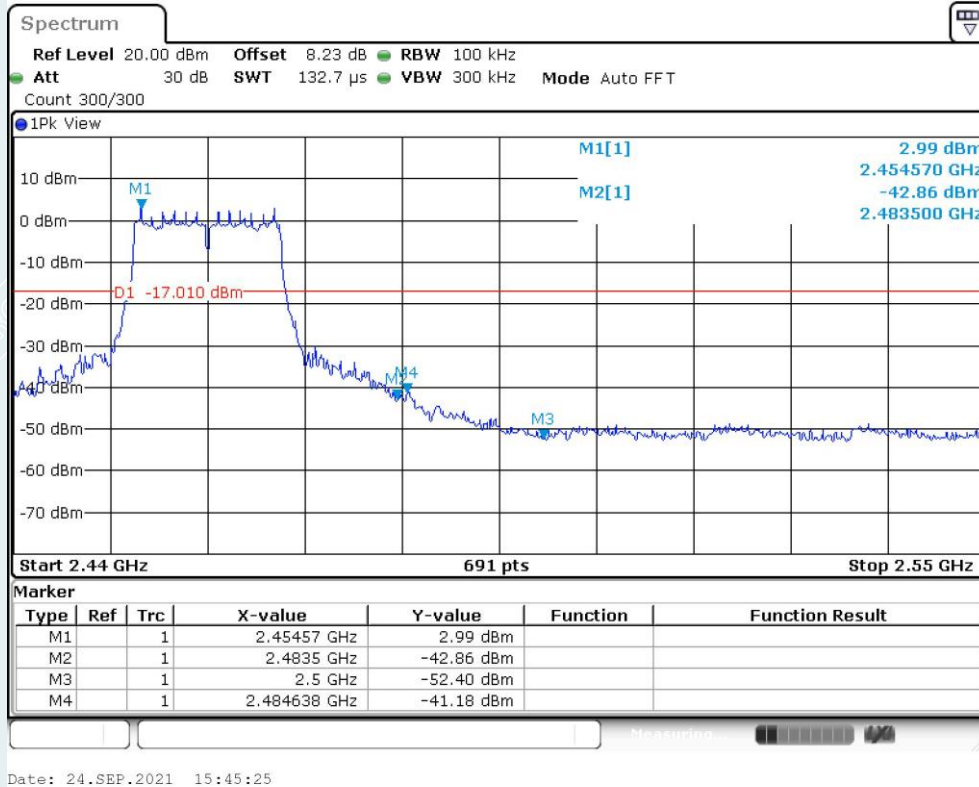


802.11g mode:

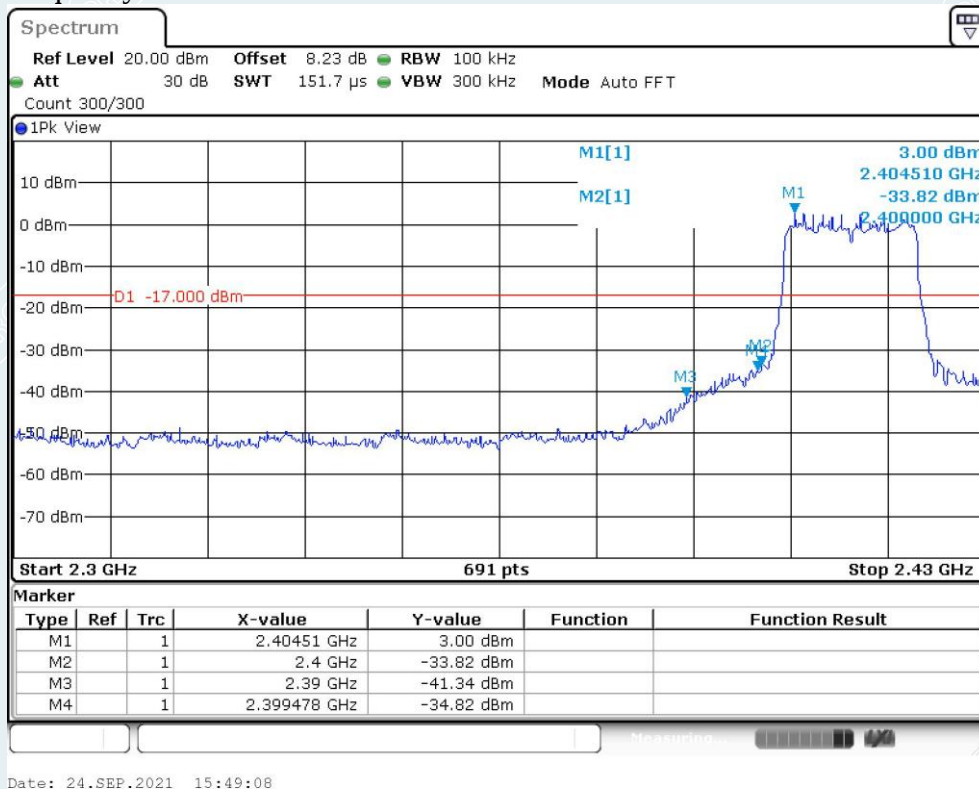
Frequency 2412MHz



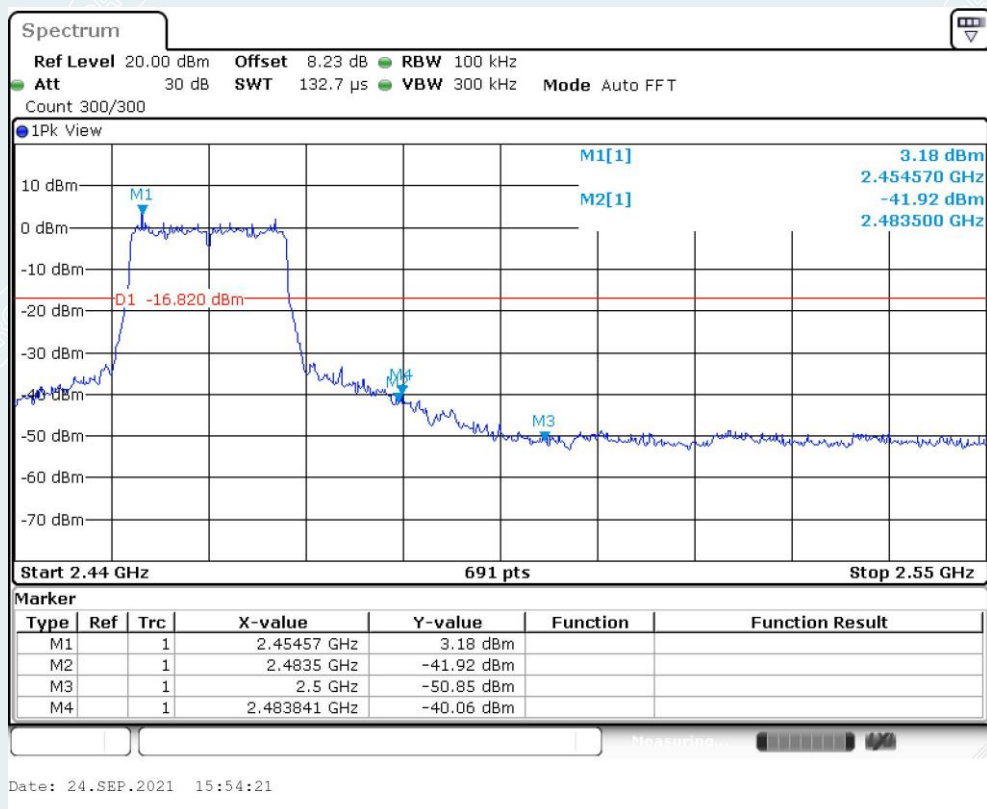
802.11g mode:
Frequency 2462MHz



802.11n HT20 mode:
Frequency 2412MHz



802.11n HT20 mode:
Frequency 2462MHz



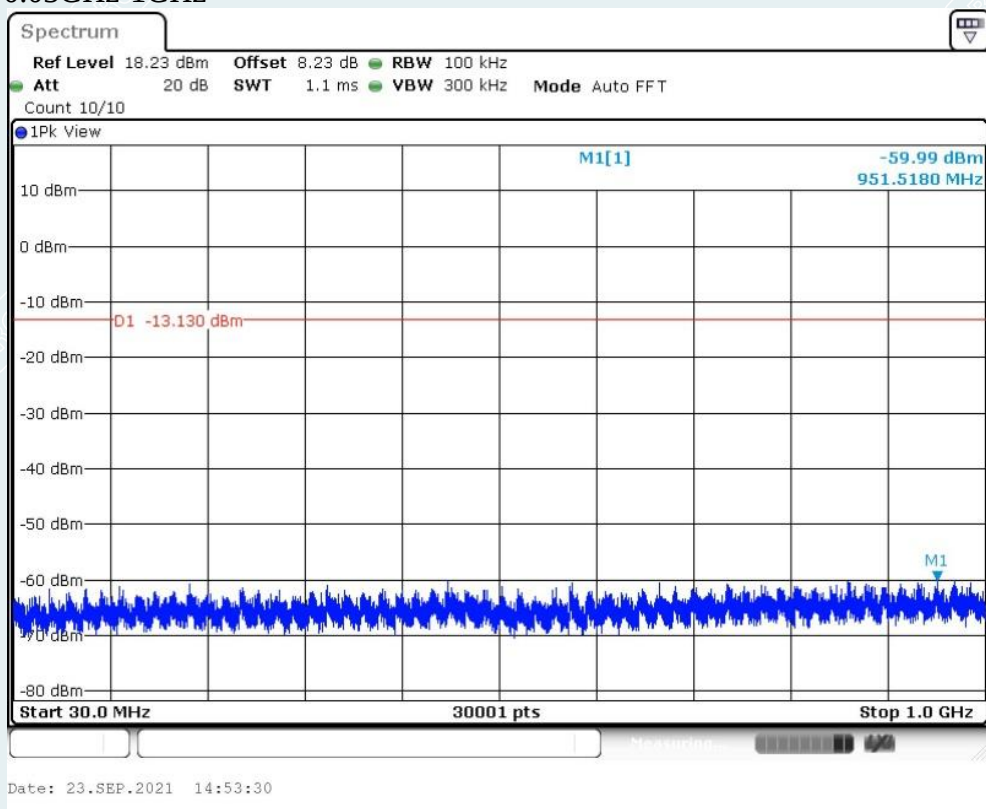
Conducted Spurious Emission: Test Result

Test Mode	Antenna	Frequency(MHz)	FreqRange [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
802.11b	Ant1	2412	Reference	6.87	6.87	---	PASS
			30~1000	6.87	-59.99	≤-13.13	PASS
			1000~26500	6.87	-54.92	≤-13.13	PASS
		2437	Reference	7.06	7.06	---	PASS
			30~1000	7.06	-58.45	≤-12.94	PASS
			1000~26500	7.06	-54.96	≤-12.94	PASS
		2462	Reference	6.54	6.54	---	PASS
			30~1000	6.54	-59.41	≤-13.46	PASS
			1000~26500	6.54	-55.55	≤-13.46	PASS
802.11g	Ant1	2412	Reference	2.79	2.79	---	PASS
			30~1000	2.79	-59.26	≤-17.21	PASS
			1000~26500	2.79	-55.55	≤-17.21	PASS
		2437	Reference	3.59	3.59	---	PASS
			30~1000	3.59	-58.87	≤-16.41	PASS
			1000~26500	3.59	-55.67	≤-16.41	PASS
		2462	Reference	3.04	3.04	---	PASS
			30~1000	3.04	-59.32	≤-16.96	PASS
			1000~26500	3.04	-55.73	≤-16.96	PASS
802.11n HT20	Ant1	2412	Reference	3.74	3.74	---	PASS
			30~1000	3.74	-59.69	≤-16.26	PASS
			1000~26500	3.74	-55.83	≤-16.26	PASS
		2437	Reference	3.38	3.38	---	PASS
			30~1000	3.38	-58.30	≤-16.62	PASS
			1000~26500	3.38	-55.85	≤-16.62	PASS
		2462	Reference	3.28	3.28	---	PASS
			30~1000	3.28	-58.92	≤-16.72	PASS
			1000~26500	3.28	-55.49	≤-16.72	PASS

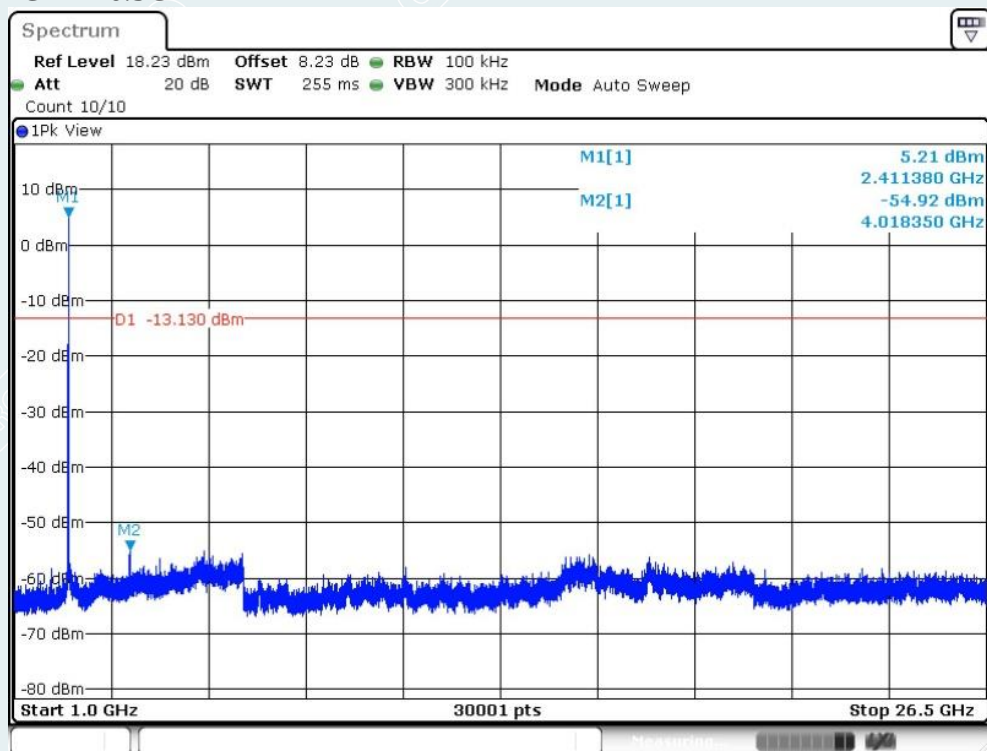
802.11b mode:
Frequency 2412MHz
Reference



0.03GHz-1GHz



1GHz-26.5GHz



Date: 23.SEP.2021 14:53:54

802.11b mode:

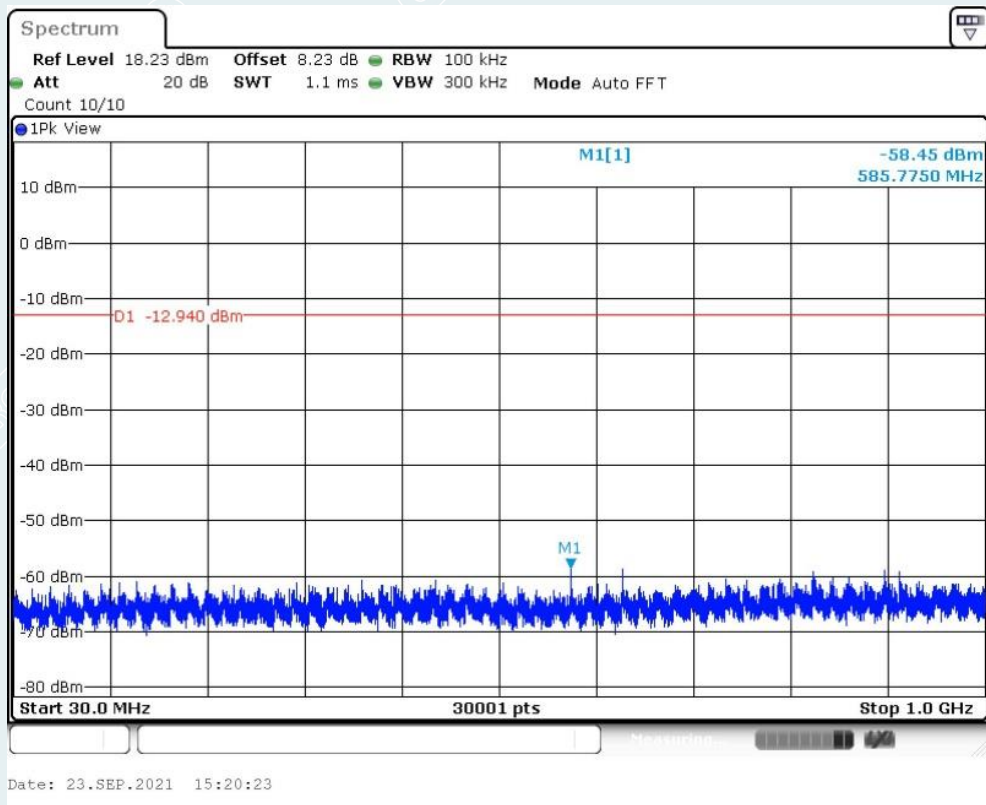
Frequency 2437MHz

Reference

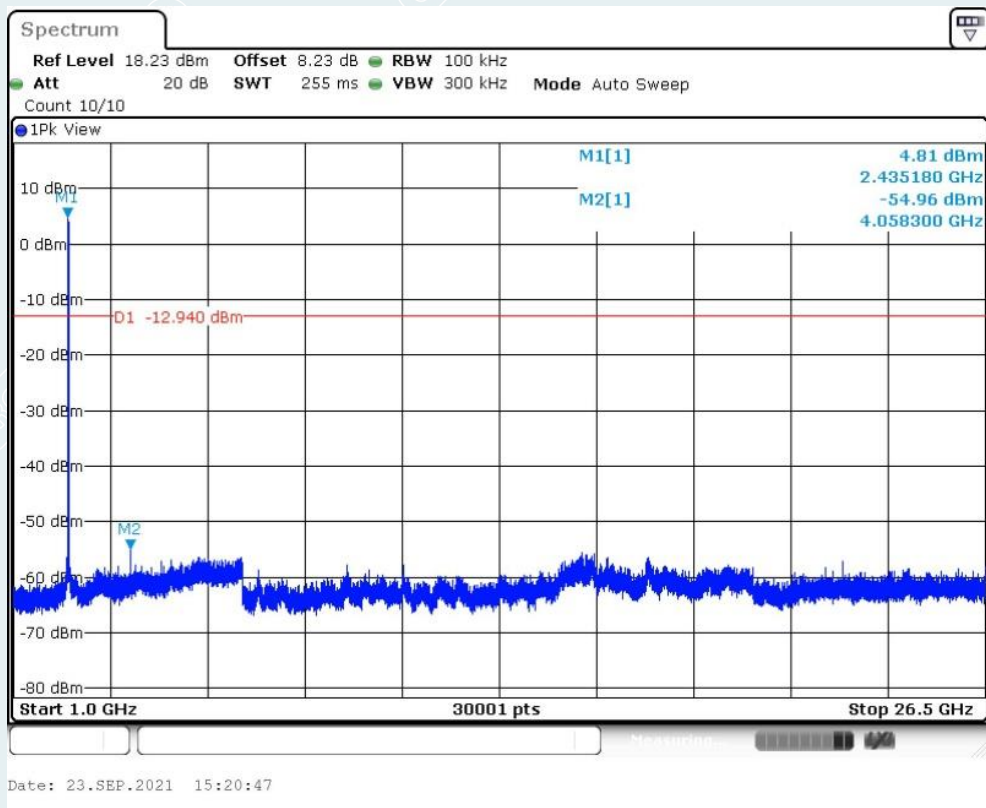


Date: 23.SEP.2021 15:20:19

0.03GHz-1GHz



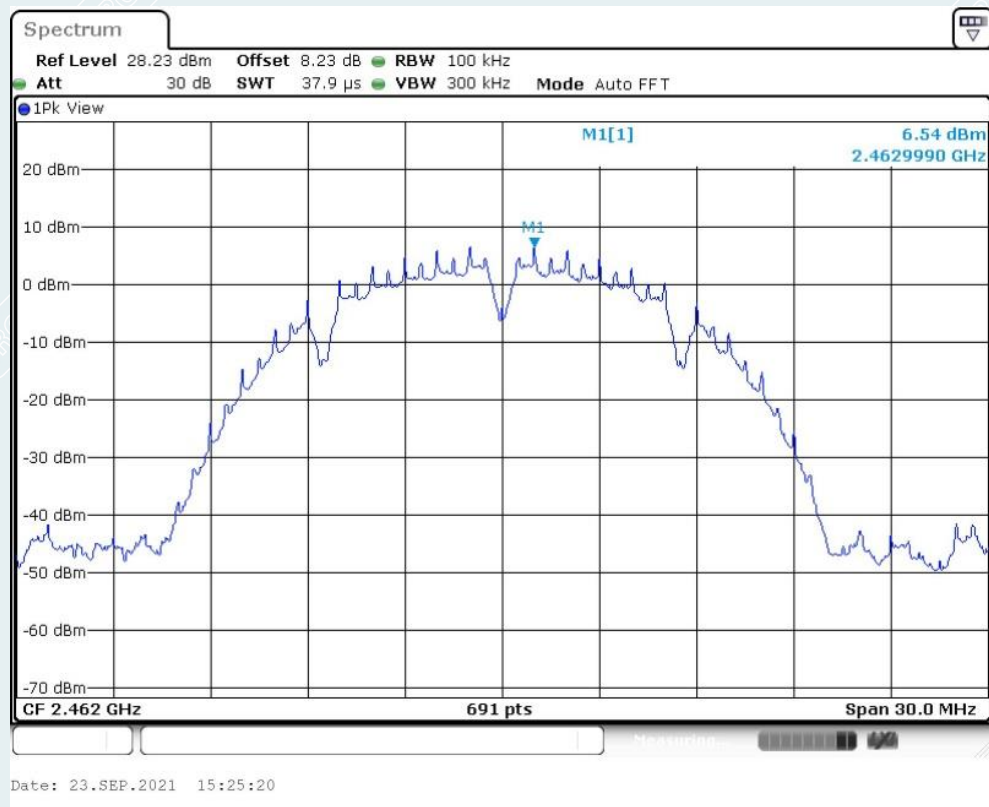
1GHz-26.5GHz



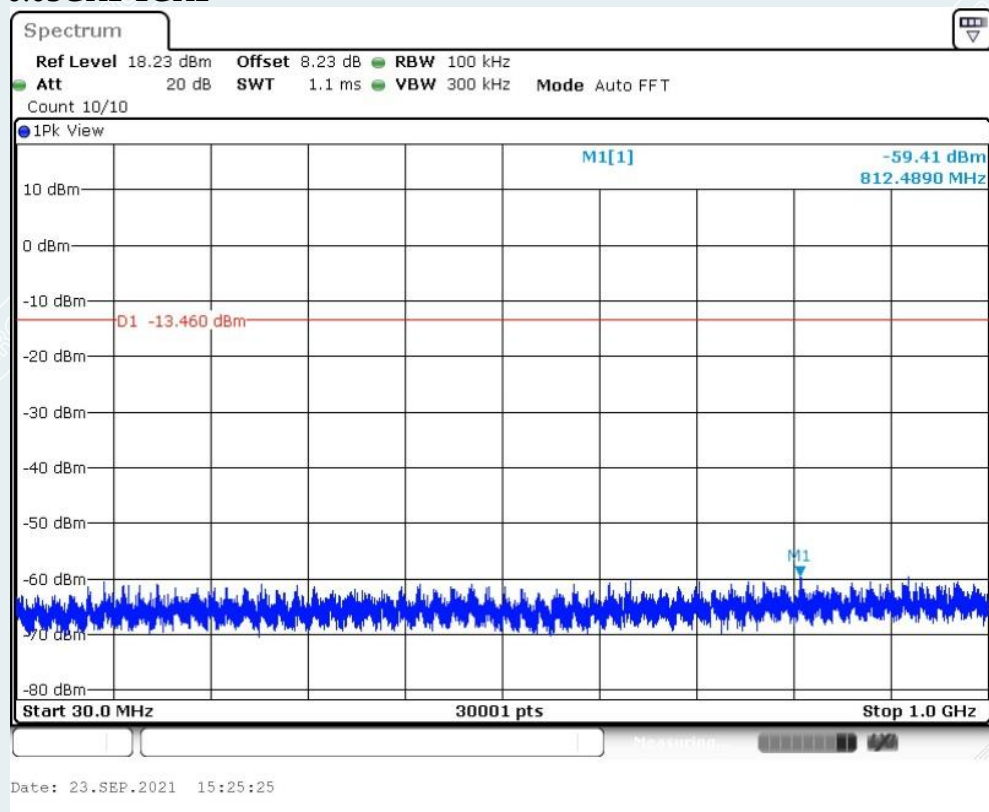
802.11b mode:

Frequency 2462MHz

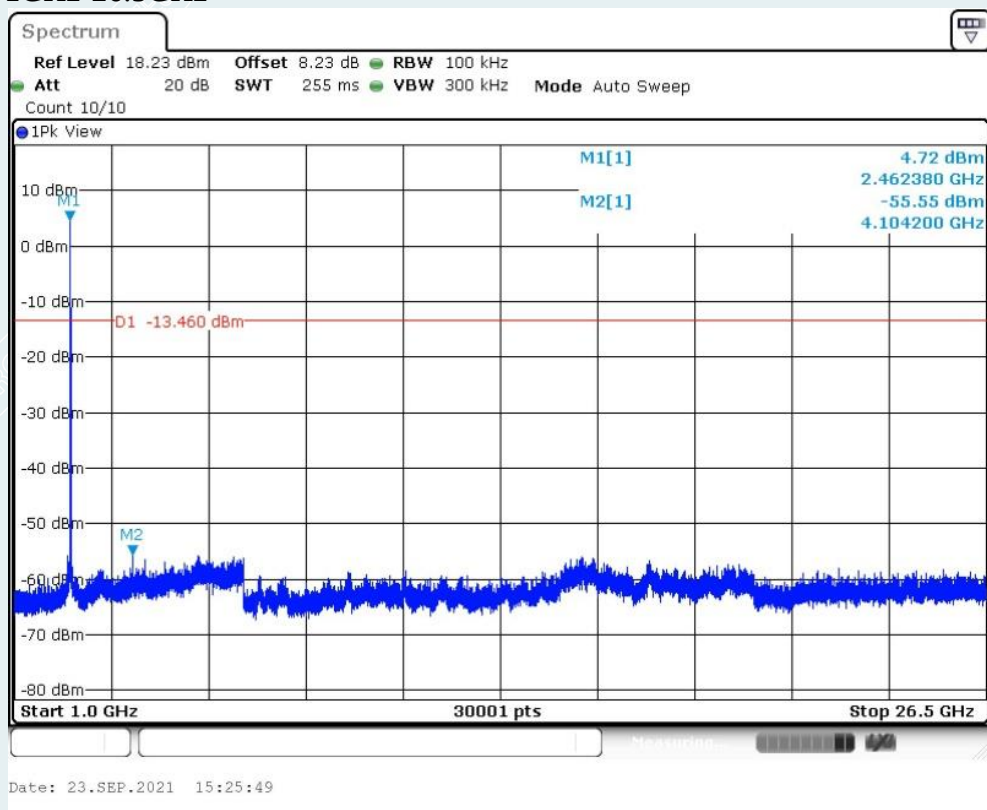
Reference



0.03GHz-1GHz



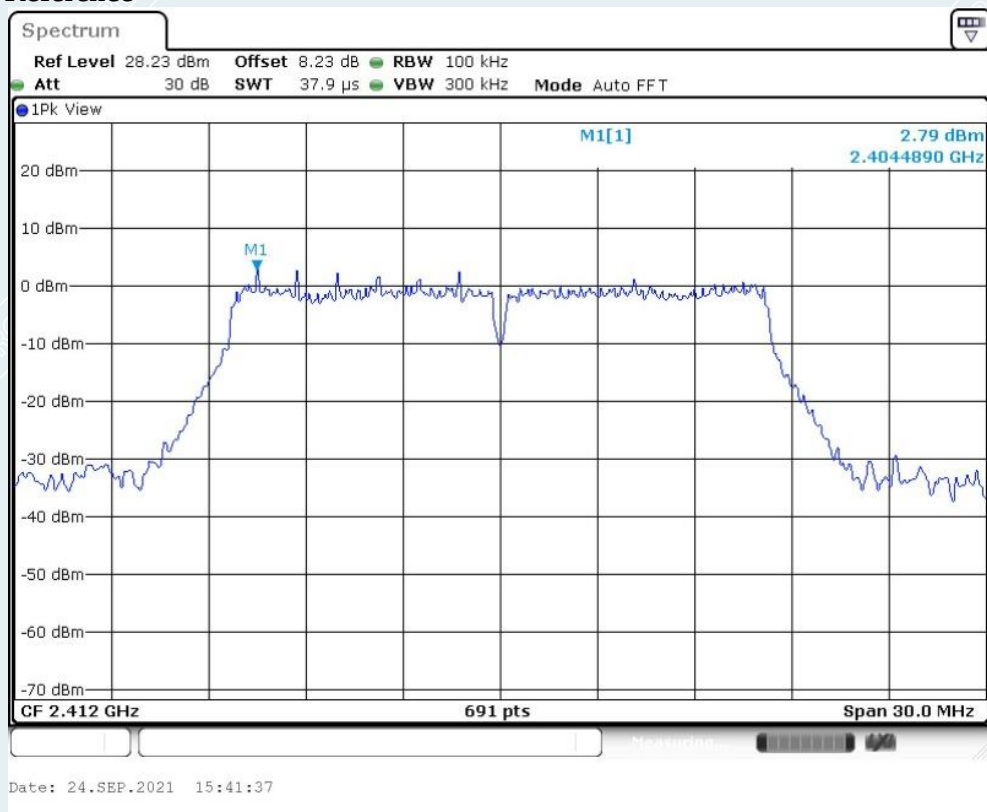
1GHz-26.5GHz



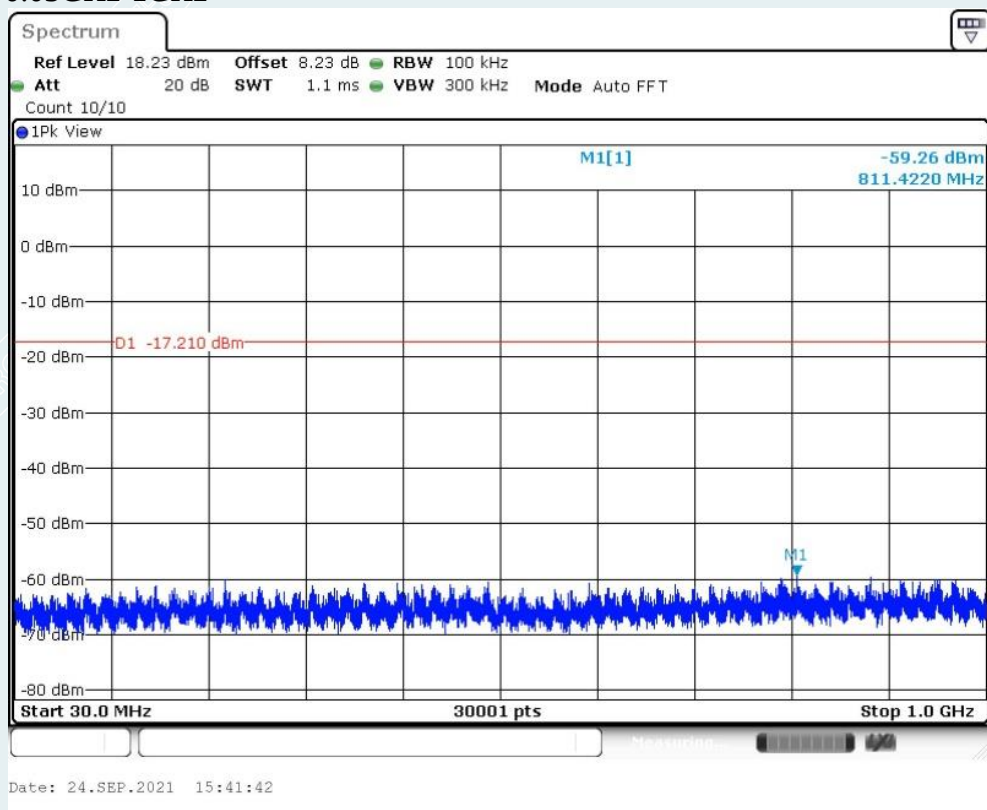
802.11g mode:

Frequency 2412MHz

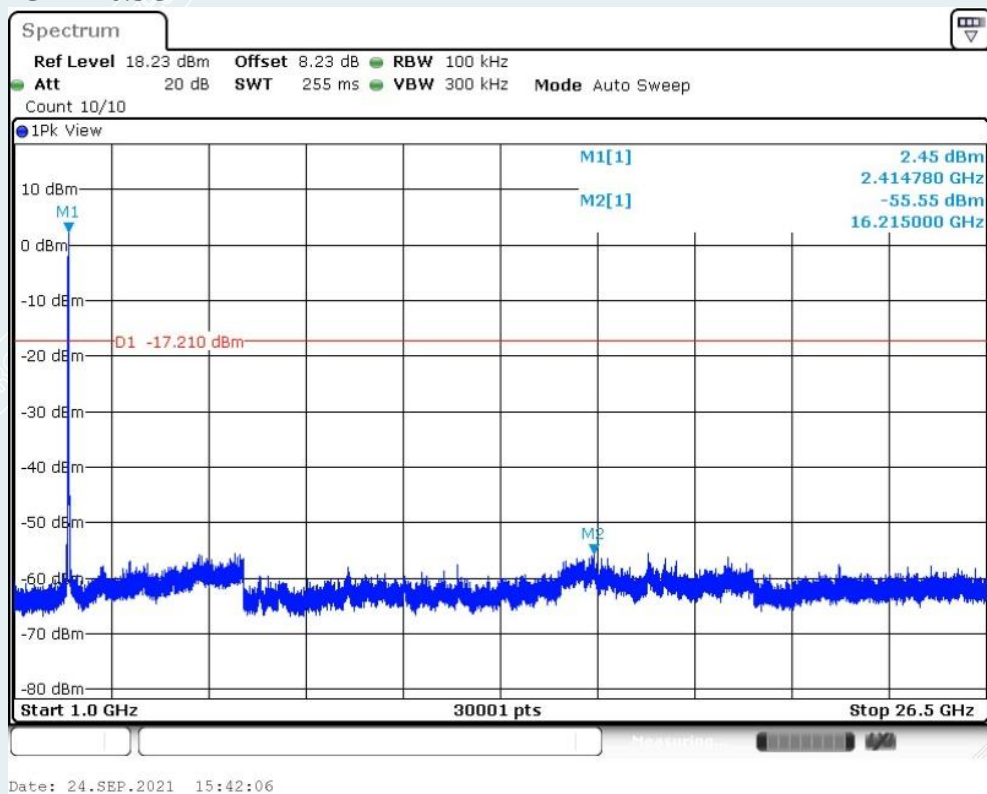
Reference



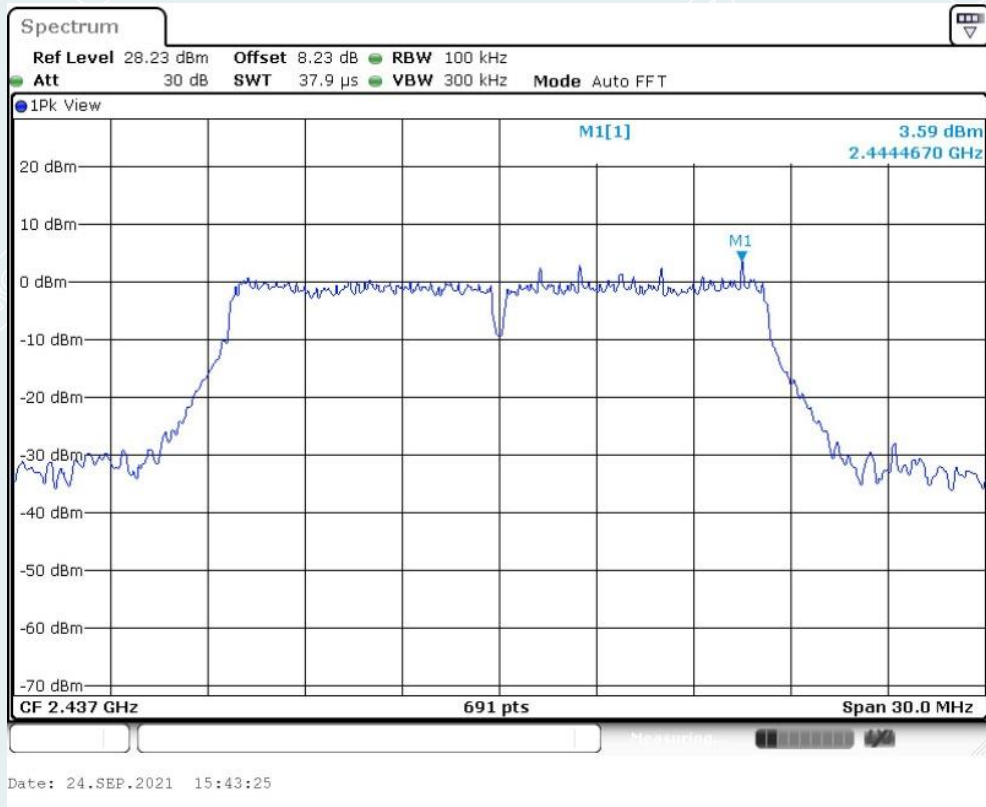
0.03GHz-1GHz



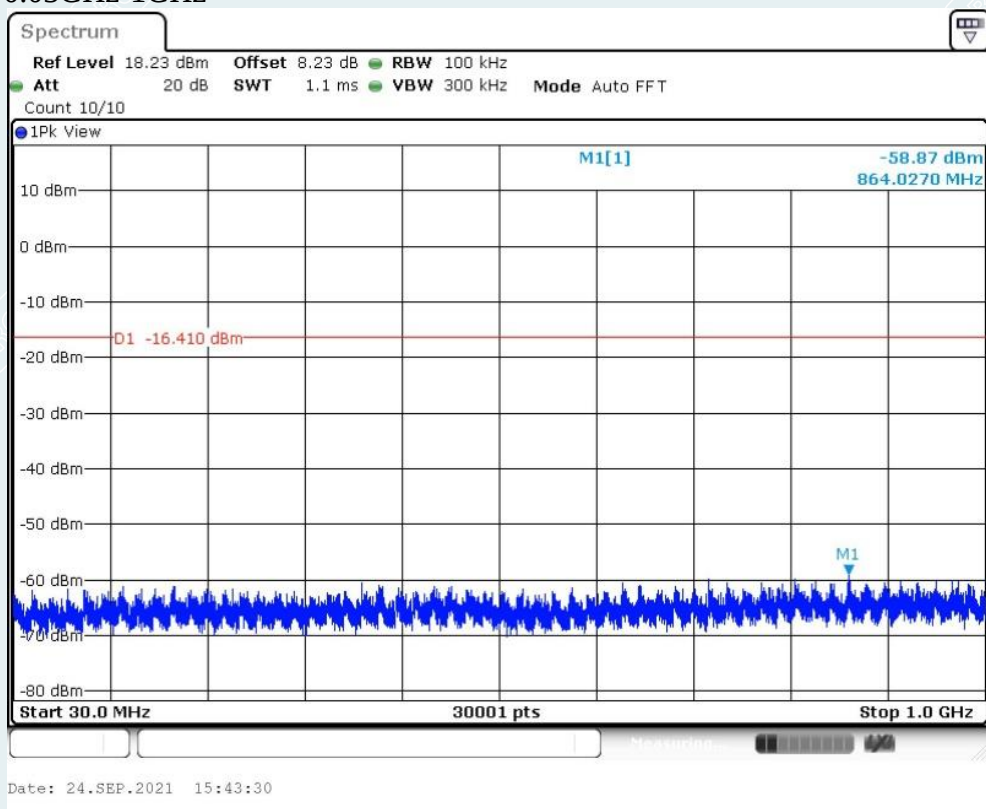
1GHz-26.5GHz



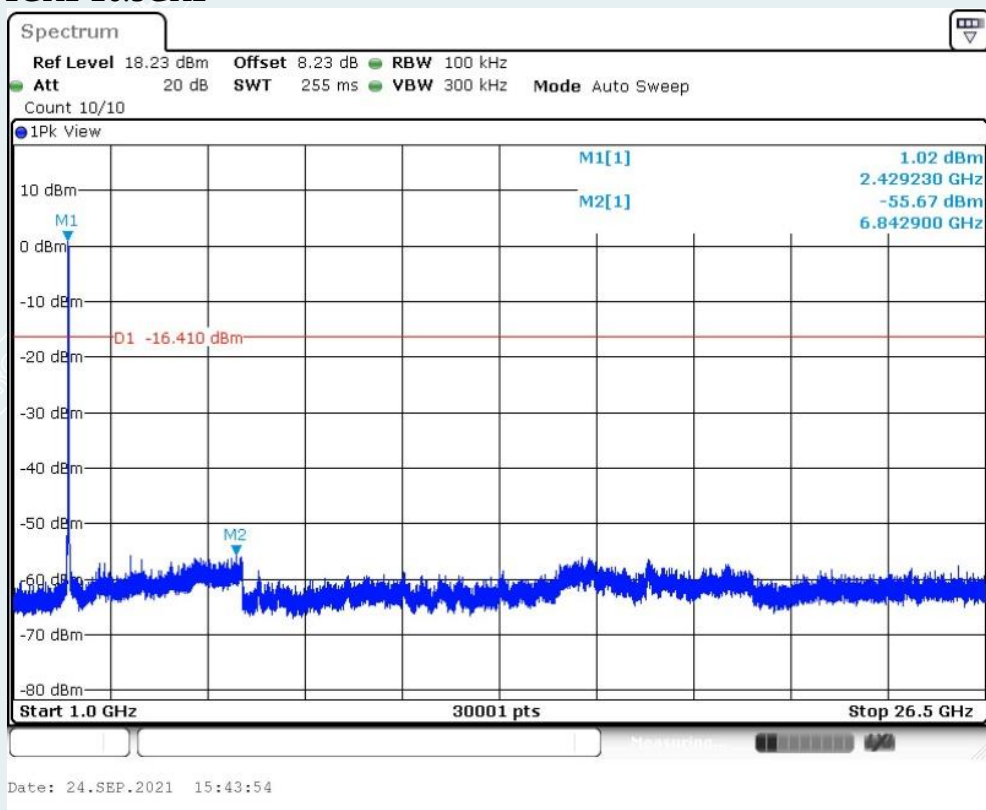
802.11g mode:
Frequency 2437MHz
Reference



0.03GHz-1GHz



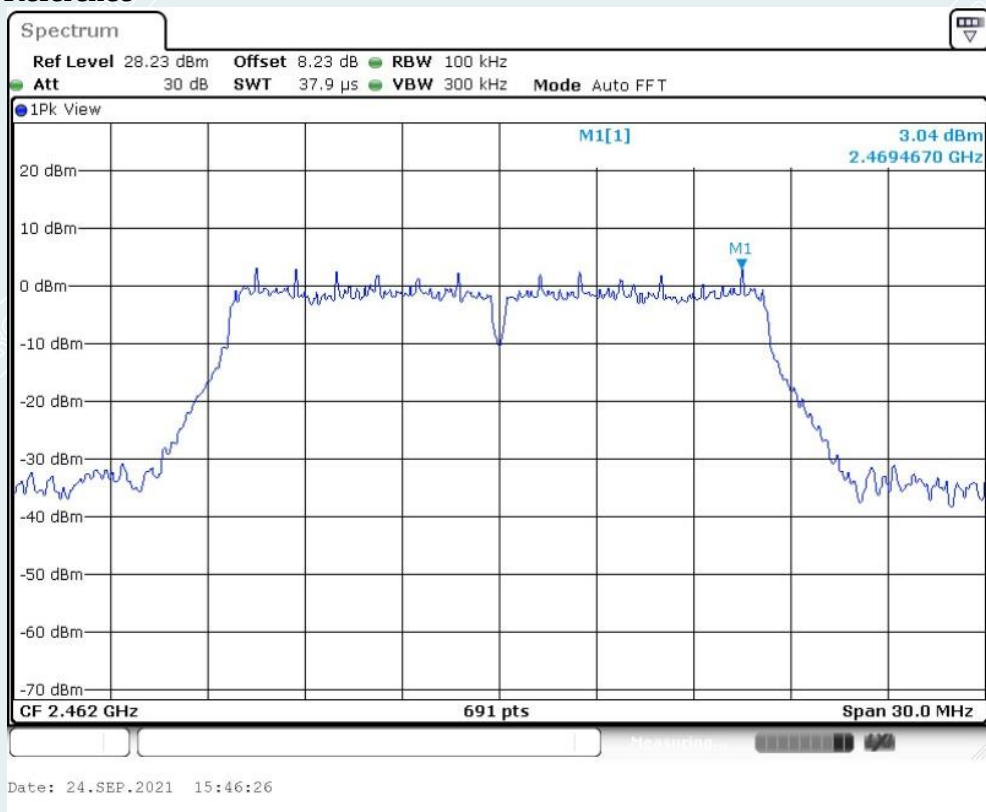
1GHz-26.5GHz



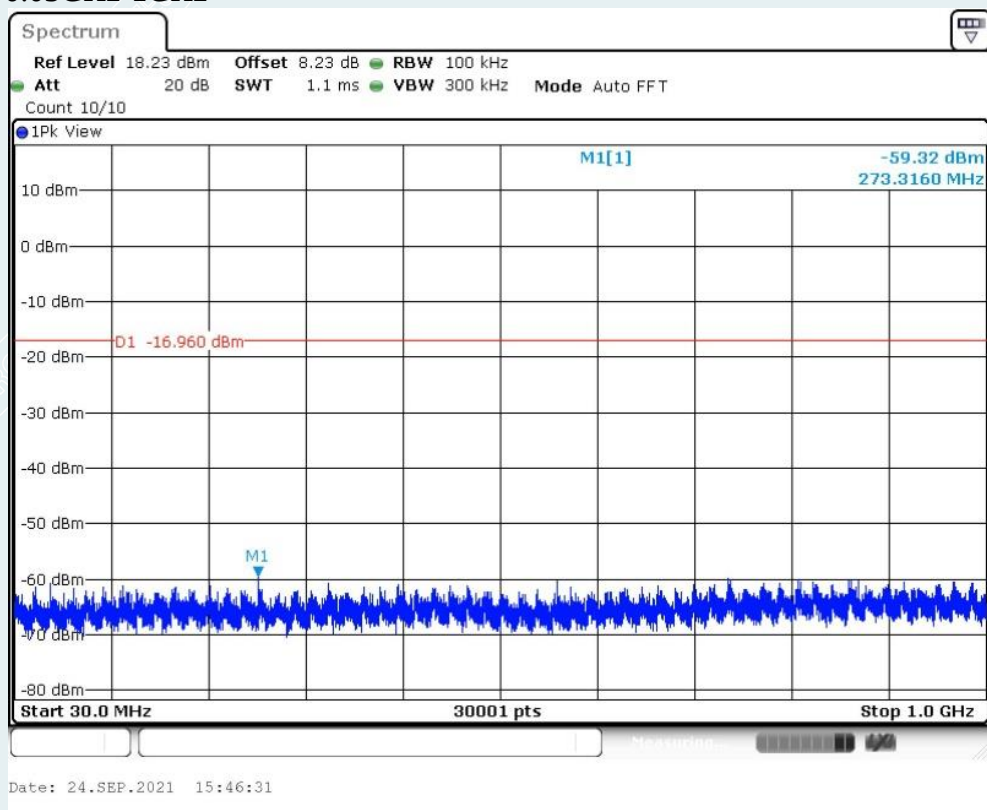
802.11g mode:

Frequency 2462MHz

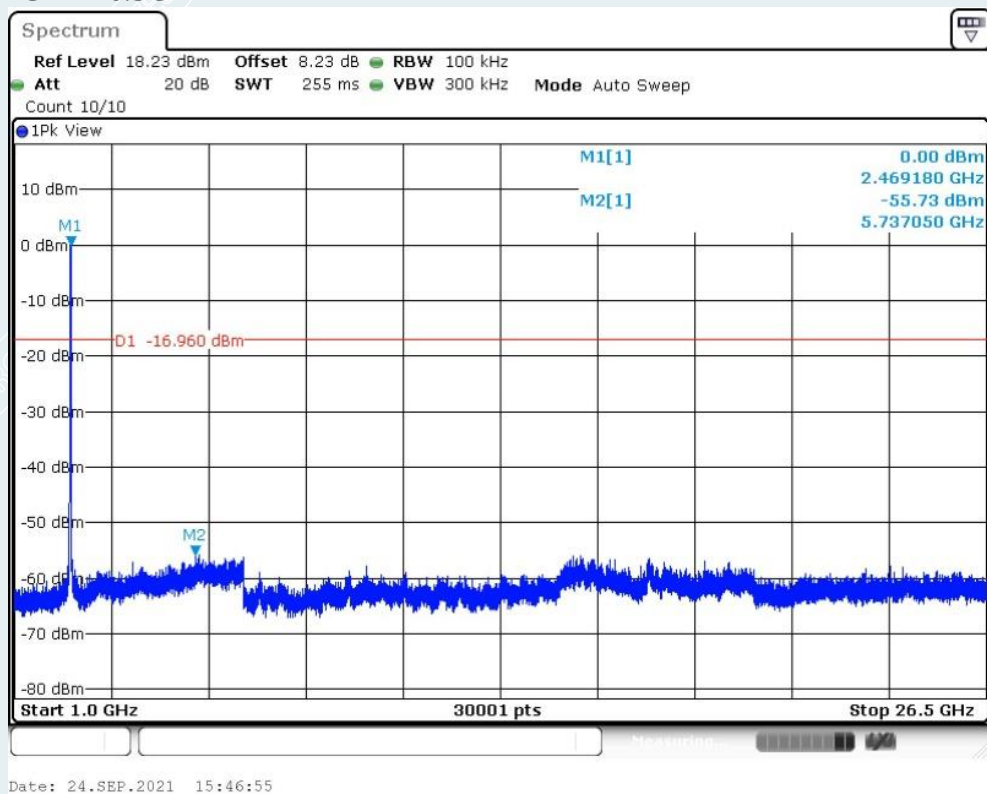
Reference



0.03GHz-1GHz



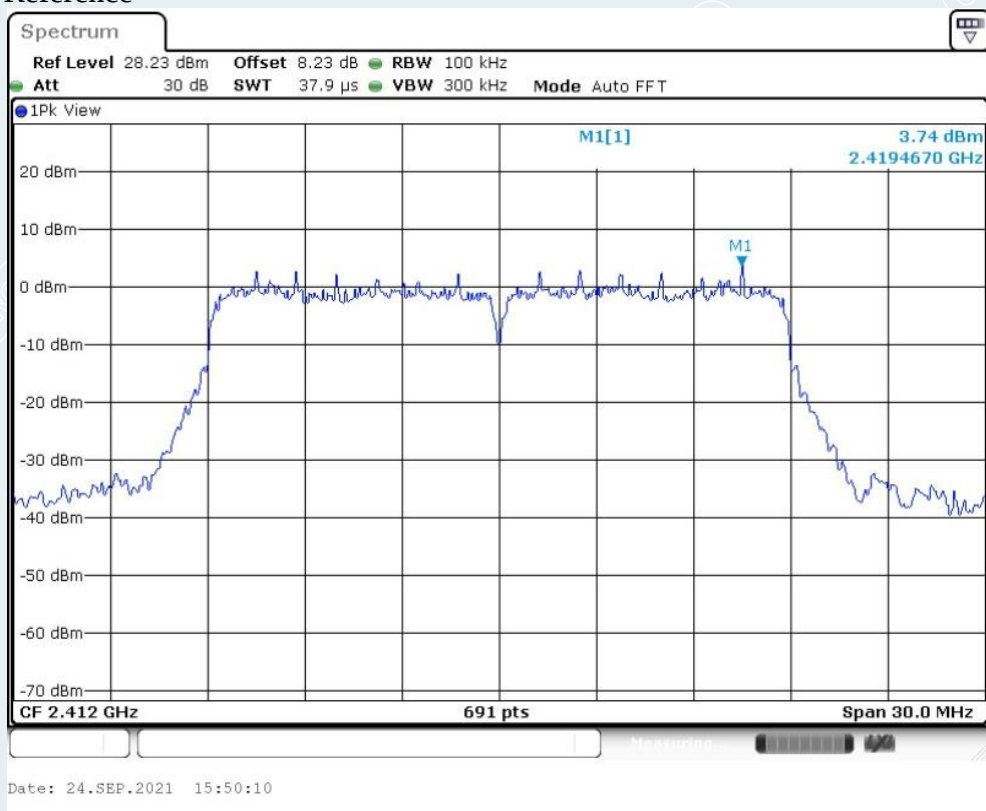
1GHz-26.5GHz



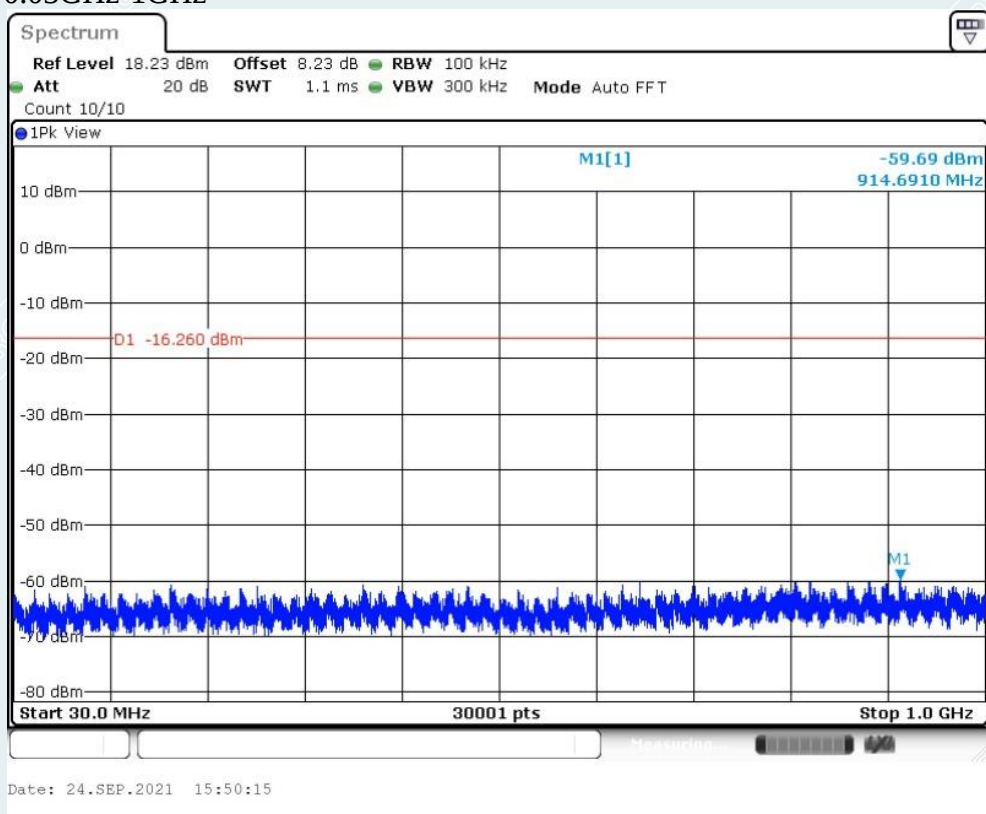
802.11n HT20 mode:

Frequency 2412MHz

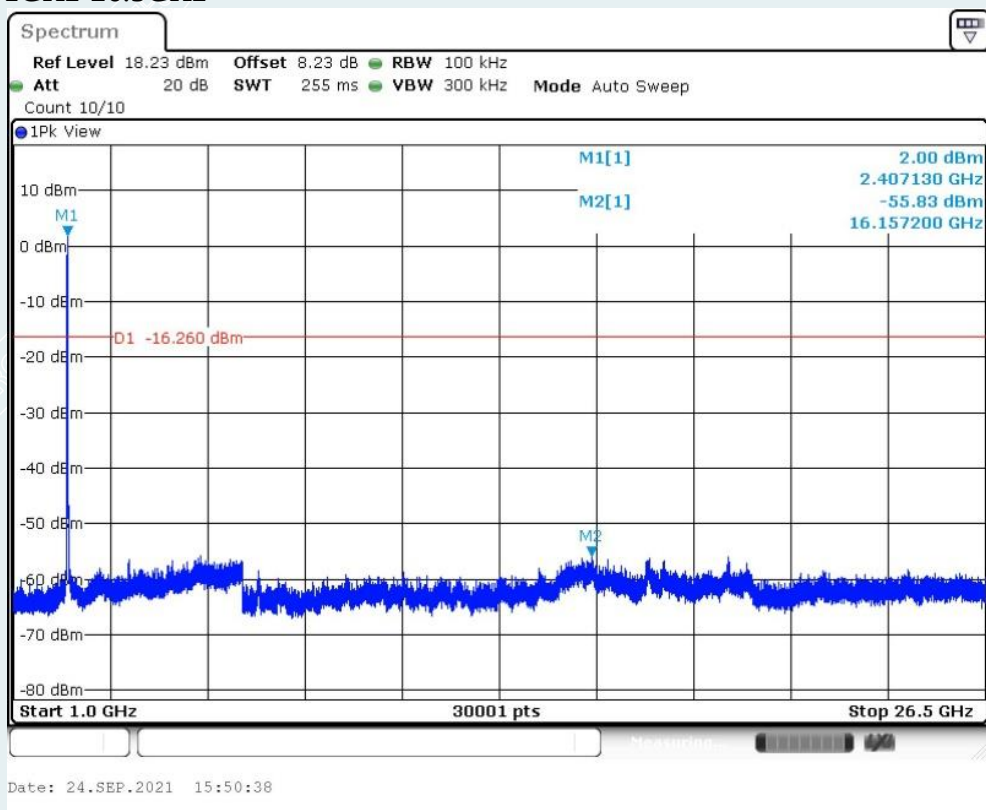
Reference



0.03GHz-1GHz



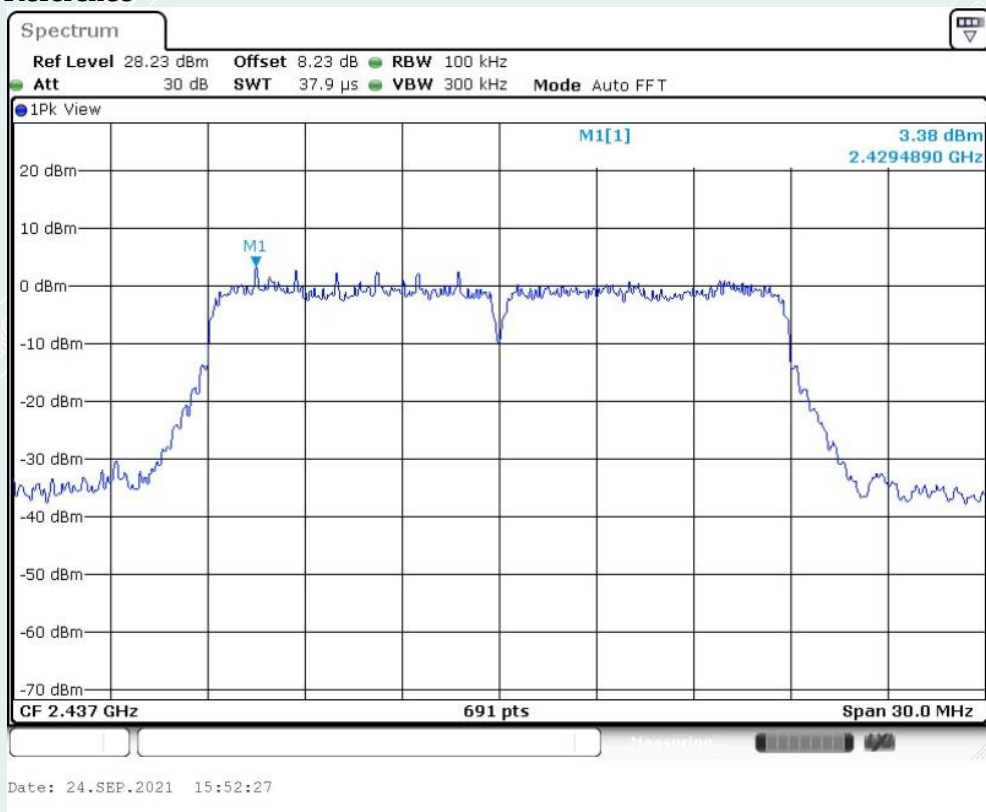
1GHz-26.5GHz



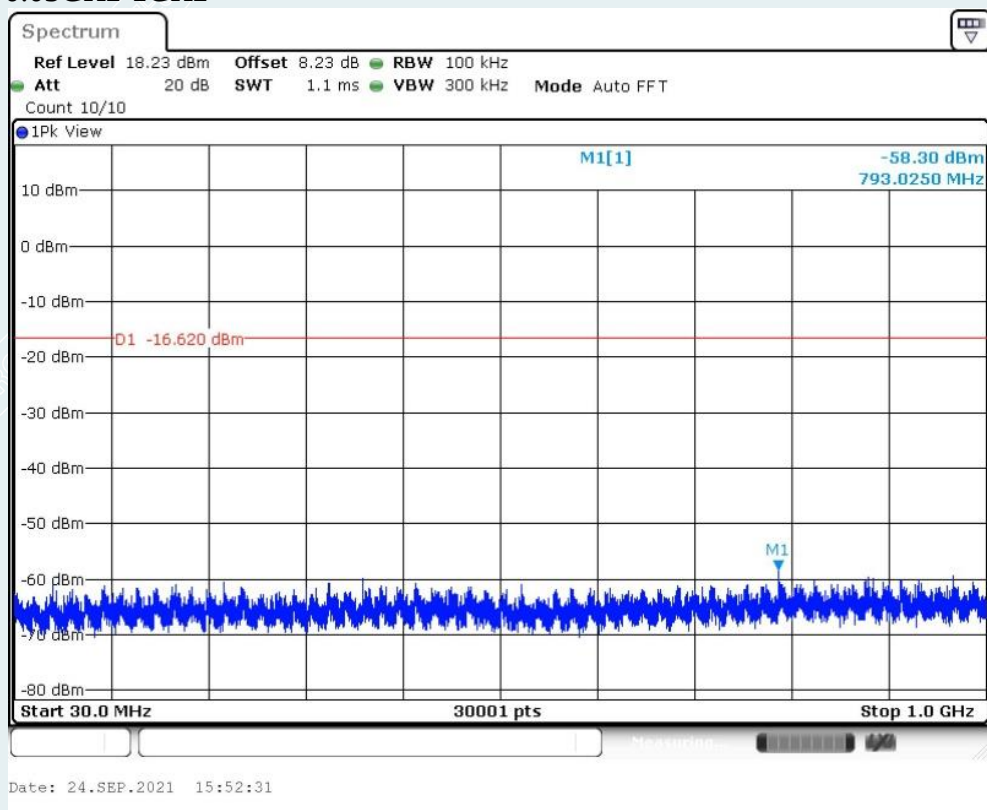
802.11n HT20 mode:

Frequency 2437MHz

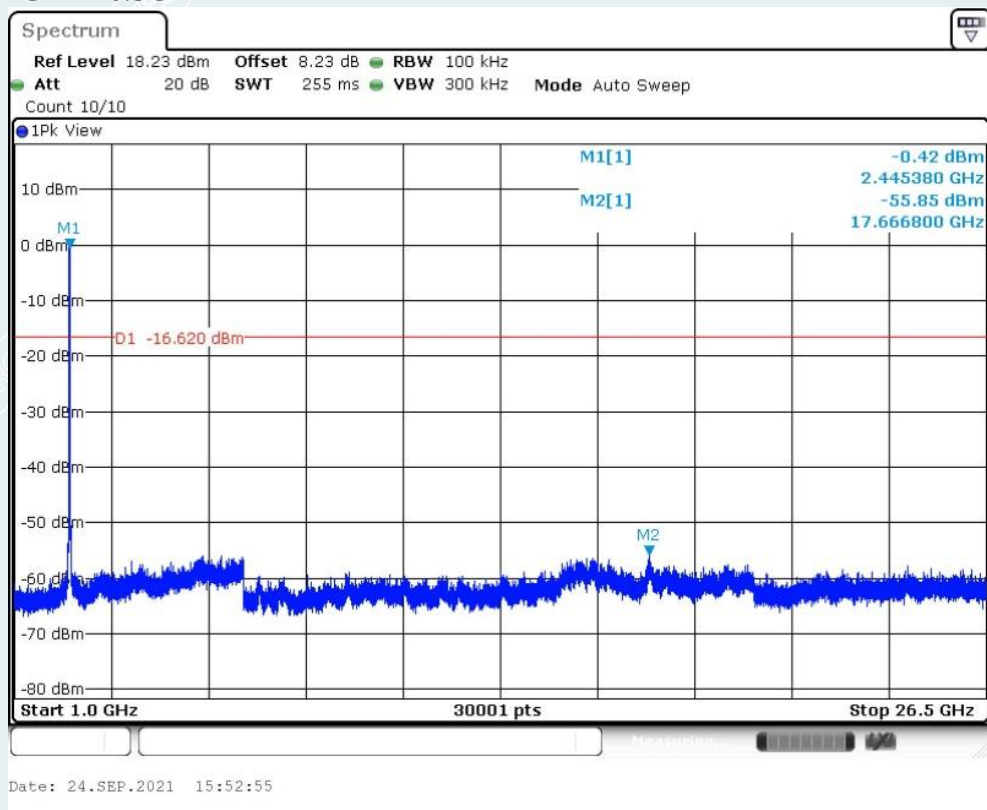
Reference



0.03GHz-1GHz



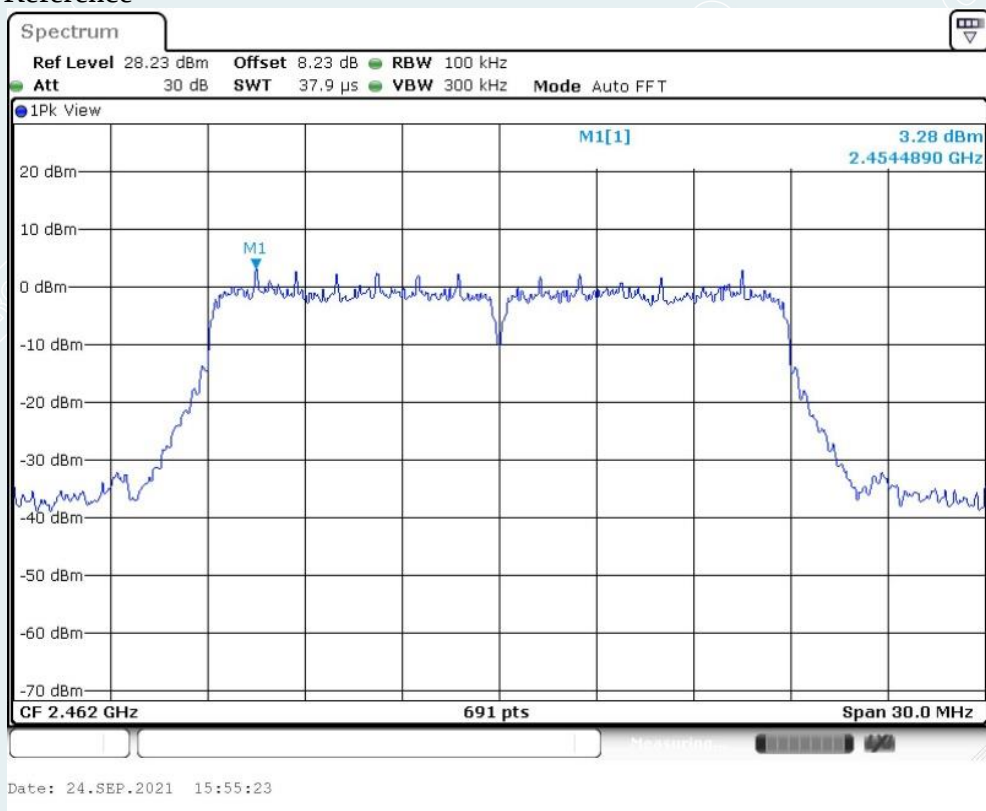
1GHz-26.5GHz



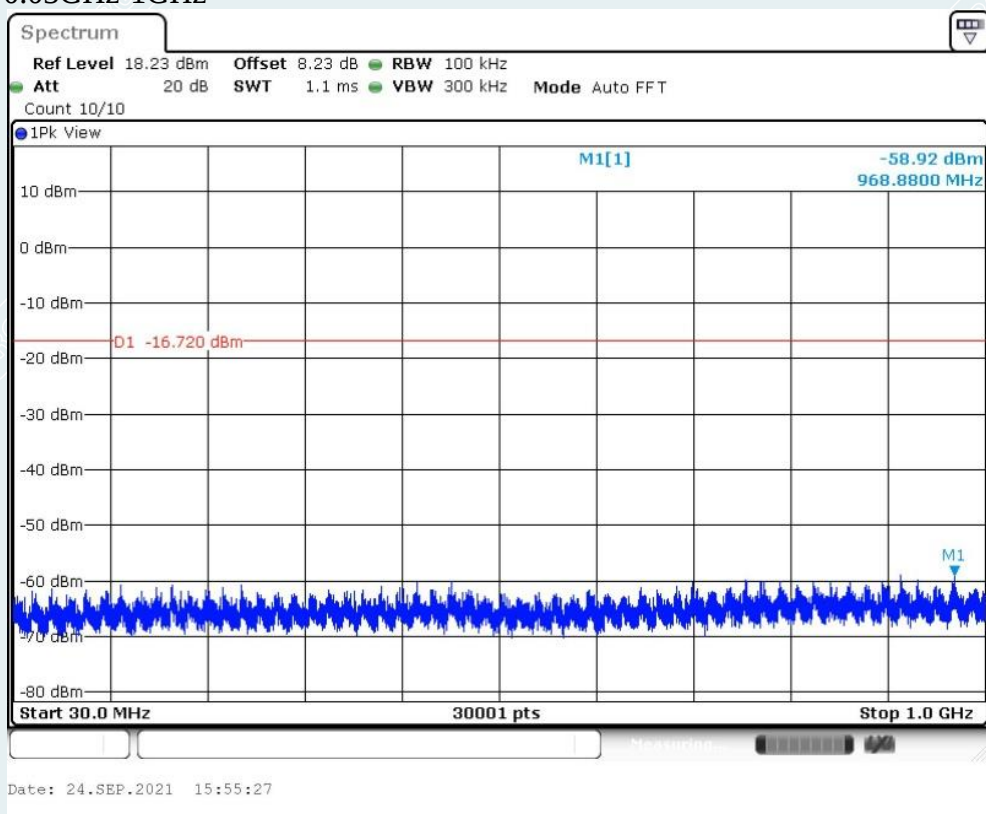
802.11n HT20 mode:

Frequency 2462MHz

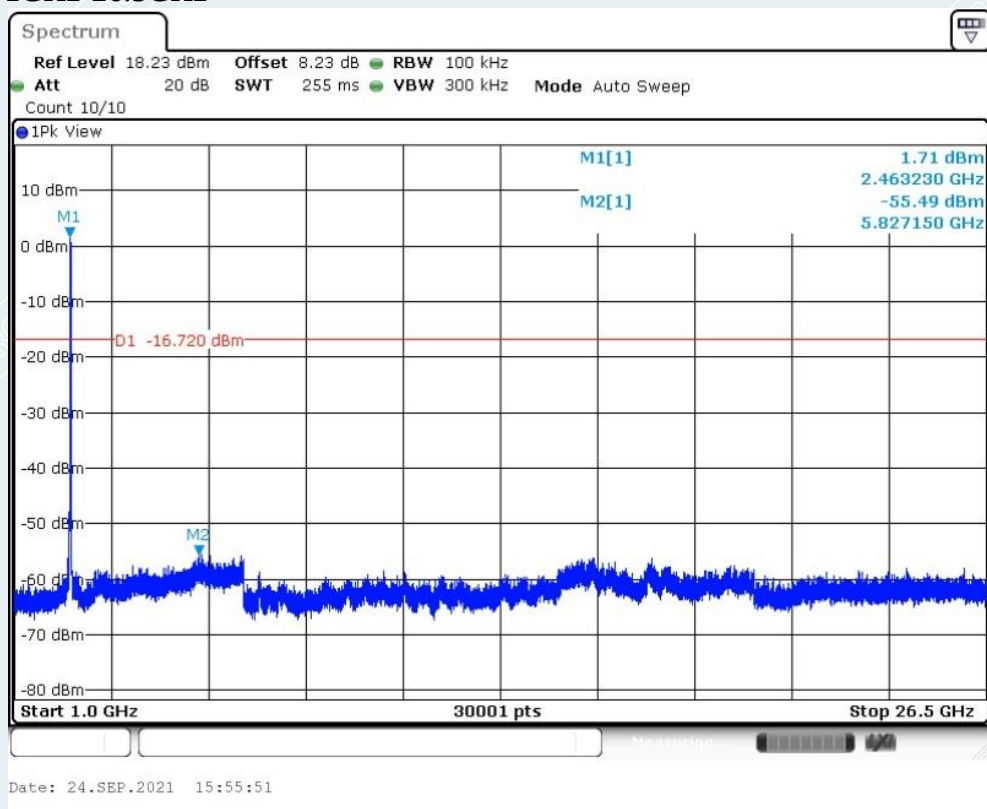
Reference



0.03GHz-1GHz



1GHz-26.5GHz



11. RESTRICTED BANDS OF OPERATION

11.1 LIMITS

Section 15.247(d) 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)).

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
¹ 0.495 - 0.505	16.69475 -	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.69525	960 - 1240	7.25 - 7.75
4.125 - 4.128	16.80425 -	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	16.80475	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	25.5 - 25.67	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	37.5 - 38.25	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	73 - 74.6	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	74.8 - 75.2	2200 - 2300	14.47 - 14.5
8.291 - 8.294	108 - 121.94	2310 - 2390	15.35 - 16.2
8.362 - 8.366	123 - 138	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	149.9 - 150.05	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	156.52475 -	3260 - 3267	23.6 - 24.0
12.29 - 12.293	156.52525	3332 - 3339	31.2 - 31.8
12.51975 -	156.7 - 156.9	3345.8 - 3358	36.43 - 36.5
12.52025	162.0125 - 167.17	3600 - 4400	
12.57675 -	167.72 - 173.2		
12.57725	240 - 285		
13.36 - 13.41	322 - 335.4		

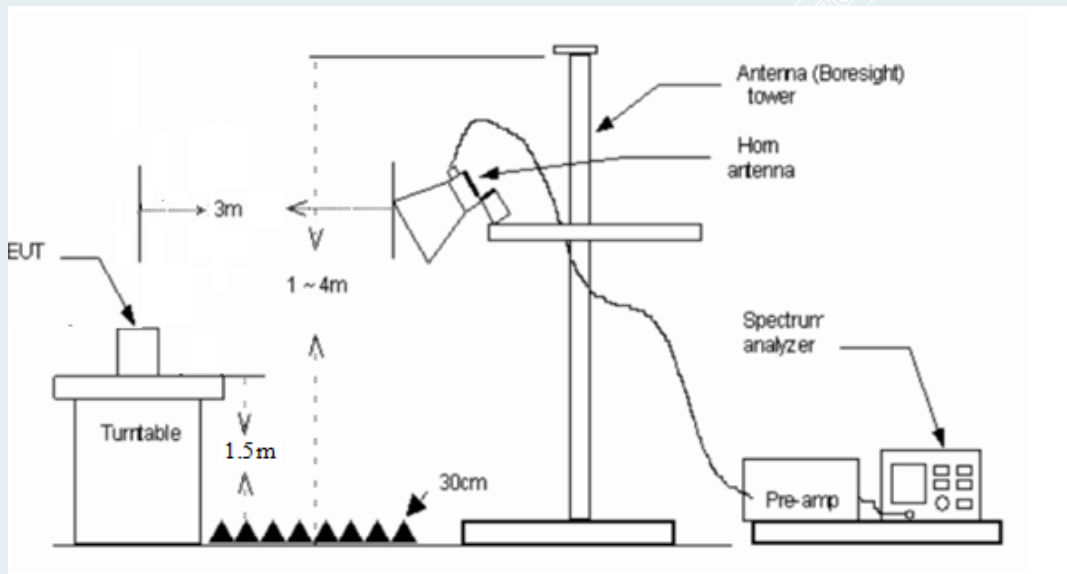
Frequency (MHz)	Quasi-peak($\mu\text{V}/\text{m}$)	Measurement distance(m)	Quasi-peak(dB $\mu\text{V}/\text{m}$)@distance 3m
0.009-0.490	2400/F(kHz)	300	53.8~88.5
0.490-1.705	24000/F(kHz)	30	43~53.8
1.705-30.0	30	30	49.5
30 ~ 88	100	3	40
88~216	150	3	43.5
216 ~ 960	200	3	46
Above 960	500	3	54

11.2 TEST PROCEDURES

Test procedures follow KDB 558074 D01 DTS Measurement Guidance.

- 1) The EUT is placed on a turntable, which is 1.5m above the ground plane.
- 2) The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
- 3) EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
- 4) Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:
 - a) PEAK: RBW=1MHz / VBW=1MHz / Sweep=AUTO
 - b) AVERAGE: RBW=1MHz / VBW=1/T / Sweep=AUTO
- 5) Repeat the procedures until all the PEAK and AVERAGE versus POLARIZATION are measured.

11.3 TEST SETUP



11.4 TEST RESULTS

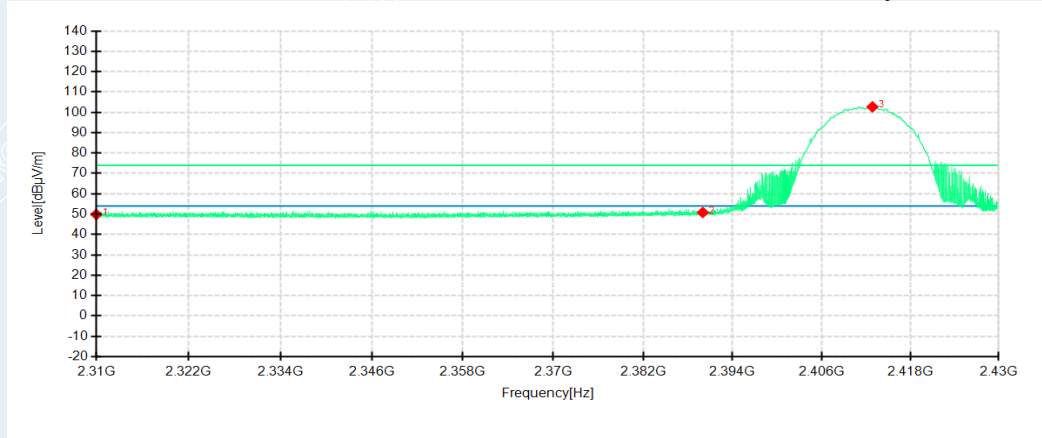
802.11b mode

Lowest Channel

Frequency 2412MHz

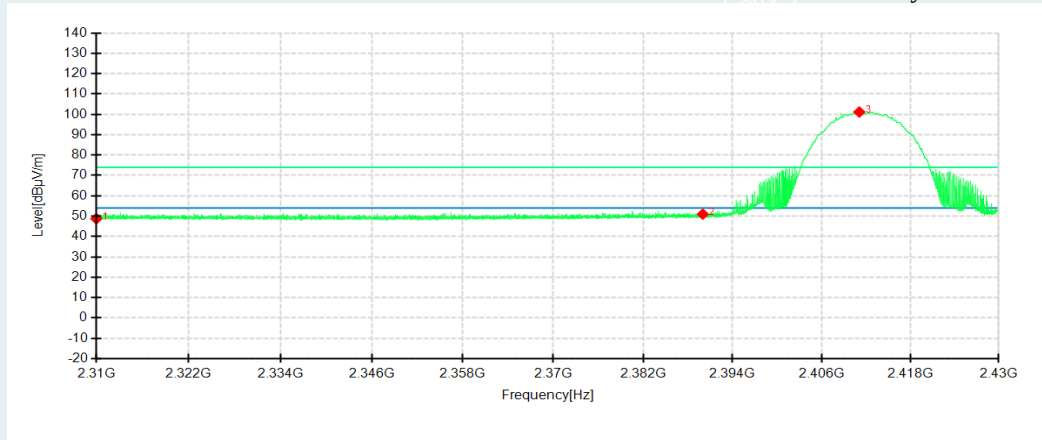
Detector mode: Peak

Polarity: Horizontal



Detector mode: Peak

Polarity: Vertical



No.	Frequency MHz	Reading dBμV/m	Level dBμV/m	Factor dB	Limit dBμV/m	Margin dB	Height cm	Angle °	Pole	Comment
1	2310.0000	46.35	49.83	3.48	74.00	24.17	200	232	Horizontal	/
2	2390.0000	47.00	50.81	3.81	74.00	23.19	100	193	Horizontal	/
3	2412.8640	98.65	102.69	4.04	74.00	-28.69	200	184	Horizontal	No limit
1	2310.0000	45.23	48.71	3.48	74.00	25.29	100	167	Vertical	/
2	2390.0000	47.14	50.95	3.81	74.00	23.05	200	127	Vertical	/
3	2411.0880	97.11	101.15	4.04	74.00	-27.15	200	193	Vertical	No limit

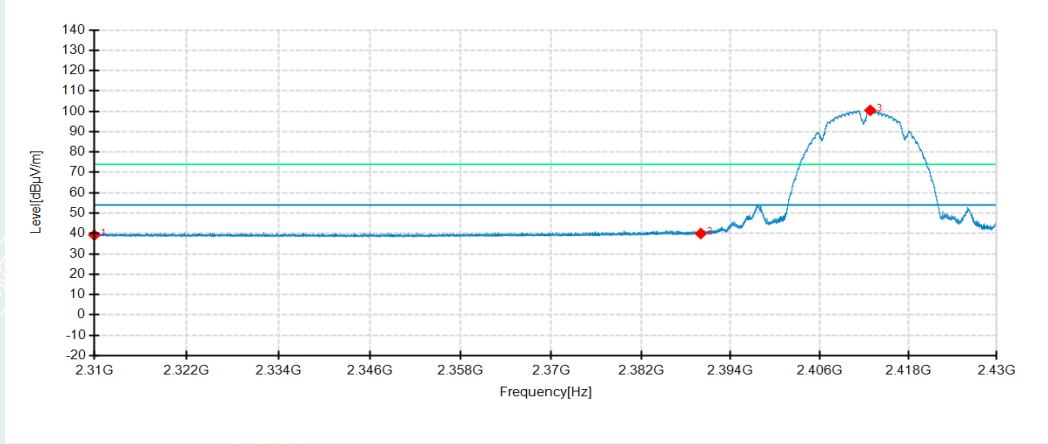
802.11b mode

Lowest Channel

Frequency 2412MHz

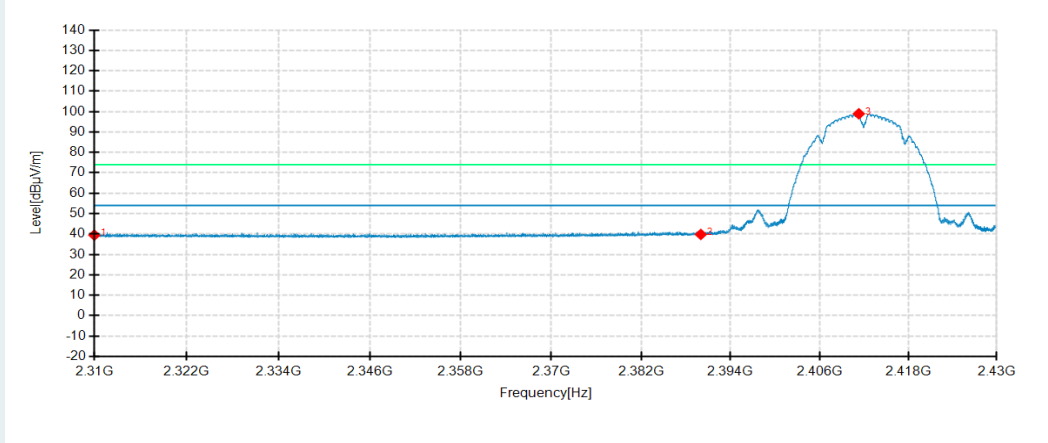
Detector mode: Average

Polarity: Horizontal



Detector mode: Average

Polarity: Vertical



No.	Frequency MHz	Reading dBμV/m	Level dBμV/m	Factor dB	Limit dBμV/m	Margin dB	Height cm	Angle °	Pole	Comment
1	2310.0000	35.72	39.20	3.48	54.00	14.80	100	4	Horizontal	/
2	2390.0000	36.15	39.96	3.81	54.00	14.04	200	353	Horizontal	/
3	2412.8400	96.45	100.49	4.04	54.00	-46.49	200	184	Horizontal	No limit
1	2310.0000	35.96	39.44	3.48	54.00	14.56	100	307	Vertical	/
2	2390.0000	35.98	39.79	3.81	54.00	14.21	200	0	Vertical	/
3	2411.2920	94.88	98.92	4.04	54.00	-44.92	200	193	Vertical	No limit

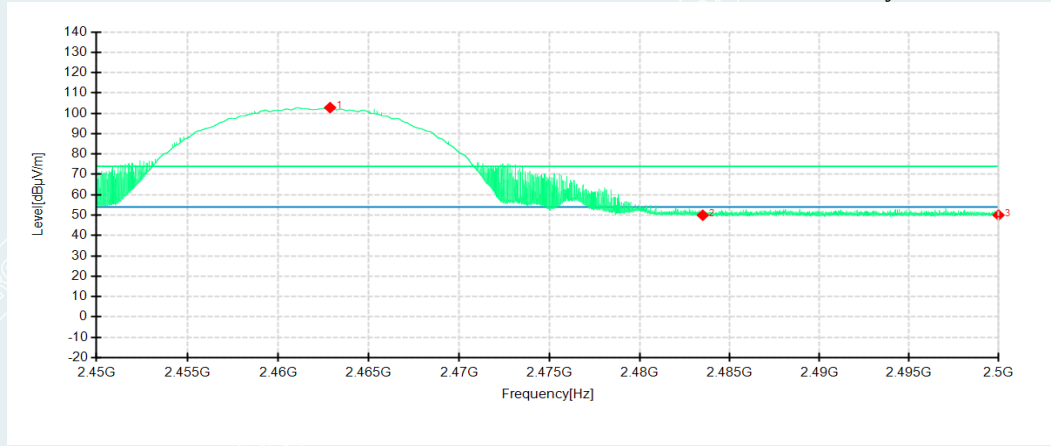
802.11b mode

Highest Channel

Frequency 2462MHz

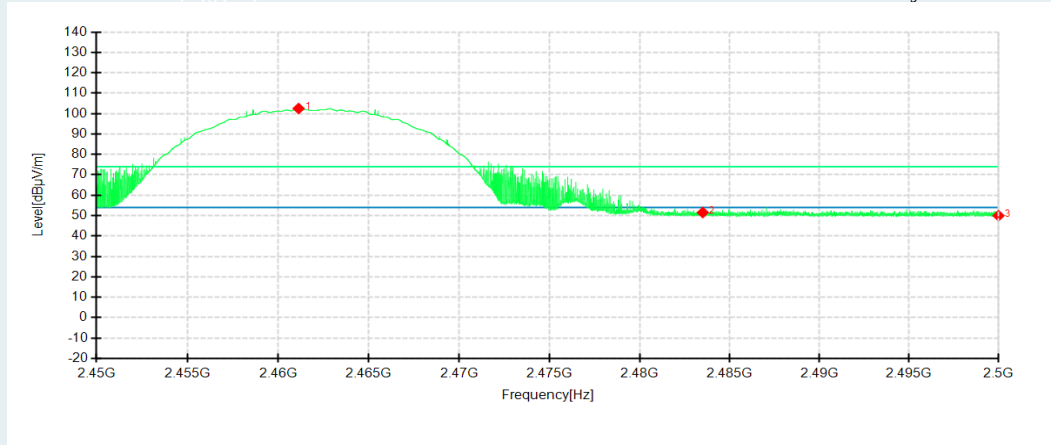
Detector mode: Peak

Polarity: Horizontal



Detector mode: Peak

Polarity: Vertical



No.	Frequency MHz	Reading dBμV/m	Level dBμV/ m	Factor dB	Limit dBuV/m	Margin dB	Height cm	Angle °	Pole	Comment
1	2462.8600	98.52	102.79	4.27	74.00	-28.79	200	144	Horizontal	No limit
2	2483.5000	45.61	49.94	4.33	74.00	24.06	100	167	Horizontal	/
3	2500.0000	45.62	50.00	4.38	74.00	24.00	200	3	Horizontal	/
1	2461.1250	98.22	102.48	4.26	74.00	-28.48	200	359	Vertical	No limit
2	2483.5000	47.16	51.49	4.33	74.00	22.51	200	323	Vertical	/
3	2500.0000	45.57	49.95	4.38	74.00	24.05	200	360	Vertical	/

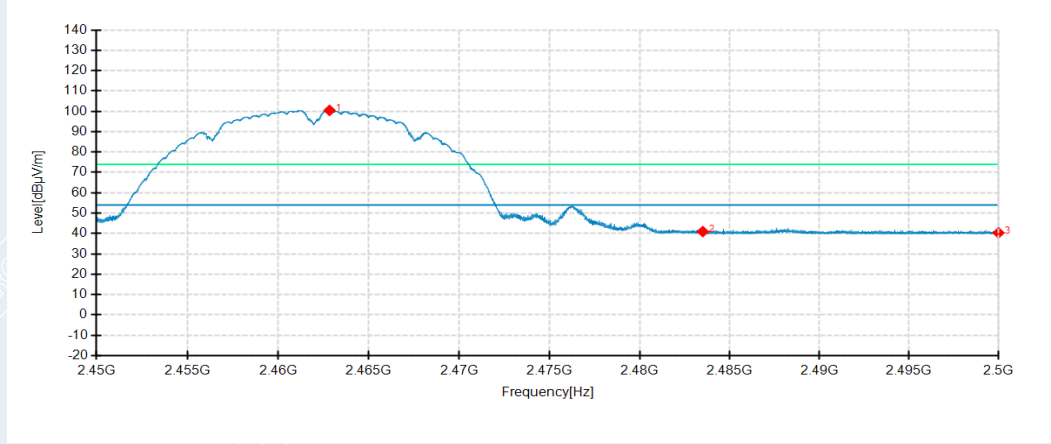
802.11b mode

Highest Channel

Frequency 2462MHz

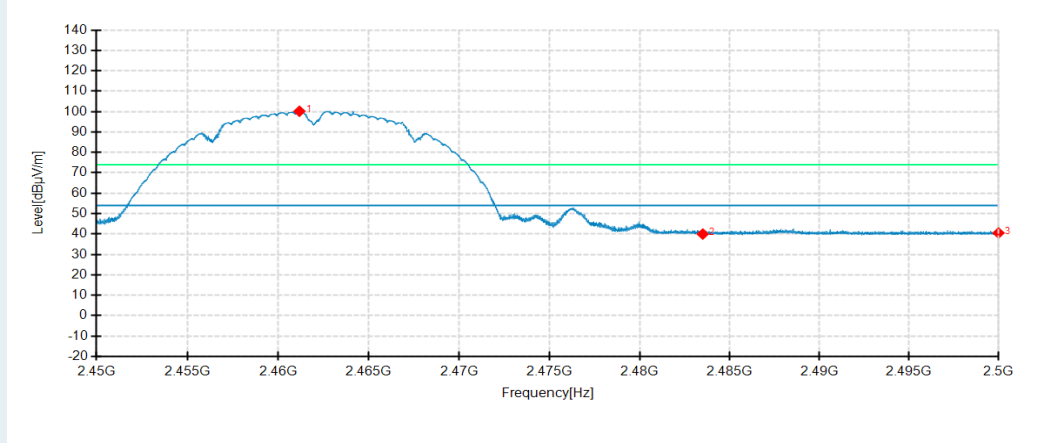
Detector mode: Average

Polarity: Horizontal



Detector mode: Average

Polarity: Vertical



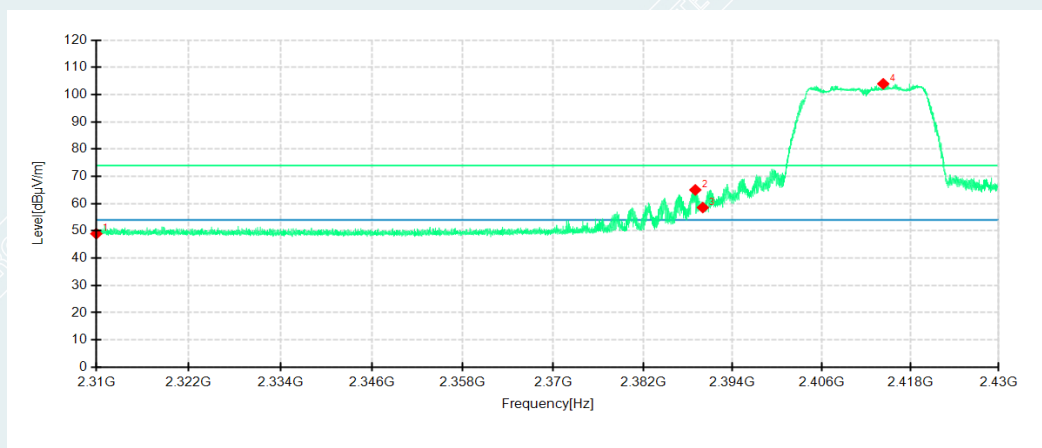
No.	Frequency MHz	Reading dBμV/m	Level dBμV/ m	Factor dB	Limit dBuV/m	Margin dB	Height cm	Angle °	Pole	Comment
1	2462.8300	96.20	100.47	4.27	54.00	-46.47	200	143	Horizontal	No limit
2	2483.5000	36.60	40.93	4.33	54.00	13.07	200	143	Horizontal	/
3	2500.0000	35.93	40.31	4.38	54.00	13.69	200	134	Horizontal	/
1	2461.1700	95.90	100.16	4.26	54.00	-46.16	200	359	Vertical	No limit
2	2483.5000	35.63	39.96	4.33	54.00	14.04	100	3	Vertical	/
3	2500.0000	36.13	40.51	4.38	54.00	13.49	100	193	Vertical	/

802.11g mode**Lowest Channel**

Frequency 2412MHz

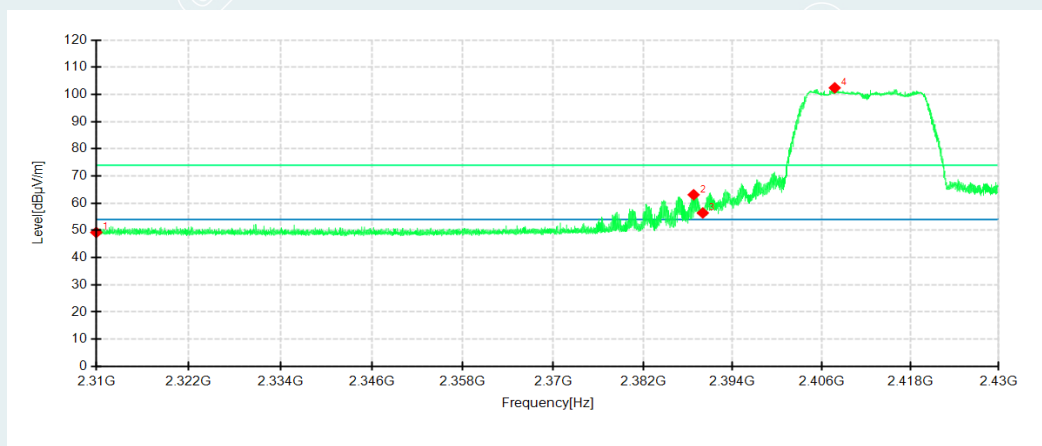
Detector mode: Peak

Polarity: Horizontal



Detector mode: Peak

Polarity: Vertical



No.	Frequency MHz	Reading dBμV/m	Level dBμV/m	Factor dB	Limit dBμV/m	Margin dB	Height cm	Angle °	Pole	Comment
1	2310.0000	45.48	48.96	3.48	74.00	25.04	200	200	Horizontal	/
2	2388.9960	61.25	65.04	3.79	74.00	8.96	200	167	Horizontal	/
3	2390.0000	54.75	58.56	3.81	74.00	15.44	200	175	Horizontal	/
4	2414.3280	99.89	103.94	4.05	74.00	-29.94	200	167	Horizontal	No limit
1	2310.0000	45.77	49.25	3.48	74.00	24.75	100	359	Vertical	/
2	2388.7680	59.32	63.11	3.79	74.00	10.89	200	193	Vertical	/
3	2390.0000	52.60	56.41	3.81	74.00	17.59	200	193	Vertical	/
4	2407.7640	98.39	102.41	4.02	74.00	-28.41	200	193	Vertical	No limit

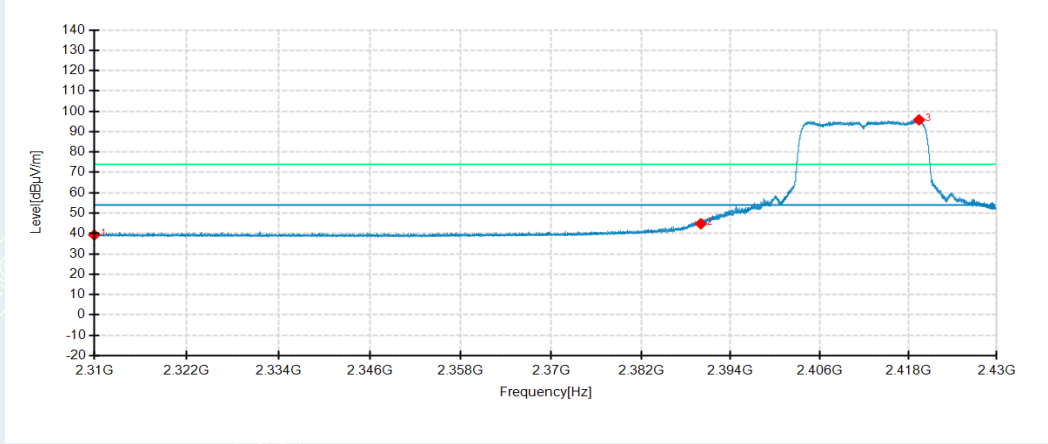
802.11g mode

Lowest Channel

Frequency 2412MHz

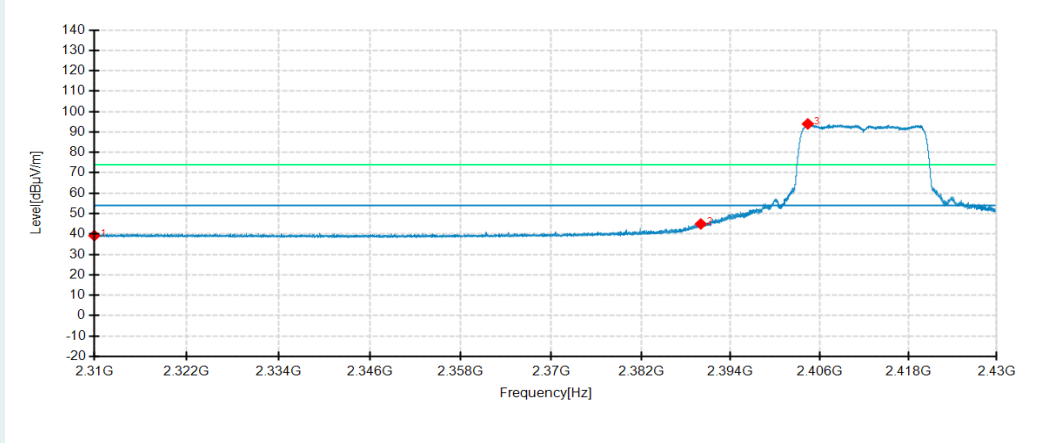
Detector mode: Average

Polarity: Horizontal



Detector mode: Average

Polarity: Vertical



No.	Frequency MHz	Reading dBμV/m	Level dBμV/ m	Factor dB	Limit dBuV/m	Margin dB	Height cm	Angle °	Pole	Comment
1	2310.0000	35.78	39.26	3.48	54.00	14.74	100	135	Horizontal	/
2	2390.0000	40.95	44.76	3.81	54.00	9.24	100	193	Horizontal	/
3	2419.4640	91.73	95.81	4.08	54.00	-41.81	200	167	Horizontal	No limit
1	2310.0000	35.73	39.21	3.48	54.00	14.79	200	111	Vertical	/
2	2390.0000	41.11	44.92	3.81	54.00	9.08	200	0	Vertical	/
3	2404.4040	89.97	93.97	4.00	54.00	-39.97	200	193	Vertical	No limit

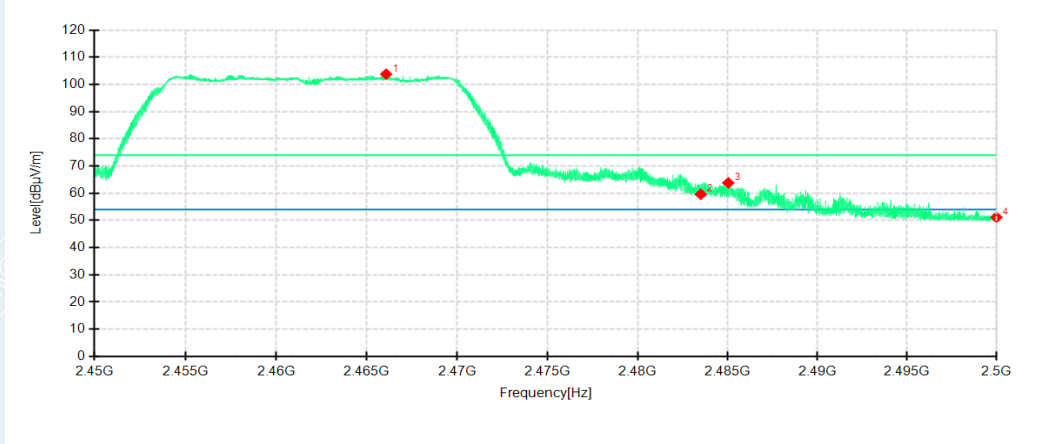
802.11g mode

Highest Channel

Frequency 2462MHz

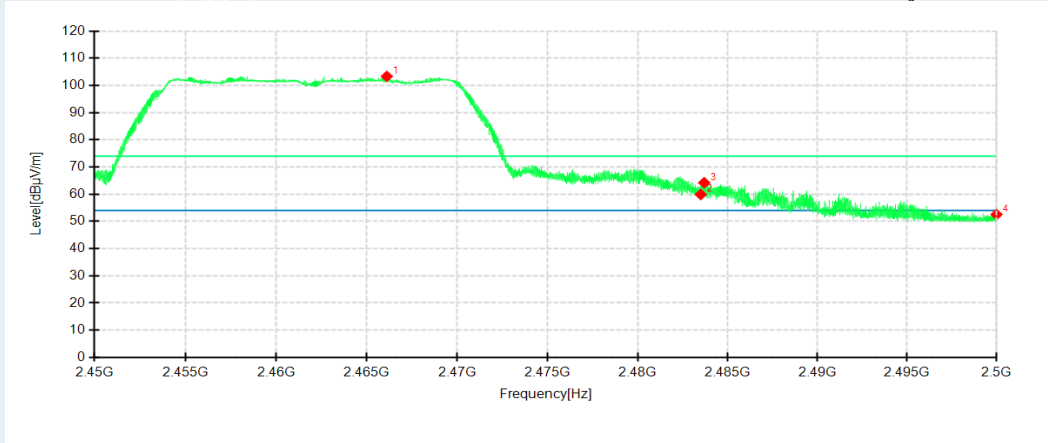
Detector mode: Peak

Polarity: Horizontal



Detector mode: Peak

Polarity: Vertical



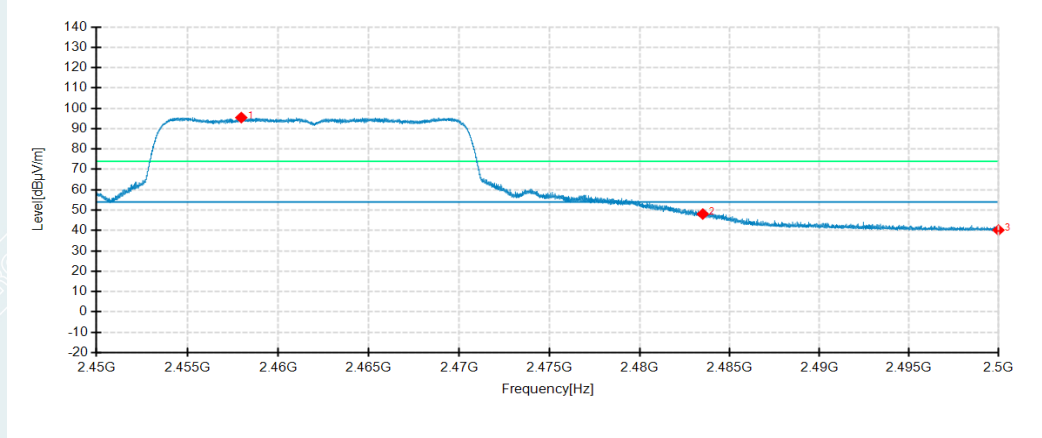
No.	Frequency MHz	Reading dBμV/m	Level dBμV/ m	Factor dB	Limit dBuV/m	Margin dB	Height cm	Angle °	Pole	Comment
1	2466.0650	99.48	103.76	4.28	74.00	-29.76	200	144	Horizontal	No limit
2	2483.5000	55.28	59.61	4.33	74.00	14.39	200	119	Horizontal	/
3	2485.0300	59.46	63.80	4.34	74.00	10.20	200	136	Horizontal	/
4	2500.0000	46.76	51.14	4.38	74.00	22.86	200	152	Horizontal	/
1	2466.1000	99.03	103.31	4.28	74.00	-29.31	200	167	Vertical	No limit
2	2483.5000	55.57	59.90	4.33	74.00	14.10	200	167	Vertical	/
3	2483.6900	59.89	64.22	4.33	74.00	9.78	200	167	Vertical	/
4	2500.0000	48.15	52.53	4.38	74.00	21.47	200	357	Vertical	/

802.11g mode**Highest Channel**

Frequency 2462MHz

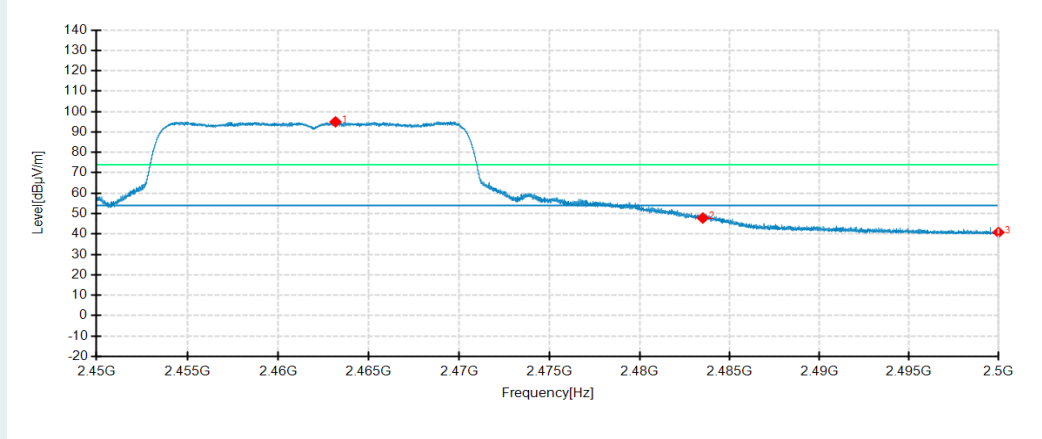
Detector mode: Average

Polarity: Horizontal



Detector mode: Average

Polarity: Vertical



No.	Frequency MHz	Reading dBμV/m	Level dBμV/ m	Factor dB	Limit dBuV/m	Margin dB	Height cm	Angle °	Pole	Comment
1	2457.9700	91.20	95.45	4.25	54.00	-41.45	200	144	Horizontal	No limit
2	2483.5000	43.75	48.08	4.33	54.00	5.92	200	128	Horizontal	/
3	2500.0000	35.80	40.18	4.38	54.00	13.82	100	167	Horizontal	/
1	2463.1600	90.69	94.96	4.27	54.00	-40.96	200	360	Vertical	No limit
2	2483.5000	43.49	47.82	4.33	54.00	6.18	200	359	Vertical	/
3	2500.0000	36.42	40.80	4.38	54.00	13.20	200	360	Vertical	/

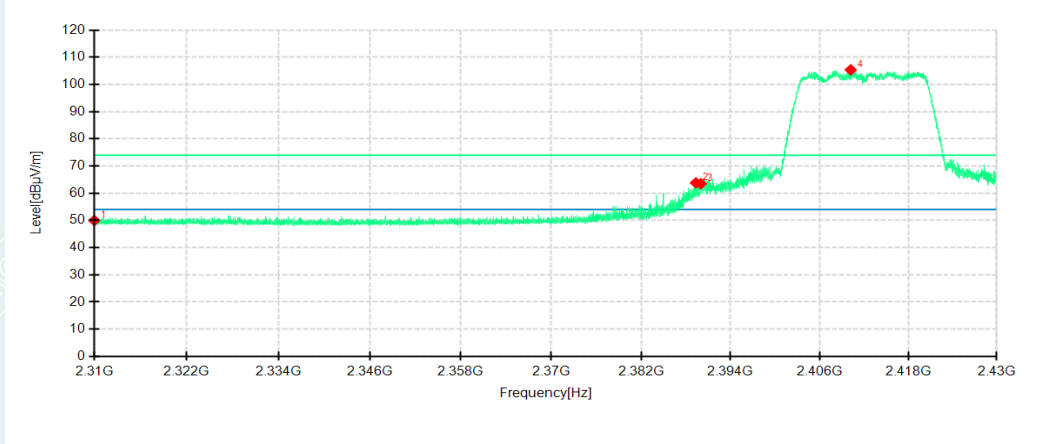
802.11n HT20 mode

Lowest Channel

Frequency 2412MHz

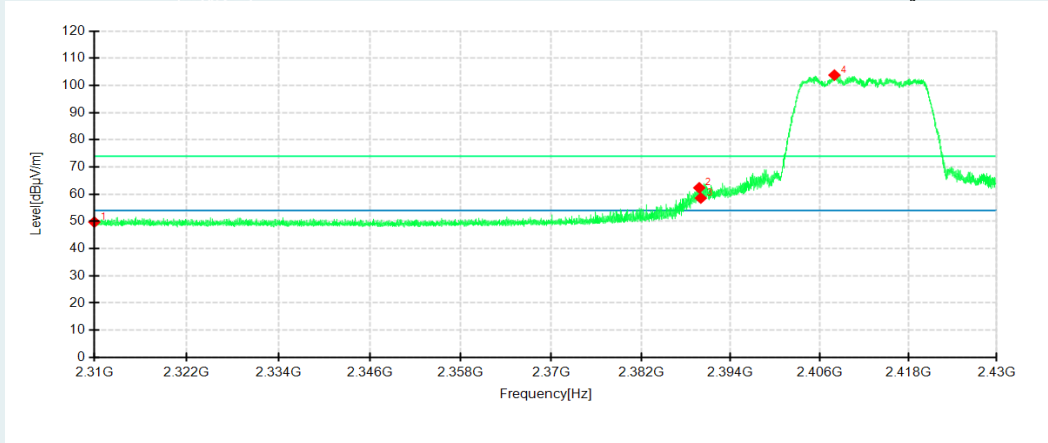
Detector mode: Peak

Polarity: Horizontal



Detector mode: Peak

Polarity: Vertical



No.	Frequency MHz	Reading dBμV/m	Level dBμV/m	Factor dB	Limit dBuV/m	Margin dB	Height cm	Angle °	Pole	Comment
1	2310.0000	46.49	49.97	3.48	74.00	24.03	200	86	Horizontal	/
2	2389.3320	60.00	63.80	3.80	74.00	10.20	200	176	Horizontal	/
3	2390.0000	59.67	63.48	3.81	74.00	10.52	200	111	Horizontal	/
4	2410.2000	101.31	105.34	4.03	74.00	-31.34	200	119	Horizontal	No limit
1	2310.0000	46.27	49.75	3.48	74.00	24.25	200	348	Vertical	/
2	2389.7880	58.54	62.35	3.81	74.00	11.65	200	167	Vertical	/
3	2390.0000	54.76	58.57	3.81	74.00	15.43	100	20	Vertical	/
4	2407.9920	99.77	103.79	4.02	74.00	-29.79	200	167	Vertical	No limit

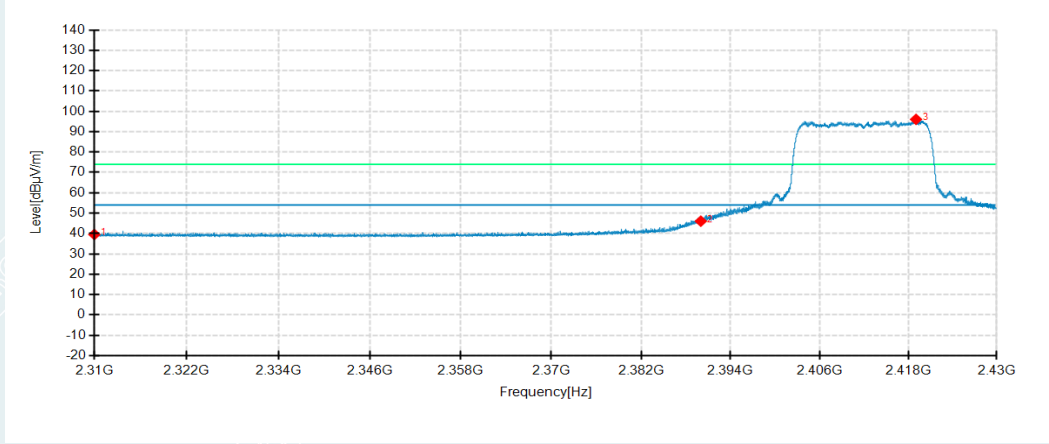
802.11n HT20 mode

Lowest Channel

Frequency 2412MHz

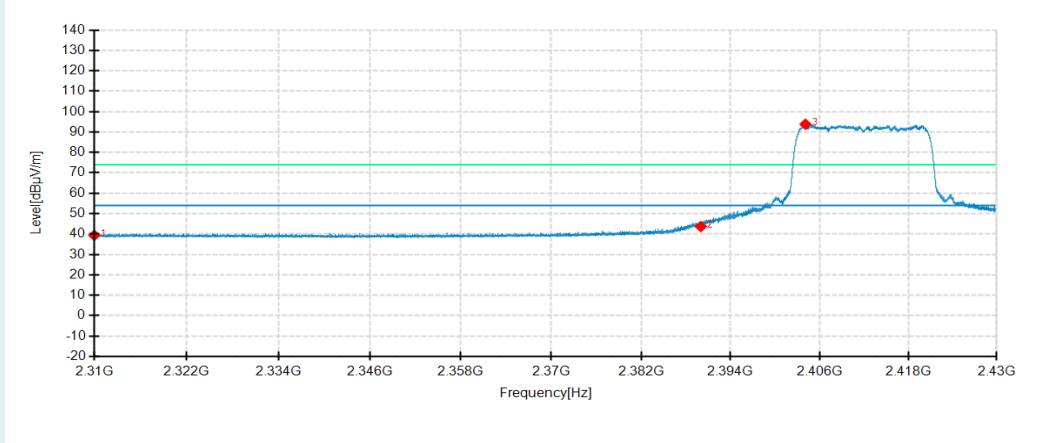
Detector mode: Average

Polarity: Horizontal



Detector mode: Average

Polarity: Vertical



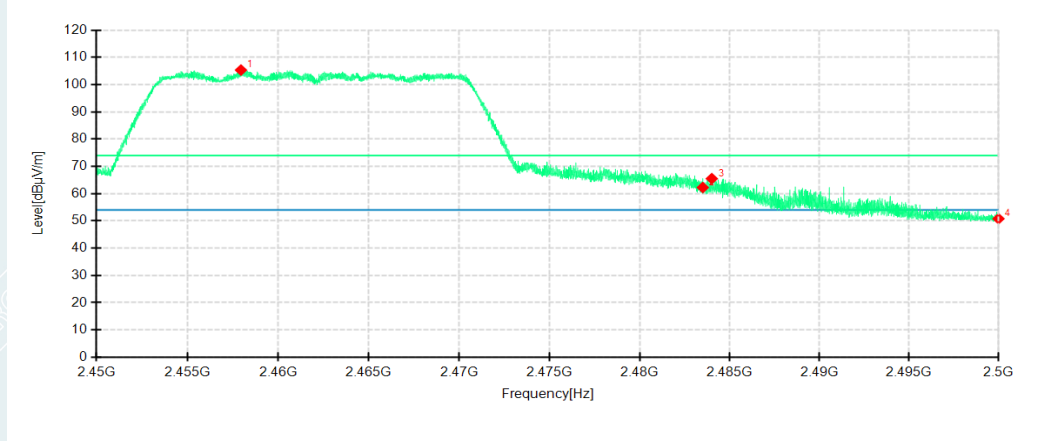
No.	Frequency MHz	Reading dBμV/m	Level dBμV/ m	Factor dB	Limit dBuV/m	Margin dB	Height cm	Angle °	Pole	Comment
1	2310.0000	36.03	39.51	3.48	54.00	14.49	100	200	Horizontal	/
2	2390.0000	42.24	46.05	3.81	54.00	7.95	200	135	Horizontal	/
3	2419.0440	91.97	96.05	4.08	54.00	-42.05	200	119	Horizontal	No limit
1	2310.0000	35.85	39.33	3.48	54.00	14.67	100	148	Vertical	/
2	2390.0000	39.85	43.66	3.81	54.00	10.34	200	167	Vertical	/
3	2404.0800	89.78	93.78	4.00	54.00	-39.78	200	360	Vertical	No limit

802.11n HT20 mode**Highest Channel**

Frequency 2462MHz

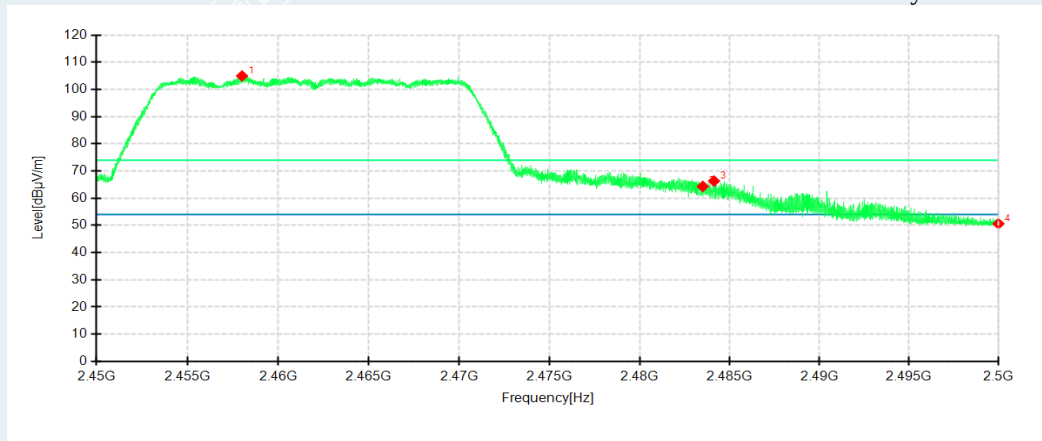
Detector mode: Peak

Polarity: Horizontal



Detector mode: Peak

Polarity: Vertical



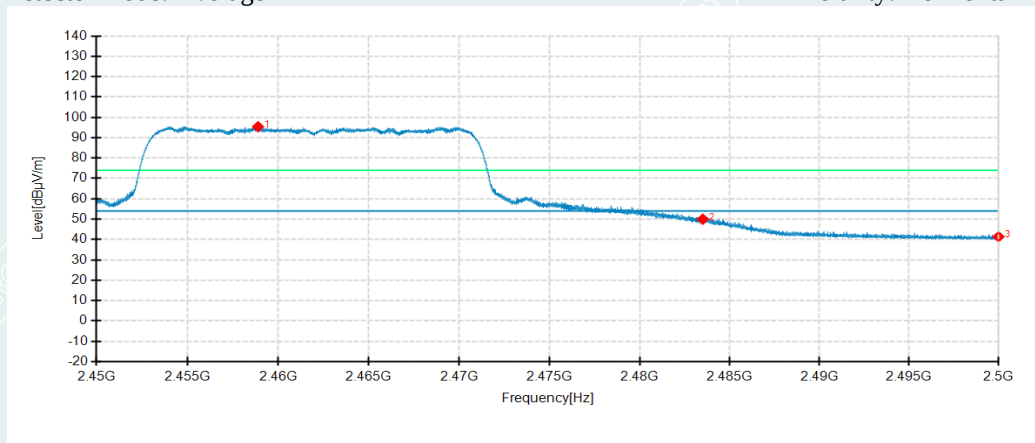
No.	Frequency MHz	Reading dBμV/m	Level dBμV/ m	Factor dB	Limit dBμV/m	Margin dB	Height cm	Angle °	Pole	Comment
1	2457.9500	101.07	105.32	4.25	74.00	-31.32	200	167	Horizontal	No limit
2	2483.5000	57.91	62.24	4.33	74.00	11.76	200	167	Horizontal	/
3	2484.0000	61.17	65.50	4.33	74.00	8.50	200	167	Horizontal	/
4	2500.0000	46.41	50.79	4.38	74.00	23.21	100	53	Horizontal	/
1	2458.0100	100.69	104.94	4.25	74.00	-30.94	200	193	Vertical	No limit
2	2483.5000	60.00	64.33	4.33	74.00	9.67	200	0	Vertical	/
3	2484.1250	61.99	66.32	4.33	74.00	7.68	200	193	Vertical	/
4	2500.0000	46.20	50.58	4.38	74.00	23.42	100	167	Vertical	/

802.11n HT20 mode**Highest Channel**

Frequency 2462MHz

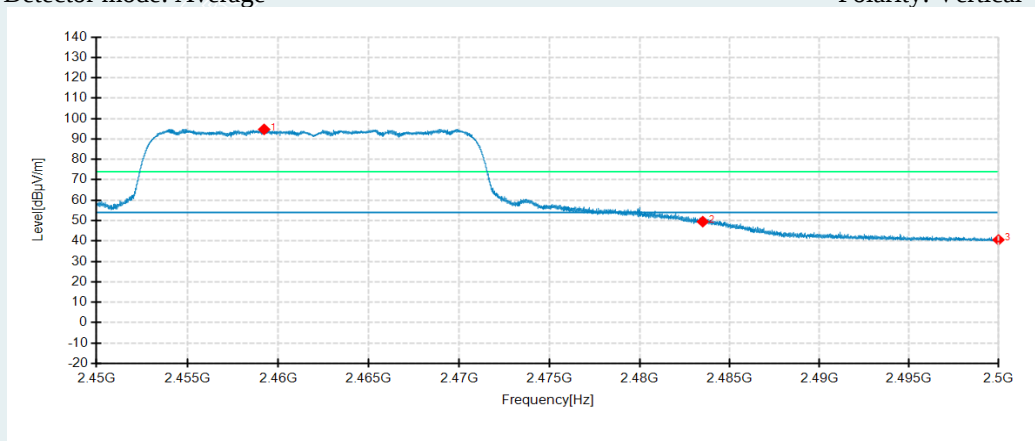
Detector mode: Average

Polarity: Horizontal



Detector mode: Average

Polarity: Vertical



No.	Frequency MHz	Reading dBμV/m	Level dBμV/ m	Factor dB	Limit dBuV/m	Margin dB	Height cm	Angle °	Pole	Comment
1	2458.8900	91.11	95.37	4.26	54.00	-41.37	200	167	Horizontal	No limit
2	2483.5000	45.63	49.96	4.33	54.00	4.04	200	167	Horizontal	/
3	2500.0000	36.97	41.35	4.38	54.00	12.65	200	307	Horizontal	/
1	2459.2250	90.45	94.71	4.26	54.00	-40.71	200	193	Vertical	No limit
2	2483.5000	45.15	49.48	4.33	54.00	4.52	200	193	Vertical	/
3	2500.0000	36.19	40.57	4.38	54.00	13.43	100	167	Vertical	/

----- End of Report -----