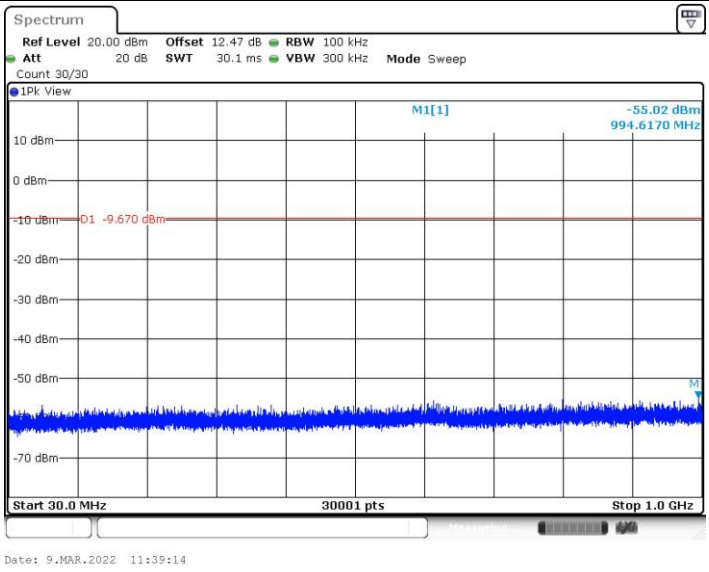
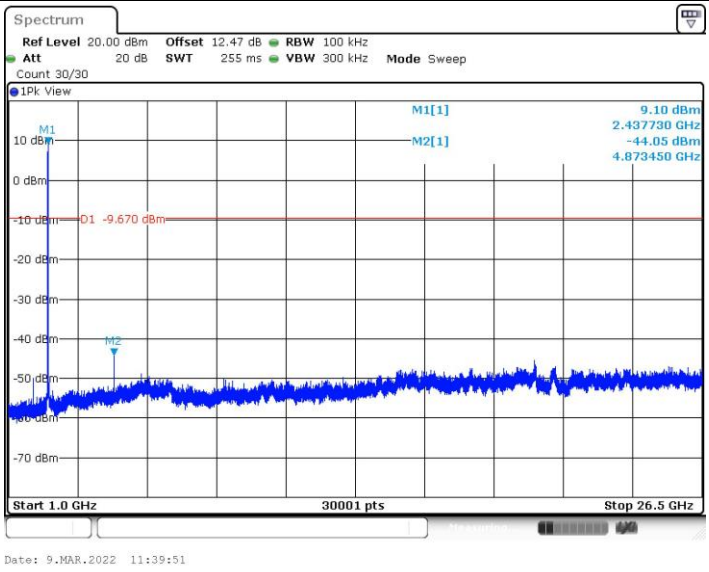
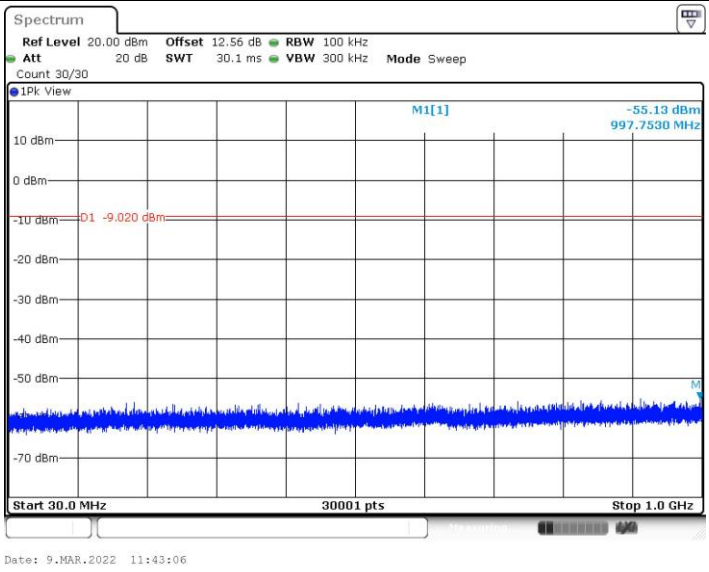
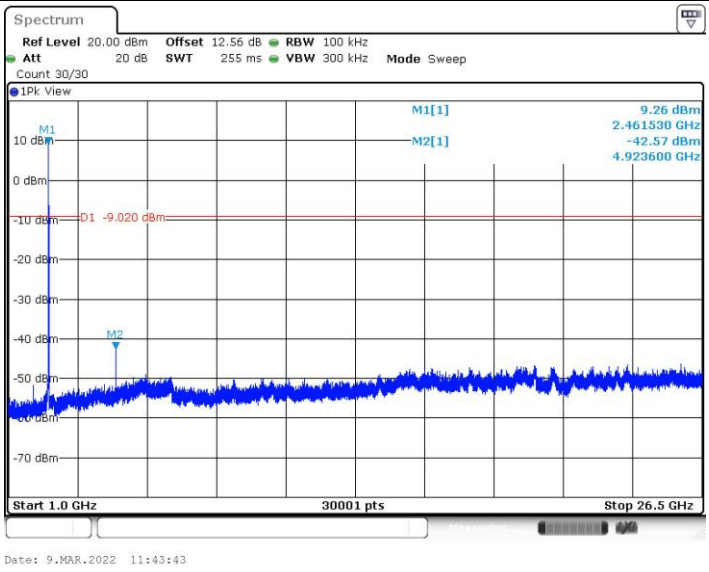
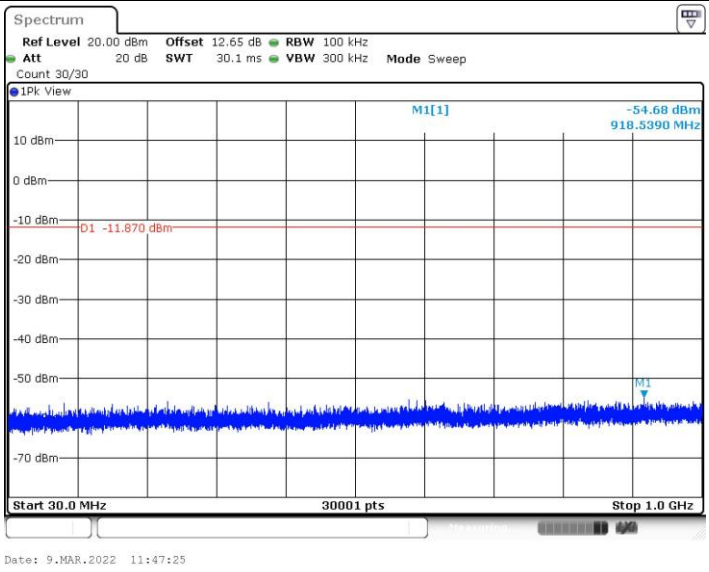
11B_Ant1_2437_30~1000

11B_Ant1_2437_1000~26500


11B_Ant1_2462_30~1000

11B_Ant1_2462_1000~26500


11G_Ant1_2412_30~1000

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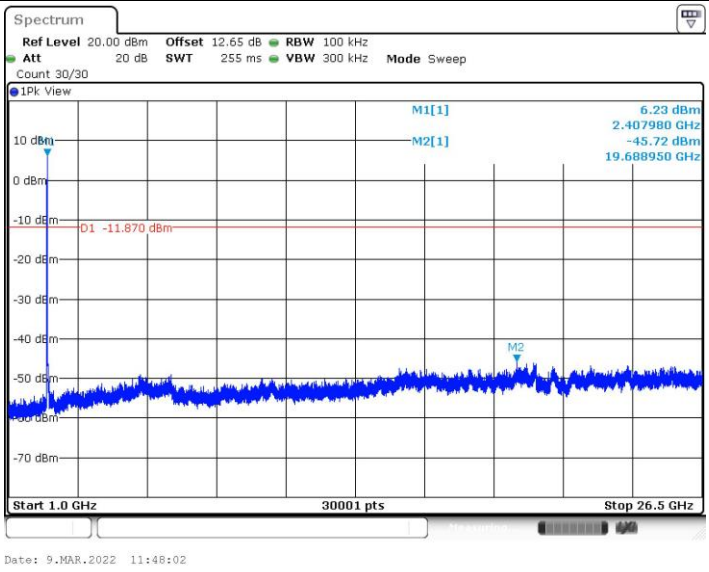

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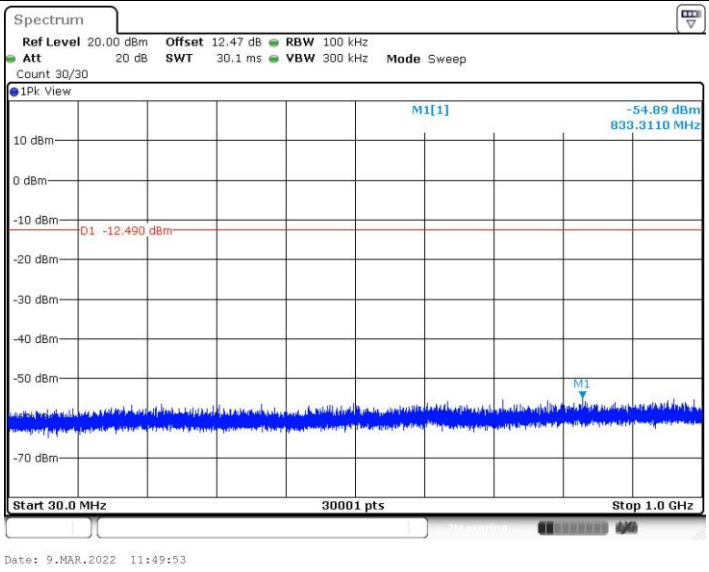
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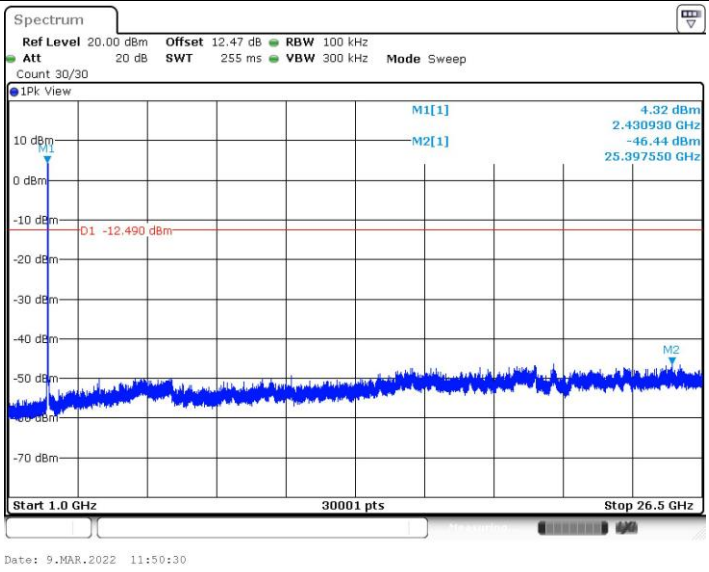
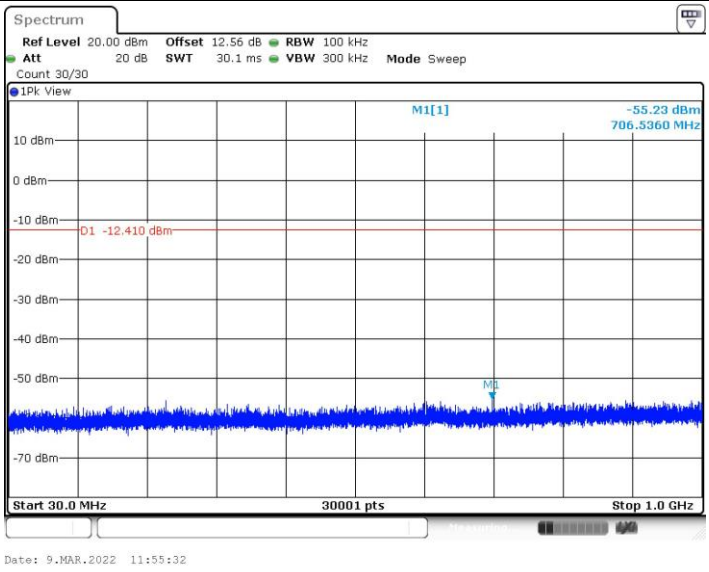


11G_Ant1_2462_30~1000

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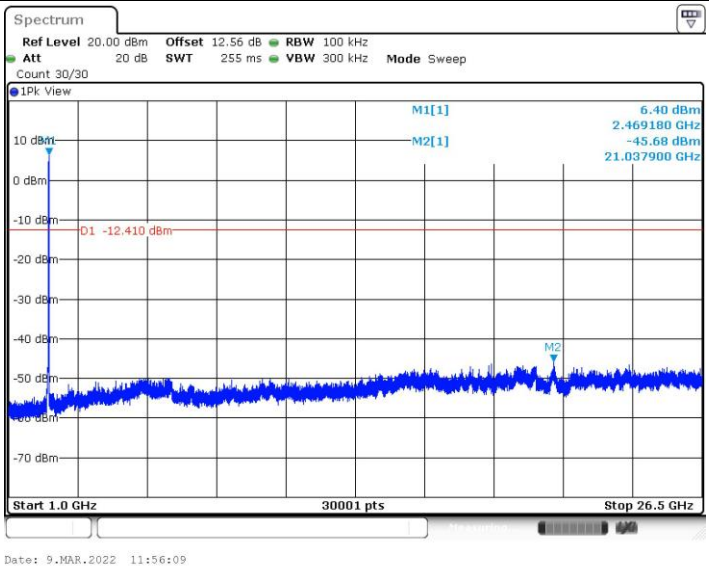
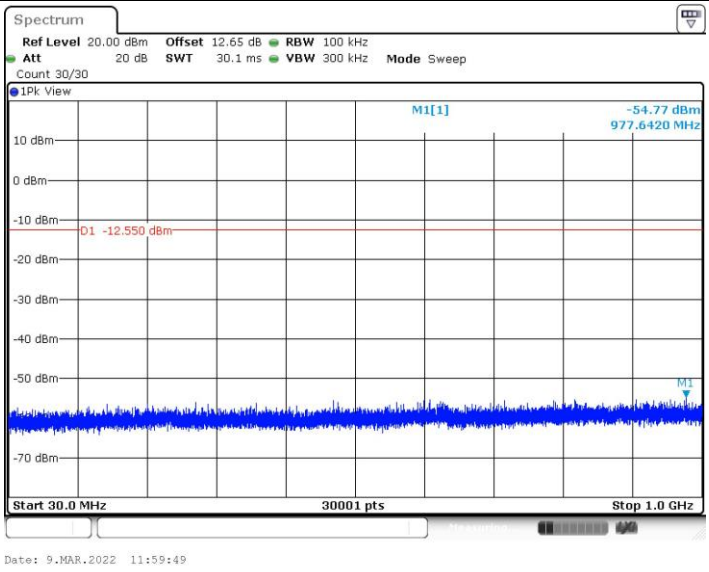


11N20SISO_Ant1_2412_30~1000

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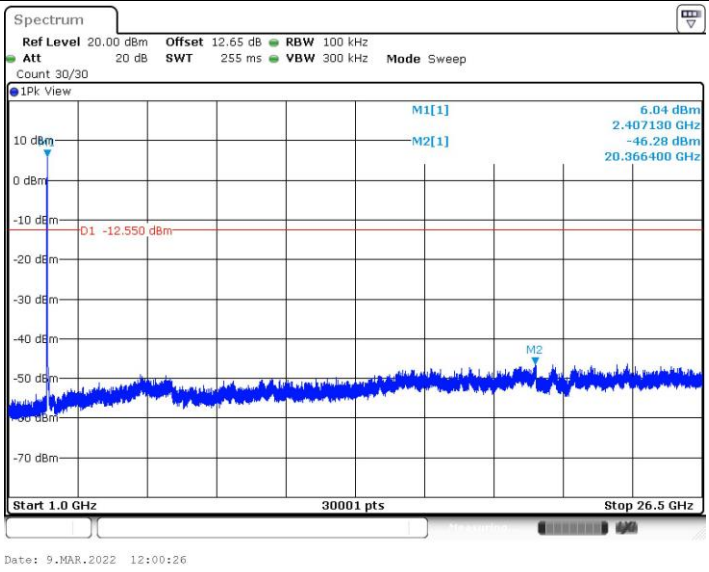

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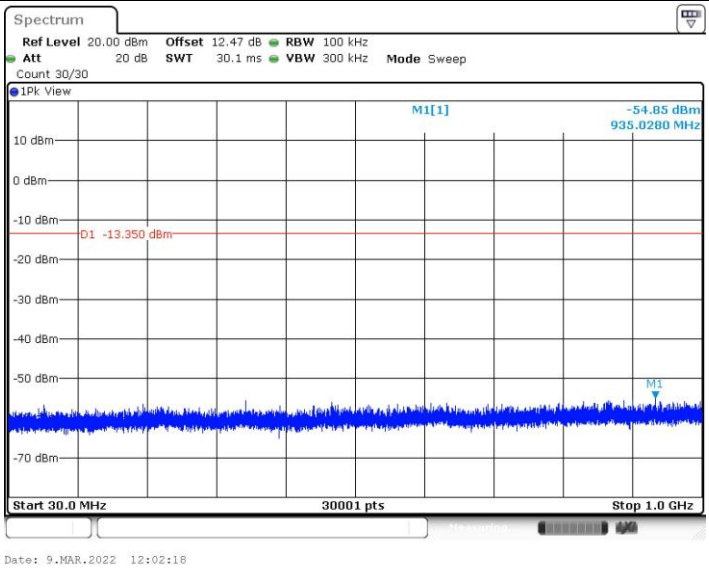

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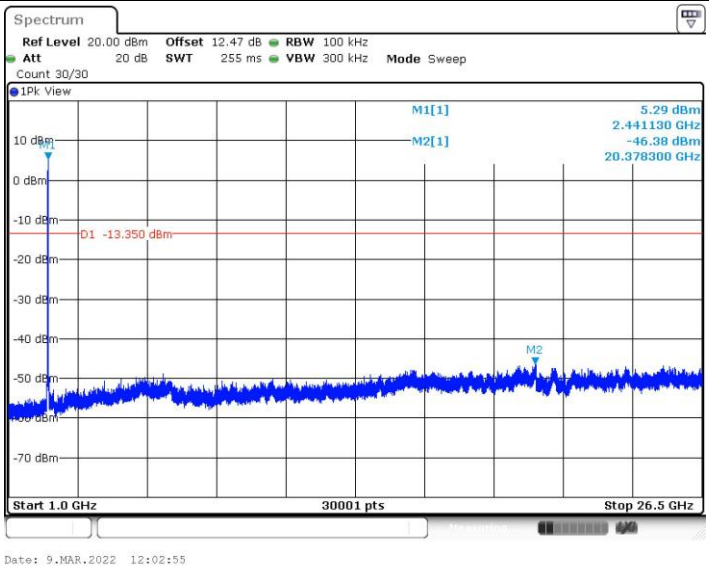

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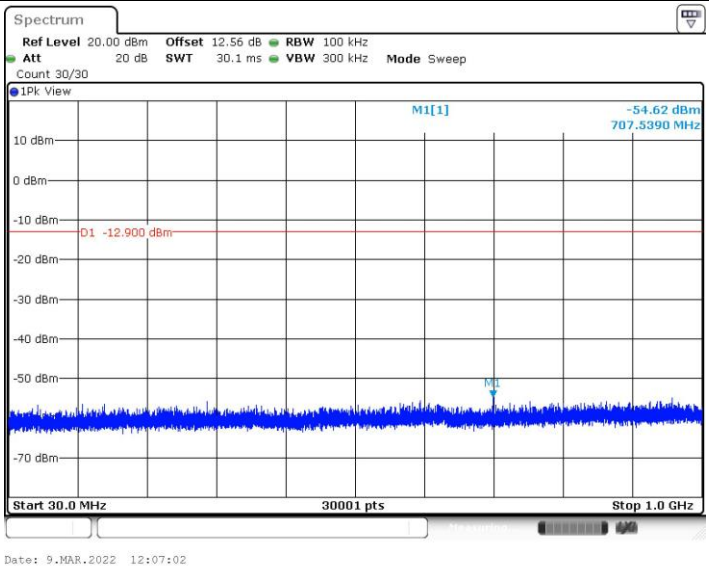
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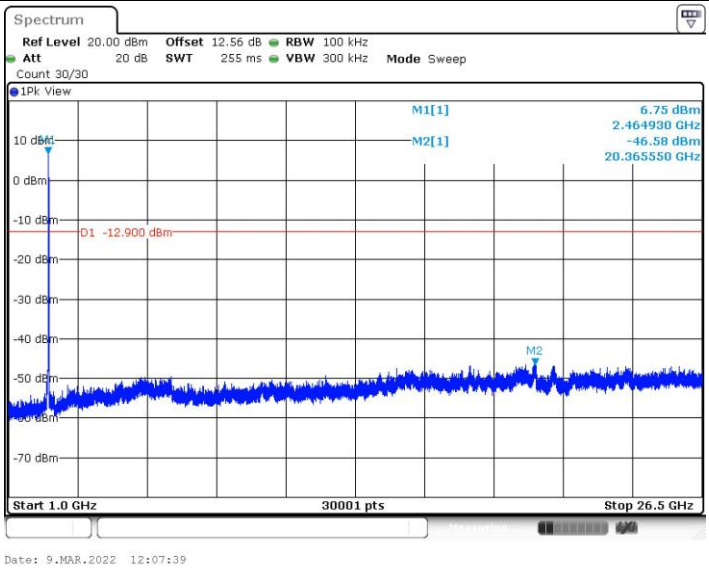
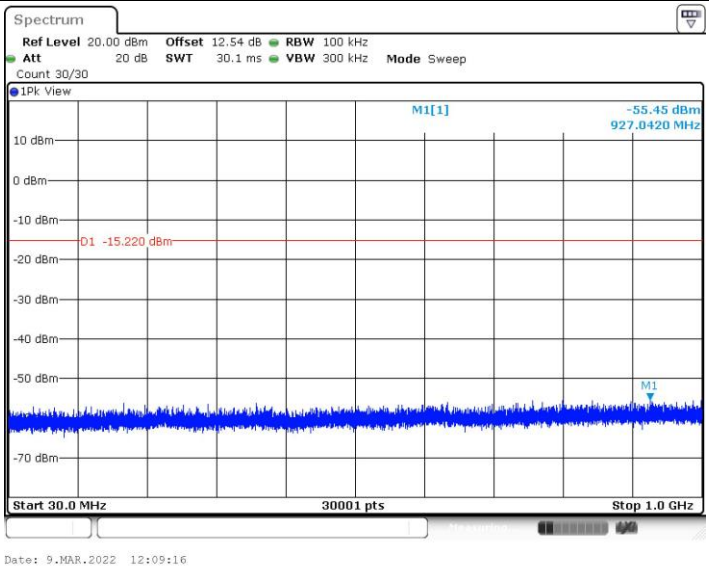


11N40SISO_Ant1_2422_30~1000

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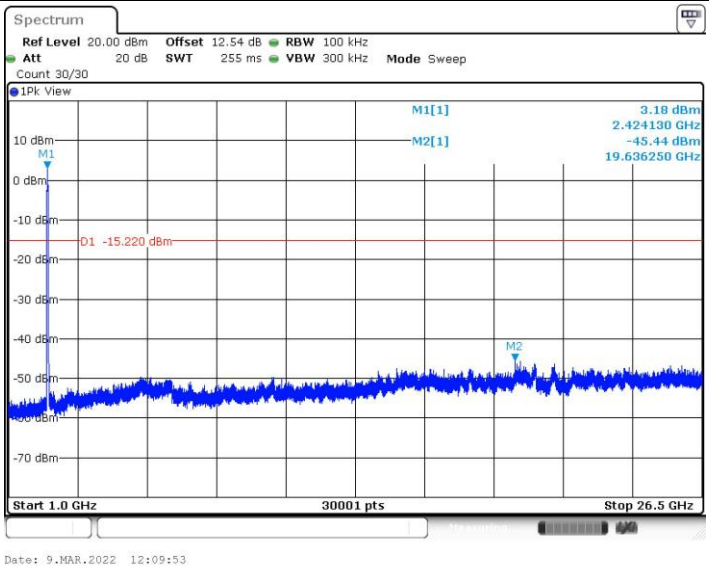
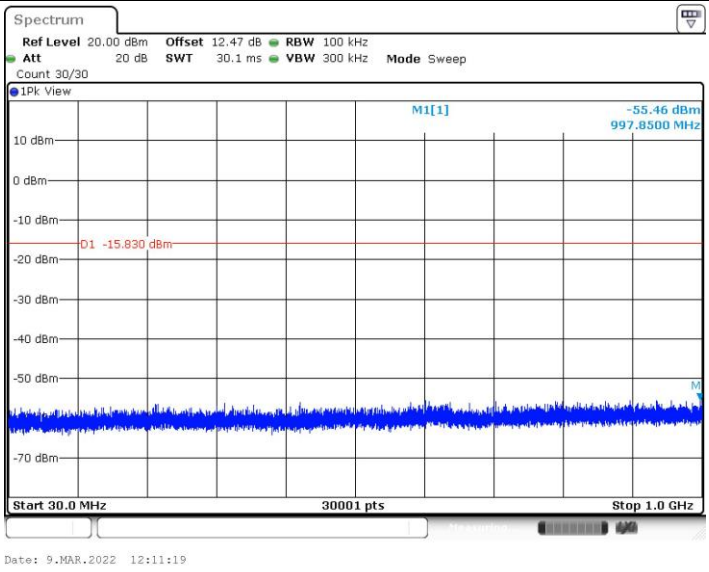
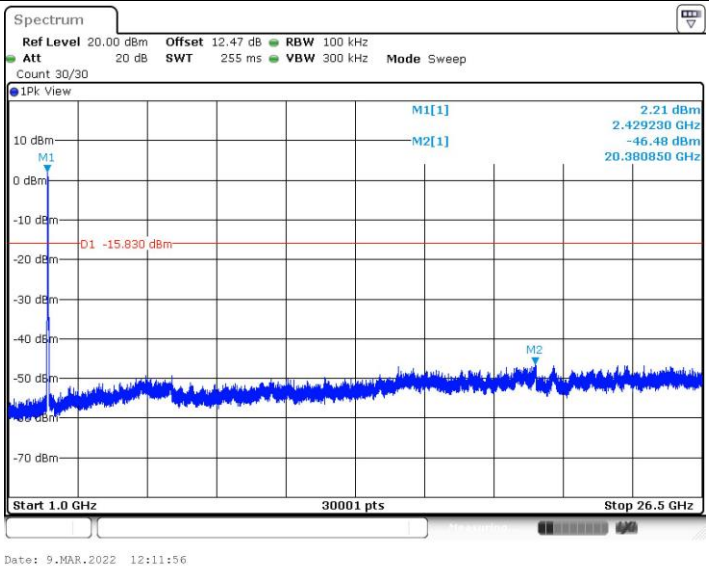
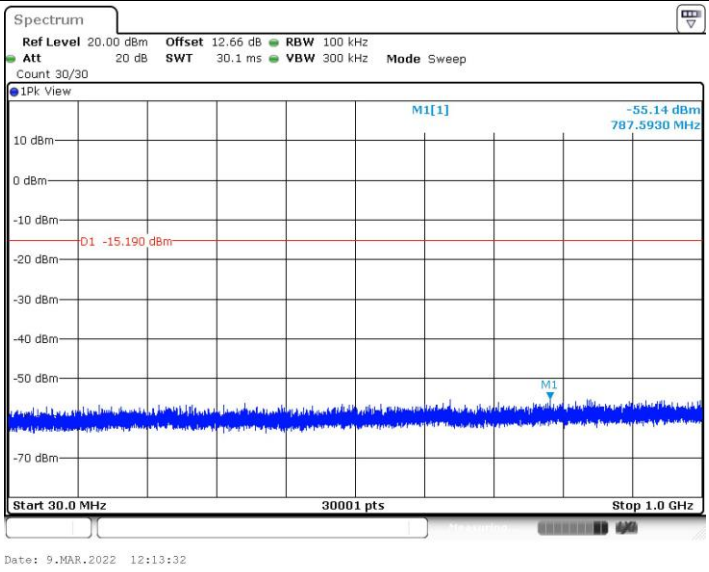


11N40SISO_Ant1_2437_30~1000

11N40SISO_Ant1_2437_1000~26500


11N40SISO_Ant1_2452_30~1000

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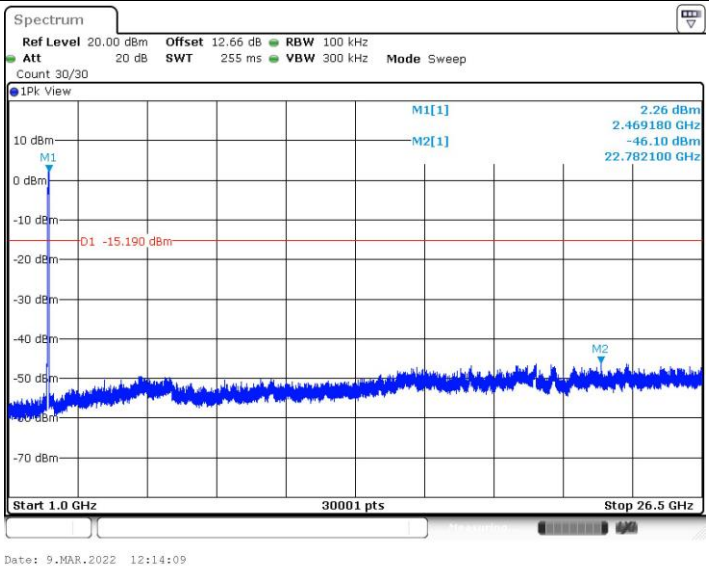
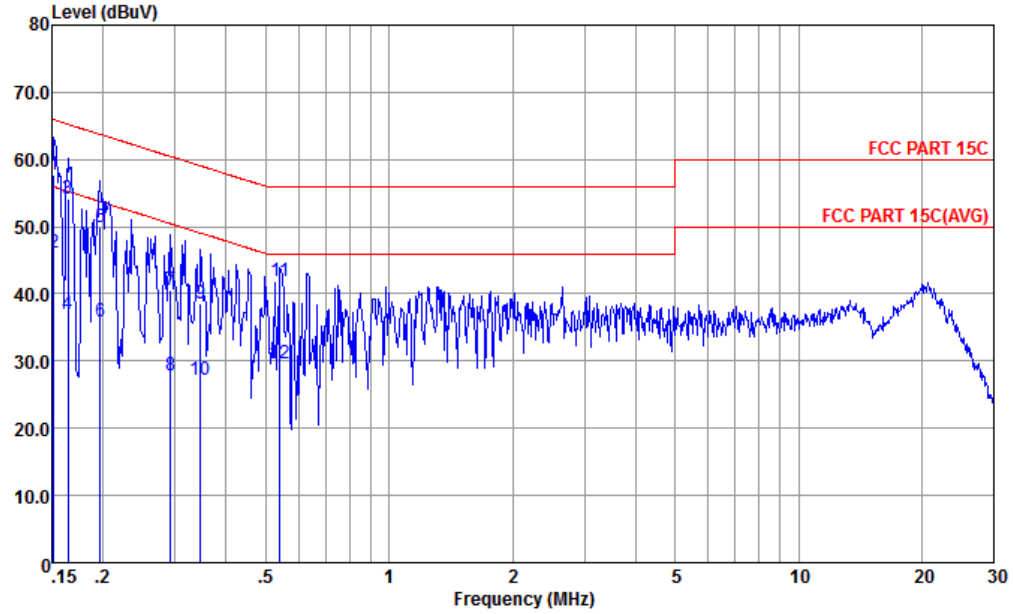


Appendix B. AC Conducted Emission Test Results

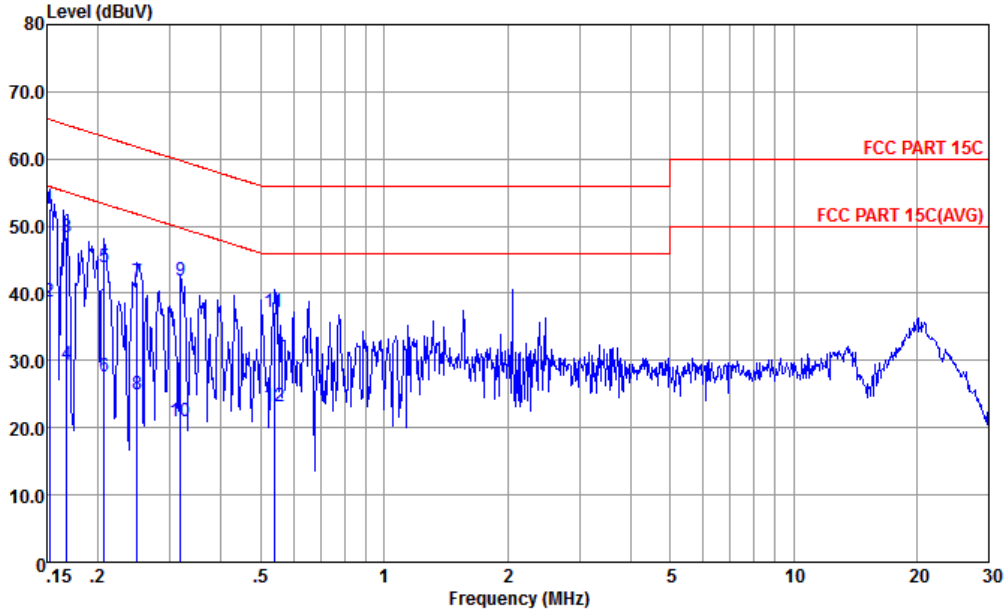
Test Engineer :	Amos Zhang	**Temperature :**	25.3~26.2℃
		Relative Humidity :	38~40%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Site : CO01-KS
Condition : FCC PART 15C LISN-060105-L LINE

		Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
		MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	*	0.152	57.70	-8.21	65.91	47.20	0.02	10.48	QP
2		0.152	46.10	-9.81	55.91	35.60	0.02	10.48	Average
3		0.164	54.07	-11.18	65.25	43.60	0.03	10.44	QP
4		0.164	37.07	-18.18	55.25	26.60	0.03	10.44	Average
5		0.197	49.91	-13.85	63.76	39.50	0.04	10.37	QP
6		0.197	35.91	-17.85	53.76	25.50	0.04	10.37	Average
7		0.292	40.58	-19.88	60.46	30.20	0.07	10.31	QP
8		0.292	27.88	-22.58	50.46	17.50	0.07	10.31	Average
9		0.346	38.57	-20.48	59.05	28.20	0.08	10.29	QP
10		0.346	27.27	-21.78	49.05	16.90	0.08	10.29	Average
11		0.541	41.84	-14.16	56.00	31.50	0.10	10.24	QP
12		0.541	29.64	-16.36	46.00	19.30	0.10	10.24	Average

Test Engineer :	Amos Zhang	**Temperature :**	25.3~26.2℃
		Relative Humidity :	38~40%
Test Voltage :	120Vac / 60Hz	**Phase :**	Neutral
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Site : site
Condition : FCC PART 15C LISN-060105-N NEUTRAL

		Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
		MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	*	0.152	52.48	-13.39	65.87	41.90	0.11	10.47	QP
2		0.152	38.88	-16.99	55.87	28.30	0.11	10.47	Average
3		0.168	48.34	-16.74	65.08	37.80	0.11	10.43	QP
4		0.168	29.34	-25.74	55.08	18.80	0.11	10.43	Average
5		0.207	43.96	-19.36	63.32	33.50	0.10	10.36	QP
6		0.207	27.66	-25.66	53.32	17.20	0.10	10.36	Average
7		0.249	41.63	-20.15	61.78	31.20	0.10	10.33	QP
8		0.249	25.06	-26.72	51.78	14.63	0.10	10.33	Average
9		0.318	42.00	-17.75	59.75	31.60	0.10	10.30	QP
10		0.318	21.00	-28.75	49.75	10.60	0.10	10.30	Average
11		0.538	37.25	-18.75	56.00	26.90	0.11	10.24	QP
12		0.538	23.25	-22.75	46.00	12.90	0.11	10.24	Average

Note:

1. Level(dBμV) = Read Level(dBμV) + LISN Factor(dB) + Cable Loss(dB)
2. Over Limit(dB) = Level(dBμV) – Limit Line(dBμV)

Appendix C. Radiated Spurious Emission

Test Engineer :	Carry xu	Temperature :	22~23°C
		Relative Humidity :	41~42%

2.4GHz 2400~2483.5MHz

WIFI 802.11b (Band Edge @ 3m)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
1		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b CH 01 2412MHz		2389.3	56.41	-17.59	74	53.29	32.88	7.1	36.86	100	242	P	H
		2389.82	44.82	-9.18	54	41.7	32.88	7.1	36.86	100	242	A	H
	*	2414	113.13	-	-	109.95	32.9	7.13	36.85	100	242	P	H
	*	2414	110.03	-	-	106.85	32.9	7.13	36.85	100	242	A	H
		2389.04	56.05	-17.95	74	52.93	32.88	7.1	36.86	353	284	P	V
		2389.82	43.93	-10.07	54	40.81	32.88	7.1	36.86	353	284	A	V
	*	2412	110.84	-	-	107.66	32.9	7.13	36.85	353	284	P	V
	*	2414	107.8	-	-	104.62	32.9	7.13	36.85	353	284	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

WIFI 802.11b (Harmonic @ 3m)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
1		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b CH 01 2412MHz		4830	52.53	-21.47	74	73.46	34.2	10.25	65.38	105	185	P	H
		4830	50.83	-3.17	54	71.76	34.2	10.25	65.38	105	185	A	H
		4830	47.31	-26.69	74	68.24	34.2	10.25	65.38	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

WIFI 802.11g (Band Edge @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11g CH 11 2462MHz		2483.8	61.9	-12.1	74	58.49	32.98	7.25	36.82	128	246	P	H
		2483.5	51.92	-2.08	54	48.51	32.98	7.25	36.82	128	246	A	H
	*	2462	110.6	-	-	107.25	32.96	7.22	36.83	128	246	P	H
	*	2462	102.78	-	-	99.43	32.96	7.22	36.83	128	246	A	H
		2483.86	59.35	-14.65	74	55.94	32.98	7.25	36.82	334	288	P	V
		2483.5	49.09	-4.91	54	45.68	32.98	7.25	36.82	334	288	A	V
	*	2462	108.4	-	-	105.05	32.96	7.22	36.83	334	288	P	V
	*	2460	100.38	-	-	97.03	32.96	7.22	36.83	334	288	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

WIFI 802.11g (Harmonic @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11g CH 11 2462MHz		4920	44.27	-29.73	74	65.12	34.26	10.34	65.45	300	0	P	H
		7380	42.98	-31.02	74	60.48	35.88	12.73	66.11	300	0	P	H
		4920	43.28	-30.72	74	64.13	34.26	10.34	65.45	100	0	P	V
		7380	43.63	-30.37	74	61.13	35.88	12.73	66.11	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

WIFI 802.11n HT40 (Band Edge @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT40 CH 06 2437MHz		2389.95	60.3	-13.7	74	57.18	32.88	7.1	36.86	103	245	P	H
		2389.95	48.88	-5.12	54	45.76	32.88	7.1	36.86	103	245	A	H
	*	2426	106.54	-	-	103.31	32.92	7.16	36.85	103	245	P	H
	*	2426	98.26	-	-	95.03	32.92	7.16	36.85	103	245	A	H
		2486.2	59.57	-14.43	74	56.16	32.98	7.25	36.82	103	245	P	H
		2483.5	49.94	-4.06	54	46.53	32.98	7.25	36.82	103	245	A	H
		2389.69	56.03	-17.97	74	52.91	32.88	7.1	36.86	381	293	P	V
		2389.95	45.98	-8.02	54	42.86	32.88	7.1	36.86	381	293	A	V
	*	2454	104.53	-	-	101.18	32.96	7.22	36.83	381	293	P	V
	*	2454	96.23	-	-	92.88	32.96	7.22	36.83	381	293	A	V
		2484.58	56.64	-17.36	74	53.23	32.98	7.25	36.82	381	293	P	V
		2483.62	46.8	-7.2	54	43.39	32.98	7.25	36.82	381	293	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

WIFI 802.11n HT40 (Harmonic @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT40 CH 06 2437MHz		4875	41.53	-32.47	74	62.43	34.23	10.29	65.42	300	0	P	H
		7305	43.07	-30.93	74	60.4	35.86	12.72	65.91	300	0	P	H
		4875	40.22	-33.78	74	61.12	34.23	10.29	65.42	100	0	P	V
		7305	43.14	-30.86	74	60.47	35.86	12.72	65.91	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Emission below 1GHz

2.4GHz WIFI 802.11g (LF)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
2.4GHz 802.11g LF		77.53	20.47	-19.53	40	38.94	13.05	1.4	32.92	-	-	P	H
		167.74	30.51	-12.99	43.5	45.16	16.22	2.06	32.93	-	-	P	H
		175.5	32.19	-11.31	43.5	47.15	15.88	2.11	32.95	-	-	P	H
		263.77	30.32	-15.68	46	42.03	18.69	2.61	33.01	-	-	P	H
		312.27	27.92	-18.08	46	38.61	19.45	2.84	32.98	-	-	P	H
		531.49	33.25	-12.75	46	38.3	24.62	3.68	33.35	-	-	P	H
		30.97	20.59	-19.41	40	28.19	24.32	0.89	32.81	-	-	P	V
		165.8	27.2	-16.3	43.5	41.77	16.31	2.05	32.93	-	-	P	V
		180.35	28.61	-14.89	43.5	43.76	15.66	2.14	32.95	-	-	P	V
		359.8	27.28	-18.72	46	36.7	20.47	3.04	32.93	-	-	P	V
		530.52	29.72	-16.28	46	34.81	24.59	3.68	33.36	-	-	P	V
		672.14	29.35	-16.65	46	32.27	26.29	4.13	33.34	-	-	P	V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												

Note symbol

*	**Fundamental Frequency** which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.
!	Test result is **over limit** line.
P/A	**P**eak or **A**verage
H/V	**H**orizontal or **V**ertical

A calculation example for radiated spurious emission is shown as below:

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b CH 01 2412MHz		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H

1. Path Loss(dB) = Cable loss(dB) + Filter loss(dB) + Attenuator loss(dB)
2. Level(dBμV/m) =

Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

3. Over Limit(dB) = Level(dBμV/m) – Limit Line(dBμV/m)

For Peak Limit @ 2390MHz:

1. Level(dBμV/m)

= Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

= 32.22(dB/m) + 4.58(dB) + 54.51(dBμV) – 35.86 (dB)

= 55.45 (dBμV/m)

2. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 55.45(dBμV/m) – 74(dBμV/m)

= -18.55(dB)

For Average Limit @ 2390MHz:

1. Level(dBμV/m)

= Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

= 32.22(dB/m) + 4.58(dB) + 42.6(dBμV) – 35.86 (dB)

= 43.54 (dBμV/m)

2. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 43.54(dBμV/m) – 54(dBμV/m)

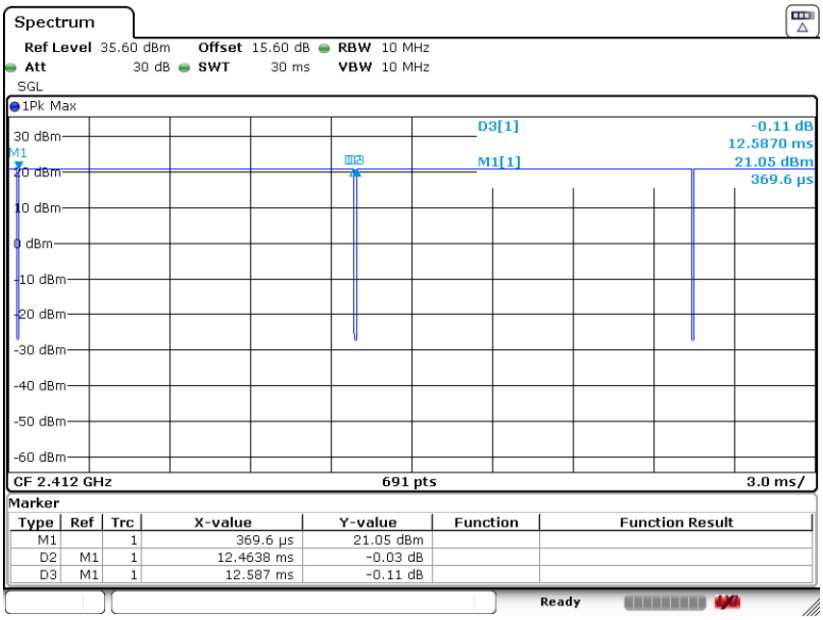
= -10.46(dB)

Both peak and average measured complies with the limit line, so test result is “PASS”.

Appendix D. Duty Cycle Plots

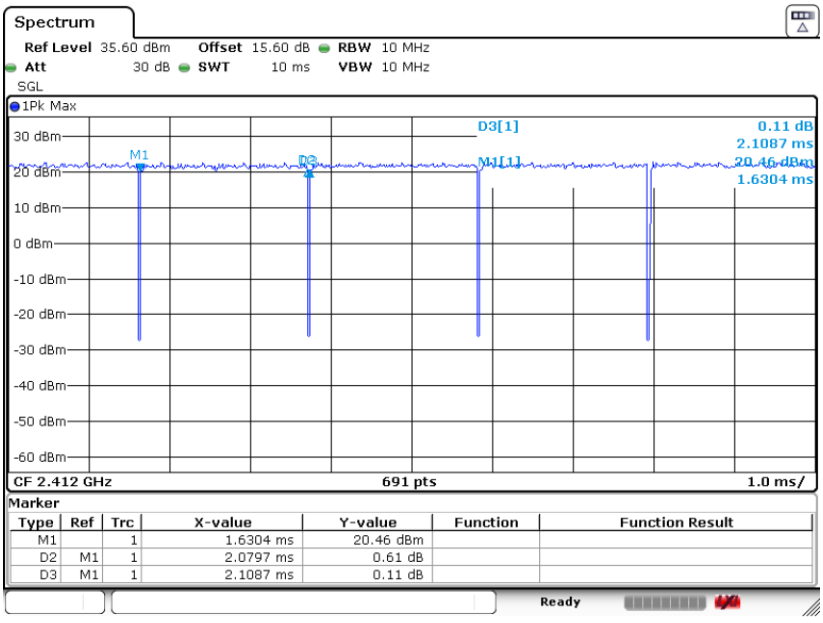
Band	Duty Cycle(%)	T(ms)	1/T(kHz)	VBW Setting
802.11b	99.02	-	-	10Hz
802.11g	98.62	-	-	10Hz
802.11n HT20	97.80	1.935	0.517	0.56KHz
802.11n HT40	94.93	0.949	1.053	1.1KHz

802.11b



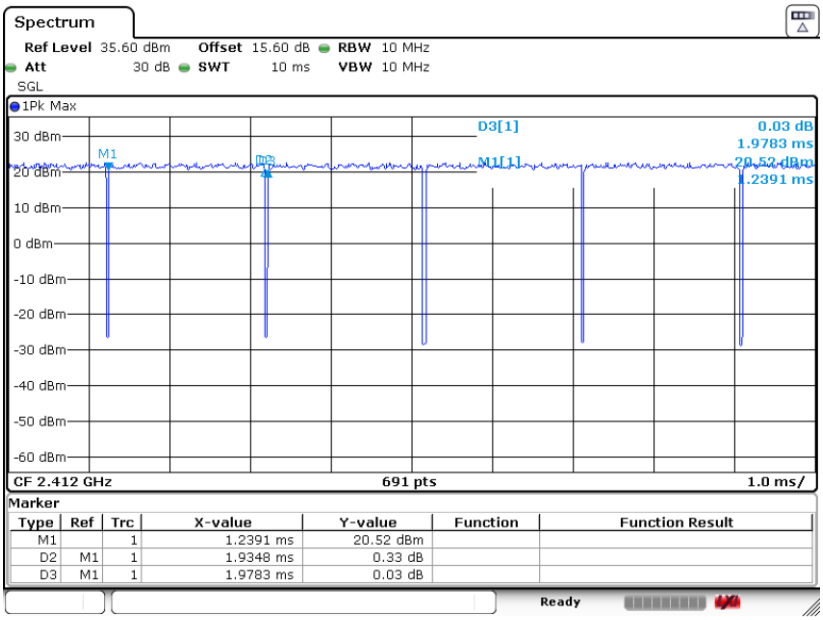
Date: 8.MAR.2022 09:28:59

802.11g



Date: 8.MAR.2022 09:30:00

802.11n HT20



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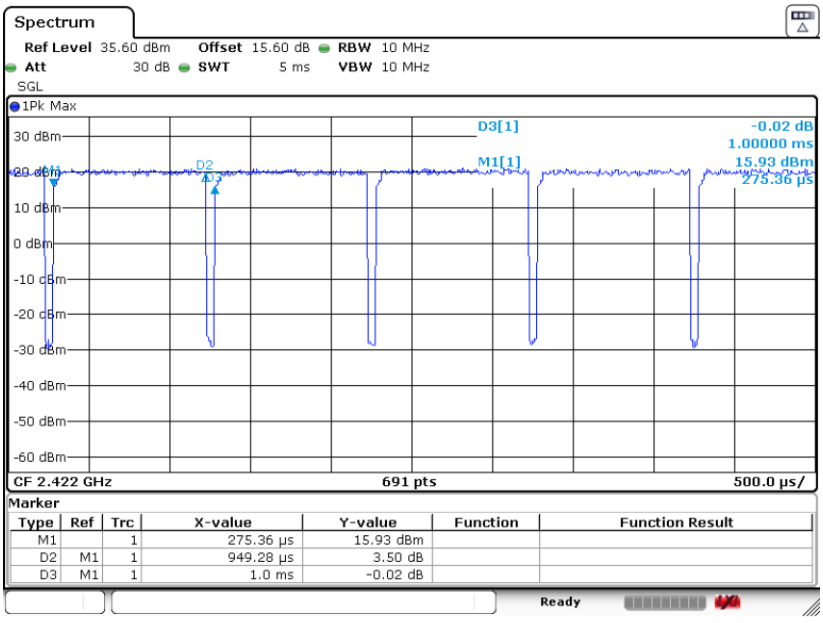
802.11n HT40



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