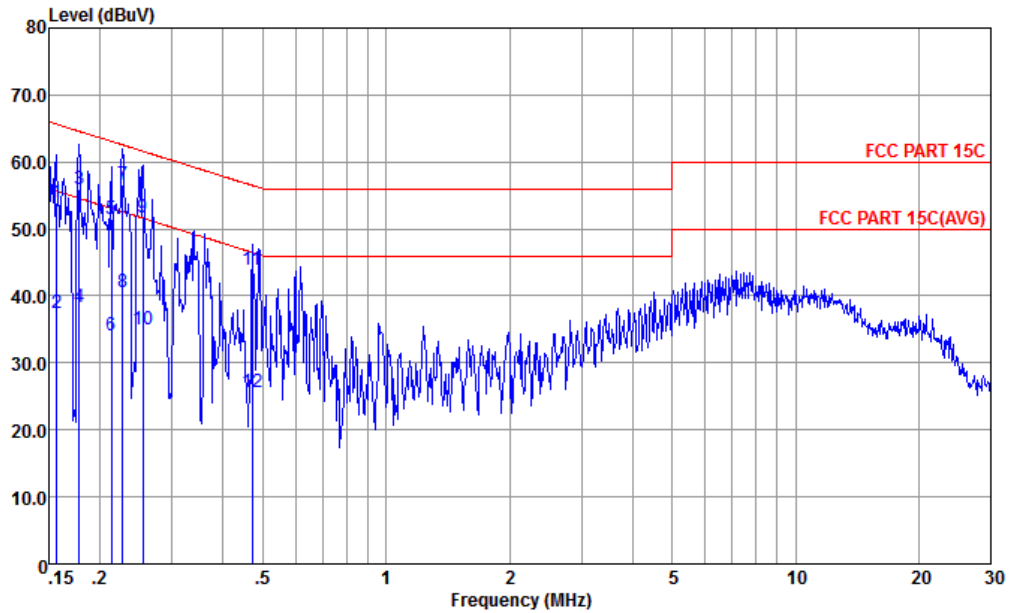




## Appendix B. AC Conducted Emission Test Results

Test Engineer :	Amos Zhang	Temperature :	25.3~26.2°C
		Relative Humidity :	38~40%
Test Voltage :	120Vac / 60Hz	Phase :	Line

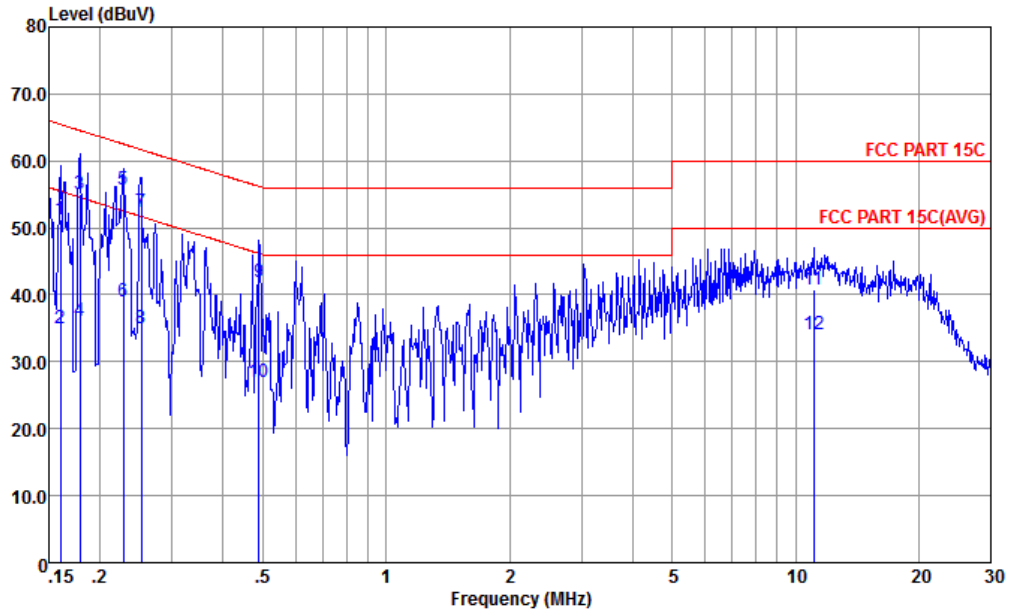


Site : CO01-KS  
Condition : FCC PART 15C LISN-060105-L LINE

	Freq	Level	Over	Limit	Read	LISN	Cable	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss	
			dB	dBuV	dBuV	dB	dB	
1	0.166	53.99	-11.66	65.65	43.51	0.02	10.46	QP
2	0.166	37.39	-18.26	55.65	26.91	0.02	10.46	Average
3	0.178	55.94	-8.65	64.59	45.50	0.03	10.41	QP
4	0.178	38.34	-16.25	54.59	27.90	0.03	10.41	Average
5	0.213	51.50	-11.60	63.10	41.10	0.04	10.36	QP
6	0.213	34.00	-19.10	53.10	23.60	0.04	10.36	Average
7 *	0.227	56.50	-6.07	62.57	46.10	0.05	10.35	QP
8	0.227	40.60	-11.97	52.57	30.20	0.05	10.35	Average
9	0.255	51.59	-10.01	61.60	41.20	0.06	10.33	QP
10	0.255	34.99	-16.61	51.60	24.60	0.06	10.33	Average
11	0.471	43.84	-12.65	56.49	33.50	0.10	10.24	QP
12	0.471	25.54	-20.95	46.49	15.20	0.10	10.24	Average



Test Engineer :	Amos Zhang	Temperature :	25.3~26.2°C
		Relative Humidity :	38~40%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral



Site : CO01-KS  
 Condition : FCC PART 15C LISN-060105-N NEUTRAL

	Freq	Level	Over	Limit	Read	LISN	Cable	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss	
			dB	dBuV	dBuV	dB	dB	
1	0.160	51.16	-14.31	65.47	40.60	0.11	10.45	QP
2	0.160	35.06	-20.41	55.47	24.50	0.11	10.45	Average
3	0.179	55.11	-9.44	64.55	44.60	0.10	10.41	QP
4	0.179	36.11	-18.44	54.55	25.60	0.10	10.41	Average
5 *	0.228	55.65	-6.87	62.52	45.20	0.10	10.35	QP
6	0.228	39.05	-13.47	52.52	28.60	0.10	10.35	Average
7	0.252	52.33	-9.36	61.69	41.90	0.10	10.33	QP
8	0.252	35.03	-16.66	51.69	24.60	0.10	10.33	Average
9	0.489	41.85	-14.34	56.19	31.50	0.11	10.24	QP
10	0.489	26.95	-19.24	46.19	16.60	0.11	10.24	Average
11	11.080	40.80	-19.20	60.00	30.20	0.25	10.35	QP
12	11.080	34.20	-15.80	50.00	23.60	0.25	10.35	Average

Note:

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



## Appendix C. Radiated Spurious Emission

### 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+2		( MHz )	( dBμV/m )	( dB )	( dBμV/m )	( dBμV )	( dB/m )	( dB )	( dB )	( cm )	( deg )	( P/A )	( H/V )
802.11b CH 11 2462MHz		2483.5	53.98	-20.02	74	50.92	32.63	7.25	36.82	136	84	P	H
		2483.5	49.53	-4.47	54	46.47	32.63	7.25	36.82	136	84	A	H
	*	2462	108.04	-	-	104.91	32.74	7.22	36.83	136	84	P	H
	*	2460	104.69	-	-	101.56	32.74	7.22	36.83	136	84	A	H
		2483.5	54.59	-19.41	74	51.53	32.63	7.25	36.82	387	63	P	V
		2483.5	49.19	-4.81	54	46.13	32.63	7.25	36.82	387	63	A	V
	*	2462	105.36	-	-	102.23	32.74	7.22	36.83	387	63	P	V
	*	2460	102.08	-	-	98.95	32.74	7.22	36.83	387	63	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+2		( MHz )	( dBμV/m )	( dB )	( dBμV/m )	( dBμV )	( dB/m )	( dB )	( dB )	( cm )	( deg )	( P/A )	( H/V )
802.11b CH 11 2462MHz		4920	43.75	-30.25	74	64.09	34.77	10.34	65.45	300	0	P	H
		7380	45.1	-28.9	74	61.83	36.65	12.73	66.11	300	0	P	H
		4920	46.44	-27.56	74	66.78	34.77	10.34	65.45	100	0	P	V
		7380	45.07	-28.93	74	61.8	36.65	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 802.11 ax HE20 Full (Band Edge @ 3m)

WIFI Ant. 1+2	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 )
8802.11ax HE20 Full CH 11 2462MHz	*	2464	110.1	-	-	108.92	30.79	7.22	36.83	125	86	P	H
	*	2464	99.1	-	-	97.92	30.79	7.22	36.83	125	86	A	H
		2483.74	59.55	-14.45	74	58.26	30.86	7.25	36.82	125	86	P	H
		2483.68	49.32	-4.68	54	48.03	30.86	7.25	36.82	125	86	A	H
	*	2464	107.47	-	-	106.29	30.79	7.22	36.83	386	63	P	V
	*	2454	96.68	-	-	95.5	30.79	7.22	36.83	386	63	A	V
		2483.68	64.67	-9.33	74	63.38	30.86	7.25	36.82	386	63	P	V
	2483.56	50.3	-3.7	54	49.01	30.86	7.25	36.82	386	63	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 802.11 ax HE20 Full (Harmonic @ 3m)

WIFI Ant. 1+2	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 )
802.11ax HE20 Full CH 11 2462MHz		4920	42.17	-31.83	74	62.51	34.77	10.34	65.45	300	0	P	H
		7380	42.73	-31.27	74	59.76	36.35	12.73	66.11	300	0	P	H
		4920	41.43	-32.57	74	61.77	34.77	10.34	65.45	100	0	P	V
		7380	43.76	-30.24	74	60.79	36.35	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 802.11 ax HE40 Full (Band Edge @ 3m)

WIFI Ant. 1+2	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 )
802.11ax HE40 Full CH 09 2452MHz		2356.15	48.5	-25.5	74	47.88	30.46	7.04	36.88	137	71	P	H
		2355.37	38.02	-15.98	54	37.4	30.46	7.04	36.88	137	71	A	H
	*	2454	103.13	-	-	101.95	30.79	7.22	36.83	137	71	P	H
	*	2454	94.91	-	-	93.73	30.79	7.22	36.83	137	71	A	H
		2484.46	61.76	-12.24	74	60.47	30.86	7.25	36.82	137	71	P	H
		2483.5	50.95	-3.05	54	49.66	30.86	7.25	36.82	137	71	A	H
		2341.2	48.96	-25.04	74	48.36	30.45	7.04	36.89	391	21	P	V
		2374.87	38.06	-15.94	54	37.38	30.48	7.07	36.87	391	21	A	V
	*	2454	103.74	-	-	102.56	30.79	7.22	36.83	391	21	P	V
	*	2454	94.82	-	-	93.64	30.79	7.22	36.83	391	21	A	V
		2484.16	60.66	-13.34	74	59.37	30.86	7.25	36.82	391	21	P	V
		2483.68	49.65	-4.35	54	48.36	30.86	7.25	36.82	391	21	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 802.11 ax HE40 Full (Harmonic @ 3m)

WIFI Ant. 1+2	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 )
802.11ax HE40 Full CH 09 2452MHz		4905	40.79	-33.21	74	61.13	34.76	10.34	65.44	300	0	P	H
		7356	43.24	-30.76	74	60.23	36.34	12.73	66.06	300	0	P	H
		4905	40.58	-33.42	74	60.92	34.76	10.34	65.44	100	0	P	V
		7356	44.79	-29.21	74	61.78	36.34	12.73	66.06	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 802.11ax HE40 (LF)

Table with 14 columns: WIFI, Note, Frequency, Level, Over, Limit, Read, Antenna, Path, Preamp, Ant, Table, Peak, Pol. It contains 11 rows of test data for 2.4GHz WIFI 802.11ax HE40 LF and a Remark section at the bottom.



<Simultaneous transmission>

WIFI 802.11 ax HE40 Full + LTE Band 13 Link (Band Edge @ 3m)

WIFI Ant. 1+2	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 )
WIFI 802.11 ax HE40 Full + LTE Band 13 Link		2380.2	48.1	-25.9	74	47.39	30.48	7.1	36.87	332	310	P	H
		2368.5	37.93	-16.07	54	37.28	30.46	7.07	36.88	332	310	A	H
	*	2484.82	63.38	-10.62	74	62.09	30.86	7.25	36.82	332	310	P	H
	*	2484.52	50.68	-3.32	54	49.39	30.86	7.25	36.82	332	310	A	H
		2456	103.69	-	-	102.51	30.79	7.22	36.83	332	310	P	H
		2456	93.62	-	-	92.44	30.79	7.22	36.83	332	310	A	H
		2378.77	48.12	-25.88	74	47.41	30.48	7.1	36.87	392	2	P	V
		2374.87	38.06	-15.94	54	37.38	30.48	7.07	36.87	392	2	A	V
	*	2484.7	55.33	-18.67	74	54.04	30.86	7.25	36.82	392	2	P	V
	*	2484.28	43.53	-10.47	54	42.24	30.86	7.25	36.82	392	2	A	V
		2452	99.76	-	-	98.7	30.71	7.19	36.84	392	2	P	V
		2454	91.15	-	-	89.97	30.79	7.22	36.83	392	2	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

WIFI 802.11 ax HE40 Full + LTE Band 13 Link (Harmonic @ 3m)

WIFI Ant. 1+2	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 )
WIFI 802.11 ax HE40 Full + LTE Band 13 Link		4905	40.62	-33.38	74	60.98	34.74	10.34	65.44	300	0	P	H
		7350	43.69	-30.31	74	60.37	36.66	12.72	66.06	300	0	P	H
		4905	40.8	-33.2	74	61.16	34.74	10.34	65.44	100	0	P	V
		7350	44.06	-29.94	74	60.74	36.66	12.72	66.06	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Note symbol

*	<b>Fundamental Frequency</b> which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.
!	Test result is <b>over limit</b> line.
P/A	<b>Peak</b> or <b>Average</b>
H/V	<b>Horizontal</b> or <b>Vertical</b>



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.	
3+5		( MHz )	( dBμV/m )	( dB )	( dBμV/m )	( dBμV )	( dB/m )	( dB )	( dB )	( cm )	( deg )	( P/A )	( H/V )
802.11b		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
CH 01													
2412MHz		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”.

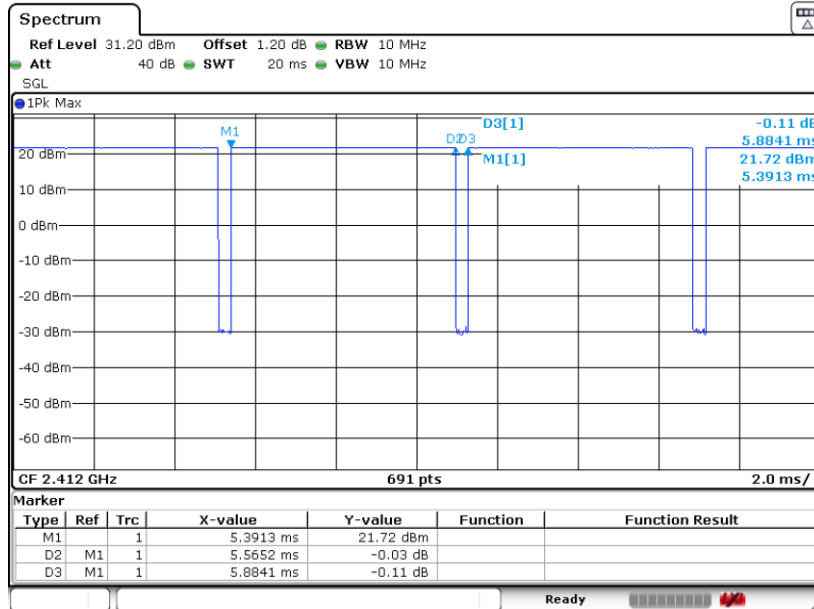


## Appendix D. Duty Cycle Plots

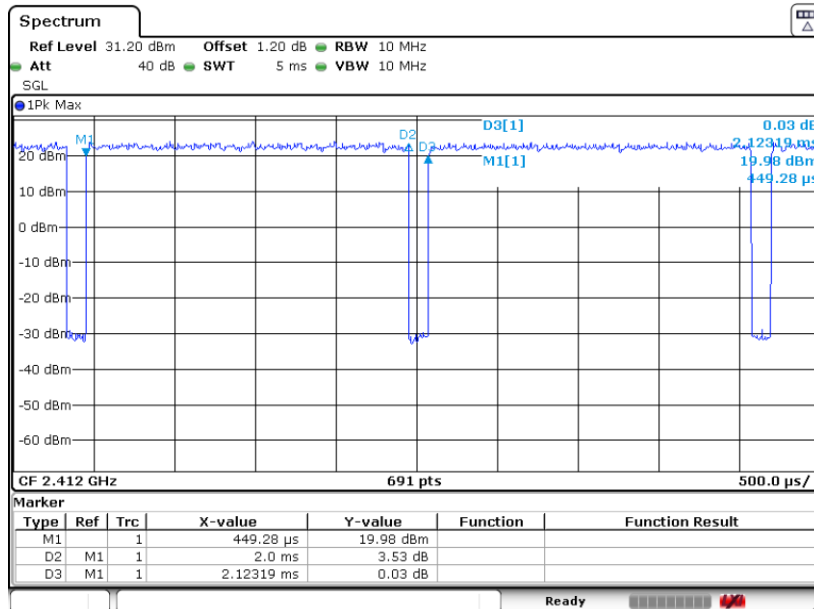
Band	Duty Cycle(%)	T(ms)	1/T(kHz)	VBW Setting
802.11b	94.58	5.565	0.180	0.18KHz
802.11g	94.20	2	0.5	0.51KHz
802.11ax HE20	93.78	1.420	0.704	0.75KHz
802.11ax HE40	93.05	0.738	1.356	1.5KHz



802.11b

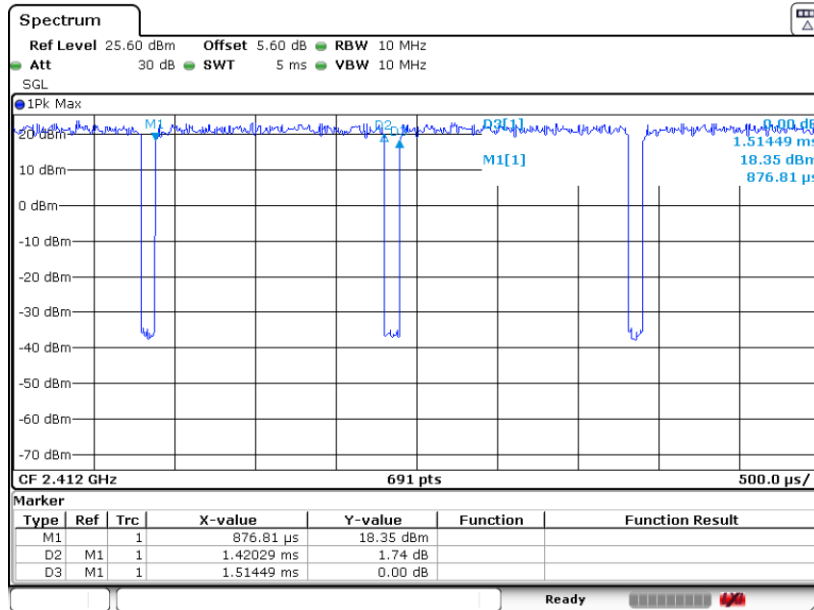


802.11g





802.11ax HE20



802.11ax HE40

