

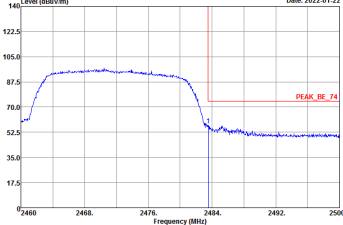
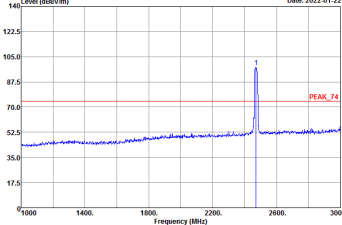
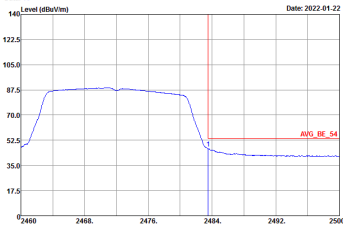
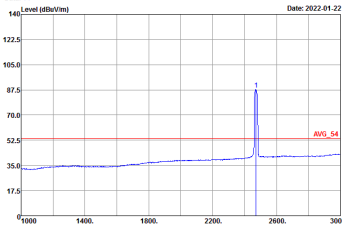


WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH12 2467MHz	
1	Vertical	Fundamental
Peak	Date: 15 Level (dBuV/m) Frequency (MHz) Site Condition : 03CH02-S2 : PEAK_BE_74 3m HF_ANT_3117_0107 VERTICAL : RBW 1000.000kHz VBW 3000.000kHz Project : 102129-01 Mode : Mode 23 SN : #7 G86104032027002V Plane : X with Accessory CE-01 Config : MCS0 powersetting 12.5	Date: 13 Level (dBuV/m) Frequency (MHz) Site Condition : 03CH02-S2 : PEAK_74 3m HF_ANT_3117_0107 VERTICAL : RBW 1000.000kHz VBW 3000.000kHz Project : 102129-01 Mode : Mode 23 SN : #7 G86104032027002V Plane : X with Accessory CE-01 Config : MCS0 powersetting 12.5
Avg.	Date: 15 Level (dBuV/m) Frequency (MHz) Site Condition : 03CH02-S2 : AVG_BE_54 3m HF_ANT_3117_0107 VERTICAL : RBW 1000.000kHz VBW 1.000kHz Project : 102129-01 Mode : Mode 23 SN : #7 G86104032027002V Plane : X with Accessory CE-01 Config : MCS0 powersetting 12.5	Date: 14 Level (dBuV/m) Frequency (MHz) Site Condition : 03CH02-S2 : AVG_54 3m HF_ANT_3117_0107 VERTICAL : RBW 1000.000kHz VBW 1.000kHz Project : 102129-01 Mode : Mode 23 SN : #7 G86104032027002V Plane : X with Accessory CE-01 Config : MCS0 powersetting 12.5



WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH13 2472MHz	
1	Horizontal	Fundamental
Peak	Date: 11 Level (dBuV/m) Frequency (MHz) Site : 03CH02-SZ Condition : PEAK_BE_74 3m HF_ANT_3117_0107 HORIZONTAL Project : RBW 1000.000kHz VSW 3000.000kHz Mode : 102129-01 Mode : Mode 24 SN : #7 G8B104032027002V Plane : X with Accessory Config : CE-01 MCS0 powersetting 8	Date: 9 Level (dBuV/m) Frequency (MHz) Site : 03CH02-SZ Condition : PEAK_74 3m HF_ANT_3117_0107 HORIZONTAL Project : RBW 1000.000kHz VSW 3000.000kHz Mode : 102129-01 Mode : Mode 24 SN : #7 G8B104032027002V Plane : X with Accessory Config : CE-01 MCS0 powersetting 8
Avg.	Date: 12 Level (dBuV/m) Frequency (MHz) Site : 03CH02-SZ Condition : AVG_BE_54 3m HF_ANT_3117_0107 HORIZONTAL Project : RBW 1000.000kHz VSW 1.000kHz Mode : 102129-01 Mode : Mode 24 SN : #7 G8B104032027002V Plane : X with Accessory Config : CE-01 MCS0 powersetting 8	Date: 10 Level (dBuV/m) Frequency (MHz) Site : 03CH02-SZ Condition : AVG_54 3m HF_ANT_3117_0107 HORIZONTAL Project : RBW 1000.000kHz VSW 1.000kHz Mode : 102129-01 Mode : Mode 24 SN : #7 G8B104032027002V Plane : X with Accessory Config : CE-01 MCS0 powersetting 8



WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH13 2472MHz	
1	Vertical	Fundamental
Peak	Date: 15 Level (dBuV/m)  Date: 2022-01-22 Site Condition : 03CH02-S2 : PEAK_BE_74 3m HF_ANT_3117_0107 VERTICAL : RBW 1000.000kHz VBW 3000.000kHz Project : 102129-01 Mode : Mode 24 SN : #7.G0810402027002V Plane : X with Accessory Config : CE-01 : MCS0 powersetting 8	Date: 13 Level (dBuV/m)  Date: 2022-01-22 Site Condition : 03CH02-S2 : PEAK_74 3m HF_ANT_3117_0107 VERTICAL : RBW 1000.000kHz VBW 3000.000kHz Project : 102129-01 Mode : Mode 24 SN : #7.G0810402027002V Plane : X with Accessory Config : CE-01 : MCS0 powersetting 8
Avg.	Date: 15 Level (dBuV/m)  Date: 2022-01-22 Site Condition : 03CH02-S2 : AVG_BE_54 3m HF_ANT_3117_0107 VERTICAL : RBW 1000.000kHz VBW 1.000kHz Project : 102129-01 Mode : Mode 24 SN : #7.G0810402027002V Plane : X with Accessory Config : CE-01 : MCS0 powersetting 8	Date: 14 Level (dBuV/m)  Date: 2022-01-22 Site Condition : 03CH02-S2 : AVG_54 3m HF_ANT_3117_0107 VERTICAL : RBW 1000.000kHz VBW 1.000kHz Project : 102129-01 Mode : Mode 24 SN : #7.G0810402027002V Plane : X with Accessory Config : CE-01 : MCS0 powersetting 8



2.4GHz 2400~2483.5MHz

2.4GHz 2400~2483.5MHz

WIFI 802.11g (Harmonic @ 3m)

WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH01 2412MHz	
1	Horizontal	Vertical
Peak Avg.	Site : 03CH02-S2 Condition : PEAK_74 3m HF_ANT_3117_0107 HORIZONTAL Project : 102129-01 Mode : Mode 15 SN : #7 G0010H032027002V Plane : X with Accessory Config : CE-01 : 6M powersetting 15	Site : 03CH02-S2 Condition : PEAK_74 3m HF_ANT_3117_0107 VERTICAL Project : 102129-01 Mode : Mode 15 SN : #7 G0010H032027002V Plane : X with Accessory Config : CE-01 : 6M powersetting 15



WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH06 2437MHz	
1	Horizontal	Vertical
Peak Avg.	Date: 19 Site : 03CH02-SZ Condition : PEAK_74 3m HF_ANT_3117_0107 HORIZONTAL Project : 102129-01 Mode : Mode 16 SN : #7.GB510H020027002V Plane : X with Accessory Config : CE-01 90M powersetting 15	Date: 20 Site : 03CH02-SZ Condition : PEAK_74 3m HF_ANT_3117_0107 VERTICAL Project : 102129-01 Mode : Mode 16 SN : #7.GB510H020027002V Plane : X with Accessory Config : CE-01 90M powersetting 15



WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH11 2462MHz	
1	Horizontal	Vertical
Peak Avg.	Date: 15 Site : 03CH02-SZ Condition : PEAK_74 3m HF_ANT_3117_0107 HORIZONTAL Project : 102129-01 Mode : Mode 17 SN : #7 G8510H02027002V Plane : X with Accessory Config : CE-01 90M powersetting 15	Date: 16 Site : 03CH02-SZ Condition : PEAK_74 3m HF_ANT_3117_0107 VERTICAL Project : 102129-01 Mode : Mode 17 SN : #7 G8510H02027002V Plane : X with Accessory Config : CE-01 90M powersetting 15



WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH12 2467MHz	
1	Horizontal	Vertical
Peak Avg.	Date: 23 Site : 03CH02-SZ Condition : PEAK_74 3m HF_ANT_3117_0107 HORIZONTAL Project : 102129-01 Mode : Mode 18 SN : #F 08B10H02007002V Plane : X with Accessory Config : CE-01 6M powersetting 13.5	Date: 24 Site : 03CH02-SZ Condition : PEAK_74 3m HF_ANT_3117_0107 VERTICAL Project : 102129-01 Mode : Mode 18 SN : #F 08B10H02007002V Plane : X with Accessory Config : CE-01 6M powersetting 13.5

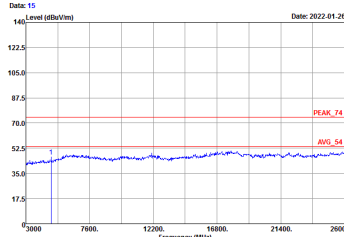
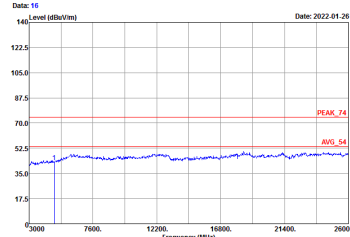


WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH13 2472MHz	
1	Horizontal	Vertical
Peak Avg.	Date: 23 Site : 03CH02-SZ Condition : PEAK_74 3m HF_ANT_3117_0107 HORIZONTAL Project : 102129-01 Mode : Mode 19 SN : #F 08B104020007002V Plane : X with Accessory Config : CE-01 6M powersetting 10	Date: 24 Site : 03CH02-SZ Condition : PEAK_74 3m HF_ANT_3117_0107 VERTICAL Project : 102129-01 Mode : Mode 19 SN : #F 08B104020007002V Plane : X with Accessory Config : CE-01 6M powersetting 10



2.4GHz 2400~2483.5MHz

WIFI 802.11n HT20 (Harmonic @ 3m)

WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT20 CH01 2412MHz	
1	Horizontal	Vertical
Peak Avg.	Site : 03CH02-S2 Condition : PEAK_74 3m HF_ANT_3117_0107 HORIZONTAL Project : 102129-01 Mode : Mode 20 SN : #7 G00194032027002V Plane : X with Accessory Config : CE-01 MCS00 powersetting 15 	Site : 03CH02-S2 Condition : PEAK_74 3m HF_ANT_3117_0107 VERTICAL Project : 102129-01 Mode : Mode 20 SN : #7 G00194032027002V Plane : X with Accessory Config : CE-01 MCS00 powersetting 15 



WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT20 CH06 2437MHz	
1	Horizontal	Vertical
Peak Avg.	Date: 19 Level (dBuV/m) Frequency (MHz) Site : 03CH02-SZ Condition : PEAK_74 3m HF_ANT_3117_0107 HORIZONTAL Project : 102129-01 Mode : Mode 21 SN : #1 G86119610007062V Plane : X with Accessory Config : CE-01 MCS0 power setting 15	Date: 20 Level (dBuV/m) Frequency (MHz) Site : 03CH02-SZ Condition : PEAK_74 3m HF_ANT_3117_0107 VERTICAL Project : 102129-01 Mode : Mode 21 SN : #1 G86119610007062V Plane : X with Accessory Config : CE-01 MCS0 power setting 15



WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT20 CH11 2462MHz	
1	Horizontal	Vertical
Peak Avg.	Date: 15 Level (dBuV/m) Frequency (MHz) Site : 03CH02-SZ Condition : PEAK_74 3m HF_ANT_3117_0107 HORIZONTAL Project : 102129-01 Mode : Mode 22 SN : #F 08B10H02007002V Plane : X with Accessory Config : CE-01 MCS0 power setting 15	Date: 16 Level (dBuV/m) Frequency (MHz) Site : 03CH02-SZ Condition : PEAK_74 3m HF_ANT_3117_0107 VERTICAL Project : 102129-01 Mode : Mode 22 SN : #F 08B10H02007002V Plane : X with Accessory Config : CE-01 MCS0 power setting 15

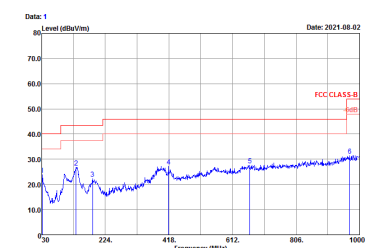
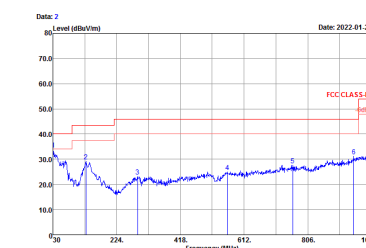


WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT20 CH12 2462MHz	
1	Horizontal	Vertical
Peak Avg.	Date: 23 Date: 2022-01-26 Site : 03CH02-SZ Condition : PEAK_74 3m HF_ANT_3117_0107 HORIZONTAL Project : 102129-01 Mode : Mode 23 SN : #F 08B19H02007002V Plane : X with Accessory Config : CE-01 MCS0 power setting 12.5	Date: 24 Date: 2022-01-26 Site : 03CH02-SZ Condition : PEAK_74 3m HF_ANT_3117_0107 VERTICAL Project : 102129-01 Mode : Mode 23 SN : #F 08B19H02007002V Plane : X with Accessory Config : CE-01 MCS0 power setting 12.5



WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT20 CH13 2472MHz	
1	Horizontal	Vertical
Peak Avg.	Date: 23 Level (dBuV/m) Frequency (MHz) Site : 03CH02-SZ Condition : PEAK_74 3m HF_ANT_3117_0107 HORIZONTAL Project : 102129-01 Mode : Mode 24 SN : #F 08B10H02007002V Plane : X with Accessory Config : CE-01 MCS0 power setting 8	Date: 24 Level (dBuV/m) Frequency (MHz) Site : 03CH02-SZ Condition : PEAK_74 3m HF_ANT_3117_0107 VERTICAL Project : 102129-01 Mode : Mode 24 SN : #F 08B10H02007002V Plane : X with Accessory Config : CE-01 MCS0 power setting 8

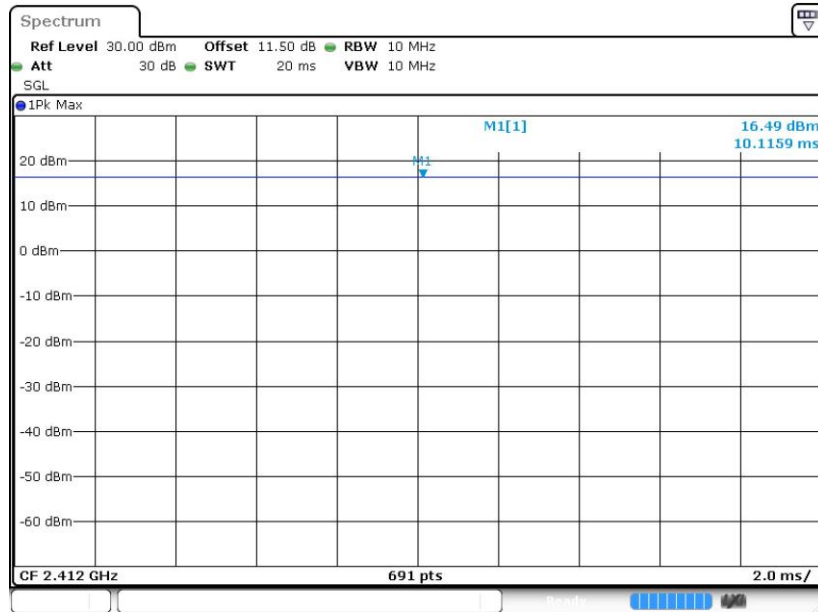
Emission below 1GHz
2.4GHz WIFI 802.11g (LF)

WIFI	2.4GHz 2400~2483.5MHz	
ANT	802.11g LF	
1	Horizontal	Vertical
QP / Peak	 Date: 1 Level (dBuV/m) Date: 2021-08-02 Site: 03CH02-SZ Condition: FCC CLASS-B 3m LF35407_CBL6112D_6 Horizontal Pretest: 102129-01 Mode: 19 SN: #7-008104032027002V Plane: X with Accessory Config: CE-01 6M powersetting 10	 Date: 2 Level (dBuV/m) Date: 2022-01-24 Site: 03CH02-SZ Condition: FCC CLASS-B 3m LF35407_CBL6112D_6 Vertical Pretest: 102129-01 Mode: 19 SN: #7-008104032027002V Plane: X with Accessory Config: CE-01 6M powersetting 10

Appendix E. Duty Cycle Plots

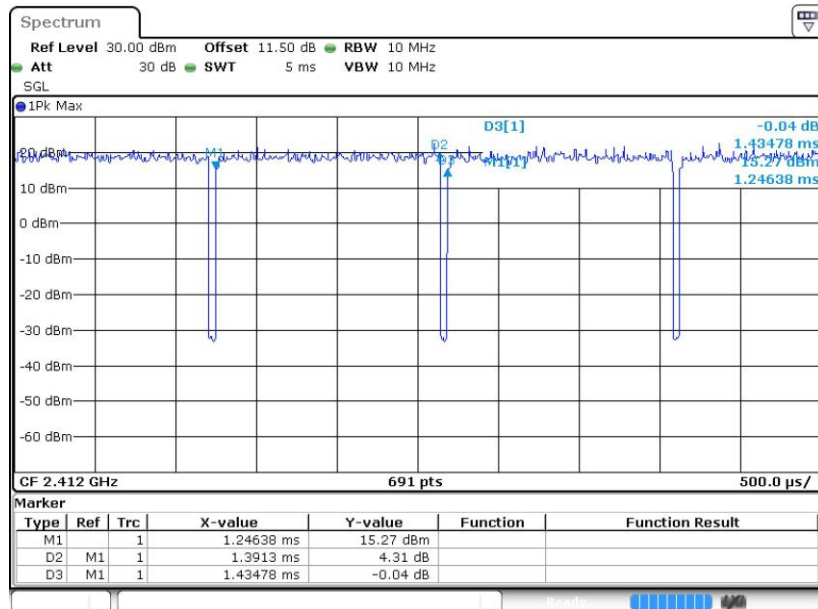
Band	Duty Cycle(%)	T(ms)	1/T(kHz)	VBW Setting
802.11b	100	-	-	10Hz
802.11g	96.97	1.391	0.719	1KHz
802.11n HT20	96.77	1.304	0.767	1KHz

802.11b



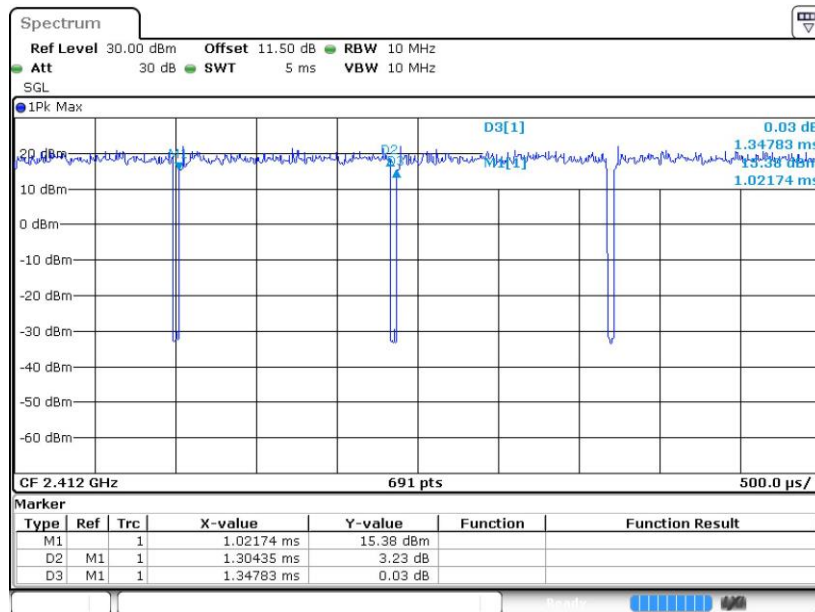
Date: 21.JAN.2022 19:08:30

802.11g



Date: 21.JAN.2022 20:01:17

802.11n HT20



Date: 21 JAN 2022 20:04:21



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

BT	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
BT CH 00 2402MHz		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. Radiated Spurious Emission Plots

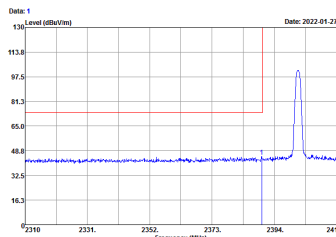
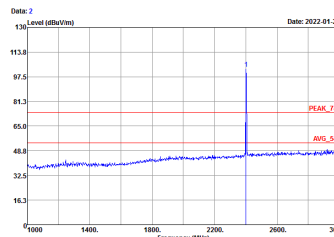
Note symbol

-L	Low channel location
-R	High channel location



2.4GHz 2400~2483.5MHz

BT (Band Edge @ 3m)

BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BT CH00 2402MHz	
1	Horizontal	Fundamental
Peak	Site: 03CH02.SZ Condition: PEAK_BE_74 3m HF_ANT_3117_5107 HORIZONTAL Project: 102129-01 Mode: Mode 1 SN: #7 GB10H030027002V Plane: X with Accessory Config: CE-01 	Site: 03CH02.SZ Condition: PEAK_74 3m HF_ANT_3117_5107 HORIZONTAL Project: 102129-01 Mode: Mode 1 SN: #7 GB10H030027002V Plane: X with Accessory Config: CE-01 



BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BT CH00 2402MHz	
1	Vertical	Fundamental
Peak	Date: 3 Date: 2022-01-27 Site : 03CH02-SZ Condition : PEAK_BE_74 3m HF_ANT_3117_0107 VERTICAL Project : 102129-01 Mode : Mode 1 SN : #7 G8510H62027002V Plane : X with Accessory Config : CE-01	Date: 4 Date: 2022-01-27 Site : 03CH02-SZ Condition : PEAK_74 3m HF_ANT_3117_0107 VERTICAL Project : 102129-01 Mode : Mode 1 SN : #7 G8510H62027002V Plane : X with Accessory Config : CE-01



BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BT CH39 2441MHz	
1	Horizontal	Fundamental
Peak	Date: 1 Level (dBuV/m) Frequency (MHz) Site : 03CH02-SZ Condition : PEAK_BE_74 3m HF_ANT_3117_0107 HORIZONTAL Project : 102129-01 Mode : Mode 2 SN : #7 G8B10H032027002V Plane : X with Accessory Config : CE-01	Date: 2 Level (dBuV/m) Frequency (MHz) Site : 03CH02-SZ Condition : PEAK_74 3m HF_ANT_3117_0107 HORIZONTAL Project : 102129-01 Mode : Mode 2 SN : #7 G8B10H032027002V Plane : X with Accessory Config : CE-01
Peak	Date: 3 Level (dBuV/m) Frequency (MHz) Site : 03CH02-SZ Condition : PEAK_BE_74 3m HF_ANT_3117_0107 HORIZONTAL Project : 102129-01 Mode : Mode 2 SN : #7 G8B10H032027002V Plane : X with Accessory Config : CE-01	Left blank



BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BT CH39 2441MHz	
1	Vertical	Fundamental
Peak	Date: 4 Level (dBuV/m) Frequency (MHz) Site : 03CH02-SZ Condition : PEAK_BE_74 3m HF_ANT_3117_0107 VERTICAL Project : 102129-01 Mode : Mode 2 SN : #7 G8B10H032027002V Plane : X with Accessory Config : CE-01	Date: 5 Level (dBuV/m) Frequency (MHz) Site : 03CH02-SZ Condition : PEAK_74 3m HF_ANT_3117_0107 VERTICAL Project : 102129-01 Mode : Mode 2 SN : #7 G8B10H032027002V Plane : X with Accessory Config : CE-01
Peak	Date: 6 Level (dBuV/m) Frequency (MHz) Site : 03CH02-SZ Condition : PEAK_BE_74 3m HF_ANT_3117_0107 VERTICAL Project : 102129-01 Mode : Mode 2 SN : #7 G8B10H032027002V Plane : X with Accessory Config : CE-01	Left blank



BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BT CH78 2480MHz	
1	Horizontal	Fundamental
Peak	Date: 2 Level (dBuV/m) Frequency (MHz) Site : 03CH02-SZ Condition : PEAK_BE_74 3m HF_ANT_3117_0107 HORIZONTAL Project : 102129-01 Mode : Mode 3 SN : #7 G8510H02027002V Plane : X with Accessory Config : CE-01	Date: 1 Level (dBuV/m) Frequency (MHz) Site : 03CH02-SZ Condition : PEAK_74 3m HF_ANT_3117_0107 HORIZONTAL Project : 102129-01 Mode : Mode 3 SN : #7 G8510H02027002V Plane : X with Accessory Config : CE-01

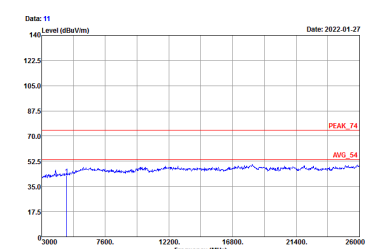
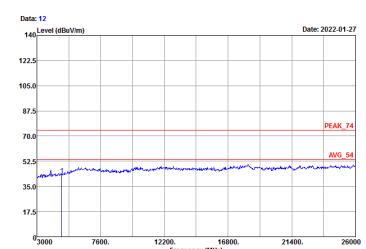


BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BT CH78 2480MHz	
1	Vertical	Fundamental
Peak	Date: 4 Date: 2022-01-27 Site : 03CH02-SZ Condition : PEAK_BE_74 3m HF_ANT_3117_0107 VERTICAL Project : 102129-01 Mode : Mode 3 SN : #7.G0510H02027002V Plane : X with Accessory Config : CE-01	Date: 3 Date: 2022-01-27 Site : 03CH02-SZ Condition : PEAK_74 3m HF_ANT_3117_0107 VERTICAL Project : 102129-01 Mode : Mode 3 SN : #7.G0510H02027002V Plane : X with Accessory Config : CE-01



2.4GHz 2400~2483.5MHz

BT (Harmonic @ 3m)

BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BT CH00 2402MHz	
1	Horizontal	Vertical
Peak Avg.	Site : 03CH02-S2 Condition : PEAK_74 3m HF_ANT_3117_0107 HORIZONTAL Project : 102129-01 Mode : Mode 1 SN : #7 G001094032027002V Plane : X with Accessory Config : CE-01 	Site : 03CH02-S2 Condition : PEAK_74 3m HF_ANT_3117_0107 VERTICAL Project : 102129-01 Mode : Mode 1 SN : #7 G001094032027002V Plane : X with Accessory Config : CE-01 

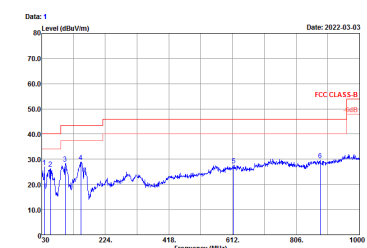
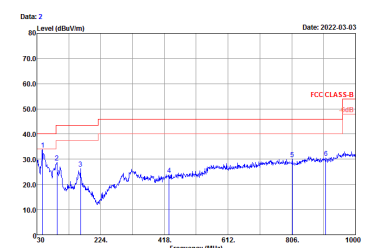


BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BT CH39 2441MHz	
1	Horizontal	Vertical
Peak Avg.	Date: 13 Site : 03CH02-SZ Condition : PEAK_74 3m HF_ANT_3117_0107 HORIZONTAL Project : 102129-01 Mode : Mode 2 SN : #7 G8510H02027002V Plane : X with Accessory Config : CE-01	Date: 14 Site : 03CH02-SZ Condition : PEAK_74 3m HF_ANT_3117_0107 VERTICAL Project : 102129-01 Mode : Mode 2 SN : #7 G8510H02027002V Plane : X with Accessory Config : CE-01



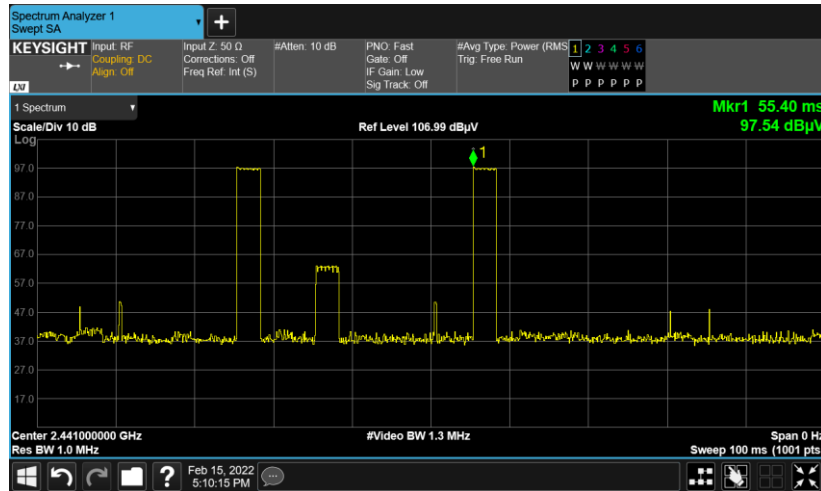
BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BT CH78 2480MHz	
1	Horizontal	Vertical
Peak Avg.	Date: 11 Site : 03CH02-SZ Condition : PEAK_74 3m HF_ANT_3117_0107 HORIZONTAL Project : 102129-01 Mode : Mode 3 SN : #7 G8510H02027002V Plane : X with Accessory Config : CE-01	Date: 12 Site : 03CH02-SZ Condition : PEAK_74 3m HF_ANT_3117_0107 VERTICAL Project : 102129-01 Mode : Mode 3 SN : #7 G8510H02027002V Plane : X with Accessory Config : CE-01

Emission below 1GHz
2.4GHz BT (LF)

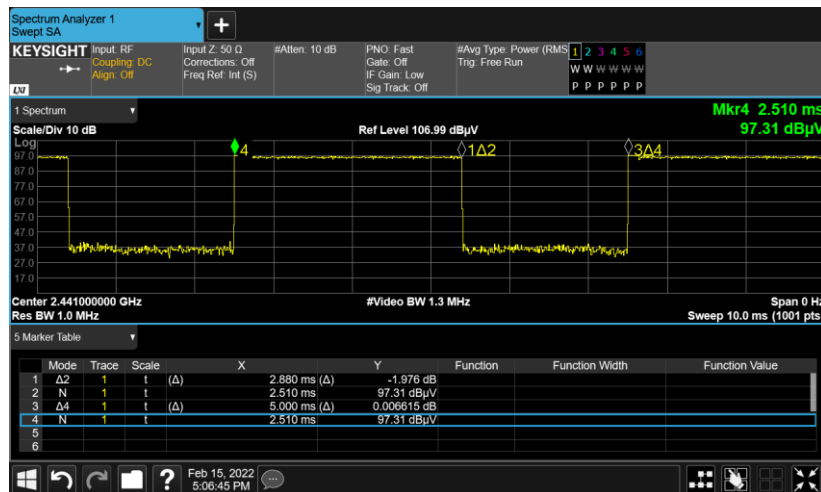
BT	2.4GHz 2400~2483.5MHz	
ANT	BT LF	
1	Horizontal	Vertical
QP / Peak	 Date: 1 Level (dBuV/m) Date: 2022-03-03 Site : 03CH02-SZ Condition : FCC CLASS-B 3m VULB9168-01001 HORIZONTAL Project : 102129-01 Mode : Mode 3 MEI : #7 G0910H032027002V Plane : X with Accessory : CE-01	 Date: 2 Level (dBuV/m) Date: 2022-03-03 Site : 03CH02-SZ Condition : FCC CLASS-B 3m VULB9168-01001 VERTICAL Project : 102129-01 Mode : Mode 3 MEI : #7 G0910H032027002V Plane : X with Accessory : CE-01

Appendix E. Duty Cycle Plots

3DH5 on time (One Pulse) Plot on Channel 39



3DH5 on time (Count Pulses) Plot on Channel 39



Note:

1. Worst case Duty cycle = on time/100 milliseconds = $2 * 2.88 / 100 = 5.76 \%$
2. Worst case Duty cycle correction factor = $20 * \log(\text{Duty cycle}) = -24.79 \text{ dB}$
3. 3DH5 has the highest duty cycle worst case and is reported.

RF EXPOSURE EVALUATION REPORT

FCC ID : 2A4DH-4832
Equipment : Electronic Display Device
Model Name : C2V2L3
Applicant : Amazon.com Services LLC
410 Terry Avenue N, Seattle, WA
98109-5210, United States
Standard : 47 CFR Part 2.1093
FCC KDB 447498 D01 v06

We, Sporton International Inc. (Shenzhen) has been evaluated this product in accordance with 47 CFR Part 2.1093 and FCC KDB 447498 D01 v06 and it complies with applicable limit. The results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. (Shenzhen), the test report shall not be reproduced except in full.

Hank Huang

Reviewed by: Hank Huang / Supervisor

Johnny Chen

Approved by: Johnny Chen / Manager



Sporton International Inc. (Shenzhen)

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People's Republic of China



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History of this test report

Report No.	Version	Description	Issued Date
FA1O2129-01	Rev. 01	Initial issue of report	May 31, 2022



1. Administration Data

1.1. Testing Laboratory

Sporton International Inc. (Shenzhen) is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.01.

Testing Laboratory			
Test Firm	Sporton International Inc. (Shenzhen)		
Test Site Location	1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan, Shenzhen, 518055 People's Republic of China TEL: +86-755-86379589 FAX: +86-755-86379595		
Test Site No.	Sporton Site No.	FCC Designation No.	FCC Test Firm Registration No.
	SAR01-SZ	CN1256	421272

Applicant	
Company Name	Amazon.com Services LLC
Address	410 Terry Avenue N, Seattle, WA 98109-5210, United States

2. Description of Equipment Under Test (EUT)

Product Feature & Specification	
EUT Type	Electronic Display Device
Model Name	C2V2L3
FCC ID	2A4DH-4832
Wireless Technology and Frequency Range	WLAN 2.4GHz Band: 2412 MHz ~ 2472 MHz WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz WLAN 5.3GHz Band: 5260 MHz ~ 5320 MHz WLAN 5.5GHz Band: 5500 MHz ~ 5720 MHz WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz
Mode	WLAN 2.4GHz 802.11b/g/n/ HT20 WLAN 5GHz 802.11a/n HT20/HT40 WLAN 5GHz 802.11ac VHT20/VHT40/VHT80 Bluetooth BR/EDR/LE

3. RF Exposure Evaluation

- The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

$$[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$$
for 1-g SAR.
 - f(GHz) is the RF channel transmit frequency in GHz
 - Power and distance are rounded to the nearest mW and mm before calculation
 - The result is rounded to one decimal place for comparison
- The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.
- For this e-reader device, the test separation distance is 0mm therefore 5mm is used in the equation. For each of the technologies the maximum output power (nominal power plus tune-up tolerance), corrected for both source- based duty cycle and UBDTF duty cycle calculated in this document, is used in the equation above to determine if SAR is excluded (value is 3.0 or less) or required (value exceeds 3.0). The table on the following page shows the results – thresholds with a green background meet the exclusion criteria, those in red do not.

ANT 1	Tx	Freq. (MHz)	UBDTF Duty Cycle ^{Note1}	Output Power			Separation distance (mm) ^{Note 3}	Threshold Value ^{Note 4}
				dBm	mW	mW ^{Note2}		
WLAN	2.4GHz	2472	5.18%	17.0	50.1	2.6	5	0.8
WLAN	5GHz	5825	4.84%	15.5	35.5	1.7	5	0.8
BT	BR	2480	83.3%	6	4	3.3	5	1.0

Note :

- UBDTF duty factor calculation in this document.
- Maximum power adjusted for UBDTF (see note 1) and rounded to closest mW as per KDB 447498 procedures.
- Minimum test separation distance between enclosure and person is 5mm per KDB 941225 D07 UMPC mini-tablet devices test procedures.
- To exclude the device from SAR testing the threshold value must be less than 3.0.

- For simultaneous transmission analysis, Bluetooth SAR is estimated per KDB 447498 D01v06 based on the formula below:
 - (max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm) $\cdot [\sqrt{f(\text{GHz})}/x]$ W/kg for test separation distances ≤ 50 mm; where $x = 7.5$ for 1-g SAR, and $x = 18.75$ for 10-g SAR.
 - When the minimum separation distance is < 5 mm, the distance is used 5mm to determine SAR test exclusion.
 - 0.4 W/kg for 1-g SAR and 1.0 W/kg for 10-g SAR, when the test separation distances is > 50 mm.
 - Bluetooth estimated SAR is conservatively determined by 10 mm separation, for all applicable exposure positions.

Mode Band	Freq. (MHz)	Max Power (dBm)	UBDTF Duty Cycle	Output Power (mW)	Separation distance (mm)	Exposure Position	Estimated 1g SAR (W/kg)
WLAN 2.4GHz	2472	17.0	5.18%	2.6	5	All Positions	0.109
WLAN 2.4GHz	5825	15.5	4.84%	1.7	5	All Positions	0.111
Bluetooth	2480	6	83.3%	3.3	5	All Positions	0.139

Simultaneous Transmission Analysis

1	2	1+2
WLAN5GHz	Bluetooth	Summed
1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
0.111	0.139	0.25

General Note:

1. EUT will choose either 2.4GHz WLAN or 5GHz WLAN according to the network signal condition; therefore, 2.4GHz WLAN and 5GHz WLAN will not operate simultaneously at any moment.
2. 2.4GHz WLAN and Bluetooth share the same antenna, and cannot transmit simultaneously.
3. According to the EUT characteristic, WLAN 5GHz and Bluetooth can transmit simultaneously.

Conclusion:

According to the UBTDF document analysis exhibit, the WLAN and Bluetooth maximum tune-up power scaled down with the transmission factor is applied in standalone SAR test exclusion threshold analysis and is exempted from SAR testing. Per FCC KDB Publication 447498 D01v06 transmission SAR test exclusion may be applied when the sum of the 1g SAR for all the simultaneous transmitting antennas in a specific a physical test configuration is < 1.6 W/kg, the RF exposure analysis concludes that the RF Exposure is FCC compliant.