



# FCC RADIO TEST REPORT

**FCC ID** : 2A7DJ-2346766867652  
**Equipment** : Smart Radio LTE with Walkie-Talkie  
**Brand Name** : weavix  
**Model Name** : walt  
**Applicant** : Weavix Inc.  
10811 E Harry St. Wichita, KS 67207, USA  
**Manufacturer** : Arima Communications (Jiangsu) Co., Ltd  
No.168, Jiaotong North Road, Economic  
and Technological Development Zone,  
Wujiang District Suzhou City, Jiangsu  
Province, P.R.China  
**Standard** : FCC Part 15 Subpart C §15.247

The product was received on Feb. 19, 2024 and testing was performed from Feb. 28, 2024 to Mar. 28, 2024. We, Sporton International Inc. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The test results in this variant report apply exclusively to the tested model / sample. Without written approval from Sporton International Inc. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

Louis Wu

Approved by: Louis Wu

**Sporton International Inc. EMC & Wireless Communications Laboratory**

No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)



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## History of this test report

Report No.	Version	Description	Issue Date
FR261611-01A	01	Initial issue of report	Sep. 02, 2024

## Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
-	15.247(a)(1)	Number of Channels	Not Required	-
-	15.247(a)(1)	Hopping Channel Separation	Not Required	-
-	15.247(a)(1)	Dwell Time of Each Channel	Not Required	-
-	15.247(a)(1)	20dB Bandwidth	Not Required	-
-	2.1049	99% Occupied Bandwidth	Not Required	-
3.1	15.247(b)(1) 15.247(b)(4)	Peak Output Power	Pass	-
-	15.247(d)	Conducted Band Edges	Not Required	-
-	15.247(d)	Conducted Spurious Emission	Not Required	-
3.2	15.247(d)	Radiated Band Edges and Radiated Spurious Emission	Pass	20.45 dB under the limit at 2483.56 MHz
-	15.207	AC Conducted Emission	Not Required	-
3.3	15.203	Antenna Requirement	Pass	-

**Note:**

1. Not required means after assessing, test items are not necessary to carry out.
2. This is a variant report which can be referred Product Equality Declaration. All the test cases were performed on original report which can be referred to Sporton Report Number FR261611A. Based on the original report, only worst case was verified.

**Conformity Assessment Condition:**

1. The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or in accordance with the requirements stipulated by the applicant/manufacturer who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account.
2. The measurement uncertainty please refer to each test result in the section "Measurement Uncertainty".

**Disclaimer:**

The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.

**Reviewed by: Avis Chuang**

**Report Producer: Lilian Hou**

# 1 General Description

## 1.1 Product Feature of Equipment Under Test

Product Feature		
General Specs	LTE, Bluetooth, Wi-Fi 2.4GHz 802.11b/g/n/ac, Wi-Fi 5GHz 802.11a/n/ac, NFC, and GNSS.	
Antenna Type	WWAN: PIFA Antenna WLAN: Loop Antenna Bluetooth: Loop Antenna GPS / Glonass / BDS / Galileo: PIFA Antenna NFC: Loop Antenna	
HW Version	0910MB-007	
SW Version	2.A.0075	

Antenna information		
2400 MHz ~ 2483.5 MHz	Peak Gain (dBi)	0.8

**Remark:** The EUT's information above is declared by manufacturer. Please refer to Disclaimer in report summary.

## 1.2 Modification of EUT

No modifications made to the EUT during the testing.



### 1.3 Testing Location

<b>Test Site</b>	Sporton International Inc. EMC & Wireless Communications Laboratory
<b>Test Site Location</b>	No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.) TEL: +886-3-327-3456 FAX: +886-3-328-4978
<b>Test Site No.</b>	<b>Sporton Site No.</b> 03CH07-HY

**Note:** The test site complies with ANSI C63.4 2014 requirement.

<b>Test Site</b>	Sporton International Inc. Wensan Laboratory
<b>Test Site Location</b>	No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.) TEL: +886-3-327-0868 FAX: +886-3-327-0855
<b>Test Site No.</b>	<b>Sporton Site No.</b> TH05-HY (TAF Code: 3786)
<b>Remark</b>	The Conducted test item subcontracted to Sporton International Inc. Wensan Laboratory.

FCC designation No.: TW1190 and TW3786

### 1.4 Applicable Standards

According to the specifications declared by the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ FCC Part 15 Subpart C §15.247
- ♦ FCC KDB Publication No. 558074 D01 15.247 Meas Guidance v05r02
- ♦ ANSI C63.10-2013

**Remark:**

1. All the test items were validated and recorded in accordance with the standards without any modification during the testing.
2. The TAF code is not including all the FCC KDB listed without accreditation.
3. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.



## 2 Test Configuration of Equipment Under Test

### 2.1 Carrier Frequency Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)
2400-2483.5 MHz	0	2402	27	2429	54	2456
	1	2403	28	2430	55	2457
	2	2404	29	2431	56	2458
	3	2405	30	2432	57	2459
	4	2406	31	2433	58	2460
	5	2407	32	2434	59	2461
	6	2408	33	2435	60	2462
	7	2409	34	2436	61	2463
	8	2410	35	2437	62	2464
	9	2411	36	2438	63	2465
	10	2412	37	2439	64	2466
	11	2413	38	2440	65	2467
	12	2414	39	2441	66	2468
	13	2415	40	2442	67	2469
	14	2416	41	2443	68	2470
	15	2417	42	2444	69	2471
	16	2418	43	2445	70	2472
	17	2419	44	2446	71	2473
	18	2420	45	2447	72	2474
	19	2421	46	2448	73	2475
	20	2422	47	2449	74	2476
	21	2423	48	2450	75	2477
	22	2424	49	2451	76	2478
	23	2425	50	2452	77	2479
	24	2426	51	2453	78	2480
	25	2427	52	2454	-	-
	26	2428	53	2455	-	-



## 2.2 Test Mode

The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: radiation emission (1 GHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). For radiated measurement, the measured emission level of the EUT was maximized by rotating the EUT on a turntable, adjusting the orientation of the EUT and EUT antenna in three orthogonal axis (X: flat, Y: portrait, Z: landscape), and adjusting the measurement antenna orientation, following C63.10 exploratory test procedures and only the worst plane, and the worst mode of radiated spurious emissions is Bluetooth 1Mbps mode, and recorded in this report.

The following summary table is showing all test modes to demonstrate in compliance with the standard.

Summary table of Test Cases	
Test Item	Data Rate / Modulation
Radiated Test Cases	Bluetooth BR 1Mbps GFSK
	Mode 1: CH78_2480 MHz
<b>Remark:</b> For Radiated Test Cases, the worst mode data rate 1Mbps was reported only since the highest RF output power in the preliminary tests. The conducted spurious emissions and conducted band edge measurement for other data rates were not worse than 1Mbps, and no other significantly frequencies found in conducted spurious emission.	



## 2.3 Connection Diagram of Test System



## 2.4 Support Unit used in test configuration and system

Item	Equipment	Brand Name	Model Name	FCC ID	Data Cable	Power Cord
1.	iPod Earphone	Apple	N/A	Verification	Shielded, 1.0 m	N/A

## 2.5 EUT Operation Test Setup

The RF test items, utility "QRCT 4.0.00206.0" was installed in Notebook which was programmed in order to make the EUT get into the engineering modes to provide channel selection, power level, data rate and the application type and for continuous transmitting signals.

### 3 Test Result

#### 3.1 Output Power Measurement

##### 3.1.1 Limit of Output Power

The maximum peak conducted output power of the intentional radiator shall not exceed the following:  
For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band 0.125 watts.

If directional gain of transmitting antennas is greater than 6 dBi, the power shall be reduced by the same level in dB comparing to gain minus 6 dBi.

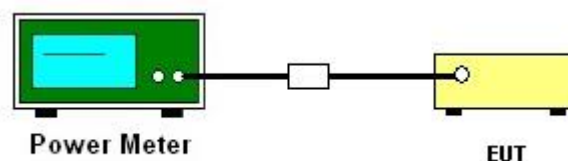
##### 3.1.2 Measuring Instruments

Please refer to the measuring equipment list in this test report.

##### 3.1.3 Test Procedures

1. The testing follows ANSI C63.10-2013 clause 7.8.5.
1. The RF output of EUT is connected to the power meter by RF cable and attenuator. The path loss is compensated to the results for each measurement.
2. Set the maximum power setting and enable the EUT to transmit continuously.
3. Measure the conducted output power with cable loss and record the results in the test report.
4. Measure and record the results in the test report.

##### 3.1.4 Test Setup



##### 3.1.5 Test Result of Peak Output Power

Please refer to Appendix A.

##### 3.1.6 Test Result of Average Output Power (Reporting Only)

Please refer to Appendix A.

## 3.2 Radiated Band Edges and Spurious Emission Measurement

### 3.2.1 Limit of Radiated Band Edges and Spurious Emission

In any 100 kHz bandwidth outside the intentional radiator frequency band, all harmonics / spurious must be at least 20 dB below the highest emission level within the authorized band. In addition, radiated emissions which fall in the restricted bands must also comply with the limits as below.

Frequency (MHz)	Field Strength (microvolts/meter)	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

### 3.2.2 Measuring Instruments

Please refer to the measuring equipment list in this test report.

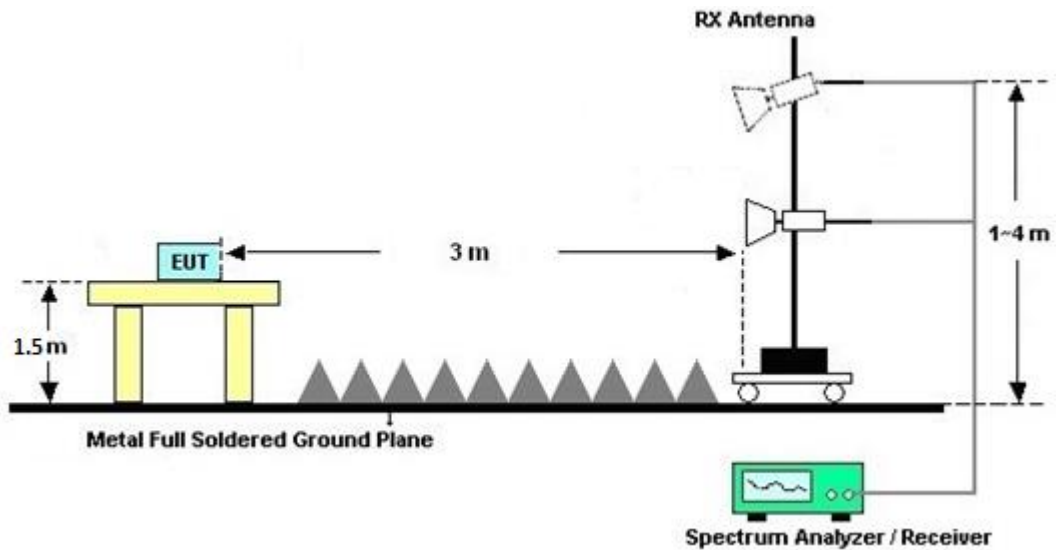
### 3.2.3 Test Procedures

1. The EUT is placed on a turntable with 1.5 meter for frequency above 1 GHz respectively above ground.
2. The EUT is set 3 meters away from the receiving antenna, which is mounted on the top of a variable height antenna tower.
3. For each suspected emission, the EUT is arranged to its worst case and then tune the Antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines.
4. Set the maximum power setting and enable the EUT to transmit continuously.
5. Use the following spectrum analyzer settings:
  - (1) Span shall wide enough to fully capture the emission being measured;
  - (2) Set RBW = 100 kHz for  $f < 1$  GHz, RBW = 1 MHz for  $f > 1$  GHz ; VBW  $\geq$  RBW; Sweep = auto; Detector function = peak; Trace = max hold for peak
  - (3) For average measurement: use duty cycle correction factor method per 15.35(c).  
Duty cycle = On time/100 milliseconds  
On time =  $N_1 \cdot L_1 + N_2 \cdot L_2 + \dots + N_{n-1} \cdot L_{n-1} + N_n \cdot L_n$   
Where  $N_1$  is number of type 1 pulses,  $L_1$  is length of type 1 pulses, etc.  
Average Emission Level = Peak Emission Level +  $20 \cdot \log(\text{Duty cycle})$
6. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
7. Radiated testing above 1 GHz is performed by adjusting the antenna tower from 1 m to 4 m and by rotating the turn table from 0 degree to 360 degrees to find the peak maximum hold reading for scanning all frequencies. When there is no suspected emission found and the harmonic emission level is with at least 6 dB margin against average limit line, the position is marked as “-”.

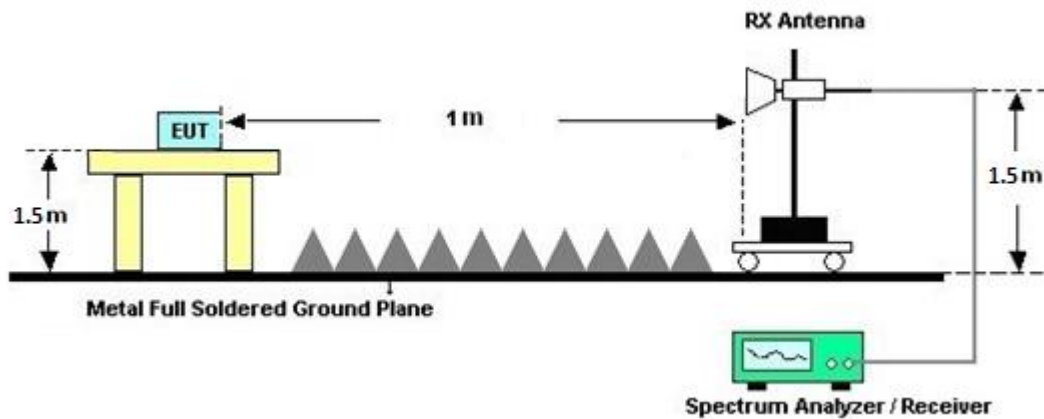
Note: The average levels are calculated from the peak level corrected with duty cycle correction factor (-24.79dB) derived from  $20 \log(\text{dwell time}/100\text{ms})$ . This correction is only for signals that hop with the fundamental signal, such as band-edge and harmonic. Other spurious signals that are independent of the hopping signal would not use this correction.

### 3.2.4 Test Setup

For radiated test from 1GHz to 18GHz



For radiated test above 18GHz



### 3.2.5 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix B and C.

### 3.2.6 Duty Cycle

Please refer to Appendix D.

### 3.2.7 Test Result of Radiated Spurious Emission

Please refer to Appendix B and C.



### **3.3 Antenna Requirements**

#### **3.3.1 Standard Applicable**

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §§ 15.211, 15.213, 15.217, 15.219, 15.221, or § 15.236. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with § 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

#### **3.3.2 Antenna Anti-Replacement Construction**

Unique (non-standard) antenna connector.



## 4 List of Measuring Equipment

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Double Ridge Horn Antenna	ETS-Lindgren	3117	00075962	1GHz ~ 18GHz	Nov. 27, 2023	Mar. 26, 2024~ Mar. 27, 2024	Nov. 26, 2024	Radiation (03CH07-HY)
Preamplifier	MITEQ	AMF-7D-0010 1800-30-10P	1590075	1GHz~18GHz	Apr. 20, 2023	Mar. 26, 2024~ Mar. 27, 2024	Apr. 19, 2024	Radiation (03CH07-HY)
Preamplifier	Agilent	8449B	3008A02362	1GHz~26.5GHz	Mar. 23, 2024	Mar. 26, 2024~ Mar. 27, 2024	Mar. 22, 2025	Radiation (03CH07-HY)
Preamplifier	EMEC	EM18G40G	0600789	18-40GHz	Jul. 25, 2023	Mar. 26, 2024~ Mar. 27, 2024	Jul. 24, 2024	Radiation (03CH07-HY)
EMI Test Receiver	Agilent	N9038A(MXE)	MY53290053	20Hz~26.5GHz	Aug. 29, 2023	Mar. 26, 2024~ Mar. 27, 2024	Aug. 28, 2024	Radiation (03CH07-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY28655/4 MY24971/4 MY15682/4	30MHz to 18GHz	Feb. 21, 2024	Mar. 26, 2024~ Mar. 27, 2024	Feb. 20, 2025	Radiation (03CH07-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 126	532078/126E	30MHz~18GHz	Sep. 15, 2023	Mar. 26, 2024~ Mar. 27, 2024	Sep. 14, 2024	Radiation (03CH07-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	MY2858/2	18GHz~40GHz	Feb. 21, 2024	Mar. 26, 2024~ Mar. 27, 2024	Feb. 20, 2025	Radiation (03CH07-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	801606/2	9KHz ~ 40GHz	Apr. 20, 2023	Mar. 26, 2024~ Mar. 27, 2024	Apr. 19, 2024	Radiation (03CH07-HY)
Controller	EMEC	EM1000	N/A	Control Ant Mast	N/A	Mar. 26, 2024~ Mar. 27, 2024	N/A	Radiation (03CH07-HY)
Controller	MF	MF-7802	N/A	Control Turn table	N/A	Mar. 26, 2024~ Mar. 27, 2024	N/A	Radiation (03CH07-HY)
Antenna Mast	EMEC	AM-BS-4500E	N/A	Boresight mast 1M~4M	N/A	Mar. 26, 2024~ Mar. 27, 2024	N/A	Radiation (03CH07-HY)
Turn Table	ChainTek	Chaintek 3000	N/A	0~360 Degree	N/A	Mar. 26, 2024~ Mar. 27, 2024	N/A	Radiation (03CH07-HY)
Software	Audix	E3	N/A	N/A	N/A	Mar. 26, 2024~ Mar. 27, 2024	N/A	Radiation (03CH07-HY)
USB Data Logger	TECPEL	TR-32	HE17XB2495	N/A	Mar. 01, 2024	Mar. 26, 2024~ Mar. 27, 2024	Feb. 28, 2025	Radiation (03CH07-HY)
SHF-EHF Horn Antenna	SCHWARZBE CK	BBHA 9170	BBHA9170251	18GHz~40GHz	Nov. 24, 2023	Mar. 26, 2024~ Mar. 27, 2024	Nov. 23, 2024	Radiation (03CH07-HY)
Hygrometer	TECPEL	DTM-303A	TP201996	N/A	Nov. 07, 2023	Feb. 28, 2024~ Mar. 28, 2024	Nov. 06, 2024	Conducted (TH05-HY)
Power Meter	Anritsu	ML2495A	1036004	N/A	Jul. 27, 2023	Feb. 28, 2024~ Mar. 28, 2024	Jul. 26, 2024	Conducted (TH05-HY)
Power Sensor	Anritsu	MA2411B	1027253	300MHz~40GHz	Jul. 27, 2023	Feb. 28, 2024~ Mar. 28, 2024	Jul. 26, 2024	Conducted (TH05-HY)
Signal Analyzer	Rohde & Schwarz	FSV3044	101466	10HZ~44GHZ	Jan. 24, 2024	Feb. 28, 2024~ Mar. 28, 2024	Jan. 23, 2025	Conducted (TH05-HY)



## 5 Measurement Uncertainty

### Uncertainty of Radiated Emission Measurement (1000 MHz ~ 6000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	4.6 dB
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### Uncertainty of Radiated Emission Measurement (6000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	4.3 dB
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### Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	5.3 dB
----------------------------------------------------------------------------	--------



Appendix A. Test Result of Conducted Test Items

Test Engineer:	Derek Hsu	Temperature:	21~25	°C
Test Date:	2024/02/28~2024/03/28	Relative Humidity:	51~54	%

TEST RESULTS DATA					
Peak Power Table					
DH	CH.	NTX	Peak Power (dBm)	Power Limit (dBm)	Test Result
DH1	78	1	6.56	20.97	Pass
2DH1	78	1	4.45	20.97	Pass
3DH1	78	1	4.48	20.97	Pass

TEST RESULTS DATA					
Average Power Table					
(Reporting Only)					
DH	CH.	NTX	Average Power (dBm)	Duty Factor (dB)	Duty Factor (dB)
DH1	78	1	5.39	5.09	Default
2DH1	78	1	1.49	5.06	Default
3DH1	78	1	1.64	5.09	Default



## Appendix B. Radiated Spurious Emission

Test Engineer :	Jesse Wang, Stan Hsieh and Ken Wu	Temperature :	23.1~25.4°C
		Relative Humidity :	48.5~56%

### 2.4GHz 2400~2483.5MHz

#### BT (Band Edge @ 3m)

BT	Note	Frequency ( MHz )	Level ( dBμV/m )	Margin ( 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 )
BT CH 78 2480MHz	*	2480	105.76	-	-	99.33	32.1	8.61	34.28	400	261	P	H
	*	2480	80.97	-	-							A	H
		2483.56	53.55	-20.45	74	47.08	32.14	8.61	34.28	400	261	P	H
		2483.56	28.76	-25.24	54							A	H
													H
													H
	*	2480	106.05	-	-	99.62	32.1	8.61	34.28	100	287	P	V
	*	2480	81.26	-	-							A	V
		2483.52	52.21	-21.79	74	45.74	32.14	8.61	34.28	100	287	P	V
		2483.52	27.42	-26.58	54							A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

**2.4GHz 2400~2483.5MHz**

### BT (Harmonic @ 3m)

BT	Note	Frequency	Level	Margin	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
		( MHz )	( dBμV/m )	( dB )	( dBμV/m )	( dBμV )	( dB/m )	( dB )	( dB )	( cm )	( deg )	( P/A )	( H/V )
BT CH 78 2480MHz		4960	43.76	-30.24	74	55.07	34.4	13.07	58.78	-	-	P	H
		4960	18.97	-35.03	54	-	-	-	-	-	-	A	H
		7440	44.43	-29.57	74	51.06	35.62	15.45	57.7	-	-	P	H
		7440	19.64	-34.36	54	-	-	-	-	-	-	A	H
													H
													H
													H
													H
													H
													H
													H
													H
													H
		4960	42.46	-31.54	74	53.77	34.4	13.07	58.78	-	-	P	V
		4960	17.67	-36.33	54	-	-	-	-	-	-	A	V
		7440	43.83	-30.17	74	50.46	35.62	15.45	57.7	-	-	P	V
		7440	19.04	-34.96	54	-	-	-	-	-	-	A	V
													V
													V
													V
												V	
												V	
												V	
												V	
												V	
												V	
												V	
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line. 3. The emission position marked as "-" means no suspected emission found with sufficient margin against limit line or noise floor only.												



**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>Margin</b> line.
P/A	<b>P</b> eak or <b>A</b> verage
H/V	<b>H</b> orizontal or <b>V</b> ertical



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

BT	Note	Frequency ( MHz )	Level ( dBμV/m )	Margin ( 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 )
BT CH 00 2402MHz		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	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. Margin (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. Margin (dB)  
= Level(dBμV/m) – Limit Line(dBμV/m)  
= 55.45(dBμV/m) – 74(dBμV/m)  
= -18.55(dB)

**Peak measured complies with the limit line, so test result is “PASS”.**



## Appendix C. Radiated Spurious Emission Plots

Test Engineer :	Jesse Wang, Stan Hsieh and Ken Wu	Temperature :	23.1~25.4°C
		Relative Humidity :	48.5~56%

2.4GHz 2400~2483.5MHz

BT (Band Edge @ 3m)

BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BT CH78 2480MHz	
	Horizontal	Fundamental
Peak	<p>Site Condition : 03CH07-HY : PEAK_BE_74 3m HF_ANT_00075962 HORIZONTAL : RBW:3000.000KHz VBW:3000.000KHz SWTAuto</p>	<p>Site Condition : 03CH07-HY : PEAK_74 3m HF_ANT_00075962 HORIZONTAL : RBW:3000.000KHz VBW:3000.000KHz SWTAuto</p>



BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BT CH78 2480MHz	
	Vertical	Fundamental
Peak	<div><p>Level (dBuV/m)</p><p>Date: 2024-03-26</p><p>2460 2463.2465 2467 2469 2471 2473 2475 2477 2479 2481 2483 2485 2487 2489 2491 2493 2495 2497 2500</p><p>Frequency (MHz)</p><p>Site : ESCH07-RF Condition : PEAK_BE_74 3m HF_ANT_00075962 VERTICAL : RBW:1000.000kHz VBW:3000.000kHz SWTAuto</p></div>	<div><p>Level (dBuV/m)</p><p>Date: 2024-03-26</p><p>1000 1300 1500 1700 1900 2100 2300 2500 2700 3000</p><p>Frequency (MHz)</p><p>Site : ESCH07-RF Condition : PEAK_74 3m HF_ANT_00075962 VERTICAL : RBW:1000.000kHz VBW:3000.000kHz SWTAuto</p></div>



2.4GHz 2400~2483.5MHz

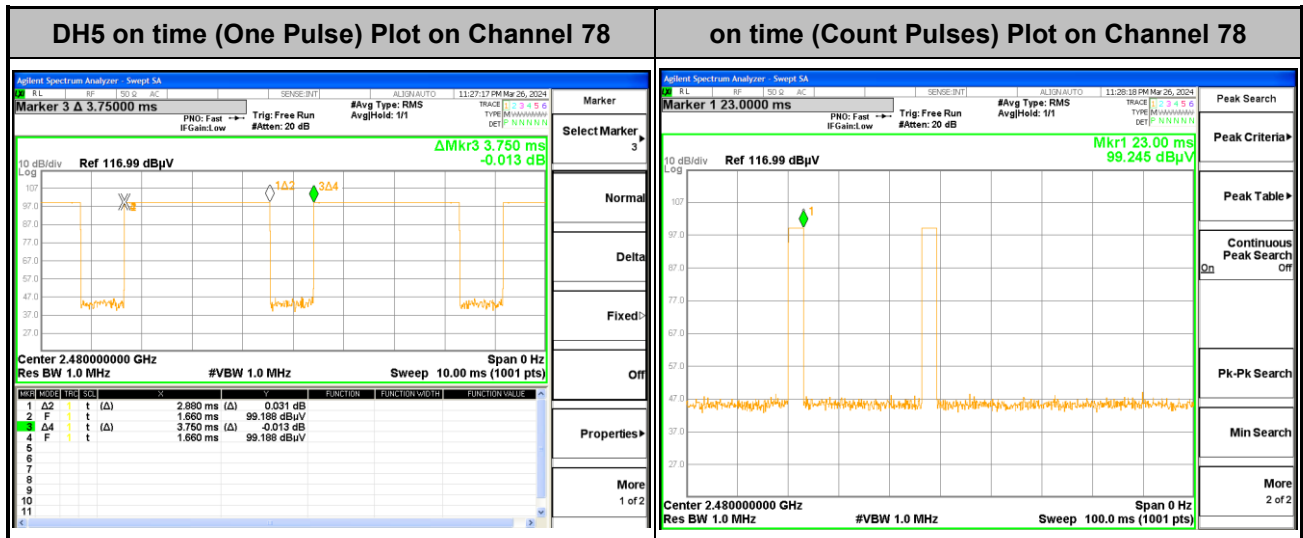
BT (Harmonic @ 3m)

BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	BT CH78 2480MHz	
	Horizontal	Vertical
Peak Avg.	<div><p>Level (dBuV/m)</p><p>Date: 2024-03-27</p><p>Site : 03CH07-HY Condition : PEAK_74 3m HF_ANT_00075962 HORIZONTAL</p></div>	<div><p>Level (dBuV/m)</p><p>Date: 2024-03-27</p><p>Site : 03CH07-HY Condition : PEAK_74 3m HF_ANT_00075962 VERTICAL</p></div>





## Appendix D. Duty Cycle Plots



### 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. DH5 has the highest duty cycle worst case and is reported.

### Duty Cycle Correction Factor Consideration for AFH mode:

Bluetooth normal hopping rate is 1600Hz and reduced to 800Hz in AFH mode; due to the reduced number of hopping frequencies, with the same packet configuration the dwell time in each channel frequency within 100msec period is longer in AFH mode than normal mode.

In AFH mode, the minimum hopping frequencies are 20, to get the longest dwell time DH5 packet is observed; the on time period to have DH5 packet completing one hopping sequence is

$$2.88 \text{ ms} \times 20 \text{ channels} = 57.6 \text{ ms}$$

There cannot be 2 complete hopping sequences within 100ms period, considering the random hopping behavior, maximum 2 hops can be possibly observed within the period.  $[100 \text{ ms} / 57.6 \text{ ms}] = 2 \text{ hops}$

Thus, the maximum possible ON time:

$$2.88 \text{ ms} \times 2 = 5.76 \text{ ms}$$

Worst case Duty Cycle Correction factor, which is derived from the maximum possible ON time,

$$20 \times \log(5.76 \text{ ms}/100 \text{ ms}) = -24.79 \text{ dB}$$