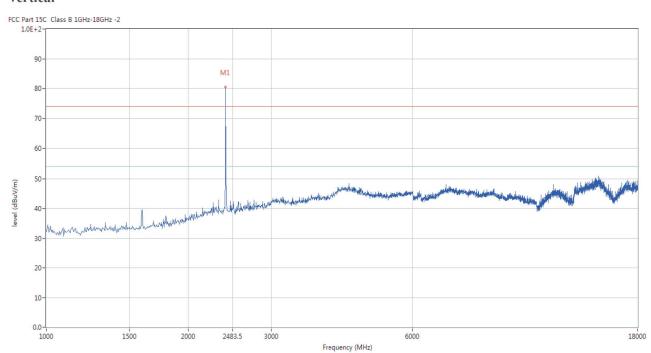
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## Vertical



No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table (o)	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)			(cm)		
1	2402.149	80.44	-3.57	114.0	-33.56	Peak	28.00	100	Vertical	Pass

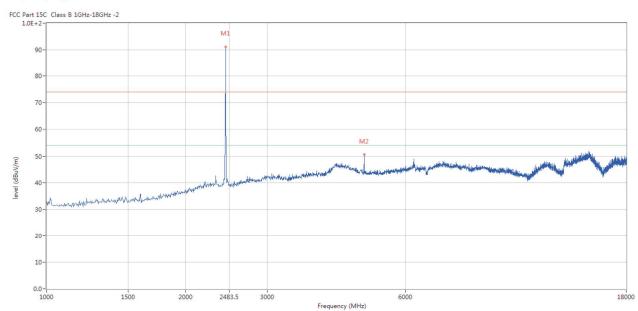
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Please refer to the following test plots for details: Middle Channel-2441MHz

#### Horizontal



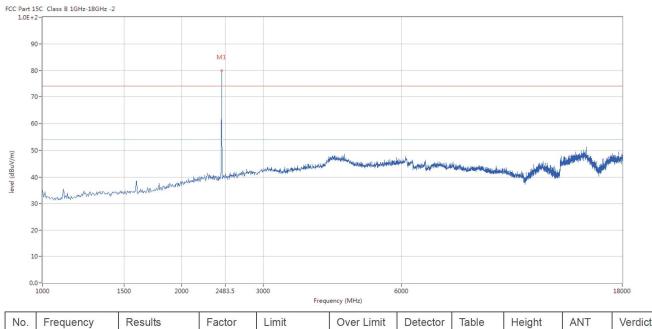
No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(0)	(cm)		
1	2440.390	91.23	-3.57	114.0	-22.77	Peak	298.00	100	Horizontal	Pass
2	4883.529	50.60	3.20	74.0	-23.40	Peak	284.00	100	Horizontal	Pass

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## Vertical



No	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(0)	(cm)		
1	2440.390	80.10	-3.57	114.0	-33.90	Peak	321.00	100	Vertical	Pass

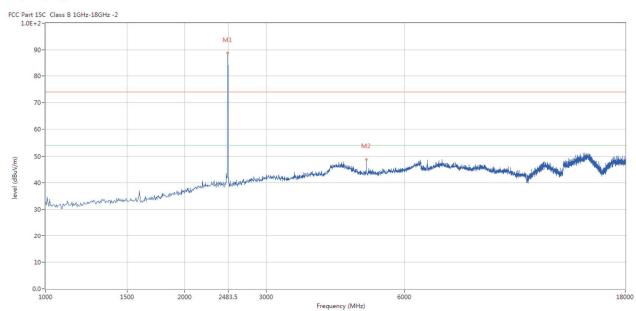
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Please refer to the following test plots for details: High Channel-2480MHz

#### Horizontal



No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(0)	(cm)		
1	2479.630	88.83	-3.57	114.0	-25.17	Peak	296.00	100	Horizontal	Pass
2	4960.010	48.77	3.36	74.0	-25.23	Peak	68.00	100	Horizontal	Pass

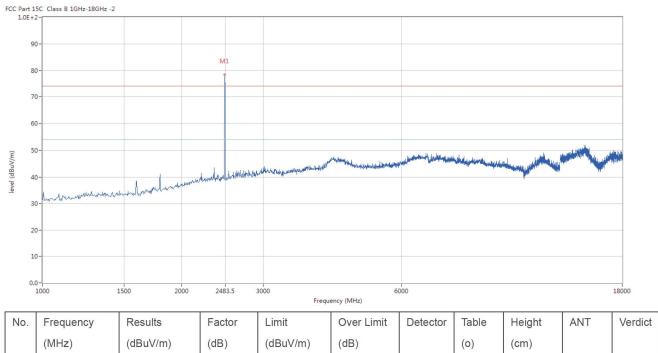
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#### Vertical



No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(0)	(cm)		
1	2479.630	78.55	-3.57	114.0	-35.45	Peak	17.00	100	Vertical	Pass

Note: (2) Emission Level = Reading Level + Antenna Factor + Cable Loss-Amplifier

- (3) Margin=Emission-Limits
- (4) According to section 15.35(b), the peak limit is 20dB higher than the average limit
- (5) For test purpose, keep EUT continuous transmitting
- (5) For emission above 18GHz and Below 30MHz, It is only the floor noise. No necessary to take down.
- (6) the measured PK value less than the AV limit.

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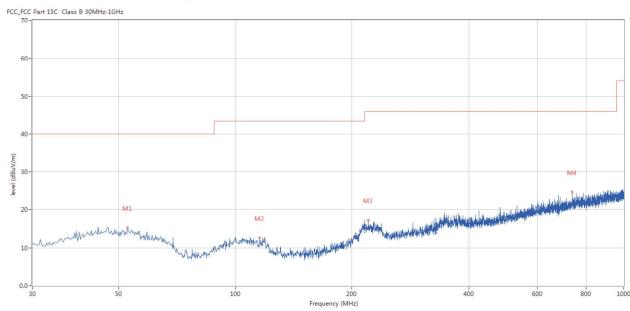


# B. General Radiated Emission Data Radiated Emission In Horizontal (30MHz----1000MHz)

EUT set Condition: Keep Tx transmitting

Results: Pass

Please refer to following diagram for individual



No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(0)	(cm)		
1	52.789	15.24	-11.48	40.0	-24.76	Peak	153.00	100	Horizontal	Pass
2	115.339	12.63	-14.48	43.5	-30.87	Peak	200.00	100	Horizontal	Pass
3	220.557	17.33	-13.30	46.0	-28.67	Peak	210.00	100	Horizontal	Pass
4	736.468	24.84	-3.62	46.0	-21.16	Peak	61.00	100	Horizontal	Pass

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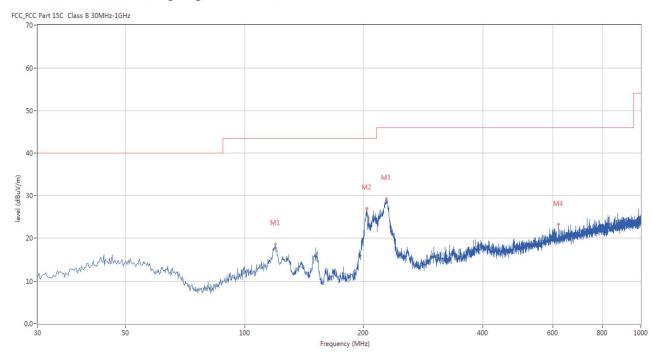


## Radiated Emission In Vertical (30MHz----1000MHz)

EUT set Condition: Keep Tx transmitting

Results: Pass

Please refer to following diagram for individual



No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table (o)	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)			(cm)		
1	119.460	18.62	-15.19	43.5	-24.88	Peak	239.00	100	Vertical	Pass
2	204.071	27.06	-13.51	43.5	-16.44	Peak	232.00	100	Vertical	Pass
3	228.558	29.32	-12.74	46.0	-16.68	Peak	249.00	100	Vertical	Pass
4	620.340	23.19	-4.88	46.0	-22.81	Peak	226.00	100	Vertical	Pass

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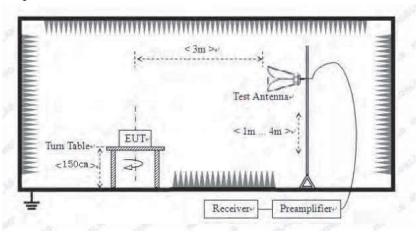


## 7. Band Edge

#### 7.1 Test Method and test Procedure:

- (1) The EUT was tested according to ANSI C63.10–2013. The radiated test was performed at Timeway EMC Laboratory. This site is on file with the FCC laboratory division, Registration No. 744189
- (2) Set Spectrum as RBW=1MHz, VBW=3MHz and Peak detector used for PK value. RBW=1MHz, VBW=10Hz and Peak detector used for AV value.
- (3) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.
- (4) The antenna polarization: Vertical polarization and Horizontal polarization.

# 7. 2 Radiated Test Setup



For the actual test configuration, please refer to the related items – Photos of Testing

# 7.3 Configuration of The EUT

Same as section 5.3 of this report

## 7.4 EUT Operating Condition

Same as section 5.4 of this report.

## 7.5 Band Edge Limit

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

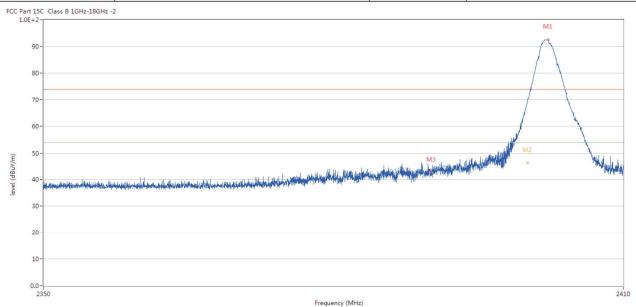
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## 7.6 Test Result

Product:	TWS speaker	Polarity	Horizontal
Mode	Keeping Transmitting	Test Voltage	DC3.7V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass		



No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(0)	(cm)		
2	2399.983	68.22	-3.57	74.0	-5.78	Peak	279.00	100	Horizontal	Pass
2**	2399.983	46.42	-3.57	54.0	-7.58	AV	279.00	100	Horizontal	Pass
3	2390.010	42.57	-3.53	74.0	-31.43	Peak	84.00	100	Horizontal	Pass

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P	Product:	TWS	S	speaker	I	Detector		Ver	tical	
	Mode	Ke	eping Trar	nsmitting	Tes	st Voltage		DC:	3.7V	
Ter	mperature		24 deg.	C,	Н	lumidity		56%	6 RH	
Tes	st Result:		Pass							
Part 15	5C. Class B 1GHz-18GHz -2									
90	)-							М	1	
80	)-							Month	1	
70	)-									
60	)-									
	)-					M3	n tradically in.	A which M2		
	)-	ikal adadaki kalika da	aphly an armining of the half	an interpretation	Uhandush salpa hay para Lhdaidh	a she		M2 •	Man	at our destroy the space
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50 40 30 20 10 0.0 2	0-			Free	quency (MHz)	u katu u ja na		rhydd haiz		2410
50 40 30 20 10		Results	Factor			a she	Table	Height	ANT	2410
50 40 30 20 10 0.0 2	0-			Free	quency (MHz)	u katu u ja na	Table (o)	Height (cm)		2410
50 40 30 20 10 0.0 2	Frequency	Results	Factor	Free	quency (MHz)  Over Limit	u katu u ja na				
50 40 30 20 10 0.0 2	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Free Limit (dBuV/m)	quency (MHz) Over Limit (dB)	Detector	(0)	(cm)	ANT	2410 Verdic

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]	Product:	TV	WS	speaker		Polarity		Н	orizontal	
	Mode	k	Keeping Ti	ansmitting		Test Voltag	ge	I	DC3.7V	
Te	emperature		24 de	g. C,		Humidity	7	5	66% RH	
Te	est Result:		Pa	SS						
Part 1	15C Class B 1GHz-18GHz -	.)								
6 5 4	50- 50- 10-			MZ	Control of the second deligible	al head job and in the philaderical	orbid and the state of the stat	phishogolomy by by hondy		an de adeign Anna
	10-									
	.0- <del> </del> 2470			2483.5	Frequency (MHz)					2500
		Results	Factor			Detector	Table	Height	ANT	
	2470	Results (dBuV/m)	Factor (dB)		Frequency (MHz)	Detector	Table	Height (cm)	ANT	
	Frequency			Limit	Over	Detector Peak			ANT Horizontal	verdi Pass

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]	Product:	TV	VS	speaker		Detector		Ve	rtical	
	Mode	K	eeping Tra	nsmitting	Tes	st Voltage		DC	3.7V	
Te	mperature		24 deg	g. C,	Н	umidity		56%	% RH	
Te	est Result:		Pas	S						
Part 1	ISC Class B 1GHz-18GHz	-2								
1.02+										
9	0-									
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7	0-			M						
	0		/	My Company						
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6			<i>y</i>	7,00						
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3	0 - Amerikan kilongari pada (		Á	J. Mary	المحاملة والمعاملة والمعام	فتعتدل منة جافل بالبدو وجيوه مأدوان	الديم متأداب والإن يودارا باستأوا بدو	المرواجية بدرالية مأر إلية بالمودورية	والمستعمل المتعادلة والمتعادلة وا	ماخ را خراجه
5	0 - Amerikan kilongari pada (		A	No.	Market and the second section of the section of the second section of the section of the second section of the	التعديف في المستخدمة المراسمة	te podrin dip nich abberry	agoleonigas, kipa da Ligid series a 184	والمرابعة فوافر المواجع والمعتودي	Magalith, dies
3	0 - Amerikan kilongari pada (		A	J. Marin	المعرضة والمعرضة المعرضة المعرضة والمعرضة والمعرفة والمعر	يان أحديث المراجعة ا	المرجع والمراجع والم والمراجع والمراجع والمراجع والمراجع والمراجع والمراجع والمراجع	કહાત્રીસમાં કહ્યા તેને તે તે તે કો કે અન્ય હોતા 18	المجادرة والخطائة المجادرة والمجادرة والمجادرة والمجادرة والمجادرة والمجادرة والمجادرة والمجادرة والمجادرة والم	الموسارة المراض
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3 2 1 0.				2483.5	equency (MHz)	يشياره والمراجعة والم	da, qaraba iyo dogoo sariad makka qad	negolisasis san kilaga ada Likiji karasasis 1864	toopens, floride die London zu der	2500
3 2 1 0.		Results	Factor	2483.5		Detector	Table	Height	ANT	
3 2 1 0.	0-2470		Factor (dB)	2483.5 Fr	equency (MHz)		1			2500
3 2 1 0.	o- 0- 0- 0- 0- 0- 0- 0- 0- 0- 0- 0- 0- 0-	Results		2483.5 Fr	equency (MHz)  Over Limit		Table	Height		2500

Note: 1. The PK emission level less than the AV limit. No necessary to record the AV emission level.

- 2. This is a handhold device. The radiated emissions should be tested under 3-axes position (Lying, Side, and Stand), After pre-test. It was found that the worse radiated emission was get at the lying position.
- 3. The two modulation modes of GFSK and Pi/4D-QPSK were tested. And only the worst case was recorded in the test report. GFSK was the worst case.

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## 8.0 Antenna Requirement

# **Applicable Standard**

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.

This product has a PCB antenna with gain 2.0dBi Max. It fulfills the requirement of this section.

Test Result: Pass

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FSK Modulation										
Product: TWS speaker					Test Mode		: Keep transmitting			
Mode Keeping Transmitting Temperature 24 deg. C,					Test Voltage Humidity		DC3.7V 56% RH			
dB Bandwidth	7	781.56kHz	S		-	-			•	
	Marker	1 [T1 r	ndB]	RI	3W	30 k	Hz R	F Att	20 dB	
Ref Lvl	ndB	20.	.00 dB	VI	3W 1	.00 k	Hz			
10 dBm	BW 781	L.563126	625 kHz	SI	3 TV	3.5 m	s U	nit	dB:	m
10						$\mathbf{v}_1$	[T1]	-1	.19 dBı	m
								2.40200	301 GH:	
0			^_/			ndI		20	.00 dB	1
			100	$\backslash \Lambda$		BW		1.56312		
-10				1 V	(	$\nabla_{\mathrm{T1}}$	[T1]	-21	.52 dBi	
			N		7	o <b>∨</b> T2	[T1]	2.40161	.03 dBi	
-20		TN			T	2	. [++]	2.40239	980 GH:	4
1MAX -30		السر				\\\				11
-40	~	)					Z			
-50							\u_	m		
-60	V						V	My	the Market	
-70										
-80										
-90 Center 2.402				kHz/					n 3 MH:	

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Product: TWS speaker					T	est Mode:	Keep transmitting					
Mode Keeping Transmitting						Test Voltage			DC3.7V			
Temperature 24 deg. C,						Humidity		56% RH				
Test Result:	Pass 781.56kHz						Detector	PK				
20dB Bandwidth												
Ref Lvl			1 [T1 n 20. 1.563126	00 dB	V	BW BW WT	30 kH 100 kH 8.5 ms	Z	F Att	20 dB	í	
10 dBiii		bw /ol	1.303120	ZO KHZ	۵	VV I			.11.	QBIII	ı I	
					1.		<b>V</b> 1 [	T1]	2.44100	.55 dBm 301 GHz	Α	
				00			ndB		20	.00 dB		
				100	M		RW ▼T1	/E [T1]	1.56312 -21	625 kHz .68 dBm		
-10				-/	7	٦.		111	2.44061	824 GHz		
			m1/	<b>√</b>		1	$\nabla_{\mathrm{T2}}$	[T1]		.02 dBm		
-20 <b>1MAX</b>							thy		2.44139	980 GHz	1M2	
-30		<i></i>					1	h				
-40	~	7							m			
-50	July No.							7	Yur	mounter		
-60										0 10 M/O		
-70												
-80												
-90 Center 2	.441 GH	7.		300	kH7/				Sna	ın 3 MHz		
-90L L Center 2	.441 GH	[z		300	kHz/				Spa	ın 3 MHz	l	