



Report No.: TW2104200E File reference No.: 2021-04-26

Applicant: LEADER PREMIUMS LTD.

Product: Soul Speaker

Model No.: AE0189

Brand Name: N/A

Test Standards: FCC Part 15.249

Test result: It is herewith confirmed and found to comply with the requirements set up by ANSI C63.10 &FCC Part 15 Subpart C,

Paragraph 15.249 regulations for the evaluation of

electromagnetic compatibility



Dated: April 26, 2021

Results appearing herein relate only to the sample tested

The technical reports is issued errors and omissions exempt and is subject to withdrawal at

# SHENZHEN TIMEWAY TESTING LABORATORIES

Zone C, 1st Floor, Block B, Jun Xiang Da Building, Zhongshan Park Road West, Tong Le Village, Nanshan District, Shenzhen, China

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# **Special Statement:**

The testing quality ability of our laboratory meet with "Quality Law of People's Republic of China" Clause 19.

The testing quality system of our laboratory meet with ISO/IEC-17025 requirements, which is approved by CNAS. This approval result is accepted by MRA of APLAC.

Our test facility is recognized, certified, or accredited by the following organizations:

# **CNAS-LAB Code: L2292**

The EMC Laboratory has been assessed and in compliance with CNAS-CL01 accreditation criteria for testing Laboratories (identical to ISO/IEC 17025:2005 General Requirements) for the Competence of testing Laboratories.

# FCC-Registration No.: 744189

The EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications commission. The acceptance letter from the FCC is maintained in our files. Registration No.: 744189.

# Industry Canada (IC) — Registration No.:5205A

The EMC Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 5205A.

# A2LA (Certification Number:5013.01)

The EMC Laboratory has been accredited by the American Association for Laboratory Accreditation (A2LA). Certification Number:5013.01

Date: 2021-04-26



# Test Report Conclusion

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#### 1.0 General Details

#### 1.1 Test Lab Details

Name: SHENZHEN TIMEWAY TESTING LABORATORIES.

Address: Zone C, 1st Floor, Block B, Jun Xiang Da Building, Zhongshan Park Road West, Tong Le

Village, Nanshan District, Shenzhen, China

Telephone: (755) 83448688 Fax: (755) 83442996

Site on File with the Federal Communications Commission – United Sates

Registration Number: 744189 For 3m Anechoic Chamber

# 1.2 Applicant Details

Applicant: LEADER PREMIUMS LTD.

Address: 9/F., Hengfu Mansion, NO.858. Fuming Road, Ningbo, China

Telephone: -Fax: --

# 1.3 Description of EUT

Product: Soul Speaker

Manufacturer: LEADER PREMIUMS LTD.

Address: 9/F., Hengfu Mansion, NO.858. Fuming Road, Ningbo, China

Brand Name: N/A
Model Number: AE0189
Additional Model Name N/A

Hardware Version: Bluetooth speaker-AE0189

Software Version: leader.2021.03

Serial No.: AE0189

Rating: DC5V, 1A or Built-in DC3.7V, 300mAh Li-ion battery

Modulation Type: GFSK, Pi/4D-QPSK, 8DPSK (Bluetooth)

Operation Frequency: 2402-2480MHz

Channel Separate: 1MHz
Channel Number: 79

Antenna Designation PCB antenna with gain -0.58dBi Max (Get from the antenna specification

provided by the applicant)

#### 1.4 Submitted Sample: 1 Sample

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#### 1.5 Test Duration

2021-04-15 to 2021-04-26

### 1.6 Test Uncertainty

Conducted Emissions Uncertainty = 3.6dB

Radiated Emissions below 1GHz Uncertainty =4.7dB

Radiated Emissions above 1GHz Uncertainty =6.0dB

Conducted Power Uncertainty =6.0dB

Occupied Channel Bandwidth Uncertainty =5%

Conducted Emissions Uncertainty = 3 6dB

Note: The measurement uncertainty of the severage factor of k=2 and a level of confidence of 95%.

# 1.7 Test Engineer

The sample tested by

Date: 2021-04-26



2.0 Test Equipment	-				
Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
ESPI Test Receiver	R&S	ESPI 3	100379	2020-06-23	2021-06-22
LISN	R&S	EZH3-Z5	100294	2020-06-23	2021-06-22
LISN	R&S	EZH3-Z5	100253	2020-06-23	2021-06-22
Impuls-Begrenzer	R&S	ESH3-Z2	100281	2020-06-23	2021-06-22
Loop Antenna	EMCO	6507	00078608	2018-06-25	2021-06-24
Spectrum	R&S	FSIQ26	100292	2020-06-23	2021-06-22
Horn Antenna	A-INFO	LB-180400-KF	J211060660	2020-06-23	2021-06-22
Horn Antenna	R&S	BBHA 9120D	9120D-631	2018-07-09	2021-07-08
Power meter	Anritsu	ML2487A	6K00003613	2020-06-23	2021-06-22
Power sensor	Anritsu	MA2491A	32263	2020-06-23	2021-06-22
Bilog Antenna	Schwarebeck	VULB9163	9163/340	2018-07-04	2021-07-03
9*6*6 Anechoic			N/A	2020-07-06	2021-07-05
EMI Test Receiver	RS	ESVB	826156/011	2020-06-23	2021-06-22
EMI Test Receiver	RS	ESH3	860904/006	2020-06-23	2021-06-22
Spectrum	HP/Agilent	ESA-L1500A	US37451154	2020-06-23	2021-06-22
Spectrum	HP/Agilent	E4407B	MY50441392	2020-06-23	2021-06-22
Spectrum	RS	FSP	1164.4391.38	2021-01-16	2022-01-15
RF Cable	Zhengdi	ZT26-NJ-NJ-8 M/FA		2020-06-23	2021-06-22
RF Cable	Zhengdi	7m		2020-06-23	2021-06-22
RF Switch	EM	EMSW18	060391	2020-06-23	2021-06-22
Pre-Amplifier	Schwarebeck	BBV9743	#218	2020-06-23	2021-06-22
Pre-Amplifier	HP/Agilent	8449B	3008A00160	2020-06-23	2021-06-22
LISN	SCHAFFNER	NNB42	00012	2021-01-06	2022-01-05

#### 2.2 Automation Test Software

#### For Conducted Emission Test

Name	Version
EZ-EMC	Ver.EMC-CON 3A1.1

#### For Radiated Emissions

Name	Version
EMI Test Software BL410-EV18.91	V18.905
EMI Test Software BL410-EV18.806 High Frequency	V18.06

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#### 3.0 Technical Details

# 3.1 Summary of test results

The EUT has been tested according to the following specifications:

Standard	Test Type	Result	Notes
FCC Part 15, Paragraph 15.207	Conducted Emission Test	PASS	Complies
FCC Part 15 Subpart C Paragraph 15.249(a) & 15.249(b) Limit	Field Strength of Fundamental	PASS	Complies
FCC Part 15, Paragraph 15.209	Radiated Emission Test	PASS	Complies
FCC Part 15 Subpart C Paragraph 15.249(d) Limit	Band Edge Test	PASS	Complies

#### 3.2 Test Standards

FCC Part 15 Subpart C, Paragraph 15.249, ANSI C63.4:2014 and ANSI C63.10:2013

# 4.0 EUT Modification

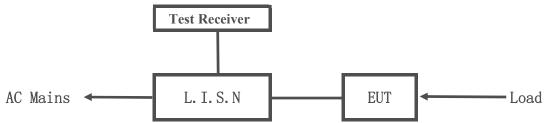
No modification by SHENZHEN TIMEWAY TESTING LABORATORIES

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#### 5. Power Line Conducted Emission Test

#### 5.1 Schematics of the test

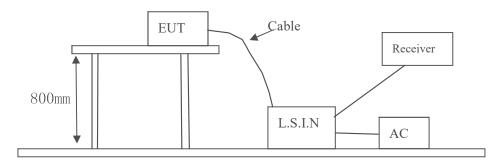


EUT: Equipment Under Test

## 5.2 Test Method and test Procedure

The EUT was tested according to ANSI C63.10-2013. The Frequency spectrum From 0.15MHz to 30MHz was investigated. The LISN used was 50ohm/50uH as specified by section 5.1 of ANSI C63.10-2013.

#### Block diagram of Test setup



# 5.3 Configuration of The EUT

The EUT was configured according to ANSI C63.10-2013. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

One channels are provided to the EUT

#### A. EUT

Device	Manufacturer	Model	FCC ID
Soul Speaker	LEADER PREMIUMS LTD.	AE0189	2APYY-AE0189

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#### B. Internal Device

Device	Manufacturer	Model	FCC ID/DOC
N/A			

# C. Peripherals

Device	Manufacturer	Model	Rating
Power Supply	KEYU	KA23-0502000DEU	Input: 100-240V~, 50/60Hz, 0.35A;
			Output: DC5V, 2A

5.4 EUT Operating Condition

Operating condition is according to ANSI C63.10-2013

- A Setup the EUT and simulators as shown on follow
- B Enable AF signal and confirm EUT active to normal condition

5.5 Power line conducted Emission Limit according to Paragraph 15.207

Frequency	Limits (dB $\mu$ V)			
(MHz)	Quasi-peak Level	Average Lev 1		
$0.15 \sim 0.50$	66.0~56.0*	56.0~46.0*		
$0.50 \sim 5.00$	56.0	46.0		
5.00 ~ 30.00	60.0	50.0		

Notes:

- 1. \*Decreasing linearly with logarithm of frequency.
- 2. The tighter limit shall apply at the transition frequencies

#### 5.6 Test Results:

Pass

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### A: Conducted Emission on Live Terminal (150kHz to 30MHz)

**EUT Operating Environment** AC 120V 60Hz

Temperature: 25°C Humidity: 65%RH Atmospheric Pressure: 101 kPa

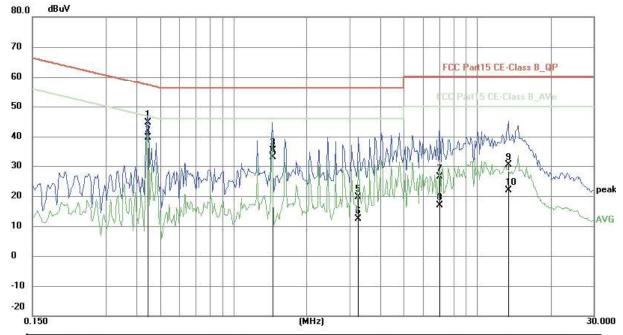
**EUT set Condition: Charging and Communication by BT** 

Model: AE0189

**Equipment Level: Class B** 

**Results: PASS** 

Please refer to following diagram for individual



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.4464	34.82	9.77	44.59	56.94	-12.35	QP	Р
2	0.4464	29.91	9.77	39.68	46.94	-7.26	AVG	Р
3	1.4448	25.68	9.79	35.47	56.00	-20.53	QP	Р
4	1.4448	23.45	9.79	33.24	46.00	-12.76	AVG	Р
5	3.2535	9.83	9.85	19.68	56.00	-36.32	QP	Р
6	3.2535	2.56	9.85	12.41	46.00	-33.59	AVG	Р
7	7.0053	16.32	10.01	26.33	60.00	-33.67	QP	Р
8	7.0053	6.75	10.01	16.76	50.00	-33.24	AVG	Р
9	13.4325	20.01	10.31	30.32	60.00	-29.68	QP	Р
10	13.4325	11.49	10.31	21.80	50.00	-28.20	AVG	Р

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# B: Conducted Emission on Neutral Terminal (150kHz to 30MHz)

**EUT Operating Environment** AC 120V 60Hz

Temperature: 25°C Humidity: 65%RH Atmospheric Pressure: 101 kPa

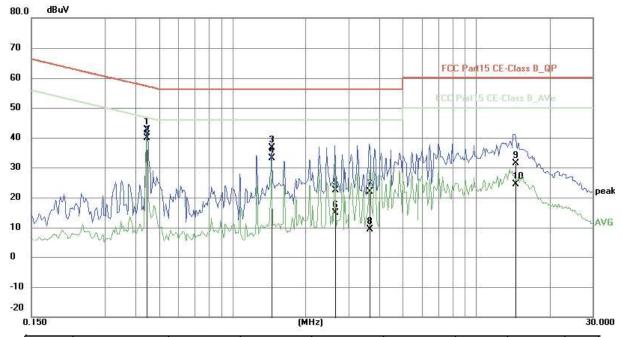
**EUT set Condition: Charging and Communication by BT** 

Model: AE0189

**Equipment Level: Class B** 

**Results: Pass** 

Please refer to following diagram for individual



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.4464	32.97	9.77	42.74	56.94	-14.20	QP	Р
2	0.4464	30.08	9.77	39.85	46.94	-7.09	AVG	Р
3	1.4487	26.91	9.79	36.70	56.00	-19.30	QP	Р
4	1.4487	23.27	9.79	33.06	46.00	-12.94	AVG	Р
5	2.6382	12.67	9.83	22.50	56.00	-33.50	QP	Р
6	2.6382	5.14	9.83	14.97	46.00	-31.03	AVG	Р
7	3.6552	11.90	9.87	21.77	56.00	-34.23	QP	Р
8	3.6552	-0.60	9.87	9.27	46.00	-36.73	AVG	Р
9	14.4504	21.09	10.36	31.45	60.00	-28.55	QP	Р
10	14.4504	14.13	10.36	24.49	50.00	-25.51	AVG	Р

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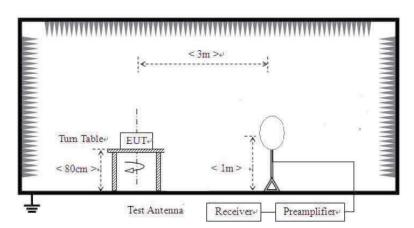


#### **6** Radiated Emission Test

- 6.1 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) The EUT, peripherals were put on the turntable which table size is 1m x 1.5 m, table high 0.8 m. All set up is according to ANSI C63.10-2013.
- (3) The frequency spectrum from 30 MHz to 25 GHz was investigated. All readings from 30 MHz to 1 GHz are quasi-peak values with a resolution bandwidth of 120 kHz. All readings are above 1 GHz, peak values with a resolution bandwidth of 1 MHz (Note: for Fundamental frequency radiated emission measurement, RBW=3MHz, VBW=10MHz). Measurements were made at 3 meters.
- (4) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.
- (5) The antenna polarization: Vertical polarization and Horizontal polarization.

#### **Block diagram of Test setup**

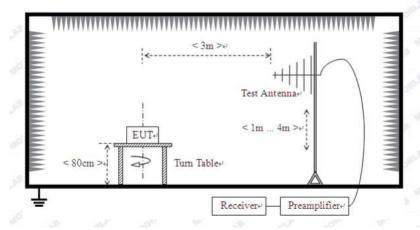
For radiated emissions from 9kHz to 30MHz



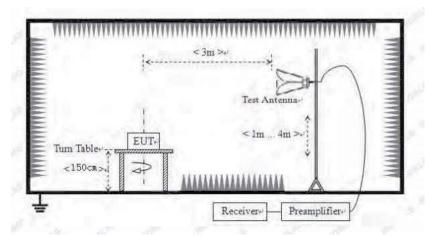
Date: 2021-04-26



For radiated emissions from 30MHz to1GHz



For radiated emissions above 1GHz



- 6.2 Configuration of The EUT

  Same as section 5.3 of this report
- 6.3 EUT Operating Condition
  Same as section 5.4 of this report.

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#### 6.4 Radiated Emission Limit

All emission from a digital device, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strength specified below:

# A FCC Part 15 Subpart C Paragraph 15.249(a) Limit

Fundamental Frequency	Field Stre	ength of Fundame	ental (3m)	Field S	trength of Harmo	nics (3m)
(MHz)	mV/m	dBuV/m		uV/m	dBuV/m	
2400-2483.5	50	94 (Average)	114 (Peak)	500	54 (Average)	74 (Peak)

Note:

- 1. RF Field Strength (dBuV) = 20 log RF Voltage (uV)
- 2.Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.
- 3. The emission limit in this paragraph is based on measurement instrumentation employing an average detector.

# B. Frequencies in restricted band are complied to limit on Paragraph 15.209.

Frequency Range (MHz)	Distance (m)	Field strength (dB $\mu$ V/m)
30-88	3	40.0
88-216	3	43.5
216-960	3	46.0
Above 960	3	54.0

Note:

- 1. RF Voltage (dBuV) = 20 log RF Voltage (uV)
- 2. In the Above Table, the tighter limit applies at the band edges.
- 3. Distance refers to the distance in meters between the measuring instrument antenna and the EUT
- 4. 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.
- 5. All scanning using PK detector. And the final emission level was get using QP detector for frequency range from 30-1000MHz.As to 1G-25G, the final emission level got using PK. For fundamental measurement, PK detector used.
- 6. Battery full charged during tests.
- 7. The three modulation modes of GFSK, Pi/4D-QPSK, and 8DPSK were tested. And only the worst case was recorded in the test report. GFSK was the worst case.

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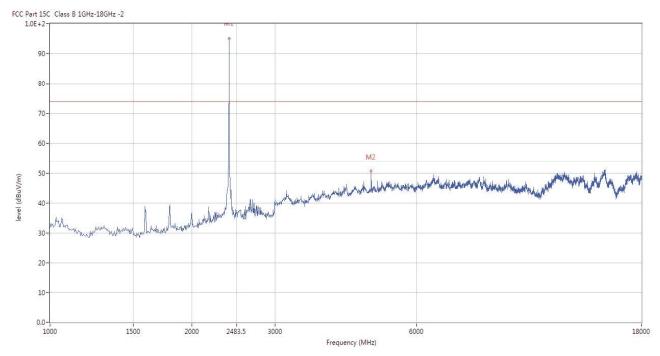


#### 6.5 Test result

# A Fundamental & Harmonics Radiated Emission Data

Please refer to the following test plots for details: Low Channel-2402MHz

# Horizontal



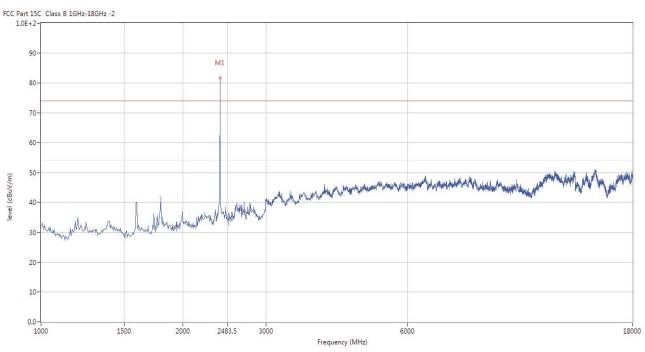
No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table (o)	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)			(cm)		
1	2402.500	95.10	-3.57	114.0	-18.90	Peak	136.00	100	Horizontal	Pass
1*	2402.500	84.87	-3.57	94.0	-9.13	AV	136.00	100	Horizontal	Pass
2	4803.750	50.57	3.13	74.0	-23.43	Peak	146.00	100	Horizontal	Pass

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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	2402.500	81.78	-3.57	114.0	-32.22	Peak	89.00	100	Vertical	Pass

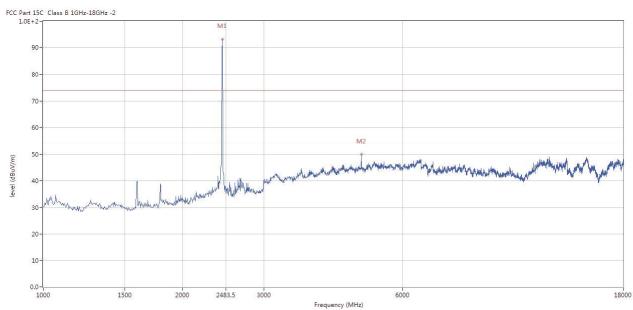
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Please refer to the following test plots for details: High Channel-2441MHz

#### Horizontal



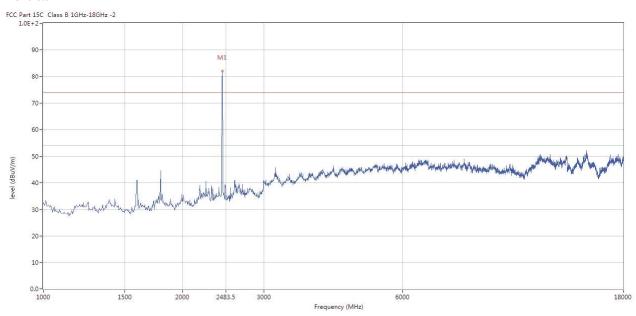
					60 PS0					
No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table (o)	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)			(cm)		
1	2440.750	93.27	-3.57	114.0	-20.73	Peak	323.00	100	Horizontal	Pass
1	2440.750	82.91	-3.57	94.0	-11.09	AV	323.00	100	Horizontal	Pass
2	4880.250	49.91	3.20	74.0	-24.09	Peak	146.00	100	Horizontal	Pass

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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	2440.750	82.19	-3.57	114.0	-31.81	Peak	330.00	100	Vertical	Pass

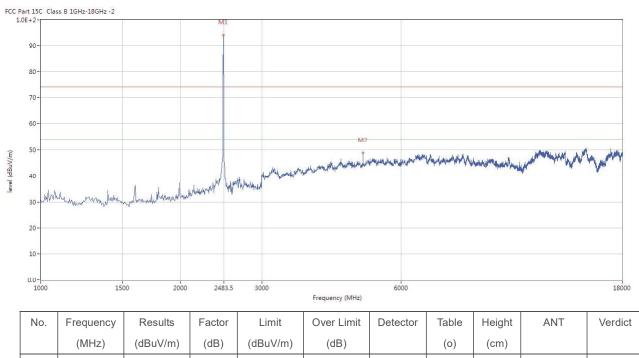
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Please refer to the following test plots for details: High Channel-2480MHz

#### Horizontal



No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(0)	(cm)		
1	2479.750	94.27	-3.57	114.0	-19.73	Peak	151.00	100	Horizontal	Pass
1*	2479.750	83.79	-3.57	94.0	-10.21	Peak	151.00	100	Horizontal	Pass
2	4961.000	48.68	3.36	74.0	-25.32	Peak	151.00	100	Horizontal	Pass

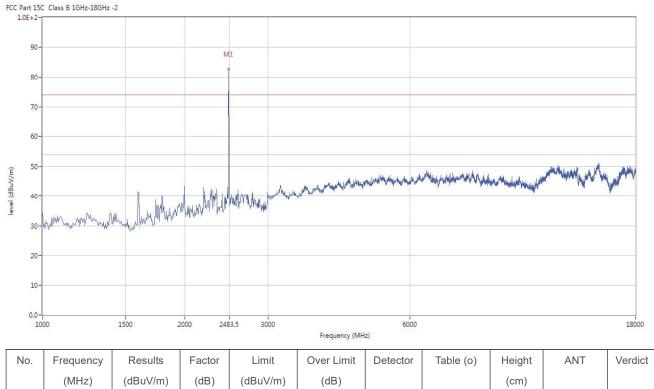
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#### Vertical



82.79 114.0 -21.21 1 2479.750 -3.57 Peak 123.00 100 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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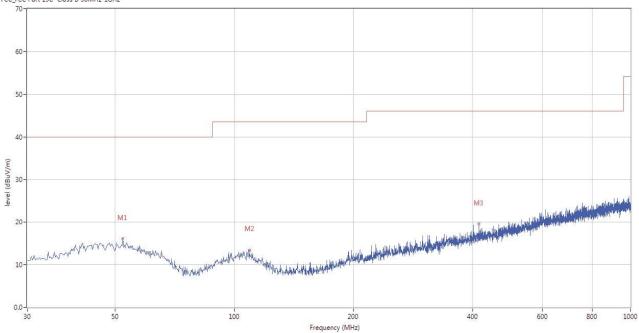
#### В. **General Radiated Emission Data** Radiated Emission In Horizontal (30MHz----1000MHz)

**EUT** set Condition: Keep Tx transmitting

**Results: Pass** 

Please refer to following diagram for individual

FCC\_FCC Part 15C Class B 30MHz-1GHz



No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table (o)	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)			(cm)		
1	52.304	16.03	-11.45	40.0	-23.97	Peak	50.00	100	Horizontal	Pass
2	109.278	13.48	-13.56	43.5	-30.02	Peak	62.00	100	Horizontal	Pass
3	414.266	19.50	-8.24	46.0	-26.50	Peak	127.00	100	Horizontal	Pass

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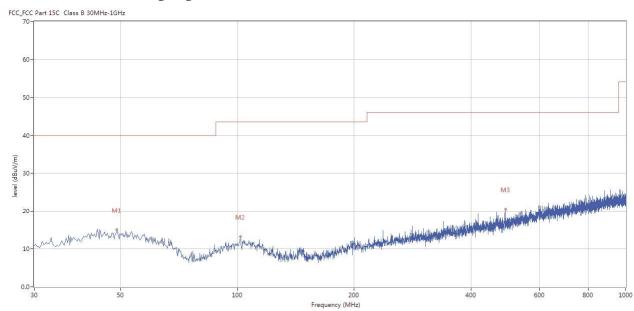


# Radiated Emission In Vertical (30MHz----1000MHz)

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	48.910	15.17	-11.21	40.0	-24.83	Peak	325.00	100	Vertical	Pass
2	101.762	13.27	-13.43	43.5	-30.23	Peak	346.00	100	Vertical	Pass
3	490.877	20.59	-7.19	46.0	-25.41	Peak	336.00	100	Vertical	Pass

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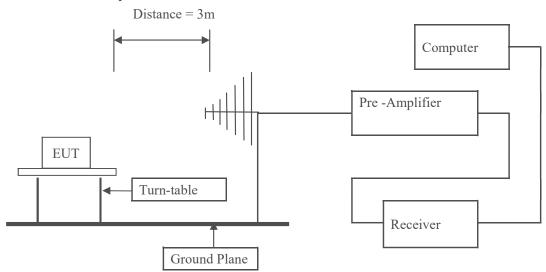


### 7. Band Edge

#### 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.

The report refers only to the sample tested and does not apply to the bulk.

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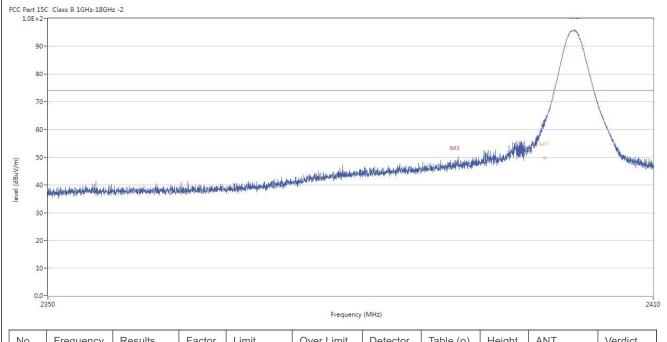
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#### 7.6 Test Result

Product:	Soul 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 (o)	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)			(cm)		
2	2399.965	62.50	-3.57	74.0	-11.50	Peak	137.00	100	Horizontal	Pass
2**	2399.965	49.76	-3.57	54.0	-4.24	AV	137.00	100	Horizontal	Pass
3	2390.215	48.43	-3.53	74.0	-25.57	Peak	148.00	100	Horizontal	Pass

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P	roduct:		Sou	ıl Speaker		Detect	or	,	Vertical	
]	Mode		Keeping	g Transmitti	ng	Test Vol	tage	]	DC3.7V	
Ten	nperature		24	4 deg. C,		Humid	ity	5	56% RH	
Tes	st Result:			Pass						
Part 150 1.0E+2-	C Class B 1GHz-18GH	z -2								
90-										
90-									M1	
80-										
70-										
60-										
								ď	VI2	
50-								- 10	1	
50-					3 3		M3			1
50 - 40 -		hairi bahanga kalanda da d	ALL Michigan Balantina	enter in the second of the second		profession de la constitue de			•	A section of the
	derly state of the		alarthology of his after		V. Landa Ladaha ya kata hada ah			Halada bullan da	٠	No madesperson
40-	desiphidish saphus Laurens	h di kalenja sharaka Men	alartiklasiyyat kirafiliya		of his productive productions and the second	yorkan kuphis boogsifaadi. Ad			۰	No mandalphane
40- 30- 20-	discharges Leaves	Light to be seen a see a s	alurillikasiyyahkkaitika	and the second second second second	y bhadairidh ar isribhdail	gantantsylkistävätätyösiktikki		Traits and a home to proper or the second	٠	And the same
40- 30- 20- 10-	<del>delle la la la cons</del> e	Late the property of the latest	alwilled way on the influence		y Liberard Liberary of Grant Habitath	yorkanlaydistosogayonahlak		Delta del hope de de la companya de	٠	No madespaper
40- 30- 20- 10-	den de la composition della co	and the state of t	ahiritikasa gathikatifka						•	
40- 30- 20- 10- 0.0- 23	de de la composición del composición de la composición de la composición del composición de la composición de la composición de la composición de la composición del composición de la composición de la composición del composici				Frequency (N	ИНz)			ANT	24
40- 30- 20- 10- 0.0- 23	Frequency	Results	Factor	Limit	Frequency (N		Table (o)	Height	ANT	24
40- 30- 20- 10- 0.0- 23	de de la composición del composición de la composición de la composición del composición de la composición de la composición de la composición de la composición del composición de la composición de la composición del composici				Frequency (N	ИНz)			ANT	24
40- 30- 20- 10-	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Frequency (N Over Limit (dB)	MHz)  Detector	Table (o)	Height (cm)		Verdict Pass Pass

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2\*\*

2483.418

50.09

-3.57

54.0



Product:		Soul Speaker		Polarit	ty	]	Horizontal	
Mode	Ke	eeping Transmittii	ng	Test Volt	tage		DC3.7V	
Temperature		24 deg. C,		Humidi	ity		56% RH	
Test Result:		Pass						
Part 15C Class B 1GHz-18GF	z -2							
90- 80- 70-								
pales	HAMINE THE REAL PROPERTY OF THE PROPERTY OF TH		M. Market and M. A. Company	idelaidhean leagai	Marke was desired from all and all and a	the desired transfer	hodonoriisheyn hellomish ka	hldi v ipelikas (haja)
40- 30-	HAMPINE THE REAL PROPERTY OF THE PROPERTY OF T		M. Control of the Con	in the state of th	Markowsky by by James Joseph	Africa Balgare Marie Andrea Andrea	korforneritedrajori daskironal bila	htdi.vapelini.j.hapi
30- 20-	ANGELIA TELEFORME		M. S. Andrewson and S.	in the state of th	Militaria de Agrael Lando de Agrael de Caralle de Caral	in the state of th	hofennesselespoi hakkensklika	likka sektral fran
40- 30-	ANGELIA TELEFORME		2483.5 Frequency (MHz)		illistenische bet für für der der der der der der der der der de	differential property and the	de de la companya de la lace	2500
50- 40- 30- 20- 10- 0.0- 2470		actor Limit	2483.5		Table (o)	Height	ANT	
30 - 20 - 10 - 2470			2483.5 Frequency (MHz)					2500

-3.91

ΑV

150.00

100

Pass

Horizontal

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P	roduct:		Sou	ıl Speaker		Detect	or	,	Vertical	
	Mode		Keeping	g Transmitti	ng	Test Vol	tage	I	DC3.7V	
Ten	nperature		24	deg. C,	, Humidity		5	56% RH		
Tes	st Result:			Pass						
C Part 150	C Class B 1GHz-18GHz	-2								
90- 80- 70-	-									
30- 20-	woodhisiddh is ceallagal	an aligh de de la la constitue de la constitue			The same and	ing the state of t	ndani-ardapelikanihaniha	A anish Aller of the poly a lift de	la Madhan dhain han haif.	nishightop alaph hope la
30- 20- 10-	ann atha an atha an ann an a	an ali il di			2483.5 Frequency (MH		n daine de perhitabile de du	de accidental liverable protection de la constitución de la constituci	da di da	2500
30- 20- 10-	woodh waddh, ac condinapl	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	2483.5		Table (o)	Height (cm)	ANT	

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 three modulation modes of GFSK, Pi/4D-QPSK, and 8DPSK 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. The antenna gain is -0.58dBi Max. It fulfills the requirement of this section. Test Result: Pass

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Product:	Soul Speal		Test Mode:		ansmitting
Mode	Keeping Trans		Test Voltage		C3.7V
Temperature	24 deg. C	2,	Humidity		% RH
Test Result:	Pass	r	Detector	-	PK
OdB Bandwidth	871.74kH				
Ref Lvl		0.00 dB V	7BW 100 ki	Hz	20 dB
10 dBm	BW 871.74348	3697 KHZ	SWT 8.5 m	s Unit	dBm
		F	<b>▼</b> 1	[T1] 2.4020	-0.48 dBm 01503 GHz
0		M	ndB BW ▼T	871.7434	
-10	m1/	<b>1</b>	VT	2.4015 [T1] -2	
-20 <b>1MAX</b>				2.4024	
-30					
-50				my	M
-60					
-70					
-80					
-90 Center 2.402				 Sr	

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Product:	Soi	ul Speaker	·		Test Mode:		Keep tra	ansmitting	
Mode	Keepin	g Transmi	tting		Γest Voltage		DC	C3.7V	
Temperature	2-	4 deg. C,			Humidity		56% RH		
Test Result:		Pass			Detector			PK	
20dB Bandwidth	85	59.72kHz							
Ŕ	Marker 1 [T1 ndB]			RBW	30 kH	Iz RI	7 Att	20 dB	
Ref Lvl	ndB		00 dB	VBW					
10 dBm	BW 859.71943888 kHz			SWT	8.5 ms	Ur	nit	dBm	l
10					<b>v</b> <sub>1</sub>	[T1]	<b>—</b> (	.24 dBm	A
			1				2.44086	473 GHz	
0			\\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\	\ \	ndB		20	0.00 dB	
				VY	BW		9.71943	888 kHz	
-10			$\mathcal{N}$	\	$\nabla_{\mathrm{T}_{1}}$	[T1]	-2(	.62 dBm 7615 GHz	
		/	/		\\ <sub>T2</sub> \\ <sub>T2</sub>		2.44057615 GHz [T1] -20.32 dBm		
-20						[ + + ]	2.44143587 GHz		
1MAX					/				1M2
-30	1					لير ا			
-40	Jan Market						$\overline{\sim}$	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	
-50 W V V									
-60									
-70									
-80									
-90									
Center 2.4	441 GHz		300	kHz/			Spa	an 3 MHz	

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Product:	So	ul Speaker	•	Γ	est Mode:	Ke	ep transmitting
Mode	Keepin	g Transmi	tting	Т	est Voltage		DC3.7V
Temperature	2	4 deg. C,			Humidity		56% RH
Test Result:		Pass			Detector		PK
dB Bandwidth	8.	59.72kHz					
Ŕ	Marker	1 [T1 r	ndB]	RBW	30 kHz	RF At	t 20 dB
Ref Lvl	ndB	20.	00 dB	VBW	100 kHz		
10 dBm	BW 85	9.719438	888 kHz	SWT	8.5 ms	Unit	dBm
10					<b>v</b> <sub>1</sub> [	r1]	-0.12 dBm
				1		2.48	
0			M		ndB		20.00 dB
				V 4	BW ▼⊤1	859.71 [ <b>T</b> 1]	1943888 kHz -20.15 dBm
-10			$\sim$	7	•	2.4	
		TI			$\nabla_{\text{T2}}\nabla_{\text{T2}}$	[T1]	-20.19 dBm
-20		N N			Ty -	2.48	
1MAX					$\mathcal{A}$		11
-30	~~				<u> </u>	4	
-40							
-50							
-60							
-70							
-80							
-90 Center 2 48	90 Center 2.48 GHz			kHz/			Span 3 MHz

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Pi/4D-QPSK Mod		1		ast Made	17		
Product:	Soul Spo		_	est Mode:	K	Leep transmitting	
Mode	Keeping Tra			est Voltage		DC3.7V	
Temperature	24 deg			Humidity		56% RH	
Test Result:	Pass			Detector		PK	
20dB Bandwidth	1.214N	ПНz					
Ŕ	Marker 1 [	Marker 1 [T1 ndB] RBW 30 kHz		RF A	tt 20 dB		
Ref Lvl	ndB	20.00 dB	VBW	100 kHz			
10 dBm	BW 1.21	142886 MHz	SWT	8.5 ms	Unit	dBm	
10				<b>V</b> 1 []	[1]	-1.41 dBm	
		1			I .	40186473 GHz	A
0		X		ndB		20.00 dB	
		/\ / \	^	BW	1.:	21442886 MHz	
-10		5.0/ m	V	Vh,	[T1]	-21.51 dBm	
					2.40139579 GHz		
-20	IV			V T)	[T1] -21.59 dBm 2.40261022 GHz		
1MAX				~		40201022 GH2	1MA
-30							
-40	ww				m	~~~~~	
-50							
-60							
-70							
-80							
-90 Center 2.4				Span 3 MHz			
ate: 19.APR.2021 17:37:53							

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Product:		Soul Speaker			Test Mode:		Keep transmitting		
Mode		oing Transmi			est Voltage			23.7V	
Temperature	Tree	24 deg. C,			Humidity			% RH	
Test Result:		Pass			Detector			PK	
OdB Bandwidth		1.220MHz							
^	241		- ID 1	DDM		- D			
Ref Lvl	ndB	er 1 [T1 r 20.	00 dB	RBW VBW	30 ki 100 ki		F Att	20 dB	
10 dBm	BW	1.220440		SWT	8.5 m		nit	dBm	l
10					ightharpoons1	[T1]	-1	1.32 dBm	
			1				2.44086	473 GHz	A
0			Ň	١	ndB		20	0.00 dB	
			$  \ \   \ \   \ \   \ \  $	h ~	BW VT1		1.22044		
-10		MM	M	<u> </u>	Vy T	[T1]	-21	.29 dBm	
			<b>~</b>		∇ <sub>TW</sub>	[T1]	-21		
-20		Y			12		2.44161623 GHz		
1MAX						4			1MA
-30									
-40	~~~					И	m_//	~~~\	
-50									
-60									
-70									
-80									
-90									
Center 2.4	41 GHz		300	kHz/			Spa	an 3 MHz	

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Pi/4D-QPSK Moo								
Product:		l Speaker		Test Mode:			ansmitting	
Mode	Keeping	Transmitting		Test Voltage			23.7V	
Temperature	24	deg. C,		Humidity		569	% RH	
Test Result:		Pass		Detector		]	PK	
20dB Bandwidth	1.2	220MHz						
	Marker	1 [T1 ndB]	RBV	30 kH	z Ri	F Att	20 dB	
Ref Lvl	ndB	20.00 dB	VBV	7 100 kH				
10 dBm	BW 1	.22044088 MHz	SWI	8.5 ms	Uı	nit	dBm	
10				<b>v</b> <sub>1</sub>	[T1]	-1	l.16 dBm	
		1				2.47986	473 GHz	Α
0		T T	٨	ndB		20	0.00 dB	
				BW		1.22044		
-10		~~~	V /	M T	[T1]	-21	.32 dBm	
					[T1]	2.47939		
-20	T			72				
1MAX					Ч			1MA
-30								
-40	V-~~				M	m		
-50								
-60								
-70								
-80								
-90 Center 2.4				ın 3 MHz				
Date: 19.2	APR.2021 17	:39:08						

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Product:	So	ul Speaker			Tes	t Mode:		Keep tra	nsmitting	
Mode	Keepin	g Transmit	tting		Tes	t Voltage		DC	3.7V	
Temperature	2	4 deg. C,			Н	umidity		56%	6 RH	
Test Result:		Pass			D	etector		I	PK	
OdB Bandwidth	1.	214MHz								
Ŕ	Marker	1 [T1 n	ndB]	RE	3W	30 kI	Hz R	7 Att	20 dB	
Ref Lvl	ndB		00 dB	VE		100 kF				
10 dBm	BW 1	.214428	886 MHz	SV	VT	8.5 ms	S U	nit	dBm	1
						$\blacktriangledown_1$	[T1]	-1	.42 dBm	A
0			1					2.40186	473 GHz	
				\		ndB BW		20	.00 dB	
1.0				$\sqrt{}$		$ abla_{\mathrm{T}1}^{\mathrm{BW}}$	[T1]	-2.1 -2.1	886 MHz	ı
-10		\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		•	WYV	m		2.40140	180 GHz	
	т	27					2 [T1]	-21	.55 dBm	L
-20 <b>1MAX</b>							7	2.40261	623 GHz	1MA
-30										
-40	mmy .						N	M	$\sim$	
-50										
-60										
-70										
-80										
-90										
Center 2.	402 GHz		300	kHz/				Spa	n 3 MHz	

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8QPSK Modula Product:		Soul Speake	11°	7	Test Mode:		Kann tu	ansmitting	
Mode	V							23.7V	
	N.	eeping Transm			est Voltage			% RH	
Temperature		24 deg. C,			Humidity				
Test Result:		Pass			Detector		1	PK	
20dB Bandwidth		1.214MHz							
		ker 1 [T1		RBW	30 k		F Att	20 dB	
Ref Lvl 10 dBm	ndE BW		.00 dB 886 MHz	VBW SWT	100 k 8.5 m	Hz s II:	nit	dBm	
10 dBiii		1,21112	1 I	SWI			I	Q D III	i
					<b>v</b> <sub>1</sub>	[T1]	-1	.26 dBm	A
			1				2.44086		
				\	ndE BW		1.21442	.00 dB 886 MHz	
1.0				7	Λ ∇ <sub>T</sub>	[T1]	-20	.87 dBm	
-10		M	W	. W.			2.44040	180 GHz	
		T			∇ <sub>T</sub>	(2 [T1]	-21	.30 dBm	
-20		<u> </u>				4	2.44161	623 GHz	1202
-30						4			1MA
-40	~~~					$\bigvee$	~~~	$\sim$	
-50									
-60									
-70									
-80									
-90									
Center 2.	441 GHz		300	kHz/			Spa	an 3 MHz	
Date: 19	ADD 2021	17:35:50							

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8QPSK Modula	ation								
Product:		Soul Speaker	•		Test Mode:		Keep tra	ansmitting	
Mode	Kee	ping Transmi	tting	-	Γest Voltage		DC	C3.7V	
Temperature		24 deg. C,			Humidity		569	% RH	
Test Result:		Pass			Detector		]	PK	
20dB Bandwidth		1.220MHz							
(R)	Mark	er 1 [T1 r	ndB]	RBW	30 k	Hz R	F Att	20 dB	
Ref Lvl	ndB		.00 dB	VBW		Hz			
10 dBm	BW	N 1.22044088 MHz		SWT	8.5 m	s U	nit	dBm	
					<b>v</b> <sub>1</sub>	[T1]	-1	1.06 dBm	A
0			<u>1</u>				2.47986	473 GHz	
Ŭ.				$\setminus$	ndB		20	0.00 dB	
			$  \   \   \  $	W/	BW VT1	[T1]	1.22044	1088 MHz	
-10		\w\^		7			2.47939	579 GHz	
		T <sub>f</sub>			∇ <sub>T</sub>	2[T1]	] -21.09 dBm		
-20 <b>1MAX</b>						5	2.48061	623 GHz	1MA
IMAX						4			IMA
-30									
-40	/					-	-~		
-50	my.					\	r \	~~~\	
-30									
-60									
-70									
-80									
-90									
Center 2.	.48 GHz		300	kHz/			Spa	an 3 MHz	
Date: 19	.APR.2021	17:35:03							

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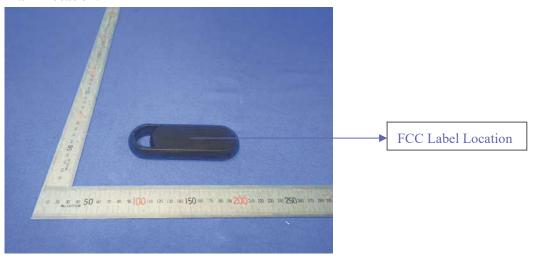


#### 10.0 FCC ID Label

#### FCC ID: 2APYY-AE0189

The label must not be a stick-on paper label. The label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

#### **Mark Location:**



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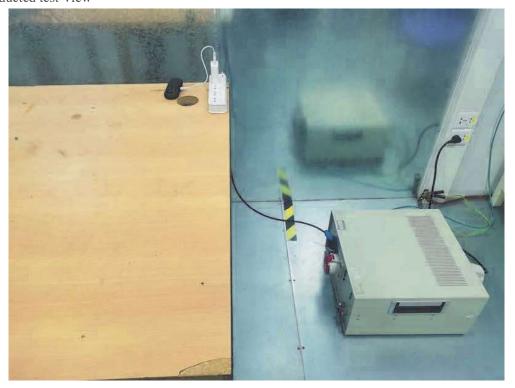
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#### 11.0 Photo of testing

#### 11.1 Conducted test View--



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### Radiated emission test view



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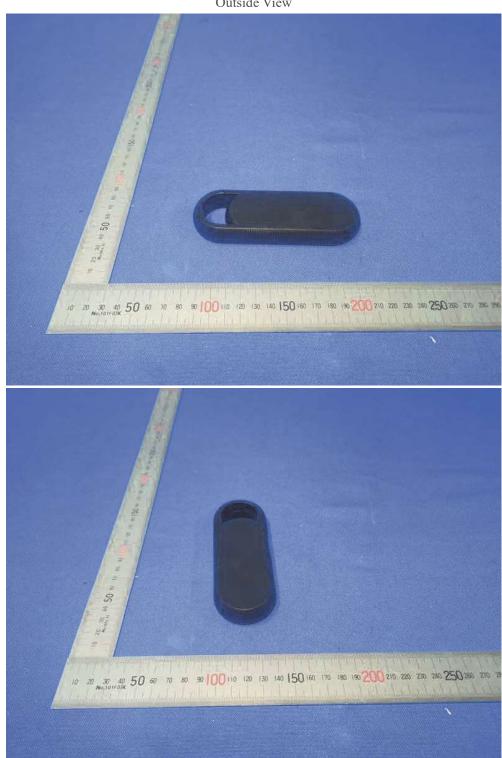
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#### 11.2 Photographs – EUT

Outside View



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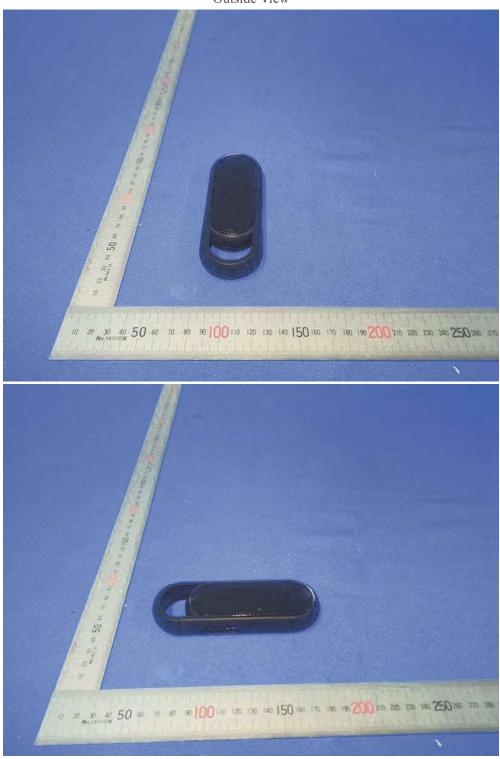
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# Photographs – EUT

#### Outside View



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Inside view



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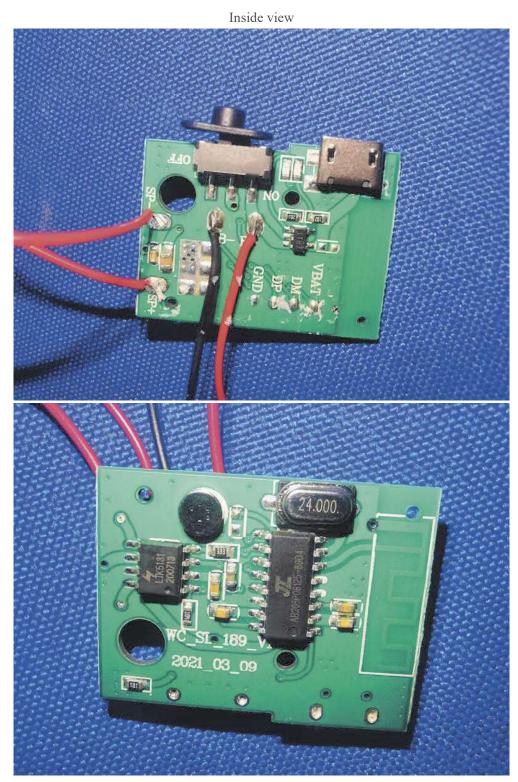
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-- End of the report--

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