

Report No.: TW2404016E

Applicant: LEADER PREMIUMS LIMITED

Product: Bluetooth Speaker

Model No.: AE0316

Trademark: 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

Turugruph 15.219 regulations for the evaluation of

electromagnetic compatibility

Approved By

Terry Tang

Manager

Dated: April 08, 2024

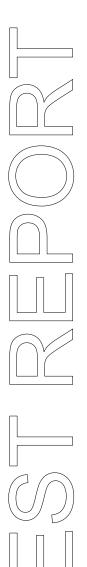
Results appearing herein relate only to the sample tested

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

Tel (755) 83448688, Fax (755) 83442996, E-Mail:info@timeway-lab.com



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Special Statement:

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

CAB identifier: CN0033

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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 LIMITED

Address: ROOM 901, HENGFU MANSION, NO.858, FUMINGROAD, NINGBO, CHINA

1.3 Description of EUT

Product: Bluetooth Speaker

Manufacturer: LEADER PREMIUMS LIMITED

Address: ROOM 901, HENGFU MANSION, NO.858, FUMINGROAD, NINGBO,

CHINA

Factory: LEADER PREMIUMS LIMITED

Address: ROOM 901, HENGFU MANSION, NO.858, FUMINGROAD, NINGBO,

CHINA

Trademark: N/A
Model Number: AE0316
Additional Model Name N/A

Rating: DC5V, 300mA

Battery: DC3.7V, 300mAh Li-ion battery
Modulation Type: GFSK, Π/4DQPSK for Bluetooth

Operation Frequency: 2402-2480MHz

Channel Number: 79
Channel Separation: 1MHz
Hardware Version: V1.0
Software Version: V1.0
Serial No.: AE0316

Antenna Designation PCB antenna with gain 1.7dBi Max (Get from the antenna specification)

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1.4 Submitted Sample: 2 Samples

1.5 Test Duration

2024-04-01 to 2024-04-08

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 is for coverage factor of k=2 and a level of confidence of 95%.

1.7 Test Engineer

The sample tested by

Print Name: Andy Xing

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2.0 Test Equipment					
Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
ESPI Test Receiver	R&S	ESPI 3	100379	2023-07-14	2024-07-13
LISN	R&S	EZH3-Z5	100294	2023-07-14	2024-07-13
LISN	R&S	EZH3-Z5	100253	2023-07-14	2024-07-13
Impuls-Begrenzer	R&S	ESH3-Z2	100281	2023-07-14	2024-07-13
Loop Antenna	EMCO	6507	00078608	2022-07-18	2025-07-17
Spectrum	R&S	FSIQ26	100292	2023-07-14	2024-07-13
Horn Antenna	A-INFO	LB-180400-KF	J211060660	2022-07-18	2025-07-17
Horn Antenna	R&S	BBHA 9120D	9120D-631	2022-07-18	2024-07-17
Power meter	Anritsu	ML2487A	6K00003613	2023-07-14	2024-07-13
Power sensor	Anritsu	MA2491A	32263	2023-07-14	2024-07-13
Bilog Antenna	Schwarebeck	VULB9163	9163/340	2022-07-18	2025-07-17
9*6*6 Anechoic			N/A	2022-07-26	2025-07-25
EMI Test Receiver	RS	ESVB	826156/011	2023-07-14	2024-07-13
EMI Test Receiver	RS	ESCS 30	834115/006	2023-07-14	2024-07-13
Spectrum	HP/Agilent	E4407B	MY50441392	2023-07-14	2024-07-13
Spectrum	RS	FSP	1164.4391.38	2023-07-14	2024-07-13
RF Cable	Zhengdi	ZT26-NJ-NJ-8M/FA		2023-07-14	2024-07-13
RF Cable	Zhengdi	7m		2023-07-14	2024-07-13
Pre-Amplifier	Schwarebeck	BBV9743	#218	2023-07-14	2024-07-13
Pre-Amplifier	HP/Agilent	8449B	3008A00160	2023-07-14	2024-07-13
LISN	SCHAFFNER	NNB42	00012	2023-07-14	2024-07-13
ESPI Test Receiver	R&S	ESPI 3	100379	2023-07-14	2024-07-13
LISN	R&S	EZH3-Z5	100294	2023-07-14	2024-07-13

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 EU	Γ has been	tested a	according	to the	following	specifications:

Standard	Test Type	Result	Notes
FCC Part 15, Paragraph 15.203	Antenna Requirement	Pass	Complies
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
FCC Part 15.215(c)	20dB bandwidth	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

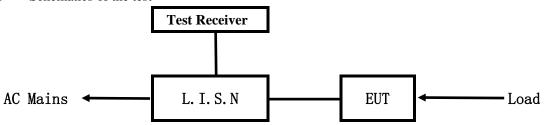
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5.0 Power Line Conducted Emission Test

5.1 Schematics of the test

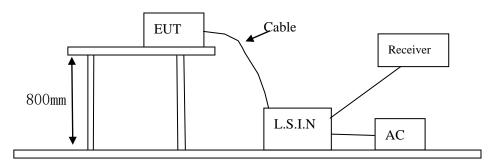


EUT: Equipment Under Test

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 500hm/50uH as specified by section 5.1 of ANSI C63.10-2013.

Test Voltage: 120V~, 60Hz 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.

79 channels are provided to the EUT

A. EUT

Device	Manufacturer	Model	FCC ID
Dlustooth Crooker	LEADER PREMIUMS	AE0316	2APYY-AE0316
Bluetooth Speaker	LIMITED	AE0310	ZAP I I-AE0310

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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 μ V)				
(MHz)	Quasi-peak Level	Average Level			
$0.15 \sim 0.50$	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:

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

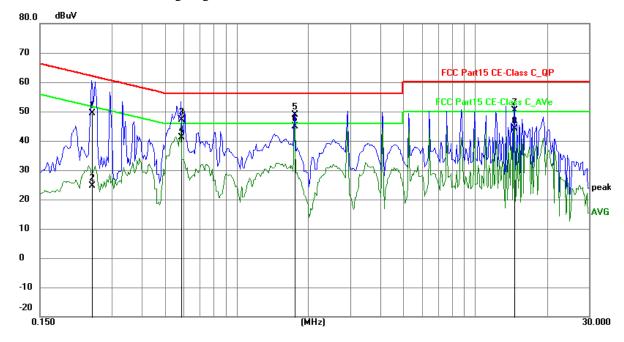
EUT Operating Environment

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

EUT set Condition: Charging + Communication by BT

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	0.2475	39.52	9.75	49.27	61.84	-12.57	QP	Р
2	0.2475	14.95	9.75	24.70	51.84	-27.14	AVG	Р
3	0.5868	37.38	9.77	47.15	56.00	-8.85	QP	Р
4	0.5868	31.46	9.77	41.23	46.00	-4.77	AVG	Р
5	1.7490	38.96	9.80	48.76	56.00	-7.24	QP	Р
6	1.7490	35.13	9.80	44.93	46.00	-1.07	AVG	Р
7	14.5869	39.91	10.36	50.27	60.00	-9.73	QP	Р
8	14.5869	33.81	10.36	44.17	50.00	-5.83	AVG	Р

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

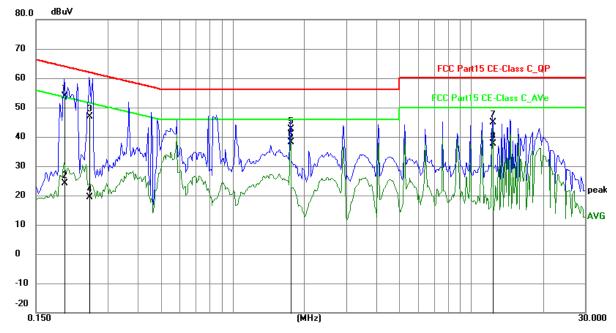
EUT Operating Environment

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

EUT set Condition: Charging + Communication by BT

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	0.1968	44.22	9.75	53.97	63.74	-9.77	QP	Р
2	0.1968	14.32	9.75	24.07	53.74	-29.67	AVG	Р
3	0.2514	37.10	9.75	46.85	61.71	-14.86	QP	Р
4	0.2514	9.59	9.75	19.34	51.71	-32.37	AVG	Р
5	1.7490	32.86	9.80	42.66	56.00	-13.34	QP	Р
6	1.7490	28.28	9.80	38.08	46.00	-7.92	AVG	Р
7	12.2547	34.51	10.26	44.77	60.00	-15.23	QP	Р
8	12.2547	27.37	10.26	37.63	50.00	-12.37	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 9kHz to 25 GHz was investigated. The frequency spectrum is set as follows:

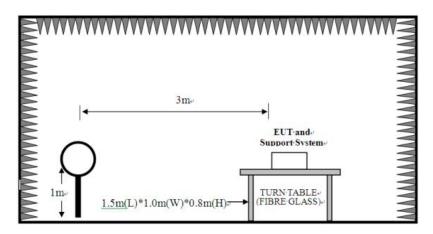
Frequency	Detector	RBW	VBW	Value
9KHz-150KHz	Quasi-peak	200Hz	600Hz	Quasi-peak
150KHz-30MHz	Quasi-peak	9KHz	30KHz	Quasi-peak
30MHz-1GHz	Quasi-peak	120KHz	300KHz	Quasi-peak
Above 1GHz	Peak	1MHz	3MHz	Peak
ADOVE IGHZ	Peak	1MHz	10Hz	Average

(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

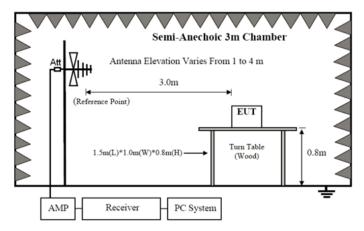


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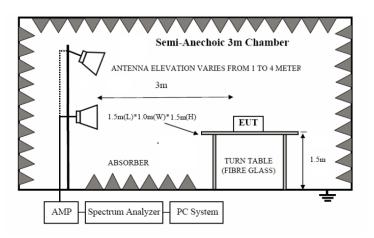
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For radiated emissions from 30MHz to1GHz



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.
- 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 Fundamental (3m)	Field S	trength of Harmonics (3m)
(MHz)	mV/m	dBuV/m	uV/m	dBuV/m

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2400-2483.5 50	94 (Average)	114 (Peak)	500	54 (Average)	74 (Peak)
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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 μ V/m)
0.009-0.490	3	20log(2400/F(kHz)) +40log (300/3)
0.490-1.705	3	20log(24000/F(kHz)) +40log (30/3)
1.705-30	3	69.5
30-80	3	40.0
88-216	3	43.5
216-960	3	46.0
Above 960	3	54.0

Note:

- 1. RF Voltage $(dBuV) = 20 \log RF \text{ Voltage } (uV)$
- 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. 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.
- 5. 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.
- 6. This is a portable 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.
- 7. Battery fully charged was used during the test.

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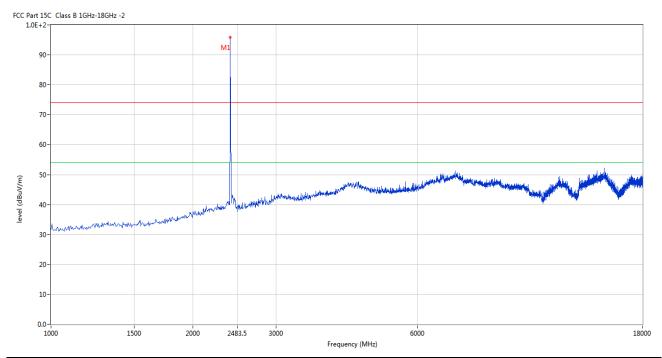


6.5 Test result

A Fundamental & Harmonics Radiated Emission Data

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

Horizontal



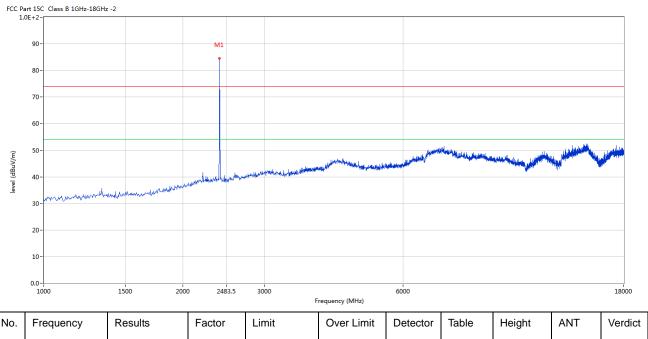
No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2402	95.81	-3.57	114.0	-18.19	Peak	20.00	100	Horizontal	Pass
1**	2402	86.33	-3.57	94.0	-7.67	AV	20.00	100	Horizontal	Pass

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Vertical



No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2402	84.59	-3.57	114.0	-29.41	Peak	279.00	100	Vertical	Pass

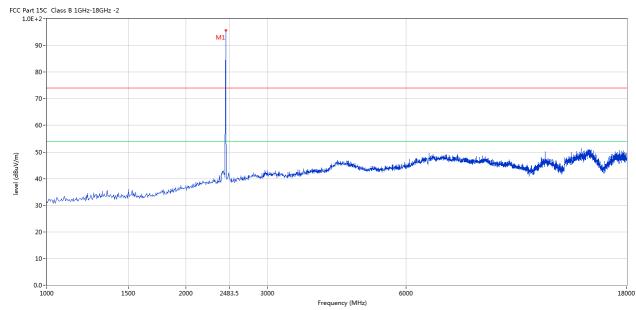
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Please refer to the following test plots for details: Middle Channel-2441MHz

Horizontal



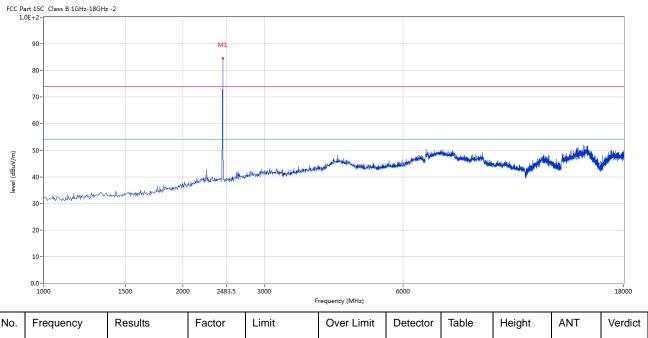
No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2441	95.59	-3.57	114.0	-18.41	Peak	180.00	100	Horizontal	Pass
1**	2441	86.12	-3.57	94.0	-7.88	AV	180.00	100	Horizontal	Pass

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Vertical



No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2441	84.55	-3.57	114.0	-29.45	Peak	291.00	100	Vertical	Pass

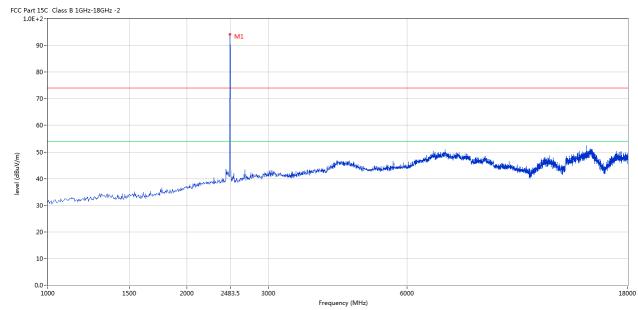
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Please refer to the following test plots for details: High Channel-2480MHz

Horizontal



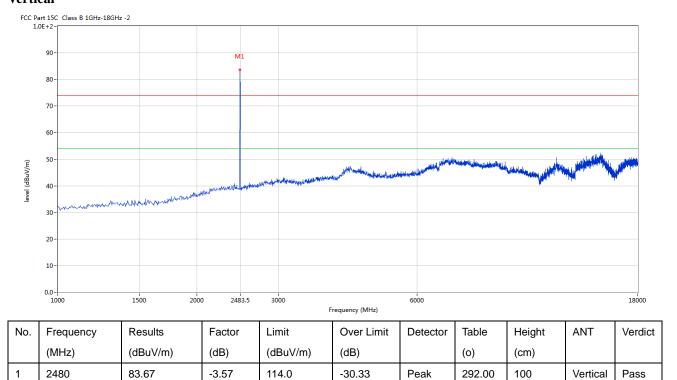
No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2480	94.25	-3.57	114.0	-19.75	Peak	206.00	100	Horizontal	Pass
1**	2480	85.70	-3.57	94.0	-8.30	AV	206.00	100	Horizontal	Pass

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Vertical



Note: (1) Emission Level = Reading Level + Antenna Factor + Cable Loss-Amplifier

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

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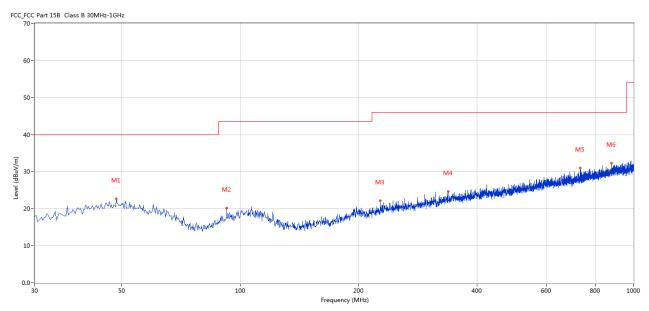


B. General Radiated Emission Data Radiated Emission In Horizontal (30MHz----1000MHz)

EUT set Condition: Keep Tx transmitting

Results: Pass

Please refer to following diagram for individual



No.	Frequency	Results	Factor	Limit	Margin	Detector	Table	Height	Antenna	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(Degree)	(cm)		
1	48.425	22.62	-11.22	40.0	17.38	Peak	43.00	100	Horizontal	Pass
2	92.307	20.22	-14.62	43.5	23.28	Peak	326.00	100	Horizontal	Pass
3	227.103	22.10	-12.80	46.0	23.90	Peak	310.00	100	Horizontal	Pass
4	338.140	24.69	-9.77	46.0	21.31	Peak	271.00	100	Horizontal	Pass
5	732.832	31.00	-3.61	46.0	15.00	Peak	356.00	100	Horizontal	Pass
6	878.780	32.30	-1.98	46.0	13.70	Peak	97.00	100	Horizontal	Pass

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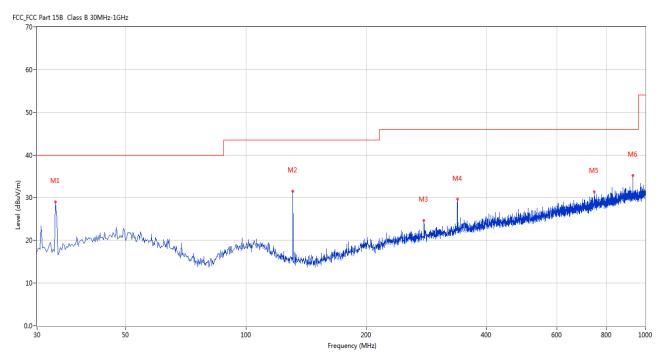


Radiated Emission In Vertical (30MHz----1000MHz)

EUT set Condition: Keep Tx transmitting

Results: Pass

Please refer to following diagram for individual



No.	Frequency	Results	Factor	Limit	Margin	Detector	Table	Height	Antenna	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(Degree)	(cm)		
1	33.394	28.98	-14.35	40.0	11.02	Peak	172.00	100	Vertical	Pass
2	131.097	31.53	-16.83	43.5	11.97	Peak	160.00	100	Vertical	Pass
3	279.228	24.65	-11.53	46.0	21.35	Peak	167.00	100	Vertical	Pass
4	338.625	29.60	-9.76	46.0	16.40	Peak	209.00	100	Vertical	Pass
5	745.681	31.40	-3.42	46.0	14.60	Peak	82.00	100	Vertical	Pass
6	930.905	35.20	-1.73	46.0	10.80	Peak	203.00	100	Vertical	Pass

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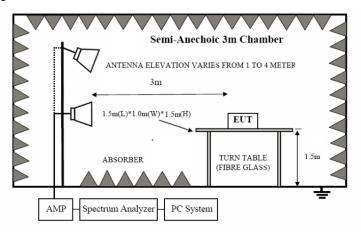


7. Band Edge

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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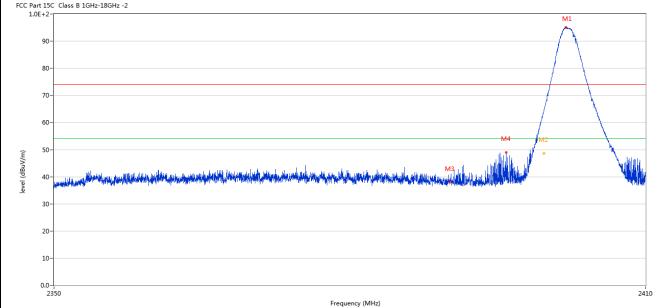
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7.6 Test Result

Product:	Bluetooth Speaker	Polarity	Horizontal
Mode	Keeping Transmitting	Test Voltage	DC3.7V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass		
FCC Part 15C Class B 1GHz-18GHz -2 1.0E+2-			
1.01.72			M1



No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2401.827	95.05	-3.57	74.0	21.05	Peak	14.00	100	Horizontal	N/A
2	2400.000	63.64	-3.57	74.0	-10.36	Peak	14.00	100	Horizontal	Pass
2*	2400.000	48.87	-3.57	54.0	-5.13	AV	14.00	100	Horizontal	Pass
3	2390.000	38.01	-3.53	74.0	-35.99	Peak	205.00	100	Horizontal	Pass
4	2395.724	48.99	-3.55	74.0	-25.01	Peak	14.00	100	Horizontal	Pass

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Date. 2024-04-08	

]	Product:	act: Bluetooth Speaker			<u> </u>		Vertical			
	Mode]	Keeping Tr	ransmitting		Test Voltage		DC3.7V		
Te	Temperature		24 de	eg. C,		Humid	ity	56% RH		
Te	est Result:		Pa	iss						
CC Part 1 1.0E+	15C Class B 1GHz-18GHz 2-	: -2								
0										
9	0-								M1	
8	0-								\bigcap	
7	0-							/		
6	0-									
	60-									
. 5	0-							M2	1/	
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3	O-	become in the light annual school scenario	جديا بالمشارية المسيغ الوطاب	त्तरी विद्यालया है जिल्ला का क्षेत्र के प्रत्य के प	ingan landar dipental para dipental dipental dipental dipental dipental dipental dipental dipental dipental di	M	3 Vele <u>tion granistif</u> velet <u>i in di</u>	M2 •		harali dagaalah
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4 3 2 1	0- 0- 0-			ne transport og en	Frequency (MHz)	M	3 oth tampanin Newton in Man	M2 •		
. 4 3 2 1		Results	Factor	Limit		M	Table	Height	ANT	24
. 4 3 2 1	0-				Frequency (MHz)	und und ving in the closed specimen to pro-	ati Kanganinik nisrisida da	Height (cm)	ANT	24
3 3 2 2 1 1 0.	0- 0- 0- 2350	Results	Factor	Limit	Frequency (MHz) Over Limit	und und ving in the closed specimen to pro-	Table	_	ANT Vertical	24
3 3 2 1 1 0.	o- 0- 0- 2350 Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Frequency (MHz) Over Limit (dB)	Detector	Table (o)	(cm)		24 Verdid
4 3 2	0	Results (dBuV/m) 88.52	Factor (dB) -3.57	Limit (dBuV/m) 74.0	Frequency (MHz) Over Limit (dB) 14.52	Detector	Table (o) 285.00	(cm) 100	Vertical	verdic

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	Product:		Bluetoo	th Speaker		P	olarity		Horizont	al
	Mode	Mode Keeping Transmitting		Test Voltage			DC3.7V	7		
Te	emperature		24 0	leg. C,		Humidity 56		56% RF	RH	
T	est Result:		I	Pass						
C Part	15C Class B 1GHz-18GH	z -2		M1		•		•		
(11/200) (200)	90 - 80 - 70 - 60 - 40 - 40 - 30 - 80	Mark Market and the second and the s		N N	2	Mad Margarite Agriculture	in the delivery was a second	arathur Hannada da	handra kan and hill of the Joyne of Albert	ring think did the high
	20-									
				24	33.5					
,	0.0- 2470			248	Frequency (MHz)					25
No.		Results	Factor	Limit		Detector	Table	Height	ANT	Verdic
	2470	Results (dBuV/m)	Factor (dB)	T	Frequency (MHz)	Detector	Table (o)	Height (cm)	ANT	

	No.	Frequency	Results	Factor	Limit	Over	Detector	Table	Height	ANT	Verdict
		(MHz)	(dBuV/m)	(dB)	(dBuV/m)	Limit (dB)		(o)	(cm)		
	1	2480.182	93.20	-3.57	74.0	19.20	Peak	188.00	100	Horizontal	N/A
	2	2483.500	57.90	-3.57	74.0	-16.10	Peak	188.00	100	Horizontal	Pass
	2**	2483.500	42.71	-3.57	54.0	-11.29	AV	188.00	100	Horizontal	Pass
Г											

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]	Product: Bluetooth Speaker				Detec	tor		Vertical		
	Mode	Mode Keeping Transmitting				Test Vo	ltage		DC3.7V	
Te	mperature	re 24 deg. C, Humidity 56% RF				56% RH				
Te	st Result: Pass									
C Part 1	15C Class B 1GHz-18GHz	-2			1			•		
9	10-		M1							
8	60-		MALL	l _M						
7	70-		1							
_	60-		M	A.W.						
	0-		1	1						
6			ſ	VI M						
_	0-	/	N. C.	Myra M2						
_	10 - udlarining a same a same	A SALES AND A	W ^f	M 2	Marine and the second	alian dia 16 and herbroom be	Algebra atta para para di Alde	يوناحم والمتعادر المتعادر المتعادر	and the same of	Valendari
5	10	white the same of	w ^t	MA M2	Manager all more largery with	ndina dagi siyandi beli saaqi be	All thing sign or copy of thick	المتعادر والاقتصادار والمتعاد والمتعادد	والمستراف والمستراد والمسترد و	W attendants
5 4	10 - upt greet heiste besteller de gegen gebeurt de de	Market	4) ⁽¹	Mark M2	أياليسميوه مداوستان ليجاد فارسال	ind in a side of the second design of spaces, and	Marine and a second of the latest and the latest an	ar galafi salarisi Andreas Arthur salari	dr. dis yen ongo hili popp sakilib odd sakilib	Waterland
5 4	10-	ada meta hawa wa hawa haifa da a	4) ⁽⁷	Who M2	Managementaleparement	ndirana Anglistania indistronguin	Alphan in an	arakali peleriki da kamandak karinga d	de dispressability profesional collection	Water/orb
3	10 - upt greet heiste besteller de gegen gebeurt de de	National Committee	4) ⁽¹	Who M2	المراجعة الم	ndira, ndipuliancia heli donquit	Alexander grip war not of the late.	ા કરતી _. તે કરતી કું તે કે તે કહે તે કહે છે. તે કહે તે ક	જે પૈકાન અનુક દેશો હતું કરો કરો કરો છે. જે તમાર તમાર તમાર તમાર તમાર તમાર તમાર તમાર	the contract of the contract o
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. 51 . 44 . 34 . 24	10 - Markabanda - Maryarian kada 10 -	ndiametric constituent of		2483.5		ndira, Majadismani, helik danga be	Alexander grip war met of stables.	ા કર્યાં _{નુ} ં ત્રાંત્રવ્યું કે ત્રાંત્રવ્યું કે ત્રાંત્રવ્યું કે ત્રાંત્રવ્યું કે ત્રાંત્રવ્યું કે ત્રાંત્રવ્યું	ik daya ang kalaya paga kalibak albah	2500
. 51 . 44 . 34 . 24		Results	Factor			Detector	Table	Height	ANT	ı
. 5 . 4 . 3 . 2 . 2 . 1 . 0 . 0 .	0		Factor (dB)		Frequency (MHz)					ı
5 4 3 2 1 0	no- no- no- no- no- no- no- no- no- no-	Results		Limit	Frequency (MHz) Over Limit		Table	Height		2500 Verdi

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

2. For Restricted band test, 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. The antenna gain is 1.7dBi Max. It fulfills the requirement of this section. Test Result: Pass

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9.0 20dB Bandwidth Measurement

Test Configuration



Test Procedure

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 30kHz RBW and 100kHz VBW.

The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.

Limit

N/A

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Test Result

Product:	Bluetooth Speaker		Test Mode:	Keep transmitting
Mode	Keeping Transmitting		Test Voltage	DC3.7V
Temperature	24 deg.	C,	Humidity	56% RH
Test Result:	Pass		Detector	PK
20dB Bandwidth	882kH	Z		
Ref 10 di	3m *Att 20		100 kHz	eer 1 [T1] -0.52 dBm 2.401868000 GHz
_0		1	ndB BW 8 Temp	[T1] 20.00 dB 82.000000000 kHz 1 [T1 ndB] A
10		MM	Temp	-20.72 dBm 2.401586000 GHz 2 {T1 ndp}
20	T1/	/*	M _{T2}	-20.72 dBm 2.402468000 GHz
30			1	
40	Ma /			1 m
-50	<i>f</i> [V			3DB
2 -60				
70				
80				
-90 Center 2.	100 00-	300 kHz/		Span 3 MHz

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Date: 7.APR.2024 10:13:55

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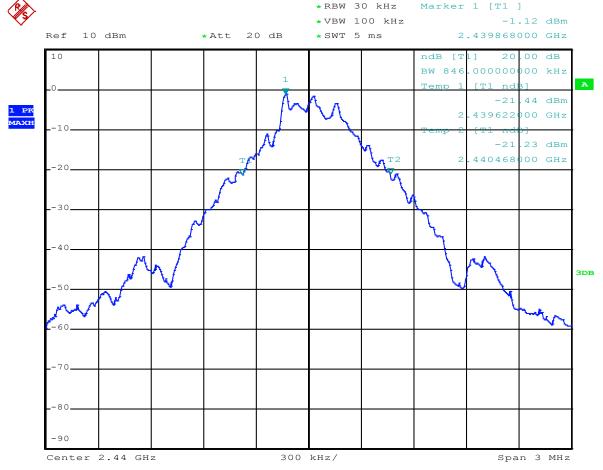
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GFSK			
Product:	Bluetooth Speaker	Test Mode:	Keep transmitting
Mode	Keeping Transmitting	Test Voltage	DC3.7V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK
20dB Bandwidth	846kHz		
6)	, DDW	20 kHz Markor 1	rm1 1



Date: 7.APR.2024 10:15:39

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Product:	Bluetooth	Speaker	Test Mode:	Keep transmitting
Mode	Keeping Tra	nsmitting	Test Voltage	DC3.7V
Temperature	24 deg	. C,	Humidity	56% RH
Test Result:	Pas	S	Detector	PK
20dB Bandwidth	846k)	Hz		
Ref 10 di	Bm *Att 2	*VBW	100 kHz 5 ms 2	1 [T1] -2.12 dBm .479868000 GHz
10		1	ndB [T BW 846 Temp 1	.000000000 kHz
-10		My		-22.40 dBm .479616000 GHz
-20	Т7	N	Temp 2	-22.14 dBm -480462000 GHz
30			A STATE OF THE PARTY OF THE PAR	
-40	<i></i>		A. C.	
50	1			3DB
www.				alland
70				
-80				
-90				

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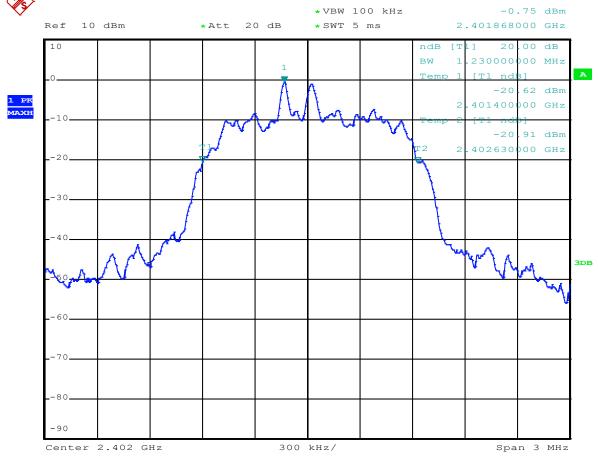
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Л/4DQPSK			
Product:	Bluetooth Speaker	Test Mode:	Keep transmitting
Mode	Keeping Transmitting	Test Voltage	DC3.7V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK
20dB Bandwidth	1.230MHz		
%	*RBW 30 *VBW 10		er 1 [T1] -0.75 dBm



Date: 7.APR.2024 10:18:52

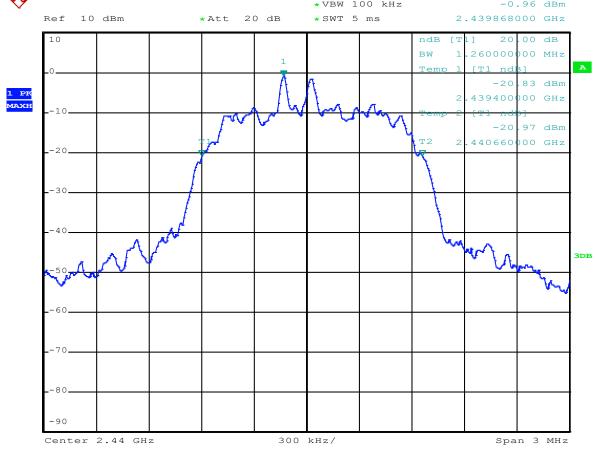
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Л/4DQPSK					
Product:	Bluetooth Speaker		Test Mode:	Kee	p transmitting
Mode	Keeping Transmitting		Test Voltage		DC3.7V
Temperature	24 deg. C,		Humidity		56% RH
Test Result:	Pass		Detector		PK
20dB Bandwidth	1.260MHz				
		W 30 W 10	kHz Marker O kHz	1 [T1] -0.96	dBm
Ref 10 dBm	*Att 20 dB *SW	T 5	ms 2	.439868000	GHz



Date: 7.APR.2024 10:18:20

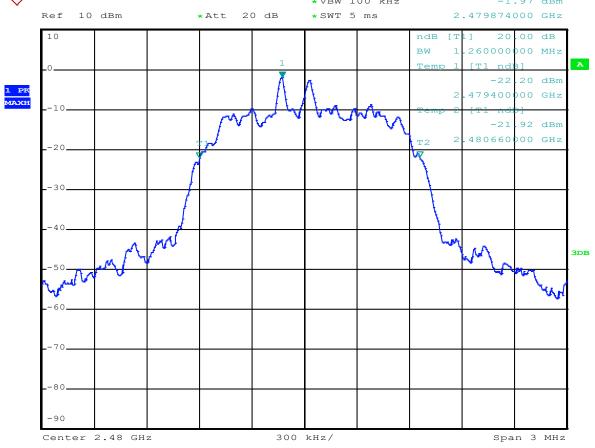
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Л/4DQPSK			
Product:	Bluetooth Speaker	Test Mode:	Keep transmitting
Mode	Keeping Transmitting	Test Voltage	DC3.7V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK
20dB Bandwidth	1.260MHz		
%	*RBW 3	0 kHz Marker	1 [T1] -1.97 dBm
Ref 10 dB	m *Att 20 dB *SWT 5	ms 2	.479874000 GHz



Date: 7.APR.2024 10:17:25

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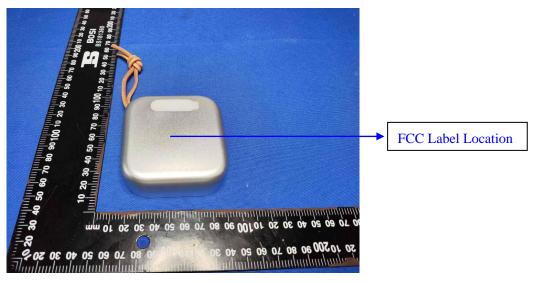


10.0 FCC ID Label

FCC ID: 2APYY-AE0316

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:



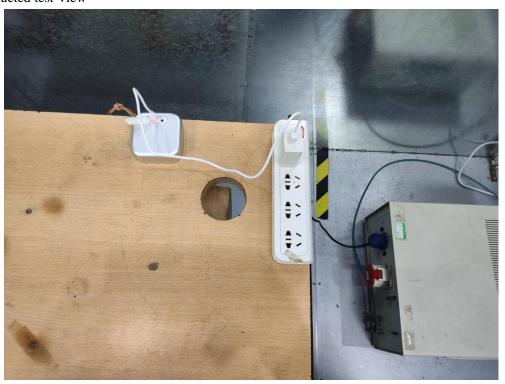
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11.0 Photo of testing

11.1 Conducted test View



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Radiated emission test view



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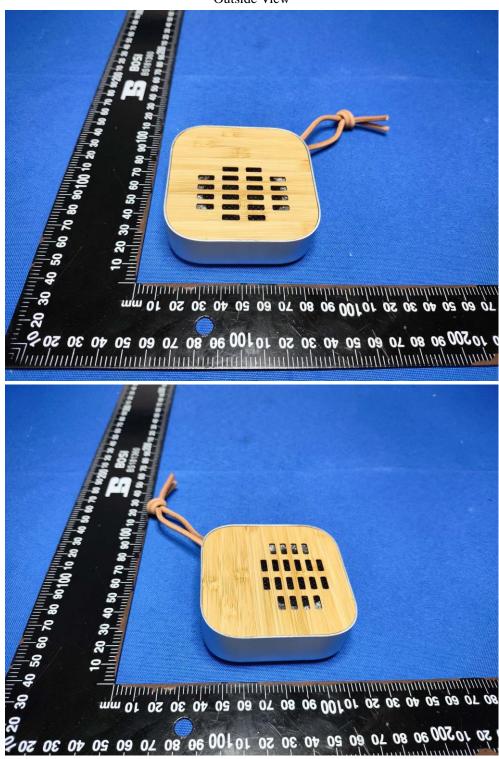
Report No.: TW2404016E

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11.2 Photographs – EUT

Outside View



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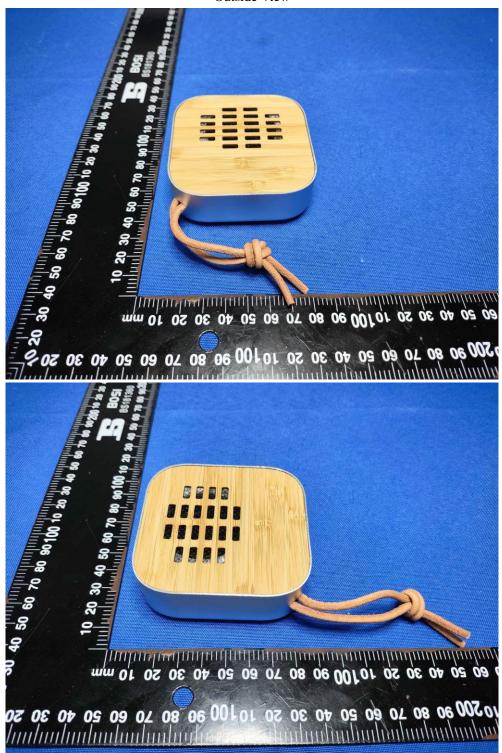
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Outside View



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Outside View

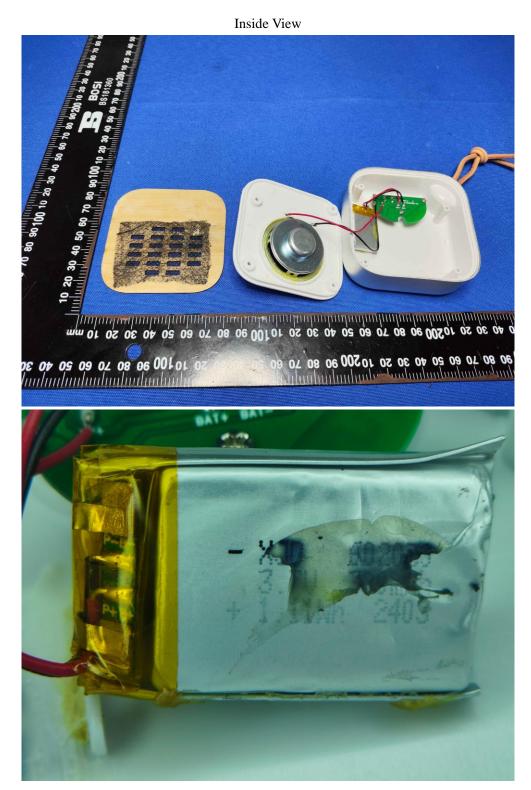


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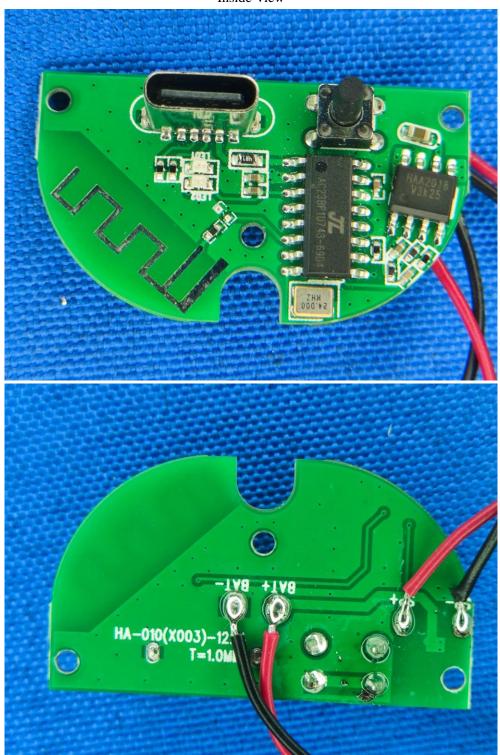
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Inside View



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