



Report No.: TW2103437E File reference No.: 2021-04-27

Applicant: LEADER PREMIUMS LTD

Product: BLUETOOTH SPEAKER

Model No.: AE0151

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

Approved By

Jack Chung

Jack Chung

Manager

Dated: April 27, 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

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

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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

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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 LTD

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

Telephone: -Fax: --

1.3 Description of EUT

Product: BLUETOOTH SPEAKER

Manufacturer: LEADER PREMIUMS LTD

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

Brand Name: N/A
Model Number: AE0151
Additional Model Name N/A

Hardware Version: Bluetooth-AE0151 V1.0

Software Version: 2021.02 V1.0 Serial No.: AE0151

Rating: DC5V, 1A or Built-in DC3.7V, 300mAh, 1.11Wh 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 1.2dBi Max (Get from the antenna specification

provided by the applicant)

1.4 Submitted Sample: 1 pc

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1.5 Test Duration

2021-03-29 to 2021-04-27

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

Terry Tang

The sample tested by

Print Name: Terry Tang

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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	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-8M/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

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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

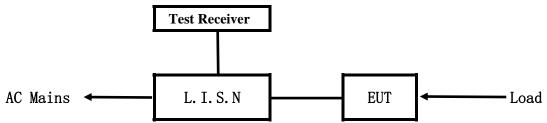
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5. Power Line Conducted Emission Test

5.1 Schematics of the test

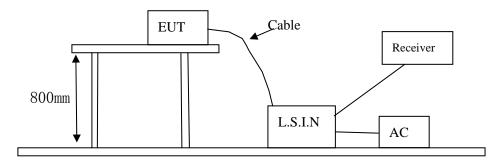


EUT: Equipment Under Test

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.

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.

One channels are provided to the EUT

A. EUT

Device	Manufacturer	Model	FCC ID
BLUETOOTH SPEAKER	LEADER PREMIUMS LTD	AE0151	2APYY-AE0151

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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:

Pass

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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

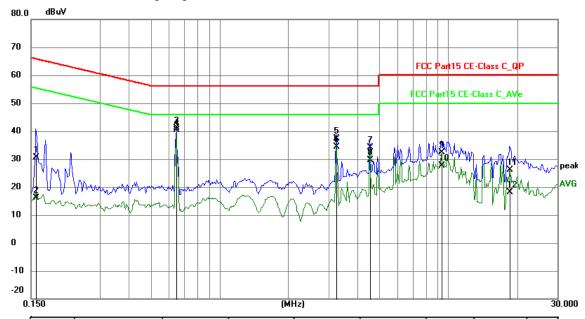
EUT set Condition: Charging and Communication by BT

Model: AE0151

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	0.1578	20.76	9.78	30.54	65.58	-35.04	QP	Р
2	0.1578	6.30	9.78	16.08	55.58	-39.50	AVG	Р
3	0.6492	31.36	9.78	41.14	56.00	-14.86	QP	Р
4	0.6492	30.55	9.78	40.33	46.00	-5.67	AVG	Р
5	3.2379	27.41	9.85	37.26	56.00	-18.74	QP	Р
6	3.2379	24.52	9.85	34.37	46.00	-11.63	AVG	Р
7	4.5327	24.25	9.91	34.16	56.00	-21.84	QP	Р
8	4.5327	19.60	9.91	29.51	46.00	-16.49	AVG	Р
9	9.3375	22.34	10.13	32.47	60.00	-27.53	QP	Р
10	9.3375	17.59	10.13	27.72	50.00	-22.28	AVG	Р
11	18.5961	15.63	10.60	26.23	60.00	-33.77	QP	Р
12	18.5961	7.49	10.60	18.09	50.00	-31.91	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

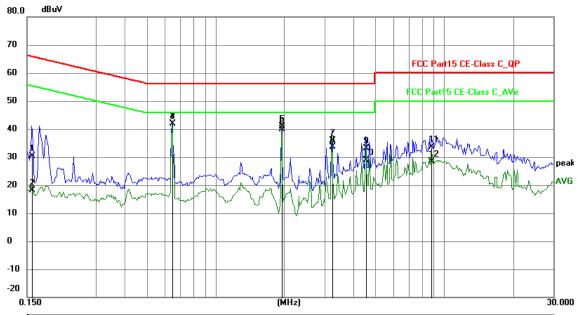
EUT set Condition: Charging and Communication by BT

Model: AE0151

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	0.1578	20.50	9.78	30.28	65.58	-35.30	QP	Р
2	0.1578	8.39	9.78	18.17	55.58	-37.41	AVG	Р
3	0.6453	32.07	9.78	41.85	56.00	-14.15	QP	Р
4	0.6453	32.00	9.78	41.78	46.00	-4.22	AVG	Р
5	1.9401	31.02	9.80	40.82	56.00	-15.18	QP	Р
6	1.9401	30.05	9.80	39.85	46.00	-6.15	AVG	Р
7	3.2340	25.95	9.85	35.80	56.00	-20.20	QP	Р
8	3.2340	23.72	9.85	33.57	46.00	-12.43	AVG	Р
9	4.5288	23.28	9.91	33.19	56.00	-22.81	QP	Р
10	4.5288	18.94	9.91	28.85	46.00	-17.15	AVG	Р
11	8.7915	23.55	10.10	33.65	60.00	-26.35	QP	Р
12	8.7915	18.39	10.10	28.49	50.00	-21.51	AVG	Р

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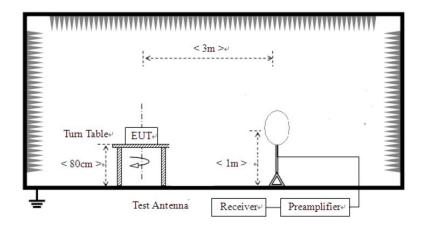


6 Radiated Emission Test

- 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



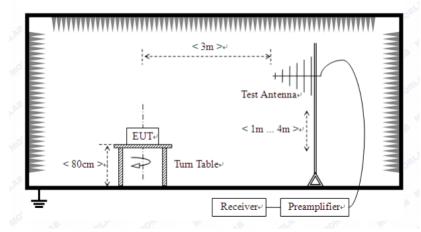
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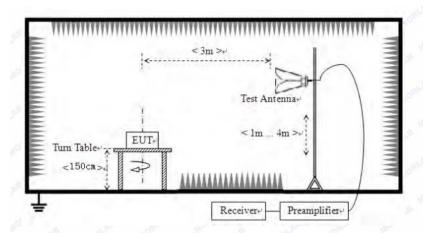
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For radiated emissions from 30MHz to1GHz



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.

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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 Strength of Fundamental		Field Strength of Fundamental (3m)			trength of Harmo	onics (3m)
(MHz)	mV/m	dBu	V/m	uV/m	dBu	V/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 μ 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 $(dBuV) = 20 \log RF \text{ Voltage } (uV)$
- 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. 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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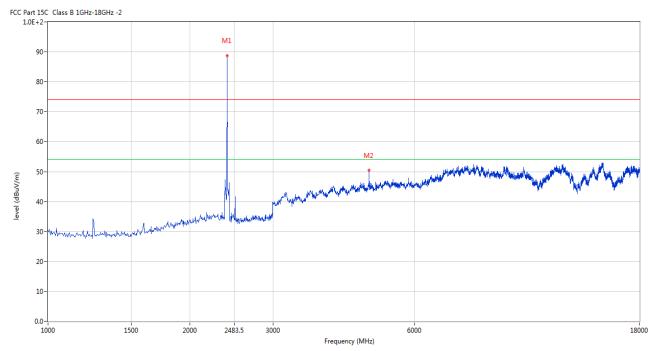


6.5 Test result

A Fundamental & Harmonics Radiated Emission Data

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

Horizontal



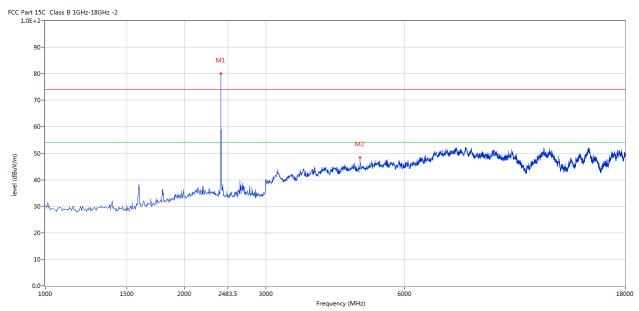
No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table (o)	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)			(cm)		
1	2402.500	88.73	-3.57	114.0	-25.27	Peak	246.00	100	Horizontal	Pass
2	4803.500	50.43	3.12	74.0	-23.57	Peak	286.00	100	Horizontal	Pass

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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	80.13	-3.57	114.0	-33.87	Peak	250.00	100	Vertical	Pass
2	4803.500	48.43	3.12	74.0	-25.57	Peak	275.00	100	Vertical	Pass

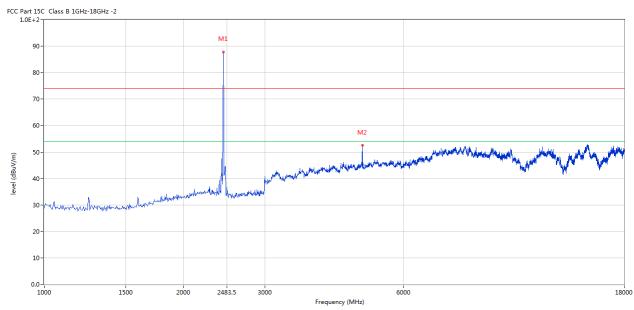
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Please refer to the following test plots for details: Middle Channel-2441MHz

Horizontal



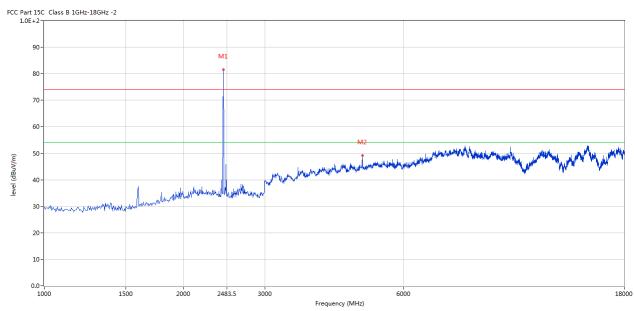
No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table (o)	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)			(cm)		
1	2440.750	87.78	-3.57	114.0	-26.22	Peak	233.00	100	Horizontal	Pass
2	4880.250	52.53	3.20	74.0	-21.47	Peak	246.00	100	Horizontal	Pass

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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	81.62	-3.57	114.0	-32.38	Peak	234.00	100	Vertical	Pass
2	4880.250	49.16	3.20	74.0	-24.84	Peak	275.00	100	Vertical	Pass

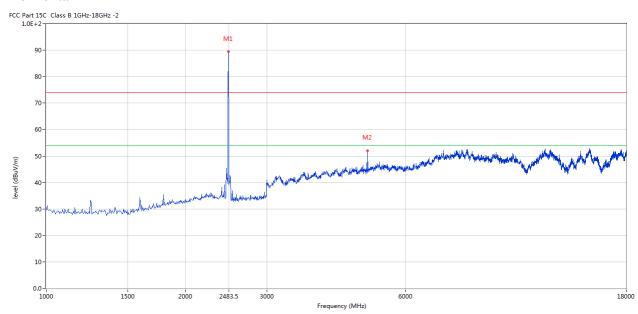
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Please refer to the following test plots for details: High Channel-2480MHz

Horizontal



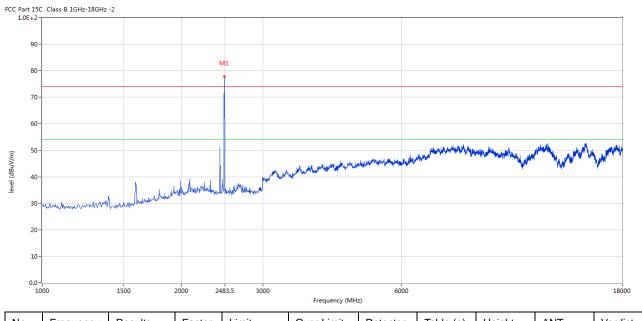
No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table (o)	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)			(cm)		
1	2479.750	89.39	-3.57	114.0	-24.61	Peak	246.00	100	Horizontal	Pass
2	4961.000	52.05	3.36	74.0	-21.95	Peak	250.00	100	Horizontal	Pass

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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	2479.750	77.87	-3.57	114.0	-36.13	Peak	176.00	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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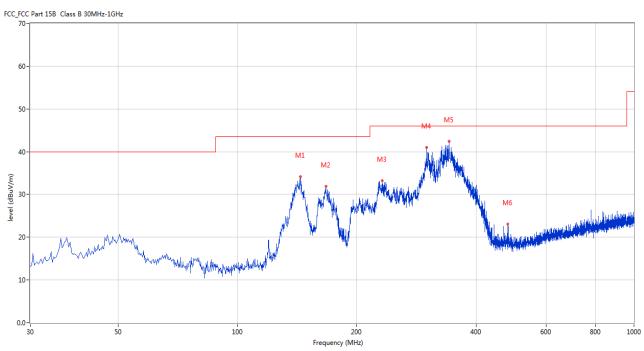


B. General Radiated Emission Data Radiated Emission In Horizontal (30MHz----1000MHz)

EUT set Condition: Keep Tx transmitting

Results: Pass

Please refer to following diagram for individual



No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table (o)	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)			(cm)		
1	143.947	34.15	-17.10	43.5	-9.35	Peak	179.00	100	Horizontal	Pass
2	166.978	31.89	-16.08	43.5	-11.61	Peak	27.00	100	Horizontal	Pass
3	231.952	33.16	-12.56	46.0	-12.84	Peak	63.00	100	Horizontal	Pass
4	299.835	40.95	-11.03	46.0	-5.05	Peak	121.00	100	Horizontal	Pass
5	341.777	42.47	-9.71	46.0	-3.53	Peak	121.00	100	Horizontal	Pass
6	479.968	23.10	-7.40	46.0	-22.90	Peak	308.00	100	Horizontal	Pass

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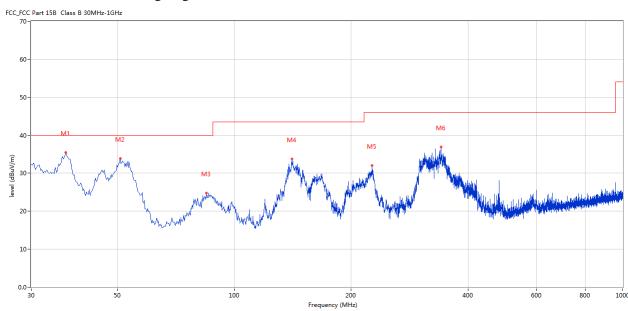


Radiated Emission In Vertical (30MHz----1000MHz)

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	36.788	35.48	-13.31	40.0	-4.52	Peak	221.00	100	Vertical	Pass
2	50.850	33.84	-11.40	40.0	-6.16	Peak	360.00	100	Vertical	Pass
3	84.791	24.81	-16.57	40.0	-15.19	Peak	280.00	100	Vertical	Pass
4	140.552	33.70	-17.24	43.5	-9.80	Peak	91.00	100	Vertical	Pass
5	226.376	32.00	-12.81	46.0	-14.00	Peak	109.00	100	Vertical	Pass
6	340.807	36.93	-9.76	46.0	-9.07	Peak	53.00	100	Vertical	Pass

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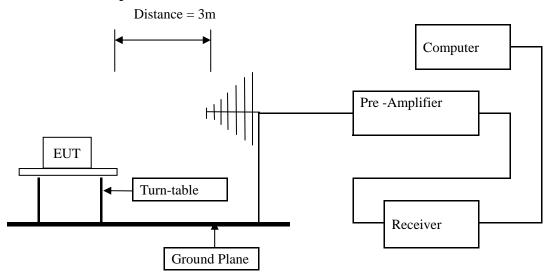


7. Band Edge

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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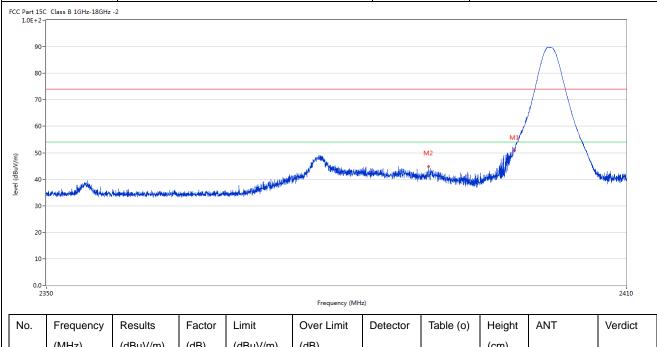
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7.6 Test Result

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



No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table (o)	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)			(cm)		
1	2399.315	50.93	-3.56	74.0	-23.07	Peak	237.00	100	Horizontal	Pass
2	2389.405	44.91	-3.53	74.0	-29.09	Peak	237.00	100	Horizontal	Pass

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2390.935

39.64

-3.53

74.0



Product:	В	LUETO	OTH SPEA	KER	Detect	or		Vertical	
Mode		Keeping	g Transmitti	ng	Test Volt	tage		DC3.7V	
emperature		24	l deg. C,		Humidi	ity		56% RH	
est Result:			Pass						
15C Class B 1GHz-18GH:	: -2								
90-									
80-								\wedge	
70-									
60-							M1	/	
50-						M2	7		
40-	والمساعدين المساعدين المساعدين المساعدين	بالمتعدد والمعانيات التع	handra is being a below by	A STATE OF THE PARTY OF THE PAR	Maadalalahaan qooqoolii aaabaaa ka sa		Walder Waller		Marayak wayan of the
30-	and Language and have to the fall of the second of the fall of	And heart of a distribution of	addition of a state of a	- ''					
20-									
20-									
				Frequency (MH:	2)				2410
0.0-	Results	Factor	Limit	Frequency (MH:	z) Detector	Table (o)	Height	ANT	2410 Verdic
0.0-	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)			Table (o)	Height (cm)	ANT	_
	Mode emperature eest Result: 15C Class B 1GHz-18GHz +2- 90- 60- 50- 40-	Mode emperature est Result: 15C Class B 1GHz-18GHz -2 +2- 90- 80- 70- 60- 50- 40- 40- 40- 40- 40- 40- 4	Mode Keeping emperature 24 est Result: 15C Class B 1GHz-18GHz -2 1-2 90 60 60 40	Mode Keeping Transmitti emperature 24 deg. C, est Result: Pass 15C Class B 1GHz-18GHz -2 170- 170- 170- 170- 170- 170- 170- 170	Mode Keeping Transmitting emperature 24 deg. C, lest Result: Pass 15C Class B 1GHz-18GHz -2 150-10-10-10-10-10-10-10-10-10-10-10-10-10	Mode Keeping Transmitting Test Voltemperature 24 deg. C, Humiditest Result: Pass 15C Class B 1GHz-18GHz -2 170- 180- 180- 180- 180- 180- 180- 180- 18	Mode Keeping Transmitting Test Voltage emperature 24 deg. C, Humidity est Result: Pass 15C Class B 1GHz-18GHz -2 170- 180- 180- 180- 180- 180- 180- 180- 18	Mode Keeping Transmitting Test Voltage emperature 24 deg. C, Humidity est Result: Pass 15C Class B 1GHz-18GHz -2 170- 60- 50- 60- 60- 60- 60- 60- 60- 60- 60- 60- 6	Mode Keeping Transmitting Test Voltage DC3.7V emperature 24 deg. C, Humidity 56% RH est Result: Pass 15C Class B 1GHz-18GHz -2 +- 2 60

-34.36

Peak

220.00

100

Vertical

Pass

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P	roduct:	BI	LUETOC	TH SPEAK	ER	Polarit	ty	Но	rizontal	
1	Mode		Keeping	Transmittin	g	Test Volt	tage	D	C3.7V	
Ten	nperature		24	deg. C,		Humidi	ity	56	5% RH	
Tes	st Result:			Pass						
CC Part 150	C Class B 1GHz-18GHz	-2								
90-										
80-					-/-					
70-										
60-										
50-										
40-	In the property and their and their	the same and the little same		and the same of the same		-	in colorated and in the said		mi indone di Angelo	de la companya de la
30-										
50										
20-										
10-										
0.0-	1460				Frequency (MH	2483.5 z)				250
0.0- 24		Results	Factor	Limit	Frequency (MH		Table (o)	Height	ANT	ı
0.0-	460	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	1	z)	Table (o)	Height (cm)	ANT	2500 Verdie

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Pı	roduct:	B !	LUETO	OTH SPEA	KER	Detec	tor	,	Vertical	
]	Mode		Keeping	g Transmitti	ng	Test Vo	ltage	DC3.7V		
Ten	nperature		24	l deg. C,		Humio	dity	56% RH		
Tes	st Result:			Pass						
CC Part 150	C Class B 1GHz-18GHz	: -2								
90 - 80 -										
70-										
					/ \					
60-										
		ir 4 1 tiribbo 4 d \$10.4	مارين المناب	المعادية المالية المالية المالية			o las sa a mel i dessi sas din		المام المام المام	John Dalling
	And with the state of the state	المعادلة الم	hiladaje aj vojes adalitik	المتعادية فالمتعادية والمتعادية و		Hart date land land	n levy a pala de de la confli	isa-delendrichen der Albertik	hadhariani babayahdahad	
(w/\ngg) 40-	Autodopo artikaki di Antopologia arti	handardakilateneensekitakistoo	ident disk op e forsjon besking	وعالية والمطابق والمراجع والم		Hartistingly	icheria de palde de Marcella	iva-plaba, desconder del Albertila	hail karina ida di sangah di saksila	44.65.44.44.44
(W/Anggr) 40-4	· · · · · · · · · · · · · · · · · · ·	tendentelijkenserverskijdelijken	ishiringkaya, karanga dalah	ind distribution while distributions with		Haridalahlah	isher, said Addendiy	ina-dados, el sencido de Albertida	helden von den de	of the American Life American
30 20 10		tendulati til deneman kit dilatina	identeles en la constante de l	reddinadedd ywynoled og bynnaeth	Frequency (MH:	2483.5	tikery kalik Alleberghy	ira-padeba, d _{ala} an qabii _t abbaqiibba	dest landonista de adopuelo de destrib	2500
30- 20- 10- 244		Results	Factor	Limit	Frequency (MH:	2483.5	Table (o)	Height	ANT	
(W/Ango) 40 - 40 - 40 - 40 - 40 - 40 - 40 - 40	60				T	2483.5 z)				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 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 1.2dBi Max. It fulfills the requirement of this section. Test Result: Pass

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FSK Modulation	DITTE		(ED	T- 134		17	4	:44:
Product:		OTH SPEAK		Test Mo		Kee	p transmi	
Mode		Transmittin	g	Test Vol			DC3.7V	
Temperature	24	deg. C,		Humid			56% RH	
Test Result:	0.0	Pass		Detec	tor	PK		
OdB Bandwidth	88	3.77kHz						
Ref Lvl	ndB	[T1 ndB]	dB V	BW 10	0 kHz 0 kHz	RF At	et 2	0 dB
10 dBm	BW 883.	76753507	kHz S	WT 8.	5 ms	Unit		dBm
					▼ 1 [T	L]	-4.9	9 dBm
0						2.4	018286	6 GHz
			1		ndB	002 5	20.0	
1.0			\mathcal{M}		BW ▼T1 [-	883.7	'675350' -24.7	
-10		Ĵ	V ./	\			015400	
				7	∇ _{T2} [3	[1]	-24.7	6 dBm
-20 1MAX		J		W _{T2}	(2.4	024238	5 GHz
-30					N			
-40	~ /					\ _m		
-50 www.	V					V	\	
-60								w/W/N
-70								
-80								
-90 Center 2.402			300 kHz/				Span	

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Product:		BLUETC	OTH SPE	AKER		T	est Mode:		Keep tr	ansmitting	
Mode		Keepin	g Transmi	tting		Te	est Voltage		DC	C3.7V	
Temperature		2	4 deg. C,]	Humidity		569	% RH	
Test Result:			Pass				Detector]	PK	
0dB Bandwidth		883.77kHz									
Ŕ	Marker 1 [T1 ndB]				RI	ЗW	30 kH	z RF Att 20 dB			
Ref Lvl	ndB 20.00 dB			V	B₩	100 kH	z				
10 dBm		BW 883.76753507 kHz		SI	VΤ	8.5 ms	U	nit	dBm	ı	
10							▼ 1 [T1]	- !	5.56 dBm	A
									2.44082	2866 GHz	
0				1			ndB		20	0.00 dB	
				M	L		BW ▽ _{T1}	88	3.76753	3507 kHz	
-10					V 4		V T I	[TI]	2.44054		
				\checkmark		\	$ abla_{\mathrm{T2}}$	[T1]	-2!	3.80 dBm	
-20			T1 N				MT 2		2.44142	385 GHz	
1MAX			1				The state of the s				1M2
-30							<u> </u>				
-40	M								^		
-50	\mathcal{N}^{α}	V						W	hy.		
-60										MAN MAN	
-70											
-80											
-90 Center 2	2 441 0	J.		200	ku-/				Cr	an 3 MHz	
center 2	4.44⊥ Gl	12		300	kHz/				Spa	all 5 MHZ	

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Product:		BLUETO	OTH SPE	AKER		Test Mode:		Keep transmitting		
Mode		Keepin	g Transmi	tting	7	Test Voltage		DC	C3.7V	
Temperature		2.	4 deg. C,			Humidity		569	% RH	
Test Result:			Pass			Detector]	PK	
0dB Bandwidth		88	33.77kHz							
Ŕ	Marker 1 [T1 ndB]					30 kF	Iz Rl	7 Att	20 dB	
Ref Lvl	ndB 20.00 dB			VBW				_		
10 dBm		BW 883.76753507 kHz		SWT	8.5 ms	5 U1	nit	dBm	1 =	
						v ₁	[T1]	- 6	.80 dBm	Α
0								2.47982	866 GHz	
				1		ndB	0.0	20	0.00 dB	
1.0				Mar		BW ▼ _{T1}	88 [T1]	3.76753 -2°	3507 kHz 7.05 dBm	
-10					7 4			2.47954		
			_	\mathcal{N}	<u></u>	∇_{T2}	[T1]	-26	3.31 dBm	l.
-20 1MAX			TANK THE PROPERTY OF THE PROPE			V _{T2}		2.48042	385 GHz	1M2
-30			<i>J</i> d			V	\			
-40	Д.						Y	~		
-60	V	V					\	J. J.		
									WANAM	
-70										
-80										
-90 Center 2	.48 GH:	z		300	kHz/			Spa	an 3 MHz	ļ

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Pi/4D-QPSK M	Iodulatio	n								
Product:		BLUETO	OTH SPE	AKER		Test Mode:		Keep tra	ansmitting	
Mode		Keepin	g Transmi	tting	1	Test Voltage	;	DC3.7V		
Temperature		2	4 deg. C,			Humidity		569	% RH	
Test Result:			Pass			Detector		l	PK	
20dB Bandwidth		1.	232MHz							
Ŕ	Marker 1 [T1 ndB]			RBW	30 k	Hz R	F Att	20 dB		
Ref Lvl		ndB	20.	00 dB	VBW	100 k	Hz			
10 dBm		BW 1	L.232464	193 MHz	SWI	8.5 m	s U	nit	dBm	
10						v ₁	[T1]	-5	.00 dBm	7
								2.40182	866 GHz	A
0				1		ndE	3	20	.00 dB	
				\land		BW ∇ _T		1.23246	493 MHz	
-10			^		m.	^ T]	[T1]	2.40135	.71 dBm	
			My	، کس	\sqrt{\sq}\ext{\sqrt{\sq}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}	$\sqrt{\Lambda}$	2 [T1]	-25	972 GHz .20 dBm	
-20		т7	$\sqrt{}$				2	2.40259	218 GHz	
1MAX		J					Ţ			1MA
-30										
-40	. ^ /	Nul					M			
-50 -60	N. A.						· ·	W W	W 100	
									1000	
-70										
-80										
-90	400 5	-		222	1 77 /				2	
Center 2	.402 GF	12		300	KHZ/			Spa	ın 3 MHz	
Date: 13	3.APR.2	021 00	:21:05							

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Product:	BLUETOC	OTH SPEAKER	Test Mo	ode:	Keep tra	nsmitting
Mode	Keeping	Transmitting	Test Vol	tage	DC3.7V	
Temperature	24	deg. C,	Humid	lity	56%	6 RH
Test Result:		Pass	Detec	tor	F	РК
OdB Bandwidth	1.2	57MHz				
Ŕ	Marker 1	l [T1 ndB]	RBW 3	0 kHz I	RF Att	20 dB
Ref Lvl	ndB	20.00 dB		0 kHz		
10 dBm	BW 1	.25651303 MHz	SWT 8.	5 ms T	Unit	dBm
10				▼1 [T1]	-5	.56 dBm
					2.44082	866 GHz
0		1		ndB	20	.00 dB
			NI I	BW V _{T1 [T1]}	1.25651	303 MHz
-10		1/4/	lu I	<u> </u>	2.44035	.08 dBm 972 GHz
		my m	Com on	Y T2 [T1]	-25	.52 dBm
-20	TI	/ 			2.44161	623 GHz
-30	7			Y		110
-40	n /w			\ M	A	
-60 Www.					WW YVV	Marine
-60						<u>~~</u> \ \ \
-70						
-80						
-90 Center 2.4			kHz/			n 3 MHz

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Product:	BLU	ETOOTH	SPEAKER		Test Mode:			Keep transmitting		
Mode	Ke	eping Trar	nsmitting		Test	t Voltage	DC3.7V			
Temperature		24 deg.	С,		Hı	umidity		56%	6 RH	
Test Result:		Pass			D	etector		F	PK	
20dB Bandwidth		1.257M								
F	Marker 1 [T1 ndB]				BW	30 kHz	RI	Att	20 dB	
Ref Lvl	ndB		20.00 dB	V	BW	100 kHz				
10 dBm	BW	1.256	551303 MHz	S	WT	8.5 ms	Ur	nit	dBm	ı
10						V 1 [3	г1]	-6	.73 dBm	A
								2.47982	866 GHz	
0			1			ndB		20	.00 dB	
			X	^		BW ▼⊤1		1.25651	303 MHz	
-10						<u> </u>	[T1]	2.47935	.31 dBm 972 GHz	
		\sim	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	\www.\	M	$\sim_{\mathbb{T}_2}$	[T1]	-26		
-20			<u> </u>					2.48061	623 GHz	
1MAX		J.				T2				1M2
-30										
-40	Bed AL									
-50 -60	M						_\\\\	WA LAND		
-60								•	"Motronphily	
-70										
-80										
-90 Center 2.	49 011-		200	kHz/				Cr.	n 3 MHz	

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Product: BLUETOOTH SPEAKER Test Mode: Keep transmitting	8QPSK Modu	lation									
Temperature 24 deg. C, Humidity 56% RH Test Result: Pass Detector PK 20dB Bandwidth 1.251MHz	Product:		BLUETO	OTH SPE	AKER		Test Mode:		Keep tra	ansmitting	
Test Result: 20dB Bandwidth 1.251MHz Marker 1 [T1 nd8] RBW 30 kHz RF Att 20 dB 10 dBm Ref Lv1 nd8 20.00 dB VBW 100 kHz 10 dBm 10 dBm BW 1.25050100 MHz SWT 8.5 ms Unit dBm 10 nd8 2.4018.866 GHz 2.4018.866 GHz 1.25050100 MHz 1.250501	Mode		Keepin	g Transmi	tting		Test Voltage		DC	23.7V	
The state of the	Temperature		2	4 deg. C,			Humidity		569	% RH	
Marker 1 [T1 ndB] RBW 30 kHz RF Att 20 dB 20.00 dB VBW 100 kHz 10 dBm BW 1.25050100 MHz SWT 8.5 ms Unit dBm 2.40182866 GHz 2.40182866 GHz 2.40182866 GHz 2.40182866 GHz 2.40182866 GHz 2.40182866 GHz 2.40182972 GHz 2.40182972 GHz 2.40261022 GHz 1MA -30 12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Test Result:			Pass			Detector]	PK	
Ref Lvl ndB 20.00 dB VBW 100 kHz 10 dBm BW 1.25050100 MHz SWT 8.5 ms Unit dBm V1 (T1)	20dB Bandwidth		1.	251MHz							
10 dBm BW 1.25050100 MHz SWT 8.5 ms Unit dBm V1 [T1]	R)		Marker	1 [T1 r	ndB]	RBV	v 30 ki	Hz R	F Att	20 dB	
10 1	Ref Lvl		ndB 20.00 dB		VBV	100 kl	Hz				
-10			BW 1	1.250501	.00 MHz	SWI	r 8.5 ms	s U	nit	dBm	
2.40182866 GHZ 1.25050100 MHZ VT [T1]	10						v ₁	[T1]	- 5	.02 dBm	7
-10 -10 -10 -10 -10 -10 -10 -10 -10 -10									2.40182	866 GHz	A
-10 -20 -20 -20 -30 -40 -50 -60 -70 -80 -90	0				1				20	.00 dB	
2.4013\$ 972 GH2 -20 1MAX -30 -60 -60 -80 -90					\wedge				1.25050		
-20 1MAX	-10					m	V T1	[T1]	-24		
1MAX				\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		W	TTE	[T1]	-24		
-40 -50 -60 -70 -80			T	~			Ţ	2	2.40261	022 GHz	1MA
-50 -60 -70 -80											
-60 -70 -80 -90								V _M	\wedge		
-70 -80 -90								L		Maria	
-90										v.√\v1	
-90	-80										
Center 2.402 GHz 300 kHz/ Span 3 MHz											
	Center 2	2.402 G	Hz		300	kHz/			Spa	n 3 MHz	
Date: 13.APR.2021 00:23:01	Date: 1	3.APR.2	2021 00	:23:01							

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Report No.: TW2103437E



Product:		BLUETO	OTH SPE	AKER		T	est Mode:		Keep tra	ansmitting	
Mode		Keepin	g Transmi	tting		Те	est Voltage		DC	23.7V	
Temperature		2	4 deg. C,]	Humidity		56%	% RH	
Test Result:			Pass				Detector]	PK	
dB Bandwidth		1	.257MHz								
R	Marker 1 [T1 ndB]					ЗW	30 kH	z R	F Att	20 dB	
Ref Lvl		ndB		00 dB	VI	ВW	100 kH				
10 dBm		BW 1	1.256513	803 MHz	SV	TV	8.5 ms	U:	nit	dBm	1
10							v ₁	[T1]	- 5	.58 dBm	A
0				_					2.44082	866 GHz	
				1			ndB BW	·	20 1.25651	.00 dB 303 MHz	
1.0					_		$oldsymbol{ abla}_{ ext{T1}}$	[T1]	-25	.303 MHz	
-10				JW	m/	~	<u></u>		2.44035		
20			/~v \	√		~]	TZ	[T1]	-25	.59 dBm	
-20 1MAX		Ţ,	~				\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	2	2.44161	623 GHz	1M2
-30											
- 40	α	Mal						M	Д		
-60	m) v							,	W	MV July John	
										• (111)	
-70											
-80											
-90 Center 2	. 441 લા	Hz	l	300	kHz/				Spa	ın 3 MHz	ı
ate: 1					-,				21.0	-	

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8QPSK Modulation								
Product:	BLUETOOTH SPE	AKER	Т	est Mode:		Keep tra	nsmitting	
Mode	Keeping Transmi	tting	To	est Voltage		DC3	3.7V	
Temperature	24 deg. C,]	Humidity		56%	RH	
Test Result:	Pass			Detector		P	K	
20dB Bandwidth	1.257MHz					-	-	
· R	Marker 1 [T1 ndB]			30 kHz	z RF	Att	20 dB	
Ref Lvl		00 dB	VBW	100 kHz				
10 dBm	BW 1.256513	303 MHz	SWT	8.5 ms	Un:	it	dBm	
				v ₁ [T1]	-6	.79 dBm	A
					2	2.47982	866 GHz	
0		1		ndB		20	.00 dB	
		,		BW ▼ _{T1}	[T1]	L.25651	303 MHz .66 dBm	
-10			\	0		2.47935	972 GHz	
	\sim	۷ کی	[m	$\nabla_{\mathbf{T}^2}$	[T1]	-26	.77 dBm	
-20				- \	2	2.48061	623 GHz	1202
1MAX	7			T ²				1MA
-30								
-40					lanu l			
-60 July					***		Λ. 4.	
							44.00	
-70								
-80								
-90 Contor 3 48 CI	<u> </u>	200 1-1	II. /			C	0 2 MIII-	
Center 2.48 GFDate: 13.APR.		300 k	nz/			Spai	n 3 MHz	

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Date: 2021-04-27

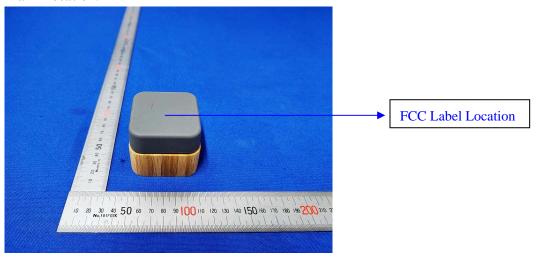


10.0 FCC ID Label

FCC ID: 2APYY-AE0151

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--



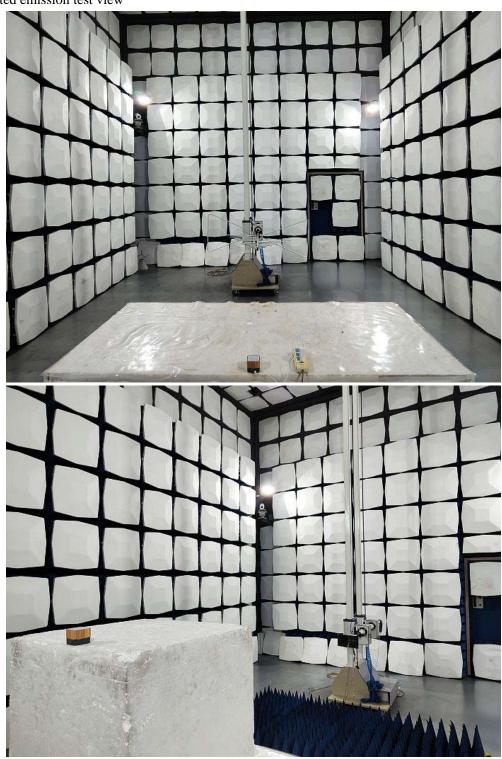
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Radiated emission test view



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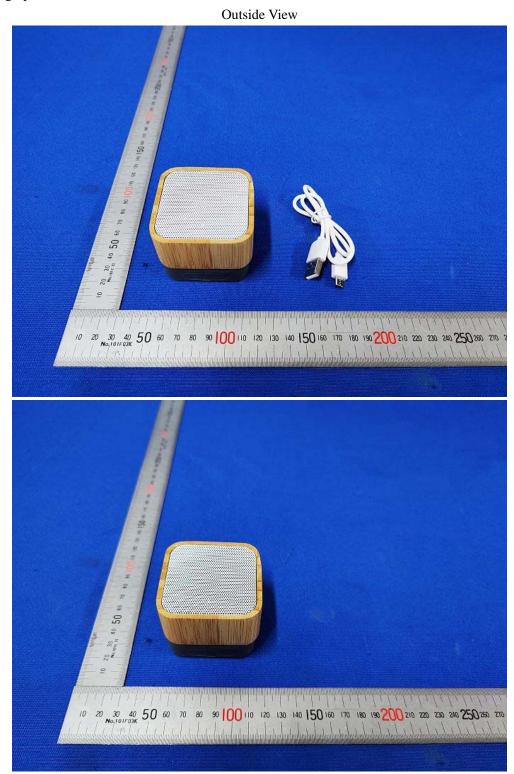
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11.2 Photographs – EUT



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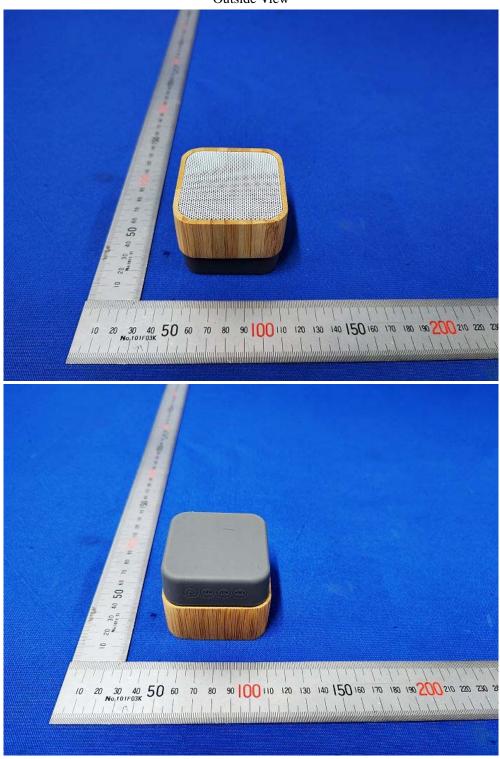
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Photographs - EUT

Outside View



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Outside View



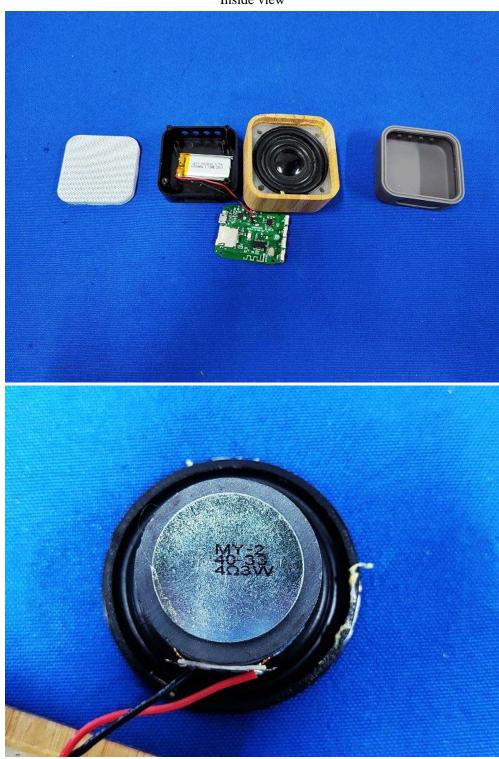
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Inside view



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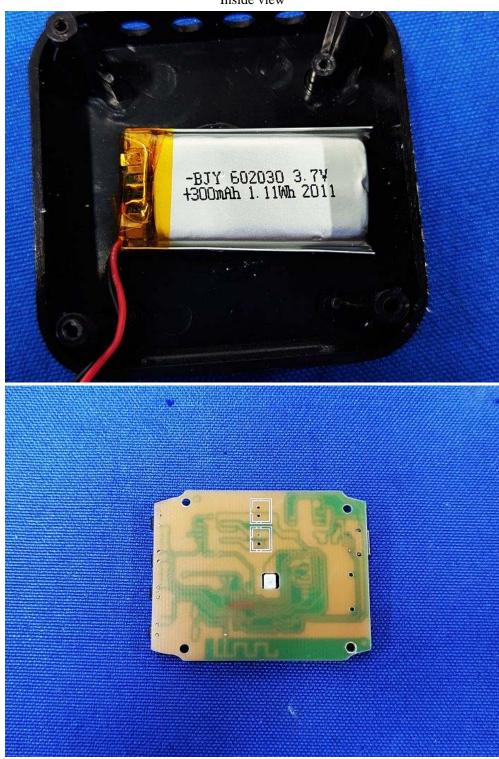
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Inside view



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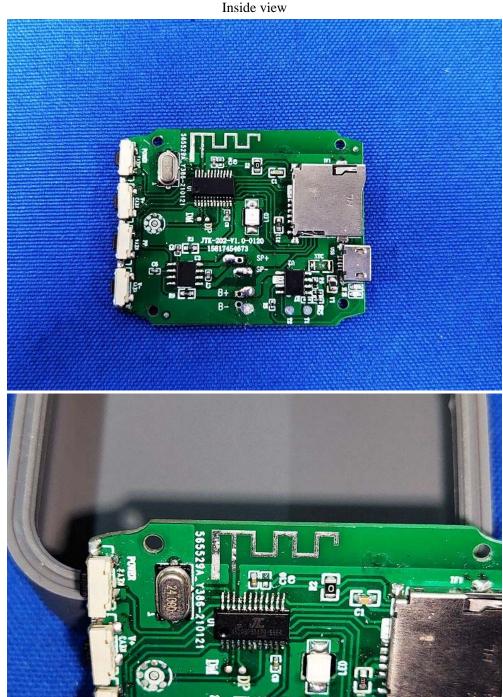
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-- End of the report--

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