

Applicant: TOPSAIL (HONG KONG) LIMITED

Product: Bluetooth Speaker

Model No.: 045B

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

i diagraph 13.219 regulations for the evalu

electromagnetic compatibility

Approved By

Terry Tang

Manager

Dated: March 27, 2023

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 17025:2017 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: 2023-03-27



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: TOPSAIL (HONG KONG) LIMITED

Address: Room 803, Chevalier House, 45-51 Chatham Road South, Tsim Sha Tsui, Kowloon, Hong

Kong, China

Telephone: --Fax: --

1.3 Description of EUT

Product: Bluetooth Speaker

Manufacturer: TOPSAIL (HONG KONG) LIMITED

Address: Room 402, No. 8, Sixth Street, Hekang New District, Changping Town,

Dongguan City, Guangdong Province, China

Trademark: N/A
Model Number: 045B
Additional Model Name N/A
Rating: DC5V

Battery: DC3.7V, 300mAh Li-ion battery

Modulation Type: GFSK, Π/4DQPSK, 8DPSK for Bluetooth

Operation Frequency: 2402-2480MHz

Channel Number: 79
Channel Separation: 1MHz
Hardware Version: V1.0
Software Version: V1.0
Serial No.: 202303

Antenna Designation PCB antenna with gain 1.3dBi Max (Get from the antenna specification)

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1.4 Submitted Sample: 1 Sample

1.5 Test Duration

2023-03-03 to 2023-03-27

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

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	Receiver R&S ESPI 3		100379	2022-07-15	2023-07-14			
LISN	R&S	EZH3-Z5	100294	2022-07-18	2023-07-17			
LISN	R&S	EZH3-Z5	100253	2022-07-18	2023-07-17			
Impuls-Begrenzer	R&S	ESH3-Z2	100281	2022-07-18	2023-07-17			
Loop Antenna	EMCO	6507	00078608	2022-07-18	2025-07-17			
Spectrum	R&S	FSIQ26	100292	2022-07-15	2023-07-14			
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	2022-07-18	2023-07-17			
Power sensor	Anritsu	MA2491A	32263	2022-07-18	2023-07-17			
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	2022-07-15	2023-07-14			
EMI Test Receiver	RS	ESCS 30	834115/006	2022-07-15	2023-07-14			
Spectrum	HP/Agilent	E4407B	MY50441392	2022-07-15	2023-07-14			
Spectrum	RS	FSP	1164.4391.38	2022-07-15	2023-07-14			
RF Cable	Zhengdi	ZT26-NJ-NJ-8M/FA		2022-07-15	2023-07-14			
RF Cable	Zhengdi	7m		2022-07-15	2023-07-14			
Pre-Amplifier	Schwarebeck	BBV9743	#218	2022-07-15	2023-07-14			
Pre-Amplifier	HP/Agilent	8449B	3008A00160	2022-07-15	2023-07-14			
LISN	SCHAFFNER	NNB42	00012	2022-08-18	2023-07-17			
ESPI Test Receiver	R&S	ESPI 3	100379	2022-07-15	2023-07-14			
LISN	R&S	EZH3-Z5	100294	2022-07-18	2023-07-17			

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 15.203	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

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

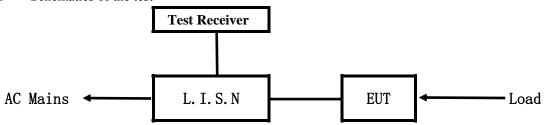
No modification by SHENZHEN TIMEWAY TESTING LABORATORIES

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5.0 Power Line Conducted Emission Test

5.1 Schematics of the test

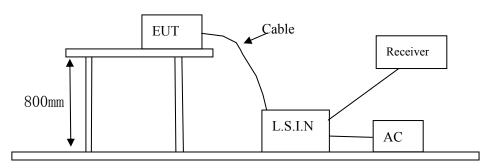


EUT: Equipment Under Test

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 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.

79 channels are provided to the EUT

A. EUT

Device	Manufacturer	Model	FCC ID
Bluetooth Speaker	TOPSAIL (HONG KONG)	045B	2ACCE-045B
	LIMITED	0430	ZACCE-043B

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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		
$5.00 \sim 30.00$	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)

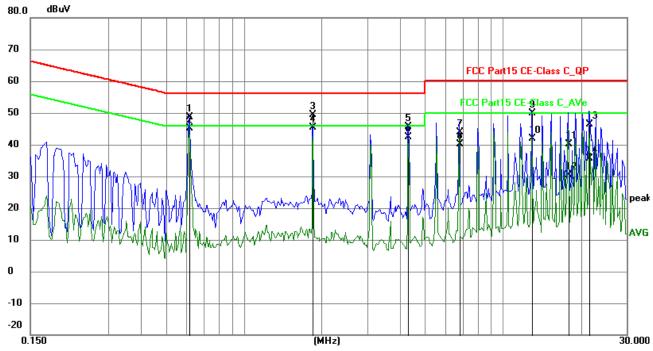
EUT Operating Environment

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	0.6141	38.90	9.78	48.68	56.00	-7.32	QP	Р
2	0.6141	35.32	9.78	45.10	46.00	-0.90	AVG	Ъ
3	1.8465	39.46	9.80	49.26	56.00	-6.74	QP	Р
4	1.8465	35.70	9.80	45.50	46.00	-0.50	AVG	Р
5	4.3104	35.66	9.90	45.56	56.00	-10.44	QP	Р
6	4.3104	32.37	9.90	42.27	46.00	-3.73	AVG	Р
7	6.7752	33.94	10.00	43.94	60.00	-16.06	QP	Р
8	6.7752	30.15	10.00	40.15	50.00	-9.85	AVG	Р
9	12.9293	39.58	10.29	49.87	60.00	-10.13	QP	Р
10	12.9293	31.62	10.29	41.91	50.00	-8.09	AVG	Р
11	17.8590	29.51	10.55	40.06	60.00	-19.94	QP	Р
12	17.8590	19.93	10.55	30.48	50.00	-19.52	AVG	Р
13	21.5484	35.49	10.78	46.27	60.00	-13.73	QP	Р
14	21.5484	24.86	10.78	35.64	50.00	-14.36	AVG	Р

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

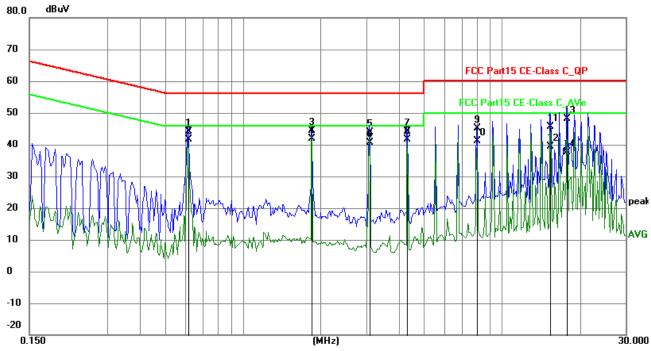
EUT Operating Environment

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	0.6141	34.47	9.78	44.25	56.00	-11.75	QP	Р
2	0.6141	31.73	9.78	41.51	46.00	-4.49	AVG	П
3	1.8465	34.67	9.80	44.47	56.00	-11.53	QP	Ъ
4	1.8465	32.13	9.80	41.93	46.00	-4.07	AVG	Р
5	3.0780	33.91	9.85	43.76	56.00	-12.24	QP	Р
6	3.0780	30.68	9.85	40.53	46.00	-5.47	AVG	Р
7	4.3065	34.34	9.90	44.24	56.00	-11.76	QP	Р
8	4.3065	31.76	9.90	41.66	46.00	-4.34	AVG	Р
9	7.9998	35.03	10.06	45.09	60.00	-14.91	QP	Р
10	7.9998	31.07	10.06	41.13	50.00	-8.87	AVG	Р
11	15.3864	35.34	10.40	45.74	60.00	-14.26	QP	Р
12	15.3864	29.04	10.40	39.44	50.00	-10.56	AVG	Р
13	17.8473	37.52	10.55	48.07	60.00	-11.93	QP	Р
14	17.8473	27.16	10.55	37.71	50.00	-12.29	AVG	Р

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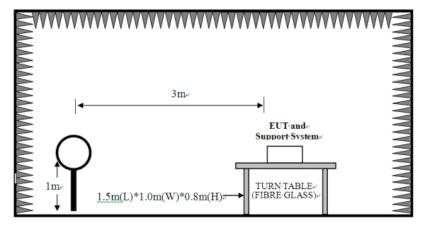


6 Radiated Emission Test

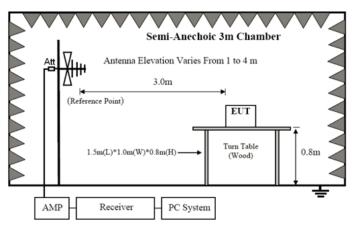
- 6.1 Test Method and test Procedure:
- (1) The EUT was tested according to ANSI C63.10-2013. The radiated test was performed at Timeway EMC Laboratory. This site is on file with the FCC laboratory division, Registration No. 744189
- (2) The EUT, peripherals were put on the turntable which table size 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



For radiated emissions from 30MHz to1GHz



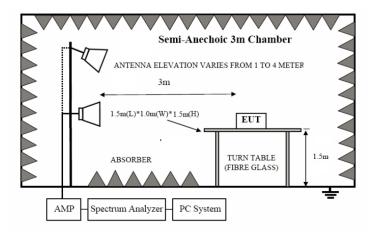
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For radiated emissions above 1GHz



- 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

Ī	Fundamental Frequency	Field Strength of Fundamental (3m)			Field Strength of Harmonics (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.

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

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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 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 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.
- 6. 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.
- 7. Battery fully charged was used during the test.

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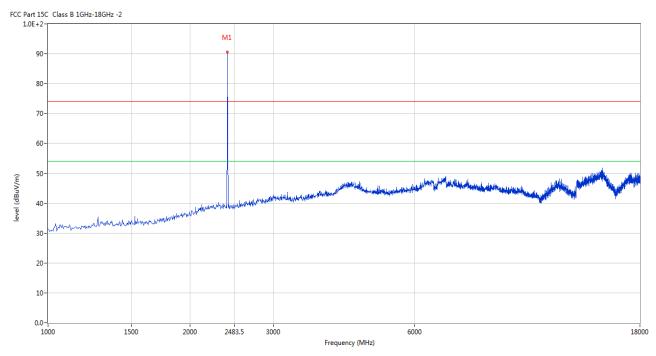


6.5 Test result

A Fundamental & Harmonics Radiated Emission Data

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

Horizontal



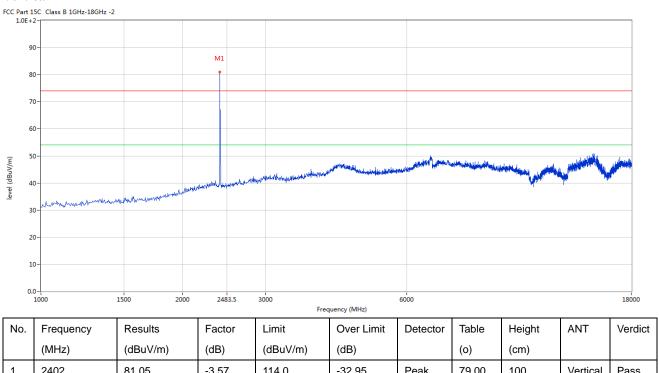
No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table (o)	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)			(cm)		
1	2402	90.63	-3.57	114.0	-23.37	Peak	239.00	100	Horizontal	Pass

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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)		Ì
1	2402	81.05	-3.57	114.0	-32.95	Peak	79.00	100	Vertical	Pass

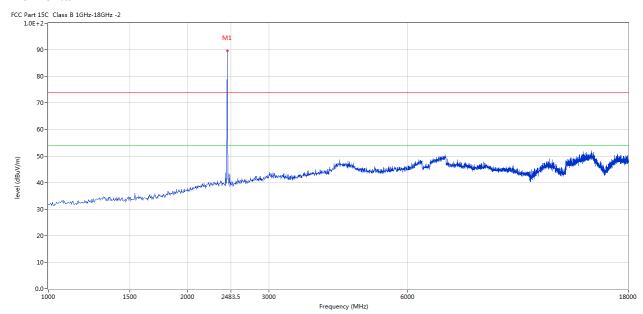
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Please refer to the following test plots for details: Middle Channel-2441MHz

Horizontal



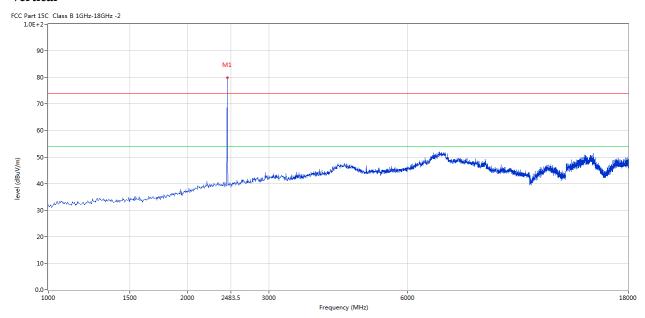
Ī	No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
		(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
Ī	1	2441	89.81	-3.57	114.0	-24.19	Peak	205.00	100	Horizontal	Pass

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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	79.79	-3.57	114.0	-34.21	Peak	73.00	100	Vertical	Pass

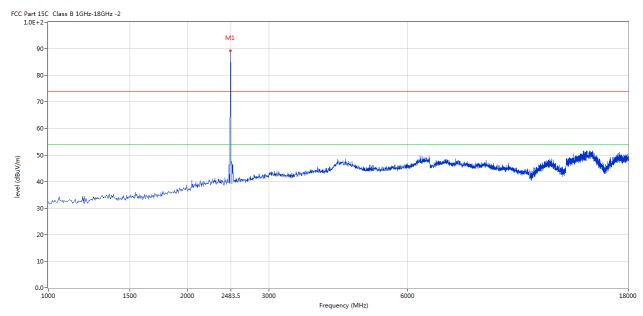
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Please refer to the following test plots for details: High Channel-2480MHz

Horizontal



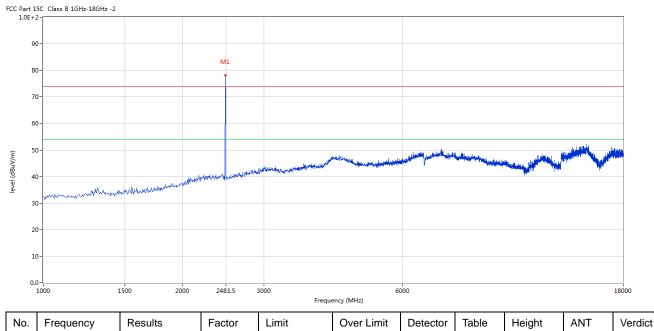
No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2480	89.32	-3.57	114.0	-24.68	Peak	183.00	100	Horizontal	Pass

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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	2480	78.81	-3.57	114.0	-35.19	Peak	74.00	100	Vertical	Pass

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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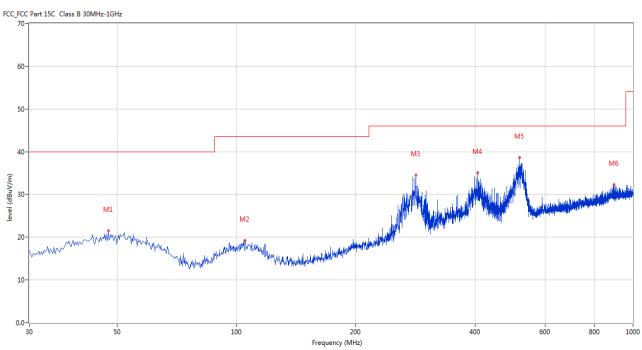


B. General Radiated Emission Data Radiated Emission In Horizontal (30MHz----1000MHz)

EUT set Condition: Keep Tx transmitting

Results: Pass

Please refer to following diagram for individual



No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table (o)	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)			(cm)		
1	47.456	21.44	-11.38	40.0	-18.56	Peak	286.00	200	Horizontal	Pass
2	104.914	19.28	-13.23	43.5	-24.22	Peak	48.00	200	Horizontal	Pass
3	283.592	34.58	-11.37	46.0	-11.42	Peak	241.00	100	Horizontal	Pass
4	406.266	35.09	-8.69	46.0	-10.91	Peak	245.00	100	Horizontal	Pass
5	518.273	38.57	-6.71	46.0	-7.43	Peak	90.00	200	Horizontal	Pass
6	896.478	32.27	-1.76	46.0	-13.73	Peak	89.00	100	Horizontal	Pass

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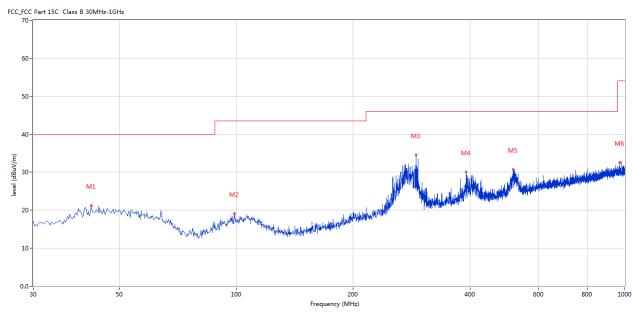


Radiated Emission In Vertical (30MHz----1000MHz)

EUT set Condition: Keep Tx transmitting

Results: Pass

Please refer to following diagram for individual



No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	42.364	21.25	-11.59	40.0	-18.75	Peak	360.00	200	Vertical	Pass
2	98.853	19.12	-13.68	43.5	-24.38	Peak	56.00	100	Vertical	Pass
3	290.622	34.54	-11.22	46.0	-11.46	Peak	231.00	200	Vertical	Pass
4	390.992	30.04	-8.86	46.0	-15.96	Peak	360.00	200	Vertical	Pass
5	515.606	30.77	-6.83	46.0	-15.23	Peak	325.00	200	Vertical	Pass
6	970.907	32.50	-1.52	54.0	-21.50	Peak	360.00	200	Vertical	Pass

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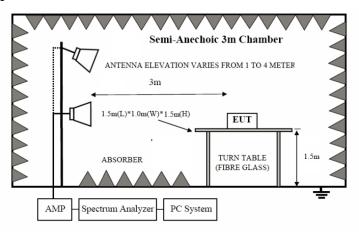


7. Band Edge

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.

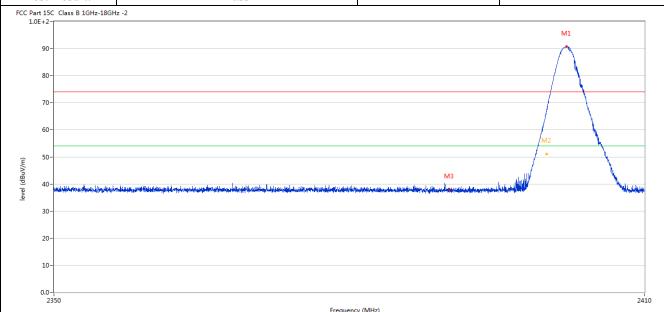
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7.6 Test Result

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	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2401.992	90.68	-3.57	74.0	16.68	Peak	241.00	100	Horizontal	N/A
2	2400.000	66.32	-3.57	74.0	-7.68	Peak	241.00	100	Horizontal	Pass
2**	2400.000	51.03	-3.57	54.0	-2.97	AV	241.00	100	Horizontal	Pass
3	2390.000	37.91	-3.53	74.0	-36.09	Peak	136.33	100	Horizontal	Pass

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F	Product:		Bluetooth	Speaker		Detect	or		Vertical	
	Mode	K	Leeping Tra	ansmitting		Test Vol	tage	-	DC3.7V	
Teı	mperature		24 de	g. C,		Humid	ity		56% RH	
Te	est Result:		Pas	SS						
CC Part 1.0E	t 15C Class B 1GHz-18GHz E+2-	: -2								
	90-									
								ı	M1	
	80-									
	70-								1	
	60-								\	
Ē	50-							M2 ⊗	<u> </u>	
el (dbuv/m)	50 - 40 -	Maria da Santa da Maria da Ma	ورود المعادد و المعادد و المعادد المعا	والمساورة والمسا	والمستوار المراجع المستوار المستور المستور المستور المستور المستور المستوار المستوار المستور المستور المستور المستور الم	M3 موسعات ارتباط مار دا ما سنادان	وأد معاملة عدد تعطور و	V/12 ⊗	M.	المساورة المساورة
u/angn) laaal	40-	the stand were little in some of the control of the control	مديناه والمعالم والمعارض والم	بالأفيد والمراوع والمعارب المعرب المراوع	i yan karkari dahi dajar dan da		op opposite the state of the	√12 •	N. M.	Note of Second
u/angn) iaaai	40-whyselfa. Area to had after what he	the which were the householders and englished the	umijluga Bahaja, ngilaga Agarina, na	والمرافعة	i yelen dagirkan kida debibadi geri alama ku		if with the description of the	o sharanini	N. A.	det de la constitución de la con
m/viabuv/m	40-	the view beautiful in part of grown and realize the color	aniflushtishae, eelas kissinseen	يغزاؤ أوستدر ومغلو أمواؤ يبتث بالمتصورين الدرية جرجت	iyda dagika biladekti yigarida dagida		i pungkung di sangki sakan pula	g/12		ole Walter
ievei (dbuv/m	40-whyselfa. Area to had after what he	ga iga kang pinin kupakan gena medindan da	anituga Narihaga, pedikasa kipa inaga pa	يفية أوسد معفر الدواق والدين والمصروب والدوالة ويت	i, plan depika bilaka bili ingga malamba		it and makenghishing des	gh 2		oler de la comp
m/vida (abuv/m	40	the show I war give to a special of the constraint of the constrai	annifugritishga neskua kipaina an	بدافارسند ومغارف فالمهاد والمعارض أدارية ويعاد	iyda darika dada kiriniya adaa da		ap njek meteorophisisken of se	o substantial		24:
m/vida (abuv/m	30 - 10 - 0.0	ta inn) varjita kuningtan medindan ka	amilluga Agabaga, nedisea Agabana, on		Frequency (MHz)		ig zak meternephisiologisches	ght 2		24:
W/Angan (apan/w	30 - 10 - 0.0	Results	Factor				Table	Height	ANT	ı
W/Angan (apan/w	40 30 20 10 0.0 2350	The second secon			Frequency (MHz)	distribution de la distribution de		Height (cm)	ANT	ı
W/yngp) laval	30- 20- 10- 2350	Results	Factor	Limit	Frequency (MHz) Over Limit	distribution de la distribution de	Table		ANT Vertical	ı
W/Ango) Isaasi	40 30 20- 10- 0.0- 2350 Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Frequency (MHz) Over Limit (dB)	Detector	Table (o)	(cm)		Verd N/A Pass
level (dβuV/m	40 30 20 10 0.0 2350 Frequency (MHz) 2402.112	Results (dBuV/m) 80.89	Factor (dB) -3.57	Limit (dBuV/m) 74.0	Frequency (MHz) Over Limit (dB) 6.89	Detector Peak	Table (o) 58.00	(cm)	Vertical	Verd

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]	Product:		Bluet	ooth Speaker	r		Polari	ty	Horizo	ntal
	Mode		Keepin	g Transmitti	ng		Test Vol	tage	DC3.7	7V
Te	mperature		2	4 deg. C,			Humid		56% F	RH
Te	est Result:			Pass						
C Part 1	.5C Class B 1GHz-18GHz	-2				'		1		
			M	1						
9	0-		N	Moder						
8	0-			1						
7	0-		, A							
6	0-			"Kom						
_			<u> </u>	<u> </u>						
. 5	0-			<u>M</u>	2 1/1					
. 5	O-	A STATE OF THE PARTY OF THE PAR		•	Property midely design	to the later to place the later of the	والمانة عربيه طالهمالكات ونفرناكم	the line and all a land	Maria di partiri di Partiri di Partiri di	
3	0-									
2	0-									
1										
1	0									
0.	0- 2470			248	3.5 Frequency (MHz)					2
No.	Frequency	Results	Factor	Limit	Over	Detector	Table	Height	ANT	Verdi
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	Limit (dB)		(o)	(cm)		
1	2480.010	89.34	-3.57	74.0	15.34	Peak	192.00	100	Horizontal	N/A
2	2483.500	54.16	-3.57	74.0	-19.84	Peak	192.00	100	Horizontal	Pass
		+	-	1				l	Į	

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	Product:		Blue	tooth Speaker	-		Detecto	or	Vertic	al	
	Mode		Keepir	ng Transmittir	ng	-	Test Volt	age	DC3.7	'V	
Te	mperature		2	24 deg. C,			Humidi	56% RH			
Те	est Result:			Pass							
	rt 15C Class B 1GHz-18GH E+2-	Hz -2						 			
	90-										
			M1								
	80-			1							
	70-		-/-	-							
	60-			- h							
				A.							
<u>-</u>	50-		f	P							
dBuV/m)											
level (dBuV/m)	40-	محمد والمتعادية والمتعادة والمتعادية والمتعادية والمتعادية والمتعادية والمتعادية والمتعا		M ₂	المحمية ويعقب المعادلين المحادث المعادلية والمعادلية المعادلية الم	a de la companya de l	والمرافعة المرافعة المرافعة المرافعة	hand the second second second	en a deposit the second of the second	and the state of t	
level (dBuV/m)	40-	an ang ang ang ang ang ang ang ang ang a		M2	المستخفية والمعتمل المستخدمة المستخدم المستخدمة المستخدم المستخدم المستخدم المستخدم المستخدم المستخدم المستخدم المست	lakking an en		<u>in na tia ya sheki wa in cu</u>	en alberta plane de la compansa de l		
level (dBuV/m)	40-	secunities testedomicalistica differend		M2	المواقعة والمعاونة والمعاو	Labbras, ann an Parist an Lordon	olyn de segon segoli de la proposition	ta politik provinci de la recini	en alle en historie et de la	makipa dikulah disebuh	
level (dBuV/m)	40-	sternmenten steinet socialiseiten sättämyt de		M2	الاخيط شبط شاعر أن المراجع الم	Labbrah at en explosive de la primeira del primeira de la primeira del primeira de la primeira del la primeira de la primeira dela primeira del la primeira	de Para e Adriante de Albanda	in in the figure of the second or the second	era, miliya co, hifa dustiya di sekili	makina dikaka peloje	
level (dBuV/m)	30- 20-	gaganapitap tanturkaria, kanadapitan dibibbanya d		M2	Managarinal, de la fina dela fina de la fina	Labing also a photological projection	ત્વિત કેલાક સ્વાંવે કેલાક વાત કરેલાક કરો કરો છે. 	is par fill commission continues and a second	aman diseas phanhadiy phah h	makina dikari di kali pi	
level (dBuV/m)	40-	gaganiping tiplanduming higher shifting of the		M2 2483.5	Trequency (MHz)	lahira aken mpasalan lanjara	odyn o dogo a naglej kinisterne li kaba	in seed the serve desired the seed of the	aman diyan iya dadiyi aya dadi	2500	
No.	30- 20- 10-	Results	Factor			Detector	Table	Height	ANT		
	30- 20- 10- 0.0- 2470		Factor (dB)	-	Frequency (MHz)					2500	
No.	30- 20- 10- 2470	Results		Limit	Frequency (MHz) Over Limit		Table	Height		2500	
	30- 20- 10- 2470 Frequency (MHz)	Results (dBuV/m)	(dB)	Limit (dBuV/m)	Over Limit	Detector	Table (o)	Height (cm)	ANT	2500 Verdic	

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 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 1.3dBi Max. It fulfills the requirement of this section. Test Result: Pass

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Product:	Bluetooth Speaker		Test Mode:	Keen tra	nsmitting		
Mode	Keeping Transmitting	<u>, </u>	Test Voltage	DC3.7V			
Temperature	24 deg. C,	·	Humidity		k RH		
Test Result:	Pass		Detector	P	K		
0dB Bandwidth	853.71kHz			-	-		
Ref Lvl 10 dBm	Marker 1 [T1 ndB] ndB 20.00 BW 853.70741483		W 100 kH	z	20 dB		
0		My	lacksquare $lacksquare$ $lacksquare$ $lacksquare$ $lacksquare$ $lacksquare$ $lacksquare$ $lacksquare$ $lacksquare$ $lacksquare$	[T1] 2.4020 2 853.7074			
-20 1MAX	T1		TÃ ▼ _{T2}	2.4015 [T1] -1 2.4023	3407 GHz 7.21 dBm		
-30				h market			
-50 Mmmmm				L.M	man		
-60							
-70							
-80							
-90 Center 2.402		300 kHz/			an 3 MHz		

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GFSK	_										
Product:		Bluet	ooth Speal	ker		Τ	est Mode:		Keep tra	ansmitting	
Mode		Keepin	g Transmi	tting		T	est Voltage		DC	23.7V	
Temperature		2.	4 deg. C,			-	Humidity		56% RH		
Test Result:			Pass				Detector]	PK	
0dB Bandwidth		90)7.82kHz								
Ŕ	Marker 1 [T1 ndB]				R	.BW	30 kl	Hz Rl	F Att	20 dB	
Ref Lvl		ndB	20.	00 dB	V	BW	100 kl				
10 dBm		BW 907	7.815631	26 kHz	S	WT	8.5 ms	s Uı	nit	dBn	n
10							v ₁	[T1]	2	.27 dBm	A
				0 = = 1	N .				2.44100	902 GHz	
0					W		ndB		20	.00 dB	ĺ
				<u>,</u> /	,		BW ⊽ _{T1}	90 [T1]	7.81563		
-10			~	V		٧١,	\ \ \		2.44052		ĺ
			T ₁				$\sqrt{r^2} \nabla_{\mathrm{T2}}$	[T1]	-17	.71 dBm	
-20			\nearrow				7		2.44143	587 GHz	
1MAX		J					\sim				1M2
-30		~						\			
		\wedge						7			
-40	<u>Nur</u>	/						7	m		
								~			
-50										War war	
-60											
-70											
-80											l
-90											Į
Center 2	2.441 GF	łz		300	kHz/				Spa	n 3 MHz	
Date: 2	4.MAR.2	023 11	:01:18								

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Product:	Rhat	ooth Speaker	т	est Mode:	Keep transmitting			
Mode Mode		g Transmitting		est Voltage		C3.7V		
Temperature		4 deg. C,	-	Humidity		6% RH		
Test Result:		Pass		Detector	30	PK		
20dB Bandwidth	1	208MHz						
^					D.D			
Ref Lvl	Marker ndB	2 [T1 ndB] 20.00 dB	RBW VBW	30 kHz 100 kHz		20 dB		
10 dBm		20841683 MHz	SWT	8.5 ms	Unit	dBm		
10				▼ 2 [7	71]	1.55 dBm		
			2		2.4800	A		
0		~~ ✓	\mathbb{W}	ndB	2	0.00 dB		
			\\\	BW	1.2084	1683 MHz		
-10			V · 0	V T 1	T1] -1	8.37 dBm		
	T/	J		∇T_3	2.4793			
-20	7				T1] -1 2.4805	8.01 dBm 6814 GHz		
1MAX						1M		
-30	. 0.0				\			
-40	V V				4 pmm/m			
-50								
-60								
-70								
~ / 0								
-80								
-90 Center 2.	49 01-	200	1-11 /			an 3 MHz		
Date: 24	LIO GIL	300	лпь/		Sp	an a Mus		

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Л/4D()PSK												
Pro	oduct:		Blue	tooth Spea	aker		Te	est Mode:		Keep trai	nsmitting		
N	Mode Temperature Test Result: dB Bandwidth		Keepi	ng Transm	nitting		Te	st Voltage		DC3	3.7V		
			,	24 deg. C,			I	Humidity		56% RH			
				Pass			Detector			P	K		
20dB I	dB Bandwidth Ref Lvl		1.214MHz								-		
(F)				1 [T1 r		RI	ЗW	30 k		F Att	20 dB		
F F			ndB		00 dB		3W	100 k			1-		
10	10 dBm		BW 1	.214428	886 MHZ	SI	VT.	8.5 m	.s U	nit	dBm	1	
						<u>L</u>		v ₁	[T1]	2	2.96 dBm	A	
0-					Λ /			7-		2.40201			
				0		1,/		nd∃ \BW		1.21442	0.00 dB 2886 MHz		
-10-				\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	M	L,	/ ` `	VYTI	[T1]	-16		l	
			<u> T</u> #	\mathcal{J}				T:		2.40135	972 GHz		
-20			<u></u>					▽☆	[T1]	-1'			
	1MAX									2.40257	7415 GHz	1MA	
-30 -40	~~	\sim	~						\mathcal{M}	M	·~~		
-40-										•			
-50-													
-60-													
-70													
-80													
-90													
	Center	2.402 G	Hz		300	kHz/				Spa	an 3 MHz	_	
Date:	9	24.MAR.2	1023 11	:03:12									
				. 05.12									

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Product:	Blueto	ooth Speaker	7	Test Mode:	Keep to	ransmitting
Mode		g Transmitting	Т	est Voltage	De	C3.7V
Temperature	24	4 deg. C,		Humidity	56	% RH
Test Result:		Pass		Detector		PK
OdB Bandwidth	1.	208MHz				
Ŕ	Marker	1 [T1 ndB]	RBW	30 kHz	RF Att	20 dB
Ref Lvl	ndB	20.00 dB	VBW	100 kHz		
10 dBm	BW 1	.20841683 MHz	SWT	8.5 ms	Unit	dBm
10				V 1 [7	r1]	2.25 dBm
			1		2.4410	
0			W	ndB	2	0.00 dB
		mm V	\\\	BW VT1	1.2084 T11 -1	1683 MHz 7.59 dBm
-10		/ ·	<u>v</u>	V \	2.4403	
	Ţ P	V		$\nabla \frac{T^2}{\nabla^2}$	[T1] -1	7.41 dBm
-20	- / 				2.4415	6814 GHz
IMAX						
-30					٥.	
					$\mathcal{M}_{\mathcal{A}}$	A
-40	40				NA MANAGEMENT	1
-50						
-60						
-70						
-80						
-90						
Center 2.	.441 GHz	300	KHZ/		Sp	an 3 MHz

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/4DQPSK					ı					
Product:		ooth Speal				Test Mode:			insmitting	
Mode		g Transmi	tting		1	est Voltage		DC3.7V		
Temperature	2	4 deg. C,			1	Humidity			6 RH	
Test Result:		Pass				Detector		I	PK	
0dB Bandwidth	1.208MHz									
Ŕ	Marker 1 [T1 ndB]			F	RBW	30 kI	Hz Rl	F Att	20 dB	
Ref Lvl	ndB	20.	00 dB	7	/BW	100 k				
10 dBm	BW	1.208416	83 MHz	S	SWT	8.5 ms	s Uı	nit	dBm	ı
10						\mathbf{v}_1	[T1]	1	.53 dBm	A
								2.48000	902 GHz	
0			/\ /	W		ndB		20	.00 dB	
		~~~		٩	m		Fm3.3	1.20841		
-10		1000	v ·		<b>V</b> —	V T	[T1]	2.47935	.27 dBm 972 GHz	
	Ŧ	<b>'</b>				$\sqrt{\frac{1}{V^2}}$	[T1]	-17	.98 dBm	
-20						7		2.48056	814 GHz	
-30										1M2
							$\setminus$ $\setminus$			
-40							N	M	~~~\\	
-50										
-60										
-70										
-80										
-90										
Center 2	.48 GHz		300	kHz/				Spa	n 3 MHz	

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DPSK			
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	1.208MHz		
	Marker 1 [T1 ndB]	RBW 30 ki	Hz RF Att 20 dB
Ref Lvl	ndB 20.00 dB	VBW 100 ki	
10 dBm	BW 1.20841683 MHz	SWT 8.5 ms	s Unit dBm
10		<b>v</b> ₁	[T1] 2.99 dBm
			2.40201503 GHz
0		ndB	20.00 dB
		BW VT1	1.20841683 MHz [T1] -16.63 dBm
-10			2.40138978 GHz
	7	∇ _T V	[T1] -16.96 dBm
-20			2.40259820 GHz
1MAX			
-30			
~~~~	~~~~~		1 MM
-40			V V V
-50			
-60			
-70			
-80			
-90			
Center 2.4	102 GHz 300	kHz/	Span 3 MHz

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8DPSK						
Product:	Blu	etooth Speaker		Test Mode:	Keep	transmitting
Mode	Keep	ing Transmitting	ŗ	Test Voltage		DC3.7V
Temperature		24 deg. C,		Humidity		56% RH
Test Result:		Pass		Detector		PK
20dB Bandwidth		1.208MHz				
	Marke	r 1 [T1 ndB]	RBW	30 kHz	z RF Att	20 dB
Ref Lvl	ndB	20.00 dB	VBW		Z	
10 dBm	BW	1.20841683 MHz	SWT	8.5 ms	Unit	dBm
10				v ₁ [T1]	2.21 dBm
		Λ	*		2.44	101503 GHz
0			TV\\	ndB		20.00 dB
			\	BW VT1	1.208	
-10				- VV 1	2.440	<u>-17.50 dBm</u> 038978 GHz
		T		$\nabla_{\mathbf{T}}^{\mathbf{T}^2}$		-17.19 dBm
-20		1			2.44	159820 GHz
-30						1MA
					\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	
-40	Pv/1,**1				\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	
-50						
-60						
-70						
-80						
-90						
Center 2	.441 GHz	300	kHz/		\$	Span 3 MHz
Date: 24	1.MAR.2023	1:05:56				

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DPSK											
Product:			ooth Speal			Τ	est Mode:		Keep tra	ansmitting	
Mode		Keepin	g Transmi	tting		T	est Voltage	;	DC	23.7V	
Temperature		2	4 deg. C,				Humidity		569	% RH	
Test Result:			Pass				Detector]	PK	
20dB Bandwidth	1	1.208MHz									
Ŕ		Marker	1 [T1 r	ndB]	R	BW	30 k	Hz R	F Att	20 dB	
Ref Lvl		ndB		.00 dB		BW	100 k				
10 dBm	1	BW 1	1.208416	583 MHz	S'	TW	8.5 m	s U	nit	dBn	1 =
10							v 1	[T1]	1	l.55 dBm	A
0				Λ	X				2.48001		
							ndE BW		1.20841	0.00 dB 683 MHz	
-10			~~~	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		$\sqrt{}$	$\bigvee_{n} \nabla_{\text{T1}}$	[T1]	-18	.10 dBm	
-10			$\int_{-\infty}^{\infty}$						2.47938	978 GHz	
		T Y	<u>^</u>				$\triangle \overrightarrow{f}_{\perp}$	2 [T1]	-18	.09 dBm	1
-20 1MAX									2.48059	820 GHz	1MA
-30								1	- 0		
-40	$\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{$,								\\\\	
-50											
-60											
-70											
-80											
-90 Center	2.48 GH	Z		300	kHz/				Spa	an 3 MHz	
			.05.15	300	/				Spe	5 1.112	
Date:	24.MAR.2	2023 11	:05:17								

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10.0 FCC ID Label

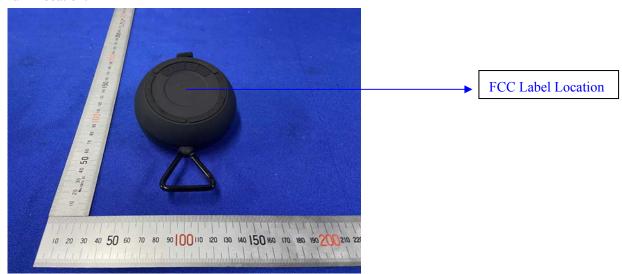
FCC ID: 2ACCE-045B

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and

(2) this device must accept any interference received, including interference that may cause undesired operation

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

Conducted test View 11.1



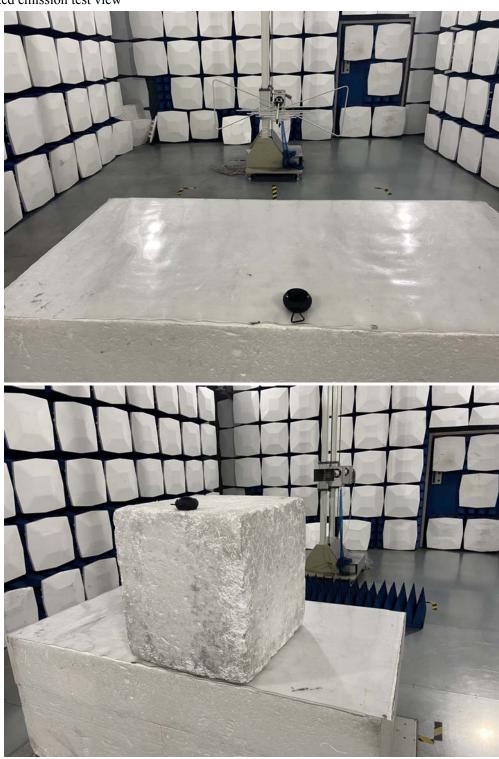
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Radiated emission test view



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11.2 Photographs – EUT



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Outside View



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Outside View



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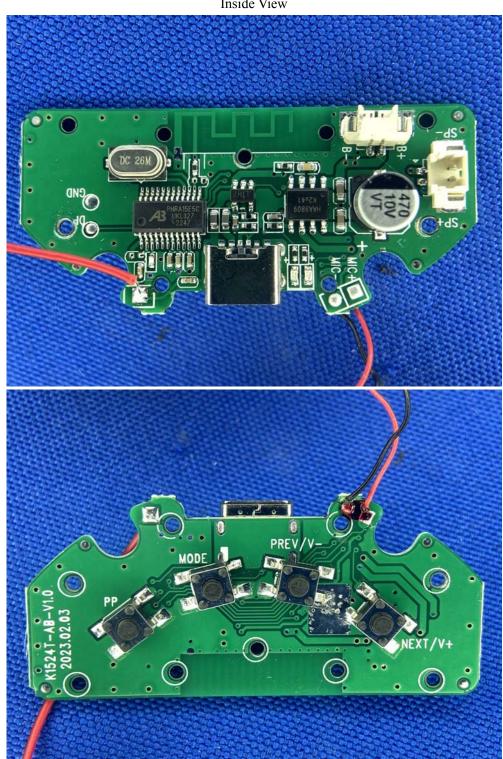
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Inside View



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Inside View



-- End of the report--