

Applicant: TITAN INC.

Product: SPEAKER BOX/Parlante

Model No.: MS-108LT

Trademark: monki

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

Terry Tang

Manager

Dated: July 26, 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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Date: 2024-07-26



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

Date: 2024-07-26



Test Report Conclusion

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1.0 General Details

1.1 Test Lab Details

Name: SHENZHEN TIMEWAY TESTING LABORATORIES.

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

Village, Nanshan District, Shenzhen, China

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

Site on File with the Federal Communications Commission – United Sates

Registration Number: 744189 For 3m Anechoic Chamber

1.2 Applicant Details

Applicant: TITAN INC.

Address: 3530 Nw 115 Ave, Miami, Florida 33178, United States

Telephone: 786-618-8393 Fax: 305-320-3198

1.3 Description of EUT

Product: SPEAKER BOX/Parlante
Manufacturer: MAXTRONIX CO., LTD.

Address: NO.12, HEXIANG ROAD, WUJIN ECONOMIC DEVELOPMENT ZONE,

CHANGZHOU, JIANGSU, CHINA

Trademark:

Model Number: MS-108LT

Additional Model Name N/A

Rating: Input: 100-240V~, 50/60Hz, 1600mAh Battery: 120V~, 5.0AH Lead-Acid Battery

Serial No.: MS108LT20231205115B

Hardware Version: 7.0 Software Version: 1.2

Operation Frequency: 2402-2480MHz

Modulation Type: GFSK, 月/4DQPSK, 8DPSK

Number of Channels: 79 Channel Separation: 1MHz

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

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1.4 Submitted Sample: 1 Sample

1.5 Test Duration

2024-07-04 to 2024-07-26

1.6 Test Uncertainty

Conducted Emissions Uncertainty =3.6dB

Radiated Emissions below 1GHz Uncertainty =4.7dB

Radiated Emissions above 1GHz Uncertainty =6.0dB

Conducted Power Uncertainty = 6.0dB

Occupied Channel Bandwidth Uncertainty =5%

Conducted Emissions Uncertainty = 3.6dB

Note: The measurement uncertainty 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	2024-07-12	2025-07-11			
LISN	R&S	EZH3-Z5	100294	2024-07-12	2025-07-11			
LISN	R&S	EZH3-Z5	100253	2024-07-12	2025-07-11			
Impuls-Begrenzer	R&S	ESH3-Z2	100281	2024-07-12	2025-07-11			
Loop Antenna	EMCO	6507	00078608	2022-07-18	2025-07-17			
Spectrum	R&S	FSIQ26	100292	2024-07-12	2025-07-11			
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	2025-07-17			
Power meter	Anritsu	ML2487A	6K00003613	2024-07-12	2025-07-11			
Power sensor	Anritsu	MA2491A	32263	2024-07-12	2025-07-11			
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	2024-07-12	2025-07-11			
EMI Test Receiver	RS	ESCS 30	834115/006	2024-07-12	2025-07-11			
Spectrum	HP/Agilent	E4407B	MY50441392	2024-07-12	2025-07-11			
Spectrum	RS	FSP	1164.4391.38	2024-07-12	2025-07-11			
RF Cable	Zhengdi	ZT26-NJ-NJ-8M/FA		2024-07-12	2025-07-11			
RF Cable	Zhengdi	7m		2024-07-12	2025-07-11			
Pre-Amplifier	Schwarebeck	BBV9743	#218	2024-07-12	2025-07-11			
Pre-Amplifier	HP/Agilent	8449B	3008A00160	2024-07-12	2025-07-11			
LISN	SCHAFFNER	NNB42	00012	2024-07-12	2025-07-11			
ESPI Test Receiver	R&S	ESPI 3	100379	2024-07-12	2025-07-11			
LISN	R&S	EZH3-Z5	100294	2024-07-12	2025-07-11			

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 E	UT has	been	tested	accord	ling to	o 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

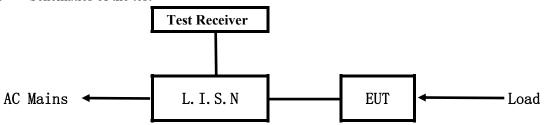
No modification by SHENZHEN TIMEWAY TESTING LABORATORIES

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5.0 Power Line Conducted Emission Test

5.1 Schematics of the test

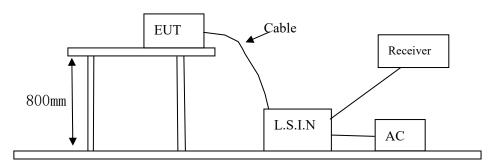


EUT: Equipment Under Test

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 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
SPEAKER BOX/Parlante	MAXTRONIX CO., LTD.	MS-108LT	2A6R4-MS-108LT

B. Internal Device

Device	Manufacturer	Model	FCC ID/DOC
N/A			

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C. Peripherals

Device	Manufacturer	Model	Rating
N/A			

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)

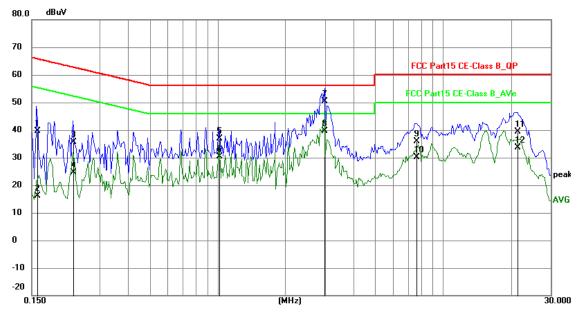
EUT Operating Environment

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

EUT set Condition: 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	0.1582	29.77	9.85	39.62	65.56	-25.94	QP	Р
2	0.1582	6.16	9.85	16.01	55.56	-39.55	AVG	Р
3	0.2280	25.74	9.94	35.68	62.52	-26.84	QP	Р
4	0.2280	14.62	9.94	24.56	52.52	-27.96	AVG	Р
5	1.0158	26.01	10.90	36.91	56.00	-19.09	QP	Р
6	1.0158	19.40	10.90	30.30	46.00	-15.70	AVG	Р
7	2.9853	39.64	10.86	50.50	56.00	-5.50	QP	Р
8	2.9853	28.75	10.86	39.61	46.00	-6.39	AVG	Р
9	7.6098	24.88	11.12	36.00	60.00	-24.00	QP	Р
10	7.6098	19.09	11.12	30.21	50.00	-19.79	AVG	Р
11	21.4431	28.09	11.19	39.28	60.00	-20.72	QP	Р
12	21.4431	22.51	11.19	33.70	50.00	-16.30	AVG	Р

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

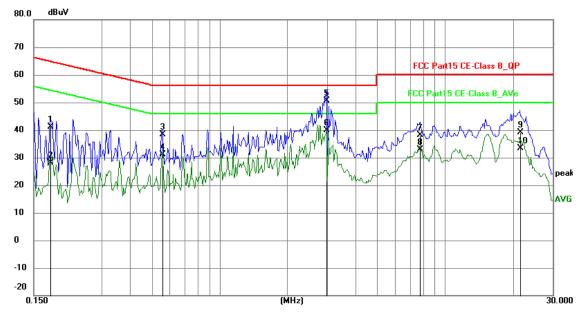
EUT Operating Environment

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

EUT set Condition: 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	0.1773	31.25	9.87	41.12	64.61	-23.49	QP	Р
2	0.1773	18.37	9.87	28.24	54.61	-26.37	AVG	Р
3	0.5556	27.92	10.35	38.27	56.00	-17.73	QP	Р
4	0.5556	20.68	10.35	31.03	46.00	-14.97	AVG	Р
5	2.9853	39.86	10.86	50.72	56.00	-5.28	QP	Р
6	2.9853	29.03	10.86	39.89	46.00	-6.11	AVG	Р
7	7.7619	27.01	11.14	38.15	60.00	-21.85	QP	Р
8	7.7619	21.81	11.14	32.95	50.00	-17.05	AVG	Р
9	21.4899	28.03	11.19	39.22	60.00	-20.78	QP	Р
10	21.4899	22.10	11.19	33.29	50.00	-16.71	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:

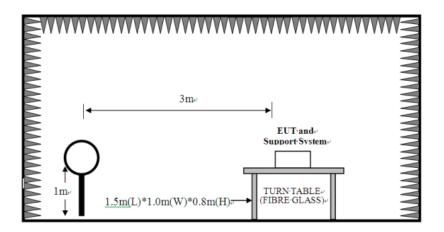
Frequency	Detector	RBW	VBW	Value
9KHz-150KHz	Quasi-peak	200Hz	600Hz	Quasi-peak
150KHz-30MHz	Quasi-peak	9KHz	30KHz	Quasi-peak
30MHz-1GHz	Quasi-peak	120KHz	300KHz	Quasi-peak
Above 1GHz	Peak	1MHz	3MHz	Peak
ADOVE IGHZ	Peak	1MHz	10Hz	Average

(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

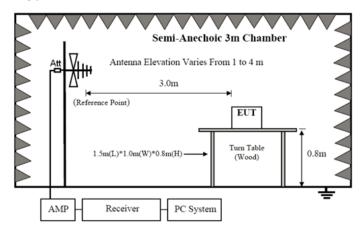
For radiated emissions from 9kHz to 30MHz



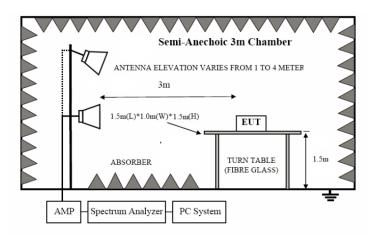
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For radiated emissions from 30MHz to1GHz



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)
ZT00-ZT03.3	50	JT (Average)	11 1 (1 cak)	500	J+ (Average)	/4 (FCak)

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	5 .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.

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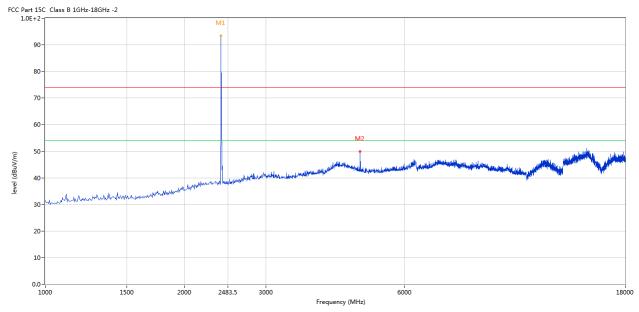


6.5 Test result

A Fundamental & Harmonics Radiated Emission Data

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

Horizontal



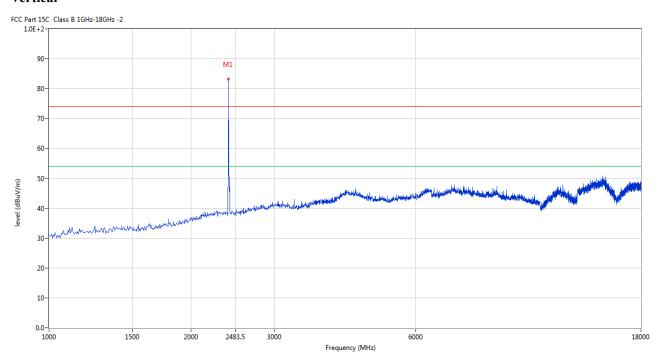
No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2402	93.34	-3.57	114.0	-20.66	Peak	248.00	100	Horizontal	Pass
2	4802.799	49.86	3.12	74.0	-24.14	Peak	243.00	100	Horizontal	Pass

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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	83.22	-3.57	114.0	-30.78	Peak	116.00	100	Vertical	Pass

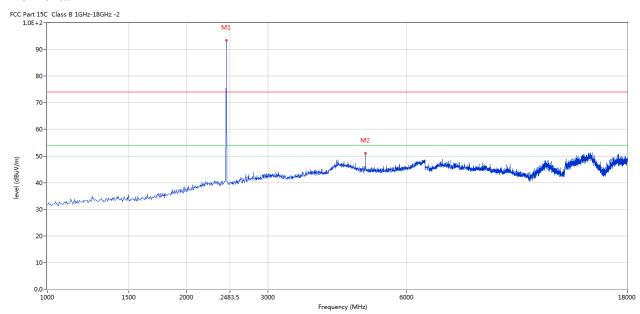
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Please refer to the following test plots for details: Middle Channel-2441MHz

Horizontal



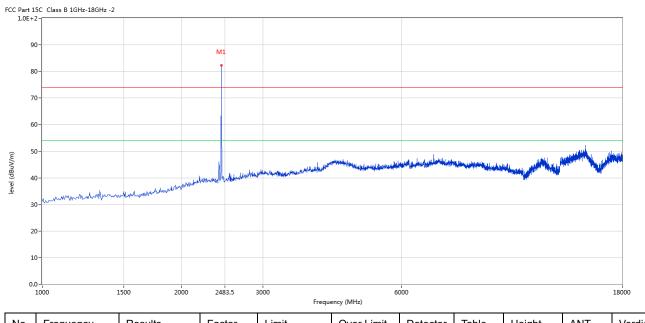
No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2441	93.32	-3.57	114.0	-20.68	Peak	251.00	100	Horizontal	Pass
2	4883.529	50.95	3.20	74.0	-23.05	Peak	281.00	100	Horizontal	Pass

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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	82.36	-3.57	114.0	-31.64	Peak	96.00	100	Vertical	Pass

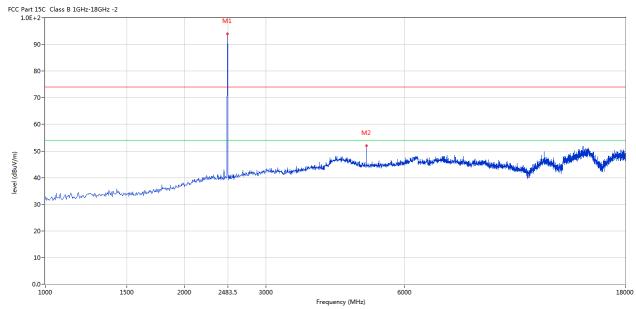
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Please refer to the following test plots for details: High Channel-2480MHz

Horizontal



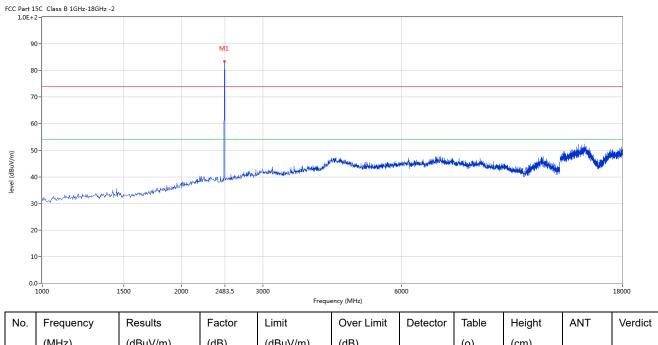
No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2480	93.88	-3.57	114.0	-20.12	Peak	245.00	100	Horizontal	Pass
2	4960.010	51.94	3.36	74.0	-22.06	Peak	250.00	100	Horizontal	Pass

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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	83.51	-3.57	114.0	-30.49	Peak	55.00	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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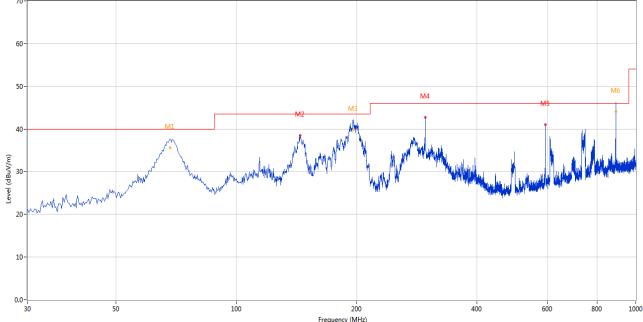
B. **General Radiated Emission Data** Radiated Emission In Horizontal (30MHz----1000MHz)

EUT set Condition: Keep Tx transmitting

Results: Pass

Please refer to following diagram for individual

FCC_FCC Part 15B Class B 30MHz-1GHz



No.	Frequency	Results	Factor	Limit	Margin	Detector	Table	Height	Antenna	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(Degree)	(cm)		
1*	68.305	35.59	-14.82	40.0	4.41	QP	26.00	100	Horizontal	Pass
2	144.431	38.54	-17.14	43.5	4.96	Peak	154.00	100	Horizontal	Pass
3*	196.019	39.87	-13.63	43.5	3.63	QP	141.00	164	Horizontal	Pass
4	296.926	42.76	-11.07	46.0	3.24	Peak	250.00	100	Horizontal	Pass
5	593.914	41.03	-5.25	46.0	4.97	Peak	268.00	100	Horizontal	Pass
6*	890.998	43.98	-1.91	46.0	2.02	QP	304.00	100	Horizontal	Pass

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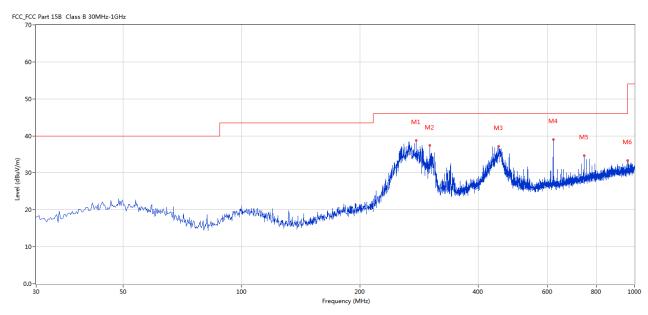


Radiated Emission In Vertical (30MHz----1000MHz)

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	278.015	38.78	-11.55	46.0	7.22	Peak	273.00	100	Vertical	Pass
2	301.775	37.38	-10.99	46.0	8.62	Peak	273.00	100	Vertical	Pass
3	451.602	37.22	-7.91	46.0	8.78	Peak	161.00	100	Vertical	Pass
4	621.067	39.02	-4.90	46.0	6.98	Peak	2.00	100	Vertical	Pass
5	743.984	34.63	-3.54	46.0	11.37	Peak	90.00	100	Vertical	Pass
6	959.998	33.33	-1.63	46.0	12.67	Peak	221.00	100	Vertical	Pass

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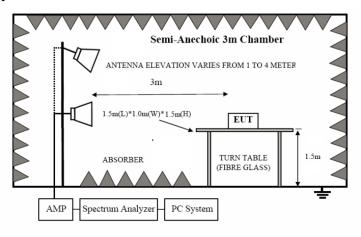


7. Band Edge

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.

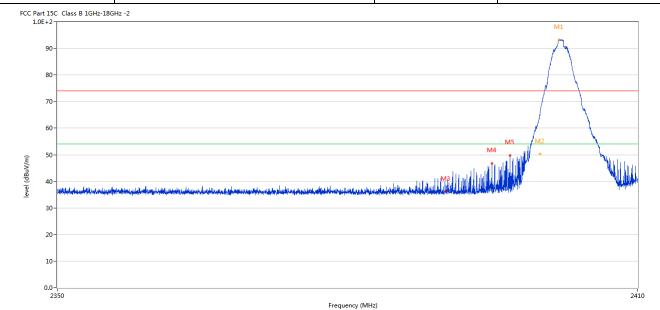
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7.6 Test Result

Product:	SPEAKER BOX/Parlante	Polarity	Horizontal
Mode	Keeping Transmitting	Test Voltage	120V~
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	2401.767	93.26	-3.57	74.0	19.26	Peak	69.00	100	Horizontal	N/A
2	2400.025	65.46	-3.57	74.0	-8.54	Peak	90.00	100	Horizontal	Pass
2**	2400.025	50.31	-3.57	54.0	-3.69	AV	90.00	100	Horizontal	Pass
3	2390.010	36.21	-3.53	74.0	-37.79	Peak	59.00	100	Horizontal	Pass
4	2394.779	46.66	-3.55	74.0	-27.34	Peak	69.00	100	Horizontal	Pass
5	2396.653	49.69	-3.56	74.0	-24.31	Peak	69.00	100	Horizontal	Pass

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	Product:	SP	EAKER B	OX/Parlante		Detect	tor		Vertical	
	Mode	ŀ	Keeping Tra	ansmitting		Test Vol	tage		120V~	
Te	mperature		24 deg	g. C,		Humid	ity	:	56% RH	
Te	est Result:		Pas	SS						
	t 15C Class B 1GHz-18GH E+2-	z -2					<u>'</u>			
	90-									
								N	//1 ^	
	80-								1	
	70-								$\overline{}$	
	60-								-	
	50-							A42	$\overline{}$	
Ē	50-							M4 / 1012	\	
<u>)</u>								•	1	
el (dBuV)	العرب في المالية والمالية والم	and a called related and construction and the construction of the	والمستعدد والمستعد والمستعدد والمستعد والمستعدد والمستعد والمستعدد والمستعد	والمراجعة والمراجع والمراجعة والمراجعة والمراجعة والمراجعة والمراجعة والمراج	والمراجع والمراجع المراجع والمراجع والمراجع والمراجع	M3 بولان برايي أو مدفق يومان داني	المرابعة الم	ntal a little		A STATE OF THE STATE OF THE STATE OF
level (dBuV/m)	A face of the registry parties and the property of the parties of the	akahanaldepildadapakerakerakerakerakerakerakerakerakeraker	distandak (13.000-jaluan di Amerik) ingka jerupa	المتواصف فالمتواط والمتواط	Physical hope of the appropriate may be		سواد بساعينان واطهونا أحاب	NAME OF THE PARTY	hard the second	April Walter State of the State
level (dBuV)	40-	akulanes lahjalishing perlempakan saglikapakan menjalaksilka	distribution of the Association of the Association is the State of the Association of the	त्रात्त्वे प्रक्रेत्ते हो _{स्थाति} केव वेदेशका के क्षेत्रे प्रक्रात्त्वे केवे प्रक्रात्त्वे केवे प्रक्रात्त्वे क	elainas papa philosopolisas pa		weft and british of dagged days of		<u></u>	April 1 Walleton Walter
level (dBuV/	A face of the registry parties and the property of the parties of the	is, hand hiji ilaga para na gala ang akadh	distributive agreement of the second state of	t off miles and the collection of the second	eli <u>n, and open plake quandinatio</u> ning		المراد والمراد	atestalists of the second		to with the state of the state
/Angp) level	30-	and the second of the second o	distribute vi nazvolovo de America i indese e em	tildraki birakini dipertuak dileraken	olkir anhungu gheke nganakhisika mayn		myten, mitensis järjän, mitelään ja	nt-sized like		April 1 Mary 1 M
level (dBuV)	30 - 10 -	ichanthichiagaetheores dheora agaireile	litter had er nag ed med sich bit ag en	ktopodrál vojekrály krápad síli podra	olika van kara ya da ka mana katika may s		orthonologicking the board	nhaha digit		to rather and the same
level (dBuV)	30-	takan dipangan pangan pang	titeleksi vi navid je	titi nahan kerilan ana di manar			ng n	Nichten Allender		24.
	20- 10- 2350				Frequency (MHz)	Marian (g.yd), ary direct great day.	ngkanikalikapitangikhian		T=	1
	20- 10- 2350	Results	Factor	Limit	Frequency (MHz) Over Limit		Table	Height	ANT	1
	20- 10- 2350				Frequency (MHz)	Marian (g.yd), ary direct great day.	ngkanikalikapitangikhian	Height (cm)	ANT	1
No.	20- 10- 2350	Results	Factor	Limit	Frequency (MHz) Over Limit	Marian (g.yd), ary direct great day.	Table	_	ANT Vertical	1
No.	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
No.	Frequency (MHz)	Results (dBuV/m) 83.20	Factor (dB) -3.57	Limit (dBuV/m) 74.0	Frequency (MHz) Over Limit (dB) 9.20	Detector Peak	Table (o) 160.00	(cm)	Vertical	Verdi N/A Pass
No.	20- 10- 2350 Frequency (MHz) 2401.767 2400.012	Results (dBuV/m) 83.20 60.14	Factor (dB) -3.57	Limit (dBuV/m) 74.0 74.0	Over Limit (dB) 9.20 -13.86	Detector Peak Peak	Table (o) 160.00 160.00	(cm) 100 100	Vertical Vertical	Verdi N/A Pass Pass

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1	Product:	SP	EAKER P	BOX/Parlant	e	P	olarity		Horizont	al
	Mode	I	Keeping Tı	ransmitting		Test	Voltage		120V~	
Te	emperature		24 de	eg. C,		Нι	ımidity		56% RI	I
Te	est Result:		Pa	iss						
CC Part 1	15C Class B 1GHz-18GHz -2		M1							
86 70 66	30			M2		hallahna	hossald of a dash of	hhlada, ak		
(m/vudb) level	10-	Art Close declarates			- designation of	our and from the payment publicable and	THE PERSON NAMED IN			individual p
30	the complete state of the state	April 1 Palati 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			् व्याच्यासम्	elekala kalenda elekala elekal				la _r ikish bidik _s ay
3(the complete state of the state	AND THE PERSON NAMED IN COLUMN TO SERVICE AND ADDRESS OF THE PERSON NAMED ADDRESS OF THE PERSON NAMED IN COLUMN TO SERVICE AND ADDRESS OF			- And Company of	ere en			The track that the fill the present the	in philips of the state of the
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20	20-	4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		2483.5 F	Frequency (MHz)	e e e e e e e e e e e e e e e e e e e		NI VARIANTIANI	il Maria de Lordo Interfeita de companio de la companio del companio de la companio de la companio del companio de la companio del la companio de la companio del la companio de la compan	250

No.	Frequency	Results	Factor	Limit	Over	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	Limit (dB)		(o)	(cm)		
1	2480.287	93.63	-3.57	74.0	19.63	Peak	254.00	100	Horizontal	N/A
2	2483.500	56.54	-3.57	74.0	-17.46	Peak	254.00	100	Horizontal	Pass
2**	2483.500	41.51	-3.57	54.0	-12.49	AV	254.00	100	Horizontal	Pass

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	Product:	SP	EAKER B	OX/Parlante		Detect	tor		Vertical		
	Mode	k	Keeping Tra	ansmitting		Test Vol	tage		120V~		
Te	mperature		24 de	g. C,		Humid	ity		56% RH		
Т	est Result:		Pas	ss							
	rt 15C Class B 1GHz-18G	Hz -2			·						
	90-		M	1							
	80-		No.								
	70-										
	60-										
			al .	M2							
(m//m)	50-		/	1							
level (dBuV/m)		can hid a distributed		1	Concession of the second	Wast Aarlage	ud en de la	والإنجاب والموادة والمنطقة وال	الدهيده المتوسية بالراجاته المقاأول	ingaskapi efti dikudum.	
level (dBuV/m)		ann hideredd daeth dd dd daeth dd dd daeth dd		M	Something the addition of	dland, designificanistici	oderat folkringsi-sufta	sed-rhating children holdy the year told	بار الله والمعاملة و	ngant ang pining kangkana	
level (dBuV/m)	40-	and the self-self-self-self-self-self-self-self-			make well and the inter-	dlasek, derekapje v med d	odenstjekni spielj edi	જ્યાં અને જોવાનું અને જોવાનું અને	uddidattii,dunaaaitaa,usud		
level (dBuV/m)	40-	an his will a travel by the			Something the second section of the section of th	Manch Assissing to the State of	udoral filorinosi-budha	gara pinggan di ing pinggan ka	akkinenta, kansasana	ing and was 1 to 8 lagh	
level (dBuV/m)	30- 20-	an his is the state of the stat		Ma.		dlasek, krytagistuusa, d	ndendfabrigas hijts	જાઇન્ટ્રની જુનિક કુત કરિકારો નાંધિક કરિકારો નાંધિક કરિકારો નાંધિક કરિકારો કરી છે. 	hdddirff-Lagoridan iarab	masteria (Asteria)	
level (dBuV/m)	30-	Constituted at the stable of t		2483.		Allaerah derekanjerus sand	andern all bellevin in the state of	જ્યાં કર્યાં કરિયાની કર્યાં કર્યા કર્યા	h.hlbberterl., t. magenial an armat	2500	
	30- 20- 10-	Results	Factor	2483.	5	Detector	Table	Height	ANT	2500	
(m/Nmg) level (BuV/m)	30 - 20 - 10 - 2470		Factor (dB)	2483.5	5 Frequency (MHz)						
	30- 20- 10- 2470	Results		2483.E	Frequency (MHz) Over Limit		Table	Height		2500	

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

2. 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 with gain 1.7dBi maximum. 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:	SPEAKI	ER BOX/	Parlante		Te	est Mode:		Keep tra	nsmitting	
Mode	Keepii	ng Transm	nitting		Te	st Voltage		120)V~	
Temperature	2	24 deg. C,			ŀ	Iumidity		56%	RH	
Test Result:		Pass]	Detector	PK			
dB Bandwidth		896kHz						-	-	
	Marker 1 [T1 ndB]			RI	ЗW	30 k	Hz R	F Att	20 dE	}
Ref Lvl	ndB	20.	.00 dB	VI	ВW	100 k	Hz			
10 dBm	BW 895	.791583	317 kHz	SV	ТW	8.5 m	s U	nit	dE	m
10						\mathbf{v}_1	[T1]	_	3.60 dB	m
								2.4019	7295 GH	
0			A 1			ndE	_	2	0.00 dB	
				\mathcal{N}		BW ▽ _{T1}	89 . [T1]	5.7915 -2	8317 kH 4.26 dB	
-10			/				<u> </u>	2.4015	1603 GH	
		$\int_{\mathcal{M}}$	V		\mathcal{N}	$ abla_{\mathrm{T}1}$	[T1]	-2		
20		TA				T2		2.4024	1182 GH	- 11
1MAX		للمركز				$\sqrt{}$				11
30	/	,				,	Λ			
- 40										
50	4							~\		
.60							~	- Jan	, all a	
70										
- 80										
-90										
Center 2.402	GHz		300	kHz/				Sp	an 3 MH	z

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Product:		SPEAKE	R BOX/P	arlante		Т	est Mode:		Keen tr	ansmitting	
Mode			g Transmi			1	est Voltage			0V~	
Temperature			4 deg. C,	5		-	Humidity			% RH	
Test Result:			Pass			+	Detector			PK	
20dB Bandwidth			896kHz								
^			1 [T1 r	ndB1	F	RBW	30 k	Hz P	F Att	20 dB	
Ref Lvl		ndB		.00 dB		BW	100 k		1 1100	20 02	
10 dBm		BW 895	5.791583	317 kHz	S	SWT	8.5 m	s U	nit	dBn	n
10							v ₁	[T1]	_ 1	3.56 dBm	
									2.44097		A
0				1			ndE	1	20	0.00 dB	
			\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\				BW		5.79158		
-10					<u> </u>	<u>√</u>		[T1]	-24 2 440F1	.14 dBm	
	M				\mathcal{V}	$ riangledown_{\mathrm{T}2}$	∨ _{T2} [_{T1}]		2.44051603 GHz -23.91 dBm		
-20			TÃ			T2			2.44141		
1MAX			\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\								1M
-30		الم					"	$\sqrt{}$			
-40	M								٧		
-60		~								www.	
											,
-70											
-80											
-90 Center 2	.441 GH	łz		300	kHz/				Spa	an 3 MHz	ļ
Date: 22	2.JUL.2		:13:47						-		

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GFSK												
Product:		SPEAKE	R BOX/P	arlante		Test Mode:		Keep tra	nsmitting			
Mode		Keepin	g Transmi	tting		Test Voltage	e	12	0V~			
Temperature		2	4 deg. C,			Humidity		56%	% RH			
Test Result:			Pass			Detector		I	PK			
20dB Bandwidth		:	896kHz									
Ŕ				Marker 1 [T1 ndB] RBW				√ 30 k	Hz R	F Att	20 dB	
•	*					100 k						
10 dBm		BW 895	5.791583	317 kHz	SWI	r 8.5 m	ıs U:	nit	dBm	•		
						v ₁	[T1]	-3	.55 dBm	A		
0								2.47997	896 GHz			
0				A A		ndI	3	20	.00 dB			
					$\mathcal{N}_{\mathcal{A}}$	BW ▼ _T :	89 L [T1]	95.79158 -24	317 kHz			
-10								2.47951				
				V	(V ∇ _T ;	2 [T1]	-23	.73 dBm			
-20			TA			T2 V		2.48041	182 GHz	1MA		
-30						\\\				IMA		
							1					
-40	~~~							M				
-50	<i>f</i>	<u> </u>					→	1	My			
-60									~ //W			
-70												
-80												
-90												
Center 2	Center 2.48 GHz			300	kHz/			Spa	n 3 MHz			
Date: 22	2.JUL.2	024 14	:22:08									

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Product:	SPEA	KER BOX/	Parlante		Test M	ode.		Keep tran	smitting	
Mode		ping Transm			Test Vo			120		
Temperature	Tree	24 deg. C,			Humio			56%		
Test Result:		Pass			Detec			Pi		
0dB Bandwidth		1.281MHz				101				
<u></u>	Marke	r 1 [T1 r		RI	BW 3	30 kH	z RI	. Att	20 dB	
Ref Lvl	ndB		.00 dB		BW 10					
10 dBm	BW	1.280561	112 MHz	SI	WT 8.	5 ms	Ur	nit	dBm	ı
10						v ₁ [T1]	-3	.77 dBm	
								2.40198	497 GHz	I
0			1			ndB		20	.00 dB	
			$\bigwedge \bigwedge \bigwedge$	\bigwedge		BW ▼ _{T1}		1.28056		
-10		~~~	/	+	more services	V T1	[T1]	$\frac{-24}{2.40132}$.11 dBm 966 GHz	
					V	AL 3	[T1]	-23	.93 dBm	
-20	Ţ	<u>/ </u>			12				022 GHz	
1MAX						Y				11
-30										
-40							mer	M		
-50 hand									whym	
-60										
-70										
-80										
-90 Center 2.4	402 GII-		300	1=11 /				G	ın 3 MHz	ļ

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/4DQPSK Product: Mode	1				1						
			ER BOX/Pa				st Mode:			insmitting	
			g Transmi	tting			t Voltage			0V~	
Temperature		2	4 deg. C,			Н	umidity		56%	6 RH	
Test Result:			Pass			D	etector		F	PK	
20dB Bandwidth		1.	.281MHz								
Ŕ		Marker	1 [T1 n	ndB]	RB	BW .	30 kl	Hz RI	F Att	20 dB	
Ref Lvl		ndB	20.	00 dB	VB	3W	100 ki				
10 dBm		BW 1	L.280561	12 MHz	SW	ΙΤ	8.5 ms	s Uı	nit	dBm	l
10							\mathbf{v}_1	[T1]	-3	.55 dBm	A
									2.44097	896 GHz	
0				1	_		ndB		20	.00 dB	
				$\wedge \wedge \wedge \wedge$	\int_{Λ}		BW ▽ _{T1}		1.28056		
-10			McM	Man de la company de la compan			√ 1			23.83 dBm	
						L 5 [2.44032966 G [T1] -23.86 d		.86 dBm	
-20		TZ	<u> </u>				\\\\\	2	2.44161	022 GHz	
1MAX		J						'			1M
-30											
-40 -50	mm	\m\						m	h. na		
-50									V	Muyun	
-60											
-70											
-80											
-90 Center 2	.441 GH	Iz		300	kHz/				l Spa	n 3 MHz	
Date: 22	Center 2.441 GHz 30								_		

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Report No.: TW2407044-01E



I/4DQPSK										
Product:		SPEAKE	R BOX/Pa	arlante		Test Mode:		Keep tra	nsmitting	
Mode		Keepin	g Transmi	tting	,	Test Voltage	e	12	0V~	
Temperature		2	4 deg. C,			Humidity			% RH	
Test Result:			Pass			Detector		I	PK	
0dB Bandwidth		1.	275MHz							
			1 [T1 r		RBW			F Att	20 dB	
Ref Lvl		ndB	20. 274549	00 dB	VBW				dD	
10 dBm		BW 1	1.2/4549	OIU MHZ	SWI	8.5 m	is Ui	nit	dBm	i
						V 1	[T1]	-3	.61 dBm	A
0				5		-		2.47997		
				$\wedge \wedge \overset{\perp}{\wedge}$	Λ	ndE BW	6	1.27454	.00 dB 910 MHz	
-10				/VV\		$\nabla_{\mathbf{T}}$	[[T1]	-23	.35 dBm	
			\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	\mathcal{M}		v W		2.47933	567 GHz	
		^	ſ			₽ T2	2 [T1]	-23	.86 dBm	
-20		7				V.	12 (2.48061	022 GHz	1MA
-30										
-40	m	VIII .					has	Y.		
-50	₩ <mark>/~/</mark>							//\\\	Muly	
-60										
-70										
-80										
-90										
Center 2	.48 GH:	Z		300	kHz/			Spa	n 3 MHz	
Date: 22	2.JUL.2	024 14	:07:06							

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8DPSK											
Product:		SPEAKER BOX/Parlante				Test Mode:		Keep transmitting			
Mode		Keeping Transmitting				Test Voltage			120V~		
Temperature		24 deg. C,					Humidity		56% RH		
Test Result:		Pass					Detector	PK			
20dB Bandwidth		1.251MHz									
Ŕ	Marker 1 [T1 ndB]				RI	BW	30 k	Hz RF Att 20 di		20 dB	
Ref Lvl		ndB		00 dB		BW	100 k				
10 dBm		BW 1	1.250501	.00 MHz	SI	TW	8.5 m	s Uı	nit	dBm	1 _
10							v ₁	[T1]	-3	.59 dBm	A
									2.40197	896 GHz	
0				0 1			ndl	3	20	.00 dB	
				\wedge/\vee	Λ		BW ▼ _{T1}	[T1]	1.25050	100 MHz	
-10			V~~~	<i>\</i>		$ abla^{\circ}$	\ \ \ \		2.40135		
			/ *				V _{T2}	[T1]	-23		l
-20		T/					\	12 7	2.40261	022 GHz	
1MAX											1MA
-30											
-40		N							\bigvee		
-50										W	
-60											
-70											
-80											
-90											
Center 2.	402 GF	łz		300	kHz/				Spa	n 3 MHz	
Date: 22	JUL.2	024 13	:53:31								

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DPSK					1							
Product: SPEAKER BOX/Parlante Mode Keeping Transmitting Temperature 24 deg. C,					Test Mode:			Keep transmitting				
			tting		Test Voltage		;	120V~				
			24 deg. C,			Humidity			56% RH			
Test Result:		Pass				Detector			PK			
20dB Bandwidth	1.251MHz											
Ŕ	Ma	arker	1 [T1 r	ndB]	R	.BW	30 k	Hz RI	F Att	20 dB		
Ref Lvl	no	dB	20.	00 dB	V	BW	100 k	Hz				
10 dBm	BV	w 1	.250501	00 MHz	S	WT	8.5 m	s Uı	nit	dBm	ı	
10							\mathbf{v}_1	[T1]	-3	.50 dBm		
									2.44097	896 GHz	A	
0				. 1			ndF	3	20	.00 dB		
				$ \wedge \wedge \rangle$	\bigwedge		BW		1.25050	100 MHz		
-10			~~~	/	700	$\sqrt{}$	$\nabla_{\mathbf{T}_{1}}$	[T1]	-23 2.44035	.69 dBm		
			/ '			٧	V _T	? [T1]	2.44U35 -23	972 GHz		
-20		TZ	/				<u> </u>	2	2.44161	022 GHz		
1MAX		7					Ì	ζ			1M	
-30								\				
-40		}						\overline{W}	\bigvee			
-50	\\'** \\/								\\\	W. W.		
-60												
-70												
-80												
-90										_		
Center 2	.441 GHz			300	kHz/				Spa	n 3 MHz		
Date: 22	2.JUL.202	24 13	:41:21									

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Report No.: TW2407044-01E



DPSK				Т						
Product: SPEAKER BOX/Parlante Mode Keeping Transmitting Temperature 24 deg. C,				Test Mode:		Keep transmitting				
			7	Test Voltage		0V~	~			
					Humidity		56% RH			
Test Result:		Pass			Detector		PK			
20dB Bandwidth		1.244MHz								
Ŕ	Marke	er 1 [T1 r	ndB]	RBW	30 kI	Iz RI	7 Att	20 dB		
Ref Lvl	ndB	20.	00 dB	VBW	100 kF					
10 dBm	BW	1.244488	898 MHz	SWT	8.5 ms	5 Ur	nit	dBm	ı	
10					v ₁	[T1]	-3	.52 dBm	Α	
							2.47997	896 GHz	-	
0					ndB		20	.00 dB		
			$ \wedge / \vee $		BW ∇ _T :		1.24448	898 MHz		
-10		\rac{1}{2}	/	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	$\setminus \wedge^{\mathrm{T}}$	[T1]	2.47936	.40 dBm 573 GHz		
		/ '		Ť	V _{T2}	[T1]	-23	.75 dBm		
-20		1			7	2	2.48061	022 GHz		
1MAX	/	<i>y</i>			, i	\			1M	
-30										
-40						W.	Λ . Λ			
-50	pi' Y							Language of the second		
-60										
-70										
-80										
-90 Center 2.	48 GHz		300	kHz/			Sna	ın 3 MHz	ļ	
		13:38:22		,			21,0			

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Date: 2024-07-26



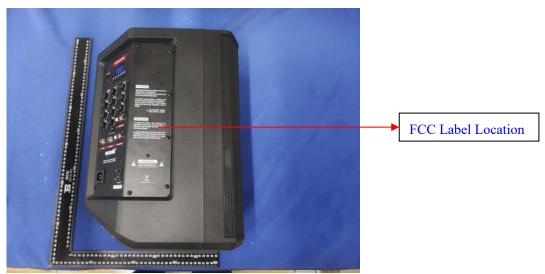
10.0 FCC ID Label

FCC ID: 2A6R4-MS-108LT

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

11.1 Conducted test View



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Radiated emission test view



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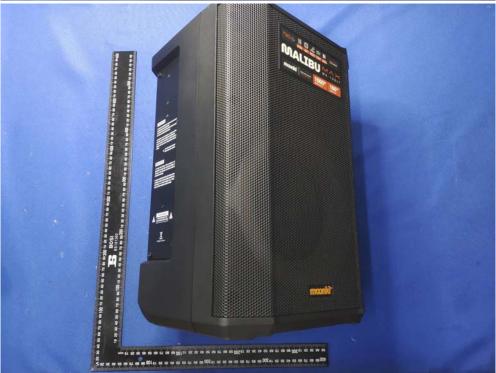
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11.2 Photographs - EUT

Outside View





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Outside View



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Outside View





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Outside View

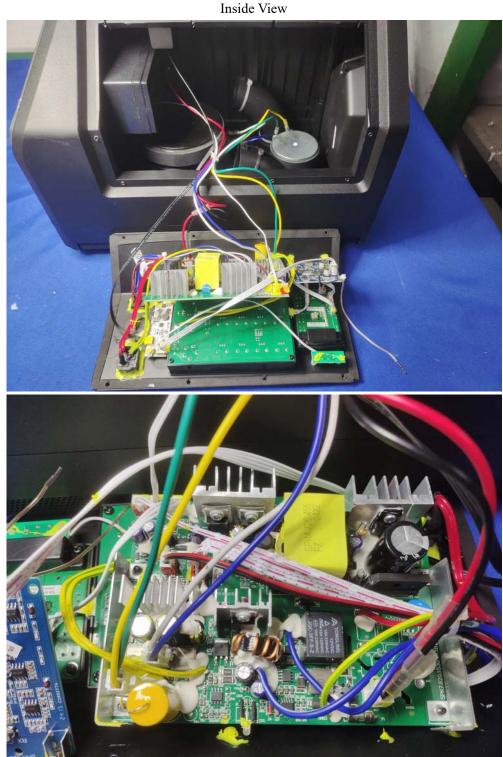


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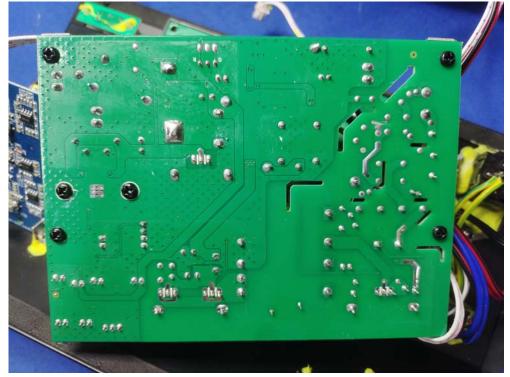
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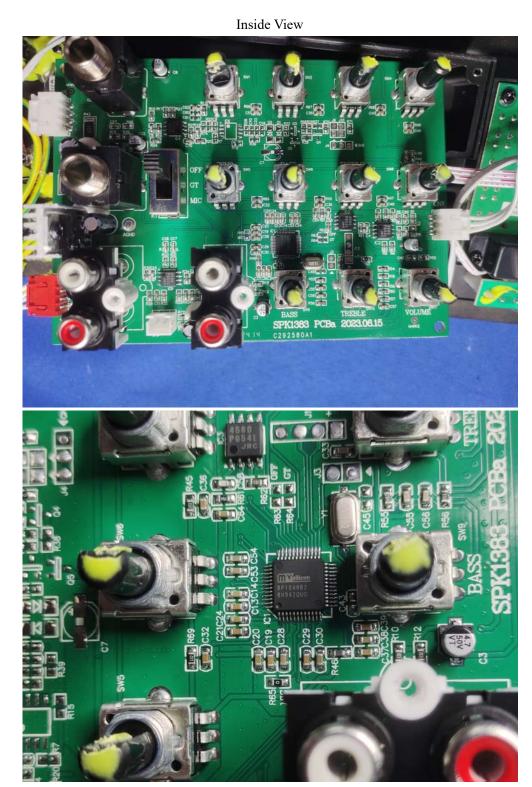
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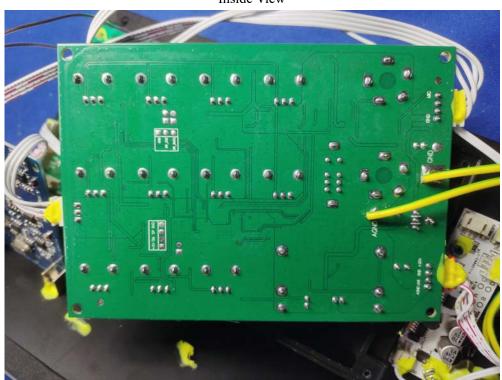
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Inside View



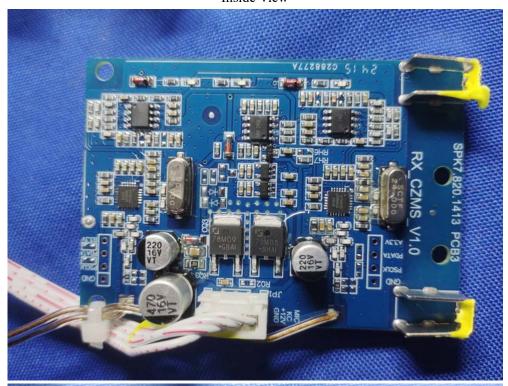
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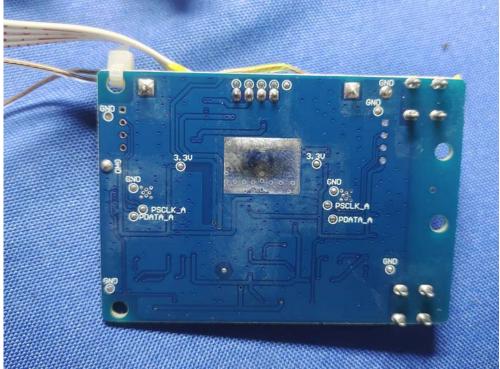
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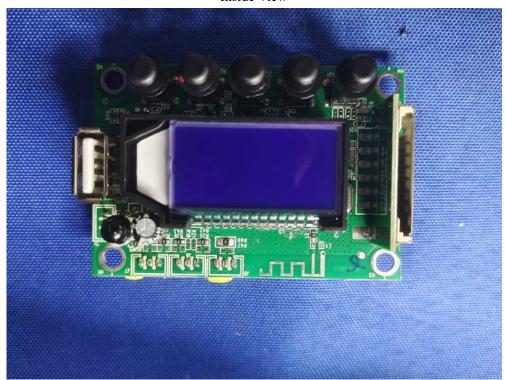
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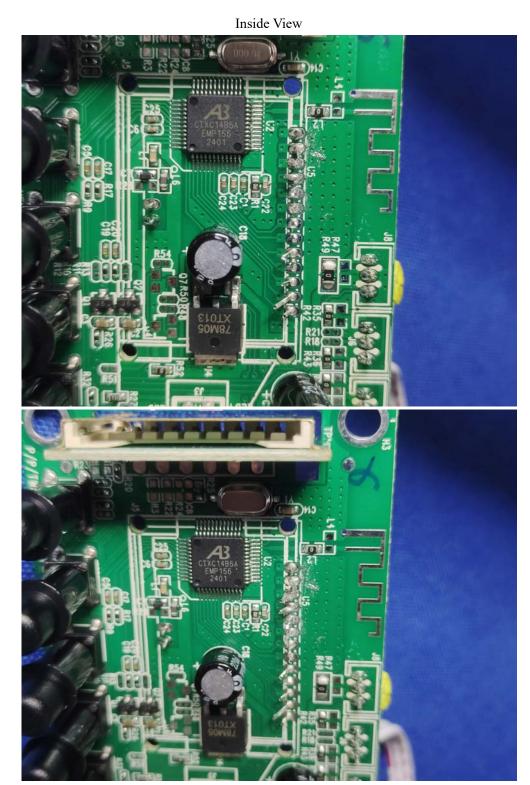
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Inside View

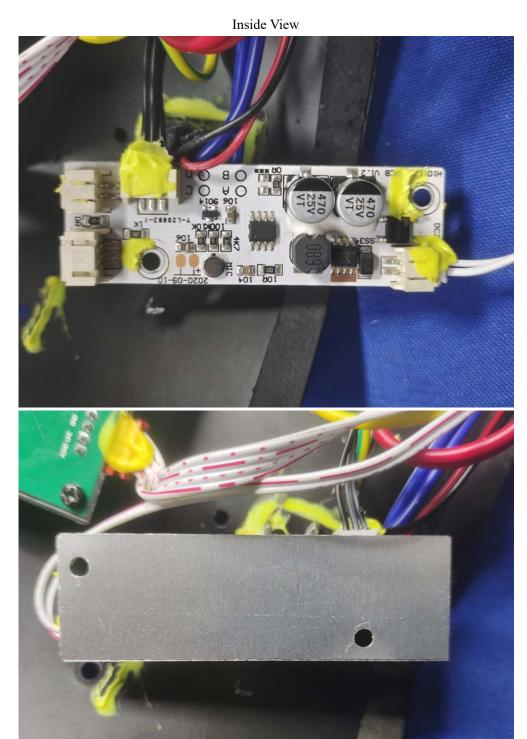


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