

Report No.: TW2207053E

File reference No.: 2022-07-25

Applicant: TITAN INC.

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

Product: Speaker box / Parlante

Model No.: MS-112DSP

mconki^{*}

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

Trademark:

Terry Tang Manager

Dated: July 25, 2022

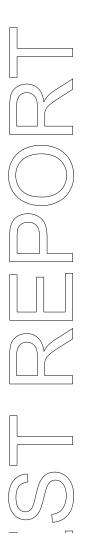
Results appearing herein relate only to the sample tested

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

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Test Report Conclusion

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

11.0

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Photo of Test Setup and EUT View.

In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.

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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: 305-369-6040 Fax: 305-320-3198

1.3 Description of EUT

Trademark:

Product: Speaker box / Parlante
Manufacturer: MAXTRONIX CO., LTD.

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

CHANGZHOU, JIANGSU, CHINA

Model Number: MS-112DSP

Additional Model Name N/A

Rating: $110V \sim$, 50/60Hz, 350W

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

Operation Frequency: 2402-2480MHz

Channel Number: 79
Channel Separation: 1MHz

Hardware Version: MS001(01A)V1.0-VCM20191226

Software Version: MS001-6A-51-5301A-MS-112DSP-TWS-VCM-001

Serial No.: 20220712112DSP

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

1.4 Submitted Sample: 1 Sample

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1.5 Test Duration

2022-07-05 to 2022-07-25

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	2.0 Test Equipment								
Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date				
ESPI Test Receiver	R&S	ESPI 3	100379	2022-06-17	2023-06-16				
LISN	R&S	EZH3-Z5	100294	2022-06-17	2023-06-16				
LISN	R&S	EZH3-Z5	100253	2022-06-17	2023-06-16				
Impuls-Begrenzer	R&S	ESH3-Z2	100281	2022-06-17	2023-06-16				
Loop Antenna	EMCO	6507	00078608	2021-06-18	2024-06-17				
Spectrum	R&S	FSIQ26	100292	2022-06-17	2023-06-16				
Horn Antenna	A-INFO	LB-180400-KF	J211060660	2021-07-02	2024-07-01				
Horn Antenna	R&S	BBHA 9120D	9120D-631	2021-07-02	2024-07-01				
Power meter	Anritsu	ML2487A	6K00003613	2022-06-17	2023-06-16				
Power sensor	Anritsu	MA2491A	32263	2022-06-17	2023-06-16				
Bilog Antenna	Schwarebeck	VULB9163	9163/340	2021-07-02	2024-07-01				
9*6*6 Anechoic			N/A	2022-06-17	2023-06-16				
EMI Test Receiver	RS	ESVB	826156/011	2022-06-17	2023-06-16				
EMI Test Receiver	RS	ESH3	860904/006	2022-06-17	2023-06-16				
Spectrum	HP/Agilent	ESA-L1500A	US37451154	2022-06-17	2023-06-16				
Spectrum	HP/Agilent	E4407B	MY50441392	2022-06-17	2023-06-16				
Spectrum	RS	FSP	1164.4391.38	2022-01-05	2023-01-04				
RF Cable	Zhengdi	ZT26-NJ-NJ-8M/FA		2022-06-17	2023-06-16				
RF Cable	Zhengdi	7m		2022-06-17	2023-06-16				
RF Switch	EM	EMSW18	060391	2022-06-17	2023-06-16				
Pre-Amplifier	Schwarebeck	BBV9743	#218	2022-06-17	2023-06-16				
Pre-Amplifier	HP/Agilent	8449B	3008A00160	2022-06-17	2023-06-16				
LISN	SCHAFFNER	NNB42	00012	2022-01-05	2023-01-04				

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 specific	ícations:

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 and RSS-210	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

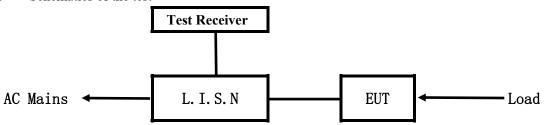
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5. Power Line Conducted Emission Test

5.1 Schematics of the test

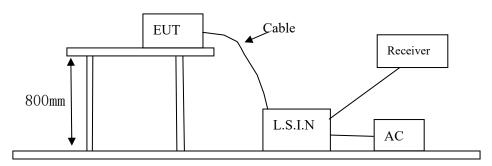


EUT: Equipment Under Test

5.2 Test Method and test Procedure

The EUT was tested according to ANSI C63.4-2014. The Frequency spectrum From 0.15MHz to 30MHz was investigated. The LISN used was 50ohm/50uH as specified by section 5.1 of ANSI C63.4 –2014.

Test Voltage: 110V~, 60Hz Block diagram of Test setup



5.3 Configuration of The EUT

The EUT was configured according to ANSI C63.4-2014. 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	MAYTRONIY CO LTD	MS-112DSP	2A6R4-MS112D
	MAXTRONIX CO., LTD.	WIS-112DSP	SP

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B. Internal Device

Device	Manufacturer	Model	FCC ID/DOC
N/A			

C. Peripherals

Device Manufacturer		Model	Rating		
N/A					

5.4 EUT Operating Condition

Operating condition is according to ANSI C63.4 -2014

- 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 ~ 0.50	66.0~56.0*	56.0~46.0*			
0.50 ~ 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)

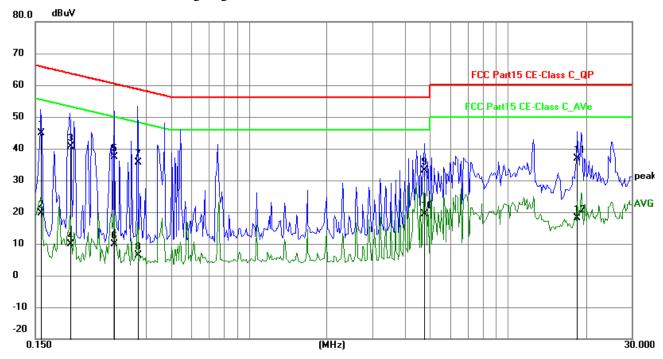
EUT Operating Environment

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	0.1578	35.13	9.78	44.91	65.58	-20.67	QP	Р
2	0.1578	9.87	9.78	19.65	55.58	-35.93	AVG	Р
3	0.2046	30.77	9.75	40.52	63.42	-22.90	QP	Р
4	0.2046	0.24	9.75	9.99	53.42	-43.43	AVG	Р
5	0.3021	27.60	9.76	37.36	60.18	-22.82	QP	Р
6	0.3021	0.16	9.76	9.92	50.18	-40.26	AVG	Р
7	0.3723	25.83	9.76	35.59	58.45	-22.86	QP	Р
8	0.3723	-3.43	9.76	6.33	48.45	-42.12	AVG	Р
9	4.7628	23.31	9.92	33.23	56.00	-22.77	QP	Р
10	4.7628	9.42	9.92	19.34	46.00	-26.66	AVG	Р
11	18.4986	26.21	10.59	36.80	60.00	-23.20	QP	Р
12	18.4986	7.53	10.59	18.12	50.00	-31.88	AVG	Р

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

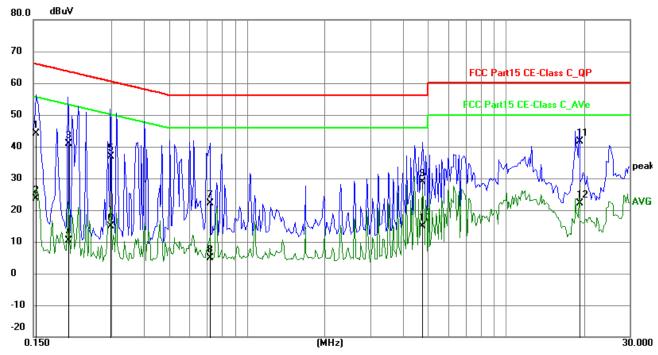
EUT Operating Environment

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	0.1539	34.36	9.78	44.14	65.79	-21.65	QP	Р
2	0.1539	13.96	9.78	23.74	55.79	-32.05	AVG	Р
3	0.2046	31.06	9.75	40.81	63.42	-22.61	QP	Р
4	0.2046	0.67	9.75	10.42	53.42	-43.00	AVG	Р
5	0.2982	27.20	9.76	36.96	60.29	-23.33	QP	Р
6	0.2982	5.08	9.76	14.84	50.29	-35.45	AVG	Р
7	0.7233	12.25	9.78	22.03	56.00	-33.97	QP	Р
8	0.7233	-4.99	9.78	4.79	46.00	-41.21	AVG	Р
9	4.7705	18.89	9.92	28.81	56.00	-27.19	QP	Р
10	4.7705	5.05	9.92	14.97	46.00	-31.03	AVG	Р
11	19.2084	30.96	10.63	41.59	60.00	-18.41	QP	Р
12	19.2084	11.61	10.63	22.24	50.00	-27.76	AVG	Р

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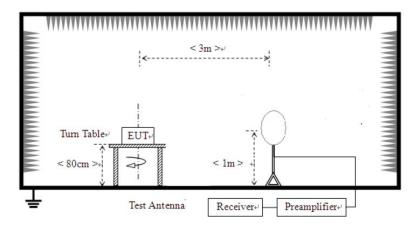


6 Radiated Emission Test

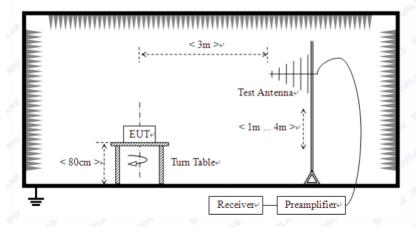
- 6.1 Test Method and test Procedure:
- (1) The EUT was tested according to ANSI C63.10-2013. The radiated test was performed at Timeway EMC Laboratory. This site is on file with the FCC laboratory division, Registration No. 744189
- (2) The EUT, peripherals were put on the turntable which table size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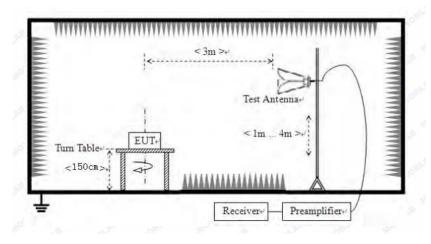
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For radiated emissions above 1GHz



- 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

Fundamental Frequency	Field Stre	eld Strength of Fundamental (3m)			Field Strength of Harmonic		
(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.

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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 $(dBuV) = 20 \log RF \text{ Voltage } (uV)$
- 2. In the Above Table, the tighter limit applies at the band edges.
- 3. Distance refers to the distance in meters between the measuring instrument antenna and the EUT
- 4. All scanning using PK detector. And the final emission level was get using QP detector for frequency range from 30-1000MHz.As to 1G-25G, the final emission level got using PK. For fundamental measurement, PK detector used.
- 5. For radiated emissions from 9kHz to 30MHz, the emission level is much less than the limit for more than 20dB. No necessary to take down the record.
- 6. Three modulation types were tested and the worst case was reported and GFSK was the worst case

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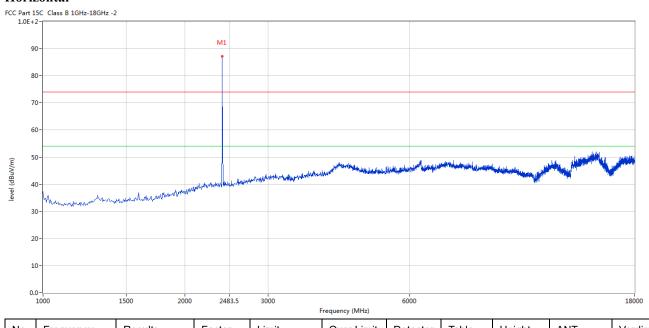


6.5 Test result

A Fundamental & Harmonics Radiated Emission Data

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

Horizontal



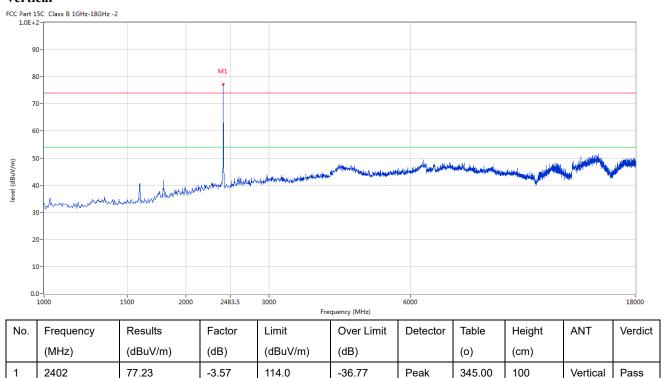
No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2402	87.37	-3.57	114.0	-26.63	Peak	227.00	100	Horizontal	Pass

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Vertical



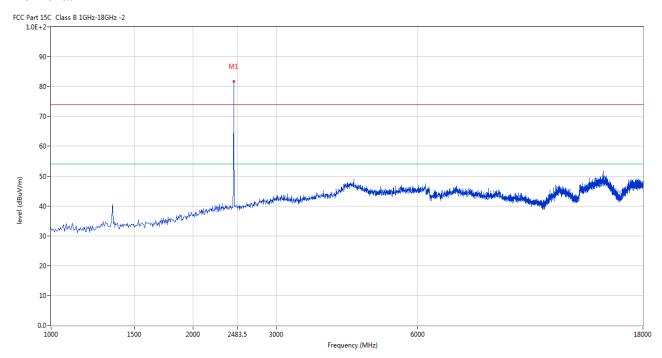
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Please refer to the following test plots for details: Middle Channel-2441MHz

Horizontal



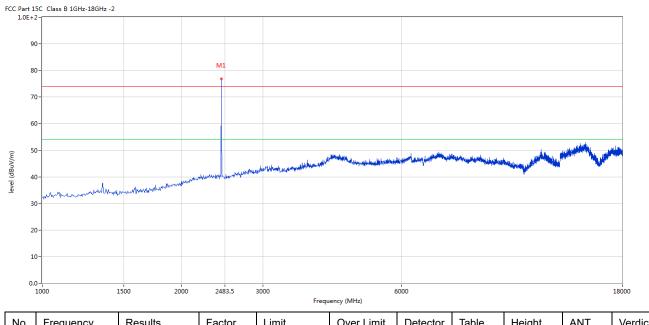
No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2441	81.75	-3.57	114.0	-32.25	Peak	76.00	100	Horizontal	Pass

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Vertical



No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(0)	(cm)		
1	2441	76.91	-3.57	114.0	-37.09	Peak	163.00	100	Vertical	Pass

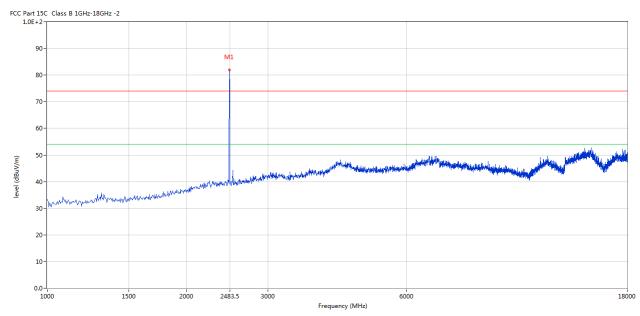
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Please refer to the following test plots for details: High Channel-2480MHz

Horizontal



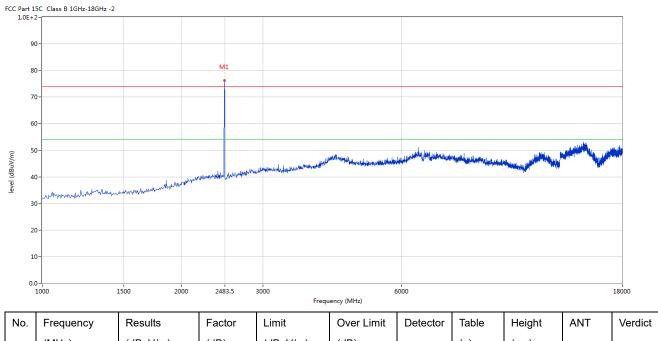
1	No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
		(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
	1	2480	81.90	-3.57	114.0	-32.10	Peak	6.00	100	Horizontal	Pass

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Vertical



No	o. Fi	requency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(N	MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	24	480	76.50	-3.57	114.0	-37.50	Peak	168.00	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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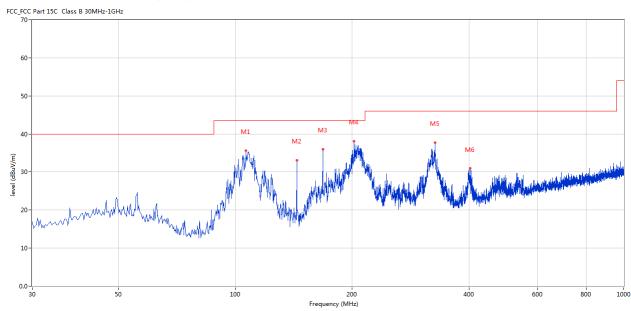


B. General Radiated Emission Data Radiated Emission In Horizontal (30MHz----1000MHz)

EUT set Condition: Keep Tx transmitting

Results: Pass

Please refer to following diagram for individual



No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	106.611	35.55	-13.36	43.5	-7.95	Peak	261.00	100	Horizontal	Pass
2	143.947	33.13	-17.10	43.5	-10.37	Peak	280.00	100	Horizontal	Pass
3	167.948	35.94	-16.14	43.5	-7.56	Peak	66.00	100	Horizontal	Pass
4	202.374	38.05	-13.39	43.5	-5.45	Peak	56.00	100	Horizontal	Pass
5	326.988	37.75	-10.31	46.0	-8.25	Peak	302.00	100	Horizontal	Pass
6	401.660	30.92	-8.60	46.0	-15.08	Peak	142.00	100	Horizontal	Pass

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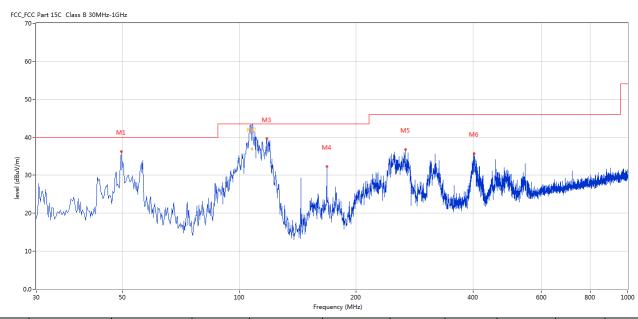


Radiated Emission In Vertical (30MHz----1000MHz)

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	49.638	36.23	-11.32	40.0	-3.77	Peak	338.00	100	Vertical	Pass
2	107.838	43.35	-13.42	43.5	-0.15	Peak	113.00	200	Vertical	Pass
2*	107.838	36.94	-13.42	43.5	-6.56	QP	113.00	200	Vertical	Pass
3	117.763	39.62	-14.92	43.5	-3.88	Peak	73.00	100	Vertical	Pass
4	167.948	32.28	-16.14	43.5	-11.22	Peak	174.00	100	Vertical	Pass
5	267.833	36.84	-11.72	46.0	-9.16	Peak	352.00	100	Vertical	Pass
6	402.387	35.71	-8.61	46.0	-10.29	Peak	346.00	100	Vertical	Pass

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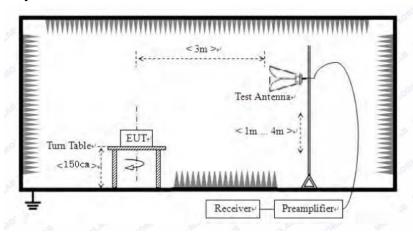


7. Band Edge

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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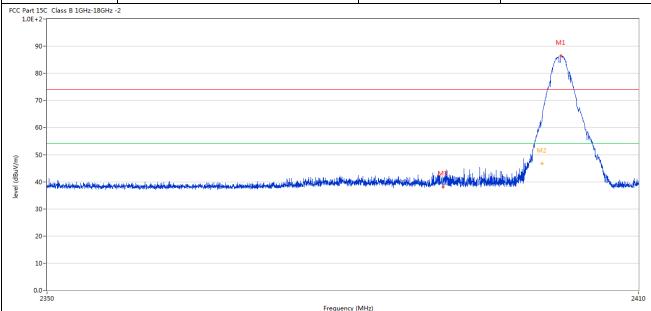
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7.6 Test Result

Product:	Speaker box / Parlante	Polarity	Horizontal
Mode	Keeping Transmitting	Test Voltage	110V~
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass		



N	o.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
		(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1		2402.037	86.42	-3.57	74.0	12.42	Peak	210.00	100	Horizontal	N/A
2		2400.042	61.73	-3.57	74.0	-12.27	Peak	220.00	100	Horizontal	Pass
2	**	2400.042	46.79	-3.57	54.0	-7.21	AV	220.00	100	Horizontal	Pass
3		2390.025	38.13	-3.53	74.0	-35.87	Peak	245.00	100	Horizontal	Pass

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J	Product:	S	peaker box	x / Parlante		Detect	or		Vertical	
	Mode	k	Keeping Tra	ansmitting		Test Vol	tage		110V~	
Te	mperature		24 de	g. C,		Humid	ity	:	56% RH	
	est Result:		Pas	SS						
1.0E+	.5C Class B 1GHz-18GHz	-2								
9	0-									
8	0-								M1	
7	0-							/		
6	0-								-	
5	0-					M	nala .			
4	O-wellland help beginner			Military Andrews		khipanilka yedi, bila			-	
	0-									
3										
	0-									
2	0-									
1 0.	0-				Frequency (MHz)					2
1 0.	0-	Results	Factor	Limit	Frequency (MHz) Over Limit	Detector	Table	Height	ANT	
1 0.	0-	Results (dBuV/m)	Factor (dB)	1	1	Detector	Table (o)	Height (cm)	ANT	
2 1 0. No .	o- 			Limit	Over Limit	Detector Peak		_	ANT Vertical	
1 0.	Frequency (MHz)	(dBuV/m)	(dB)	Limit (dBuV/m)	Over Limit (dB)		(o)	(cm)		Verdi N/A Pass
2 1 0. No.	Prequency (MHz) 2401.827	(dBuV/m) 76.91	(dB) -3.57	Limit (dBuV/m) 74.0	Over Limit (dB) 2.91	Peak	(o) 162.00	(cm) 100	Vertical	Verd

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Product:		Speaker	r box / Parlai	nte		Polari	ty	Horizo	ntal
Mode		Keepin	g Transmittii	ng		Test Volt	tage	110V	<i>'</i> ∼
Temperature		2	4 deg. C,			Humid	ity	56% F	RH
Test Result:			Pass						
C Part 15C Class B 1GHz-180	Hz -2								
90 - 80 - 70 -		M1	Dr. A.						
	dankandanania, Selistikah fipundis dan		M2	hander on the organistic	ndespel hiller flydd y diwyd a weg an	der forest angent de des grantes from an est a	nemilika sapi ilivi nakananishil	विकासीमें कुर स्वेत क्षेत्र कार्य के स्वेत की है के की	a the spall server
30- 20-	alandandan quantan dikirikilik dikirikil dikirikil		M2 2483.		of the grant is defined to the control of	inter let de specialiste specialiste super se	ambiliar pel diversement di	hannalikaga, atanpa atan darah karan gifta seti mag	2500
30- 20- 10- 2470	Results	Factor	2483.	5	Detector	Table	Height	ANT	2500
30- 10- 2470		Factor (dB)	Т	; Frequency (MHz)					
30 - 20 - 2470 No. Frequency	Results		Limit	Frequency (MHz)		Table	Height		2500

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]	Product:		Speake	er box / Parl	ante		Detecto	or	Vertic	al
	Mode		Keepii	ng Transmit	ting		Test Volt	age	110V	.~
Te	mperature		2	24 deg. C,			Humidi	ty	56% F	КH
Te	est Result:			Pass						
CC Part 1 1.0E+	15C Class B 1GHz-18GHz 2-	-2								
_										
9	0-									
8	0-		M1							
7	0-			1						
			/	X						
6	0-		/	\ \						
	0-	ar area la constitue		M2	10-11-10-10-10-10-10-10-10-10-10-10-10-1	n Allerentie	Ilda a rite a		k III a makalima	.,,,,,,,,
		والمتعارض منطقة والمتعارض		M2	أرددان الفاران بالداخل أوسطا أواستان المتارسة	handalah persebah dari	h de der particular de la companya d	ally printed that the printed the state of	hald be a marked before any	Madridd an
	O-nishindi daktalan in daktalan	eller gradition days being place graduers		M2	فيدود العليف المدخوا أخدوا ألمواقية والقيادة والمتعاددة	Hancelt Andrew Challe Land	hidibin, aah _m aahdhaqida	المعارضة والمعارضة والمعار	Maddaharkassining da	Mahindhan
(iii/Appp) 15/4		alka gadidir dhaqlangilishing albertaker		M2	فارد بها هو فرا إيد والعرفة والمنطقة في المنطقة في المن	hanakhlariya dikirina	his direction desired depths	عليه فالمعالمة والمعالمة والمعالمة والمعالمة والمعالمة والمعالمة والمعالمة والمعالمة والمعالمة والمعالمة والمع	haddhiring an deilleaga	Madelphan
5 4 4 3 3		alka guddir dheduur dhia nederalira		M2	Adaminia <mark>Alberta (1884-1886) dalam</mark> ini da	Handalda Perendelek komi	hhilipe, mit a dealla de pide	alayi hilasi ya Mwakasi n	And he was a second of the second	Madridhan
3 2		allen y wilder de ser fan de kein gesklower de service		M2	والمرافق والمرافقة المحافظة ال	handida o quad de la cand	kladire, mada, madalla apida	ating the last of the desires	hidd in the composition of	Mada Mada Mada Mada Mada Mada Mada Mada
5 5 4 4 3 3 2 2 1 1 0.		alka y oddie ako fan filiningskoedoer		M2 2483.5		Hamelin lake the state of the same	khilipen, washuntun kalikan jaba	alani dalani qa dha dha an	kuld kataga ke ka di tang	2500
3 2 1 0.		Results	Factor			Detector	Table	Height	ANT	2500 Verdict
5 4 3 2 1 0.	0- 		Factor (dB)		Frequency (MHz)					T
5 5 4 3 2 1 1 0.	0	Results		Limit	Frequency (MHz) Over Limit		Table	Height		T

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

2. Three modulation Types were tested and only the worst case was recorded in the test report and GFSK modulation was the worst case.

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8.0 Antenna Requirement

Applicable Standard

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

This product has a PCB antenna. The antenna gain is 1.7dBi Max. It fulfills the requirement of this section. Test Result: Pass

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FSK Product:	C1	n how / D-	nlanta		Togt Mr.	la.	Voca to	mamittin -	
		r box / Pa			Test Mod			nsmitting	
Mode		g Transm			Test Volta			0V~	
Temperature		4 deg. C,			Humidit			6 RH	
Test Result: 0dB Bandwidth	0.	Pass 59.72kHz			Detecto	r	h	PK	
odb Bandwidin						_			
Ref Lvl	Marker ndB		ndB] .00 dB	RI VI		kHz R	F Att	20 dB	
10 dBm		.719438		SV			nit	dBm	ı
10					▼	1 [T1]	_1	.56 dBm]
						1 [11]	2.40183		A
0			1		n	dB	20	.00 dB	
				\bigvee	В		9.71943	888 kHz	
-10				Λ,	<u></u>	T[[T1]	2.40154	.91 dBm 609 GHz	
		m1 √			√	T2 [T1]	-21	.82 dBm	
-20		7			VT2		2.40240	581 GHz	
-30					"	^			1M2
-40						My.			
-50							M		
-60						·		March	
-70									
-80									
-90									

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1 2.44083467 GHz nd8 20.00 dB BW 859.71943888 kHz VT: [T1] -19.53 dBm 2.44054609 GHz -20 2.44140581 GHz	GFSK					
Temperature 24 deg. C, Humidity 56% RH Test Result: Pass Detector PK 20dB Bandwidth 859.72kHz	Product:	Speaker	r box / Parlante	Test Mode	: Keep	transmitting
Test Result: Pass Detector PK 20dB Bandwidth 859.72kHz Marker 1 [T1 ndB] RBW 30 kHz RF Att 20 dB ndB 20.00 dB VBW 100 kHz 10 dBm BW 859.71943888 kHz SWT 8.5 ms Unit dBm 10 10 11 12 14 15 16 17 17 17 17 18 2.44083467 GHz A 2.44083467 GHz A 2.44054609 GHz -20 1MAX 1MAX	Mode	Keepin	g Transmitting	Test Voltag	ge	110V~
20dB Bandwidth 859.72kHz	Temperature	24	4 deg. C,	Humidity	, 5	66% RH
Marker 1 [T1 ndB] RBW 30 kHz RF Att 20 dB ndB 20.00 dB VBW 100 kHz 10 dBm BW 859.71943888 kHz SWT 8.5 ms Unit dBm 2.444083467 GHz 10 ndB 2.44083467 GHz 10 ndB 859.71943888 kHz TT1 10 ndB 859.71943888 kHz 7T 10 ndB 859.71948888 kHz 7T 10	Test Result:		Pass	Detector		PK
Ref Lvl ndB 20.00 dB VBW 100 kHz 10 dBm BW 859.71943888 kHz SWT 8.5 ms Unit dBm V1 [T1] -C.11 dBm 2.44083467 GHz 10 ndB 20.00 dB BW 889.71943888 kHz VT: [T1] -15.53 dBm 2.44054609 GHz -20 1MAX 2.44140581 GHz	20dB Bandwidth	85	59.72kHz			
10 dBm BW 859.71943888 kHz SWT 8.5 ms Unit dBm 10			1 [T1 ndB]	RBW 30 k	KHZ RF Att	20 dB
10	•					dp
1 2.44083467 GHz 2 nds 20.00 dB BW 859.71943888 kHz VT [T1] -19.53 dBm 2.44054609 GHz 2.44054609 GHz 1MAX 2.44140581 GHz		BW 85	9.71943888 KHZ	SWT 8.5 m	ns Unit	dBm
-10 -10 -20 -20 -20 -20 -20 -20 -20 -20 -20 -2			1	▼1		A
-10 -10 -10 -10 -10 -10 -10 -10 -10 -10	0		\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	ndI	3 2	0.00 dB
-10 2.44054609 GHz -20 1MAX 2.44054609 GHz -2C.44 dBm 2.44140581 GHz 1M2				о ₁		
-20 1MAX T1 [T1] -2C.44 dBm 2.44140581 GHz	-10		\sim	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		
-20 1MAX 2.44140581 GHZ 1M2			T1 ~	$\bigvee_{\Upsilon^2} \nabla_{\Upsilon^1}$		
-30						0581 GHz 1MA
	-30	<i></i>	V	\	1	
-40	-40					
-50 MANAGAMA	-50				7	What will
-60	-60					VV
-70	-70					
-80	-80					
-90 Contain 2 441 CU-	· · · · · · · · · · · · · · · · · · ·	2 441 677-	300	-11- /		2 MI
Center 2.441 GHz 300 kHz/ Span 3 MHz Date: 18.JUL.2022 10:14:32				KHZ/	Sp	an 3 MHZ

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GFSK										
Product:		Speaker	box / Par	lante		Test Mod	de:	Keep	transmitting	3
Mode		Keeping	g Transmit	ting		Test Volta	age		110V~	
Temperature		24	l deg. C,			Humidi	ty	5	6% RH	
Test Result:			Pass			Detecto	r		PK	
20dB Bandwidth		86	5.73kHz							
		Marker	1 [T1 r	ndB]	RE	30	kHz	RF Att	20 dB	
Ref Lvl		ndB		00 dB	VE		kHz			
10 dBm		BW 865	5.731462	193 kHz	SW	T 8.5	ms	Unit	dBm	
				_		•	1 [T1]		0.54 dBm	A
0				1			370	2.4798		
					\mathcal{M}	no B'		2 865.7314		
-10				_/	٠ ٧	▽			9.91 dBm	
			<i></i>			\mathcal{A}		2.4795	4008 GHz	
-20			Ţ 			V _{r2} ∇	T2 [T1			
1MAX		^				1	$\sqrt{}$	2.4804	0581 GHz	1MA
-30							Ty.			
-40		$\sqrt{}$						V~\		
-50	V							V	munum	
-60										
-70										
-80										
-90 Center 2	2.48 GH:	z		300	kHz/			gg	an 3 MHz	
			.40.21	200	/			25		
Date: 1	8.JUL.2	022 10	:48:31							

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I/4DQPSK Product:		Sneake	r box / Pa	rlante		Test M	lode.		Keen tr	ansmitting	
Mode			ng Transm			Test Vo					
								56% RH			
Temperature			24 deg. C,			Humi					
Test Result:		1	Pass			Detec	cior			PK	
20dB Bandwidth		1	.251MHz								
			1 [T1 r		RE		0 kHz		7 Att	20 dB	
Ref Lvl 10 dBm		ndB BW 1	.20 1.250501	.00 dB	VE SV		00 kHz 5 ms		nit	dBm	
10 asıı	1	BW 1	1.250501	LOU MHZ	51	vi 0.		01	.11.6	аын	
							V 1	T1]	_	1.37 dBm	A
0				1					2.4018		
				\wedge			ndB BW		1.2505	0.00 dB 0100 MHz	
1.0			^	/ _/	lm	0	_	[T1]	-2	0.83 dBm	
-10			\w\	٧٠ سر	\ \	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	$\overline{}$		2.4013	6573 GHz	
		T)	J				7 122	[T1]	-2	1.56 dBm	
-20 1MAX		7					Y		2.4026	1623 GHz	1M2
IMAX							٦	\			IMA
-30		- 						 			
-40		<u> </u>						+			
	$\bigwedge M$							W.	\wedge		
-50									~ (
h.	•								~	May	
-60											
-70											
-80											
-90											
Center 2	.402 GI	Ηz		300	kHz/				Sp	an 3 MHz	
Date: 18	3.JUL.2	022 13	:49:54								

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Л/4DQF	PSK												
Prod	luct:		Speaker	box / Par	lante		T	est Mode	:	Keep t	ransmittin	g	
Mo	ode		Keeping	g Transmit	tting		Test Voltage		ge	110V~			
Tempe	erature		24	l deg. C,			I	Humidity		56	5% RH		
Test R	lesult:			Pass				Detector			PK		
20dB Ba	ndwidth		1.2	226MHz									
(F)			Marker	1 [T1 n	ndB]	R	BW	30 k	Hz R	F Att	20 dB		
V \$/	Ref Lvl		ndB		00 dB		BW	100 k					
10	10 dBm		BW 1	L.226452	291 MHz	S	WT	8.5 m	ns U	nit 	dBm	l 1	
								\mathbf{v}_1	[T1]	C	.16 dBm	A	
0					1					2.44083			
								nd! BW	\$ 	1.22645	0.00 dB 3291 MHz		
-10				۸۸۸	JW	m	~~\	$\mathcal{L}_{\chi} \nabla_{\mathrm{T}}$	[T1]	-19	2.28 dBm		
					~			\sim		2.44036	573 GHz		
-20			7 T.J					Δ.1/2	2 [T1]	-19	.85 dBm		
	1MAX								7	2.44159	218 GHz	1MA	
-30													
-40		\bigwedge	$\overline{\wedge}$						hy	\sim			
-50	1	\								<u> </u>	ww		
-60													
-70													
-80													
-90	Center	2.441 G	Hz		300	kHz/				Spa	an 3 MHz		
Date	: 1	.8.JUL.2	022 11	:23:41									

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Л/4DQPS	SK											
Produ	ict:		Speaker	box / Parl	lante		Te	st Mode	e:	Keep t	ransmittin	g
Mod	le		Keeping	g Transmit	tting		Te	st Voltag	ge	1	10V~	
Tempera	ature		24	l deg. C,			Н	Iumidity	7	56	5% RH	
Test Re	sult:			Pass			Ι	Detector				
20dB Ban	dwidth		1.2	257MHz								
(F)			Marker	1 [T1 n	ndB]	R.I	BW	30 k	kHz R	F Att	20 dB	
•	ef Lvl		ndB		00 dB		BW	100 }			10	
10	10 dBm		BW 1	1.256513	303 MHz	SI	VT.	8.5 m	ns U	nit	dBm	l I
					1			v ₁	[T1]	(.64 dBm	A
0—					<u> </u>			ndl		2.47983	467 GHz	
						١.		BW		1.25651	303 MHz	
-10				\sim	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	~~~	√ √	Vy VT	[T1]	-19	.77 dBm	
			,	\downarrow				, (2.47935	972 GHz	
-20			<u>T</u> 1					Γ	7 ² [T1]	-19	.54 dBm	
	1MAX									2.48061	623 GHz	1MA
-30												
-40	/		₩						m	√\		
-50	w	V								\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	- Away	
-60												
-70												
-80												
-90 <u> </u>	Center	2.48 GH:			300	kHz/				Spa	ın 3 MHz	
Date:		.8.JUL.2		:15:16								

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8DPSK									
Product:	Sp	eaker box / Pa	rlante		Test Mode:		Keep tra	nsmitting	
Mode	K	eeping Transm	itting		Test Voltage		110	0V~	
Temperature		24 deg. C,			Humidity				
Test Result:		Pass			Detector		PK 		
20dB Bandwidth		1.226MHz							
Ŕ)	Mar	ker 1 [T1 r	ndB]	RE	W 30 kH	Iz RI	7 Att	20 dB	
Nef Lvl	ndB		.00 dB	VE					
10 dBm	BW	1.226452	291 MHz	SW	T 8.5 ms	s Ur	nit	dBm	
			1		v ₁	[T1]	-1 2.40183	.42 dBm 467 GHz	A
0			$\bigwedge_{a} \bigwedge_{a}$		ndB BW VT1	[T1]	20 1.22645	.00 dB 291 MHz	
-10		T7		<u>, </u>		[T1]	2.40136 -21	.92 dBm 573 GHz .64 dBm	
-20 1MAX		7				٦	2.40259	218 GHz	1MA
-30									
-40	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\					L.	v^\		
-50	V						M	moral	
-60									
-70									
-80									
-90 Center 2	.402 GHz		300 kH	Iz/			Spa	n 3 MHz	
Date: 22	2.JUL.2022	15:51:47							

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Product:		Speaker	box / Par	lante		Test Mode	:	Keen t	ransmitting	g	
Mode			g Transmit			Test Voltag		110V~			
Temperature			deg. C,			Humidity		56% RH			
Test Result:	Pass					Detector		PK			
OdB Bandwidth	1.226MHz										
		Marker	1 [T1 r	ndB]	RBW	30 k	:Hz RI	7 Att	20 dB		
Ref Lvl		ndB		00 dB	VBW	100 k	Hz				
10 dBm		BW 1	L.226452	291 MHz	SWT	8.5 m	ns Ur	nit	dBm	ı	
10						lacksquare1	[T1]	C	.25 dBm	A	
				1				2.44083	467 GHz	A	
0				\wedge		ndI	8	20	.00 dB		
			^		hy ~	M _X ∇ _T	[T1]	1.22645	291 MHz		
-10			__\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	, A.		M	1 + + 1	2.44036	. 01 011		
		T.J	\sim			$\triangle \vec{J}$	2 [T1]	-20	.09 dBm		
-20 1MAX						,	7	2.44159	218 GHz	1MA	
-30											
-40		M					M	V \			
-50 WILWW	٧							₩ ~√	many		
-60											
-70											
-80											
-90 Contor	2.441 GI	H 7		300	kHz/			Sna	ın 3 MHz		

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Marker 1 (T1 ndB)	8DPSK												
Temperature 24 deg. C, Humidity 56% RH Test Result: Pass Detector PK 1.232MHz	Product:		Speaker box / Parlante					Test Mode:		»:	Keep transmitting		g
Test Result: Pass	Mode		Keeping Transmitting					Test Voltage		ge	110V~		
Narker 1 [T1 ndB]	Temperature		24 deg. C,					Humidity			56% RH		
Marker 1 (T1 ndB)	Test Result:		Pass					Detector			PK		
Ref Lvl ndB 20.00 dB VBW 100 kHz 10 dBm BW 1.23246493 MHz SWT 8.5 ms Unit dBm 10	20dB Bandwidth		1.232MHz										
10 dBm BW 1.23246493 MHz SWT 8.5 ms Unit dBm 10	Ŕ			Marker	1 [T1 r	ndB]	RI	ВW	30 k	Hz R	F Att	20 dB	
10 0 1 (T1) 2.47983467 GHz 2.47983467 GHz 2.47983467 GHz 2.47935972 GHz 2.47935972 GHz 2.47935972 GHz 2.47935972 GHz 2.48059218 GHz 1MAX -30 -40 -50 -60 -70 -80 -90 Center 2.48 GHz 300 kHz/ Span 3 MHz	WS/											1-	
1 [T1]	10			BW 1	1.232464	193 MHz	SI	VT	8.5 π	ns Ui	nit 	dBm	
2.47983467 GHz 2.00 dB 1.23246493 MHz -10 74 dBr 2.4793972 GHz V12 [T1] -15.26 dBr -15.26 dBr -16.26 dBr -16.26 dBr -17.26 dBr -18.26 dBr -19.26 dBr -19.27 dBr -19.28 dBr -19.2									v ₁	[T1]	C	.89 dBm	A
1. 23246493 MHz 1. 23246493 MHz 1. 23246493 MHz 1. 27 74 dBb 2. 47935972 GHz 1. 2. 48059218 GHz 1. 2. 48059218 GHz 1. 300 kHz/ Span 3 MHz	0					X							
-10										3			
2.47935972 GHz -15.26 dBn 2.48059218 GHz 1MAX -30 -40 -50 -60 -70 -80 -90 Center 2.48 GHz 300 kHz/ Span 3 MHz	-10				\sim		m	\mathcal{M}		[T1]	-19		
-20 1MAX -30 -40 -50 -60 -70 -80 -90 Center 2.48 GHz 300 kHz/ Span 3 MHz					\int				Ϋ́		2.47935	972 GHz	
-30 -40 -50 -60 -70 -80 -90 Center 2.48 GHz 300 kHz/ Span 3 MHz	-20			Ţ./I					Δ4	2 [T1]	-19	.26 dBm	
-40 -50 -60 -70 -80 -90 Center 2.48 GHz 300 kHz/ Span 3 MHz		1MAX								\	2.48059	218 GHz	1MA
-50 -60 -70 -80 -90 Center 2.48 GHz 300 kHz/ Span 3 MHz	-30												
-50 -60 -70 -80 -90 Center 2.48 GHz 300 kHz/ Span 3 MHz	-40		~ / \	/\						W	V		
-70 -80 -90 Center 2.48 GHz 300 kHz/ Span 3 MHz	-50	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	V								hore,	and and	
-80 -90 Center 2.48 GHz 300 kHz/ Span 3 MHz	-60												
-90 Center 2.48 GHz 300 kHz/ Span 3 MHz	-70												
-90 Center 2.48 GHz 300 kHz/ Span 3 MHz	-80												
Center 2.48 GHz 300 kHz/ Span 3 MHz													
	•	Center	2.48 GH	<u> </u>		300	kHz/				l Spa	n 3 MHz	
DUCC. 77.00H.7077 TJ.70.71	Date				:58:54								

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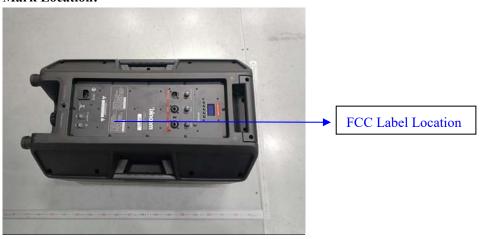
10.0 FCC ID Label

FCC ID: 2A6R4-MS112DSP

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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11.2 Photographs-EUT

Outside View



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Outside View





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Outside View



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Inside View





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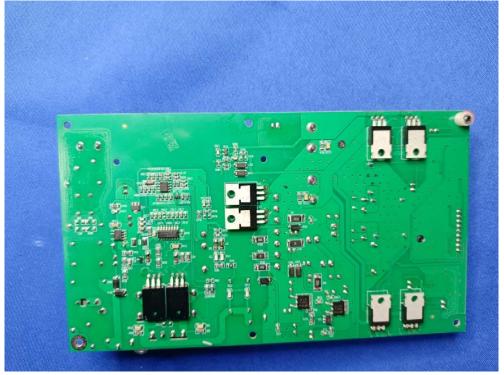
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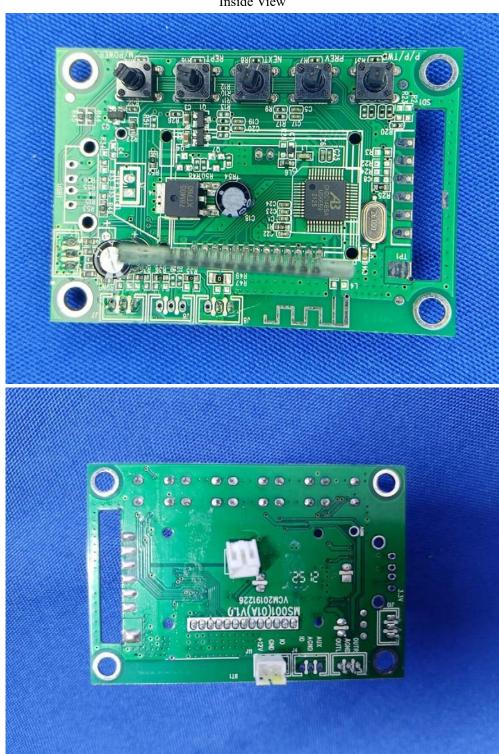
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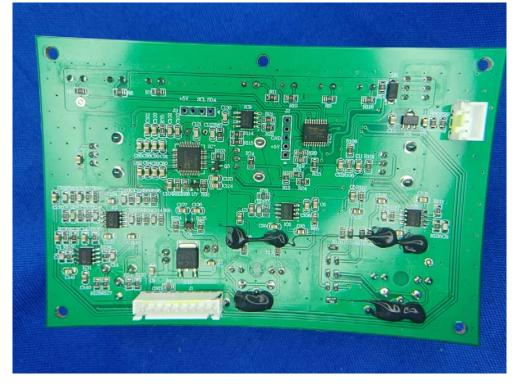
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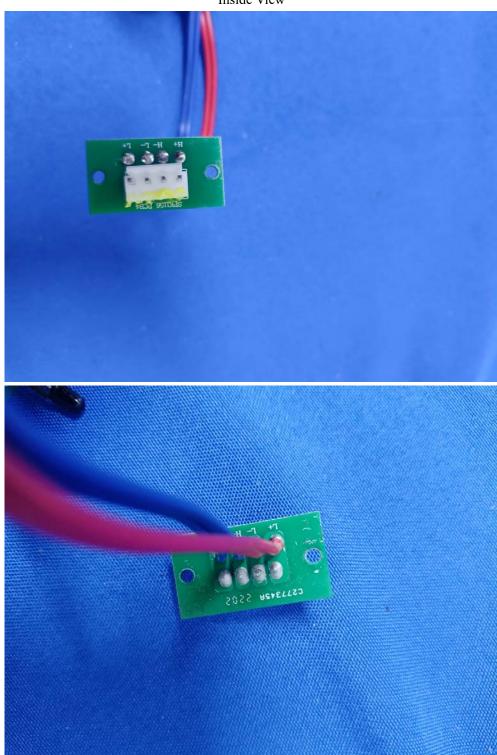
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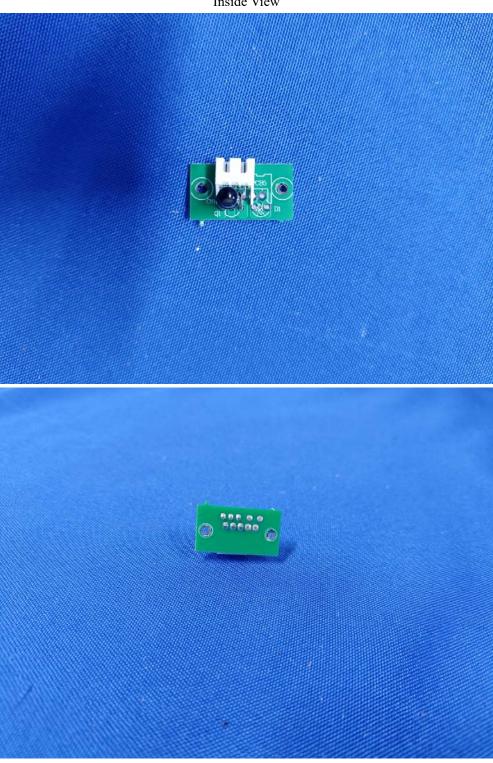
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Inside View



-- End of the report--

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