

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-115B

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

FCC Part 15.249

Approved By

Trademark:

Test Standards:

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

Date: 2022-07-25



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

## 1.3 Description of EUT

Trademark:

Model Number:

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

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

CHANGZHOU, JIANGSU, CHINA

mcon

Additional Model Name N/A

Rating: AC100-220V ,50/60Hz, 100W or DC12V

MS-115B

Battery: DC12V, 5Ah Lead Acid Battery
Modulation Type: GFSK, J/4DQPSK for Bluetooth

Operation Frequency: 2402-2480MHz

Channel Number: 79
Channel Separation: 1MHz
Hardware Version: 7.3
Software Version: 9.0

Serial No.: 20220712115B

Antenna Designation PCB antenna with gain -0.58dBi Max (Get from the antenna specification)

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1.4 Submitted Sample: 1 Sample

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					
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 1	<b>EUT</b> has	been	tested	accord	ing to	the f	ollowing	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 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

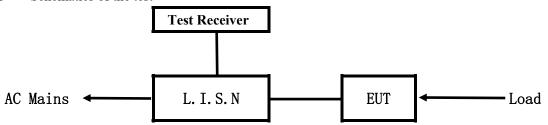
No modification by SHENZHEN TIMEWAY TESTING LABORATORIES

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#### 5. Power Line Conducted Emission Test

#### 5.1 Schematics of the test

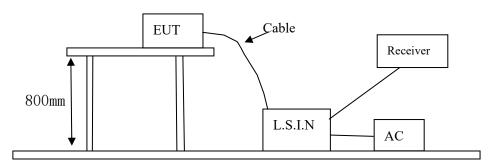


**EUT: Equipment Under Test** 

#### 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: 120V~, 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	MAXTRONIX CO., LTD.	MS-115B	2A6R4-MS115B	

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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			
$0.15 \sim 0.50$	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)

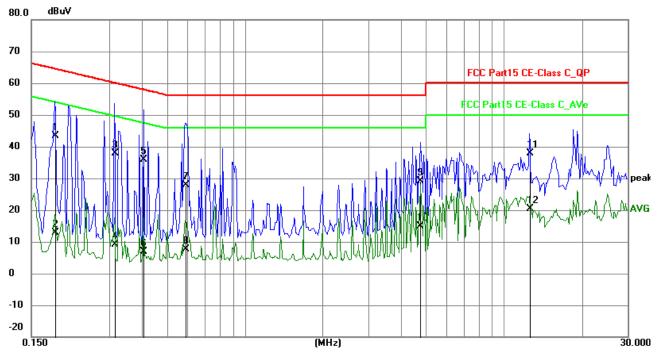
**EUT Operating Environment** 

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

**EUT set Condition: 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	0.1850	33.67	9.76	43.43	64.26	-20.83	QP	Р
2	0.1850	3.01	9.76	12.77	54.26	-41.49	AVG	Р
3	0.3138	28.03	9.76	37.79	59.87	-22.08	QP	Р
4	0.3138	-0.54	9.76	9.22	49.87	-40.65	AVG	Р
5	0.4074	26.10	9.76	35.86	57.70	-21.84	QP	Р
6	0.4074	-2.87	9.76	6.89	47.70	-40.81	AVG	Р
7	0.5907	18.11	9.77	27.88	56.00	-28.12	QP	Р
8	0.5907	-2.24	9.77	7.53	46.00	-38.47	AVG	Р
9	4.7667	19.21	9.92	29.13	56.00	-26.87	QP	Р
10	4.7667	4.91	9.92	14.83	46.00	-31.17	AVG	Р
11	12.5472	27.58	10.27	37.85	60.00	-22.15	QP	Р
12	12.5472	10.08	10.27	20.35	50.00	-29.65	AVG	Р

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

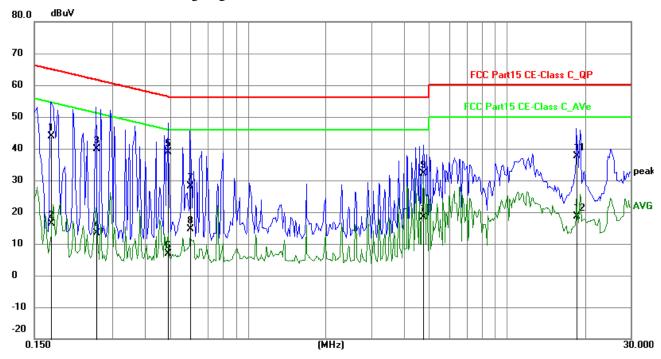
**EUT Operating Environment** 

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	0.1734	33.99	9.77	43.76	64.80	-21.04	QP	Р
2	0.1734	6.53	9.77	16.30	54.80	-38.50	AVG	Р
3	0.2592	30.11	9.75	39.86	61.46	-21.60	QP	Р
4	0.2592	3.51	9.75	13.26	51.46	-38.20	AVG	Р
5	0.4932	29.18	9.77	38.95	56.11	-17.16	QP	Р
6	0.4932	-2.96	9.77	6.81	46.11	-39.30	AVG	Р
7	0.5985	18.41	9.77	28.18	56.00	-27.82	QP	Р
8	0.5985	4.86	9.77	14.63	46.00	-31.37	AVG	Р
9	4.7628	22.11	9.92	32.03	56.00	-23.97	QP	Р
10	4.7628	8.50	9.92	18.42	46.00	-27.58	AVG	Р
11	18.5376	27.10	10.59	37.69	60.00	-22.31	QP	Р
12	18.5376	8.09	10.59	18.68	50.00	-31.32	AVG	Р

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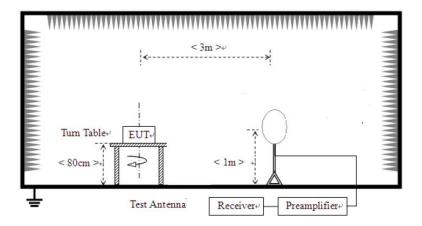


#### **6** Radiated Emission Test

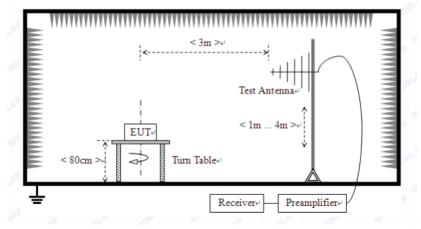
- 6.1 Test Method and test Procedure:
- (1) The EUT was tested according to ANSI C63.10-2013. The radiated test was performed at Timeway EMC Laboratory. This site is on file with the FCC laboratory division, Registration No. 744189
- (2) The EUT, peripherals were put on the turntable which table size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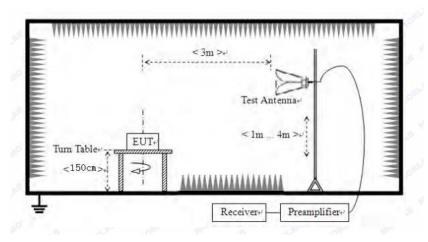
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For radiated emissions above 1GHz



- 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	ength of Fundame	ntal (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.

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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. Two modulation types were tested and the worst case was reported and GFSK was the worst case

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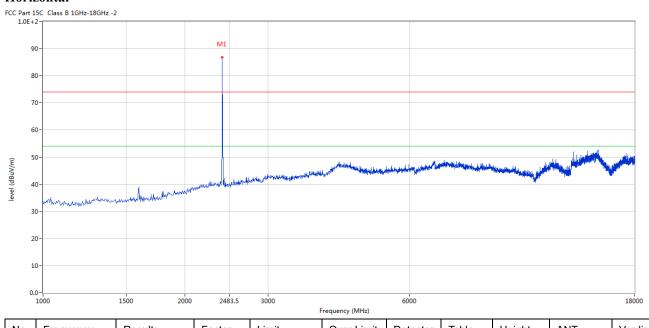


## 6.5 Test result

## A Fundamental & Harmonics Radiated Emission Data

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

#### Horizontal



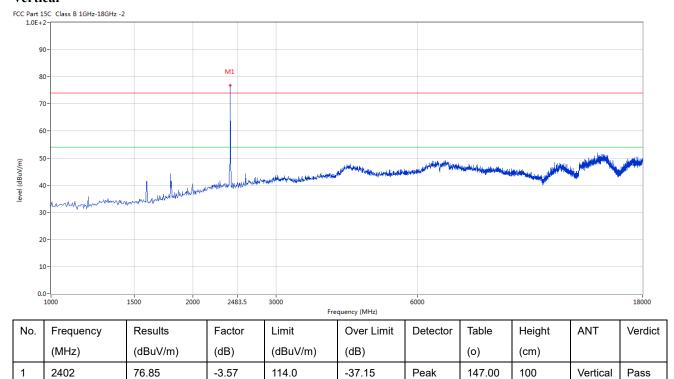
No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2402	86.81	-3.57	114.0	-27.19	Peak	208.00	100	Horizontal	Pass

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## Vertical



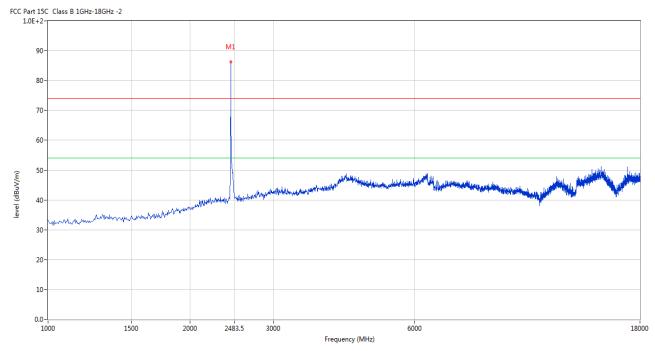
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Please refer to the following test plots for details: Middle Channel-2441MHz

#### Horizontal



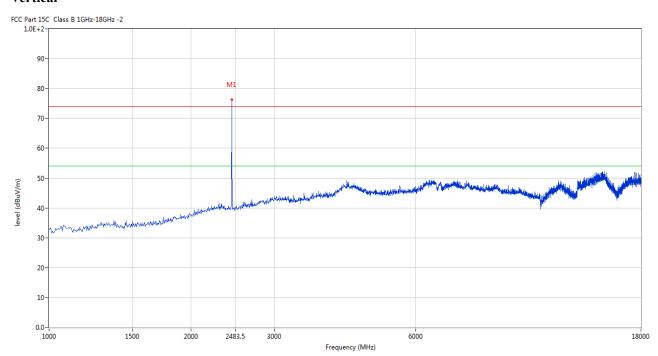
No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2441	86.33	-3.57	114.0	-27.67	Peak	131.00	100	Horizontal	Pass

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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	76.31	-3.57	114.0	-37.69	Peak	191.00	100	Vertical	Pass

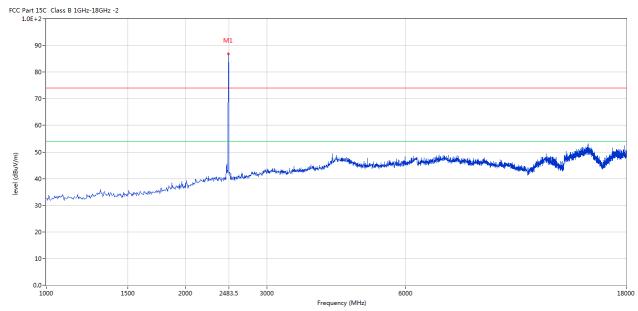
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Please refer to the following test plots for details: High Channel-2480MHz

#### Horizontal



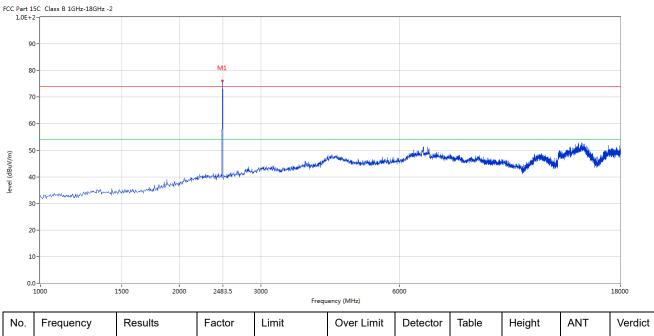
No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2480	86.90	-3.57	114.0	-27.10	Peak	189.00	100	Horizontal	Pass

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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	76.27	-3.57	114.0	-37.73	Peak	187.00	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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Date: 2022-07-25

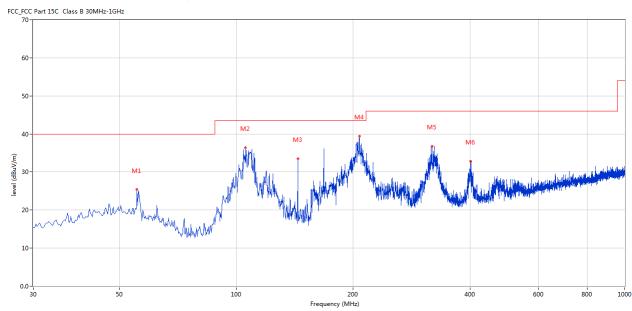


# B. General Radiated Emission Data Radiated Emission In Horizontal (30MHz----1000MHz)

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)		(0)	(cm)		
1	55.456	25.38	-11.89	40.0	-14.62	Peak	224.00	100	Horizontal	Pass
2	105.399	36.39	-13.25	43.5	-7.11	Peak	308.00	100	Horizontal	Pass
3	143.947	33.52	-17.10	43.5	-9.98	Peak	268.00	100	Horizontal	Pass
4	207.466	39.45	-13.68	43.5	-4.05	Peak	352.00	100	Horizontal	Pass
5	318.988	36.83	-10.64	46.0	-9.17	Peak	315.00	100	Horizontal	Pass
6	400.690	32.84	-8.59	46.0	-13.16	Peak	137.00	100	Horizontal	Pass

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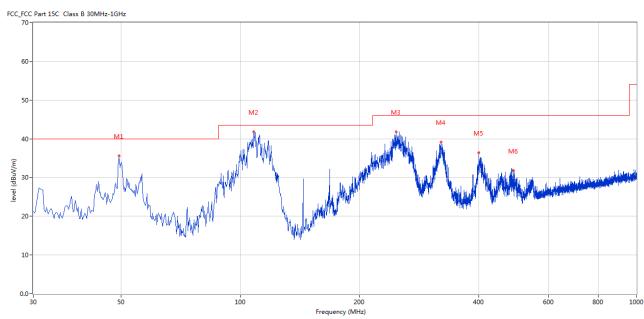


## Radiated Emission In Vertical (30MHz----1000MHz)

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	49.395	35.57	-11.28	40.0	-4.43	Peak	264.00	100	Vertical	Pass
2	108.065	41.77	-13.42	43.5	-1.73	Peak	143.00	100	Vertical	Pass
3	246.983	41.75	-12.11	46.0	-4.25	Peak	360.00	200	Vertical	Pass
4	321.412	39.12	-10.54	46.0	-6.88	Peak	360.00	200	Vertical	Pass
5	400.205	36.34	-8.58	46.0	-9.66	Peak	329.00	100	Vertical	Pass
6	488.938	31.75	-7.21	46.0	-14.25	Peak	329.00	100	Vertical	Pass

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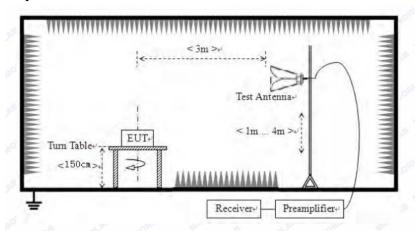


#### 7. Band Edge

#### 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.

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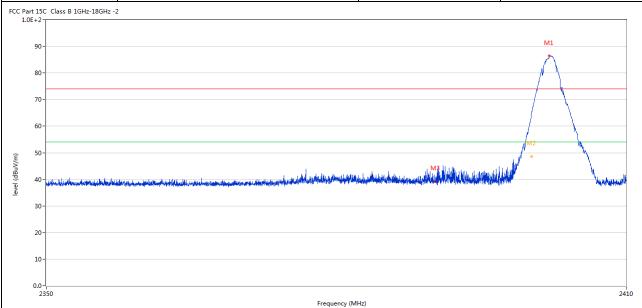
Report No.: TW2207054E Page 24 of 49

Date: 2022-07-25



#### 7.6 Test Result

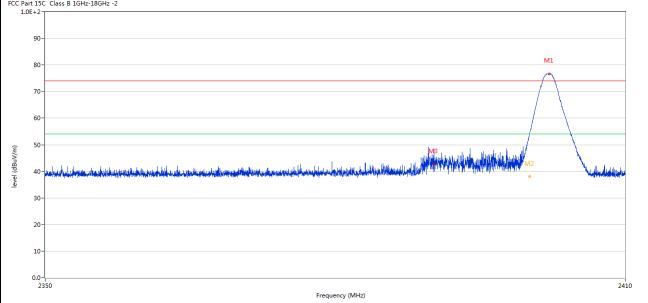
Product:	Speaker box / Parlante	Polarity	Horizontal
Mode	Keeping Transmitting	Test Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass		



No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(0)	(cm)		
1	2401.947	86.43	-3.57	74.0	12.43	Peak	214.00	100	Horizontal	N/A
2	2400.087	64.67	-3.57	74.0	-9.33	Peak	214.00	100	Horizontal	Pass
2**	2400.087	48.58	-3.57	54.0	-5.42	AV	214.00	100	Horizontal	Pass
3	2390.085	39.16	-3.53	74.0	-34.84	Peak	235.00	100	Horizontal	Pass

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Product:	Speaker box / Parlante	Detector	Vertical
Mode	Keeping Transmitting	Test Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass		
FCC Part 15C Class B 1GHz-18GHz -2 1.0E+2- 90-	F 455		<u></u>

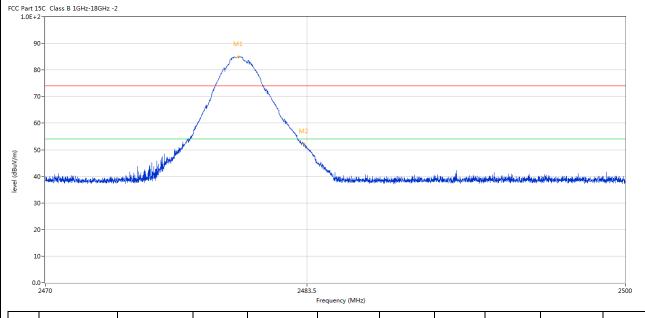


ı	No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
		(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
	1	2402.022	76.72	-3.57	74.0	2.72	Peak	343.00	100	Vertical	N/A
2	2	2400.027	54.34	-3.57	74.0	-19.66	Peak	150.00	100	Vertical	Pass
	2**	2400.027	37.99	-3.57	54.0	-16.01	AV	150.00	100	Vertical	Pass
(	3	2390.010	42.81	-3.53	74.0	-31.19	Peak	1.00	100	Vertical	Pass

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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	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	Limit (dB)		(o)	(cm)		
1	2479.943	84.91	-3.57	74.0	10.91	Peak	155.00	100	Horizontal	N/A
2	2483.339	52.14	-3.57	74.0	-21.86	Peak	155.00	100	Horizontal	Pass

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]	Product:		Speake	er box / Parla	inte		Detecto	or	Vertic	al
	Mode		Keepii	ng Transmitt	ing		Test Volt	age	120V	~
Te	mperature		2	24 deg. C,			Humidi	ty	56% F	H
Τe	est Result:			Pass						
C Part 1 1.0E+	15C Class B 1GHz-18GHz	-2				•				
2102										
9	90-									
8	30-		M1							
7	70-			1						
6	:0		<i></i>	1						
6	50-									
	50-			M2						
		incident of the state of the st		M2	haddelikki jednosti od bo	Washing Hardel Hard	العطائية المودوعية ألحو بالتعالية	the state of the second	المراجعة المراجعة المراجعة المراجعة	Laborate Day
. 5	50-	المتعادية والمتعادية و		M2	had de la	ikadinallinadidilladibba	والمسالية والمسالة وا	ata dipinga di can pipelip nggineli	ulmandadakkilik	-thoughthe
. 5	50-	الإنجاف والمقاط فالمعارد والمقام والمعارض والمعا		M2	kaaddaldhiinis destratifikadeda	ikadirasibusikijikasibbe	want in philosophiki land	ata dipingan arang kepanggan	dhodalani, dlabhailthiú	Lifenedalle
4	50 -	المتال والمتالية		M2	k malafada firik in da a kandi di birak da da a	Washaust washing the spike.	والمراجعة والمساورة	ide diplomate high material	at the high states of the	Light again deil ha
3	50-	isid <mark>a</mark> n in Adalahada na cenjahan garanar		M2	naddoldinis de Andrikade de	ikadiciajbuzidjilashba	istanligableony fetificial	<del>ata di misi ne an di Nomis di</del>	dheerahaa jallah dik dik	i denganida
3 2 1	10 - 10 - 10 - 10 - 10 - 10 - 10 - 10 -	indings of the later of the second		M2	n said dhe dhi dhin dhe dhe dhi dhin dhe dhe dh	italiansilvanitilaasika	international philipselphia	ata di disensi di di massivili	de de de la constitución de la cons	- Angella
3 2 1		isida <sub>ndin t</sub> odakalakan engakan <sup>gerasia</sup>		2483.5 F	requency (MHz)	ikadikan Hunciri Hungber	istacily, obligates folialists	nta di marindi	dheer dhad a dhadh dhadh	2500
3 3 2 2 1 0.	10 - 10 - 10 - 10 - 10 - 10 - 10 - 10 -	Results	Factor			Detector	Table	Height	ANT	Ī
5 4 3 2	00	(	Factor (dB)	F	requency (MHz)				ANT	ī
3 3 2 2 1 0.	50	Results		Limit	requency (MHz)  Over Limit		Table	Height	ANT Vertical	2500 Verdid

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

2. Two 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 -0.58dBi Max. It fulfills the requirement of this section. Test Result: Pass

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SK Product:		Speake	r box / Pa	rlante		Test	Mode:		Keen tr	ansmitting	7
Mode			ng Transm				Voltage			$0V\sim$	5
emperature			24 deg. C,	ittilig			nidity	56% RH			
Test Result:	Pass  865.73kHz  Marker 1 [T1 ndB] RB					Detector		PK			
B Bandwidth											
^						RW.	30 ki	H7 R	F Att	20 dB	
Ref Lvl		ndB		.00 dB	VI		100 ki		r Acc	20 01	
10 dBm		BW 865	5.731462	293 kHz	SV	VΤ	8.5 ms	s U	nit	dB	m
10							<b>v</b> <sub>1</sub>	[T1]		l.77 dB	<b></b>
									2.40183		Z
0				<b>1</b> 0			ndB		20	.00 dB	1
					$\mathcal{M}$		BW ▼ <sub>Ti</sub>	86 [T1]	5.73146		Z
-10				$\sim$	•	ς	<u></u>	<u> </u>		.27 dB 1008 GH	w z
			\ 			Μ.	$ abla_{\mathrm{T2}}$	[T1]	-21		
-20			7				<b>3</b>		2.40240	581 GH	Z 1M
			$\sim$								
-30								<u> </u>			
4.0								4			
-40									~\		
-50	<b>V</b>	V						<u>V</u>	1	щ.,	
-60						$\top$				-MMY	7
-70											1
-80											1
-90 Center 2	2 402 01	J-7	<u> </u>	200	kHz/				Cn-	an 3 MH	<b>-</b>

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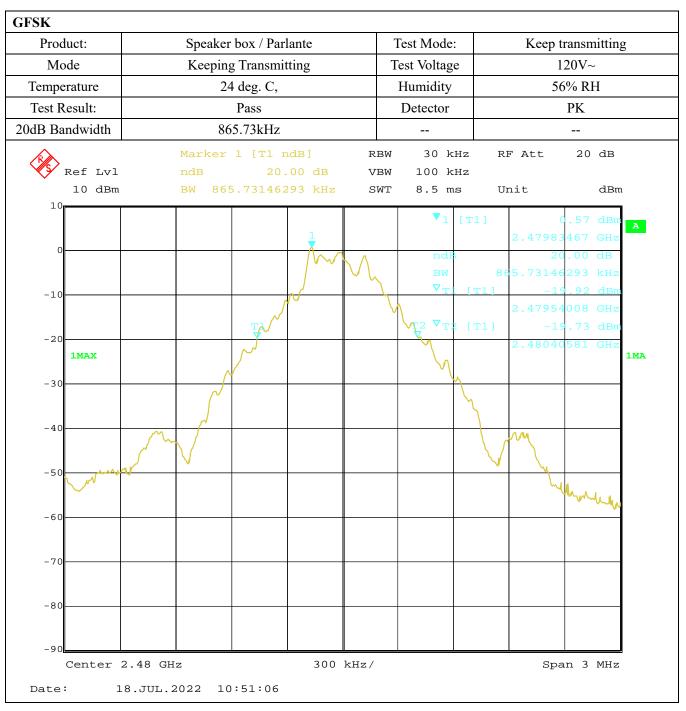


GFSK									
Product:	Spe	eaker box / Par	lante	7	Test Mode:	:	Keep t	ransmitting	g
Mode	Ke	T	Test Voltage Humidity Detector		120V~ 56% RH PK				
Temperature									
Test Result:									
20dB Bandwidth		865.73kHz							
Ŕ	Mar	ker 1 [T1 r	ndB]	RBW	30 k	Hz RI	7 Att	20 dB	
Ref Lvl 10 dBm	ndB BW	20. 865.731462	.00 dB	VBW SWT	100 k		nit	dBm	1
10			1	5,,1				G.E.	
			1		<b>V</b> 1	[T1]	-0 2.44083	1.12 dBm 467 GHz	A
0				$\mathcal{N}$	ndE BW	86	20 5.73146	.00 dB 293 kHz	
-10			N	<del></del>	$\nabla_{\mathrm{T1}}$	[T1]	-20	.66 dBm	
-20		TA .			$\bigvee_{T^2} \triangledown_{T^2}$	2 [T1]	2.44054 -20	008 GHz	
1MAX					$\sqrt{\lambda}$		2.44140	581 GHz	1MA
-30						7			
-40							~		
-50	7					<u> </u>	Y	mm	
-60								***	
-70									
-80									
-90									
Center :	2.441 GHz		300	kHz/			Span 3 MHz		
Date: 1	8.JUL.2022	10:13:09							

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I/4DQPSK Product:		Speake	r box / Pa	rlante		Test Mo	ode:		Keen tr	ansmitting	
Mode						Test Vol				20V~	
		24 deg. C,					+				
Temperature							Humidity		56% RH		
Test Result:	Pass 1.232MHz  Marker 1 [T1 ndB] RB					Detector	tor	PK			
20dB Bandwidth											
(SA)								RI	7 Att	20 dB	
Ref Lvl		ndB		.00 dB	VE		0 kHz			1-	
10 dBm		BW 1	L.232464	193 MHz	SV	/T 8.	5 ms	Ur	nit	dBm	
10							<b>v</b> 1 [7	[1]		1.36 dBm	A
0				1					2.4018	3467 GHz	
0				\ \			ndB		2	0.00 dB	
							BW ⊽⊤ıı	т11	1.2324	6493 MHz 1.88 dBm	
-10			$\sim$	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		<del>/ \</del>	\		2.4013		
		,	$\mathcal{J}$				<b>√</b> 12 [	T1]	-2		
-20		<u>T</u> 1					- <del>                                     </del>		2.4025	9218 GHz	
1MAX							4				1MA
-30							$\rightarrow$				
-40	$\bigwedge$	$\sqrt{}$						\\\	\ \ \		
-50	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \								my	w/w/	
-60											
-70											
-80											
-90											
Center 2	.402 GI	Hz -		300	kHz/	_			Spa	an 3 MHz	
Date: 18	8.JUL.2	022 13	:46:10								

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Л/4DQPSK										
Product:		Speaker	box / Parl	lante		Test Mode	»:	Keep t	ransmittin	g
Mode		Keeping	g Transmit	tting		Test Voltage		1	20V~	
Temperature		24	4 deg. C,			Humidity		56% RH		
Test Result:		Pass							PK	
20dB Bandwid	th	1.226MHz								
			1 [T1 n		RBI	v 30 ł	tHz R	F Att	20 dB	
Ref I		ndB BW	20. 1.226452	00 dB 291 MHz	VBI SW:			nit	dBm	ı
0				1		▼ <sub>1</sub>	[T1]	2.44083	1.13 dBm 467 GHz	A
-10			200		lm,	W V <sub>T</sub>	1 [T1]	1.22645 -19	291 MHz	
-20		Ŧ		7		\\\\\\\\\	2 [T1]	2.44036	573 GHz	
1MAX							7	2.44159	218 GHz	1MA
-40		$\mathcal{N}$					Jun	$\Lambda$		
-50								***	W. Mayor	
-60										
-70										
-80										
-90 Cente	er 2.441 G	Hz		300	kHz/			Spa	n 3 MHz	
Date:	18.JUL.2	2022 11	:25:03							

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Л/4DQPSK													
Product:			Speaker	box / Parl	ante		Те	est Mode	»:	Keep t	ransmittin	g	
Mode		Keeping Transmitting					Test Voltage		ge	1	20V~		
Temperatur	e	24 deg. C,					Η	Iumidity	r	56% RH			
Test Result		Pass					Detector			PK			
20dB Bandwi	idth		1.2	257MHz									
(S)			Marker	1 [T1 r		RI	B₩	30 k	Hz R	F Att	20 dB		
Nef	Lvl dBm		ndB	20. 256513.	00 dB		SW ATT	100 k		nit	dBm		
10	авш	T	BW 1		003 MH2	51	VТ	8.5 m	us U.	III C	авп	1 1	
					1			$\blacktriangledown_1$	[T1]	2.47983	.61 dBm	A	
0					Ā			ndl	3	2.47983	.00 dB		
					/\_/	\		BW		1.25651	303 MHz		
-10					~ · · ·	(	<u>_</u>	V VT	[T1]	-20	.02 dBm		
			m1	$\checkmark$				$\nabla \mathcal{A}$	2 <sup>2</sup> [T1]	2.47935 -19	972 GHz		
-20			<del></del>					-(	X	2.48061	623 GHz		
-30	x								1			1MA	
-30													
-40		$\bigwedge$							\\\\	<i>Λ</i> Λ,			
-50	<u>,</u> ,,,,,,	\\								W	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		
-60													
-70													
-80													
-90	ter ?	.48 GH:	7		300	논 <b>ㅁ</b> ~ /				Cno	n 3 MHz		
Date:			022 11	:10:02		12114/							

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#### 10.0 FCC ID Label

#### FCC ID: 2A6R4-MS115B

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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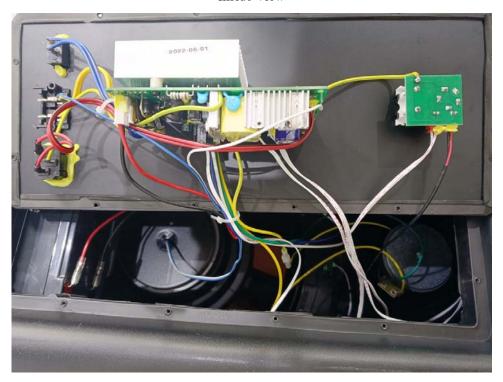
Date: 2022-07-25



Outside View



Inside View



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Inside View





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Inside View





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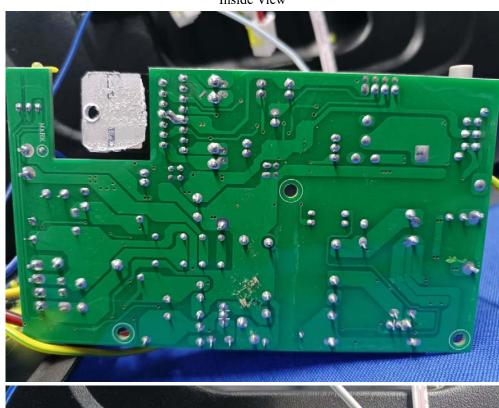
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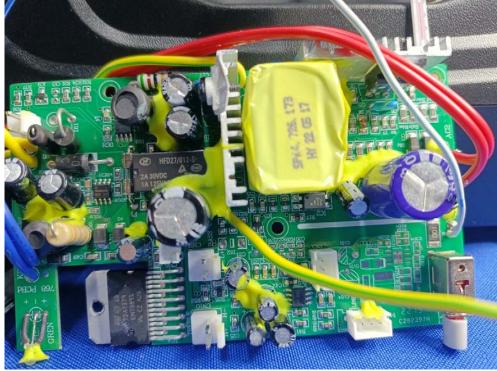
Report No.: TW2207054E

Date: 2022-07-25



Inside View





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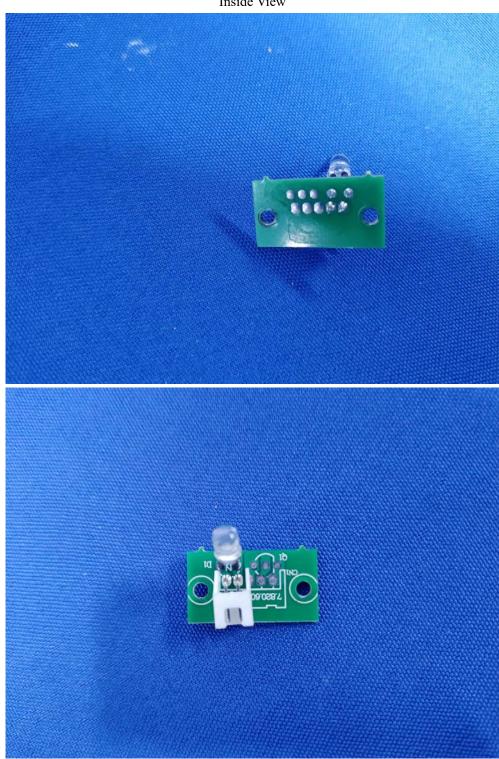
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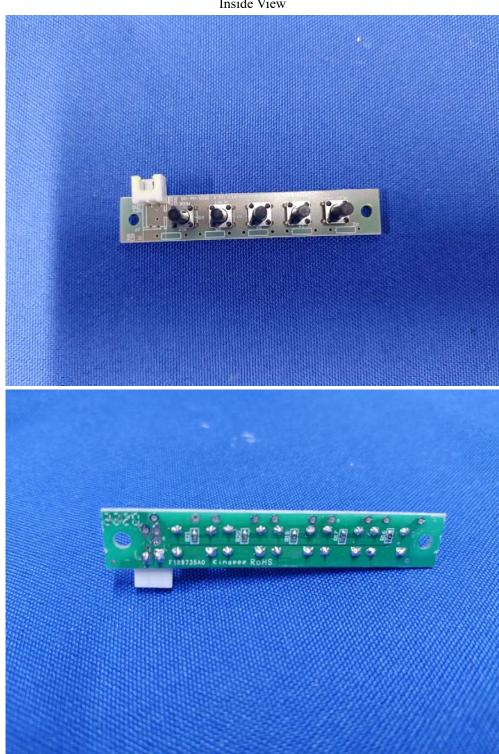
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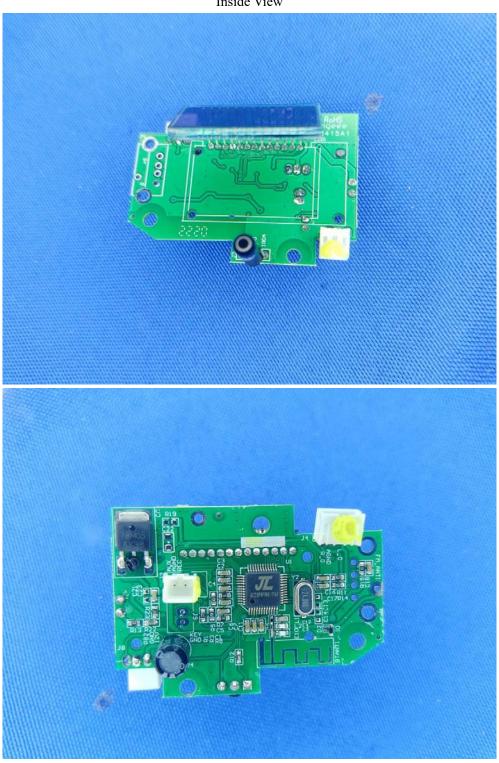
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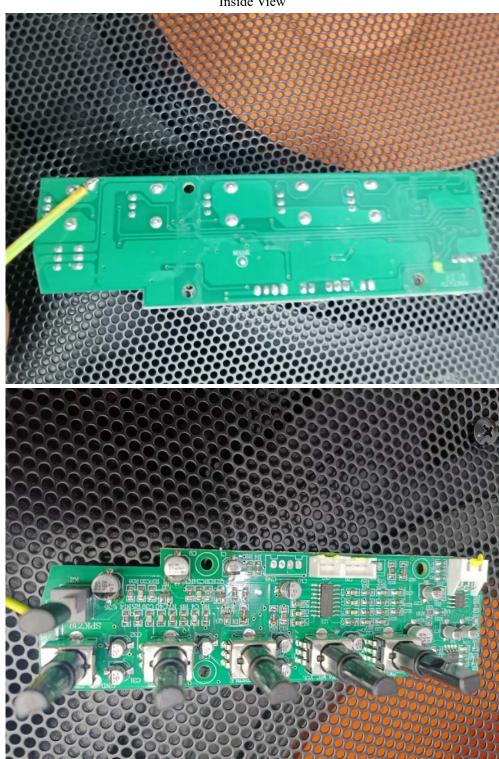
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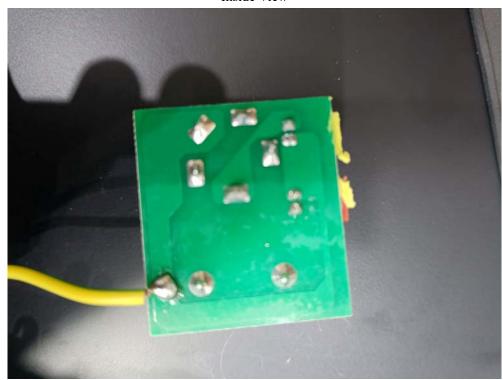
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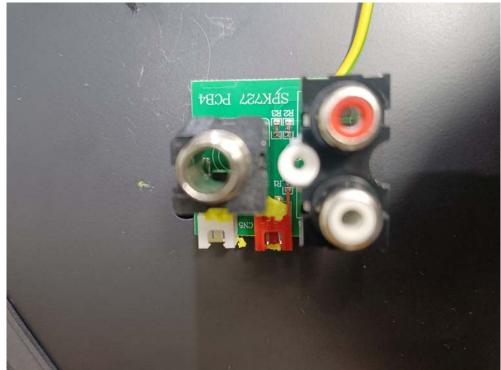
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