

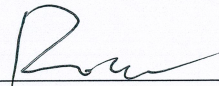
EMC TEST REPORT

The device described below is tested by Dongguan Nore Testing Center Co., Ltd. to determine the maximum emission levels emanating from the device, the severe levels which the device can endure and E.U.T.'s performance criterion. The test results are contained in this test report. Dongguan Nore Testing Center Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these tests.


Applicant : Maxxsonics USA Inc
Address : 851 E. Park Avenue Libertyville, IL 60048 USA
Manufacturer/ Factory : HASDA ELECTRIC LTD.
Address : No.4, Xianglong Street, Changlong Village, Huangjiang Town, Dongguan City, Guangdong Province, China
E.U.T. : WATERPROOF MP3 RADIO RECEIVER
Brand Name : POLARIS
Model No. : 2636364
Measurement Standard : CFR 47 FCC Part 15, Subpart B, Class B 2014
Date of Receiver : January 16, 2016
Date of Test : January 16, 2016 to January 29, 2016
Date of Report : January 29, 2016

This Test Report is Issued Under the Authority of :

Prepared by


Rose Hu / Engineer

Approved / Authorized Signer


Iori Fan / Authorized Signatory



This report shows that the E.U.T. is technically compliant with the CFR 47 FCC Part 15, Subpart B, Class B. This report applies to above tested sample only and shall not be reproduced in part without written approval of Dongguan Nore Testing Center Co., Ltd.

Revision History of This Test Report

Report Number	Description	Issued Date
NTC1601093F	Initial Issue	2016-01-29

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Appendix I (Photos of E.U.T.) (7 pages)

1. SUMMARY OF TEST RESULTS

The E.U.T. has been tested according to the following specifications:

EMISSION			
Standard	Test Type	Result	Remarks
CFR 47 FCC Part 15, Subpart B, Class B 2014	Radiated Emission Test	PASS	Uncertainty: 3.4dB

2. GENERAL INFORMATION

2.1 Details of E.U.T.

E.U.T. : WATERPROOF MP3 RADIO RECEIVER

Model No. : 2636364

Brand name : POLARIS

Rating : DC 12V

Adapter : None

E.U.T. Type : Class B

Operation Frequency : Below 108MHz (Except BT function)

Test Voltage : DC 12V

Cable : None

Description of model difference : None

Remark : None

2.2 Description of Support Device

FM Signal Generator : Manufacturer: LEADER
M/N: 3214
S/N: 1100164

USB Flash Disk : Manufacturer: Kingston
M/N: 4GB

iPod : Manufacturer: Apple
M/N: A1446
S/N: DCYNV5EMF0GQ

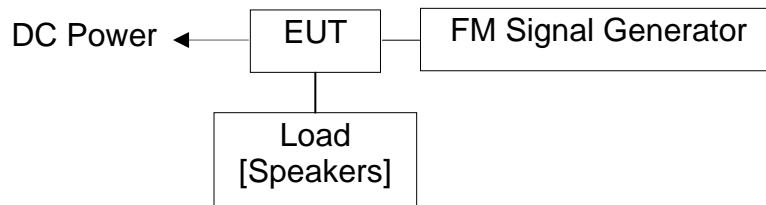
Speakers : Manufacturer: Fenda
M/N: A530

Speakers : Manufacturer: Fenda
M/N: M2

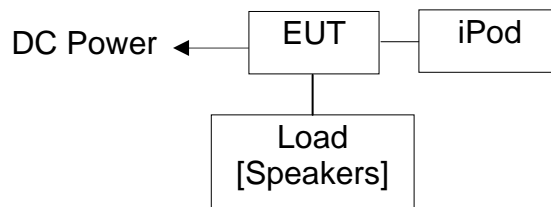
2.3 Block Diagram of Test Setup

Block diagram of connection between the E.U.T. and simulators

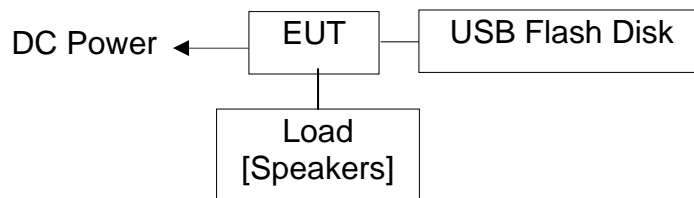
(1) FM Mode



(2) AUX IN



(3) USB Playing



2.4 Test Facility

Site Description

EMC Lab

: Listed by CNAS, August 14, 2015
The certificate is valid until August 13, 2018
The Laboratory has been assessed and proved to
be in compliance with CNAS/CL01
The Certificate Registration Number is L5795.

Listed by FCC, July 03, 2014
The Certificate Number is 665078.

Listed by Industry Canada, June 18, 2014
The Certificate Registration Number. Is 46405-9743

Name of Firm

: Dongguan Nore Testing Center Co., Ltd.
(Dongguan NTC Co., Ltd.)

Site Location

: Building D, Gaosheng Science & Technology Park,
Zhouxi Longxi Road, Nancheng District, Dongguan,
Guangdong, China.

2.5 Abnormalities from Standard Conditions

None

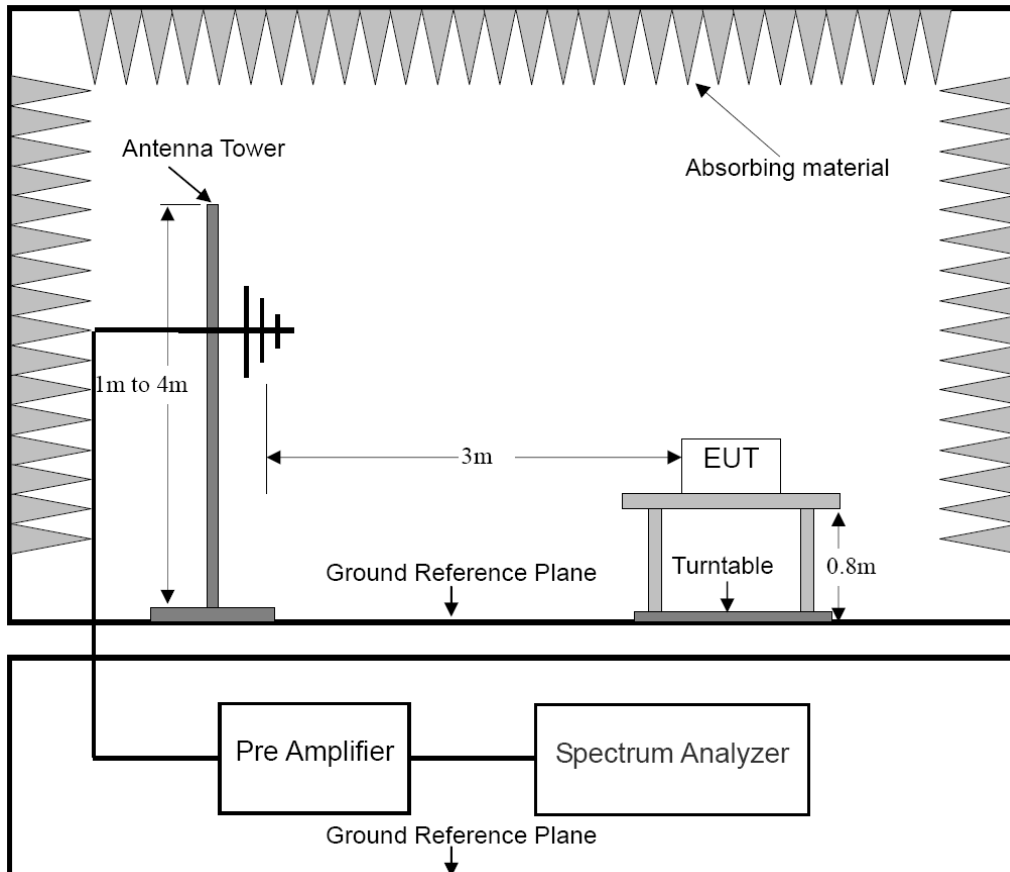
3. MEASURING DEVICES AND TEST EQUIPMENT

3.1 For Radiated Emission Measurement

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESCI7	100837	Mar. 07, 2015	1 Year
2.	Antenna	Schwarzbeck	VULB9162	9162-010	Mar. 14, 2015	1 Year
3.	Positioning Controller	UC	UC 3000	N/A	N/A	N/A
4.	Color Monitor	SUNSP0	SP-140A	N/A	N/A	N/A
5.	Single Phase Power Line Filter	SAEMC	PF201A-32	110210	N/A	N/A
6.	3 Phase Power Line Filter	SAEMC	PF401A-200	110318	N/A	N/A
7.	DC Power Filter	SAEMC	PF301A-200	110245	N/A	N/A
8.	Cable	Huber+Suhner	CBL3-NN-9M	21490001	Mar. 07, 2015	1 Year
9.	Cable	Huber+Suhner	RG223U	N/A	Mar. 07, 2015	1 Year
10.	Power Amplifier	HP	HP 8447D	1145A00203	Mar. 07, 2015	1 Year

4. RADIATED EMISSION MEASUREMENT

4.1 Block Diagram of Test



4.2 Limit of Radiated Emission Measurement

Test Standard: CFR 47 FCC Part 15, Class B

Frequency range MHz	Distance Meters	Field Strengths Limit	
		$\mu\text{V}/\text{m}$	$\text{dB}(\mu\text{V})/\text{m}$
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0

Remark : (1) Emission level $(\text{dB})\mu\text{V} = 20 \log \text{Emission level } \mu\text{V}/\text{m}$

(2) The smaller limit shall apply at the cross point between two frequency bands.

(3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

4.3 Test Procedure

E.U.T. and its simulators are placed on a turntable, which is 0.8 meter high above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. E.U.T. is set 3.0 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bilog antenna) is used as receiving antenna. Both horizontal and vertical polarization of the antenna is set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to FCC ANSI C63.4-2014 on radiated emission measurement. The bandwidth of the EMI test receiver is set at 120 KHz. The frequency range from 30 MHz to 1 GHz is checked.

4.4 Operating Condition of E.U.T.

4.4.1 Setup the E.U.T. and simulators as shown in Section 2.3.

4.4.2 Turn on the power of all equipments.

4.4.3 Let the E.U.T. work in test modes (FM Mode, USB Playing, AUX IN) and test it.

4.5 Radiated Emission Measurement Result

PASS.

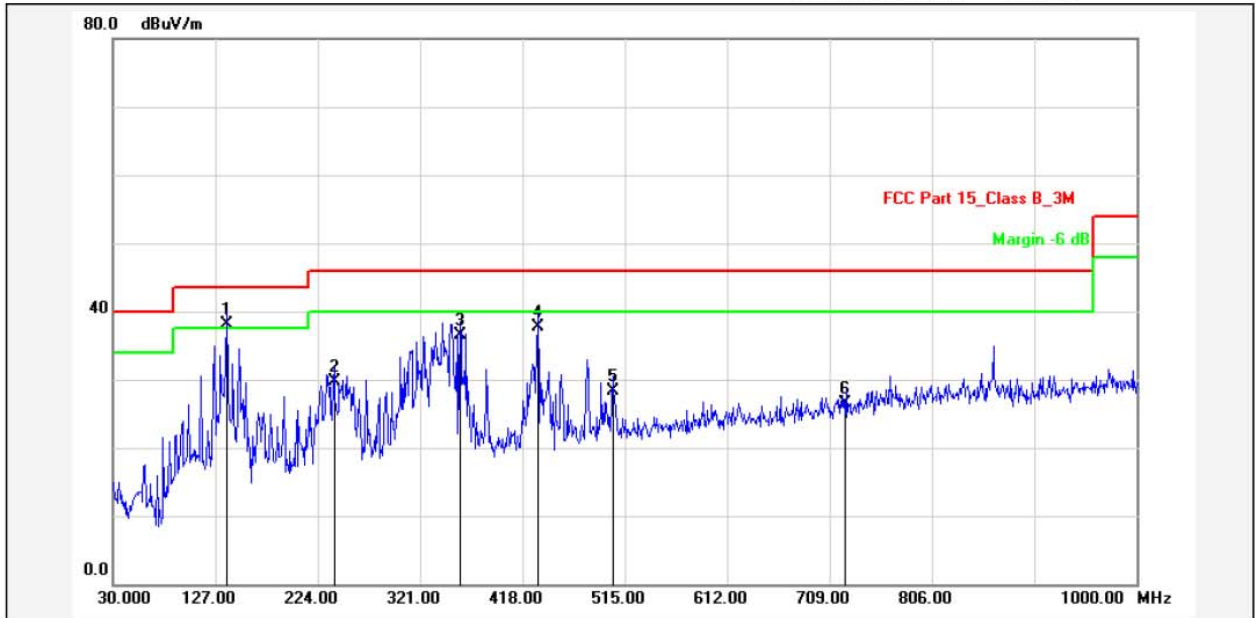
Please refer to the following pages of the worst case: AUX IN.



Dongguan NTC Co., Ltd.
 Tel:+86-769-22022444 Fax:+86-769-22022799
 Web: [Http://www.ntc-c.com](http://www.ntc-c.com)

Site: Radiation

Test Time: 2016-1-21 13:43:52



Report No.: 2636364
 Test Standard: FCC Part 15_Class B_3M
 Test item: Radiation Emission
 Applicant: Maxxsonics USA Inc
 Product: WATERPROOF MP3 RADIO RECEIVER
 Model No.: 2636364
 Test Distance: 3m
 Ant. Polarization: Horizontal
 Temp.(C)/Hum.(%): 22(C) / 54 %
 Power Rating: DC 12V
 Test Engineer: Frank
 Test Mode: AXU IN
 Remark:

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	137.6700	-15.48	53.58	38.10	43.50	-5.40	QP			P	
2	239.5200	-12.06	41.86	29.80	46.00	-16.20	QP			P	
3	358.8299	-9.14	45.64	36.50	46.00	-9.50	QP			P	
4	432.5500	-8.37	46.07	37.70	46.00	-8.30	QP			P	
5	503.3600	-6.75	35.15	28.40	46.00	-17.60	QP			P	
6	724.5198	-3.19	29.69	26.50	46.00	-19.50	QP			P	

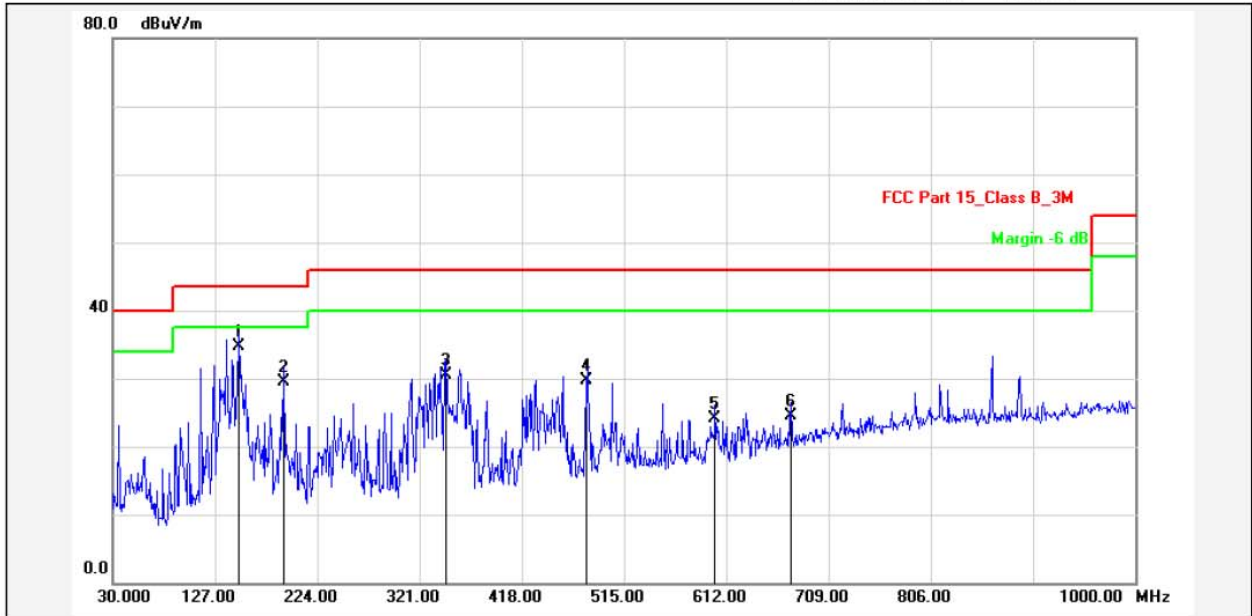
Note: Level=Reading+Factor.
 Margin=Limit-Level.



Dongguan NTC Co., Ltd.
 Tel:+86-769-22022444 Fax:+86-769-22022799
 Web: [Http://www.ntc-c.com](http://www.ntc-c.com)

Site: Radiation

Test Time: 2016-1-21 13:49:16



Report No.: 2636364
 Test Standard: FCC Part 15_Class B_3M
 Test item: Radiation Emission
 Applicant: Maxxsonics USA Inc
 Product: WATERPROOF MP3 RADIO RECEIVER
 Model No.: 2636364
 Test Distance: 3m
 Ant. Polarization: Vertical
 Temp.(C)/Hum.(%): 22(C) / 54 %
 Power Rating: DC 12V
 Test Engineer: Frank

Test Mode: AXU IN
 Remark:

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	149.3100	-18.52	53.22	34.70	43.50	-8.80	QP			P	
2	191.9900	-16.51	46.01	29.50	43.50	-14.00	QP			P	
3	346.2200	-11.19	41.79	30.60	46.00	-15.40	QP			P	
4	480.0799	-9.21	38.91	29.70	46.00	-16.30	QP			P	
5	601.3300	-7.00	31.10	24.10	46.00	-21.90	QP			P	
6	673.1100	-4.53	29.03	24.50	46.00	-21.50	QP			P	

Note: Level=Reading+Factor.
 Margin=Limit-Level.

5. PHOTOGRAPH

5.1 Photo of Radiation Emission Measurement



APPENDIX I (Photos of E.U.T.)

Figure 1
General Appearance of the E.U.T.



Figure 2
General Appearance of the E.U.T.



Figure 3
General Appearance of the E.U.T.



Figure 4
General Appearance of the E.U.T.

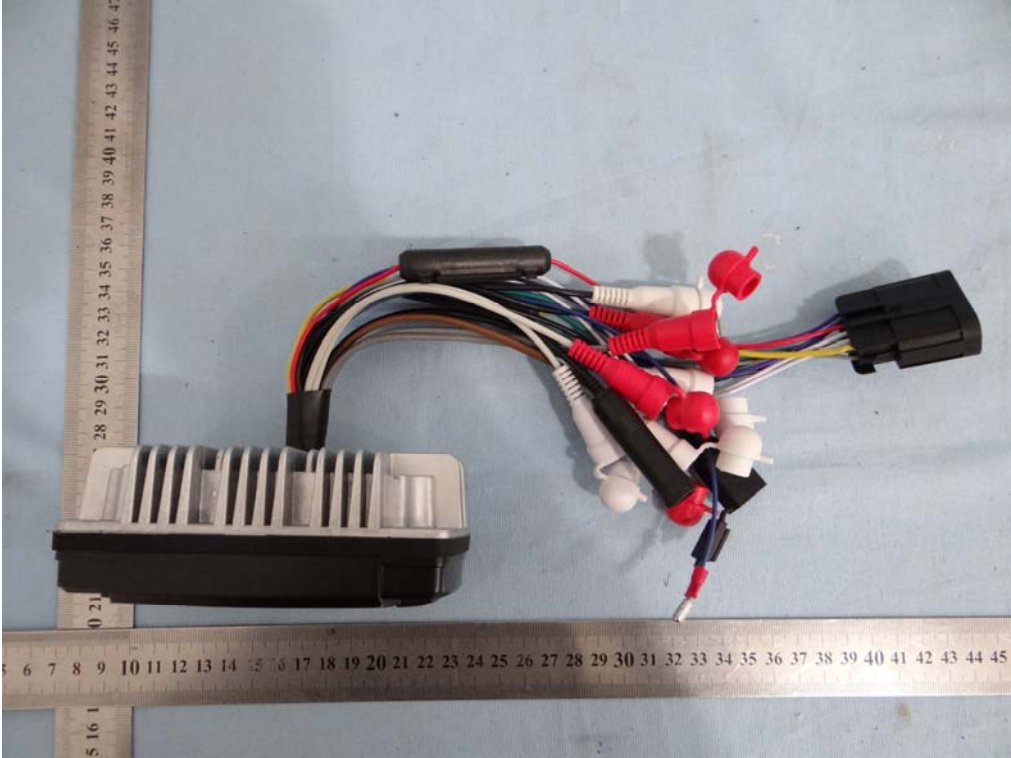


Figure 5
General Appearance of the E.U.T.



Figure 6
General Appearance of the E.U.T.

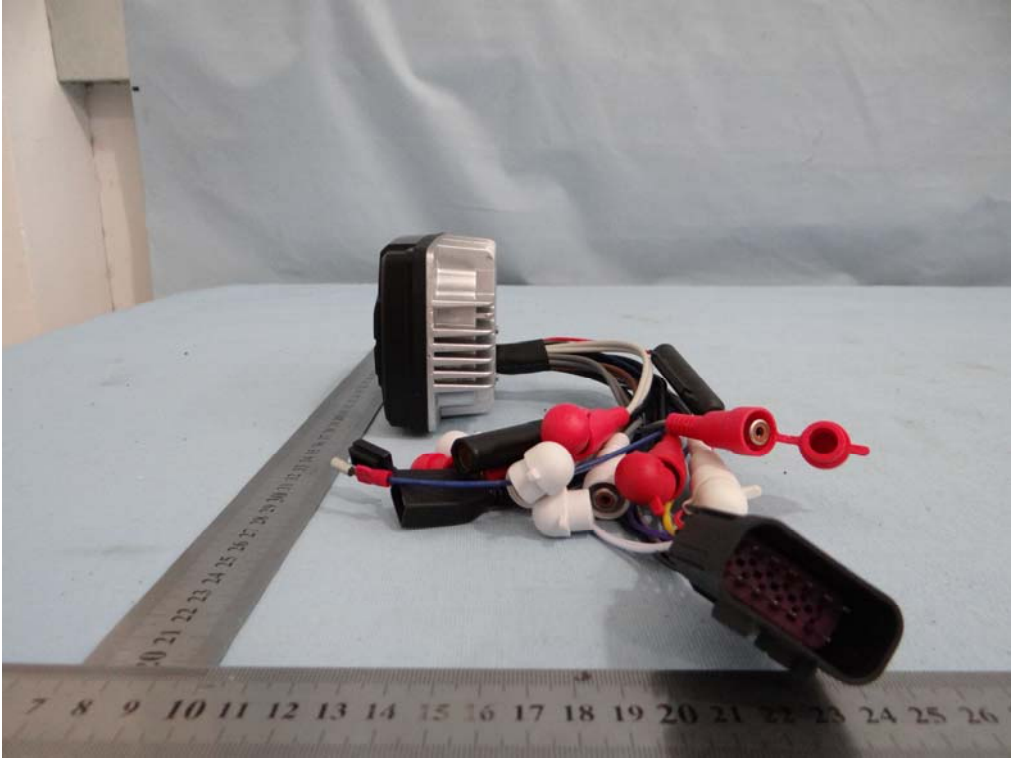


Figure 7
General Internal of the E.U.T.

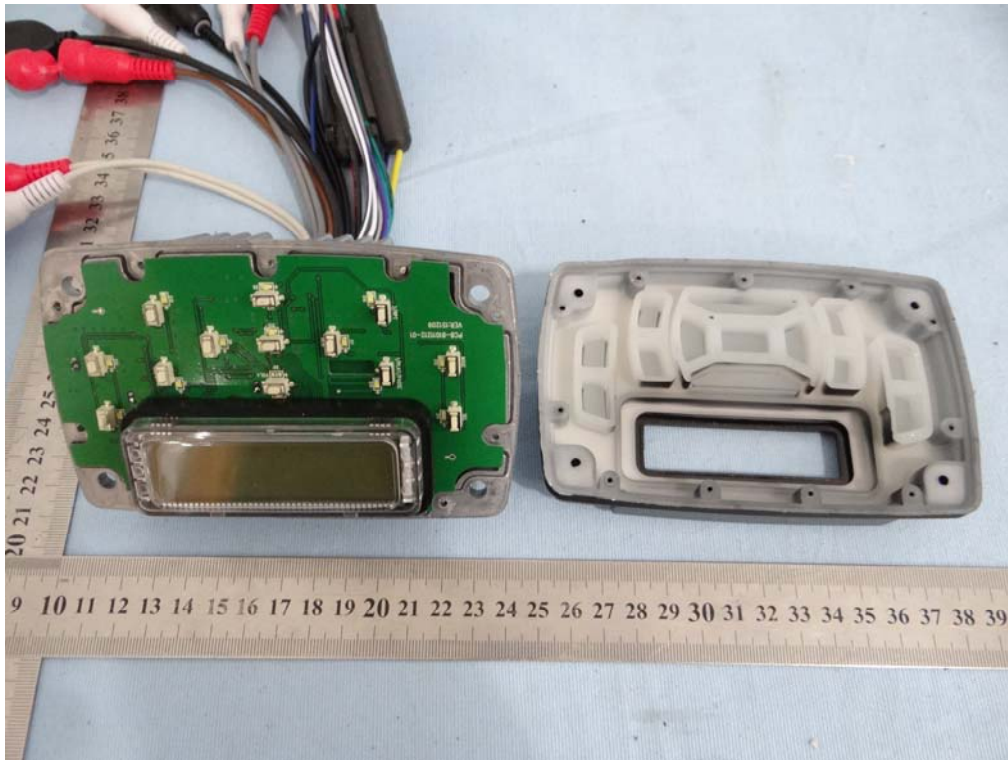


Figure 8
General Appearance of the PCB

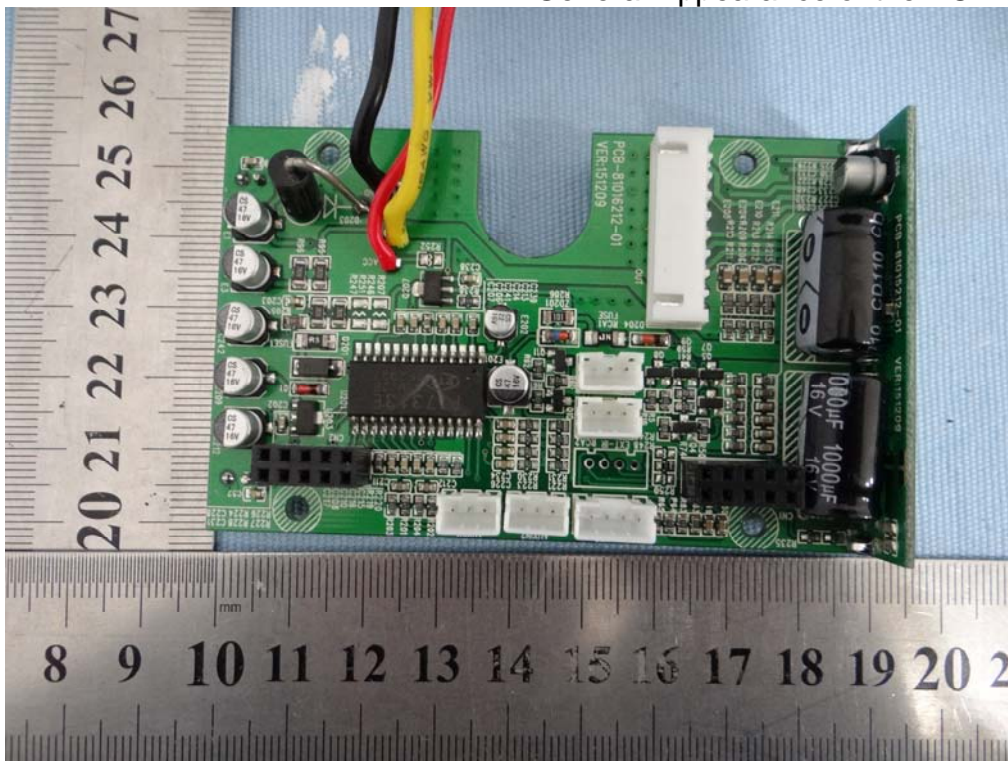


Figure 9
General Appearance of the PCB

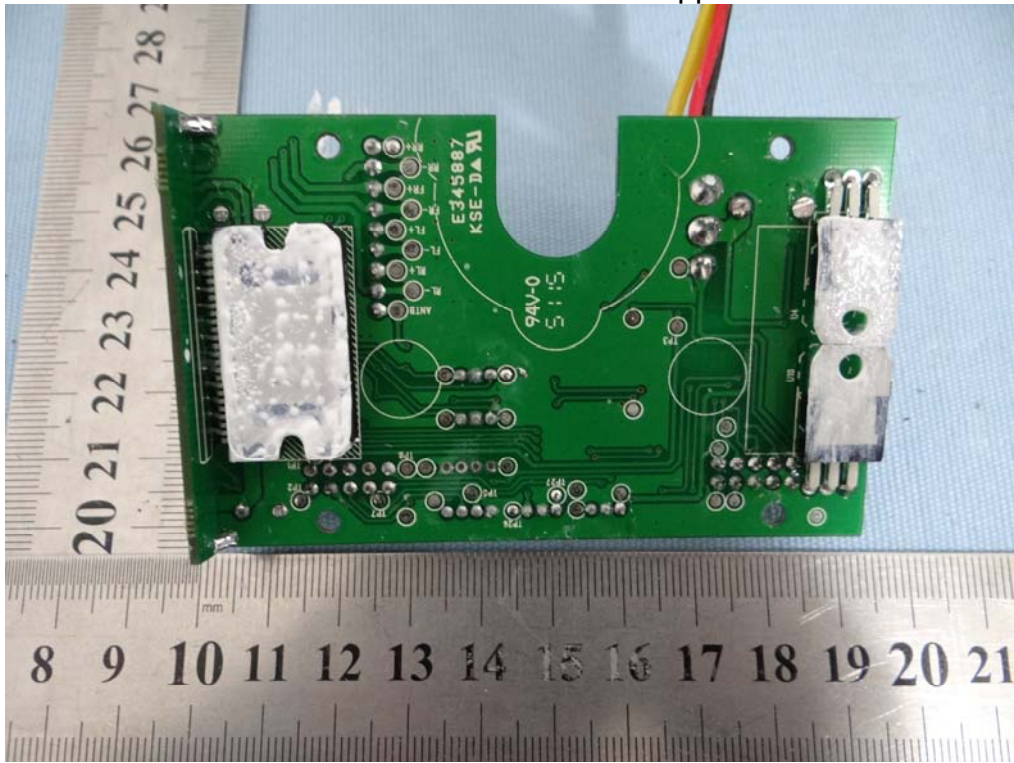


Figure 10
General Appearance of the PCB

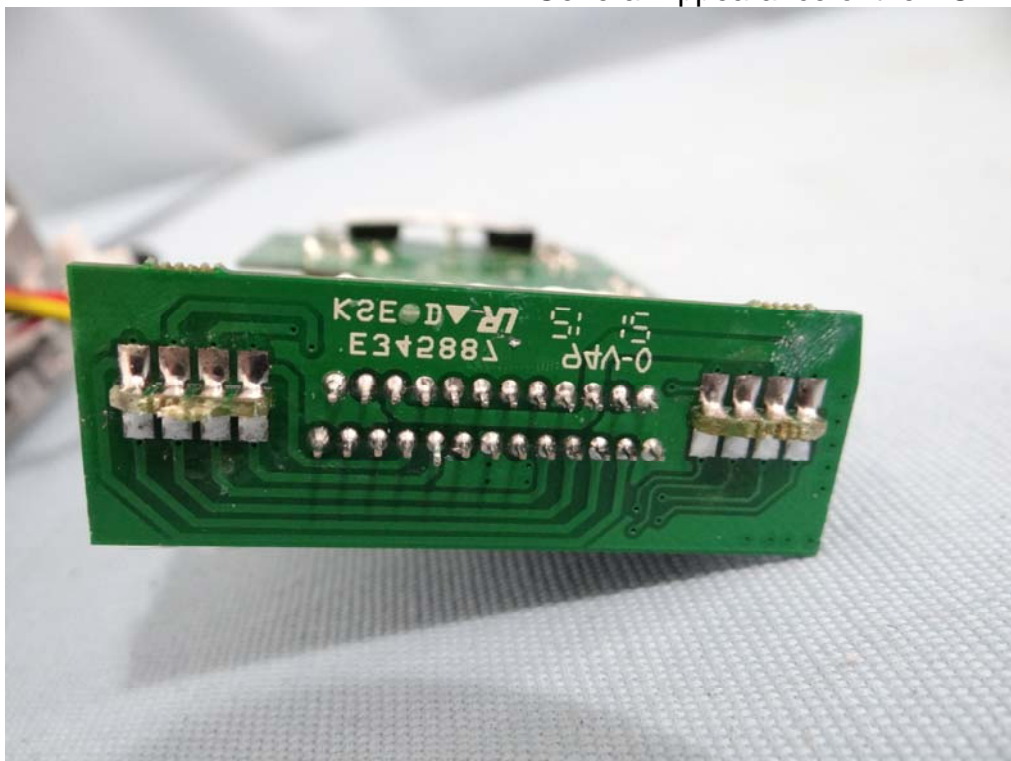


Figure 11
General Appearance of the PCB



Figure 12
General Appearance of the PCB

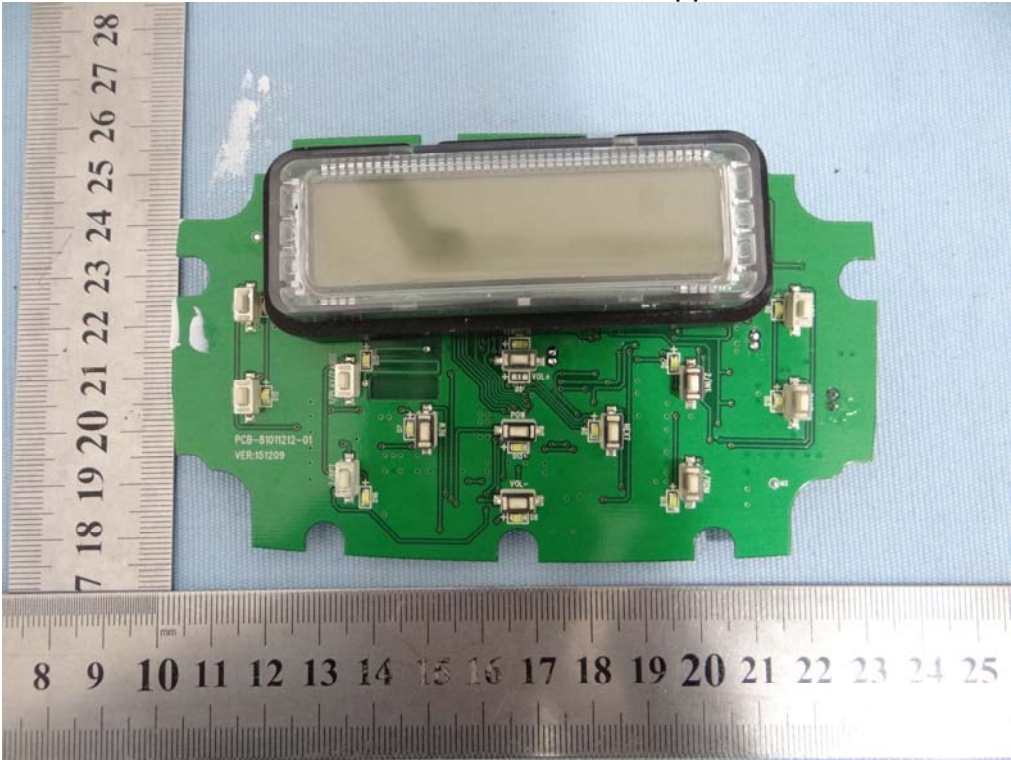


Figure 13
General Appearance of the PCB

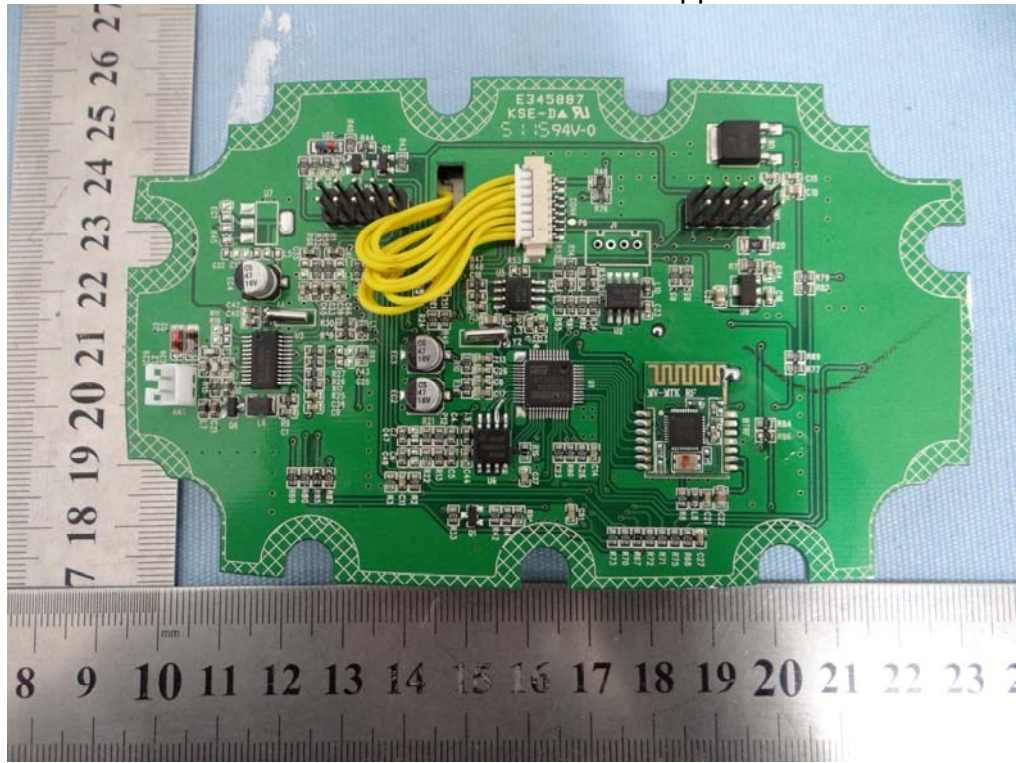
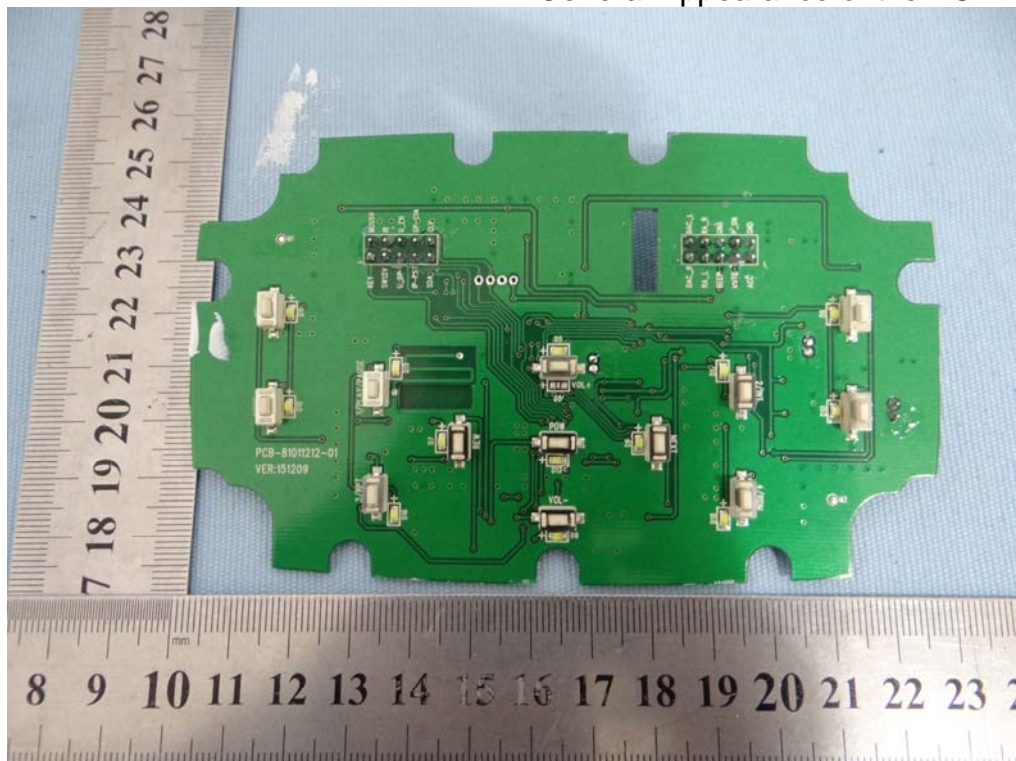


Figure 14
General Appearance of the PCB



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