FCC Test Report

Report No.: AGC01039140401FE08

FCC ID		PODTH-9800
TYPE OF AUTHORIZATION	:	Certification
APPLICATION PURPOSE	:	Original Equipment
PRODUCT DESIGNATION	:	Mobile radio
BRAND NAME	:	TYT
MODEL NAME	:	TH-9800,TH-9800D,TH-7800,TH-7900
CLIENT	:	TYT ELECTRONICS CO., LTD
DATE OF ISSUE	:	May 16, 2014
STANDARD(S)	:	FCC Part 15 Rules
REPORT VERSION	:	V1.0

Attestation of ***G***lobal ***C***ompliance (Shenzhen) Co., Ltd

REPORT REVISE RECORD

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	May 16, 2014	Valid	Original Report

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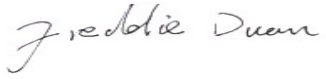
1. VERIFICATION OF COMPLIANCE

Applicant	TYT ELECTRONICS CO., LTD
Address	Block 39-1, Optoelectronics-information industry base, Nan'an, quanzhou, Fujian
Manufacturer	TYT ELECTRONICS CO., LTD
Address	Block 39-1, Optoelectronics-information industry base, Nan'an, quanzhou, Fujian
Product Designation	Mobile radio
Brand name:	TYT
Test Model	TH-9800
Series model	TH-9800D,TH-7800,TH-7900
Difference description	All the same except the modle name and appearance.
Date of test:	May 12, 2014 to May 15, 2014
Deviation:	None
Condition of Test Sample	Normal

The above equipment was tested by Attestation Of Global Compliance Co., Ltd. for compliance with the requirements set forth in the FCC Rules and Regulations Part 15, the measurement procedure according to ANSI C63.4:2003. This said equipment in the configuration described in this report shows the maximum emission levels emanating from equipment are within the compliance requirements.

The test results of this report relate only to the tested sample identified in this report.

Prepared By 

Freddie Duan May 16, 2014

Checked By 

Kidd Yang May 16, 2014

Authorized By 

Solger Zhang May 16, 2014

2. PRODUCT INFORMATION

The EUT is a Mobile radio designed for voice communication. It is designed by way of utilizing the FM modulation achieves the system operating.
A major technical description of EUT is described as following:

Communication Type	Voice / Tone only
Modulation	FM
RX Frequency Range	28-29.7MHz/50-54MHz/144-148MHz/420-450MHz
Emission Type	11KφF3E
Antenna Designation	Detachable
Power Supply	DC 13.8V by DC Source
Adapter Parameter	N/A

I/O Port Information (☒Applicable ☐Not Applicable)

I/O Port of EUT			
I/O Port Type	**Q'TY**	**Cable**	**Tested with**
DC Input Port	1	1.5m, Unshielded	1
Antenna Connect Port	1	0	1
USB Port	1	0	1
External Speaker connect Port	1	0	1

3. TEST FACILITY

Facility	Attestation of Global Compliance (Shenzhen) Co., Ltd
Location:	B112-B113, Building 12, Baoan Building Materials Center, No.1 of Xixiang Inner Ring Road, Baoan District, Shenzhen, Guangdong, P.R.China
Description:	The test site is constructed and calibrated to meet the FCC requirements in documents ANSI C63.4:2003.
Site Filing:	The FCC Registration Number is 259865
Instrument Tolerance:	All measuring equipment is in accord with ANSI C63.4 requirements that meet industry regulatory agency and accreditation agency requirement.

4. SUPPORT EQUIPMENT LIST

Device Type	Manufacturer	Model Name	Serial No.	Data Cable	Power Cable
DC source	Yidangfeng	PS-305D	N/A	N/A	N/A

5. SYSTEM DESCRIPTION

EUT test procedure:

1. Connect EUT and peripheral devices.
2. Power on the EUT, the EUT begins to work.
3. Running data transmission and make sure the EUT normal working.

EMC TEST MODES

No.	TEST MODES
1	Scanning mode + Receiving mode

Note: Only the result of the worst case was recorded in the report.

6 SUMMARY OF TEST RESULTS

FCC Rules	Description Of Test	Result
§15.107	Conduction Emission	N/A
§15.109	Radiated Emission	Compliant
§15.111	Antenna Conducted Power for receivers	Compliant
§15.121	Scanning receivers and frequency converters used with scanning receivers.	Compliant

7. FCC RADIATED EMISSION TEST

7.1. TEST EQUIPMENT OF RADIATED EMISSION

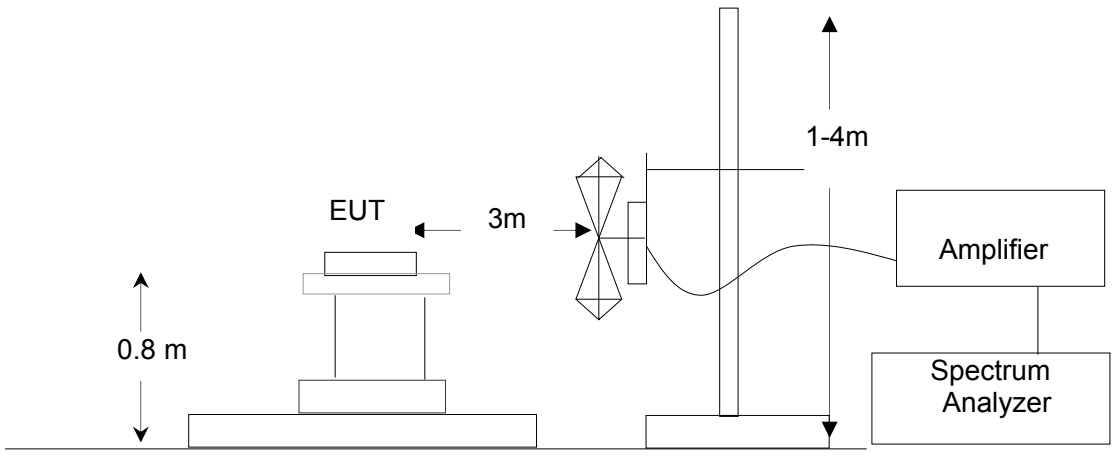
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
PSA SERIES SPECTRUM ANALYZER	AGILENT	E4440A	US41421290	07/18/2013	07/17/2014
ANTENNA	A.H.	SAS-521-4	26	07/18/2013	07/17/2014
HORN ANTENNA	EM	EM-AH-10180	67	04/19/2014	04/18/2015
AMPLIFIER	EM	EM30180	0607030	07/18/2013	07/17/2014
POSITIONING CONTROLLER	MF	MF-7802	MF780208147	07/18/2013	07/17/2014

7.2. LIMITS OF RADIATED EMISSION TEST

Frequency (MHz)	Distance (m)	Maximum Field Strength Limit (dBuV/m/ Q.P.)
30~88	3	40.0
88~216	3	43.5
216~960	3	46.0
Above 960	3	54.0

**Note: The lower limit shall apply at the transition frequency.

7.3 BLOCK DIAGRAM OF RADIATED EMISSION TEST



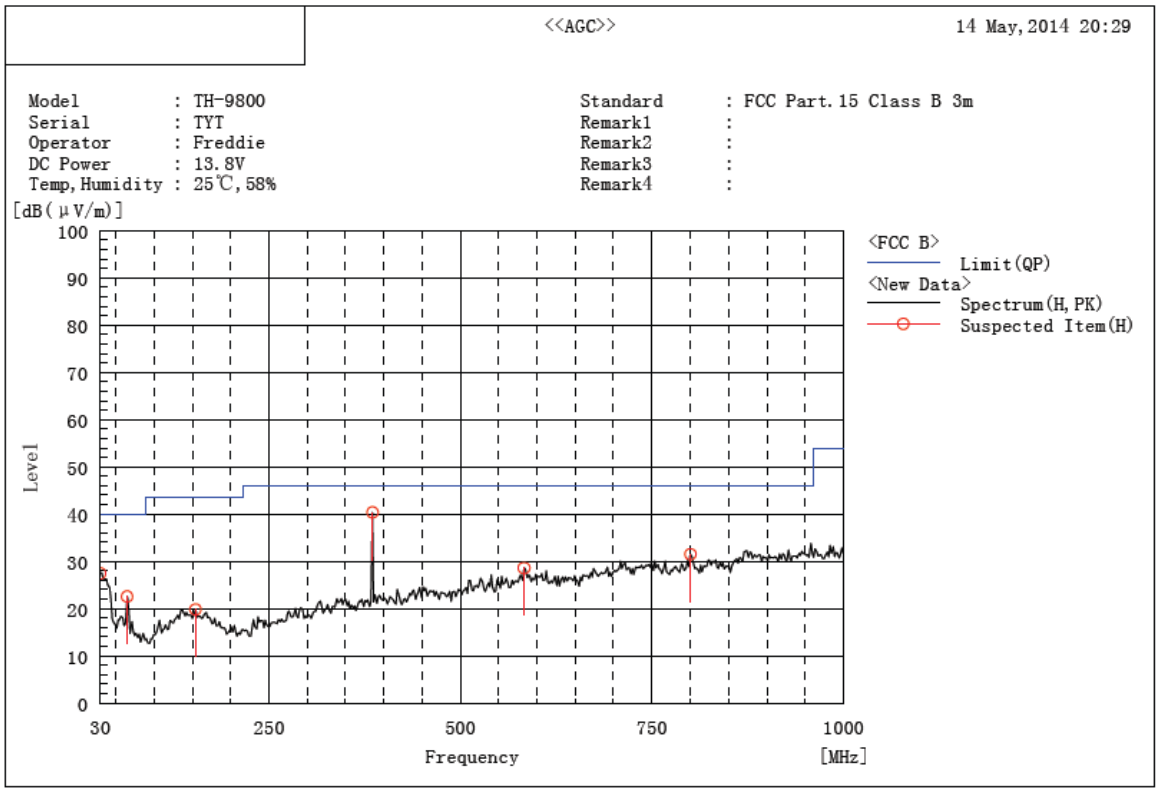
7.4 PROCEDURE OF RADIATED EMISSION TEST

1) The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden turntable with a height of 0.8 meters is used which is placed on the ground plane as per ANSI C63.4 (see Test Facility for the dimensions of the ground plane used). When the EUT is floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
2) Support equipment, if needed, was placed as per ANSI C63.4.
3) All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4.
4) The EUT received DC 13.8V by DC source. All support equipments received AC 120V/60Hz power from socket under the turntable, if any.
5) The antenna was placed at 3 meter away from the EUT as stated in FCC Part 15. The antenna connected to the Analyzer via a cable and at times a pre-amplifier would be used.
6) The Analyzer / Receiver quickly scanned from 30MHz to 1000MHz. The EUT test program was started. Emissions were scanned and measured rotating the EUT to 360 degrees and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.
7) The test mode(s) were scanned during the test:
8) Recorded at least the six highest emissions. Emission frequency, amplitude, antenna position, polarization and turntable position were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit and Q.P./Peak reading is presented.

The test data of the worst case condition(mode 1) was reported on the following Data page

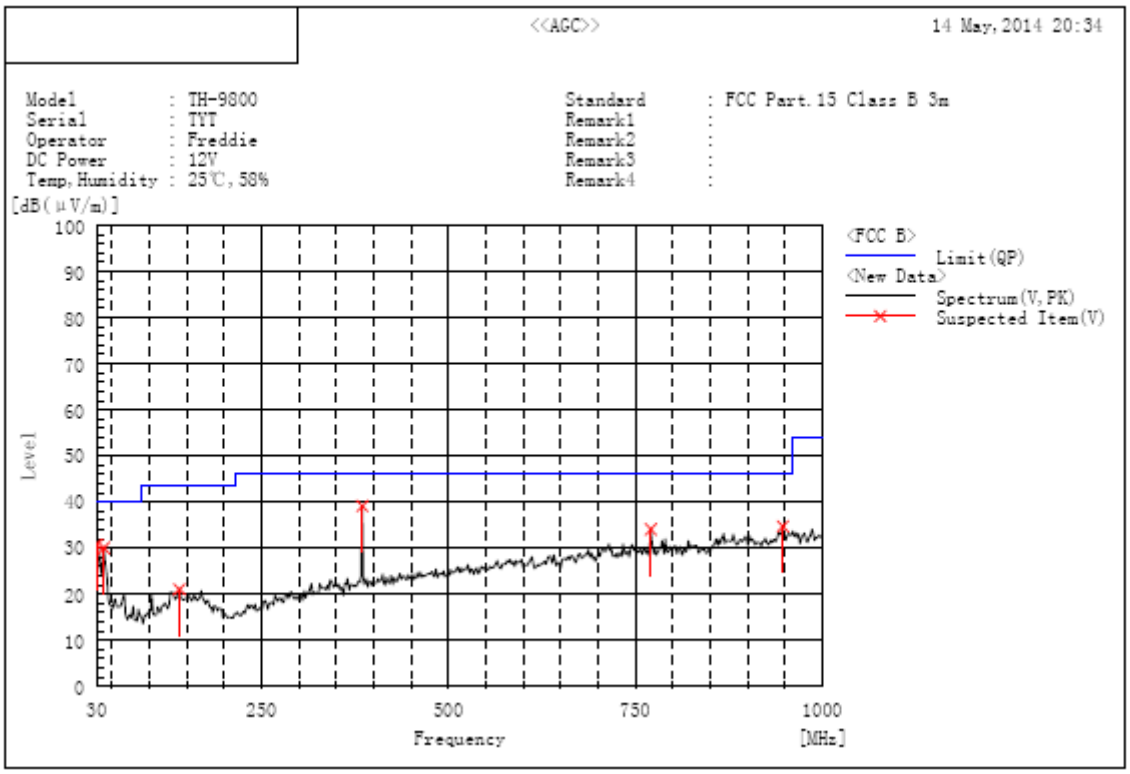
7.5 TEST RESULT OF RADIATED EMISSION TEST

Radiated Emission Test –Horizontal -3m Below 1G



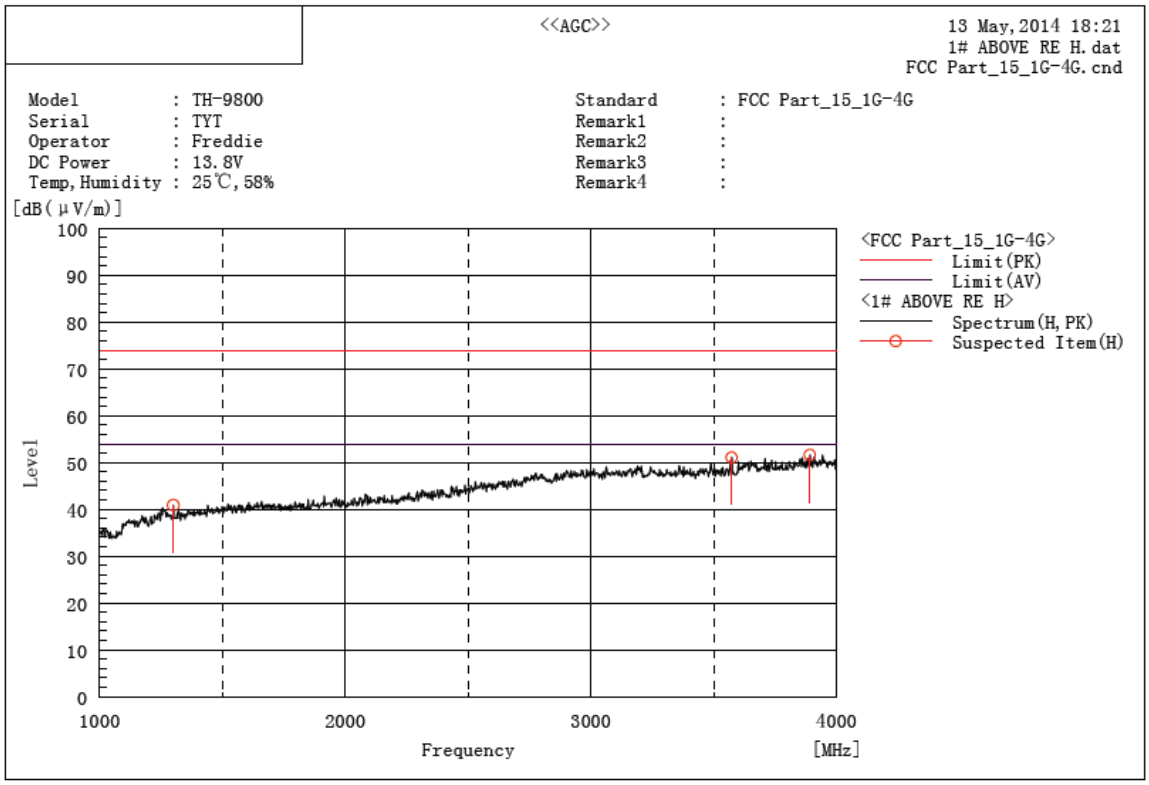
Frequency MHz	Polarization	Reading dB(uV)	Factor dB (1/m)	Level dB(uV/m)	Limit dB(uV/m) PK	Margin dB PK	Pass/Fail	Height cm	Angle deg
30.000	H	11.9	15.6	27.5	40.0	12.5	Pass	100.0	12.7
64.920	H	11.5	11.1	22.6	40.0	17.4	Pass	100.0	30.9
154.160	H	4.7	15.2	19.9	43.5	23.6	Pass	100.0	16.8
385.020	H	22.0	18.4	40.4	46.0	5.6	Pass	100.0	20.9
582.900	H	5.7	22.9	28.6	46.0	17.4	Pass	100.0	22.0
800.180	H	5.4	26.2	31.6	46.0	14.4	Pass	100.0	29.8

Radiated Emission Test –Vertical -3m Below 1G



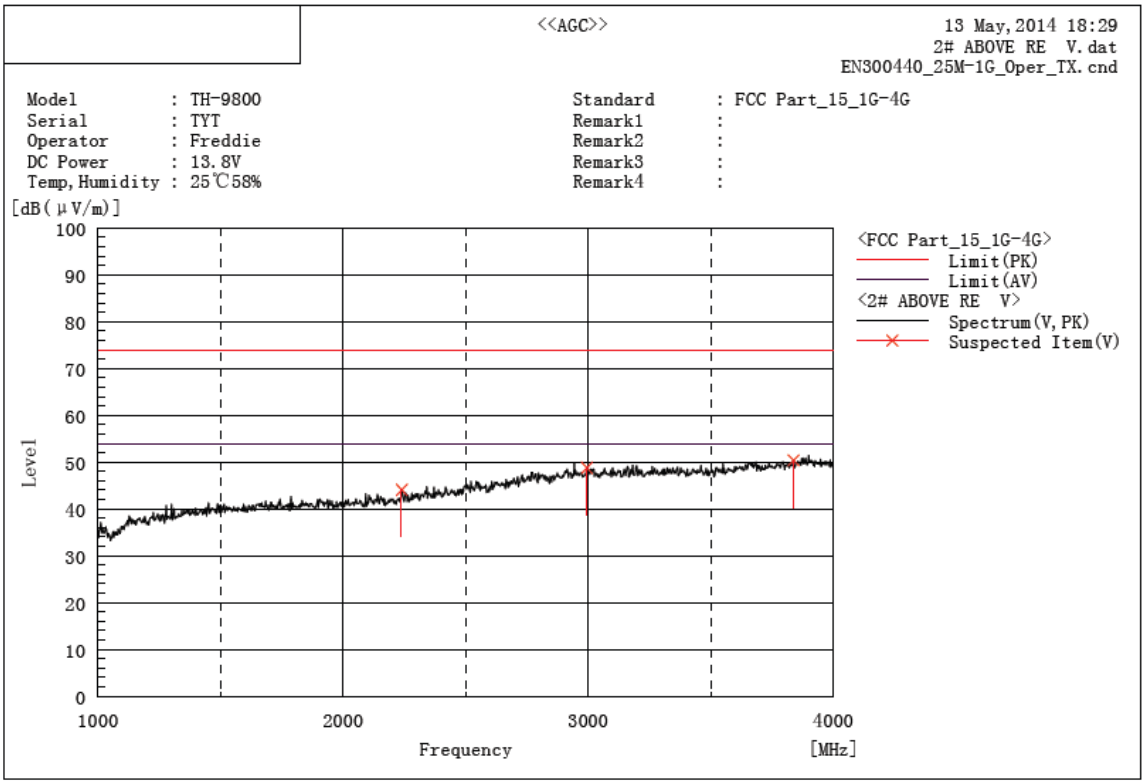
Frequency MHz	Polarization	Reading dB(uV)	Factor dB (1/m)	Level dB(uV/m)	Limit dB(uV/m) PK	Margin dB PK	Pass/Fail	Height cm	Angle deg
30.000	V	15.2	15.6	30.8	40.0	9.2	Pass	100.0	56.3
385.020	V	20.8	18.4	39.2	46.0	6.8	Pass	100.0	12.9
39.700	V	9.9	20.2	30.1	40.0	9.9	Pass	100.0	30.1
771.080	V	9.0	25.1	34.1	46.0	11.9	Pass	100.0	12.9
140.580	V	6.2	14.9	21.1	43.5	22.4	Pass	100.0	35.5
947.620	V	6.0	28.7	34.7	46.0	11.3	Pass	100.0	37.7

Radiated Emission Test –Horizontal -3m Above 1G



Frequency MHz	Polarization	Reading dB(uV)	Factor dB (1/m)	Level dB(uV/m)	Limit dB(uV/m) PK	Margin dB PK	Pass/Fail	Height cm	Angle deg
1300.000	H	46.3	-5.4	40.9	74.0	33.1	Pass	200.0	307.1
3574.000	H	46.7	4.4	51.1	74.0	22.9	Pass	100.0	3.7
3892.000	H	45.6	6.0	51.6	74.0	22.4	Pass	200.0	36.1

Radiated Emission Test –Vertical -3m Above 1G



Frequency MHz	Polarization	Reading dBm	Factor dB (1/m)	Level dBm	Limit dBm PK	Margin dB PK	Pass/Fail	Height cm	Angle deg
3838.000	V	44.7	5.7	50.4	74.0	23.6	Pass	100.0	166.0
2995.000	V	45.2	3.6	48.8	74.0	25.2	Pass	199.2	20.2
2239.000	V	45.8	-1.7	44.1	74.0	29.9	Pass	100.0	157.7

7.6 ANTENNA CONDUCTED POWER FOR RECEIVERS

LIMIT

The antnna conducted power of the receiver as defined in §15.111 shall not exceed the values given in the following tables

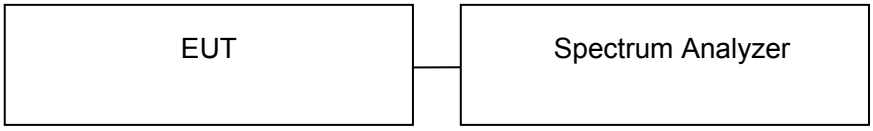
Frequency Range	9 KHz to 2GHz
Limit	2.0 nW (-57 dBm)

MEASUREMENT EQUIPMENT USED

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
EXA Signal Analyzer	Aglient	N9010A	MY53470504	03/28/2014

Remark: *Each piece of equipment is scheduled for calibration once a year.*

TEST CONFIGURATION

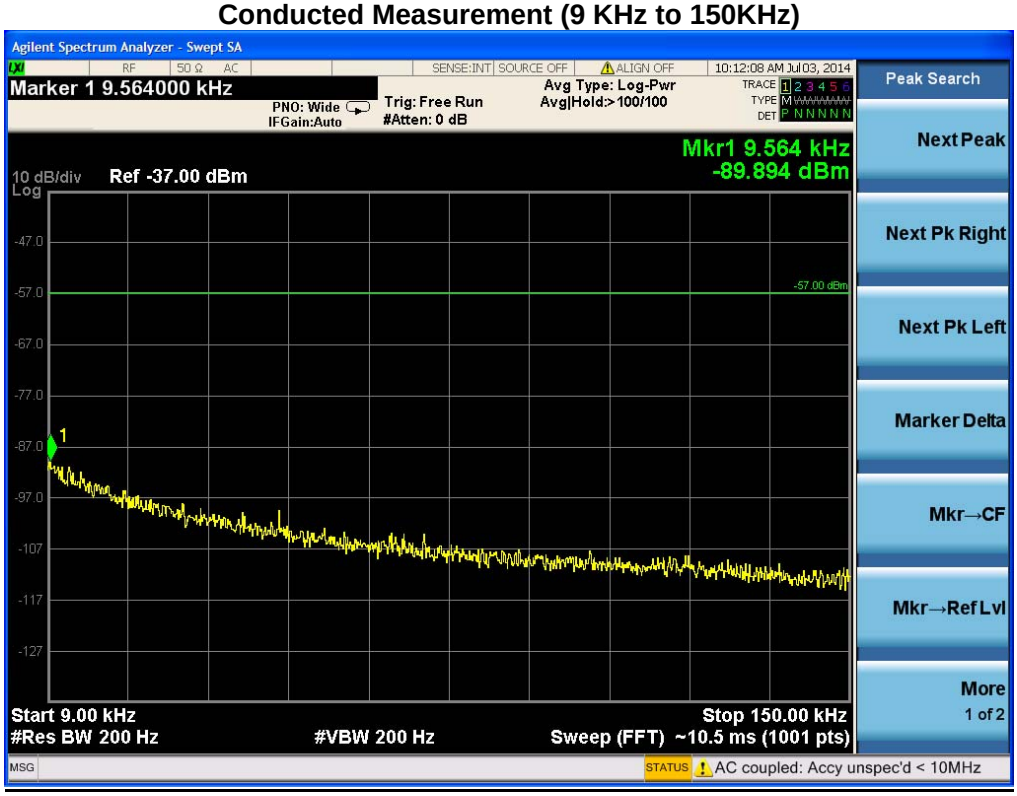


TEST PROCEDURE

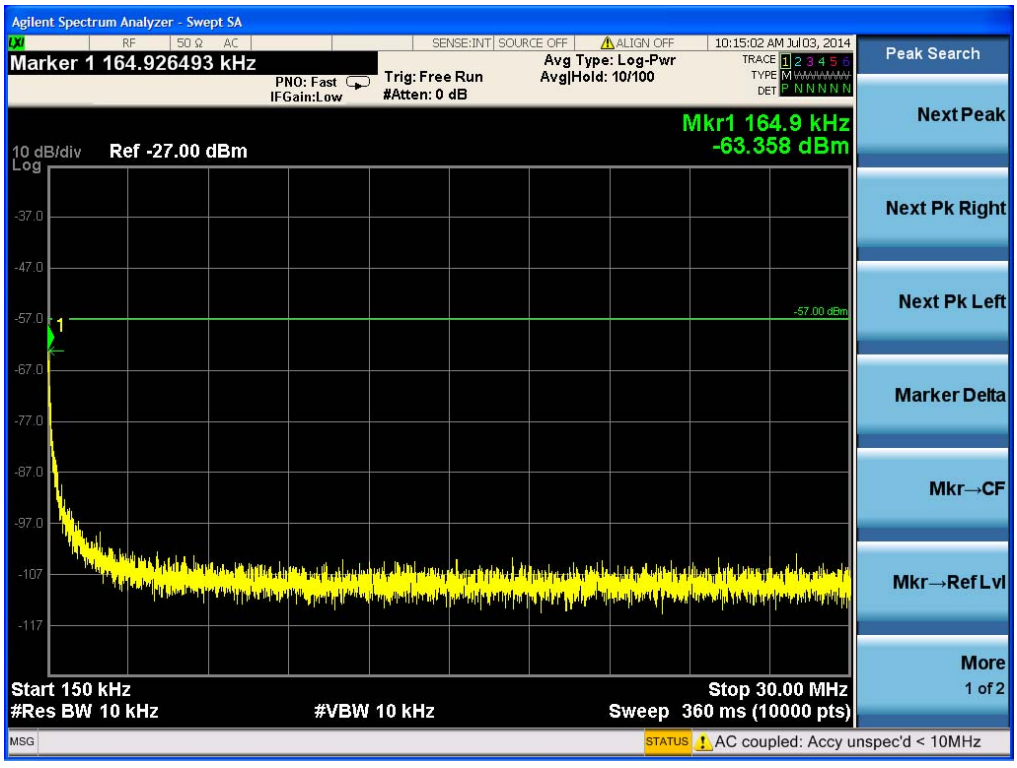
1. The receiver antenna terminal connected to to a spectrum analyzer.
2. The test data of the worst case condition(mode 1) was reported on the following Data page.

TEST RESULTS

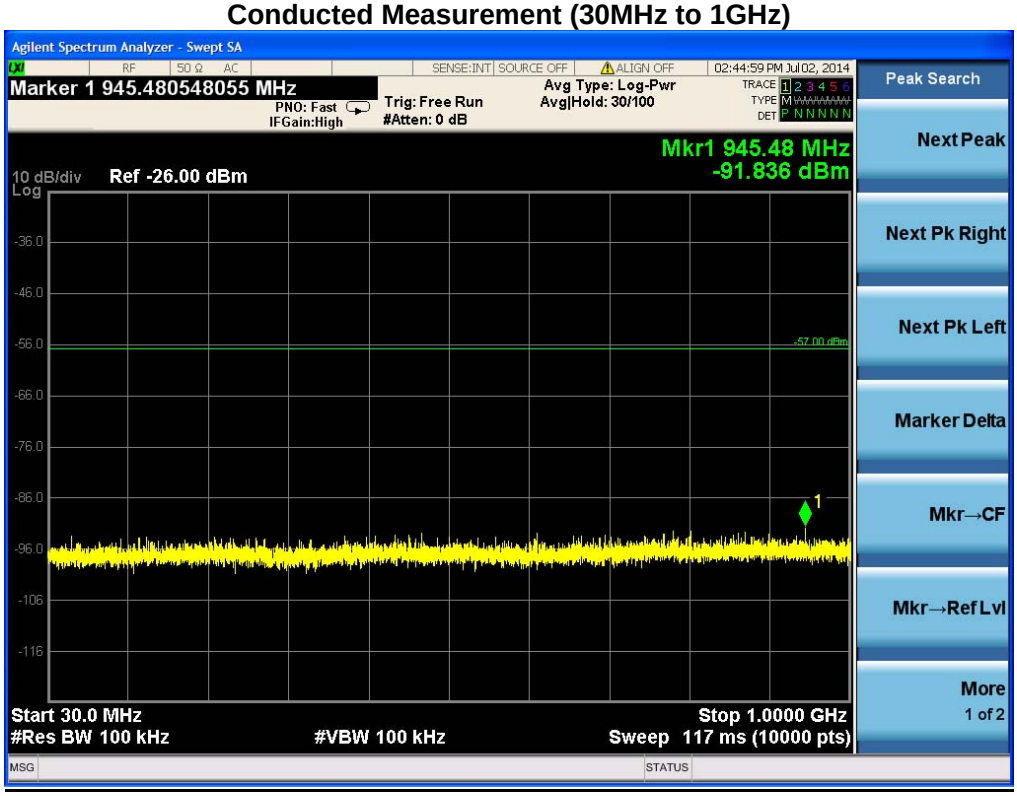
Conducted Measurement (9 KHz to 150KHz)



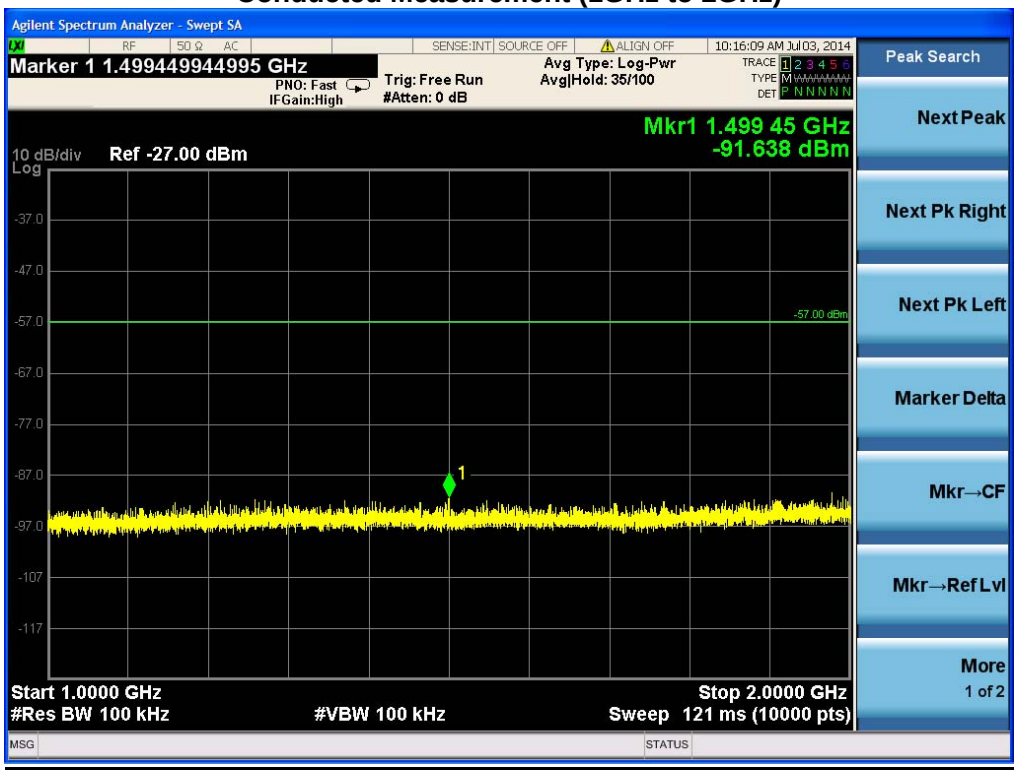
Conducted Measurement (150KHz to 30MHz)



Conducted Measurement (30MHz to 1GHz)



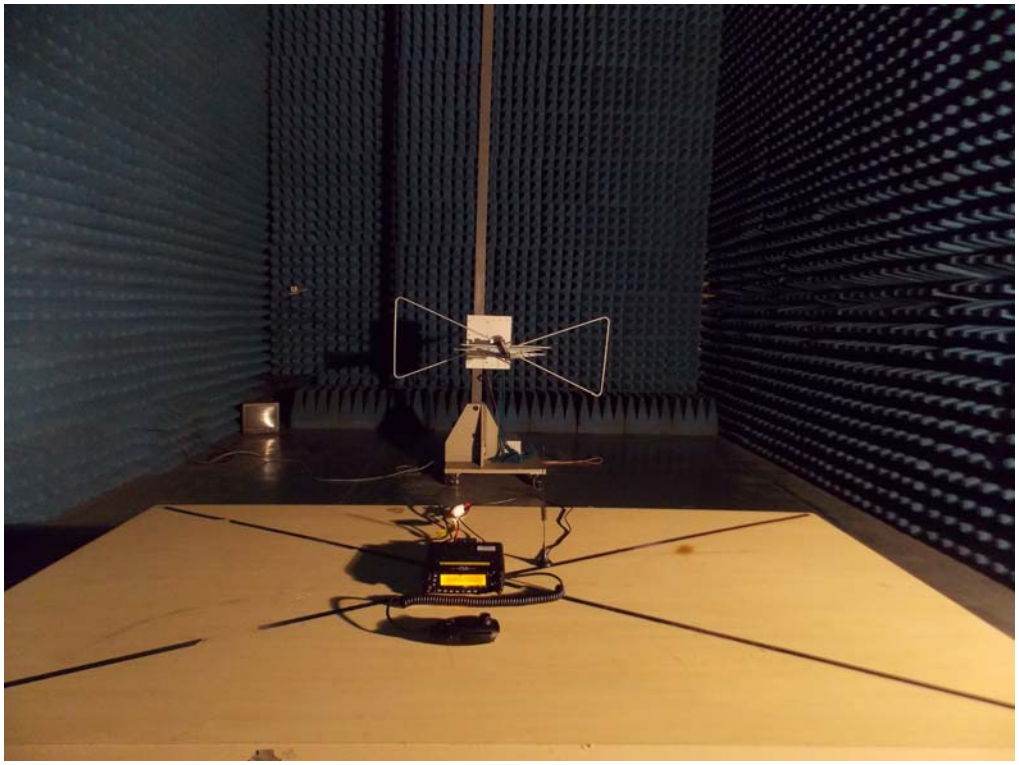
Conducted Measurement (1GHz to 2GHz)



PASS

APPENDIX 1
PHOTOGRAPHS OF TEST SETUP

FCC RADIATED EMISSION TEST SETUP



APPENDIX 2
PHOTOGRAPHS OF EUT

TOTAL VIEW OF EUT

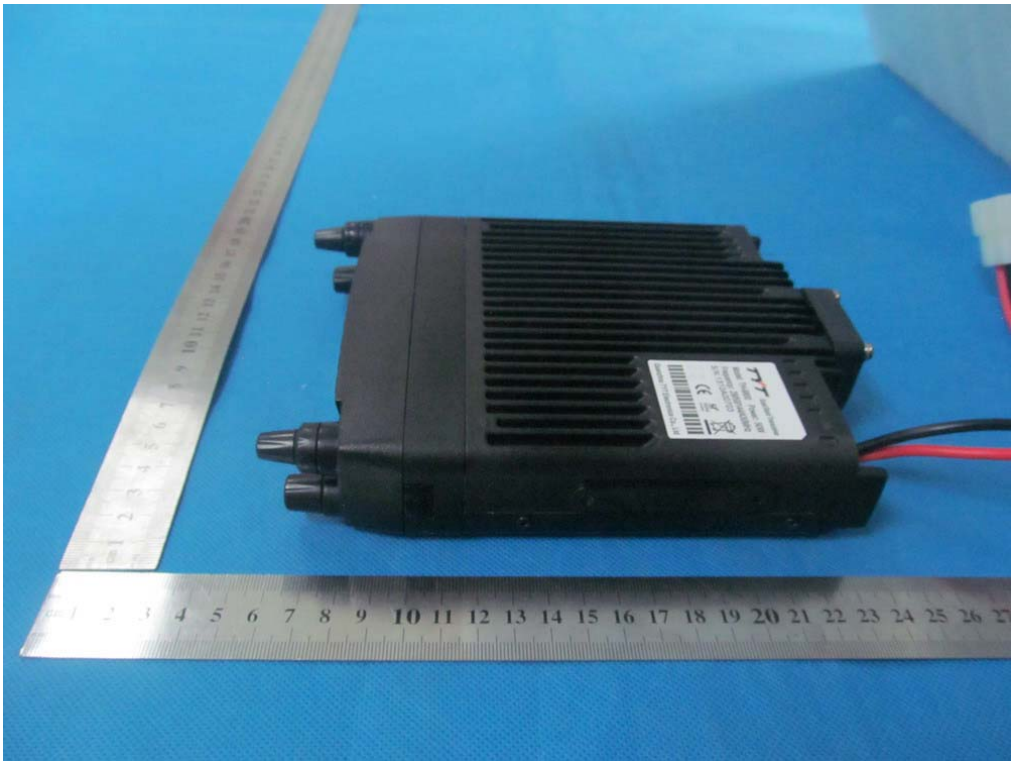
TOP VIEW OF EUT

BOTTOM VIEW OF EUT

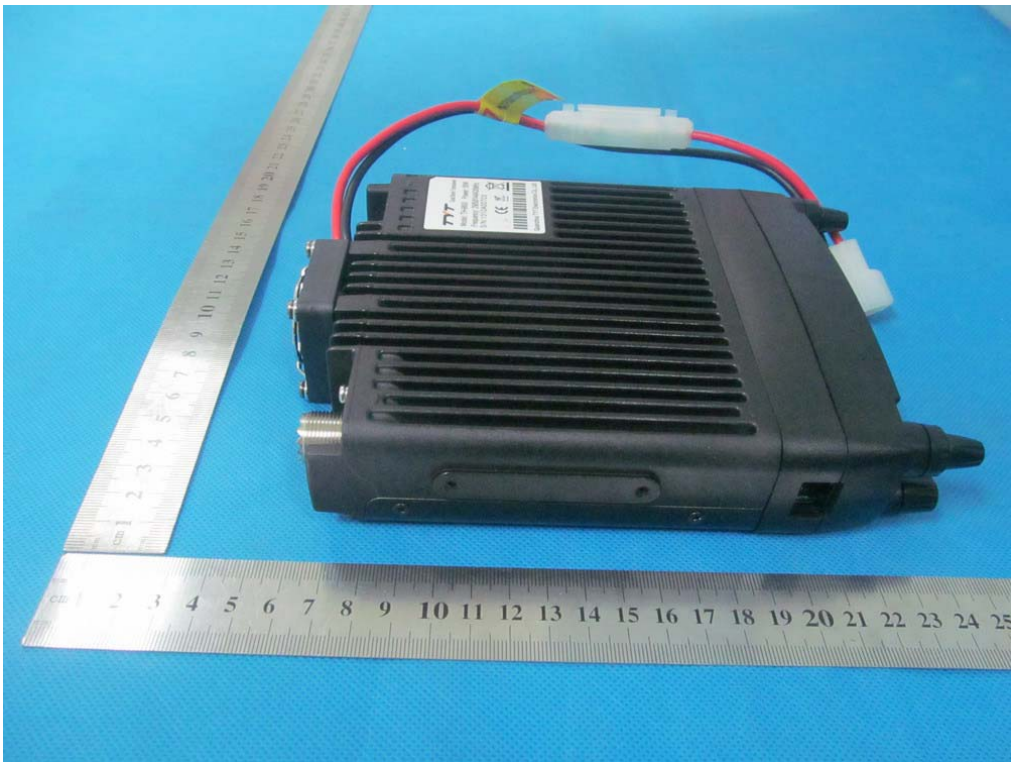
FRONT VIEW OF EUT

BACK VIEW OF EUT

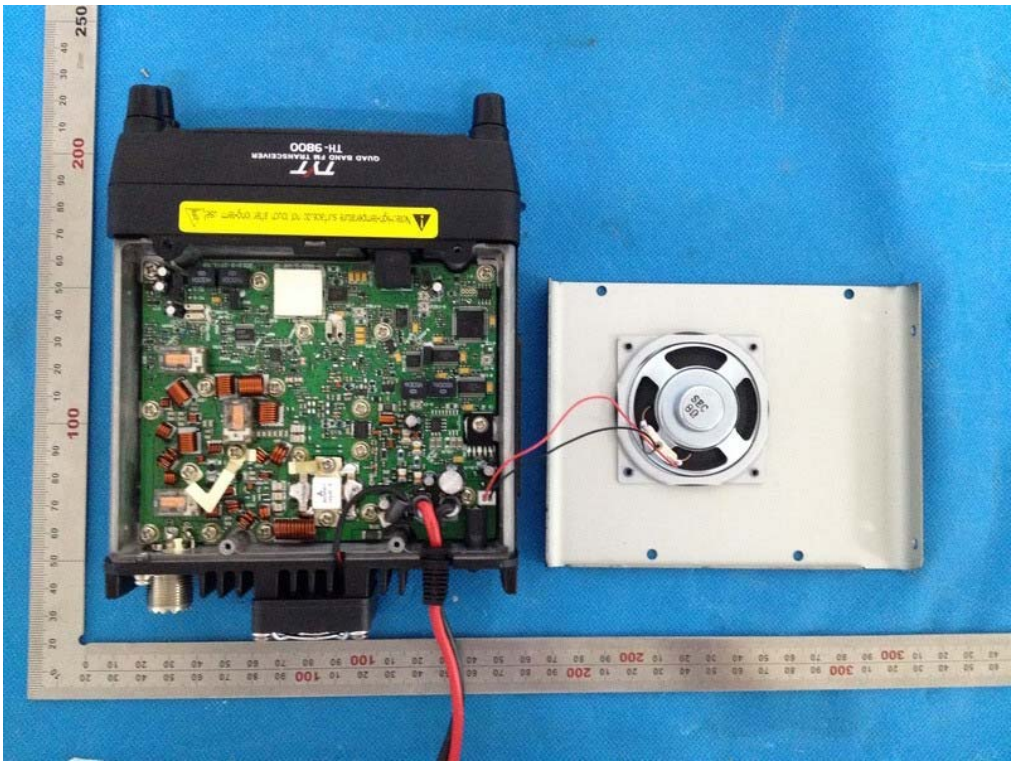
LEFT VIEW OF EUT



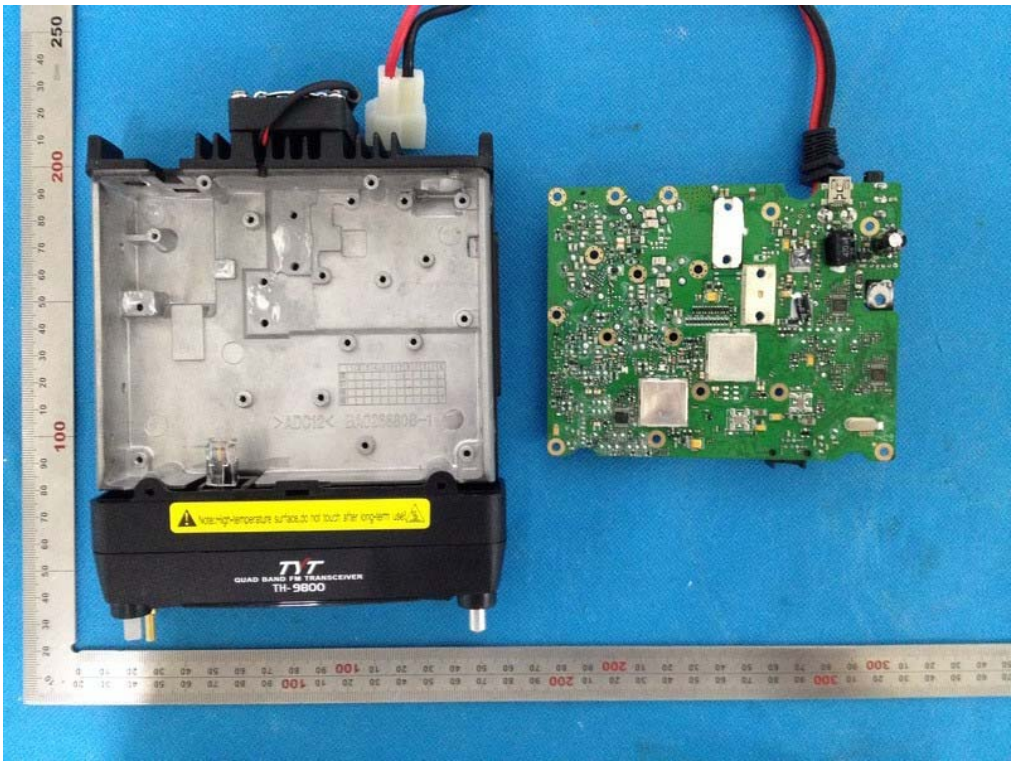
RIGHT VIEW OF EUT



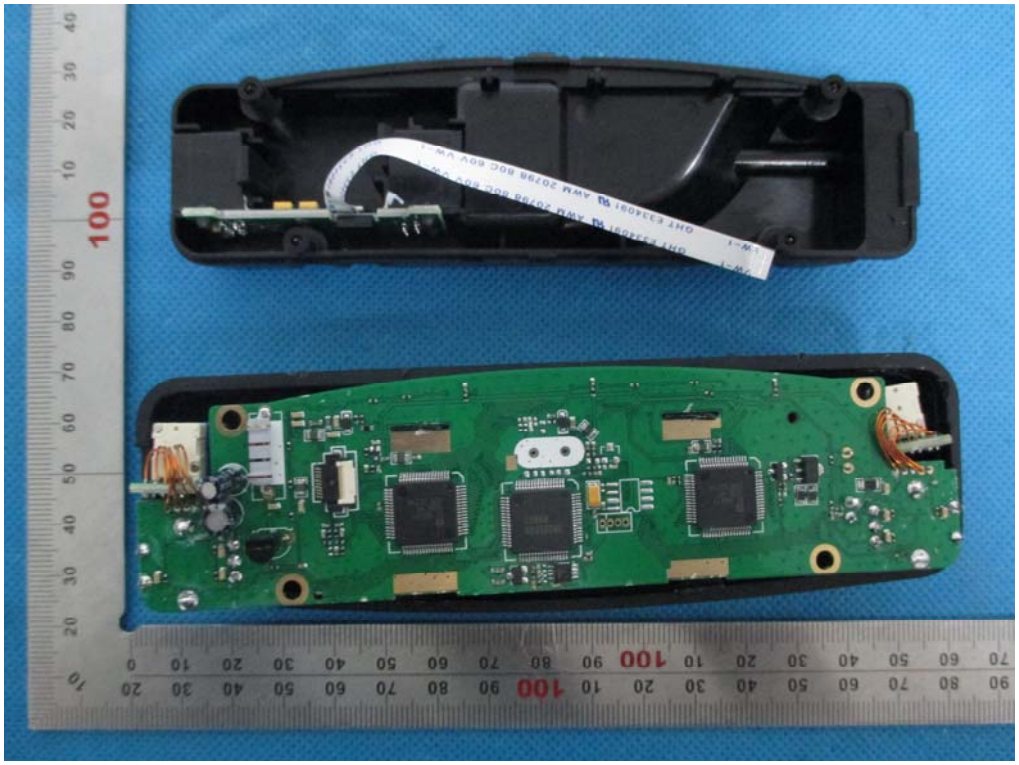
OPEN VIEW OF EUT-1



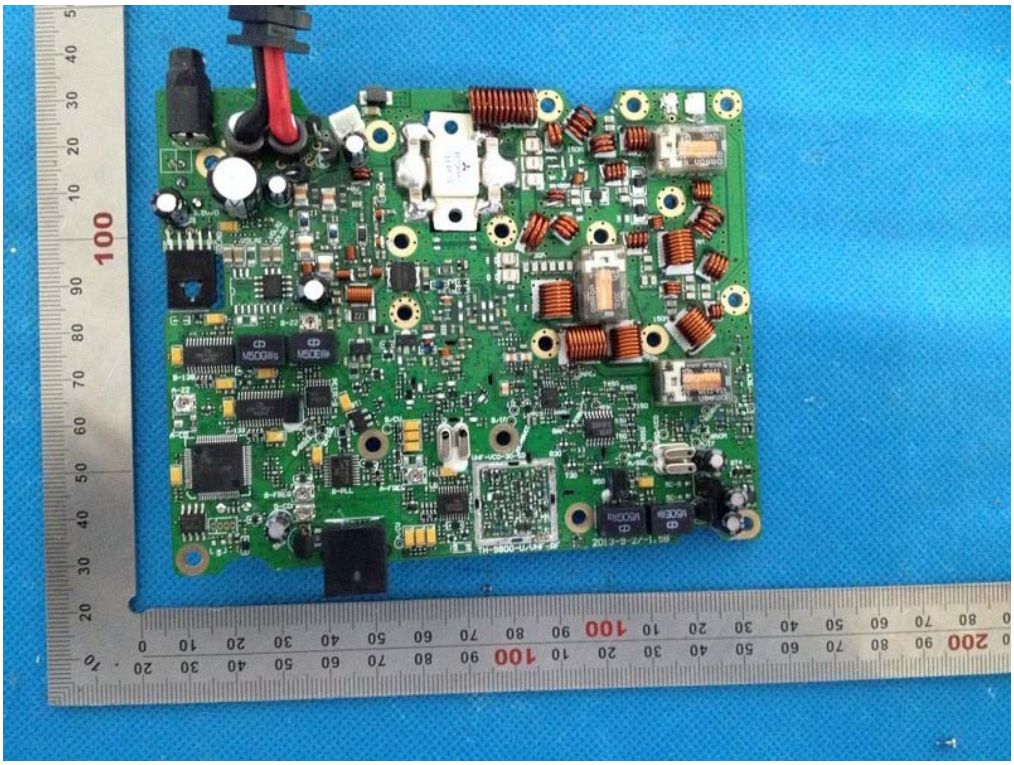
OPEN VIEW OF EUT-2



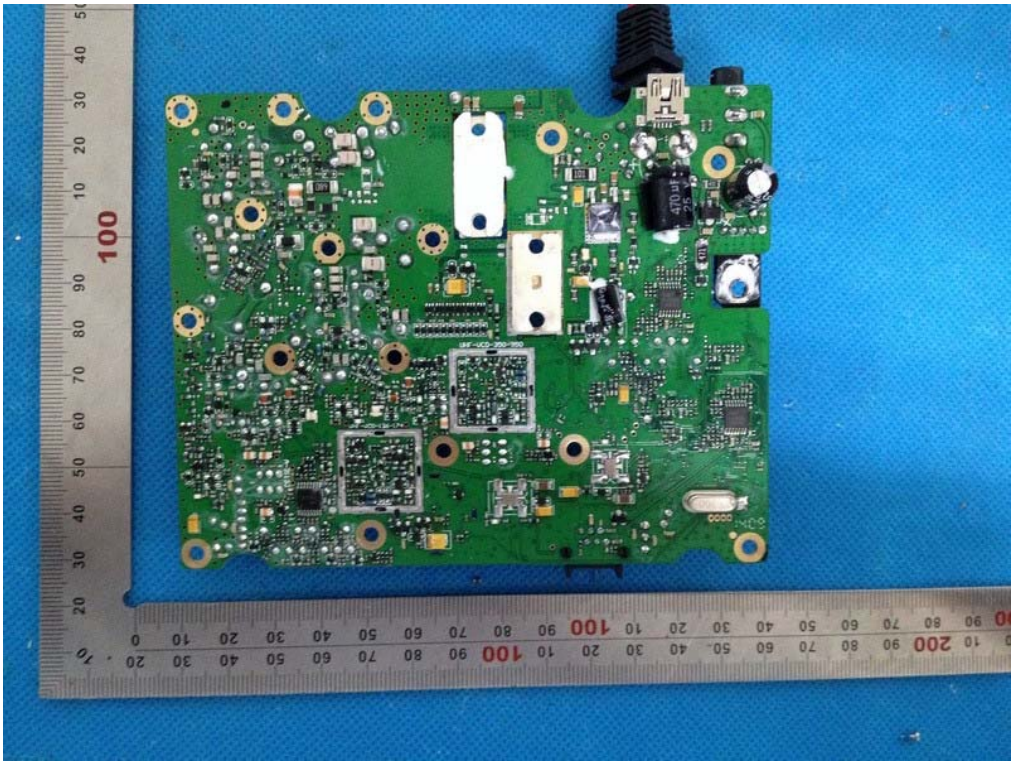
OPEN VIEW OF EUT-3



INTERNAL VIEW OF EUT-1

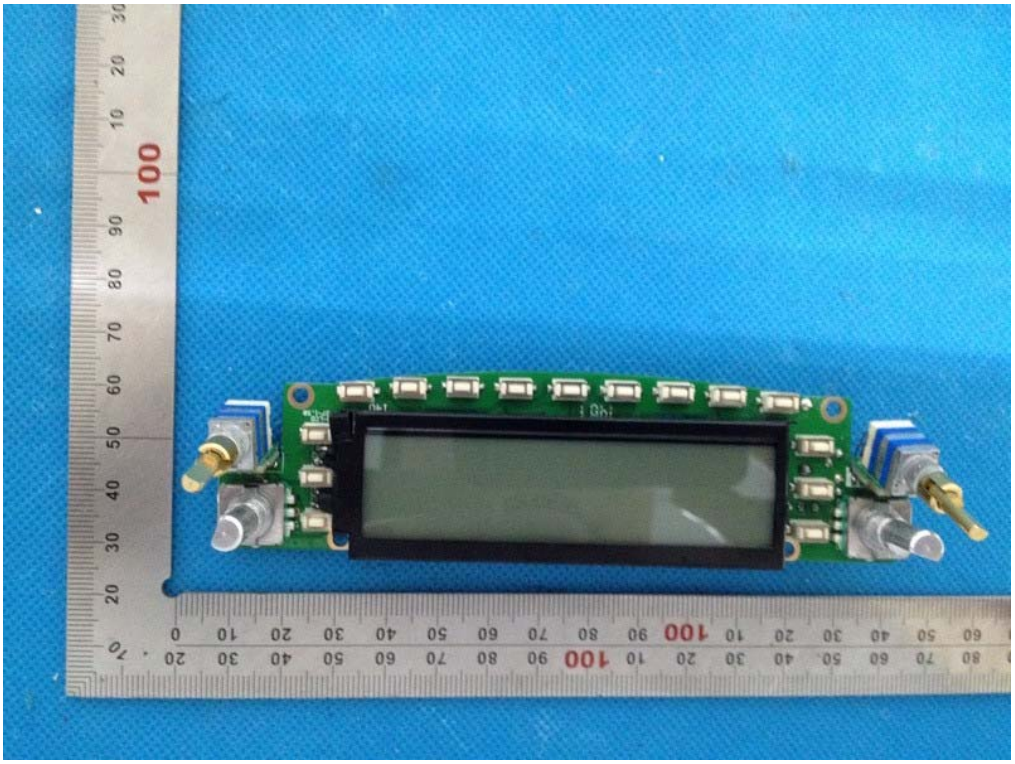


INTERNAL VIEW OF EUT-2

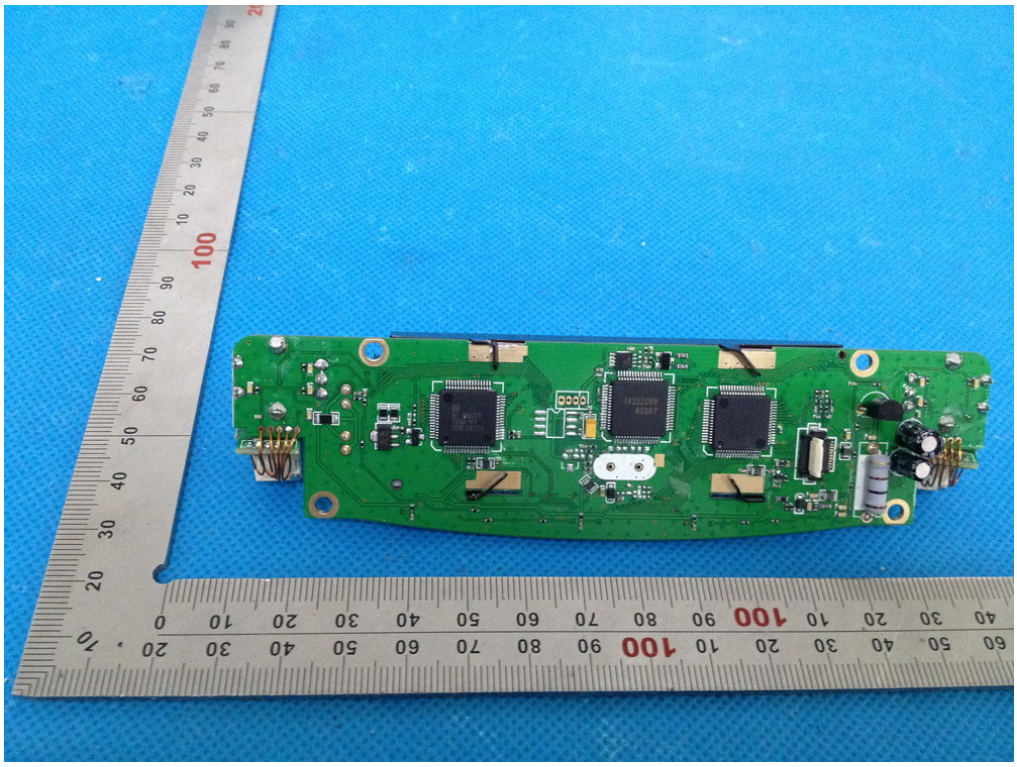


INTERNAL VIEW OF EUT-3

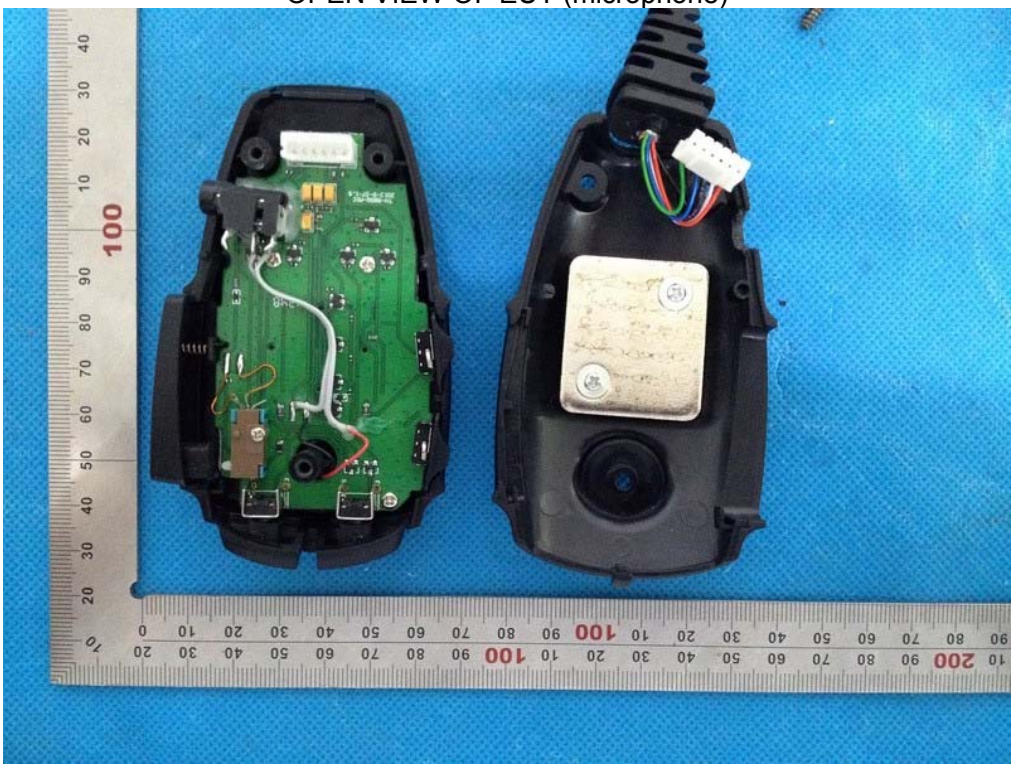
INTERNAL VIEW OF EUT-4



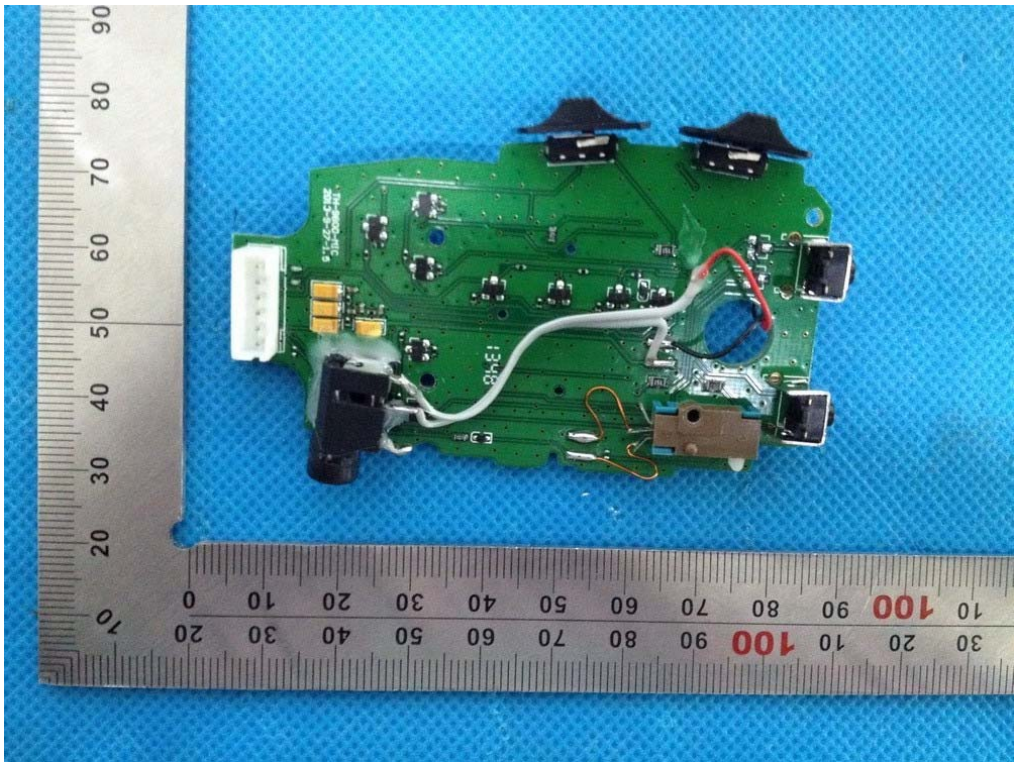
INTERNAL VIEW OF EUT-5



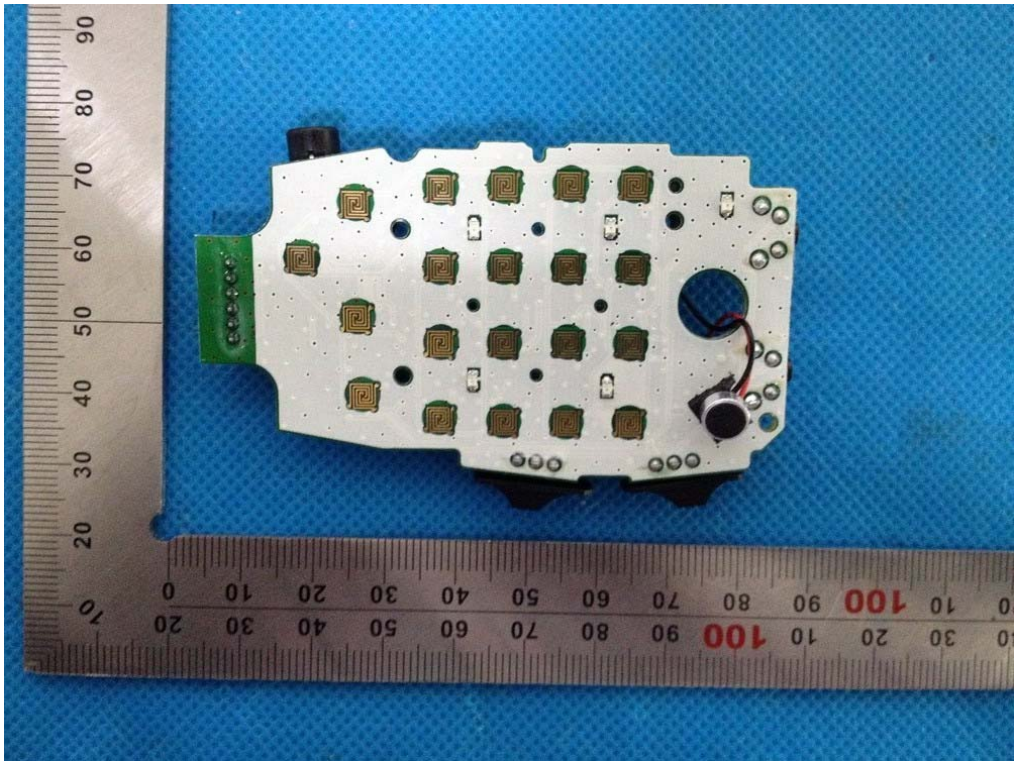
OPEN VIEW OF EUT (microphone)



INTERNAL VIEW OF EUT-1



INTERNAL VIEW OF EUT-2



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