FCC PART 15
TEST REPORT

For

Mobile Radio

Model Name: JT220M Mobile Radio

Brand Name: Jetstream

FCC ID:W48JT220M

Report No.: AGC10080812SZ02E5

Date of Issue: Mar.12, 2009

Prepared For

MH Active International Corp. Ltd.

809, HSH Mongkok Plaza, Nathan Road, Kowloon, Hong Kong

TEX: 00852-2393-1308

FAX: 00852-2393-1308

Prepared By

Shenzhen Attestation of Global Compliance Science & Technology Co., Ltd.

2F, No.2 Building, Chaxi Sanwei Industrial Zone, Gushu Community,

Xixiang Street, Bao'an, Shenzhen, China

TEL: 86-755-2974 2358

FAX: 86-755-2600 8484

TABLE OF CONTENTS

1. VERIFICATION OF COMPLIANCE

Equipment Under Test:	Mobile Radio
Model Name:	JT220M Mobile Radio
Brand Name:	Jetstream
Applicant:	MH Active International Corp. Ltd.
	809, HSH Mongkok Plaza, Nathan Road, Kowloon, Hong Kong
Manufacturer:	Qixiang Electron Science & Technology Co., Ltd.
	Qixiang Building, Tangxi Industrial Zone, Luojiang District, QuanZhou 362011, Fujian Province, China
Type of Test:	FCC Class B (Declaration)
Measurement Procedure:	ANSI C63.4: 2003
File Number:	AGC10080812SZ02E5
Date of test:	Mar.7,2009 ~Mar.11,2009
Deviation:	None
Condition of Test Sample:	Normal

The above equipment was tested by Shenzhen Attestation Of Global Compliance Science & Technology 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	Jekey Zhang	
	Jekey Zhang	Mar.12, 2009
Checked By	Tony Tian	
	Tony Tian	Mar.12, 2009
Authorized By	King Zhang	
	King Zhang	Mar.12, 2009

2. PRODUCT INFORMATION

Housing Type: Metal

Rating Voltage: DC 13.8V by battery

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	1

3. TEST FACILITY

Location:	1-2/F, Dachong Keji Building, No.28 of Tonggu Road, Nanshan District, Shenzhen, China
Description:	There is one 3m semi-anechoic chamber for final test, the Line Conducted labs are constructed and calibrated to meet the FCC requirements in documents ANSI C63.4 and CISPR 22/EN 55022 requirements.
Site Filing:	Accredited by TUV Rheinland Shenzhen, May 10, 2004 FCC register No.: 276008 and IC register No.: 7700A-1
Instrument Tolerance:	All measuring equipment is in accord with ANSI C63.4 requirements that meet industry regulatory agency and accreditation agency requirement.
Ground Plane:	Two conductive reference ground planes were used during the Line Conducted Emission, one in vertical and the other in horizontal. The dimensions of these ground planes are as below. The vertical ground plane was placed distancing 40 cm to the rear of the wooden test table on where the EUT and the support equipment were placed during test. The horizontal ground plane projected 50 cm beyond the footprint of the EUT system and distanced 80 cm to the wooden test table. For radiated emission test, one horizontal conductive ground plane extended at least 1m beyond the periphery of the EUT and the largest measuring antenna, and covered the entire area between the EUT and the antenna. It has no holes or gaps having longitudinal dimensions larger than one-tenth of a wavelength at the highest frequency of measurement up to 1GHz.

4. SUPPORT EQUIPMENT LIST

Device Type	Manufacturer	Model Name	Serial No.	Data Cable	Power Cable
--	--	--	--	--	--

**Note: All the above equipment/cables were placed in worse case positions to maximize emission signals during emission test.

Grounding: Grounding was in accordance with the manufacturer's requirements and conditions for the intended use.

5. SYSTEM DESCRIPTION

EUT test procedure:

1. Connect EUT and peripheral devices (if need).
2. Power on the EUT, the EUT begins to work.
3. Make sure the EUT operates normally during the test.

6. FCC LINE CONDUCTED EMISSION TEST

6.1. TEST EQUIPMENT OF LINE CONDUCTED EMISSION TEST

Description	Manufacturer	Model	Cal. Date	Cal. Due
EMI Test Receiver	R&S	ESCS30	04/16/2008	04/15/2009
LISN	AFJ	LS16	04/16/2008	04/15/2009

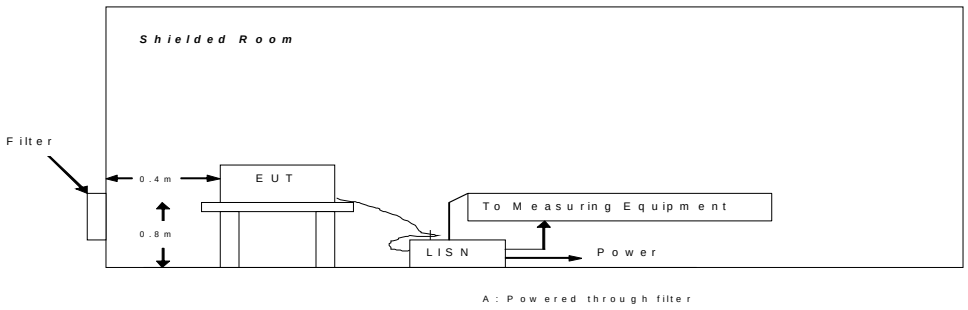
6.2 .LIMITS OF LINE CONDUCTED EMISSION TEST

Frequency	Maximum RF Line Voltage	
	Q.P.(dBuV)	Average(dBuV)
150kHz~500kHz	66-56	56-46
500kHz~5MHz	56	46
5MHz~30MHz	60	50

**Note: 1. The lower limit shall apply at the transition frequency.

2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz

6.3. BLOCK DIAGRAM OF LINE CONDUCTED EMISSION TEST



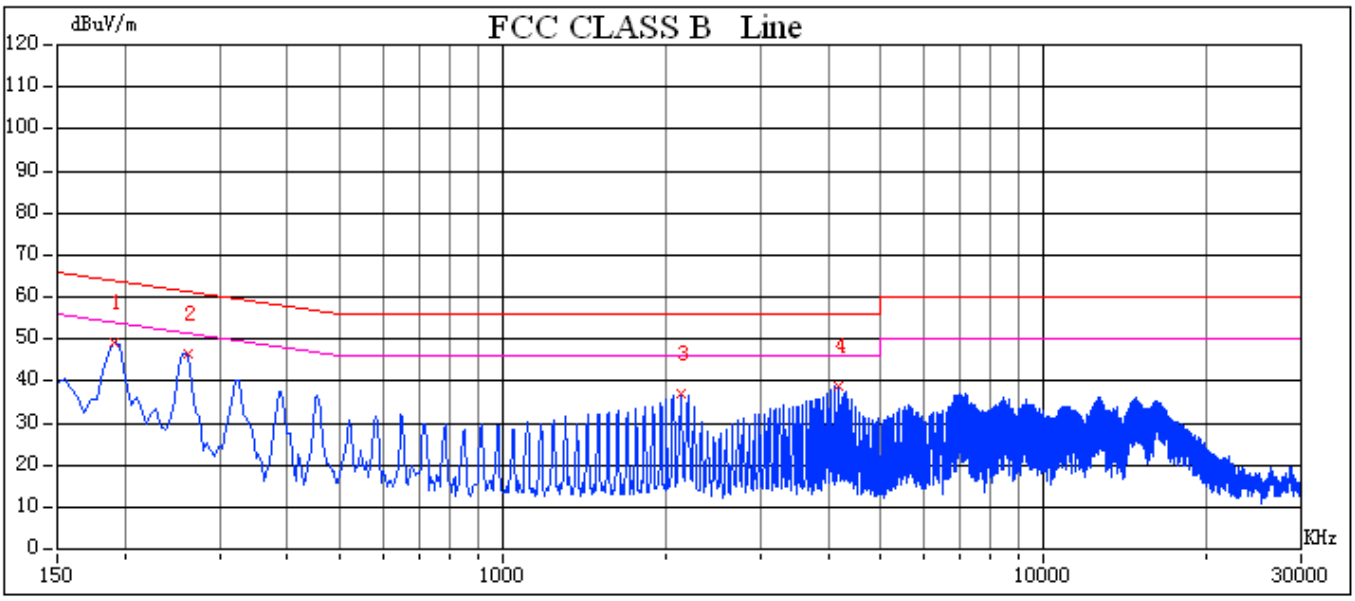
6.4. PROCEDURE OF LINE CONDUCTED EMISSION TEST

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 table with a height of 0.8 meters is used and 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 a 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 C63.4:2003.
3) All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4:2003.
4) The EUT received power through a Line Impedance Stabilization Network (LISN) that was grounded to the protect earth.
5) All support equipments received AC power from a second LISN, if any.
6) The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
7) Analyzer / Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.
8) During the above scans, the emissions were maximized by cable manipulation.
9) A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions.
10) Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. If EUT emission level was less –2dB to the A.V. limit in Peak mode, then the emission signal was re-checked using Q.P and Average detector.
11) The test data of the worst case condition(s) was reported on the Summary Data page.

6.5 TEST RESULT OF LINE CONDUCTED EMISSION TEST

Conducted Emission Test Result for Line Line

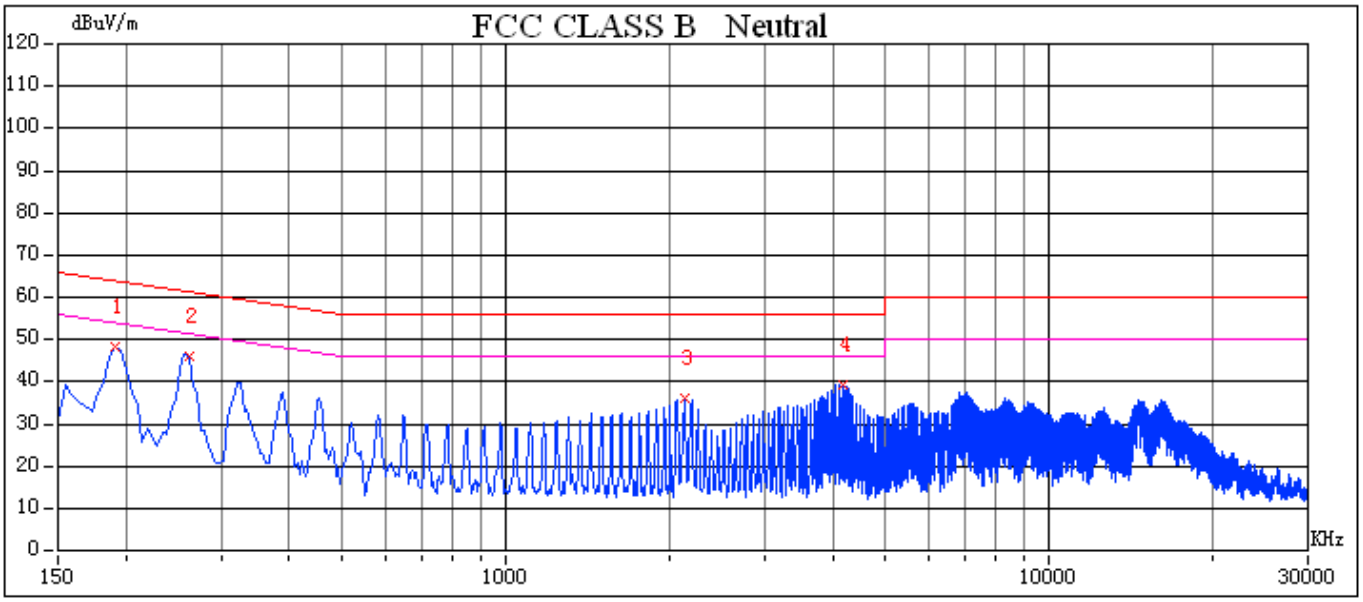
Index:



	Freq(KHz)	Peak Amptd(dBuV)	QP Amptd(dBuV)	Avg Amptd(dBuV)	QP Limit(dBuV)	Avg Limit(dBuV)	Margin(dB)	Factor(dB)
1	195.6950	49.04	47.60	41.07	64.69	54.69	-13.62	1.35
2	260.9300	46.59	45.95	39.12	62.83	52.83	-13.71	1.59
3	2145.3900	36.96	36.89	35.08	56.00	46.00	-10.92	1.21
4	4160.1500	38.69	37.64	31.15	56.00	46.00	-14.85	1.26

Conducted Emission Test Result for Neutral Line

Index:



	Freq(KHz)	Peak Amptd(dBuV)	QP Amptd(dBuV)	Avg Amptd(dBuV)	QP Limit(dBuV)	Avg Limit(dBuV)	Margin(dB)	Factor(dB)
1	195.1950	48.10	46.70	40.64	64.71	54.71	-14.07	1.68
2	261.1900	46.16	45.60	39.14	62.82	52.82	-13.68	1.81
3	2144.3200	36.09	35.79	33.63	56.00	46.00	-12.37	1.29
4	4156.7100	39.29	38.46	31.66	56.00	46.00	-14.34	1.35

7. FCC RADIATED EMISSION TEST

7.1. TEST EQUIPMENT OF RADIATED EMISSION

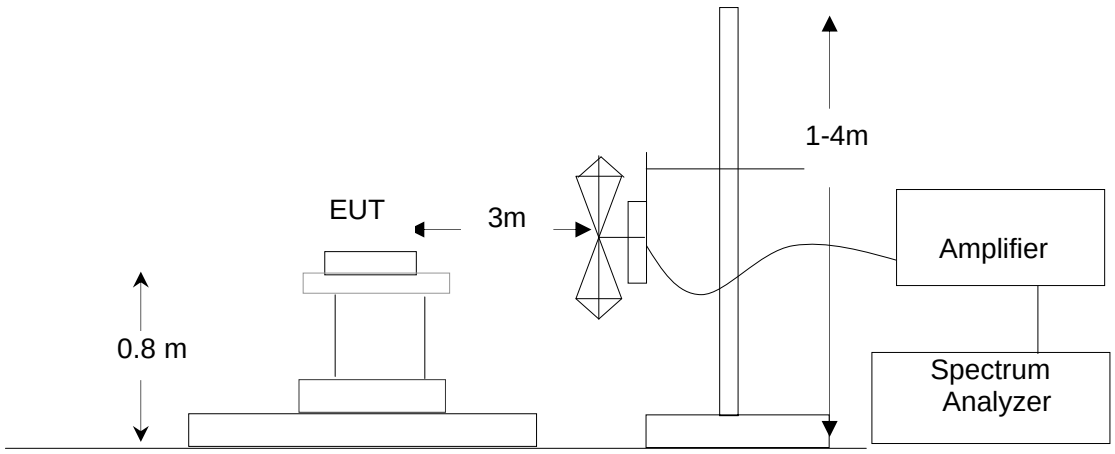
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
EMI test receiver	R&S	ESCS30	100343	04/16/2008	04/15/2009
Amplifier	H.P.	HP8447E	2945A02715	04/16/2008	04/15/2009
Antenna	Sunol Sciences Corp.	JB3	A021907	04/16/2008	04/15/2009
CABLE	TIME MICROWAVE	LMR-400	--	04/16/2008	04/15/2009

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



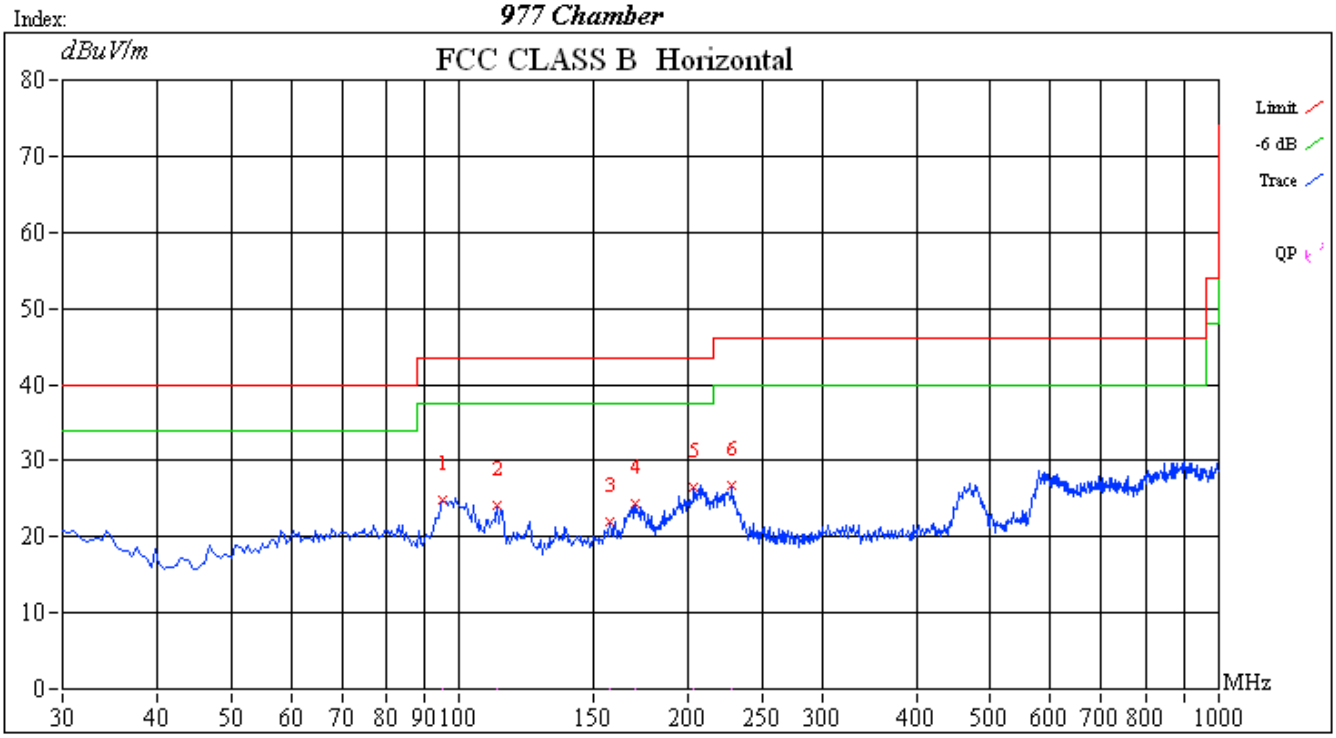
7.4 PROCEDURE OF RADIATED EMISSION TEST

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 C63.4:2003. (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 C63.4:2003.
3) All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4:2003.
4) The EUT received DC13.8V from the adapter. 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(s) was reported on the Summary Data page.

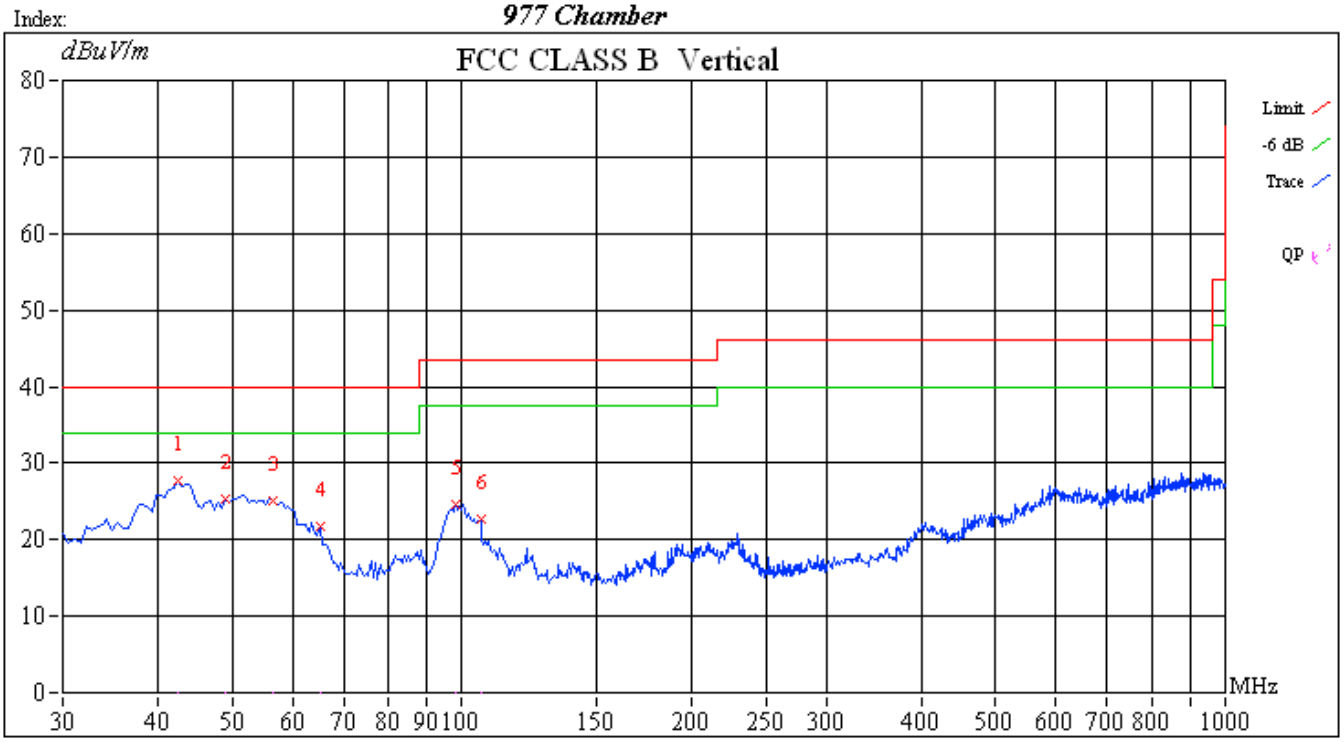
7.5 TEST RESULT OF RADIATED EMISSION TEST

The Bottom Channel Test Result-Horizontal



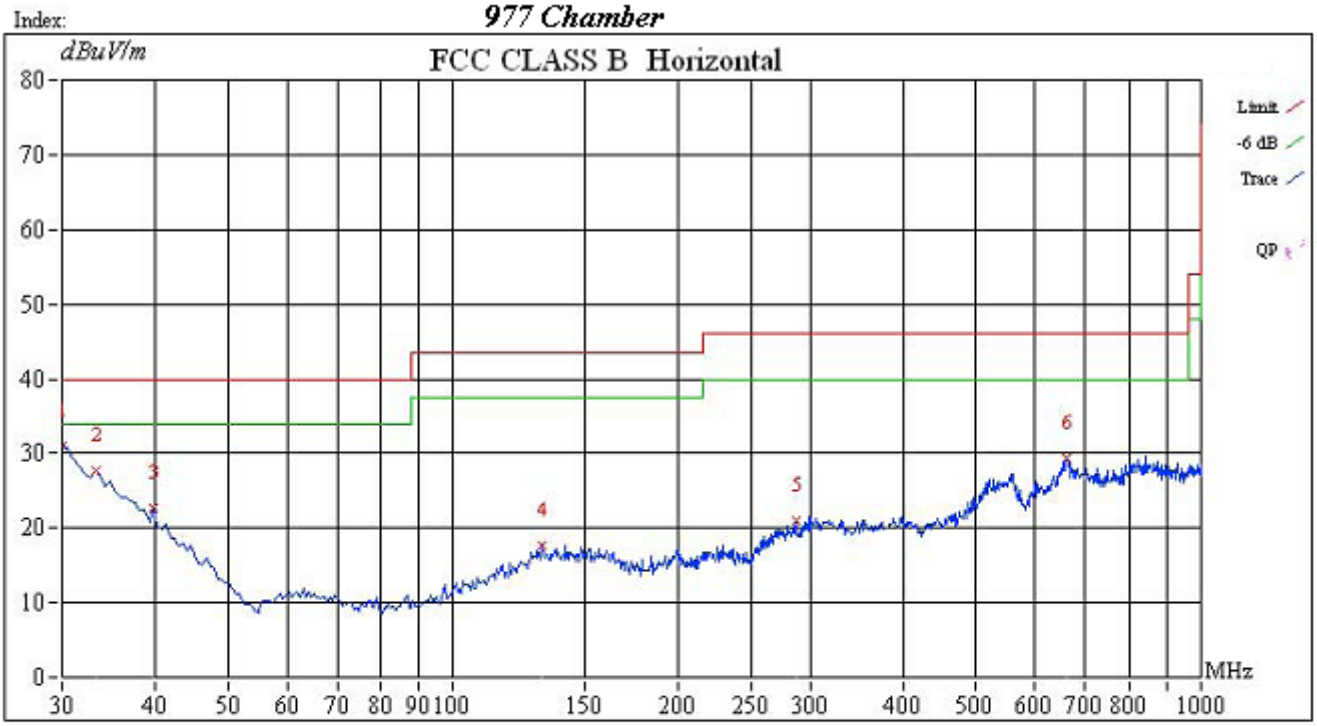
	Freq(MHz)	Pk(dBuV/m)	QP(dBuV/m)	Pk Margin(dB)	QP Margin(dB)	Limit(dBuV/m)	Read(dBuV)	C.F(dB)	Height	Deg	Remark
1	94.9299	24.87		-18.63		43.50	28.29	-3.42	100	0	
2	112.2445	24.18		-19.32		43.50	27.72	-3.54	100	0	
3	157.6954	22.09		-21.41		43.50	25.58	-3.49	100	0	
4	170.1403	24.48		-19.02		43.50	29.01	-4.53	100	0	
5	203.6874	26.47		-17.03		43.50	26.69	-0.22	100	0	
6	228.5772	26.70		-19.30		46.00	26.79	-0.09	100	0	

The Bottom Channel Test Result-Vertical



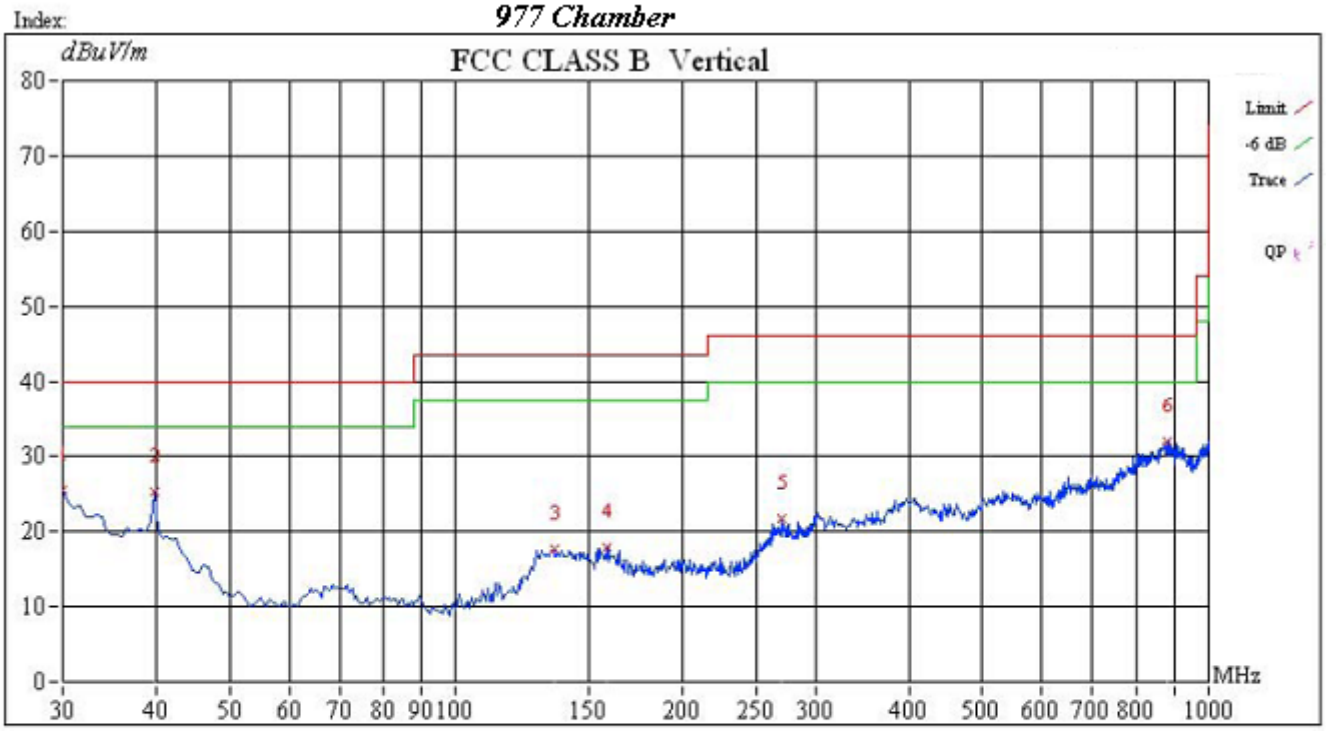
	Freq(MHz)	Pk(dBuV/m)	QP(dBuV/m)	Pk Margin(dB)	QP Margin(dB)	Limit(dBuV/m)	Read(dBuV)	C.F(dB)	Height	Deg	Remark
1	42.4449	27.65		-12.35		40.00	30.88	-3.23	100	0	
2	48.9379	25.43		-14.57		40.00	29.96	-4.53	100	0	
3	56.5130	25.14		-14.86		40.00	30.31	-5.17	100	0	
4	65.1703	21.78		-18.22		40.00	27.47	-5.69	100	0	
5	98.1764	24.51		-18.99		43.50	31.22	-6.71	100	0	
6	105.7515	22.74		-20.76		43.50	29.16	-6.42	100	0	

The Top Channel Test Result-Horizontal



	Freq(MHz)	Pk(dBuV/m)	QP(dBuV/m)	Pk Margin(dB)	QP Margin(dB)	Limit(dBuV/m)	Read(dBuV)	C.F(dB)	Height	Deg	Remark
1	30.0000	30.95		-9.05		40.00	23.27	7.68	100	0	
2	33.2465	27.77		-12.23		40.00	23.60	4.17	100	0	
3	39.7395	22.79		-17.21		40.00	24.44	-1.65	100	0	
4	131.1824	17.78		-25.72		43.50	23.72	-5.94	100	0	
5	287.0140	20.93		-25.07		46.00	23.78	-2.85	100	0	
6	660.5210	29.46		-16.54		46.00	23.67	5.79	100	0	

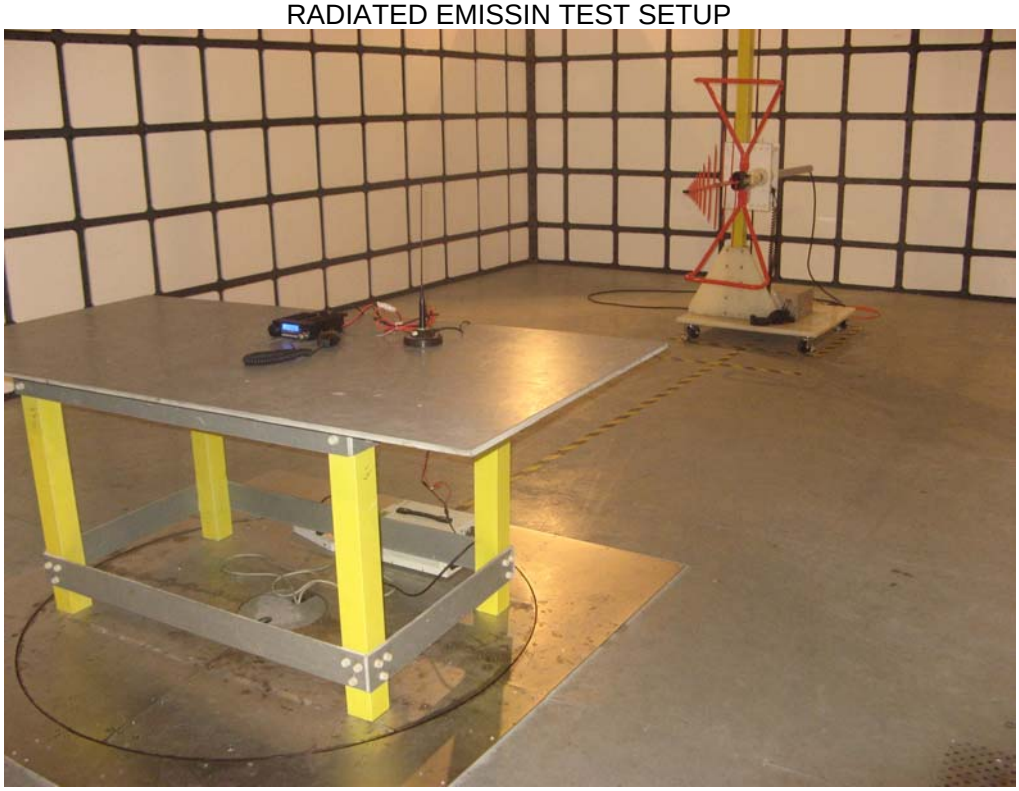
The Top Channel Test Result-Vertical



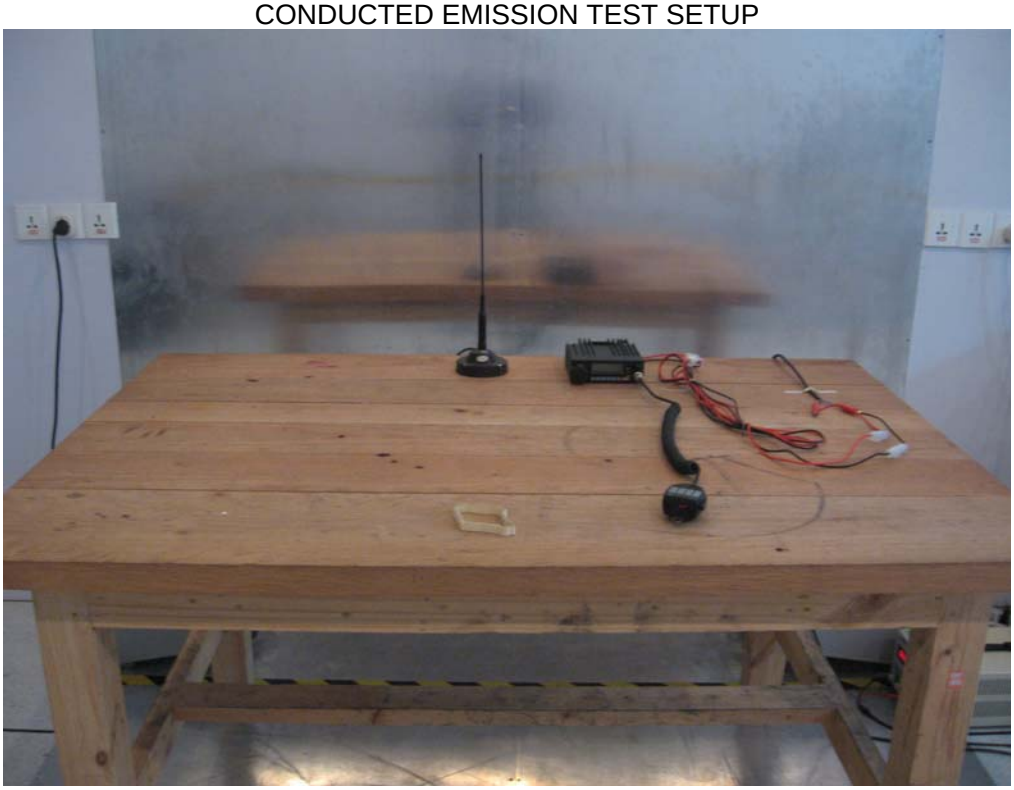
	Freq(MHz)	Pk(dBuV/m)	QP(dBuV/m)	Pk Margin(dB)	QP Margin(dB)	Limit(dBuV/m)	Read(dBuV)	C.F(dB)	Height	Deg	Remark
1	30.0000	25.45		-14.55		40.00	23.98	1.47	100	0	
2	39.7395	25.30		-14.70		40.00	27.09	-1.79	100	0	
3	134.9699	17.62		-25.88		43.50	23.11	-5.49	100	0	
4	158.2365	17.79		-25.71		43.50	23.50	-5.71	100	0	
5	270.7816	21.70		-24.30		46.00	23.87	-2.17	100	0	
6	880.7615	32.06		-13.94		46.00	24.55	7.51	100	0	

APPENDIX Ⅰ
PHOTOGRAPH OF TEST SETUP

RADIATED EMISSIN TEST SETUP



CONDUCTED EMISSION TEST SETUP



APPENDIX Ⅱ
PHOTOGRAPH OF EUT

TOP VIEW OF EUT

BOTTOM VIEW OF EUT

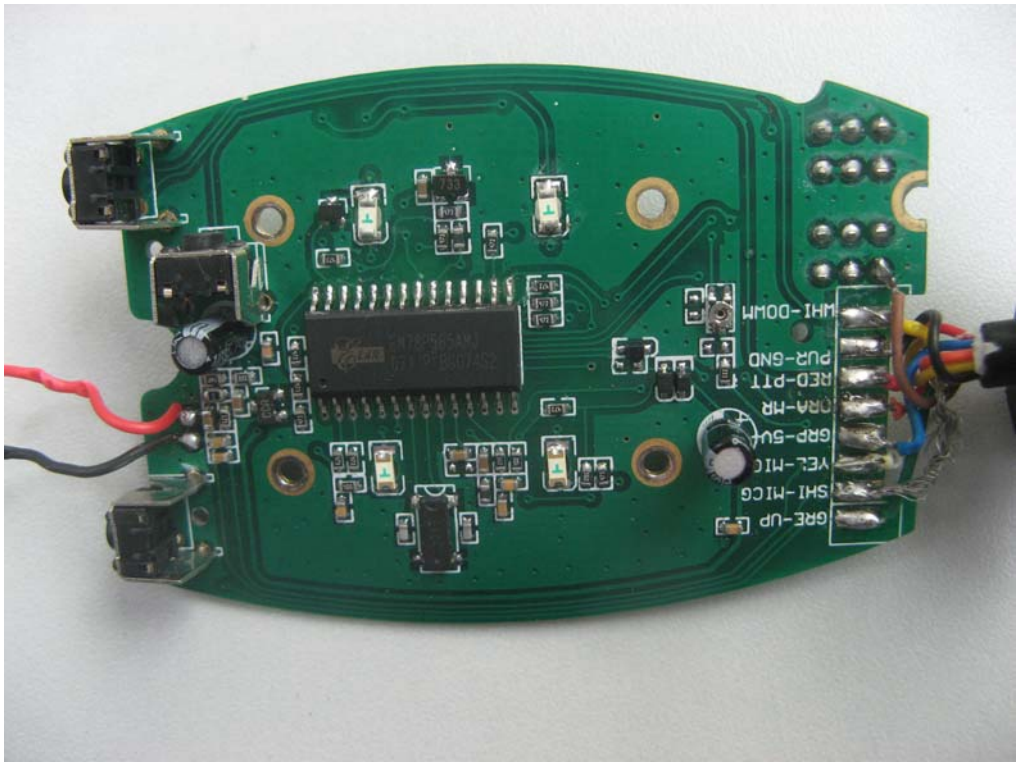
LEFT VIEW OF EUT

RIGHT VIEW OF EUT

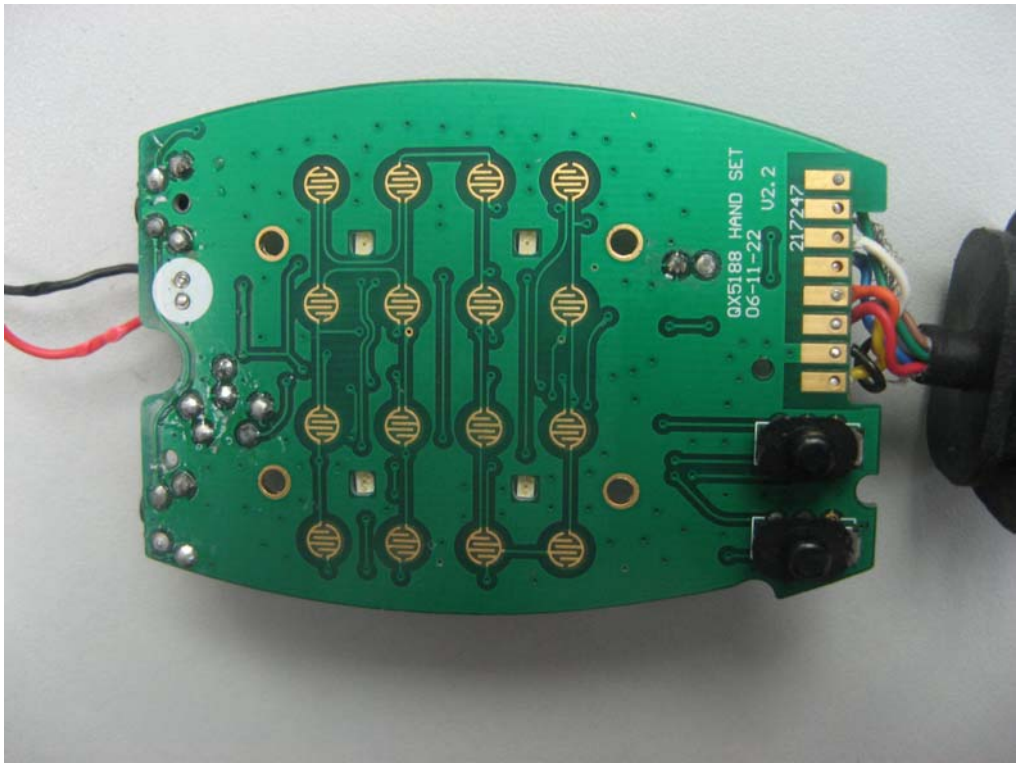
FRONT VIEW OF EUT

BACK VIEW OF EUT

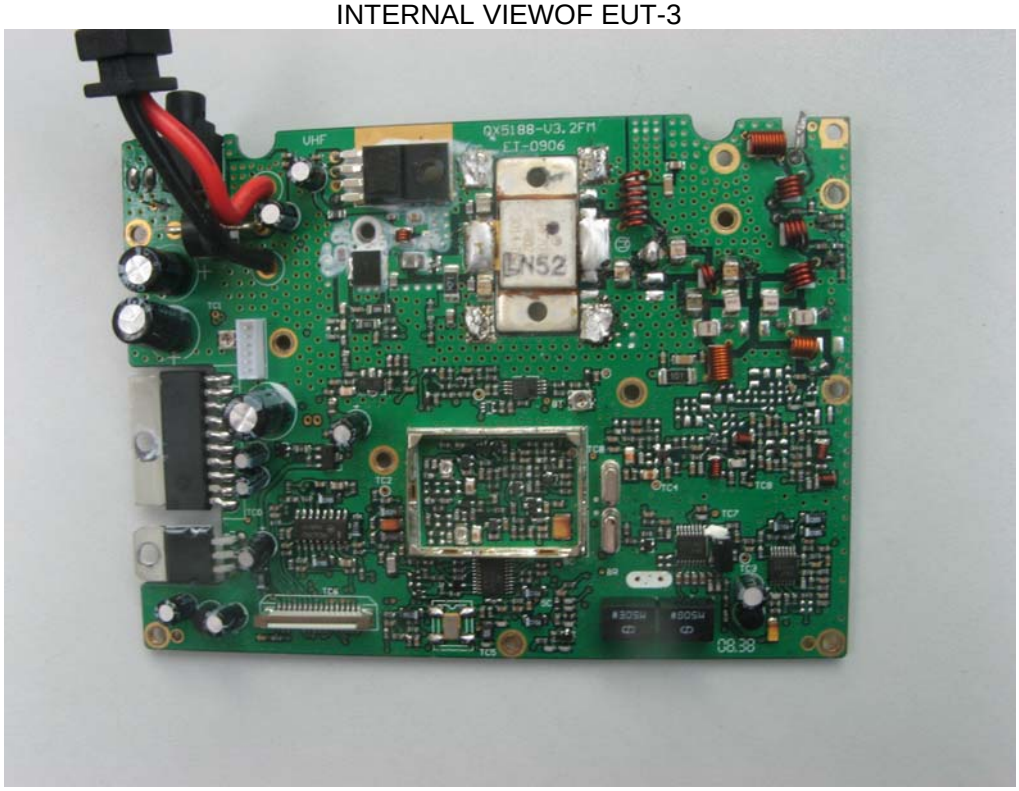
INTERNAL VIEW OF EUT – 1



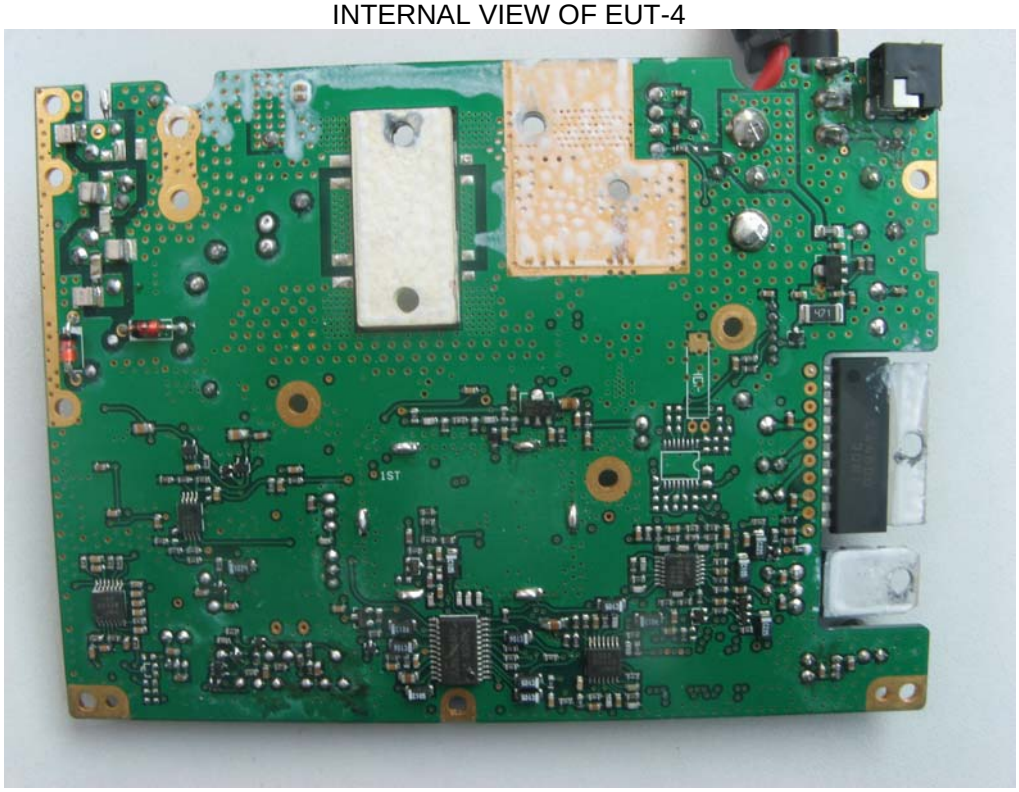
INTERNAL VIEW OF EUT – 2



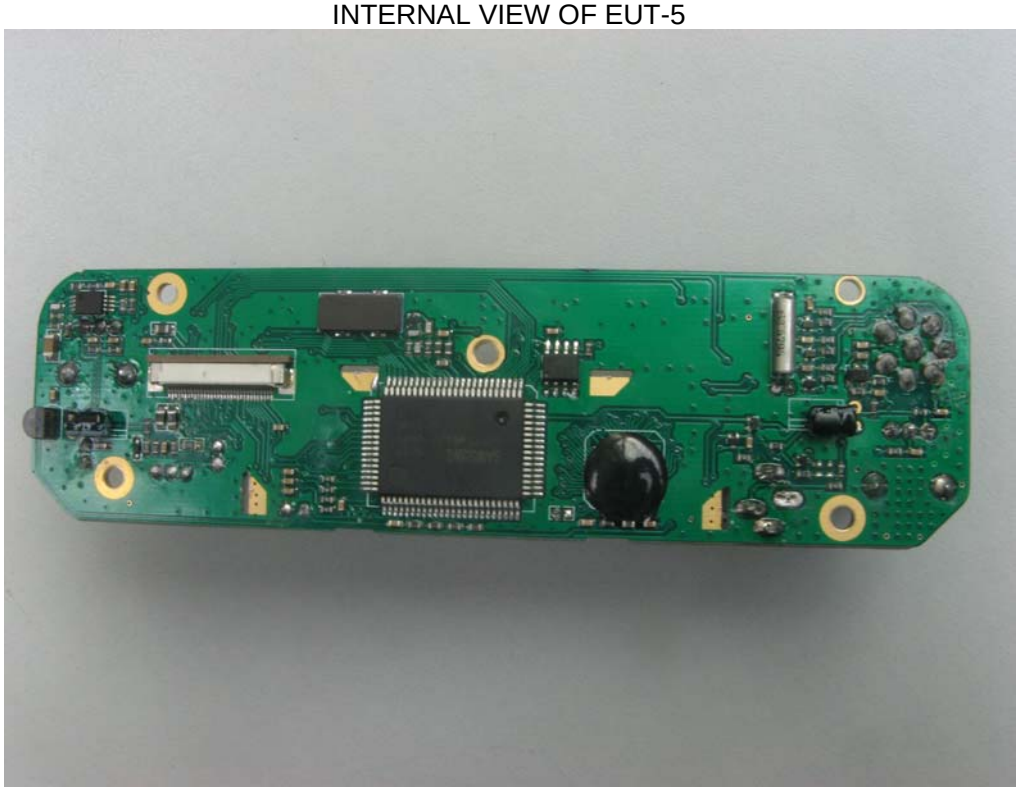
INTERNAL VIEWOF EUT-3



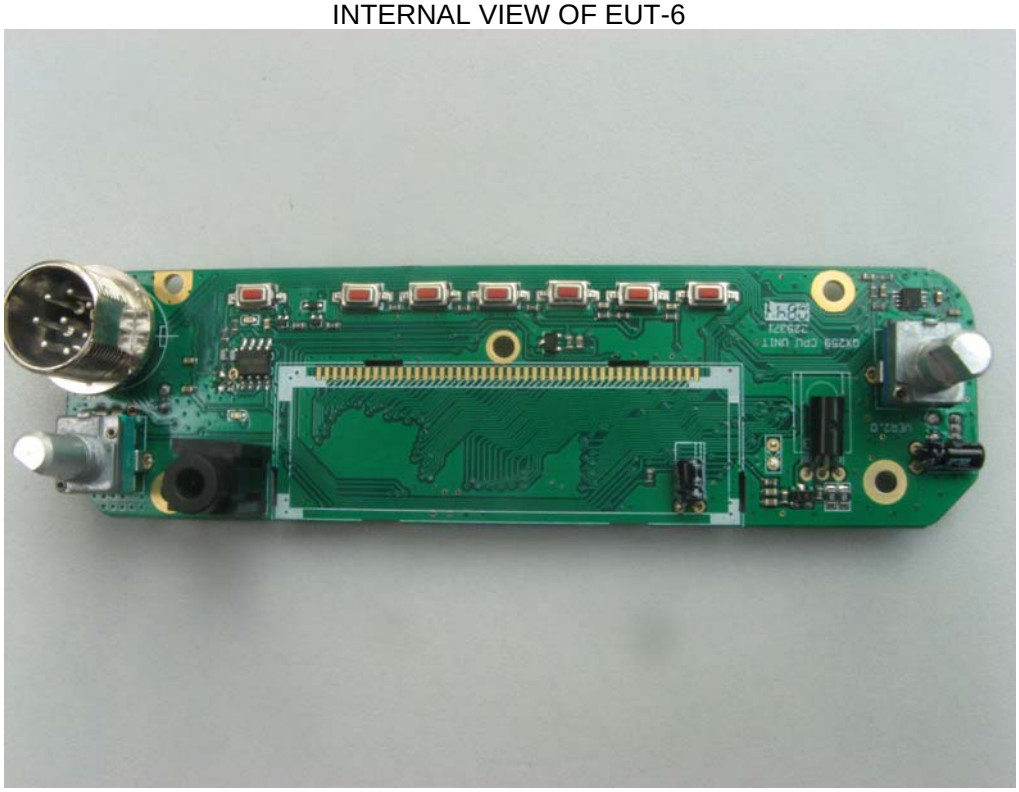
INTERNAL VIEW OF EUT-4



INTERNAL VIEW OF EUT-5



INTERNAL VIEW OF EUT-6



----END OF REPORT----