TECHNICAL REPORT

卓時檢測 TIMEWAY TESTING LABORATORY

TESTING CNAS L2292

ISO/IEC17025 Accredited Lab.

Report No: FCC 0804087
File reference No: 2008-05-05

Applicant: TML, Inc.

Product: Copucaller III SYSTEM (Main unit)

Model No: 4203

Trademark: BURNHAM BROTHERS

Test Standards: FCC Part 15 Subpart C, Paragraph 15.231

Test result: It is herewith confirmed and found to comply with the requirements set up by ANSI C63.4&FCC Part 15 Subpart C, Paragraph 15.231 regulations for the evaluation of electromagnetic compatibility

Approved By

Jack Chung

Jack Chung
Manager

Dated: May 05,2008

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 TECHNOLOGY CONSULTING CO LTD

5/F,Block 4, Anhua Industrial Zone.,No.8 TaiRan Rd.CheGongMiao,FuTian District, Shenzhen,CHINA.

Tel (755) 83448688 Fax (755) 83442996

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 meets 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 17025:1999 General Requirements) for the Competence of testing Laboratories.

FCC-Registration No.: 899988

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.:899988.

IC- Registration No.: IC5205A-01

The EMC Laboratory has been registered and fully described in a report filed with the (IC) Industry Canada. The acceptance letter from the IC is maintained in our files. Registration No.: IC 5205A-01.

TEST REPORT

Test Report Conclusion

Content

1.0 **General Details**

1.1 Test Lab Details

Name : SHENZHEN TIMEWAY TECHNOLOGY CONSULTING CO LTD

Address: 5/F,Block 4, Anhua Industrial Zone.,No.8 TaiRan Rd.CheGongMiao,FuTian District, Shenzhen,CHINA.

Telephone: (755) 83448688

Fax: (755) 83442996

Site on File with the Federal Communications Commission – United Sates

Registration Number: 899988

For 3m & 10 m OATS

Site Listed with Industry Canada of Ottawa, Canada

Registration Number: IC: 5205

For 3m & 10 m OATS

1.2 Applicant Details

Applicant: TML, Inc.

Address: 223W.Main Street, Barrington, IL 60010, USA

Telephone: (847) 382-1550

Fax: (847) 620-2201

1.3 Description of EUT

Product:	Compucaller III SYSTEM (Main unit)
Brand Name:	BURNHAM BROTHERS
Model Number:	4203
Additional Model Name	N/A
Additional Trade Name	N/A
Rating:	DC10V (Powered by rechargeable batteries)
Operation Frequency	434MHz
Antenna Designation	A screw-type connector

1.4 Submitted Sample

2 Sample

1.5 Test Duration

2008-04-27 to 2008-05-05

1.6 Test Uncertainty

Conducted Emissions Uncertainty =3.6dB

Radiated Emissions Uncertainty =4.7dB

1.7 Test Engineer

The sample tested by Terry Tang

Print Name: Terry Tang

2.0	**Test Equipments**				
Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
ESPI Test Receiver	ROHDE&SCHWARZ	ESPI 3	100379	2007-12-05	2008-12-04
Absorbing Clamp	ROHDE&SCHWARZ	MDS-21	100126	2007-12-05	2008-12-04
TWO Line-V-NETW	ROHDE&SCHWARZ	EZH3-Z5	100294	2007-12-05	2008-12-04
TWO Line-V-NETW	ROHDE&SCHWARZ	EZH3-Z5	100253	2007-12-05	2008-12-04
Ultra Broadband ANT	ROHDE&SCHWARZ	HL562	100157	2007-12-05	2008-12-04
ESDV Test Receiver	ROHDE&SCHWARZ	ESDV	100008	2007-03-30	2008-03-29
4-WIRE ISN	ROHDE&SCHWARZ	ENY 41	830663/044	2008-02-18	2009-02-17
GG ENY22 Double 2-Wire ISN	ROHDE&SCHWARZ	ENY22	83066/016	2008-02-18	2009-02-17
Impuls-Begrenzer	ROHDE&SCHWARZ	ESH3-Z2	100281	2008-02-18	2009-02-17
System Controller	CT	SC100	-	2008-02-18	2009-02-17
Printer	EPSON	PHOTO EX3	CFNH234850	2008-02-18	2009-02-17
FM-AM Signal Generator	JUNGJIN	SG-150M	389911177	2008-02-18	2009-02-17
Color TV Pattern Generator	PHILIPS	PM5418	LO621747	2008-02-18	2009-02-17

Computer	IBM	8434	1S8434KCE99BLXLO*	-	-
Oscillator	KENWOOD	AG-203D	3070002	2008-02-18	2009-02-17
Power meter	Anritsu	ML2487A	6K00003613	2008-02-18	2008-02-17
Power sensor	Anritsu	MA2491A	32263	2008-02-8	2008-02-17
Spectrum Analyzer	HAMEG	HM5012	-	-	-
Power Supply	LW	APS1502	-	-	-
5K VA AC Power Source	California Instruments	5001iX	56060	2008-02-18	2009-02-17
CDN	EM TEST	CDN M2/M3	-	2008-02-18	2009-02-17
Attenuation	EM TEST	ATT6/75	-	2008-02-18	2009-02-17
Resistance	EM TEST	R100	-	2008-02-18	2009-02-17
Electromagnetic Injection Clamp	LITTHI	EM101	35708	2008-02-18	2009-02-17
Signal Generator	ROHDE&SCHWARZ	SMT03	100029	2008-02-18	2009-02-17
Power Amplifier	AR	150W1000	300999	2008-02-18	2009-02-17
Field probe	Holaday	HI-6005	105152	2008-02-18	2009-02-17
Bilog Antenna	Chase	CBL6111C	2576	2008-02-18	2009-02-17
ESPI Test Receiver	ROHDE&SCHWARZ	ESI26	838786/013	2008-02-18	2009-02-17
3m OATS	--	--	N/A	2008-02-18	2009-02-17
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170265	2007-08-16	2008-08-15
Horn Antenna	SCHWARZBECK	BBHA 9120D	9120D-631	2007-07-03	2008-07-02

3.0 Technical Details

3.1 Summary of test results

The EUT has been tested according to the following specifications:

Standard	Test Type	Result	Notes
FCC Part 15, Paragraph 15.207	Conducted Emission Test	**PASS**	Meets Class B Limit
FCC Part 15, Paragraph 15.209	General Requirement	**PASS**	Meets Class B Limit
FCC Part 15, Paragraph 15.231 (b)	Radiated Emission Test	**PASS**	Compliant
FCC Part 15, Paragraph 15.231 (c)	20dB Bandwidth Testing	**PASS**	Compliant
FCC Part 15, Paragraph 15.231 (a) (1)	Deactivate Testing	**PASS**	Compliant

3.2 Test Standards

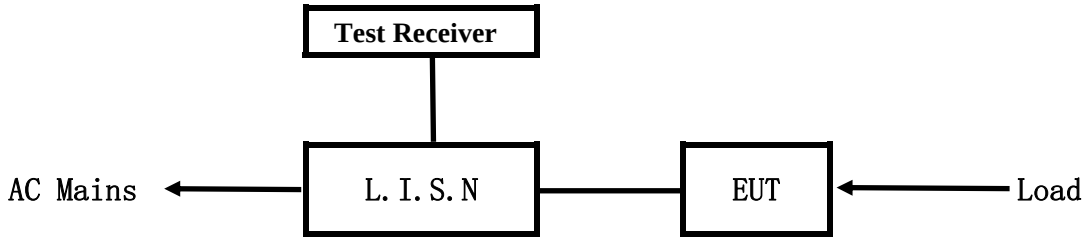
FCC Part 15 Subpart C, Paragraph 15.231

4.0 EUT Modification

No modification by Shenzhen Timeway Technology Consulting Co.,Ltd

5. Power Line Conducted Emission Test

5.1 Schematics of the test

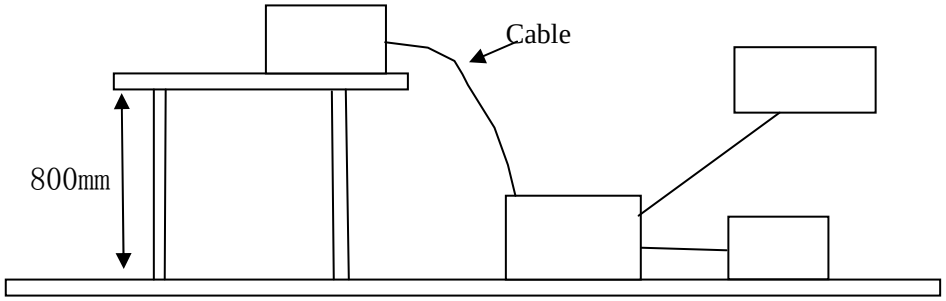


EUT: Equipment Under Test

5.2 Test Method and test Procedure

The EUT was tested according to ANSI C63.4-2003.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 –2003.

Block diagram of Test setup



5.3 Configuration of The EUT

The EUT was configured according to ANSI C63.4-2003. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

A. EUT

Device	Manufacturer	Model	FCC ID
Compucaller III SYSTEM (Main unit)	Gobiz Electronics Ltd.	4203	V9A4203

B. Internal Device

Device	Manufacturer	Model	FCC ID/DOC
N/A			

C. Peripherals

Device	Manufacturer	Model	FCC ID/DOC	Cable
N/A				

5.4 EUT Operating Condition

Operating condition is according to ANSI C63.4 -2003

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 (MHz)	Class A Limits (dB μ V)		Class B Limits (dB μ V)	
	Quasi-peak Level	Average Level	Quasi-peak Level	Average Level
0.15 ～ 0.50	79.0	66.0	66.0～56.0*	56.0～46.0*
0.50 ～ 5.00	73.0	60.0	56.0	46.0
5.00 ～ 30.00	73.0	60.0	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

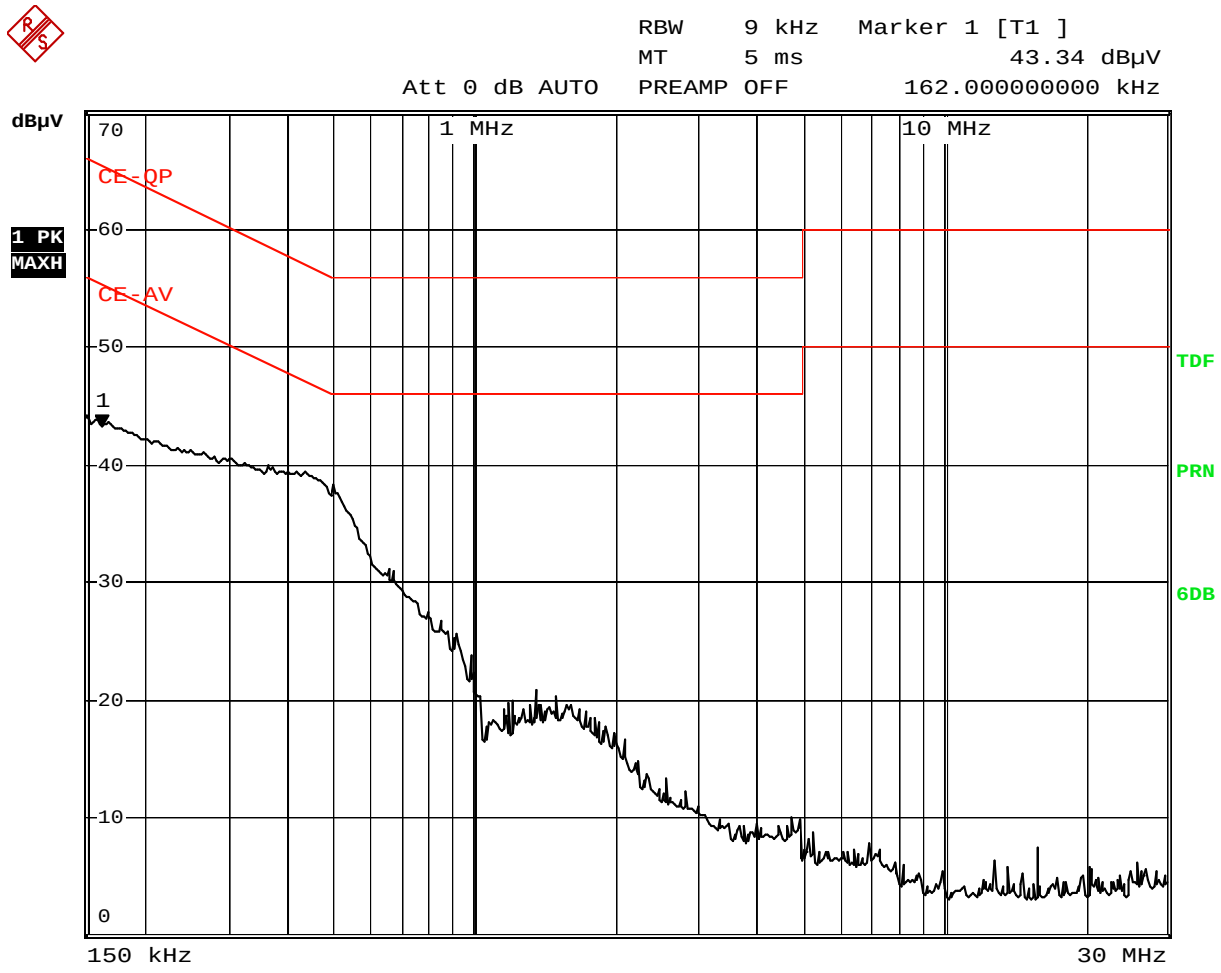
The frequency spectrum from 0.15MHz to 30MHz was investigated. All reading are quasi-peak values with a resolution bandwidth of 9kHz.

A Conducted Emission on Line Terminal of the power line (150kHz to 30MHz)

EUT set Condition: Charging

Results: **Pass**

Please refer to following diagram for individual



Date: 30.APR.2008 09:21:12

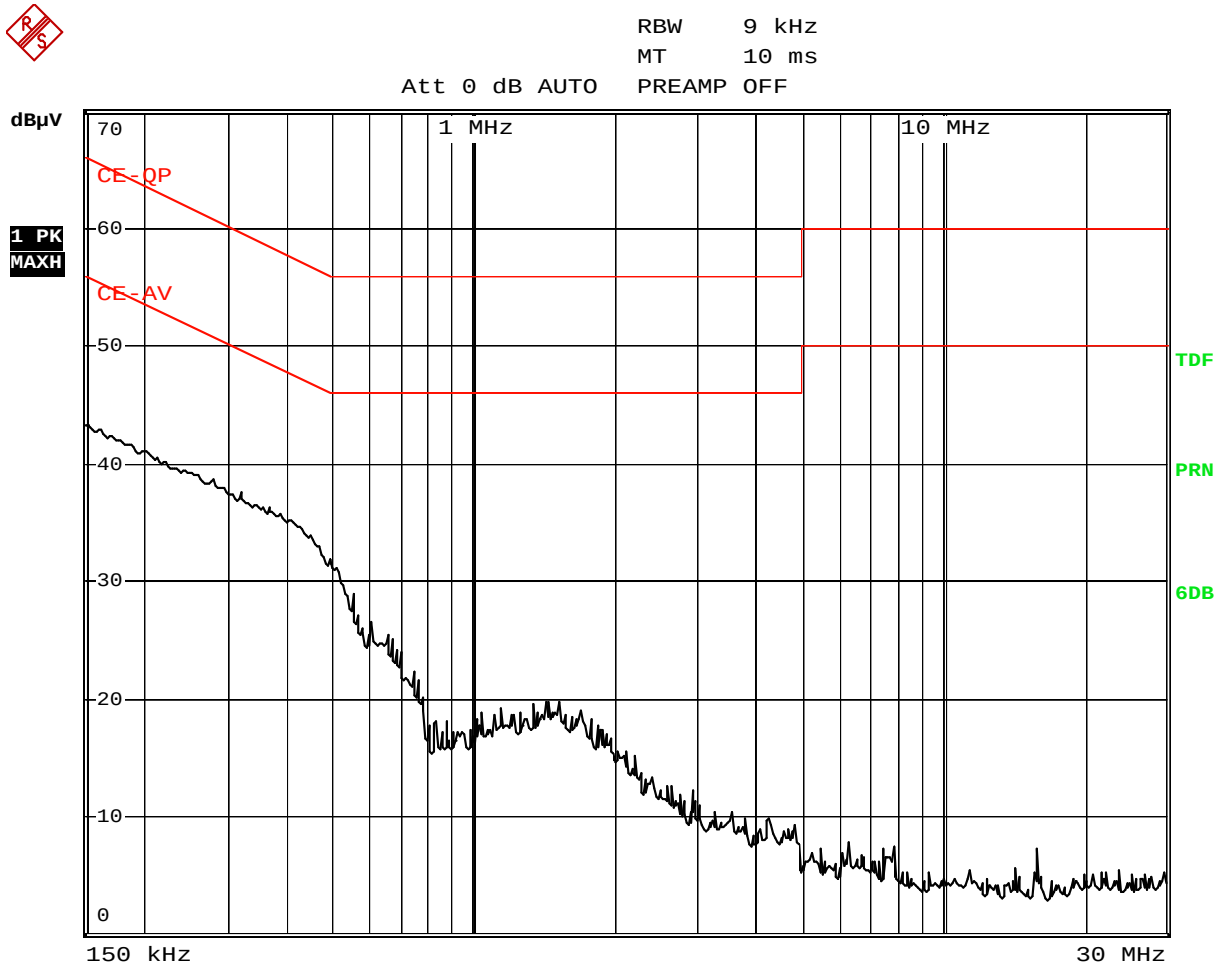
Frequency (MHz)	Reading(dB µ V)				Limit (dB µ V)	
	Line		Neutral			
	Quasi-peak	Average	Quasi-peak	Average	Quasi-peak	Average
			--	--		

B **Conducted Emission on Neutral Terminal of the power line (150kHz to 30MHz)**

EUT set Condition: Charging

Results: **Pass**

Please refer to following diagram for individual



Date: 30.APR.2008 09:16:43

Frequency (MHz)	Reading(dB µ V)				Limit (dB µ V)	
	Live		Neutral			
	Quasi-peak	Average	Quasi-peak	Average	Quasi-peak	Average
	--	--				

6 Radiated Emission Test

6.1 Test Method and test Procedure:

(1) The EUT was tested according to ANSI C63.4 –2003. The radiated test was performed at Timeway Laboratory. This site is on file with the FCC laboratory division, Registration No.899988

(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 C63.4-2003.

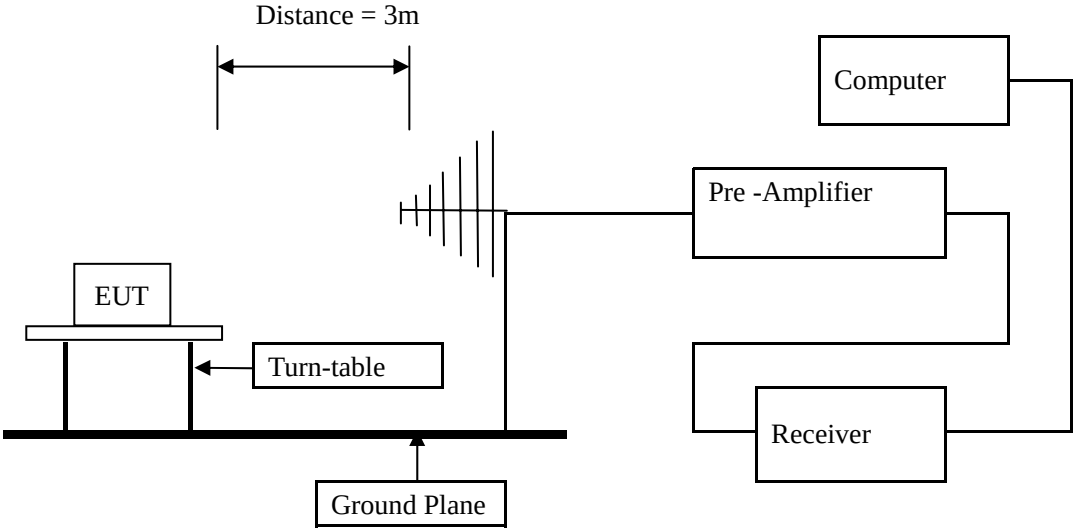
(3) The frequency spectrum from 30 MHz to 1 GHz was investigated. All readings from 30 MHz to 1 GHz are quasi-peak values with a resolution bandwidth of 120 kHz. All readings are above 1 GHz, peak values with a resolution bandwidth of 1 MHz . Measurements were made at 3 meters.

(4) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.

(5) Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance is with all installation combinations. All data was recorded in the peak detection mode. Quasi-peak readings was performed only when an emission was found to be marginal (within -4 dB of specification limit), and are distinguished with a "**QP**" in the data table.

(6) The antenna polarization : Vertical polarization and Horizontal polarization.

Block diagram of Test setup



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 15.231 Limit

Fundamental Frequency (MHz)	Field Strength of Fundamental		Field Strength of Spurious Emission	
	uV/m	**dBuV/m**	**uV/m**	**dBuV/m**
40.66-40.70	2250	67.04	225	47.04
70-130	1250	61.94	125	41.94
130-174	1250-3370	61.94-70.55	125-375	41.94-51.48
174-260	3750	71.48	375	51.48
260-470	3750-12500	71.48-81.94	375-1250	51.48-61.94
Above 470	12500	81.94	1250	61.94

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.

4.Linear interpolations for frequency ranges 130-174MHz and 260-470MHz

5.the above field strength limits are specified at a distance of 3-meters and the tighter limits apply at the band edges

B. Frequencies in restricted band are complied to limit on Paragraph 15.209.

Frequency Range (MHz)	Distance (m)	Field strength (dB μ V/m)
30-88	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 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

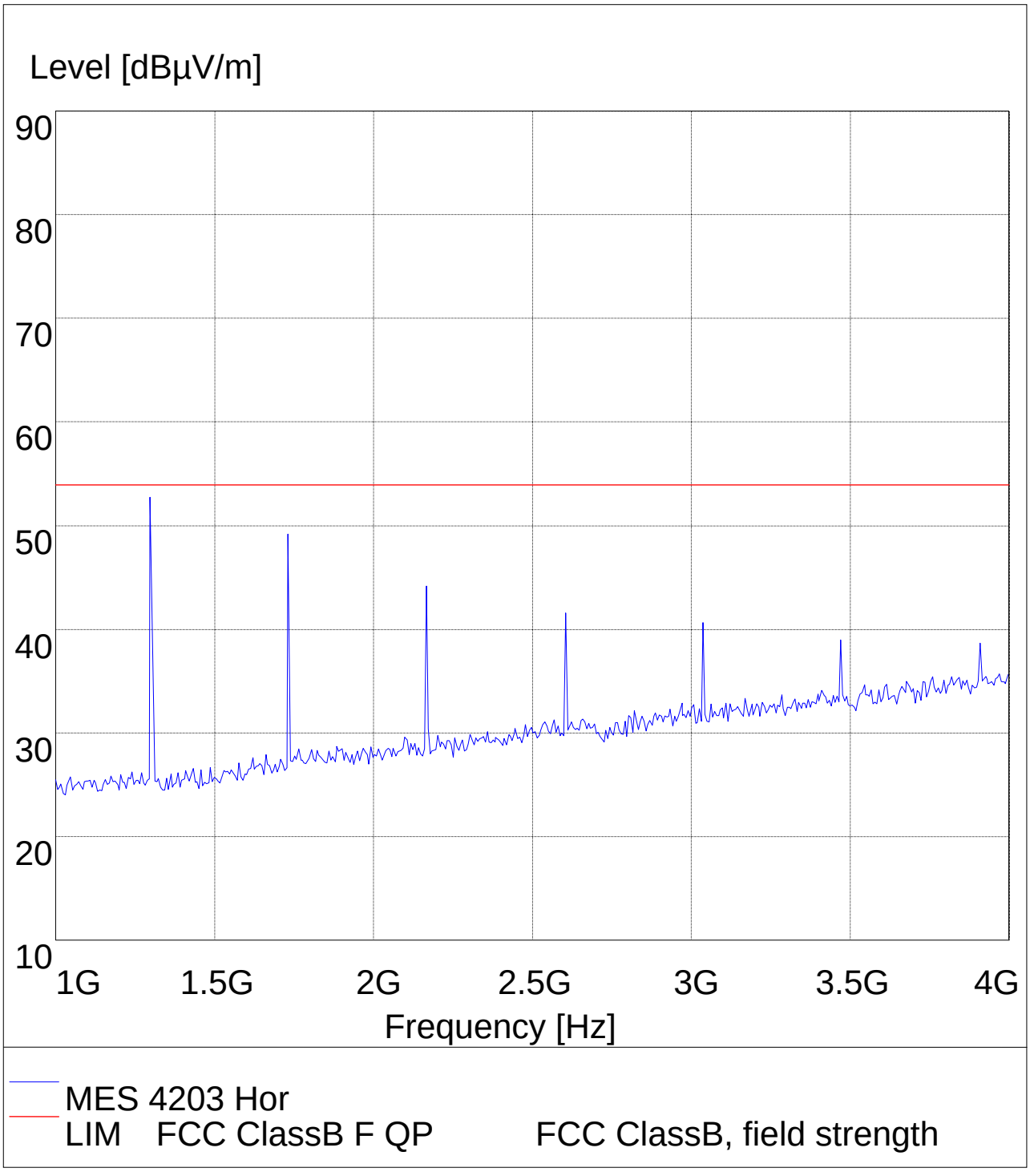
6.5 Test result

A Fundamental Radiated Emission Data

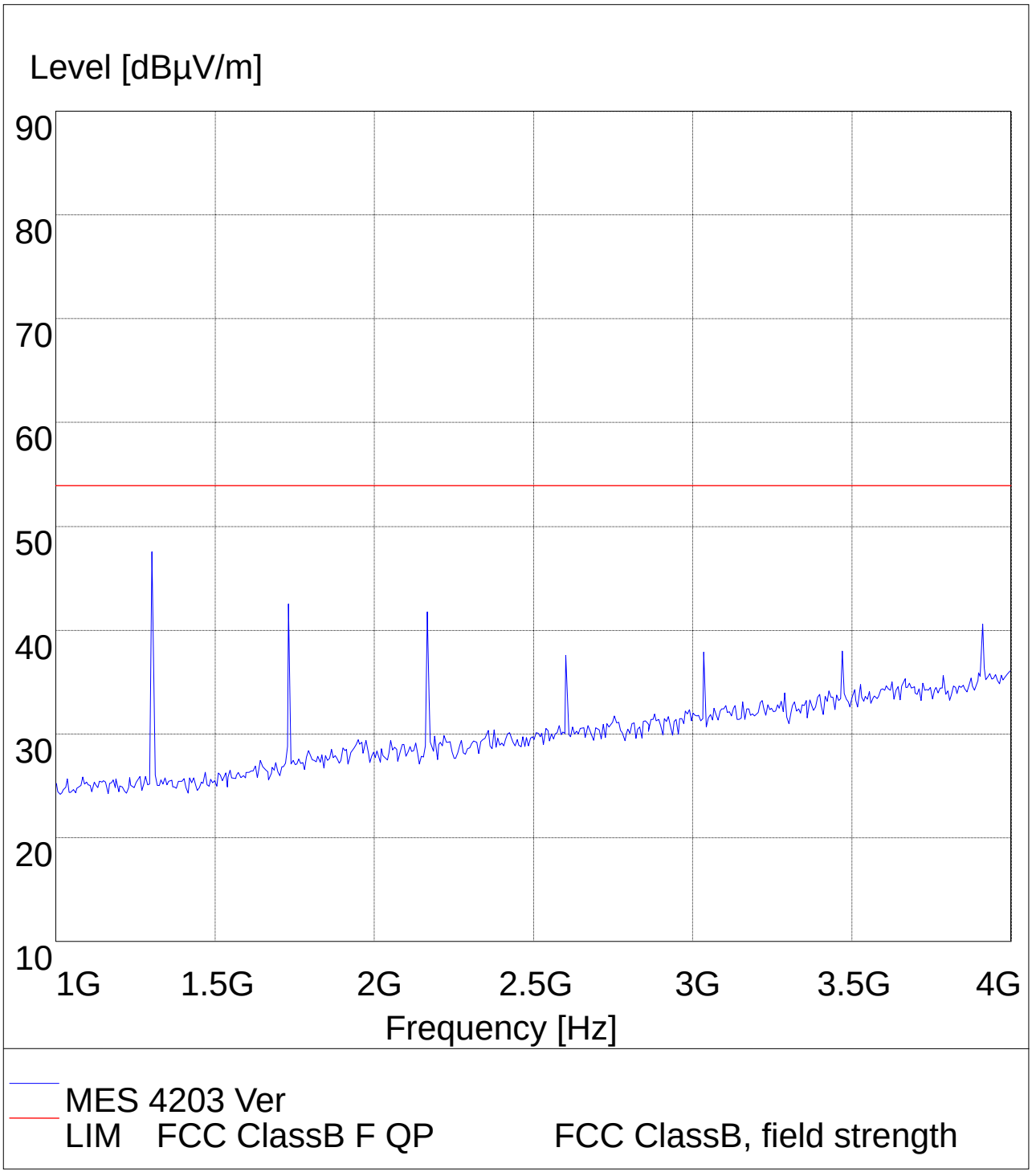
Product:	Compucaller III SYSTEM(Main Unit)	Test Mode:	Keeping Tx transmitting
Test Item:	Fundamental Radiated Emission and Spurious Emission Data	Temperature:	25℃
Test Voltage:	10V	Humidity:	56%
Test Result:	Pass		

Frequency (MHz)	Emission PK/AV (dBuV/m)	Horiz / Vert	Limits PK/AV (dBuV/m)	Margin (dB)
434	80.30/78.96	Horizontal	100.8/80.8	-20.50/-1.84
434	79.52/77.61	Vertical	100.8/80.8	-21.28/-3.19
868	62.18/58.91	Horizontal	80.8/60.8	-18.62/-1.89
868	56.91/52.18	Vertical	80.8/60.8	-23.89/-28.62
1302	56.43/52.15	Horizontal	80.8/60.8	-24.37/-28.65
1302	52.20/49.25	Vertical	80.8/60.8	-28.6/-11.55
1736	50.69/47.32	Horizontal	80.8/60.8	-30.11/-13.48
1736	47.36（PK）	Vertical	80.8/60.8	-13.44
2170	48.16（PK）	Horizontal	80.8/60.8	-12.64
2170	--	Vertical	80.8/60.8	
2604	46.92（PK）	Horizontal	80.8/60.8	-13.88
2604	--	Vertical	80.8/60.8	
3038	42.18（PK）	Horizontal	80.8/60.8	-18.62
3038	--	Vertical	80.8/60.8	--
3472	--	Horizontal	80.8/60.8	--
3472	--	Vertical	80.8/60.8	--
3906	--	Horizontal	80.8/60.8	--
3906	--	Vertical	80.8/60.8	--
4340	--	Horizontal	80.8/60.8	--
4340	--	Vertical	80.8/60.8	--

Horizontal



Vertical



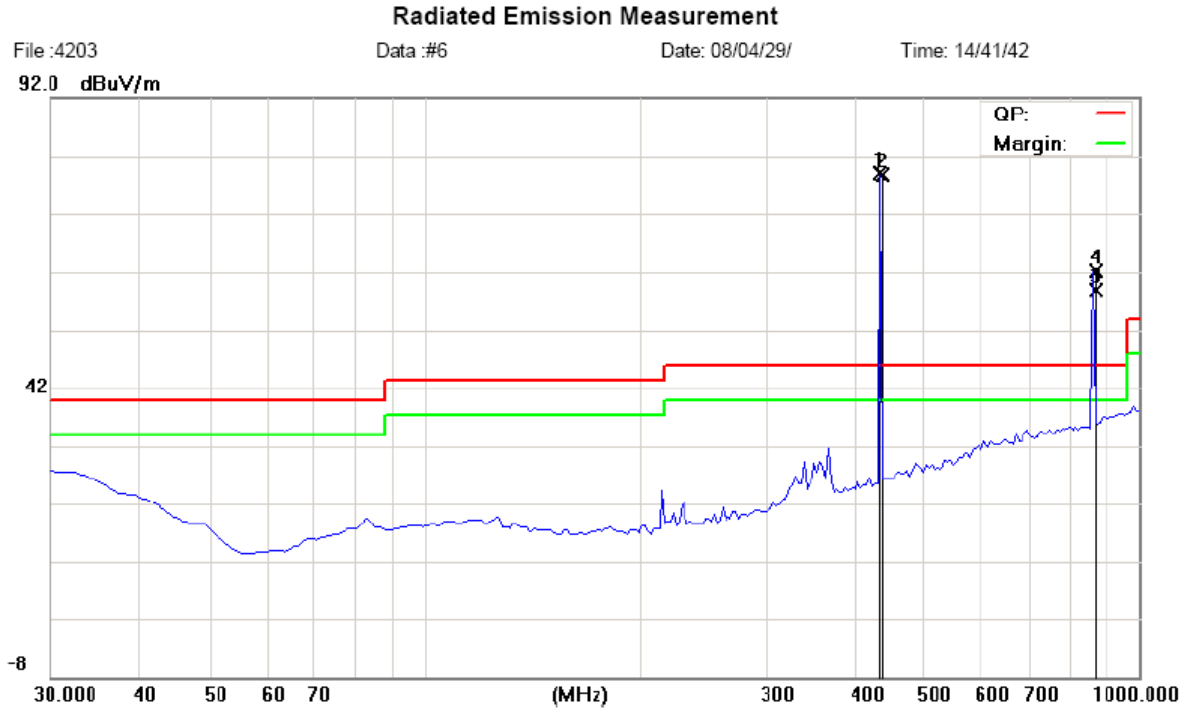
B. **General Radiated Emission Data and Harmonics Radiated Emission Data**

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

EUT set Condition: Keep Tx Transmitting

Results: **Pass**

Please refer to following diagram for individual



Frequency (MHz)	Level@3m (dB μ V/m)	Antenna Polarity	Limit@3m (dB μ V/m)
--	--	H	--

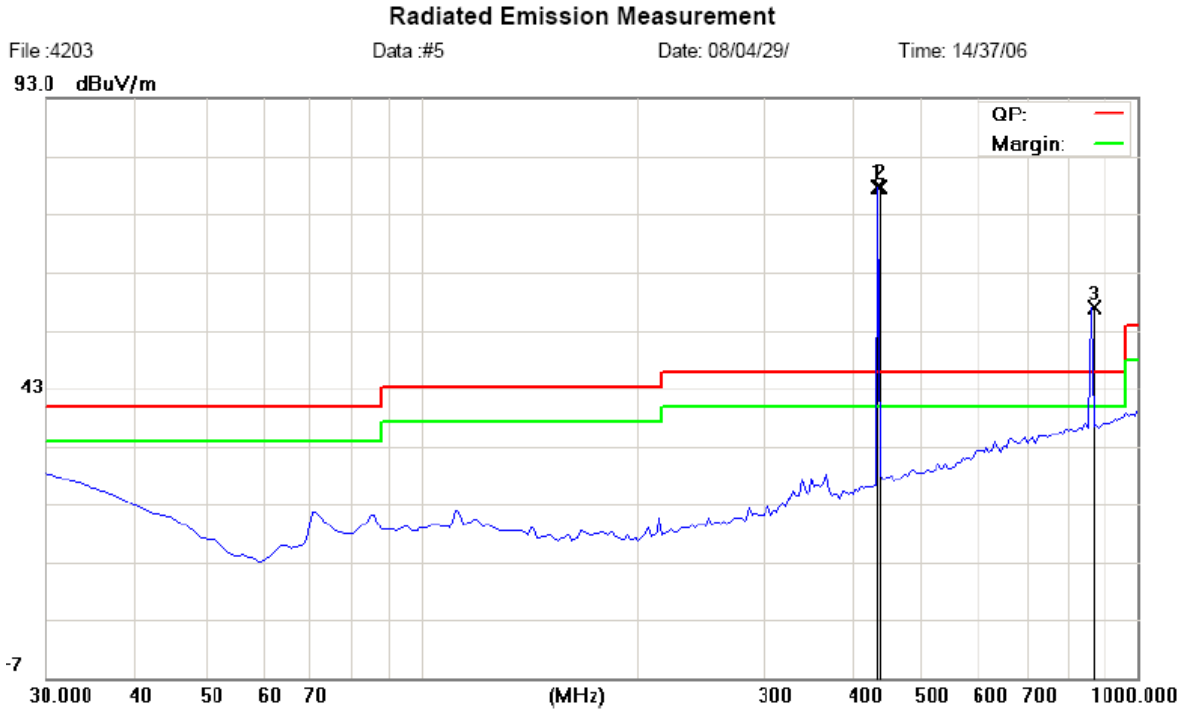
B. **General Radiated Emission Data and Harmonics Radiated Emission Data**

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

EUT set Condition: Keep Tx Transmitting

Results: Pass

Please refer to following diagram for individual



Frequency (MHz)	Level@3m (dB μ V/m)	Antenna Polarity	Limit@3m (dB μ V/m)
--	--	V	--

7.0 20dB Bandwidth Testing

7.1 Requirement

Per 15.231(c), The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. Bandwidth is determined at the points 20 dB down from the modulated carrier.

7.2 Test Procedure

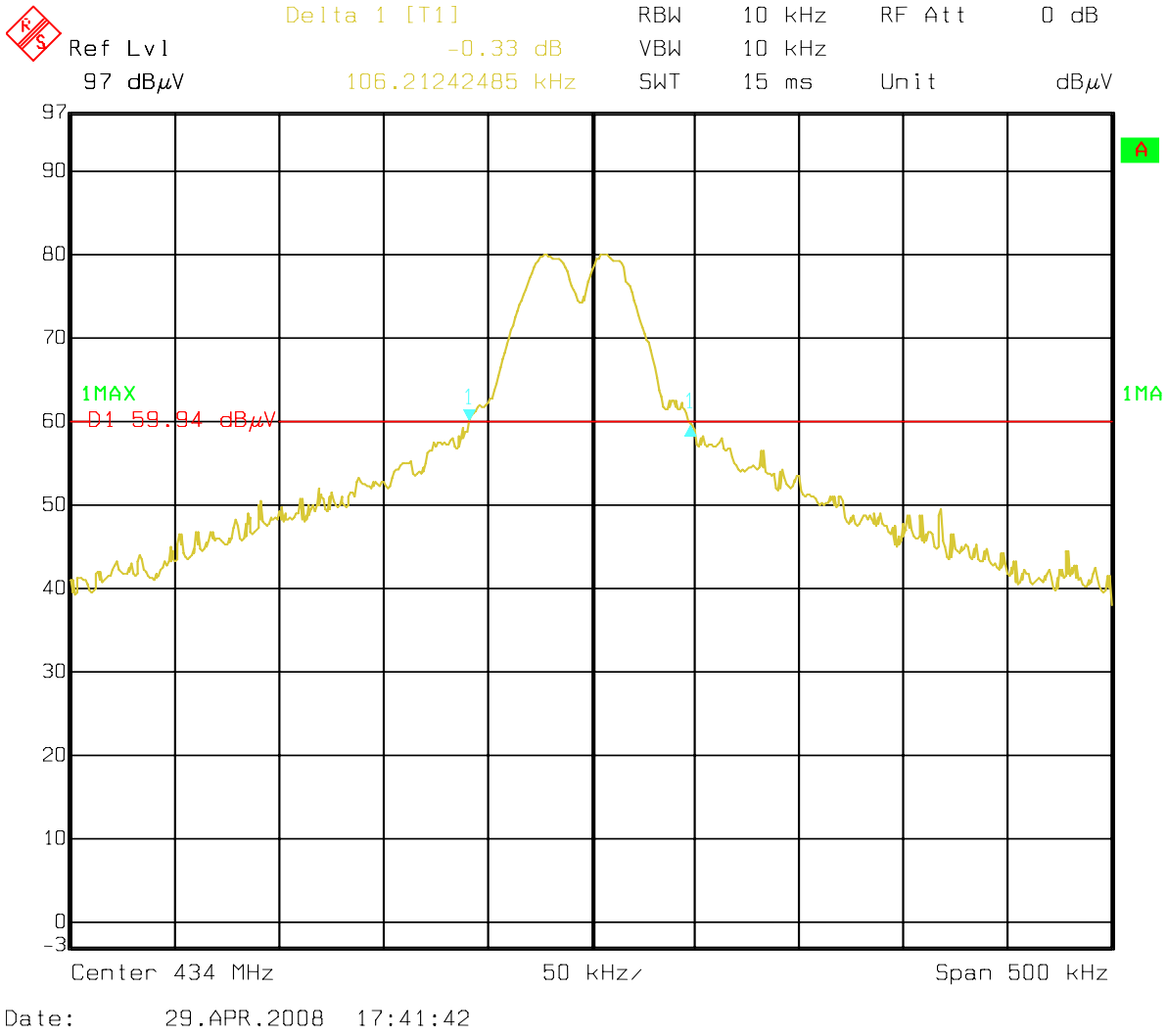
With the EUT's antenna attached, the EUT's 20dB Bandwidth power was received by the test antenna which was connected to the spectrum analyzer with the START and STOP frequencies set to the EUT's operation band.

7.3 Test Data

Frequency （MHz）	20dB Bandwidth Emission (kHz)	Limit (kHz)	Result
434	106.2	1085	Pass

Limit=Frequency x 0.25%=434 x 0.25%=1085kHz

Refer to attached plots:

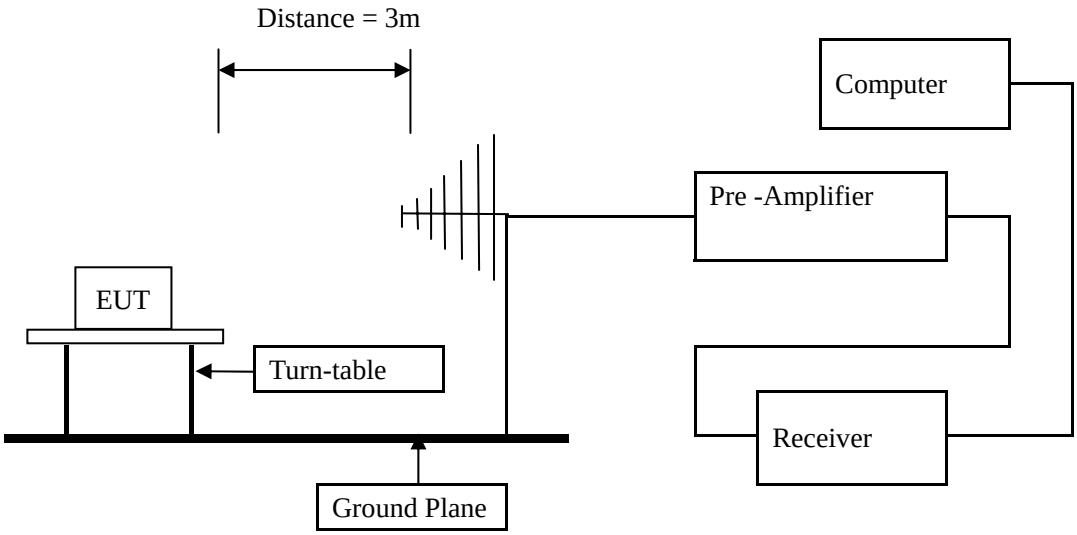


8.0 Deactivate Test

8.1 Requirement

Per 15.231(a) (1), a manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.

8. 2 Radiated Test Setup



For the actual test configuration , please refer to the related items – Photos of Testing

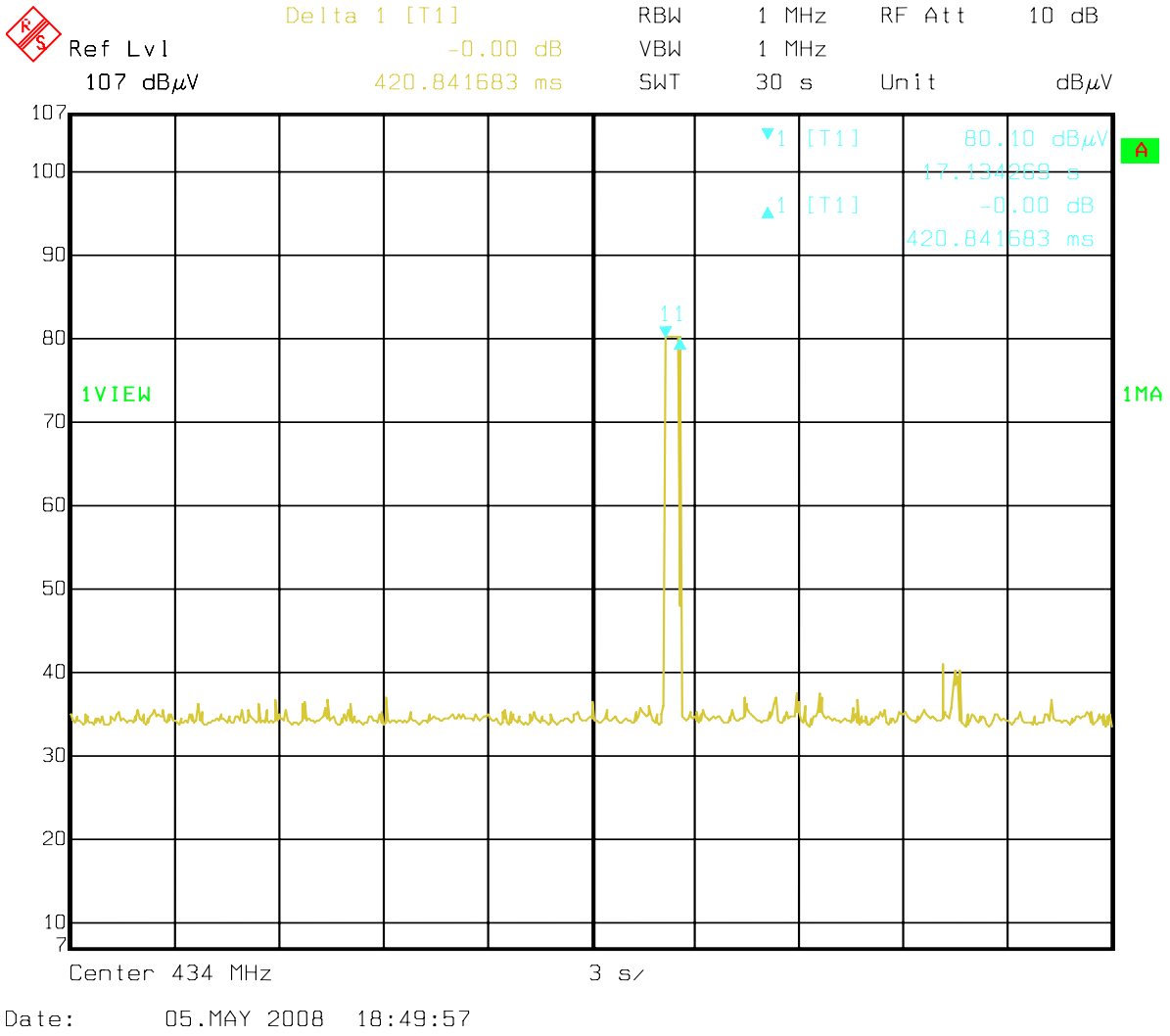
The deactivation test was performed in the 3 meters chamber B test site, using the setup accordance with the ANSI C63.4 - 2003. The specification used was the FCC 15.231(a) limits.

8.3 Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

8.4 Test Data

Refer to attached plots:



9.0 FCC ID Label

FCC ID: V9A4203

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.

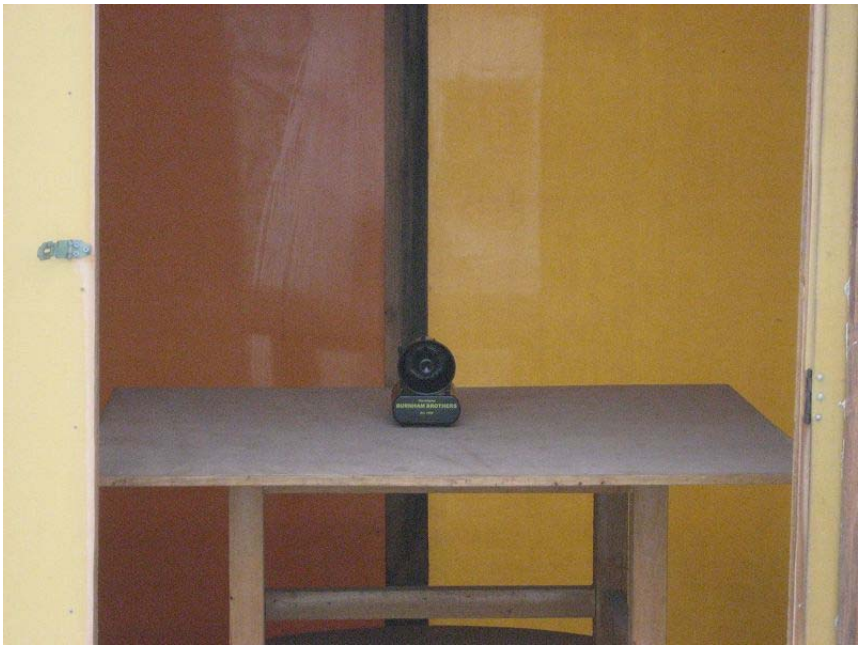
The label must not be a stick-on paper label. The label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

Mark Location:

10.0. Photo of testing

10.1 Conducted test View

10.2 Radiated emission test view



11.3 Photo for the EUT

Outside View

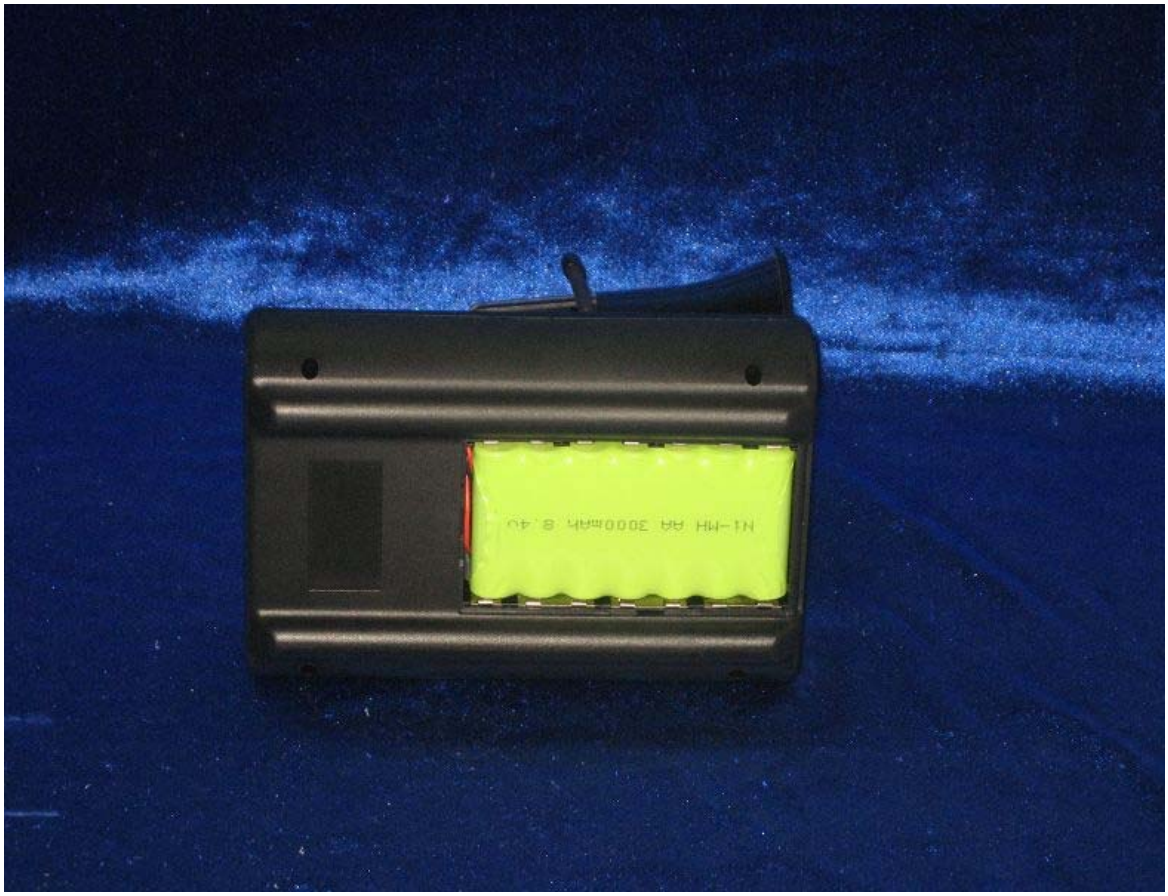
Outside View

TEST REPORT

Outside View

Outside View

Outside View



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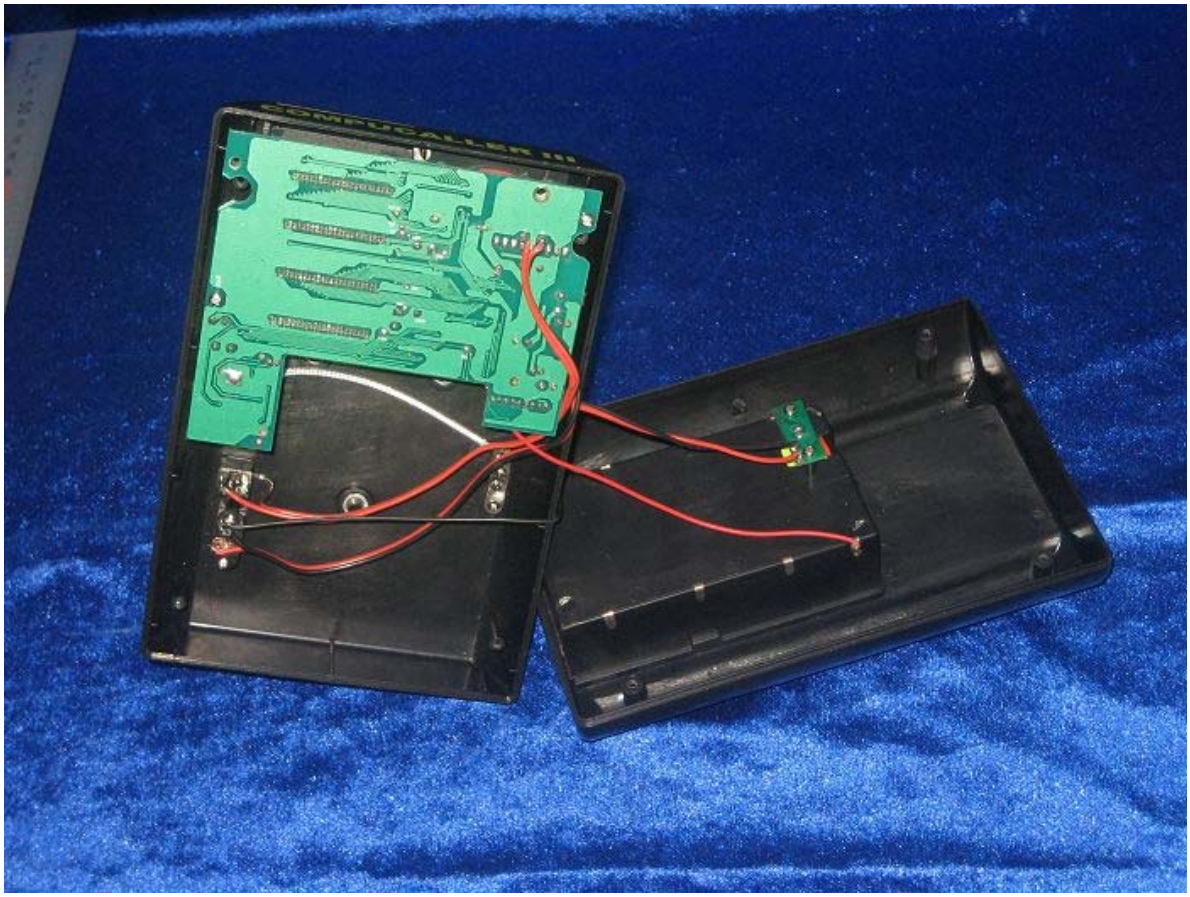
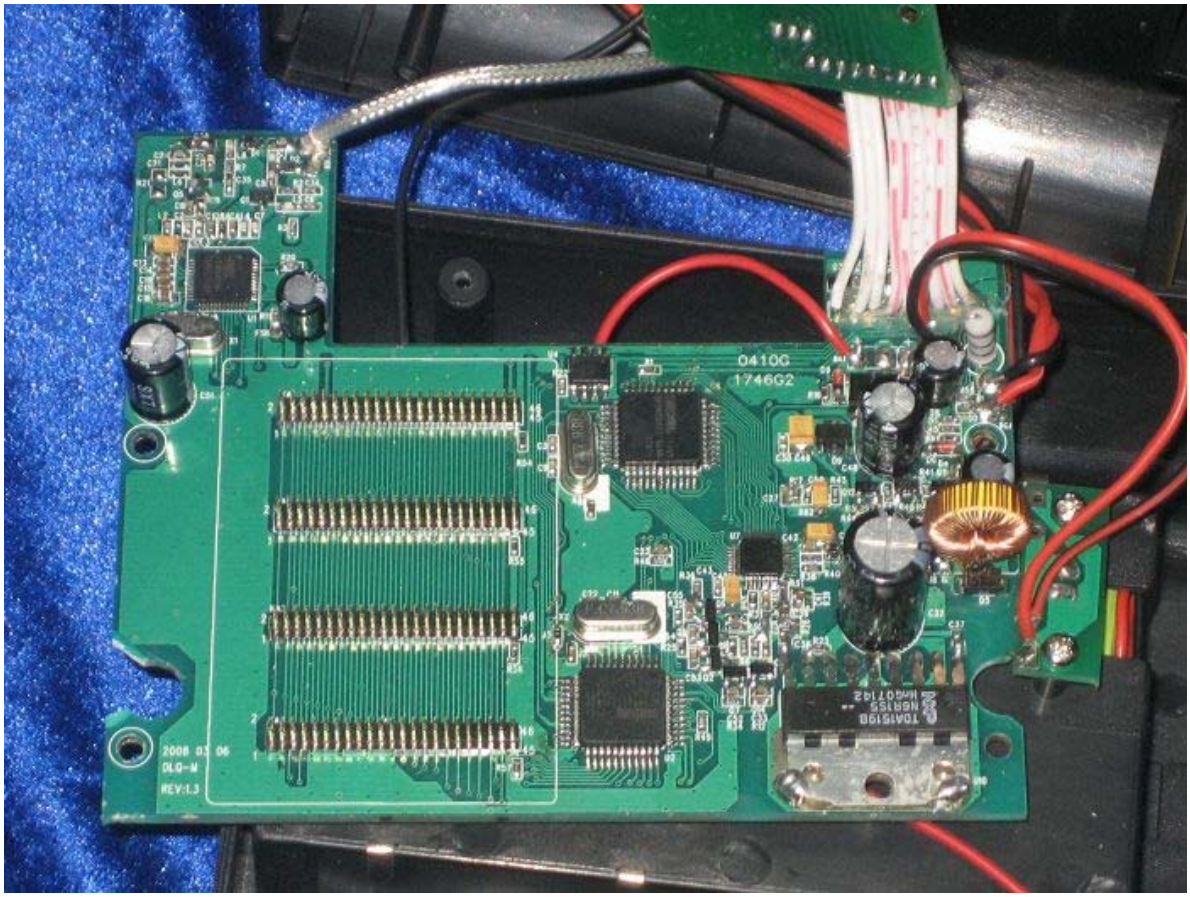
Outside View

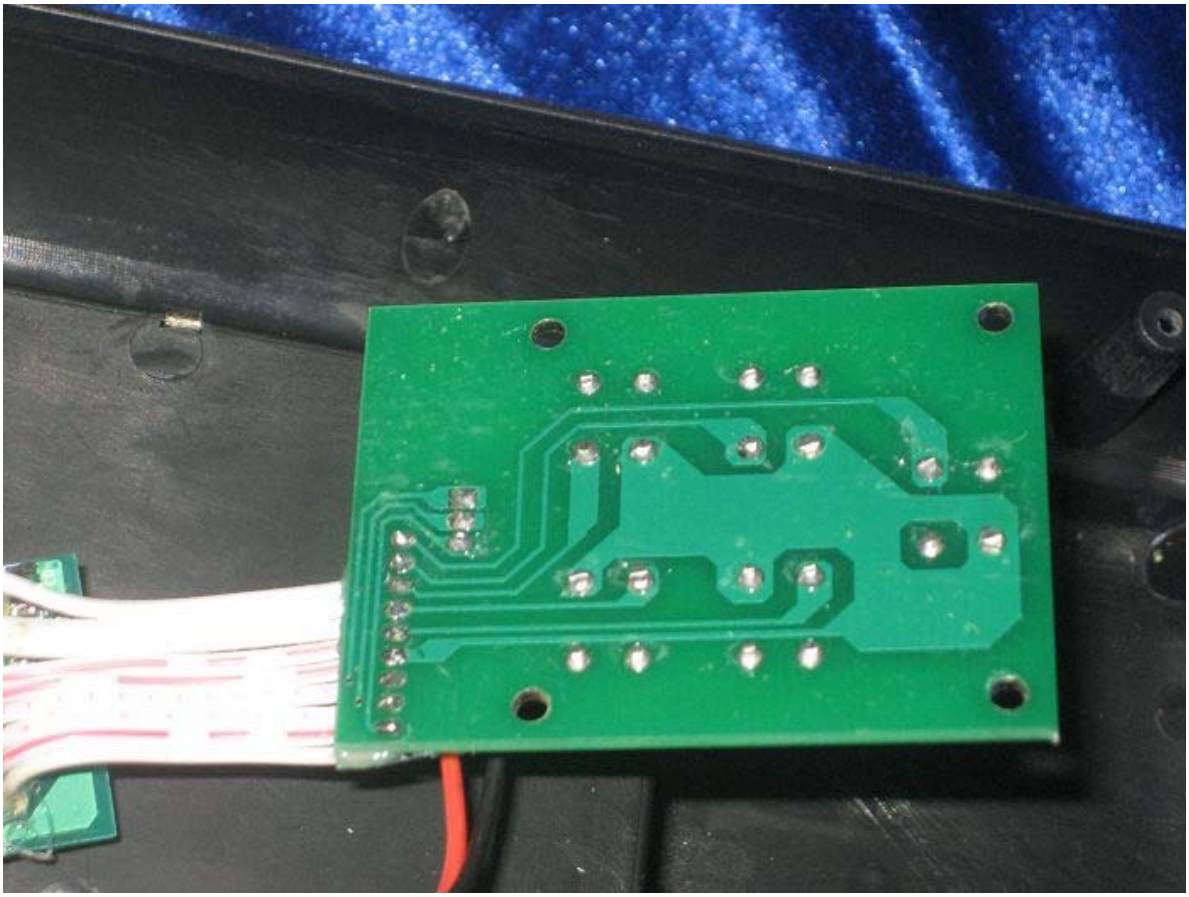
Inside View



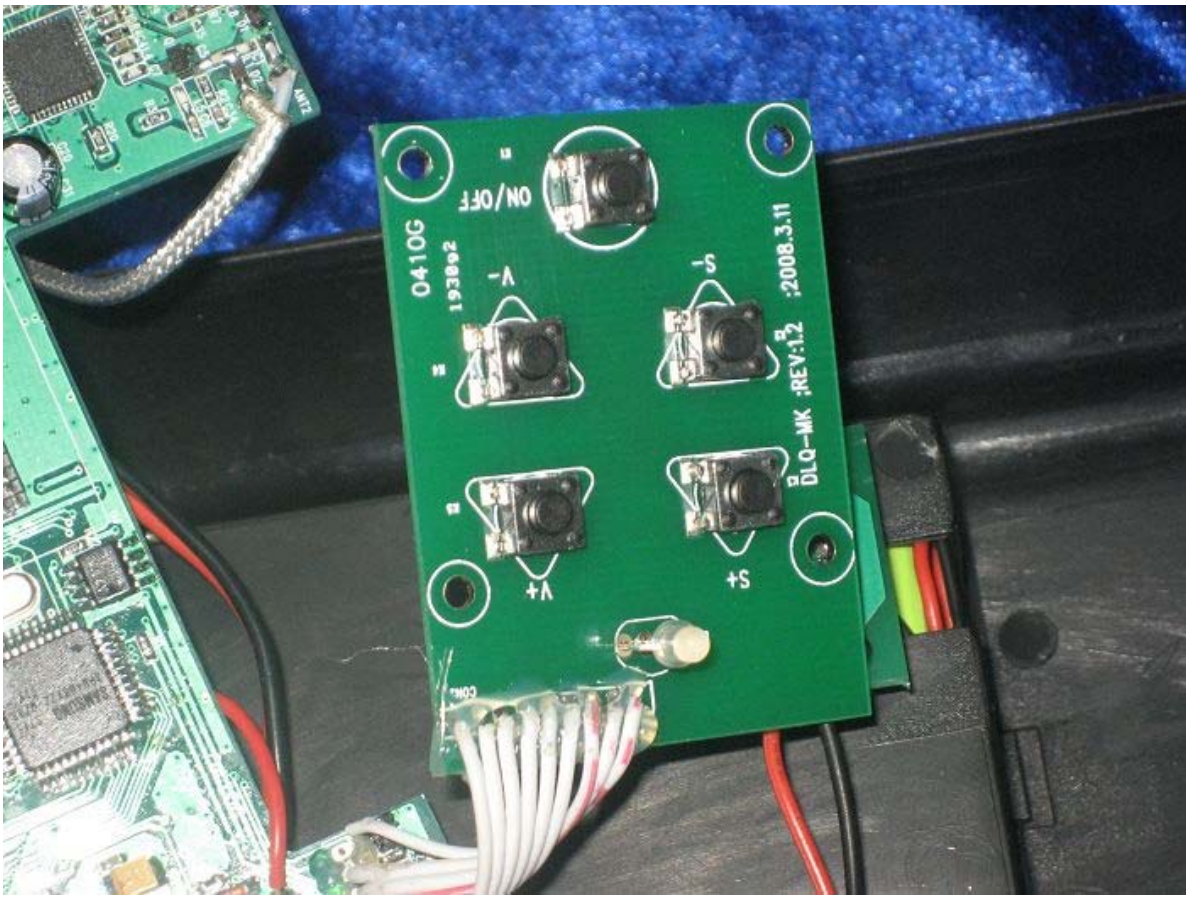
Inside View



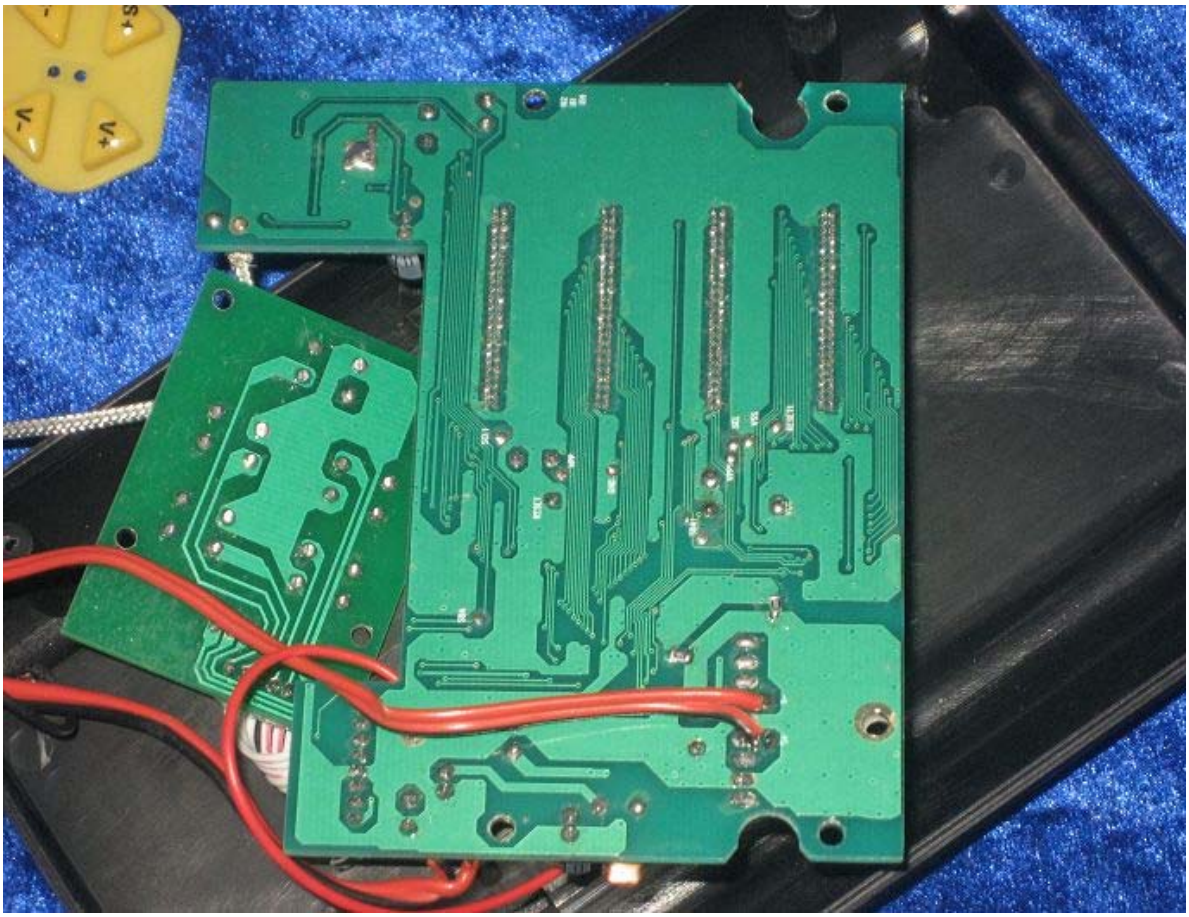
Inside View



Inside View



Inside View



Power Supply

Antenna

End of the report