TECHNICAL REPORT

Timeway

LABORATORIES

Report No: FCC 0602019
File reference No: 2006-03-07

Applicant: SHEN ZHEN TDF TECHNOLOGY DEVELOPMENTCO., LTD

Product: RADIO CONTROL SYSTEM

Model No: Transmitter: FT06 transmitter(72.010—72.990MHz)
Receiver: FRP06 receiver(72.010—72.990MHz)

Trademark: TDF

Test Standards: FCC 47 CFR PART 95 SUBPART C

Test result: It is herewith confirmed and found to comply with the requirements set up by ANSI C63.4&FCC Part 95 Subpart C, regulations for the evaluation of electromagnetic compatibility

Approved By

Jack Chung

Jack Chung
Manager

Dated: Mar, 07,2006

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 meet with ISO/IEC-17025 requirements, which is approved by CNAL. This approval result is accepted by MRA of APLAC.

Our test facility is recognized, certified, or accredited by the following organizations:

CNAL-LAB Code: L2292

The EMC Laboratory has been assessed and in compliance with CNAL/AC01:2002 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.: IC5205

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 IC No.: 5205.

TEST REPORT

Test Report Conclusion

Content

TEST REPORT

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: SHENZHEN TDF TECHNOLOGY DEVELOPMENT CO., LTD

Address: Flat618、619, 6/F Chuangye Building No.1 Qilin Road, Nanshan District Shenzhen, P.R.China

Telephone: 86-755-26581815

Fax: 86-755-26581821

1.3 Description of EUT

Product:	RADIO CONTROL SYSTEM
Manufacturer:	SHENZHEN TDF TECHNOLOGY DEVELOPMENT CO., LTD
Brand Name:	TDF
Model Number:	Transmitter: FT06 transmitter(72.010—72.990MHz) Receiver: FRP06 receiver(72.010—72.990MHz)
Additional Model Name	N/A
Additional Trade Name	N/A
Rating:	12V (8 pcs AA batteries)
FM Mode Operation Frequency	72.550MHz
Number of Channel	1
Type of Emission	5K50F1D
Antenna Designation	A permanent fixed antenna, which is built-in, designed as an indispensable part of the EUT.

1.4 Submitted Sample

1 Sample

1.5 Test Duration

2006-02-15 to 2006-03-07

1.6 Test Uncertainty

Conducted Emissions Uncertainty =±3.0dB

Radiated Emissions Uncertainty =±6.0dB

1.7 Test Engineer

The sample tested by _____

Print Name: Terry Tang

2.0	**Test Equipments**				
Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
ESD Simulator	EM TEST	DITO	0404-24	2005-08-04	2006-08-03
Continuous Wave Simulator	EM TEST	CWS 500C	0407-05	2005-12-12	2006-12-11
Ultra Compact Simulator	EM TEST	UCS 500 M4	0304-42	2005-08-21	2006-08-20
Harmonic	California Instruments	PACS-1	72305	2005-08-21	2006-08-20
ESPI Test Receiver	ROHDE&SCHWARZ	ESPI 3	100379	2005-12-01	2006-11-30
Absorbing Clamp	ROHDE&SCHWARZ	MDS-21	100126	2005-12-01	2006-11-30
TWO Line-V-NETW	ROHDE&SCHWARZ	EZH3-Z5	100294	2005-12-01	2006-11-30
TWO Line-V-NETW	ROHDE&SCHWARZ	EZH3-Z5	100253	2005-12-01	2006-11-30
Ultra Broadband ANT	ROHDE&SCHWARZ	HL562	100157	2005-12-01	2006-11-30
ESDV Test Receiver	ROHDE&SCHWARZ	ESDV	100008	2005-03-31	2006-03-31
4-WIRE ISN	ROHDE&SCHWARZ	ENY 41	830663/044	2006-02-20	2007-02-19
GG ENY22 Double 2-Wire ISN	ROHDE&SCHWARZ	ENY22	83066/016	2006-02-20	2007-02-19
Impuls-Begrenzer	ROHDE&SCHWARZ	ESH3-Z2	100281	2006-02-20	2007-02-19

System Controller	CT	SC100	-	-	-
Printer	EPSON	PHOTO EX3	CFNH234850	2006-02-20	2007-02-19
FM-AM Signal Generator	JUNGJIN	SG-150M	389911177	2006-02-20	2007-02-19
Color TV Pattern Generator	PHILIPS	PM5418	LO621747	2006-02-20	2007-02-19
Computer	IBM	8434	1S8434KCE99BLXLO*	-	-
Oscillator	KENWOOD	AG-203D	3070002	2005-02-24	2006-02-24
Spectrum Analyzer	HAMEG	HM5012	-	-	-
Power Supply	LW	APS1502	-	-	-
5K VA AC Power Source	California Instruments	5001iX	56060	2006-02-20	2007-02-19
CDN	EM TEST	CDN M2/M3	-	2006-02-20	2007-02-19
Attenuation	EM TEST	ATT6/75	-	2006-02-20	2007-02-19
Resistance	EM TEST	R100	-	2006-02-20	2007-02-19
Electromagnetic Injection Clamp	LITTHI	EM101	35708	2006-02-20	2007-02-19
Inductive Components	EM TEST	MC2630	-	2006-02-20	2007-02-19
Antenna	EM TEST	MS100	-	2006-02-20	2007-02-19
Signal Generator	ROHDE&SCHWARZ	SMT03	100029	2006-02-06	2007-02-05
Power Amplifier	AR	150W1000	300999	2006-02-06	2007-02-05
Field probe	Holaday	HI-6005	105152	2006-02-06	2007-02-05
Bilog Antenna	Chase	CBL6111C	2576	2006-02-06	2007-02-05
ESPI Test Receiver	ROHDE&SCHWARZ	ESI26	838786/013	2006-02-06	2007-02-05
3m OATS	--	--	N/A	2006-02-06	2007-02-05
Temperature Chamber	Sunan Insruments	MZ01	03MD09036	2005-12-25	2006-12-24

3.0 Technical Details

3.1 Summary of test results

The EUT has been tested according to the following specifications:

Standard	Test Type	Stanadard Paragraph	Result
FCC Part 95: 2002	Flied Strength of Fundamental	Section 95.639	PASS
FCC Part 95: 2002	Flied Strength of Harmornics or other Frequency	Section 95.635	PASS
FCC Part 95: 2002	Emission Bandwidth	Section 95.633	PASS
FCC Part 95: 2002	Frequency Stability	Section 95.623	PASS
FCC Part 95: 2002	Crystal Access Restrictions	Section 95.645	PASS

3.2 Test Standards

FCC Part 95: 2002

4.0 EUT Modification

No modification by Shenzhen Timeway Technology Consulting Co.,Ltd

5.0 TEST RESULTS

5.1 E.U.T.Operation

Input voltage: 12V DC (8 x 'AA' Size Rechargeable Batteries).

Operating Environment:

Temperature: 24.0 ℃

Humidity: 56 % RH

Atmospheric Pressure: 1012 mbar

EUT Operation: Test in transmitting mode:

5.2 Test Procedure & Measurement Data

5.2.1 Test Procedure & Measurement DataFlied Strength of Fundamental

Test Requirement: FCC Part 95 Section 95.639

Test Method: Based on ANSI C 63.4.

Test Date: Feb 15, 2006-Mar 07, 2006

Measurement Distance: 3m (OATS)

Test instrumentation resolution bandwidth120 kHz (30 MHz - 1000 MHz)

Operation: Receive antenna scan height 1 - 4 m, polarization Vertical/Horizontal

Requirements: The maximum transmitter power for an R/C transmitter, under any condition of modulation, should not exceed a carrier power or peak envelops TP of: For 72-76 MHz operation: the limit is 0.75 W.

Test Procedure:

Test Method: The procedure used was ANSI Standard C63.4-2003.

The technique used to find the output power of the transmitter was the antenna substitution

method. The following test procedure was followed:

1. The EUT was powered ON and placed on a table in the chamber. The antenna of the

transmitter was extended to its maximum length.

2. The fundamental frequency (72.550MHz) of the transmitter was maximized on the test

Receiver display by raising and lowering the receive antenna and by rotating the turntable.

After the fundamental emission was maximized, a field strength measurement was made.

3. Steps 1 and 2 were performed with the EUT and the receive antenna in both vertical and

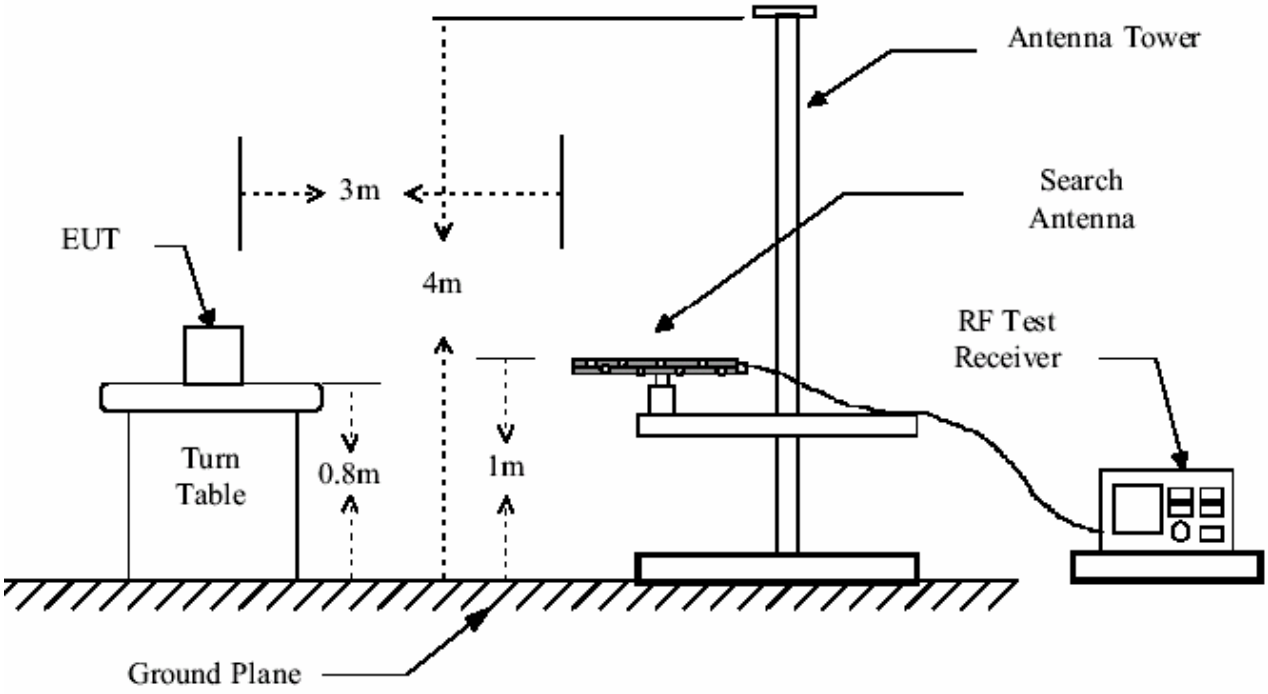
horizontal polarization and performed a pre-test three orthogonal planes.

4. The transmitter was then removed and replaced with a substitution antenna.

5. A signal at the fundamental frequency (72.550MHz)) was fed to the substitution antenna by means of a non-radiating cable. With both the substitution and the receive antennas horizontally and vertically polarized, the receive antenna was raised and lowered to obtain a maximum reading at the test Receiver. The level of the signal generator was adjusted until the measured field strength level in step 2 is obtained for this set of conditions.

6. The output power into the substitution antenna was then measured.

Test Configuration:



Test result:

The highest field strength measured at the fundamental frequency (72.550MHz) was 94.01dBμV/m at a distance of 3 meters.

The transmitter output power found using the antenna substitution method was 4.37mW.

The unit does meet the FCC requirements.

5.2.2 Flied Strength of Harmonics or other Frequency

Test Requirement: FCC Part 95 Section 95.635

Test Method: Based on ANSI C 63.4.

Test Date: Feb 15, 2006-Mar 07, 2006

Measurement Distance: 3m (OATS)

Frequency ranges 30 MHz – 1GHz for transmitting mode.

Test instrumentation resolution bandwidth

120 kHz (30 MHz - 1000 MHz)

Operation: Receive antenna scan height 1 - 4 m, polarization Vertical/ Horizontal

Requirements:

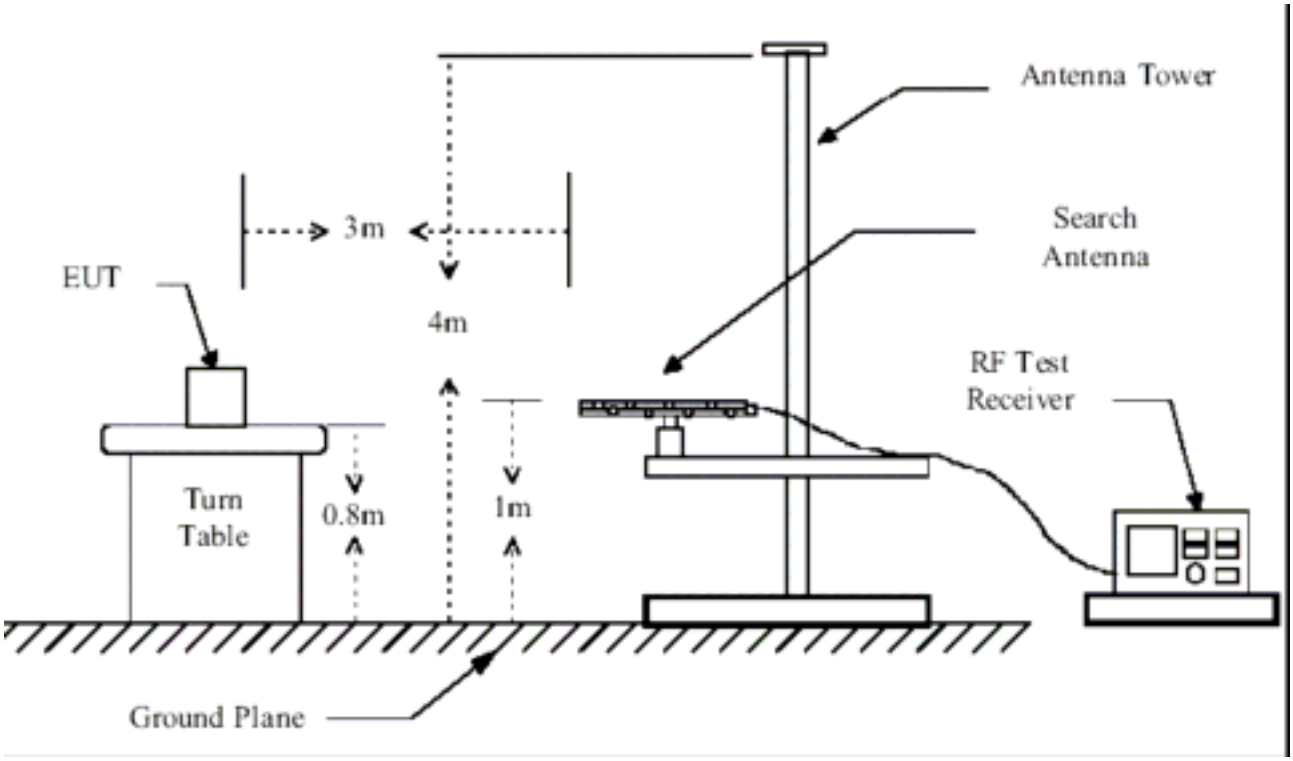
The power of each unwanted emission should be less than the transmitter power (TP) by at least 56+10Log(TP) on any frequency removed from the center of the authorized bandwidth by more than 250%.

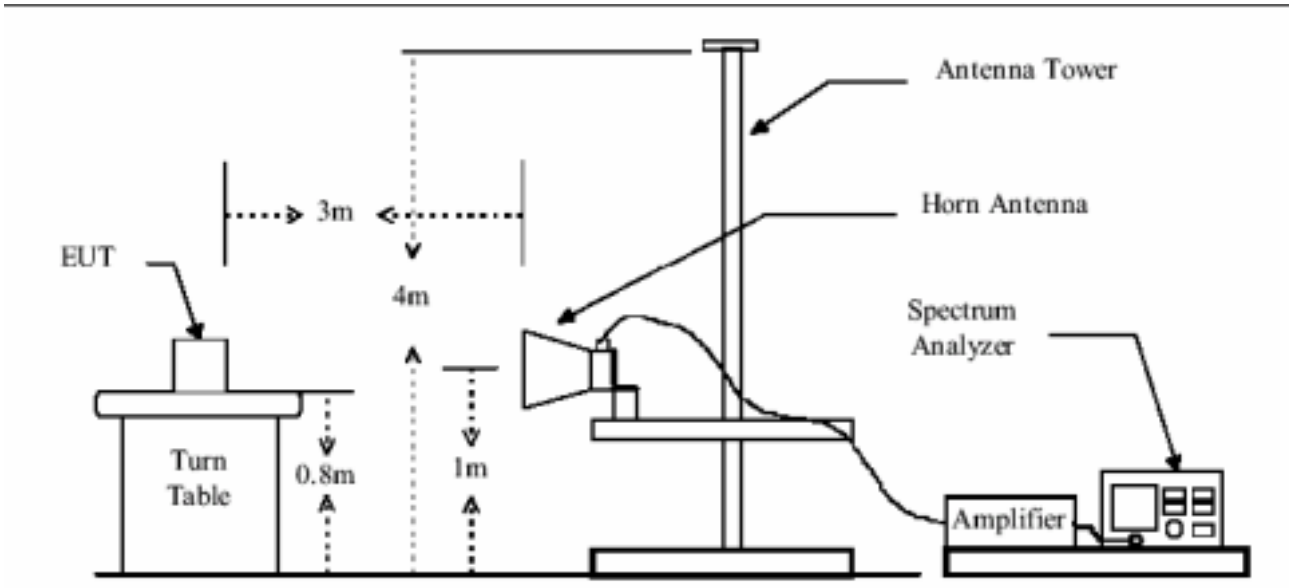
The transmitter complied with the radiated spurious requirement and the following table contains the 7 highest spurious emissions.

Limit: 56 + 10 log10 (P) dB

Test Procedure: The procedure used was ANSI Standard C63.4-2003. The receive was scanned from 30MHz to 1GHz.When an emission was found,the table was roated to produce the maximum signal strength. An initial pre-scan was performed for in peak detection mode using the receiver. The EUT was measured for both the Horizontal and Vertical polarities and performed a pre-test three orthogonal planes. For intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage. The worst case emissions were reported.

Test Configuration:





The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier .
The basic equation with a sample calculation is as follows:
Final Test Level =Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor
The following test results were performed on the EUT:

Quasi-Peak Measurement

Frequency (MHz)	Emission Level (dBm)	Horiz /Vert	Limits (dBm)	Margin (dB)
48.365	-44.86	V	-26	-18.36
96.732	-45.43	V	-26	-19.53
145.096	-46.88	V	-26	-20.88
290.195	-55.36	V	-26	-29.36
145.12	-61.80	H	-26	-35.80
217.64	-58.15	H	-26	-32.15
290.20	-44.20	H	-26	-21.80

1. Level = Read Level + Antenna Factor + Cable Loss – Preamp Factor.
2. 0° was the table front facing the antenna. Degree is calculated from 0° clockwise facing the antenna.
3. Margin= Emission Level-Limit

The unit does meet the FCC requirements.

5.2.3 Emission Bandwidth

Test Requirement: FCC Part 95 Section 95.633

Test Method: Based on ANSI C 63.4.

Test Date: Feb 15, 2006-Mar 07, 2006

Requirements: An R/C transmitter is allowed to transmit any appropriate non-voice emission, which meets the emission limitations for an R/C transmitter.

The authorized bandwidth for any emission type transmitted by an R/C transmitter is 8kHz.

The power of each unwanted emission shall be less than the transmitter power (TP) by:

(1) At least 25 dB (decibels) on any frequency removed from the center of the authorized bandwidth by more than 50% up to and including 100% of the authorized bandwidth.

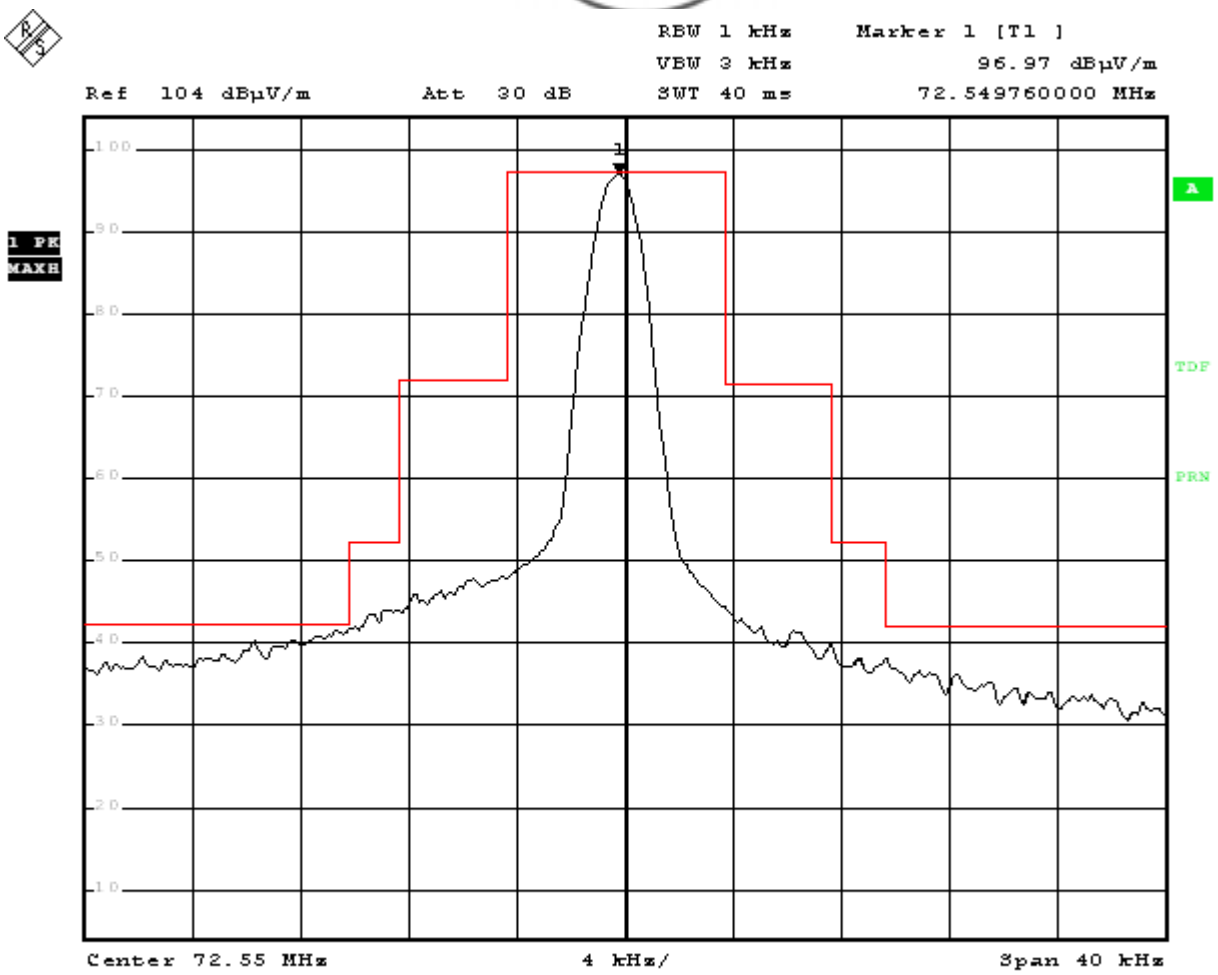
(2) At least 45 dB on any frequency removed from the center of the authorized bandwidth by more than 100% up to and including 125% of the authorized bandwidth.

(3) At least 55 dB on any frequency removed from the center of the authorized bandwidth by more than 125% up to and including 250% of the authorized bandwidth.

(4) At least 56 + 10 log10 (TP) dB on any frequency removed from the center of the authorized bandwidth by more than 250%.

The following plot shows the test results.

The unit does meet the FCC requirements.



Date: 7.MAR.2006 18:42:27

The unit does meet the FCC requirements.

Calculation:	B_n=2M+2DK
M=Modulation Frequency:	M=1.25kHz
D=Peak frequency deviation:	D=1.5kHz
K=Overall Numerical Factor:	K=1
	B_n=2*1.25kHz+2*1.5*1kHz=5.5kHz
Type of Emission:	**5K50F1D**

5.3 Frequency Stability

Test Requirement: FCC Part 95 Section 95.623

Test Method: Based on ANSI C 63.4.

Test Date: Feb 15, 2006-Mar 07, 2006

Requirements: All other R/C transmitters that transmit in the 72-76 MHz frequency band must be maintained within a frequency tolerance of 0.002% (20ppm).

Test Method:

Frequency measurements were made as follows:

(a) at 10 degree intervals of temperatures between -30ºC and +50ºC at the manufacturer's rated supply voltage, and

(b) at +20ºC temperature and ±15% supply voltage variations.

Note, for handheld equipment that is only capable of operating from internal batteries, reduce the primary supply voltage to the battery operating end point. The manufacturer should specify the battery operating endpoint voltage of the equipment.

Test Results:

Frequency Stability vs. Temperature

Assigned Frequency (MHz)	Temperature (℃)	Measured Frequency (MHz)	Frequency Deviation (kHz)	Limit (kHz)
72.550	-30	72.55009	0.09	±1.44
	-20	72.55012	0.12	±1.44
	-10	72.55011	0.11	±1.44
	0	72.55016	0.16	±1.44
	+10	72.54972	-0.28	±1.44
	+20	72.54967	-0.33	±1.44
	+30	72.54986	-0.14	±1.44
	+40	72.54980	-0.20	±1.44
	+50	72.54992	-0.08	±1.44

Frequency Stability vs. Supply Voltage

Nominal Voltage: 9.6VDC Temperature: 20°C

Assigned Frequency (MHz)	Voltage (V)	Measured Frequency (MHz)	Frequency Deviation (kHz)	Limit (kHz)
72.550	12	72.54967	-0.33	±1.44
	9.0	72.54965	-0.35	±1.44
	8.3	72.54956	0.44	±1.44
Note: The applicant declared the endpoint voltage 8.3Vdc It will give the operation guidance to the customer in the user manual				

The unit does meet the FCC requirements.

5.4 Crystal Access Restrictions

The EUT has no control knobs, switches, or other type of adjustments either on the operating front panel or on the exterior of the transmitter enclosure, which when manipulated can result in violation of the rules. The plug in crystal is not accessible to the user.

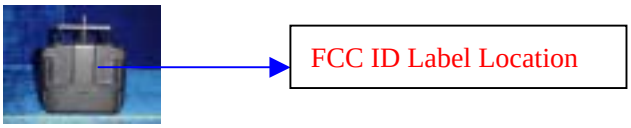
6.0 FCC ID Label

FCC ID: TZVTDF1815

This device complies with part 95 of the FCC rules.

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:



7.0 Photo of testing

7.1 Conducted test View--

N/A

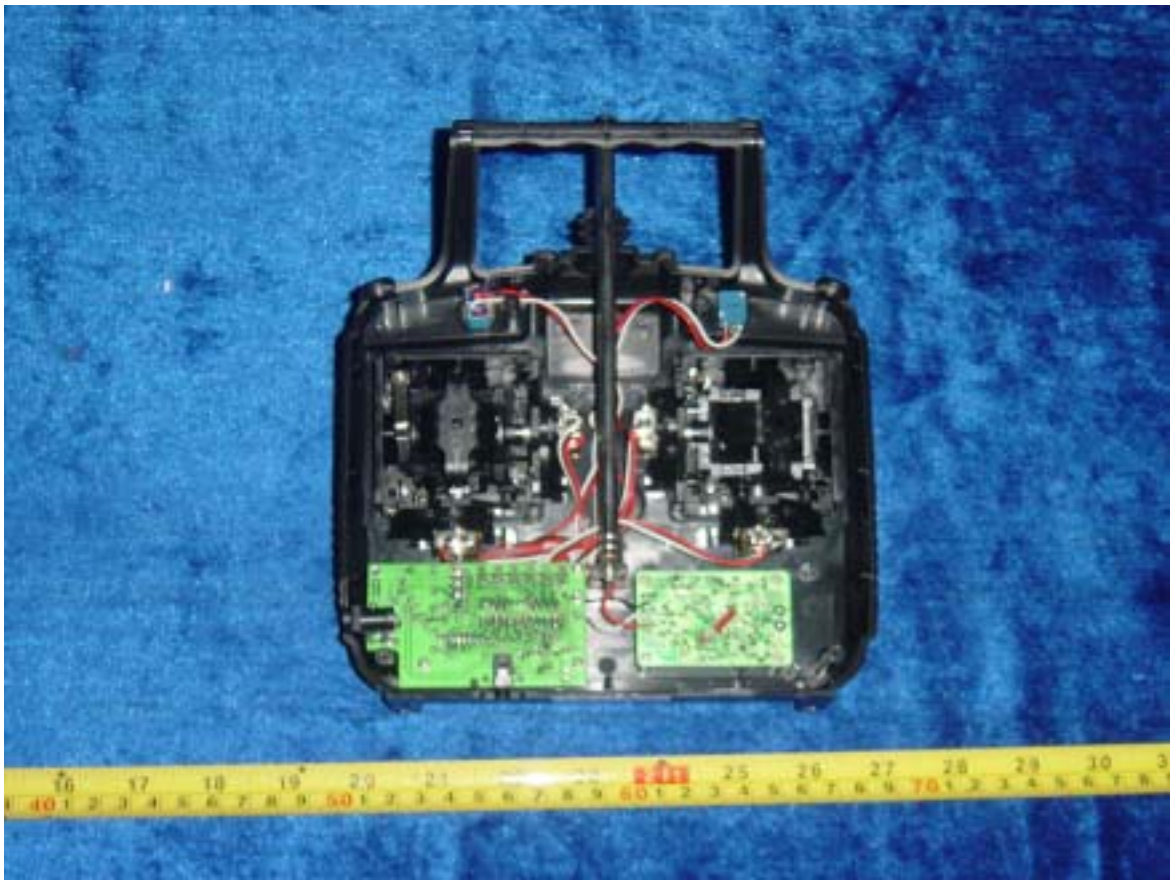
7.2 Radiated emission test view

7.3 Photo for the EUT

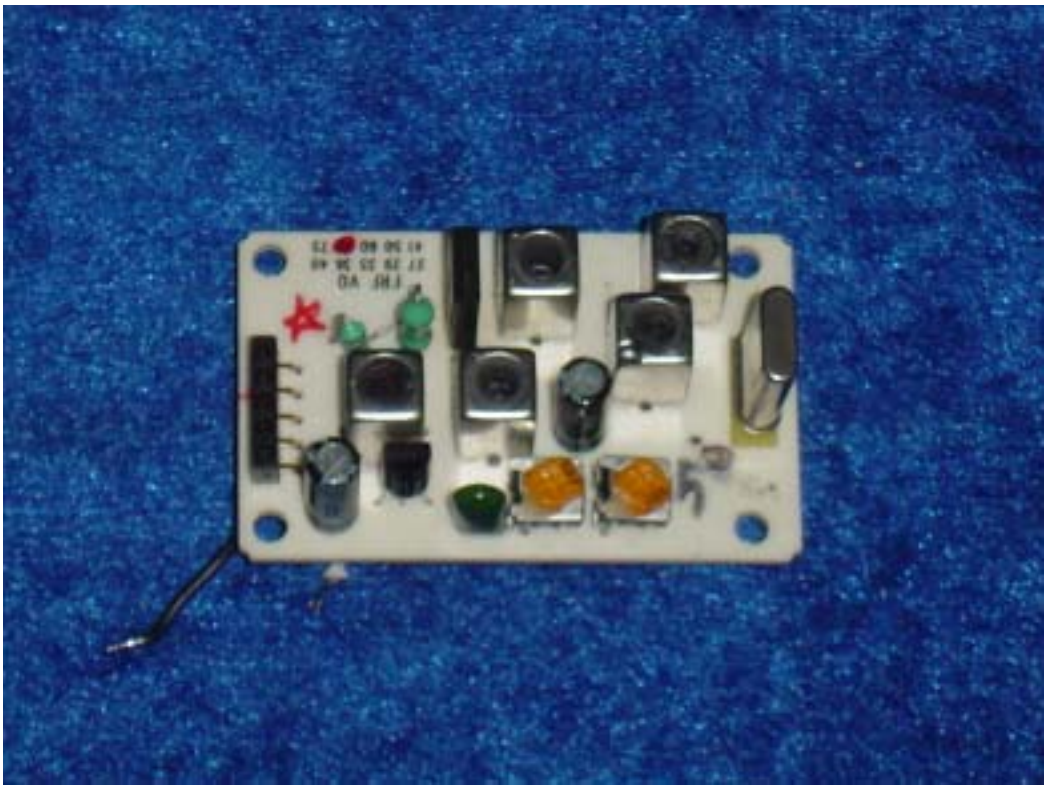
Outside View for transmitter

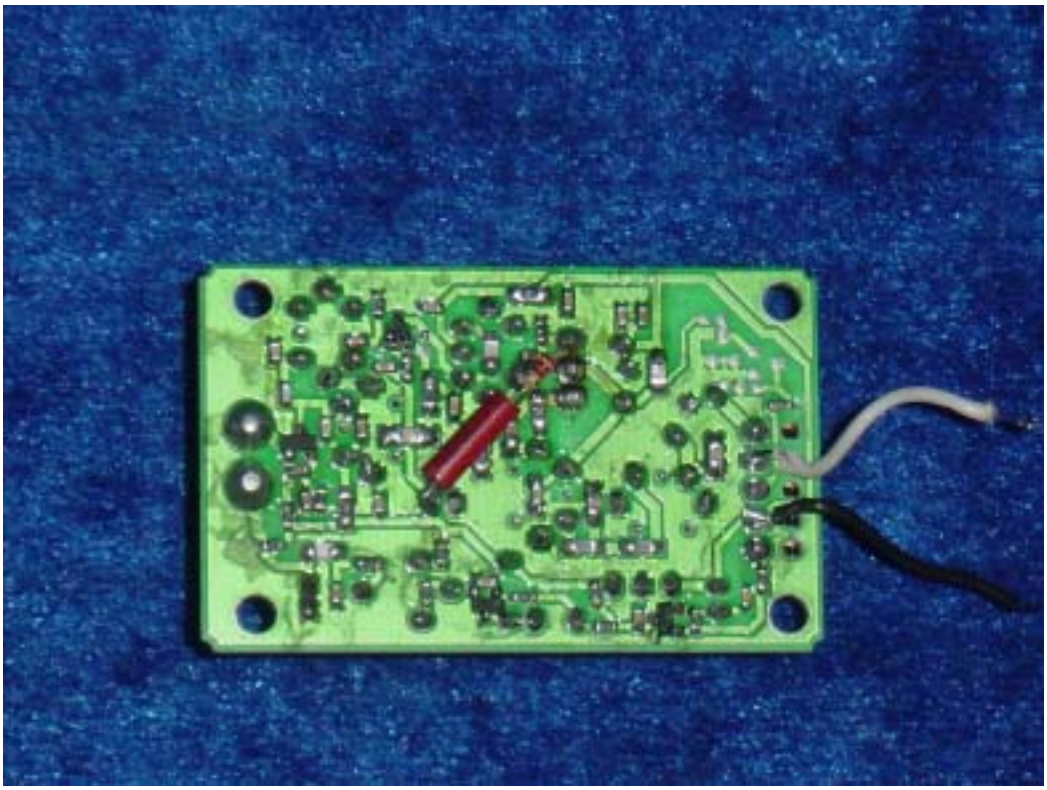
Outside View for transmitter

Interior View for transmitter

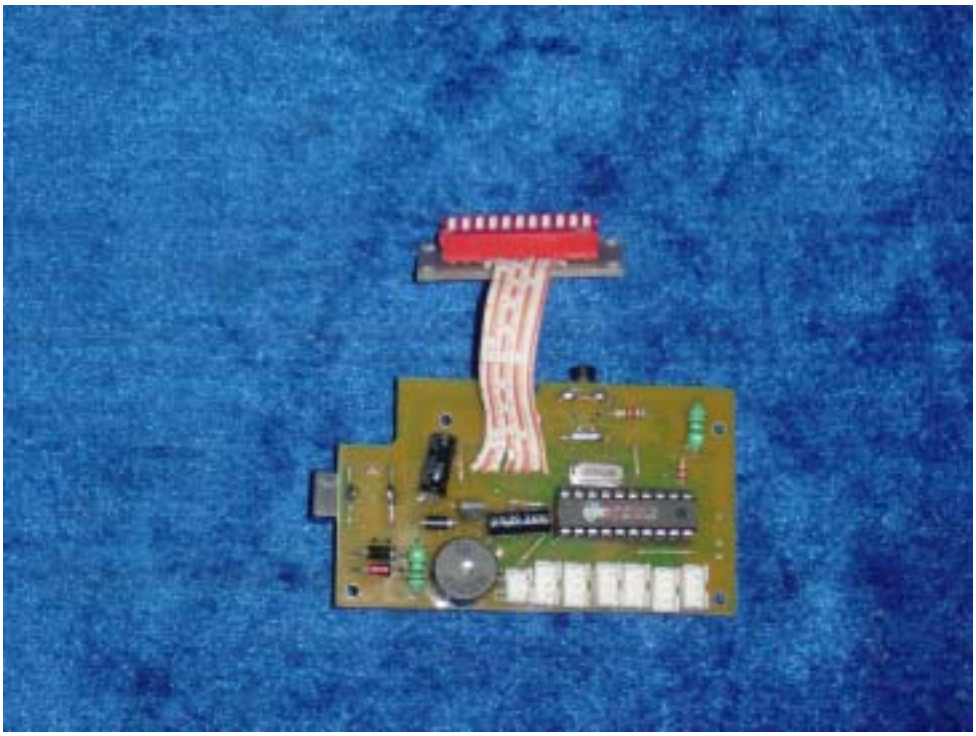


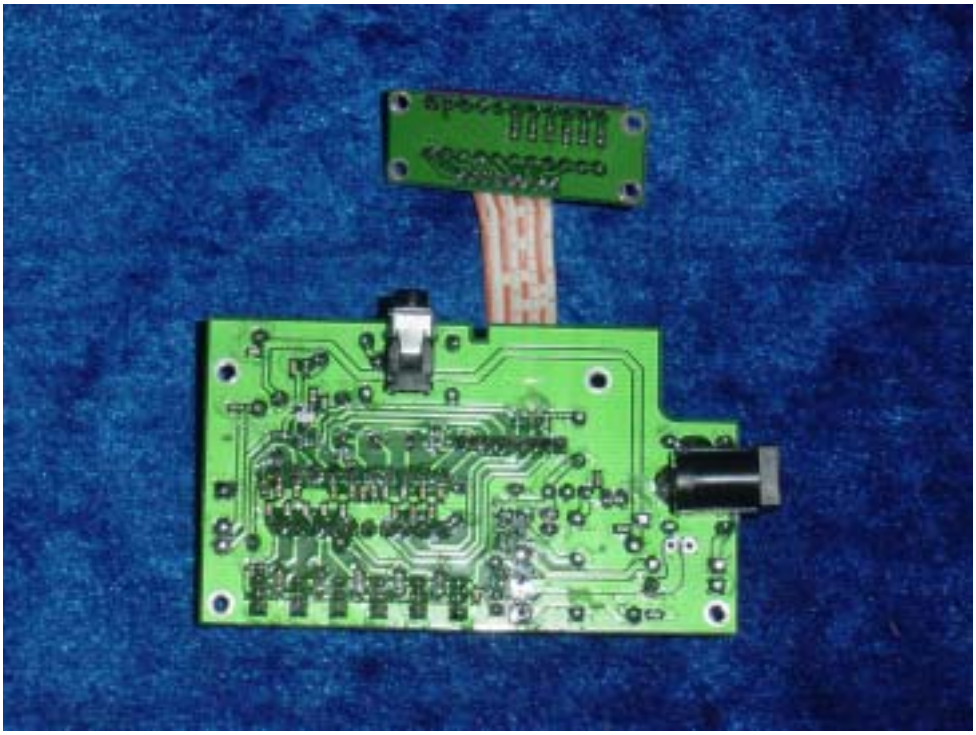
Interior View for transmitter



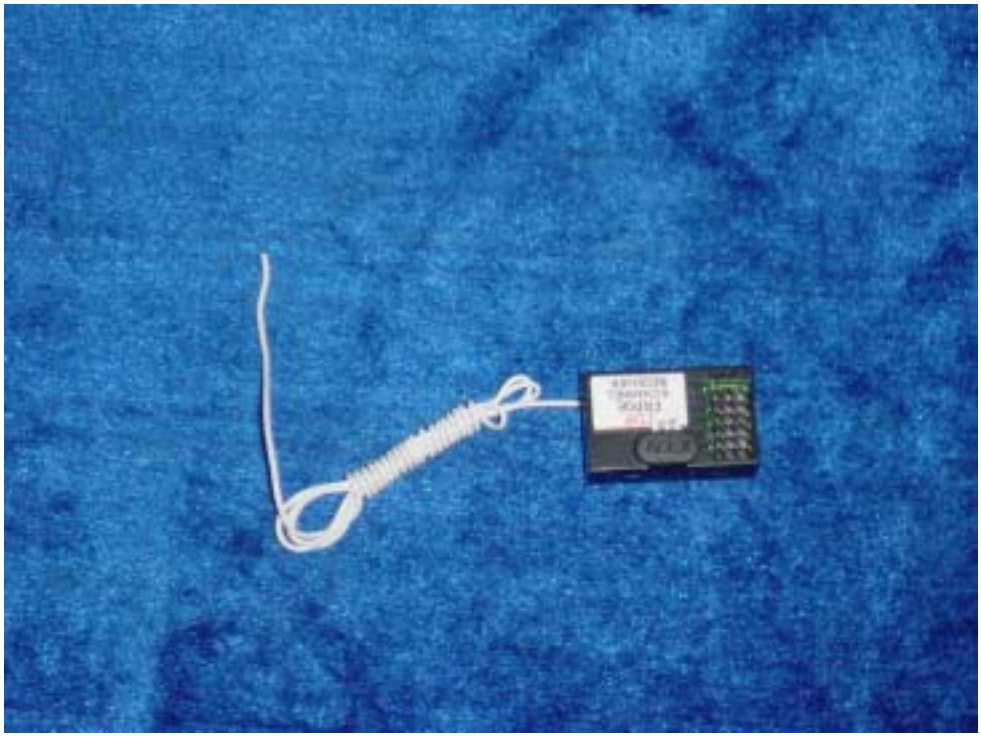


Interior View for transmitter

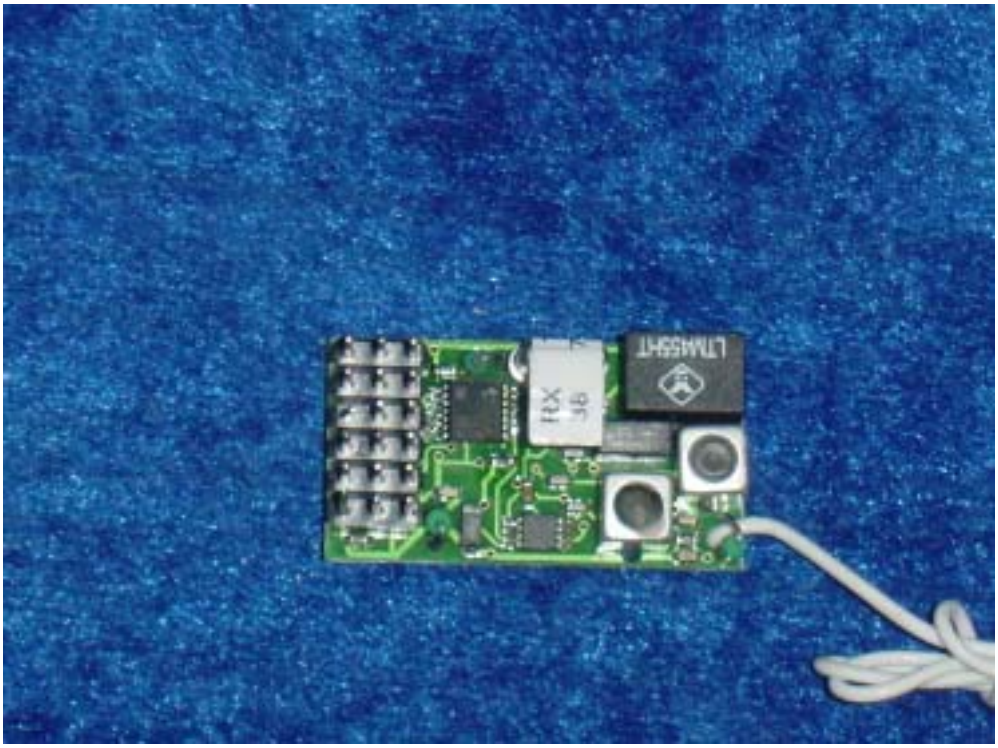


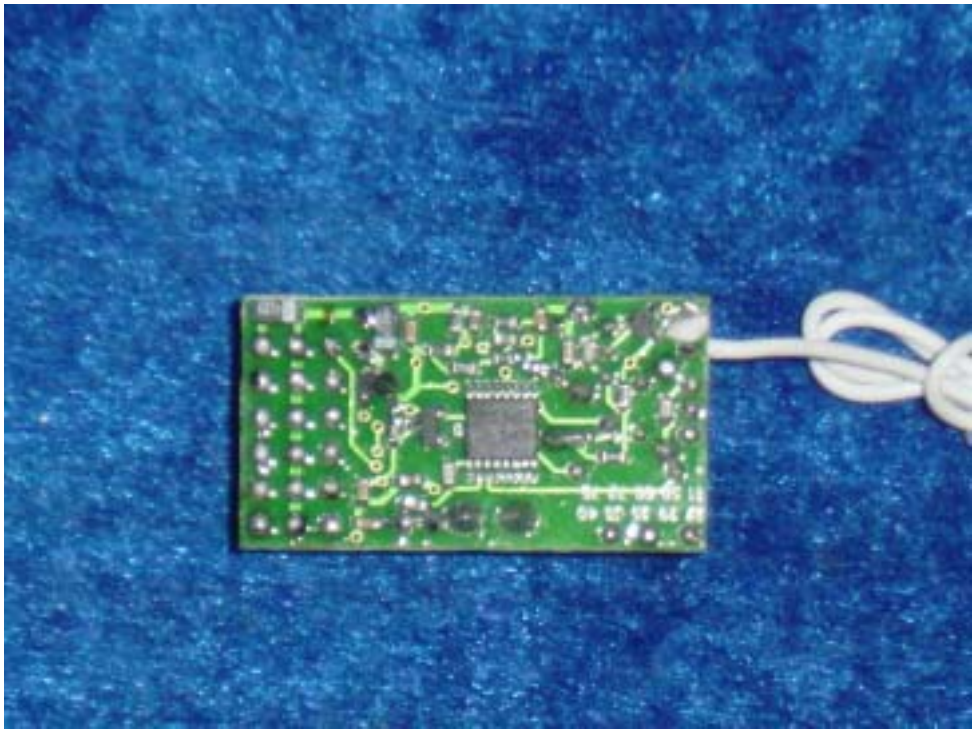


Outside View for receiver



Interior View for Receiver





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