

**ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT
CERTIFICATION TO FCC PART 15 REQUIREMENTS**

for

INTENTIONAL RADIATOR

27 MHz WIRELESS MOUSE TRANSMITTER

MODEL NO: CM-001

FCC ID NO: NHMCM001RF

PROJECT NO: 01T0751-5

ISSUE DATE: MAY 03, 2001

Prepared for

**CRE TECHNOLOGIES CO., LTD.
7F, NO 22, WU-CHUAN 7TH ROAD
WU-KU INDUSTRIAL PK.
TAIPEI, TAIWAN ROC**

Prepared by

COMPLIANCE ENGINEERING SERVICES, INC.

d.b.a.

COMPLIANCE CERTIFICATION SERVICES

**561F MONTEREY ROAD
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1. VERIFICATION OF COMPLIANCE

COMPANY NAME : CRE TECHNOLOGY CO., LTD.
7F, NO 22, WU-CHUAN 7TH ROAD,
WU-KU INDUSTRIAL PK.

CONTACT PERSON : SAN DER CHANG / R&D PC PERIPHERAL DEPT MANAGER

TELEPHONE NO. : (2) 2290-2038

EUT DESCRIPTION : 27 MHz WIRELESS MOUSE TRANSMITTER

MODEL NAME/NUMBER : CM-001

SERIAL NUMBER : CCS# 01450

FCC ID: NHMCM001RF

DATE TESTED : MAY 03, 2001

PROJECT NUMBER : 01T0751-5

TYPE OF EQUIPMENT	REMOTE CONTROL
EQUIPMENT TYPE	27 MHZ WIRELESS MOUSE TRANSMITTER
MEASUREMENT PROCEDURE	ANSI 63.4 / 1992
LIMIT TYPE	CERTIFICATION
FCC RULE	CFR 47, PART 15.227

The above equipment was tested by Compliance Engineering Services, Inc. for compliance with the requirements set forth in CFR 47, PART 15. This said equipment in the configuration described in this report shows that maximum emission levels emanating from equipment are within the compliance requirements. **Warning** : This document reports conditions under which testing was conducted and results of tests performed. This document may not be altered or revised in any way unless done so by Compliance Certification Services and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by Compliance Certification will constitute fraud and shall nullify the document.

Reviewed By

Approved By

THU CHAN / EMC SENIOR ENGINEER
COMPLIANCE CERTIFICATION SERVICES

STEVE CHENG / EMC ENGINEERING MANAGER
COMPLIANCE CERTIFICATION SERVICES

2. **PRODUCT DESCRIPTION**

CHASSIS TYPE	PLASTIC
Fundamental Frequency	27.04 or 27.21MHz
Power Source	3 VOLT BATTERY
Transmitting Time	CONTINUOUS
NO. OF LAYER	1
Local Oscillators	N/A

3. **TEST FACILITY**

The 3/10/30 meter open area test site and conducted measurement facility used to collect the radiated data is located at 561F Monterey Road, Morgan Hill, California, U.S.A. A detailed description of the test facility was submitted to the Commission on May 27,1994.

4. **MEASUREMENT STANDARDS**

The site is constructed and calibrated in conformance with the requirements of ANSI C63.4/1992.

5. **TEST METHODOLOGY**

For an intentional radiator, the spectrum shall be investigated from the lowest radio frequency signal generated in the device, without going below 9 KHz, up to at least the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower. (CFR 47 Section 15.33)

6. MEASUREMENT EQUIPMENT USED

TEST EQUIPMENTS LIST				
Name of Equipment	Manufacturer	Model No.	Serial No.	Due Date
Pre-Amplifier, 25 dB	HP0.1 - 1300MHz	8447D (P5)	2944A06550	9/19/01
Antenna, Bicon	Eaton30 - 200MHz	94455-1	1214	8/10/01
Antenna, LP	EMCO200 - 2000MHz	3146	9107-3163	8/10/01
Spectrum Analyzer	HP100Hz - 22GHz	8566B	3014A06685	6/16/01
Spectrum Display	HP	85662A	3026A19146	6/16/01
Quasi-Peak Detector	HP9K - 1GHz	85650A	3145A01654	6/16/01
Antenna, Loop	EMCO_Active Loop Antenna	6502	N/A	2/23/03

7. POWERLINE RFI LIMIT

CONNECTED TO AC POWER LINE CARRIER CURRENT SYSTEM IN THE FREQUENCY RANGE OF 450 KHz TO 30MHz	SECTION 15.207
BATTERY POWER	NOT REQUIRED.

8. RADIATED EMISSION LIMITS

GENERAL REQUIREMENTS	SECTION 15.209
RESTRICTED BANDS OF OPERATION	SECTION 15.205
OPERATION WITHIN THE BAND 26.96 - 27.28 MHz	SECTION 15.227

9. SYSTEM TEST CONFIGURATION

The EUT was configured for testing in a typical fashion (as a customer would normally use it).

Radiated Open Site Test Set-up



10. EQUIPMENT MODIFICATIONS

To achieve compliance to FCC Section 15.227 technical limits, the following change(s) were made during compliance testing:

NOT APPLICABLE

11. TEST PROCEDURE AND RESULT

11.1 Radiated Emission Test Procedure and Result

1. The EUT was placed on a wooden table on the outdoor ground plane. The search antenna was placed 3 meter from the EUT. The EUT antenna was mounted vertically as per normal installation.
2. The turntable was slowly rotated to locate the direction of maximum emission at each emission falling in the restricted bands of 15.205.
3. Once maximum direction was determined, the search antenna was raised and lowered in both vertical and horizontal polarizations. The readings so obtained are recorded in the data listed below.

Radiated Fundamental Emission and Bandedge Plot



FCC, VCCI, CISPR, CE, AUSTEL, NZ
UL, CSA, TUV, BSMI, DHHS, NVLAP

561F MONTEREY ROAD, SAN JOSE, CA 95037-9001
PHONE: (408) 463-0885 FAX: (408) 463-0888

Project #: 01T0751

Report #: 010430C1

Date & Time: 04/30/01 9:29 AM

Test Engr: KERWIN CORPUZ

Company: CRE TECHNOLOGY CO., LTD.

EUT Description: 27 MHz WIRELESS MOUSE (M/N: CM-001)

Test Configuration : EUT ONLY

Type of Test: 15.2227(b)

Mode of Operation: TX Mode

[<< Main Sheet](#)

Freq.	Reading	AF	Closs	Pre-amp	Level	Limit	Margin	Pol	Az	Height	Mark
(MHz)	(dBuV)	(dB)	(dB)	(dB)	(dBuV/m)	FCC_B	(dB)	(H/V)	(Deg)	(Meter)	(P/Q/A)
136.04	37.70	14.22	1.66	27.02	26.56	43.50	-16.94	3mV	90.00	2.00	P
108.83	38.70	10.74	1.47	27.12	23.80	43.50	-19.70	3mV	90.00	2.00	P
190.46	30.70	16.70	1.93	26.80	22.54	43.50	-20.96	3mV	90.00	2.00	P
163.44	28.50	17.17	1.77	26.89	20.55	43.50	-22.95	3mV	90.00	2.00	P
54.41	31.30	8.89	1.02	27.26	13.95	40.00	-26.05	3mV	90.00	2.00	P
81.57	30.50	9.05	1.22	27.22	13.54	40.00	-26.46	3mV	90.00	2.00	P
6 Worst Data											

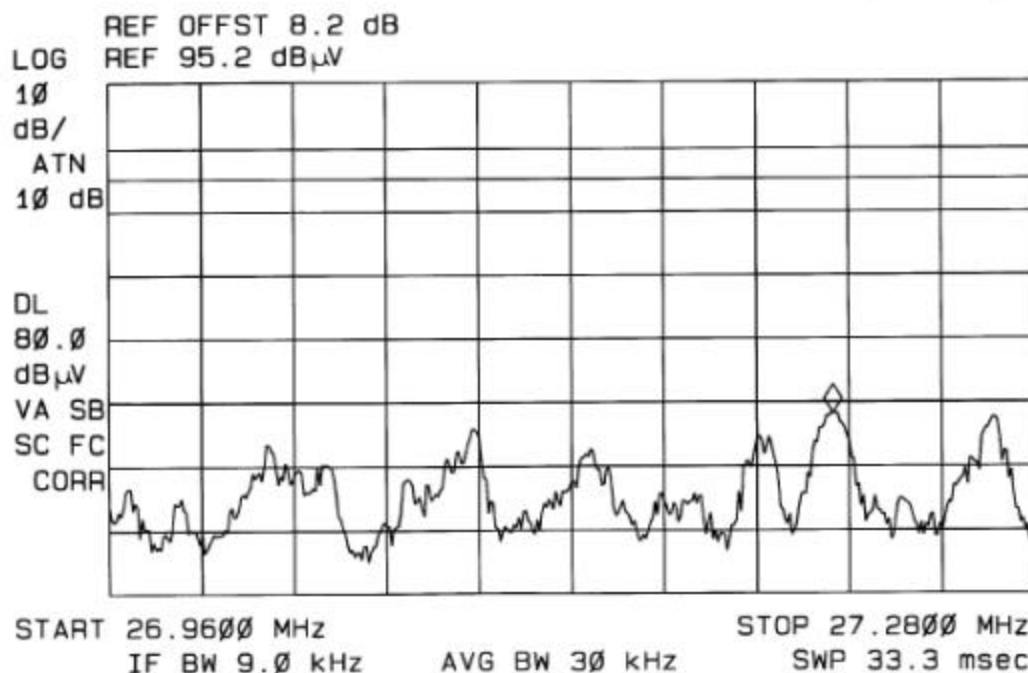
15: 37: 18 APR 30, 2001

15.227 (a); WIRELESS MOUSE M/N: CM-001

ACTV DET: PEAK

MEAS DET: PEAK QP AVG

MKR 27.2104 MHz

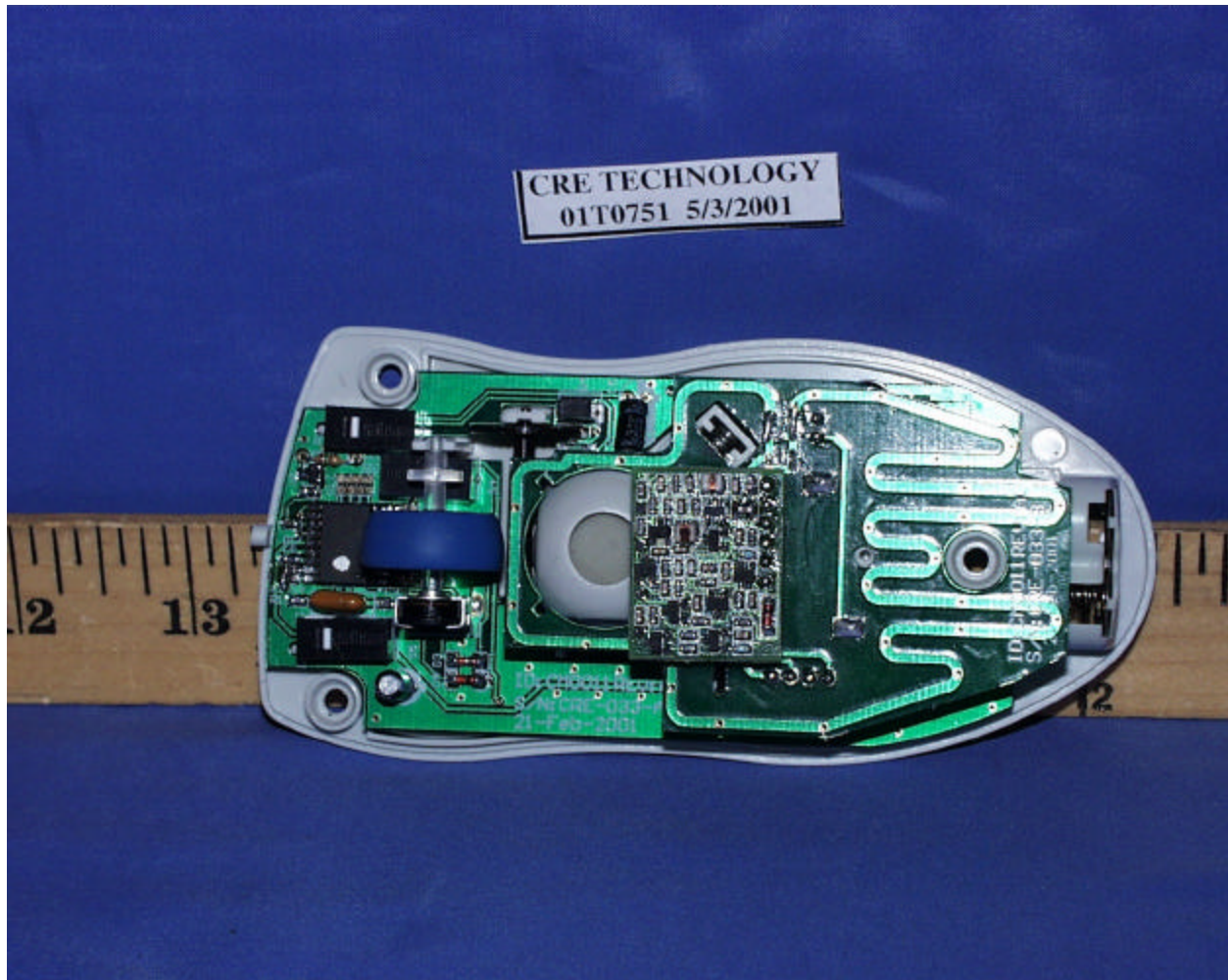
43.29 dB μ V

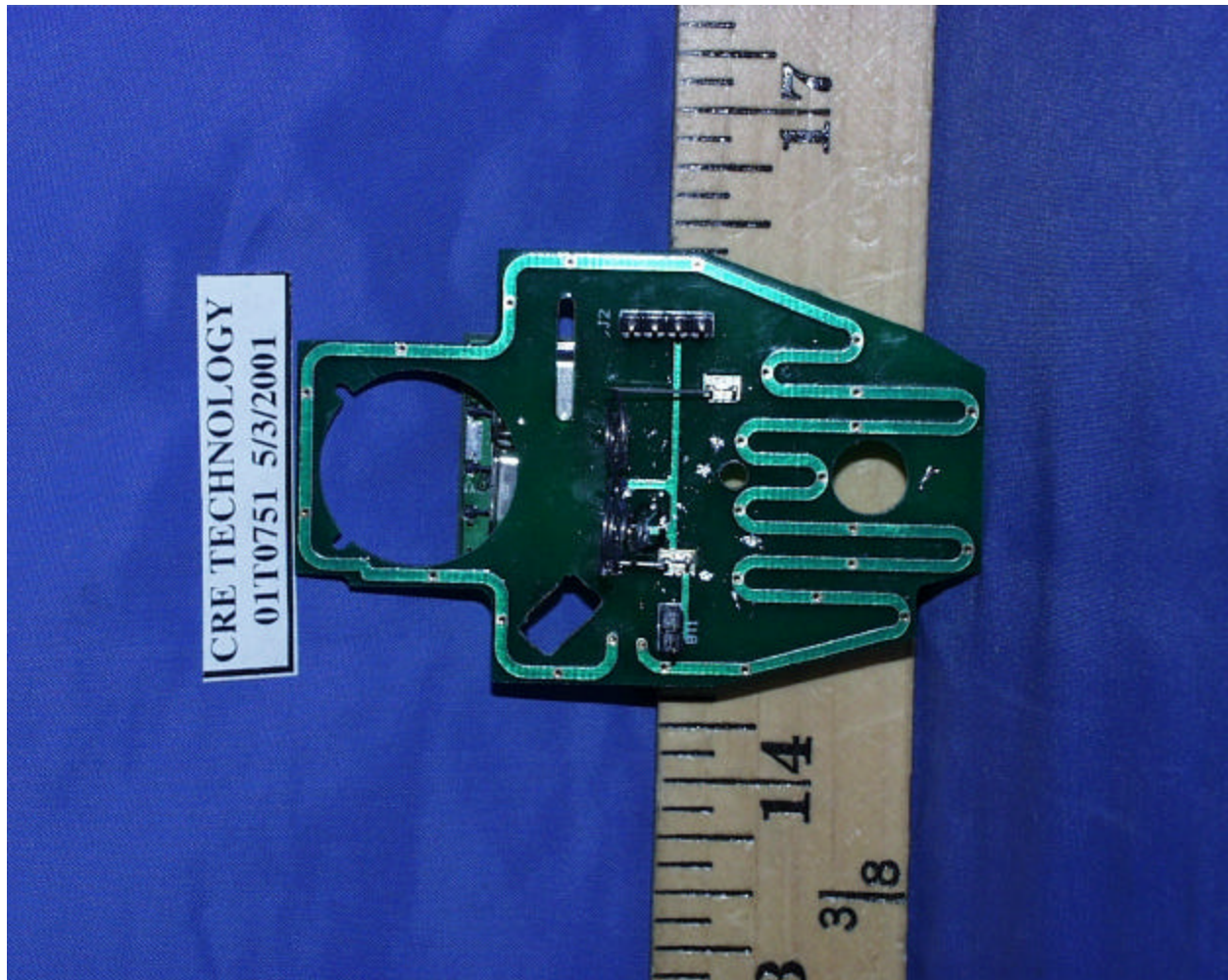
12. Appendix

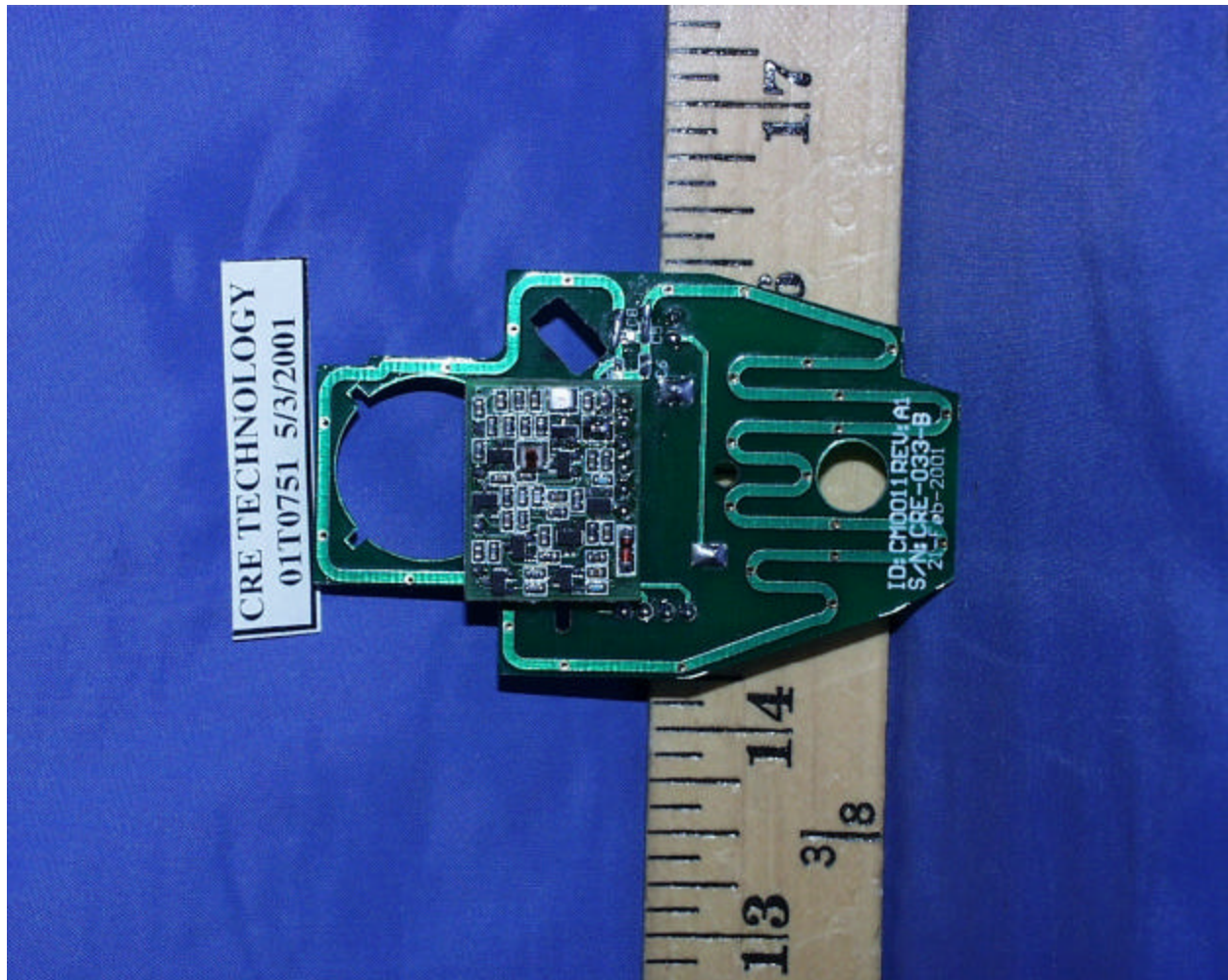
External & Internal Photos

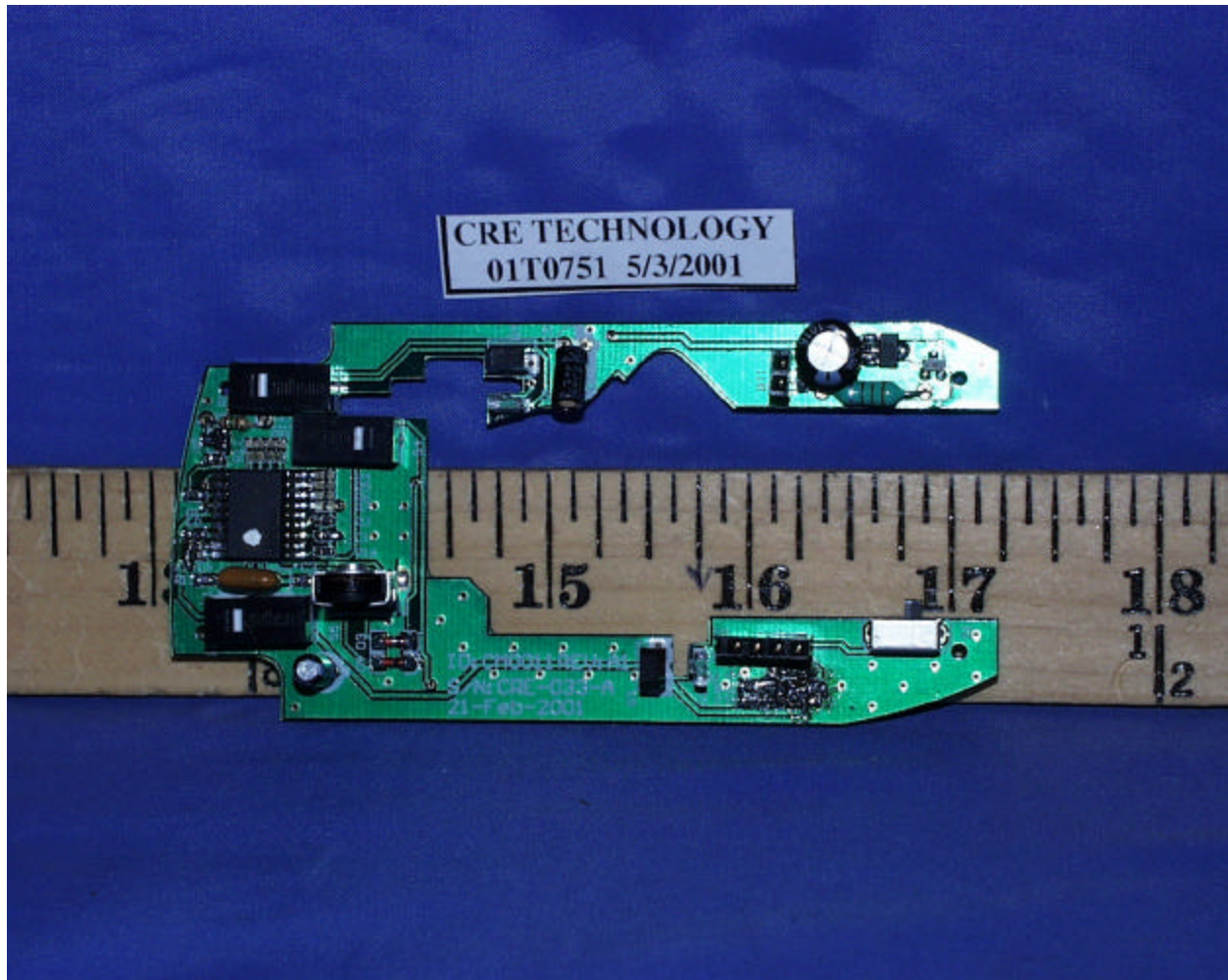


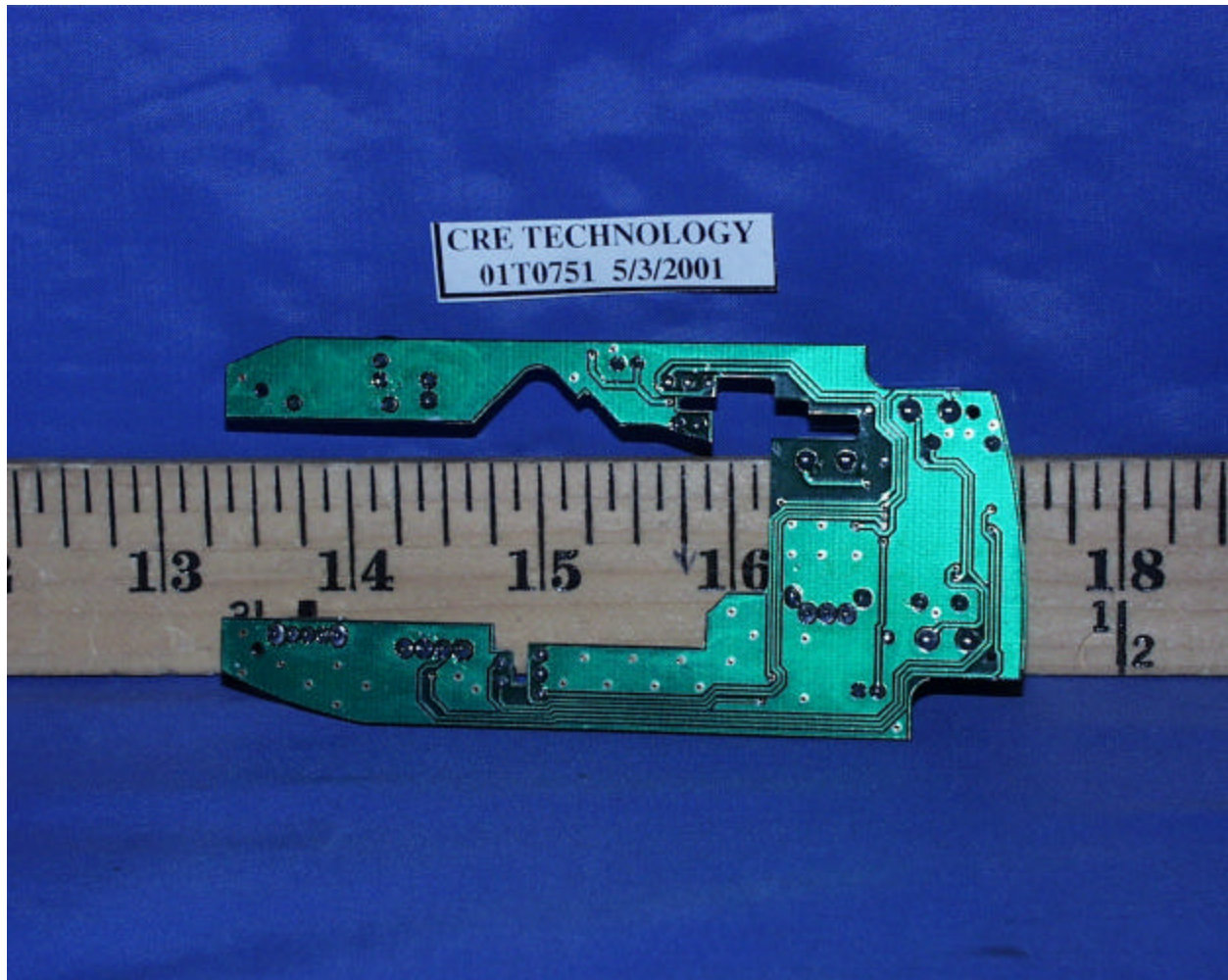












Schematics

Please refer to attached sheets.

Block Diagram

Please refer to attached sheets.

User Manual

Please refer to attached sheets.