MEASUREMENT/TECHNICAL REPORT

APPLICTNT: ET&T Technology Co., LTD.

MODEL NO.: ET1255C

FCC ID: ONYET1255C

This report concerns (check one) : **Original Grant** ✓
Class II Change _____

Equipment type: Touch Screen Controller

Deferred grant requested per 47CFR 0.457(d)(1)(ii)?
Yes _____ No ✓ If yes, defer until: _____ (date)
We, the undersigned, agree to notify the Commission by (date) _____ / _____ / _____ of the intended date of announce ment of the product so that the grant can be issued on that date.

Transiyion Rules Request per 15.37? Yes _____ No ✓
If no, assumed Part 15, Subpart B for unintentional radiator the new 47 CFR (10-1-90 Edition) provision.

Report Prepared

by Testing House ： **Neutron Engineering Inc.**

for Company Name: ET&T Technology Co., LTD.

Address: 2F, No. 2, Lane 57, Sec. 1, Chien Kuo N. Rd., Taipei 104, Taiwan, R.O.C.

Applicant Signature ： Jones Chien

Jones Chien / R&D Engineer

CERTIFICATION

We hereby certify that:
The test data , data evaluation , test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4 (1992)/CISPR 22 (1997) and the energy emitted by the sample EUT tested as described in this report is in compliance with CLASS B conducted and radiated emission limits of FCC Rules Part 15 , Subpart B/CISPR 22 (1997).

Prepared by： Yu-Chien Lee

Reviewed by： Vincent Su

Approved by： George Yao

Issued Date ： March 18, 2002

Report No. ： NEI-FCCB-02038

Company Stamp：

NEUTRON ENGINEERING INC.
No. 132-1, Lane 329, Sec. 2, Palain Road,
Shijr Jen Taipei, Taiwan, R.O.C.
TEL: (02) 2646-5426 FAX：(02) 2646-6815

Table of Contents

1. GENERAL INFORMATION

1-1. Product Description

The ET&T Technology Co., LTD. Model: ET1255C (referred to as the EUT in this report) i is a USB interface Touch Screen Controller designed as an "Input Device" plug and play for compatible with Windows 95/98.
The summarized feature of EUT are described as following:

- Resolution:10bit ADC
- Touch Panel Type: 4-wire
- Interface: USB port
- LED: Touch/Untouch indication
- Power:derived from COM port
- Power consumption: Idle: 10mA Active: 12Ma
- Dimension: 79 x 38 x 21mm
  3.11"x1.50"x0.83"
- Operation Temperature: 0 ~ 70℃
- Storage Terpeature: -55 ~ 125℃

Please see User Manual of this submittals for features descriptions and details.

1-2. Related Submittal(s) / Grant (s)

1-2-1. Models Covered

Models covering in this test report is :ET1255C

1-2-2. Models Difference

N/A

1-3. Tested System Details

The FCC IDs for all equipments, plus descriptions of all cables used in the tested system (including inserted cards, which have grants) are:

Model No.	FCC ID	Equipment	Cable
ET1255C	ONYET1255C	Touch Screen Controller	Shielded Data Cable.
CM753ET	N/A(3)	Monitor	Shielded Data Cable(2) Un-Shielded Power Cord
444	N/A(3)	PC	Shielded Power Cord.
DPU-414	N/A(3)	Printer	Shielded Data Cable Un-Shielded Power Cord
DM-1414V	N/A(3)	Modem	Shielded Data Cable Un-Shielded Power Cord
FDA-102A	F4Z4K3FDA-102A	Keyboard	Shielded Data Cable
SERIES.2-7S	DZL6QBS2	Mouse	Permanently attached on Mouse

Notes:

(1) EUT submitted for grant.

(2) Monitor's attached video cable without ferrite core.

(3) The support Equipment was authorized by Declaration of Confirmation.

1-4. Test Methodology

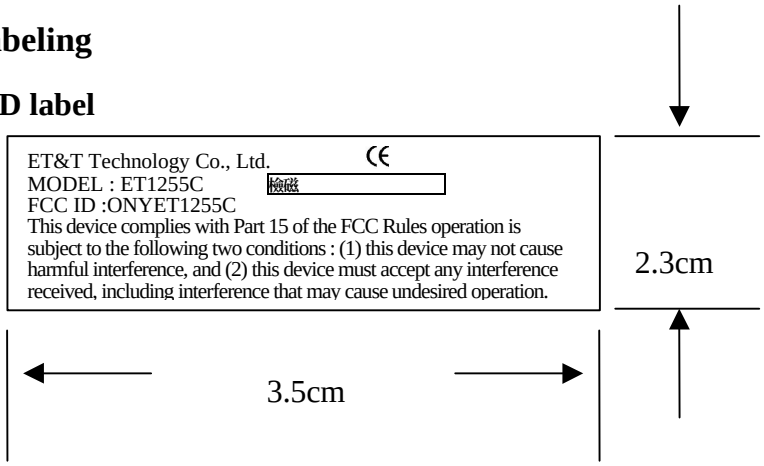
Both conducted and radiated testing were performed according to the procedures in ANSI C63.4 (1992)/CISPR 22 (1997). Radiated testing was performed at an antenna to EUT distance 10 meters.

1-5. Test Facility

The open area test site and conducted measurement facility used to collect the radiated data is located on the address of No. 132-1, Lane 329, Sec. 2, Palain Road, Shijr 221, Taipei, Taiwan, R.O.C. of NEUTRON ENGINEERING INC. This site has been fully described in report dated Jun. 25, 1999 Submitted to your office, and accepted in a letter dated Sep. 02, 1999 (Reg. No. 95335).

2. Product Labeling

2-1. FCC ID label



2-2 Location of Label on EUT

3. System Test Configuration

3-1. Justification

The system was configured for testing in a typical fashion (as a customer would normally use it). The EUT was connected to support equipment-personal computer. Peripherals of PC, such as monitor, keyboard, modem and printer were contained in this system in order to comply with the CISPR22(1997) Rules requirement. The PC operated in the default 640 x 480 / 31.5 KHz VGA Graphic mode.

3-2. EUT Exercise Software

The EUT exercise program used during radiated and conducted testing was designed to exercise the various system components in a manner similar to a typical use. The software, contained on a 3-1/2 inch disk, was inserted into driver A and is auto-starting on power-up. Once loaded, the program sequentially exercises each system component in turn. The sequence used is:

1. Read (write) from (to) mass storage device (Disk).
2. Send "H" pattern to video port device (Monitor).
3. Send " H " pattern to parallel port device (Printer).
4. Send " H " pattern to serial port device (Modem).
5. Repeated from 2 to 4 continuously.

As the Keyboard, Mouse and EUT are strictly input devices, no data is transmitted to (from) them during test. They are, however, continuously scanned for data input activity.

3-3. Special Accessories

No any other special accessory used for compliance testing.

3-4. Equipment Modifications

Not available for this EUT intended for grant.

Applicant Signature：	Jones Chien	**Date：**	March 18, 2002
Type/Printed Name：	Jones Chien	**Position：**	R&D Engineer

3.5 Configuration of Tested System

The configuration of tested system is described as the block diagram shown in next page Figure 3.1 and details information of I/O cable an power cord connection are tabulated as Table A and B. The monitor is powered from a floor mounted receptacle (referred to as the wall outlet in the previous described)was tested.

TABLE A - Test Equipment

Item	Equipment	Mfr.	Model/Type No.	I/O Port	FCC ID	Remark
E-1	Touch Screen Controller	Etouch	ET1255C	USB Port	ONYET1255C	EUT
E-2	Monitor	Hitachi	CM753ET	VGA Port	NA(3)	
E-3	PC	IBM	444		NA(3)	
E-4	Printer	SII	DPU-414	Centronic Port	NA(3)	
E-5	Modem	ACEEX	DM-1414V	Com Port	NA(3)	
E-6	Keyboard	Forward	FDA-102A	K/B Port	F4Z4K3FDA-102A	
E-7	Touch Panel	Etouch	N/A		N/A	
E-8	Mouse	Logitech	SERIES.2-7S	PS2 Port	DZL6QBS2	

Remark:

(1) Unless otherwise denoted as EUT in 『Remark』 column , device(s) used in tested system is a support equipment.

(2) Unless otherwise marked as ※ in 『Remark』 column, Neutron consigns the supporting equipment(s) to the tested system.

(3) The support equipment was authorized by Declaration of Confirmation.

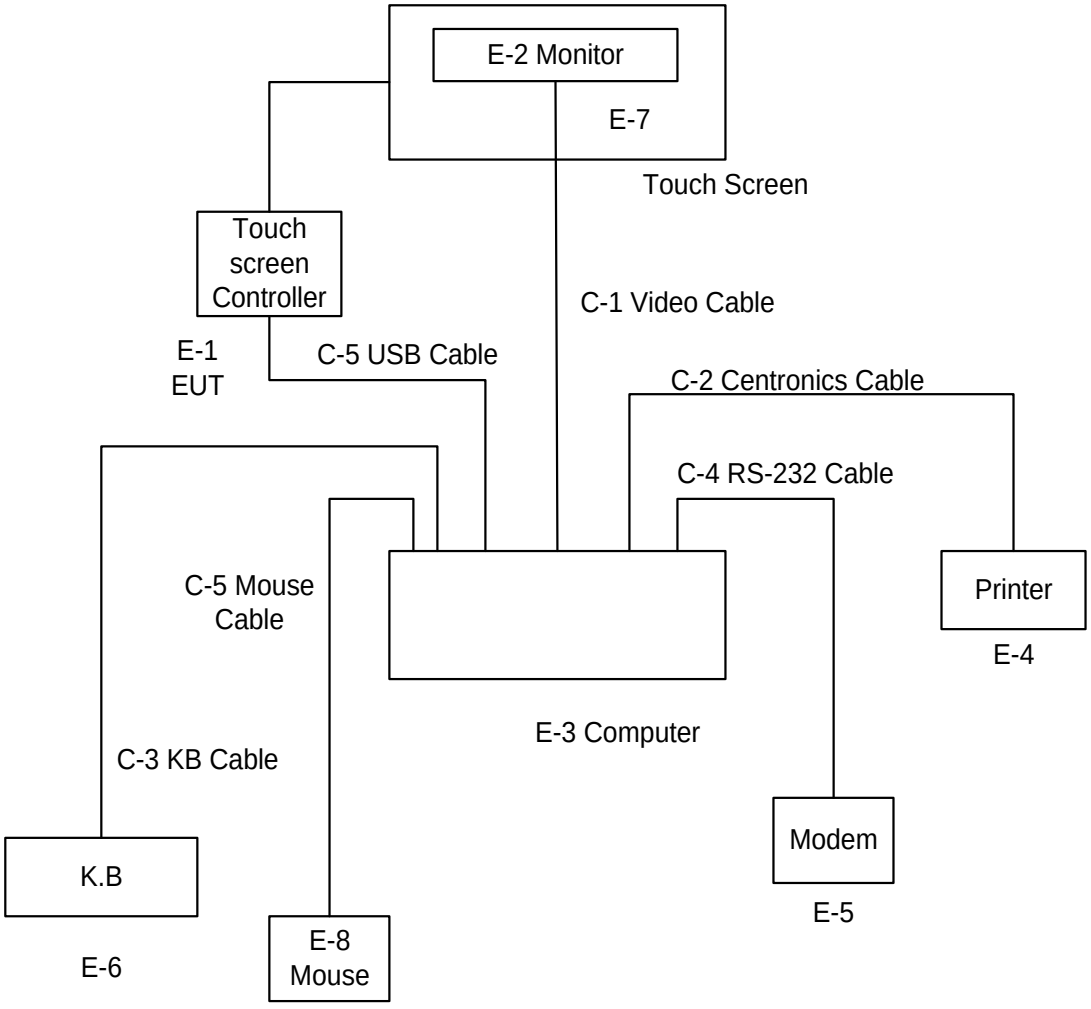
Table B. - Informations Cable Information

Item	I/O Cable	Device Connected	Shielded	Ferrite	Detachable/Permanently	Note
C-1	VGA Cable	PC-Monitor	Yes	No	Permanently attached on Monitor	
C-2	Centronics Cable	PC-Printer	Yes	No	Part of Printer, Detachable	
C-3	Keyboard Cable	PC-Keyboard	Yes	No	Permanently attached on Keyboard	
C-4	RS-232 Cable	PC-Modem	Yes	No	Part of Modem, Detachable	
C-5	USB Cable	EUT-PC	Yes	No	Permanently attached on Touch Screen Controller	※
C-6	PS2 Cable	PC-Mouse	Yes	No	Permanently attached on Mouse	

Note:

(1) Unless otherwise marked as ※ in『Remark』column, Neutron consigns the supporting equipment(s) to the tested system.

Flgure 3.1 Configuration of Tested System



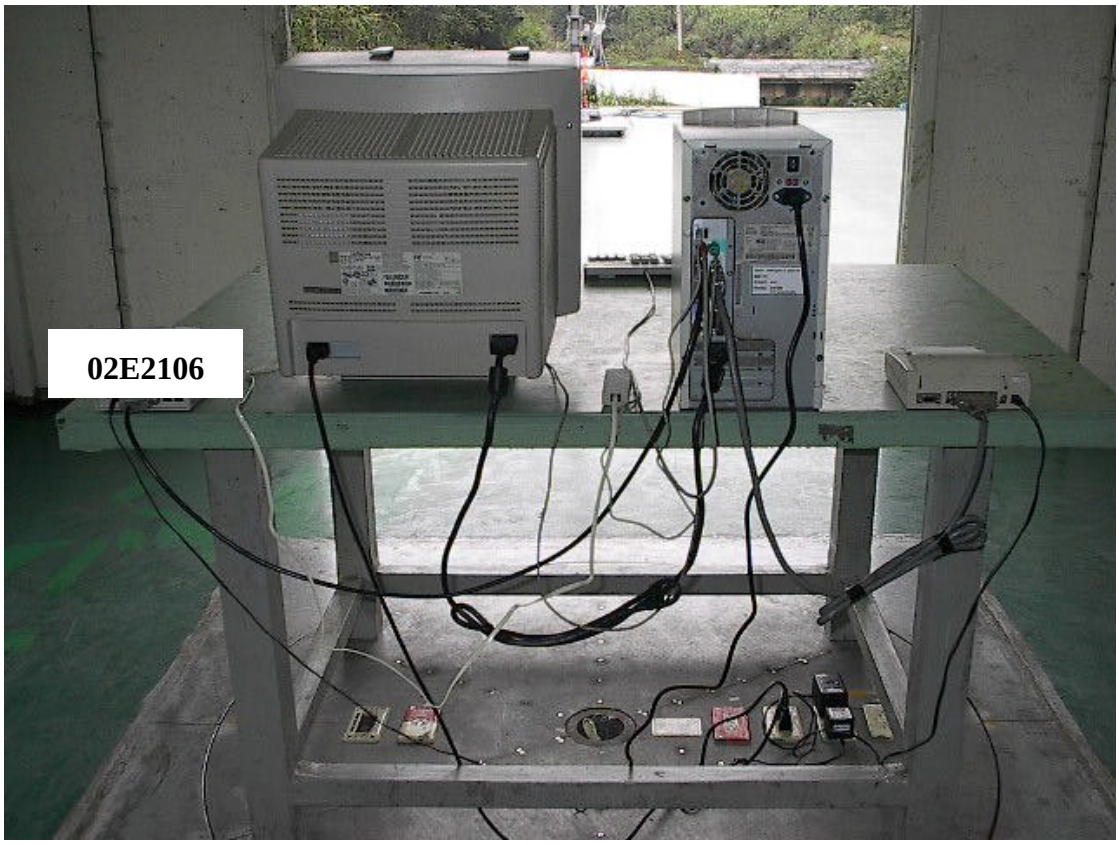
4. Block Diagram(s)

Figure 4.1 Block diagram of system, Page 13.A

5. Conducted and Radiated Measurement Photos

5-1. Conducted Measurement Photos

5-2. Radiated Measurement Photos



6. Conducted Emission Datas

6.1 The initial step in collecting conducted data is a spectrum analyzer peak scan of the measurement range. significant peaks are then marked as shown on the following data page, and these signals are then quasi-peaked.

Judgement: Passed by **-10.85 dB** in mode of **Line** terminal **0.16 MHz**

Freq.	Terminal	Measured(dBuV)		Limits(dBuV)		Safe Margins	
(MHz)	L/N	QP-Mode	AV-Mode	QP-Mode	AV-Mode	(dBuV)	Note
0.16	Line	54.82	*	65.67	55.67	-10.85	(QP)
0.59	Line	37.14	*	56.00	46.00	-18.86	(QP)
2.62	Line	42.82	*	56.00	46.00	-13.18	(QP)
5.48	Line	42.42	*	60.00	50.00	-17.58	(QP)
16.23	Line	38.37	*	60.00	50.00	-21.63	(QP)
24.40	Line	40.09	*	60.00	50.00	-19.91	(QP)
0.16	Neutral	52.09	*	65.36	55.36	-13.27	(QP)
0.59	Neutral	36.55	*	56.00	46.00	-19.45	(QP)
1.93	Neutral	39.10	*	56.00	46.00	-16.90	(QP)
2.66	Neutral	42.77	*	56.00	46.00	-13.23	(QP)
9.91	Neutral	41.48	*	60.00	50.00	-18.52	(QP)
24.40	Neutral	40.13	*	60.00	50.00	-19.87	(QP)

Remark：

(1) Reading in which marked as QP means measurements by using are Quasi-Peak Mode and Average Mode with Detector BW=9KHz ; SPA setting in RBW=10KHz,VBW =10KHz, Swp. Time = 0.3 sec./MHz。

(2) All readings are QP Mode value unless otherwise stated AVG in column of『Note』. If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemd to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform。 In this case, a " * " marked in AVG Mode column of Interference Voltage Measured。

(3) Measuring frequency range from 150KHz to 30MHz。

Review： Vincent Lin Test Personnel.： Jeff Date: Feb 08, 2002

7. Radiated Emission Datas

7.1 The following data lists the significant emission frequencise, measured levels, correction factor (includes cable and antenna corrections), the corrected reading, as well as the limit. Explanation of the Correction Factor is given in paragraph 7.2.

Judgement: Passed by **-2.03 dB** in polarity of **Vertical 72.20 MHz**

Freq. (MHz)	Ant. H/V	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits(QP) (dBuV/m)	Safe Margins (dBuV/m)	Note
54.32	V	44.21	-16.24	27.97	30.00	- 2.03	(QP)
73.72	H	45.60	-19.15	26.45	30.00	- 3.55	
120.82	V	43.80	-15.92	27.88	30.00	- 2.12	
144.08	H	41.59	-14.75	26.84	30.00	- 3.16	(QP)
167.11	V	42.03	-14.91	27.12	30.00	- 2.88	(QP)
167.12	H	41.08	-14.91	26.17	30.00	- 3.83	(QP)
299.96	H	40.20	-14.28	25.92	37.00	- 11.08	
301.86	V	41.80	-14.21	27.59	37.00	- 9.41	
334.24	H	44.90	-13.62	31.28	37.00	- 5.72	
335.51	V	46.10	-13.57	32.53	37.00	- 4.47	
432.03	H	37.10	-11.53	25.57	37.00	- 11.43	
734.86	V	33.10	- 5.70	27.40	37.00	- 9.60	

Remark:

(1) Reading in which marked as QP or Peak means measurements by using are Quasi-Peak Mode or Peak Mode with Detector BW=120KHz ; SPA setting in RBW=100KHz,VBW =100KHz, Swp. Time = 0.3 sec./MHz.

(2) All readings are Peak unless otherwise stated QP in column of(Note). Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measure-ment didn't perform.

(3) Measuring frequency range from 30MHz to 1000MHz.

(4) If the peak scan value lower limit more than 20dB, then this signal data does not show in table.

Review : Vincent Lin Test Personnel. : Jeff Date: Feb 18, 2002

7-2. Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CL - AG

Where FS = Field Strength

RA = Receiver Amplitude

AF = Antenna Factor (1)

CL = Cable Attenuation Factor (1)

AG = Amplifier Gain (1) (2)

Remark :

(1) The Correction Factor = AF + CL - AG, as shown in the data tables' Correction Factor column.

(2) AG is not available for Neutron's Open Site Facility

Example of Calculation:

Assume a Receiver Reading of 23.7 dBuV is obtained with an Antenna Factor of 7.2 dBuV and a Cable Factor of 1.1 dBuV. Then:

1. The Correction Factor will be caculated by

Correction Factor = AF + CL - AG = 7.2 + 1.1 - 0 = 8.3 (dB)

as shown in the data tables' Correction Factor column.

2. The Field Strength will be calculated by

FS = RA + Correction Factor = 23.7 + 8.3 = 32 (dBuV/m).

FS is the value shown in the data tables' Corrected Reading column and RA is the value shown in

the data tables' Receiver Reading column. The 32 dBuV/m value was mathematically converted

to its corresponding level in uV/m as:

$$\mathbf{Log^{-1}【(32.0dBuV/m)/20】 = 39.8 (uV/m)}$$

7-3. Correction Factor VS Frequency

Frequency (MHz)	Antenna Factor (dB)	Cable Loss (dB)
30.00	11.10	0.90
35.00	10.80	0.50
40.00	11.20	1.00
45.00	11.50	0.80
50.00	11.30	1.00
55.00	10.50	1.30
60.00	9.90	1.00
65.00	8.70	1.50
70.00	7.60	1.20
75.00	6.40	1.40
80.00	6.10	1.30
85.00	7.00	1.40
90.00	8.00	1.70
95.00	10.00	1.50
100.00	11.20	1.90
110.00	12.60	2.00
120.00	13.00	1.80
130.00	12.50	1.80
140.00	12.00	2.00
150.00	12.00	2.20
160.00	13.20	2.40
170.00	14.80	2.50
180.00	16.30	2.50
190.00	17.00	2.50
200.00	17.30	2.40
225.00	10.50	2.70
250.00	11.70	3.10
275.00	12.80	3.70
300.00	14.50	4.00
325.00	14.00	4.50
350.00	14.20	4.50
375.00	14.60	4.60
400.00	15.10	4.80
450.00	16.20	5.40
500.00	17.60	6.50
550.00	17.80	7.00
600.00	18.40	7.10
650.00	19.50	7.10
700.00	20.80	7.20
750.00	20.50	7.50
800.00	21.10	8.00
850.00	22.40	8.60
900.00	23.50	8.90
950.00	24.00	9.70
1000.00	24.80	10.30

8. Photos of Tested EUT:

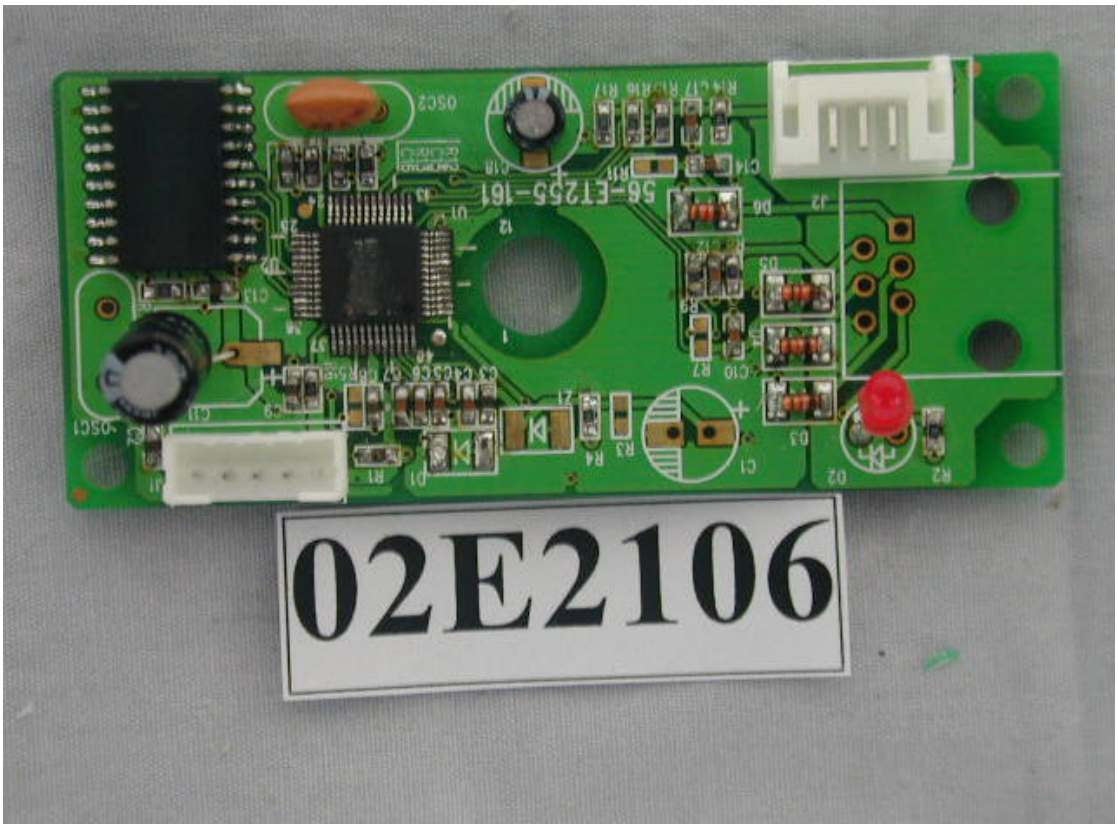
1. Photo # 1 Front View Rear View
2. Photo # 2 Unit Partially Disassembled
3. Photo # 3 Unit Partially Disassembled

Attachment

User' s Manual

Photo # 1 Front View Rear View

Photo # 2 Unit Partially Disassembled



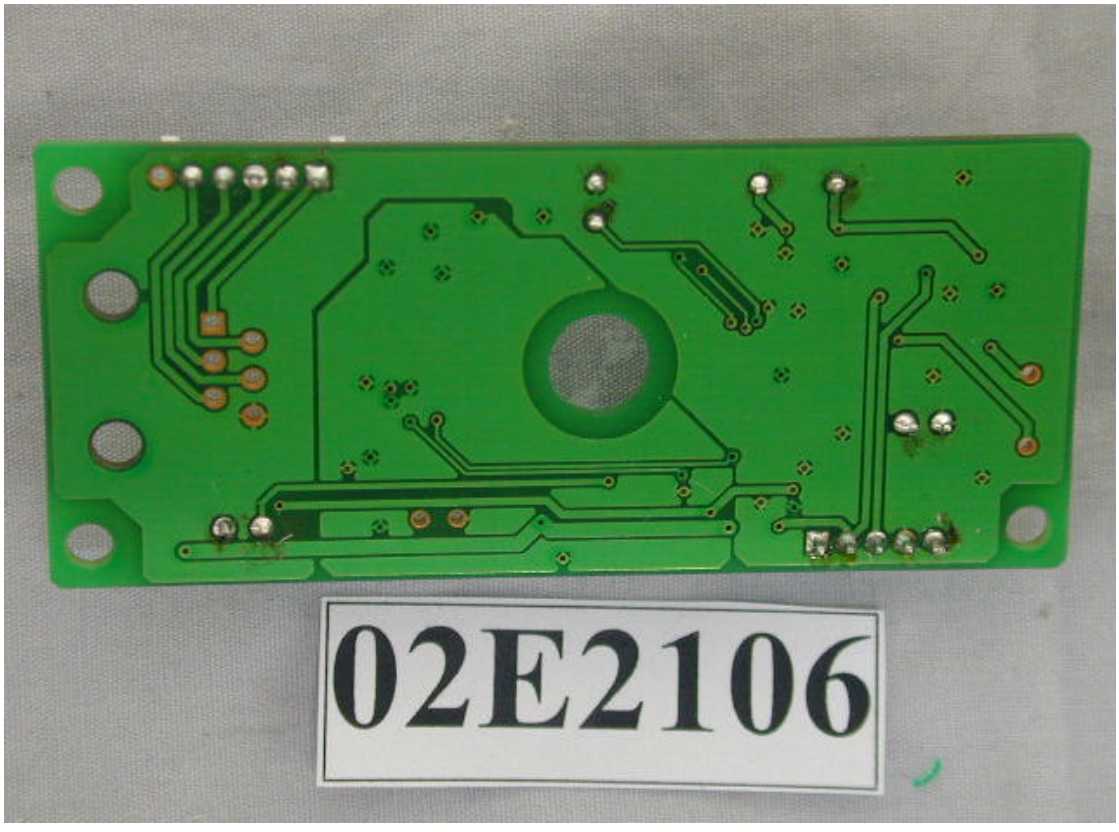


Photo # 3 Unit Partially Disassembled