

CE REPORT

(CLASS B)

EUT : PC SYSTEM

MODEL : PPC-120CT, PPC-140CT

SRT REPORT # CE8F20-1

PREPARED FOR :

ADVANTECH CO., LTD.

FL. 4, NO. 108-3, MING-CHUAN ROAD,

SHING-TIEN CITY, TAIPEI,

TAIWAN, R. O. C.

PREPARED BY :

SPECTRUM RESEARCH & TESTING LABORATORY INC.

NO. 101-10, LING 8, SHAN-TONG LI CHUNG-LI CITY,

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ref pgh/12/31

18 December 1996

To:- Mr Johnson C Y Ho
Spectrum Research & Testing Laboratory, Inc.
No. 101-10, Ling 8 Shan-tong Li
Chungli City
TAOYUAN
Taiwan ROC



Dear Mr Ho

ASSESSMENT OF LABORATORY CAPABILITY
EUROPEAN EMC DIRECTIVE 89/336/EEC

Following the assessment carried out by Mr P. G. Harris to guidelines based on ISO 25 specification I hereby confirm that test results and reports produced by SRT Laboratories are acceptable to TRL EMC Ltd in their capacity as a Competent Body appointed by the United Kingdom and confirmed by the European Commission.

Specifications covered by the assessment:-

- | | |
|------------|------------------|
| EN 55011 | IEC 801-2 (1984) |
| EN 55014 | IEC 801-3 (1984) |
| EN 55015 | IEC 801-4 (1988) |
| EN 55022 | EN 60555-2 |
| EN 50081-1 | EN 60555-3 |
| EN 50082-1 | |

Date of assessment 2 & 3 Dec 1996

Competent Body Assessor

Paul G Harris
Managing Director
TRL EMC Ltd

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1. TEST REPORT CERTIFICATION

APPLICANT : ADVANTECH CO., LTD.

ADDRESS : FL. 4, NO. 108-3, MING-CHUAN ROAD,
SHING-TIEN CITY, TAIPEI,
TAIWAN, R.O.C.

EUT DESCRIPTION : PC SYSTEM

(A) **POWER SUPPLY** : 115/230VAC, 50-60Hz

(B) **MODEL** : PPC-120CT, PPC-140CT

FINAL TEST DATE : 02/22/1999

MEASUREMENT PROCEDURE USED :

EN50081 - 1

EN55022/CISPR 22

EN61000 - 3 - 2

EN61000 - 3 - 3

EN50082 - 1

IEC 801-2

IEC 801-3

IEC 801-4

We hereby show that :

The measurement shown in the attachment were made in accordance with the procedures indicated, and the energy emitted by the equipment was found to be within the limits applicable.

TESTING ENGINEER : Addison Liu **DATE** 2/22/99
Addison Liu

SUPERVISOR : Jesse Ho **DATE** 2/22/99
Jesse Ho

APPROVED BY : Johnson Ho **DATE** 2/22/99
Johnson Ho

2. TEST STATEMENT

2.1 TEST STATEMENT

To whom it may concern,

This letter is to explain the test condition of this project.
The EUT be tested as the following status.

CPU: Intel Pentium 200MMX

Clock chip: 66MHz

Resolution: 640 * 480
800 * 600
1024 * 768

The data was shown in this report reflects the worst - case data for the condition as listed above.

Please disregard any other oricessir(s) speed shown in this user manual.

2.2 DEPARTURE FROM DOCUMENT POLICIES, PROCEDURE OR SPECIFICATIONS, THE STATEMNT

A. DID HAVE

Any departure from document policies & procedures or from specifications.

Yes _____, No √

If yes, the description as below.

B. The certificate and report shall not be reproduced except in full, without the written approval of SRT LABORATORY.

C. The report must not be used by the client to claim product endorsement by NVLAP or any agency the government.

3. EUT MODIFICATIONS

The following accessories were added to the EUT during testing :

No modifications by SRT LAB.

4. CONDUCTED POWER LINE TEST

4.1 TEST EQUIPMENT

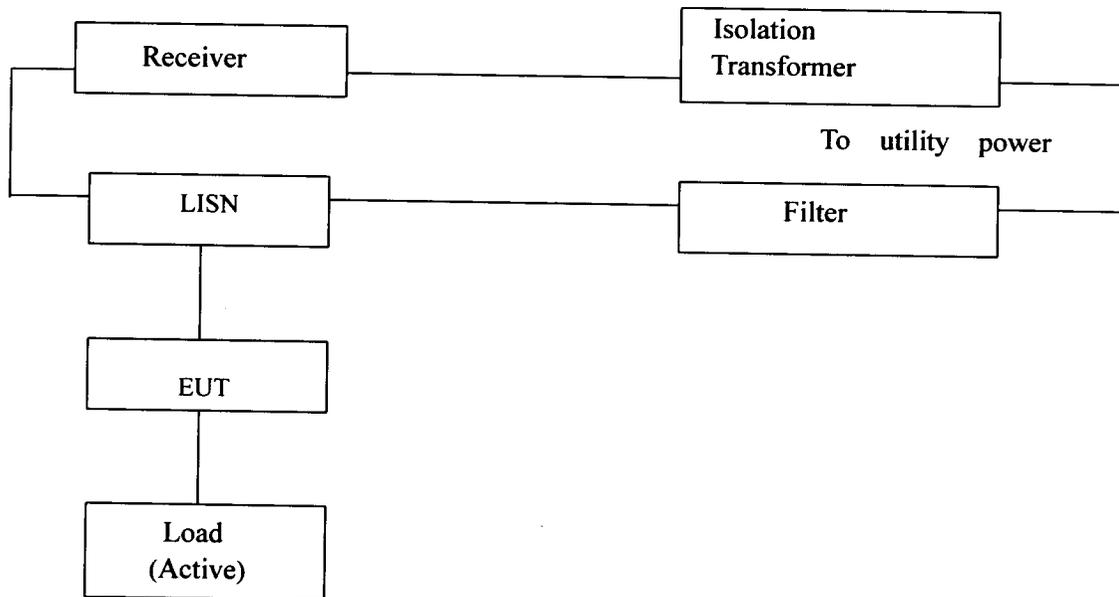
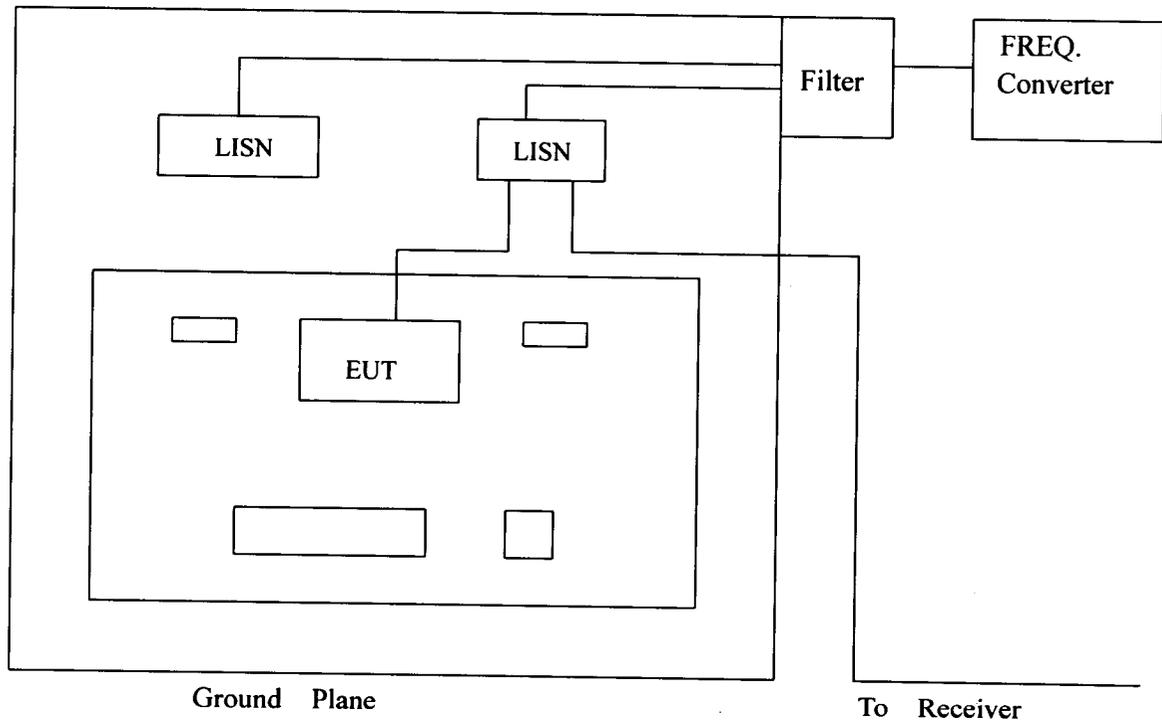
The following test equipment were used during the conducted power line test :

EQUIPMENT/ FACILITIES	SPECIFICATIONS	MANUFACTURER	MODEL#/ SERIAL#	DATE OF CAL. & CAL. CENTER	DUE DATE
SPECTRUM ANALYZER	9 KHz TO 1 GHz	HP	8590L/ 3624A01317	AUGUST 1998 ETC	1Y
EMI TEST RECEIVER	9 KHz TO 30 MHz	ROHDE & SCHWARZ	ESHS30/ 826003/008	AUGUST 1998 ETC	1Y
LISN	50 uH, 50 ohm	SOLAR ELECTRONICS	9252-50- R24-BNC/ 951315	AUGUST 1998 ETC	1Y
LISN	50uH, 50 ohm	SOLAR ELECTRONICS	9252-50- R24-BNC/ 951315	AUGUST 1998 ETC	1Y
SIGNAL GENERATOR	9 KHz TO 1080 MHz	ROHDE & SCHWARZ	SMY01/ 841104/019	APRIL 1998 ITRI	1Y
POWER CONVERTER	0 TO 300 VAC VAC 47-500 Hz	AFC	AFC-1KW/ 850510	APRIL 1998 SRT	1Y

4.2 TEST PROCEDURE

The EUT was tested according to EN55022. The frequency spectrum from 0.15 MHz to 30 MHz was investigated. The LISN used was 50 ohm / 50 uHenry as specified by EN55022. Cables and peripherals were moved to find the maximum emission levels for each frequency.

4.3 TEST SETUP



4.4 CONFIGURATION OF THE EUT

The EUT was configured according to EN55022. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

A. EUT

DEVICE	MANUFACTURER	MODEL #	REMARK
PC SYSTEM	ADVANTECH CO, LTD.	PPC-120CT, PPC-140CT	

B. INTERNAL DEVICES

DEVICE	MANUFACTURER	MODEL #	REMARK
MAIN BOARD	ADVANTECH	PPC-120CT, PPC-140CT	
POWER BOARD	SKYNET	SNP-8086	
HDD	IBM	DDLA-21620	
FDD	YE-DATA	YD-702J	
CD-ROM	TOSHIBA	XM-1702B	
EXPAND BOARD	ADVANTECH	DEBUE CARD	

C. PERIPHERALS

DEVICE	MANUFACTURER	MODEL # SERIAL #	REMARK	CABLE
MONITOR	OPTIQUEST	4500DC-E		POWER-UNS DATA-S
PRINTER	HP	2225C		POWER-UNS DATA-S
MODEM	SMARTEAM	103/212A		POWER-UNS DATA-S
MODEM	SMARTEAM	1200AT		POWER-UNS DATA-S
MODEM	APPLE	M2706		POWER-UNS DATA-S
KEYBOARD	HP	SK-2502		DATA-UNS
MOUSE	TECH	PRO-92L		DATA-UNS
USB MOUSE	ABIT	97M32U		DATA-S
USB MOUSE	ABIT	97M32U		DATA-S
SPEAKER	JS	J-003		DATA-UNS
EARPHONE	SP	TH-881A		DATA-UNS
JOYSTICK	CH	1225		DATA-UNS

REMARK :

- (1). Cable - uns : Unshielded
 s : Shielded
- (2). Cables - all 1m or greater in length - bundled according to regulations.

4.5 EUT OPERATING CONDITION

Operating condition is according to EN55022.

1. EUT power on.
2. "H" pattern sent to the following peripherals :
 - printer
 - monitor
 - modem * 3
3. Test with CPU
 - CPU : Intel Pentium 200MMX
 - Clock chip: 66MHz
4. Resolution : 640 * 480
 - 800 * 600
 - 1024 * 768

4.6 CONDUCTED POWER LINE EMISSION LIMIT**CLASS A :**

FREQUENCY RANGE (MHz)	QUASI PEAK	AVERAGE
0.15 - 0.5	79dBuV	66dBuV
0.5 - 5.0	73dBuV	60dBuV
5.0 - 30.0	73dBuV	60dBuV

CLASS B :

FREQUENCY RANGE (MHz)	QUASI PEAK	AVERAGE
0.15 - 0.5	66 - 56dBuV	56-46dBuV
0.5 - 5.0	56dBuV	46dBuV
5.0 - 30.0	60 dBuV	50dBuV

NOTE : In the above table, the tighter limit applies at the band edges.

4.7 CONDUCTED POWER LINE TEST RESULT

The frequency spectrum from 0.15 MHz to 30 MHz was investigated. All readings are QUASI-PEAK values & AVERAGE with a resolution bandwidth of 9 KHz.

Temperature : 23 °CHumidity : 55 %RH**QUASI-PEAK**

FREQUENCY (MHz)	LINE1 (dBuV)	LINE2 (dBuV)	LIMIT (dBuV)
0.19	47.8	47.1	64.0
0.32	31.8	31.9	59.8
1.47	17.7	28.2	56.0
2.30	15.4	26.0	56.0
14.3	35.0	*	60.0
17.9	*	29.5	60.0

AVERAGE

FREQUENCY (MHz)	LINE1 (dBuV)	LINE2 (dBuV)	LIMIT (dBuV)
0.19	35.3	34.5	54.0
0.32	20.8	26.3	49.7
0.64	16.3	28.2	46.0
1.47	17.4	28.0	46.0
2.30	14.8	25.7	46.0
14.3	34.6	24.5	50.0

- REMARKS :**
- (1). * = Measurement does not apply for this frequency
 - (2). Uncertainty in conducted emission measured is $<+/-2\text{dB}$
 - (3). Any departure from specification : N/A
 - (4). CPU : Intel Pentium 200MMX Clock chip: 66MHz
 - (5). Resolution : 640 * 480
 - (6). Model# : PPC-120CT

SIGNED BY TESTING ENGINEER :



4.7 CONDUCTED POWER LINE TEST RESULT

The frequency spectrum from 0.15 MHz to 30 MHz was investigated. All readings are QUASI-PEAK values & AVERAGE with a resolution bandwidth of 9 KHz.

Temperature : 23 °CHumidity : 55 %RH**QUASI-PEAK**

FREQUENCY (MHz)	LINE1 (dBuV)	LINE2 (dBuV)	LIMIT (dBuV)
0.19	47.0	45.4	64.1
0.32	29.2	*	59.8
0.64	*	29.7	56.0
1.47	17.7	28.2	56.0
2.30	15.3	25.4	56.0
14.3	26.5	22.2	60.0

AVERAGE

FREQUENCY (MHz)	LINE1 (dBuV)	LINE2 (dBuV)	LIMIT (dBuV)
0.19	34.7	33.5	54.1
0.32	20.9	25.9	49.7
0.64	16.4	28.5	46.0
1.47	17.4	28.0	46.0
2.30	14.7	25.0	46.0
14.3	24.9	30.1	50.0
15.6	20.5	24.9	50.0

- REMARKS :**
- (1). * = Measurement does not apply for this frequency
 - (2). Uncertainty in conducted emission measured is <+/- 2dB
 - (3). Any departure from specification : N/A
 - (4). CPU : Intel Pentium 200MMX Clock chip: 66MHz
 - (5). Resolution : 800 * 600
 - (6). Model# : PPC-120CT

SIGNED BY TESTING ENGINEER :



4.7 CONDUCTED POWER LINE TEST RESULT

The frequency spectrum from 0.15 MHz to 30 MHz was investigated. All readings are QUASI-PEAK values & AVERAGE with a resolution bandwidth of 9 KHz.

Temperature : 23 °CHumidity : 55 %RH**QUASI - PEAK**

FREQUENCY (MHz)	LINE1 (dBuV)	LINE2 (dBuV)	LIMIT (dBuV)
0.19	52.5	51.5	64.1
0.32	40.7	25.0	59.8
0.57	32.1	27.5	56.0
1.08	18.3	*	56.0
1.84	*	18.8	56.0
16.3	29.4	29.4	60.0

AVERAGE

FREQUENCY (MHz)	LINE1 (dBuV)	LINE2 (dBuV)	LIMIT (dBuV)
0.19	44.1	41.9	54.1
0.32	36.1	32.1	49.8
0.57	28.3	23.1	46.0
2.22	13.4	17.0	46.0
7.17	14.9	14.9	50.0

- REMARKS :**
- (1). * = Measurement does not apply for this frequency
 - (2). Uncertainty in conducted emission measured is ± 2 dB
 - (3). Any departure from specification : N/A
 - (4). CPU : Intel Pentium 200MMX Clock chip: 66MHz
 - (5). Resolution : 640 * 480
 - (6). Model# : PPC-140CT

SIGNED BY TESTING ENGINEER :

Addison

4.7 CONDUCTED POWER LINE TEST RESULT

The frequency spectrum from 0.15 MHz to 30 MHz was investigated. All readings are QUASI-PEAK values & AVERAGE with a resolution bandwidth of 9 KHz.

Temperature : 23 °CHumidity : 55 %RH**QUASI-PEAK**

FREQUENCY (MHz)	LINE1 (dBuV)	LINE2 (dBuV)	LIMIT (dBuV)
0.19	52.5	51.0	64.1
0.32	40.6	*	59.8
0.57	32.0	*	56.0
1.46	*	18.9	56.0
2.22	14.1	17.1	56.0
19.5	*	25.0	60.0

AVERAGE

FREQUENCY (MHz)	LINE1 (dBuV)	LINE2 (dBuV)	LIMIT (dBuV)
0.19	44.1	41.5	54.1
0.32	36.0	31.9	49.8
0.57	28.3	23.0	46.0
1.46	*	18.2	46.0
2.22	13.2	16.2	46.0
7.11	15.2	*	50.0

- REMARKS :**
- (1). * = Measurement does not apply for this frequency
 - (2). Uncertainty in conducted emission measured is ± 2 dB
 - (3). Any departure from specification : N/A
 - (4). CPU : Intel Pentium 200MMX Clock chip: 66MHz
 - (5). Resolution : 800 * 600
 - (6). Model# : PPC-140CT

SIGNED BY TESTING ENGINEER :

Addison

4.7 CONDUCTED POWER LINE TEST RESULT

The frequency spectrum from 0.15 MHz to 30 MHz was investigated. All readings are QUASI-PEAK values & AVERAGE with a resolution bandwidth of 9 KHz.

Temperature : 23 °CHumidity : 55 %RH**QUASI - PEAK**

FREQUENCY (MHz)	LINE1 (dBuV)	LINE2 (dBuV)	LIMIT (dBuV)
0.19	52.2	51.1	64.1
0.32	*	34.9	60.0
0.50	22.7	27.6	56.0
1.02	21.7	*	56.0
16.3	*	28.9	60.0
26.2	25.0	*	60.0

AVERAGE

FREQUENCY (MHz)	LINE1 (dBuV)	LINE2 (dBuV)	LIMIT (dBuV)
0.19	44.4	41.8	54.0
0.32	36.0	31.7	49.8
0.51	29.4	23.2	46.0
2.23	12.8	16.0	46.0
16.3	13.9	14.1	50.0

- REMARKS :**
- (1). * = Measurement does not apply for this frequency
 - (2). Uncertainty in conducted emission measured is <+/-2dB
 - (3). Any departure from specification : N/A
 - (4). CPU : Intel Pentium 200MMX Clock chip: 66MHz
 - (5). Resolution : 1024 * 768
 - (6). Model# : PPC-140CT

SIGNED BY TESTING ENGINEER :

Addison

5. RADIATED EMISSION TEST**5.1 TEST EQUIPMENT**

The following test equipment were used during the radiated emission test :

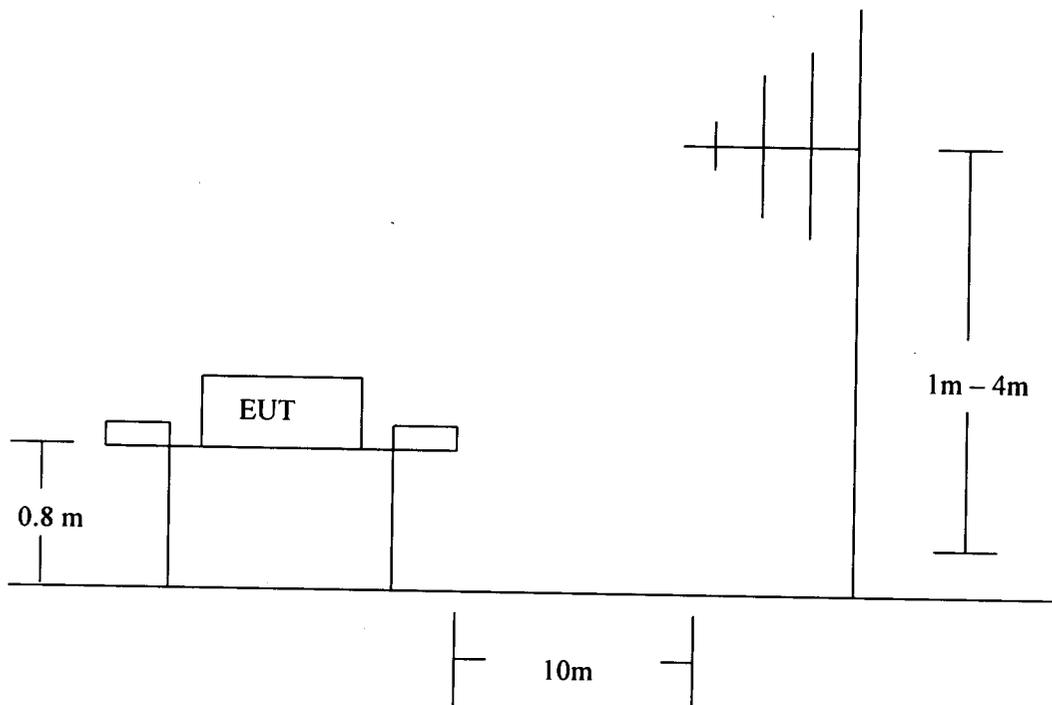
EQUIPMENT / FACILITIES	SPECIFICAT-IONS	MANUFACTUR - ER	MODEL # / SERIAL #	DATE OF CAL. & CAL. CENTER	DUE DATE
RECEIVER	20 MHz TO 1000 MHz	R & S	ESVS30/ 841977/03	APRIL 1998 ITRI	1Y
SPECTRUM ANALYZER	100 Hz TO 1500 MHz	HP	8568B/ 3019A05294	OCT. 1998 ETC	1Y
SPECTRUM ANALYZER	9 KHz TO 22 GHz	HP	8593E/ 3322A00670	APRIL 1998 ITRI	1Y
SPECTRUM ANALYZER	100 Hz TO 1000 MHz	IFR	A-7550/ 2684/1248	JULY 1998 ETC	1Y
SIGNAL GENERATOR	9 KHz TO 1080 MHz	ROHDE & SCHWARZ	SMY01/ 841104/019	APRIL 1998 ITRI	1Y
DIPOLE ANTENNA	28 MHz TO 1000 MHz	EMCO	3121C/ 9003-535	SEP. 1998 SRT	1Y
DIPOLE ANTENNA	28 MHz TO 1000 MHz	EMCO	3121C/ 9611-1239	NOV. 1998 SRT	1Y
BI-LOG ANTENNA	26 MHz TO 2000 MHz	EMCO	3142/ 9608-1073	NOV. 1998 SRT	1Y
BI-LOG ANTENNA	26 MHz TO 1100 MHz	EMCO	3143/ 9509-1152	SEP. 1998 SRT	1Y
PRE-AMPLIFIER	0.1 MHz TO 1300 MHz	HP	8447D/ 2944A08402	APRIL 1998 ITRI	1Y
PRE-AMPLIFIER	0.1 MHz TO 1300 MHz	HP	8447D/ 2944A06412	AUGUST 1998 ETC	1Y
HORN ANTENNA	1 GHz TO 18 GHz	EMCO	3115/ 9612-3619	JAN. 1999 EMCO	1Y

5.2 TEST PROCEDURE

The EUT was tested according to EN55022. The radiated test was performed at SRT LAB'S OPEN SITE. This site is on file with the FCC LABORATORY DIVISION, reference 31040/SIT.

The frequency spectrum from 30 MHz 2 GHz was investigated. Measurement were made at 10 meters with an adjustable dipole antenna or peripherals, cables, EUT orientation, and antenna height were varied to find the maximum emission for each frequency.

5.3 TEST SET-UP



5.4 CONFIGURATION OF THE THE EUT

Same as section 4.4 of this report.

5.5 EUT OPERATING CONDITION

Same as section 4.5 of this report.

5.6 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 :

CLASS B

FREQUENCY (MHz)	DISTANCE (m)	FIELS STRENGTH (dBuV/m)
30 - 230	10	30
230 - 1000	10	37

CLASS A

FREQUENCY (MHz)	DISTANCE (m)	FIELS STRENGTH (dBuV/m)
30 - 230	10	40
230 - 1000	10	47

- NOTE :**
1. In the emission tables above, the tighter limit applies at the band edges.
 2. Distance refers to the distance between measuring instrument, antenna, and the closest point of any part of the device or system.

5.7 RADIATED EMISSION TEST RESULT

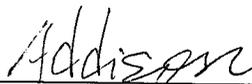
The frequency spectrum from 30 MHz to 2 GHz was investigated. Under 1 GHz, all readings are QUASI-PEAK values with a resolution bandwidth of 120 KHz. Above 1 GHz, all readings are PEAK or AVERAGE values with a resolution bandwidth of 1 MHz. Measurement were made at 10 meters.

Temperature : 23 °CHumidity : 55 %RH

FREQ. (MHz)	CABLE LOSS (dB)	ANT. FACTOR (dB)	READING (dBuV)		EMISSION (dBuV)		LMTS (dBuV)
			HORIZ	VERT	HORIZ	VERT	
120.2596	0.9	7.2	9.6	13.5	17.7	21.6	30.0
180.3889	1.1	10.7	7.3	8.4	19.1	20.2	30.0
220.4738	1.2	12.0	9.4	10.8	22.6	24.0	30.0
467.6742	1.7	18.0	9.4	7.6	29.1	27.3	37.0
501.0789	1.7	18.5	8.1	6.4	28.3	26.6	37.0

- REMARKS :
- (1). *= Measurement does not apply for this frequency.
 - (2). Uncertainty in radiated emission measured is ± 4 dB
 - (3). Any departure from specification : N/A
 - (4). Sample calculation
 $20 \log(\text{emission}) \text{ uV/m} = \text{cable loss(dB)} + \text{factor(dB)} + \text{reading(dBuV/m)}$
 - (5). CPU : Intel Pentium 200MMX Clock chip: 66MHz
 - (6). Resolution : 640 * 480
 - (7). Model# : PPC-120CT

SIGNED BY TESTING ENGINEER :



5.7 RADIATED EMISSION TEST RESULT

The frequency spectrum from 30 MHz to 2 GHz was investigated. Under 1 GHz, all readings are QUASI-PEAK values with a resolution bandwidth of 120 KHz. Above 1 GHz, all readings are PEAK or AVERAGE values with a resolution bandwidth of 1 MHz. Measurement were made at 10 meters.

Temperature : 23 °CHumidity : 55 %RH

FREQ. (MHz)	CABLE LOSS (dB)	ANT. FACTOR (dB)	READING (dBuV)		EMISSION (dBuV)		LMTS (dBuV)
			HORIZ	VERT	HORIZ	VERT	
39.0010	0.5	11.3	8.0	8.8	19.8	20.6	30.0
68.1400	0.8	7.0	12.1	9.8	19.9	17.6	30.0
72.0040	0.8	7.1	13.0	17.8	20.9	25.7	30.0
216.0120	1.2	12.0	7.4	6.5	20.6	19.7	30.0
734.9118	2.4	22.6	6.1	5.6	31.1	30.6	37.0
901.9380	2.9	26.1	4.0	4.1	33.0	33.1	37.0

- REMARKS :**
- (1). *= Measurement does not apply for this frequency.
 - (2). Uncertainty in radiated emission measured is <+/-4dB
 - (3). Any departure from specification : N/A
 - (4). Sample calculation

$$20 \log(\text{emission}) \text{ uV/m} = \text{cable loss(dB)} + \text{factor(dB)} + \text{reading(dBuV/m)}$$
 - (5). CPU : Intel Pentium 200MMX Clock chip: 66MHz
 - (6). Resolution : 800 * 600
 - (7). Model# : PPC-120CT

SIGNED BY TESTING ENGINEER :



5.7 RADIATED EMISSION TEST RESULT

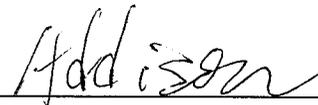
The frequency spectrum from 30 MHz to 2 GHz was investigated. Under 1 GHz, all readings are QUASI-PEAK values with a resolution bandwidth of 120 KHz. Above 1 GHz, all readings are PEAK or AVERAGE values with a resolution bandwidth of 1 MHz. Measurement were made at 10 meters.

Temperature : 23 °CHumidity : 55 %RH

FREQ. (MHz)	CABLE LOSS (dB)	ANT. FACTOR (dB)	READING (dBuV)		EMISSION (dBuV)		LMTS (dBuV)
			HORIZ	VERT	HORIZ	VERT	
162.6854	1.1	10.6	16.0	11.0	27.7	22.7	30.0
576.0294	2.0	22.0	4.0	4.1	28.0	28.1	37.0
601.2925	2.1	23.2	7.9	7.8	33.2	33.1	37.0
672.0320	2.2	22.2	2.1	2.0	26.5	26.4	37.0
734.9130	2.4	21.6	3.7	3.4	27.7	27.4	37.0
868.5329	2.9	23.2	6.3	1.5	32.4	27.6	37.0

- REMARKS :**
- (1). *= Measurement does not apply for this frequency.
 - (2). Uncertainty in radiated emission measured is <+/-4dB
 - (3). Any departure from specification : N/A
 - (4). Sample calculation
 $20 \log(\text{emission}) \text{ uV/m} = \text{cable loss(dB)} + \text{factor(dB)} + \text{reading(dBuV/m)}$
 - (5). CPU : Intel Pentium 200MMX Clock chip: 66MHz
 - (6). Resolution : 1024 * 768
 - (7). Model# : PPC-140CT

SIGNED BY TESTING ENGINEER :



6. HARMONICS TEST

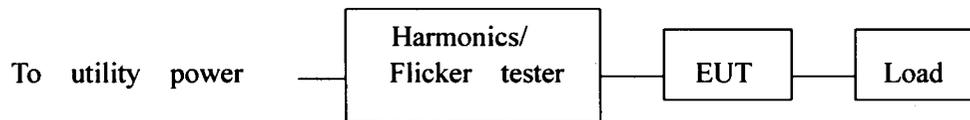
6.1 TEST EQUIPMENT

EQUIPMENT / FACILITIES	MANUFACTURER	MODEL # / SERIAL #
MAIN UNIT	HP	6843A
CONTROL PC	IBM	350-P75

6.2 TEST PROCEDURE

According to EN61000-3-2

6.3 TEST SET-UP



6.4 CONFIGURATION OF THE EUT

The same as 4.4

6.5 EUT OPERATION CONDITION

The same as 4.5

6.6 LIMIT

EVEN HARMONIC		ODD HARMONIC	
HARMONICS ORDER	LIMIT (Amp.)	HARMONICS ORDER	LIMIT (Amp.)
2	1.08	3	2.30
4	0.43	5	1.14
6	0.30	7	0.77
8 < n < 40	0.23 * 8 / n	9	0.40
		11	0.33
		13	0.21
		15 < n < 39	0.15 * 8 / n

6.7 SUMMARY OF TEST RESULT

- Temperature : 23 °C
- Humidity : 55 %RH

Final test result : Pass

7. VOLTAGE FLUCTUATIONS

7.1 TEST EQUIPMENT

EQUIPMENT / FACILITIES	MANUFACTURER	MODEL # / SERIAL#
MAIN UNIT	HP	6843A
CONTROL PC	IBM	350-P75

7.2 TEST PROCEDURE

According to EN61000-3-3

7.3 TEST SET-UP

The same as 6.3

7.4 CONFIGURATION OF THE EUT

The same as 4.4

7.5 EUT OPERATION CONDITION

The same as 4.5

7.6 LIMIT

Short-term flicker (Pst) : Pst : 1.0

Long-term flicker (Plt) : Plt : 0.65

Relative steady-state voltage change (Dc) : $Dc \leq 3\%$

Relative voltage change characteristic (D(t)) : $D(t) > 3\%$

Maximum relative voltage change (Dmax) : $Dmax \leq 4\%$

7.7 SUMMARY OF TEST RESULT

- Temperature : 23 °C
- Humidity : 55 %RH

Final test result : Pass

8. ELECTROSTATIC DISCHARGE IMMUNITY TEST

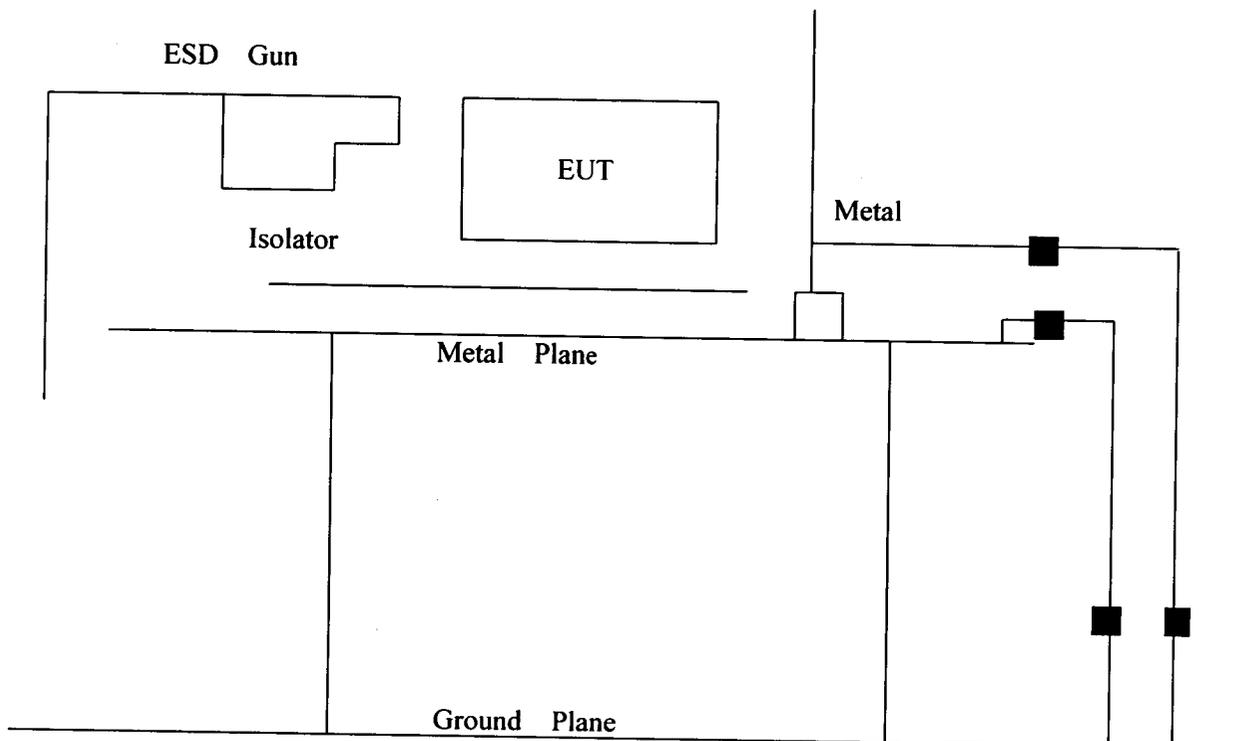
8.1 TEST EQUIPMENT

EQUIPMENT / FACILITIES	MANUFACTURER	MODEL # / SERIAL #
ESD MAIN UNIT	HAEFELY	PSD25B
ESD GUN	HAEFELY	AIR DISCHARGE
ESD GUN	HAEFELY	DIRECTLY
ESD GUN	HAEFELY	PESD 16000
VERTICAL PANEL	SRT	SRT ESD 1

8.2 TEST PROCEDURE

According to IEC801-2

8.3 TEST SET-UP



8.4 CONFIGURATION OF THE EUT

The same as 4.4

8.5 EUT OPERATION CONDITION

The same as 4.5

8.6 TEST CONDITION / PERFORMANCE CRITERIA

- Source voltage and frequency : 220V/50Hz, SINGLE PHASE
- R-C network : 330ohm, 150Pf
- Test level :
 - Air discharge : 2, 4, 6, 8KV
 - Contact discharge : 2, 4KV
- Number of test : 12 Discharge / Level
- Time between test : 1 Sec

PERFORMANCE CRITERIA

- (A). Normal performance within the specification.
- (B). Temporary degradation or loss function or performance which is self-recoverable.
- (C). Temporary degradation or loss function or performance which requires operator intervention system result.
- (D). Degradation or loss function which is not recoverable due to damage of EUT or software, or loss of data.

8.7 SUMMARY OF TEST RESULTTemperature : 23 °CHumidity : 55 %RH

SEVERITY LEVEL	p rEN55024- b REQUIREMENT		PERFORMANGE VERIFICATION		TEST RESULT
	AIR DISCHARGE	CONTACT DISCHARGE	AIR DISCHARGE	CONTACT DISCHARGE	
2	A	A	A	A	PASS
4	A	A	A	A	PASS
6	A	NR	A	NR	PASS
8	A	NR	A	NR	PASS

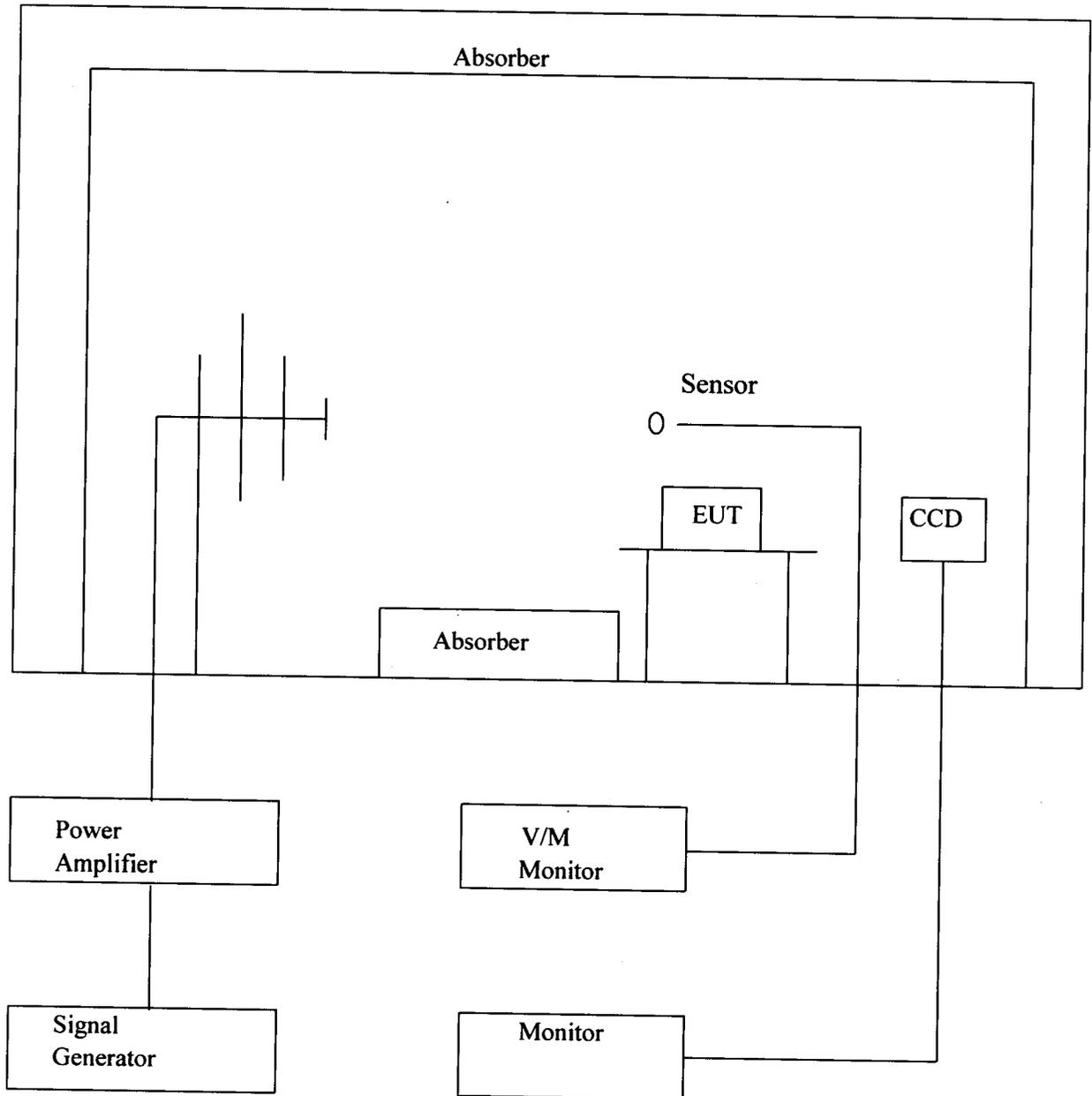
9. RADIATED IMMUNITY TEST**9.1 TEST EQUIPMENT**

EQUIPMENT / FACILITIES	MANUFACTURER	MODEL # / SERIAL #
SIGNAL GENERATOR	Rohde & Schwarz	SMY01
POWER AMPLIFIER	Amplifier Research	30W1000M7
ANTENNA	ENI	A-300
ANTENNA	EMCO	3143
FIELD SERSOR	EMCO	3143
VOLTAGE MONITOR	Amplifier Research	FP2000
POWER AMPLIFIER	AMPLIFER RESEARCH	150A100A
POWER AMPLIFIER	AMPLIFER RESEARCH	100W1000M1
ANECHOIC CHAMBER	SRT	SRT03

9.2 TEST PROCEDURE

According to IEC801-3

9.3 TEST SET-UP



example of test set - up for table - top equipment

9.4 CONFIGURATION OF THE EUT

The same as 4.4

9.5 EUT OPERATION CONDITION

The same as 4.5

9.6 TEST CONDITION / PERFORMANCE CRITERIA

- Source voltage and frequency : 220V/50Hz, SINGLE PHASE
- Sweeping frequency : 80MHz - 1GHz
- Test level : 3V/m, THE FREQUENCY STEP IS 1%
- The four sides of eut are tested (front, rear, left, right)
- Antenna polarity : horizontal and vertical polarization

- (A). Normal performance within the specification.
- (B). Temporary degradation or loss function or performance which is self-recoverable.
- (C). Temporary degradation or loss function or performance which requires operator intervention system result.
- (D). Degradation or loss function which is not recoverable due to damage of EUT or software, or loss of data.

9.7 SUMMARY OF TEST RESULT

- Temperature : 23 °C
- Humidity : 55 %
- Frequency range : 80MHz - 1GHz
- Severity level : 3V/m
- Severity level : 3V/m
- prEN55024-b equipment : A
- Performance verification : A
- Test result : PASS

10. ELECTRICAL FAST TRANSIENT / BURST IMMUNITY TEST

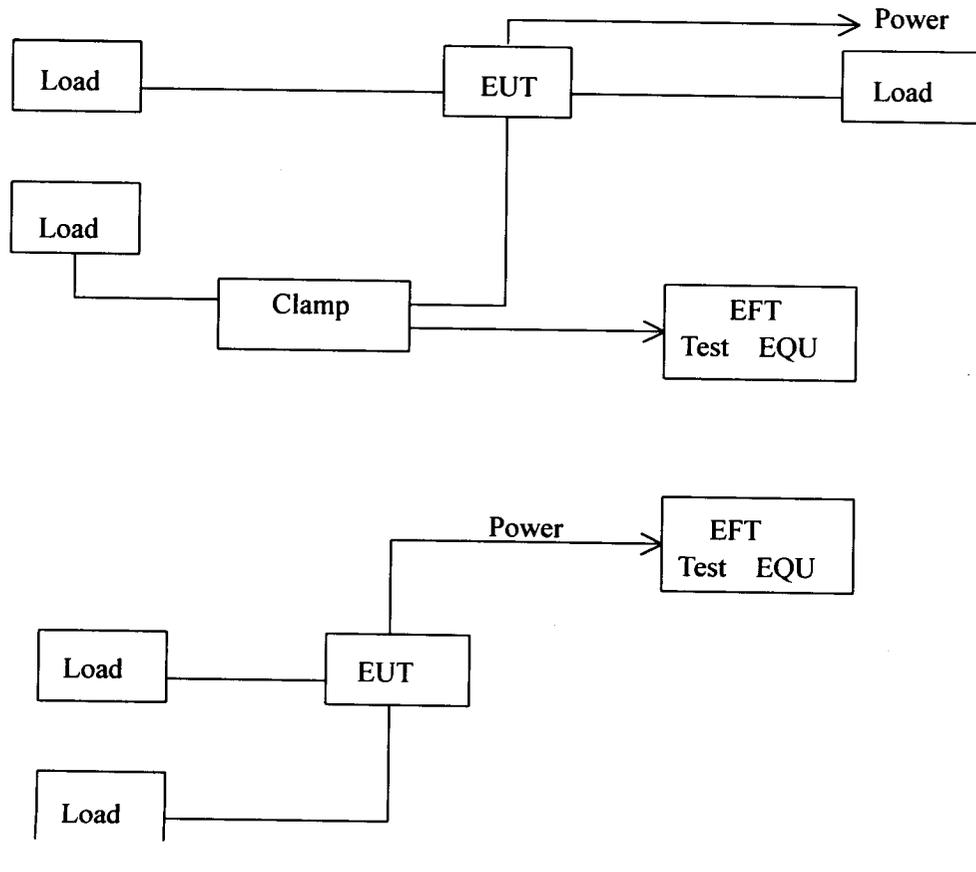
10.1 TEST EQUIPMENT

EQUIPMENT / FACILITIES	MANUFACTURER	MODEL # / SERIAL #
CONTROL UNIT	HAEFELY	P90.1
BURST-TESTER	HAEFELY	PEFT.1
HV-UNIT	HAEFELY	PHV41.24A
COUPLING-CLAMP	HAEFELY	IP4A
ADAPTER SET	HAEFELY	N/A

10.2 TEST PROCEDURE

According to IEC801-4

10.3 TEST SET-UP



10.4 CONFIGURATION OF THE EUT

The same as 4.4

10.5 EUT OPERATION CONDITION

The same as 4.5

10.6 TEST CONDITION / PERFORMANCE CRITERIA

- Source voltage and frequency : 220V/50Hz, SINGLE PHASE
- Pulse risetime and duration : 5ns / 50ns
- Pulse repetition : 5KHz
- Polarity : Positive / Negative. LEA
- Burst duration and period : 15ms / 300ms
- Test duration : 2 Min
- Time between test : 10Sec
- Severity levels : +/-0.5KV, +/-1KV
- Coupling of power line : L, N, PE, L+N, L+PE+N, L+PE, N+PE
- Coupling of data line

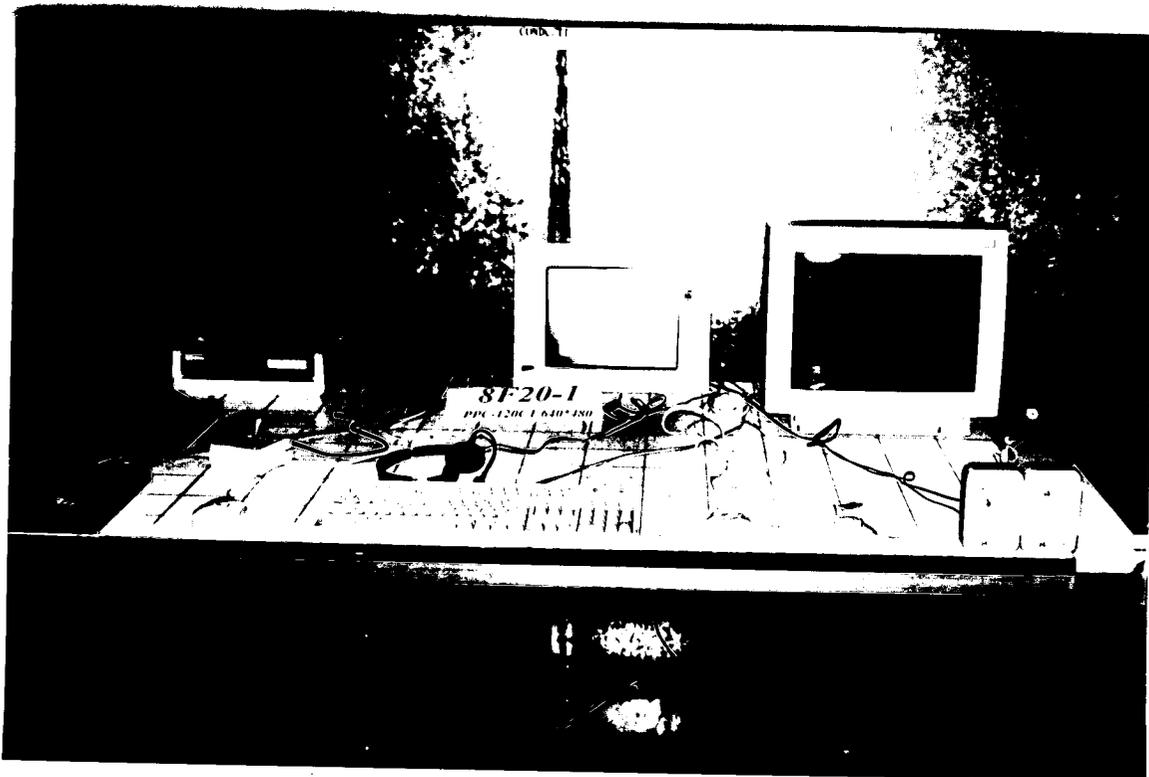
- (A). Normal performance within the specification.
- (B). Temporary degradation or loss function or performance which is self-recoverable.
- (C). Temporary degradation or loss function or performance which requires operator intervention system result.
- (D). Degradation or loss function which is not recoverable due to damage of EUT or software, or loss of data.

10.7 SUMMARY OF TEST RESULTTemperature : 23 °CHumidity : 55 %RH

SEVERITY LEVEL (KV)	p rEN55024- b REQUIREMENT (criteria)	PERFORMANGE VERIFICATION (criteria)	TEST RESULTS
+/-0.5KV	A	A	PASS
+/-1KV	A	A	PASS

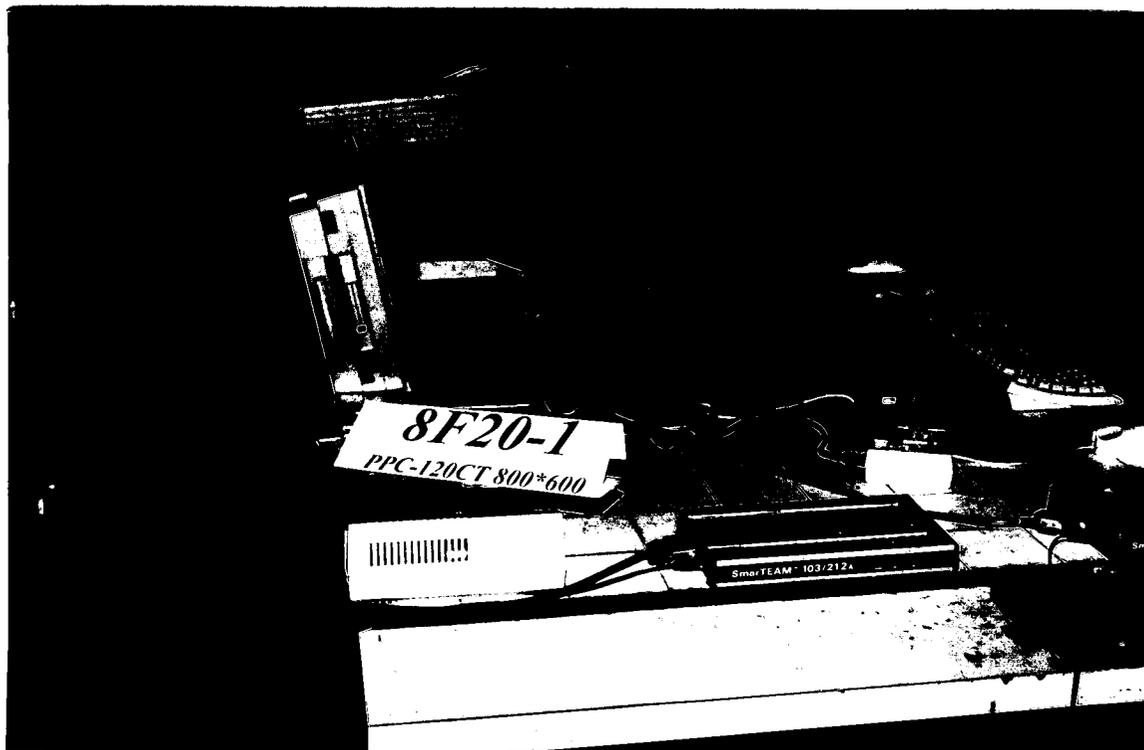
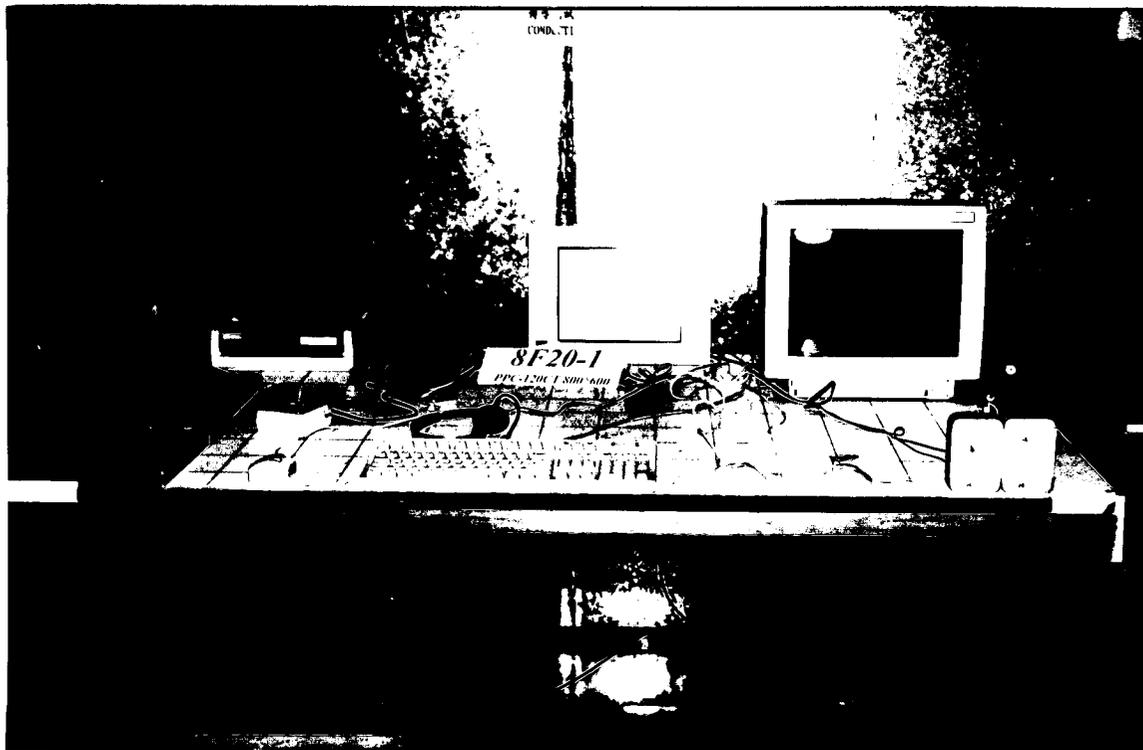
11. PHOTOS OF TESTING

- A. Conducted test front view (PPC-120CT : 640* 480)
- B. Conducted test back view



11. PHOTOS OF TESTING

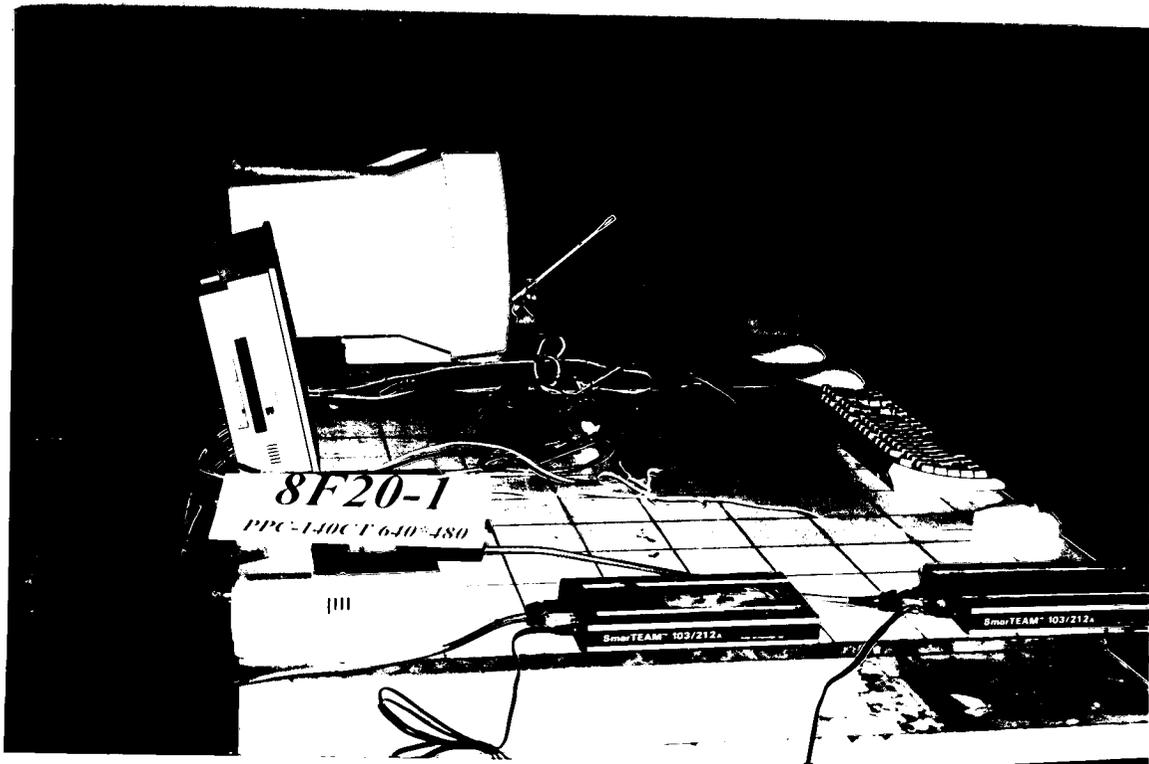
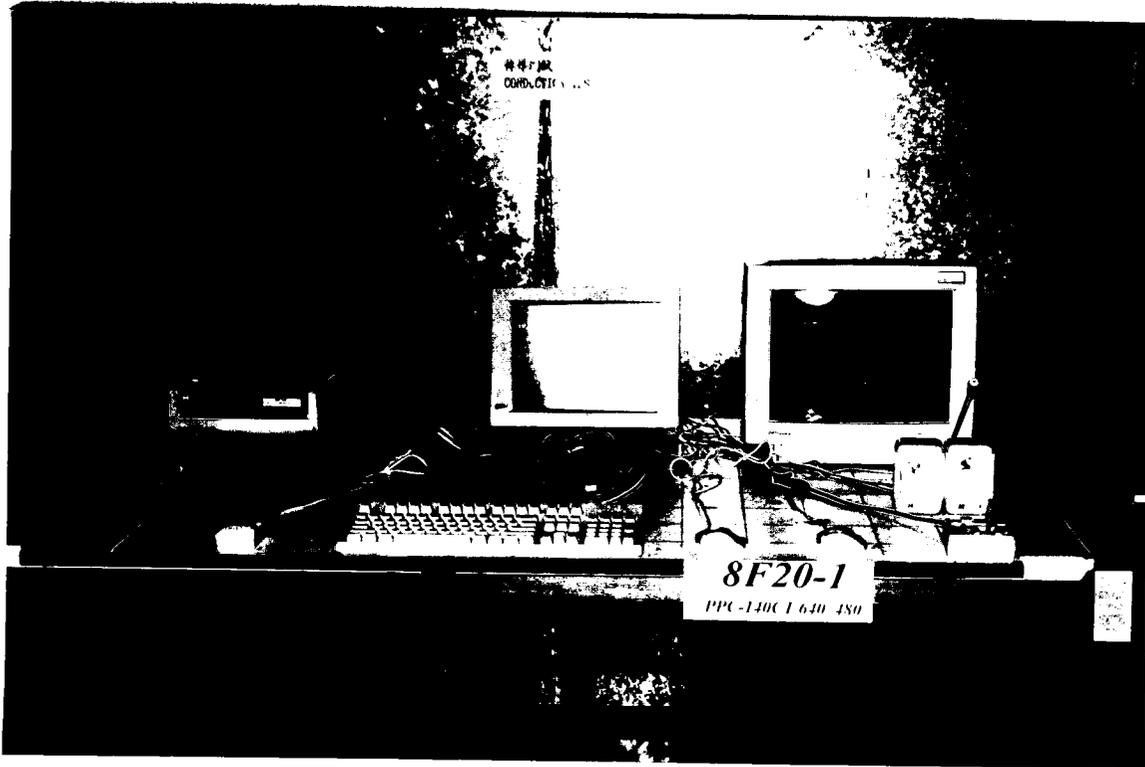
- C. Conducted test front view (PPC-120CT : 800 * 600)
- D. Conducted test test back view



11. PHOTOS OF TESTING

E. Conducted test front view (PPC-140CT: 640*480)

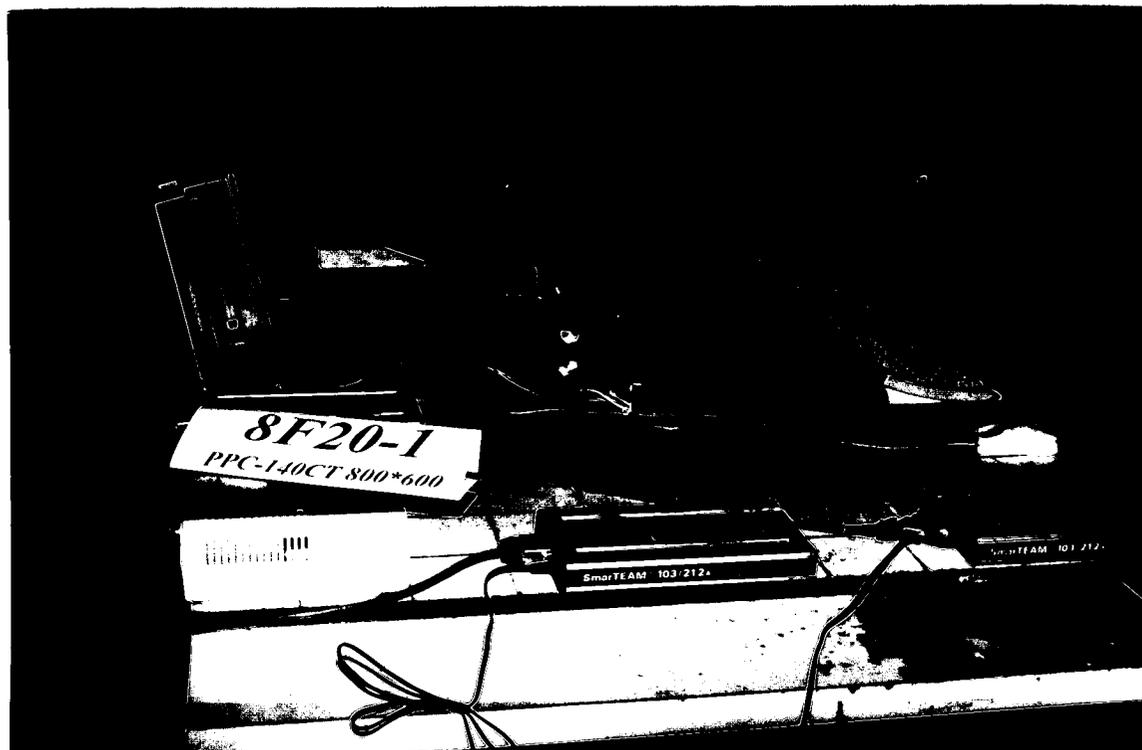
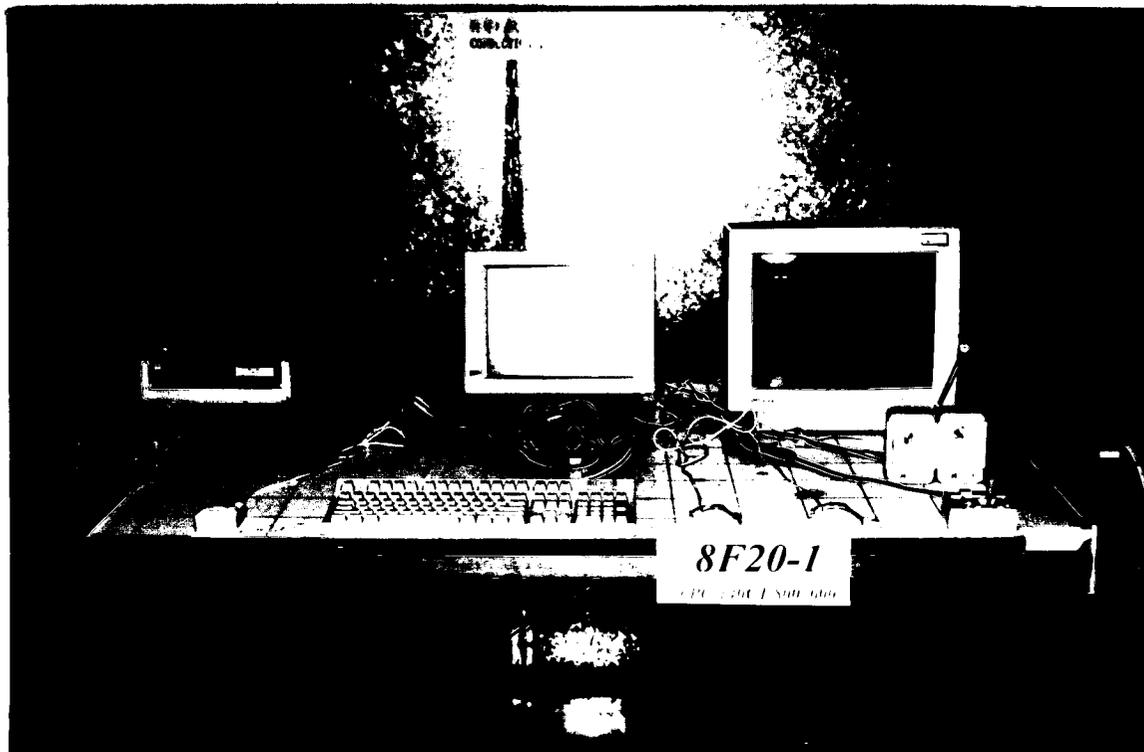
F. Conducted test back view



11. PHOTOS OF TESTING

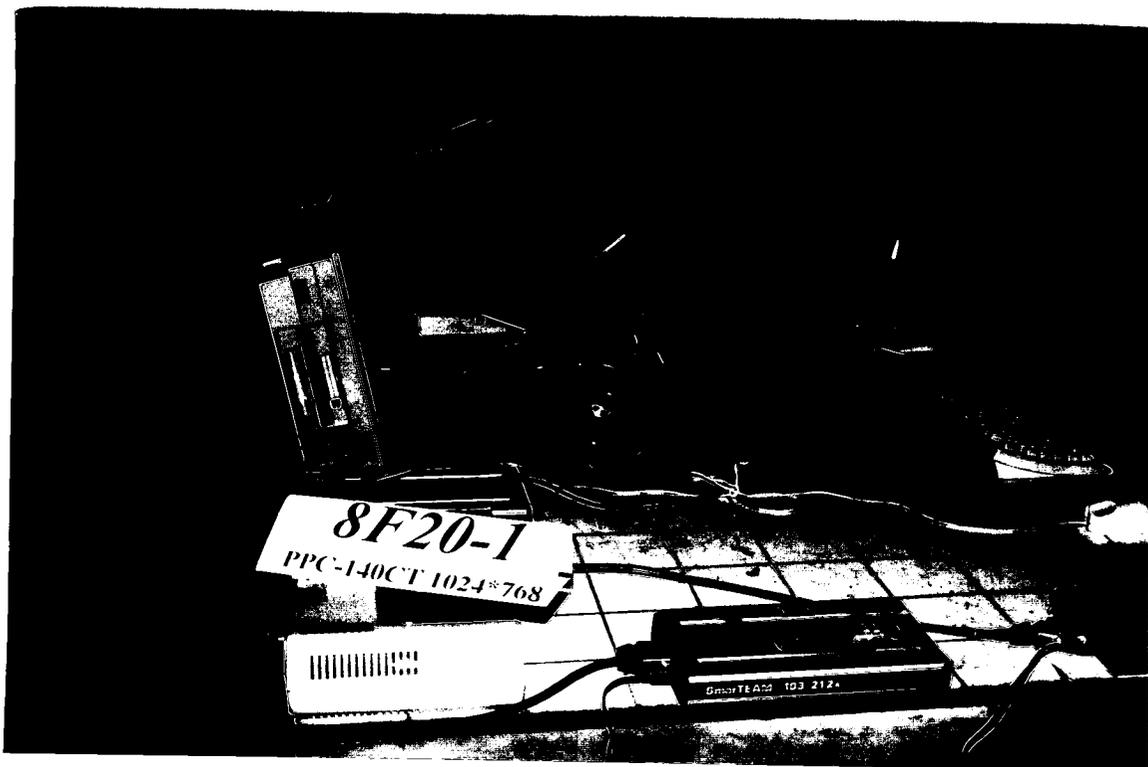
G. Conducted test front view (PPC-140CT : 800 * 600)

H. Conducted test test back view



11. PHOTOS OF TESTING

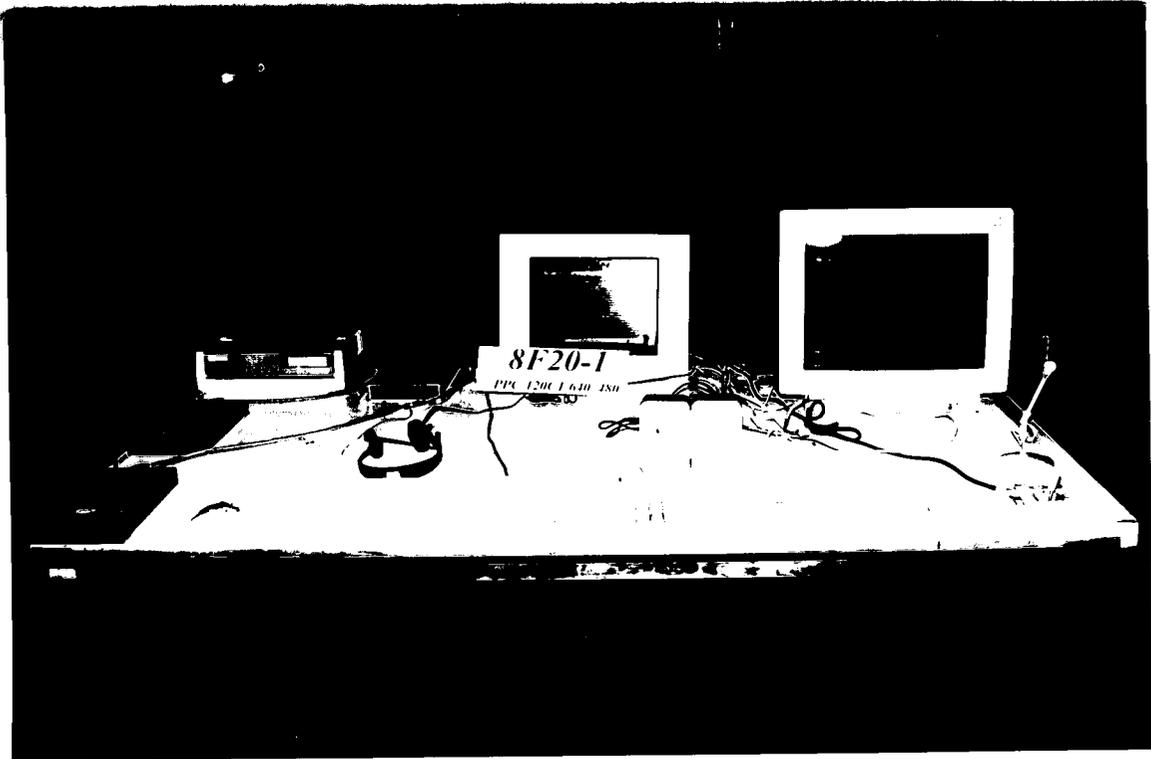
- I. Conducted test front view (PPC-140CT : 1024 * 768)
- J. Conducted test test back view



11. PHOTOS OF TESTING

K. Open site test front view (PPC-120CT : 640 * 480)

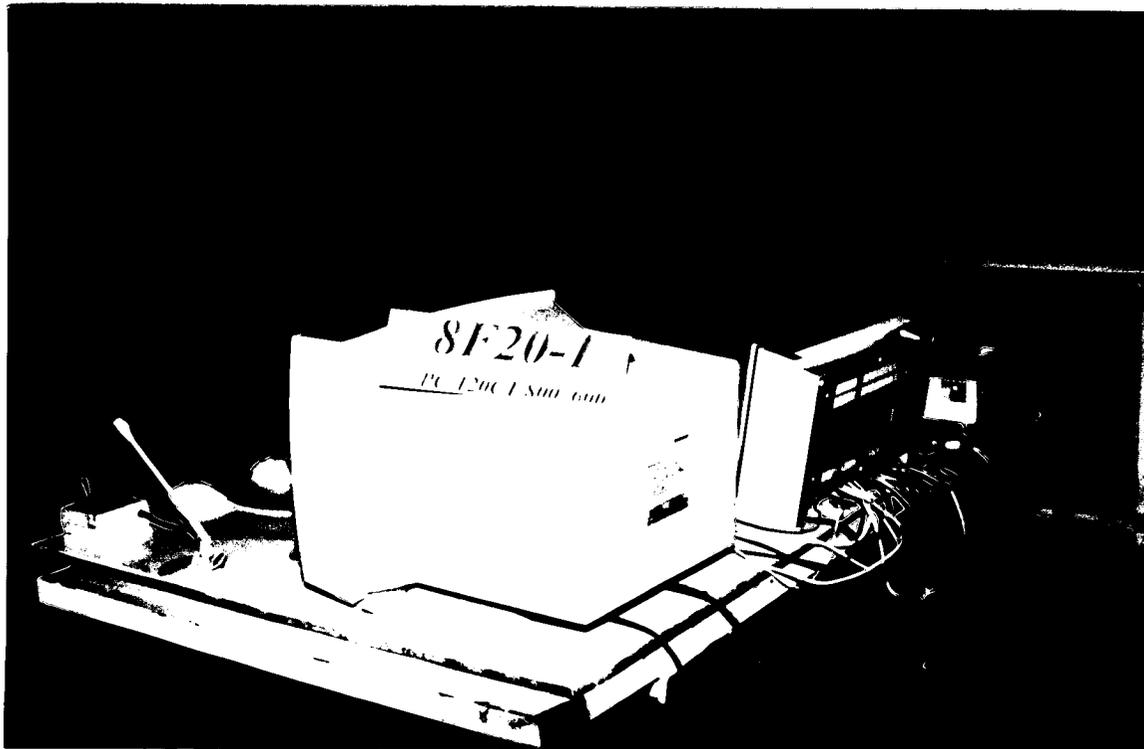
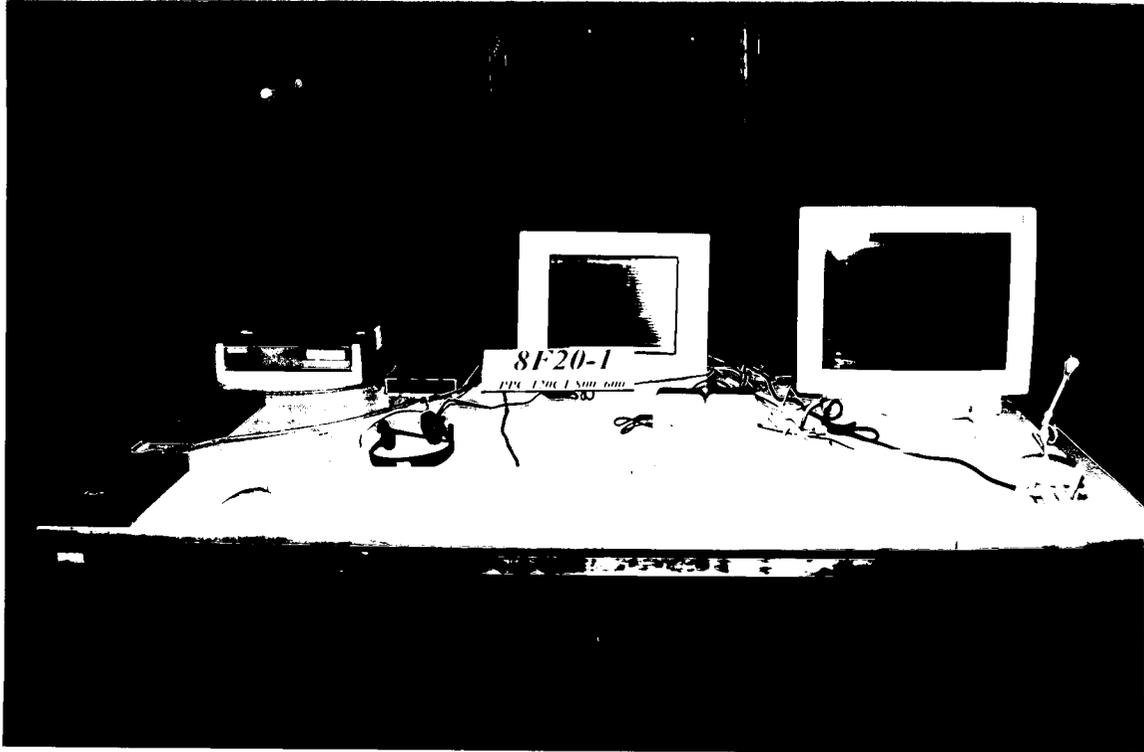
L. Open site test back view



11. PHOTOS OF TESTING

M. Open site test front view (PPC-120CPT : 800 * 600)

N. Open site test back view



11. PHOTOS OF TESTING

O. Open site test front view (PPC-140CT : 640 * 480)

P. Open site test back view



11. PHOTOS OF TESTING

Q. Open site test front view (PPC-140CPT : 800 * 600)

R. Open site test back view



11. PHOTOS OF TESTING

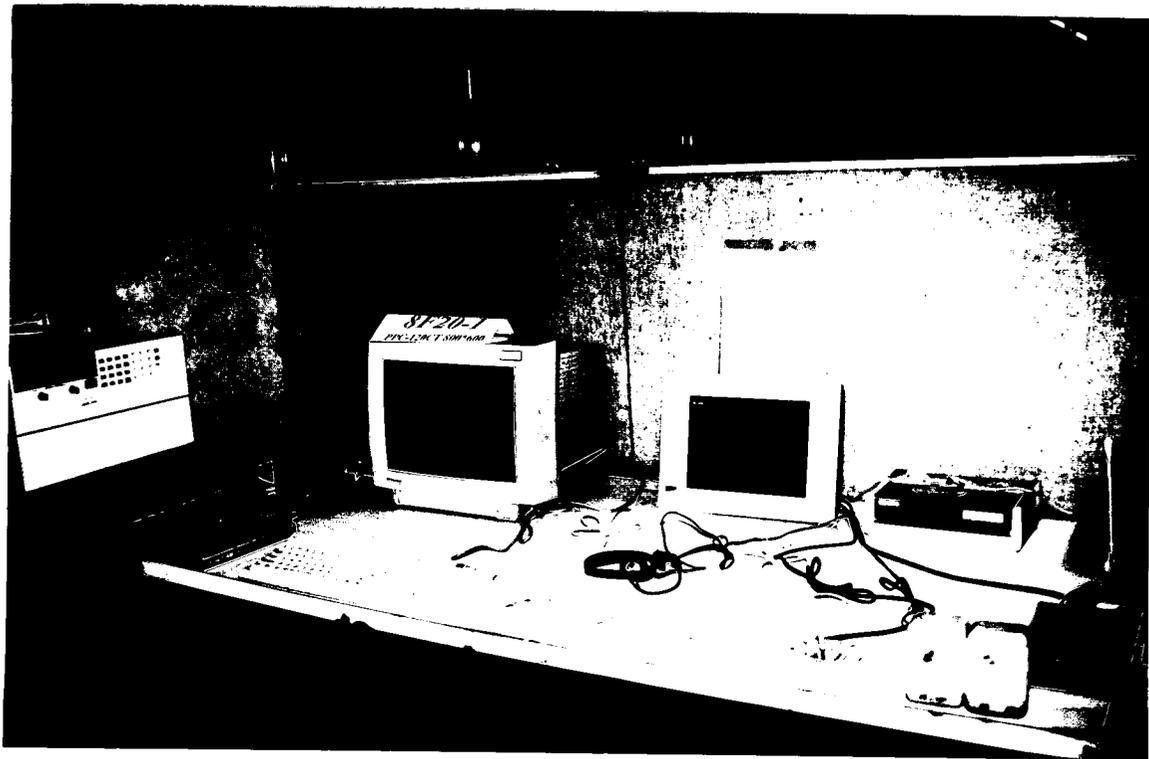
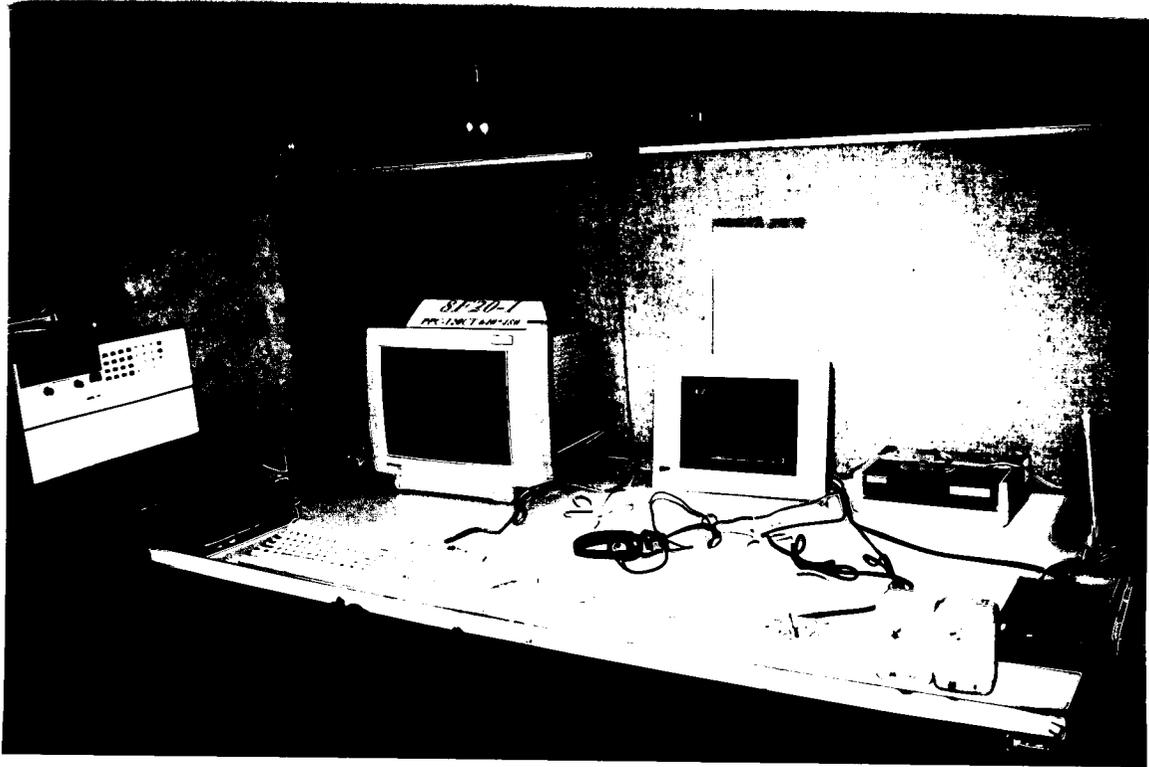
S. Open site test front view (PPC-140CT : 1024 * 768)

T. Open site test back view



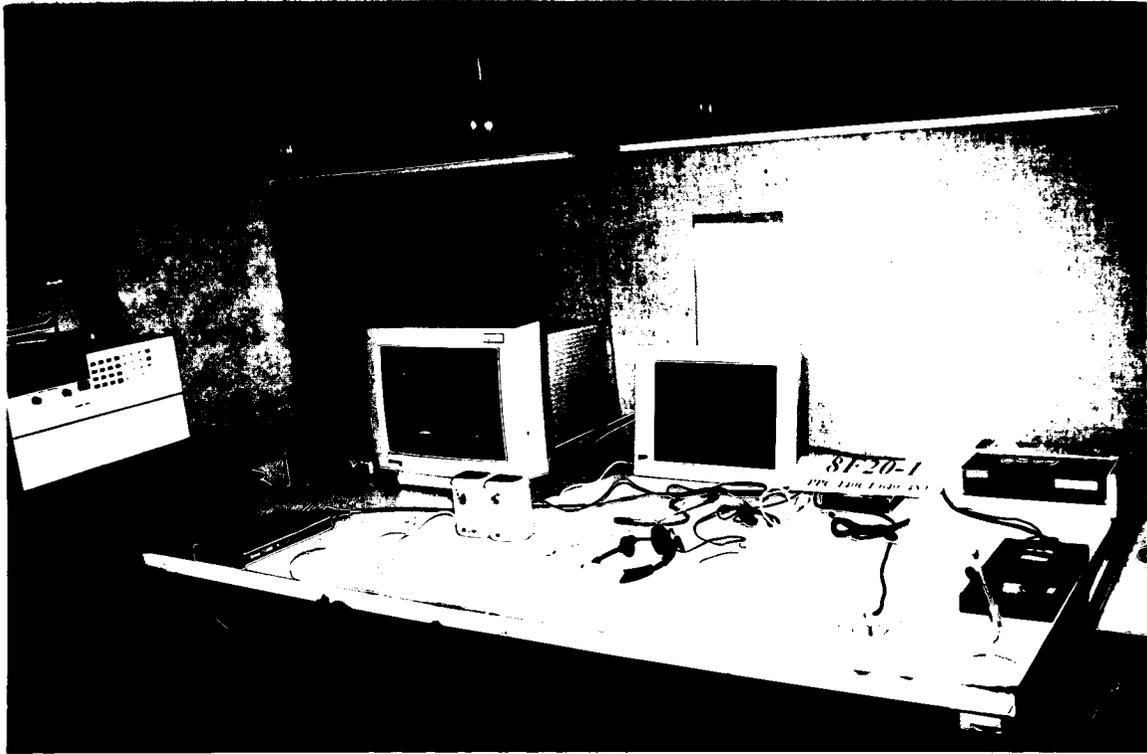
11. PHOTOS OF TESTING

U. Harmonics test view (PPC-120CT)



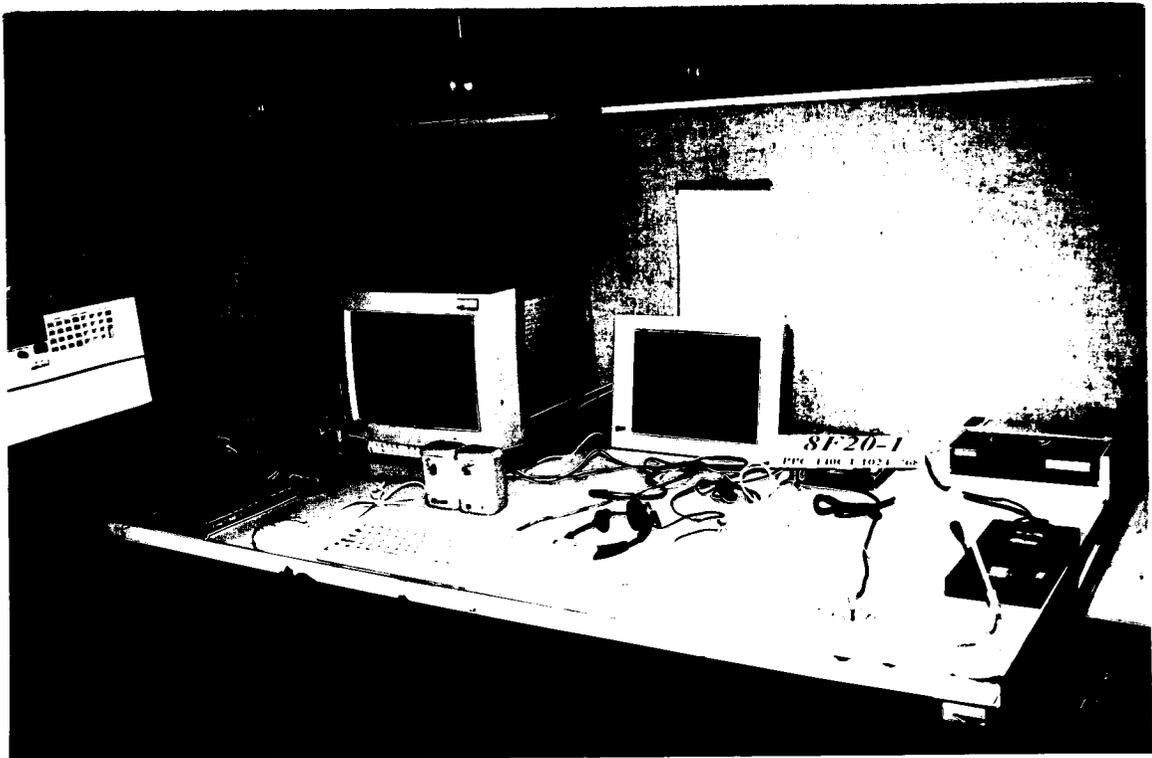
11. PHOTOS OF TESTING

V. Harmonics test view (PPC-140CT)



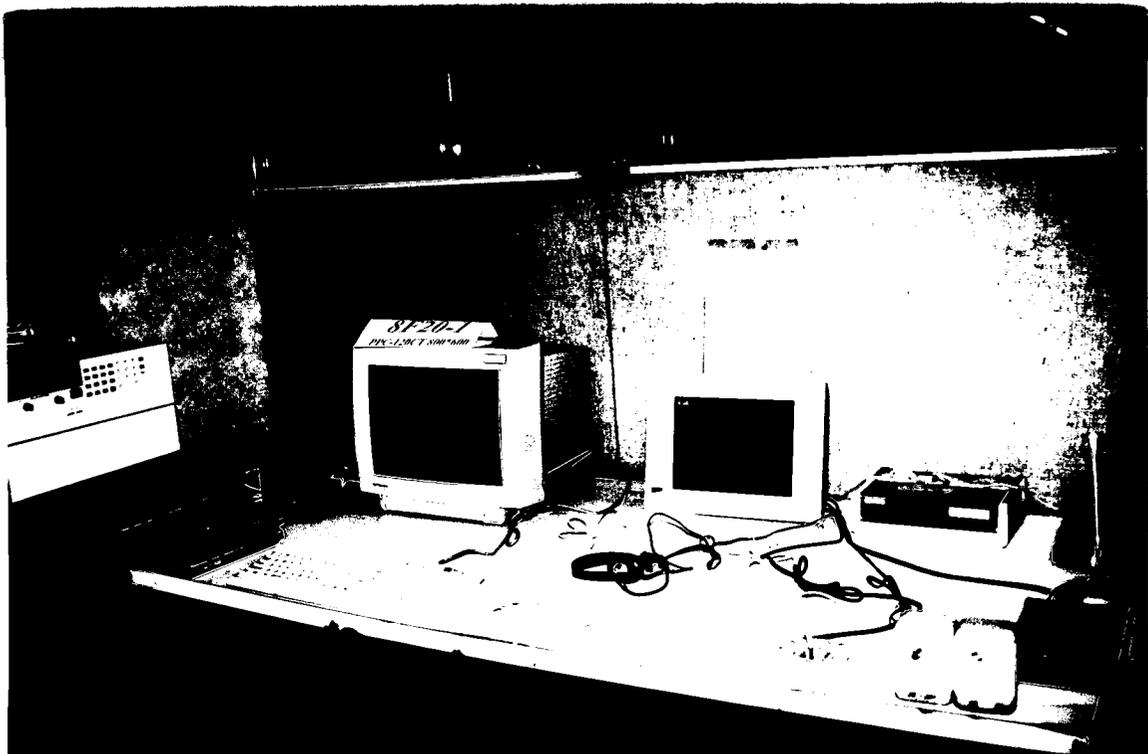
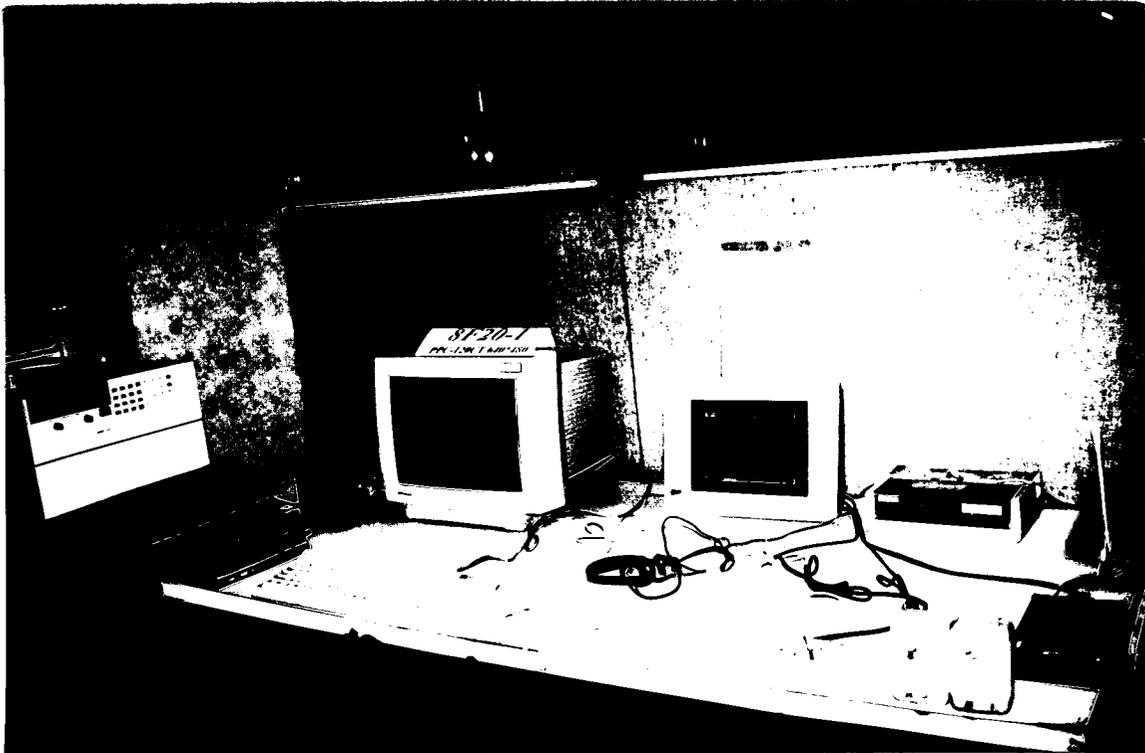
11. PHOTOS OF TESTING

W. Harmonics test view (PPC-140CT)



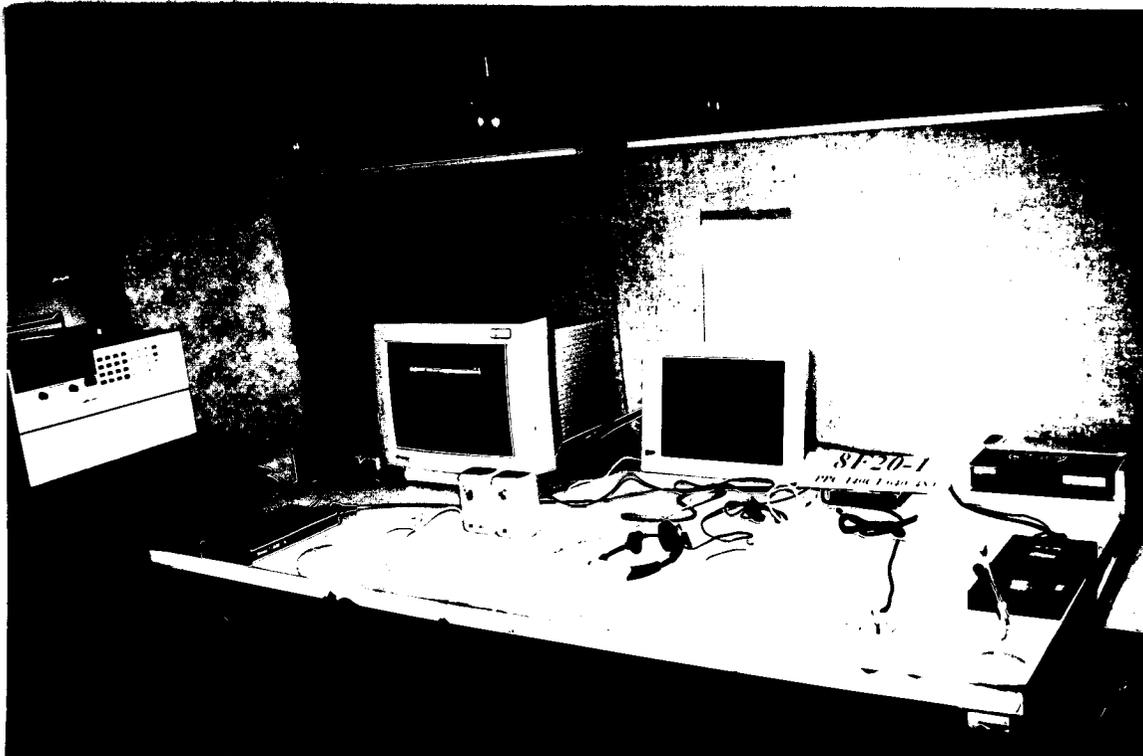
11. PHOTOS OF TESTING

X. Voltage fluctuations view (PPC-120CT)



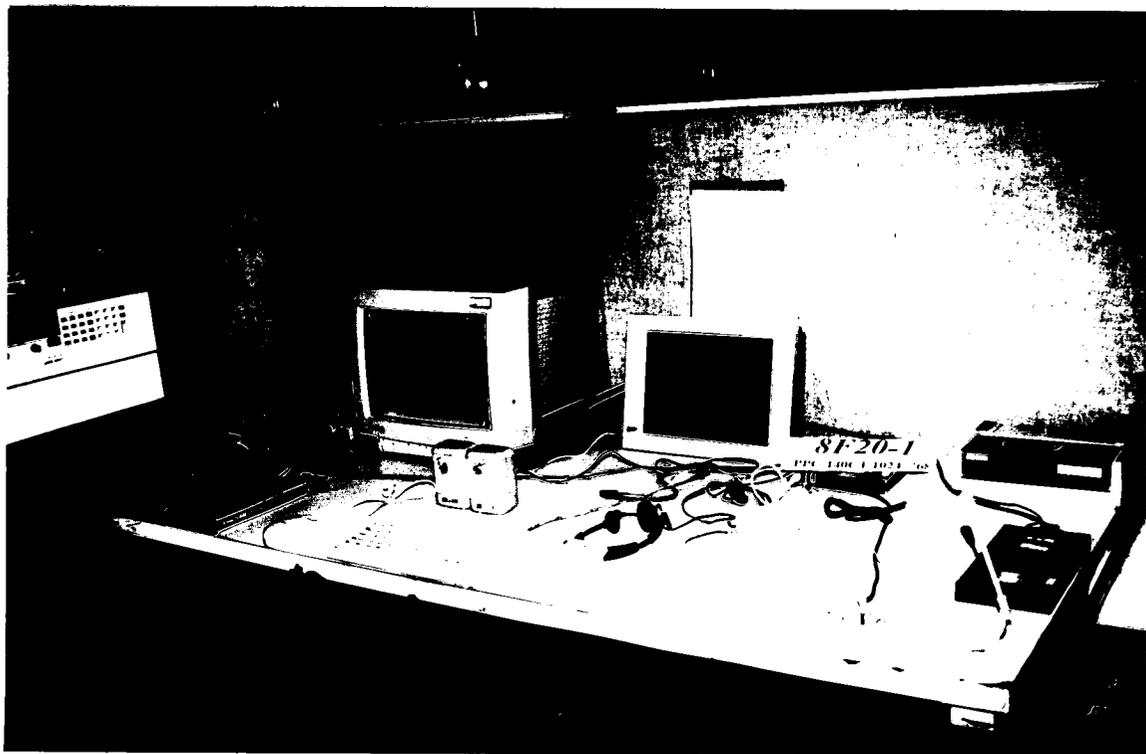
11. PHOTOS OF TESTING

Y. Voltage fluctuations view (PPC-140CT)



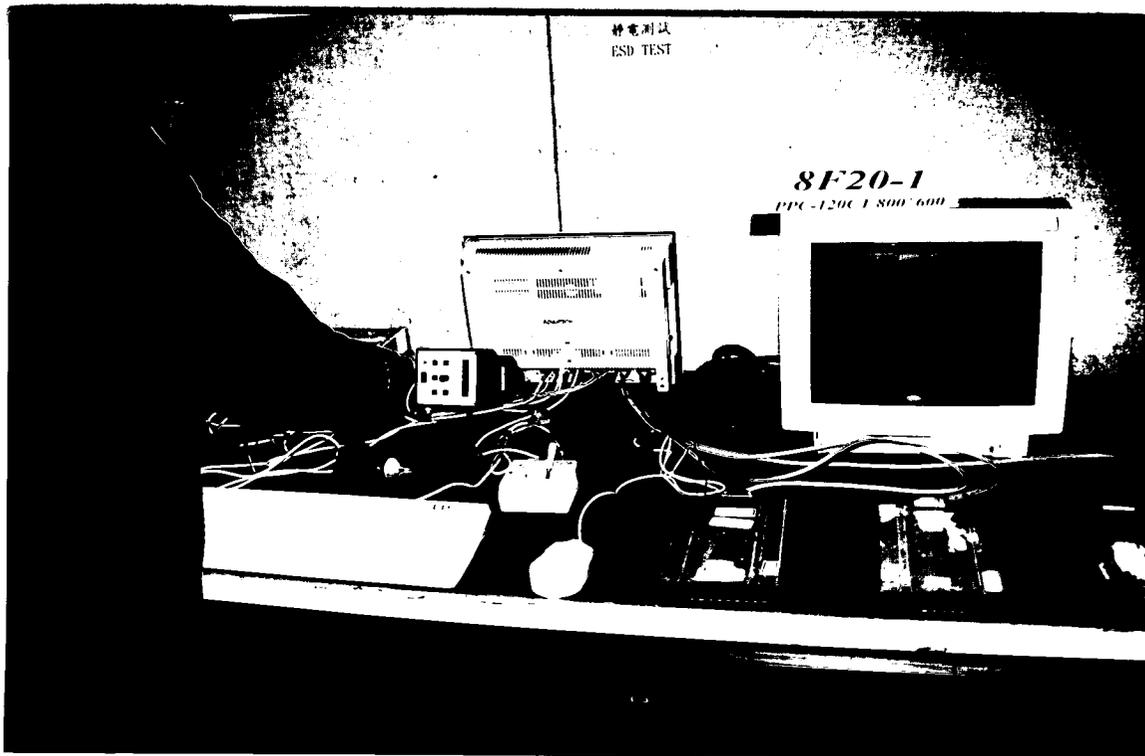
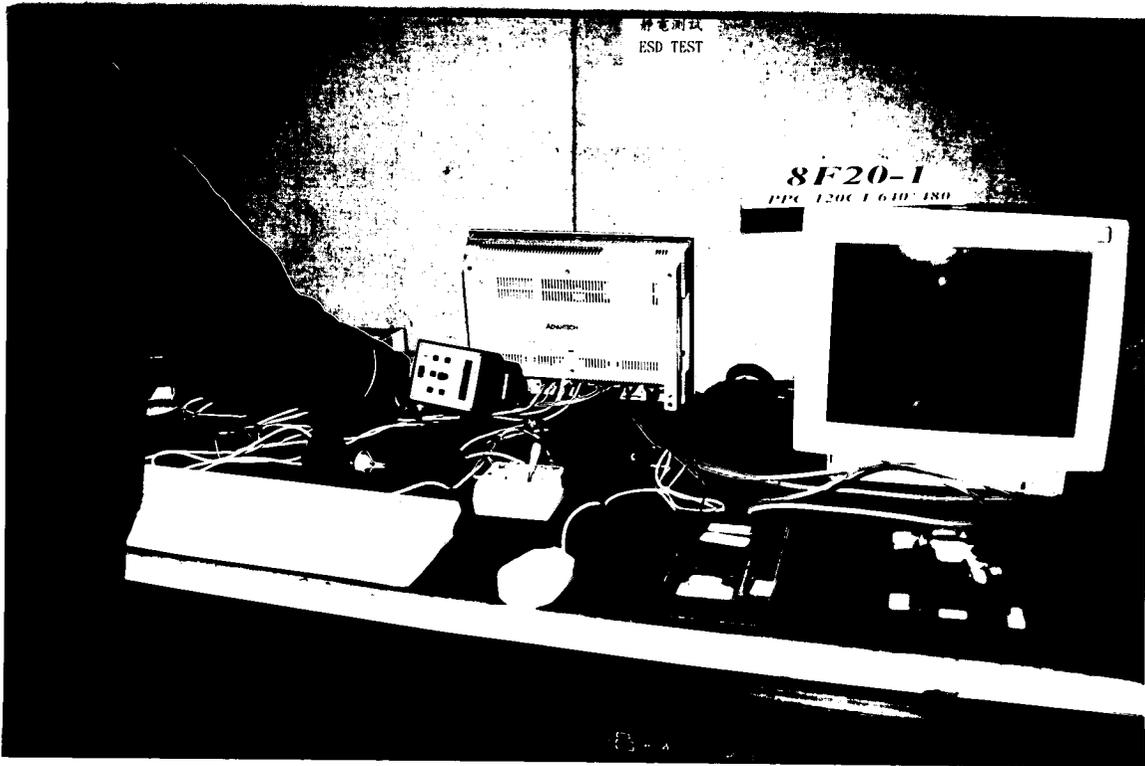
11. PHOTOS OF TESTING

Z. Voltage fluctuations view (PPC-140CT)



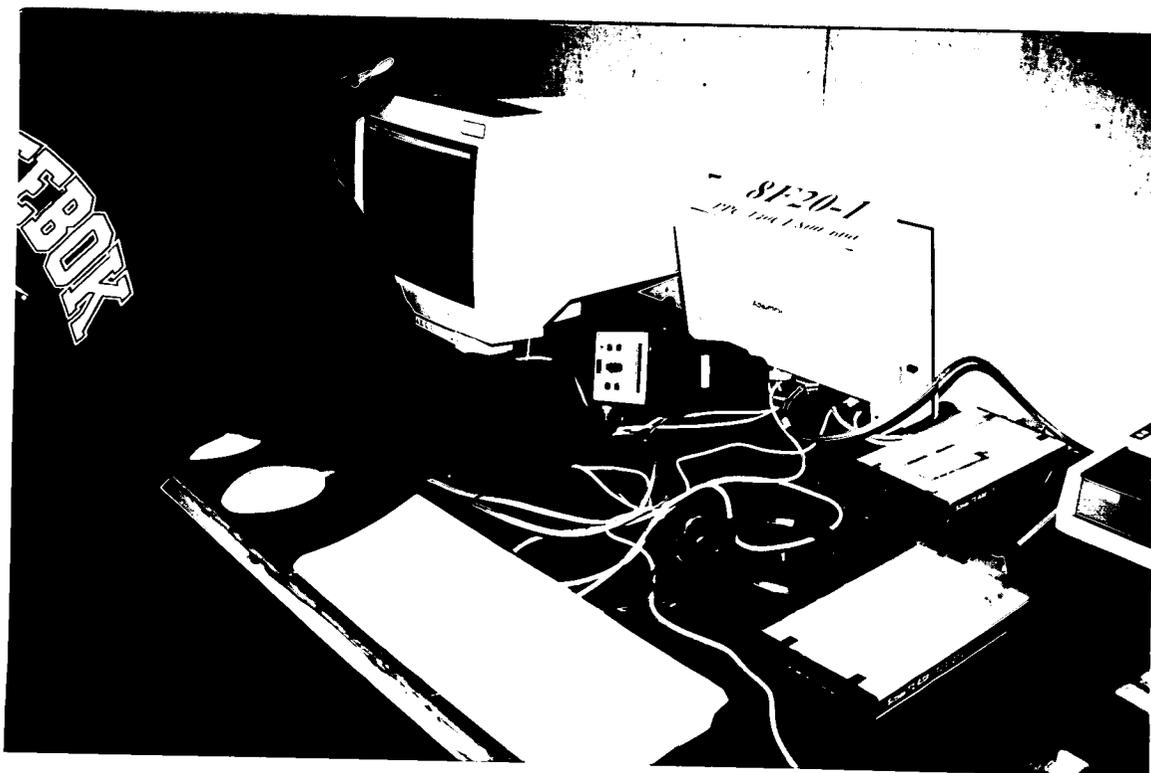
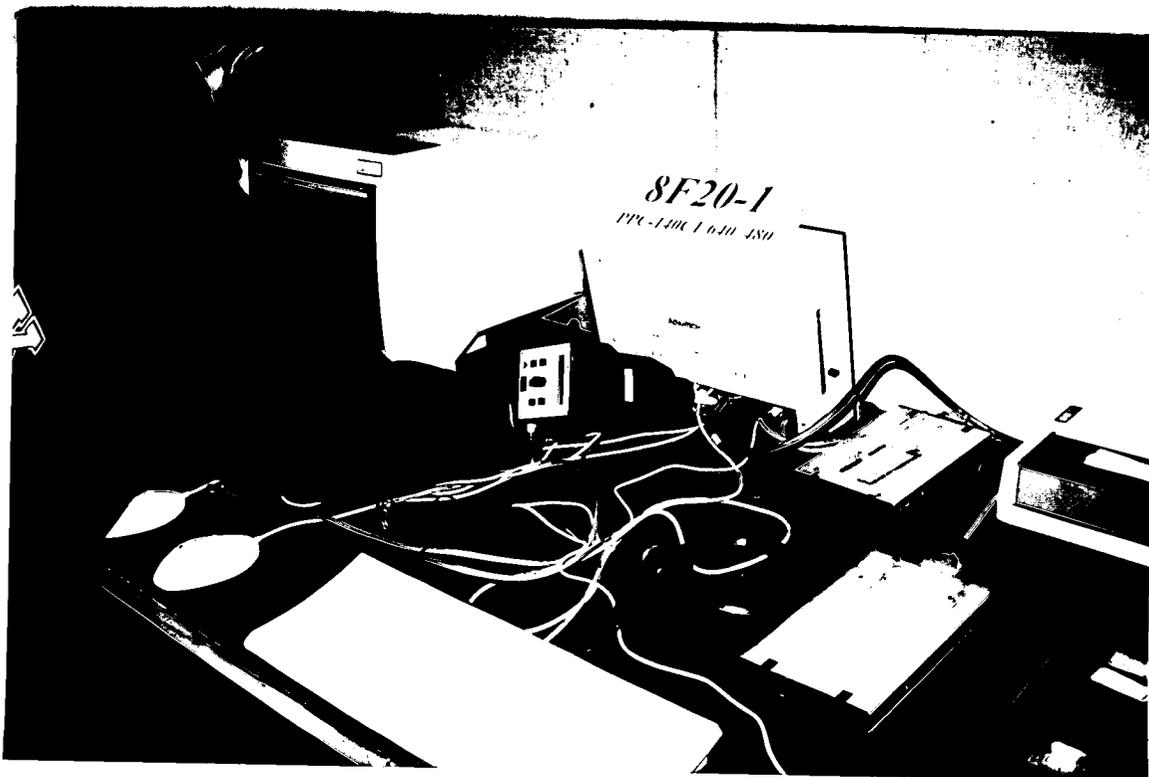
11. PHOTOS OF TESTING

A1. Electrostatic discharge immunity test view (PPC-120CT)



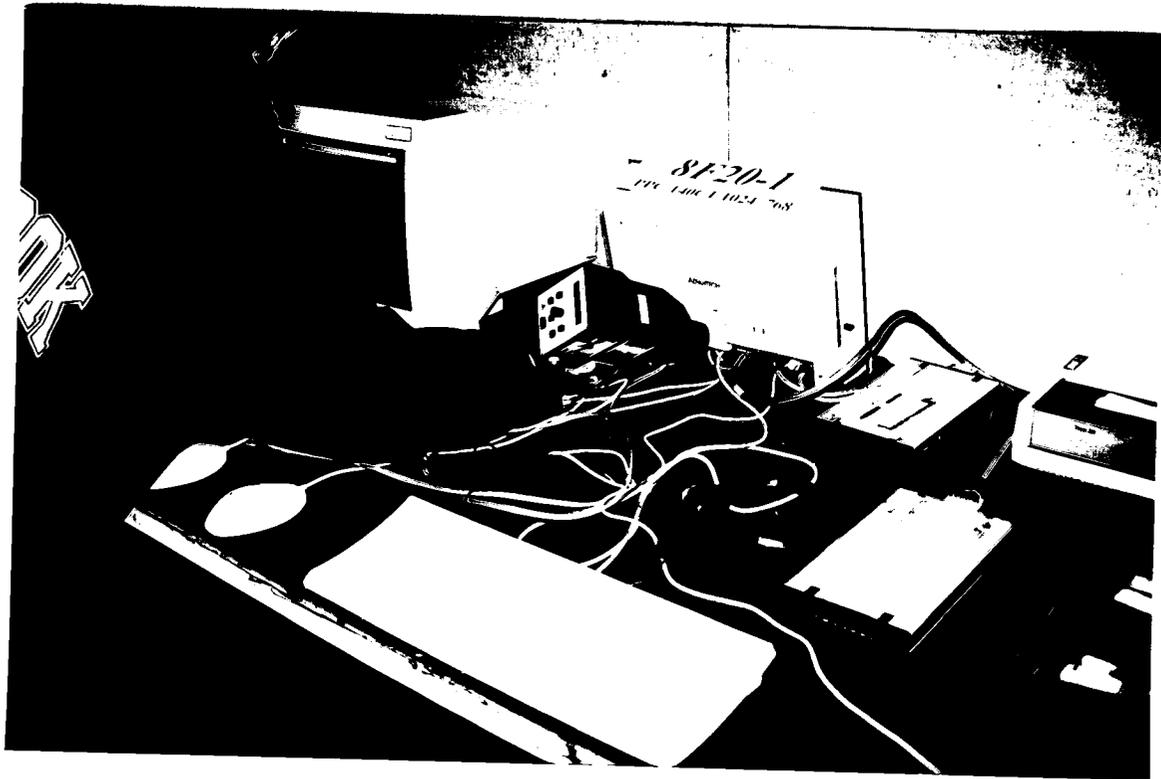
11. PHOTOS OF TESTING

A2. Electrostatic discharge immunity test view (PPC-140CT)



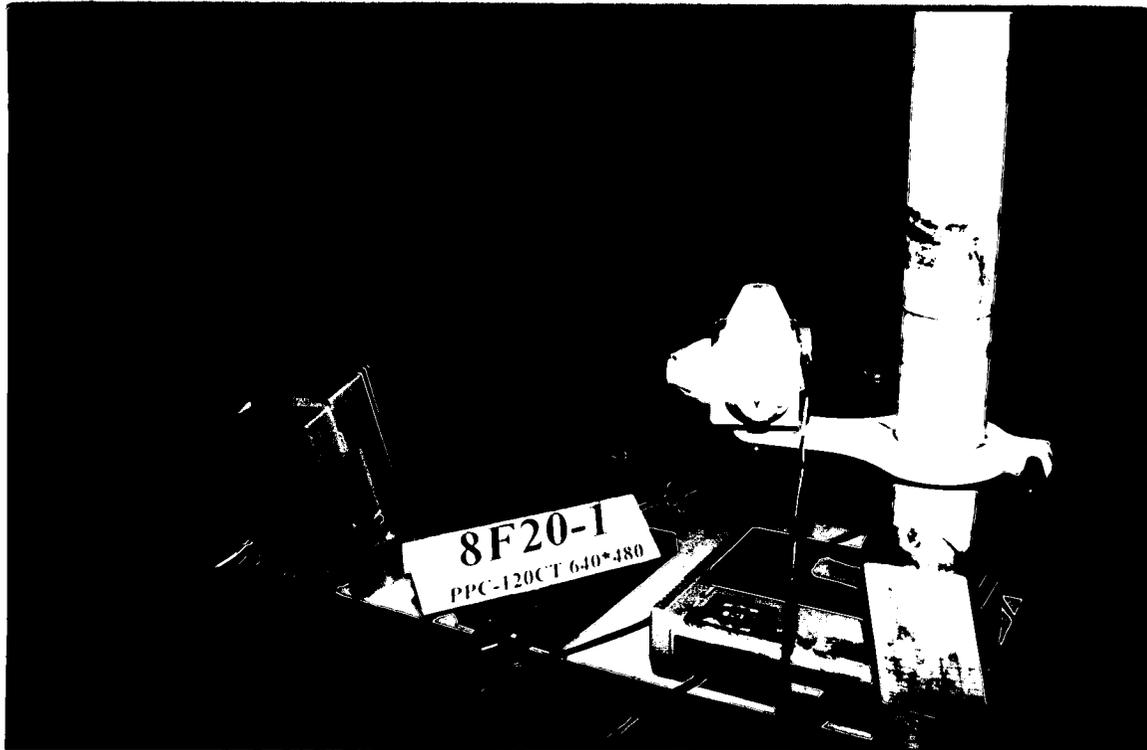
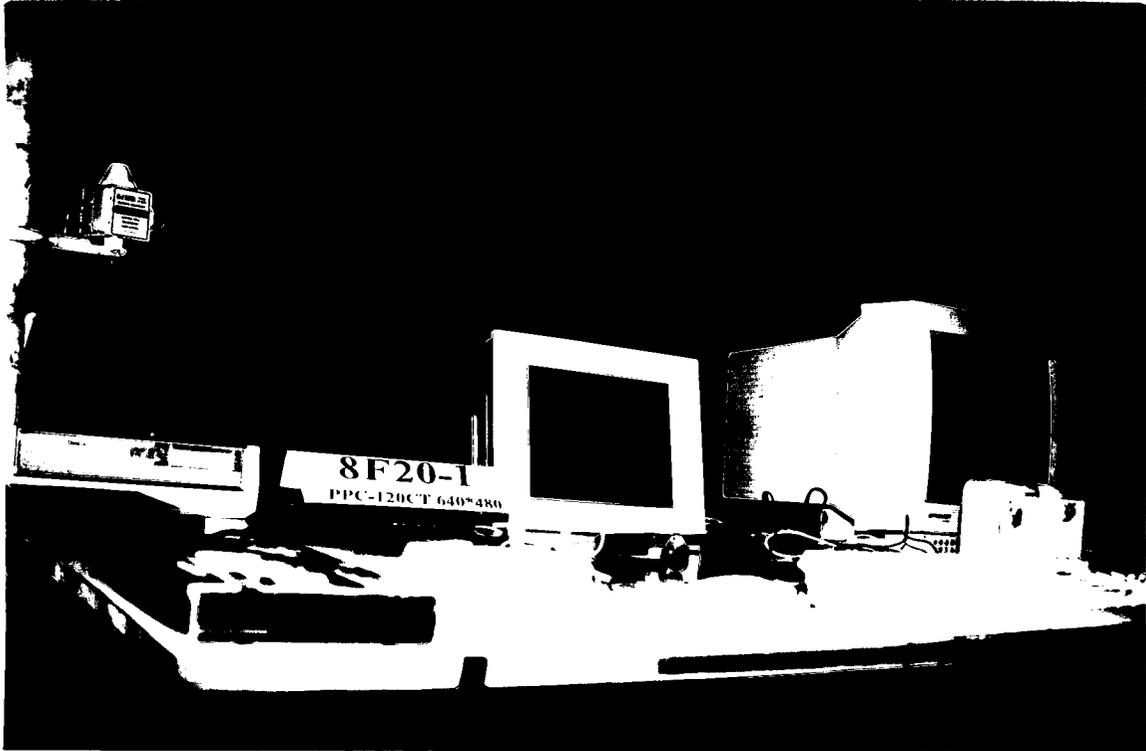
11. PHOTOS OF TESTING

A3. Electrostatic discharge immunity test view (PPC-140CT)



11. PHOTOS OF TESTING

- A4. Radiated immunity test front view (PPC-120CT)
- A5. Radiated immunity test back view



11. PHOTOS OF TESTING

A6. Radiated immunity test front view (PPC-120CT)

A7. Radiated immunity test back view



11. PHOTOS OF TESTING

A8. Radiated immunity test front view (PPC-140CT)

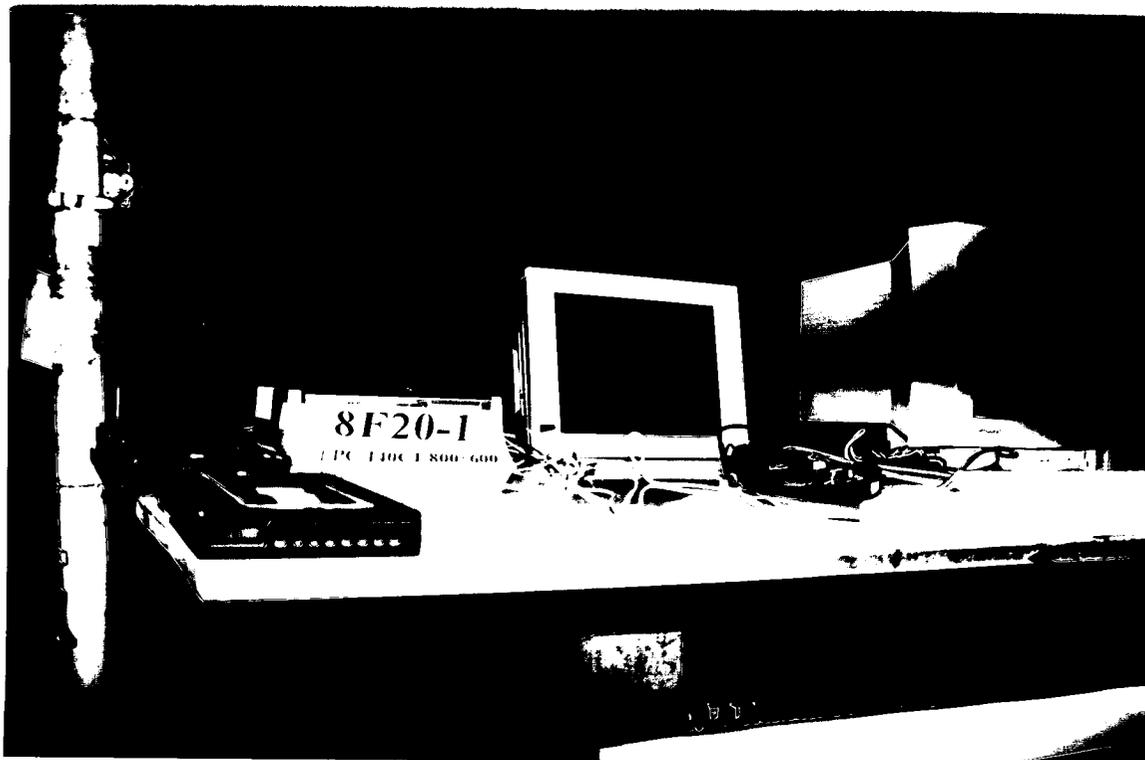
A9. Radiated immunity test back view



11. PHOTOS OF TESTING

A10. Radiated immunity test front view (PPC-140CT)

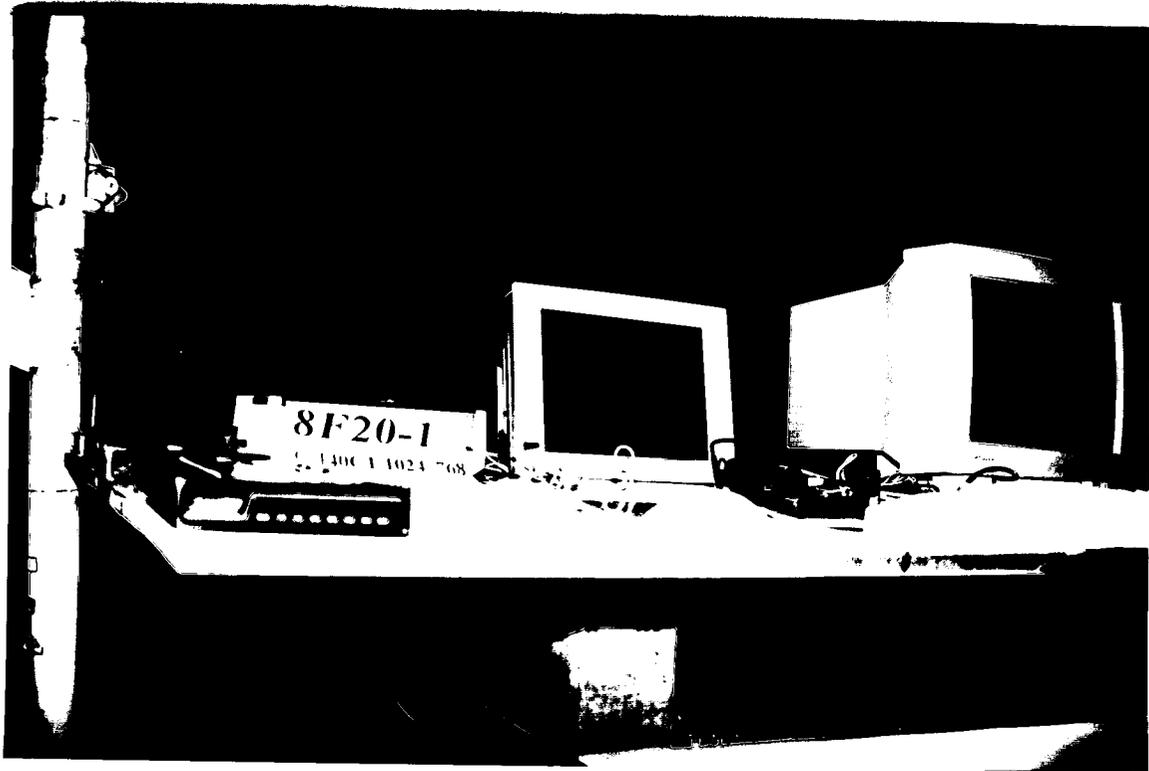
A11. Radiated immunity test back view



11. PHOTOS OF TESTING

A12. Radiated immunity test front view (PPC-140CT)

A13. Radiated immunity test back view



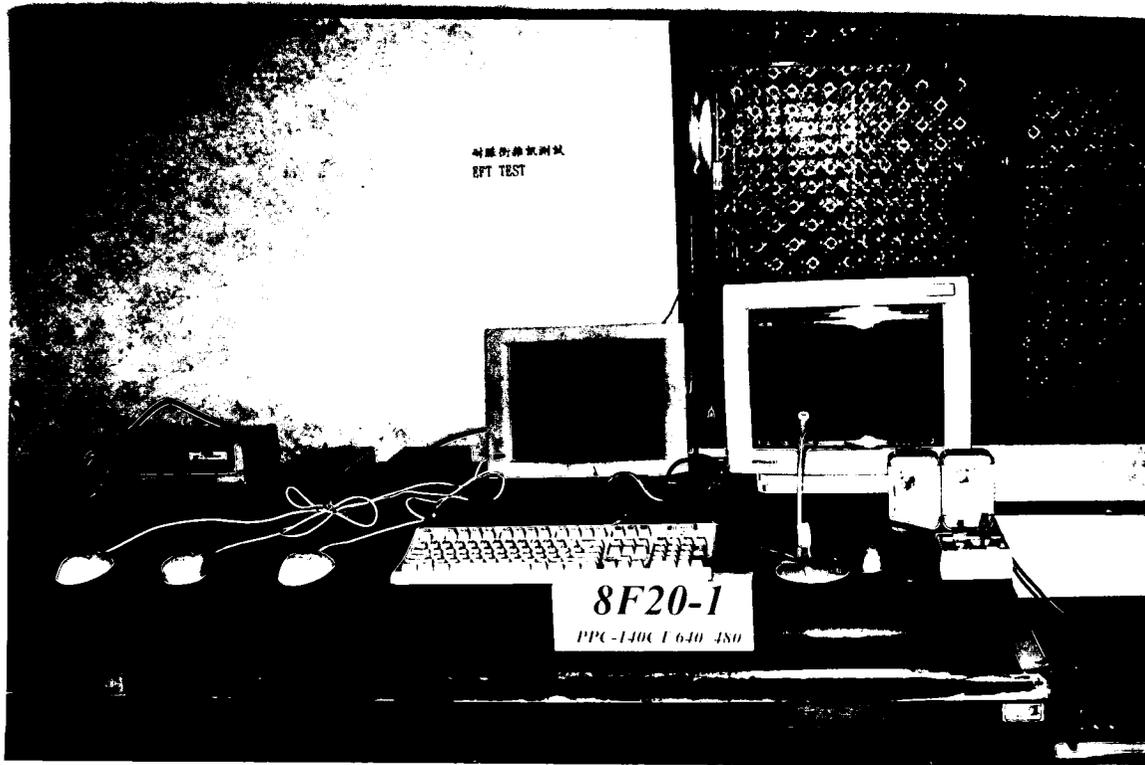
11. PHOTOS OF TESTING

A14. Electrical fast transient/burst immunity test view (PPC-120CT)



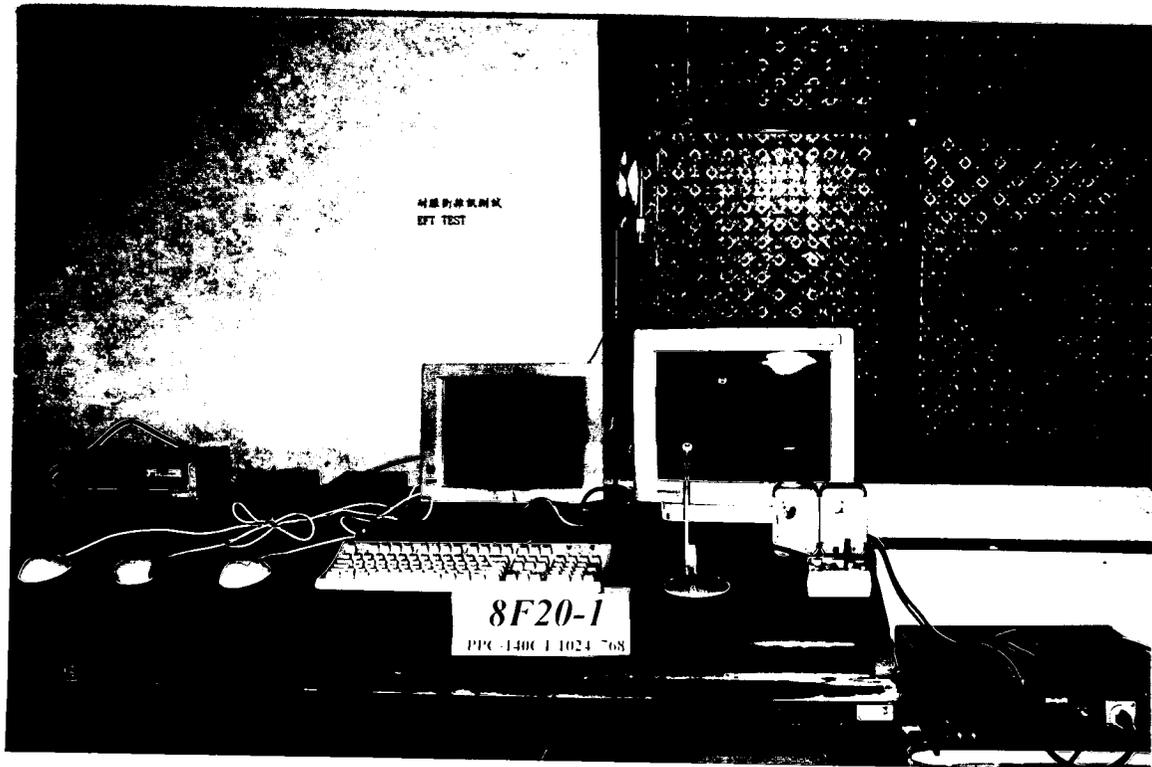
11. PHOTOS OF TESTING

A15. Electrical fast transient/burst immunity test view (PPC-140CT)



11. PHOTOS OF TESTING

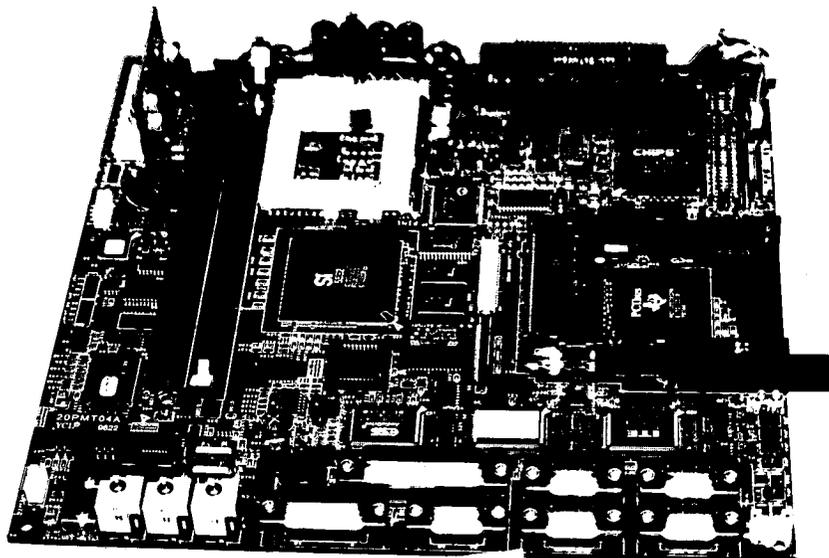
A16. Electrical fast transient/burst immunity test view (PPC-140CT)



11. PHOTOS OF TESTING

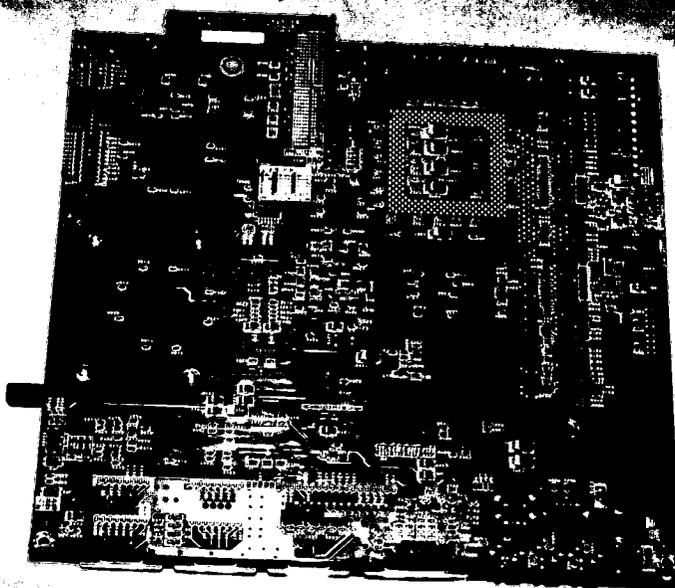
A17. Main board component side (PPC-120CT)

A18. Main board solder side



8F20-1

PPC-120CT



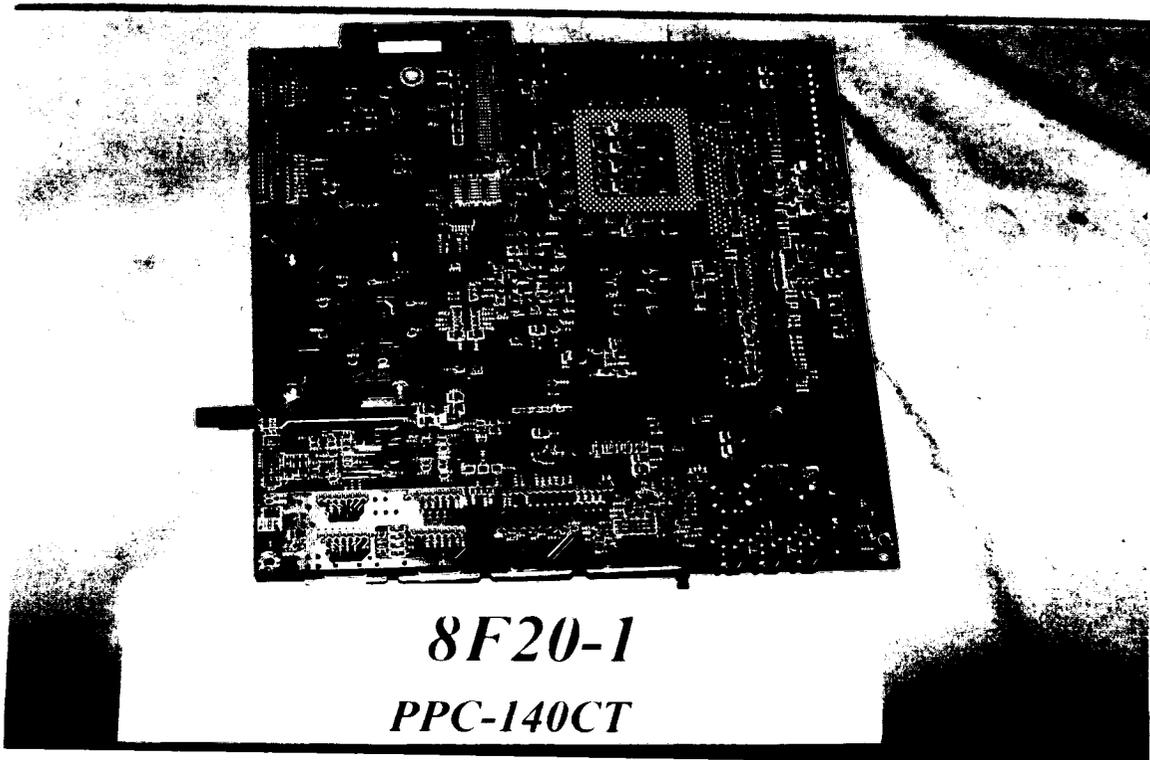
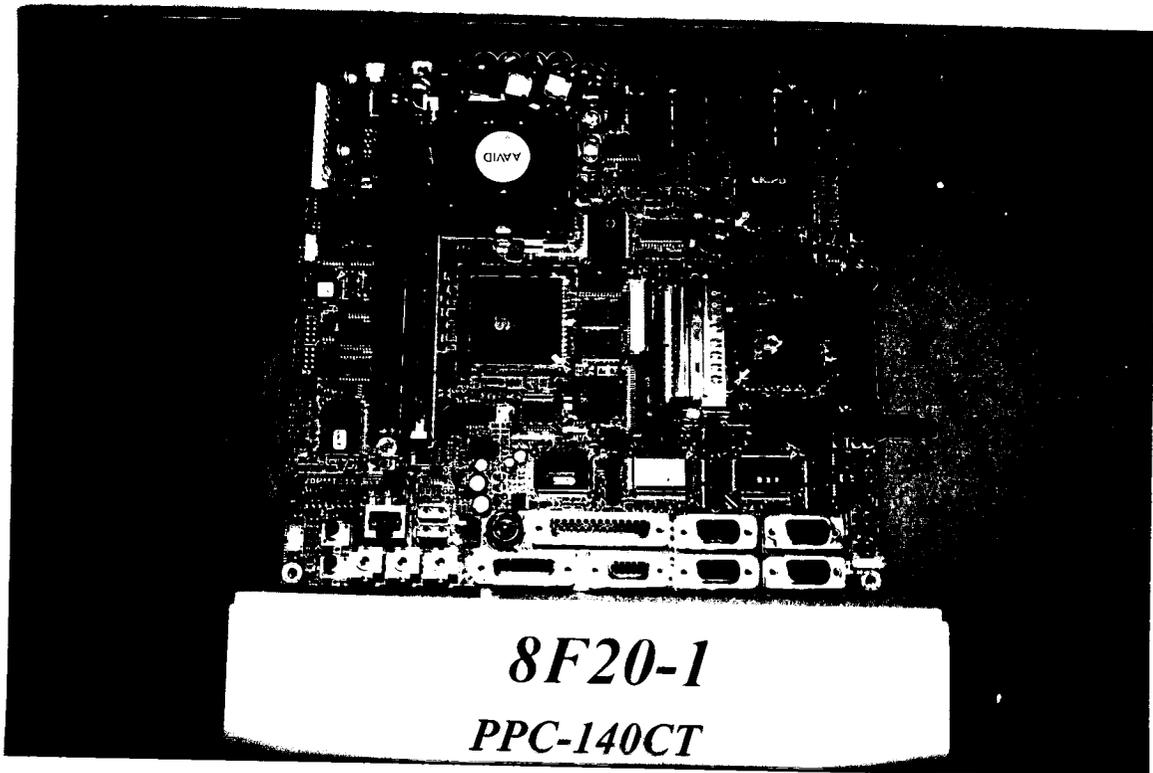
8F20-1

PPC-120CT

11. PHOTOS OF TESTING

A19. Main board component side (PPC-140CT)

A20. Main board solder side



11. PHOTOS OF TESTING

A21. Power board component side (PPC-120CT)

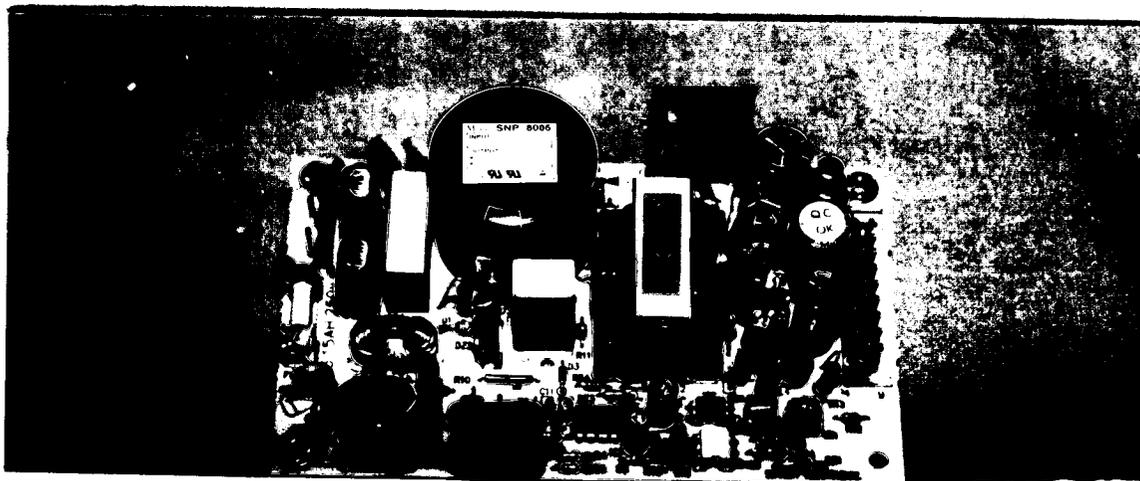
A22. Power board solder side



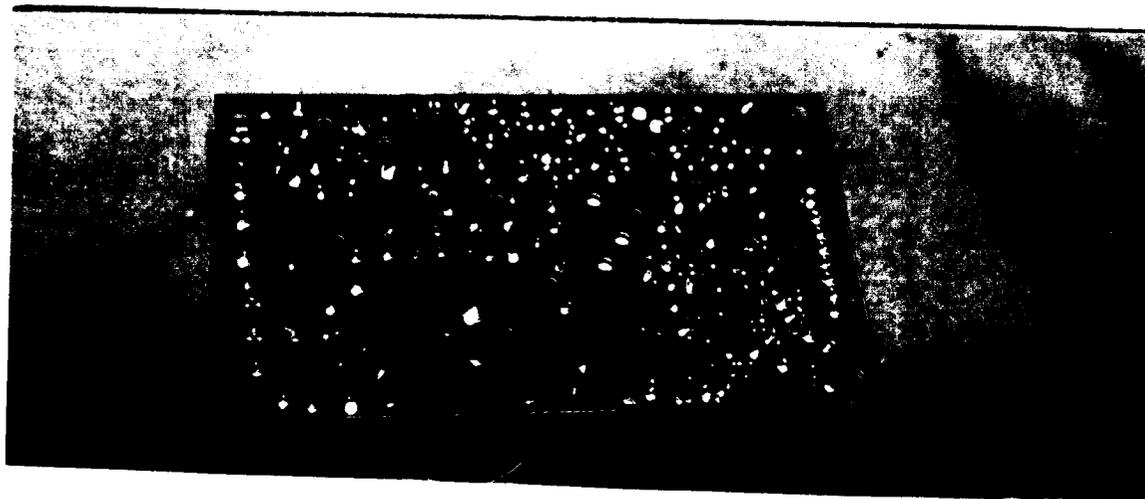
11. PHOTOS OF TESTING

A23. Power board component side (PPC-140CT)

A24. Power board solder side



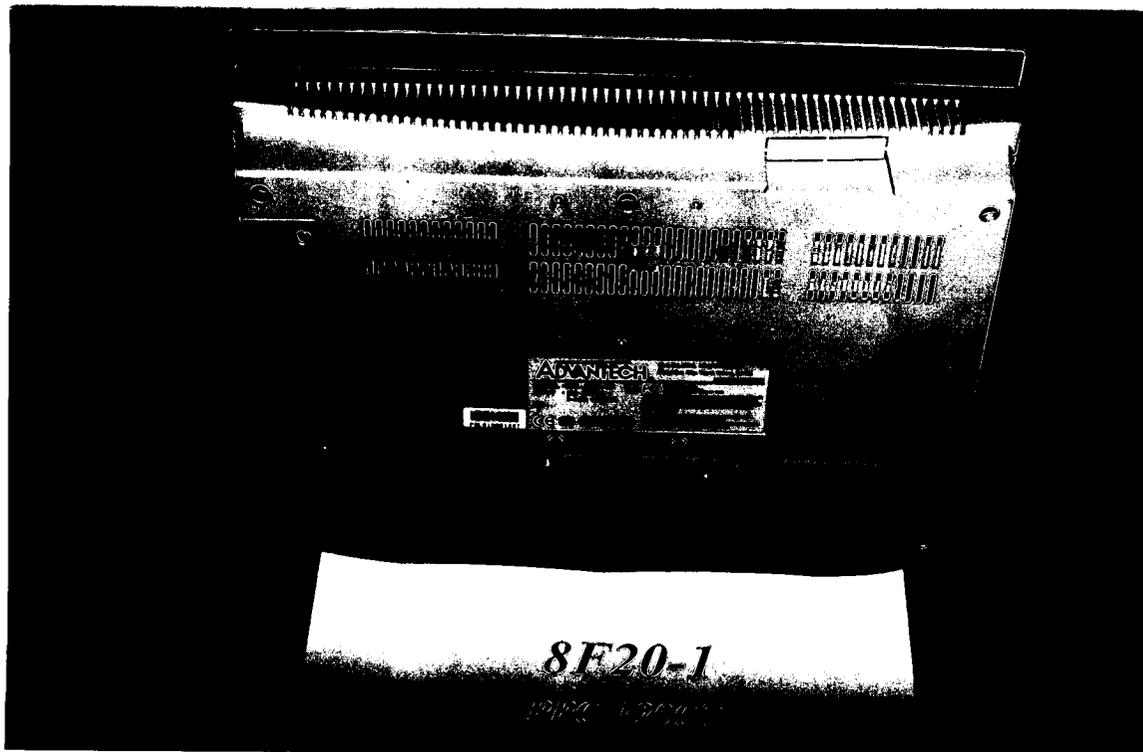
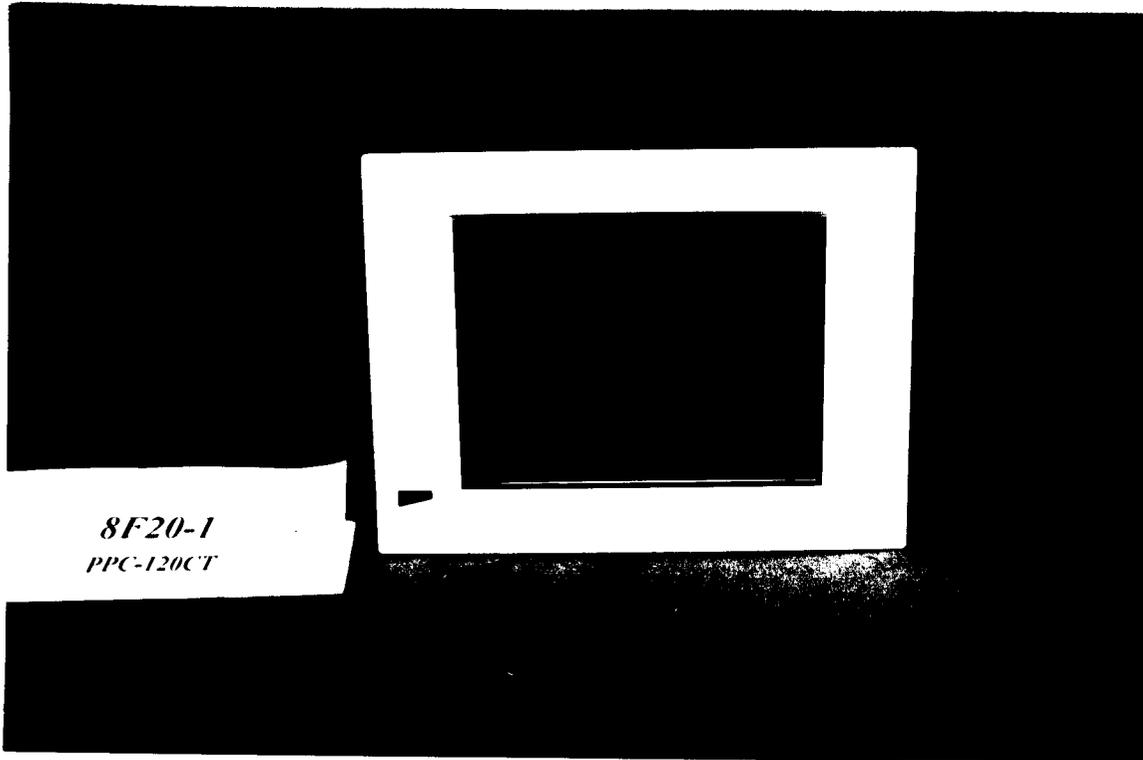
8F20-1



8F20-1

11. PHOTOS OF TESTING

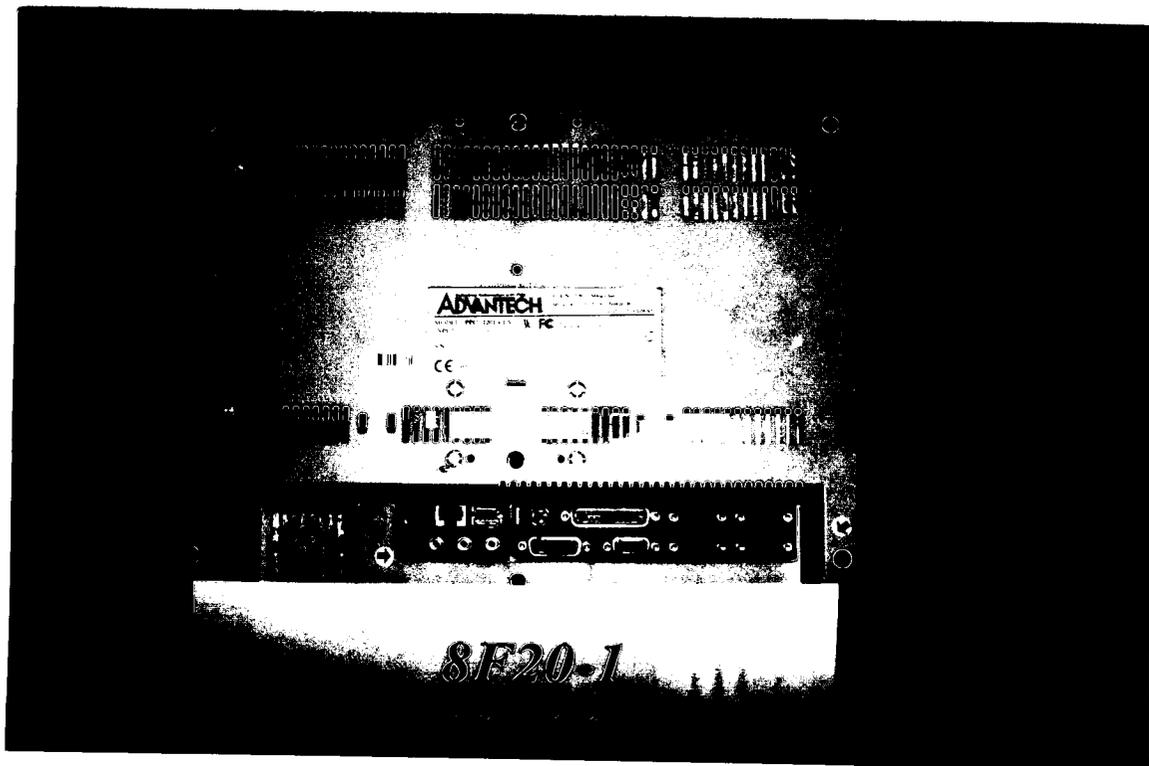
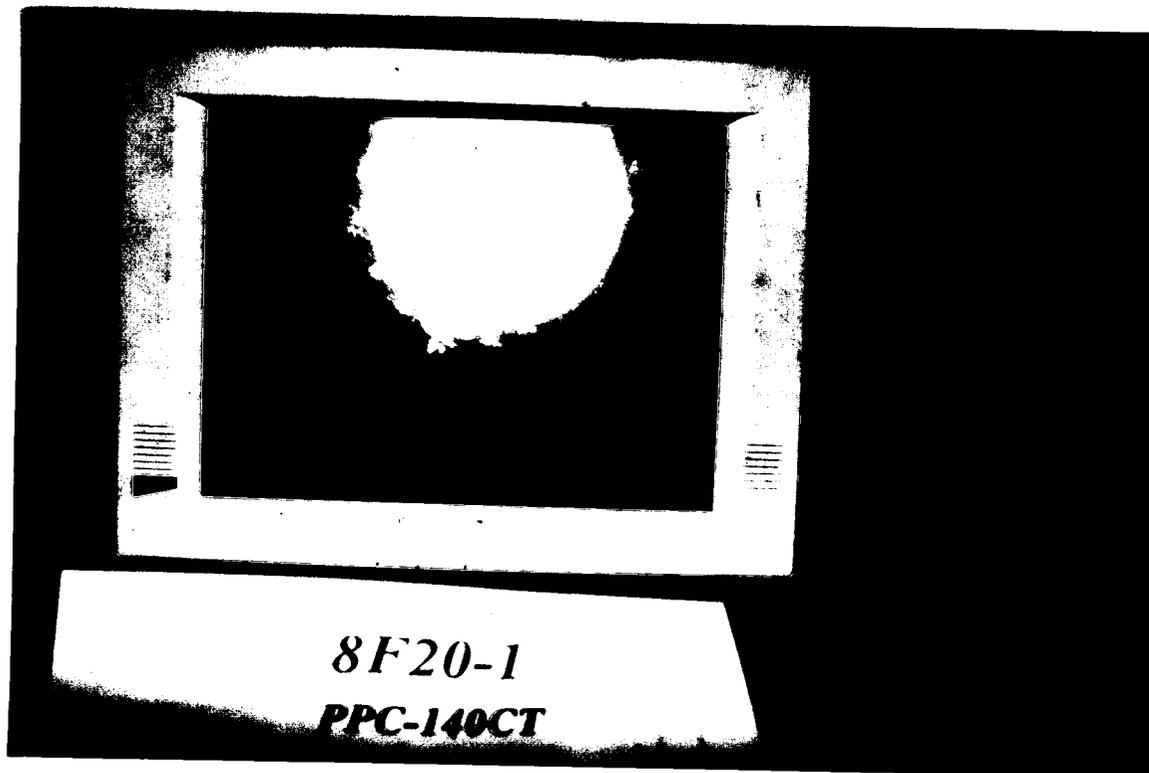
- A25. EUT front side view (PPC-120CT)
- A26. EUT back side view



11. PHOTOS OF TESTING

A27. EUT front side view (PPC-140CT)

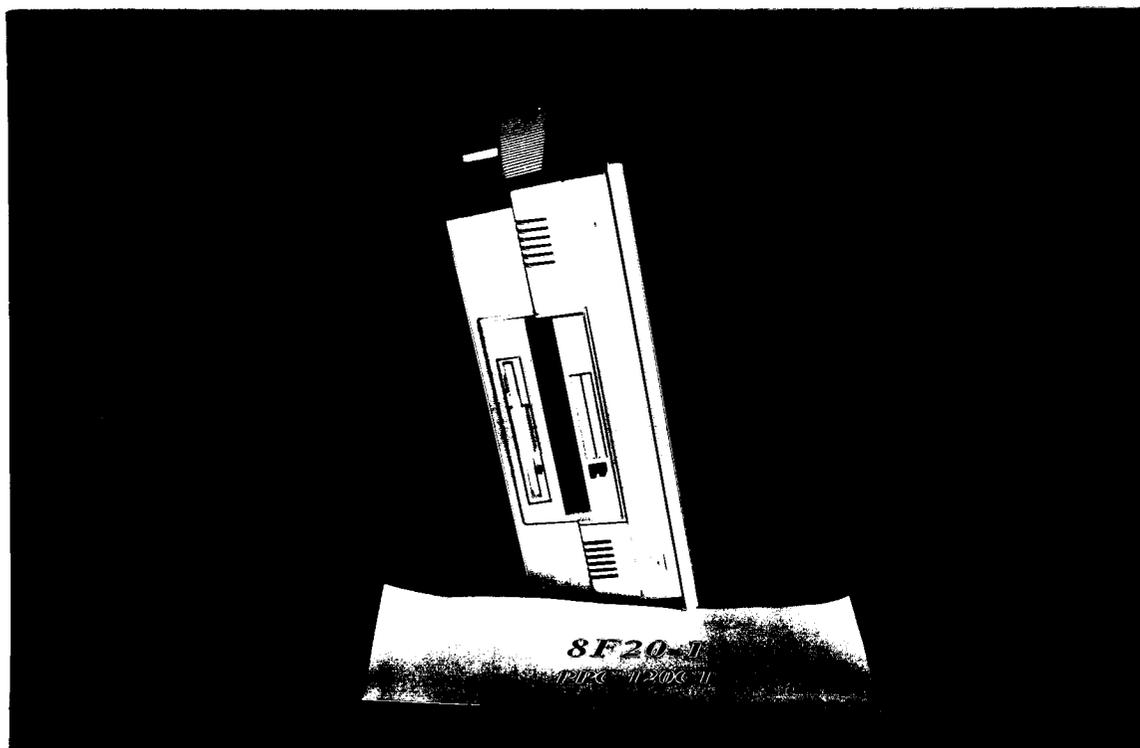
A28. EUT back side view



11. PHOTOS OF TESTING

A29. EUT left side view (PPC-120CT)

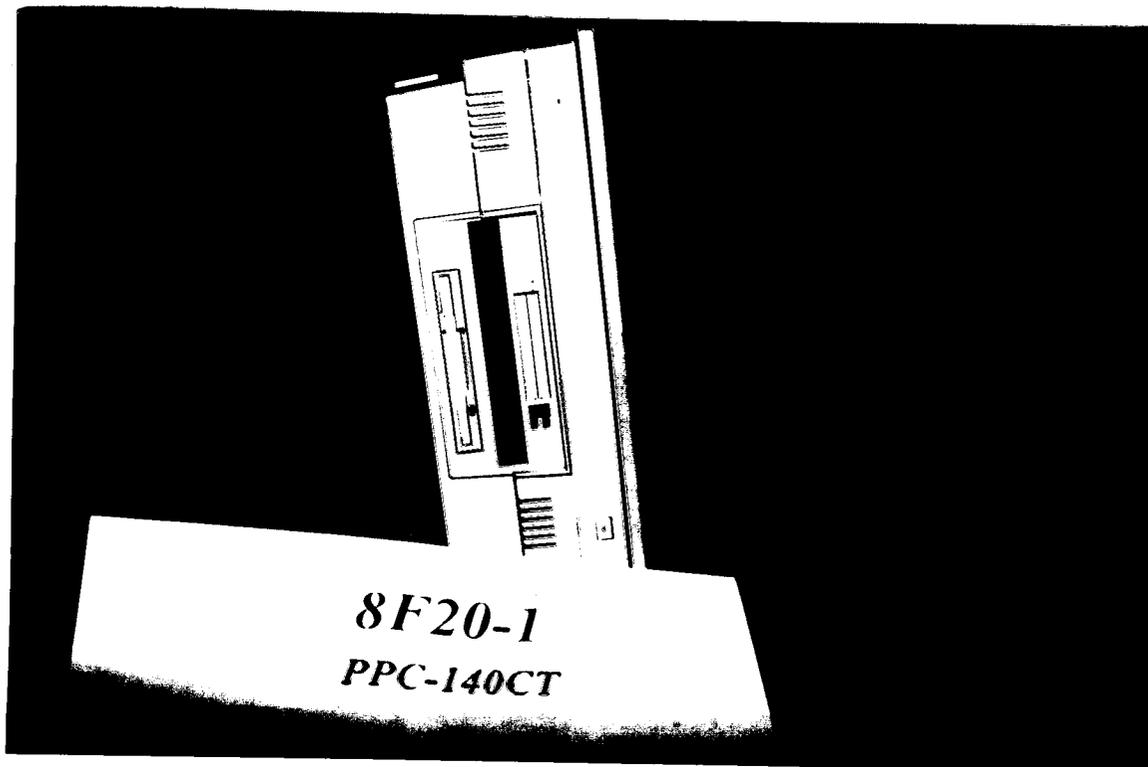
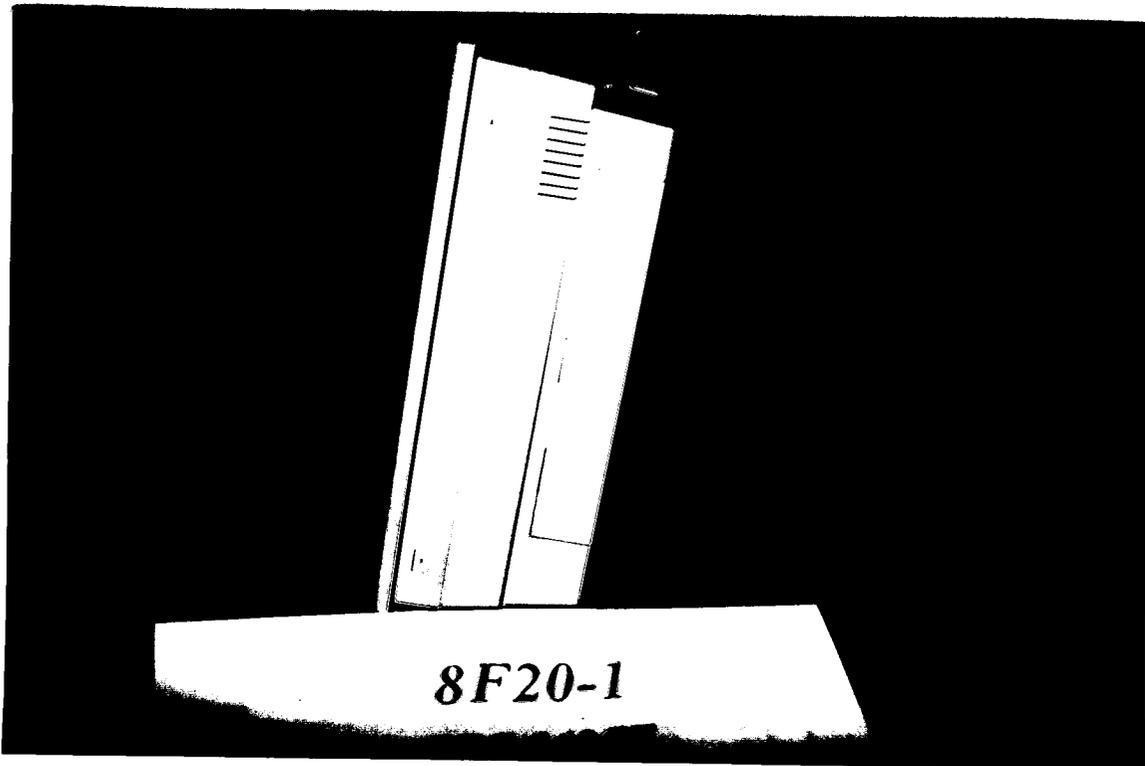
A30. EUT right side view



11. PHOTOS OF TESTING

A31. EUT left side view (PPC-140CT)

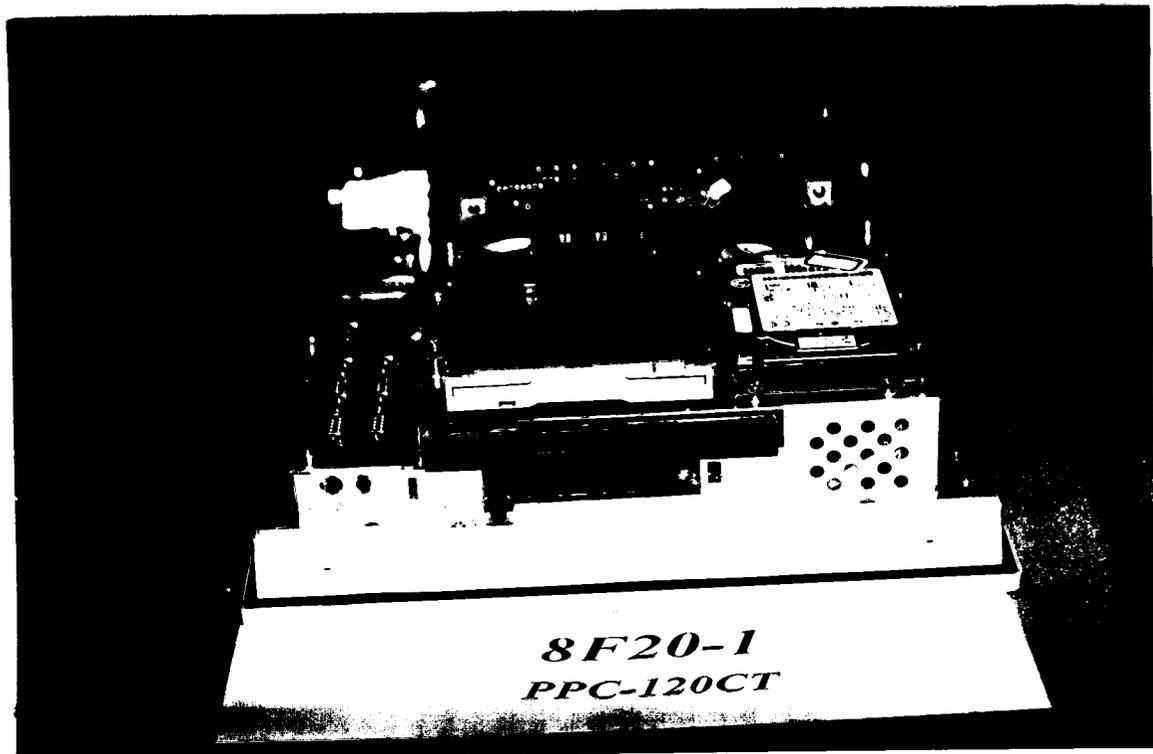
A32. EUT right side view



11. PHOTOS OF TESTING

A33. EUT left inside view (PPC-120CT)

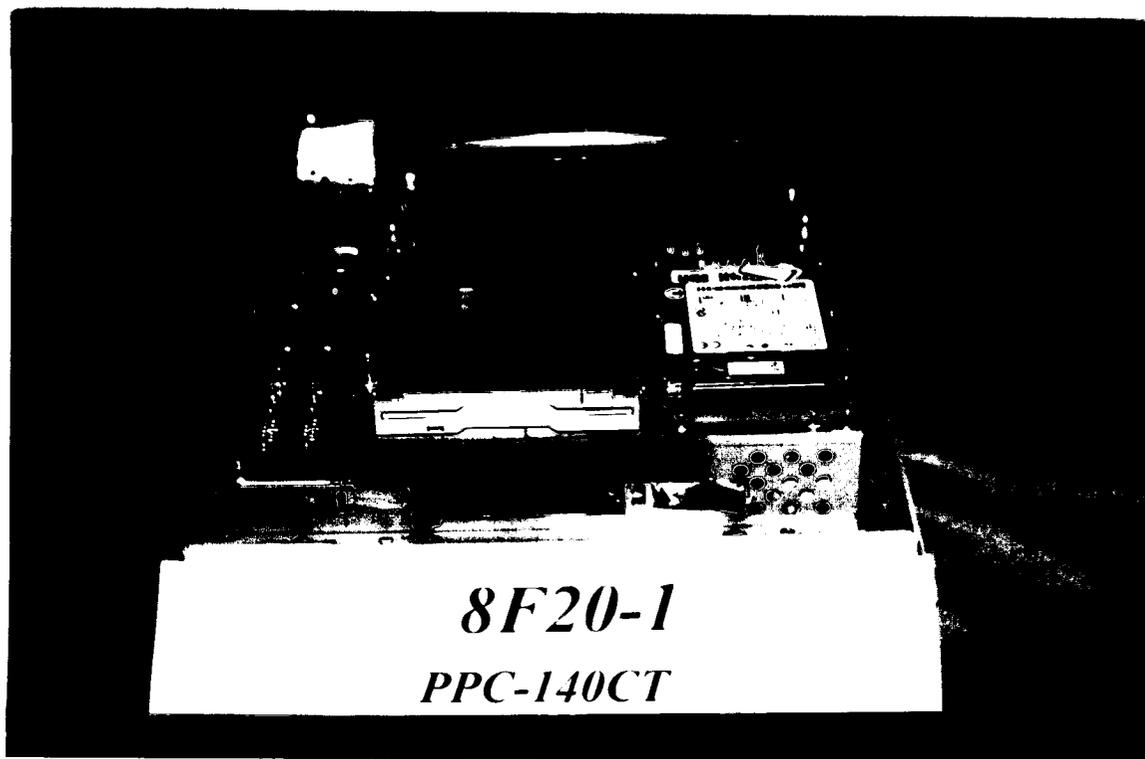
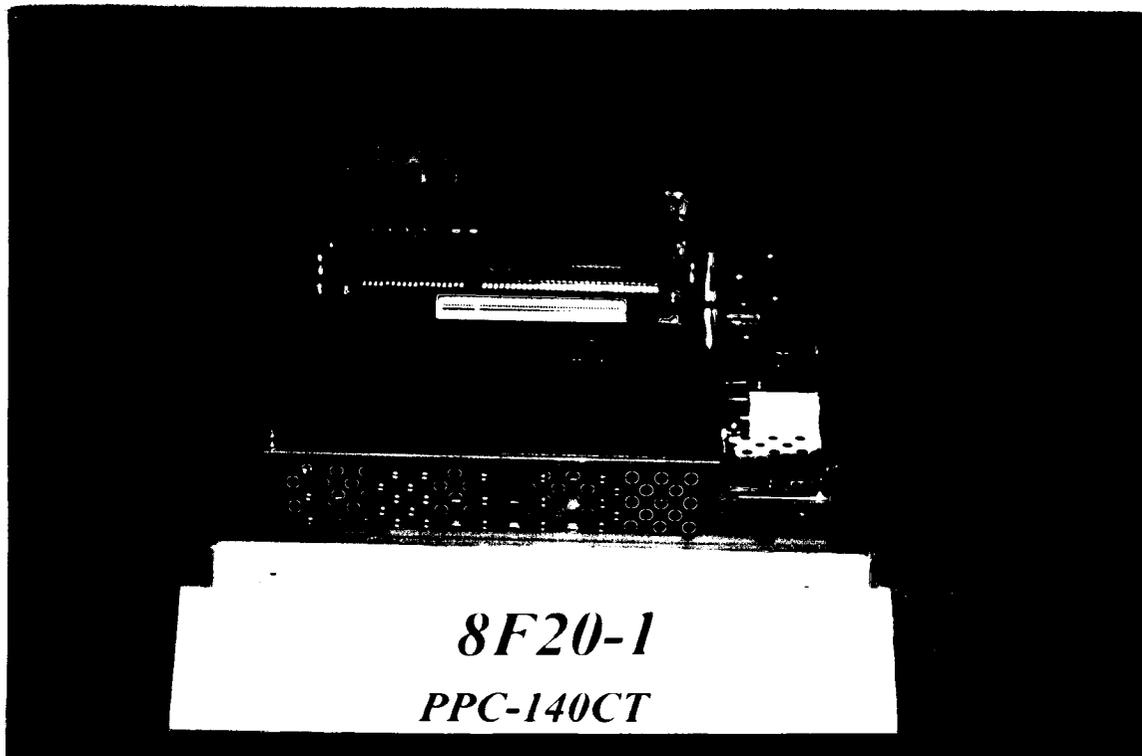
A34. EUT right inside view



11. PHOTOS OF TESTING

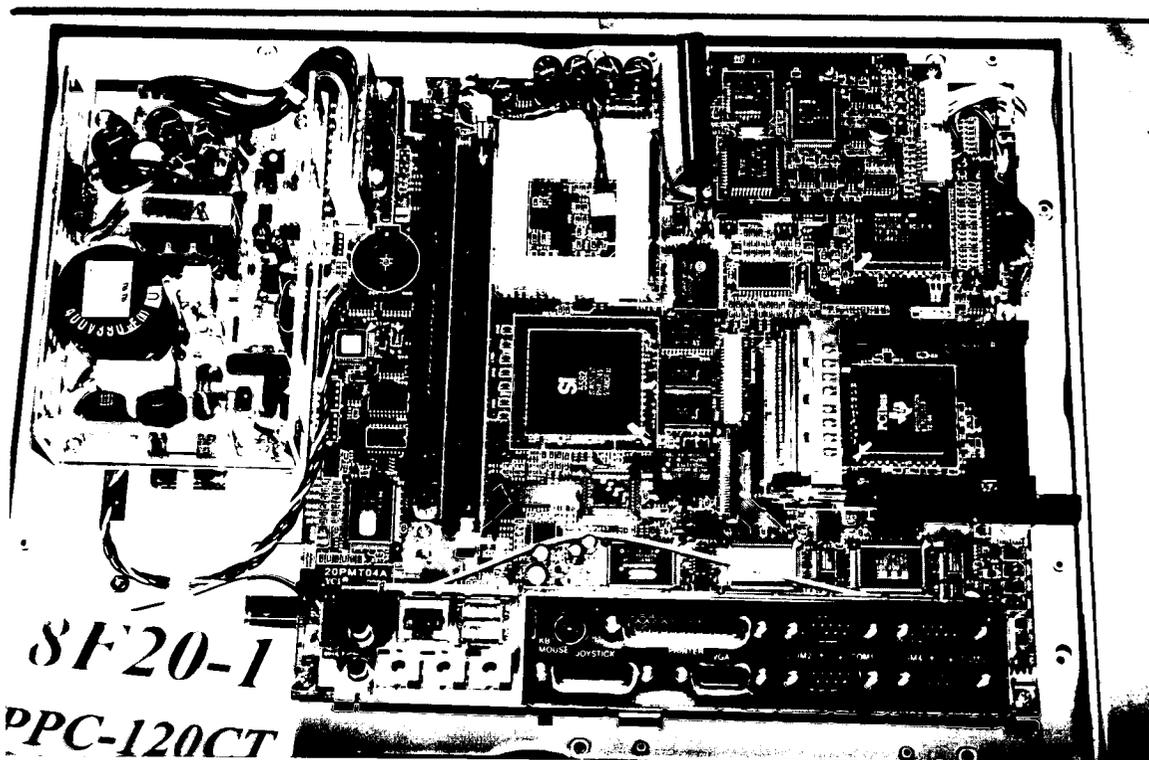
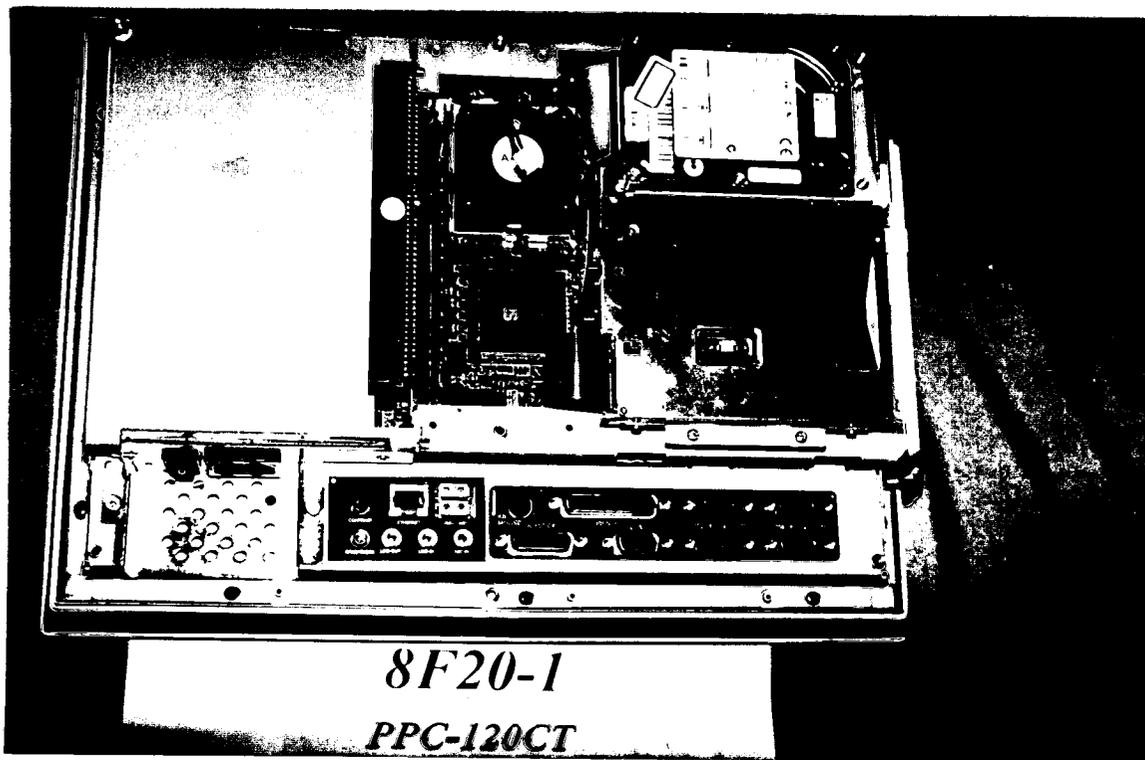
A35. EUT left inside view (PPC-140CT)

A36. EUT right inside view



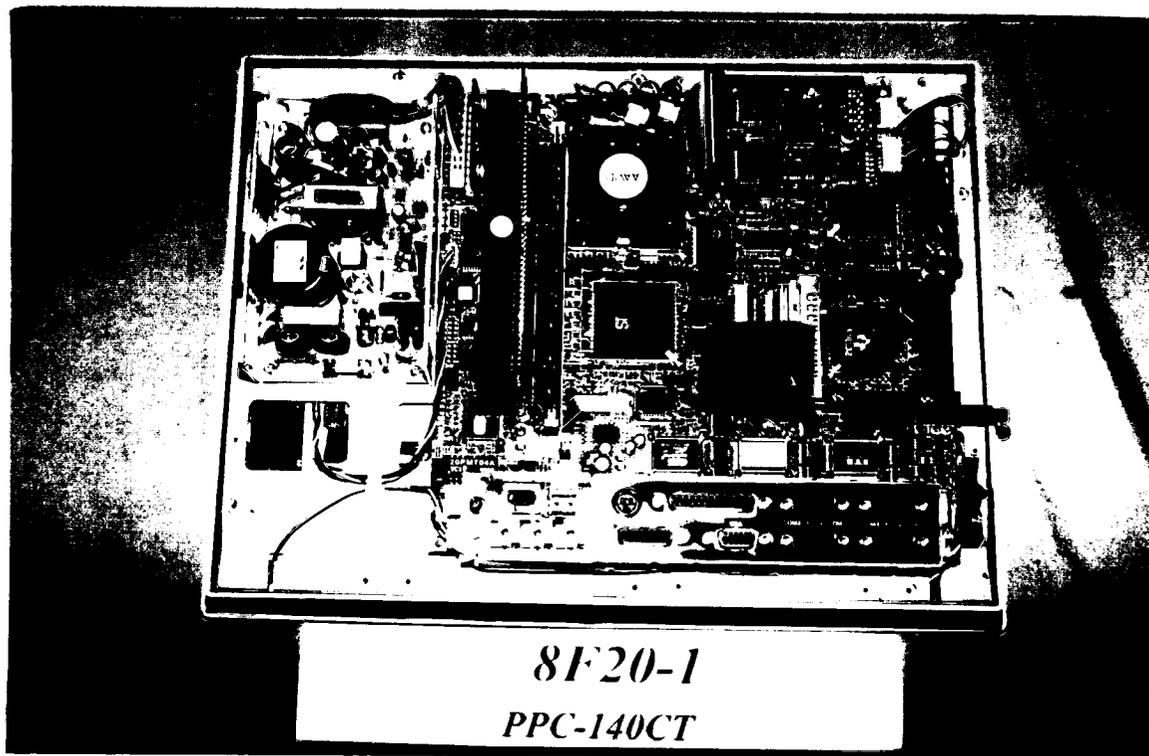
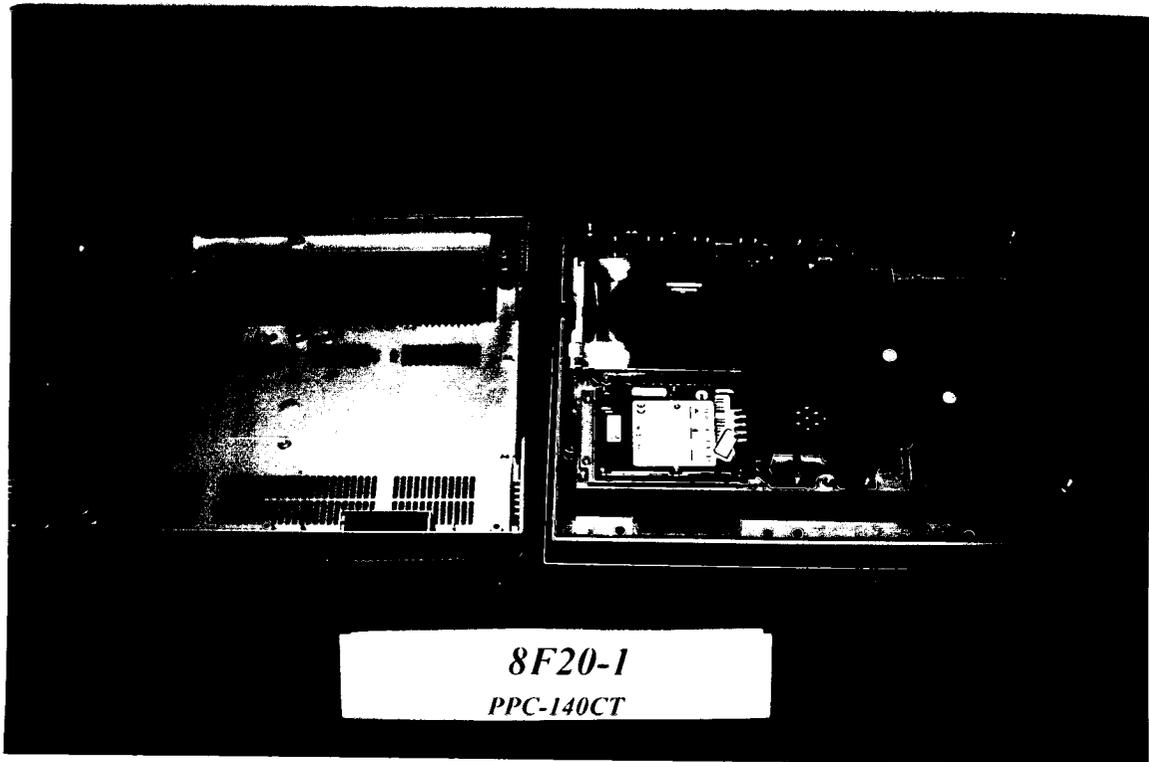
11. PHOTOS OF TESTING

A37. EUT inside whole view (PPC-120CT)



11. PHOTOS OF TESTING

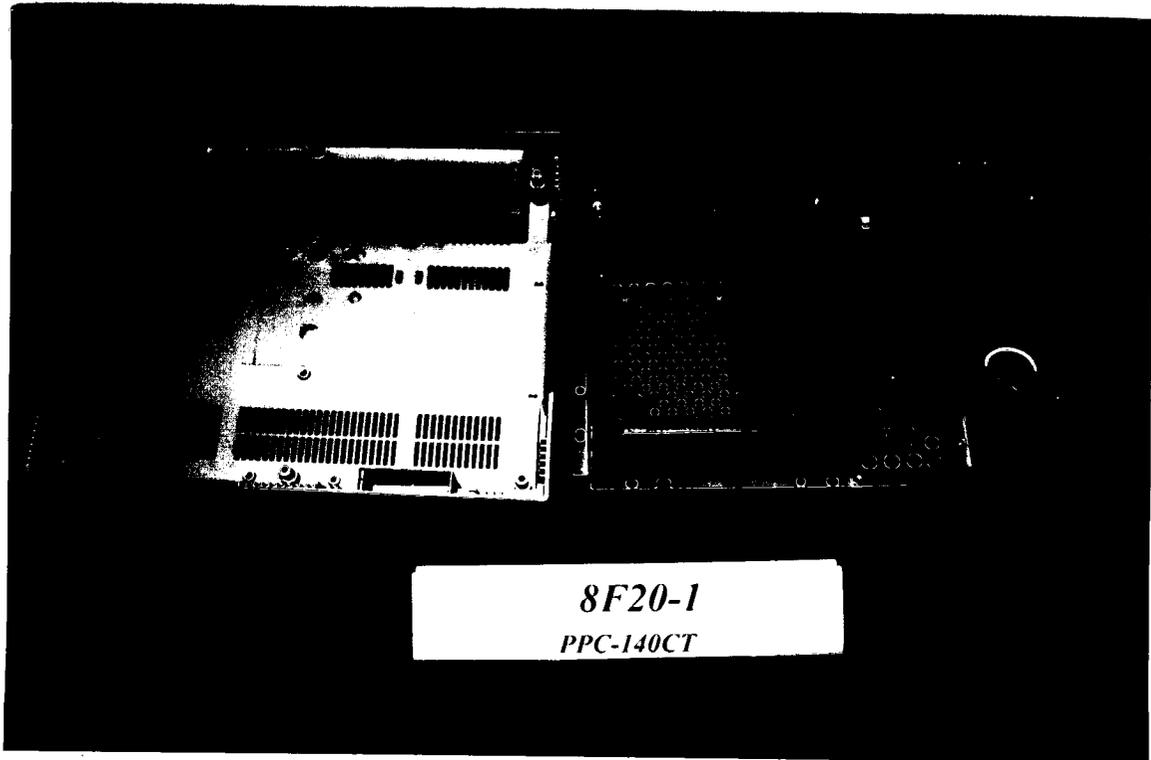
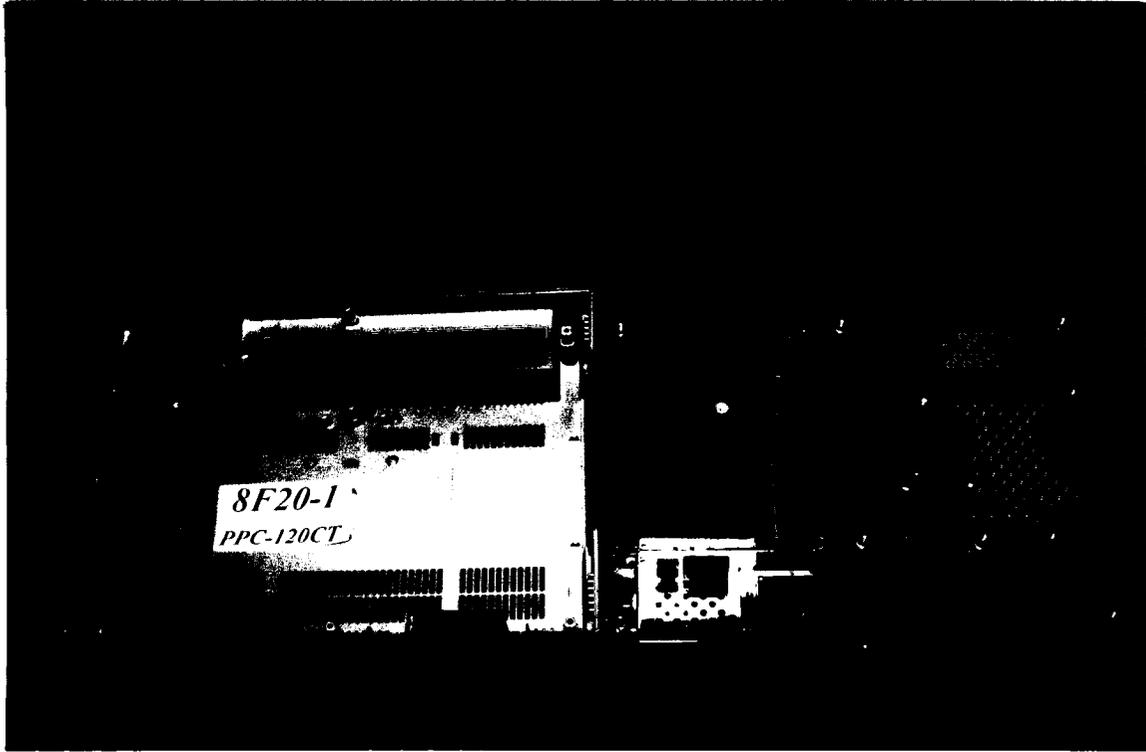
A38. EUT inside whole view (PPC-140CT)



11. PHOTOS OF TESTING

A39. EUT case inside whole view (PPC-120CT)

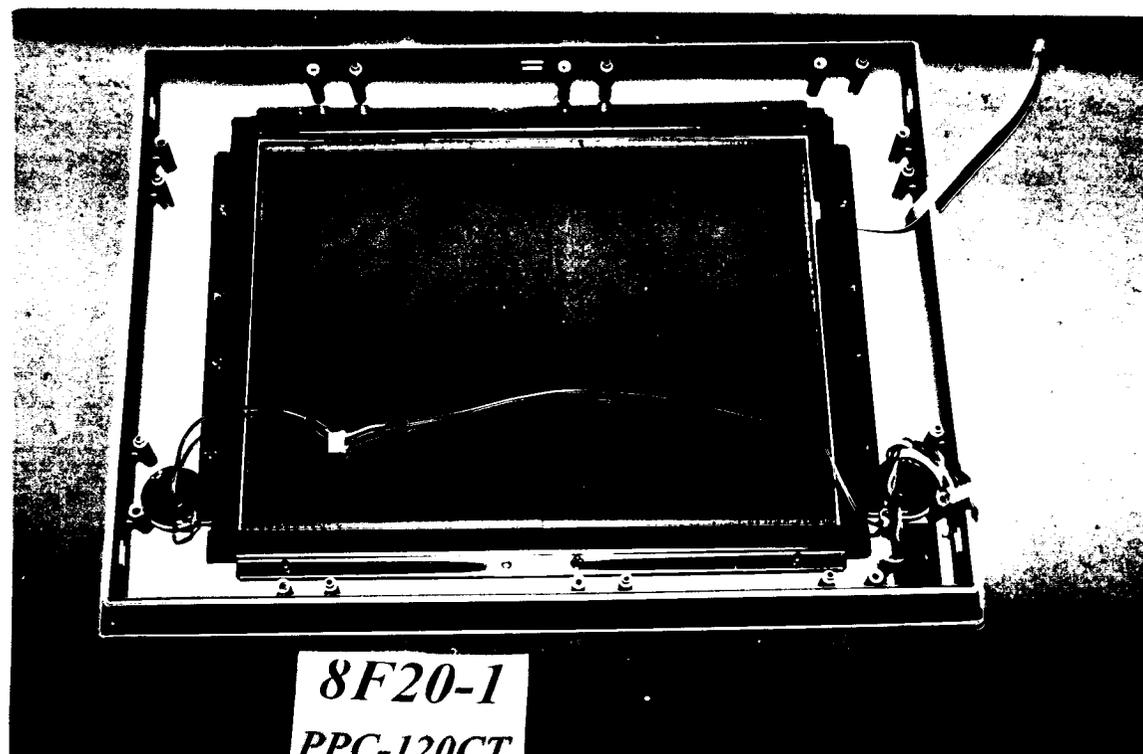
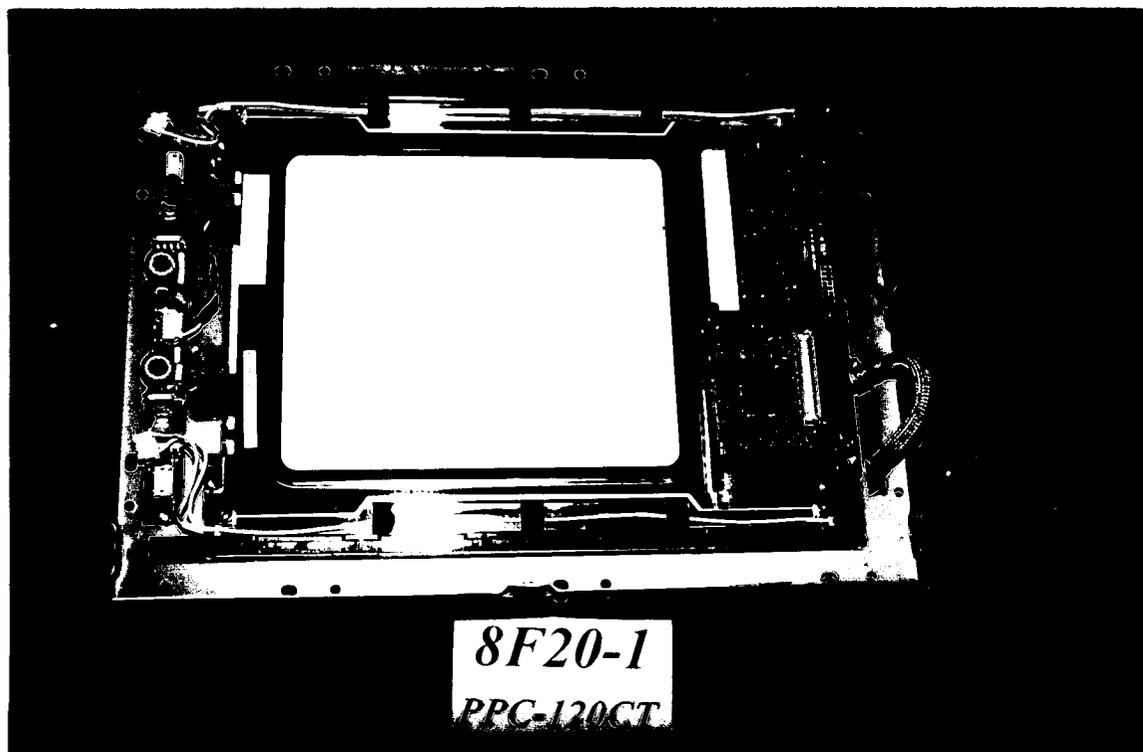
A40. EUT case inside whole view (PPC-140CT)



11. PHOTOS OF TESTING

A41. EUT panel inside whole view (PPC-120CT)

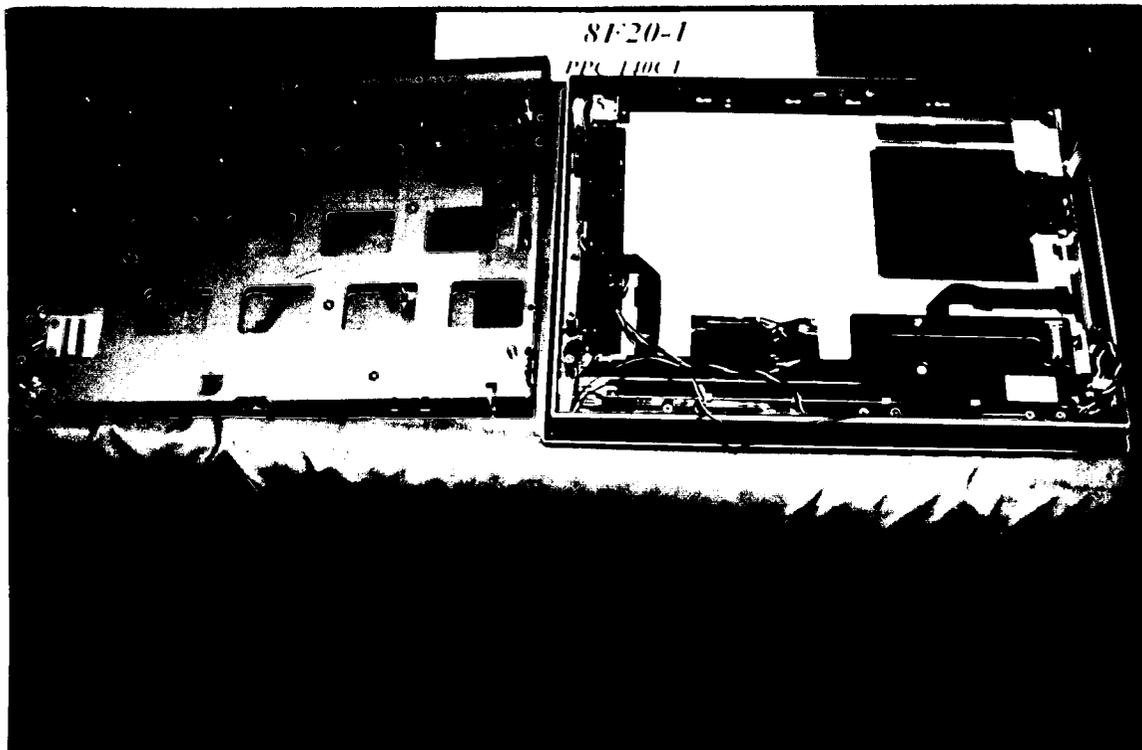
A42. EUT panel case inside whole view



11. PHOTOS OF TESTING

A43. EUT panel inside whole view (PPC-140CT)

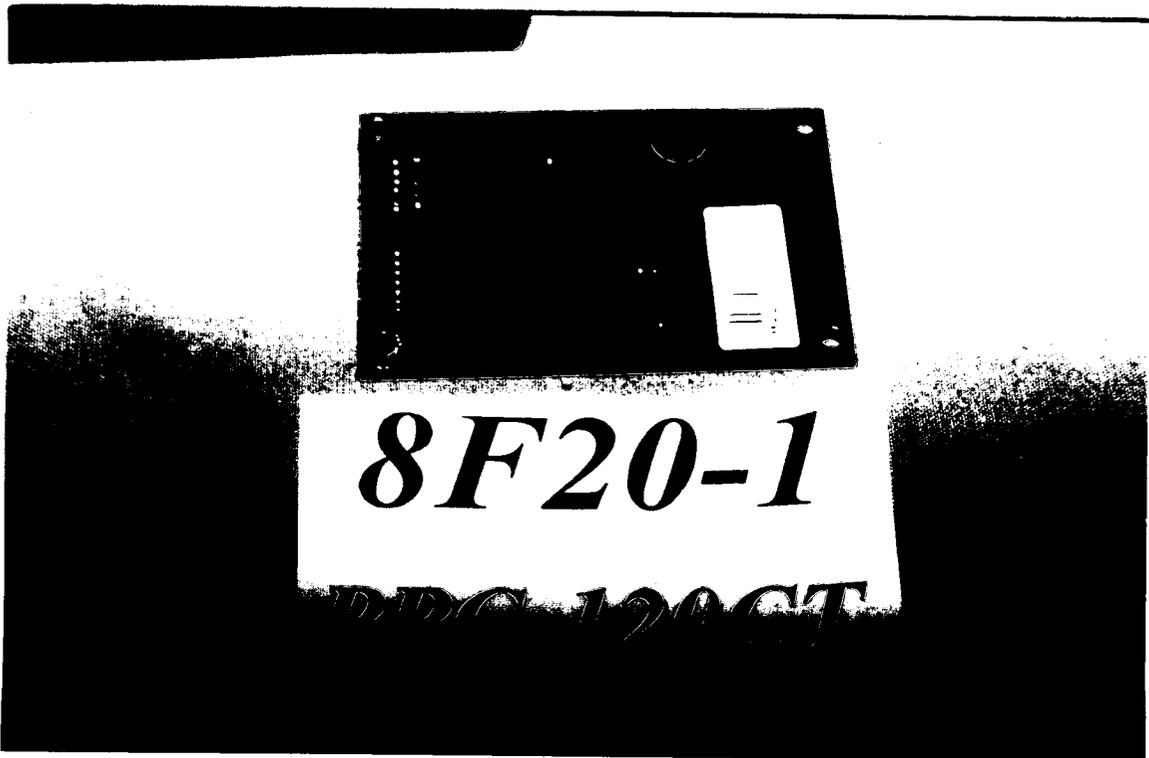
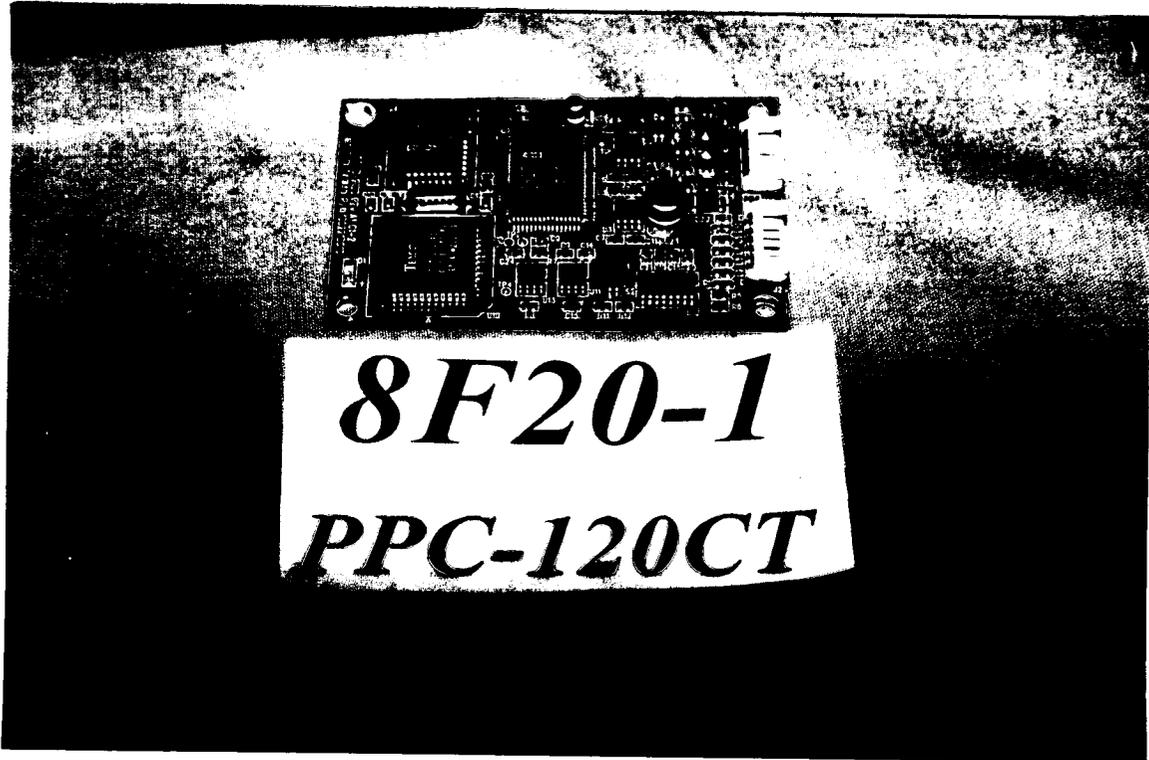
A44. EUT panel case inside whole view



11. PHOTOS OF TESTING

A45. LCD control board component side (PPC-120CT)

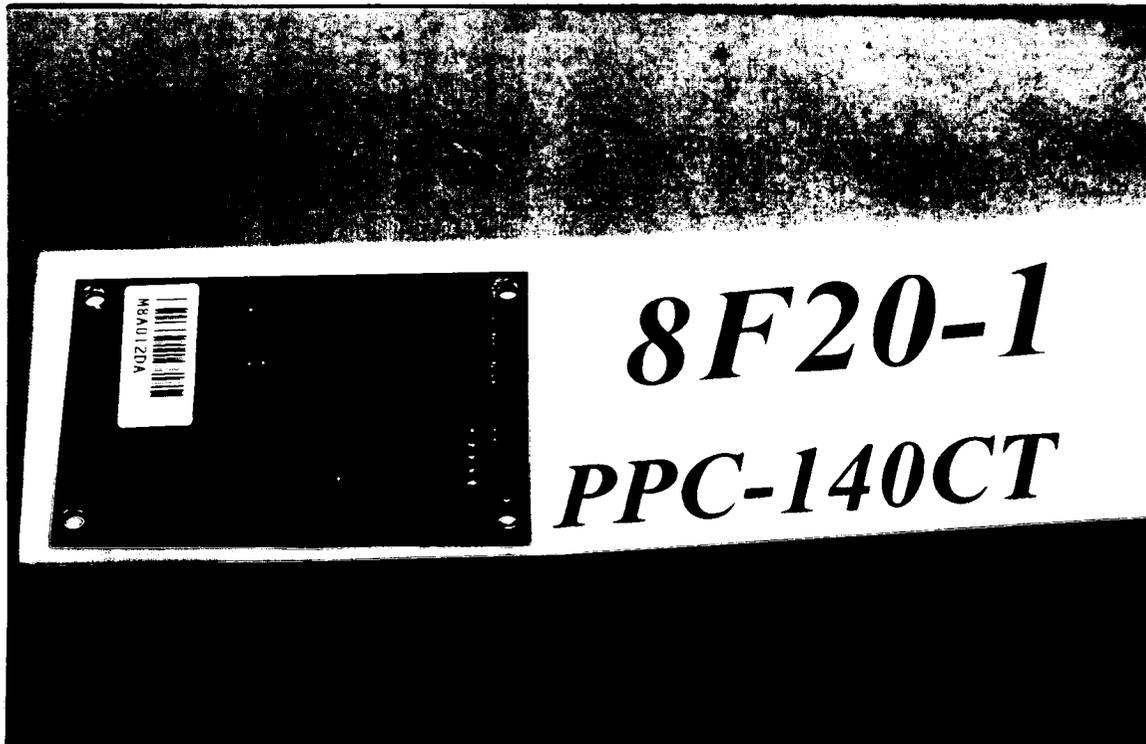
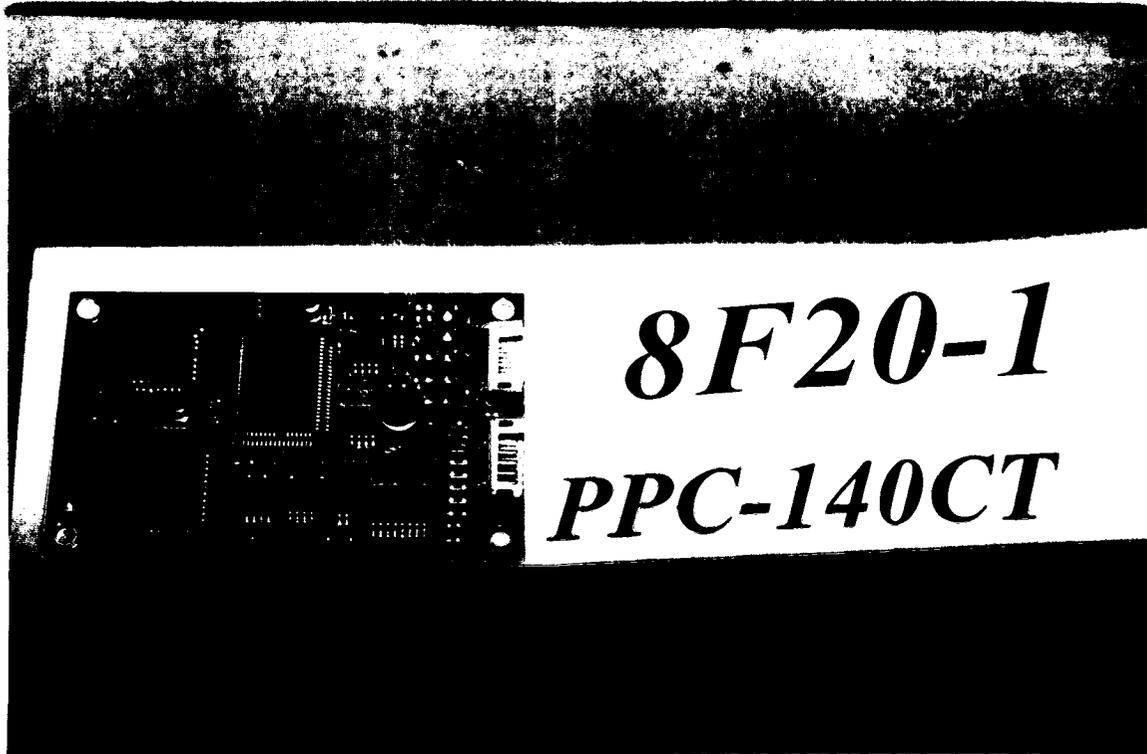
A46. LCD control board solder side



11. PHOTOS OF TESTING

A47. LCD control board component side (PPC-140CT)

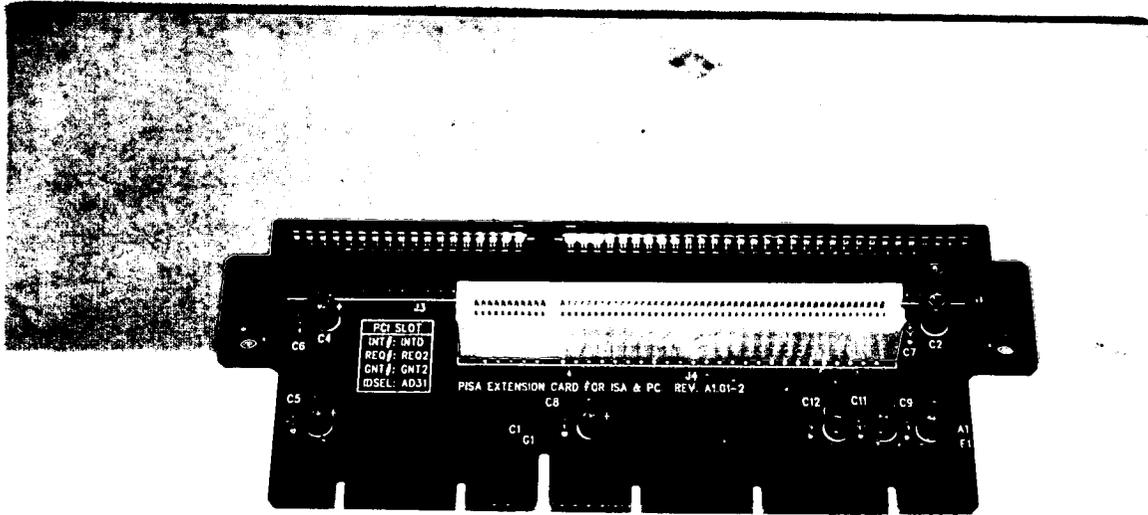
A48. LCD control board solder side



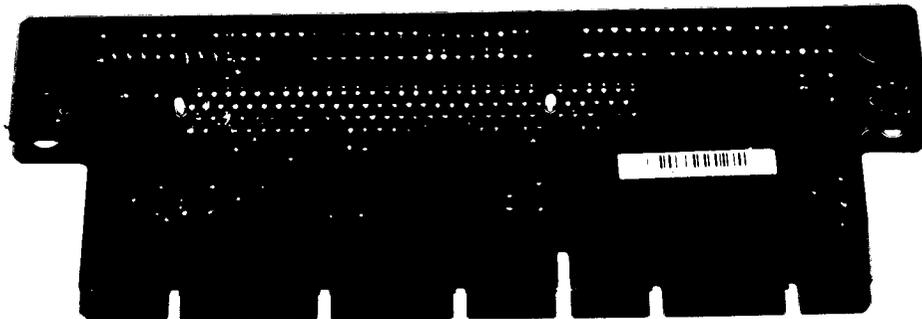
11. PHOTOS OF TESTING

A49. Expand board component side (PPC-120CT)

A50. Expand board solder side



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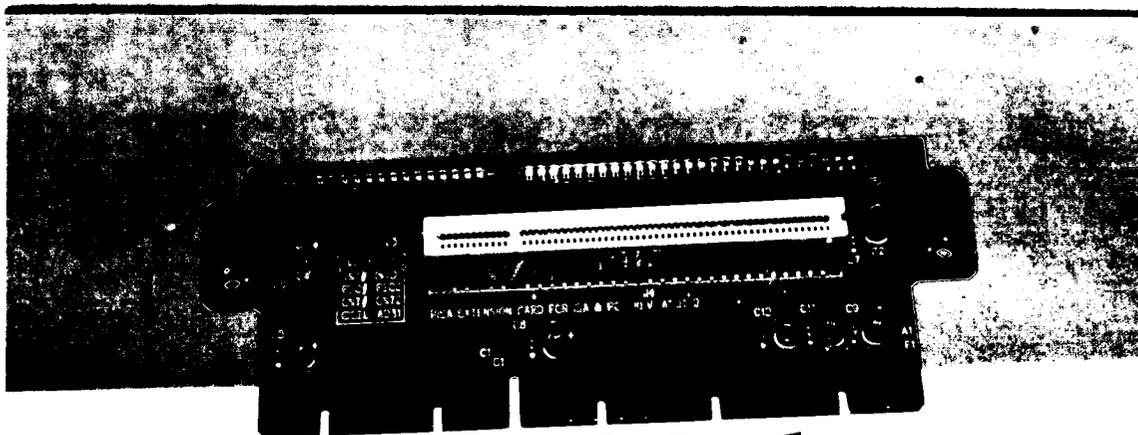
8F20-1



11. PHOTOS OF TESTING

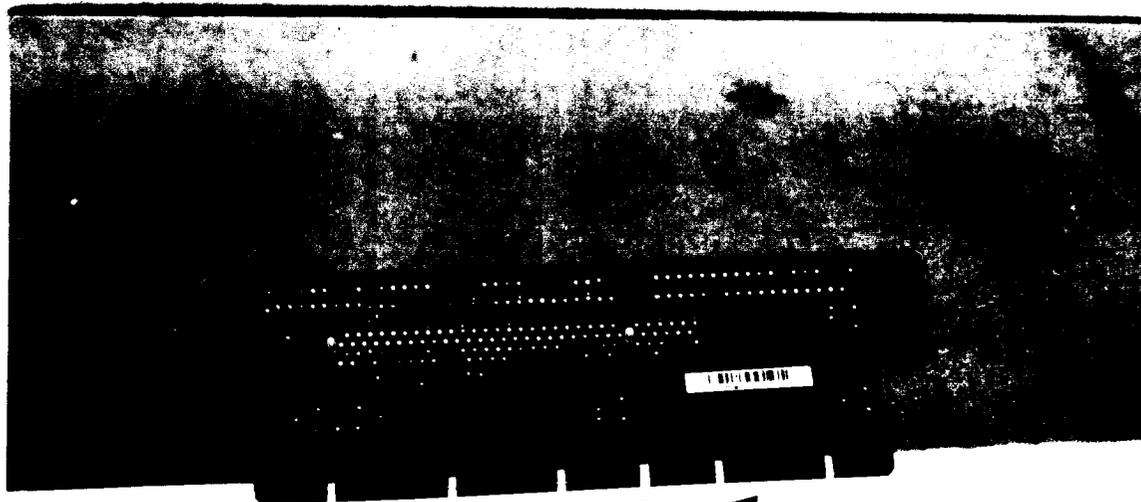
A51. Expand board component side (PPC-140CT)

A52. Expand board solder side



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PPC-140CT



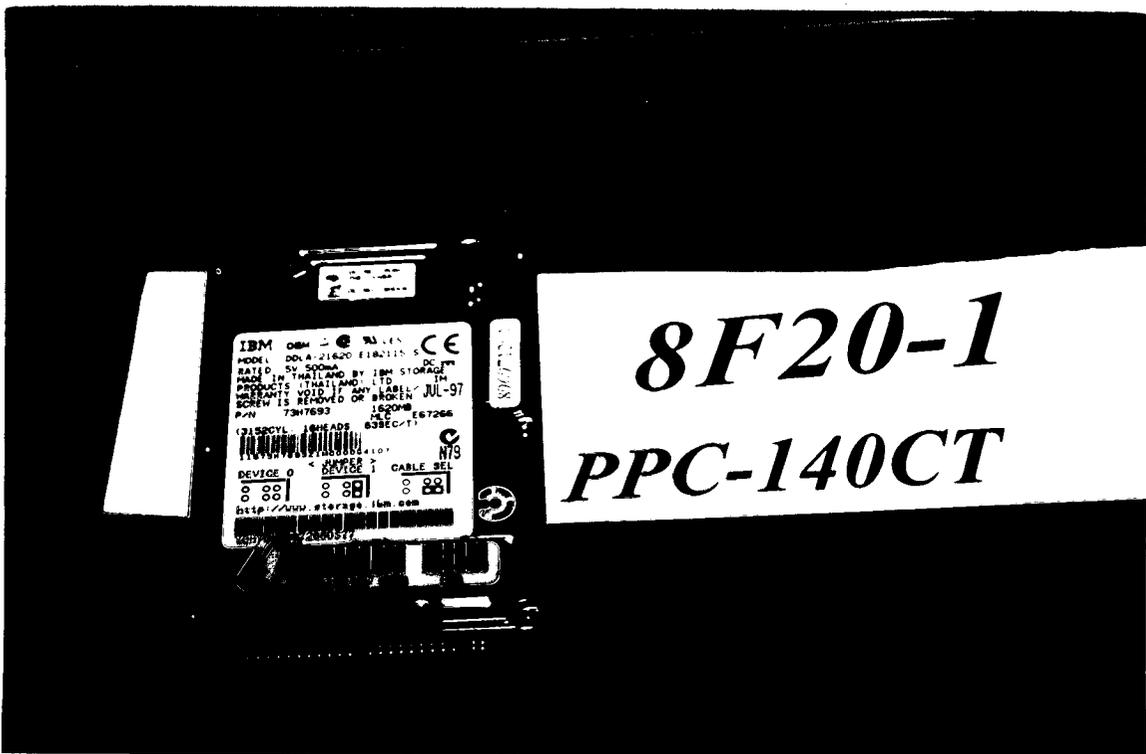
8F20-1

PPC-140CT

11. PHOTOS OF TESTING

A53. HDD whole view (PPC-120CT)

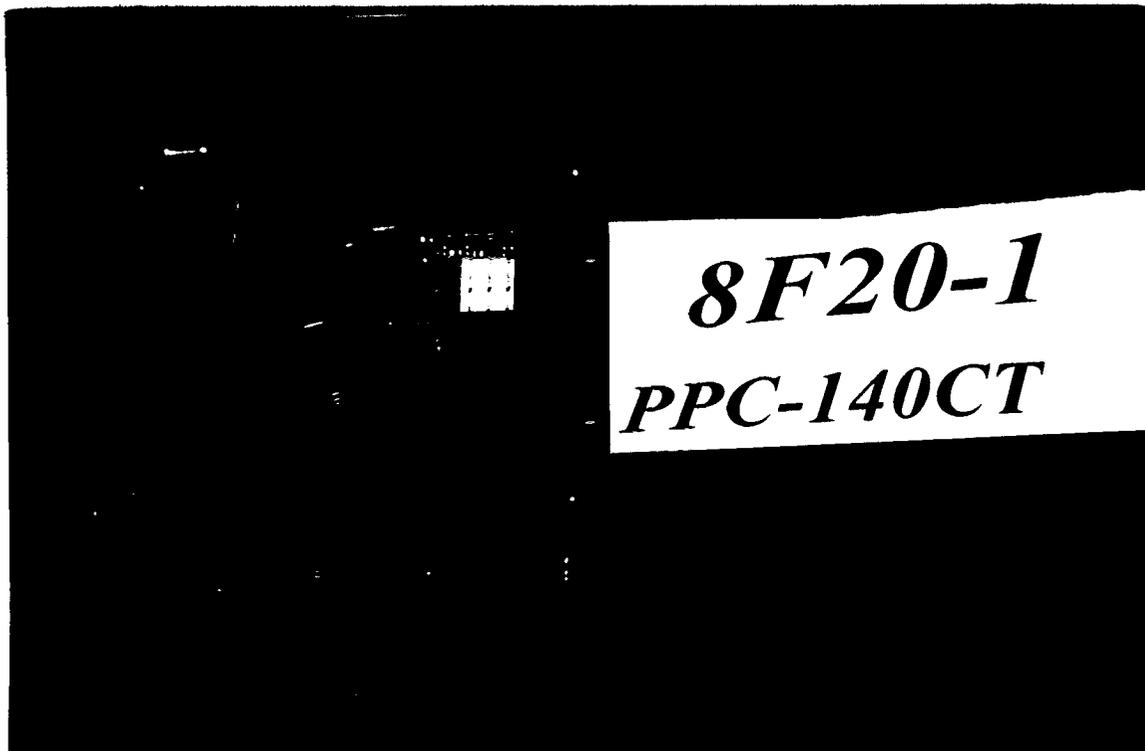
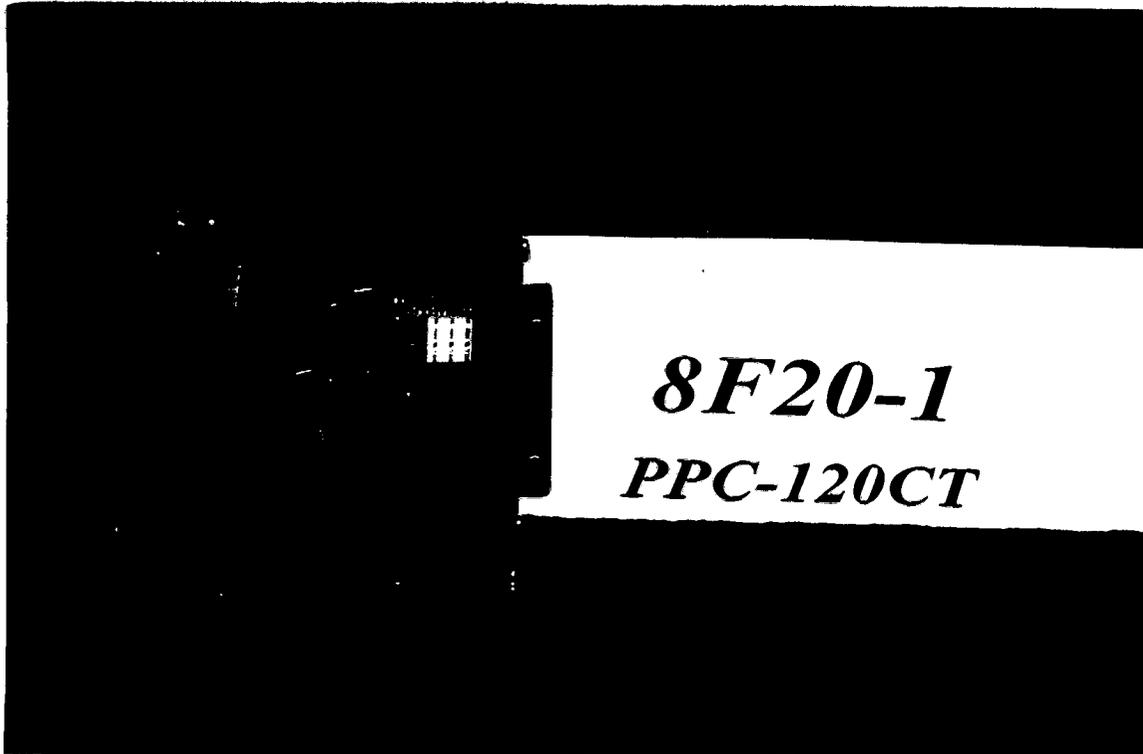
A54. HDD whole view (PPC-140CT)



11. PHOTOS OF TESTING

A55. FDD whole view (PPC-120CT)

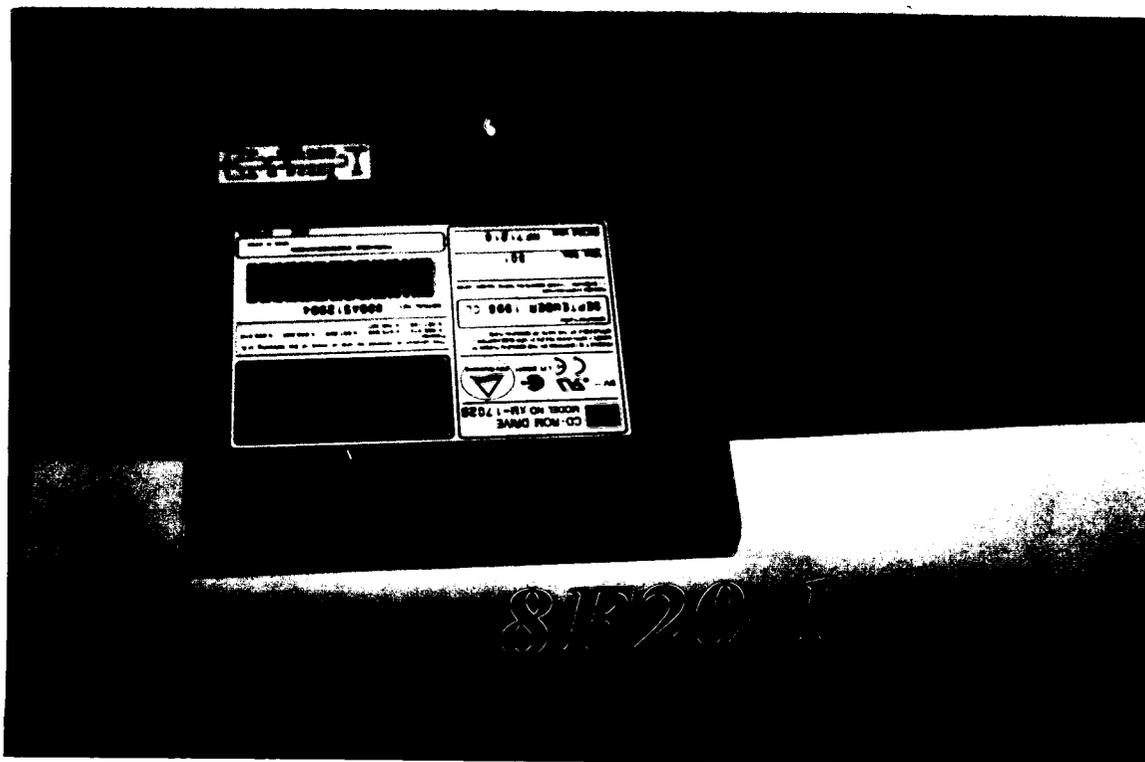
A56. FDD whole view (PPC-140CT)



11. PHOTOS OF TESTING

A57. CD-ROM whole view (PPC-120CT)

A58. CD-ROM whole view (PPC-140CT)



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