

CE REPORT

(CLASS B)

EUT : IND PC

MODEL : PPC-57M, PPC-57M-RT, PPC-57S, PPC-57S-RT
PPC-60S, PPC-60S-RT

SRT REPORT # CE9A01

PREPARED FOR :

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TAIWAN, R. O. C.

PREPARED BY :

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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 : IND PC

(A) POWER SUPPLY : 24V_{DC}(B) MODEL : PPC-57M, PPC-57M-RT, PPC-57S, PPC-57S-RT,
PPC-60S, PPC-60S-RT

FINAL TEST DATE : 02/26/1999

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

2/26/99

Addison Liu

SUPERVISOR :

Jesse Ho

DATE

2/26/99

Jesse Ho

APPROVED BY :

Johnson Ho

DATE

2/26/99

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 : ALI M6117C(386X-40)

Clock chip : 40MHz

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 STATEMENT****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

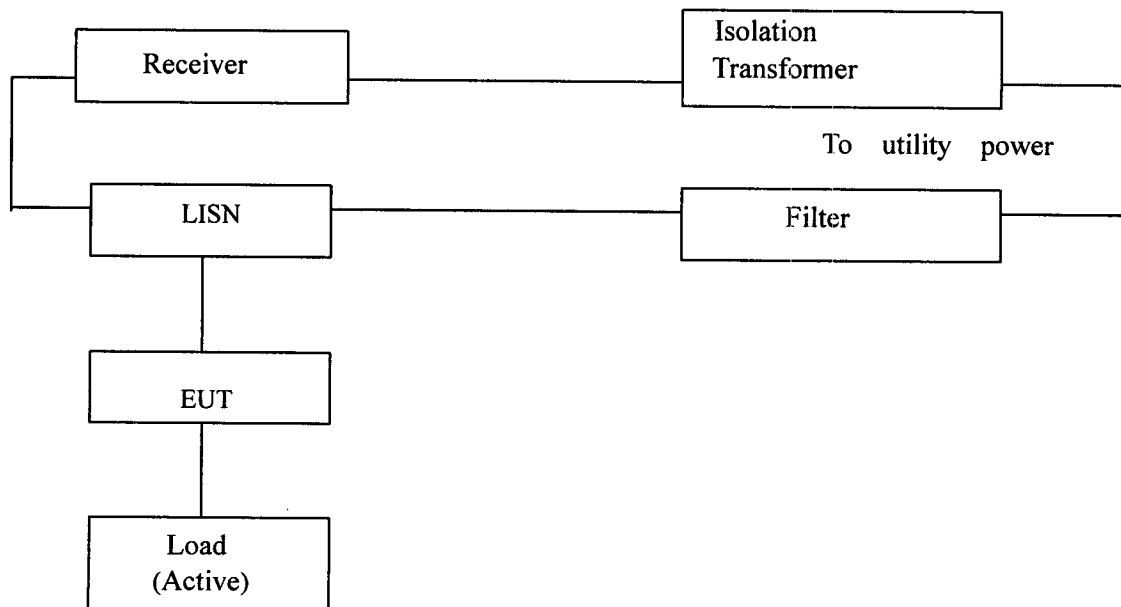
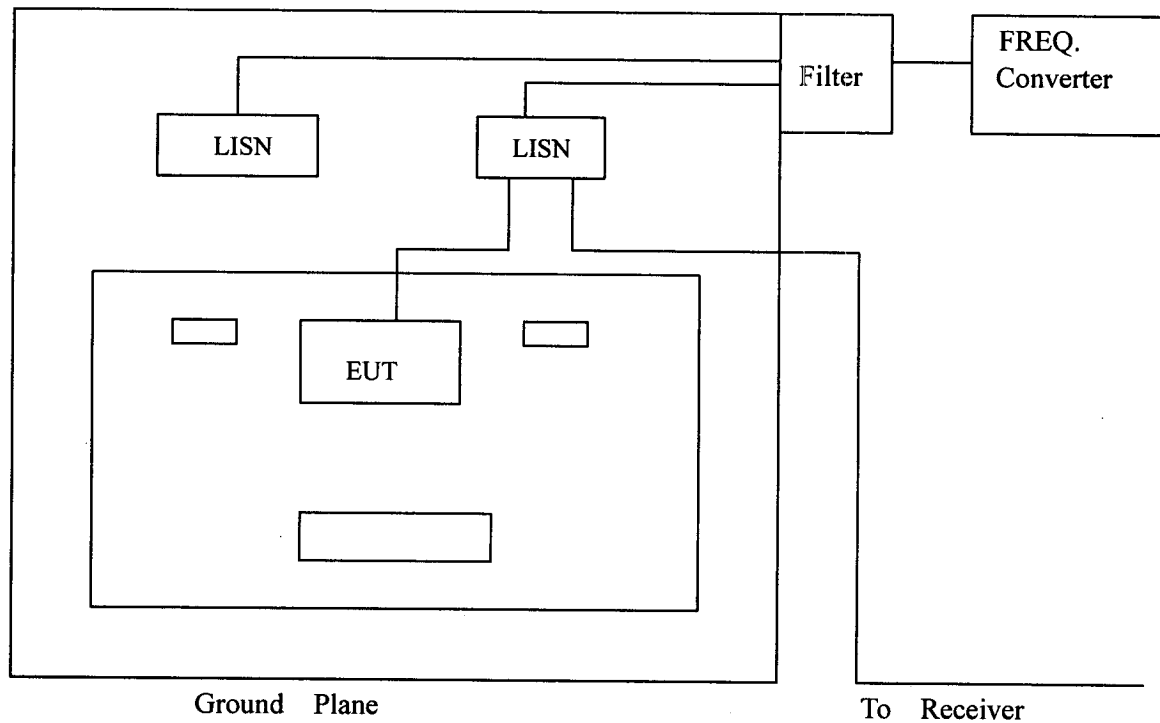
The following test equipment were used during the conducted power line test :

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
IND PC	ADVANTECH CO., LTD.	PPC-57M, PPC-57M-RT, PPC-57S, PPC-57S-RT, PPC-60S, PPC-60S-RT	

B. INTERNAL DEVICES

DEVICE	MANUFACTURER	MODEL #	REMARK
MAIN BOARD	ADVANTECH	PCM-3866	
POWER BOARD	SKYNET	SNP-9023	
POWER BOARD	SKYNET	SNP-9023-2	
POWER SUPPLY	SKYNET	ADT-9023	
HDD	SANDISK	SDCFB	
VGA CARD	C&T	CHIPS 65545	
TOUCHSCREEN CONTROL BOARD	RONICS	TSK-058F-01G	
TOUCHSCREEN CONTROL BOARD	RONICS	RB-008	
LCD	KYOCERA	KCS3224ASTT-X6	
LCD	KYOCERA	KS3224ASTT-FW-X1	
LCD	KYOCERA	XKCB060VG1CA-A21	
DRAM	NEC	NEC424400-60	
I/O BOARD	ADVANTECH	PCM-3866-I/O	
ISA BOARD	ADVANTECH	PCM-3866-ISA	
INVERTER	TDK	TAD143	
TOUCHSCREEN SENSOR	RONICS	TP-06F-01N	
TOUCHSCREEN SENSOR	RONICS	RTP-058F-03N	

C. PERIPHERALS

DEVICE	MANUFACTURER	MODEL # SERIAL #	REMARK	CABLE
PRINTER	HP	2225C		POWER-UNS DATA-S
MODEM	SMAR TEAM	103/212A		POWER-UNS DATA-S
KEYBOARD	HP	SK-2502		DATA-UNS
MOUSE	LOGITECH	CC-93C9F		DATA-UNS
ADAPTOR	SKYNET	SNP-PA59		POWER-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. Test with cpu
CPU : ALI M6117C (386SX - 40)
Clock chip : 40MHz

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 : 28 CHumidity : 78 %RH**QUASI - PEAK**

FREQUENCY (MHz)	LINE1 (dBuV)	LINE2 (dBuV)	LIMIT (dBuV)
0.26	39.8	39.4	61.3
0.29	36.3	35.7	60.4
1.78	35.7	*	56.0
2.22	*	34.7	56.0
7.62	31.0	*	60.0

AVERAGE

FREQUENCY (MHz)	LINE1 (dBuV)	LINE2 (dBuV)	LIMIT (dBuV)
0.26	39.6	39.3	51.3
0.29	35.0	35.0	50.4
1.75	36.0	*	46.0
2.22	*	32.8	46.0
13.42	*	33.9	50.0

- REMARKS :**
- (1). * = Measurement does not apply for this frequency
 - (2). Uncertainty in conducted emission measured is $\leq \pm 2$ dB
 - (3). Any departure from specification : N/A
 - (4). CPU : ALI M6117C (386SX-40) Clock chip: 40MHz
 - (5). PPC-57M under DOS operation system

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 : 28 CHumidity : 78 %RH**QUASI - PEAK**

FREQUENCY (MHz)	LINE1 (dBuV)	LINE2 (dBuV)	LIMIT (dBuV)
0.26	39.8	39.4	61.3
0.29	36.3	35.7	60.4
1.78	35.7	*	56.0
2.22	*	34.7	56.0
7.62	31.0	*	60.0

AVERAGE

FREQUENCY (MHz)	LINE1 (dBuV)	LINE2 (dBuV)	LIMIT (dBuV)
0.26	39.6	39.3	51.3
0.29	35.0	35.0	50.4
1.75	36.0	*	46.0
2.22	*	32.8	46.0
13.42	*	33.9	50.0

- REMARKS :** (1). * = Measurement does not apply for this frequency
(2). Uncertainty in conducted emission measured is $\leq \pm 2$ dB
(3). Any departure from specification : N/A
(4). CPU : ALI M6117C (386SX-40) Clock chip: 40MHz
(5). PPC-57M-RT under DOS operation system

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 : 28 CHumidity : 78 %RH**QUASI - PEAK**

FREQUENCY (MHz)	LINE1 (dBuV)	LINE2 (dBuV)	LIMIT (dBuV)
0.24	35.9	*	62.0
0.29	19.3	34.3	60.2
0.63	35.9	36.4	56.0
2.19	*	35.3	56.0
13.68	33.8	32.4	60.0

AVERAGE

FREQUENCY (MHz)	LINE1 (dBuV)	LINE2 (dBuV)	LIMIT (dBuV)
0.26	40.6	40.5	51.3
0.49	32.5	*	46.1
0.63	35.1	35.7	46.0
2.62	*	34.1	46.0
7.70	23.5	*	50.0

- REMARKS :**
- (1). * = Measurement does not apply for this frequency
 - (2). Uncertainty in conducted emission measured is $\leq \pm 2$ dB
 - (3). Any departure from specification : N/A
 - (4). CPU : ALI M6117C (386SX-40) Clock chip: 40MHz
 - (5). PPC-57S under DOS operation system

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 : 28 CHumidity : 78 %RH**QUASI - PEAK**

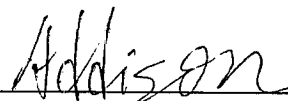
FREQUENCY (MHz)	LINE1 (dBuV)	LINE2 (dBuV)	LIMIT (dBuV)
0.19	28.5	*	64.0
0.26	*	13.7	54.4
1.96	35.5	*	56.0
2.29	*	31.3	56.0
5.37	4.9	*	60.0

AVERAGE

FREQUENCY (MHz)	LINE1 (dBuV)	LINE2 (dBuV)	LIMIT (dBuV)
0.26	38.3	34.0	51.2
0.63	33.5	29.2	46.0
1.96	34.6	*	46.0
2.29	*	29.2	46.0
7.57	24.3	*	50.0

- REMARKS :** (1). * = Measurement does not apply for this frequency
(2). Uncertainty in conducted emission measured is $\leq \pm 2$ dB
(3). Any departure from specification : N/A
(4). CPU : ALI M6117C (386SX-40) Clock chip: 40MHz
(5). PPC-57S-RT under DOS operation system

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 : 28 CHumidity : 78 %RH**QUASI - PEAK**


FREQUENCY (MHz)	LINE1 (dBuV)	LINE2 (dBuV)	LIMIT (dBuV)
0.16	34.8	*	65.2
0.46	*	33.6	56.6
0.90	36.0	*	56.0
2.80	35.9	36.4	56.0
4.35	*	21.5	56.0

AVERAGE

FREQUENCY (MHz)	LINE1 (dBuV)	LINE2 (dBuV)	LIMIT (dBuV)
0.23	34.5	*	52.3
0.29	37.3	38.2	50.4
1.30	35.4	*	46.0
2.80	34.5	35.3	46.0
6.03	19.7	20.6	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 : ALI M6117C (386SX-40) Clock chip: 40MHz
(5). PPC-60S under WINDOWS 3.1 operation system

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 : 28 CHumidity : 78 %RH**QUASI - PEAK**

FREQUENCY (MHz)	LINE1 (dBuV)	LINE2 (dBuV)	LIMIT (dBuV)
0.19	28.4	*	63.7
0.35	*	5.5	58.9
1.68	*	33.7	56.0
2.41	33.1	*	56.0
7.16	23.3	*	60.0

AVERAGE

FREQUENCY (MHz)	LINE1 (dBuV)	LINE2 (dBuV)	LIMIT (dBuV)
0.23	28.0	27.6	52.4
0.29	33.5	33.7	50.4
2.08	31.8	*	46.0
7.16	22.5	23.9	50.0
9.46	*	14.1	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 : ALI M6117C (386SX-40) Clock chip: 40MHz
 - (5). PPC-60S-RT under WINDOWS 3.1 operation system

SIGNED BY TESTING ENGINEER :

Addison

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

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

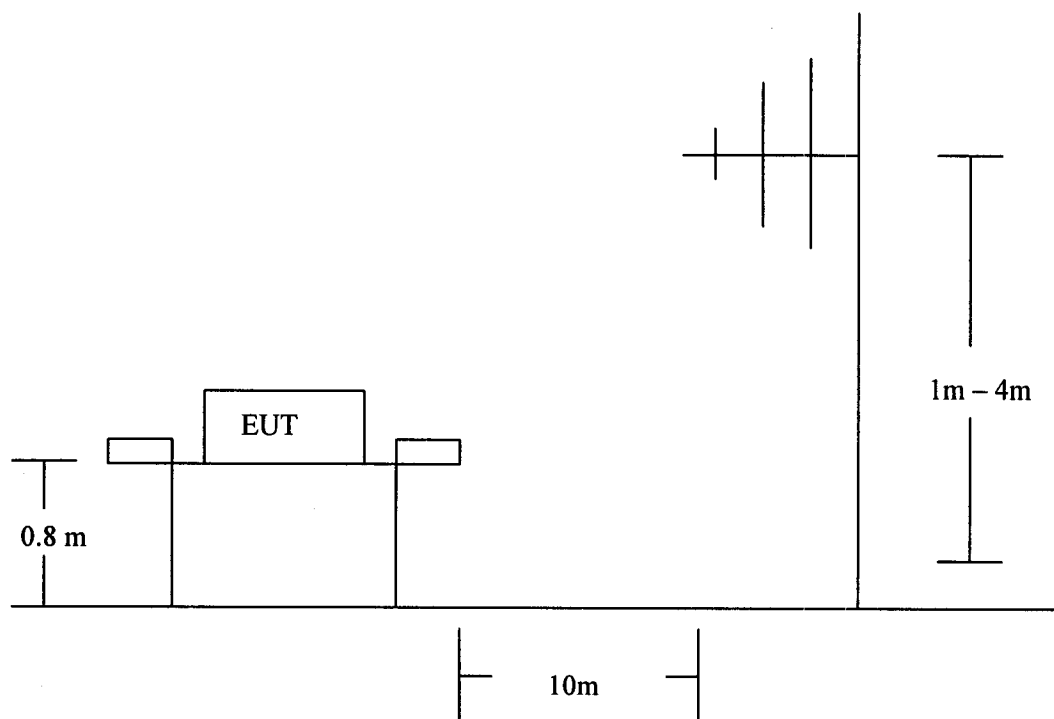
EQUIPMENT / FACILITIES	SPECIFICAT-IONS	MANUFACTUR-ER	MODEL # / SERIAL #	DATE OF CAL. & CAL. CENTER	DUE DATE
RECEIVER	20 MHz TO 1000 MHz	R & S	ESVS30/ 841977/03	APRIL 1998 ITRI	1Y
SPECTRUM ANALYZER	100 Hz TO 1500 MHz	HP	8568B/ 3019A05294	OCT. 1998 ETC	1Y
SPECTRUM ANALYZER	9 KHz TO 22 GHz	HP	8593E/ 3322A00670	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 1 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)	FIELDS STRENGTH (dBuV/m)
30 - 230	10	30
230 - 1000	10	37

CLASS A

FREQUENCY (MHz)	DISTANCE (m)	FIELDS 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 1 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 : 28 CHumidity : 78 %RH

FREQ. (MHz)	CABLE LOSS (dB)	ANT. FACTOR (dB)	READING (dBuV)		EMISSION (dBuV)		LMTS (dBuV)
			HORIZ	VERT	HORIZ	VERT	
157.32	1.1	10.3	14.0	12.1	25.4	23.5	30
169.99	1.1	10.1	11.4	9.4	22.6	20.6	30
182.49	1.1	10.9	7.0	5.1	19.0	17.1	30
226.54	1.3	13.5	10.7	*	25.5	*	30
528.61	1.8	19.5	6.4	4.5	27.7	25.8	37

- 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 : ALI M6117C (386SX-40) Clock chip: 40MHz
 - (6). PPC-57M under DOS operation system

SIGNED BY TESTING ENGINEER :

Addison

5.7 RADIATED EMISSION TEST RESULT

The frequency spectrum from 30 MHz to 1 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 : 28 CHumidity : 78 %RH

FREQ. (MHz)	CABLE LOSS (dB)	ANT. FACTOR (dB)	READING (dBuV)		EMISSION (dBuV)		LMTS (dBuV)
			HORIZ	VERT	HORIZ	VERT	
157.32	1.1	10.3	14.0	12.1	25.4	23.5	30
169.99	1.1	10.1	11.4	9.4	22.6	20.6	30
182.49	1.1	10.9	7.0	5.1	19.0	17.1	30
226.54	1.3	13.5	10.7	*	25.5	*	30
528.61	1.8	19.5	6.4	4.5	27.7	25.8	37

- 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 : ALI M6117C (386SX-40) Clock chip: 40MHz
 - (6). PPC-57M-RT under DOS operation system

SIGNED BY TESTING ENGINEER :

Addison

5.7 RADIATED EMISSION TEST RESULT

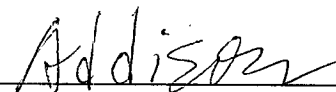
The frequency spectrum from 30 MHz to 1 GHz was investigated. Under 1 GHz, all readings are QUASI-PEAK values with a resolution bandwidth of 120 KHz. Above 1 GHz, all readings are PEAK or AVERAGE values with a resolution bandwidth of 1 MHz. Measurement were made at 10 meters.

Temperature : 28 CHumidity : 78 %RH

FREQ. (MHz)	CABLE LOSS (dB)	ANT. FACTOR (dB)	READING (dBuV)		EMISSION (dBuV)		LMTS (dBuV)
			HORIZ	VERT	HORIZ	VERT	
67.65	1.0	7.5	9.8	7.2	18.3	15.7	30
79.99	1.1	8.4	12.5	*	22.0	*	30
167.87	1.6	8.9	12.9	*	23.4	*	30
352.04	2.2	14.8	*	12.1	*	29.1	37
402.48	2.2	15.6	*	11.3	*	29.1	37
559.98	2.9	18.6	8.7	*	30.2	*	37

- 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 : ALI M6117C (386SX-40) Clock chip: 40MHz
 - (6). PPC-57S under DOS operation system

SIGNED BY TESTING ENGINEER :



5.7 RADIATED EMISSION TEST RESULT

The frequency spectrum from 30 MHz to 1 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.

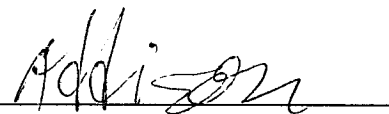
Temperature : 28 CHumidity : 78 %RH

FREQ. (MHz)	CABLE LOSS (dB)	ANT. FACTOR (dB)	READING (dBuV)		EMISSION (dBuV)		LMTS (dBuV)
			HORIZ	VERT	HORIZ	VERT	
65.14	0.8	8.3	12.0	6.1	21.1	15.2	30
127.78	1.0	9.9	18.2	12.5	29.1	23.4	30
145.32	1.1	10.4	10.7	7.0	22.2	18.5	30
186.04	1.1	11.2	9.2	4.1	21.5	16.4	30
205.46	1.2	12.5	9.0	3.7	22.7	17.4	30
225.78	1.3	13.4	9.5	1.0	24.2	15.7	30

- 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 : ALI M6117C (386SX-40) Clock chip: 40MHz
 - (6). PPC-57S-RT under DOS operation system

SIGNED BY TESTING ENGINEER :



5.7 RADIATED EMISSION TEST RESULT

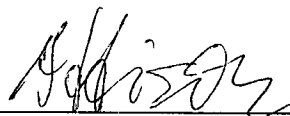
The frequency spectrum from 30 MHz to 1 GHz was investigated. Under 1 GHz, all readings are QUASI-PEAK values with a resolution bandwidth of 120 KHz. Above 1 GHz, all readings are PEAK or AVERAGE values with a resolution bandwidth of 1 MHz. Measurement were made at 10 meters.

Temperature : 28 CHumidity : 78 %RH

FREQ. (MHz)	CABLE LOSS (dB)	ANT. FACTOR (dB)	READING (dBuV)		EMISSION (dBuV)		LMTS (dBuV)
			HORIZ	VERT	HORIZ	VERT	
64.50	1.0	6.0	11.3	*	18.3	*	30
160.06	1.6	9.3	8.6	7.5	19.5	18.4	30
182.49	1.7	9.1	5.4	*	16.2	*	30
528.58	3.0	17.9	7.8	10.8	28.7	31.7	37
538.02	2.9	18.6	9.4	*	30.9	*	37

- 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 : ALI M6117C (386SX-40) Clock chip: 40MHz
 - (6). PPC-60S under WINDOWS 3.1 operation system

SIGNED BY TESTING ENGINEER :



5.7 RADIATED EMISSION TEST RESULT

The frequency spectrum from 30 MHz to 1 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 : 28 CHumidity : 78 %RH

FREQ. (MHz)	CABLE LOSS (dB)	ANT. FACTOR (dB)	READING (dBuV)		EMISSION (dBuV)		LMTS (dBuV)
			HORIZ	VERT	HORIZ	VERT	
70.79	0.8	7.9	7.7	5.4	16.4	14.1	30
66.08	0.8	8.3	8.2	2.6	17.3	11.7	30
217.10	1.2	13.0	3.7	2.8	17.9	17.0	30
226.54	1.3	13.5	3.2	7.6	18.0	22.4	30
302.06	1.6	15.0	12.3	4.1	28.9	20.7	37

- 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 : ALI M6117C (386SX-40) Clock chip: 40MHz
 - (6). PPC-60S-RT under WINDOWS 3.1 operation system

SIGNED BY TESTING ENGINEER :

Addison

6. HARMONICS TEST

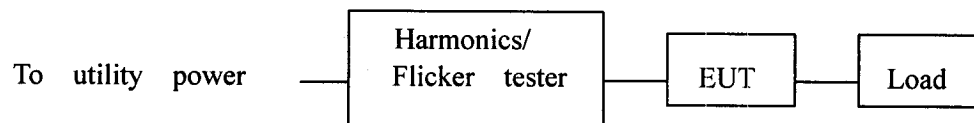
6.1 TEST EQUIPMENT

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 : 28 C
- Humidity : 78 %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 : 28 C
- Humidity : 78 %RH

Final test result : Pass

8. ELECTROSTATIC DISCHARGE IMMUNITY TEST

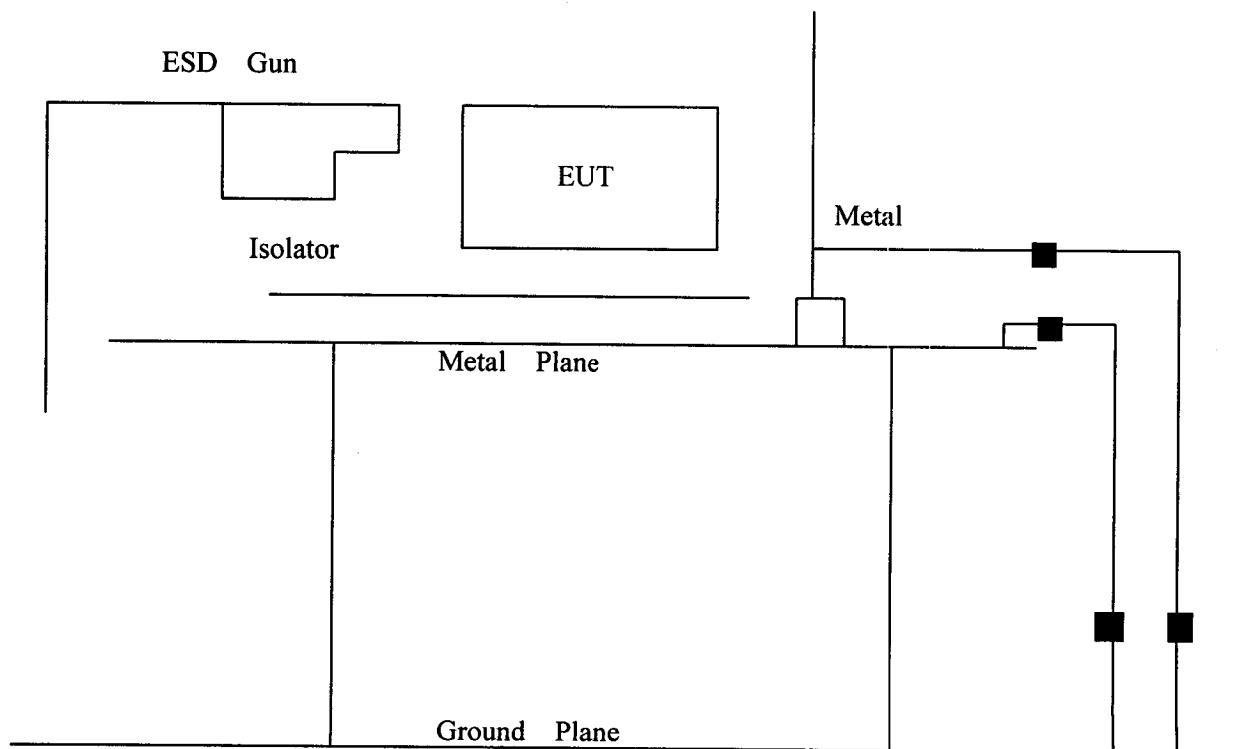
8.1 TEST EQUIPMENT

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, 4, 6KV
- 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 RESULT

Temperature : 28 C

Humidity : 78 %RH

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

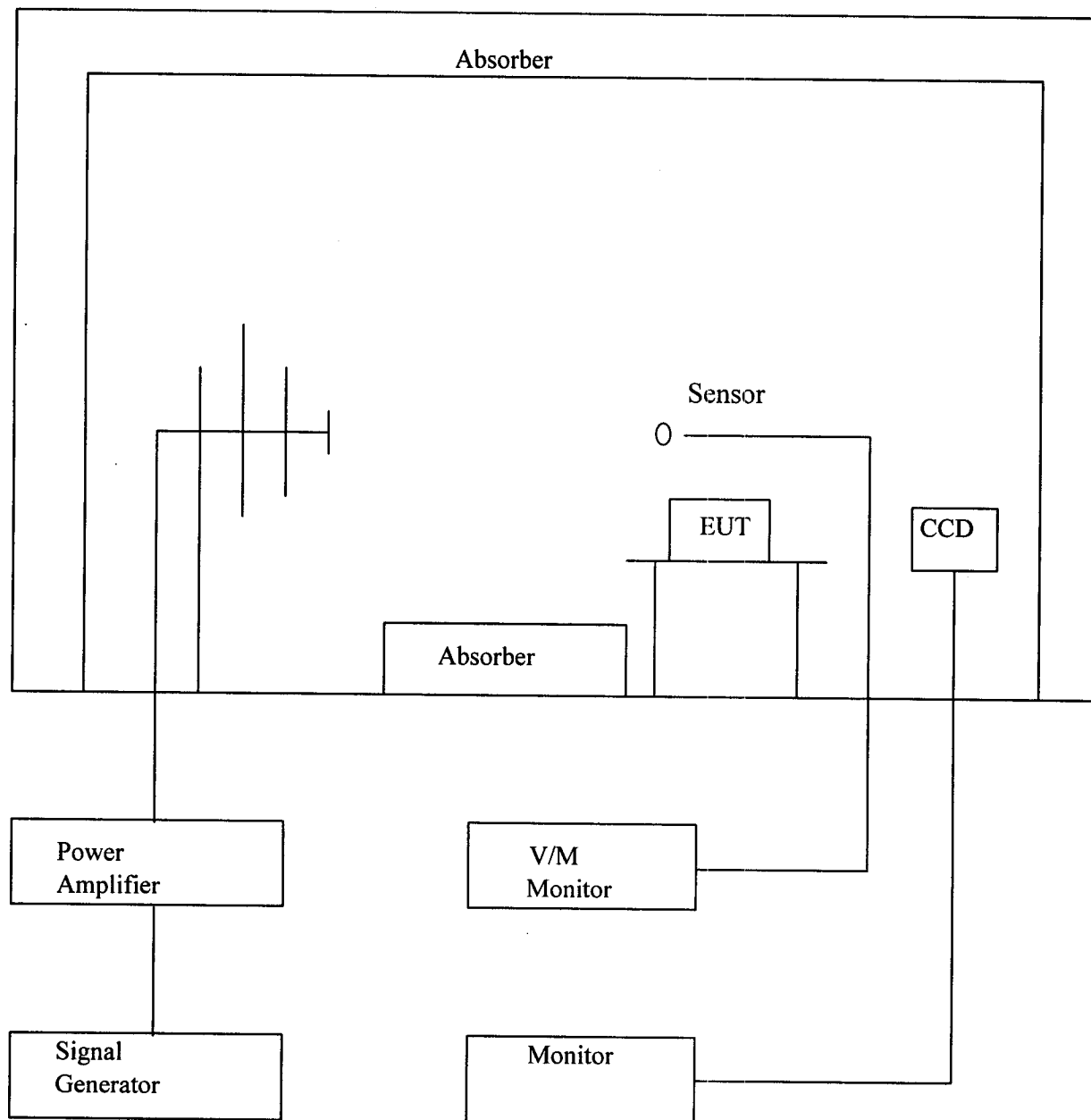
9. RADIATED IMMUNITY TEST**9.1 TEST EQUIPMENT**

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 requipment : A
- Performance verification : A
- Test result : PASS

10. ELECTRICAL FAST TRANSIENT / BURST IMMUNITY TEST

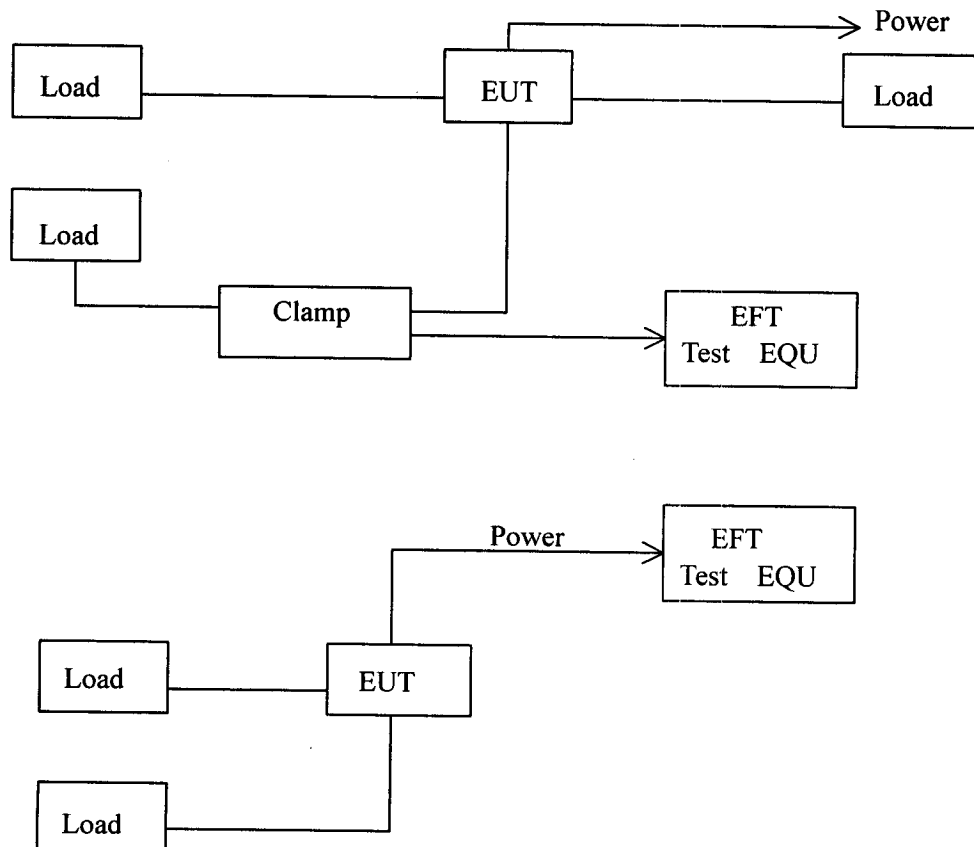
10.1 TEST EQUIPMENT

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 RESULT

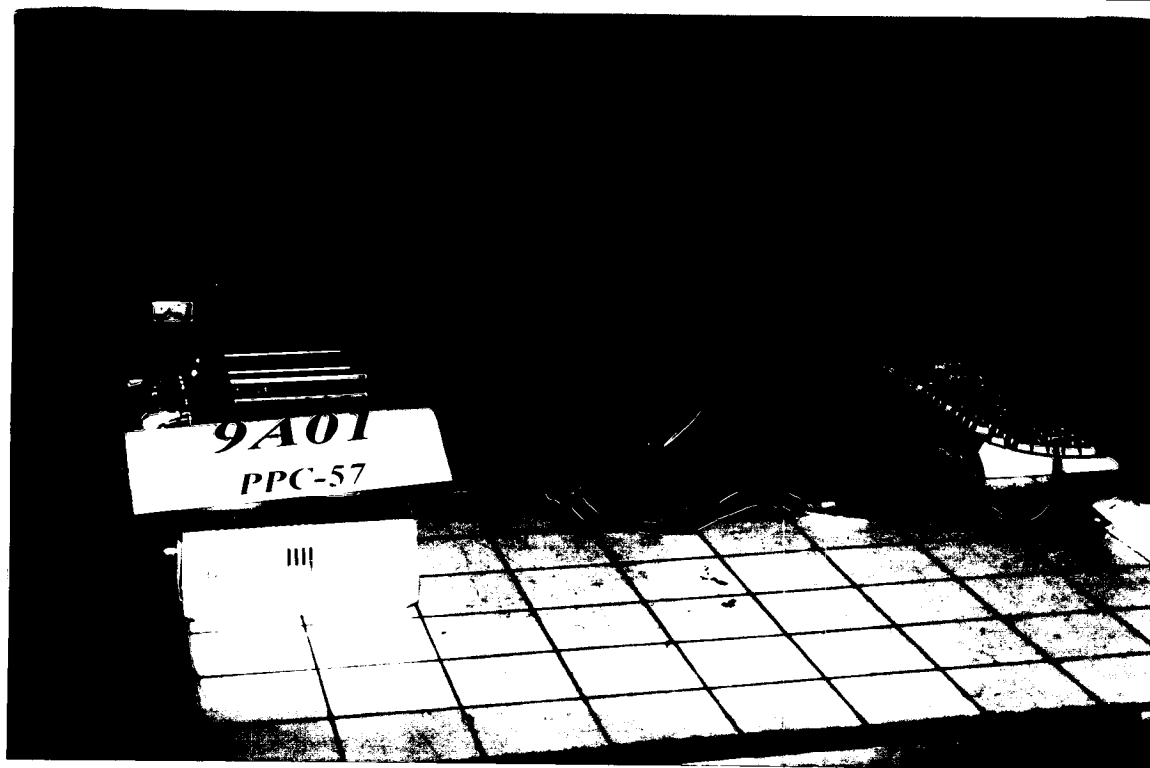
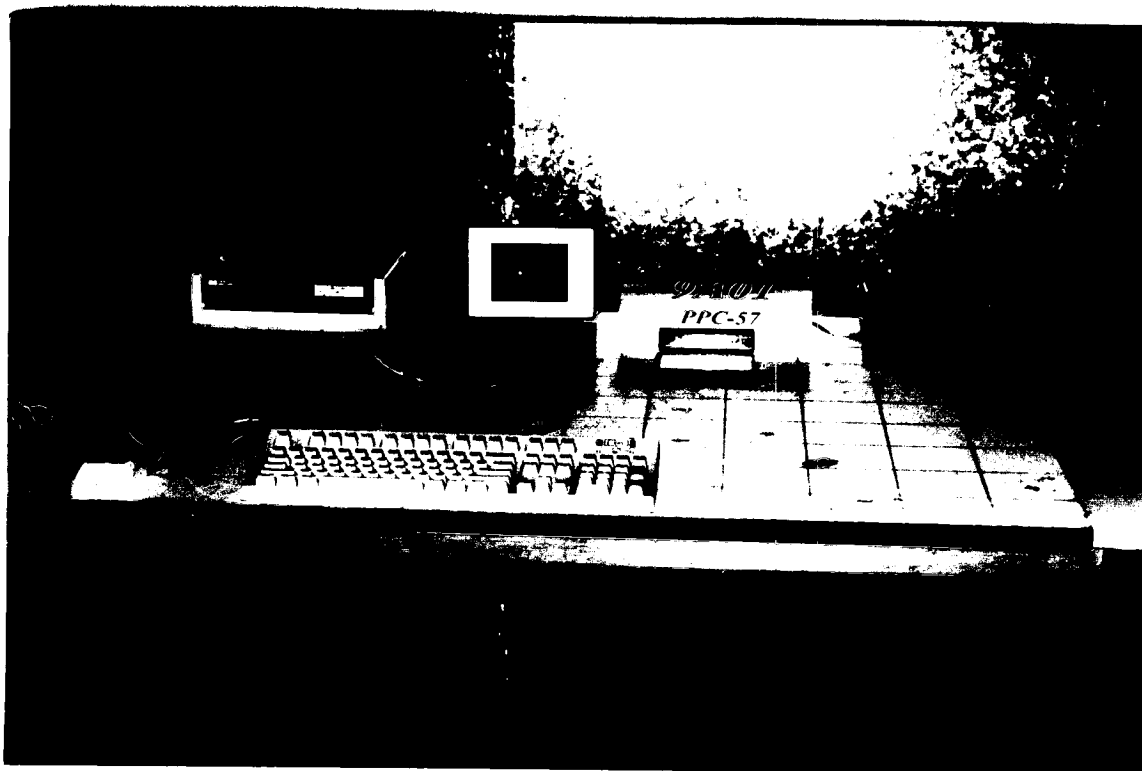
Temperature : 28 C

Humidity : 78 %RH

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

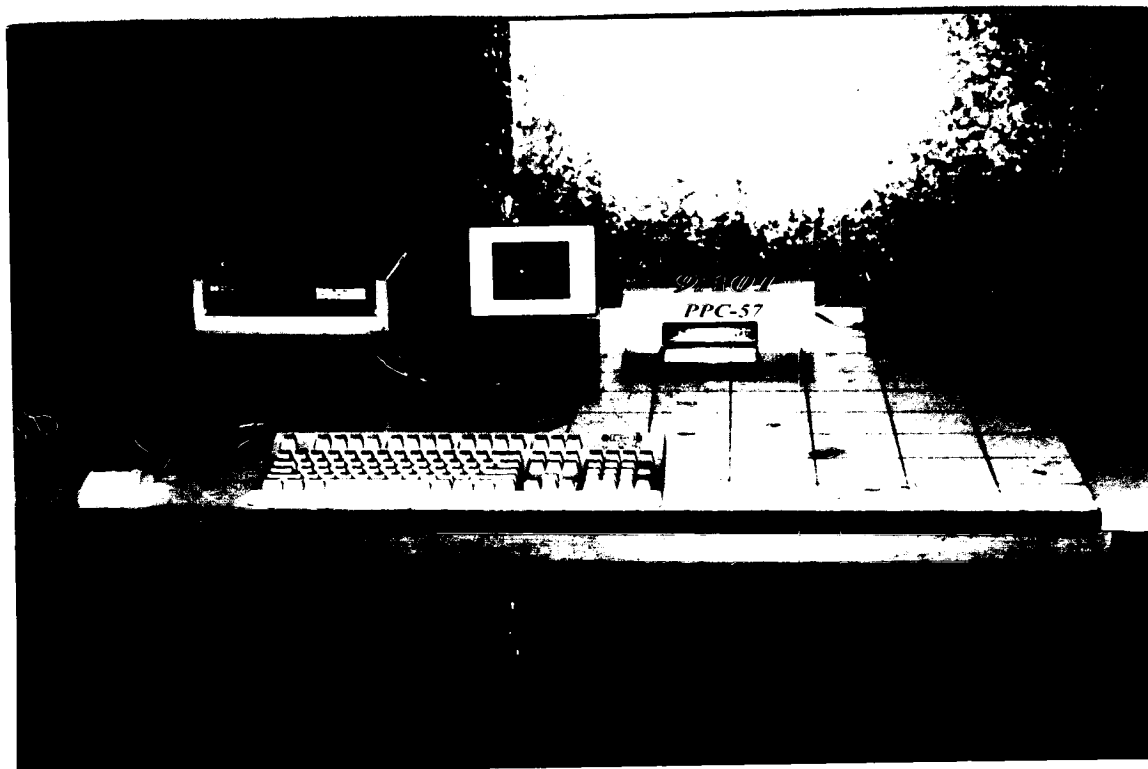
11. PHOTOS OF TESTING

- A. Conducted test front view (PPC-57M)
- B. Conducted test back view



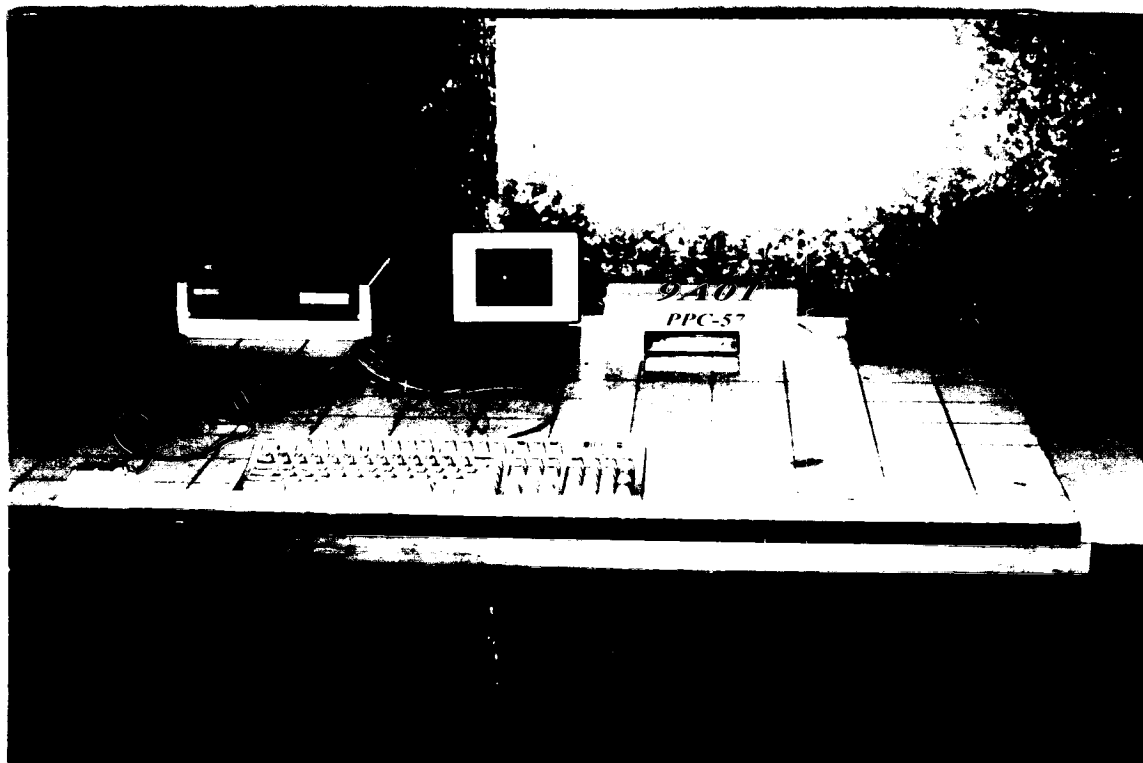
11. PHOTOS OF TESTING

- C. Conducted test front view (PPC-57M-RT)
- D. Conducted test back view



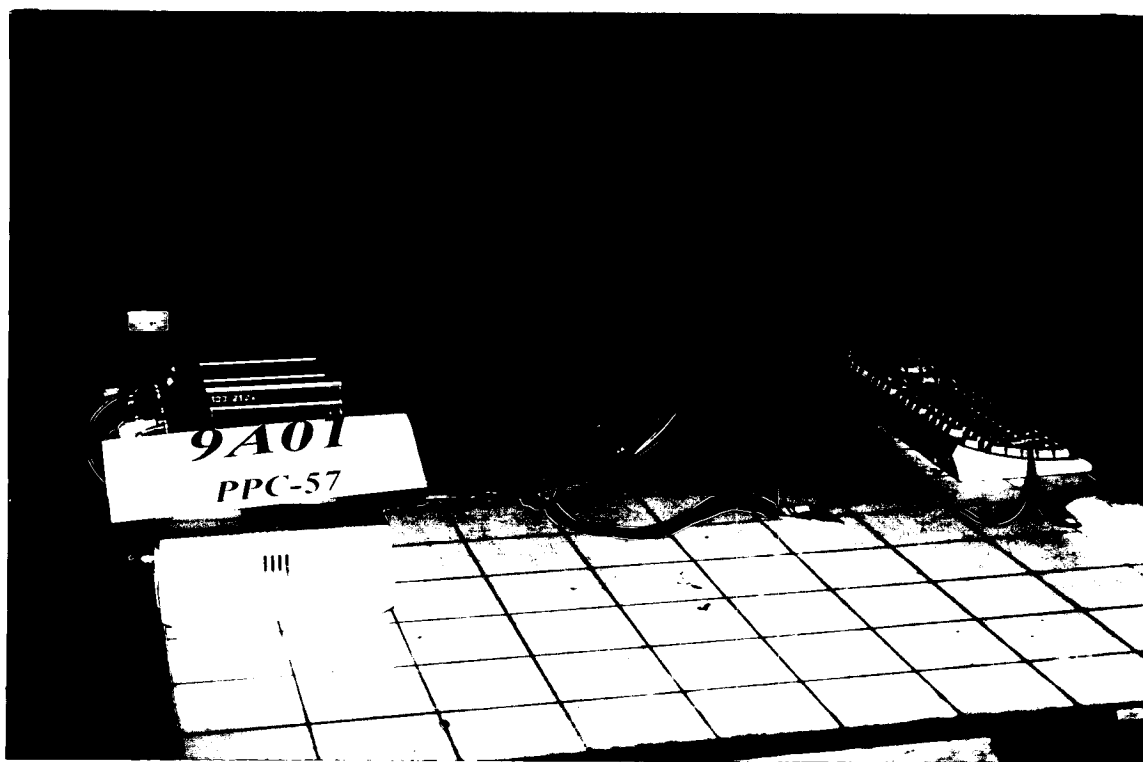
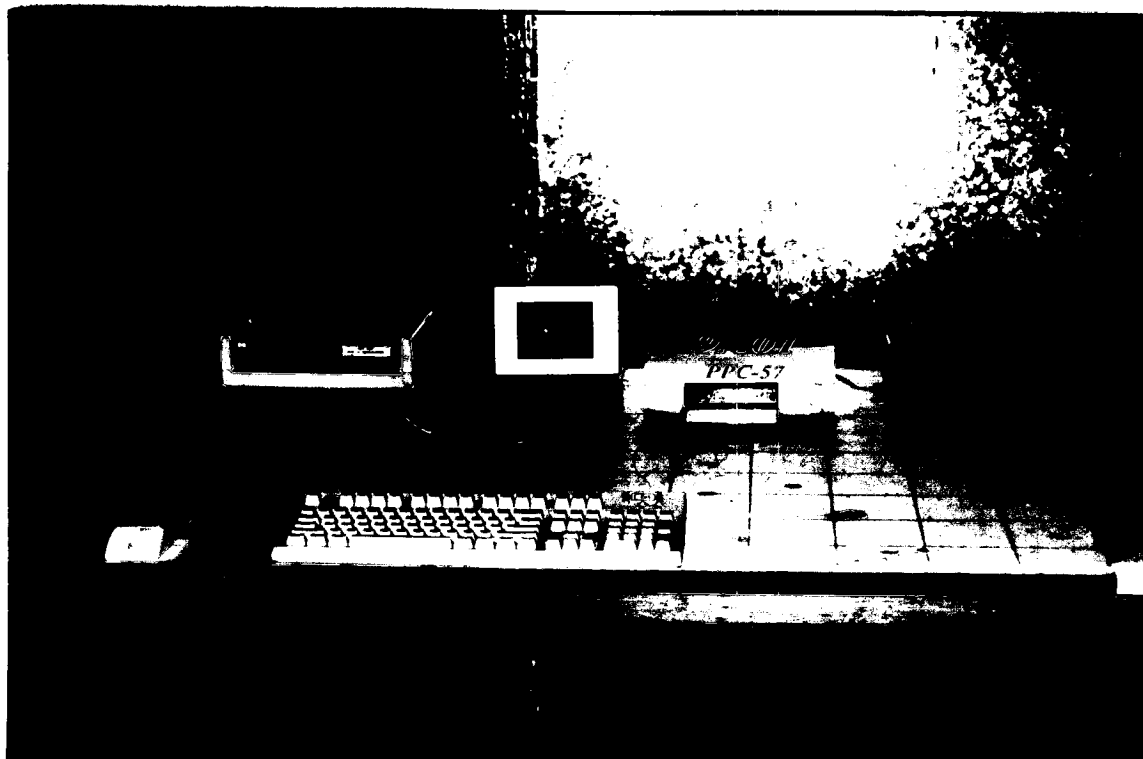
11. PHOTOS OF TESTING

- E. Conducted test front view (PPC-57S)
- F. Conducted test back view



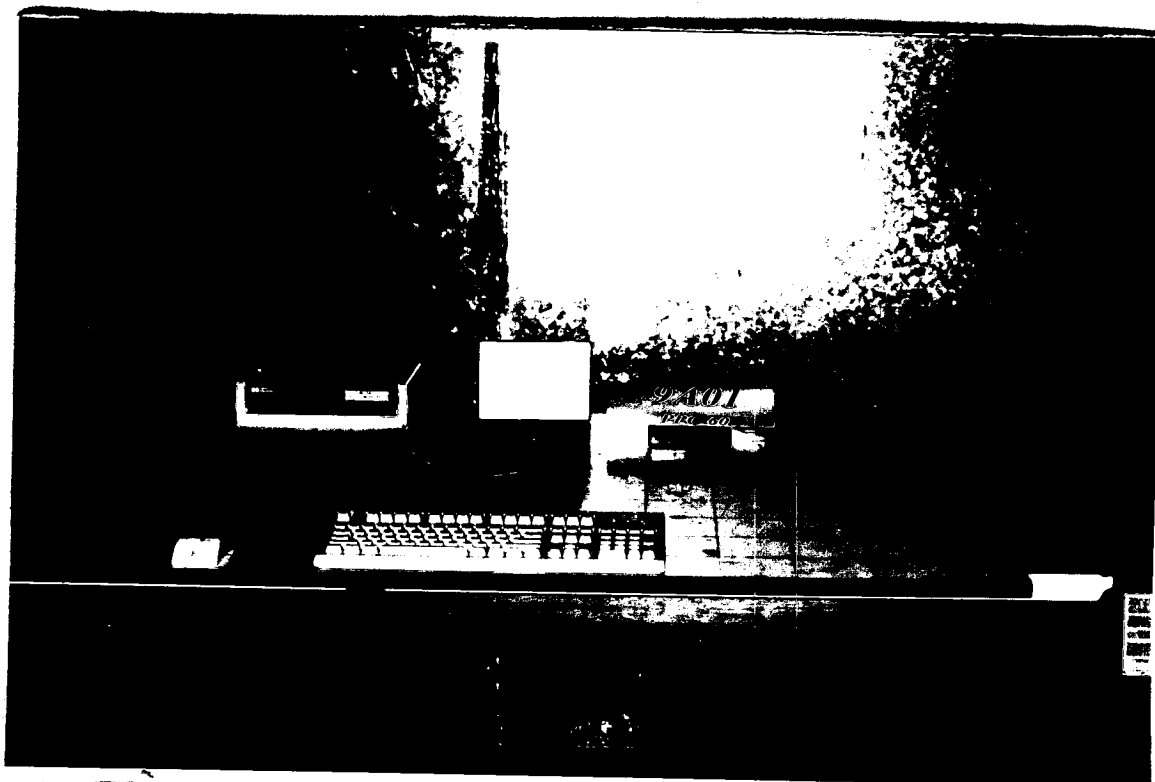
11. PHOTOS OF TESTING

- G. Conducted test front view (PPC-57S-RT)
- H. Conducted test back view



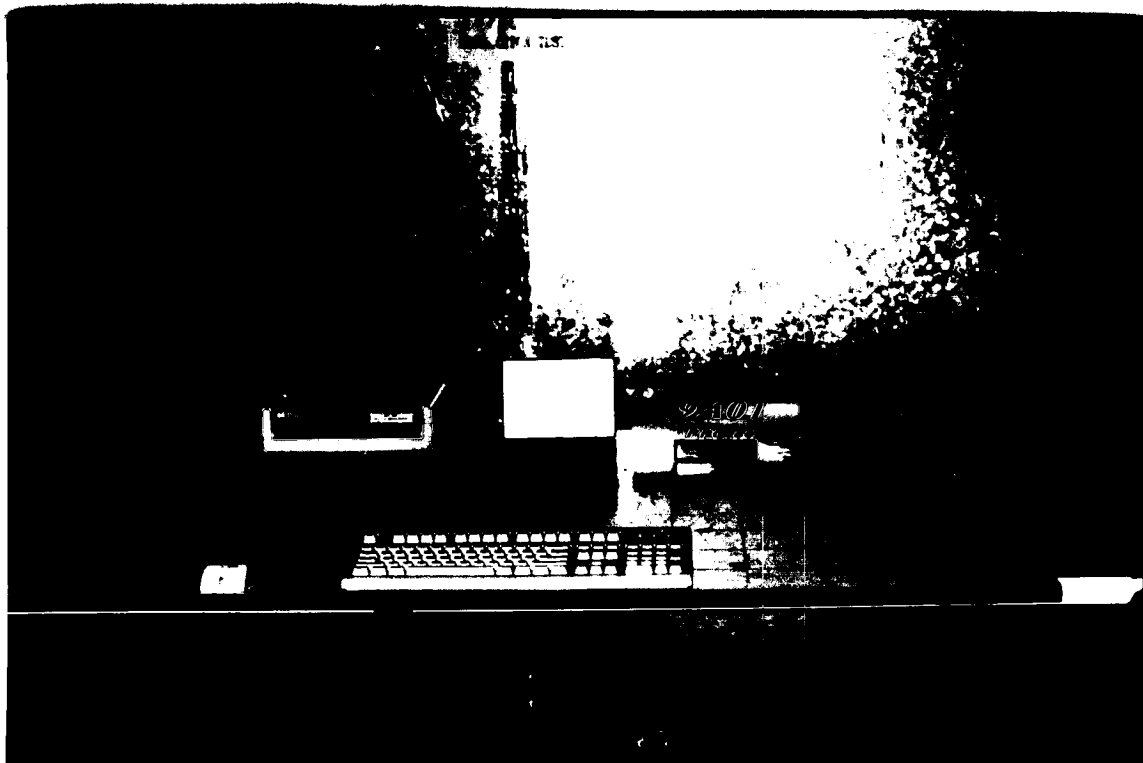
11. PHOTOS OF TESTING

- I. Conducted test front view (PPC-60S)
- J. Conducted test test back view



11. PHOTOS OF TESTING

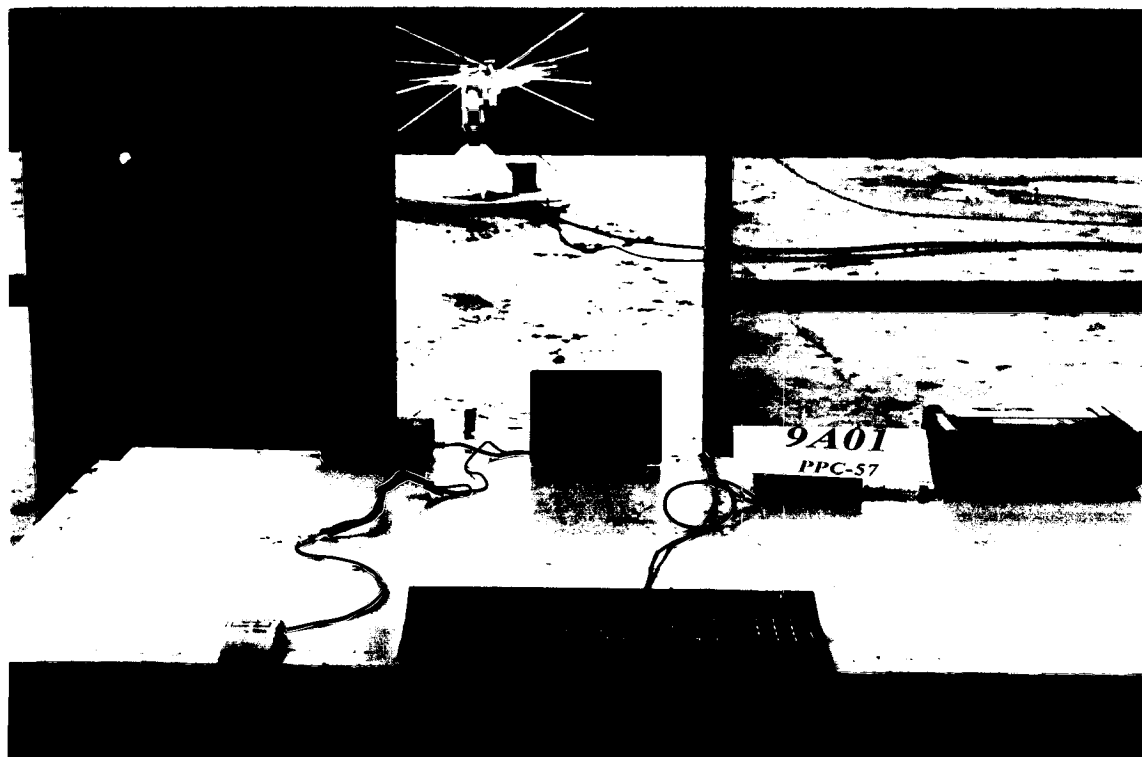
- K. Conducted test front view (PPC-60S-RT)
- L. Conducted test test back view



11. PHOTOS OF TESTING

M. Open site test front view (PPC-57M)

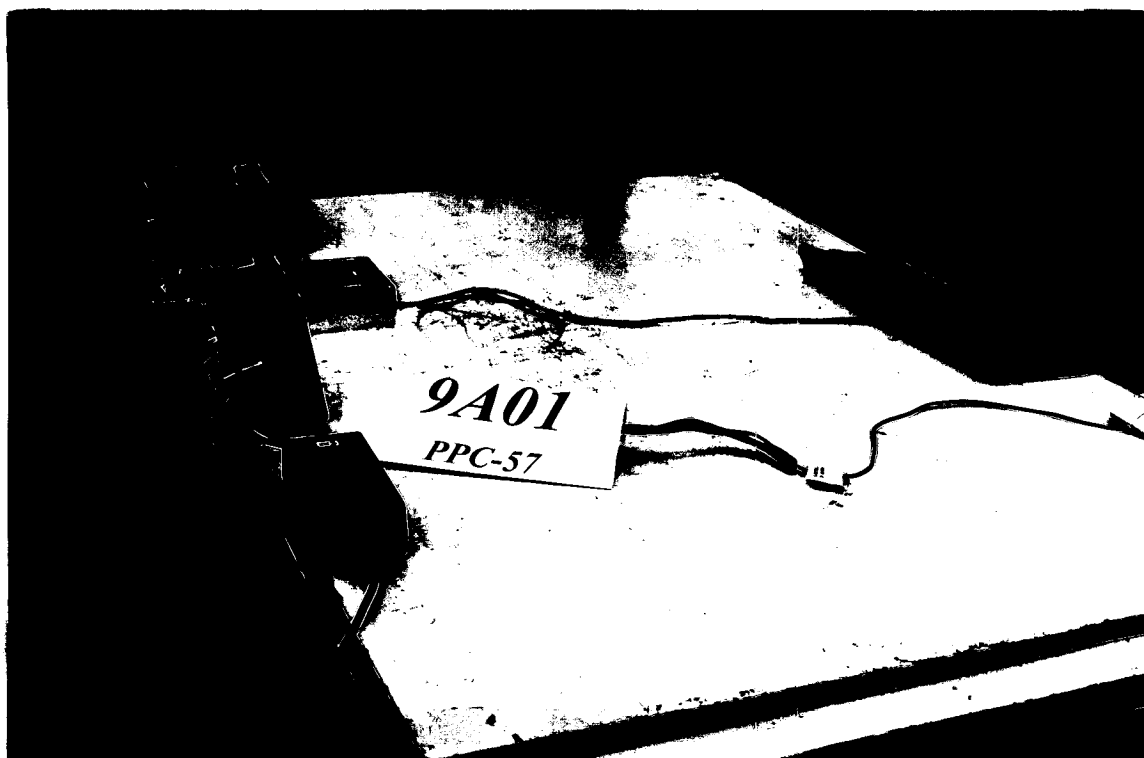
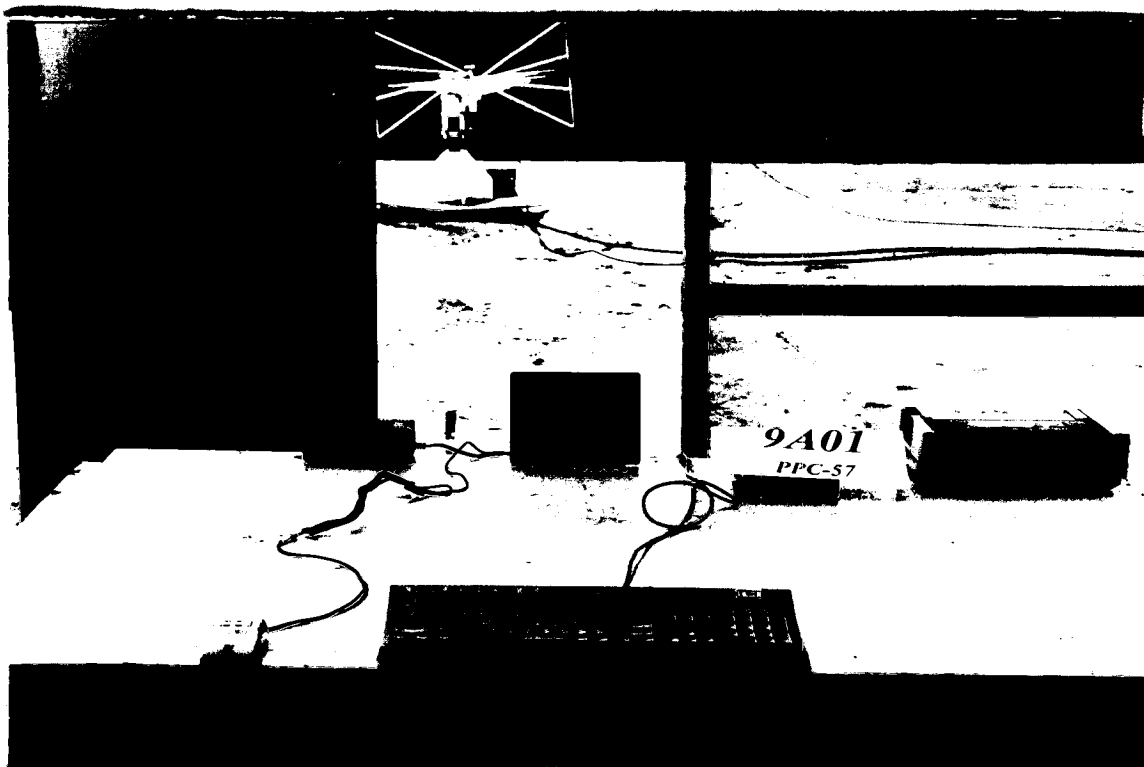
N. Open site test back view



11. PHOTOS OF TESTING

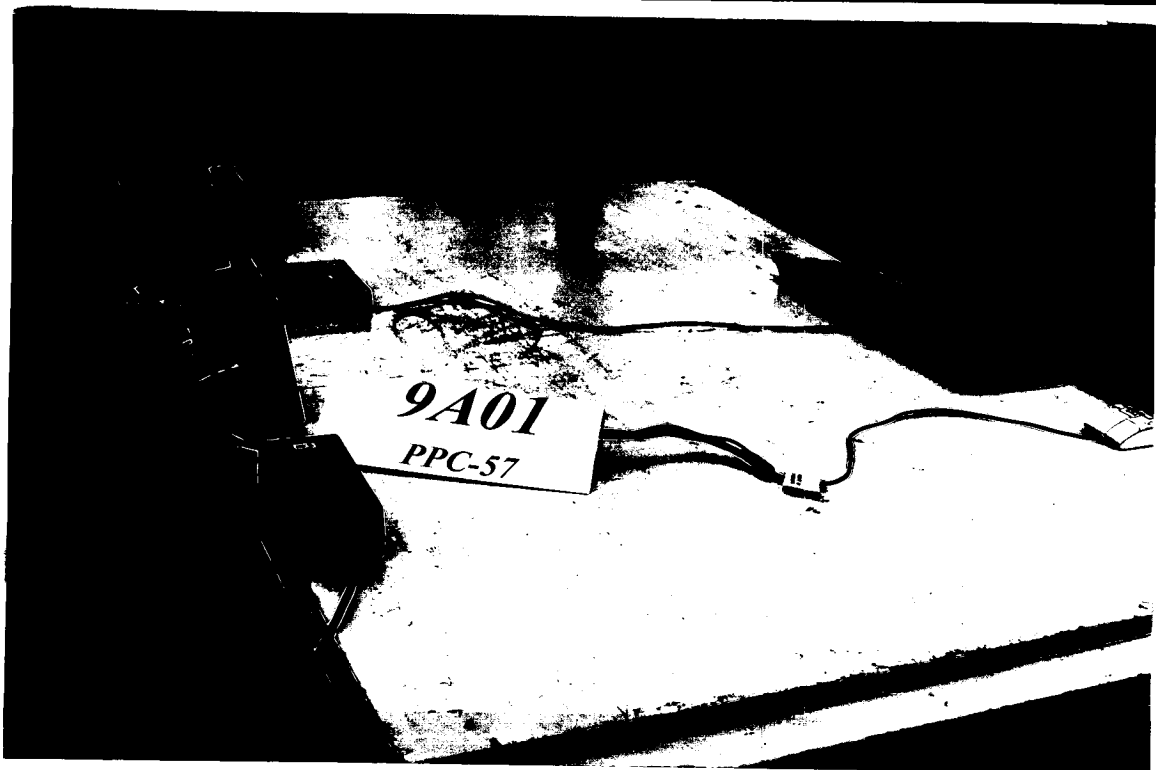
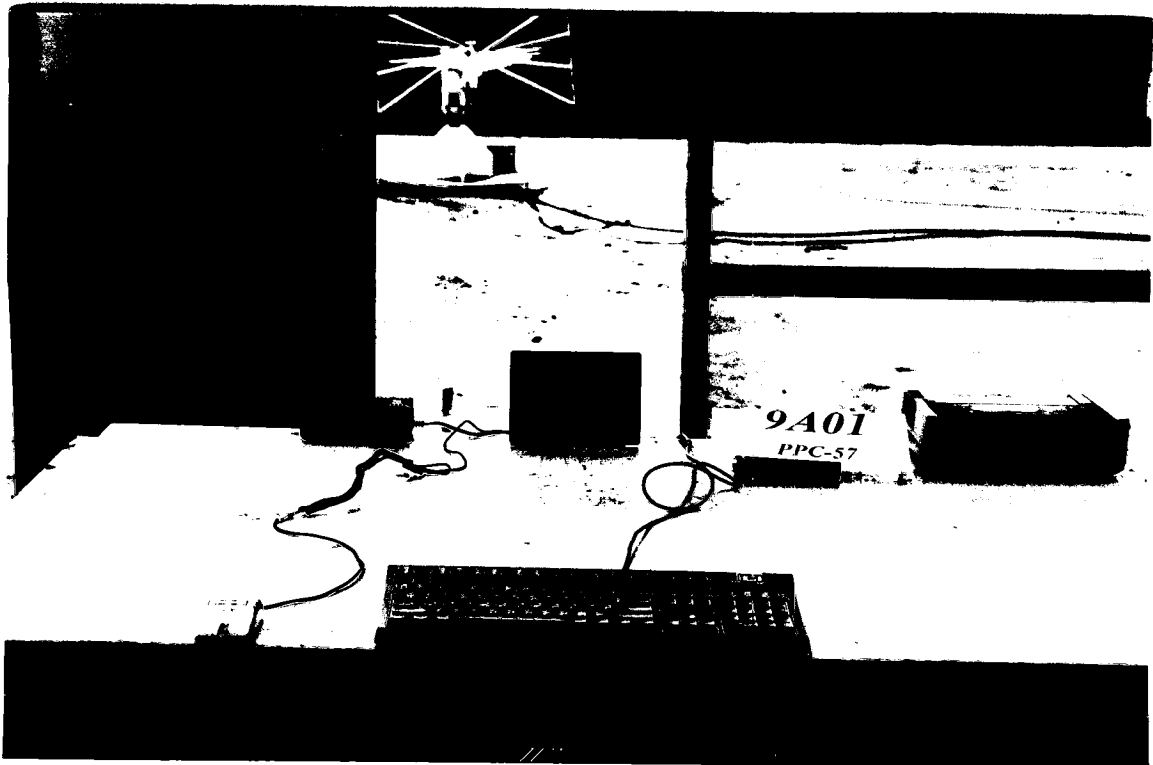
O. Open site test front view (PPC-57M-RT)

P. Open site test back view



11. PHOTOS OF TESTING

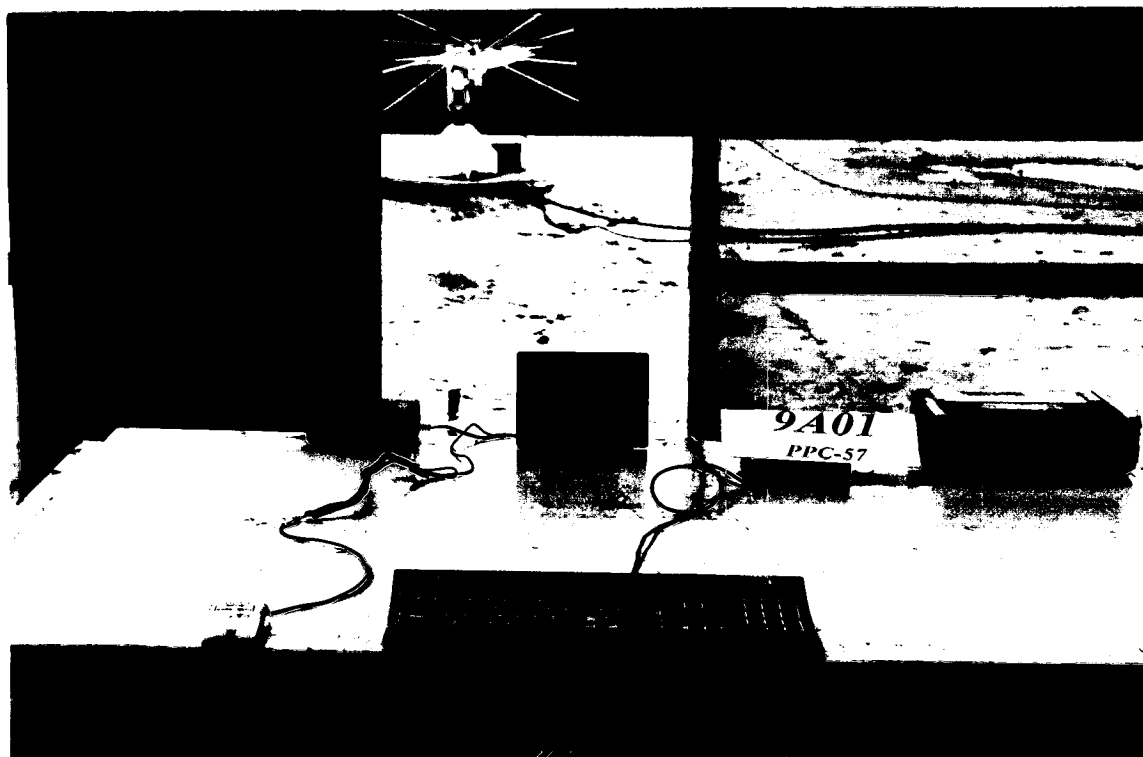
- Q. Open site test front view (PPC-57S)
- R. Open site test back view



11. PHOTOS OF TESTING

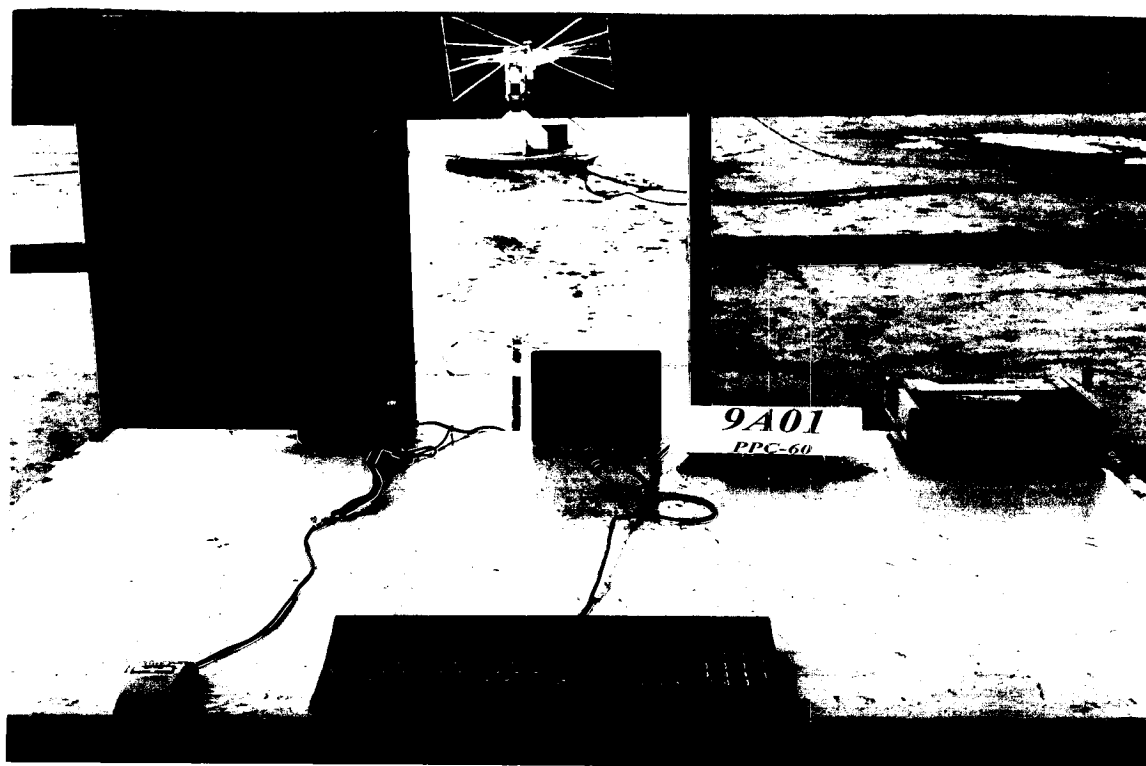
S. Open site test front view (PPC-57S-RT)

T. Open site test back view



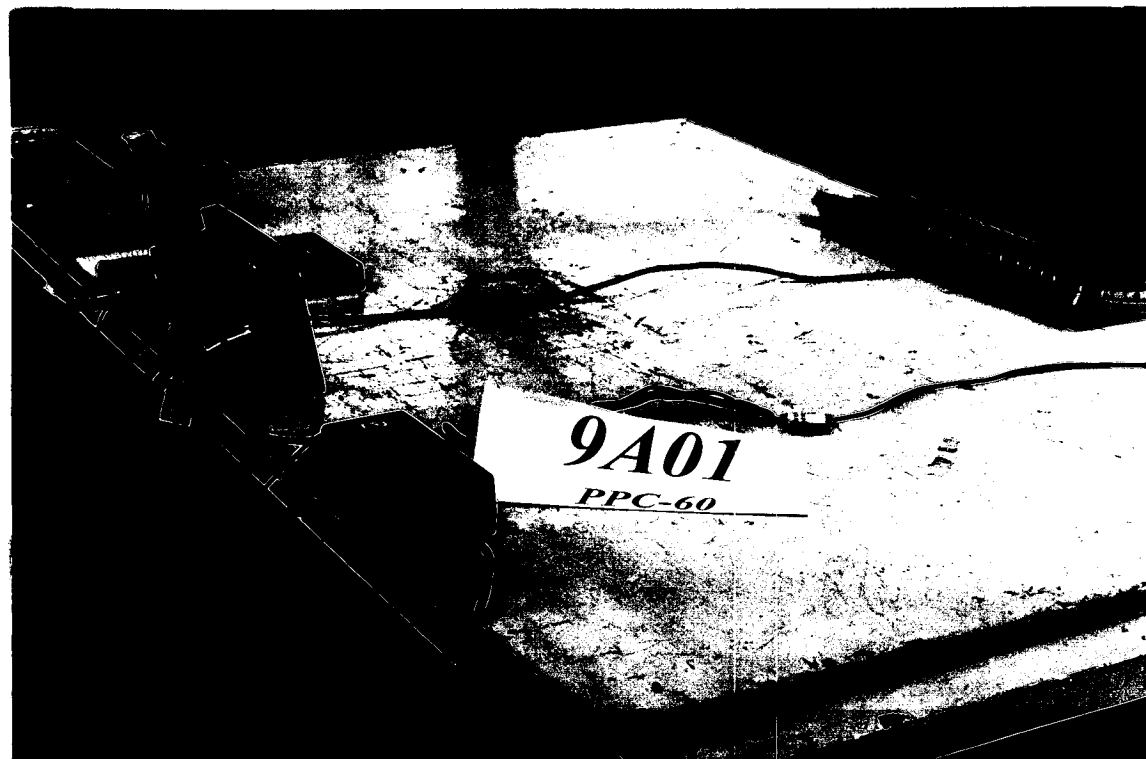
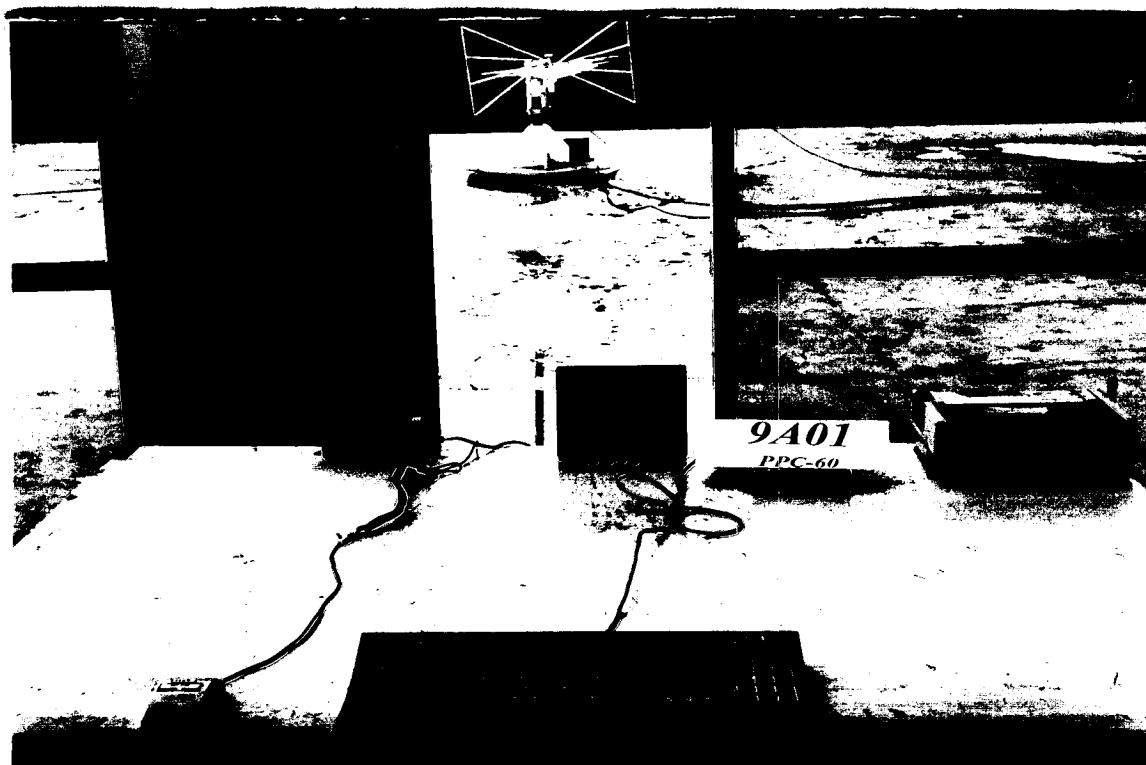
11. PHOTOS OF TESTING

- U. Open site test front view (PPC-60S)
- V. Open site test back view



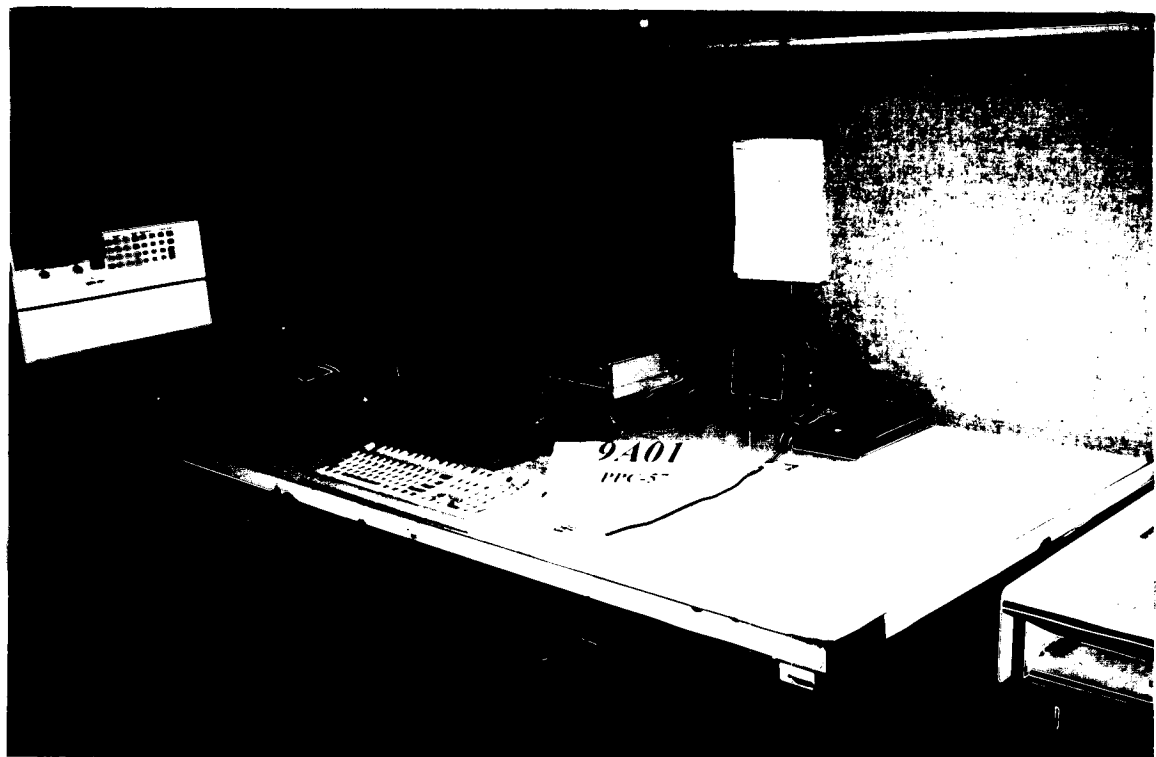
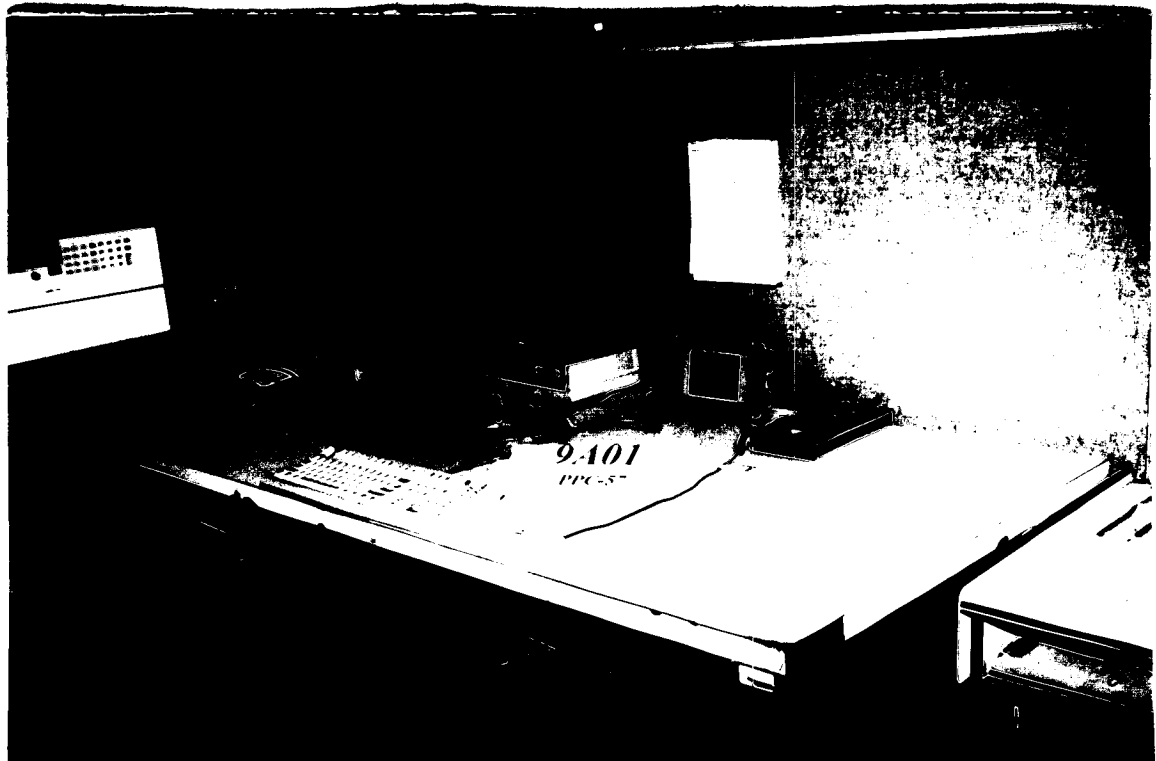
11. PHOTOS OF TESTING

- W. Open site test front view (PPC-60S-RT)
- X. Open site test back view



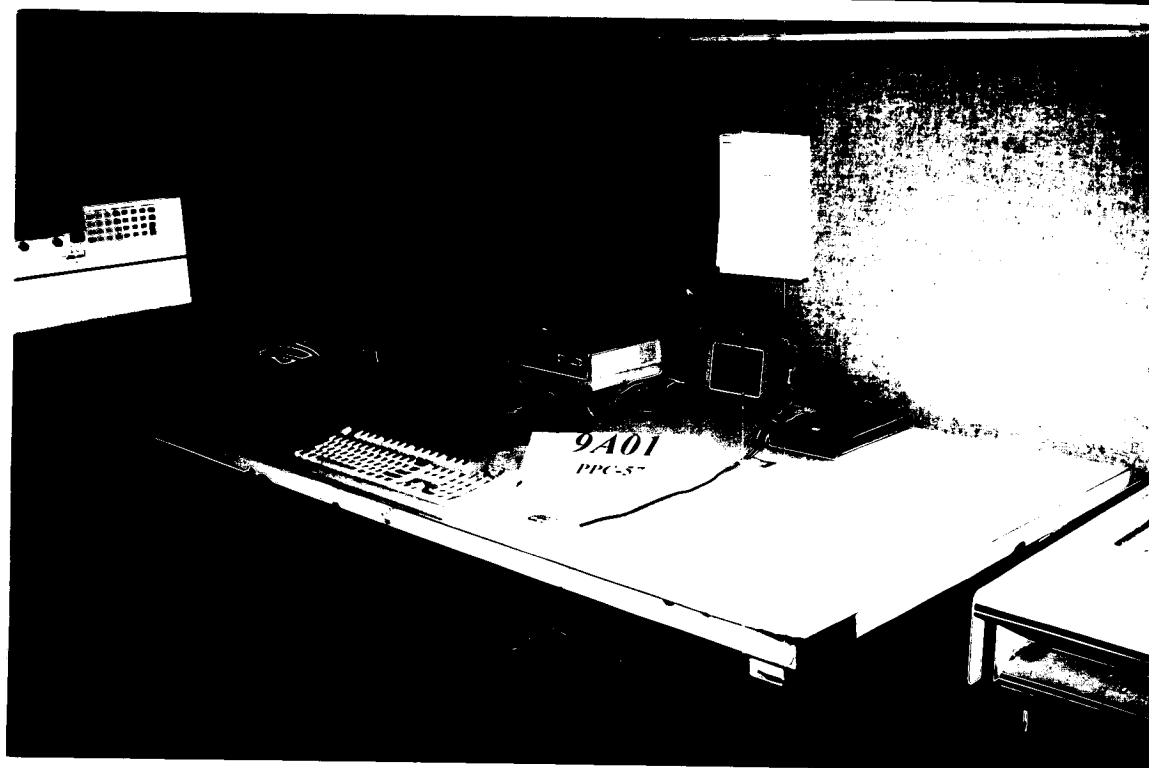
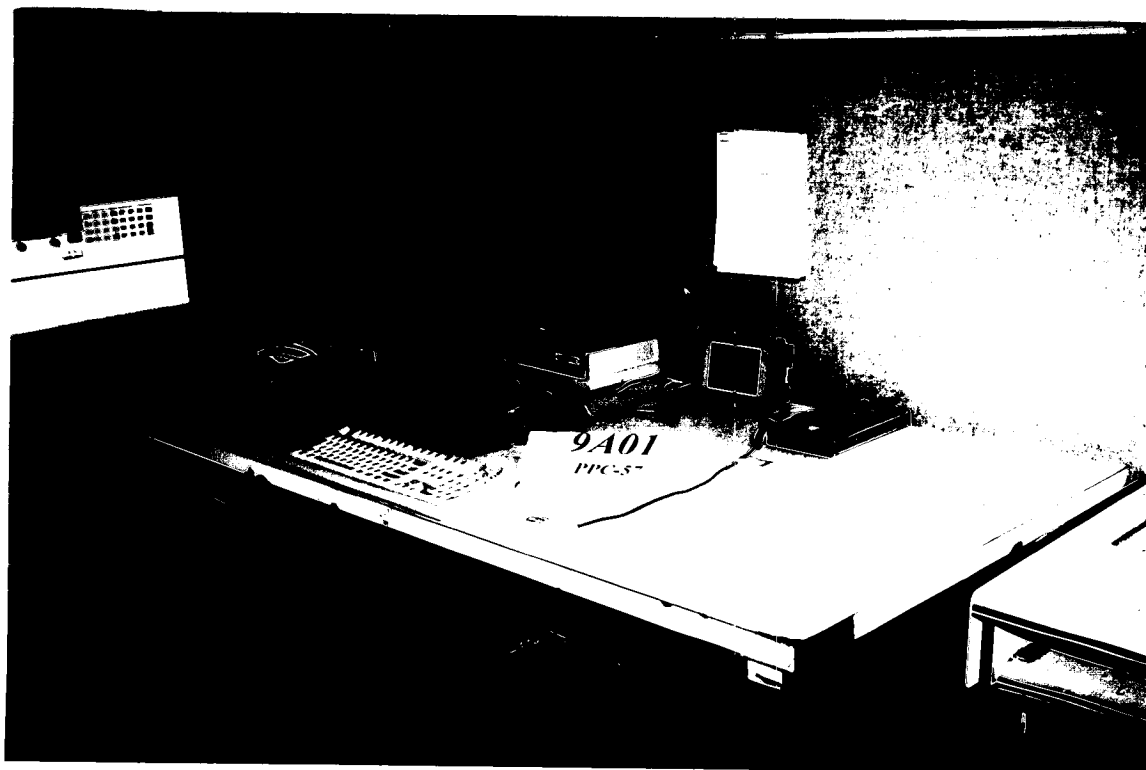
11. PHOTOS OF TESTING

- Y. Harmonics test view (PPC-57M)
- Z. Harmonics test view (PPC-57M-RT)



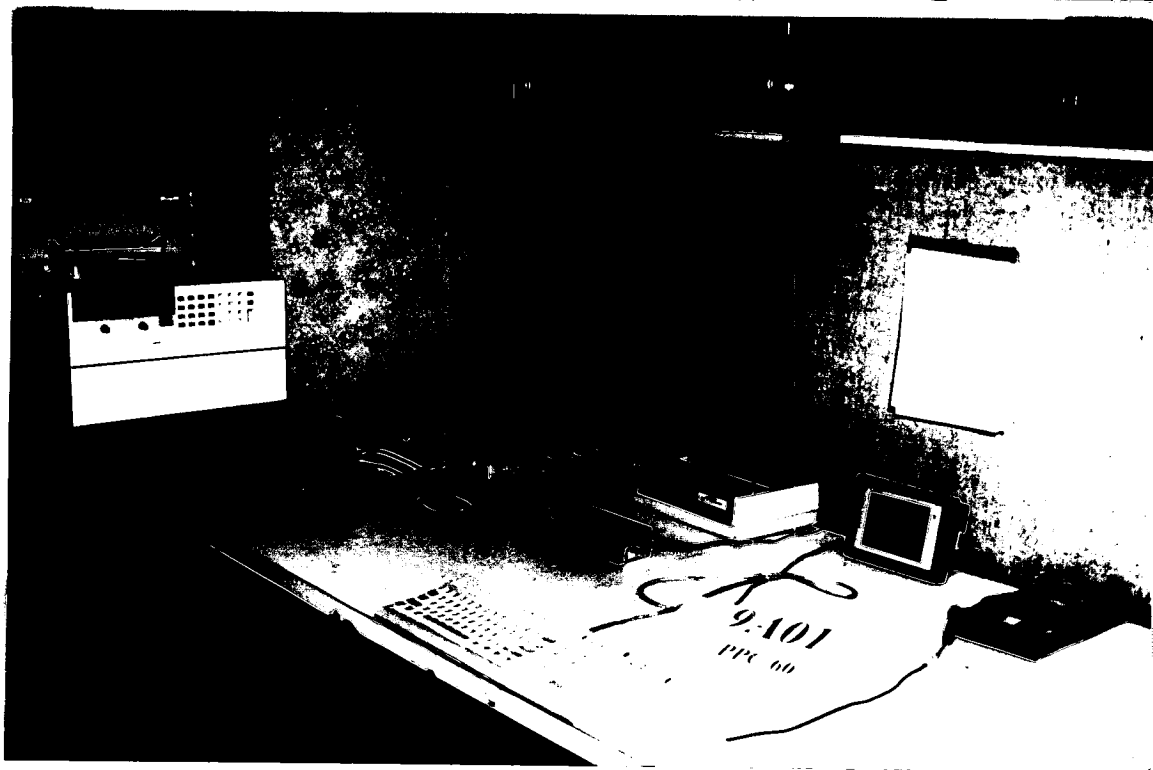
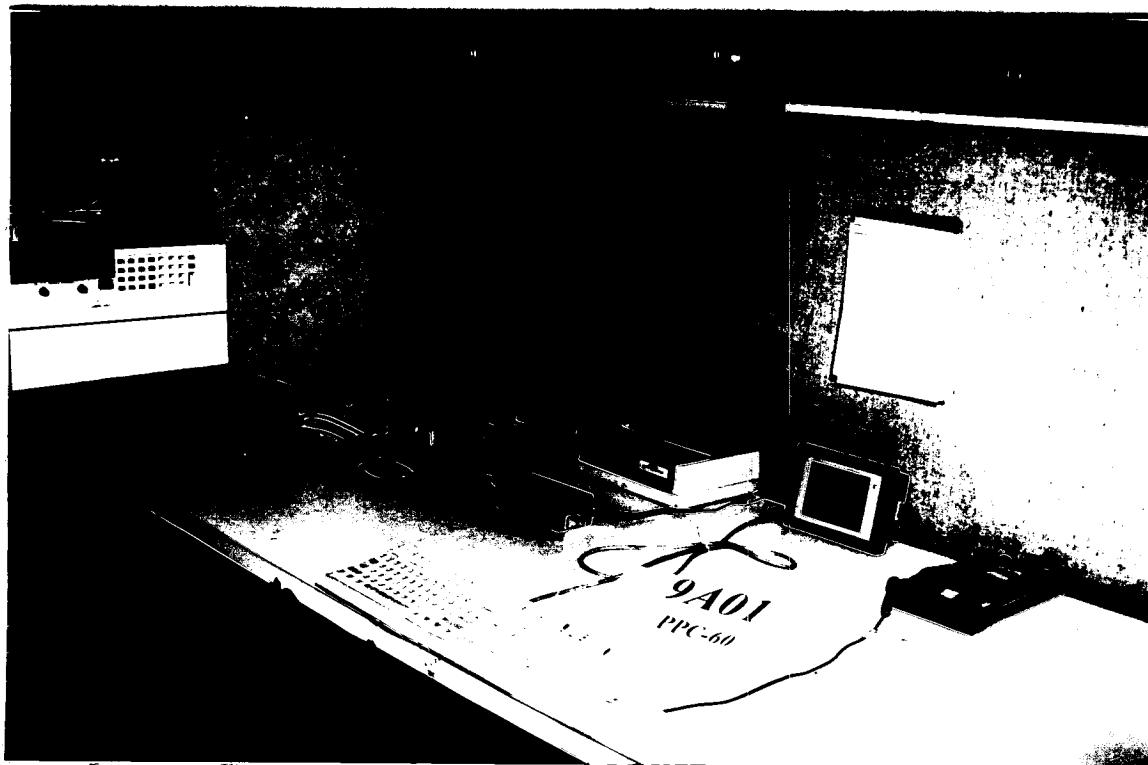
11. PHOTOS OF TESTING

- A1. Harmonics test view (PPC-57S)
- A2. Harmonics test view (PPC-57S-RT)



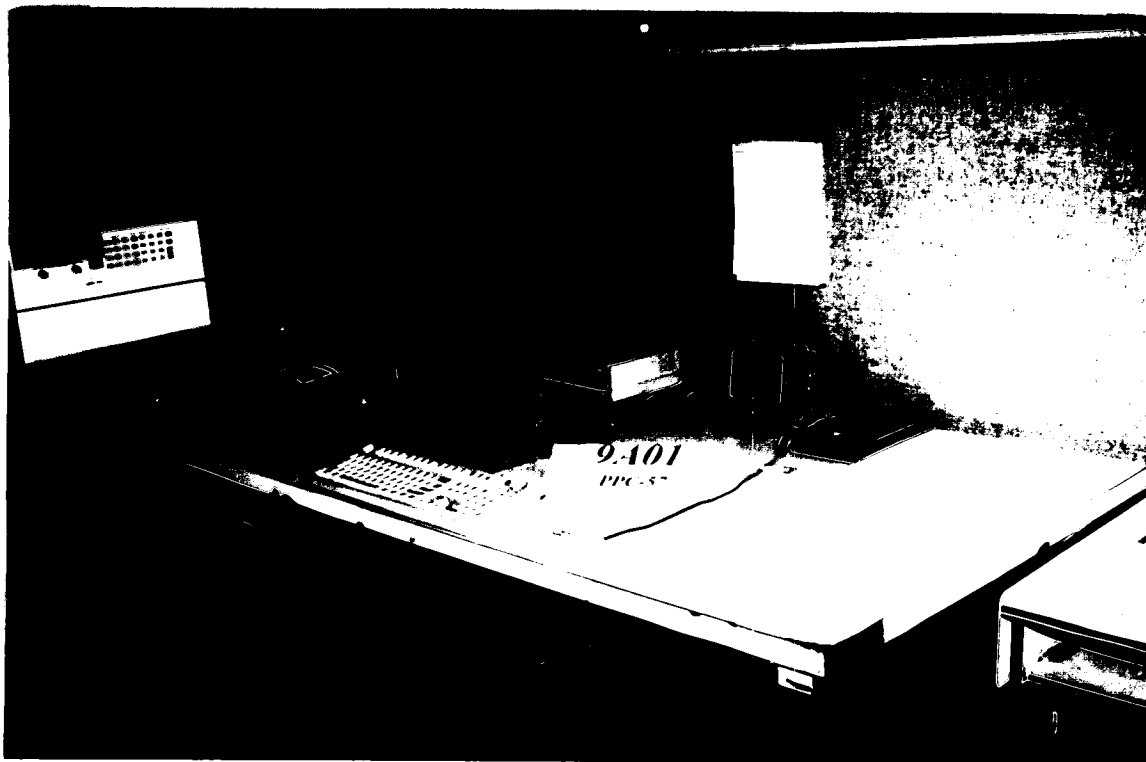
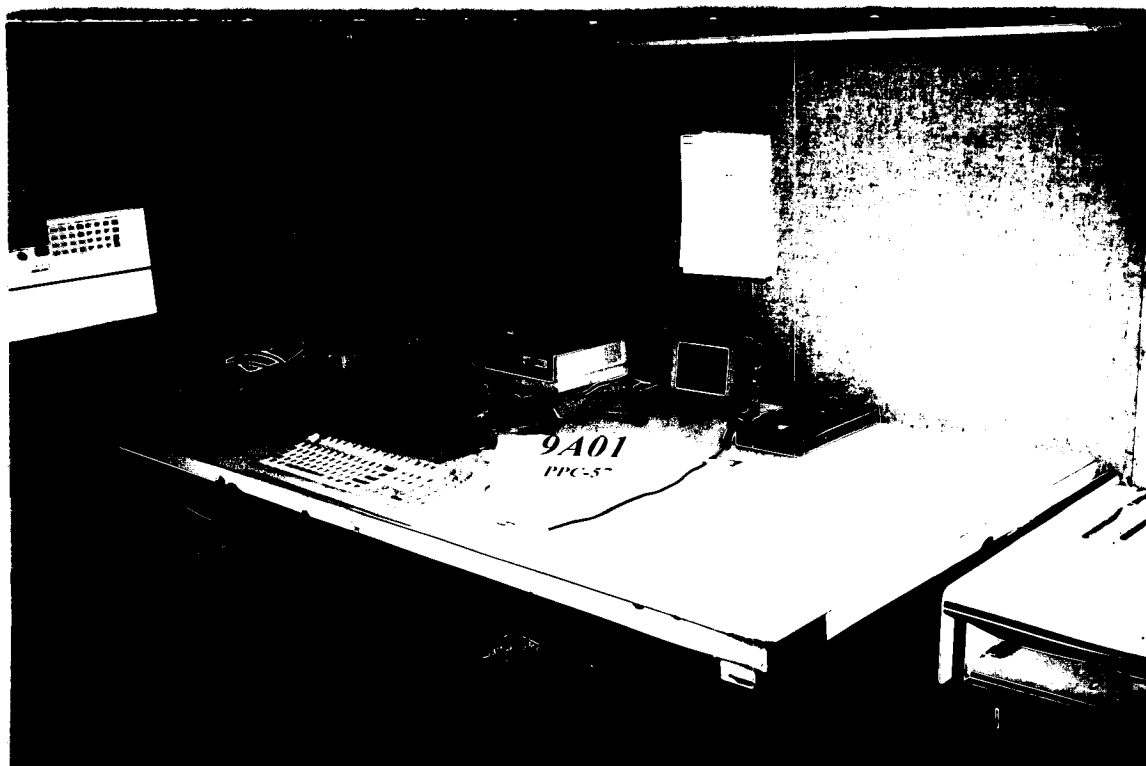
11. PHOTOS OF TESTING

- A3. Harmonics test view (PPC-60S)
- A4. Harmonics test view (PPC-60S-RT)



11. PHOTOS OF TESTING

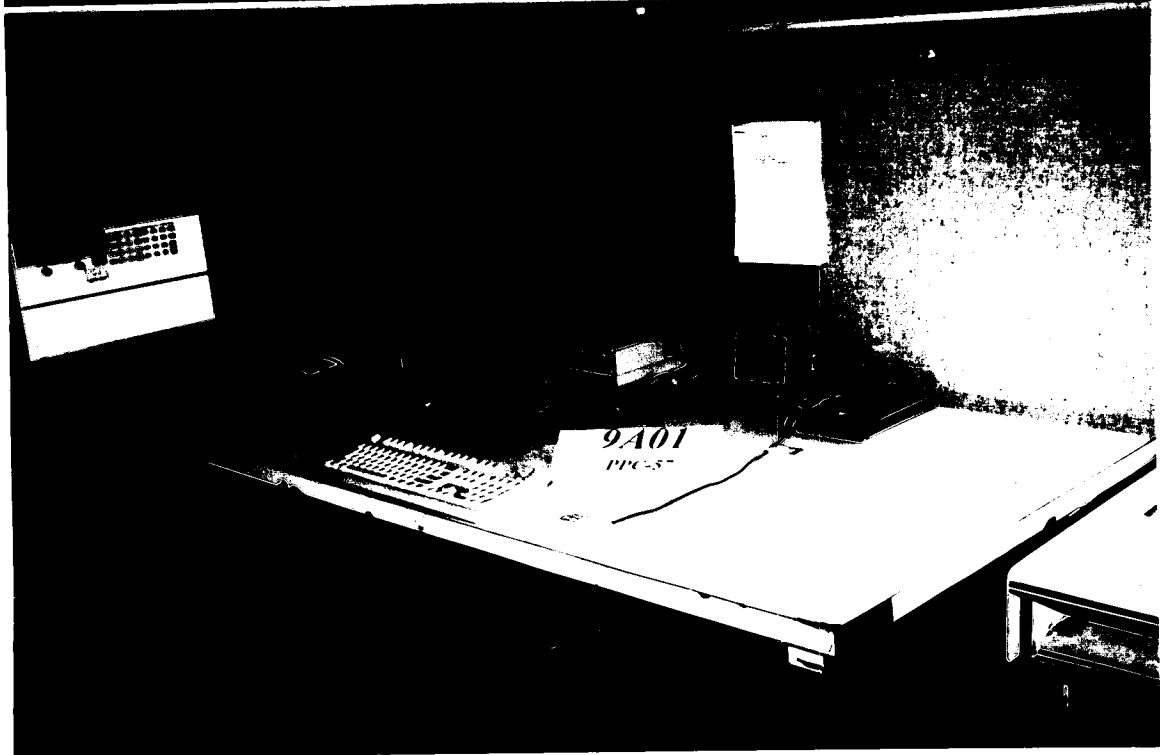
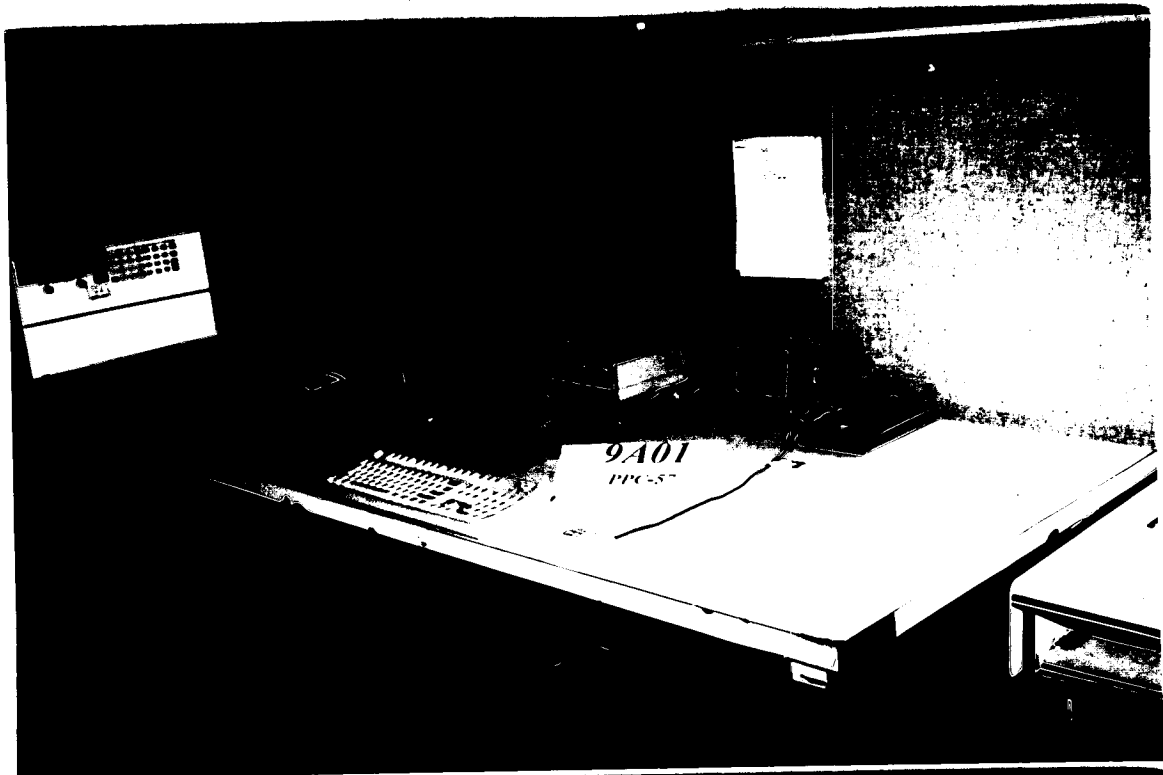
- A5. Voltage fluctuations view (PPC-57M)
- A6. Voltage fluctuations view (PPC-57M-RT)



11. PHOTOS OF TESTING

A7. Voltage fluctuations view (PPC-57S)

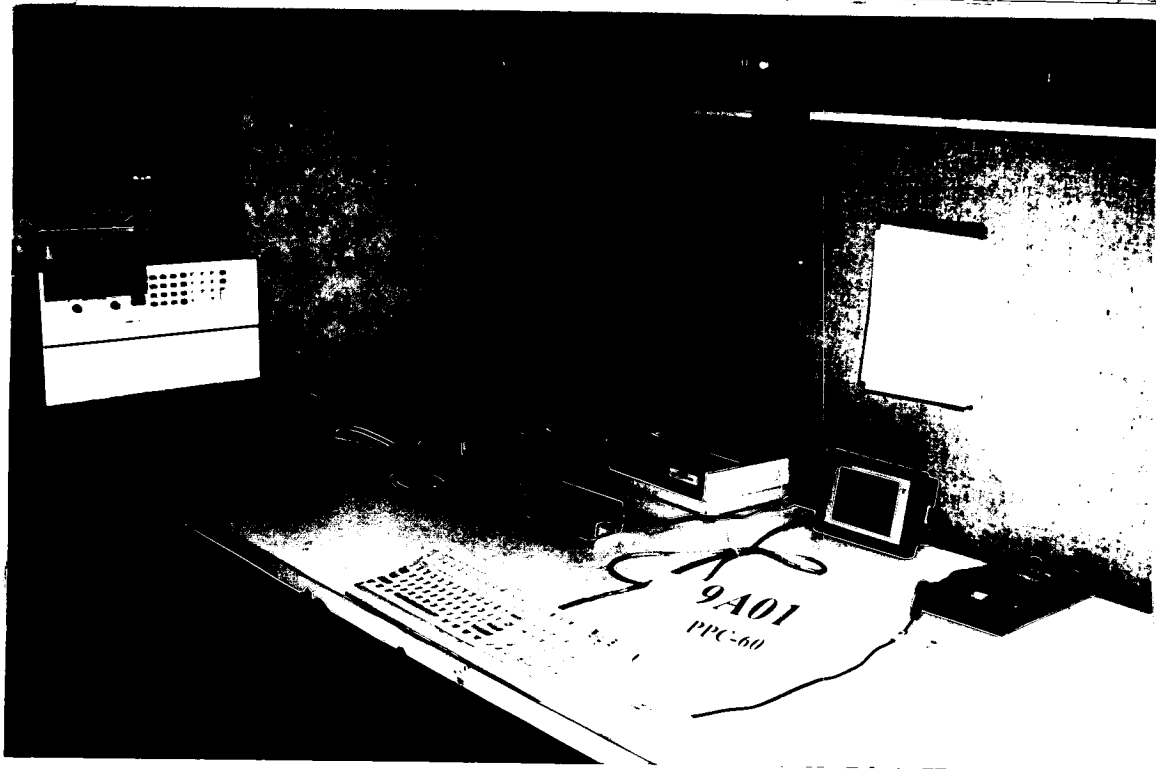
A8. Voltage fluctuations view (PPC-57S-RT)



11. PHOTOS OF TESTING

A9. Voltage fluctuations view (PPC-60S)

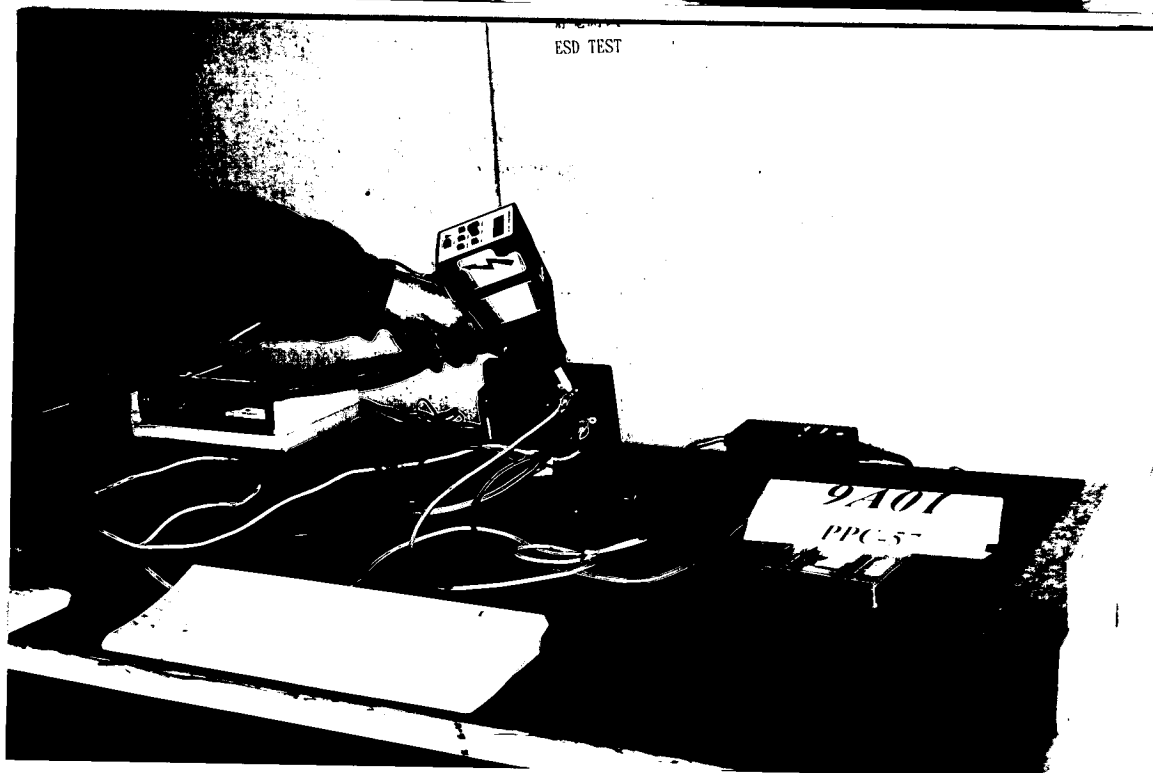
A10. Voltage fluctuations view (PPC-60S-RT)



11. PHOTOS OF TESTING

A11. Electrostatic discharge immunity test view (PPC-57M)

A12. Electrostatic discharge immunity test view (PPC-57M-RT)



11. PHOTOS OF TESTING

A13. Electrostatic discharge immunity test view (PPC-57S)

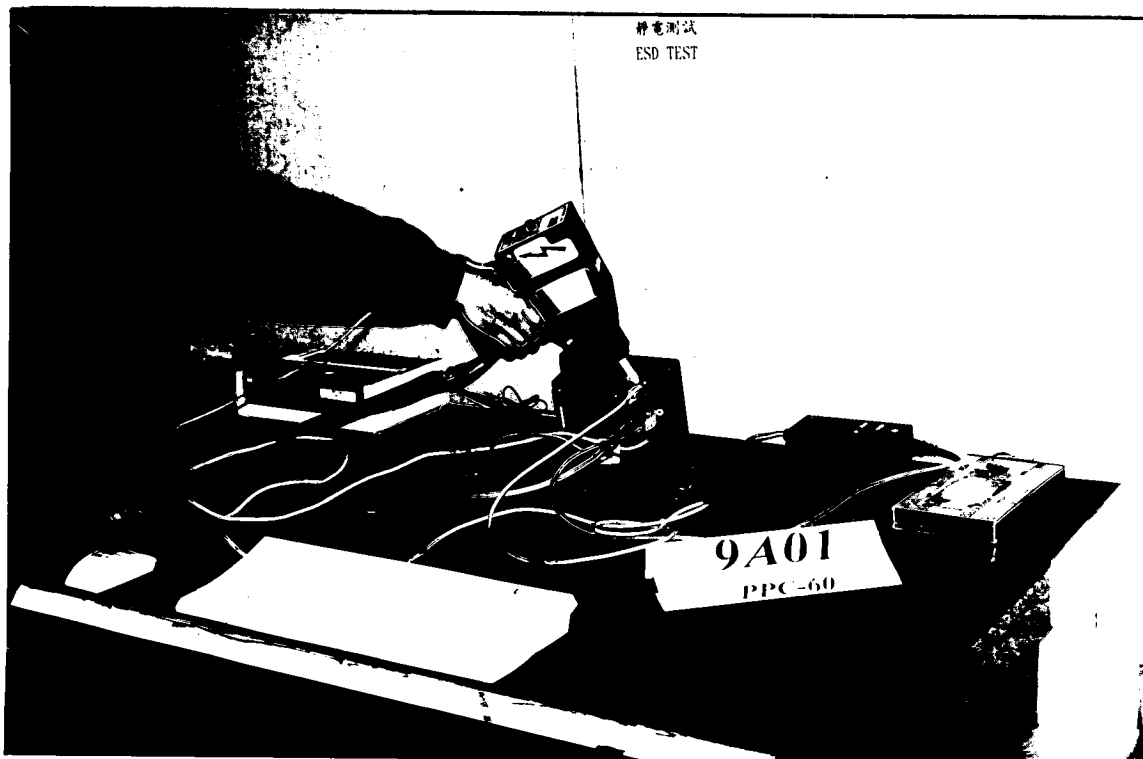
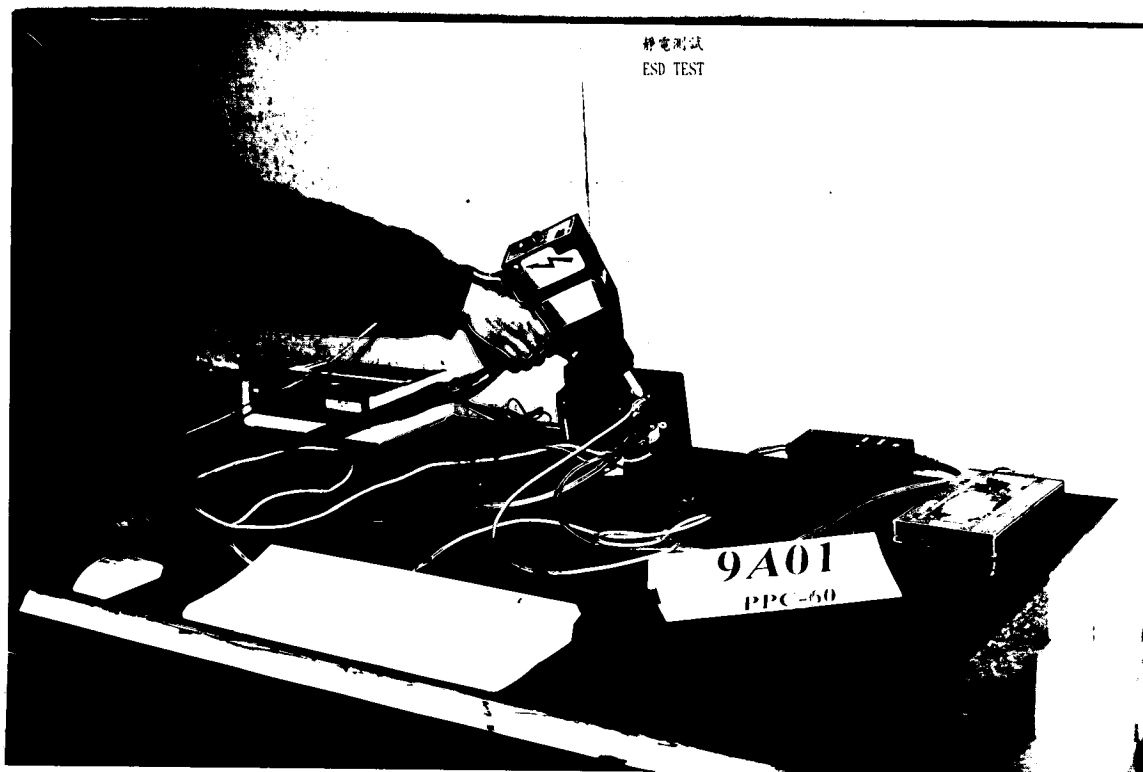
A14. Electrostatic discharge immunity test view (PPC-57S-RT)



11. PHOTOS OF TESTING

A15. Electrostatic discharge immunity test view (PPC-60S)

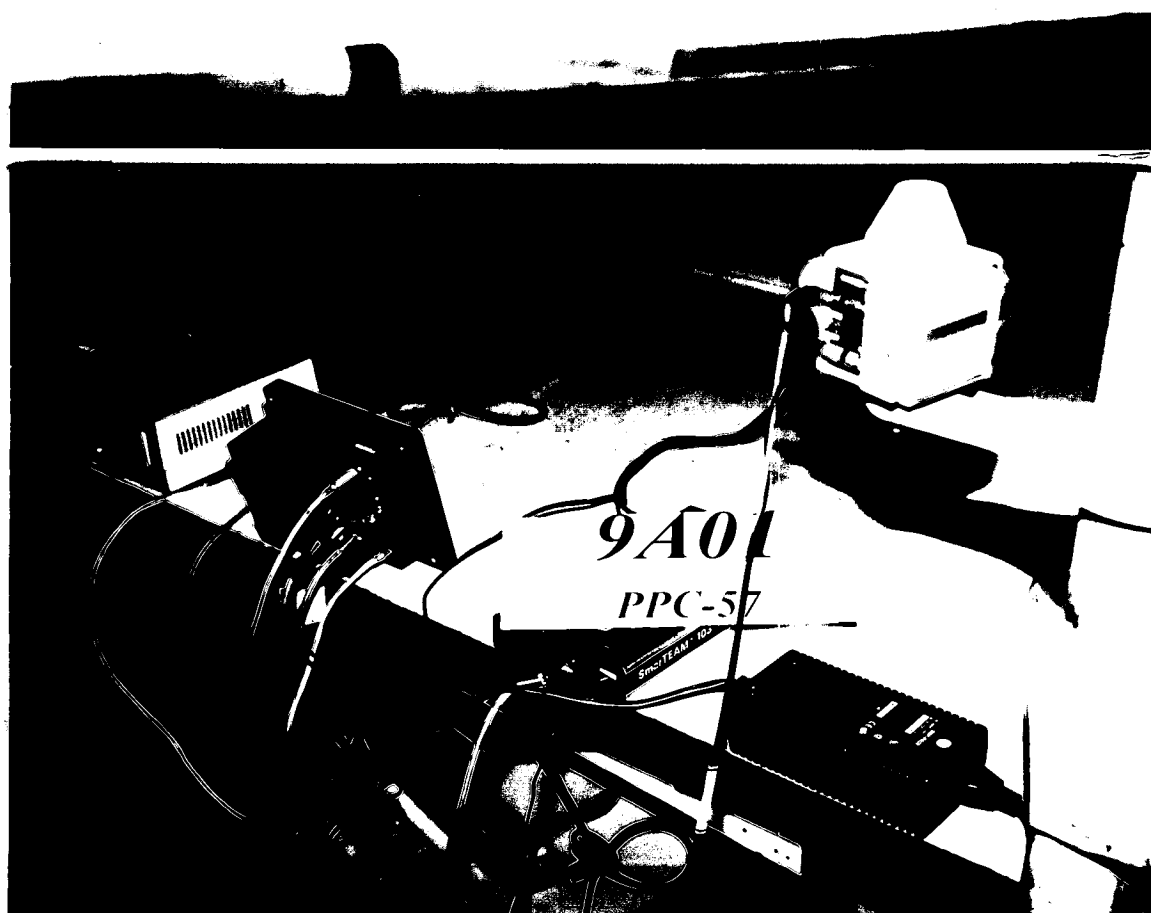
A16. Electrostatic discharge immunity test view (PPC-60S-RT)



11. PHOTOS OF TESTING

A17. Radiated immunity test front view (PPC-57M)

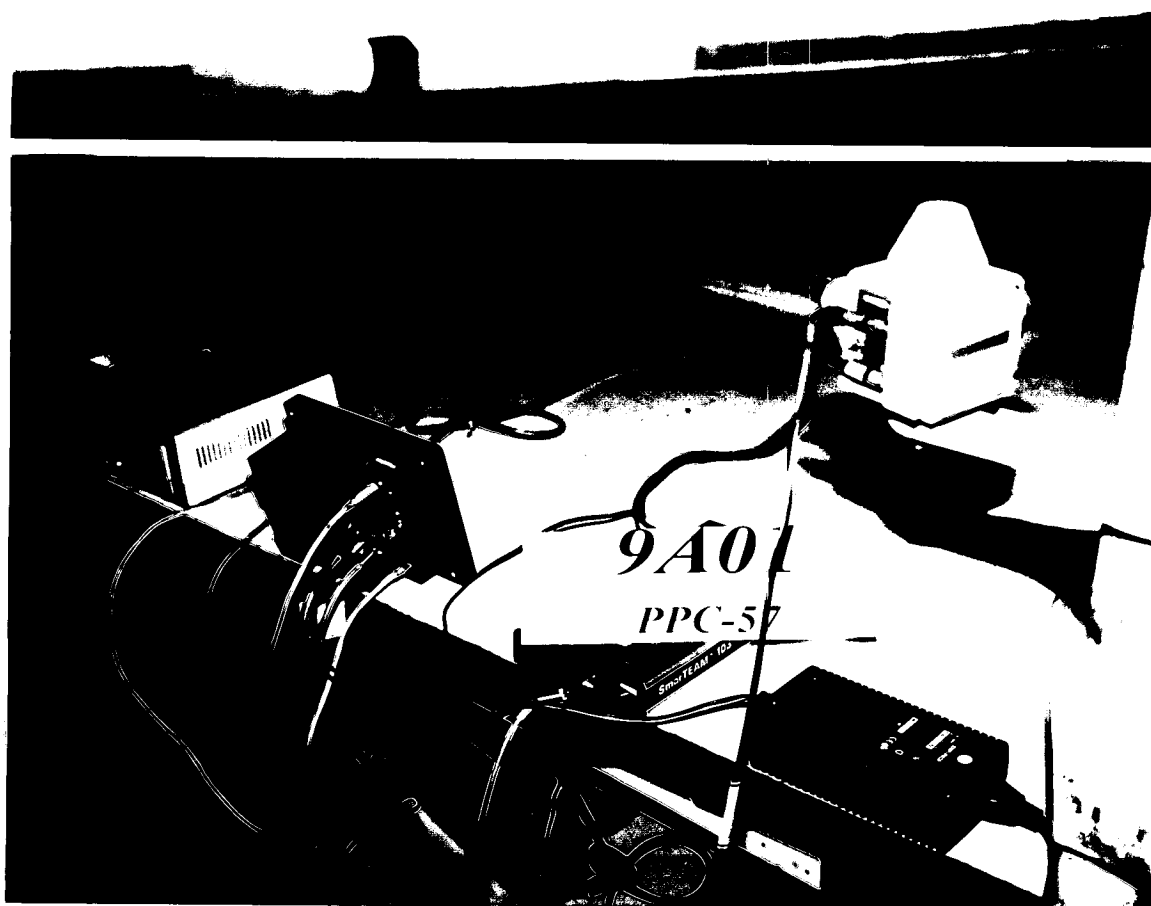
A18. Radiated immunity test back view



11. PHOTOS OF TESTING

A19. Radiated immunity test front view (PPC-57M-RT)

A20. Radiated immunity test back view



11. PHOTOS OF TESTING

- A21. Radiated immunity test front view (PPC-57S)
- A22. Radiated immunity test back view



11. PHOTOS OF TESTING

A23. Radiated immunity test front view (PPC-57S-RT)

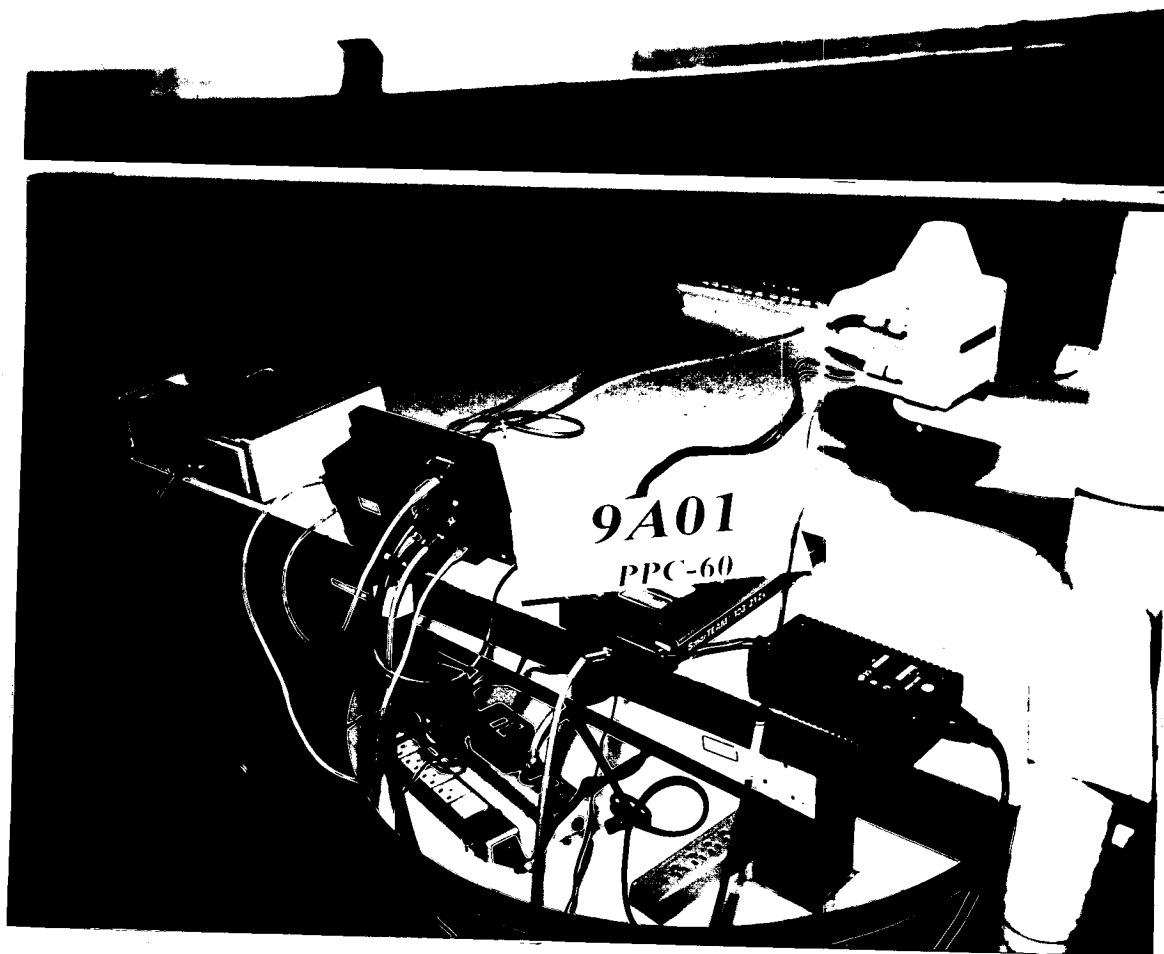
A24. Radiated immunity test back view



11. PHOTOS OF TESTING

A25. Radiated immunity test front view (PPC-60S)

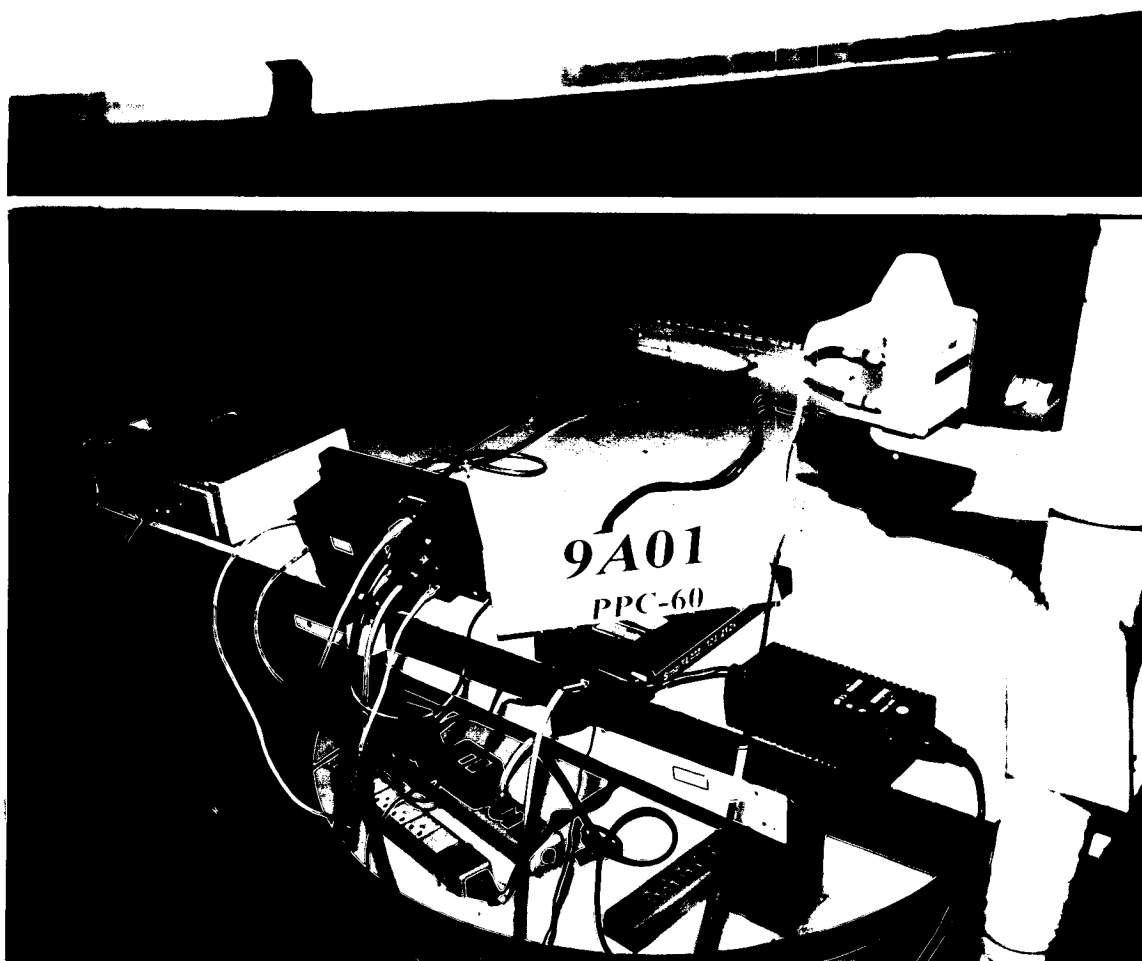
A26. Radiated immunity test back view



11. PHOTOS OF TESTING

A27. Radiated immunity test front view (PPC-60S-RT)

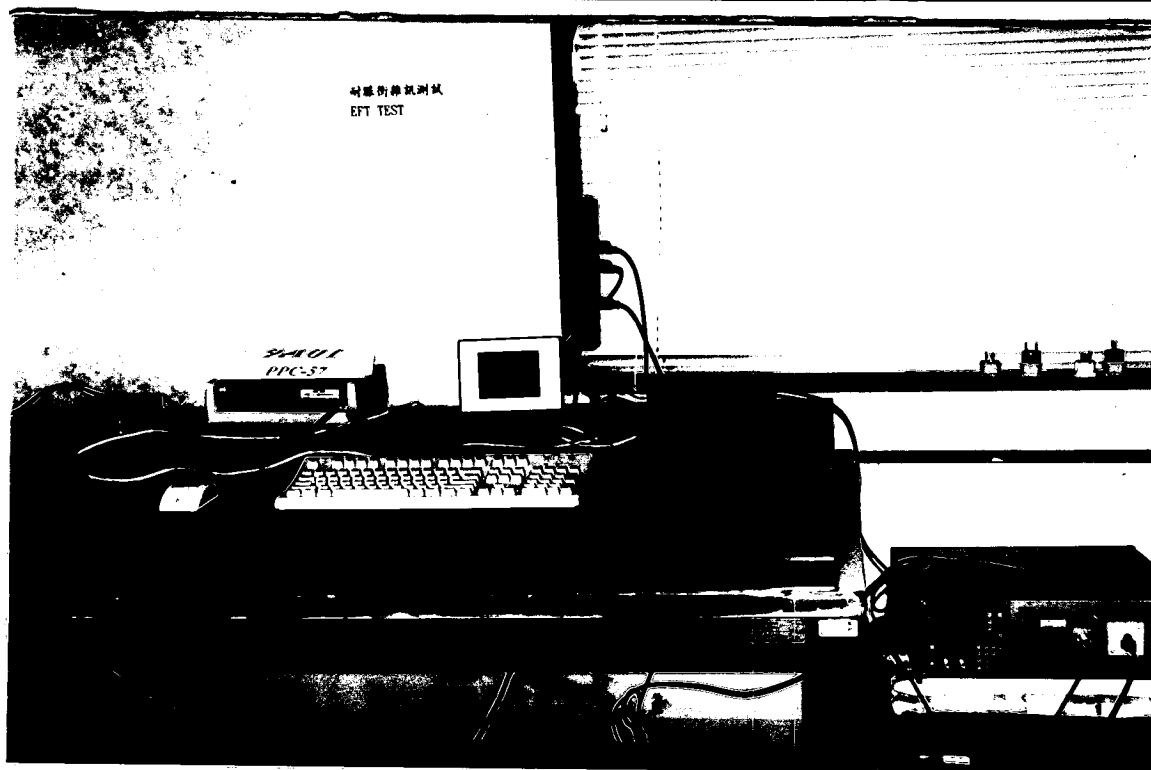
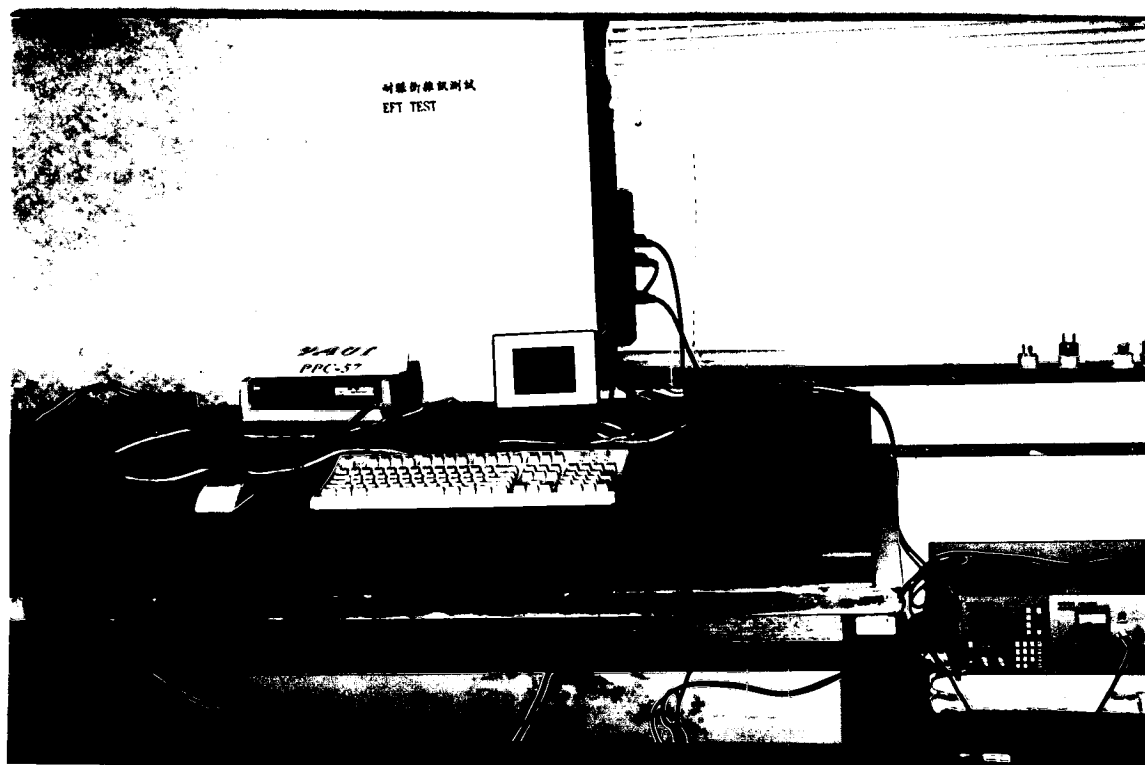
A28. Radiated immunity test back view



11. PHOTOS OF TESTING

A29. Electrical fast transient / burst immunity test view (PPC-57M)

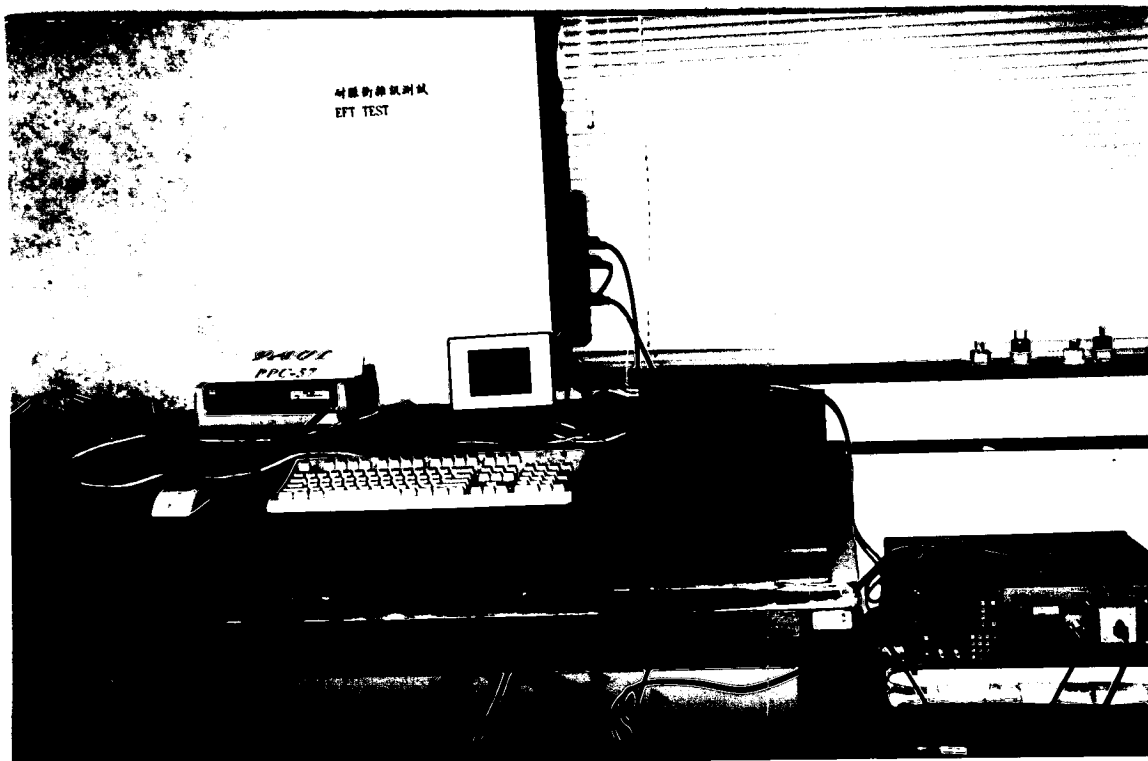
A30. Electrical fast transient / burst immunity test view (PPC-57M-RT)



11. PHOTOS OF TESTING

A31. Electrical fast transient / burst immunity test view (PPC-57S)

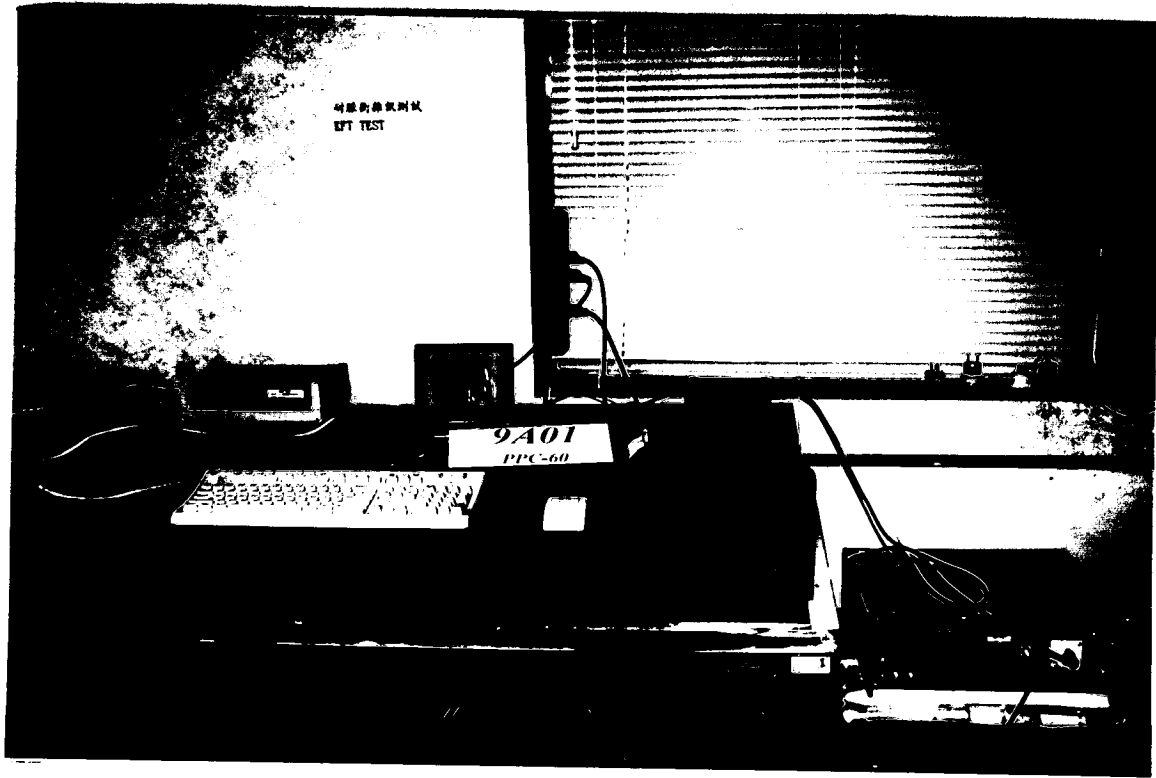
A32. Electrical fast transient / burst immunity test view (PPC-57S-RT)



11. PHOTOS OF TESTING

A33. Electrical fast transient / burst immunity test view (PPC-60S)

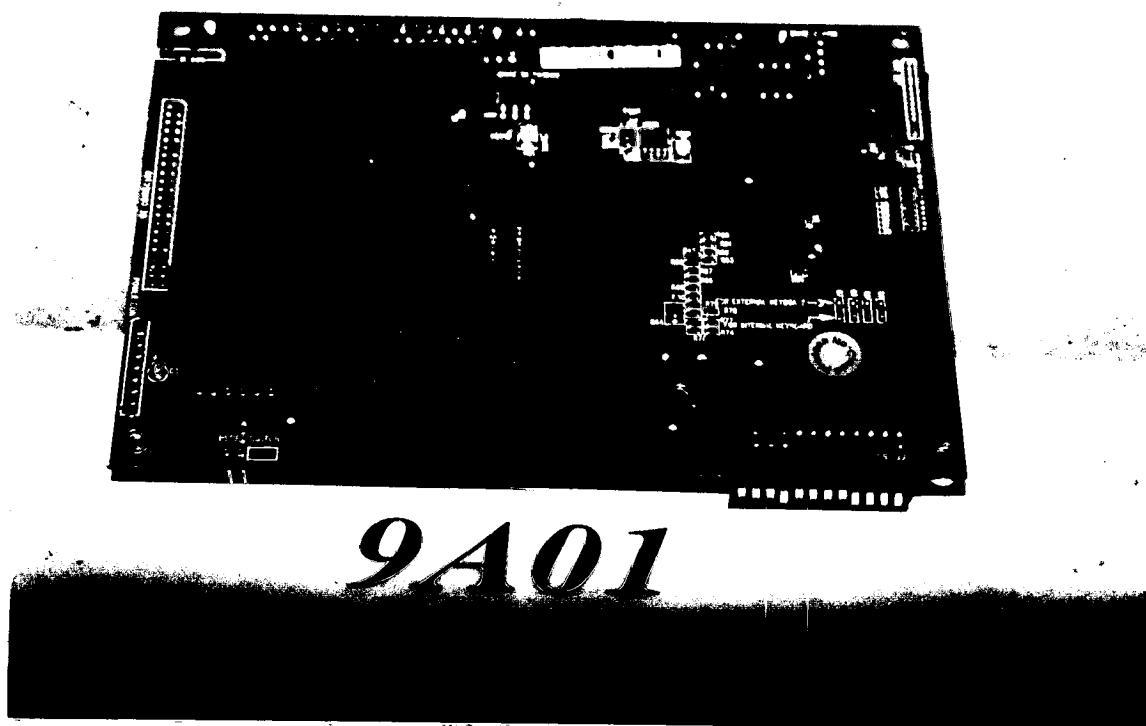
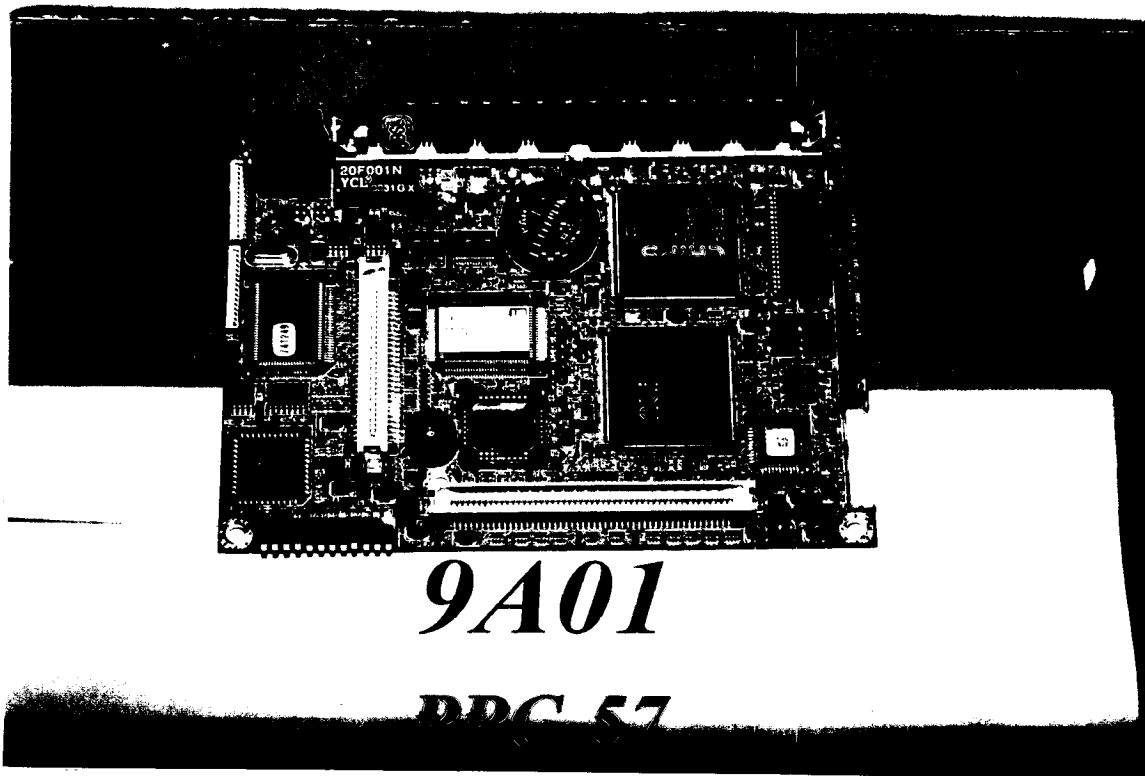
A34. Electrical fast transient / burst immunity test view (PPC-60S-RT)



11. PHOTOS OF TESTING

A35. Main board component side (PPC-57M)

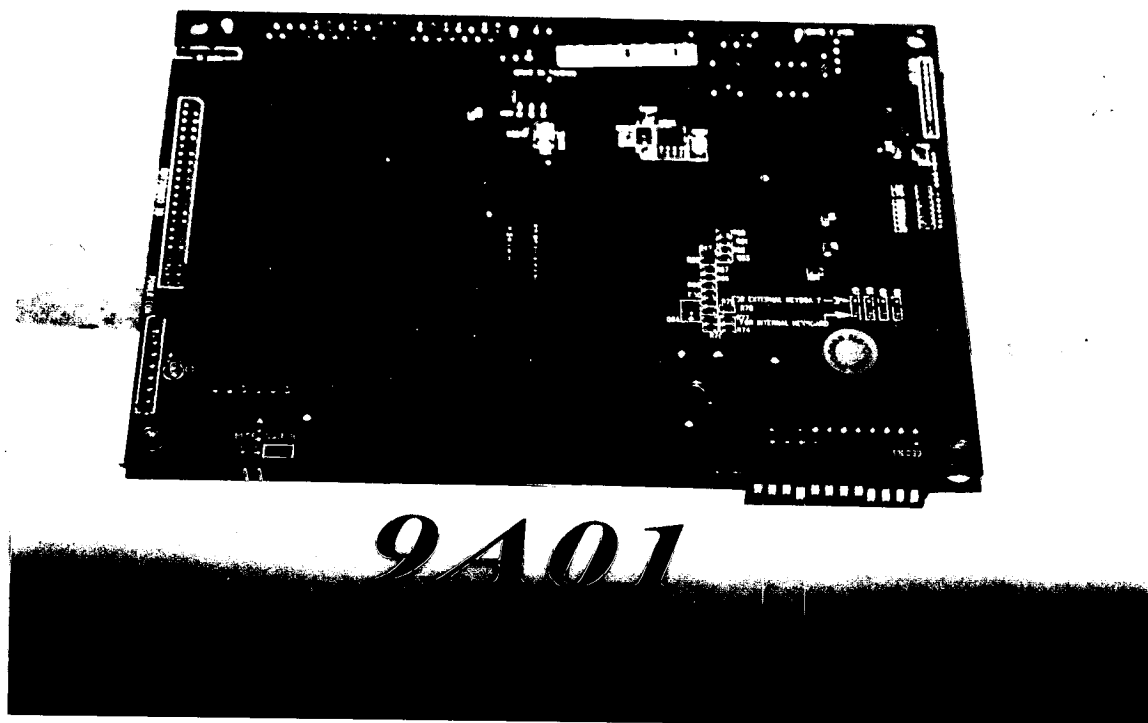
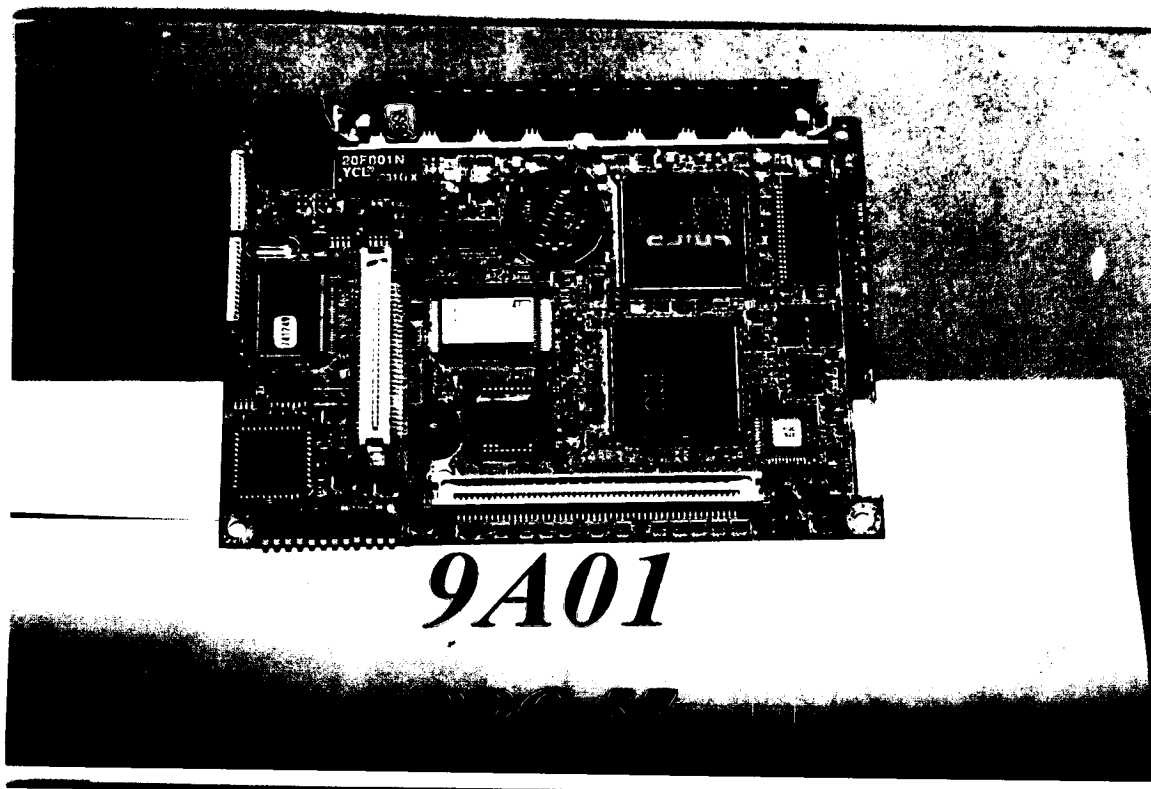
A36. Main board solder side



11. PHOTOS OF TESTING

A37. Main board component side (PPC-57M-RT)

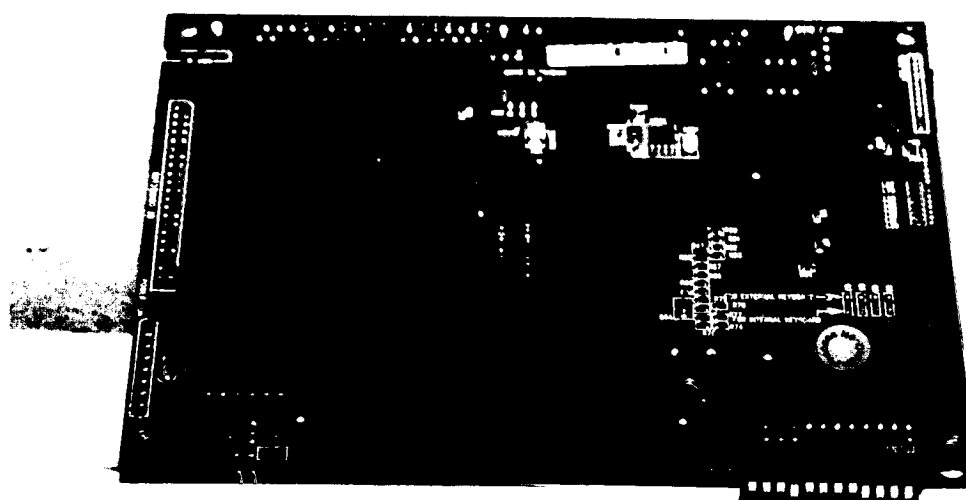
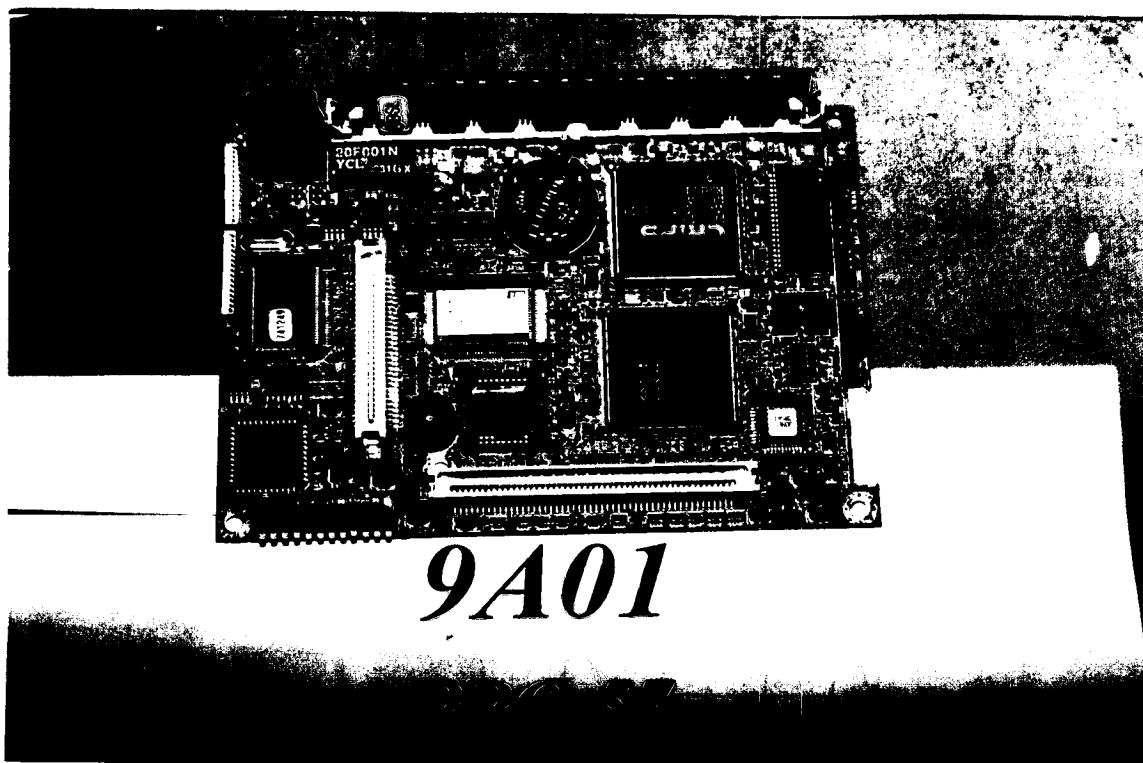
A38. Main board solder side



11. PHOTOS OF TESTING

A39. Main board component side (PPC-57S)

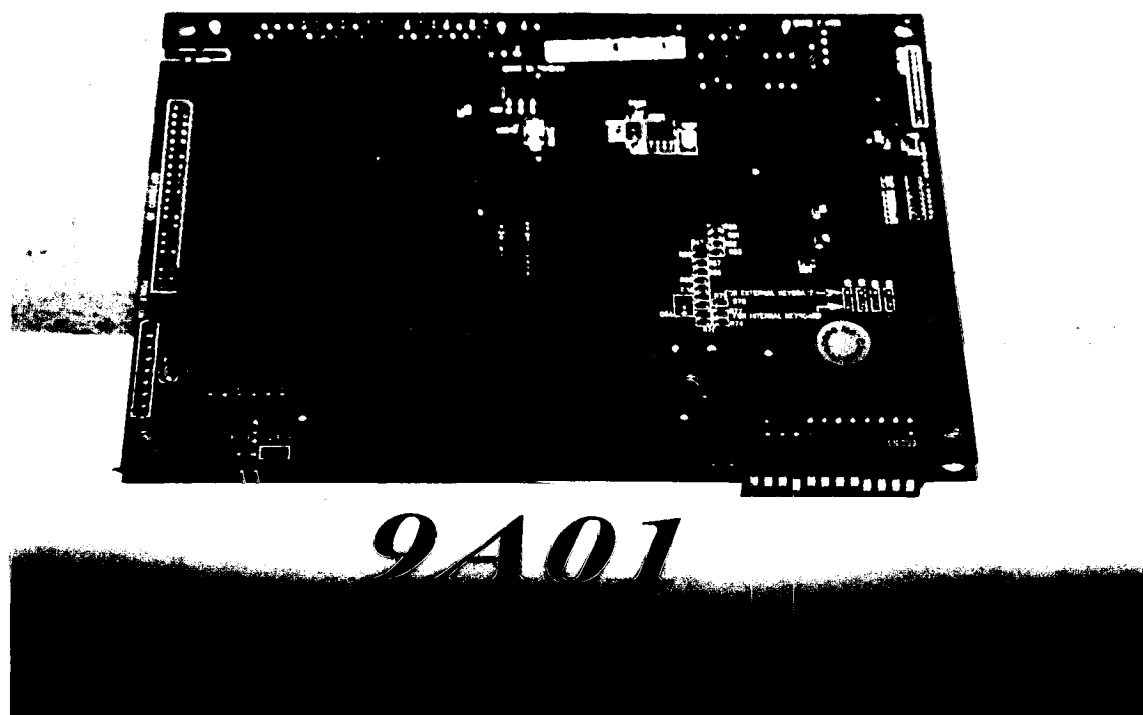
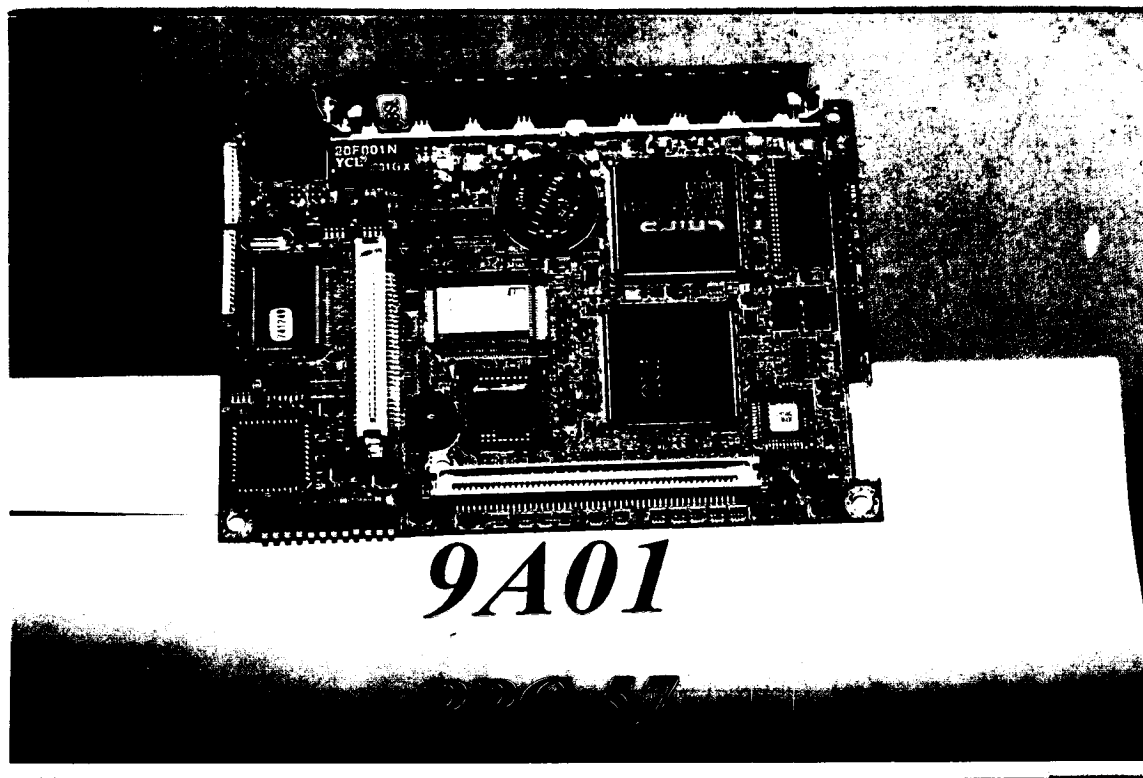
A40. Main board solder side



11. PHOTOS OF TESTING

A41. Main board component side (PPC-57S-RT)

A42. Main board solder side



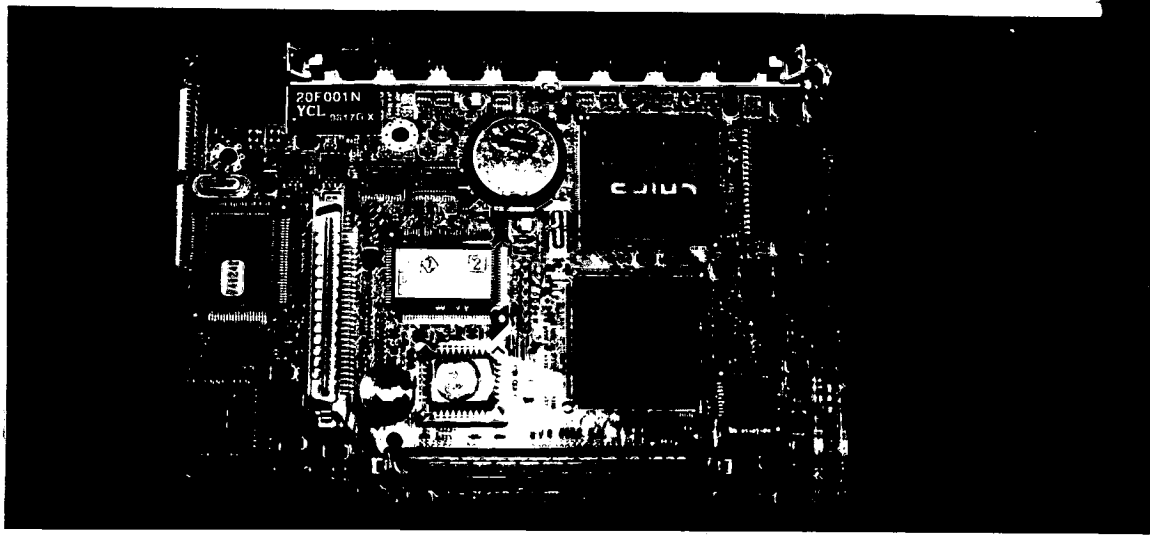
11. PHOTOS OF TESTING

A43. Main board component side (PPC-60S)

A44. Main board solder side

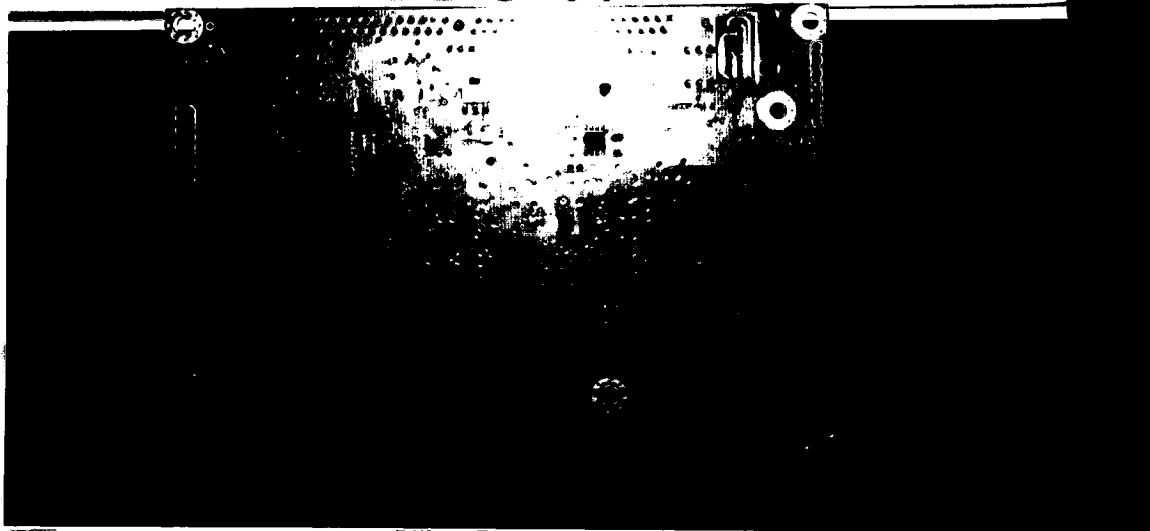
9A01

PPC-60



9A01

PPC-60



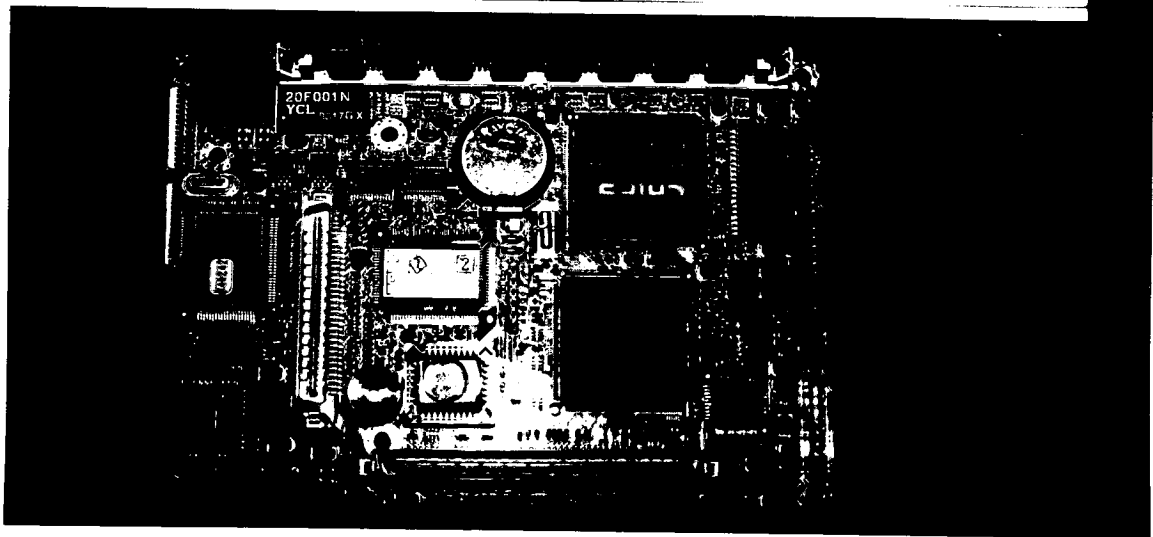
11. PHOTOS OF TESTING

A45. Main board component side (PPC-60S-RT)

A46. Main board solder side

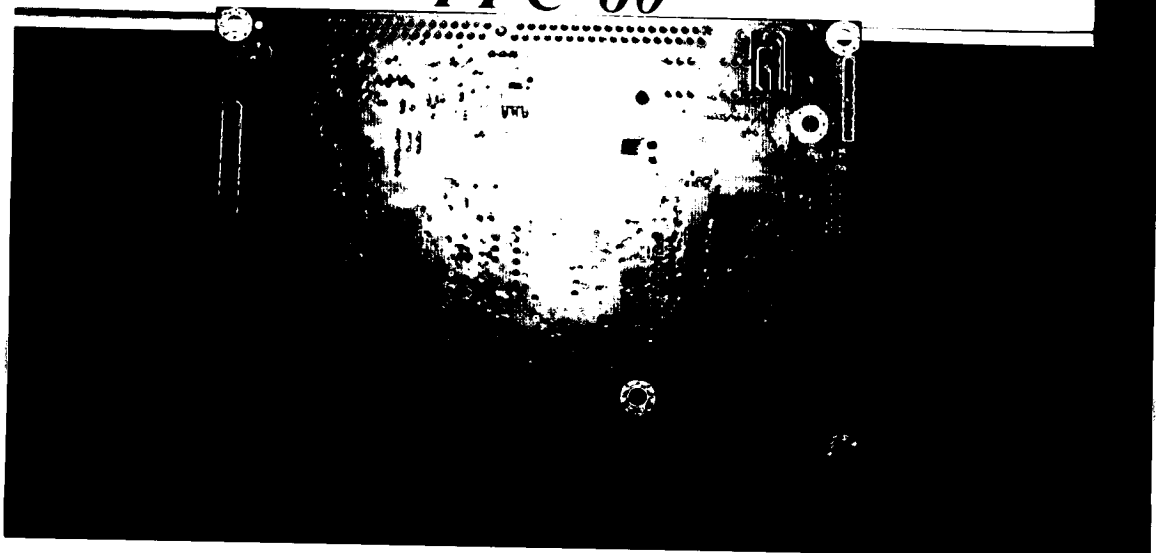
9A01

PPC-60



9A01

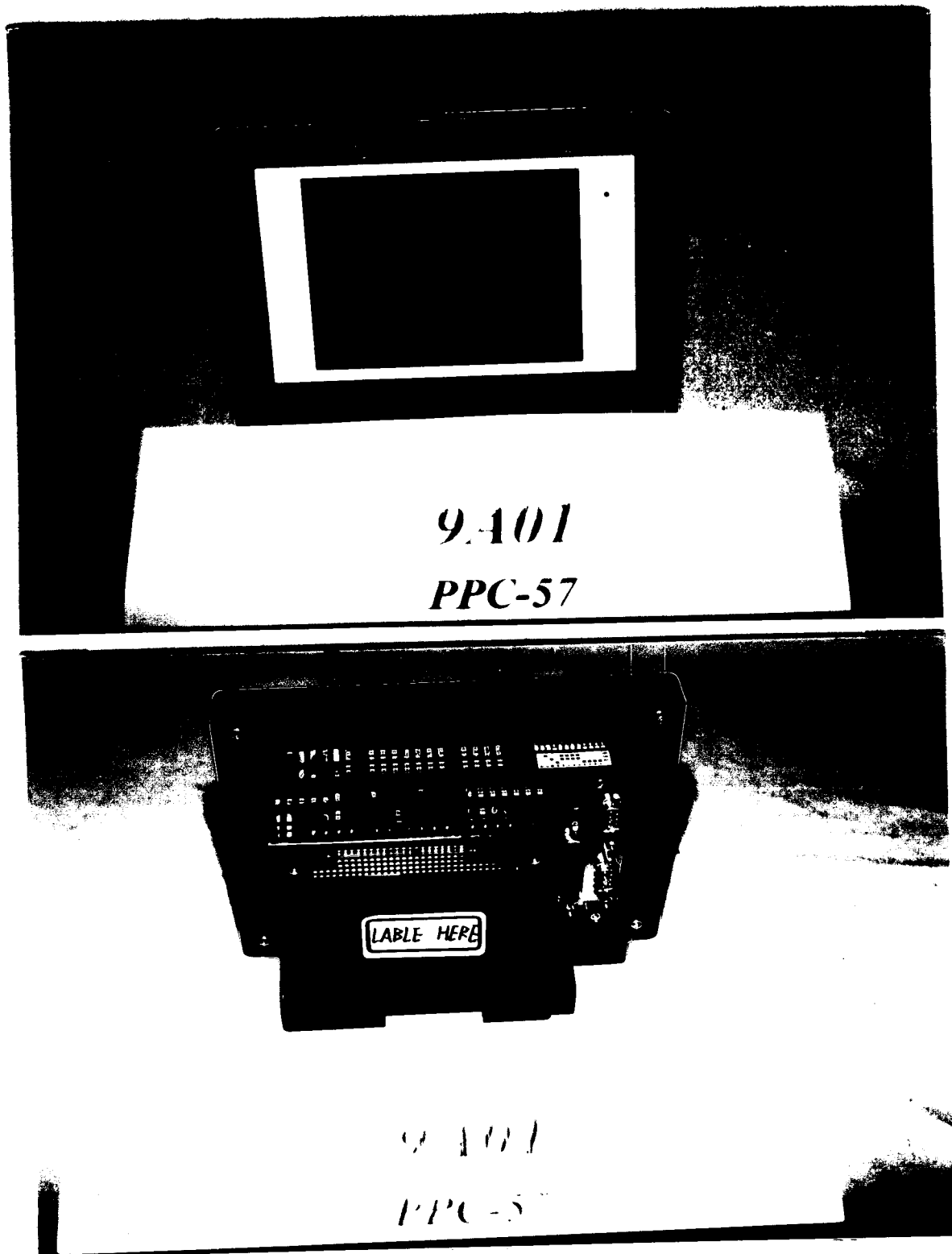
PPC-60



11. PHOTOS OF TESTING

A47. EUT front side view (PPC-57M)

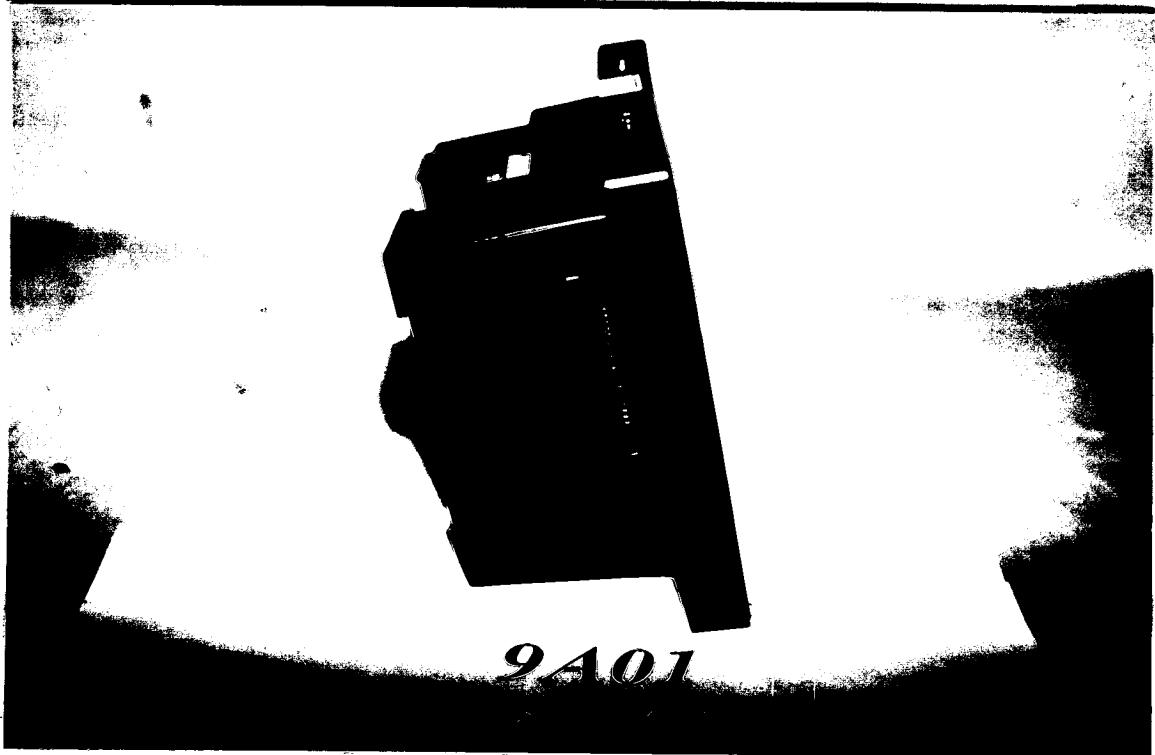
A48. EUT back side view



11. PHOTOS OF TESTING

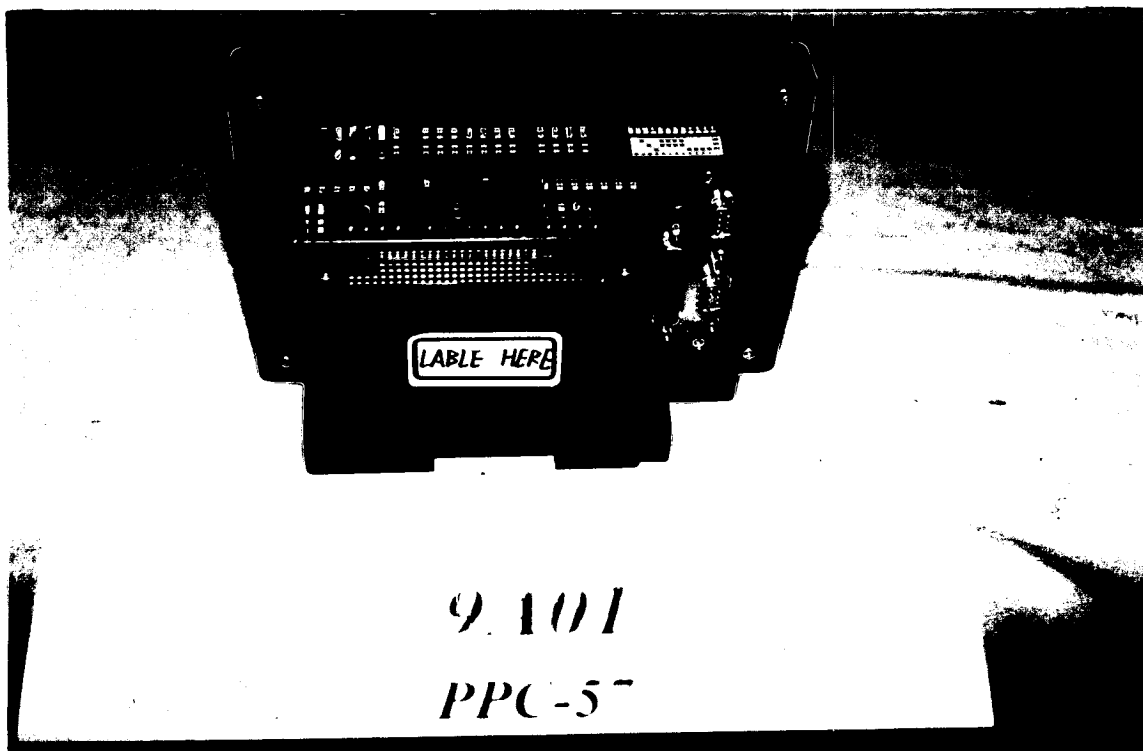
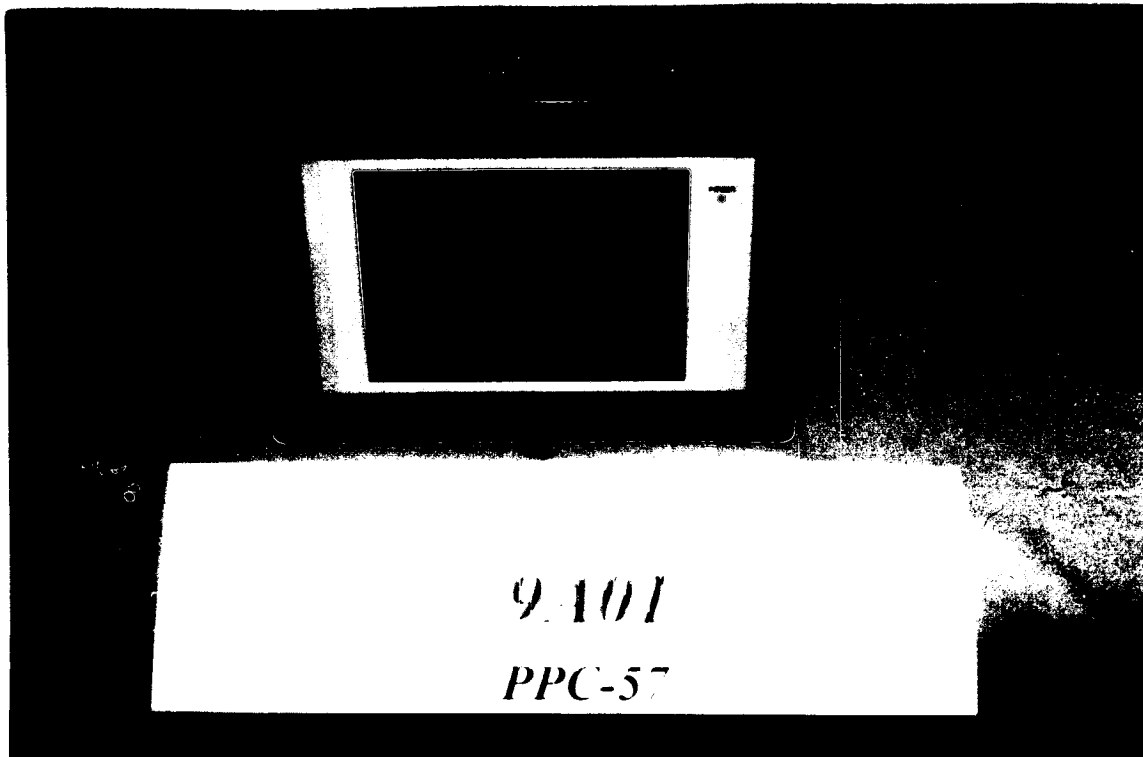
A49. EUT left side view (PPC-57M)

A50. EUT right side view



11. PHOTOS OF TESTING

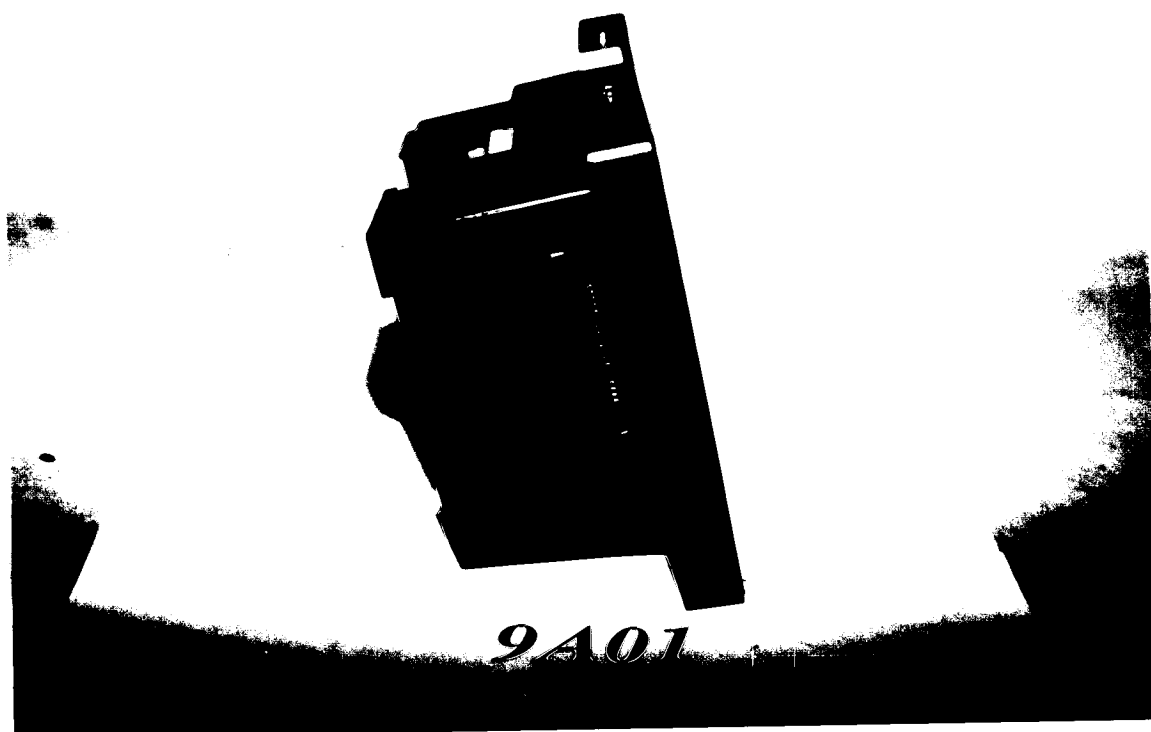
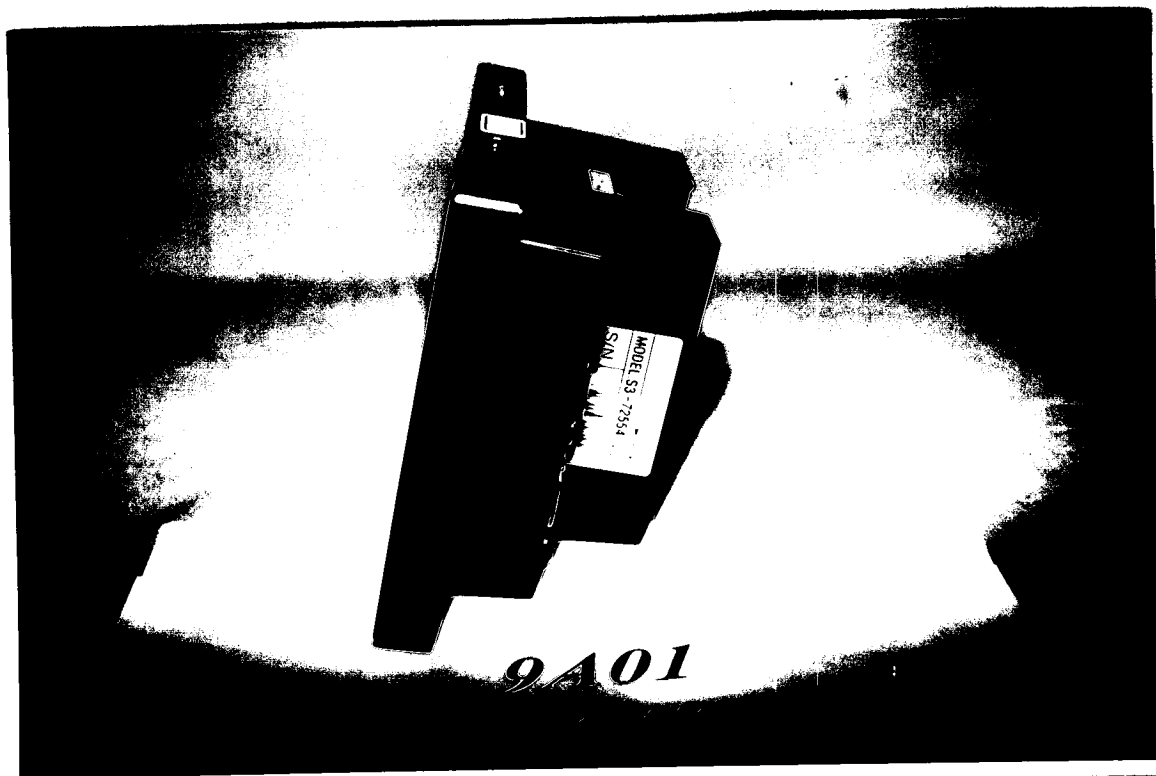
- A51. EUT front side view (PPC-57M-RT)
A52. EUT back side view



11. PHOTOS OF TESTING

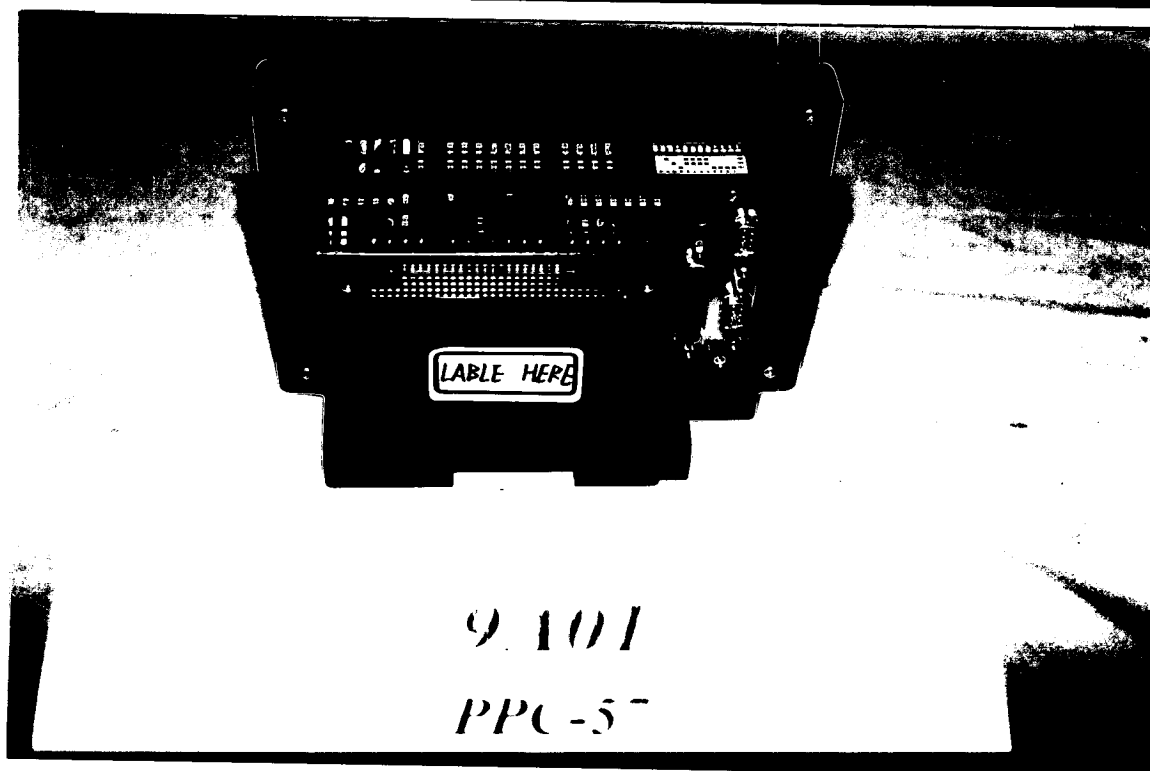
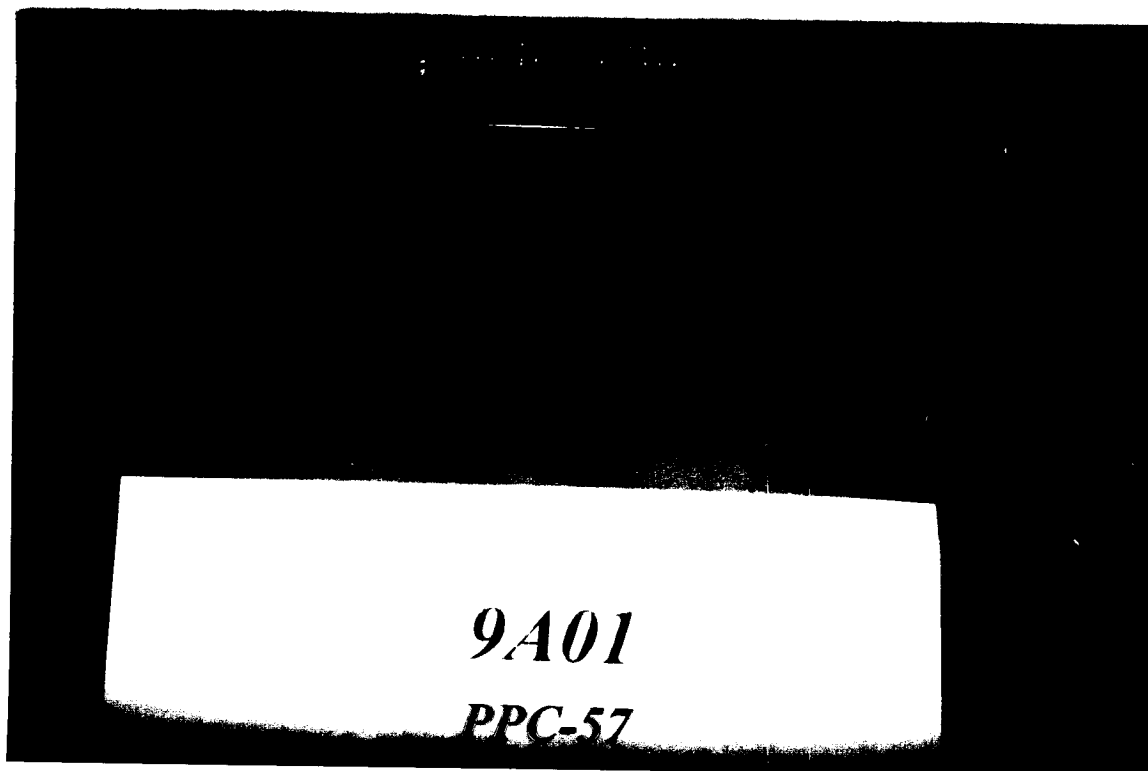
A53. EUT left side view (PPC-57M-RT)

A54. EUT right side view



11. PHOTOS OF TESTING

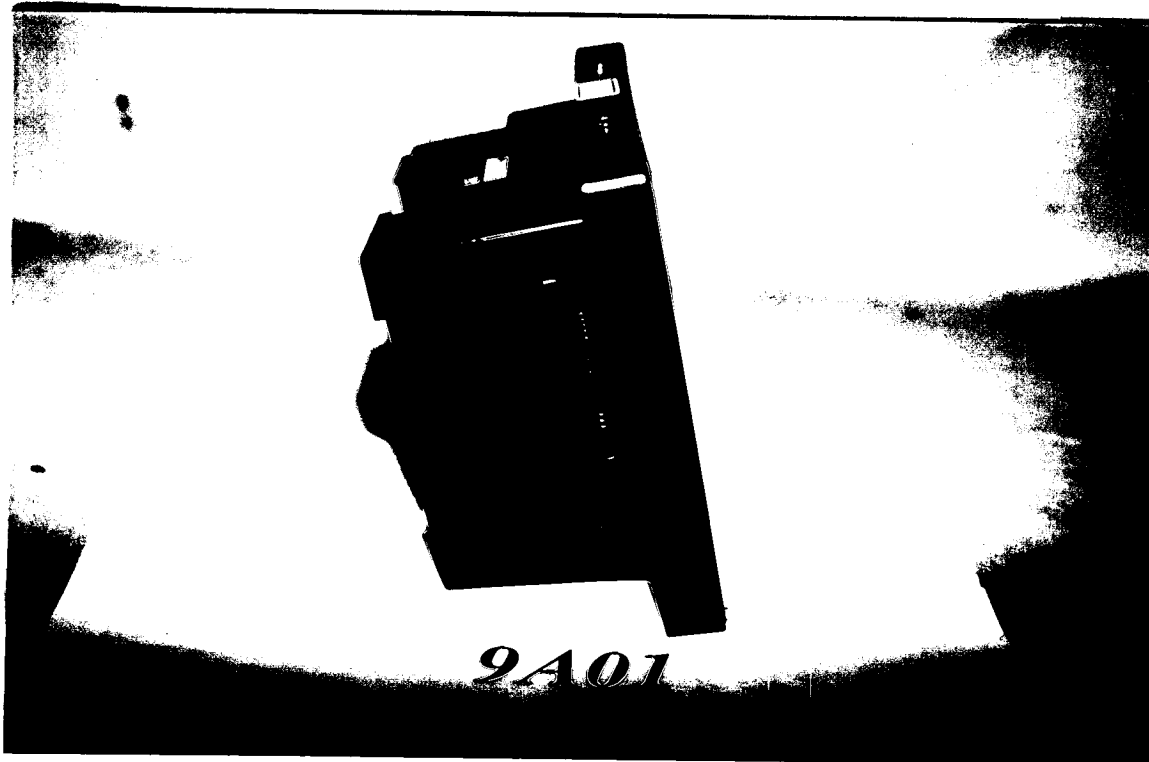
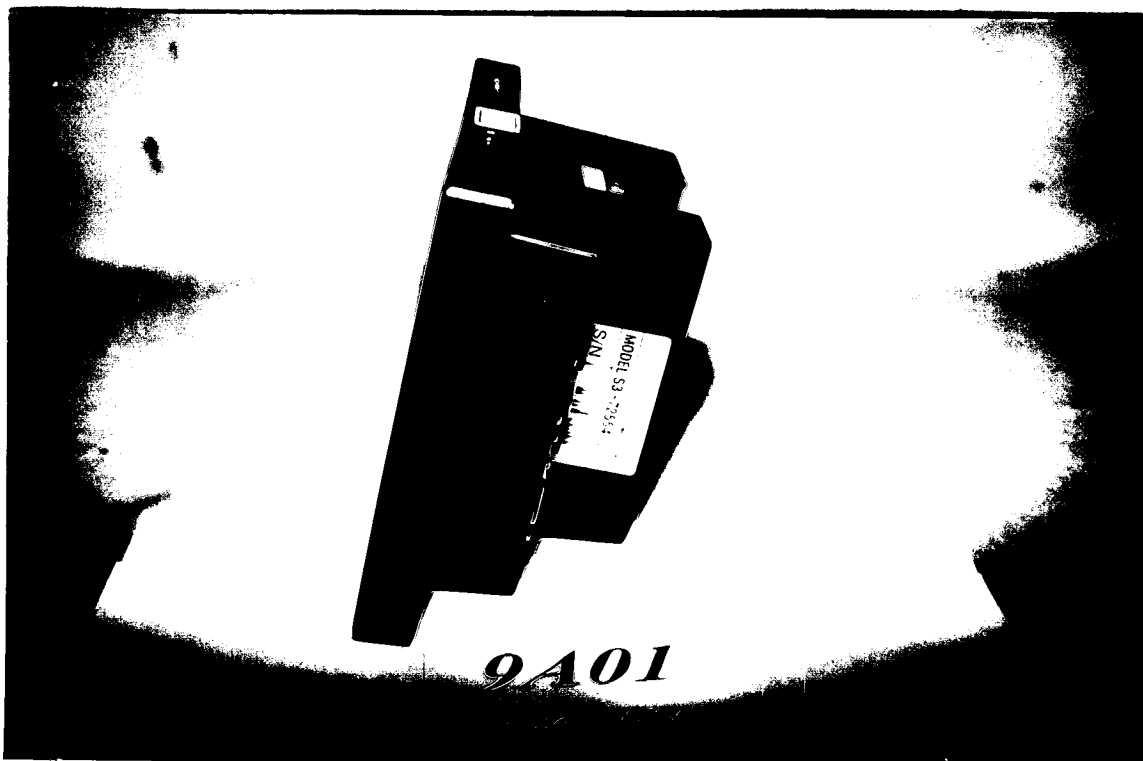
- A55. EUT front side view (PPC-57S)
A56. EUT back side view



11. PHOTOS OF TESTING

A57. EUT left side view (PPC-57S)

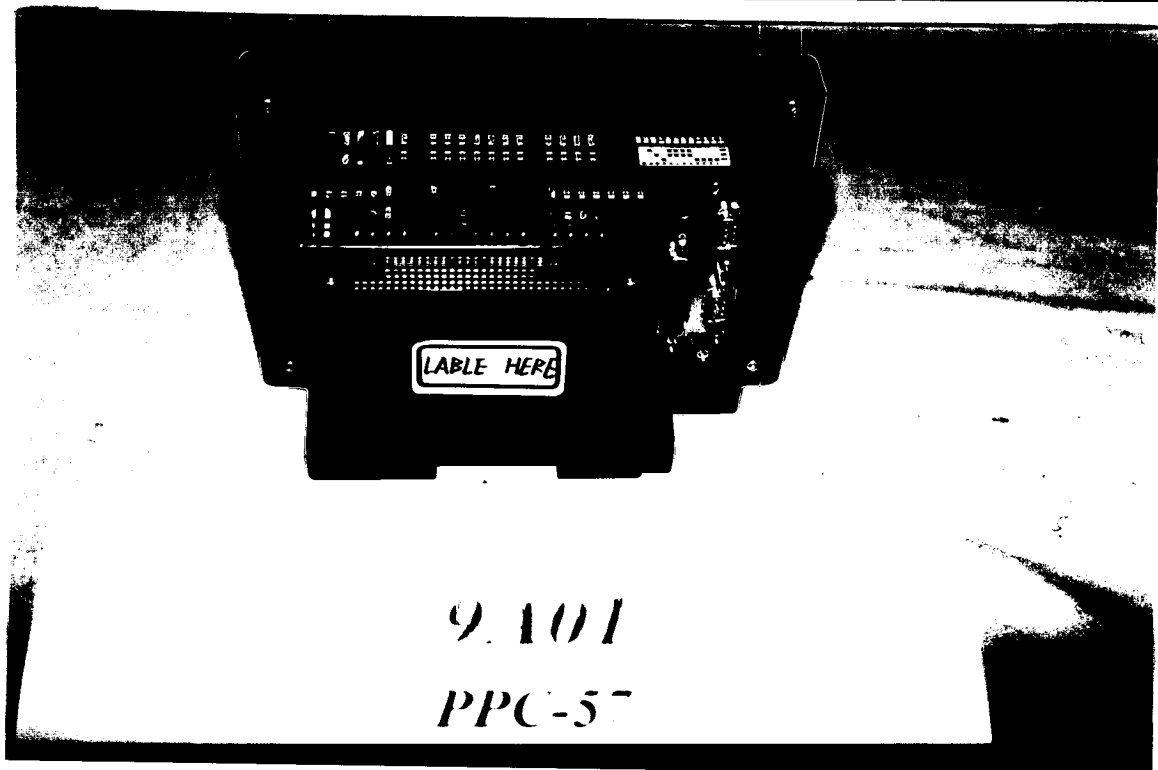
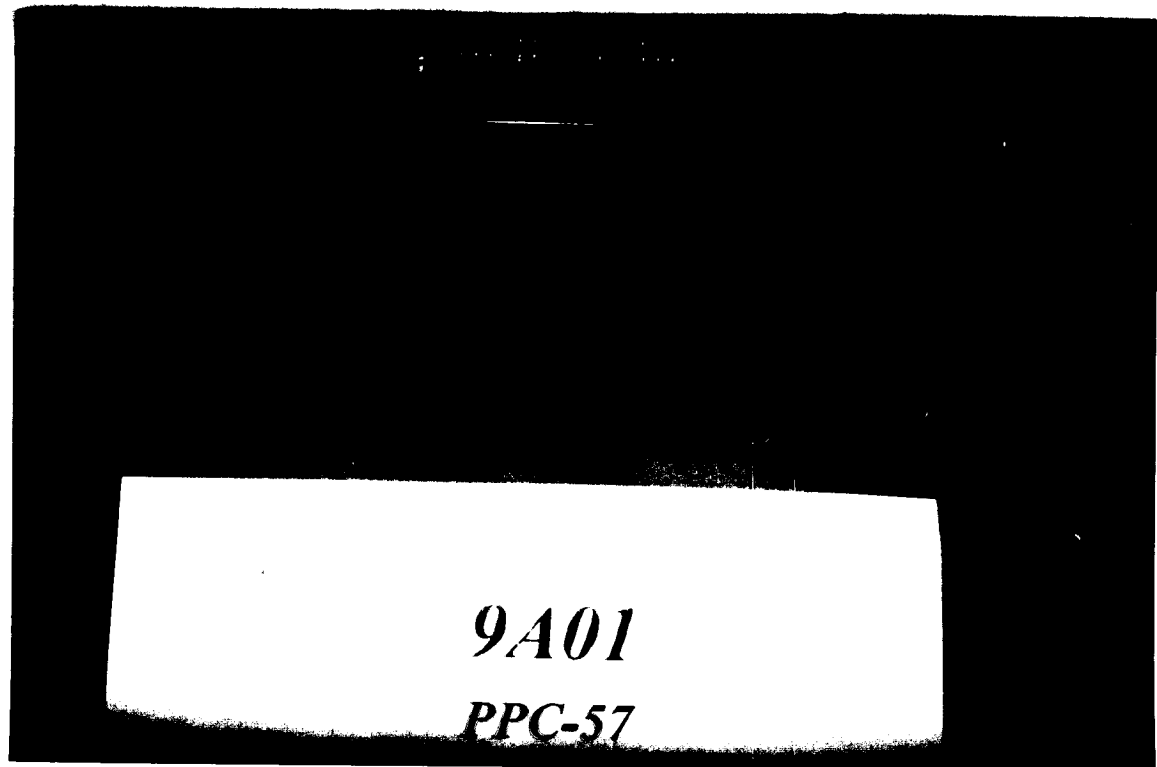
A58. EUT right side view



11. PHOTOS OF TESTING

A59. EUT front side view (PPC-57S-RT)

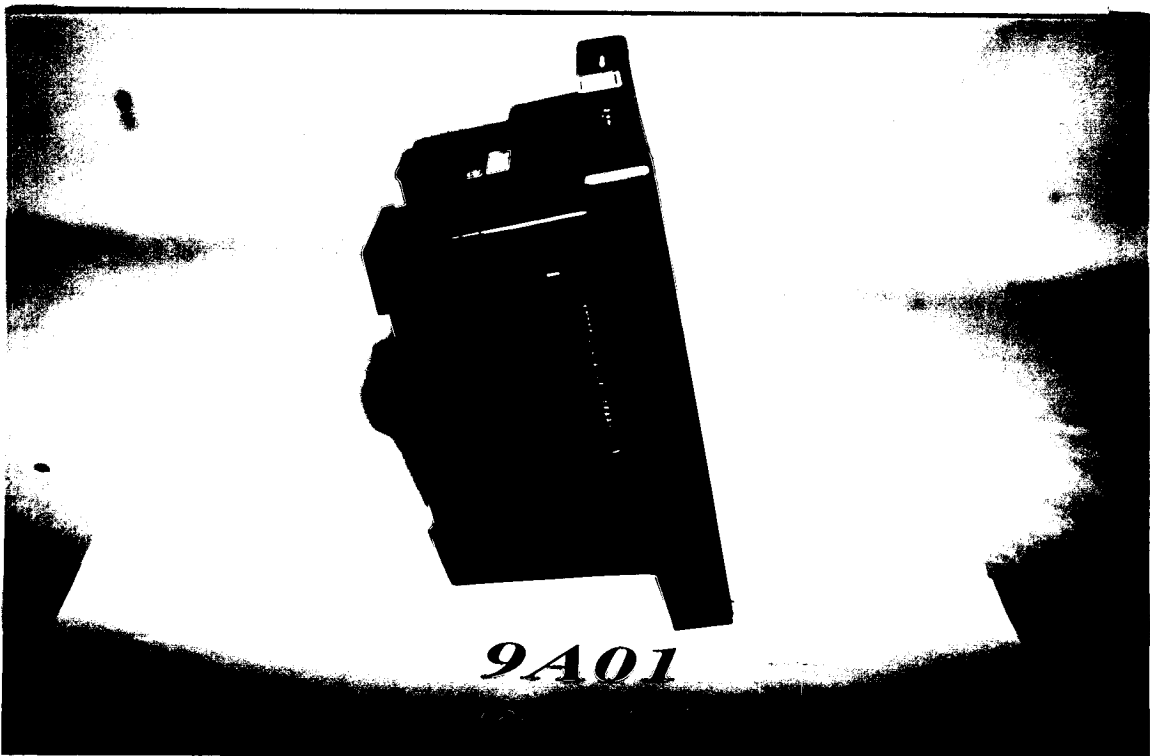
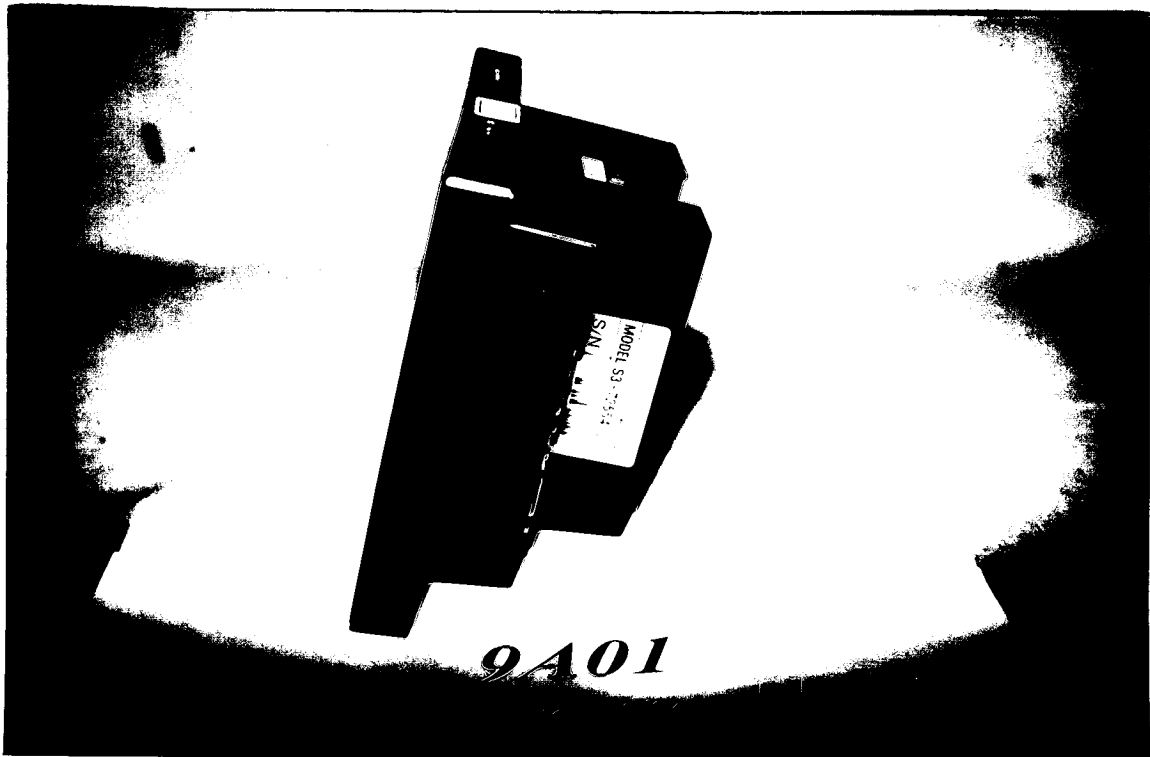
A60. EUT back side view



11. PHOTOS OF TESTING

A61. EUT left side view (PPC-57S-RT)

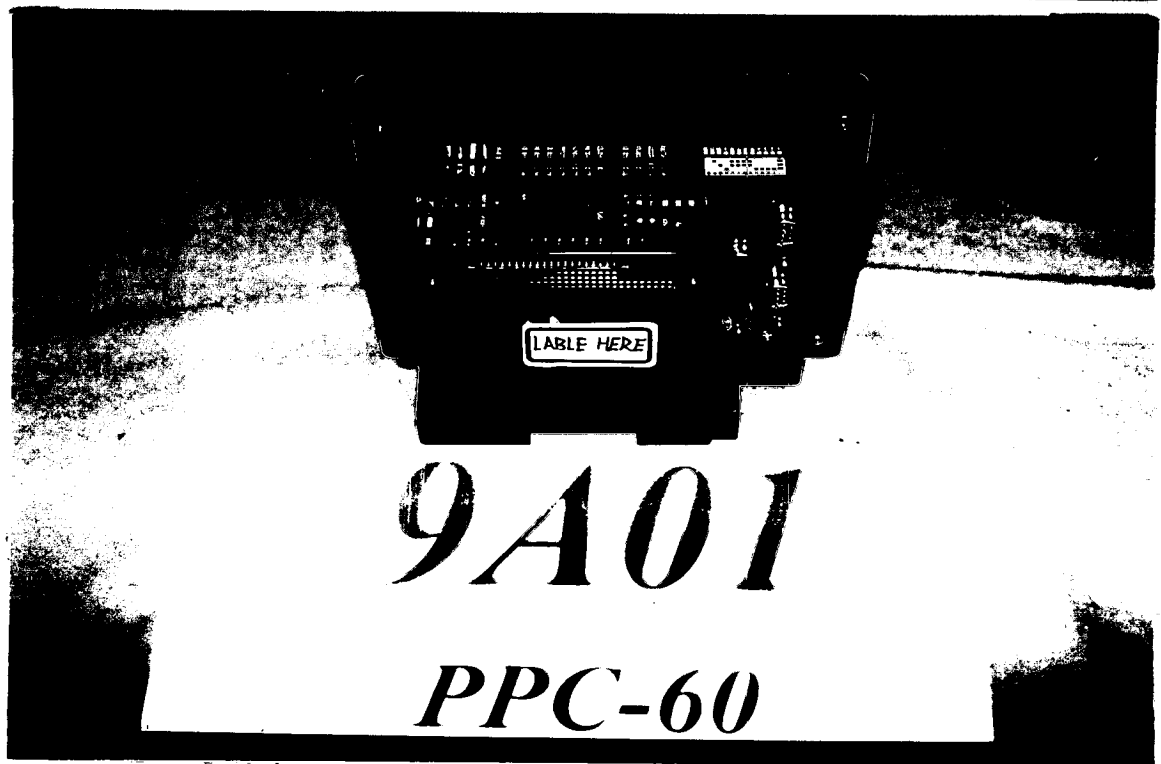
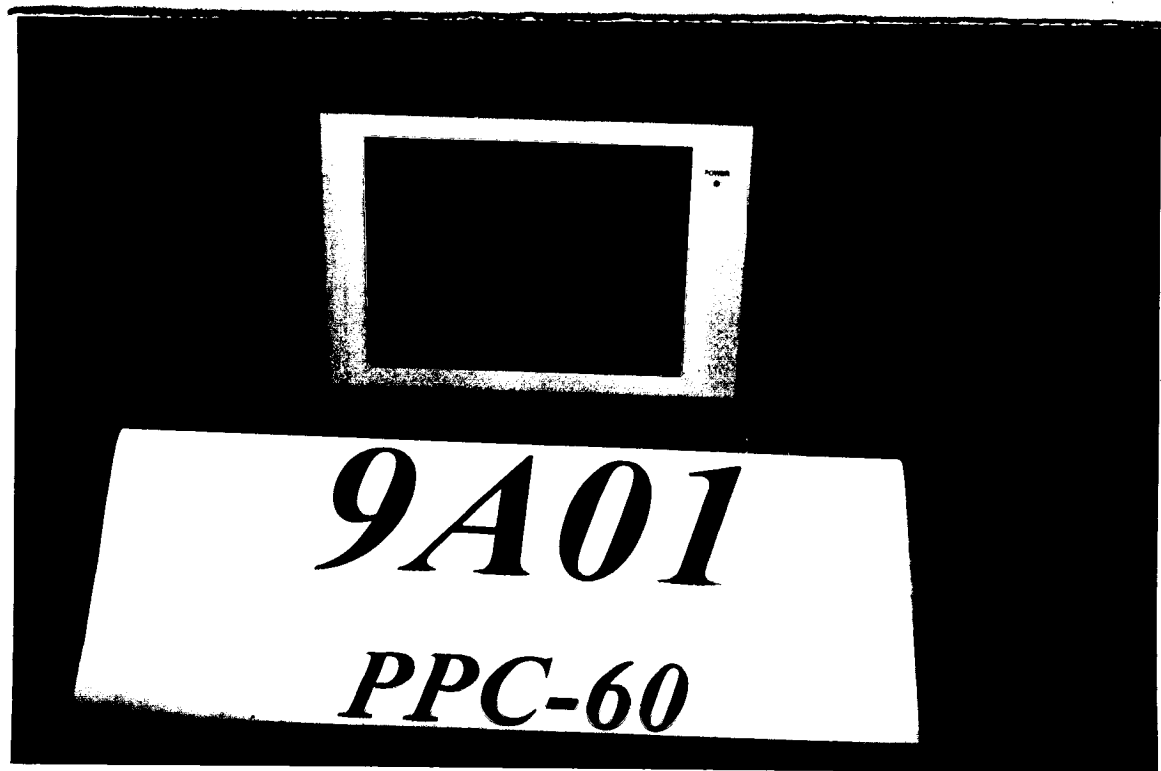
A62. EUT right side view



11. PHOTOS OF TESTING

A63. EUT front side view (PPC-60S)

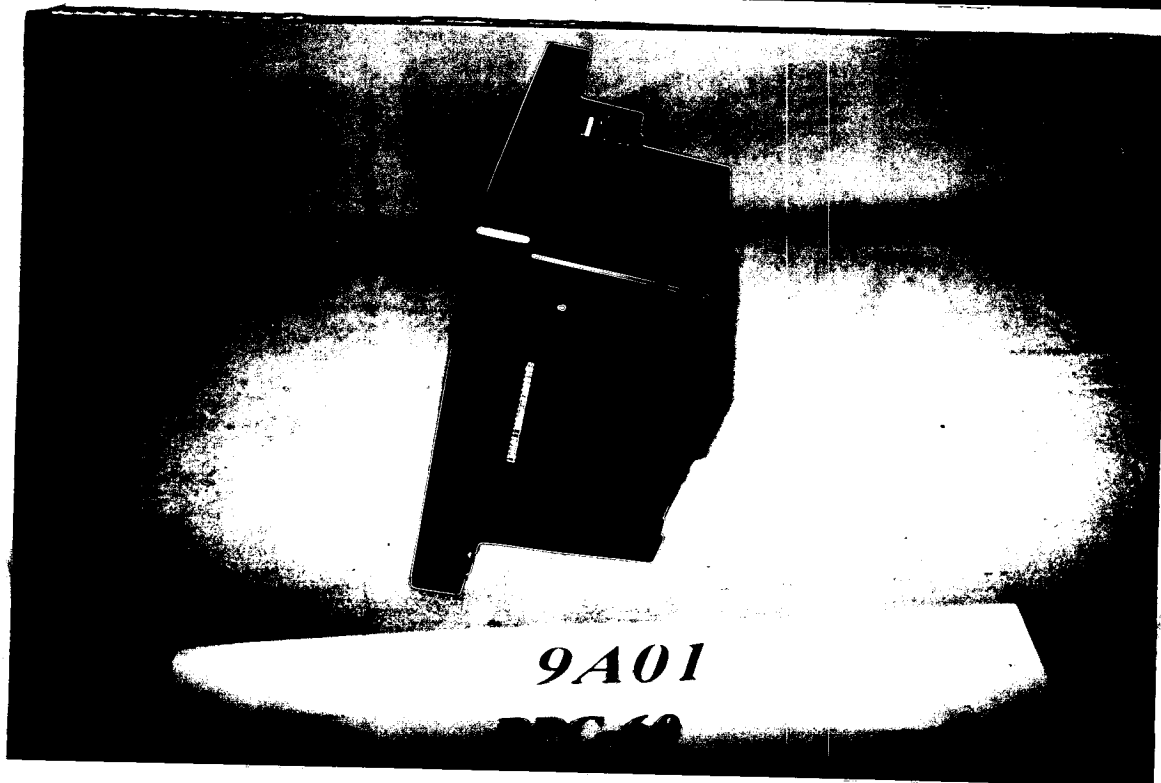
A64. EUT back side view



11. PHOTOS OF TESTING

A65. EUT left side view (PPC-60S)

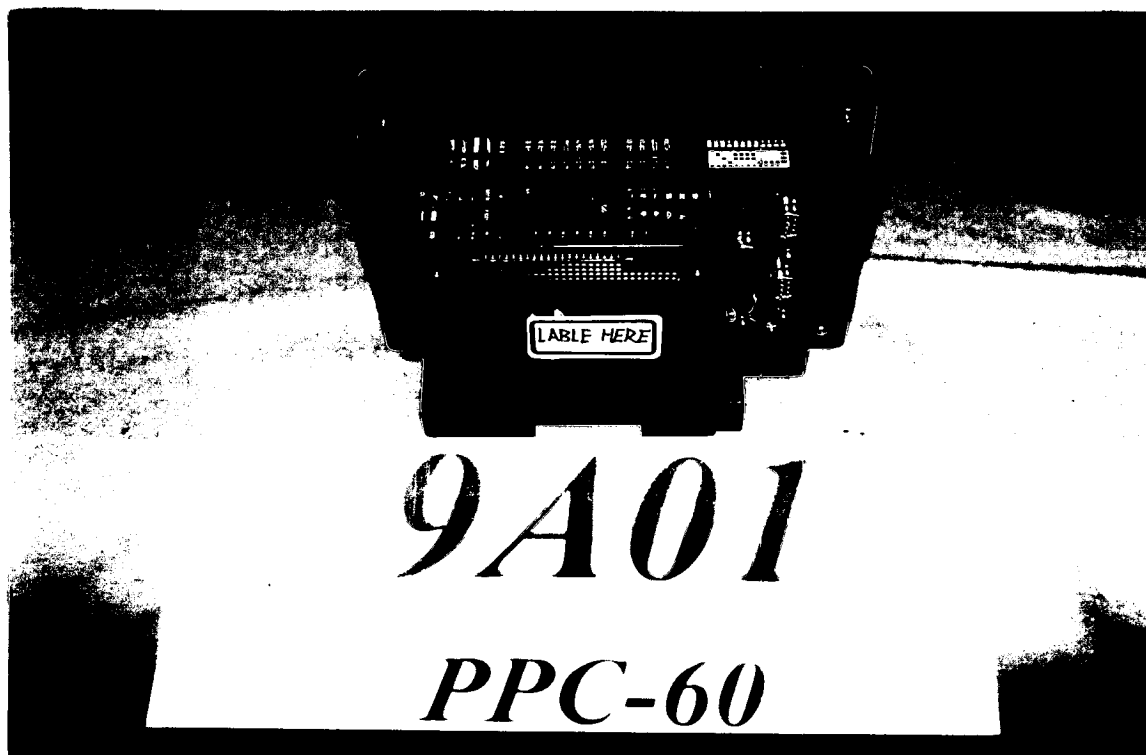
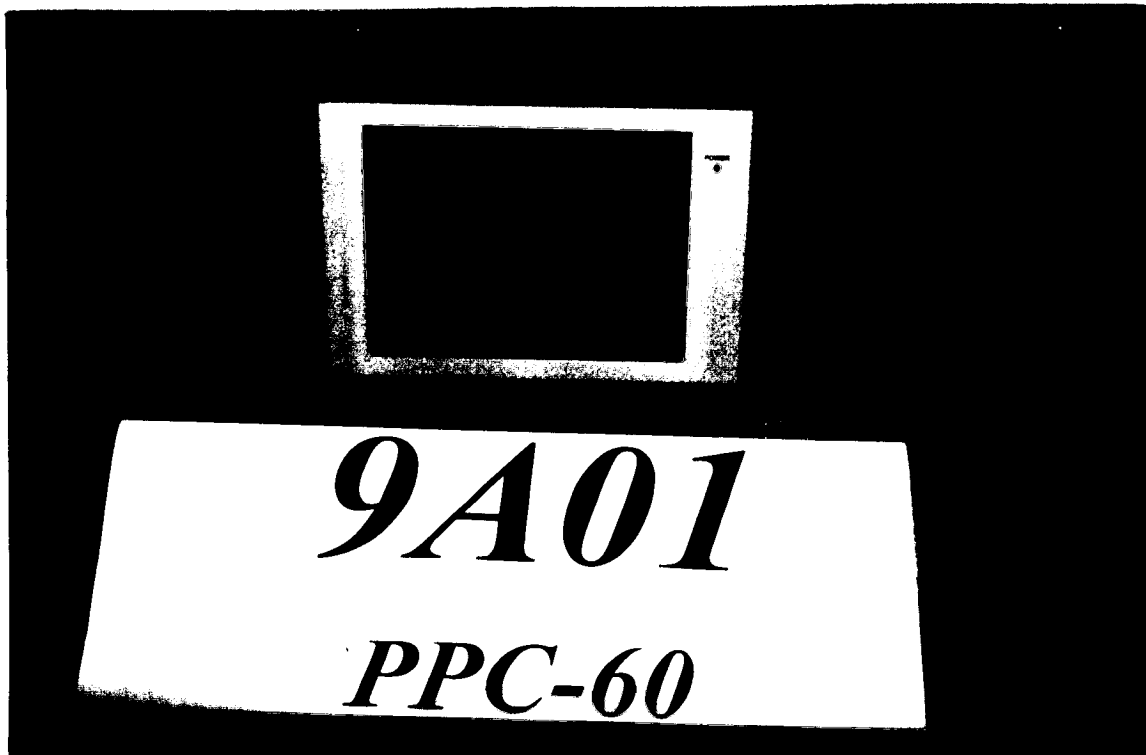
A66. EUT right side view



11. PHOTOS OF TESTING

A67. EUT front side view (PPC-60S-RT)

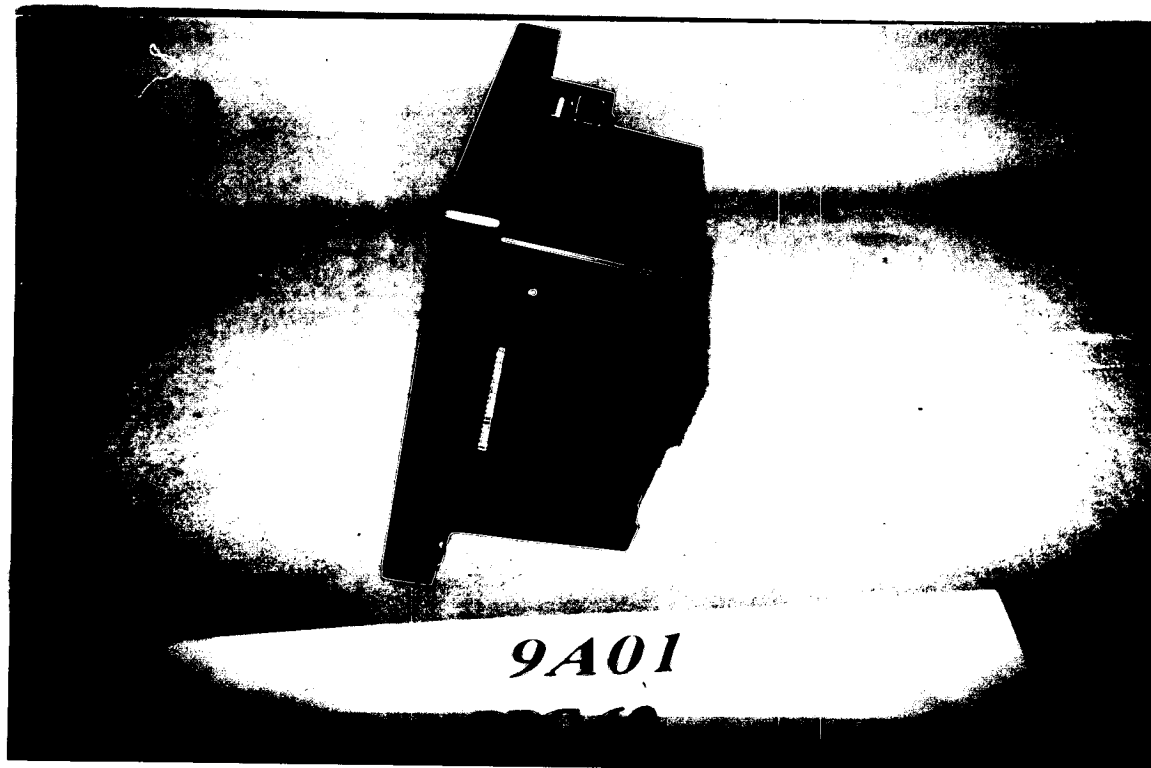
A68. EUT back side view



11. PHOTOS OF TESTING

A69. EUT left side view (PPC-60S-RT)

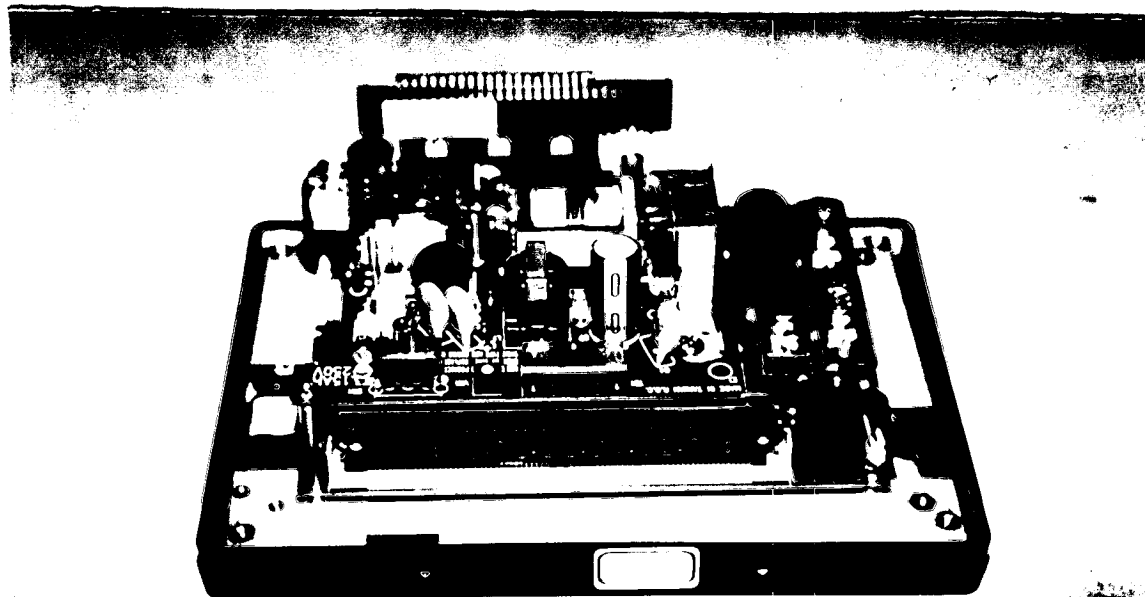
A70. EUT right side view



11. PHOTOS OF TESTING

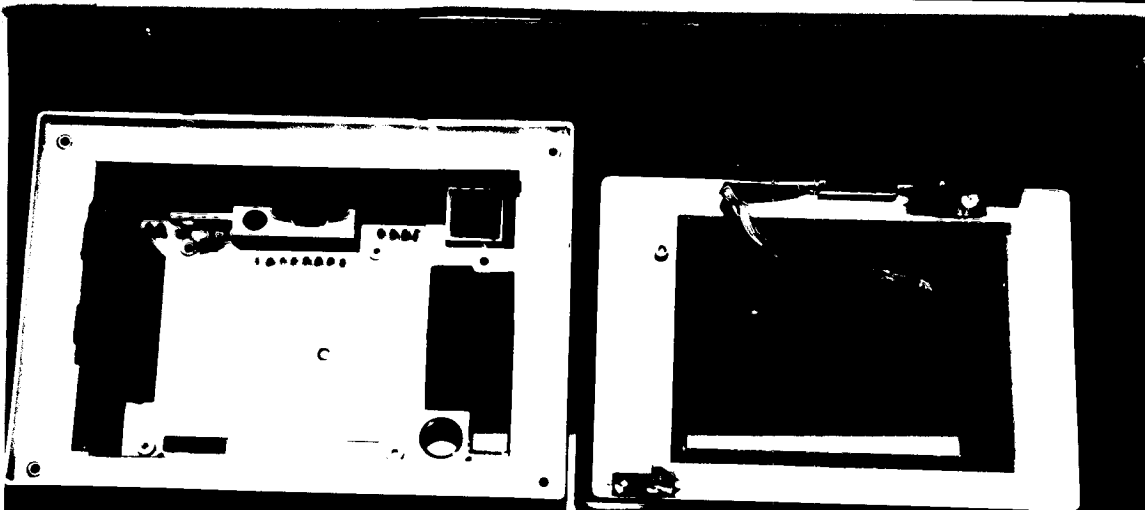
A71. EUT top inside whole view (PPC-57M)

A72. EUT case inside whole view



9A01

PPC-57



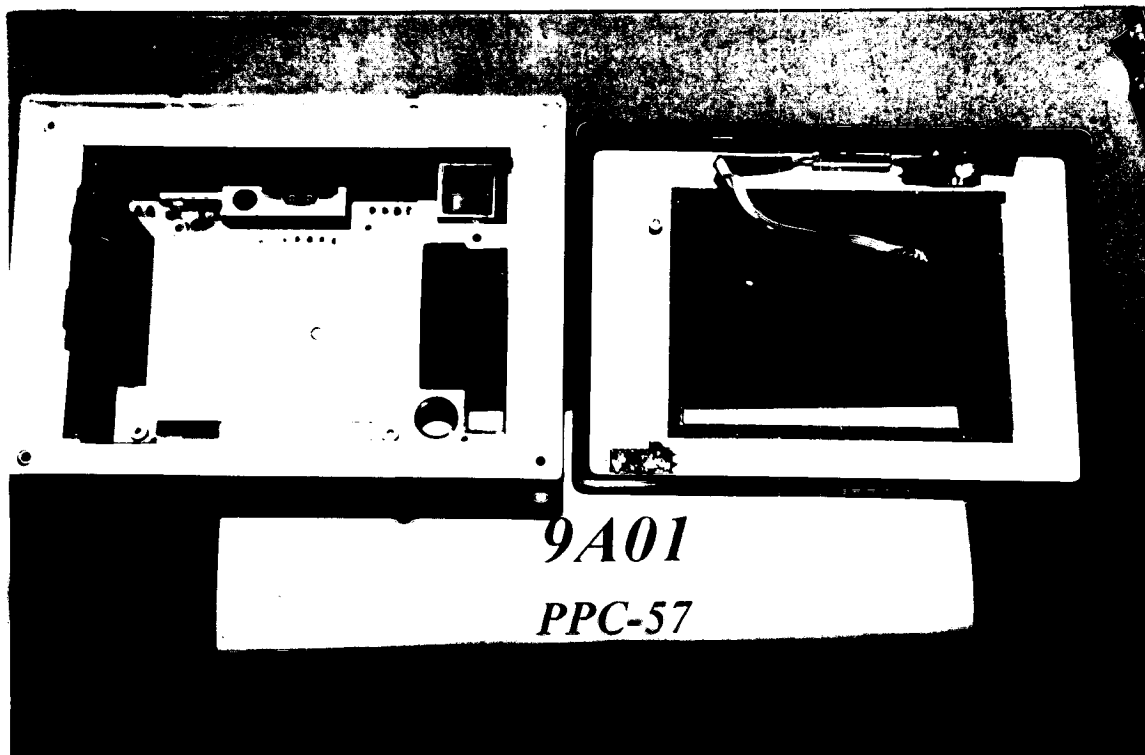
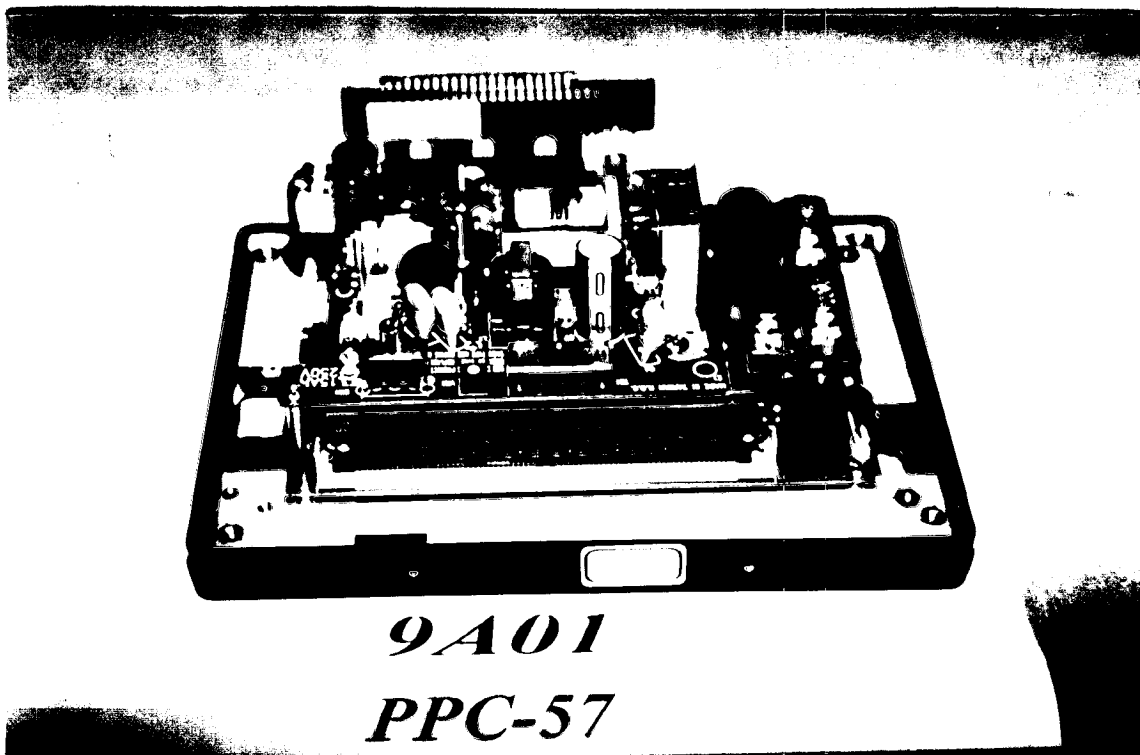
9A01

PPC-57

11. PHOTOS OF TESTING

A73. EUT top inside whole view (PPC-57M-RT)

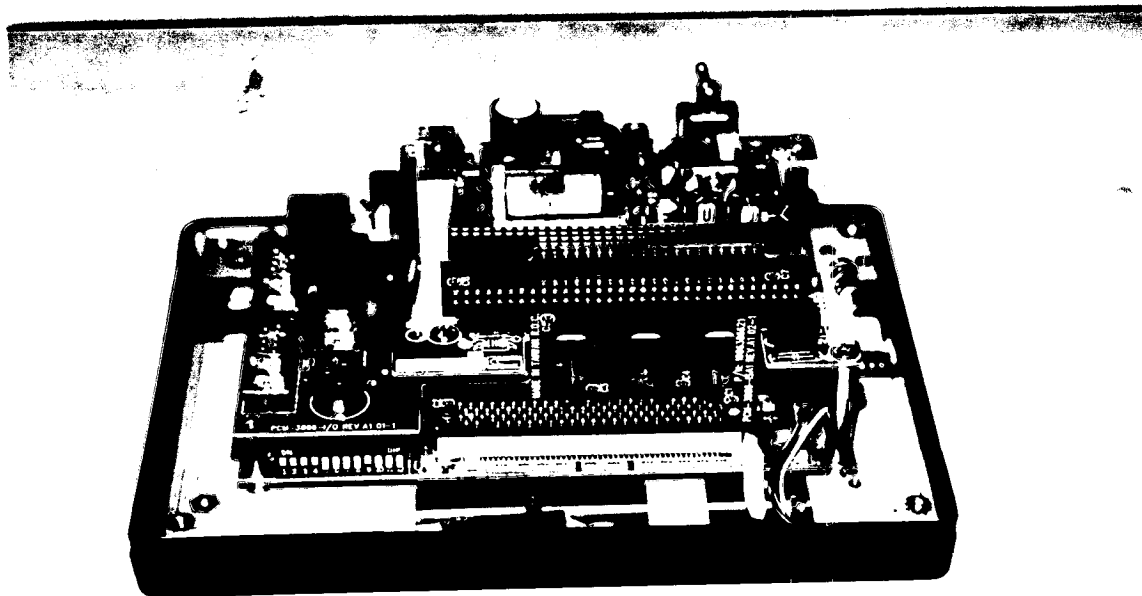
A74. EUT case inside whole view



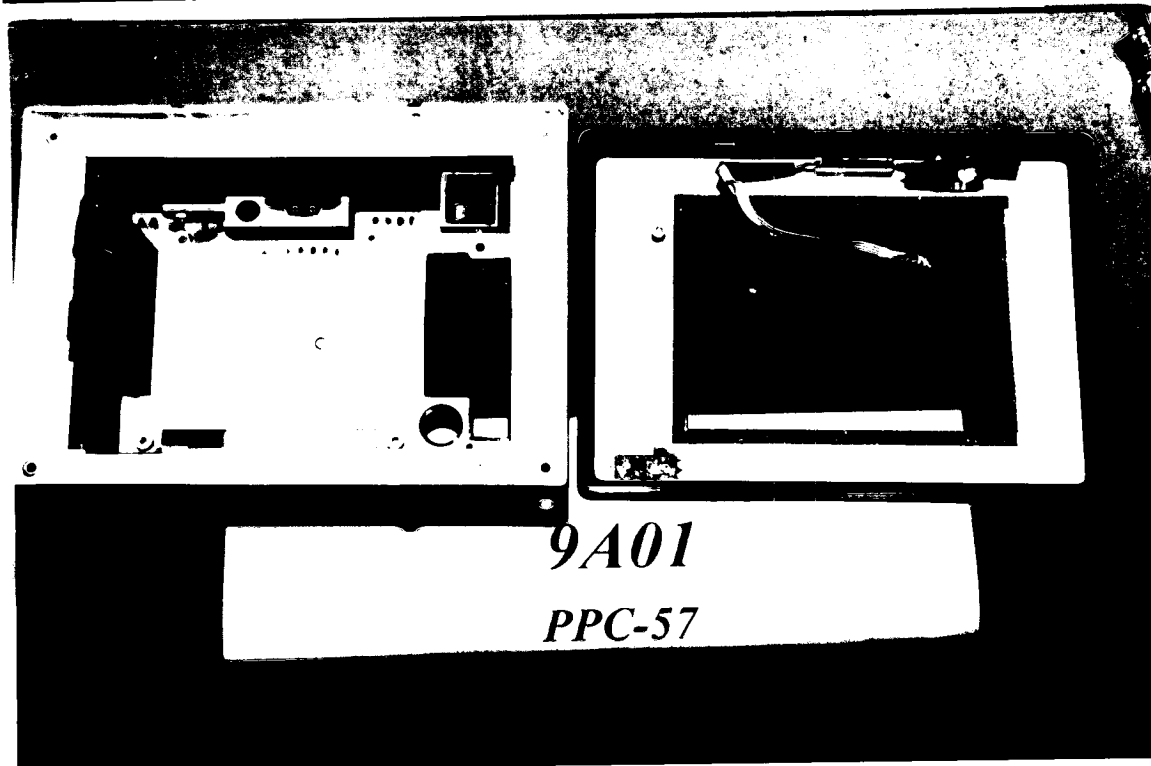
11. PHOTOS OF TESTING

A75. EUT top inside whole view (PPC-57S)

A76. EUT case inside whole view



9A01
PPC-57

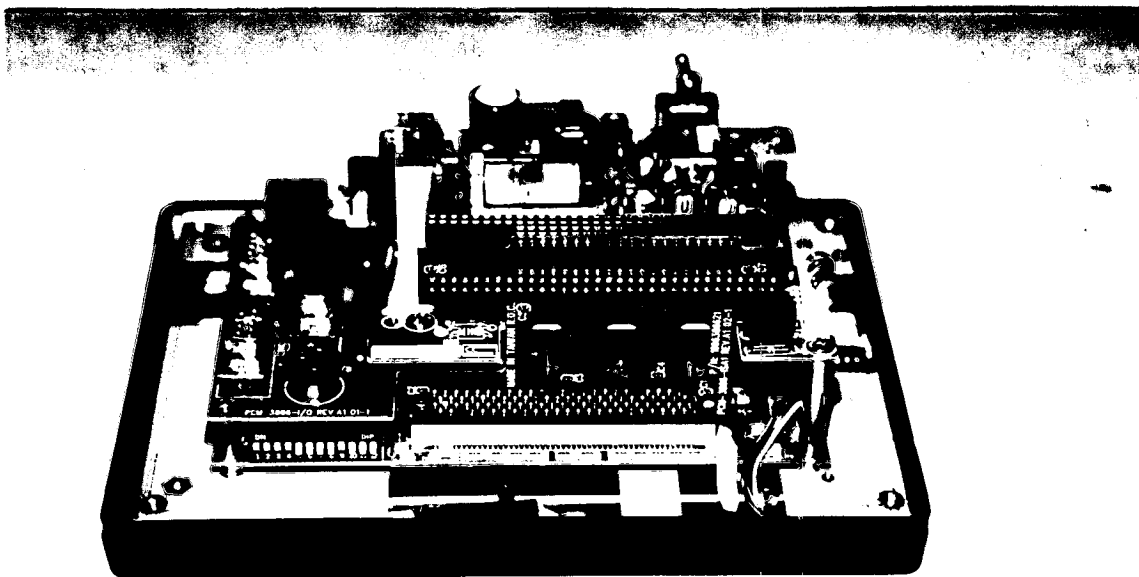


9A01
PPC-57

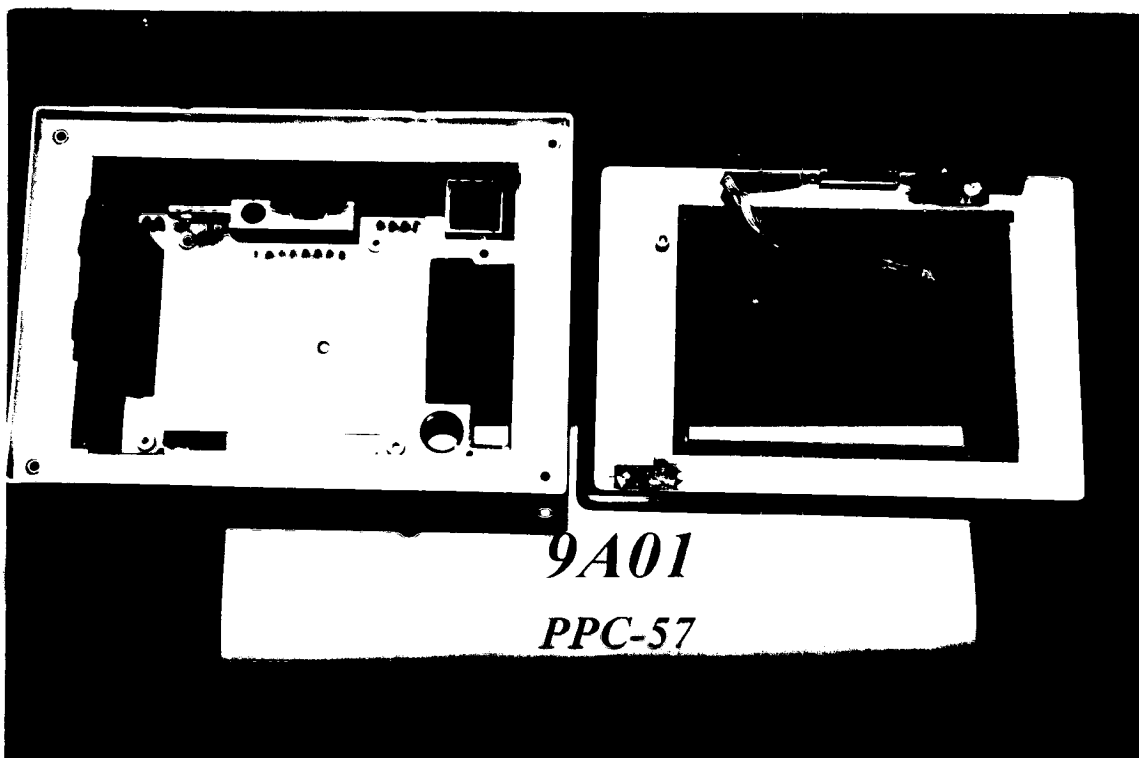
11. PHOTOS OF TESTING

A77. EUT top inside whole view (PPC-57S-RT)

A78. EUT case inside whole view



9A01
PPC-57

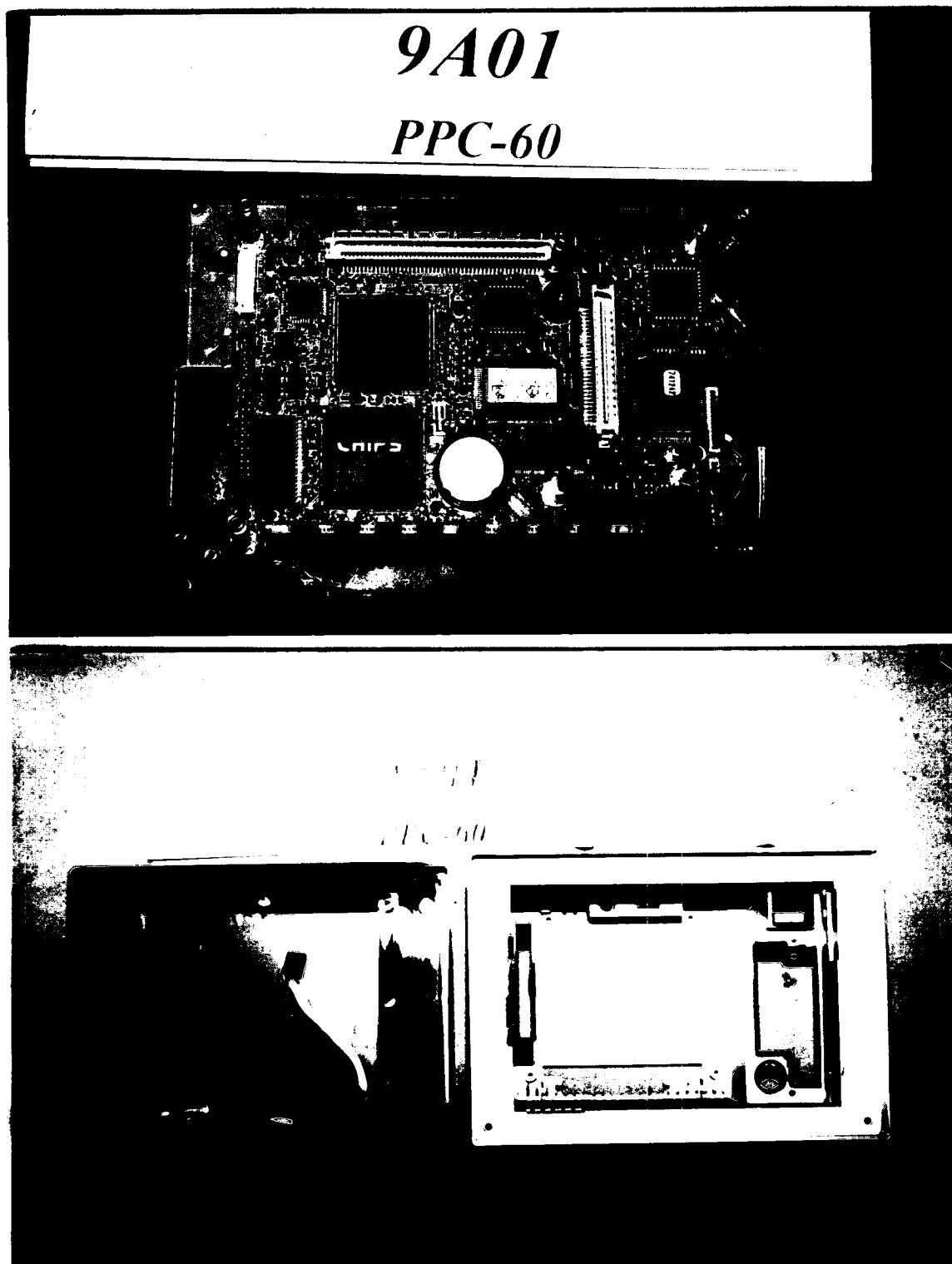


9A01
PPC-57

11. PHOTOS OF TESTING

A79. EUT top inside whole view (PPC-60S)

A80. EUT case inside whole view



11. PHOTOS OF TESTING

A81. EUT top inside whole view (PPC-60S-RT)

A82. EUT case inside whole view

