HomeTek Technology Inc.

ADDRESS: No.85-5, Shir Men Road, Tu Cheng City,
Taipei Hsien, TAIWAN, R. O. C.
PHONE : 886-2-22608375 FAX : 886-2-22748013
E - mail : hometek@ms15.hinet.net

CERTIFICATE OF COMPLIANCE

EUT : 14" INDUSTRIAL PANEL PCS
MODEL NO. : AMB-5411
Final Test Date : 2/26/98 REPORT #: EA6L016
APPLICANT : Astech Technology CO., LTD.
ADDRESS : 6F-4, NO. 351, CHUNG-SHAN RD.,
SEC. 2, CHUNG-HO CITY, TAIPEI,
TAIWAN, R. O. C.

MEASUREMENT PROCEDURE USED :

- ☑ EN50081-1 (1992)
- ☐ EN50081-2 (1992)
  - ☐ EN55011 (1994)
  - ☑ EN55022 (1994)
  - ☐ EN60555-2 (1987)
  - ☐ EN60555-3 (1987)
- ☑ EN50082-1 (1992)
- ☐ EN50082-2 (1992)
  - ☑ IEC 801-2 (1984)
  - ☑ IEC 801-3 (1984)
  - ☑ IEC 801-4 (1988)

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.

TEST ENGINEER : Neel. DATE : 3/11/98.
NEEL HUANG

CHECK BY : DATE : 3/11/98.
JOSEPH CHOU

APPROVED BY : Grant Huang DATE : 3/12/98
GRANT HUANG/Manager

三上科技 文管中心 87.3.31 發行章

Declaration of Conformity

We(Manufacturer/Importer)

Astech Technology CO., LTD.
(company name)

6F-4, NO. 351, CHUNG-SHAN RD., SEC. 2,
CHUNG-HO CITY, TAIPEI, TAIWAN, R. O. C.
(address)

declar under our sole responsibility that the product

Product name : 14" INDUSTRIAL PANEL PCS

Model No. : AMB-5411

to which this declaration relates is in conformity with the following standard(s) or other normative document(s)

- ☑ EN50081-1 (1992)
- ☐ EN50081-2 (1992)
  - ☐ EN55011 (1994)
  - ☑ EN55022 (1994)
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- ☐ EN50082-2 (1992)
  - ☑ IEC 801-2 (1984)
  - ☑ IEC 801-3 (1984)
  - ☑ IEC 801-4 (1988)
  - ☐ IEC 1000-4-5
  - ☐ IEC 1000-4-8
  - ☐ IEC 1000-4-11

following the provisions of 89/336/EEC Directive

Place: _____ Signature: _____

Date : _____ Full name: _____

CE Position: _____

EMC LAB HomeTek Tested by HomeTek Technology Inc. Report#: EA6L016
Signature: Grant Huang Date: 3/12/98

Declaration of Conformity

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  - ☑ IEC 801-2 (1984)
  - ☑ IEC 801-3 (1984)
  - ☑ IEC 801-4 (1988)
  - ☐ IEC 1000-4-5
  - ☐ IEC 1000-4-8
  - ☐ IEC 1000-4-11

following the provisions of 89/336/EEC Directive

Place: _____ Signature: _____

Date : _____ Full name: _____

CE Position: _____

EMC LAB HomeTek Tested by HomeTek Technology Inc. Report#: EA6L016

Signature: Grant Huang Date: 3/12/98

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GENERAL INFORMATION

1 APPLICANT : Astech Technology CO., LTD.

2 ADDRESS : 6F-4, NO. 351, CHUNG-SHAN RD.,
SEC. 2, CHUNG-HO CITY, TAIPEI,
TAIWAN, R. O. C.

3 DESCRIPTION OF EUT :

EUT	:	14" INDUSTRIAL PANEL PCS
Model	:	AMB-5411
Serial #	:	N/A
Data Cable	:	SHIELDED
Power Cord	:	UN-SHIELDED
Power Supply Type	:	SWITCHING

4 FEATURES OF EUT :

4.1 Zinc steel chassis and NEMA 4/12 painted aluminum front panel

4.2 Compact size 13.8" color TFT(XGA) or 13.8" color D_STN(XGA) or 14.2" color D_STN(SVGA) LCD display

4.3 Universal 250W switching power supply (or other options)

4.4 5-slot ISA/PCI passive backplane

4.5 MBC-266 PCI bus flat-panel/CRT control card

4.6 Panel mount

4.7 A 30CFM cooling fan

4.8 Three disk drive bays, one is for a 3.5" FDD, a 3.5" HDD and the other is for a 5.25" FDD or CD-ROM

4.9 Hold-down clamp insulates cards against vibration

4.10 Analog resistive or capacitive touchscreen (option)

MODIFICATION LIST

THE FOLLOWING ACCESSORIES WERE ADDED TO THE EUT DURING TESTING :

NO MODIFICATION BY HOMETEK TECHNOLOGY INC.

CONDUCTED POWER LINE TEST

1 TEST INSTRUMENTS & FACILITIES

The following test Instruments was used during the conducted test :

Item	Instruments/ Facilities	Specification	Manufacturer	Model #	Date Of Cal.
1	EMI Receiver	9KHz ~ 30MHz	ROHDE & SCHWARZ	ESHS 30	2/26/97
2	LISN	50 Ω/50uH/100A 9KHz ~ 30MHz	SCHWARZ BECK	NNLK 8121	2/28/97
3	LISN	9KHz ~ 30MHz	ROHDE & SCHWARZ	ESH3-Z5	2/24/98
4	Signal Generator	9KHz ~ 2080MHz	ROHDE & SCHWARZ	SMY02	2/8/98
5	Power Supply Tester	10 ~ 650W	TEAPO	AMLOAD 00677	--

2 TEST PROCEDURE

2.1 The EUT was tested according to **EN55022 Class A.**

2.2 The EUT was placed 0.4 meter from the conducting wall of shielding room and kept at least 0.8 meter from any other grounded conducting surface.

2.3 The frequency range form 0.15 MHz to 30 MHz was investigated.

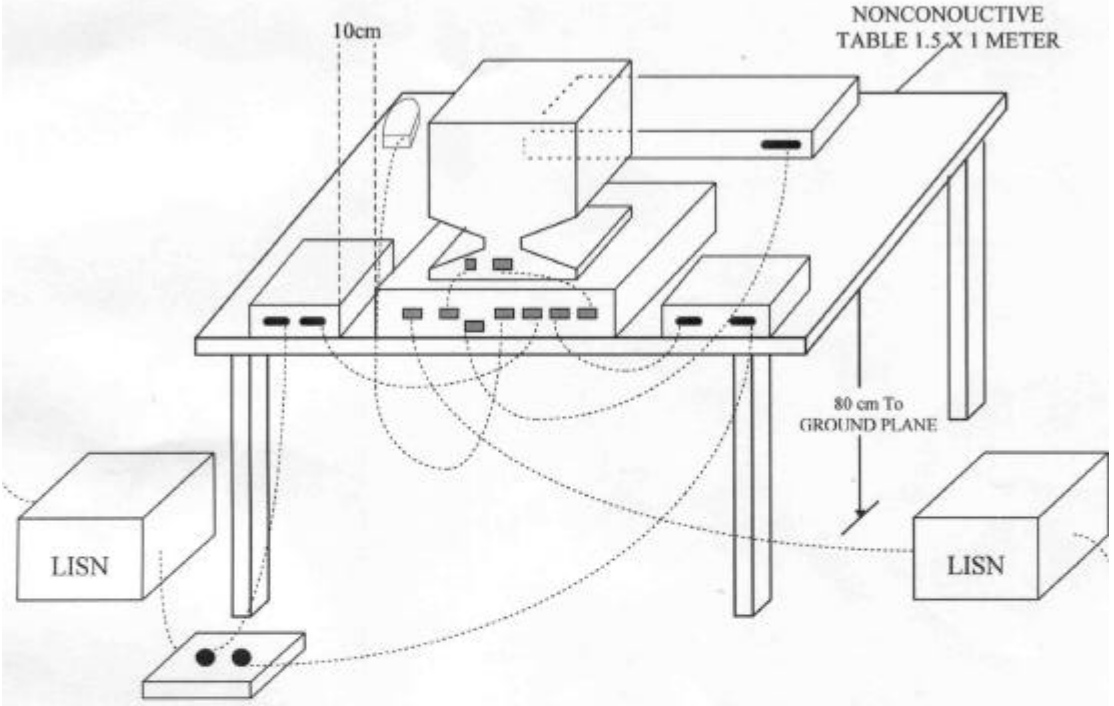
2.4 The LISN used was 50 Ohm / 50 uHenry as specified by**EN55022 Class A.**

2.5 All the support peripherals are connect to the other LISN.

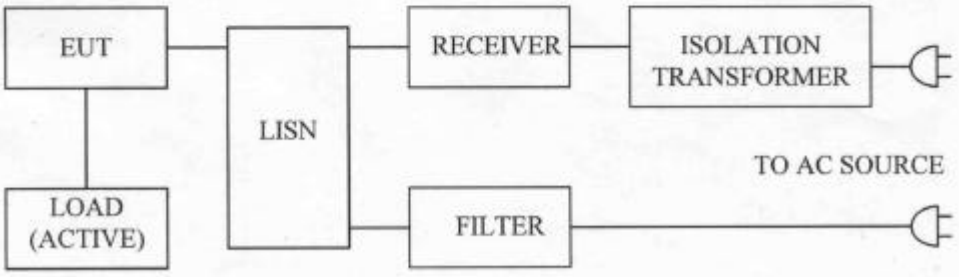
2.6 Cables and peripherals were moved to find the maximum emission levels for each frequency.

3 TEST SETUP

3.1 Typical : Setup Of Conducted Test



3.2 Block Diagram Of Conducted Test



4 CONFIGURATION OF THE EUT

4.1 The EUT was configured according to **EN55022 Class A.** All I/O ports were connected to the appropriate peripherals. All peripherals and cables are listed below :

EUT				
Device	Manufacturer	Model No.	Power Cable	Data Cable
14" INDUSTRIAL PANEL PCS	Astech	AMB-5411	Un-Shielded	Shielded
PERIPHERALS				
PC	N/A	N/A	Un-Shielded	Shielded
MONITOR	DIGITAL	VRT17-HA	Un-Shielded	Shielded
PRINTER	N/A	N/A	Un-Shielded	Shielded
MODEM I	DATATRONIC	2814CX	Un-Shielded	Shielded
MODEM II	DATATRONIC	2814CX	Un-Shielded	Shielded
MOUSE	HP	M-S34	N/A	Shielded
KEY BOARD	AST	SK-2000REW	N/A	Shielded
INTERNAL DEVICES				
REMARK				

5 EUT OPERATING CONDITION

5.1 Operating condition is according to **EN55022 Class A.**

5.2 The operating speed of the computer were 33 MHz.

5.3 EUT power ON.

5.4 Test program sent "H" pattern to peripherals as following :

5.4.1 Printer

5.4.2 Monitor

5.4.3 Modem

5.5 CPU : Intel 486DX4 - 100 MHz
CPU Clock : 33 MHz

6 LIMIT OF CONDUCTED POWER LINE EMISSION CLASS A :

Frequency Range	Quasi Peak	Average
0.15 ~ 0.5 MHz	79 dBuV	66 dBuV
0.5 ~ 5 MHz	73 dBuV	60 dBuV
5 ~ 30 MHz	73 dBuV	60 dBuV

7 RESULT OF CONDUCTED POWER LINE TEST

7.1 The frequency range from 0.15 MHz to 30 MHz was investigated. All readings are quasi-peak values and average.

7.2 IF bandwidth : 10 kHz, Meas Time : 1 sec.

7.3 Temperature : 21 ℃, Humidity : 72 % RH.

7.4 Quasi-Peak :

Frequency (MHz)	Line 1 (dBuV)	Line 2 (dBuV)	Limit (dBuV)
0.254	48.13	47.28	79
0.440	33.19	32.80	79
1.050	19.66	20.84	73
1.450	22.74	15.98	73
4.525	26.96	25.19	73
11.550	35.13	34.70	73

7.5 Average :

Frequency (MHz)	Line 1 (dBuV)	Line 2 (dBuV)	Limit (dBuV)
0.254	39.78	41.85	66
0.440	29.28	28.44	66
1.050	18.17	20.22	60
2.300	20.32	22.32	60
5.100	28.36	23.54	60
28.65	21.97	22.19	60

REMARK :
1. Model : AMB-5411
2. Measuring mode :

Test Engineer : Neel

8 PHOTO OF CONDUCTED POWER LINE TEST

Front View

Rear View

RADIATED EMISSION TEST

1 TEST INSTRUMENTS & FACILITIES

The following test Instruments was used during the radiated emission test :

Item	Instruments /facilities	Specification	Manufacturer	Model #	Date of Cal.
1	SPECTRUM ANALYZER	9KHz ~ 1.8GHz	HP	HP8591	4/8/97
2	EMI TEST RECEIVER	20MHz ~ 1GHz	ROHDE & SCHWARZ	ESVS10	2/19/98
3	AMPLIFIER	0.1MHz ~ 1.3 GHz	HP	8447D	5/19/97
4	SIGNAL GENERATOR	9KHz ~ 2080MHz	ROHDE & SCHWARZ	SMY02	2/8/98
5	ANTENNA (BI-LOG)	25MHz ~ 2GHz	ARA	LPB2520	3/13/97
6	ANTENNA (DIPOLE)	30 ~ 300MHz	ROHDE & SCHWARZ	HZ-12	1/20/98
7	ANTENNA (DIPOLE)	300 ~ 1000MHz	ROHDE & SCHWARZ	HZ-13	1/20/98

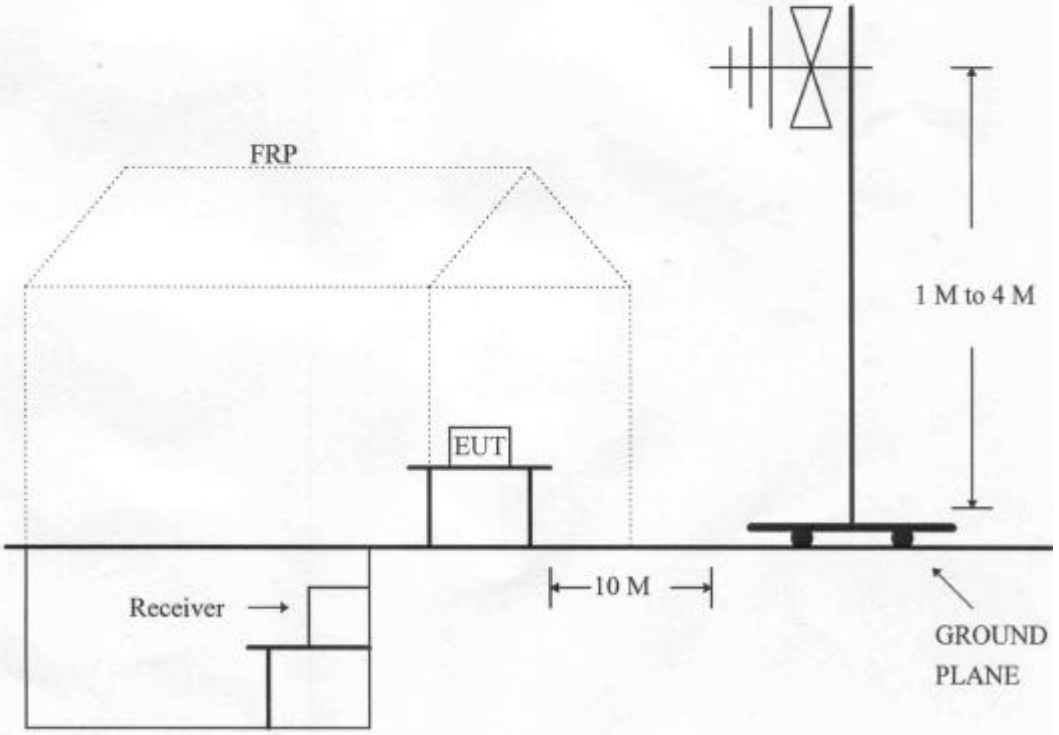
2 TEST PROCEDURE

2.1 The EUT was test according to **EN55022 Class A**.

2.2 The radiated test was performed at HomeTek Lab's Open Site II.

2.3 The frequency range from 30 MHz to 1 GHz, the measurement were made at 10 meters, with a BI-log antenna.

3 TEST SETUP



4 CONFIGURATION OF THE EUT

Same as "Conducted Power Line test", section 4

5 EUT OPERATING CONDITION

5.1 Same as "Conducted Power Line test", section 5

5.2 The radiated emission in the frequency range from 30 MHz -1000 MHz was test in a horizontal and vertical polarization at HomeTek Lab's open site II.

6 LIMIT OF RADIATED EMISSION CLASS A :

Frequency (MHz)	Measurement Distance	Limit (dBuV)
30 - 230	10 (M)	40
230 - 1000	10 (M)	47

7 RESULT OF RADIATED EMISSION TEST

7.1 The frequency range from 30 MHz to 1 GHz was investigated. All readings are quasi-peak values with resolution bandwidth of 120 kHz.

7.2 The measurements were made at 10 meters of HomeTek Lab's open site II.

7.3 Temperature : 21 ℃, Humidity : 72 % RH.

7.4 Radiated Emission data : **Horizontal**

Frequency (MHz)	Reading (dBuV)	ANT factor (dBuV)	Cable Loss (dBuV)	Emission (dBuV)	Limit (dBuV)
114.60	16.26	9.92	0.99	27.17	40
128.93	18.25	9.57	0.94	28.76	40
168.09	22.38	9.62	1.12	33.12	40
260.33	21.81	14.75	1.35	37.91	47
271.17	20.84	15.07	1.37	37.28	47
287.44	21.60	15.56	1.49	38.65	47

- Emission Level = Reading Level + ANT Factor + Cable Loss.
- Sample Calculation for 271.17 MHz .
- Corrected Reading : (20.84) + (15.07) + (1.37) = 37.28 . (Emission Level)

7.5 Radiated Emission data : **Vertical**

Frequency (MHz)	Reading (dBuV)	ANT factor (dBuV)	Cable Loss (dBuV)	Emission (dBuV)	Limit (dBuV)
113.88	20.23	10.99	0.94	32.16	40
128.91	12.05	12.06	0.94	25.05	40
162.70	18.98	8.90	1.04	28.92	40
195.23	16.14	10.11	1.19	27.44	40
227.78	20.84	11.82	1.30	33.96	40
276.58	20.87	13.00	1.45	35.32	47
298.26	25.74	13.00	1.50	40.24	47
368.79	20.08	14.63	1.60	36.31	47

- Emission Level = Reading Level + ANT Factor + Cable Loss.
- Sample Calculation for 195.23 MHz .
- Corrected Reading : (16.14) + (10.11) + (1.19) = 27.44 . (Emission Level)

REMARK :
1. Model : AMB-5411
2. Measuring mode :

Test Engineer : Neel.

8 PHOTO OF RADIATED EMISSION TEST

Front View

Rear View

ELECTROSTATIC DISCHARGE IMMUNITY TEST (ESD)

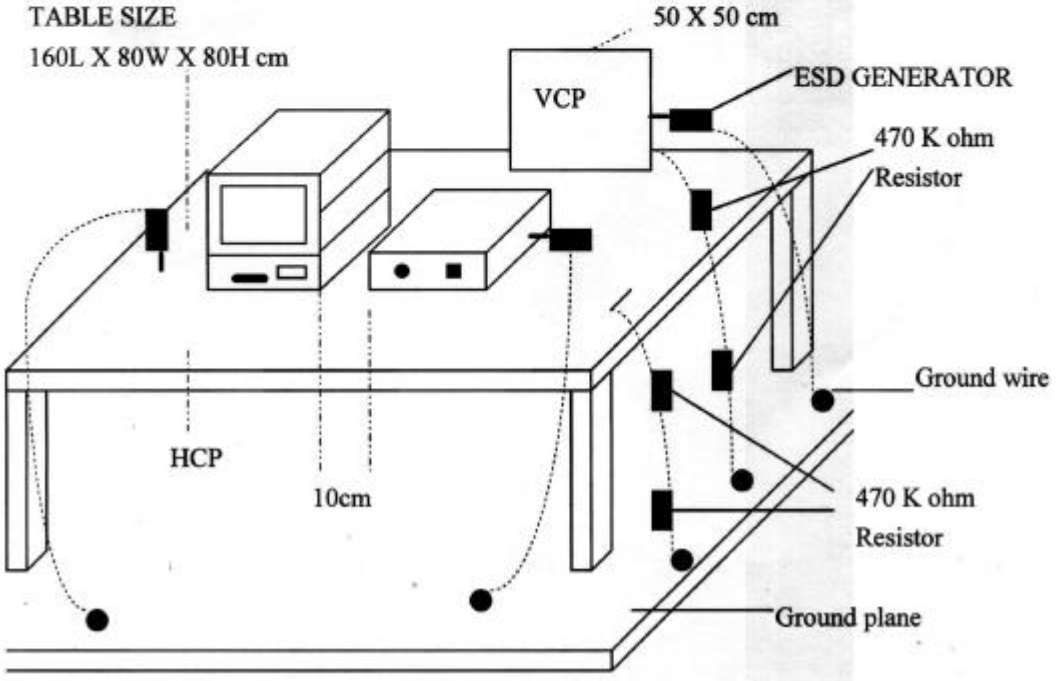
1 TEST INSTRUMENTS & FACILITIES

Instruments/ Facilities	Manufacturer	Model # Serial #	Data Of Cal.
ESD TESTER	HAEFELY	PESD 1600	MAR/97
VCP	HOMETEK	--	--

2 TEST PROCEDURE

According to **IEC 801-2**

3 TEST SETUP



4 CONFIGURATION OF THE EUT

Same as "Conducted Power Line test", section 4

5 EUT OPERATION CONDITION

Same as "Conducted Power Line test", section 5

6 TEST CONDITION

6.1 Test Level :

(A) ± 8KV for air discharge.

(B) ± 4KV for contact discharge.

6.2 Number of test : 10 Discharge / Level

6.3 Time between test : 1 sec.

6.4 Temperature : 21 ℃

Humidity : 58 % RH.

7 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 reset.

D. Degradation or loss function which is not recoverable due to damage of EUT or software, or loss of data.

8 TEST RESULT

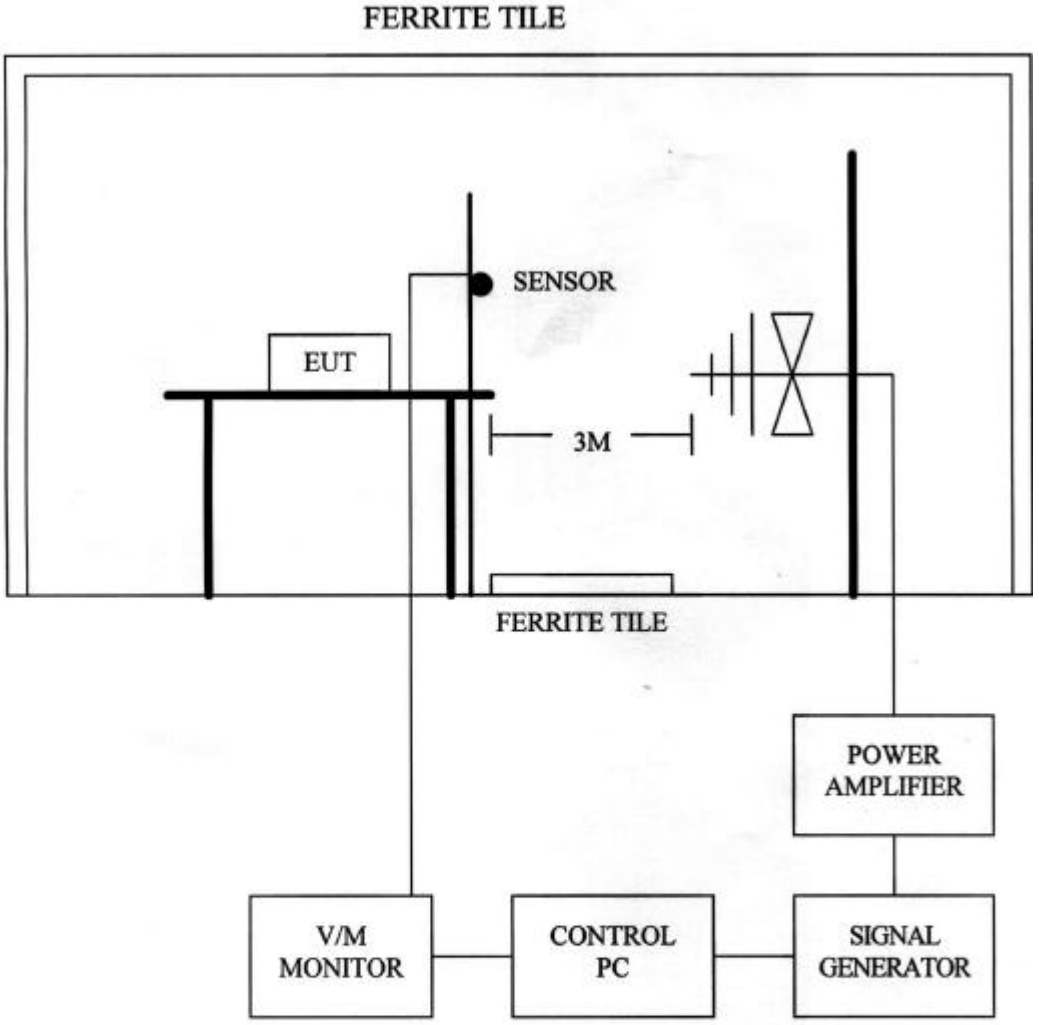
Test Point	Air Discharge	Contact Discharge	Performance Criteria	Result
VCP	--	± 4KV	B	PASS
HCP	--	± 4KV	B	PASS
CASE	± 8KV	± 4KV	B	PASS
AC SOCKET	± 8KV	± 4KV	B	PASS
Power Switch	± 8KV	± 4KV	B	PASS
SCREWS	± 8KV	± 4KV	B	PASS
I/O PORTS	± 8KV	± 4KV	B	PASS
COVER PLATE	± 8KV	± 4KV	B	PASS
FDD Button	± 8KV	± 4KV	B	PASS
Bright Controllor	± 8KV	± 4KV	B	PASS

Test Engineer : Neel

9 PHOTO OF ELECTROSTATIC DISCHARGE IMMUNITY TEST (ESD)

9 PHOTO OF ELECTROSTATIC DISCHARGE IMMUNITY TEST (ESD)

3 TEST SETUP



3.1 Chamber Size :

8M x 4M x 3M

4 CONFIGURATION OF THE EUT

Same as "Conducted Power Line test", section 4

5 OPERATION CONDITION OF EUT

Same as "Conducted Power Line test", section 5

6 TEST CONDITION

6.1 Frequency Range : 27 MHz ~ 500 MHz

6.2 Filed Strength : 3 V / M

6.3 Frequency Step : 1 %

6.4 Antenna Polarity : HORIZONTAL & VERTICAL

6.5 The four sides of EUT are tested
(FRONT, REAR, RIGHT, LEFT)

6.6 Temperature : 21 ℃
Humidity : 72 % RH

7 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 reset.

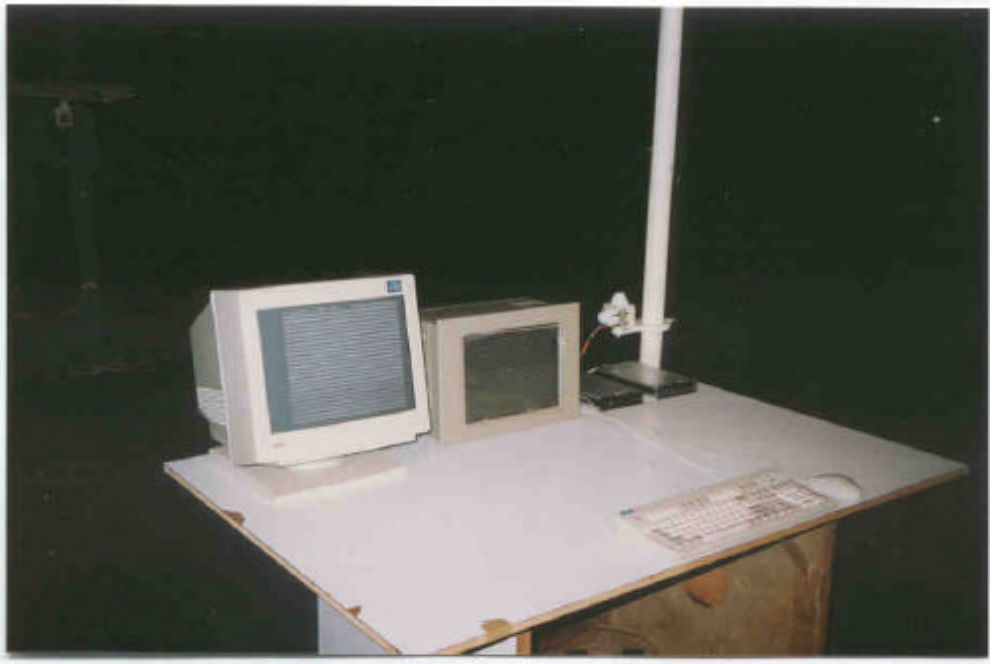
D. Degradation or loss function which is not recoverable due to damage of EUT or software, or loss of data.

8 TEST RESULT

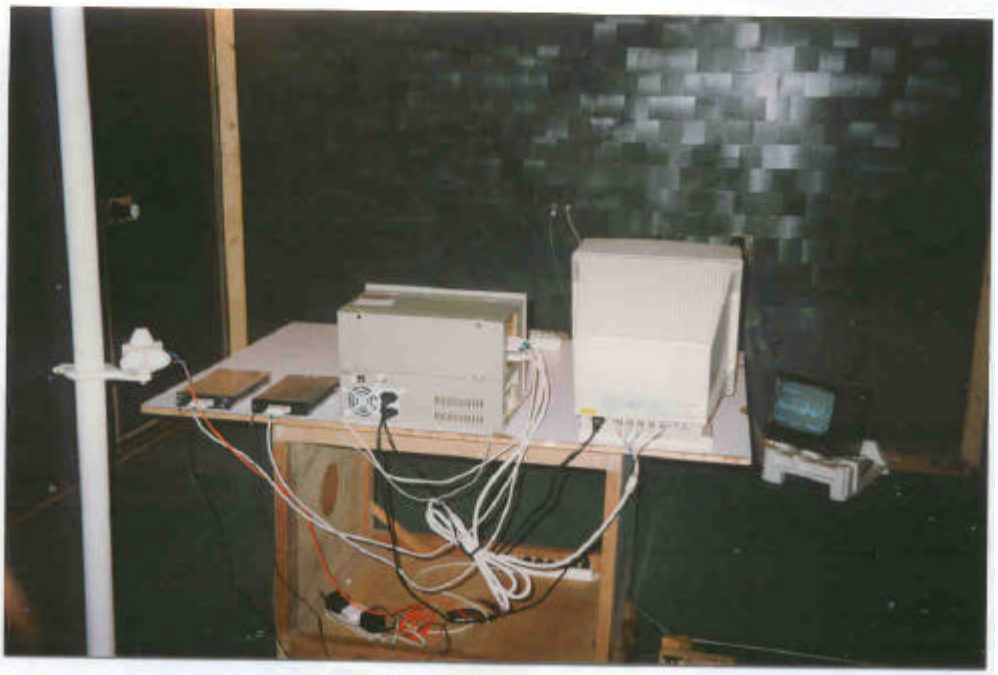
ANT / SIDE	HORIZONTAL	VERTICAL	RESULT
FRONT	A	A	PASS
REAR	A	A	PASS
RIGHT	A	A	PASS
LEFT	A	A	PASS

Test Engineer : Neel

9 PHOTO OF RADIO FREQUENCY ELECTROMAGNETIC FILE IMMUNITY TEST (RS)



Front View



Rear View

ELECTRICAL FAST TRANSIENT/BURST IMMUNITY TEST (EFT)

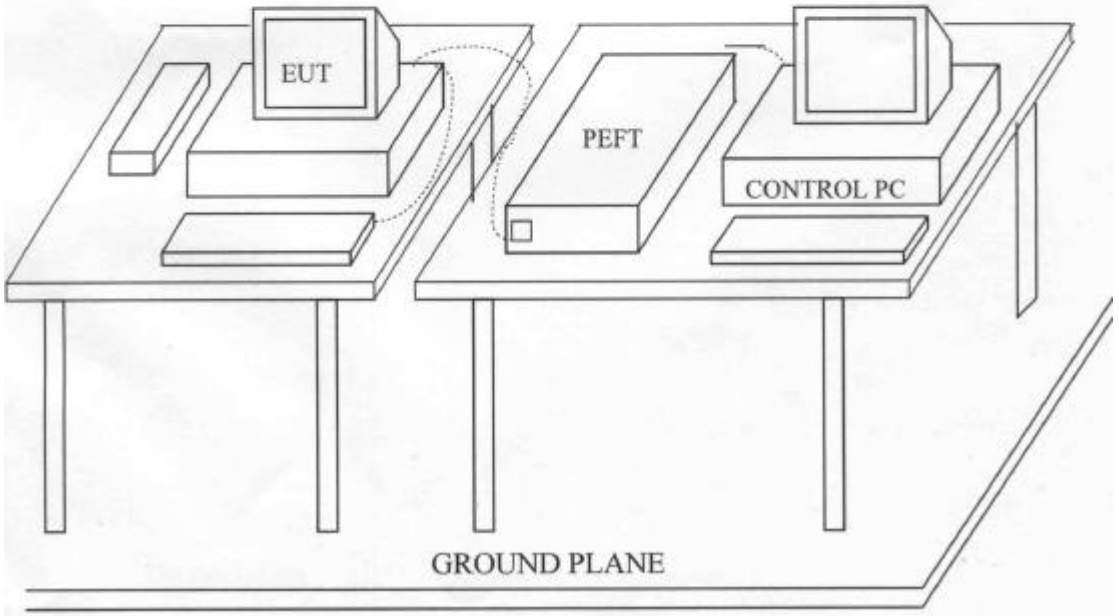
1 TEST INSTRUMENTS & FACILITIES

Instruments/ Facilities	Manufacturer	Model # Serial #	Data Of Cal.
BURST-TESTER	HAEFELY	PEFT/JUNIOR	MAR/97
CONTROL PC	KB TECH	KB P586/133	--

2 TEST PROCEDURE

According to **IEC 801-4**

3 TEST SETUP



4 CONFIGURATION OF THE EUT

Same as "Conducted Power Line test", section 4

5 OPERATION CONDITION OF EUT

Same as "Conducted Power Line test", section 5

6 TEST CONDITION

6.1 Pulse Risetime & Duration : 5nS / 50nS

6.2 Pulse Repetition : 5 kHz

6.3 Polarity : POSITIVE / NEGATIVE

6.4 Test Voltage : ± 0.5KV, ± 1KV

6.5 Coupling of power line :
L, N, PE, L+N, L+PE, N+PE, L+N+PE

6.6 Temperature : 21 ℃
Humidity : 72 % RH

7 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 reset.

D. Degradation or loss function which is not recoverable due to damage of EUT or software, or loss of data.

8 TEST RESULT

TEST VOLTAGE	L	N	PE	L+N	L+PE	N+PE	L+N+PE
± 0.5KV	B	B	B	B	B	B	B
± 1KV	B	B	B	B	B	B	B

Final Result : PASS

Remark :

Test Mode : _____

Test Engineer : Neel.

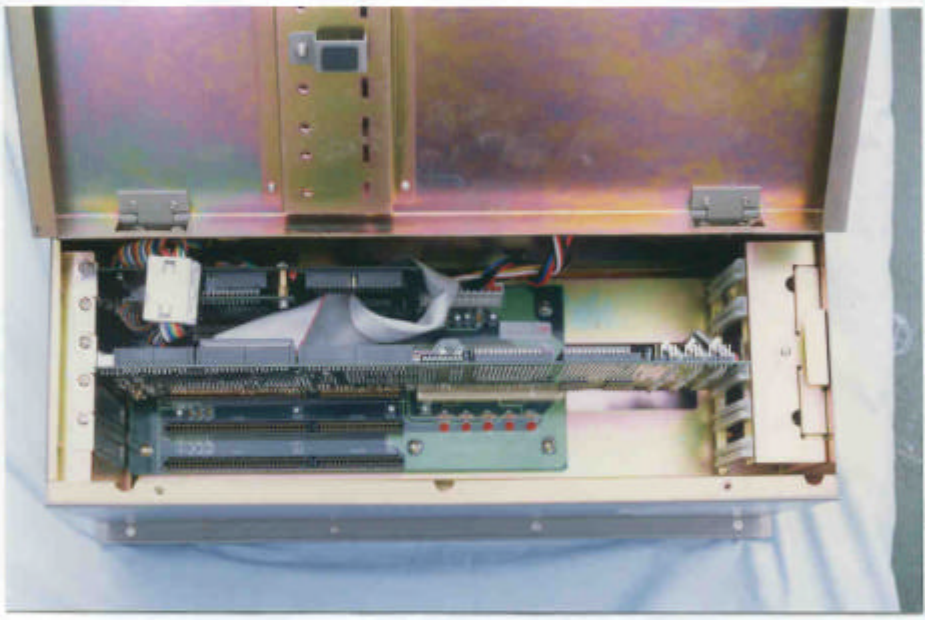
9 PHOTO OF ELECTRICAL FAST TRANSIENT/BURST IMMUNITY TEST (EFT)

PHOTOS OF EUT

Front View

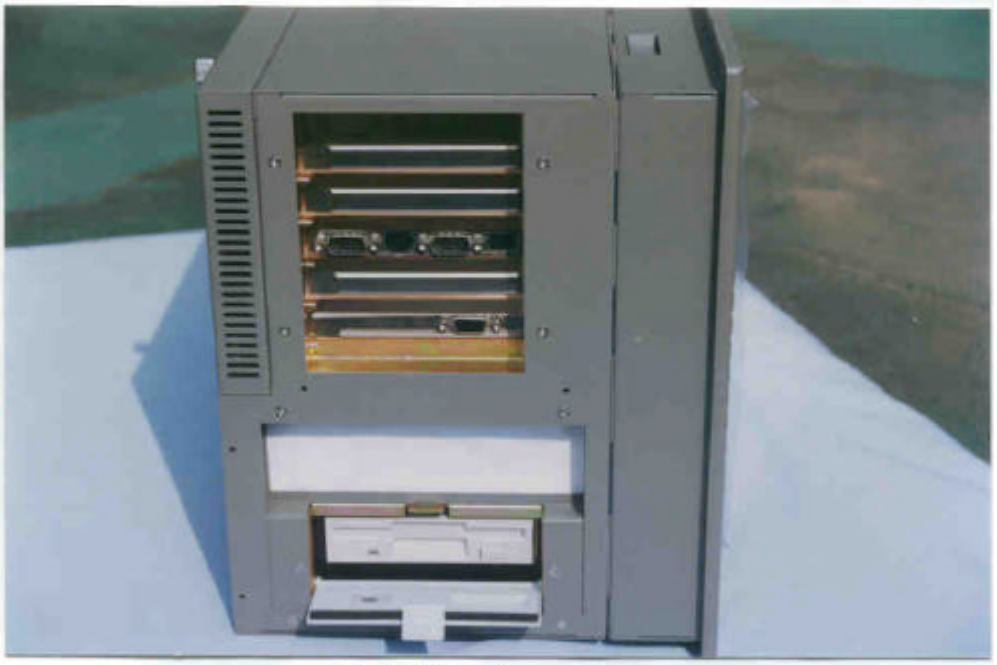
Rear View

PHOTOS OF EUT



Inside View

PHOTOS OF EUT



Left Side View