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 : Flat Panel Industrial Display Panel
MODEL NO. : AMB-243A
Final Test Date : 8/11/98 REPORT #: EA7H005
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)

HomeTek Technology Inc. EMC LAB HomeTek TEL:(02)22608375 安泰科技有限公司

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.

PREPARED BY : Angel CHEN DATE : 8/20/98

CHECK BY : Mike Huang MIKE HUANG DATE : 8/21/98

APPROVED BY : Grant Huang GRANT HUANG/Manager DATE : 8/21/98

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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)

declares under our sole responsibility that the product

Product name : Flat Panel Industrial Display Panel

Model No. : AMB-243A

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)
  - ☐ EN60555-2 (1987)
  - ☐ EN60555-3 (1987)
- ☑ EN50082-1 (1992)
- ☐ 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 Title: _____

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EMC LAB HomeTek Tested by HomeTek Technology Inc. Report#: EA7H065

Signature: Grant Huang Date: 8/21/98

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)

declares under our sole responsibility that the product

Product name : Flat Panel Industrial Display Panel

Model No. : AMB-243A

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

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

Title: ____________________

EMC LAB HomeTek
Tested by HomeTek Technology Inc. Report#: EA7H005
Signature: Grant Huang Date: 87/12/18

Stamp: 三上科技 中心 發行章

TABLE OF CONTENTS

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	:	Flat Panel Industrial Display Panel
Model	:	AMB-243A
Serial #	:	N/A
Data Cable	:	SHIELDED
Power Cord	:	UN-SHIELDED
Power Supply Type	:	ADAPTOR

4 FEATURES OF EUT :

4.1 Compact size 14.1" XGA color TFT display

4.2 Analog resistive touchscreen (option)

4.3 Heavy-duty steel chassis and NEMA 4/12 aluminum front panel

4.4 Panel mount

4.5 30CFM cooling fan

4.6 Analog RGB signals directly input offering multi-scan function, and DC/12V external power adapter (AMB-243A)

MODIFICATION LIST

THE FOLLOWING ACCESSORIES WERE ADDED TO THE EUT DURING TESTING :

Added Tow Ferrite Cores (EASY RH 17.5 x 20.2 x 10.6) at the VGA Cable, Both PC end and Monitor end.(one each)

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	2/26/98
2	LISN	50 Ω/50uH/100A 9KHz ~ 30MHz	SCHWARZ BECK	NNLK 8121	2/28/98
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.

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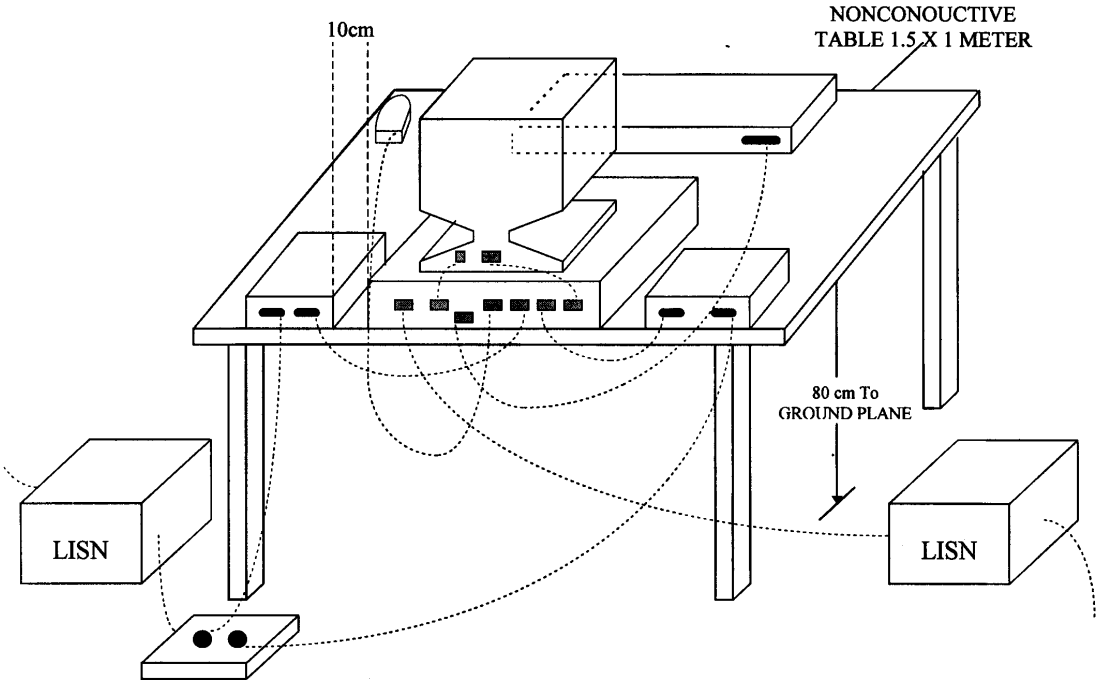
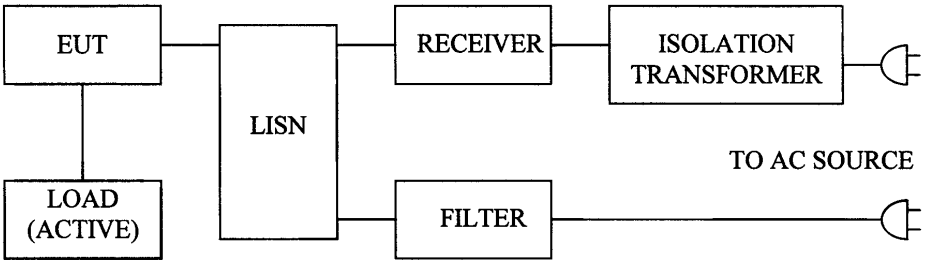
3 TEST SETUP

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
Flat Panel Industrial Display Panel	Astech	AMB-243A	Un-Shielded	Shielded
PERIPHERALS				
PC	CHAINTECH	6LTM	Un-Shielded	Shielded
MONITOR	N/A	N/A	N/A	N/A
PRINTER	HP	DJ400	Un-Shielded	Shielded
MODEM	DATATRONIC	2814CX	Un-Shielded	Shielded
MOUSE	HP	M-S34	N/A	Shielded
KEY BOARD	AST	SK-2000REW	N/A	Shielded
INTERNAL DEVICES				
REMARK				

5 OPERATING CONDITION OF EUT

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

5.2 The oscillator frequency of the EUT were 65 MHz.

5.3 Turn on the power of all equipments.

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

5.4.1 Printer

5.4.2 Monitor

5.4.3 Modem

5.4.4 Keyboard

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 (1)

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 : 26 ℃, Humidity : 72 % RH.

7.4 Quasi-Peak :

Frequency (MHz)	Line 1 (dBuV)	Line 2 (dBuV)	Limit (dBuV)
0.167	39.87	40.43	79
0.424	43.36	42.30	79
0.700	44.05	43.53	73
1.450	40.88	40.07	73
10.850	35.10	35.02	73
27.150	36.86	36.92	73

7.5 Average :

Frequency (MHz)	Line 1 (dBuV)	Line 2 (dBuV)	Limit (dBuV)
0.165	39.71	38.02	66
0.300	39.32	37.54	66
0.700	40.07	39.70	60
1.475	36.10	35.22	60
10.850	30.31	30.26	60
27.15	31.43	31.52	60

REMARK :

1. Model : AMB-243A
2. Measuring mode : 1024 x 768

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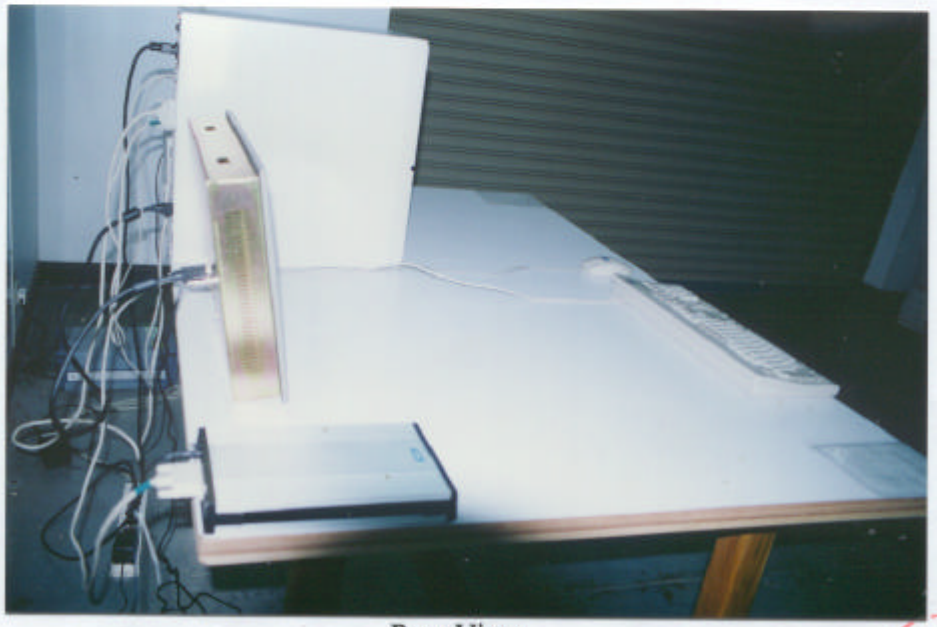
8 PHOTO OF CONDUCTED POWER LINE TEST

Test Mode : 1024 x 768

Front View



Rear View

9 RESULT OF CONDUCTED POWER LINE TEST (2)

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

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

9.3 Temperature : 26 ℃, Humidity : 72 % RH.

9.4 Quasi-Peak :

Frequency (MHz)	Line 1 (dBuV)	Line 2 (dBuV)	Limit (dBuV)
0.167	39.23	39.68	79
0.425	43.54	42.13	79
0.675	43.87	39.78	73
0.700	44.49	40.42	73
0.975	43.50	33.77	73
9.400	49.70	49.00	73

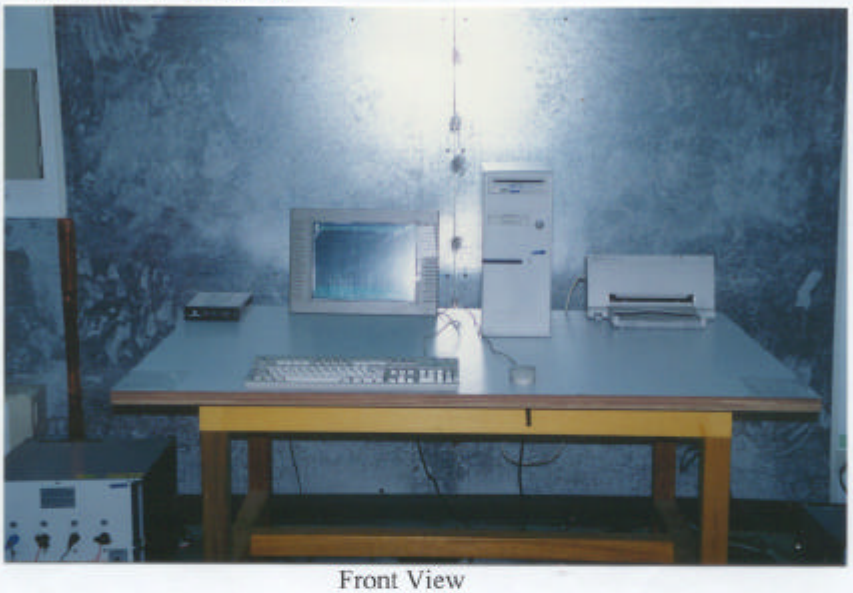
9.5 Average :

Frequency (MHz)	Line 1 (dBuV)	Line 2 (dBuV)	Limit (dBuV)
0.226	32.61	32.08	66
0.425	40.13	38.92	66
0.975	39.24	29.11	60
6.200	25.58	22.10	60
13.200	27.76	26.08	60
25.400	25.36	24.33	60

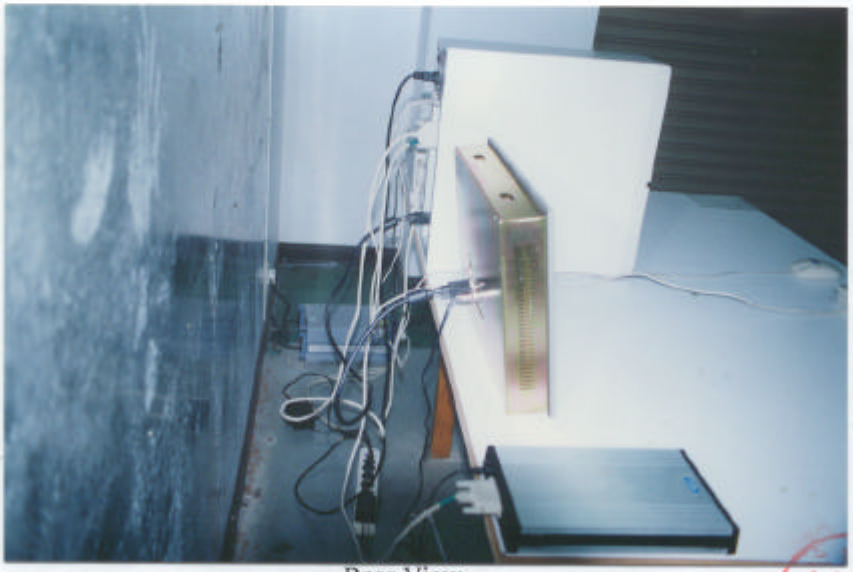
REMARK :
1. Model : AMB-243A
2. Measuring mode : 640 x 480

10 PHOTO OF CONDUCTED POWER LINE TEST

Test Mode : 640 x 480



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	4/8/98
2	EMI TEST RECEIVER	20MHz ~ 1GHz	ROHDE & SCHWARZ	ESVS10	2/19/98
3	AMPLIFIER	0.1MHz ~ 1.3 GHz	HP	8447D	5/19/98
4	SIGNAL GENERATOR	9KHz ~ 2080MHz	ROHDE & SCHWARZ	SMY02	2/8/98
5	ANTENNA (BI-LOG)	25MHz ~ 2GHz	ARA	LPB2520	3/13/98
6	ANTENNA (DIPOLE)	30 ~ 300MHz	ROHDE & SCHWARZ	HZ-12	1/20/98
7	ANTENNA (DIPOLE)	300 ~ 1000MHz	ROHDE & SCHWARZ	HZ-13	1/20/98

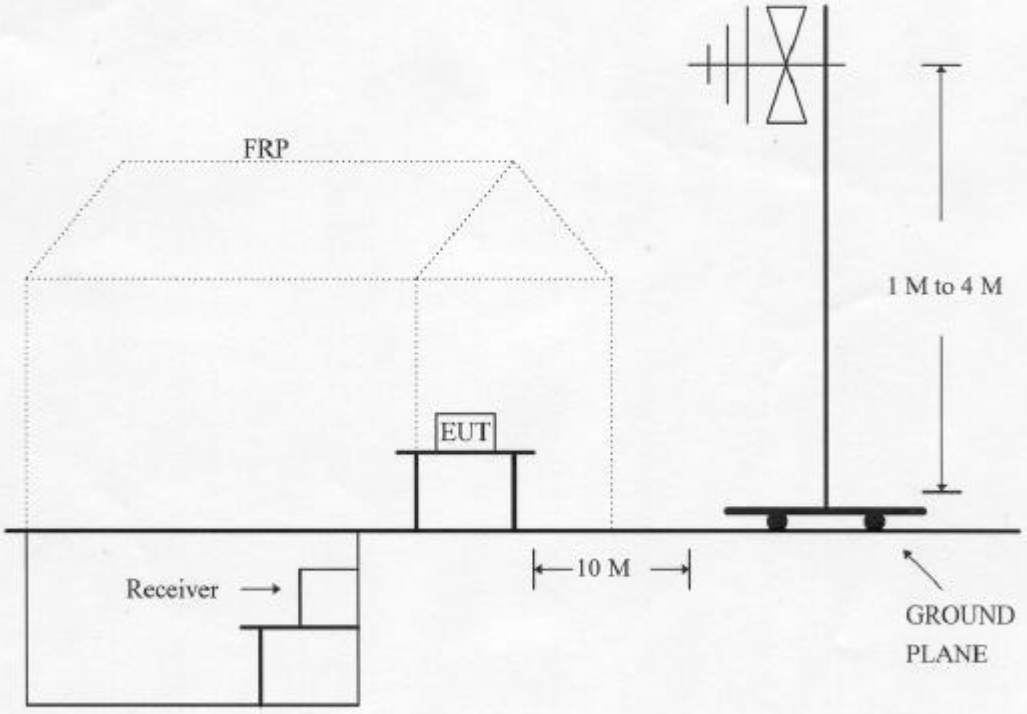
2 TEST PROCEDURE

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 (1)

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 : 27 ℃, Humidity : 72 % RH.

7.4 Radiated Emission data : **Horizontal**

Frequency (MHz)	Reading (dBuV)	ANT factor (dBuV)	Cable Loss (dBuV)	Emission (dBuV)	Limit (dBuV)
141.27	17.48	8.66	0.96	27.10	40
159.99	7.51	8.38	1.04	16.93	40
220.00	7.23	11.34	1.24	19.81	40
235.46	13.83	12.45	1.30	27.58	47
334.13	7.64	14.71	1.57	23.92	47
376.72	9.79	16.04	1.75	27.58	47
601.43	3.62	20.71	2.13	26.46	47
735.08	8.88	21.16	2.54	32.58	47

- Emission Level = Reading Level + ANT Factor + Cable Loss.
- Sample Calculation for 735.08 MHz .
- Corrected Reading : (8.88) + (21.16) + (2.54) = 32.58 . (Emission Level)

7.5 Radiated Emission data : **Vertical**

Frequency (MHz)	Reading (dBuV)	ANT factor (dBuV)	Cable Loss (dBuV)	Emission (dBuV)	Limit (dBuV)
129.99	9.16	12.00	0.96	22.12	40
134.26	9.61	12.04	1.02	22.67	40
160.00	12.61	7.87	1.04	21.52	40
199.99	24.21	10.86	1.19	36.26	40
220.00	16.17	11.83	1.24	29.24	40
235.46	22.67	12.67	1.30	36.64	47
329.65	12.13	13.85	1.55	27.53	47
375.45	10.71	15.28	1.70	27.69	47

- Emission Level = Reading Level + ANT Factor + Cable Loss.
- Sample Calculation for 375.45 MHz .
- Corrected Reading : (10.71) + (15.28) + (1.70) = 27.69 . (Emission Level)

REMARK :
1. Model : AMB-243A
2. Measuring mode : 1024 x 768

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8 PHOTO OF RADIATED EMISSION TEST

Test Mode : 1024 x 768

Front View

Rear View

9 RESULT OF RADIATED EMISSION TEST (2)

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

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

9.3 Temperature : 27 ℃, Humidity : 72 % RH.

9.4 Radiated Emission data : **Horizontal**

Frequency (MHz)	Reading (dBuV)	ANT factor (dBuV)	Cable Loss (dBuV)	Emission (dBuV)	Limit (dBuV)
141.25	11.59	8.66	0.96	21.21	40
158.51	18.48	8.42	1.07	27.97	40
219.99	9.85	11.34	1.24	22.43	40
233.87	5.04	12.36	1.32	18.72	47
332.38	6.79	14.73	1.55	23.07	47
374.49	5.55	15.96	1.63	23.14	47
601.41	2.75	20.39	2.31	25.45	47

- Emission Level = Reading Level + ANT Factor + Cable Loss.
- Sample Calculation for 601.41 MHz .
- Corrected Reading : (2.75) + (20.39) + (2.31) = 25.45 . (Emission Level)

9.5 Radiated Emission data : **Vertical**

Frequency (MHz)	Reading (dBuV)	ANT factor (dBuV)	Cable Loss (dBuV)	Emission (dBuV)	Limit (dBuV)
130.24	7.00	12.00	0.96	19.96	40
133.63	7.81	12.04	1.02	20.87	40
159.99	12.97	7.87	1.04	21.88	40
199.76	22.36	10.86	1.19	34.41	40
219.99	12.77	11.83	1.24	25.84	40
233.87	8.29	12.60	1.32	22.21	47
334.10	3.35	15.12	1.57	20.04	47

- Emission Level = Reading Level + ANT Factor + Cable Loss.
- Sample Calculation for 334.10 MHz .
- Corrected Reading : (3.35) + (15.12) + (1.57) = 20.04 . (Emission Level)

REMARK :
1. Model : AMB-243A
2. Measuring mode : 640 x 480

10 PHOTO OF RADIATED EMISSION TEST

Test Mode : 640 x 480

Front View

Rear View

ELECTROSTATIC DISCHARGE IMMUNITY TEST (ESD)

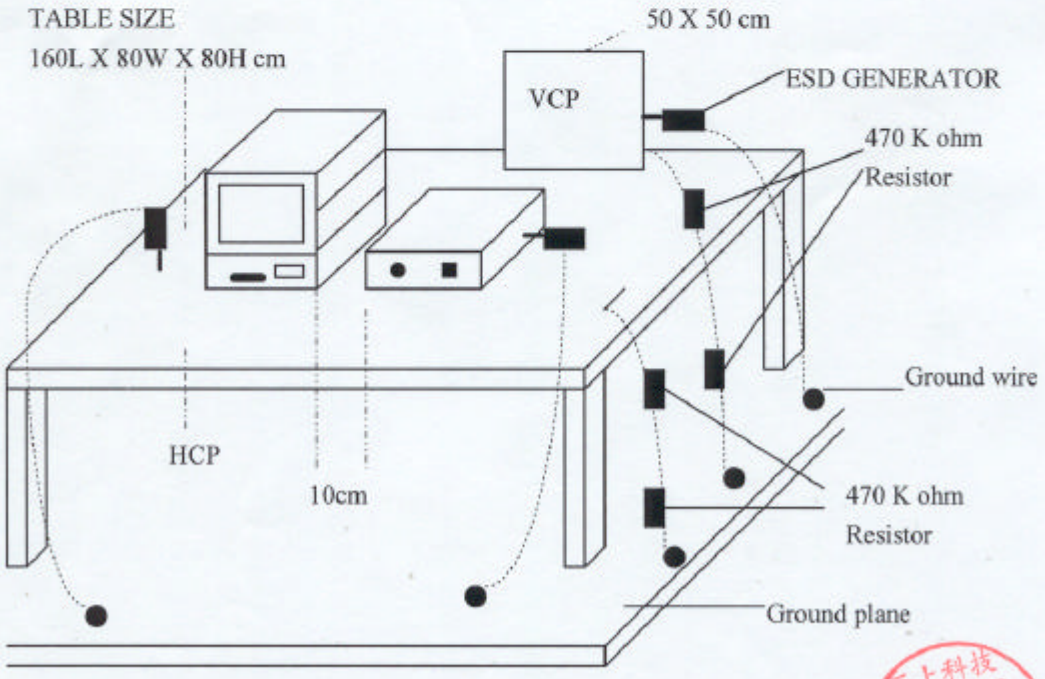
1 TEST INSTRUMENTS & FACILITIES

Instruments/ Facilities	Manufacturer	Model # · Serial #	Data Of Cal.
ESD TESTER	HAEFELY	PESD 1600	MAR/98
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 : 26 ℃

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
LED	± 8KV	± 4KV	B	PASS
LCD	± 8KV	± 4KV	B	PASS
I/O PORTS	± 8KV	± 4KV	B	PASS
SCREWS	± 8KV	± 4KV	B	PASS
FDD BUTTON	± 8KV	± 4KV	B	PASS
COVER PLATE	± 8KV	± 4KV	B	PASS
AC SOCKET	± 8KV	± 4KV	B	PASS
Power Switch	± 8KV	± 4KV	B	PASS
VGA Connector	± 8KV	± 4KV	B	PASS
DC Power Connector	± 8KV	± 4KV	B	PASS

9 PHOTO OF ELECTROSTATIC DISCHARGE IMMUNITY TEST (ESD)

Test Mode : 1024 x 768

RADIO FREQUENCY ELECTROMAGNETIC FILE IMMUNITY TEST

(RS)

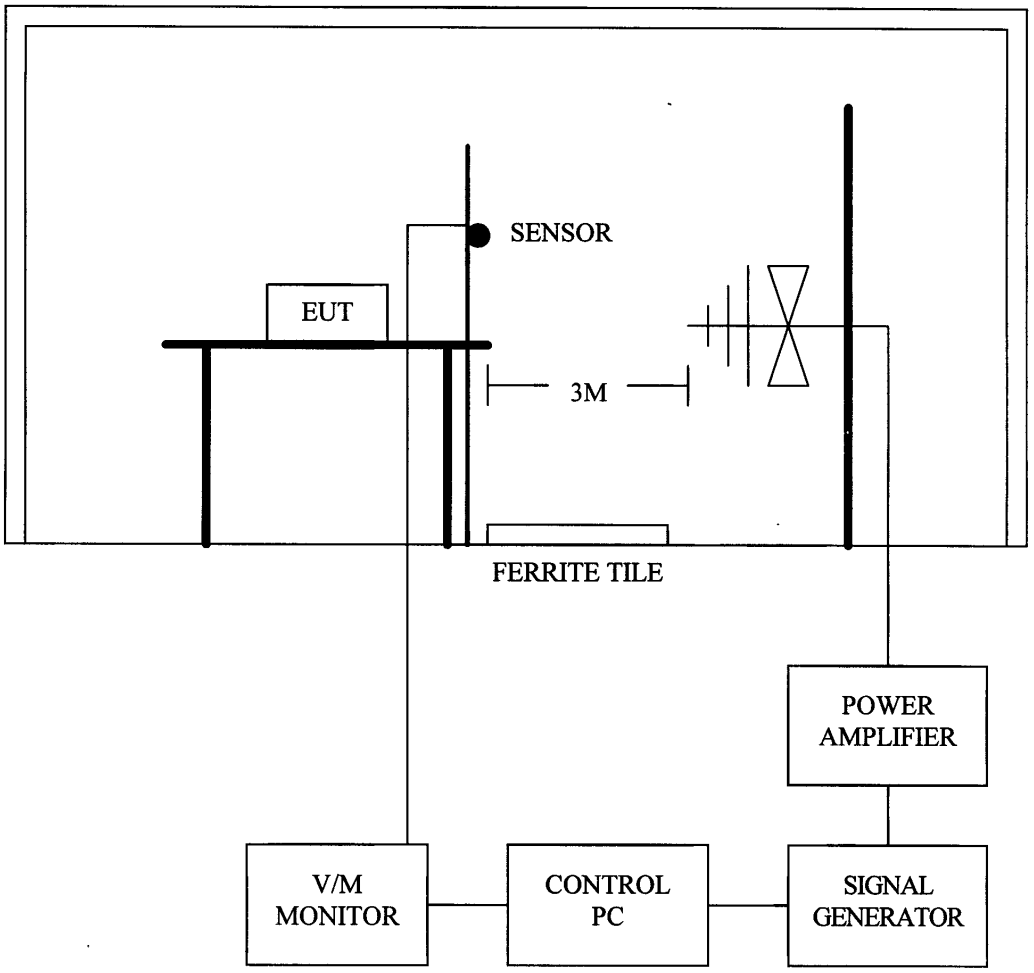
1 TEST INSTRUMENTS & FACILITIES

Instruments Facilities	Manufacturer	Model # Serial #	Data Of Cal.
SIGNAL GENERATOR	ROHDE & SCHWARZ	SMY02	2/8/98
AMPLIFIER	AMPLIFIER RESEACH	100W1000M1A	3/17/98
FIELD SENSOR	AMPLIFIER RESEACH	FP2000	3/11/98
FIELD MONITOR	AMPLIFIER RESEACH	FM2000	3/11/98
ANTENNA (BI-LOG)	ARA	LPB2520	3/13/98
CONTROL PC	KB TECH	KB P586/133	--

2 TEST PROCEDURE

According to **IEC 801-3**

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 : 26 ℃
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

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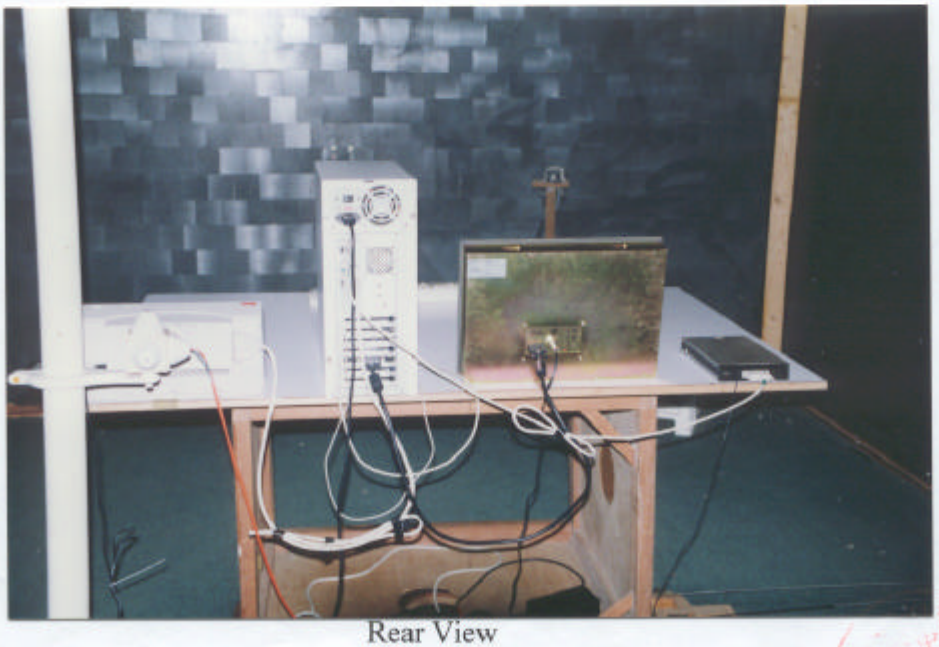
9 PHOTO OF RADIO FREQUENCY ELECTROMAGNETIC FILE IMMUNITY TEST (RS)

Test Mode : 1024 x 768

Front View



Rear View

ELECTRICAL FAST TRANSIENT/BURST IMMUNITY TEST (EFT)

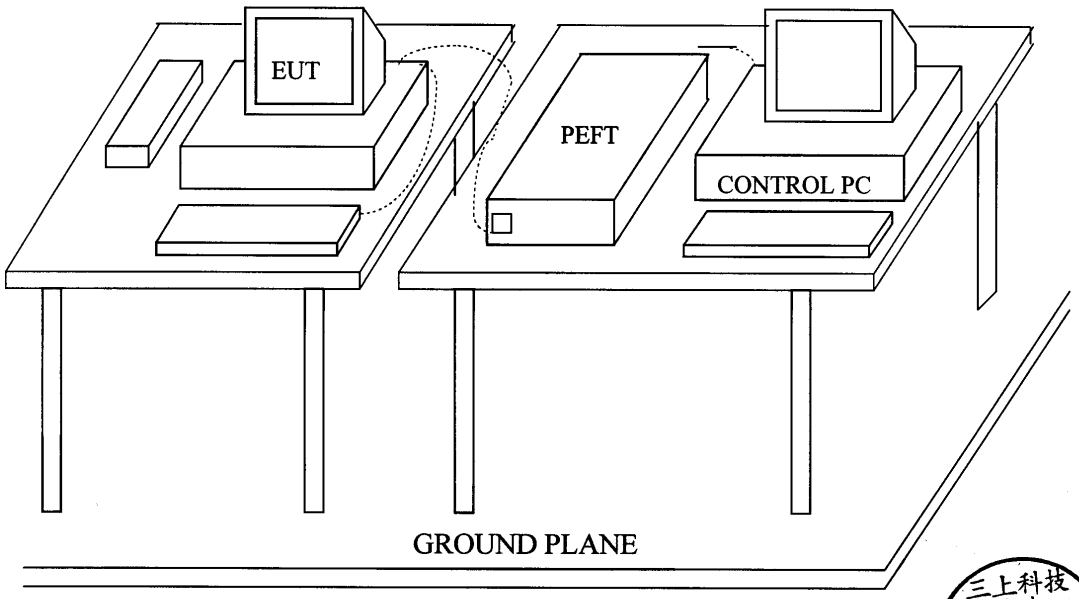
1 TEST INSTRUMENTS & FACILITIES

Instruments/ Facilities	Manufacturer	Model #· Serial #	Data Of Cal.
BURST-TESTER	HAEFELY	PEFT/JUNIOR	MAR/98
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 : 26 ℃
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.

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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

8.1 Test Mode : 1024 x 768

8.2 Final Result : PASS

8.3 Remark :

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

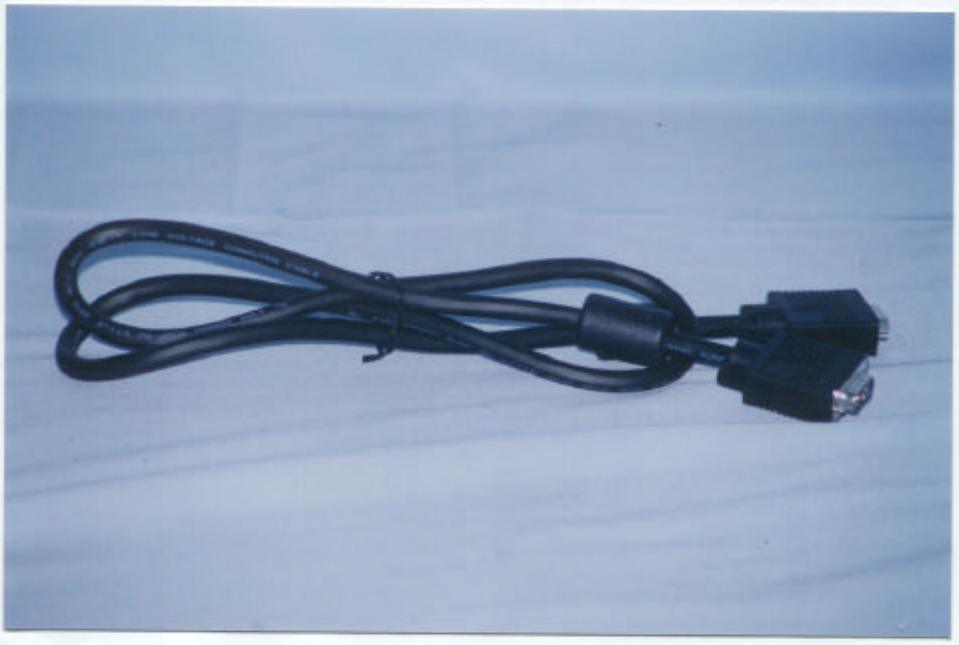
Test Mode : 1024 x 768

PHOTOS OF EUT

Front View

Rear View

PHOTOS OF EUT



VGA Connector Front View

VGA Connector Rear View

PHOTOS OF EUT

Adaptor Front View

Adaptor Rear View