



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 : Industrial Panel PCs
MODEL NO. : AMB-820T, AMB-820HT,
AMB-821T, AMB-821HT
Final Test Date : 2/1/99 REPORT #: EA8A020
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 :

- EN 60601-1-2
- EN55011 (1994) Group 1 Class A
- EN 61000-4-2
- EN 61000-4-3
- EN 61000-4-4
- EN 61000-4-5

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.

THIS TEST RESULTS OF THIS REPORT APPLIES TO ABOVE TESTED SAMPLE ONLY.

THIS TEST REPORT SHALL NOT BE REPRODUCE IN PART WITHOUT WRITTEN APPROVAL OF HOMETEK TECHNOLOGY INC.

PREPARED BY : Angel DATE : 2/1/99
ANGEL CHEN

CHECK BY : Joe DATE : 2/1/99
JOSEPH CHOU

APPROVED BY : Grant Huang DATE : 2/1/99
GRANT HUANG/Manager

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 : Industrial Panel PCs

Model No. : AMB-820T, AMB-820HT,
AMB-821T, AMB-821HT

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

EN60601-1-2

EN 55011

EN 55022

EN 61000-4-2

EN 61000-4-3

EN 61000-4-4

EN 61000-4-5

EN 61000-4-6

EN61000-4-8

EN61000-4-11

following the provisions of 93/42/EEC Directive

Place: _____ Signature: _____

Date : _____ Full name: _____



Title: _____



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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 MANUFACTURER : Astech Technology CO., LTD.
- 4 ADDRESS : 6F-4, NO. 351, CHUNG-SHAN RD.,
SEC. 2, CHUNG-HO CITY, TAIPEI,
TAIWAN, R. O. C.
- 5 DESCRIPTION OF EUT :
- EUT : Industrial Panel PCs
- Model : AMB-820T, AMB-820HT,
AMB-821T, AMB-821HT
- Serial # : N/A
- Data Cable : SHIELDED
- Power Cord : UN-SHIELDED
- Power Supply Type : SWITCHING

6 FEATURES OF EUT :

- Compact-size 12.1" color TFT display or hi-brightness (250cd/m²)/long life-time (25,000 Hrs) color TFT LCD display
- Heavy-duty aluminum chassis and NEMA 4/12 plastic or aluminum front panel
- Panel mount
- 30 CFM cooling fan
- Space for a 3.5" HDD
- All-in-one Pentium SBC with P-233 compatible CPU, 32MB DRAM
 - CHIPS B65555 LCD/CRT display controller
 - 3 serial ports of RS-232 and one selective RS-232/422/485
 - 4-in, 4-out isolated digital I/O
 - DiskOnChip
 - Watchdog timer
 - E²Key function
 - 10/100Mbps Ethernet Controller
- Universal 70W switching power supply or other options(refer to the selection table)
- AMB-821T/AMB-821HT:
 - with aluminum front panel



HomeTek Technology Inc.

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 :

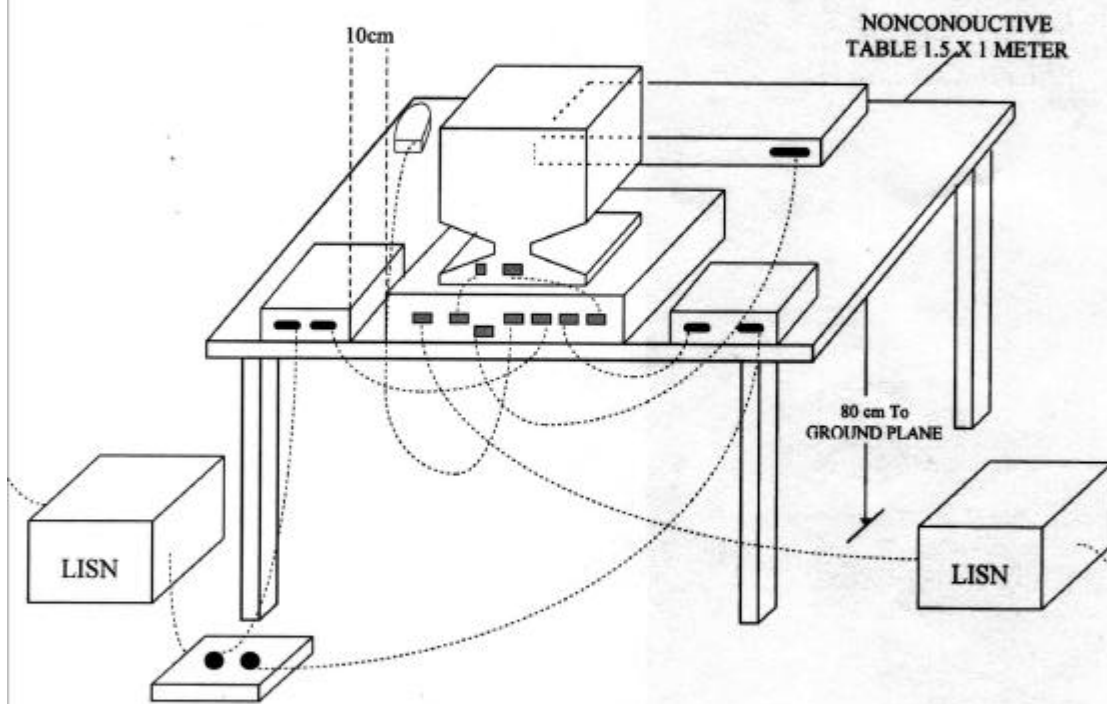
| Item | Instruments/ Facilities | Specification | Manufacturer | Model # | Date Of Cal. |
|------|----------------------------|--|--------------------|-----------------------------|-----------------|
| 1 | EMI Receiver | 9KHz ~ 30MHz | ROHDE & SCHWARZ | ESHS 30 | 2/26/98 |
| 2 | LISN | 50 Ω /50uH/100A 9KHz ~ 30MHz | SCHWARZ BECK | NNLK 8121 | 2/28/98 |
| 3 | LISN | 9KHz ~ 30MHz | ROHDE & SCHWARZ | ESH3-Z5 | 2/24/98 |
| 4 | ESXS-K1 | Version 2.03b | ROHDE & SCHWARZ | 1082.9678.02 840.913/246 | FEB/99 |
| 5 | Cables | 10KHz ~ 30MHz | | NO : 10 | JUL/98 |
| 6 | Pulse Limiter | 9KHz ~ 30MHz | ROHDE & SCHWARZ | ESH3Z2 357.8810.52 | JUL/98 |

2 TEST PROCEDURE

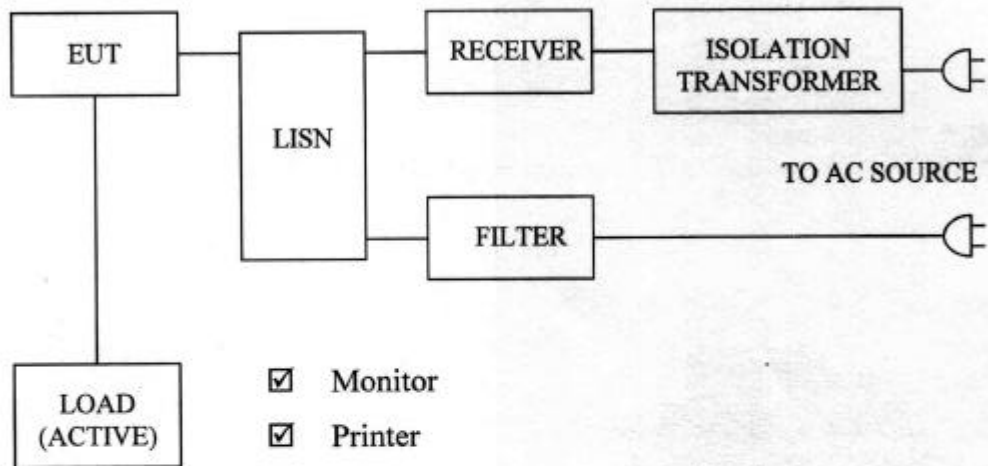
- 2.1 The EUT was tested according to **EN55011** Group 1 Class A.
- 2.2 The EUT was placed 0.4 meter from the conducting wall of shielding room and kept at least 0.8 meter from any other grounded conducting surface.
- 2.3 The frequency range form 0.15 MHz to 30 MHz was investigated.
- 2.4 The LISN used was 50 Ohm / 50 uHenry as specified by **EN55011**.
- 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



- Monitor
- Printer
- Modem
- Mouse
- Key Board
- Network Cable



4 CONFIGURATION OF THE EUT

The EUT was configured according to **EN55011**. All I/O ports were connected to the appropriate peripherals. All peripherals and cables are listed below (including internal device) :

4.1 EUT

EUT Type : Proto Type Engineer Type Mass Production
Condition when received : Good Damage : _____
Connector Type : Metal Type Plastic Type
Device : Industrial Panel PCs
Manufacturer : Astech
Model Number : AMB-820T, AMB-820HT,
AMB-821T, AMB-821HT
Serial Number : N/A
FCC ID : N/A
Data Cable : Shielded
Power Cord : Un-Shielded, 1.8 m

4.2 PERIPHERALS

Monitor
Manufacturer : HITACHI
Model Number : CM1711MU
Serial Number : 95092015
FCC ID : KRY9501CDTC95
Data Cable : Shielded, 1.5 m, Connected to the VGA port
Power Cord : Un-Shielded, 1.8 m

Printer

Manufacturer : HP
Model Number : DJ400
Serial Number : MY77T1D0DD
FCC ID : B94C2642X
Data Cable : Shielded, 1.5m, Connected to the Printer port
Power Cord & Adaptor : Un-Shielded, 1.8 m

Modem I

Manufacturer : DATATRONIC
Model Number : 2814CX
Serial Number : N/A
FCC ID : FCC DoC
Data Cable : Shielded, 1.5m, Connected to the COM I port
Power Cord & Adaptor : Un-Shielded, 1.8 m

Modem II

Manufacturer : DATATRONIC
Model Number : 2814CX
Serial Number : N/A
FCC ID : FCC DoC
Data Cable : Shielded, 1.5m, Connected to the COM II port
Power Cord & Adaptor : Un-Shielded, 1.8 m



Modem III

Manufacturer : DATATRONIC
Model Number : 2814CX
Serial Number : N/A
FCC ID : FCC DoC
Data Cable : Shielded, 1.5m, Connected to the COM III port
Power Cord & Adaptor : Un-Shielded, 1.8 m

Mouse (PSII)

Manufacturer : LOGITECH
Model Number : M-S34
Serial Number : LZA73037418
FCC ID : DZL211029
Data Cable : Shielded, 1.8m, Connected to the PSII port
Power Cord : N/A

KeyBoard (PSII)

Manufacturer : AST
Model Number : SK-2000REW
Serial Number : N/A
FCC ID : GYUR26SK
Data Cable : Shielded, 1.5m, Connected to the PSII port
Power Cord : N/A



KeyBoard (USB) I

Manufacturer : SILITEK
Model Number : SK-2000U
Serial Number : N/A
FCC ID : GYUR50SK
Data Cable : Shielded, 1.5m, Connected to the USB I port
Power Cord : N/A

KeyBoard (USB) II

Manufacturer : SILITEK
Model Number : SK-2502U
Serial Number : N/A
FCC ID : GYUR58SK
Data Cable : Shielded, 1.5m, Connected to the USB II port
Power Cord : N/A

4.3 REMARK :

5 OPERATING CONDITION OF EUT

- 5.1 Operating condition is according to **EN55011**.
- 5.2 CPU : Pentium MMX- 200 MHz
CPU Clock : 66 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 GROUP 1 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 : 9 kHz, Meas Time : 1 sec.

7.3 Temperature : 21 °C, Humidity : 72 % RH.

7.4 Deviations from the specifications : None

7.5 Quasi-Peak :

| Frequency (MHz) | Line 1 (dBuV) | Line 2 (dBuV) | Limit (dBuV) |
|-----------------|---------------|---------------|--------------|
| 0.192 | 51.44 | 53.49 | 79 |
| 0.322 | 48.51 | 48.62 | 79 |
| 0.780 | 32.62 | 34.51 | 73 |
| 2.460 | 32.53 | 35.06 | 73 |
| 8.480 | 28.88 | 26.45 | 73 |
| 21.800 | 31.33 | 32.05 | 73 |

7.6 Average :

| Frequency (MHz) | Line 1 (dBuV) | Line 2 (dBuV) | Limit (dBuV) |
|-----------------|---------------|---------------|--------------|
| 0.191 | 48.48 | 49.17 | 66 |
| 0.326 | 43.55 | 44.73 | 66 |
| 0.780 | 26.30 | 27.99 | 60 |
| 2.845 | 23.61 | 30.55 | 60 |
| 7.640 | 23.81 | 24.46 | 60 |
| 21.800 | 28.27 | 28.86 | 60 |

REMARK :

1. Model : AMB-820HT
2. Measuring mode : 1024 x 768
3. Uncertainty in conduction emission measured : $\pm 2.0\text{dB}$
4. “ * ”, means this data is worse case emission level.
5. Result : **PASSED**

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 : 9 kHz, Meas Time : 1 sec.

9.3 Temperature : 21 °C, Humidity : 72 % RH.

9.4 Deviations from the specifications : None

9.5 Quasi-Peak :

| Frequency (MHz) | Line 1 (dBuV) | Line 2 (dBuV) | Limit (dBuV) |
|-----------------|---------------|---------------|--------------|
| 0.193 | 51.70 | 52.78 | 79 |
| 0.322 | 47.41 | 48.45 | 79 |
| 0.780 | 34.85 | 35.72 | 73 |
| 2.530 | 31.74 | 35.77 | 73 |
| 7.520 | 27.81 | 25.89 | 73 |
| 26.140 | 36.44 | 37.82 | 73 |

9.6 Average :

| Frequency (MHz) | Line 1 (dBuV) | Line 2 (dBuV) | Limit (dBuV) |
|-----------------|---------------|---------------|--------------|
| 0.194 | 47.07 | 47.03 | 66 |
| 0.326 | 44.95 | 44.95 | 66 |
| 0.780 | 25.05 | 30.48 | 60 |
| 2.530 | 23.63 | 28.64 | 60 |
| 11.780 | 18.84 | 23.29 | 60 |
| 26.210 | 32.57 | 33.66 | 60 |

REMARK :

1. Model : AMB-820HT
2. Measuring mode : 640 x 480
3. Uncertainty in conduction emission measured : $\pm 2.0\text{dB}$
4. " * ", means this data is worse case emission level.
5. Result : **PASSED**

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 # / S/N# | Location | Date of Cal. |
|------|-------------------------|---|-----------------|------------------------------|------------------|------------------|
| 1 | OPEN AREA TEST SITE | <input type="checkbox"/> OATS 1 <input checked="" type="checkbox"/> OATS 2 | | | | JUN/98 JUN/98 |
| 2 | SPECTRUM ANALYZER | 9KHz ~ 1.8GHz | HP | HP8591 3710A06158 | Open Site I | APR/98 |
| 3 | EMI TEST RECEIVER | 20MHz ~ 1GHz | ROHDE & SCHWARZ | ESVS10 845165/017 | Open Site I | FEB/99 |
| 4 | PRE-AMPLIFIER | 0.1MHz ~ 1.3 GHz | HP | 8447D 1937A02095 | Open Site I | MAY/98 |
| 5 | EMI TEST RECEIVER | 20Hz ~ 26.5GHz | ROHDE & SCHWARZ | ESMI 845442/006 | Open Site II | FEB/99 |
| 6 | PRE-AMPLIFIER | 20MHz ~ 7GHz | ROHDE & SCHWARZ | ESMI-Z7 846363/001 | Open Site II | FEB/99 |
| 7 | ANTENNA (BI-LOG) | 25MHz ~ 2GHz | ARA | LPB2520 S/N:1096 | Open Site II | MAR/98 |
| 8 | ANTENNA (BI-LOG) | 25MHz ~ 2GHz | ARA | LPB2520 S/N:1095 | Open Site I | MAR/98 |
| 9 | CABLES | 30MHz ~ 1GHz | | No. 2, No. 4 No. 1, No. 3 | OATS 1 OATS 2 | JUL/98 JUL/98 |
| 10 | ANTENNA (DIPOLE) | 30 ~ 300MHz | ROHDE & SCHWARZ | HZ-12 842899/08 | | JAN/99 |
| 11 | ANTENNA (DIPOLE) | 300 ~ 1000MHz | ROHDE & SCHWARZ | HZ-13 842007/0004 | | JAN/99 |
| 12 | EMIVM | 30 ~ 1000MHz | AUDIX | A582445 A582443 | OATS 1 OATS 2 | N/A |

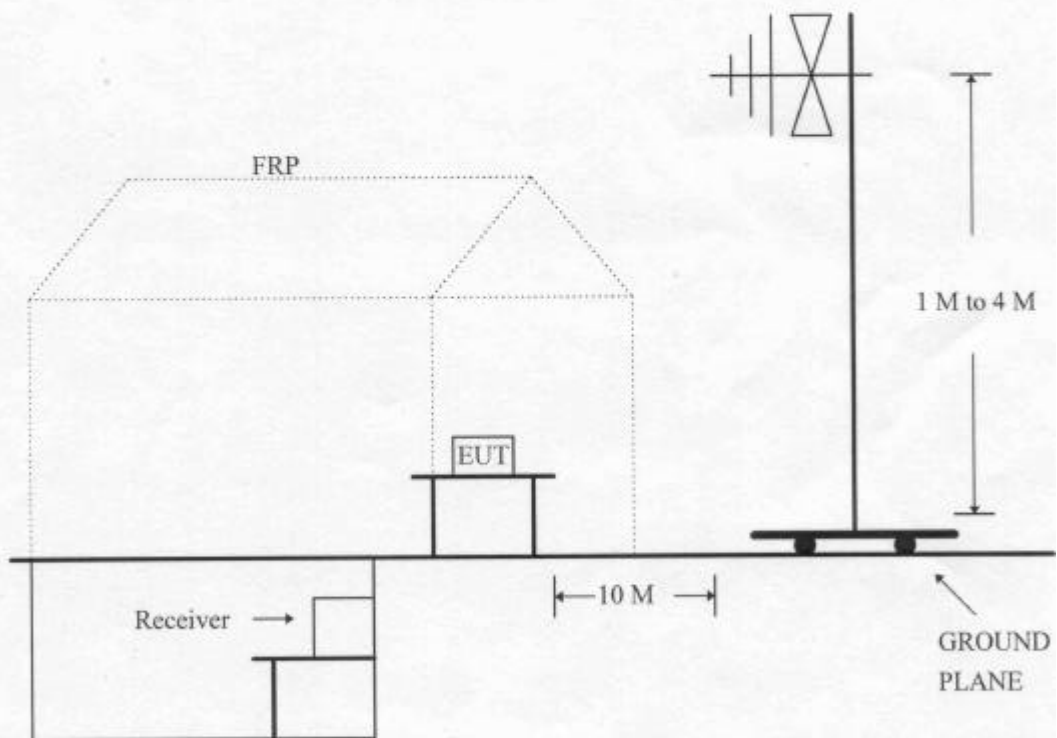
Note : 1. Items 1 ~ 9 upon which need to calibrated are with period of 1 year, except item 10-11.

2. Items 5 is used for the final measurement.

2 TEST PROCEDURE

- 2.1 The EUT was test according to **EN55011**.
- 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 GROUP 1 CLASS A :

| Frequency (MHz) | Measurement Distance | Limit (dBuV/m) |
|-----------------|----------------------|----------------|
| 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 above 1 GHz with a resolution bandwidth of 1 MHz are peak reading at 10 meters.
- 7.3 The measurements were made at 10 meters of HomeTek Lab's open site II.
- 7.4 Temperature : 21 °C, Humidity : 72 % RH.
- 7.5 Radiated Emission data : **Horizontal**

| Frequency (MHz) | Reading Level (dBuV) | ANT factor (dB/m) | Cable Loss (dB) | Emission Level (dBuV/m) | Limit (dBuV/m) |
|-----------------|----------------------|-------------------|-----------------|-------------------------|----------------|
| 65.72 | 19.83 | 7.70 | 0.76 | 28.29 | 40 |
| 71.58 | 25.61 | 5.08 | 0.76 | 31.45 | 40 |
| 136.98 | 24.75 | 9.69 | 1.02 | 35.46 | 40 |
| 150.34 | 26.95 | 7.94 | 1.04 | 35.93 | 40 |
| 167.06 | 24.95 | 8.82 | 1.12 | 34.89 | 40 |
| 217.23 | 18.93 | 11.45 | 1.24 | 31.62 | 40 |
| 360.85 | 20.10 | 14.94 | 1.52 | 36.56 | 47 |
| 561.32 | 11.52 | 18.70 | 2.11 | 32.33 | 47 |

- Emission Level = Reading Level + ANT Factor + Cable Loss.
- Sample Calculation for 561.32 MHz .
- Corrected Reading : (11.52) + (18.70) + (2.11) = 32.33 . (Emission Level)

7.6 Radiated Emission data : **Vertical**

| Frequency (MHz) | Reading Level (dBuV) | ANT factor (dB/m) | Cable Loss (dB) | Emission Level (dBuV/m) | Limit (dBuV/m) |
|-----------------|----------------------|-------------------|-----------------|-------------------------|----------------|
| 66.32 | 22.06 | 9.21 | 0.76 | 32.03 | 40 |
| 120.26 | 23.85 | 10.59 | 0.96 | 35.40 | 40 |
| 150.34 | 27.18 | 7.59 | 1.04 | 35.81 | 40 |
| 205.60 | 19.44 | 10.50 | 1.19 | 31.13 | 40 |
| 233.89 | 17.99 | 12.60 | 1.32 | 31.91 | 47 |
| 332.38 | 16.19 | 14.53 | 1.55 | 32.27 | 47 |
| 457.74 | 12.61 | 16.05 | 1.88 | 30.54 | 47 |
| 681.60 | 12.10 | 16.69 | 2.41 | 31.20 | 47 |

- Emission Level = Reading Level + ANT Factor + Cable Loss.
- Sample Calculation for 681.60 MHz .
- Corrected Reading : (12.10) + (16.69) + (2.41) = 31.20 . (Emission Level)

REMARK :

1. Model : AMB-820HT
2. Measuring mode : 1024 x 768
3. Uncertainty in radiated emission measured : <math>< \pm 4.0\text{dB}</math>.
4. “ * ”, means this data is worse case emission level.
5. Result : **PASSED**

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 above 1 GHz with a resolution bandwidth of 1 MHz are peak reading at 10 meters.
- 9.3 The measurements were made at 10 meters of HomeTek Lab's open site II.
- 9.4 Temperature : 21 °C, Humidity : 72 % RH.
- 9.5 Radiated Emission data : **Horizontal**

| Frequency (MHz) | Reading Level (dBuV) | ANT factor (dB/m) | Cable Loss (dB) | Emission Level (dBuV/m) | Limit (dBuV/m) |
|-----------------|----------------------|-------------------|-----------------|-------------------------|----------------|
| 66.37 | 20.13 | 7.70 | 0.76 | 28.59 | 40 |
| 132.32 | 21.53 | 10.39 | 1.00 | 32.92 | 40 |
| 168.36 | 22.21 | 9.00 | 1.12 | 32.33 | 40 |
| 216.04 | 20.84 | 11.39 | 1.22 | 33.45 | 40 |
| 233.16 | 21.80 | 12.38 | 1.32 | 35.50 | 47 |
| 360.85 | 20.02 | 14.94 | 1.52 | 36.48 | 47 |
| 633.48 | 14.28 | 19.76 | 2.29 | 36.33 | 47 |
| 882.08 | 14.38 | 21.69 | 2.79 | 38.86 | 47 |

- Emission Level = Reading Level + ANT Factor + Cable Loss.
- Sample Calculation for 882.08 MHz .
- Corrected Reading : (14.38) + (21.69) + (2.79) = 38.86 . (Emission Level)

9.6 Radiated Emission data : **Vertical**

| Frequency (MHz) | Reading Level (dBuV) | ANT factor (dB/m) | Cable Loss (dB) | Emission Level (dBuV/m) | Limit (dBuV/m) |
|-----------------|----------------------|-------------------|-----------------|-------------------------|----------------|
| 40.48 | 12.28 | 16.95 | 0.56 | 29.79 | 40 |
| 57.26 | 26.06 | 10.75 | 0.74 | 37.55 | 40 |
| 120.27 | 24.84 | 10.59 | 0.96 | 36.39 | 40 |
| 132.30 | 21.50 | 12.12 | 1.00 | 34.62 | 40 |
| 152.33 | 28.14 | 7.47 | 1.02 | 36.63 | 40 |
| 212.52 | 20.54 | 11.40 | 1.22 | 33.16 | 40 |
| 232.54 | 18.50 | 12.58 | 1.32 | 32.40 | 47 |
| 633.23 | 8.19 | 19.25 | 2.29 | 29.73 | 47 |

- Emission Level = Reading Level + ANT Factor + Cable Loss.
- Sample Calculation for 633.23 MHz .
- Corrected Reading : (8.19) + (19.25) + (2.29) = 29.73 . (Emission Level)

REMARK :

1. Model : AMB-820HT
2. Measuring mode : 640 x 480
3. Uncertainty in radiated emission measured : $\pm 4.0\text{dB}$.
4. “ * ”, means this data is worse case emission level.
5. Result : **PASSED**

10 PHOTO OF RADIATED EMISSION TEST

Test Mode : 640 x 480



Front View



Rear View

ELECTROSTATIC DISCHARGE IMMUNITY TEST (ESD)

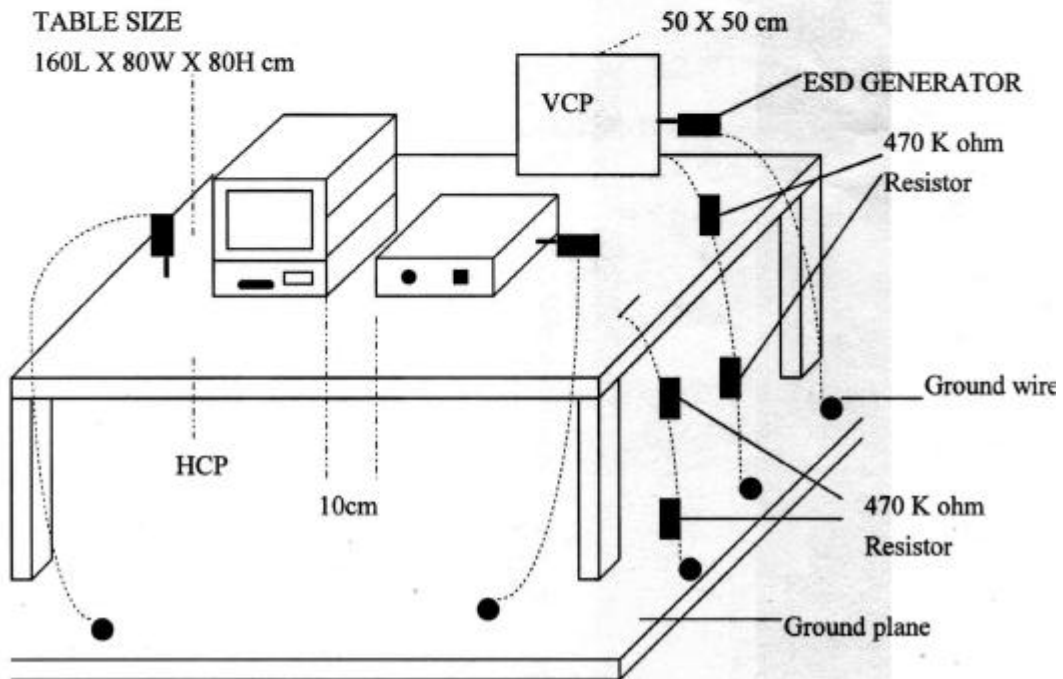
1 TEST INSTRUMENTS & FACILITIES

| Instruments/ Facilities | Manufacturer | Model # Serial # | Data Of Cal. |
|----------------------------|--------------|---------------------|--------------|
| ESD TESTER | HAEFELY | PESD 1600 | MAR/98 |
| VCP | HOMETEK | -- | -- |
| | | | |

2 TEST PROCEDURE

According to **EN61000-4-2**

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) \pm 8KV for air discharge.

(B) \pm 4KV for contact discharge.

6.2 Number of test : 10 Discharge / Level

6.3 Time between test : 1 sec.

6.4 Temperature : 21 °C

6.5 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 | PASSED |
| HCP | -- | ± 4KV | B | PASSED |
| CASE | ± 8KV | ± 4KV | B | PASSED |
| LED | ± 8KV | ± 4KV | B | PASSED |
| LCD | ± 8KV | ± 4KV | B | PASSED |
| I/O PORTS | ± 8KV | ± 4KV | B | PASSED |
| SCREWS | ± 8KV | ± 4KV | B | PASSED |
| FDD BUTTON | ± 8KV | ± 4KV | B | PASSED |
| AC SOCKET | ± 8KV | ± 4KV | B | PASSED |
| Power Switch | ± 8KV | ± 4KV | B | PASSED |
| RJ45 Connector | ± 8KV | ± 4KV | B | PASSED |

9 PHOTO OF ELECTROSTATIC DISCHARGE IMMUNITY TEST (ESD)
Test Mode : 1024 x 768



RADIO FREQUENCY ELECTROMAGNETIC FIELD IMMUNITY TEST

(RS)

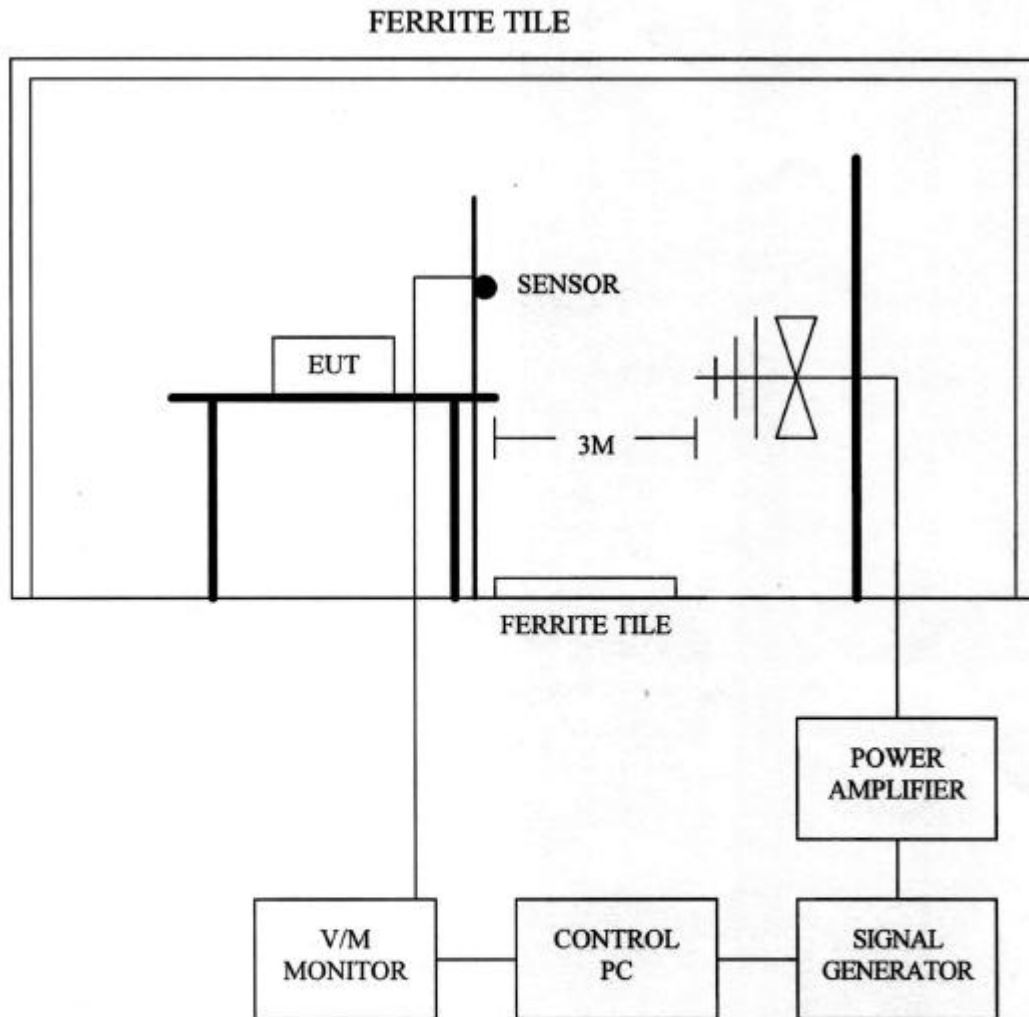
1 TEST INSTRUMENTS & FACILITIES

| 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 **EN61000-4-3**

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 : 26 MHz ~ 1000 MHz

6.2 Field 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 °C

6.7 Humidity : 72 % RH

7 PERFORMANCE CRITERIA

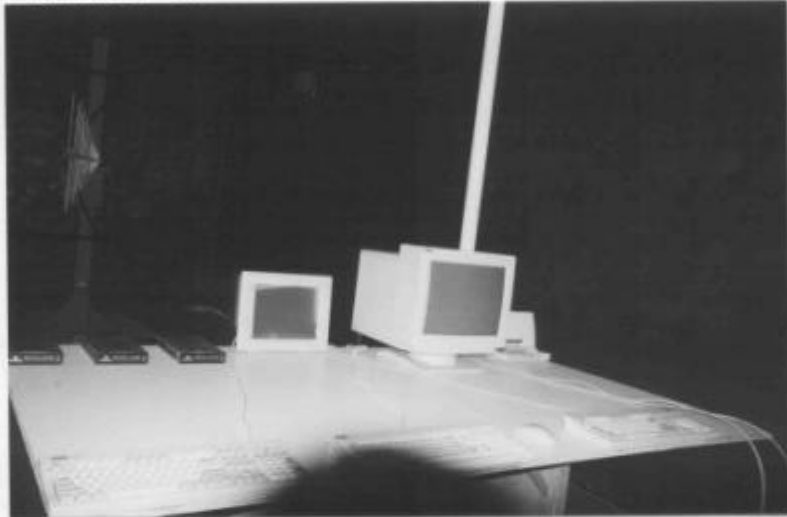
- A. Normal performance within the specification.
- B. Temporary degradation or loss function or performance which is self-recoverable.
- C. Temporary degradation or loss function or performance which requires operator intervention system reset.
- D. Degradation or loss function which is not recoverable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

8 TEST RESULT

| ANT SIDE | HORIZONTAL | VERTICAL | RESULT |
|-------------|------------|----------|--------|
| FRONT | A | A | PASSED |
| REAR | A | A | PASSED |
| RIGHT | A | A | PASSED |
| LEFT | A | A | PASSED |

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)

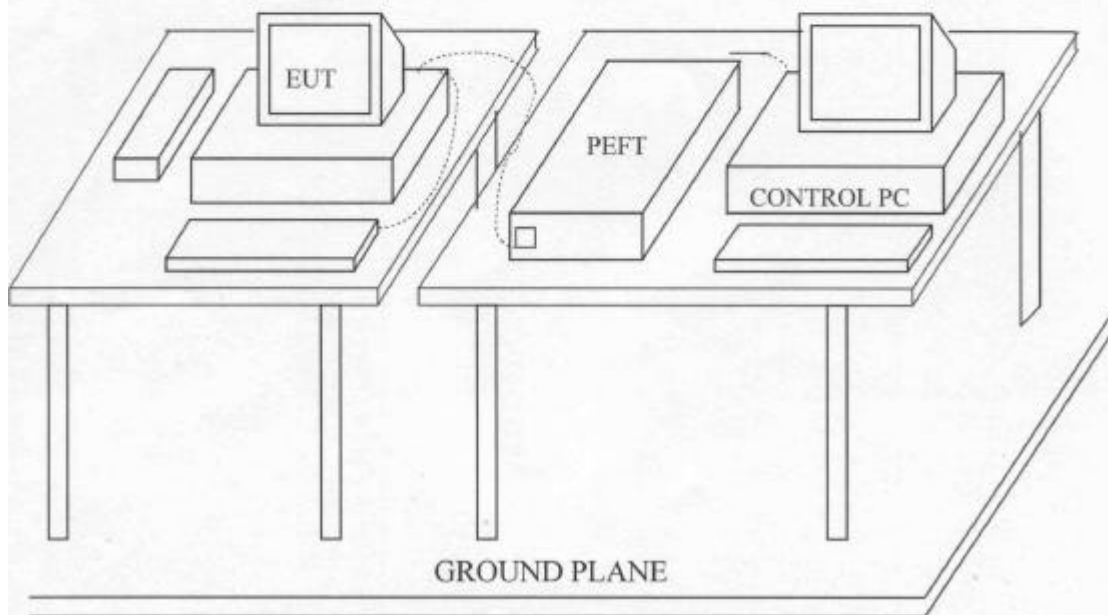
1 TEST INSTRUMENTS & FACILITIES

| 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 EN61000-4-4

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 Rise time & Duration : 5 nS / 50 nS

6.2 Pulse Repetition : 5 kHz

6.3 Polarity : POSITIVE / NEGATIVE

6.4 Test Voltage of Power Line : $\pm 0.5KV$, $\pm 1KV$, $\pm 2KV$

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

6.6 Test Voltage of Signal Control Line : $\pm 0.25KV$, $\pm 0.5KV$

6.7 Temperature : 21 °C

6.8 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

Power Line :

| 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 |
| ± 2KV | B | B | B | B | B | B | B |

Signal Control Line :

| TEST VOLTAGE | PERFORMACE CRITERIA |
|--------------|---------------------|
| ± 0.25KV | B |
| ± 0.5KV | B |

8.1 Test Mode : 1024 x 768

8.2 Final Result : PASSED

8.3 Remark :

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

Test Mode : 1024 x 768



Power Line Test



Signal Control Line Test

SURGE IMMUNITY TEST

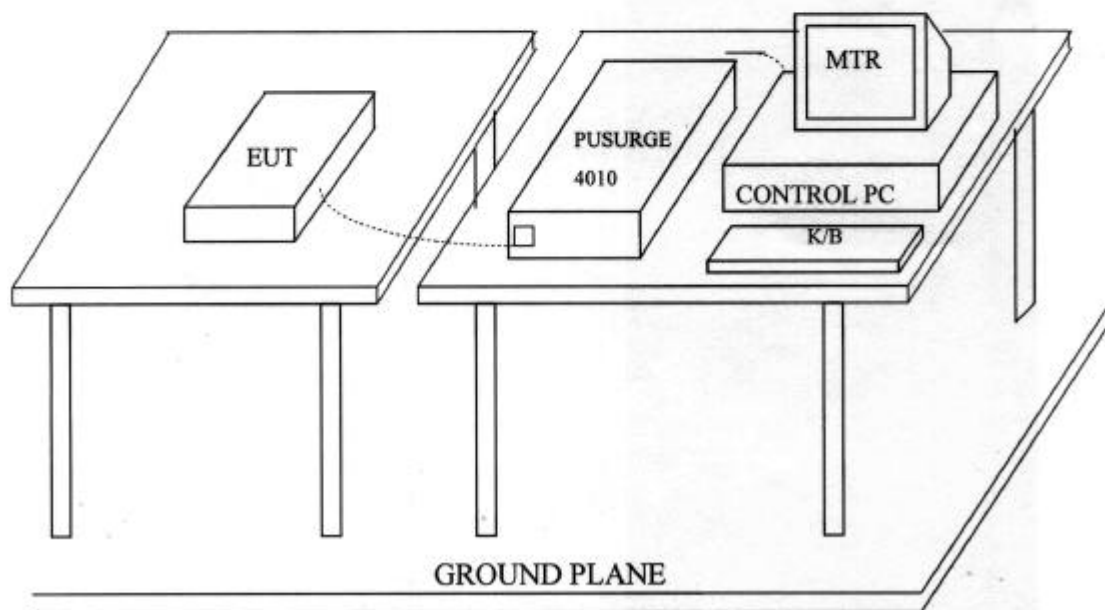
1 TEST INSTRUMENTS & FACILITIES

| Instruments/ Facilities | Manufacturer | Model # Serial # | Data Of Cal. |
|----------------------------|--------------|--------------------------|--------------|
| SURGER-TESTER | HAEFELY | PUSURGE 4010 58333438 | FEB/99 |
| CONTROL PC | KB TECH | KB P586/133 | -- |
| | | | |

2 TEST PROCEDURE

According To EN 61000-4-5

3 TEST SETUP



4 TEST LEVELS

- Input and Output AC Power Ports.
 DC Input and DC Output Power Ports.

| Environmental Phenomena | Test Specification | | Units | Performance Criteria |
|-------------------------|--------------------|-------|---------------------|----------------------|
| | AC | DC | | |
| Surges | 1.2 / 50 (8/20) | | Tr /Th us | |
| Line to Line | ± 1 | ± 0.5 | KV (Charge Voltage) | B |
| Line to Earth | ± 2 | ± 0.5 | KV (Charge Voltage) | B |

5 CONFIGURATION OF THE EUT

Same as "Conducted Power Line test", section 4

6 EUT OPERATION CONDITION

Same as "Conducted Power Line test", section 5

7 CONDITIONS DURING TESTING

7.1 Coupling of power line :

- (A) Line to Line ± 1KV (AC) or ± 0.5KV (DC)
 (B) Line to Earth ± 2KV (AC) or ± 0.5KV (DC)

7.2 Polarity : POSITIVE / NEGATIVE

7.3 Phase shifting in a range between 0 ° to 360 °

7.4 Repetition rate at least 1 per min

7.5 Temperature : 22 °C (15 °C ~ 35 °C)

Humidity : 70 % RH.(10 % ~ 75%)



8 PERFORMANCE CRITERIA

- A. Normal performance within the specification limits.
- B. Temporary degradation or loss of function or performance which is self-recoverable.
- C. Temporary degradation or loss of function or performance which requires operator intervention or system reset.
- D. Degradation or loss of function which is not recoverable due to damage of equipment (components).

9 TEST RESULT

| Environmental Phenomena | Test Specification | Units | Performance |
|-------------------------|--------------------|---------------------|-------------|
| Line to Line | ± 1 | KV (Charge Voltage) | B |
| Line to Earth | ± 2 | KV (Charge Voltage) | B |

9.1 Test Mode : 1024 x 768

9.2 Final Result : PASSED

9.3 Remark :

10 PHOTO OF SURGE IMMUNITY TEST

Test Mode : 1024 x 768



PHOTOS OF EUT

Model : AMB-820HT



EUT Front View



EUT Rear View

PHOTOS OF EUT

Model : AMB-821HT



EUT Front View



EUT Rear View