# FCC DoC TEST REPORT

**REPORT NO.:** D901115A06

**MODEL NO.:** AMB-2053HTT

**RECEIVED:** Nov. 15, 2001

**TESTED:** Nov. 15 ~18, 2001

**APPLICANT:** AAEON TECHNOLOGY INC.

**ADDRESS:** 5F, No. 135, Lane 235, Pao-Hsin Rd., Hsin-Tien City, Taipei, Taiwan, R.O.C.

**ISSUED BY:** Advance Data Technology Corporation

**LAB LOCATION:** 47 14th Lin, Chiapau Tsun, Linko, Taipei, Taiwan, R.O.C.



0528
ILAC MRA

Lab Code: 200102-0

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# 1 CERTIFICATION

| | |
|---|---|
| **PRODUCT:** | PANEL PC |
| **BRAND NAME:** | AAEON |
| **MODEL NO:** | AMB-2053HTT |
| **TEST ITEM:** | ENGINEERING SAMPLE |
| **APPLICANT:** | AAEON TECHNOLOGY INC. |
| **STANDARDS:** | FCC Part 15, Subpart B, Class A<br>CISPR 22: 1997, Class A<br>ANSI C63.4-1992 |

We, **Advance Data Technology Corporation**, hereby certify that one sample of the designation has been tested in our facility from Nov. 15 to 18, 2001. The test record, data evaluation and Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions herein specified.

**TESTED BY:** Arthur Lin , **DATE:** Nov. 23. 2001
( Arthur Lin )

**CHECKED BY:** Yemmy Soong , **DATE:** Nov. 23, 2001
( Yemmy Soong )

**APPROVED BY:** Mike Su , **DATE:** Nov. 23. 2001
( Mike Su, Manager )

# 2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

| Standard | Test Type | Result | Remarks |
|---|---|---|---|
| FCC Part 15, Subpart B, Class A | Conducted Test | PASS | Meets Class A Limit<br>Minimum passing margin is –21.34 dB at 0.150 MHz |
| CISPR 22: 1997, Class A | Radiated Test | PASS | Meets Class A Limit<br>Minimum passing margin is –2.00 dB at 233.86 MHz |

# 3 GENERAL INFORMATION

## 3.1 GENERAL DESCRIPTION OF EUT

| | |
|---|---|
| **PRODUCT** | PANEL PC |
| **MODEL NO.** | AMB-2053HTT |
| **POWER SUPPLY** | Switching power supply<br>DC 10~30V, 70W<br>Power cord:<br>Non-shielded 3-pin (1.8m) |
| **DATA CABLE** | NA |

**NOTE**: The EUT modular system panel PCs, is a PC-based industrial computer that are designed to serve as a Human Machine Interfaces. It is a full-function system with a 15” XGA (1024x768) color TFT LCD display.

The EUT is characterized by its compactness and a heavy-duty steel chassis with aluminum front panel.

For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

## 3.2 DESCRIPTION OF TEST MODES

The EUT was pre-tested under the following condition:

- LCD panel combined with its chassis.
- LCD panel separated from its chassis.

The worst emission level was found when the EUT LCD panel was tested separated from its chassis.

The EUT also can use DC battery and AC power input, this two modes were all tested and recorded in this report.

| | |
|---|---|
| MODE 1 | AC power input |
| MODE 2 | DC battery |

The EUT was tested with the following configuration under the resolution of 1024x768.

| COMPONENTS | MODEL & BRAND NAMES |
|---|---|
| CPU | Intel Celeron 366MHz |
| LCD PANEL | 15” XGA TFT Fujitsu, Model: FLC38XGC6V-06 |
| BackPlane | Model: HP5352 |
| LVDS BOARD | Model: LVDS-T202 |
| HDD | FUJITSU, Model: MHK2060AT, 20GB |
| FDD | NEC, Model: FD1238T, 1.44MB |
| CD-ROM | Vintech, Model: VIN-S24A, 24X |
| MAIN BOARD | Model: SBC-658 |
| AC POWER | SKY NET, Model: SNP-8071-A,<br>I/P: 85-270V 47-63Hz, 2/1A<br>O/P: 12V, 1.5A; 5V, 10A; -12V, 0.3A |
| DC BATTERY | MAGIC POWER, Model: MPD-8071-S<br>I/P: +10Vdc ~ +30Vdc, Normal +24Vdc Max 13A<br>O/P: +5V, 10A; +12V, 1.5A; -12V, 0.3A |

## 3.3 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

| NO. | PRODUCT | BRAND | MODEL NO. | SERIAL NO. | FCC ID |
|---|---|---|---|---|---|
| 1 | COLOR MONITOR | ADI | CM100 | 020058T10200176 | FCC DoC Approved |
| 2 | PRINTER | HP | 2225C+ | 2949S63865 | DSI6XU2225 |
| 3 | MODEM | ACEEX | 1414 | 980020504 | IFAXDM1414 |
| 4 | MODEM | ACEEX | 1414 | 980020505 | IFAXDM1414 |
| 5 | PS/2 KEYBOARD | BTC | 5121W | A00801379 | E5XKB5121WTH0110 |
| 6 | PS/2 MOUSE | LOGITECH | M-S43 | LZE00703197 | DZL211106 |
| 7 | PERSONAL COMPUTER | HP | D4579A | SG73001726 | FCC DoC Approved |
| 8 | 21" COLOR MONITOR | HP | D2846A | JP90512317 | FCC DoC Approved |
| 9 | PS/2 KEYBOARD | BTC | 5121W | A00801375 | E5XKB5121WTH0110 |
| 10 | PS/2 MOUSE | LOGITECH | M-S43 | LZE93502451 | DZL211106 |
| 11 | LAN CARD | INTEL | PRO/100S DESTOP ADAPTER | 0002B33BB665 | FCC DoC Approved |

| NO. | SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS |
|---|---|
| 1 | 1.8 m braid shielded wire, terminated with VGA connector via metallic frame, w/o core |
| 2 | 1.2m braid shielded wire, terminated with DB25 and Centronics connector via metallic frame, w/o core. |
| 3 | 1.2 m braid shielded wire, terminated with DB25 and DB9 connector via metallic frame, w/o core. |
| 4 | 1.2 m braid shielded wire, terminated with DB25 and DB9 connector via metallic frame, w/o core. |
| 5 | 1.6 m foil shielded wire, terminated with PS/2 connector via metallic frame, w/o core. |
| 6 | 1.8 m foil shielded wire, terminated with PS/2 connector via drain wire, w/o core. |
| 7 | NA |
| 8 | 1.8 m braid shielded wire, terminated with VGA connector via metallic frame, w/o core. |
| 9 | 1.6 m foil shielded wire, terminated with PS/2 connector via metallic frame, w/o core. |
| 10 | 1.8 m foil shielded wire, terminated with PS/2 connector via drain wire, w/o core. |
| 11 | NA |

**NOTE:** 1. All power cords of the above support units are non-shielded (1.8m).
2. The EUT acted as SERVER PC and communicated with support units 7-11 (kept in a remote area), which acted as WORKSTATION and partners of communication system via a UTP cable (20m).

# 4 EMISSION TEST

## 4.1 CONDUCTED EMISSION MEASUREMENT

### 4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

| FREQUENCY (MHz) | Class A (dBuV) | | Class B (dBuV) | |
|---|---|---|---|---|
| | Quasi-peak | Average | Quasi-peak | Average |
| 0.15 - 0.5 | 79 | 66 | 66 - 56 | 56 - 46 |
| 0.50 - 5.0 | 73 | 60 | 56 | 46 |
| 5.0 - 30.0 | 73 | 60 | 60 | 50 |

**NOTES**: (1) The lower limit shall apply at the transition frequencies.

(2) The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.

(3) All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

### 4.1.2 TEST INSTRUMENTS

| DESCRIPTION & MANUFACTURER | MODEL NO. | SERIAL NO. | CALIBRATED UNTIL |
|---|---|---|---|
| ROHDE & SCHWARZ Test Receiver | ESHS30 | 828109/007 | July 4, 2002 |
| ROHDE & SCHWARZ Artificial Mains Network (for EUT) | ESH3-Z5 | 839135/006 | July 3, 2002 |
| * ROHDE & SCHWARZ 4-wire ISN | ENY41 | 837032/016 | Nov. 28, 2001 |
| * ROHDE & SCHWARZ 2-wire ISN | ENY22 | 837497/016 | Dec. 3, 2001 |
| EMCO-L.I.S.N. (for peripheral) | 3825/2 | 9204-1964 | July 3, 2002 |
| Software | Cond-V2J | NA | NA |
| RF cable (JYEBAO) | RG-58A/U | Cable-C02.01 | July 5, 2002 |
| HP Terminator (For EMCO LISN) | 11593A | E1-01-298 | Feb. 20, 2002 |
| HP Terminator (For EMCO LISN) | 11593A | E1-01-299 | Feb. 20, 2002 |
| Shielded Room | Site 2 | ADT-C02 | NA |
| VCCI Site Registration No. | Site 2 | C-240 | NA |

**NOTE:** 1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81.

2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

## 4.1.3 TEST PROCEDURE

a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.

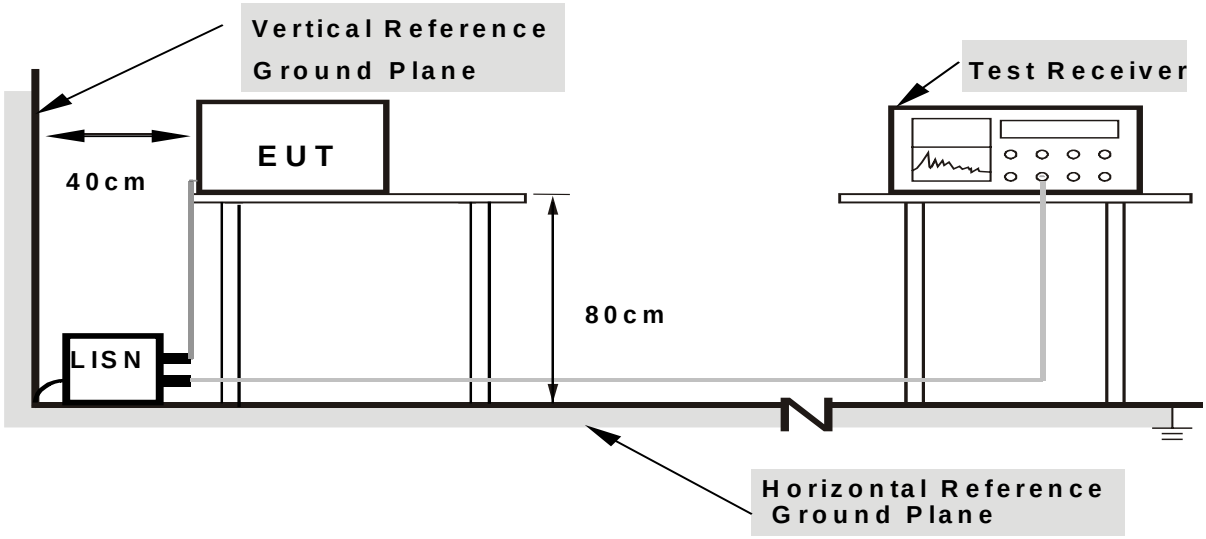
b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

c. The frequency range from 150 kHz to 30 MHz was searched. Emission levels over 10dB under the prescribed limits could not be reported.

## 4.1.4 DEVIATION FROM TEST STANDARD

No deviation

## 4.1.5 TEST SETUP




**Note: 1.Support units were connected to second LISN.**
**2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes**

For the actual test configuration, please refer to the related Item – Photographs of the Test Configuration.

## 4.1.6 EUT OPERATING CONDITIONS

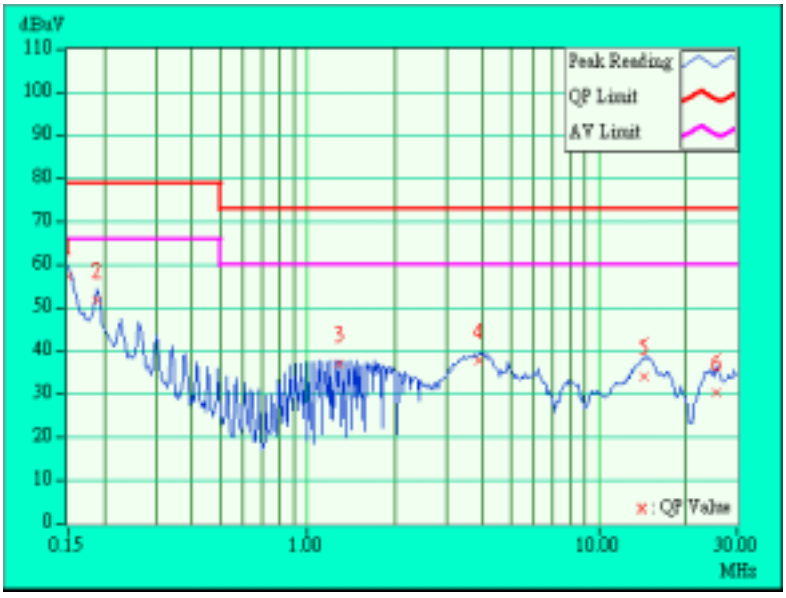
a. EUT ran a test program to enable all functions.
b. EUT read and wrote messages from HDD & FDD.
c. EUT sent and received messages from WORKSTATION PC via a UTP cable and a telephone cable.
d. EUT sent “H” messages to its LCD panel and monitor. Then LCD panel and monitor displayed them on their screen simultaneously.
e. EUT sent “H” messages to printer and printer printed "H" messages on paper.
f. EUT sent messages to modem.
g. Steps c-g were repeated.

## 4.1.7 TEST RESULTS

| | | | |
|---|---|---|---|
| **EUT** | PANEL PC | **MODEL NO.** | AMB-2053HTT |
| **MODE** | 1 | **6dB BANDWIDTH** | 10 kHz |
| **INPUT POWER** | 120Vac, 60 Hz | **PHASE** | Line (L) |
| **ENVIRONMENTAL CONDITIONS** | 25 deg. C, 60 % RH, 1005 hPa | **TESTED BY**: Arthur Lin | |

| No | Freq. | Corr. Factor | Reading Value | | Emission Level | | Limit | | Margin | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | [dB (uV)] | | [dB (uV)] | | [dB (uV)] | | (dB) | |
| | [MHz] | (dB) | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. |
| 1 | 0.150 | 0.10 | 57.56 | - | 57.66 | - | 79.00 | 66.00 | -21.34 | - |
| 2 | 0.189 | 0.10 | 51.93 | - | 52.03 | - | 79.00 | 66.00 | -26.97 | - |
| 3 | 1.285 | 0.10 | 37.05 | - | 37.15 | - | 73.00 | 60.00 | -35.85 | - |
| 4 | 3.859 | 0.29 | 37.63 | - | 37.92 | - | 73.00 | 60.00 | -35.08 | - |
| 5 | 14.383 | 0.76 | 34.11 | - | 34.87 | - | 73.00 | 60.00 | -38.13 | - |
| 6 | 25.285 | 1.11 | 30.20 | - | 31.31 | - | 73.00 | 60.00 | -41.69 | - |

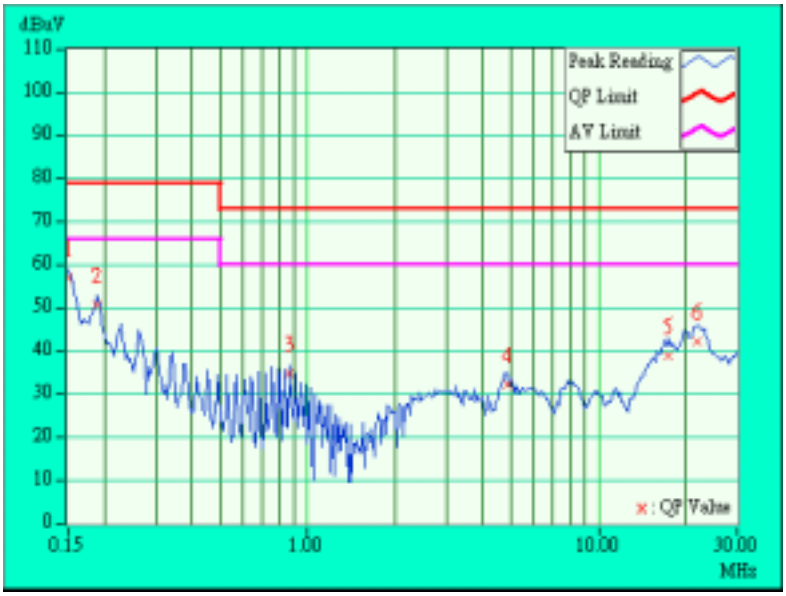
**REMARKS:** 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.



| | | | |
|---|---|---|---|
| **EUT** | PANEL PC | **MODEL NO.** | AMB-2053HTT |
| **MODE** | 1 | **6dB BANDWIDTH** | 10 kHz |
| **INPUT POWER** | 120Vac, 60 Hz | **PHASE** | Neutral (N) |
| **ENVIRONMENTAL CONDITIONS** | 25 deg. C, 60 % RH, 1005 hPa | **TESTED BY**: Arthur Lin | |

| No | Freq. | Corr. Factor | Reading Value | | Emission Level | | Limit | | Margin | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | [dB (uV)] | | [dB (uV)] | | [dB (uV)] | | (dB) | |
| | [MHz] | (dB) | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. |
| 1 | 0.150 | 0.10 | 56.92 | - | 57.02 | - | 79.00 | 66.00 | -21.98 | - |
| 2 | 0.189 | 0.10 | 50.91 | - | 51.01 | - | 79.00 | 66.00 | -27.99 | - |
| 3 | 0.869 | 0.10 | 34.65 | - | 34.75 | - | 73.00 | 60.00 | -38.25 | - |
| 4 | 4.881 | 0.31 | 32.18 | - | 32.49 | - | 73.00 | 60.00 | -40.51 | - |
| 5 | 17.480 | 0.70 | 38.77 | - | 39.47 | - | 73.00 | 60.00 | -33.53 | - |
| 6 | 21.906 | 0.84 | 42.31 | - | 43.15 | - | 73.00 | 60.00 | -29.85 | - |

**REMARKS:** 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.



## 4.2 RADIATED EMISSION MEASUREMENT

### 4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

### FOR FREQUENCY BELOW 1000 MHz

| FREQUENCY (MHz) | Class A (at 10m) | Class B (at 10m) |
|---|---|---|
| | dBuV/m | dBuV/m |
| 30 – 230 | 40 | 30 |
| 230 - 1000 | 47 | 37 |

### LIMIT OF RADIATED EMISSION OF FCC PART 15, SUBPART B FOR FREQUENCY ABOVE 1000 MHz

| FREQUENCY (MHz) | Class A (dBuV/m) (at 3m) | | Class B (dBuV/m) (at 3m) | |
|---|---|---|---|---|
| | PEAK | AVERAGE | PEAK | AVERAGE |
| Above 1000 | 80.0 | 60.0 | 74.0 | 54.0 |

**Note:** (1) The lower limit shall apply at the transition frequencies.

(2) Emission level (dBuV/m) = 20 log Emission level (uV/m).

(3) All emanation from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

## 4.2.2 TEST INSTRUMENTS

| DESCRIPTION & MANUFACTURER | MODEL NO. | SERIAL NO. | CALIBRATED UNTIL |
|---|---|---|---|
| HP Spectrum Analyzer | 8590L | 3544A01042 | April 16, 2002 |
| HP Preamplifier | 8447D | 2944A08313 | April 3, 2002 |
| * HP Preamplifier | 8449B | 3008A01201 | Dec. 06, 2002 |
| * HP Preamplifier | 8449B | 3008A01292 | Aug. 21, 2002 |
| * ROHDE & SCHWARZ TEST RECEIVER | ESI7 | 838496/016 | Feb. 17, 2002 |
| SCHWARZBECK Tunable Dipole Antenna | VHA 9103<br>UHA 9105 | E101051<br>E101055 | Nov. 23, 2002 |
| * ROHDE & SCHWARZ TEST RECEIVER | ESMI | 839013/007<br>839379/002 | Jan. 25, 2002 |
| * CHASE BILOG Antenna | CBL6111A | 1647 | June 27, 2002 |
| * SCHWARZBECK Horn Antenna | BBHA9120-D1 | D130 | July 6, 2002 |
| * EMCO Horn Antenna | 3115 | 9312-4192 | April 15, 2002 |
| * EMCO Turn Table | 1016 | 1722 | NA |
| * EMCO Tower | 1051 | 1825 | NA |
| * Software | AS61D4 | NA | NA |
| * ANRITSU RF Switches | MP59B | M28342 | June 27, 2002 |
| * TIMES RF cable | LMR-600 | CABLE-ST4-01 | June 27, 2002 |
| Open Field Test Site | Site 4 | ADT-R04 | June 8, 2002 |
| VCCI Site Registration No. | Site 4 | R-1038 | NA |

**NOTE:** 1. The measurement uncertainty is less than +/- 3.0dB, which is calculated as per the NAMAS document NIS81.

2. The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to NML/ROC and NIST/USA.

3. "*" = These equipment are used for the final measurement.

4. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.

## 4.2.3 TEST PROCEDURE

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10-meter open field site. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field

strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the ratable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

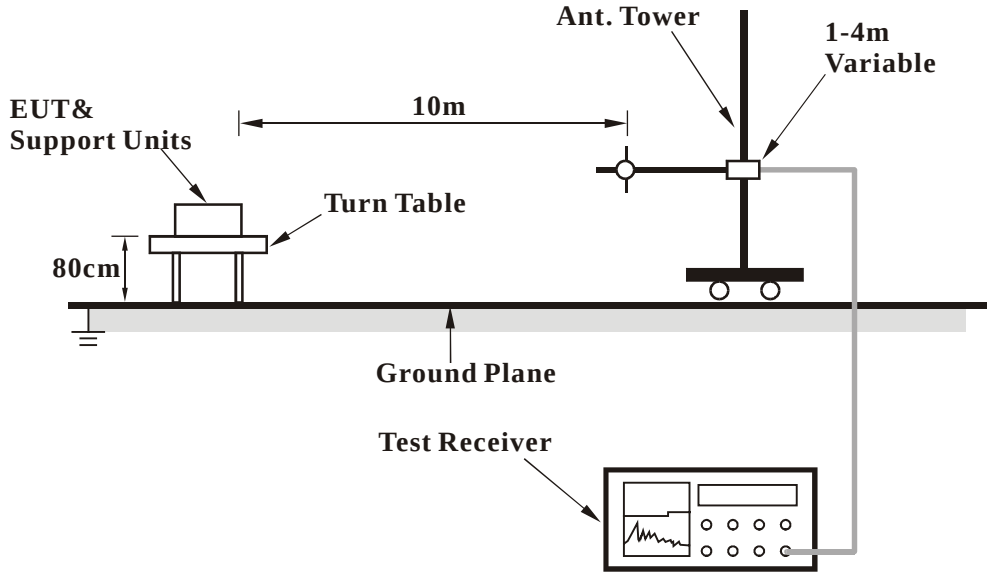
f. If the emission level of the EUT in peak mode was 10 dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10 dB margin would be re-tested one by one using the quasi- peak method or average method as specified and then reported In Data sheet peak mode and QP mode.

g. For measurement of frequency above 1000 MHz, the EUT was set 3 meters away from the interference antenna and the detect function was set to Peak or Average.

## 4.2.4 DEVIATION FROM TEST STANDARD

No deviation

## 4.2.5 TEST SETUP




For the actual test configuration, please refer to the related Item – Photographs of the Test Configuration.

## 4.2.6 EUT OPERATING CONDITIONS

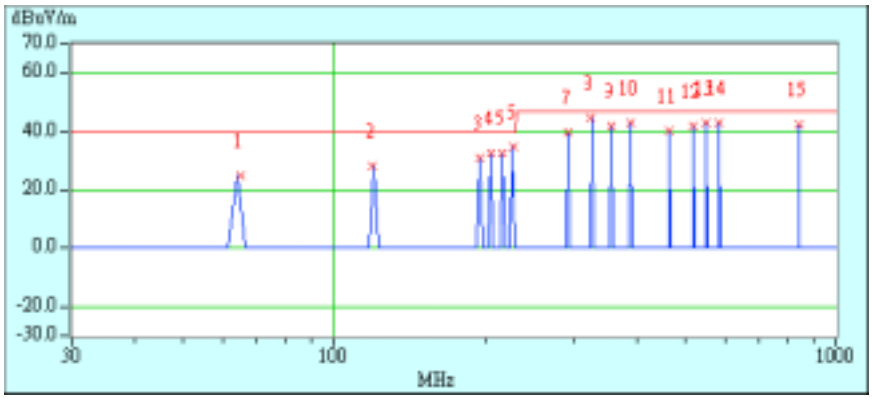
Same as 4.1.6.

## 4.2.7 TEST RESULTS (A)

| | | | |
|---|---|---|---|
| **EUT** | PANEL PC | **MODEL NO.** | AMB-2053HTT |
| **MODE** | 1 | **FREQUENCY RANGE** | 30-1000 MHz |
| **INPUT POWER** | 120Vac, 60 Hz | **DETECTOR FUNCTION & BANDWIDTH** | Quasi-Peak, 120kHz |
| **ENVIRONMENTAL CONDITIONS** | 22 deg. C, 55 % RH, 1005 hPa | **TESTED BY**: Arthur Lin | |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 10 M | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| No. | Freq. (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Antenna Factor (dB/m) | Cable Factor (dB) | Pre-Amp. Gain (dB) | Correction Factor (dB/m) |
| 1 | 65.00 | 25.0 QP | 40.00 | -15.00 | 4.00H | 298 | 19.26 | 5.01 | 0.73 | 0.00 | -5.74 |
| 2 | 119.12 | 28.0 QP | 40.00 | -12.00 | 4.00H | 95 | 14.82 | 12.22 | 0.96 | 0.00 | -13.18 |
| 3 | 194.98 | 31.0 QP | 40.00 | -9.00 | 4.00H | 74 | 20.62 | 8.98 | 1.40 | 0.00 | -10.38 |
| 4 | 205.70 | 32.5 QP | 40.00 | -7.50 | 4.00H | 340 | 21.73 | 9.33 | 1.43 | 0.00 | -10.77 |
| 5 | 216.65 | 32.8 QP | 40.00 | -7.20 | 4.00H | 358 | 21.20 | 10.14 | 1.46 | 0.00 | -11.60 |
| 6 | 227.53 | 34.9 QP | 40.00 | -5.10 | 4.00H | 298 | 22.63 | 10.79 | 1.49 | 0.00 | -12.27 |
| 7 | 292.42 | 40.0 QP | 47.00 | -7.00 | 2.76H | 88 | 25.34 | 13.07 | 1.60 | 0.00 | -14.67 |
| 8 | 324.91 | 44.6 QP | 47.00 | -2.40 | 2.60H | 304 | 29.00 | 13.76 | 1.81 | 0.00 | -15.57 |
| 9 | 357.41 | 42.2 QP | 47.00 | -4.80 | 2.94H | 250 | 25.78 | 14.39 | 2.03 | 0.00 | -16.42 |
| 10 | 389.89 | 43.2 QP | 47.00 | -3.80 | 2.76H | 7 | 25.60 | 15.58 | 2.06 | 0.00 | -17.64 |
| 11 | 465.70 | 40.3 QP | 47.00 | -6.70 | 1.92H | 248 | 20.66 | 17.40 | 2.23 | 0.00 | -19.64 |
| 12 | 519.86 | 42.1 QP | 47.00 | -4.90 | 1.55H | 279 | 20.64 | 19.21 | 2.22 | 0.00 | -21.43 |
| 13 | 552.36 | 43.3 QP | 47.00 | -3.70 | 1.97H | 211 | 20.23 | 20.66 | 2.40 | 0.00 | -23.07 |
| 14 | 584.83 | 43.2 QP | 47.00 | -3.80 | 1.78H | 127 | 20.41 | 20.27 | 2.52 | 0.00 | -22.79 |
| 15 | 844.75 | 42.6 QP | 47.00 | -4.40 | 1.00H | 69 | 15.22 | 24.36 | 3.03 | 0.00 | -27.39 |

**REMARKS**:
1. Emission level(dBuV/m)=Raw Value(dBuV) – Correction Factor(dB)
2. Correction Factor(dB/m) = Pre-Amplifier Gain (dB) - Antenna Factor (dB/m) - Cable Factor (dB)
3. Pre-Amplifier Gain (dB) = 0, when the test receiver is used to read the value and because it did not use the Pre-Amplifier.
4. The other emission levels were very low against the limit.
5. Margin value = Emission level – Limit value.

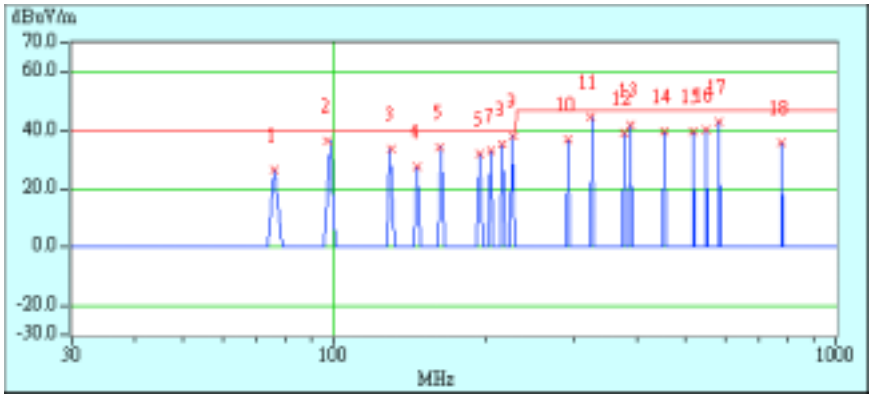


| | | | |
|---|---|---|---|
| **EUT** | PANEL PC | **MODEL NO.** | AMB-2053HTT |
| **MODE** | 1 | **FREQUENCY RANGE** | 30-1000 MHz |
| **INPUT POWER** | 120Vac, 60 Hz | **DETECTOR FUNCTION & BANDWIDTH** | Quasi-Peak, 120kHz |
| **ENVIRONMENTAL CONDITIONS** | 22 deg. C, 55 % RH, 1005 hPa | **TESTED BY**: Arthur Lin | |

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 10 M**

| No. | Freq. (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Antenna Factor (dB/m) | Cable Factor (dB) | Pre-Amp. Gain (dB) | Correction Factor (dB/m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 75.86 | 26.8 QP | 40.00 | -13.20 | 1.33V | 33 | 19.69 | 6.29 | 0.82 | 0.00 | -7.11 |
| 2 | 97.00 | 36.4 QP | 40.00 | -3.60 | 1.00V | 357 | 25.67 | 9.78 | 0.95 | 0.00 | -10.73 |
| 3 | 130.00 | 34.0 QP | 40.00 | -6.00 | 1.00V | 249 | 21.08 | 11.93 | 0.99 | 0.00 | -12.92 |
| 4 | 146.14 | 27.8 QP | 40.00 | -12.20 | 1.00V | 341 | 15.61 | 11.08 | 1.11 | 0.00 | -12.19 |
| 5 | 162.40 | 34.2 QP | 40.00 | -5.80 | 1.00V | 46 | 23.10 | 9.84 | 1.29 | 0.00 | -11.13. |
| 6 | 194.96 | 32.2 QP | 40.00 | -7.80 | 1.00V | 256 | 21.82 | 8.98 | 1.40 | 0.00 | -10.38 |
| 7 | 205.74 | 33.3 QP | 40.00 | -6.70 | 1.00V | 5 | 22.53 | 9.33 | 1.43 | 0.00 | -10.76 |
| 8 | 216.65 | 35.6 QP | 40.00 | -4.40 | 1.00V | 11 | 24.00 | 10.14 | 1.46 | 0.00 | -11.60 |
| 9 | 227.44 | 37.9 QP | 40.00 | -2.10 | 1.00V | 4 | 25.60 | 10.79 | 1.49 | 0.00 | -12.27 |
| 10 | 292.30 | 37.3 QP | 47.00 | -9.70 | 1.00V | 220 | 22.64 | 13.07 | 1.60 | 0.00 | -14.67 |
| 11 | 324.91 | 44.6 QP | 47.00 | -2.40 | 1.00V | 299 | 29.01 | 13.76 | 1.81 | 0.00 | -15.58 |
| 12 | 379.08 | 39.0 QP | 47.00 | -8.00 | 1.00V | 36 | 21.70 | 15.21 | 2.05 | 0.00 | -17.27 |
| 13 | 389.82 | 42.0 QP | 47.00 | -5.00 | 1.00V | 213 | 24.36 | 15.58 | 2.06 | 0.00 | -17.65 |
| 14 | 454.88 | 39.6 QP | 47.00 | -7.40 | 1.00V | 21 | 20.22 | 17.10 | 2.28 | 0.00 | -19.38 |
| 15 | 519.86 | 40.0 QP | 47.00 | -7.00 | 3.57V | 318 | 18.57 | 19.21 | 2.22 | 0.00 | -21.44 |
| 16 | 552.34 | 40.6 QP | 47.00 | -6.40 | 3.83V | 318 | 17.53 | 20.66 | 2.40 | 0.00 | -23.08 |
| 17 | 584.85 | 43.1 QP | 47.00 | -3.90 | 3.94V | 323 | 20.35 | 20.27 | 2.52 | 0.00 | -22.80 |
| 18 | 779.79 | 36.0 QP | 47.00 | -11.00 | 1.73V | 9 | 10.31 | 22.80 | 2.89 | 0.00 | -25.70 |

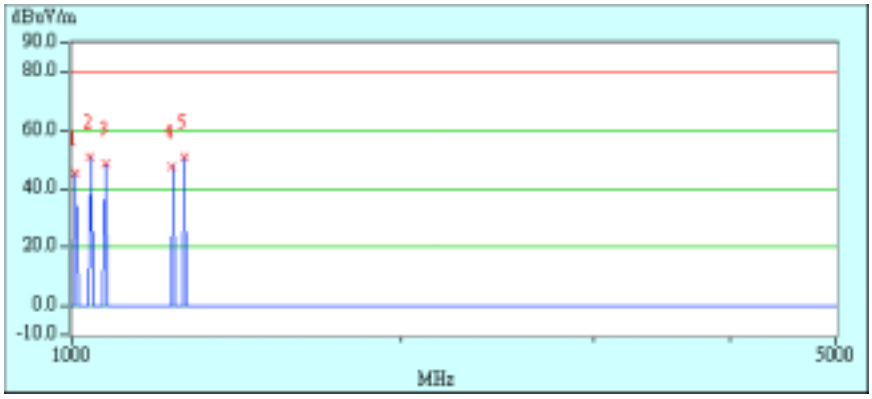
**REMARKS**:
1. Emission level(dBuV/m)=Raw Value(dBuV) – Correction Factor(dB)
2. Correction Factor(dB/m) = Pre-Amplifier Gain (dB) - Antenna Factor (dB/m) - Cable Factor (dB)
3. Pre-Amplifier Gain (dB) = 0, when the test receiver is used to read the value and because it did not use the Pre-Amplifier.
4. The other emission levels were very low against the limit.
5. Margin value = Emission level – Limit value.



| | | | |
|---|---|---|---|
| **EUT** | PANEL PC | **MODEL NO.** | AMB-2053HTT |
| **MODE** | 1 | **FREQUENCY RANGE** | 1000 – 5000 MHz |
| **INPUT POWER** | 120Vac, 60 Hz | **DETECTOR FUNCTION & BANDWIDTH** | Peak, 1 MHz |
| **ENVIRONMENTAL CONDITIONS** | 22 deg. C, 55 % RH, 1005 hPa | **TESTED BY**: Arthur Lin | |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| No. | Freq. (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Antenna Factor (dB/m) | Cable Factor (dB) | Pre-Amp. Gain (dB) | Correction Factor (dB/m) |
| 1 | 1007.20 | 45.7 pk | 80.00 | -34.30 | 1.00H | 110 | 54.00 | 24.92 | 3.35 | 36.59 | 8.32 |
| 2 | 1039.60 | 50.8 pk | 80.00 | -29.20 | 1.00H | 206 | 59.00 | 24.98 | 3.39 | 36.54 | 8.18 |
| 3 | 1072.30 | 49.0 pk | 80.00 | -31.00 | 1.11H | 195 | 57.00 | 25.04 | 3.43 | 36.50 | 8.03 |
| 4 | 1234.70 | 47.9 pk | 80.00 | -32.10 | 1.00H | 175 | 55.00 | 25.37 | 3.76 | 36.27 | 7.13 |
| 5 | 1267.10 | 51.1 pk | 80.00 | -28.90 | 1.62H | 167 | 58.00 | 25.44 | 3.85 | 36.22 | 6.94 |

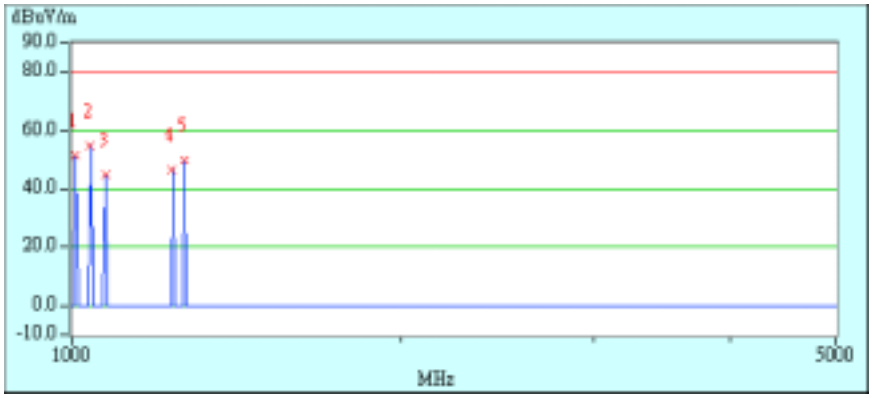
**REMARKS**:
1. Emission level(dBuV/m)=Raw Value(dBuV) – Correction Factor(dB)
2. Correction Factor(dB/m) = Pre-Amplifier Gain (dB) - Antenna Factor (dB/m) - Cable Factor (dB)
3. Pre-Amplifier Gain (dB) = 0, when the test receiver is used to read the value and because it did not use the Pre-Amplifier.
4. The other emission levels were very low against the limit.
5. Margin value = Emission level – Limit value.



| | | | |
|---|---|---|---|
| **EUT** | PANEL PC | **MODEL NO.** | AMB-2053HTT |
| **MODE** | 1 | **FREQUENCY RANGE** | 1000 – 5000 MHz |
| **INPUT POWER** | 120Vac, 60 Hz | **DETECTOR FUNCTION & BANDWIDTH** | Peak, 1 MHz |
| **ENVIRONMENTAL CONDITIONS** | 22 deg. C, 55 % RH, 1005 hPa | **TESTED BY**: Arthur Lin | |

| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| No. | Freq. (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Antenna Factor (dB/m) | Cable Factor (dB) | Pre-Amp. Gain (dB) | Correction Factor (dB/m) |
| 1 | 1007.40 | 51.7 pk | 80.00 | -28.30 | 1.40V | 196 | 60.00 | 24.92 | 3.35 | 36.59 | 8.32 |
| 2 | 1039.50 | 54.7 pk | 80.00 | -25.30 | 1.13V | 180 | 62.90 | 24.98 | 3.39 | 36.54 | 8.18 |
| 3 | 1072.10 | 44.9 pk | 80.00 | -35.10 | 1.30V | 152 | 52.94 | 25.04 | 3.43 | 36.50 | 8.03 |
| 4 | 1234.70 | 46.4 pk | 80.00 | -33.60 | 1.11V | 12 | 53.50 | 25.37 | 3.76 | 36.27 | 7.13 |
| 5 | 1267.10 | 49.7 pk | 80.00 | -30.30 | 1.13V | 145 | 56.60 | 25.44 | 3.85 | 36.22 | 6.94 |

**REMARKS**:
1. Emission level(dBuV/m)=Raw Value(dBuV) – Correction Factor(dB)
2. Correction Factor(dB/m) = Pre-Amplifier Gain (dB) - Antenna Factor (dB/m) - Cable Factor (dB)
3. Pre-Amplifier Gain (dB) = 0, when the test receiver is used to read the value and because it did not use the Pre-Amplifier.
4. The other emission levels were very low against the limit.
5. Margin value = Emission level – Limit value.

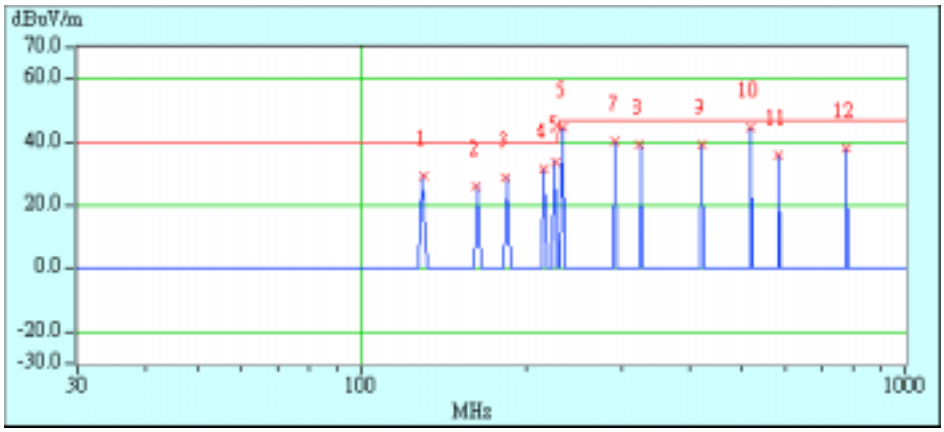


## 4.2.8 TEST RESULTS (B)

| | | | |
|---|---|---|---|
| **EUT** | PANEL PC | **MODEL NO.** | AMB-2053HTT |
| **MODE** | 2 | **FREQUENCY RANGE** | 30-1000 MHz |
| **INPUT POWER** | 120Vac, 60 Hz | **DETECTOR FUNCTION & BANDWIDTH** | Quasi-Peak, 120kHz |
| **ENVIRONMENTAL CONDITIONS** | 22 deg. C, 55 % RH, 1005 hPa | **TESTED BY**: Arthur Lin | |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 10 M | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| No. | Freq. (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Antenna Factor (dB/m) | Cable Factor (dB) | Pre-Amp. Gain (dB) | Correction Factor (dB/m) |
| 1 | 129.97 | 29.1 QP | 40.00 | -10.90 | 4.00H | 106 | 16.21 | 11.93 | 0.99 | 0.00 | -12.92 |
| 2 | 162.47 | 26.2 QP | 40.00 | -13.80 | 4.00H | 298 | 15.12 | 9.84 | 1.29 | 0.00 | -11.13 |
| 3 | 184.14 | 28.9 QP | 40.00 | -11.10 | 4.00H | 73 | 18.67 | 8.90 | 1.35 | 0.00 | -10.25 |
| 4 | 216.01 | 31.6 QP | 40.00 | -8.40 | 4.00H | 326 | 20.02 | 10.14 | 1.46 | 0.00 | -11.60 |
| 5 | 227.44 | 33.7 QP | 40.00 | -6.30 | 4.00H | 42 | 21.43 | 10.79 | 1.49 | 0.00 | -12.27 |
| 6 | 233.86 | 45.0 QP | 47.00 | -2.00 | 3.88H | 312 | 32.18 | 11.27 | 1.51 | 0.00 | -12.78 |
| 7 | 292.45 | 40.2 QP | 47.00 | -6.80 | 3.30H | 192 | 25.54 | 13.07 | 1.60 | 0.00 | -14.66 |
| 8 | 324.91 | 39.2 QP | 47.00 | -7.80 | 2.98H | 29 | 23.59 | 13.76 | 1.81 | 0.00 | -15.58 |
| 9 | 422.38 | 39.1 QP | 47.00 | -7.90 | 2.78H | 59 | 20.43 | 16.45 | 2.18 | 0.00 | -18.64 |
| 10 | 519.87 | 44.9 QP | 47.00 | -2.10 | 2.34H | 147 | 23.47 | 19.21 | 2.22 | 0.00 | -21.43 |
| 11 | 584.85 | 36.1 QP | 47.00 | -10.90 | 1.86H | 239 | 13.36 | 20.27 | 2.52 | 0.00 | -22.79 |
| 12 | 779.78 | 38.1 QP | 47.00 | -8.90 | 1.26H | 261 | 12.42 | 22.80 | 2.89 | 0.00 | -25.70 |

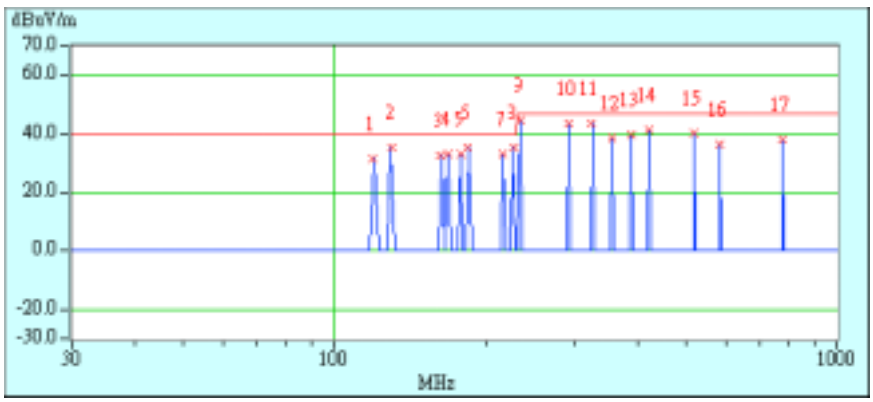
**REMARKS**:
1. Emission level(dBuV/m)=Raw Value(dBuV) – Correction Factor(dB)
2. Correction Factor(dB/m) = Pre-Amplifier Gain (dB) - Antenna Factor (dB/m) - Cable Factor (dB)
3. Pre-Amplifier Gain (dB) = 0, when the test receiver is used to read the value and because it did not use the Pre-Amplifier.
4. The other emission levels were very low against the limit.
5. Margin value = Emission level – Limit value.



| | | | |
|---|---|---|---|
| **EUT** | PANEL PC | **MODEL NO.** | AMB-2053HTT |
| **MODE** | 2 | **FREQUENCY RANGE** | 30-1000 MHz |
| **INPUT POWER** | 120Vac, 60 Hz | **DETECTOR FUNCTION & BANDWIDTH** | Quasi-Peak, 120kHz |
| **ENVIRONMENTAL CONDITIONS** | 22 deg. C, 55 % RH, 1005 hPa | **TESTED BY**: Arthur Lin | |

| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 10 M | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| No. | Freq. (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Antenna Factor (dB/m) | Cable Factor (dB) | Pre-Amp. Gain (dB) | Correction Factor (dB/m) |
| 1 | 119.16 | 31.8 QP | 40.00 | -8.20 | 1.00V | 140 | 18.60 | 12.22 | 0.96 | 0.00 | -13.18 |
| 2 | 129.97 | 35.1 QP | 40.00 | -4.90 | 1.00V | 288 | 22.19 | 11.93 | 0.99 | 0.00 | -12.92 |
| 3 | 162.40 | 32.8 QP | 40.00 | -7.20 | 1.00V | 347 | 21.67 | 9.84 | 1.29 | 0.00 | -11.13 |
| 4 | 167.92 | 33.0 QP | 40.00 | -7.00 | 1.00V | 358 | 22.11 | 9.55 | 1.30 | 0.00 | -10.86 |
| 5 | 178.72 | 33.1 QP | 40.00 | -6.90 | 1.00V | 357 | 22.83 | 8.98 | 1.32 | 0.00 | -10.31 |
| 6 | 184.14 | 35.5 QP | 40.00 | -4.50 | 1.00V | 174 | 25.27 | 8.90 | 1.35 | 0.00 | -10.25 |
| 7 | 216.65 | 33.4 QP | 40.00 | -6.60 | 1.00V | 197 | 21.80 | 10.14 | 1.46 | 0.00 | -11.60 |
| 8 | 227.44 | 35.4 QP | 40.00 | -4.60 | 1.00V | 196 | 23.13 | 10.79 | 1.49 | 0.00 | -12.27 |
| 9 | 233.86 | 44.5 QP | 47.00 | -2.50 | 1.00V | 162 | 31.77 | 11.27 | 1.51 | 0.00 | -12.78 |
| 10 | 292.43 | 43.7 QP | 47.00 | -3.30 | 1.00V | 50 | 29.04 | 13.07 | 1.60 | 0.00 | -14.67 |
| 11 | 324.93 | 43.7 QP | 47.00 | -3.30 | 1.00V | 359 | 28.17 | 13.76 | 1.81 | 0.00 | -15.57 |
| 12 | 357.41 | 38.8 QP | 47.00 | -8.20 | 1.00V | 63 | 22.36 | 14.39 | 2.03 | 0.00 | -16.43 |
| 13 | 389.90 | 39.7 QP | 47.00 | -7.30 | 1.00V | 226 | 22.06 | 15.58 | 2.06 | 0.00 | -17.64 |
| 14 | 422.40 | 41.3 QP | 47.00 | -5.70 | 1.00V | 57 | 22.72 | 16.45 | 2.18 | 0.00 | -18.63 |
| 15 | 519.87 | 40.5 QP | 47.00 | -6.50 | 1.00V | 85 | 19.07 | 19.21 | 2.22 | 0.00 | -21.43 |
| 16 | 584.85 | 36.6 QP | 47.00 | -10.40 | 3.82V | 137 | 13.85 | 20.27 | 2.52 | 0.00 | -22.79 |
| 17 | 779.78 | 38.1 QP | 47.00 | -8.90 | 1.74V | 183 | 12.38 | 22.80 | 2.89 | 0.00 | -25.70 |

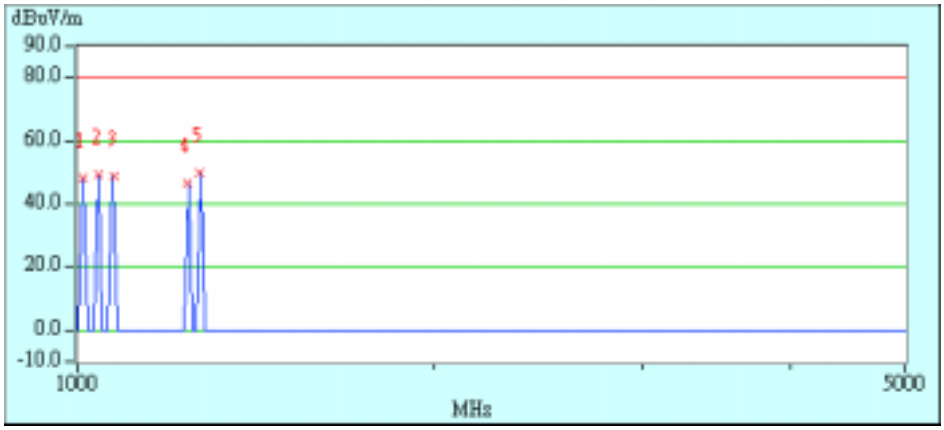
**REMARKS**:
1. Emission level(dBuV/m)=Raw Value(dBuV) – Correction Factor(dB)
2. Correction Factor(dB/m) = Pre-Amplifier Gain (dB) - Antenna Factor (dB/m) - Cable Factor (dB)
3. Pre-Amplifier Gain (dB) = 0, when the test receiver is used to read the value and because it did not use the Pre-Amplifier.
4. The other emission levels were very low against the limit.
5. Margin value = Emission level – Limit value.



| | | | |
|---|---|---|---|
| **EUT** | PANEL PC | **MODEL NO.** | AMB-2053HTT |
| **MODE** | 2 | **FREQUENCY RANGE** | 1000 – 5000 MHz |
| **INPUT POWER** | 120Vac, 60 Hz | **DETECTOR FUNCTION & BANDWIDTH** | Peak, 1 MHz |
| **ENVIRONMENTAL CONDITIONS** | 22 deg. C, 55 % RH, 1005 hPa | **TESTED BY**: Arthur Lin | |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| No. | Freq. (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Antenna Factor (dB/m) | Cable Factor (dB) | Pre-Amp. Gain (dB) | Correction Factor (dB/m) |
| 1 | 1009.20 | 48.4 pk | 80.00 | -31.60 | 1.22H | 124 | 56.71 | 24.92 | 3.35 | 36.59 | 8.31 |
| 2 | 1040.90 | 49.2 pk | 80.00 | -30.80 | 1.00H | 252 | 57.38 | 24.98 | 3.39 | 36.54 | 8.18 |
| 3 | 1072.90 | 48.7 pk | 80.00 | -31.30 | 1.17H | 133 | 56.74 | 25.04 | 3.42 | 36.50 | 8.04 |
| 4 | 1236.40 | 46.5 pk | 80.00 | -33.50 | 1.07H | 68 | 53.61 | 25.38 | 3.77 | 36.26 | 7.11 |
| 5 | 1266.90 | 49.8 pk | 80.00 | -30.20 | 1.55H | 217 | 56.73 | 25.44 | 3.85 | 36.22 | 6.93 |

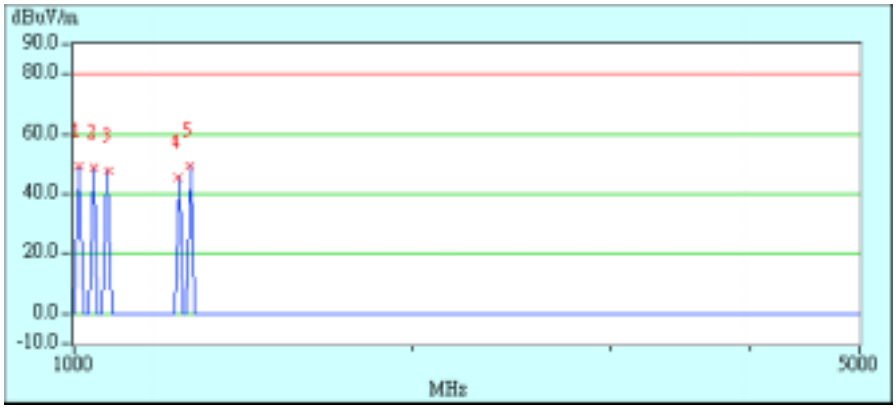
**REMARKS**:
1. Emission level(dBuV/m)=Raw Value(dBuV) – Correction Factor(dB)
2. Correction Factor(dB/m) = Pre-Amplifier Gain (dB) - Antenna Factor (dB/m) - Cable Factor (dB)
3. Pre-Amplifier Gain (dB) = 0, when the test receiver is used to read the value and because it did not use the Pre-Amplifier.
4. The other emission levels were very low against the limit.
5. Margin value = Emission level – Limit value.



| | | | |
|---|---|---|---|
| **EUT** | PANEL PC | **MODEL NO.** | AMB-2053HTT |
| **MODE** | 2 | **FREQUENCY RANGE** | 1000 – 5000 MHz |
| **INPUT POWER** | 120Vac, 60 Hz | **DETECTOR FUNCTION & BANDWIDTH** | Peak, 1 MHz |
| **ENVIRONMENTAL CONDITIONS** | 22 deg. C, 55 % RH, 1005 hPa | **TESTED BY**: Arthur Lin | |

| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| No. | Freq. (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Antenna Factor (dB/m) | Cable Factor (dB) | Pre-Amp. Gain (dB) | Correction Factor (dB/m) |
| 1 | 1009.30 | 49.6 pk | 80.00 | -30.40 | 1.62V | 208 | 57.91 | 24.92 | 3.35 | 36.59 | 8.31 |
| 2 | 1041.80 | 48.7 pk | 80.00 | -31.30 | 1.20V | 321 | 56.88 | 24.98 | 3.39 | 36.54 | 8.18 |
| 3 | 1073.10 | 47.5 pk | 80.00 | -32.50 | 1.32V | 176 | 55.54 | 25.04 | 3.42 | 36.50 | 8.04 |
| 4 | 1236.40 | 45.7 pk | 80.00 | -34.30 | 1.07V | 45 | 52.81 | 25.38 | 3.77 | 36.26 | 7.11 |
| 5 | 1266.90 | 49.6 pk | 80.00 | -30.40 | 1.15V | 181 | 56.53 | 25.44 | 3.85 | 36.22 | 6.93 |

**REMARKS**:
1. Emission level(dBuV/m)=Raw Value(dBuV) – Correction Factor(dB)
2. Correction Factor(dB/m) = Pre-Amplifier Gain (dB) - Antenna Factor (dB/m) - Cable Factor (dB)
3. Pre-Amplifier Gain (dB) = 0, when the test receiver is used to read the value and because it did not use the Pre-Amplifier.
4. The other emission levels were very low against the limit.
5. Margin value = Emission level – Limit value.



# 5 PHOTOGRAPHS OF THE TEST CONFIGURATION

CONDUCTED EMISSION TEST

RADIATED EMISSION TEST (Mode 1)

(Mode 2)

# 6 APPENDIX - INFORMATION ON THE TESTING LABORATORIES

We, ADT Corp., were founded in 1988 to provide our best service in EMC and Safety consultation. Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025, Guide 25 or EN 45001:

| | |
|---|---|
| **USA** | FCC, NVLAP, UL |
| **Germany** | TUV Rheinland |
| **Japan** | VCCI |
| **New Zealand** | MoC |
| **Norway** | NEMKO, DNV |
| **Canada** | INDUSTRY CANADA |
| **R.O.C.** | CNLA, BSMI |

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site: www.adt.com.tw/index.5/phtml.
If you have any comments, please feel free to contact us at the following:


**Lin Kou EMC Lab**:
Tel: 886-2-26052180
Fax: 886-2-26052943

**Hsin Chu EMC Lab**:
Tel: 886-35-935343
Fax: 886-35-935342

**Lin Kou Safety Lab**:
Tel: 886-2-26093195
Fax: 886-2-26093184

**Lin Kou RF & Telecom Lab.**
Tel: 886-3-3270910
Fax: 886-3-3270892

**Email**: service@mail.adt.com.tw
**Web Site**: www.adt.com.tw


The address and road map of all our labs can be found in our web site also.