

## Exhibit C - Measurement Report



## ELECTROMAGNETIC INTERFERENCE TEST REPORT

Company : MACRONIX INTERNATIONAL CO., LTD.  
Address : No. 3, Creation Road III, Science-Based Industrial Park, Hsinchu,  
Taiwan, R.O.C.  
Sample Name : MX98715 100/10 Base PCI adapter  
Model : M 715  
Date Received : JUN. 30, 1998  
Date Tested : JUL. 01, 1998

### MEASUREMENT PROCEDURE USED :

CISPR 22, CLASS B, 1996  
FCC RULE PART 15, 1996

WE HEREBY CERTIFY THAT: The measurements 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. We assume full responsibility for the accuracy and completeness of these measurements and vouch for the qualifications of all persons taking them.

|                   | Name               | Signature    | Date          |
|-------------------|--------------------|--------------|---------------|
| Testing Engineer  | C.F.Wu/NVLAP       | C.F. Wu      | Jul. 14, 1998 |
| Approving Manager | Paul Y. Liao/NVLAP | Paul Y. Liao | Jul. 15, 1998 |

### Notes :

1. This report will be invalid if duplicated or photocopied in part.
2. This report refers only to the specimen(s) submitted to test, and is invalid as separately used.
3. This report is invalid without examination stamp and signature of this institute.
4. The tested specimen(s) will be preserved for thirty days from the date issued.
5. This is a NIST/NVLAP accredited report but not constituted and endorsed by US government.



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## **1. GENERAL INFORMATION**

### **1.1 DESCRIPTION OF EUT & POWER**

MANUFACTURER : MACRONIX INTERNATIONAL CO., LTD.

SAMPLE NAME : MX98715 100/10 Base PCI adapter

MODEL NUMBER : M 715

SERIAL NUMBER : -----

POWER SOURCE : 5VDC(From PC)



## 1.2 DESCRIPTION OF PERIPHERALS

### (1) PC

PRODUCT NUMBER : Vectra VL 5/100 SERIES 4  
SERIAL NUMBER : SG61802353  
MANUFACTURER : HP CORP.  
F.C.C. ID : HCJVECTRAVL5  
POWER CORD : Shielded, detachable, 1.8m.

### (2) KEYBOARD

MODEL NUMBER : E03633MLTW-C  
SERIAL NUMBER : -----  
MANUFACTURER : HP CORP.  
F.C.C. ID : CIGE03633

### (3) MONITOR

MODEL NUMBER : D2813  
SERIAL NUMBER : TW63803602  
MANUFACTURER : HP CORP.  
F.C.C. ID : A3KM043  
POWER CORD : Shielded, detachable, 1.8m.

### (4) PRINTER

MODEL NUMBER : 5152-002  
SERIAL NUMBER : 0754365  
MANUFACTURER : IBM CORP.  
F.C.C. ID : BKM9A85152002  
POWER CORD : Shielded, undetachable, 1.8m.

### (5) MODEM

MODEL NUMBER : 4007AM  
SERIAL NUMBER : A10740073303  
MANUFACTURER : Hayes CORP.  
F.C.C. ID : BFJ4000AM



**(6) MOUSE**

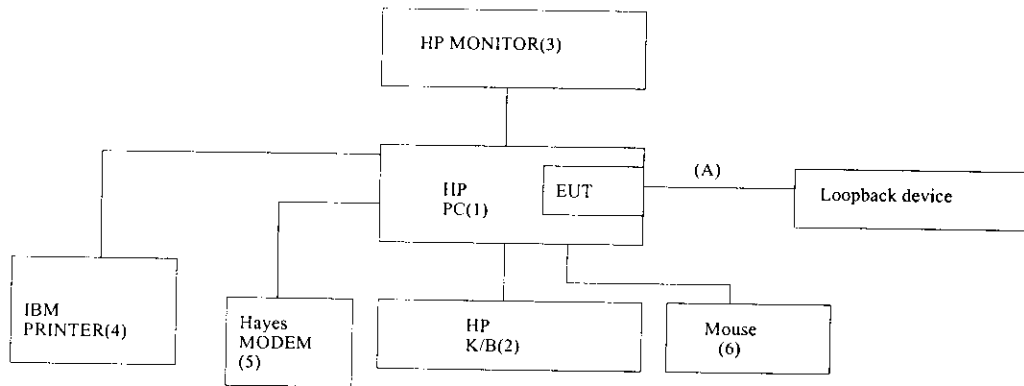
MODEL NUMBER : M-S34  
SERIAL NUMBER : -----  
MANUFACTURER : HP CORP.  
F.C.C. ID : DZL210582

**(7) CABLE**

| NO. | TYPE                       | Connector      | Shielded | Length |
|-----|----------------------------|----------------|----------|--------|
| (A) | Cross-over<br>Twisted-pair | RJ-45<br>Metal | NO       | 20m    |



### 1.3 EUT & PERIPHERALS SETUP DIAGRAM



The indicated numbers (1)(2)-----please refer to item 1.2.



## **1.4 EUT OPERATING CONDITION**

1. Plug the EUT in PCI slot and power on the PC.
2. Run "MX713.EXE" test program.
3. Select port speed to 100 or 10Mbps full-duplex.  
Select Network Diagnose test to External Loopback test.

## **1.5 DESCRIPTION OF TEST SITE**

|                  |                                                                                                                                                                                                                                                                                             |
|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SITE DESCRIPTION | : FCC certificate NO. :31040/SIT<br>DNV certificate NO. : 510-96-1016<br>TUV certificate NO. :I9664582-9610<br>Lloyd's certificate NO. :LA003<br>BCIQ certificate NO. :SL2-IN-E-02<br>NVLAP Lab code : 200118-0<br>CNLA certificate NO. :CNLA-ZL97018<br>VCCI certificate NO. :R-629, C-650 |
| NAME OF SITE     | : Electronics Research & Service Organization<br>Industrial Technology Research Institute                                                                                                                                                                                                   |
| SITE LOCATION    | : K500, 195-4 , sec. 4, Chung Hsing Rd.,<br>Chu-Tung Chen. Hsin-Chu, Taiwan 31015 R.O.C.                                                                                                                                                                                                    |



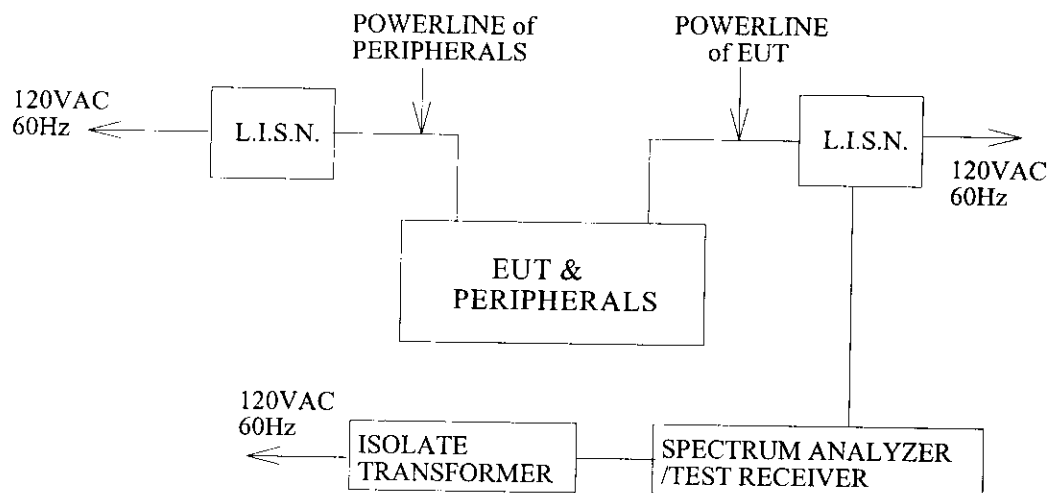
## 2. CONDUCTED POWERLINE TEST

### 2.1 TEST EQUIPMENTS

The following test equipments are used during the conducted powerline tests :

| MANUFACTURER OR TYPE        | MODEL No     | SERIAL NO.             | DATE OF CALIBRATION |
|-----------------------------|--------------|------------------------|---------------------|
| SPECTRUM ANALYZER & DISPLAY | HP 8568A     | 2235A02320             | MAR. 05, 1998       |
| QUASI-PEAK ADAPTER          | HP 85650 A   | 2341A00672             | MAR. 05, 1998       |
| ISOLATION TRANSFORMER       | SOLAR 7032-1 | N/A                    | N/A                 |
| L.I.S.N.                    | EMCO 3850/2  | 9311-1025<br>9401-1028 | MAR. 24. 1998       |
| TEST RECEIVER               | R/S ESH3     | 8720791118             | MAR. 13, 1998       |
| SHIELDED ROOM               | KEENE 5983   | N/A                    | N/A                 |

### 2.2 TEST SETUP





## 2.3 CONDUCTED POWER LINE EMISSION LIMIT

| FREQUENCY<br>(MHz) | MAXIMUM RF LINE VOLTAGE (dB $\mu$ V) |      |         |       |
|--------------------|--------------------------------------|------|---------|-------|
|                    | CLASS A                              |      | CLASS B |       |
|                    | Q.P.                                 | Ave. | Q.P.    | Ave.  |
| 0.15 - 0.50        | 79                                   | 66   | 66-56   | 56-46 |
| 0.50 - 5.00        | 73                                   | 60   | 56      | 46    |
| 5.00 - 30.0        | 73                                   | 60   | 60      | 50    |

## 2.4 TEST PROCEDURE

The test procedure is performed in a 12ft $\times$ 12ft $\times$ 8ft(L $\times$ W $\times$ H) shielded room. the EUT along with its peripherals were placed on a 1.0m(W) $\times$  1.5m(L) and 0.8m in height wooden table and the EUT was adjusted to maintain a 0.4 meter space from a vertical reference plane. The EUT was connected to power mains through a line impedance stabilization network (LISN) which provides 50 ohm coupling impedance for measuring instrument and the chassis ground was bounded to the horizontal ground plane of shielded room. All peripherals were connected to the second LISN and the chasis ground also bounded to the horizontal ground plane of shielded room. The excess power cable between the EUT and the LISN was bundled. The power cables of peripherals were unbundled. All connecting cables of EUT and peripherals were moved to find the maximum emission.

## 2.5 UNCERTAINTY OF CONDUCTED EMISSION

The uncertainty of conducted emission is  $\pm 1.36$ dB.



## 2.6 LINE CONDUCTED RF VOLTAGE MEASUREMENT

The frequency spectrum from 0.15 MHz to 30 MHz was investigated. All emissions not reported below are more than 20 dB below the prescribed limits.

All readings are Quasi-peak values.

Temperature : 21.5%

Humidity : 61 % RH

| FREQUENCY<br><br>(MHz) | READING(dB $\mu$ V) |      |                       |      | LIMITS<br>(dB $\mu$ V) |       |
|------------------------|---------------------|------|-----------------------|------|------------------------|-------|
|                        | ONE END & GRD'D     |      | THE OTHER END & GRD'D |      |                        |       |
|                        | Q.P.                | Ave. | Q.P.                  | Ave. | Q.P.                   | Ave.  |
| 0.150                  | *                   | *    | *                     | *    | 66.00                  | 56.00 |
| 0.154                  | 41.64               | *    | *                     | *    | 65.78                  | 55.78 |
| 0.538                  | *                   | *    | 32.50                 | *    | 56.00                  | 46.00 |
| 0.809                  | 29.72               | *    | 34.52                 | *    | 56.00                  | 46.00 |
| 1.374                  | *                   | *    | 36.25                 | *    | 56.00                  | 46.00 |
| 1.449                  | 30.85               | *    | *                     | *    | 56.00                  | 46.00 |
| 1.585                  | 29.46               | *    | 36.96                 | *    | 56.00                  | 46.00 |
| 4.772                  | 31.61               | *    | *                     | *    | 56.00                  | 46.00 |
| 4.952                  | *                   | *    | 33.51                 | *    | 56.00                  | 46.00 |
| 16.140                 | 42.07               | *    | 42.27                 | *    | 60.00                  | 50.00 |
| 20.056                 | 41.58               | *    | 42.18                 | *    | 60.00                  | 50.00 |
| 28.302                 | 37.30               | *    | 37.20                 | *    | 60.00                  | 50.00 |
| 30.000                 | *                   | *    | *                     | *    | 60.00                  | 50.00 |

REMARKS : 1. \* Undetectable or the Q.P.values is lower than the limits of Ave  
2. For 10Mbps mode



## 2.6 LINE CONDUCTED RF VOLTAGE MEASUREMENT

The frequency spectrum from 0.15 MHz to 30 MHz was investigated. All emissions not reported below are more than 20 dB below the prescribed limits.

All readings are Quasi-peak values.

Temperature : 21.5%

Humidity : 61 % RH

| FREQUENCY<br><br>(MHz) | READING(dB $\mu$ V) |      |                       |      | LIMITS<br>(dB $\mu$ V) |       |
|------------------------|---------------------|------|-----------------------|------|------------------------|-------|
|                        | ONE END & GRD'D     |      | THE OTHER END & GRD'D |      |                        |       |
|                        | Q.P.                | Ave. | Q.P.                  | Ave. | Q.P.                   | Ave.  |
| 0.150                  | *                   | *    | 41.44                 | *    | 66.00                  | 56.00 |
| 0.151                  | 42.54               | *    | *                     | *    | 65.96                  | 55.96 |
| 0.538                  | *                   | *    | 32.50                 | *    | 56.00                  | 46.00 |
| 1.111                  | *                   | *    | 36.24                 | *    | 56.00                  | 46.00 |
| 1.449                  | 31.85               | *    | *                     | *    | 56.00                  | 46.00 |
| 1.456                  | *                   | *    | 37.15                 | *    | 56.00                  | 46.00 |
| 1.586                  | *                   | *    | 37.06                 | *    | 56.00                  | 46.00 |
| 4.622                  | 31.11               | *    | *                     | *    | 56.00                  | 46.00 |
| 4.978                  | *                   | *    | 33.31                 | *    | 56.00                  | 46.00 |
| 7.728                  | *                   | *    | 38.03                 | *    | 60.00                  | 50.00 |
| 7.769                  | 32.33               | *    | *                     | *    | 60.00                  | 50.00 |
| 10.679                 | 37.35               | *    | *                     | *    | 60.00                  | 50.00 |
| 16.059                 | 45.50               | *    | *                     | *    | 60.00                  | 50.00 |
| 16.140                 | *                   | *    | 49.87                 | *    | 60.00                  | 50.00 |
| 20.162                 | 39.88               | *    | 39.48                 | *    | 60.00                  | 50.00 |
| 24.142                 | 41.19               | *    | *                     | *    | 60.00                  | 50.00 |
| 24.271                 | *                   | *    | 40.99                 | *    | 60.00                  | 50.00 |
| 28.302                 | 44.70               | *    | 44.10                 | *    | 60.00                  | 50.00 |
| 30.000                 | *                   | *    | *                     | *    | 60.00                  | 50.00 |

REMARKS : 1. \* Undetectable or the Q.P.values is lower than the limits of Ave  
2. For 100Mbps mode



### 3. RADIATED EMISSION TEST

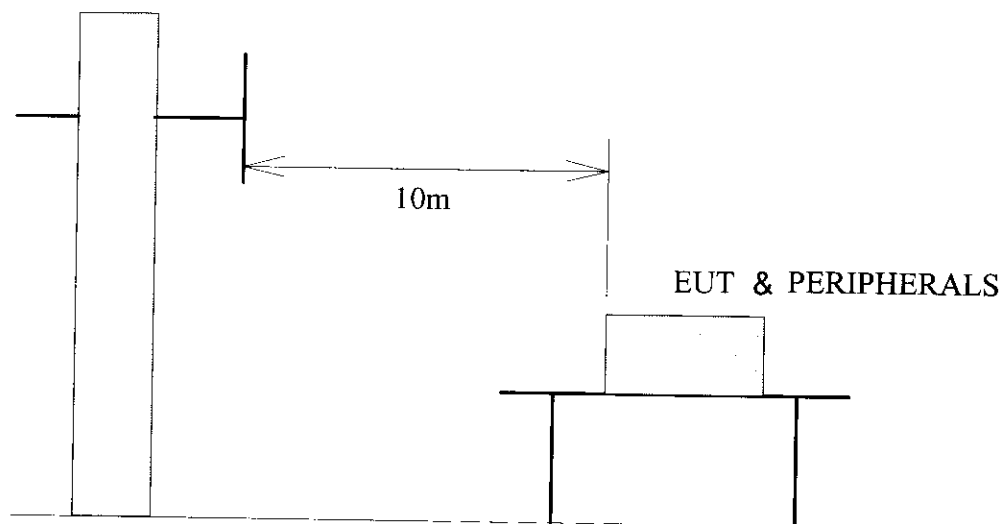
#### 3.1 TEST EQUIPMENTS

The following test equipments are utilized in making the measurements contained in this report.

| MANUFACTURER OR TYPE | MODEL NO | SERIAL NO.               | DATE OF CALIBRATION |
|----------------------|----------|--------------------------|---------------------|
| CHASE BI-LOG ANTENNA | CBL6111A | 1546                     | MAY.29, 1998        |
| R/S TEST RECEIVER    | ESMI     | 842088/005<br>841978/008 | MAY.23, 1998        |
| OPEN SITE            | -----    | No.2                     | AUG. 23, 1997       |

#### 3.2 TEST SETUP

The diagram below shows the test setup which is utilized to make these measurements.



Antenna Elevation Variable



### 3.3 RADIATION LIMIT

All emanation from a class B computing device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified below :

| FREQUENCY<br>(MHz) | DISTANCE<br>(METERS) | FIELD STRENGTHS(dB $\mu$ V/M) |         |
|--------------------|----------------------|-------------------------------|---------|
|                    |                      | CLASS A                       | CLASS B |
| 30—230             | 10                   | 40                            | 30      |
| 230—1000           | 10                   | 47                            | 37      |

Note : (1)The tighter limit shall apply at the edge between two frequency bands.

(2)Distance refers to the distance in meters between the measuring instrument antenna and the closest point of any part of the device or system.

### 3.4 TEST PROCEDURE

The devices under test were placed on a rotatable table top 0.8 meter above ground. The table was rotated 360 degrees to determine the position of the highest radiation. EUT is set 10 meters from the interference receiving antenna which is mounted on the top of a variable height mast. The antenna height is varied between one meter and four meters above ground to find the maximum value of the field strength Both horizontal polarization and vertical polarization of the antenna are set to make the measurement.

The bandwidth setting on the E.M.I. meter (R/S TEST RECEIVER ESMI) is 120 KHz.

The levels are quasi peak value readings. The frequency spectrum from 30MHz to 1000MHz was investigated.

### 3.5 UNCERTAINTY OF RADIATED EMISSION

The uncertainty of radiated emission is  $\pm 2.72$ dB.



### 3.6 RADIATED RF NOISE MEASUREMENT

The frequency spectrum from 30 MHz to 1000 MHz was investigated. All emissions not reported below are more than 20 dB below the prescribed limits.

All readings are quasi-peak values.

Temperature : 27°C

Humidity : 72% RH

| FREQ-<br>UENCY<br>(MHz) | ANTENNA<br>FACTOR<br>(dB) | CABLE<br>LOSS<br>(dB) | METER READING<br>AT10m(dB $\mu$ V/M) |          | LIMITS<br>(dB $\mu$ V/M) | EMISSION LEVEL<br>AT10m(dB $\mu$ V/M) |          |
|-------------------------|---------------------------|-----------------------|--------------------------------------|----------|--------------------------|---------------------------------------|----------|
|                         |                           |                       | HORIZON-<br>TAL                      | VERTICAL |                          | HORIZON-<br>TAL                       | VERTICAL |
| 30.00                   | *                         | *                     | *                                    | *        | 30.00                    | *                                     | *        |
| 49.89                   | 8.23                      | 1.70                  | 1.80                                 | *        | 30.00                    | 11.73                                 | *        |
| 50.00                   | 8.23                      | 1.70                  | *                                    | 9.92     | 30.00                    | *                                     | 19.85    |
| 75.00                   | 7.68                      | 2.05                  | 2.92                                 | 8.80     | 30.00                    | 12.65                                 | 18.53    |
| 80.00                   | 8.72                      | 2.10                  | *                                    | 6.28     | 30.00                    | *                                     | 17.10    |
| 120.00                  | 11.38                     | 2.60                  | 3.68                                 | 3.40     | 30.00                    | 17.66                                 | 17.38    |
| 125.00                  | 11.51                     | 2.70                  | 6.48                                 | 7.16     | 30.00                    | 20.69                                 | 21.37    |
| 160.00                  | 10.63                     | 3.00                  | 3.84                                 | 3.84     | 30.00                    | 17.47                                 | 17.47    |
| 175.00                  | 9.42                      | 3.20                  | 0.20                                 | 11.40    | 30.00                    | 12.82                                 | 24.02    |
| 199.97                  | 9.20                      | 3.40                  | 8.72                                 | *        | 30.00                    | 21.32                                 | *        |
| 200.00                  | 9.20                      | 3.40                  | 6.48                                 | 8.44     | 30.00                    | 19.08                                 | 21.04    |
| 225.00                  | 10.59                     | 3.60                  | 2.84                                 | 3.52     | 30.00                    | 17.03                                 | 17.71    |
| 250.00                  | 11.97                     | 3.80                  | 3.36                                 | *        | 37.00                    | 19.13                                 | *        |
| 275.00                  | 12.64                     | 4.00                  | 3.48                                 | 4.60     | 37.00                    | 20.12                                 | 21.24    |
| 300.00                  | 13.31                     | 4.20                  | 3.76                                 | 2.64     | 37.00                    | 21.27                                 | 20.15    |
| 1000.00                 | *                         | *                     | *                                    | *        | 37.00                    | *                                     | *        |

REMARKS : 1. \* Undetectable

2. Emission level (dB  $\mu$  V/M) = Antenna Factor (dB) + Cable loss (dB)  
+ Meter Reading (dB  $\mu$  V/M).

3. For 10Mbps mode



### 3.6 RADIATED RF NOISE MEASUREMENT

The frequency spectrum from 30 MHz to 1000 MHz was investigated. All emissions not reported below are more than 20 dB below the prescribed limits.

All readings are quasi-peak values.

Temperature : 27°C

Humidity : 72% RH

| FREQ-<br>UENCY<br><br>(MHz) | ANTENNA<br>FACTOR<br><br>(dB) | CABLE<br>LOSS<br><br>(dB) | METER READING<br>AT10m(dB $\mu$ V/M) |          | LIMITS<br><br>(dB $\mu$ V/M) | EMISSION LEVEL<br>AT10m(dB $\mu$ V/M) |          |
|-----------------------------|-------------------------------|---------------------------|--------------------------------------|----------|------------------------------|---------------------------------------|----------|
|                             |                               |                           | HORIZON-<br>TAL                      | VERTICAL |                              | HORIZON-<br>TAL                       | VERTICAL |
| 30.00                       | *                             | *                         | *                                    | *        | 30.00                        | *                                     | *        |
| 50.00                       | 8.23                          | 1.70                      | *                                    | 11.04    | 30.00                        | *                                     | 20.97    |
| 125.00                      | 11.51                         | 2.70                      | 10.80                                | 9.56     | 30.00                        | 25.01                                 | 23.77    |
| 150.00                      | 11.15                         | 2.90                      | 5.48                                 | 1.16     | 30.00                        | 19.53                                 | 15.21    |
| 200.00                      | 9.20                          | 3.40                      | 6.60                                 | 8.40     | 30.00                        | 19.20                                 | 21.00    |
| 225.00                      | 10.59                         | 3.60                      | 2.68                                 | 1.72     | 30.00                        | 16.87                                 | 15.91    |
| 250.00                      | 11.97                         | 3.80                      | 6.88                                 | 7.72     | 37.00                        | 22.65                                 | 23.49    |
| 275.00                      | 12.64                         | 4.00                      | *                                    | 1.24     | 37.00                        | *                                     | 17.88    |
| 375.00                      | 15.11                         | 4.65                      | 4.12                                 | 2.08     | 37.00                        | 23.88                                 | 21.84    |
| 1000.00                     | *                             | *                         | *                                    | *        | 37.00                        | *                                     | *        |

REMARKS : 1. \* Undetectable

2. Emission level (dB  $\mu$  V/M) = Antenna Factor (dB) + Cable loss (dB)  
+ Meter Reading (dB  $\mu$  V/M).

3. For 100Mbps mode