



ELECTROMAGNETIC INTERFERENCE TEST REPORT

Company : ACCTON TECHNOLOGY CORP.
Address : NO.1, Creation Rd. III, Science-Based Industrial, Park, Hsinchu
30077, Taiwan, R.O.C.
Sample Name : Cheetah PCI Adapter
Model : EN1207B-TX 4
Data applies to : Sample Name : RapidFire 2327 Ethernet 10/100 PCI Adapter
Model : OC-2327
Date Received : APR. 07, 1998
Date Tested : APR. 08, 1998

MEASUREMENT PROCEDURE USED :
CISPR 22, CLASS B. 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	APR. 24. 1998
Approving Manager	Paul Y. Liao/NVLAP	Paul Y. Liao	APR. 24. 1998

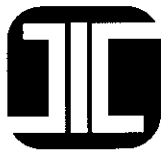
Notes :

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 : ACCTON TECHNOLOGY CORP.

SAMPLE NAME : Cheetah PCI Adapter

MODEL NUMBER : EN1207B-TX 4

POWER SUPPLY : DC 5V (from PC)

POWER CORD : Unshielded cable, 1.8m



1.2 DESCRIPTION OF PERIPHERALS

(1) PC

MODEL NUMBER : 8639-PTW
SERIAL NUMBER : 555A43A
MANUFACTURER : IBM CORP.
F.C.C. ID : ANO8639MY
POWER CORD : Unshielded , Detachable , 1.8m

(2) MONITOR

MODEL NUMBER : JC-1404HMA
SERIAL NUMBER : 08D00346
MANUFACTURER : NEC CORP.
F.C.C. ID : A3D5YRJC-1404HMA
POWER CORD : UsShielded , Detachable , 1.8m

(3) KEYBOARD

PRODUCT NUMBER : C1405#AB0
PART NUMBER : 3614M60026
MANUFACTURER : HP CORP.
F.C.C. ID : B94C1405X

(4) MODEM

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

(5) PRINTER

MODEL NUMBER : 5152-002
SERIAL NUMBER : 0754365
MANUFACTURER : IBM CORP
F.C.C. ID : BKM9A85152002



(6) PC

PRODUCT NUMBER : 1NO
SERIAL NUMBER : 900A429
MANUFACTURER : IBM
F.C.C. ID : ANO8640
POWER CORD : Unshielded , Detachable , 1.8m

(7) MONITOR

MODEL NUMBER : 8515A01
SERIAL NUMBER : -----
MANUFACTURER : IBM
F.C.C. ID : ANO8515-A01
POWER CORD : UnShielded , Detachable , 1.8m

(8) KEYBOARD

MODEL NUMBER : C1405B#AB0
SERIAL NUMBER : 3620M60124
MANUFACTURER : HP CORP.
F.C.C. ID : B94C1405X

(9) Fast EtherPair

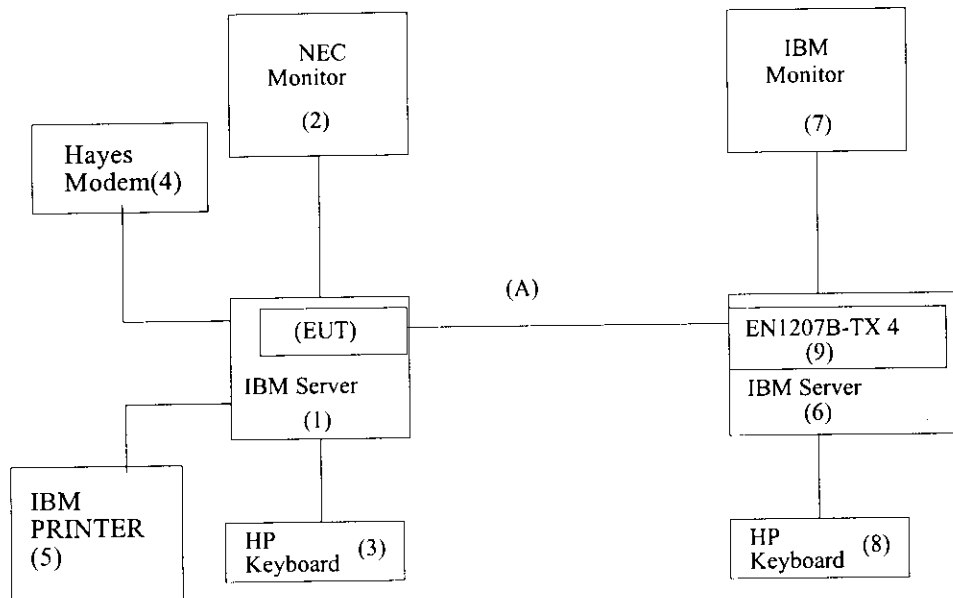
MODEL NUMBER : EN1207B-TX 4
SERIAL NUMBER : -----
MANUFACTURER : ACCTON CORP.
F.C.C. ID : HED1207BTX4EN

(10) Cables

	Type	Connector	Shielded	length
(A)	cross-over Twisted-pair	RJ-45, metal	No	50ft



1.3 EUT & PERIPHERALS SETUP DIAGRAM



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



1.4 EUT OPERATING CONDITION

1. Powered on all equipments.
2. Ran "ACCTEST.EXE" program.
3. Chose 10M/100M mode
4. Pressed "F2" to start the process.

1.5 DESCRIPTION OF TEST SITE

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



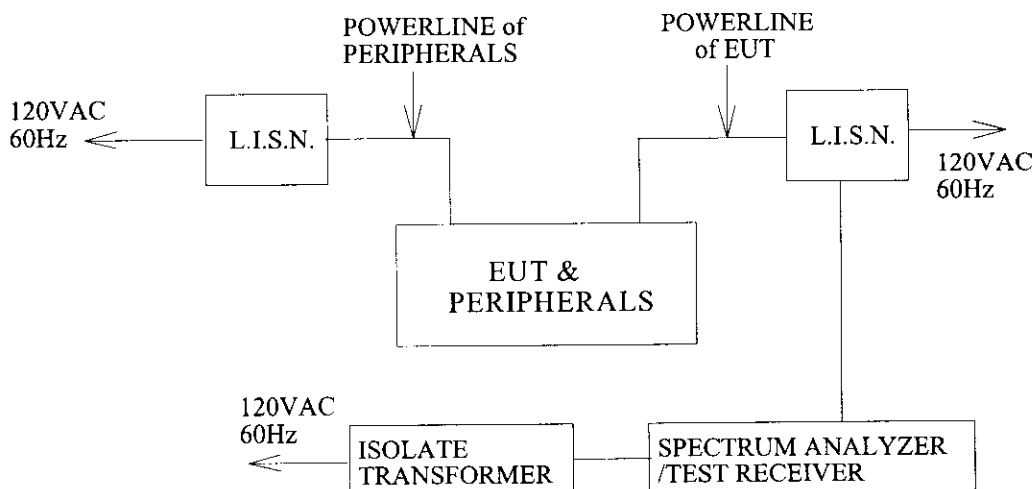
2. CONDUCTED POWERLINE TEST

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 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 (MHz)	MAXIMUM RF LINE VOLTAGE (dB μ 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 chasis 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 ± 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 : 23°C

Humidity : 54 % RH

FREQUENCY (MHz)	READING(dB μ V)				LIMITS (dB μ 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
0.174	44.95	*	*	*	64.77	54.77
0.188	36.55	*	36.75	*	64.11	54.11
0.481	34.90	*	34.40	*	56.32	46.32
0.651	36.41	*	*	*	56.00	46.00
4.384	32.91	*	*	*	56.00	46.00
4.549	34.11	*	34.11	*	56.00	46.00
5.085	34.31	*	*	*	60.00	50.00
5.112	*	*	35.41	*	60.00	50.00
6.252	*	*	33.82	*	60.00	50.00
16.140	35.47	*	33.27	*	60.00	50.00
20.162	33.48	*	34.38	*	60.00	50.00
22.063	36.68	*	37.78	*	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 : 23°C

Humidity : 54 % RH

FREQUENCY (MHz)	READING(dB μ V)				LIMITS (dB μ 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
0.188	*	*	36.85	*	64.11	54.11
0.189	36.15	*	*	*	64.06	54.06
0.481	35.10	*	34.40	*	56.32	46.32
4.549	34.51	*	*	*	56.00	46.00
4.926	*	*	34.41	*	56.00	46.00
4.978	35.31	*	*	*	56.00	46.00
16.140	34.67	*	33.57	*	60.00	50.00
20.162	35.38	*	34.18	*	60.00	50.00
21.946	36.78	*	*	*	60.00	50.00
22.063	*	*	37.68	*	60.00	50.00
28.302	33.20	*	32.60	*	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

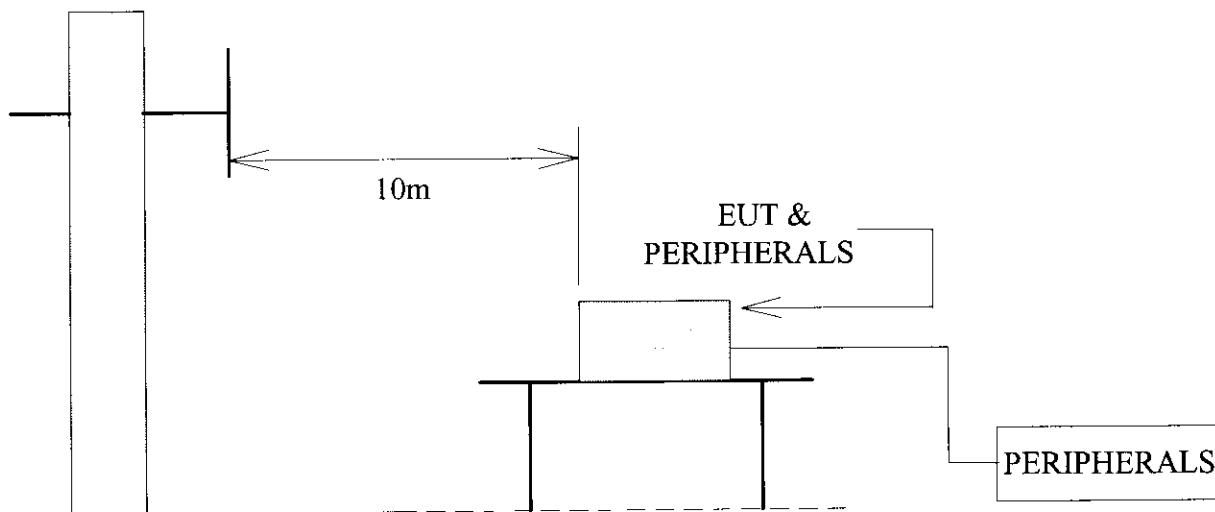
3.1 TEST EQUIPMENTS

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.26, 1997
R/S TEST RECEIVER	ESMI	842088/005 841978/008	MAY.22, 1997
ANECHOIC/SHIELDED ROOM	KEENE 5981	N/A	N/A

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 (MHz)	DISTANCE (METERS)	FIELD STRENGTHS(dB μ 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 ± 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 : 60% RH

FREQ- UENCY (MHz)	ANTENNA FACTOR (dB)	CABLE LOSS (dB)	METER READING AT10m(dB μ V/M)		LIMITS (dB μ V/M)	EMISSION LEVEL AT10m(dB μ V/M)	
			HORIZON- TAL	VERTICAL		HORIZON- TAL	VERTICAL
30.00	19.71	1.20	*	*	30.00	*	*
125.00	11.98	2.30	4.86	8.50	30.00	19.14	22.78
150.00	11.15	2.50	3.74	5.98	30.00	17.39	19.63
175.00	9.57	2.60	*	9.62	30.00	*	21.79
200.00	8.95	2.80	8.22	10.74	30.00	19.97	22.49
232.68	11.22	3.00	5.42	9.34	37.00	19.64	23.56
250.00	12.43	3.10	5.42	5.42	37.00	20.95	20.95
450.00	16.82	4.00	2.90	*	37.00	23.72	*
1000.00	24.69	5.70	*	*	37.00	*	*

REMARKS : 1. * Undetectable

2. Emission level (dB μ V/M) = Antenna Factor (dB) + Cable loss (dB)
+ Meter Reading (dB μ 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 : 60% RH

FREQ- UENCY (MHz)	ANTENNA FACTOR (dB)	CABLE LOSS (dB)	METER READING AT10m(dB μ V/M)		LIMITS (dB μ V/M)	EMISSION LEVEL AT10m(dB μ V/M)	
			HORIZON- TAL	VERTICAL		HORIZON- TAL	VERTICAL
30.00	19.71	1.20	*	*	30.00	*	*
125.00	11.98	2.30	5.70	6.26	30.00	19.98	20.54
150.00	11.15	2.50	4.86	6.82	30.00	18.51	20.47
175.00	9.57	2.60	*	12.14	30.00	*	24.31
200.00	8.95	2.80	8.50	10.18	30.00	20.25	21.93
225.00	10.69	2.95	2.62	4.86	30.00	16.26	18.50
232.68	11.22	3.00	*	9.06	37.00	*	23.28
250.00	12.43	3.10	6.26	9.62	37.00	21.79	25.15
375.00	15.16	3.68	*	6.54	37.00	*	25.38
400.00	15.79	3.80	3.74	10.18	37.00	23.33	29.77
500.00	17.84	4.20	*	5.42	37.00	*	27.46
1000.00	24.69	5.70	*	*	37.00	*	*

REMARKS : 1. * Undetectable

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

3. for 100Mbps mode