



ELECTROMAGNETIC COMPATIBILITY TEST REPORT

Company : MITAC TECHNOLOGY CORP.
Address : No.19-1, Innovation Rd. I, Science-Based Industrial Park,
Hsinchu , Taiwan, R.O.C.
Sample Name : Notebook PC
Model : A760T
Date Received : DEC. 26, 2000
Date Tested : DEC. 29, 2000

MEASUREMENT REQUIREMENT USED :

FCC RULES AND REGULATION PART 15 SUBPART B
CLASS B OCTOBER 1998 AND ANSI C63.4 MAY 1992
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	C. F. Wu	Jan. 08, 2001
Approving Manager	Paul Y. Liao	Paul Y. Liao	Jan. 09, 2001

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.



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1. GENERAL INFORMATION

1.1 GENERAL STATEMENT

MEASUREMENT DEVIATION : Comply with standard in full

TRACEABILITY : This test result is traceable to national or international std.

1.2 DESCRIPTION OF EUT & POWER

MANUFACTURER : MITAC TECHNOLOGY CORP.

SAMPLE NAME : Notebook PC

MODEL NUMBER : A760T

SERIAL NUMBER : Not applicable

POWER SOURCE : 19VDC (From Power Adapter)

I/O Port : USB Port × 1 ; 1394 Port × 1 ; PS/2 Port × 1 ; Mic In Port × 1 ;

Speaker Out Port × 1 ; VGA Port × 1 ; COM Port × 1 ; Parallel Port × 1 ;

Replicator Port × 1

Engineering Sample ☒ , Product Sample ☐ , Mass Product Sample ☐ .



1.3 DESCRIPTION OF PERIPHERALS

(1) MONITOR

MODEL NUMBER : D8894A
SERIAL NUMBER : CN00905221
MANUFACTURER : HP Corp.
F.C.C. ID : ARSCM356N
POWER CORD : Unshielded, Detachable, 1.8m
SIGNAL CABLE : Shielded, Undetachable, 1.8m

(2) KEYBOARD

MODEL NUMBER : KB-8923
SERIAL NUMBER : 1023656
MANUFACTURER : IBM CORP.
F.C.C. ID : E8HKB-5923
SIGNAL CABLE : Shielded , Undetachable , 1.8m
POWER SOURCE : 5VDC (from PC)

(3) MOUSE

MODEL NUMBER : M-UK48a
SERIAL NUMBER : -----
MANUFACTURER : Logitech CORP.
F.C.C. ID : -----
SIGNAL CABLE : Shielded , Undetachable , 1.8m
POWER SOURCE : 5VDC (from PC USB Port)

(4) PRINTER

MODEL NUMBER : 5152-002
SERIAL NUMBER : 0754365
MANUFACTURER : IBM CORP.
FCC ID : BKM9A85152002
POWER CORD : Shielded , Detachable , 1.5m
DATA CABLE : Shielded , Detachable , 1.2m



(5) MODEM

MODEL NUMBER : 5240AM
SERIAL NUMBER : A0095240K270
MANUFACTURER : Hayes CORP.
FCC ID : BFJ5201AM
POWER CORD : Unshielded , Detachable , 1.8m (9VAC from adapter)
SIGNAL CABLE : Shielded , Detachable , 2m

(6) SPEAKER

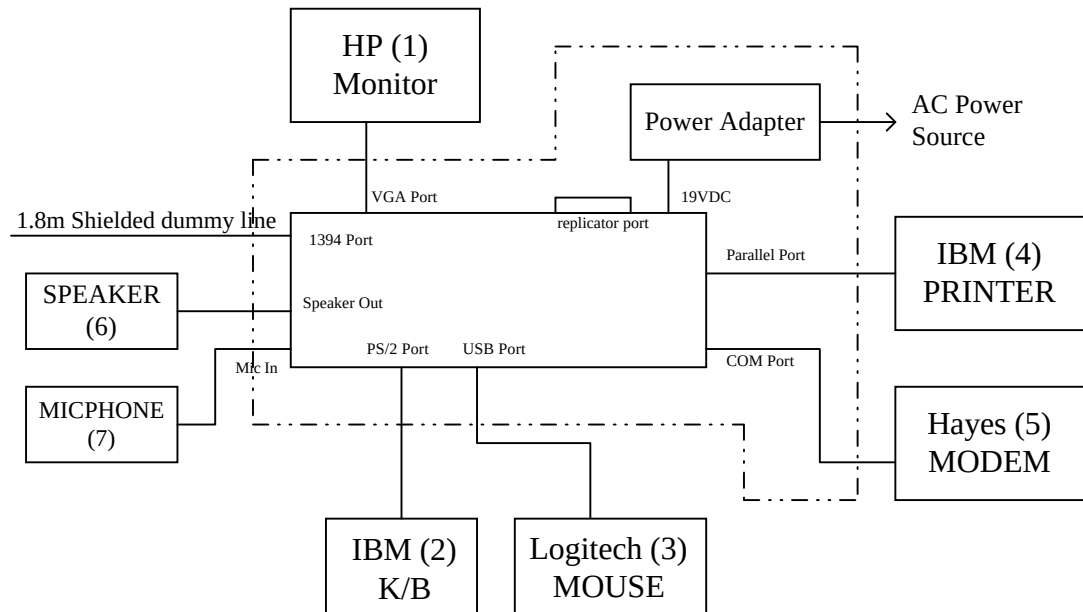
MODEL NUMBER : J-003
SERIAL NUMBER : -----
MANUFACTURER : JS Corp.
F.C.C. ID : -----

(7) MICPHONE

MODEL NUMBER : Pro.2
SERIAL NUMBER : -----
MANUFACTURER : EM-618 Corp.
F.C.C. ID : -----



1.4 EUT & PERIPHERALS SETUP DIAGRAM



The indicated numbers(1)(2)-----,please refer to 1.3



1.5 EUT OPERATING CONDITION

1. Setup whole system for test as shown on setup diagram.
2. Powered on all equipments.
3. NoteBook PC run "EMITEST.EXE" program.
4. Scrolling "H" pattern will be displayed on Monitor.
5. EUT will execute K/B, MODEM, HDD, FDD and Mouse functional test.
6. Printer will print out "H" character and Modem will execute transmitting and receiving function through EUT.

1.6 DESCRIPTION OF TEST SITE

SITE DESCRIPTION	: FCC certificate NO. :31040/PRV TUV certificate NO. :I9664582-9911 Lloyd's certificate NO. :LA003 BSMI certificate NO. :SL2-IN-E-0002 NVLAP Lab code : 200118-0 CNLA certificate NO. :CNLA-ZL97018 VCCI certificate NO. : R-1189, C-1250
NAME OF SITE	: Electronics Research & Service Organization Industrial Technology Research Institute
SITE LOCATION	: R1500, 195-4 , Sec. 4, Chung Hsing Rd., Chu-Tung Chen. Hsin-Chu, Taiwan 31015 R.O.C.



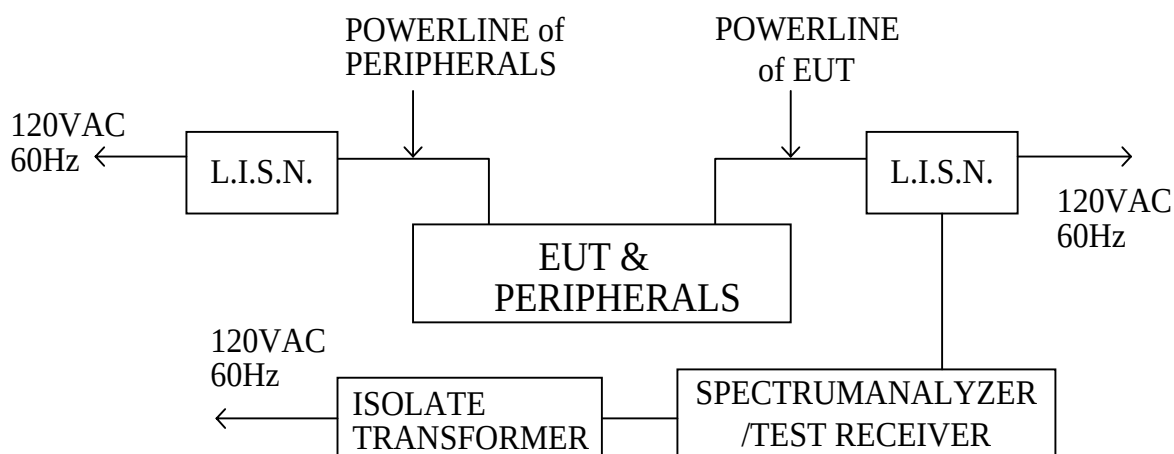
2. CONDUCTED EMISSION TEST

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	CALIBRATION PERIOD	REMARK
SPECTRUM ANALYZER & DISPLAY	HP 8568A	2235A02320	MAR. 24, 2000	1 Year	PRETEST
QUASI-PEAK ADAPTER	HP 85650 A	2341A00672	MAR. 24, 2000	1 Year	PRETEST
ISOLATION TRANSFORMER	SOLAR 7032-1	N/A	N/A	N/A	FINAL
L.I.S.N.	EMCO 3850/2	9311-1025 9401-1028	JAN. 05, 2000 For Characteristic impedance	1 Year	FINAL
			JAN. 05, 2000 For Insertion loss		
TEST RECEIVER	R/S ESH3	8720791118	MAR. 24, 2000	1 Year	FINAL
SHIELDED ROOM	KEENE 5983	NO.1	N/A	N/A	FINAL
PULSE LIMIT	R/S EHS3Z2	357.8810.52	JUL. 12, 2000	1 Year	FINAL
N TYPE COAXIAL CABLE	-----	-----	JUL. 12, 2000	1 Year	FINAL
50Ω TERMINATOR	-----	-----	JUL. 13, 2000	1 Year	FINAL

2.2 TEST SETUP





2.3 CONDUCTED POWER LINE EMISSION LIMIT

FREQUENCY (MHz)	MAXIMUM RF LINE VOLTAGE (dB μ V)	
	CLASS A	CLASS B
0.45 - 1.705	60	48
1.705 - 30.0	69.5	48

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 chassis 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 CONDUCTED RF VOLTAGE MEASUREMENT

The frequency spectrum from 0.45 MHz to 30 MHz was investigated. All emissions not reported below are more than 20 dB below the prescribed limits.

Temperature : 25°C

Humidity : 51 % RH

FREQUENCY (MHz)	READING(dB μ V)		LIMITS (dB μ V)
	ONE END & GRD'D	THE OTHER END & GRD'D	
	Q.P.	Q.P.	
0.450	*	*	48.00
0.561	41.70	*	48.00
1.700	38.00	*	48.00
1.749	*	41.20	48.00
2.366	37.90	41.30	48.00
4.233	37.20	40.00	48.00
10.333	34.60	34.10	48.00
12.097	35.80	35.00	48.00
30.000	*	*	48.00

REMARKS : 1. * Undetectable or the Q.P. value is lower than the limits of Ave.
2. Using Acer D291307 13.3 inches LCD panel



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FREQUENCY (MHz)	READING(dB μ V)		LIMITS (dB μ V)
	ONE END & GRD'D	THE OTHER END & GRD'D	
	Q.P.	Q.P.	
0.450	*	*	48.00
0.567	39.50	*	48.00
1.703	*	39.30	48.00
1.766	35.00	*	48.00
2.331	37.30	38.10	48.00
3.912	*	33.40	48.00
4.601	30.20	*	48.00
5.991	*	27.40	48.00
10.335	33.10	32.60	48.00
30.000	*	*	48.00

REMARKS : 1. * Undetectable or the Q.P. value is lower than the limits of Ave.
2. Using Mitsubishi AA121SJ03 12.1 inches LCD panel



2.7 PHOTOS OF CONDUCTION TEST





3. RADIATED EMISSION TEST

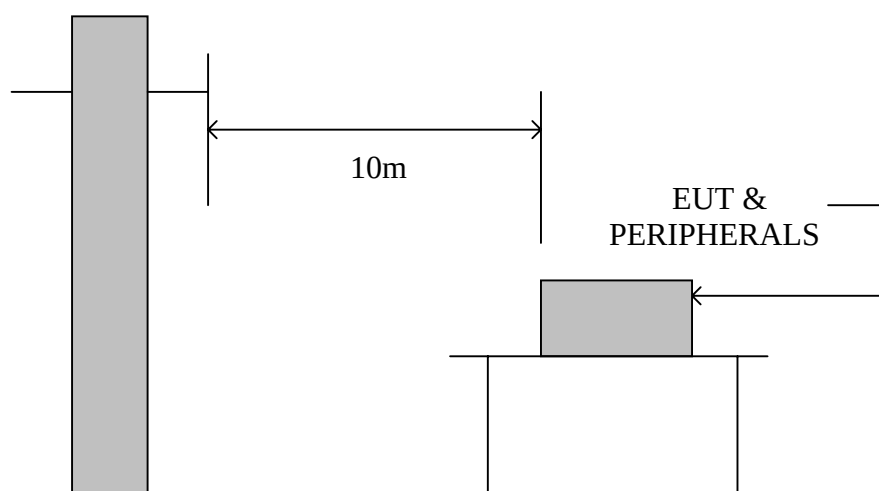
3.1 TEST EQUIPMENTS

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

MANUFACTURER OR TYPE	MODEL NO	SERIAL NO	DATE OF CALIBRATION	CALIBRATION PERIOD	REMARK
CHASE BI-LOG ANTENNA	CBL6112B	2421	MAY 02, 2000	1 Year	FINAL
R/S TEST RECEIVER	ESMI	842088/005 841978/008	JUL. 17, 2000	1 Year	FINAL
OPEN SITE	-----	No.1	JUN. 05, 2000	1 Year	FINAL
N TYPE COAXIAL CABLE	CHA9513	004	JUL. 12, 2000	1 Year	FINAL

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)	FIELD STRENGTHS(dB μ V/M)	
	CLASS A(10m)	CLASS B(3m)
30—88	39.0	40.0
88—216	43.5	43.5
216—960	46.4	46.0
960—1000	49.5	54.0

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 ratable 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 : 21°C

Humidity : 85 % RH

FREQ- UENCY (MHz)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	METER READING AT10m(dB μ V)		LIMITS (dB μ V/m)	EMISSION LEVEL AT3m(dB μ V/m)	
			HORIZON- TAL	VERTICAL		HORIZON- TAL	VERTICAL
30.00	18.08	0.69	*	*	40.00	*	*
144.04	11.57	1.92	9.50	8.80	43.50	33.45	32.75
147.46	11.31	1.95	6.50	8.40	43.50	30.22	32.12
165.90	10.22	2.10	12.80	12.60	43.50	35.58	35.38
166.00	10.21	2.10	12.60	12.40	43.50	35.37	35.17
191.35	9.84	2.26	6.00	7.20	43.50	28.56	29.76
398.30	15.77	3.47	2.90	*	46.00	32.60	*
398.70	15.78	3.47	3.20	3.80	46.00	32.91	33.51
442.47	16.50	3.82	6.20	1.80	46.00	36.98	32.58
624.15	19.33	5.29	3.60	1.00	46.00	38.68	36.08
1000.00	21.39	6.39	*	*	54.00	*	*

REMARKS : 1. * Undetectable

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

3. 10m measured data are transferred to 3m by adding $20\log(10/3)=10.46\text{dB}$

4. Using Acer D291307 13.3 inches LCD panel



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.

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			HORIZON- TAL	VERTICAL		HORIZON- TAL	VERTICAL
30.00	18.08	0.69	*	*	40.00	*	*
144.04	11.57	1.92	8.70	9.30	43.50	32.65	33.25
147.46	11.31	1.95	7.70	6.50	43.50	31.42	30.22
165.90	10.22	2.10	10.60	11.90	43.50	33.38	34.68
166.00	10.21	2.10	10.70	12.30	43.50	33.47	35.07
228.00	11.37	2.54	9.30	8.30	46.00	33.67	32.67
344.14	14.27	3.38	8.70	6.20	46.00	36.81	34.31
398.34	15.77	3.47	1.50	0.50	46.00	31.20	30.20
442.47	16.50	3.82	6.90	2.20	46.00	37.68	32.98
456.02	16.71	3.93	9.70	8.90	46.00	40.80	40.00
651.46	19.46	5.34	5.30	4.40	46.00	40.56	39.66
1000.00	21.39	6.39	*	*	54.00	*	*

REMARKS : 1. * Undetectable

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

3. 10m measured data are transferred to 3m by adding $20\log(10/3)=10.46\text{dB}$

4. Using Mitsubishi AA121SJ03 12.1 inches LCD panel



3.7 PHOTOS OF OPEN SITE





3.7 PHOTOS OF OPEN SITE

