

RFI / EMI TEST REPORT

APPLICANT : MAXTRONIC INTERNATIONAL CO., LTD.

E. U. T. : Disk Array

TRADE NAME : N/A

FCC ID : NKF-Baby Arena

REGULATION : CFR 47, Part 15 Subpart B, Class B

TEST SITE : PEP Testing Laboratory

TEST ENGINEER :

Jason Wong

TEST DATE : 1/5/2000

ISSUED DATE : JAN. / 14 / 2000

REPORT No. : 990597

VERIFICATION

WE HEREBY VERIFY THAT:

The E. U. T. listed below has completed RFI testing by PEP Testing Laboratory and the interference emissions can pass **FCC Class B** limitations .

The tested configurations and the facility complies with the radiated and AC line conducted test site criteria in ANSI C63.4 - 1992 .

Any data in this RFI report is “ **reference** ” only .

APPLICANT : MAXTRONIC INTERNATIONAL CO., LTD.*

PRODUCT : Disk Array*

FCC ID : NKF-Baby Arena*

MODEL : Baby Arena*

M. Y. Tsui

M. Y. TSUI / Manager

PEP Testing Laboratory

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1. GENERAL

1.1 GENERAL INFORMATION:

APPLICANT : MAXTRONIC INTERNATIONAL CO., LTD.

4FL., NO. 529, CHUNG CHENG RD., HSIN
TIEN CITY, TAIPEI HSIEN, TAIWAN, R. O. C.

MANUFACTURER : MAXTRONIC INTERNATIONAL CO., LTD.

4FL., NO. 529, CHUNG CHENG RD., HSIN
TIEN CITY, TAIPEI HSIEN, TAIWAN, R. O. C.

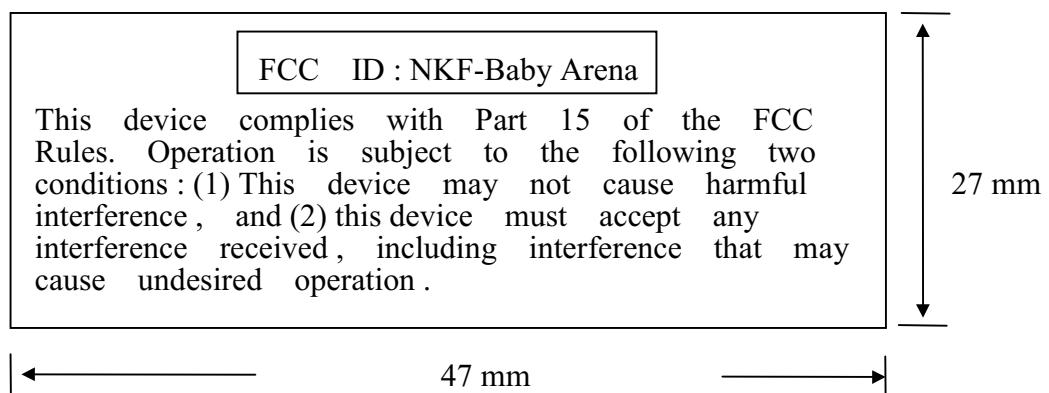
MEASUREMENT PROCEDURE : ANSI C63, 4 - 1992

TESTED FOR COMPLIANCE WITH : Title 47 of CFR
Part 15, Subpart B, Class B

**1.2 PLACE OF MEASUREMENT
PEP Testing Laboratory**

1.3 LABELING REQUIREMENT

A FCC ID label shall be permanently attached and conspicuously located on the equipment :



1.4 INFORMATION TO THE USER

The following FCC statement should be declared in a conspicuous location in the user's manual .

Federal Communications Commission (FCC) Statement

This equipment has been tested and found to comply with the limits for a Class B digital device , pursuant to Part 15 of the FCC Rules . These limits are designed to provide reasonable protection against harmful interference in a residential installation . This equipment generates , uses and can radiate radio frequency energy and , if not installed and used in accordance with the instruction, may cause harmful interference to radio communications . However , there is no guarantee that interference will not occur in a particular installation . If this equipment does cause harmful interference to radio or television reception , which can be determined by turning the equipment off and on , the user is encouraged to try to correct the interference by one or more of the following measures :

- Reorient or relocate the receiving antenna .
- Increase the separation between the equipment and receiver .
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected .
- Consult the dealer or an experienced radio / TV technician for help .

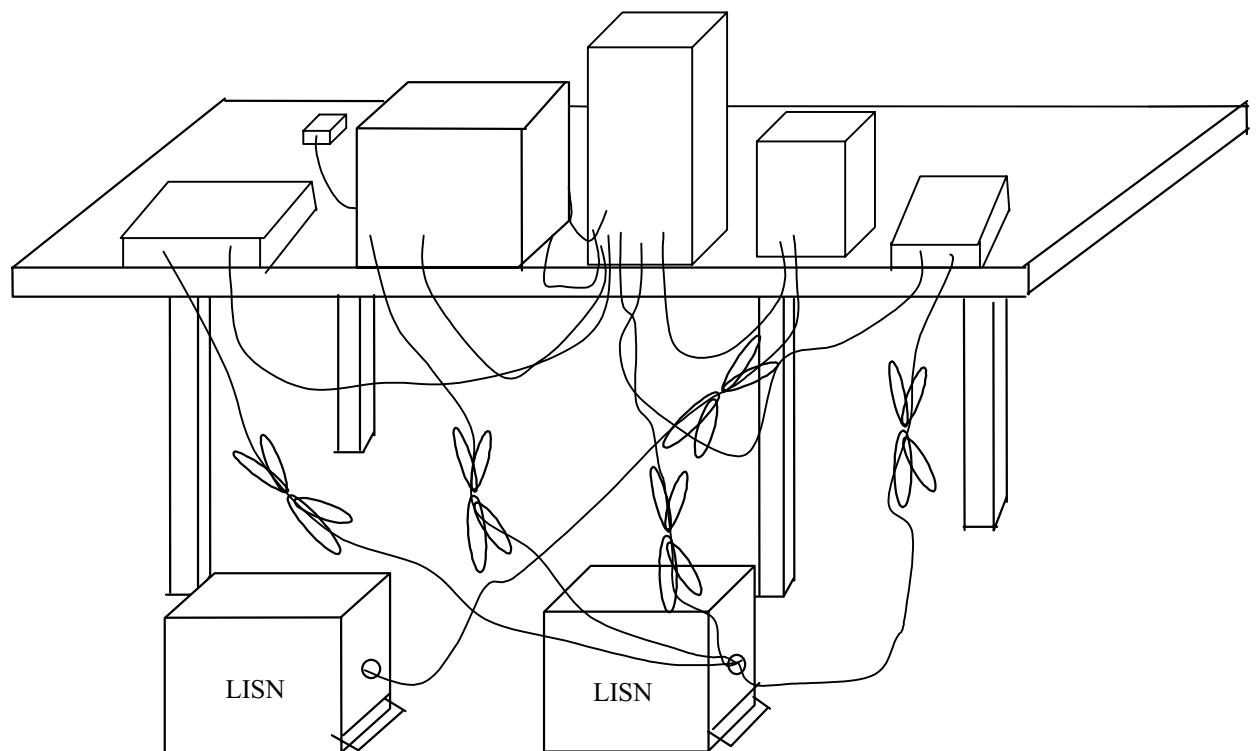
Warning : A shielded- type power cord is required in order to meet FCC emission limits and also to prevent interference to the nearby radio and television reception . It is essential that only the supplied power cord be used .

Use only shielded cables to connect I/O devices to this equipment .

You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment .

2. CONDUCTION EMISSIONS TEST

2.1 GENERAL SETUP OF THE TEST FACILITIES



2.2 TEST PROCEDURES

The system was setup as described above, with the EMI diagnostic software.

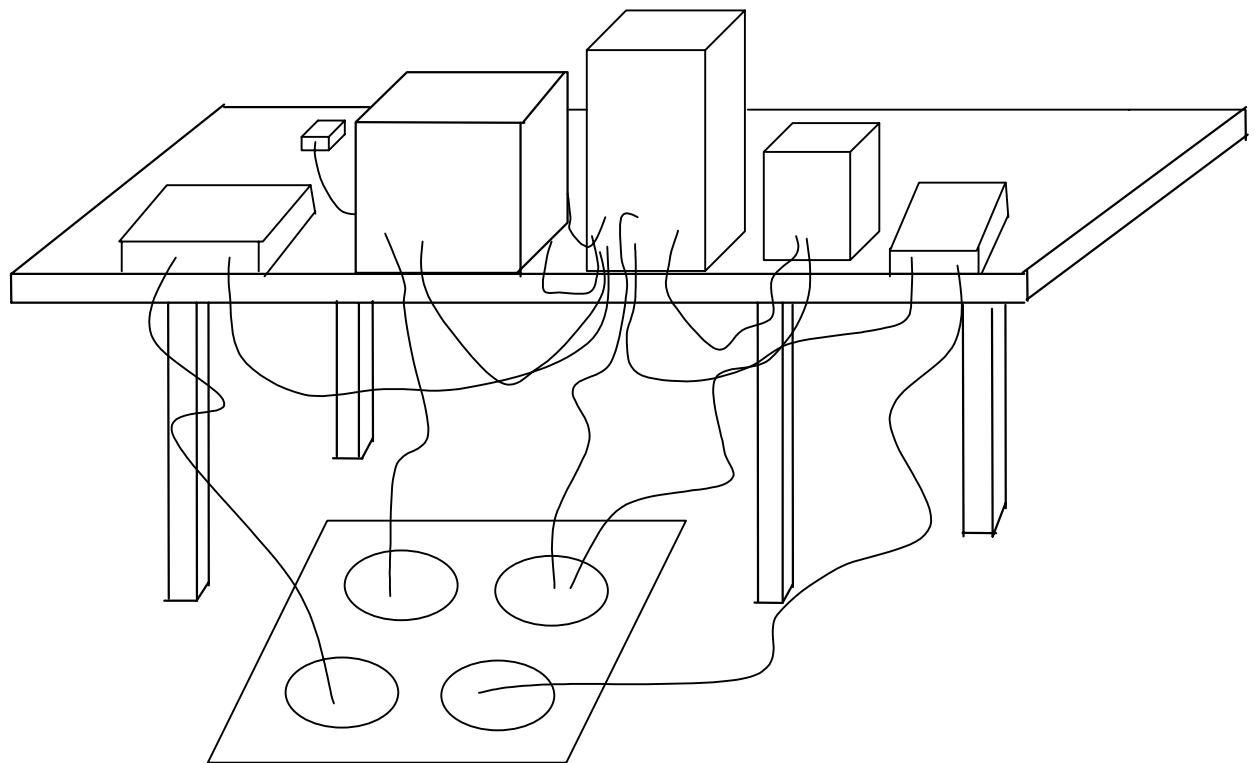
Both the line of power cord, hot and neutral, were run with the EMI tests software.

To get the maximum power line conducted emission, we changed the configuration by varying the monitor power cord fed from floor outlet and from the outlet on the power supply of this computer.

The highest emissions were recorded in the RFI test report.

3. RADIATED EMISSIONS TEST

3.1 GENERAL SETUP OF THE FACILITIES



3.2 TEST PROCEDURES

Radiated emissions test was carried out by **PEP Testing Laboratory** at the open field test site authorized by FCC.

The EUT and supporting equipments were setup with the EMI diagnostic software .

- a. setting up the EUT under normally position , and scanning it from 30 MHz to 1000 MHz , then recording those narrow band noises which cannot be 6 dBuV below lower bound . Both horizontal and vertical antenna are measured from 1 meter height to 4.0 meter height , and turntable rotate 360 degrees .
- b. fixing the EUT rear face to antenna and antenna 1.0 meter height . We adjusted I/O cables to find the highest coupling noise and moved the height of antenna from 1 to 4 meters , then rotated the turntable simultaneously .
- c. checking following step b. all points which were recorded in step a.
- d. changing the peripherals position , and routine steps a. b. c.

The highest emissions were recorded in the RFI test report .

4. DESCRIPTION FOR EUT TESTING CONFIGURATION

**** TEST PROCESURE -----**

The EUT is disk array system , FCC ID : NKF-Baby Arena , for more detail information about the both models , please refer user's manual . The I/O ports on the EUT included one serial connector and two SCSI connectors .

- (A) Test method : The EUT with three HDDs inside , the serial port and the SCSI port 1 connected to the PC's COM. 1 and SCSI port respectively , the SCSI port 2 terminated by data cable , both SCSI ports were tested .
The EUT was enabled by data reading from PC's HDD and data writing to EUT's HDD ; then , vice versa the data exchanged sequence , the PC system was enabled by FCC EMITEST "H" character program .
- (C) After the EUT was set up , we did the conducted emission test in the shielded room ; similarly , the radiated emission test was done at the open field site .
- (D) If the peak value of the noise can't under Non-consumer equipment limit 3 dBuV more , we'll change Biconical antenna or Log-periodic antenna for Dipole antenna and record its Quasi-Peak value , making sure it can under 6 dBuV at least .
- (E) In the RFI test report , we provided the worst conducted emission testing data and radiated emission test data.

5. SUPPORTING DEVICES TO TEST

SUPPORT UNIT 1. ---- PERSONAL COMPUTER

Manufacturer : ASUS Inc.
Model Number : P2L97
Power Supply Type : Switching
Power Cord : Shielded, Detachable, 1.2m
Data Cable : Shielded, Detachable, 1.2m
FCC ID : Declaration of conformity(DoC)

SUPPORT UNIT 2. ---- MONITOR

Manufacturer : ACER
Model Number : 1455
Power Supply Type : Switching
Power Cord : Shielded, Detachable, 1.2m
Data Cable : Shielded, Undetachable, 1m
FCC ID : JVP7234E

SUPPORT UNIT 3. ---- PRINTER

Manufacturer : Hewlett-Packard Singapore Pte Ltd.
Model Number : HP400
Power Supply Type : Linear
Power Cord : Non-Shielded, Detachable, 1.2m
Data Cable : Shielded, Detachable, 1m. 2464
FCC ID : B94C2642X

SUPPORT UNIT 4. ----MODEM

Manufacturer : ACEEX

Model Number : 1414

Power Supply Type : Linear

Power Cord : Non-Shielded, Detachable, 1.2m

Data Cable : Shielded, Detachable, 1m

FCC ID : IFAXDM1414

SUPPORT UNIT 5. ---- KEYBOARD

Manufacturer : ACER

Model Number : 6311-C4C

Power Supply Type : N/A

Power Cord : N/A

Data Cable : Shielded, Undetachable, 1.2m

FCC ID : Declaration of conformity(DoC)

SUPPORT UNIT 6. ---- MOUSE

Manufacturer : ACER

Model Number : M-S34

Power Supply Type : N/A

Power Cord : N/A

Data Cable : Shielded, Undetachable, 1m

FCC ID : DZL211029

SUPPORT UNIT 7. ---- SCIS Card

Manufacturer: Adaptec

Model Number : AHA-2940W/2940UW

Power Supply Type : N/A

Power Cord : N/A

Data Cable : N/A

FCC ID : FGT2940UW

EQUIPMENT UNDER TEST ---- Disk Array

Manufacturer : MAXTRONIC INTERNATIONAL CO., LTD.

Model Number : Baby Arena

Data Cable : N/A

FCC ID : NKF-Baby Arena

6. TEST CONFIGURATION

Radiated emission detector function :

(1) 30MHZ~1GHZ : Quasi-Peak Value
Resolution BW : 120KHZ Video BW : 300KHZ

(2) above 1GHZ : Quasi-Peak value and Average Value
Resolution BW : 1MHZ Video BW : 1MHZ
* either Q. P. or average value will be recorded
in the report

Conducted emission detector function :

(1) 450KHZ~30MHZ : Quasi-Peak Value
Resolution BW : 9KHZ Video BW : 30KHZ

The else descriptions : N/A

Conducted Emission Test Photo. : Page 16
Test Data : Hot 17
Neutral 18

Radiated Emission Test Photo. : Page 19
Test Data : Horizontal 20
Vertical 21

CONDUCTED TEST CONFIGURATION PHOTO.

< FRONT VIEW >



CONDUCTED EMISSIONS TEST DATA

Note : HOT LINE TEST

Freq. (MHz)	Level (dB)	Over Limit (dB)	Limit Line (dB)	Read Level (dB)	Probe Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)
1.277	26.05	-21.95	48.00	24.40	0.71	0.94	-10.00
2.430	24.70	-23.30	48.00	23.00	0.70	1.00	-10.00
4.676	25.28	-22.72	48.00	23.60	0.68	1.00	-10.00
6.094	26.47	-21.53	48.00	24.80	0.67	1.00	-10.00
8.635	30.59	-17.41	48.00	29.00	0.66	0.94	-10.00
9.522	32.10	-15.90	48.00	30.60	0.65	0.85	-10.00
12.891	26.45	-21.55	48.00	25.00	0.65	0.80	-10.00
20.071	40.28	- 7.72	48.00	38.80	0.62	0.86	-10.00
24.090	35.38	-12.62	48.00	33.81	0.62	0.95	-10.00
28.641	31.95	-16.05	48.00	30.21	0.69	1.05	-10.00

Note :

1. Level = Read Level + Probe Factor + Cable Loss - Preamp Factor
2. Over Limit = Level - Limit Line

CONDUCTED EMISSIONS TEST DATA**Note : NEUTRAL LINE TEST**

Freq. (MHz)	Level (dB)	Over Limit (dB)	Limit Line (dB)	Read Level (dB)	Probe Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)
1.277	30.25	-17.75	48.00	28.60	0.71	0.94	-10.00
1.750	29.28	-18.72	48.00	27.60	0.70	0.98	-10.00
2.312	28.30	-19.70	48.00	26.60	0.70	1.00	-10.00
5.385	28.46	-19.54	48.00	26.80	0.66	1.00	-10.00
6.685	28.85	-19.15	48.00	27.20	0.65	1.00	-10.00
9.729	26.66	-21.34	48.00	25.19	0.63	0.83	-10.00
12.477	26.22	-21.78	48.00	24.80	0.62	0.80	-10.00
18.387	31.22	-16.78	48.00	29.80	0.62	0.80	-10.00
20.249	33.29	-14.71	48.00	30.80	0.62	0.87	-10.00
24.120	39.97	- 8.03	48.00	38.40	0.61	0.96	-10.00

Note :

1. Level = Read Level + Probe Factor + Cable Loss - Preamp Factor
2. Over Limit = Level - Limit Line

RADIATED TEST CONFIGURATION PHOTO.

< FRONT VIEW >



< REAR VIEW >



RADIATED EMISSIONS TEST DATA

Antenna polarization : HORIZONTAL ; Test distance : 3 m ;

Freq. (MHz)	Level (dB)	Over Limit (dB)	Limit Line (dB)	Read Level (dB)	Probe Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)
144.029	31.15	-12.35	43.50	36.60	12.59	1.84	19.88
149.998	29.51	-13.99	43.50	34.20	13.11	1.90	19.70
160.003	31.31	-12.19	43.50	35.68	13.23	2.10	19.70
214.766	29.62	-13.88	43.50	37.64	9.46	2.42	19.89
240.024	26.76	-19.24	46.00	33.31	10.84	2.62	20.00
260.622	28.62	-17.38	46.00	34.62	11.30	2.81	20.11
272.034	29.68	-16.32	46.00	35.17	11.76	2.92	20.18
312.330	21.66	-24.34	46.00	25.32	12.91	3.22	19.79
336.045	24.93	-21.07	46.00	28.03	13.49	3.27	19.86
497.335	25.68	-20.32	46.00	25.19	16.88	3.79	20.17

Note :

1. Level = Read Level + Probe Factor + Cable Loss - Preamp Factor
2. Over Limit = Level - Limit Line

RADIATED EMISSIONS TEST DATA

Antenna polarization : VERTICAL ; Test distance : 3 m ;

Freq. (MHz)	Level (dB)	Over Limit (dB)	Limit Line (dB)	Read Level (dB)	Probe Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)
144.029	29.36	-14.14	43.50	34.81	12.59	1.84	19.88
149.998	27.15	-16.35	43.50	31.84	13.11	1.90	19.70
160.003	26.93	-16.57	43.50	31.30	13.23	2.10	19.70
214.766	27.77	-15.73	43.50	35.79	9.46	2.42	19.89
240.024	29.91	-16.09	46.00	36.46	10.84	2.62	20.00
312.330	23.34	-22.66	46.00	27.00	12.91	3.22	19.79
336.045	26.90	-19.10	46.00	30.00	13.49	3.27	19.86
357.120	26.26	-19.74	46.00	28.78	13.94	3.31	19.77
497.335	29.49	-16.51	46.00	29.00	16.88	3.79	20.17
663.857	30.15	-15.85	46.00	26.00	19.87	4.13	19.85

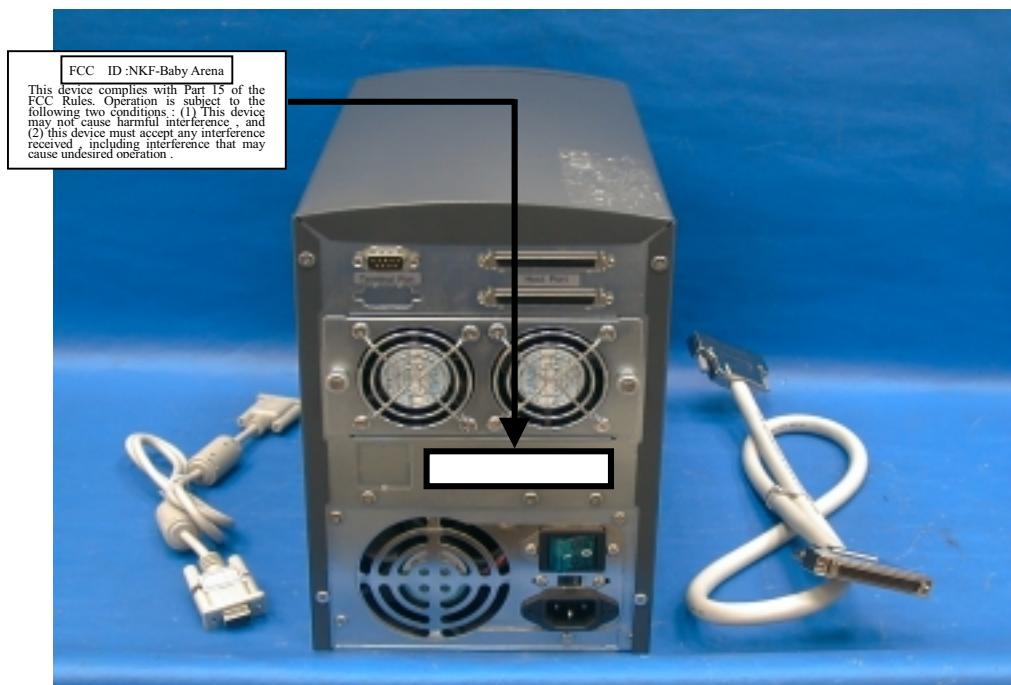
Note :

1. Level = Read Level + Probe Factor + Cable Loss - Preamp Factor
2. Over Limit = Level - Limit Line

APPENDIX A.
PHOTOS OF EUT APPEARANCE
< EUT FRONT VIEW >



< EUT REAR VIEW >



APPENDIX B.
List of Test Equipment

Instrument	Model No.	Cal. Due Date	S/N
R&S Receiver	ESVS30(30M~1GHZ)	Apr. 21, 2000	863342/012
R&S Receiver	ESBI (20~5GHZ)	Feb. 12, 2000	845658/003
Spectrum Analyzer	HP8591A(9K~1.8GHZ)	Apr. 15, 2000	3225A03039
Spectrum Analyzer	R3261A (9K~2.6GHZ)	Dec. 03, 2000	91720076
EMCO L.I.S.N.	3825/2 (10K~30MHZ)	Apr. 15, 2000	9311-2150
Anritsu Pre-Amp.	MH648A(100K~1.4GHZ)	Sep. 20, 2000	M40076
COM-Power Horn Antenna	AH-118 (1G~18GHZ)		10056
EMCO Dipole Antenna	3121C (20M~1GHZ)	May. 22, 2000	9611-1230
EMCO Biconical Antenna	3110B (30M~300M)	Mar. 10, 2000	2932
EMCO Log-Periodic Antenna	3146A (300M~1GHZ)	Apr. 14, 2000	1384