

RFI / EMI TEST REPORT

**APPLICANT** : MAX TRONIC INTERNATIONAL CO., LTD.

**E. U. T.** : Disk Array Subsystem

**TRADE NAME** : N/A

**FCC ID** : NKF-BABYEX

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

**TEST SITE** : PEP Testing Laboratory

**TEST ENGINEER** : Jason Gong

**TEST DATE** : Oct. 25, 2000

**ISSUED DATE** : NOV. / 02 / 2000

**REPORT No.** : E890660

**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** : MAX TRONIC INTERNATIONAL CO., LTD.\*

**PRODUCT** : Disk Array Subsystem\*

**FCC ID** : NKF-BABYEX\*

**MODEL** : Baby EX\*

*M. Y. Tsui*

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M. Y. TSUI / Manager

**PEP Testing Laboratory**

12-3FL., NO. 27-1, Lane 169, Kang-Ning St.,  
Hsi-Chi, Taipei Hsien, Taiwan, R. O. C.  
TEL : 886-2-6922097                    FAX : 886-2-6956236

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**1. GENERAL**

**1.1 GENERAL INFORMATION:**

APPLICANT : MAX TRONIC INTERNATIONAL CO., LTD.

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

MANUFACTURER : MAX TRONIC INTERNATIONAL CO., LTD.

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

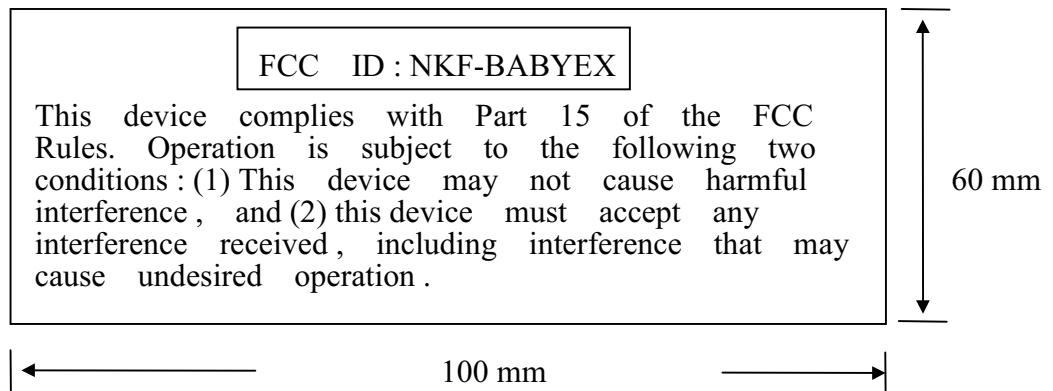
MEASUREMENT PROCEDURE : ANSI C63 , 4 - 1992

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 .

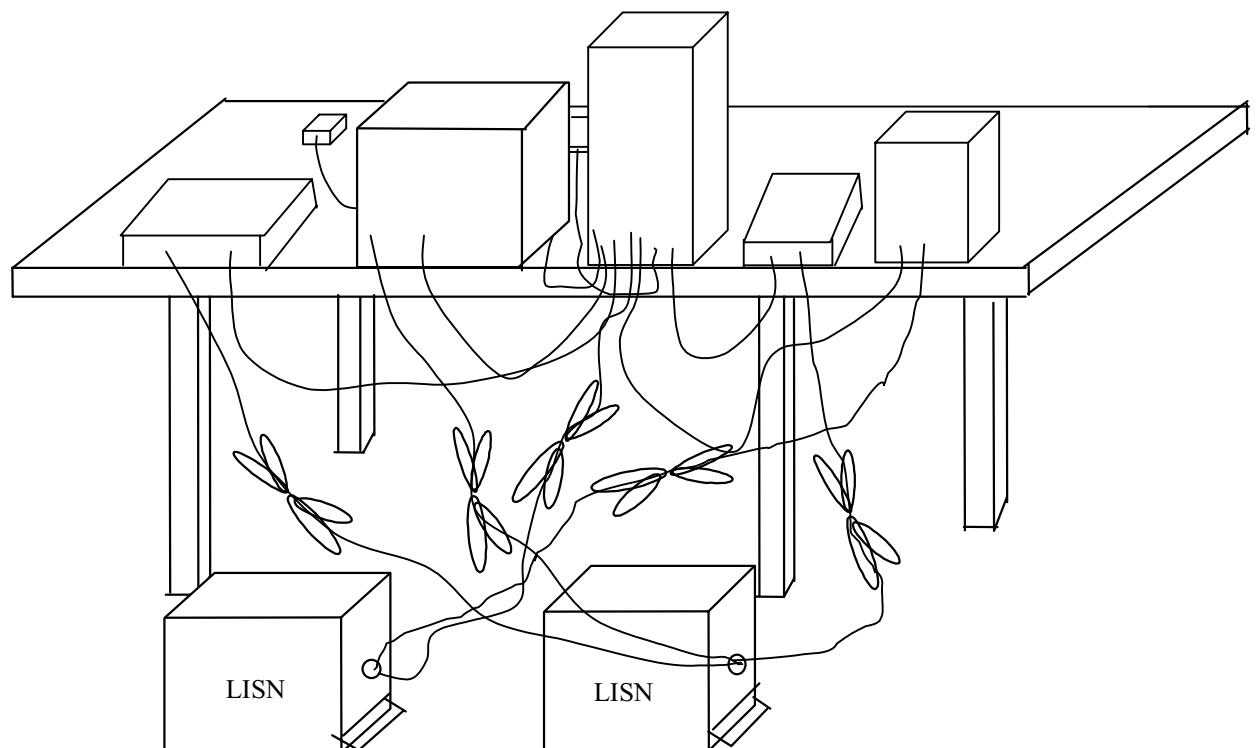
Warning : A shielded- type power cord is required in order to meet FCC emission limits and also to prevent interference to the nearby radio and television reception . It is essential that only the supplied power cord be used .

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.

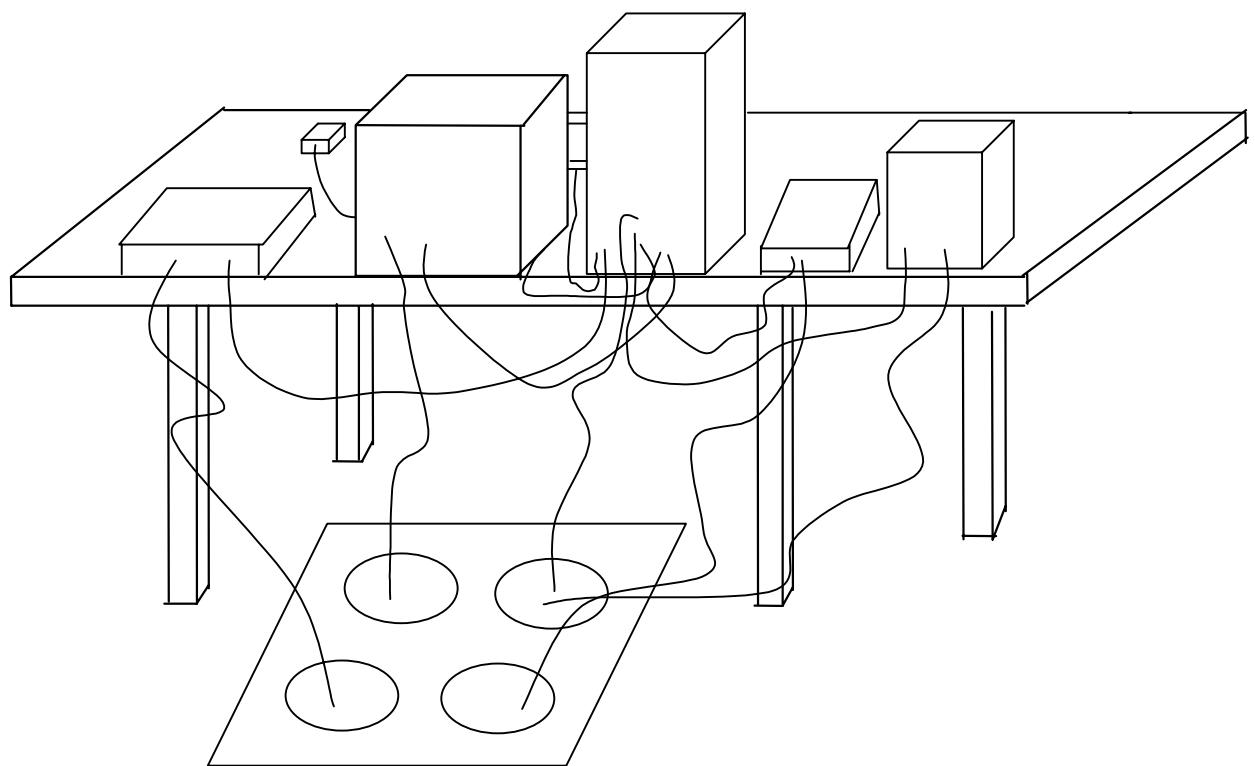
Both the line of power cord, hot and neutral, were run with the EMI tests software.

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 Subsystem, FCC ID : NKF-BABYEX, compatible with SCSI interface to PC system, and is three HDDs contained available. The LCD status panel displays a comprehensive readout of the operating status, and the HDD LED indicators on each HDD tray display the individual HDD status. For more detail information about the EUT, please refer the user's manual.

Test method :

- (A) We inserted one HDD and two HDD virtual cards into EUT, one of the two SCSI ports connected to PC, another SCSI port was terminated by terminator. The RS232 port of EUT connected to RS232 port on PC with the accessory RS232 cable. After PC identified the EUT, we enabled EUT by files read / write between EUT and PC, and this was performed by running “ 1.bat “ program provided by applicant.
- (B) After the EUT was set up, we did the conducted emission test in the shielded room, and the worst case placement finding as the ANSI C63.4 requirement; similarly, the radiated emission test was done at the open field site .
- (C) 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 .
- (D) 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 : P2-99  
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 : SAMSUNG  
Model Number : 550S  
Power Supply Type : Switching  
Power Cord : Shielded, Detachable, 1.2m  
Data Cable : Shielded, Undetachable, 1m  
FCC ID : Declaration of conformity(DoC)

**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 : BTC

Model Number : 5121W

Power Supply Type : N/A

Power Cord : N/A

Data Cable : Shielded, Undetachable, 1.2m

FCC ID : E5XKB5121WTH0110

**SUPPORT UNIT 6. ---- MOUSE**

Manufacturer : LOGITECH

Model Number : M-S43

Power Supply Type : N/A

Power Cord : N/A

Data Cable : Shielded, Undetachable, 1m

FCC ID : DZL211106

**SUPPORT UNIT 7. ----SCSI 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 ----**

**Manufacturer : MAX TRONIC INTERNATIONAL CO., LTD.**  
**Model Number : Baby EX**  
**Data Cable : N/A**  
**FCC ID : NKF-BABYEX**

## 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)
0.480	26.17	-21.83	48.00	24.40	0.10	1.67	-10.00
1.189	32.63	-25.37	48.00	30.80	0.10	1.73	-10.00
2.459	24.44	-23.56	48.00	22.60	0.13	1.71	-10.00
5.267	24.17	-23.83	48.00	22.20	0.23	1.74	-10.00
7.749	26.10	-21.90	48.00	24.20	0.27	1.63	-10.00
8.960	26.47	-21.53	48.00	24.60	0.29	1.58	-10.00
9.847	30.39	-17.61	48.00	28.59	0.30	1.50	-10.00
10.822	28.44	-19.56	48.00	26.60	0.36	1.48	-10.00
20.130	42.30	- 5.70	48.00	40.00	0.71	1.59	-10.00
22.701	38.67	- 9.33	48.00	36.21	0.81	1.65	-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)
0.480	27.77	-20.23	48.00	26.00	0.10	1.67	-10.00
1.189	33.03	-14.97	48.00	31.20	0.10	1.73	-10.00
1.425	25.02	-22.98	48.00	23.21	0.10	1.71	-10.00
2.548	23.41	-24.59	48.00	21.60	0.10	1.71	-10.00
5.001	29.07	-18.93	48.00	27.20	0.12	1.75	-10.00
8.665	25.98	-22.02	48.00	24.20	0.18	1.60	-10.00
9.463	26.93	-21.07	48.00	25.21	0.19	1.53	-10.00
9.936	33.89	-14.11	48.00	32.20	0.20	1.49	-10.00
20.130	42.30	- 5.70	48.00	40.20	0.51	1.59	-10.00
22.701	37.87	-10.13	48.00	35.61	0.61	1.65	-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)
48.000	25.80	-14.20	40.00	35.88	8.50	1.08	19.66
120.001	25.43	-18.07	43.50	31.43	11.50	2.20	19.70
131.996	25.98	-17.52	43.50	32.26	11.12	2.20	19.60
164.996	28.24	-15.26	43.50	36.24	9.20	2.50	19.70
230.999	22.18	-23.82	46.00	29.33	9.30	3.15	19.60
263.999	21.70	-24.30	46.00	25.07	12.93	3.38	19.68
330.000	22.73	-23.27	46.00	24.64	13.80	3.93	19.64
396.000	24.04	-21.96	46.00	23.72	15.74	4.65	20.07
494.998	25.31	-20.69	46.00	22.79	17.35	5.17	20.00
560.056	28.88	-17.12	46.00	24.38	18.80	5.56	19.86

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)
47.800	27.25	-12.75	40.00	37.23	8.61	1.07	19.66
120.001	25.41	-18.09	43.50	31.41	11.50	2.20	19.70
131.996	25.14	-18.36	43.50	31.42	11.12	2.20	19.60
165.039	26.66	-16.84	43.50	34.66	9.20	2.50	19.70
230.999	20.67	-25.33	46.00	27.82	9.30	3.15	19.60
263.999	29.27	-16.73	46.00	32.64	12.93	3.38	19.68
330.000	22.33	-23.67	46.00	24.24	13.80	3.93	19.64
396.073	29.66	-16.34	46.00	29.34	15.74	4.65	20.07
494.798	30.15	-15.85	46.00	27.63	17.35	5.17	20.00
519.976	25.69	-20.31	46.00	23.15	17.30	5.32	20.08

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**

<b>Emission</b>	<b>Instrument</b>	<b>Model No.</b>	<b>Serial No.</b>	<b>Cal. Data</b>	<b>Cal. Interval</b>
<b>Conduction (No.1)</b>	R & S Receiver	ESHS10	830223/008	Oct. 21, 2001	1 Year
	Rolf Heine LISN (EUT)	NNB-4/63TL	98008	Jun. 10, 2001	1 Year
	R & S LISN	ESH3-Z5	844982/039	July 30, 2001	1 Year
	Spectrum Analyzer	3261A	91720076	Apr. 24, 2001	1 Year
	RF Cable	Rg400	N/A	Apr. 15, 2001	1 Year
<b>Radiation (O.P 1)</b>	R & S Receiver	ESVS30	863342/039	Apr. 17, 2001	1 Year
	Anritsu Pre-Amp.	MH648A	M15080	Apr. 14, 2001	1 Year
	R & S Pre-Amp.	ESMI-Z7	612278/011	Jun. 01, 2001	1 Year
	Schaffner Antenna	CC2680	2655	Jun. 01, 2001	1 Year
	COM-Power Horn Ant.	AH-118	10056	Aug. 24, 2001	1 Year
	EMCO RF Clable	175series	NO. 1	Apr. 15, 2001	1 Year
	EMCO Dipole Ant	3121C	9202-813	Sep.06, 2001	3 Year
	R &S Signal Generator	SMY01	841104/037	Aug. 26, 2001	1 Year

