RFI / EMI TEST REPORT

APPLICANT	:	MAXTRONIC INTERNATIONAL CO., LTD.
E. U. T.	:	Disk Array Subsystem
TRADE NAME	:	N/A
FCC ID	:	NKF-IND Ⅱ
REGULATION	:	CFR 47 , Part 15 Subpart B , **Class B**
TEST SITE	:	PEP Testing Laboratory
TEST ENGINEER	:	
TEST DATE	:	OCT. 26, 2000
ISSUED DATE	:	NOV. / 04 / 2000
REPORT No.	:	E890672

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 Subsystem *
FCC ID : NKF-INDⅡ *
MODEL : Industrial Ⅱ *

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

TABLE OF CONTENTS

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.

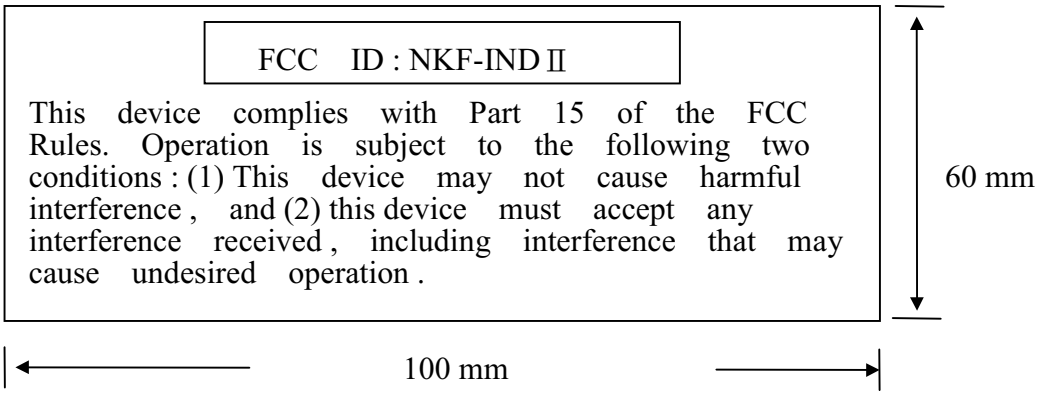
MEASUREMENT PROCEDURE : ANSI C63 , 4 - 1992

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 .

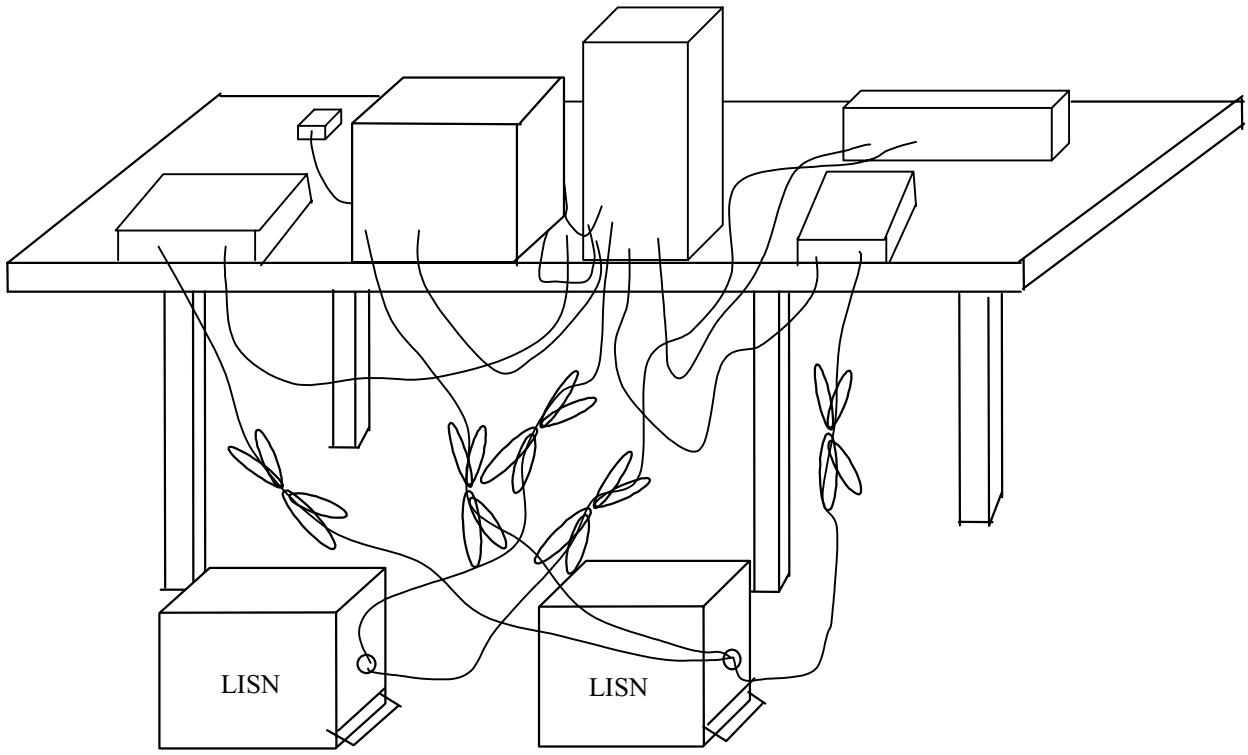
Warning : A shielded- type power cord is required in order to meet FCC emission limits and also to prevent interference to the nearby radio and television reception . It is essential that only the supplied power cord be used .

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

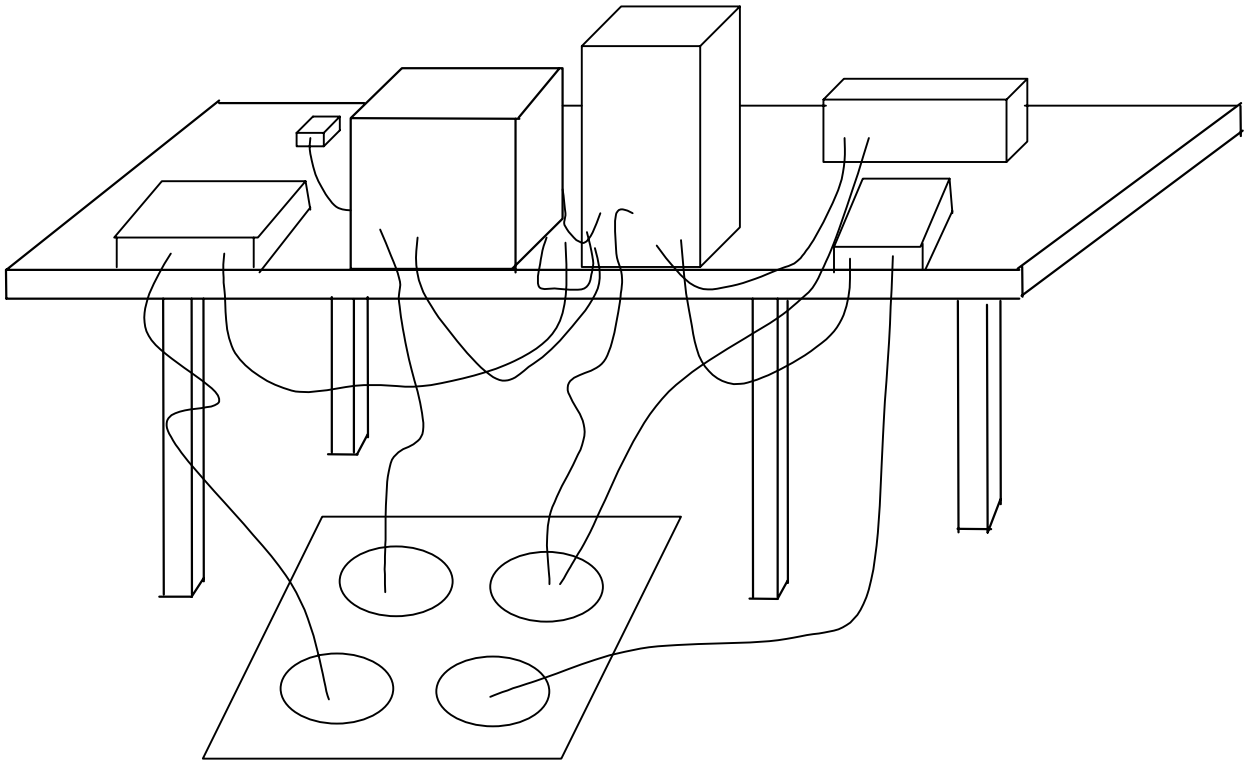
The system was setup as described above , with the EMI diagnostic software .
Both the line of power cord , hot and neutral , were run with the EMI tests software .

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 RAID , FCC ID : NKF-INDII compatible with SCSI interface . For more detail information about the EUT , please refer user's manual .

Test method :

(A) We put the EUT and high HDD inside a case , one of the two SCSI ports was connected to PC , another SCSI port was terminated by terminator . The RS232 port connected to PC's RS232 port . After PC identified the EUT , we enabled EUT by files read / write between EUT and HDD inside the PC , the HDDs inside the EUT will be enabled by sequence from one to eight during the test .

(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 : MAXTRONIC INTERNATIONAL CO., LTD.

Model Number : Industrial Ⅱ

Data Cable : N/A

FCC ID : NKF-INDⅡ

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 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	28.17	–19.83	48.00	26.40	0.10	1.67	-10.00
0.568	26.61	-21.39	48.00	24.80	0.10	1.71	-10.00
0.923	23.23	-24.77	48.00	21.40	0.10	1.73	-10.00
1.277	22.03	-25.97	48.00	20.20	0.10	1.73	-10.00
2.459	23.24	-24.76	48.00	21.40	0.13	1.71	-10.00
3.730	21.28	-26.72	48.00	19.40	0.19	1.69	-10.00
4.971	22.17	-25.83	48.00	20.20	0.22	1.75	-10.00
11.324	24.88	-23.12	48.00	23.00	0.39	1.49	-10.00
20.130	24.30	-23.70	48.00	22.00	0.71	1.59	-10.00
22.701	27.27	-20.73	48.00	24.81	0.81	1.65	-10.00
25.183	29.38	-18.62	48.00	26.80	0.90	1.68	-10.00
26.838	27.43	-20.57	48.00	24.80	0.90	1.73	-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	26.77	-21.23	48.00	25.00	0.10	1.67	-10.00
0.539	29.00	-19.00	48.00	27.20	0.10	1.70	-10.00
0.952	23.04	-24.96	48.00	21.20	0.10	1.74	-10.00
1.248	22.03	-25.97	48.00	20.20	0.10	1.73	-10.00
1.632	21.00	-27.00	48.00	19.20	0.10	1.70	-10.00
2.459	24.21	-23.79	48.00	22.40	0.10	1.71	-10.00
9.226	22.55	-25.45	48.00	20.80	0.19	1.56	-10.00
11.177	25.14	-22.86	48.00	23.41	0.25	1.48	-10.00
20.130	25.30	-22.70	48.00	23.20	0.51	1.59	-10.00
22.701	25.47	-22.53	48.00	23.21	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)
40.005	30.31	- 9.69	40.00	36.51	12.60	0.90	19.70
80.005	27.69	-12.31	40.00	39.39	6.70	1.50	19.90
120.000	25.91	-17.59	43.50	31.91	11.50	2.20	19.70
220.000	22.48	-23.52	46.00	30.30	8.76	3.02	19.60
240.000	22.05	-23.95	46.00	27.44	10.90	3.22	19.51
280.000	26.92	-19.08	46.00	30.64	12.50	3.48	19.70
340.033	25.34	-20.66	46.00	27.11	13.91	4.04	19.72
380.047	29.37	-16.63	46.00	30.03	14.80	4.48	19.94
440.018	30.61	-15.39	46.00	29.39	16.30	4.90	19.98
560.025	33.60	-12.40	46.00	29.10	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)
39.996	29.46	-10.54	40.00	35.66	12.60	0.90	19.70
80.000	27.17	-12.83	40.00	38.87	6.70	1.50	19.90
120.001	29.85	-13.65	43.50	35.85	11.50	2.20	19.70
160.000	30.30	-13.20	43.50	38.28	9.21	2.50	19.69
260.001	26.38	-19.62	46.00	29.46	13.16	3.36	19.60
280.001	28.74	-17.26	46.00	32.46	12.50	3.48	19.70
339.997	32.47	-13.53	46.00	34.25	13.90	4.04	19.72
360.068	32.96	-13.04	46.00	34.05	14.49	4.26	19.84
440.025	29.70	-16.30	46.00	28.48	16.30	4.90	19.98
560.468	30.85	-15.15	46.00	26.36	18.79	5.56	19.86

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

Emission	Instrument	Model No.	Serial No.	Cal. Data	Cal. Interval
Conduction (No.1)	R & S Receiver	ESHS10	830223/008	Oct. 21, 2001	1Year
	Rolf Heine LISN (EUT)	NNB-4/63TL	98008	Jun. 10, 2001	1Year
	EMCO LISN(2'd)	3825/2	9311-2150	Non-EUT LISN	N/A
	Spectrum Analyzer	3261A	91720076	Apr. 24, 2001	1Year
	RF Cable	Rg400	N/A	Apr. 15, 2001	1Year
Radiation (O.P 1)	R & S Receiver	ESVS30	863342/039	Apr. 17, 2001	1Year
	Anritsu Pre-Amp.	MH648A	M15080	Apr. 14, 2001	1Year
	R & S Pre-Amp.	ESMI-Z7	612278/011	Jun. 01, 2001	1Year
	Schaffner Antenna	CC2680	2655	Jun. 01, 2001	1Year
	COM-Power Horn Ant.	AH-118	10056	Aug. 24, 2001	1Year
	EMCO RF Clable	175series	NO. 1	Apr. 15, 2001	1Year