



PEP Testing Laboratory

REPORT NO. : 990227

RFI / EMI TEST REPORT

APPLICANT : GREAT COMPUTER CORP.
E. U. T. : SIGN CUTTING PLOTTER
TRADE NAME : N/A
FCC ID : LO4LYNX S-60
REGULATION : CFR 47 , Part 15 Subpart B , Class B
TEST SITE : PEP Testing Laboratory
TEST ENGINEER : *Tony Wang*
TEST DATE : *5 / 3 / 1999*
ISSUED DATE : MAY. / 24 / 1999
REPORT No. : 990227

FEDERAL COMMUNICATIONS COMMISSION

7435 Oakland Mills Road
Columbia, MD 21046
Telephone: 301-725-1585 (ext-218)
Facsimile: 301-344-2050

November 25, 1996

IN REPLY REFER TO
31040/SIT
1300F2

PEP Testing Laboratory
12-3 Fl., No. 27-1, Lane 169
Kang-Ning St., Hsi-chi Town
Taipei Hsien, Taiwan, R.O.C.

Attention: M. Y. Tsui

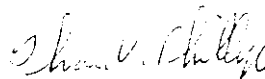
Re: Measurement facility located at above address
(3 meter site)

Gentlemen:

Your submission of the description of the subject measurement facility has been reviewed and found to be in compliance with the requirements of Section 2.948 of the FCC Rules. The description has, therefore, been placed on file and the name of your organization added to the Commission's list of facilities whose measurement data will be accepted in conjunction with applications for certification or notification under Parts 15 or 18 of the Commission's Rules. Our list will also indicate that the facility complies with the radiated and AC line conducted test site criteria in ANSI C63.4-1992. Please note that this filing must be updated for any changes made to the facility, and at least every three years the data on file must be certified as current.

Per your request, the above mentioned facility has been also added to our list of those who perform these measurement services for the public on a fee basis. This list is published periodically and is also available on the Laboratory's Public Access Link as described in the enclosed Public Notice.

Sincerely,



Thomas W. Phillips
Electronics Engineer
Customer Service Branch

Enclosure:
PAL PN



PEP Testing Laboratory

REPORT NO. : 990227

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 : GREAT COMPUTER CORP.*

PRODUCT : SIGN CUTTING PLOTTER*

FCC ID : LO4LYNX S-60*

MODEL : LYNX S-60, LYNX S-30*

M. Y. TSUI / Manager

PEP Testing Laboratory

12-3FL., NO. 27-1, Lane 169, Kang-Ning St.,
Hsi-Chih, Taipei Hsien, Taiwan, R. O. C.
TEL : 886-2-26922097 FAX : 886-2-26956236



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1. GENERAL

1.1 GENERAL INFORMATION:

APPLICANT : GREAT COMPUTER CORP.

4F, NO. 236, FU-TE 2ND RD., HSI CHIH,
TAIPEI HSIEN 221, TAIWAN, R. O. C.

MANUFACTURER : GREAT COMPUTER CORP.

4F, NO. 236, FU-TE 2ND RD., HSI CHIH,
TAIPEI HSIEN 221, TAIWAN, R. O. C.

MEASUREMENT PROCEDURE : ANSI C63 , 4 - 1992

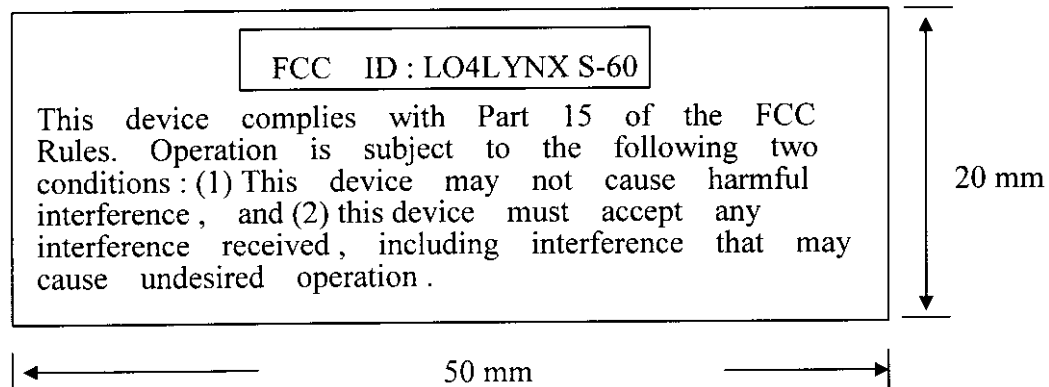
TESTED FOR COMPLIANCE WITH : Title 47 of CFR
Part 15 , Subpart B , Class B

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.

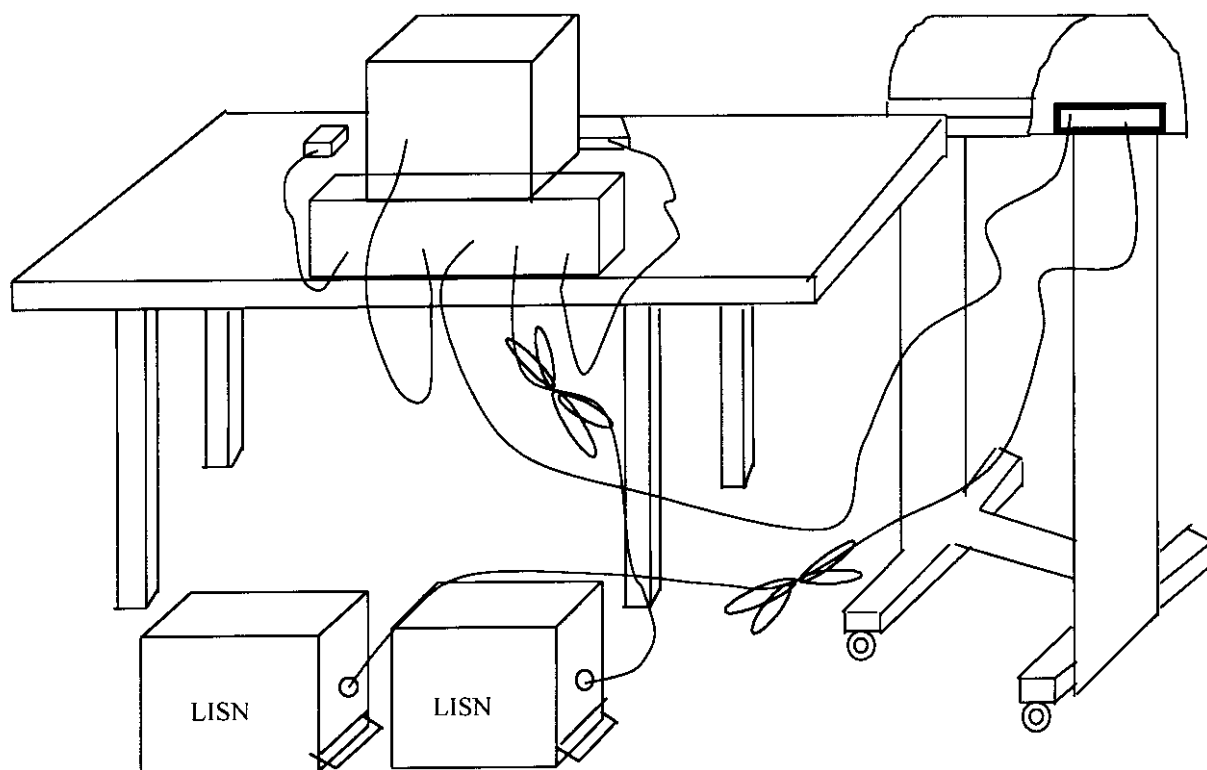
Use only shielded cables to connect I/O devices to this equipment.

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.

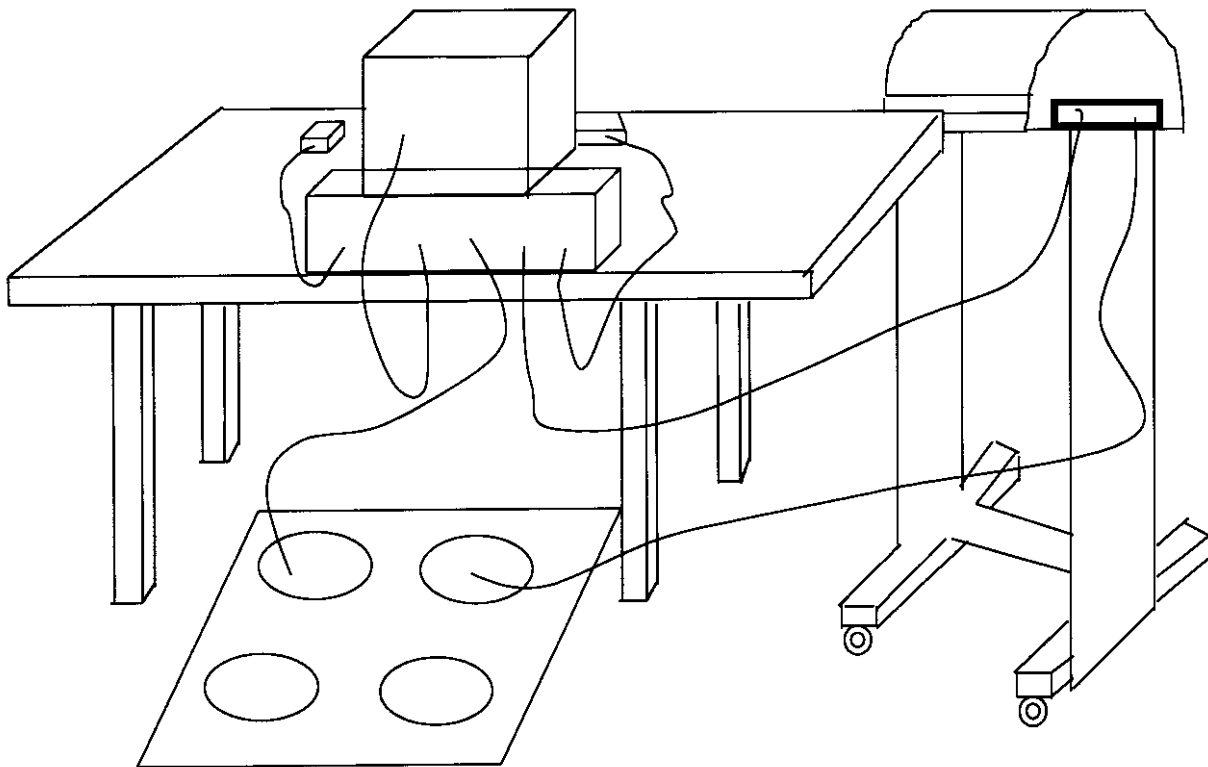
To get the maximum power line conducted emission, we changed the configuration by varying the monitor power cord fed from floor outlet and from the outlet on the power supply of this computer.

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 PROCEDURE ----**

- (A) The EUT is cutting plotter , FCC ID : LO4LYNX S-60 , which bear two models LYNX S-30 & LYNX S-60 , both models have identical electrical circuit design and layout but Cutting width , for more detail information about the both models , please refer user's manual page appendix . The I/O ports on the EUT included one serial port and parallel port .
- (B) Test method : setting up a PC system , the serial port of the EUT connected to COM1. port on the PC and the parallel port connected to printer port on the PC . The COM2. Port on the PC was occupied by mouse during the test . The EUT can't be enabled by FCC EMITEST program , the applicant provided the driving software to make the EUT enable as it really work . When the EUT was plotting ,the rest of the peripheral devices were under idle situation , that's the reason why the monitor can't show out the "H" pattern on the screen .
- (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 : JM Computer Inc.
Model Number : C486SDX-SDT
Power Supply Type : Switching
Power Cord : Shielded, Detachable, 1.2m
Data Cable : Shielded, Detachable, 1.2m
FCC ID : K25C486SDX-SDT

SUPPORT UNIT 2. - - - - MONITOR

Manufacturer : ACER Peripherals Inc.
Model Number : 7134T
Power Supply Type : Switching
Power Cord : Shielded, Detachable, 1.2m
Data Cable : Shielded, Undetachable, 1m
FCC ID : JVP7134T

SUPPORT UNIT 3. - - - - KEYBOARD

Manufacturer : Acer Peripherals Inc.
Model Number : 6011
Power Supply Type : N/A
Power Cord : N/A
Data Cable : Shielded, Undetachable, 1m
FCC ID : GQ86011A



SUPPORT UNIT 4. ---- MOUSE

Manufacturer: GENIUS

Model Number : EasyMouse

Power Supply Type : N/A

Power Cord : N/A

Data Cable : Shielded, Undetachable, 1m

FCC ID : FSUGMZE4

EQUIPMENT UNDER TEST ----SIGN CUTTING PLOTTER

Manufacturer : GREAT COMPUTER CORP.

Model Number : LYNX S-60, LYNX S-30

Data Cable : Shielded, Detachable, 1.2m

FCC ID : LO4LYNX S-60



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 : we tested model LYNX S-60 and put it (1) on the right side of PC ; (2) on the left side of the PC under test .
In this report , we provided the worst case data (2) to reference.

Conducted Emission Test Photo. : Page 15

Test Data : Hot 16

Neutral 17

Radiated Emission Test Photo. : Page 18

Test Data : Horizontal 19

Vertical 20



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)
1.662	38.00	-10.00	48.00	37.80	0.10	0.10	0.00
11.265	24.32	-23.68	48.00	23.20	0.56	0.56	0.00
14.575	22.58	-25.42	48.00	21.20	0.69	0.69	0.00
17.382	24.51	-23.49	48.00	23.00	0.75	0.75	0.00
18.801	30.16	-17.84	48.00	28.60	0.78	0.78	0.00
19.894	33.60	-14.40	48.00	32.00	0.80	0.80	0.00
20.455	34.42	-13.58	48.00	32.80	0.81	0.81	0.00
20.751	33.24	-14.76	48.00	31.60	0.82	0.82	0.00
24.060	34.46	-13.54	48.00	32.70	0.88	0.88	0.00
26.661	47.41	- 0.59	48.00	45.40	1.14	0.87	0.00

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)
1.662	37.20	-10.80	48.00	37.00	0.10	0.10	0.00
11.383	28.33	-19.67	48.00	27.40	0.56	0.36	0.00
16.791	25.88	-22.12	48.00	24.60	0.74	0.54	0.00
19.362	34.78	-13.22	48.00	33.40	0.79	0.59	0.00
24.090	38.97	- 9.03	48.00	37.40	0.89	0.69	0.00
25.804	40.68	- 7.32	48.00	38.80	1.02	0.86	0.00
26.661	46.96	- 1.04	48.00	44.80	1.14	1.01	0.00
27.459	45.23	- 2.77	48.00	42.80	1.27	1.17	0.00
28.109	40.64	- 7.36	48.00	38.00	1.36	1.29	0.00
28.818	35.65	-12.35	48.00	32.80	1.45	1.40	0.00

Note :

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



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)
50.001	25.53	-14.47	40.00	34.53	10.10	0.90	20.00
75.001	23.74	-16.26	40.00	33.14	9.25	1.35	20.00
124.999	23.60	-19.90	43.50	30.01	11.99	1.60	20.00
149.998	27.04	-16.46	43.50	32.24	12.90	1.90	20.00
224.997	27.54	-18.46	46.00	27.89	17.15	2.50	20.00
249.998	33.29	-12.71	46.00	31.82	18.77	2.70	20.00
300.000	27.96	-18.04	46.00	29.96	14.80	3.20	20.00
324.998	27.00	-19.00	46.00	29.93	13.82	3.25	20.00
449.997	27.59	-18.41	46.00	26.69	17.31	3.60	20.00
524.996	28.56	-17.44	46.00	26.62	18.09	3.85	20.00

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)
49.997	28.03	-11.97	40.00	37.03	10.10	0.90	20.00
124.998	23.59	-19.91	43.50	30.00	11.99	1.60	20.00
149.999	27.30	-16.20	43.50	32.50	12.90	1.90	20.00
174.997	26.68	-16.82	43.50	31.13	13.36	2.20	20.00
224.998	28.83	-17.17	46.00	29.18	17.15	2.50	20.00
249.997	25.98	-20.02	46.00	24.51	18.77	2.70	20.00
399.997	28.38	-17.62	46.00	28.19	16.79	3.40	20.00
474.997	29.74	-16.26	46.00	28.56	17.49	3.70	20.00
574.996	30.72	-15.28	46.00	27.87	18.90	3.95	20.00
599.995	30.46	-15.54	46.00	27.27	19.19	4.00	20.00

Note :

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

APPENDIX B. List of Test Equipment

Instrument	Model No.	Cal. Due Date	S/N
R&S Receiver	ESVS30(30M~1GHZ)	Apr. 15, 2000	863342/012
R&S Receiver	ESBI (20~5GHZ)	Apr. 15, 2000	845658/003
Spectrum Analyzer	HP8591A(9K~1.8GHZ)	Apr. 15, 2000	3225A03039
Spectrum Analyzer	R3261A (9K~2.6GHZ)	Apr. 15, 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, 1999	M40076
COM-Power Horn Antenna	AH-118 (1G~18GHZ)		10056
EMCO Dipole Antenna	3121C (20M~1GHZ)	May. 22, 1999	9611-1230
EMCO Biconical Antenna	3110B (30M~300M)	Mar. 10, 2000	2932
EMCO Log-Periodic Antenna	3146A (300M~1GHZ)	Apr. 14, 2000	1384