3. System Test Configuration

3-1. Justification

The system was configured for testing in a typical fashion (as a customer would normally use it). The digitizing tablet was connected to support equipment-personal computer. Peripherals of PC, such as monitor , Printer, mouse, and modem were contained in this system in order to comply with the ANSI C63.4/ CISPR22 Rules requirement. The transducer stylus-Pen was stand on the digitizing tablet during the measurement. The PC keyboard also connected with the EUT by the Keyboard/Power Adapter Cable. The PC operated in the default 640X480/31.5KHz VGA Graphic mode. This operated condition was tested and used to collect the included data.

3-2. EUT Exercise Software

The EUT exercise program used during radiated and conducted testing was designed to exercise the various system components in a manner similar to a typical use. The software, contained on a 3-1/2 inch disk, was inserted into driver A and is auto-starting on power-up. Once loaded, the program sequentially exercises each system component in turn. The sequence used is:

1. Read(write) from(to) mass storage device(Disk).
2. Send " H " pattern to video port device(Monitor).
3. Send " H " pattern to parallel port device(Printer).
4. Send " H " pattern to COM1 port device (EUT).
5. Send " H " pattern to COM2 port device (Modem).
6. Repeated from 2 to 4 continuously.

As the keyboard, mouse, and the digitize composite system are strictly input devices, no data is transmitted to (from) them during test. They are, however, continuously scanned for data input activity.

3-3. Special Accessories

N/A

3-4. Equipment Modifications

Not available for this EUT intended for grant.

Applicant Signature :	Allan Chao	**Date :**	Mar. 17, 1999
Type/Printed Name :	Allan Chao	**Position :**	Vice President

3.5 Configuration of Tested System

The configuration of tested system is described as the block diagram shown in next page Figure 3.1 and details information of I/O cable an power cord connection are tabulated as Table A and B. The monitor is powered from a floor mounted receptacle (referred to as the wall outlet in the previous described)was tested.

TABLE A - Test Equipment

Item	Equipment	Mfr.	Model/Type No.	I/O Port	FCC ID	Remark
E-1	Digitizer	AIPTEK	AHP6000	KB Port COM Port	NRQSTO645A	EUT
E-2	Modem	Datatronics	AT-1200CK	N/A	E2O5OV1200CK	
E-3	Stylus-Pen	AIPTEK	Pen	N/A	NRQSTO645A	EUT
E-4	Monitor	Chern-Yih	NE64	VGA Port	KFBNE64	
E-5	PC	IBM	93V		ANO6282	
E-6	Printer	SII	PDU414	Printer Port	N/A(3)	
E-7	Keyboard	Forward	FDA-102A	EUT KB connector	F4Z4K3FDA-102A	
E-8	Mouse	Logitech	SERIES.2-7S	PS/2 Port	DZL6QBS2	

Remark:

(1) Unless otherwise denoted as EUT in 「Remark」 column , device(s) used in tested system is a support equipment.

(2) Unless otherwise marked as ※ in 「Remark」 column, Neutron consigns the supporting equipment(s) to the tested system.

(3) The support equipment was passed by Declaration of Conformity.

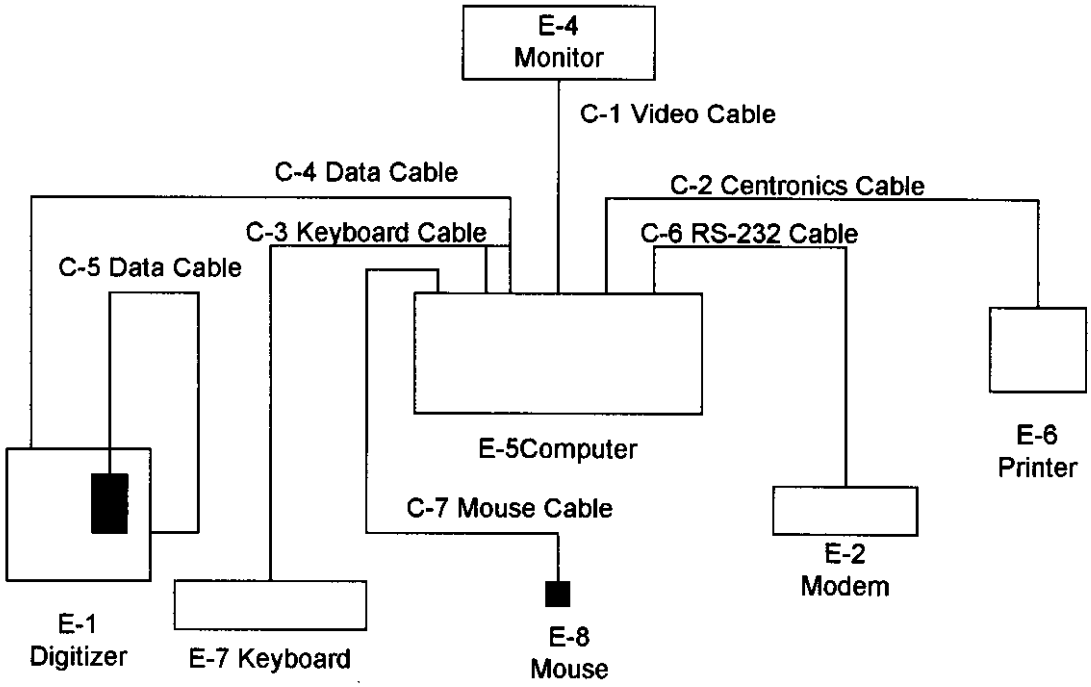
Table B. - Informations Cable Information

Item	I/O Cable	Device Connected	Shielded	Ferrite	Detachalbe/Permanently	Note
C-1	Video Cable	PC-Monitor	Yes	No	Permanently attached on Monitor	
C-2	Centronics Cable	PC-Printer	Yes	No	Detachable type	
C-3	Keyboard Cable	PC-Keyboard	Yes	No	Permanently attached on KB	
C-4	Data Cable	PC-EUT	Yes	No	Permanently attached on Digitizer	※
C-5	Data Cable	Pen-EUT	Yes	No	Permanently attached on EUT	※
C-6	RS-232 Port	PC-Modem	Yes	No	Detachable type	
C-7	Mouse Port	PC-Mouse	Yes	No	Detachable type	

Note:

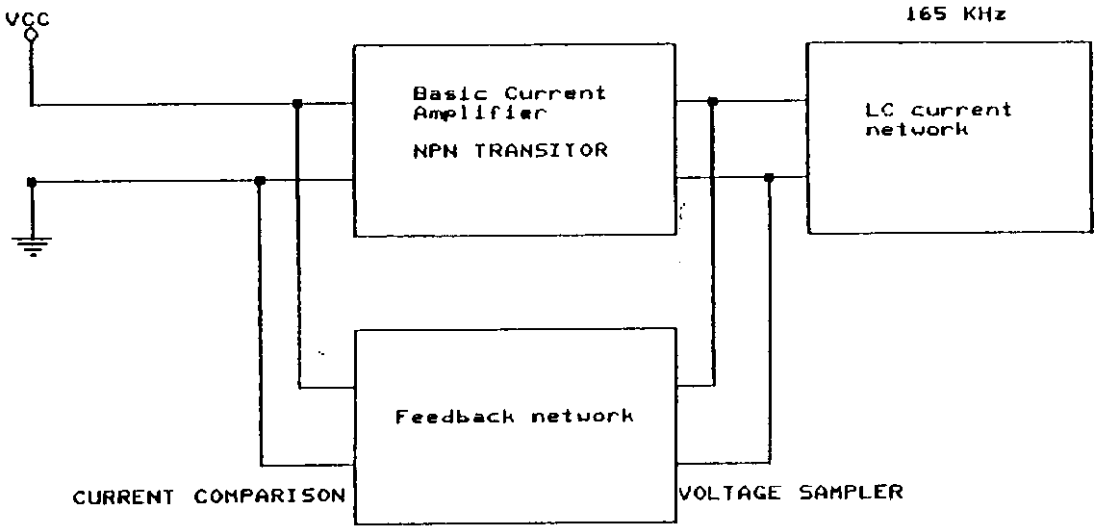
(1) Unless otherwise marked as ※ in 「Remark」 colum, Neutron consigns the supporting equipment(s) to the tested system.

Figure 3.1 Configuration of Tested System

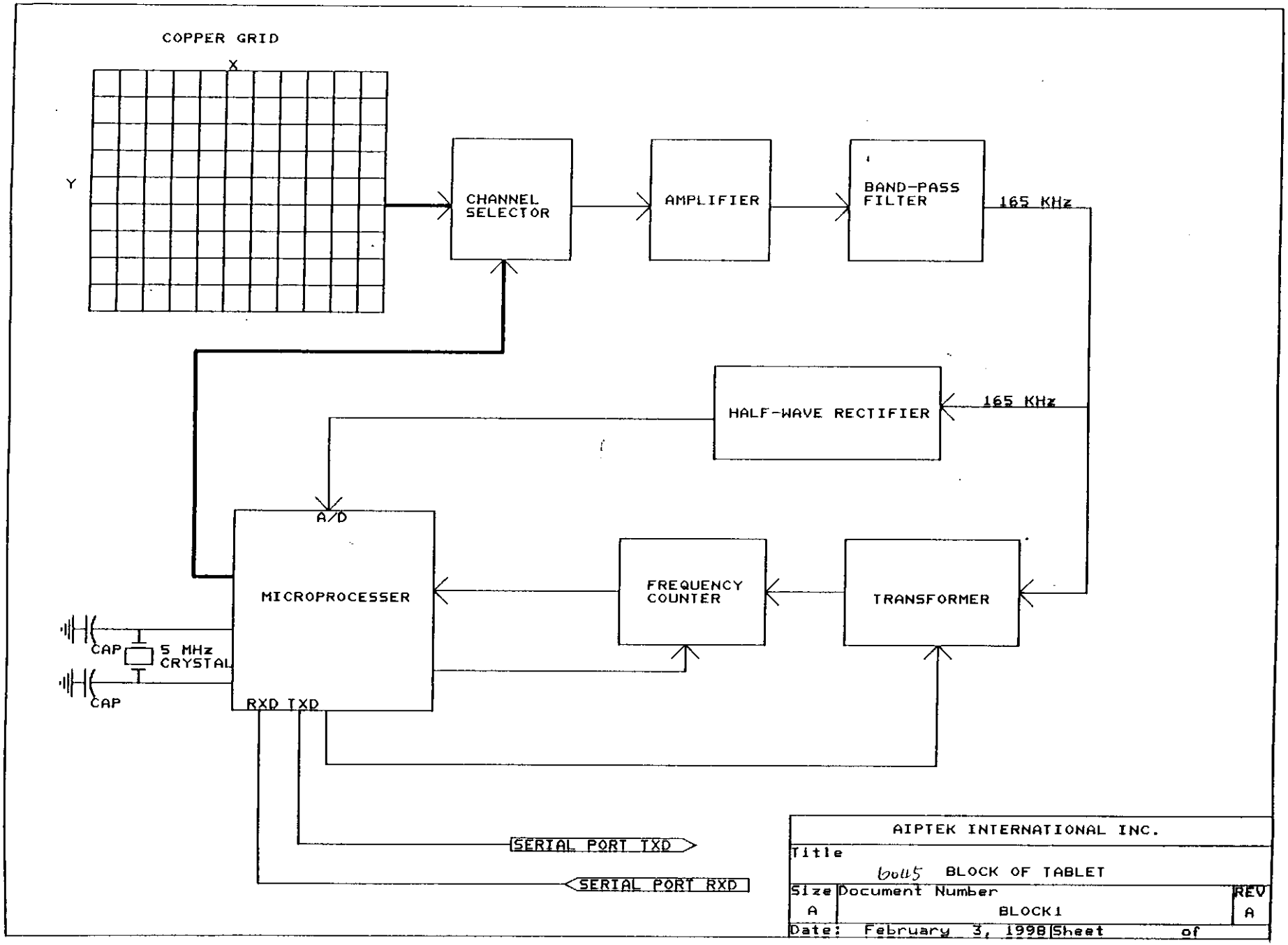


4. Block Diagram(s)

Figure 4.1 Block diagram of system, Page 13.A



AIPTEK INC.		
Title: Pen oscillation block diagram		
Size: A	Document Number: C:\MYWORK4\TABLET\BLOCK2.SCH	REV: a
Date: February 16, 1998	Sheet of	


COPPER GRID
X
Y
CHANNEL SELECTOR
AMPLIFIER
BAND-PASS FILTER
165 KHz
HALF-WAVE RECTIFIER
165 KHz
A/D
MICROPROCESSER
FREQUENCY COUNTER
TRANSFORMER
CAP
5 MHz CRYSTAL
CAP
RXD TXD
SERIAL PORT TXD
SERIAL PORT RXD
AIPTEK INTERNATIONAL INC.
Title
6045 BLOCK OF TABLET
Size A
Document Number BLOCK1
REV A
Date: February 3, 1998
Sheet of

6. Conducted Emission Datas

6.1 The initial step in collecting conducted data is a spectrum analyzer peak scan of the measurement range. significant peaks are then marked as shown on the following data page, and these signals are then quasi-peaked.

Judgement: Passed by **-12.80** **dB** in mode of **Line** terminal **0.52** **MHz**

Freq.	Terminal	Measured(dBuV)		Limits(dBuV)		Safe Margins	
(MHz)	L/N	QP-Mode	AV-Mode	QP-Mode	AV-Mode	(dBuV)	Note
0.17	L	45.40	*	64.77	54.77	-19.37	(QP)
0.28	L	44.40	*	60.94	50.94	-16.54	(QP)
0.52	L	43.20	*	56.00	46.00	-12.80	(QP)
9.45	L	46.40	*	60.00	50.00	-13.60	(QP)
13.13	L	46.22	*	60.00	50.00	-13.78	(QP)
0.17	N	45.40	*	64.82	54.82	-19.42	(QP)
0.28	N	44.60	*	60.94	50.94	-16.34	(QP)
0.52	N	42.40	*	56.00	46.00	-13.60	(QP)
9.30	N	46.40	*	60.00	50.00	-13.60	(QP)
13.13	N	44.82	*	60.00	50.00	-15.18	(QP)

Remark :

(1) Reading inwhich marked as QP means measurements by using are Quasi-Peak Mode with Detector BW=9KHz ; SPA setting in RBW=100KHz,VBW =100KHz, Swp. Time = 0.3 sec./MHz ◦ Reading inwhich marked as AV means measurements by using are Average Mode with instrument setting in RBW=1MHz,VBW=10Hz, Swp. Time =0.3 sec./MHz ◦

(2) All readings are QP Mode value unless otherwise stated AVG in colum of 『Note』. If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemd to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform ◦ In this case, a " * " marked in AVG Mode colum of Interference Voltage Measured ◦

(3) Measuring frequency range from 150KHz to 30MHz ◦

Review : Test Personnel. : Riker 1/14 Date: Mar. 15, 1999

7. Radiated Emission Datas

7.1 The following data lists the significant emission frequencise, measured levels, correction factor (includes cable and antenna corrections), the corrected reading, as well as the limit. Explanation of the Correction Factor is given in paragraph 7.2.

Test Mode: Digitizer Digitizer

Judgement: Passed by **-2.16 dB** in polarity of **Horizontal 34.6 MHz**

Freq. (MHz)	Ant. H/V	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits(QP) (dBuV/m)	Safe Margins (dBuV/m)	Note
34.60	H	29.40	- 1.56	27.84	30.00	- 2.16	
36.00	V	26.00	- 2.18	23.82	30.00	- 6.18	
40.00	H	29.20	- 3.94	25.26	30.00	- 4.74	
51.40	V	33.30	- 10.05	23.25	30.00	- 6.75	
79.30	H	33.40	- 9.33	24.07	30.00	- 5.93	
122.00	V	29.80	- 5.17	24.63	30.00	- 5.37	
200.00	H	29.80	- 6.30	23.50	30.00	- 6.50	
336.00	H	31.00	- 0.01	30.99	37.00	- 6.01	
432.00	V	29.70	3.50	33.20	37.00	- 3.80	
462.40	V	28.50	4.43	32.93	37.00	- 4.07	
485.60	H	28.30	5.37	33.67	37.00	- 3.33	
500.00	V	28.40	5.90	34.30	37.00	- 2.70	

Remark :

(1) Reading inwhich marked as QP or Peak means measurements by using are Quasi-Peak Mode or Peak Mode with Detector BW=120KHz ; SPA setting in RBW=1MHz, VBW =1MHz, Swp. Time = 0.3 sec./MHz ◦

(2) All readings are Peak unless otherwise stated QP in colum of 『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measure-ment didn't perform ◦

(3) Measuring frequency range from 30MHz to 1000MHz ◦

(4) If the peak scan value lower limit more than 20dB, then this signal data does not show in table ◦

Review : Test Personnel. : Riker Hsu Date: Mar. 09, 1999

7-2. Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain (if any) from the measured reading.The basic equation with a sample calculation is as follows:

FS = RA + AF + CL - AG

Where FS = Field Strength

RA = Receiver Amplitude

AF = Antenna Factor (1)

CL = Cable Attenuation Factor (1)

AG = Amplifier Gain (1) (2)

Remark :

(1) The Correction Factor = AF + CF - AG, as shown in the data tables' Correction Factor column.

(2) AG is not available for Neutron's Open Site Facility

Example of Calculation:

Assume a Receiver Reading of 23.7 dBuV is obtained with an Antenna Factor of 7.2 dB and a Cable Factor of 1.1 dBuV. Then:

1. The Correction Factor will be caculated by

Correction Factor = AF + CF - AG = 7.2 + 1.1 - 0 = 8.3 (dB)

as shown in the data tables' Correction Factor column.

2. The Field Strength will be calculated by

FS = RA + Correction Factor = 23.7 + 8.3 = 32 (dBuV/m).

FS is the value shown in the data tables' Corrected Reading column and RA is the value shown in

the data tables' Receiver Reading column.The 32 dBuV/m value was mathematically converted

to its corresponding level in uV/m as:

$$\mathbf{Log^{-1}\ [(32.0dBuV/m)/20] = 39.8\ (uV/m)}$$

7-3. Correction Factor VS Frequency

Frequency (MHz)	Antenna Factor (dB)	Cable Loss (dB)
30.00	11.10	0.90
35.00	10.80	0.50
40.00	11.20	1.00
45.00	11.50	0.80
50.00	11.30	1.00
55.00	10.50	1.30
60.00	9.90	1.00
65.00	8.70	1.50
70.00	7.60	1.20
75.00	6.40	1.40
80.00	6.10	1.30
85.00	7.00	1.40
90.00	8.00	1.70
95.00	10.00	1.50
100.00	11.20	1.90
110.00	12.60	2.00
120.00	13.00	1.80
130.00	12.50	1.80
140.00	12.00	2.00
150.00	12.00	2.20
160.00	13.20	2.40
170.00	14.80	2.50
180.00	16.30	2.50
190.00	17.00	2.50
200.00	17.30	2.40
225.00	10.50	2.70
250.00	11.70	3.10
275.00	12.80	3.70
300.00	14.50	4.00
325.00	14.00	4.50
350.00	14.20	4.50
375.00	14.60	4.60
400.00	15.10	4.80
450.00	16.20	5.40
500.00	17.60	6.50
550.00	17.80	7.00
600.00	18.40	7.10
650.00	19.50	7.10
700.00	20.80	7.20
750.00	20.50	7.50
800.00	21.10	8.00
850.00	22.40	8.60
900.00	23.50	8.90
950.00	24.00	9.70
1000.00	24.80	10.30

8. Photos of Tested EUT:

1. Photo # 1. Front View
2. Photo # 2. Rear View
3. Photo # 3. Unit Partially Disassembled
4. Photo # 4. Unit Partially Disassembled
5. Photo # 5. Unit Partially Disassembled
6. Photo # 6. Unit Partially Disassembled
7. Photo # 7. Front View
8. Photo # 8. Unit Partially Disassembled
9. Photo # 9. Unit Partially Disassembled
10. Photo # 10. Unit Partially Disassembled