MEASUREMENT/TECHNICAL REPORT

APPLICTNT: Monterey International Corp.

MODEL NO.: K290

FCC ID: FKD46AK29∅

This report concerns (check one) : **Original Grant** ✓
Class II Change _____

Equipment type: Keyboard

Deferred grant requested per 47CFR 0.457(d)(1)(ii)?
Yes _____ No ✓ If yes, defer until: _____ (date)
We, the undersigned, agree to notify the Commission by (date) _____ / _____ / _____ of the intended date of announce ment of the product so that the grant can be issued on that date.

Transiyion Rules Request per 15.37? Yes _____ No ✓
If no, assumed Part 15, Subpart B for unintentional radiator the new 47 CFR (10-1-90 Edition) provision.

Report Prepared

by Testing House : **Neutron Engineering Inc.**

for Company Name: Monterey International Corp.

Address: 1FL, No. 40, Deh Hwei St., Taipei, Taiwan, R.O.C.

Applicant Signature : Ken Chen

Ken Chen / Elec. Eng./R&D

1-3. Tested System Details

The FCC IDs for all equipments, plus descriptions of all cables used in the tested system (including inserted cards, which have grants) are:

Model No.	FCC ID	Equipment	Cable
K290[1]	FKD46AK29∅	Keyboard	Shielded Data Cable.
93V	ANO6282	PC	Shielded Power Cord.
NE64	KFBNE64	Monitor	Shielded Data Cable[2] Un-Shielded Power Cord
HP2225C+	DSI6XU2225	Printer	Shielded Data Cable Un-Shielded Power Cord
AT-1200CK	E2O5OV1200CK	Modem	Shielded Data Cable Un-Shielded Power Cord
SERIES 2-7S	DZL6QBS2	Mouse	Shielded Data Cable

Notes:

(1) EUT submitted for grant.
(2) Monitor's attached video cable without ferrite core.

1-4. Test Methodology

Both conducted and radiated testing were performed according to the procedures in ANSI C63.4 (1992)/CISPR 22 (1996). Radiated testing was performed at an antenna to EUT distance 10 meters.

1-5. Test Facility

The open area test site and conducted measurement facility used to collect the radiated data is located on the address of No. 5, All 2, Lane 220, Kang Lo St., Nei Hwu, Taipei, Taiwan, R.O.C. of NEUTRON ENGINEERING INC. This site has been fully described in report dated Feb.4,1998 Submitted to your office, and accepted in a letter dated March 28, 1998 (31040/SIT-1300F2).

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 keyboard was connected to support equipment-personal computer. Peripherals of PC, such as monitor, print,and modem were contained in this system in order to comply with the ANSI C63.4 / CISPR 22 (1996) Rules requirement. 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 (Modem).
5. Repeated from 2 to 4 continuously.

As the Keyboard and mouse 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

No any other special accessory used for compliance testing.

3-4. Equipment Modifications

No any other special accessory used for compliance testing.

Applicant Signature : Ken Chen **Date :** May 18' 98

Type/Printed Name : Ken Chen **Position :** Elec. Eng./R&D

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	Keyboard	Monterey	K290	KB Port	FKD46AK29∅	EUT
E-2	Monitor	Chern-Yih	NE64	VGA Port	KFBNE64	
E-3	PC	IBM	93V		ANO6282	
E-4	Printer	HP	HP2225C+	Printer Port	DSI6XU2225	
E-5	Modem, Serial I/F	Datatronics	AT-1200CK	Com Port	E2O5OV1200CK	
E-6	Mouse PS2	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.

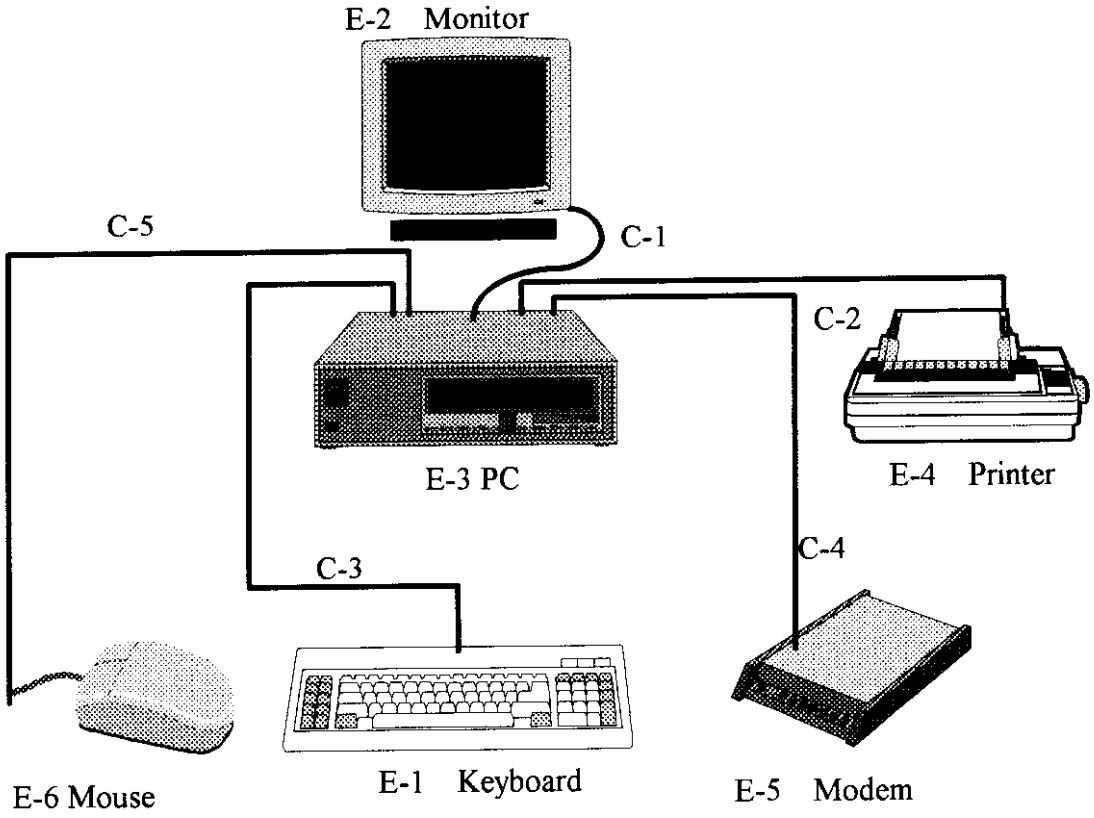
Table B. - Informations Cable Information

Item	I/O Cable	Device Connected	Shielded	Ferrite	Detachable/Permanently	Note
C-1	Video Cable	PC-Monitor	Yes	No	Permanently attached	
C-2	Centronics Cable	PC-Printer	Yes	No	Detachable type	
C-3	Keyboard Cable	PC-Keyboard	Yes	No	Permanently attached	EUT
C-4	RS-232 Cable	PC-Modem	Yes	No	Detachable type	
C-5	Mouse Cable	PC-Mouse	Yes	No	Permanently attached.	

Note:

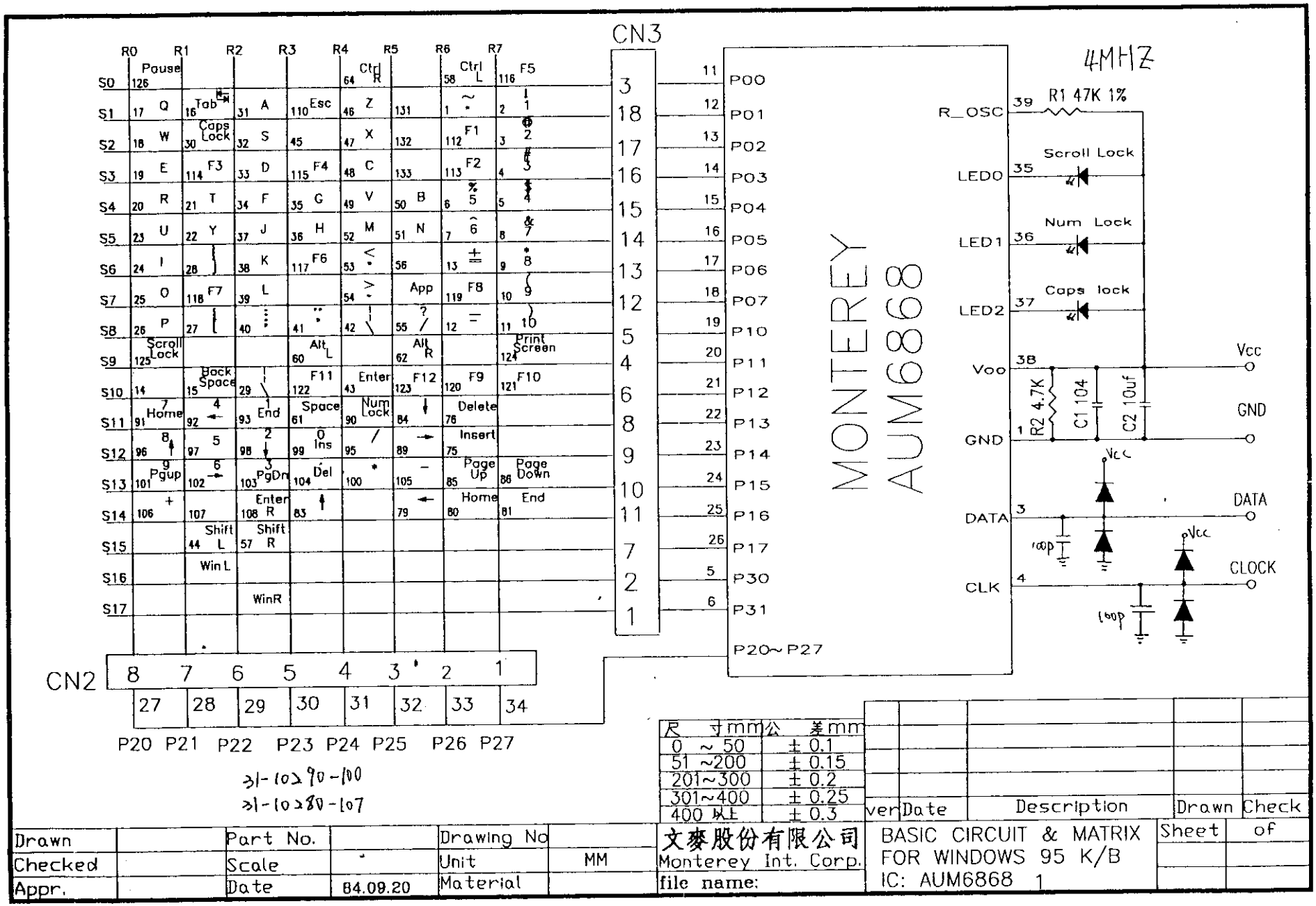
(1) Unless otherwise marked as ※ in 「Remark」 colum, Neutron consigns the supporting equipment(s) to the tested system.

Figure 3.1 Configuration of Tested System



4. Block Diagram(s)

Figure 4.1 Block diagram of system, Page 13.A



尺寸mm	公差mm
0 ~ 50	± 0.1
51 ~200	± 0.15
201~300	± 0.2
301~400	± 0.25
400 以上	± 0.3

ver	Date	Description	Drawn	Check

Drawn		Part No.		Drawing No		文麥股份有限公司	BASIC CIRCUIT & MATRIX	Sheet
Checked		Scale		Unit	MM	Monterey Int. Corp.	FOR WINDOWS 95 K/B	of
Appr.		Date	84.09.20	Material		file name:	IC: AUM6868 1	

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 **-12.13** **dB** in mode of **Neutral** terminal **0.51** **MHz**

Freq.	Terminal	Measured(dBuV)		Limits(dBuV)		Safe Margins	
(MHz)	L/N	QP-Mode	AV-Mode	QP-Mode	AV-Mode	(dBuV)	Note
0.28	Line	44.94	*	60.85	50.85	-15.91	(QP)
0.51	Line	43.26	*	56.00	46.00	-12.74	(QP)
0.63	Line	41.98	*	56.00	46.00	-14.02	(QP)
1.14	Line	39.43	*	56.00	46.00	-16.57	(QP)
15.80	Line	37.01	*	60.00	50.00	-22.99	(QP)
0.27	Neutral	46.50	*	61.12	51.12	-14.62	(QP)
0.35	Neutral	44.84	*	58.92	48.92	-14.08	(QP)
0.51	Neutral	43.87	*	56.00	46.00	-12.13	(QP)
0.76	Neutral	40.37	*	56.00	46.00	-15.63	(QP)
15.80	Neutral	34.89	*	60.00	50.00	-25.11	(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. : Date: MAY 18, 1998

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.

Judgement: Passed by **-5.92** **dB** in polarity of **Vertical** **163.1** **MHz**

Freq. (MHz)	Polar. H/V	Reading(RA) (dBuV/m)	Corr.Factor. (dBuV/m)	Corrected FS (dBuV/m)	Limits (QP) (dBuV/m)	Margins (dBuV/m)	Note (QP)
31.90	H	12.40	11.11	23.51	30.00	- 6.49	
55.30	H	13.40	10.46	23.86	30.00	- 6.14	
77.90	H	16.80	6.49	23.29	30.00	- 6.71	
117.20	V	10.10	13.49	23.59	30.00	- 6.41	
143.60	V	11.30	12.42	23.72	30.00	- 6.28	
163.10	V	9.00	15.08	24.08	30.00	- 5.92	
200.00	H	11.10	12.40	23.50	30.00	- 6.50	
204.00	V	10.50	12.27	22.77	30.00	- 7.23	
218.40	V	11.00	11.81	22.81	30.00	- 7.19	
267.20	V	15.00	14.73	29.73	37.00	- 7.27	
267.20	H	14.50	14.73	29.23	37.00	- 7.77	
295.20	H	14.40	16.57	30.97	37.00	- 6.03	

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. : Date: MAY 16, 1998

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 + CL - 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 dBuV and a Cable Factor of 1.1 dBuV. Then:

1. The Correction Factor will be caculated by

Correction Factor = AF + CL - 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	0.20
35.00	10.80	0.00
40.00	11.20	0.40
45.00	11.50	0.40
50.00	11.30	0.90
55.00	10.50	0.00
60.00	9.90	0.00
65.00	8.70	0.20
70.00	7.60	0.00
75.00	6.40	0.50
80.00	6.10	0.10
85.00	7.00	0.80
90.00	8.00	0.30
95.00	10.00	0.40
100.00	11.20	0.60
110.00	12.60	0.60
120.00	13.00	0.60
130.00	12.50	0.50
140.00	12.00	0.20
150.00	12.00	1.00
160.00	13.20	1.20
170.00	14.80	1.60
180.00	16.30	1.90
190.00	17.00	1.90
200.00	17.30	1.40
225.00	10.50	1.10
250.00	11.70	2.00
275.00	12.80	2.40
300.00	14.50	2.40
325.00	14.00	1.90
350.00	14.20	2.40
375.00	14.60	2.90
400.00	15.10	2.70
450.00	16.20	3.20
500.00	17.60	3.70
550.00	17.80	3.90
600.00	18.40	4.30
650.00	19.50	4.00
700.00	20.80	4.10
750.00	20.50	5.30
800.00	21.10	5.90
850.00	22.40	5.80
900.00	23.50	5.50
950.00	24.00	6.30
1000.00	24.80	5.20

8. Photos of Tested EUT:

1. Photo # 1. Front View
2. Photo # 2. Rear View
3. Photo # 3. Cover/Enclosurer Remover
4. Photo # 4. Unit Partially Disassembled
5. Photo # 5. Unit Partially Disassembled
6. Photo # 6. Unit Partially Disassembled
7. Photo # 7. Unit Partially Disassembled