

**MEASUREMENT/TECHNICAL REPORT****APPLICANT:** Monterey International Corp.**MODEL NO.:** K290**FCC ID:** FKD46AK290

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 / 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 <sup>(1)</sup>	FKD46AK290	Keyboard	Shielded Data Cable.
93V	ANO6282	PC	Shielded Power Cord.
NE64	KFBNE64	Monitor	Shielded Data Cable <sup>(2)</sup> 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 and 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	FKD46AK290	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.

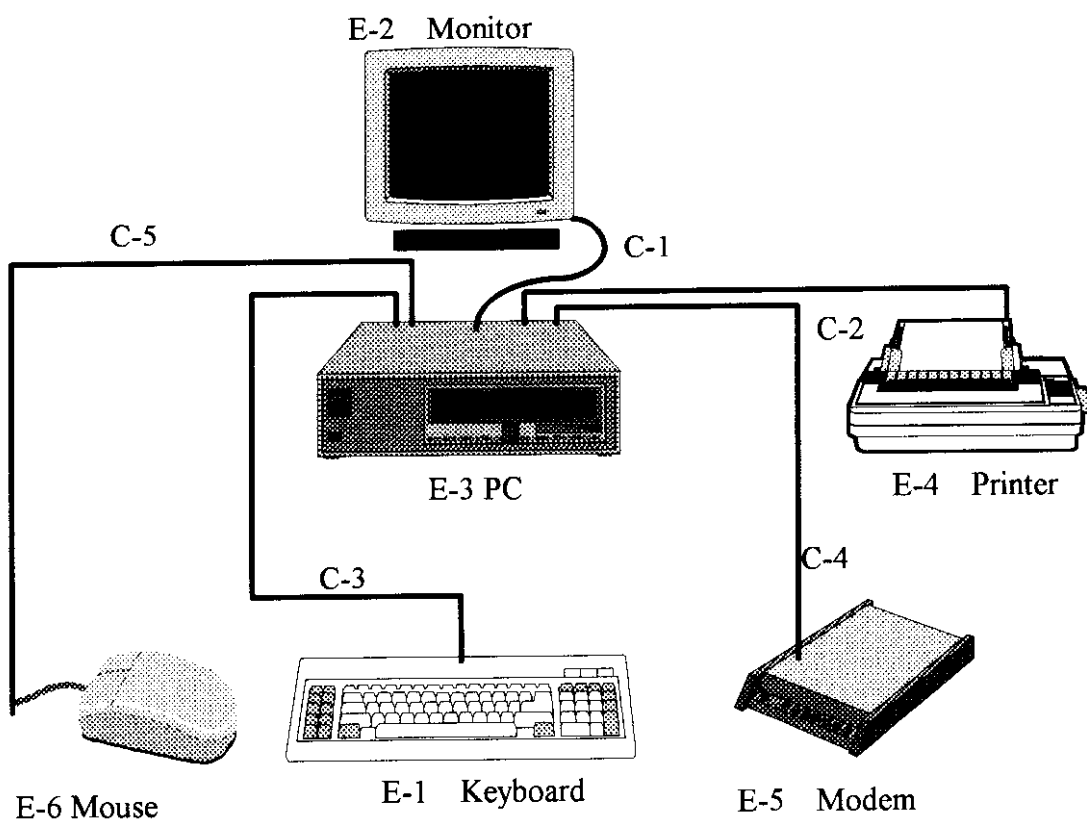
**Table B. - Informations Cable Information**

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

REV

01-11-14

CN3

R0	R1	R2	R3	R4	R5	R6	R7
S0 126	Pause			Ctrl	58	Ctrl	F5
S1 17	Q	Tab	A	Esc	46	1	1
S2 18	W	Caps Lock	S		47	F1	2
S3 19	E	F3	D	F4	48	F2	3
S4 20	R	T	F	G	49	B	4
S5 21	U	Y	J	H	50	N	5
S6 22	I		K	F6	51	+	6
S7 23	O		L		52	=	7
S8 24	P				53	/	8
S9 25	Scroll Lock				54	App	9
S10 26	Back Space				55	?	10
S11 27	Home				56	Alt	11
S12 28	End				57	Enter	12
S13 29	Page Up				58	Num Lock	13
S14 30	Page Down				59	0	14
S15 31	Shift				60	1	15
S16 32	WinL				61	2	16
S17 33	WinR				62	3	17
S18 34					63	4	18
S19 35					64	5	19
S20 36					65	6	20
S21 37					66	7	21
S22 38					67	8	22
S23 39					68	9	23
S24 40					69	0	24
S25 41					70	1	25
S26 42					71	2	26
S27 43					72	3	27
S28 44					73	4	28
S29 45					74	5	29
S30 46					75	6	30
S31 47					76	7	31
S32 48					77	8	32
S33 49					78	9	33
S34 50					79	0	34
S35 51					80	1	35
S36 52					81	2	36
S37 53					82	3	37
S38 54					83	4	38
S39 55					84	5	39
S40 56					85	6	40
S41 57					86	7	41
S42 58					87	8	42
S43 59					88	9	43
S44 60					89	0	44
S45 61					90	1	45
S46 62					91	2	46
S47 63					92	3	47
S48 64					93	4	48
S49 65					94	5	49
S50 66					95	6	50
S51 67					96	7	51
S52 68					97	8	52
S53 69					98	9	53
S54 70					99	0	54
S55 71					100	1	55
S56 72					101	2	56
S57 73					102	3	57
S58 74					103	4	58
S59 75					104	5	59
S60 76					105	6	60
S61 77					106	7	61
S62 78					107	8	62
S63 79					108	9	63
S64 80					109	0	64
S65 81					110	1	65
S66 82					111	2	66
S67 83					112	3	67
S68 84					113	4	68
S69 85					114	5	69
S70 86					115	6	70
S71 87					116	7	71
S72 88					117	8	72
S73 89					118	9	73
S74 90					119	0	74
S75 91					120	1	75
S76 92					121	2	76
S77 93					122	3	77
S78 94					123	4	78
S79 95					124	5	79
S80 96					125	6	80
S81 97					126	7	81
S82 98					127	8	82
S83 99					128	9	83
S84 100					129	0	84
S85 101					130	1	85
S86 102					131	2	86
S87 103					132	3	87
S88 104					133	4	88
S89 105					134	5	89
S90 106					135	6	90
S91 107					136	7	91
S92 108					137	8	92
S93 109					138	9	93
S94 110					139	0	94
S95 111					140	1	95
S96 112					141	2	96
S97 113					142	3	97
S98 114					143	4	98
S99 115					144	5	99
S100 116					145	6	100
S101 117					146	7	101
S102 118					147	8	102
S103 119					148	9	103
S104 120					149	0	104
S105 121					150	1	105
S106 122					151	2	106
S107 123					152	3	107
S108 124					153	4	108
S109 125					154	5	109
S110 126					155	6	110
S111 127					156	7	111
S112 128					157	8	112
S113 129					158	9	113
S114 130					159	0	114
S115 131					160	1	115
S116 132					161	2	116
S117 133					162	3	117
S118 134					163	4	118
S119 135					164	5	119
S120 136					165	6	120
S121 137					166	7	121
S122 138					167	8	122
S123 139					168	9	123
S124 140					169	0	124
S125 141					170	1	125
S126 142					171	2	126
S127 143					172	3	127
S128 144					173	4	128
S129 145					174	5	129
S130 146					175	6	130
S131 147					176	7	131
S132 148					177	8	132
S133 149					178	9	133
S134 150					179	0	134
S135 151					180	1	135
S136 152					181	2	136
S137 153					182	3	137
S138 154					183	4	138
S139 155					184	5	139
S140 156					185	6	140
S141 157					186	7	141
S142 158					187	8	142
S143 159					188	9	143
S144 160					189	0	144
S145 161					190	1	145
S146 162					191	2	146
S147 163					192	3	147
S148 164					193	4	148
S149 165					194	5	149
S150 166					195	6	150
S151 167					196	7	151
S152 168					197	8	152
S153 169					198	9	153
S154 170					199	0	154
S155 171					200	1	155
S156 172					201	2	156
S157 173					202	3	157
S158 174					203	4	158
S159 175					204	5	159
S160 176					205	6	160
S161 177					206	7	161
S162 178					207	8	162
S163 179					208	9	163
S164 180					209	0	164
S165 181					210	1	165
S166 182					211	2	166
S167 183					212	3	167
S168 184					213	4	168
S169 185					214	5	169
S170 186					215	6	170
S171 187					216	7	171
S172 188					217	8	172
S173 189					218	9	173
S174 190					219	0	174
S175 191					220	1	175
S176 192					221	2	176
S177 193					222	3	177
S178 194					223	4	178
S179 195					224	5	179
S180 196					225	6	180
S181 197					226	7	181
S182 198					227	8	182
S183 199					228	9	183
S184 200					229	0	184
S185 201					230	1	185
S186 202					231	2	186
S187 203					232	3	187
S188 204					233	4	188
S189 205					234	5	189
S190 206					235	6	190
S191 207					236	7	191
S192 208					237	8	192
S193 209					238	9	193
S194 210					239	0	194
S195 211					240	1	195
S196 212					241	2	196
S197 213					242	3	197
S198 214					243	4	198
S199 215					244	5	199
S200 216					245	6	200
S201 217					246	7	201
S202 218					247	8	202
S203 219					248	9	203
S204 220					249	0	204
S205 221					250	1	205
S206 222					251	2	206
S207 223					252	3	207
S208 224					253	4	208
S209 225					254	5	209
S210 226					255	6	210
S211 227					256	7	211
S212 228					257	8	212
S213 229					258	9	213
S214 230					259	0	214
S215 231					260	1	215
S216 232					261	2	216
S217 233					262	3	217
S218 234					263	4	218
S219 235					264	5	219
S220 236					265	6	220
S221 237					266	7	221
S222 238					267	8	222

## 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.

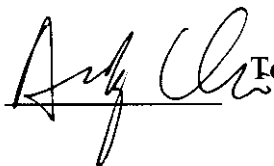
**Judgement:** Passed by **-12.13 dB** in mode of **Neutral** terminal **0.51 MHz**

Freq. (MHz)	Terminal L/N	Measured(dBuV)		Limits(dBuV)		Safe Margins	
		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 frequency, 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.

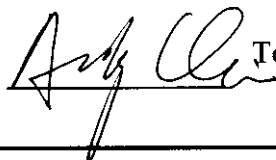
**Judgement:** Passed by -5.92 dB in polarity of **Vertical** 163.1 MHz

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	

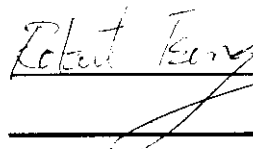
### Remark :

- (1) Reading in which 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 column of 'Note'. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement 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 calculated by

$$\text{Correction Factor} = AF + CL - AG = 7.2 + 1.1 - 0 = 8.3 \text{ (dB)}$$

as shown in the data tables' Correction Factor column.

2. The Field Strength will be calculated by

$$FS = RA + \text{Correction Factor} = 23.7 + 8.3 = 32 \text{ (dBuV/m)}.$$

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:

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

## 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/Enclosure 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