

**FCC ID:** M696800

1/24

## CERTIFICATION

**We hereby certify that:**

The test data , data evaluation , test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4 (1992)/ CISPR22(1996) and the energy emitted by the sample EUT tested as described in this report is in compliance with CLASS B conducted and radiated emission limits of FCC Rules Part 15, Subpart B/ CISPR22(1996).

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*Carol Chen*

**Reviewed by:** Vincent Su

*Vincent Su*

**Approved by:** George Yao

*George Yao*

**Issued Date :** Oct. 23, 2000

**Report No. :** NEI-FCCB-00133

**Company Stamp:**

**NEUTRON ENGINEERING INC.**

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## 1. GENERAL INFORMATION

### 1-1. Product Description

The Sparkle Technology Co., Ltd. Model: SP6800 (referred to as the EUT in this report) is a VGA Card 32MB on Board with SDRAM.

The summarized feature of EUT as following:

- NVIDIA shading rasterizer
  - 4 texels per clock
  - Integrated second-generation Transform and Lighting engines
  - 256-bit 3D and 2D graphics accelerator
  - Fully compliant support for OpenGL 1.2 for all Windows operating systems and Linux.
  - 32-bit color with 32-bit z/stencil
  - Cube environment mapping
  - DirectX and S3TC texture compression
  - 700-Mtexel fill rate
  - 20 Mtriangles/sec setup
  - 2.8 GB/second memory bandwidth
  - Memory Support 2MX32 SDRAM to 32MB
  - 350 MHz Palette-DAC
  - AGP 4X
  - HW Anti-aliasing
  - Multi-texture and multi-pass
  - Reflection maps
  - Single pass multi-texture
  - Optimized for multiple color depths including 32,24,16,15 and 8-bit per pixel.
  - True-color hardware cursor.
  - Multi-buffering(double, triple quad buffering)for smooth animation and video playback.
  - AGP 4X, 2X and 1X support.
  - Windows 2000, Windows NT4.0 display drivers.
  - Windows 98 and Windows 95 display drivers.
  - DirectDraw, Direct3D, DirectVideo, ActiveX
  - OpenGL 1 for Window 95, Windows 98, Windows 2000, Windows NT and Linux.
- A. Out-put device TV-OUT or DVI-Connect(optional, only for SP6800 REV:P38).

A more detailed and/or technical description of EUT is attached in **User's Manual**.

### 1-2. Related Submittal(s) / Grant (s)

#### 1-2-1. Models Covered

Models covering in this test report is : SP6800

#### 1-2-2. Models Difference

N/A

**1-3. Tested System Details**

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

Model No.	FCC ID	Equipment	Cable
SP6800	M696800	VGA Card	Add-On Card , Shielded Data Cable
CM753ET	N/A (3)	Monitor	Shielded Data Cable <sup>(2)</sup> Un-Shielded Power Cord
444	N/A (3)	PC	Un-Shielded Power Cord.
DPU-414	N/A (3)	Printer	Shielded Serial Data Cable Un-Shielded Power Cord
DM-1414V	N/A (3)	Modem	Shielded Parallel Data Cable Un-Shielded Power Cord
FDA-104GA	F42FDA-104G	Keyboard	Shielded Data Cable
M-S34	DZL211029	Mouse	Shielded Data Cable
PVM-1390	AK896APVM1390	TV	Shielded Data Cable <sup>(2)</sup> Un-Shielded Power Cord
VE150-2	N/A (3)	LCD Monitor	Shielded Data Cable <sup>(2)</sup> Un-Shielded Power Cord

Notes:

(1) EUT submitted for grant.

(2) Monitor's attached video cable without ferrite core.

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

**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. 132-1, Lane 329, Sec. 2, Palain Road, Shijr 221, Taipei, Taiwan, R.O.C. of NEUTRON ENGINEERING INC. This site has been fully described in report dated Jun. 25, 1999 Submitted to your office, and accepted in a letter dated Sep. 02, 1999 (Reg. No. 95335).

## 2. System Test Configuration

### 2-1. Justification

The system was configured for testing in a typical fashion (as a customer would normally use it). The EUT (VGA Card) was Added-On to a support equipment-Personal Computer. Peripherals of PC, such as monitor, keyboard, modem and printer were contained in this system in order to comply with the ANSI C63.4/CISPR 22 Rules requirement.

The system was investigated/evaluated by pre-scanning the pixel resolution in follows mode(s):

- ☒ the default mode of 640 X 480/31.5KHz
- ☒ the middle resolution mode of 1280x1024/91KHz Hsync. 85Hz refresh
- ☒ the highest horizontal sweep rate mode of 1600X1200/106KHz Hsync. 85Hz refresh

The system operated in following mode(s) was(were) found to be the worst case during the pre-scanning. This operating mode(s) was(were) tested and used to collect the data included.

- ☒ The middle resolution mode and max pixel resolution mode of 1280x1024/91KHz Hsync. 85Hz refresh , NI (for CRT Monitor).
- ☒ The middle resolution mode of 1024x768/60KHz Hsync.75Hz refresh, NI(for LCD Monitor).
- ☒ TV mode.

### 2-2. 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 video port device (LCD Monitor).
4. Send "H" pattern to video port device (TV)
5. Send " H " pattern to parallel port device (Printer).
6. Send " H " pattern to serial port device (Modem).
7. Repeated from 2 to 6 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.

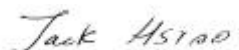
**2-3. Special Accessories**

Not available for this EUT intended for grant.

**2-4. Equipment Modifications**

Not available for this EUT intended for grant.

Applicant Signature:



Date:

OCT. 18, 2000

Type/Printed Name:

Jack Hsiao

Position:

Manager



## 2.5 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	VGA Card	Sparkle	SP6800	AGP Slot	M696800	EUT
E-2	Monitor	Hitachi	CM753ET	VGA Port	N/A (3)	
E-3	PC	IBM	444		N/A (3)	
E-4	Printer	SII	DPU-414	Printer Port	N/A (3)	
E-5	Modem	ACEEX	DM-1414V	Com Port	N/A (3)	
E-6	Keyboard	Forward	FDA-104GA	PS/2 Port	F42FDA-104G	
E-7	Mouse	HP	M-S34	PS/2 Port	DZL211029	
E-8	TV	SONY	PVM-1390	S-Video Port	AK896APVM1390	
E-9	LCD Monitor	JEAN	VE150-2	DVI Port	N/A (3)	i °

### Remark:

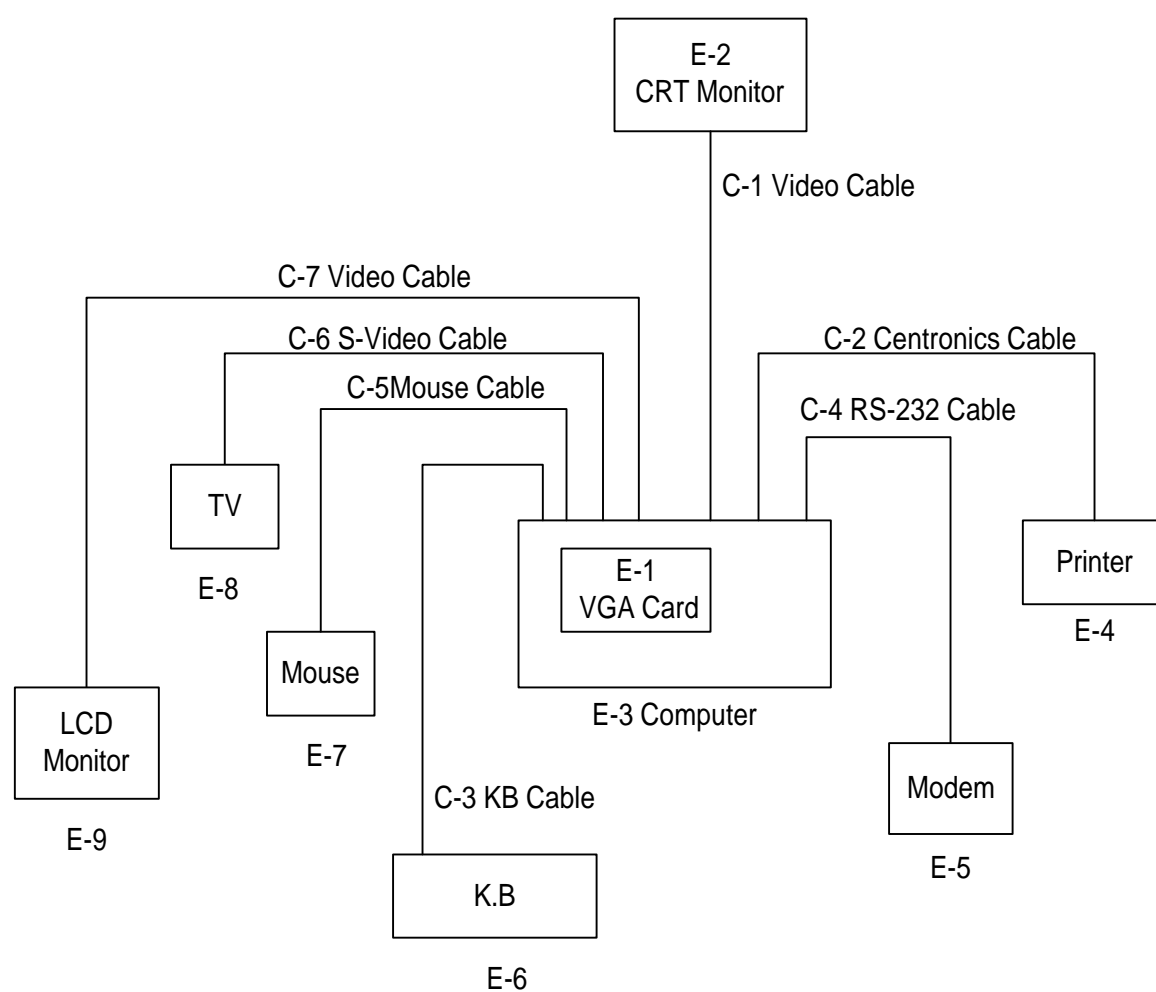
- (1) Unless otherwise denoted as EUT in (Remark) column, device(s) used in tested system is a support equipment.
- (2) Unless otherwise marked as \* in (Remark) column, Neutron consigns the supporting equipment(s) to the tested system.
- (3) The support equipment was authorized by Declaration of Conformity.

**Table B. - Informations Cable Information**

Item	I/O Cable	Device Connected	Shielded	Ferrite Core	Detachable/Permanently	Note
C-1	Video Cable	EUT-Monitor	Yes	No	Permanently attached on Monitor	
C-2	Centronics Cable	PC-Printer	Yes	No	Part of Printer, Detachable	
C-3	Keyboard Cable	PC-Keyboard	Yes	No	Permanently attached on KB	
C-4	RS-232 Cable	PC-Modem	Yes	No	Part of Modem, Detachable	
C-5	Mouse Cable	PC-Mouse	Yes	No	Permanently attached on Mouse	
C-6	S-Video Cable	EUT-TV	Yes	No	Detachable	
C-7	Video Cable	EUT-LCD Monitor	Yes	No	Detachable	i °

**Note:**

(1) Unless otherwise marked as \* in (Remark) column, Neutron consigns the supporting equipment(s) to the tested system.

**Figure 2.1 Configuration of Tested System****Fig. 2-1 Configuration of Tested System**

### 3. Block Diagram(s)

Figure 3.1 Block diagram of system, Page 13.A

#### 4. Conducted Emission Datas

4.1 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 **-6.38 dB** in mode of **Neutral** terminal **0.17 MHz**

Test Mode: CRT Monitor 1280x1024/85Hz/91KHz

Freq. (MHz)	Terminal L/N	Measured(dBuV)		Limits(dBuV)		Safe Margins (dBuV)	
		QP-Mode	AV-Mode	QP-Mode	AV-Mode		Note
0.17	Line	57.73	39.80	64.96	54.96	-7.23	(QP)
0.26	Line	49.29	*	61.56	51.56	-12.27	(QP)
0.34	Line	41.24	*	59.18	49.18	-17.94	(QP)
0.72	Line	39.14	*	56.00	46.00	-16.86	(QP)
3.57	Line	39.64	*	56.00	46.00	-16.36	(QP)
0.17	Neutral	58.58	39.66	64.96	54.96	-6.38	(QP)
0.26	Neutral	48.43	*	61.56	51.56	-13.13	(QP)
0.34	Neutral	40.82	*	59.30	49.30	-18.48	(QP)
0.72	Neutral	38.72	*	56.00	46.00	-17.28	(QP)
7.06	Neutral	44.94	*	60.00	50.00	-15.06	(QP)

Remark :

- (1) Reading in which 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 in which 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 column of(Note). If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed 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 column of Interference Voltage Measured.
- (3) Measuring frequency range from 150KHz to 30MHz.

Review:

*Timothy Sw*

Test Engr.:

*Nelson*

Test Date:

Oct. 18, 2000

#### 4. Conducted Emission Datas

4.1 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 **-5.89 dB** in mode of **Neutral** terminal **0.17 MHz**

Test Mode: CRT Monitor 1600x1200/85Hz/106KHz

Freq. (MHz)	Terminal L/N	Measured(dBuV)		Limits(dBuV)		Safe Margins (dBuV)	
		QP-Mode	AV-Mode	QP-Mode	AV-Mode		Note
0.17	Line	58.01	40.35	64.96	54.96	-6.95	(QP)
0.25	Line	48.94	*	61.66	51.66	-12.72	(QP)
0.34	Line	41.17	*	59.30	49.30	-18.13	(QP)
0.71	Line	38.60	*	56.00	46.00	-17.40	(QP)
7.49	Line	36.32	*	60.00	50.00	-23.68	(QP)
0.17	Neutral	59.07	43.87	64.96	54.96	-5.89	(QP)
0.26	Neutral	48.71	*	61.56	51.56	-12.85	(QP)
0.34	Neutral	40.87	*	59.18	49.18	-18.31	(QP)
0.72	Neutral	38.27	*	56.00	46.00	-17.73	(QP)
7.49	Neutral	44.90	*	60.00	50.00	-15.10	(QP)

Remark :

- (1) Reading in which 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 in which 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 column of(Note). If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed 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 column of Interference Voltage Measured.
- (3) Measuring frequency range from 150KHz to 30MHz.

Review:

*Timothy Sw*

Test Engr.:

*Nelson*

Test Date:

Oct. 18, 2000

#### 4. Conducted Emission Datas

4.1 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 **-6.93 dB** in mode of **Line terminal** **0.17 MHz**

Test Mode: LCD Monitor 1024x768/75Hz/60KHz

Freq. (MHz)	Terminal L/N	Measured(dBuV)		Limits(dBuV)		Safe Margins (dBuV)	
		QP-Mode	AV-Mode	QP-Mode	AV-Mode		Note
0.17	Line	58.03	42.37	64.96	54.96	-6.93	(QP)
0.26	Line	48.87	*	61.46	51.46	-12.59	(QP)
0.34	Line	42.18	*	59.23	49.23	-17.05	(QP)
0.72	Line	38.27	*	56.00	46.00	-17.73	(QP)
3.57	Line	41.20	*	56.00	46.00	-14.80	(QP)
0.26	Neutral	48.52	*	61.56	51.56	-13.04	(QP)
0.34	Neutral	41.31	*	59.18	49.18	-17.87	(QP)
0.72	Neutral	38.16	*	56.00	46.00	-17.84	(QP)
3.57	Neutral	42.47	*	56.00	46.00	-13.53	(QP)
7.37	Neutral	45.07	*	60.00	50.00	-14.93	(QP)

Remark :

- (1) Reading in which 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 in which 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 column of(Note). If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed 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 column of Interference Voltage Measured.
- (3) Measuring frequency range from 150KHz to 30MHz.

Review: Tinent Su Test Engr.: Nelson Test Date: Oct. 18, 2000

#### 4. Conducted Emission Datas

4.1 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 **-4.50 dB** in mode of **Line** terminal **3.90 MHz**  
Test Mode: TV

Freq. (MHz)	Terminal L/N	Measured(dBuV)		Limits(dBuV)		Safe Margins (dBuV)	
		QP-Mode	AV-Mode	QP-Mode	AV-Mode		Note
0.71	Line	38.41	*	56.00	46.00	-17.59	(QP)
3.58	Line	46.15	29.67	56.00	46.00	-9.85	(QP)
3.90	Line	51.50	41.36	56.00	46.00	-4.50	(QP)
7.69	Line	46.52	*	60.00	50.00	-13.48	(QP)
15.55	Line	44.78	*	60.00	50.00	-15.22	(QP)
0.26	Neutral	49.22	*	61.56	51.56	-12.34	(QP)
0.71	Neutral	38.53	*	56.00	46.00	-17.47	(QP)
3.60	Neutral	48.54	25.39	56.00	46.00	-7.46	(QP)
3.90	Neutral	51.03	40.68	56.00	46.00	-4.97	(QP)
15.55	Neutral	45.84	*	60.00	50.00	-14.16	(QP)

Remark :

- (1) Reading in which 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 in which 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 column of(Note). If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed 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 column of Interference Voltage Measured.
- (3) Measuring frequency range from 150KHz to 30MHz.

Review: *Tinent Su* Test Engr.: *Nelson* Test Date: Oct. 18, 2000



## 5. Radiated Emission Datas

- 5.1** The following data lists the significant emission frequencies, 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 **-6.00 dB** in polarity of **Vertical** **133.50 MHz**  
 Test Mode : CRT Monitor 1280x1024/ 91KHz 85Hz

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
73.00	H	38.27	- 17.47	20.80	30.00	- 9.20	
74.20	V	41.57	- 17.77	23.80	30.00	- 6.20	
112.10	V	37.65	- 15.58	22.07	30.00	- 7.93	
133.20	H	34.57	- 13.36	21.21	30.00	- 8.79	
133.50	V	37.35	- 13.35	24.00	30.00	- 6.00	
193.70	H	37.82	- 15.15	22.67	30.00	- 7.33	
205.70	V	37.37	- 15.24	22.13	30.00	- 7.87	
205.70	H	38.40	- 15.24	23.16	30.00	- 6.84	
229.70	V	37.12	- 13.99	23.13	30.00	- 6.87	
246.90	H	37.42	- 13.24	24.18	37.00	- 12.82	
427.40	V	34.22	- 7.26	26.96	37.00	- 10.04	
436.60	H	32.25	- 6.87	25.38	37.00	- 11.62	

### Remark:

- (1) Test Receiver or Spectrum Analyzer measurement condition setting are Res. BW=1 MHz, Video BW =1MHz, Sweep. Time = 0.2 sec./MHz
- (2) All readings are Peak unless otherwise stated QP in column of(Note)
- (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.
- (5) If the peak scan value lower limit less than 20dB, then this signal data will be listed. But if these signal datas more than 10 frequencies, then only the Top 10 be listed.

Review:



Test Engr.:



Test Date:

Oct. 18, 2000

## 5. Radiated Emission Datas

- 5.1** The following data lists the significant emission frequencies, 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 **-5.12 dB** in polarity of **Vertical** **53.80 MHz**  
 Test Mode : CRT Monitor 1600x1200/ 106KHz 85Hz

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
53.80	V	40.10	- 15.22	24.88	30.00	- 5.12	
67.40	H	39.42	- 16.47	22.95	30.00	- 7.05	
123.70	H	35.60	- 14.26	21.34	30.00	- 8.66	
133.20	H	34.90	- 13.36	21.54	30.00	- 8.46	
133.50	V	36.85	- 13.35	23.50	30.00	- 6.50	
159.70	V	35.70	- 12.30	23.40	30.00	- 6.60	
211.40	H	36.65	- 15.10	21.55	30.00	- 8.45	
212.60	V	35.32	- 15.05	20.27	30.00	- 9.73	
229.70	V	37.15	- 13.99	23.16	30.00	- 6.84	
245.70	H	37.82	- 13.26	24.56	37.00	- 12.44	
370.03	V	36.52	- 9.12	27.40	37.00	- 9.60	
438.90	H	31.37	- 6.78	24.59	37.00	- 12.41	

### Remark:

- (1) Test Receiver or Spectrum Analyzer measurement condition setting are Res. BW=1 MHz, Video BW =1MHz, Sweep. Time = 0.2 sec./MHz
- (2) All readings are Peak unless otherwise stated QP in column of(Note)
- (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.
- (5) If the peak scan value lower limit less than 20dB, then this signal data will be listed. But if these signal datas more than 10 frequencies, then only the Top 10 be listed.

Review:



Test Engr.:



Test Date:

Oct. 18, 2000

## 5. Radiated Emission Datas

- 5.1** The following data lists the significant emission frequencies, 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 **-3.59 dB** in polarity of **Vertical** **43.20 MHz**  
 Test Mode : LCD Monitor 1024x768/ 60KHz 75Hz

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
43.20	V	41.59	- 15.18	26.41	30.00	- 3.59	
62.70	H	37.80	- 15.97	21.83	30.00	- 8.17	
67.26	V	41.21	- 16.70	24.51	30.00	- 5.49	
76.30	H	40.69	- 18.33	22.36	30.00	- 7.64	
148.60	H	34.32	- 12.37	21.95	30.00	- 8.05	
158.78	V	36.89	- 11.43	25.46	30.00	- 4.54	
244.13	V	46.42	- 13.86	32.56	37.00	- 4.44	
420.00	H	36.18	- 7.73	28.45	37.00	- 8.55	
467.91	H	35.43	- 6.46	28.97	37.00	- 8.03	
487.39	V	36.94	- 5.98	30.96	37.00	- 6.04	
519.89	V	38.37	- 5.17	33.20	37.00	- 3.80	
519.89	H	35.89	- 5.17	30.72	37.00	- 6.28	

### Remark:

- (1) Test Receiver or Spectrum Analyzer measurement condition setting are Res. BW=1 MHz, Video BW =1MHz , Sweep. Time = 0.2 sec./MHz
- (2) All readings are Peak unless otherwise stated QP in column of(Note)
- (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.
- (5) If the peak scan value lower limit less than 20dB, then this signal data will be listed. But if these signal datas more than 10 frequencies, then only the Top 10 be listed.

Review:



Test Engr.:



Test Date:

Oct. 18, 2000

## 5. Radiated Emission Datas

- 5.1** The following data lists the significant emission frequencies, 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 **-4.52 dB** in polarity of **Vertical** **175.70 MHz**  
 Test Mode : TV

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
111.80	H	38.37	- 15.60	22.77	30.00	- 7.23	
133.50	V	36.85	- 13.35	23.50	30.00	- 6.50	
137.20	H	36.55	- 13.00	23.55	30.00	- 6.45	
148.30	V	37.10	- 12.41	24.69	30.00	- 5.31	
175.70	V	39.32	- 13.84	25.48	30.00	- 4.52	
197.33	H	36.22	- 15.24	20.98	30.00	- 9.02	
204.60	H	37.47	- 15.25	22.22	30.00	- 7.78	
206.90	V	38.22	- 15.22	23.00	30.00	- 7.00	
229.70	V	35.52	- 13.99	21.53	30.00	- 8.47	
270.90	V	42.90	- 12.01	30.89	37.00	- 6.11	
426.30	H	34.50	- 7.31	27.19	37.00	- 9.81	
466.30	H	35.17	- 5.88	29.29	37.00	- 7.71	

### Remark:

- (1) Test Receiver or Spectrum Analyzer measurement condition setting are Res. BW=1 MHz, Video BW =1MHz , Sweep. Time = 0.2 sec./MHz
- (2) All readings are Peak unless otherwise stated QP in column of(Note)
- (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.
- (5) If the peak scan value lower limit less than 20dB, then this signal data will be listed. But if these signal datas more than 10 frequencies, then only the Top 10 be listed.

Review:



Test Engr.:



Test Date:

Oct. 18, 2000

## 5-2. 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 dB and a Cable Factor of 1.1 dB. 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:

$$\text{Log}^{-1}\{(32.0\text{dBuV/m})/20\} \times 39.8 \text{ (uV/m)}$$

**5-3. 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

**6. Photos of Tested EUT:**

- 1. Photo # 1 Front View, Rear View**
- 2. Photo # 2 Side View**
- 3. Photo # 3 Front View Rear View**

## **Attachment**

### **User's Manual**