FCC ID: IJE998A

EMC

TEST REPORT

REPORT NO. : F88121302
MODEL NO. : 998XX
DATE OF TEST : Dec. 23, 1999

PREPARED FOR: PROVIEW ELECTRONICS (TAIWAN) CO. LTD.

ADDRESS : 6F, NO. 1, PAU-SHENG RD., YUNG-HO CITY,
TAIPEI HSIEN, TAIWAN, R.O.C.

PREPARED BY: ADVANCE DATA TECHNOLOGY CORPORATION

Accredited Laboratory

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1. CERTIFICATION

Issue Date: Jan. 3, 2000

Product	:	COLOR MONITOR
Trade Name	:	PROVIEW
Model No.	:	998XX
Applicant	:	PROVIEW ELECTRONICS (TAIWAN) CO. LTD.
Standard	:	FCC Part 15, Subpart B, Class B CISPR 22: 1993+A1: 1995+A2: 1996, Class B ANSI C63.4-1992

We hereby certify that one sample of the designation has been tested in our facility on Dec. 23, 1999. The test record, data evaluation and Equipment Under Test (EUT) configurations represent herein are true and accurate representation of the measurements of the sample's EMC characteristics under the conditions herein specified.

The test results show that the EUT as described in this report is in compliance with the Class B limits of conducted and radiated emission of applicable standards.

TESTED BY : Alan Chang (Alan Chang) , DATE: 1/3/2000

CHECKED BY : Ariel Hsieh (Ariel Hsieh) , DATE: 1/3/2000

APPROVED BY : Mike Su (Mike Su) , DATE: 1/3/2000

ADVANCE DATA TECHNOLOGY CORPORATION Accredited Laboratory

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Product	:	COLOR MONITOR
Model No.	:	998XX
Power Supply Type	:	Switching
Power Cord of monitor	:	Nonshielded (1.8 m)
Data Cable of monitor	:	Shielded (1.5 m)

Note: The EUT is a 19" COLOR MONITOR with an internal microphone and external speakers, and its resolution is up to 1600 x 1200.

The "X" in model: 998XX could be defined as A~Z, 0~9 or blank according to different customers' requirement.

There is a ferrite core on the video cable outside the monitor.

For more detailed features description, please refer to manufacturer's specification or User's Manual.

2.2 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories are used to form representative test configuration during the tests.

No.	Product	Brand	Model No.	FCC ID	I/O Cable
1.	PERSONAL COMPUTER	NTI	PII-450T	FCC DoC Approved	Nonshielded Power (1.8m)
2.	KEYBOARD	FORWARD	FDA-104GA	F4ZDA-104G	Shielded Signal (1.4 m)
3.	MOUSE	DEXIN	A2P800A	NIYA2P800A	Shielded Signal (1.5m)
4.	PRINTER	HP	2225C+	DSI6XU2225	Shielded Signal (1.2m) Nonshielded Power (1.2m)
5.	MODEM	ACEEX	1414	IFAXDM1414	Shielded Signal (1.2m) Nonshielded Power (1.2m)
6.	SPEAKER	AUDIO-TECHNICA	AT-SP25	NA	Nonshielded Signal (2.0m) Nonshielded Power (1.2m)
7.	EARPHONE	GAMMA	LH115	NA	Nonshielded Signal (3.0m)
8.	VGA CARD	GAINWARD	CD-GX2A44T	ICUVGA-GW710	NA
9.	SOUND CARD	CREATIVE	CT2950	IBACT-SB16PRO	NA

Note: 1. An audio cable (3.0m) was connected between the mic. port of EUT and sound card of PC.
2. An audio cable (3.0m) was connected between the ext. speaker (R) of EUT and sound card of PC.
3. Two audio cables (0.2m) was connected between EUT and its ext. speakers.
4. A power cable (2.0m) was connected between EUT and its ext. speaker (R).
5. A USB cable (2.0m) was connected between EUT and PC for OSD control.

2.3 TEST METHODOLOGY AND CONFIGURATION

Both conducted and radiated testing were performed according to the procedures in ANSI C63.4: 1992. Radiated testing was performed at an antenna to EUT distance of 3/10 m on an open area test site.

Please refer to the photos of test configuration in Item 5.

3. TEST INSTRUMENTS

3.1 TEST INSTRUMENTS (EMISSION)

CONDUCTED EMISSION MEASUREMENT

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
ROHDE & SCHWARZ Test Receiver	ESH3	893495/006	July 7, 2000
ROHDE & SCHWARZ Spectrum Monitor	EZM	893787/013	July 8, 2000
ROHDE & SCHWARZ Artificial Mains Network	ESH3-Z5	839135/006	July 7, 2000
EMCO-L.I.S.N.	3825/2	9204-1964	July 7, 2000
Shielded Room	Site 2	ADT-C02	NA

Note: 1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per NAMAS document NIS81.
2. The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to NML/ROC and NIST/USA.

RADIATED EMISSION MEASUREMENT

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
HP Spectrum Analyzer	8590L	3544A01042	April 15, 2000
HP Preamplifier	8447D	2944A08313	March 9, 2000
HP Preamplifier	8347A	3307A01088	Aug. 30, 2000
HP Preamplifier	8449B	3008A01201	Dec. 14, 2000
ROHDE & SCHWARZ TEST RECEIVER	ESVS 30	841977/008	Oct. 5, 2000
SCHWARZBECK Tunable Dipole Antenna	VHA 9103 UHA 9105	E101051 E101055	Nov. 23, 2000
ROHDE & SCHWARZ TEST RECEIVER	ESMI	839013/007 839379/002	Aug. 30, 2000
EMCO Double Ridged Guide Antenna	3115	9312-4192	April 5, 2000
CHASE BILOG Antenna	CBL6111A	1647	July 3, 2000
EMCO Turn Table	1016	1722	NA
EMCO Tower	1051	1825	NA
Open Field Test Site	Site 4	ADT-R04	June 11, 2000

Note: 1. The measurement uncertainty is less than +/- 3.0dB, which is calculated as per NAMAS document NIS81.
2. The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to NML/ROC and NIST/USA.

3.2 LIMITS OF CONDUCTED AND RADIATED EMISSION

LIMIT OF RADIATED EMISSION OF CISPR 22

FREQUENCY (MHz)	Class A (at 10m) * dBuV/m	Class B (at 10m) * dBuV/m
30 - 230	40	30
230 - 1000	47	37

* Detector Function: Quasi-Peak

LIMIT OF RADIATED EMISSION OF FCC PART 15, SUBPART B FOR FREQUENCY ABOVE 1000 MHz

FREQUENCY (MHz)	Class A (dBuV/m) (at 3m)		Class B (dBuV/m) (at 3m)	
	Peak	Average	Peak	Average
Above 1000	80.0	60.0	74.0	54.0

Note: (1) The lower limit shall apply at the transition frequencies.
(2) Emission level (dBuV/m) = 20 log Emission level (uV/m).
(3) All emanation from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

LIMIT OF CONDUCTED EMISSION OF CISPR 22

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	79	66	66 - 56	56 - 46
0.50 - 5.0	73	60	56	46
5.0 - 30.0	73	60	60	50

Note: (1) The lower limit shall apply at the transition frequencies.
(2) The limit decreases linearly with the logarithm of the frequency in the range 0.15 to 0.50 MHz
(3) All emanation from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

4. TEST RESULTS (EMISSION)

4.1 RADIO DISTURBANCE

Frequency Range	:	0.15 - 30 MHz (Conducted Emission) 30 - 2000 MHz (Radiated Emission)
Input Voltage	:	120 Vac, 60 Hz
Temperature	:	16 degree C
Humidity	:	61 %
Atmospheric Pressure	:	1000 mbar

TEST RESULT	Remarks
PASS	Minimum passing margin of conducted emission: -19.1 dB at 0.232 MHz Minimum passing margin of radiated emission: -3.1 dB at 78.86 MHz

Note: The EUT was pre-tested under the following resolution & horizontal synchronization speed mode:

- 1600x1200 (93 kHz)
- 1280x1024 (91 kHz)
- 640x480 (31.5 kHz)

The worst emission levels were found under 1600x1200 (93 kHz) and therefore test data of this mode is recorded.

4.2 EUT OPERATION CONDITION

1. Turn on the power of all equipment.
2. PC runs a test program to enable all functions.
3. PC reads and writes messages from FDD and HDD.
4. PC sends "H" messages to monitor (EUT) and monitor displays "H" patterns on screen.
5. PC sends "H" messages to modem.
6. PC sends "H" messages to printer, and the printer prints them on paper.
7. PC sends audio messages to speakers and earphone.
8. Repeat steps 3-8.

4.3 TEST DATA OF CONDUCTED EMISSION

EUT: **COLOR MONITOR** MODEL: **998XX**

MODE: **1600x1200 (93 kHz)**

6 dB Bandwidth: 10 kHz PHASE: LINE (L)

Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
		Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
0.150	0.2	42.3	-	42.5	-	66.0	56.0	-23.5	-
0.183	0.2	38.3	-	38.5	-	64.3	54.3	-25.8	-
0.232	0.2	43.1	-	43.3	-	62.4	52.4	-19.1	-
0.280	0.2	33.6	-	33.8	-	60.8	50.8	-27.0	-
0.373	0.2	35.5	-	35.7	-	58.4	48.4	-22.7	-
12.421	0.7	39.5	-	40.2	-	60.0	50.0	-19.8	-

Remarks:
1. "*": Undetectable
2. Q.P. and AV. are abbreviations of quasi-peak and average individually.
3. "-": The Quasi-peak emission level also meets average limit and measurement with the average detector is unnecessary.
4. The emission levels of other frequencies were very low against the limit.
5. Margin value = Emission level - Limit value
6. Emission Level = Correction Factor + Reading Value.

TEST DATA OF CONDUCTED EMISSION

EUT: **COLOR MONITOR** MODEL: **998XX**

MODE: **1600x1200 (93 kHz)**

6 dB Bandwidth: 10 kHz PHASE: NEUTRAL (N)

Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
		Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
0.150	0.2	41.2	-	41.4	-	66.0	56.0	-24.6	-
0.183	0.2	40.5	-	40.7	-	64.3	54.3	-23.6	-
0.232	0.2	42.8	-	43.0	-	62.4	52.4	-19.4	-
0.280	0.2	34.1	-	34.3	-	60.8	50.8	-26.5	-
0.373	0.2	32.1	-	32.3	-	58.4	48.4	-26.1	-
12.421	0.6	39.9	-	40.5	-	60.0	50.0	-19.5	-

Remarks:
1. "*": Undetectable
2. Q.P. and AV. are abbreviations of quasi-peak and average individually.
3. "-": The Quasi-peak emission level also meets average limit and measurement with the average detector is unnecessary.
4. The emission levels of other frequencies were very low against the limit.
5. Margin value = Emission level - Limit value
6. Emission Level = Correction Factor + Reading Value.

4.4 TEST DATA OF RADIATED EMISSION

EUT: **COLOR MONITOR** MODEL: **998XX**

MODE: **1600x1200 (93 kHz)** ANT. POLARITY: Horizontal

DETECTOR FUNCTION AND BANDWIDTH: Quasi peak, 120 kHz (30-1000 MHz)
Peak, 1 MHz (1000 MHz-2000 MHz)

FREQUENCY RANGE: 30-1000 MHz MEASURED DISTANCE: 10 M

FREQUENCY RANGE: 1000-2000 MHz MEASURED DISTANCE: 3 M

Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)
49.48	10.7	13.1	23.8	30.0	-6.2	400	358
54.45	8.6	16.7	25.3	30.0	-4.7	400	7
61.25	6.4	18.7	25.1	30.0	-4.9	400	163
118.28	12.4	10.5	22.9	30.0	-7.1	400	358
151.98	12.5	11.3	23.8	30.0	-6.2	400	52
202.90	10.5	13.7	24.2	30.0	-5.8	400	295
236.20	13.0	17.2	30.2	37.0	-6.8	400	298
270.25	14.7	13.8	28.5	37.0	-8.5	293	314
658.05	23.5	8.0	31.5	37.0	-5.5	150	266
776.10	26.1	7.2	33.3	37.0	-3.7	100	119

REMARKS:
1. Emission level (dBuV/m) = Correction Factor (dB) + Reading value (dBuV).
2. Correction Factor (dB) = Ant. Factor (dB)+Cable loss (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level - Limit value

TEST DATA OF RADIATED EMISSION

EUT: **COLOR MONITOR** MODEL: **998XX**

MODE: **1600x1200 (93 kHz)** ANT. POLARITY: Vertical

DETECTOR FUNCTION AND BANDWIDTH: Quasi peak, 120 kHz (30-1000 MHz)
Peak, 1 MHz (1000 MHz-2000 MHz)

FREQUENCY RANGE: 30-1000 MHz MEASURED DISTANCE: 10 M

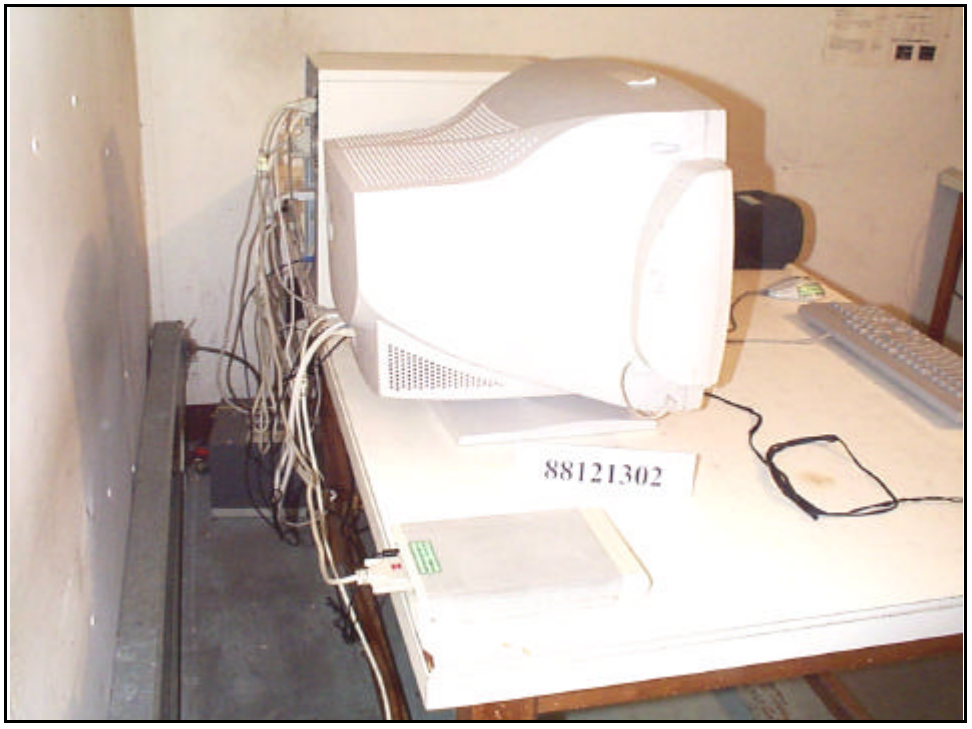
FREQUENCY RANGE: 1000-2000 MHz MEASURED DISTANCE: 3 M

Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)
36.64	16.6	9.0	25.6	30.0	-4.4	100	323
42.96	13.6	13.0	26.6	30.0	-3.4	100	358
55.06	8.4	17.6	26.0	30.0	-4.0	100	7
78.86	8.9	18.0	26.9	30.0	-3.1	192	36
118.24	12.4	13.1	25.5	30.0	-4.5	100	211
151.94	12.5	11.8	24.3	30.0	-5.7	100	358
202.54	10.5	14.1	24.6	30.0	-5.4	100	141
236.19	13.0	19.1	32.1	37.0	-4.9	100	77
438.68	19.2	13.0	32.2	37.0	-4.8	291	248
725.53	25.1	6.7	31.8	37.0	-5.2	209	190
742.33	25.8	6.9	32.7	37.0	-4.3	241	218

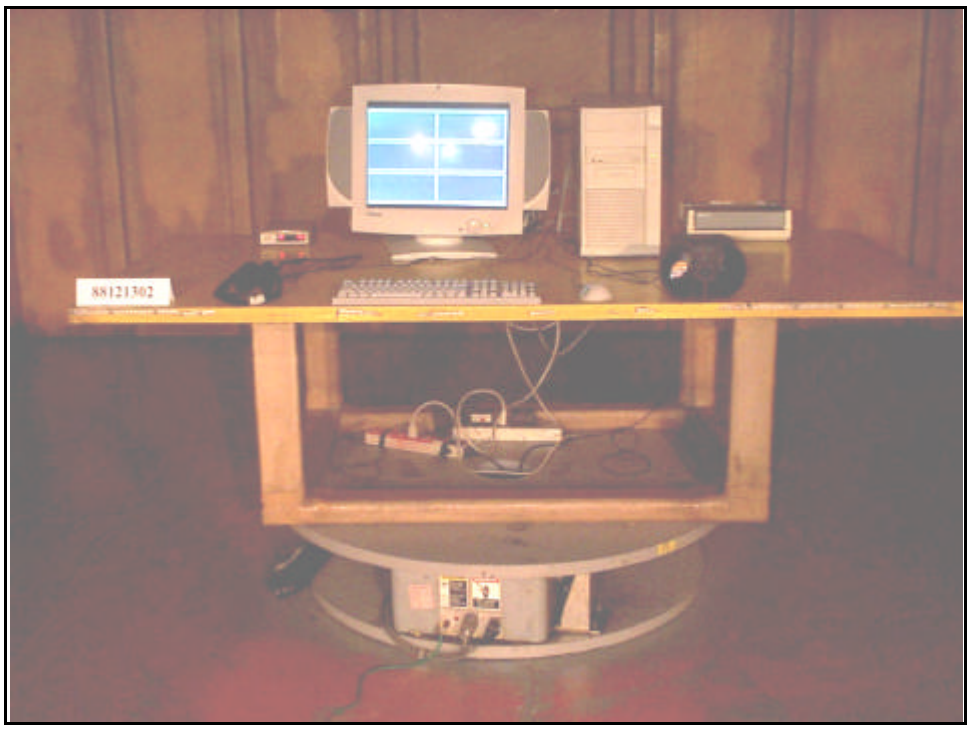
REMARKS:
1. Emission level (dBuV/m) = Correction Factor (dB) + Reading value (dBuV).
2. Correction Factor (dB) = Ant. Factor (dB)+Cable loss (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level - Limit value

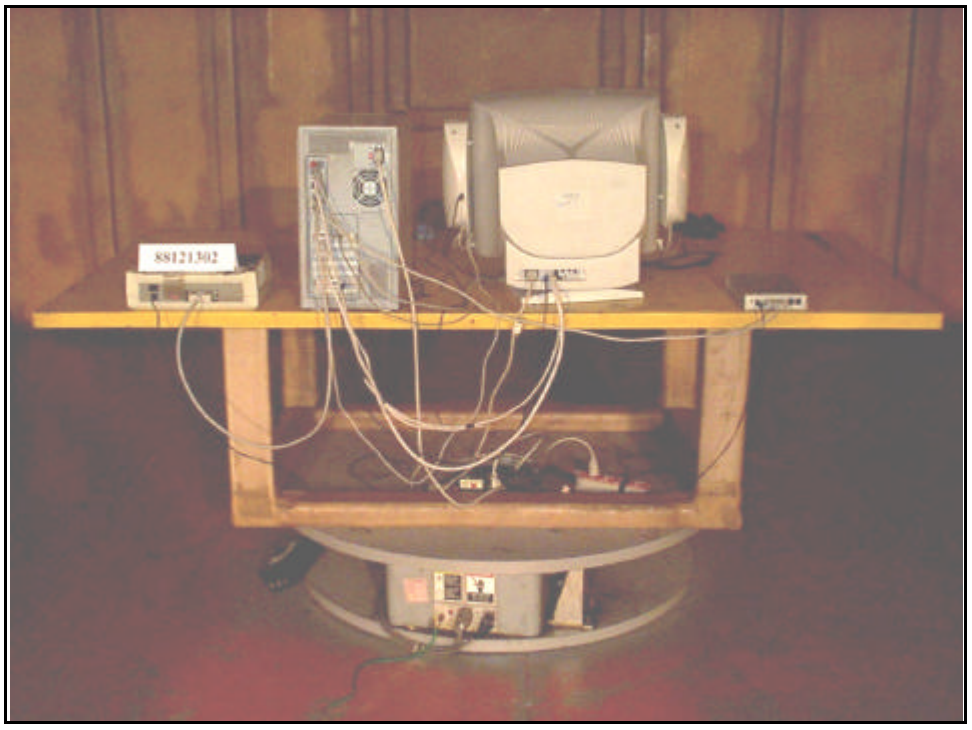
5. PHOTOGRAPHS OF THE TEST CONFIGURATION WITH MINIMUM MARGIN

CONDUCTED EMISSION TEST



RADIATED EMISSION TEST





6. APPENDIX - INFORMATION OF THE TESTING LABORATORY

Information of the testing laboratory

We, ADT Corp., are founded in 1988, to provide our best service in EMC and Safety consultation. Our laboratory is accredited by the following approval agencies according to ISO/IEC Guide 25 or EN 45001:

• USA	FCC, UL, NVLAP
• Germany	TUV Rheinland
	TUV Product Service
• Japan	VCCI
• New Zealand	RFS
• Norway	NEMKO, DNV
• U.K.	INCHCAPE
• R.O.C.	BSMI

Enclosed please find some certificates of our laboratory obtained from approval agencies. If you have any comments, please feel free to contact us with the following:

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