FCC ID: IJE998

EMC

TEST REPORT

REPORT NO. : F87090207
MODEL NO. : 998X
DATE OF TEST : Sept. 3, 1998

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

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12F, NO.1, SEC.4, NAN-KING EAST RD.,
TAIPEI, TAIWAN, R.O.C.

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1. CERTIFICATION

Issue Date: Sept. 4, 1998

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

We hereby certify that one sample of the designation has been tested in our facility on Sept. 3, 1998. 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: John Liao , DATE: 9/4/98
(John Liao)

CHECKED BY: Yemmy , DATE: 9/4/98
(Yemmy Soong)

APPROVED BY: Mike Su , DATE: 9/4/98
(Mike Su)

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2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Product	:	Color Monitor
Model No.	:	998X
Power Supply Type	:	Switching
Power Cord	:	Nonshielded (1.8m)
Data Cable	:	Shielded (1.3m)

Note: The EUT is a 19" color monitor with resolution up to 1600x1200.

The "X" in the above model name could be defined as 0 – 9, A – Z or blank for marketing distinction only.

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

For more detailed features description, please refer to ATTACHMENT 1 - TECHNICAL DESCRIPTION OF EUT and 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	HP	D4579A	FCC DOC	Nonshielded Power (1.8m)
2	KEYBOARD	FORWARD	FDA-104GA	F4ZDA-104G	Shielded Signal (1.4 m)
3	PRINTER	HP	2225C+	DSI6XU2225	Shielded Signal (1.2m) Nonshielded Power (1.9m)
4	MODEM	ACEEX	1414	IFAXDM1414	Shielded Signal (1.2m) Nonshielded Power (1.9m)
5	MOUSE	DEXIN	A2P800A	NIYA2P800A	Shielded Signal (1.5m)
6	EARPHONE	GAMMA	LH115	N/A	Nonshielded Signal (2.4m)
7	SPEAKER	KOKA	KS-201	N/A	Nonshielded Signal (1.4m)
8	VGA CARD	DIAMOND	STEALTH 64	FTUPCI968524	N/A

Note: 1.Two audio cables (1.4m) were connected between EUT and internal speakers.

2. An audio cable (1.8m) was connected between EUT and PC.

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 3m and 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)

RADIATED EMISSION MEASUREMENT

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
HP Spectrum Analyzer	8594A	3144A00308	Sept. 3, 1999
HP Preamplifier	8447D	2944A08119	Jan. 20, 1999
HP Preamplifier	8347A	3307A01088	Sept. 4, 1998
ROHDE & SCHWARZ TEST RECEIVER	ESVP	893496/030	July 15, 1999
SCHWARZBECK Tunable Dipole Antenna	VHA 9103 UHA 9105	E101051 E101055	Nov. 28, 1998
CHASE Bilog Antenna	CBL6112	2086	Dec. 26, 1998
EMCO Turn Table	1060	1195	N/A
EMCO Tower	1051	1163	N/A
Open Field Test Site	Site 2	ADT-R02	Sept. 26, 1998

Note: 1. The measurement uncertainty is less than +/- 3dB, which is calculated as per NAMA's 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.

CONDUCTED EMISSION MEASUREMENT

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
ROHDE & SCHWARZ Test Receiver	ESH3	893495/006	July 15, 1999
ROHDE & SCHWARZ Spectrum Monitor	EZM	893787/013	July 16, 1999
ROHDE & SCHWARZ Artificial Mains Network	ESH3-Z5	839135/006	July 14, 1999
EMCO-L.I.S.N.	3825/2	9204-1964	July 14, 1999
Shielded Room	Site 2	ADT-C02	N/A

Note: 1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per NAMA's 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

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

FREQUENCY (MHz)	Class A (at 10m)		Class B (at 3m)	
	uV/m	dBuV/m	uV/m	dBuV/m
Above 1000	300	49.5	500	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 - 1000 MHz (Radiated Emission)
Input Voltage	:	120 Vac, 60 Hz
Temperature	:	28 ℃
Humidity	:	66 %
Atmospheric Pressure	:	998 mbar

TEST RESULT	Remarks
PASS	Minimum passing margin of conducted emission: -11.9 dB at 0.565 MHz Minimum passing margin of radiated emission: -3.0 dB at 50.09 MHz

Note: The EUT was pretested under the following resolution & horizontal synchronization speed mode:

- 1600 x 1200 (93.7kHz)
- 1280 x 1024 (80kHz)
- 640 x 480 (31.5kHz)

The worst emission levels were found under 1600 x 1200 (93.7kHz) and therefore the test data of this mode is recorded.

4.1.1 EUT OPERATION CONDITION

1. Turn on the power of all equipments.
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 the EUT's speakers and earphone.
8. Repeat steps 3-8.

4.2 TEST DATA OF CONDUCTED EMISSION

EUT: **COLOR MONITOR** MODEL: **998X**

MODE: **1600x1200 (93.7kHz)**

6 dB Bandwidth: 10 kHz

TEST PERSONNEL: John Liao

Freq.	L Level		N Level		Limit		Margin [dB (μV)]			
[MHz]	[dB (μV)]		[dB (μV)]		[dB (μV)]		L		N	
	QP	AV	QP	AV	QP	AV	QP	AV	QP	AV
0.188	48.10	-	48.60	-	64.13	54.13	-16.0	-	-15.5	-
0.377	45.40	-	41.80	-	58.34	48.34	-12.9	-	-16.5	-
0.565	44.10	-	41.30	-	56.00	46.00	-11.9	-	-14.7	-
1.129	41.20	-	39.90	-	56.00	46.00	-14.8	-	-16.1	-
4.049	43.20	-	43.80	-	56.00	46.00	-12.8	-	-12.2	-
6.890	47.70	-	47.90	-	60.00	50.00	-12.3	-	-12.1	-
19.783	43.70	-	43.40	-	60.00	50.00	-16.3	-	-16.6	-

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

4.3 TEST DATA OF RADIATED EMISSION

EUT: **COLOR MONITOR** MODEL: **998X**

MODE: **1600x1200 (93.7kHz)** POLARITY: Horizontal

ANTENNA: CHASE BILOG CBL 6112

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

TEST PERSONNEL: John Liao

Frequency (MHz)	Correction Factor (dB/m)	Reading Data (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
50.13	10.2	14.1	24.3	30.0	-5.7
66.89	7.9	15.6	23.5	30.0	-6.5
83.48	9.2	17.0	26.2	30.0	-3.8
117.02	14.6	8.7	23.3	30.0	-6.7
133.60	14.2	10.6	24.8	30.0	-5.2
167.13	12.0	12.0	24.0	30.0	-6.0
183.83	12.0	6.9	18.9	30.0	-11.1
200.47	12.9	13.2	26.1	30.0	-3.9
217.25	13.6	6.3	19.9	30.0	-10.1
534.53	23.9	6.0	29.9	37.0	-7.1

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

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TEST DATA OF RADIATED EMISSION

EUT: **COLOR MONITOR** MODEL: **998X**

MODE: **1600x1200 (93.7kHz)** POLARITY: Vertical

ANTENNA: CHASE BILOG CBL 6112

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

TEST PERSONNEL: John Liao

Frequency (MHz)	Correction Factor (dB/m)	Reading Data (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
33.35	17.4	7.4	24.8	30.0	-5.2
50.09	10.0	17.0	27.0	30.0	-3.0
66.90	7.3	14.3	21.6	30.0	-8.4
83.49	9.0	17.8	26.8	30.0	-3.2
100.24	10.9	14.9	25.8	30.0	-4.2
117.01	14.6	12.3	26.9	30.0	-3.1
133.59	15.0	11.0	26.0	30.0	-4.0
150.35	13.3	11.0	24.3	30.0	-5.7
200.47	13.2	9.1	22.3	30.0	-7.7
217.26	13.8	9.0	22.8	30.0	-7.2
551.30	24.2	6.5	30.7	37.0	-6.3

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

6. ATTACHMENT I -TECHNICAL DESCRIPTION OF EUT

SPECIFICATIONS:

* Picture Tube	Diagonal: 19 inch Visible image area: 17.9"
* Active Display Area	360x270mm
* Synchronization Range	Horizontal: 30-98 kHz Vertical: 50-150 Hz
* Max. Resolution	1600x1200
* Max. Video Bandwidth	150 MHz
* Dimensions	455 (L) x 446 (W) x 452 (H) mm
* Weight	Net : 19.6 kgs (43.1 lb). Gross : 23.0 kgs (50.6 lbs)
* Power Consumption	150 Watts
* Input Signal	Video: Analog: 0.7 Vp-p / 75 Ohms Sync.: Separate sync.: TTL Level
* Display Analog Input	Unlimited Number of colors
* Power Supply	AC 100-240 volts 60/50 Hz
* Environmental	Operating Temp.: 5℃ to 40℃ Humidity: 20% to 80% Storage Temp.: -20℃ to 60℃ Humidity: 10% to 90%

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ADT CO. Shielded Room 2
CISPR 22 CLASS B

EUT:	MODEL: 998X
Op Cond:	1600X1200 93.7kHz
Test Spec:	LISN : L
Comment:	FULL SYSTEM

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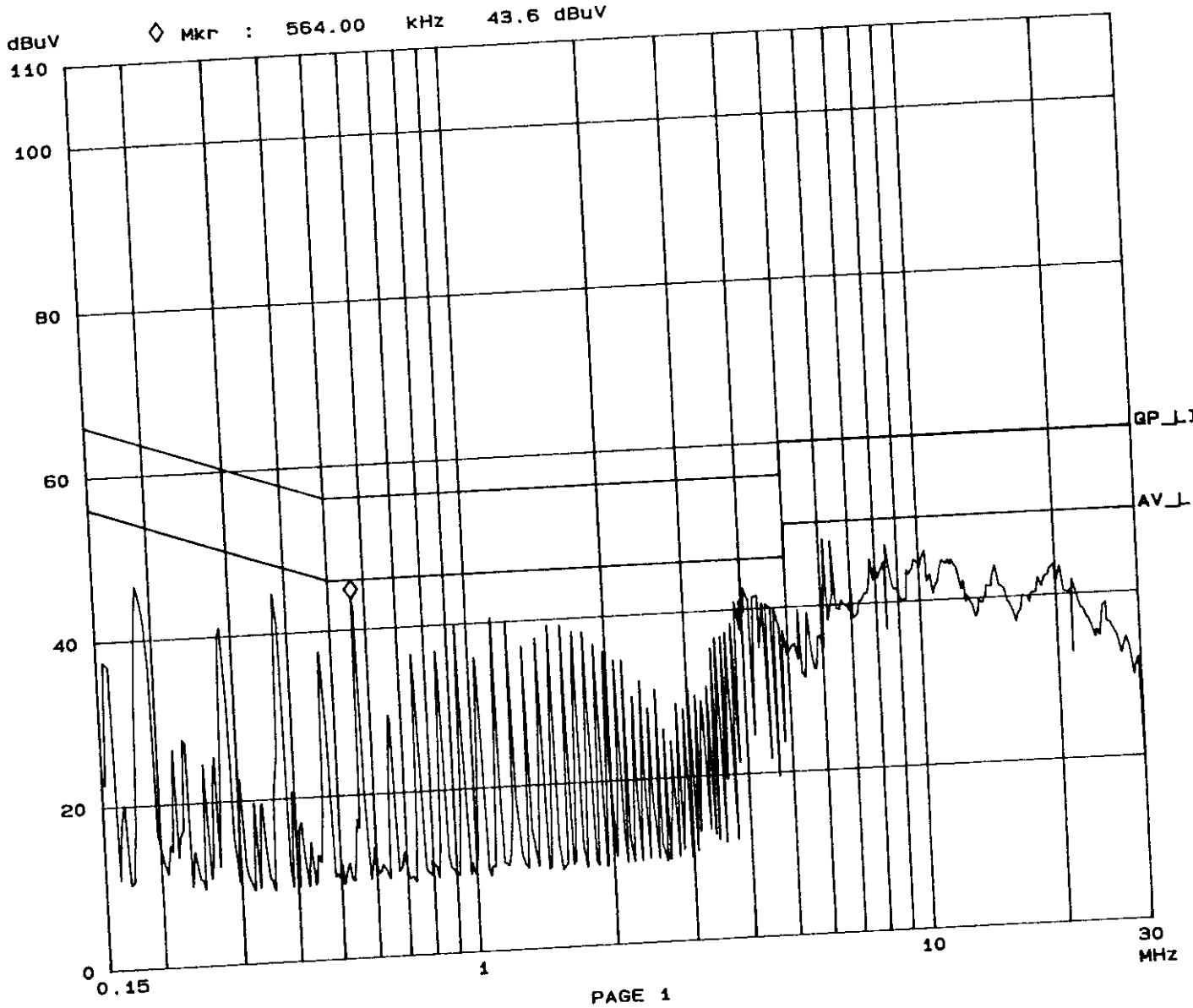
Fast Scan Settings (3 Ranges)

Frequencies			Receiver Settings				
Start	Stop	Step	IF BW	Detector	M-Time	Atten Preamp	OpRge
150k	450k	3k	10k	PK	1ms	10dBLN OFF	60dB
450k	5M	3k	10k	PK	1ms	10dBLN OFF	60dB
5M	30M	3k	10k	PK	1ms	10dBLN OFF	60dB



ADT CO. Shielded Room 2

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EUT: MODEL: 998X
Op Cond: 1600X1200 93.7kHz
Test Spec: LISN : N
Comment: FULL SYSTEM

Fast Scan Settings (3 Ranges)								
Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
150k	450k	3k	10k	PK	1ms	10dBLN	OFF	60dB
450k	5M	3k	10k	PK	1ms	10dBLN	OFF	60dB
5M	30M	3k	10k	PK	1ms	10dBLN	OFF	60dB