



EMC

TEST REPORT

REPORT NO. : F87062910
MODEL NO. : 7651F
DATE OF TEST : June 30, 1998

PREPARED FOR : ACER PERIPHERALS, INC.

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TAOYUAN 333, TAIWAN, R.O.C.

PREPARED BY: ADVANCE DATA TECHNOLOGY CORPORATION



Accredited Laboratory

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**1. CERTIFICATION**

Issue Date: July 1, 1998

Product : LCD MONITOR
Trade Name : ACER
Model No. : 7651F
Applicant : ACER PERIPHERALS, INC.
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 June 30, 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: 7/1/98
(John Liao)

CHECKED BY: Sharon Hsiung, DATE: 7/1/98
(Sharon Hsiung)

APPROVED BY: Mike Su, DATE: 7/1/98
(Mike Su)

ADVANCE DATA TECHNOLOGY CORPORATION**NVLAP[®]**

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2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Product	:	LCD MONITOR
Model No.	:	7651F
Power Supply Type	:	DC (from power adapter)
Power Cord	:	Nonshielded (AC) (1.8 m) Nonshielded (DC) (1.2 m)
Data Cable	:	Shielded (1.5m)

Note: The EUT is a 15" TFT LCD monitor with resolution up to 1024x768 (60 kHz)

The EUT was tested with a LIEN power adapter, model: LE-9401B36W1P which has a 3 pin nonshielded power cord (1.8 m) and a nonshielded DC output cable (1.2 m). Its rating, Input: 100-240 Vac, 50/60 Hz, 1.5 A Output: DC 12 V, 3A, 36W. There is a ferrite core on the DC output cable of power adapter.

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	VL Series 4 5/100	B94VECTRA500T	Nonshielded Power (1.8 m)
2	KEYBOARD	FORWARD	FDA-104GA	F4ZDA-104G	Shielded signal (1.4 m)
3	PRINTER	HP	2225C+	DSI6XU2225	Shielded Signal (1.2 m) Nonshielded Power (1.9 m)
4	MOUSE	DEXIN	A2P800A	NIYA2P800A	Shielded signal (1.5 m)
5	MODEM	ACEEX	1414	IFAXDM1414	Shielded signal (1.2 m) Nonshielded Power (1.9 m)
6	VGA CARD	GORDIA	DSV3365	E840081300	N/A

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 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	8590L	3544A00941	Dec. 14, 1998
HP Pre-Amplifier	8447D	2944A08312	Sept. 10, 1998
R&S Receiver	ESVS10	844591/010	Sept. 23, 1998
SCHWARZBECK Tunable Dipole Antenna	VHA 9103	E101051	Nov. 28, 1998
CHASE BILOG Antenna	CBL6111A	1500	Sept. 12, 1998
EMCO Turn Table	1060-04	1196	N/A
EMCO Tower	1051	1264	N/A
Open Field Test Site	Site 1	ADT-R01	Sept. 5, 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	ESHS30	828765/002	July 31, 1998
ROHDE & SCHWARZ Artificial Mains Network	ESH2-Z5	828075/003	July 28, 1998
EMCO-L.I.S.N.	3825/2	90031627	July 28, 1998
Shielded Room	Site 5	ADT-C05	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)	Class B (at 10m)
	dBuV/m	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	:	27 °C
Humidity	:	48 %
Atmospheric Pressure	:	993 mbar

TEST RESULT	Remarks
PASS	Minimum passing margin of conducted emission: - 15.6 dB at 4.143 MHz Minimum passing margin of radiated emission: -3.0 dB at 220.00 MHz

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 LCD monitor (EUT) and monitor display "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. Repeat steps 3-7.



4.2 TEST DATA OF CONDUCTED EMISSION

EUT: LCD MONITOR

MODEL: 7651F

MODE: 1024x768 (60 kHz)

6 dB Bandwidth: 10 kHz

TEST PERSONNEL: *John Liad*

Freq. [MHz]	L Level [dB (μV)]		N Level [dB (μV)]		Limit [dB (μV)]		Margin [dB (μV)]			
	QP	AV	QP	AV	QP	AV	L		N	
	QP	AV	QP	AV	QP	AV	QP	AV	QP	AV
0.195	42.30	-	45.70	-	63.82	53.82	-21.5	-	-18.1	-
0.322	37.60	-	41.60	-	59.66	49.66	-22.1	-	-18.1	-
0.710	31.60	-	33.30	-	56.00	46.00	-24.4	-	-22.7	-
4.143	40.40	-	39.70	-	56.00	46.00	-15.6	-	-16.3	-
14.050	37.00	-	38.50	-	60.00	50.00	-23.0	-	-21.5	-
18.453	39.40	-	40.60	-	60.00	50.00	-20.6	-	-19.4	-

- 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

ADT CO. Shielded Room 5
FCC CISPR 22 CLASS B

30. Jun 98 11:08

EUT: 7651F
Test Spec: LISN : L

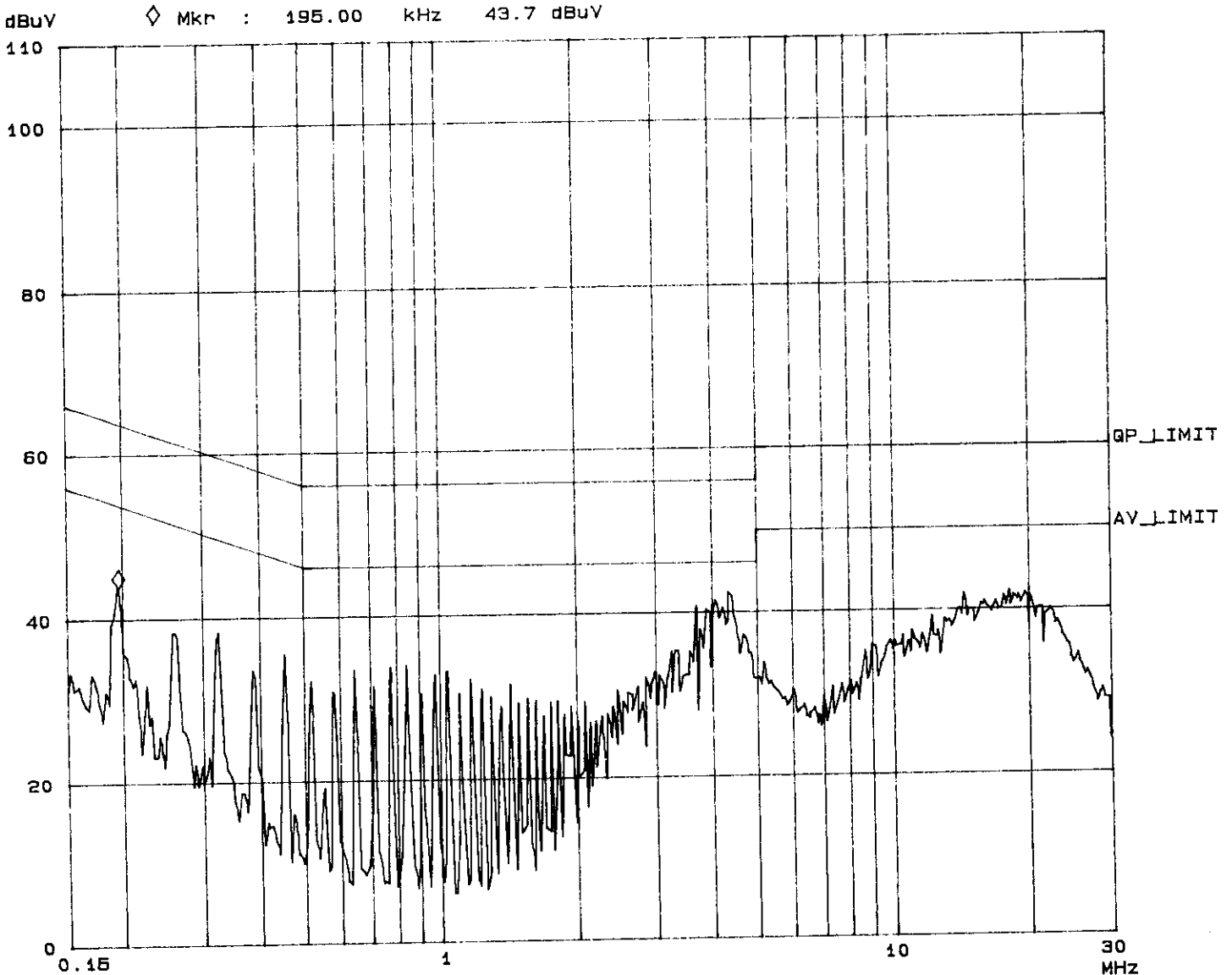
Report No. F87062910

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Tested by John Liod

Fast Scan Settings (3 Ranges)

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



ADT CO. Shielded Room 5
FCC CISPR 22 CLASS B

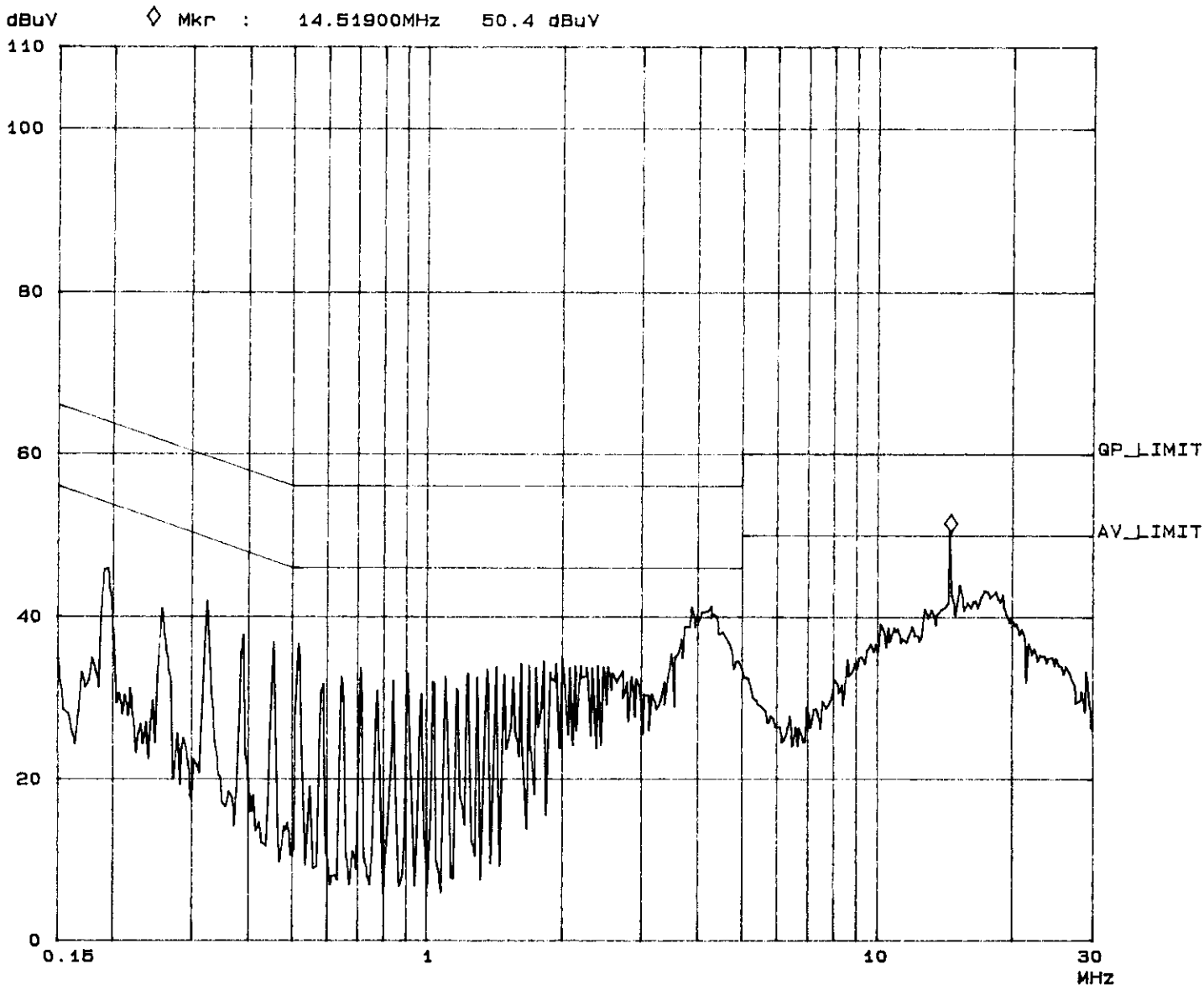
30. Jun 98 11:32

EUT: 7651F
Test Spec: LISN: N

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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





4.2.1 TEST DATA OF RADIATED EMISSION

EUT: LCD MONITOR MODEL: 7651F MODE: 1024x768 (60 kHz)
 ANTENNA: CHASE BILOG CBL 6111A POLARITY: Horizontal
 DETECTOR FUNCTION: Quasi-peak 6 dB BANDWIDTH: 120 kHz
 FREQUENCY RANGE: 30-1000 MHz MEASURED DISTANCE: 10 M

TEST PERSONNEL: *John Liao*

Frequency (MHz)	Correction Factor (dB/m)	Reading Data (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
187.04	12.3	10.3	22.6	30.0	-7.4
198.01	12.6	11.8	24.4	30.0	-5.6
209.00	13.5	9.8	23.3	30.0	-6.7
220.03	14.5	11.0	25.5	30.0	-4.5
222.76	14.8	9.5	24.3	30.0	-5.7
231.01	15.6	16.5	32.1	37.0	-4.9
264.01	16.0	13.7	29.7	37.0	-7.3

- 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



TEST DATA OF RADIATED EMISSION

EUT: LCD MONITOR MODEL: 7651F MODE: 1024x768 (60 kHz)
 ANTENNA: CHASE BILOG CBL 6111A POLARITY: Vertical
 DETECTOR FUNCTION: Quasi-peak 6 dB BANDWIDTH: 120 kHz
 FREQUENCY RANGE: 30-1000 MHz MEASURED DISTANCE: 10 M

TEST PERSONNEL: *John Liao*

Frequency (MHz)	Correction Factor (dB/m)	Reading Data (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
187.00	13.0	12.2	25.2	30.0	-4.8
198.01	13.7	12.4	26.1	30.0	-3.9
209.01	14.3	10.9	25.2	30.0	-4.8
220.00	14.8	12.2	27.0	30.0	-3.0
222.76	15.0	9.4	24.4	30.0	-5.6
231.01	15.4	18.3	33.7	37.0	-3.3
264.01	17.8	15.5	33.3	37.0	-3.7

- 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:

*Size	15" TFT
*Resolution (Max.)	1024x768
*Power supply	
Input voltage	90~264 Vac, 47~63 Hz
Power Consumption	36W max..
*Video Input	RGB input
*User's Control	Power ON/OFF, OSD
*Display Area	270.5mm (H) x 203mm (V)
*Ambient Temp.	Operating: +5°C ~ 140°C Storage: -20°C ~ +60
*Dimensions (WxHxD)	366mm (W) x 338mm (H) x 170mm (D)
*Weight	5.8 kg.