FCC ID: JVP7650FP

EMC

TEST REPORT

REPORT NO. : F87052603
MODEL NO. : 7650FP, ACERVIEW F50P
DATE OF TEST : May 26, 1998

MULTIPLE LISTING FOR: MITSUBISHI
MODEL NO : M6348-1

PREPARED FOR : ACER PERIPHERALS, INC.

ADDRESS : 157, SHAN-YING ROAD, KWEISHAN,
TAOYUAN 333, TAIWAN, R.O.C.

PREPARED BY: ADVANCE DATA TECHNOLOGY CORPORATION

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TAIPEI, TAIWAN, R.O.C.

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1. CERTIFICATION

Issue Date: June 1, 1998

Product	:	LCD MONITOR
Trade Name	:	ACER
Model No.	:	7650FP, ACERVIEW F50P
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 May 26, 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: 6/1/98
(John Liao)

CHECKED BY : Ariel Hsieh , DATE: 6/1/98
(Ariel Hsieh)

APPROVED BY: Mike Su , DATE: 6/1/98
(Mike Su)

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2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Product	:	LCD MONITOR
Model No.	:	7650FP, ACERVIEW F50P
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" TTN LCD monitor with resolution up to 1024x768.

The EUT has three model names which are identical to each other in all aspects except for their model name and brand name:

- Model: 7650FP, brand: ACER
- Model: ACERVIEW F50P, brand: ACER
- Model: M6348-1, brand: MITSUBISHI

From the above models, model: 7650FP was chosen as representative model during the test.

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.

The EUT will be sold together with a VGA card whose LCD maximum resolution is up to 1024x768 (48 kHz) and CRT maximum resolution is up to 1280x1024 (91 kHz). During pretest, the worst emission levels were found when there is simultaneous LCD and CRT display mode under 1024x768 (48 kHz) and therefore only this mode is recorded in this report.

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	NTI	PII-233	DoC Approved	Nonshielded Power (1.8 m)
2	MONITOR	ADI	PD-959	DoC Approved	Shielded signal (1.5 m) Nonshielded Power (1.8 m)
3	KEYBOARD	FORWARD	FDA-104GA	F4ZDA-104G	Shielded signal (1.4 m)
4	PRINTER	HP	2225C+	DSI6XU2225	Shielded Signal (1.5 m) Nonshielded Power (1.9 m)
5	MOUSE	ACER	M-S34	DZL211029	Shielded signal (1.8 m)
6	MODEM	ACEEX	1414	IFAXDM1414	Shielded signal (1. 5 m) Nonshielded Power (1.9 m)

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 UHA 9105	E101051 E101055	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	ESH3	893495/006	July 23, 1998
ROHDE & SCHWARZ Spectrum Monitor	EZM	893787/013	July 24, 1998
ROHDE & SCHWARZ Artificial Mains Network	ESH3-Z5	839135/006	Aug. 1, 1998
EMCO-L.I.S.N.	3825/2	9204-1964	July 22, 1998
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	:	63 %
Atmospheric Pressure	:	993 mbar

TEST RESULT	Remarks
PASS	Minimum passing margin of conducted emission: - 4.9 dB at 3.344 MHz Minimum passing margin of radiated emission: -2.1 dB at 140.03 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: **7650FP**

MODE: **1024x768 (48 kHz)**

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
0.192	43.30	-	45.80	-	63.91	53.91	-20.6	-	-18.1	-
0.385	38.00	-	39.60	-	58.16	48.16	-20.2	-	-18.6	-
2.319	41.00	-	40.70	-	56.00	46.00	-15.0	-	-15.3	-
3.344	43.70	41.10	43.10	41.00	56.00	46.00	-12.3	-4.9	-12.9	-5.0
17.175	46.50	-	46.60	-	60.00	50.00	-13.5	-	-13.4	-
19.323	43.10	-	43.60	-	60.00	50.00	-16.9	-	-16.4	-

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 CORP. OPEN SITE 2
CISPR 22 CLASS B

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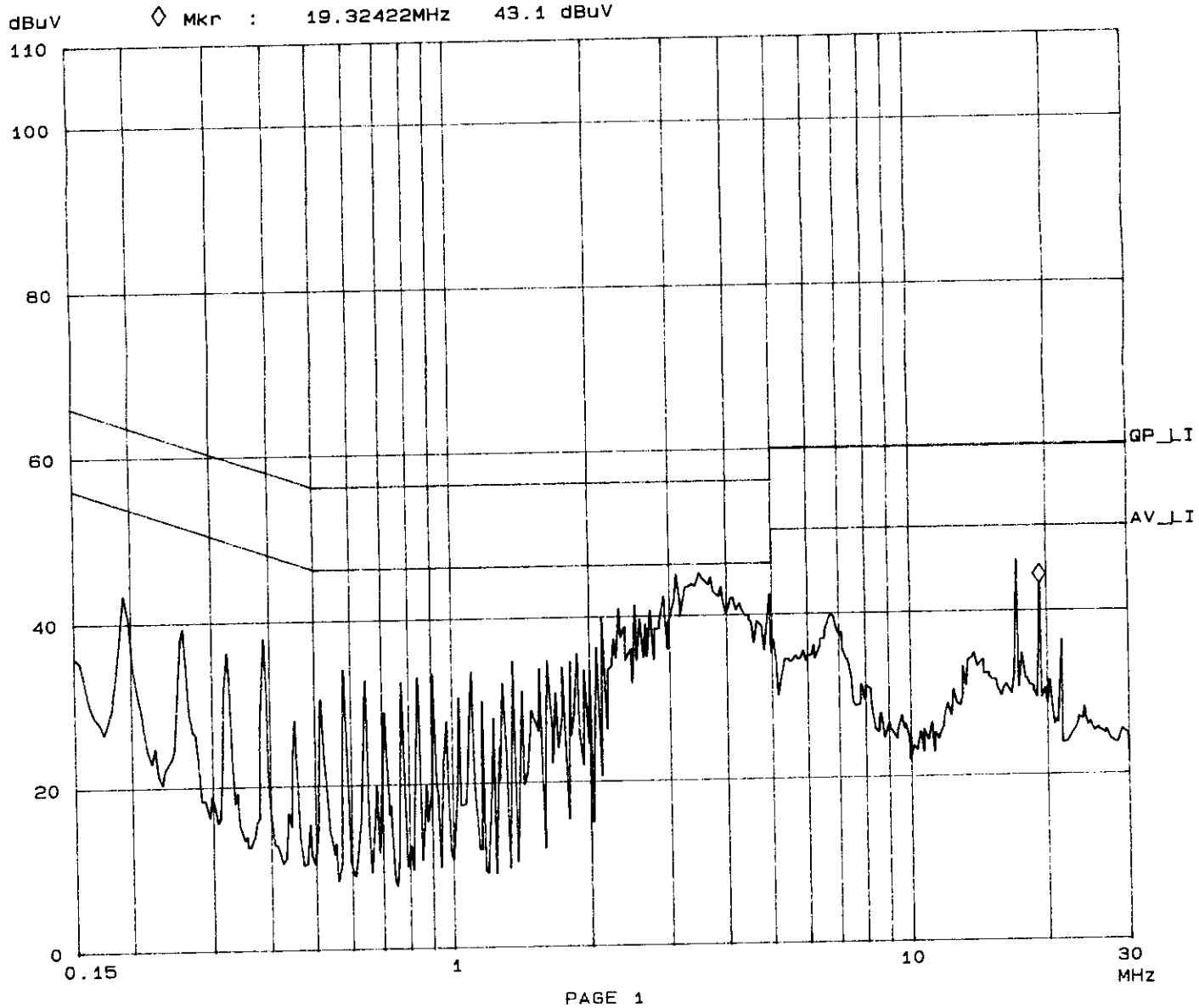
EUT: MODEL: 7650FP
Op Cond: 1024X768 48kHz
Test Spec: LISN : L
Comment: FULL SYSTEM

Overview Scan Settings (3 Ranges)

Frequencies			Receiver Settings				
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp
150k	1M	3.90625k	9k	PK	10ms	10dBLN	OFF
1M	10M	3.90625k	9k	PK	0.10ms	10dBLN	OFF
10M	30M	3.90625k	9k	PK	0.05ms	10dBLN	OFF



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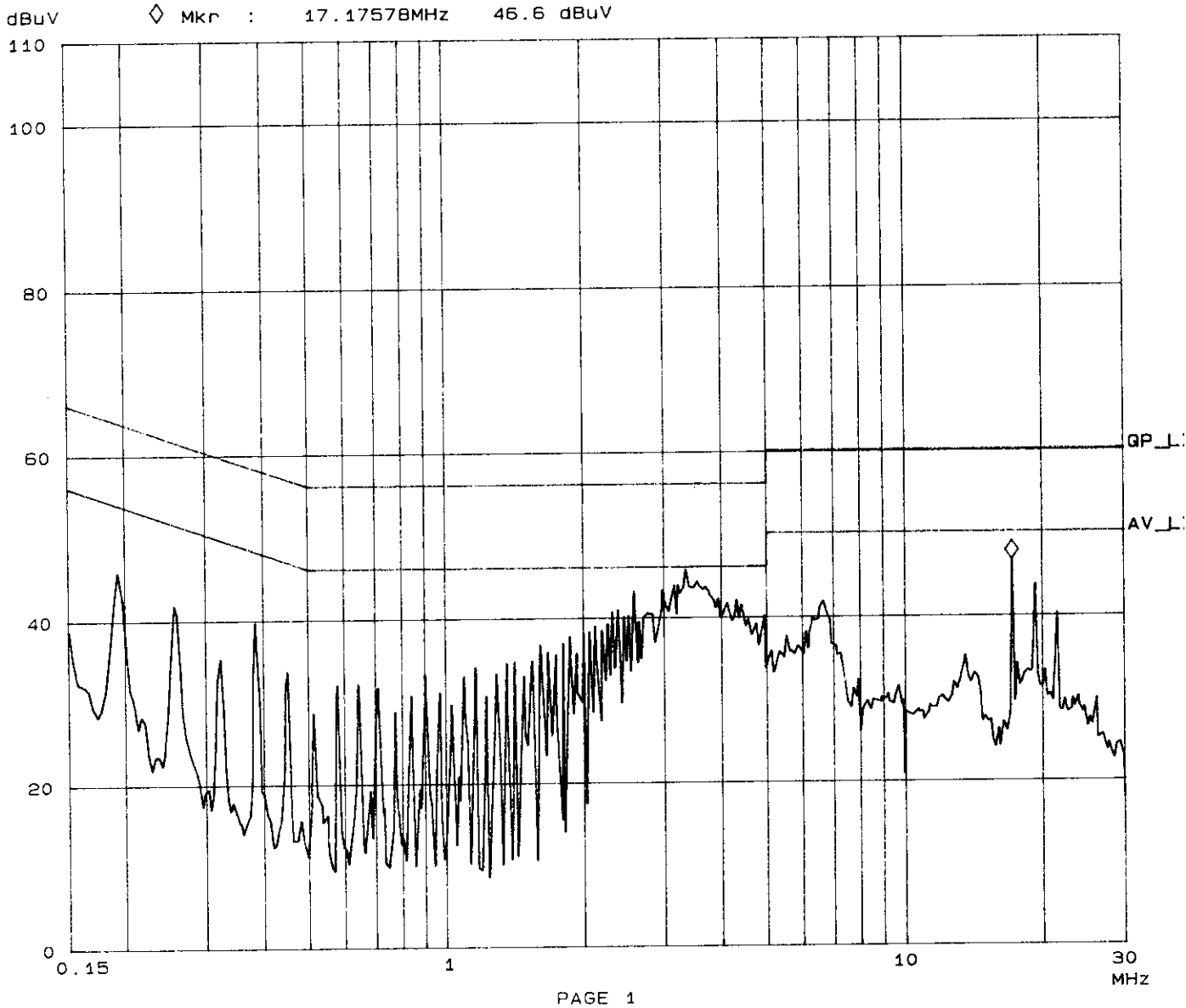
Tested by John Liao

EUT: MODEL: 7650FP
Op Cond: 1024X768 48kHz
Test Spec: LISN : N
Comment: FULL SYSTEM

Overview Scan Settings (3 Ranges)

Frequencies			Receiver Settings				
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp
150k	1M	3.90625k	9k	PK	10ms	10dBLN	OFF
1M	10M	3.90625k	9k	PK	0.10ms	10dBLN	OFF
10M	30M	3.90625k	9k	PK	0.05ms	10dBLN	OFF



4.2.1 TEST DATA OF RADIATED EMISSION

EUT: **LCD MONITOR** MODEL: **7650FP** MODE: **1024x768 (48 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)
136.69	14.7	4.4	19.1	30.0	-10.9
140.03	14.7	8.5	23.2	30.0	-6.8
149.80	13.5	6.6	20.1	30.0	-9.9
151.91	13.3	11.4	24.7	30.0	-5.3
153.13	13.1	11.6	24.7	30.0	-5.3
169.26	12.2	11.7	23.9	30.0	-6.1
172.61	12.2	13.8	26.0	30.0	-4.0
185.71	12.2	15.2	27.4	30.0	-2.6
195.44	12.5	10.6	23.1	30.0	-6.9
205.18	13.1	14.6	27.7	30.0	-2.3
218.26	14.4	11.1	25.5	30.0	-4.5

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: **LCD MONITOR** MODEL: **7650FP** MODE: **1024x768 (48 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)
76.59	7.9	17.6	25.5	30.0	-4.5
136.69	16.9	7.9	24.8	30.0	-5.2
140.03	17.2	10.7	27.9	30.0	-2.1
151.93	15.0	11.4	26.4	30.0	-3.6
153.13	14.7	10.0	24.7	30.0	-5.3
162.87	13.3	7.5	20.8	30.0	-9.2
169.26	13.1	12.4	25.5	30.0	-4.5
172.61	12.9	13.7	26.6	30.0	-3.4
184.51	12.9	11.8	24.7	30.0	-5.3
195.44	13.5	9.6	23.1	30.0	-6.9
208.47	14.2	9.4	23.6	30.0	-6.4

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"
*Resolution (Max.)	1024x768
*Pixel Pitch	0.297 mm
*Color	16.7 M
*Viewing Angle	60/60, 70/70
*Contrast	300:1
*Brightness	200 cd/m2
*Response Time	45 ms
*Input Signal	Panel Link P& D
*Supply Power	90~264 V
*Power Consumption	20 W (Typ.)
*Power Management	VESA DPMS Compatible
	Compliant with EPA& NUTEK 803299 Regulation
*Dimension (W x H x D)	386 x 360 x 170
*Active Size	304 x 228 mm
* Operating temp.	+5 ℃ ~ +40 ℃
Storage temp.	-20 ℃~+60 ℃
*Weight	5.8 kg